FCC Test Report

Equipment	:	**802.11n 3x3 bgn PCIE Module**
Brand Name	:	**Senao Networks**
Model No.	:	**PCE3203AH**
FCC ID	:	**U2M-PCE3203AH**
Standard	:	**47 CFR FCC Part 15.247**
Operating Band	:	**2400 MHz – 2483.5 MHz**
FCC Classification	:	**DTS**
Applicant	:	**Senao Networks, Inc.** **3F, No. 529, Chung Cheng Rd., Hsintien, Taipei, Taiwan**

The product sample received on Aug. 30, 2013 and completely tested on Nov. 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:

James Fan / Assistant Manager

Testing Laboratory
1190

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APPENDIX A. TEST PHOTOS A1-A7

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]: 0.156MHz 48.09 (Margin 7.60dB) – AV 56.76 (Margin 8.93dB) – QP	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth [MHz] 20M: 9.62 / 40M: 35.71	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Conducted (Average) Output Power)	Power [dBm]: 28.38	Power [dBm]: 30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]: 3.07	PSD [dBm/3kHz]: 8	Complied
3.5	15.247(d)	Emissions in non-restricted frequency bands	Out-of -band emissions are 30dB below the highest power	Non-Restricted Bands: > 30 dBc Restricted Bands: FCC 15.209	Complied
3.6	15.247(d)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 2483.50MHz 73.68 (Margin 0.32dB) – PK	Non-Restricted Bands: > 30 dBc Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR382718	Rev. 01	Initial issue of report	Dec. 23, 2014

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)**
2400-2483.5	b	2412-2462	1-11 [11]	3	25.13
2400-2483.5	g	2412-2462	1-11 [11]	3	28.38
2400-2483.5	HT20	2412-2462	1-11 [11]	3	28.25
2400-2483.5	HT40	2422-2452	3-9 [7]	3	22.50
Note 1: RF output power specifies that Maximum Conducted (Average) 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).	
	☒	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. Model**	**Ant. Type**	**Connector**	**Gain (dBi)**
1	Ant 1 (1002302)	PCB Dipole antenna	UFL	2.1859
2	Ant 3 (1002303)	PCB Dipole antenna	UFL	3.3341
3	Ant 5 (1002304)	PCB Dipole antenna	UFL	4.2057

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

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 802.11b	0.00
☒ 98.45% - IEEE 802.11g	0.07
☒ 98.36% - IEEE 802.11n (HT20)	0.07
☒ 99.29% - IEEE 802.11n (HT40)	0.03

1.1.5 EUT Operational Condition

Power Supply Type	3.3 Vdc from host

1.2 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 D01 DTS Meas Guidance v03r02
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01
- FCC KDB 412172 D01 Determining ERP and EIRP v01

1.3 Testing Location Information

Testing Location								
☒	HWA YA	ADD	:	No. 52, Hwa Ya 1st 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	
☒	ICC Lab	ADD	:	No. 14-1, Lane 19, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsien 333, Taiwan, R.O.C.				
		TEL	:	886-3-271-8640	FAX	:	886-3-327-0973	

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Mark Liao	22°C / 63%	Nov. 14, 2014
AC Conduction	*CO01-WS	Skys Huang	23°C / 55%	Feb. 21, 2014
Radiated Emission	*03CH01-WS	Anderson Hung	22°C / 63%	May 02, 2014
Test site registered number [657002] with FCC Test site registered number [10807A-1] with IC				

Note: * Sporton Lab subcontracts this test item to ICC lab (TAF:2732).
ICC lab is a TAF accreditation test firm and also is an approved provider of Sporton Lab.

1.4 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		±2.92 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
All emissions, radiated	30 – 1000 MHz	±3.26 dB	N/A
	Above 1 GHz	±4.94 dB	N/A
Temperature		±0.8 °C	N/A
Humidity		±3 %	N/A
DC and low frequency voltages		±3 %	N/A
Time		±1.42 %	N/A
Duty Cycle		±1.42 %	N/A

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing			
Modulation Mode	**Transmit Chains (N_{TX})**	**Data Rate / MCS**	**Worst Data Rate / MCS**
11b	3	1-11 Mbps	1 Mbps
11g	3	6-54 Mbps	6 Mbps
HT20	3	MCS 0-23	MCS 0
HT40	3	MCS 0-23	MCS 0

2.2 Test Channel Frequencies Configuration

Test Channel Frequencies Configuration	
IEEE Std. 802.11	**Test Channel Frequencies (MHz)**
b, g, n (HT-20)	2412-(F1), 2437-(F2), 2462-(F3)
n (HT-40)	2422-(F4), 2437-(F5), 2452-(F6)

2.3 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (2400-2483.5MHz band)							
Test Software	ART2-GUI, Version: 2.3						
Modulation Mode	**N_{TX}**	**Test Frequency (MHz)**					
		NCB: 20MHz			**NCB: 40MHz**		
		2412	**2437**	**2462**	**2422**	**2437**	**2452**
11b,1-11Mbps	3	20	19.5	19.5	--	--	--
11g,6-54Mbps	3	17.5	25	16.5	--	--	--
HT20,M0-23	3	16.5	25	16	--	--	--
HT40,M0-23	3	--	--	--	14.5	16	13.5

2.4 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

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

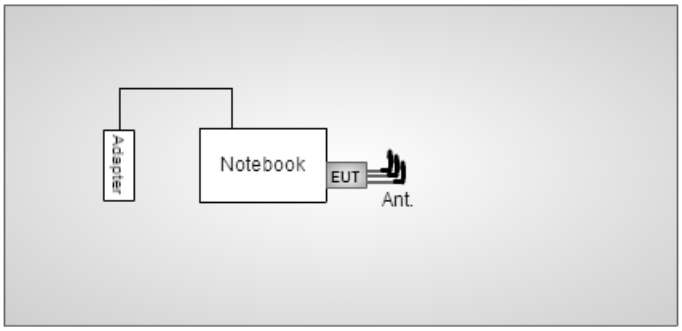
The Worst Case Mode for Following Conformance Tests			
Tests Item	Transmitter Radiated Unwanted Emissions Transmitter Radiated Bandedge Emissions		
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.		
User Position	☐ EUT will be placed in fixed position.		
	☒ EUT will be placed in mobile position and operating multiple positions. EUT shall be performed three orthogonal planes. The worst plane is Y-plane.		
	☐ EUT will be a hand-held or body-worn battery-powered devices and operating multiple positions. EUT shall be performed two or three orthogonal planes. The worst planes is X.		
Modulation Mode	11b, 11g, HT20, HT40		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**

2.5 Support Equipment

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E6430	DoC

2.6 Test Setup Diagram

Test Setup Diagram - Radiated Test - adapter mode



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

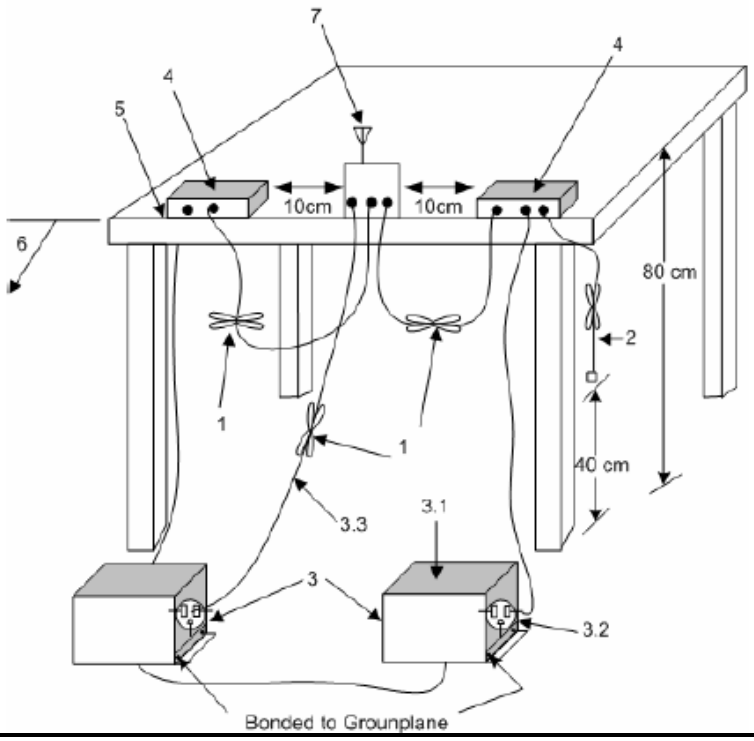
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

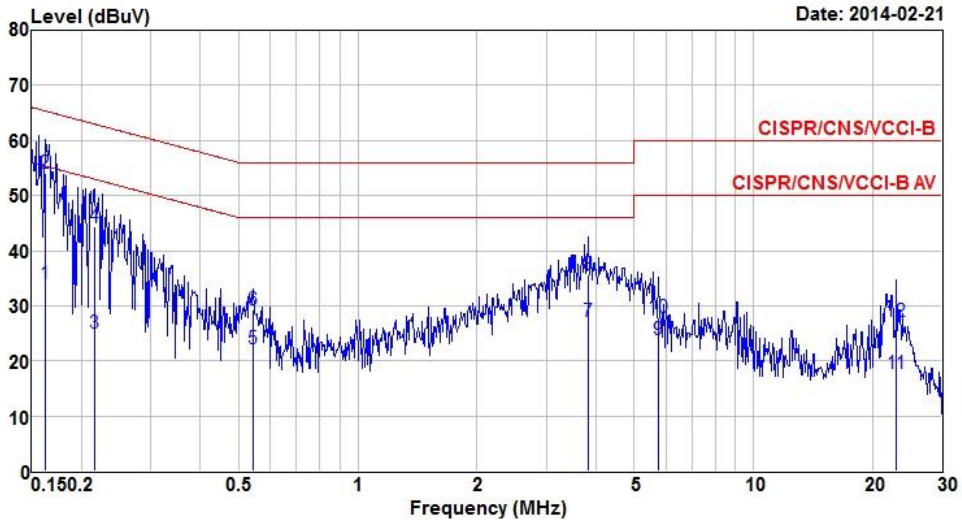
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

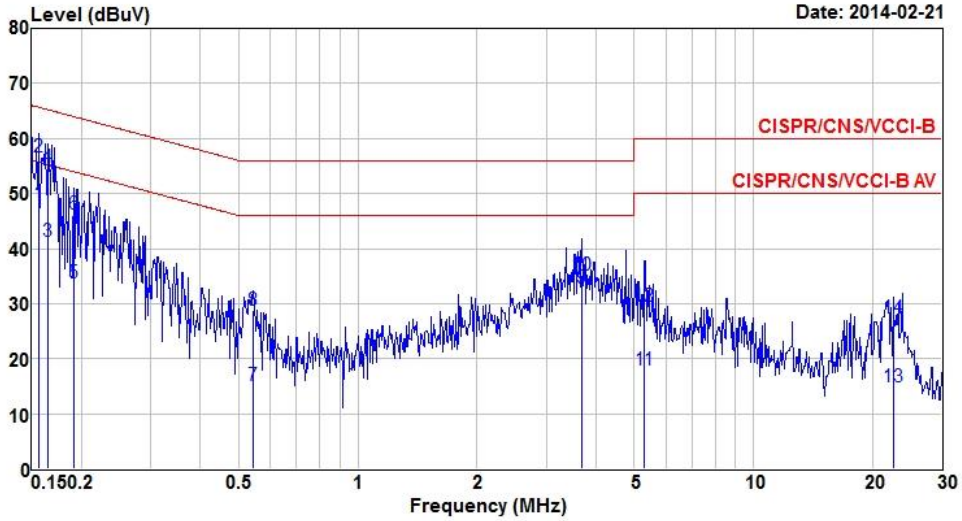
AC Power-line Conducted Emissions Result	
Power Phase	Neutral



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.162	33.95	55.34	-21.39	33.38	0.48	0.09	Average
2*	0.162	53.93	65.34	-11.41	53.36	0.48	0.09	QP
3	0.216	24.95	52.96	-28.01	24.31	0.48	0.16	Average
4	0.216	44.41	62.96	-18.55	43.77	0.48	0.16	QP
5	0.544	22.10	46.00	-23.90	21.58	0.47	0.05	Average
6	0.544	29.37	56.00	-26.63	28.85	0.47	0.05	QP
7	3.820	27.20	46.00	-18.80	26.45	0.52	0.23	Average
8	3.820	35.72	56.00	-20.28	34.97	0.52	0.23	QP
9	5.744	23.74	50.00	-26.26	23.01	0.54	0.19	Average
10	5.744	27.75	60.00	-32.25	27.02	0.54	0.19	QP
11	23.018	17.69	50.00	-32.31	16.77	0.54	0.38	Average
12	23.018	27.13	60.00	-32.87	26.21	0.54	0.38	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.)

AC Power-line Conducted Emissions Result	
Power Phase	Line



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1*	0.156	48.09	55.69	-7.60	47.62	0.40	0.07	Average
2	0.156	56.76	65.69	-8.93	56.29	0.40	0.07	QP
3	0.164	41.25	55.25	-14.00	40.75	0.40	0.10	Average
4	0.164	54.79	65.25	-10.46	54.29	0.40	0.10	QP
5	0.191	33.79	53.98	-20.19	33.24	0.39	0.16	Average
6	0.191	46.36	63.98	-17.62	45.81	0.39	0.16	QP
7	0.544	15.04	46.00	-30.96	14.59	0.40	0.05	Average
8	0.544	28.79	56.00	-27.21	28.34	0.40	0.05	QP
9	3.681	32.85	46.00	-13.15	32.16	0.46	0.23	Average
10	3.681	35.19	56.00	-20.81	34.50	0.46	0.23	QP
11	5.305	18.02	50.00	-31.98	17.34	0.48	0.20	Average
12	5.305	29.42	60.00	-30.58	28.74	0.48	0.20	QP
13	22.535	14.84	50.00	-35.16	13.93	0.55	0.36	Average
14	22.535	27.38	60.00	-32.62	26.47	0.55	0.36	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 ≥ 500 kHz.

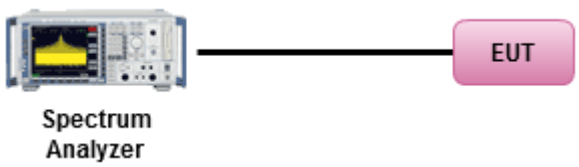
3.2.2 Measuring Instruments

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 D01 DTS Meas Guidance v03r02, clause 8.1 Option 1 for 6 dB bandwidth measurement.	
	☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, 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 1 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 1.
		☒	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.

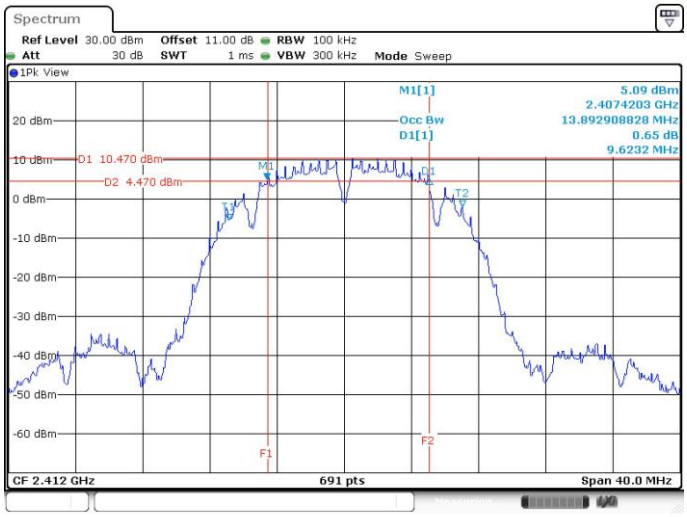
3.2.4 Test Setup

Emission Bandwidth


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 4	Chain-Port 1	Chain-Port 2	Chain-Port 3	Chain-Port 4
11b	3	2412	13.89	13.77	13.82	--	10.09	9.62	10.09	--
11b	3	2437	13.92	14.00	13.92	--	10.09	10.09	10.09	--
11b	3	2462	13.89	13.90	13.91	--	10.09	10.03	10.09	--
11g	3	2412	17.00	16.87	16.83	--	16.35	16.35	15.30	--
11g	3	2437	19.67	20.38	22.63	--	16.35	15.77	15.77	--
11g	3	2462	16.99	16.85	16.88	--	16.35	16.35	16.35	--
HT-20	3	2412	18.09	18.01	17.91	--	17.57	16.70	16.87	--
HT-20	3	2437	19.92	20.35	22.18	--	16.35	17.16	16.93	--
HT-20	3	2462	18.14	17.88	17.99	--	17.51	17.22	17.51	--
HT-40	3	2422	38.18	38.00	37.78	--	36.06	35.94	35.71	--
HT-40	3	2437	38.74	37.92	37.74	--	36.41	36.41	36.29	--
HT-40	3	2452	38.24	38.32	37.76	--	36.41	36.41	36.29	--
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			
☒	2400-2483.5 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 $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm	
	☐	Smart antenna system (SAS):	
		☐	Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		☐	Overlap beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3$ dBm
		☐	Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 – (G_{TX} – 6)/3 + 8$dB dBm
e.i.r.p. Power Limit:			
☒	2400-2483.5 MHz Band		
	☒	Point-to-multipoint systems (P2M): $P_{eirp} \leq 36$ dBm (4 W)	
	☐	Point-to-point systems (P2P): $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX}])$ dBm	
	☐	Smart antenna system (SAS)	
		☐	Single beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		☐	Overlap beam: $P_{eirp} \leq MAX(36, P_{Out} + G_{TX})$ dBm
		☐	Aggregate power on all beams: $P_{eirp} \leq MAX(36, [P_{Out} + G_{TX} + 8])$ dBm
P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, **G_{TX}** = the maximum transmitting antenna directional gain in dBi. **P_{eirp}** = e.i.r.p. Power in dBm.			

