

EMI - TEST REPORT

- FCC Part 15.247 and RSS 210 -

Test Report No. : T36325-00-03HS	25 March 2014 Date of issue
---	--------------------------------

Type / Model Name : SCALANCE W700 / ELN

Product Description : Industrial WLAN access point

Applicant : Siemens AG, Industrial Automation Division

Address : Gleiwitzer Strasse 555

90475 NUERNBERG, GERMANY

Manufacturer : Siemens AG, Automation & Drives

Address : Oestliche Rheinbrueckenstrasse 50

76187 KARLSRUHE, GERMANY

Licence holder : Siemens AG, Automation & Drives

Address : Oestliche Rheinbrueckenstrasse 50

76187 KARLSRUHE, GERMANY

Test Result according to the standards listed in clause 1 test standards:	POSITIVE
--	-----------------



The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test results
without the written permission of the test laboratory.

Contents

1	<u>TEST STANDARDS</u>	<u>3</u>
2	<u>SUMMARY</u>	<u>4</u>
2.1	Test result summary	4
2.2	General remarks	5
2.3	Final assessment	8
3	<u>EQUIPMENT UNDER TEST</u>	<u>9</u>
3.1	Photo documentation of the EUT – Detailed photos see attachment A	9
3.2	Power supply system utilised	9
3.3	Short description of the equipment under test (EUT)	9
4	<u>TEST ENVIRONMENT</u>	<u>10</u>
4.1	Address of the test laboratory	10
4.2	Environmental conditions	10
4.3	Statement of the measurement uncertainty	10
4.4	Measurement protocol for FCC and IC	11
4.5	Determination of worst case measurement conditions	11
5	<u>TEST CONDITIONS AND RESULTS</u>	<u>12</u>
5.1	Conducted emissions	12
5.2	Emission bandwidth and occupied bandwidth	16
5.3	Maximum peak conducted output power	36
5.4	Power spectral density	41
5.5	Spurious emissions conducted	48
5.6	Spurious emissions cabinet radiation	64
5.7	Spurious emissions conducted in restricted bands	102
5.8	Radiated emissions in restricted bands	173
5.10	Maximum permissible exposure (MPE)	179
5.11	Co-location and co-transmission	183
5.12	Antenna application	183
6	<u>USED TEST EQUIPMENT AND ACCESSORIES</u>	<u>185</u>

Attachment A as separatly supplement

1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules and Regulations Part 15, Subpart A - General (September, 2013)

Part 15, Subpart A, Section 15.31

Measurement standards

Part 15, Subpart A, Section 15.33

Frequency range of radiated measurements

Part 15, Subpart A, Section 15.35

Measurement detector functions and bandwidths

FCC Rules and Regulations Part 15, Subpart C - Intentional Radiators (September, 2013)

Part 15, Subpart C, Section 15.203

Antenna requirement

Part 15, Subpart C, Section 15.204

External radio frequency power amplifiers and antenna modifications

Part 15, Subpart C, Section 15.205

Restricted bands of operation

Part 15, Subpart C, Section 15.207

Conducted limits

Part 15, Subpart C, Section 15.209

Radiated emission limits, general requirements

Part 15, Subpart C, Section 15.212

Modular transmitters

Part 15, Subpart C, Section 15.247

Operation within the bands 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz

FCC Rules and Regulations Part 1, Subpart I - Procedures Implementing the National Environmental Policy Act of 1969

Part 1, Subpart I, Section 1.1310

Radiofrequency radiation exposure limits

Part 1, Subpart 2, Section 2.1093

Radiofrequency radiation exposure evaluation: portable device

OET Bulletin 65, 65A, 65B, 65C Edition 97-01, August 1997 – Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields.

ANSI C63.4: 2003

Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz

ANSI C95.1: 2005

IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz

CISPR 16-4-2: 2003

Uncertainty in EMC measurement

CISPR 22: 2005
EN 55022: 2006

Information technology equipment

KDB 558074 D01 v032

Guidance for performing compliance measurements on DTS operating under Section 15.247, April 9, 2013.

2 SUMMARY

2.1 Test result summary

WLAN device using digital modulation:

Operating in the 2400 MHz – 2483.5 MHz and 5725 MHz – 5850 MHz band:

FCC Rule Part	RSS Rule Part	Description	Result
15.207(a)	RSS Gen, 7.2.4.	AC power line conducted emissions	passed
15.247(a)(2)	RSS210, A8.2(a)	-6 dB EBW	passed
15.247(b)(3)	RSS-210, A8.4(4)	Peak power	passed
15.247(d)	RSS-210, A8.5	Out-of-band emission, radiated	passed
15.247(d)	RSS-Gen, 7.2.2	Emissions in restricted bands	passed
15.247(e)	RSS-210, A8.2(b)	PSD	passed
15.35(c)	RSS-Gen, 4.5	Pulsed operation	not applicable
15.247(i)	RSS 102, 2.5.2	MPE	passed
15.247(b)(4)	RSS-Gen, 7.1.2	Antenna requirement	passed
	RSS-Gen, 7.2.6	Transmitter frequency stability	not applicable
	RSS-Gen, 4.6.1	OBW 99 %	passed
OET Bulletin 65	RSS102, 3.2	Co-location, Co-transmission	passed

The mentioned RSS Rule Parts in the above table are related to:

RSS Gen, Issue 3, December 2010

RSS 210, Issue 8, December 2010

RSS 102, Issue 4, March 2010

2.2 General remarks

The EUT is a 1-Port WLAN-access point. The firmware does not support ad-hoc modes. The possibility to choose the channel for data transmission or power setting in relation to the used antenna with antenna cable makes a professional installation necessary. The AP is compatible with 802.11a/b/g, 802.11n Standard. It supports the 2.4 GHz and 5 GHz frequency band and supports no beam forming.

Variants of the EUT

Variant	Device-Name	WLAN-Interfaces	LAN connector	Antenna Ports	Order numbers
V01	ELN-W1-RJ-E1	1	RJ45	1	6GK5721-1FC00-xxxx 6GK5722-1FC00-xxxx 6GK5761-1FC00-xxxx

Operation frequency and channel plan

Channel plan:

The operating frequency is 2400 MHz to 2483.5 MHz and 5725 MHz to 5850 MHz.

Channel plan WLAN Standard 802.11a/b/g/n, HT20:

Channel	Frequency
1	2412 MHz
2	2417 MHz
3	2422 MHz
4	2427 MHz
5	2432 MHz
6	2437 MHz
7	2442 MHz
8	2447 MHz
9	2452 MHz
10	2457 MHz
11	2462 MHz

Channel	Frequency
149	5745
153	5765
157	5785
161	5805
165	5825

Channel plan WLAN Standard 802.11n, HT40 up and HT40 down mode:

Channel, HT40 up	Frequency	Channel, HT40 down	Frequency
1 up	2422 MHz	5 down	2422 MHz

Channel, HT40 up	Frequency	Channel, HT40 down	Frequency
149 up	5755 MHz	153 down	5755 MHz
157 up	5795 MHz	161 down	5795 MHz

Transmit operating modes

The module use OFDM modulation and is capable to provide following data rates:

- 802.11a 54, 48, 36, 24, 18, 12, 9, 6 Mbps
- 802.11b mode 11, 5.5, 2, 1 Mbps as fall back mode (Mbps = megabits per second)
- 802.11g mode 54, 48, 36, 24, 18, 12, 9, 6 Mbps (Mbps = megabits per second)
- 802.11n HT20, MCS 0 - 7
- 802.11n HT40, MCS 0 - 15

HT20

MCS Index	Modulation	R	$N_{BPSCS(i_{SS})}$	N_{SD}	N_{SP}	N_{CBPS}	N_{DBPS}	Data rate (Mb/s)	
								800 ns GI	400 ns GI (see NOTE)
0	BPSK	1/2	1	52	4	52	26	6.5	7.2
1	QPSK	1/2	2	52	4	104	52	13.0	14.4
2	QPSK	3/4	2	52	4	104	78	19.5	21.7
3	16-QAM	1/2	4	52	4	208	104	26.0	28.9
4	16-QAM	3/4	4	52	4	208	156	39.0	43.3
5	64-QAM	2/3	6	52	4	312	208	52.0	57.8
6	64-QAM	3/4	6	52	4	312	234	58.5	65.0
7	64-QAM	5/6	6	52	4	312	260	65.0	72.2

NOTE—Support of 400 ns GI is optional on transmit and receive.

HT40

MCS Index	Modulation	R	$N_{BPSCS(i_{SS})}$	N_{SD}	N_{SP}	N_{CBPS}	N_{DBPS}	Data rate (Mb/s)	
								800 ns GI	400 ns GI
0	BPSK	1/2	1	108	6	108	54	13.5	15.0
1	QPSK	1/2	2	108	6	216	108	27.0	30.0
2	QPSK	3/4	2	108	6	216	162	40.5	45.0
3	16-QAM	1/2	4	108	6	432	216	54.0	60.0
4	16-QAM	3/4	4	108	6	432	324	81.0	90.0
5	64-QAM	2/3	6	108	6	648	432	108.0	120.0
6	64-QAM	3/4	6	108	6	648	486	121.5	135.0
7	64-QAM	5/6	6	108	6	648	540	135.0	150.0

MCS Index	Modulation	R	$N_{BPSCS(i_{SS})}$	N_{SD}	N_{SP}	N_{CBPS}	N_{DBPS}	Data rate (Mb/s)	
								800 ns GI	400 ns GI
8	BPSK	1/2	1	108	6	216	108	27.0	30.0
9	QPSK	1/2	2	108	6	432	216	54.0	60.0
10	QPSK	3/4	2	108	6	432	324	81.0	90.0
11	16-QAM	1/2	4	108	6	864	432	108.0	120.0
12	16-QAM	3/4	4	108	6	864	648	162.0	180.0
13	64-QAM	2/3	6	108	6	1296	864	216.0	240.0
14	64-QAM	3/4	6	108	6	1296	972	243.0	270.0
15	64-QAM	5/6	6	108	6	1296	1080	270.0	300.0

Symbol	Explanation
N_{SS}	Number of spatial streams
R	Coding rate
N_{BPSC}	Number of coded bits per single carrier (total across spatial streams)
$N_{BPSCS(i_{SS})}$	Number of coded bits per single carrier for each spatial stream, $i_{SS} = 1, \dots, N_{SS}$
N_{SD}	Number of complex data numbers per spatial stream per OFDM symbol
N_{SP}	Number of pilot values per OFDM symbol
N_{CBPS}	Number of coded bits per OFDM symbol
N_{DBPS}	Number of data bits per OFDM symbol
N_{ES}	Number of BCC encoders for the DATA field
N_{TBPS}	Total bits per subcarrier

Antennas

Antennas intended for use are classified into 3 gain groups:

2.4 GHz:

- Antenna gain group 1: Antennas 0 to 6 dBi
- Antenna gain group 2: Antennas 6 to 9 dBi
- Antenna gain group 3: Antennas 9 to 14 dBi

5 GHz:

- Antenna gain group 1: Antennas 0 to 6 dBi
- Antenna gain group 2: Antennas 6 to 9 dBi
- Antenna gain group 3: Antennas 9 to 14 dBi

The following antennas shall be used with the EUT:

Number	Manufacturer Number	Characteristic	Model number	Connector	Frequency (GHz)	G 2.4G (dBi)	G 5G (dBi)	Cable loss (dB)	Effective gain 2.4G	Effective gain 5G	Group
1	6GK5792-8DN00-0AA6	Directed	ANT 792-8DN	N-female	2.4 GHz	14	--	0	14		3
2	6GK5795-6DC00-0AA0	Wide angle	ANT 795-6DC	N-female	2.4 + 5 GHz	9	9	0	9		2
3	6GK5795-6MN10-0AA6	Omni	ANT 795-6MN	N-female	2.4 + 5 GHz	6	8	0	6		1
4	6GK5792-6MN00-0AA6	Omni	ANT 792-6MN	N-female	2.4 GHz	6	--	0	6		1
5	6GK5 792-4DN00-0AA6	Omni	ANT 792-4DN	N-female	2.4 GHz	4	--	0	4		1
6	6GK5795-4MD00-0AA3	Omni	ANT 795-4MD	N-male	2.4 + 5 GHz	3	5	0	3		1
7	6GK5795-4MC00-0AA3	Omni	ANT 795-4MC	N-male	2.4 + 5 GHz	3	5	0	3		1
8	6GK5795-4MA00-0AA3	Omni	ANT 795-4MA	R-SMA male	2.4 + 5 GHz	3	5	0	3		1
9	6XV1875-2A	Omni	IWLAN Rcoax 1/2"	N-female	2.4 GHz	0	--	0	0		1
10	6GK5793-8DK00-0AA0	Directed	ANT 793-8DK	2x N-female	5 GHz	--	23	-8.8		14.2	3
11	6GK5793-8DJ00-0AA0	Directed	ANT 793-8D	2x N-female	5 GHz	--	18	-4.4		13.6	3
12	6GK5793-8DP00-0AA0	Directed	ANT 793-8DP	N-female	5 GHz	--	13.5	0		13.5	3
13	6GK5793-6DG00-0AA0	Wide angle	ANT 793-6DG	2x N-female	5 GHz	--	9	0		9	2
14	6GK5795-6DC00-0AA0	Wide angle	ANT 795-6DC	N-female	2.4 + 5 GHz	9	9	0		9	2
15	6GK5795-6MN10-0AA6	Omni	ANT 795-6MN	N-female	2.4 + 5 GHz	6	8	0		8	2
16	6GK5 793-4MN00-0AA6	Omni	ANT 793-4MN	N-female	5 GHz	--	6	0		6	1
17	6GK5793-6MN00-0AA6	Omni	ANT 793-6MN	N-female	5 GHz	--	5	0		5	1
18	6GK5795-4MD00-0AA3	Omni	ANT 795-4MD	N-male	2.4 + 5 GHz	3	5	0		5	1
19	6GK5795-4MC00-0AA3	Omni	ANT 795-4MC	N-male	2.4 + 5 GHz	3	5	0		5	1
20	6GK5795-4MA00-0AA3	Omni	ANT 795-4MA	R-SMA male	2.4 + 5 GHz	3	5	0		5	1
21	6XV1875-2D	Omni	IWLAN Rcoax 1/2"	N-female	5 GHz	--	0	0		0	1

Note: The directed antenna number 11 may be used only with minimum 5 m antenna cable,

Type 6XV 1875-5CH50 with cable loss 4.4 dB at 5.7 GHz.

The directed antenna number 10 may be used only with minimum 10 m antenna cable,

Type 6XV 1875-5CN10 with cable loss 8.8 dB at 5.7 GHz.

2.3 Final assessment

The equipment under test **fulfills** the EMC requirements cited in clause 1 test standards.

Date of receipt of test sample : acc. to storage records

Testing commenced on : 20 Oktober 2013

Testing concluded on 12 December 2013

Checked by:



Klaus Gegenfurtner
I confirm the correctness
and Integrity of this
documents
2014.03.25 11:41:35
+01'00'

Klaus Gegenfurtner
Teamleader Radio

Tested by:



Hermann Smetana
I am the author of
this document
2014.03.25
11:29:03 +01'00'

Hermann Smetana
Radio Team

3 EQUIPMENT UNDER TEST

3.1 Photo documentation of the EUT – Detailed photos see attachment A

3.2 Power supply system utilised

Power supply voltage : 100 - 120 VAC

3.3 Short description of the equipment under test (EUT)

The EUT is a 1-Port WLAN-access point for cap rail applications. The EUT provides a menu to choose the channel for data transmission, the connected antenna and the length of the antenna cable. The AP is compatible with 802.11a/b/g, 802.11n Standard. It supports the 2.4 GHz and 5 GHz frequency band.

Number of tested samples: 1
Serial number: D3548822
Firmware ID: P03.00.00.00.130101

EUT operation mode:

The equipment under test was operated during the measurement under the following conditions:

- TX continuous mode, 801.11b, fallback mode

- TX continuous mode, 801.11g

- TX continuous mode, 801.11a

- TX continuous mode, 801.11n, HT20

- TX continuous mode, 801.11n, HT40

EUT configuration:

(The CDF filled by the applicant can be viewed at the test laboratory.)

The following peripheral devices and interface cables were connected during the measurements:

- LAN cable, 3m	Model : CAT5
- Power supply cable, 1m	Model : Self-made
-	Model :

4 TEST ENVIRONMENT

4.1 Address of the test laboratory

**CSA Group Bayern GmbH
Ohmstrasse 1-4
94342 STRASSKIRCHEN
GERMANY**

4.2 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

Temperature: 15-35 °C

Humidity: 30-60 %

Atmospheric pressure: 86-106 kPa

4.3 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 „Uncertainties, statistics and limit modelling – Uncertainty in EMC measurements“ and is documented in the quality system acc. to DIN EN ISO/IEC 17025. For all measurements shown in this report, the measurement uncertainty of the test laboratory, CSA Group Bayern GmbH, is below the measurement uncertainty as defined by CISPR. Therefore, no special measures must be taken into consideration with regard to the limits according to CISPR. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

4.4 Measurement protocol for FCC and IC

4.4.1 General information

4.4.1.1 Test methodology

Conducted and radiated disturbance testing is performed according to the procedures set out by the International Special Committee on Radio Interference (CISPR) Publication 22, European Standard EN 55022 as shown under section 1 of this report.

The Open Area test site is a listed Open Site under the Canadian Test-Sites File-No:

IC 3009A

In compliance with RSS 210 testing for RSS compliance may be achieved by following the procedures set out in ANSI C63.4 and applying the CISPR 22 limits.

4.4.1.2 Justification

The equipment under test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral using the appropriate impedance characteristic or left without termination. Where appropriate, cables are manually manipulated with respect to each other thus obtaining maximum disturbances from the unit.

4.4.1.3 Details of test procedures

The test methods used comply with CISPR Publication 22, EN 55022 - "Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement" and with ANSI C63.4 - "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz". In compliance with 47 CFR Part 15 Subpart A, Section 15.38 testing for FCC compliance may be achieved by following the procedures set out in ANSI C63.4 and applying the CISPR 22 limits.

4.5 Determination of worst case measurement conditions

Measurements are made in all three orthogonal axes and the settings of the EUT are changed to locate at which position and at what setting of the EUT produce the maximum of the emissions. For the further radiated measurement the EUT is set in Y position on cap rail.

The tests are carried out in the following frequency band:

2400 – 2483.5 MHz and 5725 - 5.850 MHz

Preliminary tests are performed to find the worst case mode from all possible combinations between available modulations and data rates. The maximum output power depends on used data rate. The EUT is controlled for several tests with special test software used for testing only where continuous signals are needed. For the tests a max possible duty cycle (x) is set.

Following channels and test modes are selected as worst case for the final tests:

WLAN	Available channel	Tested channels	Power setting	Modulation	Modulation type	Data rate
802.11b	1 to 11	1, 6, 11	P14, P11, P8	OFDM	BPSK	1 Mbps
802.11g	1 to 13	1, 6, 11	P14, P11, P8	OFDM	BPSK	6 Mbps
802.11a	1 to 13	149, 157, 165	P20, P14, P11	OFDM	BPSK	6 Mbps
802.11n; HT20	1 to 13	1, 6, 11 149, 157, 165	P14, P11, P8 P20, P14, P11	OFDM	BPSK	MCS0 (BW=20 MHz)
802.11n; HT40	1up to 9up	1up, 149up, 157up	P14, P11, P8 P20, P14, P11	OFDM	BPSK	MCS0 (BW=40 MHz)

5 TEST CONDITIONS AND RESULTS

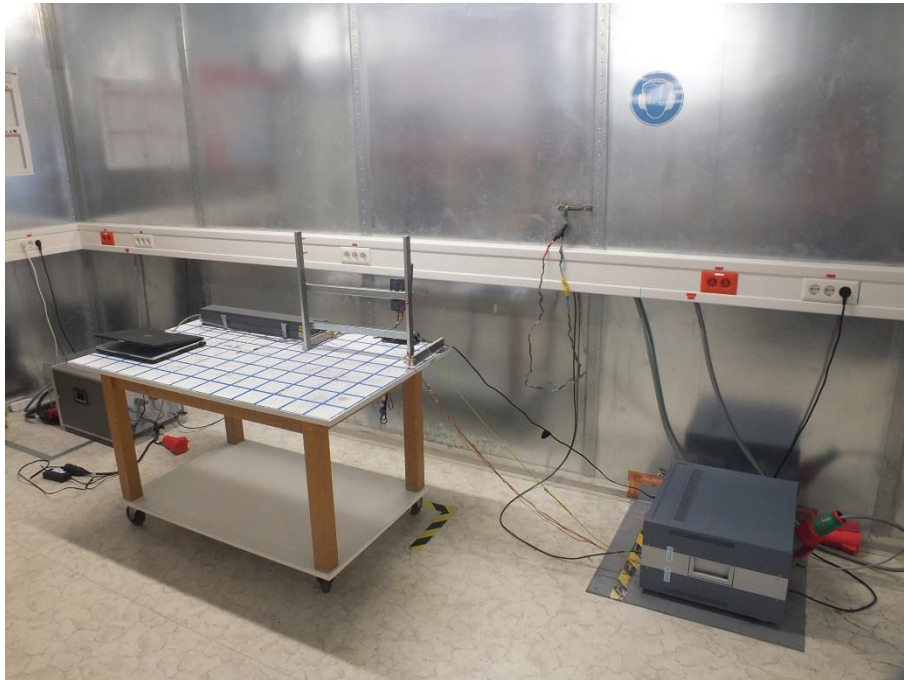
5.1 Conducted emissions

For test instruments and accessories used see section 6 Part A 4.

5.1.1 Description of the test location

Test location: Shielded Room S2

5.1.2 Photo documentation of the test set-up



5.1.3 Applicable standard

According to FCC Part 15C, Section 15.107(a) and Section 15.207(a):

Except as shown in paragraphs (b) and (c) of this Section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the given limits.

5.1.4 Description of Measurement

The measurements are performed using a receiver, which has CISPR characteristic bandwidth and quasi-peak detection and a line impedance stabilization network (LISN) with 50 Ω / 50 μ H (CISPR 16) characteristics and following the procedures set out in ANSI C63.4. If the minimum limit margin appears to be less than 20 dB with a peak mode measurement, the emissions are re-measured using a tuned receiver with quasi-peak and average detection and recorded.

To convert between dB μ V and μ V, the following conversions apply:

$$\begin{aligned} \text{dB}\mu\text{V} &= 20 \log \mu\text{V} \\ \mu\text{V} &= 10^{(\text{dB}\mu\text{V}/20)} \end{aligned}$$

5.1.5 Test result

Frequency range: 0.15 MHz - 30 MHz

Min. limit margin -7.6 dB at 0.314 MHz

Limit according to FCC Part 15, Section 15.207(a):

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

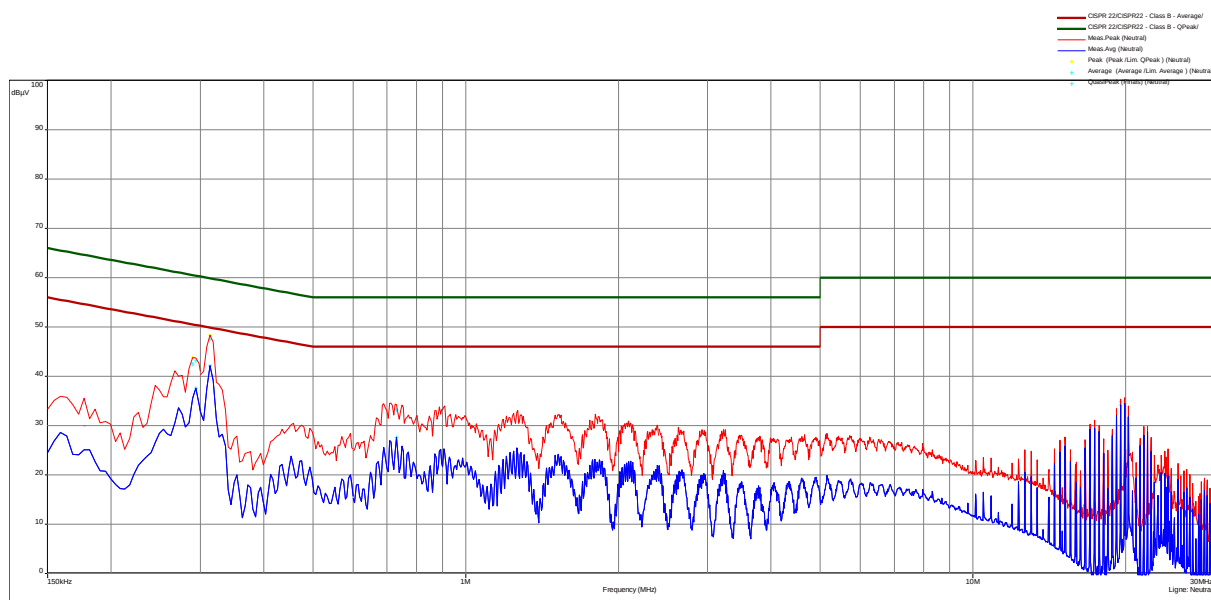
* Decreases with the logarithm of the frequency

The requirements are **FULFILLED**.**Remarks:** For detailed test result please see the following test protocols.

5.1.6 Test protocol

Test point: N
 Operation mode: TX continuous mode, 801.11n, HT20
 Remarks:

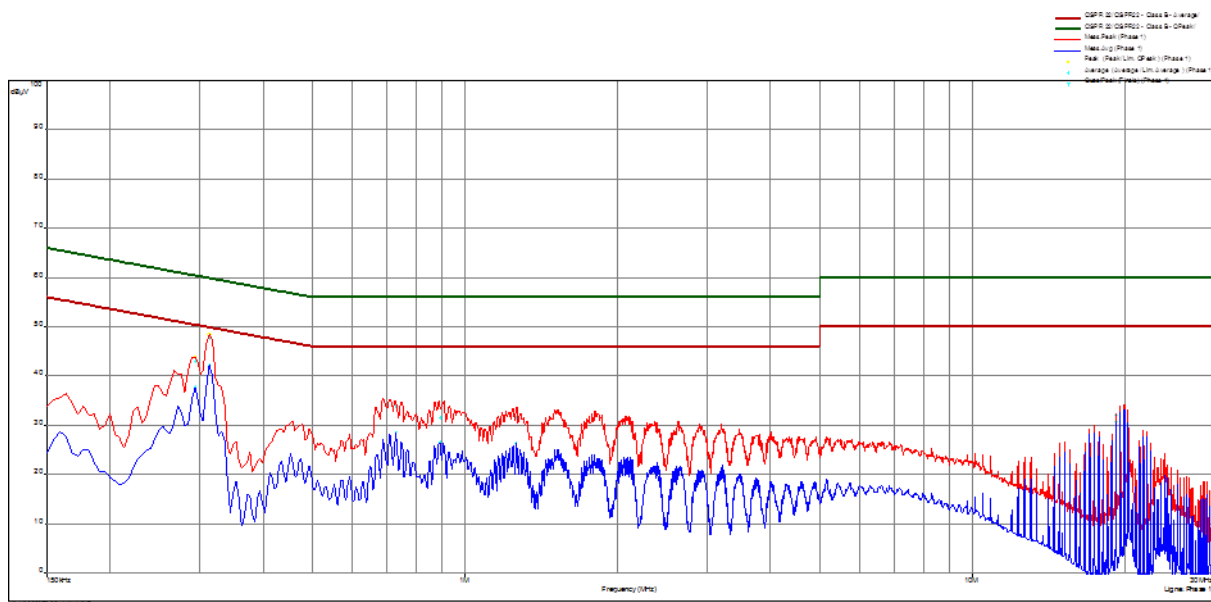
Result: passed



freq	SR	QP	margin	limit	AV	margin	limit	line
MHz		dB(μV)	dB	dB	dB(μV)	dB	dB	
0.290	1	42.5	-18.0	60.5	35.5	-15.1	50.5	Neutral
0.294	1	43.1	-17.3	60.4	37.6	-12.8	50.4	Neutral
0.314	2	47.5	-12.4	59.9	42.1	-7.7	49.9	Neutral
0.731	3	33.3	-22.7	56.0	27.7	-18.3	46.0	Neutral
19.541	7	34.8	-25.2	60.0	34.1	-15.9	50.0	Neutral
19.899	8	35.0	-25.0	60.0	34.3	-15.8	50.0	Neutral

Test point L1
 Operation mode: TX continuous mode, 801.11n, HT20
 Remarks:

Result: passed



freq	SR	QP	margin	limit	AV	margin	limit	line
MHz		dB(μV)	dB	dB	dB(μV)	dB	dB	
0.294	9	43.1	-17.3	60.4	37.7	-12.8	50.4	Phase 1
0.314	10	47.6	-12.3	59.9	42.3	-7.6	49.9	Phase 1
0.731	11	34.0	-22.1	56.0	28.5	-17.5	46.0	Phase 1
0.893	11	31.6	-24.4	56.0	26.5	-19.5	46.0	Phase 1
1.263	12	31.6	-24.4	56.0	26.2	-19.8	46.0	Phase 1
19.172	15	32.0	-28.0	60.0	31.0	-19.0	50.0	Phase 1
19.898	16	33.8	-26.2	60.0	33.2	-16.8	50.0	Phase 1

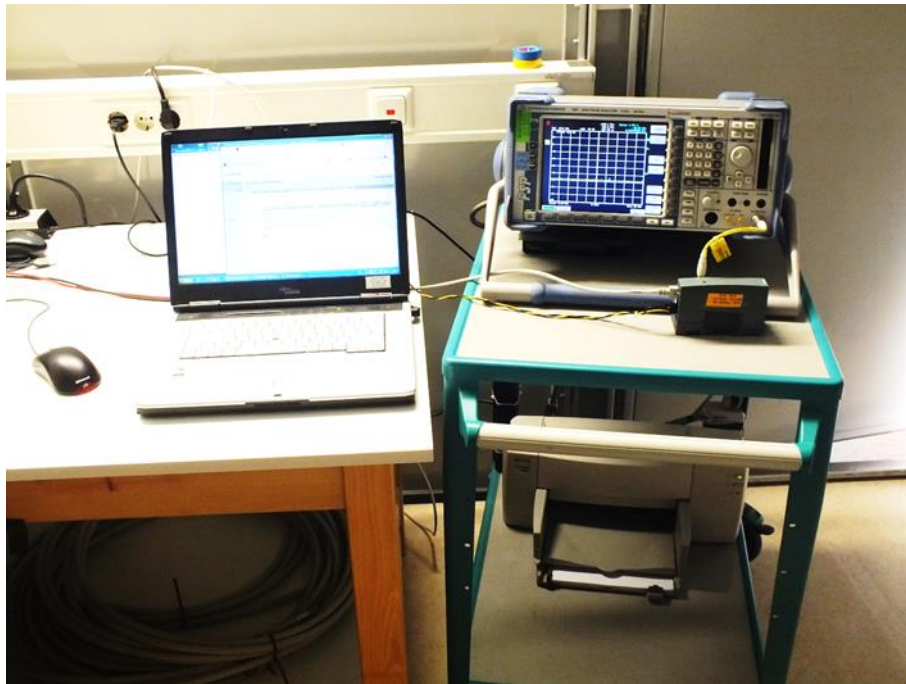
5.2 Emission bandwidth and occupied bandwidth

For test instruments and accessories used see section 6 Part MB.

5.2.1 Description of the test location

Test location: AREA4

5.2.2 Photo documentation of the test set-up



5.2.3 Applicable standard

According to FCC Part 15, Section 15.247(a)(2):

Systems using digital modulation techniques may operate in the 902 – 928 MHz, 2400 – 2483.5 MHz and 5725 – 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

5.2.4 Description of Measurement

The bandwidth was measured at an amplitude level reduced from the reference level of a modulated channel by a ratio of -6 dB. The reference level is the level of the highest signal amplitude observed at the transmitter at either the fundamental frequency or the first order modulation products in all typical modes of operation, including the unmodulated carrier, even if atypical. An alternative is to use the bandwidth measurement of the analyser.

Spectrum analyser settings:

B, g, n-HT20 mode: RBW: 100 kHz

HT40 mode: RBW: 1 MHz

VBW: 300 kHz,

VBW: 3 MHz,

Detector: Peak

Detector: Peak

5.2.5 Test result

802.11b:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
1	2412	10.110	13.920	0.5
6	2432	10.075	13.920	0.5
11	2462	10.115	13.920	0.5

802.11g:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
1	2412	16.365	17.360	0.5
6	2432	16.360	17.520	0.5
11	2462	16.190	17.360	0.5

HT20:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
1	2412	17.430	18.240	0.5
6	2432	17.515	18.320	0.5
11	2462	17.600	18.240	0.5

HT40:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
1up	2412	36.075	37.080	0.5

802.11a:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
149	5745	15.900	17.200	0.5
157	5785	16.020	17.920	0.5
165	5825	15.785	17.120	0.5

HT20:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
149	5745	17.415	18.240	0.5
157	5785	17.610	18.160	0.5
165	5825	17.565	18.160	0.5

HT40:

Channel	Centre frequency	6 dB bandwidth	99% OBW	Minimum limit
	(MHz)	(MHz)	(MHz)	(MHz)
149up	5745	35.925	38.080	0.5
157up	5785	35.800	38.080	0.5

Note: There is no limit for the OBW 99 %.

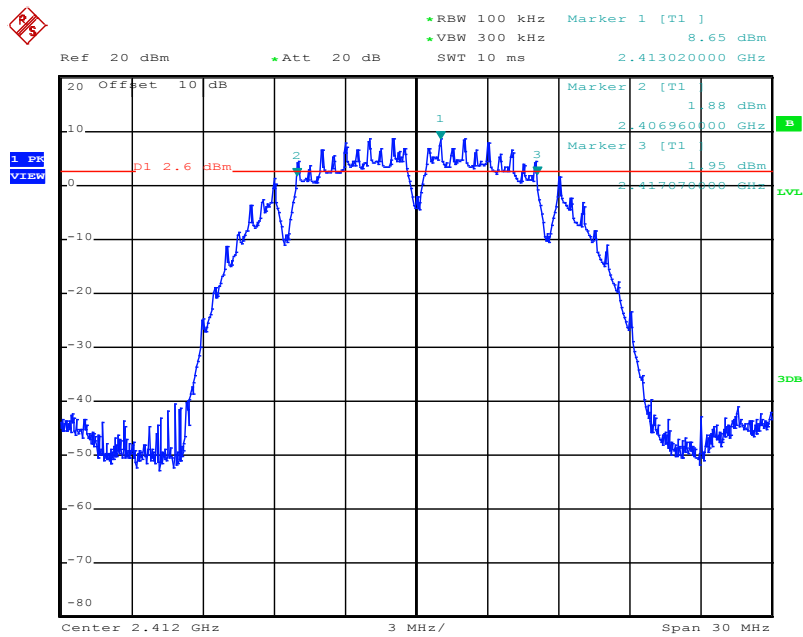
The requirements are **FULFILLED**.

Remarks: For detailed test results please refer to following test protocols.

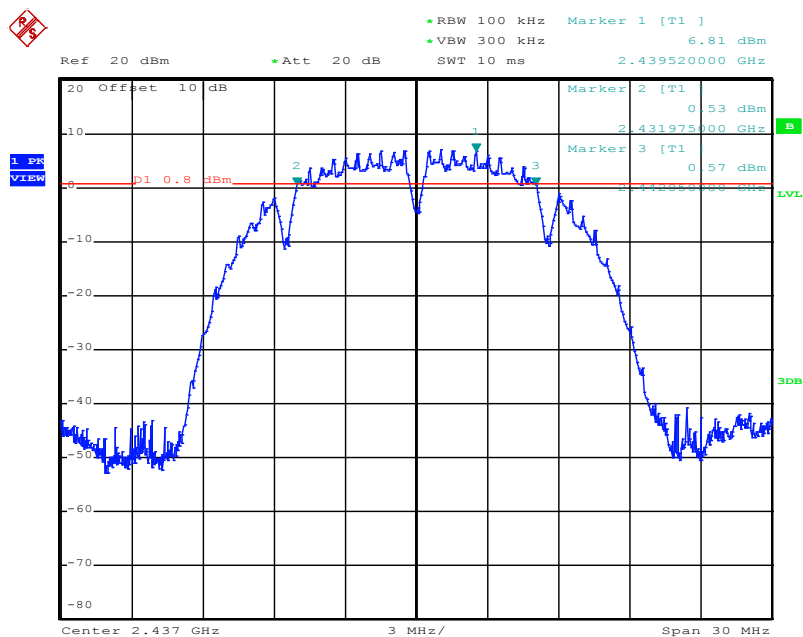
5.2.6 Test protocols emission bandwidth 6 dB

802.11b:

Channel 1 (2412 MHz)



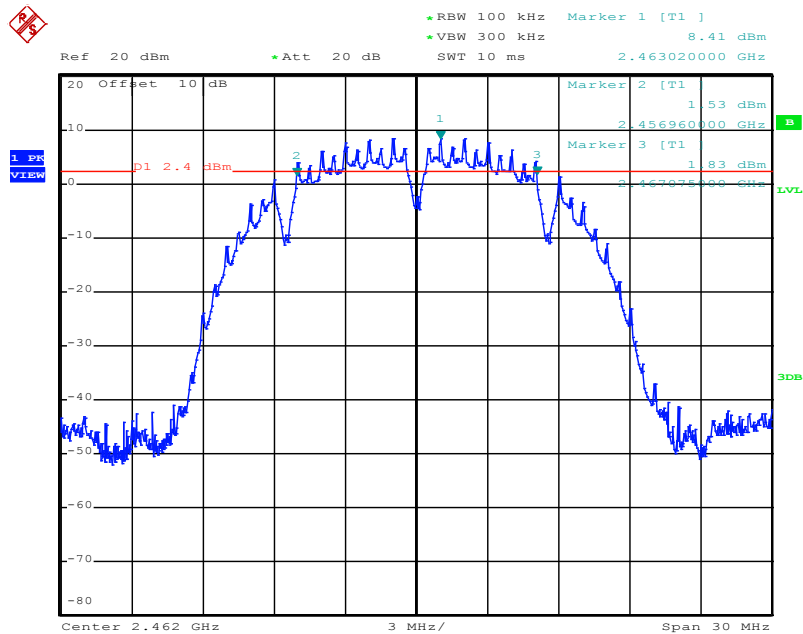
Channel 6 (2437 MHz)



FCC ID: LYHELN1V1

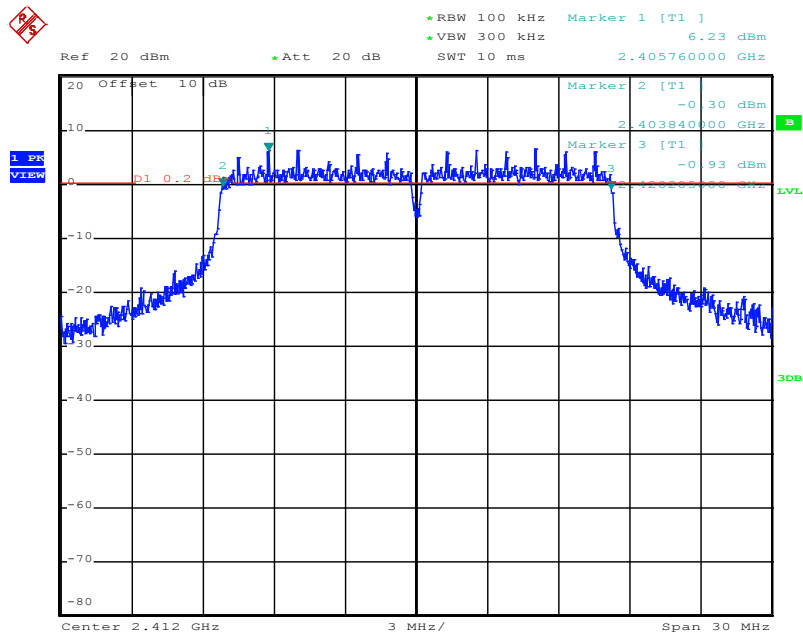
IC: 267AA-ELN1V1

Channel 11 (2462 MHz)



802.11g:

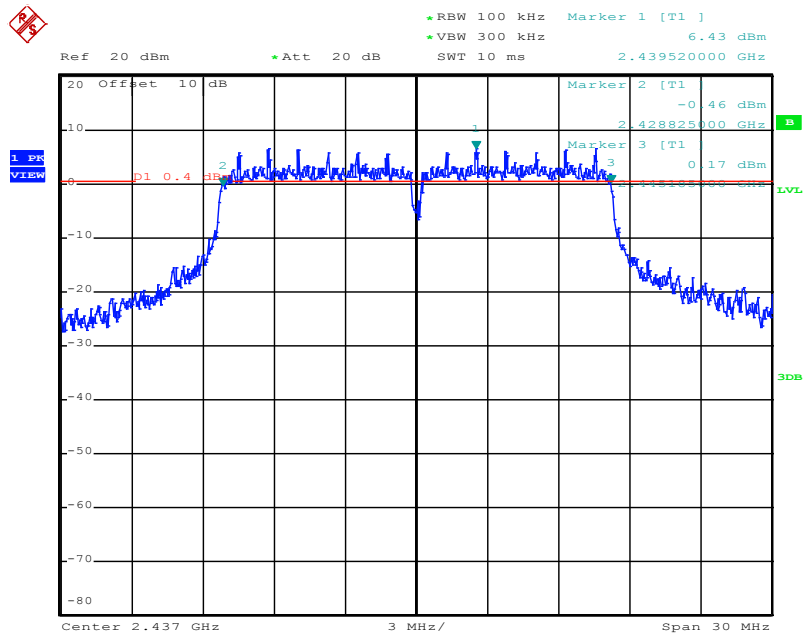
Channel 1 (2412 MHz)



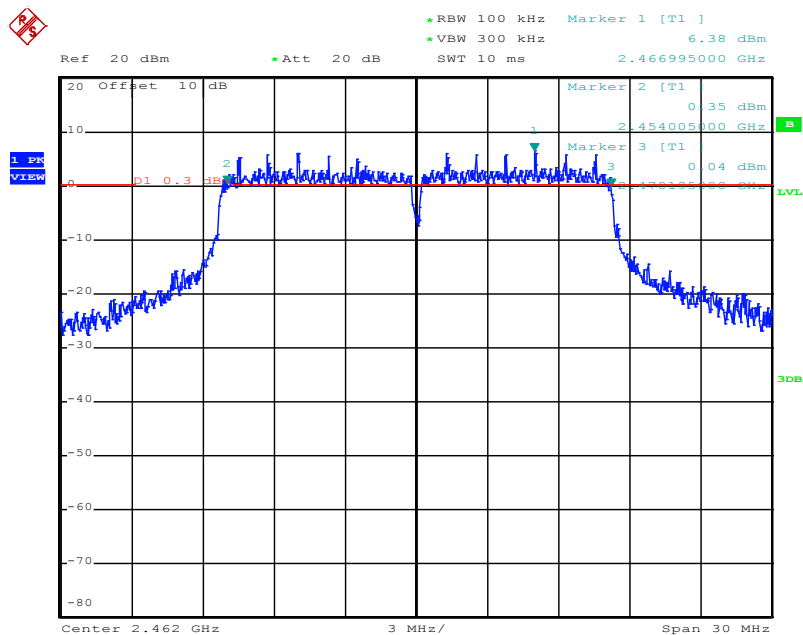
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Channel 6 (2437 MHz)

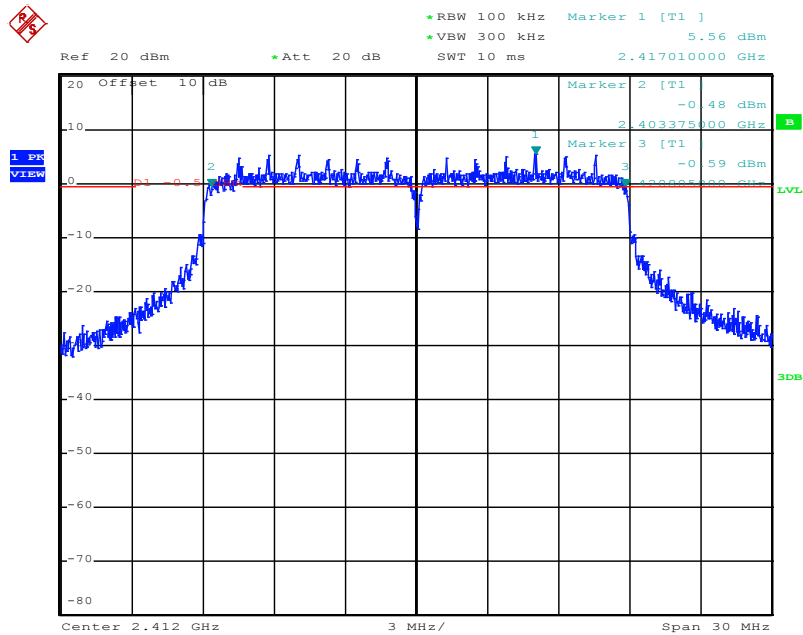


Channel 11 (2462 MHz)

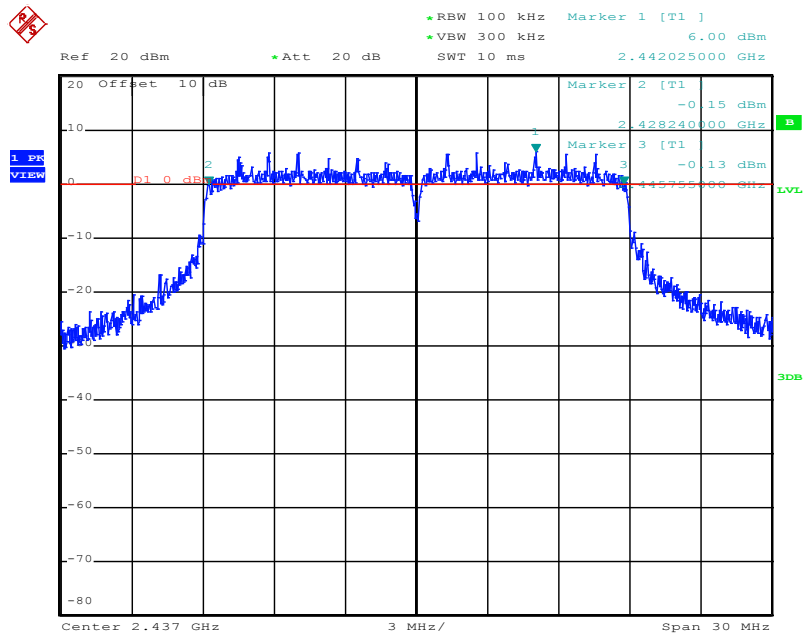


802.11n, HT20:

Channel 1 (2412 MHz)



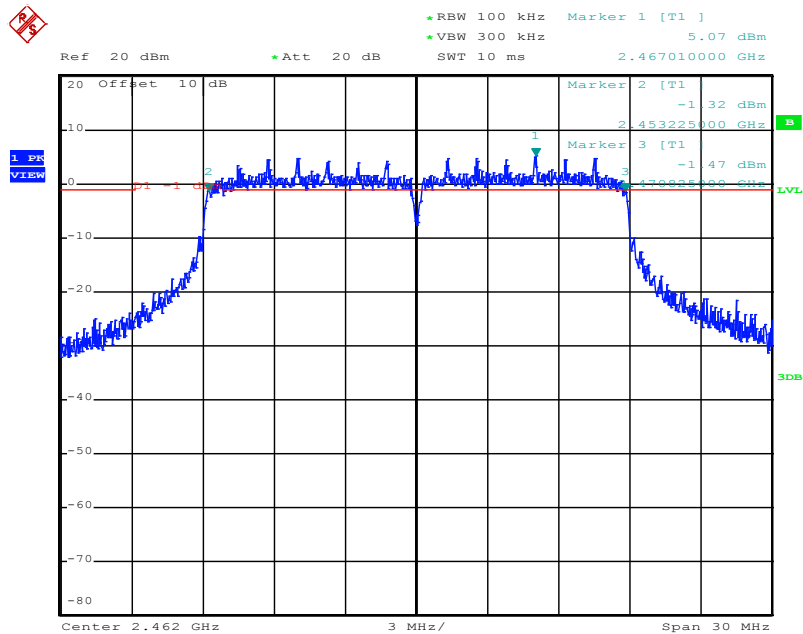
Channel 6 (2437 MHz)



FCC ID: LYHELN1V1

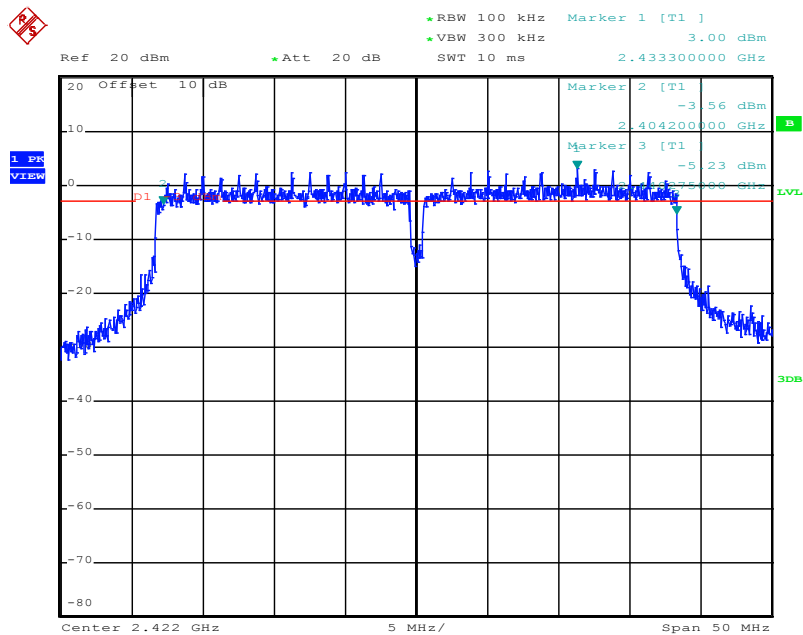
IC: 267AA-ELN1V1

Channel 11 (2462 MHz)



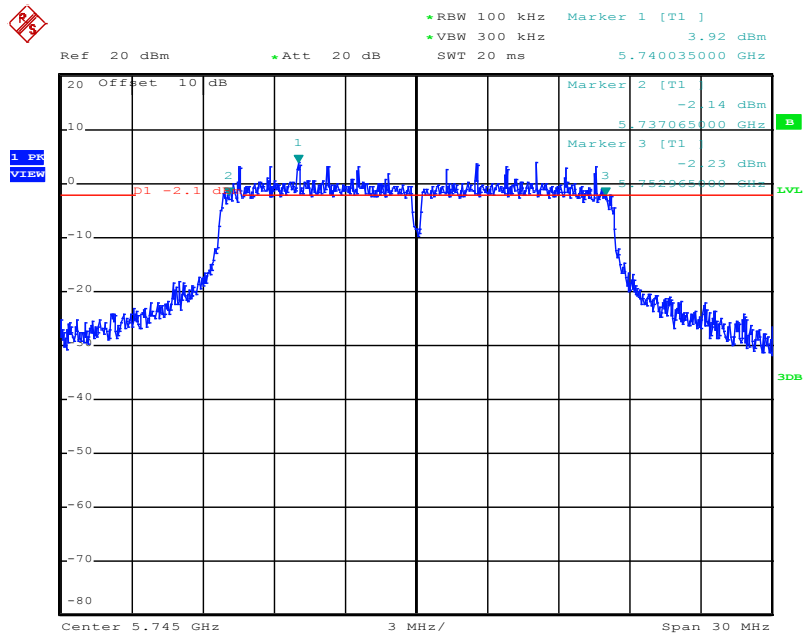
802.11n, HT40:

Channel 1up (2422 MHz)

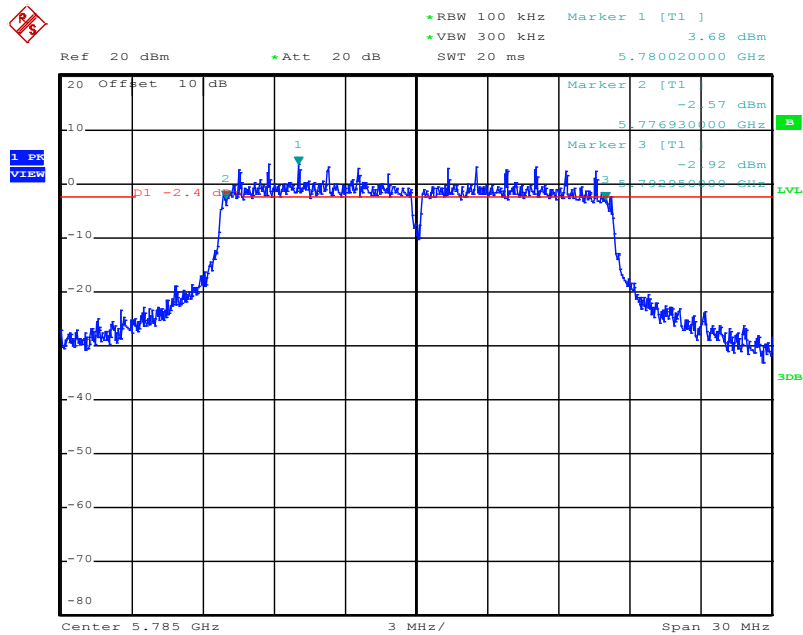


802.11a:

Channel 149 (5745 MHz)



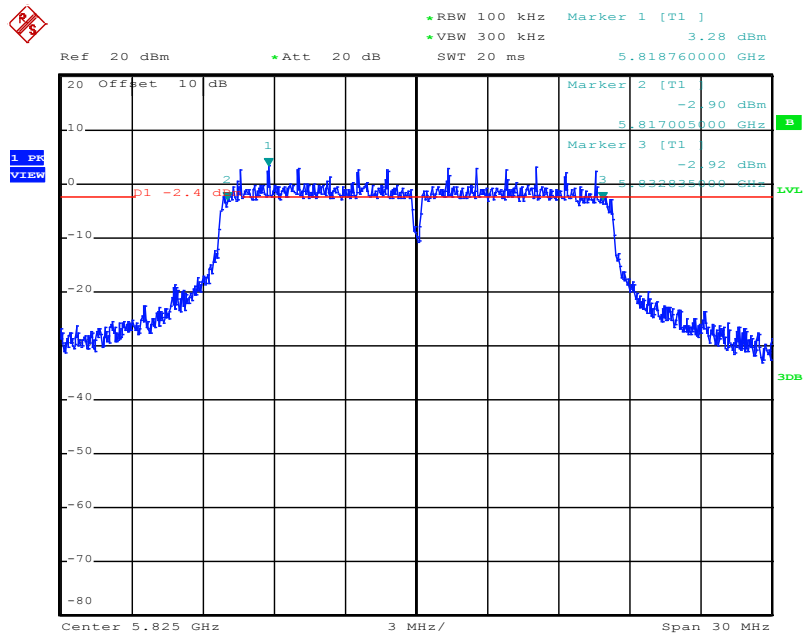
Channel 157 (5785 MHz)



FCC ID: LYHELN1V1

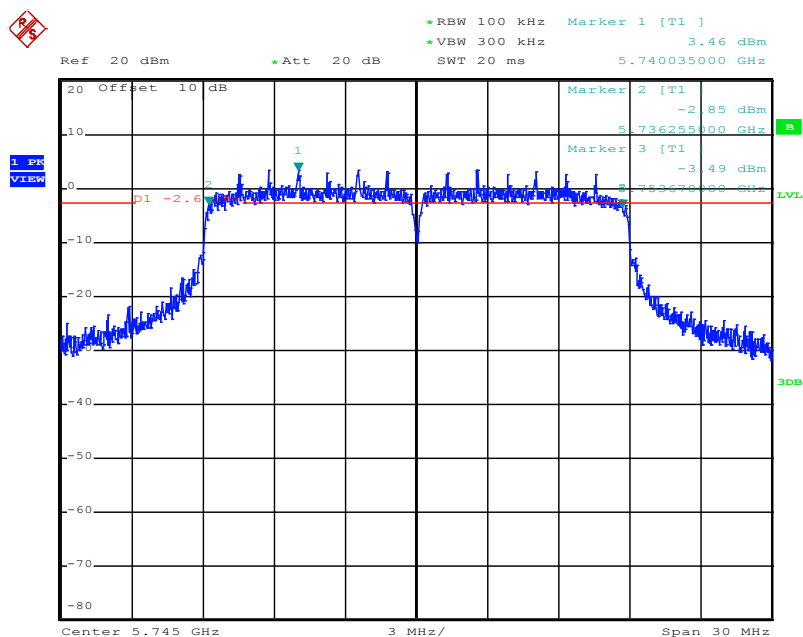
IC: 267AA-ELN1V1

Channel 165 (5825 MHz)



HT20:

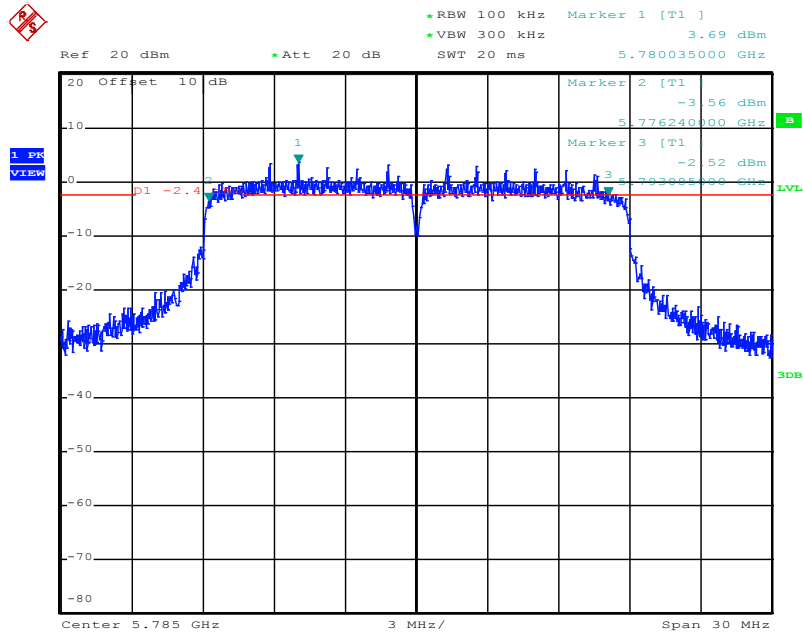
Channel 149 (5745 MHz)



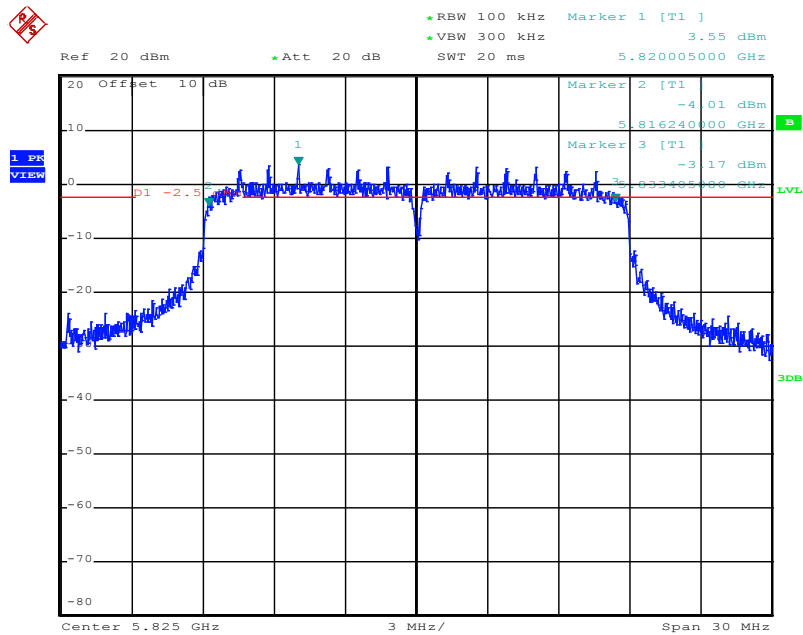
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Channel 157 (5785 MHz)

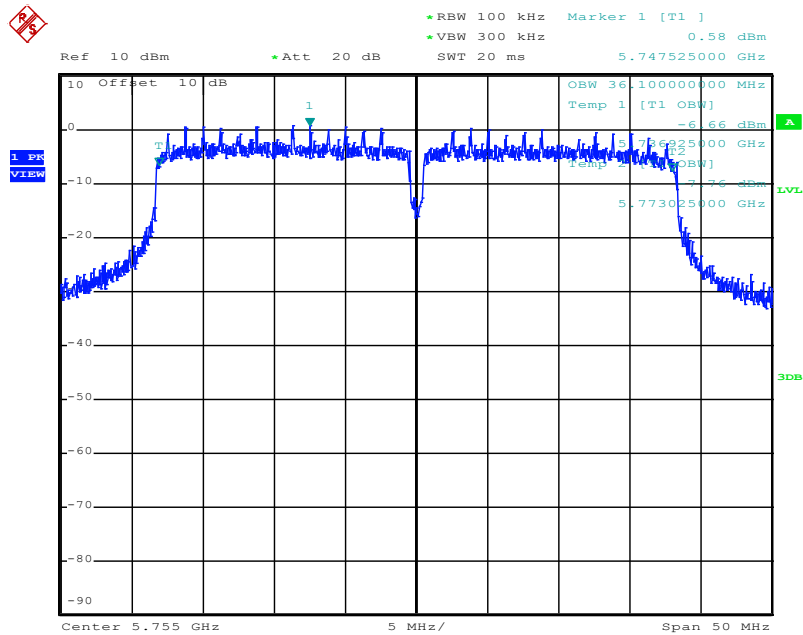


Channel 165 (5825 MHz)

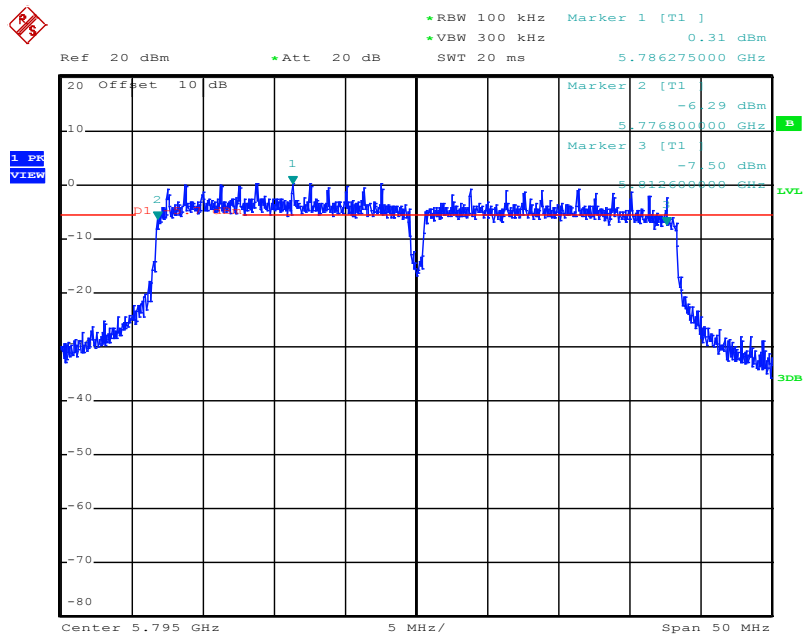


HT40:

Channel 149up (5755 MHz)



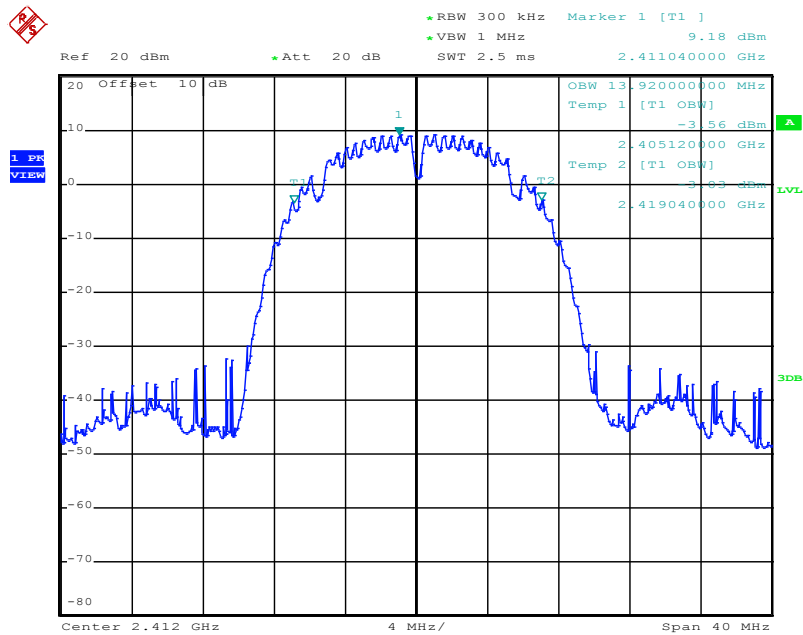
Channel 157up (5795 MHz)



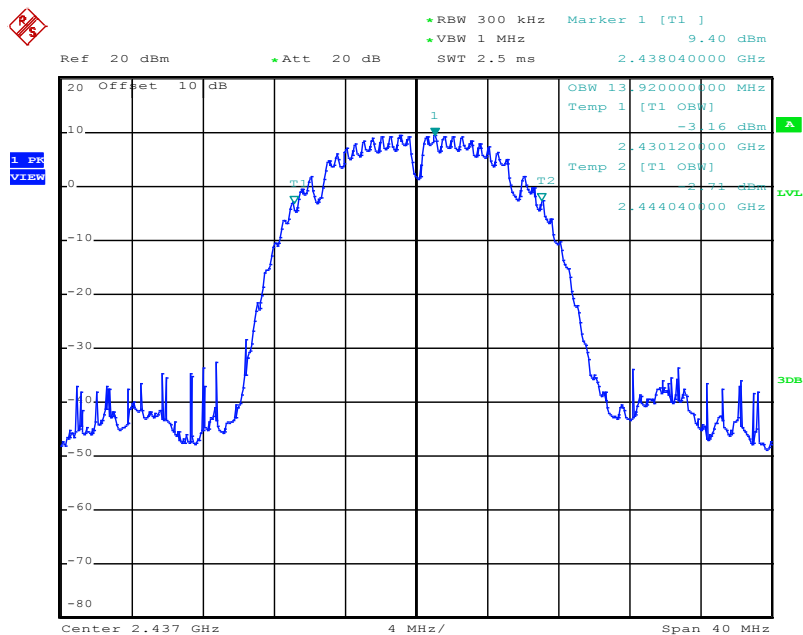
5.2.7 Test protocols OBW 99 %

802.11b:

Channel 1 (2412 MHz)



