FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

EMI – TEST REPORT

- FCC Part 15.407 and RSS210 -

Test Report No. : T36325-00-05HS	22 July 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**

Deutsche Akkreditierungsstelle D-PL-12030-01-00

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.

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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

FCC Rules and Regulations Part 15, Subpart E – Unlicensed National Information Infrastructure Devices (September, 2013)

Part 15, Subpart E, Section 15.407	Operation within the bands 5.15 - 5.25 GHz, 5.25 - 5.35 GHz, 5.47 - 5.725 GHz and 5.725 - 5.825 GHz

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.

ET Docket No. 03-122, FCC 06-96	Released June 30, 2006, Memorandum Opinion and Order concerning DFS
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 789033 D01 v03	Guidelines for compliance testing of UNII-Devices – Part 15, Subpart E, 2013-04-08.

2 SUMMARY

2.1 Test result summary

WLAN devices using digital modulation:

Operating in the 5250 MHz – 5350 MHz and 5470 MHz – 5725 MHz band:

FCC Rule Part	RSS Rule Part	Description	Result
15.207(a)	RSS Gen, 7.2.4.	AC power line conducted emissions	passed
15.407(a)		EBW 26 dB	passed
15.407(a)	RSS210, A9.2	Conducted output power and PSD	passed
15.407(a)(6)		Peak excursion	passed
15.407(b)	RSS210, A9.2	Undesirable emissions	passed
15.205(a)	RSS-Gen, 7.2.2	Emissions in restricted bands	passed
15.407(g)	RSS-Gen, 7.2.6	Frequency stability	passed
15.407(f)	RSS210, A9.2	Maximum permissible exposure (MPE)	passed
15.407(h)(1)	RSS210, A9.2	TPC	not applicable
15.407(a)	RSS210, A9.2	Antenna requirement	passed
OET Bulletin 65	RSS102, 3.2	Co-location, Co-transmission	passed
15.111(a)	RSS-Gen, 6.2	Receiver spurious emissions, conducted	not applicable
15.109(a)	RSS-Gen, 6.1	Receiver spurious emissions, radiated	passed
	RSS210, A9.2	OBW 99 %	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 802.11h, n Standard. It supports the 5 GHz frequency band and provides 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

The operation frequency range is 5250 – 5350 MHz and 5470 – 5725 MHz.
Channel plan:
802.11h, n, HT20:

Channel	Frequency (MHz)
52	5260
56	5280
60	5300
64	5320
100	5500
104	5520
108	5540
112	5560
116	5580
120	5600
124	5620
128	5640
132	5660
136	5680
140	5700

802.11n, HT40:

Channel	Frequency (MHz)
52up	5270
60up	5310
100up	5510
108up	5550
116up	5590
124up	5630
132up	5670

Note: The marked channels are not supported in the firmware for US/Canada.

Transmit operating modes

The module use OFDM modulation and is capable to provide following data rates:
- 802.11h 54, 48, 36, 24, 18, 12, 9, 6 Mbps
- 802.11n HT20, MCS 0 – 15
- 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.

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

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, $i_{SS} = 1,...,N_{SS}$
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:

- 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 14.2 dBi

The following antennas shall be used with the EUT:

Number	Manufacturer Number	Characteristic	Model number	Connector	Frequency (GHz)	Gain 2.4GHz (dBi)	Gain 5GHz (dBi)	Cable loss (dB)	Effective gain 5 GHz (dBi)	Group
1	6GK5793-8DK00-0AA0	Directed	**ANT 793-8DK**	2x N-female	5 GHz	--	23	8.8	14.2	9-14 dBi
2	6GK5793-8DJ00-0AA0	Directed	**ANT 793-8D**	2x N-female	5 GHz	--	18	4.4	13.6	9-14 dBi
3	6GK5793-8DP00-0AA0	Directed	**ANT793-8DP**	N-female	5 GHz	--	13.5	0	13.5	9-14 dBi
4	6GK5795-6DC00-0AA0	Wide angle	**ANT 795-6DC**	N-female	2.4 + 5 GHz	9	9	0	9	6-9 dBi
5	6GK5793-6DG00-0AA0	Wide angle	**ANT793-6DG**	2x N-female	5 GHz	--	9	0	9	6-9 dBi
6	6GK5795-6MN10-0AA6	Omni	**ANT 795-6MN**	N-female	2.4 + 5 GHz	6	8	0	8	6-9 dBi
7	6GK5 793-4MN00-0AA6	Omni	**ANT 793-4MN**	N-female	5 GHz	--	6	0	6	0-6 dBi
8	6GK5795-4MD00-0AA3	Omni	**ANT795-4MD**	N-male	2.4 + 5 GHz	3	5	0	5	0-6 dBi
9	6GK5795-4MC00-0AA3	Omni	**ANT795-4MC**	N-male	2.4 + 5 GHz	3	5	0	5	0-6 dBi
10	6GK5795-4MA00-0AA3	Omni	**ANT 795-4MA**	R-SMA male	2.4 + 5 GHz	3	5	0	5	0-6 dBi
11	6GK5793-6MN00-0AA6	Omni	**ANT 793-6MN**	N-female	5 GHz	--	5	0	5	0-6 dBi
12	6XV1875-2D	Omni	**IWLAN Rcoax 1/2"**	N-female	5 GHz	--	0	0	0	0-6 dBi

Note: The directed antenna number 1 may be used only with minimum 10 m antenna cable,
Type 6XV 1875-5CN10 with cable loss 8.8 dB at 5.7 GHz.
The directed antenna number 2 may be used only with minimum 5 m antenna cable,
Type 6XV 1875-5CH50 with cable loss 4.4 dB at 5.7 GHz.

2.3 Final assessment

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

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

Testing commenced on : 05 March 2014

Testing concluded on : 25 March 2014

Checked by:

Klaus Gegenfurtner
I confirm the correctness and Integrity of this documents
2014.07.22 08:00:44 +02'00'

Klaus Gegenfurtner
Teamleader Radio

Tested by:

Hermann Smetana
I am the author of this document
2014.07.22 07:54:19 +02'00'

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
V_{nom}= 110 V
V_{min}= 100 V
V_{max}= 120 V

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 802.11h, b, g, n 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, 801.11h

- 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. It is noted that the expanded measurement uncertainty corresponds to the measurement results from the standard measurement uncertainty multiplied by the coverage factor k = 2. The true value is located in the corresponding interval with a probability of 95 % The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16-4-2 / 11.2003 „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.

4.1 Measurement protocol for FCC and IC

4.1.1 General information

4.1.1.1 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.

4.1.1.2 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.

4.1.1.3 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.

4.2 Determination of worst case measurement conditions

Measurements have been made in all three orthogonal axes and the settings of the EUT were changed to locate at which position and at what setting of the EUT produce the maximum of the emissions. For the further measurement the EUT is set in X position.
The tests are carried out in the following frequency bands:

5.25 - 5.35 GHz and 5.47 - 5.725 GHz

Preliminary tests were performed to find the worst case mode from all possible combinations between available modulations, data rates and small antenna system is determined through pre-scans. The maximum output power depends on used data rate. As worse case the HT20 mode (MCS0 with 1 spatial stream (BW = 20 MHz), 1 TX chain) and HT40 mode (MCS8 with 2 spatial streams (BW = 40 MHz), 1 TX chain) is used.
The EUT is controlled for several tests with special test software used for testing only where continuous signals are needed. For the tests a maximum duty cycle (x) is set.
Following channels and test modes are selected for the final test as listed below:

Technology	Available channels	Tested channels	Modulation	Modulation type	Data rate (Mbps)
802.11h	52 - 140	52, 56, 64 100, 116, 140	OFDM	BPSK	6 (BW=20 MHz)
802.11n, HT20	52 - 140	52, 56, 64 100, 116, 140	OFDM	BPSK	MCS=0 (BW=20 MHz)
802.11n, HT40	52up – 132up	52up, 60up 100up, 108up, 132up	OFDM	BPSK	MCS=8 (BW=40 MHz)

5 TEST CONDITIONS AND RESULTS

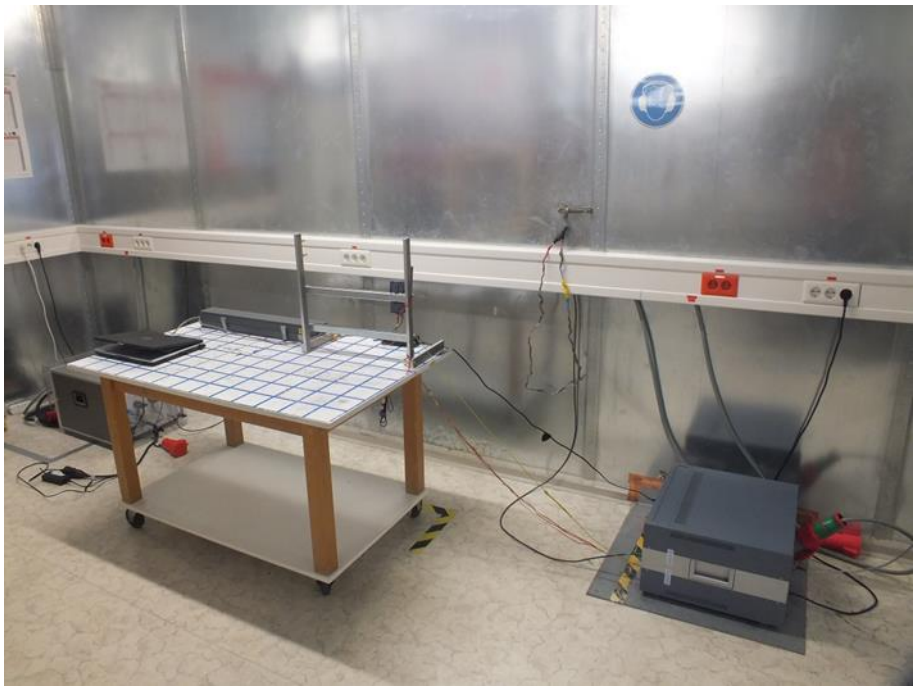
5.1 Conducted emissions

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 limits in the following table.

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

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 50Ω/50 μH (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimetres above the floor and is positioned 40 centimetres from the vertical ground plane (wall) of the screen room. 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 dBμV and μV, the following conversions apply:

dBμV = 20 log μV

μV = 10^(dBμV/20)

5.1.5 Test result

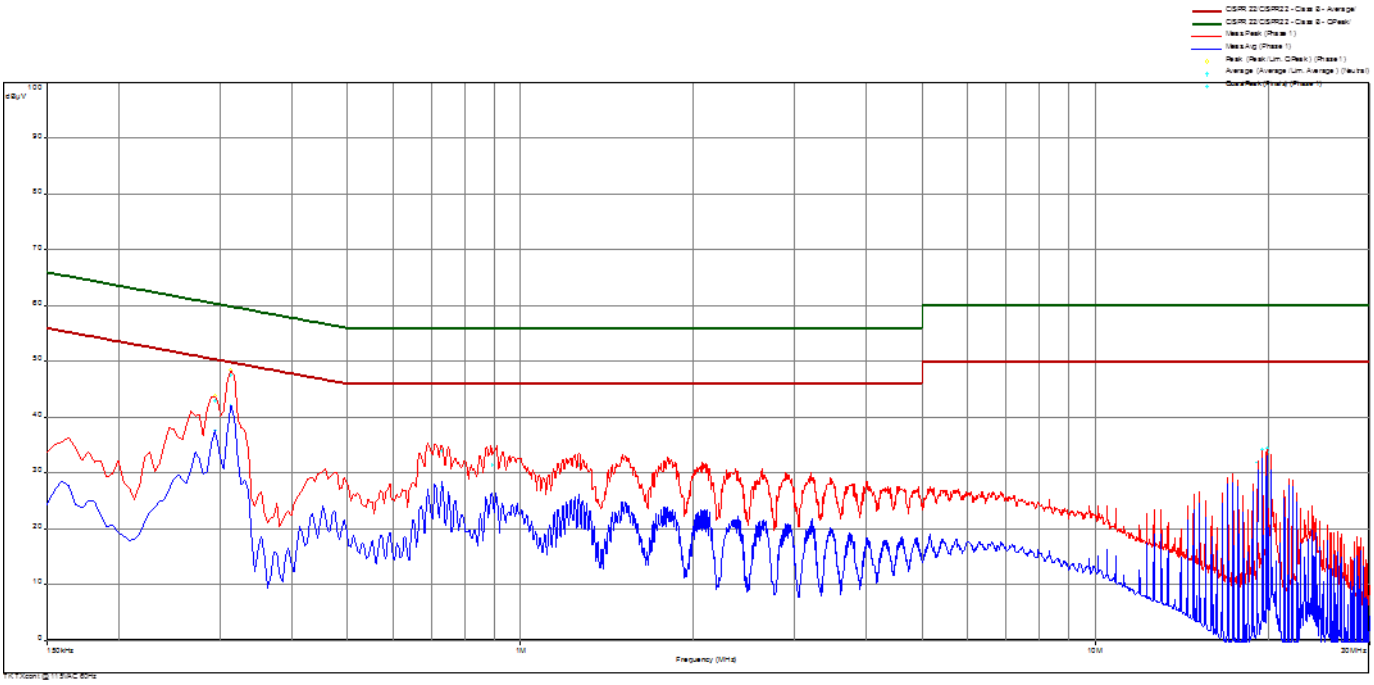
Frequency range:	0.15 MHz - 30 MHz
Min. limit margin	7.6 dB at 0.314 MHz

The requirements are **FULFILLED.**

Remarks: For detailed test result please see following test protocols.

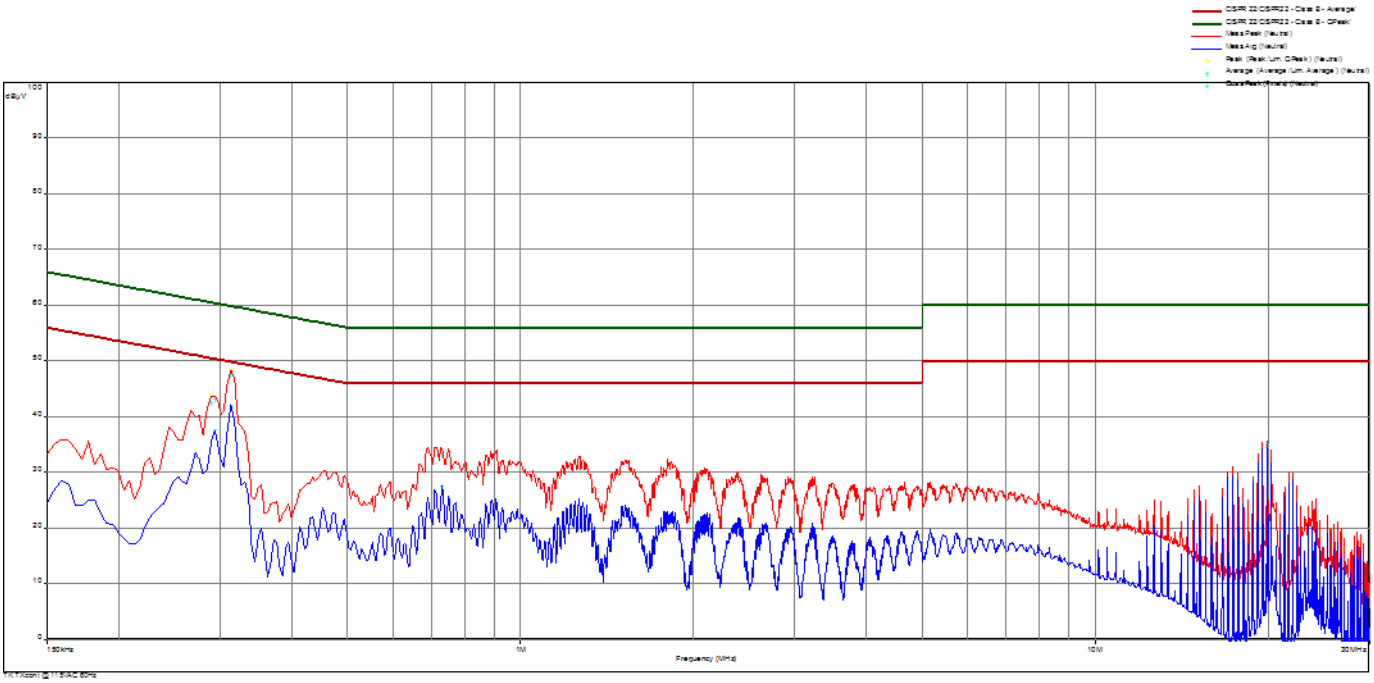
5.1.6 Test protocol

Test point L1 Result: passed
Operation mode: TX continuous mode, 801.11h
Remarks:



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

Test point N Result: passed
Operation mode: TX continuous mode, 801.11h
Remarks:



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

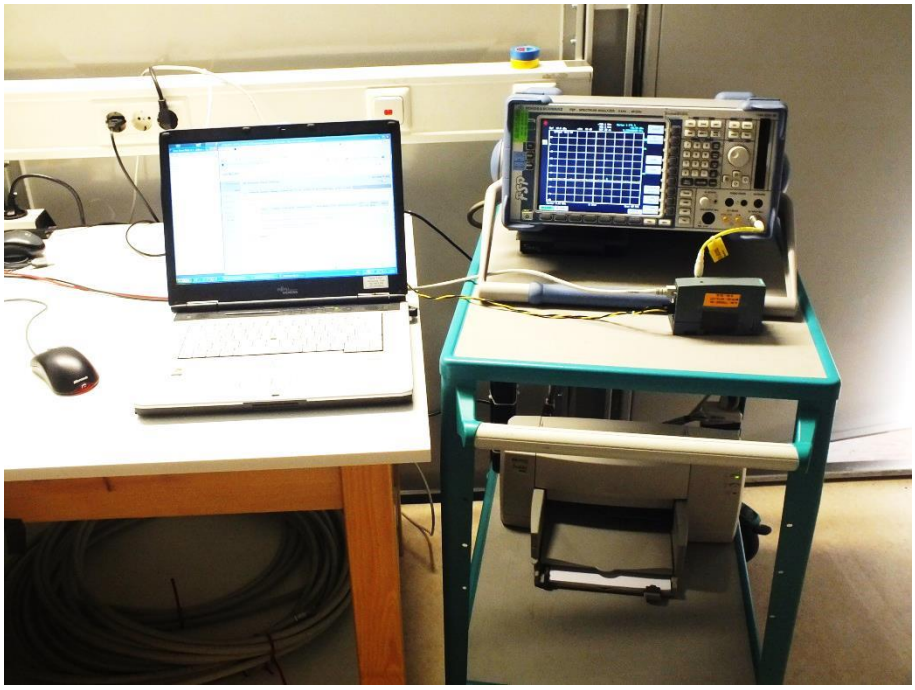
5.2 EBW and OBW

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

5.2.1 Description of the test location

Test location: AREA 4

5.2.2 Photo documentation of the test set-up



5.2.3 Applicable standard

According to FCC Part 15E, Section 15.407(i):
The emission bandwidth shall be determined by measuring the width of the signal between two points, one below the carrier centre frequency and one above the carrier centre frequency, that are 26 dB down relative to the maximum of the modulated carrier.

5.2.4 Description of Measurement

The bandwidth was measured at an amplitude level reduced from the reference level by a specified ratio of -26 dB. The reference level is the level of the highest amplitude of the signal observed from the transmitter frequency. The spectrum analyser function “n-dB-down” is used to determine the bandwidth.

5.2.5 Test result

802.11h:
Spectrum analyser settings: RBW: 300 kHz VBW: 1 MHz Detector: Peak

Channel	Centre frequency	26 dB bandwidth	99% OBW
	(MHz)	(MHz)	(MHz)
52	5260	26.094	17.130
56	5280	26.054	17.175
64	5320	25.974	17.130
100	5500	25.854	17.130
116	5580	24.216	17.085
140	5700	23.137	17.865

802.11n, HT20:
Spectrum analyser settings: RBW: 300 kHz VBW: 1 MHz Detector: Peak

Channel	Centre frequency	26 dB bandwidth	99% OBW
	(MHz)	(MHz)	(MHz)
52	5260	28.092	18.180
56	5280	27.293	18.315
64	5320	27.493	18.255
100	5500	26.174	18.150
116	5580	25.135	18.120
140	5700	24.855	18.105

HT40:
Spectrum analyser settings: RBW: 300 kHz VBW: 1 MHz Detector: Peak

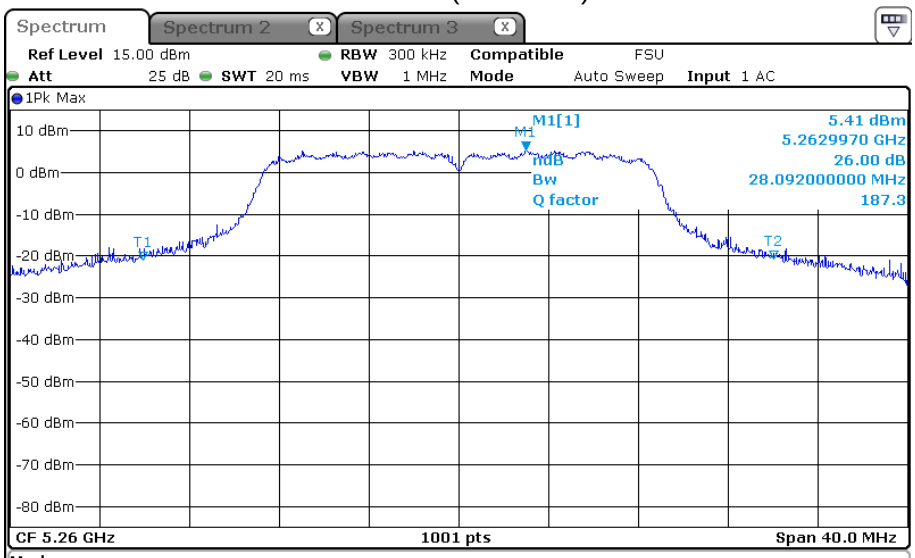
Channel	Centre frequency	26 dB bandwidth	99% OBW
	(MHz)	(MHz)	(MHz)
52up	5270	47.520	37.830
60up	5310	49.800	37.830
100up	5510	46.040	37.800
108up	5550	45.080	37.860
132up	5670	44.040	37.500

Remarks: For detailed test results please see the following test protocols. Only the HT20 and HT40 of the plots are listed.

5.2.6 Test protocol

5.2.6.1 26dB Bandwidth Measurement plots, HT20, Ant1

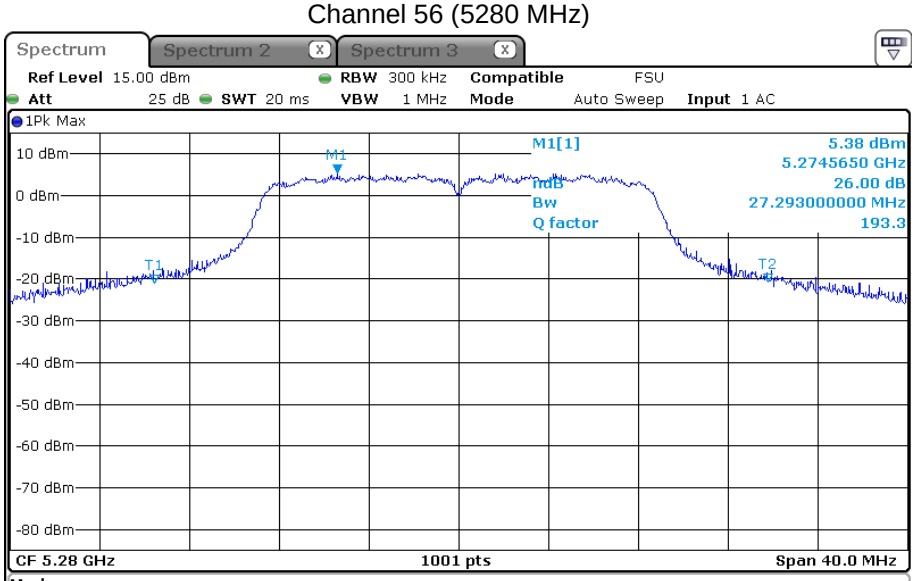
Channel 52 (5260 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.262997 GHz	5.41 dBm	ndB down	28.092 MHz
T1		1	5.245934 GHz	-20.91 dBm	ndB	26.00 dB
T2		1	5.274026 GHz	-20.81 dBm	Q factor	187.3

Channel 56 (5280 MHz)

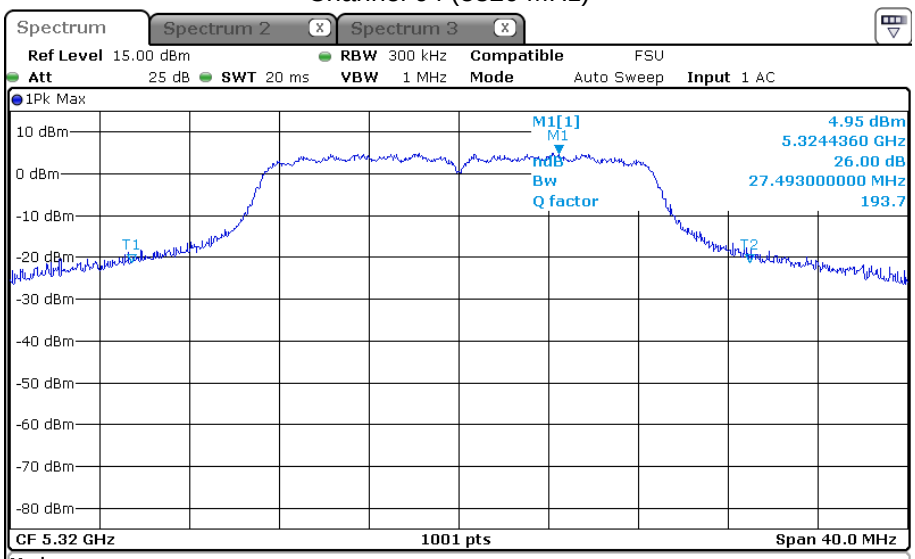


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.274565 GHz	5.38 dBm	ndB down	27.293 MHz
T1		1	5.266454 GHz	-20.93 dBm	ndB	26.00 dB
T2		1	5.293746 GHz	-20.80 dBm	Q factor	193.3

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

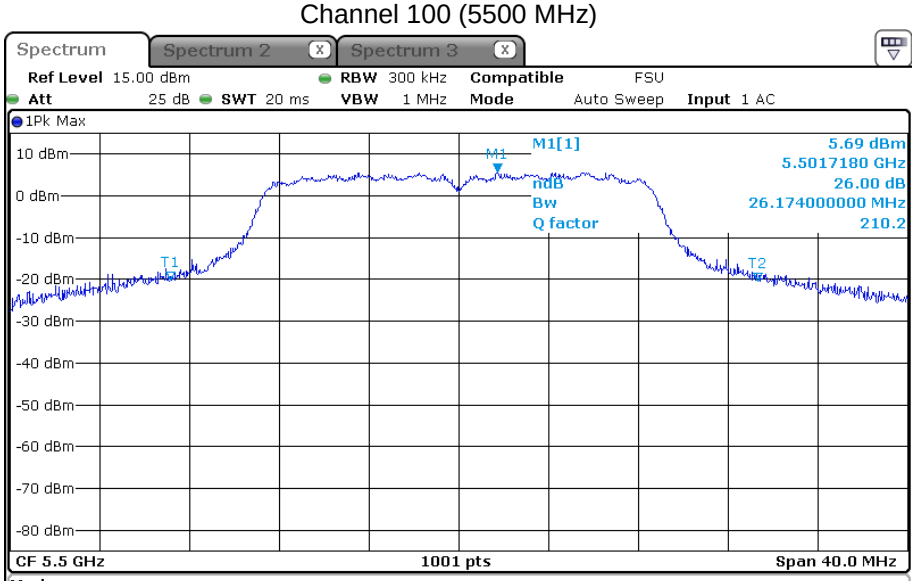
Channel 64 (5320 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.324436 GHz	4.95 dBm	ndB down	27.493 MHz
T1		1	5.305455 GHz	-21.17 dBm	ndB	26.00 dB
T2		1	5.332947 GHz	-21.10 dBm	Q factor	193.7

Channel 100 (5500 MHz)

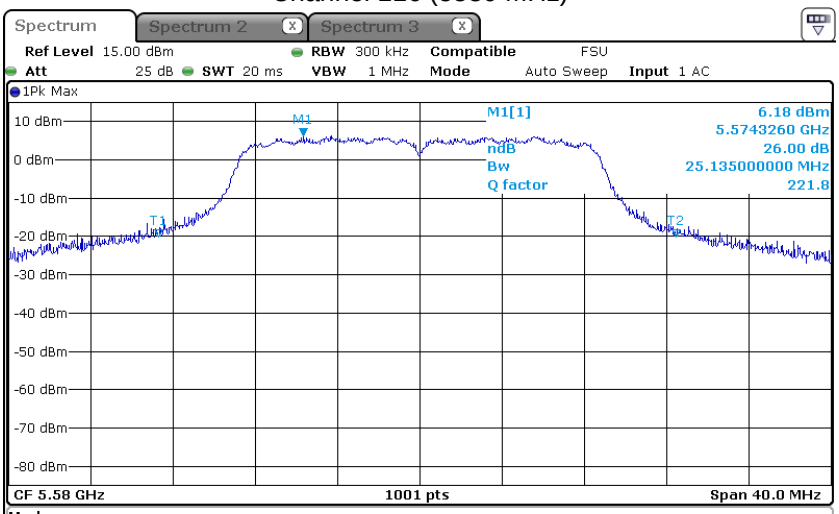


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.501718 GHz	5.69 dBm	ndB down	26.174 MHz
T1		1	5.487133 GHz	-20.20 dBm	ndB	26.00 dB
T2		1	5.513307 GHz	-20.48 dBm	Q factor	210.2

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

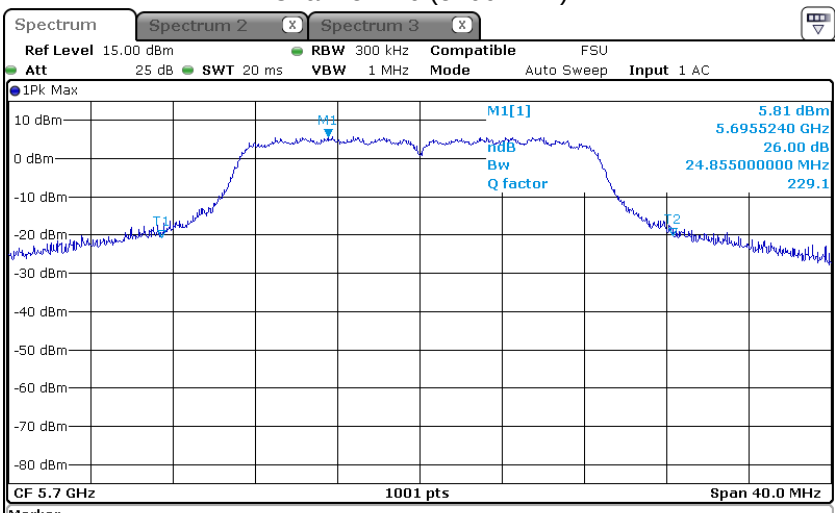
Channel 116 (5580 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.574326 GHz	6.18 dBm	ndB down	25.135 MHz
T1		1	5.567293 GHz	-20.27 dBm	ndB	26.00 dB
T2		1	5.592428 GHz	-20.17 dBm	Q factor	221.8

Channel 140 (5700 MHz)

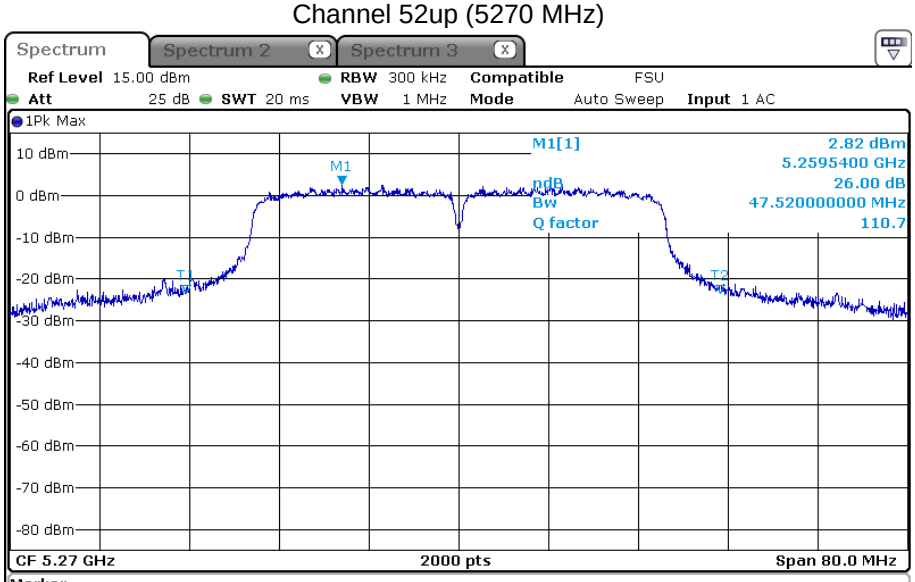


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.695524 GHz	5.81 dBm	ndB down	24.855 MHz
T1		1	5.687453 GHz	-20.58 dBm	ndB	26.00 dB
T2		1	5.712308 GHz	-20.12 dBm	Q factor	229.1

5.2.6.2 26dB Bandwidth Measurement plots, HT40, Ant1

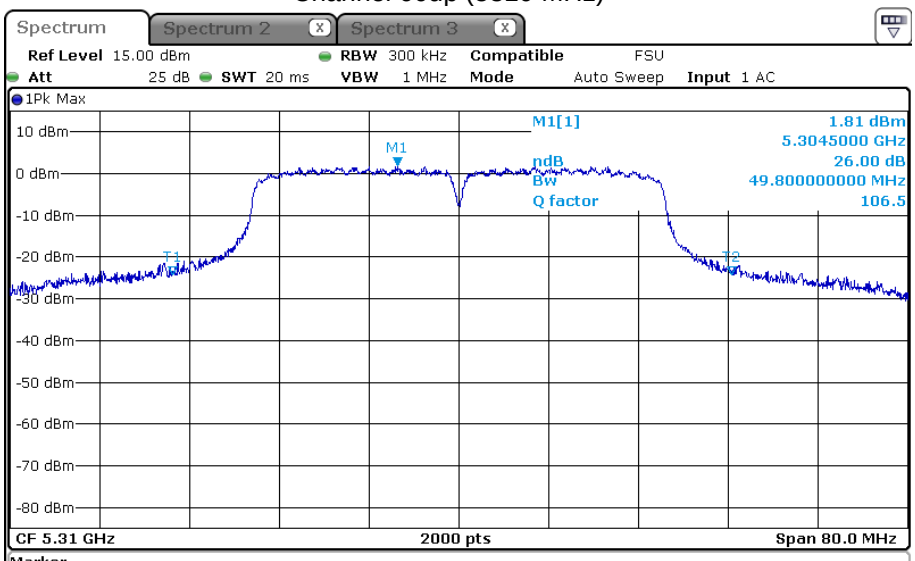
Channel 52up (5270 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.25954 GHz	2.82 dBm	ndB down	47.52 MHz
T1		1	5.24574 GHz	-23.55 dBm	ndB	26.00 dB
T2		1	5.29326 GHz	-23.52 dBm	Q factor	110.7

