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consulting - testing - certification >>>

TEST REPORT

Test report no.: 1-8390/14-01-18-A



Deutsche
Akkreditierungsstelle
D-PL-12076-01-00

Testing laboratory

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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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DK-2800 Kgs Lyngby / DENMARK

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Fax: +45 3955 8888

Contact: Morten Becker Saul

e-mail: morten.saul@cobham.com

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Manufacturer

Thrane & Thrane A/S

Lundtoftegaardsvej 93D

DK-2800 Kgs Lyngby / DENMARK

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: Satellite Terminal

Model name: TT-3711A

FCC ID: ROJ-TT3711A

IC: 6200B-TT3711A

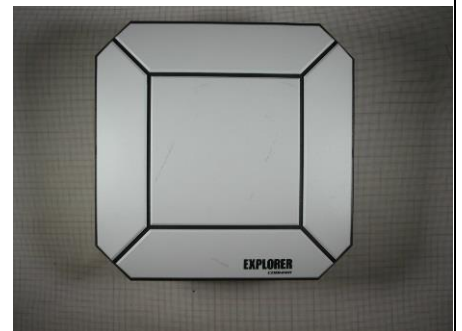
Frequency: 2400 MHz to 2483.5 MHz ISM Band
(lowest channel 01; highest channel 11)

Technology tested: WLAN

Antenna: External antenna

Power supply: 24V DC

Temperature range: -25°C to +55°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:

Marco Bertolino
Radio Communications & EMC

Test performed:

David Lang
Radio Communications & EMC

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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. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of CETECOM ICT Services GmbH.

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2.2 Application details

Date of receipt of order:	2014-08-22
Date of receipt of test item:	2015-01-16
Start of test:	2015-01-19
End of test:	2015-02-11
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}	+55 °C during high temperature tests
	T_{min}	-25 °C during low temperature tests
Relative humidity content:		55 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	24 V DC
	V_{max}	32 V
	V_{min}	10.5 V

5 Test item

Kind of test item	:	Satellite Terminal
Type identification	:	TT-3711A
S/N serial number	:	Rad. Not available! Cond. Not available!
HW hardware status	:	Version: A
SW software status	:	0.05 tt3711a-bganxl_ut-506 Sep 23 2014
Frequency band [MHz]	:	2400 MHz to 2483.5 MHz ISM Band (lowest channel 01; highest channel 11)
Type of radio transmission	:	DSSS, OFDM
Use of frequency spectrum	:	
Type of modulation	:	BPSK, QPSK, 16-QAM and 64-QAM
Number of channels	:	11
Antenna	:	External antenna
Power supply	:	24 V DC
Temperature range	:	-25°C to +55 °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:

- 1-8390/14-01-01_AnnexA
- 1-8390/14-01-01_AnnexB
- 1-8390/14-01-01_AnnexD

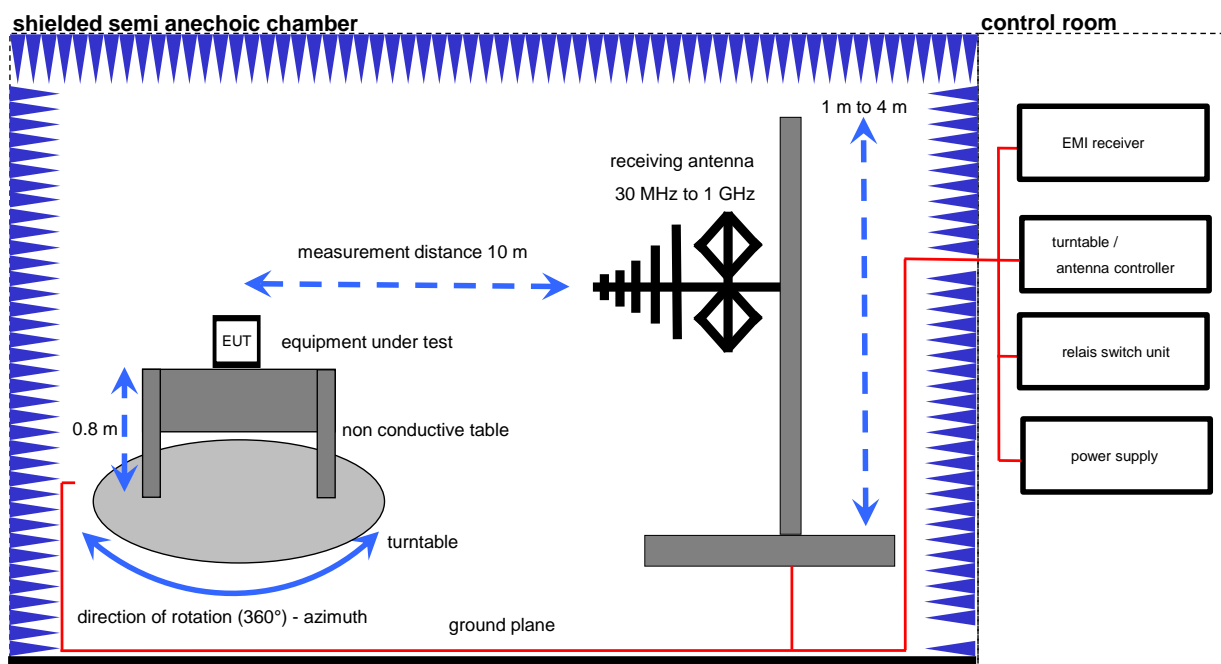
6 Test laboratories sub-contracted

None

7 Description of the test setup

7.1 Radiated measurements chamber F

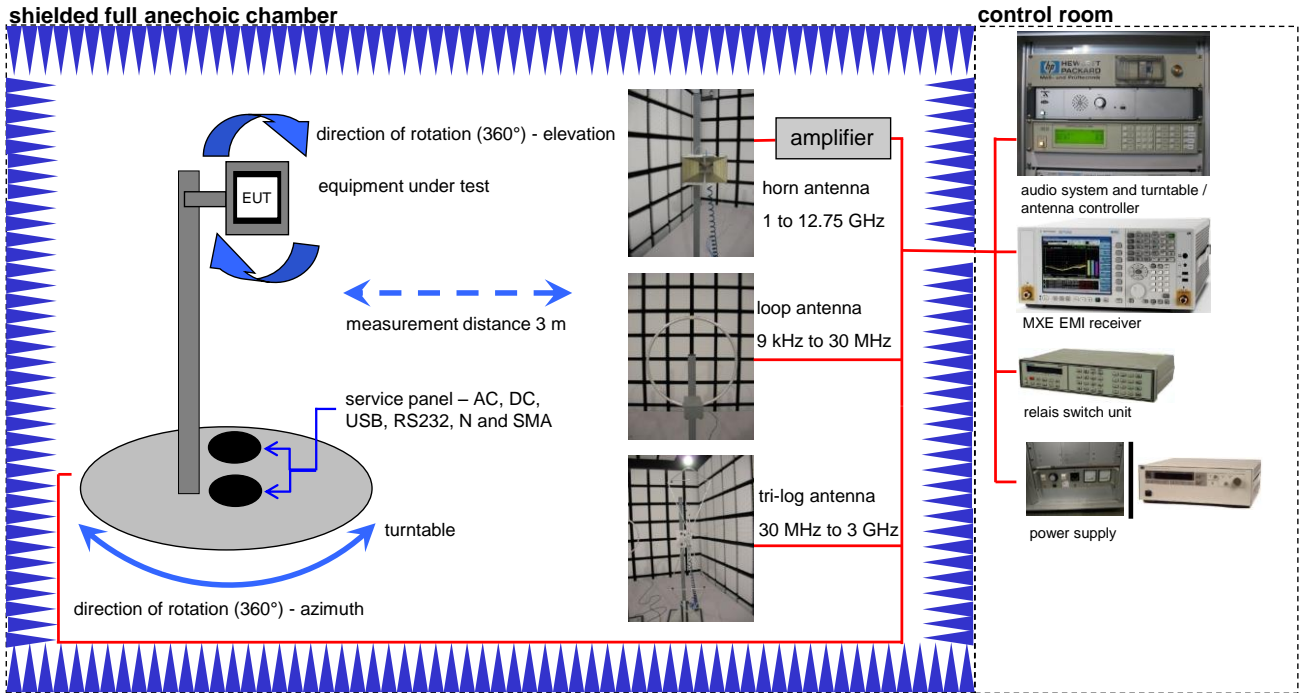
The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas 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	30000368
DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	30000580
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