3.3.2 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 D01 DTS Meas Guidance v03r02, clause 9.1.1 (RBW ≥ DTS BW).
☒	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 9.1.2 (Peak power meter)
☒	Maximum Conducted Output Power (Reference only)
☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, 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 D01 DTS Meas Guidance v03r02, clause 9.2.3.2 Method AVGPM-G (using a gated 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 1 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: $P_{total} = P_1 + P_2 + \ldots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup

RF Output Power (Power Meter)

3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	3	-
Maximum G_{ANT} (dBi)		2.1859	3.3341	4.2057	-
Modulation Mode	**DG (dBi)**	**N_{TX}**	**N_{SS}**	**STBC**	**Array Gain (dB)**
11b,1-11Mbps	4.2057	3	1	-	-
11g,6-54Mbps	4.2057	3	1	-	-
HT20,M0-23	4.2057	3	1	-	-
HT40,M0-23	4.2057	3	1	-	-

Note: If antenna gains are not equal, Directional gain may be calculated by using the formulas applicable to equal gain antennas with G_{ANT} set equal to the gain of the antenna having the highest gain.
Directional gain = highest antenna gain + Array gain, Array gain = 0dB since the device supports CDD mode.

3.3.6 Test Result of Maximum Conducted Output Power

Maximum Conducted (Average) Output Power											
Condition			RF Output Power (dBm)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11b	3	2412	20.21	20.45	20.42	--	25.13	30.00	4.2057	29.3357	36.00
11b	3	2437	19.82	20.39	19.86	--	24.80	30.00	4.2057	29.0057	36.00
11b	3	2462	19.85	20.39	19.64	--	24.74	30.00	4.2057	28.9457	36.00
11g	3	2412	18.14	18.32	18.21	--	23.00	30.00	4.2057	27.2057	36.00
11g	3	2437	23.72	23.77	23.31	--	28.38	30.00	4.2057	32.5857	36.00
11g	3	2462	17.39	17.58	17.18	--	22.16	30.00	4.2057	26.3657	36.00
HT-20	3	2412	17.45	17.85	17.43	--	22.35	30.00	4.2057	26.5557	36.00
HT-20	3	2437	23.55	23.66	23.20	--	28.25	30.00	4.2057	32.4557	36.00
HT-20	3	2462	16.75	16.54	16.68	--	21.43	30.00	4.2057	25.6357	36.00
HT-40	3	2422	15.94	16.04	16.44	--	20.92	30.00	4.2057	25.1257	36.00
HT-40	3	2437	17.85	17.94	17.38	--	22.50	30.00	4.2057	26.7057	36.00
HT-40	3	2452	14.67	15.36	15.18	--	19.85	30.00	4.2057	24.0557	36.00
Result			Complied								

3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit
☒ Power Spectral Density (PSD) ≤ 8 dBm/30kHz

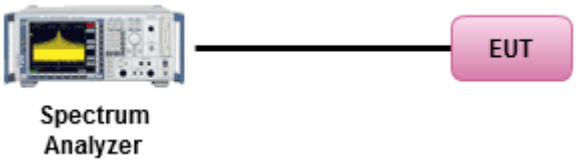
3.4.2 Measuring Instruments

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 D01 DTS Meas Guidance v03r02, clause 10.2 Method PKPSD (RBW=3kHz; detector=peak)..	
	☒	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 10.3 Method AVGPSD-1 (spectral trace averaging).	
	☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 10.4 Method AVGPSD-1 Alt. (slow sweep speed)	
	☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 10.5 Method AVGPSD-2 (spectral trace averaging).	
	☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 10.6 Method AVGPSD-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 1 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.

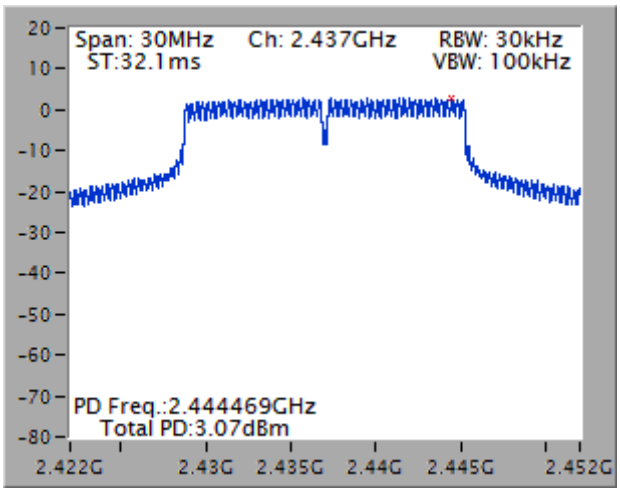
3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Power Spectral Density Result				
Condition			Power Spectral Density (dBm/3kHz)	
Modulation Mode	N_{TX}	Freq. (MHz)	Sum Chain	Power Limit
11b	3	2412	1.60	5.95
11b	3	2437	1.21	5.95
11b	3	2462	0.95	5.95
11g	3	2412	-1.91	5.95
11g	3	2437	3.07	5.95
11g	3	2462	-3.31	5.95
HT-20	3	2412	-3.35	5.95
HT-20	3	2437	2.71	5.95
HT-20	3	2462	-4.05	5.95
HT-40	3	2422	-7.29	5.95
HT-40	3	2437	-5.50	5.95
HT-40	3	2452	-8.00	5.95
Result			Complied	

Worst Power Spectral Density Plots



Note:

1. Test results are bin-by-bin summing measured value of each TX port.
2. Directional gain = $10 * \log((10^{2.1859/20}+10^{3.3341/20}+10^{4.2057/20})^2/3)$ = 8.05 dBi > 6 dBi
   Limit shall be reduced to 8 dBm – (8.05 dBi – 6 dBi) = 5.95 dBm

3.5 Emissions in non-restricted frequency bands

3.5.1 Emissions in non-restricted frequency bands limit

Peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz

3.5.2 Measuring Instruments

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

3.5.3 Test Procedures

Reference level measurement

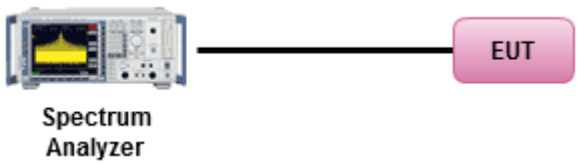
1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

Emission level measurement

1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Scan Frequency range is up to 25GHz
4. Use the peak marker function to determine the maximum amplitude level

3.5.4 Test Setup

Transmitter Radiated Bandedge Emissions

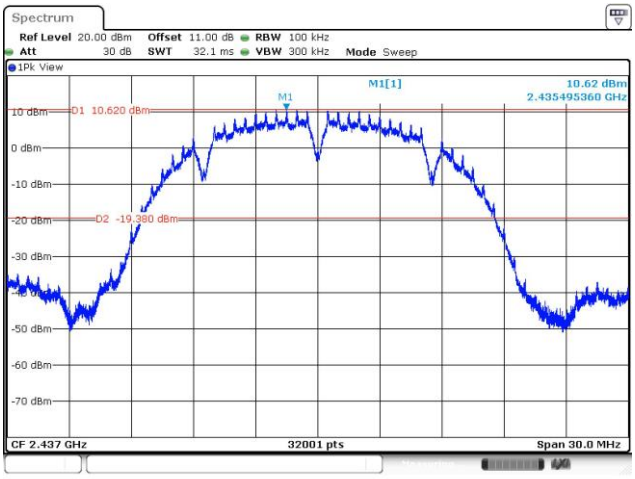
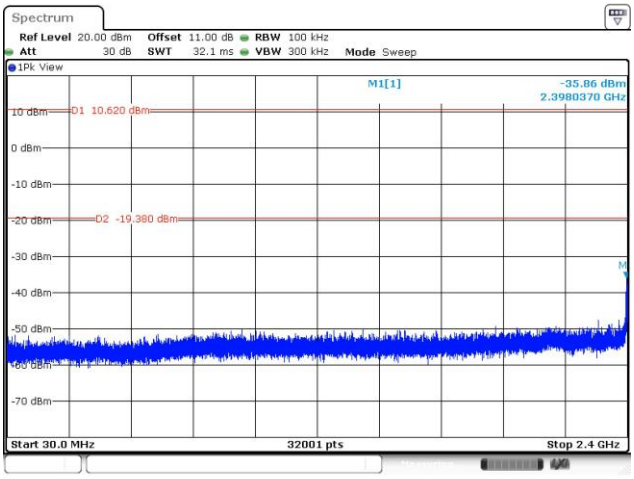
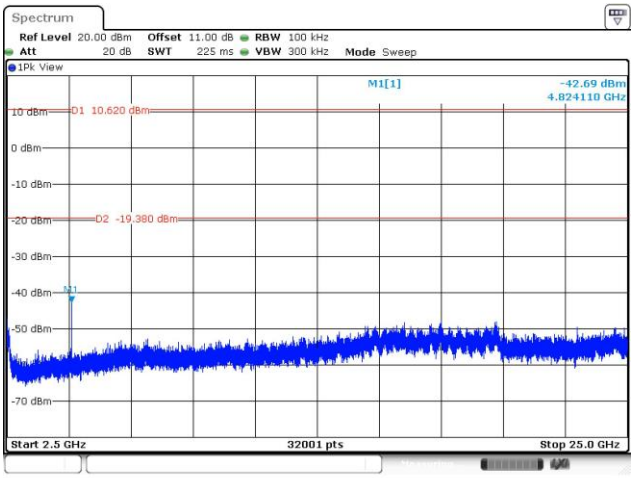
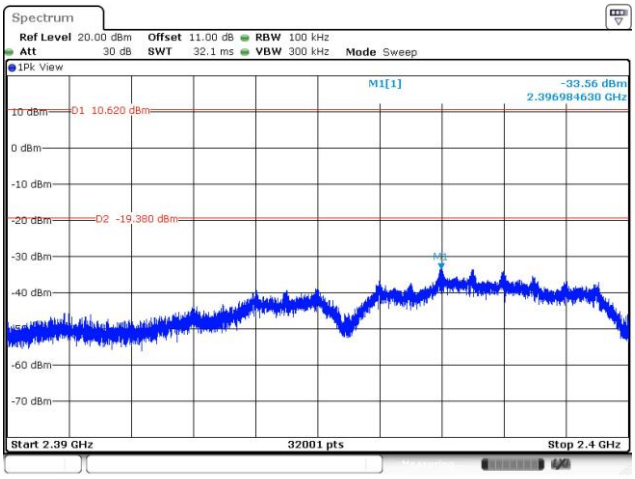


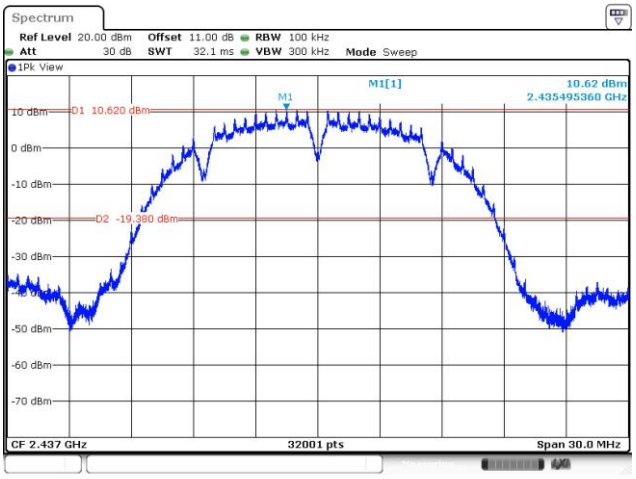
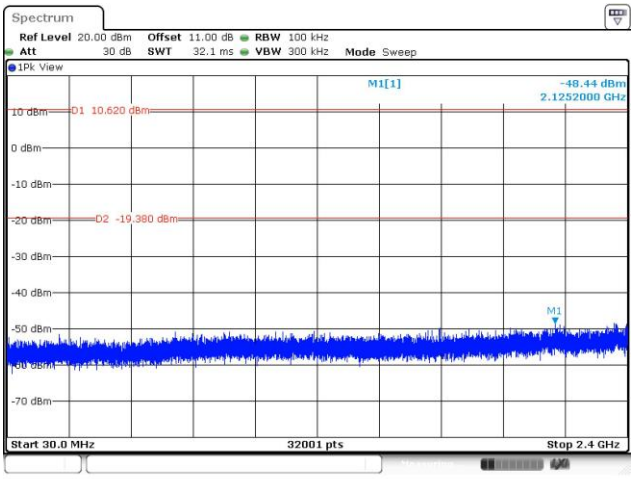
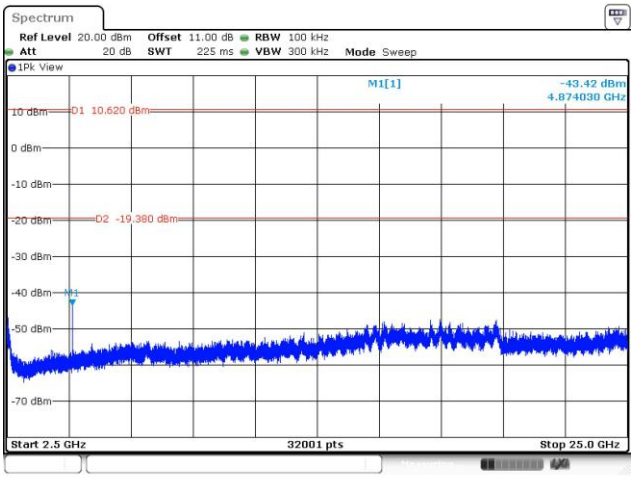
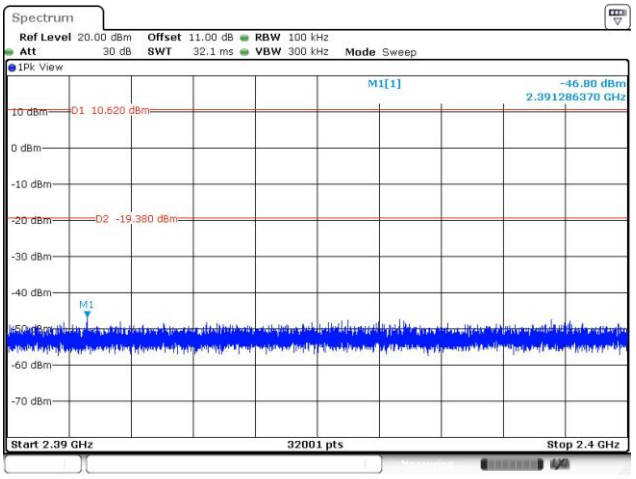
3.5.5 Test Result of Emissions in non-restricted frequency bands

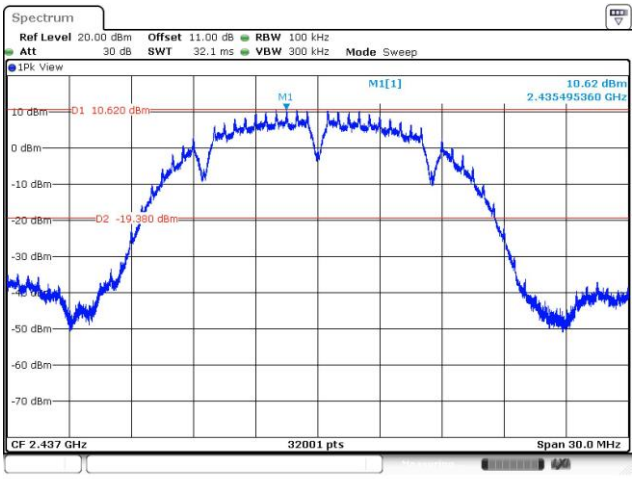
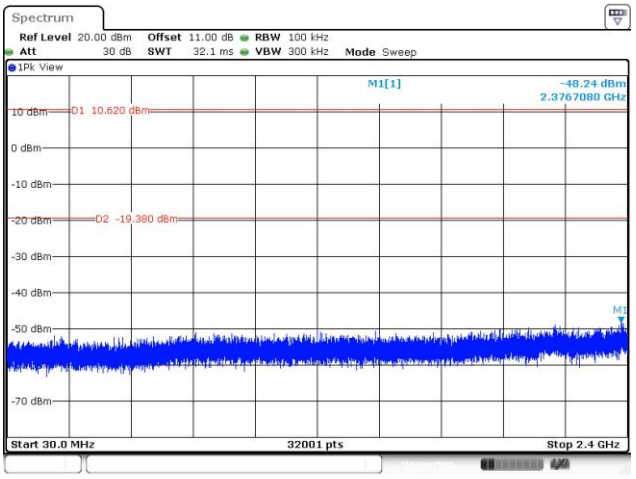
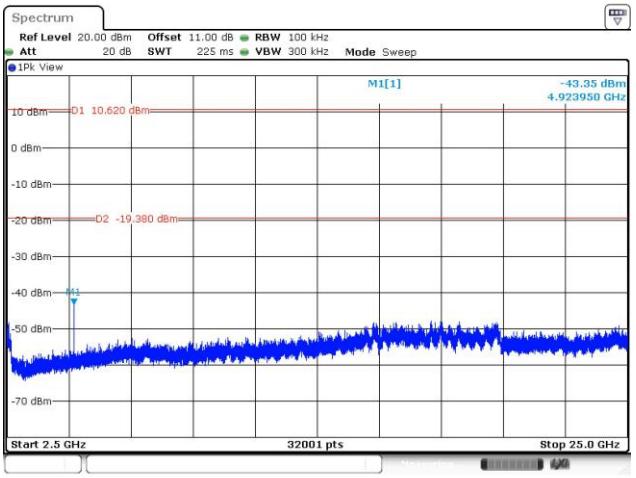
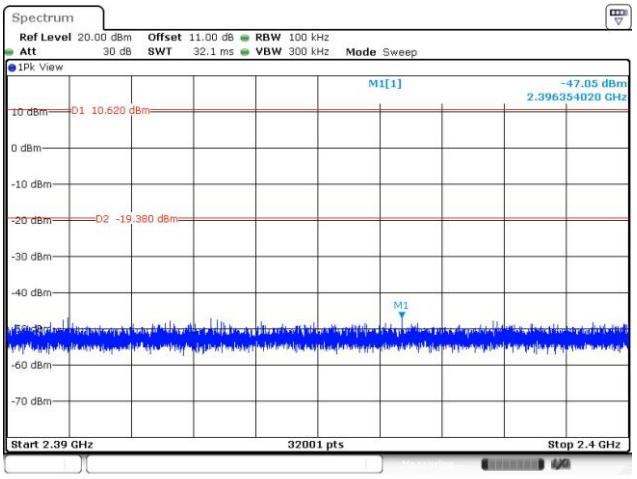
This test item is performed on each TX output individually without summing or adding 10 log(N_{ANT}) since measurements are made relative to the in-band emissions on the individual outputs. Only worst test result of each operating mode is presented.