Channel 60up (5310 MHz)

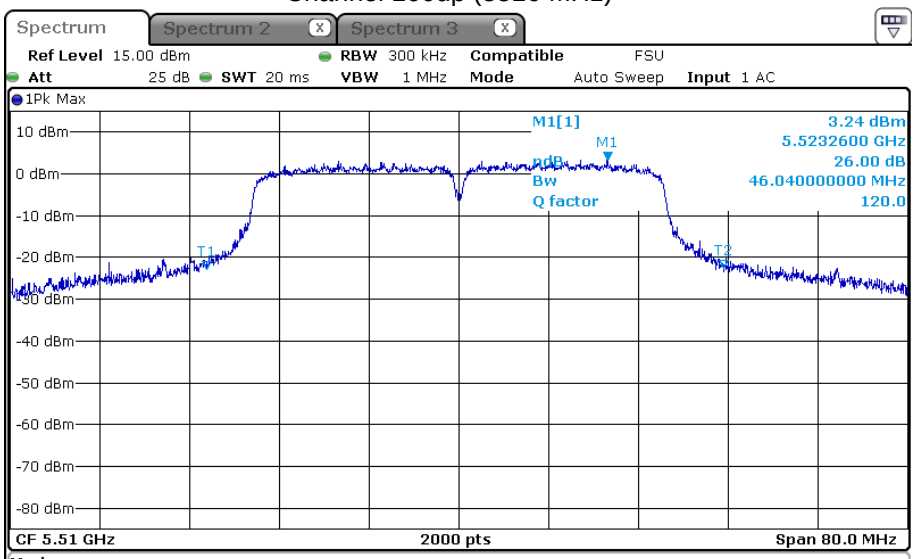


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.3045 GHz	1.81 dBm	ndB down	49.8 MHz
T1		1	5.28454 GHz	-24.26 dBm	ndB	26.00 dB
T2		1	5.33434 GHz	-24.32 dBm	Q factor	106.5

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

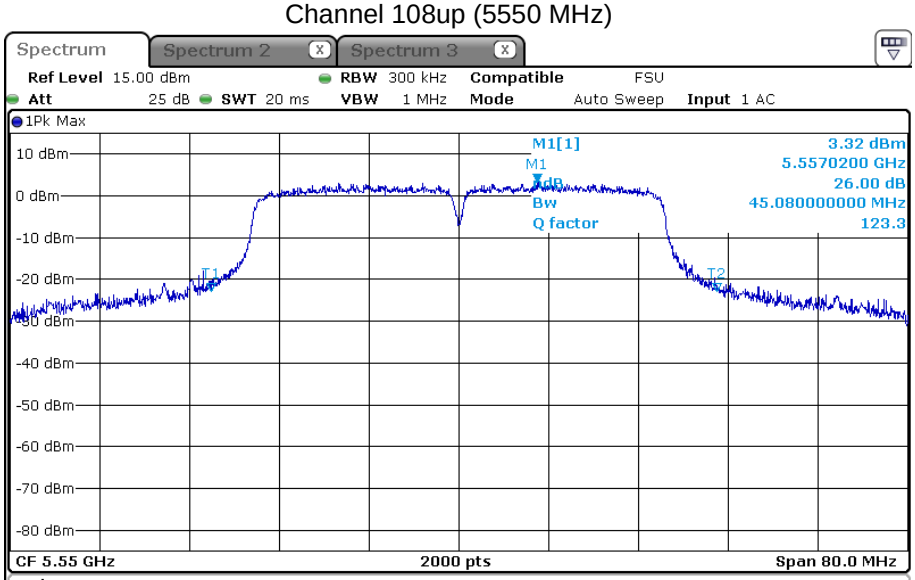
Channel 100up (5510 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.52326 GHz	3.24 dBm	ndB down	46.04 MHz
T1		1	5.4875 GHz	-22.78 dBm	ndB	26.00 dB
T2		1	5.53354 GHz	-22.53 dBm	Q factor	120.0

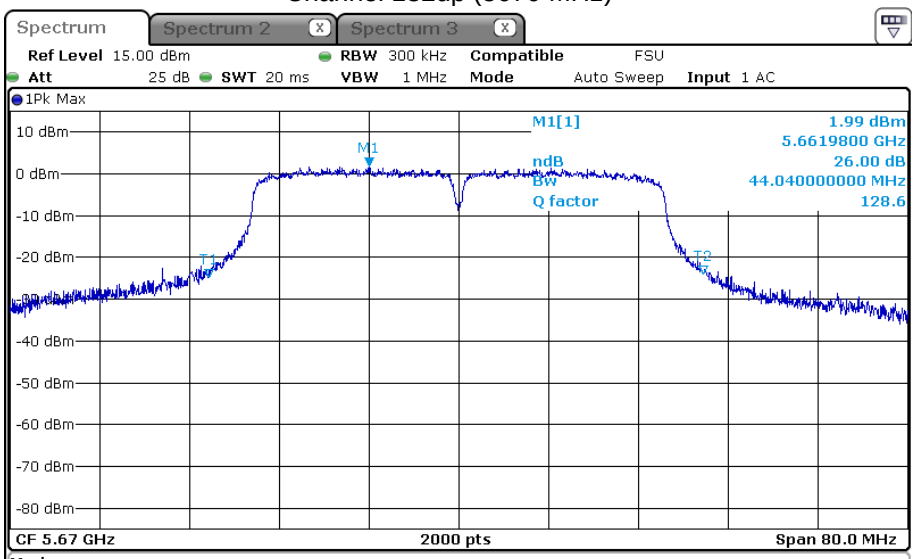
Channel 108up (5550 MHz)



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.55702 GHz	3.32 dBm	ndB down	45.08 MHz
T1		1	5.5279 GHz	-22.95 dBm	ndB	26.00 dB
T2		1	5.57298 GHz	-22.78 dBm	Q factor	123.3

Channel 132up (5670 MHz)

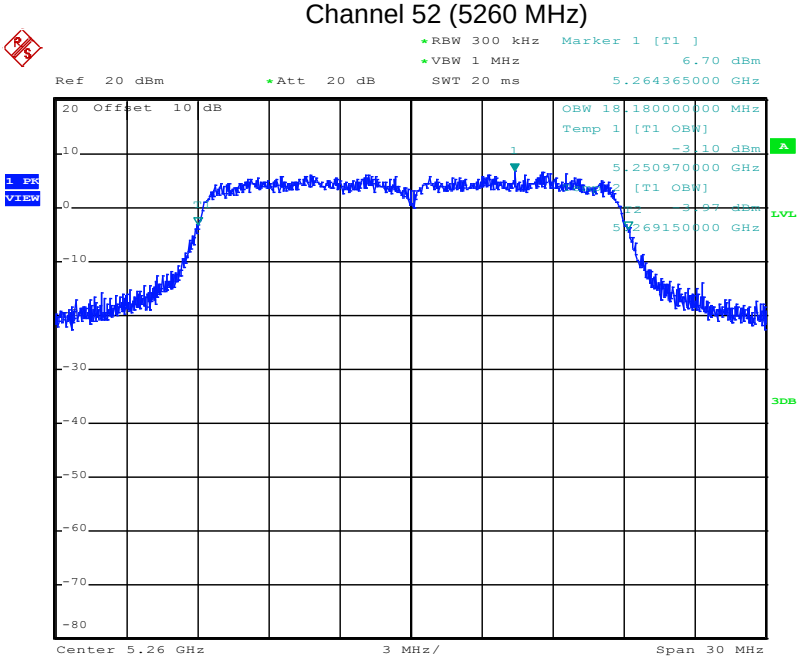


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	5.66198 GHz	1.99 dBm	ndB down	44.04 MHz
T1		1	5.6477 GHz	-24.81 dBm	ndB	26.00 dB
T2		1	5.69174 GHz	-24.03 dBm	Q factor	128.6

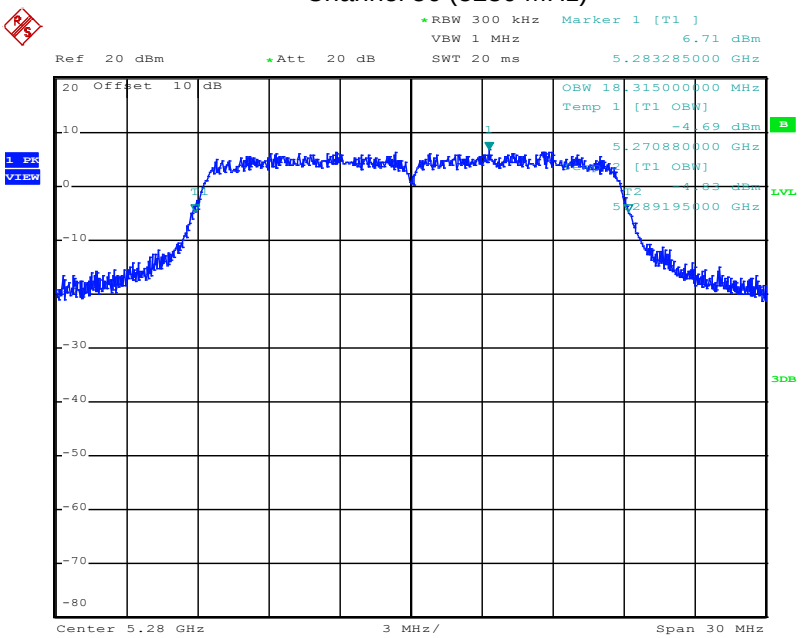
5.2.6.3 OBW Bandwidth Measurement plots, HT20, Ant1

Channel 52 (5260 MHz)

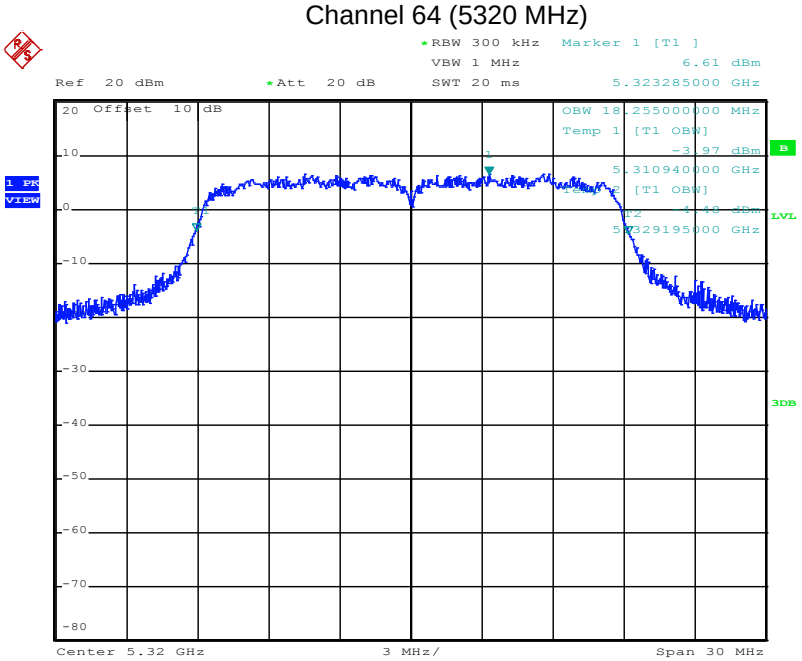


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Channel 56 (5280 MHz)

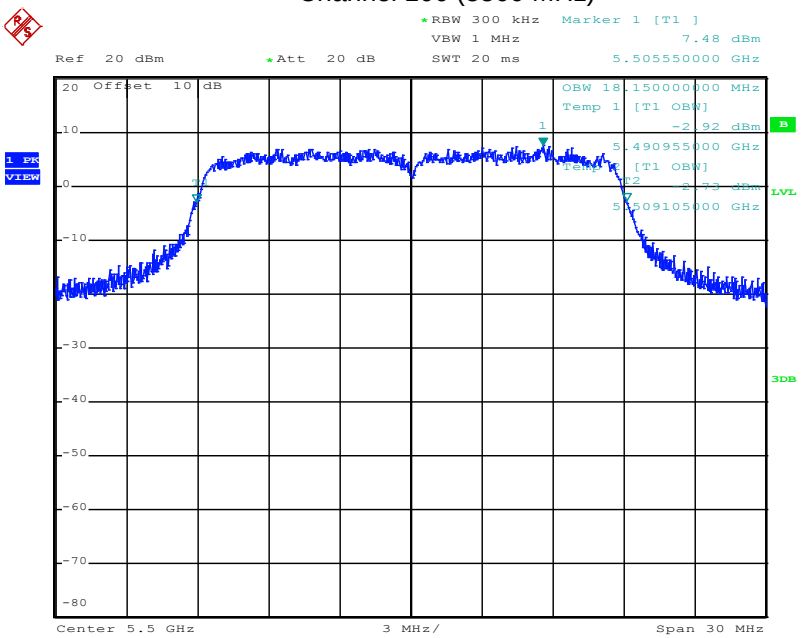


Channel 64 (5320 MHz)

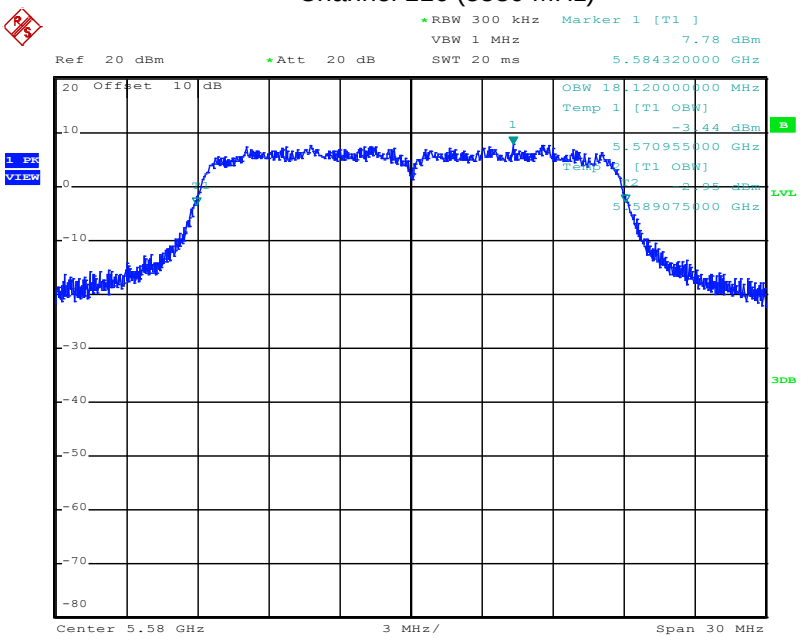


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

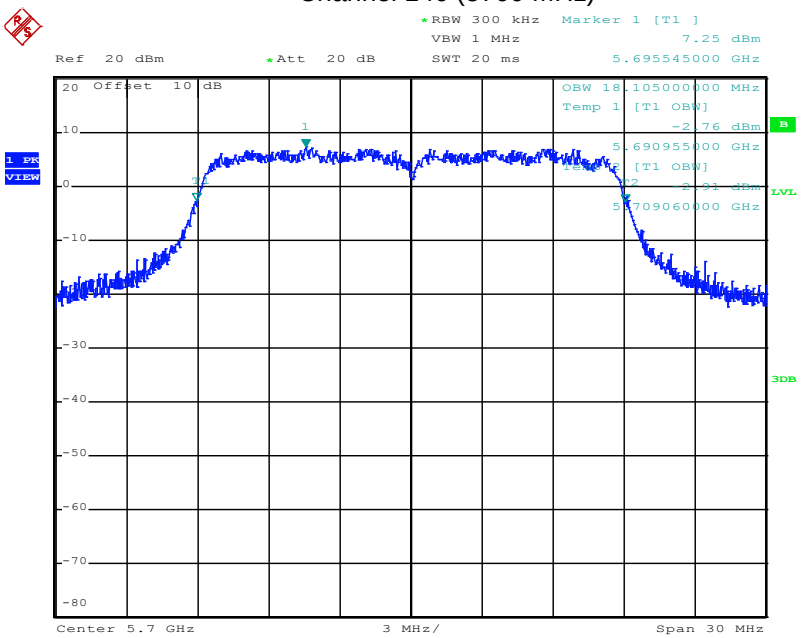
Channel 100 (5500 MHz)



Channel 116 (5580 MHz)

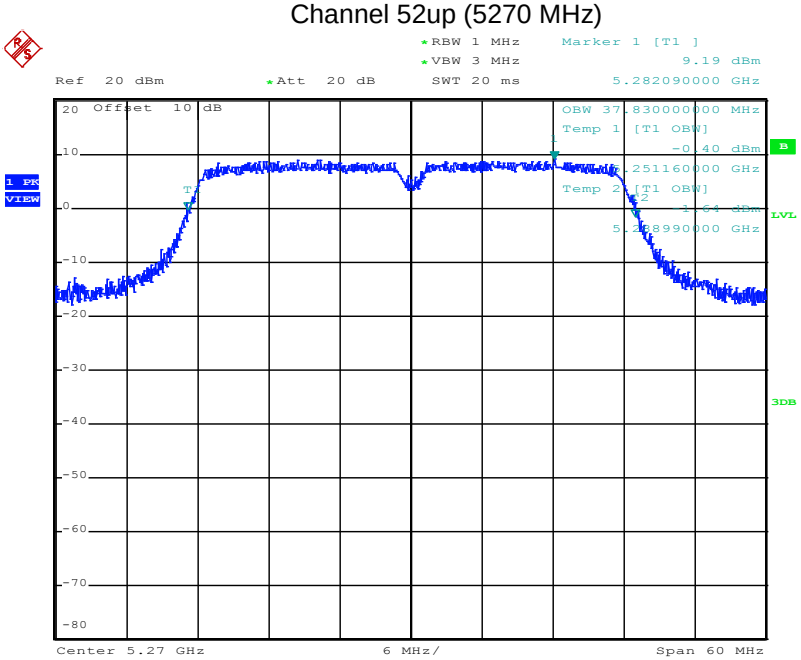


Channel 140 (5700 MHz)



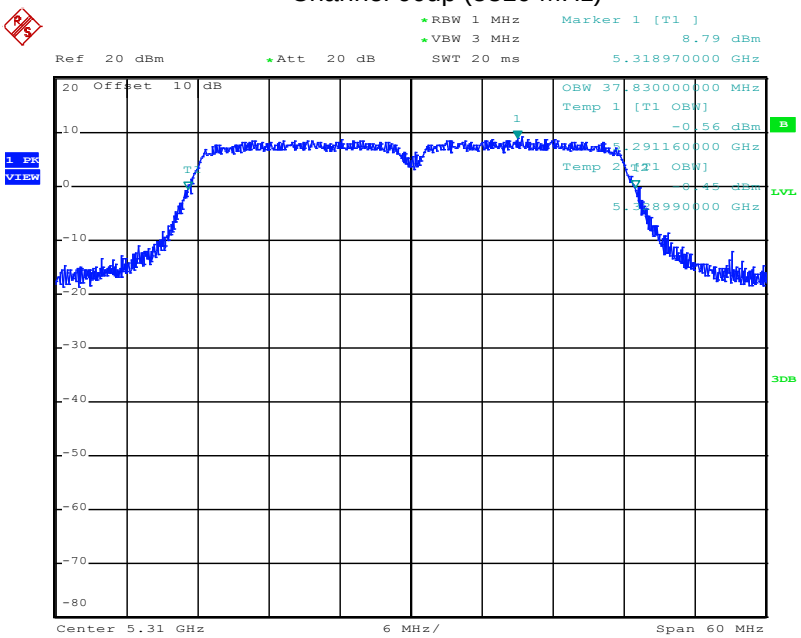
5.2.6.4 OBW Measurement plots, HT40, Ant1

Channel 52up (5270 MHz)

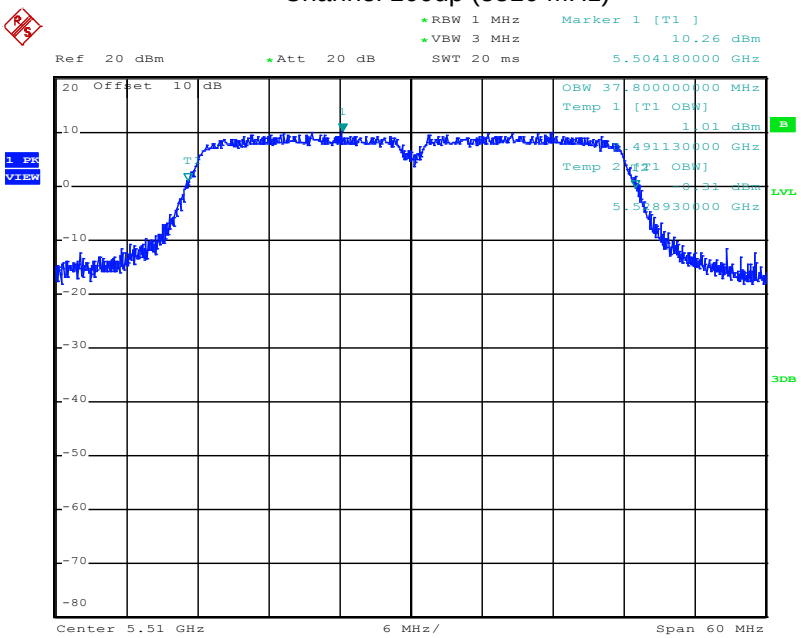


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Channel 60up (5310 MHz)

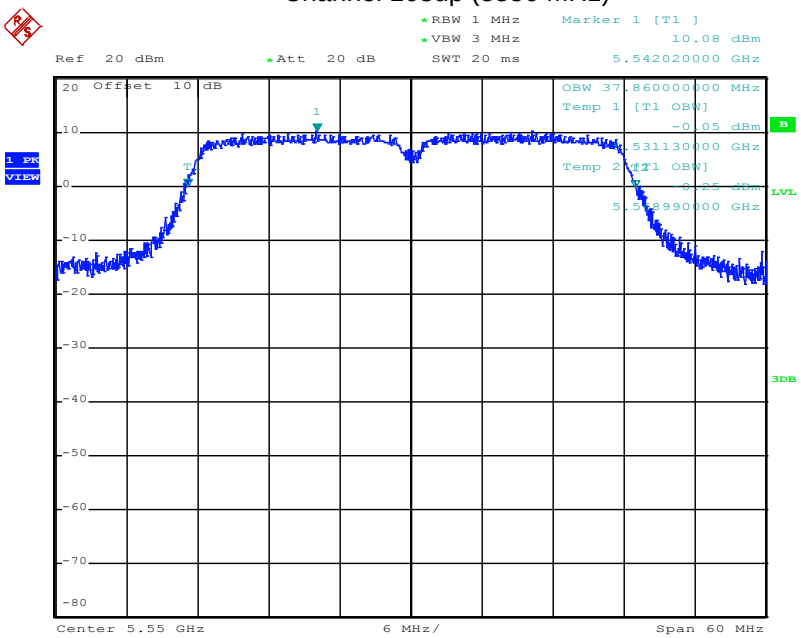


Channel 100up (5510 MHz)

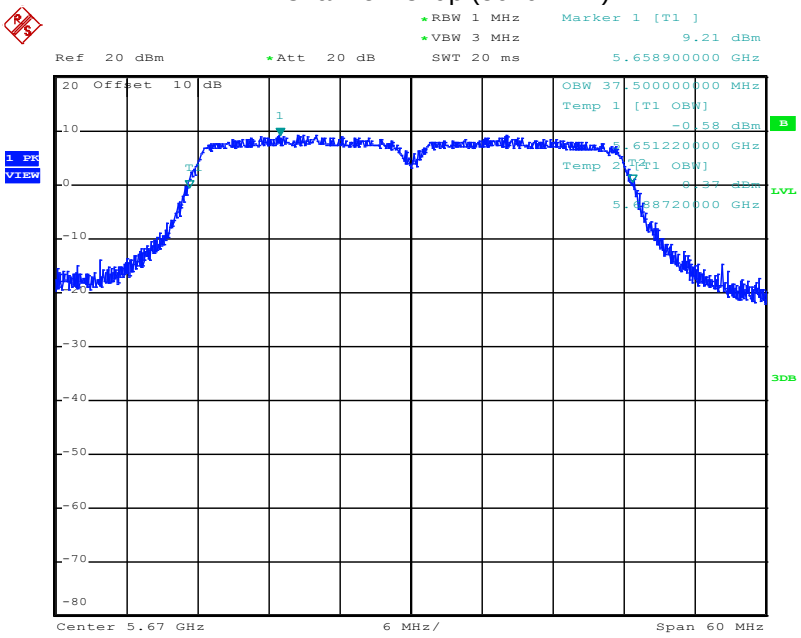


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Channel 108up (5550 MHz)



Channel 132up (5670 MHz)



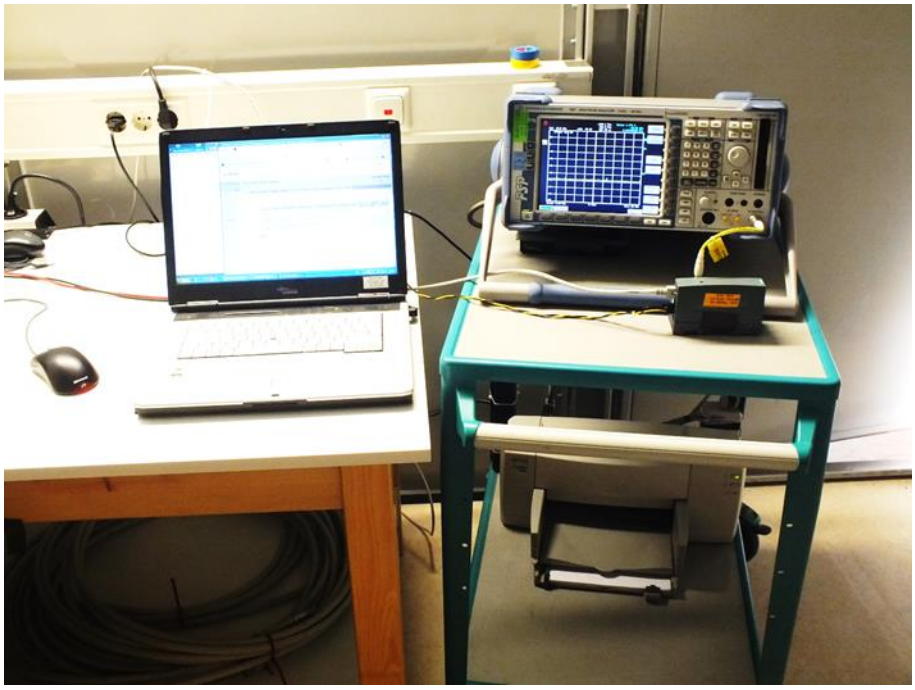
5.3 Maximum conducted output power

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 15E, Section 15.407(a):
The maximum conducted output power over the frequency band of operation shall not exceed the effective values. If transmitting antennas of directional gain are greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.3.4 Description of Measurement

The output power is measured conducted using a spectrum analyser. The EUT has no constant duty cycle and may be smaller than 98% therefore the procedure according the OET 789033; item E g) Method SA-3 Alternative is followed. The EUT is set while measuring in TX continuous mode with a maximum duty cycle. The insertion loss of the measurement cable is taken into account with amplitude offset while measuring. The output power is integrated across the OBW 99 alternatively.

Determination of the min VBW for AV-Measurement:

Transmission duration			
Standard	min puls in TX continuous mode	1/T	min VBW
	(ms)	(Hz)	
801.11a	2.072	483	1 kHz
801.11n, HT20	1.738	575	1 kHz
801.11n, HT40	0.450	2222	3 kHz

Spectrum analyser settings:
Channel power measurement function, TX channel bandwidth equal to OBW;
RBW: 1 MHz, VBW: 1 kHz, Sweep time: auto, Detector: PK, Trace: max hold;

5.3.5 Test result

802.11h:

Test conditions:			
802.11h, Mbps 6:		Test results	
	A [P14]	A [P17]	A [P20]
Channel	(dBm)	(dBm)	(dBm)
52	9.8	11.3	11.4
56	9.8	11.5	11.2
64	9.4	11.0	11.0
100	10.2	12.1	12.0
116	10.8	12.6	12.5
140	10.2	11.9	12.0

Calculating of the conducted power and EIRP:

CH52	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.4	24.0	-12.6	17.4	30.0	-12.6
Ant_group2	P17	9.0	11.3	24.0	-12.7	20.3	30.0	-9.7
Ant_group3	P14	14.2	9.8	24.0	-14.2	24.0	30.0	-6.0

CH56	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.2	24.0	-12.8	17.2	30.0	-12.8
Ant_group2	P17	9.0	11.5	24.0	-12.5	20.5	30.0	-9.5
Ant_group3	P14	14.2	9.8	24.0	-14.3	24.0	30.0	-6.1

CH64	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.0	24.0	-13.1	17.0	30.0	-13.1
Ant_group2	P17	9.0	11.0	24.0	-13.0	20.0	30.0	-10.0
Ant_group3	P14	14.2	9.4	24.0	-14.6	23.6	30.0	-6.4

CH100	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	12.0	24.0	-12.0	18.0	30.0	-12.0
Ant_group2	P17	9.0	12.1	24.0	-11.9	21.1	30.0	-8.9
Ant_group3	P14	14.2	10.2	24.0	-13.8	24.4	30.0	-5.6

CH116	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	12.5	24.0	-11.5	18.5	30.0	-11.5
Ant_group2	P17	9.0	12.6	24.0	-11.4	21.6	30.0	-8.4
Ant_group3	P14	14.2	10.8	24.0	-13.2	25.0	30.0	-5.0

CH140	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	12.0	24.0	-12.0	18.0	30.0	-12.0
Ant_group2	P17	9.0	11.9	24.0	-12.1	20.9	30.0	-9.1
Ant_group3	P14	14.2	10.2	24.0	-13.9	24.4	30.0	-5.7

802.11n, HT20:

Test conditions:			
801.11n, HT20, MCS0:		Test results	
	A [P14]	A [P17]	A [P20]
Channel	(dBm)	(dBm)	(dBm)
52	9.580	11.300	11.310
56	9.380	11.090	11.070
64	9.140	10.720	10.800
100	9.930	11.650	11.670
116	10.320	12.190	12.190
140	9.790	11.260	11.480

Calculating of the conducted power and EIRP:

CH52, HT20	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.3	24.0	-12.7	17.3	30.0	-12.7
Ant_group2	P17	9.0	11.3	24.0	-12.7	20.3	30.0	-9.7
Ant_group3	P14	14.2	9.6	24.0	-14.4	23.8	30.0	-6.2

CH56, HT20	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.1	24.0	-12.9	17.1	30.0	-12.9
Ant_group2	P17	9.0	11.1	24.0	-12.9	20.1	30.0	-9.9
Ant_group3	P14	14.2	9.4	24.0	-14.6	23.6	30.0	-6.4

CH64, HT20	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	10.8	24.0	-13.2	16.8	30.0	-13.2
Ant_group2	P17	9.0	10.7	24.0	-13.3	19.7	30.0	-10.3
Ant_group3	P14	14.2	9.1	24.0	-14.9	23.3	30.0	-6.7

CH100, HT20	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.7	24.0	-12.3	17.7	30.0	-12.3
Ant_group2	P17	9.0	11.7	24.0	-12.4	20.7	30.0	-9.4
Ant_group3	P14	14.2	9.9	24.0	-14.1	24.1	30.0	-5.9

CH116, HT20	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	12.2	24.0	-11.8	18.2	30.0	-11.8
Ant_group2	P17	9.0	12.2	24.0	-11.8	21.2	30.0	-8.8
Ant_group3	P14	14.2	10.3	24.0	-13.7	24.5	30.0	-5.5

CH140, HT20	Test results							
	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.5	24.0	-12.5	17.5	30.0	-12.5
Ant_group2	P17	9.0	11.3	24.0	-12.7	20.3	30.0	-9.7
Ant_group3	P14	14.2	9.8	24.0	-14.2	24.0	30.0	-6.0

HT40:

Test conditions:			
801.11n, HT40, MCS8:		Test results	
	A [P14]	A [P17]	A [P20]
Channel	(dBm)	(dBm)	(dBm)
52up	7.610	9.320	10.890
60up	7.200	8.840	10.620
100up	8.380	10.090	12.530
108up	8.110	9.950	11.800
132up	7.540	9.280	11.810

Calculating of the conducted power and EIRP:

CH52up	Test results							
Duty cycle: max	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	10.9	24.0	-13.1	16.9	30.0	-13.1
Ant_group2	P17	9.0	9.3	24.0	-14.7	18.3	30.0	-11.7
Ant_group3	P14	14.2	7.6	24.0	-16.4	21.8	30.0	-8.2

CH60up	Test results							
Duty cycle: max	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	10.6	24.0	-13.4	16.6	30.0	-13.4
Ant_group2	P17	9.0	8.8	24.0	-15.2	17.8	30.0	-12.2
Ant_group3	P14	14.2	7.2	24.0	-16.8	21.4	30.0	-8.6

CH100up	Test results							
Duty cycle: max	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	12.5	24.0	-11.5	18.5	30.0	-11.5
Ant_group2	P17	9.0	10.1	24.0	-13.9	19.1	30.0	-10.9
Ant_group3	P14	14.2	8.4	24.0	-15.6	22.6	30.0	-7.4

CH108up	Test results							
Duty cycle: max	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.8	24.0	-12.2	17.8	30.0	-12.2
Ant_group2	P17	9.0	10.0	24.0	-14.1	19.0	30.0	-11.1
Ant_group3	P14	14.2	8.1	24.0	-15.9	22.3	30.0	-7.7

CH132up	Test results							
Duty cycle: max	P set	Ant gain	A	Limit	Margin	EIRP	Limit	Margin
		(dBi)	(dBm)	(dBm)	(dB)	(dBm)	(dBm)	(dB)
Ant_group1	P20	6.0	11.8	24.0	-12.2	17.8	30.0	-12.2
Ant_group2	P17	9.0	9.3	24.0	-14.7	18.3	30.0	-11.7
Ant_group3	P14	14.2	7.5	24.0	-16.5	21.7	30.0	-8.3

Peak power limit according to FCC Part 15E, Section 15.407(a):

Frequency	Conducted power limit		
(GHz)		(dBm)	(dBm)
5.250 - 5.350	Legacy, 4 + 10 log B =	25.2	24.0
	HT20, 11 + 10 log B =	25.5	24.0
	HT40, 11 + 10 log B =	28.0	24.0
5.470 - 5.725	Legacy, 4 + 10 log B =	25.1	24.0
	HT20, 11 + 10 log B =	25.5	24.0
	HT40, 11 + 10 log B =	27.6	24.0

Note: The lower limit applies!

