

FCC Test Report

Equipment : Dual-band Wi-Fi
Brand Name : 
Model No. : 50-0010-CL-WF
FCC ID : S4A50-0010-CL-WF
Standard : 47 CFR FCC Part 15.247
Operating Band : 5725 MHz – 5850 MHz
FCC Classification : DTS
Applicant : Entone Technologies (HK) Limited
Level 28, Saxon Tower, 7 Cheung Shun Street,
Lai Chi Kok, HongKong
Manufacturer : XAVi Technologies Corporation
9F, No.129, Hsing Te Rd., Sanchung Dist.,
New Taipei City 241, Taiwan, R.O.C.

The product sample received on Jul. 26, 2013 and completely tested on Sep. 04, 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
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.1934380MHz 46.50 (Margin 7.39dB) - AV 50.96 (Margin 12.93dB) - QP	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth [MHz] 20M: 16.41 / 40M:35.36	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]:19.69	Power [dBm]:30	Complied
3.4	15.247(d)	Power Spectral Density	PSD [dBm/100KHz]:-15.70	PSD [dBm/3kHz]:8	Complied
3.5	15.247(c)	Transmitter Radiated Bandedge Emissions	Non-Restricted Bands: 5699.500MHz: 27.79dB	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied
3.6	15.247(c)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 1m]:11650.000MHz 69.32 (Margin 14.22dB) – PK 62.37 (Margin 1.17dB) – AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied

Revision History

[illegible]

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information						
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	RF Output Power (dBm)	Co-location
5725-5850	a	5745-5825	149-165 [5]	1	14.98	N/A
5725-5850	n (HT20)	5745-5825	149-165 [5]	2	17.31	N/A
5725-5850	n (HT40)	5755-5795	151-159 [2]	2	16.57	N/A
5725-5850	n (HT20)	5745-5825	149-165 [5]	3	19.69	N/A
5725-5850	n (HT40)	5755-5795	151-159 [2]	3	19.12	N/A

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

1.1.2 Antenna Information

Antenna Category	
☒	External antenna (dedicated antennas)
☒	RF connector provided
☒	Unique antenna connector. (e.g., MMCX, U.FL, IPX, and RP-SMA, RP-N type...)
☐	Standard antenna connector. (e.g., SMA, N, BNC, and TNC type...)

Antenna General Information			
No.	Ant. Cat.	Ant. Type	Gain (dBi)
1	External	PIFA	4.2
			4.9
			3.6

Reminder:

- For the 1Tx Mode, the EUT was pre-tested Antenna Port 1, Antenna Port 2 and Antenna Port 3 for single chain, the worst case was Antenna Port 3. Therefore only the test data recorded in this report.
- For the 2Tx Mode, the EUT will be used the Antenna Port 1 and Antenna Port 2, only these two ports can be transmitted at the same time.

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 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
☐ Operated normally mode for worst duty cycle	
☒ Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
☒ 100.00% - IEEE 802.11a	0
☒ 100.00% - IEEE 802.11n (HT20)	0
☒ 100.00% - IEEE 802.11n (HT40)	0

1.1.5 EUT Operational Condition

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

1.2 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	PP25L	DoC
2	MIC+Earphone	Apple	MB770FE/A	N/A
3	USB Mouse	Microsoft	1004	DoC
4	USB Port Test Fixture	--	--	--
5	AP (Remote)	ASUS	RT-AC66U	MSQ-RTAC66U

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			
☒	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL : 886-3-327-3456 FAX : 886-3-327-0973	
Test Condition	Test Site No.	Test Engineer	Test Environment
AC Conduction	CO04-HY	Zeus	24.3°C / 56%
RF Conducted	TH06-HY	Shiming	21.8°C / 62%
Radiated Emission	03CH03-HY	Eddie	23.5°C / 55.2%

1.5 Measurement Uncertainty

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

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

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing			
Modulation Mode	Transmit Chains (N _{TX})	Data Rate / MCS	Worst Data Rate / MCS
11a,6-54Mbps	1	6-54 Mbps	6 Mbps
HT20,M8-15	2	M8-15	MCS 8
HT40,M8-15	2	M8-15	MCS 8
HT20,M16-23	3	M16-23	MCS 16
HT40, M16-23	3	M16-23	MCS 16

2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (5725-5850MHz band)							
Test Software Version	RT3573 QA_V1.0.1.9						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz			NCB: 40MHz		
		5745	5785	5825	5755	5795	-
11a,6-54Mbps	1	0E	10	12	-	-	-
HT20, M8-15	2	1A/15	19/14	1B/16	-	-	-
HT40, M8-15	2	-	-	-	1B/17/12	15/15/14	-
HT20, M16-23	3	13/17/17	18/15	1A/16	-	-	-
HT40, M16-23	3	-	-	-	1A/18/13	16/15/15	-

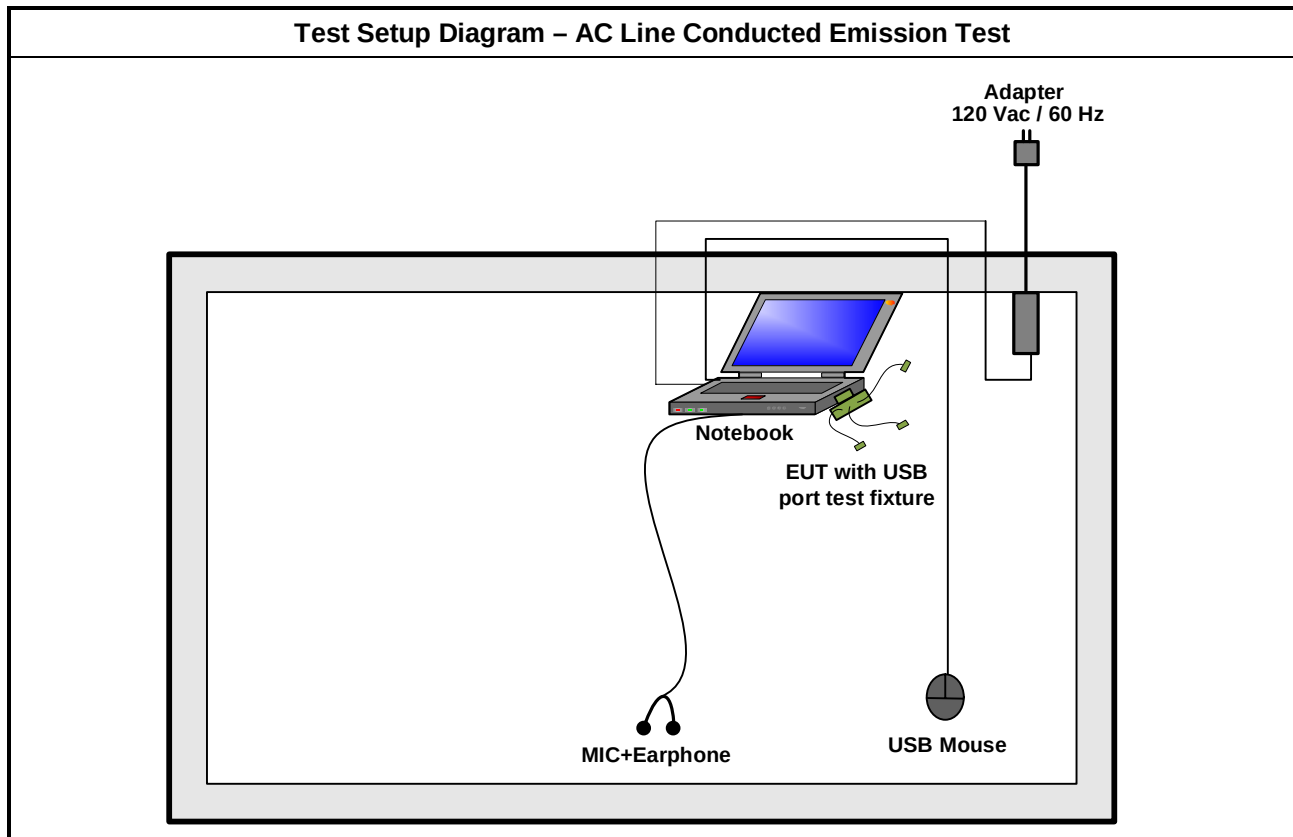
2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	EUT with Notebook via USB port test fixture (Open WLAN function)

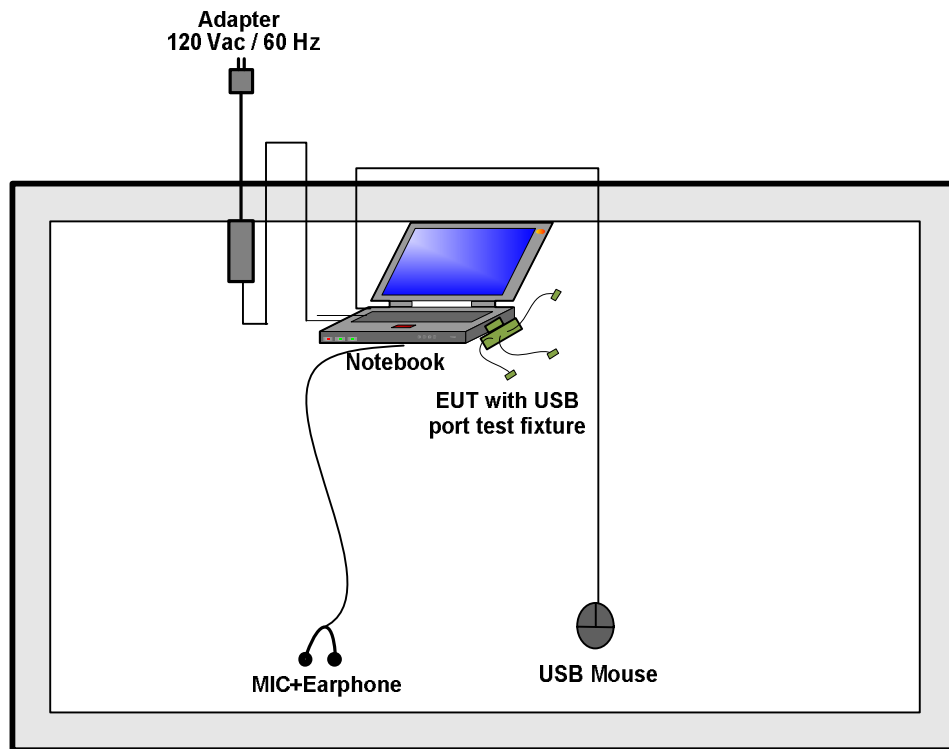
The Worst Case Mode for Following Conformance Tests	
Tests Item	RF Output Power, Power Spectral Density, 6 dB Bandwidth
Test Condition	Conducted measurement at transmit chains
Modulation Mode	11a, HT20, HT40

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. The worst planes is Z.		
	☐ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed two orthogonal planes.		
	☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes.		
Operating Mode	☒ 1. EUT with Notebook via USB port test fixture (Open WLAN function)		
Modulation Mode	11a, HT20, HT40		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

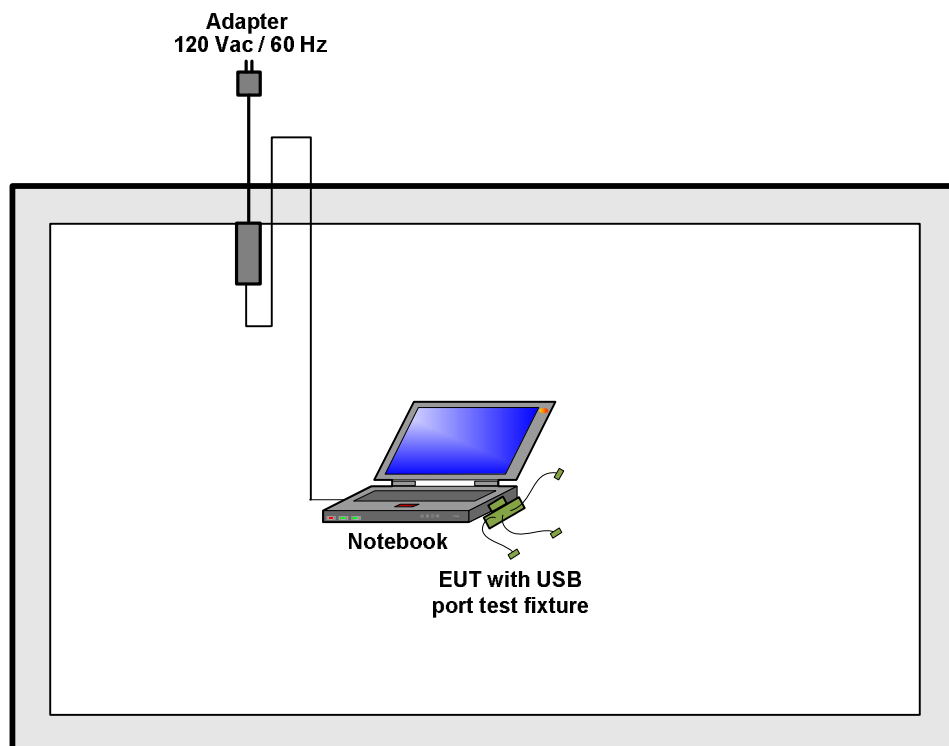
2.4 Test Setup Diagram



Test Setup Diagram - Radiated Test (Below 1GHz)



Test Setup Diagram - Radiated Test (Above 1GHz)