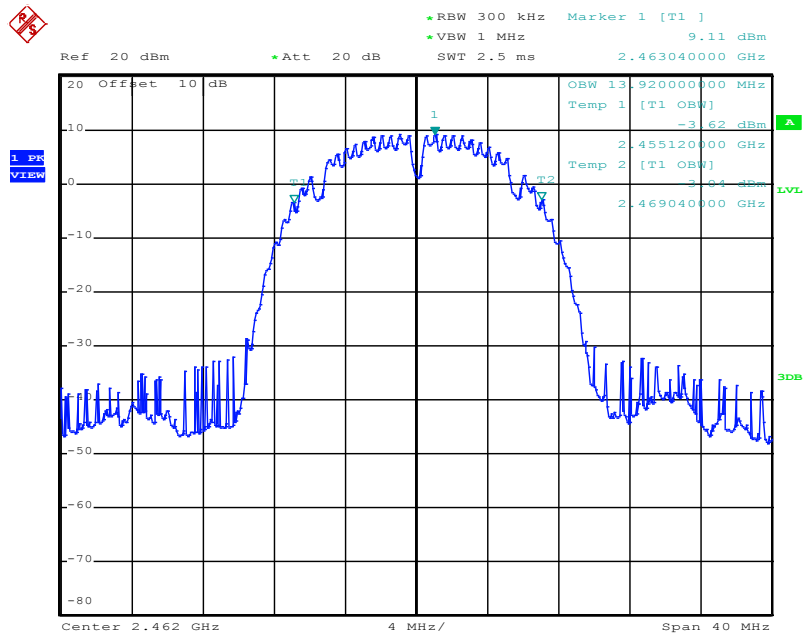
Channel 6 (2437 MHz)



FCC ID: LYHELN1V1

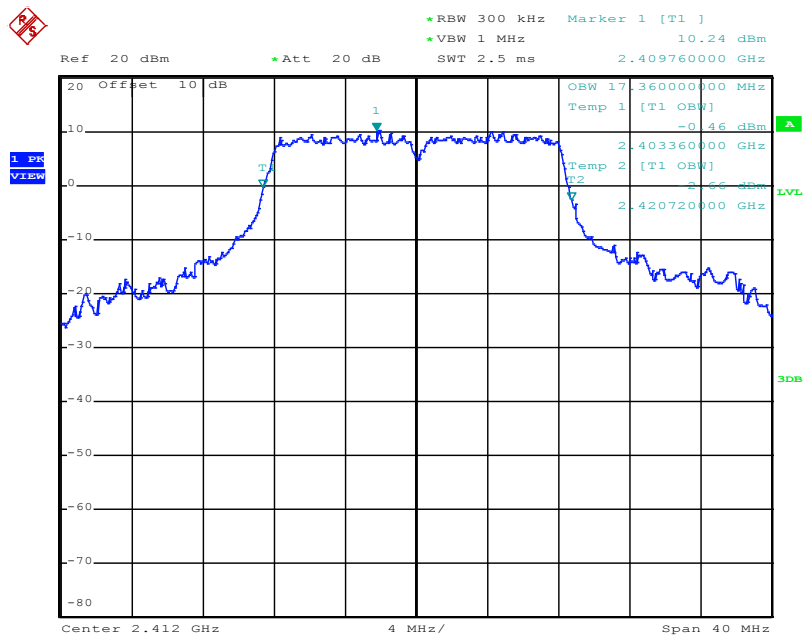
IC: 267AA-ELN1V1

Channel 11 (2462 MHz)



802.11g:

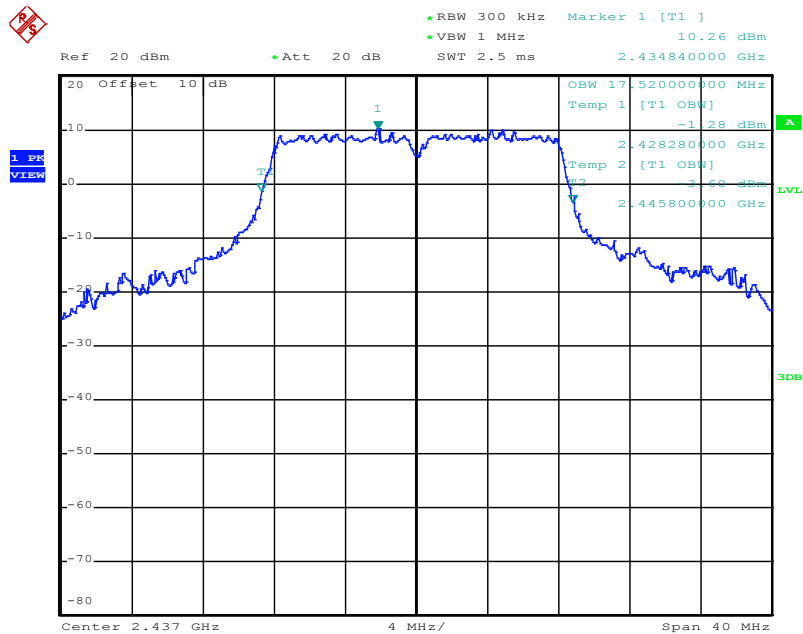
Channel 1 (2412 MHz)



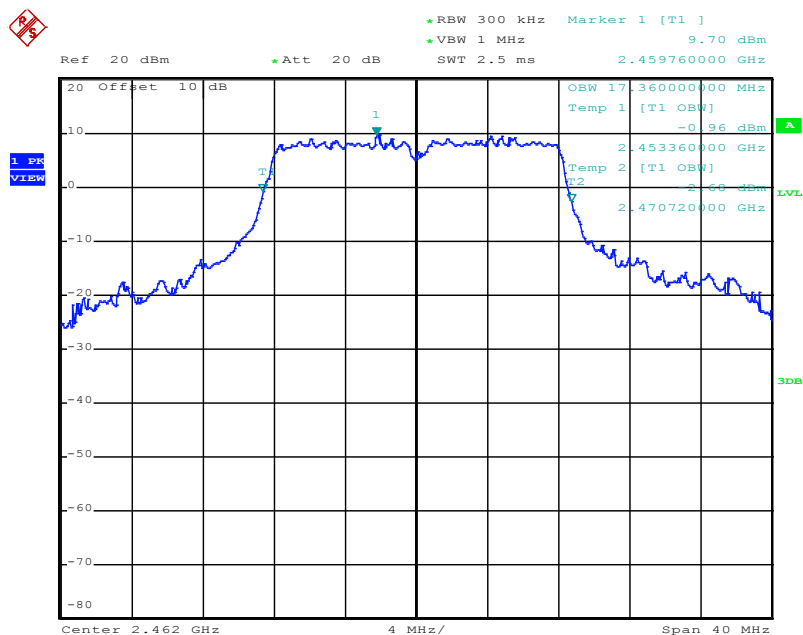
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Channel 6 (2437 MHz)

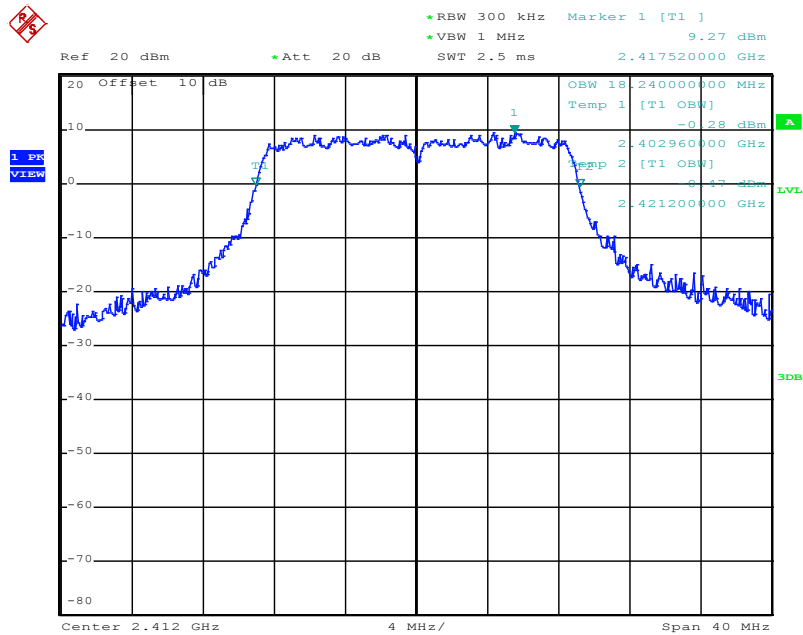


Channel 11 (2462 MHz)

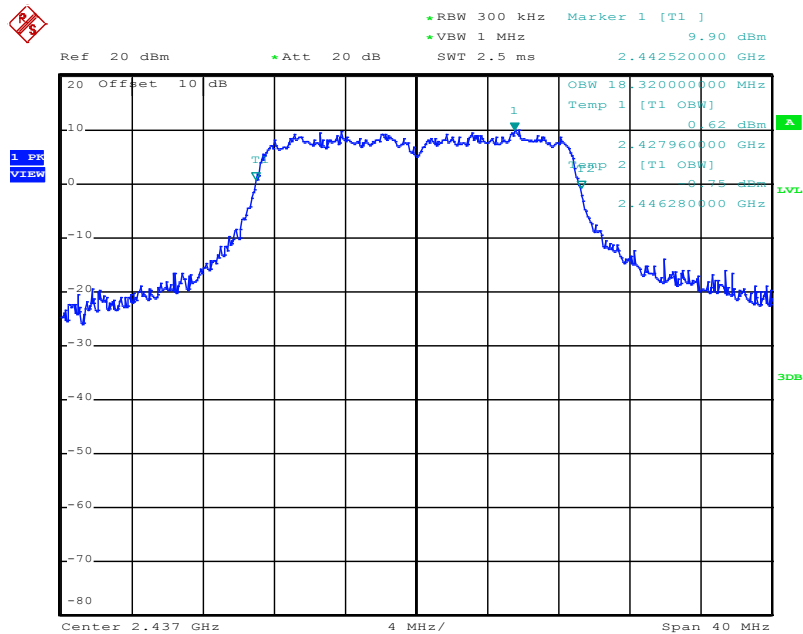


802.11n, HT20:

Channel 1 (2412 MHz)



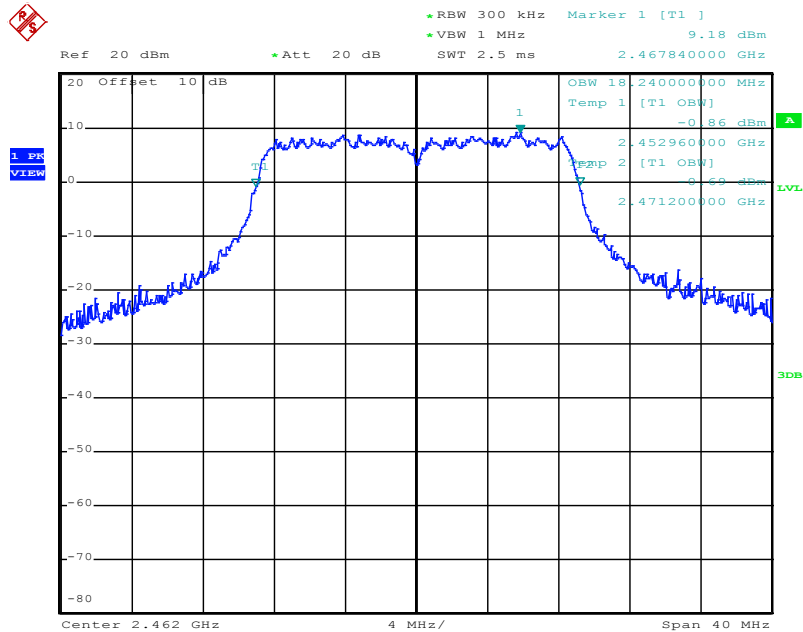
Channel 6 (2437 MHz)



FCC ID: LYHELN1V1

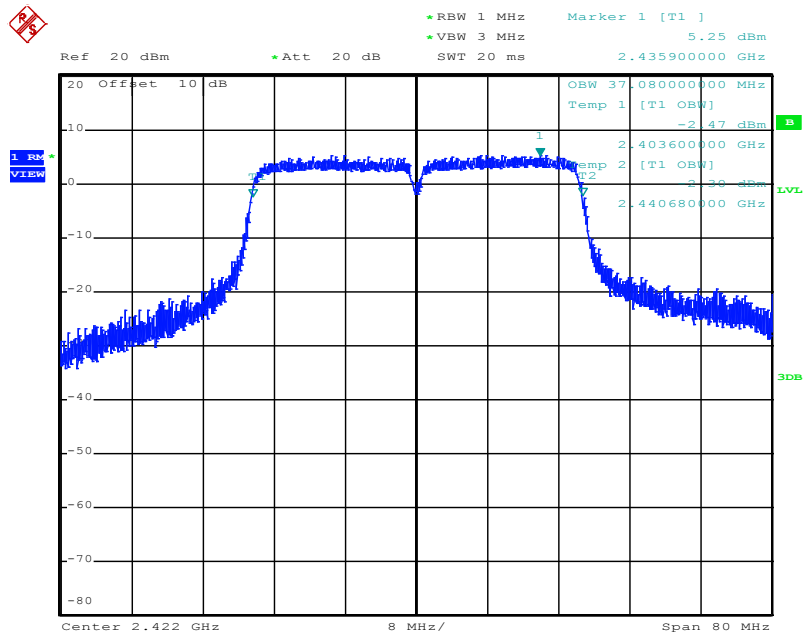
IC: 267AA-ELN1V1

Channel 11 (2462 MHz)



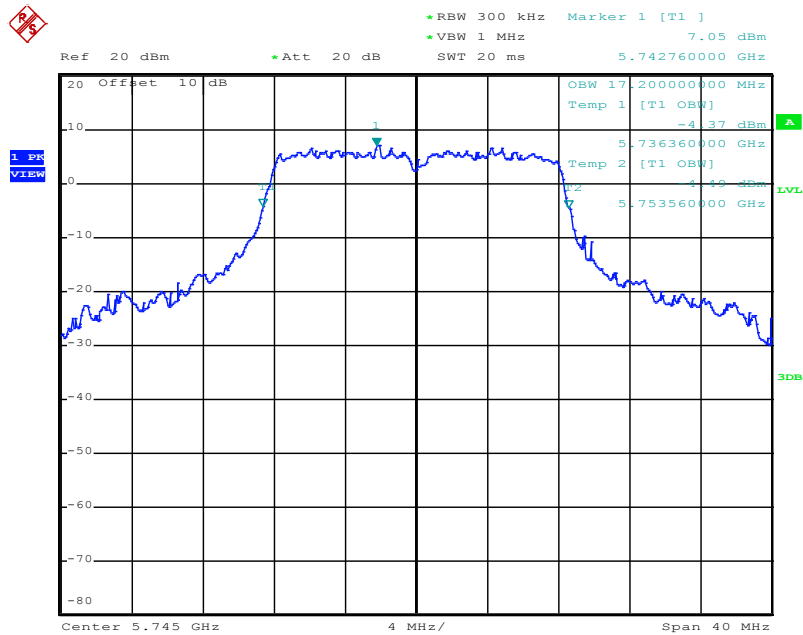
802.11n, HT40:

Channel 1up (2422 MHz)

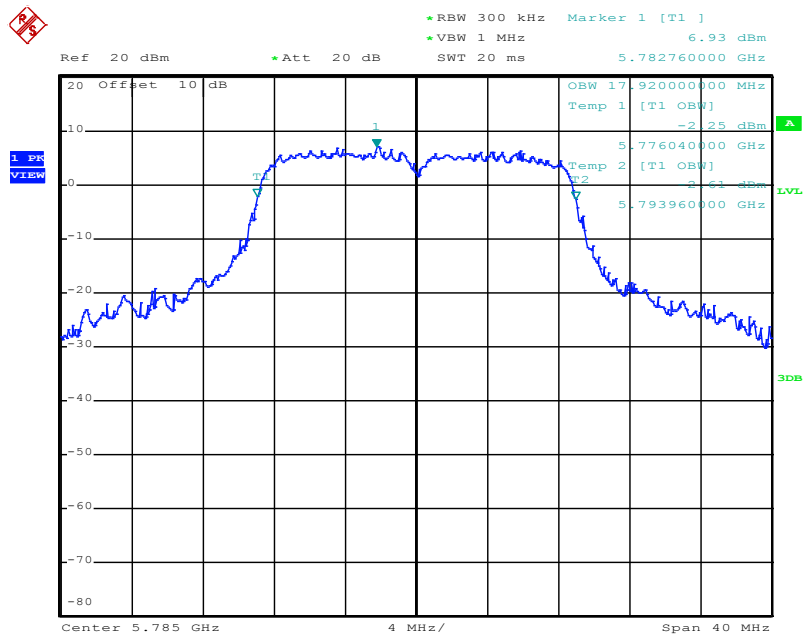


802.11a:

Channel 149 (5745 MHz)



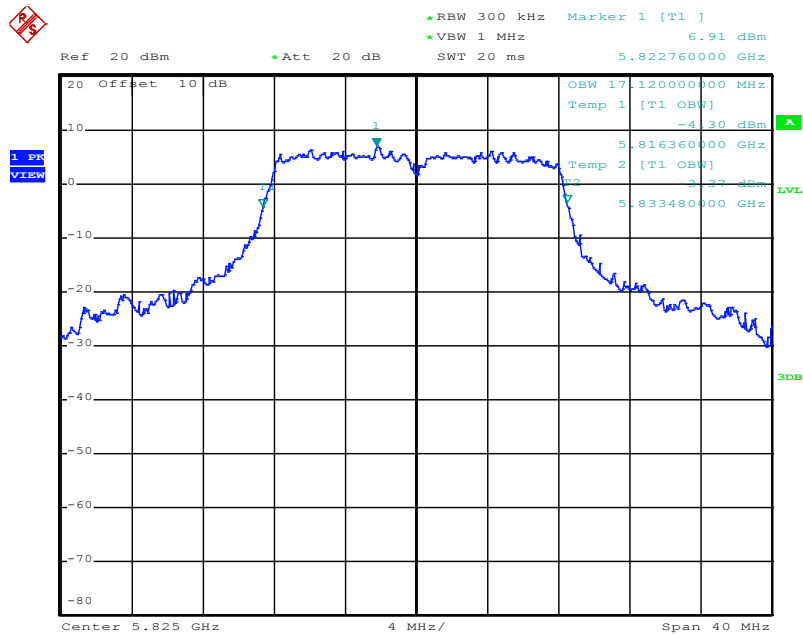
Channel 157 (5785 MHz)



FCC ID: LYHELN1V1

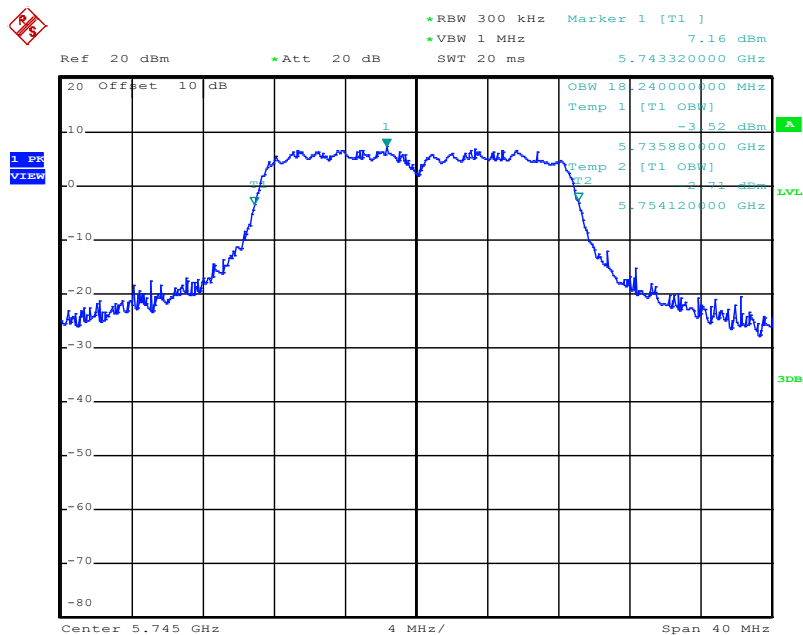
IC: 267AA-ELN1V1

Channel 165 (5825 MHz)



HT20:

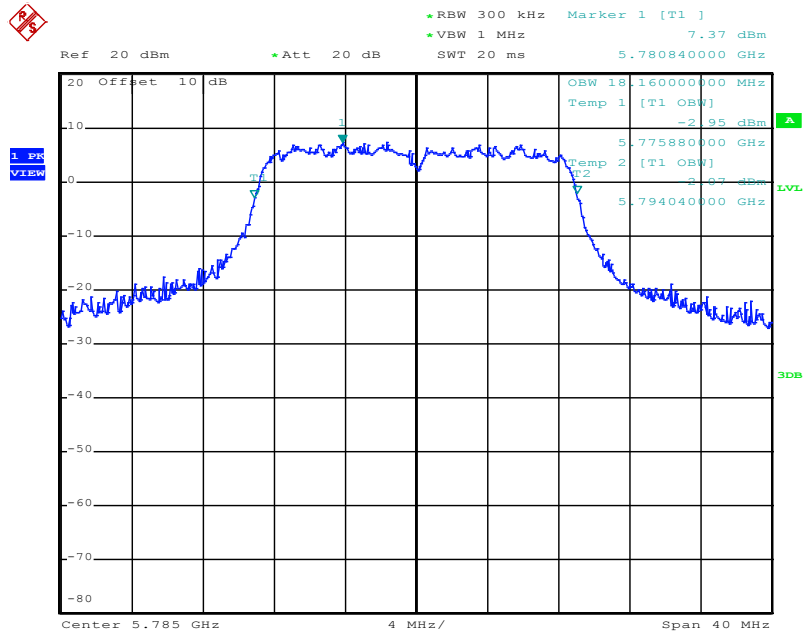
Channel 149 (5745 MHz)



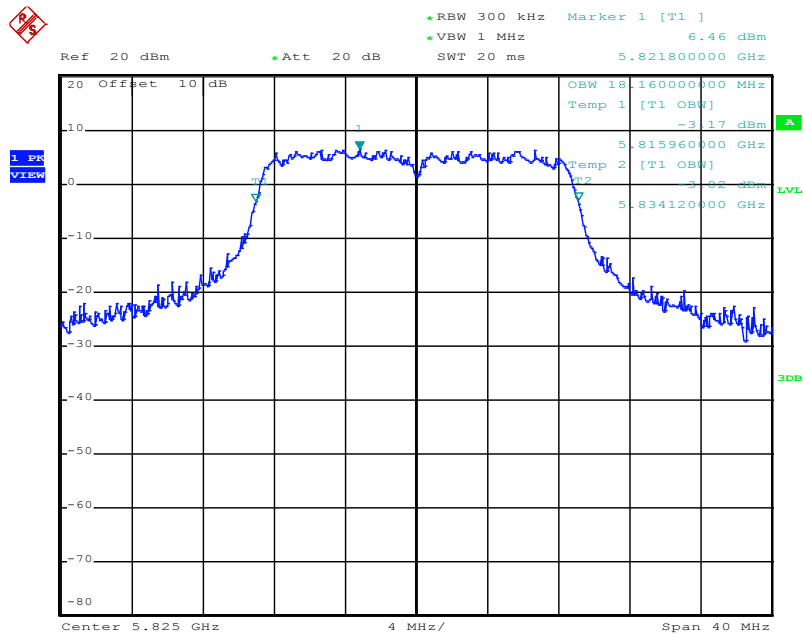
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Channel 157 (5785 MHz)

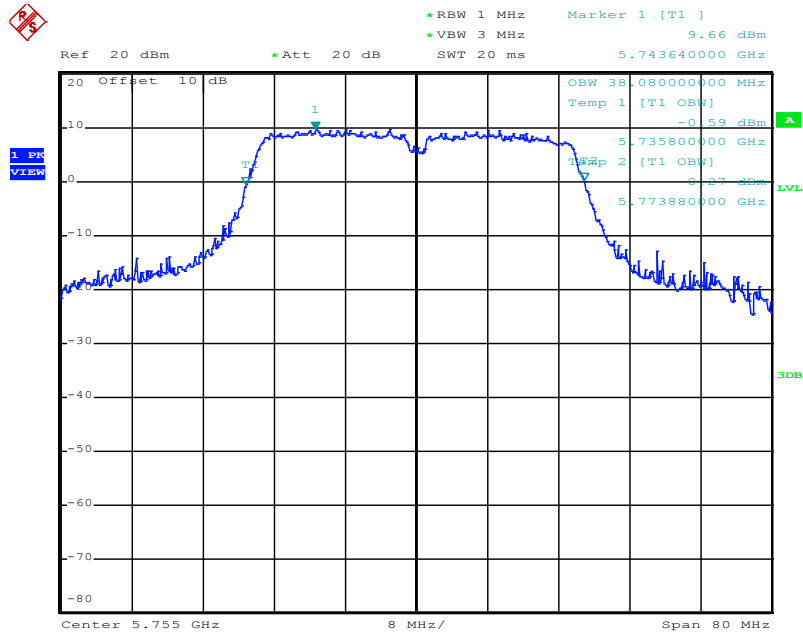


Channel 165 (5825 MHz)

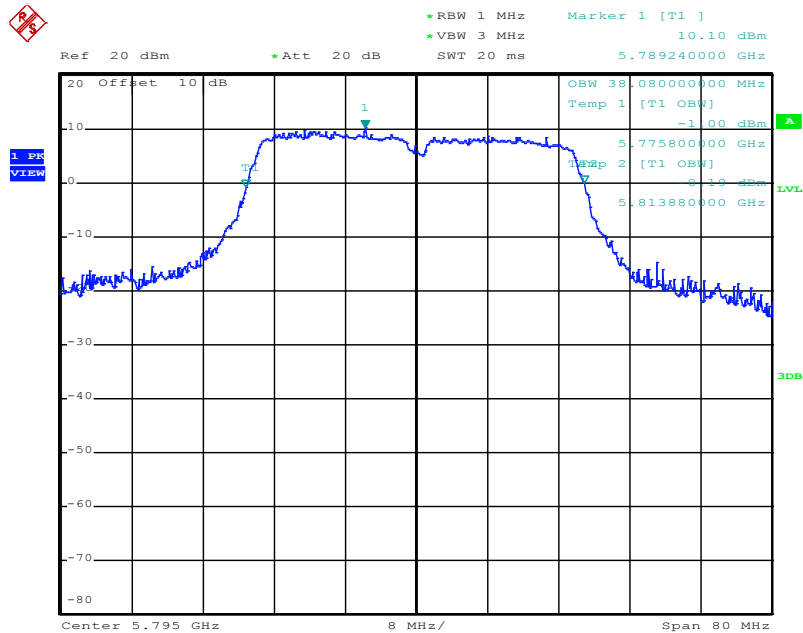


HT40:

Channel 149up (5755 MHz)



Channel 157up (5795 MHz)



5.3 Maximum peak conducted output power

For test instruments and accessories used see section 6 Part CPC 3.

5.3.1 Description of the test location

Test location: AREA 4

5.3.2 Photo documentation of the test set-up



5.3.3 Applicable standard

According to FCC Part 15, Section 15.247(b)(3):

For systems using digital modulation in the 2400-2483.5 MHz and 5725 – 5850 MHz bands, the maximum peak output power of the transmitter shall not exceed 1 Watt. The limit is based on transmitting antennas of directional gain that do not exceed 6 dBi.

5.3.4 Description of Measurement

The maximum peak conducted output power is measured using a spectrum analyser with the function “integrated bandpower measurement” following the procedure set out in OET 558074, item 9.1.2. The EUT is set in TX continuous mode while measuring.

5.3.5 Test result

802.11b		Test results conducted				
Setting: 1 Mbps, 1 TX						
		A [P8] (dBm)	A [P11] (dBm)	A [P14] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH1						
T_{nom}	V_{nom}	10.0	12.9	16.2	30.0	-13.8
Middle frequency: CH6						
T_{nom}	V_{nom}	10.1	13.1	16.4	30.0	-13.6
Highest frequency: CH11						
T_{nom}	V_{nom}	9.6	12.6	15.8	30.0	-14.2

802.11g		Test results conducted				
Setting: 6 Mbps, 1 TX						
		A [P8] (dBm)	A [P11] (dBm)	A [P14] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH1						
T_{nom}	V_{nom}	14.8	18.1	20.7	30.0	-9.3
Middle frequency: CH6						
T_{nom}	V_{nom}	15.1	18.3	21.1	30.0	-8.9
Highest frequency: CH11						
T_{nom}	V_{nom}	14.4	17.7	20.9	30.0	-9.1

802.11n, HT20		Test results conducted				
Setting: MCS0, 1 TX						
		A [P8] (dBm)	A [P11] (dBm)	A [P14] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH1						
T_{nom}	V_{nom}	15.1	18.4	21.4	30.0	-8.6
Middle frequency: CH6						
T_{nom}	V_{nom}	15.4	18.9	21.5	30.0	-8.5
Highest frequency: CH11						
T_{nom}	V_{nom}	15.0	18.1	21.4	30.0	-8.6

802.11n, HT40		Test results conducted				
Setting: MCS0, 1 TX						
		A [P8] (dBm)	A [P11] (dBm)	A [P14] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH1up						
T_{nom}	V_{nom}	15.5	18.7	21.6	30.0	-8.4

802.11a		Test results conducted				
Setting: 6 Mbps, 1 TX						
		A [P14] (dBm)	A [P17] (dBm)	A [P20] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH149						
T_{nom}	V_{nom}	17.7	18.4	18.5	30.0	-11.5
Middle frequency: CH157						
T_{nom}	V_{nom}	17.5	18.4	18.6	30.0	-11.4
Highest frequency: CH165						
T_{nom}	V_{nom}	16.7	17.9	17.6	30.0	-12.4

802.11n, HT20		Test results conducted				
Setting: MCS0, 1 TX						
		A [P14] (dBm)	A [P17] (dBm)	A [P20] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH149						
T_{nom}	V_{nom}	17.4	18.6	18.6	30.0	-11.4
Middle frequency: CH157						
T_{nom}	V_{nom}	17.5	18.5	18.6	30.0	-11.4
Highest frequency: CH165						
T_{nom}	V_{nom}	16.6	17.9	17.8	30.0	-12.2

802.11n, HT40		Test results conducted				
Setting: MCS0, 1 TX						
		A [P14] (dBm)	A [P17] (dBm)	A [P20] (dBm)	Limit (dBm)	Margin (dB)
Lowest frequency: CH149up						
T_{nom}	V_{nom}	17.7	17.9	18.4	30.0	-11.6
Middle frequency: CH157up						
T_{nom}	V_{nom}	17.2	18.0	18.2	30.0	-11.8

Peak Power Limit according to FCC Part 15, Section 15.247(b)(3):

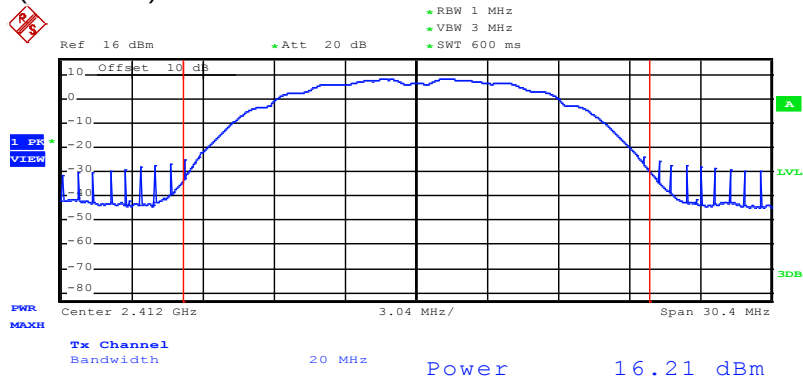
Frequency (MHz)	Peak power limit	
	(dBm)	(Watt)
902 - 928	30	1.0
2400 - 2483.5	30	1.0
5725 - 5850	30	1.0

The requirements are **FULFILLED**.

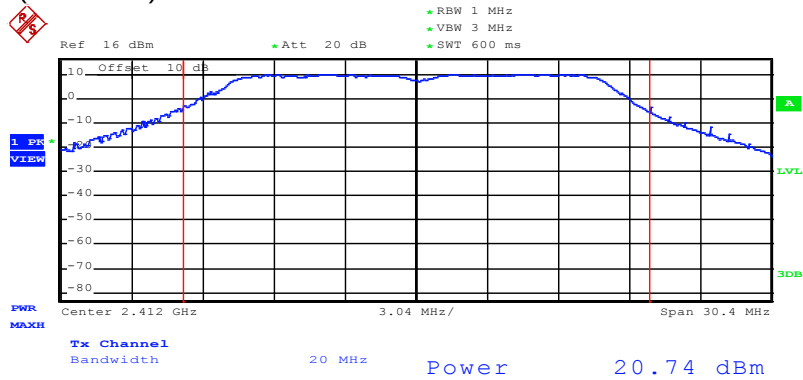
Remarks: For detailed test results please see the following test protocols. CH1 and CH149 of the plots are listed only.

5.3.1 Test protocols

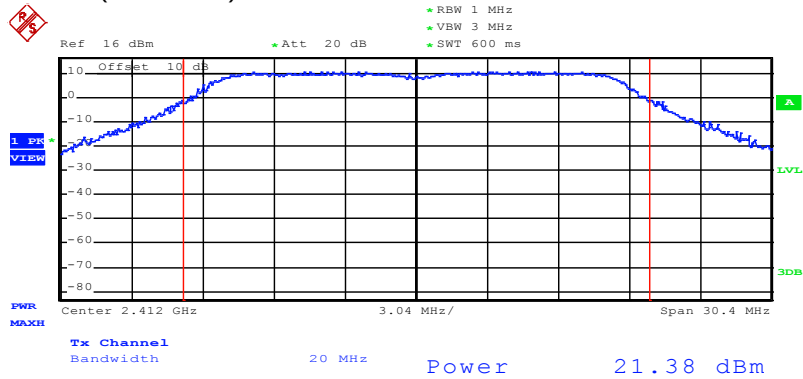
802.11b, Channel 1 (2412 MHz) P14:



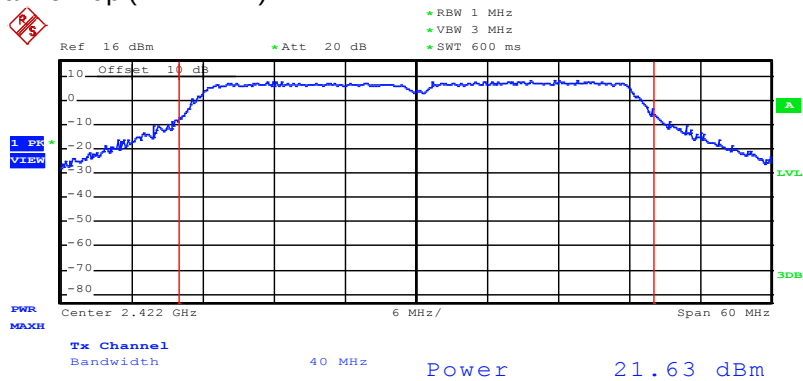
802.11g, Channel 1 (2412 MHz) P14:



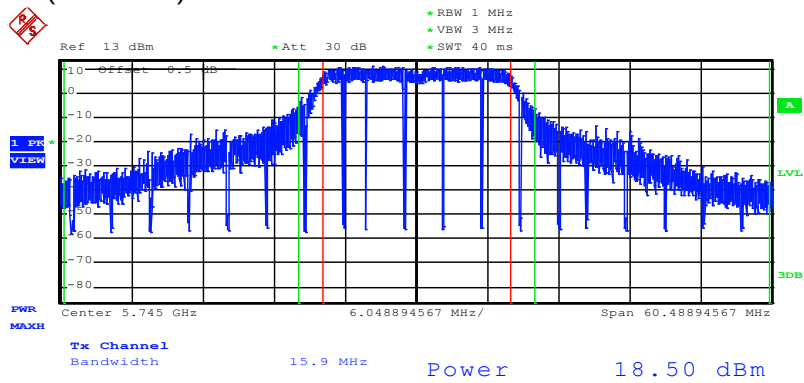
802.11n, HT20, Channel 1 (2412 MHz) P14:



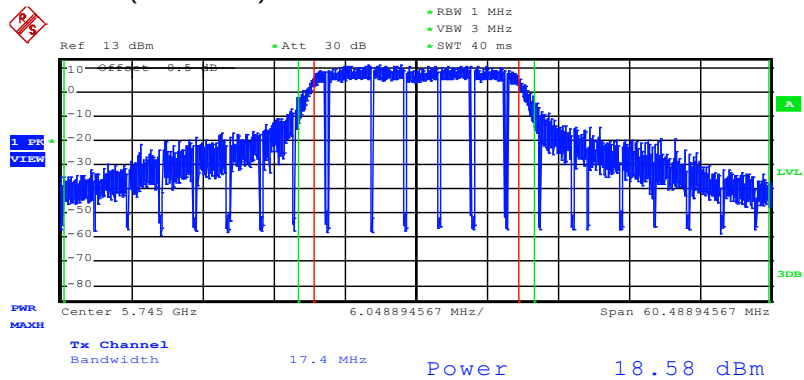
802.11n, HT40, Channel 1up (2422 MHz) P14:



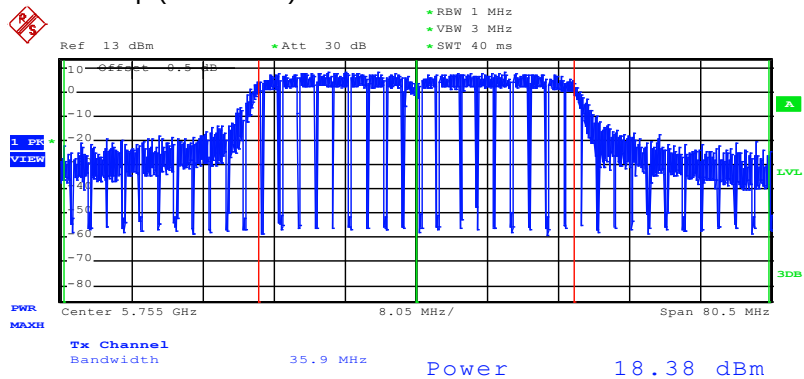
802.11a, Channel 149 (5745 MHz) P20:



802.11n, HT20, Channel 149 (5745 MHz) P20:



802.11n, HT40, Channel 149up (5755 MHz) P20:



5.4 Power spectral density

For test instruments and accessories used see section 6 Part CPC 3.

5.4.1 Description of the test location

Test location: AREA 4

5.4.2 Photo documentation of the test set-up



5.4.3 Applicable standard

According to FCC Part 15, Section 15.247(e):

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

5.4.4 Description of Measurement

The measurement is performed using the procedure 10.2 set out in KDB-558074. The power measurement was done using the integrated band power method. Therefore the PKPSD is measured. The max peak was located and with the spectrum analyser and a marker set to peak. An attenuator or cable loss is taken into account with an amplitude offset.

Spectrum analyser settings:

RBW: 3 kHz, VBW: 10 kHz, Detector: Peak, Sweep time: 10 s,

5.4.5 Test result

802.11b		Test results conducted		
Setting: 1 Mbps, 1 TX				
		PD [P14(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH1				
T_{nom}	V_{nom}	-13.9	8.0	-21.9
Middle frequency: CH6				
T_{nom}	V_{nom}	-13.8	8.0	-21.8
Highest frequency: CH11				
T_{nom}	V_{nom}	-14.1	8.0	-22.1

802.11g		Test results conducted		
Setting: 6 Mbps, 1 TX				
Chain 1		PD [P14(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH1				
T_{nom}	V_{nom}	-15.3	8.0	-23.3
Middle frequency: CH6				
T_{nom}	V_{nom}	-14.5	8.0	-22.5
Highest frequency: CH11				
T_{nom}	V_{nom}	-15.1	8.0	-23.1

802.11n, HT20		Test results conducted		
Setting: MCS0, 1 TX				
Chain 1		PD [P14(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH1				
T_{nom}	V_{nom}	-14.6	8.0	-22.6
Middle frequency: CH6				
T_{nom}	V_{nom}	-14.7	8.0	-22.7
Highest frequency: CH11				
T_{nom}	V_{nom}	-14.7	8.0	-22.7

802.11n, HT40		Test results conducted		
Setting: MCS0, 1 TX				
Chain 1		PD [P14(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH1up				
T_{nom}	V_{nom}	-16.3	8.0	-24.3

802.11a		Test results conducted		
Setting: 6 Mbps, 1 TX				
		PD [P20(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH149				
T_{nom}	V_{nom}	-11.5	8.0	-19.5
Middle frequency: CH157				
T_{nom}	V_{nom}	-12.2	8.0	-20.2
Highest frequency: CH165				
T_{nom}	V_{nom}	-12.6	8.0	-20.6

802.11n, HT20		Test results conducted		
Setting: MCS0, 1 TX				
		PD [P20(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH149				
T_{nom}	V_{nom}	-11.6	8.0	-19.6
Middle frequency: CH157				
T_{nom}	V_{nom}	-11.8	8.0	-19.8
Highest frequency: CH165				
T_{nom}	V_{nom}	-11.4	8.0	-19.4

802.11n, HT40		Test results conducted		
Setting: MCS0, 1 TX				
		PD [P20(max)] (dBm/3kHz)	Limit (dBm/3kHz)	Margin (dB)
Lowest frequency: CH149up				
T_{nom}	V_{nom}	-15.4	8.0	-23.4
Highest frequency: CH165up				
T_{nom}	V_{nom}	-15.2	8.0	-23.2

Power spectral density limit according to FCC Part 15, Section 15.247(e):

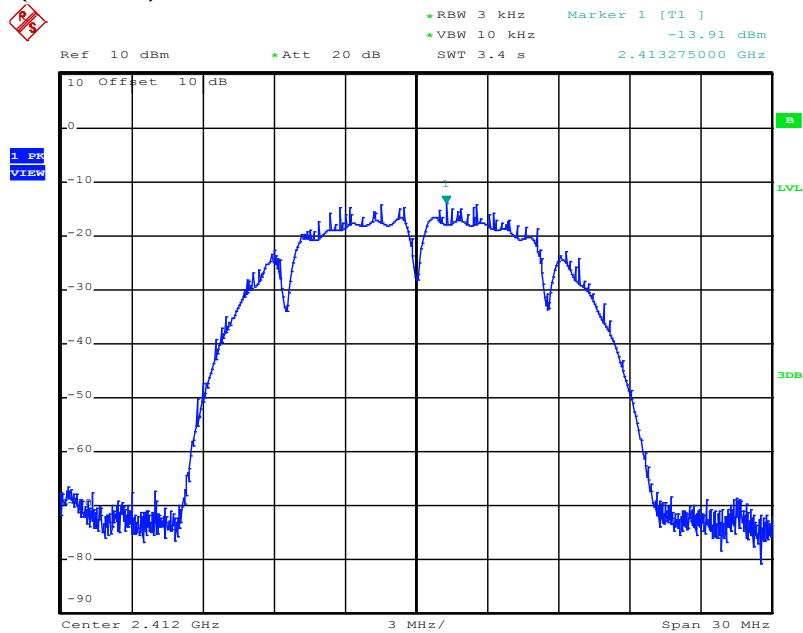
Frequency (MHz)	Power spectral density limit
	(dBm/3 kHz)
2400 – 2483.5	8
5725 - 5850	8

The requirements are **FULFILLED**.

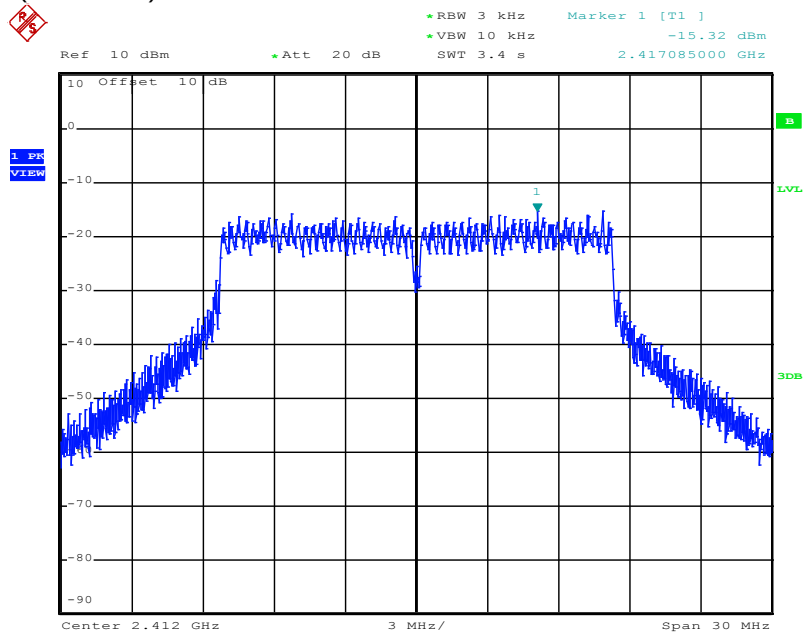
Remarks: For detailed test results please see the following test protocols. Only the CH1 and CH149 of the plots are listed.

5.4.1 Test protocols power spectral density plots

802.11b, Channel 1 (2412 MHz) P14:



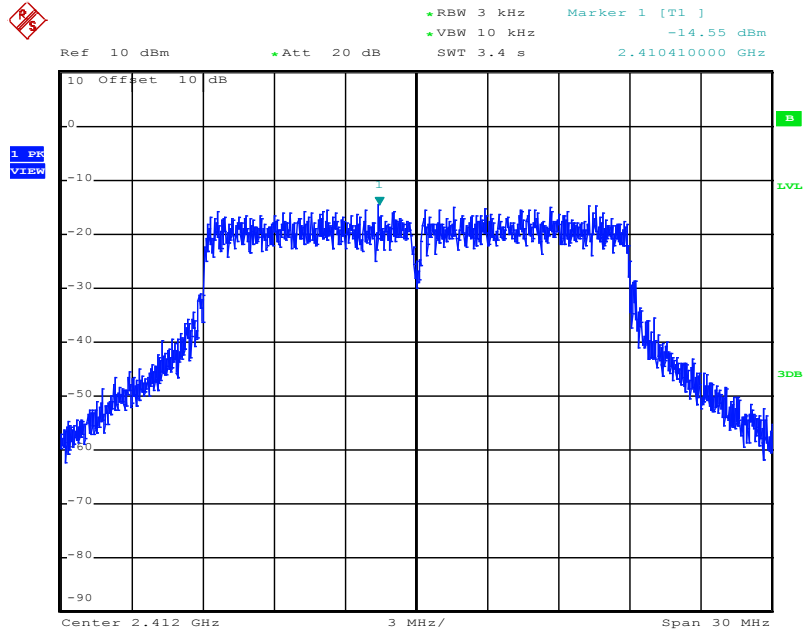
802.11g, Channel 1 (2412 MHz) P14:



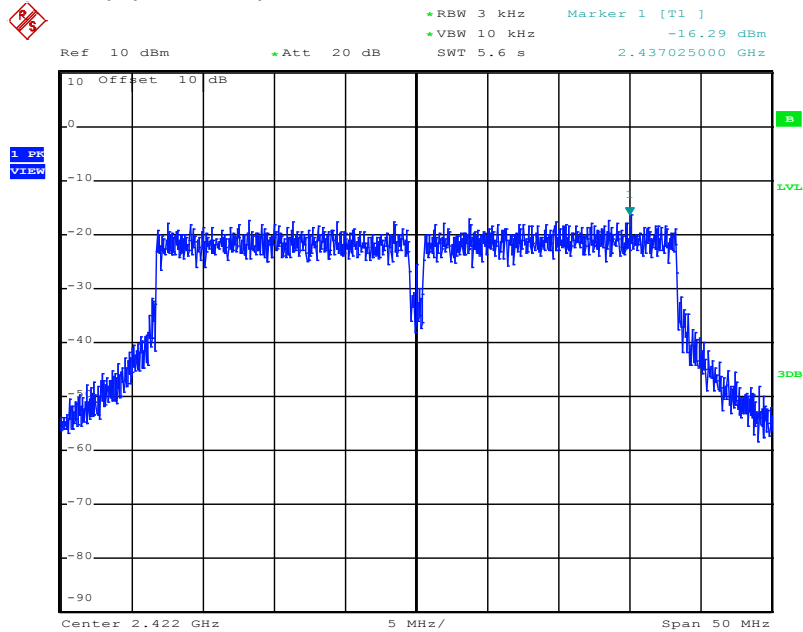
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

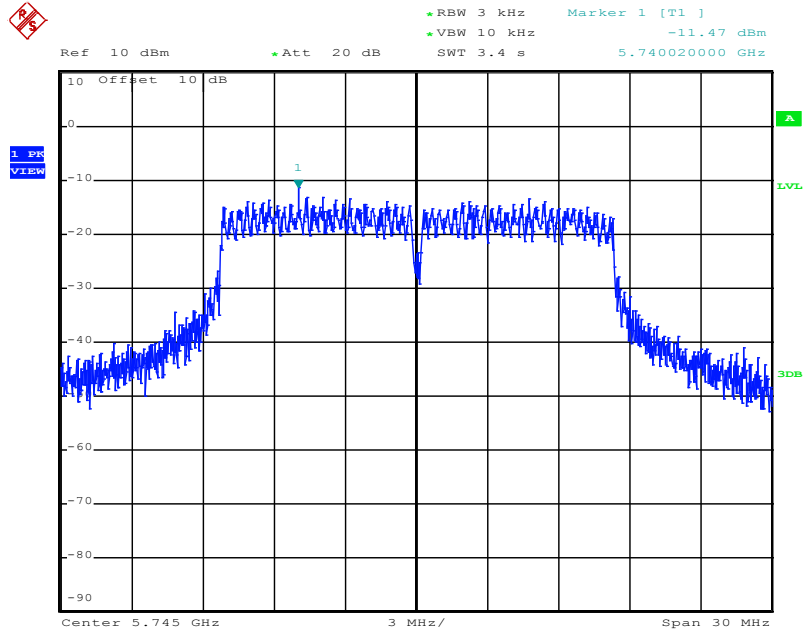
802.11n, HT20, Channel 1 (2412 MHz) P14:



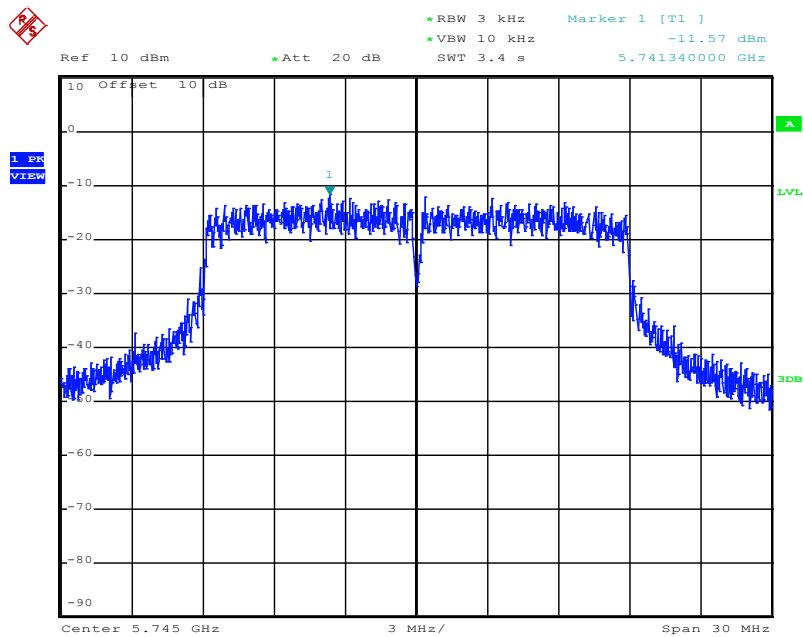
802.11n, HT40, Channel 1up (2422 MHz) P14:



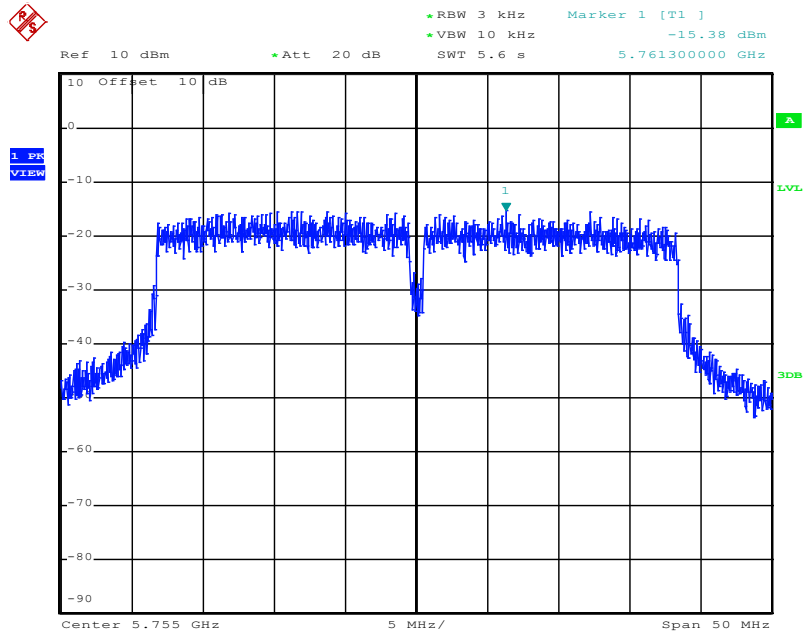
802.11a, Channel 149 (5745 MHz) P20:



802.11n, HT20, Channel 149 (5745 MHz) P20:



802.11n, HT40, Channel 149up (5755 MHz) P20:



5.5 Spurious emissions conducted

For test instruments and accessories used see section 6 Part SEC 1, 2 and SEC 3.

5.5.1 Description of the test location

Test location: AREA4

5.5.2 Photo documentation of the test set-up



5.5.3 Applicable standard

According to FCC Part 15, Section 15.247(d):

In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or an radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a) (see Section 15.205(c)).

5.5.4 Description of measurement

The spurious emissions are measured conducted using a spectrum analyser in a test setup following the procedures set out in KDB 558074 for DTS. The transmitter is set to the lowest operating frequency (CH1)(CH149), the middle (CH6)(CH157) and to the highest operating frequency (CH11)(CH165). The frequency spectrum outside from the operating frequency range (2400 - 2483.5 MHz or 5725 – 5850 MHz) is scanned for emissions that exceed the defined limit. The measurement is performed at normal test conditions in modulated TX continuous mode.

Spectrum analyser search setting:

RBW: 100 kHz, VBW: 300 kHz, Detector: Max peak, Trace Mode: Max hold, Sweep time: 1 s

5.5.5 Test result

Note: The absolute worst case is the power setting of P20. All possible emissions will be most possible amplified. Therefore only the P20 tables are listed. From this plots the emissions are determined which will be measured in restricted bands.

802.11b			PK-measurement			
Lowest frequency: CH1						
Test conditions: 1 TX , P20, 1 Mbps				Ref. level: 7.0 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	11.0	-74.0	-13.0	-61.0
30	1000	100	405.4	-66.0	-13.0	-53.0
1000	2400	100	2288.0	-50.1	-13.0	-37.1
2483.5	4000	100	2483.5	-42.9	-13.0	-29.9
4000	10000	100	4824.0	-49.2	-13.0	-36.2
10000	25000	100	24856.1	-53.6	-13.0	-40.6
Measurement uncertainty				±3 dB		

802.11b			PK-measurement			
Middle frequency: CH6						
Test conditions: 1 TX , P20, 1 Mbps				Ref. level: 7.0 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	11.0	-71.5	-13.0	-58.5
30	1000	100	1000.0	-65.1	-13.0	-52.1
1000	2400	100	2398.6	-47.2	-13.0	-34.2
2483.5	4000	100	2516.2	-51.3	-13.0	-38.3
4000	10000	100	4874.1	-54.9	-13.0	-41.9
10000	25000	100	24953.3	-53.4	-13.0	-40.4
Measurement uncertainty				±3 dB		

802.11b		PK-measurement				
Highest frequency: CH11						
Test conditions: 1 TX , P20, 1 Mbps				Ref. level: 7.0 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	11.0	-70.0	-13.0	-57.0
30	1000	100	1000.0	-66.2	-13.0	-53.2
1000	2400	100	2288.0	-49.2	-13.0	-36.2
2483.5	4000	100	2483.7	-33.6	-13.0	-20.6
4000	10000	100	7386.4	-54.4	-13.0	-41.4
10000	25000	100	24832.9	-53.5	-13.0	-40.5
Measurement uncertainty				±3 dB		

802.11g		PK-measurement				
Lowest frequency: CH1						
Test conditions: 1 TX , P20, 6 Mbps				Ref. level: 6.4 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	9.8	-73.0	-13.6	-59.4
30	1000	100	411.0	-65.2	-13.6	-51.6
1000	2400	100	2399.8	-24.2	-13.6	-10.6
2483.5	4000	100	2496.9	-53.0	-13.6	-39.4
4000	10000	100	7237.1	-47.4	-13.6	-33.8
10000	25000	100	24813.6	-53.8	-13.6	-40.2
Measurement uncertainty				±3 dB		

802.11g			PK-measurement			
Middle frequency: CH6						
Test conditions: 1 TX , P20, 6 Mbps				Ref. level: 6.4 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	9.7	-70.7	-13.6	-57.1
30	1000	100	414.0	-65.5	-13.6	-51.9
1000	2400	100	2398.0	-46.2	-13.6	-32.6
2483.5	4000	100	2538.6	-52.4	-13.6	-38.8
4000	10000	100	7308.4	-49.6	-13.6	-36.0
10000	25000	100	24806.0	-53.5	-13.6	-39.9
Measurement uncertainty				±3 dB		

802.11g			PK-measurement			
Highest frequency: CH11						
Test conditions: 1 TX , P20, 6 Mbps					Ref. level: 6.4 dBm	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	9.7	-70.1	-13.6	-56.5
30	1000	100	409.6	-65.5	-13.6	-51.9
1000	2400	100	2287.8	-50.0	-13.6	-36.4
2483.5	4000	100	2483.9	-33.1	-13.6	-19.5
4000	10000	100	7385.0	-51.1	-13.6	-37.5
10000	25000	100	24909.8	-53.9	-13.6	-40.3
Measurement uncertainty				±3 dB		

802.11n, HT20			PK-measurement			
Lowest frequency: CH1						
Test conditions: 1 TX , P20, MCS0				Ref. level: 5.4 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.1	-77.0	-14.6	-62.4
30	1000	100	412.0	-65.0	-14.6	-50.4
1000	2400	100	2399.6	-27.0	-14.6	-12.4
2483.5	4000	100	2376.2	-52.8	-14.6	-38.2
4000	10000	100	7231.3	-49.8	-14.6	-35.2
10000	25000	100	24788.2	-53.3	-14.6	-38.7
Measurement uncertainty				±3 dB		

802.11n, HT20			PK-measurement			
Middle frequency: CH6						
Test conditions: 1 TX , P20, MCS0					Ref. level: 5.4 dBm	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	0.2	-76.9	-14.6	-62.3
30	1000	100	1000.0	-64.6	-14.6	-50.0
1000	2400	100	2288.0	-49.6	-14.6	-35.0
2483.5	4000	100	2523.2	-52.3	-14.6	-37.7
4000	10000	100	7304.8	-52.9	-14.6	-38.3
10000	25000	100	24813.4	-54.1	-14.6	-39.5
Measurement uncertainty				±3 dB		

802.11n, HT20			PK-measurement			
Highest frequency: CH11						
Test conditions: 1 TX , P20, MCS0				Ref. level: 5.4 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.8	-76.9	-14.6	-62.3
30	1000	100	405.6	-65.1	-14.6	-50.5
1000	2400	100	2287.8	-49.4	-14.6	-34.8
2483.5	4000	100	2484.5	-35.4	-14.6	-20.8
4000	10000	100	7392.6	-55.2	-14.6	-40.6
10000	25000	100	24825.5	-53.6	-14.6	-39.0
Measurement uncertainty				±3 dB		

802.11n, HT40			PK-measurement			
Lowest frequency: CH1up						
Test conditions: 1 TX , P20, MCS0				Ref. level: 2.8 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	20.0	-60.5	-17.2	-43.3
30	1000	100	415.2	-64.8	-17.2	-47.6
1000	2400	100	2399.2	-28.0	-17.2	-10.8
2483.5	4000	100	2486.9	-47.3	-17.2	-30.1
4000	10000	100	7279.8	-51.7	-17.2	-34.5
10000	25000	100	24770.7	-53.3	-17.2	-36.1
Measurement uncertainty				±3 dB		

802.11a			PK-measurement			
Lowest frequency: CH149						
Test conditions: 1 TX , P20, 6 Mbps				Ref. level: 3.0 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.288	-76.4	-17.0	-59.4
30	1000	100	1000.0	-63.9	-17.0	-46.9
1000	5725	100	5724.6	-34.2	-17.0	-17.2
5850	12000	100	6217.4	-56.8	-17.0	-39.8
12000	20000	100	16933.9	-67.0	-17.0	-50.0
20000	40000	100	39961.5	-55.9	-17.0	-38.9
Measurement uncertainty				±3 dB		

802.11a			PK-measurement			
Middle frequency: CH157						
Test conditions: 1 TX , P20, 6 Mbps				Ref. level: 3.0 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.673	-76.8	-17.0	-59.8
30	1000	100	1000.0	-63.7	-17.0	-46.7
1000	5725	100	4600.0	-47.0	-17.0	-30.0
5850	12000	100	5362.9	-57.1	-17.0	-40.1
12000	20000	100	19738.5	-67.2	-17.0	-50.2
20000	40000	100	39998.6	-56.7	-17.0	-39.7
Measurement uncertainty				±3 dB		

802.11a			PK-measurement			
Highest frequency: CH165						
Test conditions: 1 TX , P20, 6 Mbps				Ref. level: 3.0 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.246	-76.0	-17.0	-59.0
30	1000	100	1000.0	-64.3	-17.0	-47.3
1000	5725	100	4600.0	-46.8	-17.0	-29.8
5850	12000	100	5852.1	-44.6	-17.0	-27.6
12000	20000	100	18348.5	-67.0	-17.0	-50.0
20000	40000	100	39946.5	-56.8	-17.0	-39.8
Measurement uncertainty				±3 dB		

802.11n, HT20			PK-measurement			
Lowest frequency: CH149						
Test conditions: 1 TX , P20, MCS0					Ref. level: 3.3 dBm	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	30.000	-74.4	-16.7	-57.7
30	1000	100	1000.0	-65.6	-16.7	-48.9
1000	5725	100	5723.5	-33.1	-16.7	-16.4
5850	12000	100	6744.6	-57.3	-16.7	-40.6
12000	20000	100	16933.9	-67.0	-16.7	-50.3
20000	40000	100	39961.5	-55.9	-16.7	-39.2
Measurement uncertainty				±3 dB		

802.11n, HT20			PK-measurement			
Middle frequency: CH157						
Test conditions: 1 TX , P20, MCS0					Ref. level: 3.3 dBm	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.117	-75.9	-16.7	-59.2
30	1000	100	1000.0	-66.1	-16.7	-49.4
1000	5725	100	4600.0	-48.2	-16.7	-31.5
5850	12000	100	5410.8	-57.5	-16.7	-40.8
12000	20000	100	16533.3	-66.9	-16.7	-50.2
20000	40000	100	39974.3	-56.8	-16.7	-40.1
Measurement uncertainty				±3 dB		

802.11n, HT20			PK-measurement			
Highest frequency: CH165						
Test conditions: 1 TX , P20, MCS0				Ref. level: 3.3 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	1.343	-76.4	-16.7	-59.7
30	1000	100	1000.0	-64.4	-16.7	-47.7
1000	5725	100	4600.0	-47.2	-16.7	-30.5
5850	12000	100	5850.5	-46.8	-16.7	-30.1
12000	20000	100	19658.5	-66.9	-16.7	-50.2
20000	40000	100	39962.3	-56.9	-16.7	-40.2
Measurement uncertainty				±3 dB		

802.11n, HT40			PK-measurement			
Lowest frequency: CH149up						
Test conditions: 1 TX , P20, MCS0				Ref. level: 0.4 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	20.000	-69.7	-19.6	-50.1
30	1000	100	1000.0	-67.1	-19.6	-47.5
1000	5725	100	5720.7	-30.4	-19.6	-10.8
5850	12000	100	3124.8	-57.0	-19.6	-37.4
12000	20000	100	15675.2	-67.0	-19.6	-47.4
20000	40000	100	39959.3	-56.7	-19.6	-37.1
Measurement uncertainty				±3 dB		

802.11n, HT40			PK-measurement			
Highest frequency: CH157up						
Test conditions: 1 TX , P20, MCS0				Ref. level: 0.4 dBm		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBm)	(dB)
0.009	30	100	20.001	-74.0	-19.6	-54.4
30	1000	100	1000.0	-66.4	-19.6	-46.8
1000	5725	100	4600.0	-46.3	-19.6	-26.7
5850	12000	100	5852.5	-49.8	-19.6	-30.2
12000	20000	100	18076.8	-66.9	-19.6	-47.3
20000	40000	100	39984.8	-56.7	-19.6	-37.1
Measurement uncertainty				±3 dB		

Limit according to FCC Part 15, Section 15.247(d):

In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or an radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required.

Frequency (MHz)	Spurious emission limit
Below 960	20 dB below the highest level of the desired power
Above 960	20 dB below the highest level of the desired power

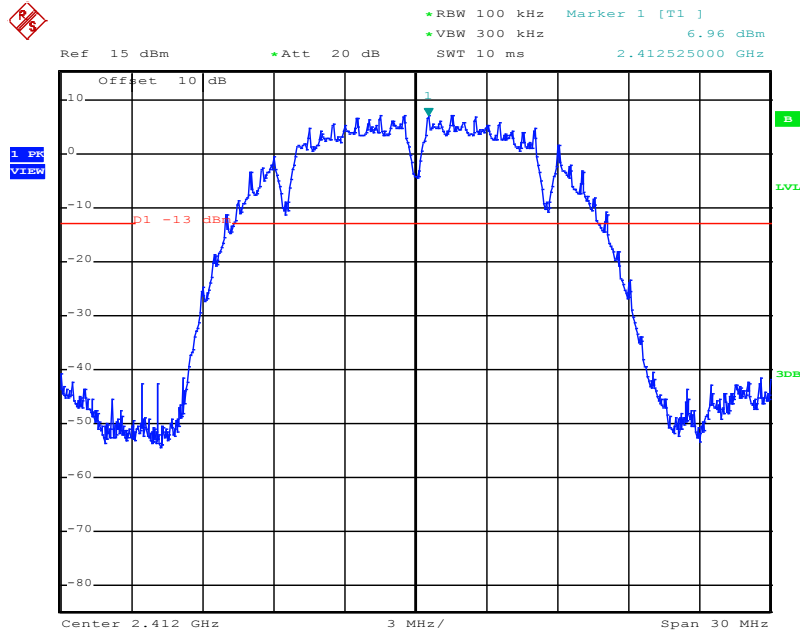
The requirements are **FULFILLED**.

Remarks: For detailed test results please see the following test protocols. Only the HT20, CH1 and CH149
of the plots are listed representativly.

