

FCC Test Report

Equipment : AC1200 Wi-Fi Range Extender
Brand Name : D-Link
Model No. : DAP-1620
FCC ID : KA2AP1620A1
Standard : 47 CFR FCC Part 15.247
Operating Band : 2400 MHz – 2483.5 MHz
FCC Classification : DTS
Applicant : D-Link Corporation
No. 289, Xinhua 3rd Rd., Neihu District, Taipei City 11494,
Taiwan, R. O. C.

The product sample received on Jul. 09, 2015 and completely tested on Jul. 30, 2015. We, SPORTON, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 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

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Summary of Test Result

Conformance Test Specifications					
Report Clause	Ref. Std. Clause	Description	Measured	Limit	Result
1.1.2	15.203	Antenna Requirement	Antenna connector mechanism complied	FCC 15.203	Complied
3.1	15.207	AC Power-line Conducted Emissions	[dBuV]: 0.1590020MHz 57.28 (Margin 8.24dB) – QP 41.51 (Margin 14.01dB) – AV	FCC 15.207	Complied
3.2	15.247(a)	6dB Bandwidth	6dB Bandwidth [MHz] 20M: 10.03 / 40M: 36.06	≥500kHz	Complied
3.3	15.247(b)	RF Output Power (Maximum Peak Conducted Output Power)	Power [dBm]: 27.22	Power [dBm]: 30	Complied
3.4	15.247(e)	Power Spectral Density	PSD [dBm/3kHz]: -4.26	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]: 4874.00 MHz 53.87 (Margin 0.13dB) – AV	Non-Restricted Bands: > 20 dBc Restricted Bands: FCC 15.209	Complied

Revision History

[illegible]

1 General Description

1.1 Information

1.1.1 RF General Information

RF General Information					
Internal antenna					
Frequency Range (MHz)	IEEE Std. 802.11	Ch. Freq. (MHz)	Channel Number	Transmit Chains (N _{TX})	RF Output Power (dBm)
2400-2483.5	b	2412-2462	1-11 [11]	2	21.98
2400-2483.5	g	2412-2462	1-11 [11]	2	27.22
2400-2483.5	HT20	2412-2462	1-11 [11]	2	26.90
2400-2483.5	HT40	2422-2452	3-9 [7]	2	26.30
Note 1: RF output power specifies that Maximum Peak Conducted Output Power. Note 2: 802.11b uses a combination of DSSS-DBPSK, DQPSK, CCK modulation. Note 3: 802.11g/n uses a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.					

1.1.2 Antenna Information

Antenna Category	
☒	Integral antenna (antenna permanently attached)
☒	Temporary RF connector provided
☐	No temporary RF connector provided Transmit chains bypass antenna and soldered temporary RF connector provided for connected measurement. In case of conducted measurements the transmitter shall be connected to the measuring equipment via a suitable attenuator and correct for all losses in the RF path.
☐	External antenna (dedicated antennas)
☐	Single power level with corresponding antenna(s).
☐	Multiple power level and corresponding antenna(s).
☐	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.	Type	Connector	Operating Frequencies (MHz) / Antenna Gain (dBi)		
			2400~2483.5	5150~5250	5725~5850
1	PIFA	UFL	1	2	2

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.: ...

1.1.4 Test Signal Duty Cycle

Operated Mode for Worst Duty Cycle	
☒ Operated test mode for worst duty cycle	
Test Signal Duty Cycle (x)	Power Duty Factor [dB] – (10 log 1/x)
☒ 100.00% - IEEE 802.11b	0.00
☒ 98.53% - IEEE 802.11g	0.06
☒ 98.95% - IEEE 802.11n (HT20)	0.05
☒ 98.15% - IEEE 802.11n (HT40)	0.08

1.1.5 EUT Operational Condition

Power Supply Type	100-240V, 50-60Hz, 0.5A
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1.2 Support Equipment

Support Equipment				
No.	Equipment	Brand Name	Model Name	FCC ID
1	Notebook	DELL	Latitude E6440	DoC

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 C63.10-2013
- ♦ FCC KDB 558074 DTS Meas Guidnace v03r03
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01

1.4 Testing Location Information

Testing Location				
☒	HWA YA	ADD : No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.		
		TEL : 886-3-327-3456 FAX : 886-3-327-0973		
Test Condition	Test Site No.	Test Engineer	Test Environment	Test Date
RF Conducted	TH01-HY	Mark Liao	22°C / 63%	Jul. 30, 2015
AC Conduction	CO04-HY	Skys Huang	21°C / 58%	Jul. 21, 2015
Radiated Emission	03CH03-HY	Jack Li	21-26°C / 60-63%	Jul. 09 ~ Jul. 13, 2015
Test site registered number [643075] with FCC				
Test site registered number [4086B-1] 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	2	1-11 Mbps	1 Mbps
11g	2	6-54 Mbps	6 Mbps
HT20	2	MCS 0-15	MCS 0
HT40	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	MT7620QA						
Test Software Version	V1.0.6.0						
Modulation Mode	N _{TX}	Test Frequency (MHz)					
		NCB: 20MHz			NCB: 40MHz		
		2412	2437	2462	2422	2437	2452
11b,1-11Mbps	2	0D/09	0D/09	0E/0A	--	--	--
11g,6-54Mbps	2	0F/0A	19/14	0F/0A	--	--	--
HT20,M0-15	2	0D/07	18/16	08/06	--	--	--
HT40,M0-15	2	--	--	--	09/04	12/0E	08/04

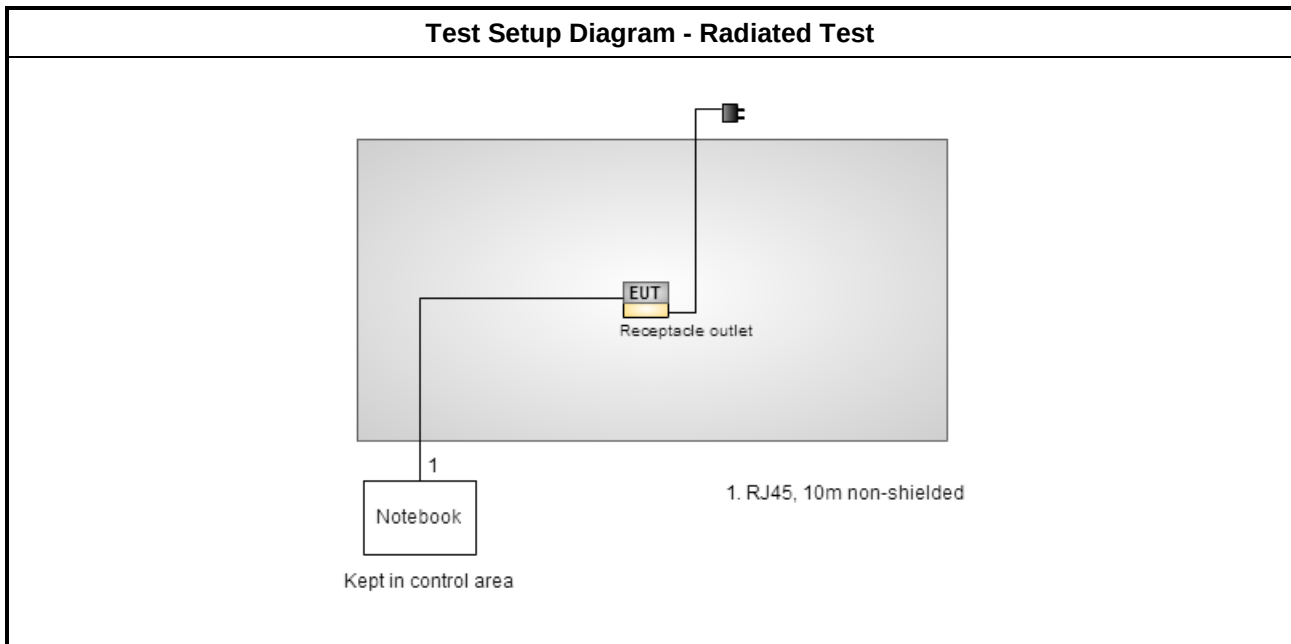
2.4 The Worst Case Measurement Configuration

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)

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)

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 Y-axis, antenna open.		
	☐ 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, HT40		
Orthogonal Planes of EUT	X Plane	Y Plane	Z Plane
			

2.5 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.

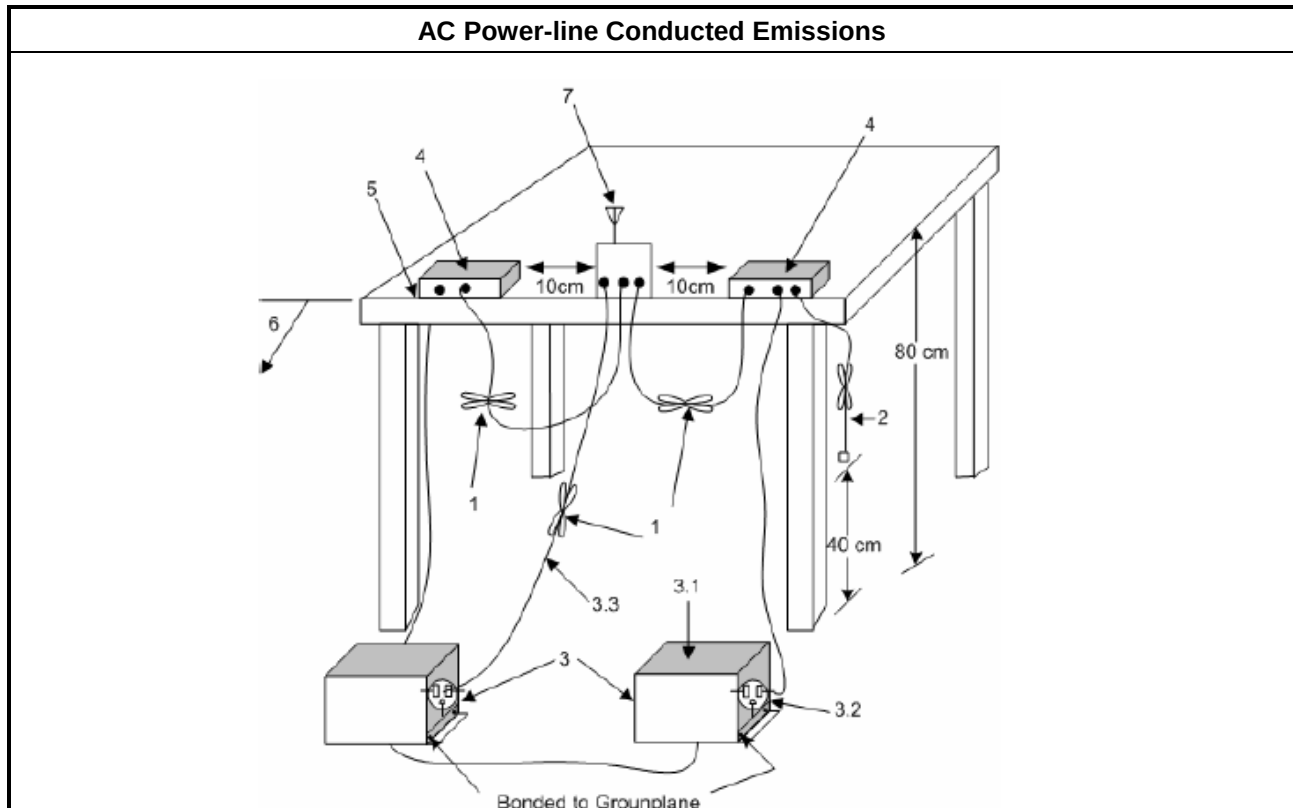
3.1.2 Measuring Instruments

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

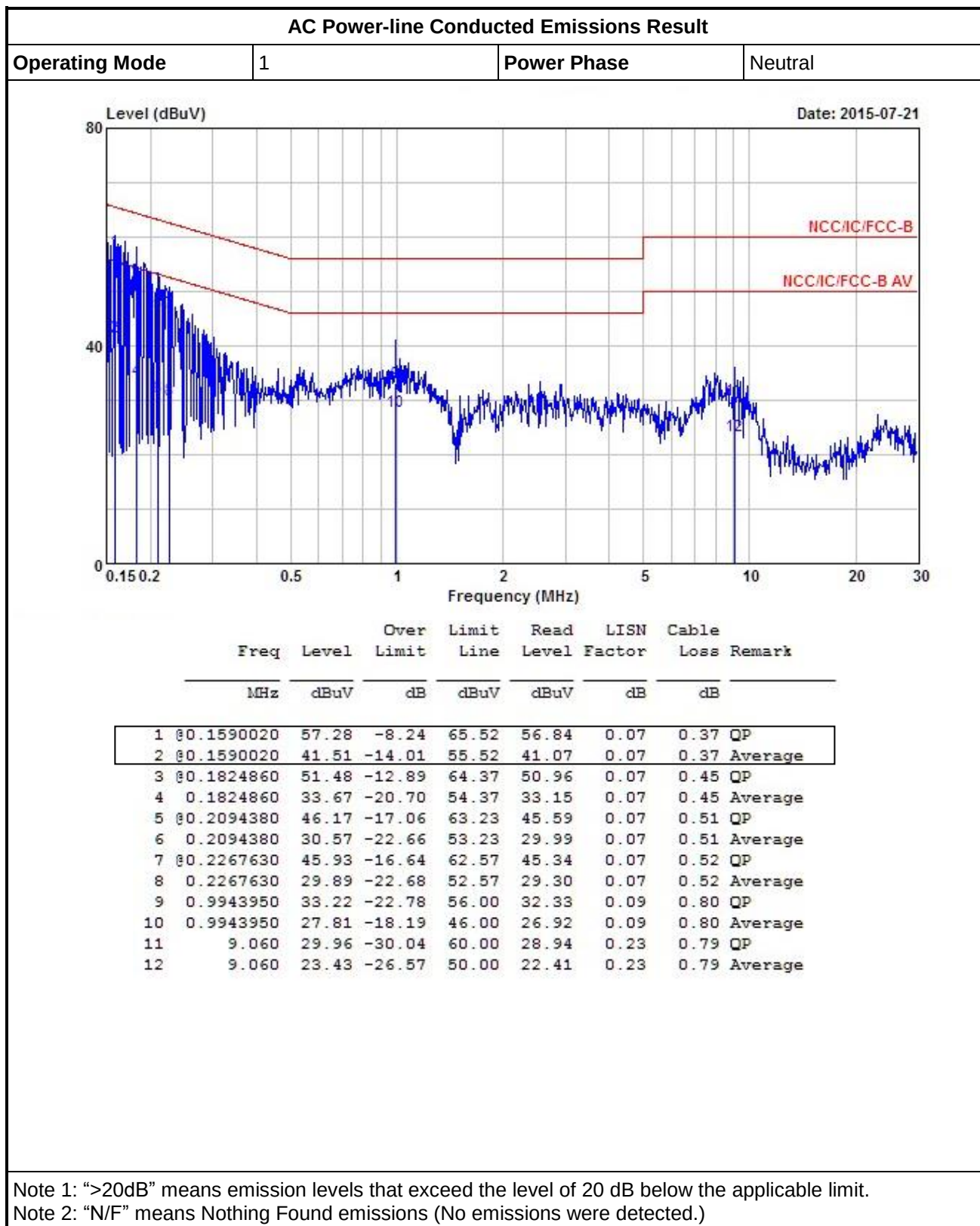
3.1.3 Test Procedures

Test Method
☒ Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.

3.1.4 Test Setup

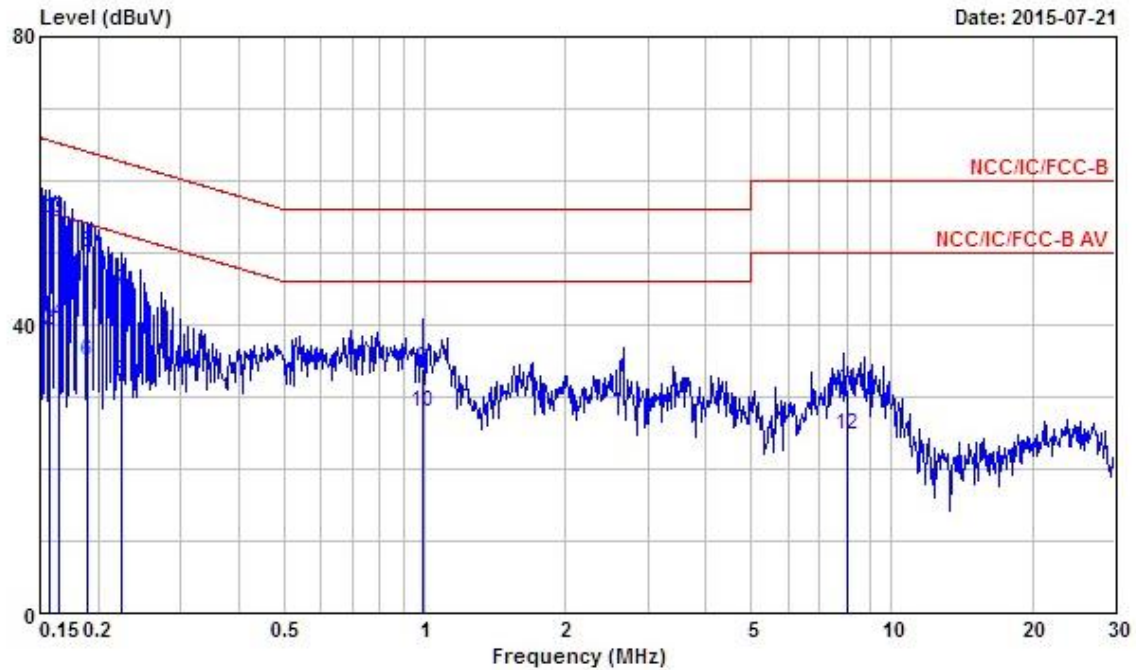


3.1.5 Test Result of AC Power-line Conducted Emissions



AC Power-line Conducted Emissions Result

Operating Mode	1	Power Phase	Line
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	Freq	Level	Over Limit	Limit Line	Read Level	LISN Factor	Cable Loss	Remark
	MHz	dBuV	dB	dBuV	dBuV	dB	dB	
1	0.1564950	54.77	-10.88	65.65	54.36	0.05	0.36	QP
2	0.1564950	39.08	-16.57	55.65	38.67	0.05	0.36	Average
3	0.1650100	54.76	-10.45	65.21	54.32	0.05	0.39	QP
4	0.1650100	40.16	-15.05	55.21	39.72	0.05	0.39	Average
5	0.1893810	50.05	-14.01	64.06	49.52	0.06	0.47	QP
6	0.1893810	34.88	-19.18	54.06	34.35	0.06	0.47	Average
7	0.2243730	44.76	-17.90	62.66	44.18	0.06	0.52	QP
8	0.2243730	32.05	-20.61	52.66	31.47	0.06	0.52	Average
9	0.9943950	33.98	-22.02	56.00	33.10	0.08	0.80	QP
10	0.9943950	27.90	-18.10	46.00	27.02	0.08	0.80	Average
11	8.060	31.08	-28.92	60.00	30.09	0.21	0.78	QP
12	8.060	24.61	-25.39	50.00	23.62	0.21	0.78	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 $\geq$ 500 kHz.