The requirements are **FULFILLED.**

Remarks: _____

_____

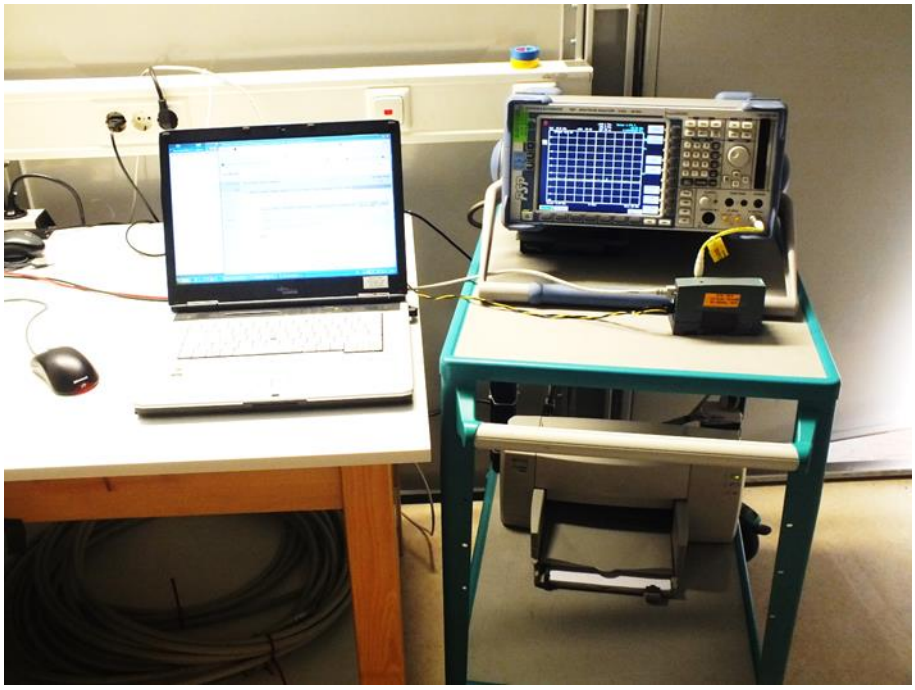
5.4 Peak power spectral density

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 15E, Section 15.407(a):
For the defined operating bands the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than the appropriate limit in any 1 MHz band during any time interval of continuous transmission.

5.4.4 Description of Measurement

The bandwidth is measured conducted using a spectrum analyser and following the procedures according the OET 789033, item F. Since the method SA-3 alternative was used for channel power the spectrum analyser settings are the same as under item F)g). The marker function “Marker to max” is used to set at peak power spectral density.

Spectrum analyser settings:
Channel power measurement function, TX channel bandwidth equal to OBW;
RBW: 1 MHz, VBW: 1 kHz, Sweep time: auto, Detector: PK, Trace: max hold;

5.4.5 Test result

802.11h:

Test conditions: 801.11h, Mbps 6, conducted								
	Test results							
	Power setting	D	PPSD limit	Margin	Ant gain	EIRP PPSD	EIRP PPSD limit	Margin
Channel		(dBm/MHz)	(dBm/MHz)	(dB)	(dBi)	(dBm/MHz)	(dBm/MHz)	(dB)
CH52	P14	-1.4	11	-12.4	14.2	12.8	17.0	-4.2
	P17	0.0	11	-11.0	9.0	9.0	17.0	-8.0
	P20	0.0	11	-11.0	6.0	6.0	17.0	-11.0
CH56	P14	-1.6	11	-12.6	14.2	12.7	17.0	-4.4
	P17	0.1	11	-10.9	9.0	9.1	17.0	-7.9
	P20	0.0	11	-11.0	6.0	6.0	17.0	-11.0
CH64	P14	-1.9	11	-12.9	14.2	12.3	17.0	-4.7
	P17	-0.3	11	-11.3	9.0	8.7	17.0	-8.3
	P20	-0.5	11	-11.5	6.0	5.6	17.0	-11.5
CH100	P14	-1.1	11	-12.1	14.2	13.2	17.0	-3.9
	P17	0.8	11	-10.2	9.0	9.8	17.0	-7.2
	P20	0.7	11	-10.3	6.0	6.7	17.0	-10.3
CH116	P14	-0.7	11	-11.7	14.2	13.5	17.0	-3.5
	P17	1.3	11	-9.7	9.0	10.3	17.0	-6.7
	P20	1.1	11	-9.9	6.0	7.1	17.0	-9.9
CH140	P14	-1.1	11	-12.1	14.2	13.1	17.0	-3.9
	P17	0.2	11	-10.8	9.0	9.2	17.0	-7.8
	P20	0.7	11	-10.3	6.0	6.7	17.0	-10.3

802.11n, HT20:

Test conditions: HT20, MCS0, conducted								
	Test results							
	Power setting	D	PPSD limit	Margin	Ant gain	EIRP PPSD	EIRP PPSD limit	Margin
Channel		(dBm/MHz)	(dBm/MHz)	(dB)	(dBi)	(dBm/MHz)	(dBm/MHz)	(dB)
CH52	P14	-1.8	11	-12.8	14.2	12.5	17.0	-4.6
	P17	-0.1	11	-11.1	9.0	8.9	17.0	-8.1
	P20	-0.1	11	-11.1	6.0	5.9	17.0	-11.1
CH56	P14	-2.1	11	-13.1	14.2	12.1	17.0	-4.9
	P17	-0.4	11	-11.4	9.0	8.6	17.0	-8.4
	P20	-0.4	11	-11.4	6.0	5.6	17.0	-11.4
CH64	P14	-2.3	11	-13.3	14.2	11.9	17.0	-5.1
	P17	-0.8	11	-11.8	9.0	8.2	17.0	-8.8
	P20	-0.6	11	-11.6	6.0	5.4	17.0	-11.6
CH100	P14	-1.5	11	-12.5	14.2	12.7	17.0	-4.3
	P17	0.4	11	-10.7	9.0	9.4	17.0	-7.7
	P20	0.3	11	-10.8	6.0	6.3	17.0	-10.8
CH116	P14	-1.1	11	-12.1	14.2	13.1	17.0	-3.9
	P17	0.8	11	-10.2	9.0	9.8	17.0	-7.2
	P20	0.8	11	-10.3	6.0	6.8	17.0	-10.3
CH140	P14	-1.7	11	-12.7	14.2	12.5	17.0	-4.5
	P17	-0.1	11	-11.1	9.0	8.9	17.0	-8.1
	P20	0.0	11	-11.0	6.0	6.0	17.0	-11.0

HT40:

Test conditions: HT40, MCS8, conducted								
	Test results							
	Power setting	D	PPSD limit	Margin	Ant gain	EIRP PPSD	EIRP PPSD limit	Margin
Channel		(dBm/MHz)	(dBm/MHz)	(dB)	(dBi)	(dBm/MHz)	(dBm/MHz)	(dB)
CH52up	P14	-6.6	11	-17.6	14.2	7.7	17.0	-9.4
	P17	-5.1	11	-16.1	9.0	3.9	17.0	-13.1
	P20	-5.1	11	-16.1	6.0	0.9	17.0	-16.1
CH60up	P14	-7.1	11	-18.1	14.2	7.1	17.0	-9.9
	P17	-5.5	11	-16.5	9.0	3.5	17.0	-13.5
	P20	-5.4	11	-16.4	6.0	0.6	17.0	-16.4
CH100up	P14	-6.0	11	-17.0	14.2	8.2	17.0	-8.8
	P17	-4.1	11	-15.1	9.0	4.9	17.0	-12.1
	P20	-4.1	11	-15.1	6.0	1.9	17.0	-15.1
CH108up	P14	-6.3	11	-17.3	14.2	7.9	17.0	-9.1
	P17	-4.4	11	-15.4	9.0	4.6	17.0	-12.4
	P20	-4.7	11	-15.7	6.0	1.3	17.0	-15.7
CH132up	P14	-6.8	11	-17.8	14.2	7.4	17.0	-9.6
	P17	-4.9	11	-15.9	9.0	4.1	17.0	-12.9
	P20	-5.1	11	-16.1	6.0	0.9	17.0	-16.1

Peak power limit according to FCC Part 15E, Section 15.407(a):

Frequency	**Peak power spectral density limit**	**EIRP PPSD limit**
(GHz)	(dBm/MHz)	(dBm/MHz)
5.250 - 5.350	11	17
5.470 - 5.725	11	17

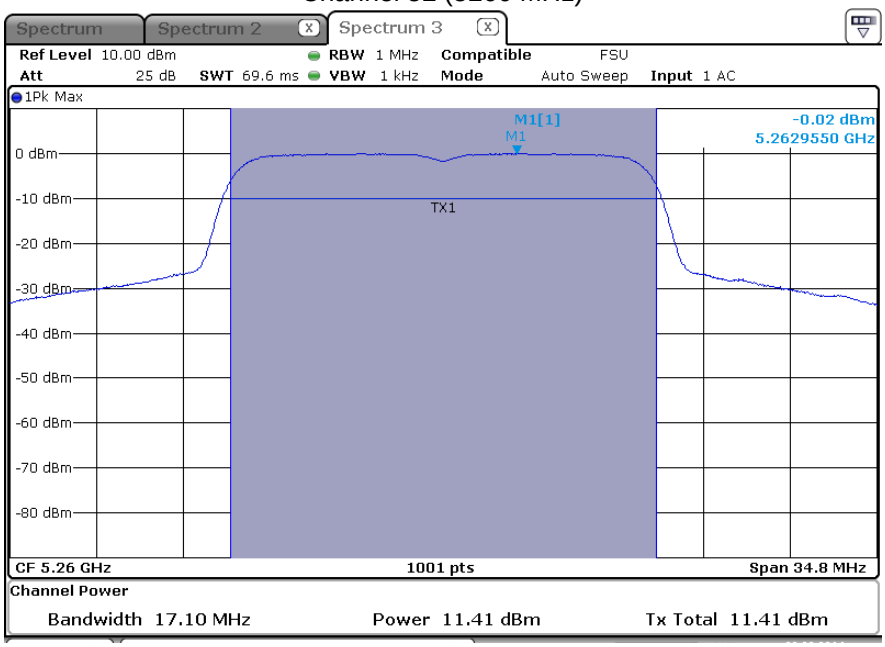
The requirements are **FULFILLED.**

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

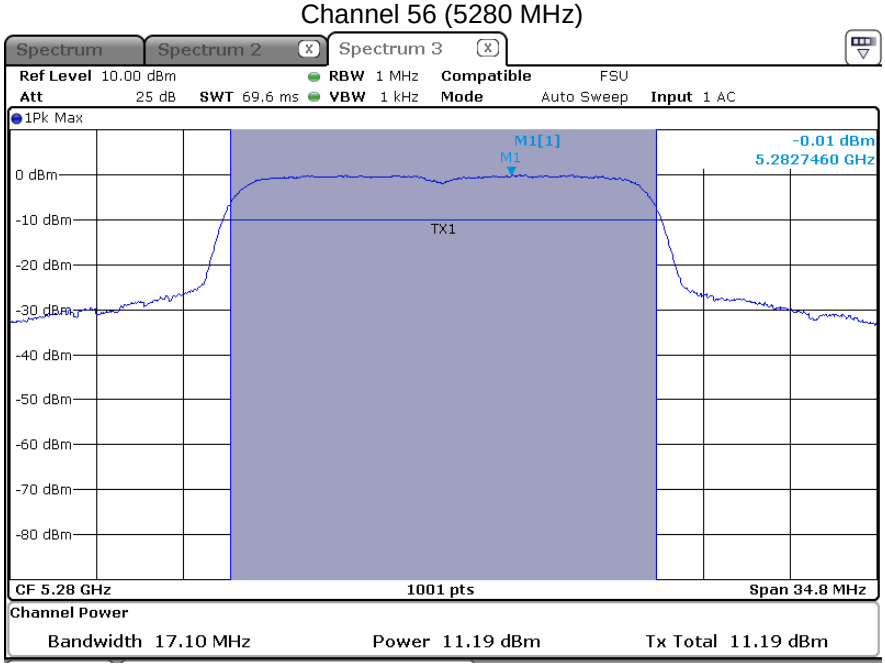
5.4.6 Peak Power spectral density plots

802.11h, P20:

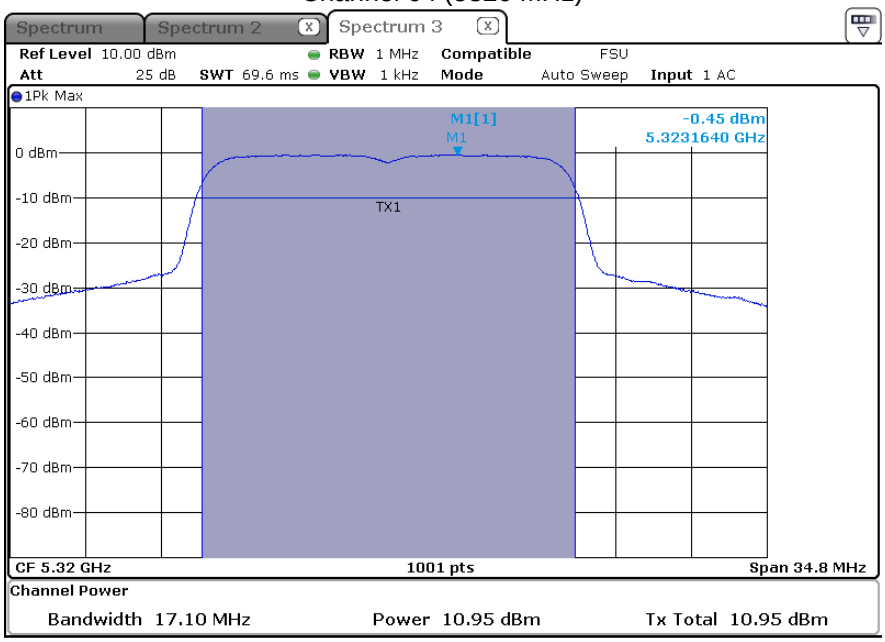
Channel 52 (5260 MHz)



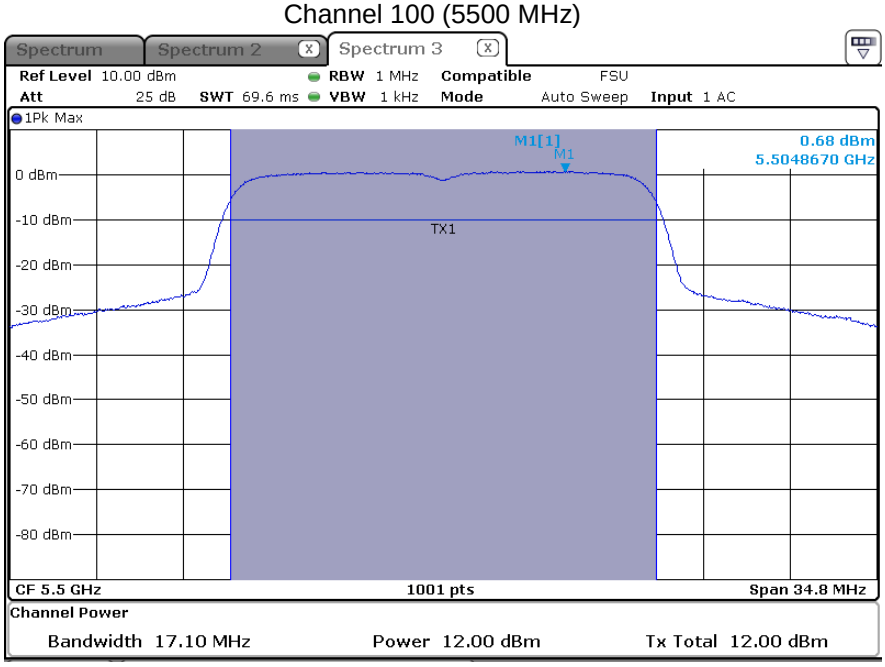
Channel 56 (5280 MHz)



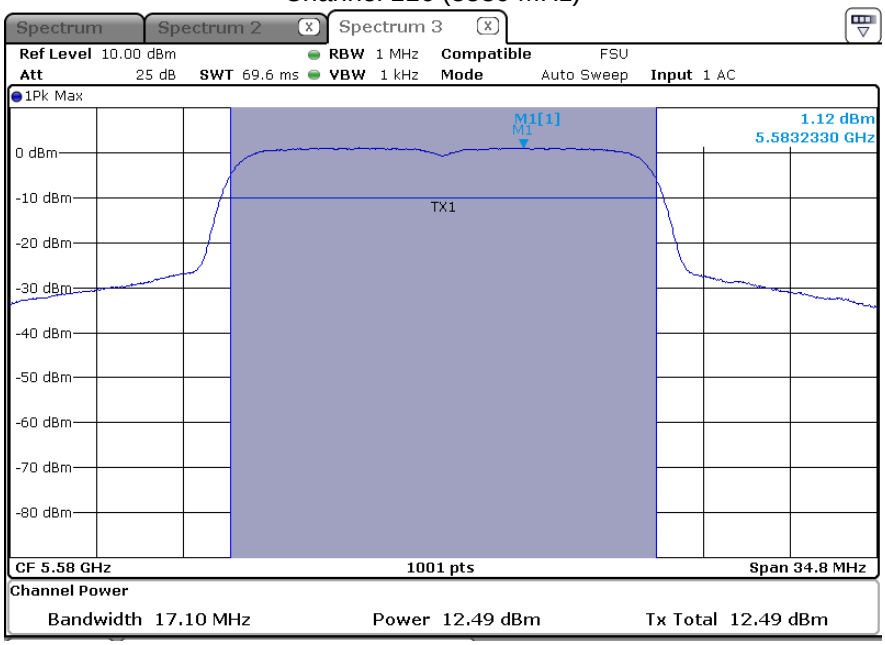
Channel 64 (5320 MHz)



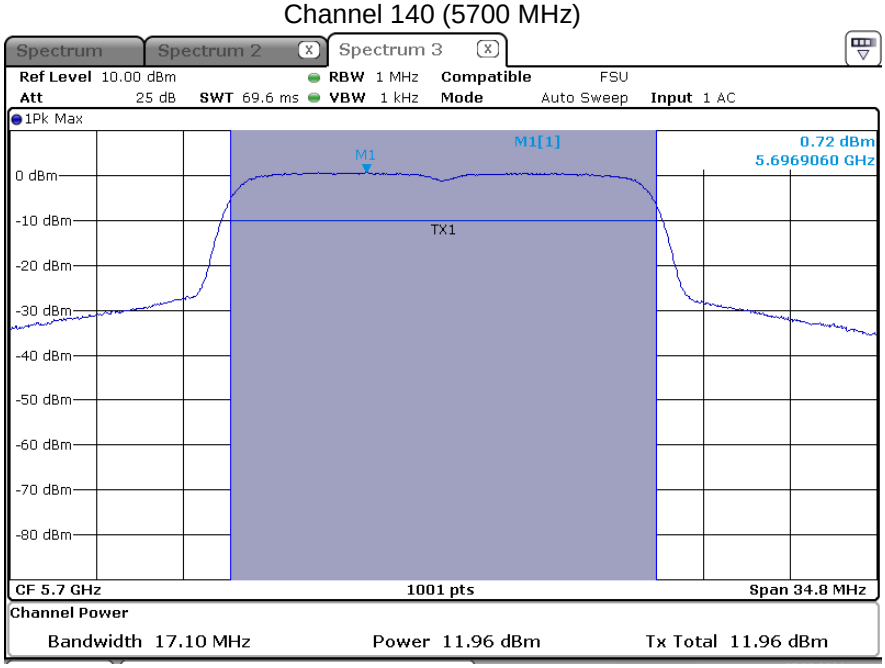
Channel 100 (5500 MHz)



Channel 116 (5580 MHz)

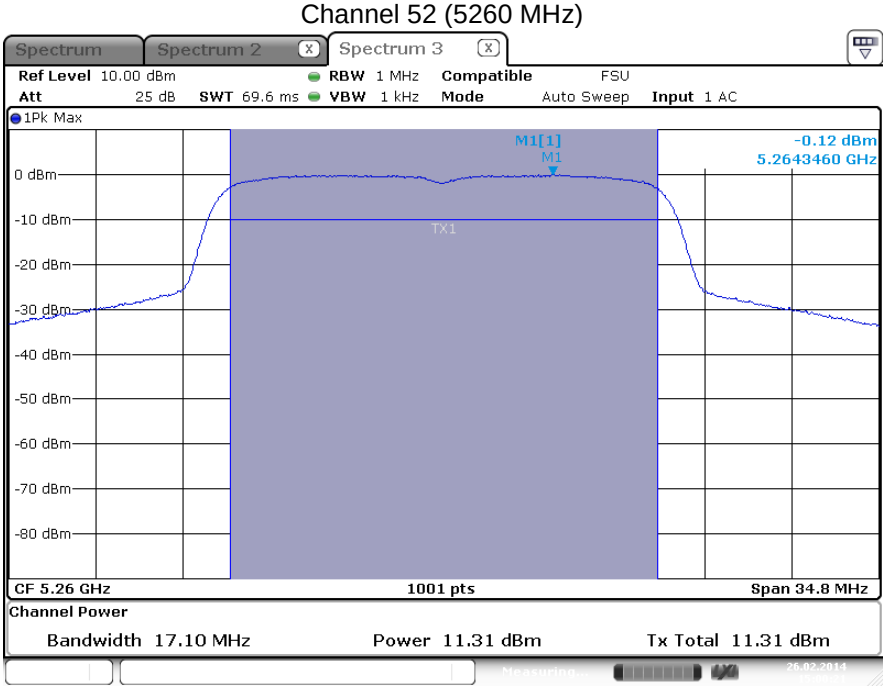


Channel 140 (5700 MHz)



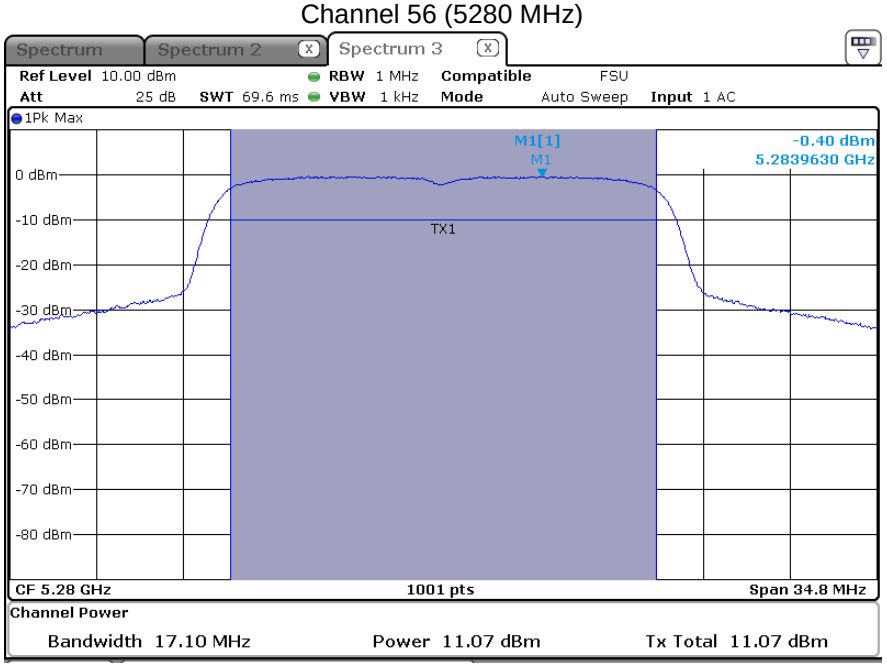
802.11n, HT20, P20:

Channel 52 (5260 MHz)

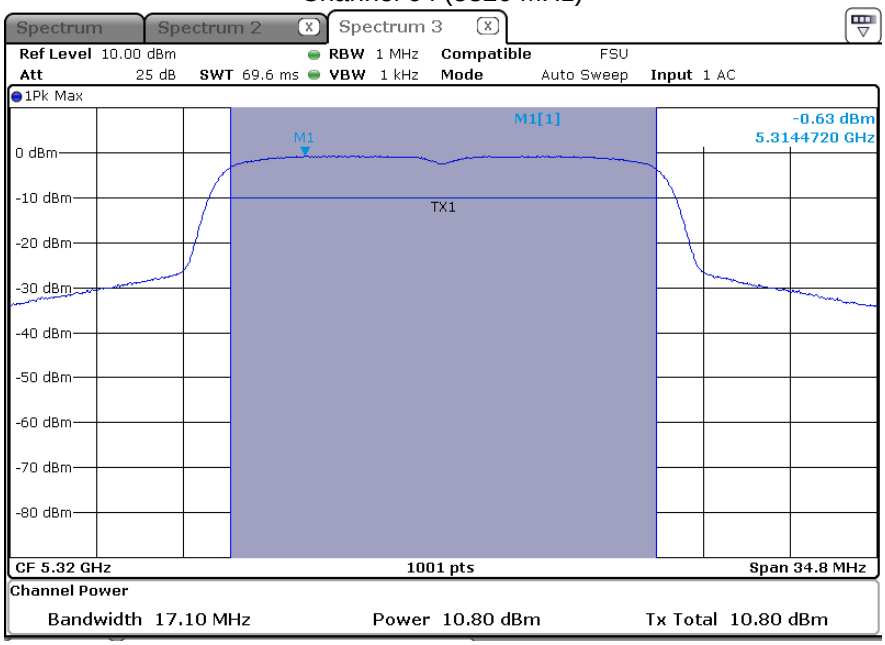


Date: 26.FEB.2014 15:00:22

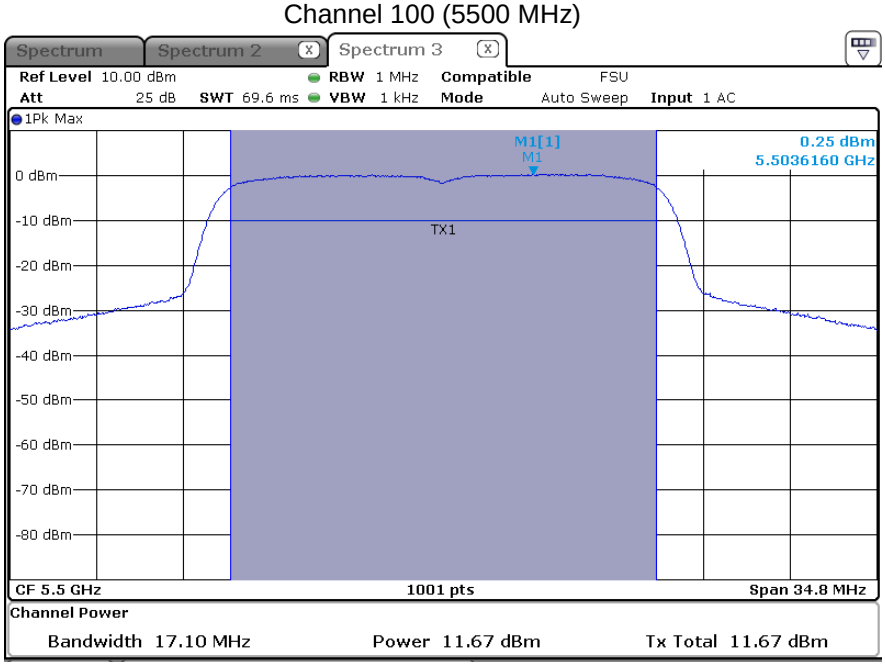
Channel 56 (5280 MHz)



Channel 64 (5320 MHz)

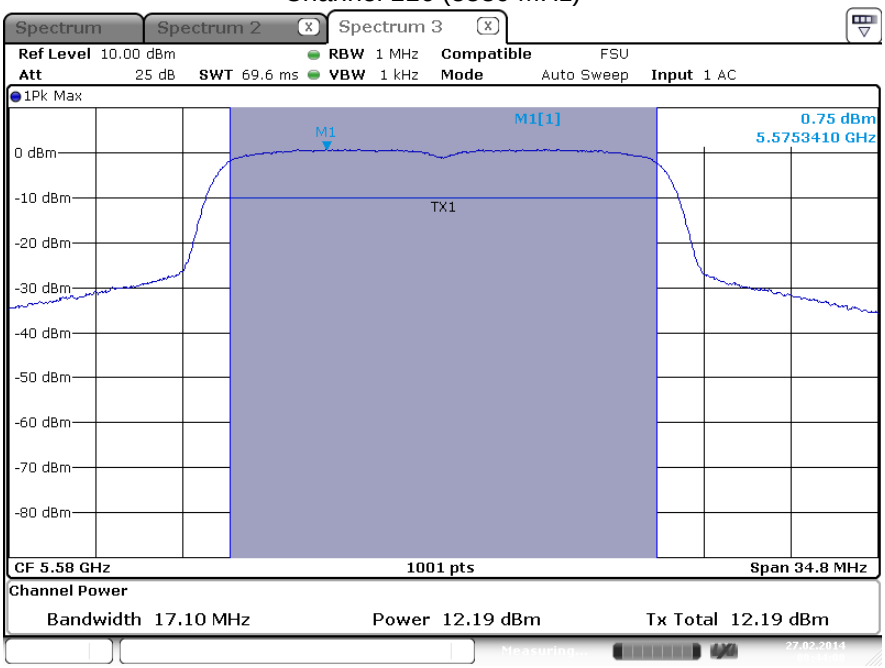


Channel 100 (5500 MHz)



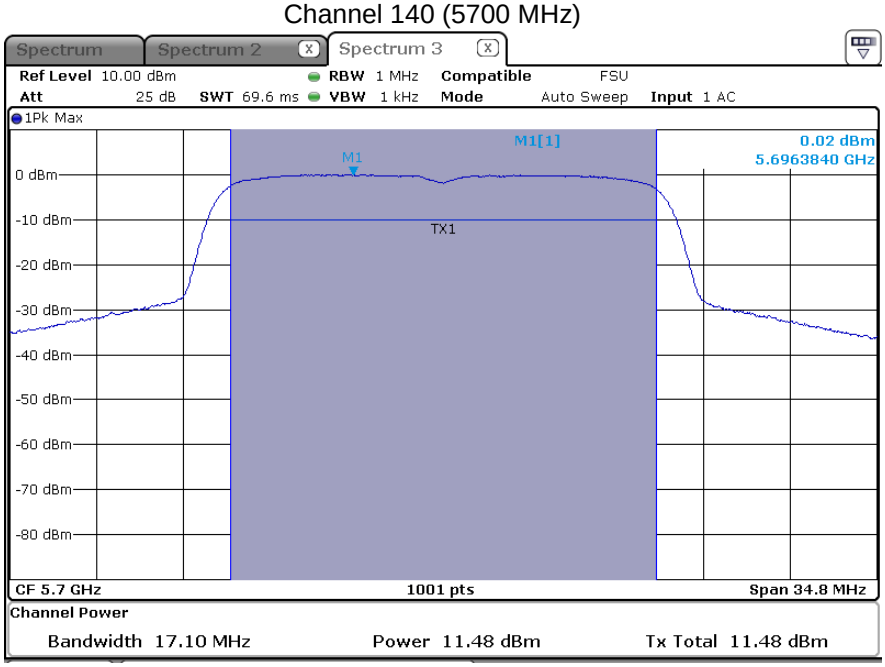
FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Channel 116 (5580 MHz)



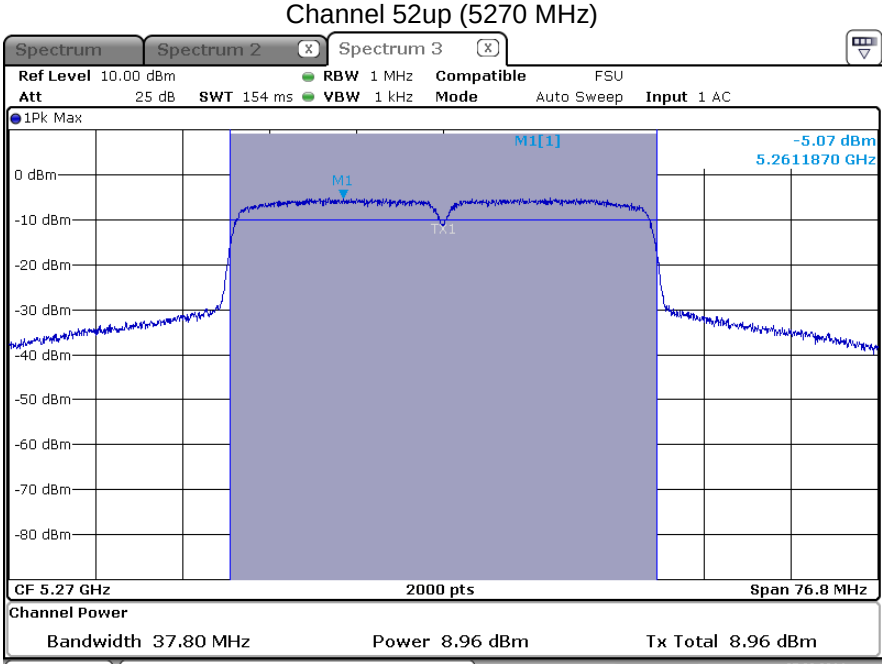
Date: 27.FEB.2014 08:44:08

Channel 140 (5700 MHz)

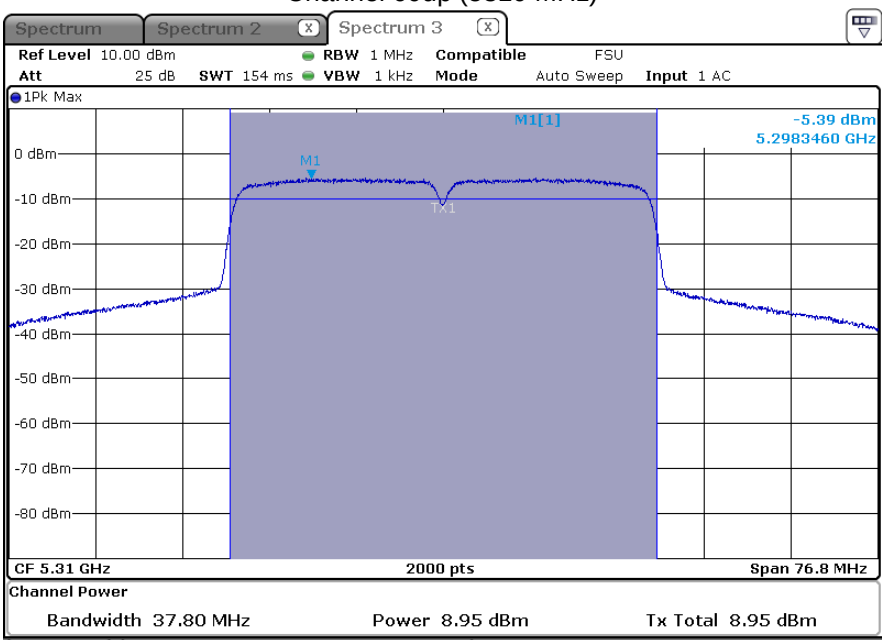


802.11n, HT40, P20:

Channel 52up (5270 MHz)

