FCC Test Report

Equipment	:	**Wireless AC1000 Dual Band Cloud Router**
Brand Name	:	**D-Link**
Model No.	:	**DIR-820L**
FCC ID	:	**KA2IR820LB1**
Standard	:	**47 CFR FCC Part 15.247**
Operating Band	:	**2400 MHz – 2483.5 MHz**
FCC Classification	:	**DTS**
Applicant	:	**D-Link Corporation** **17595 Mt. Herrmann, Fountain Valley, CA 92708 U.S.A.**

The product sample received on Mar. 10, 2014 and completely tested on Mar. 28, 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-A3

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]:28.686MHz 47.89 (Margin 12.11dB) – QP 44.53 (Margin 5.47dB) - AV	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth [MHz] 20M:17.62 / 40M:35.83	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Conducted (Average) Output Power)	Power [dBm]:23.34	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/10kHz]:1.38	PSD [dBm/3kHz]:5.99	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 53.00 (Margin 1.00dB) - AV	Non-Restricted Bands: > 30 dBc Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR430734AC	Rev. 01	Initial issue of report	Apr. 14, 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)**	**Co-location**
2400-2483.5	b	2412-2462	1-11 [11]	2	23.34	Yes
2400-2483.5	g	2412-2462	1-11 [11]	2	21.84	Yes
2400-2483.5	HT20	2412-2462	1-11 [11]	2	22.03	Yes
2400-2483.5	HT40	2422-2452	3-9 [7]	2	18.12	Yes

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.
Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

1.1.2 Antenna Information

Antenna Category			
☐	Equipment placed on the market without antennas		
☒	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. Cat.**	**Ant. Type**	**Connector**	**Gain (dBi)**
1	Integral	PCB	I-PEX	0
2	Integral	PCB	I-PEX	0

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)**
☒ 99.16% - IEEE 802.11b	0.04
☒ 90.71% - IEEE 802.11g	0.42
☒ 91.60% - IEEE 802.11n (HT20)	0.38
☒ 78.31% - IEEE 802.11n (HT40)	1.06

1.1.5 EUT Operational Condition

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

1.2 Accessories and Support Equipment

Accessories				
No.	**Equipment**	**Brand Name**	**Model Name**	**Spec.**
1	Adapter 1	D-Link	AMS9-1201000FU2	I/P: 100-240Vac, 50-60Hz, 0.5A, O/P: 12Vdc, 1.0A 1.22m non-shielded without core.
2	Adapter 2	D-Link	F12W-120100SPAU	I/P: 100-240Vac, 50-60Hz, 0.3A, O/P: 12Vdc, 1.0A 1.22m non-shielded without core.
3	Adapter 3	D-Link	F12W3-120100SPAU	I/P: 100-240Vac, 50-60Hz, 0.3A, O/P: 12Vdc, 1.0A 1.20m non-shielded without core.

Support Equipment				
No.	**Equipment**	**Brand Name**	**Model Name**	**FCC ID**
1	Notebook	DELL	E6430	DoC
2	Notebook	DELL	E6410	DoC
3	USB Dongle	Transcend	4G	---

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 v03r01
- FCC KDB 662911 v02r01
- FCC KDB 412172 v01

1.4 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	
Test Condition		**Test Site No.**	**Test Engineer**	**Test Environment**	**Test Date**	
RF Conducted		TH01-HY	Mark Liao	21°C / 64%	Mar. 28, 2014	
AC Conduction		CO04-HY	Skys Huang	20°C / 67%	Mar. 27, 2014	
Radiated Emission		03CH08-HY	Jack Li	18-20°C / 66-68%	Mar. 10 ~ Mar. 24, 2014	
Test site registered number [636805] with FCC Test site registered number [4086B-2] with IC						

1.5 Measurement Uncertainty

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

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

2 Test Configuration of EUT

2.1 The Worst Case Modulation Configuration

Worst Modulation Used for Conformance Testing			
Modulation Mode	**Transmit Chains (N_{TX})**	**Data Rate / MCS**	**Worst Data Rate / MCS**
11b,1-11Mbps	2	1-11 Mbps	1 Mbps
11g,6-54Mbps	2	6-54 Mbps	6 Mbps
HT20,M0-15	2	MCS 0-15	MCS 0
HT40,M0-15	2	MCS 0-15	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	MTool						
Test Software Version	RTL819x 2.3						
Modulation Mode	**N_{TX}**	**Test Frequency (MHz)**					
		NCB: 20MHz			**NCB: 40MHz**		
		2412	**2437**	**2462**	**2422**	**2437**	**2452**
11b,1-11Mbps	2	47/49	50/52	50/52	--	--	--
11g,6-54Mbps	2	42/44	51/53	40/41	--	--	--
HT20,M0-15	2	40/42	51/53	38/39	--	--	--
HT40,M0-15	2	--	--	--	36/38	44/46	35/36

2.4 The Worst Case Measurement Configuration

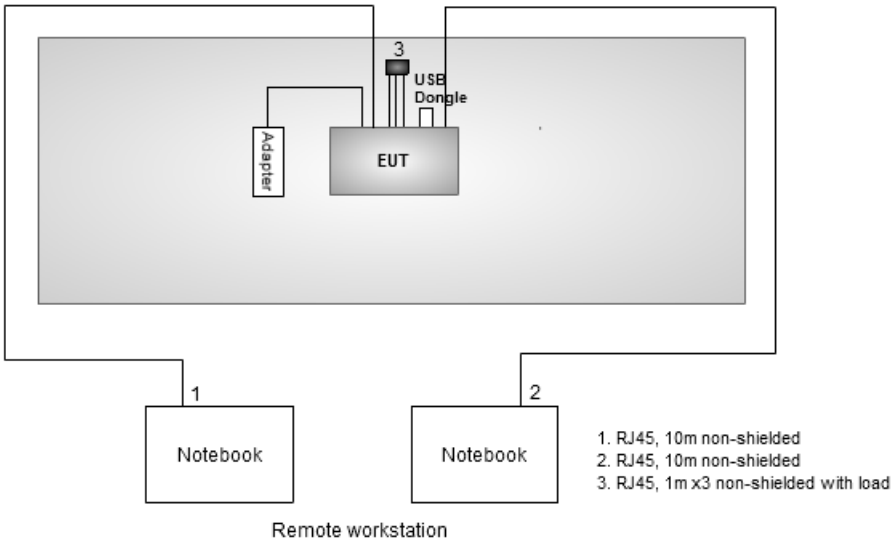
The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	AC Power & Radio link (WLAN), Adapter 1
Note: Adapter 1, Adapter 2, and Adapter 3 had been pretested and found that the **Adapter 1** was the worst case and was selected for final test.	

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
Operating Mode	Operating Mode Description
1	AC Power & Radio link (WLAN), Adapter 1

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 two orthogonal planes. The worst planes is X.		
	☐ 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.		
Operating Mode	☒ 1. AC Power & Radio link (WLAN), Adapter 1		
Modulation Mode	11b, 11g, HT20, HT40		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
Note: Adapter 1, Adapter 2, and Adapter 3 had been pretested and found that the **Adapter 1** was the worst case and was selected for final test.			

2.5 Test Setup Diagram

Test Setup Diagram –Radiated Emission Test



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

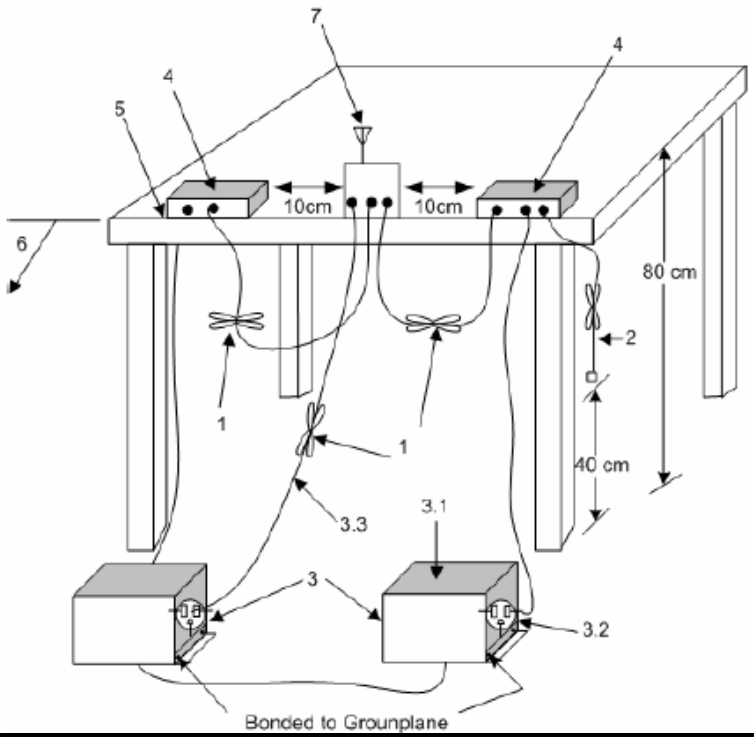
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

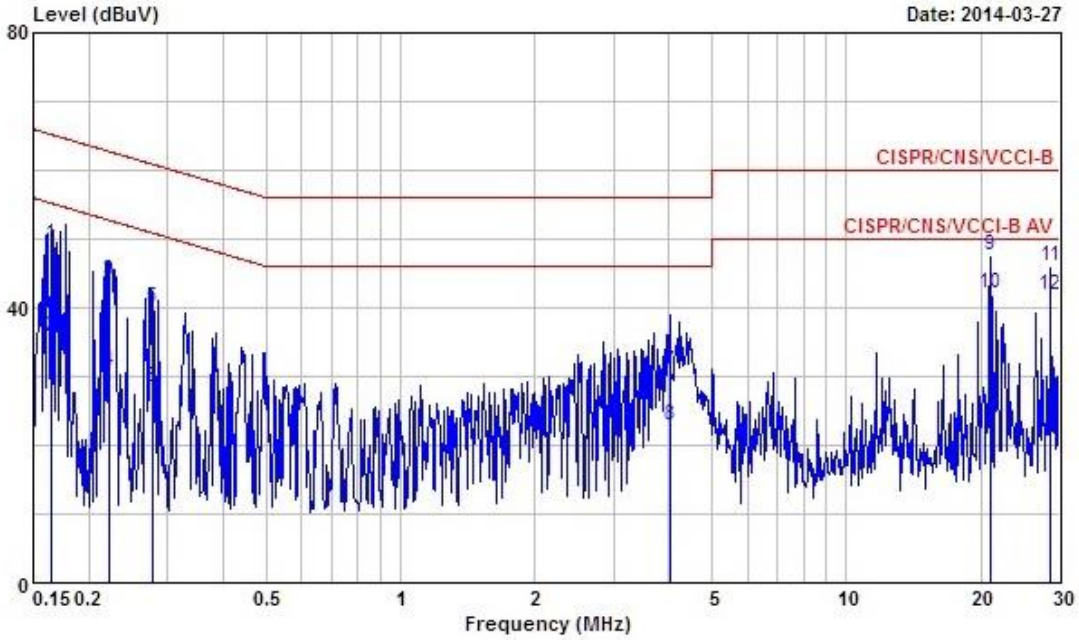
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

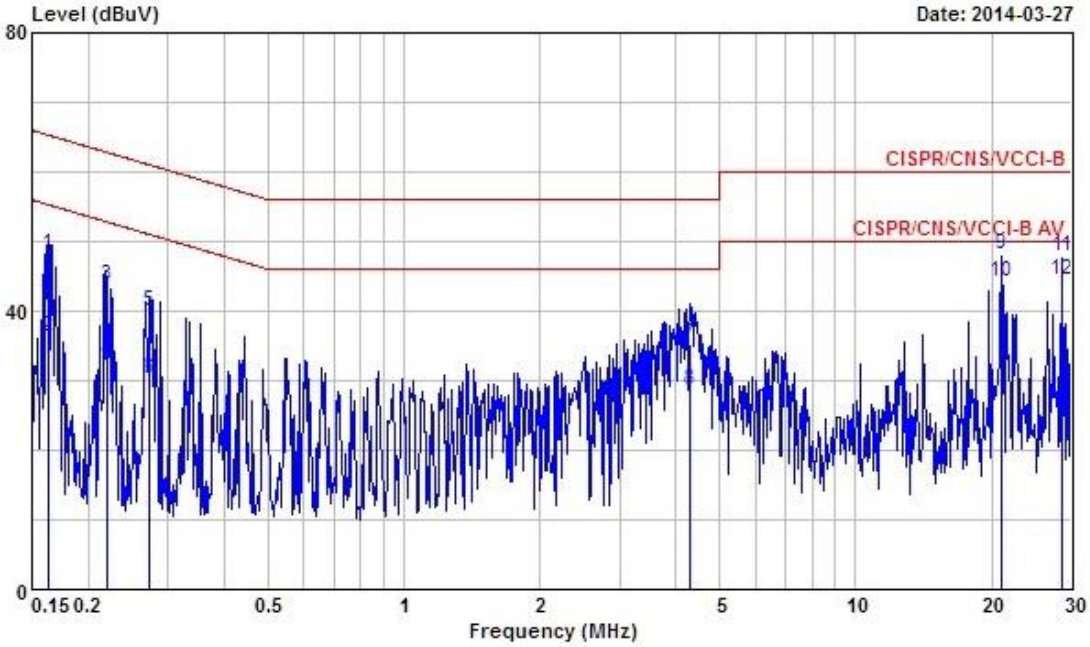
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	AC Power & Radio link (WLAN), Adapter 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1650100	49.25	-15.96	65.21	48.84	0.02	0.39	QP
2	0.1650100	35.74	-19.47	55.21	35.33	0.02	0.39	Average
3	0.2220070	43.97	-18.77	62.74	43.43	0.02	0.52	QP
4	0.2220070	30.67	-22.07	52.74	30.13	0.02	0.52	Average
5	0.2771290	39.91	-20.99	60.90	39.34	0.02	0.55	QP
6	0.2771290	28.32	-22.58	50.90	27.75	0.02	0.55	Average
7	4.010	30.90	-25.10	56.00	30.11	0.09	0.70	QP
8	4.010	22.80	-23.20	46.00	22.01	0.09	0.70	Average
9	21.051	47.54	-12.46	60.00	46.52	0.34	0.68	QP
10	21.051	42.02	-7.98	50.00	41.00	0.34	0.68	Average
11	28.685	46.09	-13.91	60.00	45.13	0.43	0.53	QP
12	28.685	41.83	-8.17	50.00	40.87	0.43	0.53	Average

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

AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Line
Operating Function	AC Power & Radio link (WLAN), Adapter 1		



	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1632710	48.08	-17.22	65.30	47.67	0.03	0.38	QP
2	0.1632710	36.40	-18.90	55.30	35.99	0.03	0.38	Average
3	0.2196670	43.57	-19.26	62.83	43.03	0.03	0.51	QP
4	0.2196670	32.76	-20.07	52.83	32.22	0.03	0.51	Average
5	0.2729650	39.96	-21.07	61.03	39.38	0.03	0.55	QP
6	0.2729650	30.25	-20.78	51.03	29.67	0.03	0.55	Average
7	4.310	35.20	-20.80	56.00	34.38	0.11	0.71	QP
8	4.310	28.76	-17.24	46.00	27.94	0.11	0.71	Average
9	21.111	48.15	-11.85	60.00	47.15	0.33	0.67	QP
10 @	21.111	44.24	-5.76	50.00	43.24	0.33	0.67	Average
11	28.686	47.89	-12.11	60.00	46.94	0.42	0.53	QP
12 @	28.686	44.53	-5.47	50.00	43.58	0.42	0.53	Average

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

3.2 6dB Bandwidth

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
☒ 6 dB bandwidth ≥ 500 kHz.