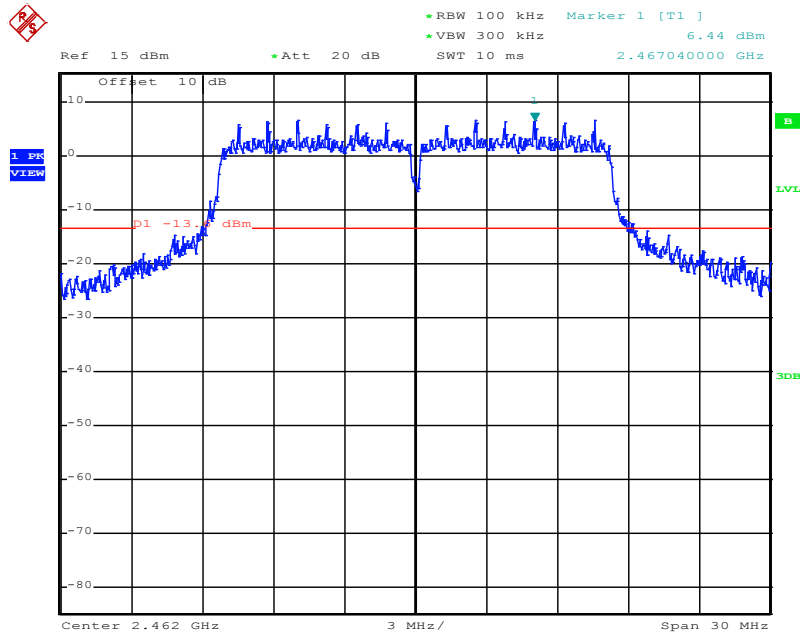
5.5.6 Test protocols

Determination of the reference level 2.4 GHz range

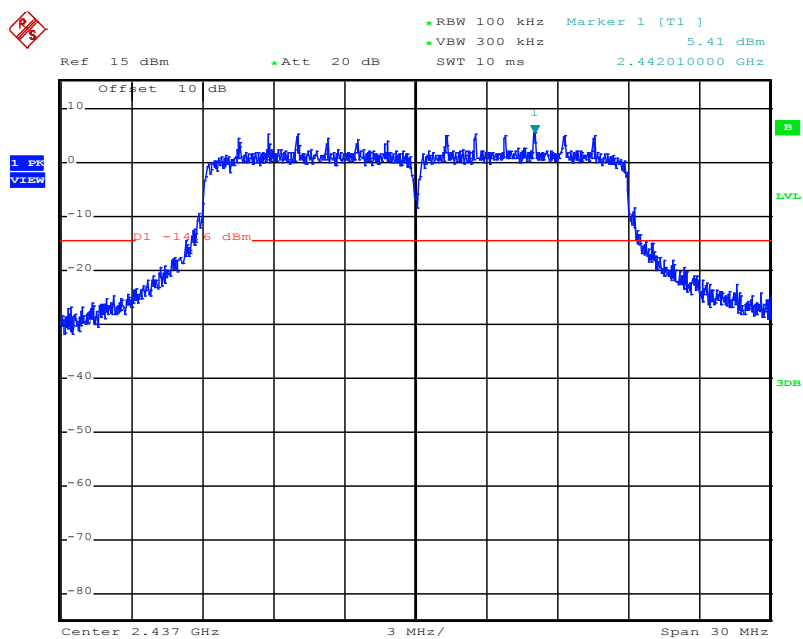
801.11b:



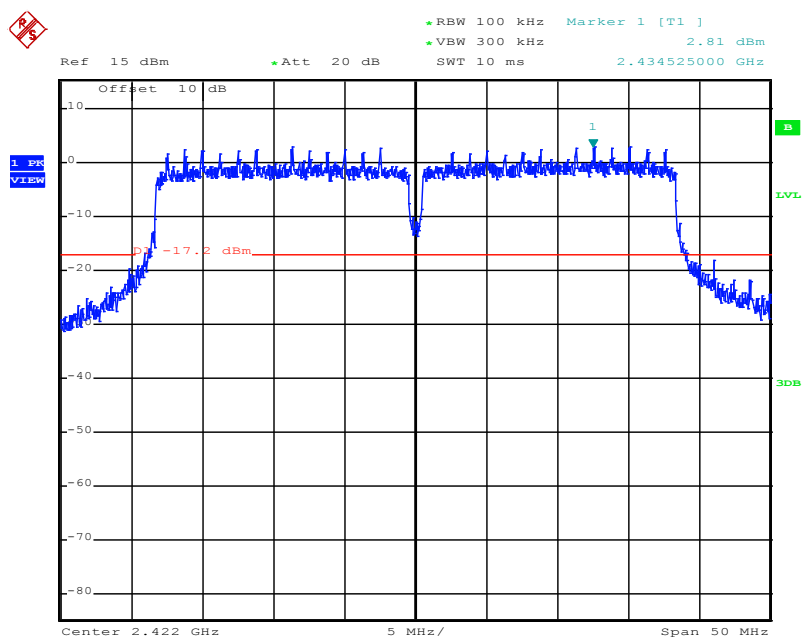
801.11g:



801.11n, HT20:

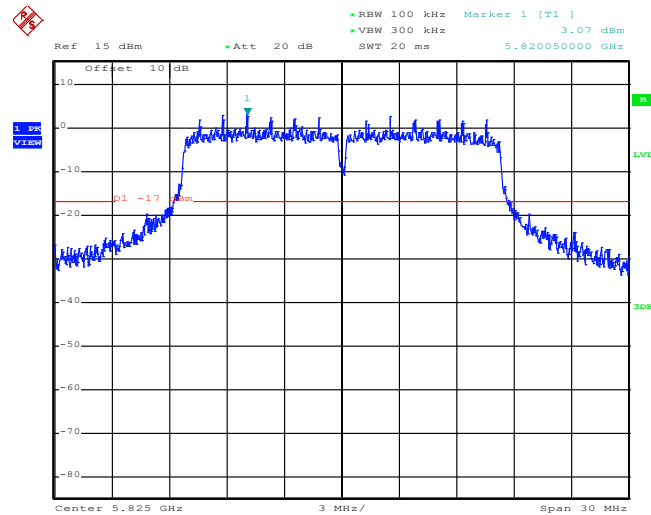


801.11n, HT40:

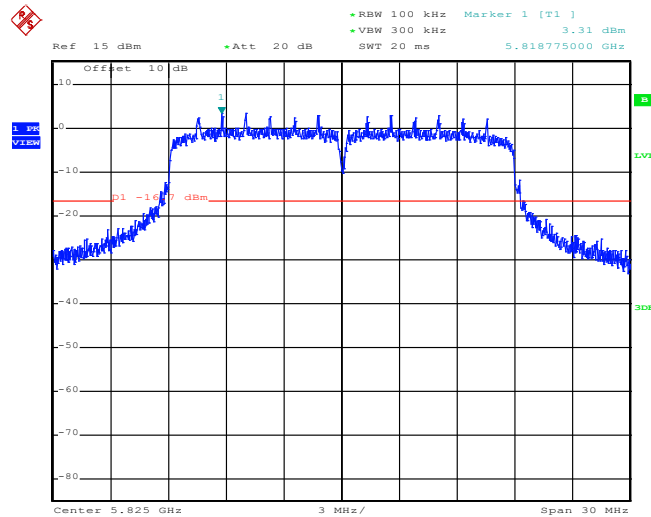


Determination of the reference level 5 GHz range

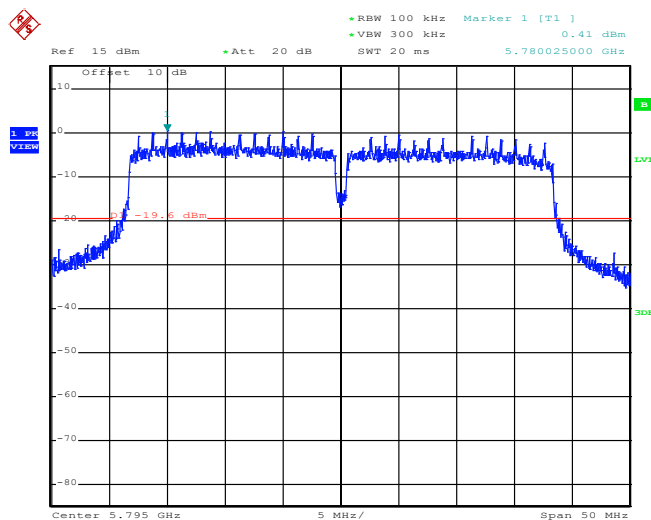
801.11a:



801.11n, HT20:



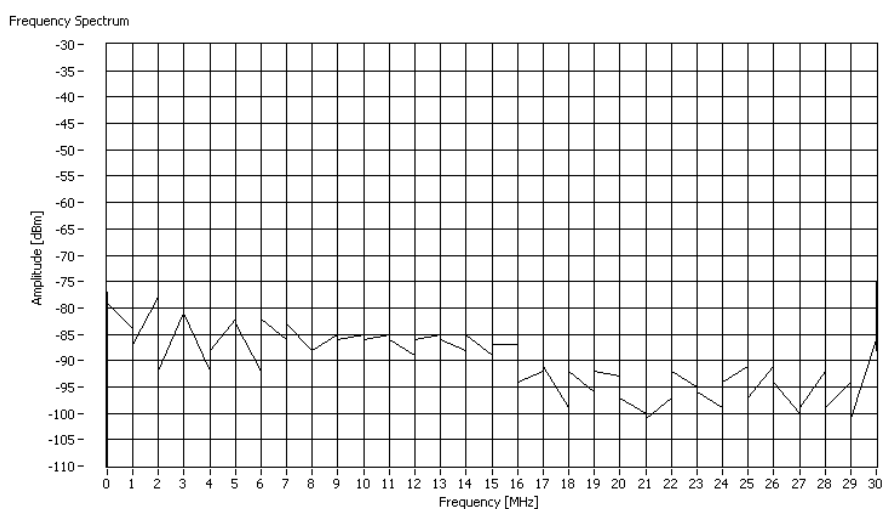
801.11n, HT40:



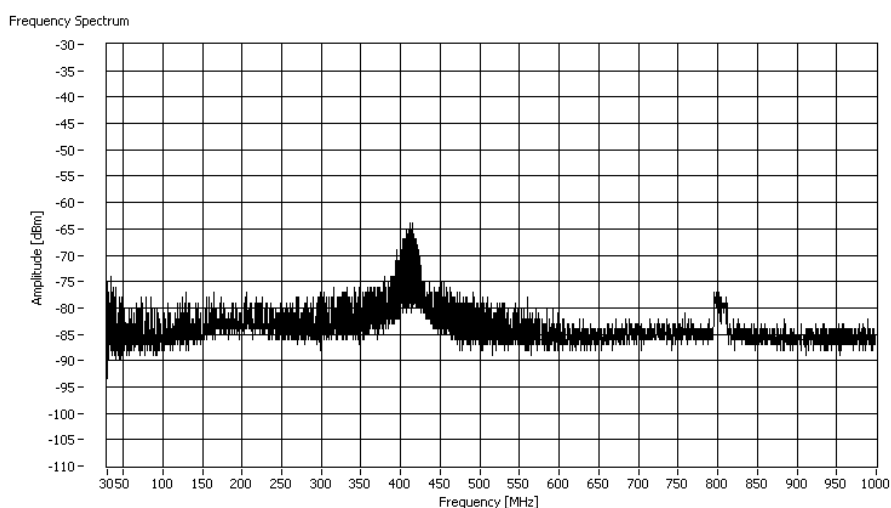
5.5.1 Test protocols of spurious emissions 2.4 GHz range (-20 dBc):

802.11n, HT20 Ch1

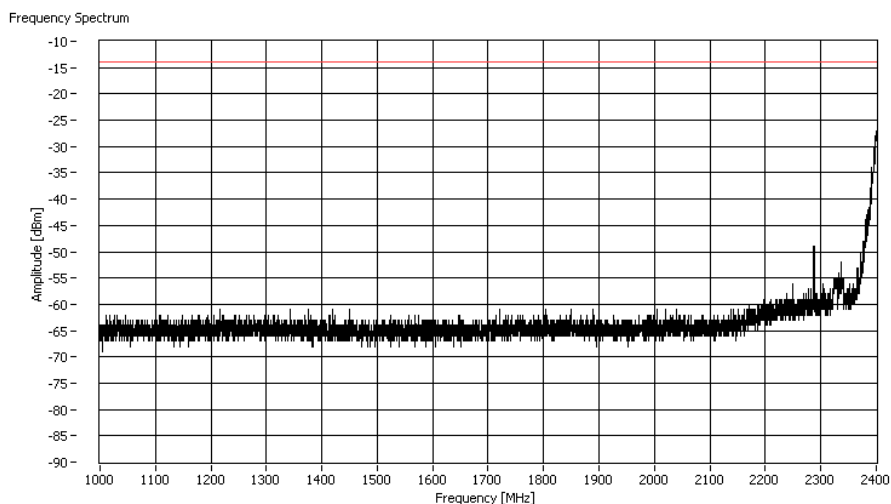
Spurious emissions conducted from 0.009 MHz to 30 MHz



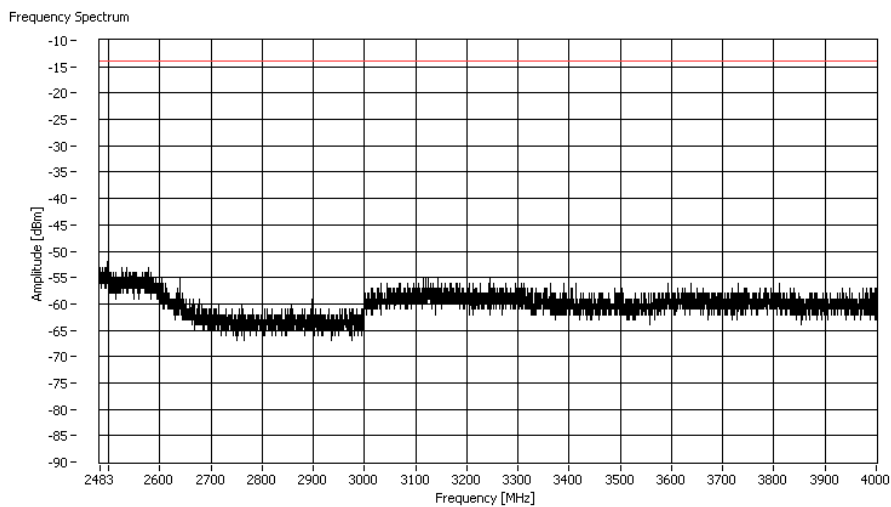
Spurious emissions conducted from 30 MHz to 1 GHz



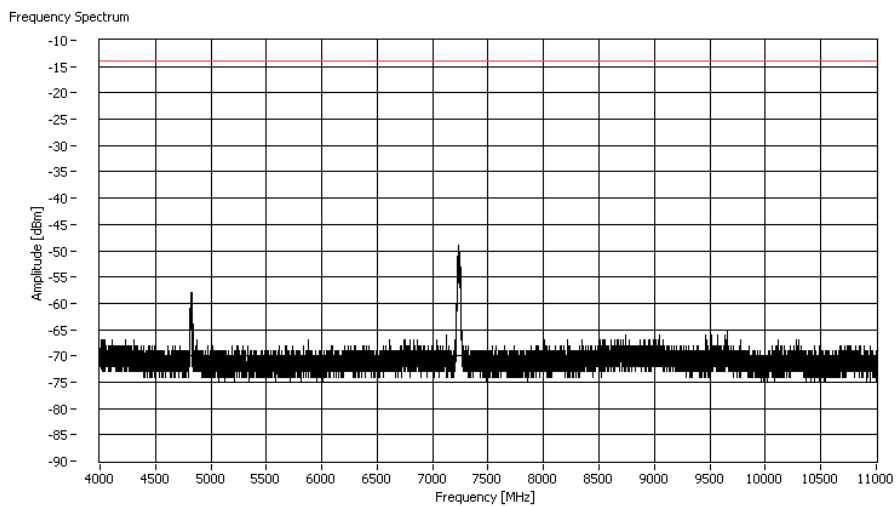
Spurious emissions conducted from 1 GHz to 2.4 GHz



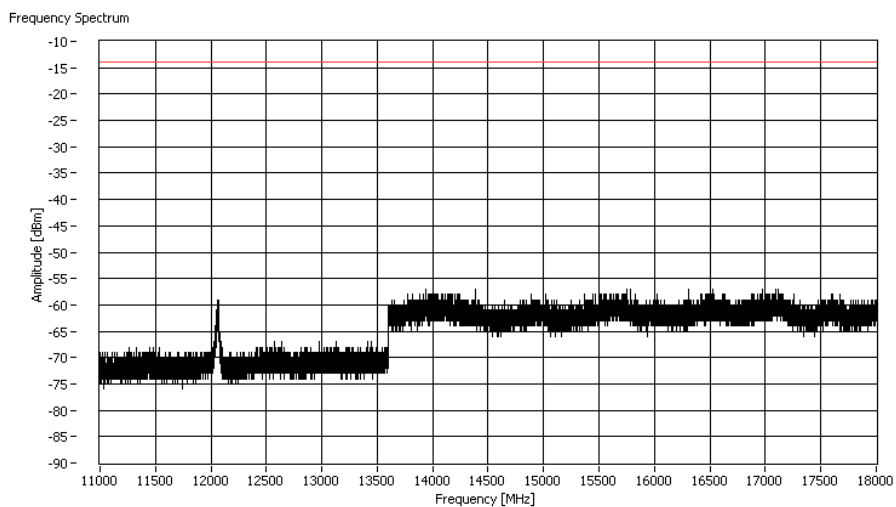
Spurious emissions conducted from 2.4 GHz to 4 GHz



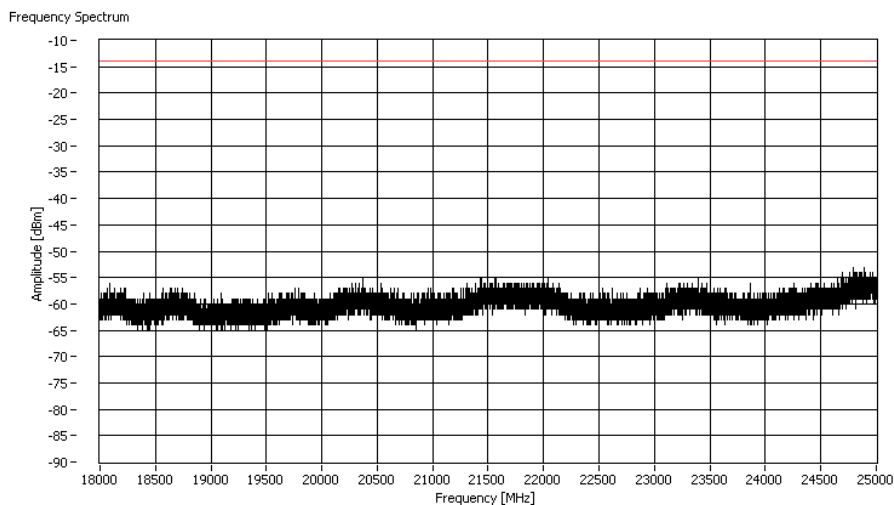
Spurious emissions conducted from 4 GHz to 11 GHz



Spurious emissions conducted from 11 GHz to 18 GHz

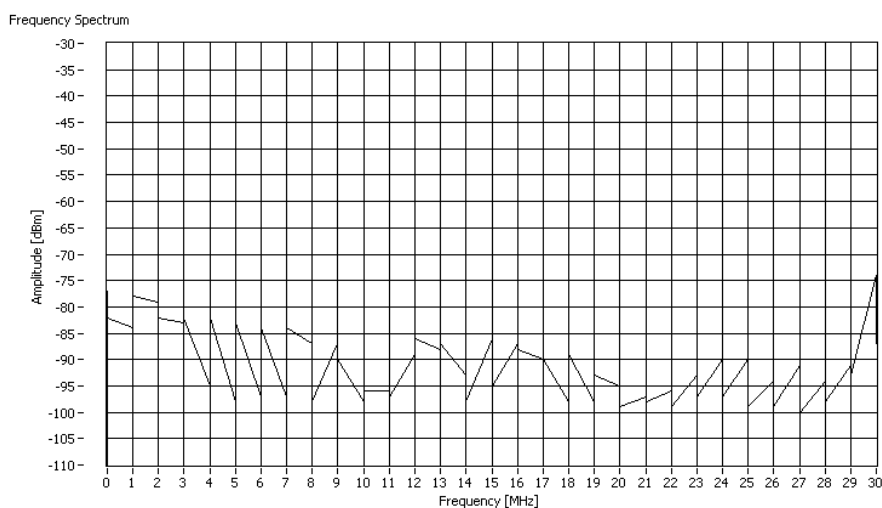


Spurious emissions conducted from 18 GHz to 25 GHz

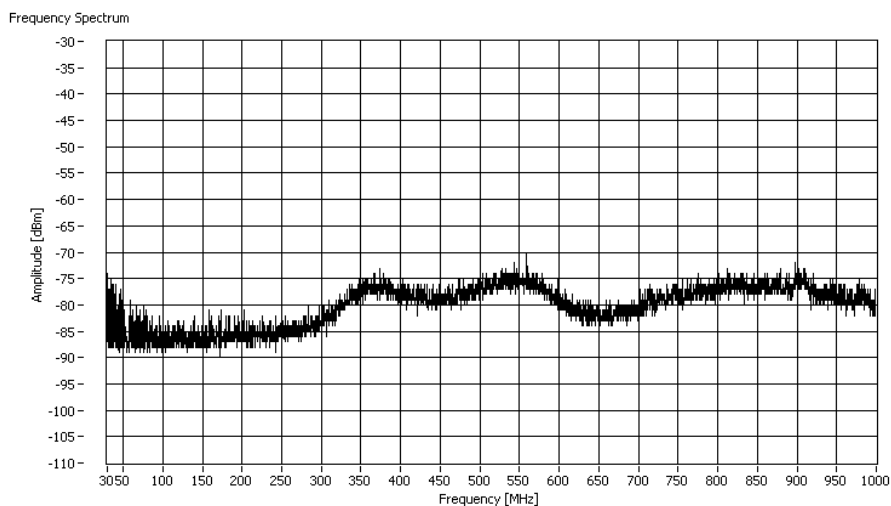


5.5.1 Test protocols of spurious emissions 5 GHz range (-20 dBc):
802.11n, HT20, Ch149

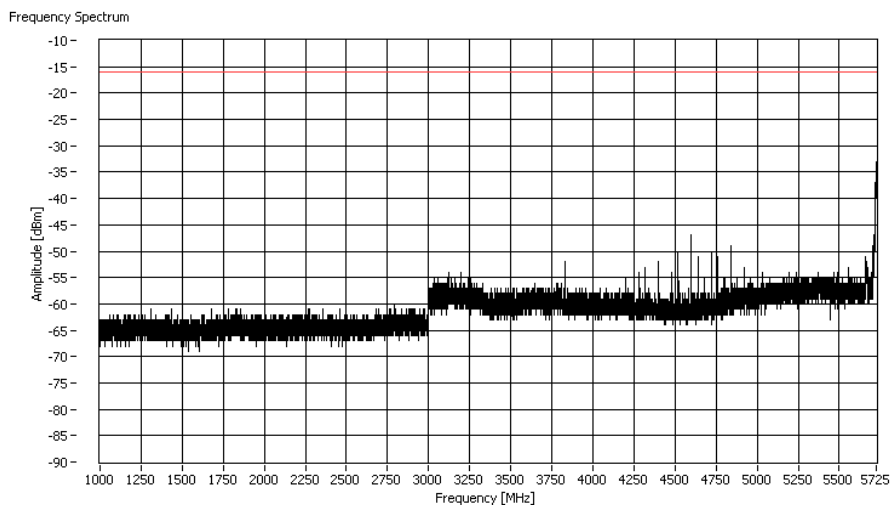
Spurious emissions conducted from 0.009 MHz to 30 MHz



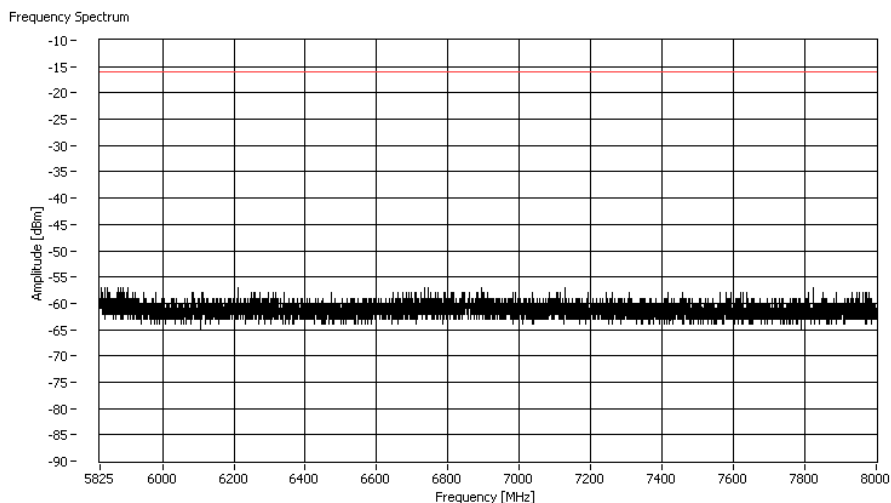
Spurious emissions conducted from 30 MHz to 1 GHz



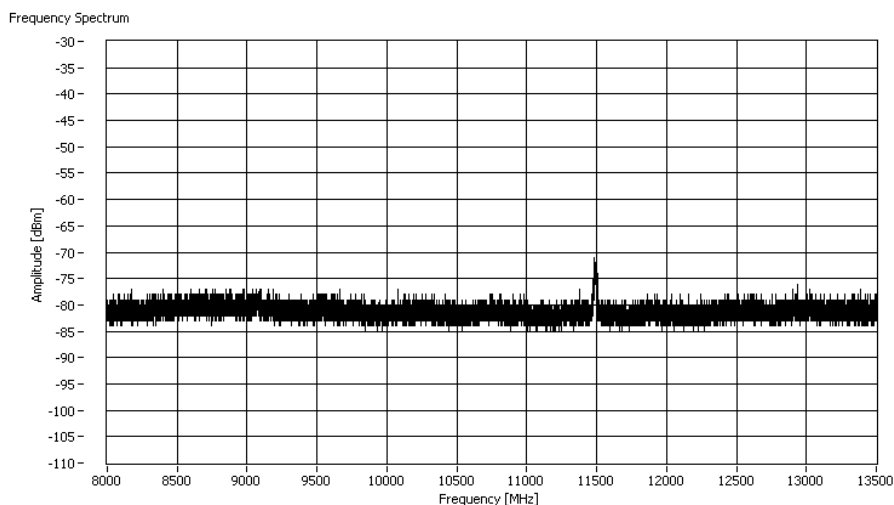
Spurious emissions conducted from 1 GHz to 5.725 GHz



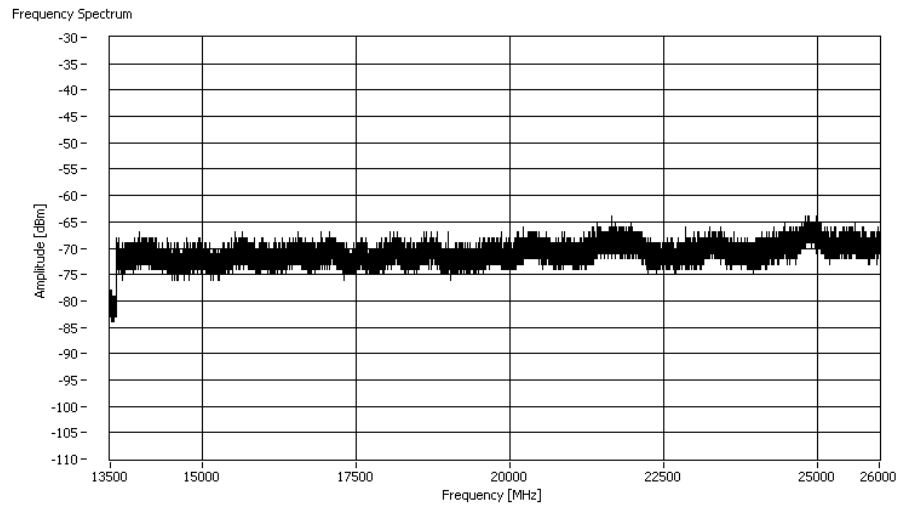
Spurious emissions conducted from 5.850 GHz to 8 GHz



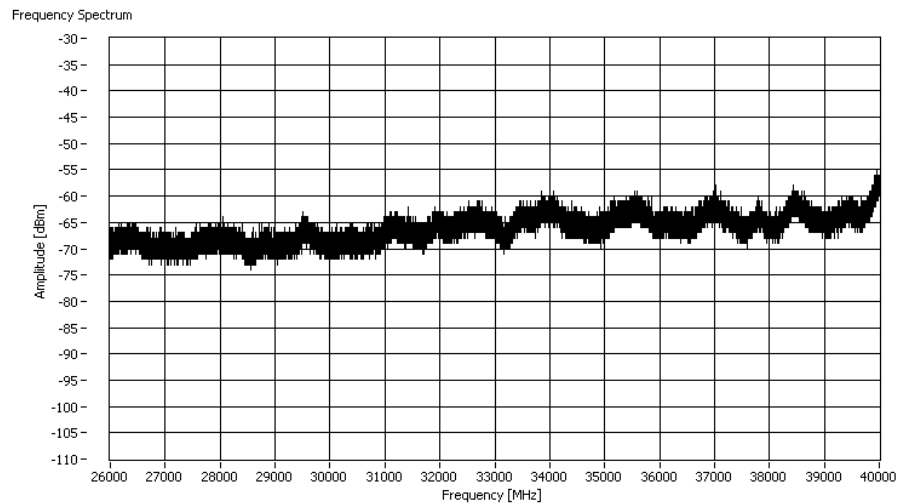
Spurious emissions conducted from 8 GHz to 13.5 GHz



Spurious emissions conducted from 13.5 GHz to 26 GHz



Spurious emissions conducted from 26 GHz to 40 GHz



5.6 Spurious emissions cabinet radiation

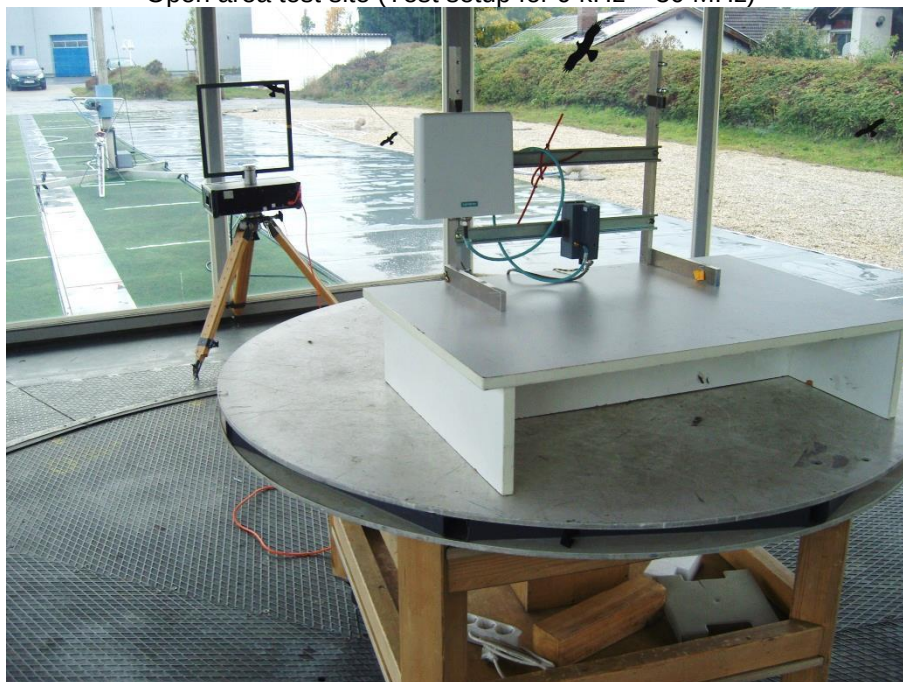
For test instruments and accessories used see section 6 Part SER 1, SER 2, SER 3.

5.6.1 Description of the test location

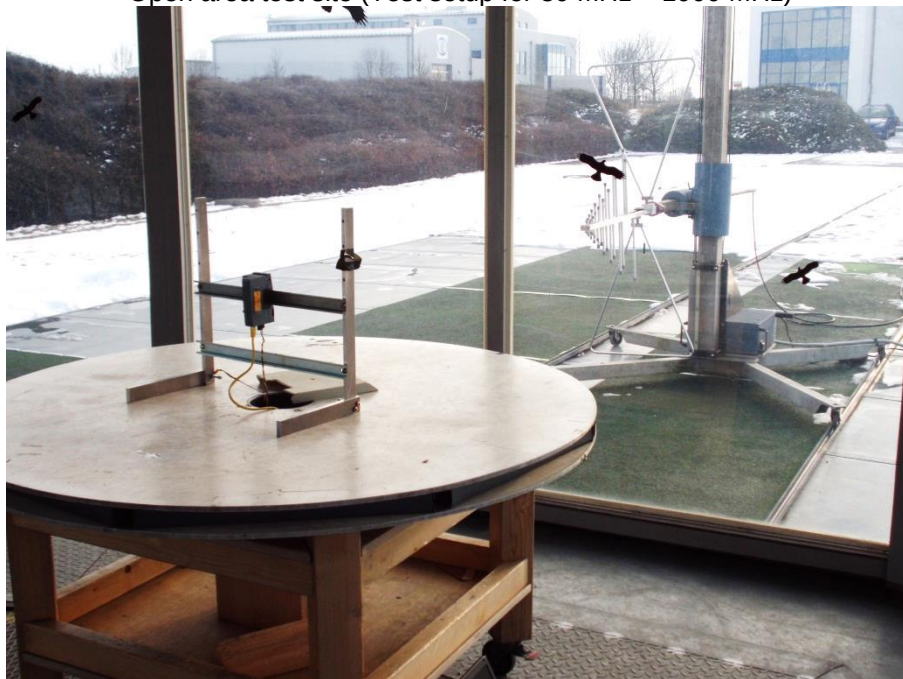
Test location: OATS 1
 Test location: Anechoic chamber 2
 Test distance: 3 m

5.6.2 Photo documentation of the test set-up

Open area test site (Test setup for 9 kHz – 30 MHz)



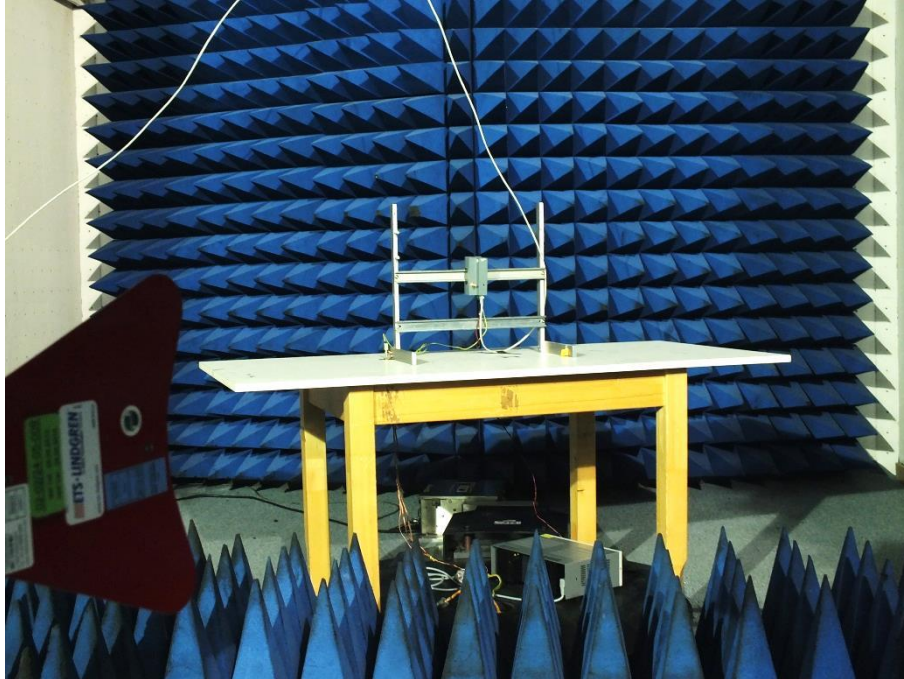
Open area test site (Test setup for 30 MHz – 1000 MHz)



FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Anechoic chamber (Test setup for field strength measurement 1 GHz – 18 GHz)



Anechoic chamber (Test setup for 18 GHz – 40 GHz)



5.6.3 Applicable standard

According to FCC Part 15, Section 15.247(d):

In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or an radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a) (see Section 15.205(c)).

5.6.4 Description of Measurement

The radiated power of the spurious emission from the cabinet is measured in a test setup following the procedures set out in ANSI C63.4 and KDB 558074 for DTS. If the emission level of the EUT in peak mode complies with the average limit then testing will be stopped and peak values of the EUT will be reported, otherwise the emission will be measured again in average mode and reported. Up from 3 (8) GHz a HP filter is used.

Spectrum analyser settings:

RBW: 1 MHz, VBW: 3 MHz, Detector: Max peak, Trace: Max hold, Sweep: Auto

5.6.5 Test result radiated emissions

0.009 - 30 MHz:

In the frequency range 9 kHz to 30 MHz no emission could be detected!

802.11b		PK-measurement				
Lowest frequency: CH1						
Test conditions: 1 TX , P20, 1 Mbps				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK-Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	69.3	32.1	40.0	-7.9
1000	2400	1000	2394.0	48.0	74.0	-26.0
2483.5	4000	1000	3986.0	46.6	74.0	-27.4
4000	12000	1000	11821.0	53.3	74.0	-20.7
12000	18000	1000	16021.0	56.2	74.0	-17.8
18000	25000	1000	21956.0	45.0	74.0	-29.0
Measurement uncertainty				±6 dB		

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11b	AV-measurement			
Lowest frequency: CH1				
Test conditions: 1 TX , P20, 1 Mbps			Test results	
f	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
16590	47.9	1000	54.0	-6.1
Measurement uncertainty			±6 dB	

802.11b			PK-measurement			
Middle frequency: CH6						
Test conditions: 1 TX , P20, 1 Mbps					Antenna port terminated	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK-Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	69.3	32.1	40.0	-7.9
1000	2400	1000	2395.0	48.3	74.0	-25.7
2483.5	4000	1000	3996.0	47.6	74.0	-26.4
4000	12000	1000	11792.0	52.1	74.0	-21.9
12000	18000	1000	15852.0	54.3	74.0	-19.7
18000	25000	1000	22258.0	46.3	74.0	-27.7
Measurement uncertainty				±6 dB		

802.11b	AV-measurement			
Middle frequency: CH6				
Test conditions: 1 TX , P20, 1 Mbps			Test results	
<i>f</i>	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
15852	46.7	1000	54.0	-7.3
Measurement uncertainty			±6 dB	

802.11b		PK-measurement				
Highest frequency: CH11						
Test conditions: 1 TX , P20, 1 Mbps				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK-Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	69.3	32.1	40.0	-7.9
1000	2400	1000	2366.0	46.9	74.0	-27.1
2483.5	4000	1000	3923.0	46.6	74.0	-27.4
4000	12000	1000	12927.0	51.8	74.0	-22.2
12000	18000	1000	16376.0	52.7	74.0	-21.3
18000	25000	1000	21389.0	46.3	74.0	-27.7
Measurement uncertainty				±6 dB		

802.11g		PK-measurement				
Lowest frequency: CH1						
Test conditions: 1 TX , P20, 6 Mbps				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	72.3	33.6	40.0	-6.4
1000	2400	1000	2399.8	67.7	74.0	-6.3
2483.5	4000	1000	3990.5	44.7	74.0	-29.3
4000	12000	1000	7234.0	53.4	74.0	-20.6
12000	18000	1000	16655.0	56.1	74.0	-17.9
18000	25000	1000	24921.0	46.1	74.0	-27.9
Measurement uncertainty				±6 dB		

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11g	AV-measurement			
Lowest frequency: CH1				
Test conditions: 1 TX , P20, 6 Mbps			Test results	
f	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
2400	52.7	1000	54.0	-1.3
16588	47.6	1000	54.0	-6.4
Measurement uncertainty			±6 dB	

802.11g			PK-measurement			
Middle frequency: CH6						
Test conditions: 1 TX , P20, 6 Mbps				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	72.3	33.6	40.0	-6.4
1000	2400	1000	2400.0	51.4	74.0	-22.6
2483.5	4000	1000	3865.0	45.3	74.0	-28.7
4000	12000	1000	7311.0	52.6	74.0	-21.4
12000	18000	1000	17060.0	53.6	74.0	-20.4
18000	25000	1000	24956.0	47.3	74.0	-26.7
Measurement uncertainty				±6 dB		

802.11g		PK-measurement				
Highest frequency: CH11						
Test conditions: 1 TX , P20, 6 Mbps				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	72.3	33.6	40.0	-6.4
1000	2400	1000	2399.7	47.3	74.0	-26.7
2483.5	4000	1000	2483.9	53.6	74.0	-20.4
4000	12000	1000	7386.0	51.2	74.0	-22.8
12000	18000	1000	12325.0	50.3	74.0	-23.7
18000	25000	1000	24943.0	46.7	74.0	-27.3
Measurement uncertainty				±6 dB		

802.11n, HT20			PK-measurement			
Lowest frequency: CH1						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	74.5	33.9	40.0	-6.1
1000	2400	1000	2400.0	67.4	74.0	-6.6
2483.5	4000	1000	3809.8	46.1	74.0	-27.9
4000	12000	1000	7240.0	52.7	74.0	-21.3
12000	18000	1000	17081.0	56.4	74.0	-17.6
18000	25000	1000	24916.0	47.6	74.0	-26.4
Measurement uncertainty				±6 dB		

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11n, HT20	AV-measurement			
Lowest frequency: CH1				
Test conditions: 1 TX , P20, MCS0			Test results	
f	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
2400	47.9	1000	54.0	-6.1
16530	47.8	1000	54.0	-6.2
Measurement uncertainty			±6 dB	

802.11n, HT20		PK-measurement				
Middle frequency: CH6						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	74.5	33.9	40.0	-6.1
1000	2400	1000	2400.0	49.6	74.0	-24.4
2483.5	4000	1000	2486.0	48.3	74.0	-25.7
4000	12000	1000	7312.0	51.7	74.0	-22.3
12000	18000	1000	17065.0	52.1	74.0	-21.9
18000	25000	1000	24936.0	48.6	74.0	-25.4
Measurement uncertainty				±6 dB		

802.11n, HT20			PK-measurement			
Highest frequency: CH11						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	74.5	33.9	40.0	-6.1
1000	2400	1000	2387.0	49.3	74.0	-24.7
2483.5	4000	1000	2484.0	52.7	74.0	-21.3
4000	12000	1000	7389.0	51.9	74.0	-22.1
12000	18000	1000	12356.0	51.6	74.0	-22.4
18000	25000	1000	24943.0	47.1	74.0	-26.9
Measurement uncertainty				±6 dB		

802.11n, HT40			PK-measurement			
Frequency: CH1up						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	76.7	32.5	40.0	-7.5
1000	2400	1000	2400.0	67.9	74.0	-6.1
2483.5	4000	1000	3809.8	46.1	74.0	-27.9
4000	12000	1000	7240.0	52.7	74.0	-21.3
12000	18000	1000	16479.0	56.8	74.0	-17.2
18000	25000	1000	24839.0	46.3	74.0	-27.7
Measurement uncertainty				±6 dB		

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11n, HT40		AV-measurement		
Frequency: CH1up				
Test conditions: 1 TX , P20, MCS0		Test results		
<i>f</i>	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
2399.3	46.6	1000	54.0	-7.4
16531	47.7	1000	54.0	-6.3
Measurement uncertainty		±6 dB		

802.11a		PK-measurement				
Lowest frequency: CH149						
Test conditions: 1 TX , P20, 6 Mbps		Antenna port terminated				
Chain1		Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission	Limit	Margin	
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	72.3	33.6	40.0	-6.4
1000	5725	1000	5725	55.0	74.0	-19.0
5850	8000	1000	6855	49.3	74.0	-24.7
8000	13000	1000	12126	53.7	74.0	-20.3
13000	18000	1000	16542	56.7	74.0	-17.3
18000	40000	1000	39962	56.8	74.0	-17.2
Measurement uncertainty		±6 dB				

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11a		AV-measurement		
Lowest frequency: CH149				
Test conditions: 1 TX , P20, 6 Mbps		Test results		
<i>f</i>	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
5725	44.6	1000	54.0	-9.4
16541	48.8	1000	54.0	-5.2
Measurement uncertainty		±6 dB		

802.11a		PK-measurement				
Middle frequency: CH157						
Test conditions: 1 TX , P20, 6 Mbps		Antenna port terminated				
Chain1		Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission	Limit	Margin	
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	72.3	33.6	40.0	-6.4
1000	5725	1000	5725.0	48.3	74.0	-25.7
5850	8000	1000	6973.0	48.1	74.0	-25.9
8000	13000	1000	11575.0	51.7	74.0	-22.3
13000	18000	1000	17658.0	49.8	74.0	-24.2
18000	40000	1000	39941.0	55.3	74.0	-18.7
Measurement uncertainty		±6 dB				

802.11a	AV-measurement			
Middle frequency: CH157				
Test conditions: 1 TX , P20, 6 Mbps			Test results	
f	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
39941	47.9	1000	54.0	-6.1
Measurement uncertainty			±6 dB	

802.11a		PK-measurement				
Highest frequency: CH165						
Test conditions: 1 TX , P20, 6 Mbps				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	72.3	33.6	40.0	-6.4
1000	5725	1000	4576.0	47.2	74.0	-26.8
5850	8000	1000	7789.0	49.3	74.0	-24.7
8000	13000	1000	11673.0	50.9	74.0	-23.1
13000	18000	1000	17859.0	51.2	74.0	-22.8
18000	40000	1000	39923.0	53.6	74.0	-20.4
Measurement uncertainty				±6 dB		

802.11n, HT20			PK-measurement			
Lowest frequency: CH149						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	74.5	33.9	40.0	-6.1
1000	5725	1000	5725.0	55.0	74.0	-19.0
5850	8000	1000	6855.0	49.3	74.0	-24.7
8000	13000	1000	12126.0	53.7	74.0	-20.3
13000	18000	1000	16542.0	56.7	74.0	-17.3
18000	40000	1000	39997.0	57.1	74.0	-16.9
Measurement uncertainty				±6 dB		

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11n, HT20	AV-measurement			
Lowest frequency: CH149				
Test conditions: 1 TX , P20, MCS0			Test results	
f	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
5725.0	44.6	1000	54.0	-9.4
16541	48.8	1000	54.0	-5.2
39962	49.7	1000	54.0	-4.3
Measurement uncertainty			±6 dB	

802.11n, HT20			PK-measurement			
Middle frequency: CH157						
Test conditions: 1 TX , P20, MCS0					Antenna port terminated	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	74.5	33.9	40.0	-6.1
1000	5725	1000	5725.0	49.6	74.0	-24.4
5850	8000	1000	7077.0	50.3	74.0	-23.7
8000	13000	1000	11569.0	51.7	74.0	-22.3
13000	18000	1000	17623.0	49.2	74.0	-24.8
18000	40000	1000	39947.0	53.9	74.0	-20.1
Measurement uncertainty				±6 dB		

802.11n, HT20			PK-measurement			
Highest frequency: CH165						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	74.5	33.9	40.0	-6.1
1000	5725	1000	4556.0	49.4	74.0	-24.6
5850	8000	1000	7323.0	50.6	74.0	-23.4
8000	13000	1000	11698.0	51.7	74.0	-22.3
13000	18000	1000	17876.0	52.3	74.0	-21.7
18000	40000	1000	39956.0	53.8	74.0	-20.2
Measurement uncertainty				±6 dB		

802.11n, HT40			PK-measurement			
Lowest frequency: CH149up						
Test conditions: 1 TX , P20, MCS0				Antenna port terminated		
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	142.1	33.0	43.5	-10.5
1000	5725	1000	5723	54.2	74.0	-19.8
5850	8000	1000	6744	48.7	74.0	-25.3
8000	13000	1000	11736	54.5	74.0	-19.5
13000	18000	1000	17009	56.3	74.0	-17.7
18000	40000	1000	39962	57.5	74.0	-16.5
Measurement uncertainty				±6 dB		

Note: For the marked emission an AV-measurement has to be done. The measurement >18 GHz is done in 1 m distance, therefore the values are corrected with -9.5 dB.

802.11n, HT40	AV-measurement			
Lowest frequency: CH149up				
Test conditions: 1 TX , P20, MCS0			Test results	
<i>f</i>	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
5724	45.1	1000	54.0	-8.9
12760	44.9	1000	54.0	-9.1
16505	48.0	1000	54.0	-6.0
39975	48.9	1000	54.0	-5.1
Measurement uncertainty			±6 dB	

802.11n, HT40			PK-measurement			
Highest frequency: CH157up						
Test conditions: 1 TX , P20, MCS0					Antenna port terminated	
Chain1			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
30	1000	100	142.1	33.0	43.5	-10.5
1000	5725	1000	4600.0	45.6	74.0	-28.4
5850	8000	1000	5852.0	51.3	74.0	-22.7
8000	13000	1000	11795.0	54.8	74.0	-19.2
13000	18000	1000	15695.0	55.6	74.0	-18.4
18000	40000	1000	39924.0	57.8	74.0	-16.2
Measurement uncertainty				±6 dB		

802.11n, HT40	AV-measurement			
Highest frequency: CH157up				
Test conditions: 1 TX , P20, MCS0			Test results	
f	A	RBW	AV Limit	Margin
(MHz)	(dBμV/m)	(kHz)	(dBμV/m)	(dB)
12637	44.3	1000	54.0	-9.7
16007	45.7	1000	54.0	-8.3
39924	48.8	1000	54.0	-5.2
Measurement uncertainty			±6 dB	

Limit according to KDB 558074:

If conducted measurement are performed an additional radiated test for cabinet spurious emissions are required.

Attenuation below the general limits specified in Section 15.209(a) is not required.

Frequency (MHz)	Field strength of spurious emissions		Measurement distance
	($\mu\text{V/m}$)	dB($\mu\text{V/m}$)	(metres)
0.009-0.490	2400/F (kHz)		300
0.490-1.705	24000/F (kHz)		30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

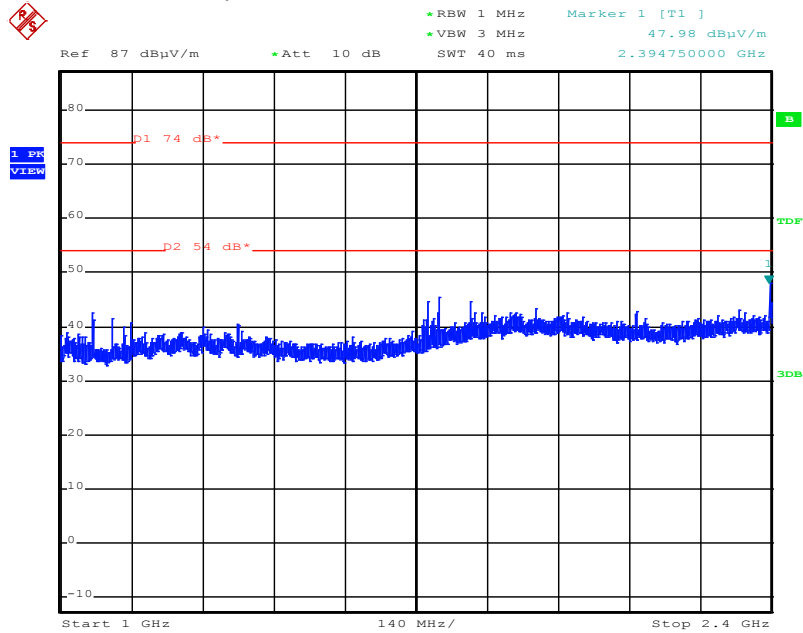
The requirements are **FULFILLED**.

Remarks: The frequency range from 9 kHz to 40 GHz is scanned. For detailed test results please see
the following test protocols. The plots of CH1 and CH149 are listed as representative.

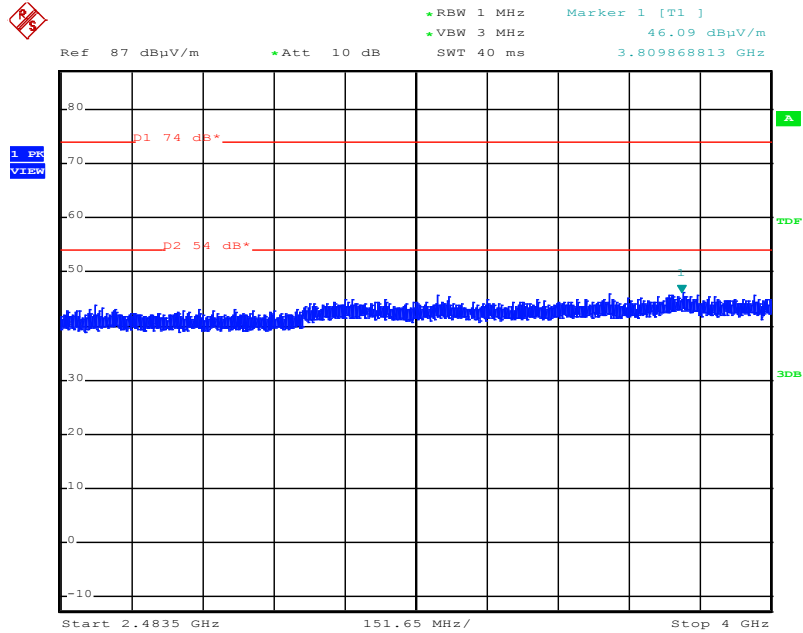
5.6.6 Test protocols of spurious emissions cabinet radiation

5.6.6.1 802.11b, Ch1:

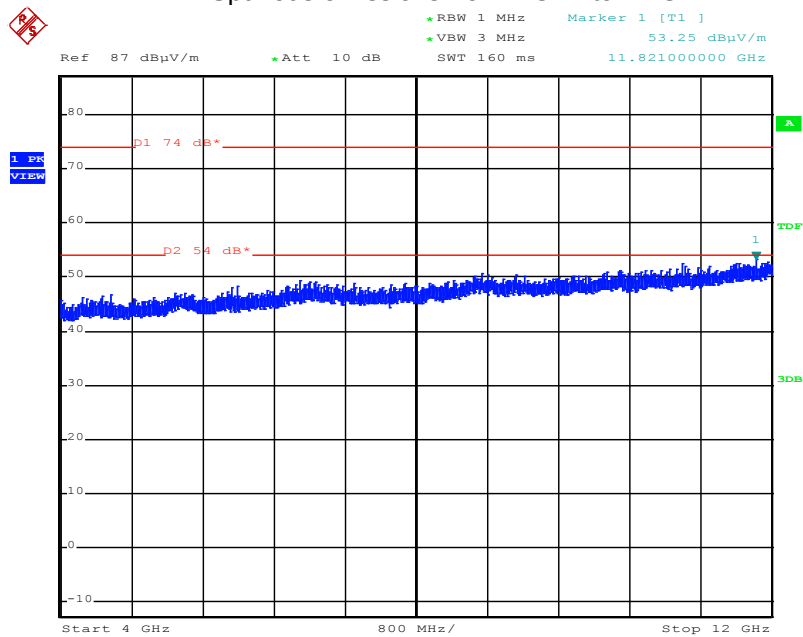
Spurious emissions from 1 GHz to 2.4 GHz



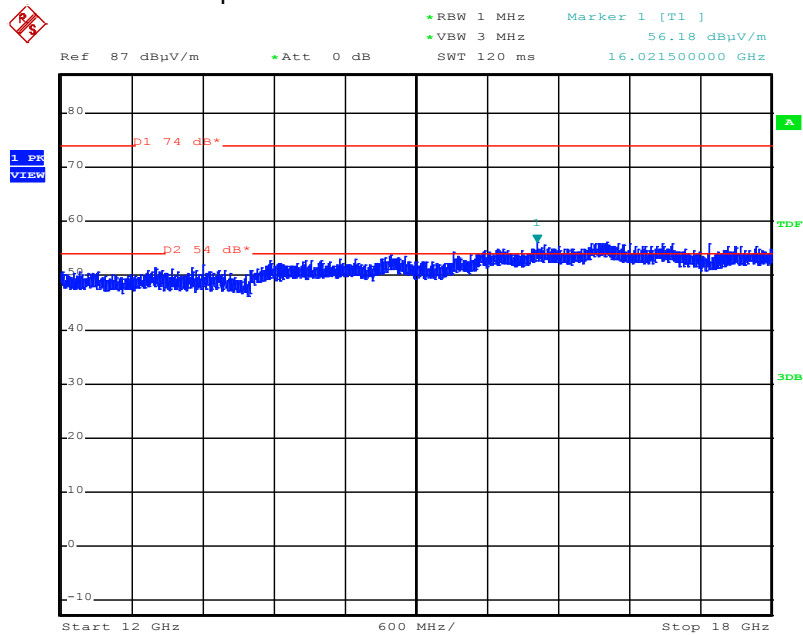
Spurious emissions from 2.4835 GHz to 4 GHz



Spurious emissions from 4 GHz to 12 GHz



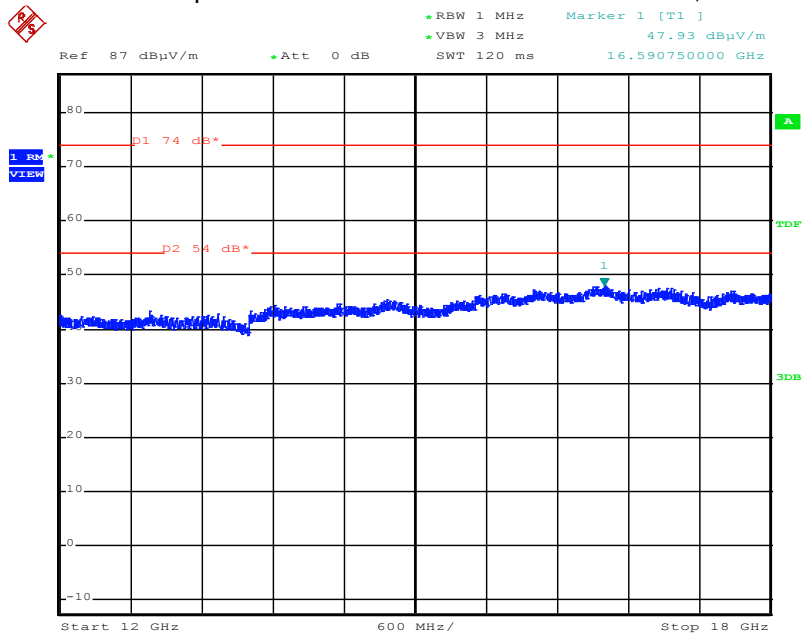
Spurious emissions from 12 GHz to 18 GHz



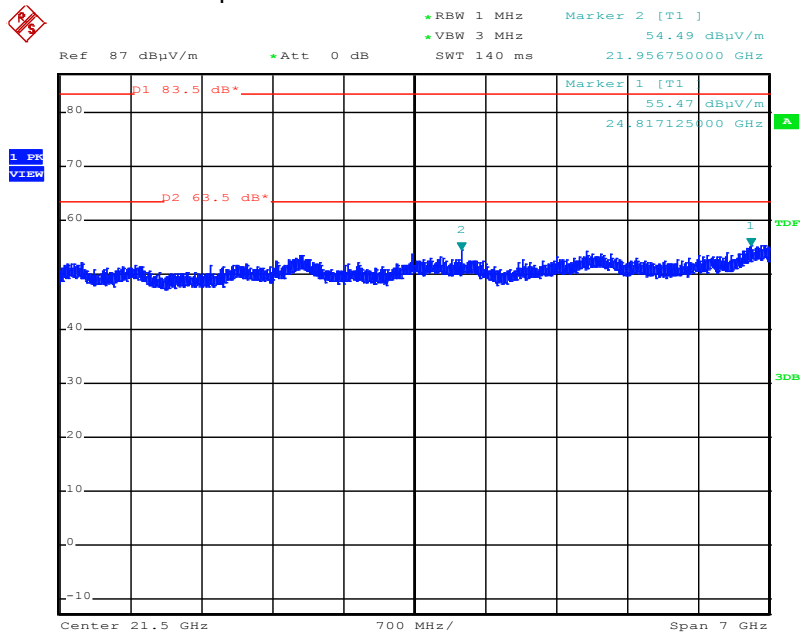
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 12 GHz to 18 GHz, AV



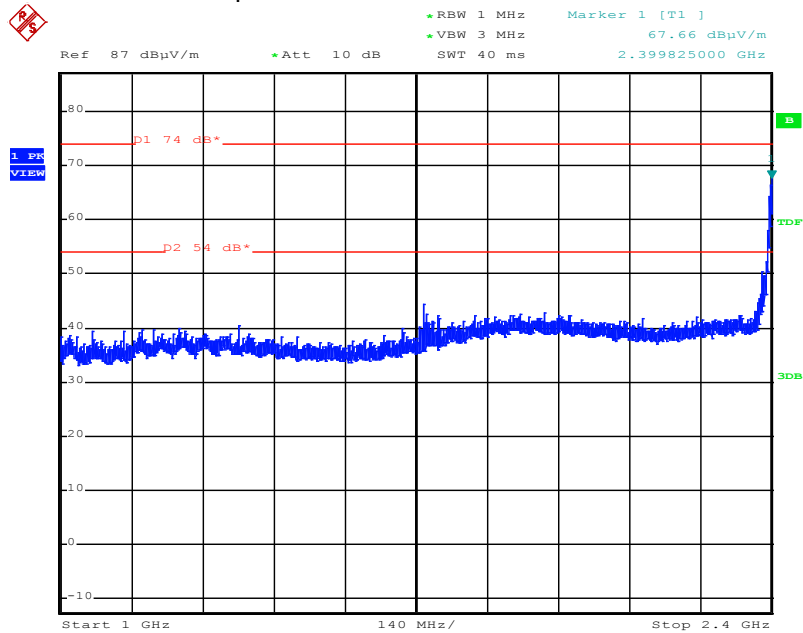
Spurious emissions from 18 GHz to 25 GHz



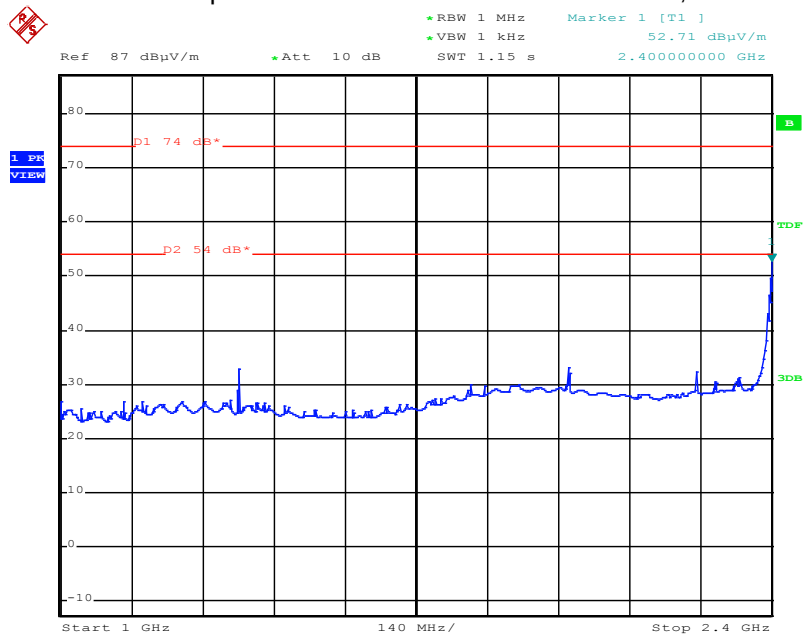
Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

5.6.6.2 802.11g, Ch1:

Spurious emissions from 1 GHz to 4 GHz



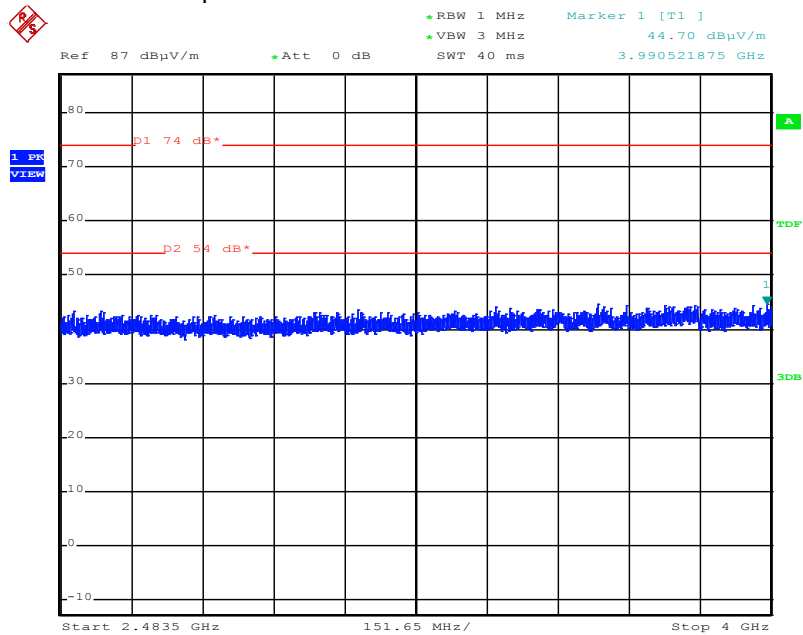
Spurious emissions from 1 GHz to 4 GHz, AV



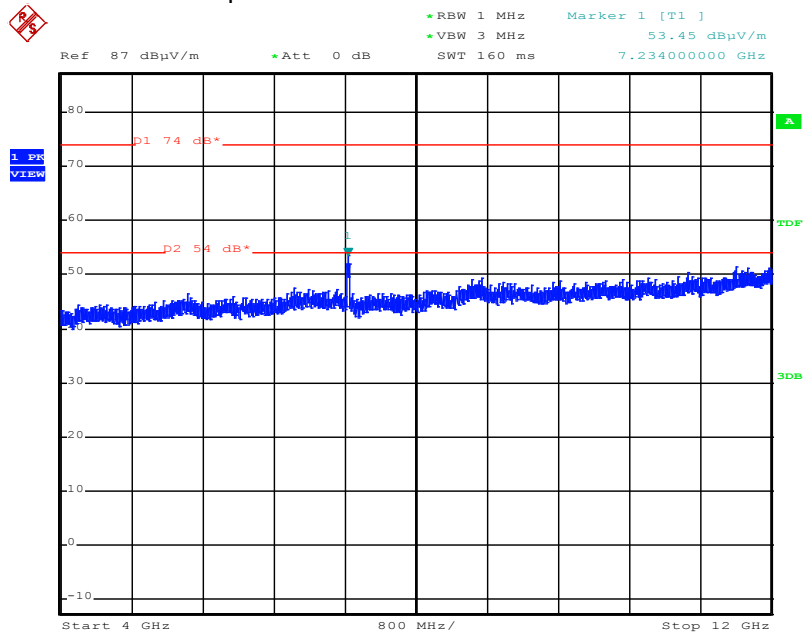
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 2.4835 GHz to 4 GHz