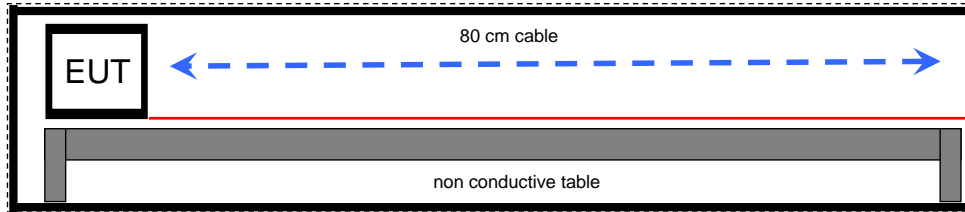
7.3 Radiated measurements 12.75 GHz to 26 GHz



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
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

7.4 AC conducted



MXE EMI receiver

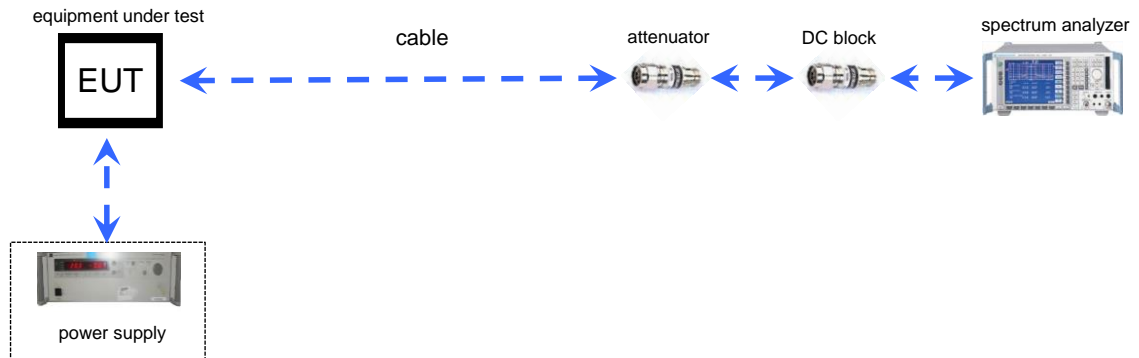


AC conducted measurement system

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	Erfi	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	2015-04-13	Only partial tests performed.*

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 type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	*
§15.247(a)(2) RSS 210 / A8.2(a)	DTS bandwidth – 6 dB bandwidth	KDB 558074 DTS clause: 8.1	Nominal	Nominal	DSSS OFDM g & n	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	*
RSS Gen clause 4.6.1	Occupied bandwidth	-/-	Nominal	Nominal	DSSS OFDM g & n	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	*
§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 type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	*
§15.247(d) RSS-210 / A8.5	Detailed spurious emissions @ the band edge - conducted	-/-	Nominal	Nominal	DSSS OFDM g & n	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	*
§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 type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> <input type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	*
§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	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.107(a) §15.207	Conducted emissions < 30 MHz	-/-	Nominal	Nominal	DSSS	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies

Note: NA = Not Applicable; NP = Not Performed

* Module integration. For reference see section 9 of this test report.

9 Additional comments

- Reference documents: Module report: FR3N2752-01C issued by Sporton International Inc. Jan. 27, 2014.
- Special test descriptions: None
- Configuration descriptions: All tests performed with the output power settings as below:
Low channel: 18 dBm
Mid channel: 20 dBm
High channel: 18 dBm
- 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
- Supported modulations: bmode, gmode, HT20mode single chain

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 _{nom}	V _{nom}	lowest channel 2412 MHz	middle channel 2437 MHz	highest channel 2462 MHz
Conducted power [dBm] Measured with DSSS modulation		13.0	14.0	14.3
Radiated power [dBm] Measured with DSSS modulation		12.8	16.0	14.4
Gain [dBi] Calculated		0.2	2.0	0.1
Measurement uncertainty			± 1.5 dB (cond.) / ± 3 dB (rad.)	

Verdict: Passed

10.2 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:	Peak
Sweep time:	Auto
Resolution bandwidth:	1 – 5 % of the OBW
Video bandwidth:	≥3x RBW
Span:	40 MHz
Integration bandwidth:	99 % power - bandwidth (OBW)
Trace-Mode:	Max hold (allow trace to fully stabilize)
Measurement function:	Channel power with OBW

Limits:

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

Results:

Note: Conducted values taken from the module report. For reference see section 5.1 of this test report.

DSSS / b – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power conducted incl. DC corr. Worst case data rate	17.6	18.0	17.6
OFDM / g – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power conducted incl. DC corr. Worst case data rate	20.2	20.6	19.9
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	20.0	20.6	20.3
Measurement uncertainty	± 1.5 dB (cond.)		

DSSS / b – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power radiated* Worst case data rate	17.8	20.0	17.7
OFDM / g – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power radiated* Worst case data rate	20.4	22.6	20.0
OFDM / n HT20 – mode Frequency	Maximum Output Power [dBm]		
	2412 MHz	2437 MHz	2462 MHz
Output power radiated* Worst case data rate	20.2	22.6	20.4
Measurement uncertainty	± 3 dB (rad.)		

*Calculated values = conducted power + max. antenna gain (measured with DSSS modulation)

Additional Peak Power measurements conducted acc. Module report no. FR3N2752-01C

DSSS / b – mode	Maximum Output Power [dBm]		
Frequency	-/-	2437 MHz	-/-
Peak output power conducted 1 Mbit/s	-/-	17.52	-/-
OFDM / g – mode	Maximum Output Power [dBm]		
Frequency	-/-	2437 MHz	-/-
Peak output power conducted 6 Mbit/s	-/-	19.95	-/-
OFDM / n HT20 – mode	Maximum Output Power [dBm]		
Frequency	-/-	2437 MHz	-/-
Peak output power conducted MCS0	-/-	19.73	-/-
Measurement uncertainty	± 3 dB (rad.)		

Verdict: Passed

10.3 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
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	1 MHz
Span:	See plot!
Trace-Mode:	Max Hold

Measurement parameter for average measurements	
According to DTS clause: 13.3.2	
Detector:	RMS
Sweep time:	Auto
Resolution bandwidth:	100 kHz
Video bandwidth:	300 kHz
Span:	2 MHz
Trace-Mode:	RMS Average over 101 sweeps

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>	
74 dBµV/m Peak 54 dBµV/m AVG	

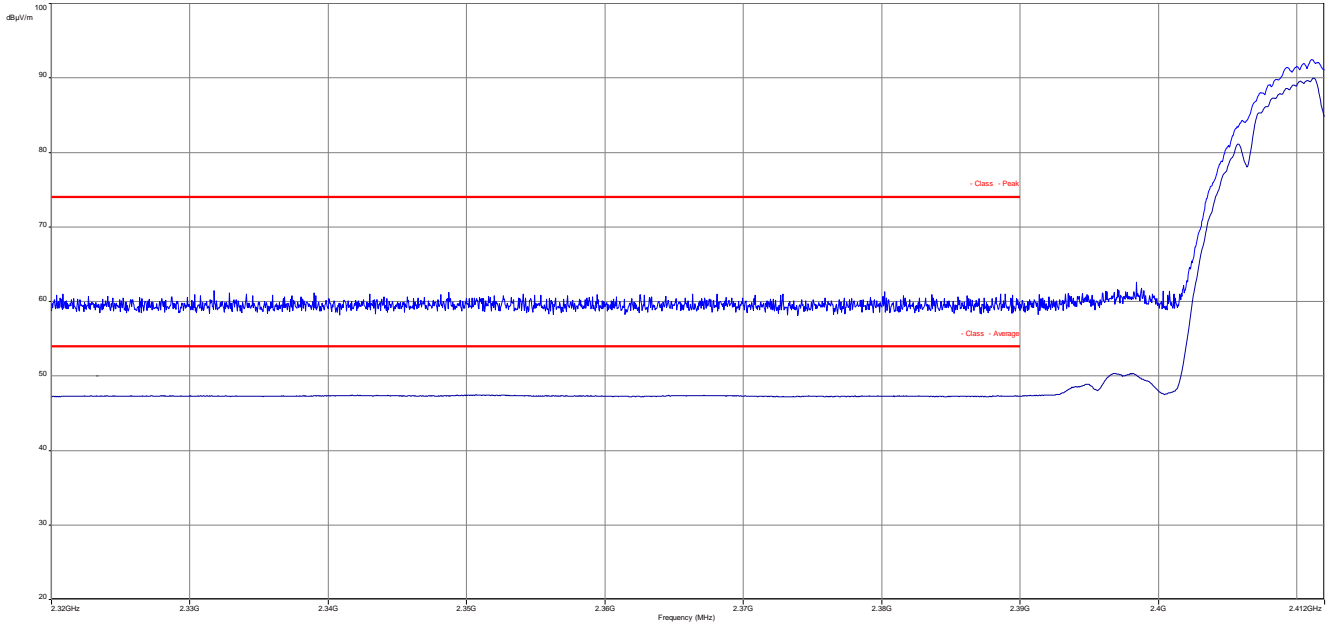
Results:

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	± 3 dB		

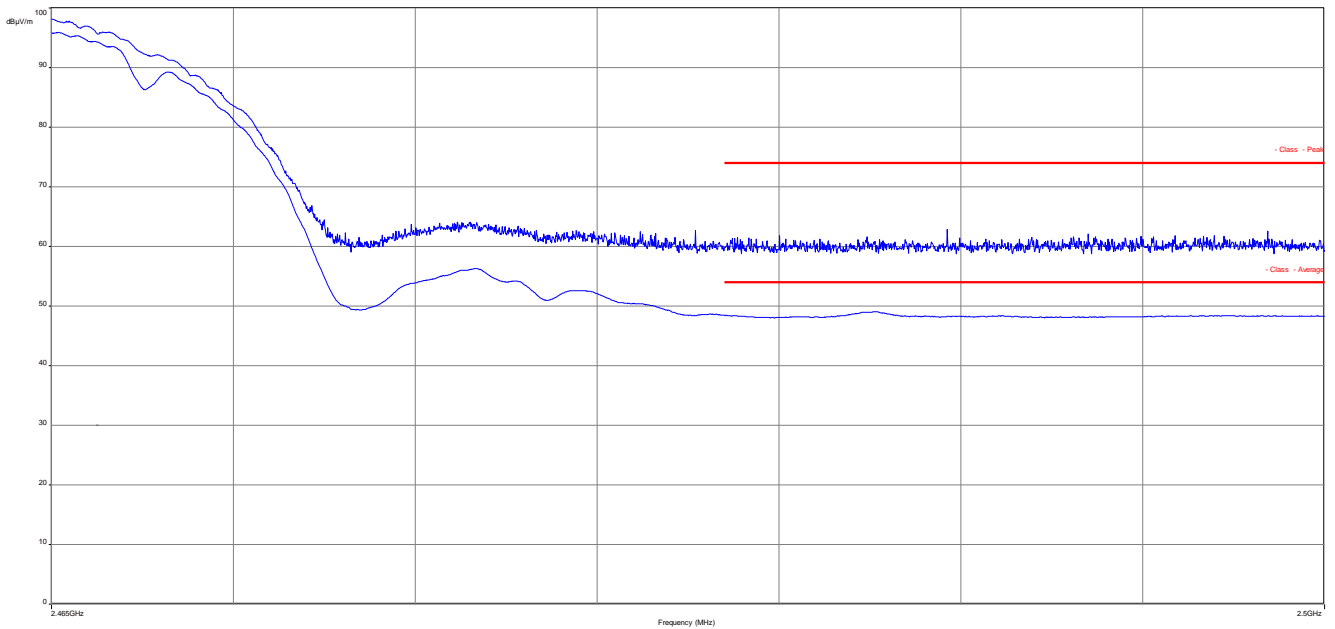
Verdict: Passed

Plots: DSSS/ b – mode peak / average

Plot 1: TX mode, lower band edge, vertical & horizontal polarization

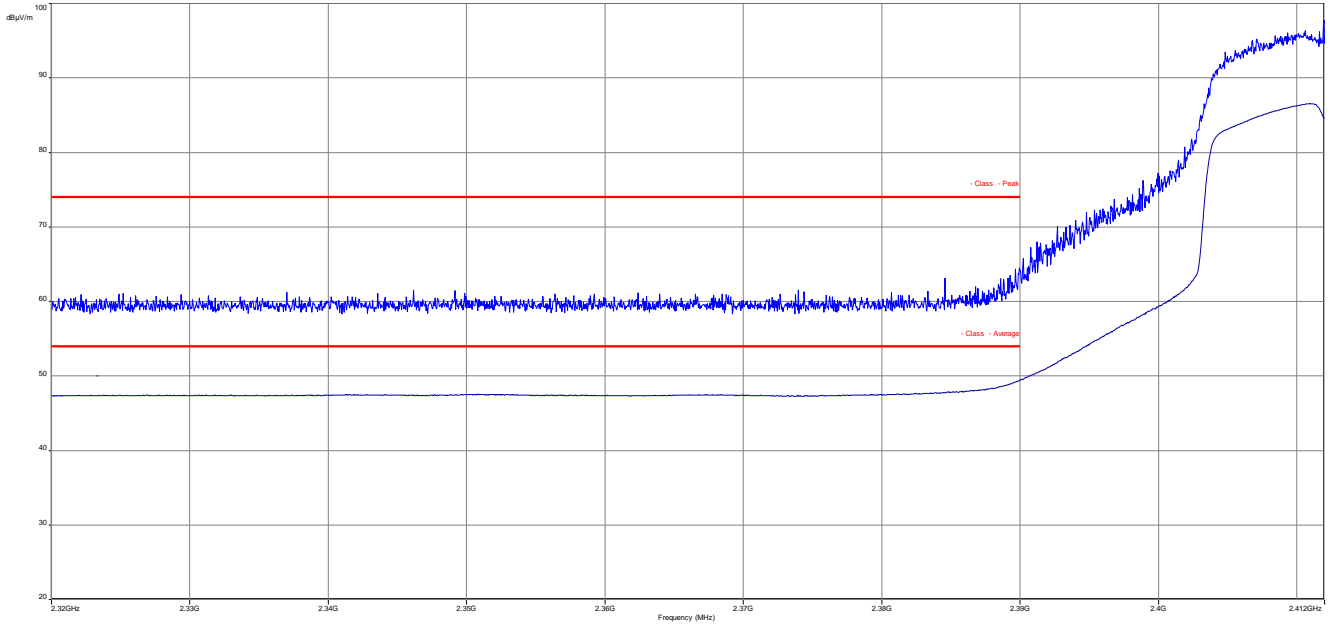


Plot 2: TX mode, upper band edge, vertical & horizontal polarization

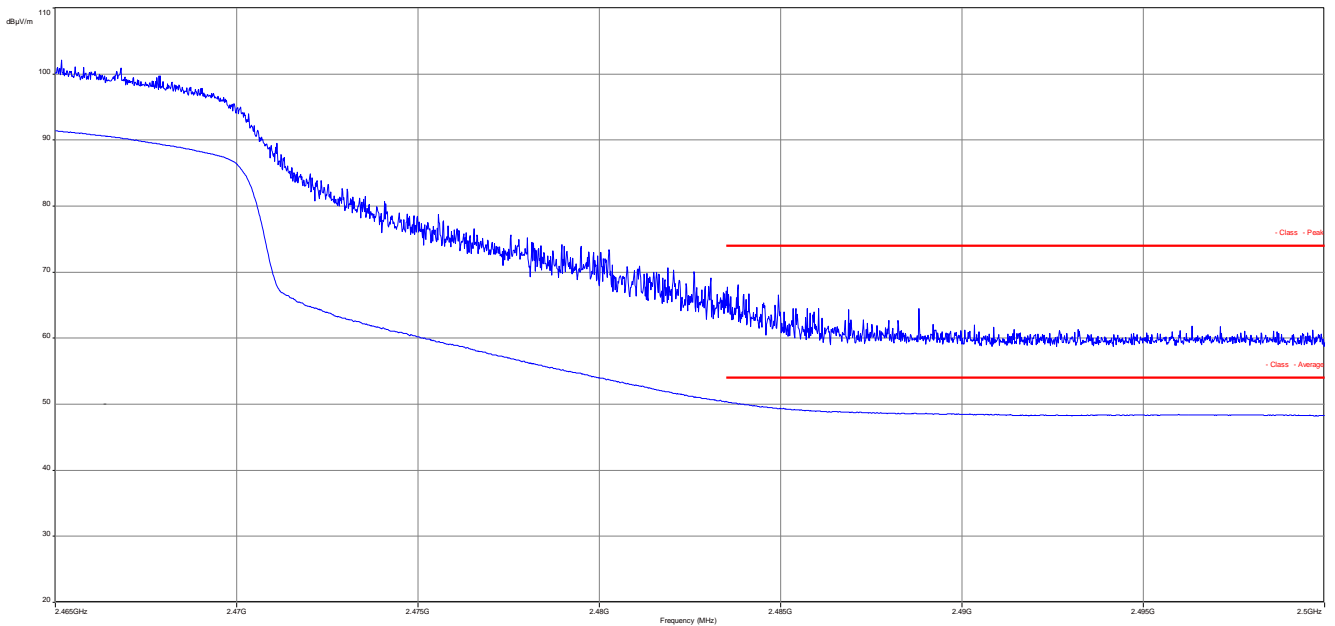


Plots: OFDM / g – mode peak / average

Plot 1: TX mode, lower band edge, vertical & horizontal polarization

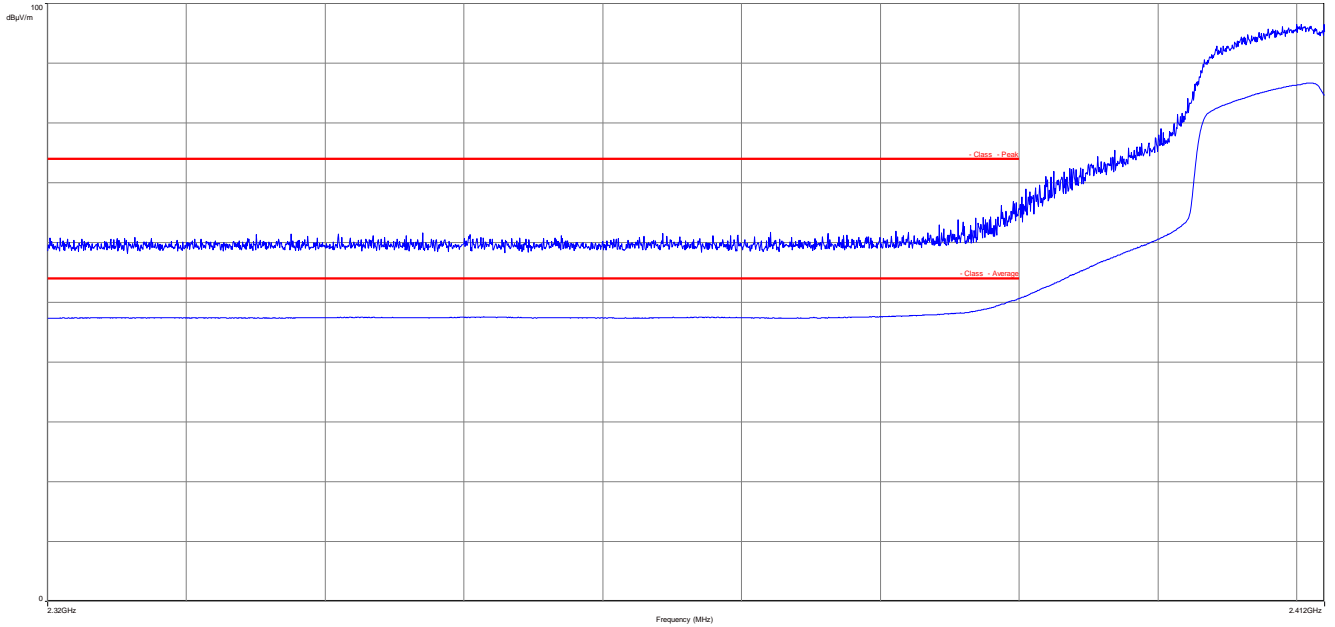


Plot 2: TX mode, upper band edge, vertical & horizontal polarization

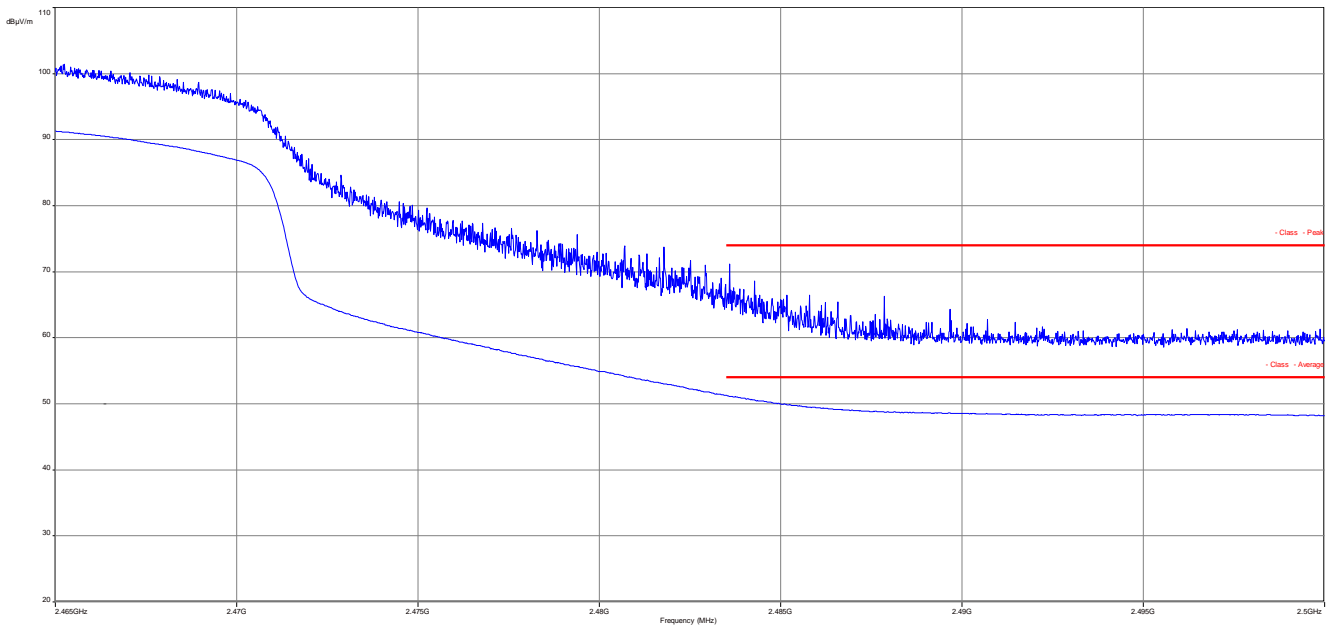


Plots: OFDM / n HT20 – mode peak / average

Plot 1: TX mode, lower band edge, vertical & horizontal polarization