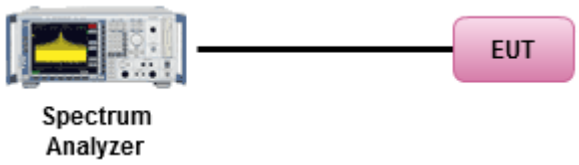
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

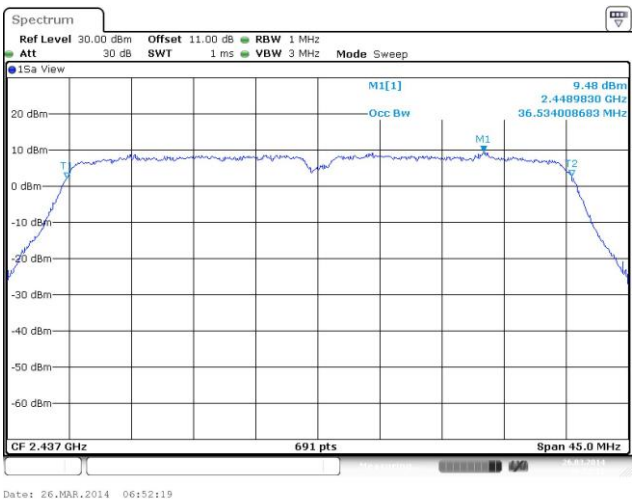
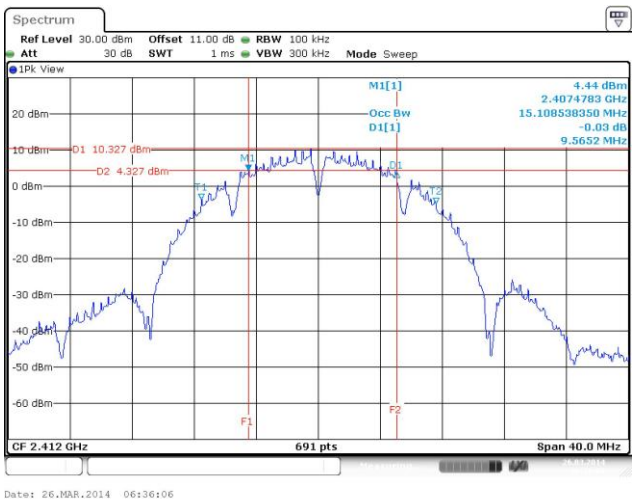
Test Method			
☒	For the emission bandwidth shall be measured using one of the options below:		
	☒	Refer as FCC KDB 558074 v03r01, clause 8.1 Option 1 for 6 dB bandwidth measurement.	
	☐	Refer as FCC KDB 558074 v03r01, clause 8.2 Option 2 for 6 dB bandwidth measurement.	
	☐	Refer as ANSI C63.10, clause 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	2	2412	15.01	15.12	--	--	9.57	9.57	--	--
11b	2	2437	15.16	15.23	--	--	10.03	9.62	--	--
11b	2	2462	15.16	15.16	--	--	10.03	10.09	--	--
11g	2	2412	17.00	16.90	--	--	16.35	16.35	--	--
11g	2	2437	17.04	16.93	--	--	16.35	16.35	--	--
11g	2	2462	17.00	16.86	--	--	16.35	16.35	--	--
HT-20	2	2412	18.09	18.05	--	--	17.62	17.57	--	--
HT-20	2	2437	18.20	18.16	--	--	17.62	17.57	--	--
HT-20	2	2462	18.09	18.09	--	--	17.62	17.62	--	--
HT-40	2	2412	36.27	36.40	--	--	35.71	35.59	--	--
HT-40	2	2437	36.34	36.53	--	--	35.59	35.59	--	--
HT-40	2	2462	36.27	36.47	--	--	35.83	35.59	--	--
Limit			N/A				≥500 kHz			
Result			Complied							
Note 1: N_{TX} = Number of Transmit Chains										

Worst Emission Bandwidth Plots	
99% Bandwidth	6dB Bandwidth
	

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 v03r01, clause 9.1.1 (RBW ≥ DTS BW).
	☐ Refer as FCC KDB 558074 v03r01, clause 9.1.2 (Integrated band power method).
	☒ Refer as FCC KDB 558074 v03r01, clause 9.1.3 (Peak power meter)
☒	Maximum Conducted Output Power
	☐ Refer as FCC KDB 558074 v03r01, clause 9.2.1.2 Method AVGSA-1 (spectral trace averaging).
	☐ Refer as FCC KDB 558074 v03r01, clause 9.2.1.3 Method AVGSA-1 Alt. (slow sweep speed)
	☐ Refer as FCC KDB 558074 v03r01, clause 9.2.1.4 Method AVGSA-2 (spectral trace averaging).
	☐ Refer as FCC KDB 558074 v03r01, clause 9.2.1.5 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 v03r01, clause 9.2.3 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	-	-
Maximum G_{ANT} (dBi)		0	0	-	-
Modulation Mode	**DG (dBi)**	**N_{TX}**	**N_{SS}**	**STBC**	**Array Gain (dB)**
11b,1-11Mbps	0	2	1	-	-
11g,6-54Mbps	0	2	1	-	-
HT-20,M0-M15	0	2	1	-	-
HT-40,M0-M15	0	2	1	-	-

Note 1: For CDD transmissions, directional gain is calculated as power measurements:
Directional Gain (DG) = G_{ANT} + 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 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	2	2412	19.71	19.12	-	-	22.44	30.00	0	22.44	36.00
11b	2	2437	20.31	20.34	-	-	23.34	30.00	0	23.34	36.00
11b	2	2462	20.13	20.47	-	-	23.31	30.00	0	23.31	36.00
11g	2	2412	14.85	14.89	-	-	17.88	30.00	0	17.88	36.00
11g	2	2437	18.74	18.91	-	-	21.84	30.00	0	21.84	36.00
11g	2	2462	13.63	13.71	-	-	16.68	30.00	0	16.68	36.00
HT-20	2	2412	13.92	13.94	-	-	16.94	30.00	0	16.94	36.00
HT-20	2	2437	19.01	19.03	-	-	22.03	30.00	0	22.03	36.00
HT-20	2	2462	12.81	12.88	-	-	15.86	30.00	0	15.86	36.00
HT-40	2	2422	10.84	10.93	-	-	13.90	30.00	0	13.90	36.00
HT-40	2	2437	14.99	15.23	-	-	18.12	30.00	0	18.12	36.00
HT-40	2	2452	10.15	10.22	-	-	13.20	30.00	0	13.20	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/3kHz

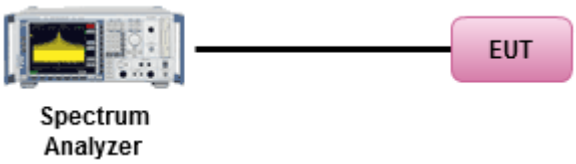
3.4.2 Measuring Instruments

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 v03r01, clause 10.2 Method PKPSD (RBW=30kHz; detector=peak)..	
	☐	Refer as FCC KDB 558074 v03r01, clause 10.3 Method AVGPSD-1 (spectral trace averaging).	
	☐	Refer as FCC KDB 558074 v03r01, clause 10.4 Method AVGPSD-1 Alt. (slow sweep speed)	
	☐	Refer as FCC KDB 558074 v03r01, clause 10.5 Method AVGPSD-2 (spectral trace averaging).	
	☐	Refer as FCC KDB 558074 v03r01, 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.

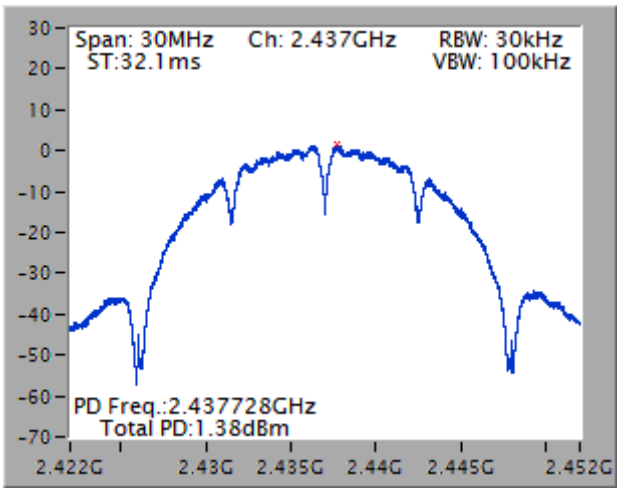
3.4.4 Test Setup

Power Spectral Density


3.4.5 Test Result of Power Spectral Density

Power Spectral Density Result				
Condition			Power Spectral Density (dBm/30kHz)	
Modulation Mode	N_{TX}	Freq. (MHz)	Sum Chain	Power Limit
11b	2	2412	-0.02	8
11b	2	2437	1.38	8
11b	2	2462	1.08	8
11g	2	2412	-6.87	8
11g	2	2437	-2.57	8
11g	2	2462	-7.94	8
HT-20	2	2412	-7.90	8
HT-20	2	2437	-3.06	8
HT-20	2	2462	-9.32	8
HT-40	2	2422	-12.66	8
HT-40	2	2437	-8.58	8
HT-40	2	2452	-13.74	8
Result			Complied	
Note 1: PSD = sum each transmit chains by bin-to-bin PSD				

Worst Power Spectral Density Plots



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

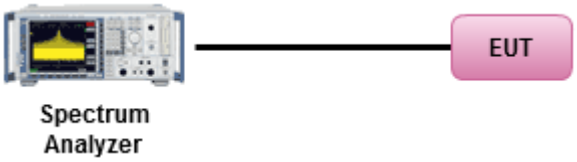
1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

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

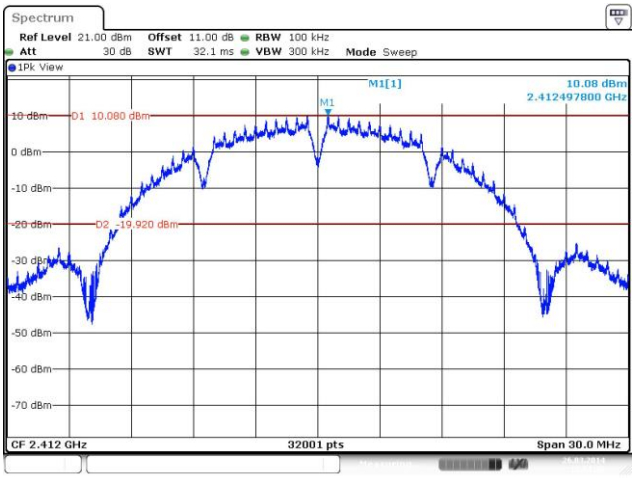
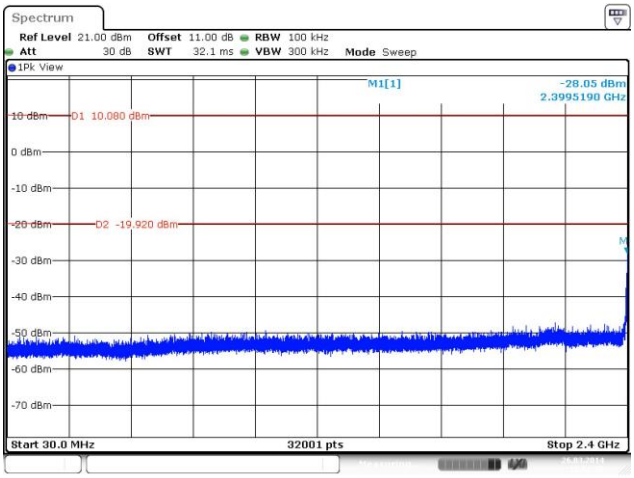
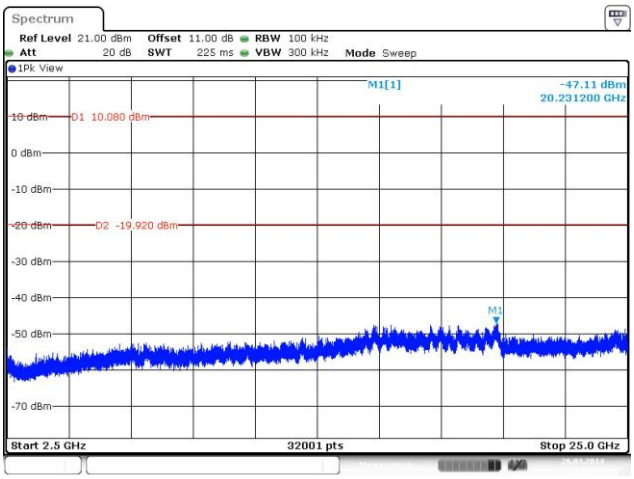
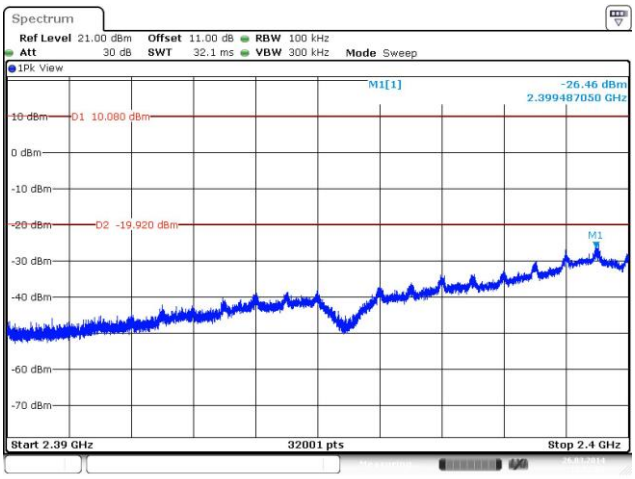
Transmitter Radiated Bandedge Emissions

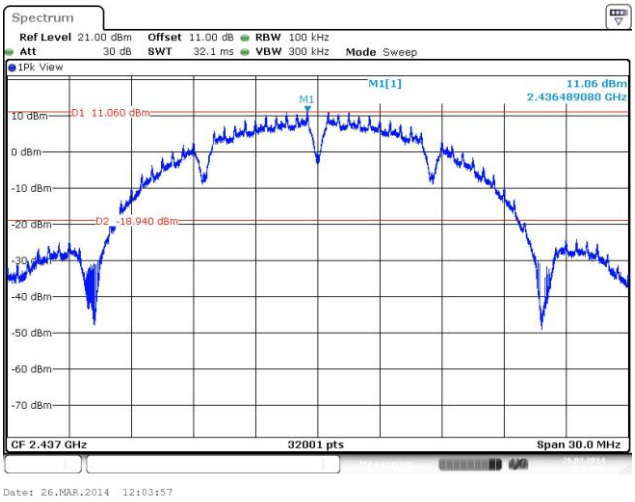
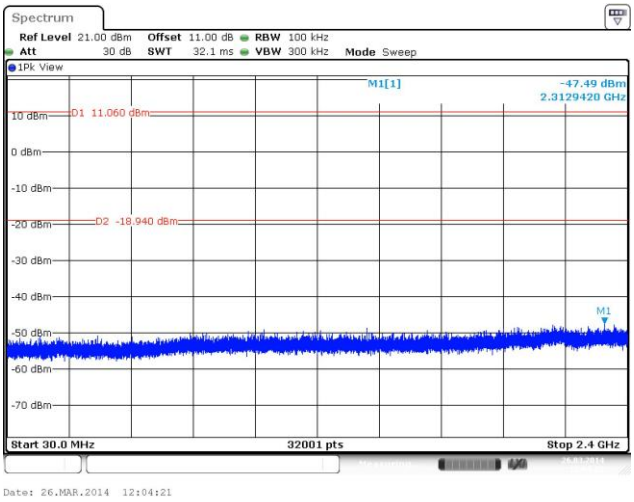
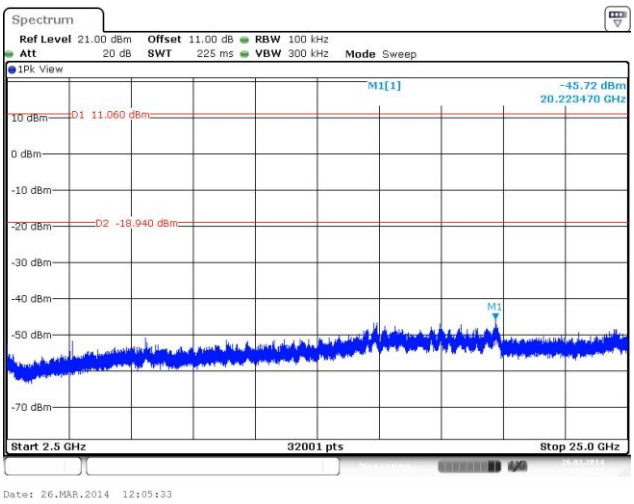
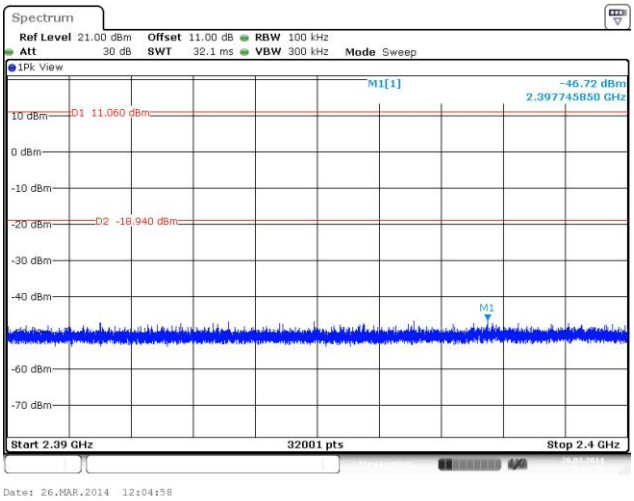