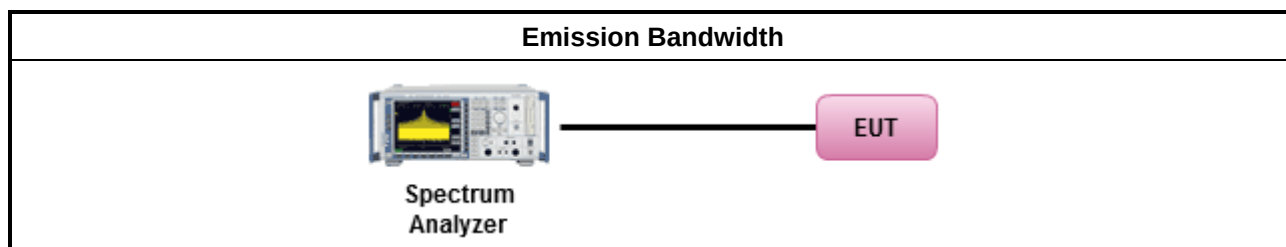
3.2.2 Measuring Instruments

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

3.2.3 Test Procedures

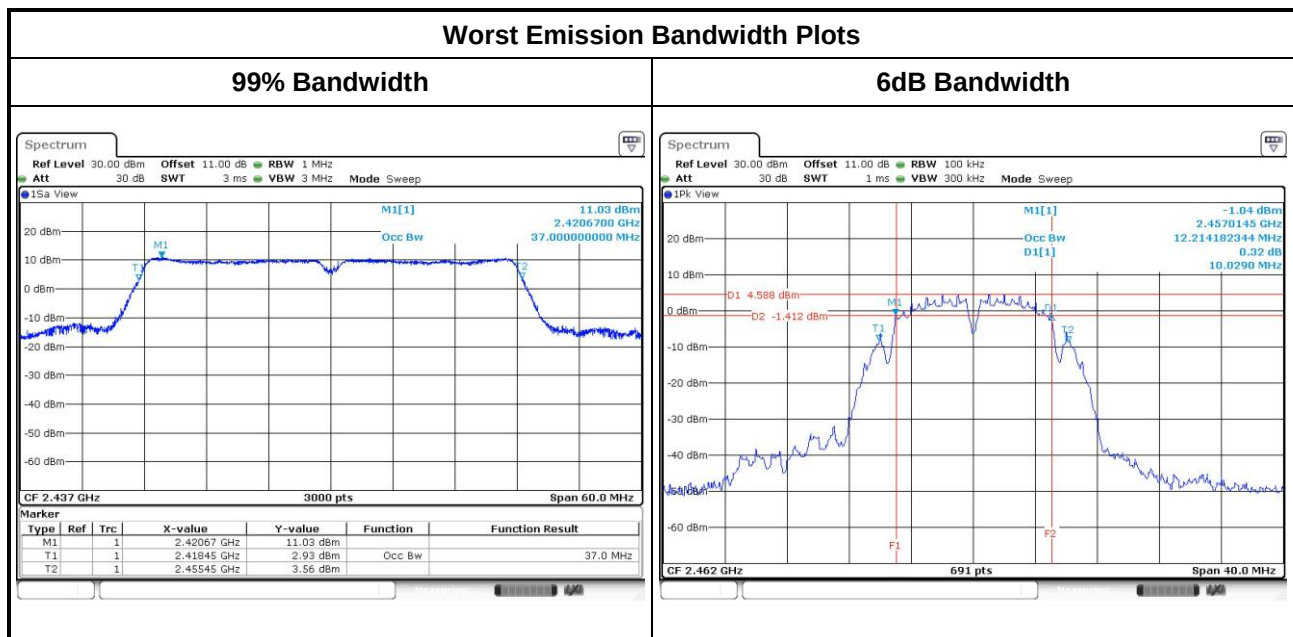
Test Method	
☒	For the emission bandwidth shall be measured using one of the options below:
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 8.1 Option 1 for 6 dB bandwidth measurement.
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 8.2 Option 2 for 6 dB bandwidth measurement.
☐	Refer as ANSI C63.10, clause 6.9 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



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	12.28	12.34	--	--	10.09	10.09	--	--
11b	2	2437	12.26	12.27	--	--	10.09	10.09	--	--
11b	2	2462	12.34	12.31	--	--	10.03	10.09	--	--
11g	2	2412	17.05	16.99	--	--	16.35	16.35	--	--
11g	2	2437	18.08	17.59	--	--	16.35	16.35	--	--
11g	2	2462	17.02	17.01	--	--	16.35	16.35	--	--
HT-20	2	2412	17.79	17.75	--	--	17.10	17.10	--	--
HT-20	2	2437	18.48	18.83	--	--	17.04	17.10	--	--
HT-20	2	2462	17.77	17.72	--	--	17.10	17.10	--	--
HT-40	2	2422	36.76	36.72	--	--	36.29	36.29	--	--
HT-40	2	2437	37.00	36.88	--	--	36.29	36.06	--	--
HT-40	2	2452	36.78	36.72	--	--	36.29	36.29	--	--
Limit			N/A				≥500 kHz			
Result			Complied							
Note 1: N _{TX} = Number of Transmit Chains										



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): $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX}])$ dBm
☐	Smart antenna system (SAS)
☐	Single beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
☐	Overlap beam: $P_{eirp} \leq \text{MAX}(36, P_{Out} + G_{TX})$ dBm
☐	Aggregate power on all beams: $P_{eirp} \leq \text{MAX}(36, [P_{Out} + G_{TX} + 8])$ 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.	

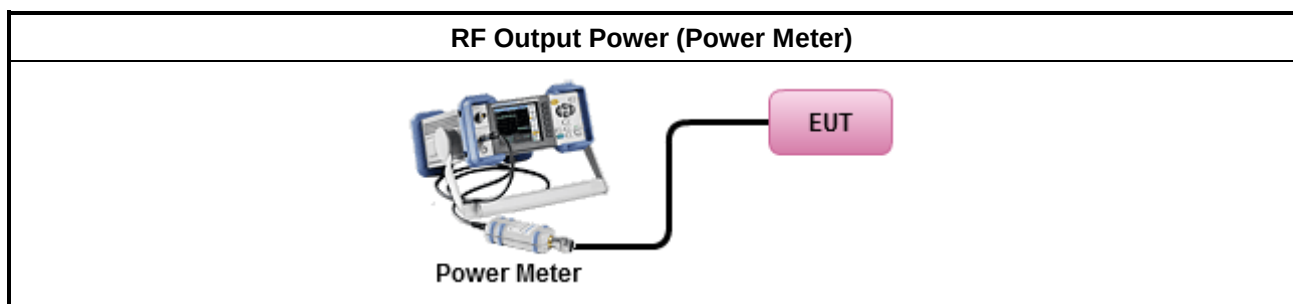
3.3.2 Measuring Instruments

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 DTS Meas Guidnace v03r03, clause 9.1.1 (RBW $\geq$ DTS BW).
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 9.1.2 (Peak power meter)
☒	Maximum Conducted Output Power (Reference only)
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 9.2.2.2 Method AVGSA-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 9.2.2.3 Method AVGSA-1 Alt. (slow sweep speed)
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 9.2.2.4 Method AVGSA-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, 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 DTS Meas Guidnace v03r03, clause 9.2.3.2 Method AVGPM-G (using a gated RF average power meter)
☒	For conducted measurement.
☐	The EUT supports single transmit chain and measurements performed on this transmit chain.
☐	The EUT supports diversity transmitting and the results on transmit chain port 1 is the worst case.
☒	The EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them.
☒	If multiple transmit chains, EIRP calculation could be following as methods: $P_{total} = P_1 + P_2 + \dots + P_n$ (calculated in linear unit [mW] and transfer to log unit [dBm]) $EIRP_{total} = P_{total} + DG$

3.3.4 Test Setup



3.3.5 Directional Gain for Power Measurement

Directional Gain (DG) Result					
Transmit Chains No.		1	2	-	-
Maximum G_{ANT} (dBi)		1	1	-	-
Modulation Mode	DG (dBi)	N_{TX}	N_{SS}	STBC	Array Gain (dB)
11b,1-11Mbps	1	2	1	-	-
11g,6-54Mbps	1	2	1	-	-
HT20,M0-15	1	2	1	-	-
HT40,M0-15	1	2	1	-	-

3.3.6 Test Result of Maximum Conducted Output Power

Maximum Peak 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	2	2412	17.69	18.99	--	--	21.40	30.00	1.00	22.40	36.00
11b	2	2437	18.82	19.12	--	--	21.98	30.00	1.00	22.98	36.00
11b	2	2462	18.69	19.02	--	--	21.87	30.00	1.00	22.87	36.00
11g	2	2412	23.52	23.65	--	--	26.60	30.00	1.00	27.60	36.00
11g	2	2437	23.89	24.51	--	--	27.22	30.00	1.00	28.22	36.00
11g	2	2462	23.02	23.46	--	--	26.26	30.00	1.00	27.26	36.00
HT-20	2	2412	22.63	22.60	--	--	25.63	30.00	1.00	26.63	36.00
HT-20	2	2437	23.49	24.25	--	--	26.90	30.00	1.00	27.90	36.00
HT-20	2	2462	22.32	22.29	--	--	25.32	30.00	1.00	26.32	36.00
HT-40	2	2422	20.71	20.68	--	--	23.71	30.00	1.00	24.71	36.00
HT-40	2	2437	23.09	23.48	--	--	26.30	30.00	1.00	27.30	36.00
HT-40	2	2452	20.12	20.59	--	--	23.37	30.00	1.00	24.37	36.00
Result			Complied								

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	15.36	15.59	--	--	18.49	30.00	1.00	19.49	36.00
11b	2	2437	15.51	15.68	--	--	18.61	30.00	1.00	19.61	36.00
11b	2	2462	15.43	15.66	--	--	18.56	30.00	1.00	19.56	36.00
11g	2	2412	16.22	16.18	--	--	19.21	30.00	1.00	20.21	36.00
11g	2	2437	19.09	19.42	--	--	22.27	30.00	1.00	23.27	36.00
11g	2	2462	15.66	15.74	--	--	18.71	30.00	1.00	19.71	36.00
HT-20	2	2412	15.12	15.06	--	--	18.10	30.00	1.00	19.10	36.00
HT-20	2	2437	18.58	19.49	--	--	22.07	30.00	1.00	23.07	36.00
HT-20	2	2462	14.51	14.31	--	--	17.42	30.00	1.00	18.42	36.00
HT-40	2	2422	13.45	13.16	--	--	16.32	30.00	1.00	17.32	36.00
HT-40	2	2437	16.59	16.85	--	--	19.73	30.00	1.00	20.73	36.00
HT-40	2	2452	12.80	13.01	--	--	15.92	30.00	1.00	16.92	36.00
Result			Complied								

Note: AV 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) $\leq$ 8 dBm/3kHz

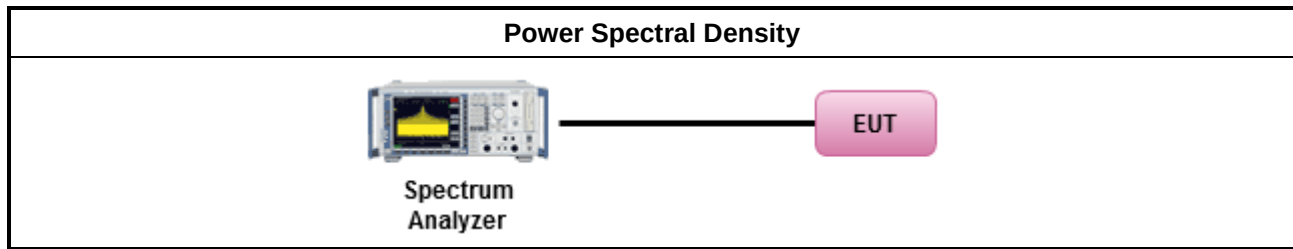
3.4.2 Measuring Instruments

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

3.4.3 Test Procedures

Test Method	
☒	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 10.2 Method PKPSD (RBW=3kHz; detector=peak)..
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 10.3 Method AVGPSD-1 (spectral trace averaging).
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 10.4 Method AVGPSD-1 Alt. (slow sweep speed)
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 10.5 Method AVGPSD-2 (spectral trace averaging).
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, 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.

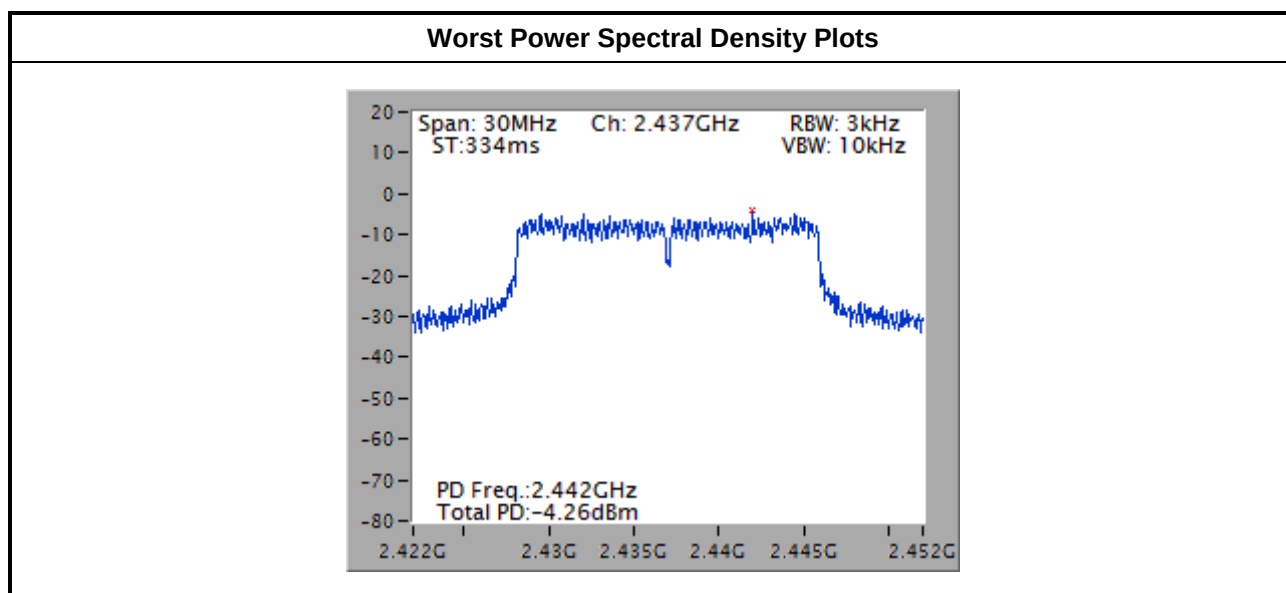
3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Power Spectral Density Result				
Condition			Power Spectral Density (dBm/3kHz)	
Modulation Mode	N _{TX}	Freq. (MHz)	Sum Chain	Power Limit
11b	2	2412	-11.10	8
11b	2	2437	-11.08	8
11b	2	2462	-11.01	8
11g	2	2412	-8.27	8
11g	2	2437	-4.97	8
11g	2	2462	-8.18	8
HT-20	2	2412	-9.01	8
HT-20	2	2437	-4.26	8
HT-20	2	2462	-9.35	8
HT-40	2	2422	-12.43	8
HT-40	2	2437	-9.83	8
HT-40	2	2452	-14.14	8
Result			Complied	

Note: Test result is bin-by-bin summing measured value of each TX port.



