**CETECOM™****CETECOM ICT Services**  
consulting - testing - certification >>>

## TEST REPORT

Test report no.: 1-8300/14-01-10

Deutsche  
Akkreditierungsstelle  
D-PL-12076-01-00

### Testing laboratory

**CETECOM ICT Services GmbH**

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Internet: <http://www.cetecom.com>e-mail: [ict@cetecom.com](mailto:ict@cetecom.com)**Accredited Testing Laboratory:**

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS)

The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-00

### Applicant

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72762 Reutlingen / GERMANY

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Phone: +49 (711) 811-3617318

### Manufacturer

**Bosch Connected Devices and Solutions GmbH**

Tuebinger Str. 123

72762 Reutlingen / GERMANY

### Test standard/s

47 CFR Part 15

Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices

RSS - 210 Issue 8

Spectrum Management and Telecommunications Radio Standards Specification - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

For further applied test standards please refer to section 3 of this test report.

### Test Item

**Kind of test item:** Development Kit**Model name:** XDK110**FCC ID:** 2ADSJXDK110**IC:** 12595A-XDK110Frequency: DTS band 2.4 GHz  
Lowest channel: 2412 MHz; highest channel: 2462 MHz

Technology tested: WLAN (b/g/n)

Antenna: Integrated chip antenna

Power supply: 3.7V DC by Li-polymer battery

Temperature range: 0°C to +60°C



This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

### Test report authorised:

Stefan BöS  
Radio Communications & EMC

### Test performed:

Andreas Luckenbill  
Radio Communications & EMC

## 1 Table of contents

1	Table of contents .....	2
2	General information .....	3
2.1	Notes and disclaimer .....	3
2.2	Application details .....	3
3	Test standard/s .....	3
3.1	Measurement guidance .....	3
4	Test environment .....	4
5	Test item .....	4
5.1	Additional information .....	4
6	Test laboratories sub-contracted .....	4
7	Description of the test setup .....	5
7.1	Radiated measurements chamber F .....	5
7.2	Radiated measurements chamber C .....	6
7.3	Radiated measurements 12.75 GHz to 26 GHz .....	7
7.4	AC conducted .....	8
7.5	Conducted measurements .....	9
8	Summary of measurement results .....	10
9	Additional comments .....	11
10	Measurement results .....	12
10.1	Antenna gain .....	12
10.2	Identify worst case data rate .....	15
10.3	Maximum output power .....	16
10.4	Power spectral density .....	17
10.5	Spectrum bandwidth – 6 dB .....	24
10.6	Occupied bandwidth – 99% emission bandwidth .....	25
10.7	Detailed spurious emissions @ the band edge - conducted .....	32
10.8	Band edge compliance radiated .....	36
10.9	TX spurious emissions conducted .....	40
10.10	TX spurious emissions radiated .....	49
10.11	RX spurious emissions radiated .....	71
10.12	Spurious emissions radiated < 30 MHz .....	75
10.13	Spurious emissions conducted < 30 MHz .....	77
Annex A	Document history .....	80
Annex B	Further information .....	80
Annex C	Accreditation Certificate .....	81

## 2 General information

### 2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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### 2.2 Application details

Date of receipt of order:	2014-11-17
Date of receipt of test item:	2014-12-19
Start of test:	2015-01-06
End of test:	2015-01-12
Person(s) present during the test:	-/-

## 3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 15		Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices
RSS - 210 Issue 8	01.12.2010	Spectrum Management and Telecommunications Radio Standards Specification - Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment

### 3.1 Measurement guidance

DTS : KDB 558074	2014-06	Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under §15.247
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#### 4 Test environment

Temperature:	$T_{nom}$	+22 °C during room temperature tests
	$T_{max}$	+60 °C during high temperature tests
	$T_{min}$	0 °C during low temperature tests
Relative humidity content:		35 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	$V_{nom}$	3.7 V DC by Li-polymer battery
	$V_{max}$	4.1 V
	$V_{min}$	3.4 V

#### 5 Test item

Kind of test item	:	Development Kit
Type identification	:	XDK110
S/N serial number	:	#14
HW hardware status	:	No information available
SW software status	:	No information available
Frequency band [MHz]	:	DTS band 2.4 GHz Lowest channel: 2412 MHz; highest channel: 2462 MHz
Type of radio transmission	:	DSSS, OFDM
Use of frequency spectrum	:	
Type of modulation	:	BPSK, QPSK, 16-QAM
Number of channels	:	11
Antenna	:	Integrated chip antenna
Power supply	:	3.7 V DC by Li-polymer battery
Temperature range	:	0°C to +60°C

##### 5.1 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup- and EUT-photos are included in test report: 1-8300/14-01-01\_AnnexA  
1-8300/14-01-01\_AnnexB  
1-8300/14-01-01\_AnnexD

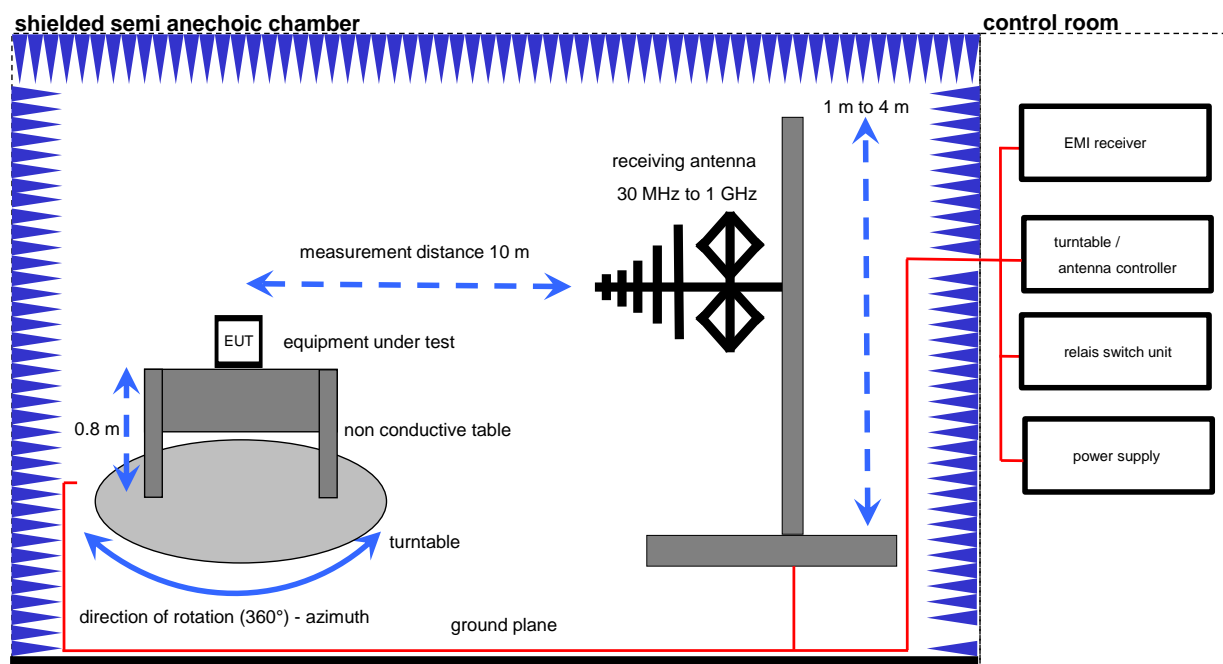
#### 6 Test laboratories sub-contracted

None

## 7 Description of the test setup

### 7.1 Radiated measurements chamber F

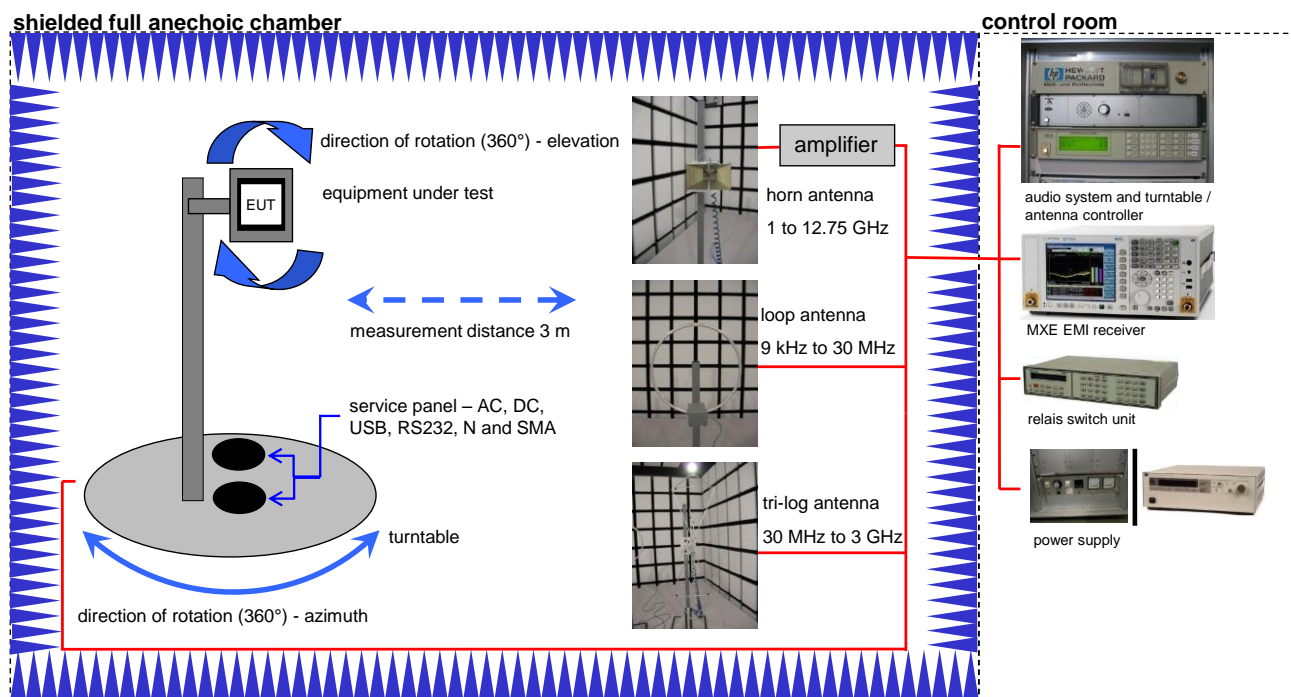
The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63.



#### Equipment table:

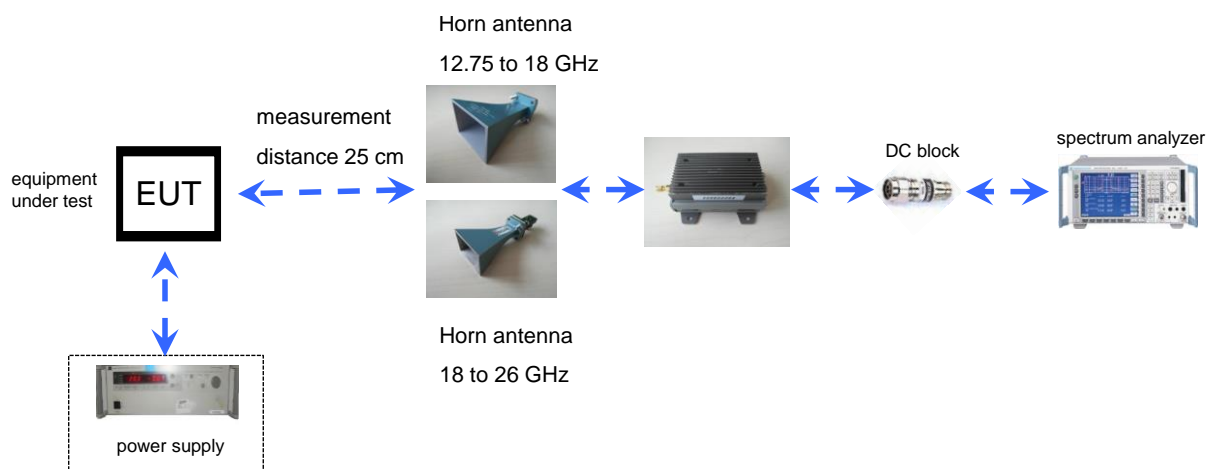
Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Software	EMC32 V.   9.12.05	R&S	-/-	-/-
Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368
DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580
EMI Test Receiver	ESCI 3	R&S	100083	300003312
Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379
Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745
Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746
Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747
TRILOG Broadband Test- Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787

## 7.2 Radiated measurements chamber C

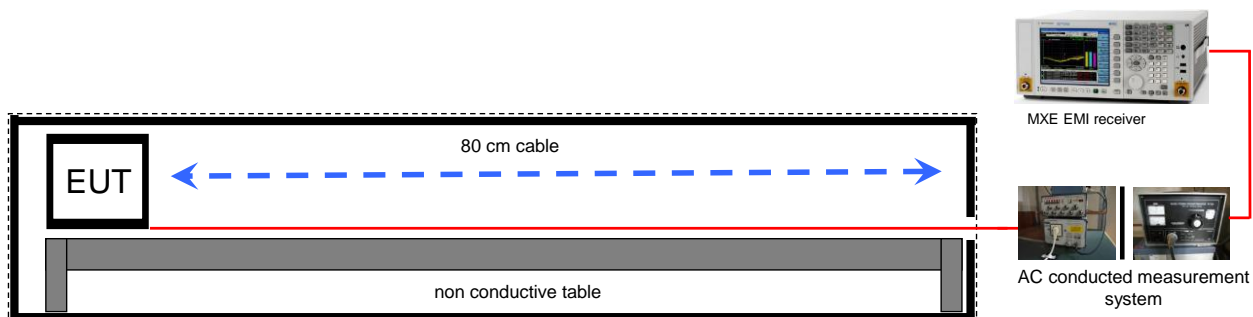


### Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405
TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854
Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351
Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789
Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032
Active Loop Antenna	6502	EMCO	8905-2342	300000256
Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996
Switch / Control Unit	3488A	HP Meßtechnik	*	300000199
Switch / Control Unit	3488A	HP Meßtechnik	2719A15013	300001156
Isolating Transformer	MPL IEC625 Bus Regeltrenntravo	Erfi	91350	300001155
Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997
Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143

**7.3 Radiated measurements 12.75 GHz to 26 GHz****Equipment table:**

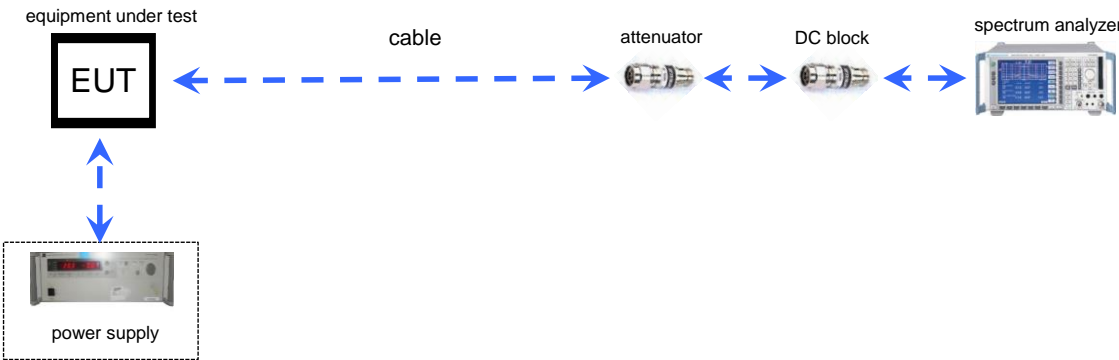
Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787
Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442
Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268
Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

**7.4 AC conducted****Equipment table:**

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405
Isolating Transformer	MPL IEC625 Bus Regeltrenntravo	Erft	91350	300001155
Switch / Control Unit	3488A	HP Meßtechnik	*	300000199
Switch / Control Unit	3488A	HP Meßtechnik	2719A15013	300001168
Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210



7.5 Conducted measurements



**Equipment table:**

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

## 8 Summary of measurement results



No deviations from the technical specifications were ascertained



There were deviations from the technical specifications ascertained

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 8	Passed	2015-01-21	-/-

Test specification clause	Test case	Guideline	Temperature conditions	Power source voltages	Mode	Pass	Fail	NA	NP	Remark
§15.247(b)(4) RSS 210 / A8.4(2)	Antenna gain	-/-	Nominal	Nominal	DSSS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.247(e) RSS 210 / A8.2(b)	Power spectral density	KDB 558074 DTS clause: 10.6	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(a)(2) RSS 210 / A8.2(a)	Spectrum bandwidth – 6 dB bandwidth	KDB 558074 DTS clause: 8.1	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
RSS Gen clause 4.6.1	Occupied bandwidth	-/-	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(b)(3) RSS-210 / A8.4(4)	Maximum output power	KDB 558074 DTS clause: 9.2.2.5	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(d) RSS-210 / A8.5	Detailed spurious emissions @ the band edge - conducted	-/-	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.205 RSS-210 / A8.5	Band edge compliance radiated	KDB 558074 DTS clause: 13.3.2	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions conducted	KDB 558074 DTS clause: 11.1 & 11.2 11.3	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions radiated	-/-	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.109 RSS-Gen	RX spurious emissions radiated	-/-	Nominal	Nominal	-/-	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.209(a) RSS-Gen	TX spurious emissions radiated < 30 MHz	-/-	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies
§15.107(a) §15.207	Conducted emissions < 30 MHz	-/-	Nominal	Nominal	DSSS OFDM g & n	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	complies

**Note:** NA = Not Applicable; NP = Not Performed

## 9 Additional comments

Reference documents: None

Special test descriptions: None

Configuration descriptions: None

Test mode:

- ☐ No test mode available.  
Iperf was used to ping another device with the largest support packet size
- ☒ Special software is used.  
EUT is transmitting pseudo random data by itself

**10 Measurement results****10.1 Antenna gain****Measurement:**

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For normal WLAN devices, the DSSS mode is used.

**Measurement parameters:**

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	3 MHz
Video bandwidth:	3 MHz
Trace-Mode:	Max hold

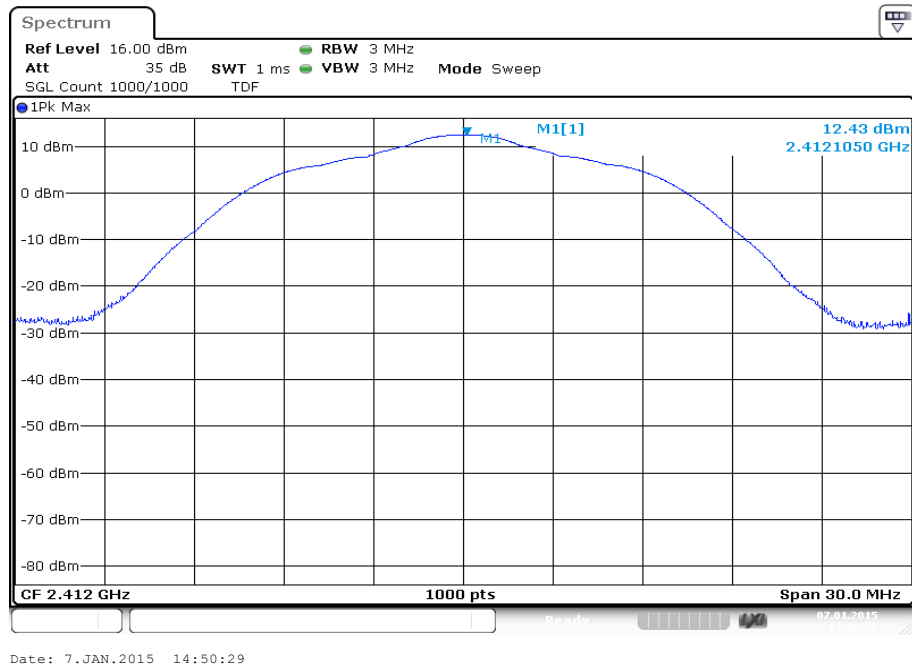
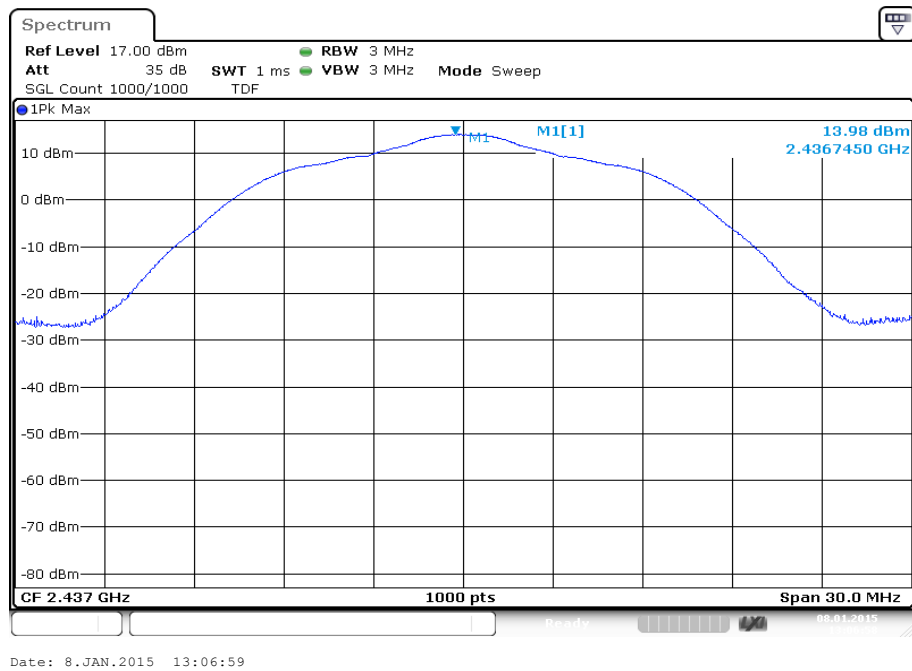
**Limits:**

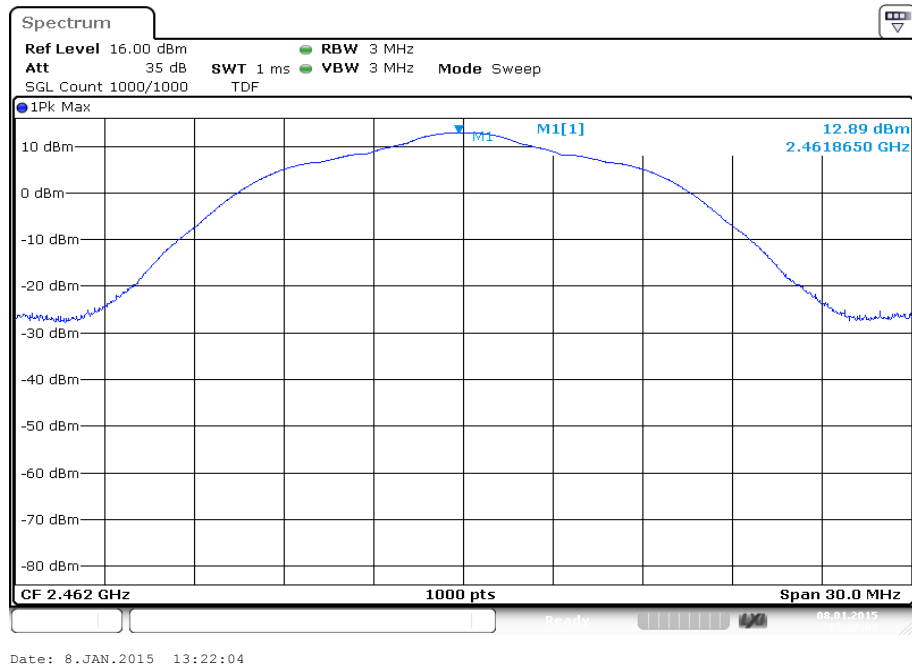
FCC	IC
Antenna Gain	
6 dBi	

**Results:**

T <sub>nom</sub>	V <sub>nom</sub>	lowest channel 2412 MHz	middle channel 2437 MHz	highest channel 2462 MHz
Conducted power [dBm] Measured with DSSS modulation		12.4	14.0	12.9
Radiated power [dBm] Measured with DSSS modulation		15.2	16.6	14.8
Gain [dBi] Calculated		2.8	2.6	1.9
Measurement uncertainty			± 1.5 dB (cond.) / ± 3 dB (rad.)	

**Result:** **Passed**

**Plots: DSSS / b – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

## 10.2 Identify worst case data rate

### Measurement:

All modes of the module will be measured with an average power meter to identify the maximum transmission power on low, mid and high channel. In the case that only one or two channels are available, only these will be measured.

In further tests only the identified worst case modulation scheme or bandwidth will be measured. Additional the band edge compliance test will be performed in the lowest and highest modulation scheme.

### Measurement parameters:

Average Power Meter

### Results:

Modulation  Frequency	Modulation scheme / bandwidth		
	2412 MHz	2437 MHz	2462 MHz
DSSS / b – mode	1 Mbit/s	1 Mbit/s	1 Mbit/s
OFDM / g – mode	6 Mbit/s	6 Mbit/s	6 Mbit/s
OFDM / n HT20 – mode	MCS0	MCS0	MCS0

### 10.3 Maximum output power

#### Description:

Measurement of the maximum output power conducted and radiated. The measurements are performed using the data rate producing the highest conducted output power.

#### Measurement:

Measurement parameter	
According to DTS clause: 9.2.2.5	
Detector:	RMS
Sweep time:	calculated
Resolution bandwidth:	500 kHz
Video bandwidth:	3 MHz
Span:	≥1.5 times OBW
Integration bandwidth:	99 % power – bandwidth (OBW)
Trace-Mode:	Max hold (allow trace to fully stabilize)
Measurement function:	Channel power with OBW
Sweep:	Single Sweep

#### Limits:

FCC	IC
Maximum Output Power	
Conducted: 1.0 W – Antenna Gain max. 6 dBi	

#### Results:

DSSS / b – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power conducted incl. DC corr. Worst case data rate	12.0	13.7	12.8
OFDM / g – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power conducted incl. DC corr. Worst case data rate	9.9	12.6	10.1
OFDM / n HT20 – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power conducted incl. DC corr. Worst case data rate	8.8	13.0	9.4
Measurement uncertainty	± 1.5 dB (cond.)		

Result: **Passed**



## 10.4 Power spectral density

### Description:

Measurement of the power spectral density of a digital modulated system. The measurement is repeated for both modulations at the lowest, middle and highest channel.

