FCC Test Report

Equipment	:	**ASUS Tablet**
Marketing Name	:	**ASUS Transformer Pad**
Brand Name	:	**ASUS**
Model No.	:	**K010**
FCC ID	:	**MSQK0101**
Standard	:	**47 CFR FCC Part 15.247**
Operating Band	:	**2400 MHz – 2483.5 MHz**
FCC Classification	:	**DTS**
Applicant	:	**ASUSTeK COMPUTER INC. 4F, No. 150, LI-TE RD., PEITOU, TAIPEI, TAIWAN**
Manufacturer	:	**See section 1.1.1 for more details**

The product sample received on Mar. 13, 2014 and completely tested on Mar. 17, 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

Table of Contents

1 GENERAL DESCRIPTION 5

1.1 Information 5
1.2 Accessories 7
1.3 Testing Applied Standards 7
1.4 Testing Location Information 8
1.5 Measurement Uncertainty 8

2 TEST CONFIGURATION OF EUT 9

2.1 The Worst Case Modulation Configuration 9
2.2 The Worst Case Power Setting Parameter 9
2.3 The Worst Case Measurement Configuration 10
2.4 Test Setup Diagram 11

3 TRANSMITTER TEST RESULT 12

3.1 AC Power-line Conducted Emissions 12
3.2 6dB Bandwidth 15
3.3 RF Output Power 17
3.4 Power Spectral Density 22
3.5 Emissions in non-restricted frequency bands 24
3.6 Transmitter Radiated Unwanted Emissions 34

4 TEST EQUIPMENT AND CALIBRATION DATA 57

Summary of Test Result

Conformance Test Specifications					
Report Clause	**Ref. Std. Clause**	**Description**	**Measured**	**Limit**	**Result**
1.1.3	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.486MHz 39.56 (Margin 6.67dB) - AV 42.46 (Margin 13.77dB) - QP	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth Unit [MHz] 20M: 7.54	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]: 11b: 19.75 11g: 22.63 HT20: 22.52	Power [dBm]:30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]:-5.31	PSD [dBm/3kHz]:8	Complied
3.5	15.247(d)	Emissions in non-restricted frequency bands	Out-of -band emissions are 20dB below the highest power	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied
3.6	15.247(d)	Transmitter Radiated Unwanted Emissions	Restricted Bands [dBuV/m at 3m]: 4924.00MHz 50.91 (Margin 3.09dB) - AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied

Revision History

Report No.	Version	Description	Issued Date
FR430802-03AC	Rev. 01	Initial issue of report	Nov. 14, 2014
FR430802-03AC	Rev. 02	Modified section 1.3.	Nov. 18, 2014

1 General Description

1.1 Information

This is a variant of MSQK010 with the NFC transmitter removed, and the other design is exactly identical. The change is deemed to have no impact on NFC performance. The MSQK010 NFC test results report is Sporton FCC NFC report FR430802 is representative and are referenced in this report.

1.1.1 Manufacturer Information

Manufacturer1	:	PROTEK (SHANGHAI) LTD 3768 XIU YAN RD KANG QIAO TOWN PU DONG NEW District , Shanghai, China
Manufacturer2	:	TECH-COM (SHANGHAI) COMPUTER CO., LTD 68 SANZHUANG RD, SONGJIANG EXPORT PROCESSING ZONE, SHANGHAI 201613, CHINA
Manufacturer3	:	DIGITEK (CHONGQING)LIMITED B01,SECTION C, AIRPORT FUNCTION ZONE,LIANGLU CUNTAN FREE TRADE PORT AREA, YUBEI DISTRICT CHONGQING CITY, CHINA
Manufacturer4	:	WISTRON INFOCOMM (SUNSHAN) CO LTD FIRST AVE KUNSHAN INTEGRATED FREE TRADE ZONE KUNSHAN JIANGSU CHINA
Manufacturer5	:	COTEK ELECTRONICS (KUZHOU) CO LTD 288 MAYUN RD NEW DISTRICT SUZHOU JIANGSU 215011 CHINA
Manufacturer6	:	TECH-FRONT (CHONGQING)COMPUTER CO LTD 18,ZONGBAO ROAD, SHAPINGBA DISTRICT, CHONGQING, CHINA
Manufacturer7	:	WISTRON INFOCOMM(CHONGQING)CO LTD No. 18-9 baohong Avenue, Wangjia Sub-district, Yubei District, Chongging, China

1.1.2 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]	1	19.75	N/A
2400-2483.5	g	2412-2462	1-11 [11]	1	22.63	N/A
2400-2483.5	n (HT20)	2412-2462	1-11 [11]	1	22.52	N/A

Note 1: RF output power specifies that Maximum Peak Conducted Output Power.
Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.
Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.
Note 4: Co-location, Co-location is generally defined as simultaneously transmitting (co-transmitting) antennas within 20 cm of each other. (i.e., EUT has simultaneously co-transmitting that operating 2.4GHz and 5GHz.)

1.1.3 Antenna Information

Antenna Category			
☒	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**	**Gain (dBi)**
1	Integral	PIFA	0.52

1.1.4 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:

1.1.5 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)**
☒ 99.40% - IEEE 802.11b	0.03
☒ 94.66% - IEEE 802.11g	0.24
☒ 93.97% - IEEE 802.11n (HT20)	0.27

1.1.6 EUT Operational Condition

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

1.2 Accessories

Accessories				
No.	**Equipment**	**Brand Name**	**Model Name**	**Remarks**
1	AC Adapter 1	ASUS	PSM06A-050Q	I/P: 100-240Vac, 0.25A O/P: 5.2Vdc, 1.35A
2	AC Adapter 2	ASUS	PA-1070-07	I/P: 100-240Vac, 0.25A O/P: 5.2Vdc, 1.35A
3	USB cable	ASUS	---	0.97m shielding cable
4	Battery	ASUS	C11P1328	Power Rating: 3.75Vdc or 3.7Vdc 19Wh

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 D01 DTS Meas Guidance v03r02
- FCC KDB 662911 D01 Multiple Transmitter Output v02r01
- FCC KDB 412172 D01Determining ERP and EIRP v01

1.4 Testing Location Information

Testing Location							
☒	Sporton Lab	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.3-1, Lane 6, Wen San 3rd St., Kwei Shan Hsiang, Tao Yuan Hsein 333, Taiwan (R.O.C.)				
		TEL :	886-3-271-8666	FAX :	886-3-318-0155		

Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Mark Liao	21°C / 62%	Mar. 17, 2014
AC Conduction*	CO01-WS	Skys Huang	19°C / 65%	Mar. 17, 2014
Radiated Emission*	03CH02-WS	Skys Huang	20°C / 64%	Mar. 13, 2014

FCC site registration No.: 657002

IC site registration No.: 10807A-2

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.

1.5 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
All emissions, radiated	30 – 1000 MHz	±3.90 dB	N/A
	1 – 25 GHz	±4.20 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,1-11Mbps	1	1-11 Mbps	1 Mbps
11g,6-54Mbps	1	6-54 Mbps	6 Mbps
HT20,M0-7	1	M0-7	MCS 0

2.2 The Worst Case Power Setting Parameter

The Worst Case Power Setting Parameter (2400-2483.5MHz band)				
Test Software Version	adb command, version: 1.0.31			
Modulation Mode	**N_{TX}**	**Test Frequency (MHz)**		
		NCB: 20MHz		
		2412	**2437**	**2462**
11b,1-11Mbps	1	16	16	16
11g,6-54Mbps	1	13	13	13
HT20,M0-7	1	12	12	12

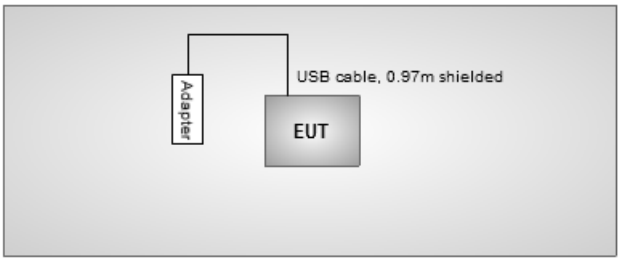
2.3 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests	
Tests Item	AC power-line conducted emissions
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz
Operating Mode	Operating Mode Description
1	AC Power & Radio link (WLAN)
Note: Adapter 1 and Adapter 2 had been pretested and found that **Adapter 1** was the worst case and was selected for final testing (Adapter 1: PSM06A-050Q; Adapter 2: PA-1070-07).	

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

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 planes is Z.		
	☐ 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)		
Modulation Mode	11b, 11g, HT20		
Orthogonal Planes of EUT	**X Plane**	**Y Plane**	**Z Plane**
Note: Adapter 1 and Adapter 2 had been pretested and found that **Adapter 1** was the worst case and was selected for final testing (Adapter 1: PSM06A-050Q; Adapter 2: PA-1070-07).			

2.4 Test Setup Diagram

Test Setup Diagram


3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Power-line Conducted Emissions Limit		
Frequency Emission (MHz)	**Quasi-Peak**	**Average**
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm of the frequency.		

3.1.2 Measuring Instruments

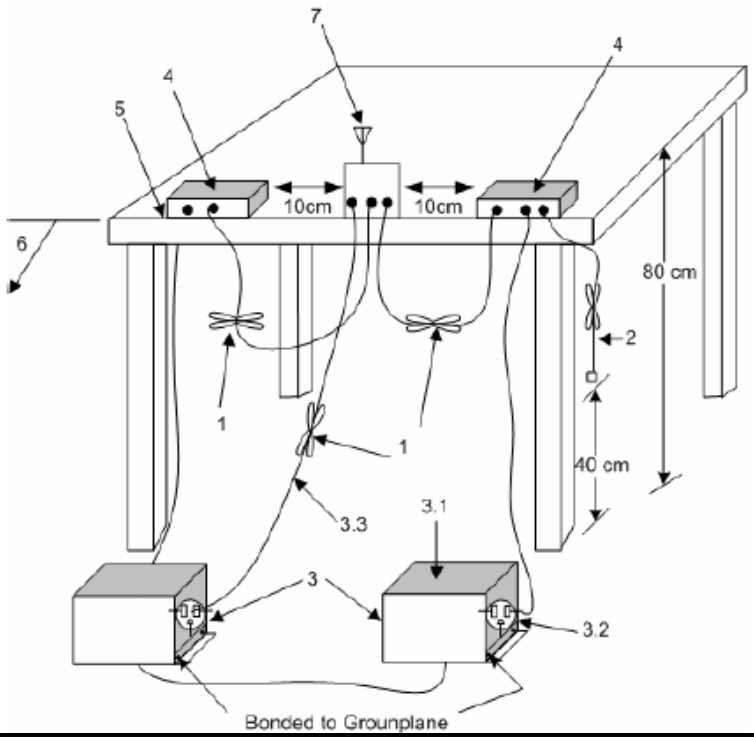
Refer a test equipment and calibration data table in this test report.

3.1.3 Test Procedures

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

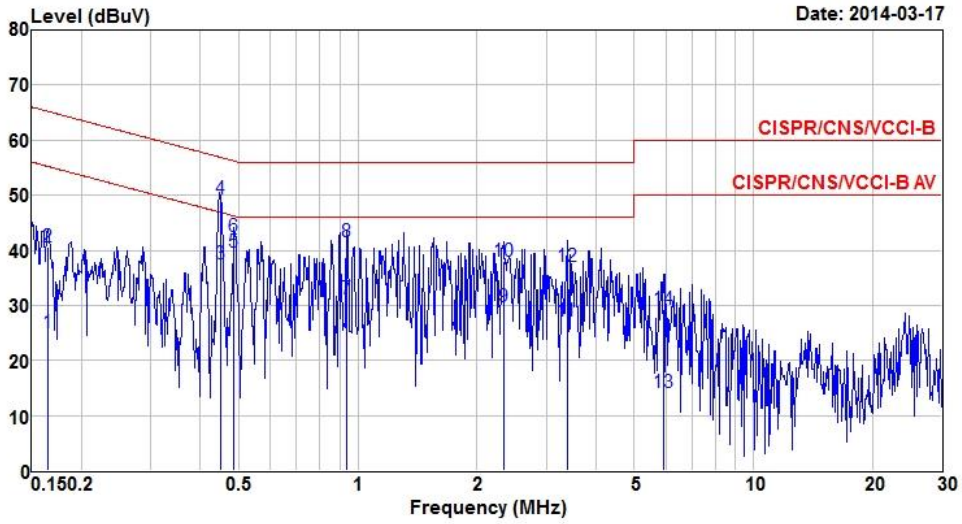
3.1.4 Test Setup

AC Power-line Conducted Emissions



3.1.5 Test Result of AC Power-line Conducted Emissions

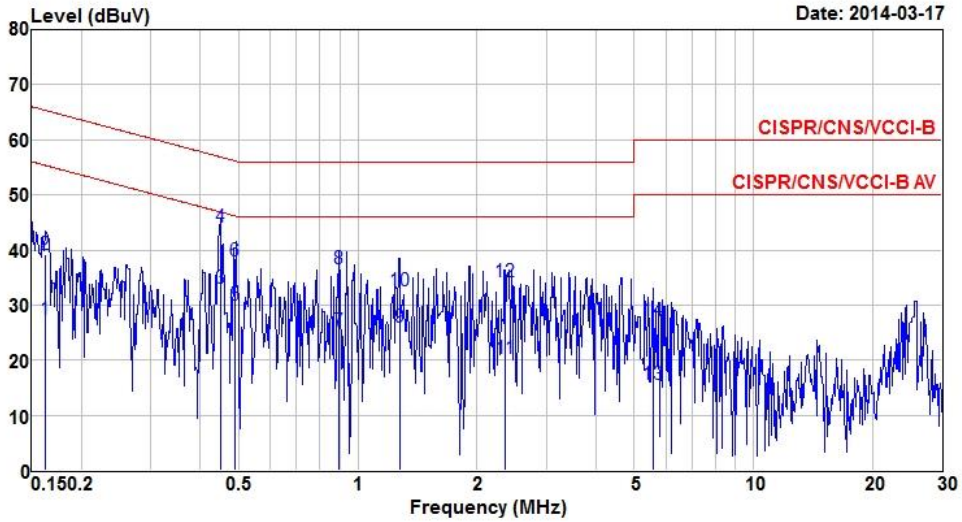
AC Power-line Conducted Emissions Result			
Operating Mode	1	**Power Phase**	Neutral
Operating Function	AC Power & Radio link (WLAN)		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.164	25.12	55.25	-30.13	24.52	0.50	0.10	Average
2	0.164	40.51	65.25	-24.74	39.91	0.50	0.10	QP
3	0.449	37.45	46.89	-9.44	36.77	0.63	0.05	Average
4	0.449	49.44	56.89	-7.45	48.76	0.63	0.05	QP
5*	0.486	39.56	46.23	-6.67	38.86	0.65	0.05	Average
6	0.486	42.46	56.23	-13.77	41.76	0.65	0.05	QP
7	0.938	31.27	46.00	-14.73	30.44	0.79	0.04	Average
8	0.938	41.58	56.00	-14.42	40.75	0.79	0.04	QP
9	2.334	29.80	46.00	-16.20	28.52	1.10	0.18	Average
10	2.334	38.05	56.00	-17.95	36.77	1.10	0.18	QP
11	3.381	27.27	46.00	-18.73	25.93	1.12	0.22	Average
12	3.381	36.99	56.00	-19.01	35.65	1.12	0.22	QP
13	5.929	14.15	50.00	-35.85	12.59	1.38	0.18	Average
14	5.929	29.26	60.00	-30.74	27.70	1.38	0.18	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			
Operating Mode	1	**Power Phase**	Line
Operating Function	AC Power & Radio link (WLAN)		