3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

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

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

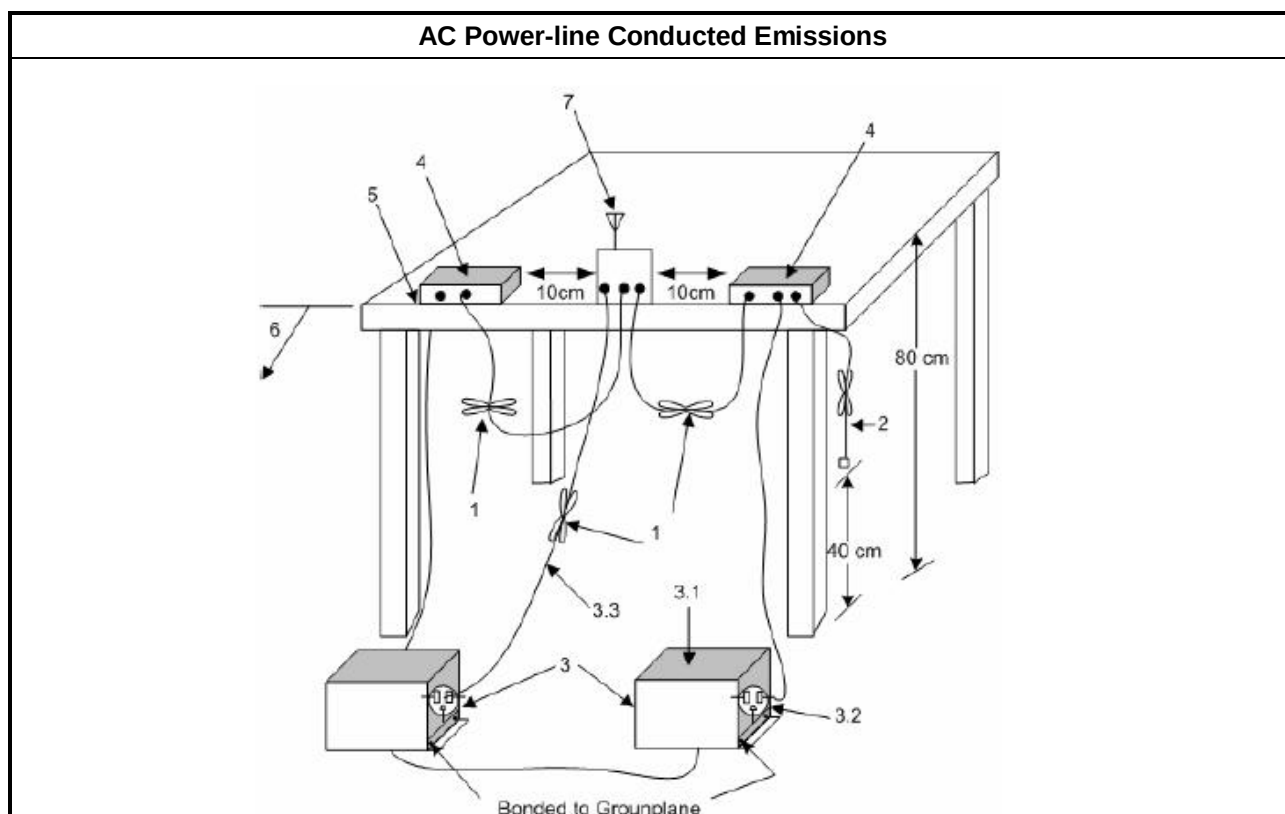
3.1.2 Measuring Instruments

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

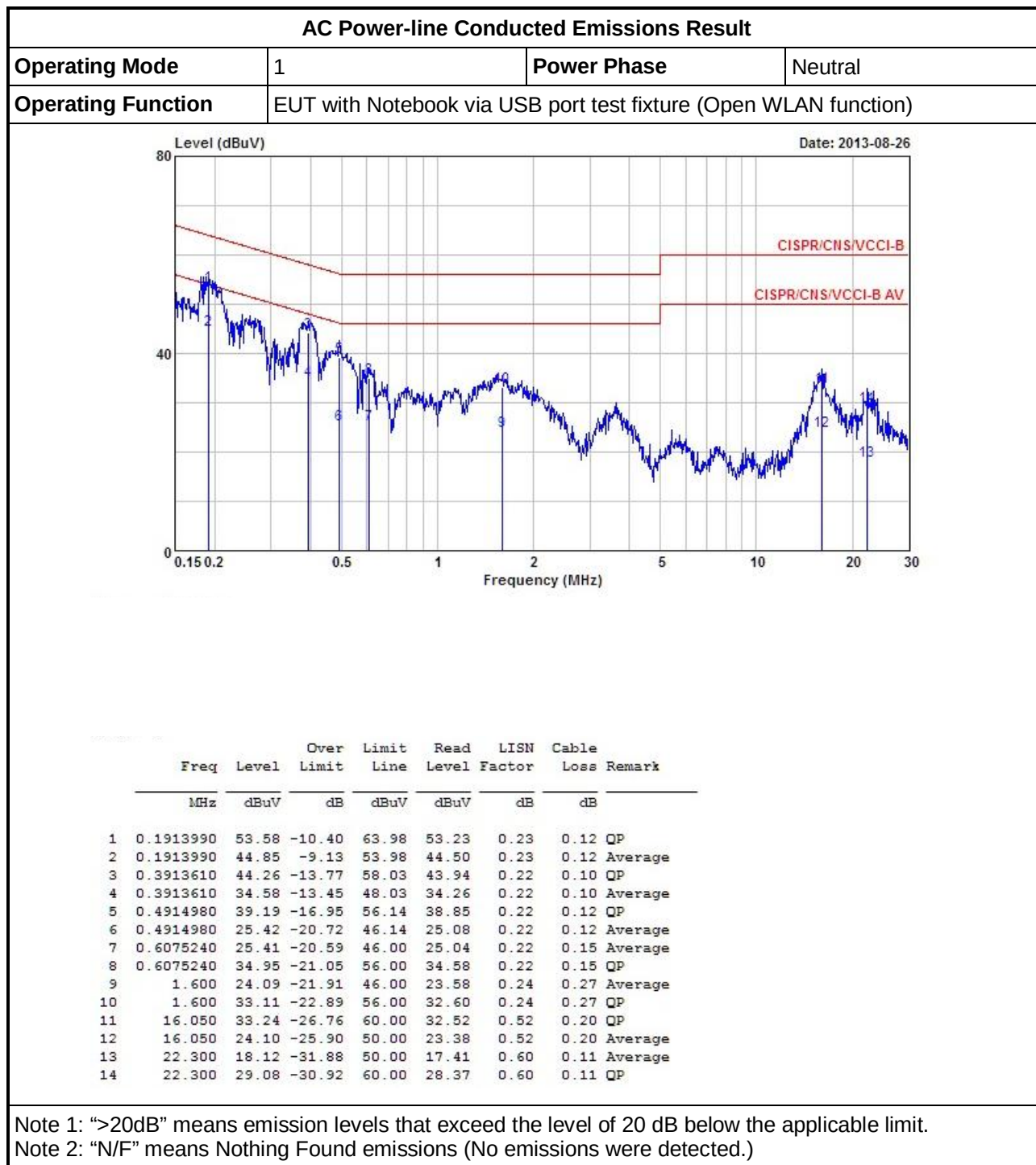
3.1.3 Test Procedures

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

3.1.4 Test Setup

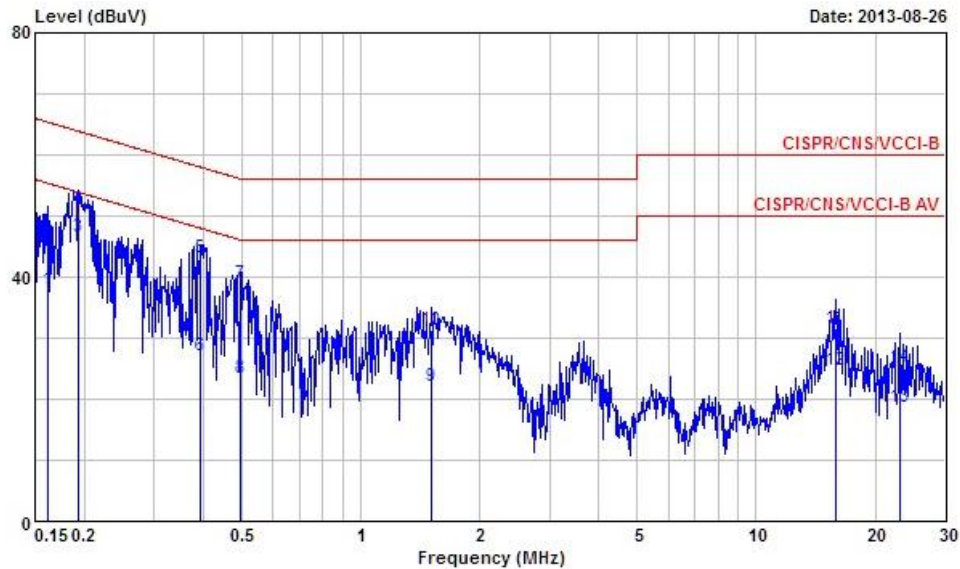


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
Operating Function	EUT with Notebook via USB port test fixture (Open WLAN function)		



	Freq	Level	Over	Limit	Read	LISN	Cable	
	MHz	dBuV	Limit	Line	Level	Factor	Loss	Remark
			dB	dBuV	dBuV	dB	dB	
1	0.1615500	38.02	-17.36	55.38	37.69	0.11	0.22	Average
2	0.1615500	45.57	-19.81	65.38	45.24	0.11	0.22	QP
3	0.1934380	46.50	-7.39	53.89	46.27	0.11	0.12	Average
4	0.1934380	50.96	-12.93	63.89	50.73	0.11	0.12	QP
5	0.3934400	43.24	-14.75	57.99	43.04	0.10	0.10	QP
6	0.3934400	26.98	-21.01	47.99	26.78	0.10	0.10	Average
7	0.4941090	38.86	-17.24	56.10	38.64	0.10	0.12	QP
8	0.4941090	23.52	-22.58	46.10	23.30	0.10	0.12	Average
9	1.510	22.14	-23.86	46.00	21.76	0.12	0.26	Average
10	1.510	31.24	-24.76	56.00	30.86	0.12	0.26	QP
11	15.890	31.61	-28.39	60.00	31.12	0.29	0.20	QP
12	15.890	24.71	-25.29	50.00	24.22	0.29	0.20	Average
13	23.020	18.60	-31.40	50.00	18.19	0.33	0.08	Average
14	23.020	25.14	-34.86	60.00	24.73	0.33	0.08	QP

Note 1: ">20dB" means emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found emissions (No emissions were detected.)

3.2 6dB Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit	
Systems using digital modulation techniques:	
☒	6 dB bandwidth $\geq$ 500 kHz.

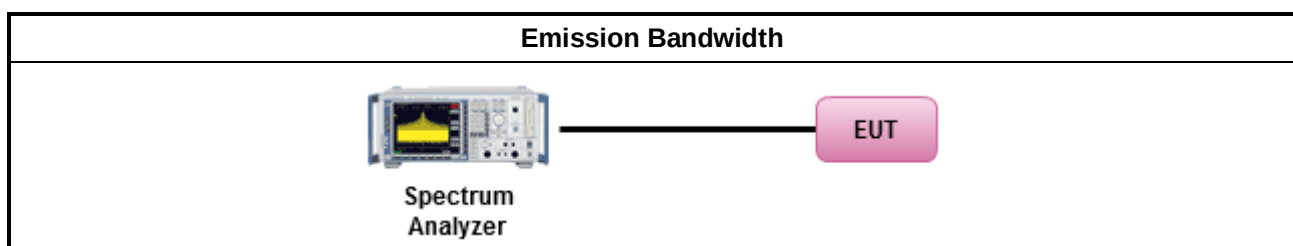
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

Test Method	
☒	For the emission bandwidth shall be measured using one of the options below:
☒	Refer as FCC KDB 558074, clause 8.1 Option 1 for 6 dB bandwidth measurement.
☐	Refer as FCC KDB 558074, clause 8.2 Option 2 for 6 dB bandwidth measurement.
☐	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.
☒	For conducted measurement.
☒	The EUT supports single transmit chain and measurements performed on this transmit chain.
☒	The EUT supports diversity transmitting and the results on transmit chain port 3 is the worst case.
☒	The EUT supports multiple transmit chains using options given below:
☐	Option 1: Multiple transmit chains measurements need to be performed on one of the active transmit chains (antenna outputs). All measurement had be performed on transmit chains 3.
☒	Option 2: Multiple transmit chains measurements need to be performed on each transmit chains individually (antenna outputs). All measurement had be performed on all transmit chains.

3.2.4 Test Setup

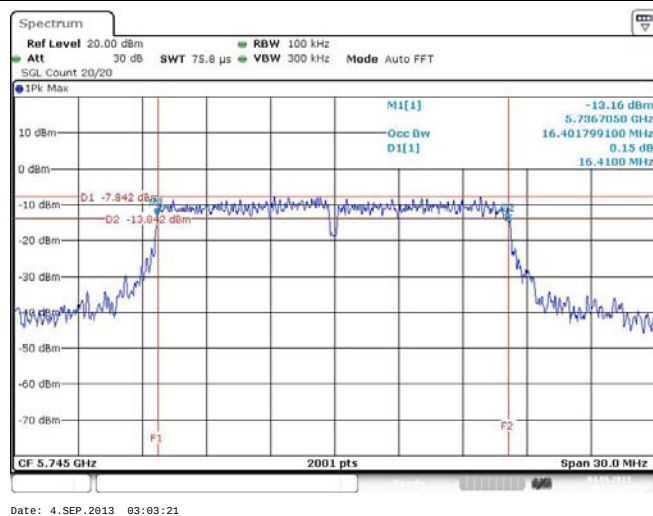


3.2.5 Test Result of Emission Bandwidth

Emission Bandwidth Result								
Condition			Emission Bandwidth (MHz)					
Modulation Mode	N _{TX}	Freq. (MHz)	99% Bandwidth			6dB Bandwidth		
			Chain- Port 1	Chain- Port 2	Chain- Port 3	Chain- Port 1	Chain- Port 2	Chain- Port 3
11a	1	5745	-	-	16.40	-	-	16.41
11a	1	5785	-	-	16.37	-	-	16.41
11a	1	5825	-	-	16.40	-	-	16.47
HT20	2	5745	17.54	17.54	-	17.59	17.55	-
HT20	2	5785	17.49	17.49	-	17.55	17.19	-
HT20	2	5825	17.52	17.51	-	17.58	17.29	-
HT40	2	5755	35.82	35.78	-	35.68	35.48	-
HT40	2	5795	35.78	35.86	-	36.04	35.36	-
HT20	3	5745	17.54	17.51	17.51	17.61	17.34	17.56
HT20	3	5785	17.52	17.49	17.51	17.56	17.40	17.59
HT20	3	5825	17.52	17.54	17.54	17.62	17.62	17.59
HT40	3	5755	35.90	35.78	35.86	36.16	35.96	35.68
HT40	3	5795	35.86	35.90	35.86	35.48	36.16	36.04
Limit			N/A			≥500 kHz		
Result			Complied					
Note 1: N _{TX} = Number of Transmit Chains								



Worst Emission Bandwidth Plots



3.3 RF Output Power

3.3.1 RF Output Power Limit

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

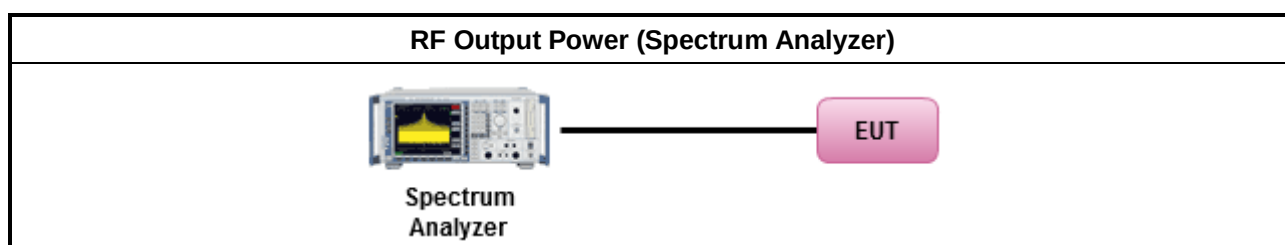
3.3.2 Measuring Instruments

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

3.3.3 Test Procedures

Test Method	
☒	Maximum Peak Conducted Output Power
☐	Refer as FCC KDB 558074, clause 9.1.1 Option 1 (RBW ≥ EBW method).
☒	Refer as FCC KDB 558074, clause 9.1.2 Option 2 (integrated band power method).
☐	Refer as FCC KDB 558074, clause 9.1.3 Option 2 (peak power meter for VBW ≥ DTS BW)
☒	Maximum Conducted Output Power
	[duty cycle ≥ 98% or external video / power trigger]
☒	Refer as FCC KDB 558074, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
	duty cycle < 98% and average over on/off periods with duty factor
☐	Refer as FCC KDB 558074, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 9.2.2.5 Method AVGSA-2 Alt. (slow sweep speed)
	RF power meter and average over on/off periods with duty factor or gated trigger
☐	Refer as FCC KDB 558074, clause 9.2.3 Method AVGPM (using an RF average power meter).
☒	For conducted measurement.
☒	The EUT supports single transmit chain and measurements performed on this transmit chain.
☒	The EUT supports diversity transmitting and the results on transmit chain port 3 is the worst case.
☒	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.
☒	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup



3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	3	-
Maximum G_{ANT} (dBi)		4.20	4.90	3.60	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS} (Min.)	STBC	Array Gain (dB)
11a,6-54Mbps	4.20	1	1	-	-
HT20,M8-15 (See Note 2)	4.56	2	2	-	-
HT40,M8-15 (See Note 2)	4.56	2	2	-	-
HT20,M16-23 (See Note 2)	4.27	3	3	-	-
HT40,M16-23 (See Note 2)	4.27	3	3	-	-
Note 1: For all transmitter outputs with equal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = $G_{ANT} + 10 \log(N_{TX})$ All transmit signals are completely uncorrelated, Directional Gain = G_{ANT} Note 2: For all transmitter outputs with unequal antenna gains, directional gain is to be computed as follows: Any transmit signals are correlated, Directional Gain = $10 \log[(10^{G_{1/20}} + \dots + 10^{G_{N/20}})^2 / N_{TX}]$ All transmit signals are completely uncorrelated, Directional Gain = $10 \log[(10^{G_{1/10}} + \dots + 10^{G_{N/10}}) / N_{TX}]$ Note 3: For Spatial Multiplexing, Directional Gain (DG) = $G_{ANT} + 10 \log(N_{TX}/N_{SS})$, where N_{SS} = the number of independent spatial streams data. Note 4: For CDD transmissions, directional gain is calculated as power measurements: Directional Gain (DG) = $G_{ANT} + \text{Array Gain}$, where Array Gain is as follows: Array Gain = 0 dB (i.e., no array gain) for $N_{TX} \leq 4$; Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{TX};					

3.3.6 Test Result of Maximum Peak Conducted Output Power

Maximum Peak Conducted Output Power Result							
Condition			RF Output Power (dBm)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 3	Power Limit	Ant. Gain (dBi)	EIRP Power	EIRP Limit
11a	1	5745	14.38	30	4.20	18.58	36
11a	1	5785	14.61	30	4.20	18.81	36
11a	1	5825	14.98	30	4.20	19.18	36
Result			Complied				