### Measurement:

Measurement parameter	
According to DTS clause: 10.6	
Detector:	RMS
Sweep time:	3s
Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Span:	40 MHz
Trace-Mode:	Max hold (allow trace to fully stabilize)

### Limits:

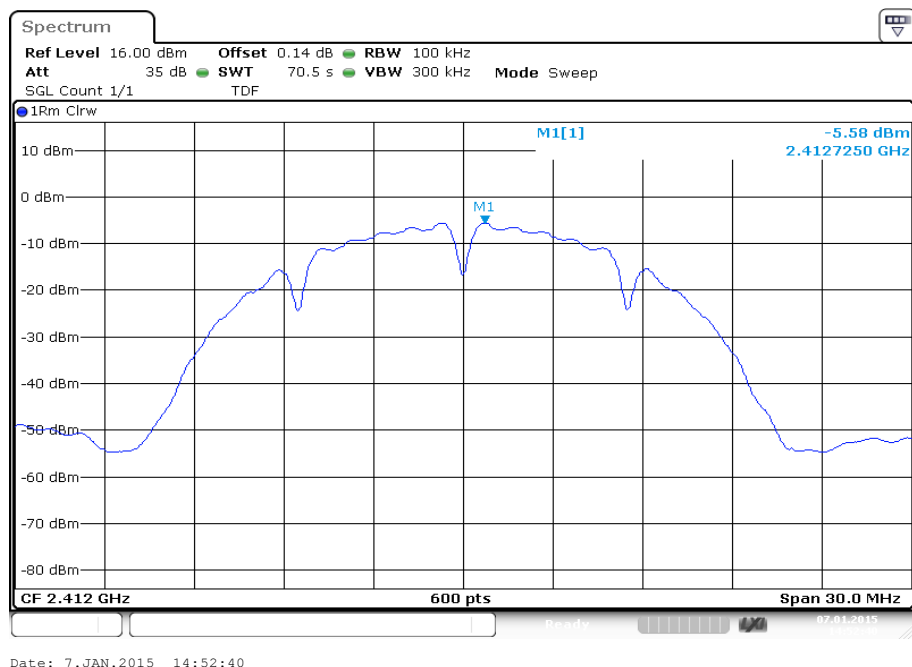
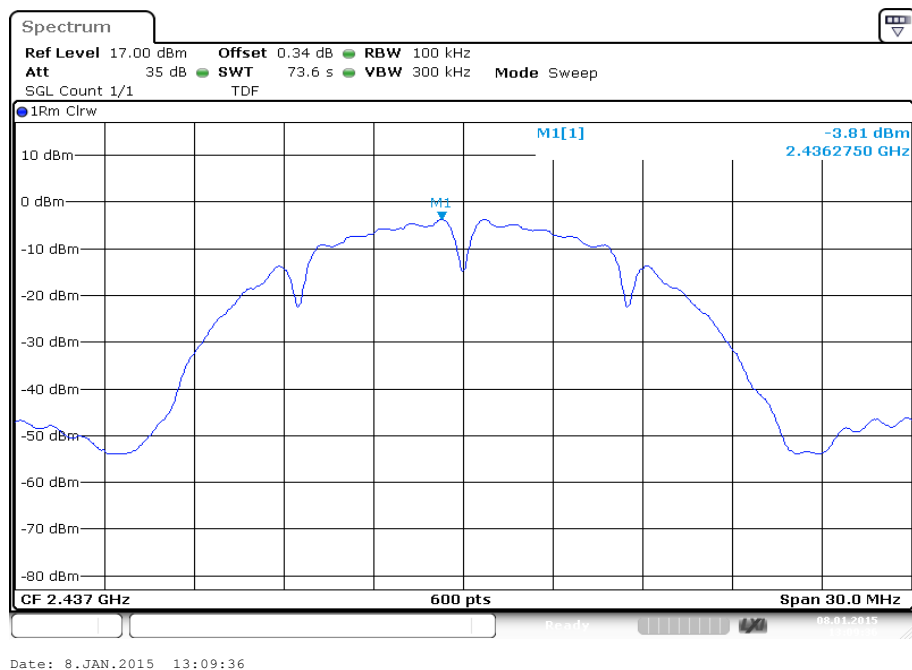
FCC	IC
Power Spectral Density	
8 dBm / 3kHz (conducted)	

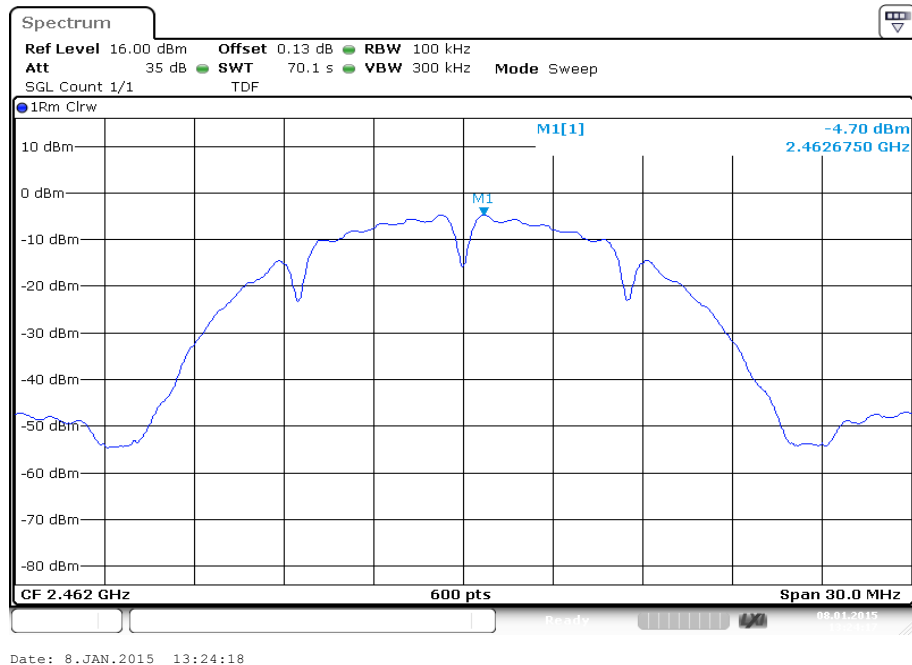
### Results:

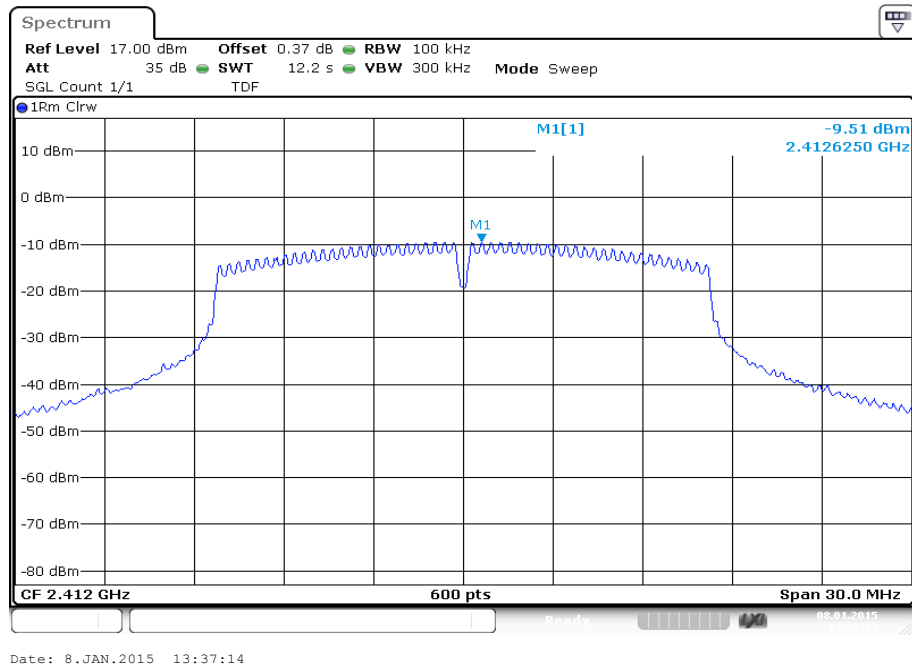
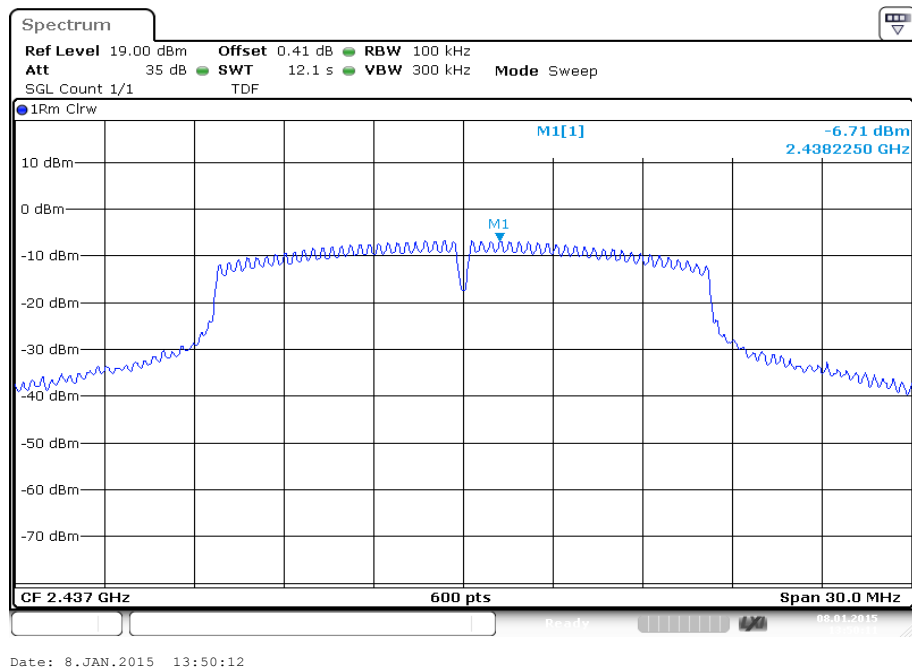
Modulation	Power Spectral density [dBm]		
	2412 MHz	2437 MHz	2462 MHz
DSSS / b – mode	-20.8	-19.0	-19.9
OFDM / g – mode	-24.7	-21.9	-24.5
OFDM / n HT20 – mode	-25.9	-21.7	-25.5
Measurement uncertainty	± 1.5 dB (cond.)		

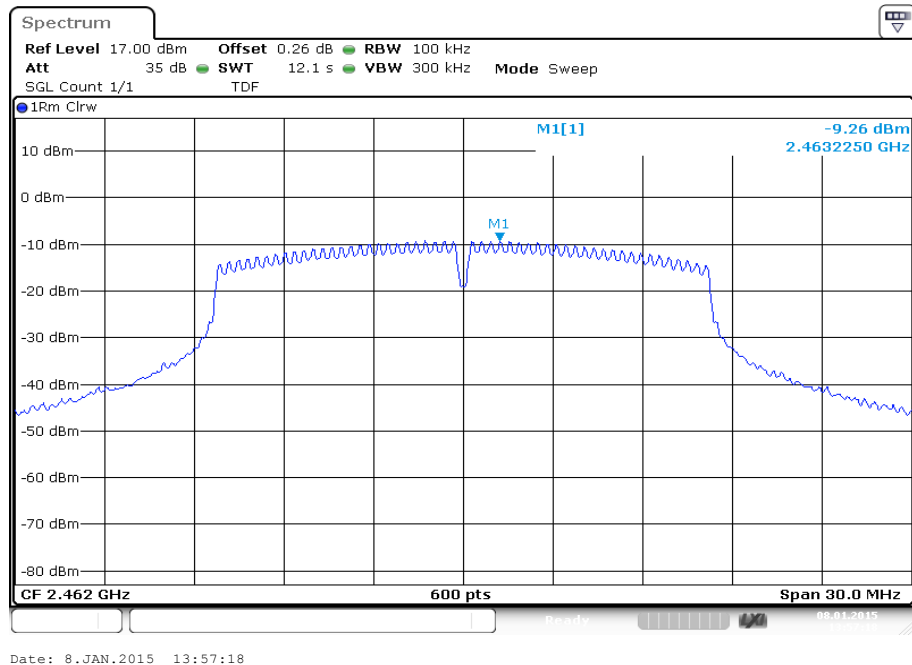
All values are measured with RBW=100 kHz and calculated to RBW=3 kHz, factor 15.2dB.

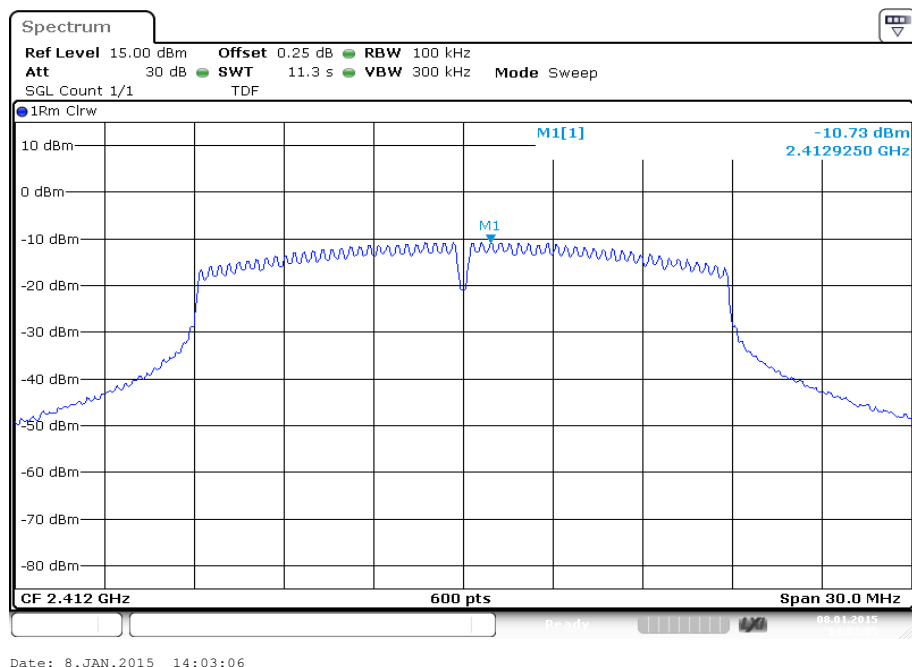
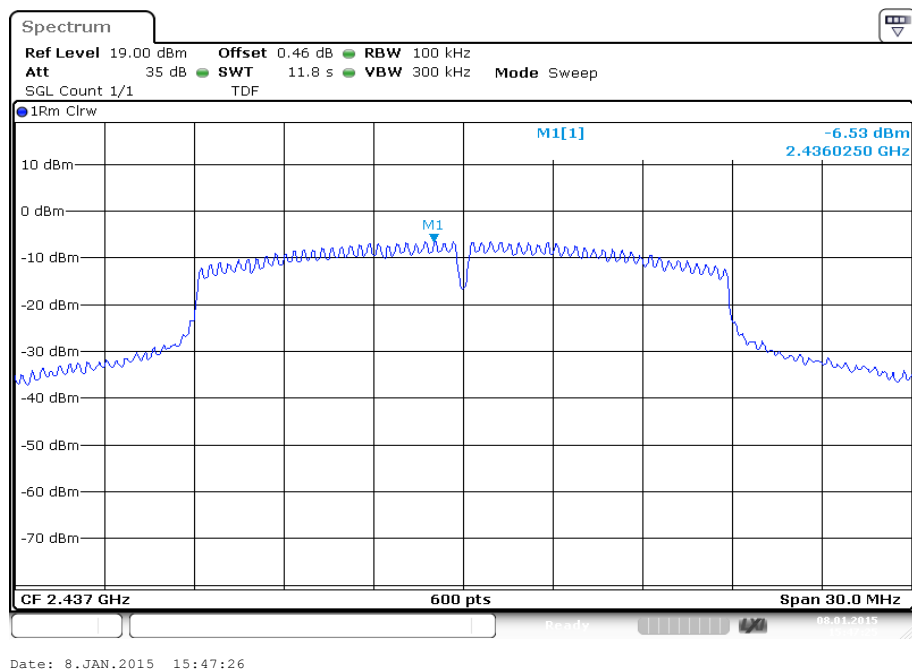
**Result:** **Passed**

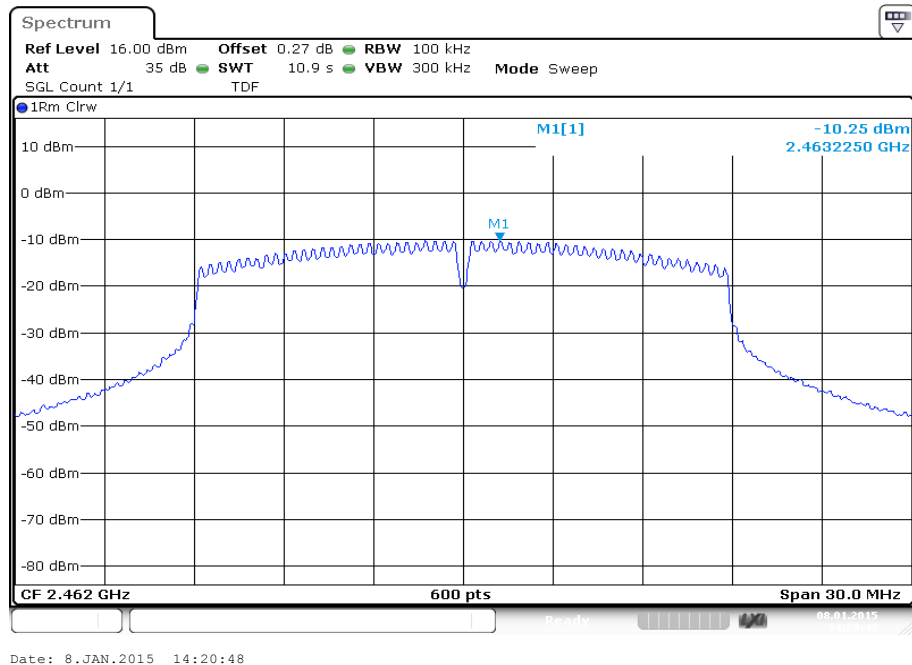
**Plots: DSSS / b – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

**Plots: OFDM / g – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

**Plots: OFDM / n HT20 – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

## 10.5 Spectrum bandwidth – 6 dB

### Description:

Measurement of the 6 dB bandwidth of the modulated signal.

### Measurement:

Measurement parameter	
According to DTS clause: 8.1	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 kHz
Video bandwidth:	500 kHz
Span:	30 MHz
Measurement procedure:	Measurement of the 75% bandwidth using the integration function of the analyzer
Trace-Mode:	Max hold (allow trace to stabilize)

### Limits:

FCC	IC
Spectrum Bandwidth – 6 dB	
Systems using digital modulation techniques may operate in the 2400–2483.5 MHz band. The minimum 6 dB bandwidth shall be at least 500 kHz.	

### Results:

Frequency	6 dB bandwidth [MHz]		
	2412 MHz	2437 MHz	2462 MHz
DSSS / b – mode	9.10	9.10	9.10
OFDM / g – mode	15.10	15.10	15.10
OFDM / n HT20 – mode	15.10	15.10	15.10
Measurement uncertainty	± RBW		

**Result:** Passed



## 10.6 Occupied bandwidth – 99% emission bandwidth

### Description:

Measurement of the 99% bandwidth of the modulated signal acc. RSS-GEN.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 kHz
Video bandwidth:	500 kHz
Span:	30 MHz
Measurement procedure:	Measurement of the 99% bandwidth using the integration function of the analyzer
Trace-Mode:	Max hold (allow trace to stabilize)

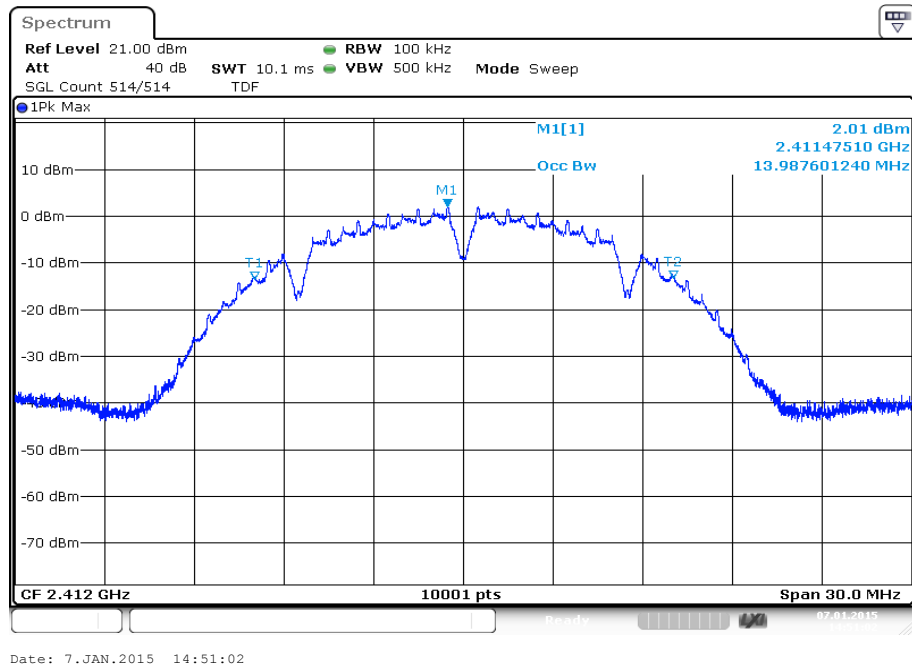
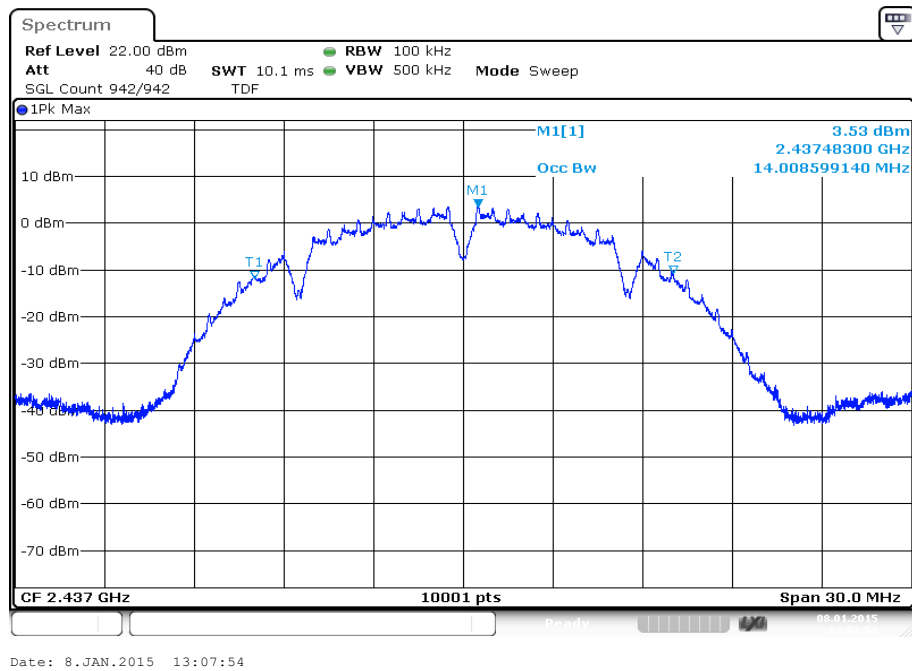
### Usage:

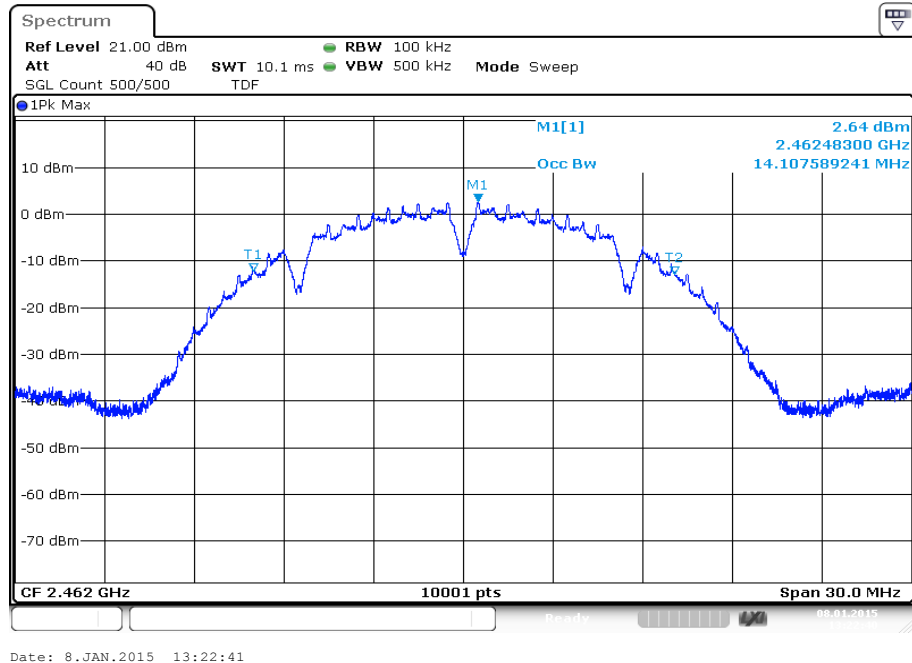
FCC	IC
Occupied Bandwidth – 99% emission bandwidth	
OBW is necessary for Emission Designator	

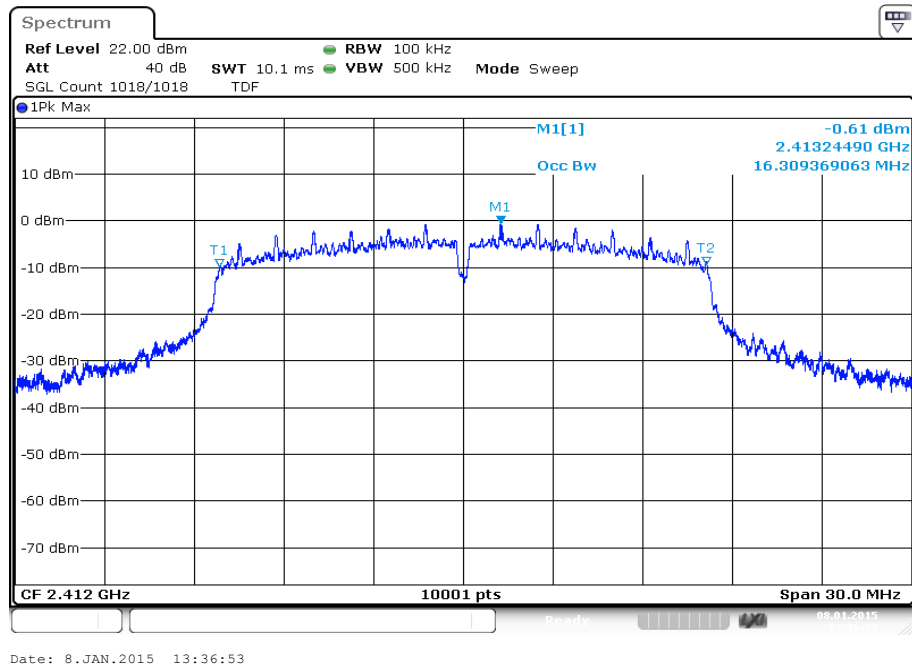
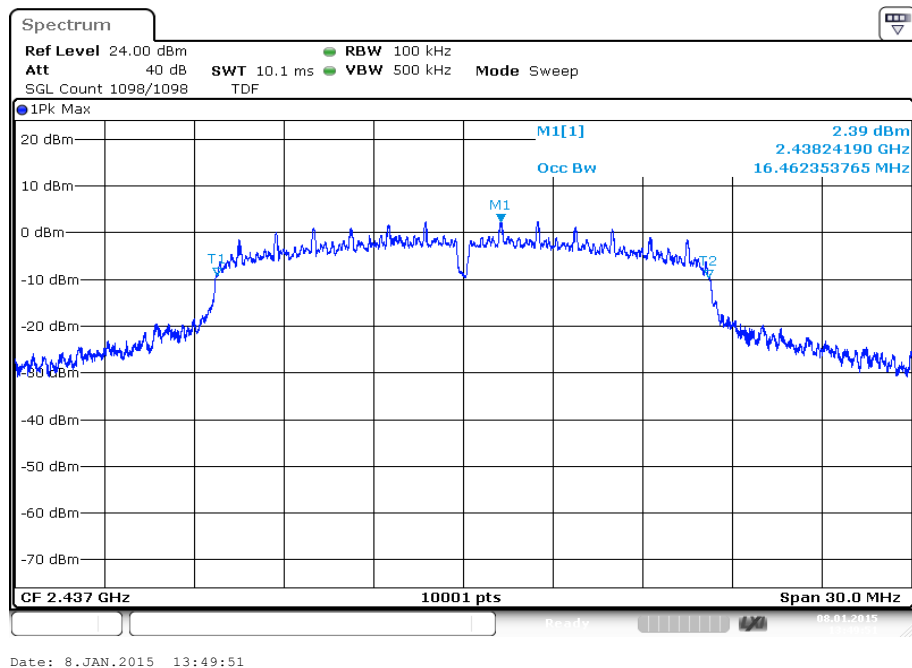
### Results:

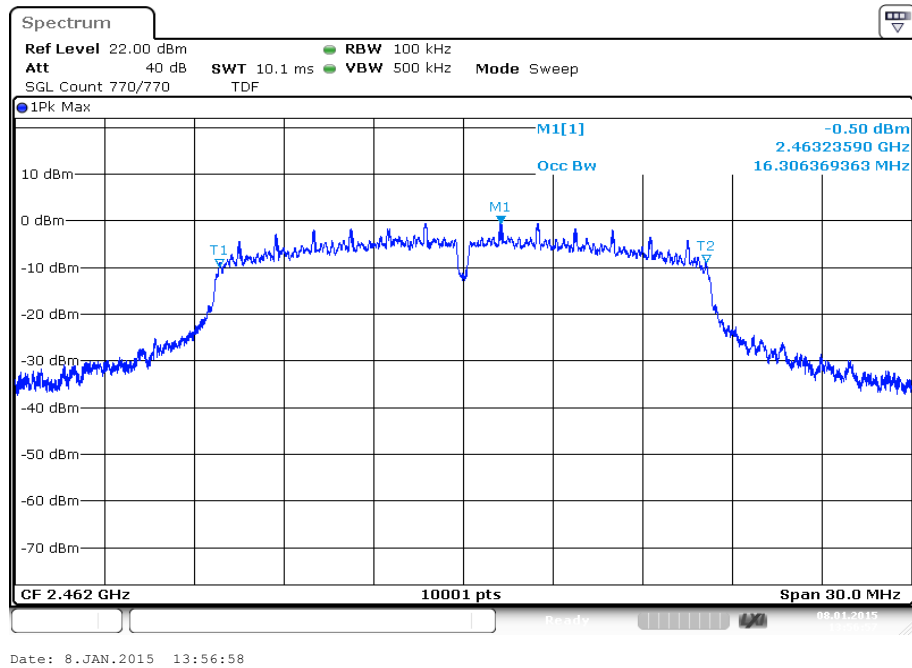
Modulation Frequency	99% bandwidth [MHz]		
	2412 MHz	2437 MHz	2462 MHz
DSSS / b – mode	14.0	14.0	14.1
OFDM / g – mode	16.3	16.5	16.3
OFDM / n HT20 – mode	17.4	17.7	17.4
Measurement uncertainty	± RBW		

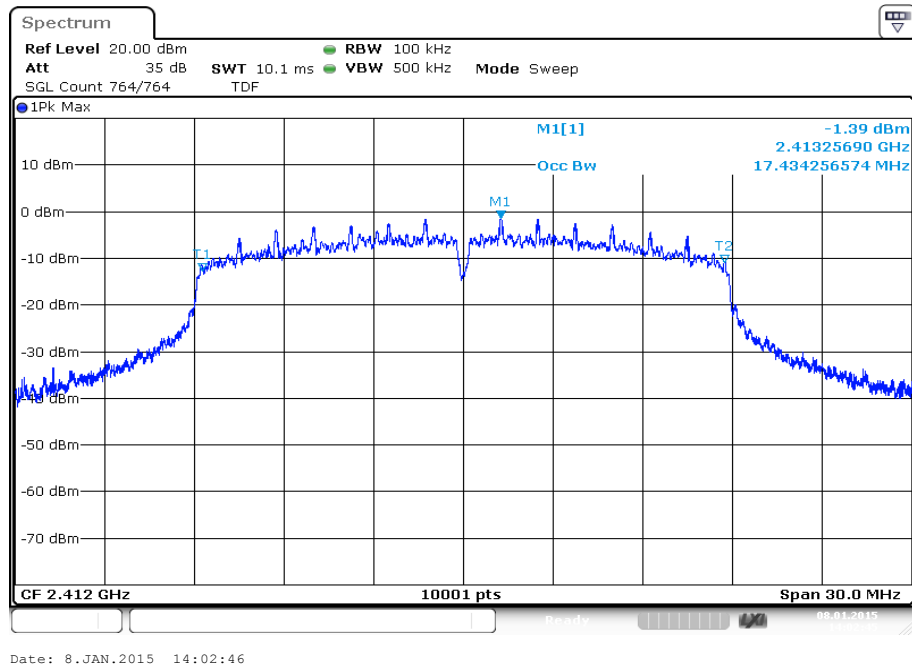
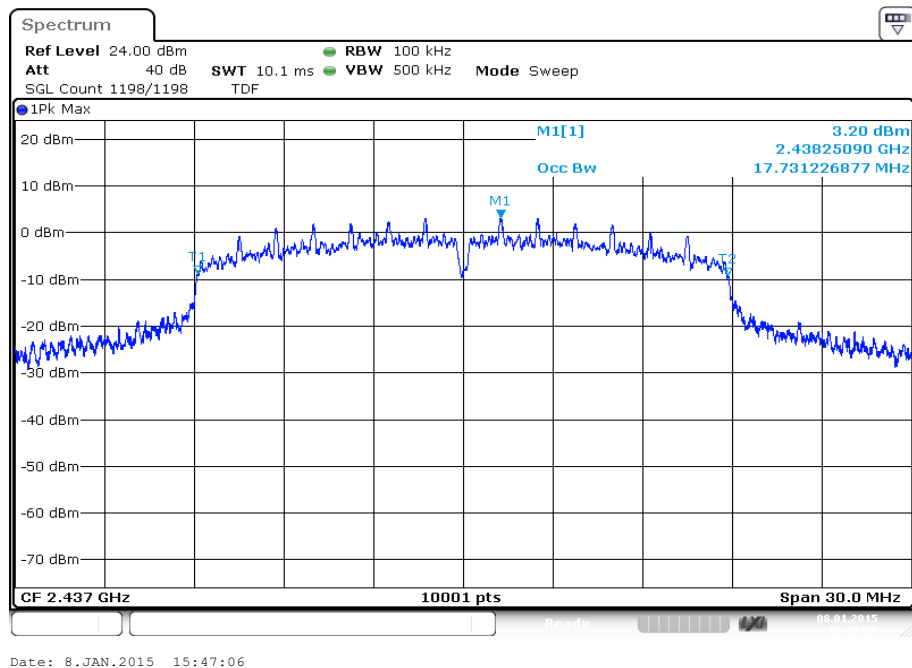
**Result:** Passed

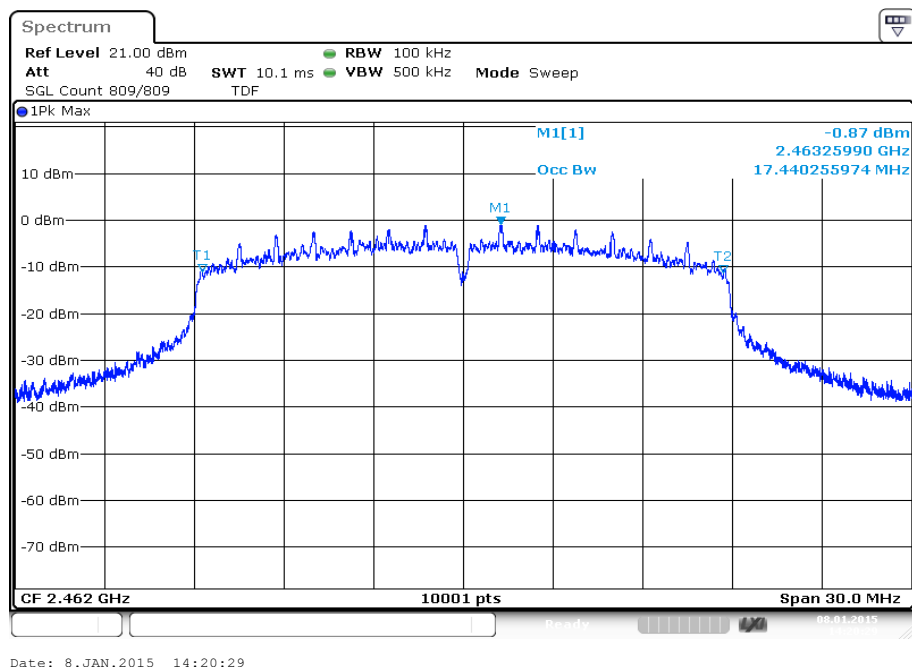
**Plots: DSSS / b – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

**Plots: OFDM / g – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

**Plots: OFDM / n HT20 – mode****Plot 1: TX mode, lowest channel****Plot 2: TX mode, middle channel**

**Plot 3: TX mode, highest channel**

## 10.7 Detailed spurious emissions @ the band edge - conducted

### Description:

Measurement of the conducted band edge compliance. EUT is measured at the lower and upper band edge in both modes.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 kHz
Video bandwidth:	500 kHz
Span:	Lower Band Edge: 2300 – 2425 MHz Upper Band Edge: 2450 – 2550 MHz
Trace-Mode:	Max hold

### Limits:

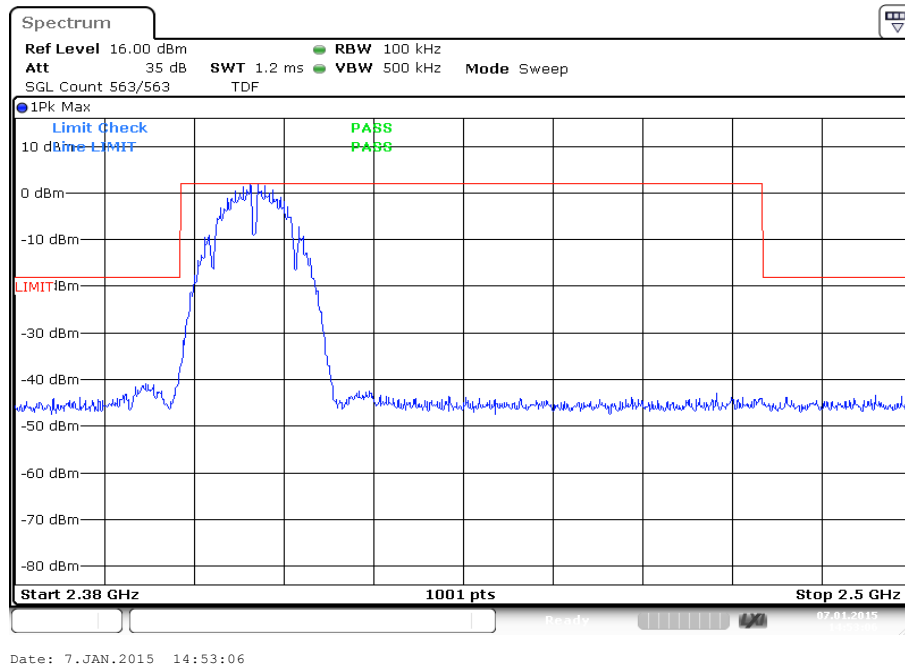
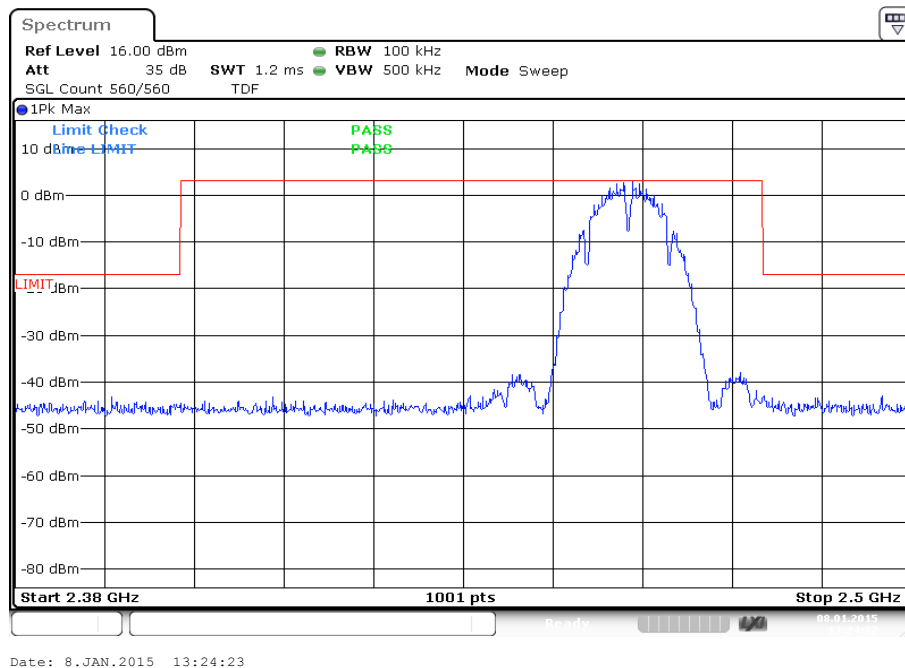
FCC	IC
Band Edge Compliance Conducted	
<p>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 30 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required.</p>	

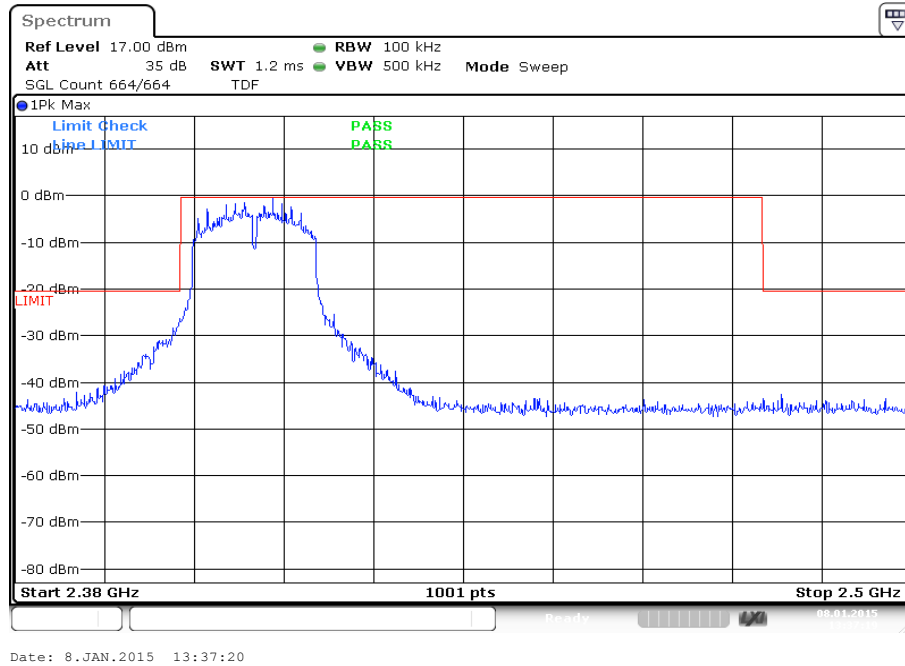
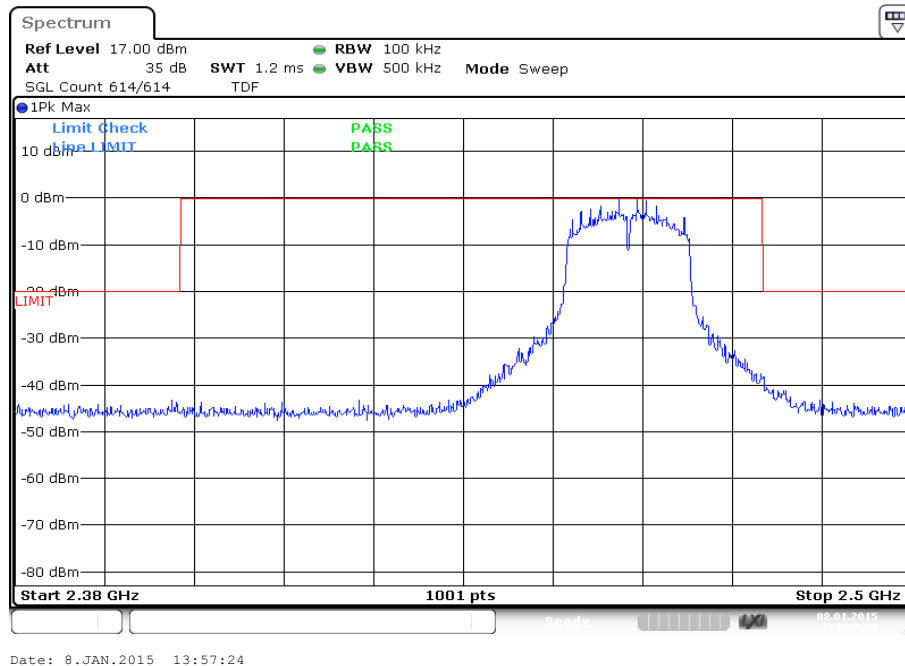
### Results:

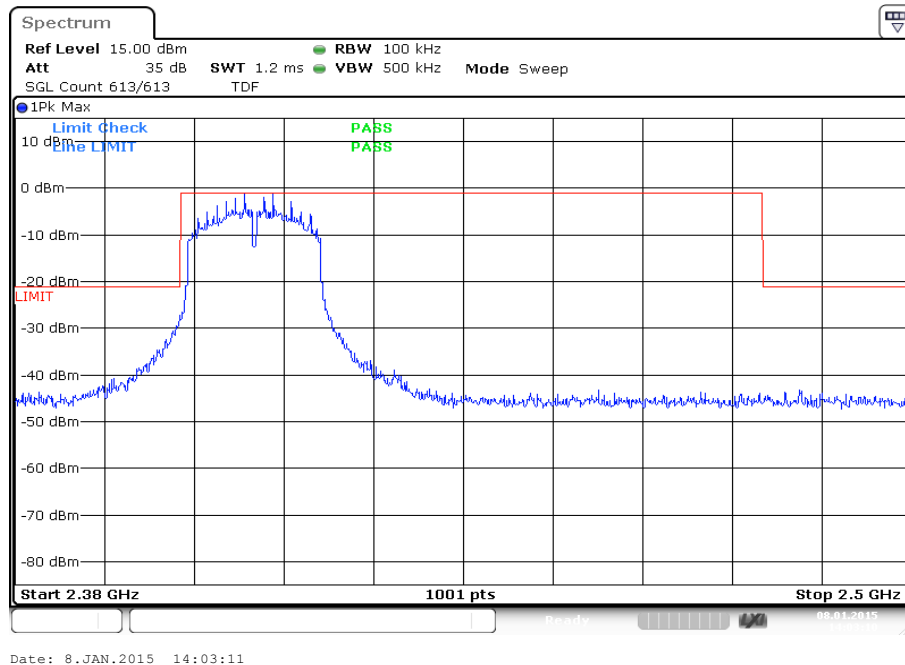
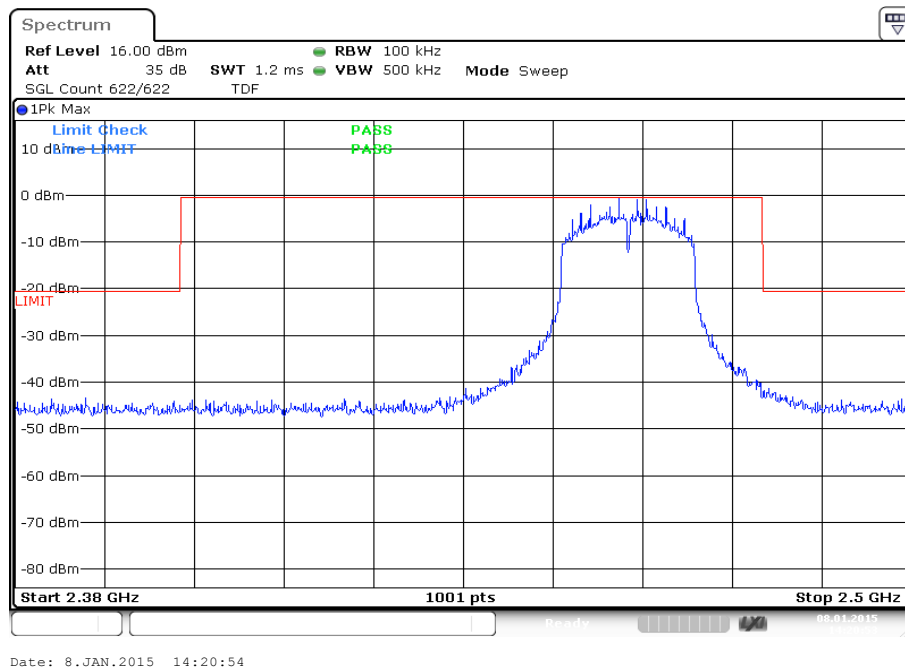
Scenario  Modulation	Compliance Conducted [dB]		
	DSSS / b – mode	OFDM / g – mode	OFDM / n HT20 – mode
Lower Band Edge – Channel 1	> 30 dB	> 30 dB	> 30 dB
Upper Band Edge – Channel 11	> 30 dB	> 30 dB	> 30 dB
Measurement uncertainty	± 1.5 dB		

**Result:** **Passed**



**Plots: DSSS / b – mode****Plot 1: TX mode, lower band edge****Plot 2: TX mode, upper band edge**

**Plots: OFDM / g – mode****Plot 1: TX mode, lower band edge****Plot 2: TX mode, upper band edge**

**Plots: OFDM / n HT20 – mode****Plot 1: TX mode, lower band edge****Plot 2: TX mode, upper band edge**

## 10.8 Band edge compliance radiated

### Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to channel 1 for the lower restricted band and to channel 11 for the upper restricted band. The measurement is repeated for all modulations. Measurement distance is 3m.

### Measurement:

Measurement parameter for peak measurements	
Detector:	Peak/RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	1 MHz
Span:	See plot!
Trace-Mode:	Max Hold

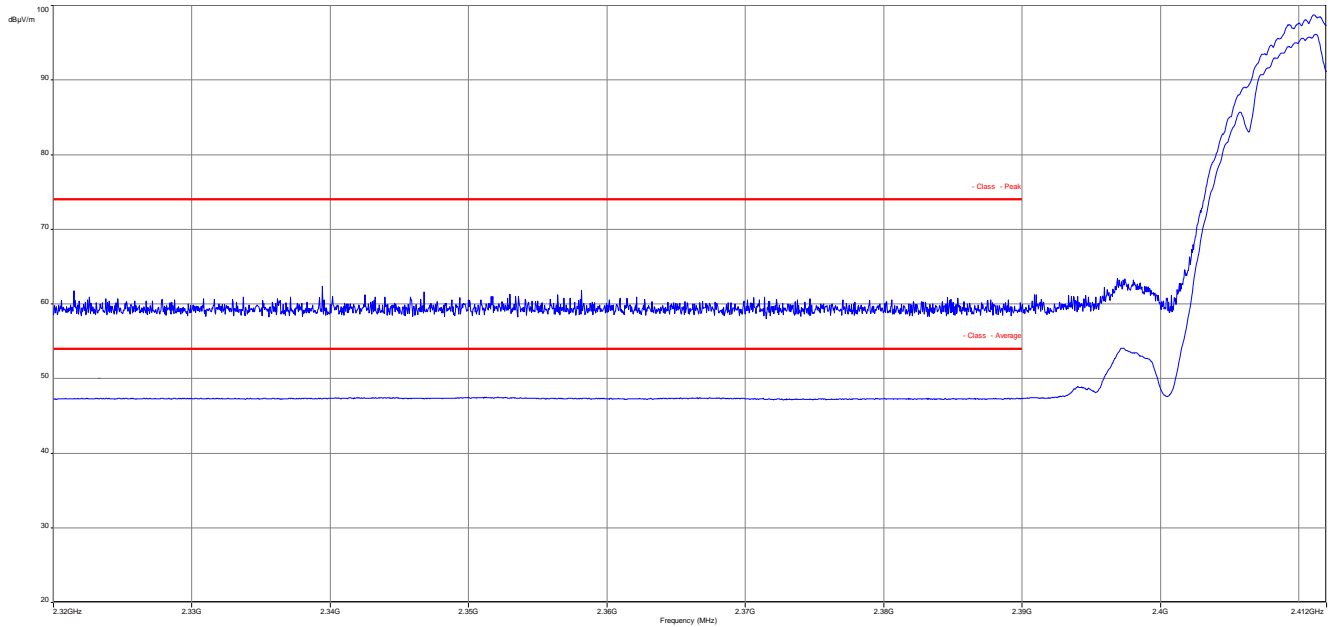
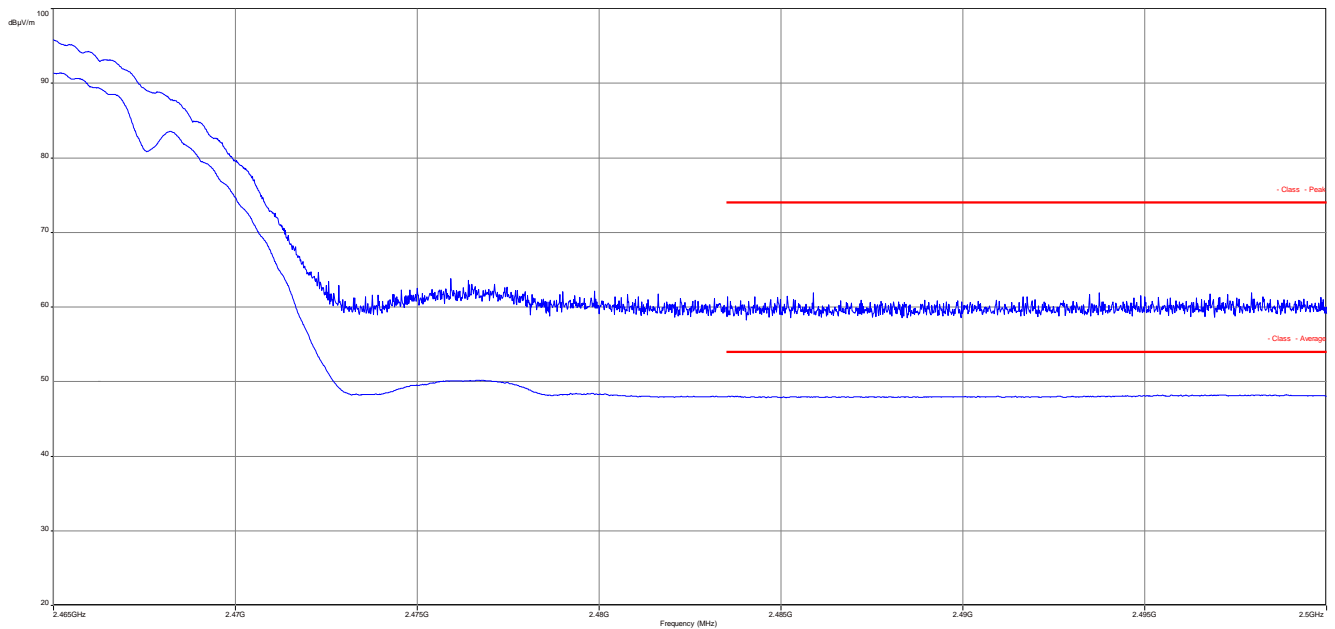
### Limits:

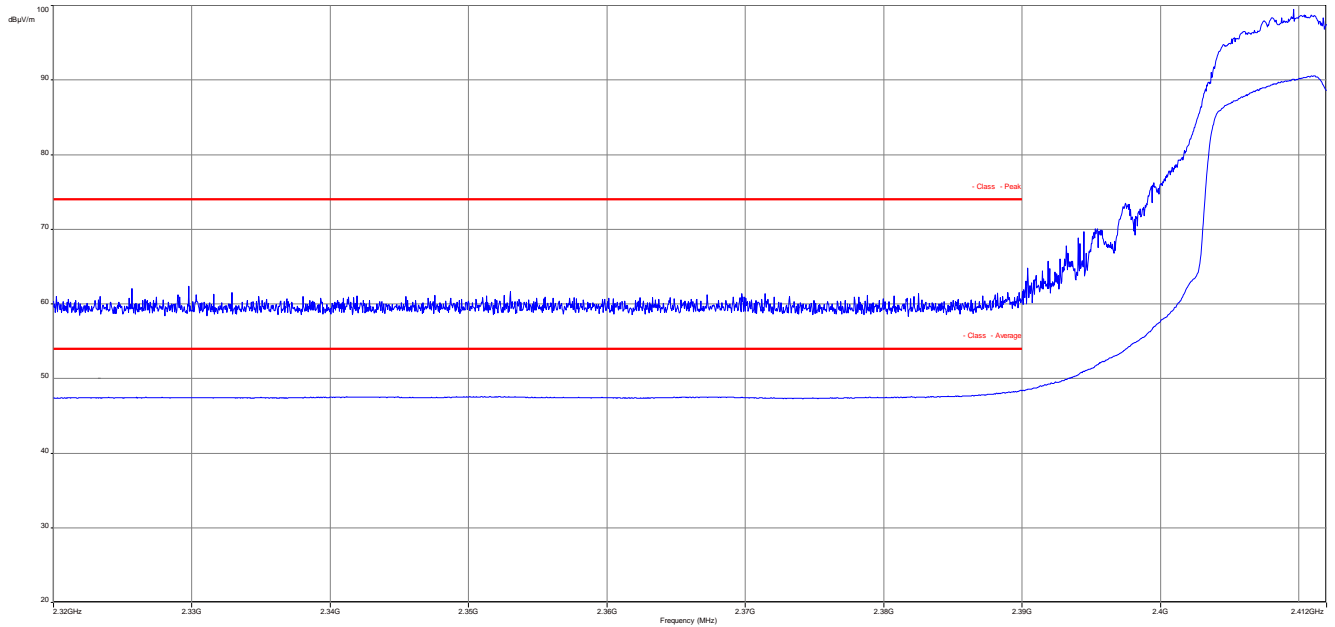
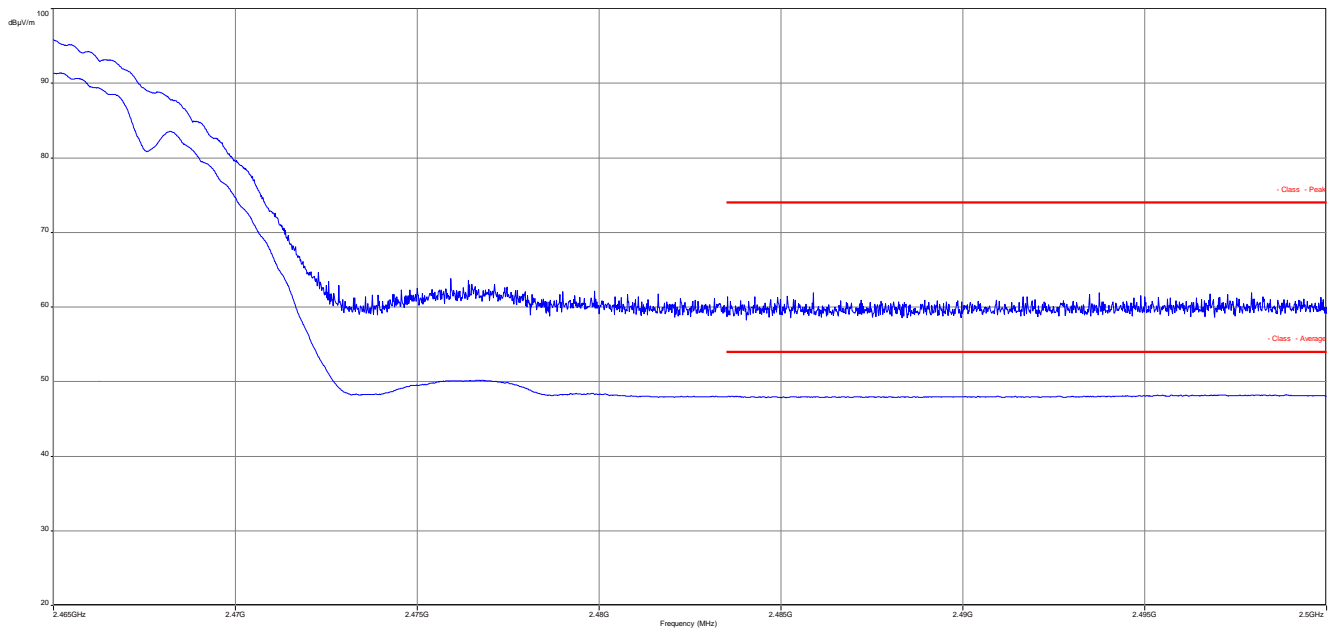
FCC	IC
Band Edge Compliance Radiated	
<p>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).</p>	
<p>74 dB<math>\mu</math>V/m Peak 54 dB<math>\mu</math>V/m AVG</p>	

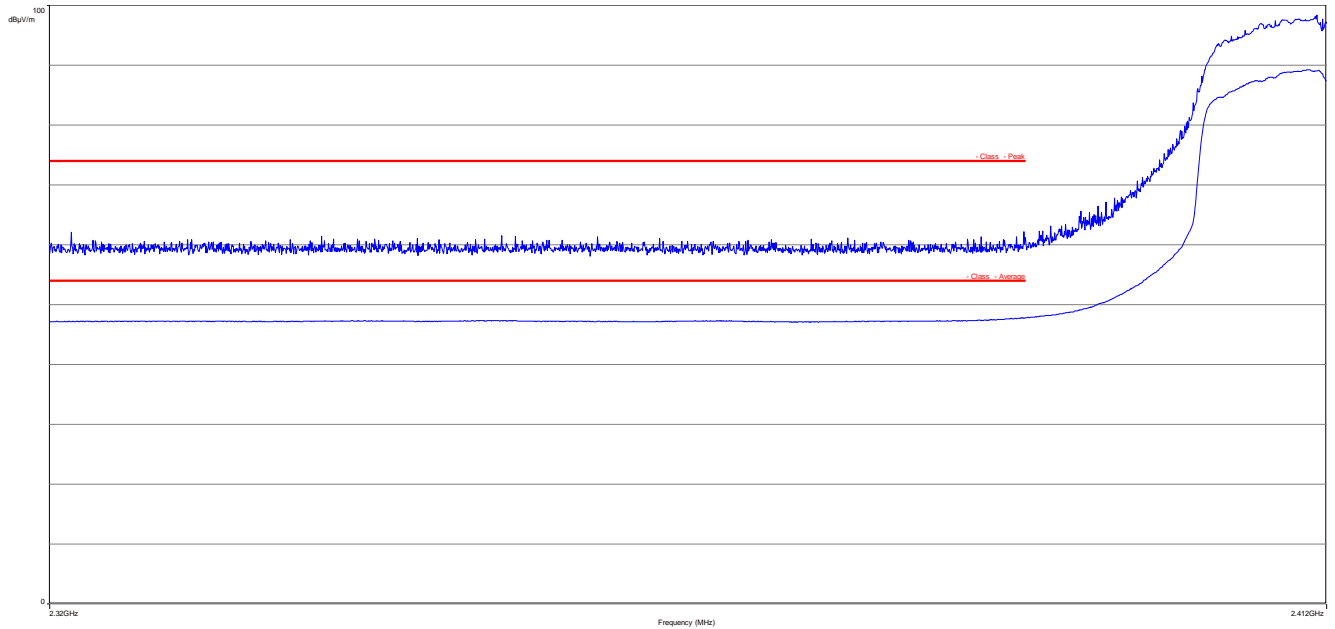
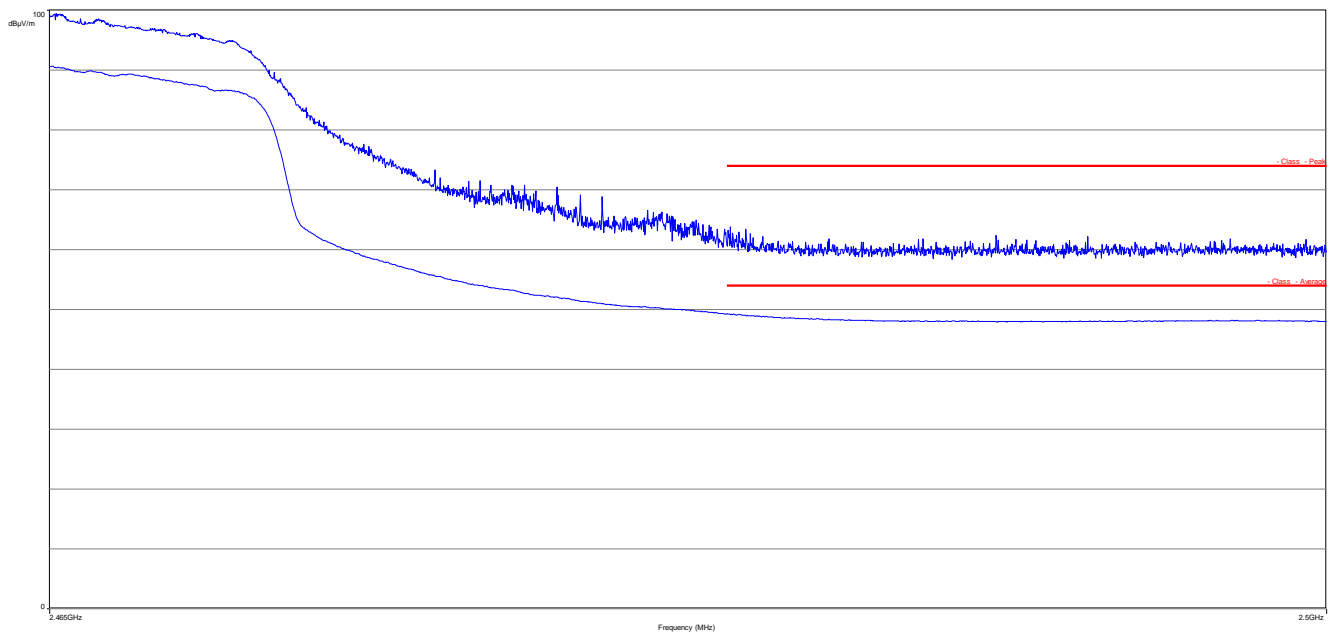
### Results:

Scenario  Modulation	Band Edge Compliance Conducted [dB]		
	DSSS / b – mode	OFDM / g – mode	OFDM / n HT20 – mode
Lower Band Edge – Channel 1	> 20 dB (Peak) > 20 dB (AVG)	> 10 dB (Peak) > 20 dB (AVG)	> 10 dB (Peak) > 20 dB (AVG)
Upper Band Edge – Channel 11	> 20 dB (Peak) > 20 dB (AVG)	> 10 dB (Peak) > 20 dB (AVG)	> 10 dB (Peak) > 20 dB (AVG)
Measurement uncertainty	$\pm 3$ dB		

**Result:** Passed

**Plots: DSSS/ b – mode peak / average****Plot 1: TX mode, lower band edge, vertical & horizontal polarization****Plot 2: TX mode, upper band edge, vertical & horizontal polarization**

**Plots: OFDM / g – mode peak / average****Plot 1: TX mode, lower band edge, vertical & horizontal polarization****Plot 2: TX mode, upper band edge, vertical & horizontal polarization**

**Plots: OFDM / n HT20 – mode peak / average****Plot 1: TX mode, lower band edge, vertical & horizontal polarization****Plot 2: TX mode, upper band edge, vertical & horizontal polarization**

## 10.9 TX spurious emissions conducted

### Description:

Measurement of the conducted spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	100 kHz
Video bandwidth:	500 kHz
Span:	9 kHz to 25 GHz
Trace-Mode:	Max Hold

### Limits:

FCC	IC
TX Spurious Emissions Conducted	
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required	



**Results: DSSS / b – mode**

TX Spurious Emissions Conducted					
DSSS / b – mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		1.55	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
2437		3.33	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
2462		2.67	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
Measurement uncertainty		± 3 dB			

**Result: Passed****Results: OFDM / g – mode**

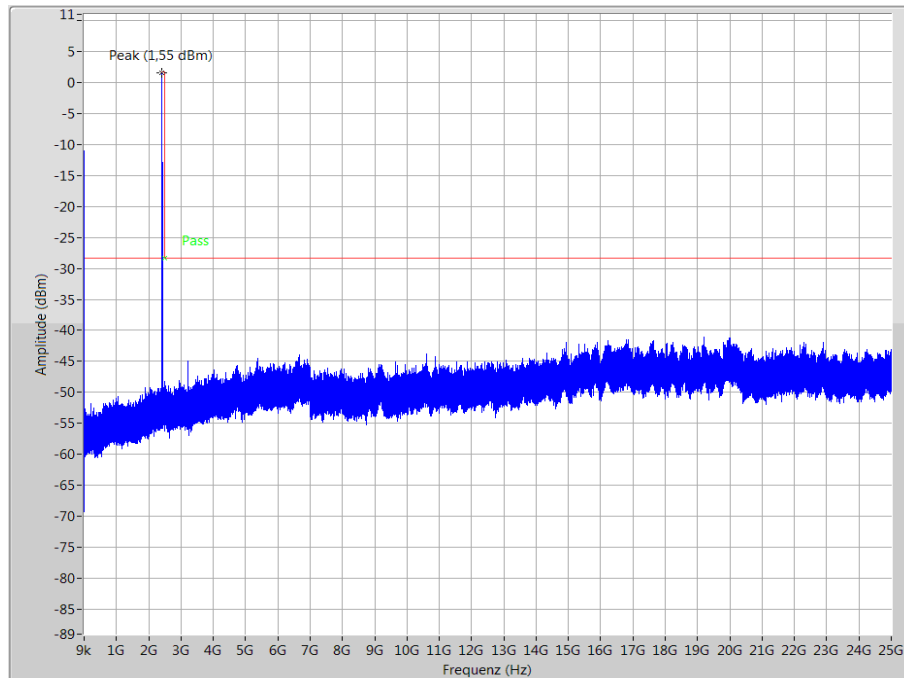
TX Spurious Emissions Conducted					
OFDM / g – mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		-0.69	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
2437		1.72	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
2462		-1.40	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
Measurement uncertainty		± 3 dB			

**Result: Passed**

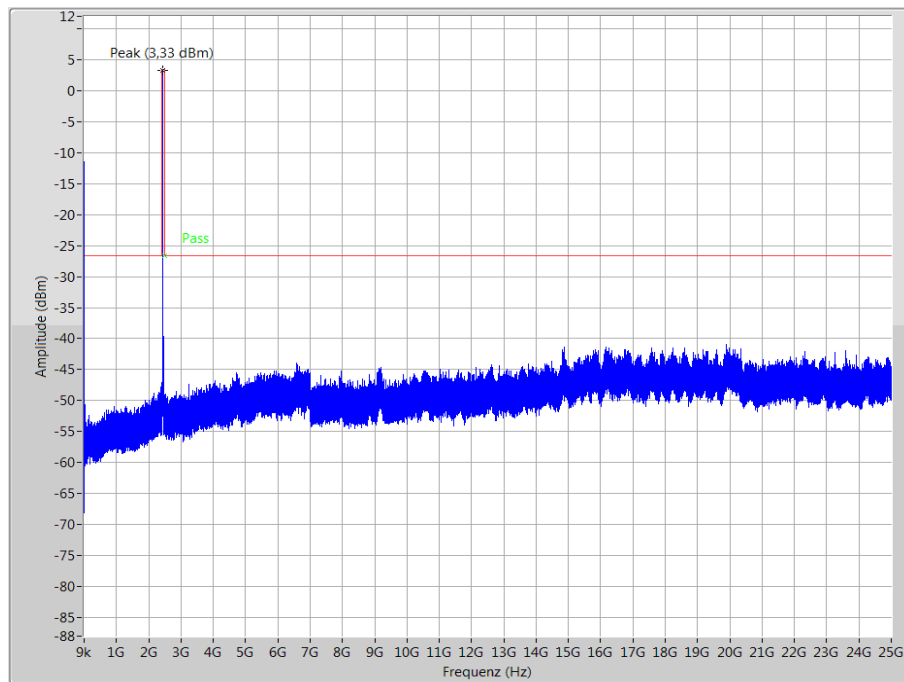
**Results: OFDM / n HT20 – mode**

TX Spurious Emissions Conducted					
OFDM / n HT20 – mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		-3.40	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
2437		2.37	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
2462		-3.87	30 dBm		Operating frequency
No peaks detected. All detected emissions are below the -20 dBc criteria.			-20 dBc (peak) -30 dBc (average)		complies
Measurement uncertainty		± 3 dB			

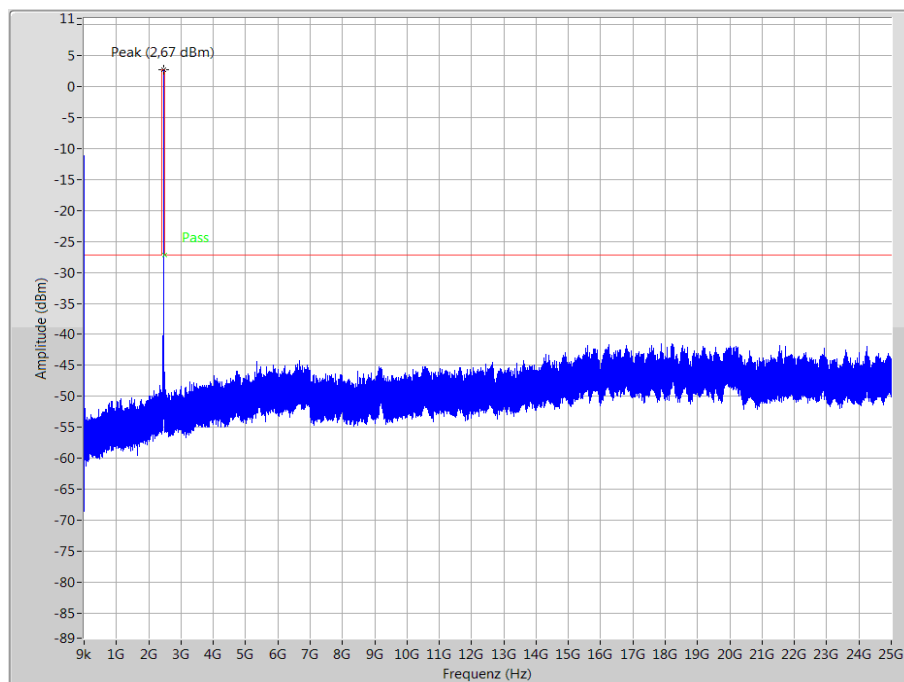
**Result:** **Passed**

**Plots: DSSS / b – mode****Plot 1: TX mode, lowest channel, up to 25 GHz**

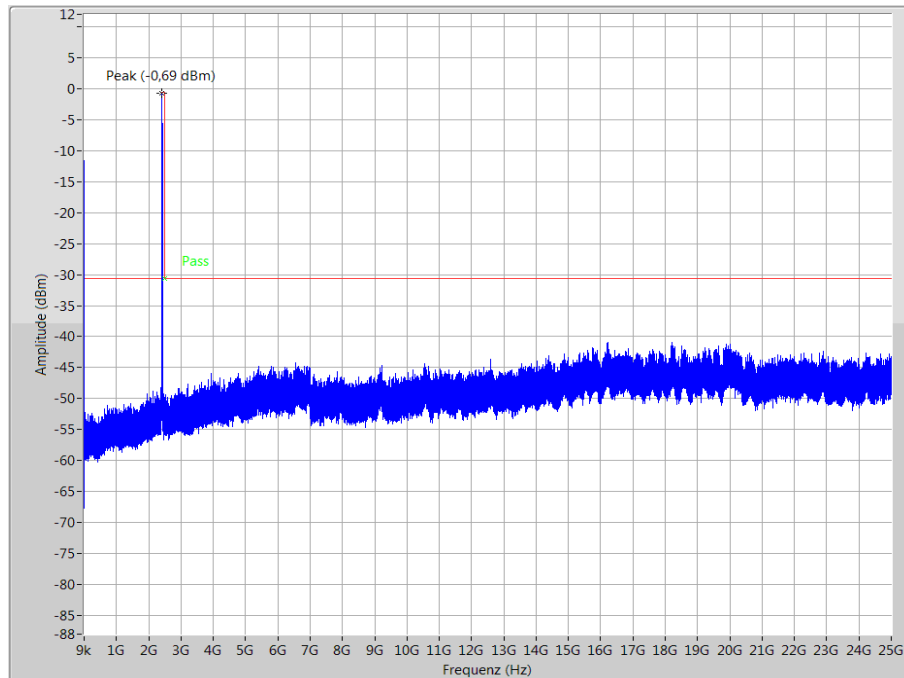
The peak at the beginning of the plot is the LO from the SA.

**Plot 2: TX mode, middle channel, up to 25 GHz**

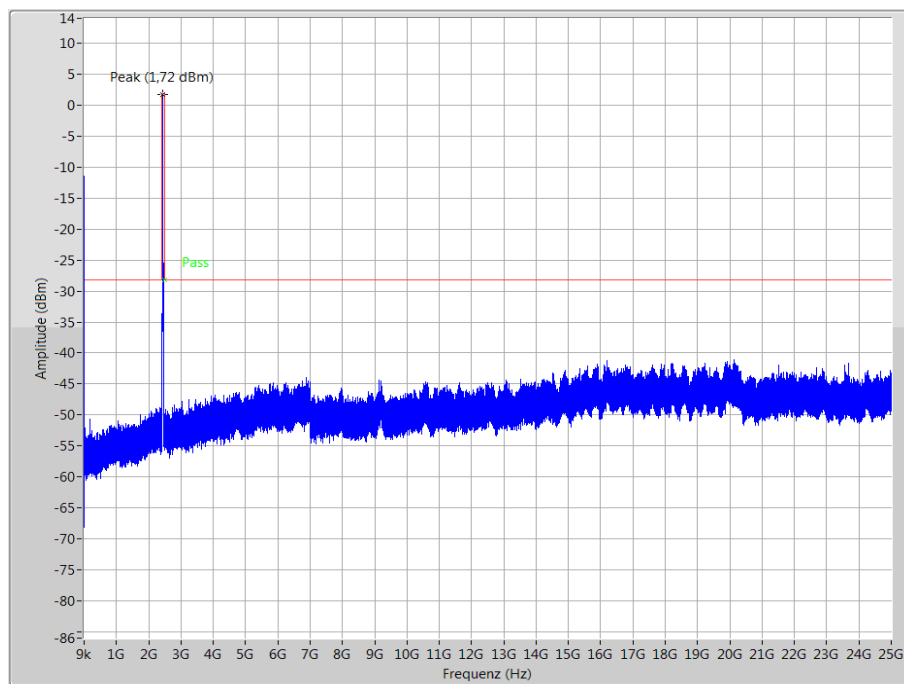
The peak at the beginning of the plot is the LO from the SA.

**Plot 3:** TX mode, highest channel, up to 25 GHz

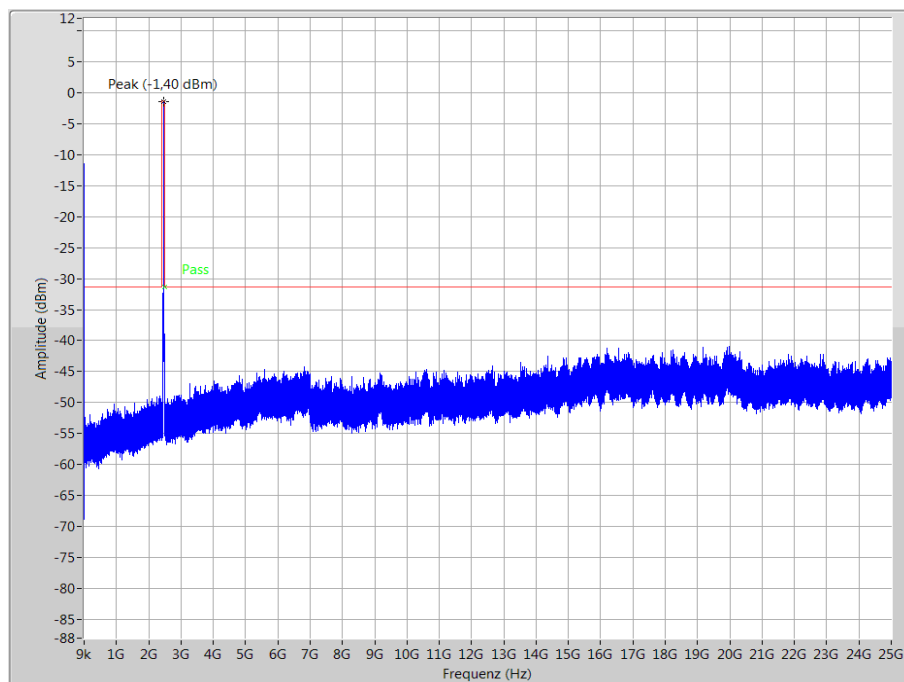
The peak at the beginning of the plot is the LO from the SA.