3.5.6 Test Result of Emissions in non-restricted frequency bands

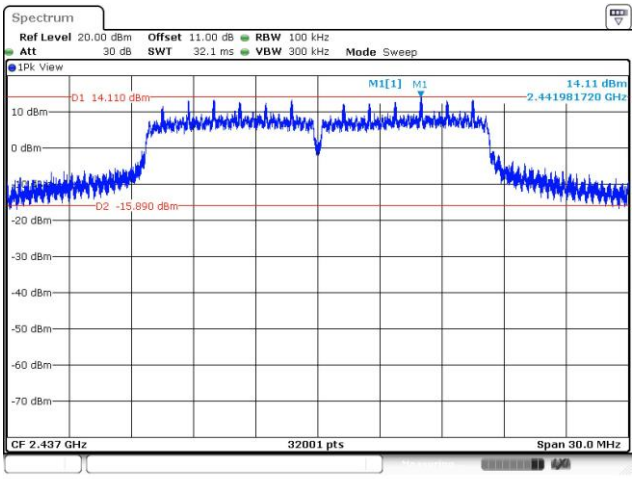
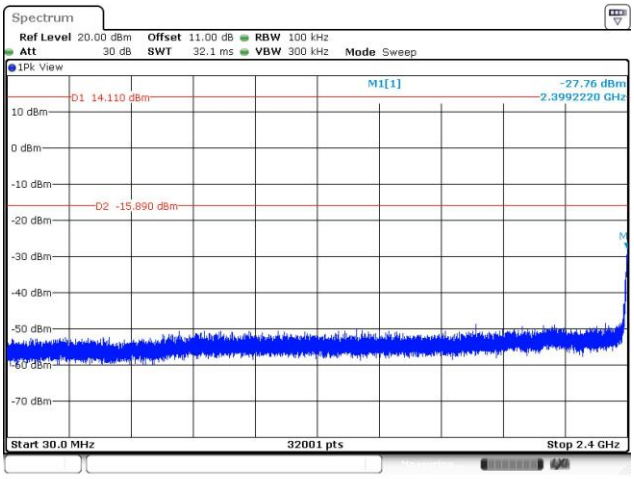
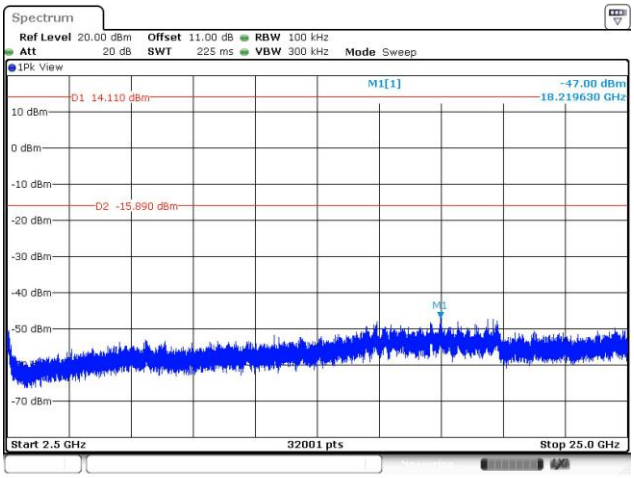
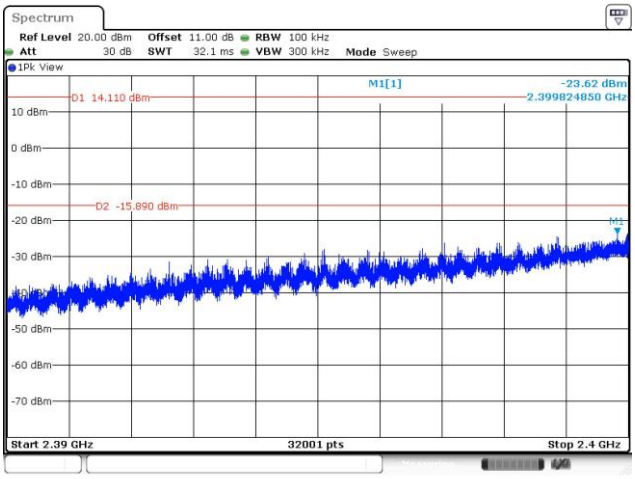
802.11b

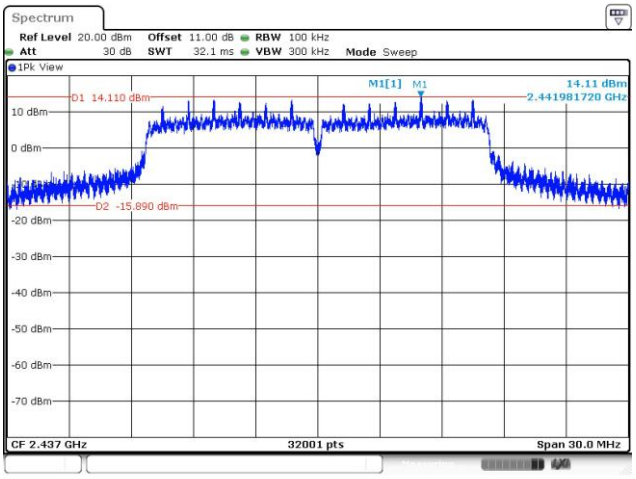
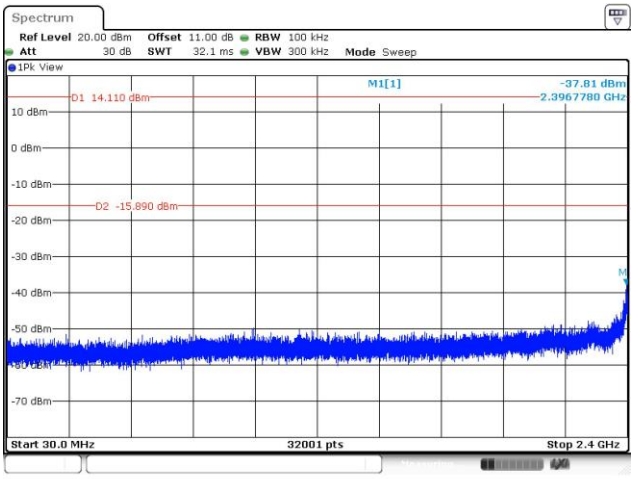
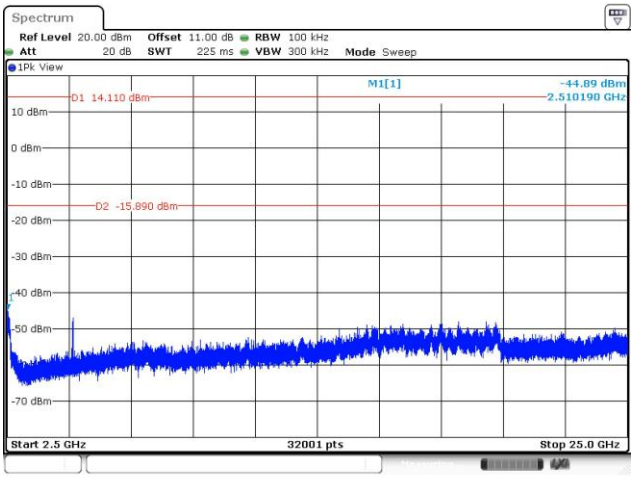
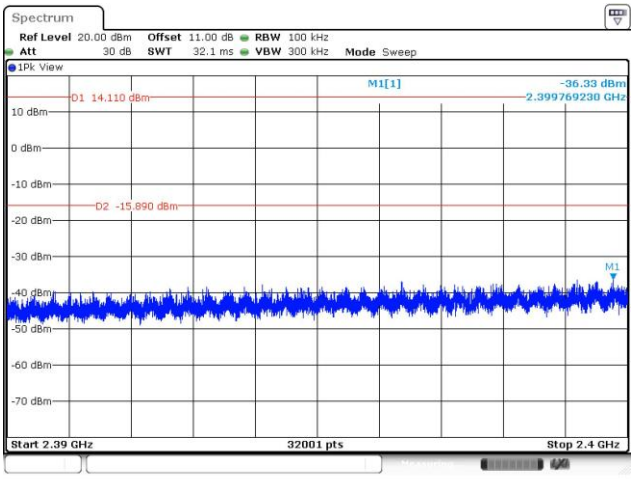
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

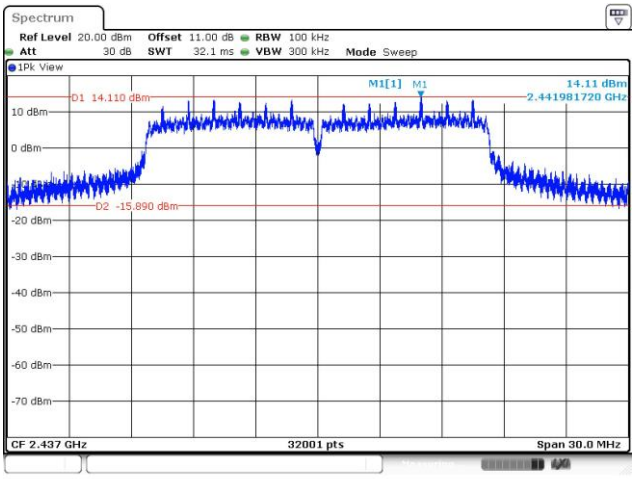
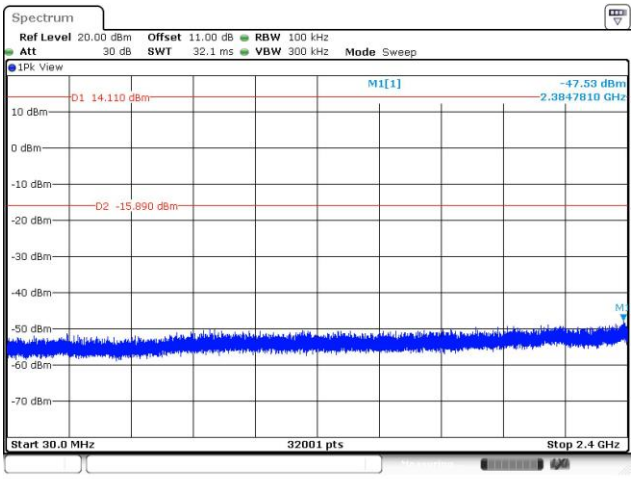
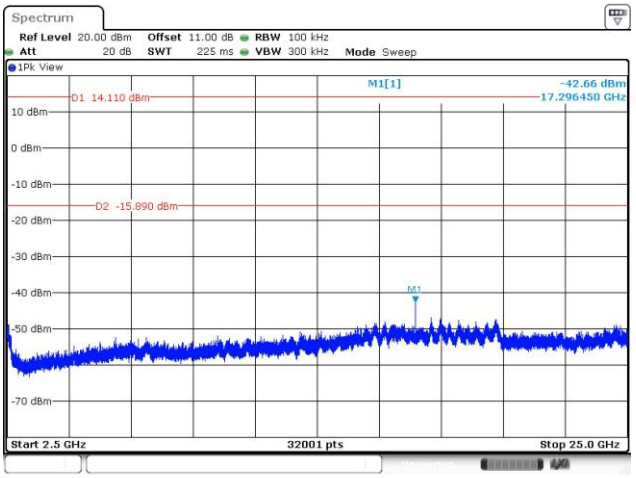
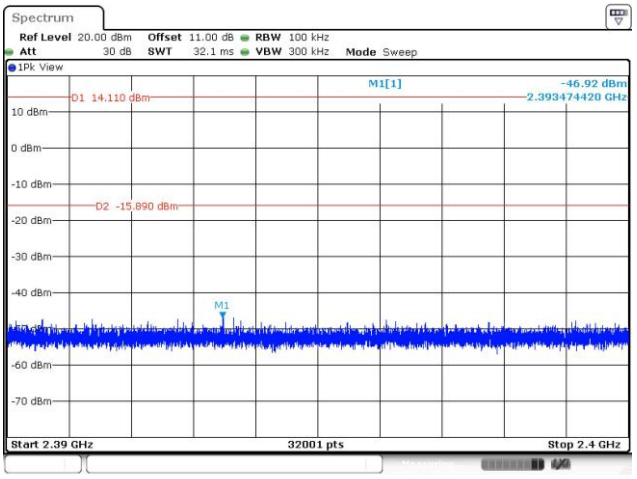
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

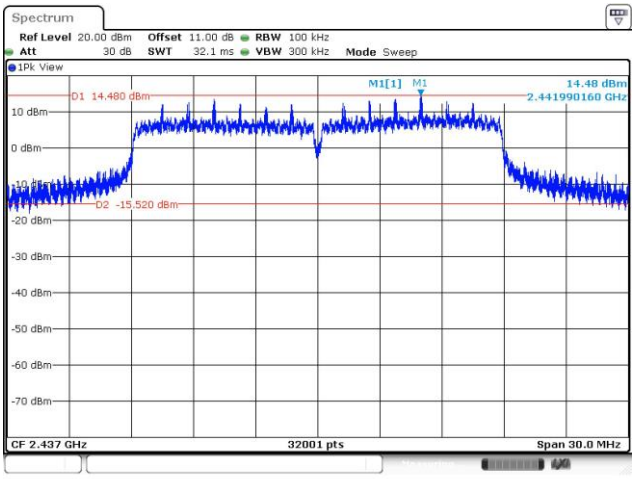
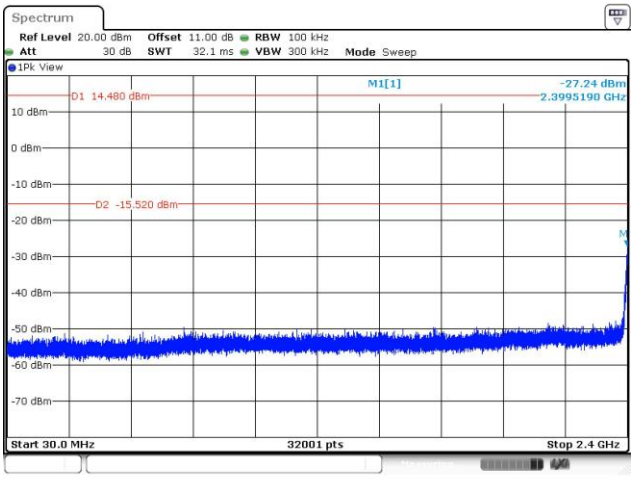
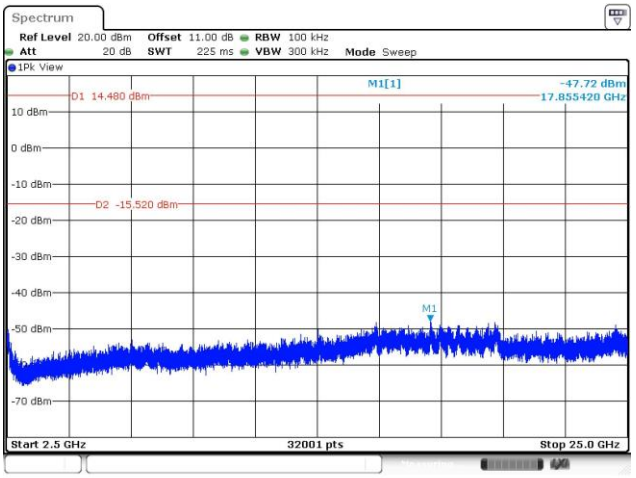
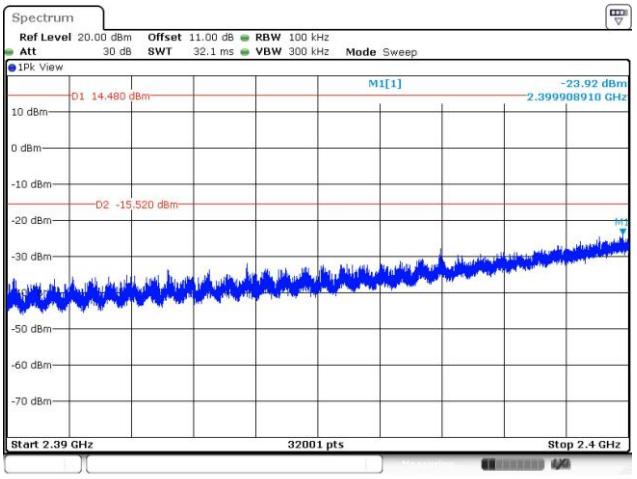
802.11g