Plot 2: TX mode, upper band edge, vertical & horizontal polarization



10.4 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 [dBµV/m]								
DSSS / b – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			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			± 3 dB					

Verdict: Passed

Results: OFDM / g – mode

TX Spurious Emissions Radiated [dBµV/m]								
DSSS / g – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			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			± 3 dB					

Verdict: Passed

Results: OFDM / n HT20 – mode

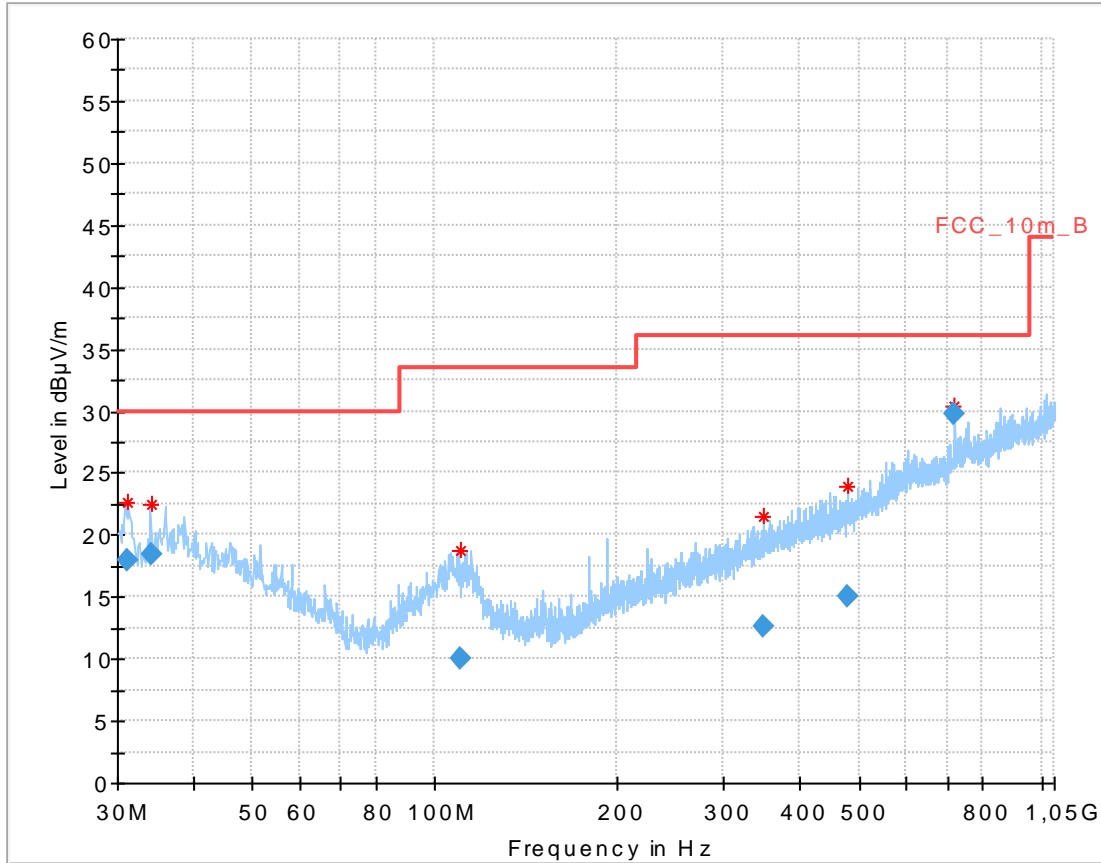
TX Spurious Emissions Radiated [dBµV/m]								
DSSS / n – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			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			± 3 dB					