**Plots: OFDM / g – mode****Plot 1: TX mode, lowest channel, up to 25 GHz**

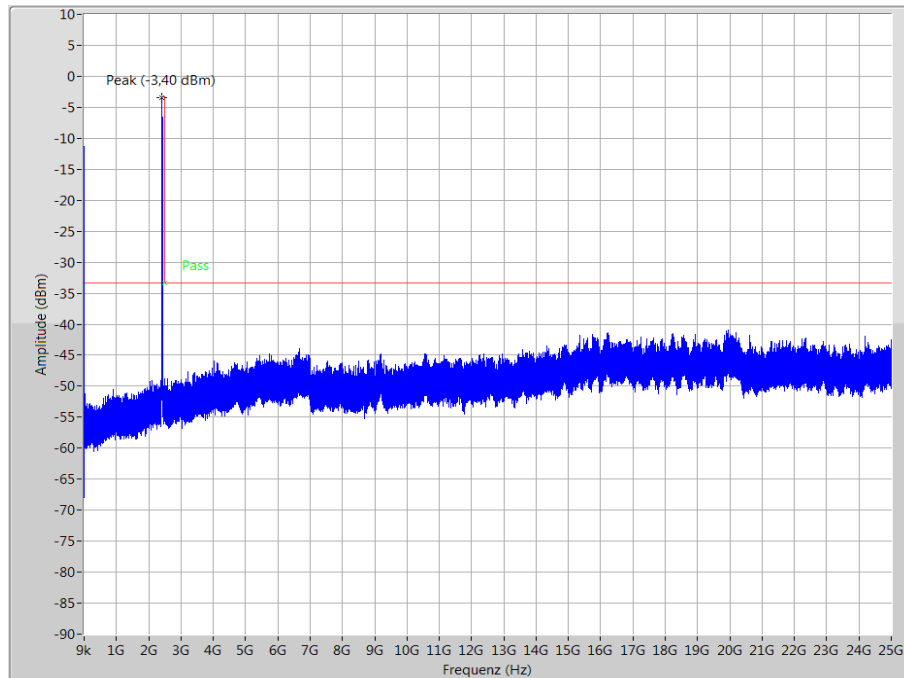
The peak at the beginning of the plot is the LO from the SA.

**Plot 2: TX mode, middle channel, up to 25 GHz**

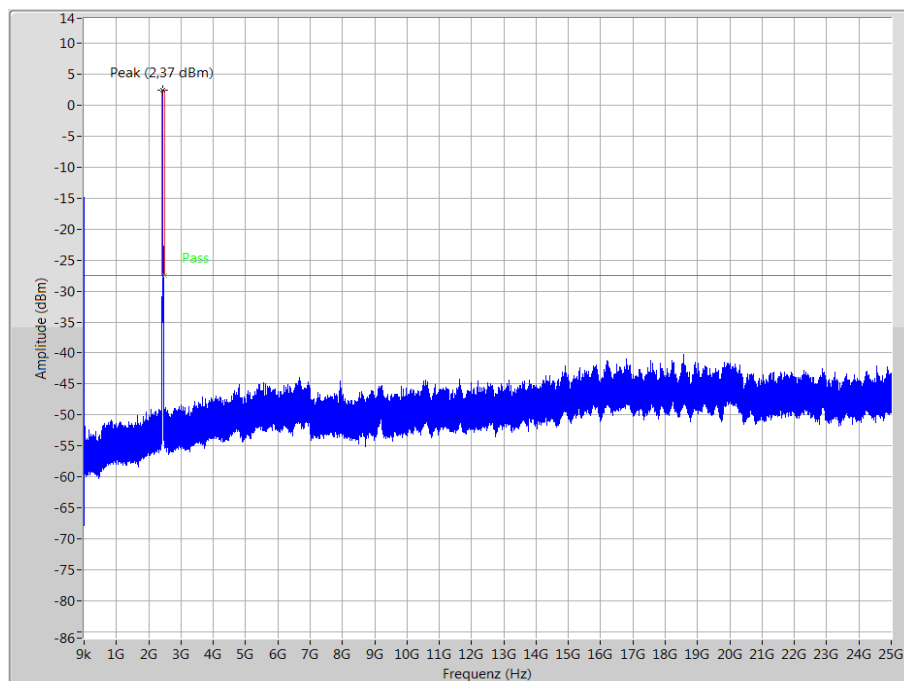
The peak at the beginning of the plot is the LO from the SA.

**Plot 3:** TX mode, highest channel, up to 25 GHz

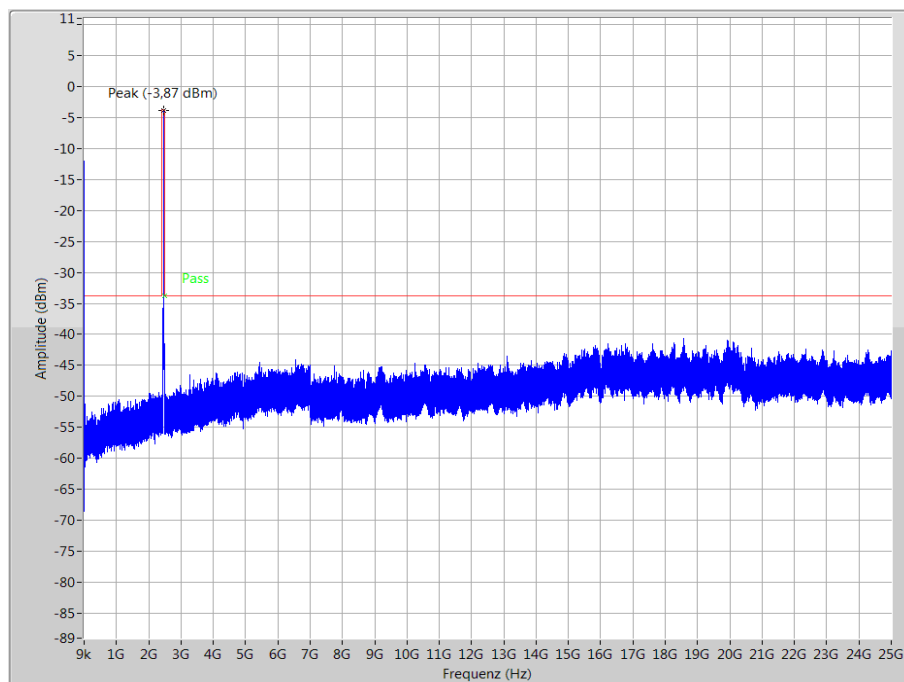
The peak at the beginning of the plot is the LO from the SA.

**Plots: OFDM / n – mode****Plot 1: TX mode, lowest channel, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 2: TX mode, middle channel, up to 25 GHz**

The peak at the beginning of the plot is the LO from the SA.

**Plot 3:** TX mode, highest channel, up to 25 GHz

The peak at the beginning of the plot is the LO from the SA.



## 10.10 TX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	F > 1 GHz: 1 MHz F < 1 GHz: 100 kHz
Video bandwidth:	3 x RBW Remeasurement: 10 Hz / 3 MHz
Span:	30 MHz to 26 GHz
Trace-Mode:	Max Hold
Measured Modulation	<input checked="" type="checkbox"/> DSSS b – mode <input checked="" type="checkbox"/> OFDM g – mode <input checked="" type="checkbox"/> OFDM n – mode

The modulation with the highest output power was used to perform the transmitter spurious emissions. If spurious were detected a re-measurement was performed on the detected frequency with each modulation.

### Limits:

FCC		IC
TX Spurious Emissions Radiated		
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).		
Frequency (MHz)	Field Strength (dBμV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

**Results: DSSS / b – mode**

TX Spurious Emissions Radiated [dB $\mu$ V/m]								
DSSS / b – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			Emissions below 1 GHz not measured. See plot of low and high channel to compare that there is no emission independent of the frequency.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
No spurious emissions above 1 GHz detected.			No spurious emissions above 1 GHz detected.			No spurious emissions above 1 GHz detected.		
Measurement uncertainty			$\pm 3$ dB					

**Results: OFDM / g – mode**

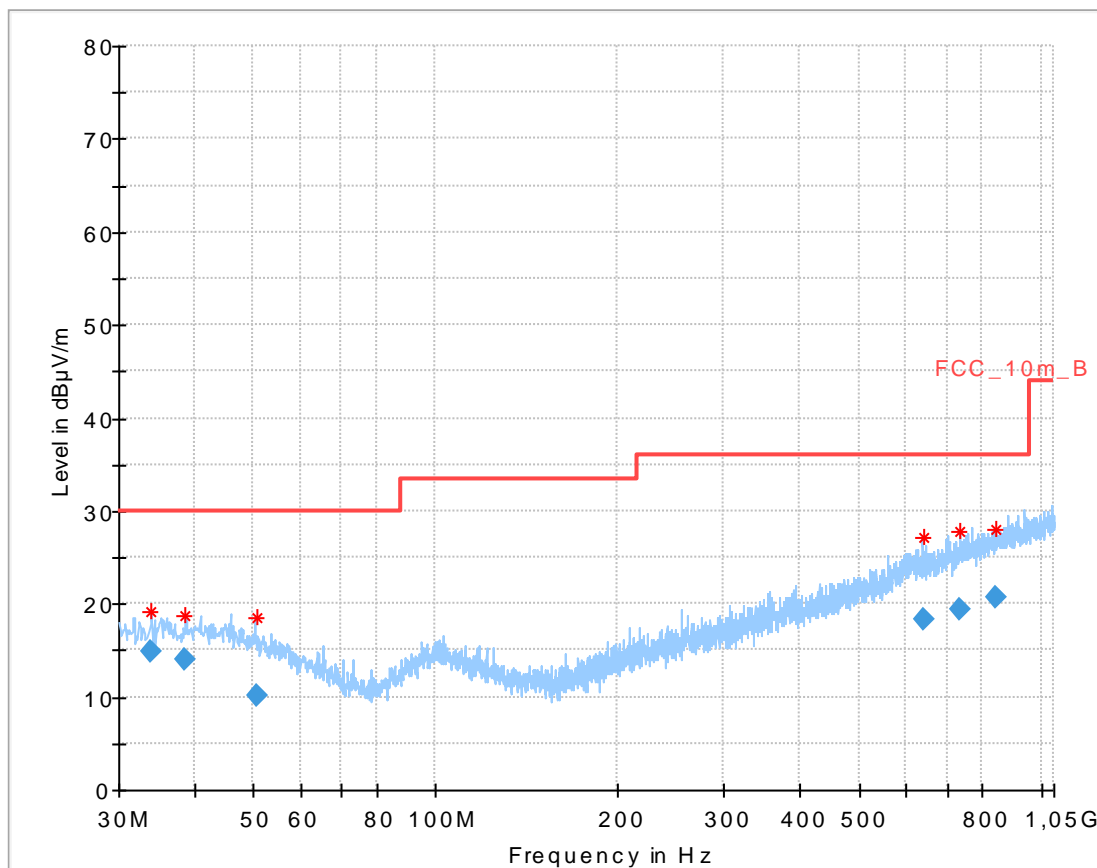
TX Spurious Emissions Radiated [dB $\mu$ V/m]								
DSSS / g – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
Emissions below 1 GHz not measured. See plot of b-mode low and high channel to compare that there is no emission independent of the frequency.			Emissions below 1 GHz not measured. See plot of b-mode low and high channel to compare that there is no emission independent of the frequency.			Emissions below 1 GHz not measured. See plot of b-mode low and high channel to compare that there is no emission independent of the frequency.		
No spurious emissions above 1 GHz detected.			No spurious emissions above 1 GHz detected.			No spurious emissions above 1 GHz detected.		
Measurement uncertainty			$\pm 3$ dB					

**Results: OFDM / n HT20 – mode**

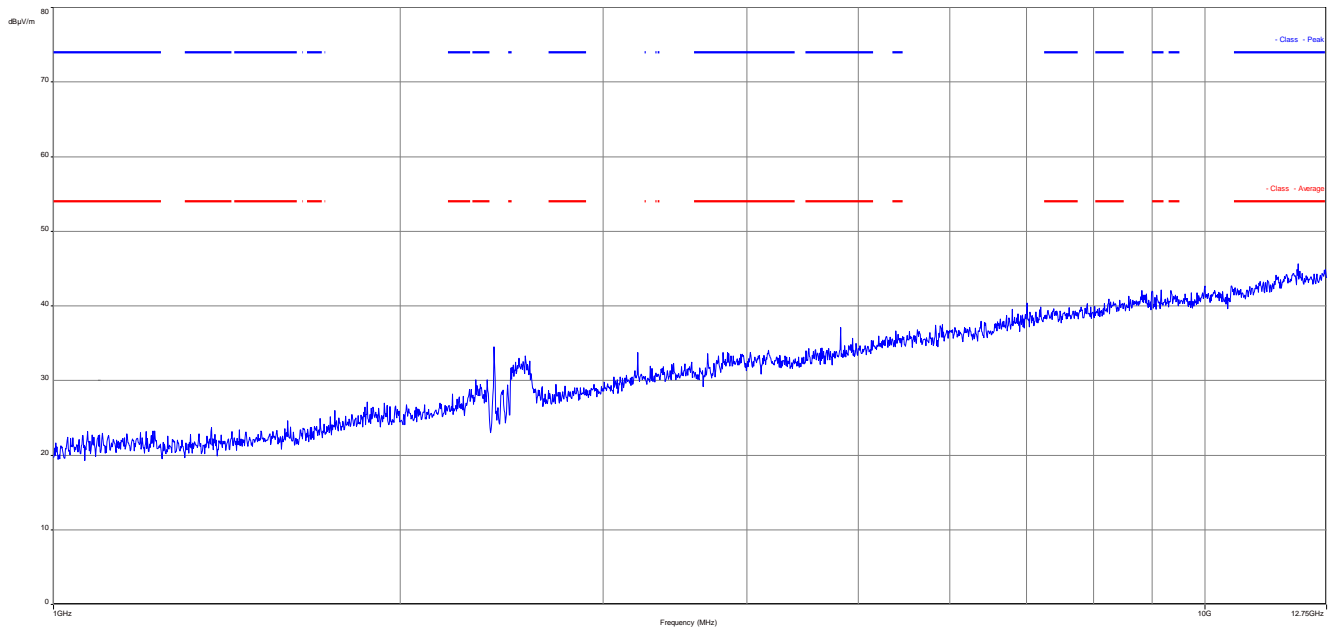
TX Spurious Emissions Radiated [dB $\mu$ V/m]								
DSSS / n – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
Emissions below 1 GHz not measured. See plot of b-mode low and high channel to compare that there is no emission independent of the frequency.			Emissions below 1 GHz not measured. See plot of b-mode low and high channel to compare that there is no emission independent of the frequency.			Emissions below 1 GHz not measured. See plot of b-mode low and high channel to compare that there is no emission independent of the frequency.		
No spurious emissions above 1 GHz detected.			No spurious emissions above 1 GHz detected.			No spurious emissions above 1 GHz detected.		
Measurement uncertainty			$\pm 3$ dB					

**Result:** Passed

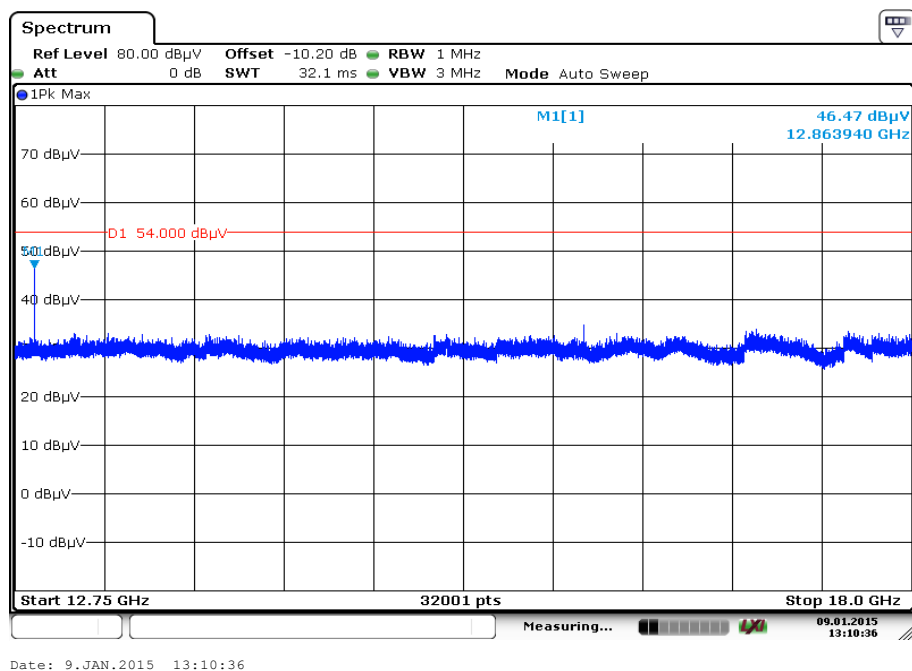
**Note:** The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

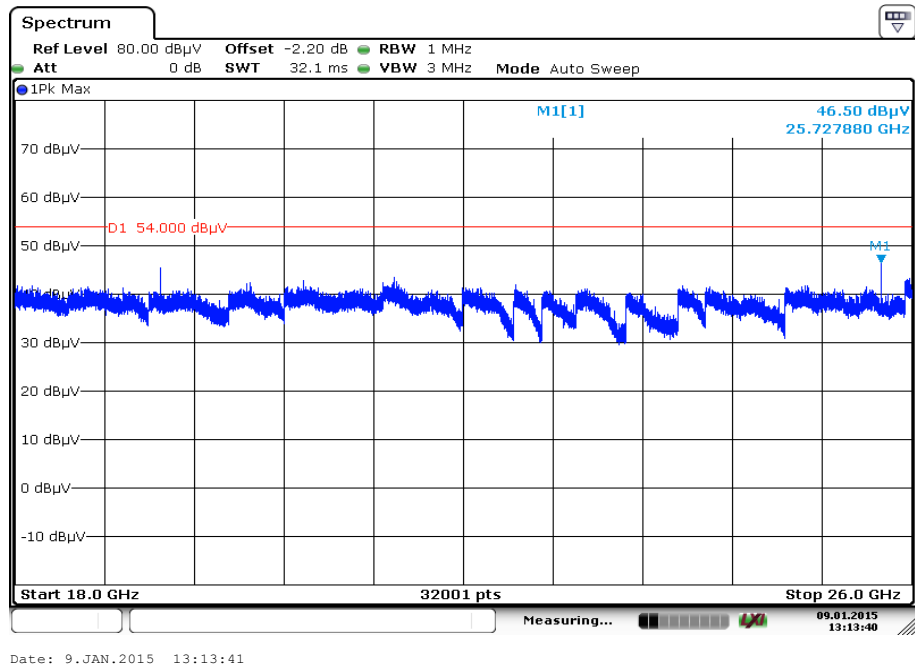
**Plots: DSSS / b – mode**
**Plot 1:** Lowest channel, 30 MHz to 1 GHz, vertical & horizontal polarization


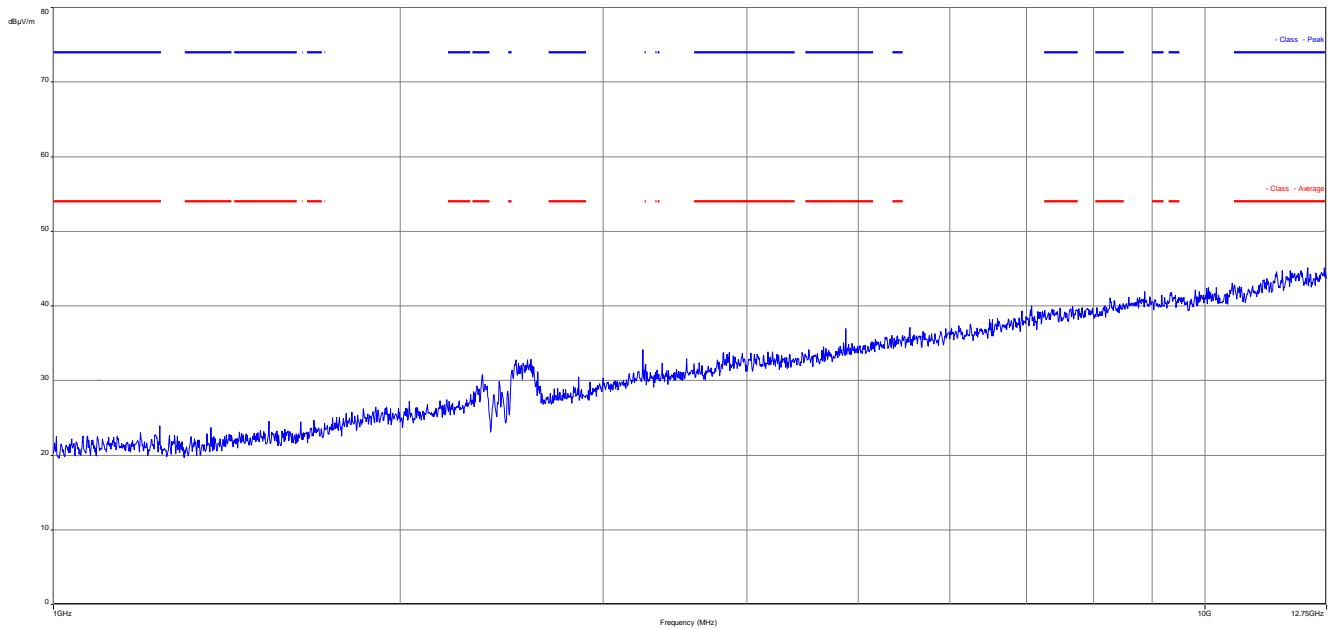
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.988950	14.95	30.00	15.05	1000.0	120.000	170.0	V	90	13.7
38.708700	14.08	30.00	15.92	1000.0	120.000	170.0	V	65	14.0
50.605950	10.07	30.00	19.93	1000.0	120.000	101.0	V	65	12.5
637.743450	18.27	36.00	17.73	1000.0	120.000	170.0	V	-25	21.0
734.211600	19.49	36.00	16.51	1000.0	120.000	170.0	V	245	22.3
844.034250	20.65	36.00	15.35	1000.0	120.000	170.0	H	0	23.4

**Plot 2:** Lowest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

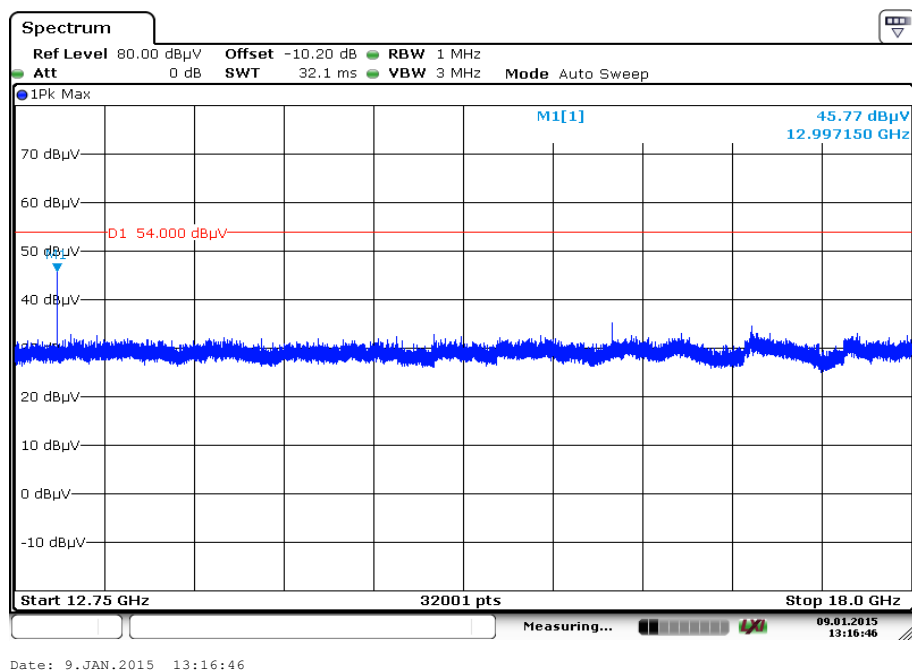
The carrier signal is notched with a 2.4 GHz band rejection filter.

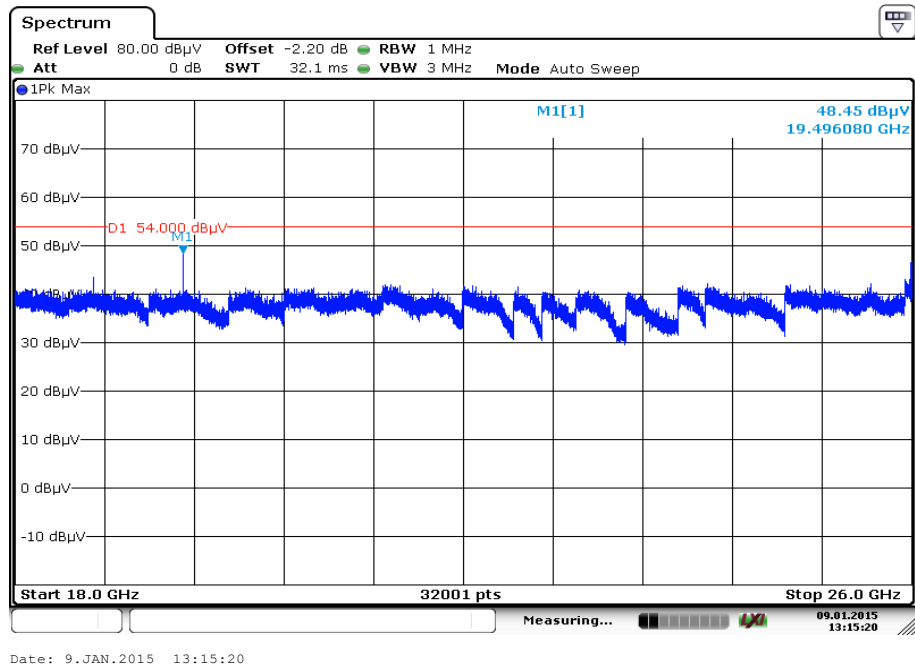
**Plot 3:** Lowest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

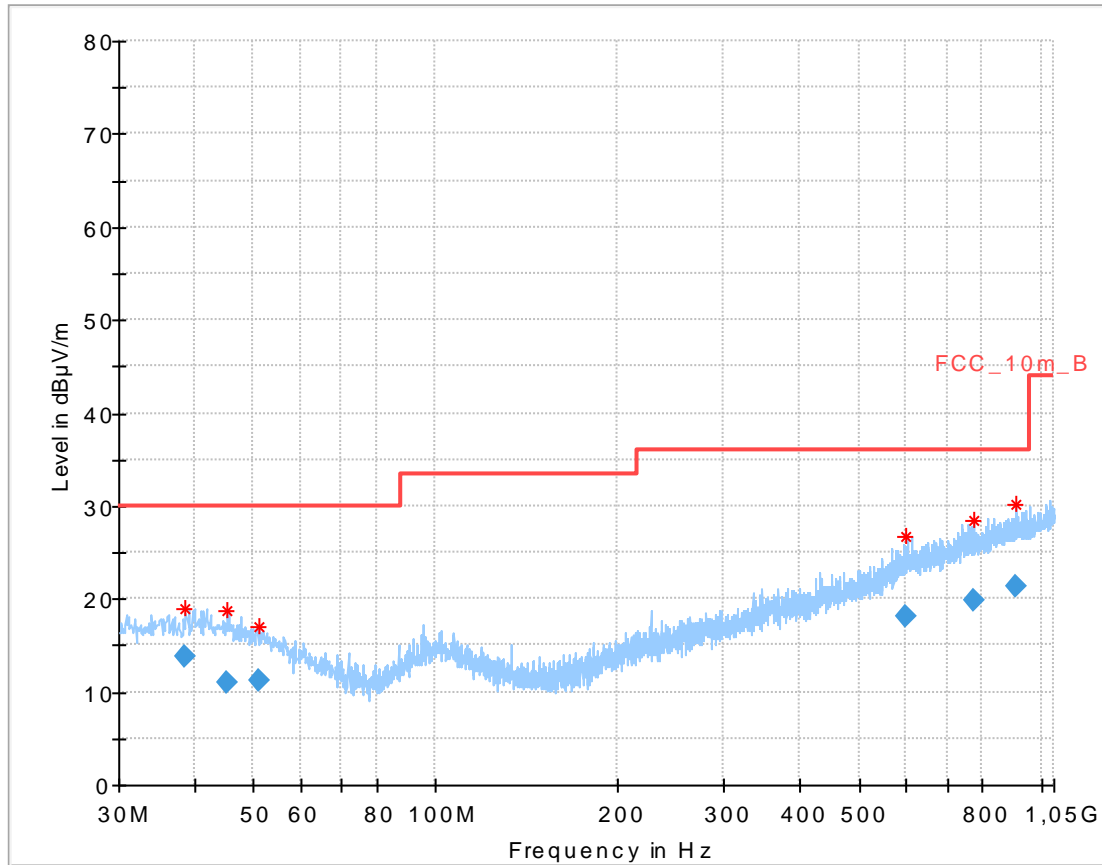
**Plot 4:** Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization

**Plot 5:** Middle channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

The carrier signal is notched with a 2.4 GHz band rejection filter.