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

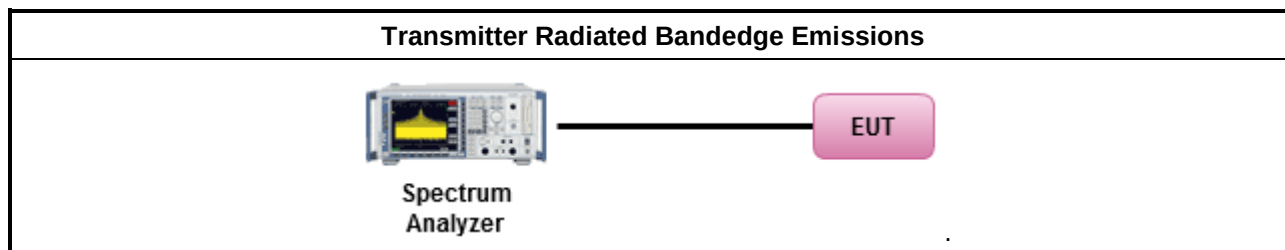
Reference level measurement

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

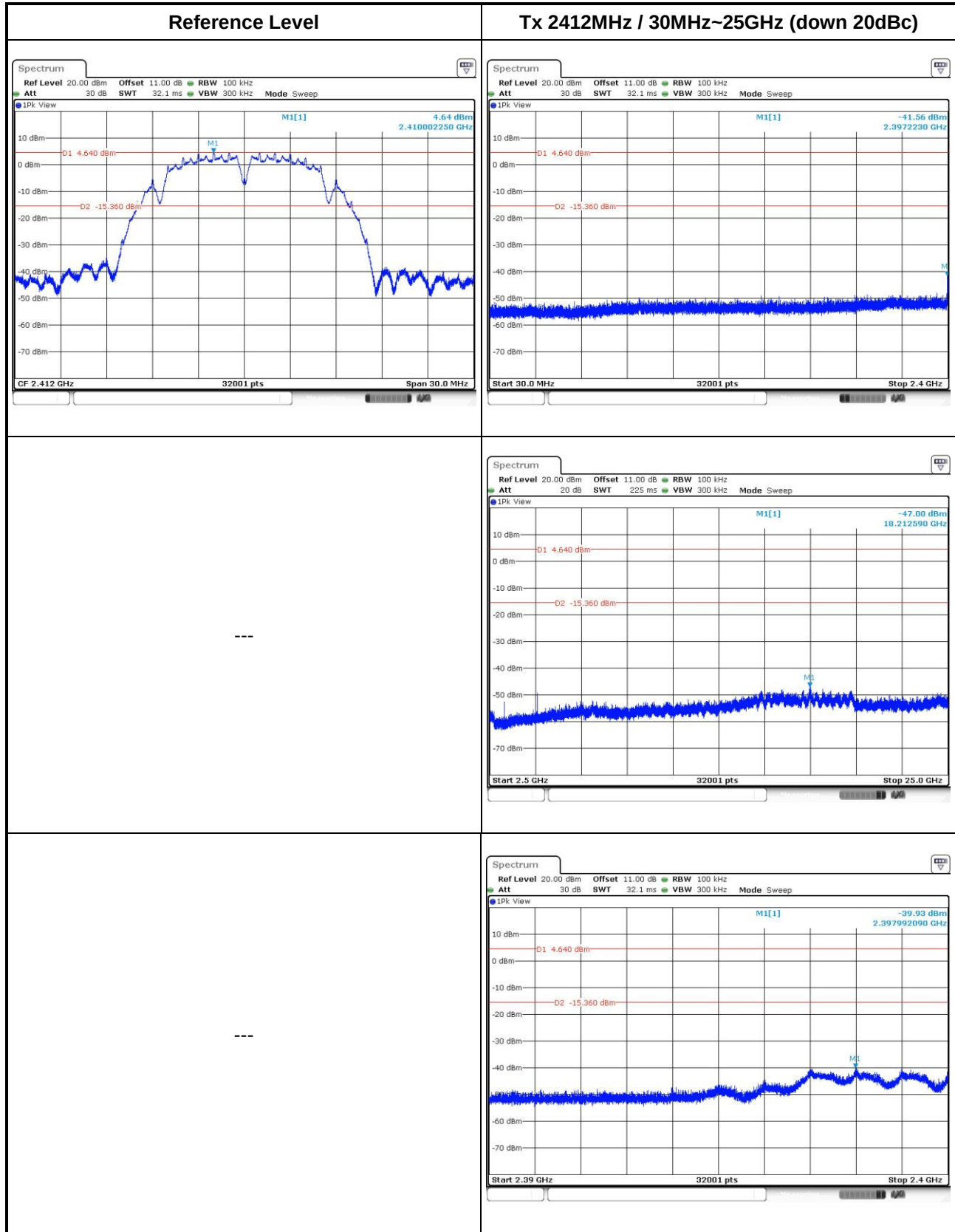


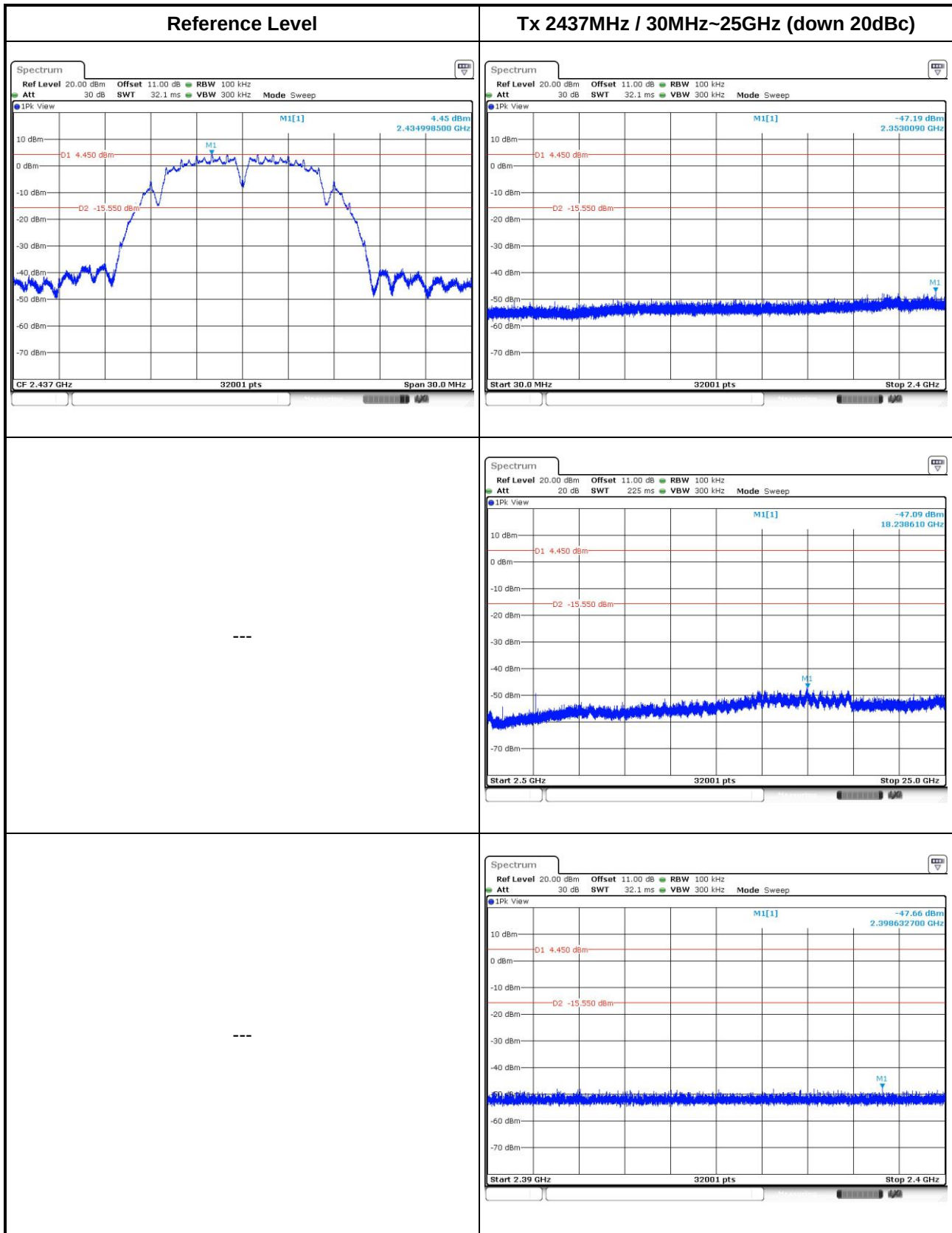
3.5.5 Test Result of Emissions in non-restricted frequency bands

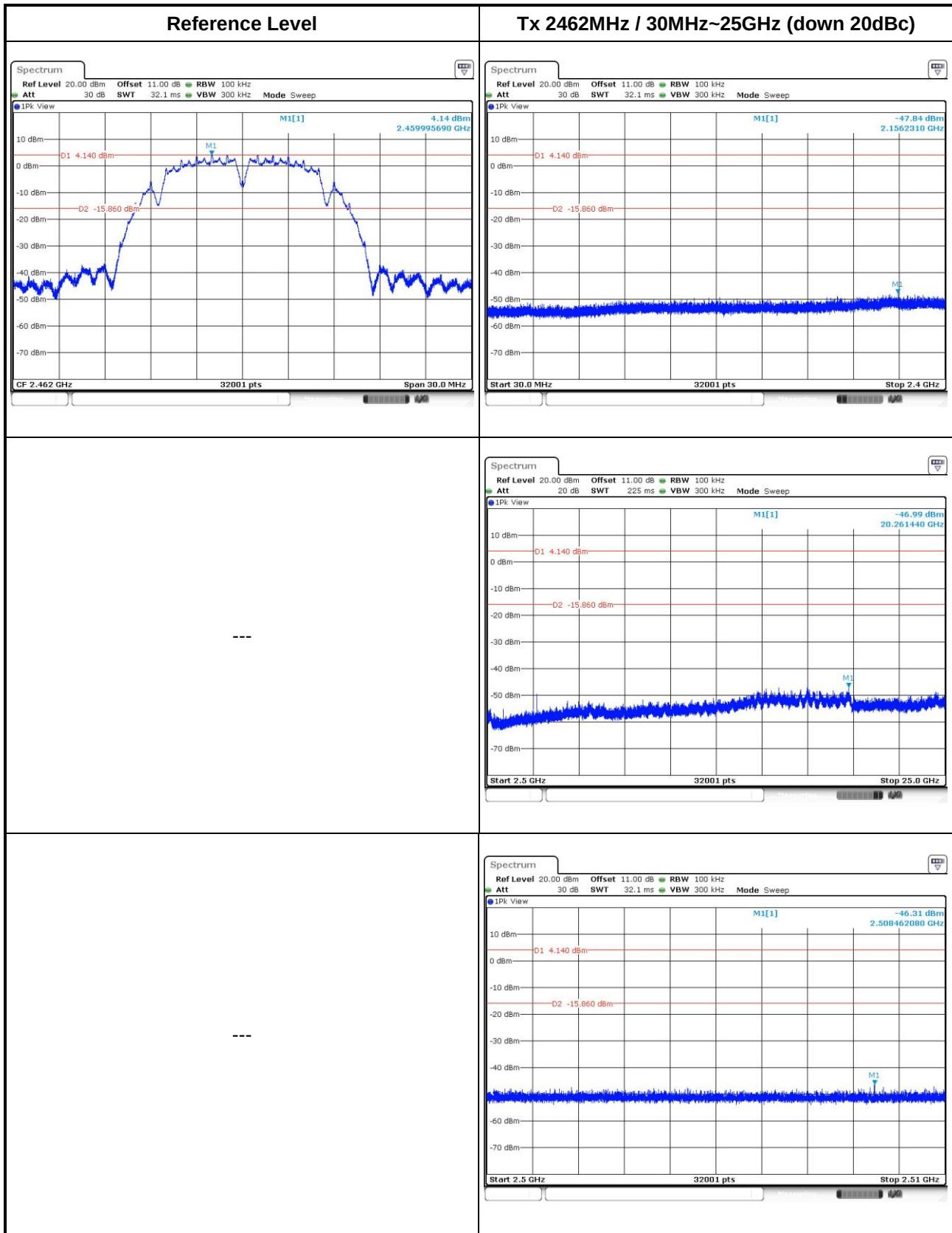
This test item is performed on each TX output individually without summing or adding $10 \log(N_{ANT})$ since measurements are made relative to the in-band emissions on the individual outputs. Only worst test result of each operating mode is presented.