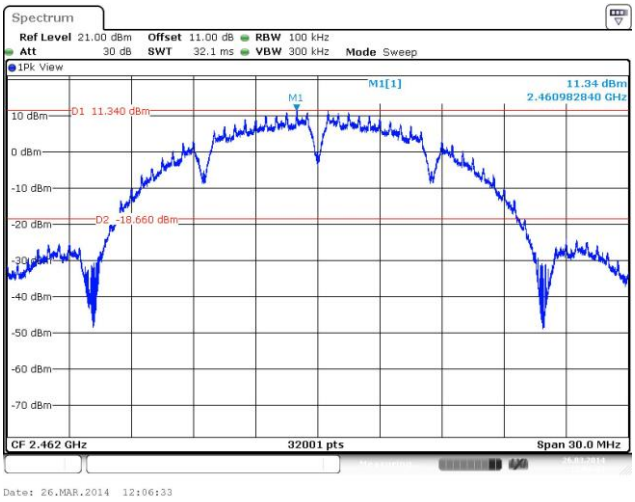
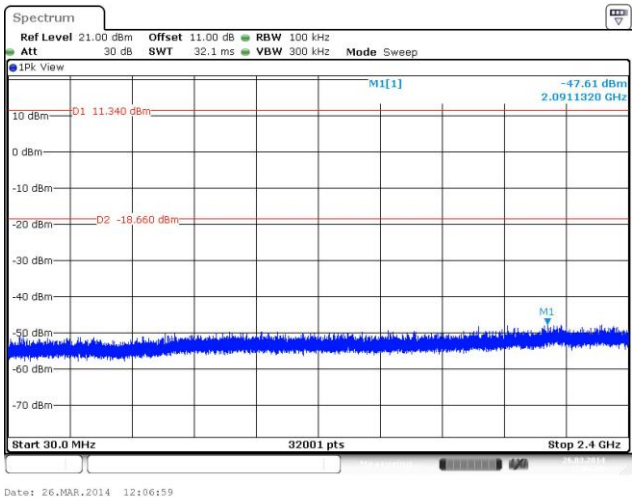
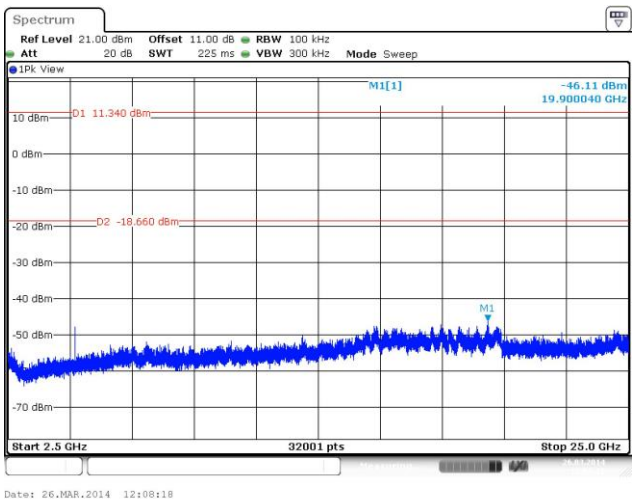
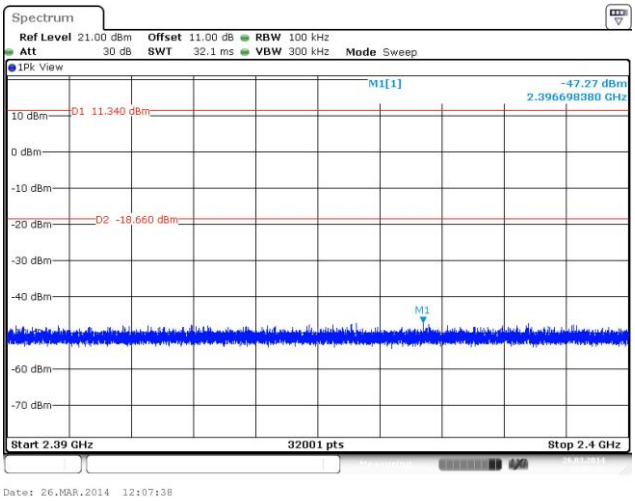
3.5.5 Test Result of Emissions in non-restricted frequency bands

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.

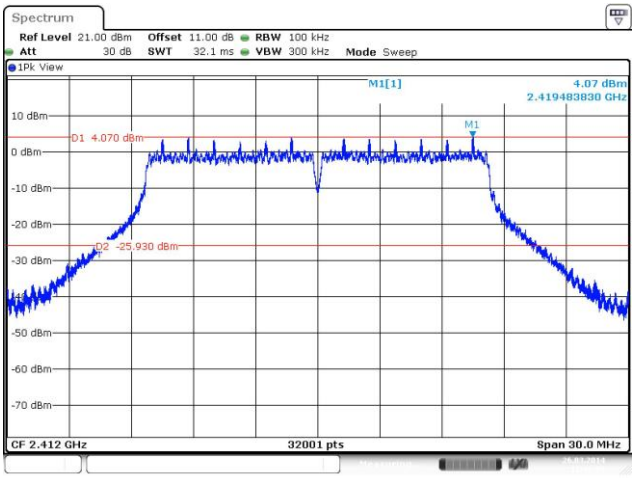
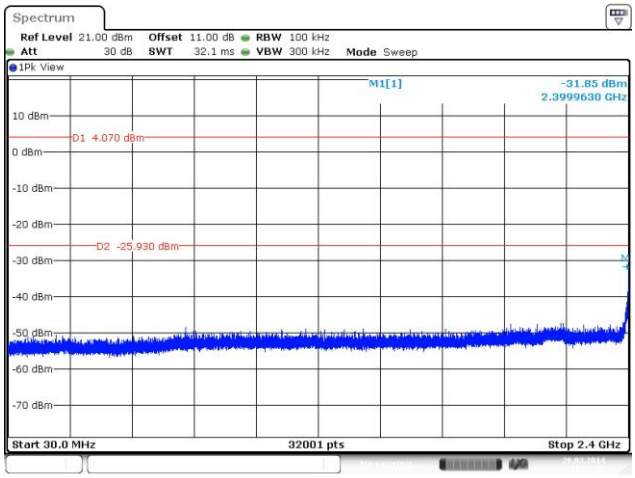
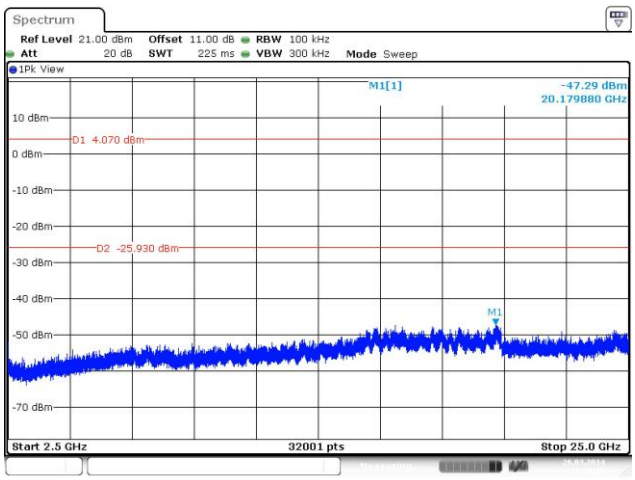
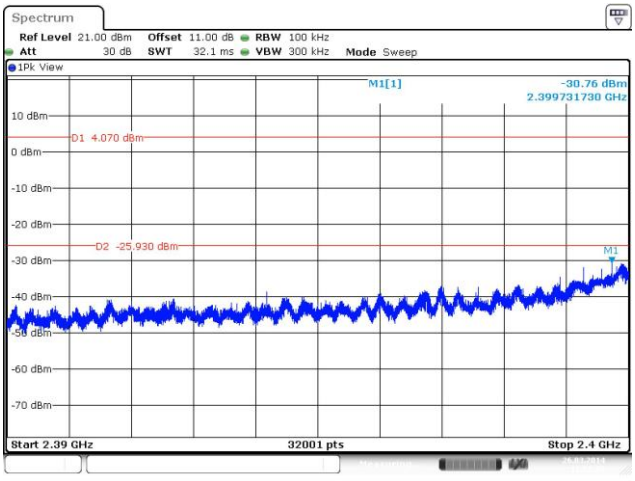
802.11b

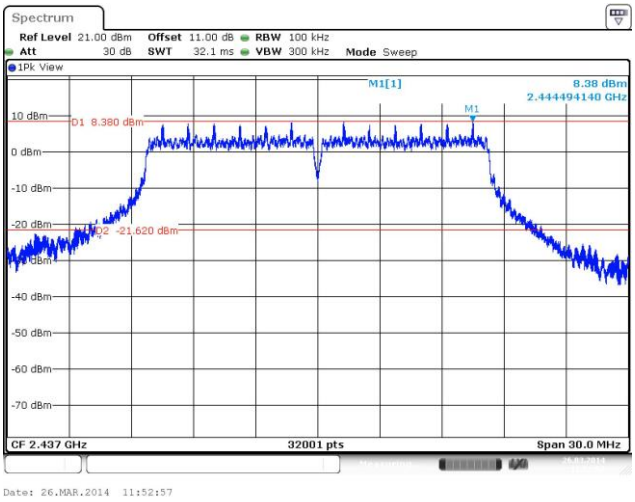
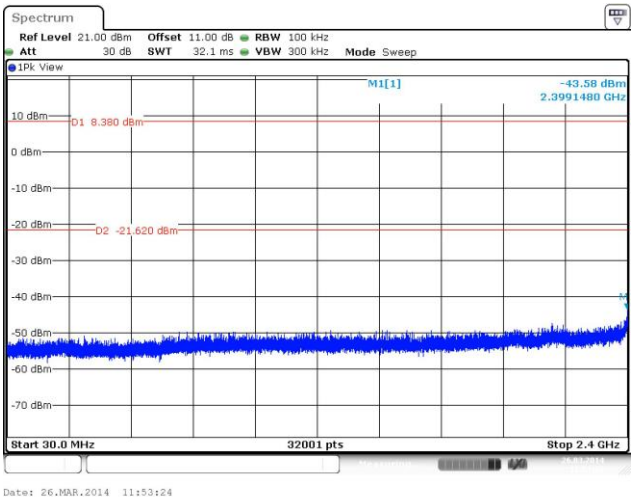
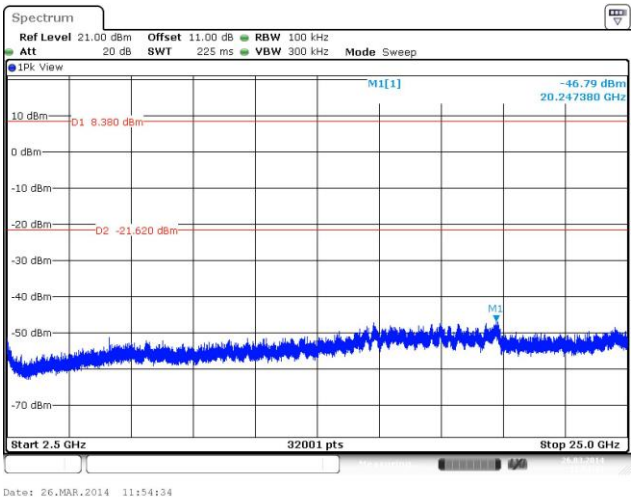
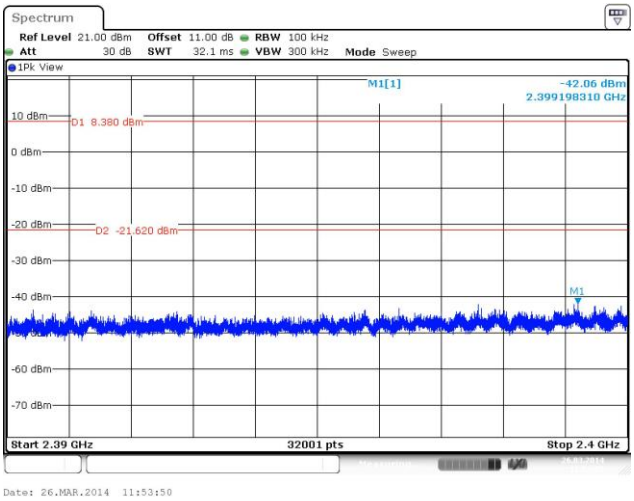
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

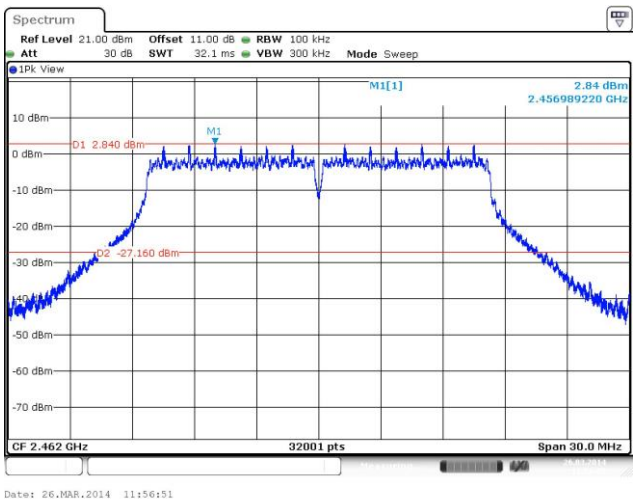
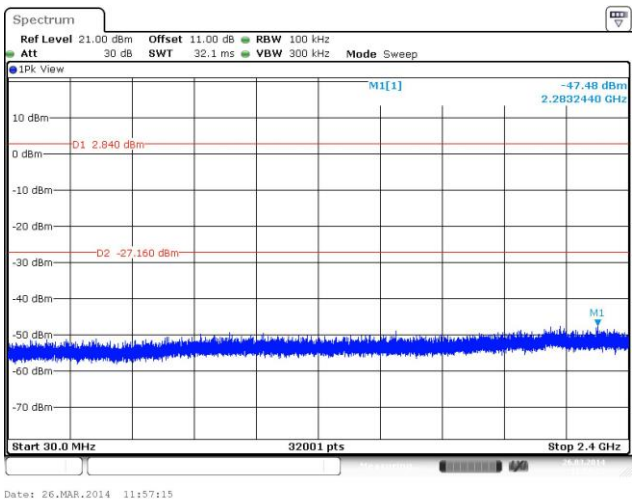
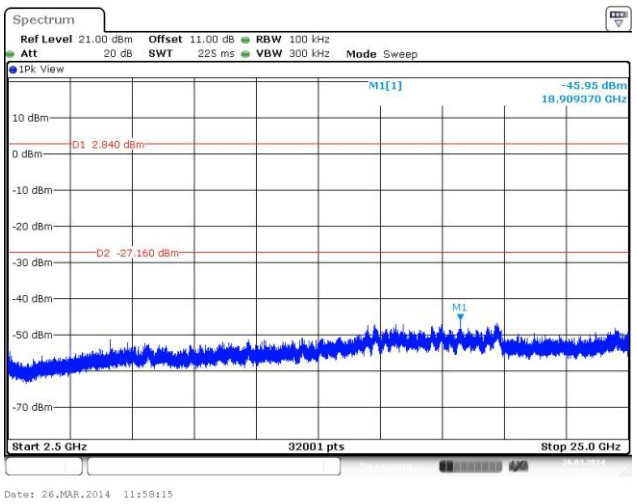
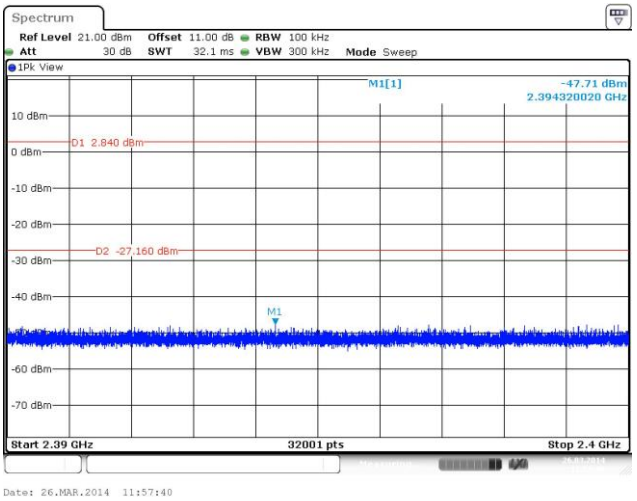
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