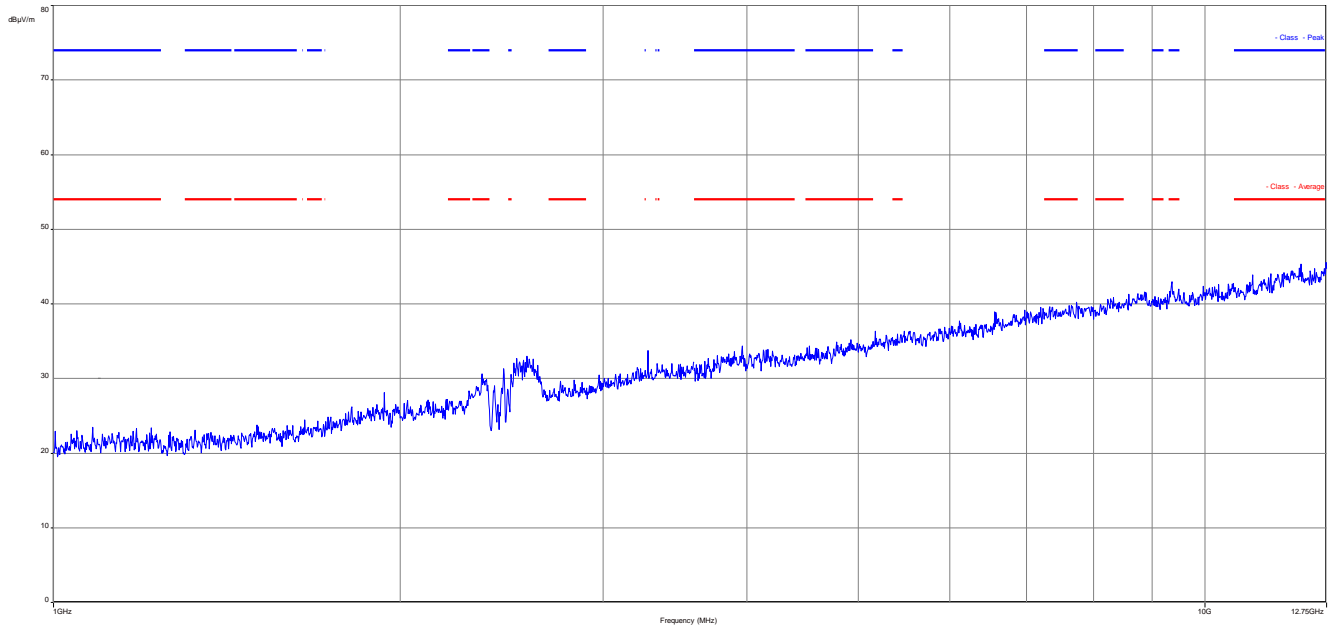
**Plot 6:** Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

**Plot 7:** Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization

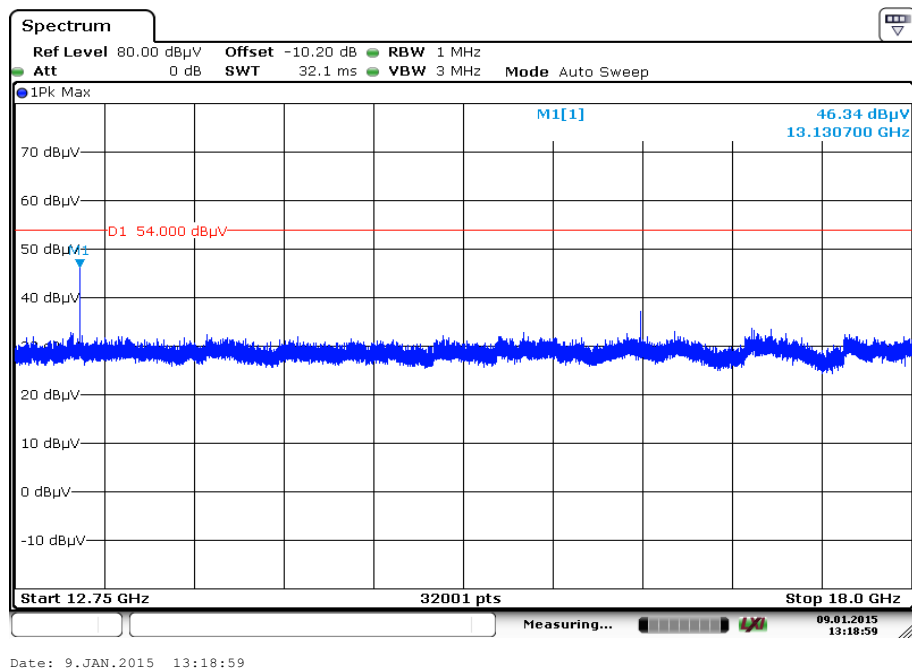
**Plot 8:** Highest channel, 30 MHz to 1 GHz, vertical & horizontal polarization


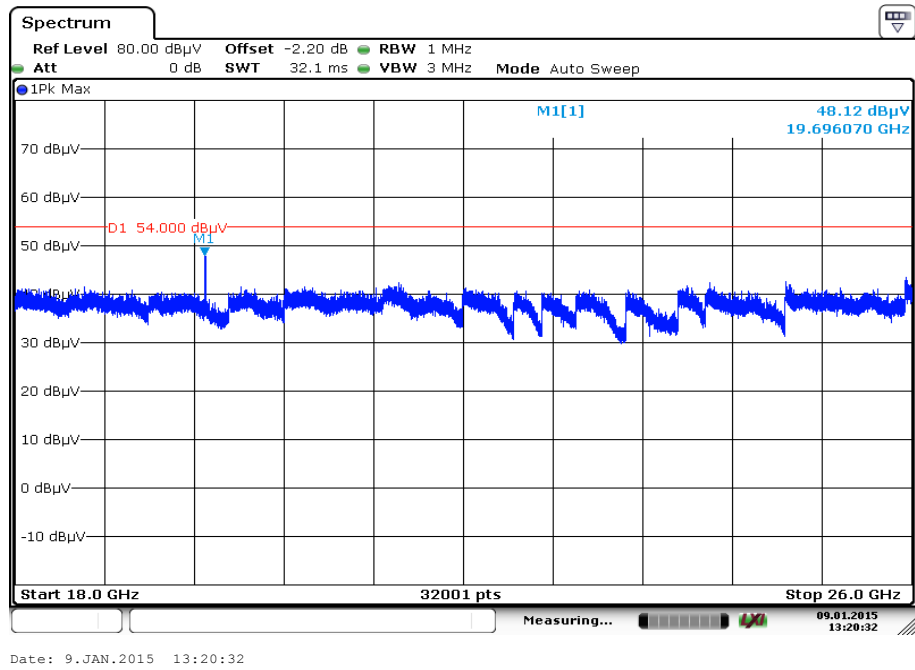
Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
38.674200	13.73	30.00	16.27	1000.0	120.000	101.0	V	155	14.0
45.105150	10.92	30.00	19.08	1000.0	120.000	101.0	V	65	13.8
51.015150	11.30	30.00	18.70	1000.0	120.000	170.0	V	-1	12.5
600.019050	18.10	36.00	17.90	1000.0	120.000	170.0	V	-25	20.7
774.013050	19.80	36.00	16.20	1000.0	120.000	98.0	V	90	22.7
908.894700	21.35	36.00	14.65	1000.0	120.000	101.0	V	269	24.1

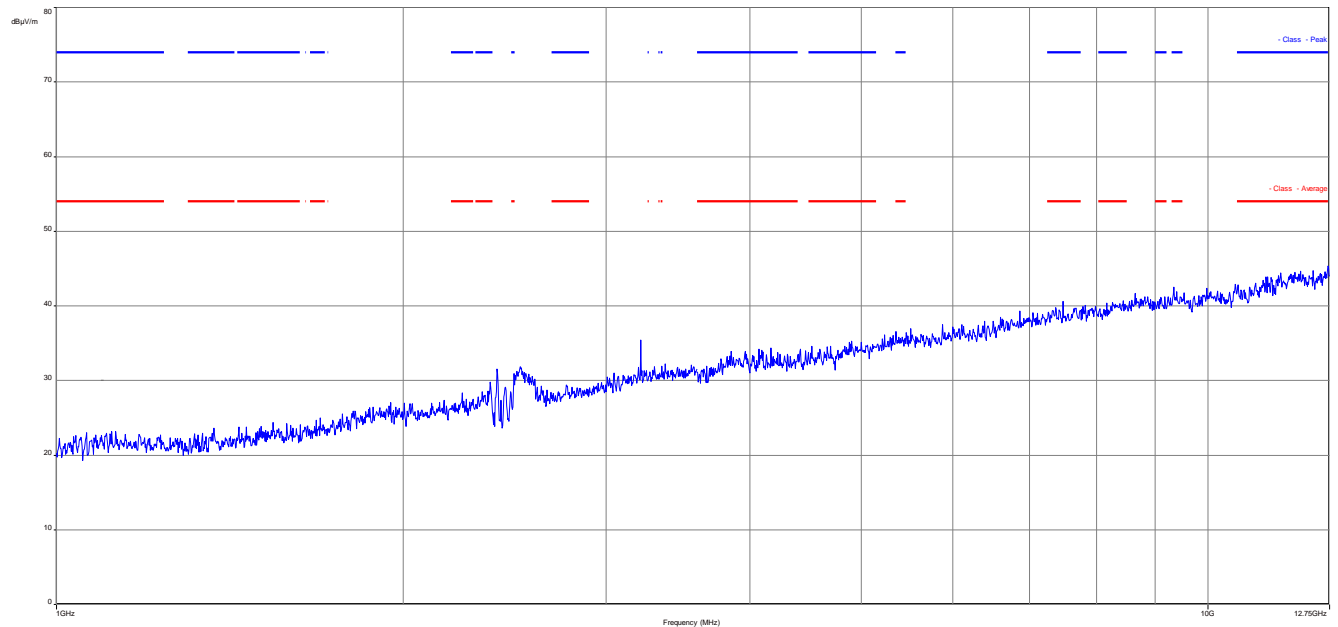


**Plot 9:** Highest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

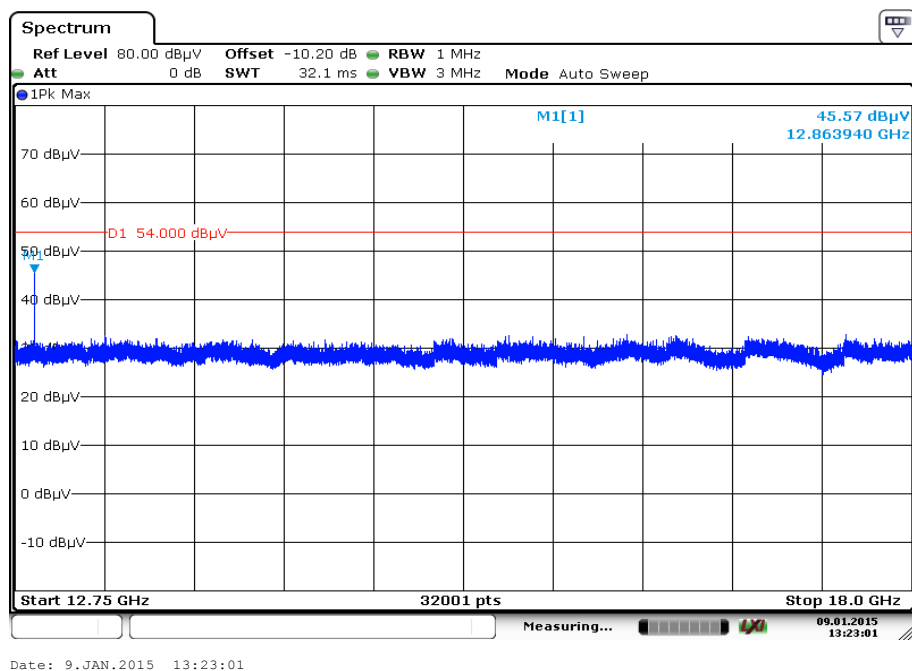
The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 10:** Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

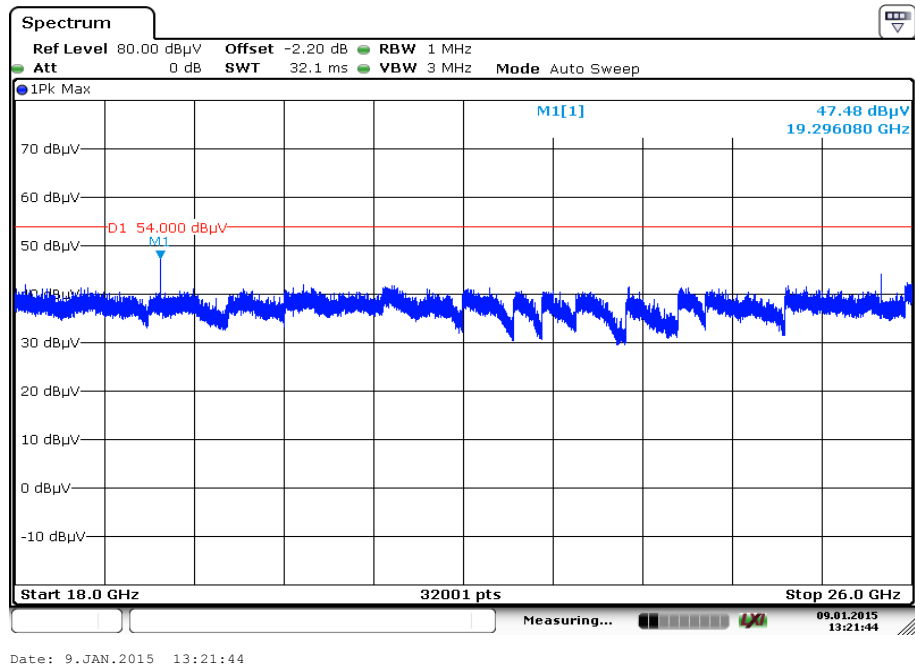
**Plot 11:** Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization

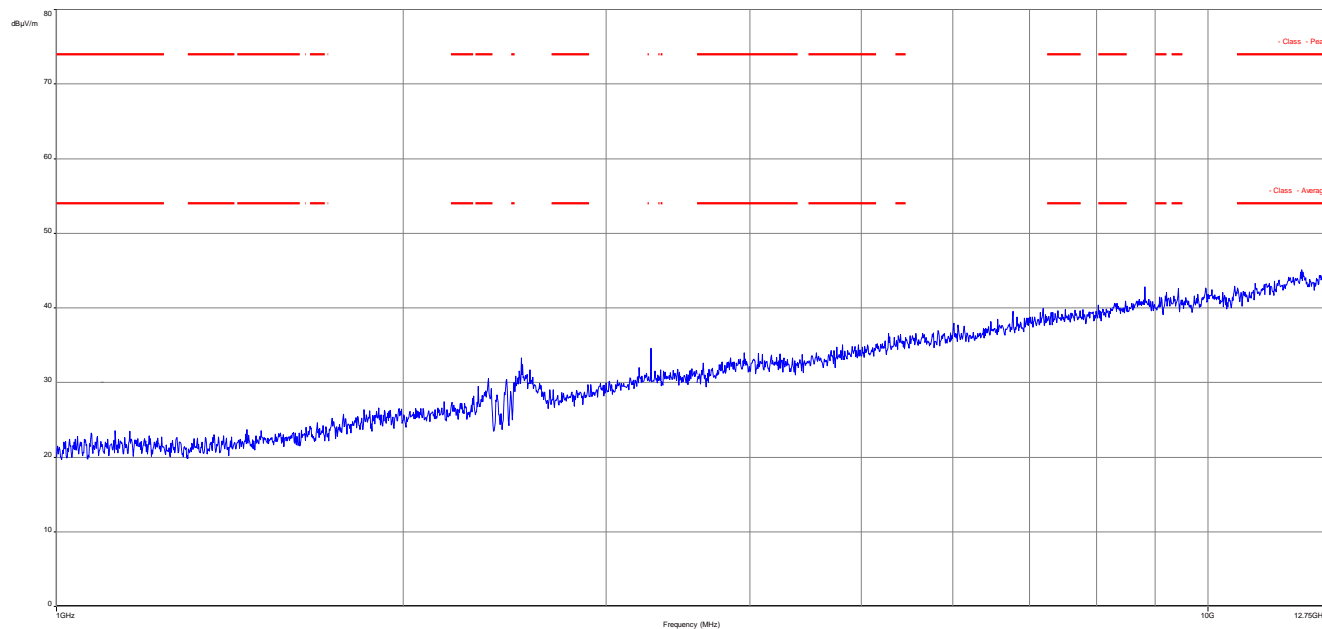
**Plots: OFDM / g – mode****Plot 1:** Lowest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

The carrier signal is notched with a 2.4 GHz band rejection filter.

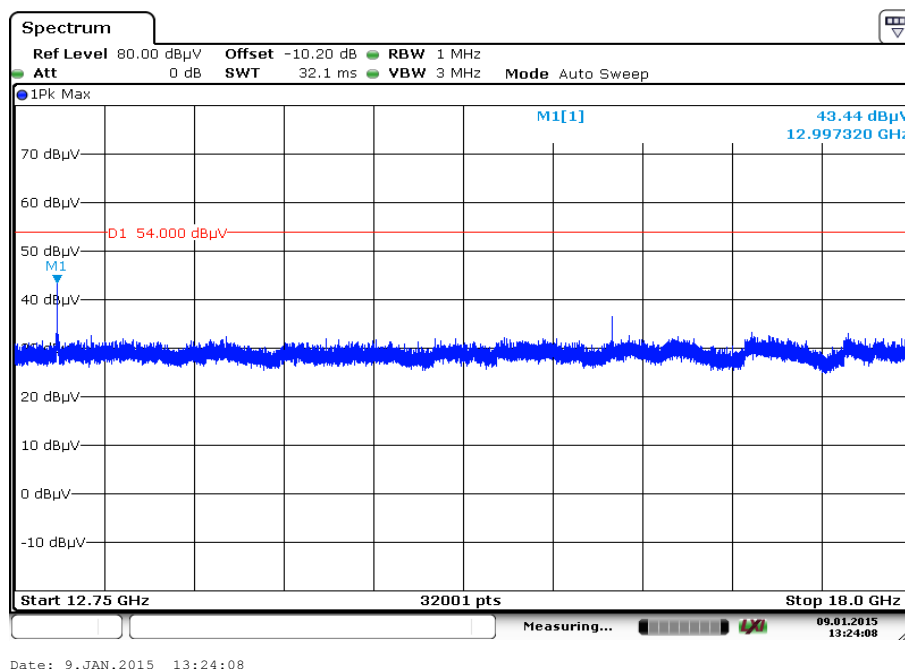
**Plot 2:** Lowest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

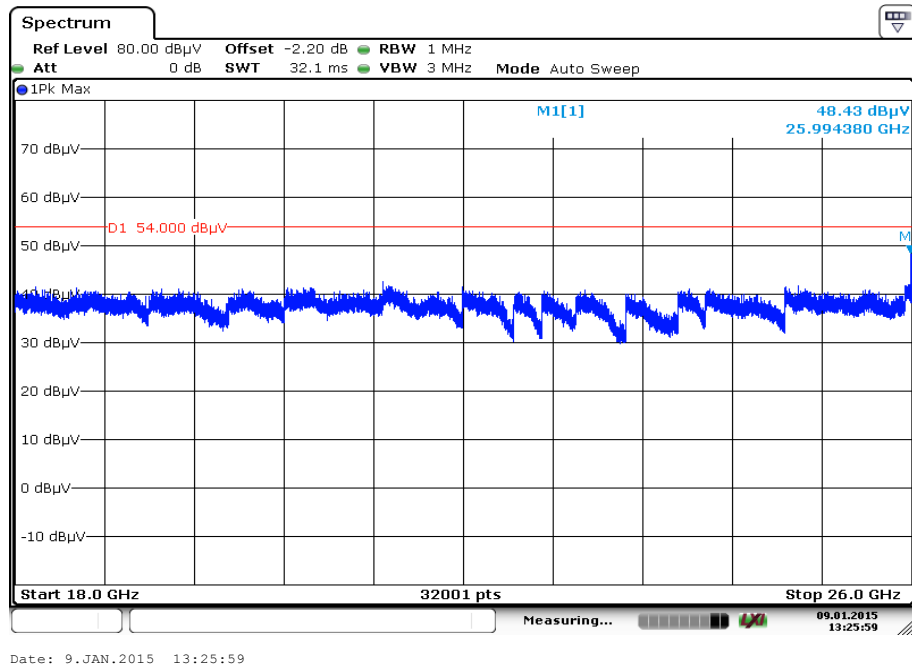
Date: 9.JAN.2015 13:23:01

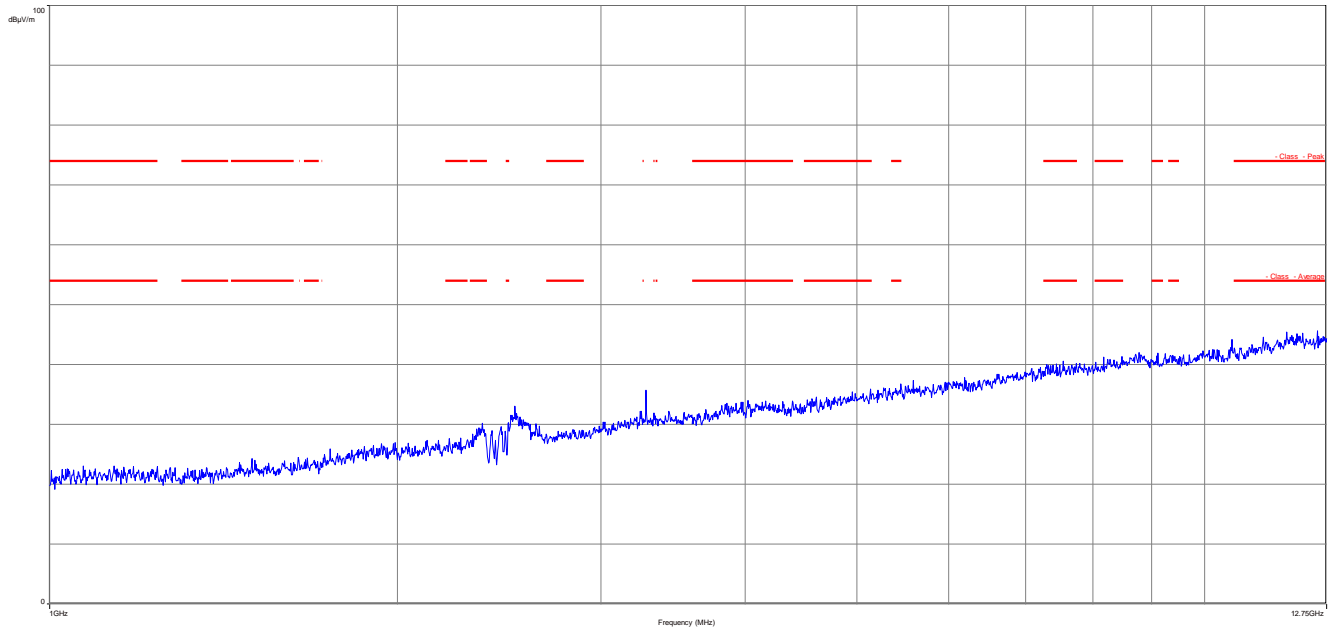
**Plot 3:** Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization

**Plot 4:** Middle channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

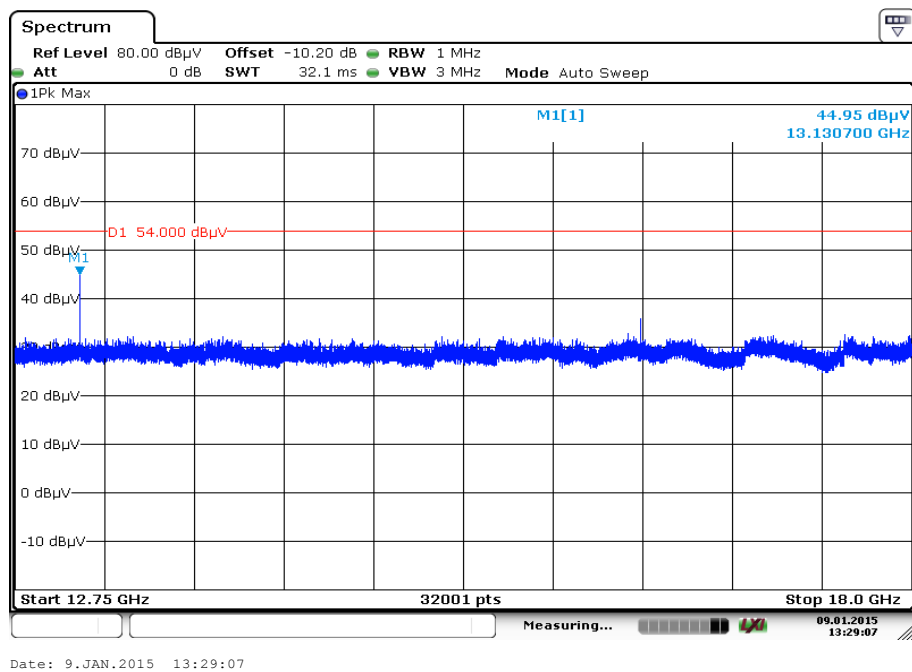
The carrier signal is notched with a 2.4 GHz band rejection filter.