3.5.6 Test Result of Emissions in non-restricted frequency bands

802.11b

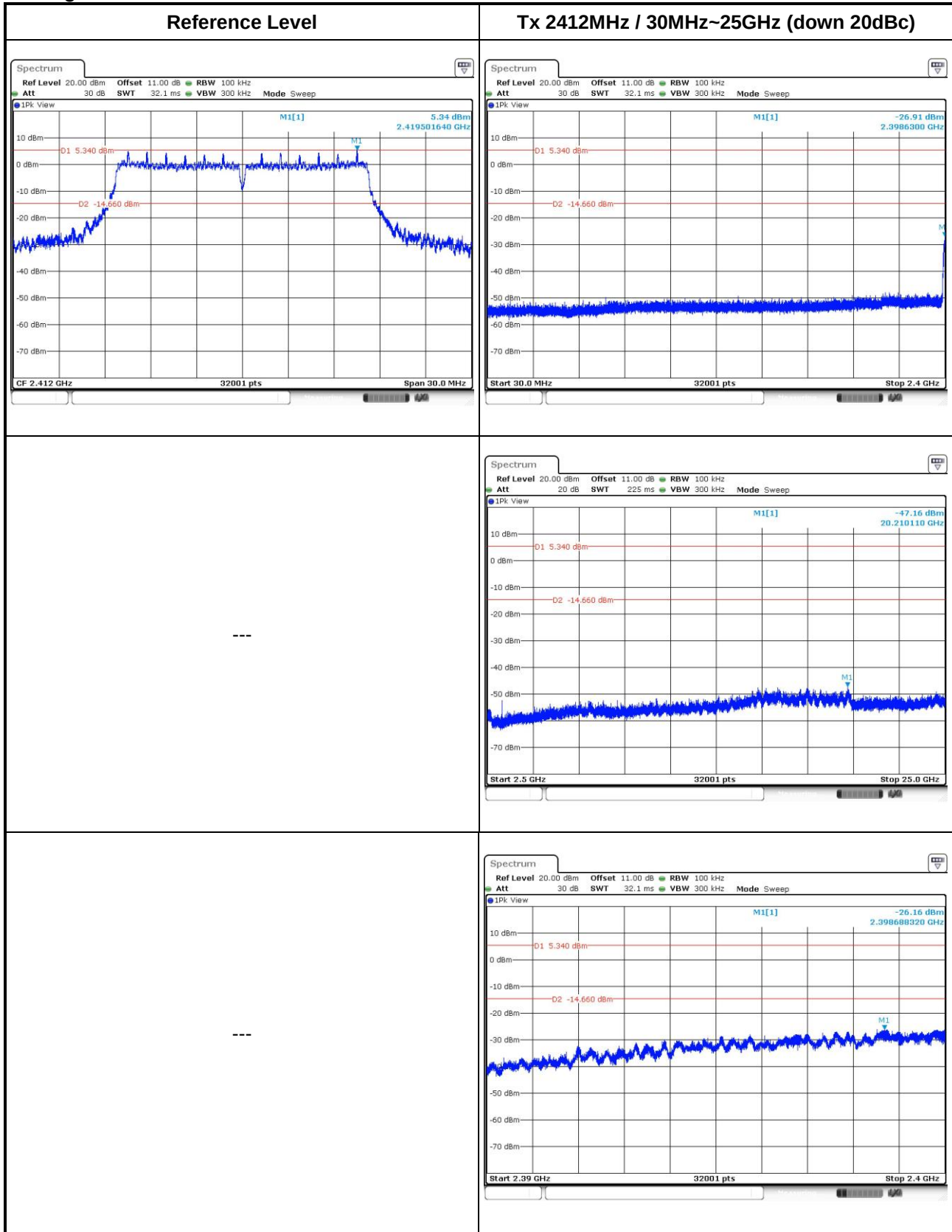


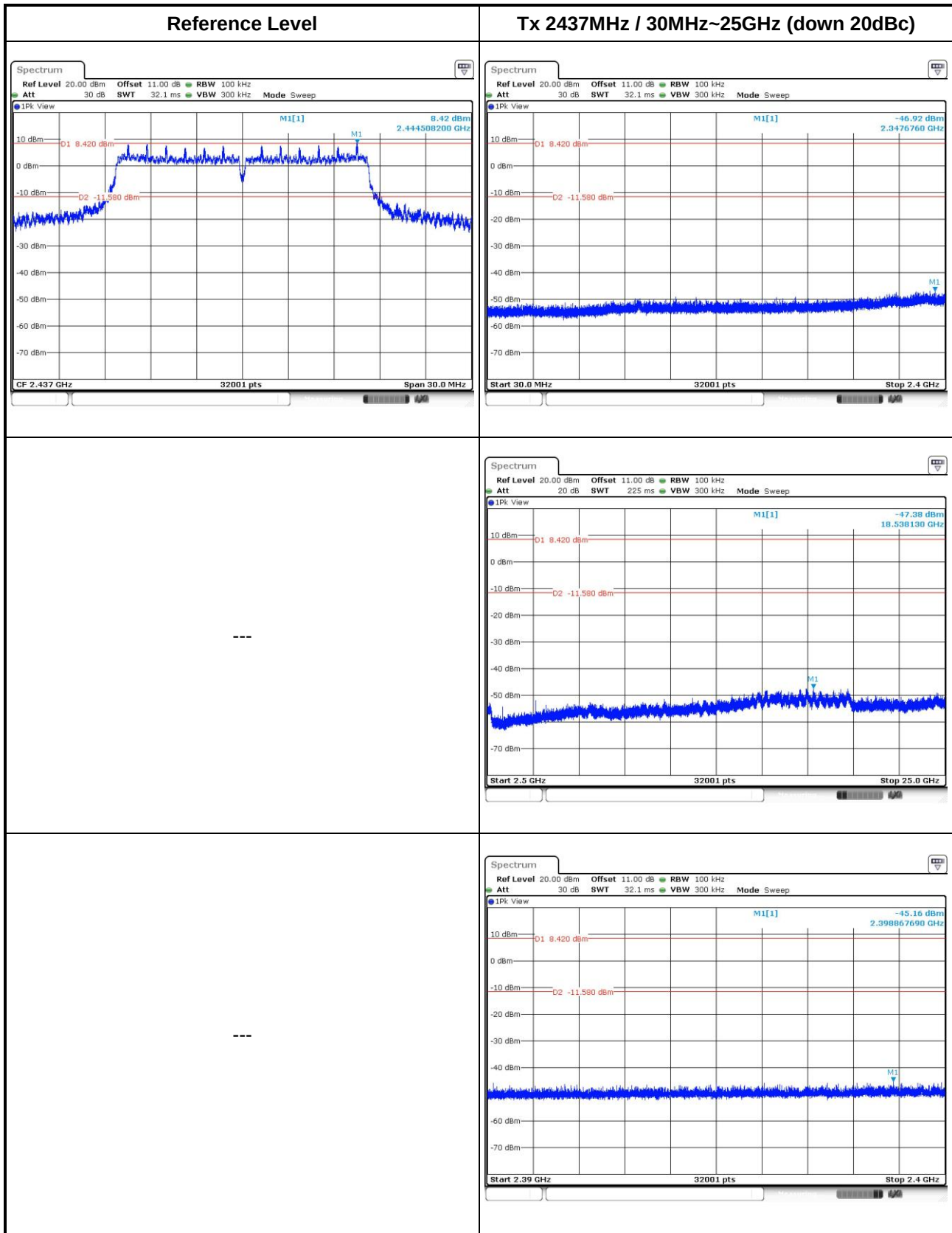




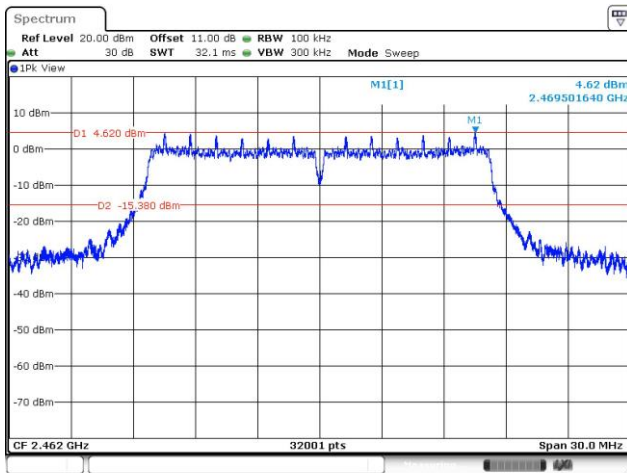


802.11g

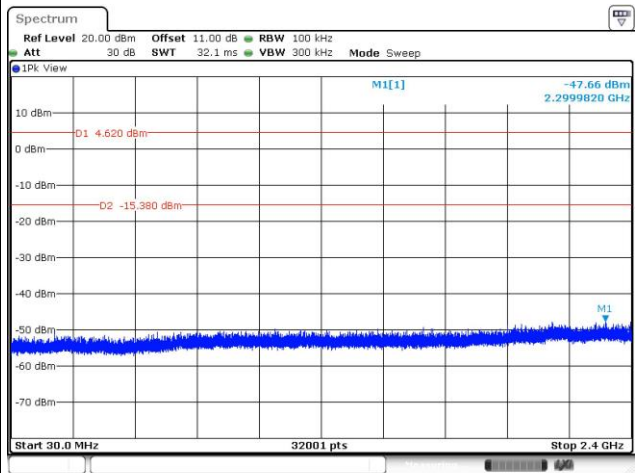


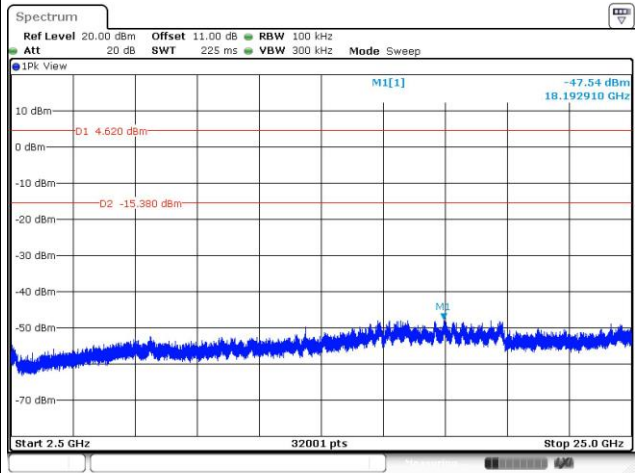


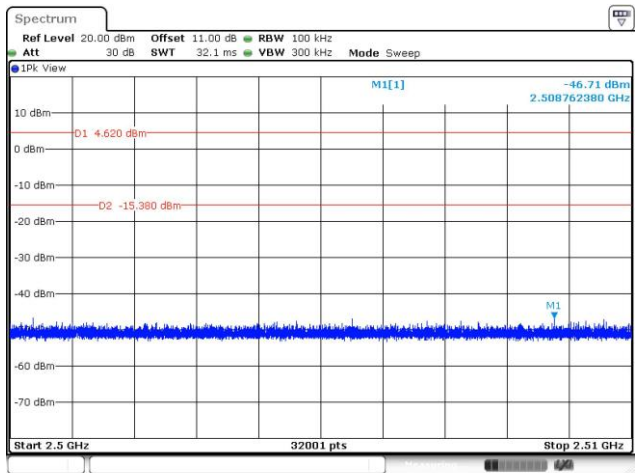
Reference Level



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

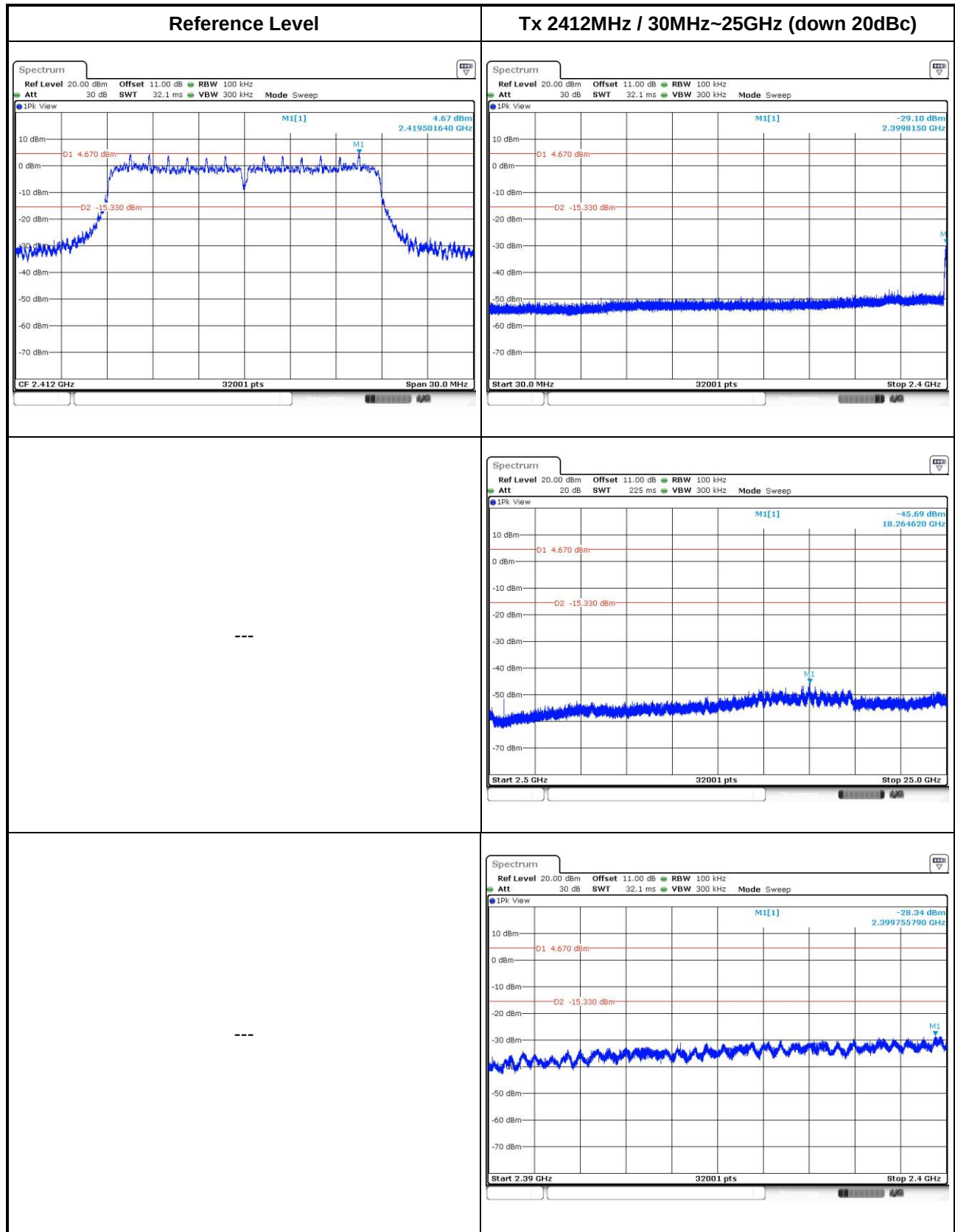


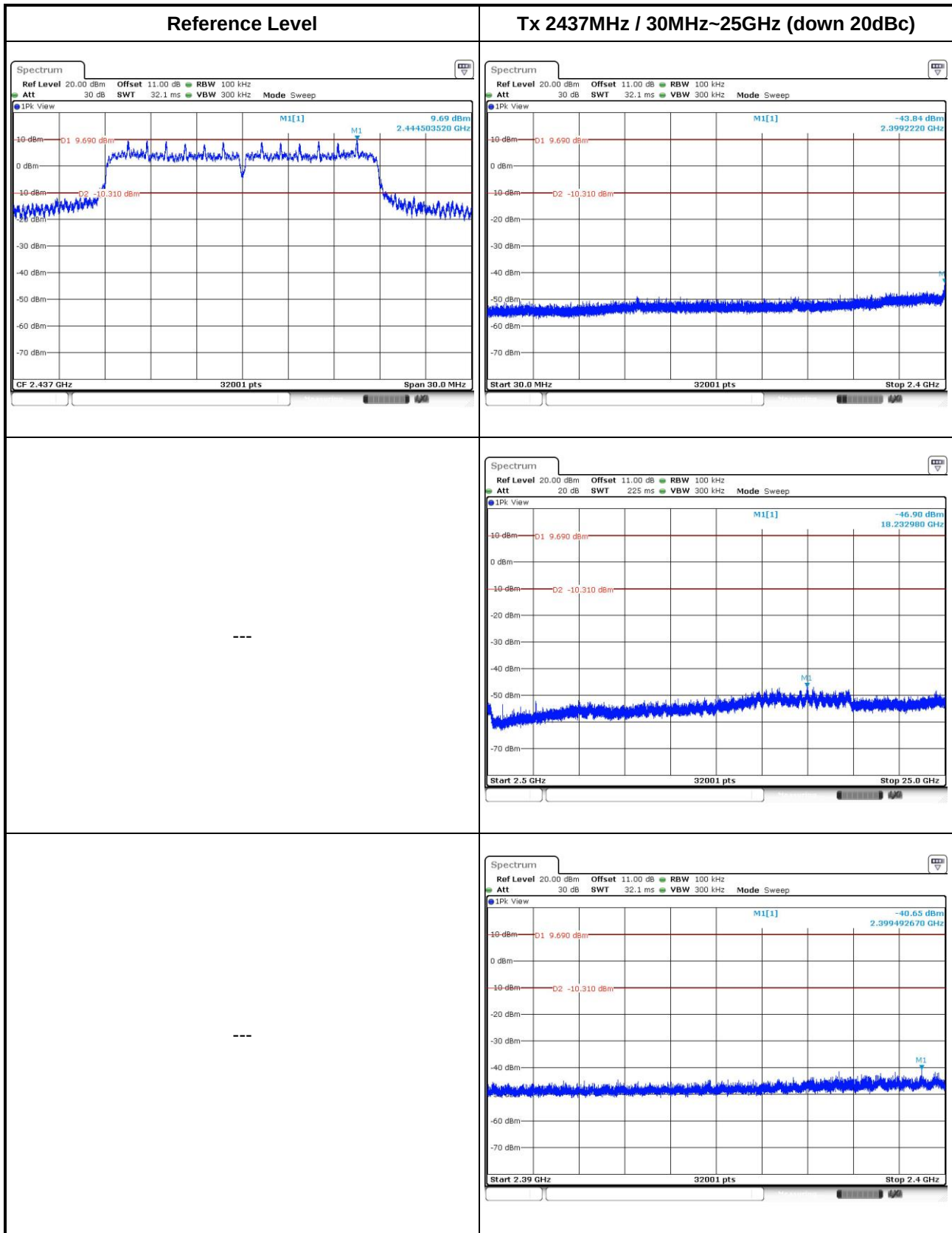


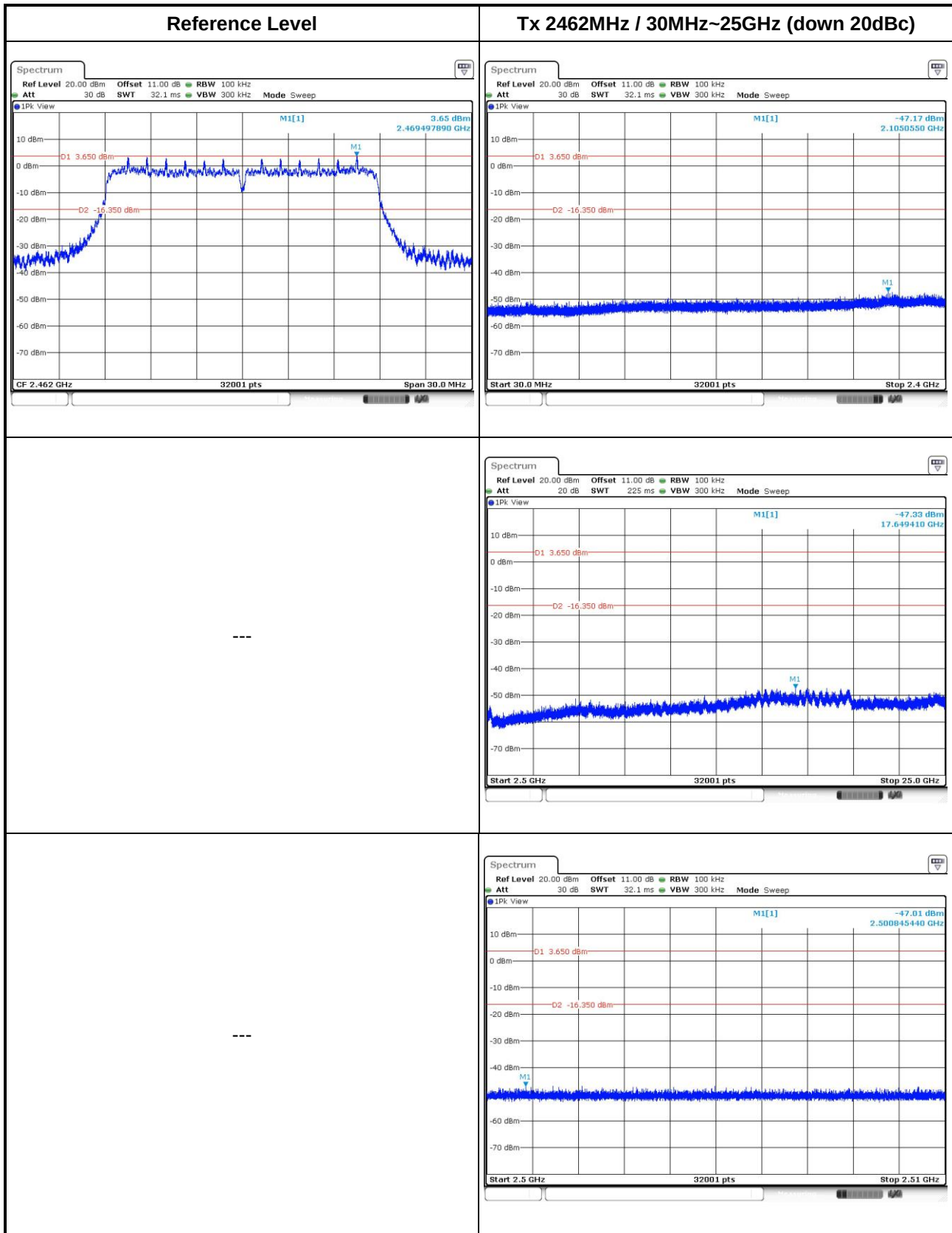




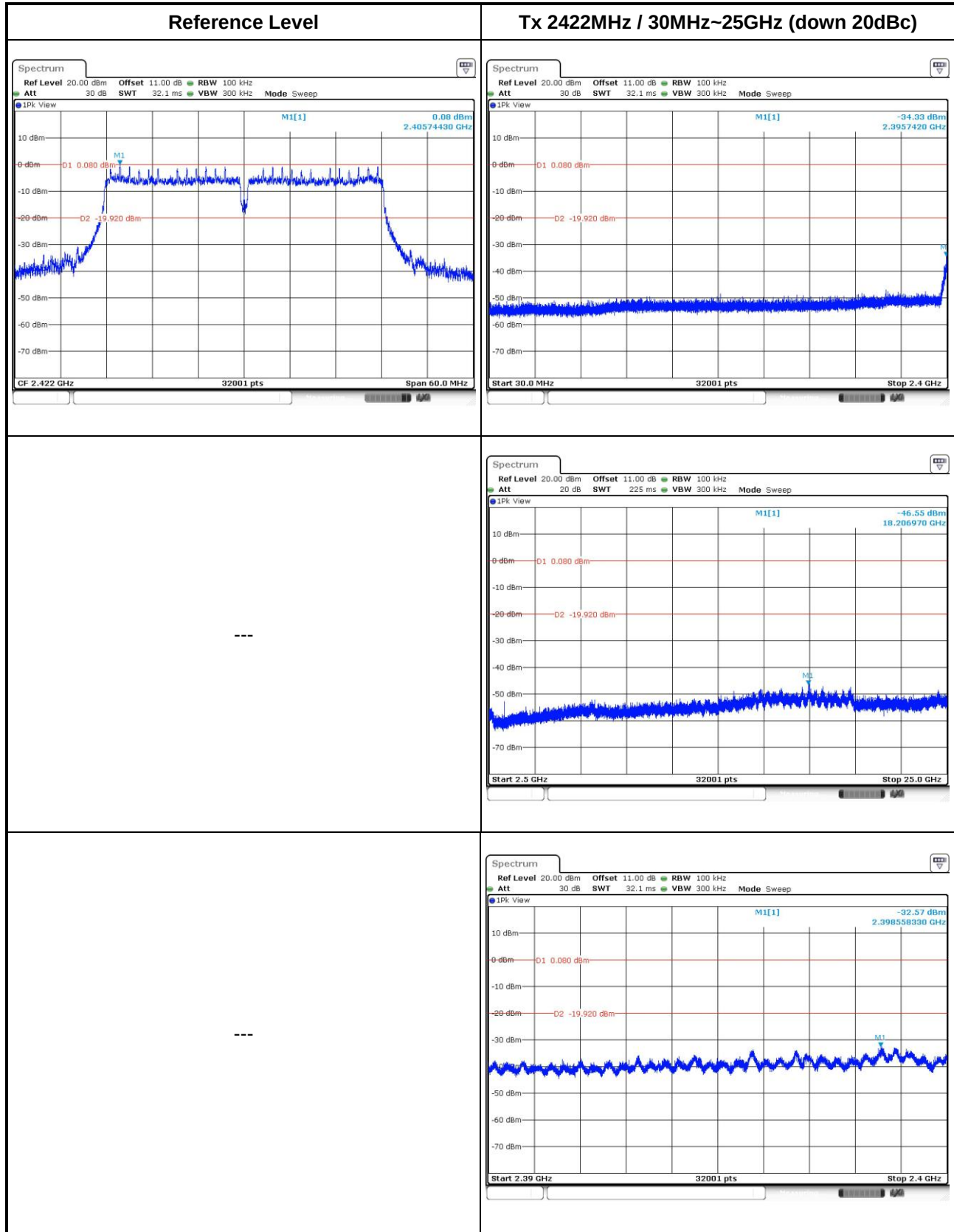
802.11n HT20

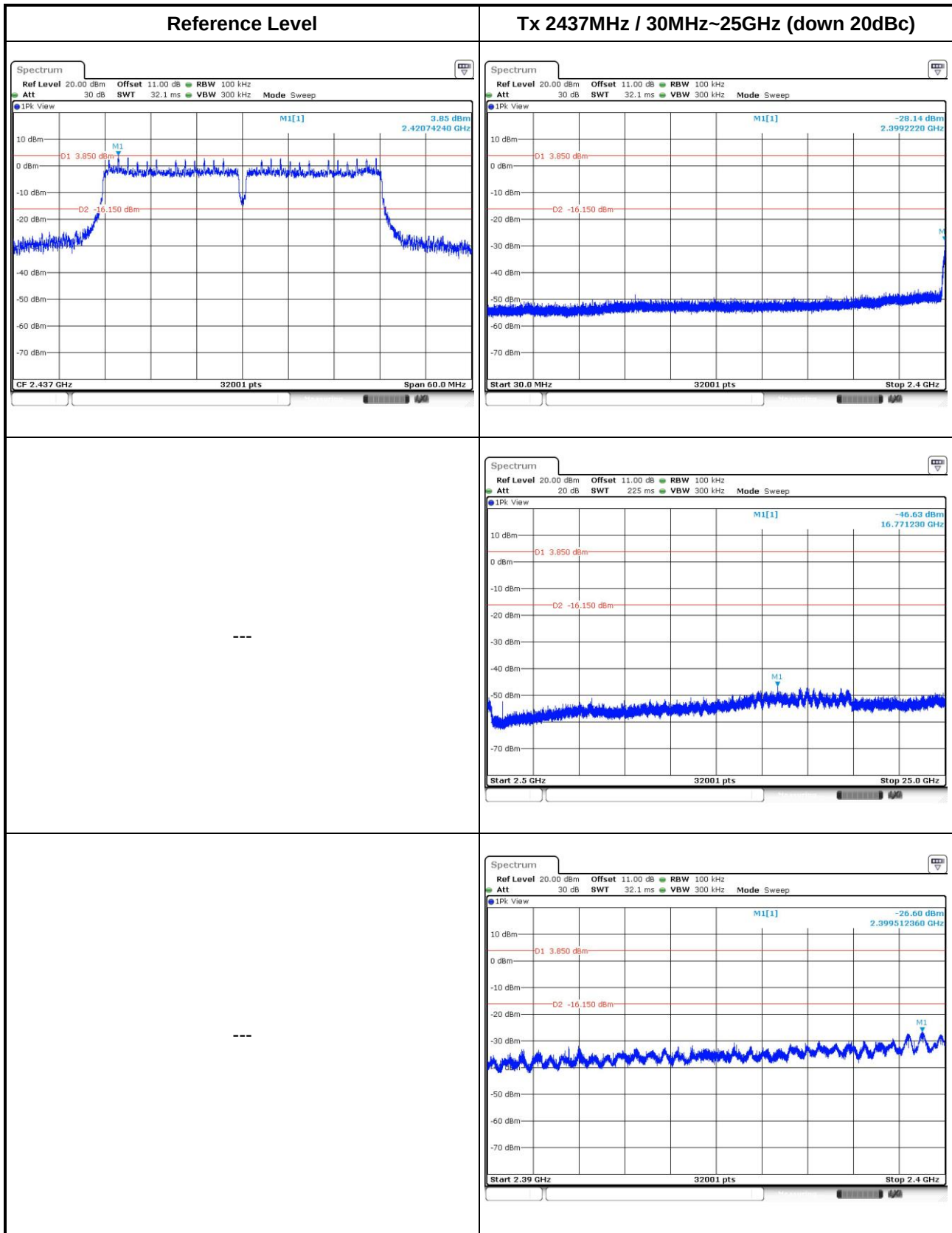


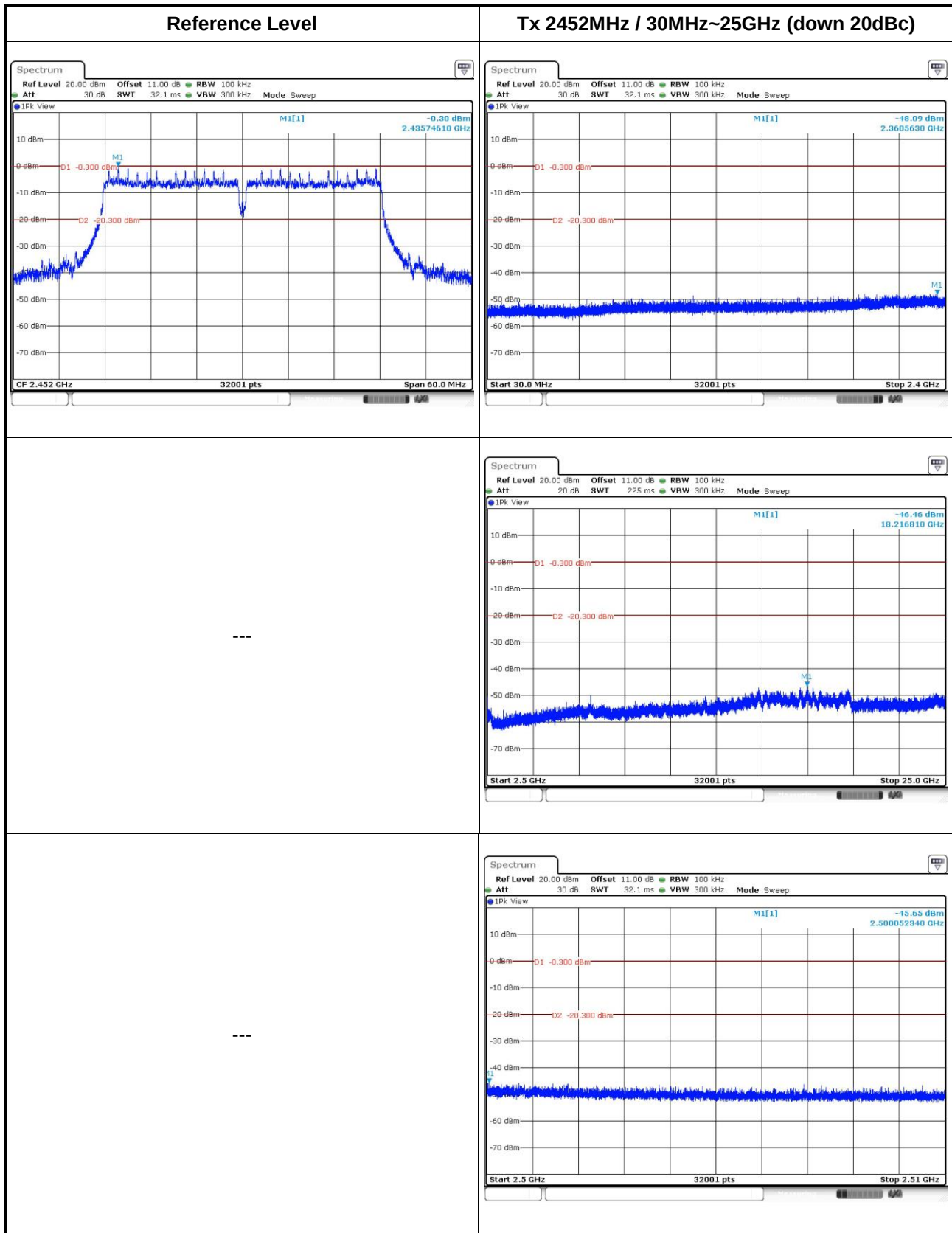




802.11n HT40







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

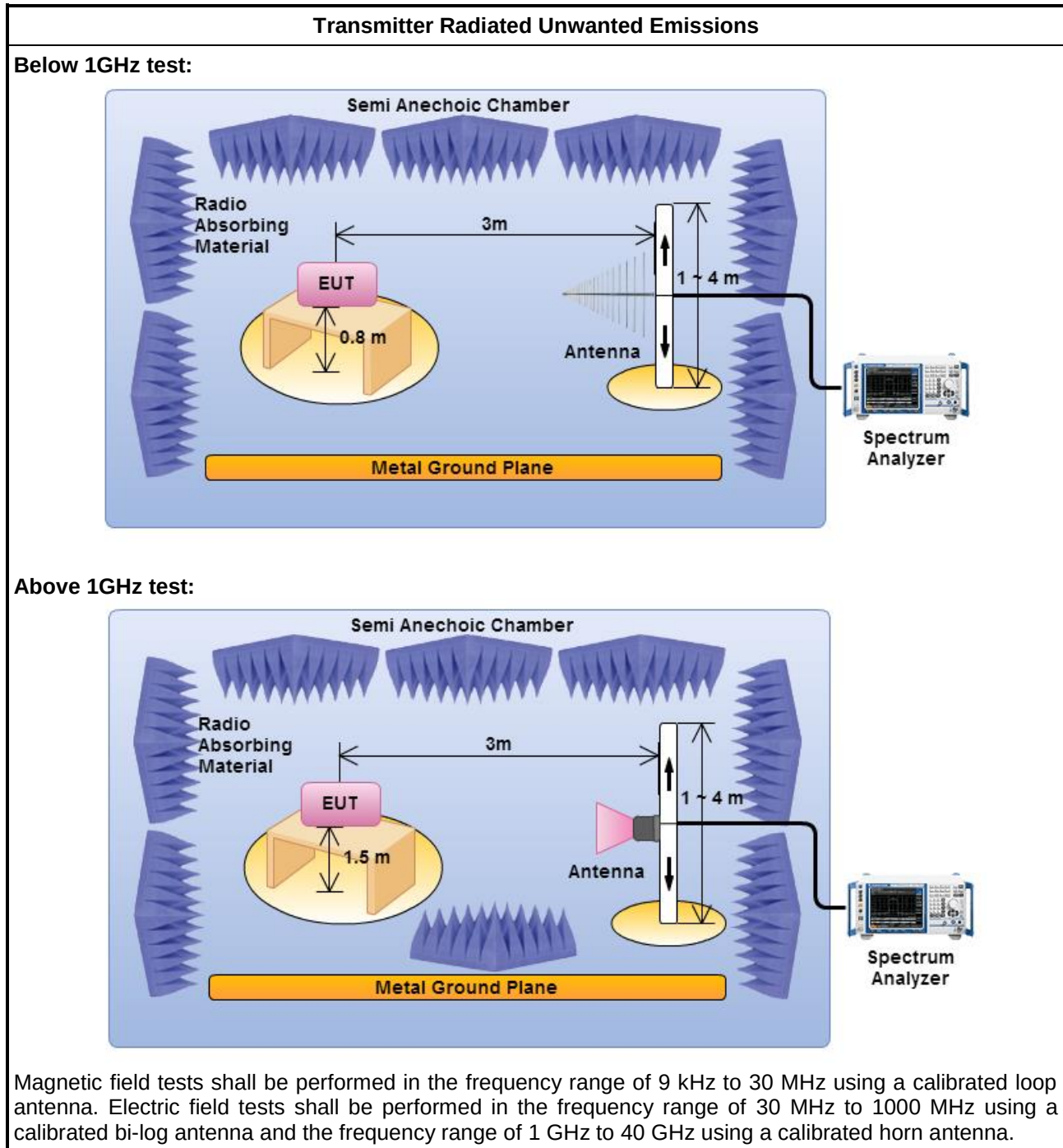
Refer a test equipment and calibration data table in this test report.

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 DTS Meas Guidnace v03r03, clause 11 for unwanted emissions into non-restricted bands.
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12 for unwanted emissions into restricted bands.
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12.2.5.1 Option 1 (trace averaging for duty cycle $\geq 98\%$)
☐	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12.2.5.2 Option 2 (trace averaging + duty factor).
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12.2.5.3 Option 3 (Reduced VBW $\geq 1/T$).
☐	Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW $\geq 1/T$, where T is pulse time
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12.2.4 measurement procedure peak limit.
☒	Refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12.2.3 measurement procedure Quasi-Peak limit.
☐	Refer as ANSI C63.10, clause 11.12.2.3 measurement procedure peak limit.
☒	For radiated measurement, refer as FCC KDB 558074 DTS Meas Guidnace v03r03, 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.

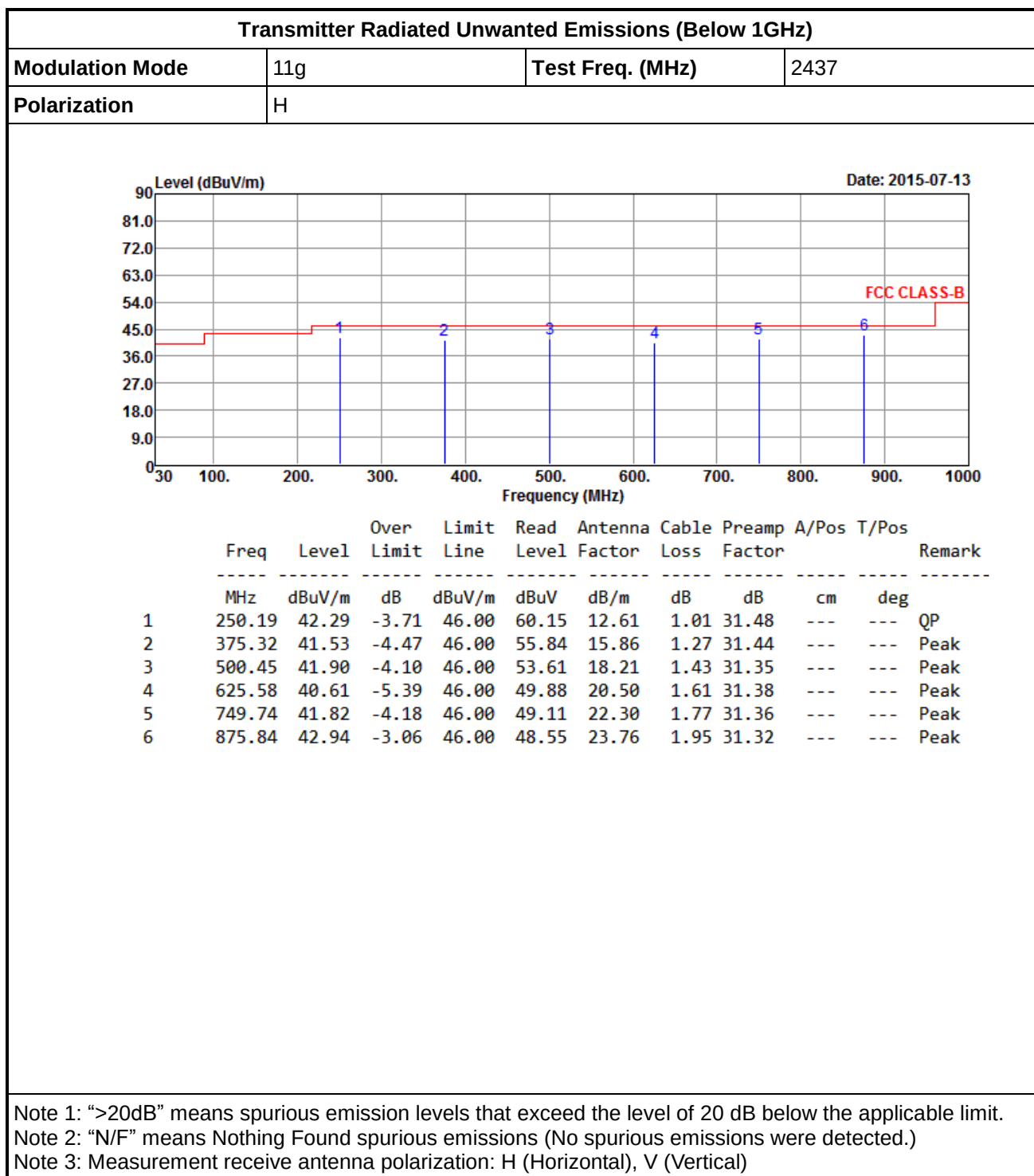
Test Method	