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

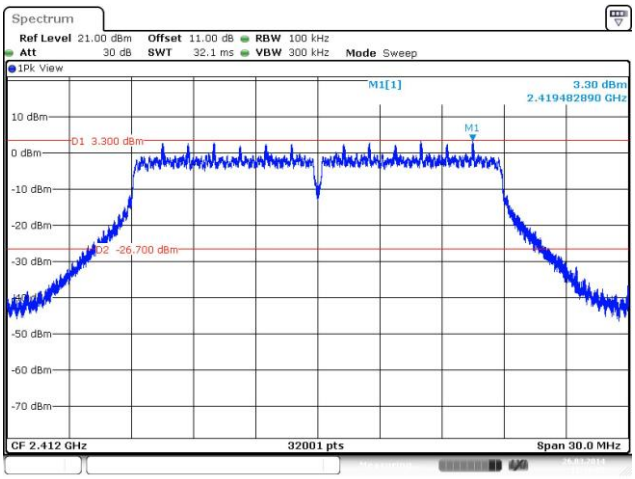
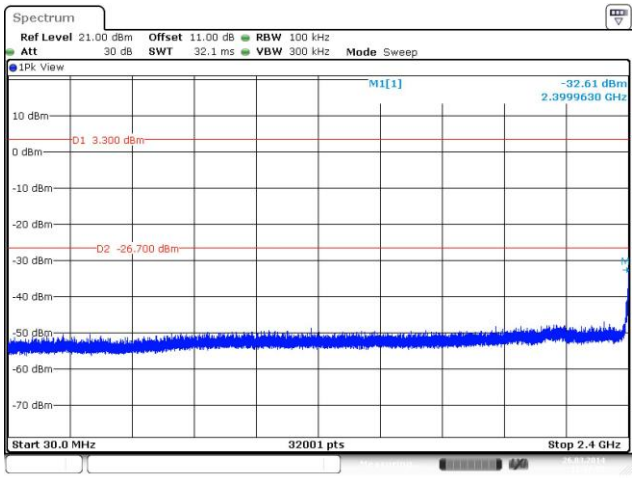
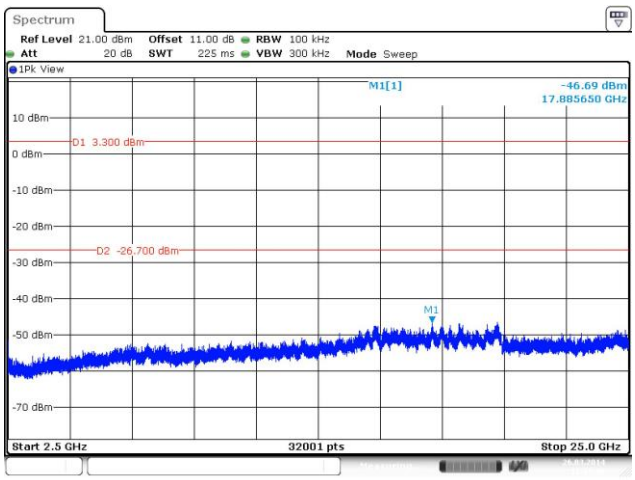
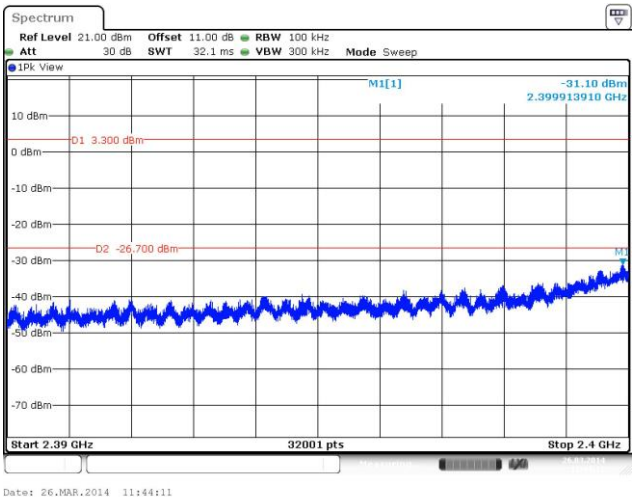
802.11g

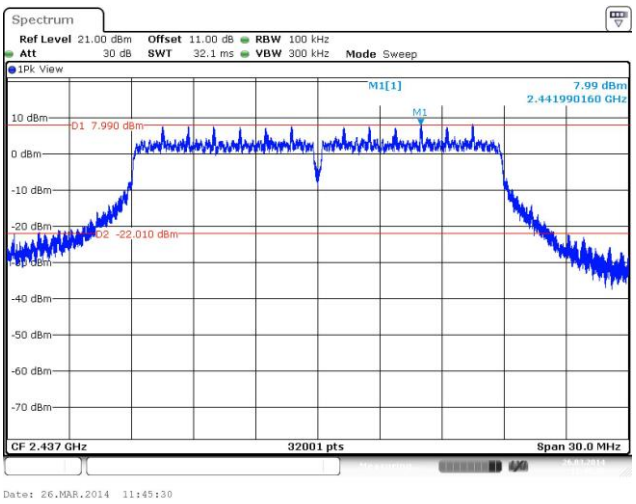
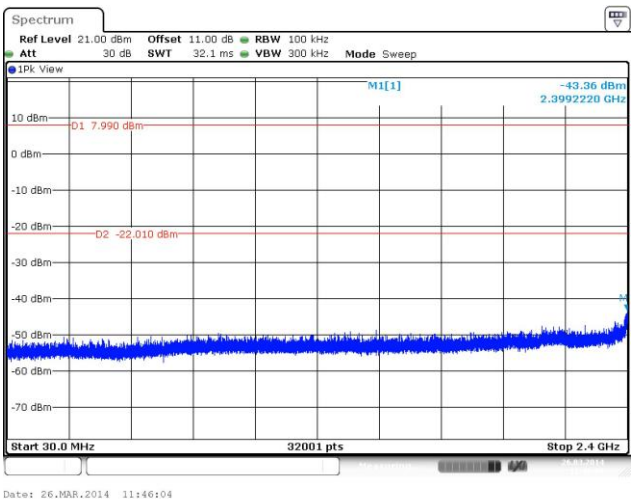
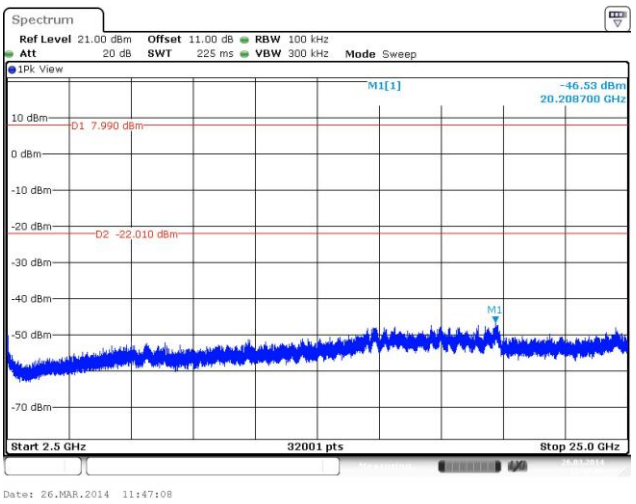
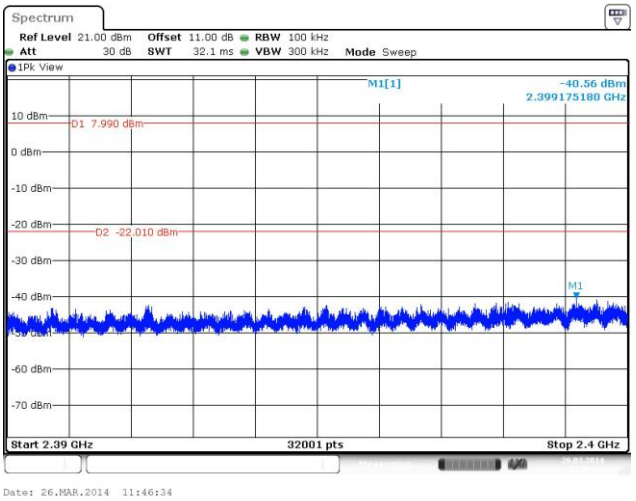
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

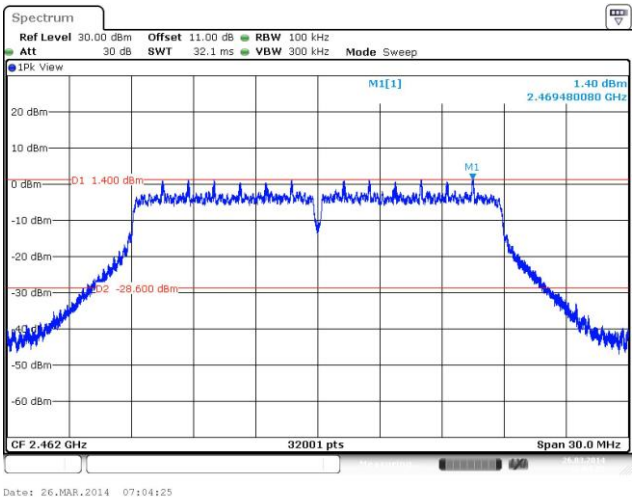
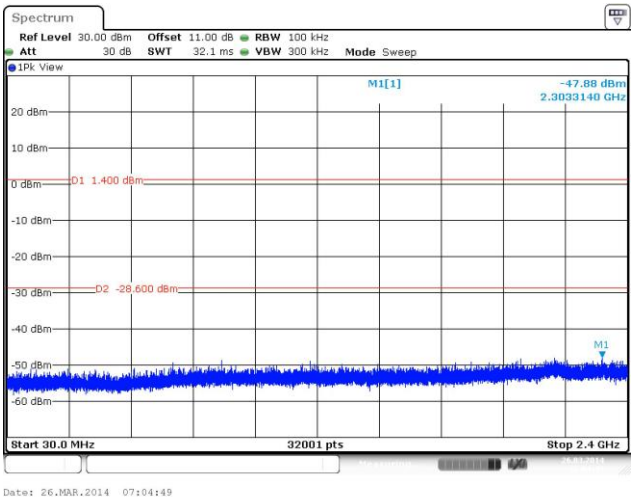
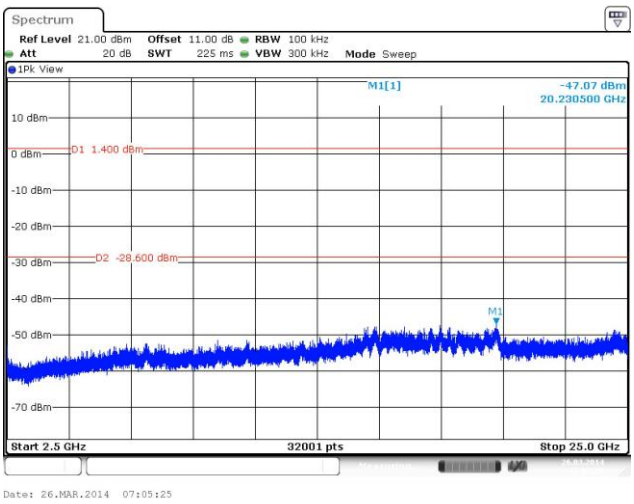
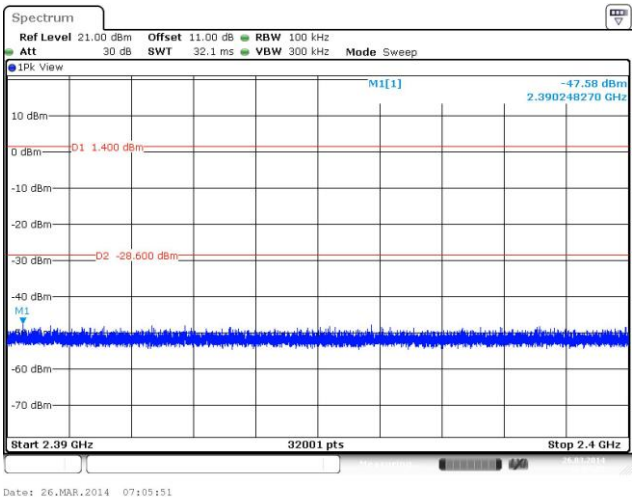
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

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

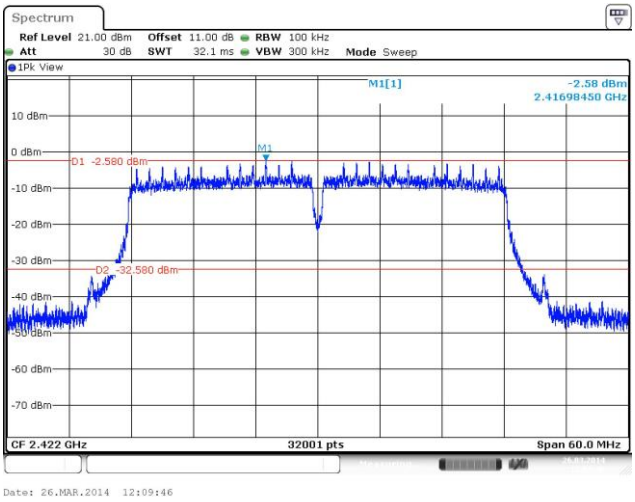
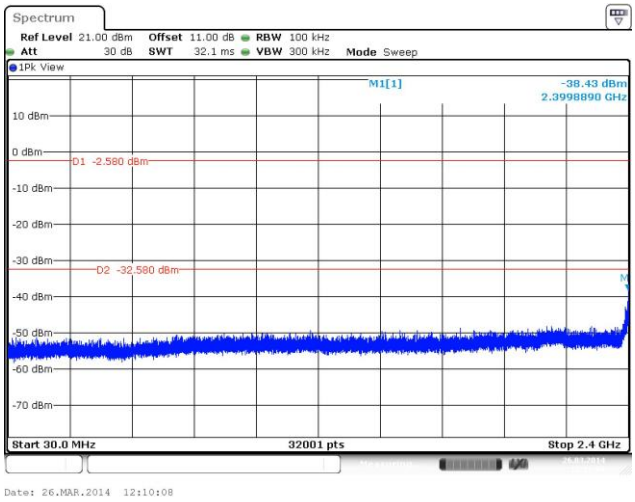
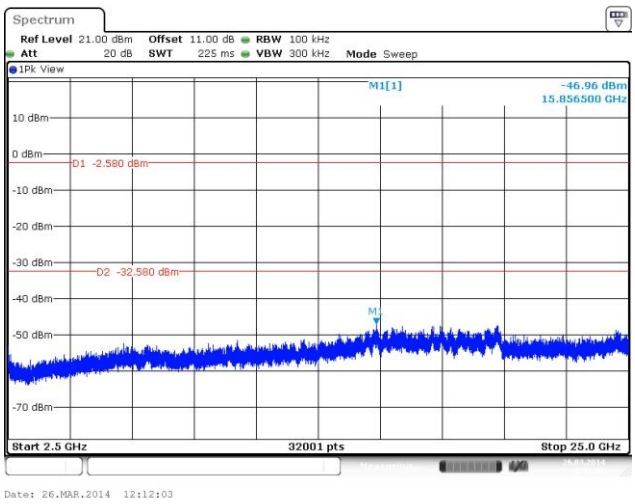
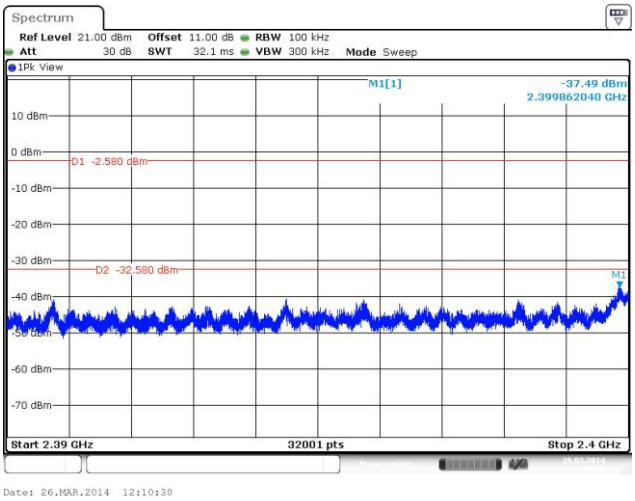
802.11n HT20

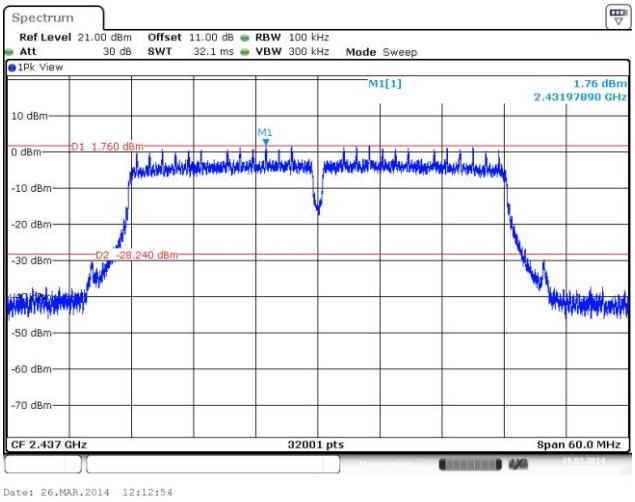
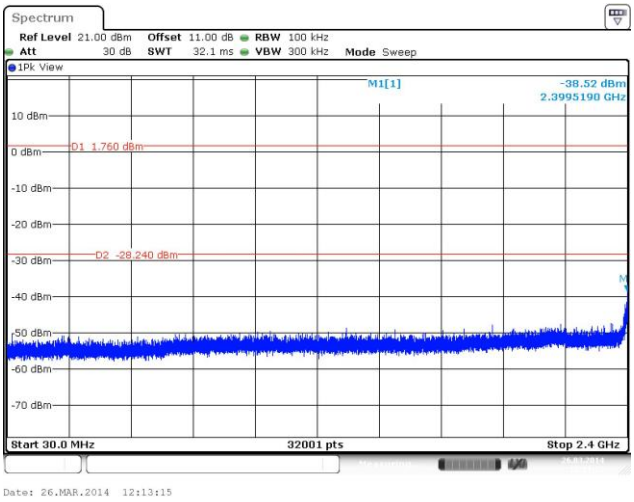
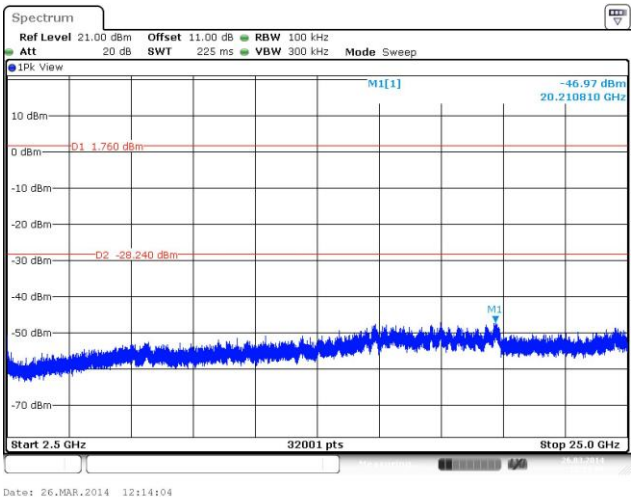
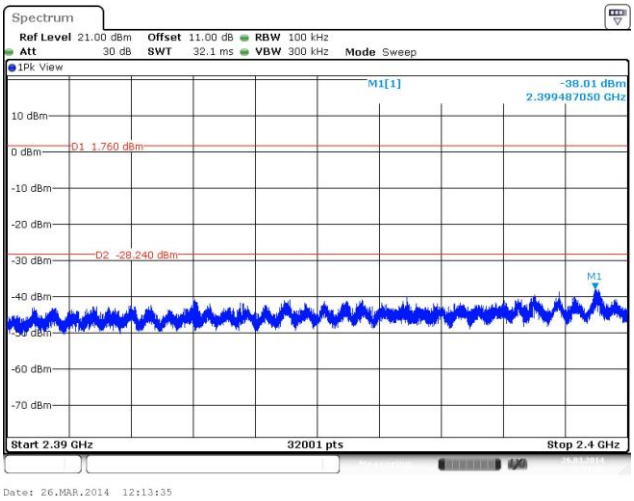
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