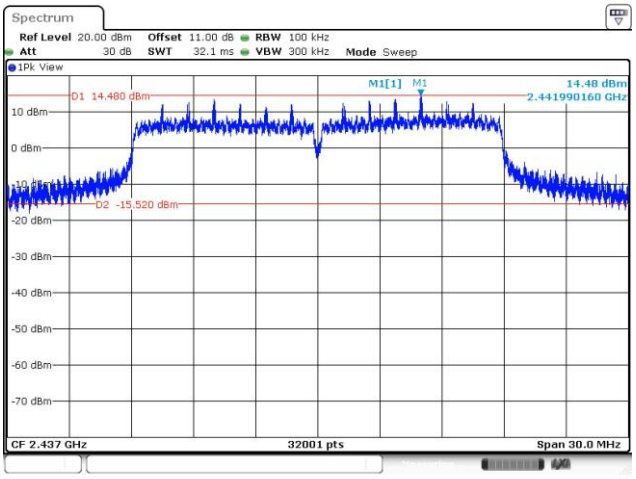
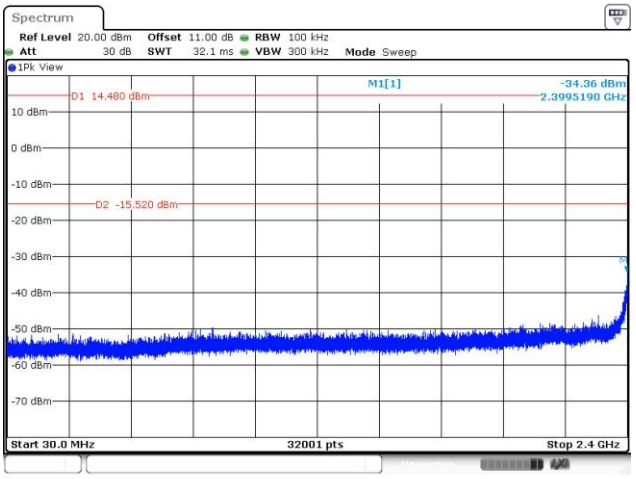
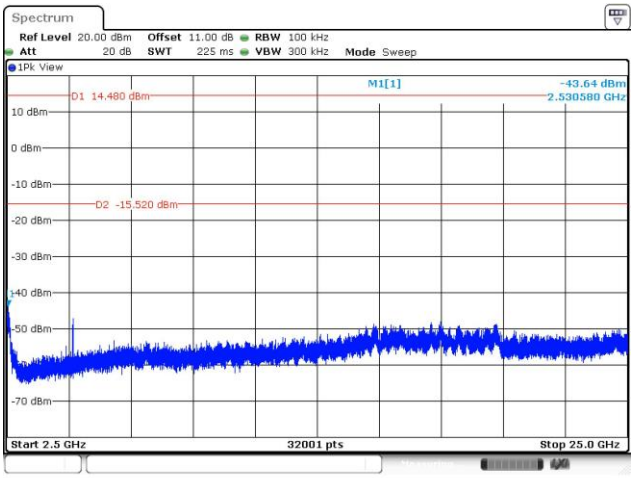
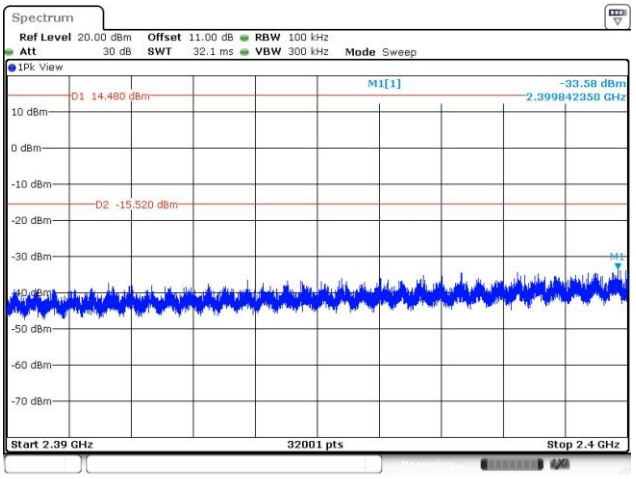
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

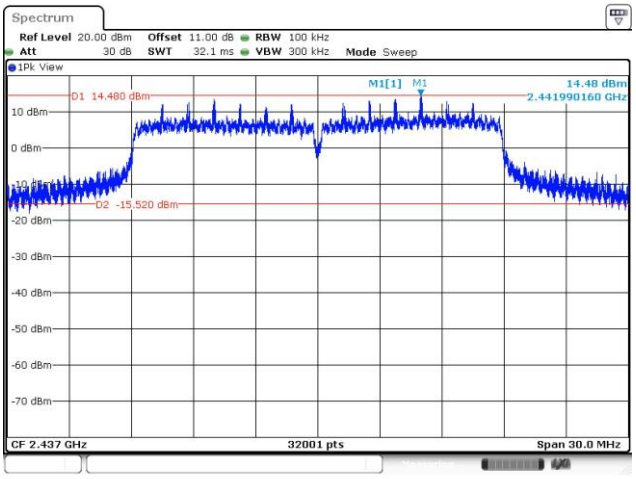
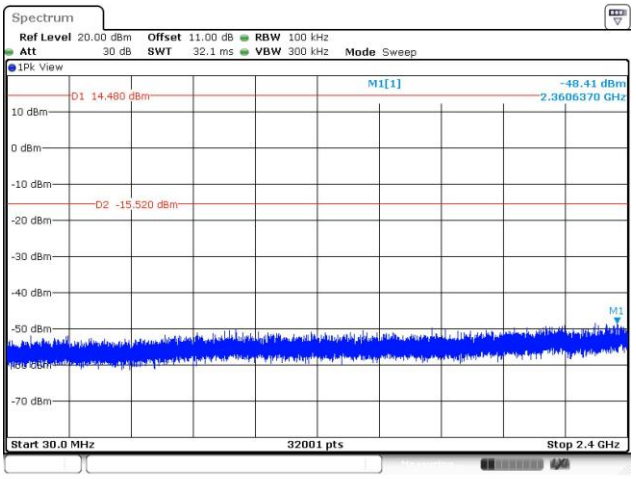
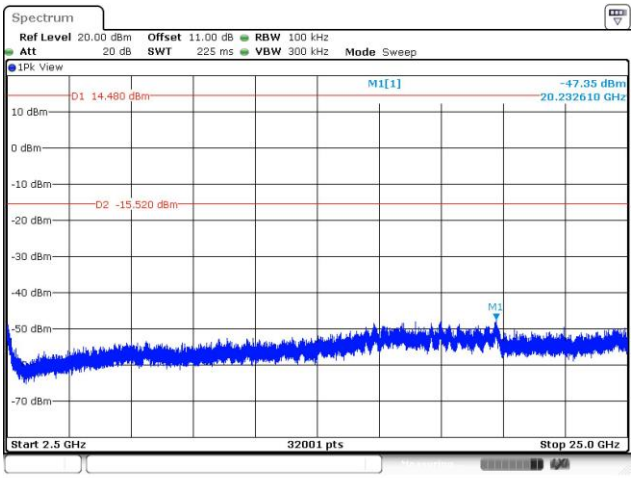
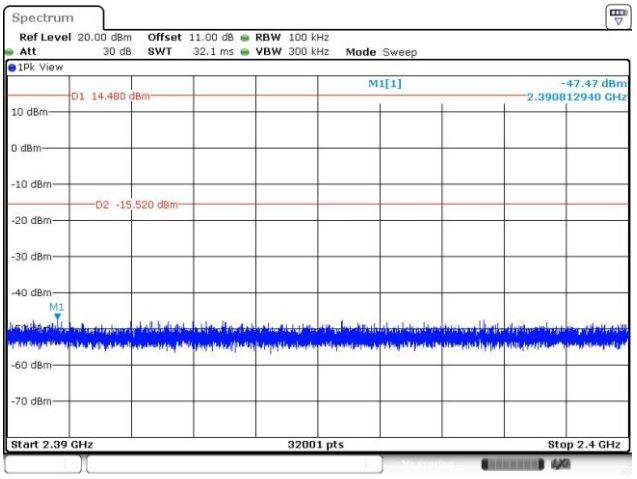
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

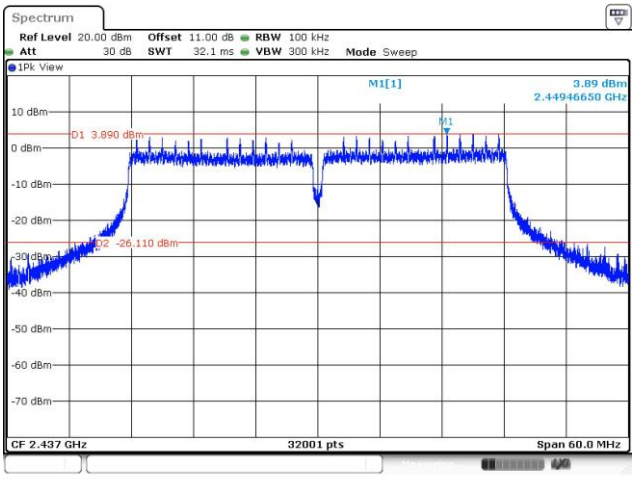
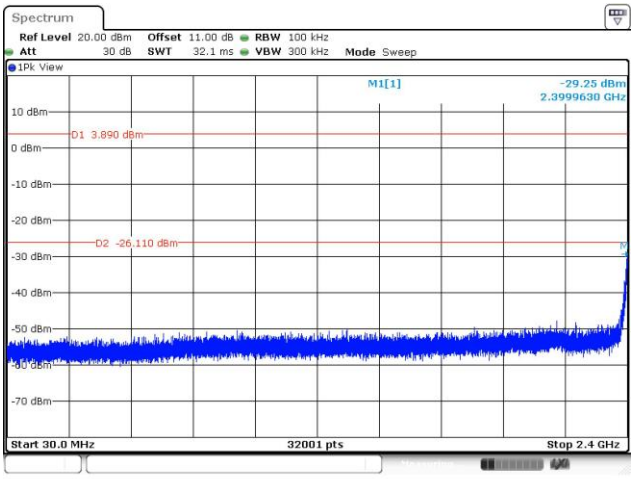
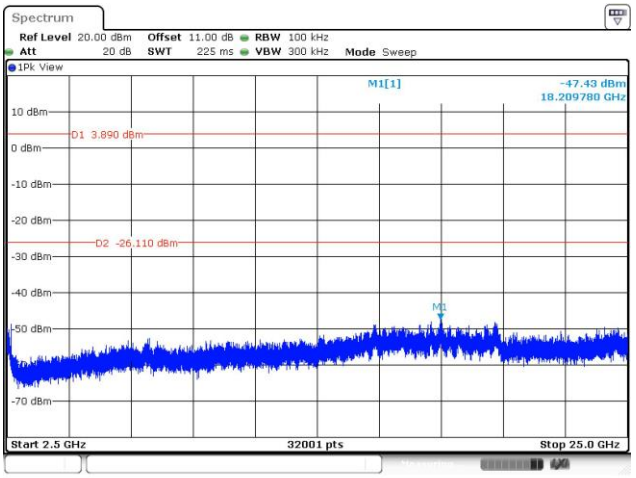
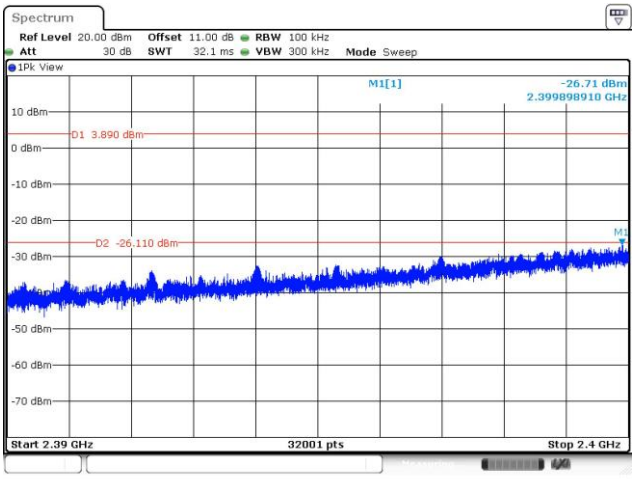
802.11n HT20

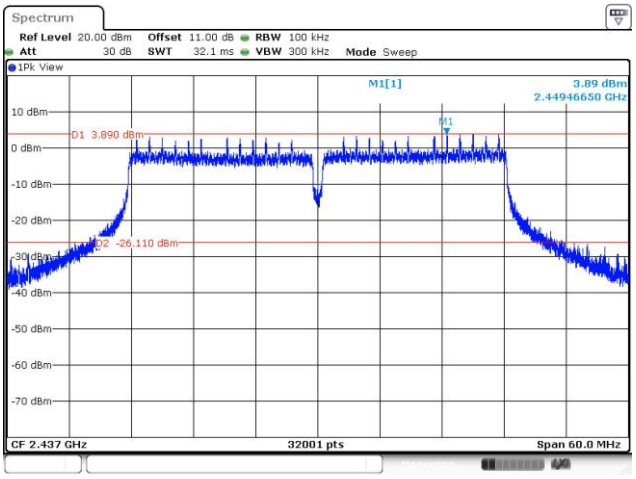
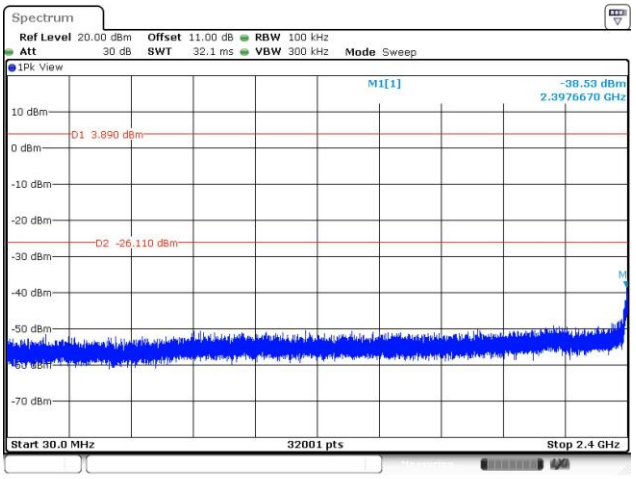
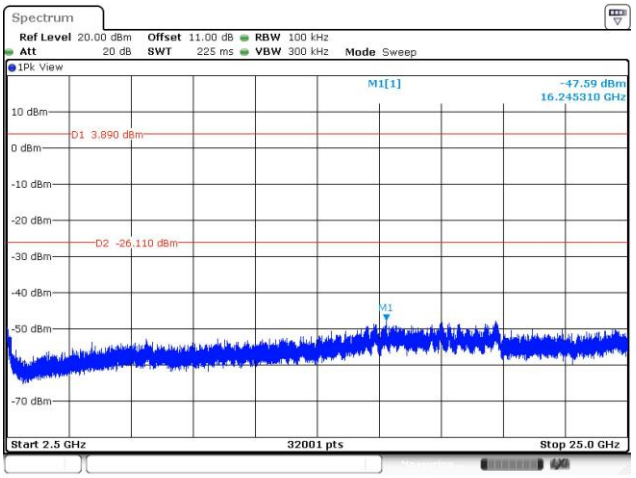
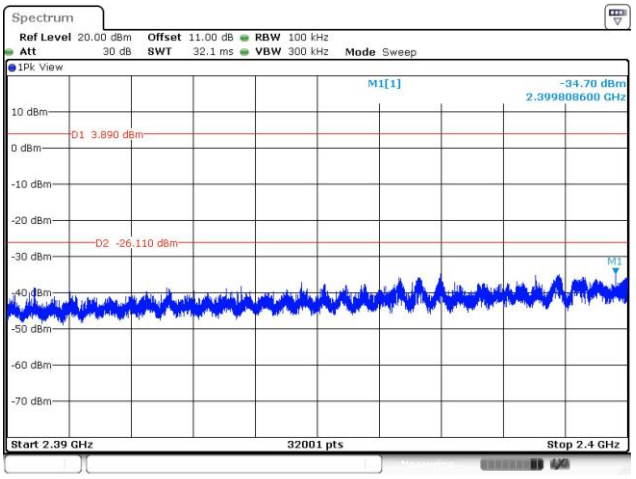
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