Verdict: 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)

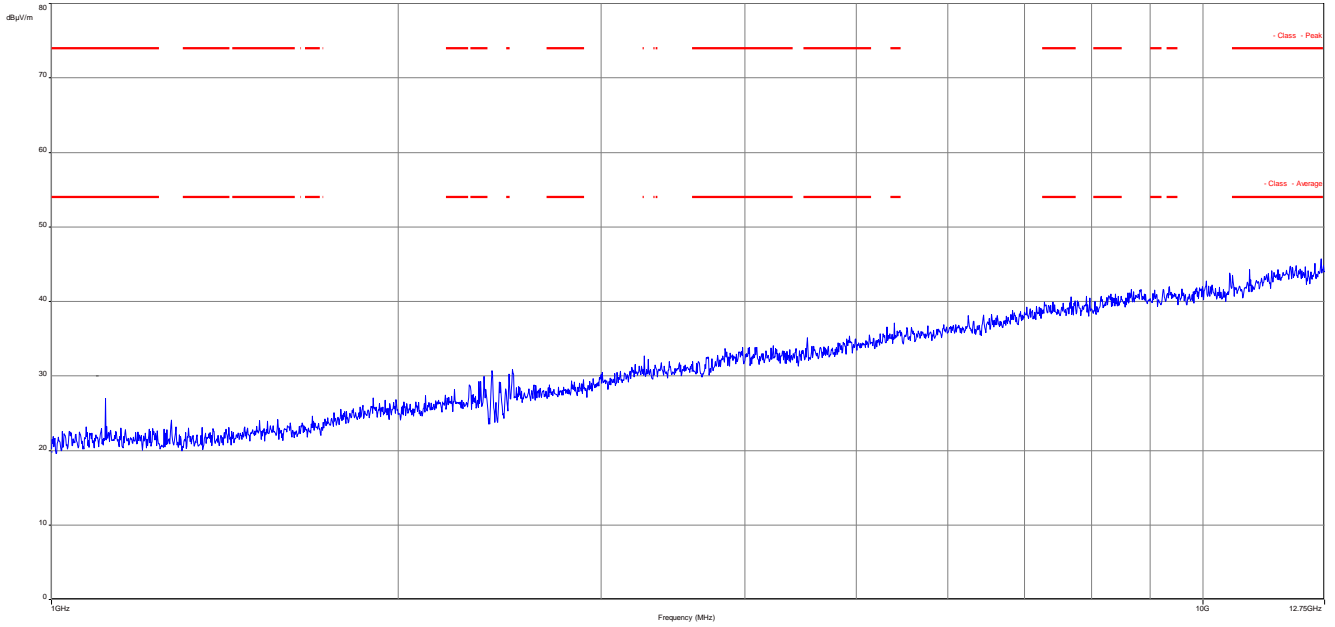
Plots: DSSS / b – mode

Plot 1: Lowest channel, 30 MHz to 1 GHz, vertical & horizontal polarization



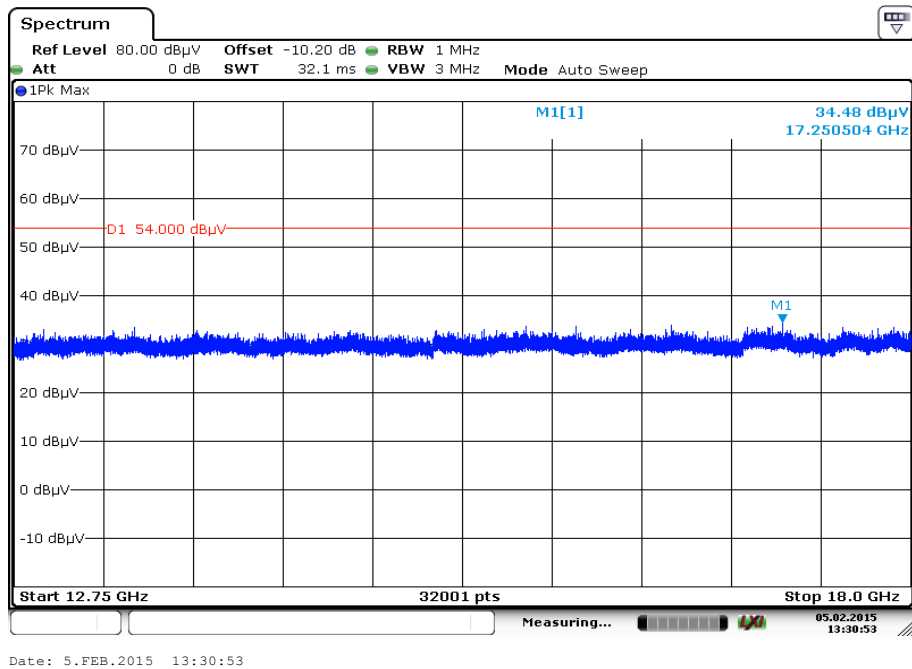
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.221000	18.02	30.00	11.98	1000.0	120.000	174.0	V	-50	13.4
34.015650	18.49	30.00	11.51	1000.0	120.000	102.0	V	252	13.7
110.103000	10.04	33.50	23.46	1000.0	120.000	272.0	V	252	11.1
347.548950	12.66	36.00	23.34	1000.0	120.000	200.0	V	265	15.9
480.733500	14.97	36.00	21.03	1000.0	120.000	274.0	H	230	18.3
720.049050	29.68	36.00	6.32	1000.0	120.000	103.0	H	298	22.0

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

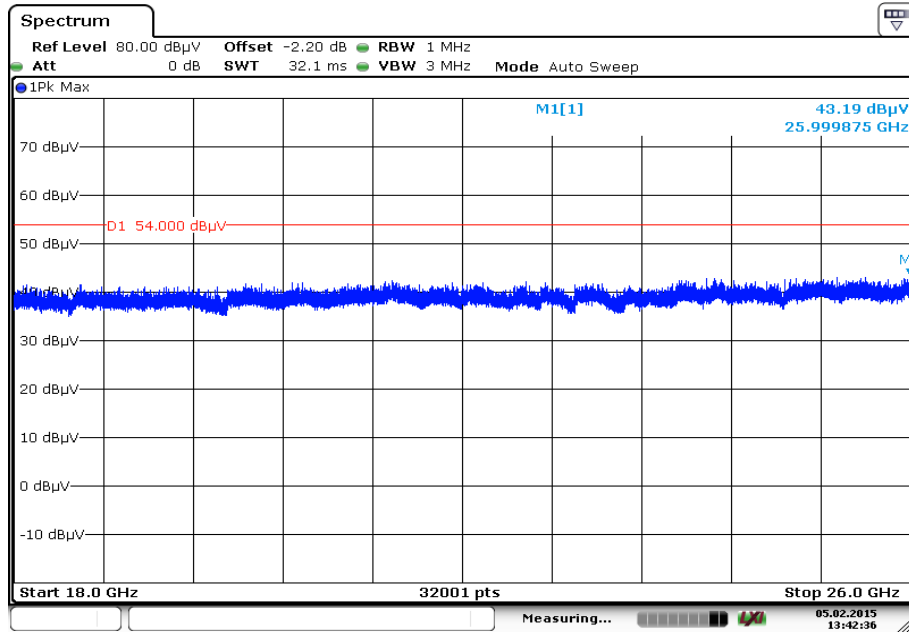


The carrier signal is notched with a 2.4 GHz band rejection filter.