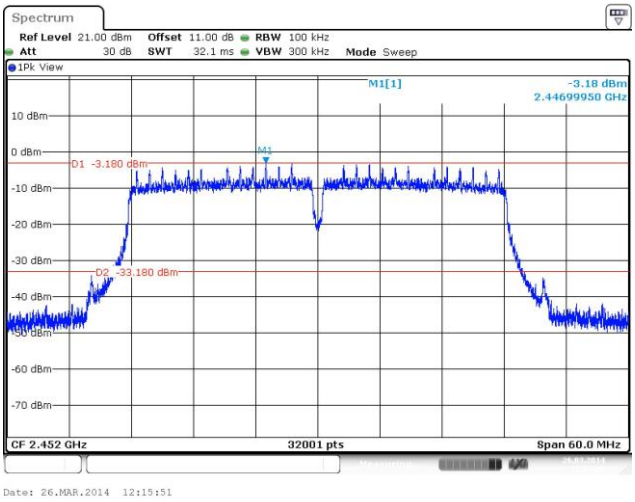
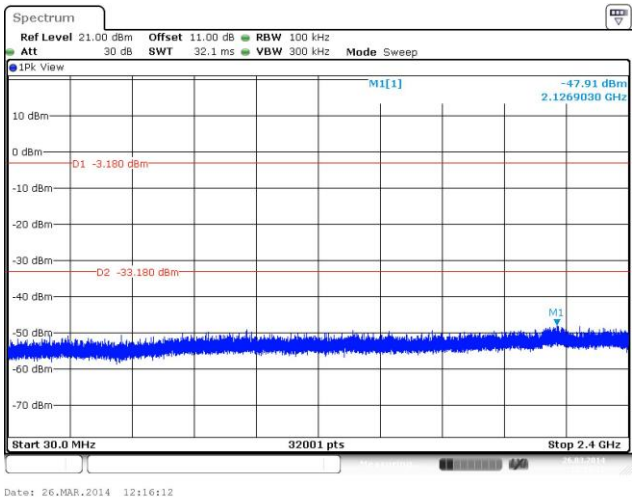
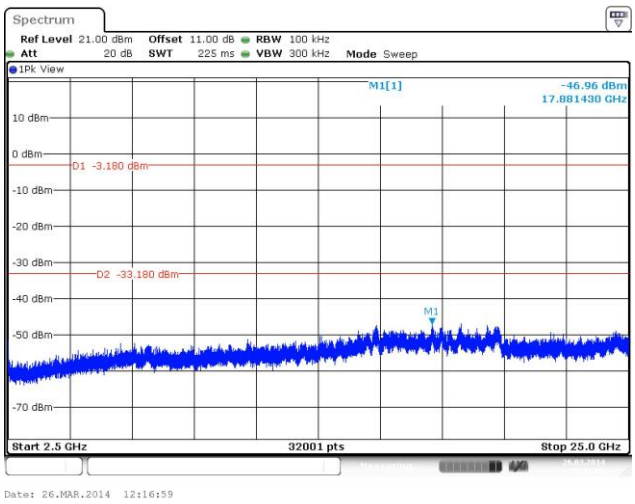
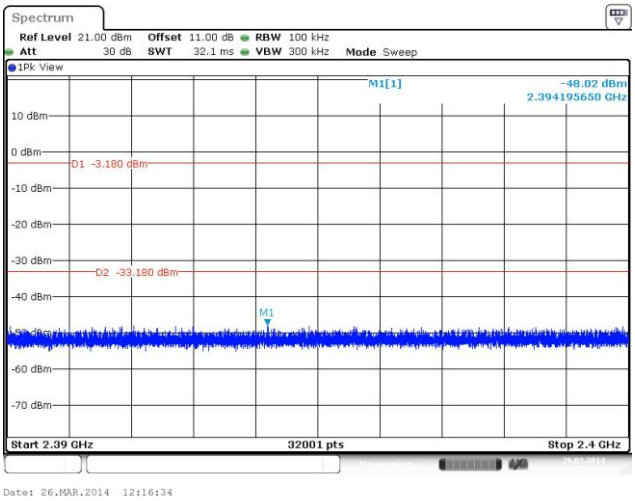
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 30dBc)
	
---	
---	

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.

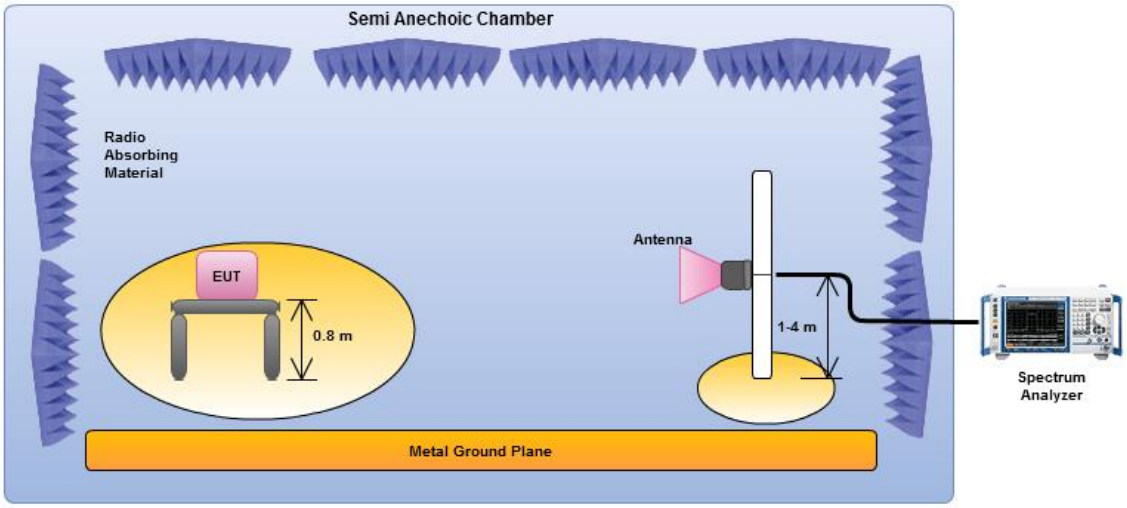
3.6.3 Test Procedures

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 v03r01, clause 11 for unwanted emissions into non-restricted bands.	
	☒	Refer as FCC KDB 558074 v03r01, clause 12 for unwanted emissions into restricted bands.	
		☐	Refer as FCC KDB 558074 v03r01, clause 12.2.5.1 Option 1 (trace averaging for duty cycle ≥98%)
		☐	Refer as FCC KDB 558074 v03r01, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
		☒	Refer as FCC KDB 558074 v03r01, 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 v03r01, clause 11.3 and 12.2.4 measurement procedure peak limit.
		☒	Refer as FCC KDB 558074 v03r01, clause 12.2.3 measurement procedure Quasi-Peak limit.
☒	For radiated measurement, refer as FCC KDB 558074 v03r01, 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 v03r01, clause 10.2.2	
	☐	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

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.

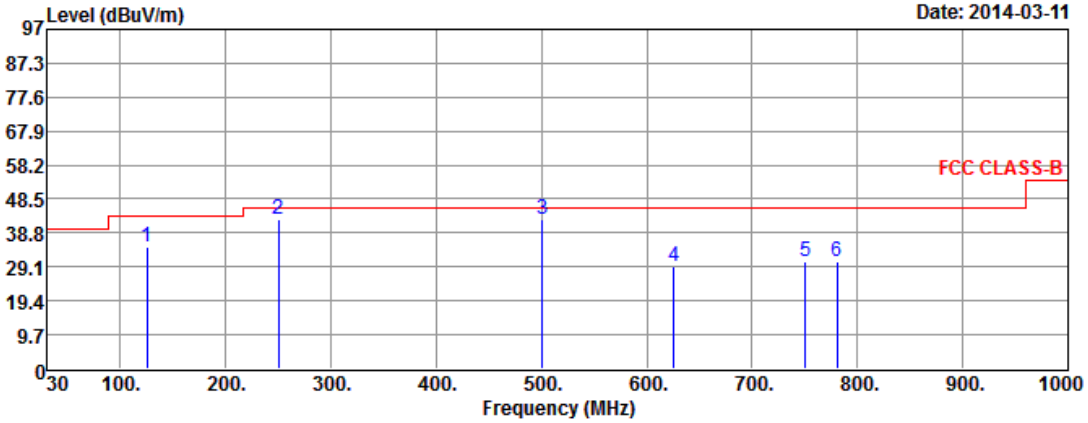
Note: Test distance is 3m.

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)

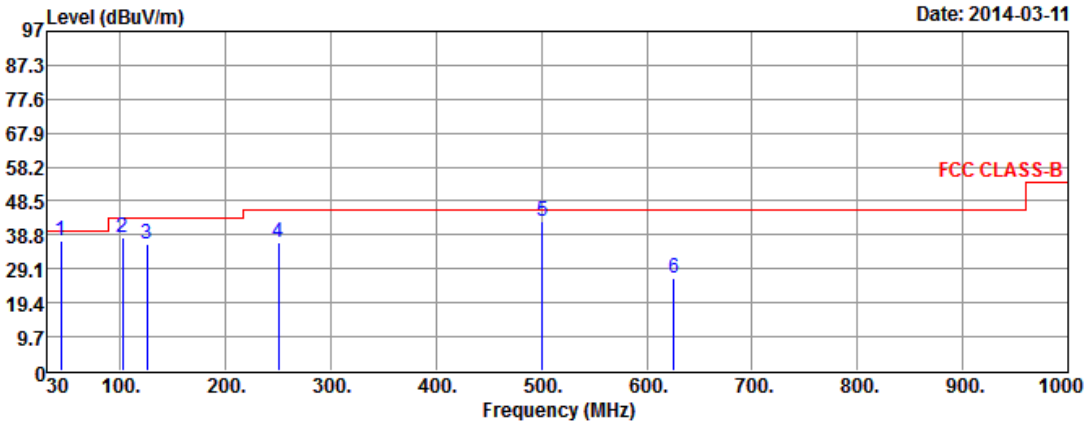
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
Polarization	H		



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	125.06	34.63	-8.87	43.50	53.30	12.26	0.73	31.66	---	---	Peak
2	250.19	42.90	-3.10	46.00	60.87	12.51	1.03	31.51	---	---	Peak
3	500.45	42.83	-3.17	46.00	54.52	18.21	1.51	31.41	148	185	QP
4	625.58	29.24	-16.76	46.00	38.54	20.40	1.72	31.42	---	---	Peak
5	750.71	30.59	-15.41	46.00	37.99	22.11	1.88	31.39	---	---	Peak
6	780.78	30.55	-15.45	46.00	37.51	22.47	1.94	31.37	---	---	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

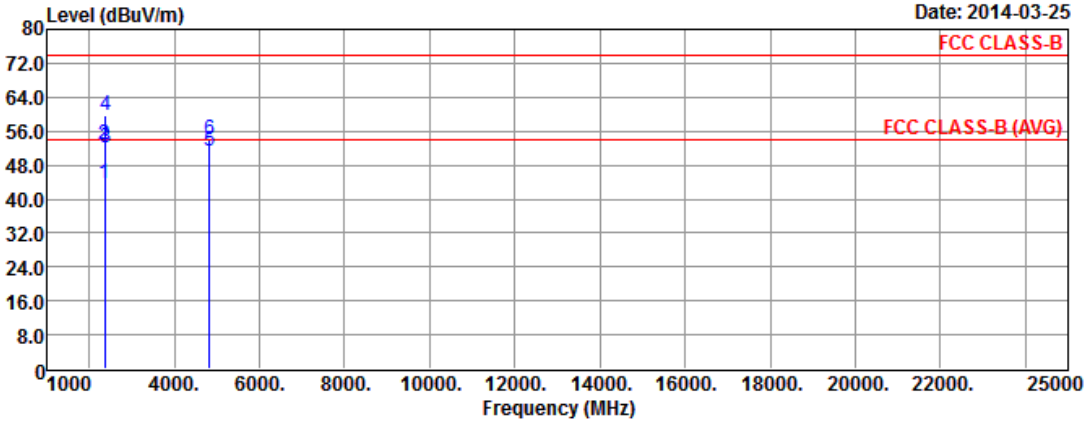


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	43.58	36.90	-3.10	40.00	53.71	14.51	0.48	31.80	100	3	QP
2	101.78	38.13	-5.37	43.50	59.49	9.67	0.66	31.69	---	---	Peak
3	125.06	36.05	-7.45	43.50	54.72	12.26	0.73	31.66	---	---	Peak
4	250.19	36.49	-9.51	46.00	54.46	12.51	1.03	31.51	---	---	Peak
5	500.45	42.91	-3.09	46.00	54.60	18.21	1.51	31.41	---	---	Peak
6	625.58	26.26	-19.74	46.00	35.56	20.40	1.72	31.42	---	---	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

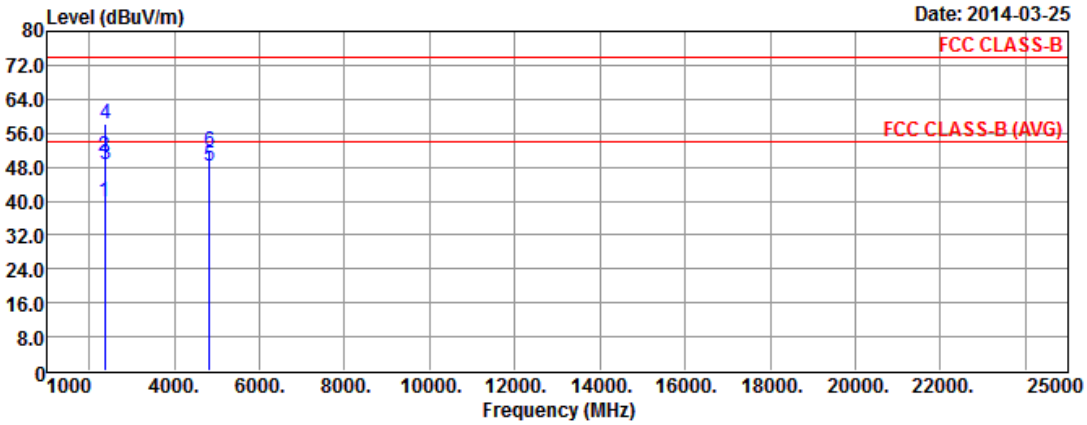
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2412
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2373.00	43.60	-10.40	54.00	46.49	27.17	4.58	34.64	---	---	Average
2	2373.00	53.01	-20.99	74.00	55.90	27.17	4.58	34.64	---	---	Peak
3	2386.00	52.13	-1.87	54.00	54.96	27.20	4.60	34.63	---	---	Average
4	2386.00	59.57	-14.43	74.00	62.40	27.20	4.60	34.63	---	---	Peak
5	4824.00	51.39	-2.61	54.00	46.30	31.52	6.74	33.17	---	---	Average
6	4824.00	53.94	-20.06	74.00	48.85	31.52	6.74	33.17	---	---	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.

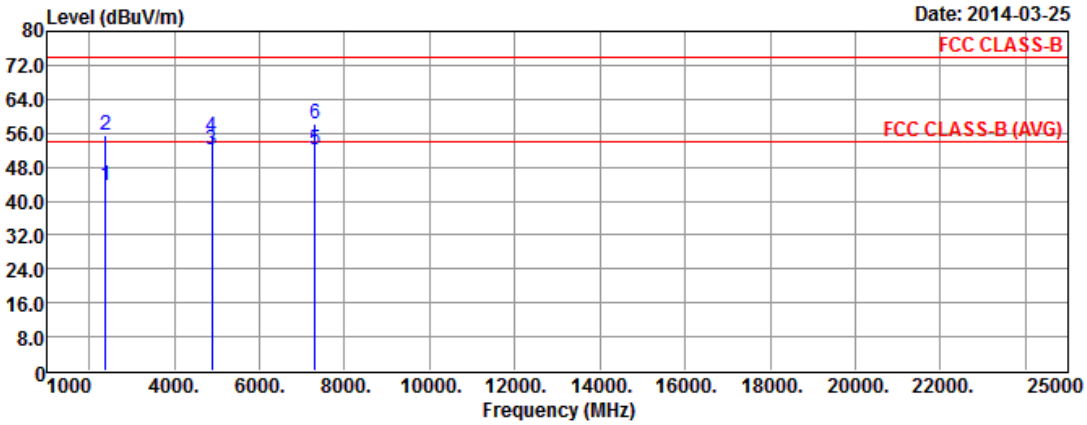
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2412
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2373.00	39.91	-14.09	54.00	42.80	27.17	4.58	34.64	---	---	Average
2	2373.00	50.57	-23.43	74.00	53.46	27.17	4.58	34.64	---	---	Peak
3	2386.00	48.69	-5.31	54.00	51.52	27.20	4.60	34.63	---	---	Average
4	2386.00	58.33	-15.67	74.00	61.16	27.20	4.60	34.63	---	---	Peak
5	4824.00	48.10	-5.90	54.00	43.01	31.52	6.74	33.17	---	---	Average
6	4824.00	51.69	-22.31	74.00	46.60	31.52	6.74	33.17	---	---	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.