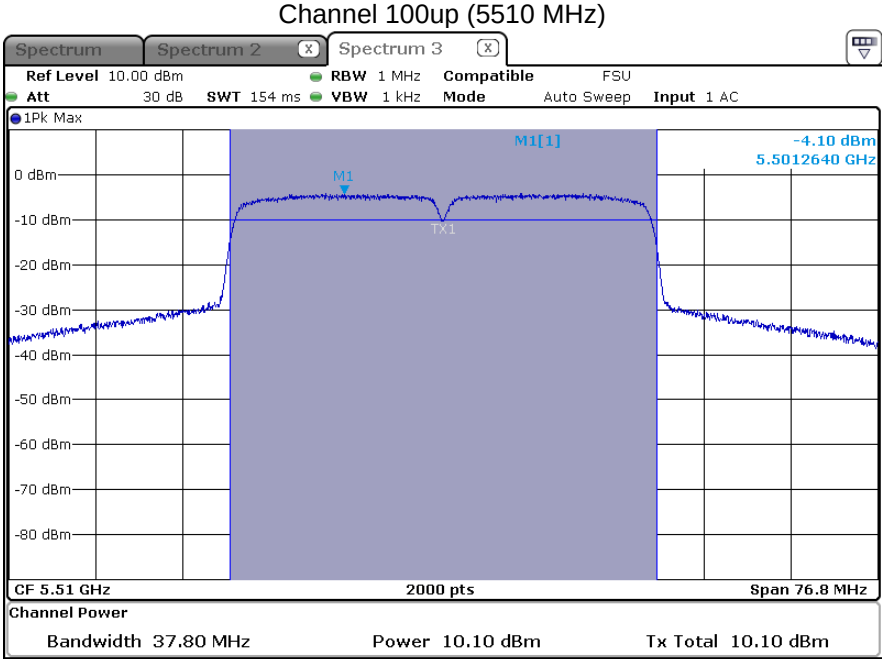


Channel 60up (5310 MHz)

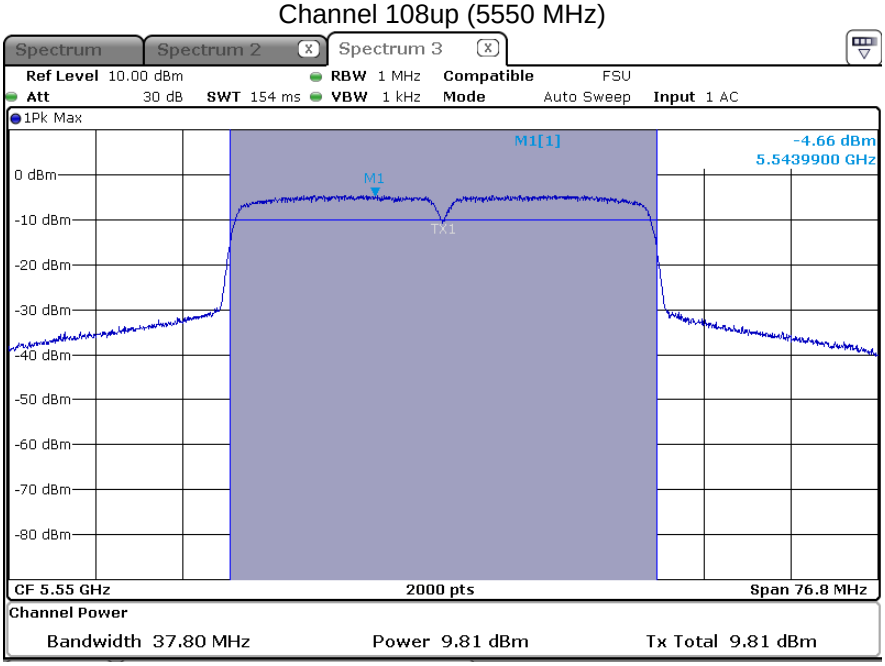


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

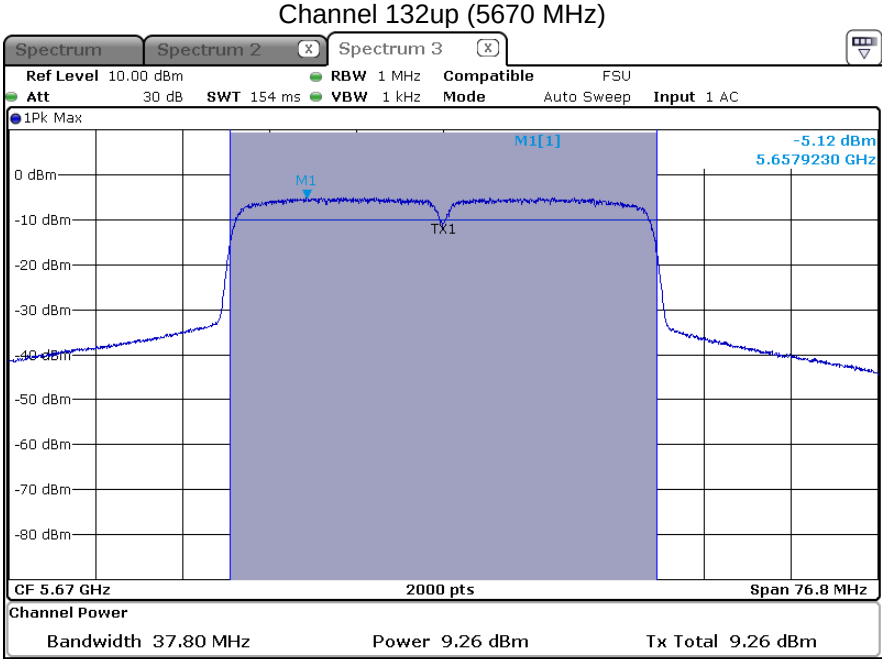
Channel 100up (5510 MHz)



Channel 108up (5550 MHz)



Channel 132up (5670 MHz)



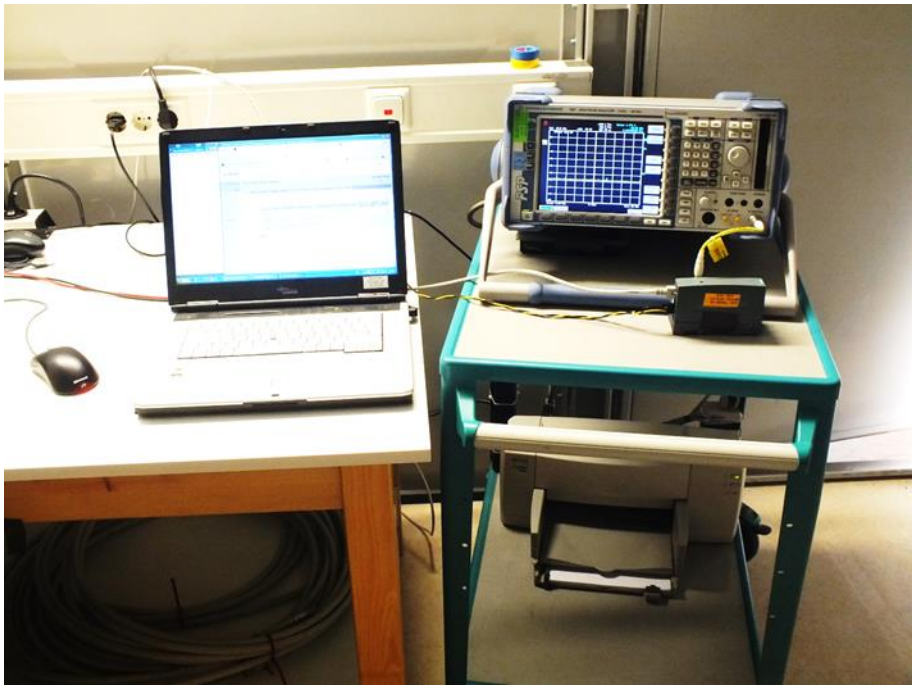
5.5 Peak excursion

For test instruments and accessories used see section 6 Part **CPC3**.

5.5.1 Description of the test location

Test location: AREA 4

5.5.2 Photo documentation of the test set-up



5.5.3 Applicable standard

According to FCC Part 15E, Section 15.407(a)(6):
The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured like before) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

5.5.4 Description of Measurement

The transmitter output was connected to the spectrum analyser. Using peak detector and “MAX HOLD” function for Trace 1 with 1 MHz RBW and 3 MHz VBW and Trace 2 with 1 MHz RBW and 300 kHz VBW both traces were recorded. The largest difference between Trace 1 and Trace 2 in any 1 MHz band was noted as maximum *Peak Excursion* value.

5.5.5 Test result

802.11h:

Test conditions: 802.11h, Mbps 6, conducted						
	Test results					
	Power setting	PPSD	Level VBW=3 MHz	PEX	PEX limit	Margin
Channel		(dBm)	(dBm)	(dB)	(dB)	(dB)
52	P20	0.0	10.3	10.3	13.0	-2.7
56	P20	0.0	10.1	10.1	13.0	-2.9
64	P20	-0.5	10.0	10.5	13.0	-2.6
100	P20	0.7	12.2	11.6	13.0	-1.4
116	P20	1.1	11.2	10.1	13.0	-2.9
140	P20	0.7	11.4	10.7	13.0	-2.3

802.11n, HT20:

Test conditions: HT20, MCS0, conducted						
	Test results					
	Power setting	PPSD	Level VBW=3 MHz	PEX	PEX limit	Margin
Channel		(dBm)	(dBm)	(dB)	(dB)	(dB)
52	P20	-0.1	10.9	11.0	13.0	-2.0
56	P20	-0.4	11.1	11.5	13.0	-1.6
64	P20	-0.6	10.7	11.3	13.0	-1.7
100	P20	0.3	11.6	11.3	13.0	-1.7
116	P20	0.8	11.9	11.1	13.0	-1.9
140	P20	0.0	11.2	11.2	13.0	-1.9

HT40:

Test conditions: HT40, MCS8, conducted						
	Test results					
	Power setting	PPSD	Level VBW=3 MHz	PEX	PEX limit	Margin
Channel		(dBm)	(dBm)	(dB)	(dB)	(dB)
52up	P20	-3.8	8.6	12.4	13.0	-0.6
60up	P20	-4.1	8.0	12.1	13.0	-0.9
100up	P20	-2.2	8.7	11.0	13.0	-2.0
108up	P20	-2.8	8.5	11.3	13.0	-1.7
132up	P20	-2.8	8.3	11.1	13.0	-1.9

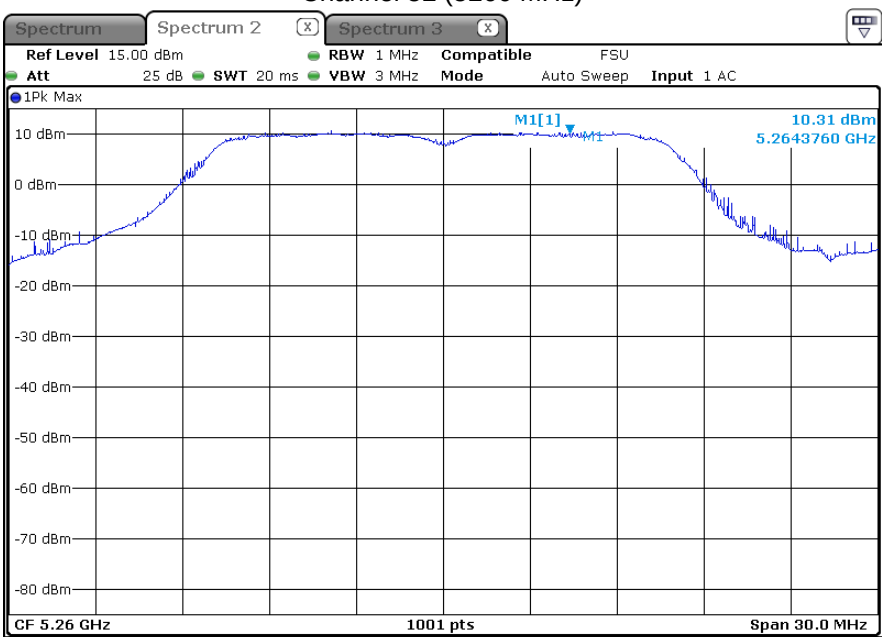
The requirements are **FULFILLED.**

Remarks: For detailed test results please see the following test protocols. Only the worst case of the plots are listed.

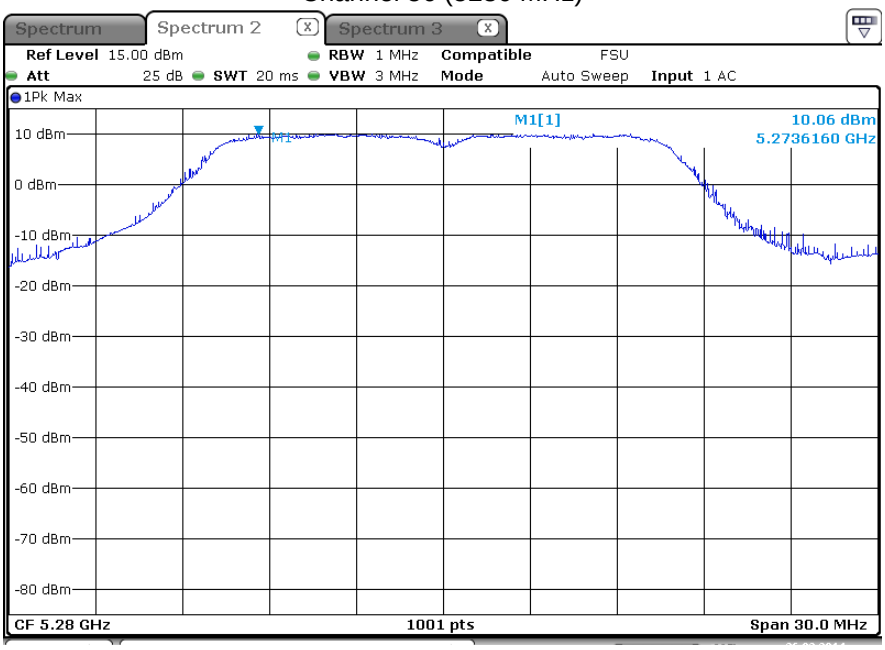
5.5.5.1 Peak excursion plots

802.11h:

Channel 52 (5260 MHz)

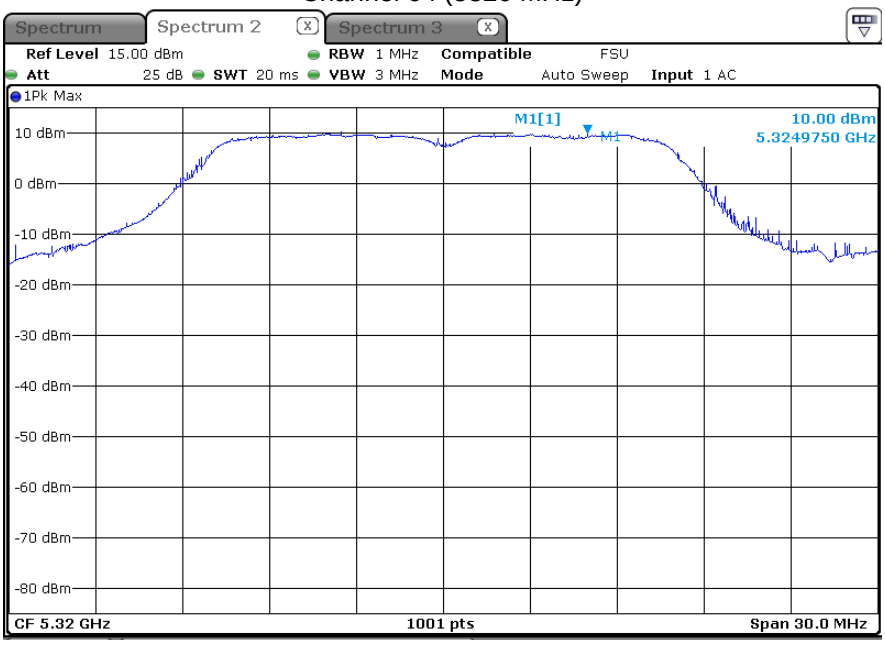


Channel 56 (5280 MHz)

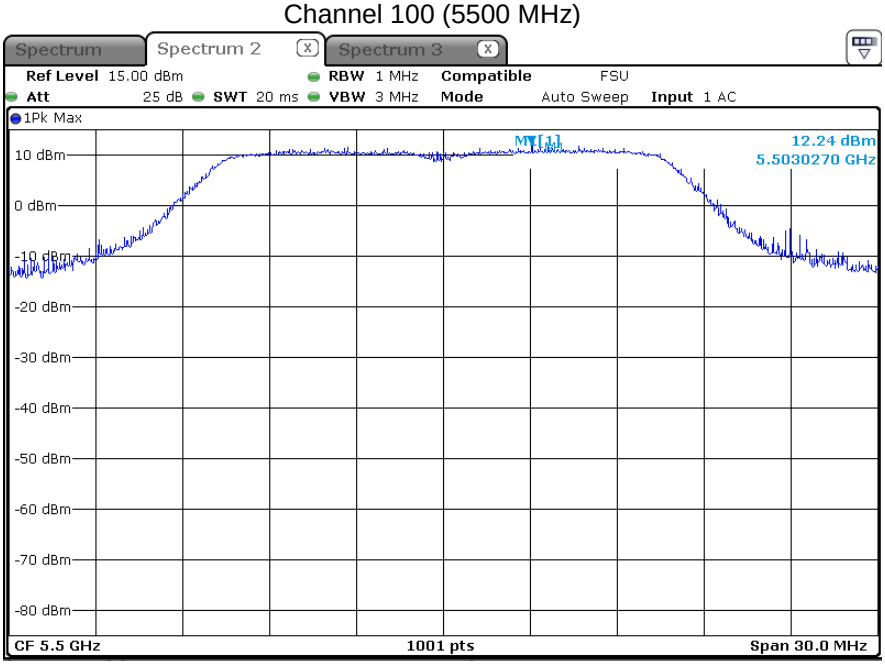


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

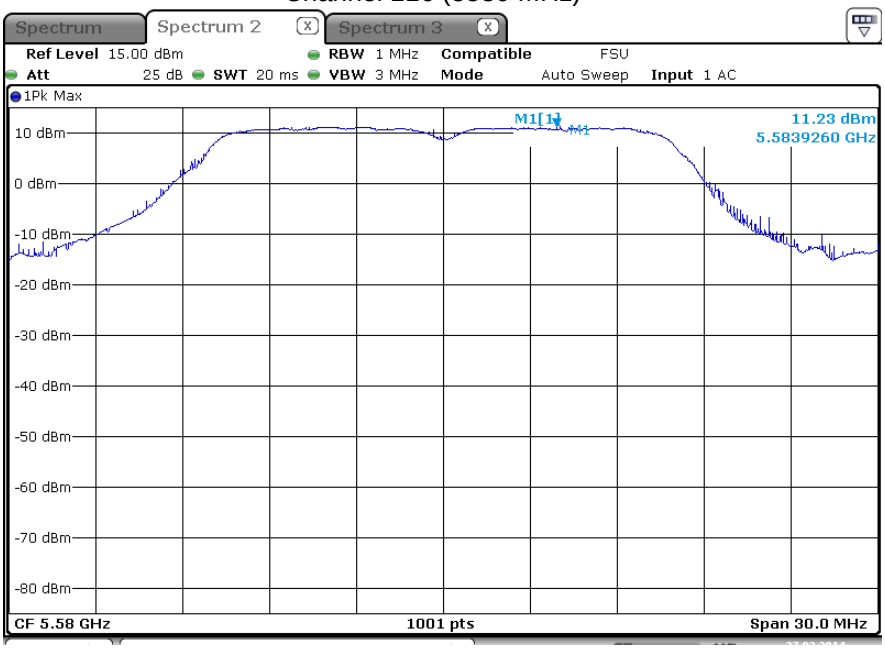
Channel 64 (5320 MHz)



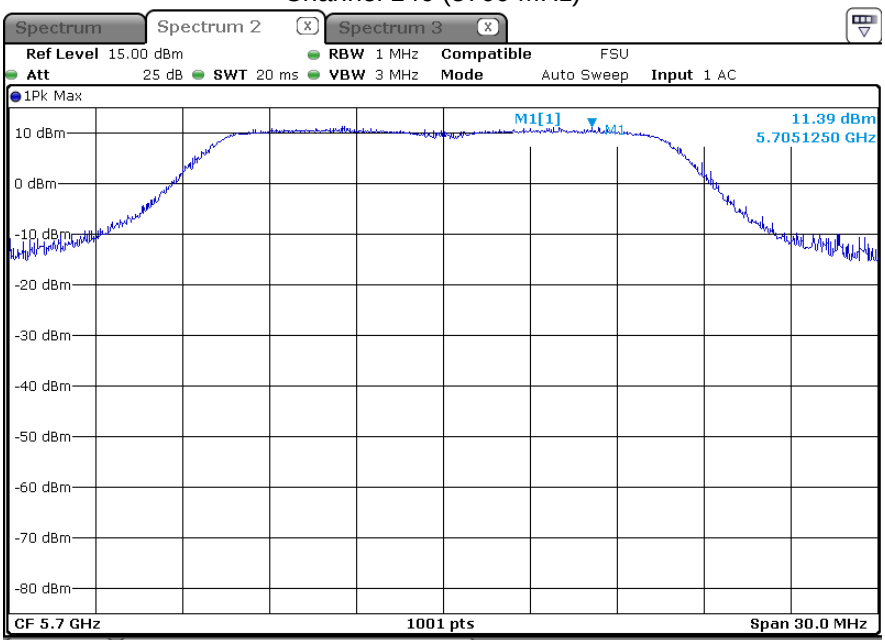
Channel 100 (5500 MHz)



Channel 116 (5580 MHz)

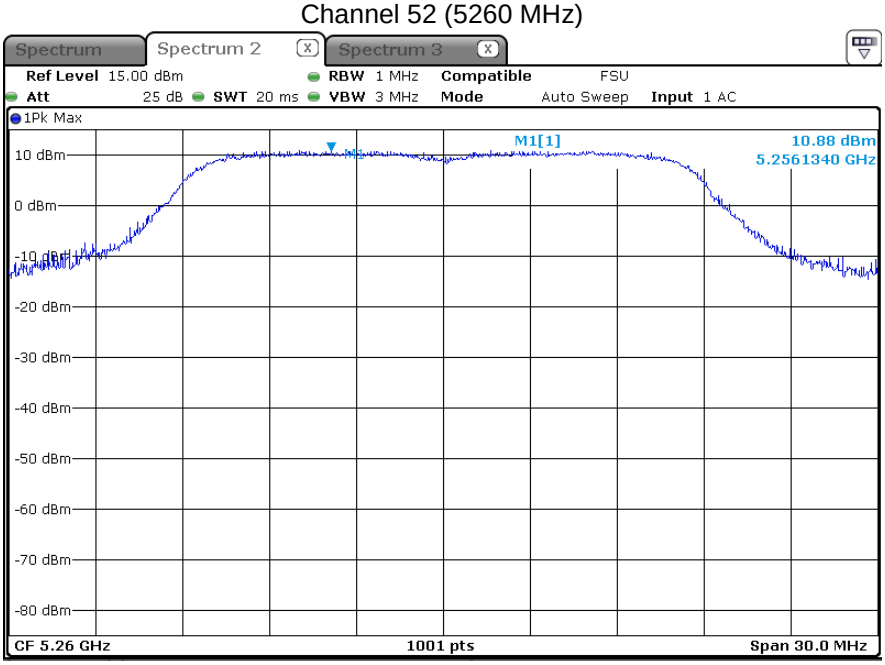


Channel 140 (5700 MHz)

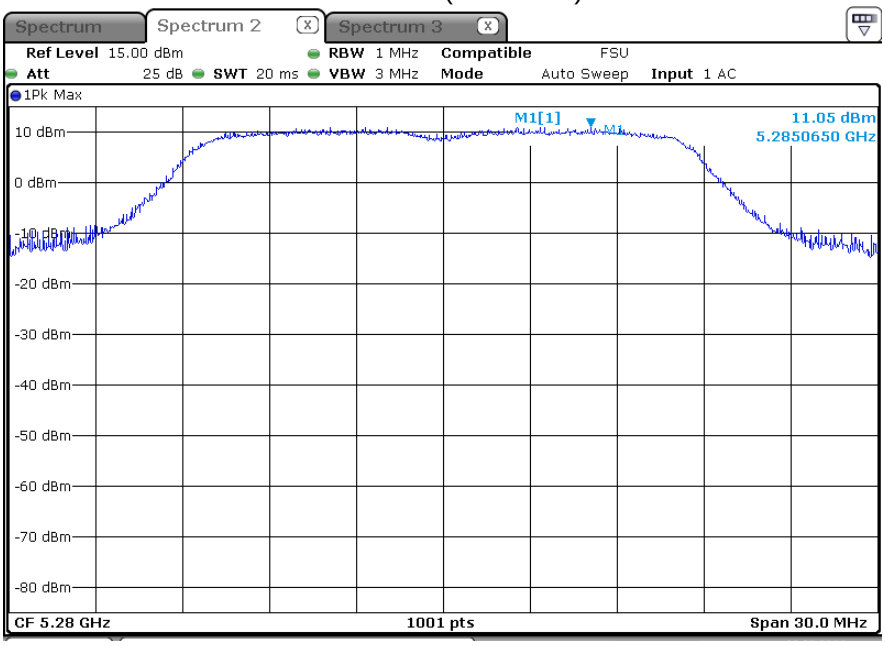


802.11n, HT20:

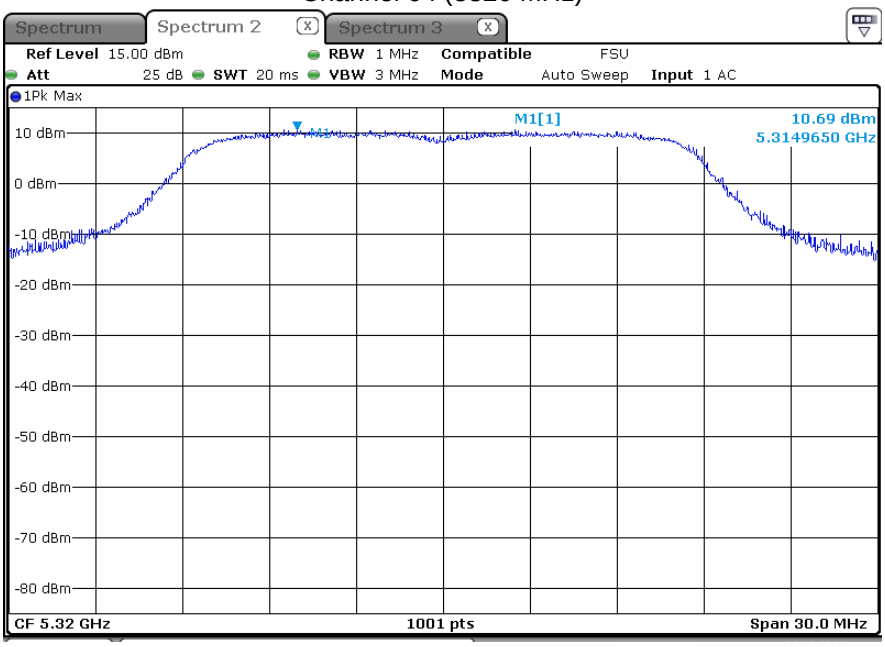
Channel 52 (5260 MHz)



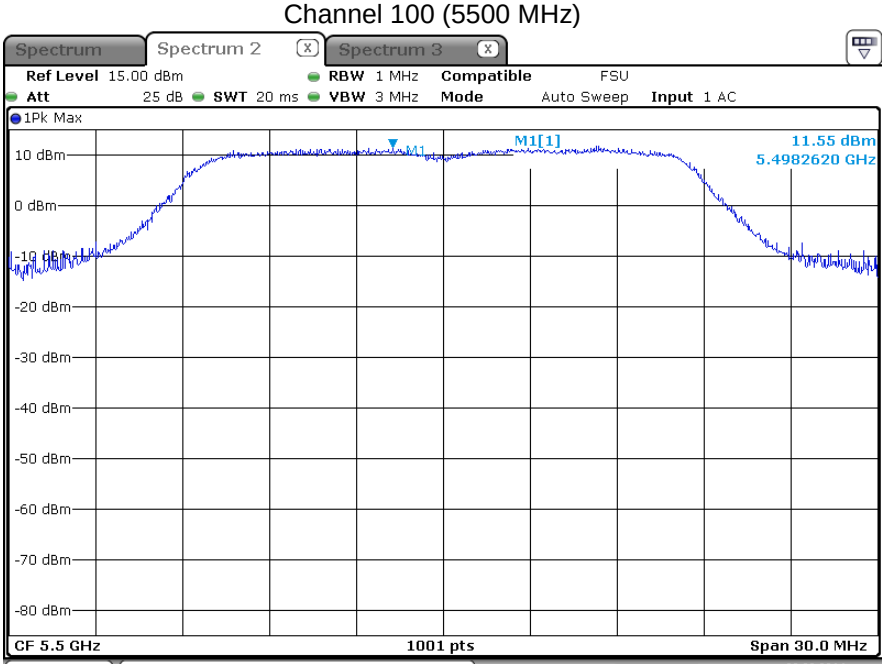
Channel 56 (5280 MHz)



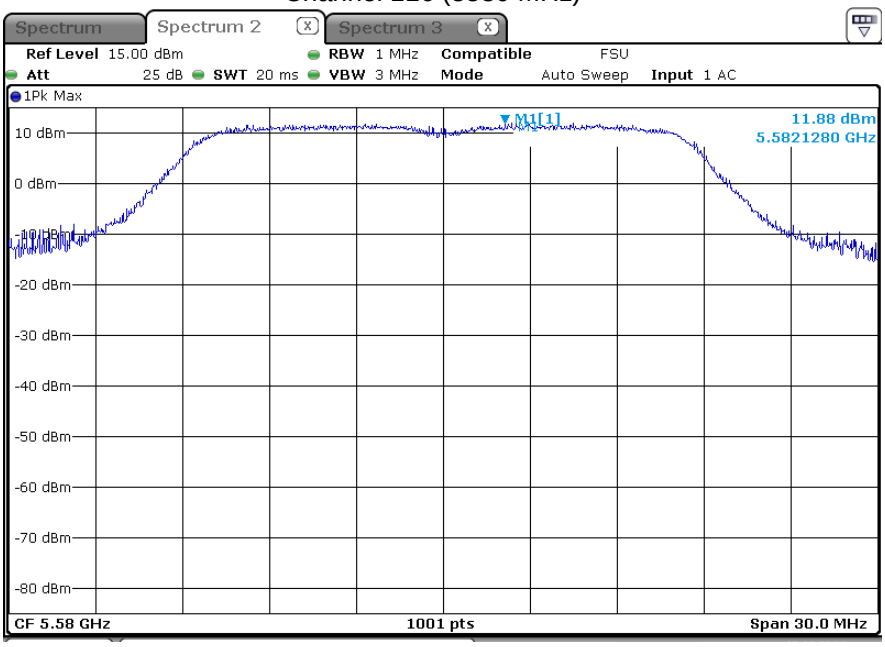
Channel 64 (5320 MHz)



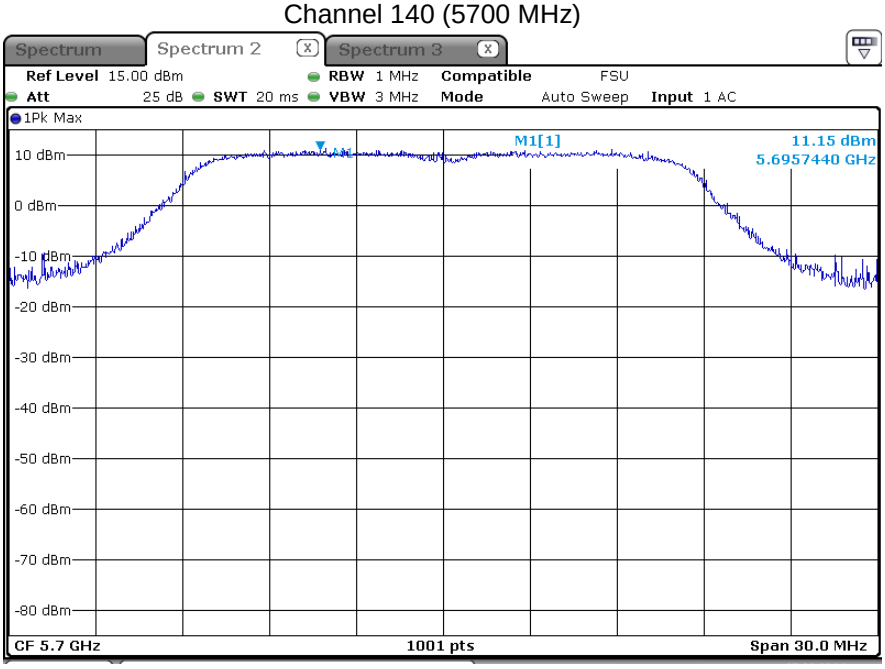
Channel 100 (5500 MHz)



Channel 116 (5580 MHz)

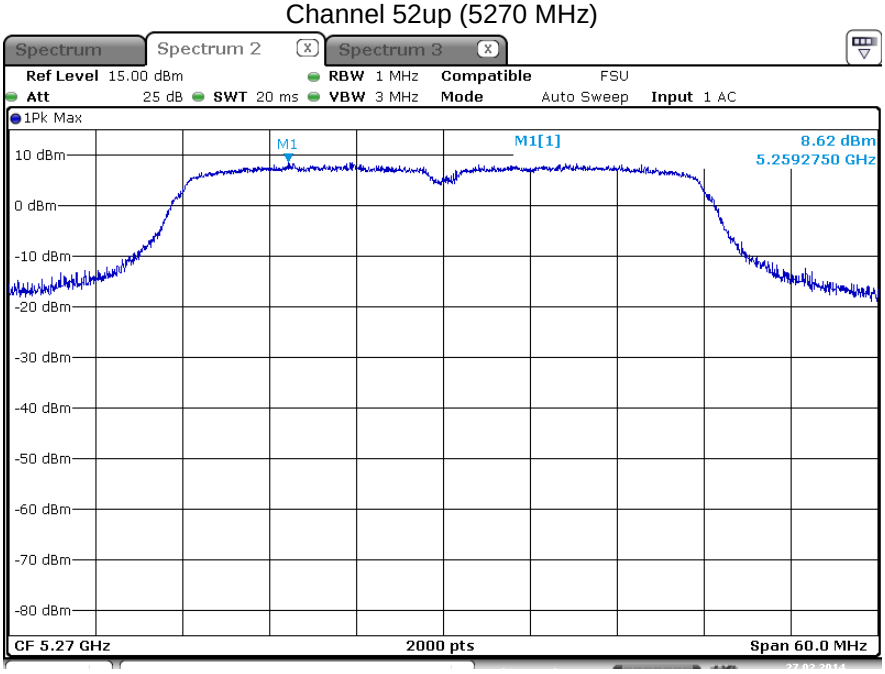


Channel 140 (5700 MHz)