Maximum Peak Conducted Output Power Result										
Condition			RF Output Power (dBm)							
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
HT20	2	5745	14.47	14.12	-	17.31	30	4.56	21.87	36
HT20	2	5785	13.36	13.18	-	16.28	30	4.56	20.85	36
HT20	2	5825	12.80	12.29	-	15.56	30	4.56	20.13	36
HT40	2	5755	13.16	13.93	-	16.57	30	4.56	21.14	36
HT40	2	5795	12.85	12.61	-	15.74	30	4.56	20.31	36
HT20	3	5745	14.70	14.80	15.24	19.69	30	4.27	23.96	36
HT20	3	5785	11.09	13.65	15.87	18.73	30	4.27	23.00	36
HT20	3	5825	8.84	12.73	15.15	17.72	30	4.27	21.98	36
HT40	3	5755	13.23	14.77	14.85	19.12	30	4.27	23.38	36
HT40	3	5795	10.31	12.12	15.05	17.71	30	4.27	21.98	36
Result			Complied							

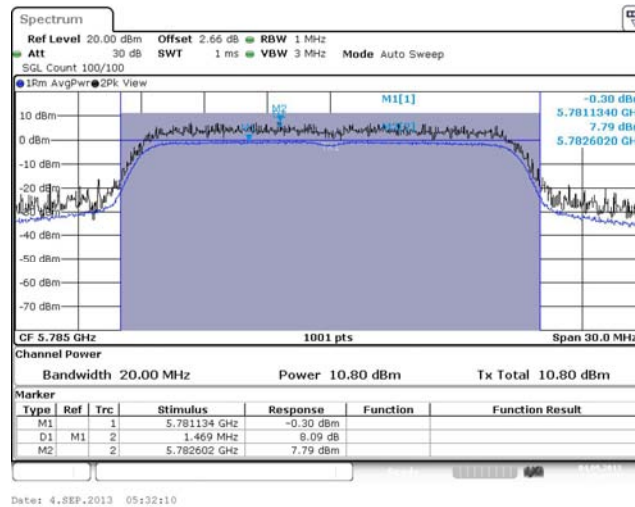
3.3.7 Test Result of Maximum Conducted Output Power

Maximum Conducted Output Power							
Condition			RF Output Power (dBm)				
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 3	Power Limit	Ant. Gain (dBi)	EIRP Power	EIRP Limit
11a	1	5745	9.59	30	4.20	13.79	36
11a	1	5785	9.82	30	4.20	14.02	36
11a	1	5825	10.16	30	4.20	14.36	36
Result			Complied				

Maximum Conducted Output Power										
Condition			RF Output Power (dBm)							
Modulation Mode	N _{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
HT20	2	5745	9.63	9.15	-	12.41	30	4.56	16.97	36
HT20	2	5785	8.47	8.13	-	11.31	30	4.56	15.88	36
HT20	2	5825	7.96	7.26	-	10.63	30	4.56	15.20	36
HT40	2	5755	8.34	8.79	-	11.58	30	4.56	16.15	36
HT40	2	5795	7.98	7.66	-	10.83	30	4.56	15.40	36
HT20	3	5745	9.88	9.71	10.29	14.74	30	4.27	19.00	36
HT20	3	5785	6.24	8.53	10.80	13.68	30	4.27	17.95	36
HT20	3	5825	3.90	7.70	10.29	12.80	30	4.27	17.06	36
HT40	3	5755	8.44	9.69	9.80	14.12	30	4.27	18.39	36
HT40	3	5795	5.38	7.25	10.03	12.75	30	4.27	17.01	36
Result			Complied							



5725-5825MHz - Worst RF Output Power Plots



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit	
☒	Power Spectral Density (PSD) $\leq$ 8 dBm/3kHz

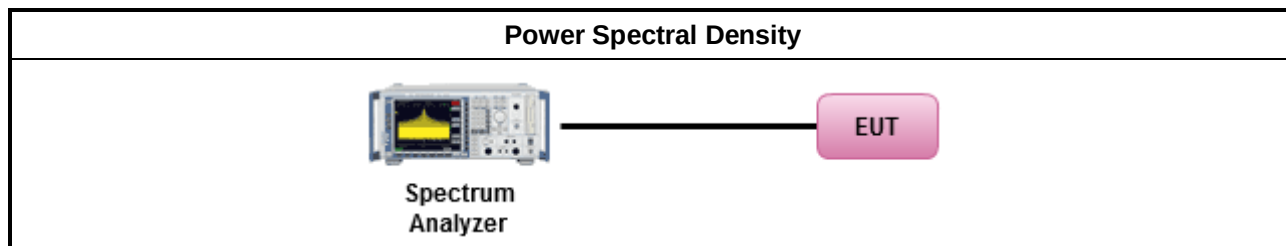
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
☒	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒	Refer as FCC KDB 558074, clause 10.2 Method PKPSD (RBW=3-100kHz;detector=peak).. [duty cycle $\geq$ 98% or external video / power trigger]
☒	Refer as FCC KDB 558074, clause 10.3 Method AVGPS-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 10.4 Method AVGPS-1 Alt. (slow sweep speed) duty cycle < 98% and average over on/off periods with duty factor
☐	Refer as FCC KDB 558074, clause 10.5 Method AVGPS-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074, clause 10.6 Method AVGPS-2 Alt. (slow sweep speed)
☒	For conducted measurement.
☒	The EUT supports single transmit chain and measurements performed on this transmit chain.
☒	The EUT supports diversity transmitting and the results on transmit chain port 3 is the worst case.
☒	The EUT supports multiple transmit chains using options given below:
☒	Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the N_{TX} output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.
☐	Option 2: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.

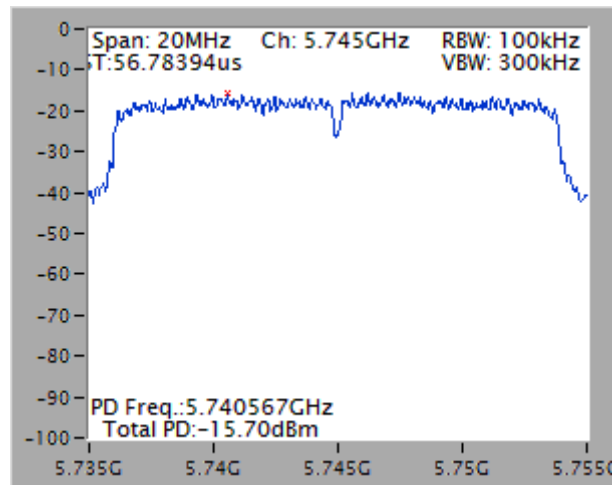
3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

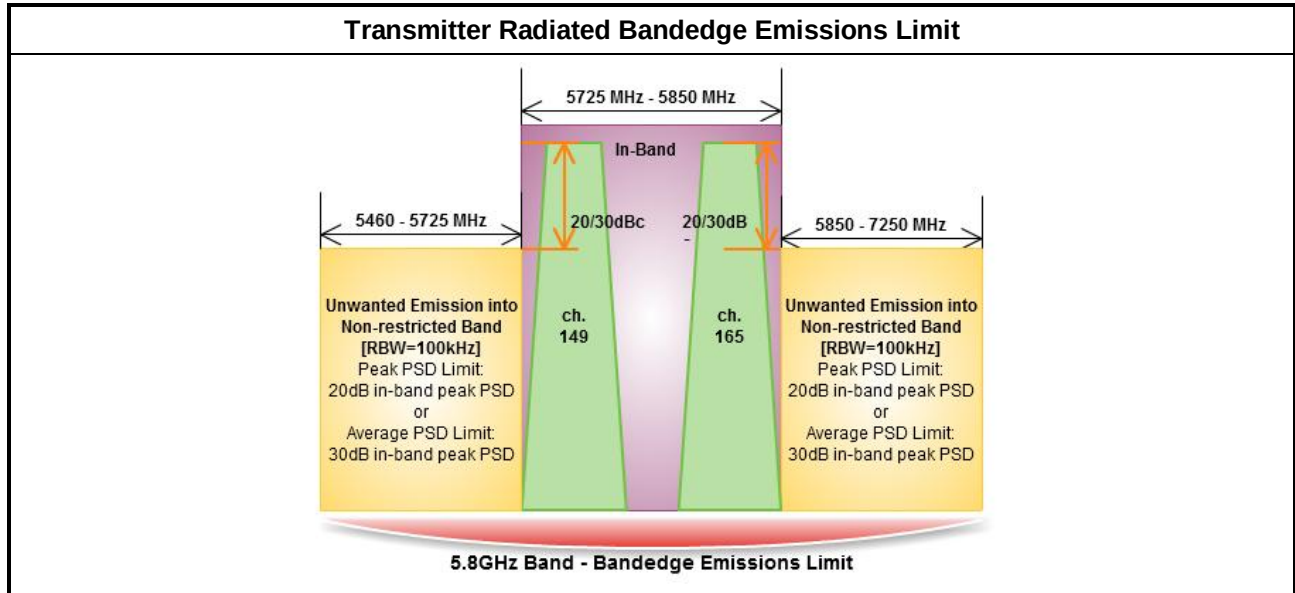
Power Spectral Density Result				
Condition			Power Spectral Density	
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain (dBm/100kHz)	PSD Limit (dBm/3kHz)
11a	1	5745	-20.28	8
11a	1	5785	-19.55	8
11a	1	5825	-19.46	8
HT20	2	5745	-17.33	8
HT20	2	5785	-18.51	8
HT20	2	5825	-19.56	8
HT40	2	5755	-15.70	8
HT40	2	5795	-16.58	8
HT20	3	5745	-17.33	8
HT20	3	5785	-20.93	8
HT20	3	5825	-21.20	8
HT40	3	5755	-18.36	8
HT40	3	5795	-19.39	8
Result			Complied	
Note 1: PSD = sum each transmit chains by bin-to-bin PSD				

Worst Power Spectral Density Plots



3.5 Transmitter Bandedge Emissions

3.5.1 Transmitter Radiated Bandedge Emissions Limit



3.5.2 Measuring Instruments

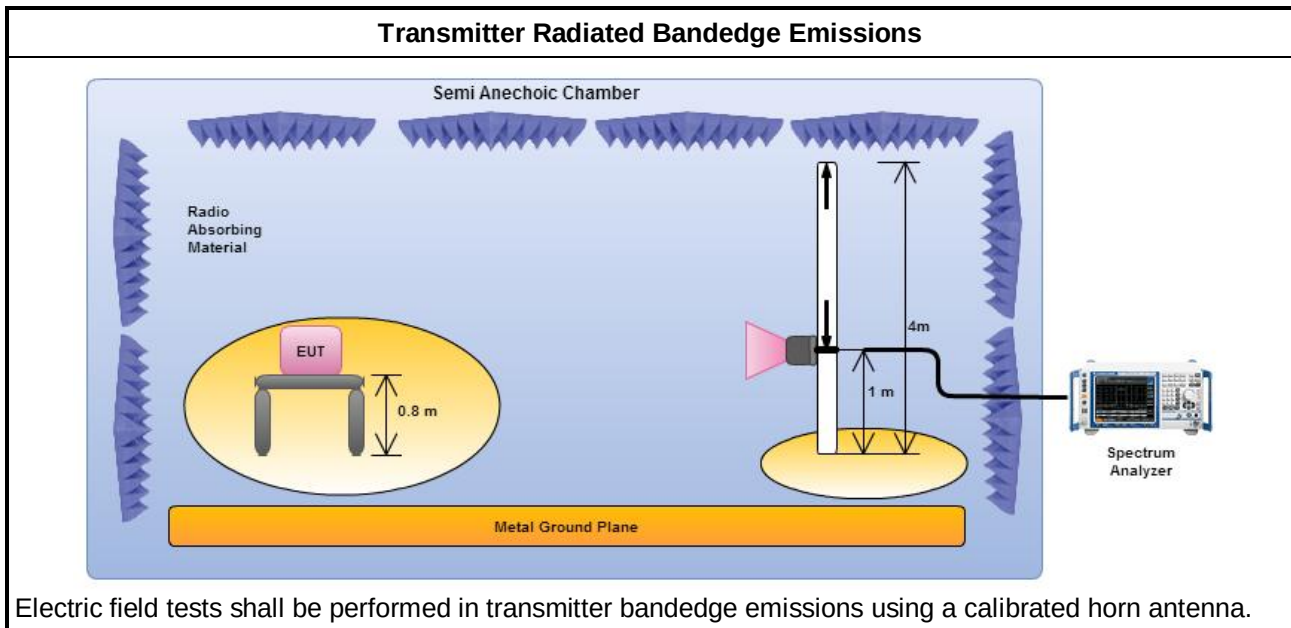
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method	
☒	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.
☐	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.
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements). Measurements in the bandedge are typically made at a closer distance 1.0m, because the instrumentation noise floor is typically close to the radiated emission limit.

Test Method	
☐	For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.
☐	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
☐	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
☐	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

3.5.4 Test Setup



3.5.5 Transmitter Radiated Bandedge Emissions

5725-5850MHz Transmitter Radiated Bandedge Emissions								
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.
11a	1	5745	109.06	5709.780	73.57	35.49	20	V
11a	1	5825	109.23	5852.210	65.09	44.14	20	V
HT20,M8-15	2	5745	103.27	5689.340	70.60	32.67	20	V
HT20,M8-15	2	5825	103.20	5855.870	63.00	40.20	20	V
HT40, M8-15	2	5755	102.45	5699.500	74.66	27.79	20	V
HT40, M8-15	2	5795	99.73	5855.800	61.72	38.01	20	V
HT20,M16-23	3	5745	111.42	5713.980	75.64	35.78	20	V
HT20, M16-23	3	5825	109.55	5853.610	65.69	43.86	20	V
HT40, M16-23	3	5755	111.58	5745.800	82.97	28.61	20	V
HT40, M16-23	3	5795	110.77	5855.500	66.56	44.21	20	V
Note 1: Measurement worst emissions of receive antenna polarization								

3.6 Transmitter Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

Restricted Band Emissions Limit			
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300
0.490~1.705	24000/F(kHz)	33.8 - 23	30
1.705~30.0	30	29	30
30~88	100	40	3
88~216	150	43.5	3
216~960	200	46	3
Above 960	500	54	3

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

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

Un-restricted Band Emissions Limit	
RF output power procedure	Limit (dB)
Peak output power procedure	20
Average output power procedure	30

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

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

3.6.2 Measuring Instruments

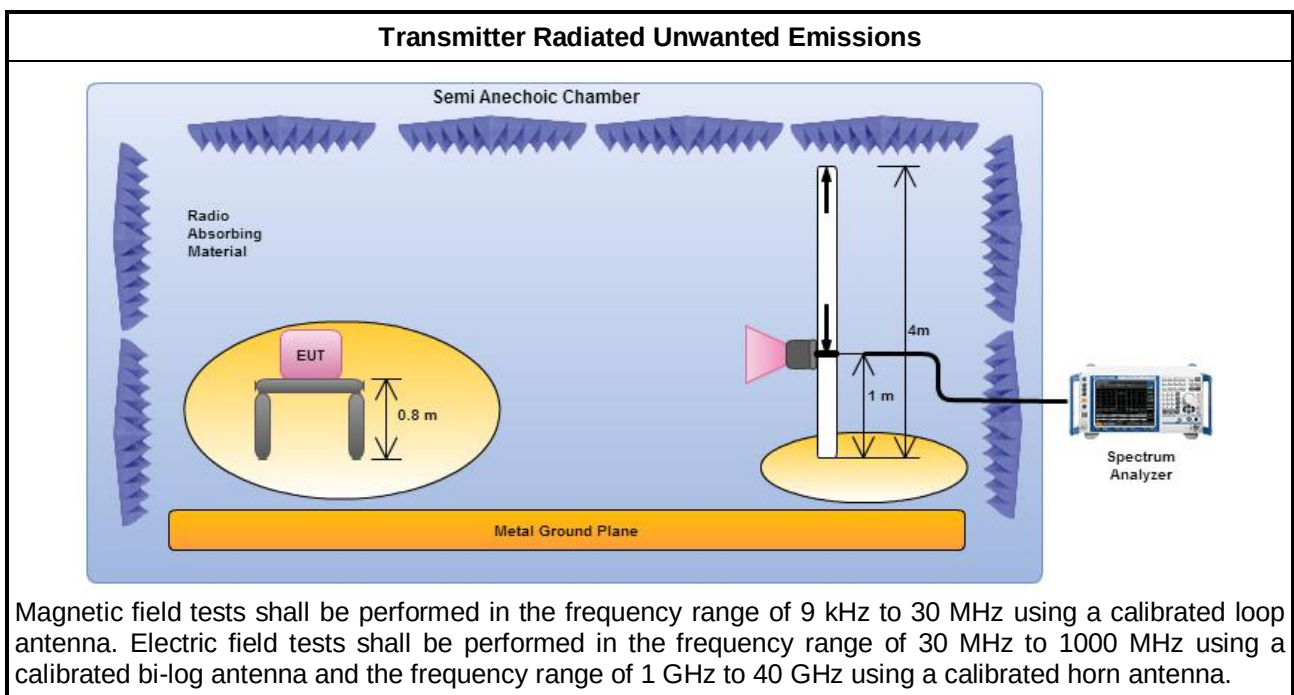
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

Test Method	
☒	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 from below 30 MHz.
☒	Refer as ANSI C63.10, clause 6.5 for radiated emissions from 30 MHz to 1000 MHz.
☒	Refer as ANSI C63.10, clause 6.6 for radiated emissions from above 1 GHz.