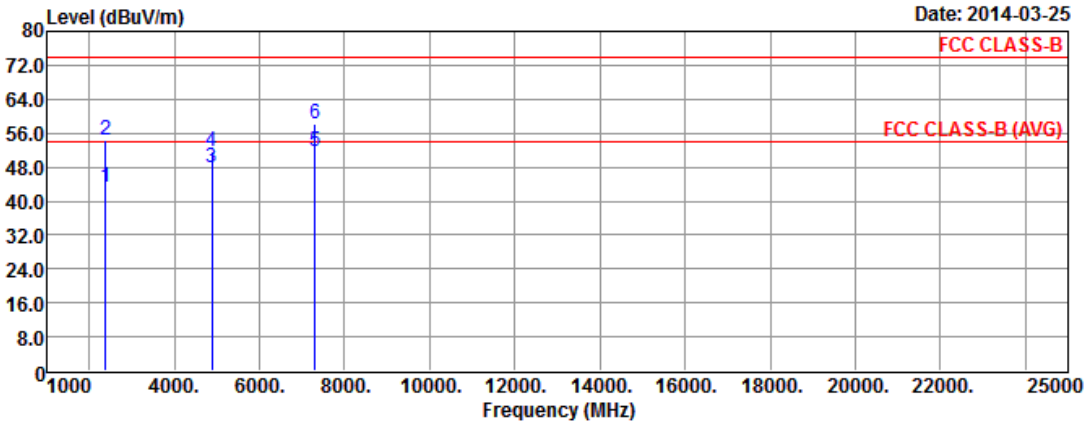
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	43.59	-10.41	54.00	46.41	27.21	4.60	34.63	---	---	Average
2	2390.00	55.49	-18.51	74.00	58.31	27.21	4.60	34.63	---	---	Peak
3	4874.00	52.02	-1.98	54.00	46.84	31.60	6.73	33.15	---	---	Average
4	4874.00	55.05	-18.95	74.00	49.87	31.60	6.73	33.15	---	---	Peak
5	7311.00	52.00	-2.00	54.00	41.26	36.28	8.98	34.52	---	---	Average
6	7311.00	58.33	-15.67	74.00	47.59	36.28	8.98	34.52	---	---	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.

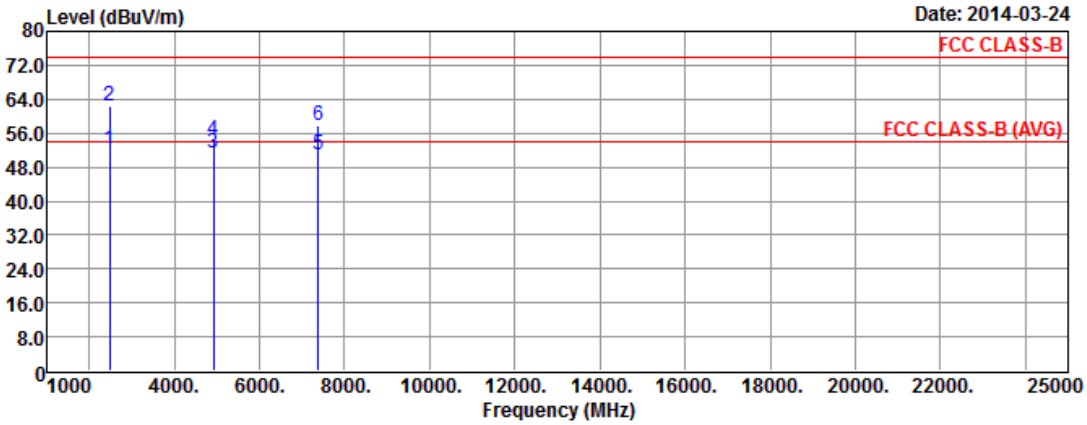
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	43.16	-10.84	54.00	45.98	27.21	4.60	34.63	---	---	Average
2	2390.00	54.42	-19.58	74.00	57.24	27.21	4.60	34.63	---	---	Peak
3	4874.00	47.68	-6.32	54.00	42.50	31.60	6.73	33.15	---	---	Average
4	4874.00	51.60	-22.40	74.00	46.42	31.60	6.73	33.15	---	---	Peak
5	7311.00	51.68	-2.32	54.00	40.94	36.28	8.98	34.52	---	---	Average
6	7311.00	58.34	-15.66	74.00	47.60	36.28	8.98	34.52	---	---	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.

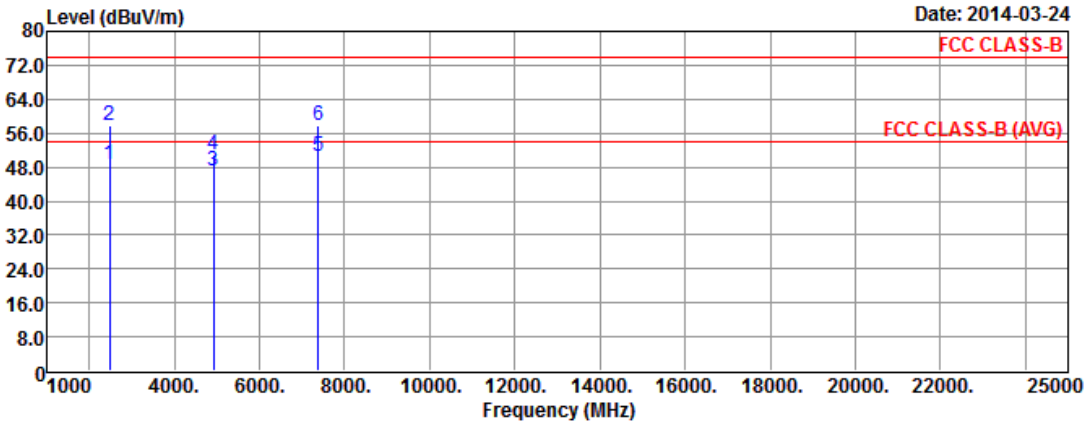
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2462
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	52.19	-1.81	54.00	54.58	27.46	4.74	34.59	---	---	Average
2	2483.50	62.35	-11.65	74.00	64.74	27.46	4.74	34.59	---	---	Peak
3	4924.00	51.37	-2.63	54.00	46.09	31.68	6.73	33.13	---	---	Average
4	4924.00	54.38	-19.62	74.00	49.10	31.68	6.73	33.13	---	---	Peak
5	7386.00	51.03	-2.97	54.00	40.19	36.45	9.01	34.62	---	---	Average
6	7386.00	57.62	-16.38	74.00	46.78	36.45	9.01	34.62	---	---	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}	2	**Polarization**	V

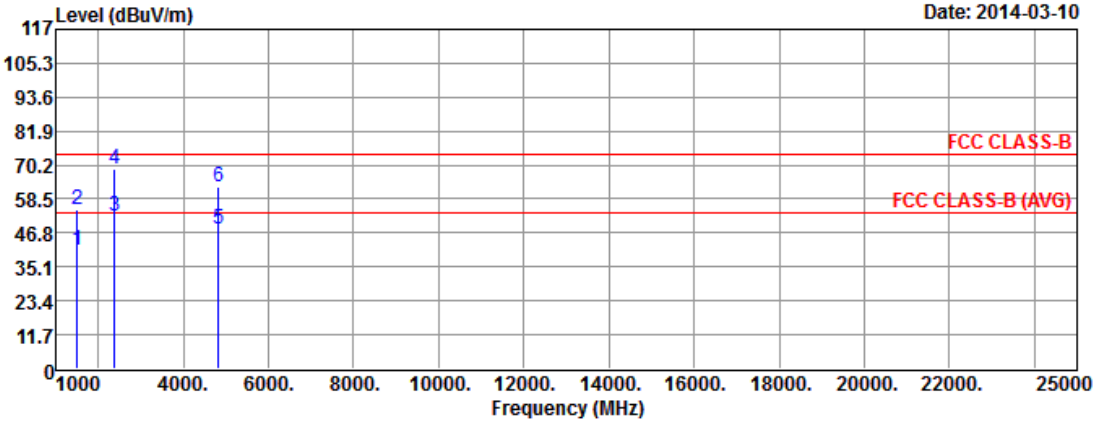


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	48.60	-5.40	54.00	50.99	27.46	4.74	34.59	---	---	Average
2	2483.50	57.77	-16.23	74.00	60.16	27.46	4.74	34.59	---	---	Peak
3	4924.00	47.00	-7.00	54.00	41.72	31.68	6.73	33.13	---	---	Average
4	4924.00	50.88	-23.12	74.00	45.60	31.68	6.73	33.13	---	---	Peak
5	7386.00	50.49	-3.51	54.00	39.65	36.45	9.01	34.62	---	---	Average
6	7386.00	57.95	-16.05	74.00	47.11	36.45	9.01	34.62	---	---	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

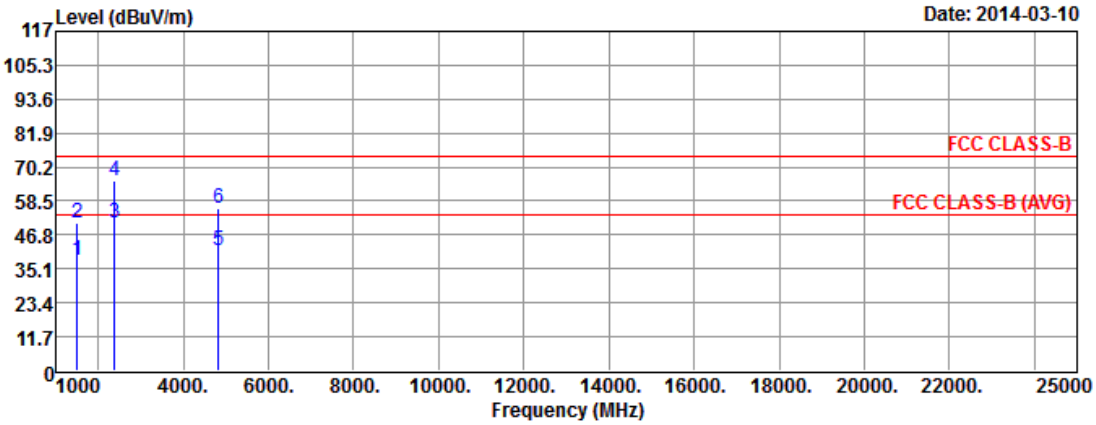
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2412
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.00	41.04	-12.96	54.00	47.51	25.80	3.45	35.72	---	---	Average
2	1500.00	54.66	-19.34	74.00	61.13	25.80	3.45	35.72	---	---	Peak
3	2390.00	52.82	-1.18	54.00	55.64	27.21	4.60	34.63	---	---	Average
4	2390.00	68.73	-5.27	74.00	71.55	27.21	4.60	34.63	---	---	Peak
5	4824.00	48.03	-5.97	54.00	42.94	31.52	6.74	33.17	---	---	Average
6	4824.00	62.57	-11.43	74.00	57.48	31.52	6.74	33.17	---	---	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.

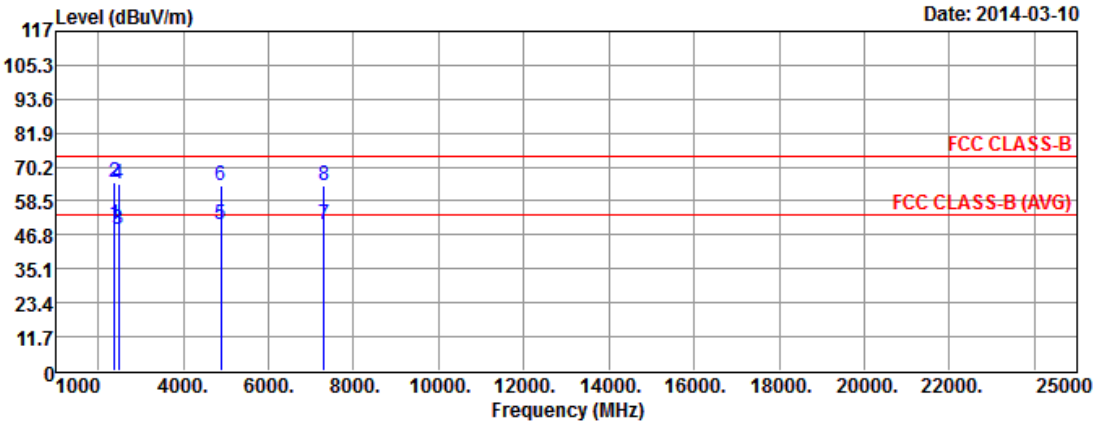
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2412
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.00	38.02	-15.98	54.00	44.49	25.80	3.45	35.72	---	---	Average
2	1500.00	50.84	-23.16	74.00	57.31	25.80	3.45	35.72	---	---	Peak
3	2390.00	51.14	-2.86	54.00	53.96	27.21	4.60	34.63	---	---	Average
4	2390.00	65.63	-8.37	74.00	68.45	27.21	4.60	34.63	---	---	Peak
5	4824.00	41.18	-12.82	54.00	36.09	31.52	6.74	33.17	---	---	Average
6	4824.00	55.76	-18.24	74.00	50.67	31.52	6.74	33.17	---	---	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.

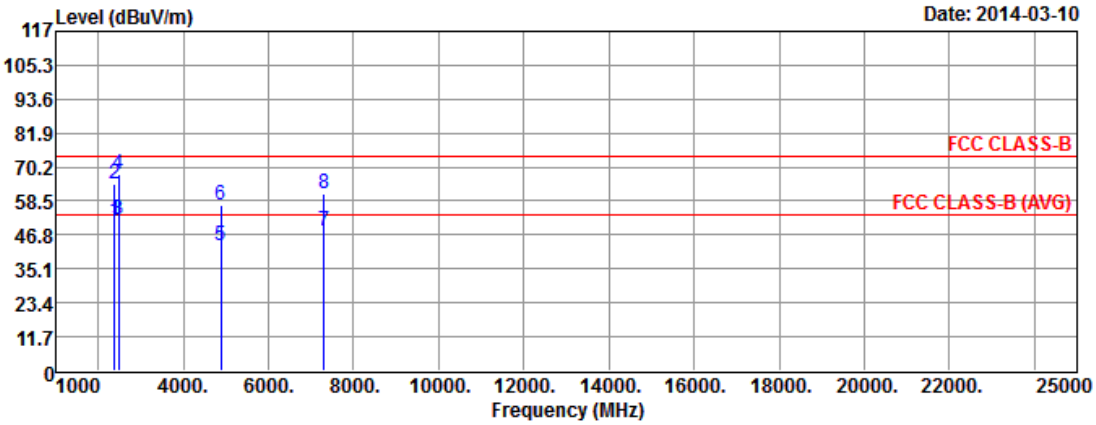
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	50.23	-3.77	54.00	53.05	27.21	4.60	34.63	---	---	Average
2	2390.00	65.04	-8.96	74.00	67.86	27.21	4.60	34.63	---	---	Peak
3	2483.50	48.77	-5.23	54.00	51.16	27.46	4.74	34.59	---	---	Average
4	2483.50	64.41	-9.59	74.00	66.80	27.46	4.74	34.59	---	---	Peak
5	4874.00	50.16	-3.84	54.00	44.98	31.60	6.73	33.15	---	---	Average
6	4874.00	63.68	-10.32	74.00	58.50	31.60	6.73	33.15	---	---	Peak
7	7311.00	50.24	-3.76	54.00	39.50	36.28	8.98	34.52	---	---	Average
8	7311.00	63.78	-10.22	74.00	53.04	36.28	8.98	34.52	---	---	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.