	Freq MHz	Level dBuV	Limit Line dBuV	Over Limit dB	Read Level dBuV	LISN factor dB	cable loss dB	Remark
1	0.162	27.34	55.34	-28.00	26.84	0.41	0.09	Average
2	0.162	39.11	65.34	-26.23	38.61	0.41	0.09	QP
3	0.449	32.95	46.89	-13.94	32.35	0.55	0.05	Average
4*	0.449	44.15	56.89	-12.74	43.55	0.55	0.05	QP
5	0.487	29.99	46.22	-16.23	29.37	0.57	0.05	Average
6	0.487	37.94	56.22	-18.28	37.32	0.57	0.05	QP
7	0.894	25.27	46.00	-20.73	24.52	0.71	0.04	Average
8	0.894	36.62	56.00	-19.38	35.87	0.71	0.04	QP
9	1.276	25.89	46.00	-20.11	24.98	0.83	0.08	Average
10	1.276	32.53	56.00	-23.47	31.62	0.83	0.08	QP
11	2.358	20.23	46.00	-25.77	19.03	1.02	0.18	Average
12	2.358	34.18	56.00	-21.82	32.98	1.02	0.18	QP
13	5.564	15.61	50.00	-34.39	14.13	1.29	0.19	Average
14	5.564	27.24	60.00	-32.76	25.76	1.29	0.19	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

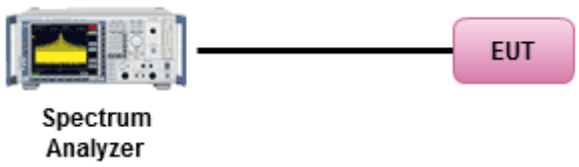
Refer a test equipment and calibration data table in this test report.

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.

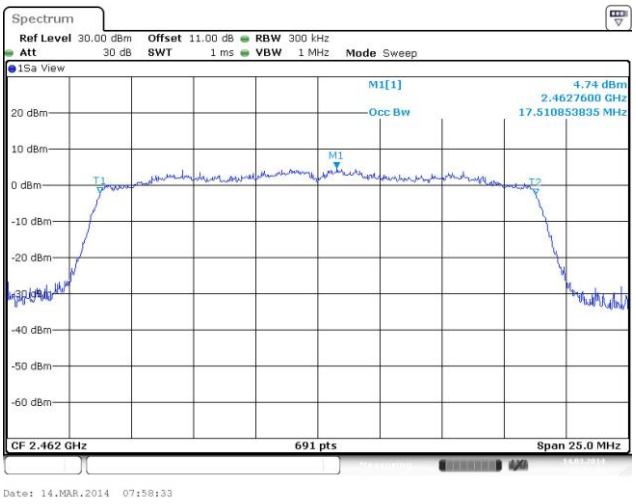
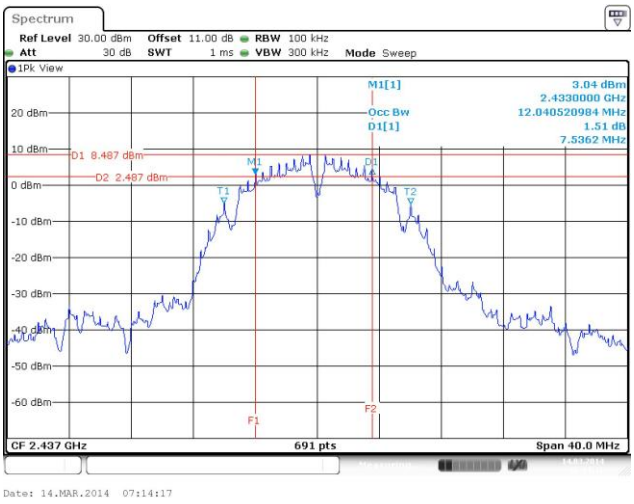
3.2.4 Test Setup

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	1	2412	12.05	--	--	--	8.06	--	--	--
11b	1	2437	12.01	--	--	--	7.54	--	--	--
11b	1	2462	12.05	--	--	--	8.00	--	--	--
11g	1	2412	16.50	--	--	--	14.43	--	--	--
11g	1	2437	16.50	--	--	--	15.07	--	--	--
11g	1	2462	16.53	--	--	--	15.13	--	--	--
HT20	1	2412	17.47	--	--	--	15.07	--	--	--
HT20	1	2437	17.51	--	--	--	15.07	--	--	--
HT20	1	2462	17.51	--	--	--	14.03	--	--	--
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.			

RF Output Power Limit - IC			
Maximum Peak Conducted Output Power or Maximum Conducted Output Power Limit and e.i.r.p.			
☒	2400-2483.5 MHz Band:		
	☒	Point-to-multipoint systems (P2M): $P_{Out} \leq 30$ dBm (1 W); $P_{eirp} \leq 36$ dBm (4 W)	
	☐	Point-to-point systems (P2P): If $P_{eirp} > 36$ dBm, $G_{TX} \leq P_{Out}$	
	☐	Smart antenna system (SAS): If $P_{eirp} > 36$ dBm, $G_{TX} \leq P_{Out}$	
		☐	Single beam: follow P2M, P2P limits
		☐	Overlap beam: follow P2M limit
		☐	Aggregate power on all beams: follow P2M limit + 8dB
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 Option 1 (RBW ≥ EBW method).
	☐ Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 9.1.2 Option 2 (integrated band power method).
	☒ Refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 9.1.3 Option 2 (peak power meter for VBW ≥ DTS BW)
☒	Maximum Conducted Output Power (For reference only)
	[duty cycle ≥ 98% or external video / power trigger]
	☐ 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)
	duty cycle < 98% and average over on/off periods with duty factor
	☐ 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 Method AVGPM (using an RF average power meter).
☒	For conducted measurement.
	☒ The EUT supports single transmit chain and measurements performed on this transmit chain.
	☐ The EUT supports diversity transmitting and the results on transmit chain port 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	--	--	--
Maximum G_{ANT} (dBi)		0.52	--	--	-
Modulation Mode	**DG (dBi)**	**N_{TX}**	**N_{SS} (Min.)**	**STBC**	**Array Gain (dB)**
11b,1-11Mbps	0.52	1	1	--	--
11g,6-54Mbps	0.52	1	1	--	--
HT20,M0-7	0.52	1	1	--	--

3.3.6 Test Result of Maximum Peak Conducted Output Power

Maximum Peak Conducted Output Power Result											
Condition			RF Output Power (dBm)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11b	1	2412	18.73	--	--	--	18.73	30.00	0.52	19.25	36.00
11b	1	2437	19.28	--	--	--	19.28	30.00	0.52	19.80	36.00
11b	1	2462	19.75	--	--	--	19.75	30.00	0.52	20.27	36.00
11g	1	2412	22.28	--	--	--	22.28	30.00	0.52	22.80	36.00
11g	1	2437	22.42	--	--	--	22.42	30.00	0.52	22.94	36.00
11g	1	2462	22.63	--	--	--	22.63	30.00	0.52	23.15	36.00
HT20	1	2412	21.86	--	--	--	21.86	30.00	0.52	22.38	36.00
HT20	1	2437	22.34	--	--	--	22.34	30.00	0.52	22.86	36.00
HT20	1	2462	22.52	--	--	--	22.52	30.00	0.52	23.04	36.00
Result			Complied								

3.3.7 Test Result of Maximum Conducted Output Power

Maximum Conducted Output Power											
Condition			RF Output Power (dBm)								
Modulation Mode	N_{TX}	Freq. (MHz)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit	DG (dBi)	EIRP Power	EIRP Limit
11b	1	2412	15.56	--	--	--	15.56	30.00	0.52	16.08	36.00
11b	1	2437	16.16	--	--	--	16.16	30.00	0.52	16.68	36.00
11b	1	2462	16.57	--	--	--	16.57	30.00	0.52	17.09	36.00
11g	1	2412	12.52	--	--	--	12.52	30.00	0.52	13.04	36.00
11g	1	2437	13.03	--	--	--	13.03	30.00	0.52	13.55	36.00
11g	1	2462	13.38	--	--	--	13.38	30.00	0.52	13.90	36.00
HT20	1	2412	11.37	--	--	--	11.37	30.00	0.52	11.89	36.00
HT20	1	2437	11.86	--	--	--	11.86	30.00	0.52	12.38	36.00
HT20	1	2462	12.18	--	--	--	12.18	30.00	0.52	12.70	36.00
Result			Complied								

Note: Maximum conducted output power is for reference only.

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

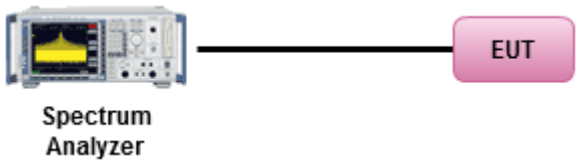
Refer a test equipment and calibration data table in this test report.

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 D01 DTS Meas Guidance v03r02, clause 10.2 Method PKPSD (RBW=3-100kHz;detector=peak)..	
	[duty cycle ≥ 98% or external video / power trigger]		
	☐	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)	
	duty cycle < 98% and average over on/off periods with duty factor		
	☐	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

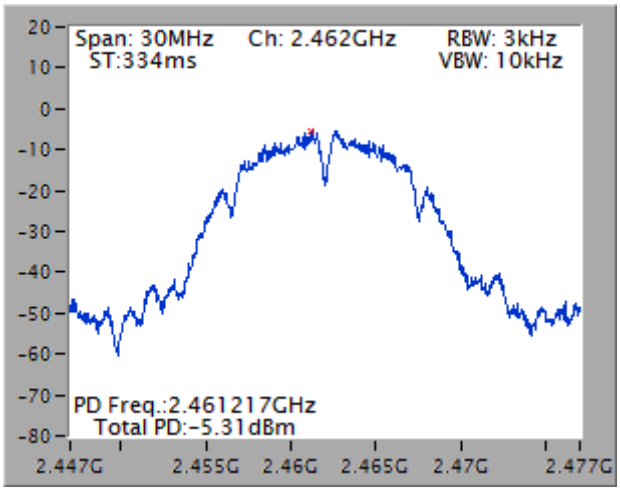
Power Spectral Density



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)	Chain Port 1	Chain Port 2	Chain Port 3	Chain Port 4	Sum Chain	Power Limit
11b	1	2412	-6.89	--	--	--	-6.89	8
11b	1	2437	-6.19	--	--	--	-6.19	8
11b	1	2462	-5.31	--	--	--	-5.31	8
11g	1	2412	-12.37	--	--	--	-12.37	8
11g	1	2437	-11.04	--	--	--	-11.04	8
11g	1	2462	-11.01	--	--	--	-11.01	8
HT20	1	2412	-12.51	--	--	--	-12.51	8
HT20	1	2437	-12.11	--	--	--	-12.11	8
HT20	1	2462	-12.47	--	--	--	-12.47	8
Result			Complied					

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 20 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

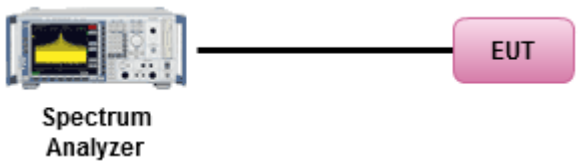
1. Set RBW=100kHz, VBW = 300kHz , Detector = Peak, Sweep time = Auto
2. Trace = max hold , Allow Trace to fully stabilize
3. Use the peak marker function to determine the maximum PSD level