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

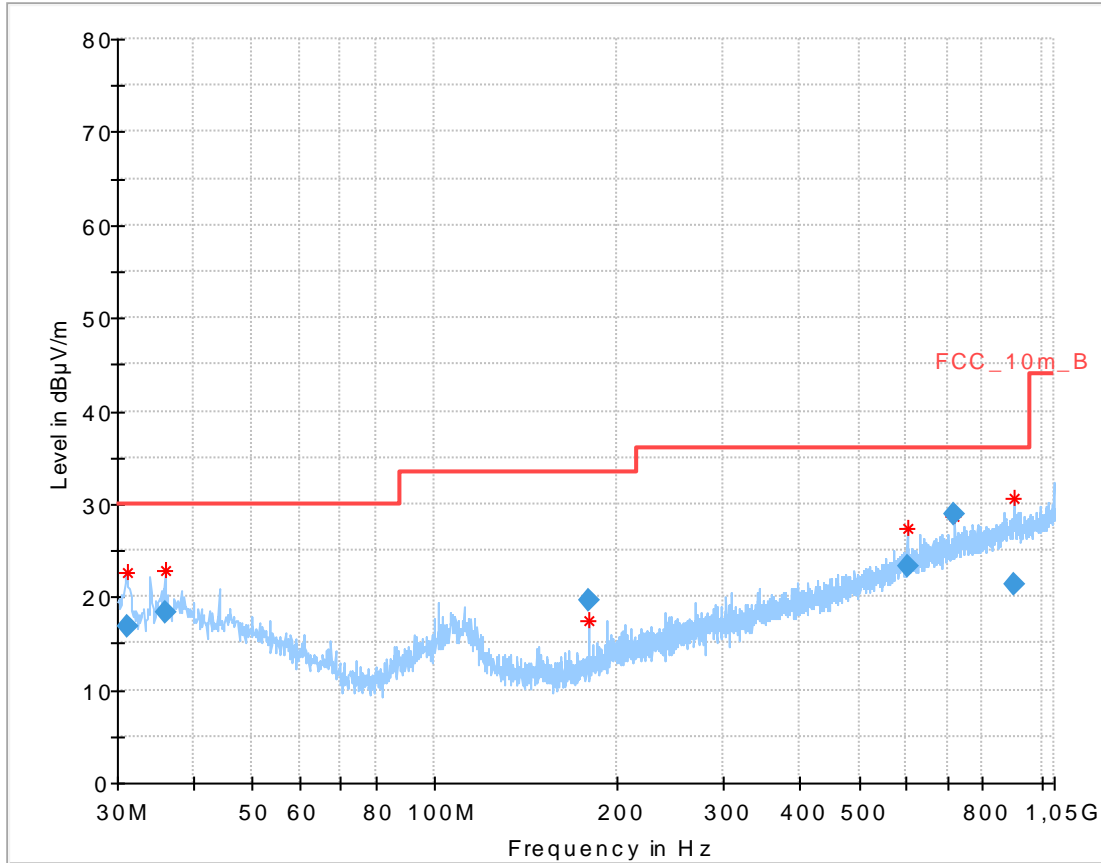


Plot 4: Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



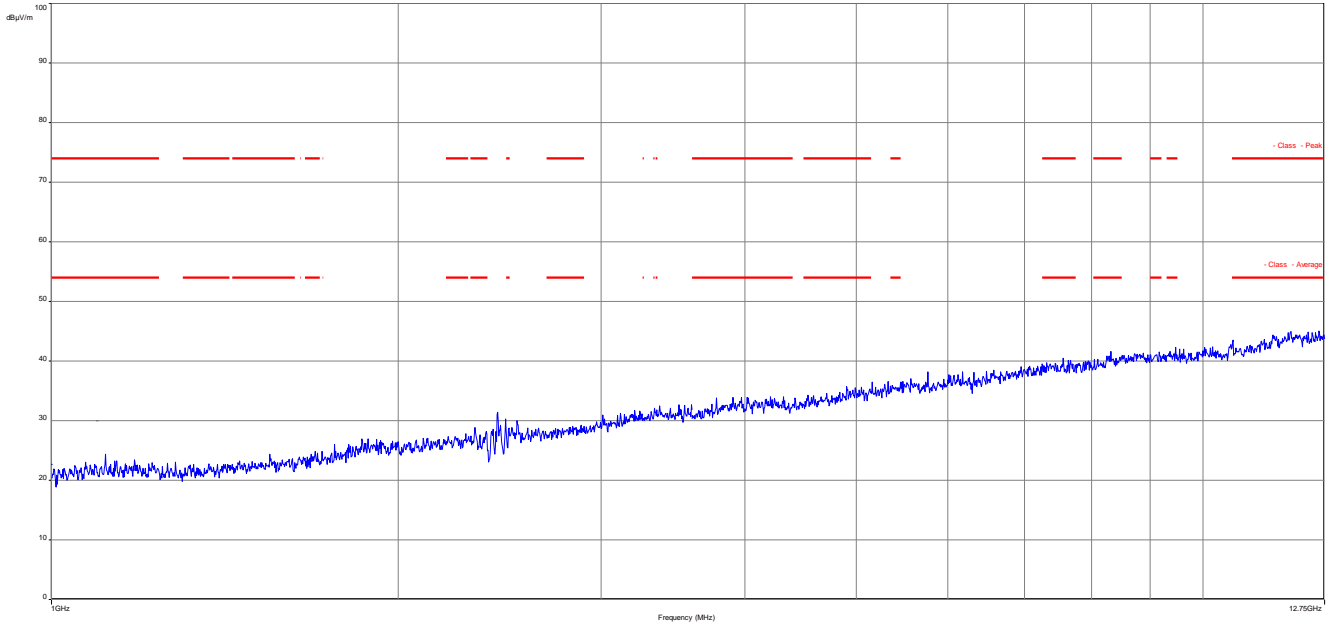
Date: 5.FEB.2015 13:42:36

Plot 5: Middle channel, 30 MHz to 1 GHz, vertical & horizontal polarization



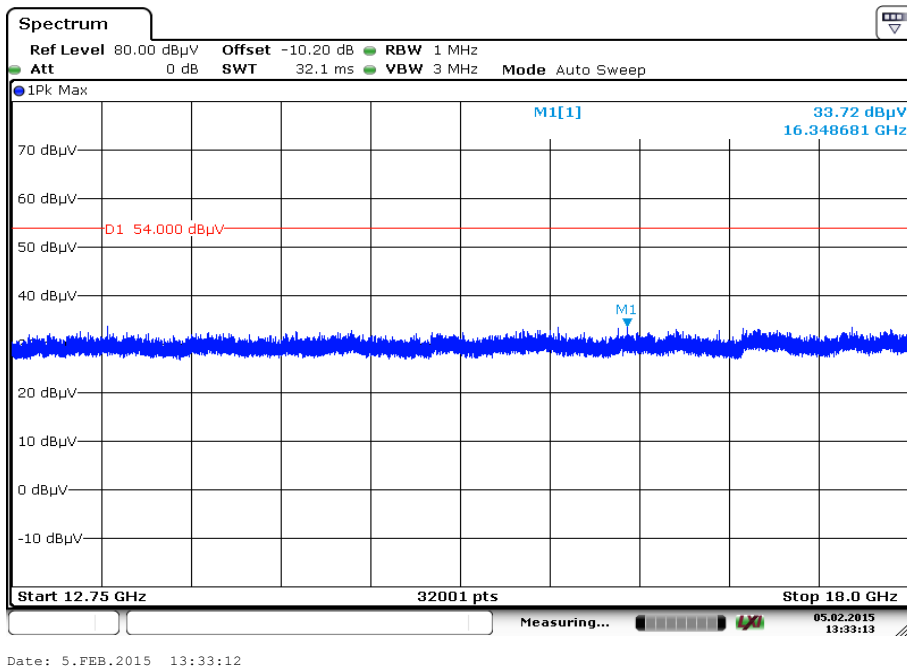
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.181850	16.90	30.00	13.10	1000.0	120.000	170.0	V	115	13.4
36.016500	18.23	30.00	11.77	1000.0	120.000	101.0	V	25	13.8
180.018450	19.55	33.50	13.95	1000.0	120.000	98.0	V	155	10.4
600.080550	23.30	36.00	12.70	1000.0	120.000	170.0	H	107	20.7
720.065550	28.83	36.00	7.17	1000.0	120.000	170.0	H	263	22.0
902.650350	21.30	36.00	14.70	1000.0	120.000	98.0	H	107	24.1

Plot 6: Middle channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

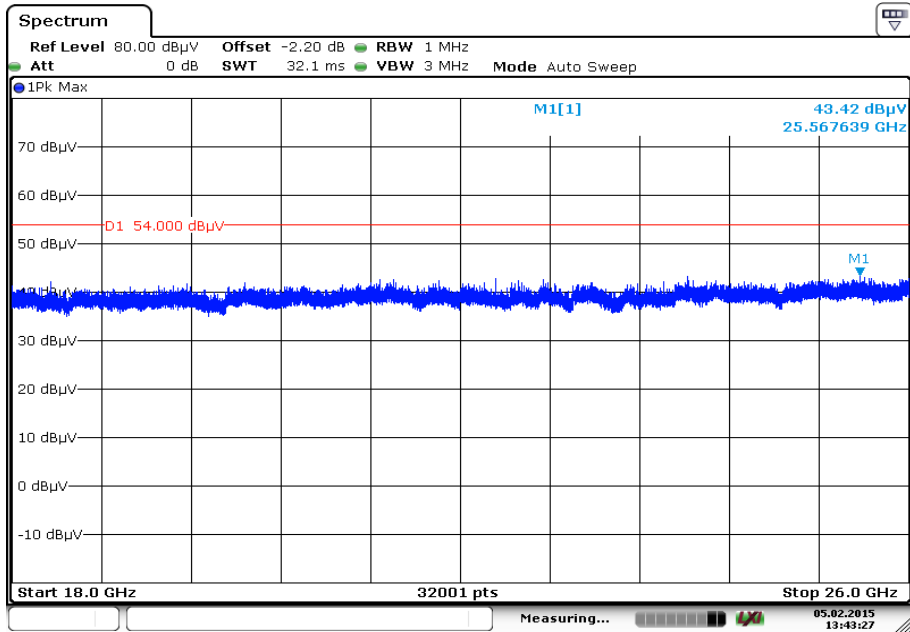


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 7: Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