☐	For conducted and cabinet radiation measurement, refer as FCC KDB 558074 DTS Meas Guidnace v03r03, clause 12.2
☐	For conducted unwanted emissions into non-restricted bands (relative emission limits). Devices with multiple transmit chains: Refer as FCC KDB 662911, when testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding 10 log(N) if the measurements are made relative to the in-band emissions on the individual outputs.
☐	For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB

3.6.4 Test Setup



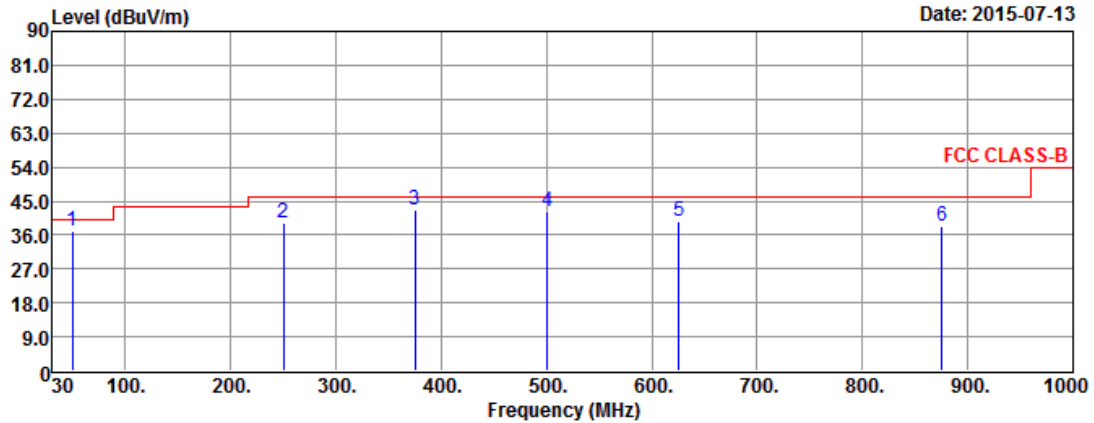
3.6.5 Transmitter Radiated Unwanted Emissions (Below 30MHz)

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

3.6.6 Transmitter Radiated Unwanted Emissions (Below 1GHz)


Transmitter Radiated Unwanted Emissions (Below 1GHz)

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



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	49.40	36.97	-3.03	40.00	53.49	14.76	0.53	31.81	---	---	Peak
2	250.19	39.16	-6.84	46.00	57.02	12.61	1.01	31.48	---	---	Peak
3	375.32	42.57	-3.43	46.00	56.88	15.86	1.27	31.44	---	---	Peak
4	500.45	42.12	-3.88	46.00	53.83	18.21	1.43	31.35	---	---	Peak
5	625.58	39.79	-6.21	46.00	49.06	20.50	1.61	31.38	---	---	Peak
6	875.84	38.43	-7.57	46.00	44.04	23.76	1.95	31.32	---	---	Peak

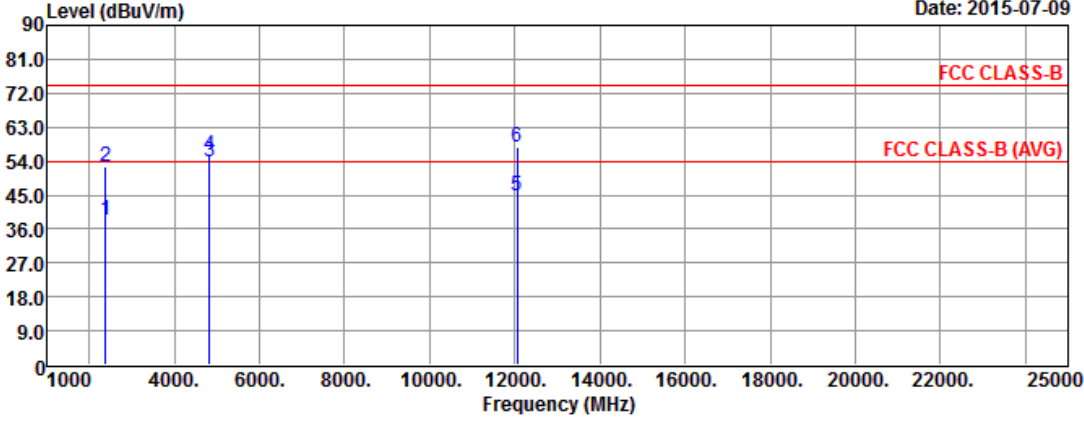
Note 1: ">20dB" means spurious emission levels that exceed the level of 20 dB below the applicable limit.

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					



Date: 2015-07-09

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	38.36	-15.64	54.00	41.01	27.26	4.57	34.48	227	216	Average
2	2390.00	52.35	-21.65	74.00	55.00	27.26	4.57	34.48	227	216	Peak
3	4824.00	53.74	-0.26	54.00	48.77	31.15	6.79	32.97	275	93	Average
4	4824.00	55.47	-18.53	74.00	50.50	31.15	6.79	32.97	275	93	Peak
5	12060.00	44.65	-9.35	54.00	29.16	39.22	11.43	35.16	245	186	Average
6	12060.00	57.49	-16.51	74.00	42.00	39.22	11.43	35.16	245	186	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.)