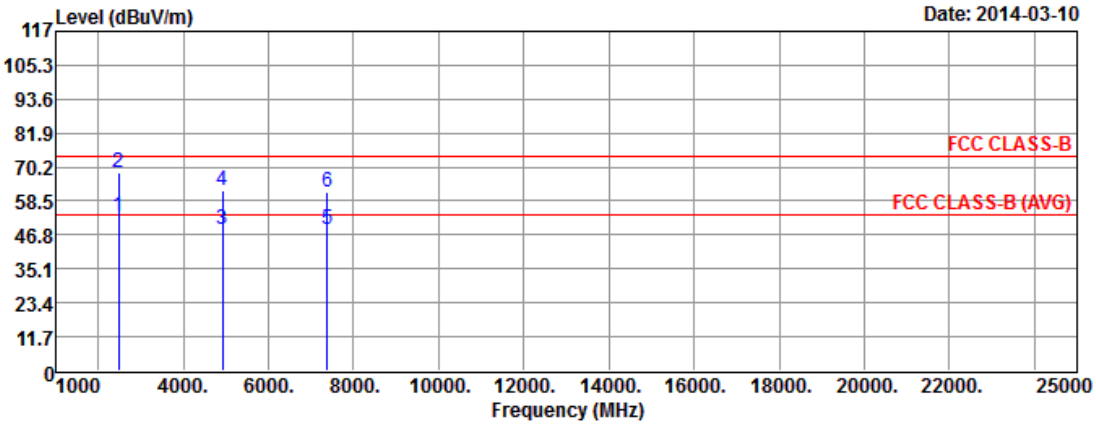
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	51.59	-2.41	54.00	54.41	27.21	4.60	34.63	---	---	Average
2	2390.00	64.55	-9.45	74.00	67.37	27.21	4.60	34.63	---	---	Peak
3	2483.50	52.23	-1.77	54.00	54.62	27.46	4.74	34.59	---	---	Average
4	2483.50	67.77	-6.23	74.00	70.16	27.46	4.74	34.59	---	---	Peak
5	4874.00	43.00	-11.00	54.00	37.82	31.60	6.73	33.15	---	---	Average
6	4874.00	57.29	-16.71	74.00	52.11	31.60	6.73	33.15	---	---	Peak
7	7311.00	48.16	-5.84	54.00	37.42	36.28	8.98	34.52	---	---	Average
8	7311.00	60.85	-13.15	74.00	50.11	36.28	8.98	34.52	---	---	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.

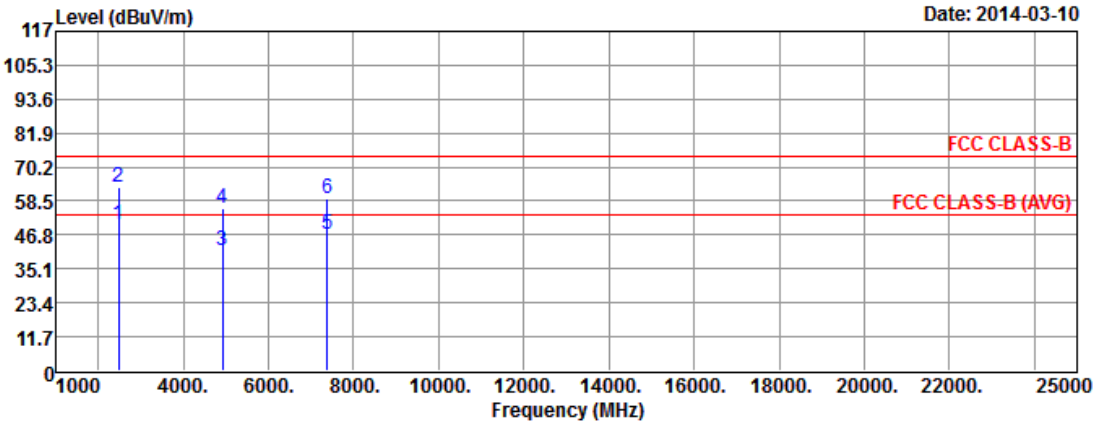
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2462
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	52.92	-1.08	54.00	55.31	27.46	4.74	34.59	---	---	Average
2	2483.50	68.43	-5.57	74.00	70.82	27.46	4.74	34.59	---	---	Peak
3	4924.00	48.50	-5.50	54.00	43.22	31.68	6.73	33.13	---	---	Average
4	4924.00	62.13	-11.87	74.00	56.85	31.68	6.73	33.13	---	---	Peak
5	7386.00	48.55	-5.45	54.00	37.71	36.45	9.01	34.62	---	---	Average
6	7386.00	61.75	-12.25	74.00	50.91	36.45	9.01	34.62	---	---	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}	2	**Polarization**	V

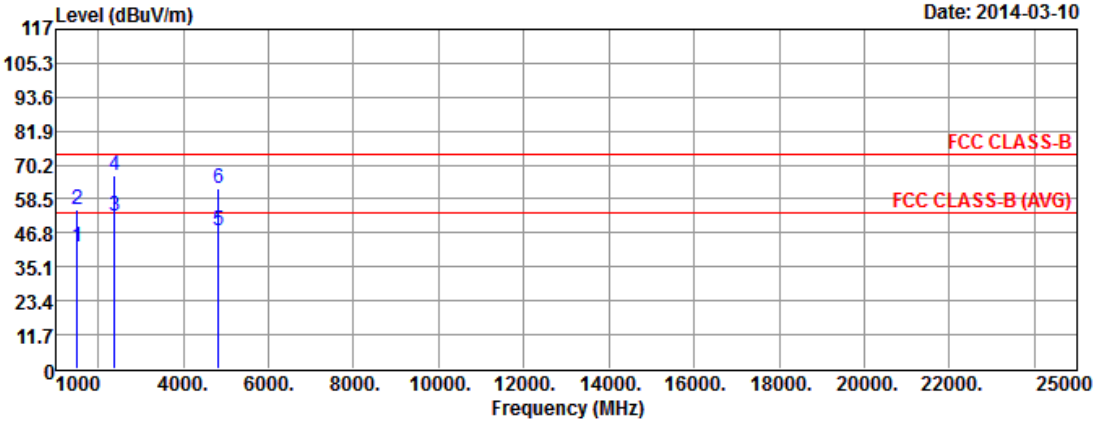


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	50.24	-3.76	54.00	52.63	27.46	4.74	34.59	---	---	Average
2	2483.50	63.25	-10.75	74.00	65.64	27.46	4.74	34.59	---	---	Peak
3	4924.00	41.37	-12.63	54.00	36.09	31.68	6.73	33.13	---	---	Average
4	4924.00	55.88	-18.12	74.00	50.60	31.68	6.73	33.13	---	---	Peak
5	7386.00	46.85	-7.15	54.00	36.01	36.45	9.01	34.62	---	---	Average
6	7386.00	59.42	-14.58	74.00	48.58	36.45	9.01	34.62	---	---	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

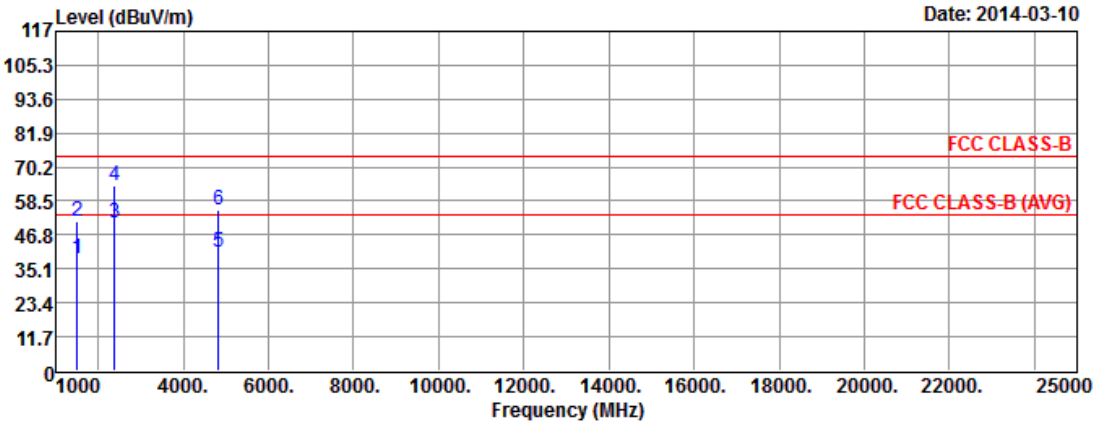
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2412
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.00	41.84	-12.16	54.00	48.31	25.80	3.45	35.72	---	---	Average
2	1500.00	55.13	-18.87	74.00	61.60	25.80	3.45	35.72	---	---	Peak
3	2390.00	52.49	-1.51	54.00	55.31	27.21	4.60	34.63	---	---	Average
4	2390.00	66.87	-7.13	74.00	69.69	27.21	4.60	34.63	---	---	Peak
5	4824.00	47.84	-6.16	54.00	42.75	31.52	6.74	33.17	---	---	Average
6	4824.00	62.15	-11.85	74.00	57.06	31.52	6.74	33.17	---	---	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.

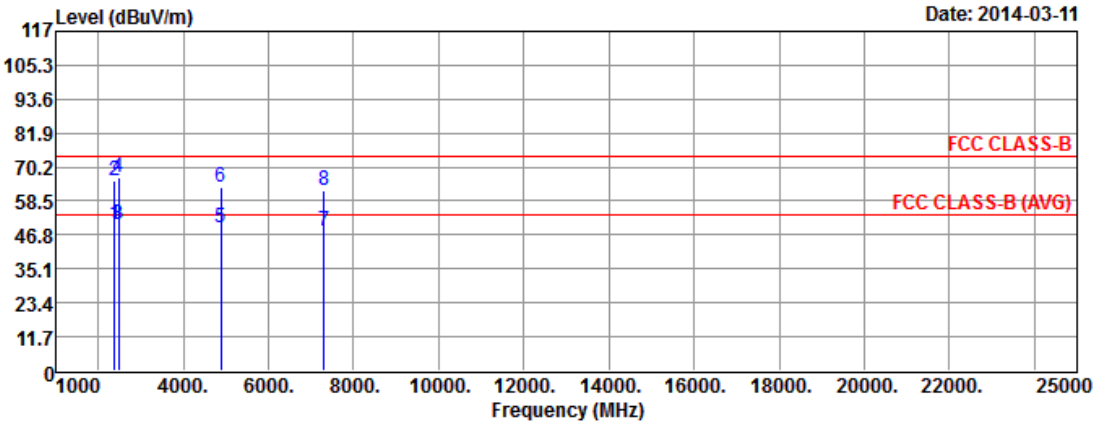
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2412
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.00	38.74	-15.26	54.00	45.21	25.80	3.45	35.72	---	---	Average
2	1500.00	51.42	-22.58	74.00	57.89	25.80	3.45	35.72	---	---	Peak
3	2390.00	50.95	-3.05	54.00	53.77	27.21	4.60	34.63	---	---	Average
4	2390.00	63.87	-10.13	74.00	66.69	27.21	4.60	34.63	---	---	Peak
5	4824.00	40.98	-13.02	54.00	35.89	31.52	6.74	33.17	---	---	Average
6	4824.00	55.33	-18.67	74.00	50.24	31.52	6.74	33.17	---	---	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.

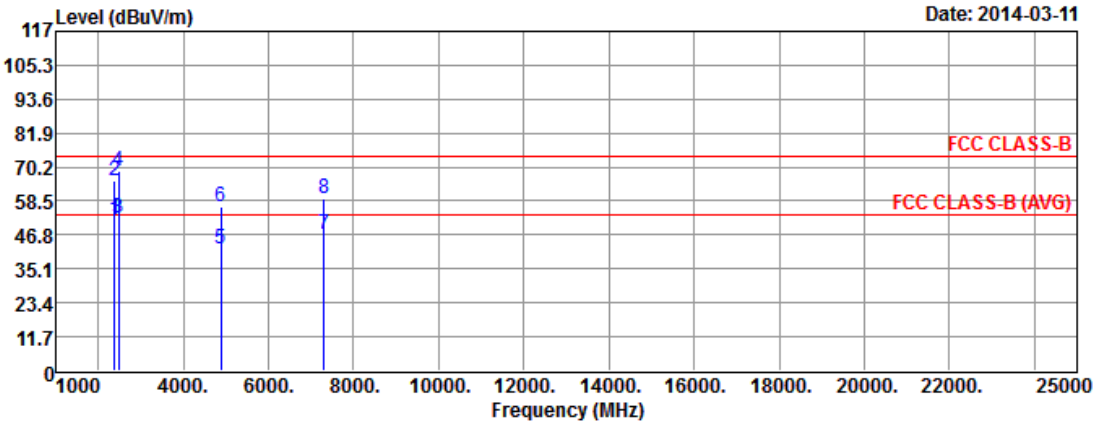
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	50.45	-3.55	54.00	53.27	27.21	4.60	34.63	---	---	Average
2	2390.00	65.43	-8.57	74.00	68.25	27.21	4.60	34.63	---	---	Peak
3	2483.50	50.23	-3.77	54.00	52.62	27.46	4.74	34.59	---	---	Average
4	2483.50	66.70	-7.30	74.00	69.09	27.46	4.74	34.59	---	---	Peak
5	4874.00	49.40	-4.60	54.00	44.22	31.60	6.73	33.15	---	---	Average
6	4874.00	63.30	-10.70	74.00	58.12	31.60	6.73	33.15	---	---	Peak
7	7311.00	48.23	-5.77	54.00	37.49	36.28	8.98	34.52	---	---	Average
8	7311.00	62.21	-11.79	74.00	51.47	36.28	8.98	34.52	---	---	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.

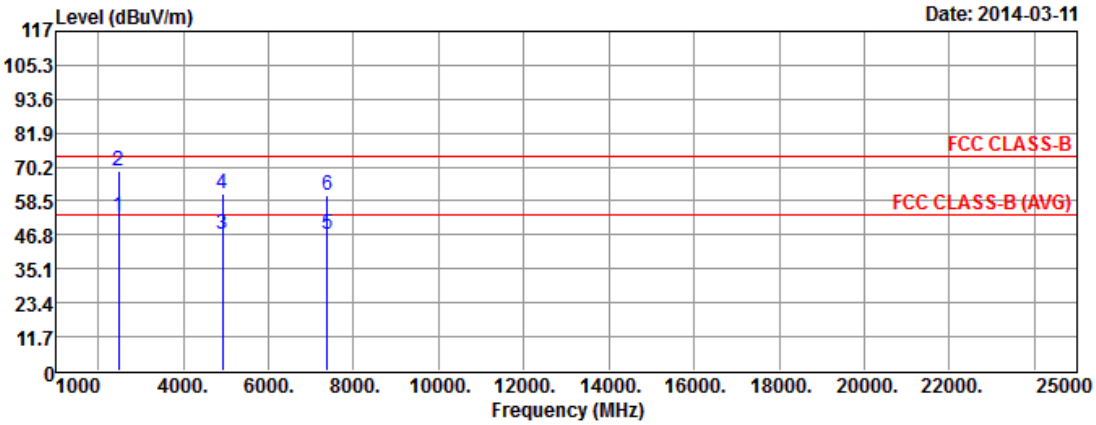
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	52.19	-1.81	54.00	55.01	27.21	4.60	34.63	---	---	Average
2	2390.00	65.66	-8.34	74.00	68.48	27.21	4.60	34.63	---	---	Peak
3	2483.50	52.63	-1.37	54.00	55.02	27.46	4.74	34.59	---	---	Average
4	2483.50	69.05	-4.95	74.00	71.44	27.46	4.74	34.59	---	---	Peak
5	4874.00	42.11	-11.89	54.00	36.93	31.60	6.73	33.15	---	---	Average
6	4874.00	56.75	-17.25	74.00	51.57	31.60	6.73	33.15	---	---	Peak
7	7311.00	47.05	-6.95	54.00	36.31	36.28	8.98	34.52	---	---	Average
8	7311.00	59.48	-14.52	74.00	48.74	36.28	8.98	34.52	---	---	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.