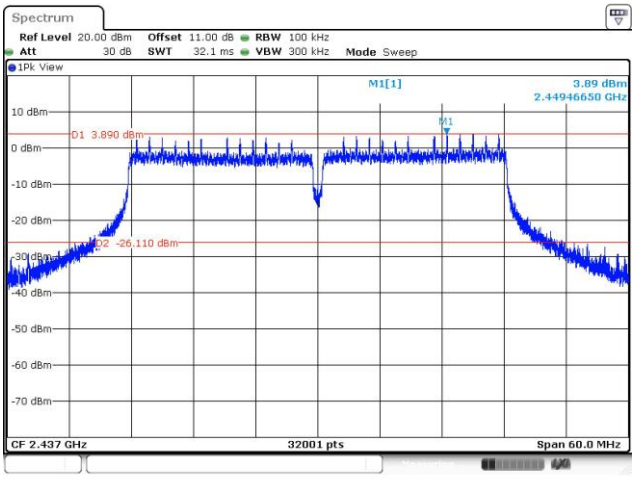
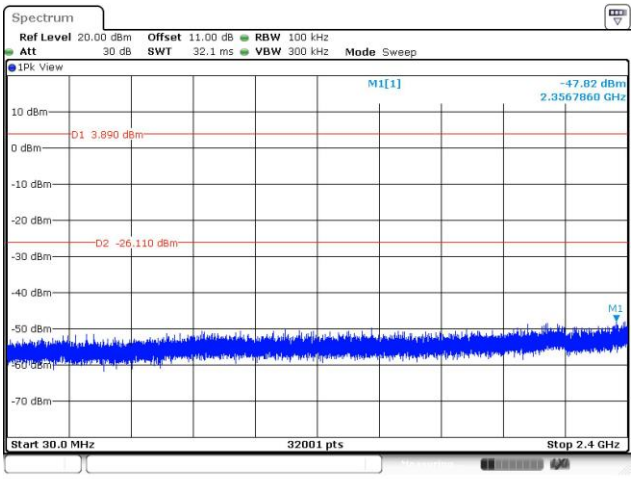
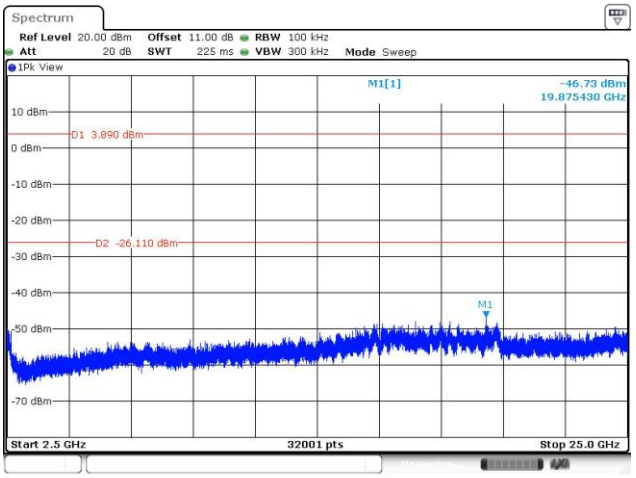
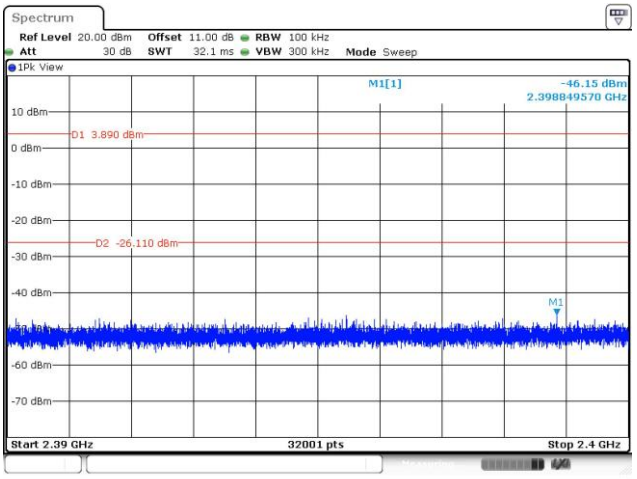
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

802.11n HT40

Reference Level	Tx 2422MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

Reference Level	Tx 2452MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

3.6 Transmitter Radiated Unwanted Emissions

3.6.1 Transmitter Radiated Unwanted Emissions Limit

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

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

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

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

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

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

3.6.2 Measuring Instruments

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

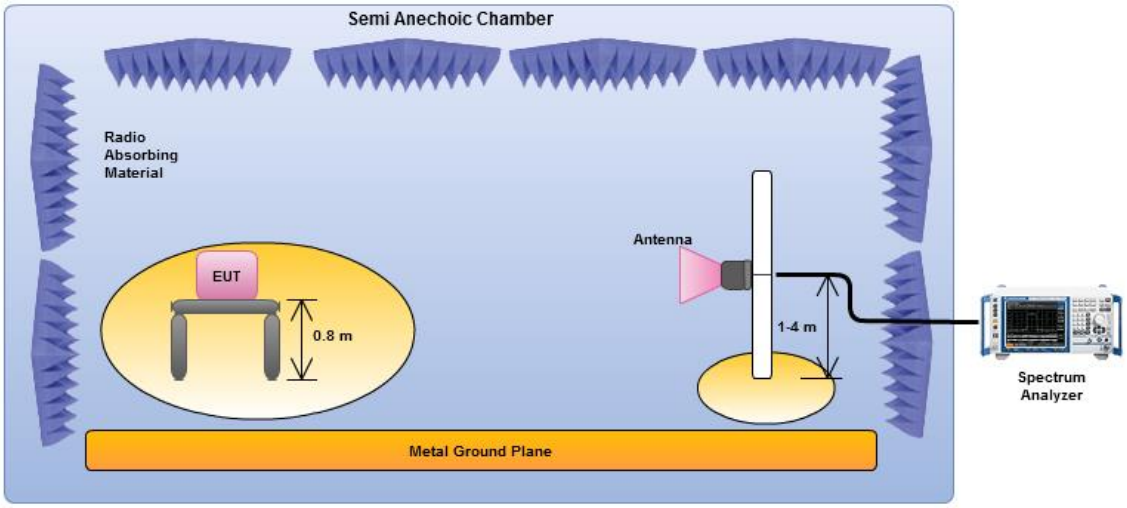
3.6.3 Test Procedures

Test Method			
☒	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).		
☒	For the transmitter unwanted emissions shall be measured using following options below:		
	☒	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 11 for unwanted emissions into non-restricted bands.	
	☒	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 12 for unwanted emissions into restricted bands.	
		☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%)
		☐	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
		☒	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 12.2.5.3 Option 3 (Reduced VBW≥1/T).
		☐	Refer as ANSI C63.10, clause 4.2.3.2.3 (Reduced VBW). VBW ≥ 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 D01 DTS Meas Guidance v03r02, clause 12.2.4 measurement procedure peak limit.
		☒	Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 12.2.3 measurement procedure Quasi-Peak limit.
☒	For radiated measurement, refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, 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 D01 DTS Meas Guidance v03r02, clause 12.2	
	☐	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
	☐	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB

3.6.4 Test Setup

Transmitter Radiated Unwanted Emissions



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

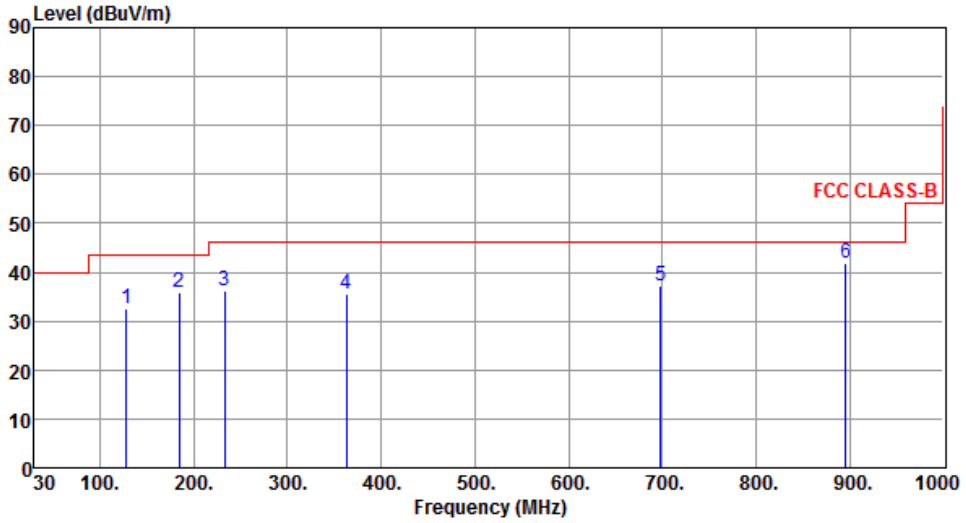
Note: Test distance is 3m.

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)

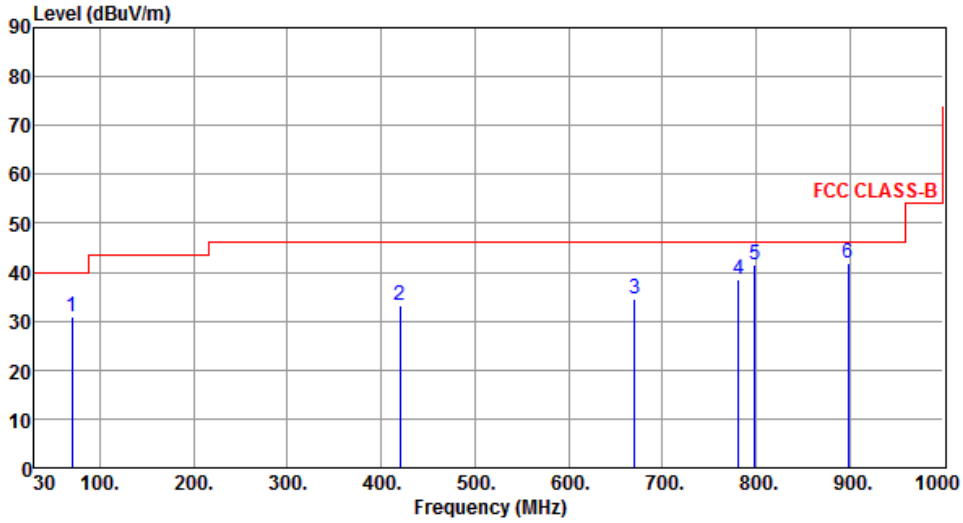
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
Polarization	H		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	127.85	32.43	43.50	-11.07	50.90	-18.47	Peak	---	---
2	184.36	35.98	43.50	-7.52	54.97	-18.99	Peak	---	---
3	232.64	36.12	46.00	-9.88	54.58	-18.46	Peak	---	---
4	362.89	35.61	46.00	-10.39	50.30	-14.69	Peak	---	---
5	698.49	37.22	46.00	-8.78	45.48	-8.26	Peak	---	---
6	896.14	41.87	46.00	-4.13	47.42	-5.55	QP	---	---

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)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
Polarization	V		

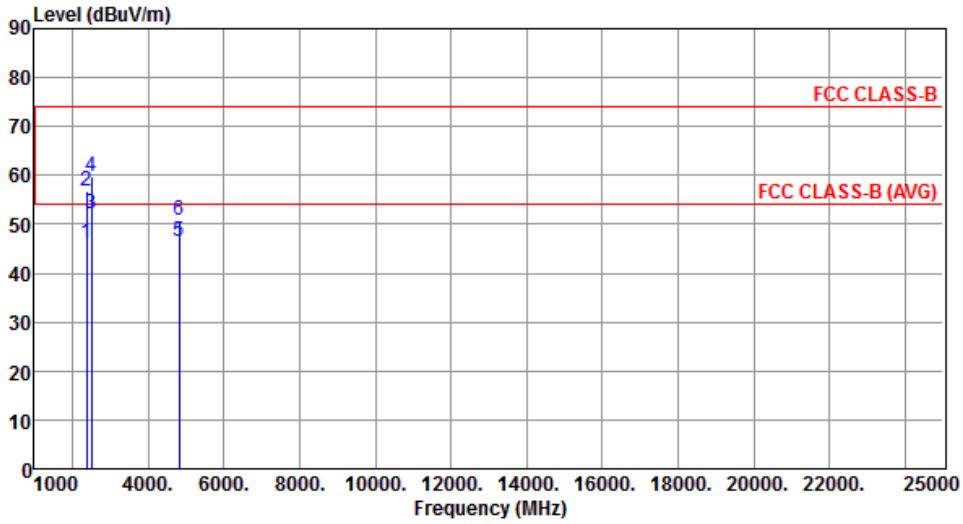


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	70.51	30.91	40.00	-9.09	50.43	-19.52	Peak	---	---
2	419.72	33.36	46.00	-12.64	46.56	-13.20	Peak	---	---
3	670.36	34.57	46.00	-11.43	43.16	-8.59	Peak	---	---
4	781.55	38.47	46.00	-7.53	45.41	-6.94	Peak	---	---
5	798.31	41.53	46.00	-4.47	48.32	-6.79	Peak	---	---
6	898.46	41.96	46.00	-4.04	47.47	-5.51	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) for 11b

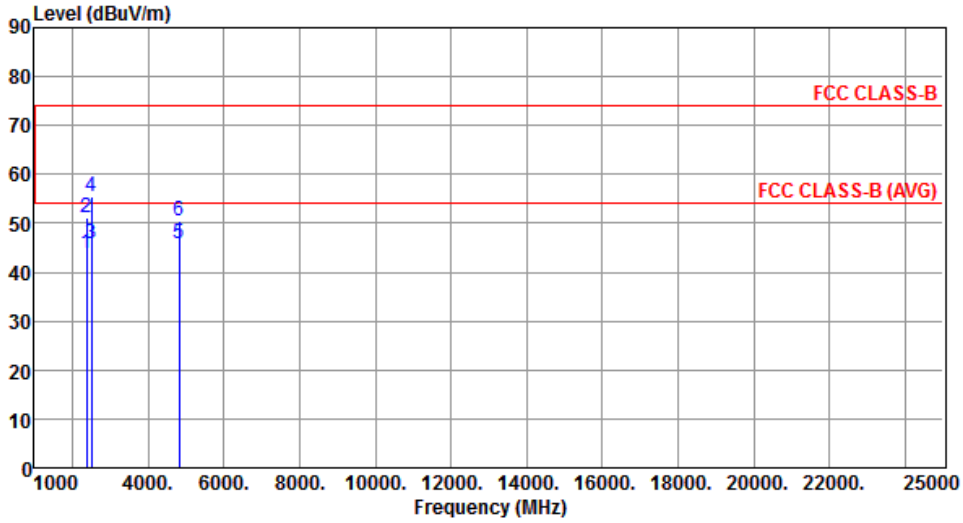
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2412
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	46.03	54.00	-7.97	49.71	-3.68	Average	---	---
2	2390.00	56.82	74.00	-17.18	60.50	-3.68	Peak	---	---
3	2498.00	52.15	54.00	-1.85	55.38	-3.23	Average	---	---
4	2498.00	59.89	74.00	-14.11	63.12	-3.23	Peak	---	---
5	4824.00	46.39	54.00	-7.61	41.40	4.99	Average	---	---
6	4824.00	50.85	74.00	-23.15	45.86	4.99	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 30 dB relative to the maximum measured in-band level.