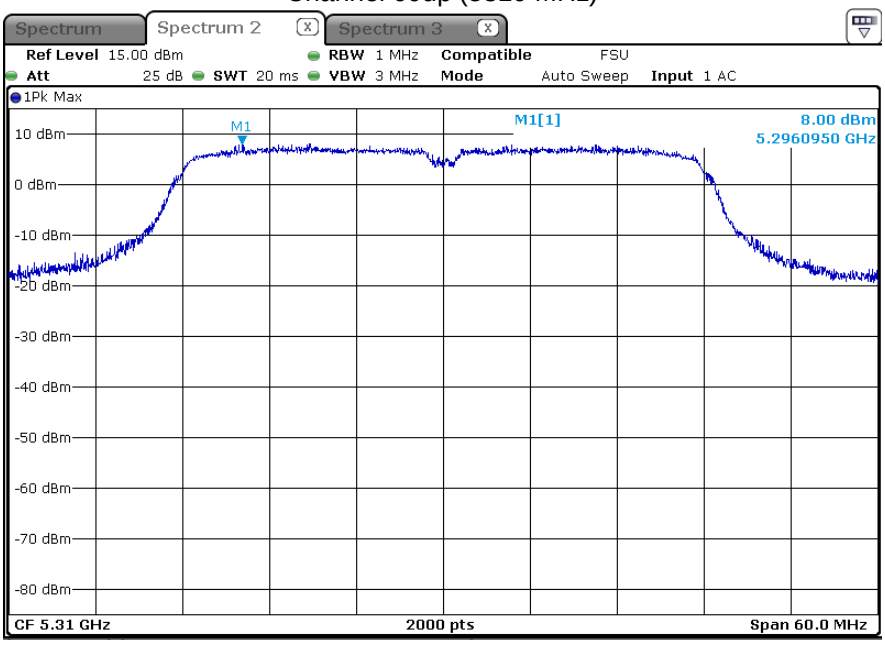


802.11n, HT40:

Channel 52up (5270 MHz)



Channel 60up (5310 MHz)



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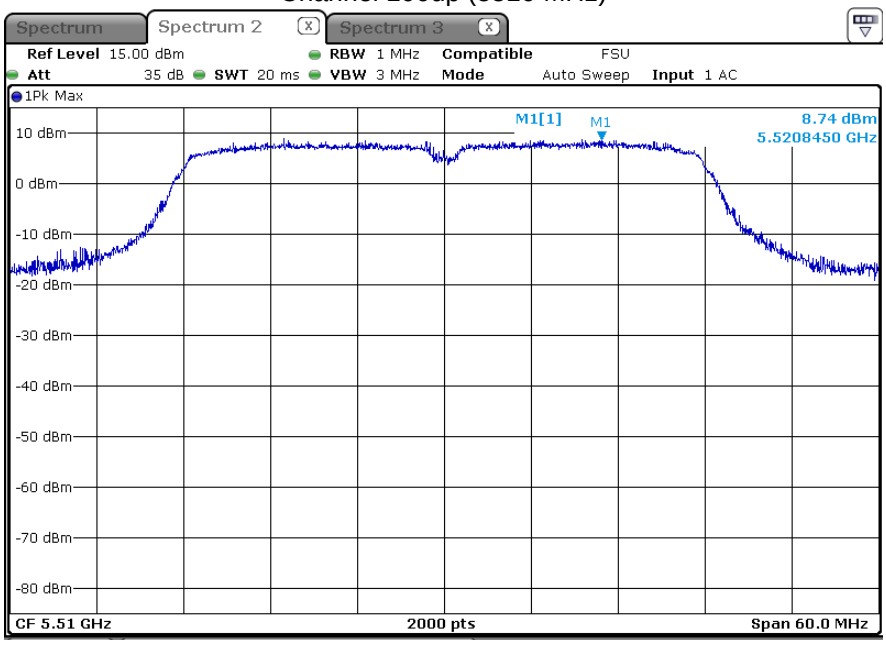
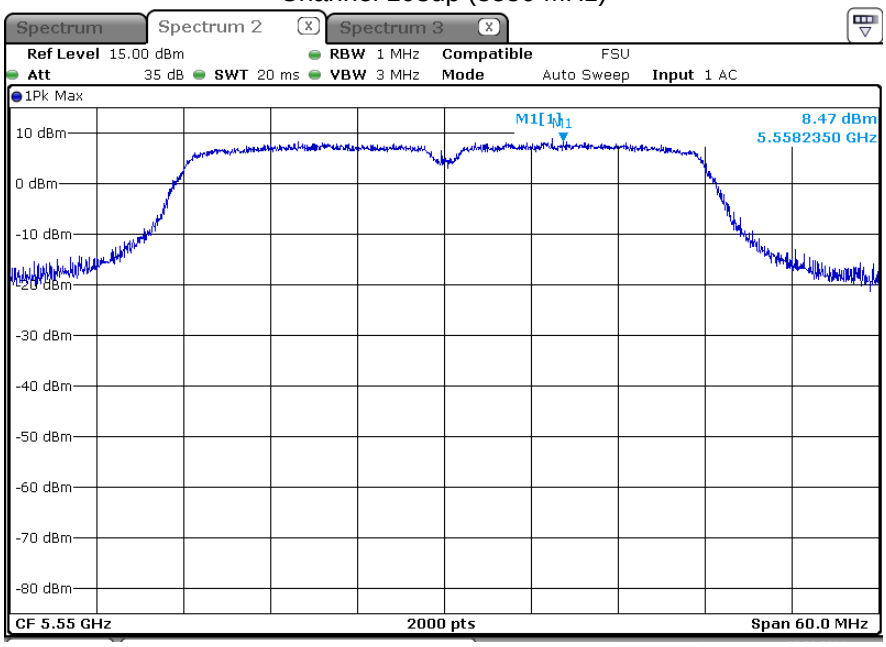
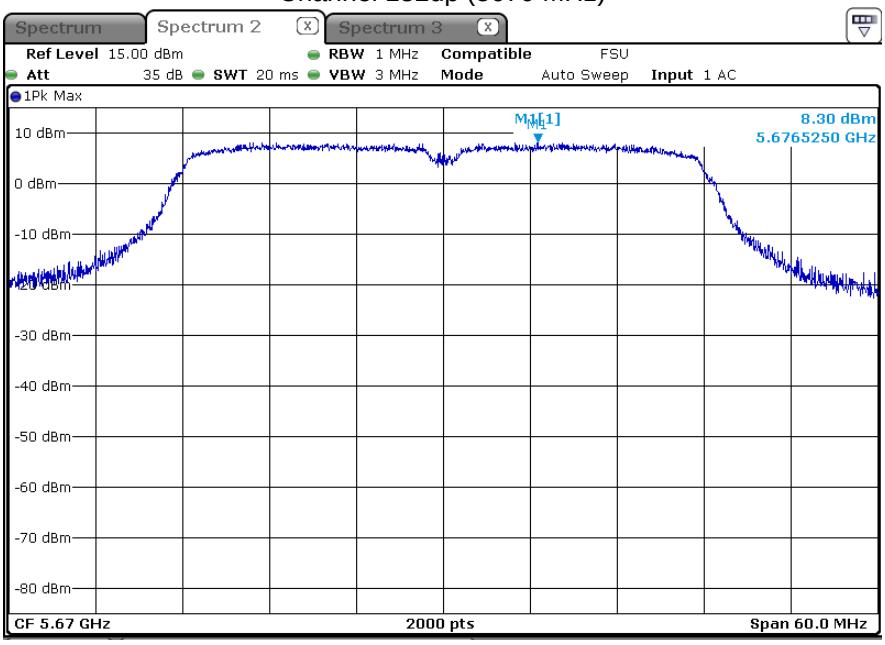
Channel 100up (5510 MHz)



Channel 108up (5550 MHz)



Channel 132up (5670 MHz)



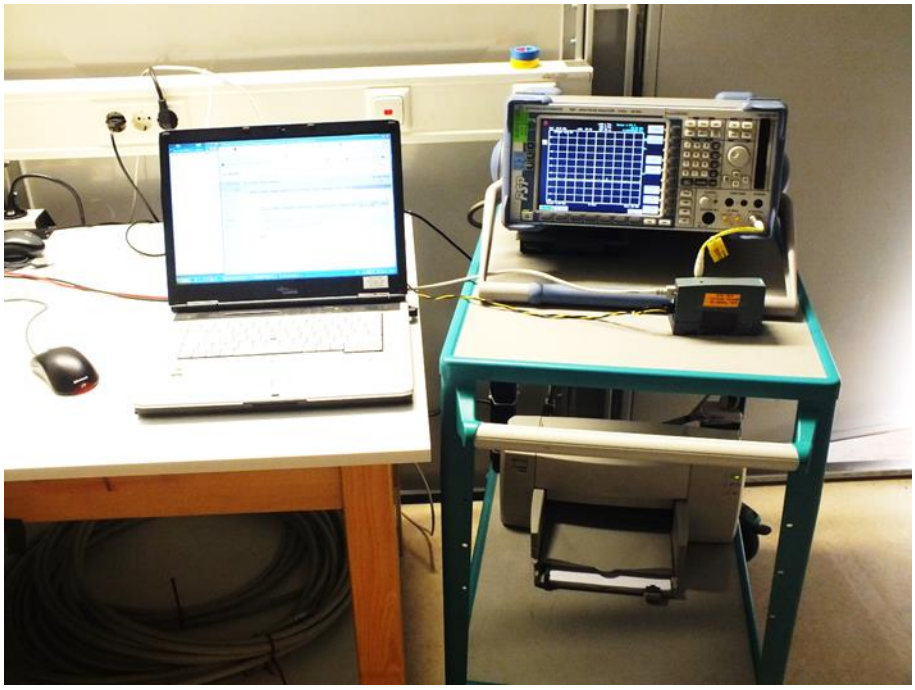
5.6 Undesirable emissions, conducted

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

5.6.1 Description of the test location

Test location: AREA4

5.6.2 Photo documentation of the test set-up



5.6.3 Applicable standard

According to FCC Part 15E, Section 15.407(b):
For transmitters operating in the defined bands shall not exceed the appropriate emission limit outside of the operating bands.
In addition, radiated emissions which fall in the restricted bands, as defined in Section15.205(a), must also comply with the radiated emission limit specified in Section15.209(a) (see Section15.205(c)).

5.6.4 Description of Measurement

Undesirable emissions are measured using a spectrum analyser and following the procedures according the OET 789033, item H. 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 in average mode again and reported. Up from 8 GHz a HP filter is used.

Spectrum analyser settings for peak values:
RBW: 1 MHz, VBW: 3 MHz, Sweep: Auto, Detector: Max peak, Trace mode: max hold;

Spectrum analyser settings for average values:
RBW: 1 MHz, VBW: min. VBW, Sweep: Auto, Detector: Max peak, Trace mode: max hold;

Transmission duration			
Standard	min puls in TX continuous mode	1/T	min VBW
	(ms)	(Hz)	
801.11a	2.072	483	1 kHz
801.11n, HT20	1.738	575	1 kHz
801.11n, HT40	0.450	2222	3 kHz

5.6.5 Test result out of band

5.6.5.1 802.11h, antenna gain group 1:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.009282	-77.3	6.0	-27.0	-44.3
30	1000	100	366.5	-68.8	6.0	-27.0	-35.8
1000	5150	1000	4760.4	-47.7	6.0	-27.0	-14.7
5350	12000	1000	5616.1	-48.1	6.0	-27.0	-15.1
12000	20000	1000	18172.3	-66.0	6.0	-27.0	-33.0
20000	40000	1000	39999.3	-54.9	6.0	-27.0	-21.9
Measurement uncertainty				±3 dB			

Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.010692	-77.2	6.0	-27.0	-44.2
30	1000	100	381.6	-68.9	6.0	-27.0	-35.9
1000	5150	1000	4920.2	-47.0	6.0	-27.0	-14.0
5350	12000	1000	5353.1	-46.3	6.0	-27.0	-13.3
12000	20000	1000	17048.4	-66.3	6.0	-27.0	-33.3
20000	40000	1000	39997.0	-54.9	6.0	-27.0	-21.9
Measurement uncertainty				±3 dB			

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-71.9	6.0	-27.0	-38.9
30	1000	100	370.3	-68.6	6.0	-27.0	-35.6
1000	5150	1000	4950.4	-43.8	6.0	-27.0	-10.8
5350	12000	1000	5352.9	-37.1	6.0	-27.0	-4.1
12000	20000	1000	15963.0	-63.9	6.0	-27.0	-30.9
20000	40000	1000	39994.0	-52.8	6.0	-27.0	-19.8
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.0	-78.2	6.0	-27.0	-45.2
30	1000	100	361.1	-72.4	6.0	-27.0	-39.4
1000	5470	1000	5467.8	-35.3	6.0	-27.0	-2.3
5725	12000	1000	11001.3	-49.3	6.0	-27.0	-16.3
12000	20000	1000	16505.4	-61.6	6.0	-27.0	-28.6
20000	40000	1000	39972.3	-55.2	6.0	-27.0	-22.2
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.6	-76.9	6.0	-27.0	-43.9
30	1000	100	377.3	-71.6	6.0	-27.0	-38.6
1000	5470	1000	4800.6	-47.7	6.0	-27.0	-14.7
5725	12000	1000	11161.7	-51.3	6.0	-27.0	-18.3
12000	20000	1000	16736.7	-62.4	6.0	-27.0	-29.4
20000	40000	1000	39961.0	-55.2	6.0	-27.0	-22.2
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.013	-78.4	6.0	-27.0	-45.4
30	1000	100	1000.0	-63.7	6.0	-27.0	-30.7
1000	5470	1000	4720.2	-48.2	6.0	-27.0	-15.2
5725	12000	1000	5726.0	-36.1	6.0	-27.0	-3.1
12000	20000	1000	12650.1	-57.0	6.0	-27.0	-24.0
20000	40000	1000	39948.3	-54.4	6.0	-27.0	-21.4
Measurement uncertainty				±3 dB			

5.6.5.2 802.11h, antenna gain group 2:

Lowest frequency: CH52					**PK-measurement**		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.009564	-78.1	9.0	-27.0	-42.1
30	1000	100	374.8	-69.9	9.0	-27.0	-33.9
1000	5150	1000	4760.4	-48.0	9.0	-27.0	-12.0
5350	12000	1000	5585.1	-47.4	9.0	-27.0	-11.4
12000	20000	1000	16526.7	-65.9	9.0	-27.0	-29.9
20000	40000	1000	39972.3	-53.7	9.0	-27.0	-17.7
Measurement uncertainty				±3 dB			

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Middle frequency: CH56					**PK-measurement**		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.3	-77.0	9.0	-27.0	-41.0
30	1000	100	363.8	-68.4	9.0	-27.0	-32.4
1000	5150	1000	4913.5	-46.0	9.0	-27.0	-10.0
5350	12000	1000	5360.3	-46.6	9.0	-27.0	-10.6
12000	20000	1000	16568.3	-65.7	9.0	-27.0	-29.7
20000	40000	1000	39999.3	-55.1	9.0	-27.0	-19.1
Measurement uncertainty				±3 dB			

Highest frequency: CH64					**PK-measurement**		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.010	-76.6	9.0	-27.0	-40.6
30	1000	100	365.9	-69.2	9.0	-27.0	-33.2
1000	5150	1000	4951.4	-46.3	9.0	-27.0	-10.3
5350	12000	1000	5352.9	-36.3	9.0	-27.0	-0.3
12000	20000	1000	15961.0	-64.7	9.0	-27.0	-28.7
20000	40000	1000	39985.0	-54.9	9.0	-27.0	-18.9
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.00956	-76.7	9.0	-27.0	-40.7
30	1000	100	367.4	-70.4	9.0	-27.0	-34.4
1000	5470	1000	5467.8	-36.9	9.0	-27.0	-0.9
5725	12000	1000	11001.3	-50.5	9.0	-27.0	-14.5
12000	20000	1000	16513.8	-63.2	9.0	-27.0	-27.2
20000	40000	1000	39989.5	-54.9	9.0	-27.0	-18.9
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.2	-77.3	9.0	-27.0	-41.3
30	1000	100	400.1	-71.4	9.0	-27.0	-35.4
1000	5470	1000	4800.1	-46.8	9.0	-27.0	-10.8
5725	12000	1000	11159.7	-51.2	9.0	-27.0	-15.2
12000	20000	1000	16736.7	-64.0	9.0	-27.0	-28.0
20000	40000	1000	39997.8	-54.3	9.0	-27.0	-18.3
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.01182	-76.5	9.0	-27.0	-40.5
30	1000	100	1000.0	-63.2	9.0	-27.0	-27.2
1000	5470	1000	4920.2	-47.8	9.0	-27.0	-11.8
5725	12000	1000	5727.0	-36.4	9.0	-27.0	-0.4
12000	20000	1000	13558.7	-56.5	9.0	-27.0	-20.5
20000	40000	1000	39949.8	-55.3	9.0	-27.0	-19.3
Measurement uncertainty				±3 dB			

5.6.5.3 802.11h, antenna gain group 3:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.010	-77.6	14.2	-27.0	-36.4
30	1000	100	368.5	-71.0	14.2	-27.0	-29.8
1000	5150	1000	4759.9	-47.3	14.2	-27.0	-6.1
5350	12000	1000	5622.3	-48.7	14.2	-27.0	-7.5
12000	20000	1000	15665.5	-65.5	14.2	-27.0	-24.3
20000	40000	1000	39988.0	-54.4	14.2	-27.0	-13.2
Measurement uncertainty				±3 dB			

Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.011	-76.7	14.2	-27.0	-35.5
30	1000	100	35.1	-72.2	14.2	-27.0	-31.0
1000	5150	1000	4760.4	-46.9	14.2	-27.0	-5.7
5350	12000	1000	5365.5	-49.6	14.2	-27.0	-8.4
12000	20000	1000	17099.3	-66.0	14.2	-27.0	-24.8
20000	40000	1000	39982.8	-54.8	14.2	-27.0	-13.6
Measurement uncertainty				±3 dB			

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.011	-74.8	14.2	-27.0	-33.6
30	1000	100	1000.0	-62.6	14.2	-27.0	-21.4
1000	5150	1000	5144.3	-42.9	14.2	-27.0	-1.7
5350	12000	1000	5357.2	-42.0	14.2	-27.0	-0.8
12000	20000	1000	13551.5	-56.8	14.2	-27.0	-15.6
20000	40000	1000	39950.5	-55.0	14.2	-27.0	-13.8
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-72.9	14.2	-27.0	-31.7
30	1000	100	366.6	-72.1	14.2	-27.0	-30.9
1000	5470	1000	5460.5	-42.4	14.2	-27.0	-1.2
5725	12000	1000	5799.8	-52.0	14.2	-27.0	-10.8
12000	20000	1000	15509.2	-65.0	14.2	-27.0	-23.8
20000	40000	1000	39991.8	-54.5	14.2	-27.0	-13.3
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.8	14.2	-27.0	-32.6
30	1000	100	35.6	-72.2	14.2	-27.0	-31.0
1000	5470	1000	4800.1	-46.0	14.2	-27.0	-4.8
5725	12000	1000	5739.8	-52.0	14.2	-27.0	-10.8
12000	20000	1000	17071.5	-65.7	14.2	-27.0	-24.5
20000	40000	1000	39955.8	-54.9	14.2	-27.0	-13.7
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.011	-78.2	14.2	-27.0	-37.0
30	1000	100	1000.0	-63.9	14.2	-27.0	-22.7
1000	5470	1000	4720.2	-47.6	14.2	-27.0	-6.4
5725	12000	1000	5728.0	-41.3	14.2	-27.0	-0.1
12000	20000	1000	13071.4	-56.7	14.2	-27.0	-15.5
20000	40000	1000	39999.3	-54.4	14.2	-27.0	-13.2
Measurement uncertainty				±3 dB			

5.6.5.4 802.11n, HT20, antenna gain group 1:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.4	-75.9	6.0	-27.0	-42.9
30	1000	100	367.0	-69.8	6.0	-27.0	-36.8
1000	5150	1000	4759.9	-48.2	6.0	-27.0	-15.2
5350	12000	1000	5575.8	-48.0	6.0	-27.0	-15.0
12000	20000	1000	18172.3	-66.0	6.0	-27.0	-33.0
20000	40000	1000	39999.3	-54.9	6.0	-27.0	-21.9
Measurement uncertainty				±3 dB			

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Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.009846	-76.3	6.0	-27.0	-43.3
30	1000	100	367.8	-70.1	6.0	-27.0	-37.1
1000	5150	1000	4800.4	-47.1	6.0	-27.0	-14.1
5350	12000	1000	5361.3	-46.8	6.0	-27.0	-13.8
12000	20000	1000	15842.2	-65.6	6.0	-27.0	-32.6
20000	40000	1000	39991.8	-55.6	6.0	-27.0	-22.6
Measurement uncertainty				±3 dB			

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.00928	-77.8	6.0	-27.0	-44.8
30	1000	100	370.5	-68.3	6.0	-27.0	-35.3
1000	5150	1000	4920.1	-45.9	6.0	-27.0	-12.9
5350	12000	1000	5353.8	-36.9	6.0	-27.0	-3.9
12000	20000	1000	15961.0	-64.7	6.0	-27.0	-31.7
20000	40000	1000	39990.3	-54.0	6.0	-27.0	-21.0
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.8	6.0	-27.0	-40.8
30	1000	100	382.4	-70.7	6.0	-27.0	-37.7
1000	5470	1000	5463.9	-34.9	6.0	-27.0	-1.9
5725	12000	1000	11003.2	-50.5	6.0	-27.0	-17.5
12000	20000	1000	16497.1	-64.0	6.0	-27.0	-31.0
20000	40000	1000	39982.0	-54.5	6.0	-27.0	-21.5
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.010	-77.4	6.0	-27.0	-44.4
30	1000	100	399.9	-72.4	6.0	-27.0	-39.4
1000	5470	1000	4840.3	-48.7	6.0	-27.0	-15.7
5725	12000	1000	11164.7	-52.4	6.0	-27.0	-19.4
12000	20000	1000	17089.1	-66.1	6.0	-27.0	-33.1
20000	40000	1000	39971.5	-55.2	6.0	-27.0	-22.2
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.4	6.0	-27.0	-40.4
30	1000	100	1000.0	-63.8	6.0	-27.0	-30.8
1000	5470	1000	4759.8	-46.4	6.0	-27.0	-13.4
5725	12000	1000	5727.0	-34.3	6.0	-27.0	-1.3
12000	20000	1000	12728.8	-56.8	6.0	-27.0	-23.8
20000	40000	1000	39993.3	-54.8	6.0	-27.0	-21.8
Measurement uncertainty				±3 dB			

5.6.5.5 802.11n, HT20, antenna gain group 2:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.010692	-77.7	9.0	-27.0	-41.7
30	1000	100	361.0	-70.3	9.0	-27.0	-34.3
1000	5150	1000	4800.4	-47.5	9.0	-27.0	-11.5
5350	12000	1000	5606.8	-48.2	9.0	-27.0	-12.2
12000	20000	1000	15783.9	-65.4	9.0	-27.0	-29.4
20000	40000	1000	39984.3	-55.1	9.0	-27.0	-19.1
Measurement uncertainty				±3 dB			

Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.010410	-77.2	9.0	-27.0	-41.2
30	1000	100	362.7	-69.6	9.0	-27.0	-33.6
1000	5150	1000	4800.4	-47.3	9.0	-27.0	-11.3
5350	12000	1000	5364.4	-46.9	9.0	-27.0	-10.9
12000	20000	1000	15846.8	-65.9	9.0	-27.0	-29.9
20000	40000	1000	39982.0	-54.7	9.0	-27.0	-18.7
Measurement uncertainty				±3 dB			

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.009846	-77.2	9.0	-27.0	-41.2
30	1000	100	365.7	-68.8	9.0	-27.0	-32.8
1000	5150	1000	5143.3	-41.5	9.0	-27.0	-5.5
5350	12000	1000	5352.1	-37.9	9.0	-27.0	-1.9
12000	20000	1000	16337.1	-64.7	9.0	-27.0	-28.7
20000	40000	1000	39968.5	-54.6	9.0	-27.0	-18.6
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.011	-77.9	9.0	-27.0	-41.9
30	1000	100	367.9	-69.2	9.0	-27.0	-33.2
1000	5470	1000	5468.3	-36.7	9.0	-27.0	-0.7
5725	12000	1000	5758.5	-50.8	9.0	-27.0	-14.8
12000	20000	1000	16508.2	-64.5	9.0	-27.0	-28.5
20000	40000	1000	39996.3	-54.9	9.0	-27.0	-18.9
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.7	-78.8	9.0	-27.0	-42.8
30	1000	100	399.9	-72.2	9.0	-27.0	-36.2
1000	5470	1000	4720.2	-48.1	9.0	-27.0	-12.1
5725	12000	1000	5738.8	-51.4	9.0	-27.0	-15.4
12000	20000	1000	17059.5	-66.1	9.0	-27.0	-30.1
20000	40000	1000	39994.8	-53.8	9.0	-27.0	-17.8
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.009	-77.6	9.0	-27.0	-41.6
30	1000	100	1000.0	-63.6	9.0	-27.0	-27.6
1000	5470	1000	4760.4	-46.2	9.0	-27.0	-10.2
5725	12000	1000	5726.0	-36.3	9.0	-27.0	-0.3
12000	20000	1000	13207.2	-56.7	9.0	-27.0	-20.7
20000	40000	1000	39955.8	-54.4	9.0	-27.0	-18.4
Measurement uncertainty				±3 dB			

5.6.5.6 802.11n, HT20, antenna gain group 3:

Lowest frequency: CH52					**PK-measurement**		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.8	-77.7	14.2	-27.0	-36.5
30	1000	100	365.1	-72.3	14.2	-27.0	-31.1
1000	5150	1000	4760.4	-48.2	14.2	-27.0	-7.0
5350	12000	1000	5582.0	-49.9	14.2	-27.0	-8.7
12000	20000	1000	18121.4	-65.6	14.2	-27.0	-24.4
20000	40000	1000	39955.0	-55.3	14.2	-27.0	-14.1
Measurement uncertainty				±3 dB			

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Middle frequency: CH56					**PK-measurement**		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.0090	-77.1	14.2	-27.0	-35.9
30	1000	100	370.7	-71.8	14.2	-27.0	-30.6
1000	5150	1000	4800.4	-48.0	14.2	-27.0	-6.8
5350	12000	1000	5358.3	-49.0	14.2	-27.0	-7.8
12000	20000	1000	18139.9	-65.4	14.2	-27.0	-24.2
20000	40000	1000	39970.8	-55.1	14.2	-27.0	-13.9
Measurement uncertainty				±3 dB			

Highest frequency: CH64					**PK-measurement**		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-72.3	14.2	-27.0	-31.1
30	1000	100	364.9	-70.7	14.2	-27.0	-29.5
1000	5150	1000	4959.6	-47.1	14.2	-27.0	-5.9
5350	12000	1000	5356.2	-43.1	14.2	-27.0	-1.9
12000	20000	1000	18513.6	-66.0	14.2	-27.0	-24.8
20000	40000	1000	39991.0	-54.9	14.2	-27.0	-13.7
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.012	-77.2	14.2	-27.0	-36.0
30	1000	100	383.3	-73.2	14.2	-27.0	-32.0
1000	5470	1000	5467.8	-41.6	14.2	-27.0	-0.4
5725	12000	1000	11001.3	-51.9	14.2	-27.0	-10.7
12000	20000	1000	16499.9	-64.9	14.2	-27.0	-23.7
20000	40000	1000	39997.8	-54.4	14.2	-27.0	-13.2
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	1.8	-77.3	14.2	-27.0	-36.1
30	1000	100	34.7	-72.5	14.2	-27.0	-31.3
1000	5470	1000	4720.2	-48.7	14.2	-27.0	-7.5
5725	12000	1000	5061.6	-52.8	14.2	-27.0	-11.6
12000	20000	1000	13399.2	-66.3	14.2	-27.0	-25.1
20000	40000	1000	39921.3	-55.2	14.2	-27.0	-14.0
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.4	14.2	-27.0	-32.2
30	1000	100	1000.0	-64.0	14.2	-27.0	-22.8
1000	5470	1000	4720.2	-48.3	14.2	-27.0	-7.1
5725	12000	1000	5728.9	-41.5	14.2	-27.0	-0.3
12000	20000	1000	13361.8	-56.3	14.2	-27.0	-15.1
20000	40000	1000	39988.0	-54.2	14.2	-27.0	-13.0
Measurement uncertainty				±3 dB			

5.6.5.7 802.11n, HT40, antenna gain group 1:

Lowest frequency: CH52up					PK-measurement		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-74.0	6.0	-27.0	-41.0
30	1000	100	361.5	-69.1	6.0	-27.0	-36.1
1000	5150	1000	4919.7	-45.0	6.0	-27.0	-12.0
5350	12000	1000	5358.3	-44.5	6.0	-27.0	-11.5
12000	20000	1000	18116.8	-65.5	6.0	-27.0	-32.5
20000	40000	1000	39981.3	-54.9	6.0	-27.0	-21.9
Measurement uncertainty				±3 dB			

Highest frequency: CH60up					PK-measurement		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.4	6.0	-27.0	-40.4
30	1000	100	364.5	-69.3	6.0	-27.0	-36.3
1000	5150	1000	4946.1	-46.0	6.0	-27.0	-13.0
5350	12000	1000	5353.1	-33.3	6.0	-27.0	-0.3
12000	20000	1000	18655.1	-65.6	6.0	-27.0	-32.6
20000	40000	1000	39985.8	-54.1	6.0	-27.0	-21.1
Measurement uncertainty				±3 dB			

Lowest frequency: CH100up					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.4	6.0	-27.0	-40.4
30	1000	100	382.5	-71.0	6.0	-27.0	-38.0
1000	5470	1000	5469.4	-33.1	6.0	-27.0	-0.1
5725	12000	1000	5738.8	-51.7	6.0	-27.0	-18.7
12000	20000	1000	16522.1	-64.0	6.0	-27.0	-31.0
20000	40000	1000	39994.0	-54.9	6.0	-27.0	-21.9
Measurement uncertainty				±3 dB			

Middle frequency: CH108up					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-72.6	6.0	-27.0	-39.6
30	1000	100	400.1	-71.7	6.0	-27.0	-38.7
1000	5470	1000	5468.3	-43.5	6.0	-27.0	-10.5
5725	12000	1000	11096.7	-52.6	6.0	-27.0	-19.6
12000	20000	1000	13414.9	-65.5	6.0	-27.0	-32.5
20000	40000	1000	39994.0	-54.5	6.0	-27.0	-21.5
Measurement uncertainty				±3 dB			

Highest frequency: CH132up					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-74.9	6.0	-27.0	-41.9
30	1000	100	30.1	-71.9	6.0	-27.0	-38.9
1000	5470	1000	4840.3	-47.7	6.0	-27.0	-14.7
5725	12000	1000	5731.9	-37.9	6.0	-27.0	-4.9
12000	20000	1000	17003.1	-65.1	6.0	-27.0	-32.1
20000	40000	1000	39985.0	-54.6	6.0	-27.0	-21.6
Measurement uncertainty				±3 dB			

5.6.5.8 802.11n, HT40, antenna gain group 2:

Lowest frequency: CH52up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-75.2	9.0	-27.0	-39.2
30	1000	100	363.9	-68.6	9.0	-27.0	-32.6
1000	5150	1000	4920.2	-44.4	9.0	-27.0	-8.4
5350	12000	1000	5353.1	-41.3	9.0	-27.0	-5.3
12000	20000	1000	15611.9	-65.5	9.0	-27.0	-29.5
20000	40000	1000	39994.8	-54.8	9.0	-27.0	-18.8
Measurement uncertainty				±3 dB			

Highest frequency: CH60up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.6	9.0	-27.0	-37.6
30	1000	100	370.3	-68.4	9.0	-27.0	-32.4
1000	5150	1000	4920.2	-45.8	9.0	-27.0	-9.8
5350	12000	1000	5351.0	-19.1	9.0	-27.0	16.9
12000	20000	1000	15928.2	-65.0	9.0	-27.0	-29.0
20000	40000	1000	39964.8	-53.7	9.0	-27.0	-17.7
Measurement uncertainty				±3 dB			

Lowest frequency: CH100up					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-72.5	9.0	-27.0	-36.5
30	1000	100	30.1	-71.6	9.0	-27.0	-35.6
1000	5470	1000	5439.3	-36.6	9.0	-27.0	-0.6
5725	12000	1000	11018.0	-52.5	9.0	-27.0	-16.5
12000	20000	1000	16526.7	-64.4	9.0	-27.0	-28.4
20000	40000	1000	39993.3	-54.5	9.0	-27.0	-18.5
Measurement uncertainty				±3 dB			

Middle frequency: CH108up					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-72.6	9.0	-27.0	-36.6
30	1000	100	400.1	-71.7	9.0	-27.0	-35.7
1000	5470	1000	5468.3	-43.5	9.0	-27.0	-7.5
5725	12000	1000	11096.7	-52.6	9.0	-27.0	-16.6
12000	20000	1000	13414.9	-65.5	9.0	-27.0	-29.5
20000	40000	1000	39994.0	-54.5	9.0	-27.0	-18.5
Measurement uncertainty				±3 dB			

Highest frequency: CH132up					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-74.9	9.0	-27.0	-38.9
30	1000	100	30.1	-71.9	9.0	-27.0	-35.9
1000	5470	1000	4840.3	-47.7	9.0	-27.0	-11.7
5725	12000	1000	5731.9	-37.9	9.0	-27.0	-1.9
12000	20000	1000	17003.1	-65.1	9.0	-27.0	-29.1
20000	40000	1000	39985.0	-54.6	9.0	-27.0	-18.6
Measurement uncertainty				±3 dB			

5.6.5.9 802.11n, HT40, antenna gain group 3:

Lowest frequency: CH52up					PK-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	0.0	-77.6	14.2	-27.0	-36.4
30	1000	100	368.5	-71.0	14.2	-27.0	-29.8
1000	5150	1000	4759.9	-47.3	14.2	-27.0	-6.1
5350	12000	1000	5622.3	-48.7	14.2	-27.0	-7.5
12000	20000	1000	15665.5	-65.5	14.2	-27.0	-24.3
20000	40000	1000	39988.0	-54.4	14.2	-27.0	-13.2
Measurement uncertainty				±3 dB			

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Highest frequency: CH60up					PK-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.3	14.2	-27.0	-32.1
30	1000	100	379.9	-71.3	14.2	-27.0	-30.1
1000	5150	1000	4720.0	-47.7	14.2	-27.0	-6.5
5350	12000	1000	5351.0	-42.3	14.2	-27.0	-1.1
12000	20000	1000	18188.9	-65.0	14.2	-27.0	-23.8
20000	40000	1000	39976.8	-54.7	14.2	-27.0	-13.5
Measurement uncertainty			±3 dB				

Lowest frequency: CH100up					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-74.0	14.2	-27.0	-32.8
30	1000	100	400.1	-71.0	14.2	-27.0	-29.8
1000	5470	1000	5446.5	-41.5	14.2	-27.0	-0.3
5725	12000	1000	5761.4	-53.0	14.2	-27.0	-11.8
12000	20000	1000	19834.5	-65.8	14.2	-27.0	-24.6
20000	40000	1000	39981.3	-55.0	14.2	-27.0	-13.8
Measurement uncertainty			±3 dB				

Middle frequency: CH108up					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-72.0	14.2	-27.0	-30.8
30	1000	100	365.4	-71.7	14.2	-27.0	-30.5
1000	5470	1000	5458.8	-45.1	14.2	-27.0	-3.9
5725	12000	1000	5742.7	-51.4	14.2	-27.0	-10.2
12000	20000	1000	17196.4	-65.9	14.2	-27.0	-24.7
20000	40000	1000	39937.8	-54.8	14.2	-27.0	-13.6
Measurement uncertainty			±3 dB				

Highest frequency: CH132up					PK-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBm)	(dBi)	(dBm)	(dB)
0.009	30	10	30.0	-73.6	14.2	-27.0	-32.4
30	1000	100	30.1	-72.2	14.2	-27.0	-31.0
1000	5470	1000	4720.2	-47.5	14.2	-27.0	-6.3
5725	12000	1000	5728.9	-46.7	14.2	-27.0	-5.5
12000	20000	1000	18091.8	-65.8	14.2	-27.0	-24.6
20000	40000	1000	39970.8	-55.2	14.2	-27.0	-14.0
Measurement uncertainty			±3 dB				

Limit according to FCC Part 15E, Section 15.407(b) for undesirable emissions:

Operating Frequency range	Undesirable emission limit, EIRP
(MHz)	(dBm/MHz)
5250 - 5350	-27.0
5470 - 5725	-27.0

5.6.6 Test result in restricted bands

G_{out} = is the assumed antenna gain out of operating band for the frequency of emission.
G_{in} = is the max antenna gain in operating band.