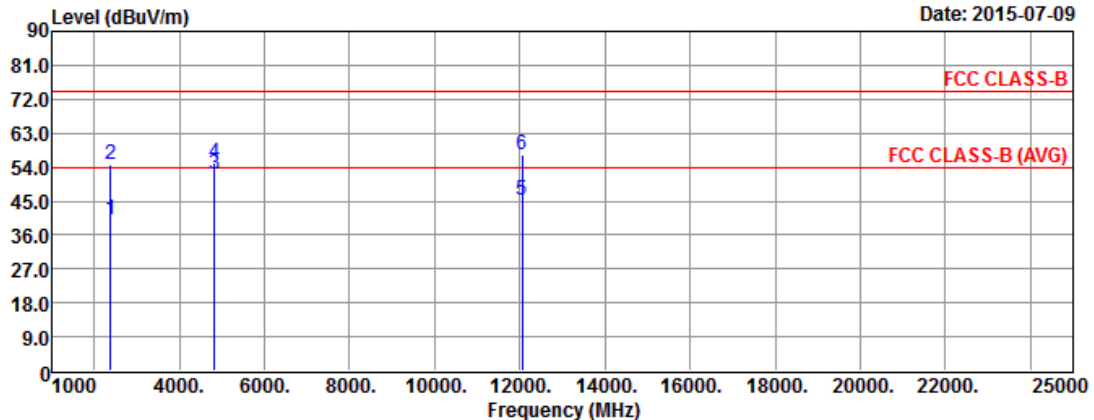
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	39.89	-14.11	54.00	42.54	27.26	4.57	34.48	194	92	Average
2	2390.00	54.84	-19.16	74.00	57.49	27.26	4.57	34.48	194	92	Peak
3	4824.00	52.14	-1.86	54.00	47.17	31.15	6.79	32.97	339	185	Average
4	4824.00	54.92	-19.08	74.00	49.95	31.15	6.79	32.97	339	185	Peak
5	12060.00	45.01	-8.99	54.00	29.52	39.22	11.43	35.16	154	37	Average
6	12060.00	57.45	-16.55	74.00	41.96	39.22	11.43	35.16	154	37	Peak

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

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

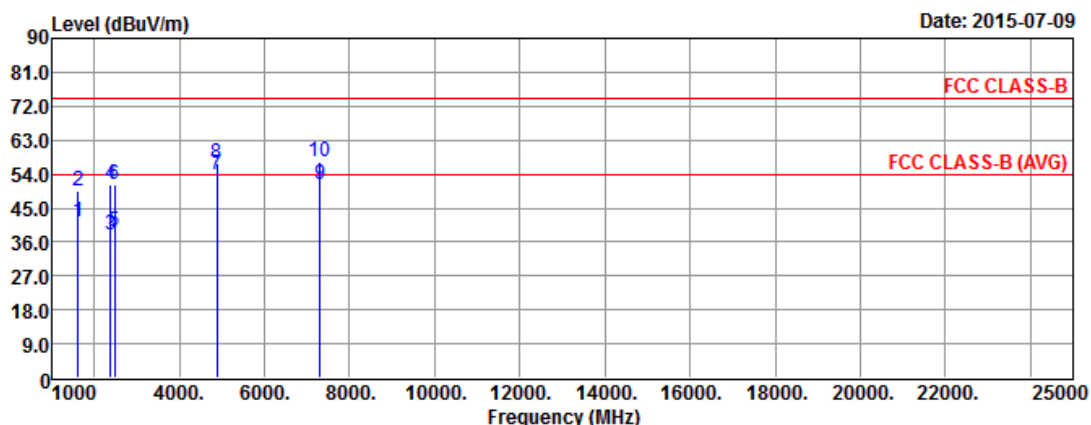
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

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	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1624.00	41.43	-12.57	54.00	46.72	26.02	4.01	35.32	176	218	Average
2	1624.00	49.33	-24.67	74.00	54.62	26.02	4.01	35.32	176	218	Peak
3	2390.00	37.89	-16.11	54.00	40.54	27.26	4.57	34.48	222	215	Average
4	2390.00	51.29	-22.71	74.00	53.94	27.26	4.57	34.48	222	215	Peak
5	2483.50	38.70	-15.30	54.00	41.04	27.46	4.62	34.42	222	215	Average
6	2483.50	51.46	-22.54	74.00	53.80	27.46	4.62	34.42	222	215	Peak
7	4874.00	53.87	-0.13	54.00	48.79	31.22	6.81	32.95	334	96	Average
8	4874.00	56.67	-17.33	74.00	51.59	31.22	6.81	32.95	334	96	Peak
9	7311.00	51.14	-2.86	54.00	41.03	36.01	8.49	34.39	192	49	Average
10	7311.00	57.39	-16.61	74.00	47.28	36.01	8.49	34.39	192	49	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.)

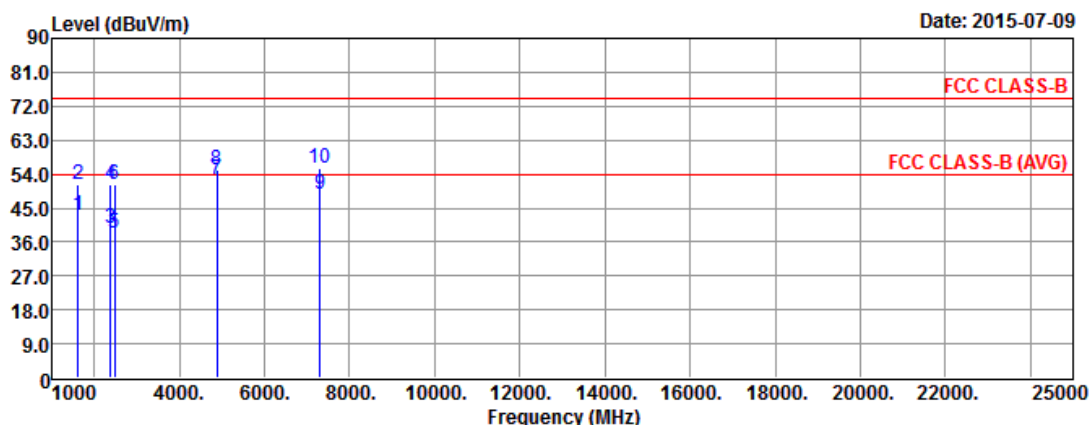
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1624.00	42.96	-11.04	54.00	48.25	26.02	4.01	35.32	122	150	Average
2	1624.00	51.44	-22.56	74.00	56.73	26.02	4.01	35.32	122	150	Peak
3	2390.00	39.50	-14.50	54.00	42.15	27.26	4.57	34.48	190	255	Average
4	2390.00	51.33	-22.67	74.00	53.98	27.26	4.57	34.48	190	255	Peak
5	2483.50	38.18	-15.82	54.00	40.52	27.46	4.62	34.42	190	255	Average
6	2483.50	51.39	-22.61	74.00	53.73	27.46	4.62	34.42	190	255	Peak
7	4874.00	52.39	-1.61	54.00	47.31	31.22	6.81	32.95	146	199	Average
8	4874.00	55.22	-18.78	74.00	50.14	31.22	6.81	32.95	146	199	Peak
9	7311.00	48.76	-5.24	54.00	38.65	36.01	8.49	34.39	190	255	Average
10	7311.00	55.39	-18.61	74.00	45.28	36.01	8.49	34.39	190	255	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.)

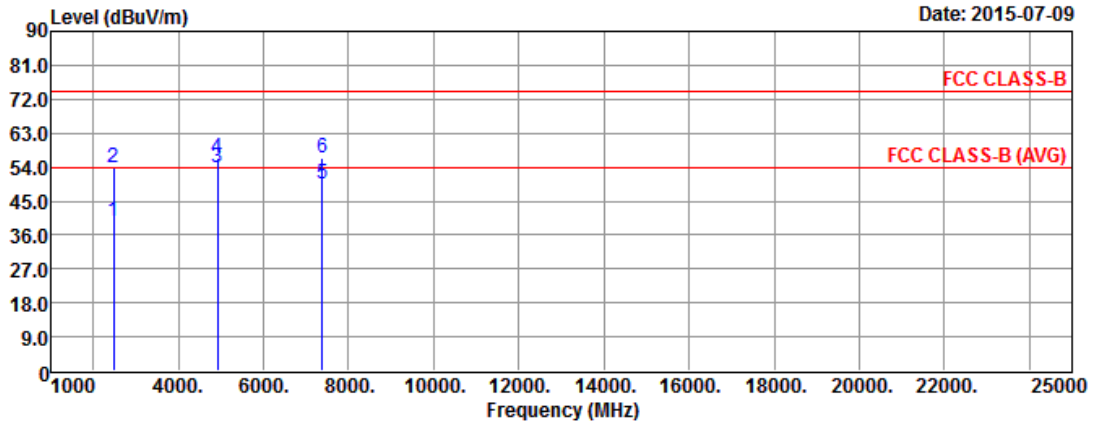
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	39.74	-14.26	54.00	42.08	27.46	4.62	34.42	245	40	Average
2	2483.50	53.75	-20.25	74.00	56.09	27.46	4.62	34.42	245	40	Peak
3	4924.00	53.86	-0.14	54.00	48.65	31.29	6.84	32.92	284	97	Average
4	4924.00	56.44	-17.56	74.00	51.23	31.29	6.84	32.92	284	97	Peak
5	7386.00	49.54	-4.46	54.00	39.23	36.20	8.60	34.49	261	301	Average
6	7386.00	56.46	-17.54	74.00	46.15	36.20	8.60	34.49	261	301	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.)

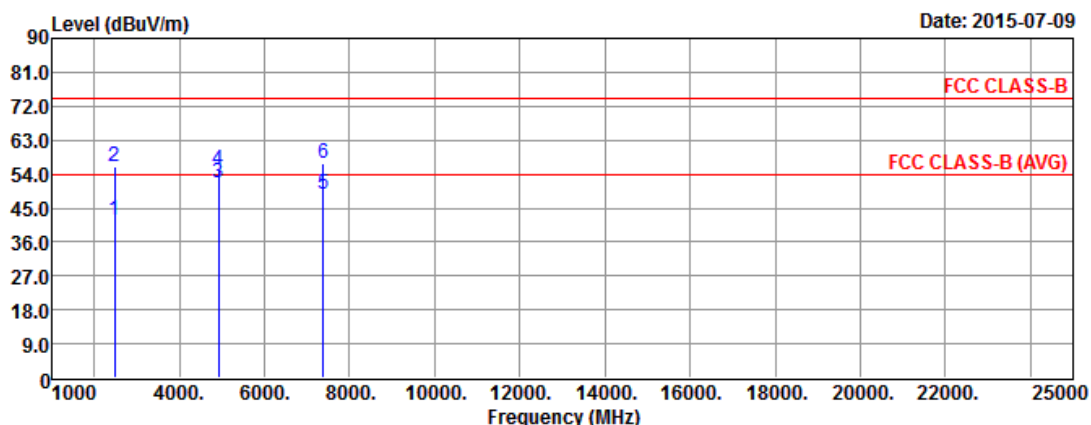
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	41.62	-12.38	54.00	43.96	27.46	4.62	34.42	310	334	Average
2	2483.50	55.79	-18.21	74.00	58.13	27.46	4.62	34.42	310	334	Peak
3	4924.00	51.84	-2.16	54.00	46.63	31.29	6.84	32.92	193	250	Average
4	4924.00	55.00	-19.00	74.00	49.79	31.29	6.84	32.92	193	250	Peak
5	7386.00	48.67	-5.33	54.00	38.36	36.20	8.60	34.49	196	256	Average
6	7386.00	56.79	-17.21	74.00	46.48	36.20	8.60	34.49	196	256	Peak

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

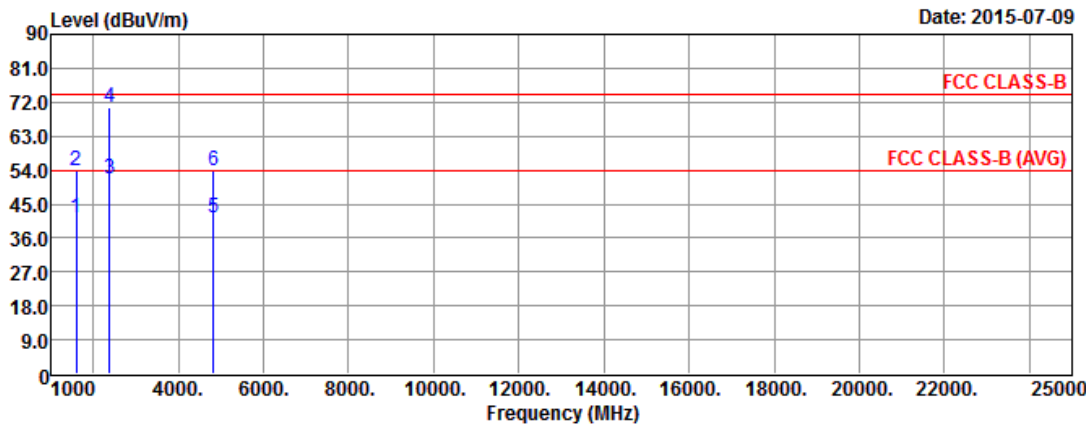
Note 2: "N/F" means Nothing Found spurious emissions (No spurious emissions were detected.)

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.

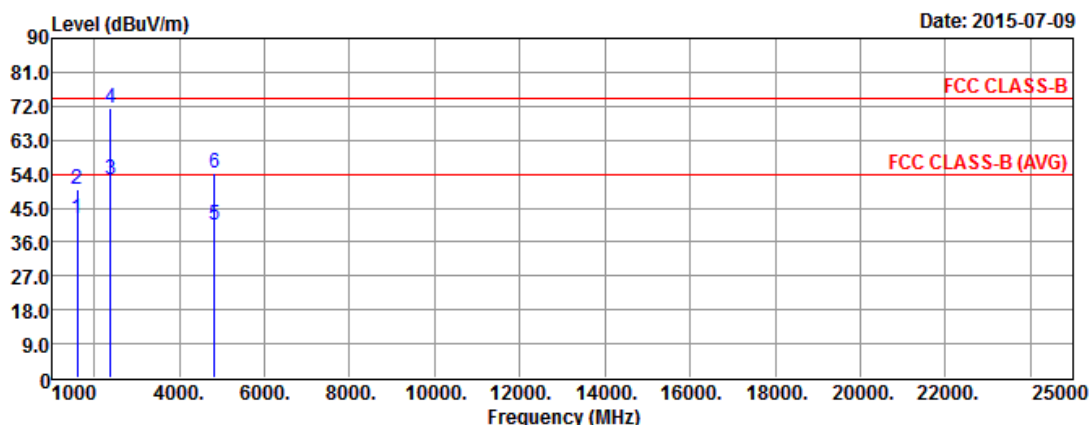
Note 5: For un-restricted bands, unwanted emissions shall be attenuated by at least 20 dB relative to the maximum measured in-band level.

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}	2				Polarization		H																																																																																																				
Level (dBuV/m)  Date: 2015-07-09 <table><tr><th></th><th>Freq</th><th>Level</th><th>Over Limit</th><th>Limit Line</th><th>Read Level</th><th>Antenna Factor</th><th>Cable Loss</th><th>Preampl Factor</th><th>A/Pos</th><th>T/Pos</th><th>Remark</th></tr><tr><th></th><th>MHz</th><th>dBuV/m</th><th>dB</th><th>dBuV/m</th><th>dBuV</th><th>dB/m</th><th>dB</th><th>dB</th><th>cm</th><th>deg</th><th></th></tr><tr><td>1</td><td>1608.00</td><td>41.53</td><td>-12.47</td><td>54.00</td><td>46.86</td><td>26.01</td><td>4.00</td><td>35.34</td><td>314</td><td>255</td><td>Average</td></tr><tr><td>2</td><td>1608.00</td><td>54.02</td><td>-19.98</td><td>74.00</td><td>59.35</td><td>26.01</td><td>4.00</td><td>35.34</td><td>314</td><td>255</td><td>Peak</td></tr><tr><td>3</td><td>2390.00</td><td>51.76</td><td>-2.24</td><td>54.00</td><td>54.41</td><td>27.26</td><td>4.57</td><td>34.48</td><td>349</td><td>194</td><td>Average</td></tr><tr><td>4</td><td>2390.00</td><td>70.59</td><td>-3.41</td><td>74.00</td><td>73.24</td><td>27.26</td><td>4.57</td><td>34.48</td><td>349</td><td>194</td><td>Peak</td></tr><tr><td>5</td><td>4824.00</td><td>41.53</td><td>-12.47</td><td>54.00</td><td>36.56</td><td>31.15</td><td>6.79</td><td>32.97</td><td>297</td><td>345</td><td>Average</td></tr><tr><td>6</td><td>4824.00</td><td>54.02</td><td>-19.98</td><td>74.00</td><td>49.05</td><td>31.15</td><td>6.79</td><td>32.97</td><td>297</td><td>345</td><td>Peak</td></tr></table>													Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preampl Factor	A/Pos	T/Pos	Remark		MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg		1	1608.00	41.53	-12.47	54.00	46.86	26.01	4.00	35.34	314	255	Average	2	1608.00	54.02	-19.98	74.00	59.35	26.01	4.00	35.34	314	255	Peak	3	2390.00	51.76	-2.24	54.00	54.41	27.26	4.57	34.48	349	194	Average	4	2390.00	70.59	-3.41	74.00	73.24	27.26	4.57	34.48	349	194	Peak	5	4824.00	41.53	-12.47	54.00	36.56	31.15	6.79	32.97	297	345	Average	6	4824.00	54.02	-19.98	74.00	49.05	31.15	6.79	32.97	297	345	Peak
	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preampl Factor	A/Pos	T/Pos	Remark																																																																																																
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg																																																																																																	
1	1608.00	41.53	-12.47	54.00	46.86	26.01	4.00	35.34	314	255	Average																																																																																																
2	1608.00	54.02	-19.98	74.00	59.35	26.01	4.00	35.34	314	255	Peak																																																																																																
3	2390.00	51.76	-2.24	54.00	54.41	27.26	4.57	34.48	349	194	Average																																																																																																
4	2390.00	70.59	-3.41	74.00	73.24	27.26	4.57	34.48	349	194	Peak																																																																																																
5	4824.00	41.53	-12.47	54.00	36.56	31.15	6.79	32.97	297	345	Average																																																																																																
6	4824.00	54.02	-19.98	74.00	49.05	31.15	6.79	32.97	297	345	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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1608.00	42.15	-11.85	54.00	47.48	26.01	4.00	35.34	158	227	Average
2	1608.00	50.13	-23.87	74.00	55.46	26.01	4.00	35.34	158	227	Peak
3	2390.00	52.63	-1.37	54.00	55.28	27.26	4.57	34.48	236	357	Average
4	2390.00	71.69	-2.31	74.00	74.34	27.26	4.57	34.48	236	357	Peak
5	4824.00	40.55	-13.45	54.00	35.58	31.15	6.79	32.97	241	154	Average
6	4824.00	54.12	-19.88	74.00	49.15	31.15	6.79	32.97	241	154	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.)