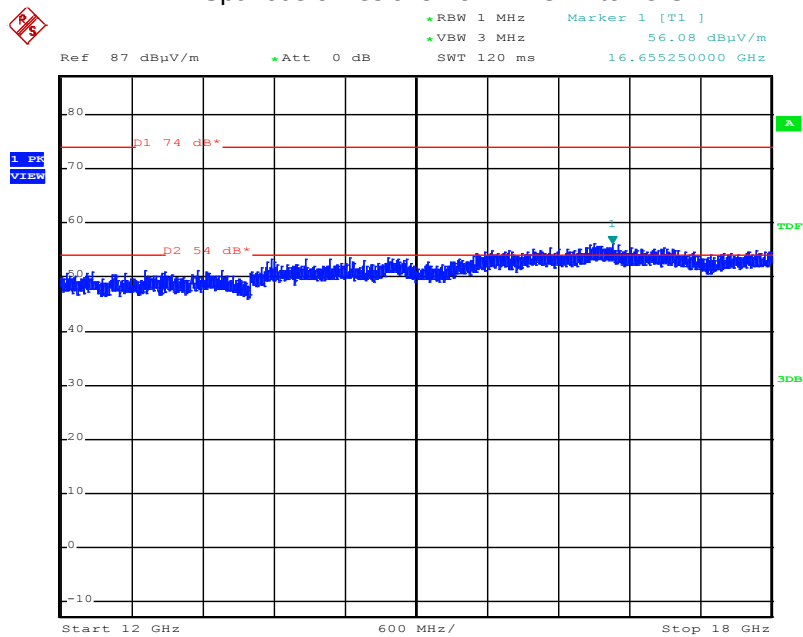
Spurious emissions from 4 GHz to 12 GHz



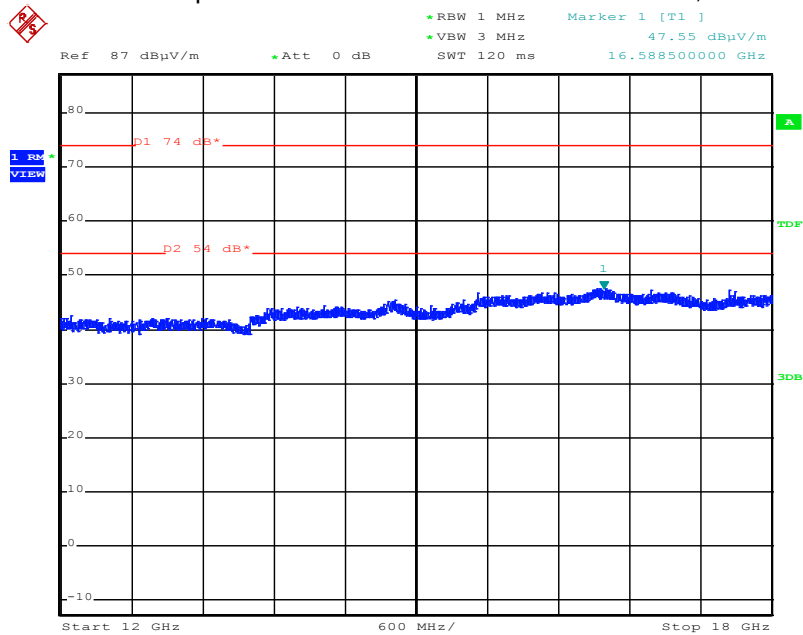
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 12 GHz to 18 GHz



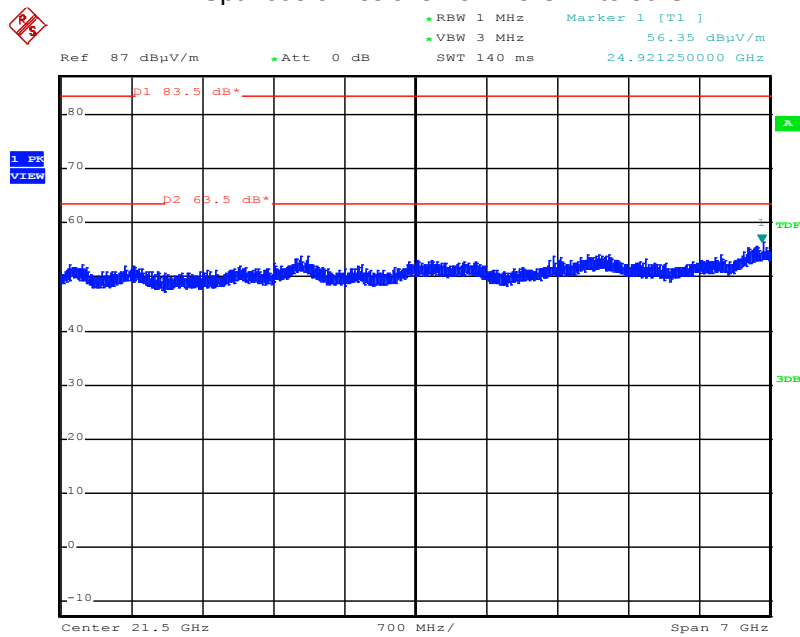
Spurious emissions from 12 GHz to 18 GHz, AV



FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

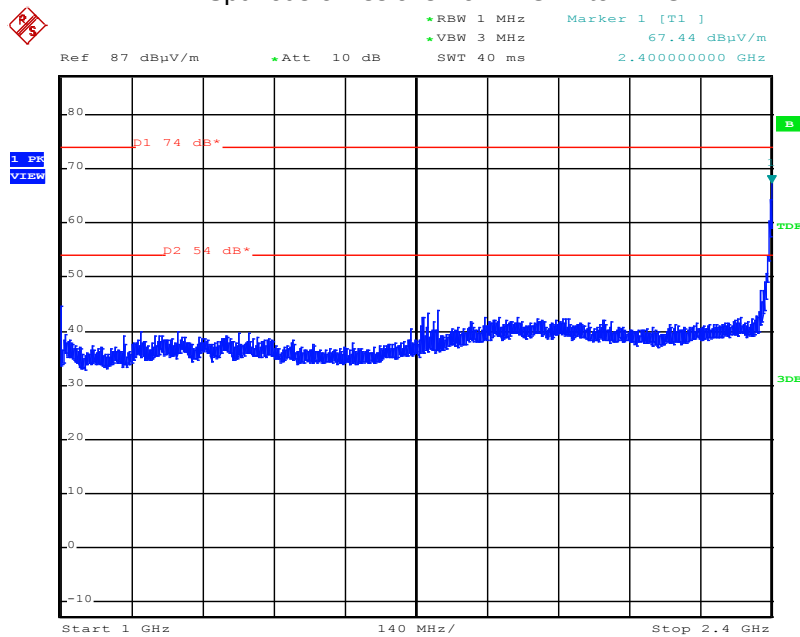
Spurious emissions from 18 GHz to 30 GHz



Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

5.6.6.3 802.11n, HT20, Ch1:

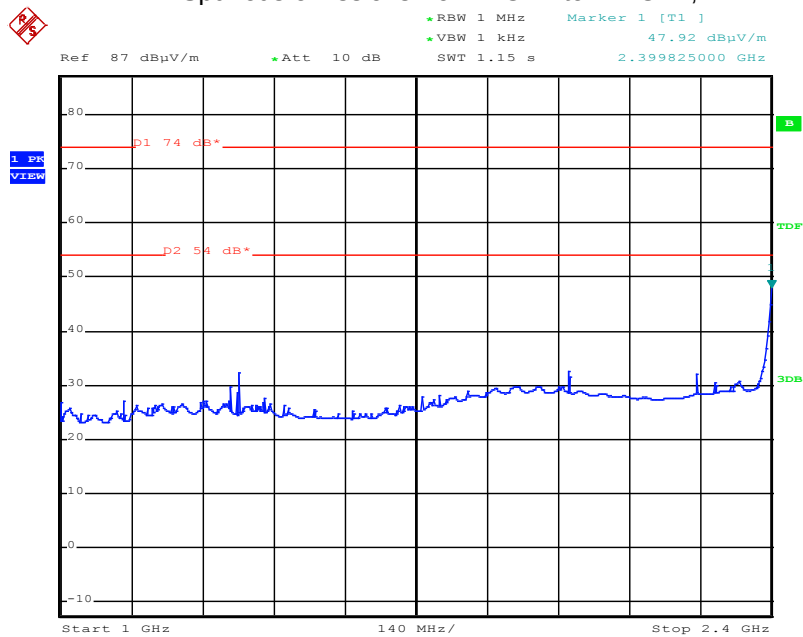
Spurious emissions from 1 GHz to 2.4 GHz



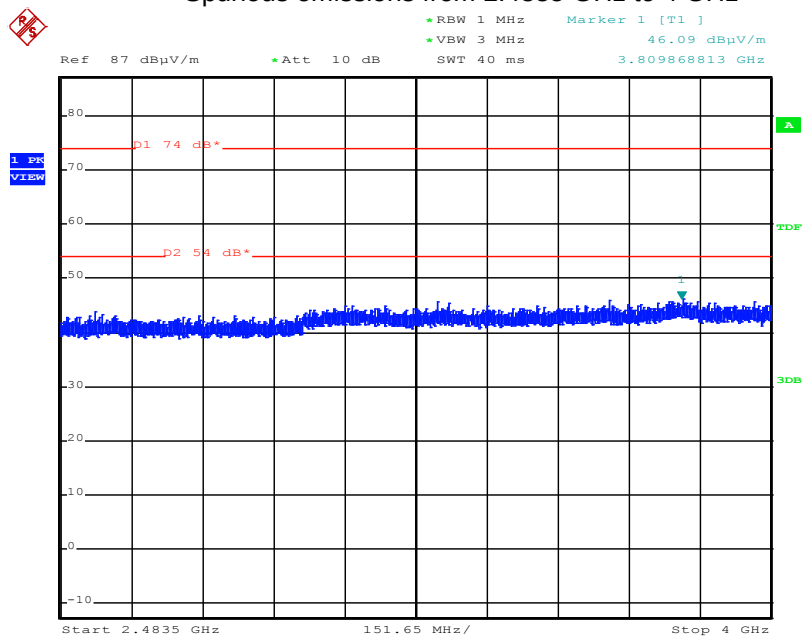
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 1 GHz to 2.4 GHz, AV



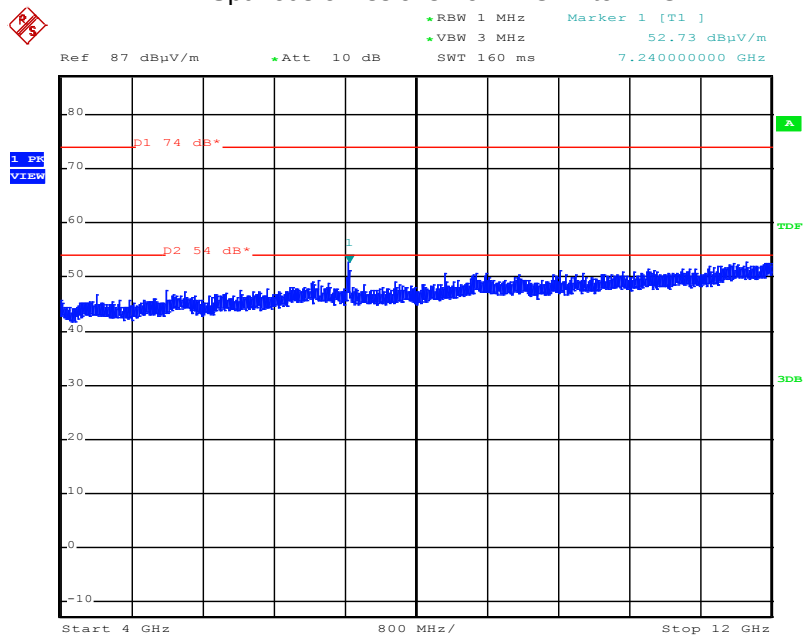
Spurious emissions from 2.4835 GHz to 4 GHz



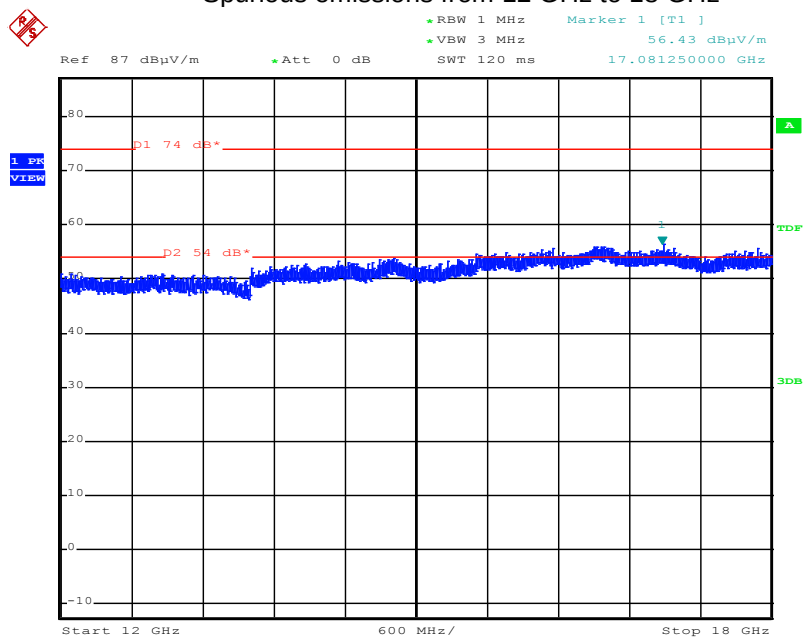
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 4 GHz to 12 GHz



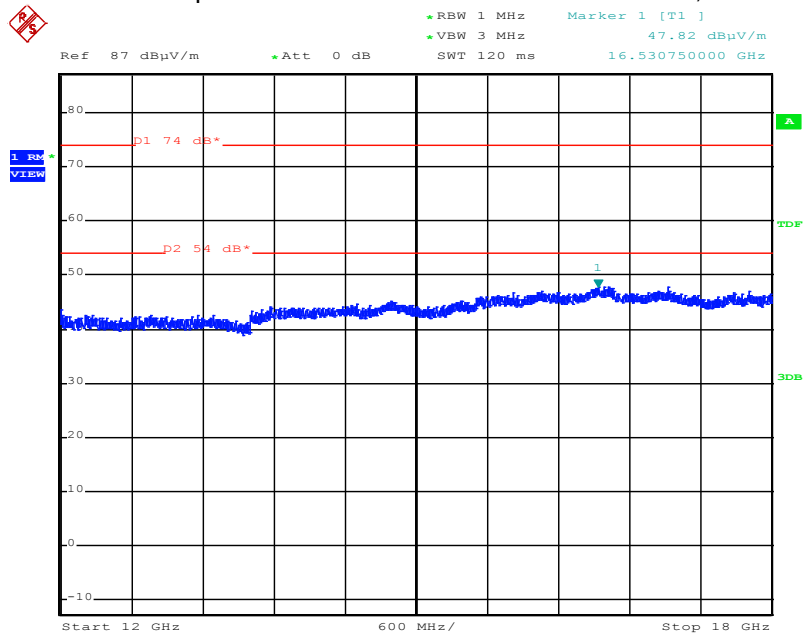
Spurious emissions from 12 GHz to 18 GHz



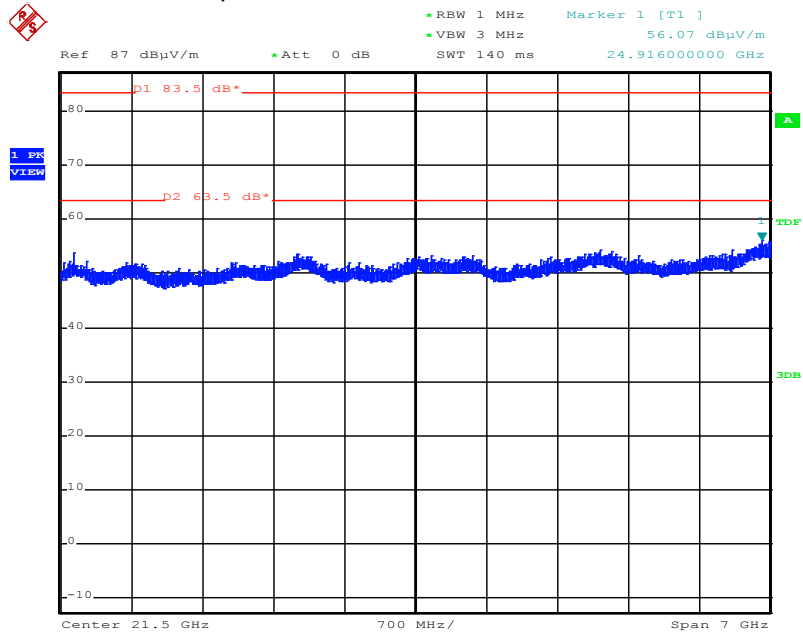
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 12 GHz to 18 GHz, AV



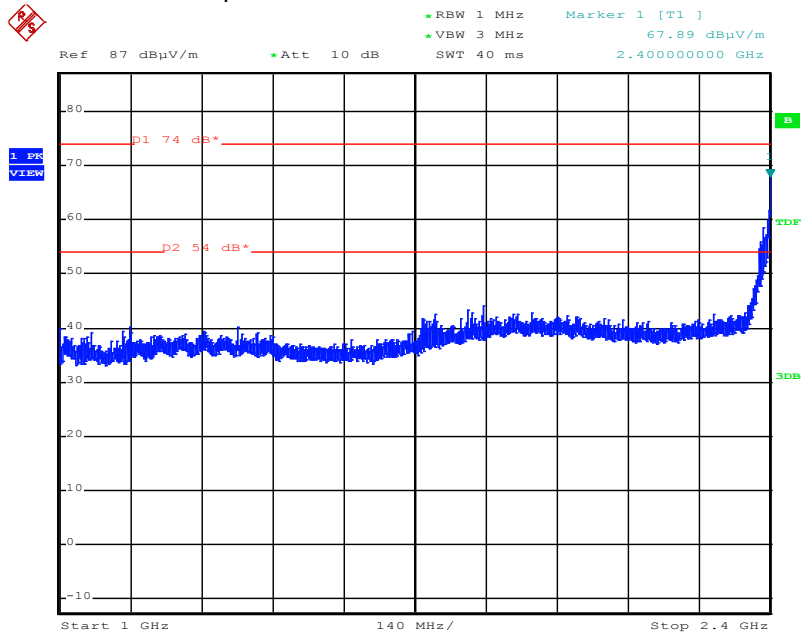
Spurious emissions from 18 GHz to 25 GHz



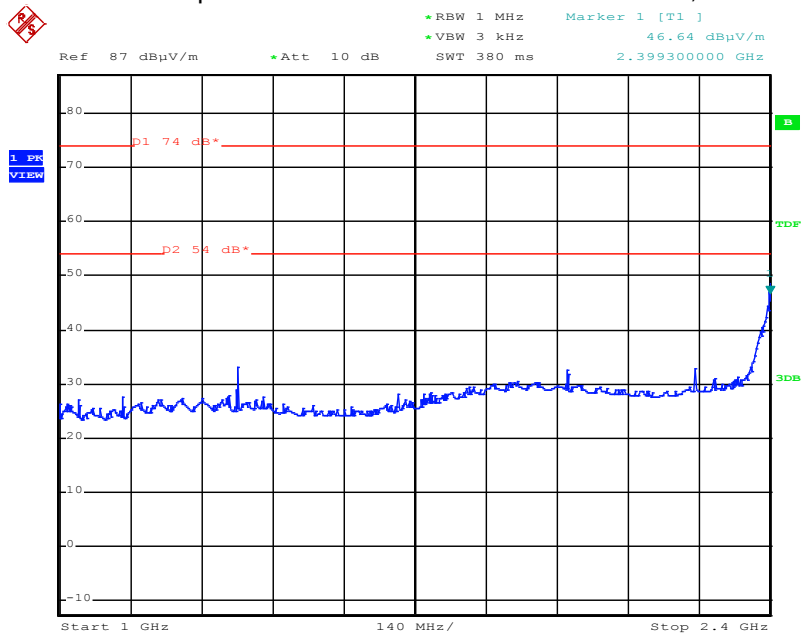
Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

5.6.6.4 802.11n, HT40, Ch1up:

Spurious emissions from 1 GHz to 2.4 GHz



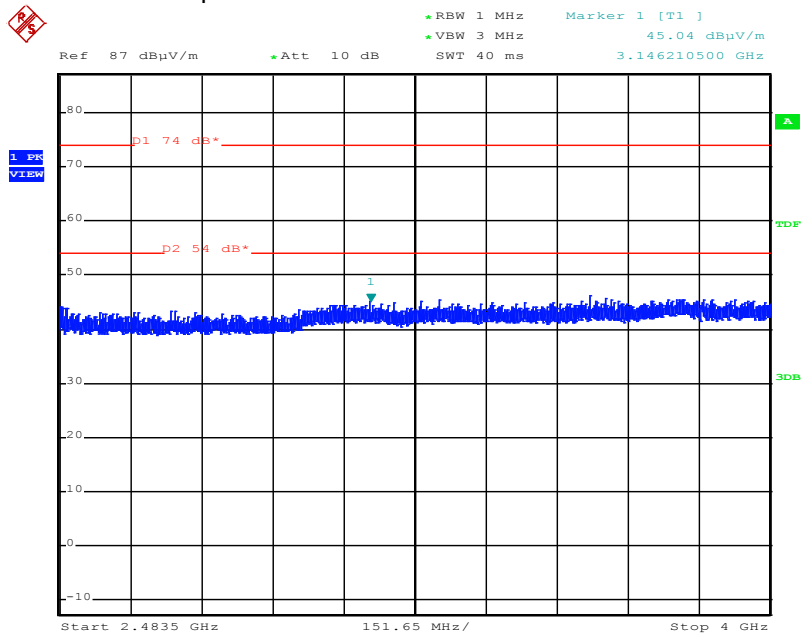
Spurious emissions from 1 GHz to 2.4 GHz, AV



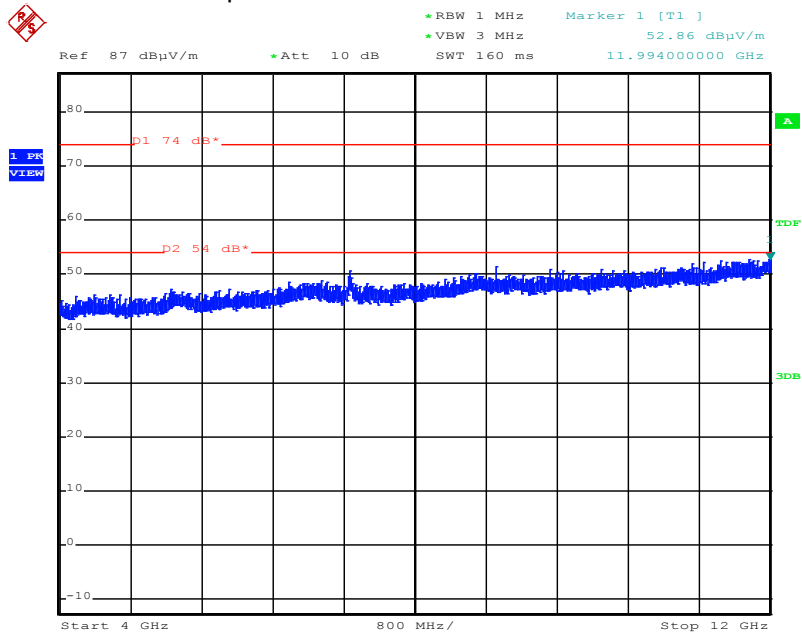
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 2.4835 GHz to 4 GHz



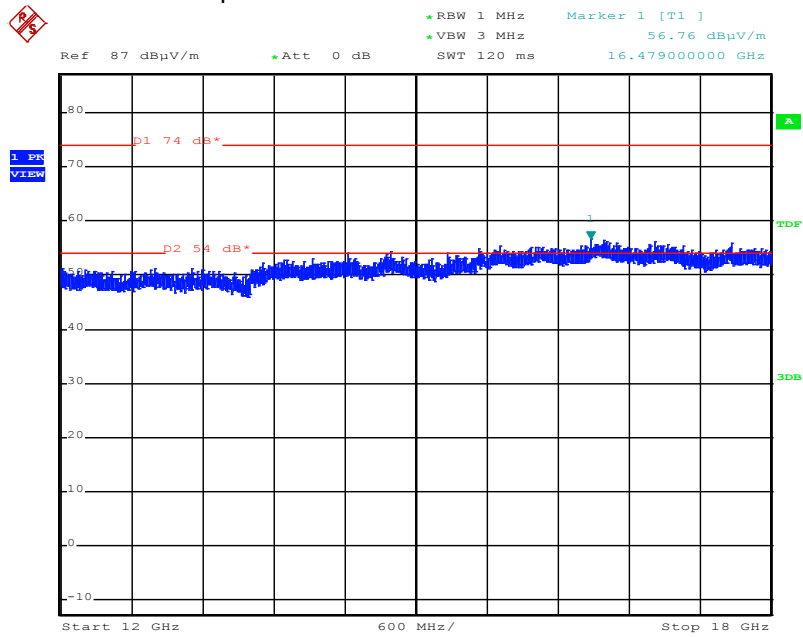
Spurious emissions from 4 GHz to 12 GHz



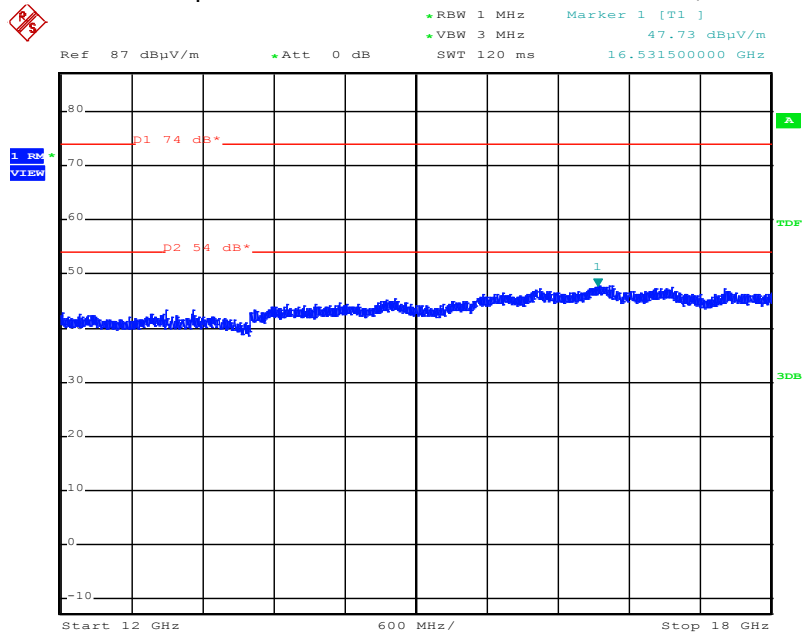
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

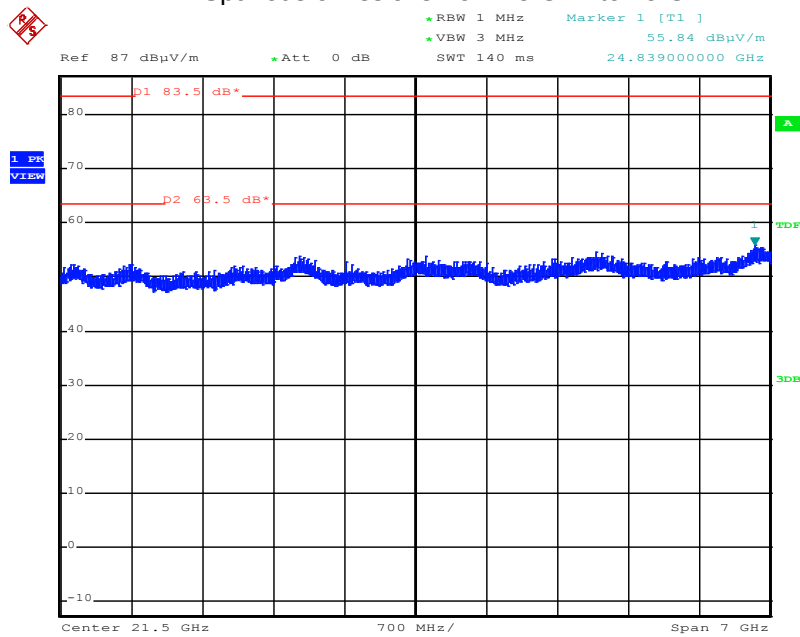
Spurious emissions from 12 GHz to 18 GHz



Spurious emissions from 12 GHz to 18 GHz, AV



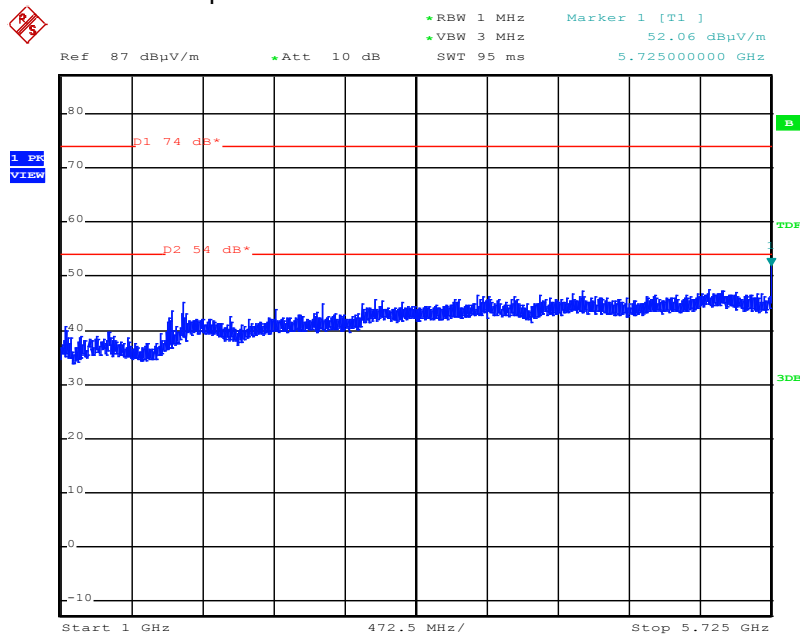
Spurious emissions from 18 GHz to 25 GHz



Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

5.6.6.5 802.11a, Ch 149:

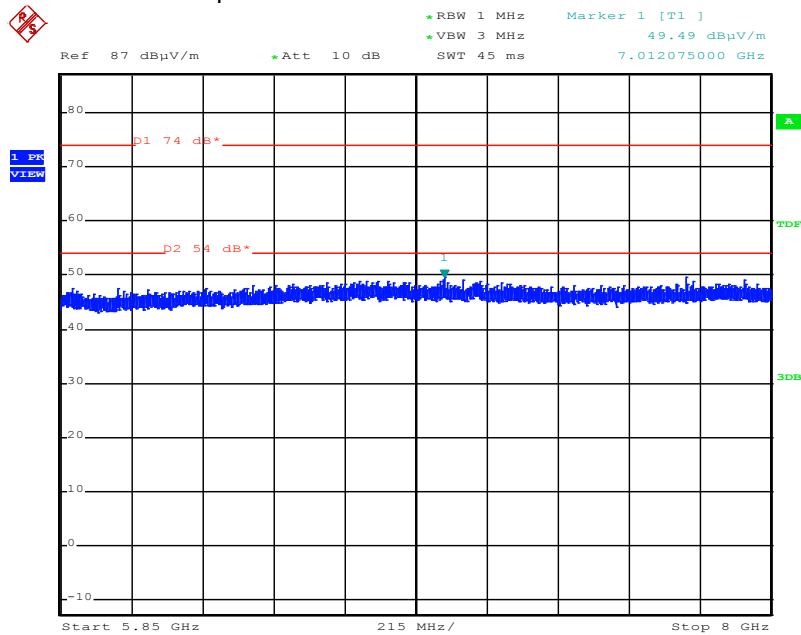
Spurious emissions from 1 GHz to 5.725 GHz



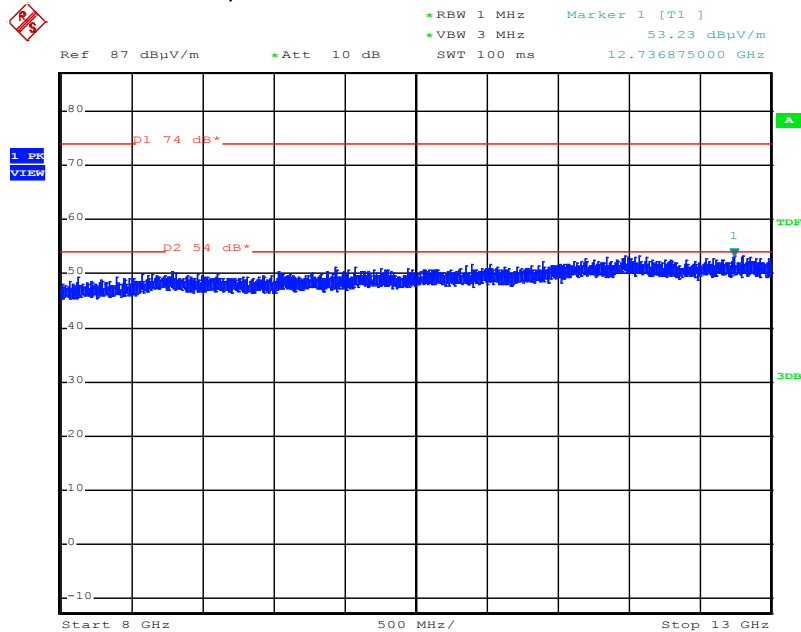
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 5.85 GHz to 8 GHz



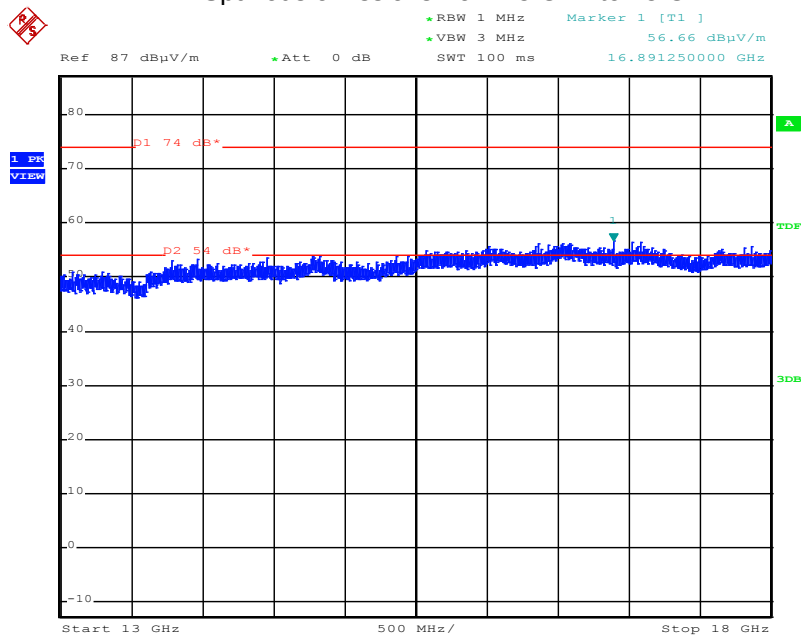
Spurious emissions from 8 GHz to 13 GHz



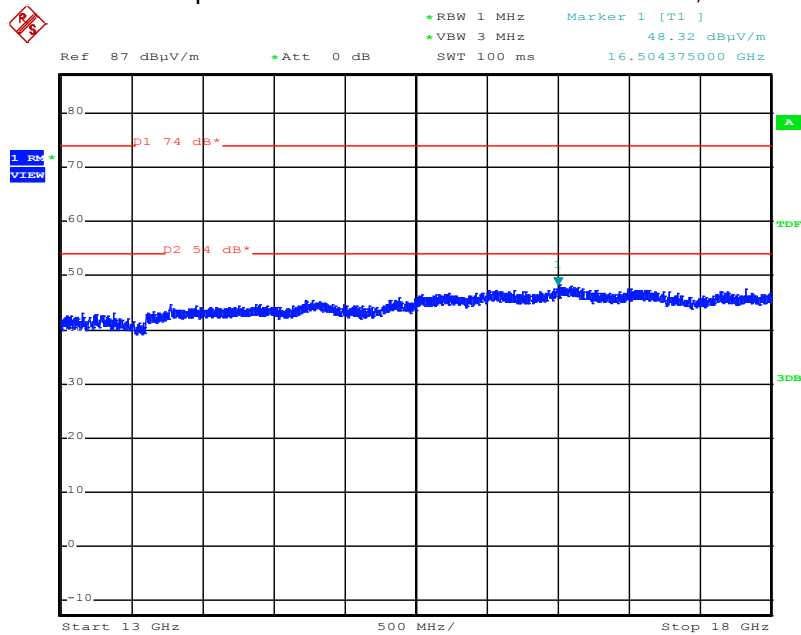
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 13 GHz to 18 GHz



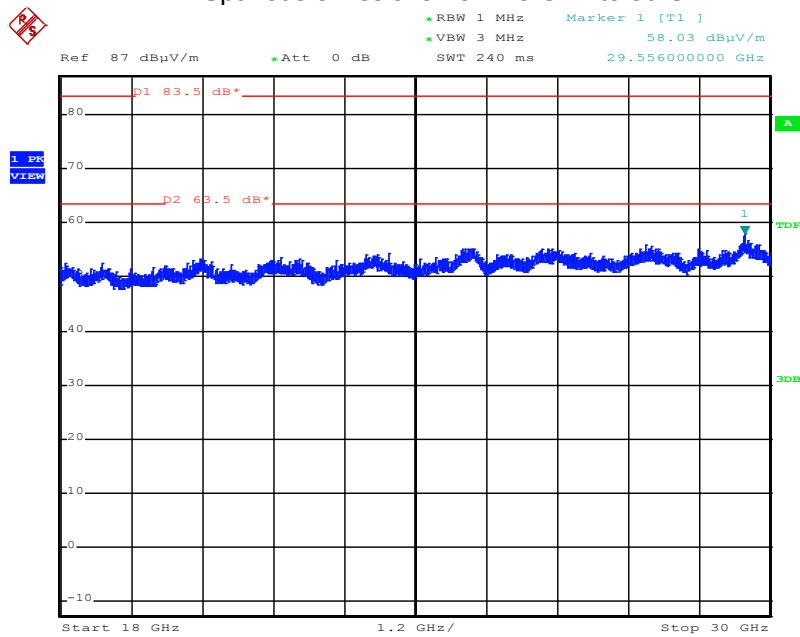
Spurious emissions from 13 GHz to 18 GHz, AV



FCC ID: LYHELN1V1

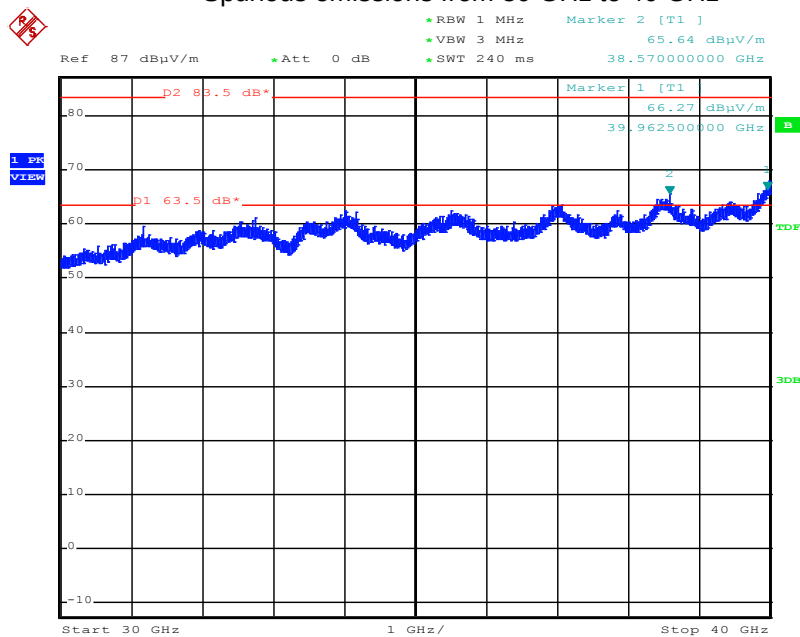
IC: 267AA-ELN1V1

Spurious emissions from 18 GHz to 30 GHz



Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

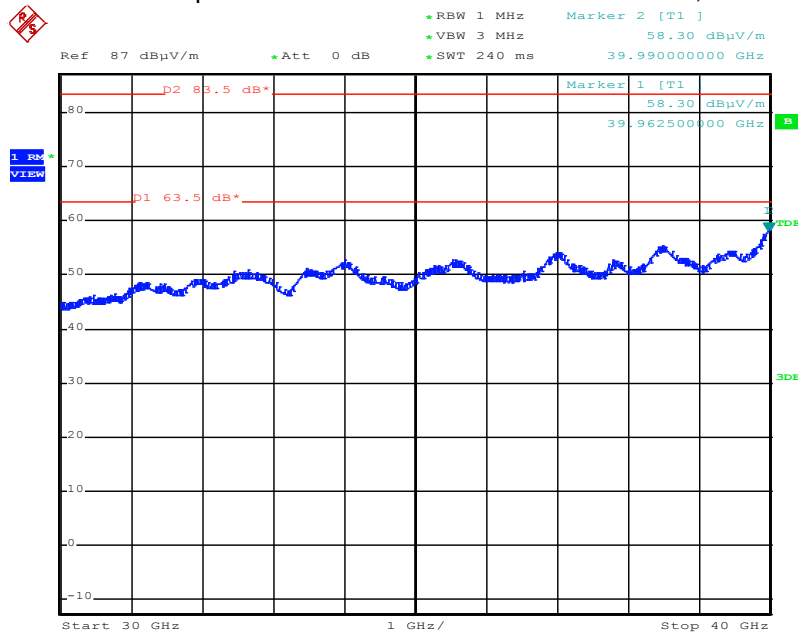
Spurious emissions from 30 GHz to 40 GHz



FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

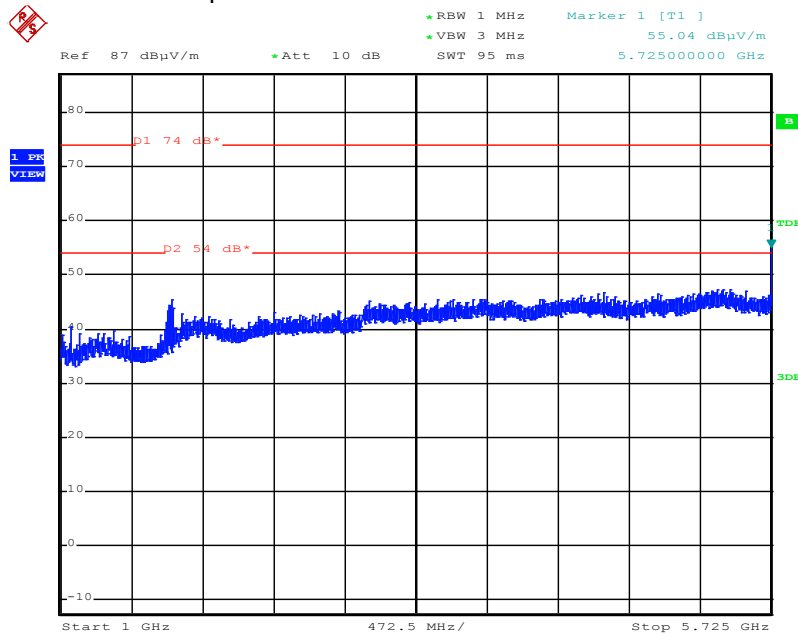
Spurious emissions from 30 GHz to 40 GHz, AV



Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

5.6.6.6 802.11n, HT20, Ch149:

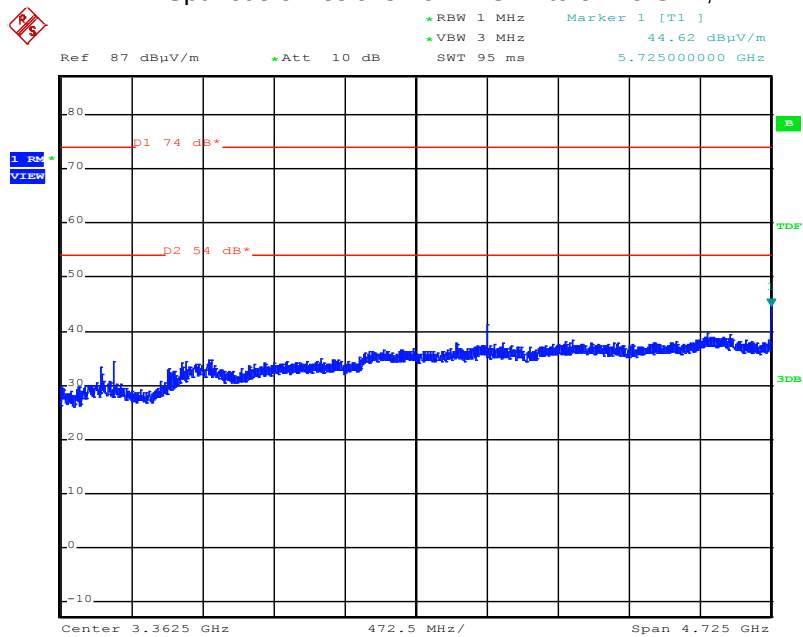
Spurious emissions from 1 GHz to 5.725 GHz



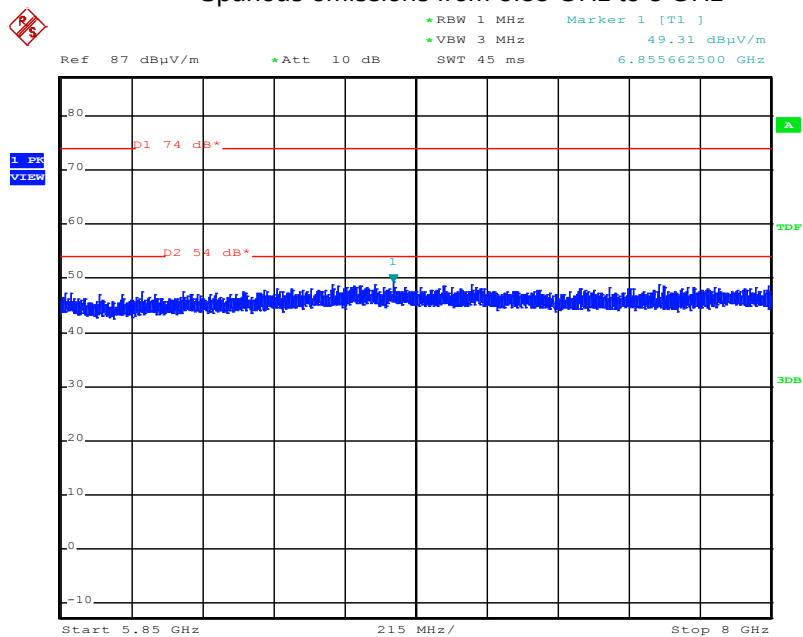
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 1 GHz to 5.725 GHz, AV



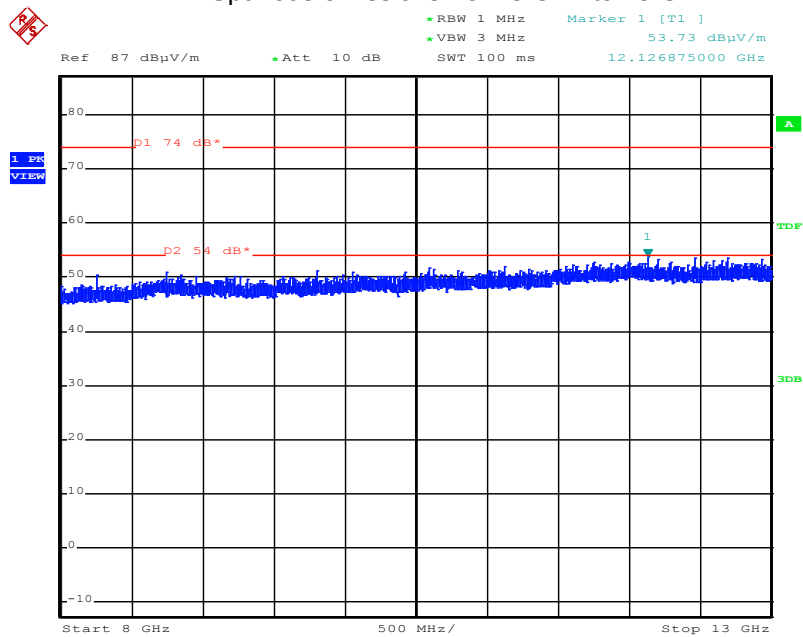
Spurious emissions from 5.85 GHz to 8 GHz



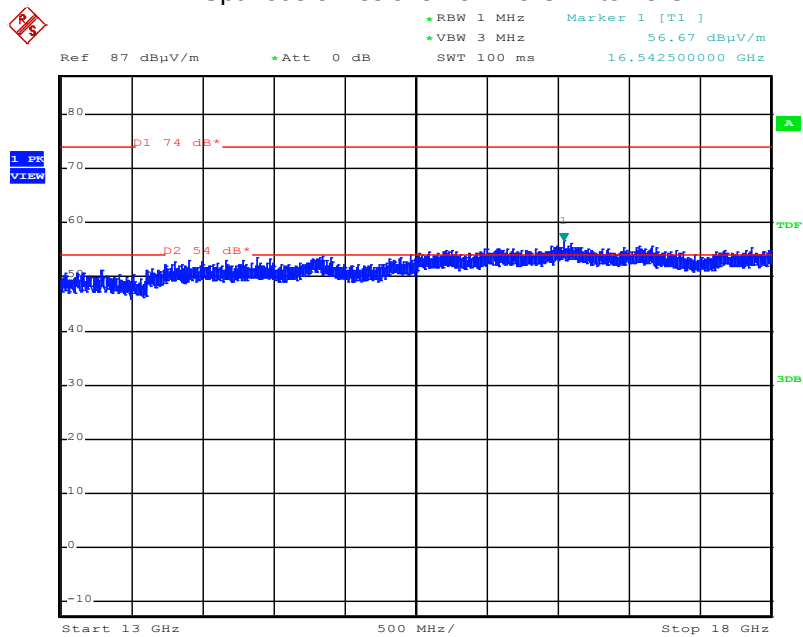
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 8 GHz to 13 GHz



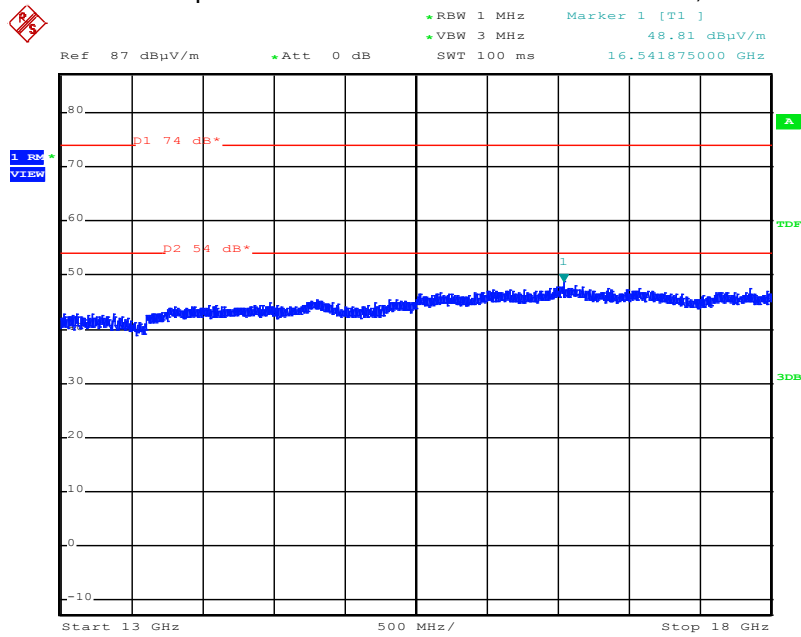
Spurious emissions from 13 GHz to 18 GHz



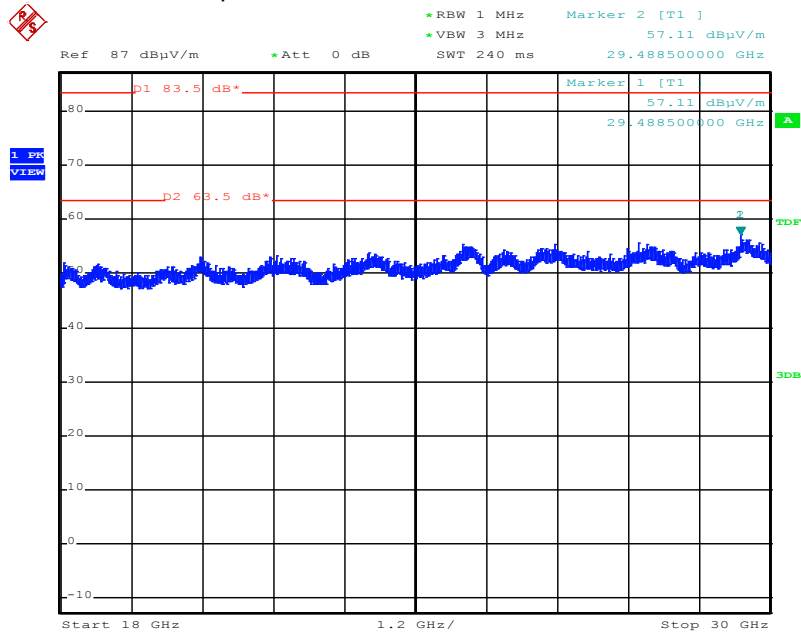
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 13 GHz to 18 GHz, AV



Spurious emissions from 18 GHz to 30 GHz

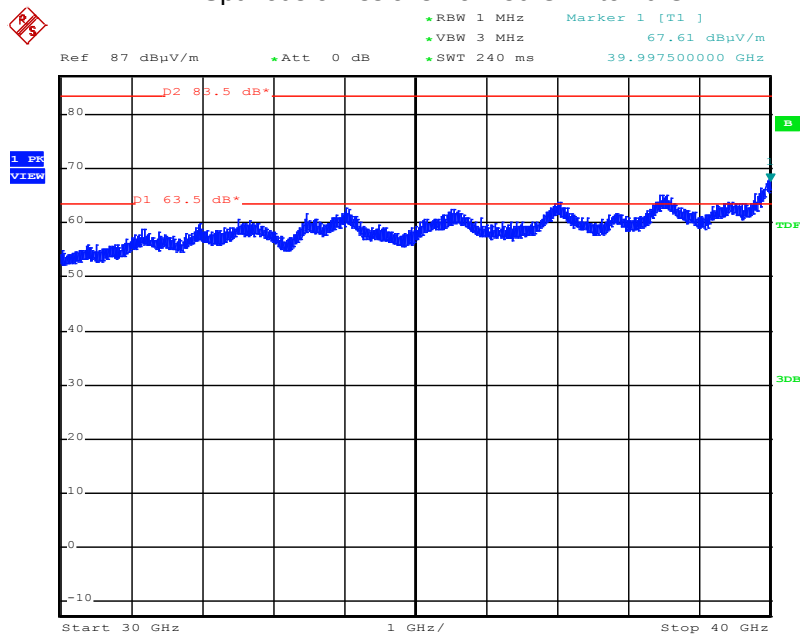


Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

FCC ID: LYHELN1V1

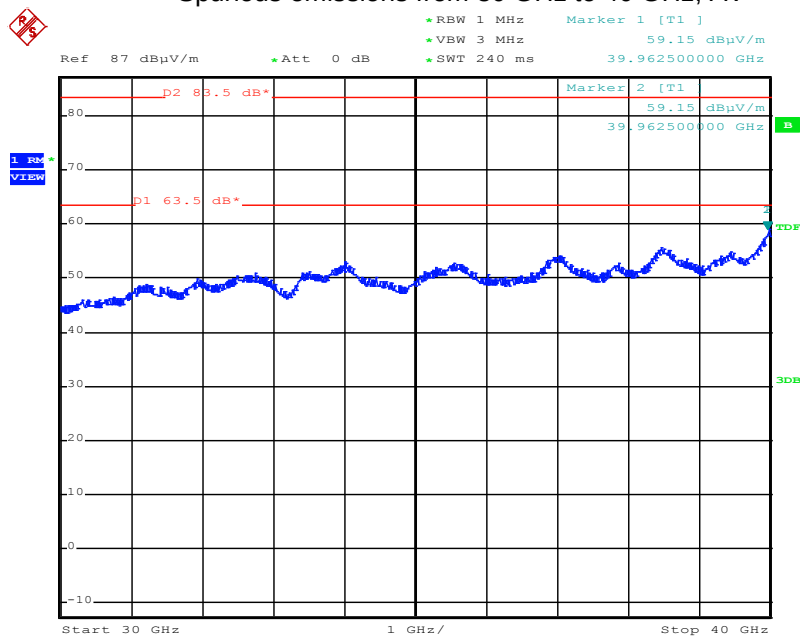
IC: 267AA-ELN1V1

Spurious emissions from 30 GHz to 40 GHz



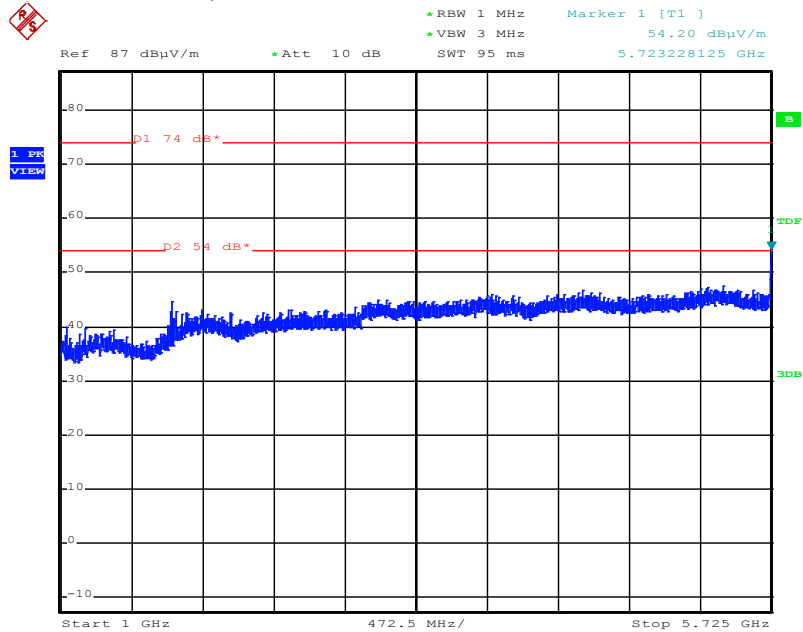
Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

Spurious emissions from 30 GHz to 40 GHz, AV

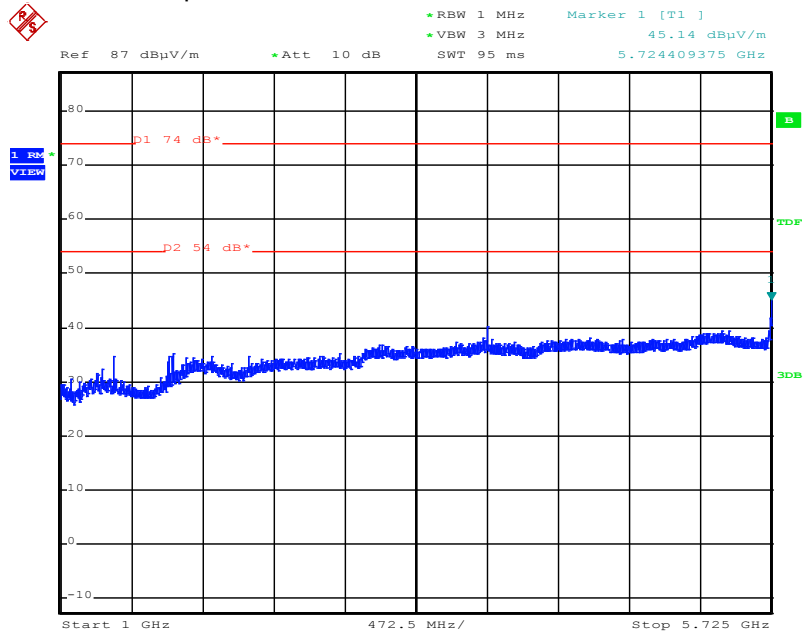


802.11n, HT40, Ch149up:

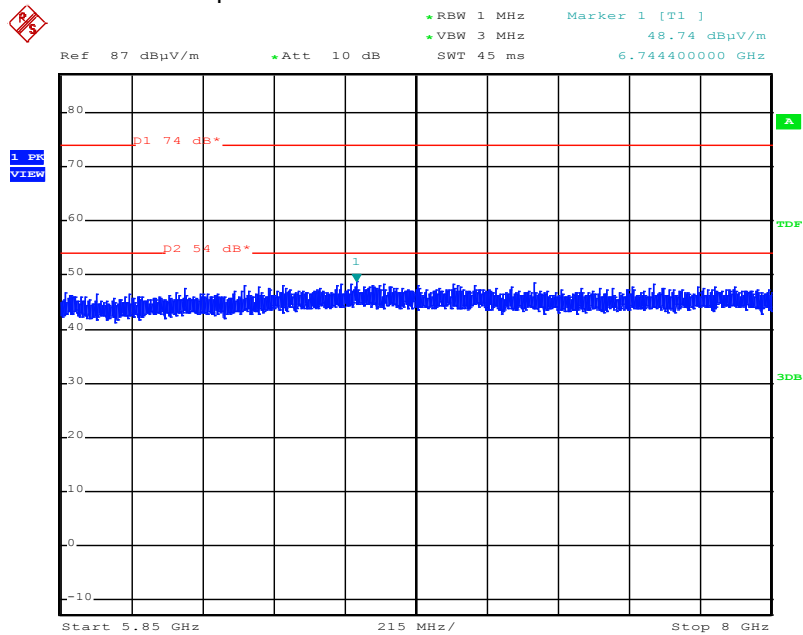
Spurious emissions from 1 GHz to 5.725 GHz



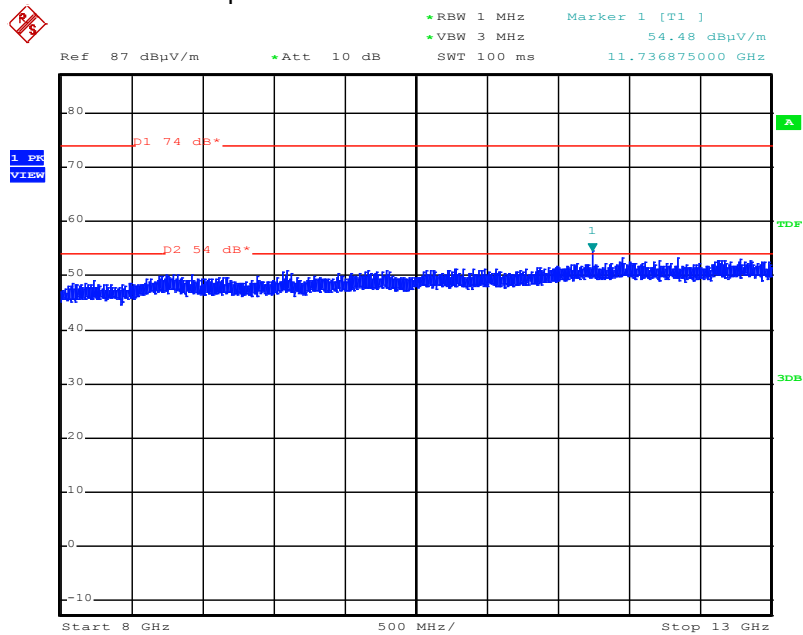
Spurious emissions from 1 GHz to 5.725 GHz, AV



Spurious emissions from 5.85 GHz to 8 GHz



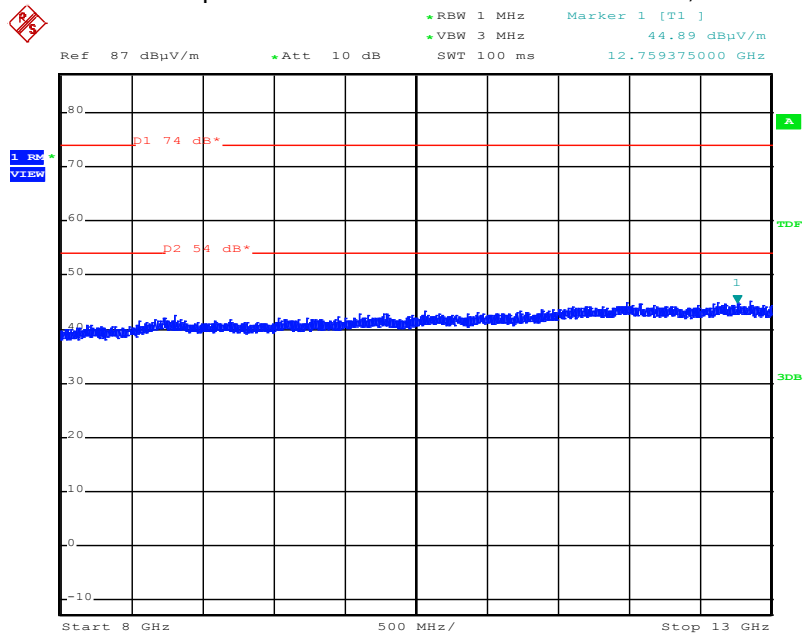
Spurious emissions from 8 GHz to 13 GHz



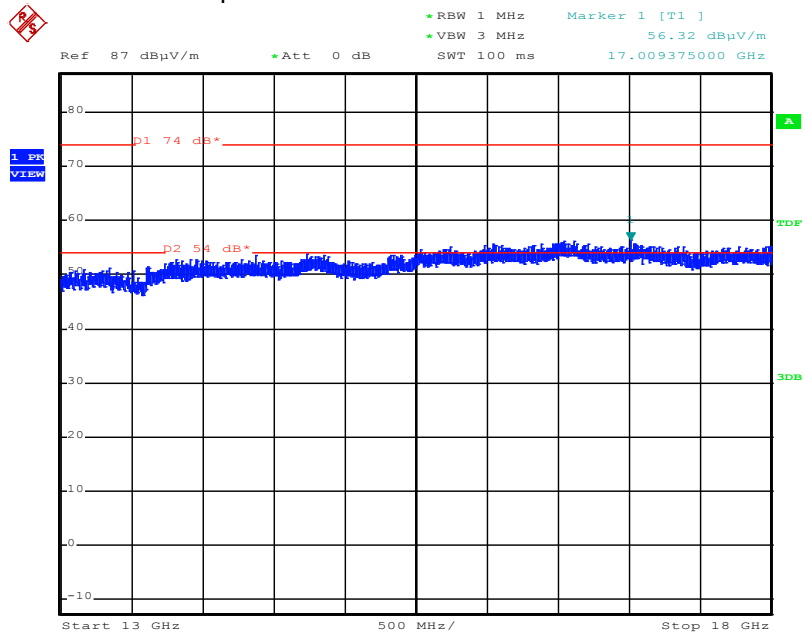
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 8 GHz to 13 GHz, AV



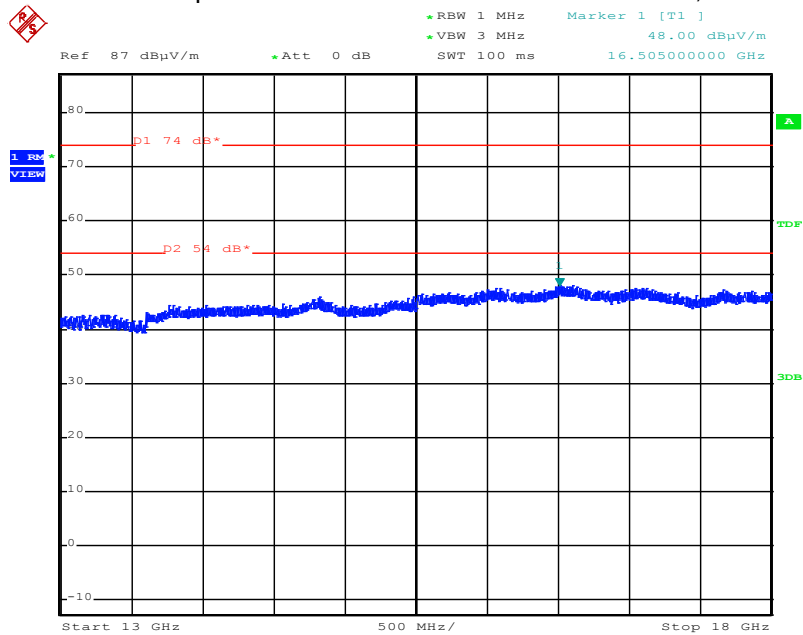
Spurious emissions from 13 GHz to 18 GHz



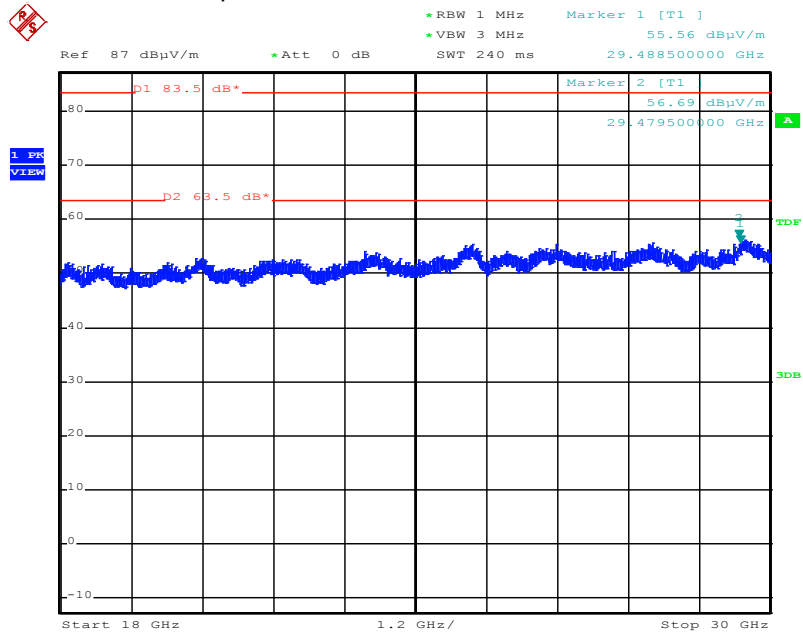
FCC ID: LYHELN1V1

IC: 267AA-ELN1V1

Spurious emissions from 13 GHz to 18 GHz, AV



Spurious emissions from 18 GHz to 30 GHz

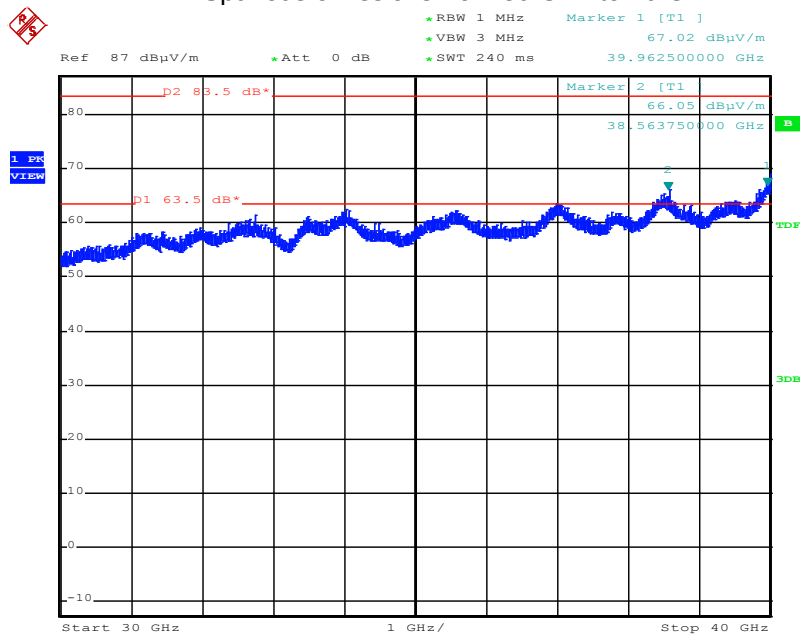


Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

FCC ID: LYHELN1V1

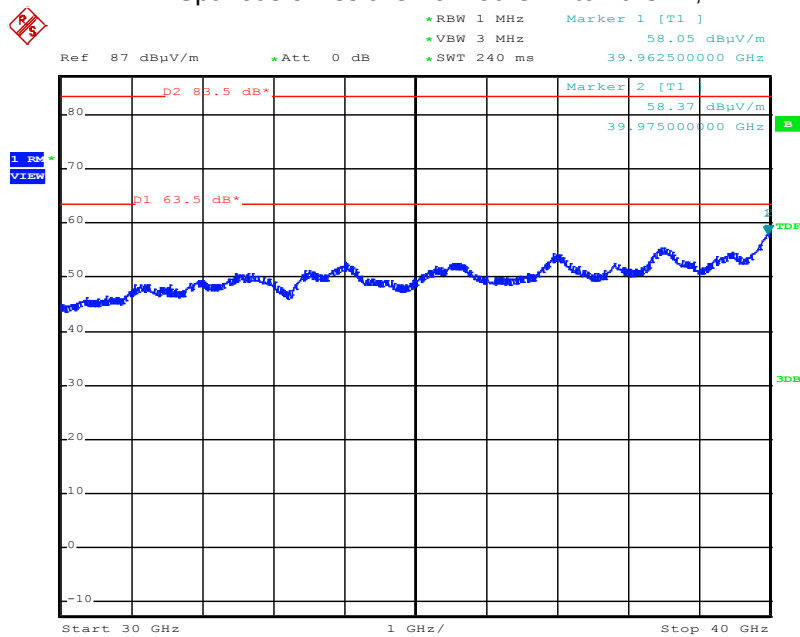
IC: 267AA-ELN1V1

Spurious emissions from 30 GHz to 40 GHz



Note: The measurement >18 GHz is done in 1 m distance, therefore the limits are corrected with 9.5 dB.