5.6.6.1 802.11h, antenna gain group 1:

Lowest frequency: CH52					**PK-measurement**		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.6	41.7	6.0	74.0	-26.3
4500	5150	1000	4760.4	47.5	6.0	74.0	-20.5
5350	5460	1000	5440.8	46.0	6.0	74.0	-22.0
7250	7750	1000	7279.5	27.8	6.0	74.0	-40.2
10600	12700	1000	12548.1	28.0	6.0	74.0	-40.0
Measurement uncertainty				±3 dB			

Middle frequency: CH56					**PK-measurement**		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.7	6.0	74.0	-24.3
4500	5150	1000	4920.2	48.2	6.0	74.0	-19.8
5350	5460	1000	5353.1	48.9	6.0	74.0	-19.1
7250	7750	1000	7453.8	27.9	6.0	74.0	-40.1
10600	12700	1000	12588.3	28.2	6.0	74.0	-39.8
Measurement uncertainty				±3 dB			

Middle frequency: CH56					**AV-measurement**		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4639.8	41.7	1000	6.0	6.0	47.7	54.0	-6.3
5357.5	36.0	1000	6.0	6.0	42.0	54.0	-12.0
Measurement uncertainty				±3 dB			

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	42.6	6.0	74.0	-25.4
4500	5150	1000	4950.4	51.5	6.0	74.0	-16.5
5350	5460	1000	5352.9	58.2	6.0	74.0	-9.8
7250	7750	1000	7564.7	27.9	6.0	74.0	-40.1
10600	12700	1000	10640.0	42.7	6.0	74.0	-25.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH64					AV-measurement		
Test conditions: 1 TX, P20, 6 Mbps							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	46.1	1000	6.0	6.0	52.1	54.0	-1.9
5352.2	38.8	1000	6.0	6.0	44.8	54.0	-9.2
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4320.1	41.3	6.0	74.0	-26.7
4500	5150	1000	4840.3	47.6	6.0	74.0	-20.4
5350	5460	1000	5456.6	55.1	6.0	74.0	-12.9
7250	7750	1000	7332.5	28.1	6.0	74.0	-39.9
10600	12700	1000	11001.3	45.9	6.0	74.0	-22.1
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100					AV-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
5424.6	40.5	1000	6.0	6.0	46.5	54.0	-7.5
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	42.5	6.0	74.0	-25.5
4500	5150	1000	4800.6	47.5	6.0	74.0	-20.5
5350	5460	1000	5416.9	44.9	6.0	74.0	-23.1
7250	7750	1000	7612.0	28.8	6.0	74.0	-39.2
10600	12700	1000	11161.7	44.0	6.0	74.0	-24.0
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P20, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4320.1	44.6	6.0	74.0	-23.4
4500	5150	1000	4720.2	47.0	6.0	74.0	-21.0
5350	5460	1000	5364.4	45.6	6.0	74.0	-22.4
7250	7750	1000	7252.8	38.2	6.0	74.0	-29.8
10600	12700	1000	11400.9	44.1	6.0	74.0	-23.9
Measurement uncertainty				±3 dB			

5.6.6.2 802.11h, antenna gain group 2:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.4	9.0	74.0	-21.6
4500	5150	1000	4760.4	47.3	9.0	74.0	-17.7
5350	5460	1000	5418.1	46.0	9.0	74.0	-19.0
7250	7750	1000	7747.7	28.1	9.0	74.0	-36.9
10600	12700	1000	12562.6	28.8	9.0	74.0	-36.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH52					AV-measurement		
Test conditions: 1 TX, P17, 6 Mbps				Test results			
f	E	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4639.8	43.3	1000	6.0	6.0	49.3	54.0	-4.7
5422.1	31.7	1000	6.0	6.0	37.7	54.0	-16.3
Measurement uncertainty				±3 dB			

Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps							
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	42.8	9.0	74.0	-22.2
4500	5150	1000	4913.5	49.2	9.0	74.0	-15.8
5350	5460	1000	5360.3	48.7	9.0	74.0	-16.3
7250	7750	1000	7471.3	27.6	9.0	74.0	-37.4
10600	12700	1000	10942.5	28.1	9.0	74.0	-36.9
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH56					**AV-measurement**		
Test conditions: 1 TX, P17, 6 Mbps							
f	E	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4800.3	45.9	1000	6.0	6.0	51.9	54.0	-2.1
5354.4	36.3	1000	6.0	6.0	42.3	54.0	-11.7
Measurement uncertainty				±3 dB			

Highest frequency: CH64					**PK-measurement**		
Test conditions: 1 TX, P17, 6 Mbps							
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4400.0	43.8	9.0	74.0	-21.2
4500	5150	1000	4951.4	49.0	9.0	74.0	-16.0
5350	5460	1000	5352.9	59.0	9.0	74.0	-6.0
7250	7750	1000	7551.3	28.0	9.0	74.0	-37.0
10600	12700	1000	10642.8	42.8	9.0	74.0	-22.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH64					**AV-measurement**		
Test conditions: 1 TX, P20				Test results			
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	46.2	1000	6.0	6.0	52.2	54.0	-1.8
5352.3	39.0	1000	6.0	6.0	45.0	54.0	-9.0
Measurement uncertainty				±3 dB			

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	42.7	9.0	74.0	-22.3
4500	5150	1000	4760.4	47.3	9.0	74.0	-17.7
5350	5460	1000	5459.9	53.8	9.0	74.0	-11.2
7250	7750	1000	7475.2	27.6	9.0	74.0	-37.4
10600	12700	1000	11001.3	44.7	9.0	74.0	-20.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100					AV-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
f	E	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.7	41.5	1000	9.0	9.0	50.5	54.0	-3.5
5424.0	40.8	1000	9.0	9.0	49.8	54.0	-4.2
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4200.0	41.5	9.0	74.0	-23.5
4500	5150	1000	4800.1	48.5	9.0	74.0	-16.5
5350	5460	1000	5385.1	45.1	9.0	74.0	-19.9
7250	7750	1000	7544.1	27.8	9.0	74.0	-37.2
10600	12700	1000	11159.7	44.0	9.0	74.0	-21.0
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH116					AV-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4840.0	40.0	1000	9.0	9.0	49.0	54.0	-5.0
5440.0	32.2	1000	9.0	9.0	41.2	54.0	-12.8
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4320.1	44.7	9.0	74.0	-20.3
4500	5150	1000	4920.2	47.5	9.0	74.0	-17.5
5350	5460	1000	5381.7	45.6	9.0	74.0	-19.4
7250	7750	1000	7730.2	38.5	9.0	74.0	-26.5
10600	12700	1000	11400.9	45.8	9.0	74.0	-19.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH140					AV-measurement		
Test conditions: 1 TX, P17, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.7	44.5	1000	9.0	9.0	53.5	54.0	-0.5
5356.7	31.7	1000	9.0	9.0	40.7	54.0	-13.3
11400.1	30.7	1000	9.0	9.0	39.7	54.0	-14.3
Measurement uncertainty				±3 dB			

5.6.6.3 802.11h, antenna gain group 3:

Lowest frequency: CH52					PK-measurement		
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)
3600	4400	1000	4240.1	43.2	14.2	74.0	-16.6
4500	5150	1000	4759.9	48.0	14.2	74.0	-11.8
5350	5460	1000	5382.0	44.0	14.2	74.0	-15.8
7250	7750	1000	7716.7	27.7	14.2	74.0	-32.1
10600	12700	1000	11934.5	28.2	14.2	74.0	-31.6
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH52					AV-measurement		
Test conditions: 1 TX, P14, 6 Mbps				Test results			
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.0	34.8	1000	14.2	14.2	49.0	54.0	-5.0
4760.0	38.1	1000	14.2	14.2	52.3	54.0	-1.7
5440.4	31.5	1000	14.2	14.2	45.7	54.0	-8.3
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Middle frequency: CH56					PK-measurement		
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)
3600	4400	1000	4240.1	42.9	14.2	74.0	-16.9
4500	5150	1000	4760.4	48.4	14.2	74.0	-11.4
5350	5460	1000	5365.5	45.6	14.2	74.0	-14.2
7250	7750	1000	7437.3	28.3	14.2	74.0	-31.5
10600	12700	1000	10798.1	28.5	14.2	74.0	-31.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH56					AV-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4280.8	38.5	1000	14.2	14.2	52.7	54.0	-1.3
4760.7	37.4	1000	14.2	14.2	51.6	54.0	-2.4
5363.6	35.0	1000	14.2	14.2	49.2	54.0	-4.8
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Highest frequency: CH64					**PK-measurement**		
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)
3600	4400	1000	4163.9	45.4	14.2	74.0	-14.4
4500	5150	1000	5144.3	52.4	14.2	74.0	-7.4
5350	5460	1000	5357.2	54.2	14.2	74.0	-5.6
7250	7750	1000	7442.4	38.7	14.2	74.0	-21.1
10600	12700	1000	10648.6	41.7	14.2	74.0	-18.1
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH64					**AV-measurement**		
Test conditions: 1 TX, P14, 6 Mbps							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4320.0	39.0	1000	14.2	14.2	53.2	54.0	-0.8
4639.8	38.8	1000	14.2	14.2	53.0	54.0	-1.0
5350.0	35.4	1000	14.2	14.2	49.6	54.0	-4.4
10642.0	25.9	1000	14.2	14.2	40.1	54.0	-13.9
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Lowest frequency: CH100					PK-measurement		
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)
3600	4400	1000	4320.1	41.3	14.2	74.0	-18.5
4500	5150	1000	4720.2	47.4	14.2	74.0	-12.4
5350	5460	1000	5418.0	51.1	14.2	74.0	-8.7
7250	7750	1000	7451.6	28.0	14.2	74.0	-31.8
10600	12700	1000	11001.3	42.8	14.2	74.0	-17.0
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100					AV-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4320.0	35.7	1000	14.2	14.2	49.9	54.0	-4.1
4639.8	32.1	1000	14.2	14.2	46.3	54.0	-7.7
5418.0	39.5	1000	14.2	14.2	53.7	54.0	-0.3
11000.1	31.2	1000	14.2	14.2	45.4	54.0	-8.6
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Middle frequency: CH116					PK-measurement		
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)
3600	4400	1000	4279.9	42.6	14.2	74.0	-17.2
4500	5150	1000	4800.1	49.3	14.2	74.0	-10.5
5350	5460	1000	5444.3	45.0	14.2	74.0	-14.8
7250	7750	1000	7296.1	28.0	14.2	74.0	-31.8
10600	12700	1000	11162.7	41.8	14.2	74.0	-18.0
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH116					AV-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4280.0	25.3	1000	14.2	14.2	39.5	54.0	-14.5
4639.8	31.4	1000	14.2	14.2	45.6	54.0	-8.4
5454.7	31.6	1000	14.2	14.2	45.8	54.0	-8.2
11160.7	28.9	1000	14.2	14.2	43.1	54.0	-10.9
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Highest frequency: CH140					PK-measurement		
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)
3600	4400	1000	4240.2	45.5	14.2	74.0	-14.3
4500	5150	1000	4720.2	47.7	14.2	74.0	-12.1
5350	5460	1000	5378.4	45.7	14.2	74.0	-14.1
7250	7750	1000	7633.7	39.4	14.2	74.0	-20.4
10600	12700	1000	11399.9	43.6	14.2	74.0	-16.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH140					AV-measurement		
Test conditions: 1 TX, P14, 6 Mbps			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4280.8	38.7	1000	14.2	14.2	52.9	54.0	-1.1
4639.8	43.3	1000	14.2	14.2	46.2	54.0	-7.8
5354.4	31.9	1000	14.2	14.2	46.1	54.0	-7.9
11400.1	28.4	1000	14.2	14.2	42.6	54.0	-11.4
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

5.6.6.4 802.11n, HT20, antenna gain group 1:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.6	6.0	74.0	-24.4
4500	5150	1000	4759.9	47.1	6.0	74.0	-20.9
5350	5460	1000	5411.9	45.9	6.0	74.0	-22.1
7250	7750	1000	7614.6	27.6	6.0	74.0	-40.4
10600	12700	1000	10857.9	28.3	6.0	74.0	-39.7
Measurement uncertainty				±3 dB			

Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4280.1	41.8	6.0	74.0	-26.2
4500	5150	1000	4800.4	48.1	6.0	74.0	-19.9
5350	5460	1000	5361.3	48.4	6.0	74.0	-19.6
7250	7750	1000	7405.3	27.8	6.0	74.0	-40.2
10600	12700	1000	11517.9	27.9	6.0	74.0	-40.1
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH56					AV-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	46.5	1000	6.0	6.0	52.5	54.0	-1.5
5358.8	35.9	1000	6.0	6.0	41.9	54.0	-12.1
Measurement uncertainty				±3 dB			

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	44.2	6.0	74.0	-23.8
4500	5150	1000	4920.1	49.4	6.0	74.0	-18.6
5350	5460	1000	5353.8	58.3	6.0	74.0	-9.7
7250	7750	1000	7650.7	27.9	6.0	74.0	-40.1
10600	12700	1000	10646.7	42.7	6.0	74.0	-25.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH64					AV-measurement		
Test conditions: 1 TX, P20, MCS0							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	46.4	1000	6.0	6.0	52.4	54.0	-1.6
5350.1	39.7	1000	6.0	6.0	45.7	54.0	-8.3
Measurement uncertainty				±3 dB			

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	43.4	6.0	74.0	-24.6
4500	5150	1000	4760.4	47.8	6.0	74.0	-20.2
5350	5460	1000	5454.4	54.8	6.0	74.0	-13.2
7250	7750	1000	7581.5	27.8	6.0	74.0	-40.2
10600	12700	1000	11003.2	44.7	6.0	74.0	-23.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100					AV-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
f	A	RBW	G_{in}		E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
5422.3	40.2	1000	6.0	6.0	46.2	54.0	-7.8
Measurement uncertainty				±3 dB			

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	42.4	6.0	74.0	-25.6
4500	5150	1000	4840.3	46.6	6.0	74.0	-21.4
5350	5460	1000	5451.0	45.0	6.0	74.0	-23.0
7250	7750	1000	7294.1	28.0	6.0	74.0	-40.0
10600	12700	1000	11164.7	42.8	6.0	74.0	-25.2
Measurement uncertainty				±3 dB			

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	45.1	6.0	74.0	-22.9
4500	5150	1000	4759.8	48.9	6.0	74.0	-19.1
5350	5460	1000	5438.2	46.8	6.0	74.0	-21.2
7250	7750	1000	7537.2	37.9	6.0	74.0	-30.1
10600	12700	1000	11398.0	44.9	6.0	74.0	-23.1
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH140					AV-measurement		
Test conditions: 1 TX, P20, MCS0			Test results				
f	A	RBW	G_{in}		E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.7	43.1	1000	6.0	6.0	49.1	54.0	-4.9
Measurement uncertainty				±3 dB			

5.6.6.5 802.11n, HT20, antenna gain group 2:

Middle frequency: CH56					**PK-measurement**		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	42.4	9.0	74.0	-22.6
4500	5150	1000	4800.4	48.0	9.0	74.0	-17.0
5350	5460	1000	5364.4	48.4	9.0	74.0	-16.6
7250	7750	1000	7569.3	27.6	9.0	74.0	-37.4
10600	12700	1000	12587.3	28.3	9.0	74.0	-36.7
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH52					**AV-measurement**		
Test conditions: 1 TX, P17, MCS0							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4639.8	43.3	1000	9.0	9.0	52.3	54.0	-1.7
5422.1	31.7	1000	9.0	9.0	40.7	54.0	-13.3
Measurement uncertainty				±3 dB			

Middle frequency: CH56					**PK-measurement**		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	42.4	9.0	74.0	-22.6
4500	5150	1000	4800.4	48.0	9.0	74.0	-17.0
5350	5460	1000	5364.4	48.4	9.0	74.0	-16.6
7250	7750	1000	7569.3	27.6	9.0	74.0	-37.4
10600	12700	1000	12587.3	28.3	9.0	74.0	-36.7
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH56					**AV-measurement**		
Test conditions: 1 TX, P17, MCS0							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	44.0	1000	9.0	9.0	53.0	54.0	-1.0
5356.7	36.7	1000	9.0	9.0	45.7	54.0	-8.3
Measurement uncertainty				±3 dB			

Highest frequency: CH64					**PK-measurement**		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4163.9	43.8	9.0	74.0	-21.2
4500	5150	1000	5143.3	53.7	9.0	74.0	-11.3
5350	5460	1000	5352.1	57.3	9.0	74.0	-7.7
7250	7750	1000	7571.3	27.9	9.0	74.0	-37.1
10600	12700	1000	11054.9	41.9	9.0	74.0	-23.1
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH64					**AV-measurement**		
Test conditions: 1 TX, P17, MCS0							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	35.1	1000	9.0	9.0	44.1	54.0	-9.9
5350.0	42.4	1000	9.0	9.0	51.4	54.0	-2.6
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	43.4	9.0	74.0	-21.6
4500	5150	1000	4760.4	47.6	9.0	74.0	-17.4
5350	5460	1000	5457.7	55.7	9.0	74.0	-9.3
7250	7750	1000	7734.1	27.5	9.0	74.0	-37.5
10600	12700	1000	5238.7	44.2	9.0	74.0	-20.8
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100					AV-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	34.1	1000	9.0	9.0	43.1	54.0	-10.9
5416.1	40.4	1000	9.0	9.0	49.4	54.0	-4.6
Measurement uncertainty							

Note: This AV-measurement is done radiated!

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4200.0	40.5	9.0	74.0	-24.5
4500	5150	1000	4720.2	47.1	9.0	74.0	-17.9
5350	5460	1000	5418.6	44.4	9.0	74.0	-20.6
7250	7750	1000	7582.5	28.3	9.0	74.0	-36.7
10600	12700	1000	11163.7	41.6	9.0	74.0	-23.4
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH116					AV-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	35.1	1000	9.0	9.0	44.1	54.0	-9.9
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4320.1	44.7	9.0	74.0	-20.3
4500	5150	1000	4760.4	49.1	9.0	74.0	-15.9
5350	5460	1000	5366.6	47.0	9.0	74.0	-18.0
7250	7750	1000	7411.2	38.5	9.0	74.0	-26.5
10600	12700	1000	11397.0	44.0	9.0	74.0	-21.0
Measurement uncertainty			±3 dB				

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH140					AV-measurement		
Test conditions: 1 TX, P17, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	36.8	1000	9.0	9.0	45.8	54.0	-8.2
5440.1	31.5	1000	9.0	9.0	40.5	54.0	-13.5
Measurement uncertainty			±3 dB				

Note: This AV-measurement is done radiated!

5.6.6.6 802.11n, HT20, antenna gain group 3:

Lowest frequency: CH52					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.5	14.2	74.0	-16.3
4500	5150	1000	4760.4	47.1	14.2	74.0	-12.7
5350	5460	1000	5433.5	44.1	14.2	74.0	-15.7
7250	7750	1000	7392.9	28.6	14.2	74.0	-31.2
10600	12700	1000	12439.8	28.0	14.2	74.0	-31.8
Measurement uncertainty			±3 dB				

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH52					AV-measurement		
Test conditions: 1 TX, P14, MCS0							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4280.8	25.9	1000	14.2	14.2	40.1	54.0	-13.9
4760.0	39.2	1000	14.2	14.2	53.4	54.0	-0.6
5364.3	34.6	1000	14.2	14.2	48.8	54.0	-5.2
Measurement uncertainty			±3 dB				

Note: This AV-measurement is done radiated!

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Middle frequency: CH56					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	42.7	14.2	74.0	-17.1
4500	5150	1000	4800.4	47.3	14.2	74.0	-12.5
5350	5460	1000	5358.3	46.2	14.2	74.0	-13.6
7250	7750	1000	7452.7	28.0	14.2	74.0	-31.8
10600	12700	1000	10886.8	28.6	14.2	74.0	-31.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH56					AV-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4280.8	25.4	1000	14.2	14.2	39.6	54.0	-14.4
4760.0	39.3	1000	14.2	14.2	53.5	54.0	-0.5
5364.3	34.6	1000	14.2	14.2	48.8	54.0	-5.2
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Highest frequency: CH64					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4280.1	43.6	14.2	74.0	-16.2
4500	5150	1000	4959.6	48.1	14.2	74.0	-11.7
5350	5460	1000	5356.2	52.2	14.2	74.0	-7.6
7250	7750	1000	7565.1	27.9	14.2	74.0	-31.9
10600	12700	1000	10640.3	40.9	14.2	74.0	-18.9
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH64					AV-measurement		
Test conditions: 1 TX, P14, MCS0							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4280.0	38.7	1000	14.2	14.2	52.9	54.0	-1.1
4760.0	38.8	1000	14.2	14.2	53.0	54.0	-1.0
5350.0	34.8	1000	14.2	14.2	49.0	54.0	-5.0
10640.4	25.5	1000	14.2	14.2	39.7	54.0	-14.3
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Lowest frequency: CH100					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	43.1	14.2	74.0	-16.7
4500	5150	1000	4760.4	48.3	14.2	74.0	-11.5
5350	5460	1000	5414.7	51.7	14.2	74.0	-8.1
7250	7750	1000	7397.5	28.5	14.2	74.0	-31.3
10600	12700	1000	11001.3	43.3	14.2	74.0	-16.5
Measurement uncertainty			±3 dB				

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100					AV-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4360.8	37.5	1000	14.2	14.2	51.7	54.0	-2.3
4760.0	39.0	1000	14.2	14.2	53.2	54.0	-0.8
5414.6	39.2	1000	14.2	14.2	53.4	54.0	-0.6
10998.5	30.4	1000	14.2	14.2	44.6	54.0	-9.4
Measurement uncertainty			±3 dB				

Note: This AV-measurement is done radiated!

Middle frequency: CH116					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4200.0	41.9	14.2	74.0	-17.9
4500	5150	1000	4720.2	46.5	14.2	74.0	-13.3
5350	5460	1000	5416.4	44.0	14.2	74.0	-15.8
7250	7750	1000	7733.1	27.6	14.2	74.0	-32.2
10600	12700	1000	11163.7	40.0	14.2	74.0	-19.8
Measurement uncertainty			±3 dB				

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH116					AV-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.0	24.9	1000	14.2	14.2	39.1	54.0	-14.9
4760.0	39.3	1000	14.2	14.2	53.5	54.0	-0.5
5415.3	31.4	1000	14.2	14.2	45.6	54.0	-8.4
11159.1	29.0	1000	14.2	14.2	43.2	54.0	-10.8
Measurement uncertainty			±3 dB				

Note: This AV-measurement is done radiated!

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Highest frequency: CH140					PK-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	45.6	14.2	74.0	-14.2
4500	5150	1000	4720.2	47.0	14.2	74.0	-12.8
5350	5460	1000	5456.0	45.4	14.2	74.0	-14.4
7250	7750	1000	7252.8	38.2	14.2	74.0	-21.6
10600	12700	1000	11398.9	42.7	14.2	74.0	-17.1
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH140					AV-measurement		
Test conditions: 1 TX, P14, MCS0			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.0	24.7	1000	14.2	14.2	38.9	54.0	-15.1
4760.0	39.8	1000	14.2	14.2	54.0	54.0	0.0
5351.1	31.8	1000	14.2	14.2	46.0	54.0	-8.0
11399.6	28.1	1000	14.2	14.2	42.3	54.0	-11.7
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

5.6.6.7 802.11n, HT40, antenna gain group 1:

Lowest frequency: CH52up					**PK-measurement**		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.4	6.0	74.0	-24.6
4500	5150	1000	4919.7	50.3	6.0	74.0	-17.7
5350	5460	1000	5358.3	50.8	6.0	74.0	-17.2
7250	7750	1000	7251.6	28.0	6.0	74.0	-40.0
10600	12700	1000	10726.9	28.3	6.0	74.0	-39.7
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH52up					**AV-measurement**		
Test conditions: 1 TX, P20, MCS8							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4719.7	45.9	1000	6.0	6.0	51.9	54.0	-2.1
5352.4	35.9	1000	6.0	6.0	41.9	54.0	-12.1
Measurement uncertainty				±3 dB			

Highest frequency: CH60up					**PK-measurement**		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G_{out}	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.7	6.0	74.0	-24.3
4500	5150	1000	4946.1	49.3	6.0	74.0	-18.7
5350	5460	1000	5353.1	62.0	6.0	74.0	-6.0
7250	7750	1000	7401.2	28.1	6.0	74.0	-39.9
10600	12700	1000	10616.6	39.8	6.0	74.0	-28.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH60up					**AV-measurement**		
Test conditions: 1 TX, P20							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4760.0	43.2	1000	6.0	6.0	49.2	54.0	-4.8
5354.2	47.9	1000	6.0	6.0	53.9	54.0	-0.1
Measurement uncertainty				±3 dB			

Lowest frequency: CH100up					**PK-measurement**		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4400.0	41.9	6.0	73.0	-25.1
4500	5150	1000	4720.2	47.6	6.0	74.0	-20.4
5350	5460	1000	5459.4	66.1	6.0	74.0	-1.9
7250	7750	1000	7602.2	28.4	6.0	74.0	-39.6
10600	12700	1000	11017.0	43.4	6.0	74.0	-24.6
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100up					AV-measurement		
Test conditions: 1 TX, P20, MCS8			Test results				
f	E	RBW	G_{in}		E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
5460.0	45.6	1000	6.0	6.0	51.6	54.0	-2.4
Measurement uncertainty				±3 dB			

Middle frequency: CH108up					PK-measurement		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4200.0	41.4	6.0	74.0	-26.6
4500	5150	1000	4720.2	46.7	6.0	74.0	-21.3
5350	5460	1000	5459.4	51.5	6.0	74.0	-16.5
7250	7750	1000	7399.4	28.2	6.0	74.0	-39.8
10600	12700	1000	11096.7	42.7	6.0	74.0	-25.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH108up					AV-measurement		
Test conditions: 1 TX, P20, MCS8			Test results				
f	A	RBW	G_{in}		E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
5459.3	38.2	1000	6.0	6.0	44.2	54.0	-9.8
Measurement uncertainty				±3 dB			

Highest frequency: CH132up					PK-measurement		
Test conditions: 1 TX, P20, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	42.0	6.0	74.0	-26.0
4500	5150	1000	4840.3	47.5	6.0	74.0	-20.5
5350	5460	1000	5442.1	44.6	6.0	74.0	-23.4
7250	7750	1000	7642.6	28.1	6.0	74.0	-39.9
10600	12700	1000	11336.9	40.3	6.0	74.0	-27.7
Measurement uncertainty				±3 dB			

5.6.6.8 802.11n, HT40, antenna gain group 2:

Lowest frequency: CH52up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4399.9	43.4	9.0	74.0	-21.6
4500	5150	1000	4920.2	50.9	9.0	74.0	-14.1
5350	5460	1000	5353.1	54.0	9.0	74.0	-11.0
7250	7750	1000	7385.7	28.2	9.0	74.0	-36.8
10600	12700	1000	11969.6	28.4	9.0	74.0	-36.6
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Lowest frequency: CH52up					AV-measurement		
Test conditions: 1 TX, P17, MCS8							
f	E	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4559.8	42.6	1000	9.0	9.0	51.6	54.0	-2.4
5358.8	35.5	1000	9.0	9.0	44.5	54.0	-9.5
Measurement uncertainty				±3 dB			

Highest frequency: CH60up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G_{out}	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.7	9.0	74.0	-21.3
4500	5150	1000	4720.0	47.5	9.0	74.0	-17.5
5350	5460	1000	5351.0	64.9	9.0	74.0	-0.1
7250	7750	1000	7297.0	28.3	9.0	74.0	-36.7
10600	12700	1000	10621.8	37.6	9.0	74.0	-27.4
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH60up					AV-measurement		
Test conditions: 1 TX, P17, MCS8							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4639.8	43.7	1000	9.0	9.0	52.7	54.0	-1.3
5350.6	44.8	1000	9.0	9.0	53.8	54.0	-0.2
Measurement uncertainty				±3 dB			

Lowest frequency: CH100up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	42.8	9.0	74.0	-22.2
4500	5150	1000	4760.4	47.5	9.0	74.0	-17.5
5350	5460	1000	5459.9	66.3	9.0	74.0	1.3
7250	7750	1000	7463.4	27.9	9.0	74.0	-37.1
10600	12700	1000	11018.0	42.8	9.0	74.0	-22.2
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH100up					AV-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
f	A	RBW	G_{in}		E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4720.4	43.8	1000	9.0	9.0	52.8	54.0	-1.2
5458.4	43.4	1000	9.0	9.0	52.4	54.0	-1.6
Measurement uncertainty				±3 dB			

Middle frequency: CH108up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	41.6	9.0	74.0	-23.4
4500	5150	1000	4760.4	47.0	9.0	74.0	-18.0
5350	5460	1000	5456.0	52.3	9.0	74.0	-12.7
7250	7750	1000	7399.4	29.2	9.0	74.0	-35.8
10600	12700	1000	11103.6	41.2	9.0	74.0	-23.8
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH108up					AV-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
f	A	RBW	G_{in}		E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4559.8	42.8	1000	9.0	9.0	51.8	54.0	-2.2
5459.9	38.1	1000	9.0	9.0	47.1	54.0	-6.9
Measurement uncertainty				±3 dB			

Highest frequency: CH132up					PK-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4200.5	40.9	9.0	74.0	-24.1
4500	5150	1000	4840.3	47.5	9.0	74.0	-17.5
5350	5460	1000	5439.8	44.5	9.0	74.0	-20.5
7250	7750	1000	7634.7	28.3	9.0	74.0	-36.7
10600	12700	1000	11336.9	40.4	9.0	74.0	-24.6
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Highest frequency: CH132up					AV-measurement		
Test conditions: 1 TX, P17, MCS8			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4639.8	43.0	1000	9.0	9.0	52.0	54.0	-2.0
Measurement uncertainty				±3 dB			

5.6.6.9 802.11n, HT40, antenna gain group 3:

Lowest frequency: CH52up					PK-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.2	14.2	74.0	-16.6
4500	5150	1000	4759.9	48.0	14.2	74.0	-11.8
5350	5460	1000	5382.0	44.0	14.2	74.0	-15.8
7250	7750	1000	7716.7	27.7	14.2	74.0	-32.1
10600	12700	1000	11934.5	28.2	14.2	74.0	-31.6
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Lowest frequency: CH52up					AV-measurement		
Test conditions: 1 TX, P14, MCS8							
f	E	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.0	27.0	1000	14.2	14.2	41.2	54.0	-12.8
4759.9	38.3	1000	14.2	14.2	52.5	54.0	-1.5
5356.5	34.0	1000	14.2	14.2	48.2	54.0	-5.8
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!

Highest frequency: CH60up					PK-measurement		
Test conditions: 1 TX, P12, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G_{out}	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.1	43.5	14.2	74.0	-16.3
4500	5150	1000	4720.0	48.6	14.2	74.0	-11.2
5350	5460	1000	5351.0	54.6	14.2	74.0	-5.2
7250	7750	1000	7711.6	28.3	14.2	74.0	-31.5
10600	12700	1000	10623.8	32.5	14.2	74.0	-27.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.
Note: The output power has to be reduced to P12 to stay compliant.

Highest frequency: CH60up					AV-measurement		
Test conditions: 1 TX, P12, MCS8							
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV/m)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.0	37.5	1000	14.2	14.2	51.7	54.0	-2.3
4759.9	37.1	1000	14.2	14.2	51.3	54.0	-2.7
5350.8	38.4	1000	14.2	14.2	52.6	54.0	-1.4
Measurement uncertainty				±3 dB			

Note: This AV-measurement is done radiated!
Note: The output power has to be reduced to P12 to stay compliant.

Lowest frequency: CH100up					PK-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4240.2	41.8	14.2	74.0	-18.0
4500	5150	1000	4760.4	47.3	14.2	74.0	-12.5
5350	5460	1000	5459.4	61.3	14.2	74.0	1.5
7250	7750	1000	7451.6	27.9	14.2	74.0	-31.9
10600	12700	1000	11017.0	41.0	14.2	74.0	-18.8
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Lowest frequency: CH100up					AV-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.0	41.0	1000	14.2	9.0	50.0	54.0	-4.0
4760.0	44.4	1000	14.2	9.0	53.4	54.0	-0.6
5459.3	38.3	1000	14.2	14.2	52.5	53.0	-0.5
11020.0	27.6	1000	14.2	14.2	41.8	54.0	-12.2
Measurement uncertainty				±3 dB			

Note: The gain outside of the operating range is verified and therefore reduced to a practical value.

Middle frequency: CH108up					PK-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4280.4	42.8	14.2	74.0	-17.0
4500	5150	1000	4800.1	48.5	14.2	74.0	-11.3
5350	5460	1000	5458.8	50.1	14.2	74.0	-9.7
7250	7750	1000	7399.4	28.2	14.2	74.0	-31.6
10600	12700	1000	11103.6	40.2	14.2	74.0	-19.6
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

Middle frequency: CH108up					AV-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.8	41.4	1000	14.2	9.0	50.4	54.0	-3.6
4720.4	44.8	1000	14.2	9.0	53.8	54.0	-0.2
5455.7	36.5	1000	14.2	14.2	50.7	54.0	-3.3
5460.0	35.9	1000	14.2	14.2	50.1	54.0	-3.9
Measurement uncertainty				±3 dB			

Note: The gain outside of the operating range is verified and therefore reduced to a practical value.

Highest frequency: CH132up					PK-measurement		
Test conditions: 1 TX, P14, MCS8			Test results				
Start *f*	Stop *f*	RBW	Maximum emission		G	Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBi)	(dBµV/m)	(dB)
3600	4400	1000	4400.0	42.1	14.2	74.0	-17.7
4500	5150	1000	4720.2	47.7	14.2	74.0	-12.1
5350	5460	1000	5385.6	44.3	14.2	74.0	-15.5
7250	7750	1000	7510.7	27.9	14.2	74.0	-31.9
10600	12700	1000	11338.9	38.5	14.2	74.0	-21.3
Measurement uncertainty				±3 dB			

Note: The marked frequencies exceed the AV-limit and have to be re-measured in AV-values.

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

Highest frequency: CH132up					**AV-measurement**		
Test conditions: 1 TX, P14, MCS8			Test results				
f	A	RBW	G_{in}	G_{out}	E	AV Limit	Margin
(MHz)	(dBµV)	(kHz)	(dBi)	(dBi)	(dBµV/m)	(dBµV/m)	(dB)
4240.8	40.5	1000	14.2	9.0	49.5	54.0	-4.5
4720.4	44.1	1000	14.2	9.0	53.1	54.0	-0.9
5383.9	31.5	1000	14.2	14.2	45.7	54.0	-8.3
Measurement uncertainty				±3 dB			

Note: The gain outside of the operating range is verified and therefore reduced to a practical value.