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

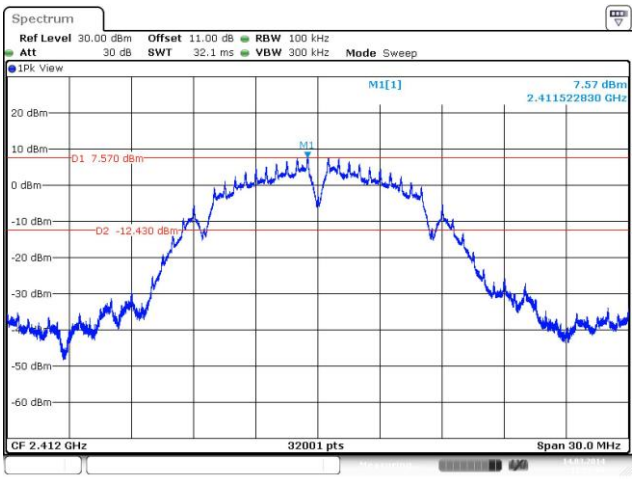
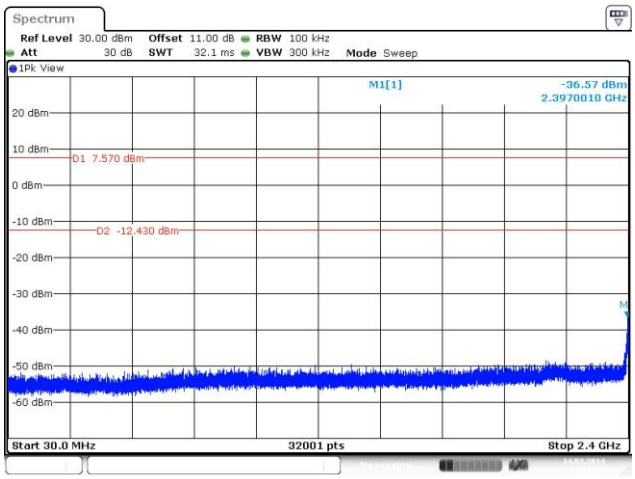
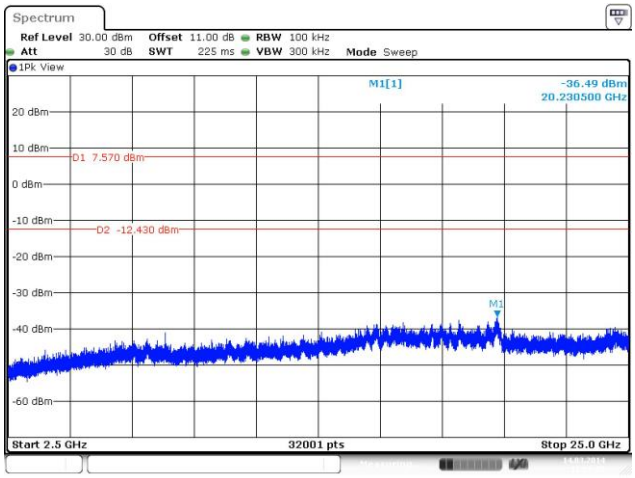
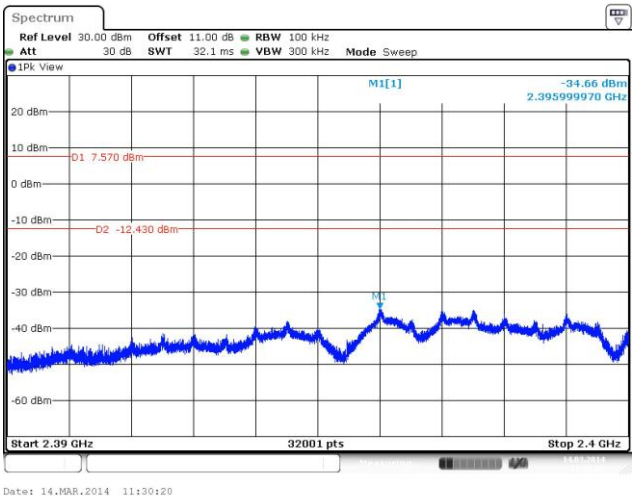
3.5.4 Test Setup

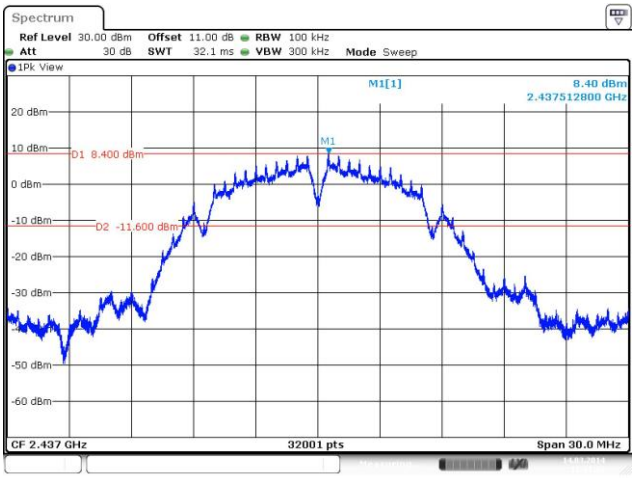
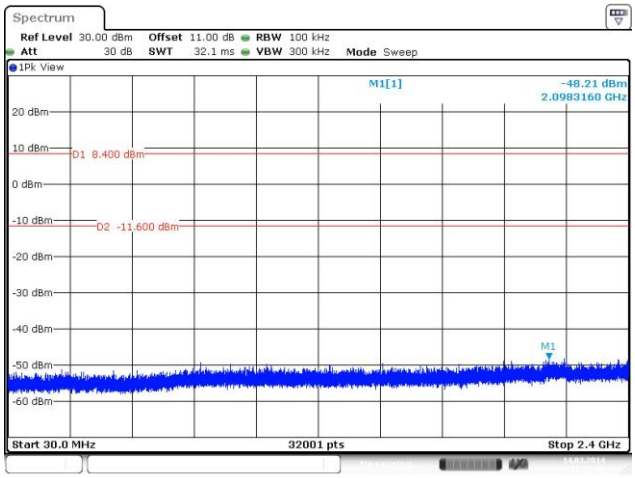
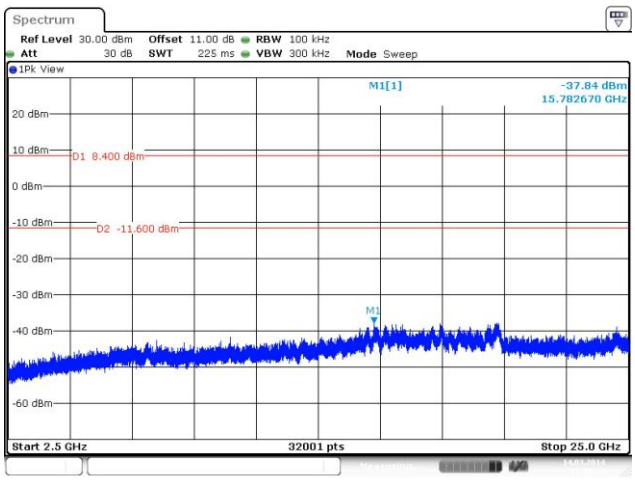
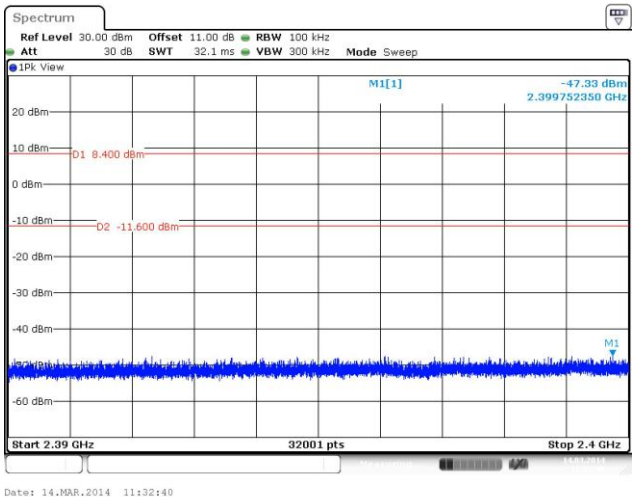
Transmitter Radiated Bandedge Emissions

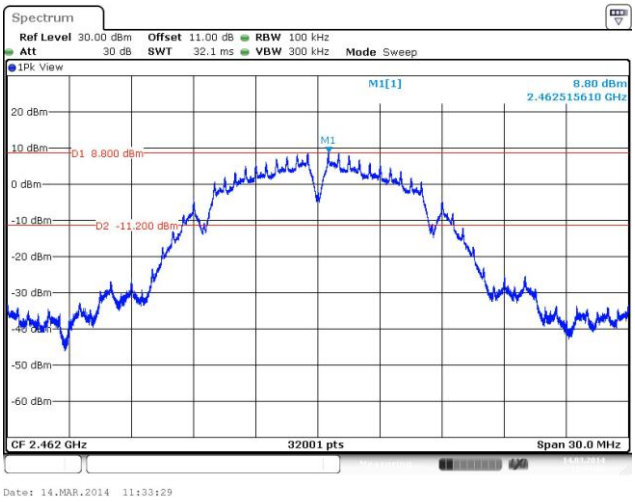
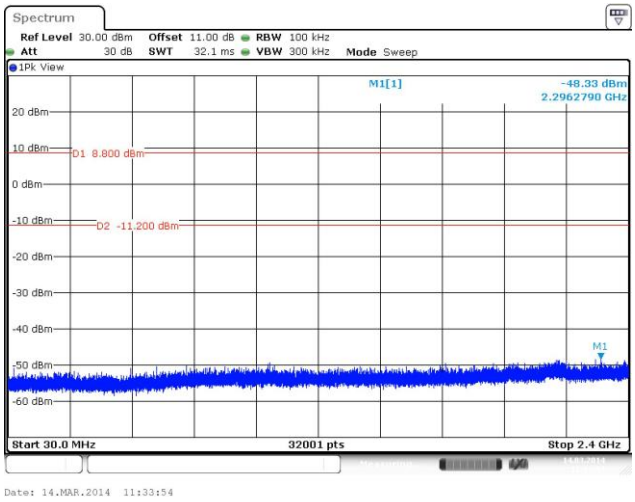
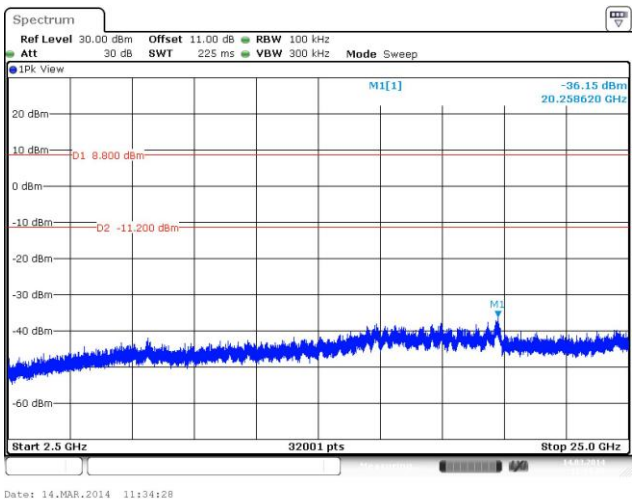
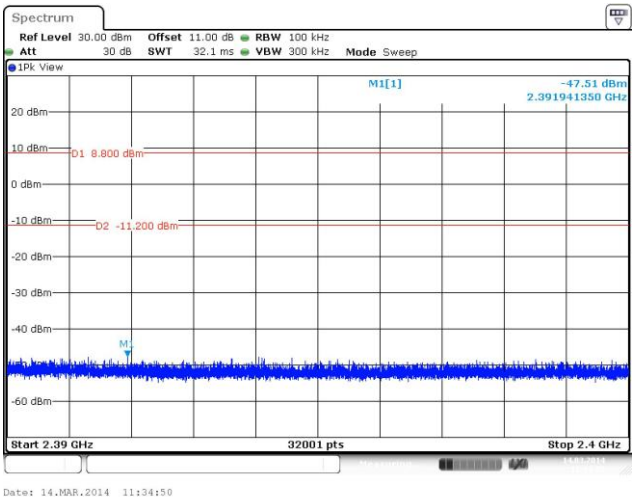


3.5.5 Test Result of Emissions in non-restricted frequency bands

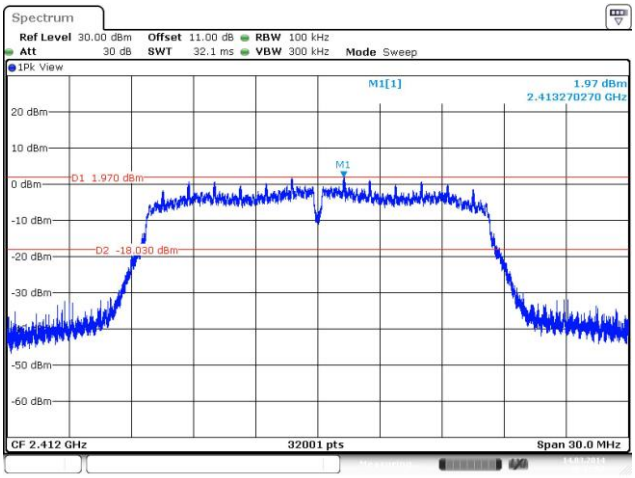
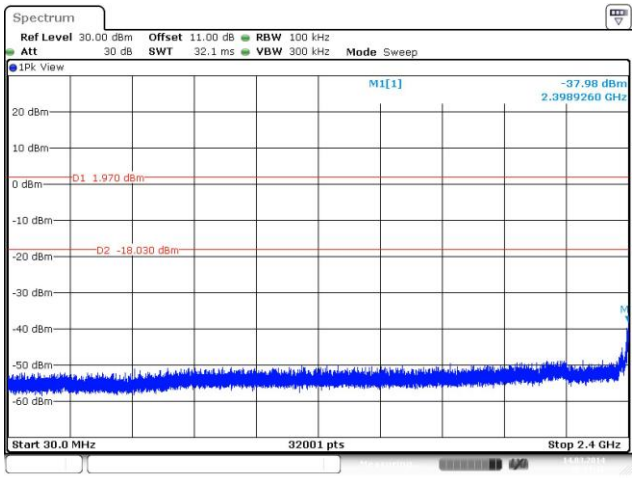
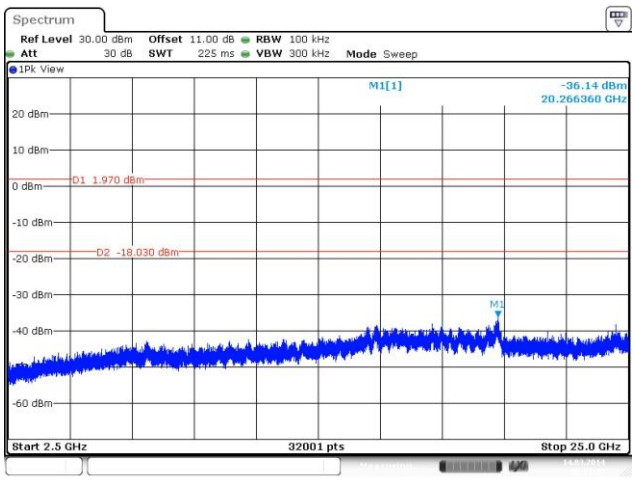
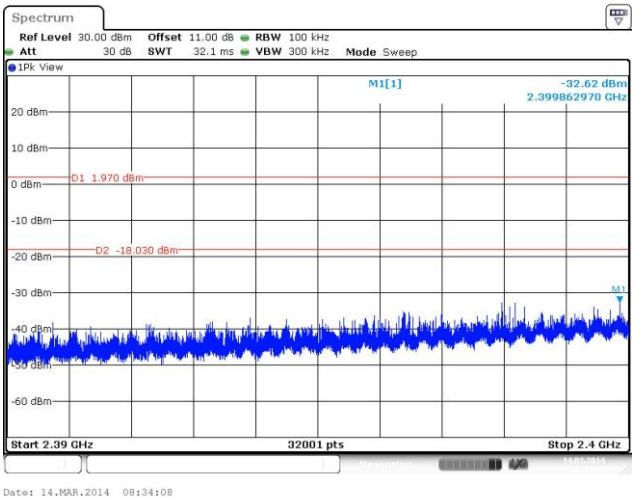
802.11b