Spurious emissions from 30 GHz to 40 GHz, AV



5.7 Spurious emissions conducted in restricted bands

For test instruments and accessories used see section 6 Part SEC 3.

5.7.1 Description of the test location

Test location: AREA4

5.7.2 Photo documentation of the test set-up



5.7.3 Applicable standard

According to FCC Part 15, Section 15.247(d):

In any 100 kHz bandwidth outside the frequency bands 2400 – 2483.50 MHz and 5725 – 5850 MHz, the digitally modulated radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or an radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a) (see Section 15.205(c)).

5.7.4 Description of measurement

The spurious emissions are measured conducted using a spectrum analyser in a test setup following the procedures set out in KDB 558074 for DTS. The transmitter is set to the lowest operating frequency (CH1), the middle (CH6) and to the highest operating frequency (CH11). The frequency spectrum outside from the operating frequency range (2400 - 2483.5 MHz and 5725 – 5850 MHz) is scanned for emissions that exceed the defined limit. The measurement is performed at normal test conditions in modulated TX continuous mode. The emission is measured in dBm and converted in dBμV/m using the formula $E = EIRP - 20\log D + 104.8$;

Spectrum analyser search setting:

Peak-measurement:

RBW: 1 MHz, VBW: 3 MHz, Detector: Max peak, Trace Mode: Max hold, Sweep time: auto;

AV-measurement according 558074 D01 DTS, Item 12.2.5.3:

RBW: 1 MHz, VBW: $\geq 1/T$, Detector: Max peak, Trace Mode: Max hold, Sweep time: auto;

For 801.11b: VBW = 100 Hz, for 801.11g, n HT20: VBW = 1 kHz, for 801.11g, n HT40: VBW = 3 kHz;

5.7.5 Test result
5.7.5.1 Gain group 1 (6 dBi), 2.4 GHz range:

802.11b	PK-measurement						
Lowest frequency: CH1							
Test conditions: 1 TX, P14, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2287.8	49.5	6.0	74.0	-18.5
2310	2390	1000	2388.7	59.3	6.0	74.0	-8.7
2483.5	2500	1000	2483.9	53.5	6.0	74.0	-14.5
2655	2900	1000	2659.0	43.0	6.0	74.0	-25.0
4500	5150	1000	4823.8	39.6	6.0	74.0	-28.4
7250	7750	1000	7469.0	38.3	6.0	74.0	-29.7
Measurement uncertainty				±3 dB			

Note: The marked PK-emission exceeds the AV-limit and has to be re-measured in AV. The band 2200-2300 MHz is measured radiated.

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P14, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.6	-59.8	1000	6.0	-53.8	41.5	54.0	-12.5
2492.8	-54.8	1000	6.0	-48.8	46.5	54.0	-7.5
Measurement uncertainty				±3 dB			

802.11b		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P14, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2287.8	50.2	6.0	74.0	-17.8
2310	2390	1000	2387.4	52.3	6.0	74.0	-15.7
2483.5	2500	1000	2488.6	55.1	6.0	74.0	-12.9
2655	2900	1000	2657.4	43.9	6.0	74.0	-24.1
4500	5150	1000	4874.1	40.3	6.0	74.0	-27.7
7250	7750	1000	7311.9	40.8	6.0	74.0	-27.2
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P14, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.1	-56.4	1000	6.0	-50.4	44.9	54.0	-9.1
2492.8	-54.8	1000	6.0	-48.8	46.5	54.0	-7.5
Measurement uncertainty				±3 dB			

802.11b	PK-measurement						
Highest frequency: CH11							
Test conditions: 1 TX, P14, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2288	50	6.0	74.0	-17.8
2310	2390	1000	2384	51	6.0	74.0	-16.8
2483.5	2500	1000	2484	61	6.0	74.0	-7.1
2655	2900	1000	2656	44	6.0	74.0	-24.3
4500	5150	1000	4924	42	6.0	74.0	-26.3
7250	7750	1000	7389	40	6.0	74.0	-28.4
Measurement uncertainty				±3 dB			

Test conditions: 1 TX, P14, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.1	-56.4	1000	6.0	-50.4	44.9	54.0	-9.1
2483.5	-57.2	1000	6.0	-51.2	44.1	54.0	-9.9
				±3 dB			

802.11g	PK-measurement						
Lowest frequency: CH1							
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2288.0	50.6	6.0	74.0	-17.4
2310	2390	1000	2388.9	61.2	6.0	74.0	-6.8
2483.5	2500	1000	2499.2	53.7	6.0	74.0	-14.3
2655	2900	1000	2655.4	44.5	6.0	74.0	-23.5
4500	5150	1000	4819.8	39.7	6.0	74.0	-28.3
7250	7750	1000	7250.4	45.7	6.0	74.0	-22.3
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P14, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2390	-54.9	1000	6.0	-48.9	46.4	54.0	-7.6
2490.2	-54.8	1000	6.0	-48.8	46.5	55.0	-8.5
Measurement uncertainty				±3 dB			

802.11g		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2287.8	50.7	6.0	74.0	-17.3
2310	2390	1000	2360.8	51.5	6.0	74.0	-16.5
2483.5	2500	1000	2494.7	53.1	6.0	74.0	-14.9
2655	2900	1000	2657.4	44.8	6.0	74.0	-23.2
4500	5150	1000	4874.7	41.0	6.0	74.0	-27.0
7250	7750	1000	7310.9	48.7	6.0	74.0	-19.3
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P14, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.1	-56.4	1000	6.0	-50.4	44.9	54.0	-9.1
2493.2	-55.8	1000	6.0	-49.8	45.5	54.0	-8.5
Measurement uncertainty				±3 dB			

802.11g	PK-measurement						
Highest frequency: CH11							
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start f	Stop f	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2288.0	51.2	6.0	74.0	-16.8
2310	2390	1000	2388.7	51.1	6.0	74.0	-16.9
2483.5	2500	1000	2483.8	66.9	6.0	74.0	-1.1
2655	2900	1000	2661.2	45.6	6.0	74.0	-22.4
4500	5150	1000	4930.3	42.6	6.0	74.0	-25.4
7250	7750	1000	7384.9	48.0	6.0	74.0	-20.0
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P14, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.1	-56.4	1000	6.0	-50.4	44.9	54.0	-9.1
2483.5	-51.9	1000	6.0	-45.9	49.4	54.0	-4.6
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Lowest frequency: CH1							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2287.8	51.4	6.0	74.0	-16.6
2310	2390	1000	2388.9	62.6	6.0	74.0	-5.4
2483.5	2500	1000	2485.7	54.1	6.0	74.0	-13.9
2655	2900	1000	2660.6	45.4	6.0	74.0	-22.6
4500	5150	1000	4822.0	39.6	6.0	74.0	-28.4
7250	7750	1000	7250.0	45.6	6.0	74.0	-22.4
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P14, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.9	-53.7	1000	6.0	-47.7	47.6	54.0	-6.4
2488.1	-55	1000	6.0	-49.0	46.3	55.0	-8.7
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2288.2	51.0	6.0	74.0	-17.0
2310	2390	1000	2350.6	51.7	6.0	74.0	-16.3
2483.5	2500	1000	2491.0	52.9	6.0	74.0	-15.1
2655	2900	1000	2657.0	44.5	6.0	74.0	-23.5
4500	5150	1000	4883.4	42.1	6.0	74.0	-25.9
7250	7750	1000	7300.7	49.5	6.0	74.0	-18.5
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P14, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.1	-56.4	1000	6.0	-50.4	44.9	54.0	-9.1
2487	-55.6	1000	6.0	-49.6	45.7	54.0	-8.3
7307	-65.1	1000	6.0	-59.1	36.2	55.0	-18.8
Measurement uncertainty				±3 dB			

802.11n, HT20	PK-measurement						
Highest frequency: CH11							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2288.0	51.5	6.0	74.0	-16.5
2310	2390	1000	2389.4	51.9	6.0	74.0	-16.1
2483.5	2500	1000	2483.9	67.8	6.0	74.0	-0.2
2655	2900	1000	2655.4	44.6	6.0	74.0	-23.4
4500	5150	1000	4932.5	42.7	6.0	74.0	-25.3
7250	7750	1000	7383.1	48.8	6.0	74.0	-19.2
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P14, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.1	-56.4	1000	6.0	-50.4	44.9	54.0	-9.1
2483.5	-51.3	1000	6.0	-45.3	50.0	54.0	-4.0
7385	-65.8	1000	6.0	-59.8	35.5	54.0	-18.5
Measurement uncertainty				±3 dB			

802.11n, HT40		PK-measurement					
Lowest frequency: CH1up							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2200	2300	1000	2287.8	51.5	6.0	74.0	-16.5
2310	2390	1000	2388.4	66.1	6.0	74.0	-1.9
2483.5	2500	1000	2485.8	53.8	6.0	74.0	-14.2
2655	2900	1000	2655.8	44.2	6.0	74.0	-23.8
4500	5150	1000	4837.3	39.1	6.0	74.0	-28.9
7250	7750	1000	7279.7	46.6	6.0	74.0	-21.4
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1up							
Test conditions: 1 TX, P14, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2390	-51.8	1000	6.0	-45.8	49.5	54.0	-4.5
2488.8	-54	1000	6.0	-48.0	47.3	54.0	-6.7
Measurement uncertainty				±3 dB			

5.7.5.2 Gain group 2 (9 dBi), 2.4 GHz range:

802.11b		PK-measurement					
Lowest frequency: CH1							
Test conditions: 1 TX, P11, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2377.4	48.3	9.0	74.0	-16.7
2483.5	2500	1000	2483.8	55.9	9.0	74.0	-9.1
2655	2900	1000	2656.2	41.0	9.0	74.0	-24.0
4500	5150	1000	4900.4	39.3	9.0	74.0	-25.7
7250	7750	1000	7373.0	38.6	9.0	74.0	-26.4
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P11, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.4	-61.3	1000	9.0	-52.3	43.0	54.0	-11.0
2490.2	-56.9	1000	9.0	-47.9	47.4	54.0	-6.6
Measurement uncertainty				±3 dB			

802.11b		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P11, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2386.8	51.2	9.0	74.0	-13.8
2483.5	2500	1000	2488.0	52.0	9.0	74.0	-13.0
2655	2900	1000	2655.4	42.4	9.0	74.0	-22.6
4500	5150	1000	4874.1	38.5	9.0	74.0	-26.5
7250	7750	1000	7314.3	38.4	9.0	74.0	-26.6
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P11, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.9	-61.8	1000	9.0	-52.8	42.5	54.0	-11.5
2492.7	-59.3	1000	9.0	-50.3	45.0	54.0	-9.0
Measurement uncertainty				±3 dB			

802.11b		PK-measurement					
Highest frequency: CH11							
Test conditions: 1 TX, P11, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2389.8	47.5	9.0	74.0	-17.5
2483.5	2500	1000	2483.9	57.8	9.0	74.0	-7.2
2655	2900	1000	2667.4	40.0	9.0	74.0	-25.0
4500	5150	1000	4924.0	39.0	9.0	74.0	-26.0
7250	7750	1000	7731.6	38.3	9.0	74.0	-26.7
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P11, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2384.5	-59.2	1000	9.0	-50.2	45.1	54.0	-8.9
2485.2	-60.7	1000	9.0	-51.7	43.6	54.0	-10.4
Measurement uncertainty				±3 dB			

802.11g	PK-measurement						
Lowest frequency: CH1							
Test conditions: 1 TX, P11, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2382.2	49.8	9.0	74.0	-15.2
2483.5	2500	1000	2497.4	52.2	9.0	74.0	-12.8
2655	2900	1000	2655.0	43.4	9.0	74.0	-21.6
4500	5150	1000	4914.8	39.0	9.0	74.0	-26.0
7250	7750	1000	7367.4	39.4	9.0	74.0	-25.6
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P11, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2390.0	-58.0	1000	9.0	-49.0	46.3	54.0	-7.7
2485.2	-56.4	1000	9.0	-47.4	47.9	54.0	-6.1
Measurement uncertainty				±3 dB			

802.11g	PK-measurement						
Middle frequency: CH6							
Test conditions: 1 TX, P11, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2360.1	49.3	9.0	74.0	-15.7
2483.5	2500	1000	2484.5	51.2	9.0	74.0	-13.8
2655	2900	1000	2655.0	43.3	9.0	74.0	-21.7
4500	5150	1000	4638.7	38.5	9.0	74.0	-26.5
7250	7750	1000	7302.3	42.2	9.0	74.0	-22.8
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P11, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.4	-59.9	1000	9.0	-50.9	44.4	54.0	-9.6
2492.4	-57.3	1000	9.0	-48.3	47.0	54.0	-7.0
Measurement uncertainty				±3 dB			

802.11g	PK-measurement						
Highest frequency: CH11							
Test conditions: 1 TX, P11, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2387.8	49.8	9.0	74.0	-15.2
2483.5	2500	1000	2484.6	54.4	9.0	74.0	-10.6
2655	2900	1000	2655.0	43.7	9.0	74.0	-21.3
4500	5150	1000	4927.3	38.7	9.0	74.0	-26.3
7250	7750	1000	7374.0	39.4	9.0	74.0	-25.6
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P11, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2388.0	-58.6	1000	9.0	-49.6	45.7	54.0	-8.3
2483.5	-55.8	1000	9.0	-46.8	48.5	54.0	-5.5
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Lowest frequency: CH1							
Test conditions: 1 TX, P11, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2374.5	50.3	9.0	74.0	-14.7
2483.5	2500	1000	2499.2	52.5	9.0	74.0	-12.5
2655	2900	1000	2655.0	45.1	9.0	74.0	-19.9
4500	5150	1000	4638.5	38.5	9.0	74.0	-26.5
7250	7750	1000	7358.2	39.2	9.0	74.0	-25.8
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P11, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2390.0	-56.4	1000	14.0	-42.4	52.9	54.0	-1.1
2490.0	-55.4	1000	14.0	-41.4	53.9	54.0	-0.1
2655.0	-63.3	1000	14.0	-49.3	46.0	54.0	-8.0
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P11, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2360.0	48.8	9.0	74.0	-16.2
2483.5	2500	1000	2485.8	51.6	9.0	74.0	-13.4
2655	2900	1000	2660.6	43.2	9.0	74.0	-21.8
4500	5150	1000	4749.7	38.8	9.0	74.0	-26.2
7250	7750	1000	7319.3	40.5	9.0	74.0	-24.5
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P11, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2385.4	-60.1	1000	9.0	-51.1	44.2	54.0	-9.8
2493.1	-57.3	1000	9.0	-48.3	47.0	54.0	-7.0
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Highest frequency: CH11							
Test conditions: 1 TX, P11, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2377.7	49.2	9.0	74.0	-15.8
2483.5	2500	1000	2483.6	58.2	9.0	74.0	-6.8
2655	2900	1000	2655.0	43.9	9.0	74.0	-21.1
4500	5150	1000	4915.6	38.8	9.0	74.0	-26.2
7250	7750	1000	7371.8	38.6	9.0	74.0	-26.4
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P11, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.9	-58.6	1000	9.0	-49.6	45.7	54.0	-8.3
2483.8	-55.7	1000	9.0	-46.7	48.6	54.0	-5.4
Measurement uncertainty				±3 dB			

802.11n, HT40		PK-measurement					
Lowest frequency: CH1up							
Test conditions: 1 TX, P11, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2389.4	61.9	9.0	74.0	-3.1
2483.5	2500	1000	2493.0	52.1	9.0	74.0	-12.9
2655	2900	1000	2655.2	44.0	9.0	74.0	-21.0
4500	5150	1000	4812.4	39.3	9.0	74.0	-25.7
7250	7750	1000	7260.2	39.9	9.0	74.0	-25.1
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1up							
Test conditions: 1 TX, P11, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.7	-51.4	1000	9.0	-42.4	52.9	54.0	-1.1
2488.0	-54.9	1000	9.0	-45.9	49.4	54.0	-4.6
Measurement uncertainty				±3 dB			

5.7.5.3 Gain group 3 (14 dBi), 2.4 GHz range:

802.11b		PK-measurement					
Lowest frequency: CH1							
Test conditions: 1 TX, P8, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2389.7	52.9	14.0	74.0	-7.1
2483.5	2500	1000	2488.2	49.4	14.0	74.0	-10.6
2655	2900	1000	2656.4	40.6	14.0	74.0	-19.4
4500	5150	1000	4662.9	38.1	14.0	74.0	-21.9
7250	7750	1000	7531.6	38.7	14.0	74.0	-21.3
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P8, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2390.0	-63.3	1000	14.0	-49.3	46.0	54.0	-8.0
2493.4	-59.2	1000	14.0	-45.2	50.1	54.0	-3.9
2655.0	-66.8	1000	14.0	-52.8	42.5	54.0	-11.5
Measurement uncertainty				±3 dB			

802.11b		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P8, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2386.0	47.7	14.0	74.0	-12.3
2483.5	2500	1000	2485.7	49.2	14.0	74.0	-10.8
2655	2900	1000	2657.0	40.7	14.0	74.0	-19.3
4500	5150	1000	4803.0	38.0	14.0	74.0	-22.0
7250	7750	1000	7252.8	38.6	14.0	74.0	-21.4
Measurement uncertainty				±3 dB			

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P8, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.9	-63.8	1000	14.0	-49.8	45.5	54.0	-8.5
2485.9	-59.3	1000	14.0	-45.3	50.0	54.0	-4.0
2655.0	-66.8	1000	14.0	-52.8	42.5	54.0	-11.5
Measurement uncertainty				±3 dB			

802.11b	PK-measurement						
Highest frequency: CH11							
Test conditions: 1 TX, P8, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2380.6	45.6	14.0	74.0	-14.4
2483.5	2500	1000	2483.5	54.5	14.0	74.0	-5.5
2655	2900	1000	2657.0	39.1	14.0	74.0	-20.9
4500	5150	1000	4546.1	38.5	14.0	74.0	-21.5
7250	7750	1000	7263.8	38.9	14.0	74.0	-21.1
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P8, 1 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2384.2	-61.1	1000	14.0	-47.1	48.2	54.0	-5.8
2483.6	-60.9	1000	14.0	-46.9	48.4	54.0	-5.6
Measurement uncertainty				±3 dB			

802.11g		PK-measurement					
Lowest frequency: CH1							
Test conditions: 1 TX, P8, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2388.6	49.3	14.0	74.0	-10.7
2483.5	2500	1000	2498.0	50.4	14.0	74.0	-9.6
2655	2900	1000	2668.6	42.2	14.0	74.0	-17.8
4500	5150	1000	4860.9	38.8	14.0	74.0	-21.2
7250	7750	1000	7598.9	38.8	14.0	74.0	-21.2
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P8, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2389.3	-59.0	1000	14.0	-45.0	50.3	54.0	-3.7
2488.8	-56.7	1000	14.0	-42.7	52.6	54.0	-1.4
2655.1	-63.8	1000	14.0	-49.8	45.5	54.0	-8.5
Measurement uncertainty				±3 dB			

802.11g		PK-measurement					
Middle frequency: CH6							
Test conditions: 1 TX, P8, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2347.0	34.3	14.0	74.0	-25.7
2483.5	2500	1000	2490.2	34.5	14.0	74.0	-25.5
2655	2900	1000	2880.1	35.0	14.0	74.0	-25.0
4500	5150	1000	4612.6	39.2	14.0	74.0	-20.8
7250	7750	1000	7260.2	39.5	14.0	74.0	-20.5
Measurement uncertainty				±3 dB			

802.11g	PK-measurement						
Highest frequency: CH11							
Test conditions: 1 TX, P8, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2385.0	46.1	14.0	74.0	-13.9
2483.5	2500	1000	2483.7	51.1	14.0	74.0	-8.9
2655	2900	1000	2660.0	40.6	14.0	74.0	-19.4
4500	5150	1000	4892.6	39.5	14.0	74.0	-20.5
7250	7750	1000	7487.3	38.3	14.0	74.0	-21.7
Measurement uncertainty				±3 dB			

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P8, 6 Mbps				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dBμV/m)	(dBμV/m)	(dB)
2387.4	-60.4	1000	14.0	-46.4	48.9	54.0	-5.1
2484.0	-59.5	1000	14.0	-45.5	49.8	54.0	-4.2
2655.3	-65.1	1000	14.0	-51.1	44.2	54.0	-9.8
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Lowest frequency: CH1							
Test conditions: 1 TX, P8, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
2310	2390	1000	2389.7	49.1	14.0	74.0	-10.9
2483.5	2500	1000	2490.2	50.8	14.0	74.0	-9.2
2655	2900	1000	2660.8	41.6	14.0	74.0	-18.4
4500	5150	1000	4869.5	38.2	14.0	74.0	-21.8
7250	7750	1000	7587.9	38.4	14.0	74.0	-21.6
Measurement uncertainty				±3 dB			

AV-measurement							
Lowest frequency: CH1							
Test conditions: 1 TX, P8, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dB μ V/m)	(dB μ V/m)	(dB)
2389.9	-58.9	1000	14.0	-44.9	50.4	54.0	-3.6
2490.6	-56.8	1000	14.0	-42.8	52.5	54.0	-1.5
2655.3	-63.8	1000	14.0	-49.8	45.5	54.0	-8.5
Measurement uncertainty				± 3 dB			

802.11n, HT20 PK-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P8, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dB μ V/m)	(dBi)	(dB μ V/m)	(dB)
2310	2390	1000	2356.5	47.7	14.0	74.0	-12.3
2483.5	2500	1000	2498.0	50.2	14.0	74.0	-9.8
2655	2900	1000	2662.2	42.7	14.0	74.0	-17.3
4500	5150	1000	4503.6	38.2	14.0	74.0	-21.8
7250	7750	1000	7307.3	39.0	14.0	74.0	-21.0
Measurement uncertainty			± 3 dB				

AV-measurement							
Middle frequency: CH6							
Test conditions: 1 TX, P8, MCS0				Test results			
<i>f</i>	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dB μ V/m)	(dB μ V/m)	(dB)
2388.2	-61.3	1000	14.0	-47.3	48.0	54.0	-6.0
2492.4	-58.7	1000	14.0	-44.7	50.6	54.0	-3.4
2655.3	-64.8	1000	14.0	-50.8	44.5	54.0	-9.5
Measurement uncertainty				± 3 dB			

802.11n, HT20 PK-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P8, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dB μ V/m)	(dBi)	(dB μ V/m)	(dB)
2310	2390	1000	2384.9	45.6	14.0	74.0	-14.4
2483.5	2500	1000	2483.6	51.5	14.0	74.0	-8.5
2655	2900	1000	2661.0	40.6	14.0	74.0	-19.4
4500	5150	1000	4930.3	38.0	14.0	74.0	-22.0
7250	7750	1000	7501.1	38.7	14.0	74.0	-21.3
Measurement uncertainty			± 3 dB				

AV-measurement							
Highest frequency: CH11							
Test conditions: 1 TX, P8, MCS0				Test results			
f	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dB μ V/m)	(dB μ V/m)	(dB)
2383.9	-60.5	1000	14.0	-46.5	48.8	54.0	-5.2
2484.0	-58.0	1000	14.0	-44.0	51.3	54.0	-2.7
2655.3	-65.1	1000	14.0	-51.1	44.2	54.0	-9.8
Measurement uncertainty				± 3 dB			

802.11n, HT40 PK-measurement							
Lowest frequency: CH1up							
Test conditions: 1 TX, P8, MCS0			Test results				
Start f	Stop f	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dB μ V/m)	(dBi)	(dB μ V/m)	(dB)
2310	2390	1000	2388.7	58.9	14.0	74.0	-1.1
2483.5	2500	1000	2493.8	51.0	14.0	74.0	-9.0
2655	2900	1000	2659.6	41.4	14.0	74.0	-18.6
4500	5150	1000	4818.4	38.2	14.0	74.0	-21.8
7250	7750	1000	7474.8	38.2	14.0	74.0	-21.8
Measurement uncertainty				± 3 dB			

AV-measurement							
Lowest frequency: CH1up							
Test conditions: 1 TX, P8, MCS0				Test results			
f	A	RBW	G	EIRP	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBm)	(dB μ V/m)	(dB μ V/m)	(dB)
2389.7	-58.4	1000	14.0	-44.4	50.9	54.0	-3.1
2493.0	-56.1	1000	14.0	-42.1	53.2	54.0	-0.8
2656.7	-63.3	1000	14.0	-49.3	46.0	54.0	-8.0
Measurement uncertainty				± 3 dB			

5.7.5.4 Gain group 1 (6 dBi), 5 GHz range:

802.11a	PK-measurement						
Lowest frequency: CH149							
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	45.6	6.0	74.0	-22.4
4500	5150	1000	4599.8	50.1	6.0	74.0	-17.9
5350	5460	1000	5459.3	51.7	6.0	74.0	-16.3
7250	7750	1000	7425.8	38.3	6.0	74.0	-29.7
10600	12700	1000	11489.8	46.5	6.0	74.0	-21.5
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH149						
Test conditions: 1 TX, P20, 6 Mbps				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5087	42.9	1000	6.0	48.9	54.0	-5.1
5393	43.6	1000	6.0	49.6	54.0	-4.4
Measurement uncertainty				±3 dB		

802.11a	PK-measurement						
Middle frequency: CH157							
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	46.1	6.0	74.0	-21.9
4500	5150	1000	5139.4	51.2	6.0	74.0	-16.8
5350	5460	1000	5450.8	53.2	6.0	74.0	-14.8
7250	7750	1000	7613.7	38.2	6.0	74.0	-29.8
10600	12700	1000	11573.9	48.0	6.0	74.0	-20.0
Measurement uncertainty				±3 dB			

AV-measurement						
Middle frequency: CH157						
Test conditions: 1 TX, P20, 6 Mbps				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5144	42.7	1000	6.0	48.7	54.0	-5.3
5416	43.9	1000	6.0	49.9	54.0	-4.1
Measurement uncertainty				±3 dB		

802.11a	PK-measurement						
Highest frequency: CH165							
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	45.5	6.0	74.0	-22.5
4500	5150	1000	5063.3	53.0	6.0	74.0	-15.0
5350	5460	1000	5439.8	55.1	6.0	74.0	-12.9
7250	7750	1000	7439.8	38.5	6.0	74.0	-29.5
10600	12700	1000	11650.7	48.2	6.0	74.0	-19.8
Measurement uncertainty				±3 dB			

AV-measurement						
Highest frequency: CH165						
Test conditions: 1 TX, P20, 6 Mbps				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5141	42.8	1000	6.0	48.8	54.0	-5.2
5433	43.6	1000	6.0	49.6	54.0	-4.4
11651	48.4	1000	6.0	54.4	55.0	-0.6
Measurement uncertainty				±3 dB		

802.11n, HT20		PK-measurement					
Lowest frequency: CH149							
Test conditions: 1 TX, P20, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	44.8	6.0	74.0	-23.2
4500	5150	1000	4600.0	50.0	6.0	74.0	-18.0
5350	5460	1000	5397.7	52.1	6.0	74.0	-15.9
7250	7750	1000	7478.3	38.3	6.0	74.0	-29.7
10600	12700	1000	11494.8	47.1	6.0	74.0	-20.9
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH149						
Test conditions: 1 TX, P20, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
4720	40.3	1000	6.0	46.3	54.0	-7.7
5409	40.6	1000	6.0	46.6	54.0	-7.4
Measurement uncertainty				±3 dB		

802.11n, HT20		PK-measurement					
Middle frequency: CH157							
Test conditions: 1 TX, P20, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	45.7	6.0	74.0	-22.3
4500	5150	1000	5034.7	52.0	6.0	74.0	-16.0
5350	5460	1000	5451.7	53.1	6.0	74.0	-14.9
7250	7750	1000	7269.2	39.3	6.0	74.0	-28.7
10600	12700	1000	11574.7	47.5	6.0	74.0	-20.5
Measurement uncertainty				±3 dB			

AV-measurement						
Middle frequency: CH157						
Test conditions: 1 TX, P20, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5088	42.7	1000	6.0	48.7	54.0	-5.3
5413	44.8	1000	6.0	50.8	54.0	-3.2
Measurement uncertainty				±3 dB		

802.11n, HT20		PK-measurement					
Highest frequency: CH165							
Test conditions: 1 TX, P20, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	45.7	6.0	74.0	-22.3
4500	5150	1000	5034.7	52.0	6.0	74.0	-16.0
5350	5460	1000	5451.7	53.1	6.0	74.0	-14.9
7250	7750	1000	7269.2	39.3	6.0	74.0	-28.7
10600	12700	1000	11574.7	47.5	6.0	74.0	-20.5
Measurement uncertainty				±3 dB			

AV-measurement						
Highest frequency: CH165						
Test conditions: 1 TX, P20, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5088	42.7	1000	6.0	48.7	54.0	-5.3
5413	44.8	1000	6.0	50.8	54.0	-3.2
Measurement uncertainty				±3 dB		

802.11n, HT40		PK-measurement					
Lowest frequency: CH149up							
Test conditions: 1 TX, P20, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	45.5	6.0	74.0	-22.5
4500	5150	1000	4599.8	49.9	6.0	74.0	-18.1
5350	5460	1000	5457.6	51.5	6.0	74.0	-16.5
7250	7750	1000	7463.8	38.5	6.0	74.0	-29.5
10600	12700	1000	11506.2	44.3	6.0	74.0	-23.7
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH149up						
Test conditions: 1 TX, P20, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
4720	41.5	1000	6.0	47.5	54.0	-6.5
5400	41.0	1000	6.0	47.0	54.0	-7.0
Measurement uncertainty				±3 dB		

802.11n, HT40		PK-measurement					
Highest frequency: CH157up							
Test conditions: 1 TX, P20, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	45.5	6.0	74.0	-22.5
4500	5150	1000	5139.5	50.7	6.0	74.0	-17.3
5350	5460	1000	5458.8	54.3	6.0	74.0	-13.7
7250	7750	1000	7530.6	38.6	6.0	74.0	-29.4
10600	12700	1000	11576.0	45.5	6.0	74.0	-22.5
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH157up						
Test conditions: 1 TX, P20, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5083	42.8	1000	6.0	48.8	54.0	-5.2
5416	44.3	1000	6.0	50.3	54.0	-3.7
Measurement uncertainty				±3 dB		

5.7.5.5 Gain group 2 (9 dBi), 5 GHz range:

802.11a	PK-measurement						
Lowest frequency: CH149							
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4359.5	44.5	9.0	74.0	-20.5
4500	5150	1000	5129.1	47.4	9.0	74.0	-17.6
5350	5460	1000	5375.4	49.5	9.0	74.0	-15.5
7250	7750	1000	7342.9	38.5	9.0	74.0	-26.5
10600	12700	1000	11483.1	46.0	9.0	74.0	-19.0
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH149						
Test conditions: 1 TX, P17, 6 Mbps				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
4978	40.5	1000	9.0	49.5	54.0	-4.5
5409	41.4	1000	9.0	50.4	54.0	-3.6
11490	38.8	1000	9.0	47.8	54.0	-6.2
Measurement uncertainty				±3 dB		

802.11a	PK-measurement						
Middle frequency: CH157							
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4360.1	44.5	9.0	74.0	-20.5
4500	5150	1000	5147.4	51.4	9.0	74.0	-13.6
5350	5460	1000	5419.6	51.9	9.0	74.0	-13.1
7250	7750	1000	7595.5	39.2	9.0	74.0	-25.8
10600	12700	1000	11571.8	47.4	9.0	74.0	-17.6
Measurement uncertainty				±3 dB			

AV-measurement						
Middle frequency: CH157						
Test conditions: 1 TX, P17, 6 Mbps				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5147	43.7	1000	9.0	52.7	54.0	-1.3
5435	44.8	1000	9.0	53.8	54.0	-0.2
11571	41.6	1000	9.0	50.6	54.0	-3.4
Measurement uncertainty				±3 dB		

802.11a	PK-measurement						
Highest frequency: CH165							
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4360.7	44.3	9.0	74.0	-20.7
4500	5150	1000	5084.2	51.0	9.0	74.0	-14.0
5350	5460	1000	5459.8	51.7	9.0	74.0	-13.3
7250	7750	1000	7433.5	38.7	9.0	74.0	-26.3
10600	12700	1000	11650.0	47.4	9.0	74.0	-17.6
Measurement uncertainty				±3 dB			

AV-measurement						
Highest frequency: CH165						
Test conditions: 1 TX, P17, 6 Mbps				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5092	43.1	1000	9.0	52.1	54.0	-1.9
5453	44.1	1000	9.0	53.1	54.0	-0.9
11649	42.7	1000	9.0	51.7	54.0	-2.3
Measurement uncertainty				±3 dB		

802.11n, HT20		PK-measurement					
Lowest frequency: CH149							
Test conditions: 1 TX, P17, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4360.1	44.0	9.0	74.0	-21.0
4500	5150	1000	5102.5	48.6	9.0	74.0	-16.4
5350	5460	1000	5423.8	48.9	9.0	74.0	-16.1
7250	7750	1000	7628.3	38.9	9.0	74.0	-26.1
10600	12700	1000	11486.7	45.6	9.0	74.0	-19.4
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH149						
Test conditions: 1 TX, P17, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
4950	40.4	1000	9.0	49.4	54.0	-4.6
5379	41.6	1000	9.0	50.6	54.0	-3.4
11489	39.5	1000	9.0	48.5	54.0	-5.5
Measurement uncertainty				±3 dB		

802.11n, HT20		PK-measurement					
Middle frequency: CH157							
Test conditions: 1 TX, P17, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4360.1	44.5	9.0	74.0	-20.5
4500	5150	1000	5044.6	50.9	9.0	74.0	-14.1
5350	5460	1000	5412.0	52.4	9.0	74.0	-12.6
7250	7750	1000	7679.9	38.9	9.0	74.0	-26.1
10600	12700	1000	11574.9	48.0	9.0	74.0	-17.0
Measurement uncertainty				±3 dB			

AV-measurement						
Middle frequency: CH157						
Test conditions: 1 TX, P17, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5129	43.2	1000	9.0	52.2	54.0	-1.8
5443	44.3	1000	9.0	53.3	54.0	-0.7
11569	41.0	1000	9.0	50.0	54.0	-4.0
Measurement uncertainty				±3 dB		

802.11n, HT20		PK-measurement					
Highest frequency: CH165							
Test conditions: 1 TX, P17, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4360.1	44.5	9.0	74.0	-20.5
4500	5150	1000	5044.6	50.9	9.0	74.0	-14.1
5350	5460	1000	5412.0	52.4	9.0	74.0	-12.6
7250	7750	1000	7679.9	38.9	9.0	74.0	-26.1
10600	12700	1000	11574.9	48.0	9.0	74.0	-17.0
Measurement uncertainty				±3 dB			

AV-measurement						
Highest frequency: CH165						
Test conditions: 1 TX, P17, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5129	43.2	1000	9.0	52.2	54.0	-1.8
5443	44.3	1000	9.0	53.3	54.0	-0.7
11569	41	1000	9.0	50.0	54.0	-4.0
Measurement uncertainty				±3 dB		

802.11n, HT40		PK-measurement					
Lowest frequency: CH149up							
Test conditions: 1 TX, P17, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4359.5	44.5	9.0	74.0	-20.5
4500	5150	1000	5038.7	48.4	9.0	74.0	-16.6
5350	5460	1000	5400.7	49.7	9.0	74.0	-15.3
7250	7750	1000	7543.9	38.3	9.0	74.0	-26.7
10600	12700	1000	11526.1	43.0	9.0	74.0	-22.0
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH149up						
Test conditions: 1 TX, P17, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5140	40.2	1000	9.0	49.2	54.0	-4.8
5404	41.2	1000	9.0	50.2	54.0	-3.8
Measurement uncertainty				±3 dB		

802.11n, HT40		PK-measurement					
Highest frequency: CH157up							
Test conditions: 1 TX, P17, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4360.1	43.1	9.0	74.0	-21.9
4500	5150	1000	5088.9	50.7	9.0	74.0	-14.3
5350	5460	1000	5427.3	51.9	9.0	74.0	-13.1
7250	7750	1000	7307.2	39.0	9.0	74.0	-26.0
10600	12700	1000	11587.0	45.2	9.0	74.0	-19.8
Measurement uncertainty				±3 dB			

AV-measurement						
Lowest frequency: CH157up						
Test conditions: 1 TX, P17, MCS0				Test results		
<i>f</i>	A	RBW	G	E	AV Limit	Margin
(MHz)	(dBm)	(kHz)	(dBi)	(dBμV/m)	(dBμV/m)	(dB)
5063	42.8	1000	9.0	51.8	54.0	-2.2
5428	44.5	1000	9.0	53.5	54.0	-0.5
11589	39.2	1000	9.0	48.2	54.0	-5.8
Measurement uncertainty				±3 dB		

5.7.5.6 Gain group 3 (14 dBi), 5 GHz range:

802.11a	PK-measurement						
Lowest frequency: CH149							
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4359.9	45.9	14.2	74.0	-13.9
4500	5150	1000	4679.8	50.1	14.2	74.0	-9.7
5350	5460	1000	5360.2	49.4	14.2	74.0	-10.4
7250	7750	1000	7474.4	39.0	14.2	74.0	-20.8
10600	12700	1000	11491.6	45.8	14.2	74.0	-14.0
Measurement uncertainty				±3 dB			

AV-measurement is done radiated. Please see item 5.8.

802.11a	PK-measurement						
Middle frequency: CH157							
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	46.1	14.2	74.0	-13.7
4500	5150	1000	4600.0	50.2	14.2	74.0	-9.6
5350	5460	1000	5453.2	52.2	14.2	74.0	-7.6
7250	7750	1000	7323.9	38.4	14.2	74.0	-21.4
10600	12700	1000	11571.3	47.6	14.2	74.0	-12.2
Measurement uncertainty				±3 dB			

802.11a	PK-measurement						
Highest frequency: CH165							
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	3883.4	45.9	14.2	74.0	-13.9
4500	5150	1000	5090.8	51.2	14.2	74.0	-8.6
5350	5460	1000	5458.7	53.5	14.2	74.0	-6.3
7250	7750	1000	7575.5	38.7	14.2	74.0	-21.1
10600	12700	1000	11651.5	48.4	14.2	74.0	-11.4
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Lowest frequency: CH149							
Test conditions: 1 TX, P14, 1 Mbps			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	3829.9	45.1	14.2	74.0	-14.7
4500	5150	1000	4679.8	50.1	14.2	74.0	-9.7
5350	5460	1000	5390.9	48.9	14.2	74.0	-10.9
7250	7750	1000	7331.6	38.0	14.2	74.0	-21.8
10600	12700	1000	11494.2	46.0	14.2	74.0	-13.8
Measurement uncertainty				±3 dB			

AV-measurement is done radiated. Please see item 5.8.

802.11n, HT20		PK-measurement					
Middle frequency: CH157							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	46.0	14.2	74.0	-13.8
4500	5150	1000	4600.0	50.1	14.2	74.0	-9.7
5350	5460	1000	5450.3	52.1	14.2	74.0	-7.7
7250	7750	1000	7593.5	39.0	14.2	74.0	-20.8
10600	12700	1000	11574.5	48.0	14.2	74.0	-11.8
Measurement uncertainty				±3 dB			

802.11n, HT20		PK-measurement					
Highest frequency: CH165							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4399.8	46.0	14.2	74.0	-13.8
4500	5150	1000	4600.0	50.1	14.2	74.0	-9.7
5350	5460	1000	5450.3	52.1	14.2	74.0	-7.7
7250	7750	1000	7593.5	39.0	14.2	74.0	-20.8
10600	12700	1000	11574.5	48.0	14.2	74.0	-11.8
Measurement uncertainty				±3 dB			

802.11n, HT40		PK-measurement					
Lowest frequency: CH149up							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4359.9	45.7	14.2	74.0	-14.1
4500	5150	1000	4879.8	49.8	14.2	74.0	-10.0
5350	5460	1000	5414.5	49.9	14.2	74.0	-9.9
7250	7750	1000	3775.8	38.8	14.2	74.0	-21.0
10600	12700	1000	11506.6	44.5	14.2	74.0	-15.3
Measurement uncertainty				±3 dB			

AV-measurement is done radiated. Please see item 5.8.

802.11n, HT40		PK-measurement					
Highest frequency: CH157up							
Test conditions: 1 TX, P14, MCS0			Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBi)	(dBμV/m)	(dB)
3600	4400	1000	4359.9	45.3	14.0	74.0	-14.7
4500	5150	1000	4880.0	51.3	14.0	74.0	-8.7
5350	5460	1000	5451.1	53.2	14.0	74.0	-6.8
7250	7750	1000	7558.2	38.6	14.0	74.0	-21.4
10600	12700	1000	11586.2	44.4	14.0	74.0	-15.6
Measurement uncertainty				±3 dB			

Radiated limits according to FCC Part 15 Section 15.209(a) for spurious emissions which fall in restricted bands:

Frequency	Field strength of spurious emissions		Measurement distance
(MHz)	(μV/m)	dB(μV/m)	(metres)
0.009-0.490	2400/F (kHz)		300
0.490-1.705	24000/F (kHz)		30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Restricted bands of operation:

The field strength of emissions within these frequency bands shall not exceed the limits shown in Section 15.209

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6

The requirements are **FULFILLED**.

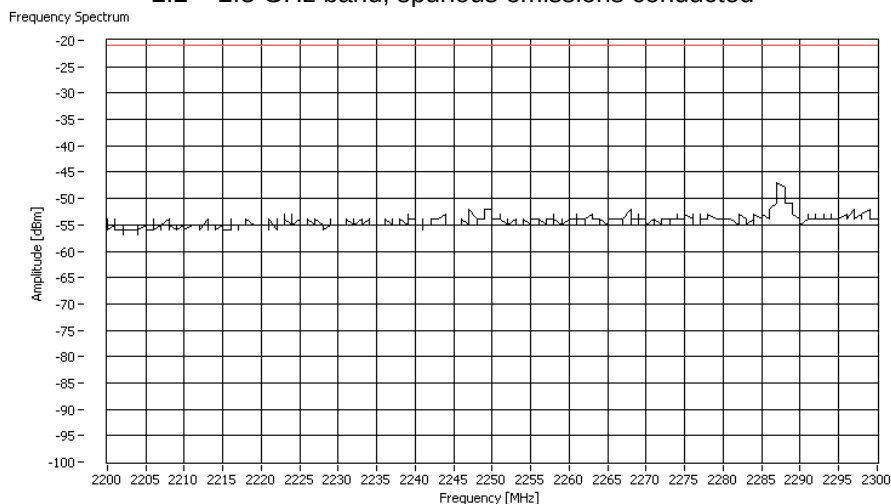
Remarks: For detailed test results please refer to following test protocols. Only the plots of CH1 and CH149 are listed.

5.7.6 Test protocols

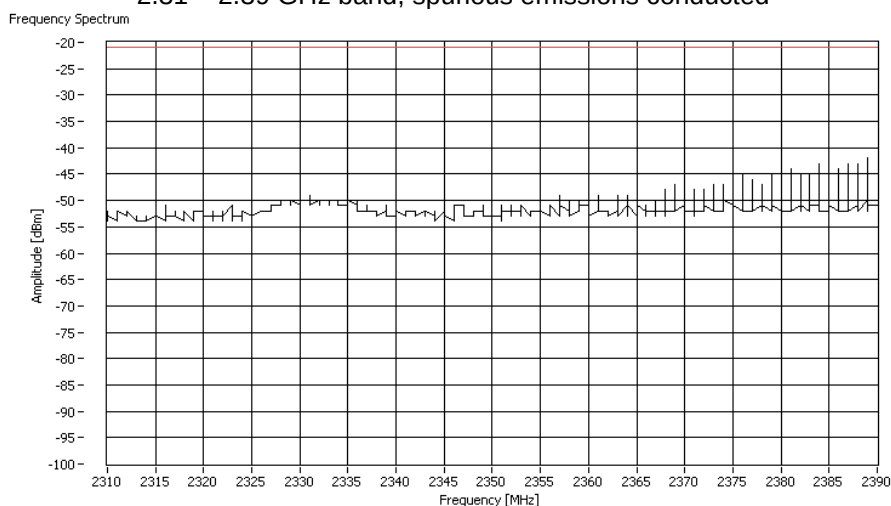
5.7.6.1 Gain group 1 (6 dBi), 2.4 GHz range:

802.11b, Ch1

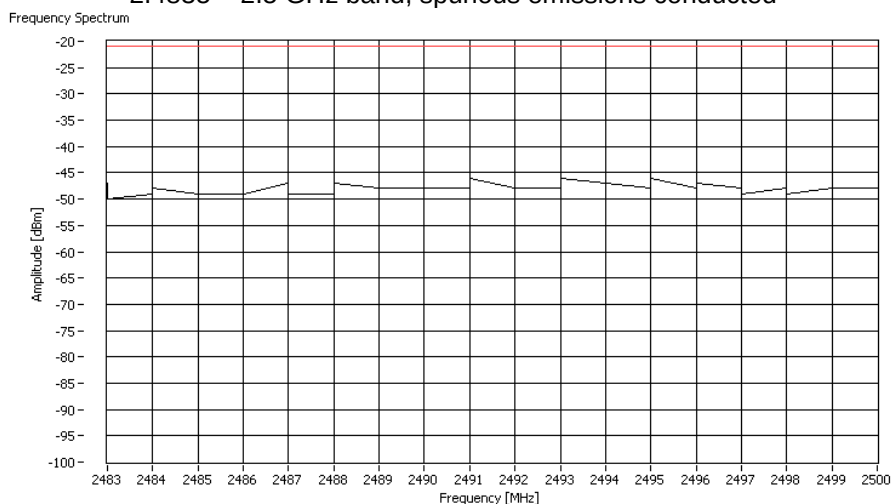
2.2 – 2.3 GHz band, spurious emissions conducted



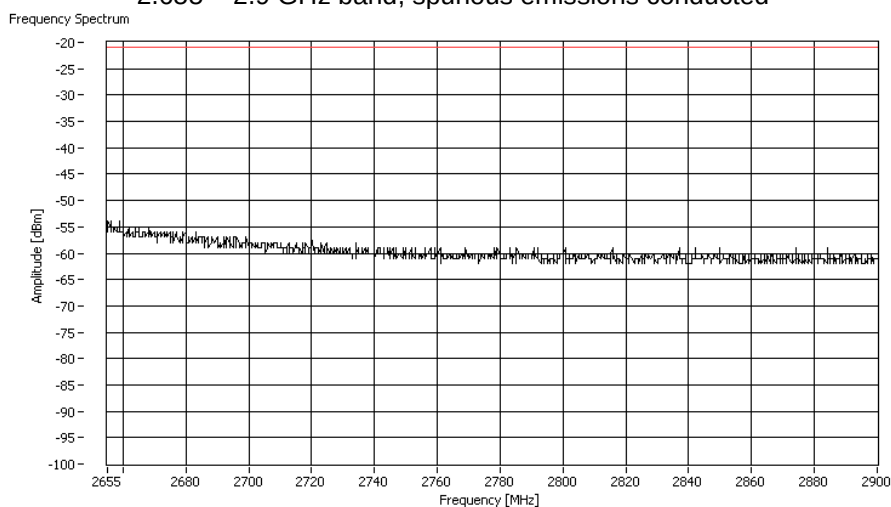
2.31 – 2.39 GHz band, spurious emissions conducted



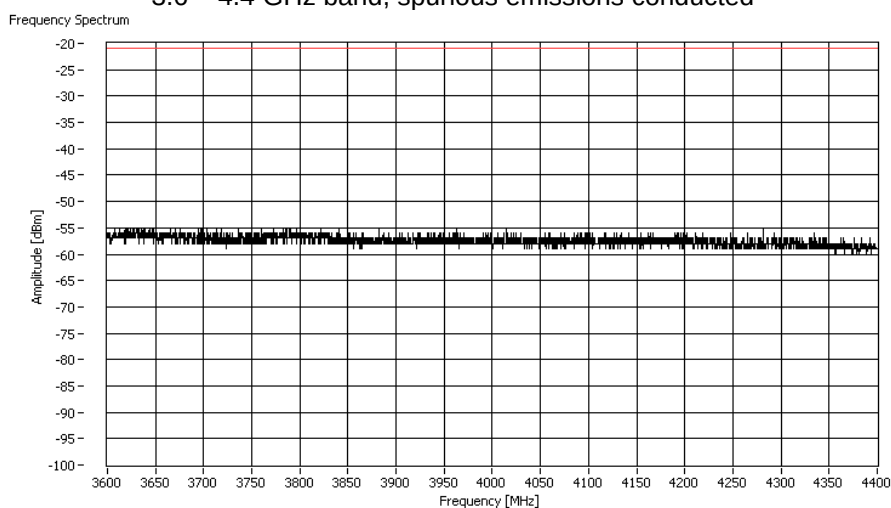
2.4835 – 2.5 GHz band, spurious emissions conducted



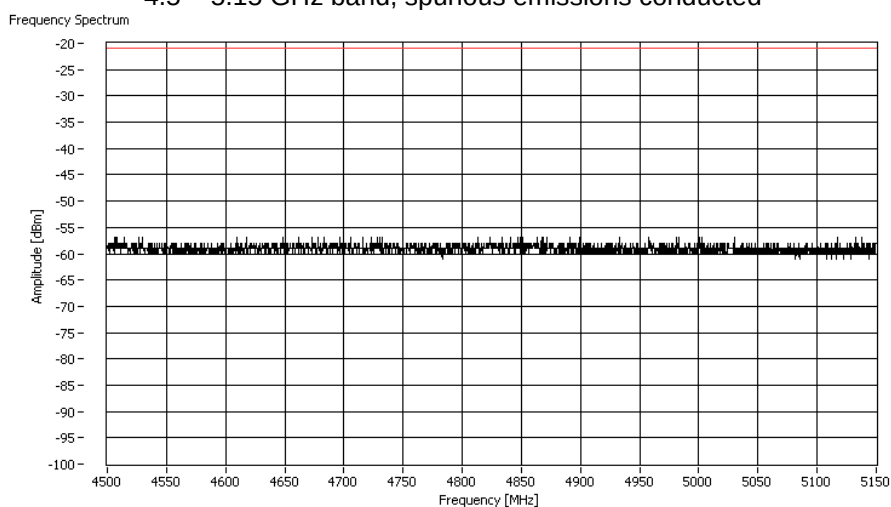
2.655 – 2.9 GHz band, spurious emissions conducted



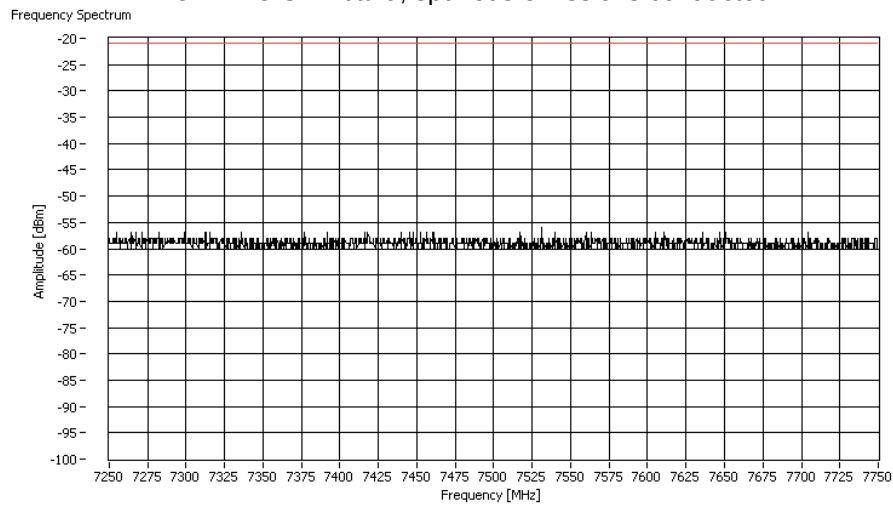
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

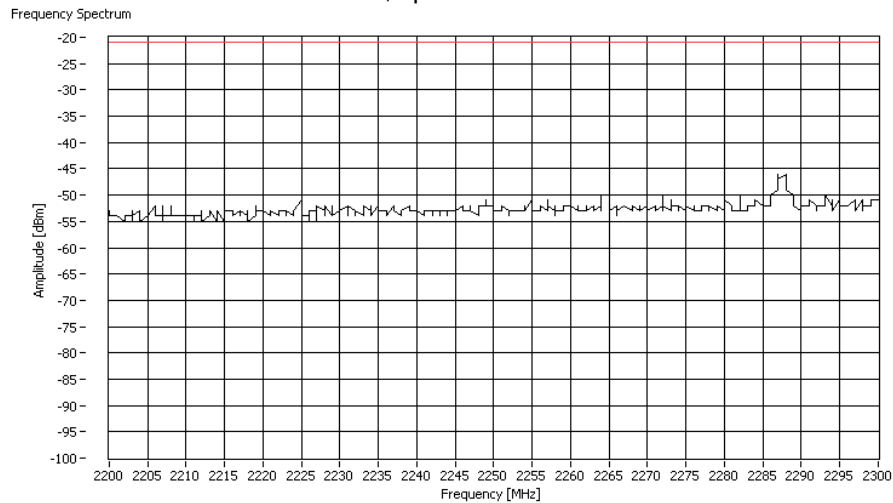


7.25 – 7.75 GHz band, spurious emissions conducted

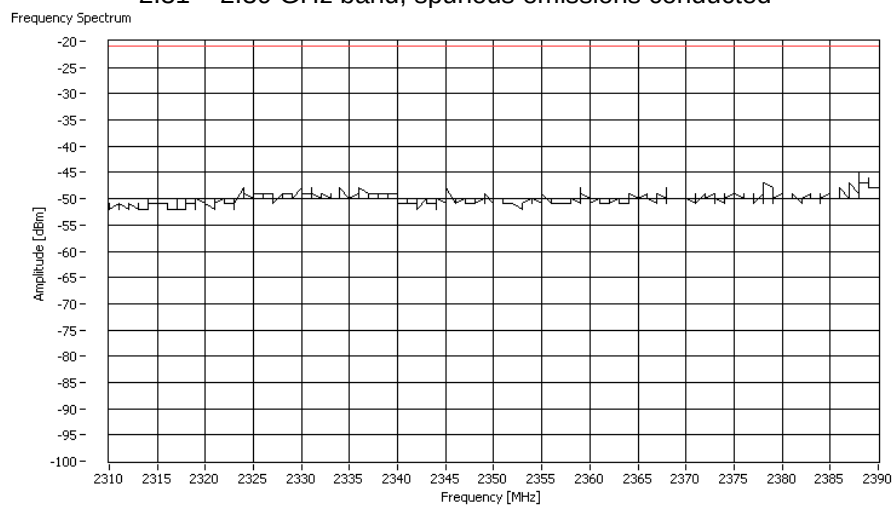


802.11g, Ch1

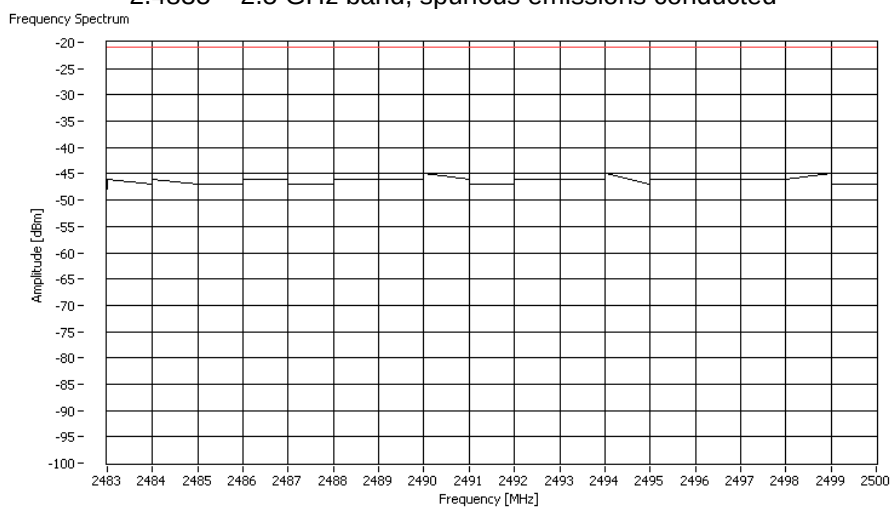
2.2 – 2.3 GHz band, spurious emissions conducted



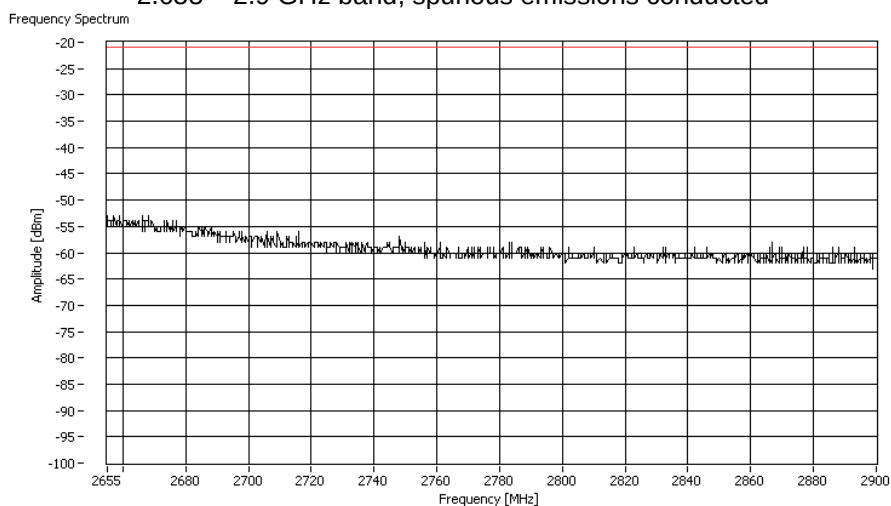
2.31 – 2.39 GHz band, spurious emissions conducted



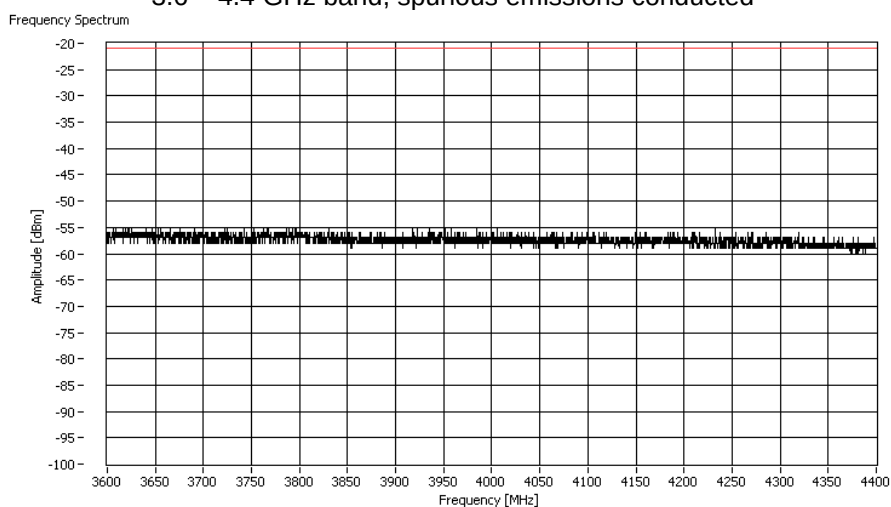
2.4835 – 2.5 GHz band, spurious emissions conducted