Test Method	
☐	For conducted and cabinet radiation measurement, refer as FCC KDB 558074, clause 12.2.2.
☐	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
☐	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
☐	For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

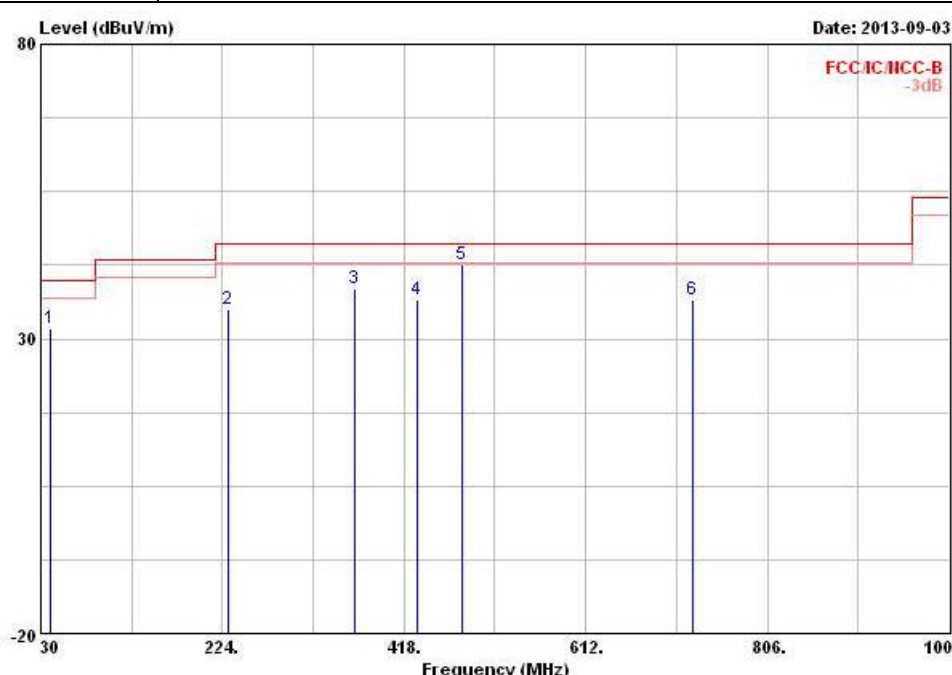
3.6.4 Test Setup



3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

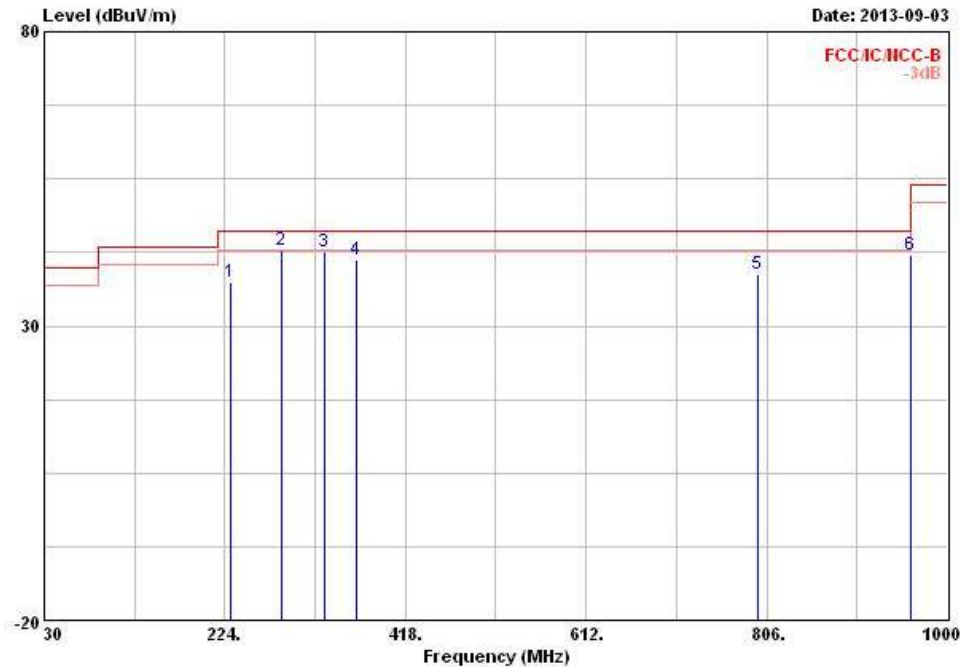
All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

3.6.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)

Transmitter Radiated Unwanted Emissions (Below 1GHz)																																																																																																																				
Operating Mode		1				Polarization			V																																																																																																											
Operating Function		EUT with Notebook via USB port test fixture (Open WLAN function)																																																																																																																		
Level (dBuV/m) 80 30 -20 Date: 2013-09-03 FCC/IC/MCC-B -3dB  Frequency (MHz) 30224.418.612.806.1000																																																																																																																				
<table><tr><th></th><th>Freq</th><th>Level</th><th>Over</th><th>Limit</th><th>ReadAntenna</th><th>Cable</th><th>Preamp</th><th rowspan="2">Remark</th><th>Ant</th><th>Table</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>Limit</th><th>Line</th><th>Level</th><th>Factor</th><th>Loss</th><th>Factor</th><th>Pos</th><th>Pos</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th></tr><tr><td>1</td><td>39.700</td><td>31.71</td><td>-8.29</td><td>40.00</td><td>45.22</td><td>13.18</td><td>0.91</td><td>27.60</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>2</td><td>230.790</td><td>35.06</td><td>-10.94</td><td>46.00</td><td>49.41</td><td>10.33</td><td>2.22</td><td>26.90</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>3</td><td>365.620</td><td>38.54</td><td>-7.46</td><td>46.00</td><td>48.20</td><td>14.60</td><td>2.84</td><td>27.10</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>4</td><td>431.580</td><td>36.64</td><td>-9.36</td><td>46.00</td><td>44.74</td><td>16.31</td><td>3.10</td><td>27.51</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>5</td><td>479.110</td><td>42.67</td><td>-3.33</td><td>46.00</td><td>49.92</td><td>17.24</td><td>3.27</td><td>27.76</td><td>Peak</td><td>---</td><td>---</td></tr><tr><td>6</td><td>726.460</td><td>36.51</td><td>-9.49</td><td>46.00</td><td>40.86</td><td>19.47</td><td>4.08</td><td>27.90</td><td>Peak</td><td>---</td><td>---</td></tr></table>													Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Ant	Table		MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Pos	Pos		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	1	39.700	31.71	-8.29	40.00	45.22	13.18	0.91	27.60	Peak	---	---	2	230.790	35.06	-10.94	46.00	49.41	10.33	2.22	26.90	Peak	---	---	3	365.620	38.54	-7.46	46.00	48.20	14.60	2.84	27.10	Peak	---	---	4	431.580	36.64	-9.36	46.00	44.74	16.31	3.10	27.51	Peak	---	---	5	479.110	42.67	-3.33	46.00	49.92	17.24	3.27	27.76	Peak	---	---	6	726.460	36.51	-9.49	46.00	40.86	19.47	4.08	27.90	Peak	---	---
	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp	Remark	Ant	Table																																																																																																										
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss		Factor	Pos	Pos																																																																																																									
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg																																																																																																										
1	39.700	31.71	-8.29	40.00	45.22	13.18	0.91	27.60	Peak	---	---																																																																																																									
2	230.790	35.06	-10.94	46.00	49.41	10.33	2.22	26.90	Peak	---	---																																																																																																									
3	365.620	38.54	-7.46	46.00	48.20	14.60	2.84	27.10	Peak	---	---																																																																																																									
4	431.580	36.64	-9.36	46.00	44.74	16.31	3.10	27.51	Peak	---	---																																																																																																									
5	479.110	42.67	-3.33	46.00	49.92	17.24	3.27	27.76	Peak	---	---																																																																																																									
6	726.460	36.51	-9.49	46.00	40.86	19.47	4.08	27.90	Peak	---	---																																																																																																									
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit. Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.) Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)																																																																																																																				

Transmitter Radiated Unwanted Emissions (Below 1GHz)

Operating Mode	1	Polarization	H
Operating Function	EUT with Notebook via USB port test fixture (Open WLAN function)		



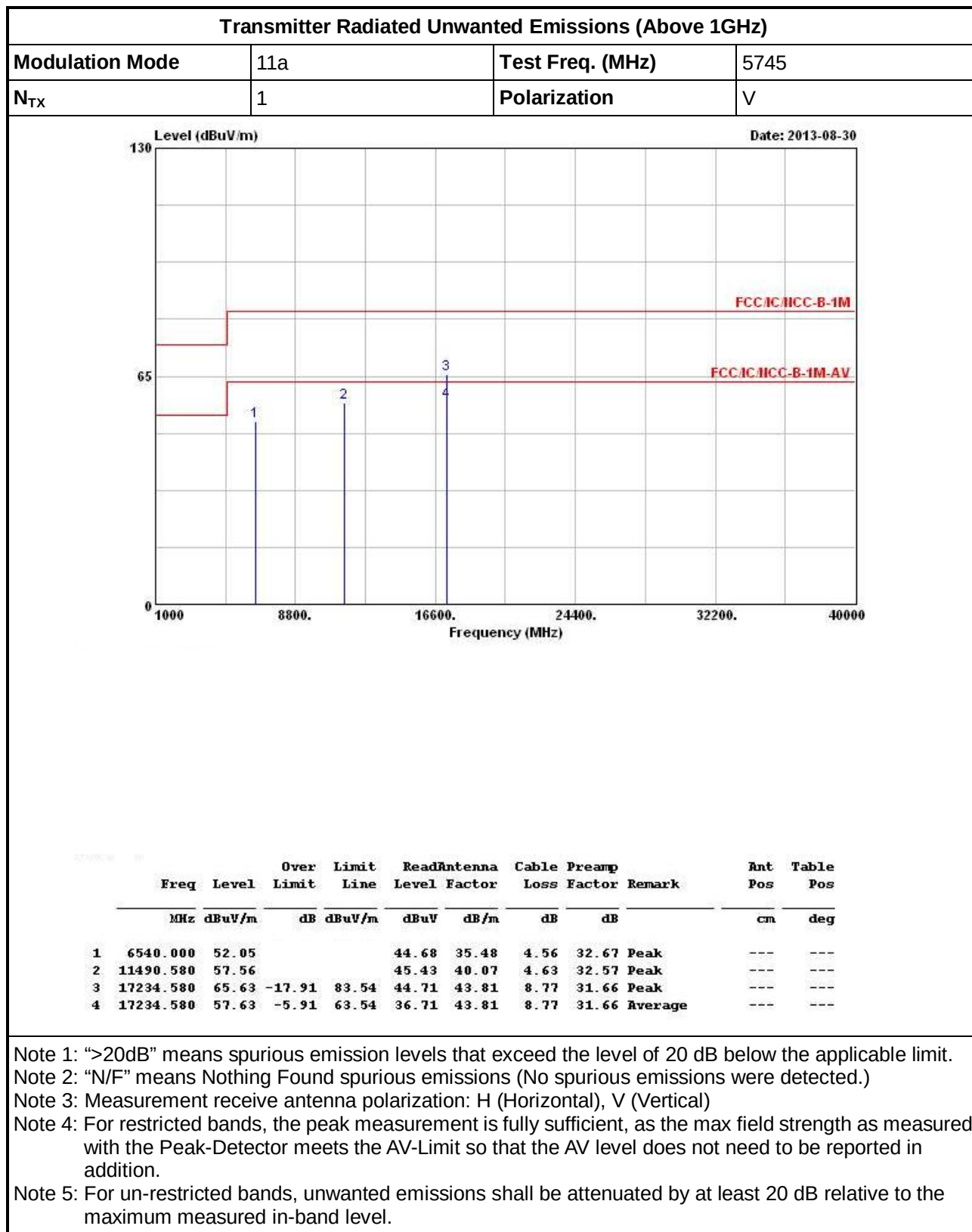
	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	230.790	37.54	-8.46	46.00	51.89	10.33	2.22	26.90	QP	---	---
2	284.140	42.80	-3.20	46.00	54.09	12.92	2.49	26.70	Peak	---	---
3	330.700	42.69	-3.31	46.00	53.15	13.69	2.71	26.86	Peak	---	---
4	365.620	41.35	-4.65	46.00	51.01	14.60	2.84	27.10	Peak	---	---
5	797.270	38.69	-7.31	46.00	42.35	19.84	4.30	27.80	Peak	---	---
6	960.230	42.04	-11.96	54.00	43.67	20.93	4.82	27.38	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.)

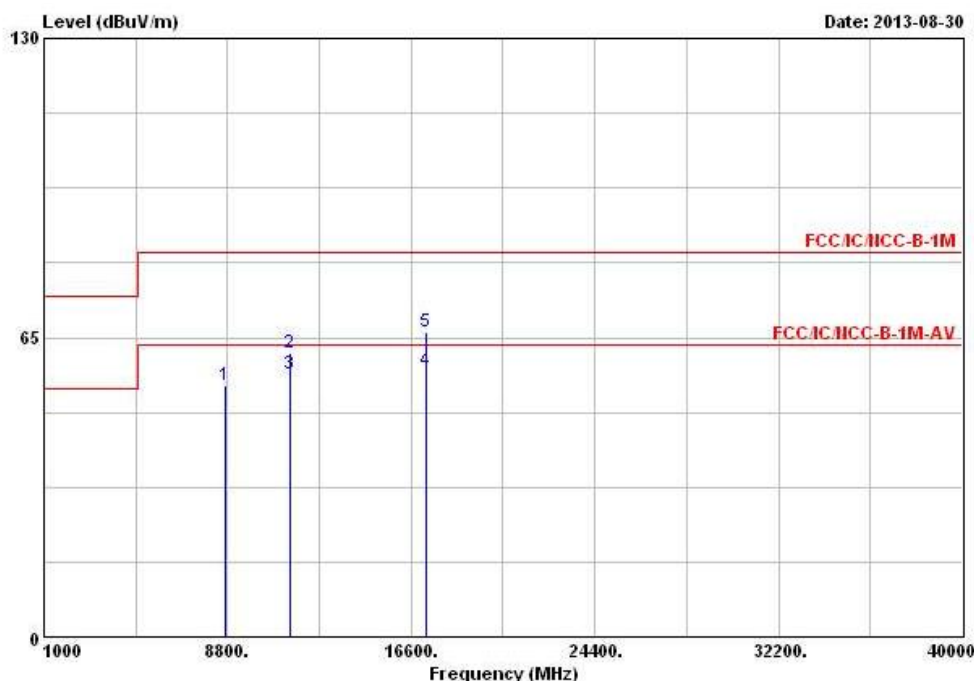
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

3.6.7 Transmitter Radiated Unwanted Emissions (Above 1GHz)



Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (MHz)	5745
N _{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8670.000	54.57			44.67	38.50	4.48	33.08	Peak	---	---
2	11489.000	61.64	-21.90	83.54	49.51	40.07	4.63	32.57	Peak	---	---
3	11489.000	57.14	-6.40	63.54	45.01	40.07	4.63	32.57	Average	---	---
4	17235.580	57.86	-5.68	63.54	36.94	43.81	8.77	31.66	Average	---	---
5	17235.580	66.28	-17.26	83.54	45.36	43.81	8.77	31.66	Peak	---	---