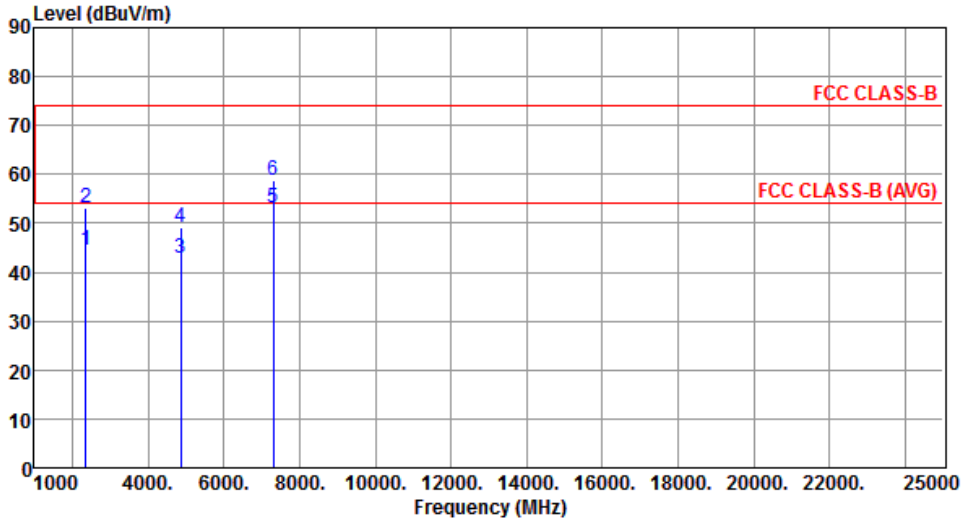
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2412
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	43.80	54.00	-10.20	47.48	-3.68	Average	---	---
2	2390.00	51.25	74.00	-22.75	54.93	-3.68	Peak	---	---
3	2498.00	45.91	54.00	-8.09	49.14	-3.23	Average	---	---
4	2498.00	55.58	74.00	-18.42	58.81	-3.23	Peak	---	---
5	4824.00	45.97	54.00	-8.03	40.98	4.99	Average	---	---
6	4824.00	50.39	74.00	-23.61	45.40	4.99	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 30 dB relative to the maximum measured in-band level.

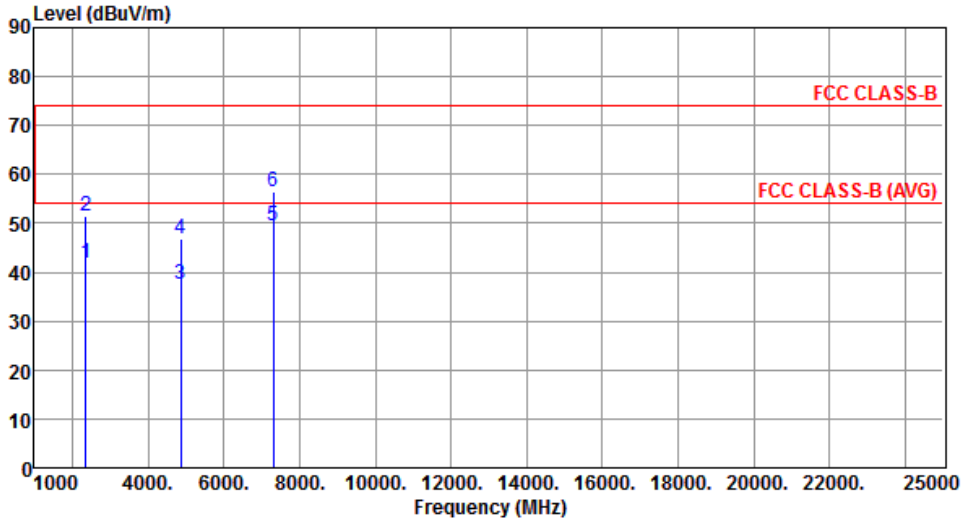
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2352.00	44.36	54.00	-9.64	48.21	-3.85	Average	---	---
2	2352.00	53.05	74.00	-20.95	56.90	-3.85	Peak	---	---
3	4874.00	42.72	54.00	-11.28	37.62	5.10	Average	---	---
4	4874.00	49.05	74.00	-24.95	43.95	5.10	Peak	---	---
5	7311.00	52.98	54.00	-1.02	43.65	9.33	Average	---	---
6	7311.00	58.93	74.00	-15.07	49.60	9.33	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 30 dB relative to the maximum measured in-band level.

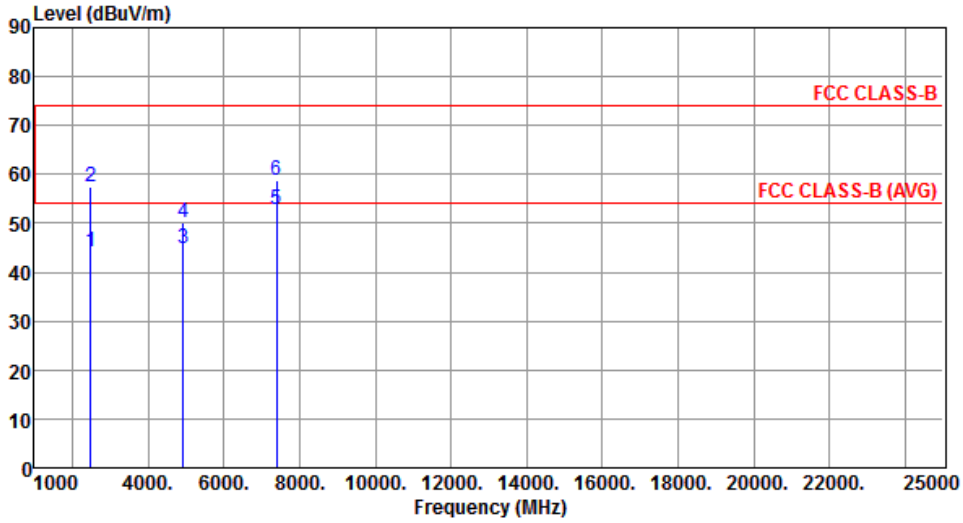
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2352.00	41.68	54.00	-12.32	45.53	-3.85	Average	---	---
2	2352.00	51.44	74.00	-22.56	55.29	-3.85	Peak	---	---
3	4874.00	37.51	54.00	-16.49	32.41	5.10	Average	---	---
4	4874.00	46.73	74.00	-27.27	41.63	5.10	Peak	---	---
5	7311.00	49.59	54.00	-4.41	40.26	9.33	Average	---	---
6	7311.00	56.49	74.00	-17.51	47.16	9.33	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 30 dB relative to the maximum measured in-band level.

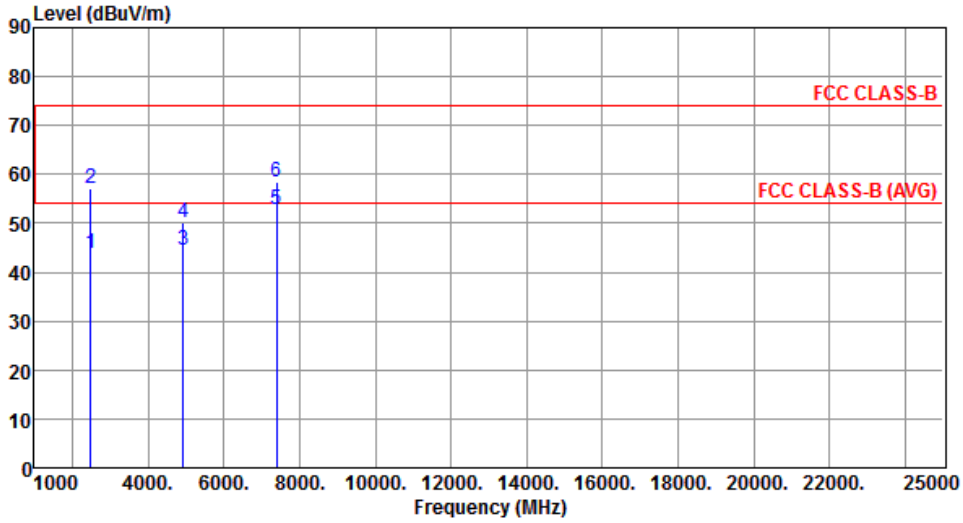
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2462
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	44.05	54.00	-9.95	47.35	-3.30	Average	---	---
2	2483.50	57.31	74.00	-16.69	60.61	-3.30	Peak	---	---
3	4924.00	44.80	54.00	-9.20	39.60	5.20	Average	---	---
4	4924.00	50.31	74.00	-23.69	45.11	5.20	Peak	---	---
5	7386.00	52.96	54.00	-1.04	43.57	9.39	Average	---	---
6	7386.00	58.63	74.00	-15.37	49.24	9.39	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 30 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2462
N_{TX}	3	**Polarization**	V

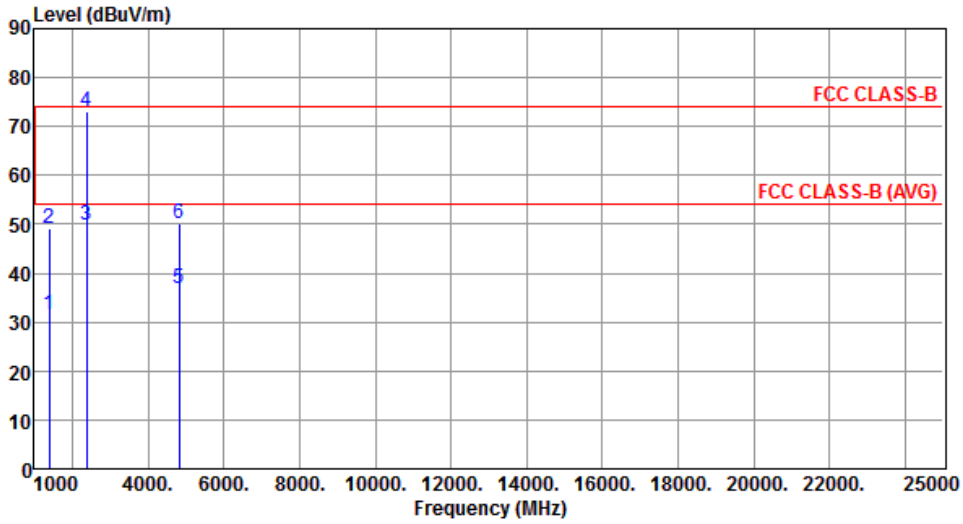


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	43.91	54.00	-10.09	47.21	-3.30	Average	---	---
2	2483.50	56.98	74.00	-17.02	60.28	-3.30	Peak	---	---
3	4924.00	44.65	54.00	-9.35	39.45	5.20	Average	---	---
4	4924.00	50.18	74.00	-23.82	44.98	5.20	Peak	---	---
5	7386.00	52.84	54.00	-1.16	43.45	9.39	Average	---	---
6	7386.00	58.49	74.00	-15.51	49.10	9.39	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 30 dB relative to the maximum measured in-band level.

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

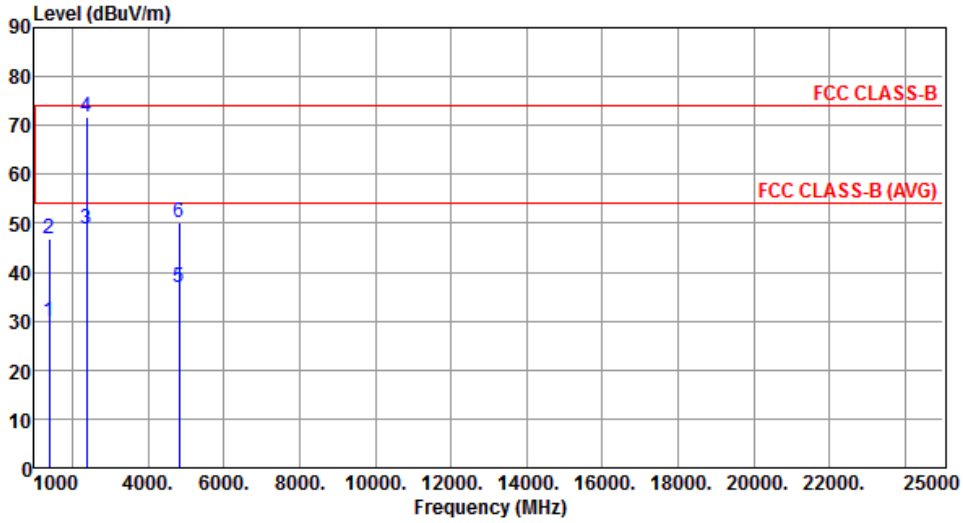
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2412
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	31.45	54.00	-22.55	39.30	-7.85	Average	---	---
2	1395.00	49.22	74.00	-24.78	57.07	-7.85	Peak	---	---
3	2390.00	49.83	54.00	-4.17	53.51	-3.68	Average	---	---
4	2390.00	72.96	74.00	-1.04	76.64	-3.68	Peak	---	---
5	4824.00	36.95	54.00	-17.05	31.96	4.99	Average	---	---
6	4824.00	50.24	74.00	-23.76	45.25	4.99	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 30 dB relative to the maximum measured in-band level.

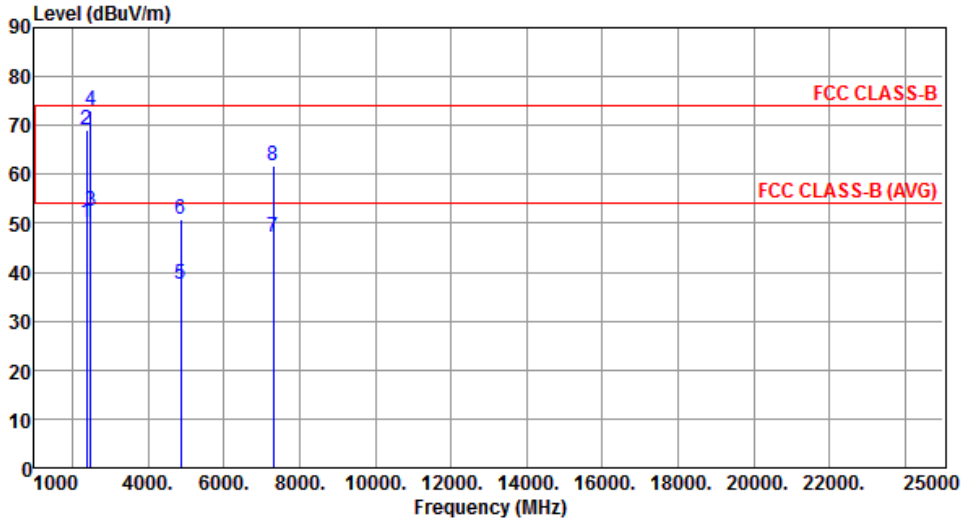
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2412
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	29.87	54.00	-24.13	37.72	-7.85	Average	---	---
2	1395.00	46.98	74.00	-27.02	54.83	-7.85	Peak	---	---
3	2390.00	48.87	54.00	-5.13	52.55	-3.68	Average	---	---
4	2390.00	71.85	74.00	-2.15	75.53	-3.68	Peak	---	---
5	4824.00	36.84	54.00	-17.16	31.85	4.99	Average	---	---
6	4824.00	50.13	74.00	-23.87	45.14	4.99	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 30 dB relative to the maximum measured in-band level.

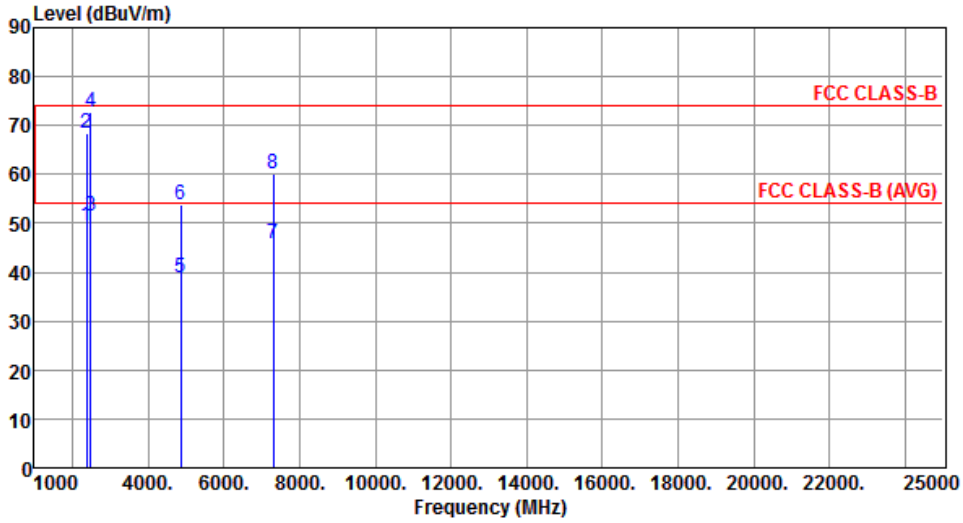
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	50.15	54.00	-3.85	53.83	-3.68	Average	---	---
2	2390.00	69.18	74.00	-4.82	72.86	-3.68	Peak	---	---
3	2483.50	52.36	54.00	-1.64	55.66	-3.30	Average	---	---
4	2483.50	72.95	74.00	-1.05	76.25	-3.30	Peak	---	---
5	4874.00	37.45	54.00	-16.55	32.35	5.10	Average	---	---
6	4874.00	50.92	74.00	-23.08	45.82	5.10	Peak	---	---
7	7311.00	47.24	54.00	-6.76	37.91	9.33	Average	---	---
8	7311.00	61.85	74.00	-12.15	52.52	9.33	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 30 dB relative to the maximum measured in-band level.