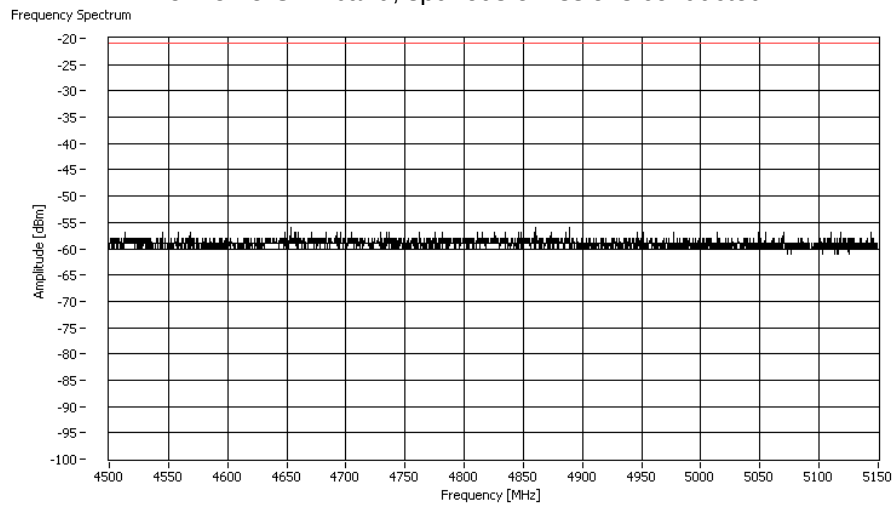
2.655 – 2.9 GHz band, spurious emissions conducted



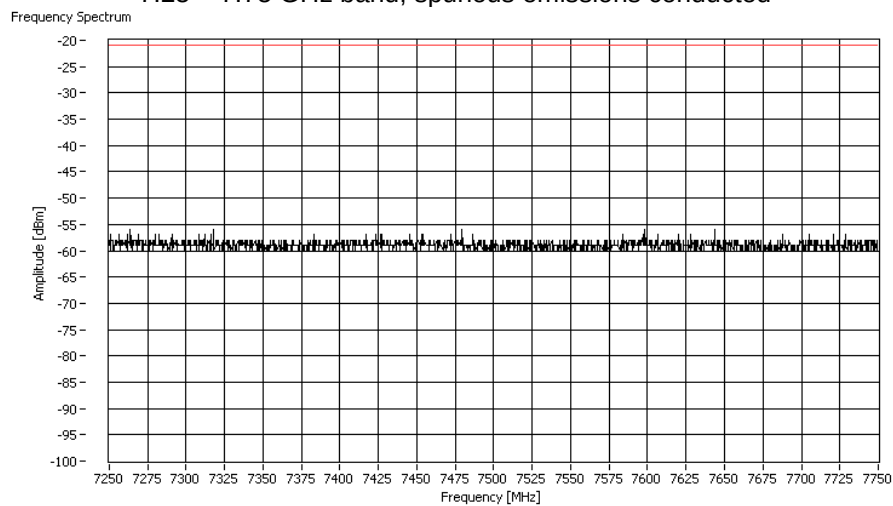
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

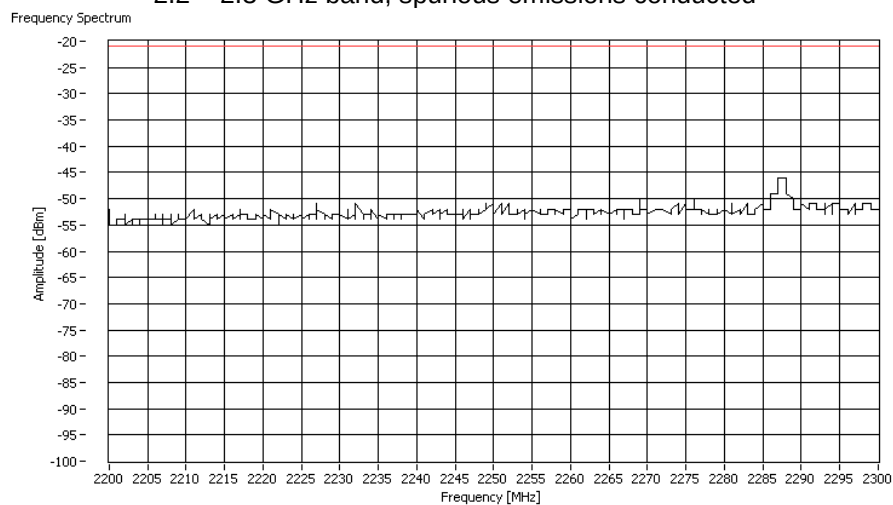


7.25 – 7.75 GHz band, spurious emissions conducted

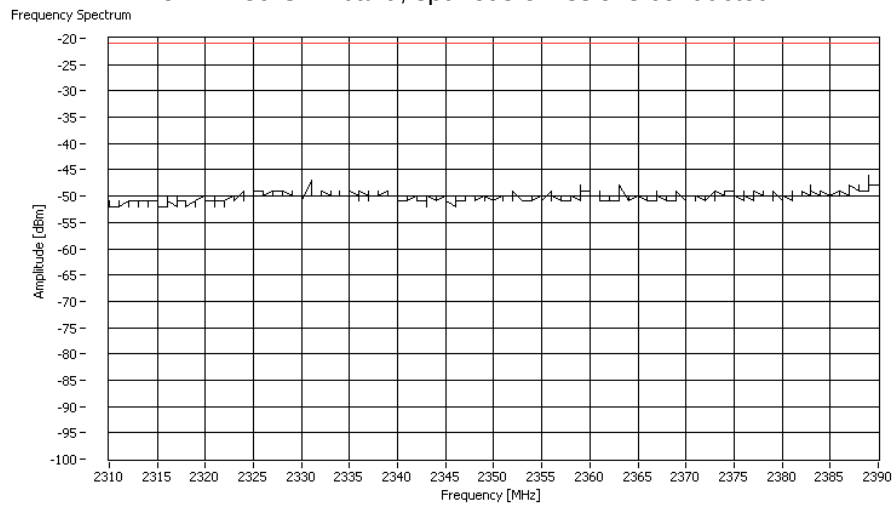


802.11n, HT20, Ch1

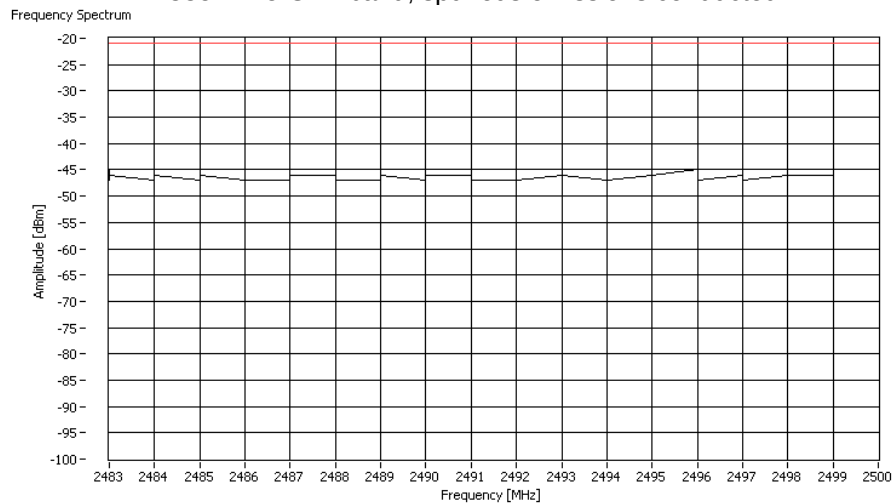
2.2 – 2.3 GHz band, spurious emissions conducted



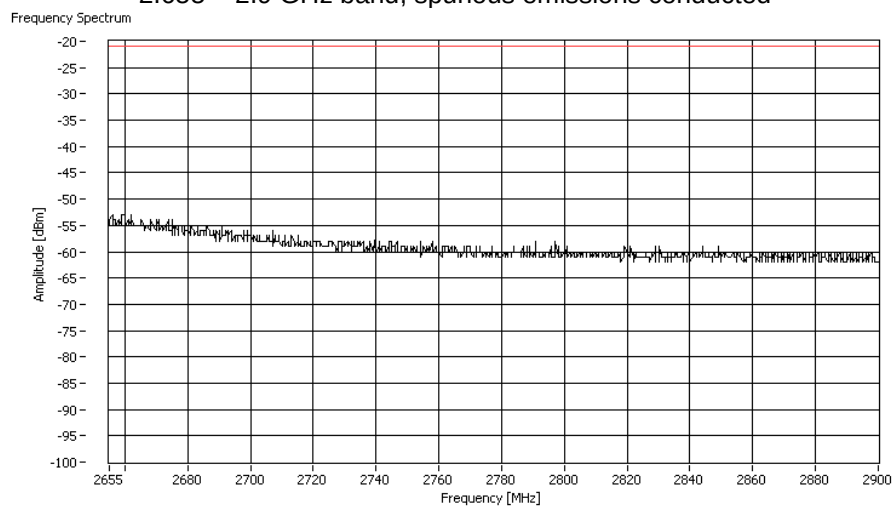
2.31 – 2.39 GHz band, spurious emissions conducted



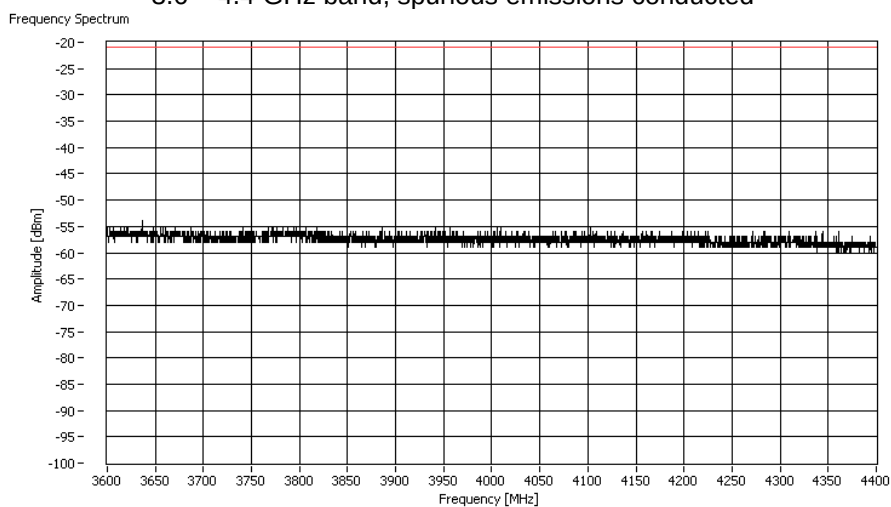
2.4835 – 2.5 GHz band, spurious emissions conducted



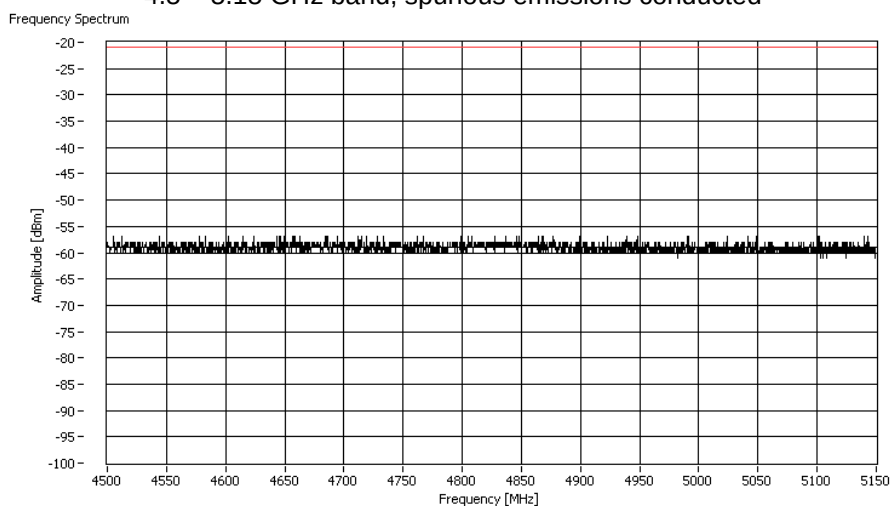
2.655 – 2.9 GHz band, spurious emissions conducted



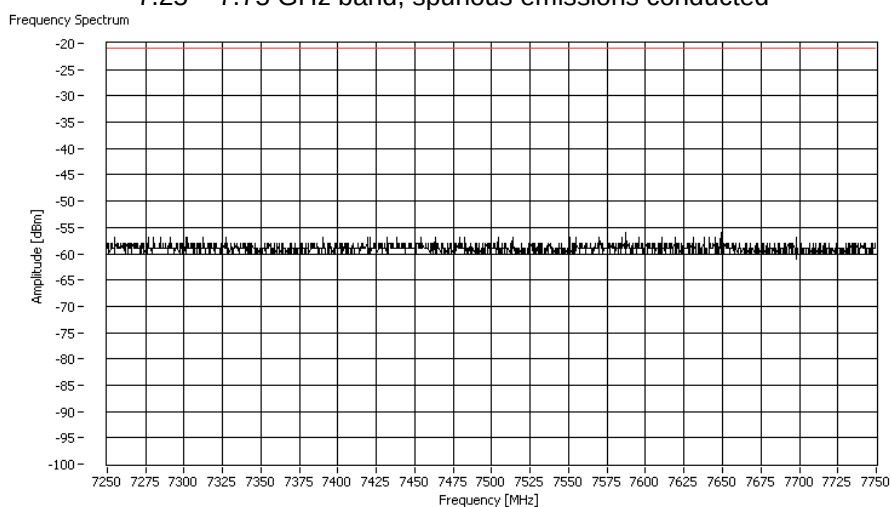
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

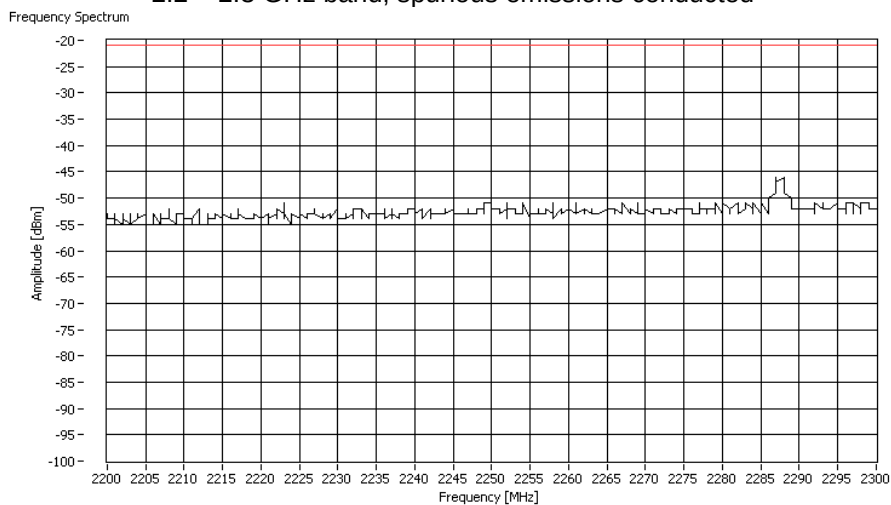


7.25 – 7.75 GHz band, spurious emissions conducted

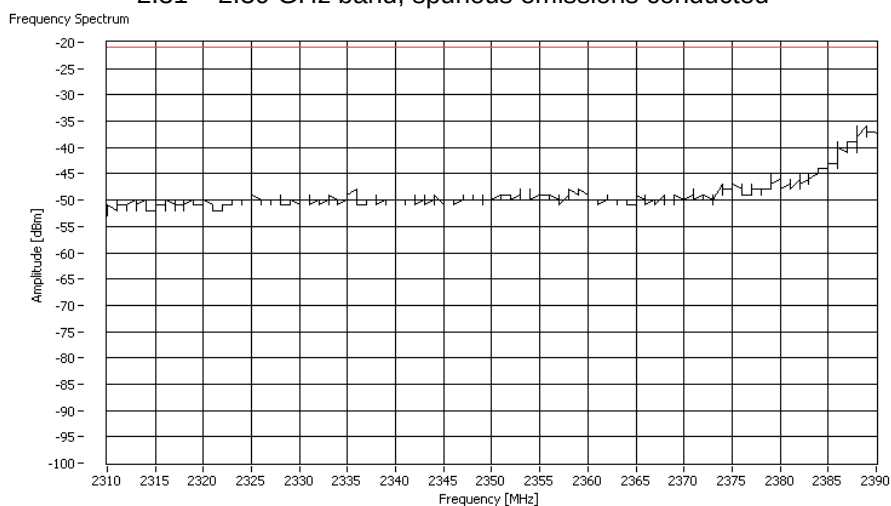


802.11n, HT40, Ch1up

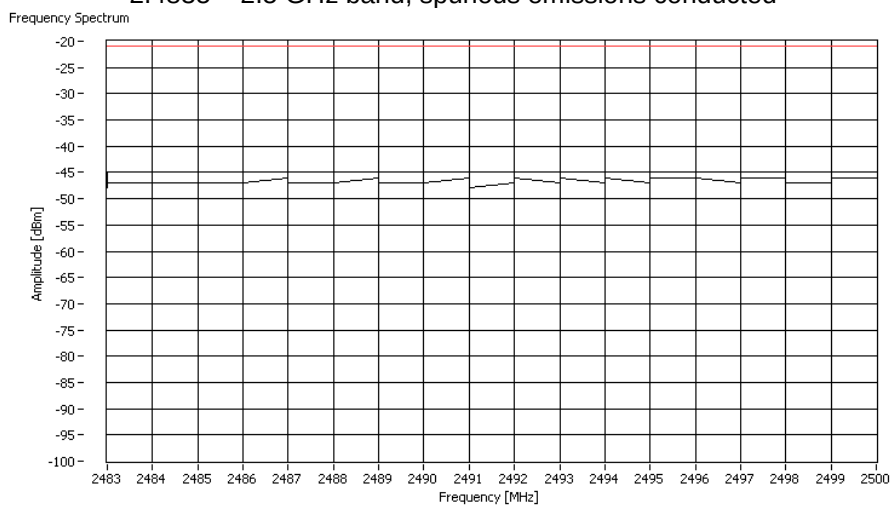
2.2 – 2.3 GHz band, spurious emissions conducted



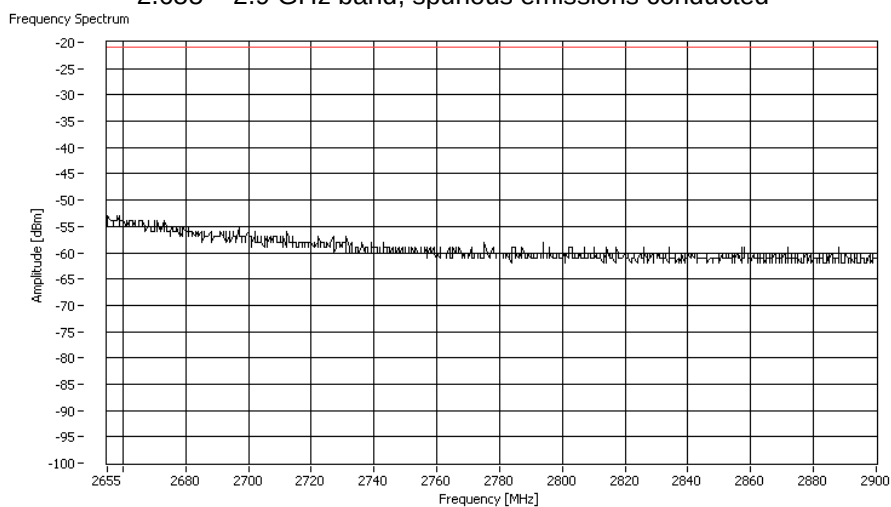
2.31 – 2.39 GHz band, spurious emissions conducted



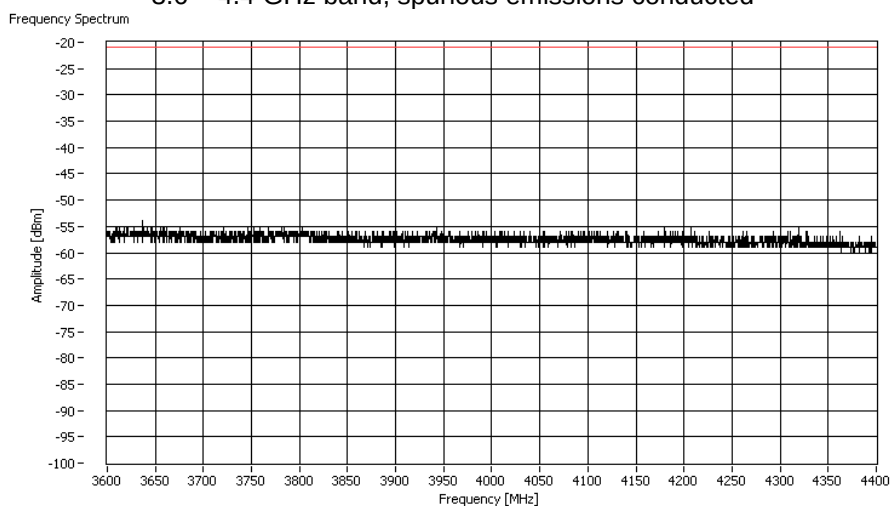
2.4835 – 2.5 GHz band, spurious emissions conducted



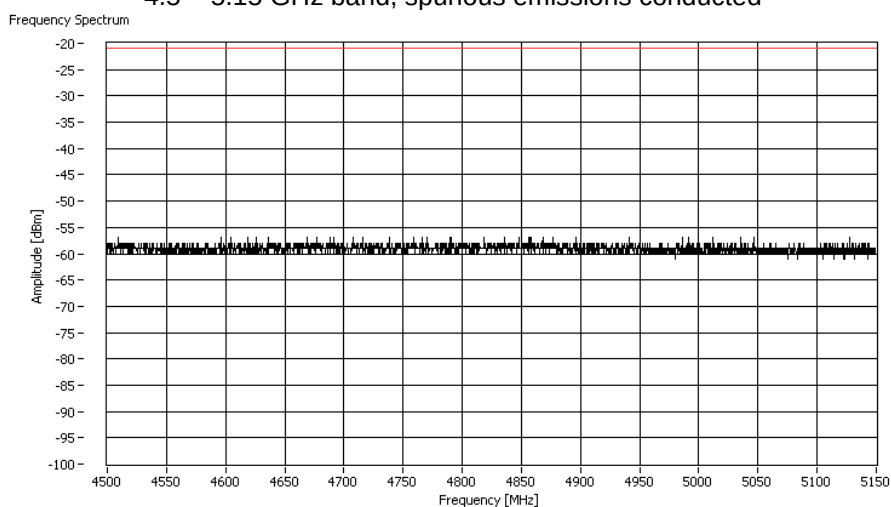
2.655 – 2.9 GHz band, spurious emissions conducted



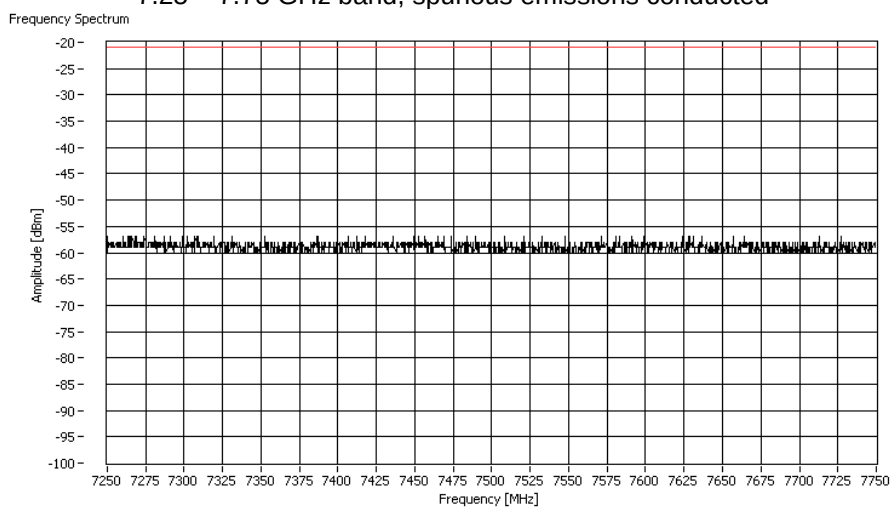
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

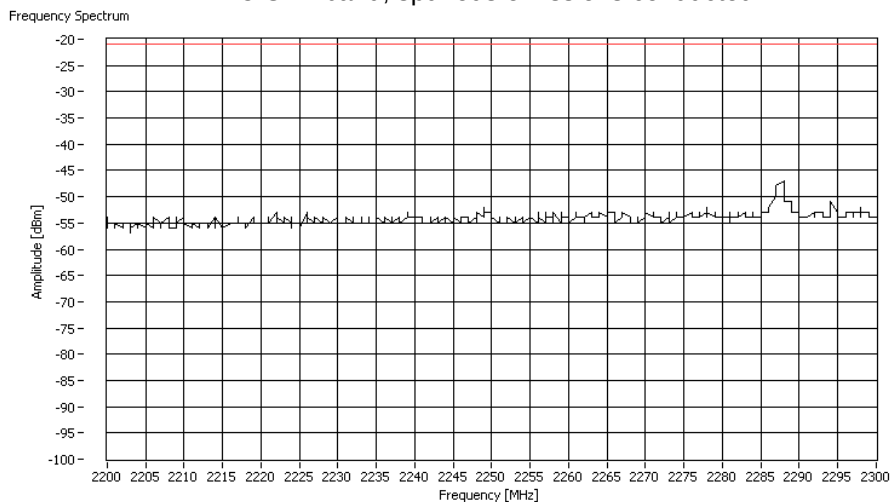


7.25 – 7.75 GHz band, spurious emissions conducted

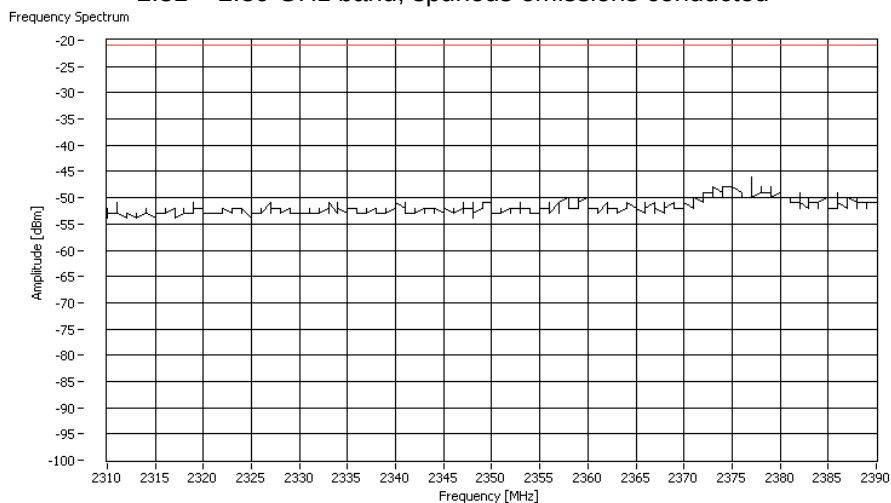


5.7.6.2 Gain group 2 (9 dBi), 2.4 GHz range:
802.11b, Ch1

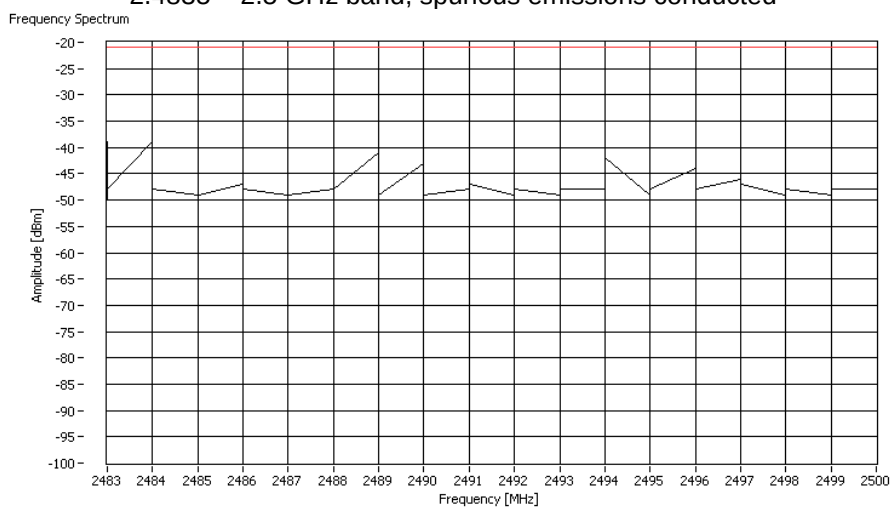
2.2 – 2.3 GHz band, spurious emissions conducted



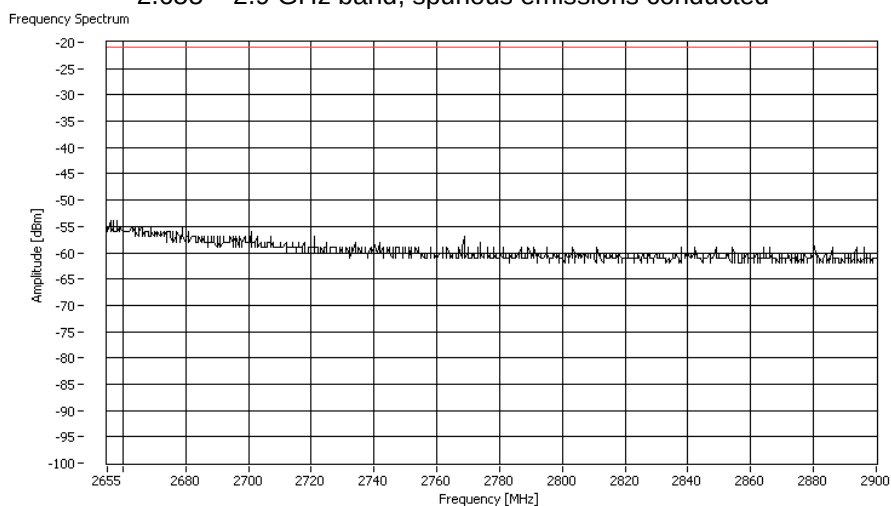
2.31 – 2.39 GHz band, spurious emissions conducted



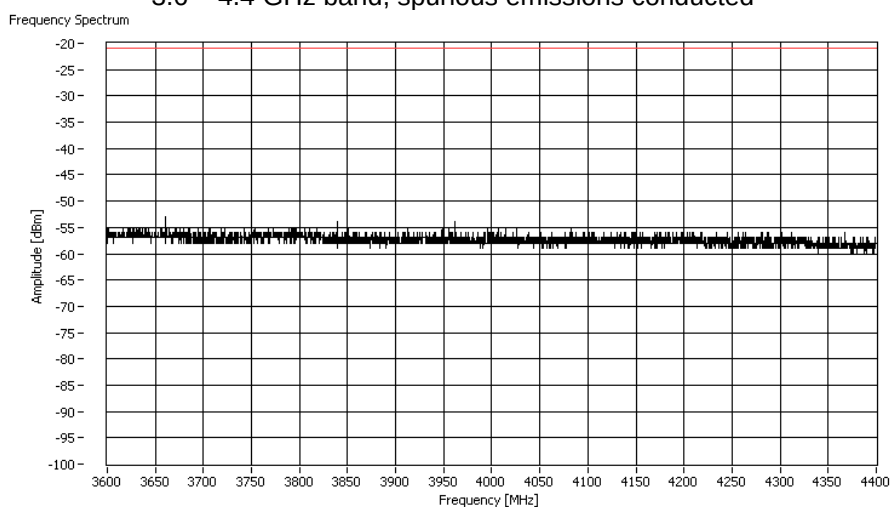
2.4835 – 2.5 GHz band, spurious emissions conducted



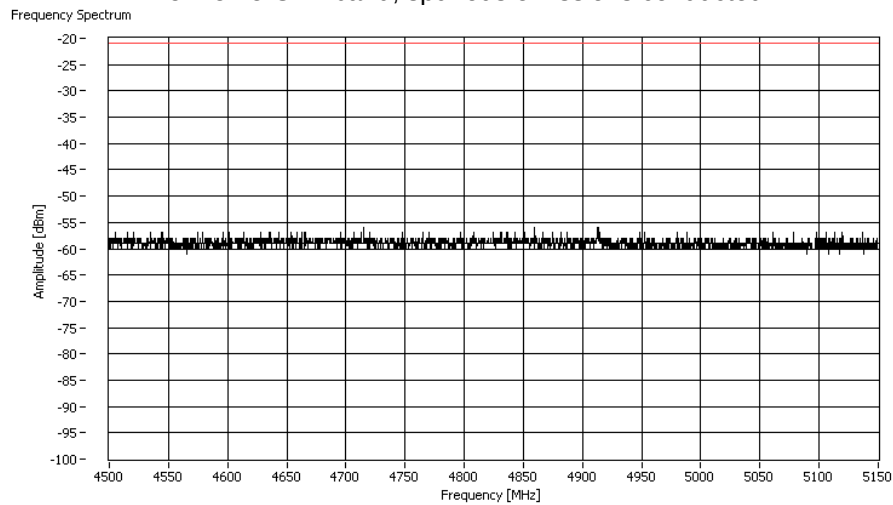
2.655 – 2.9 GHz band, spurious emissions conducted



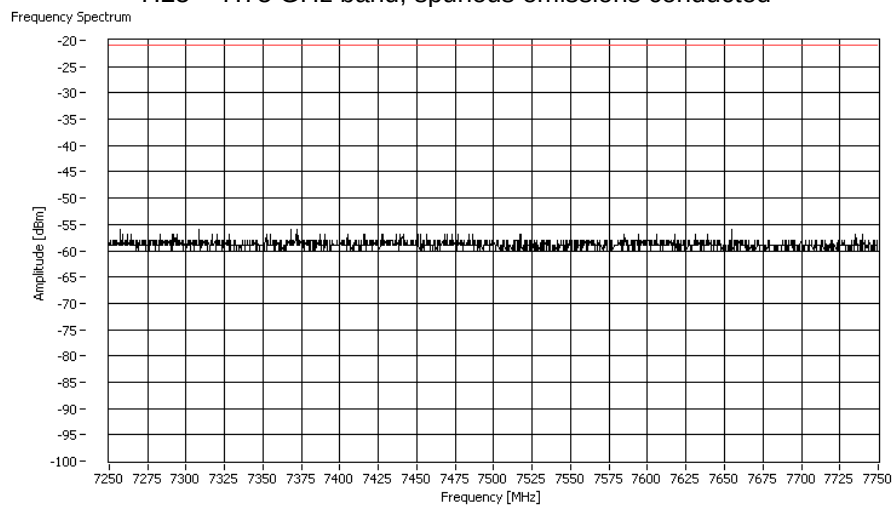
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

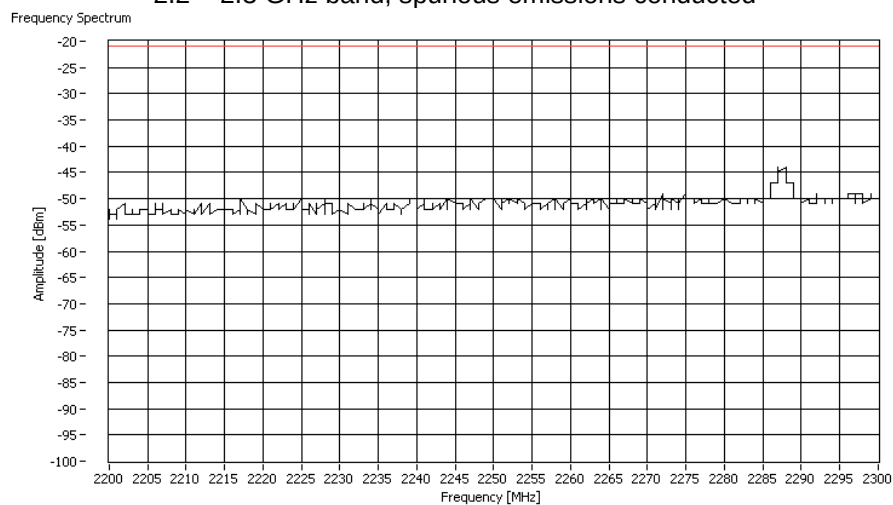


7.25 – 7.75 GHz band, spurious emissions conducted

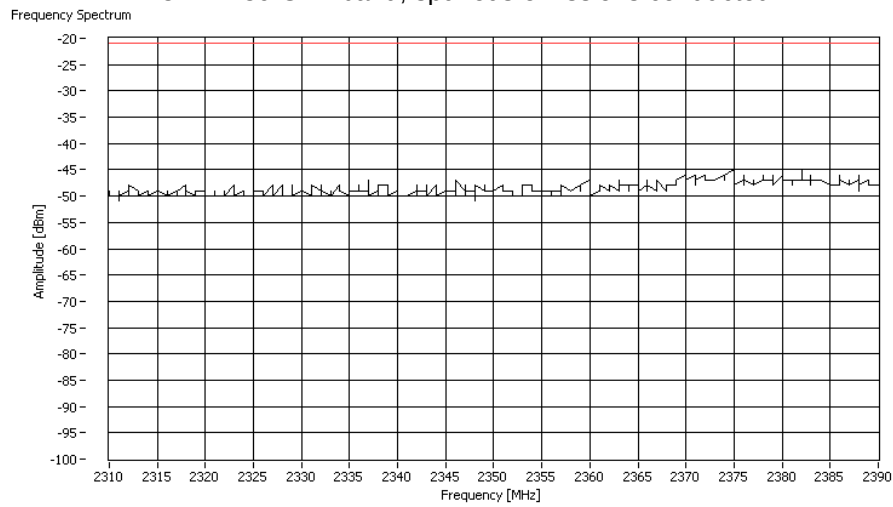


802.11g, Ch1

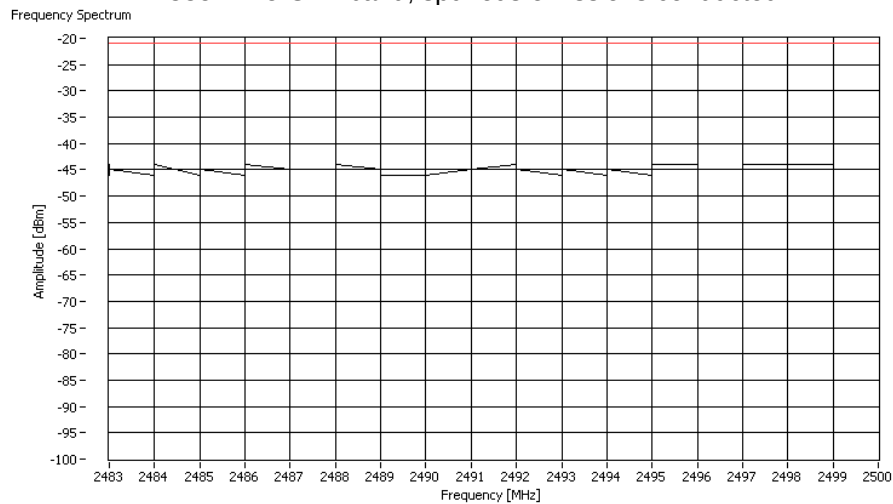
2.2 – 2.3 GHz band, spurious emissions conducted



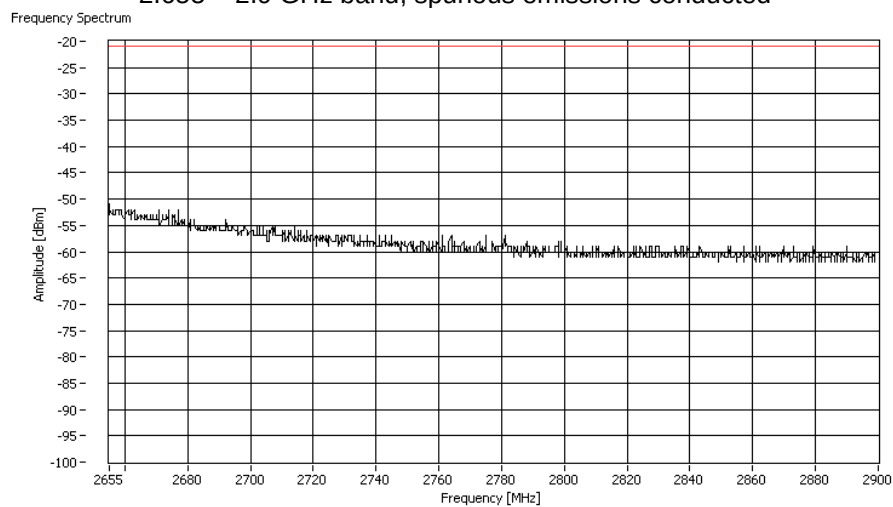
2.31 – 2.39 GHz band, spurious emissions conducted



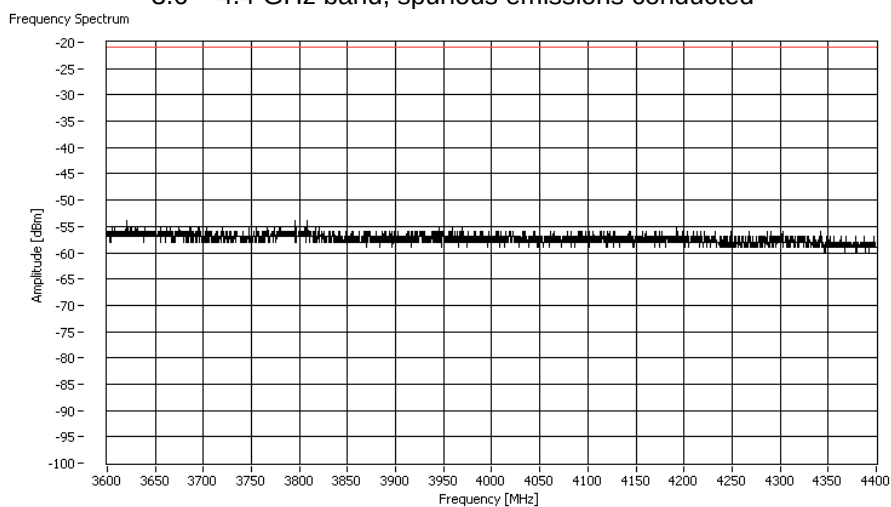
2.4835 – 2.5 GHz band, spurious emissions conducted



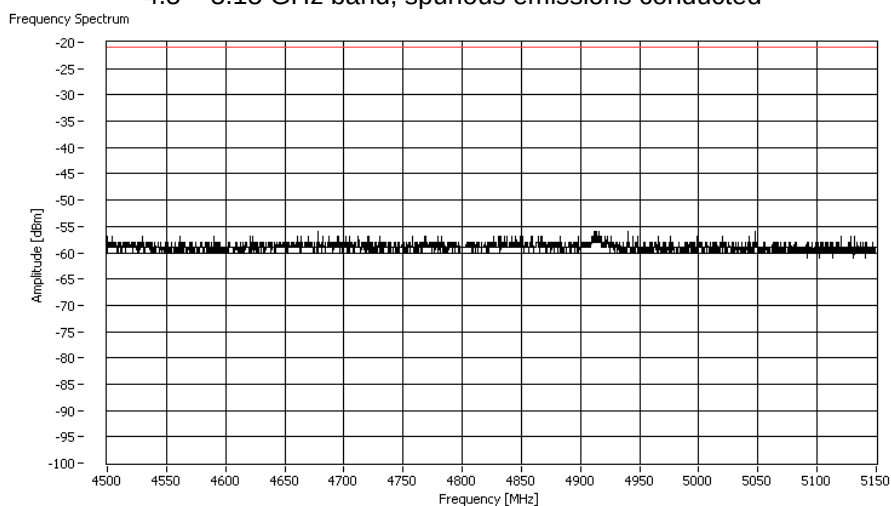
2.655 – 2.9 GHz band, spurious emissions conducted



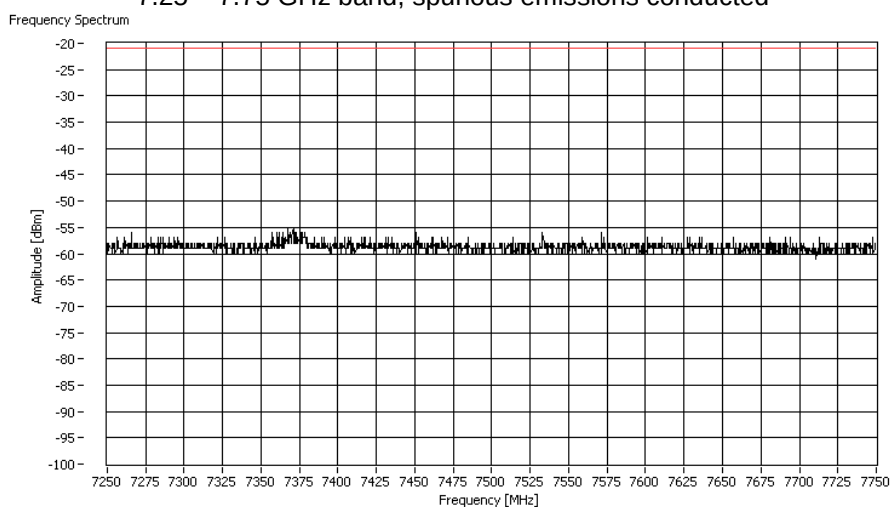
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

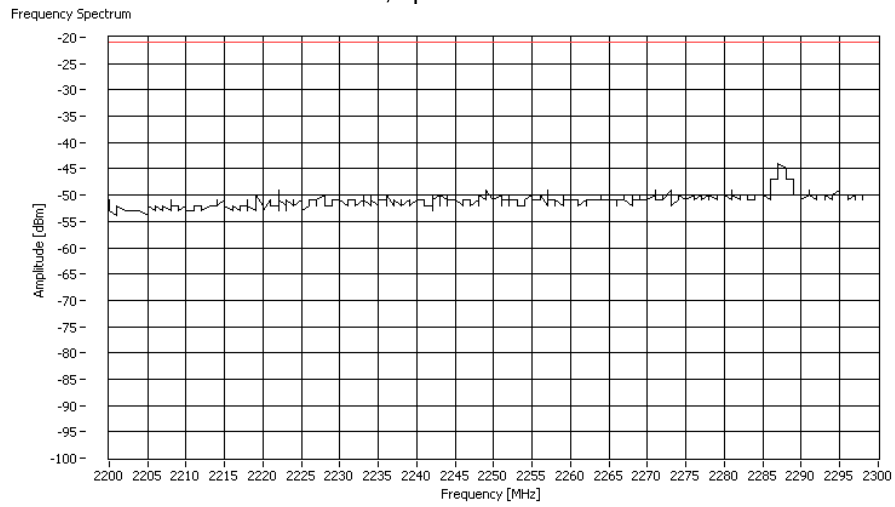


7.25 – 7.75 GHz band, spurious emissions conducted

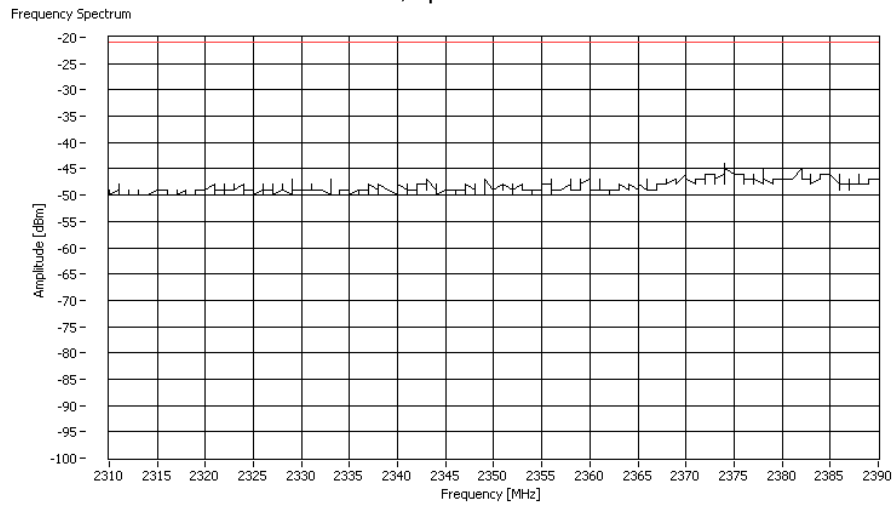


802.11n, HT20, Ch1

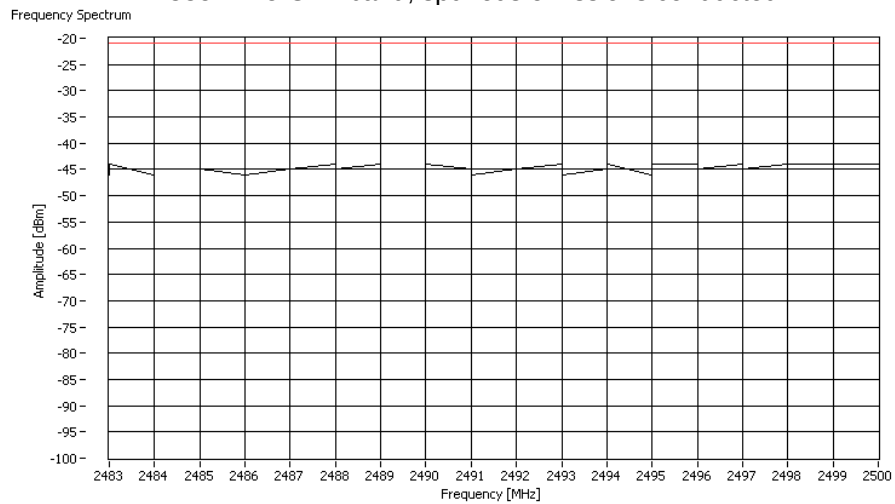
2.2 – 2.3 GHz band, spurious emissions conducted



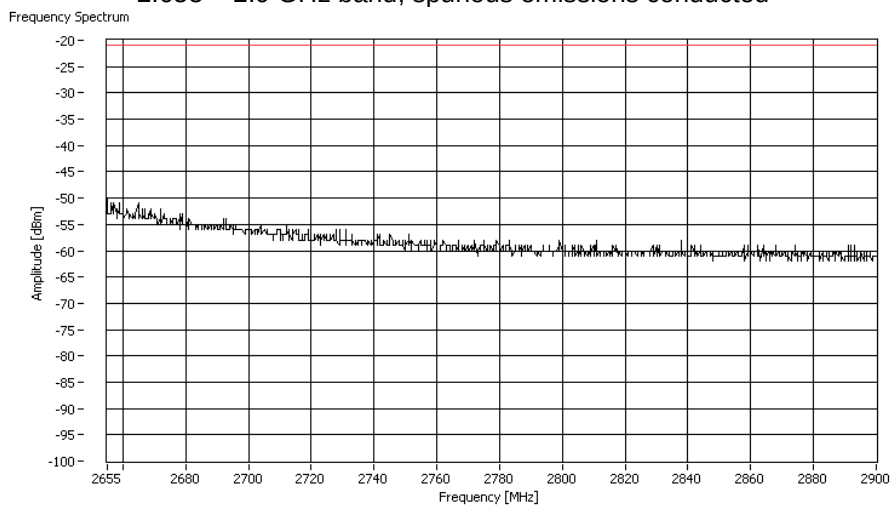
2.31 – 2.39 GHz band, spurious emissions conducted



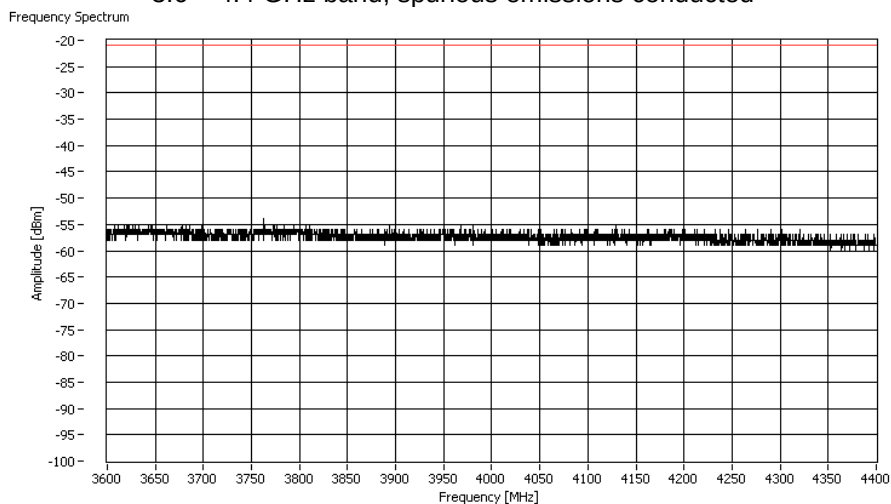
2.4835 – 2.5 GHz band, spurious emissions conducted



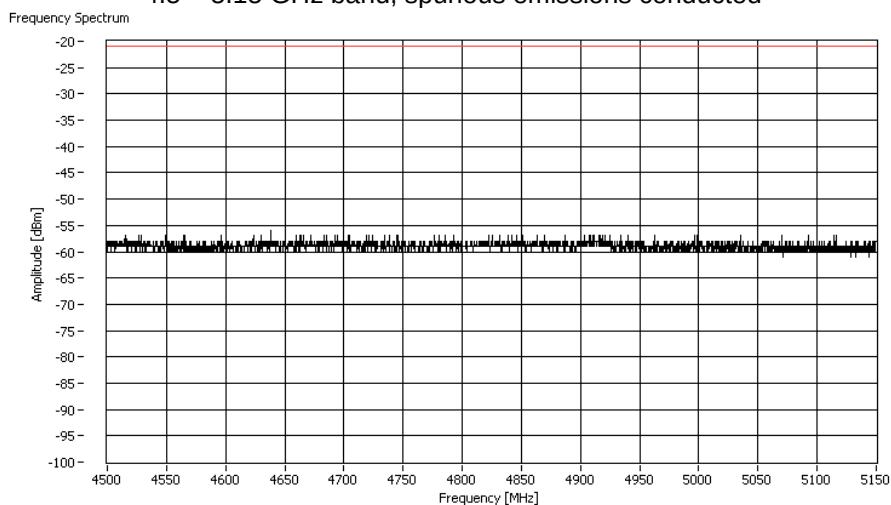
2.655 – 2.9 GHz band, spurious emissions conducted



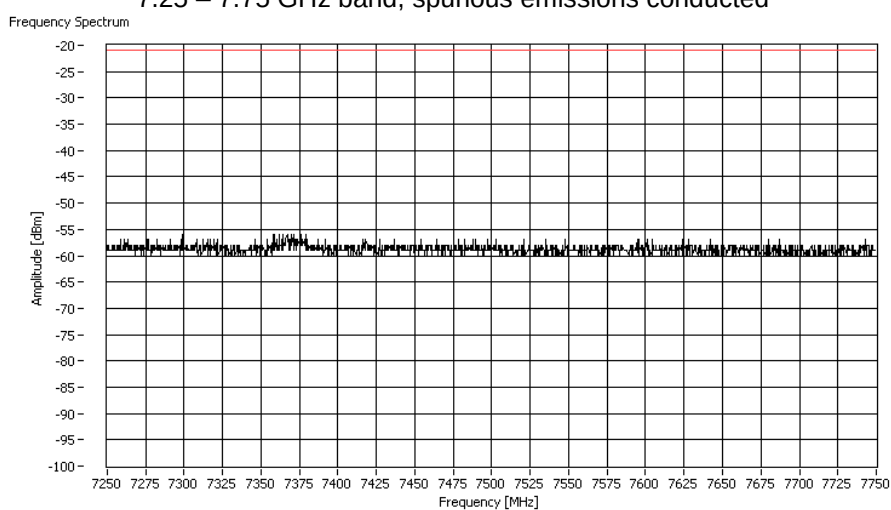
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

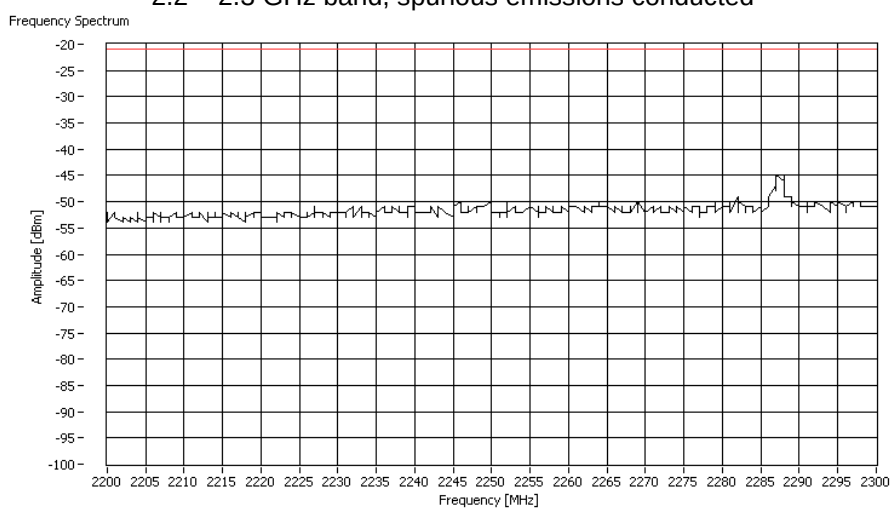


7.25 – 7.75 GHz band, spurious emissions conducted

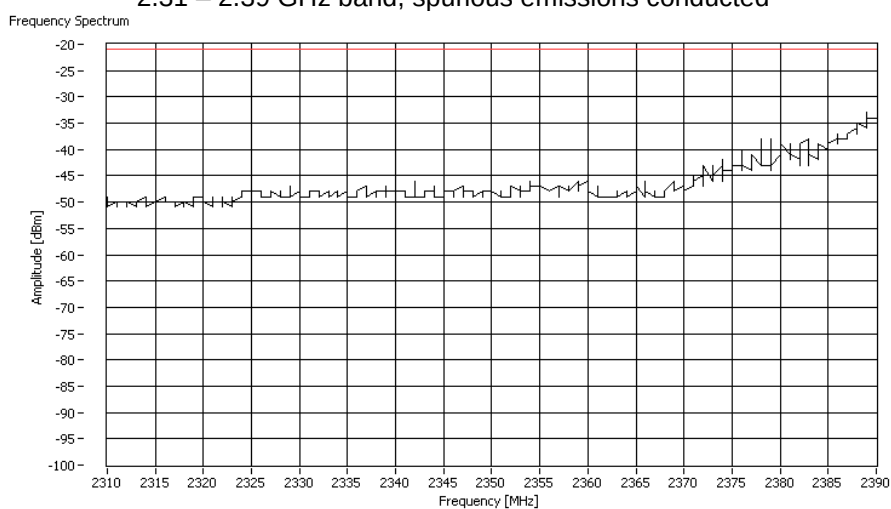


802.11n, HT40, Ch1up

2.2 – 2.3 GHz band, spurious emissions conducted

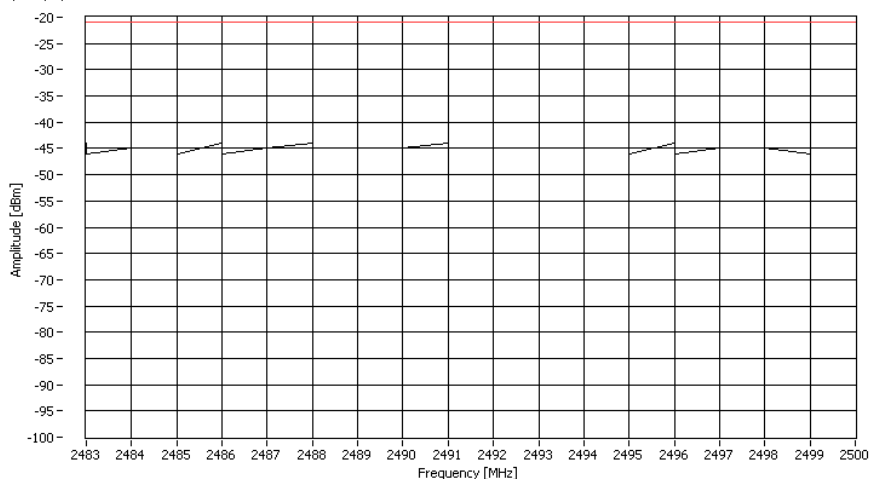


2.31 – 2.39 GHz band, spurious emissions conducted



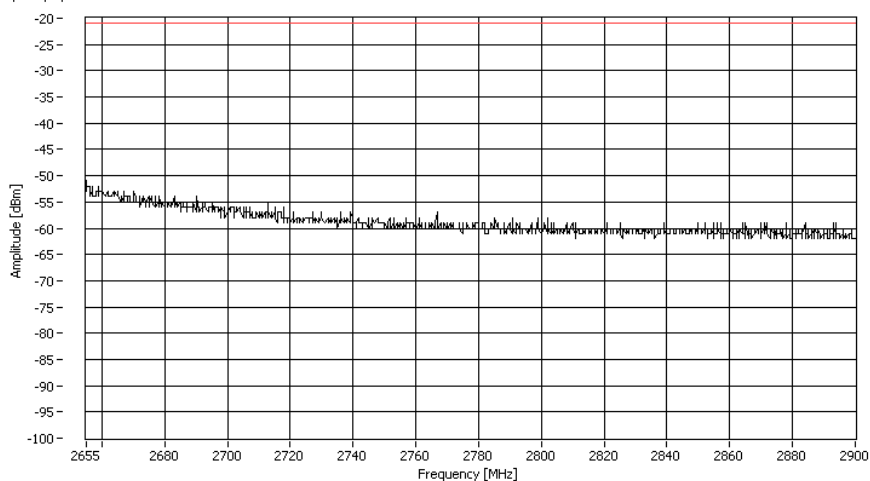
2.4835 – 2.5 GHz band, spurious emissions conducted

Frequency Spectrum



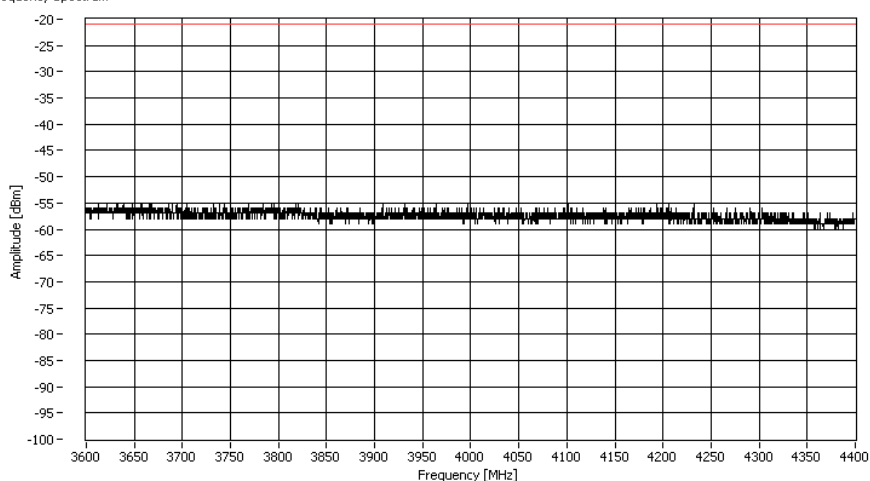
2.655 – 2.9 GHz band, spurious emissions conducted