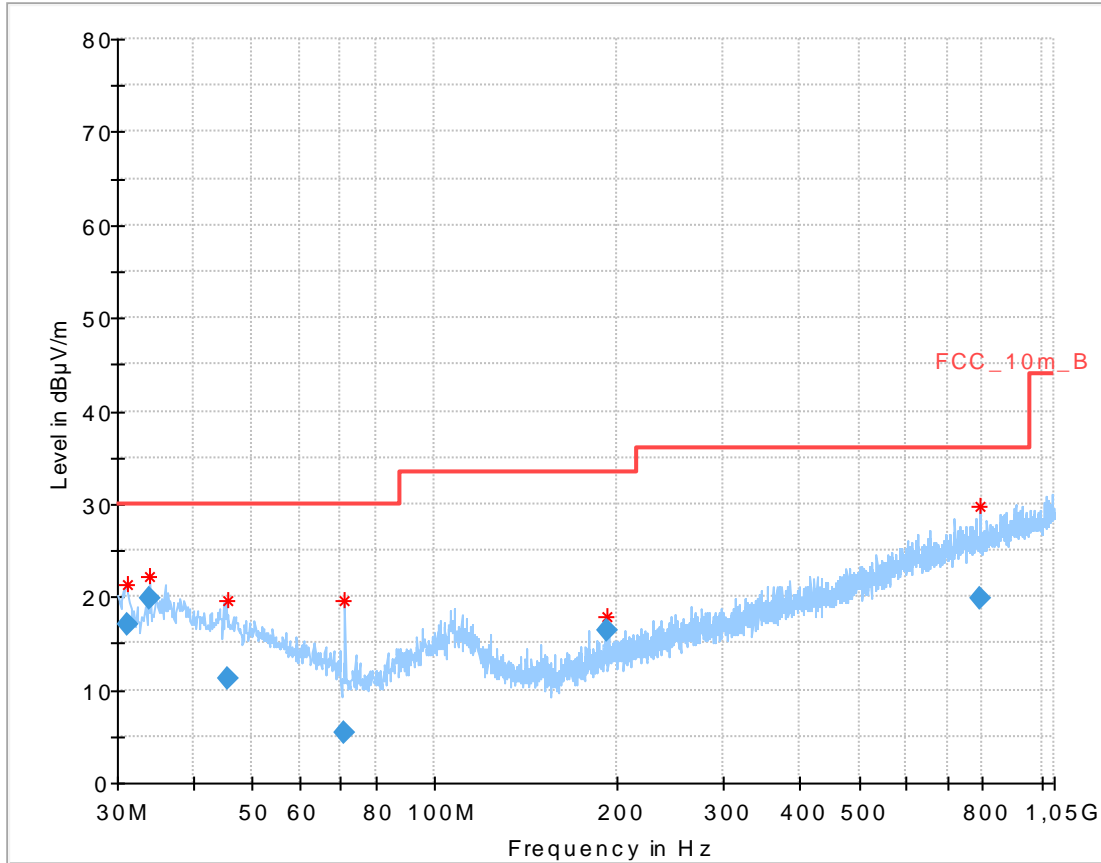


Plot 8: Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization



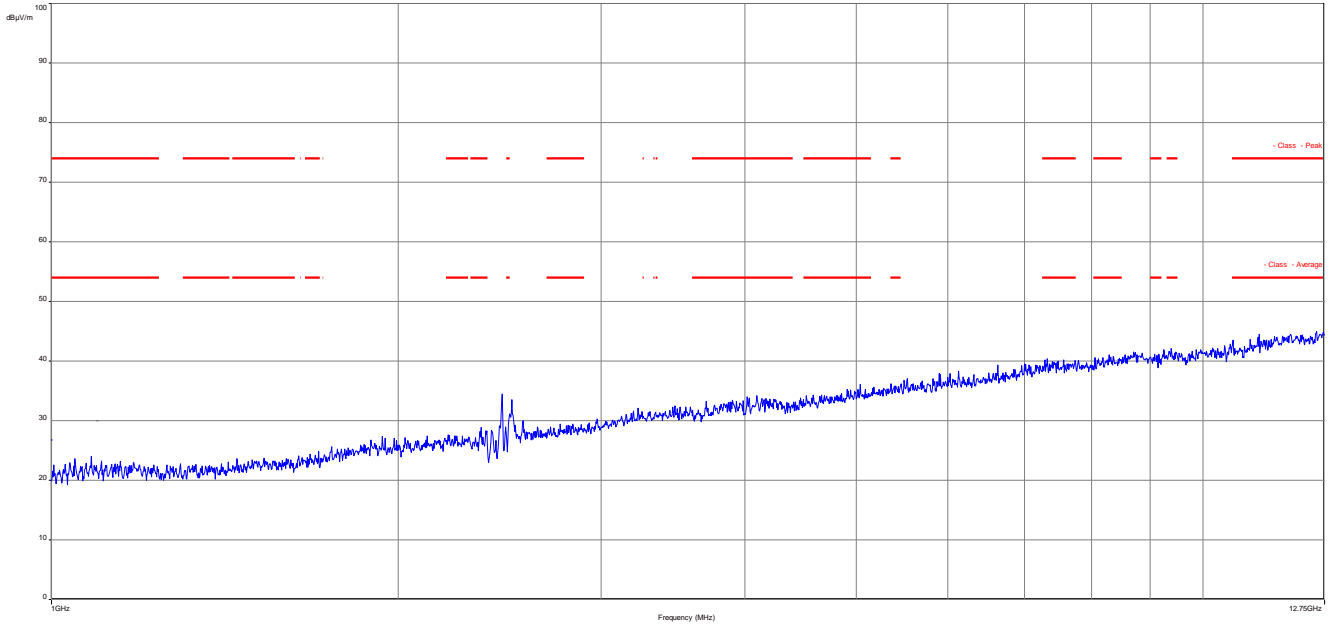
Date: 5.FEB.2015 13:43:26

Plot 9: Highest channel, 30 MHz to 1 GHz, vertical & horizontal polarization



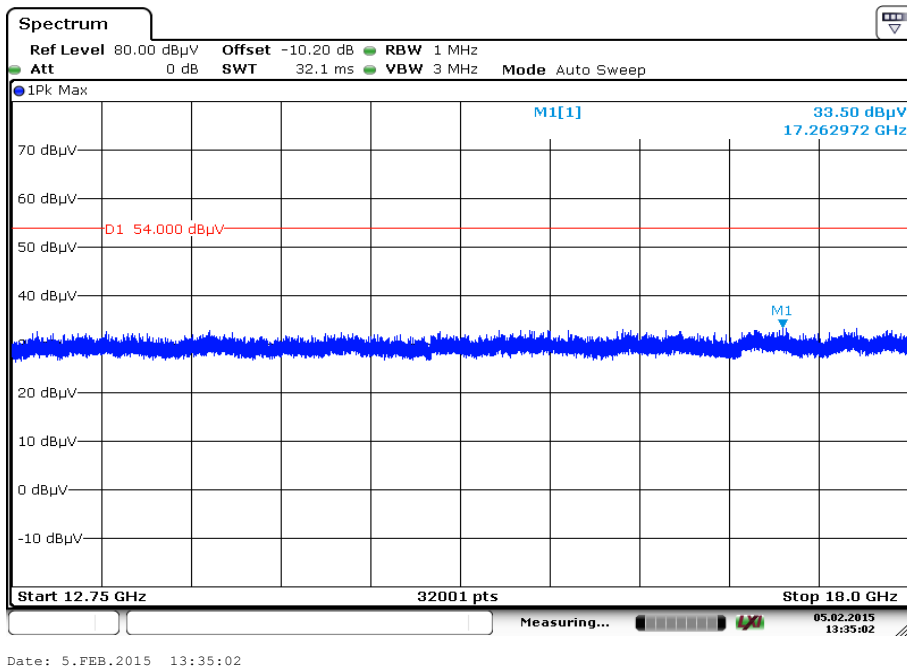
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.242300	17.00	30.00	13.00	1000.0	120.000	101.0	V	-25	13.5
34.007100	19.86	30.00	10.14	1000.0	120.000	101.0	V	25	13.7
45.476250	11.24	30.00	18.76	1000.0	120.000	170.0	V	17	13.7
70.953600	5.40	30.00	24.60	1000.0	120.000	101.0	V	155	8.4
191.997000	16.46	33.50	17.04	1000.0	120.000	98.0	V	197	11.2
792.791100	19.89	36.00	16.11	1000.0	120.000	170.0	V	173	22.7