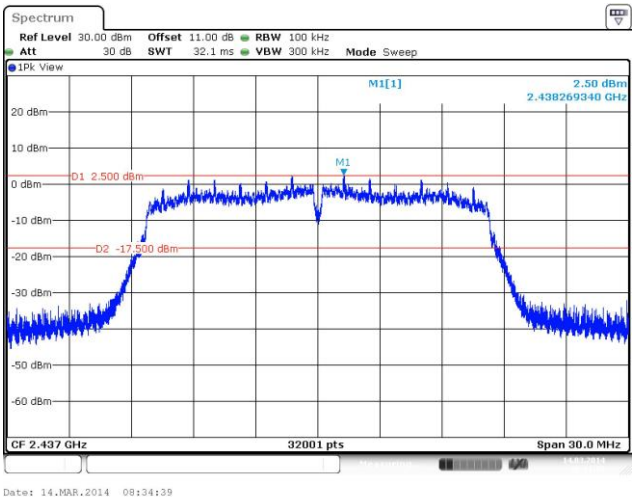
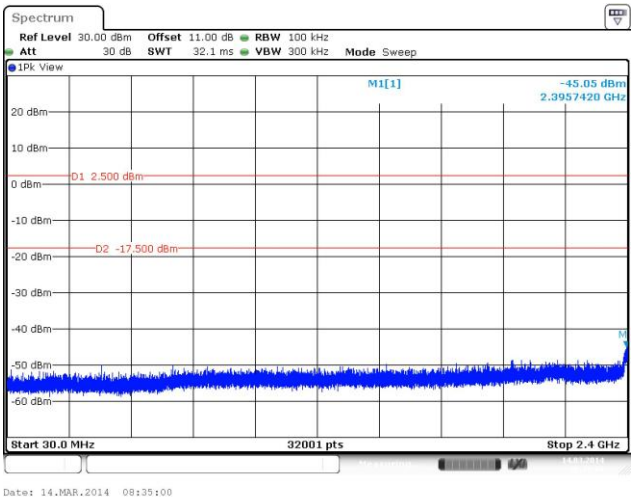
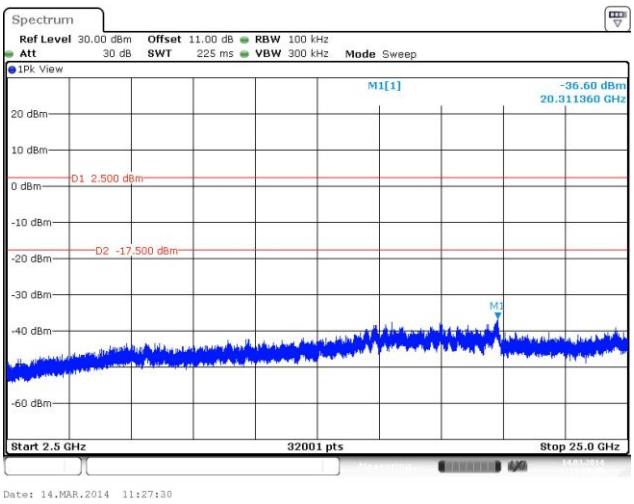
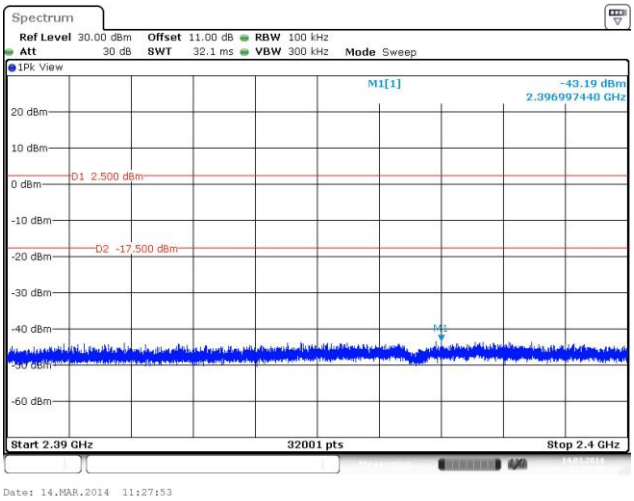
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

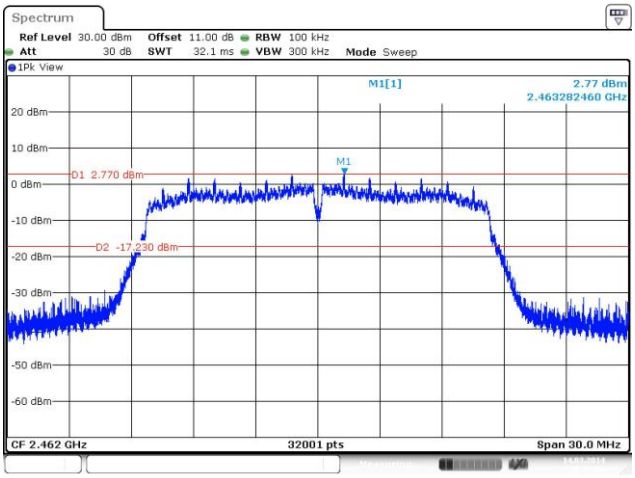
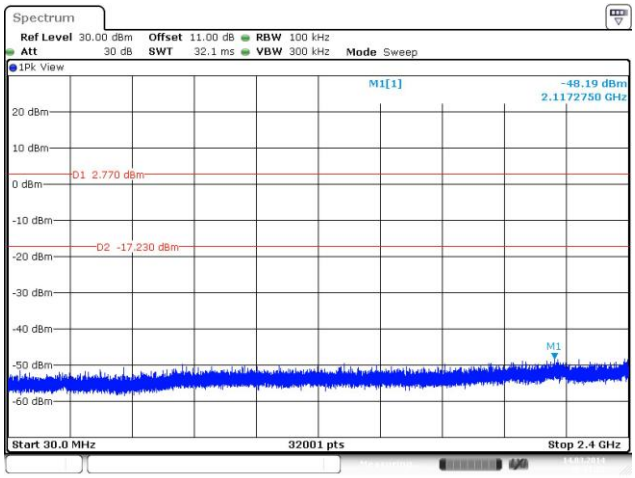
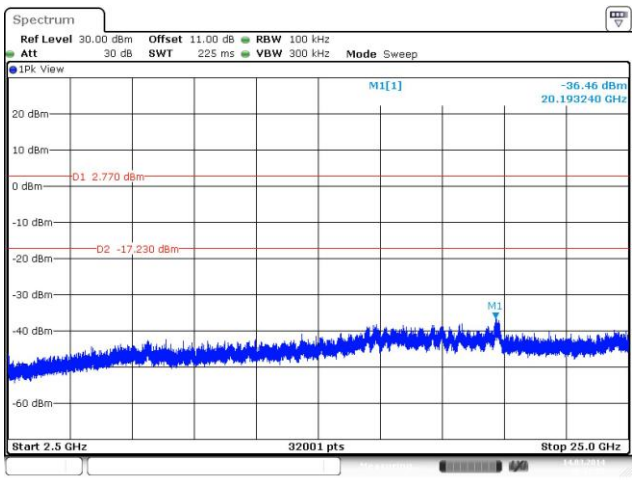
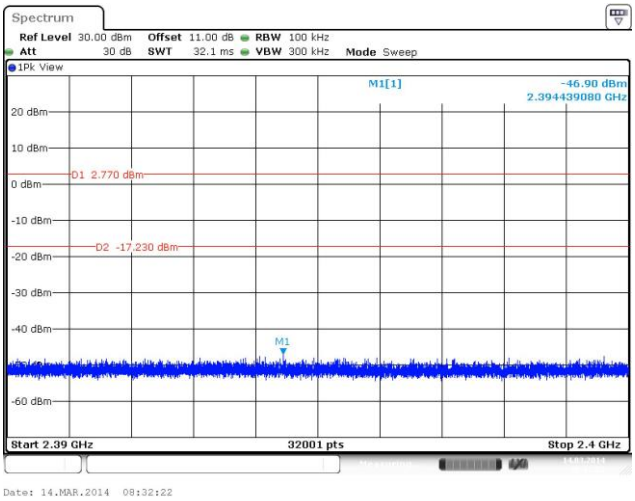
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

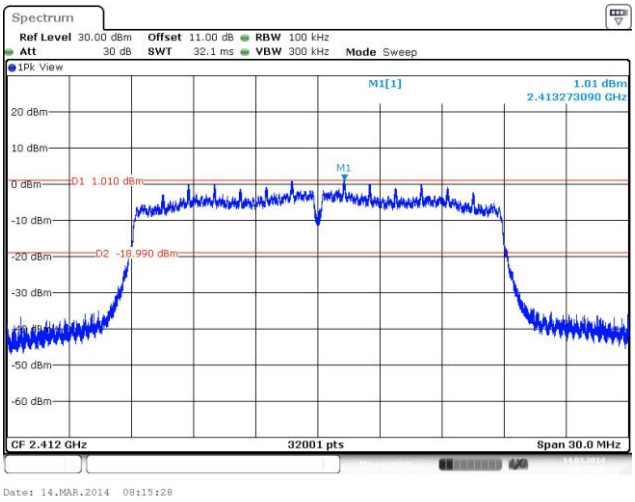
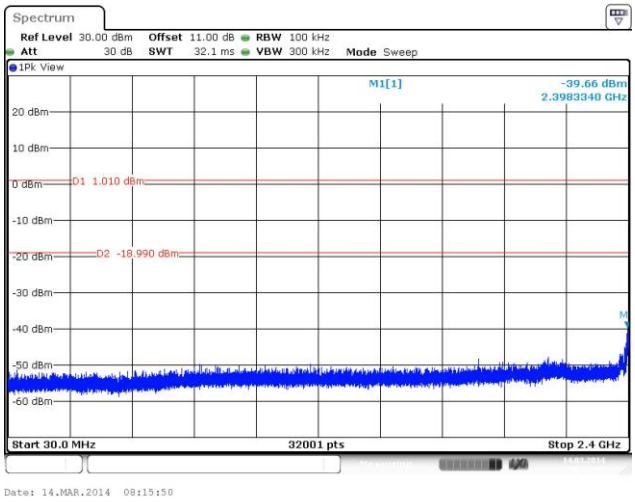
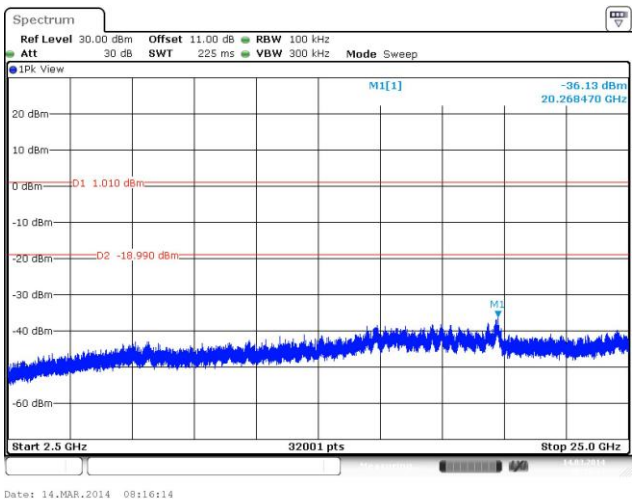
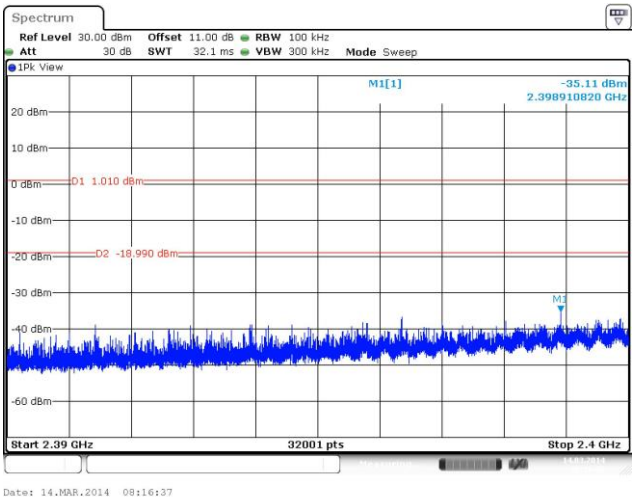
802.11g

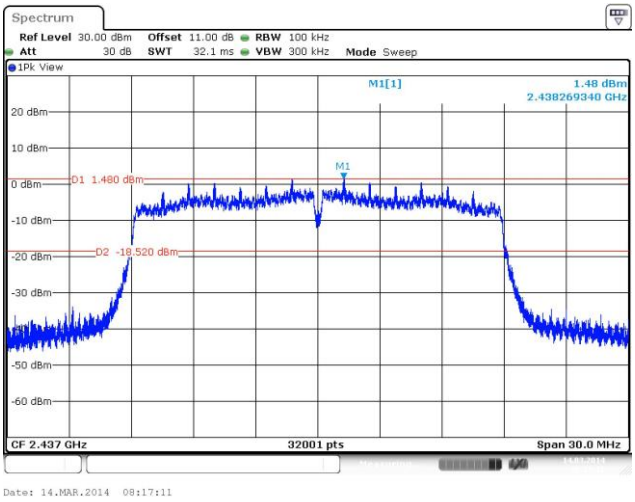
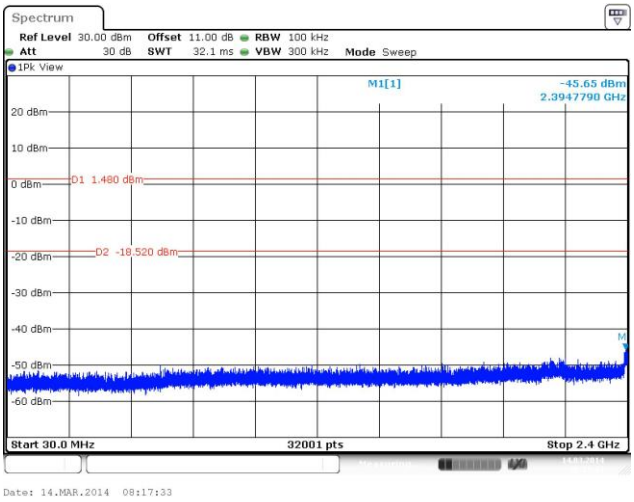
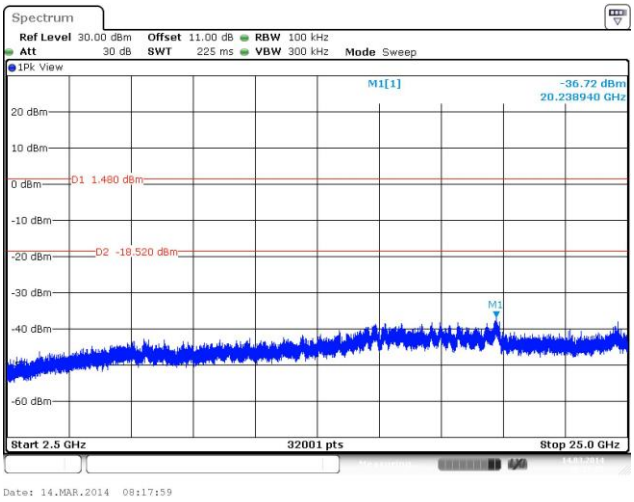
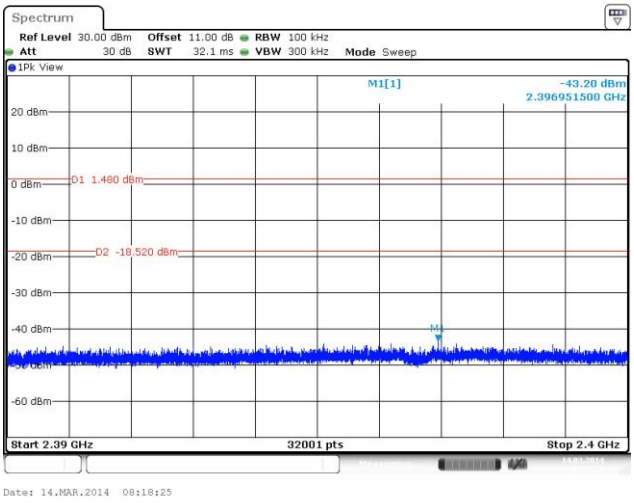
Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