Frequency Spectrum

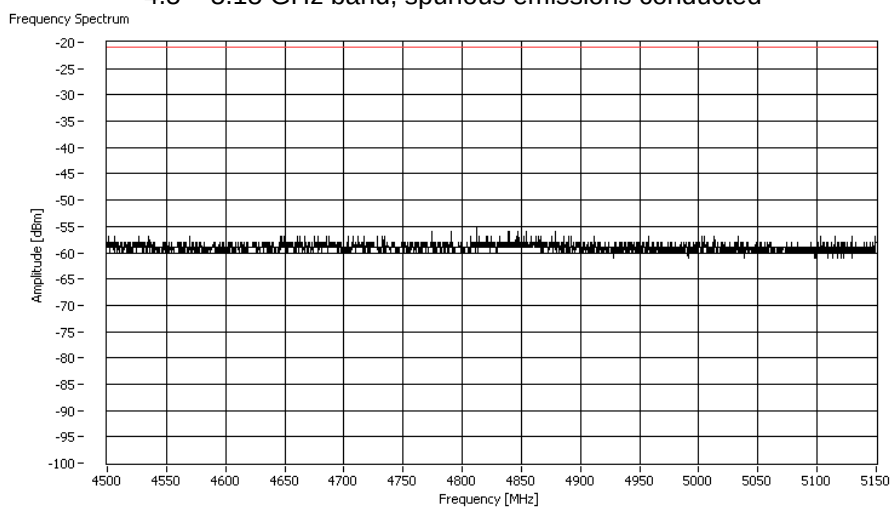


3.6 – 4.4 GHz band, spurious emissions conducted

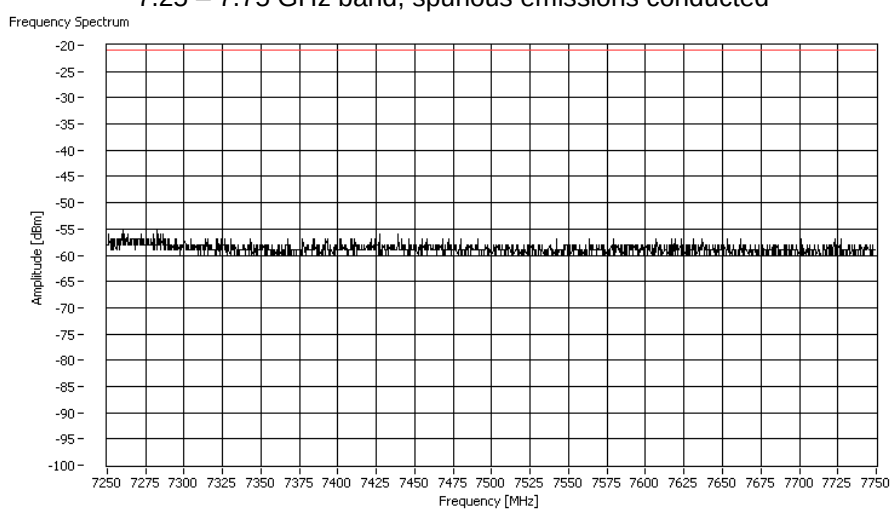
Frequency Spectrum



4.5 – 5.15 GHz band, spurious emissions conducted

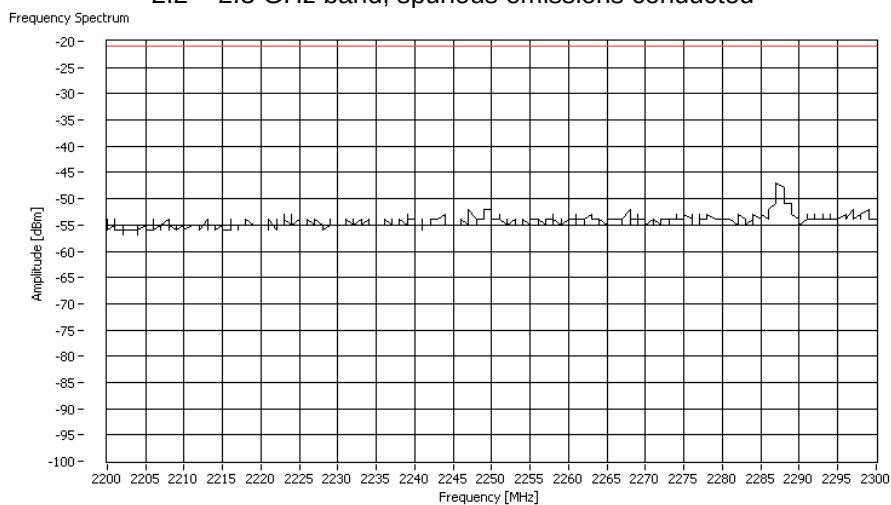


7.25 – 7.75 GHz band, spurious emissions conducted

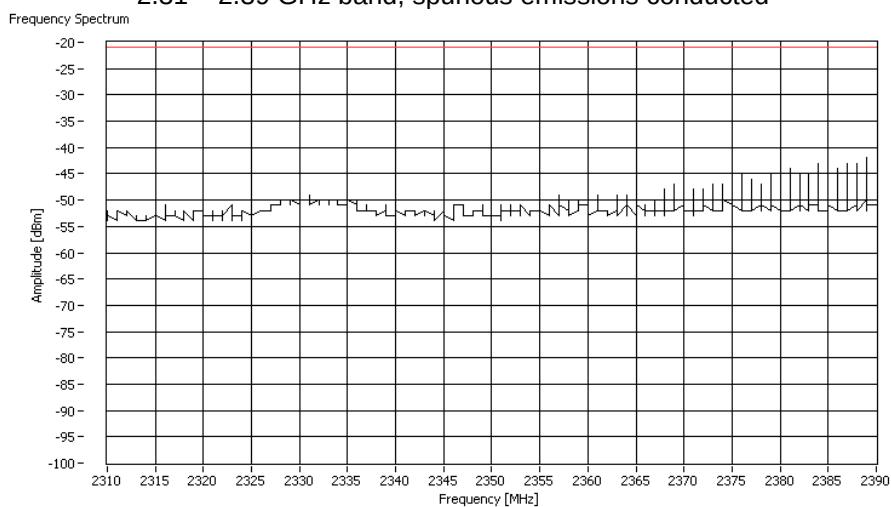


5.7.6.3 Gain group 3 (14 dBi), 2.4 GHz range:
802.11b, Ch1

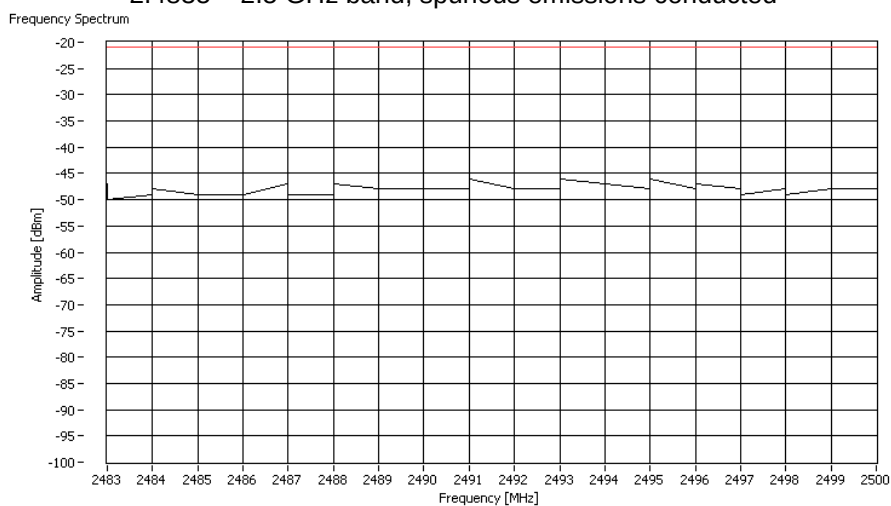
2.2 – 2.3 GHz band, spurious emissions conducted



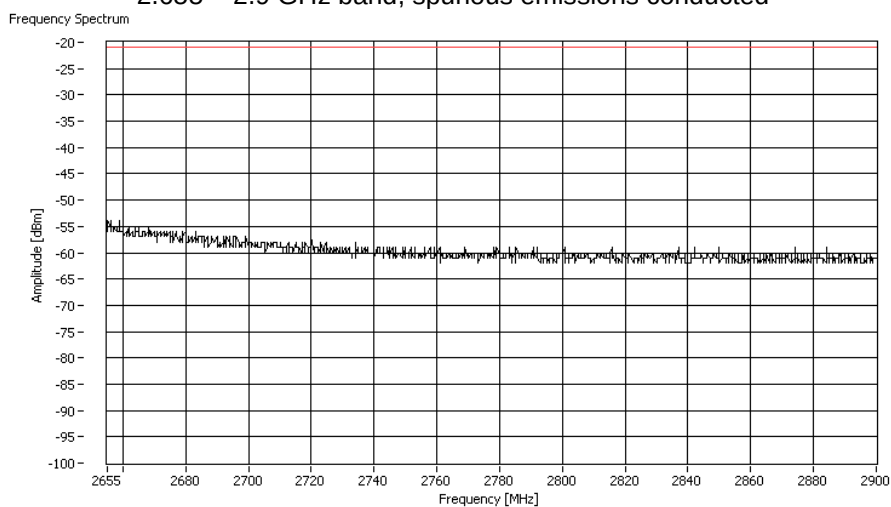
2.31 – 2.39 GHz band, spurious emissions conducted



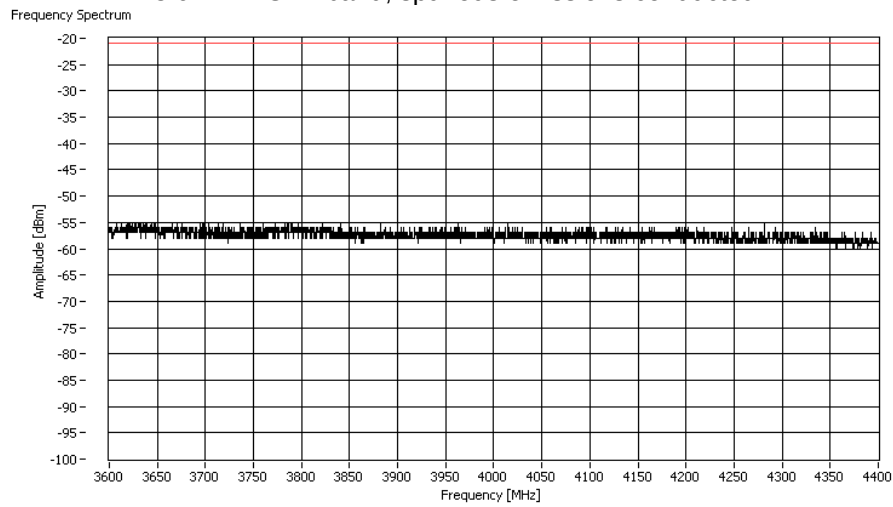
2.4835 – 2.5 GHz band, spurious emissions conducted



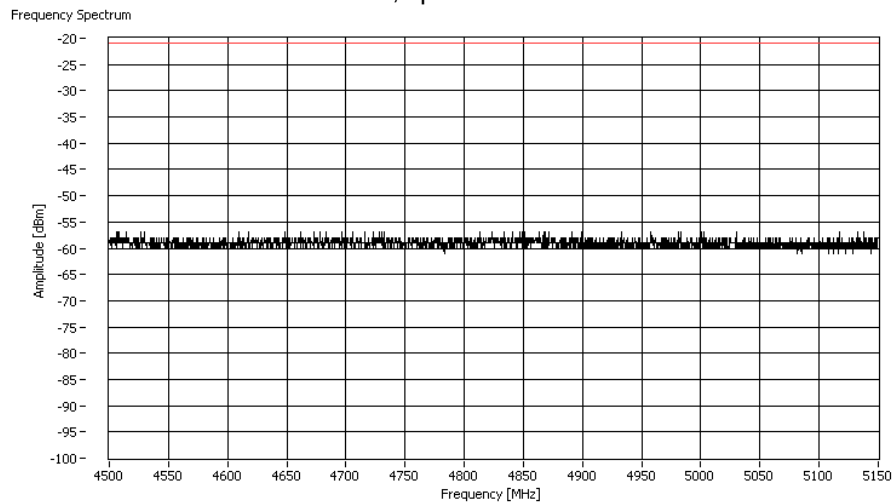
2.655 – 2.9 GHz band, spurious emissions conducted



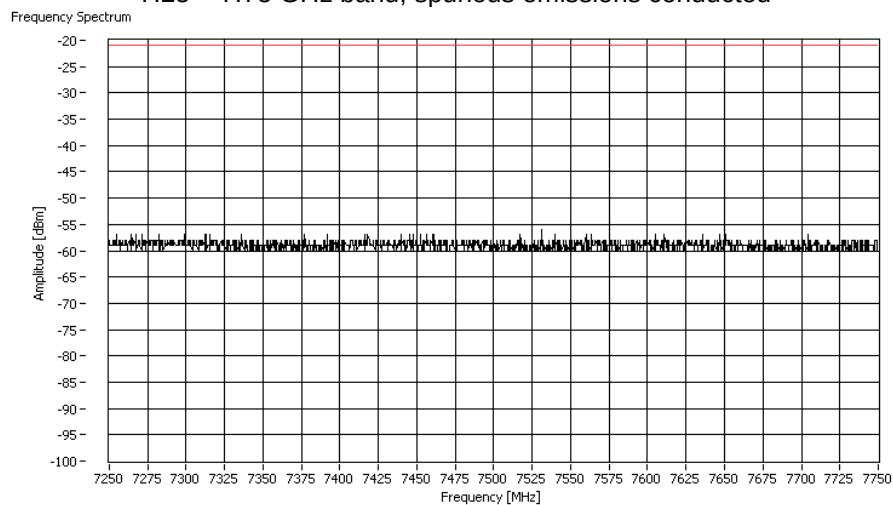
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

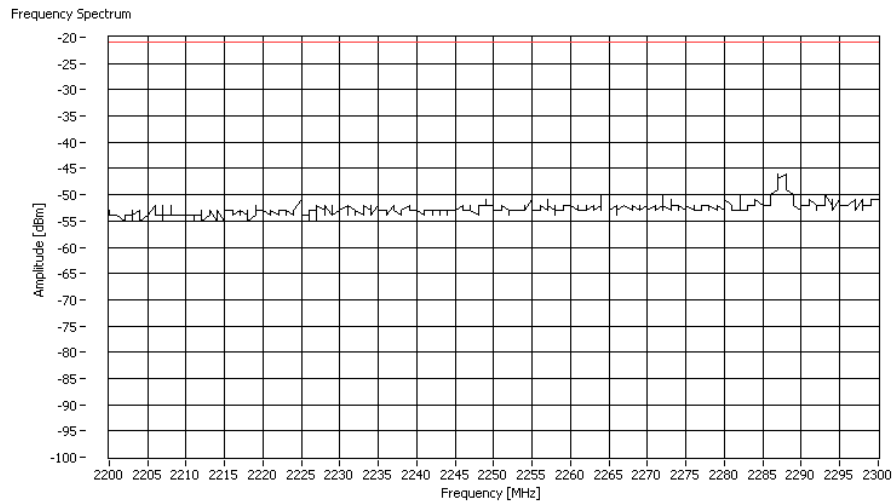


7.25 – 7.75 GHz band, spurious emissions conducted

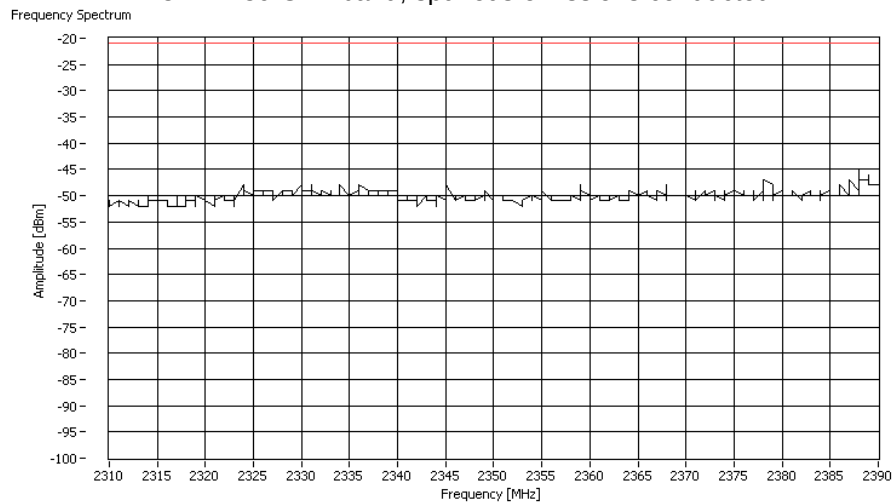


802.11g, Ch1

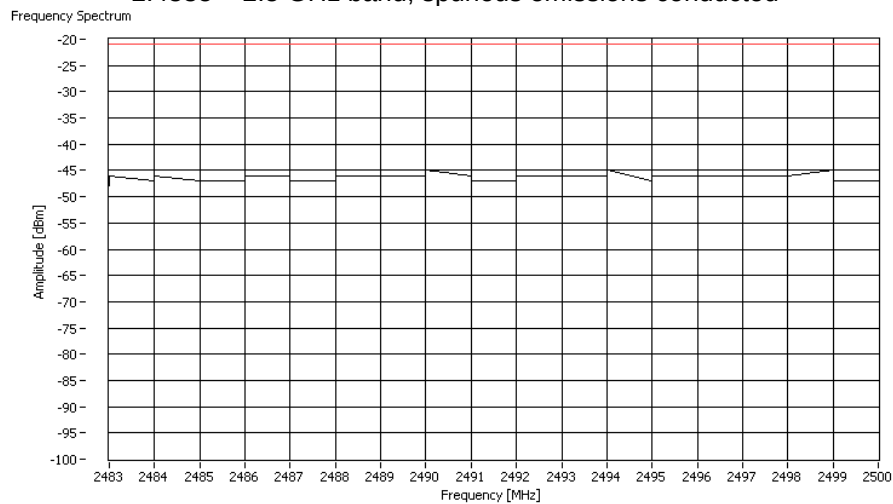
2.2 – 2.3 GHz band, spurious emissions conducted



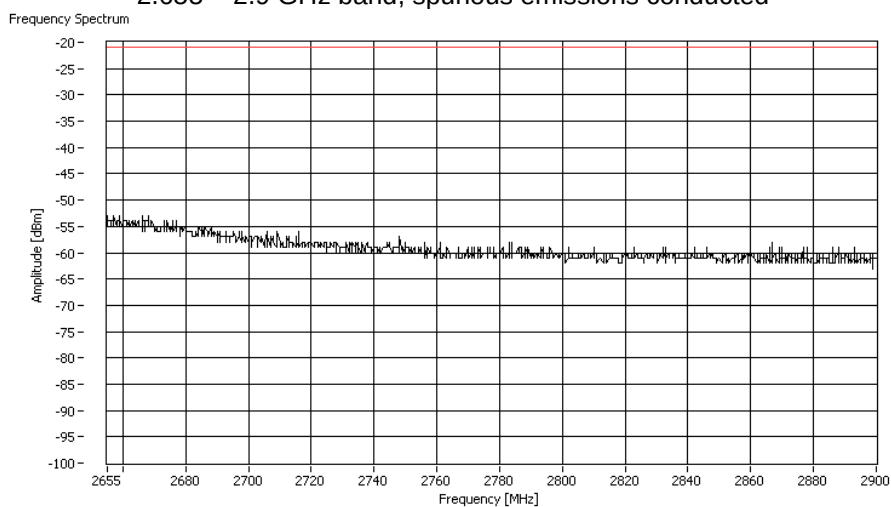
2.31 – 2.39 GHz band, spurious emissions conducted



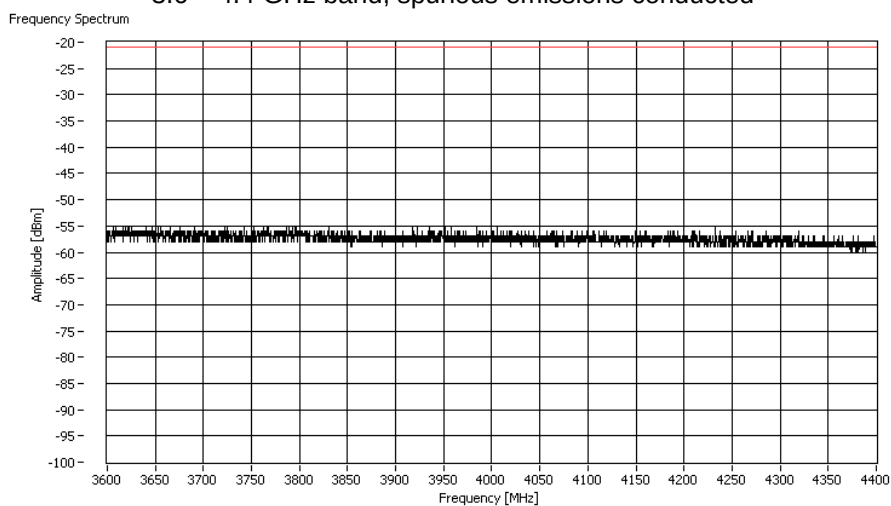
2.4835 – 2.5 GHz band, spurious emissions conducted



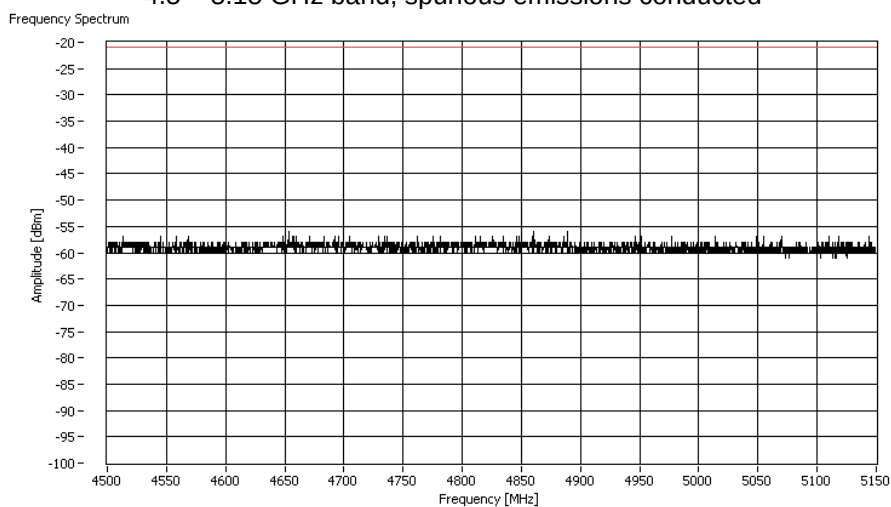
2.655 – 2.9 GHz band, spurious emissions conducted



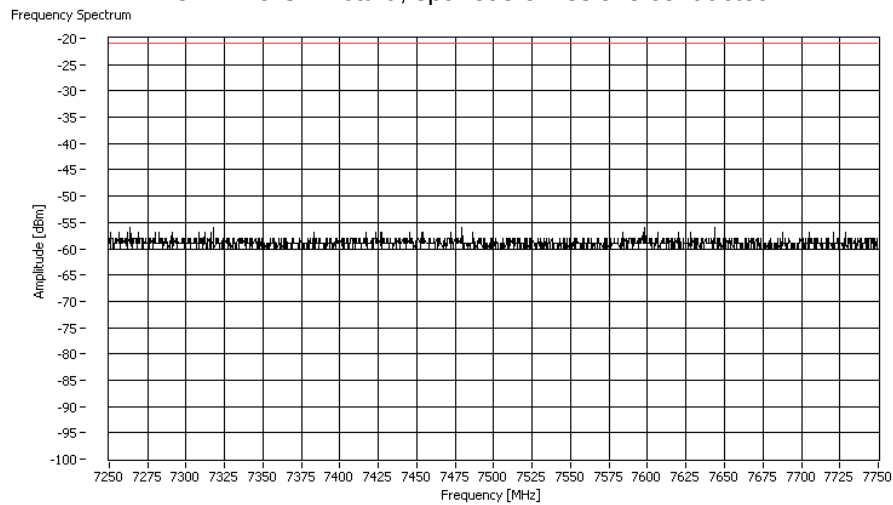
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

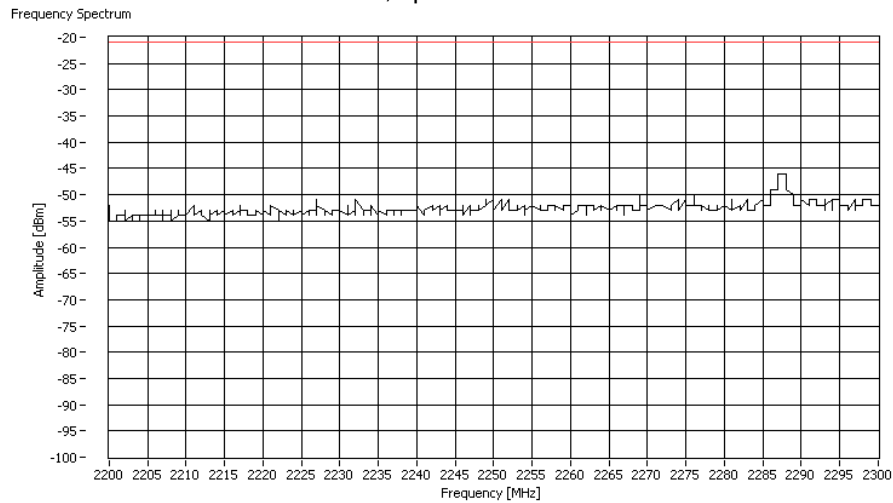


7.25 – 7.75 GHz band, spurious emissions conducted

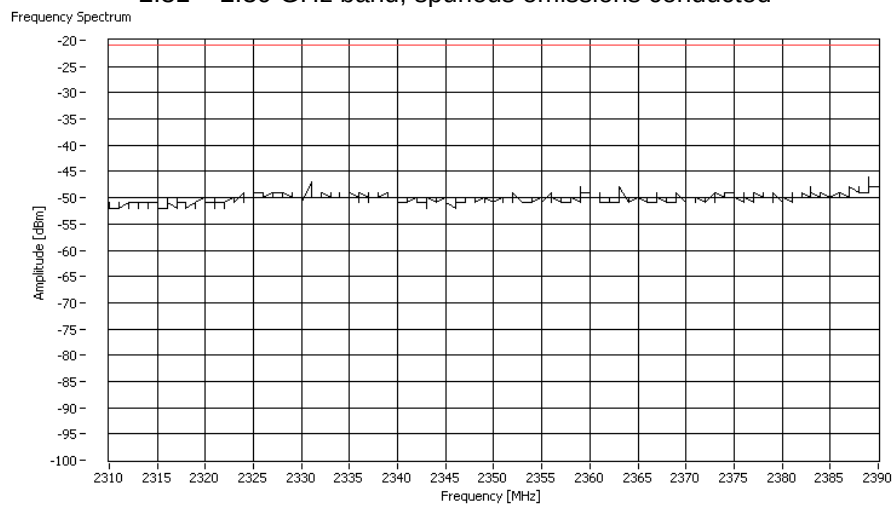


802.11n, HT20, Ch1

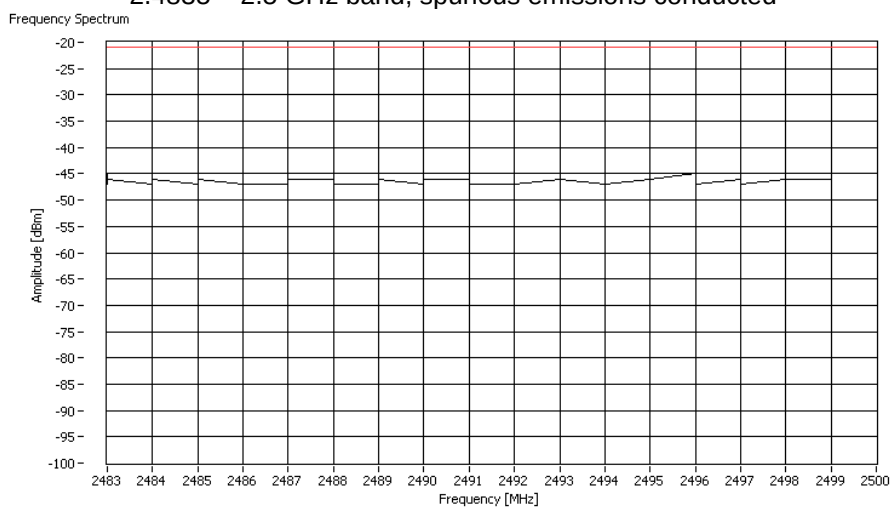
2.2 – 2.3 GHz band, spurious emissions conducted



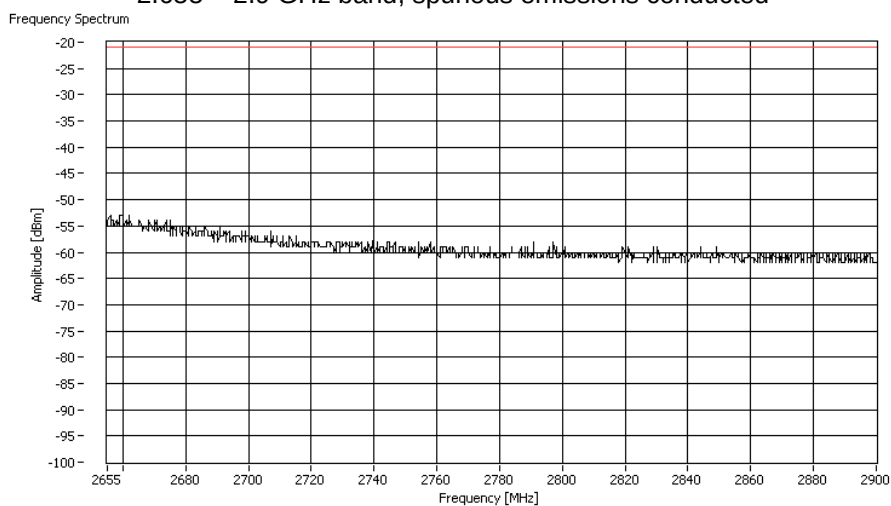
2.31 – 2.39 GHz band, spurious emissions conducted



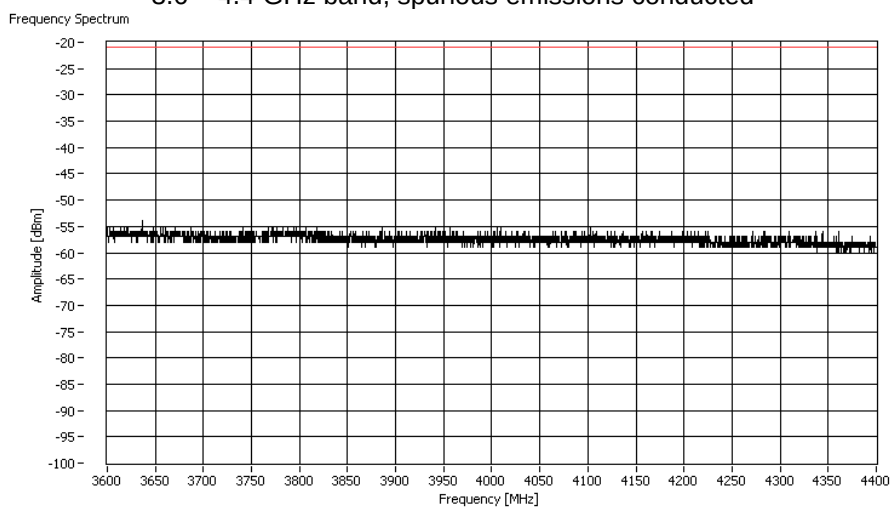
2.4835 – 2.5 GHz band, spurious emissions conducted



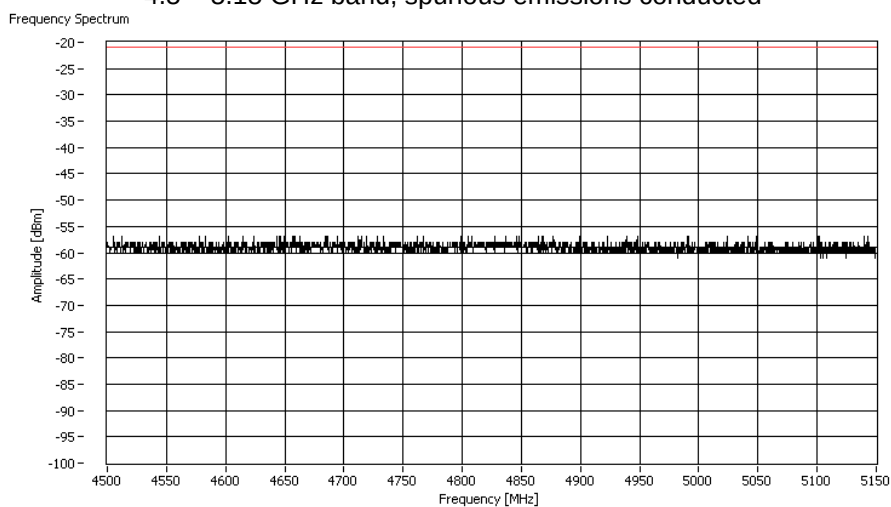
2.655 – 2.9 GHz band, spurious emissions conducted



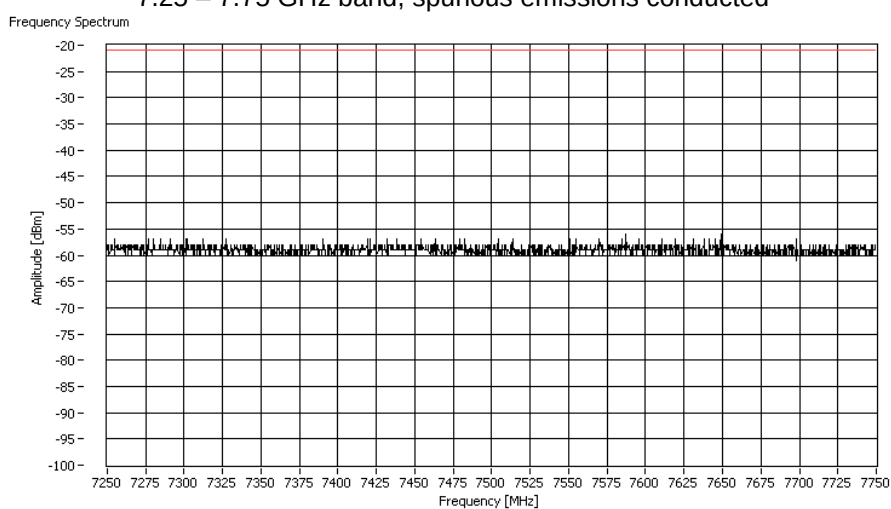
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

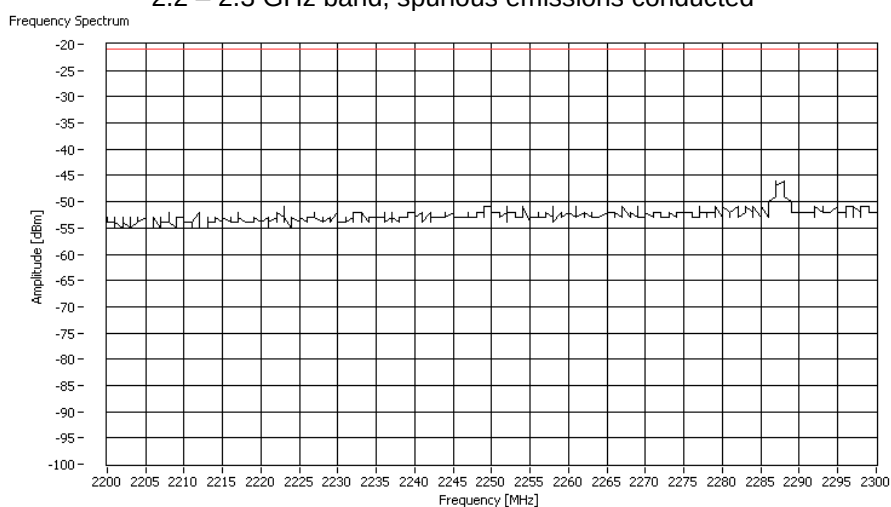


7.25 – 7.75 GHz band, spurious emissions conducted

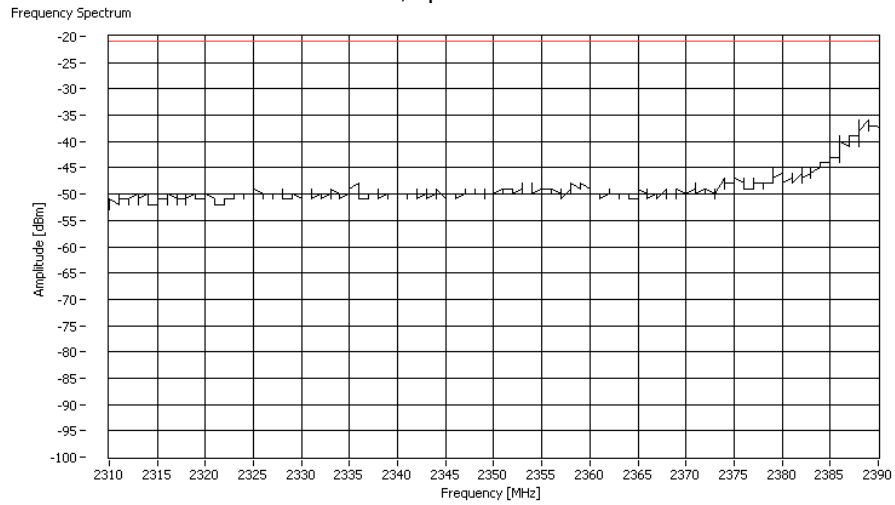


802.11n, HT40, Ch1up

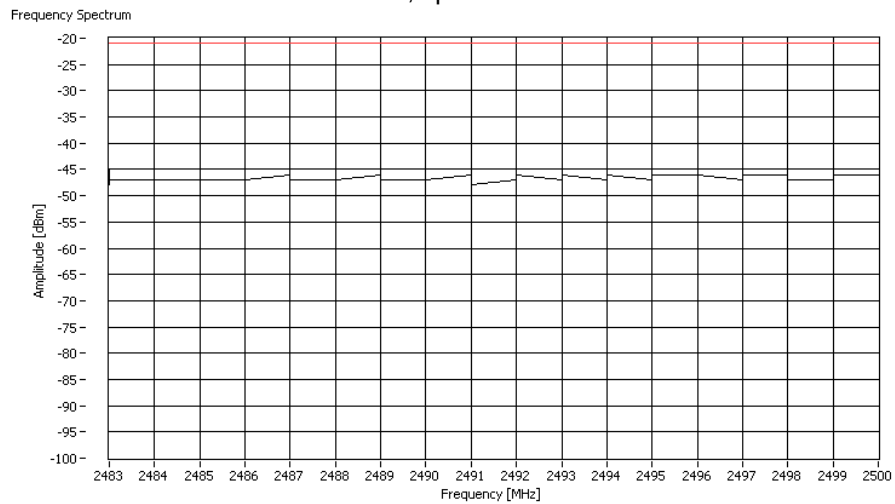
2.2 – 2.3 GHz band, spurious emissions conducted



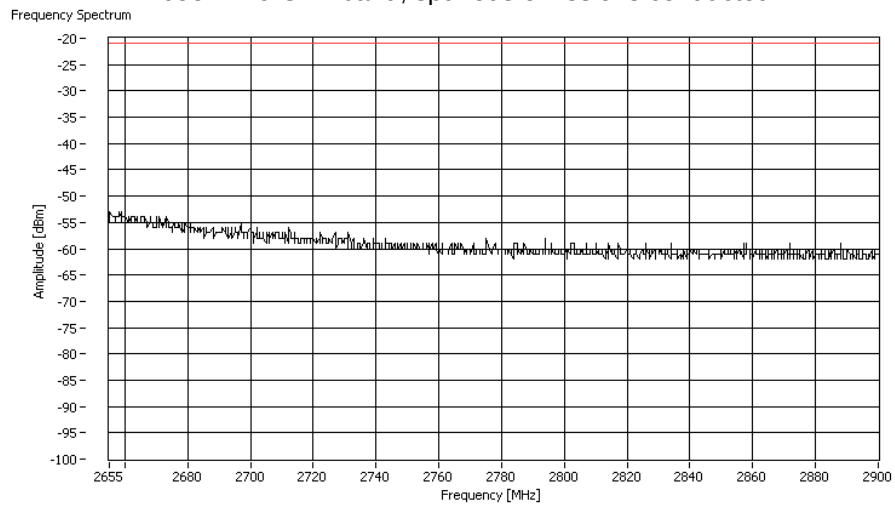
2.31 – 2.39 GHz band, spurious emissions conducted



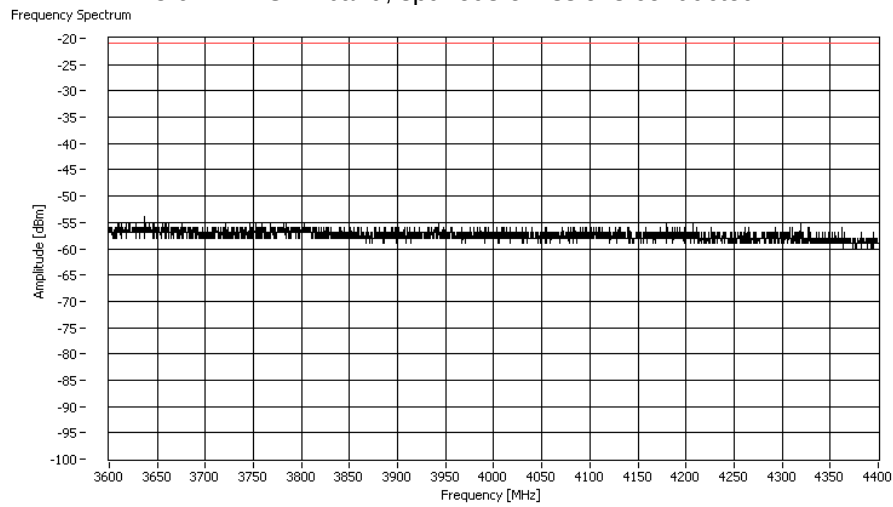
2.4835 – 2.5 GHz band, spurious emissions conducted



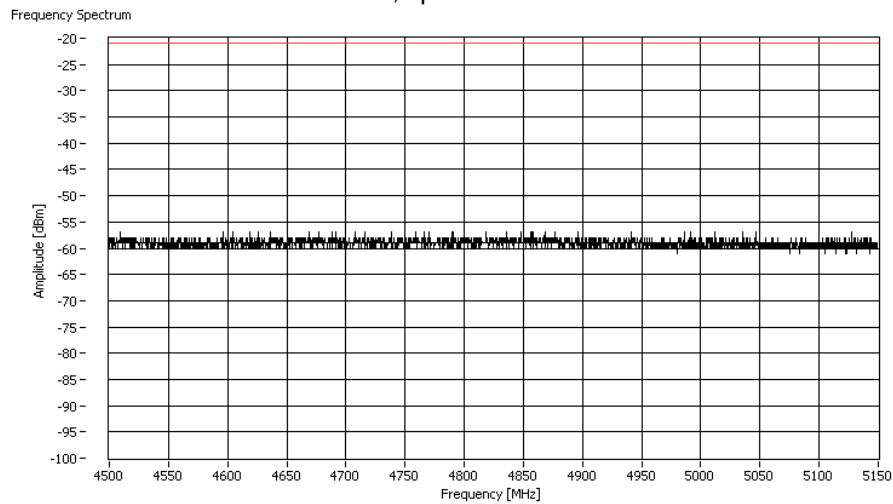
2.655 – 2.9 GHz band, spurious emissions conducted



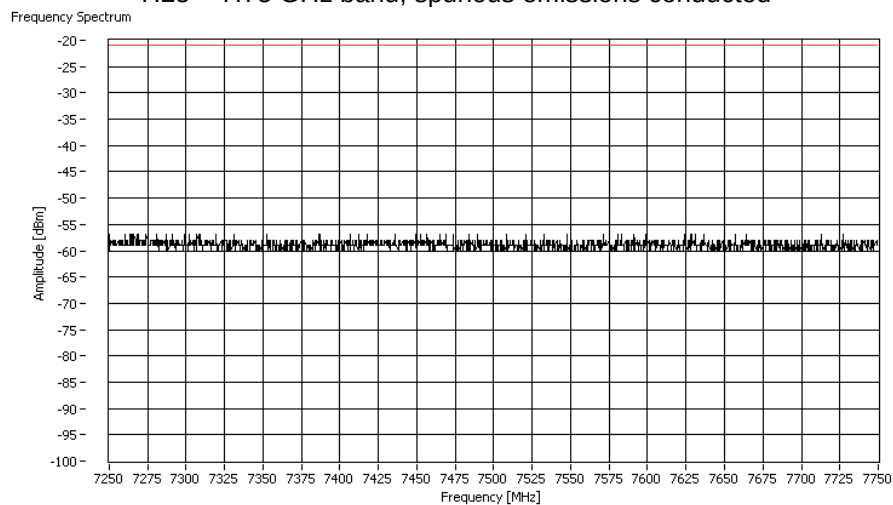
3.6 – 4.4 GHz band, spurious emissions conducted



4.5 – 5.15 GHz band, spurious emissions conducted

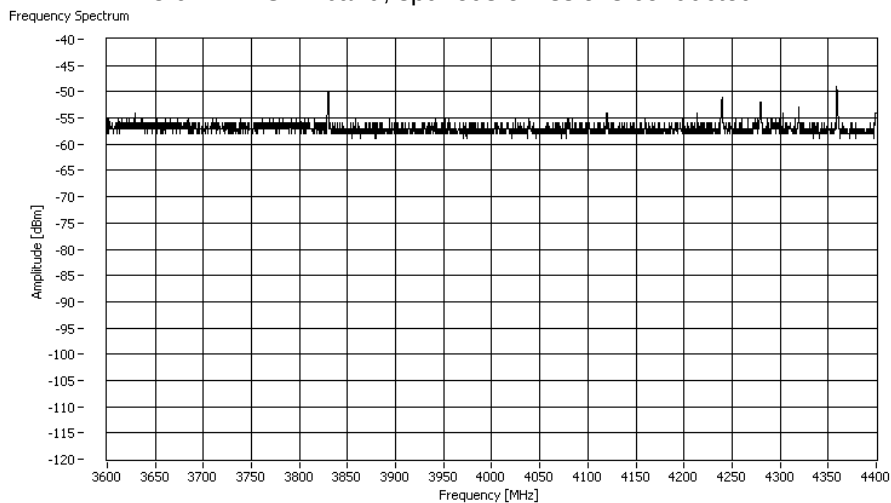


7.25 – 7.75 GHz band, spurious emissions conducted

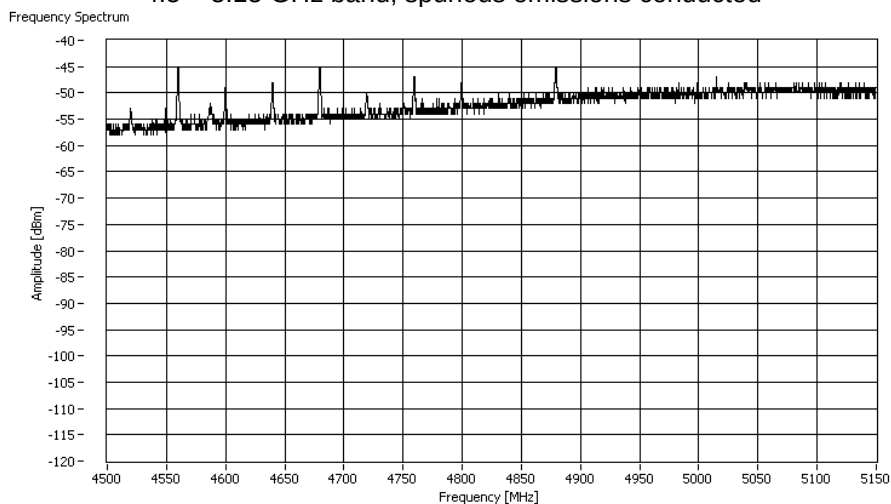


5.7.6.4 Gain group 1 (6 dBi), 5 GHz range:
802.11a, Ch149

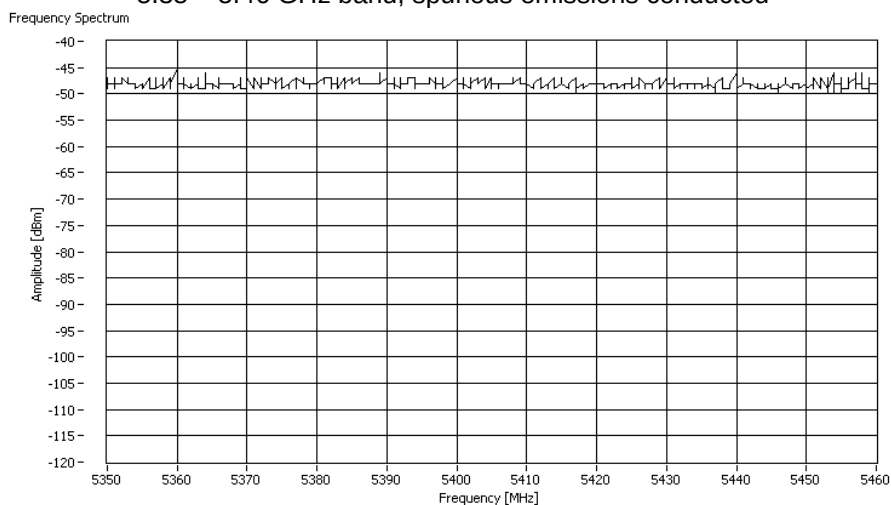
3.6 – 4.4 GHz band, spurious emissions conducted



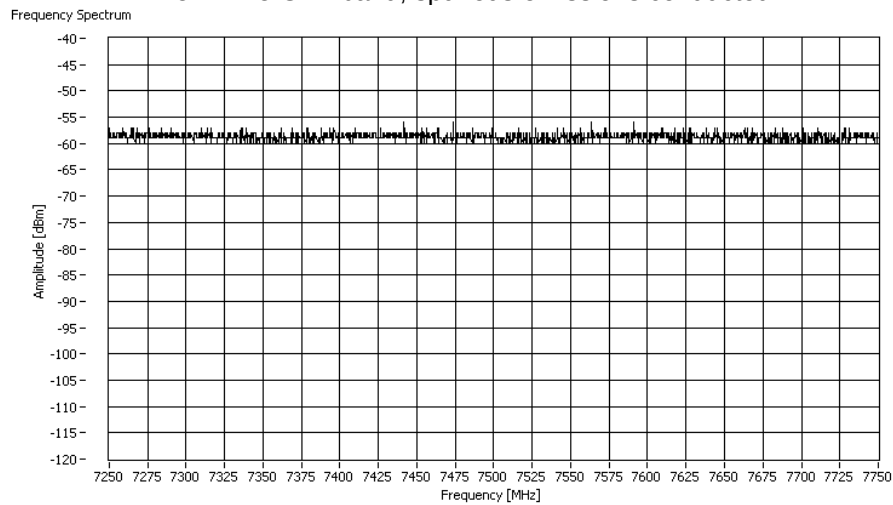
4.5 – 5.15 GHz band, spurious emissions conducted



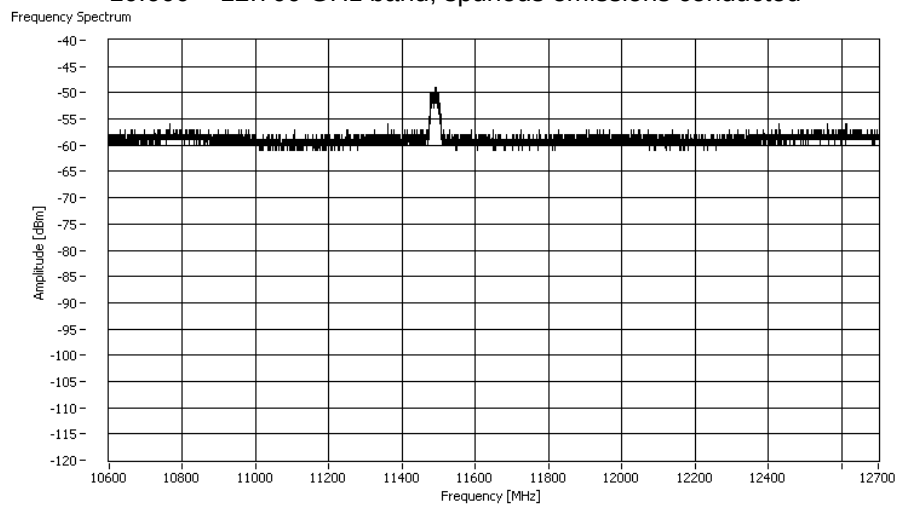
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

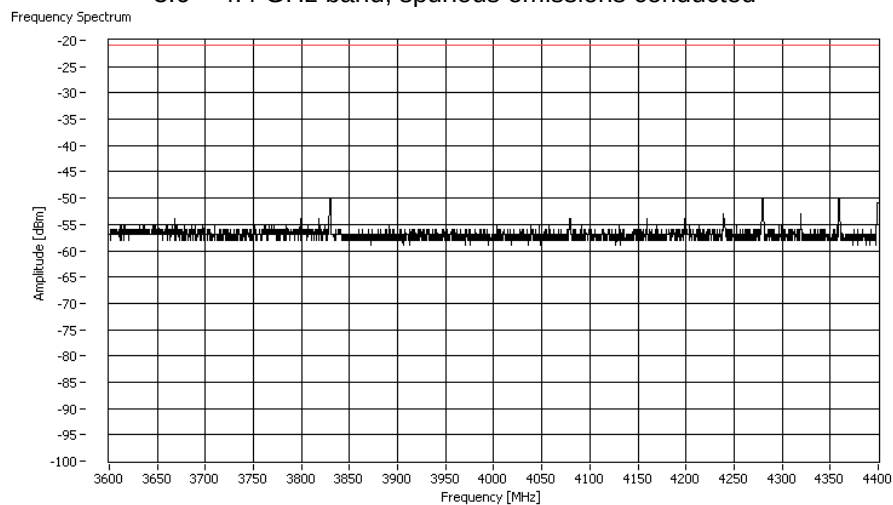


10.600 – 12.700 GHz band, spurious emissions conducted

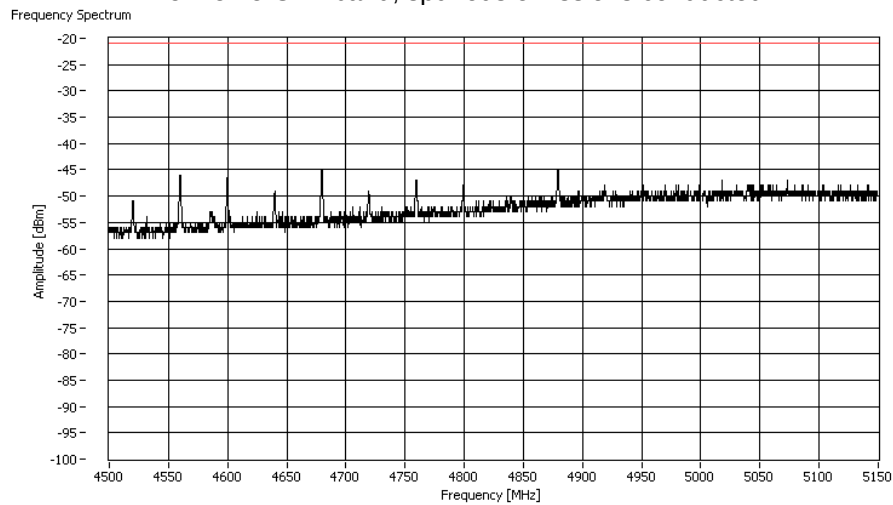


802.11n, HT20, Ch149

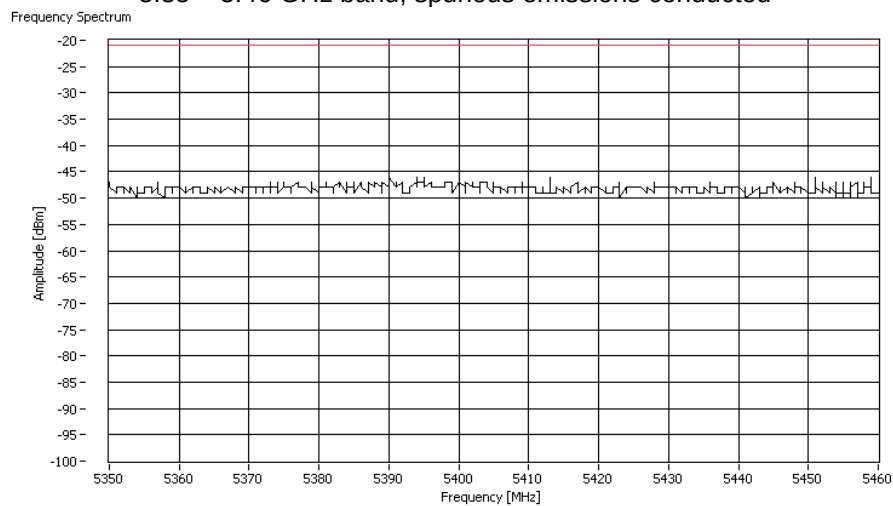
3.6 – 4.4 GHz band, spurious emissions conducted



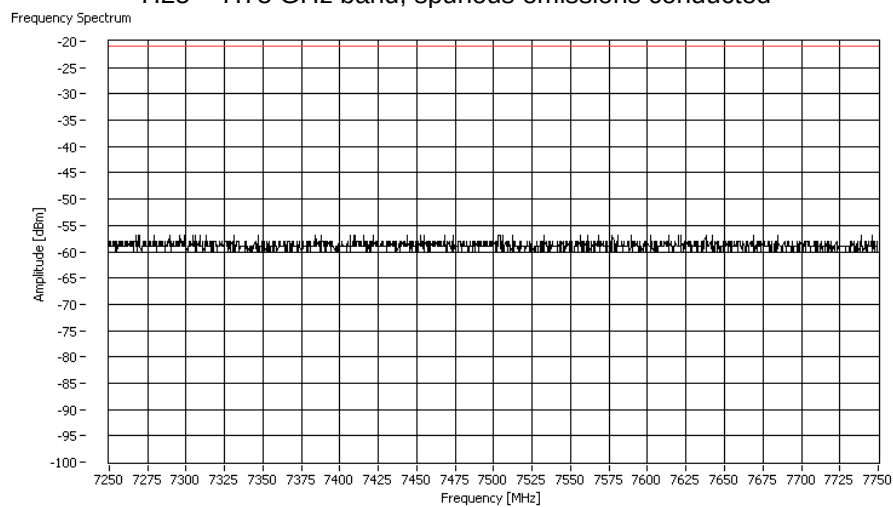
4.5 – 5.15 GHz band, spurious emissions conducted



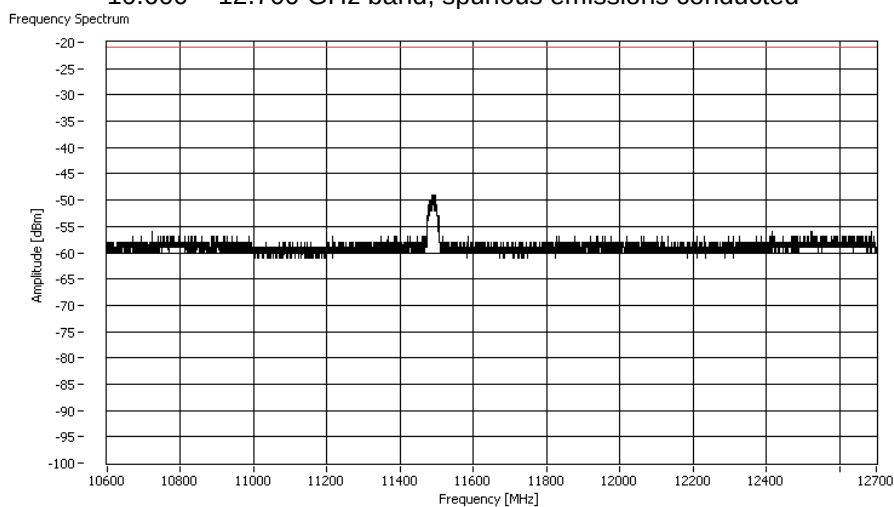
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

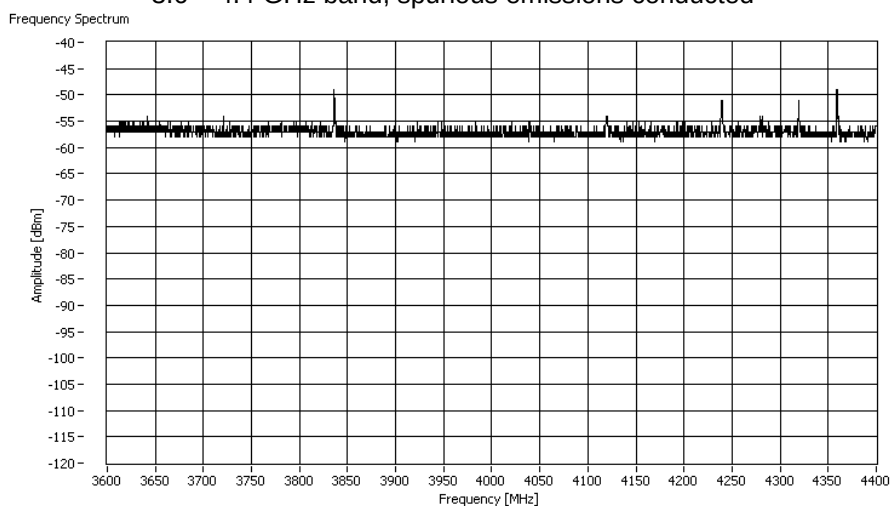


10.600 – 12.700 GHz band, spurious emissions conducted

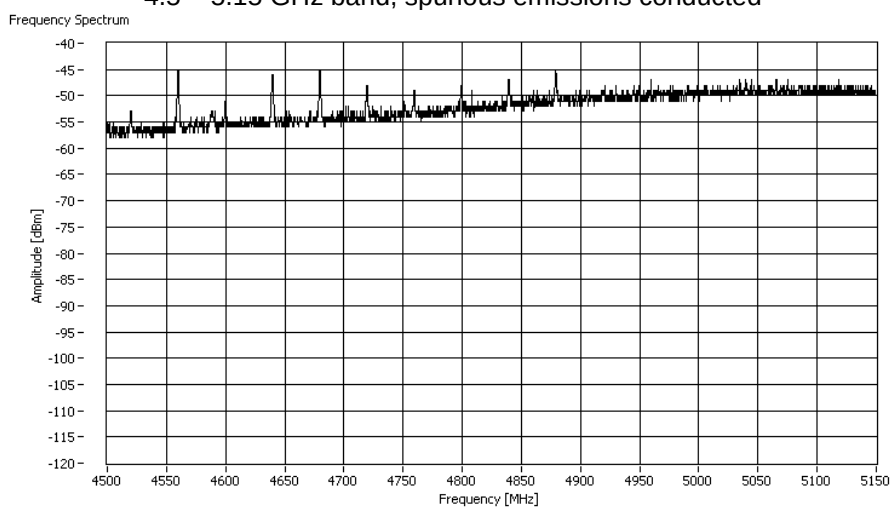


802.11n, HT40, Ch149up

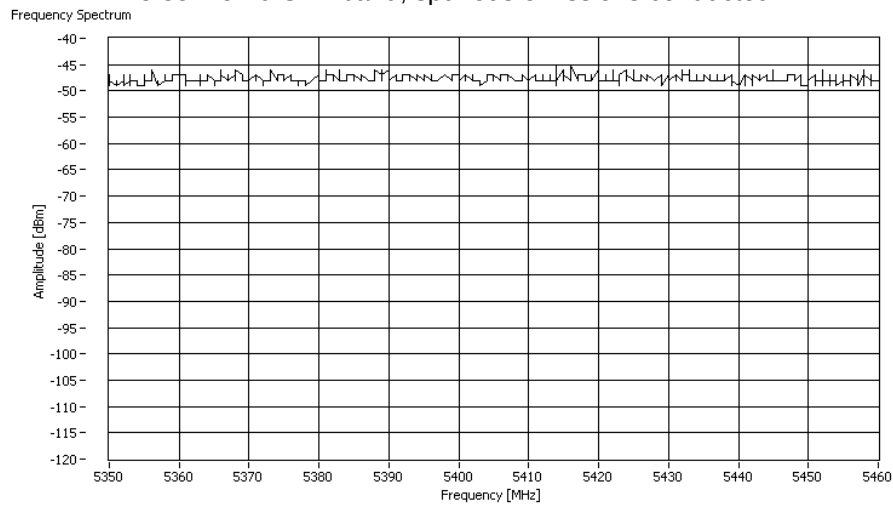
3.6 – 4.4 GHz band, spurious emissions conducted



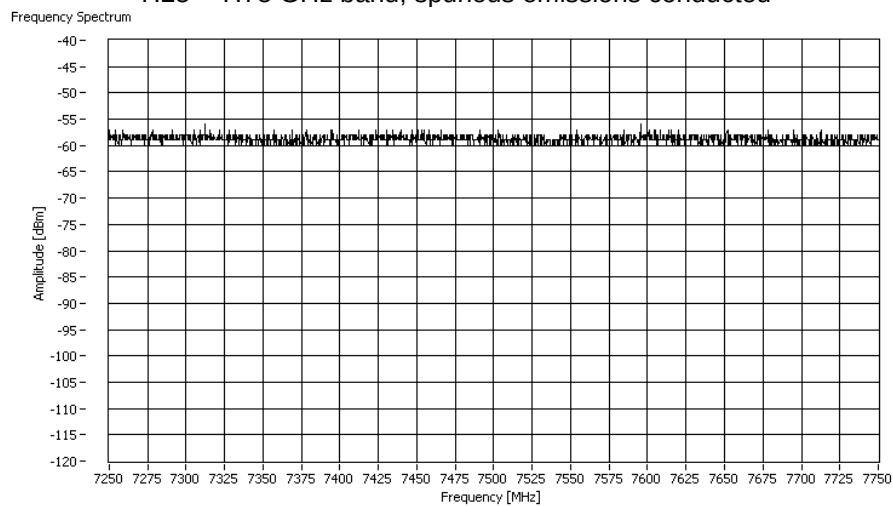
4.5 – 5.15 GHz band, spurious emissions conducted



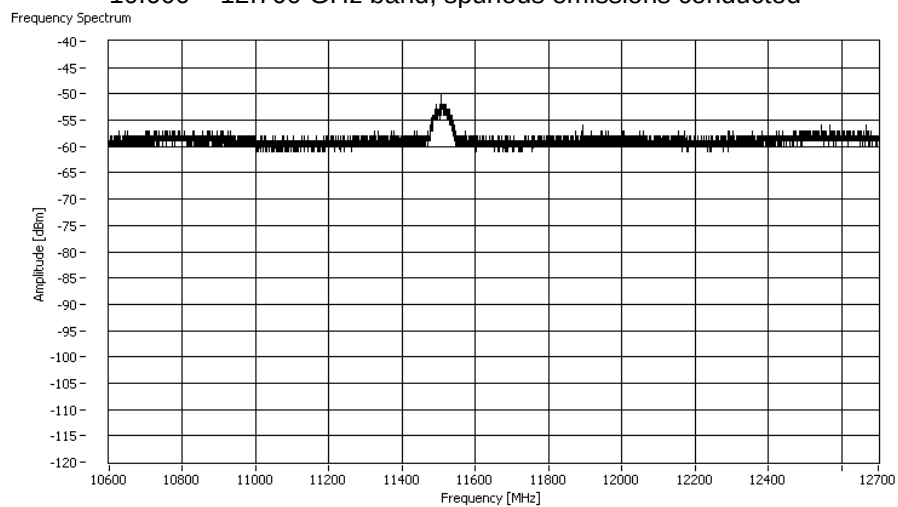
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

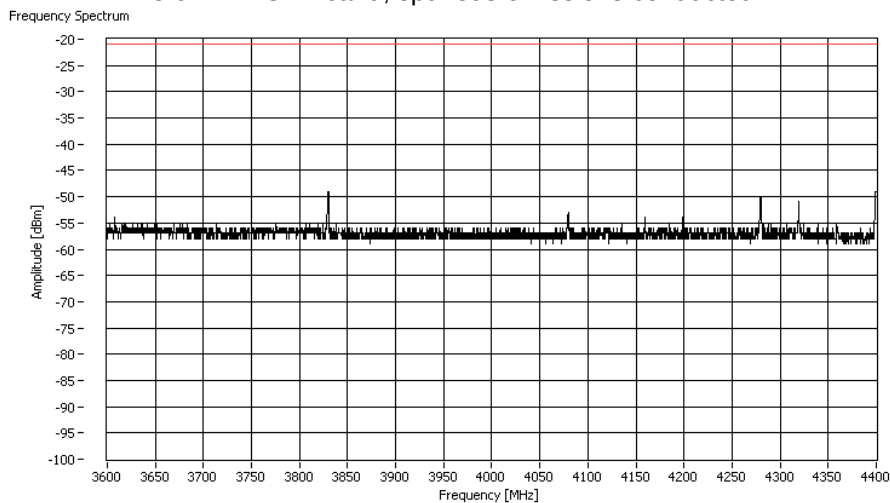


10.600 – 12.700 GHz band, spurious emissions conducted

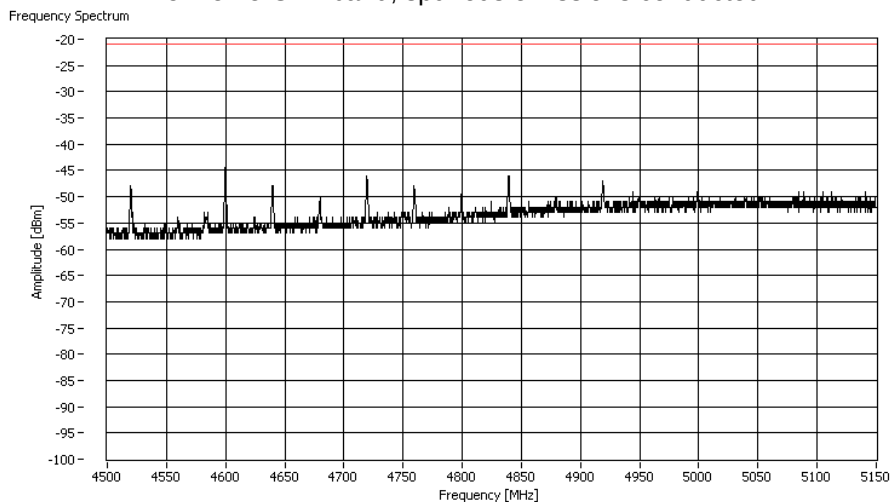


5.7.6.5 Gain group 2 (9 dBi), 5 GHz range:
802.11a, Ch149

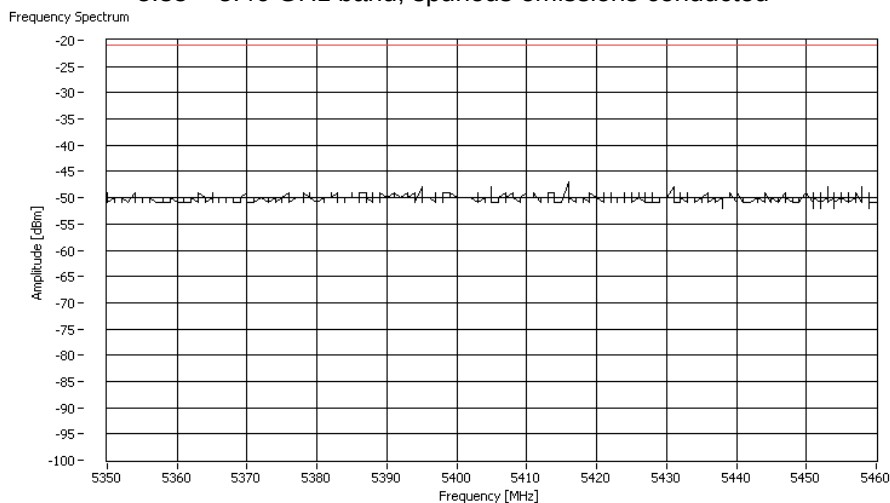
3.6 – 4.4 GHz band, spurious emissions conducted