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

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

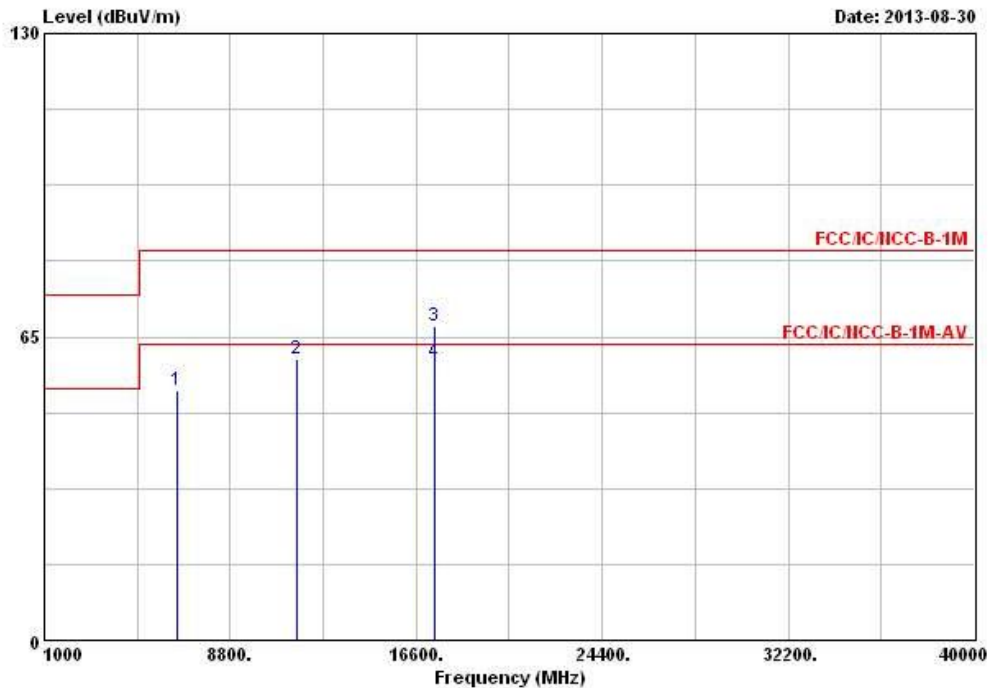
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (MHz)	5785
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6576.000	53.61			46.17	35.57	4.55	32.68 Peak	---	---
2	11572.000	60.12			47.92	40.04	4.74	32.58 Peak	---	---
3	17355.420	67.26	-16.28	83.54	45.15	44.81	8.99	31.69 Peak	---	---
4	17355.420	59.53	-4.01	63.54	37.42	44.81	8.99	31.69 Average	---	---

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

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

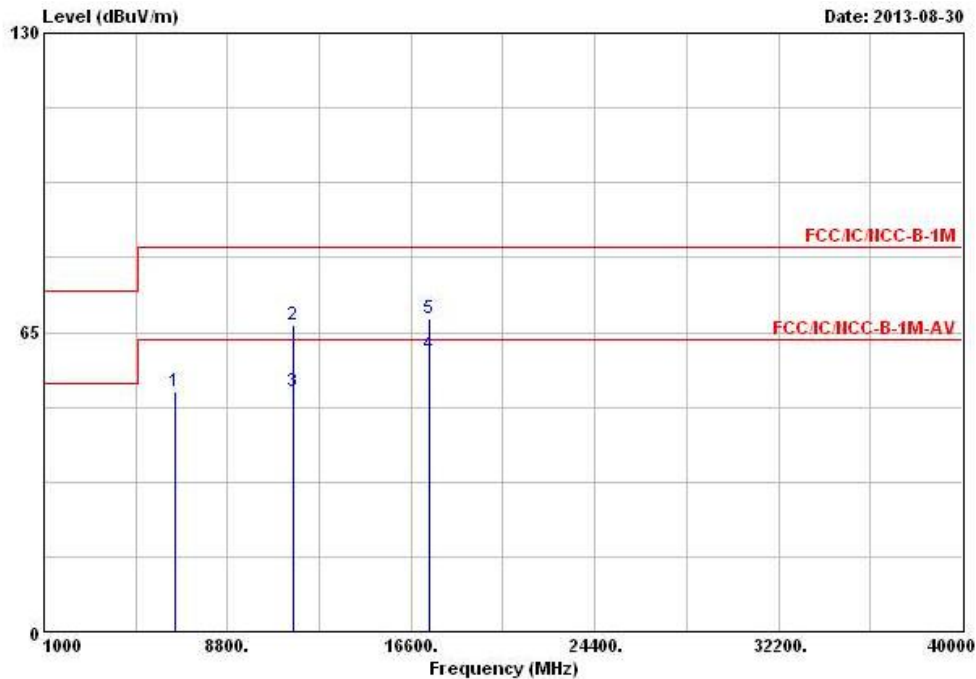
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (MHz)	5785
N_{TX}	1	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6576.000	52.09			44.65	35.57	4.55	32.68	Peak	---	---
2	11572.000	66.73	-16.81	83.54	54.53	40.04	4.74	32.58	Peak	---	---
3	11572.000	52.27	-11.27	63.54	40.07	40.04	4.74	32.58	Average	---	---
4	17355.580	60.28	-3.26	63.54	38.17	44.81	8.99	31.69	Average	---	---
5	17355.580	67.92	-15.62	83.54	45.81	44.81	8.99	31.69	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.)

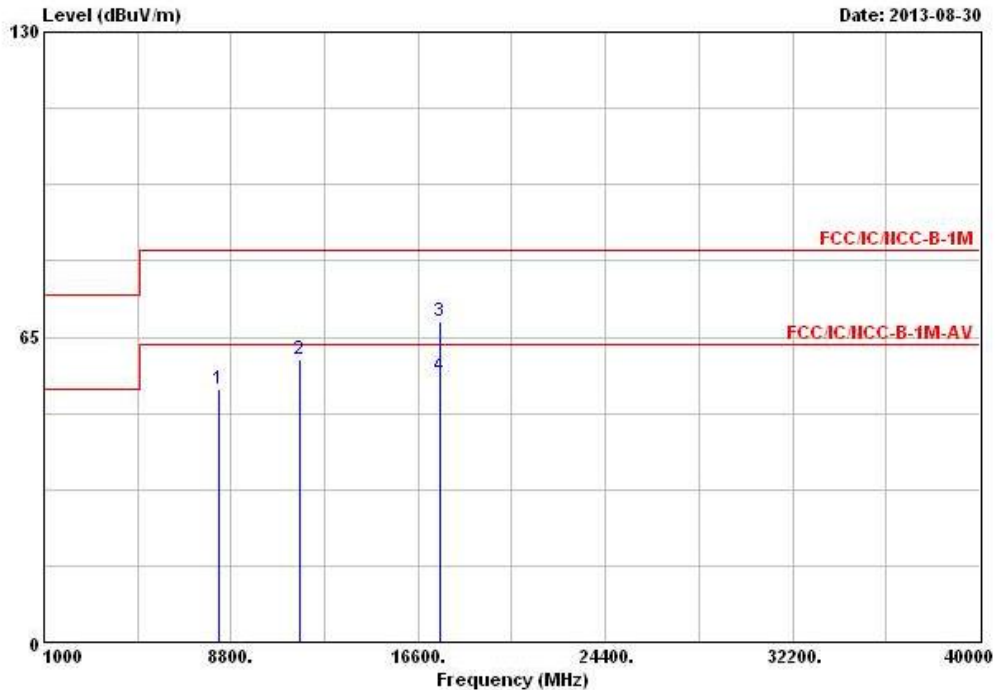
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (MHz)	5825
N_{TX}	1	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8268.000	53.97			44.81	38.30	3.88	33.02	Peak	---	---
2	11650.000	60.20			47.95	39.99	4.85	32.59	Peak	---	---
3	17475.000	68.51	-15.03	83.54	45.23	45.81	9.20	31.73	Peak	---	---
4	17475.000	56.76	-6.78	63.54	33.48	45.81	9.20	31.73	Average	---	---

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

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

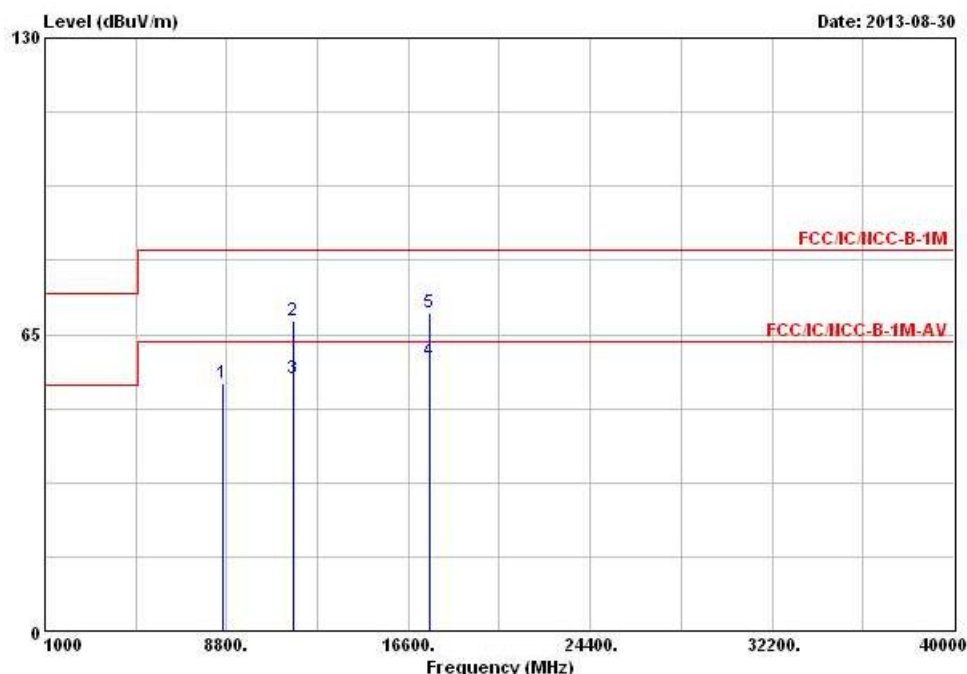
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	11a	Test Freq. (MHz)	5825
N _{TX}	1	Polarization	H



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8634.000	54.31			44.44	38.54	4.39	33.06	Peak	---	---
2	11647.000	67.97	-15.57	83.54	55.72	39.99	4.85	32.59	Peak	---	---
3	11647.000	55.25	-8.29	63.54	43.00	39.99	4.85	32.59	Average	---	---
4	17475.000	59.25	-4.29	63.54	35.97	45.81	9.20	31.73	Average	---	---
5	17475.000	69.65	-13.89	83.54	46.37	45.81	9.20	31.73	Peak	---	---

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

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

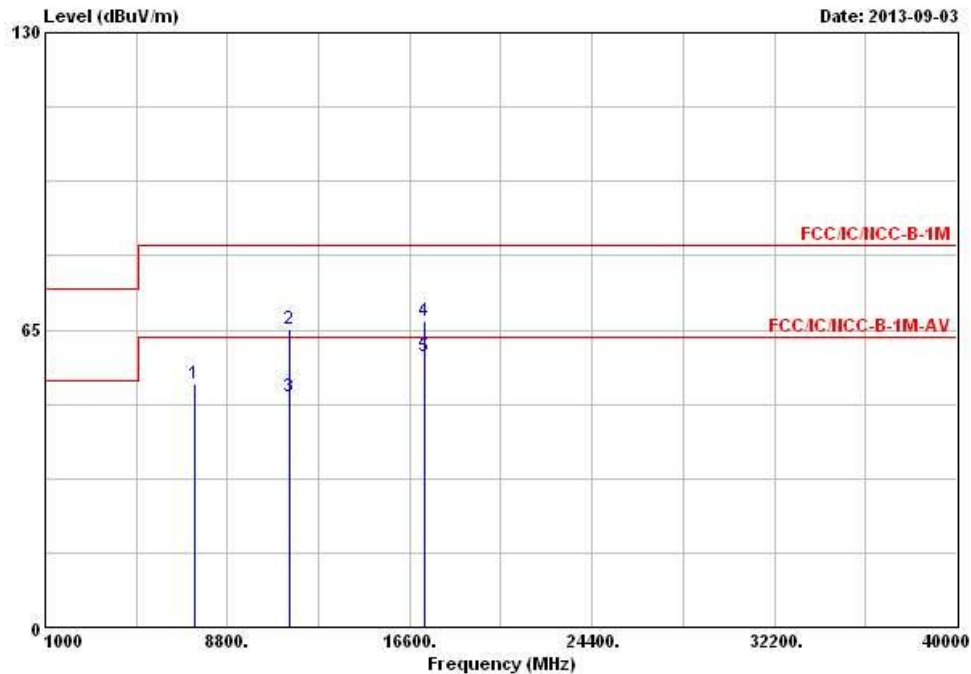
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5745
N_{TX}	2	Polarization	V



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7428.000	53.22			44.75	37.20	4.17	32.90	Peak	---	---
2	11489.000	65.15	-18.39	83.54	53.02	40.07	4.63	32.57	Peak	---	---
3	11489.000	50.21	-13.33	63.54	38.08	40.07	4.63	32.57	Average	---	---
4	17235.000	67.03	-16.51	83.54	46.11	43.81	8.77	31.66	Peak	---	---
5	17235.000	59.09	-4.45	63.54	38.17	43.81	8.77	31.66	Average	---	---

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

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

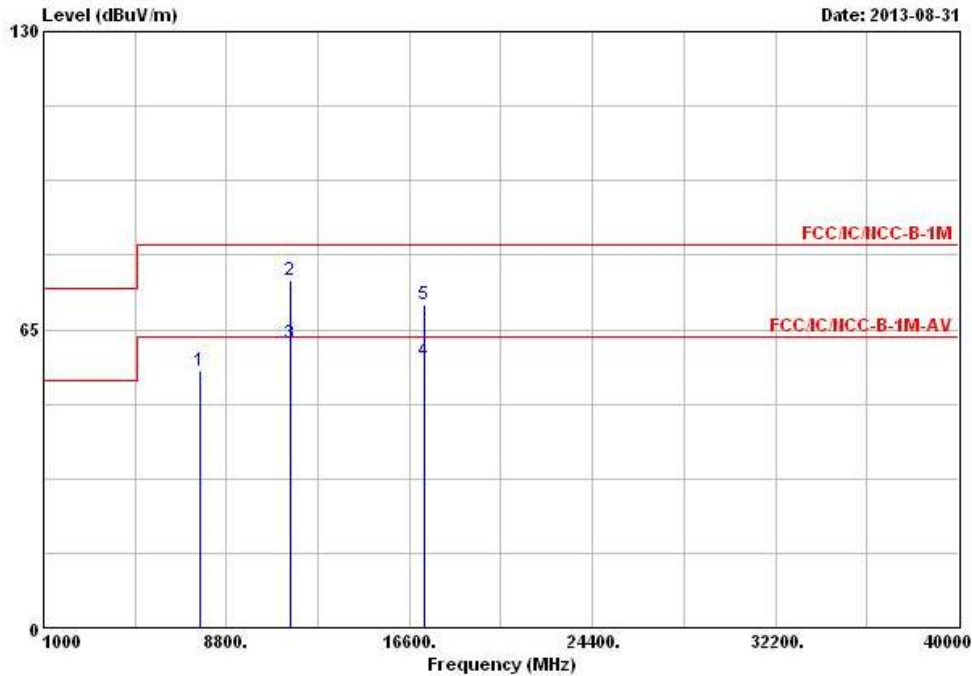
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5745
N_{TX}	2	Polarization	H



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7662.000	55.88			47.37	37.47	3.99	32.95	Peak	---	---
2	11490.000	75.91	-7.63	83.54	63.78	40.07	4.63	32.57	Peak	---	---
3	@11490.000	61.86	-1.68	63.54	49.73	40.07	4.63	32.57	Average	---	---
4	17238.000	58.03	-5.51	63.54	37.11	43.81	8.77	31.66	Average	---	---
5	17238.000	70.61	-12.93	83.54	49.69	43.81	8.77	31.66	Peak	---	---