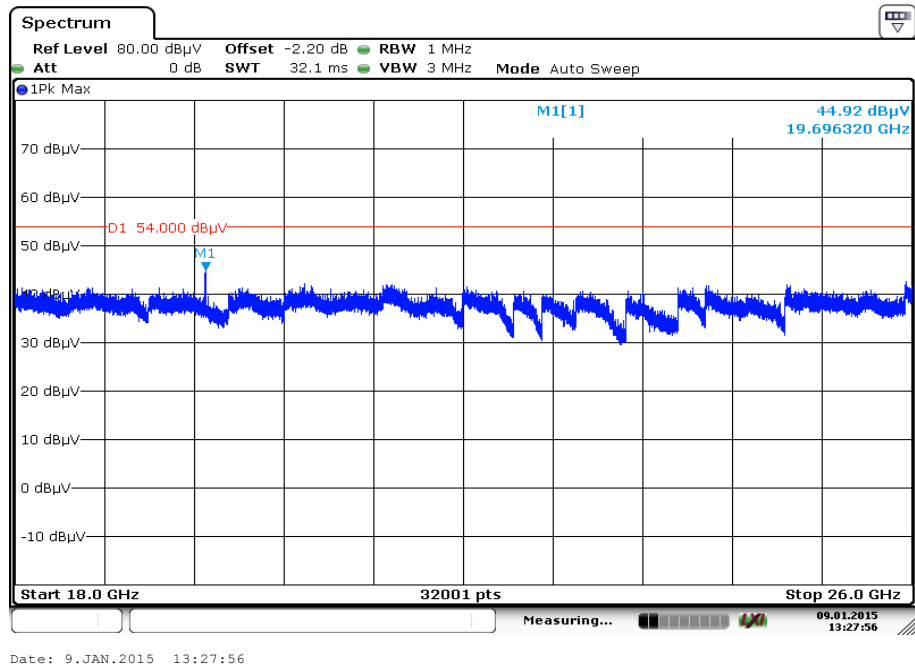
**Plot 5:** Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

**Plot 6:** Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization

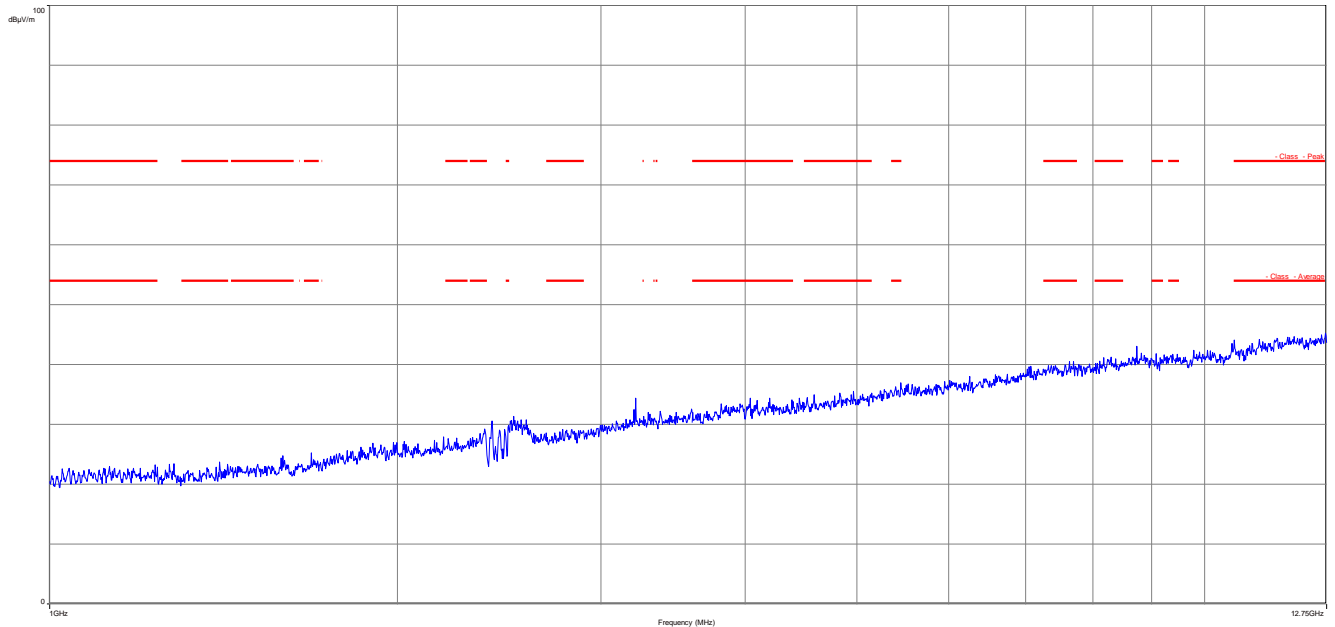
**Plot 7:** Highest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

The carrier signal is notched with a 2.4 GHz band rejection filter.

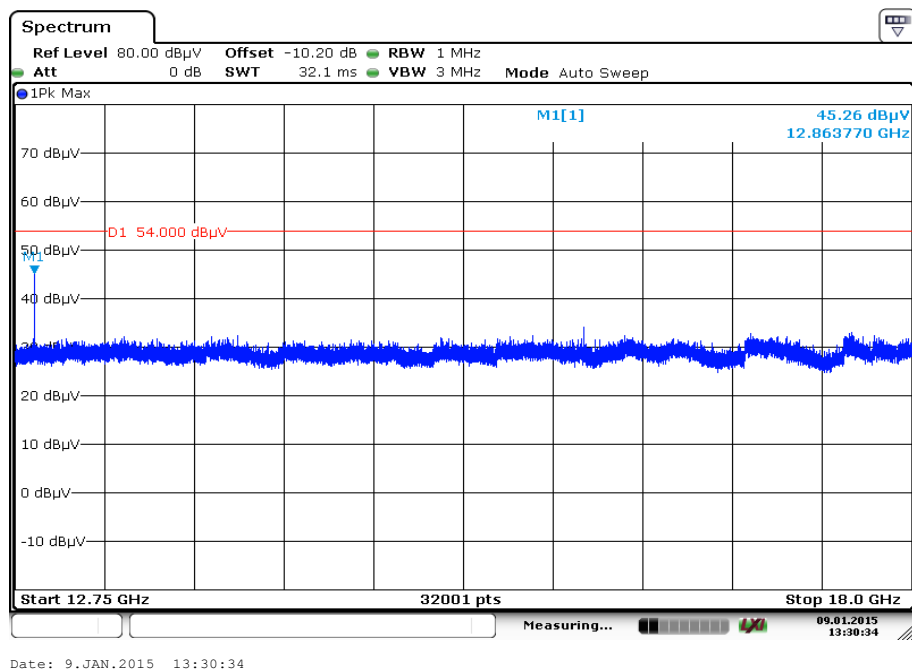
**Plot 8:** Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

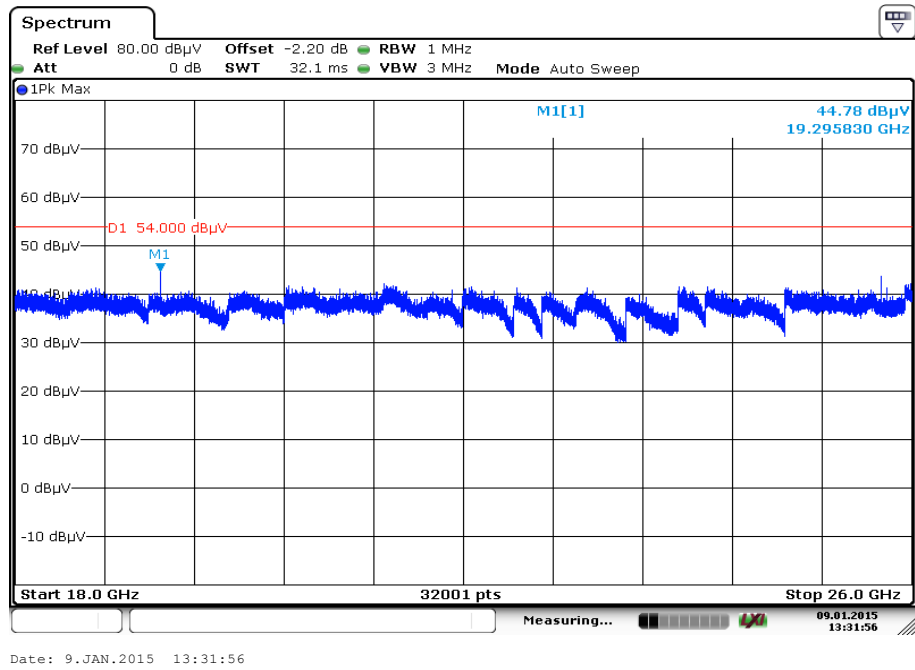
**Plot 9:** Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization

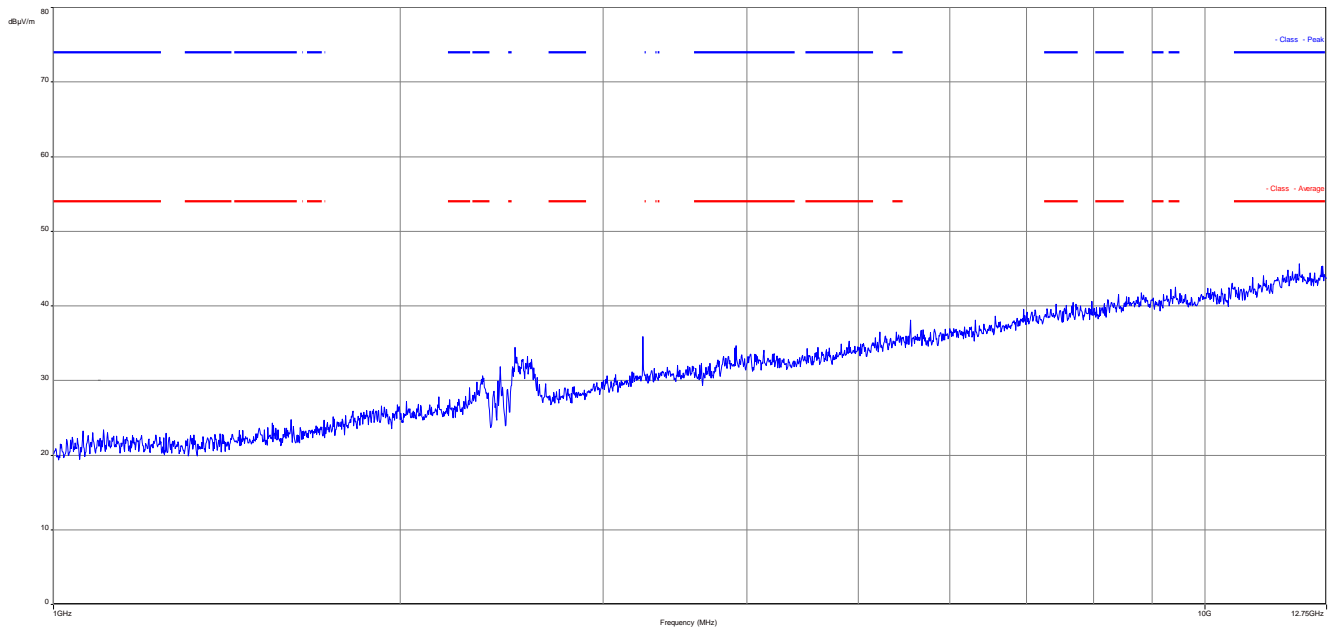


**Plots: OFDM / n – mode****Plot 1:** Lowest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

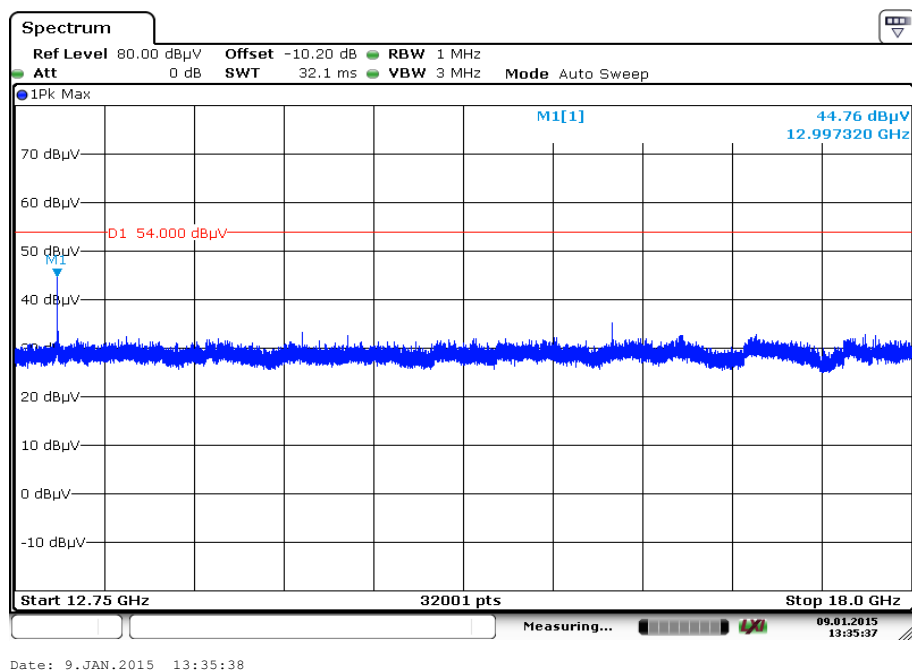
The carrier signal is notched with a 2.4 GHz band rejection filter.

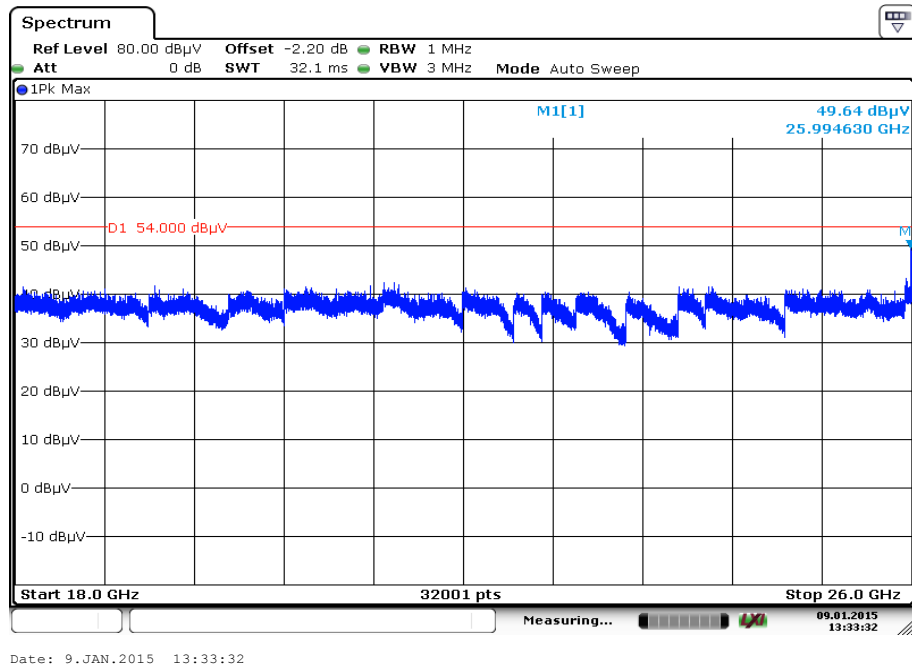
**Plot 2:** Lowest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

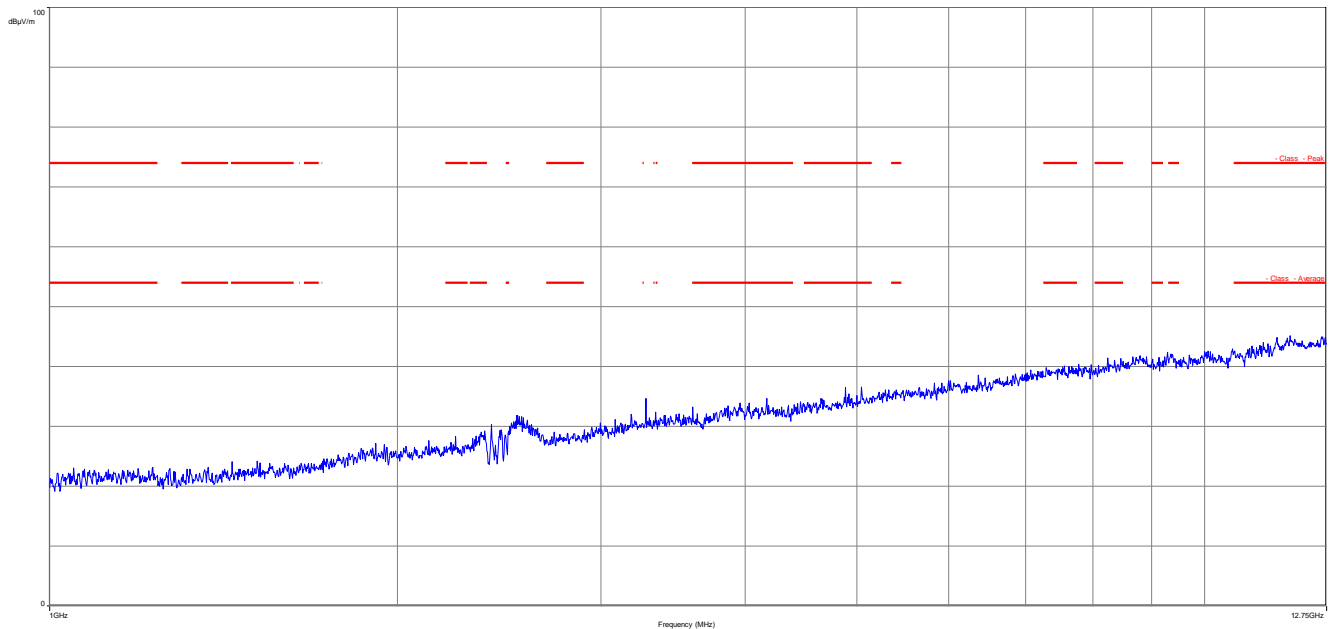
**Plot 3:** Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization

**Plot 4:** Middle channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

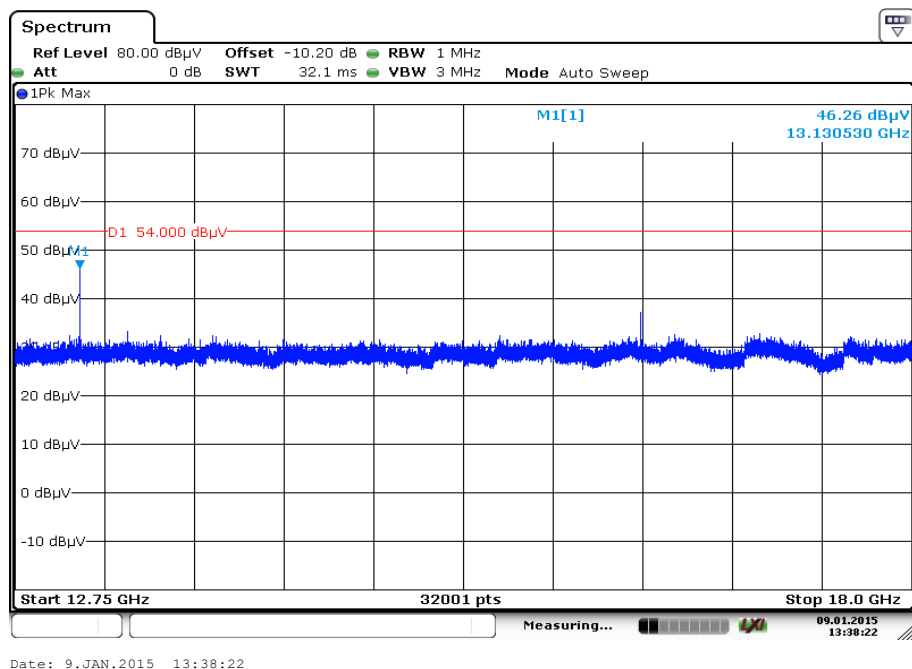
The carrier signal is notched with a 2.4 GHz band rejection filter.

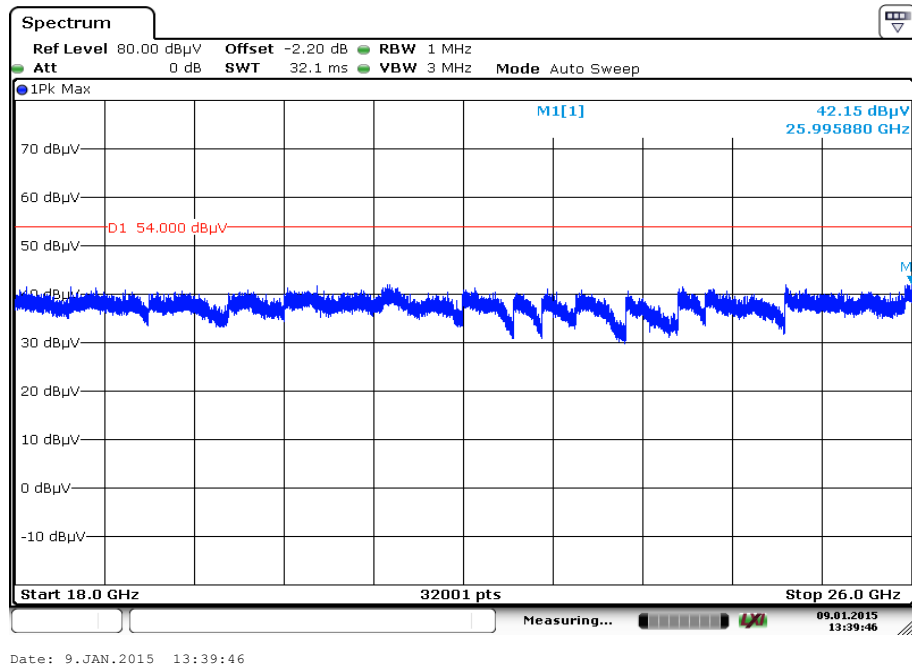
**Plot 5:** Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

**Plot 6:** Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization

**Plot 7:** Highest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

The carrier signal is notched with a 2.4 GHz band rejection filter.

**Plot 8:** Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

**Plot 9:** Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization

## 10.11 RX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in idle/receive mode. The results are valid for both modes.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	F > 1 GHz: 1 MHz F < 1 GHz: 100 kHz
Video bandwidth:	3 x RBW Remeasurement: 10 Hz / 3 MHz
Span:	30 MHz to 26 GHz
Trace-Mode:	Max Hold

### Limits:

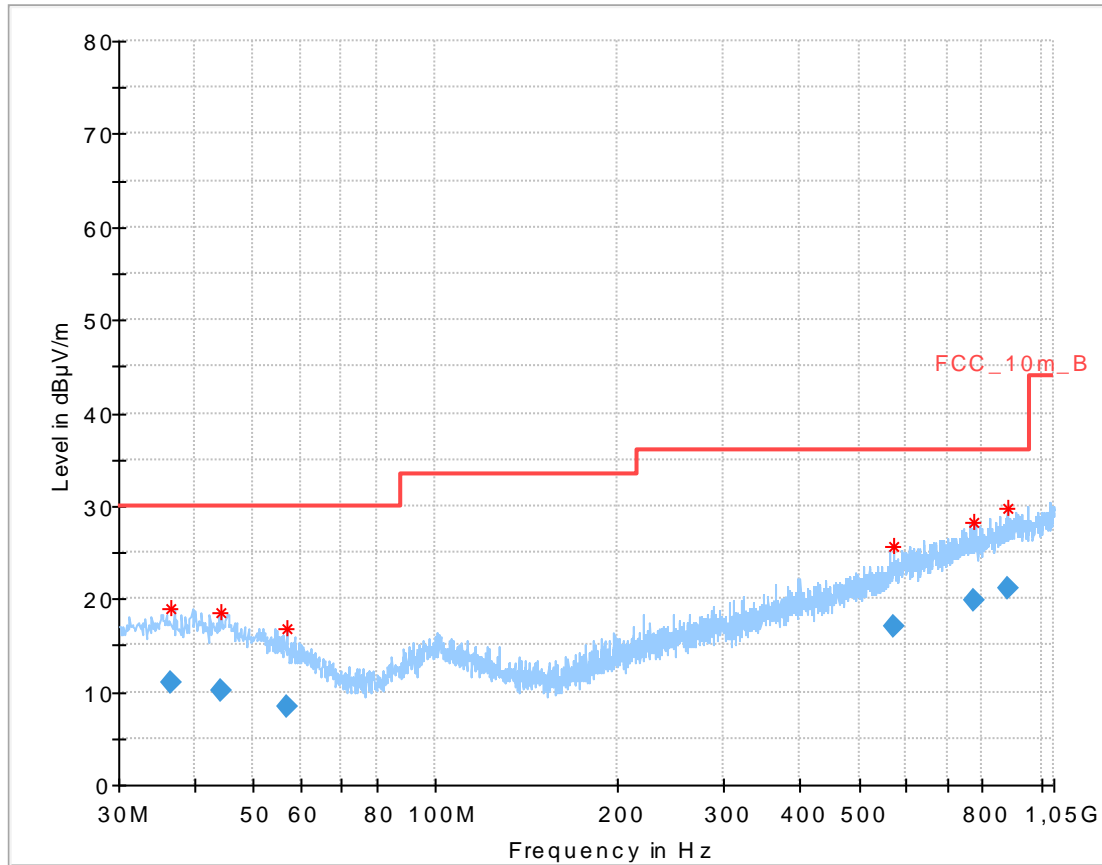
FCC		IC
RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

### Results:

RX Spurious Emissions Radiated [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
No spurious emissions above 1 GHz detected.		
Measurement uncertainty	$\pm 3$ dB	