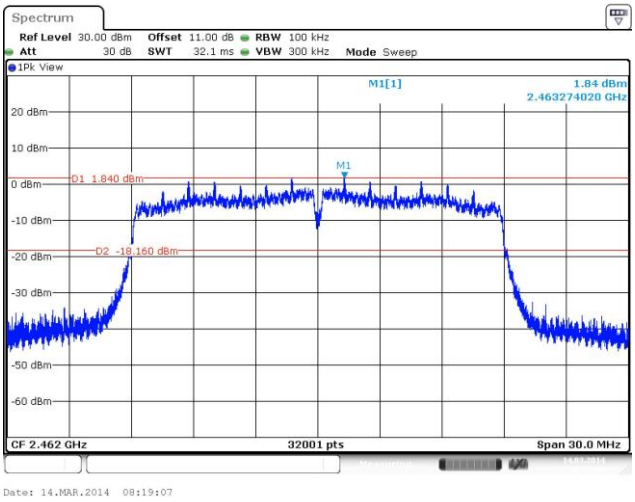
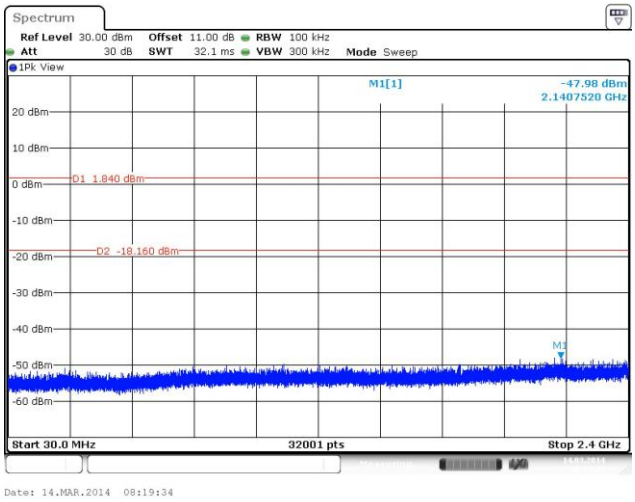
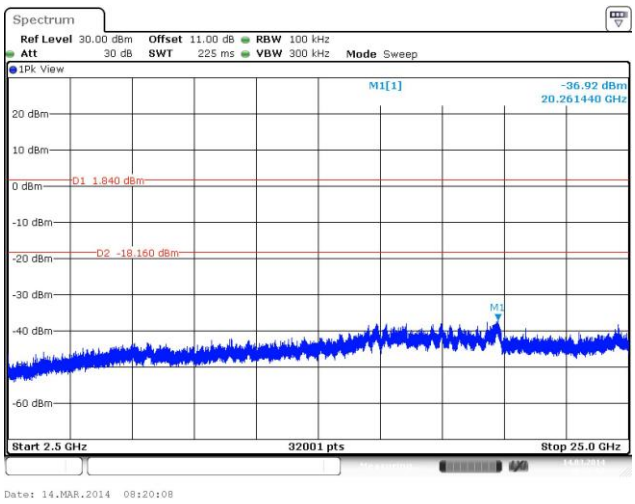
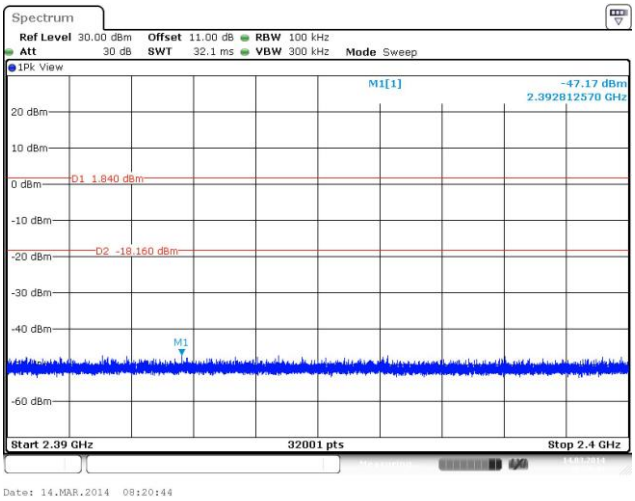
Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

HT20

Reference Level	Tx 2412MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2437MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

Reference Level	Tx 2462MHz / 30MHz~25GHz (down 20dBc)
	
---	
---	

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

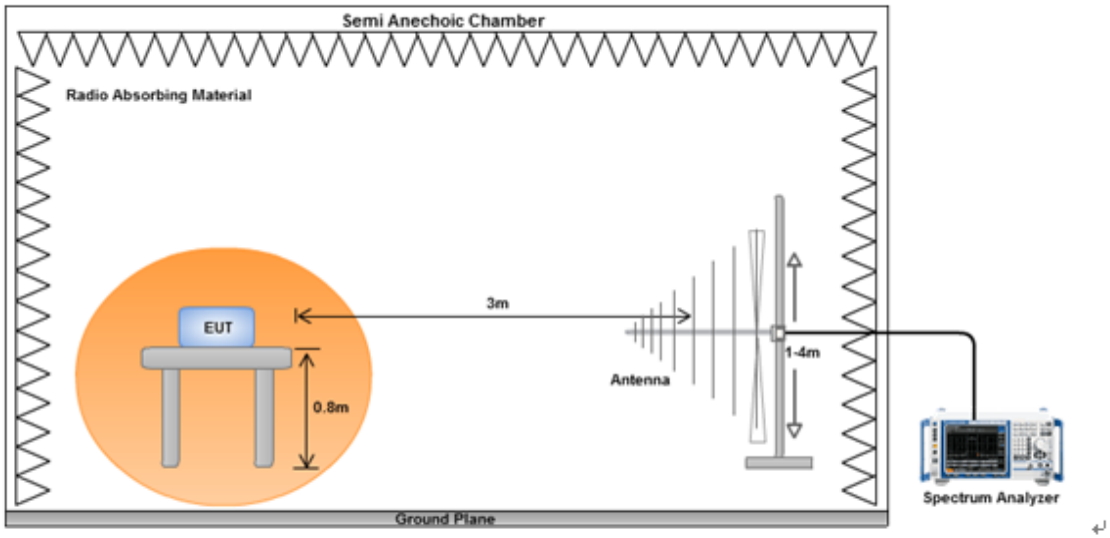
Refer a test equipment and calibration data table in this test report.

3.6.3 Test Procedures

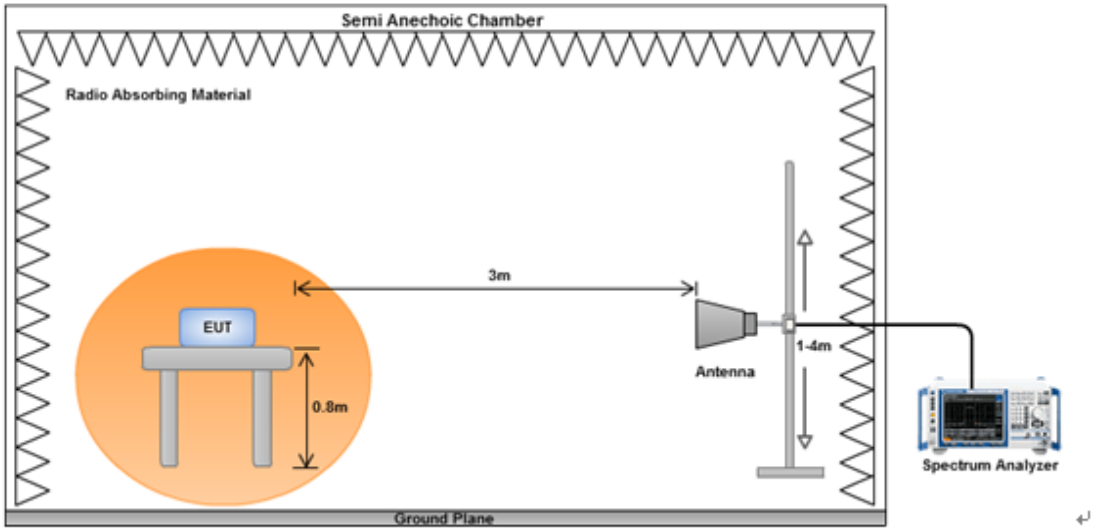
Test Method			
☒	Measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results 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 11.3 and 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.	
☐	For conducted and cabinet radiation measurement, refer as FCC KDB 558074 D01 DTS Meas Guidance v03r02, clause 12.2.2.		
	☐	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.	
	☐	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB	

3.6.4 Test Setup

Radiated Emissions below 1 GHz



Radiated Emissions above 1 GHz

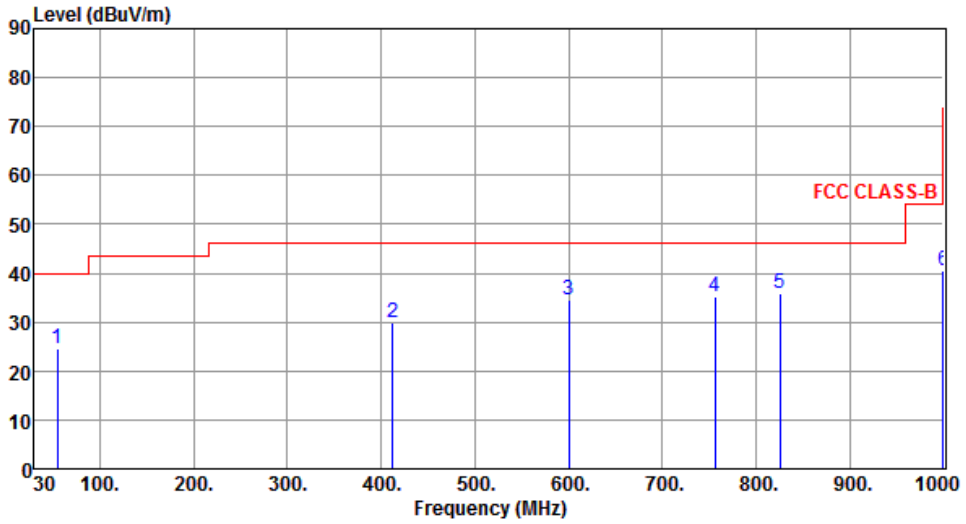


3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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)

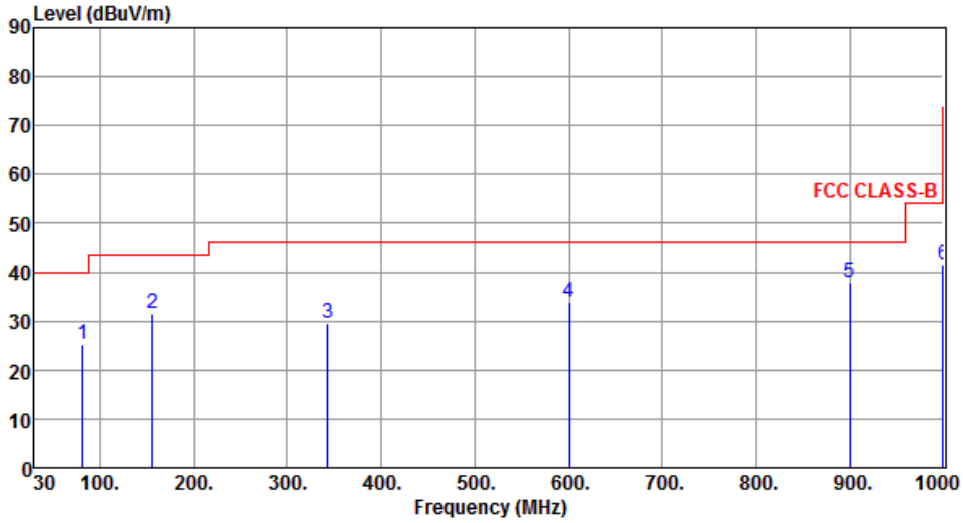
Transmitter Radiated Unwanted Emissions (Below 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2462
Polarization	V		



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	54.25	24.54	40.00	-15.46	41.28	-16.74	Peak	---	---
2	412.18	29.77	46.00	-16.23	43.19	-13.42	Peak	---	---
3	600.36	34.63	46.00	-11.37	44.20	-9.57	Peak	---	---
4	756.53	35.20	46.00	-10.80	42.52	-7.32	Peak	---	---
5	825.40	35.93	46.00	-10.07	42.41	-6.48	Peak	---	---
6	1000.00	40.64	54.00	-13.36	45.28	-4.64	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	11g	**Test Freq. (MHz)**	2462
Polarization	H		