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

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

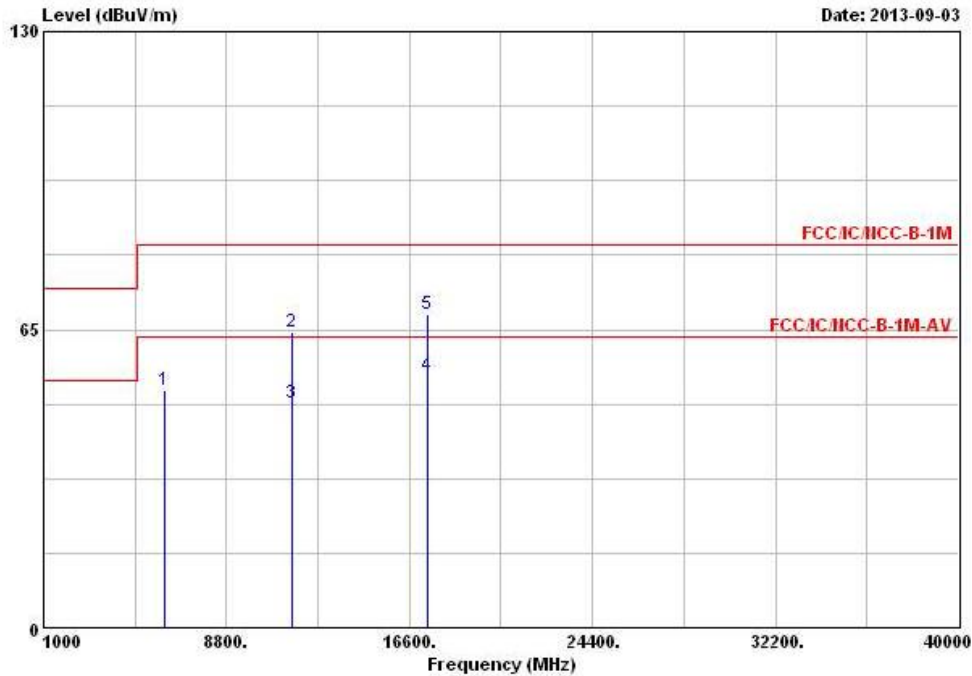
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5785
N _{TX}	2	Polarization	V

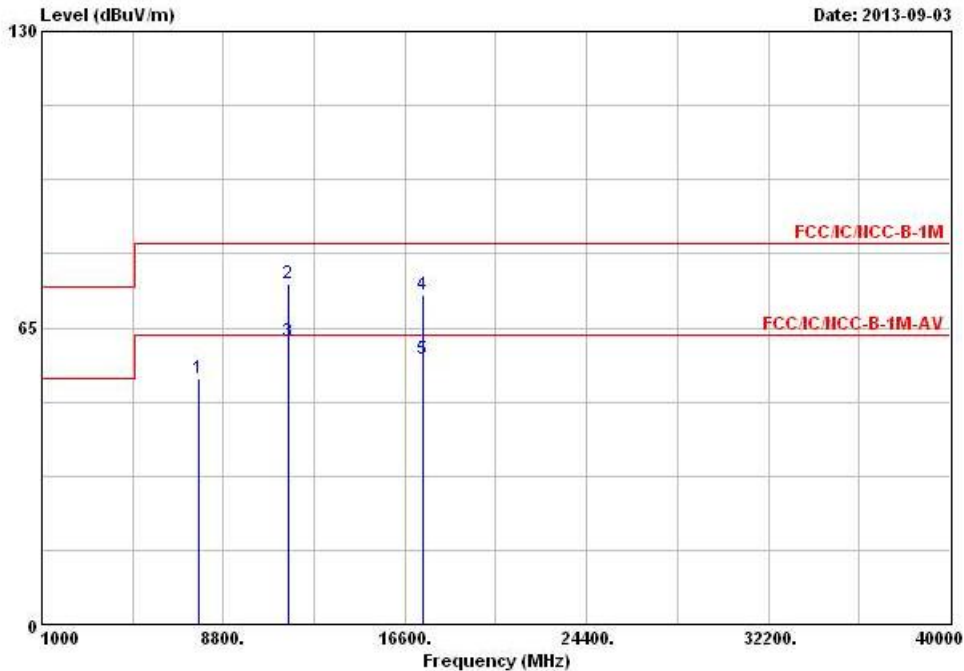


	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6174.000	51.71			44.94	35.13	4.26	32.62	Peak	---	---
2	11574.000	64.48	-19.06	83.54	52.28	40.04	4.74	32.58	Peak	---	---
3	11574.000	49.10	-14.44	63.54	36.90	40.04	4.74	32.58	Average	---	---
4	17355.220	54.93	-8.61	63.54	32.82	44.81	8.99	31.69	Average	---	---
5	17355.220	68.32	-15.22	83.54	46.21	44.81	8.99	31.69	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)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5785
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamplifier	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7716.000	53.83			45.31	37.52	3.96	32.96	Peak	---	---
2	11574.000	74.79	-8.75	83.54	62.59	40.04	4.74	32.58	Peak	---	---
3	@11574.000	61.89	-1.65	63.54	49.69	40.04	4.74	32.58	Average	---	---
4	17355.000	72.33	-11.21	83.54	50.22	44.81	8.99	31.69	Peak	---	---
5	17355.000	58.14	-5.40	63.54	36.03	44.81	8.99	31.69	Average	---	---

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

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

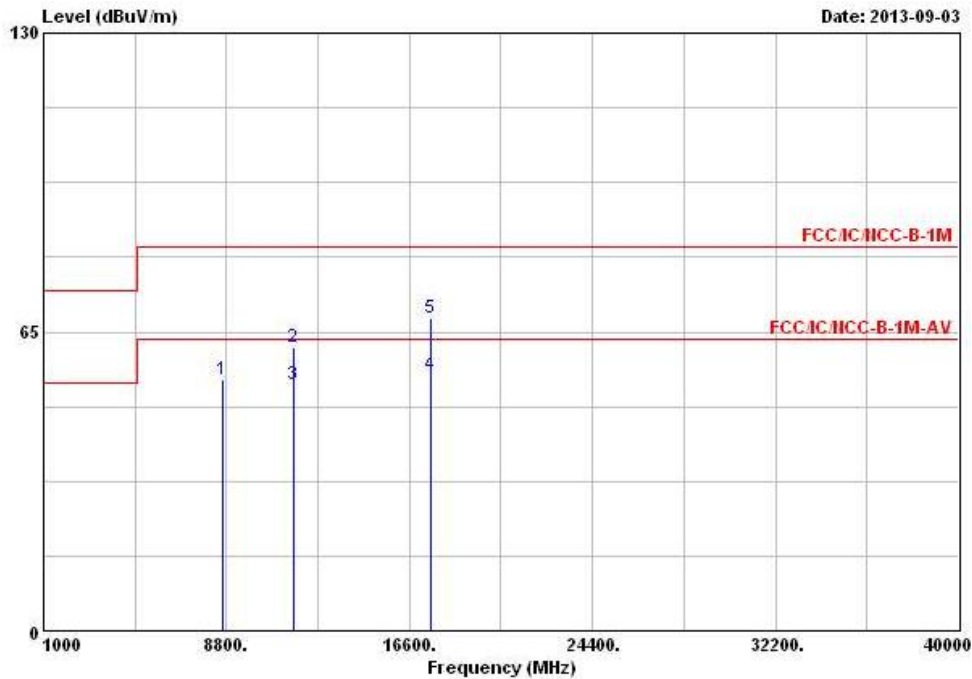
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5825
N_{TX}	2	Polarization	V



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8658.000	54.48			44.64	38.52	4.39	33.07	Peak	---	---
2	11644.000	61.62	-21.92	83.54	49.37	39.99	4.85	32.59	Peak	---	---
3	11644.000	53.49	-10.05	63.54	41.24	39.99	4.85	32.59	Average	---	---
4	17473.780	55.77	-7.77	63.54	32.49	45.81	9.20	31.73	Average	---	---
5	17473.780	67.92	-15.62	83.54	44.64	45.81	9.20	31.73	Peak	---	---

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

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

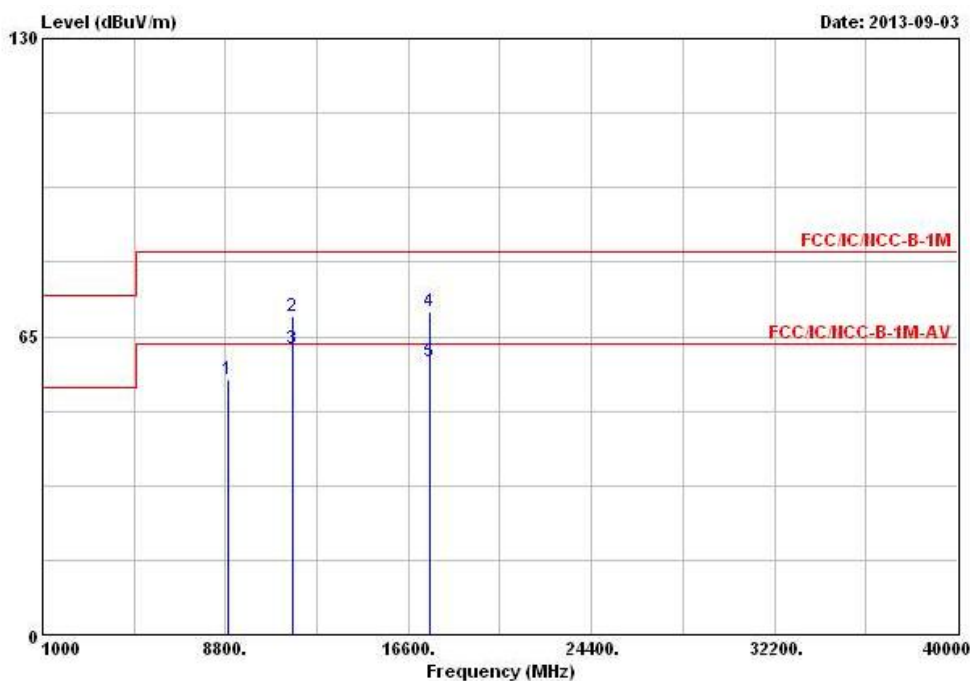
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5825
N _{TX}	2	Polarization	H



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8886.000	55.61	-----	-----	45.57	38.24	4.95	33.15	Peak	---	---
2	11650.000	69.32	-14.22	83.54	57.07	39.99	4.85	32.59	Peak	---	---
3	@11650.000	62.37	-1.17	63.54	50.12	39.99	4.85	32.59	Average	---	---
4	17475.000	70.59	-12.95	83.54	47.31	45.81	9.20	31.73	Peak	---	---
5	17475.000	59.60	-3.94	63.54	36.32	45.81	9.20	31.73	Average	---	---

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

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

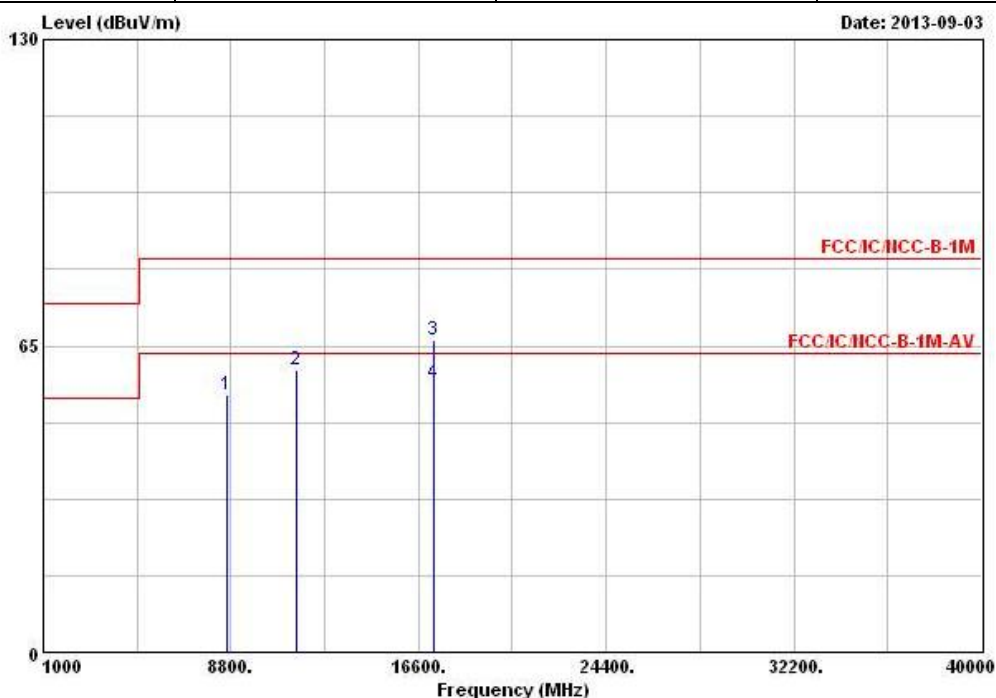
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5755
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8646.000	54.62			44.78	38.52	4.39	33.07	Peak	---	---
2	11510.000	59.83			47.67	40.10	4.63	32.57	Peak	---	---
3	17265.000	66.20	-17.34	83.54	44.94	44.09	8.84	31.67	Peak	---	---
4	17265.000	56.97	-6.57	63.54	35.71	44.09	8.84	31.67	Average	---	---

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

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

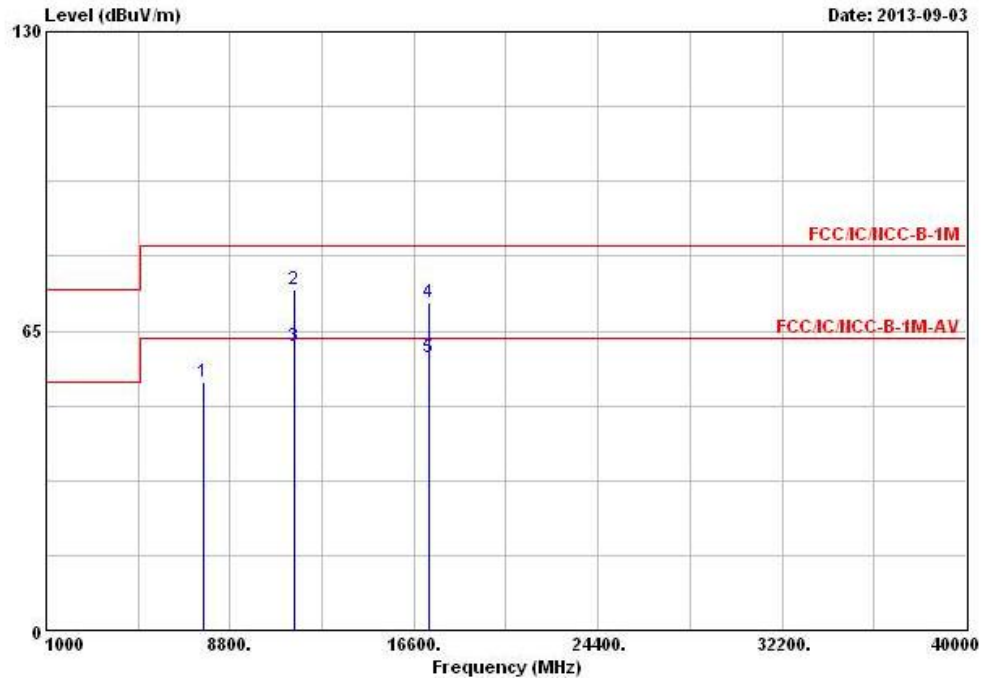
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5755
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7674.000	53.84			45.32	37.48	3.99	32.95	Peak	---	---
2	11510.000	73.83	-9.71	83.54	61.67	40.10	4.63	32.57	Peak	---	---
3	@11510.000	61.73	-1.81	63.54	49.57	40.10	4.63	32.57	Average	---	---
4	17265.000	71.25	-12.29	83.54	49.99	44.09	8.84	31.67	Peak	---	---
5	17265.000	59.36	-4.18	63.54	38.10	44.09	8.84	31.67	Average	---	---

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

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

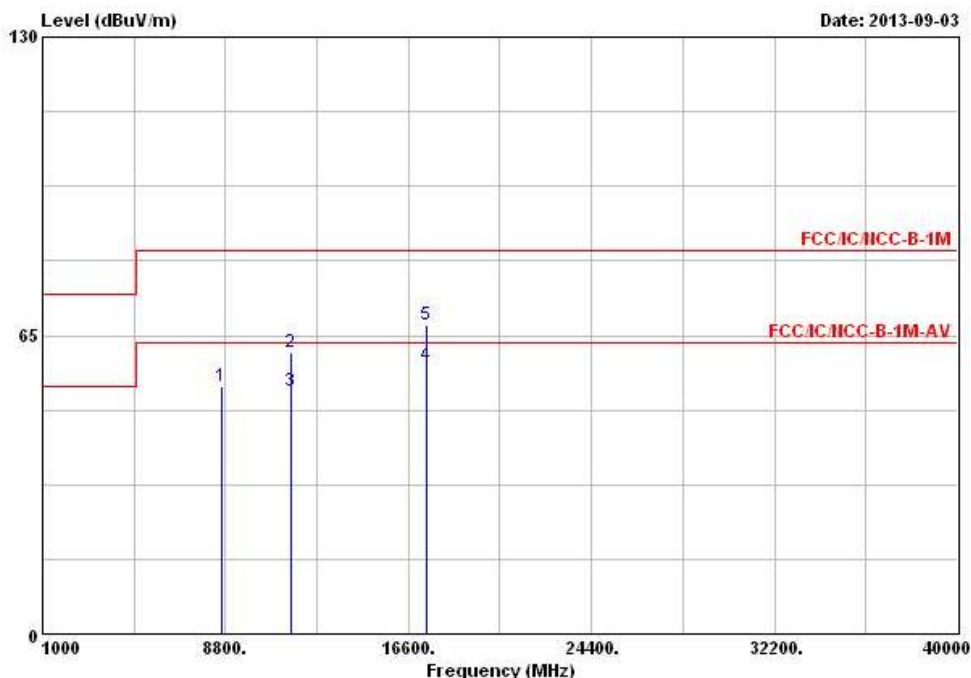
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5795
N _{TX}	2	Polarization	V