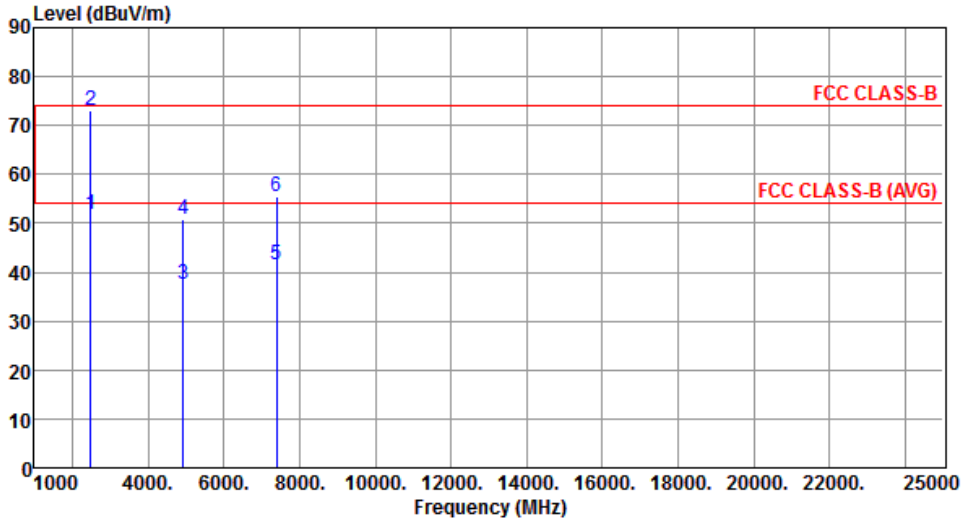
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.35	54.00	-4.65	53.03	-3.68	Average	---	---
2	2390.00	68.33	74.00	-5.67	72.01	-3.68	Peak	---	---
3	2483.50	51.64	54.00	-2.36	54.94	-3.30	Average	---	---
4	2483.50	72.86	74.00	-1.14	76.16	-3.30	Peak	---	---
5	4874.00	38.95	54.00	-15.05	33.85	5.10	Average	---	---
6	4874.00	53.66	74.00	-20.34	48.56	5.10	Peak	---	---
7	7311.00	45.77	54.00	-8.23	36.44	9.33	Average	---	---
8	7311.00	60.09	74.00	-13.91	50.76	9.33	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 30 dB relative to the maximum measured in-band level.

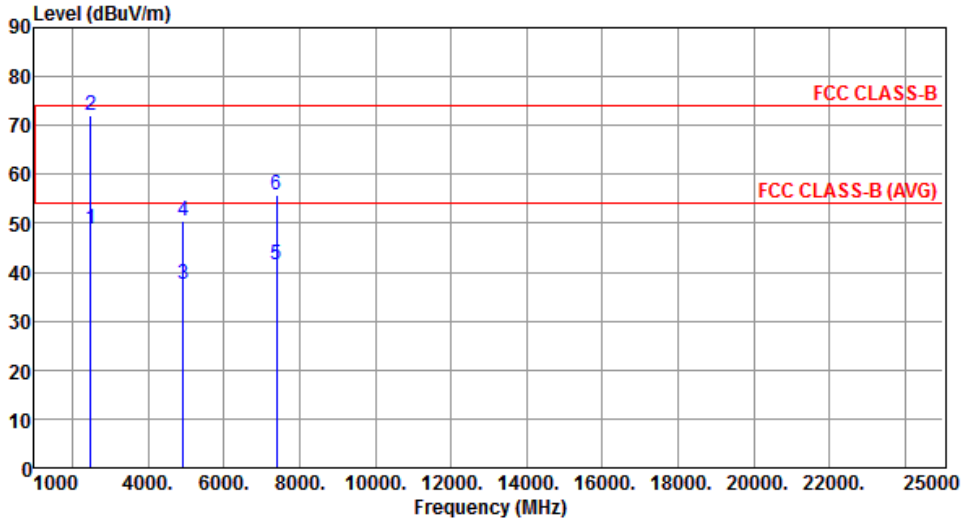
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2462
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	51.89	54.00	-2.11	55.19	-3.30	Average	---	---
2	2483.50	72.97	74.00	-1.03	76.27	-3.30	Peak	---	---
3	4924.00	37.65	54.00	-16.35	32.45	5.20	Average	---	---
4	4924.00	50.84	74.00	-23.16	45.64	5.20	Peak	---	---
5	7386.00	41.53	54.00	-12.47	32.14	9.39	Average	---	---
6	7386.00	55.46	74.00	-18.54	46.07	9.39	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 30 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2462
N_{TX}	3	**Polarization**	V

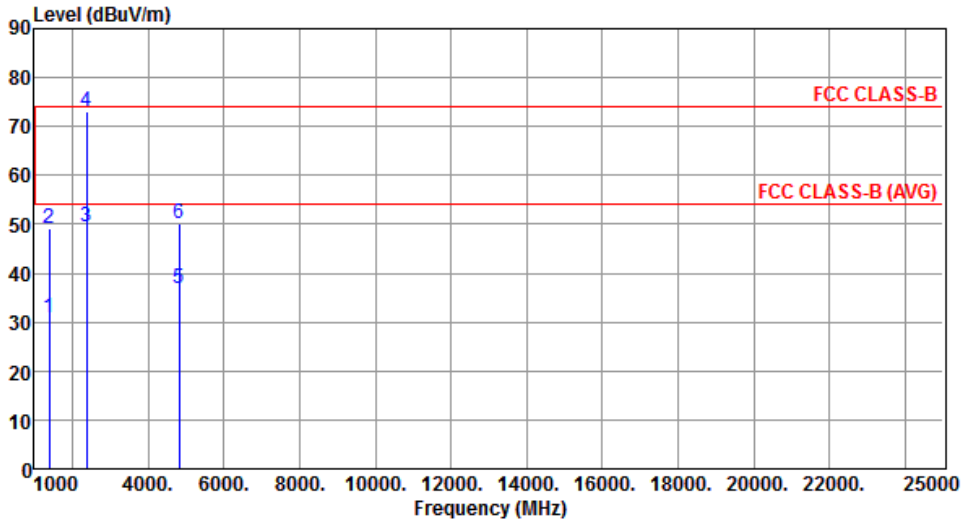


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	48.96	54.00	-5.04	52.26	-3.30	Average	---	---
2	2483.50	71.94	74.00	-2.06	75.24	-3.30	Peak	---	---
3	4924.00	37.41	54.00	-16.59	32.21	5.20	Average	---	---
4	4924.00	50.63	74.00	-23.37	45.43	5.20	Peak	---	---
5	7386.00	41.65	54.00	-12.35	32.26	9.39	Average	---	---
6	7386.00	55.78	74.00	-18.22	46.39	9.39	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 30 dB relative to the maximum measured in-band level.

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

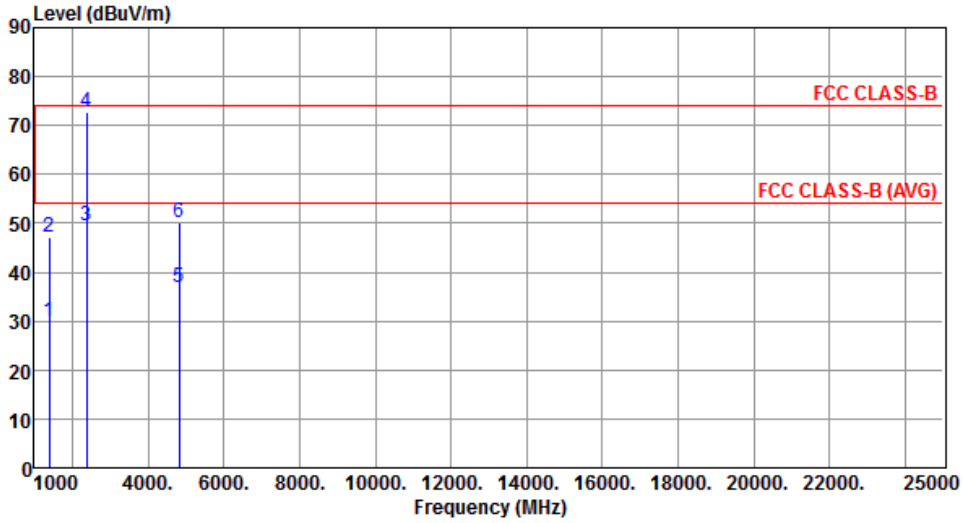
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2412
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	30.94	54.00	-23.06	38.79	-7.85	Average	---	---
2	1395.00	49.28	74.00	-24.72	57.13	-7.85	Peak	---	---
3	2390.00	49.52	54.00	-4.48	53.20	-3.68	Average	---	---
4	2390.00	72.97	74.00	-1.03	76.65	-3.68	Peak	---	---
5	4824.00	36.87	54.00	-17.13	31.88	4.99	Average	---	---
6	4824.00	50.15	74.00	-23.85	45.16	4.99	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 30 dB relative to the maximum measured in-band level.

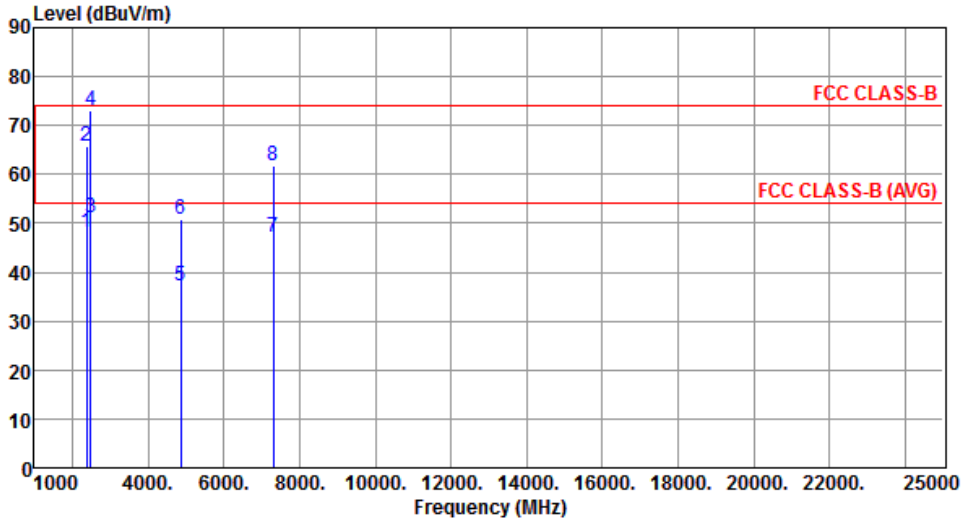
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2412
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	29.94	54.00	-24.06	37.79	-7.85	Average	---	---
2	1395.00	47.16	74.00	-26.84	55.01	-7.85	Peak	---	---
3	2390.00	49.35	54.00	-4.65	53.03	-3.68	Average	---	---
4	2390.00	72.81	74.00	-1.19	76.49	-3.68	Peak	---	---
5	4824.00	36.91	54.00	-17.09	31.92	4.99	Average	---	---
6	4824.00	50.25	74.00	-23.75	45.26	4.99	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 30 dB relative to the maximum measured in-band level.

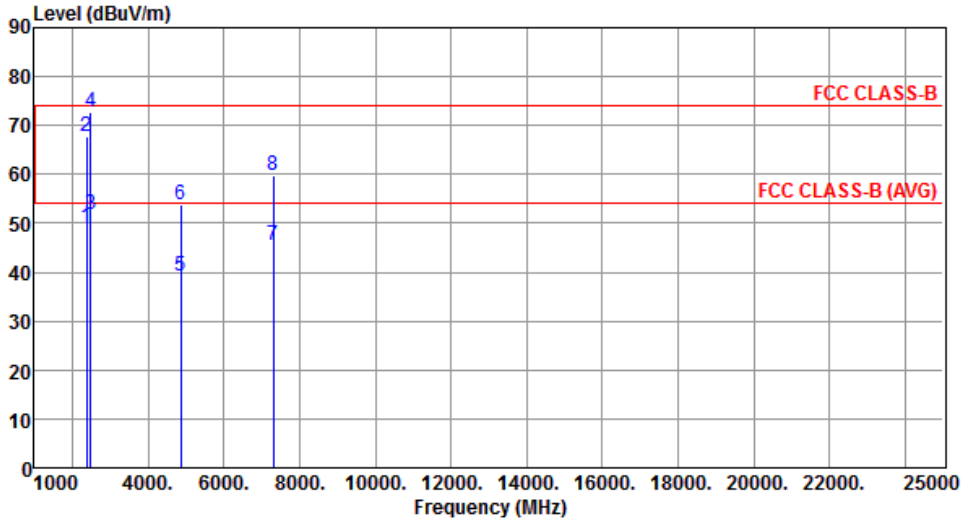
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	48.21	54.00	-5.79	51.89	-3.68	Average	---	---
2	2390.00	65.74	74.00	-8.26	69.42	-3.68	Peak	---	---
3	2483.50	51.16	54.00	-2.84	54.46	-3.30	Average	---	---
4	2483.50	72.96	74.00	-1.04	76.26	-3.30	Peak	---	---
5	4874.00	37.24	54.00	-16.76	32.14	5.10	Average	---	---
6	4874.00	50.76	74.00	-23.24	45.66	5.10	Peak	---	---
7	7311.00	47.18	54.00	-6.82	37.85	9.33	Average	---	---
8	7311.00	61.69	74.00	-12.31	52.36	9.33	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 30 dB relative to the maximum measured in-band level.

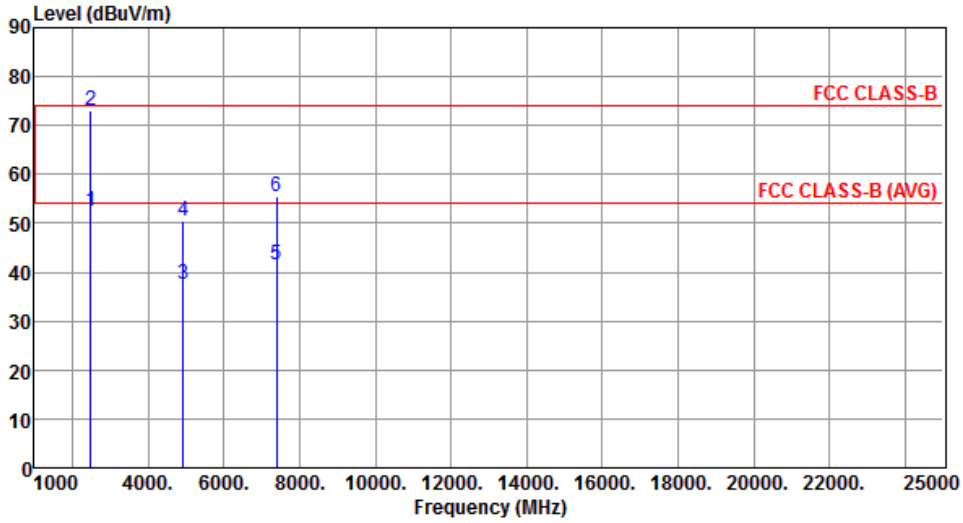
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.02	54.00	-4.98	52.70	-3.68	Average	---	---
2	2390.00	67.69	74.00	-6.31	71.37	-3.68	Peak	---	---
3	2483.50	51.75	54.00	-2.25	55.05	-3.30	Average	---	---
4	2483.50	72.88	74.00	-1.12	76.18	-3.30	Peak	---	---
5	4874.00	39.15	54.00	-14.85	34.05	5.10	Average	---	---
6	4874.00	53.64	74.00	-20.36	48.54	5.10	Peak	---	---
7	7311.00	45.62	54.00	-8.38	36.29	9.33	Average	---	---
8	7311.00	59.81	74.00	-14.19	50.48	9.33	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 30 dB relative to the maximum measured in-band level.