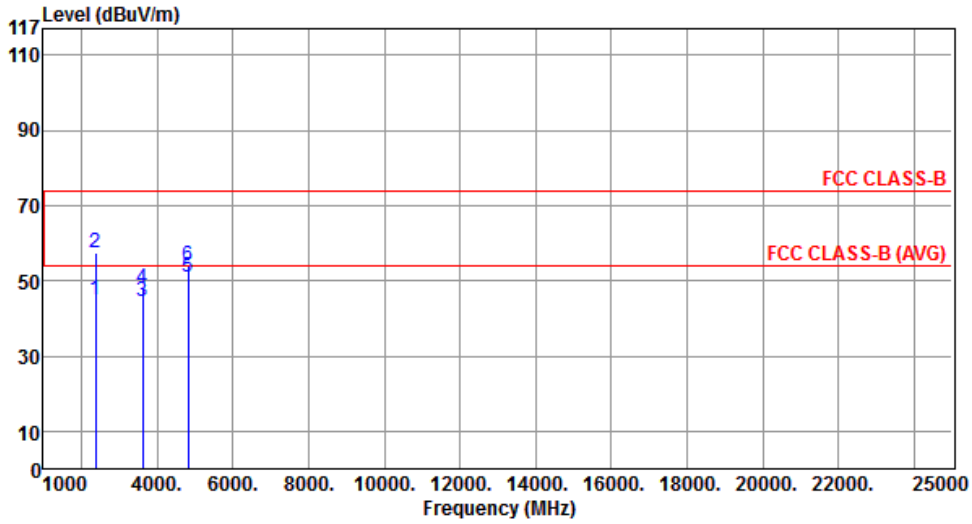


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	81.41	25.10	40.00	-14.90	46.88	-21.78	Peak	---	---
2	156.10	31.46	43.50	-12.04	48.19	-16.73	Peak	---	---
3	343.31	29.50	46.00	-16.50	44.75	-15.25	Peak	---	---
4	600.36	33.72	46.00	-12.28	43.29	-9.57	Peak	---	---
5	900.09	37.80	46.00	-8.20	43.33	-5.53	Peak	---	---
6	1000.00	41.62	54.00	-12.38	46.26	-4.64	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

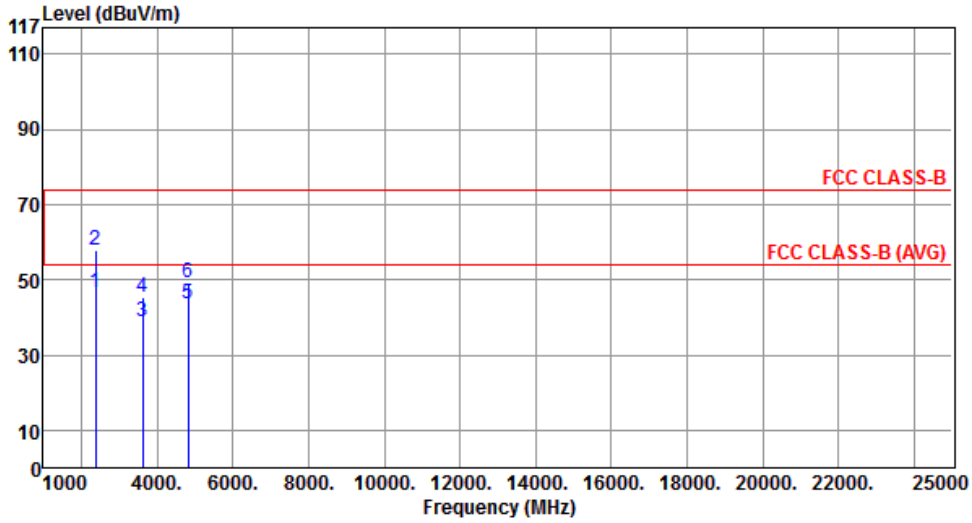
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2412
N_{TX}	1	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2386.00	45.10	54.00	-8.90	47.93	-2.83	Average	---	---
2	2386.00	57.29	74.00	-16.71	60.12	-2.83	Peak	---	---
3	3618.00	44.43	54.00	-9.57	43.31	1.12	Average	---	---
4	3618.00	47.72	74.00	-26.28	46.60	1.12	Peak	---	---
5	4824.00	50.76	54.00	-3.24	45.67	5.09	Average	---	---
6	4824.00	54.05	74.00	-19.95	48.96	5.09	Peak	---	---

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

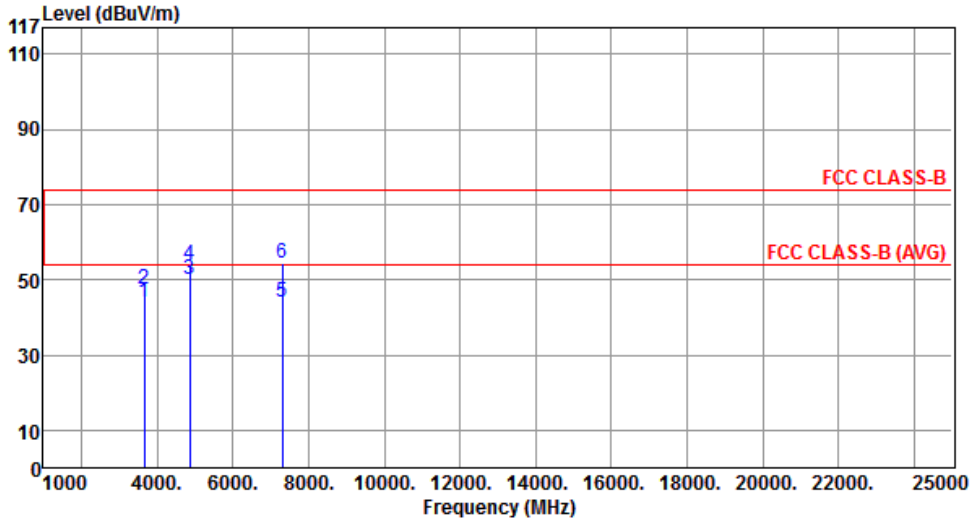
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2412
N_{TX}	1	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2386.00	46.68	54.00	-7.32	49.51	-2.83	Average	---	---
2	2386.00	57.87	74.00	-16.13	60.70	-2.83	Peak	---	---
3	3618.00	38.87	54.00	-15.13	37.75	1.12	Average	---	---
4	3618.00	45.51	74.00	-28.49	44.39	1.12	Peak	---	---
5	4824.00	43.55	54.00	-10.45	38.46	5.09	Average	---	---
6	4824.00	49.07	74.00	-24.93	43.98	5.09	Peak	---	---

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

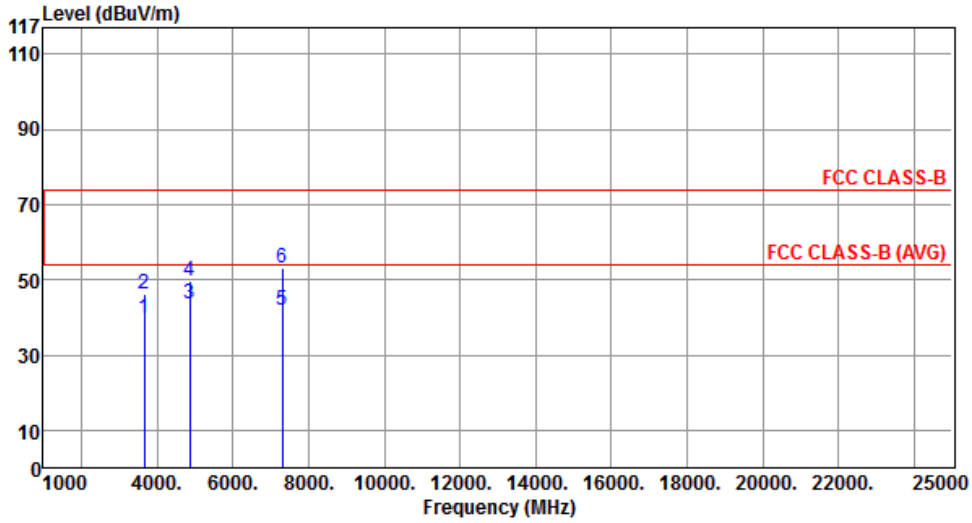
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
N_{TX}	1	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3655.50	44.17	54.00	-9.83	42.94	1.23	Average	---	---
2	3655.50	47.69	74.00	-26.31	46.46	1.23	Peak	---	---
3	4874.00	50.28	54.00	-3.72	45.10	5.18	Average	---	---
4	4874.00	53.87	74.00	-20.13	48.69	5.18	Peak	---	---
5	7311.00	44.12	54.00	-9.88	33.38	10.74	Average	---	---
6	7311.00	54.25	74.00	-19.75	43.51	10.74	Peak	---	---

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

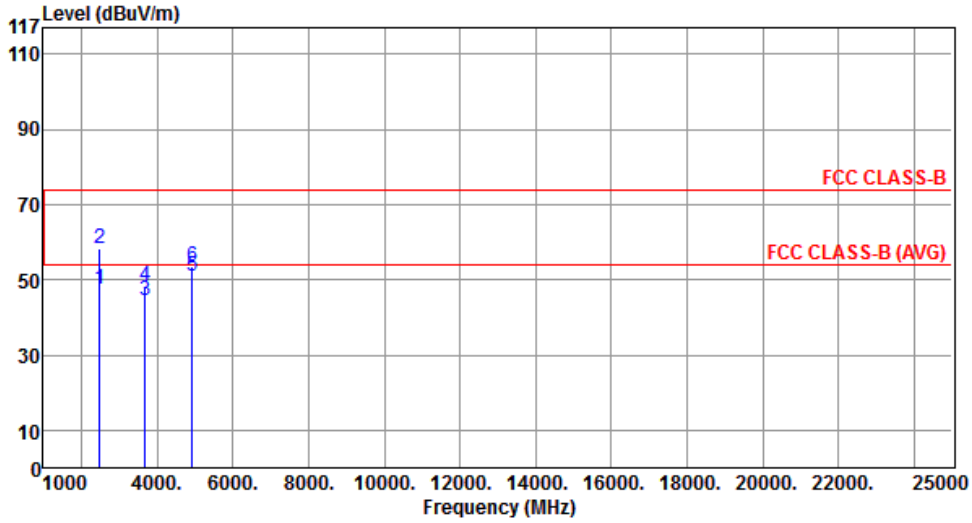
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2437
N_{TX}	1	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3655.50	39.55	54.00	-14.45	38.32	1.23	Average	---	---
2	3655.50	46.18	74.00	-27.82	44.95	1.23	Peak	---	---
3	4874.00	43.78	54.00	-10.22	38.60	5.18	Average	---	---
4	4874.00	49.66	74.00	-24.34	44.48	5.18	Peak	---	---
5	7311.00	41.76	54.00	-12.24	31.02	10.74	Average	---	---
6	7311.00	52.93	74.00	-21.07	42.19	10.74	Peak	---	---

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

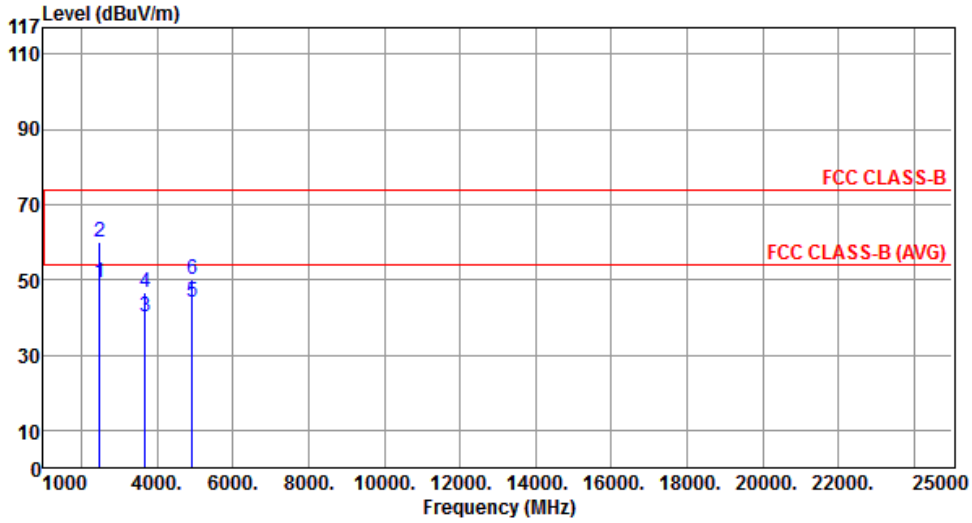
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11b	**Test Freq. (MHz)**	2462
N_{TX}	1	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2487.00	47.44	54.00	-6.56	49.82	-2.38	Average	---	---
2	2487.00	58.43	74.00	-15.57	60.81	-2.38	Peak	---	---
3	3693.00	44.58	54.00	-9.42	43.23	1.35	Average	---	---
4	3693.00	48.18	74.00	-25.82	46.83	1.35	Peak	---	---
5	4924.00	50.91	54.00	-3.09	45.63	5.28	Average	---	---
6	4924.00	53.63	74.00	-20.37	48.35	5.28	Peak	---	---

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

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

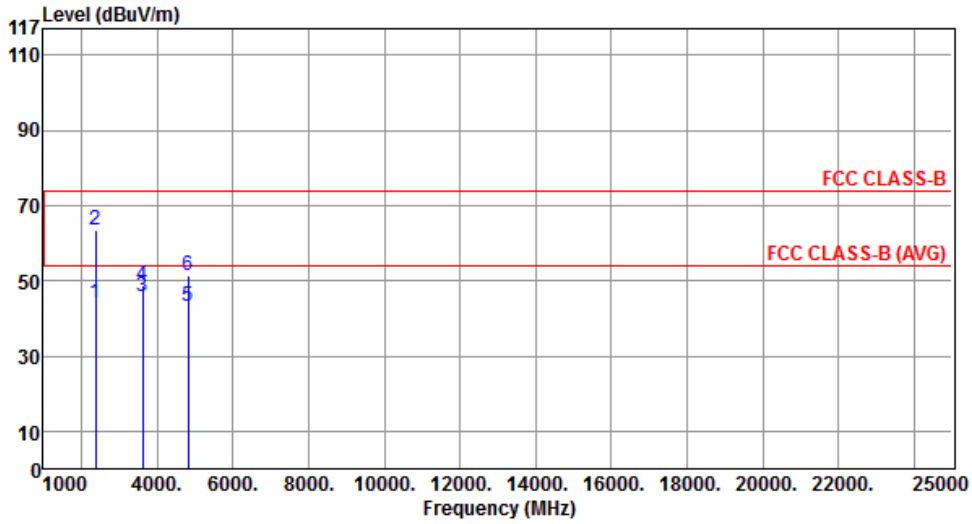


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2487.00	49.36	54.00	-4.64	51.74	-2.38	Average	---	---
2	2487.00	60.04	74.00	-13.96	62.42	-2.38	Peak	---	---
3	3693.00	39.98	54.00	-14.02	38.63	1.35	Average	---	---
4	3693.00	46.55	74.00	-27.45	45.20	1.35	Peak	---	---
5	4924.00	44.13	54.00	-9.87	38.85	5.28	Average	---	---
6	4924.00	50.00	74.00	-24.00	44.72	5.28	Peak	---	---