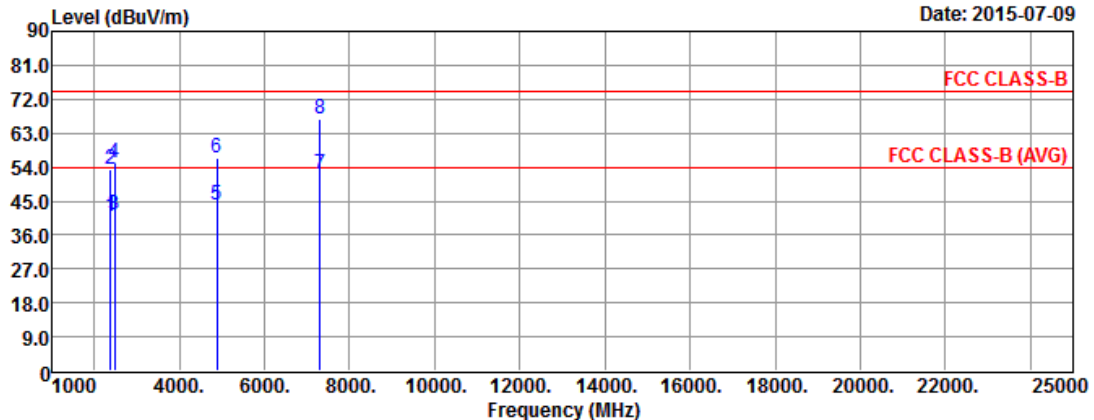
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	40.82	-13.18	54.00	43.47	27.26	4.57	34.48	233	236	Average
2	2390.00	53.38	-20.62	74.00	56.03	27.26	4.57	34.48	233	236	Peak
3	2483.50	41.51	-12.49	54.00	43.85	27.46	4.62	34.42	220	38	Average
4	2483.50	55.16	-18.84	74.00	57.50	27.46	4.62	34.42	220	38	Peak
5	4874.00	43.76	-10.24	54.00	38.68	31.22	6.81	32.95	303	351	Average
6	4874.00	56.21	-17.79	74.00	51.13	31.22	6.81	32.95	303	351	Peak
7	7311.00	52.30	-1.70	54.00	42.19	36.01	8.49	34.39	191	146	Average
8	7311.00	66.96	-7.04	74.00	56.85	36.01	8.49	34.39	191	146	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.)

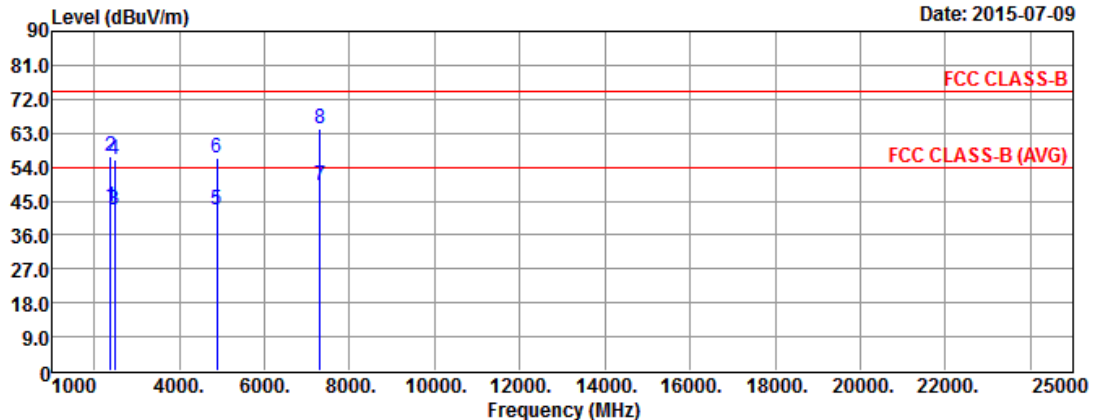
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	43.65	-10.35	54.00	46.30	27.26	4.57	34.48	277	24	Average
2	2390.00	56.86	-17.14	74.00	59.51	27.26	4.57	34.48	277	24	Peak
3	2483.50	42.62	-11.38	54.00	44.96	27.46	4.62	34.42	310	337	Average
4	2483.50	55.88	-18.12	74.00	58.22	27.46	4.62	34.42	310	337	Peak
5	4874.00	42.78	-11.22	54.00	37.70	31.22	6.81	32.95	254	164	Average
6	4874.00	56.24	-17.76	74.00	51.16	31.22	6.81	32.95	254	164	Peak
7	7311.00	48.88	-5.12	54.00	38.77	36.01	8.49	34.39	197	260	Average
8	7311.00	64.33	-9.67	74.00	54.22	36.01	8.49	34.39	197	260	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.)

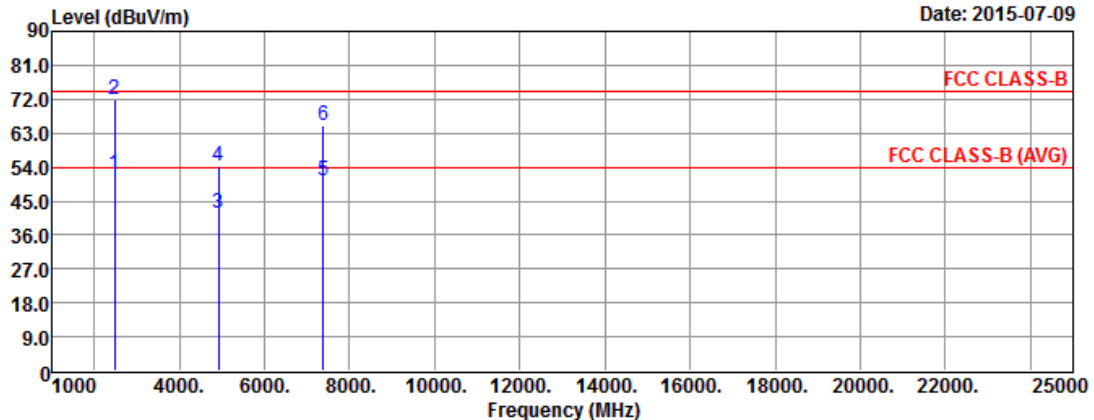
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	51.90	-2.10	54.00	54.24	27.46	4.62	34.42	202	208	Average
2	2483.50	71.89	-2.11	74.00	74.23	27.46	4.62	34.42	202	208	Peak
3	4924.00	41.82	-12.18	54.00	36.61	31.29	6.84	32.92	312	356	Average
4	4924.00	54.27	-19.73	74.00	49.06	31.29	6.84	32.92	312	356	Peak
5	7386.00	50.39	-3.61	54.00	40.08	36.20	8.60	34.49	195	155	Average
6	7386.00	64.83	-9.17	74.00	54.52	36.20	8.60	34.49	195	155	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.)

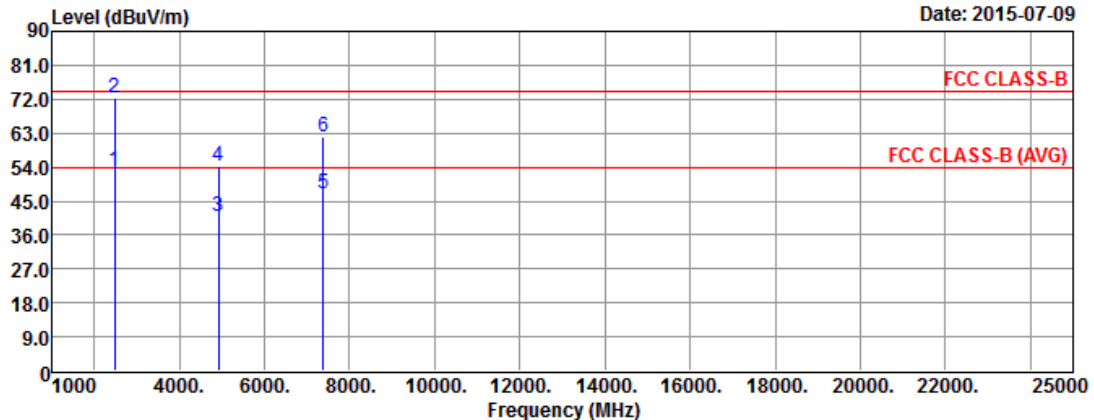
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	52.89	-1.11	54.00	55.23	27.46	4.62	34.42	331	68	Average
2	2483.50	72.14	-1.86	74.00	74.48	27.46	4.62	34.42	331	68	Peak
3	4924.00	40.78	-13.22	54.00	35.57	31.29	6.84	32.92	273	169	Average
4	4924.00	54.37	-19.63	74.00	49.16	31.29	6.84	32.92	273	169	Peak
5	7386.00	46.75	-7.25	54.00	36.44	36.20	8.60	34.49	195	263	Average
6	7386.00	62.11	-11.89	74.00	51.80	36.20	8.60	34.49	195	263	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.)

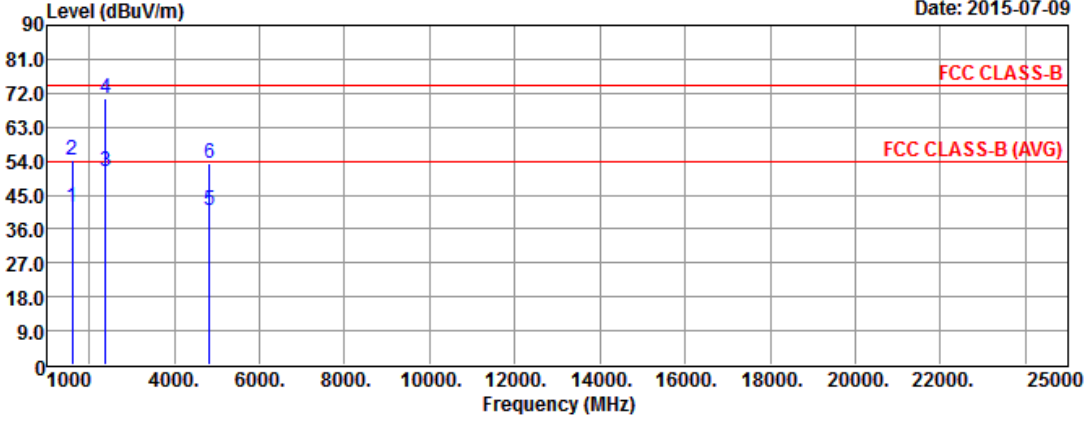
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2					Polarization	H				



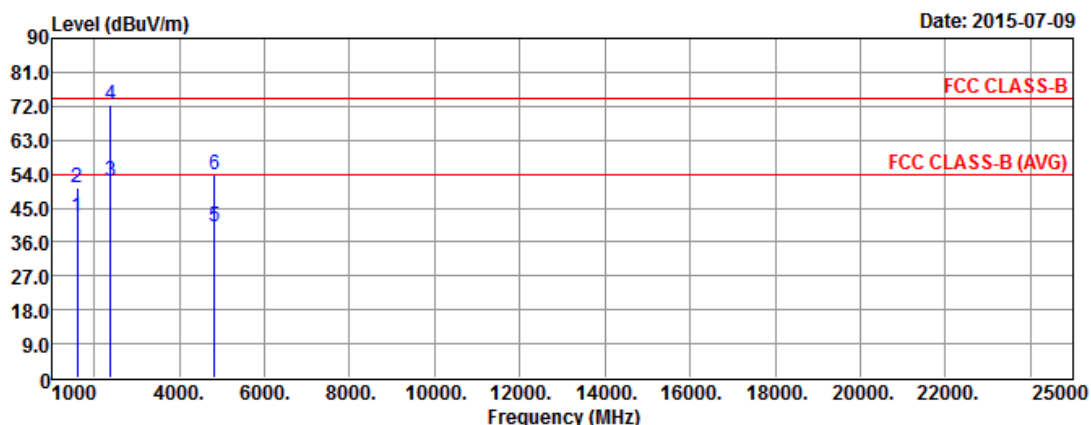
Date: 2015-07-09

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1608.00	41.89	-12.11	54.00	47.22	26.01	4.00	35.34	295	283	Average
2	1608.00	54.43	-19.57	74.00	59.76	26.01	4.00	35.34	295	283	Peak
3	2390.00	51.08	-2.92	54.00	53.73	27.26	4.57	34.48	346	192	Average
4	2390.00	70.79	-3.21	74.00	73.44	27.26	4.57	34.48	346	192	Peak
5	4824.00	41.05	-12.95	54.00	36.08	31.15	6.79	32.97	282	351	Average
6	4824.00	53.37	-20.63	74.00	48.40	31.15	6.79	32.97	282	351	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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1608.00	42.61	-11.39	54.00	47.94	26.01	4.00	35.34	143	287	Average
2	1608.00	50.55	-23.45	74.00	55.88	26.01	4.00	35.34	143	287	Peak
3	2390.00	52.16	-1.84	54.00	54.81	27.26	4.57	34.48	327	14	Average
4	2390.00	72.17	-1.83	74.00	74.82	27.26	4.57	34.48	327	14	Peak
5	4824.00	40.11	-13.89	54.00	35.14	31.15	6.79	32.97	227	165	Average
6	4824.00	53.75	-20.25	74.00	48.78	31.15	6.79	32.97	227	165	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.)

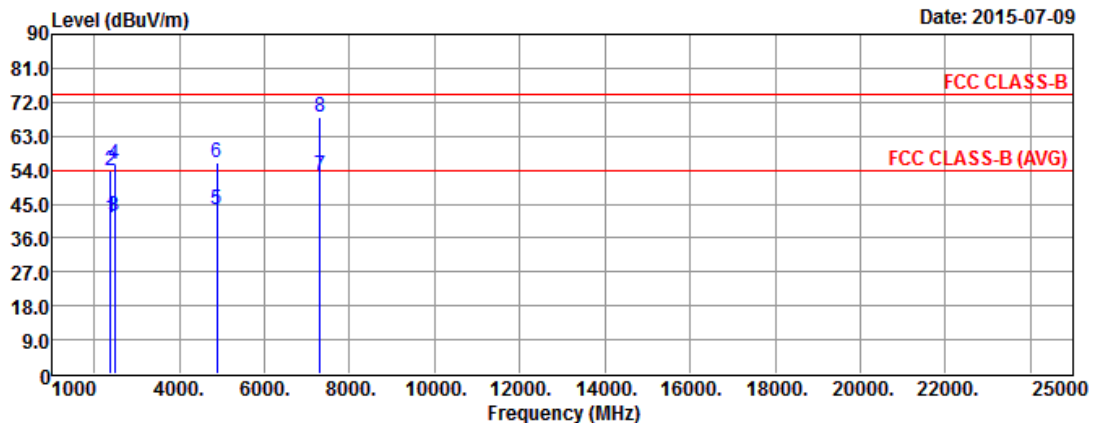
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	41.13	-12.87	54.00	43.78	27.26	4.57	34.48	227	243	Average
2	2390.00	53.67	-20.33	74.00	56.32	27.26	4.57	34.48	227	243	Peak
3	2483.50	41.95	-12.05	54.00	44.29	27.46	4.62	34.42	226	42	Average
4	2483.50	55.57	-18.43	74.00	57.91	27.46	4.62	34.42	226	42	Peak
5	4874.00	43.52	-10.48	54.00	38.44	31.22	6.81	32.95	297	355	Average
6	4874.00	55.98	-18.02	74.00	50.90	31.22	6.81	32.95	297	355	Peak
7	7311.00	52.37	-1.63	54.00	42.26	36.01	8.49	34.39	193	155	Average
8	7311.00	67.87	-6.13	74.00	57.76	36.01	8.49	34.39	193	155	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.)

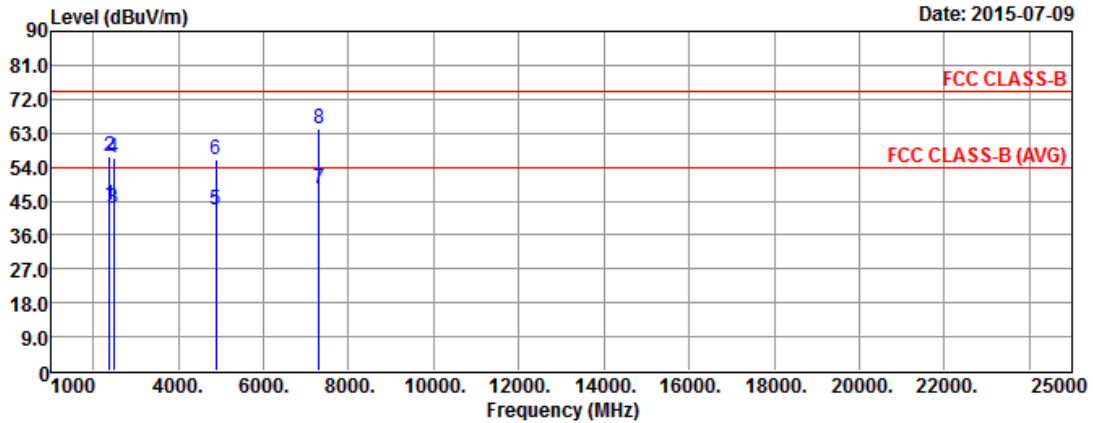
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	44.12	-9.88	54.00	46.77	27.26	4.57	34.48	277	4	Average
2	2390.00	56.86	-17.14	74.00	59.51	27.26	4.57	34.48	277	4	Peak
3	2483.50	43.12	-10.88	54.00	45.46	27.46	4.62	34.42	233	7	Average
4	2483.50	56.27	-17.73	74.00	58.61	27.46	4.62	34.42	233	7	Peak
5	4874.00	42.63	-11.37	54.00	37.55	31.22	6.81	32.95	258	154	Average
6	4874.00	56.11	-17.89	74.00	51.03	31.22	6.81	32.95	258	154	Peak
7	7311.00	48.37	-5.63	54.00	38.26	36.01	8.49	34.39	202	280	Average
8	7311.00	64.02	-9.98	74.00	53.91	36.01	8.49	34.39	202	280	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.)

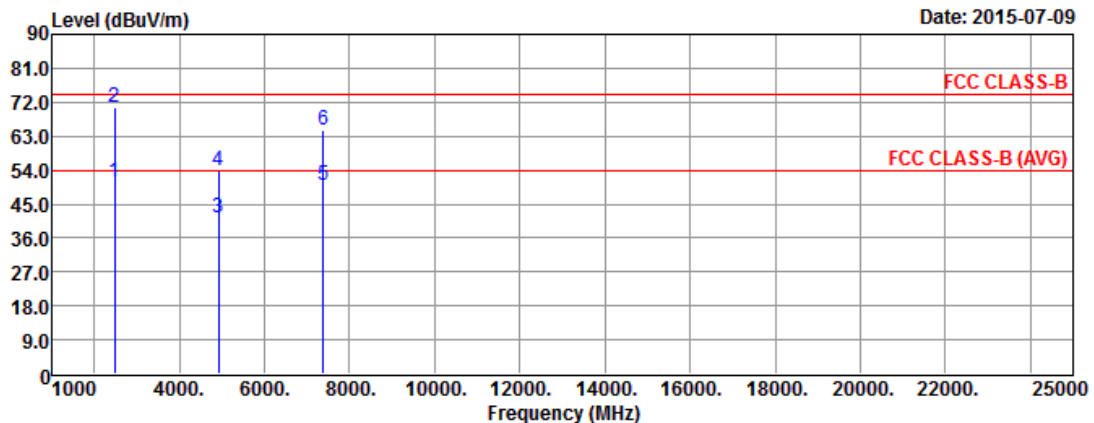
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	50.71	-3.29	54.00	53.05	27.46	4.62	34.42	213	39	Average
2	2483.50	70.80	-3.20	74.00	73.14	27.46	4.62	34.42	213	39	Peak
3	4924.00	41.33	-12.67	54.00	36.12	31.29	6.84	32.92	298	324	Average
4	4924.00	53.93	-20.07	74.00	48.72	31.29	6.84	32.92	298	324	Peak
5	7386.00	50.02	-3.98	54.00	39.71	36.20	8.60	34.49	191	163	Average
6	7386.00	64.43	-9.57	74.00	54.12	36.20	8.60	34.49	191	163	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.)