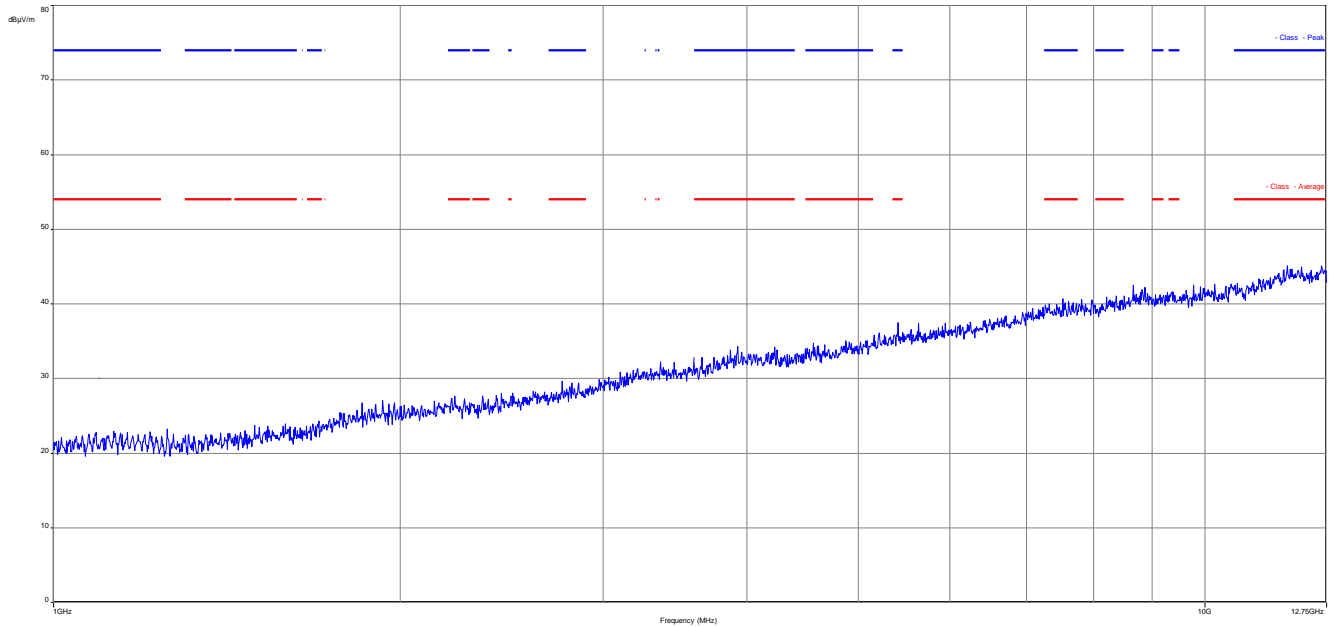
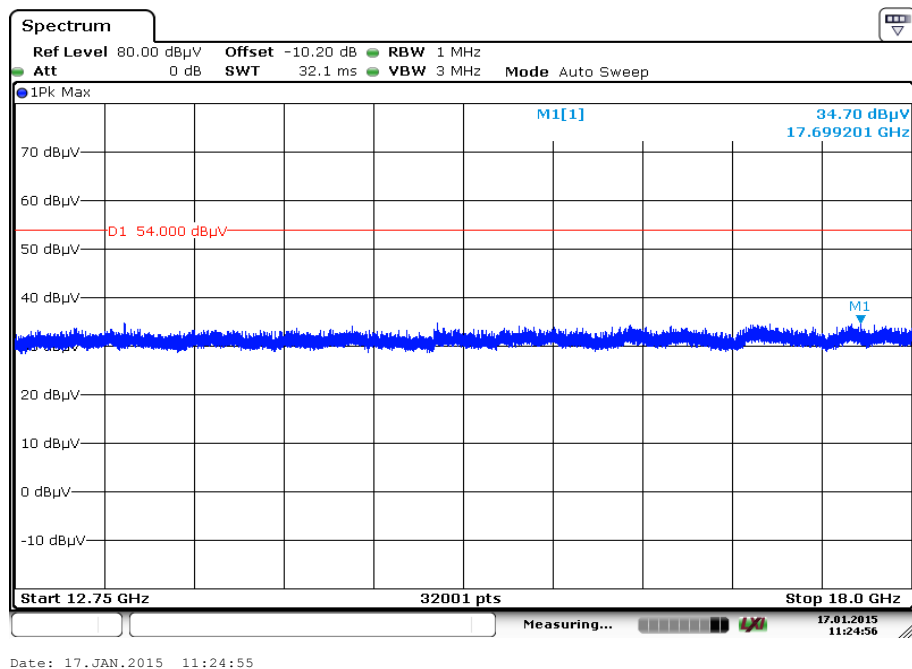
**Result:** **Passed.**

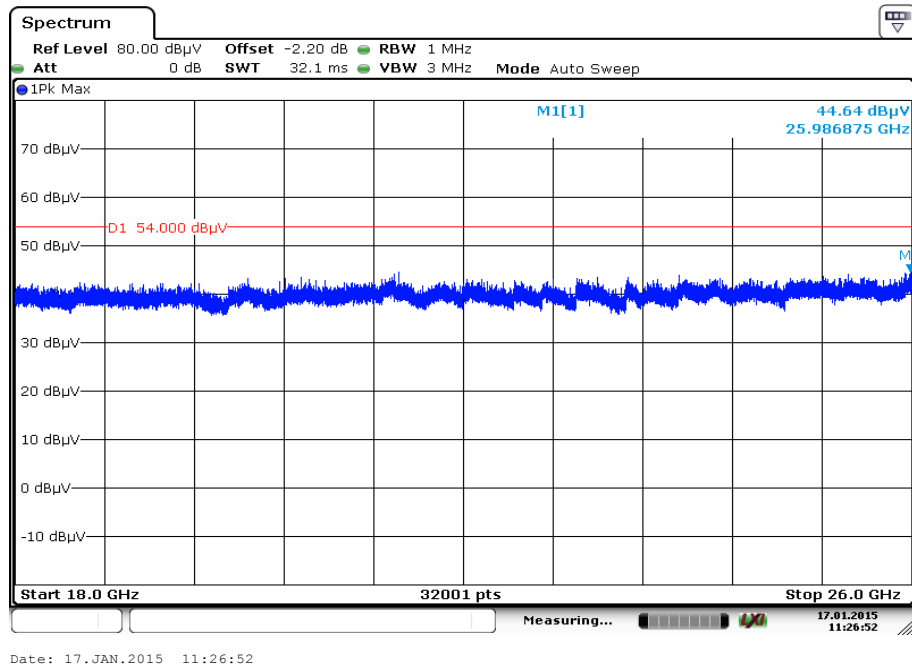
**Note:** The limit was recalculated with 20 dB / decade (Part 15.31) for all radiated spurious emissions 30 MHz to 1 GHz from 3 meter limit to a 10 meter distance. (40dB/decade for emissions < 30MHz)

**Plots: RX / Idle – mode**
**Plot 1: 30 MHz to 1 GHz, vertical & horizontal polarization**


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.550500	11.02	30.00	18.98	1000.0	120.000	170.0	V	179	13.9
44.249550	10.24	30.00	19.76	1000.0	120.000	98.0	H	205	13.9
56.702400	8.48	30.00	21.52	1000.0	120.000	101.0	V	295	11.4
569.198100	16.98	36.00	19.02	1000.0	120.000	170.0	V	0	19.9
775.716300	19.89	36.00	16.11	1000.0	120.000	98.0	V	-25	22.7
878.593650	21.23	36.00	14.77	1000.0	120.000	98.0	H	205	23.8



**Plot 2:** 1 GHz to 12.75 GHz, vertical & horizontal polarization**Plot 3:** 12.75 GHz to 18 GHz, vertical & horizontal polarization

**Plot 4:** 18 GHz to 26 GHz, vertical & horizontal polarization

## 10.12 Spurious emissions radiated < 30 MHz

### Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is representative for all channels and modes. If peaks are found channel 1 and channel 11 will be measured too. The measurement is performed with the data rate producing the highest output power. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

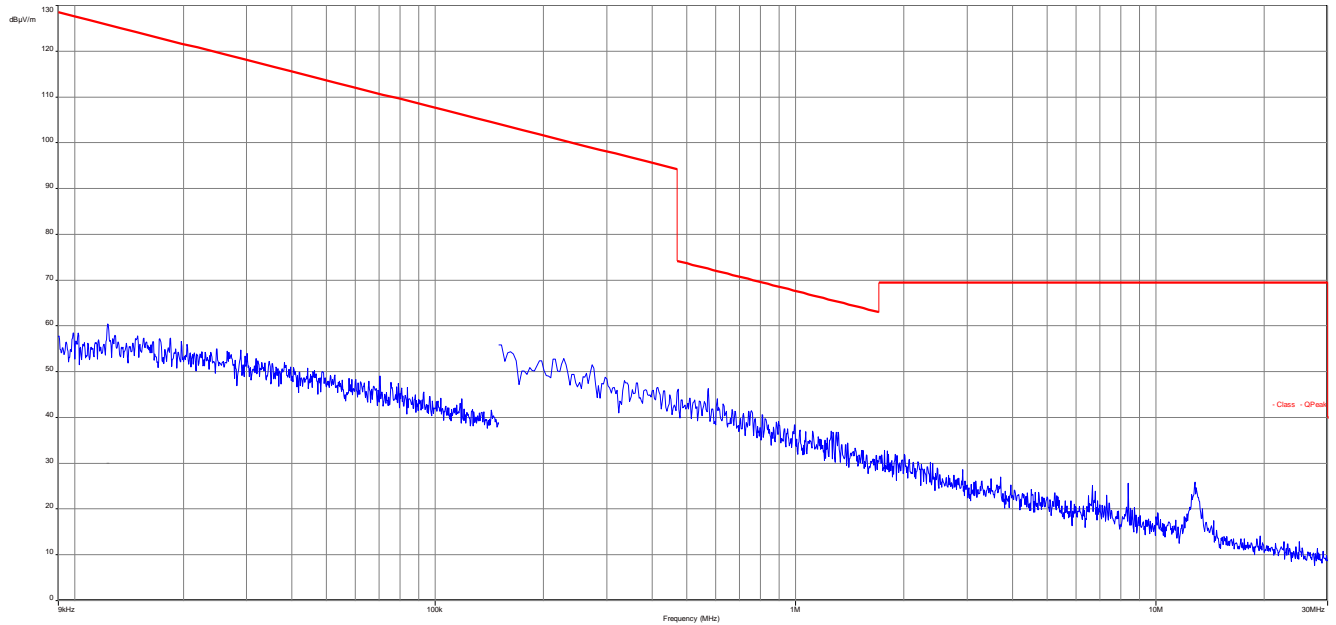
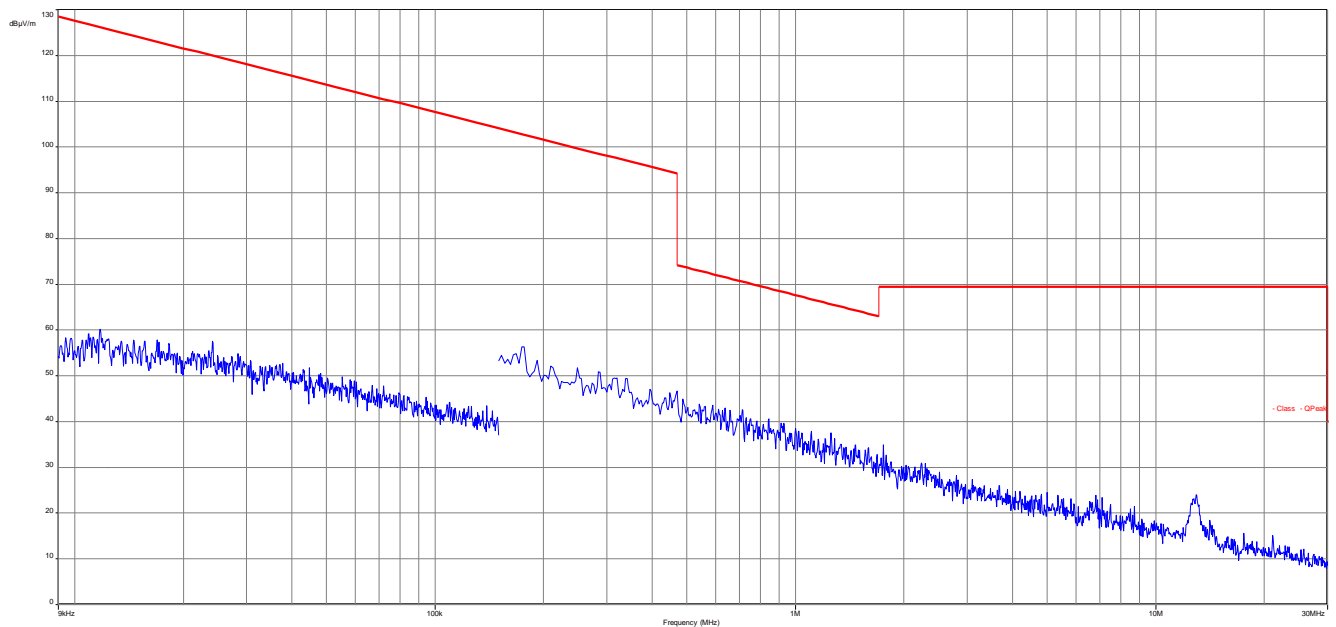
### Limits:

FCC		IC
TX Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

### Results:

TX Spurious Emissions Radiated < 30 MHz [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
All detected peaks are more than 20 dB below the limit.		
Measurement uncertainty	$\pm 3$ dB	

**Result:** Passed

**Plots: TX mode****Plot 1: 9 kHz to 30 MHz****Plots: RX / Idle – mode****Plot 1: 9 kHz to 30 MHz**

### 10.13 Spurious emissions conducted < 30 MHz

#### Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The measurement is performed in the mode with the highest output power. Both power lines, phase and neutral line, are measured. Found peaks are remeasured with average and quasi peak detection to show compliance to the limits.

#### Measurement:

Measurement parameter	
Detector:	Peak / Quasi peak / average
Sweep time:	Auto
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

#### Limits:

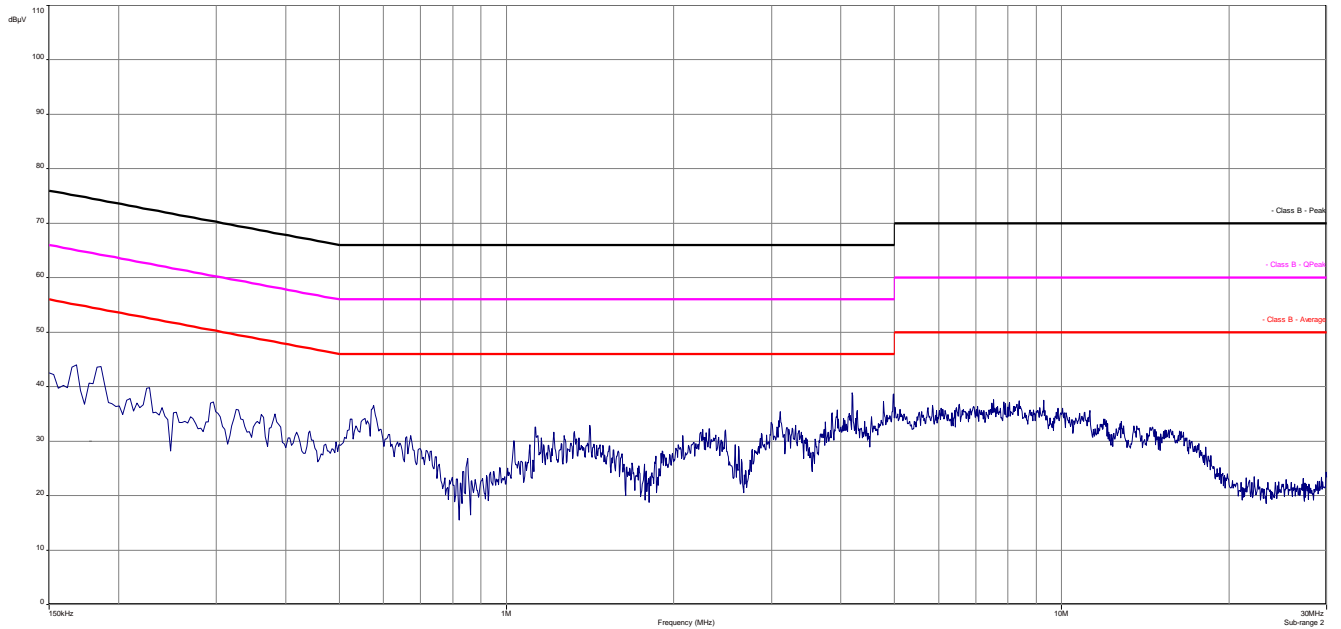
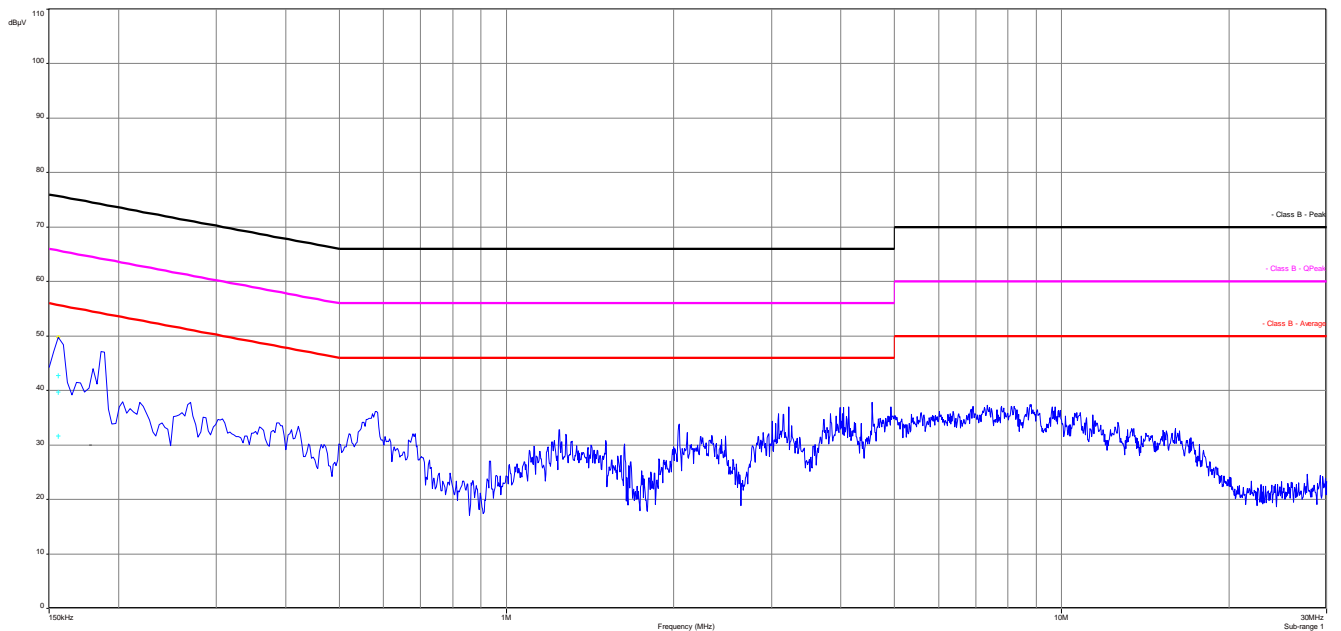
FCC		IC
TX spurious emissions conducted < 30 MHz		
Frequency (MHz)	Quasi-peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

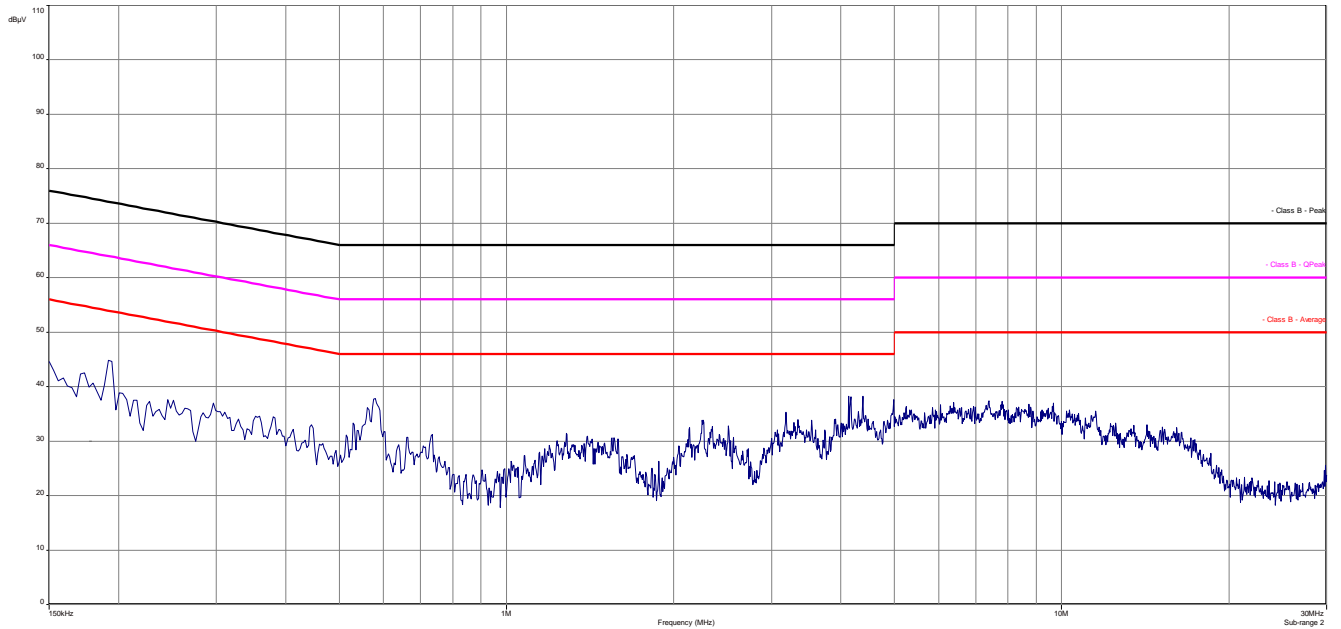
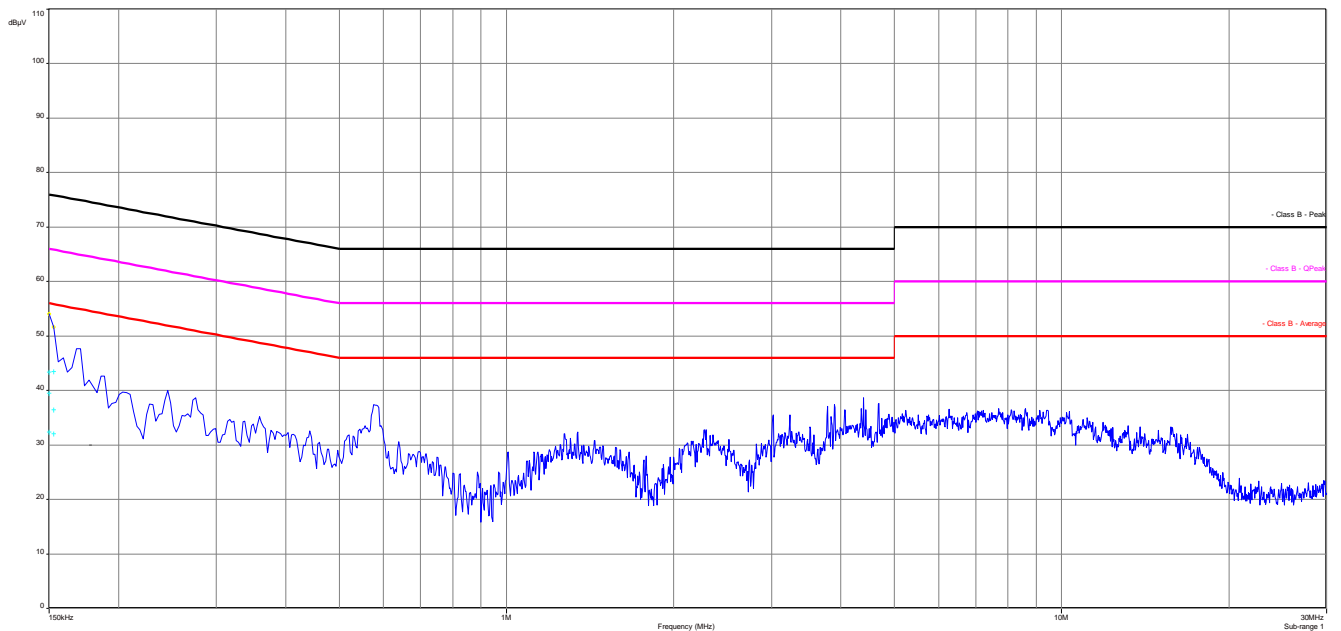
\*Decreases with the logarithm of the frequency

#### Results:

TX spurious emissions conducted < 30 MHz [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
No critical peaks found!		
Measurement uncertainty	$\pm 3$ dB	

**Result:** Passed

**Plots:****Plot 1: 150 kHz to 30 MHz, TX mode, phase line****Plot 2: 150 kHz to 30 MHz, TX mode, neutral line**

**Plot 3: 150 kHz to 30 MHz, RX mode, phase line****Plot 4: 150 kHz to 30 MHz, RX mode, neutral line**

**Annex A Document history**

Version	Applied changes	Date of release
	Initial release	2015-01-21

**Annex B Further information****Glossary**

AVG	-	Average
DUT	-	Device under test
EMC	-	Electromagnetic Compatibility
EN	-	European Standard
EUT	-	Equipment under test
ETSI	-	European Telecommunications Standard Institute
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	Not applicable
PP	-	Positive peak
QP	-	Quasi peak
S/N	-	Serial number
SW	-	Software



## Annex C Accreditation Certificate

Front side of certificate

Back side of certificate



Deutsche Akkreditierungsstelle GmbH

Befähigung gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV  
 Unterzeichnerin der Multilateralen Abkommen  
 von EA, ILAC und IAF zur gegenseitigen Anerkennung

### Akkreditierung



Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

**CETECOM ICT Services GmbH**  
 Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Drahtgebundene Kommunikation einschließlich xDSL  
 VoIP und DECT  
 Akustik  
 Funk einschließlich WLAN  
 Short Range Devices (SRD)  
 RFID  
 WLAN und Richtfunk  
 Mobilfunk (GSM / GPRS, Over the Air (OTA) Performance)  
 Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive  
 Produktsicherheit  
 SAR und Hearing Aid Compatibility (HAC)  
 Umweltsimulation  
 Smart Card, Terminals  
 Bluetooth  
 Wi-Fi Services

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 07.03.2014 mit der  
 Akkreditierungsnummer D-PL-12076-01 und ist gültig 17.01.2018. Sie besteht aus diesem Deckblatt, der  
 Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 77 Seiten.

Registrierungsnummer der Urkunde: D-PL-12076-01-00

Frankfurt am Main, 07.03.2014

Ceto Stauden auf der Rückseite

19. August 2014 - 19.08.2014  
 Akkreditierung

Deutsche Akkreditierungsstelle GmbH

Standort Berlin  
 Spittelmarkt 10  
 10117 Berlin

Standort Frankfurt am Main  
 Gartenstraße 6  
 60594 Frankfurt am Main

Standort Braunschweig  
 Bundesallee 100  
 38115 Braunschweig

Die auszugsweise Veröffentlichung der Akkreditierungsurkunde bedarf der vorherigen schriftlichen  
 Zustimmung der Deutschen Akkreditierungsstelle GmbH (DAkkS). Ausgenommen davon ist die separate  
 Weiterverbreitung des Deckblatts durch die umseitig genannte Kurznachrichtendienststelle in  
 unveränderter Form.

Es darf nicht der Anschein erweckt werden, dass sich die Akkreditierung auch auf Bereiche erstreckt,  
 die über den durch die DAkkS bestätigten Akkreditierungsbereich hinausgehen.

Die Akkreditierung erfolgte gemäß des Gesetzes über die Akkreditierungsstelle (AkkStelleG) vom  
 31. Juli 2009 (BGBl. I S. 2625) sowie der Verordnung (EG) Nr. 765/2008 des Europäischen Parlaments  
 und des Rates vom 9. Juli 2008 über die Vorschriften für die Akkreditierung und Marktüberwachung  
 im Zusammenhang mit der Vermarktung von Produkten (Abt. L 218 vom 9. Juli 2008, S. 30).  
 Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der  
 European co-operation for Accreditation (EA), des International Accreditation Forum (IAF) und  
 der International Laboratory Accreditation Cooperation (ILAC). Die Unterzeichner dieser Abkommen  
 erkennen ihre Akkreditierungen gegenseitig an.

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:

EA: [www.european-accreditation.org](http://www.european-accreditation.org)ILAC: [www.ilac.org](http://www.ilac.org)IAF: [www.iaf.eu](http://www.iaf.eu)

### Note:

The current certificate including annex is published on our website (see link below) or may be received  
 from CETECOM ICT Services on request.

<http://www.cetecom.com/eu/de/cetecom-group/europa/deutschland-saarbruecken/akkreditierungen.html>