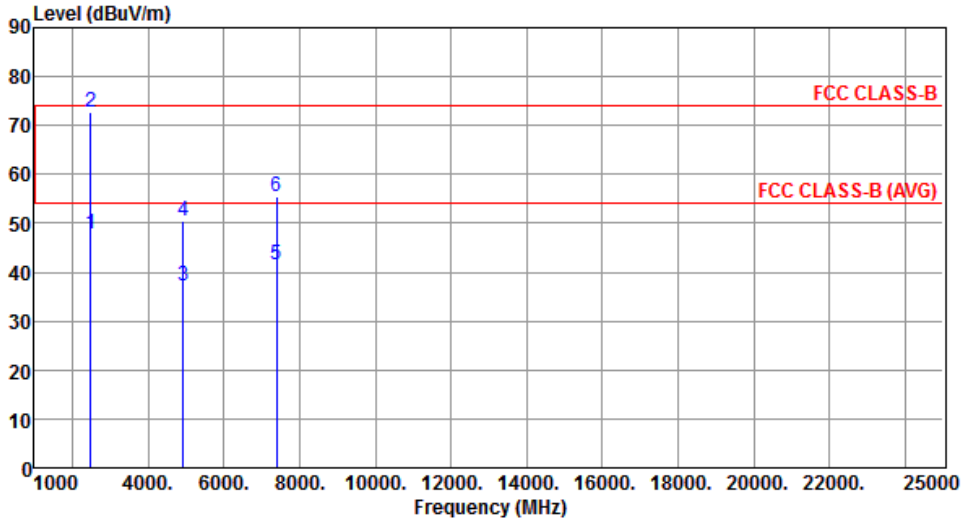
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2462
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	52.37	54.00	-1.63	55.67	-3.30	Average	---	---
2	2483.50	72.94	74.00	-1.06	76.24	-3.30	Peak	---	---
3	4924.00	37.45	54.00	-16.55	32.25	5.20	Average	---	---
4	4924.00	50.63	74.00	-23.37	45.43	5.20	Peak	---	---
5	7386.00	41.49	54.00	-12.51	32.10	9.39	Average	---	---
6	7386.00	55.38	74.00	-18.62	45.99	9.39	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 30 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2462
N_{TX}	3	**Polarization**	V

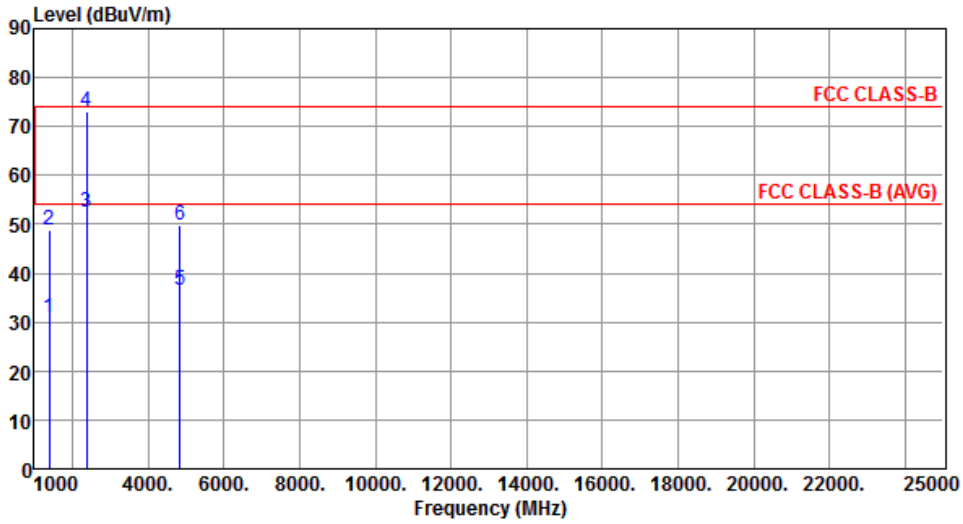


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	47.69	54.00	-6.31	50.99	-3.30	Average	---	---
2	2483.50	72.88	74.00	-1.12	76.18	-3.30	Peak	---	---
3	4924.00	37.29	54.00	-16.71	32.09	5.20	Average	---	---
4	4924.00	50.44	74.00	-23.56	45.24	5.20	Peak	---	---
5	7386.00	41.53	54.00	-12.47	32.14	9.39	Average	---	---
6	7386.00	55.62	74.00	-18.38	46.23	9.39	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 30 dB relative to the maximum measured in-band level.

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

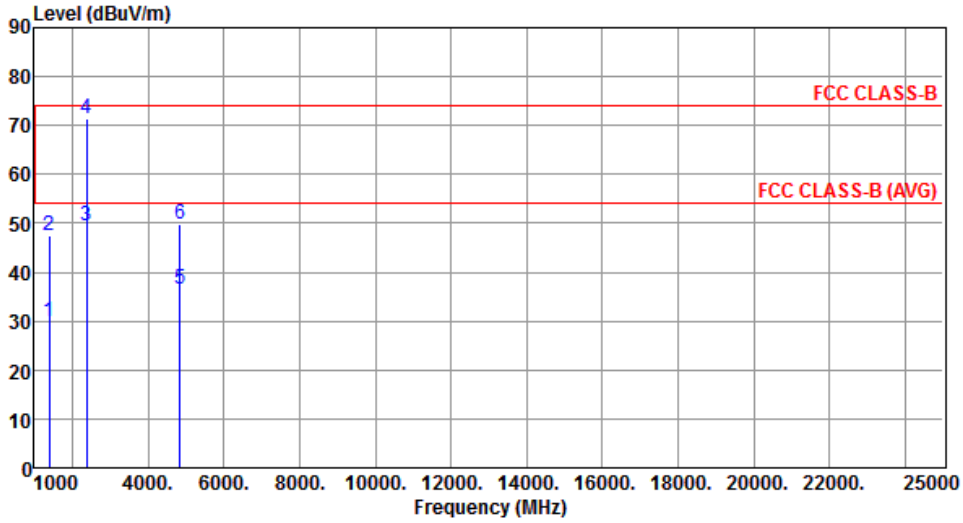
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2422
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	30.74	54.00	-23.26	38.59	-7.85	Average	---	---
2	1395.00	48.85	74.00	-25.15	56.70	-7.85	Peak	---	---
3	2390.00	52.41	54.00	-1.59	56.09	-3.68	Average	---	---
4	2390.00	72.98	74.00	-1.02	76.66	-3.68	Peak	---	---
5	4844.00	36.64	54.00	-17.36	31.61	5.03	Average	---	---
6	4844.00	49.95	74.00	-24.05	44.92	5.03	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 30 dB relative to the maximum measured in-band level.

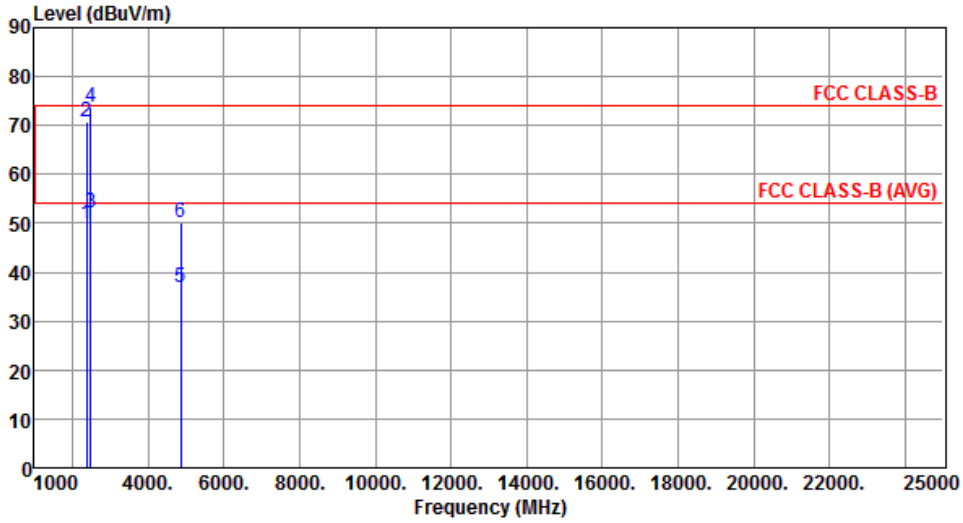
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2422
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	29.85	54.00	-24.15	37.70	-7.85	Average	---	---
2	1395.00	47.36	74.00	-26.64	55.21	-7.85	Peak	---	---
3	2390.00	49.52	54.00	-4.48	53.20	-3.68	Average	---	---
4	2390.00	71.33	74.00	-2.67	75.01	-3.68	Peak	---	---
5	4844.00	36.51	54.00	-17.49	31.48	5.03	Average	---	---
6	4844.00	49.82	74.00	-24.18	44.79	5.03	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 30 dB relative to the maximum measured in-band level.

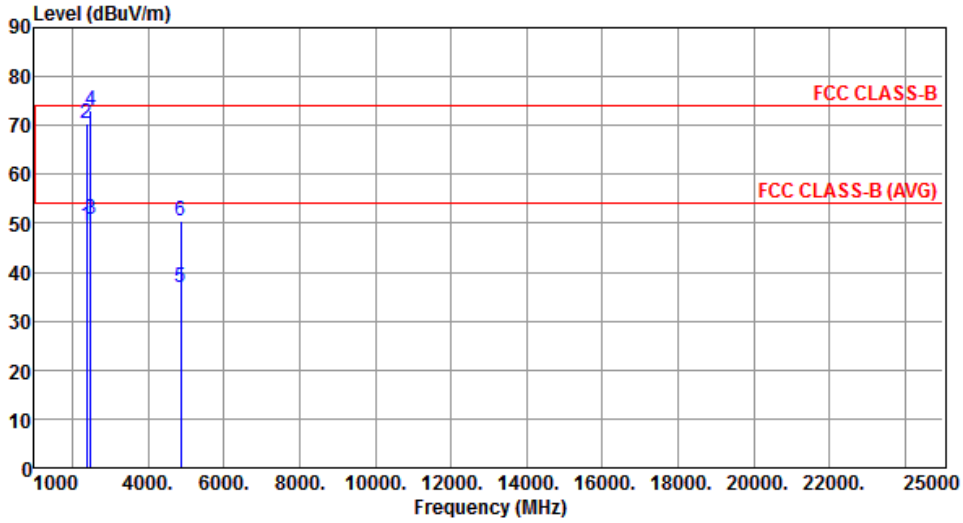
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.65	54.00	-4.35	53.33	-3.68	Average	---	---
2	2390.00	70.90	74.00	-3.10	74.58	-3.68	Peak	---	---
3	2483.50	52.03	54.00	-1.97	55.33	-3.30	Average	---	---
4	2483.50	73.68	74.00	-0.32	76.98	-3.30	Peak	---	---
5	4874.00	36.98	54.00	-17.02	31.88	5.10	Average	---	---
6	4874.00	50.24	74.00	-23.76	45.14	5.10	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 30 dB relative to the maximum measured in-band level.

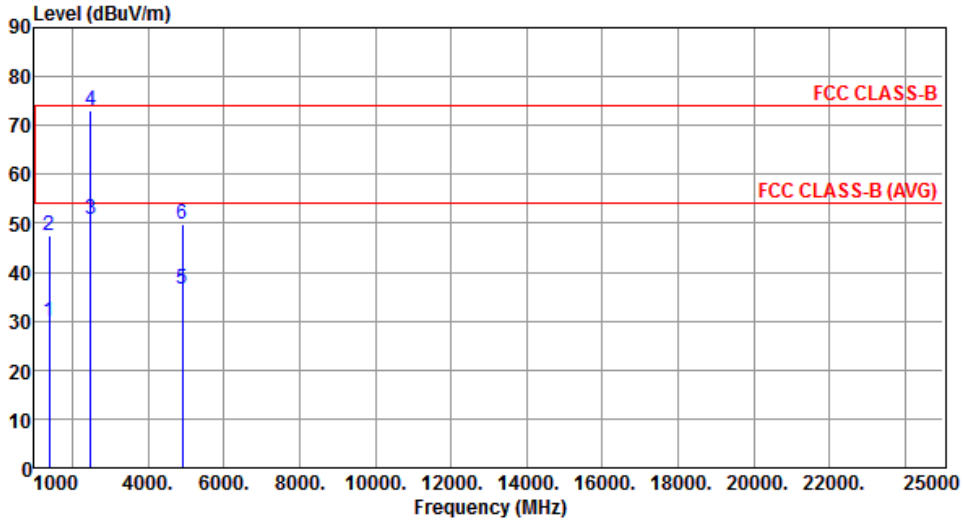
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2437
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2390.00	49.39	54.00	-4.61	53.07	-3.68	Average	---	---
2	2390.00	70.49	74.00	-3.51	74.17	-3.68	Peak	---	---
3	2483.50	50.92	54.00	-3.08	54.22	-3.30	Average	---	---
4	2483.50	73.06	74.00	-0.94	76.36	-3.30	Peak	---	---
5	4874.00	36.81	54.00	-17.19	31.71	5.10	Average	---	---
6	4874.00	50.49	74.00	-23.51	45.39	5.10	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 30 dB relative to the maximum measured in-band level.

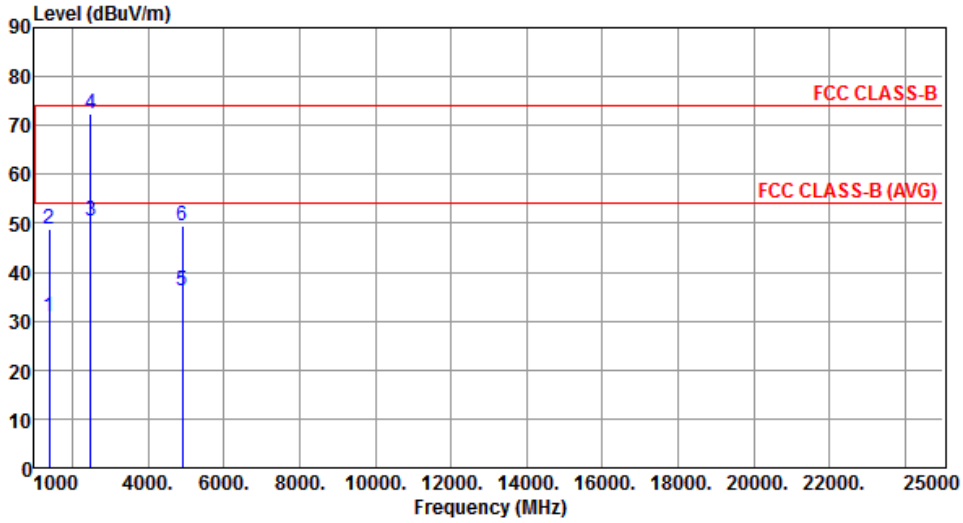
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2452
N_{TX}	3	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	29.88	54.00	-24.12	37.73	-7.85	Average	---	---
2	1395.00	47.41	74.00	-26.59	55.26	-7.85	Peak	---	---
3	2483.50	50.92	54.00	-3.08	54.22	-3.30	Average	---	---
4	2483.50	72.99	74.00	-1.01	76.29	-3.30	Peak	---	---
5	4904.00	36.51	54.00	-17.49	31.35	5.16	Average	---	---
6	4904.00	49.88	74.00	-24.12	44.72	5.16	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 30 dB relative to the maximum measured in-band level.

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2452
N_{TX}	3	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	1395.00	30.79	54.00	-23.21	38.64	-7.85	Average	---	---
2	1395.00	48.87	74.00	-25.13	56.72	-7.85	Peak	---	---
3	2483.50	50.64	54.00	-3.36	53.94	-3.30	Average	---	---
4	2483.50	72.47	74.00	-1.53	75.77	-3.30	Peak	---	---
5	4904.00	36.25	54.00	-17.75	31.09	5.16	Average	---	---
6	4904.00	49.62	74.00	-24.38	44.46	5.16	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 30 dB relative to the maximum measured in-band level.

4 Test Equipment and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
Tested Date	Feb. 21, 2014				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
EMC Receiver	R&S	ESCS 30	100169	Oct. 15, 2013	Oct. 14, 2014
LISN	SCHWARZBECK	Schwarzbeck 8127	8127-667	Nov. 23, 2013	Nov. 22, 2014
LISN (Support Unit)	SCHWARZBECK	Schwarzbeck 8127	8127-666	Dec. 04, 2013	Dec. 03, 2014
RF Cable-CON	Woken	CFD200-NL	CFD200-NL-001	Apr. 24, 2013	Apr. 23, 2014
50 ohm terminal (Support Unit)	NA	50	04	Apr. 22, 2013	Apr. 21, 2014
Measurement Software	AUDIX	e3	6.120210k	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emissions				
Test Site	966 chamber1 / (03CH01-WS)				
Tested Date	May 02, 2014				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101498	Jan. 25, 2014	Jan. 24, 2015
Receiver	R&S	ESR3	101658	Jan. 10, 2014	Jan. 09, 2015
Bilog Antenna	SCHWARZBECK	VULB9168	VULB9168-522	Jan. 02, 2014	Jan. 01, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120 D	BBHA 9120 D 1096	Feb. 13, 2014	Feb. 12, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Dec. 27, 2013	Dec. 26, 2014
Preamplifier	Burgeon	BPA-530	SN:100219	Nov. 28, 2013	Nov. 27, 2014
Preamplifier	Agilent	83017A	MY39501308	Dec. 16, 2013	Dec. 15, 2014
Preamplifier	WM	TF-130N-R1	923365	Oct. 23, 2013	Oct. 22, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16014/4	Dec. 16, 2013	Dec. 15, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16019/4	Dec. 16, 2013	Dec. 15, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16139/4	Dec. 16, 2013	Dec. 15, 2014
LF cable 3M	Woken	CFD400NL-LW	CFD400NL-001	Dec. 16, 2013	Dec. 15, 2014
LF cable 10M	Woken	CFD400NL-LW	CFD400NL-002	Dec. 16, 2013	Dec. 15, 2014
Measurement Software	AUDIX	e3	6.120210g	NA	NA
Note: Calibration Interval of instruments listed above is one year.					

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
Note: Calibration Interval of instruments listed above is two year.					

Test Item	RF Conducted				
Test Site	TH01-HY				
Tested Date	Nov. 14, 2014				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV 40	101013	Jan. 25, 2014	Jan. 24, 2015
Signal Generator	R&S	SMR40	100116	Jul. 31, 2014	Jul. 30, 2015
Power Sensor	Anritsu	MA2411B	0917017	Jan. 28, 2014	Jan. 27, 2015
Power Meter	Anritsu	ML2495A	0949003	Jan. 28, 2014	Jan. 27, 2015
Measurement Software	Sporton	Sporton_1	1.3.30	NA	NA
Note: Calibration Interval of instruments listed above is one year.					