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp	Remark	Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor		Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8652.000	54.07			44.23	38.52	4.39	33.07	Peak	---	---
2	11588.000	61.28	-22.26	83.54	49.09	40.03	4.74	32.58	Peak	---	---
3	11588.000	52.67	-10.87	63.54	40.48	40.03	4.74	32.58	Average	---	---
4	17385.000	58.36	-5.18	63.54	35.91	45.10	9.06	31.71	Average	---	---
5	17385.000	67.27	-16.27	83.54	44.82	45.10	9.06	31.71	Peak	---	---

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

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

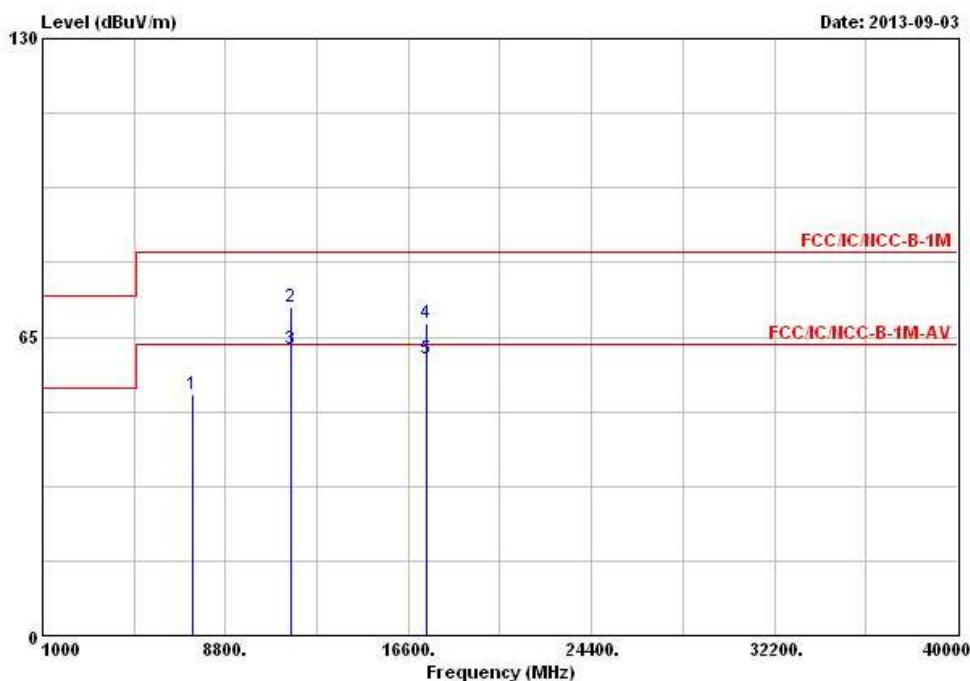
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5795
N _{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Antenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7392.000	52.65			44.19	37.16	4.19	32.89 Peak	---	---
2	11588.000	71.53	-12.01	83.54	59.34	40.03	4.74	32.58 Peak	---	---
3	@11588.000	62.29	-1.25	63.54	50.10	40.03	4.74	32.58 Average	---	---
4	17385.000	68.13	-15.41	83.54	45.68	45.10	9.06	31.71 Peak	---	---
5	17385.000	60.19	-3.35	63.54	37.74	45.10	9.06	31.71 Average	---	---

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

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

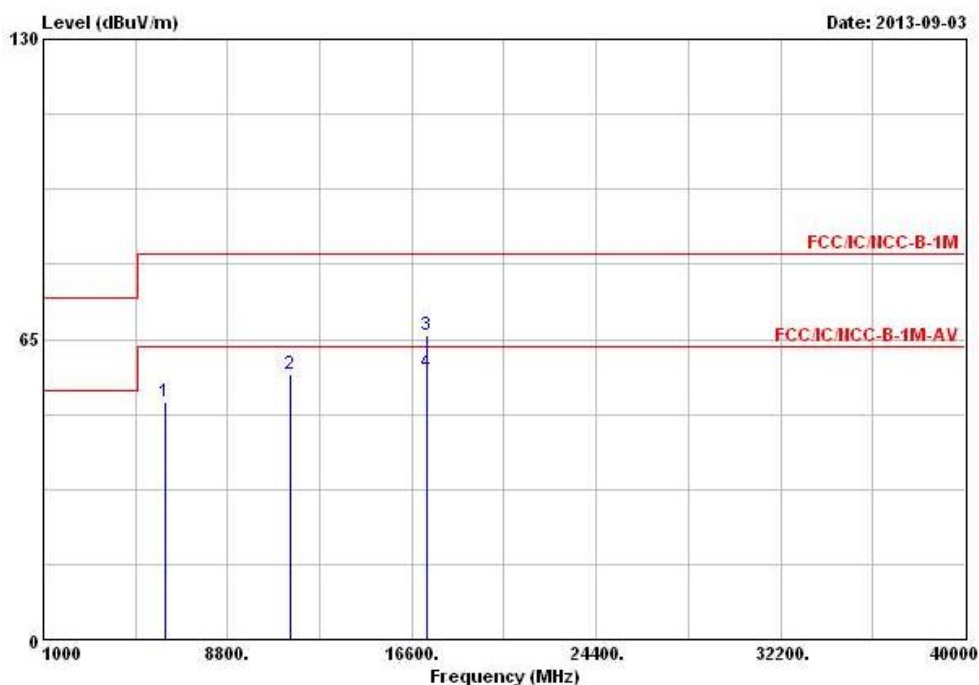
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5745
N _{TX}	3	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6156.000	51.52			44.80	35.12	4.22	32.62	Peak	---	---
2	11488.780	57.47			45.34	40.07	4.63	32.57	Peak	---	---
3	17235.000	65.93	-17.61	83.54	45.01	43.81	8.77	31.66	Peak	---	---
4	17235.000	57.86	-5.68	63.54	36.94	43.81	8.77	31.66	Average	---	---

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

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

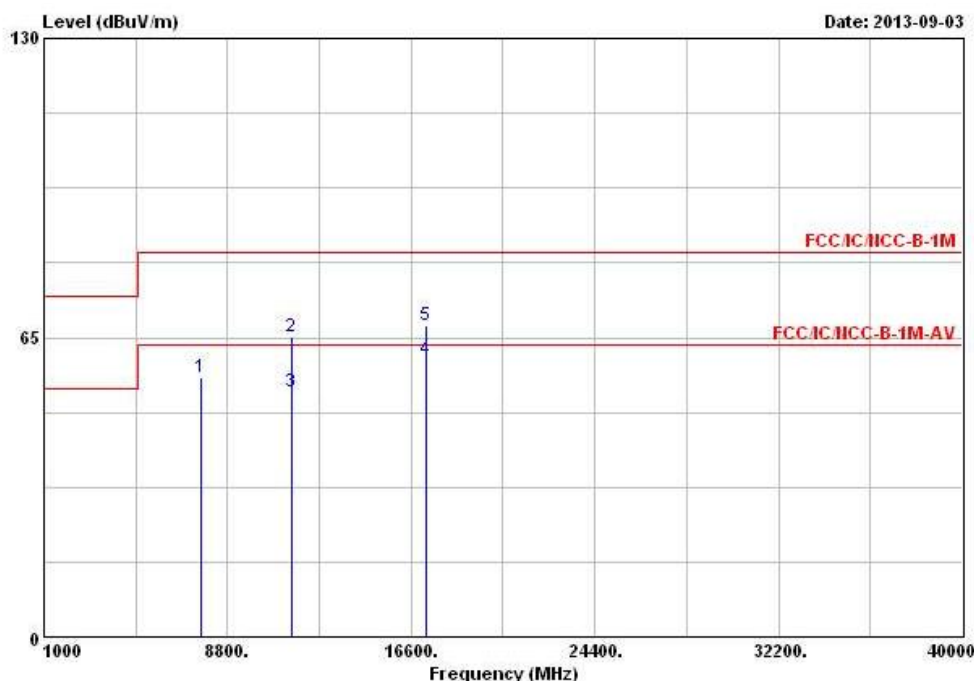
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5745
N _{TX}	3	Polarization	H



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7662.000	56.52			48.01	37.47	3.99	32.95 Peak	---	---
2	11490.000	65.14	-18.40	83.54	53.01	40.07	4.63	32.57 Peak	---	---
3	11490.000	53.11	-10.43	63.54	40.98	40.07	4.63	32.57 Average	---	---
4	17245.220	60.13	-3.41	63.54	39.00	43.95	8.84	31.66 Average	---	---
5	17245.220	67.52	-16.02	83.54	46.39	43.95	8.84	31.66 Peak	---	---

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

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

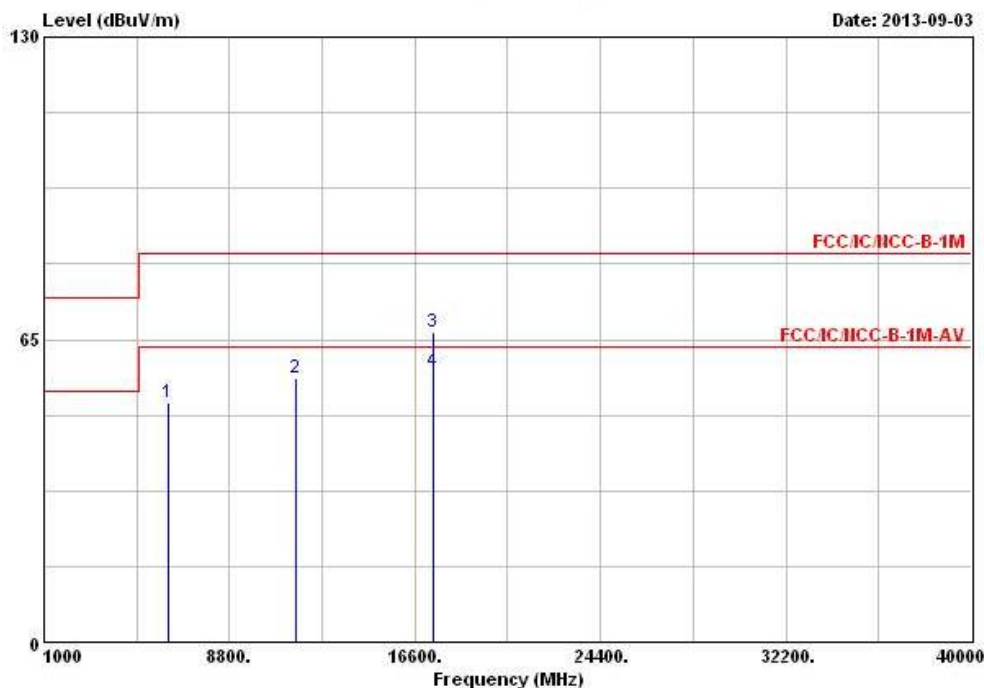
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5785
N _{TX}	3	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Preamp Loss	Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	6204.000	51.55			44.75	35.16	4.26	32.62 Peak	---	---
2	11568.780	56.73			44.53	40.04	4.74	32.58 Peak	---	---
3	17356.220	66.63	-16.91	83.54	44.52	44.81	8.99	31.69 Peak	---	---
4	17356.220	58.21	-5.33	63.54	36.10	44.81	8.99	31.69 Average	---	---

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

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

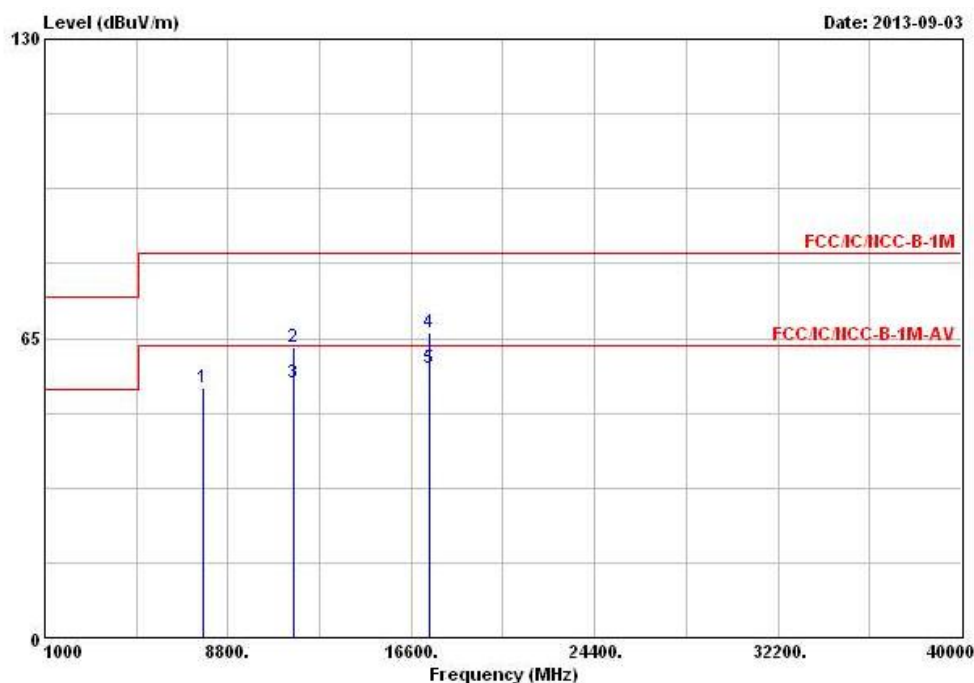
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5785
N _{TX}	3	Polarization	H



	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7716.000	54.15			45.63	37.52	3.96	32.96	Peak	---	---
2	11568.000	63.09	-20.45	83.54	50.89	40.04	4.74	32.58	Peak	---	---
3	11568.000	55.20	-8.34	63.54	43.00	40.04	4.74	32.58	Average	---	---
4	17355.000	66.36	-17.18	83.54	44.25	44.81	8.99	31.69	Peak	---	---
5	17355.000	58.34	-5.20	63.54	36.23	44.81	8.99	31.69	Average	---	---

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

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

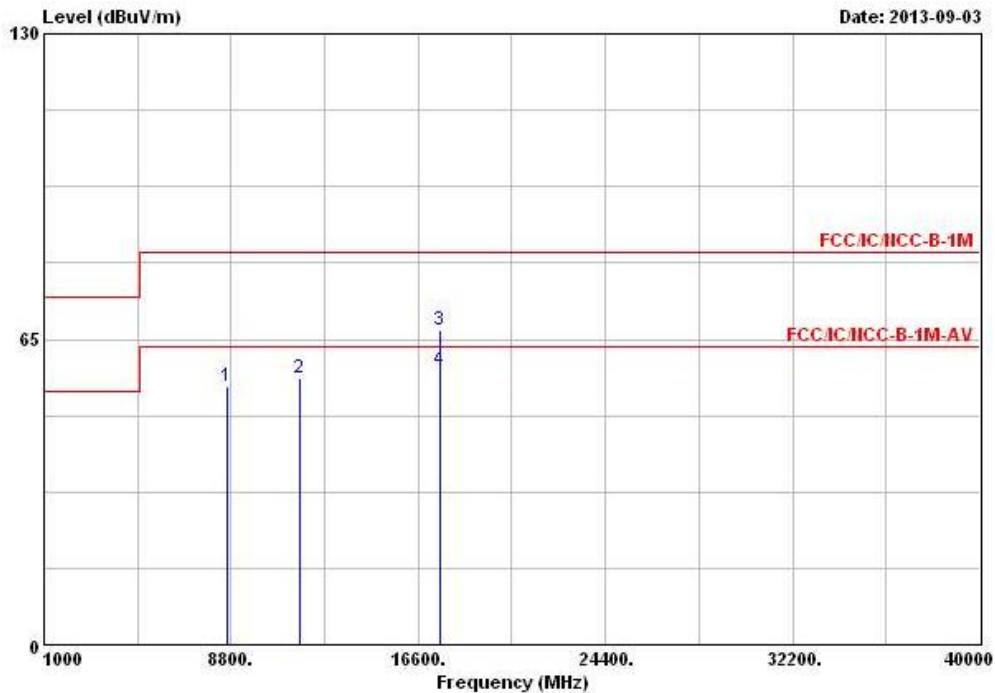
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5825
N _{TX}	3	Polarization	V