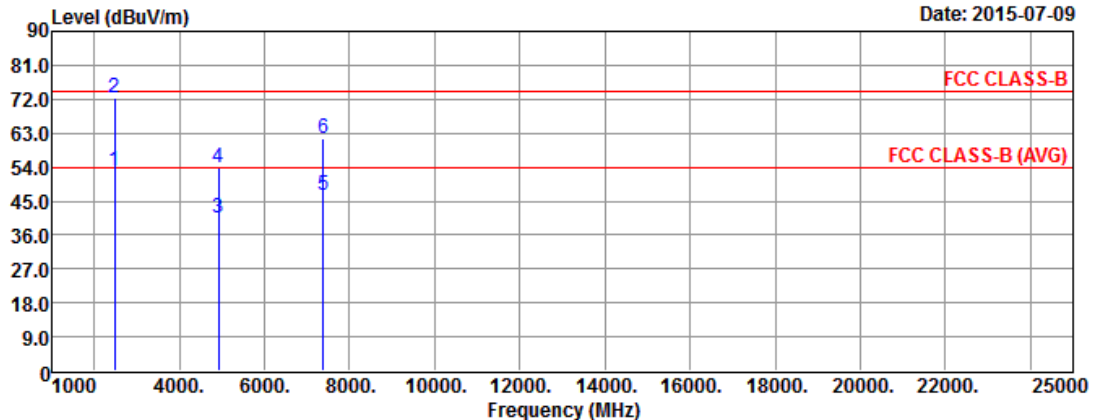
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2483.50	52.76	-1.24	54.00	55.10	27.46	4.62	34.42	240	0	Average
2	2483.50	72.28	-1.72	74.00	74.62	27.46	4.62	34.42	240	0	Peak
3	4924.00	40.43	-13.57	54.00	35.22	31.29	6.84	32.92	252	162	Average
4	4924.00	54.02	-19.98	74.00	48.81	31.29	6.84	32.92	252	162	Peak
5	7386.00	46.38	-7.62	54.00	36.07	36.20	8.60	34.49	188	267	Average
6	7386.00	61.73	-12.27	74.00	51.42	36.20	8.60	34.49	188	267	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.)

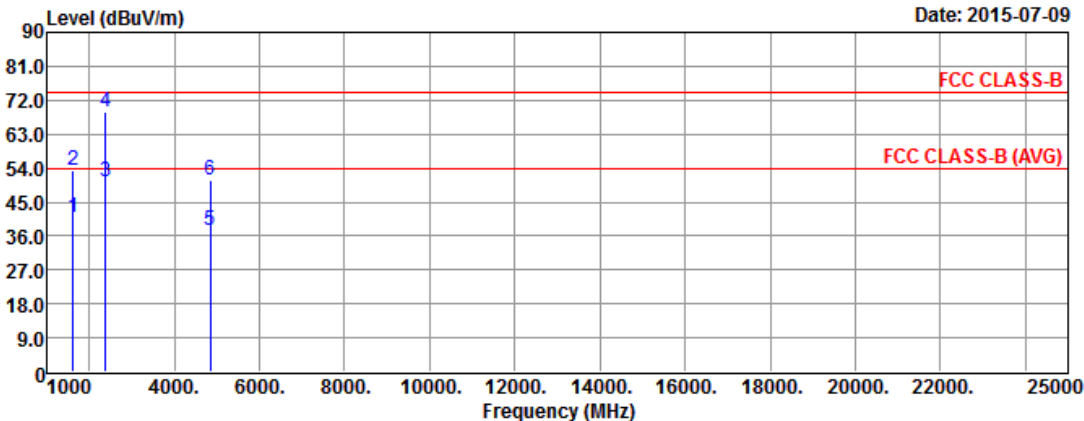
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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.

3.6.10 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				



Date: 2015-07-09

	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1615.00	40.77	-13.23	54.00	46.08	26.01	4.01	35.33	153	85	Average
2	1615.00	53.23	-20.77	74.00	58.54	26.01	4.01	35.33	153	85	Peak
3	2390.00	50.59	-3.41	54.00	53.24	27.26	4.57	34.48	394	195	Average
4	2390.00	68.85	-5.15	74.00	71.50	27.26	4.57	34.48	394	195	Peak
5	4844.00	37.66	-16.34	54.00	32.64	31.18	6.80	32.96	308	11	Average
6	4844.00	51.02	-22.98	74.00	46.00	31.18	6.80	32.96	308	11	Peak

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

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

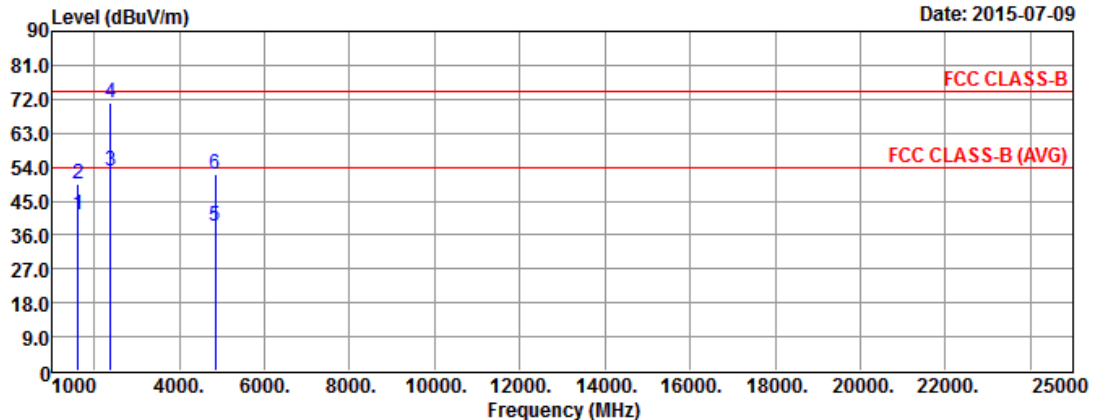
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2422
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1615.00	41.52	-12.48	54.00	46.83	26.01	4.01	35.33	243	186	Average
2	1615.00	49.60	-24.40	74.00	54.91	26.01	4.01	35.33	243	186	Peak
3	2390.00	52.78	-1.22	54.00	55.43	27.26	4.57	34.48	328	0	Average
4	2390.00	71.03	-2.97	74.00	73.68	27.26	4.57	34.48	328	0	Peak
5	4844.00	38.43	-15.57	54.00	33.41	31.18	6.80	32.96	327	222	Average
6	4844.00	52.15	-21.85	74.00	47.13	31.18	6.80	32.96	327	222	Peak

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

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

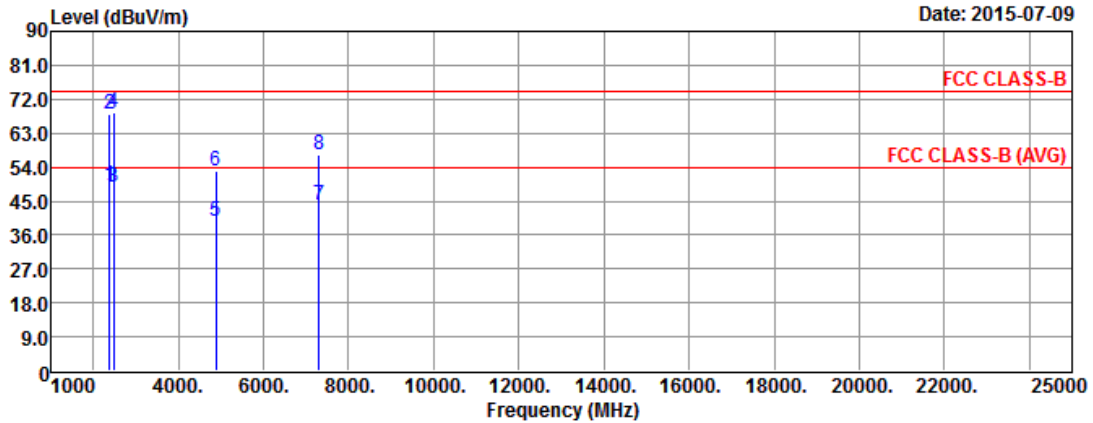
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2437
N_{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	48.90	-5.10	54.00	51.55	27.26	4.57	34.48	277	188	Average
2	2390.00	67.97	-6.03	74.00	70.62	27.26	4.57	34.48	277	188	Peak
3	2483.50	48.82	-5.18	54.00	51.16	27.46	4.62	34.42	395	191	Average
4	2483.50	68.35	-5.65	74.00	70.69	27.46	4.62	34.42	395	191	Peak
5	4874.00	39.81	-14.19	54.00	34.73	31.22	6.81	32.95	301	7	Average
6	4874.00	53.06	-20.94	74.00	47.98	31.22	6.81	32.95	301	7	Peak
7	7311.00	43.75	-10.25	54.00	33.64	36.01	8.49	34.39	195	352	Average
8	7311.00	57.18	-16.82	74.00	47.07	36.01	8.49	34.39	195	352	Peak

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

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

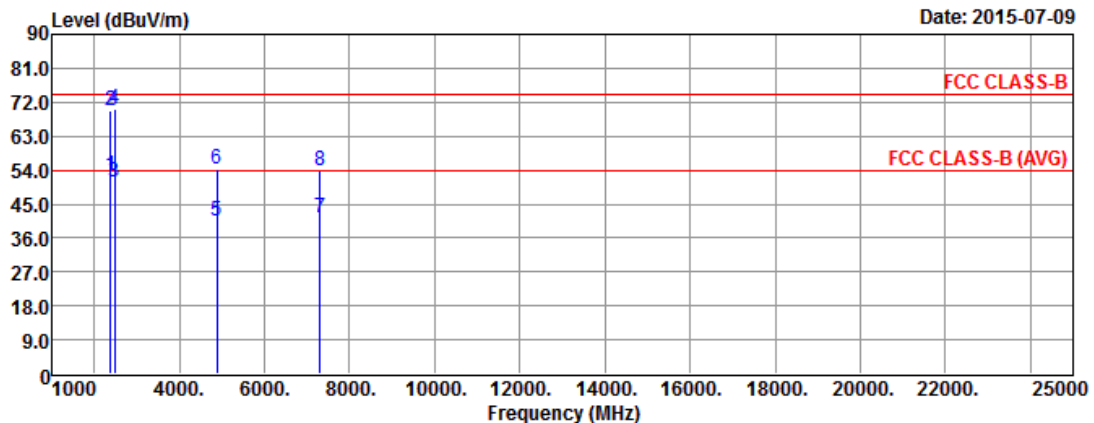
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2437
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	2390.00	52.47	-1.53	54.00	55.12	27.26	4.57	34.48	329	0	Average
2	2390.00	69.96	-4.04	74.00	72.61	27.26	4.57	34.48	329	0	Peak
3	2483.50	50.71	-3.29	54.00	53.05	27.46	4.62	34.42	246	341	Average
4	2483.50	70.20	-3.80	74.00	72.54	27.46	4.62	34.42	246	341	Peak
5	4874.00	40.57	-13.43	54.00	35.49	31.22	6.81	32.95	357	201	Average
6	4874.00	54.30	-19.70	74.00	49.22	31.22	6.81	32.95	357	201	Peak
7	7311.00	41.36	-12.64	54.00	31.25	36.01	8.49	34.39	295	3	Average
8	7311.00	53.81	-20.19	74.00	43.70	36.01	8.49	34.39	295	3	Peak

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

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

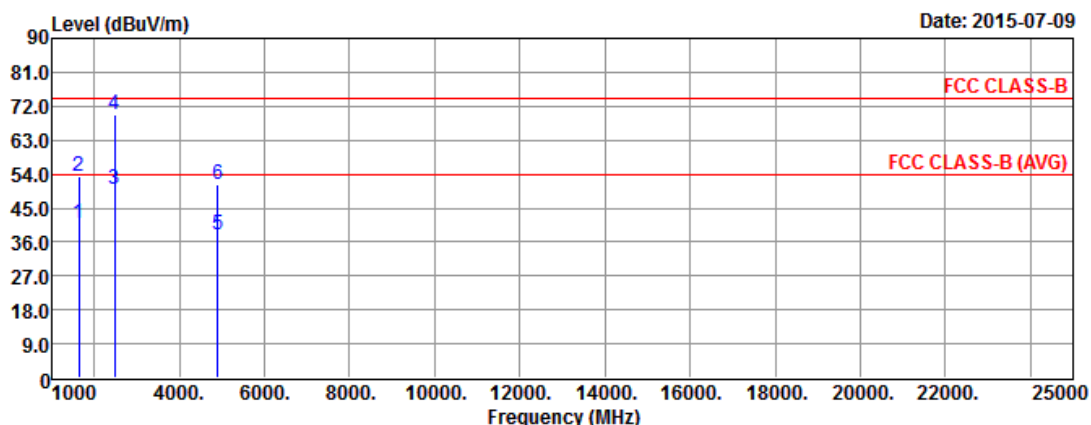
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2452
N _{TX}	2	Polarization	H



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1635.00	40.83	-13.17	54.00	46.08	26.03	4.02	35.30	159	68	Average
2	1635.00	53.33	-20.67	74.00	58.58	26.03	4.02	35.30	159	68	Peak
3	2483.50	50.15	-3.85	54.00	52.49	27.46	4.62	34.42	400	167	Average
4	2483.50	69.78	-4.22	74.00	72.12	27.46	4.62	34.42	400	167	Peak
5	4904.00	37.82	-16.18	54.00	32.65	31.27	6.83	32.93	295	24	Average
6	4904.00	51.24	-22.76	74.00	46.07	31.27	6.83	32.93	295	24	Peak

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

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

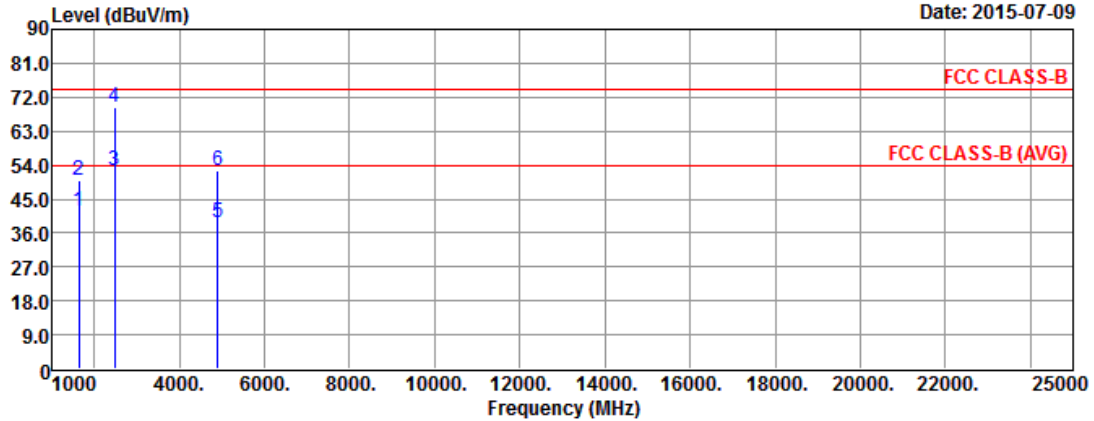
Note 3: Measurement receive antenna polarization: H (Horizontal), V (Vertical)

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

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

Transmitter Radiated Unwanted Emissions (Above 1GHz)

Modulation Mode	HT40	Test Freq. (MHz)	2452
N_{TX}	2	Polarization	V



	Freq	Level	Over Limit	Limit Line	Read Level	Antenna Factor	Cable Loss	Preamplifier	A/Pos	T/Pos	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB/m	dB	dB	cm	deg	
1	1635.00	41.68	-12.32	54.00	46.93	26.03	4.02	35.30	143	117	Average
2	1635.00	49.87	-24.13	74.00	55.12	26.03	4.02	35.30	143	117	Peak
3	2483.50	52.36	-1.64	54.00	54.70	27.46	4.62	34.42	241	0	Average
4	2483.50	69.50	-4.50	74.00	71.84	27.46	4.62	34.42	241	0	Peak
5	4904.00	38.67	-15.33	54.00	33.50	31.27	6.83	32.93	334	215	Average
6	4904.00	52.39	-21.61	74.00	47.22	31.27	6.83	32.93	334	215	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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30MHz ~ 1GHz 3m	Nov. 29, 2014	Radiation (03CH03-HY)
Amplifier	HP	8447D	2944A08033	10kHz ~ 1.3GHz	May 11, 2015	Radiation (03CH03-HY)
Amplifier	Agilent	8449B	3008A02120	1GHz ~ 26.5GHz	Sep. 01, 2014	Radiation (03CH03-HY)
Spectrum	R&S	FSP40	100004	9kHz ~ 40GHz	Apr. 02, 2015	Radiation (03CH03-HY)
Bilog Antenna	SCHAFFNER	CBL 6112D	22237	30MHz ~ 1GHz	Sep. 20, 2014	Radiation (03CH03-HY)
Horn Antenna	AARONIA AG	POWERLOG 70180	05192	1GHz ~ 18GHz	May 01, 2015	Radiation (03CH03-HY)
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	18GHz ~ 40GHz	Jan. 27, 2015	Radiation (03CH03-HY)
RF Cable-R03m	Jye Bao	RG142	CB021	9kHz ~ 1GHz	Nov. 15, 2014	Radiation (03CH03-HY)
RF Cable-high	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz ~ 40GHz	Dec. 12, 2014	Radiation (03CH03-HY)
Turn Table	EM Electronics	EM Electronics	060615	0 ~ 360 degree	N/A	Radiation (03CH03-HY)
Antenna Mast	MF	MF-7802	MF780208179	1 ~ 4 m	N/A	Radiation (03CH03-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
EMC Receiver	R&S	ESCS 30	100174	9kHz ~ 2.75GHz	Apr. 15, 2015	Conduction (CO04-HY)
LISN	SCHWARZBECK MESS-ELEKTRONIK	NSLK 8127	8127-477	9kHz ~ 30MHz	Jan. 22, 2015	Conduction (CO04-HY)
RF Cable-CON	HUBER+SUHNER	RG213/U	07611832020001	9kHz ~ 30MHz	Oct. 31, 2014	Conduction (CO04-HY)
EMI Filter	LINDGREN	LRE-2030	2651	< 450 Hz	N/A	Conduction (CO04-HY)
Software	Audix	E3	3	Conducted	N/A	Conduction (CO04-HY)

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

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Remark
Spectrum Analyzer	R&S	FSV 40	101500	9KHz~40GHz	May 06, 2015	Conducted (TH01-HY)
Power Sensor	Anritsu	MA2411B	0917017	300MHz ~ 40GHz	Feb. 17, 2015	Conducted (TH01-HY)
Power Meter	Anritsu	ML2495A	0949003	300MHz ~ 40GHz	Feb. 17, 2015	Conducted (TH01-HY)
RF Cable-2m	HUBER+SUHNER	SUCOFLEX_104	SN 345675/4	30MHz ~ 26.5GHz	Nov. 30, 2014	Conducted (TH01-HY)
RF Cable-3m	HUBER+SUHNER	SUCOFLEX_104	SN 345669/4	30MHz ~ 26.5GHz	Nov. 30, 2014	Conducted (TH01-HY)

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