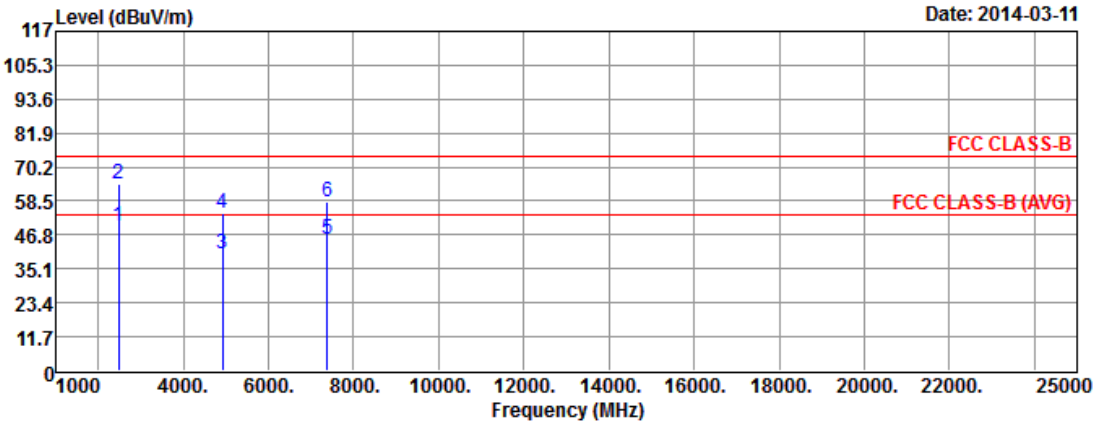
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2462
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	53.00	-1.00	54.00	55.39	27.46	4.74	34.59	---	---	Average
2	2483.50	69.08	-4.92	74.00	71.47	27.46	4.74	34.59	---	---	Peak
3	4924.00	47.24	-6.76	54.00	41.96	31.68	6.73	33.13	---	---	Average
4	4924.00	61.05	-12.95	74.00	55.77	31.68	6.73	33.13	---	---	Peak
5	7386.00	47.23	-6.77	54.00	36.39	36.45	9.01	34.62	---	---	Average
6	7386.00	60.55	-13.45	74.00	49.71	36.45	9.01	34.62	---	---	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}	2	**Polarization**	V

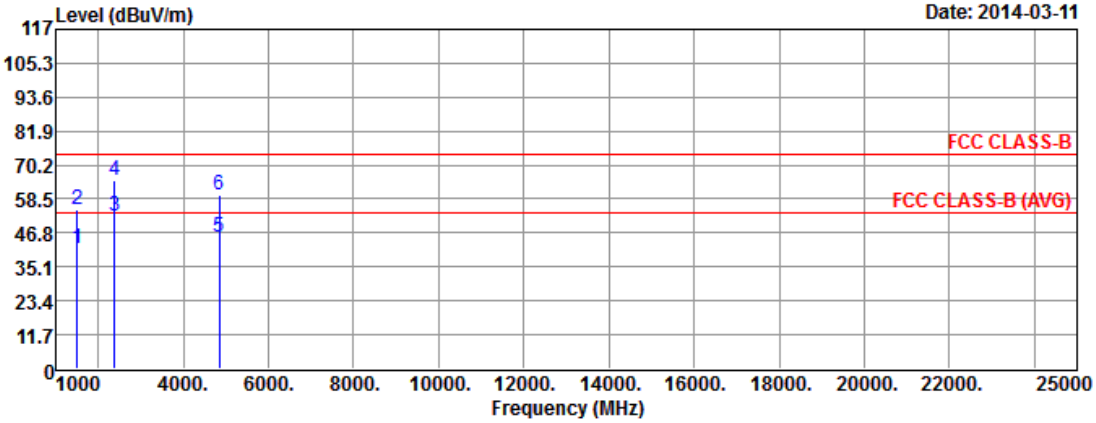


	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	49.82	-4.18	54.00	52.21	27.46	4.74	34.59	---	---	Average
2	2483.50	64.20	-9.80	74.00	66.59	27.46	4.74	34.59	---	---	Peak
3	4924.00	40.18	-13.82	54.00	34.90	31.68	6.73	33.13	---	---	Average
4	4924.00	54.43	-19.57	74.00	49.15	31.68	6.73	33.13	---	---	Peak
5	7386.00	45.44	-8.56	54.00	34.60	36.45	9.01	34.62	---	---	Average
6	7386.00	58.27	-15.73	74.00	47.43	36.45	9.01	34.62	---	---	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

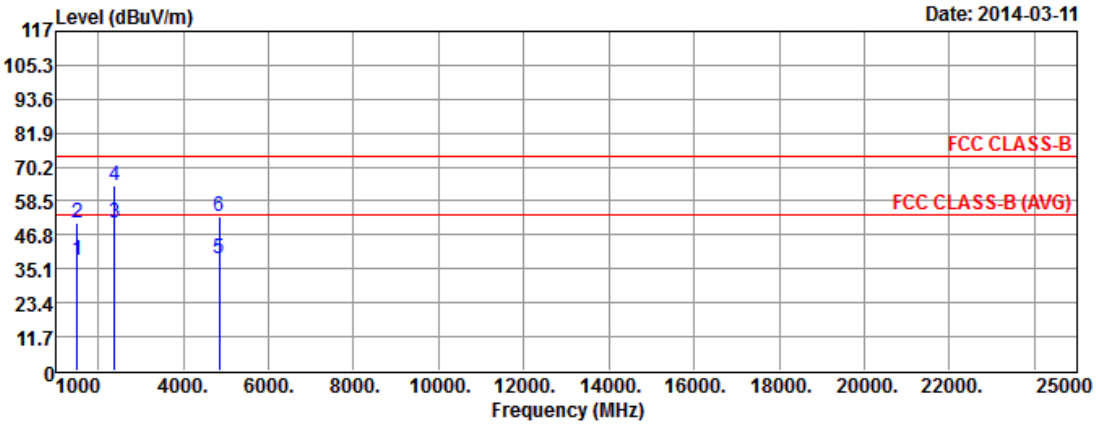
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2422
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.00	41.34	-12.66	54.00	47.81	25.80	3.45	35.72	---	---	Average
2	1500.00	54.72	-19.28	74.00	61.19	25.80	3.45	35.72	---	---	Peak
3	2390.00	52.43	-1.57	54.00	55.25	27.21	4.60	34.63	---	---	Average
4	2390.00	64.71	-9.29	74.00	67.53	27.21	4.60	34.63	---	---	Peak
5	4844.00	45.51	-8.49	54.00	40.38	31.55	6.74	33.16	---	---	Average
6	4844.00	60.03	-13.97	74.00	54.90	31.55	6.74	33.16	---	---	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.

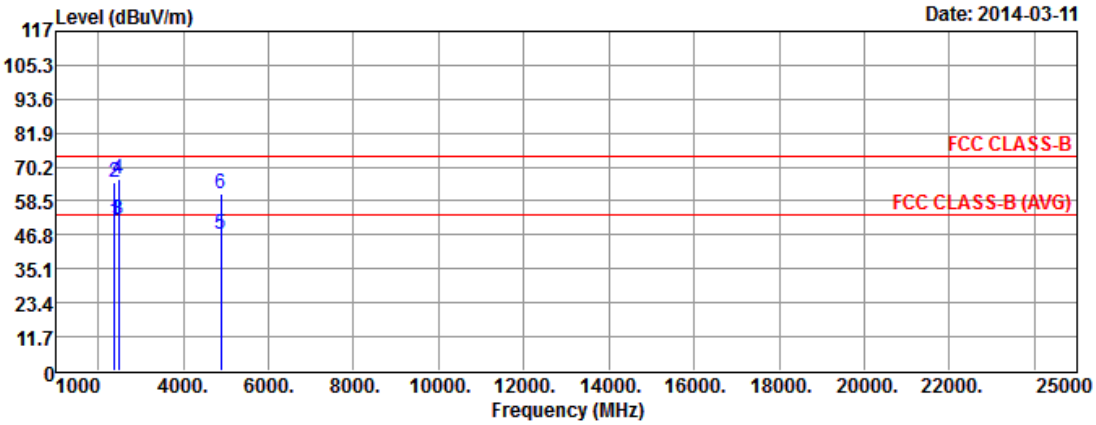
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2422
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1500.00	38.25	-15.75	54.00	44.72	25.80	3.45	35.72	---	---	Average
2	1500.00	50.96	-23.04	74.00	57.43	25.80	3.45	35.72	---	---	Peak
3	2390.00	50.87	-3.13	54.00	53.69	27.21	4.60	34.63	---	---	Average
4	2390.00	63.75	-10.25	74.00	66.57	27.21	4.60	34.63	---	---	Peak
5	4844.00	38.57	-15.43	54.00	33.44	31.55	6.74	33.16	---	---	Average
6	4844.00	53.08	-20.92	74.00	47.95	31.55	6.74	33.16	---	---	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.

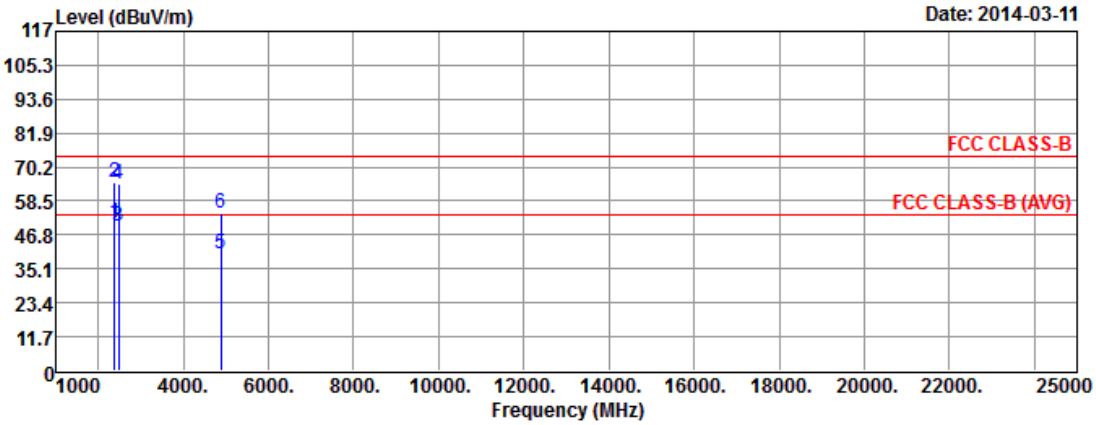
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	51.32	-2.68	54.00	54.14	27.21	4.60	34.63	---	---	Average
2	2390.00	65.01	-8.99	74.00	67.83	27.21	4.60	34.63	---	---	Peak
3	2483.50	52.21	-1.79	54.00	54.60	27.46	4.74	34.59	---	---	Average
4	2483.50	65.78	-8.22	74.00	68.17	27.46	4.74	34.59	---	---	Peak
5	4874.00	47.13	-6.87	54.00	41.95	31.60	6.73	33.15	---	---	Average
6	4874.00	61.20	-12.80	74.00	56.02	31.60	6.73	33.15	---	---	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.

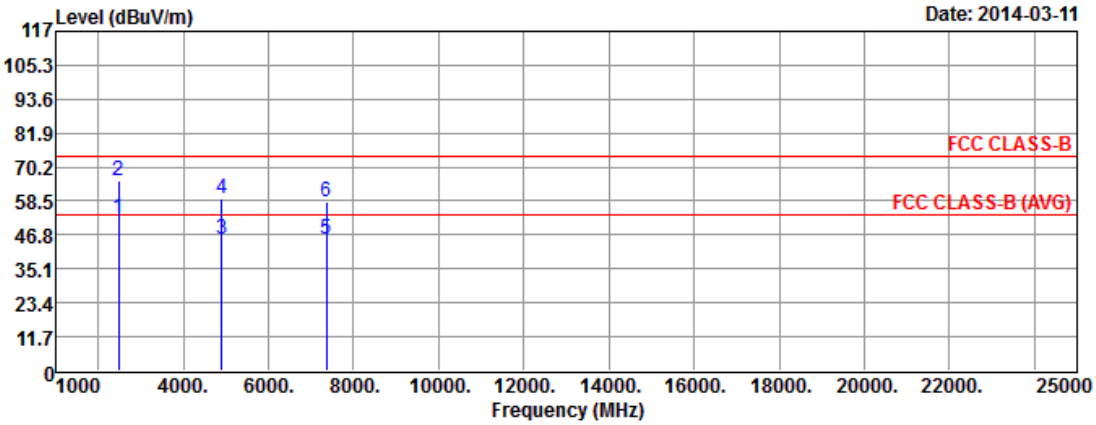
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2437
N_{TX}	2	**Polarization**	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	50.70	-3.30	54.00	53.52	27.21	4.60	34.63	---	---	Average
2	2390.00	65.07	-8.93	74.00	67.89	27.21	4.60	34.63	---	---	Peak
3	2483.50	49.90	-4.10	54.00	52.29	27.46	4.74	34.59	---	---	Average
4	2483.50	64.23	-9.77	74.00	66.62	27.46	4.74	34.59	---	---	Peak
5	4874.00	40.05	-13.95	54.00	34.87	31.60	6.73	33.15	---	---	Average
6	4874.00	54.48	-19.52	74.00	49.30	31.60	6.73	33.15	---	---	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.

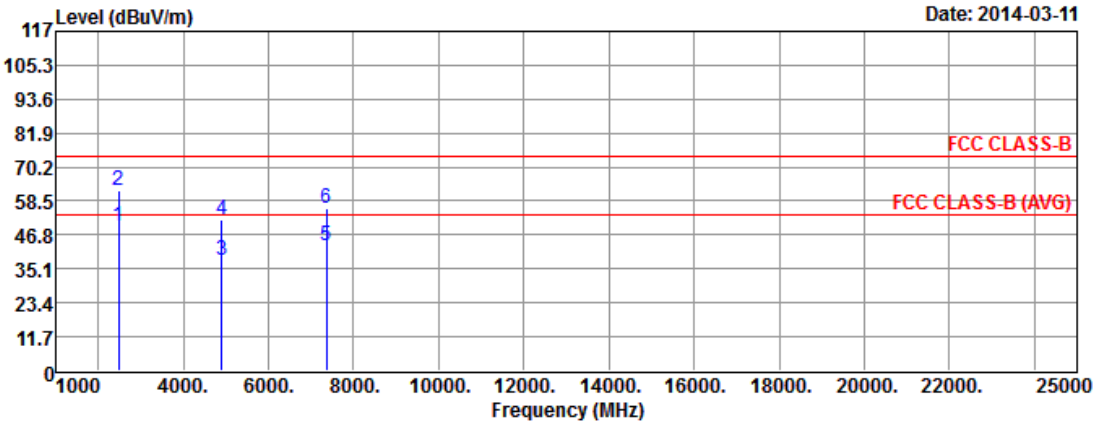
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT40	**Test Freq. (MHz)**	2452
N_{TX}	2	**Polarization**	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	52.85	-1.15	54.00	55.24	27.46	4.74	34.59	---	---	Average
2	2483.50	65.63	-8.37	74.00	68.02	27.46	4.74	34.59	---	---	Peak
3	4904.00	45.15	-8.85	54.00	39.91	31.65	6.73	33.14	---	---	Average
4	4904.00	59.57	-14.43	74.00	54.33	31.65	6.73	33.14	---	---	Peak
5	7356.00	45.12	-8.88	54.00	34.32	36.38	9.00	34.58	---	---	Average
6	7356.00	58.42	-15.58	74.00	47.62	36.38	9.00	34.58	---	---	Peak

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



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamp Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	49.67	-4.33	54.00	52.06	27.46	4.74	34.59	---	---	Average
2	2483.50	62.22	-11.78	74.00	64.61	27.46	4.74	34.59	---	---	Peak
3	4904.00	38.20	-15.80	54.00	32.96	31.65	6.73	33.14	---	---	Average
4	4904.00	52.28	-21.72	74.00	47.04	31.65	6.73	33.14	---	---	Peak
5	7356.00	43.38	-10.62	54.00	32.58	36.38	9.00	34.58	---	---	Average
6	7356.00	56.13	-17.87	74.00	45.33	36.38	9.00	34.58	---	---	Peak

Note 1: “>20dB” means spurious emission levels that exceed the level of 20 dB below the applicable limit.
Note 2: “N/F” means Nothing Found spurious emissions (No spurious emissions were detected.)
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)
Note 4: For restricted bands, the peak measurement is fully sufficient, as the max field strength as measured with the Peak-Detector meets the AV-Limit so that the AV level does not need to be reported in addition.
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 30 dB relative to the maximum measured in-band level.

4 Test Equipment and Calibration Data

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100132	9kHz ~ 2.75GHz	Nov. 14, 2013	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 21, 2014	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	07611832010001	9kHz ~ 30MHz	Oct. 30, 2013	Conduction (CO04-HY)
50 ohm terminal	N/A	N/A	CON-01-04	N/A	Feb. 25, 2014	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	FSV40	101499	9Kz – 40GHz	Feb. 08, 2014	Radiation (03CH08-HY)
Receiver	R&S	ESR3	101657	9KHz – 3GHz	Jan. 18, 2014	Radiation (03CH08-HY)
Amplifier	Burgeon	BPA-530	100218	30MHz ~ 1000MHz	Dec. 09, 2013	Radiation (03CH08-HY)
Amplifier	Agilent	8449B	3008A02665	1GHz – 26.5 GHz	Sep. 04, 2013	Radiation (03CH08-HY)
Horn Antenna	ETS-LINDGREN	3117	66584	1GHz~18GHz	Aug. 07, 2013	Radiation (03CH08-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA 9170517	15GHz~40GHz	Dec. 27, 2013	Radiation (03CH08-HY)
Bilog Antenna	Teseq GmbH	CBL6112D	35379	30 MHz - 1 GHz	Oct. 10, 2013	Radiation (03CH08-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Amplifier	EM	EM18G40G	060572	26.5GHz ~ 40GHz	Jun. 20, 2013	Radiation (03CH08-HY)
Loop Antenna	R&S	HFH2-Z2	860004/0001	9 kHz - 30 MHz	Jul. 03, 2012	Radiation (03CH08-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101063	9KHz~40GHz	Feb. 17, 2014	Conducted (TH01-HY)
Spectrum Analyzer	Agilent	N9010A	MY53400091	9KHz~44GHz	Oct. 07, 2013	Conducted (TH01-HY)
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	-20 ~ 100℃	Nov. 21, 2013	Conducted (TH01-HY)
Signal Generator	R&S	SMB100A	175727	10MHz ~ 40GHz	Jan. 07, 2014	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	1207366	300MHz ~ 40GHz	Oct. 24, 2013	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	1241002	300MHz ~ 40GHz	Oct. 24, 2013	Conducted (TH01-HY)
DC Power Source	G.W.	GPC-6030D	C671845	DC 1V ~ 60V	Jun. 21, 2013	Conducted (TH01-HY)
AC Power Source	G.W	APS-9102	EL920581	AC 0V ~ 300V	Jul. 16, 2013	Conducted (TH01-HY)

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