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

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

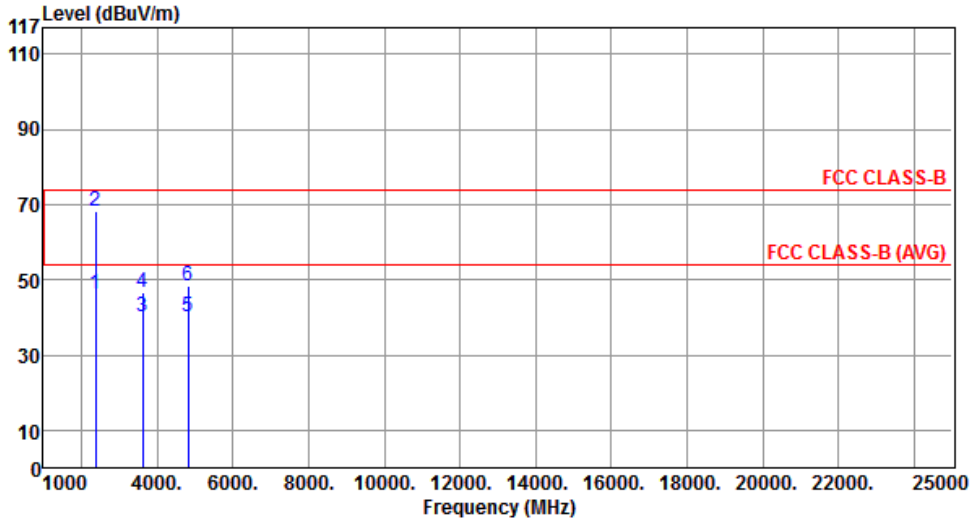
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2412
N_{TX}	1	**Polarization**	V



	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	44.17	54.00	-9.83	46.99	-2.82	Average	---	---
2	2390.00	63.63	74.00	-10.37	66.45	-2.82	Peak	---	---
3	3618.00	45.55	54.00	-8.45	44.43	1.12	Average	---	---
4	3618.00	48.93	74.00	-25.07	47.81	1.12	Peak	---	---
5	4824.00	43.15	54.00	-10.85	38.06	5.09	Average	---	---
6	4824.00	51.59	74.00	-22.41	46.50	5.09	Peak	---	---

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

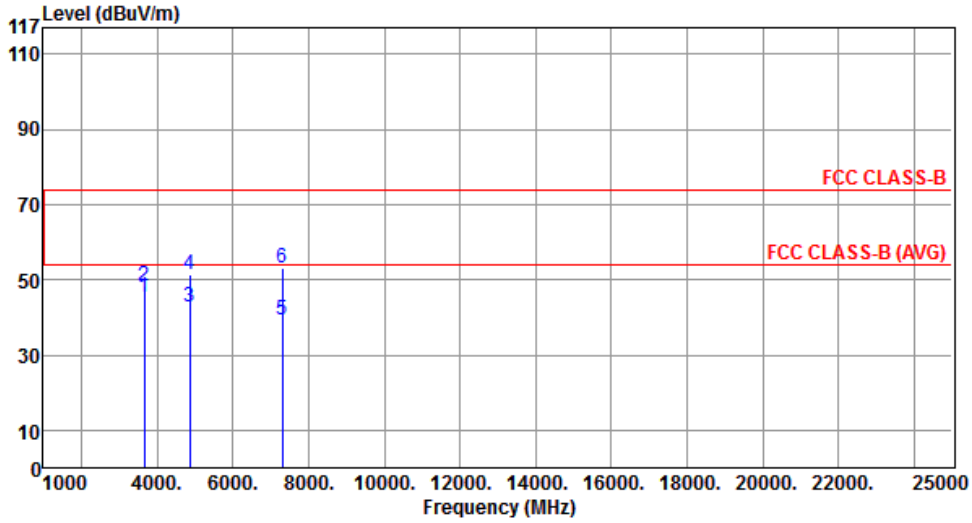
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2412
N_{TX}	1	**Polarization**	H



	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	46.41	54.00	-7.59	49.23	-2.82	Average	---	---
2	2390.00	68.10	74.00	-5.90	70.92	-2.82	Peak	---	---
3	3618.00	40.10	54.00	-13.90	38.98	1.12	Average	---	---
4	3618.00	46.67	74.00	-27.33	45.55	1.12	Peak	---	---
5	4824.00	40.23	54.00	-13.77	35.14	5.09	Average	---	---
6	4824.00	48.22	74.00	-25.78	43.13	5.09	Peak	---	---

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

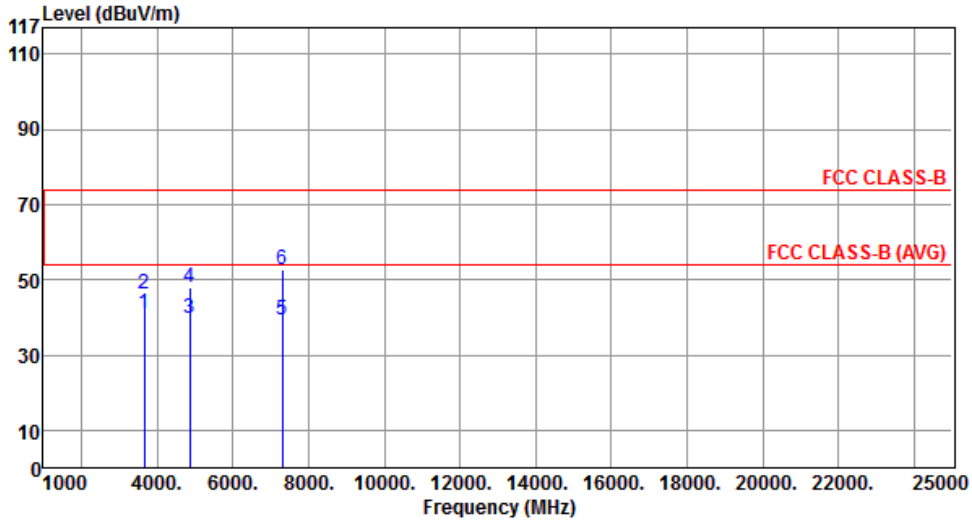
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
N_{TX}	1	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3655.50	45.49	54.00	-8.51	44.26	1.23	Average	---	---
2	3655.50	48.15	74.00	-25.85	46.92	1.23	Peak	---	---
3	4874.00	42.87	54.00	-11.13	37.69	5.18	Average	---	---
4	4874.00	51.18	74.00	-22.82	46.00	5.18	Peak	---	---
5	7311.00	39.42	54.00	-14.58	28.68	10.74	Average	---	---
6	7311.00	53.03	74.00	-20.97	42.29	10.74	Peak	---	---

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

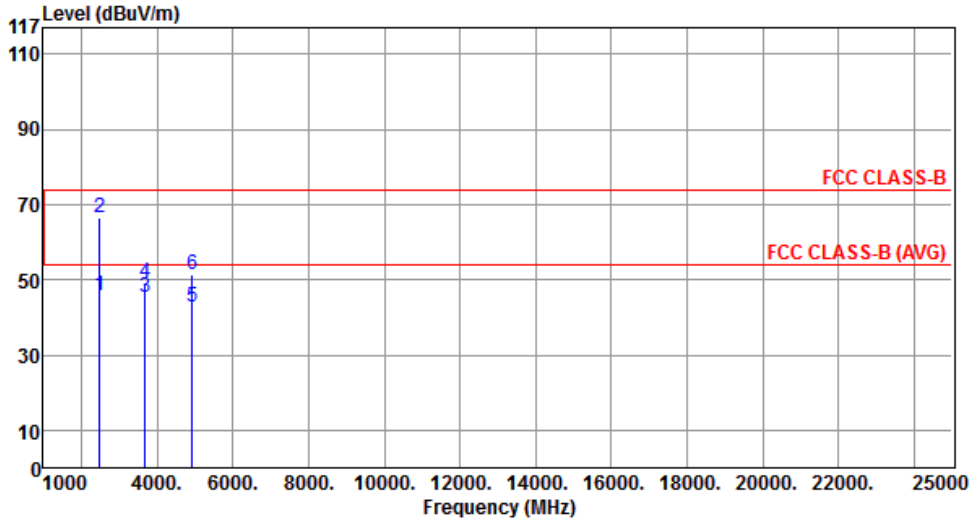
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2437
N_{TX}	1	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3655.50	40.86	54.00	-13.14	39.63	1.23	Average	---	---
2	3655.50	45.98	74.00	-28.02	44.75	1.23	Peak	---	---
3	4874.00	39.85	54.00	-14.15	34.67	5.18	Average	---	---
4	4874.00	47.83	74.00	-26.17	42.65	5.18	Peak	---	---
5	7311.00	39.11	54.00	-14.89	28.37	10.74	Average	---	---
6	7311.00	52.70	74.00	-21.30	41.96	10.74	Peak	---	---

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

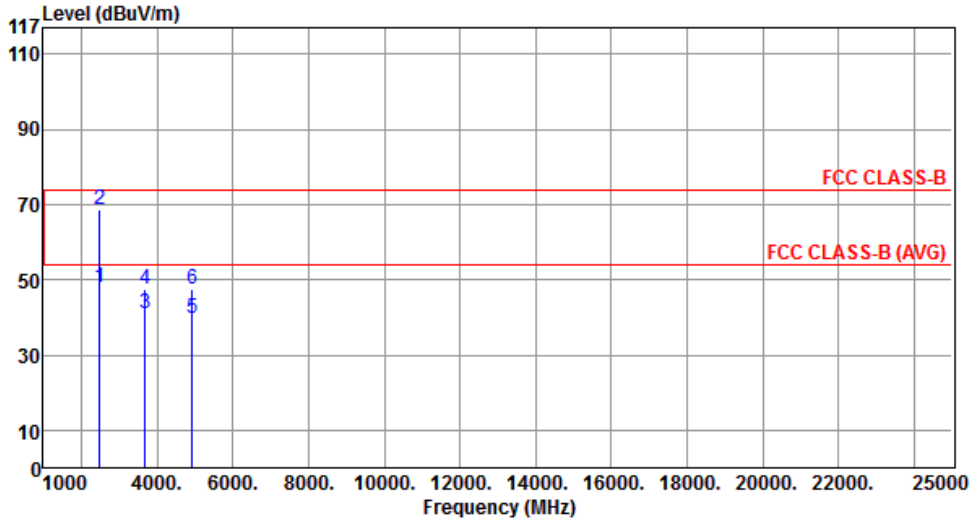
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	11g	**Test Freq. (MHz)**	2462
N_{TX}	1	**Polarization**	V



	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	45.91	54.00	-8.09	48.30	-2.39	Average	---	---
2	2483.50	66.31	74.00	-7.69	68.70	-2.39	Peak	---	---
3	3693.00	45.23	54.00	-8.77	43.88	1.35	Average	---	---
4	3693.00	49.06	74.00	-24.94	47.71	1.35	Peak	---	---
5	4924.00	42.66	54.00	-11.34	37.38	5.28	Average	---	---
6	4924.00	51.57	74.00	-22.43	46.29	5.28	Peak	---	---

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

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

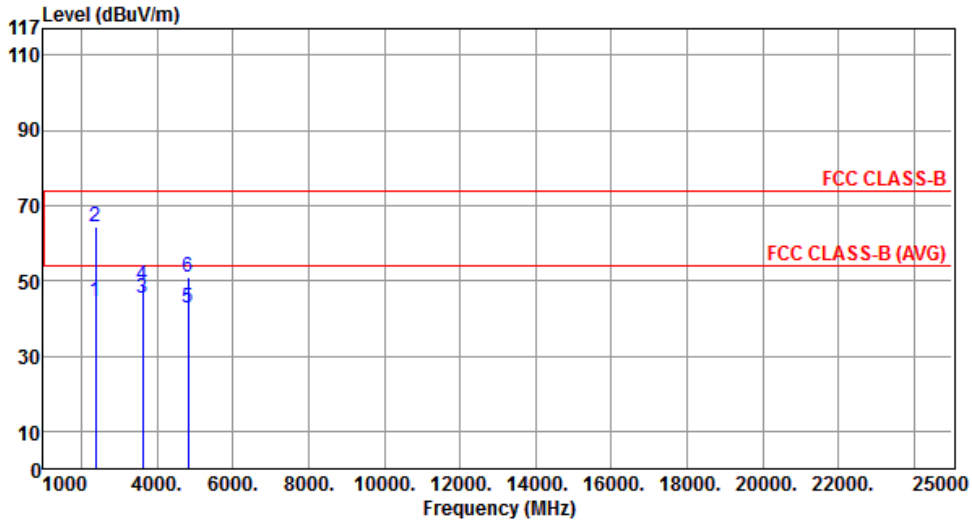


	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	2483.50	47.91	54.00	-6.09	50.30	-2.39	Average	---	---
2	2483.50	68.71	74.00	-5.29	71.10	-2.39	Peak	---	---
3	3693.00	40.97	54.00	-13.03	39.62	1.35	Average	---	---
4	3693.00	47.48	74.00	-26.52	46.13	1.35	Peak	---	---
5	4924.00	39.57	54.00	-14.43	34.29	5.28	Average	---	---
6	4924.00	47.48	74.00	-26.52	42.20	5.28	Peak	---	---