The requirements are **FULFILLED.**

Remarks: _____

_____

5.7 Undesirable emissions, cabinet radiation

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

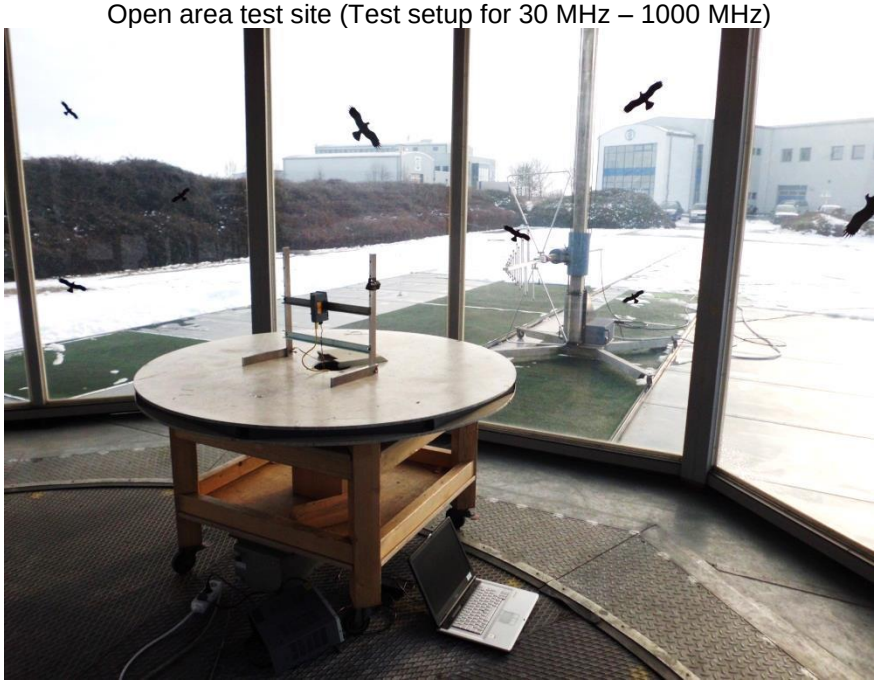
5.7.1 Description of the test location

Test location: OATS 1
Test location: Anechoic chamber 2

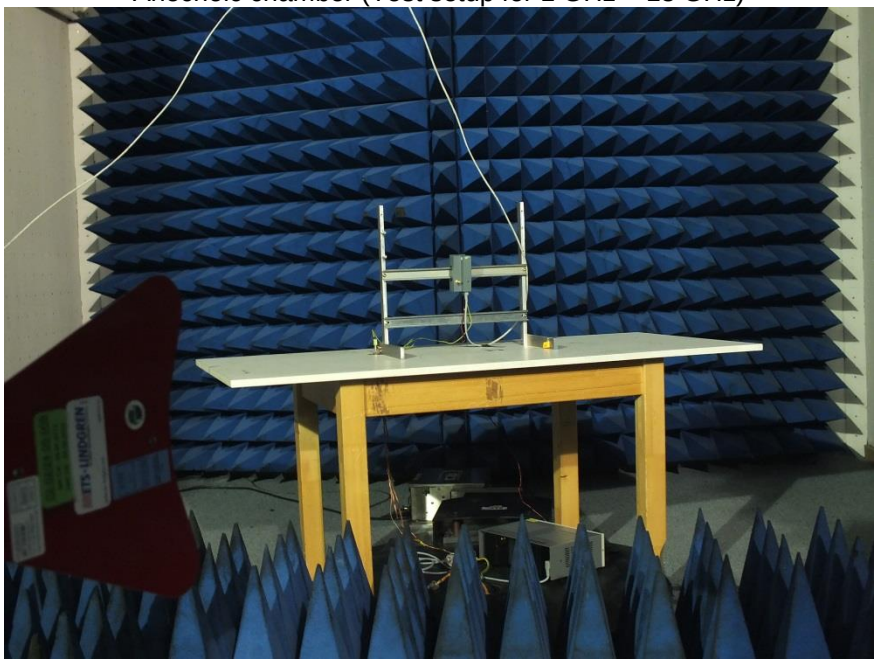
Test distance: 3 m

5.7.2 Photo documentation of the test set-up

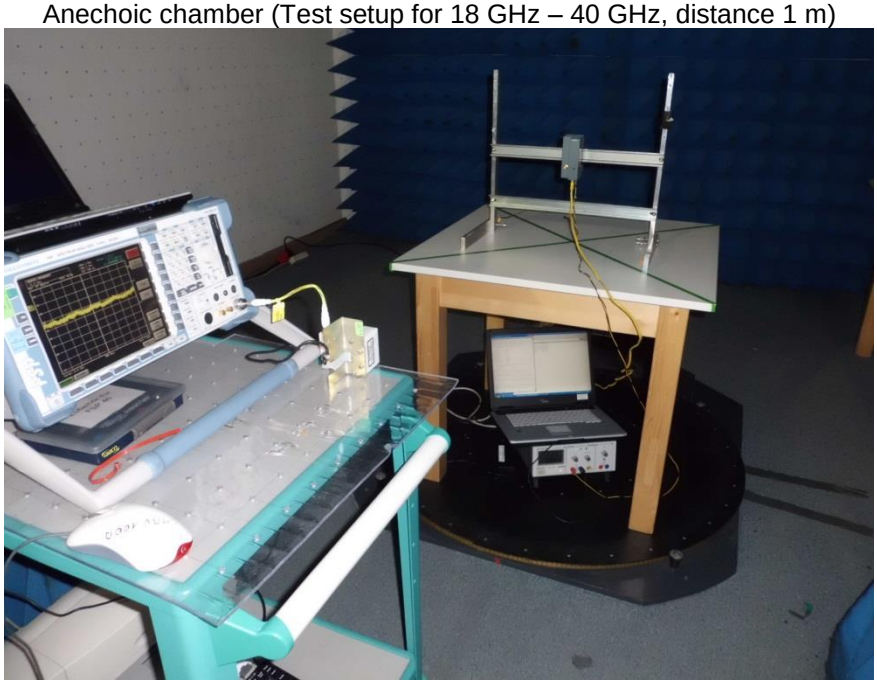
Open area test site (Test setup for 30 MHz – 1000 MHz)



Anechoic chamber (Test setup for 1 GHz – 18 GHz)



Anechoic chamber (Test setup for 18 GHz – 40 GHz, distance 1 m)



5.7.3 Applicable standard

According to FCC Part 15E, Section 15.407(b):
For transmitters operating in the defined bands shall not exceed the appropriate emission limit outside of the operating bands.
In addition, radiated emissions which fall in the restricted bands, as defined in Section15.205(a), must also comply with the radiated emission limit specified in Section15.209(a) (see Section15.205(c)).

5.7.4 Description of Measurement

Cabinet radiation is measured with the setup set out in ANSI C63.4. The antenna is replaced by a termination matching the nominal impedance of the antenna. 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 in average mode again and reported.

Spectrum analyser settings for peak values:
RBW: 1 MHz, VBW: 3 MHz, Sweep: Auto, Detector: Max peak, Trace mode: max hold;

Spectrum analyser settings for average values:
RBW: 1 MHz, VBW: min. VBW, Sweep: Auto, Detector: Max peak, Trace mode: max hold;

Transmission duration			
Standard	min puls in TX continuous mode	1/T	min VBW
	(ms)	(Hz)	
801.11a	2.072	483	1 kHz
801.11n, HT20	1.738	575	1 kHz
801.11n, HT40	0.450	2222	3 kHz

Pre-measurements shows very low radiation and from 18 GHz to 26 GHz, only noise could be measured. In the frequency range 30 – 1000 MHz the same, only noise could be measured. In every channel is the same situation about 1 GHz you can see the control signals and emissions from the control PC, in the 5 GHz range the operating range is clearly visible, but harmonics or other emission could not be observed. Therefore the channel 64 and 100 are measured as reference for the appropriate sub-band.

5.7.5 Test result

802.11h:

802.11h, CH64						
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
1000	4000	1000	1646	44.6	74.0	-29.4
4000	12000	1000	11961	52.9	74.0	-21.1
12000	18000	1000	17548	56.0	74.0	-18.0
18000	26000	1000	-	< 50	74.0	< -24
Measurement uncertainty			±6 dB			

802.11h, CH64					AV-Measurement	
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
12000	18000	1000	17548	47.1	54.0	-6.9
Measurement uncertainty			±6 dB			

802.11h, CH100						
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
1000	4000	1000	1347	43.1	74.0	-30.9
4000	12000	1000	11789	52.3	74.0	-21.7
12000	18000	1000	17790	55.4	74.0	-18.6
18000	26000	1000	-	< 50	74.0	< -24
Measurement uncertainty			±6 dB			

802.11h, CH100					AV-Measurement	
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
12000	18000	1000	17994	47.3	54.0	-6.7
Measurement uncertainty			±6 dB			

802.11n, HT20:

802.11n, HT20, CH64						
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
1000	4000	1000	1992	42.8	74.0	-31.2
4000	12000	1000	11986	52.7	74.0	-21.3
12000	18000	1000	17977	55.9	74.0	-18.1
18000	26000	1000	-	< 50	74.0	< -24
Measurement uncertainty			±6 dB			

802.11n, HT20, CH64					AV-Measurement	
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
12000	18000	1000	17977	47.5	54.0	-6.5
Measurement uncertainty			±6 dB			

802.11n, HT20, CH100						
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
1000	4000	1000	1833	43.5	74.0	-30.5
4000	12000	1000	11689	52.2	74.0	-21.8
12000	18000	1000	17803	55.1	74.0	-18.9
18000	26000	1000	-	< 50	74.0	< -24
Measurement uncertainty			±6 dB			

802.11n, HT20, CH100					AV-Measurement	
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
12000	18000	1000	17560	47.5	54.0	-6.5
Measurement uncertainty			±6 dB			

802.11n, HT40:

802.11n, HT40, CH60up						
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
1000	4000	1000	1206	44.1	74.0	-29.9
4000	12000	1000	11922	52.0	74.0	-22.0
12000	18000	1000	17548	56.0	74.0	-18.0
18000	26000	1000	-	< 50	74.0	< -24
Measurement uncertainty			±6 dB			

802.11n, HT40, CH60up					AV-Measurement	
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
12000	18000	1000	17572	47.1	54.0	-6.9
Measurement uncertainty			±6 dB			

802.11n, HT40, CH100up						
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
1000	4000	1000	1347	43.0	74.0	-31.0
4000	12000	1000	11830	53.0	74.0	-21.0
12000	18000	1000	15060	53.8	74.0	-20.2
18000	26000	1000	-	< 50	74.0	< -24
Measurement uncertainty			±6 dB			

802.11n, HT40, CH100up					AV-Measurement	
Highest power setting : P20			Test results			
Start frequ.	Stop frequ.	RBW	Maximum emission		Limit	Margin
(MHz)	(MHz)	(kHz)	(MHz)	(dBµV/m)	(dBµV/m)	(dB)
12000	18000	1000	17970	46.7	54.0	-7.3
Measurement uncertainty			±6 dB			

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Radiated limits according to FCC Part 15C, Section 15.209(a):

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

FCC Part 15C, Section 15.205, restricted bands of operation:

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

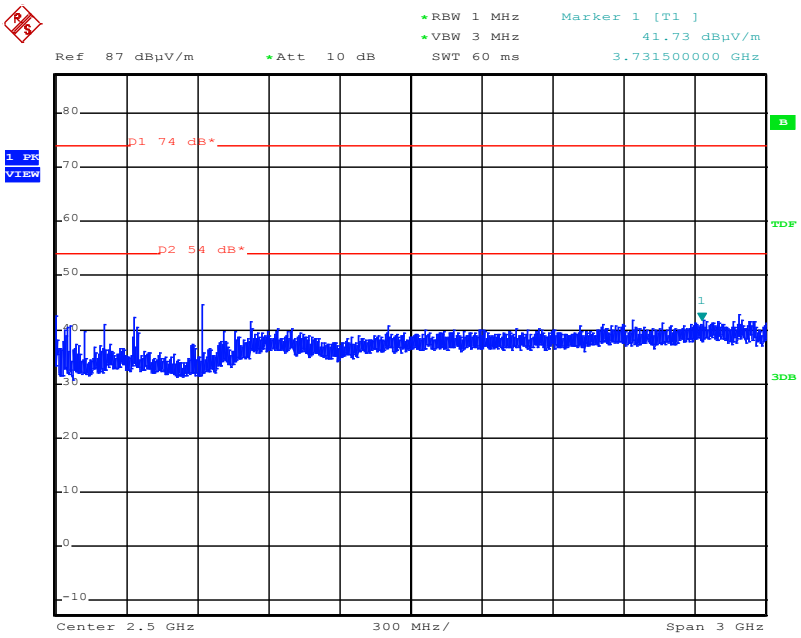
The requirements are **FULFILLED.**

Remarks: The measurement is performed from 1000 MHz up to 26 GHz. For detailed test results please see the following test protocols. Only the worst case of the plots are listed.

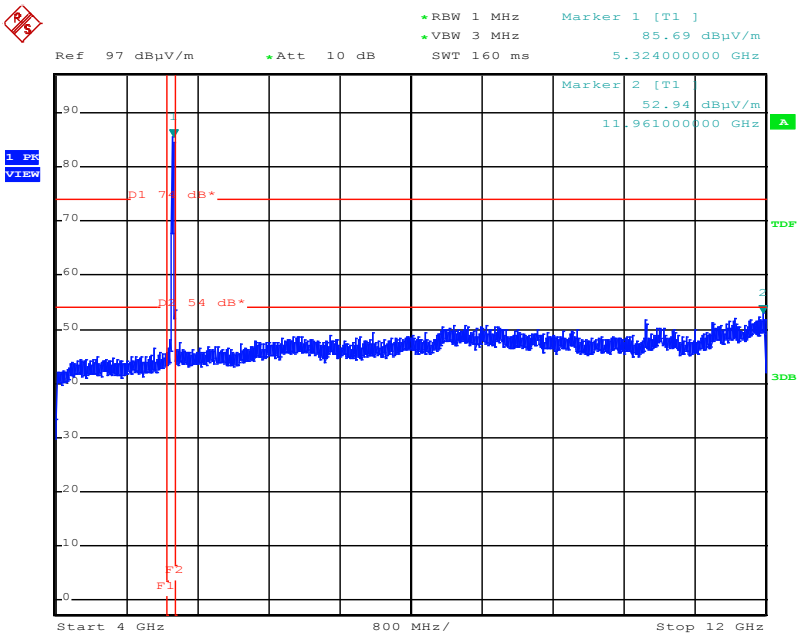
5.7.6 Test protocols undesirable emission, cabinet radiation

802.11h, CH64:

1 GHz – 4 GHz



4 GHz – 12 GHz



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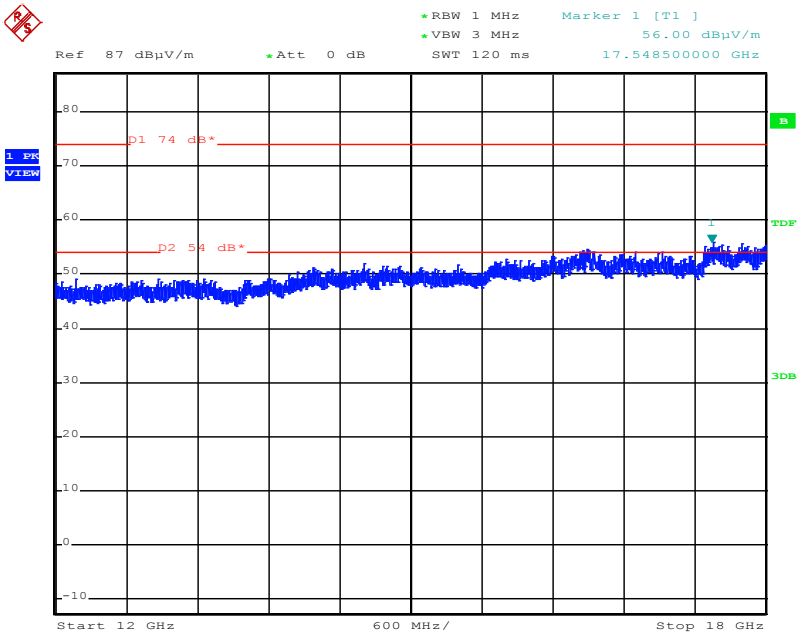
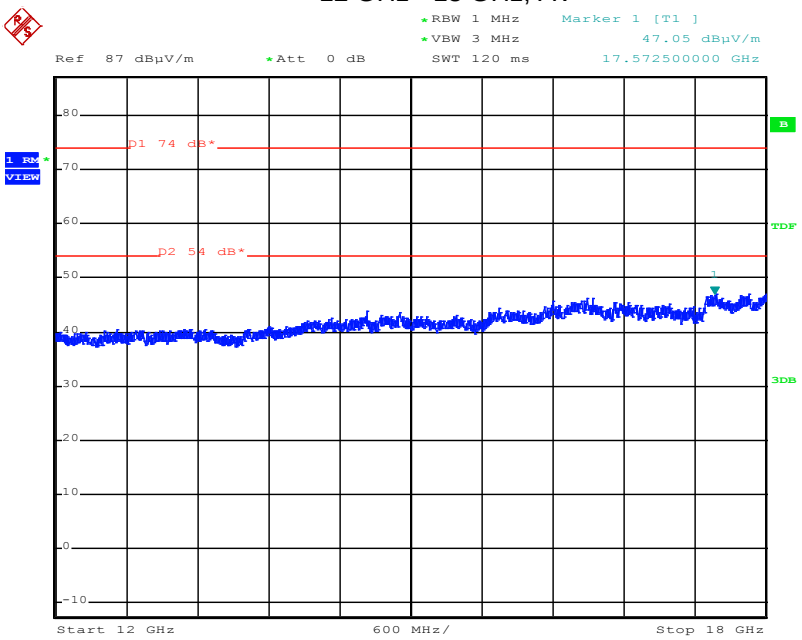
12 GHz – 18 GHz

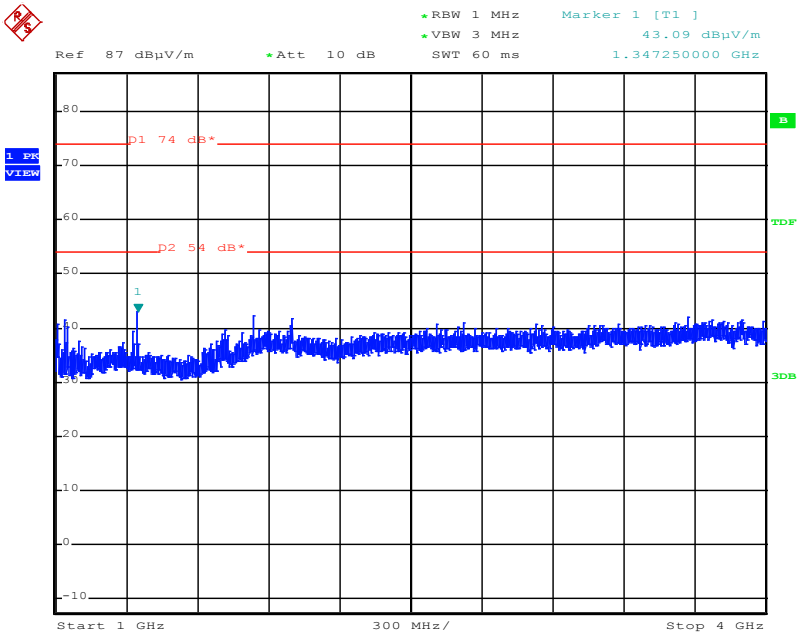


12 GHz - 18 GHz, AV

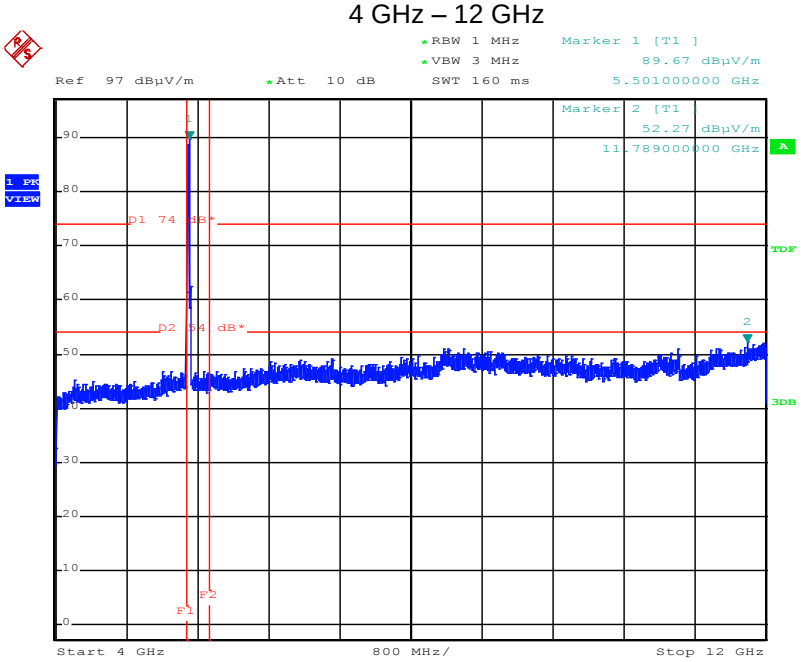


802.11h, CH100:

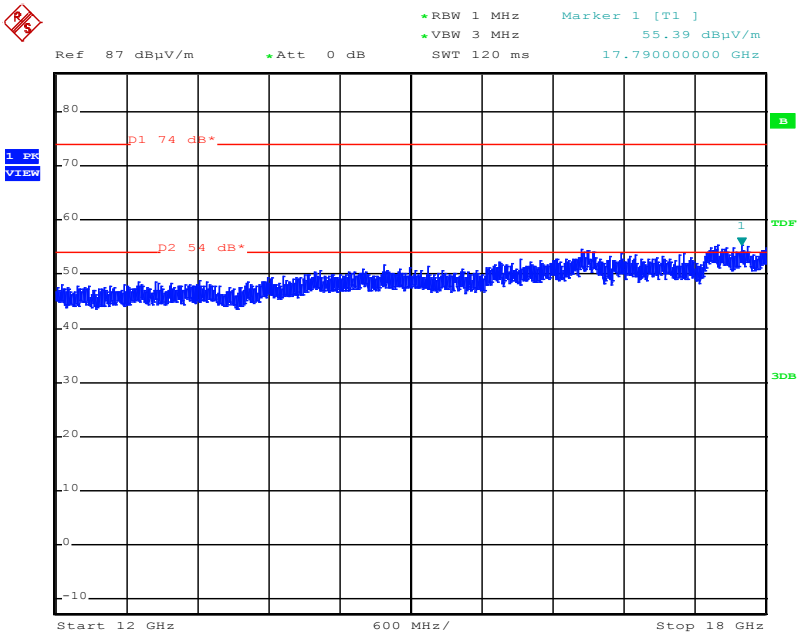
1 GHz – 4 GHz



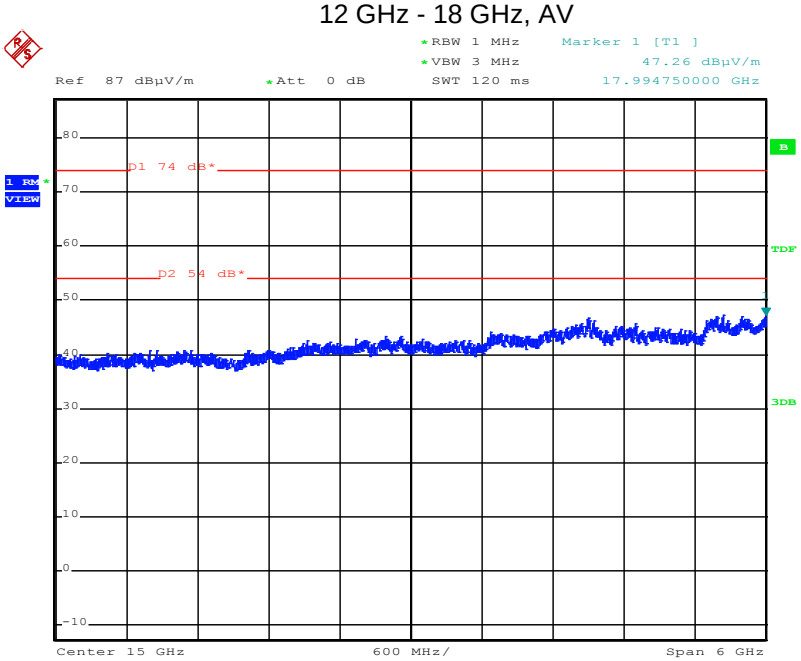
4 GHz – 12 GHz



12 GHz – 18 GHz

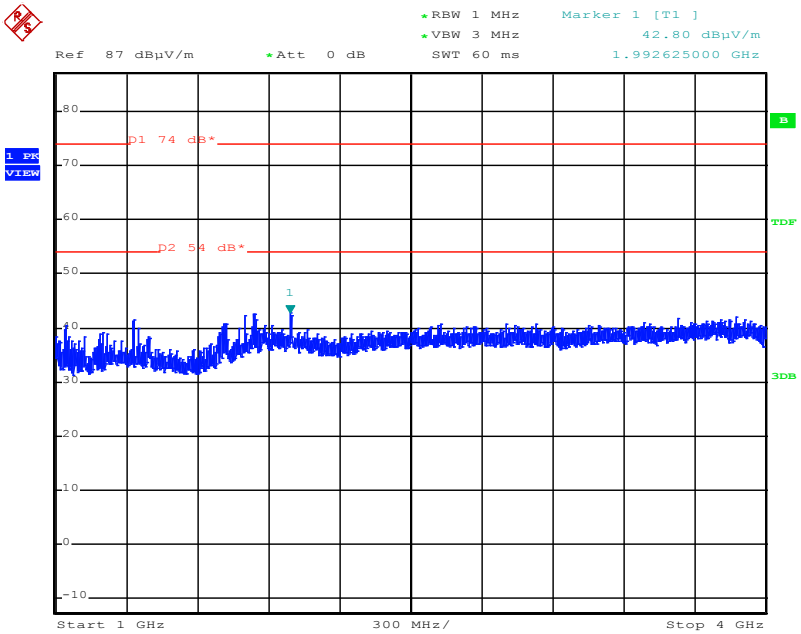


12 GHz - 18 GHz, AV

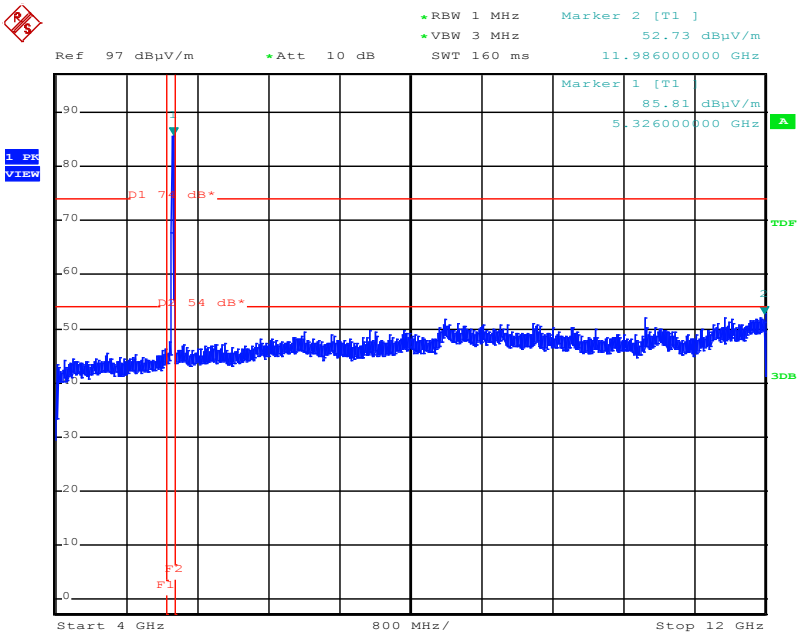


HT20, CH64:

1 GHz – 4 GHz

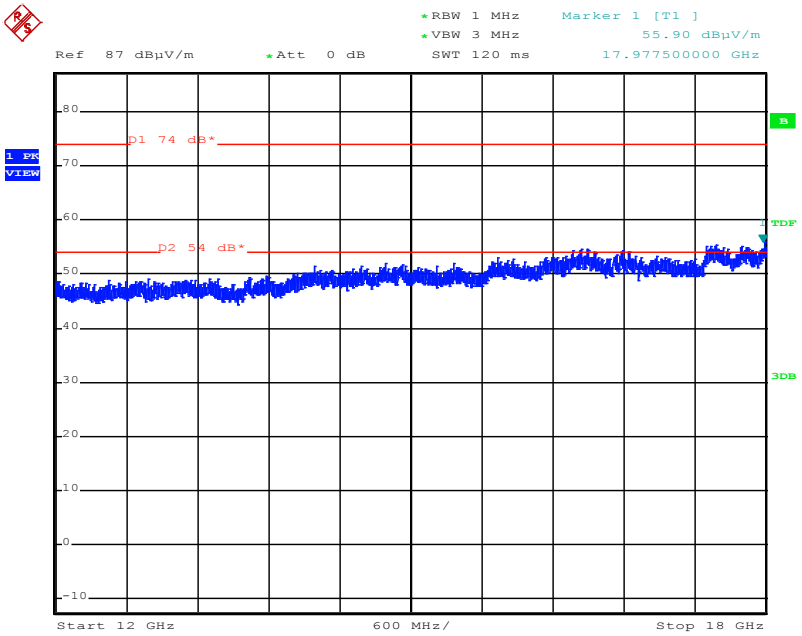


4 GHz – 12 GHz

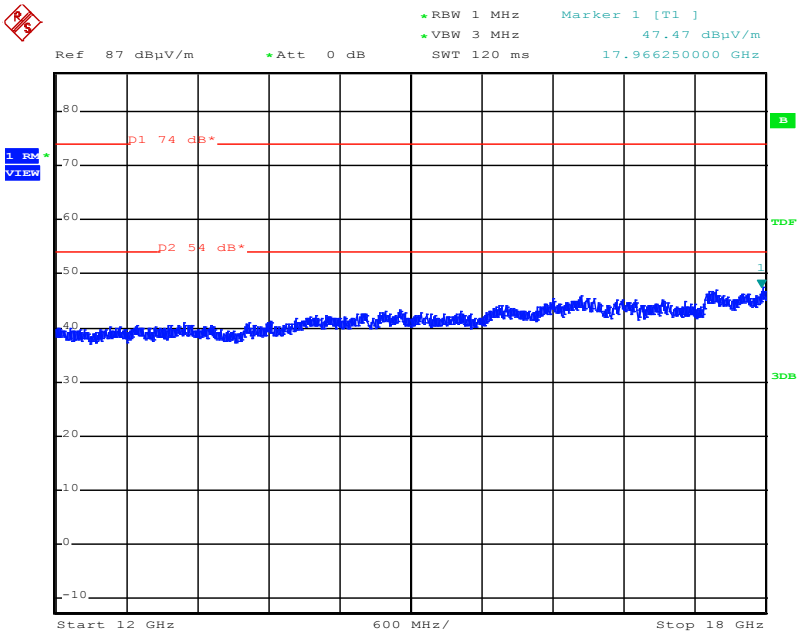


FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

12 GHz – 18 GHz

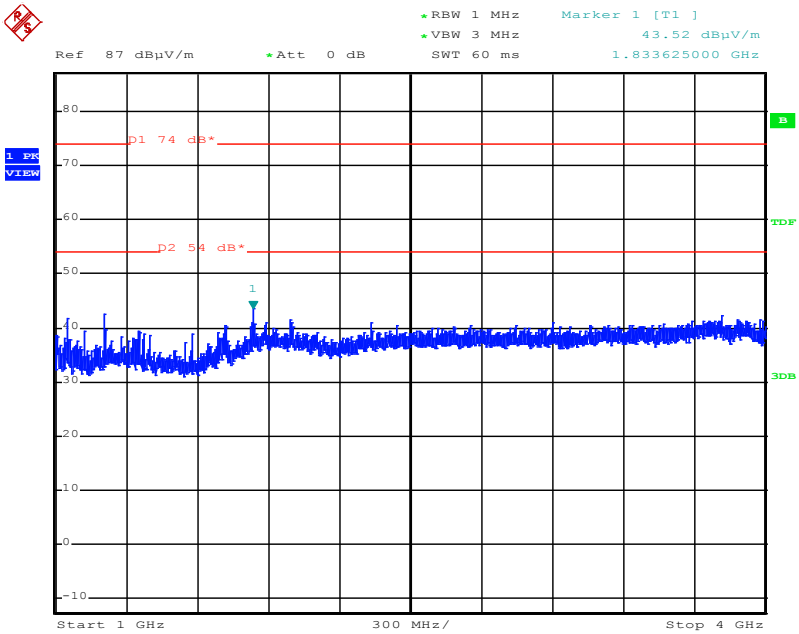


12 GHz - 18 GHz

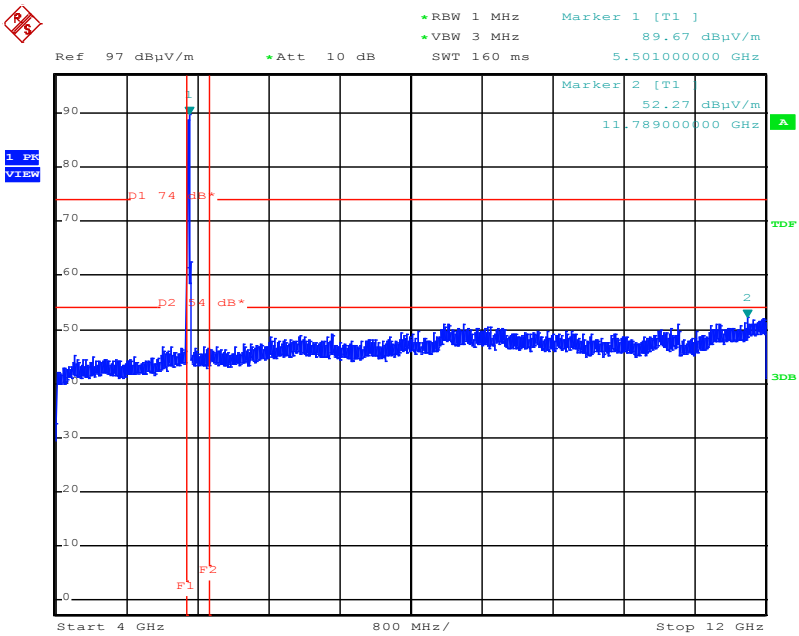


HT20, CH100:

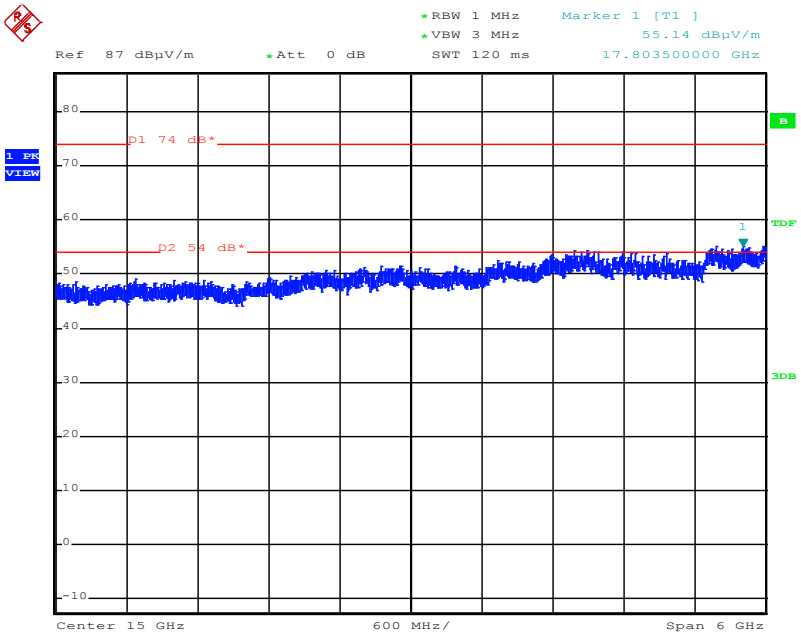
1 GHz – 4 GHz



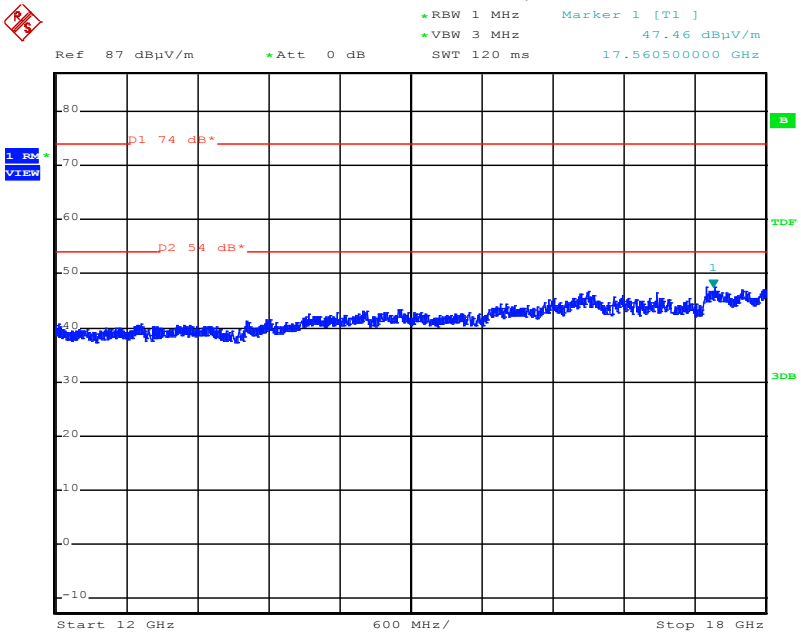
4 GHz – 12 GHz



12 GHz – 18 GHz

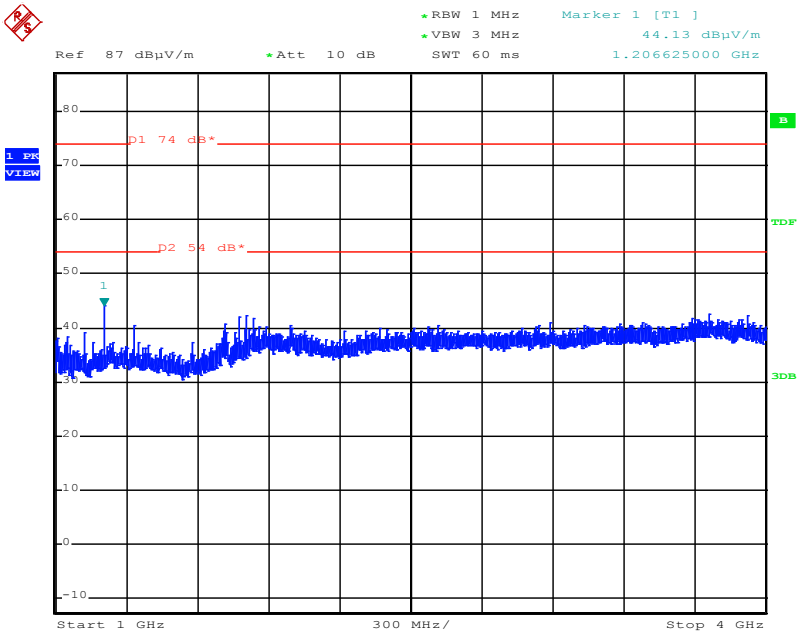


12 GHz - 18 GHz, AV

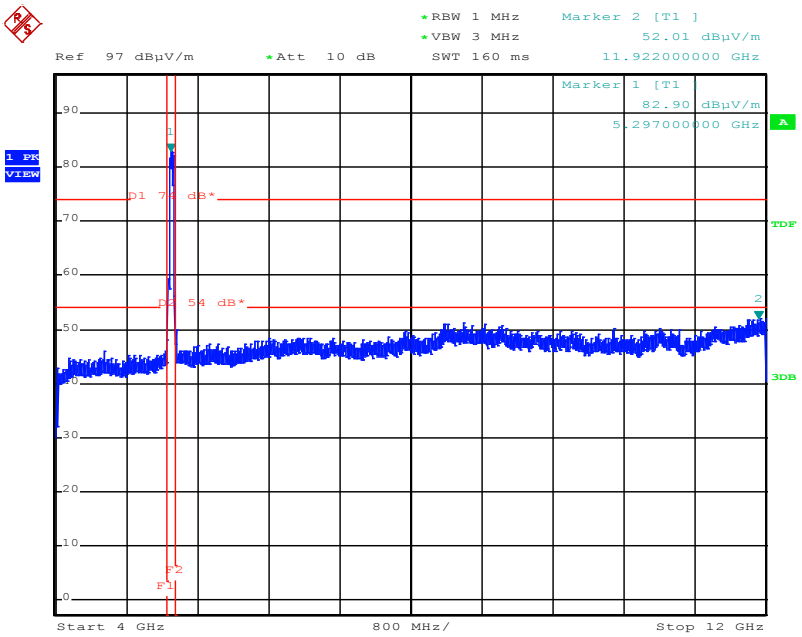


HT40, CH60up:

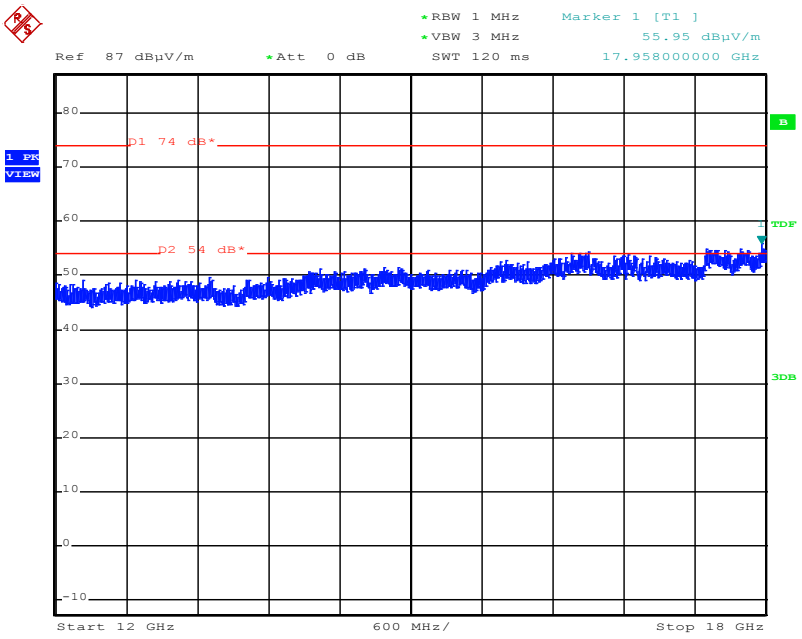
1 GHz – 4 GHz



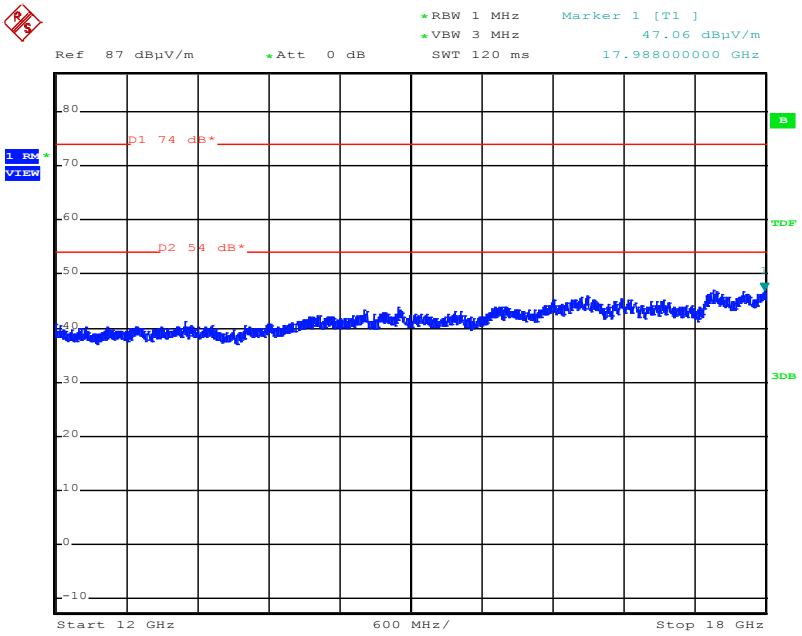
4 GHz – 12 GHz



12 GHz – 18 GHz

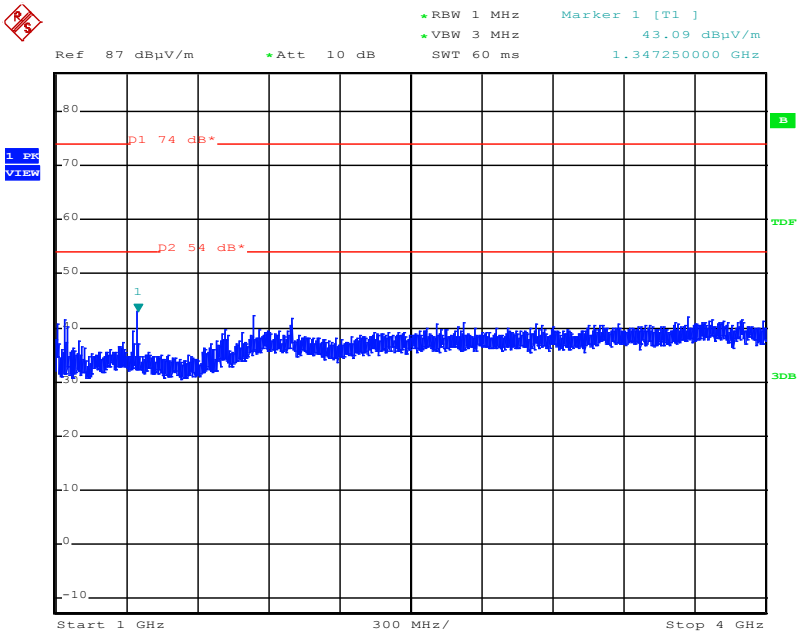

RBW 1 MHz
VBW 3 MHz
Marker 1 [T1]
55.95 dBµV/m
17.958000000 GHz
Ref 87 dBµV/m
Att 0 dB
SWT 120 ms
1 PK
VIEW
D1 74 dB*
D2 54 dB*
B
TDF
3DB
Start 12 GHz
600 MHz/
Stop 18 GHz

12 GHz - 18 GHz

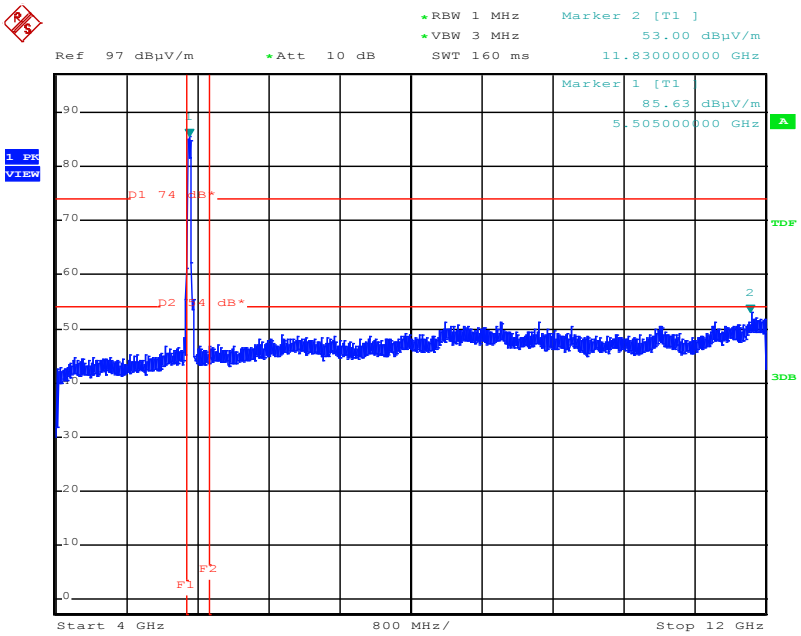

RBW 1 MHz
VBW 3 MHz
Marker 1 [T1]
47.06 dBµV/m
17.988000000 GHz
Ref 87 dBµV/m
Att 0 dB
SWT 120 ms
1 RMS
VIEW
D1 74 dB*
D2 54 dB*
B
TDF
3DB
Start 12 GHz
600 MHz/
Stop 18 GHz

HT40, CH100up:

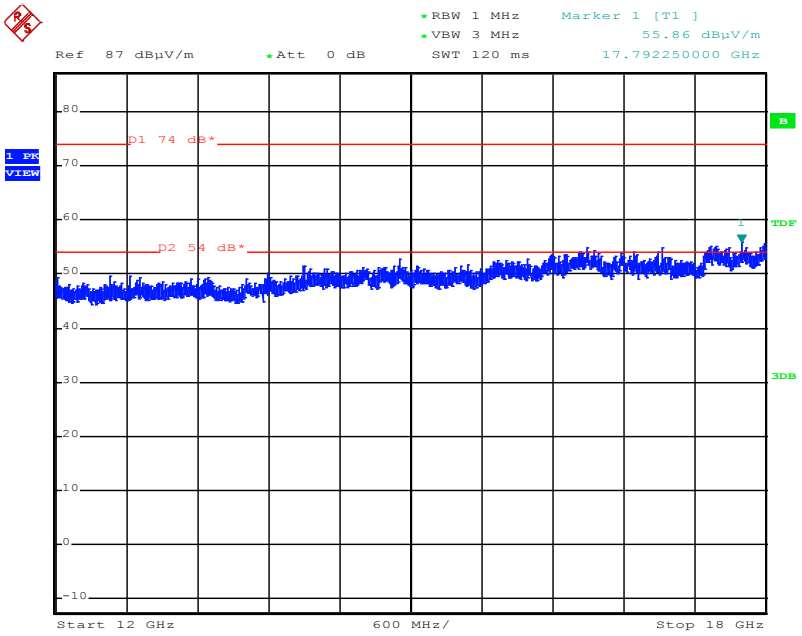
1 GHz – 4 GHz



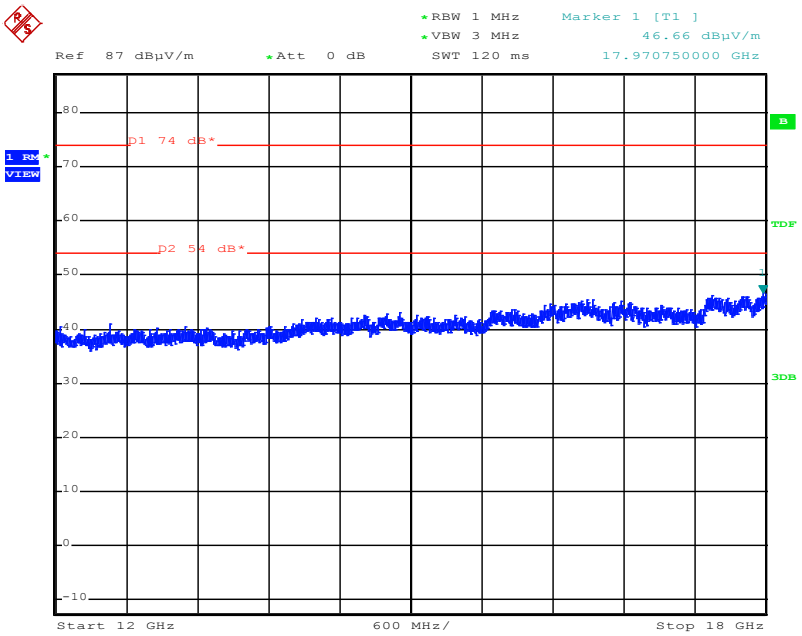
4 GHz – 12 GHz



12 GHz – 18 GHz



12 GHz - 18 GHz



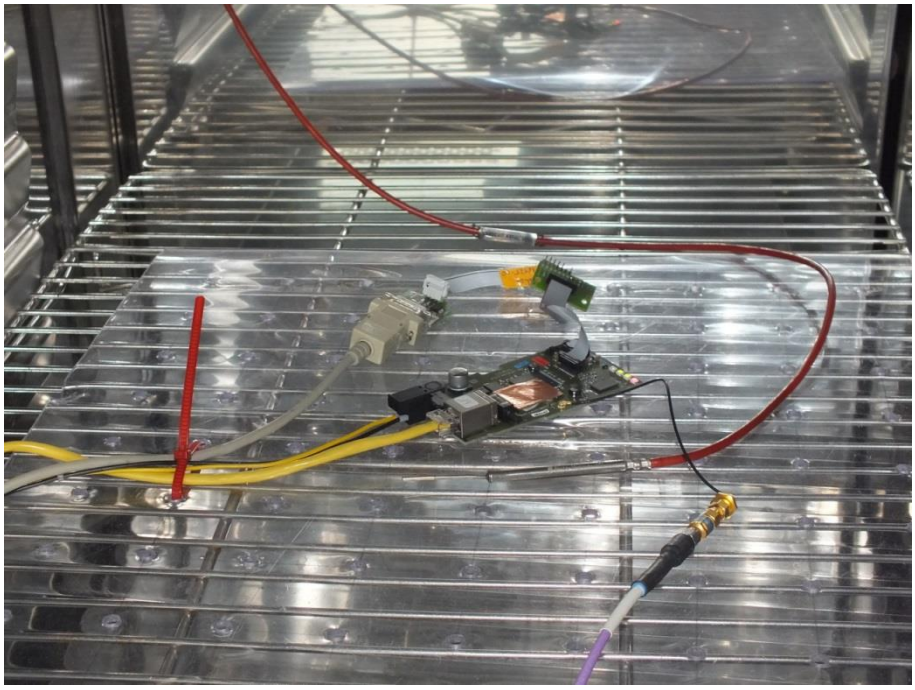
5.8 Frequency stability

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

5.8.1 Description of the test location

Test location: AREA4

5.8.2 Photo documentation of the test setup



5.8.3 Applicable standard

According to FCC Part 15, Subpart E, Section 15.407 (g):
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

5.8.4 Description of Measurement

This test has been performed over variations in temperature and voltage. The lowest and the highest channel in the operating frequency bands are measured at the 20 dB bandwidth under following conditions:

1. Supply voltage from 100 VAC to 120 VAC at normal temperature
2. Extreme temperature from 0 ˚C to 60 ˚C at nominal voltage.

5.8.5 Test result

Frequency band 5250 – 5350 MHz:

802.11h:		Test result			
Test conditions		Frequency (MHz)			
T (0°C)	V_{nom}	f_l	5251.670	f_h	5328.450
T(10°C)	V_{nom}	f_l	5251.690	f_h	5328.430
T_{nom}(20°C)	V_{max}	f_l	5251.700	f_h	5328.410
	V_{min}	f_l	5251.700	f_h	5328.410
T (30°C)	V_{nom}	f_l	5251.710	f_h	5328.410
T (40°C)	V_{nom}	f_l	5251.730	f_h	5328.420
T (50°C)	V_{nom}	f_l	5251.730	f_h	5328.420
T (60°C)	V_{nom}	f_l	5251.740	f_h	5328.430
Measurement uncertainty		±1500 Hz			

Occupied spectrum envelope:

Measured frequency neares f_l = 5251.670

Measured frequency nearest at the highest band edge f_h = 5328.450

802.11n, HT20:		Test result			
Test conditions		Frequency (MHz)			
T (0°C)	V_{nom}	f_l	5251.680	f_h	5329.020
T(10°C)	V_{nom}	f_l	5251.700	f_h	5329.030
T_{nom}(20°C)	V_{max}	f_l	5251.720	f_h	5329.040
	V_{min}	f_l	5251.720	f_h	5329.040
T (30°C)	V_{nom}	f_l	5251.730	f_h	5329.040
T (40°C)	V_{nom}	f_l	5251.740	f_h	5329.030
T (50°C)	V_{nom}	f_l	5251.750	f_h	5329.020
T (60°C)	V_{nom}	f_l	5251.750	f_h	5329.020
Measurement uncertainty		±1500 Hz			

Occupied spectrum envelope:

Measured frequency neares f_l = 5251.68

Measured frequency nearest at the highest band edge f_h = 5329.04

802.11n, HT40:		Test result			
Test conditions		Frequency (MHz)			
T (0°C)	V_{nom}	f_l	5251.640	f_h	5328.530
T(10°C)	V_{nom}	f_l	5251.660	f_h	5328.470
T_{nom}(20°C)	V_{max}	f_l	5251.670	f_h	5328.425
	V_{min}	f_l	5251.670	f_h	5328.425
T (30°C)	V_{nom}	f_l	5251.670	f_h	5328.430
T (40°C)	V_{nom}	f_l	5251.670	f_h	5328.450
T (50°C)	V_{nom}	f_l	5251.680	f_h	5328.470
T (60°C)	V_{nom}	f_l	5251.690	f_h	5328.480
Measurement uncertainty		±1500 Hz			

Occupied spectrum envelope:

Measured frequency neares f_l = 5251.64

Measured frequency nearest at the highest band edge f_h = 5328.53

Frequency band 5470 – 5725 MHz:

802.11h:		Test result			
Test conditions		Frequency (MHz)			
T (0°C)	V_{nom}	f_l	5491.740	f_h	5708.430
T(10°C)	V_{nom}	f_l	5491.700	f_h	5708.420
T_{nom}(20°C)	V_{max}	f_l	5491.630	f_h	5708.420
	V_{min}	f_l	5491.630	f_h	5708.420
T (30°C)	V_{nom}	f_l	5491.670	f_h	5708.410
T (40°C)	V_{nom}	f_l	5491.660	f_h	5708.400
T (50°C)	V_{nom}	f_l	5491.650	f_h	5708.390
T (60°C)	V_{nom}	f_l	5491.650	f_h	5708.370
Measurement uncertainty		±1500 Hz			

Occupied spectrum envelope:

Measured frequency neares f_l = 5491.630

Measured frequency nearest at the highest band edge f_h = 5708.430

802.11n, HT20:		Test result			
Test conditions		Frequency (MHz)			
T (0°C)	V_{nom}	f_l	5491.120	f_h	5709.010
T(10°C)	V_{nom}	f_l	5491.320	f_h	5709.030
T_{nom}(20°C)	V_{max}	f_l	5491.730	f_h	5709.040
	V_{min}	f_l	5491.730	f_h	5709.040
T (30°C)	V_{nom}	f_l	5491.640	f_h	5709.030
T (40°C)	V_{nom}	f_l	5491.410	f_h	5709.030
T (50°C)	V_{nom}	f_l	5491.250	f_h	5709.020
T (60°C)	V_{nom}	f_l	5491.020	f_h	5709.020
Measurement uncertainty		±1500 Hz			

Occupied spectrum envelope:

Measured frequency neares f_l = 5491.02

Measured frequency nearest at the highest band edge f_h = 5709.04

802.11n, HT40:		Test result			
Test conditions		Frequency (MHz)			
T (0°C)	V_{nom}	f_l	5491.670	f_h	5688.520
T(10°C)	V_{nom}	f_l	5491.675	f_h	5688.500
T_{nom}(20°C)	V_{max}	f_l	5491.685	f_h	5688.425
	V_{min}	f_l	5491.685	f_h	5688.420
T (30°C)	V_{nom}	f_l	5491.660	f_h	5688.400
T (40°C)	V_{nom}	f_l	5491.630	f_h	5688.400
T (50°C)	V_{nom}	f_l	5491.620	f_h	5688.390
T (60°C)	V_{nom}	f_l	5491.600	f_h	5688.380
Measurement uncertainty		±1500 Hz			

Occupied spectrum envelope:

Measured frequency neares f_l = 5491.6

Measured frequency nearest at the highest band edge f_h = 5688.52

According to FCC Part 15, Subpart E, Section 15.407 (g):
Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

Operating frequency range limit	
(MHz)	(MHz)
5250	5350
5470	5725

The requirements are **FULFILLED.**

Remarks:

5.9 Maximum permissible exposure (MPE)

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

5.9.1 Description of the test location

Test location: AREA4

5.9.2 Applicable standard

According to FCC Part 15, Section 15.407(f):
U-NII devices are subject to the radio frequency radiation exposure requirements specified in Section 1.1307(b), 2.1091 and 2.1093 of this chapter, as appropriate. All equipment shall considered to operate in a “general population/uncontrolled” environment. The test methods used comply with ANSI/IEEE C95.1-2005, “IEEE Standard for Safety Levels with respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz”.

5.9.3 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, which is a far field assumption and the known maximum gain of the antenna, the maximum MPE at a defined distance away from the product, can be calculated.

Friis transmission formula: $$P_d = \frac{P_{out} * G}{4 * \Pi * r^2}$$

where

P_d =power density in mW/cm^2
P_{out} = output power to antenna in mW
G = gain of antenna (linear scale)
r = distance between antenna and observation point (cm)

5.9.4 Test result

For fixed equipment the distance r = 20 cm

Gain group 1:
WLAN Standard 802.11h, 1 TX chain, highest power level

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52	P20	11.4	6.0	13.84	3.98	0.0551	0.0110	1.0
56	P20	11.2	6.0	13.15	3.98	0.0524	0.0104	1.0
64	P20	11.0	6.0	12.45	3.98	0.0495	0.0099	1.0
100	P20	12.0	6.0	15.85	3.98	0.0631	0.0126	1.0
116	P20	12.5	6.0	17.74	3.98	0.0706	0.0141	1.0
140	P20	12.0	6.0	15.70	3.98	0.0625	0.0124	1.0

FCC ID: LYHELN1V1 IC: 267AA-ELN1V1

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

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52	P20	11.3	6.0	13.52	3.98	0.0538	0.0107	1.0
56	P20	11.1	6.0	12.79	3.98	0.0509	0.0101	1.0
64	P20	10.8	6.0	12.02	3.98	0.0479	0.0095	1.0
100	P20	11.7	6.0	14.69	3.98	0.0585	0.0116	1.0
116	P20	12.2	6.0	16.56	3.98	0.0659	0.0131	1.0
140	P20	11.5	6.0	14.06	3.98	0.0560	0.0111	1.0

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

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52up	P20	10.9	6.0	12.27	3.98	0.0489	0.0097	1.0
60up	P20	10.6	6.0	11.53	3.98	0.0459	0.0091	1.0
100up	P20	12.5	6.0	17.91	3.98	0.0713	0.0142	1.0
108up	P20	11.8	6.0	15.14	3.98	0.0603	0.0120	1.0
132up	P20	11.8	6.0	15.17	3.98	0.0604	0.0120	1.0

Gain group 2:

WLAN Standard 802.11h, 1 TX chain, highest power level

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52	P17	11.3	9.0	13.52	7.94	0.1074	0.0214	1.0
56	P17	11.5	9.0	14.00	7.94	0.1112	0.0221	1.0
64	P17	11.0	9.0	12.56	7.94	0.0998	0.0198	1.0
100	P17	12.1	9.0	16.11	7.94	0.1279	0.0255	1.0
116	P17	12.6	9.0	18.11	7.94	0.1439	0.0286	1.0
140	P17	11.9	9.0	15.52	7.94	0.1233	0.0245	1.0

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

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52	P17	11.3	9.0	13.49	7.94	0.1072	0.0213	1.0
56	P17	11.1	9.0	12.85	7.94	0.1021	0.0203	1.0
64	P17	10.7	9.0	11.80	7.94	0.0938	0.0187	1.0
100	P17	11.7	9.0	14.62	7.94	0.1161	0.0231	1.0
116	P17	12.2	9.0	16.56	7.94	0.1315	0.0262	1.0
140	P17	11.3	9.0	13.37	7.94	0.1062	0.0211	1.0

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

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52up	P17	9.3	9.0	8.55	7.94	0.0679	0.0135	1.0
60up	P17	8.8	9.0	7.66	7.94	0.0608	0.0121	1.0
100up	P17	10.1	9.0	10.21	7.94	0.0811	0.0161	1.0
108up	P17	10.0	9.0	9.89	7.94	0.0785	0.0156	1.0
132up	P17	9.3	9.0	8.47	7.94	0.0673	0.0134	1.0

Gain group 3:

WLAN Standard 802.11h, 1 TX chain, highest power level

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52	P14	9.8	14.2	9.62	26.30	0.2529	0.0503	1.0
56	P14	9.8	14.2	9.44	26.30	0.2483	0.0494	1.0
64	P14	9.4	14.2	8.75	26.30	0.2301	0.0458	1.0
100	P14	10.2	14.2	10.57	26.30	0.2780	0.0553	1.0
116	P14	10.8	14.2	12.11	26.30	0.3184	0.0633	1.0
140	P14	10.2	14.2	10.35	26.30	0.2723	0.0542	1.0

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

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52	P14	9.6	14.2	9.08	26.30	0.2388	0.0475	1.0
56	P14	9.4	14.2	8.67	26.30	0.2280	0.0454	1.0
64	P14	9.1	14.2	8.20	26.30	0.2158	0.0429	1.0
100	P14	9.9	14.2	9.84	26.30	0.2588	0.0515	1.0
116	P14	10.3	14.2	10.76	26.30	0.2831	0.0563	1.0
140	P14	9.8	14.2	9.53	26.30	0.2506	0.0499	1.0

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

Channel	Power setting	A	Antgain	A	G	P	S	Limit S_{eq}
No.		(dBm)	(dBi)	(mW)	linear	(W)	(mW/cm^2)	(mW/cm^2)
52up	P14	7.6	14.2	5.77	26.30	0.1517	0.0302	1.0
60up	P14	7.2	14.2	5.25	26.30	0.1380	0.0275	1.0
100up	P14	8.4	14.2	6.89	26.30	0.1811	0.0360	1.0
108up	P14	8.1	14.2	6.47	26.30	0.1702	0.0339	1.0
132up	P14	7.5	14.2	5.68	26.30	0.1493	0.0297	1.0

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 (MHz)

The requirements are **FULFILLED.**

Remarks: This test report shows the compliance with the limits for maximum permissible exposure (MPE) specified in FCC 1.1310 and the criteria to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in FCC 1.1307(b).

5.10 Co-location and Co-transmission

Applicable standard:
OET Bulletin 65, Edition 97-01, Section 2: Multiple-transmitter sites and complex environments

The MPE limits of FCC vary with frequency. Therefore, in mixed or broadband RF fields where several sources and frequencies are involved, the fraction of the recommended limit (in terms of power density or square of the electric or magnetic field strength) incurred within each frequency interval should be determined, and the sum of all fractional contributions should not exceed 1.0, or 100 % in terms of percentage.

There is no co-location issue the EUT use one transmitter only.

The requirements are **FULFILLED.**

Remarks:

5.11 Antenna application

5.11.1 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 EUT has a SMA-R antenna connector and is designed for a change a broken antenna by user.

5.11.2 Antenna requirements

According to FCC Part 15E, Section 15.407(a):
The conducted output power limit specified in paragraph (a) of 15.407 is based on the use of antennas with directional gains that do not exceed 6 dBi. 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 (a)(1), (a)(2) and (a)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds the effective value.

Defacto EIRP-Limit:
For the output power reduction due to the used antennas see the following table. The limit is calculated using following formula, Pout = 30 – (Gx – 6);

Ant. group 3 antennas with max 9 to 14 dBi gain:

Antenna	Gx	Cond. limit	max. G	A [P14]	Limit P_{out}	Reduction	P set
	(dBi)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)	5 GHz
ANT793-8DK	14.2	24.0	6.0	10.8	15.8	-5.0	P14
ANT793-8DJ	13.6	24.0	6.0	10.8	16.4	-5.6	P14

Ant. group 2 antennas with max 6 to 9 dBi gain:

Antenna	Gx	Cond. limit	max. G	A [P17]	Limit P_{out}	Reduction	P set
	(dBi)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)	5 GHz
ANT793-6DT	9.0	24.0	6.0	12.6	21.0	-8.4	P17
ANT793-6DG	9.0	24.0	6.0	12.6	21.0	-8.4	P17
ANT795-6DC	9.0	24.0	6.0	12.6	21.0	-8.4	P17
ANT795-6MN	8.0	24.0	6.0	12.6	22.0	-9.4	P17
ANT795-6MT	7.0	24.0	6.0	12.6	23.0	-10.4	P17

Ant. group 1 antennas with max 0 to 6 dBi gain:

Antenna	Gx	Cond. limit	max. G	A [P20]	Limit P_{out}	Reduction	P set
	(dBi)	(dBm)	(dBi)	(dBm)	(dBm)	(dB)	5 GHz
ANT793-4MN	6.0	24.0	6.0	12.5	24.0	-11.5	P20
ANT793-6MN	5.0	24.0	6.0	12.5	25.0	-12.5	P20
ANT795-4MC	5.0	24.0	6.0	12.5	25.0	-12.5	P20
ANT795-4MD	5.0	24.0	6.0	12.5	25.0	-12.5	P20
ANT795-4MA	5.0	24.0	6.0	12.5	25.0	-12.5	P20
A5E002280427-06	5.0	24.0	6.0	12.5	25.0	-12.5	P20
Rcoax 5G	0.0	24.0	6.0	12.5	30.0	-17.5	P20

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.	Last 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	18/10/2014	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			10/10/2014	10/04/2014
CPC 3	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	HM 8143	02-02/50-10-016				
	KMS102-0.2 m	02-02/50-11-016				
MB	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	WK-340/40	02-02/45-05-001	31/05/2014	31/05/2013		
	HM 8143	02-02/50-10-016				
	KMS102-0.2 m	02-02/50-11-016				
SEC 1-3	FSP 40	02-02/11-11-001	30/09/2014	30/09/2013		
	HM 8143	02-02/50-10-016				
	KMS102-0.2 m	02-02/50-11-016				
SER 2	ESVS 30	02-02/03-05-006	28/06/2014	28/06/2013		
	VULB 9168	02-02/24-05-005	08/04/2015	08/04/2014	08/10/2014	08/04/2014
	S10162-B	02-02/50-05-031				
	NW-2000-NB	02-02/50-05-113				
	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	07/05/2015	07/05/2014		
	BBHA 9170	02-02/24-05-014				
	Sucoflex N-1600-SMA	02-02/50-05-073				
	Sucoflex N-2000-SMA	02-02/50-05-075				
	KMS102-0.2 m	02-02/50-11-020				
	SF104/11N/11N/1500MM	02-02/50-13-015				