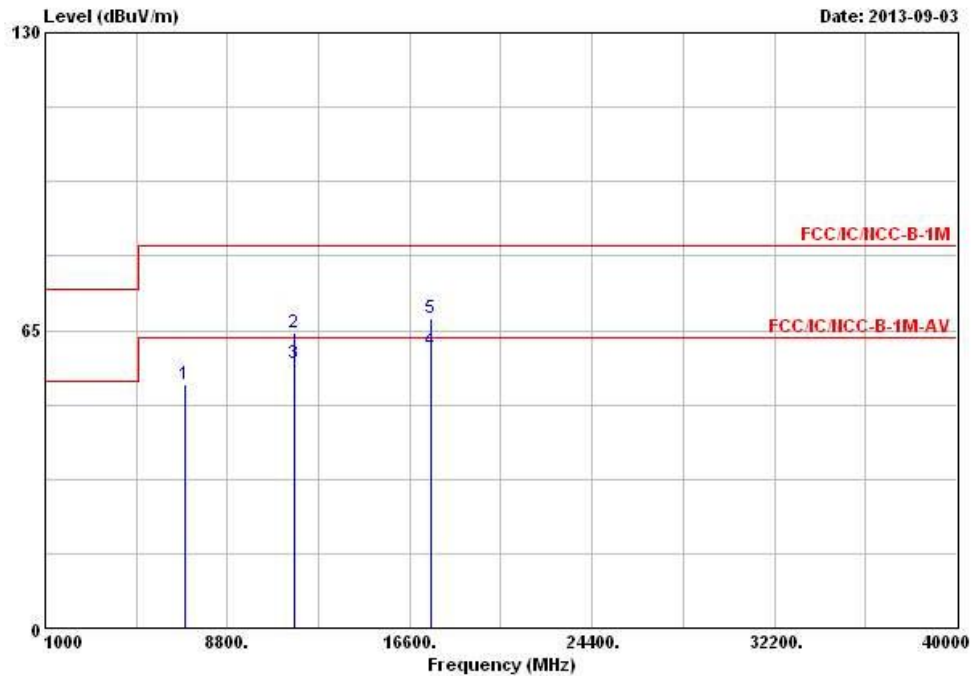


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	8634.000	54.89			45.02	38.54	4.39	33.06	Peak	---	---
2	11650.000	56.86			44.61	39.99	4.85	32.59	Peak	---	---
3	17473.780	67.10	-16.44	83.54	43.82	45.81	9.20	31.73	Peak	---	---
4	17473.780	58.54	-5.00	63.54	35.26	45.81	9.20	31.73	Average	---	---

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT20	Test Freq. (MHz)	5825
N _{TX}	3	Polarization	H

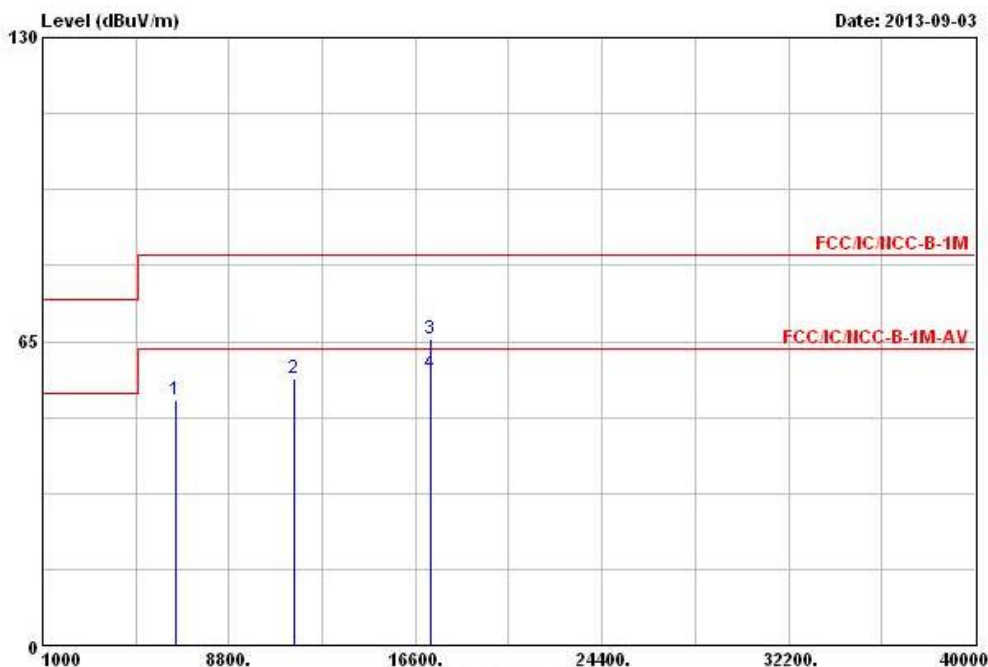


	Freq	Level	Over	Limit	Read	Antenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Factor	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	7014.000	53.20			44.97	36.62	4.39	32.78	Peak	---	---
2	11648.000	64.57	-18.97	83.54	52.32	39.99	4.85	32.59	Peak	---	---
3	11648.000	57.77	-5.77	63.54	45.52	39.99	4.85	32.59	Average	---	---
4	17475.000	60.52	-3.02	63.54	37.24	45.81	9.20	31.73	Average	---	---
5	17475.000	67.57	-15.97	83.54	44.29	45.81	9.20	31.73	Peak	---	---

- Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5755
N _{TX}	3	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6570.000	52.52			45.07	35.57	4.55	32.67	Peak	---	---
2	11521.220	56.99			44.79	40.09	4.68	32.57	Peak	---	---
3	17263.780	65.64	-17.90	83.54	44.38	44.09	8.84	31.67	Peak	---	---
4	17263.780	58.25	-5.29	63.54	36.99	44.09	8.84	31.67	Average	---	---

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

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

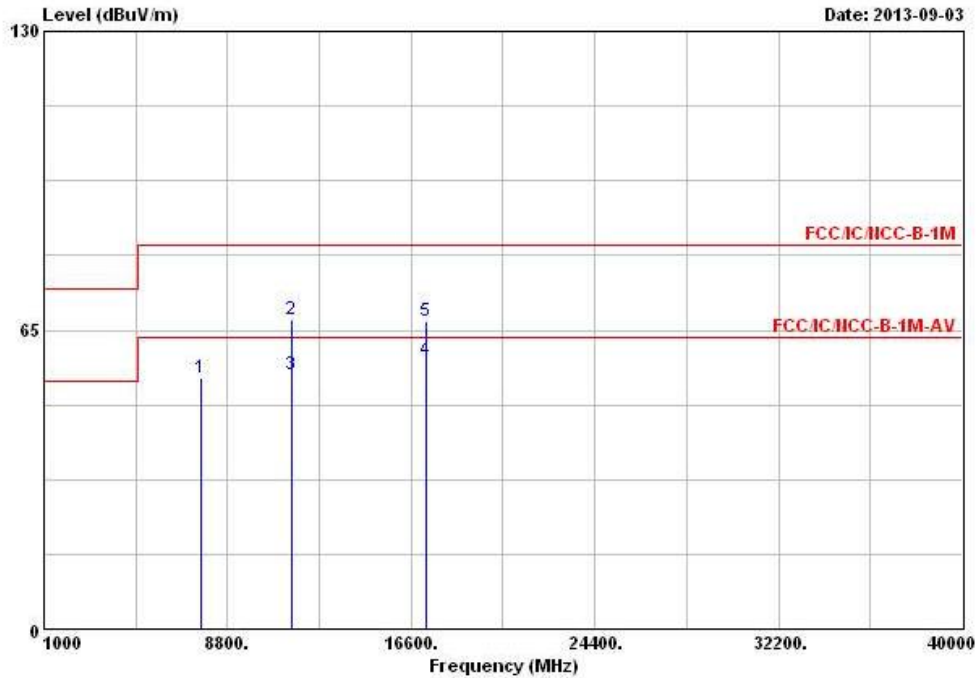
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5755
N _{TX}	3	Polarization	H

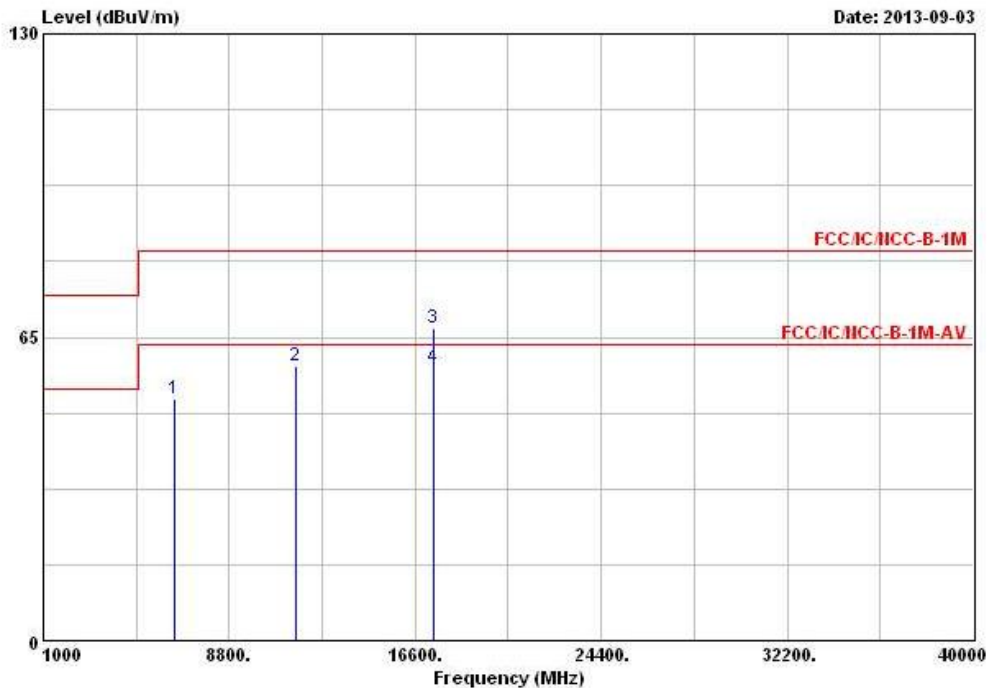


	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7674.000	54.44			45.92	37.48	3.99	32.95 Peak	---	---
2	11508.000	67.36	-16.18	83.54	55.20	40.10	4.63	32.57 Peak	---	---
3	11508.000	55.42	-8.12	63.54	43.26	40.10	4.63	32.57 Average	---	---
4	17265.000	58.37	-5.17	63.54	37.11	44.09	8.84	31.67 Average	---	---
5	17265.000	67.09	-16.45	83.54	45.83	44.09	8.84	31.67 Peak	---	---

Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.
 Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)
 Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
 Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
 Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5795
N_{TX}	3	Polarization	V



	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Antenna Factor	Cable Loss	Preamp Factor	Remark	Ant Pos	Table Pos
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB		cm	deg
1	6510.000	51.85			44.53	35.40	4.58	32.66	Peak	---	---
2	11588.780	58.78			46.54	40.03	4.79	32.58	Peak	---	---
3	17386.220	67.01	-16.53	83.54	44.56	45.10	9.06	31.71	Peak	---	---
4	17386.220	58.66	-4.88	63.54	36.21	45.10	9.06	31.71	Average	---	---

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

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

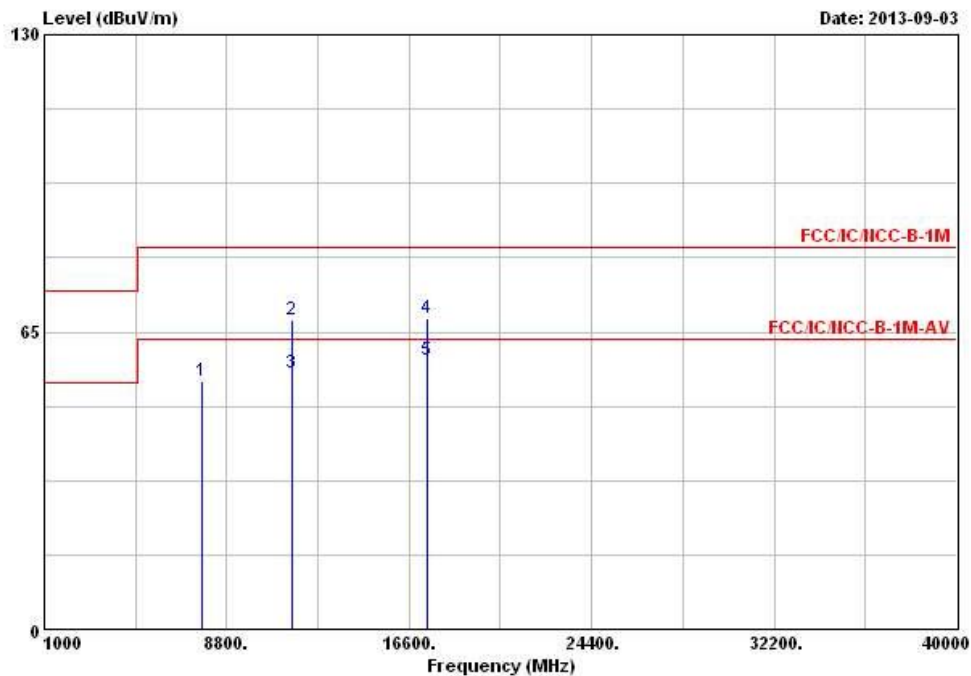
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	5795
N_{TX}	3	Polarization	H



	Freq	Level	Over	Limit	ReadAntenna	Cable	Preamp		Ant	Table
	MHz	dBuV/m	Limit	Line	Level	Loss	Factor	Remark	Pos	Pos
			dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg
1	7728.000	54.25			45.76	37.53	3.92	32.96 Peak	---	---
2	11588.000	67.63	-15.91	83.54	55.44	40.03	4.74	32.58 Peak	---	---
3	11588.000	56.02	-7.52	63.54	43.83	40.03	4.74	32.58 Average	---	---
4	17385.000	67.96	-15.58	83.54	45.51	45.10	9.06	31.71 Peak	---	---
5	17385.000	58.77	-4.77	63.54	36.32	45.10	9.06	31.71 Average	---	---

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

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

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

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

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

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Mar. 26, 2013	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2013	Conduction (CO04-HY)
LISN (Support Unit)	EMCO	3810/2NM	9703-1839	9kHz ~ 30MHz	Apr. 18, 2013	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	7.61183201e+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	FSV 40	101013	9KHz ~ 40GHz	Jan. 29, 2013	Conducted (TH06-HY)
Signal Generator	R&S	SMR40	100116	10MHz ~ 40GHz	Jun. 27, 2013	Conducted (TH06-HY)
RF Cable-0.5m	HUBER+SUHNER	SUCOFLEX_103	10715/4 10716/4	30MHz ~ 26.5GHz	Dec. 04, 2012	Conducted (TH06-HY)
RF Cable-0.2m	HUBER+SUHNER	SUCOFLEX_103	10709/4	30MHz ~ 26.5GHz	Dec. 04, 2012	Conducted (TH06-HY)

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



Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	Dec. 01, 2012	Radiation (03CH03-HY)
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	May. 03, 2013	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02364	1GHz ~ 26.5GHz	May. 06, 2013	Radiation (03CH03-HY)
Amplifier	EM	EM18G40G	060572	18GHz ~ 40GHz	Jan.20.2013	Radiation (03CH03-HY)
Receiver	R&S	ESU26	1302.6005.26	20Hz ~ 26.5GHz	Apr. 02, 2013	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	Sep. 22, 2012	Radiation (03CH03-HY)
Horn Antenna	EMCO	3115	6741	1GHz ~ 18GHz	May 31, 2013	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz ~ 40GHz	Jan. 08, 2013	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	9MHz ~ 1GHz	Jan. 17, 2013	Radiation (03CH03-HY)
RF Cable-high	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz ~ 40GHz	Jan. 17, 2013	Radiation (03CH03-HY)
Turn Table	EM Electronics	EM Electronics	060615	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	MF	MF-7802	MF780208179	1 ~ 4 m	N/A	Radiation (03CH03-HY)

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	9 kHz - 30 MHz	Dec. 02, 2012	Radiation (03CH03-HY)

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