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

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

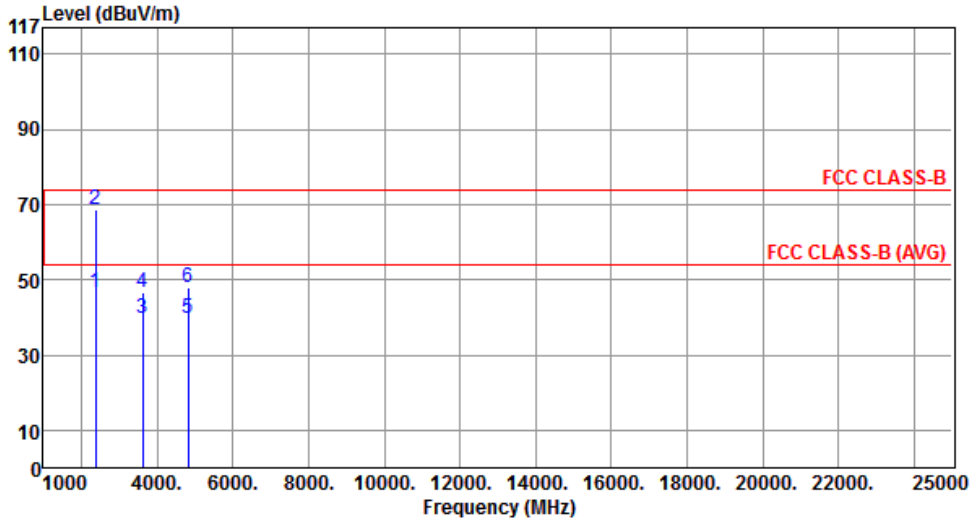
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2412
N_{TX}	1	**Polarization**	V



	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	44.51	54.00	-9.49	47.33	-2.82	Average	---	---
2	2390.00	64.22	74.00	-9.78	67.04	-2.82	Peak	---	---
3	3618.00	45.28	54.00	-8.72	44.16	1.12	Average	---	---
4	3618.00	48.63	74.00	-25.37	47.51	1.12	Peak	---	---
5	4824.00	42.79	54.00	-11.21	37.70	5.09	Average	---	---
6	4824.00	51.16	74.00	-22.84	46.07	5.09	Peak	---	---

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

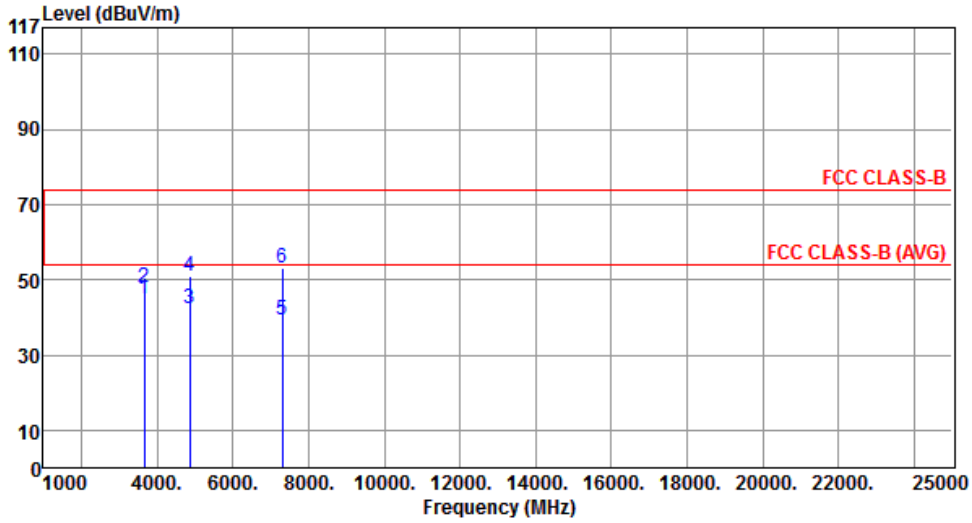
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2412
N_{TX}	1	**Polarization**	H



	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	46.62	54.00	-7.38	49.44	-2.82	Average	---	---
2	2390.00	68.48	74.00	-5.52	71.30	-2.82	Peak	---	---
3	3618.00	39.88	54.00	-14.12	38.76	1.12	Average	---	---
4	3618.00	46.43	74.00	-27.57	45.31	1.12	Peak	---	---
5	4824.00	39.75	54.00	-14.25	34.66	5.09	Average	---	---
6	4824.00	47.89	74.00	-26.11	42.80	5.09	Peak	---	---

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

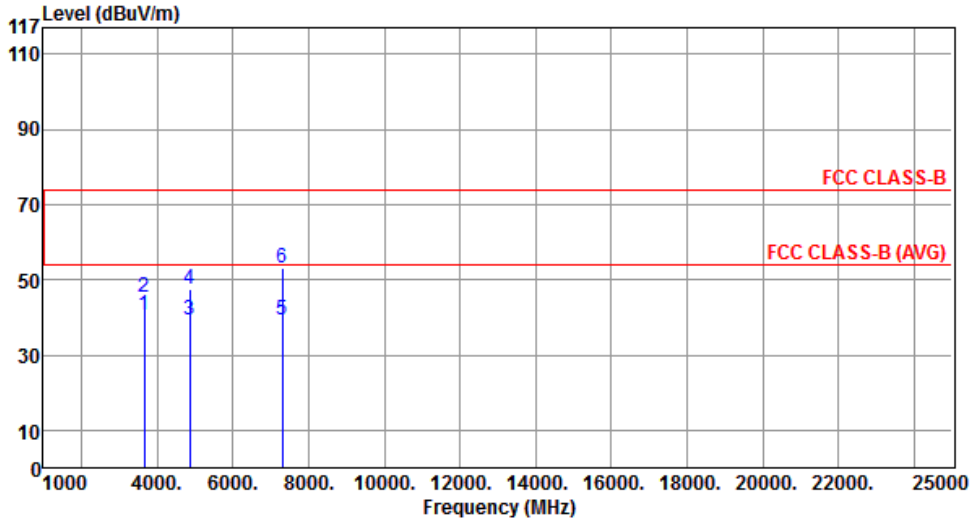
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2437
N_{TX}	1	**Polarization**	V



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3655.50	45.11	54.00	-8.89	43.88	1.23	Average	---	---
2	3655.50	47.89	74.00	-26.11	46.66	1.23	Peak	---	---
3	4874.00	42.33	54.00	-11.67	37.15	5.18	Average	---	---
4	4874.00	50.87	74.00	-23.13	45.69	5.18	Peak	---	---
5	7311.00	39.11	54.00	-14.89	28.37	10.74	Average	---	---
6	7311.00	52.89	74.00	-21.11	42.15	10.74	Peak	---	---

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

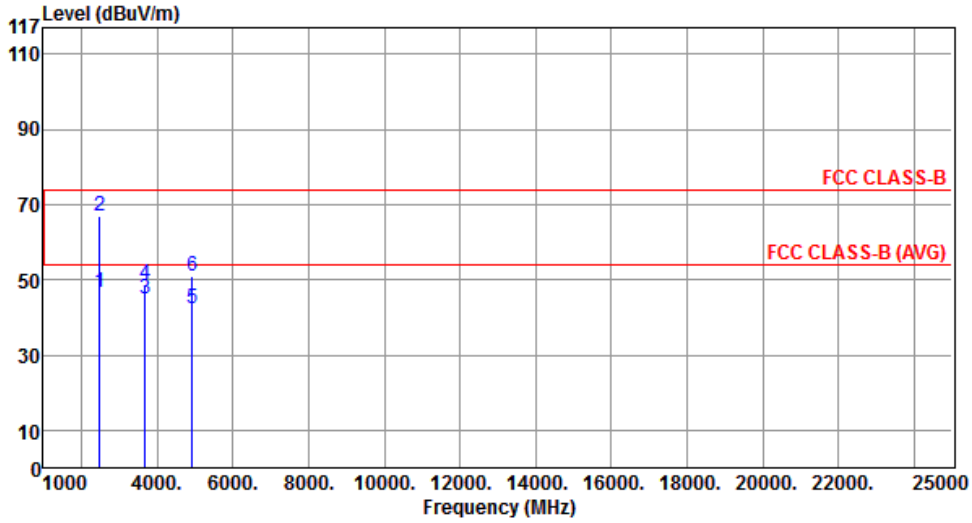
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2437
N_{TX}	1	**Polarization**	H



	Freq. MHz	Emission level dBuV/m	Limit dBuV/m	Margin dB	SA reading dBuV	Factor dB	Remark	ANT High cm	Turn Table deg
1	3655.50	40.43	54.00	-13.57	39.20	1.23	Average	---	---
2	3655.50	45.39	74.00	-28.61	44.16	1.23	Peak	---	---
3	4874.00	39.42	54.00	-14.58	34.24	5.18	Average	---	---
4	4874.00	47.33	74.00	-26.67	42.15	5.18	Peak	---	---
5	7311.00	39.28	54.00	-14.72	28.54	10.74	Average	---	---
6	7311.00	53.08	74.00	-20.92	42.34	10.74	Peak	---	---

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

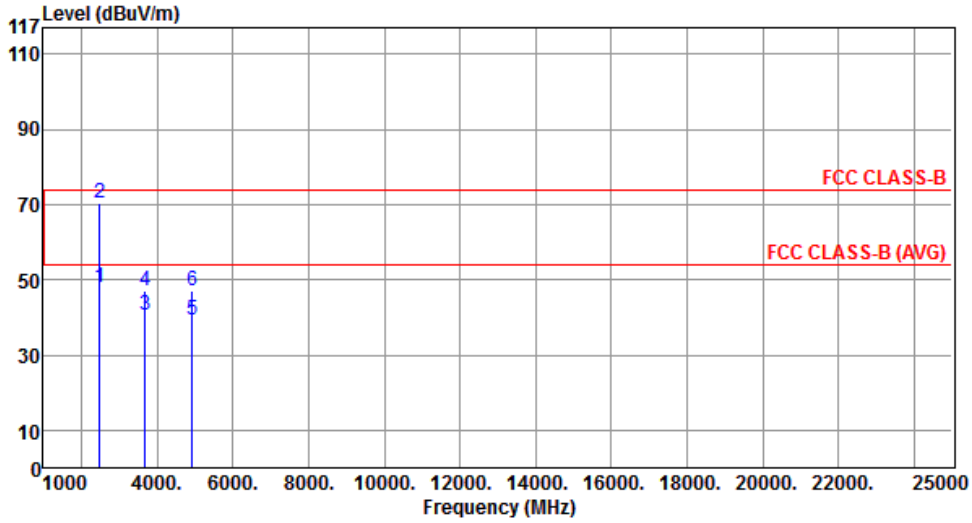
Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2462
N_{TX}	1	**Polarization**	V



	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	46.42	54.00	-7.58	48.81	-2.39	Average	---	---
2	2483.50	66.97	74.00	-7.03	69.36	-2.39	Peak	---	---
3	3693.00	44.87	54.00	-9.13	43.52	1.35	Average	---	---
4	3693.00	48.82	74.00	-25.18	47.47	1.35	Peak	---	---
5	4924.00	42.33	54.00	-11.67	37.05	5.28	Average	---	---
6	4924.00	51.12	74.00	-22.88	45.84	5.28	Peak	---	---

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)			
Modulation Mode	HT20	**Test Freq. (MHz)**	2462
N_{TX}	1	**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	48.11	54.00	-5.89	50.50	-2.39	Average	---	---
2	2483.50	70.44	74.00	-3.56	72.83	-2.39	Peak	---	---
3	3693.00	40.43	54.00	-13.57	39.08	1.35	Average	---	---
4	3693.00	47.00	74.00	-27.00	45.65	1.35	Peak	---	---
5	4924.00	39.18	54.00	-14.82	33.90	5.28	Average	---	---
6	4924.00	47.09	74.00	-26.91	41.81	5.28	Peak	---	---

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

4 Test Equipment and Calibration Data

Test Item	Conducted Emission				
Test Site	Conduction room 1 / (CO01-WS)				
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
Note: Calibration Interval of instruments listed above is one year.					

Test Item	Radiated Emission				
Test Site	966 chamber 2 / (03CH02-WS)				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV40	101499	Feb. 08, 2014	Feb. 07, 2015
Receiver	R&S	ESR3	101657	Jan. 18,2014	Jan. 17, 2015
Bilog Antenna	ScHwarzbeck	VULB9168	VULB9168-524	Jan. 08, 2014	Jan. 07, 2015
Horn Antenna 1G-18G	SCHWARZBECK	BBHA 9120D	BBHA 9120 D 1095	Jan. 07, 2014	Jan. 06, 2015
Horn Antenna 18G-40G	SCHWARZBECK	BBHA 9170	BBHA 9170517	Dec. 27, 2013	Dec. 26, 2014
Amplifier	Burgeon	BPA-530	100218	Dec. 09, 2013	Dec. 08, 2014
Amplifier	Agilent	83017A	MY39501309	Dec. 09, 2013	Dec. 08, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16140/4	Dec. 17, 2013	Dec. 16, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16018/4	Dec. 17, 2013	Dec. 16, 2014
RF Cable	HUBER+SUHNER	SUCOFLEX104	MY16015/4	Dec. 17, 2013	Dec. 16, 2014
RF Cable-R03m	Woken	CFD400NL-LW	CFD400NL-003	Dec. 17, 2013	Dec. 16, 2014
RF Cable-R10m	Woken	CFD400NL-LW	CFD400NL-004	Dec. 17, 2013	Dec. 16, 2014
control	EM Electronics	EM1000	060608	N/A	N/A
Note: Calibration Interval of instruments listed above is one year.					

Loop Antenna	R&S	HFH2-Z2	100330	Nov. 15, 2012	Nov. 14, 2014
Amplifier	EM	EM18G40G	060572	Jun. 20, 2013	Jun. 19, 2015
Note: Calibration Interval of instruments listed above is two year.					

Test Item	RF Conducted				
Test Site	TH01-HY				
Instrument	**Manufacturer**	**Model No.**	**Serial No.**	**Calibration Date**	**Calibration Until**
Spectrum Analyzer	R&S	FSV 40	101013	Jan. 25, 2014	Jan. 24, 2015
AC Power Source	G.W	APS-9102	EL920581	Jul. 16, 2013	Jul. 15, 2014
Temp. and Humidity Chamber	Giant Force	GTH-225-20-SP-SD	MAA1112-007	Nov. 20, 2013	Nov. 19, 2014
Signal Generator	R&S	SMR40	100116	Jun. 27, 2013	Jun. 26, 2014
Power Sensor	Anritsu	MA2411B	0917017	Jan. 28, 2014	Jan. 27, 2015
Power Meter	Anritsu	ML2495A	0949003	Jan. 28, 2014	Jan. 27, 2015
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	Dec. 02, 2013	Dec. 01, 2014
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345669/4	Dec. 02, 2013	Dec. 01, 2014
Note: Calibration Interval of instruments listed above is one year.					