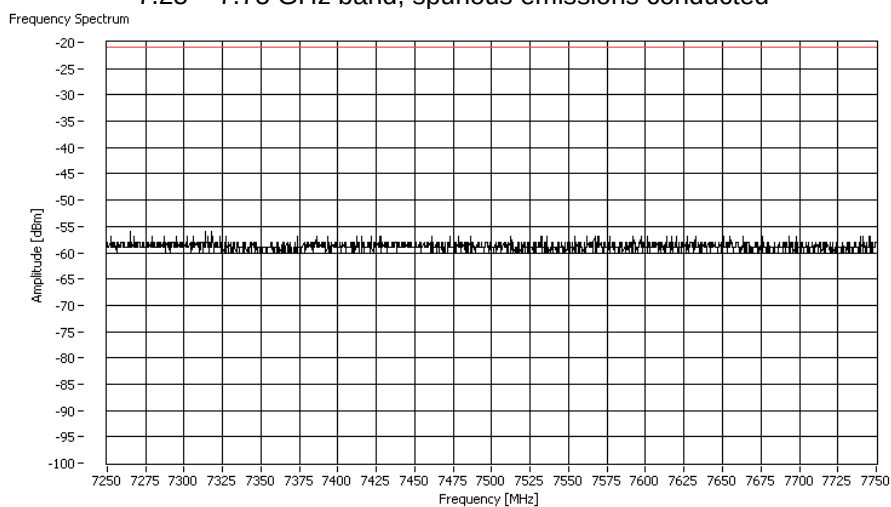
4.5 – 5.15 GHz band, spurious emissions conducted



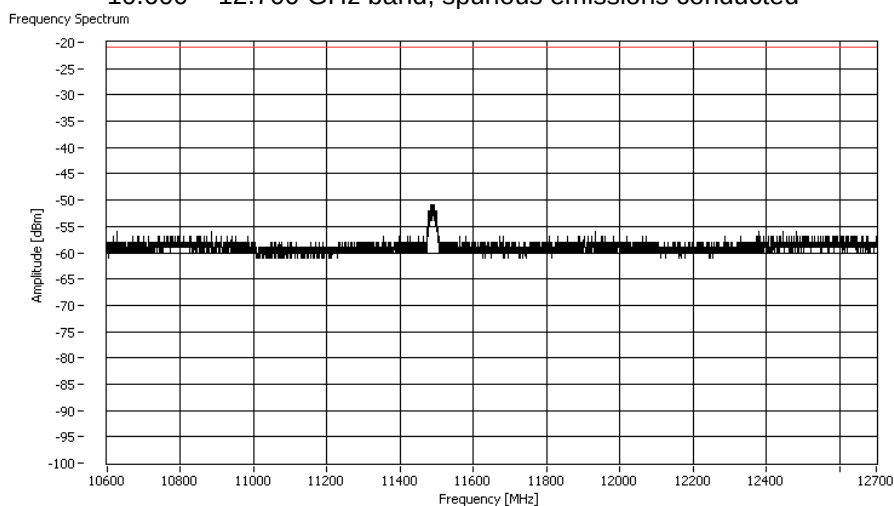
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

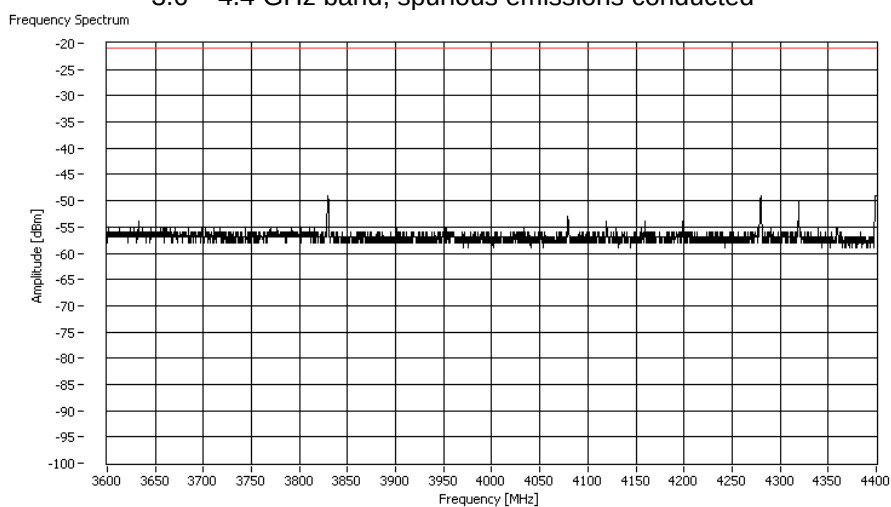


10.600 – 12.700 GHz band, spurious emissions conducted

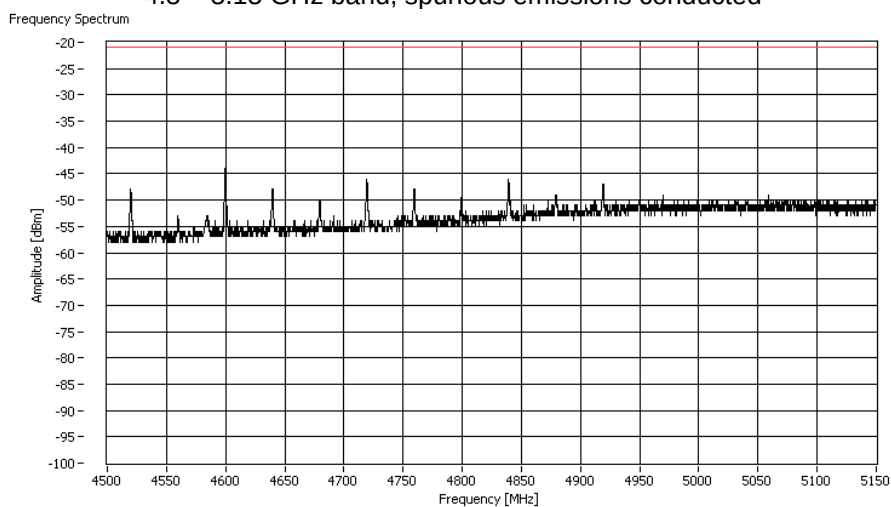


802.11n, HT20, Ch149

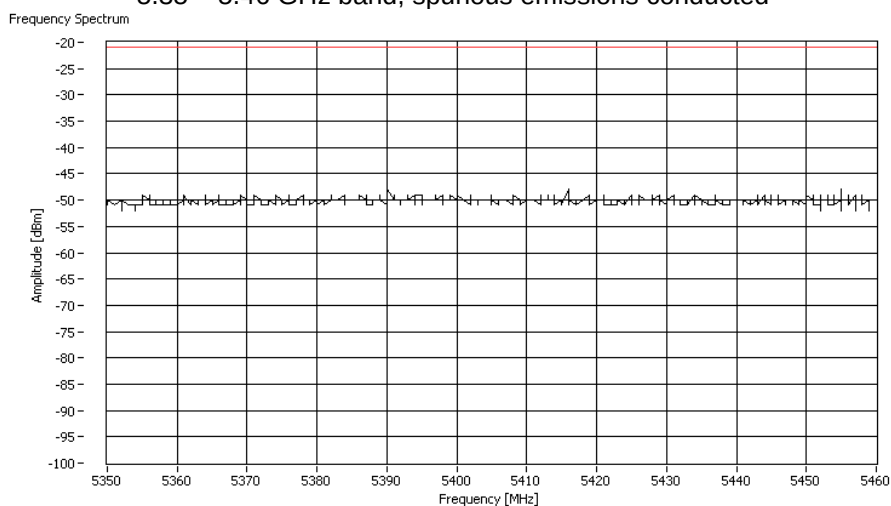
3.6 – 4.4 GHz band, spurious emissions conducted



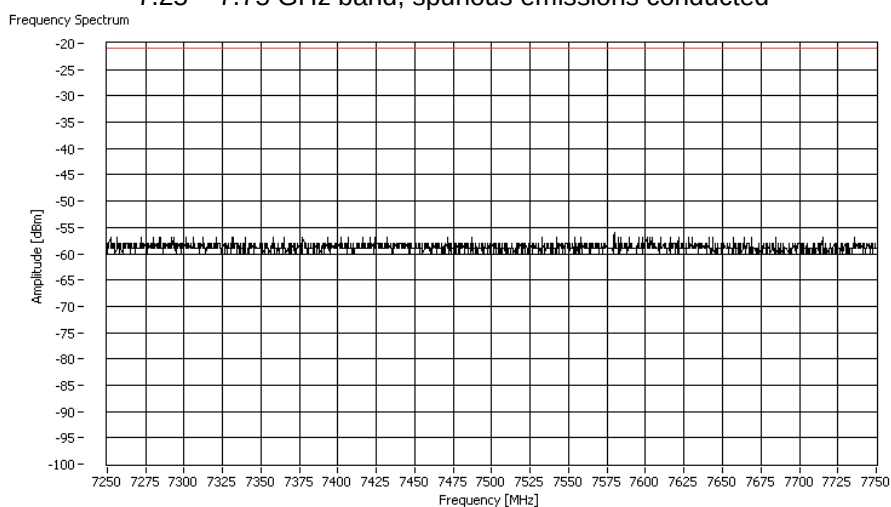
4.5 – 5.15 GHz band, spurious emissions conducted



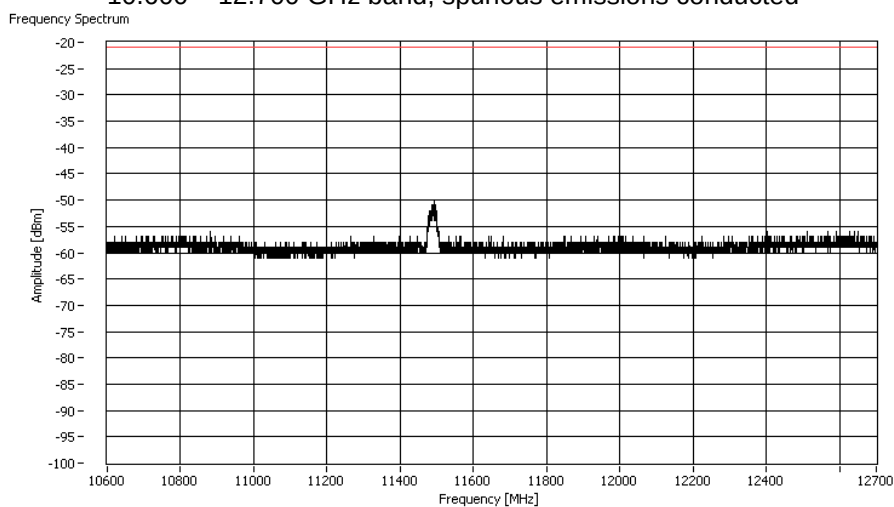
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

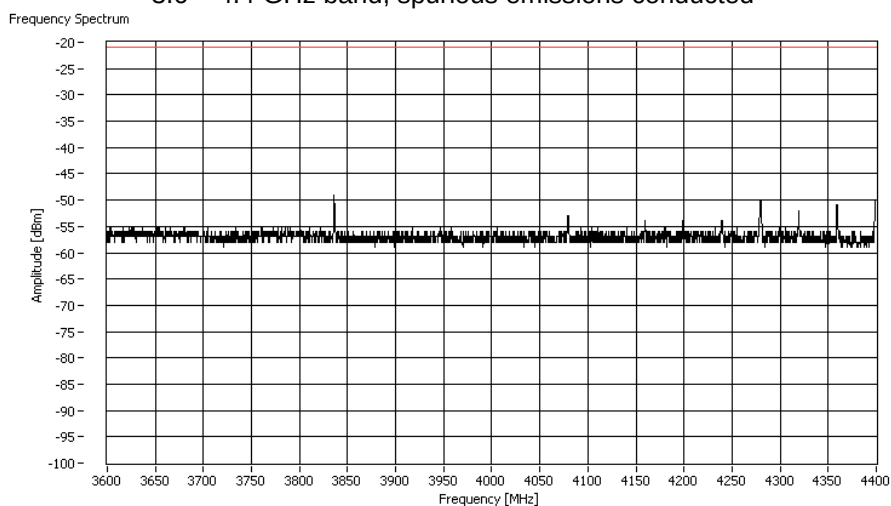


10.600 – 12.700 GHz band, spurious emissions conducted

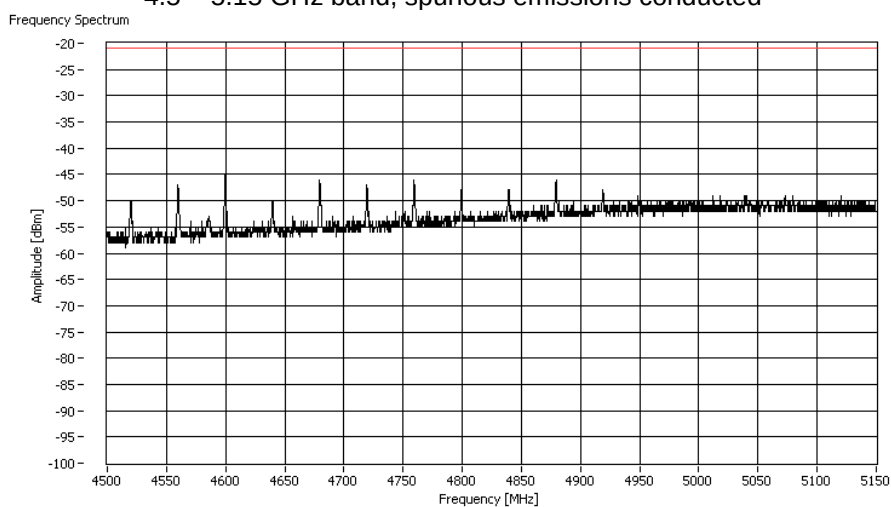


802.11n, HT40, Ch149up

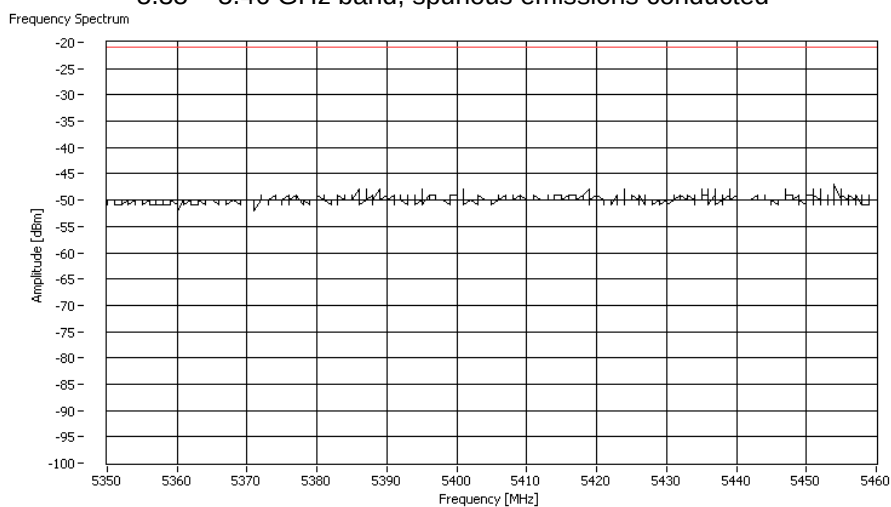
3.6 – 4.4 GHz band, spurious emissions conducted



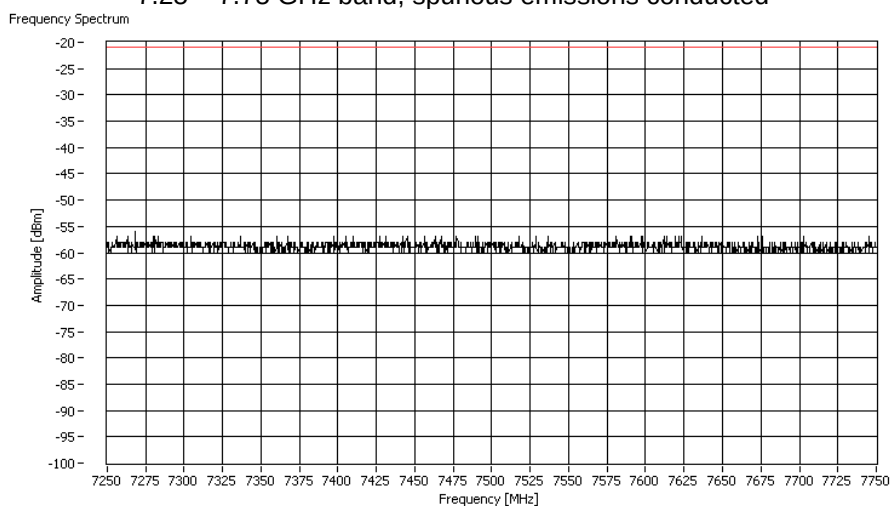
4.5 – 5.15 GHz band, spurious emissions conducted



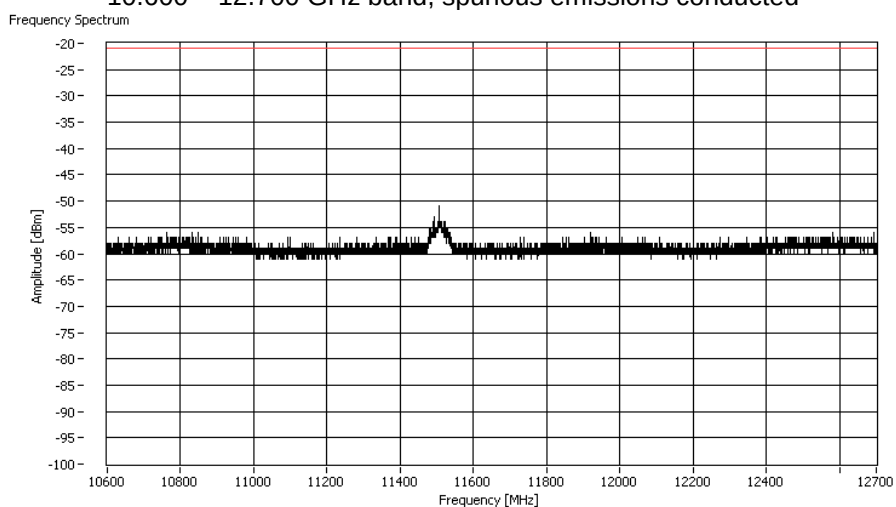
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

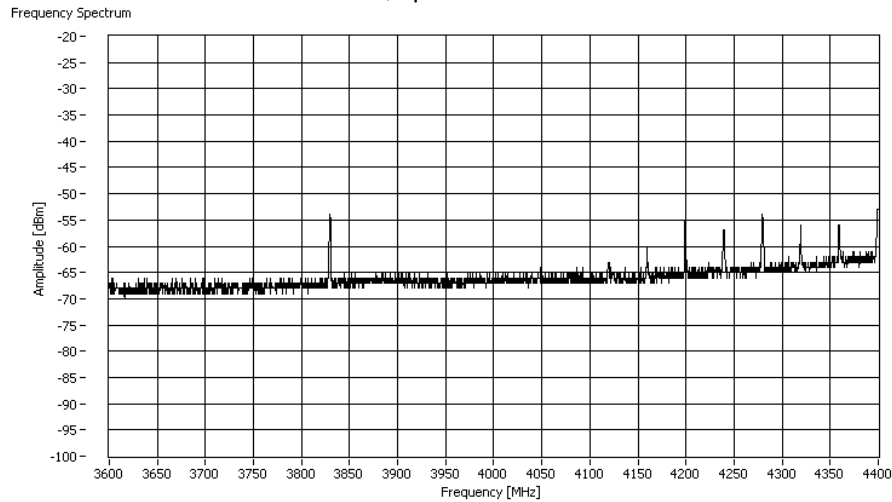


10.600 – 12.700 GHz band, spurious emissions conducted

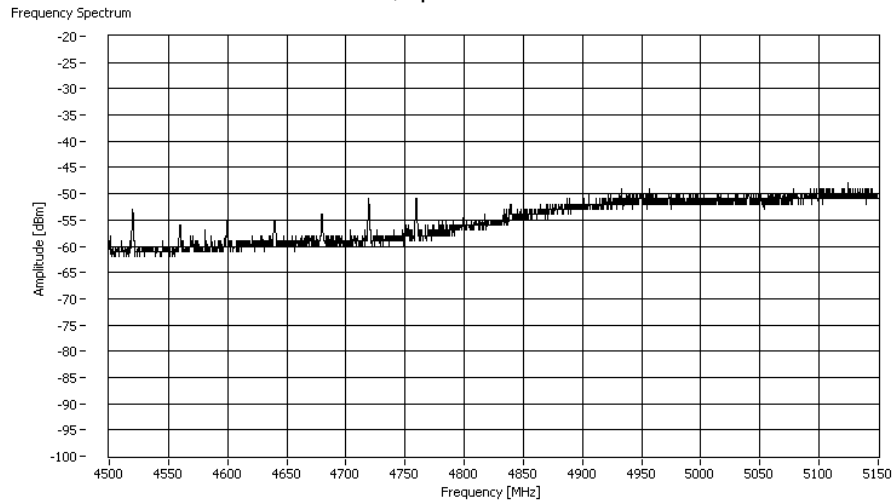


5.7.6.6 Gain group 3 (14 dBi), 5 GHz range:
802.11a, Ch149

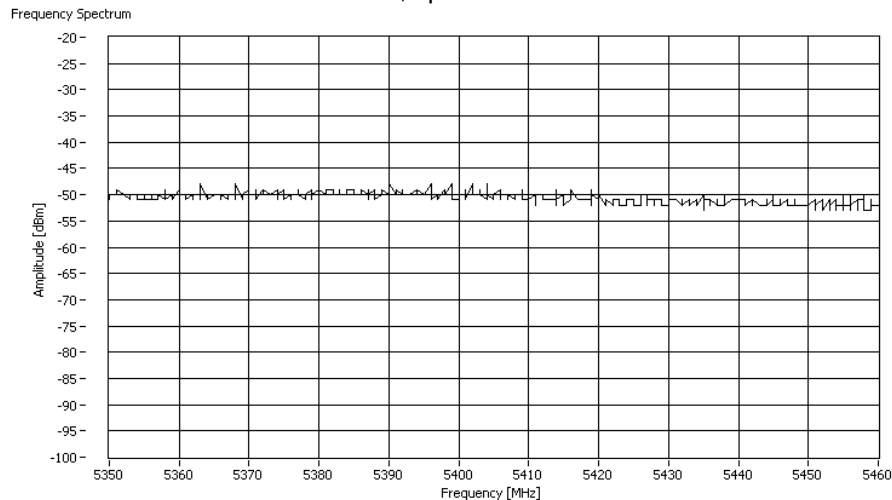
3.6 – 4.4 GHz band, spurious emissions conducted



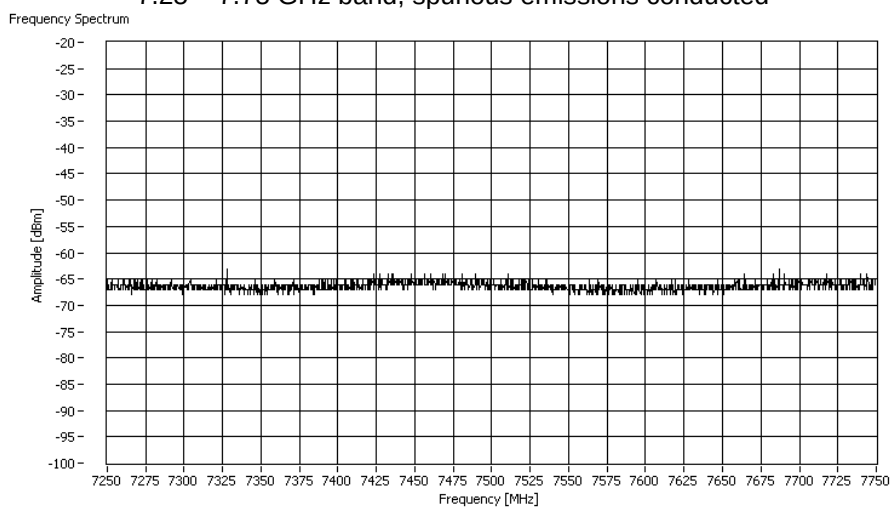
4.5 – 5.15 GHz band, spurious emissions conducted



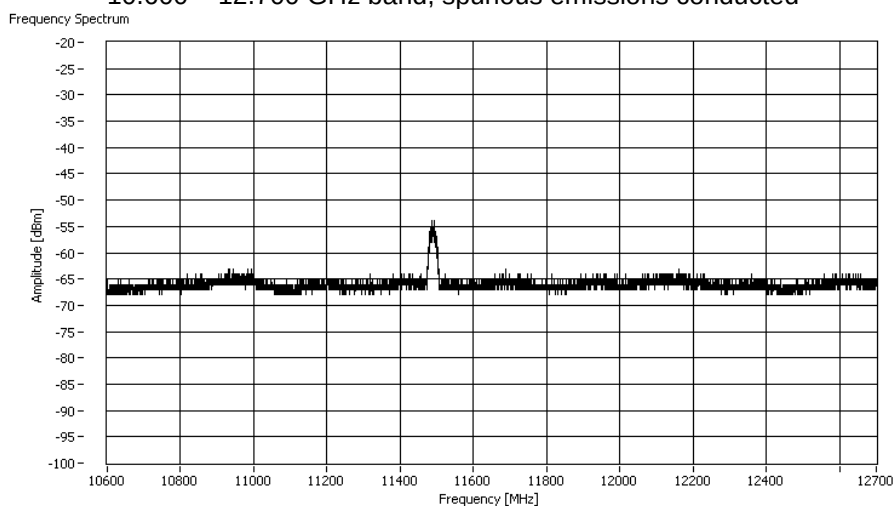
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

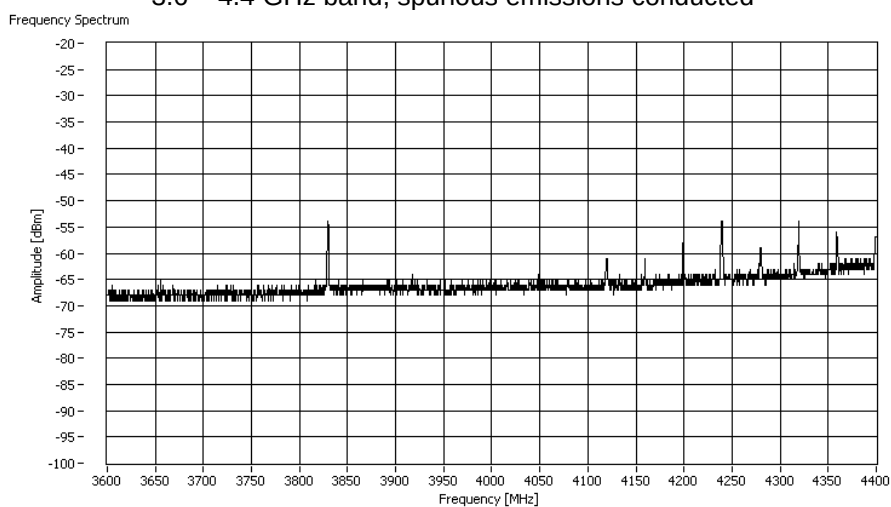


10.600 – 12.700 GHz band, spurious emissions conducted

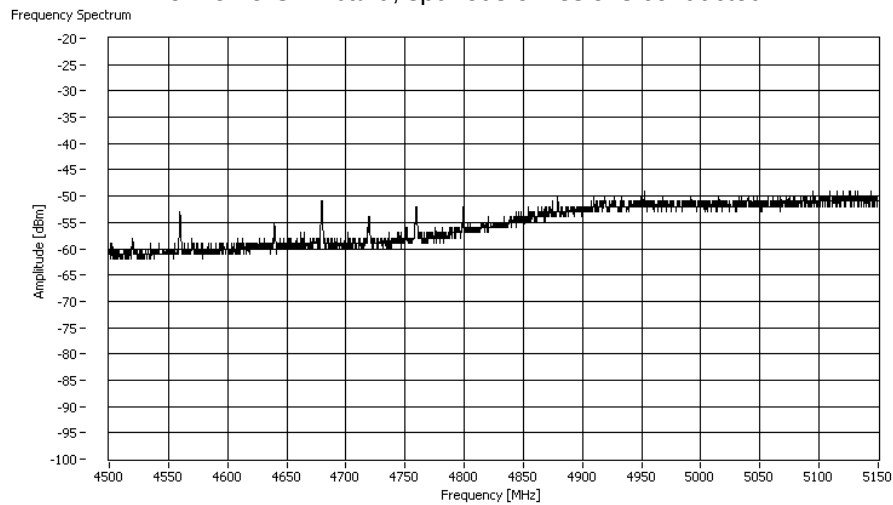


802.11n, HT20, Ch149

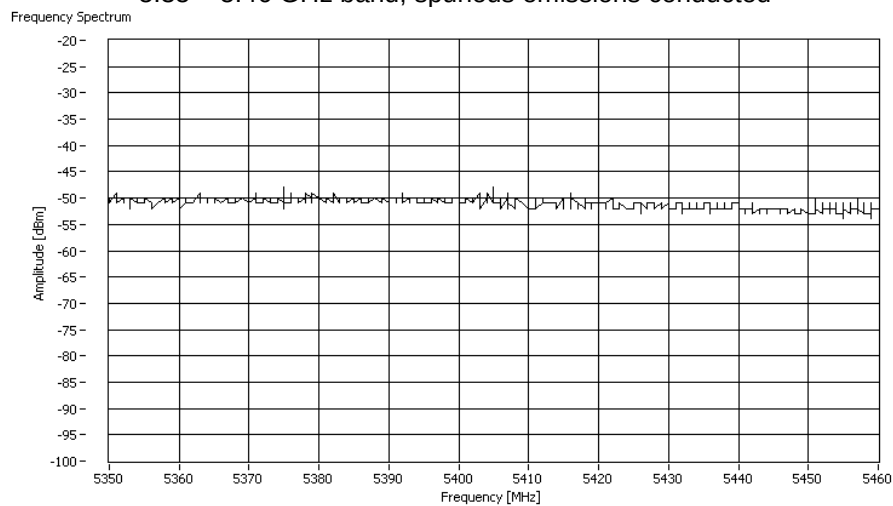
3.6 – 4.4 GHz band, spurious emissions conducted



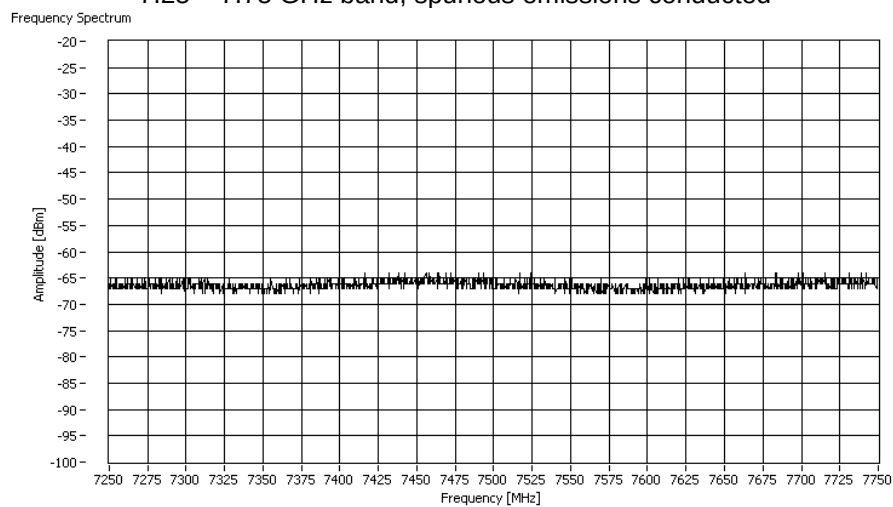
4.5 – 5.15 GHz band, spurious emissions conducted



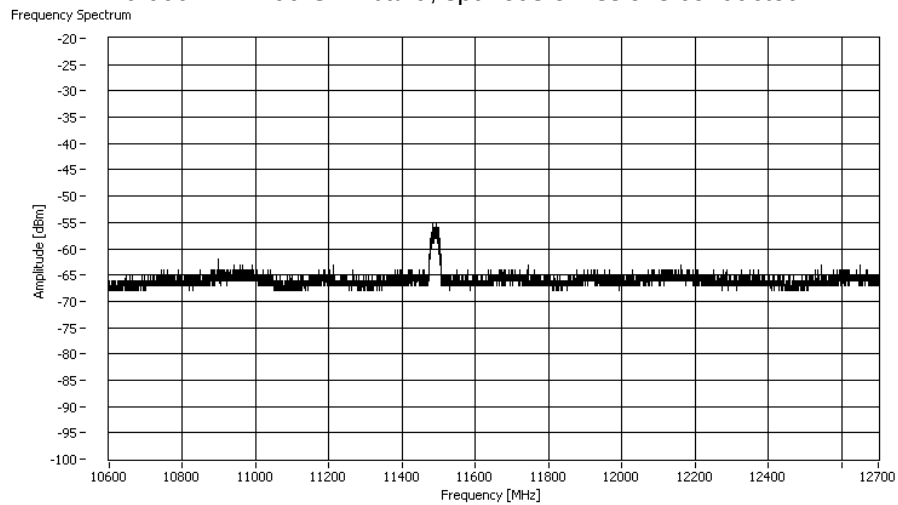
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted

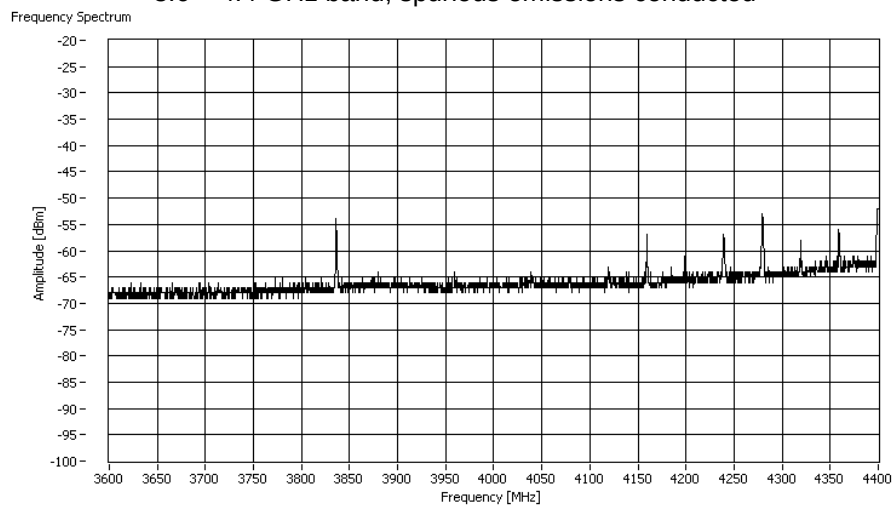


10.600 – 12.700 GHz band, spurious emissions conducted

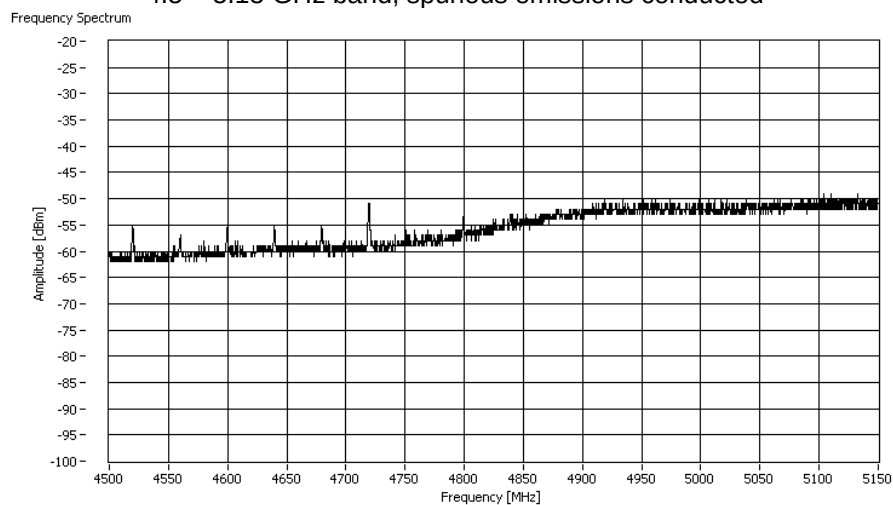


802.11n, HT40, Ch149up

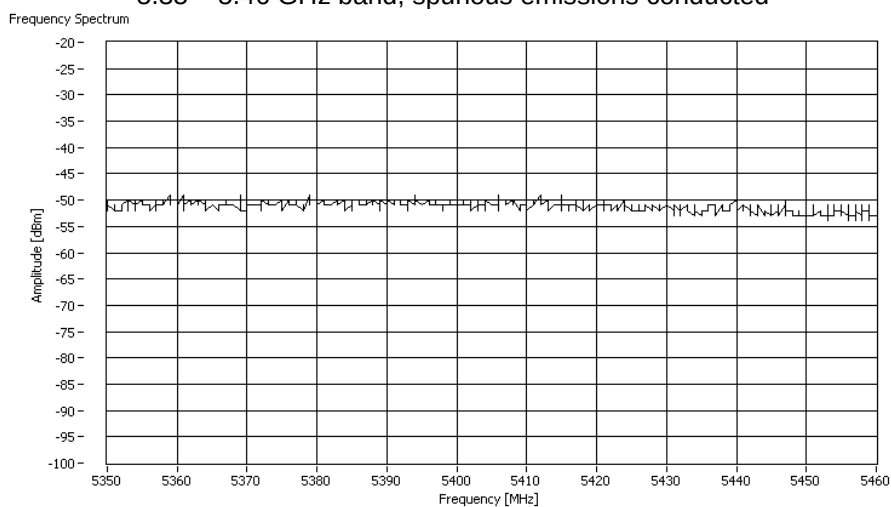
3.6 – 4.4 GHz band, spurious emissions conducted



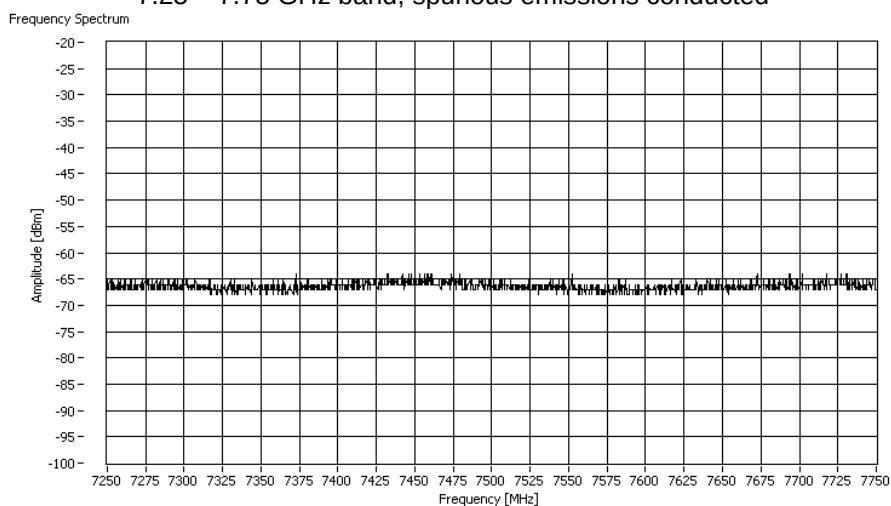
4.5 – 5.15 GHz band, spurious emissions conducted



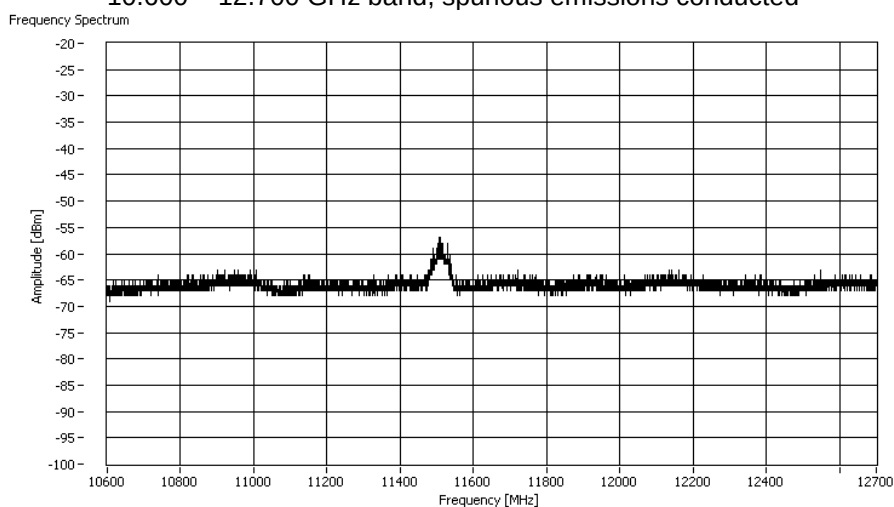
5.35 – 5.46 GHz band, spurious emissions conducted



7.25 – 7.75 GHz band, spurious emissions conducted



10.600 – 12.700 GHz band, spurious emissions conducted



5.8 Radiated emissions in restricted bands

For test instruments and accessories used see section 6 Part SER 3.

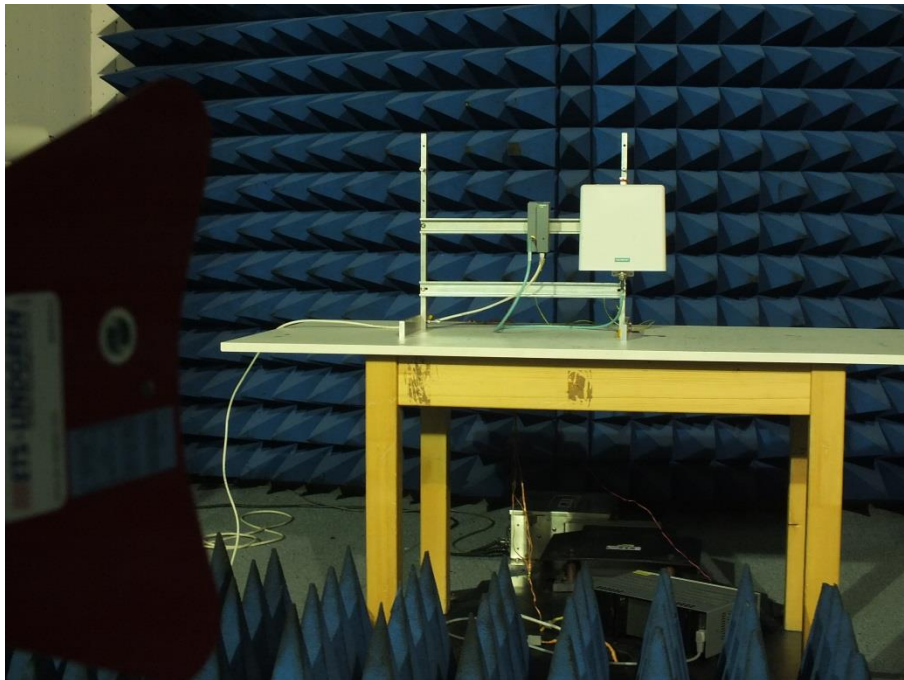
5.8.1 Description of the test location

Test location: Anechoic chamber 2

Test distance: 3 m

5.8.2 Photo documentation of the test set-up

Anechoic chamber



5.8.3 Applicable standard

According to FCC Part 15, Section 15.247(d):

In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limit specified in Section 15.209(a) (see Section 15.205(c)).

5.8.4 Description of Measurement

The radiated power of the spurious emission from the EUT is measured in a test setup following the procedures set out in ANSI C63.4 and KDB 558074 for DTS. If the emission level of the EUT in peak mode complies with the average limit then testing will be stopped and peak values of the EUT will be reported, otherwise the emission will be measured again in average mode and reported.

Peak-measurement:

9 - 150 kHz:	RBW: 300 Hz,	VBW: 1 kHz,	Detector: Max peak,	Trace Mode: Max hold;
0.15 - 30 MHz:	RBW: 10 kHz,	VBW: 30 kHz,	Detector: Max peak,	Trace Mode: Max hold;
30 - 1000 MHz:	RBW: 100 kHz,	VBW: 300 kHz,	Detector: Max peak,	Trace Mode: Max hold;
1 - 40 GHz:	RBW: 1 MHz,	VBW: 3 MHz,	Detector: Max peak,	Trace Mode: Max hold;

AV-measurement according 558074 D01 DTS, Item 12.2.5.3:

RBW: 1 MHz, VBW: $\geq 1/T$, Detector: Max peak, Trace Mode: Max hold, Sweep time: auto;
For 802.11b: VBW = 300 Hz, for 802.11a, g, n HT20: VBW = 1 kHz, for 802.11n, HT40: VBW = 3 kHz;

5.8.5 Test result
5.8.5.1 Gain group 3 (14 dBi), 5 GHz range:

802.11a		AV-measurement				
Lowest frequency: CH149						
Test conditions: 1 TX, P14, 6 Mbps		Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.2	54.0	-4.8
4500	5150	1000	5085.0	49.7	54.0	-4.3
5350	5460	1000	5399.0	51.0	54.0	-3.0
10600	12700	1000	12007.0	50.4	54.0	-3.6
Measurement uncertainty				±6 dB		

802.11a		AV-measurement				
Middle frequency: CH157						
Test conditions: 1 TX, P14, 6 Mbps		Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.7	54.0	-4.3
4500	5150	1000	5094.0	49.9	54.0	-4.1
5350	5460	1000	5440.0	52.0	54.0	-2.0
10600	12700	1000	11969.0	50.4	54.0	-3.6
Measurement uncertainty				±6 dB		

802.11a		AV-measurement				
Highest frequency: CH165						
Test conditions: 1 TX, P14, 6 Mbps		Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.1	54.0	-4.9
4500	5150	1000	5086.0	50.5	54.0	-3.5
5350	5460	1000	5424.0	51.0	54.0	-3.0
10600	12700	1000	12001.0	50.5	54.0	-3.5
Measurement uncertainty				±6 dB		

802.11n, HT20		AV-measurement				
Lowest frequency: CH149						
Test conditions: 1 TX, P14, MSC0		Test results				
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.1	54.0	-4.9
4500	5150	1000	5093.0	49.2	54.0	-4.8
5350	5460	1000	5399.0	50.5	54.0	-3.5
10600	12700	1000	11961.0	50.4	54.0	-3.6
Measurement uncertainty				±6 dB		

802.11n, HT20			AV-measurement			
Middle frequency: CH157						
Test conditions: 1 TX, P14, MSC0			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.5	54.0	-4.5
4500	5150	1000	5090.0	50.5	54.0	-3.5
5350	5460	1000	5425.0	51.6	54.0	-2.4
10600	12700	1000	12002.0	50.5	54.0	-3.5
Measurement uncertainty				±6 dB		

802.11n, HT20			AV-measurement			
Highest frequency: CH165						
Test conditions: 1 TX, P14, MSC0			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.3	54.0	-4.7
4500	5150	1000	5089.0	50.5	54.0	-3.5
5350	5460	1000	5424.0	51.1	54.0	-2.9
10600	12700	1000	11990.0	50.2	54.0	-3.8
Measurement uncertainty				±6 dB		

802.11n, HT40			AV-measurement			
Lowest frequency: CH149up						
Test conditions: 1 TX, P14, MSC0			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.3	54.0	-4.7
4500	5150	1000	5089.0	53.4	54.0	-0.6
5350	5460	1000	5399.0	51.0	54.0	-3.0
10600	12700	1000	12007.0	51.0	54.0	-3.0
Measurement uncertainty				±6 dB		

802.11n, HT40		AV-measurement				
Highest frequency: CH157up						
Test conditions: 1 TX, P14, MSC0			Test results			
Start <i>f</i>	Stop <i>f</i>	RBW	Maximum emission		PK Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBμV/m)	(dBμV/m)	(dB)
3600	4400	1000	4400.0	49.4	54.0	-4.6
4500	5150	1000	5084.0	51.1	54.0	-2.9
5350	5460	1000	5426.0	52.1	54.0	-1.9
10600	12700	1000	11996.0	51.0	54.0	-3.0
Measurement uncertainty				±6 dB		

Radiated limits according to FCC Part 15 Section 15.209(a) for spurious emissions which fall in restricted bands:

Frequency (MHz)	Field strength of spurious emissions		Measurement distance (metres)
	(μ V/m)	dB(μ V/m)	
0.009-0.490	2400/F (kHz)		300
0.490-1.705	24000/F (kHz)		30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Restricted bands of operation:

The field strength of emissions in these frequency bands shall not exceed the limits in Section 15.209

MHz	MHz	MHz	GHz
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.41425 – 8.41475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	Above 38.6

The requirements are **FULFILLED**.

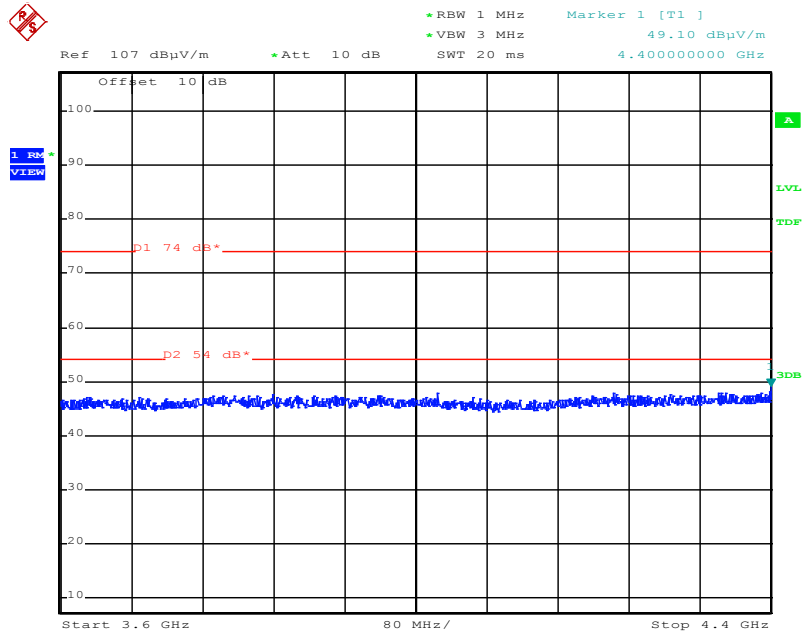
Remarks: For detailed test results please see the following test protocols. CH149 is listed only.

5.8.6 Test protocols of spurious emissions radiated in nearest restricted bands

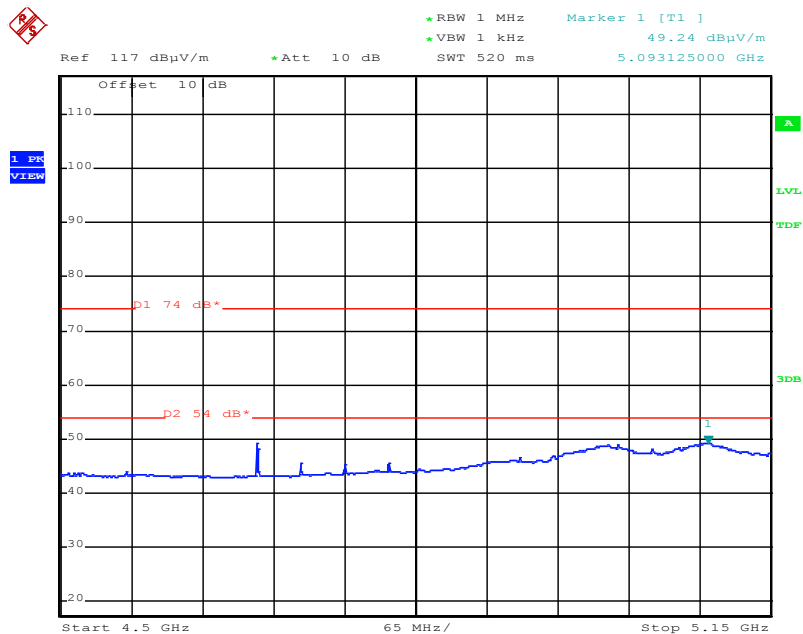
5.8.6.1 Gain group 3 (14 dBi), 5 GHz range:

802.11n, HT20, CH149:

3600 – 4400 MHz band



4500 – 5150 MHz band



5.10 Maximum permissible exposure (MPE)

For test instruments and accessories used see section 6 Part **CPC 3**.

5.10.1 Description of the test location

Test location: AREA4

5.10.2 Applicable standard

According to FCC Part 15, Section 15.247(i):

Systems operating under the provisions of this section shall be operated in a manner that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines.

The test methods used comply with ANSI/IEEE C95.1, "IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz".

This test report shows the compliance with the limits for Maximum Permissible Exposure (MPE) specified in FCC Part 1, Section 1.1310 and the criteria to evaluate the environmental impact of human exposure to radio frequency (RF) radiation as specified in FCC Part 1, Section 1.1307(b).

5.10.3 Description of Measurement

The maximum total power input to the antenna has been measured conducted as described in clause 5.3 of this document. Through the Friis transmission formula, the known maximum gain of the antenna and the maximum power, can be calculated the MPE in a defined distance away from the product.

Friis transmission formula:

$$P_d = \frac{P_{out} * G}{4 * \pi * r^2}$$

where

P_d = power density (mW/cm²)

P_{out} = output power to antenna (mW)

G = gain of antenna (linear scale)

r = distance between antenna and observation point (cm)

According to FCC Rules 47CFR 2.1093(b) the EUT is not a portable device. The EUT is designed to be used that radiating structures are 20 cm outside of the body of the user. ($r = 20$ cm)

5.10.4 Test result
Gain group 1 (6 dBi):
WLAN Standard 802.11b, 1 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P14	16.2	6.0	41.69	3.98	0.1660	0.0330	1.0
6	P14	16.4	6.0	43.65	3.98	0.1738	0.0346	1.0
11	P14	15.8	6.0	38.02	3.98	0.1514	0.0301	1.0

WLAN Standard 802.11g, 6 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P14	20.7	6.0	117.49	3.98	0.4677	0.0931	1.0
6	P14	21.1	6.0	128.82	3.98	0.5129	0.1020	1.0
11	P14	20.9	6.0	123.03	3.98	0.4898	0.0974	1.0

WLAN Standard 802.11n, HT20, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P14	21.4	6.0	138.04	3.98	0.5495	0.1093	1.0
6	P14	21.5	6.0	141.25	3.98	0.5623	0.1119	1.0
11	P14	21.4	6.0	138.04	3.98	0.5495	0.1093	1.0

WLAN Standard 802.11n, HT40, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1up	P14	21.6	6.0	144.54	3.98	0.5754	0.1145	1.0

WLAN Standard 802.11a, 6 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149	P20	22.2	6.0	165.96	3.98	0.6607	0.1314	1.0
157	P20	22.1	6.0	162.18	3.98	0.6457	0.1284	1.0
165	P20	22.2	6.0	165.96	3.98	0.6607	0.1314	1.0

WLAN Standard 802.11n, HT20, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149	P20	22.9	6.0	194.98	3.98	0.7762	0.1544	1.0
157	P20	22.6	6.0	181.97	3.98	0.7244	0.1441	1.0
165	P20	22.3	6.0	169.82	3.98	0.6761	0.1345	1.0

WLAN Standard 802.11n, HT40, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149up	P20	22.7	6.0	186.21	3.98	0.7413	0.1475	1.0
157up	P20	22.3	6.0	169.82	3.98	0.6761	0.1345	2.0

Gain group 2 (9 dBi):
WLAN Standard 802.11b, 1 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P11	12.9	9.0	19.50	7.94	0.1549	0.0308	1.0
6	P11	13.1	9.0	20.42	7.94	0.1622	0.0323	1.0
11	P11	12.6	9.0	18.20	7.94	0.1445	0.0288	1.0

WLAN Standard 802.11g, 6 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P11	18.1	9.0	64.57	7.94	0.5129	0.1020	1.0
6	P11	18.3	9.0	67.61	7.94	0.5370	0.1068	1.0
11	P11	17.7	9.0	58.88	7.94	0.4677	0.0931	1.0

WLAN Standard 802.11n, HT20, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P11	18.4	9.0	69.18	7.94	0.5495	0.1093	1.0
6	P11	18.9	9.0	77.62	7.94	0.6166	0.1227	1.0
11	P11	18.1	9.0	64.57	7.94	0.5129	0.1020	1.0

WLAN Standard 802.11n, HT40, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1up	P11	18.7	9.0	74.13	7.94	0.5888	0.1171	1.0

WLAN Standard 802.11a, 6 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149	P14	21.4	9.0	138.04	7.94	1.0965	0.2181	1.0
157	P14	21.5	9.0	141.25	7.94	1.1220	0.2232	1.0
165	P14	21.1	9.0	128.82	7.94	1.0233	0.2036	1.0

WLAN Standard 802.11n, HT20, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149	P14	22.2	9.0	165.96	7.94	1.3183	0.2623	1.0
157	P14	21.9	9.0	154.88	7.94	1.2303	0.2448	1.0
165	P14	21.4	9.0	138.04	7.94	1.0965	0.2181	1.0

WLAN Standard 802.11n, HT40, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149up	P14	21.5	9.0	141.25	7.94	1.1220	0.2232	1.0
157up	P14	21.7	9.0	147.91	7.94	1.1749	0.2337	2.0

Gain group 3 (14 dBi):
WLAN Standard 802.11b, 1 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P8	10.0	14.0	10.00	25.12	0.2512	0.0500	1.0
6	P8	10.1	14.0	10.23	25.12	0.2570	0.0511	1.0
11	P8	9.6	14.0	9.12	25.12	0.2291	0.0456	1.0

WLAN Standard 802.11g, 6 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P8	14.8	14.0	30.20	25.12	0.7586	0.1509	1.0
6	P8	15.1	14.0	32.36	25.12	0.8128	0.1617	1.0
11	P8	14.4	14.0	27.54	25.12	0.6918	0.1376	1.0

WLAN Standard 802.11n, HT20, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1	P8	15.1	14.0	32.36	25.12	0.8128	0.1617	1.0
6	P8	15.4	14.0	34.67	25.12	0.8710	0.1733	1.0
11	P8	15.0	14.0	31.62	25.12	0.7943	0.1580	1.0

WLAN Standard 802.11n, HT40, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
1up	P8	15.5	14.0	35.48	25.12	0.8913	0.1773	1.0

WLAN Standard 802.11a, 6 Mbps, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149	P11	18.6	14.0	72.44	25.12	1.8197	0.3620	1.0
157	P11	18.4	14.0	69.18	25.12	1.7378	0.3457	1.0
165	P11	18.6	14.0	72.44	25.12	1.8197	0.3620	1.0

WLAN Standard 802.11n, HT20, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149	P11	19.2	14.0	83.18	25.12	2.0893	0.4157	1.0
157	P11	18.8	14.0	75.86	25.12	1.9055	0.3791	1.0
165	P11	19.0	14.0	79.43	25.12	1.9953	0.3969	1.0

WLAN Standard 802.11n, HT40, MCS0, 1 TX chain, highest power level

Channel No.	Power	A (dBm)	Antgain (dBi)	A (mW)	G linear	P (W)	S (mW/cm ²)	Limit S _{eq} (mW/cm ²)
149up	P11	19.1	14.0	81.28	25.12	2.0417	0.4062	1.0
157up	P11	18.7	14.0	74.13	25.12	1.8621	0.3705	2.0

Limits for maximum permissible exposure (MPE):

Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm ²)	Averaging time (minutes)
(B) Limits for General Population / Uncontrolled Exposure				
0.3 – 3.0	614	1.63	100	30
3.0 – 30	824/f	2.19/f	180/f ²	30
30 - 300	27.5	0.073	0.2	30
300-1500	---	---	f/1500	30
1500-100000	---	---	1.0	30

f = Frequency in MHz

The requirements are **FULFILLED**.

Remarks:

5.11 Co-location and co-transmission

Applicable standard:

OET Bulletin 65, Edition 97-01, Section 2: Multiple-transmitter sites and Complex Environments

There is only one transmitter, there is no co-location issue.

Remarks:

5.12 Antenna application

5.12.1 Applicable standard

According to FCC Part 15C, Section 15.203:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit that broken antennas can be replaced by the user, but the use of a standard antenna jack is prohibited.

The listed antennas shall be used with the device. The EUT has a SMA connector and has to be professionally installed. All supplied antennas meet the requirements of part 15.203 and 15.204.

5.12.2 Antenna requirements

According to FCC Part 15C, Section 15.247(b)(4):

The conducted output power limit specified in paragraph (b) of 15.247 is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from intentional radiator shall be reduced below the stated values in paragraph (b)(1), (b)(2) and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Defacto EIRP-Limit:

Antenna	Gx	Cond. limit	max. G	A max	Limit P _{out}	Reduction	P set
	(dBi)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)	2.4 GHz
ANT792-8DN	14.0	30.0	6.0	15.5	22.0	-6.5	P8
ANT 795-6DC	9.0	30.0	6.0	18.9	27.0	-8.1	P11
ANT 795-6MN	6.0	30.0	6.0	21.6	30.0	-8.4	P14
ANT 792-6MN	6.0	30.0	6.0	21.6	30.0	-8.4	P14
ANT 792-4DN	4.0	30.0	6.0	21.6	32.0	-10.4	P14
ANT795-4MD	3.0	30.0	6.0	21.6	33.0	-11.4	P14
ANT795-4MC	3.0	30.0	6.0	21.6	33.0	-11.4	P14
ANT 795-4MA	3.0	30.0	6.0	21.6	33.0	-11.4	P14
IWLAN Rcoax 1/2"	0.0	30.0	6.0	21.6	36.0	-14.4	P14

Antenna	Gx	Cond. limit	max. G	A max	Limit P _{out}	Reduction	P set
	(dBi)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)	5 GHz
ANT 793-8DK	14.2	30.0	6.0	15.7	21.8	-6.1	P14
ANT 793-8DJ	13.6	30.0	6.0	15.7	22.4	-6.7	P14
ANT793-8DP	13.5	30.0	6.0	15.7	22.5	-6.8	P14
ANT793-6DG	9	30.0	6.0	18.7	27.0	-8.3	P17
ANT 795-6DC	9	30.0	6.0	18.7	27.0	-8.3	P17
ANT 795-6MN	8	30.0	6.0	18.7	28.0	-9.3	P17
ANT 793-4MN	6	30.0	6.0	19.7	30.0	-10.3	P20
ANT 793-6MN	5	30.0	6.0	19.7	31.0	-11.3	P20
ANT795-4MD	5	30.0	6.0	19.7	31.0	-11.3	P20
ANT795-4MC	5	30.0	6.0	19.7	31.0	-11.3	P20
ANT 795-4MA	5	30.0	6.0	19.7	31.0	-11.3	P20
IWLAN Rcoax 1/2"	0	30.0	6.0	19.7	36.0	-16.3	P20

Remarks: No power reduction results from the de facto limit.

6 USED TEST EQUIPMENT AND ACCESSORIES

All test instruments used are calibrated and verified regularly. The calibration history is available on request.

Test ID	Model Type	Equipment No.	Next Calib.	Last Calib.	Next Verif.	Next Verif.
A 4	ESHS 30	02-02/03-05-002	16/07/2014	16/07/2013		
	ESH 2 - Z 5	02-02/20-05-004	18/10/2015	18/10/2013	18/04/2014	18/10/2013
	KEMA 801	02-02/22-05-016				
	EMV D 30000/PAS	02-02/30-05-006				
	N-4000-BNC	02-02/50-05-138				
	N-1500-N	02-02/50-05-140				
	ESH 3 - Z 2	02-02/50-05-155	10/04/2014	10/10/2013		
CPC 3	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	HM8143	02-02/50-10-016				
MB	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	HM8143	02-02/50-10-016				
SEC 1-3	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	HM8143	02-02/50-10-016				
SER 1	FMZB 1516	01-02/24-01-018	14/02/2014	14/02/2013		
	ESCI	02-02/03-05-005	03/12/2013	03/12/2012		
	S10162-B	02-02/50-05-031				
	KK-EF393-21N-16	02-02/50-05-033				
	NW-2000-NB	02-02/50-05-113				
	VLP-1602 PRO	02-02/50-10-015				
SER 2	ESVS 30	02-02/03-05-006	28/06/2014	28/06/2013		
	VULB 9168	02-02/24-05-005	11/04/2014	11/04/2013	04/03/2014	04/09/2013
	S10162-B	02-02/50-05-031				
	NW-2000-NB	02-02/50-05-113				
	VLP-1602 PRO	02-02/50-10-015				
	KK-EF393/U-16N-21N20 m	02-02/50-12-018				
SER 3	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	JS4-18004000-30-5A	02-02/17-05-017				
	AFS5-12001800-18-10P-6	02-02/17-06-002				
	AFS4-01000400-10-10P-4	02-02/17-13-002				
	AMF-4F-04001200-15-10P	02-02/17-13-003				
	3117	02-02/24-05-009	04/04/2014	04/04/2013		
	BBHA 9170	02-02/24-05-014				
	Sucoflex N-1600-SMA	02-02/50-05-073				
	VLP-1602 PRO	02-02/50-10-015				
	KMS102-0,2 m	02-02/50-11-020				
	SF104/11N/11N/1500MM	02-02/50-13-015				