Plot 10: Highest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

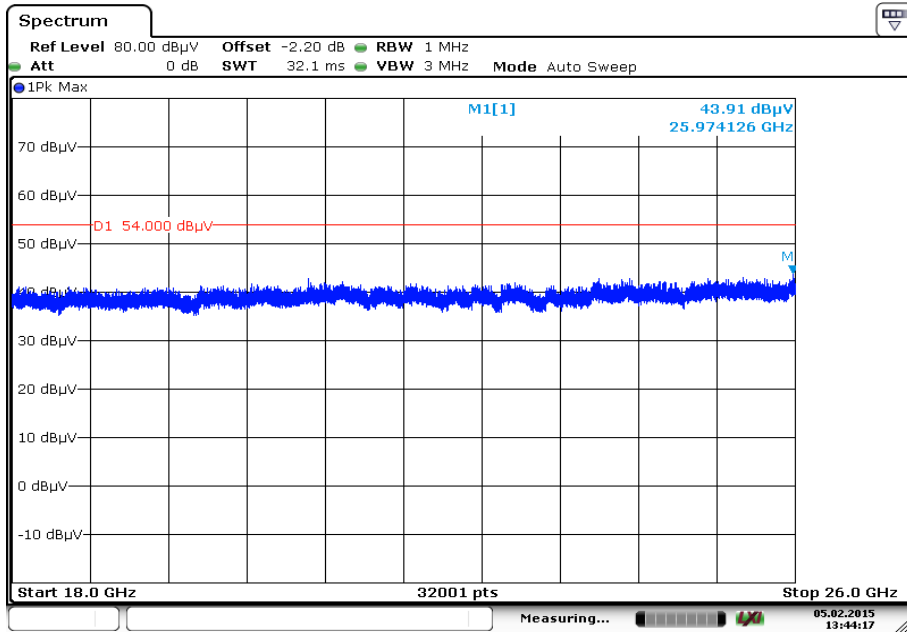


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 11: Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



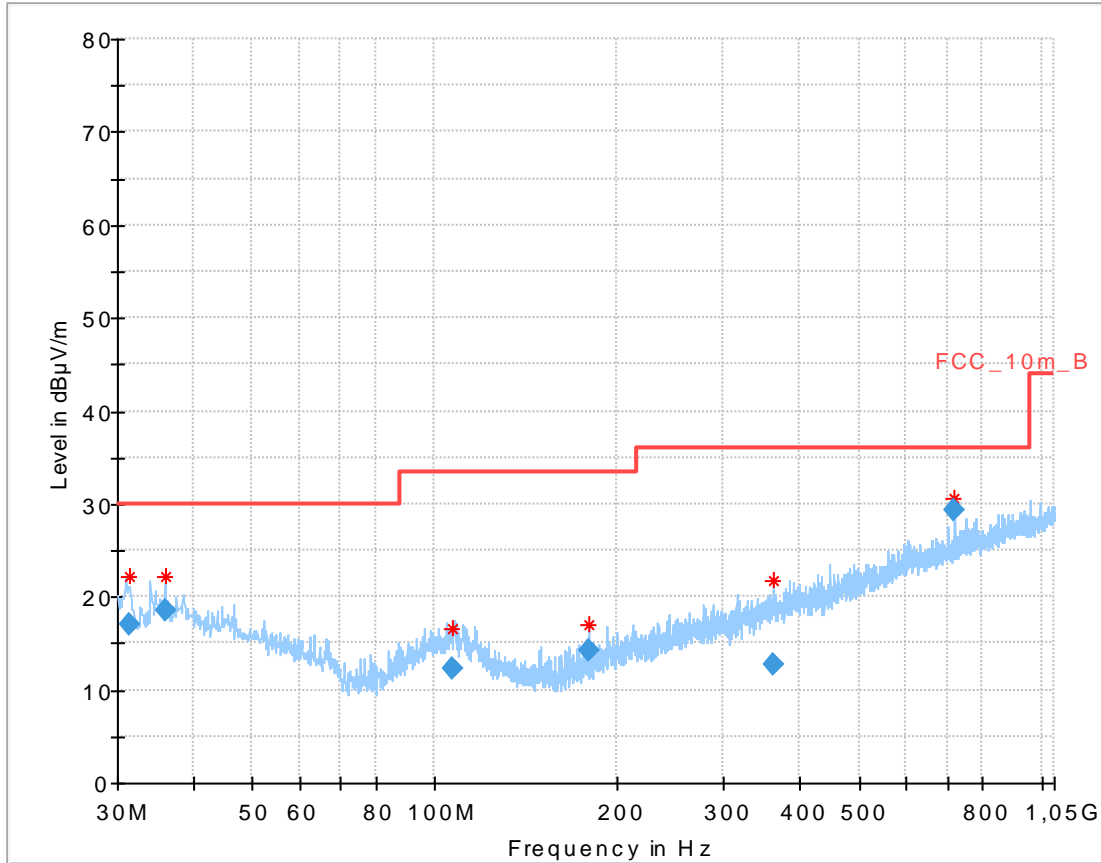
Plot 12: Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



Date: 5.FEB.2015 13:44:17

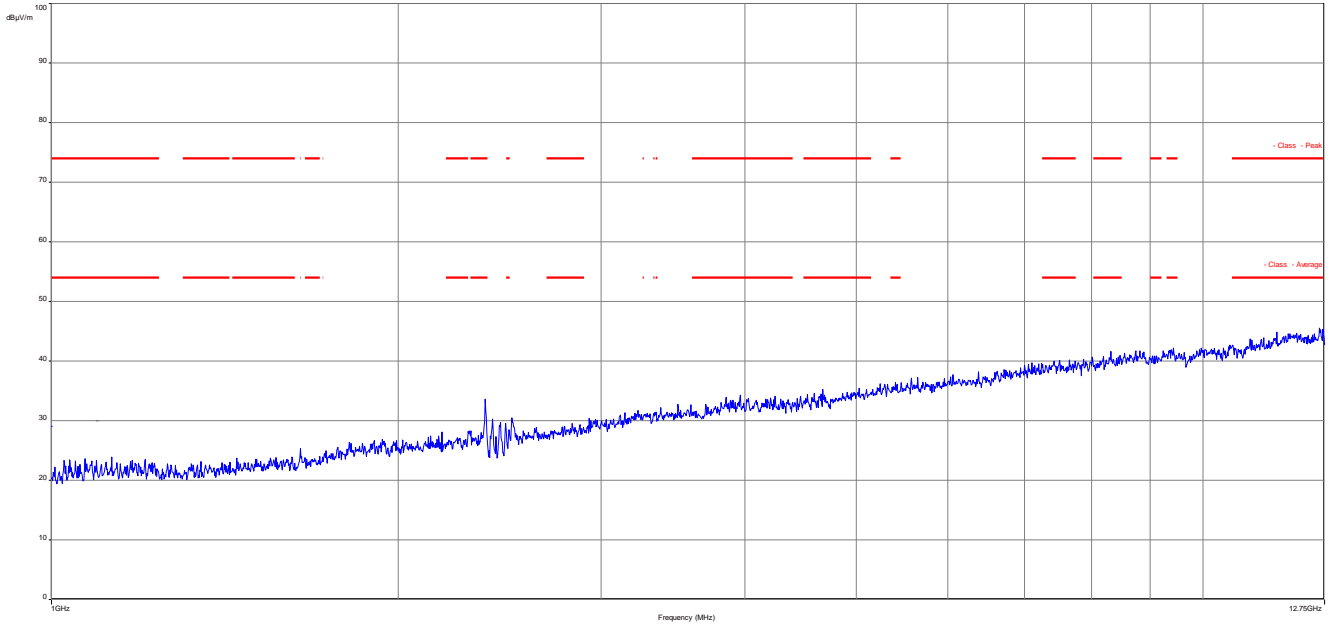
Plots: OFDM / g – mode

Plot 1: Lowest channel, 30 MHz to 1 GHz, vertical & horizontal polarization



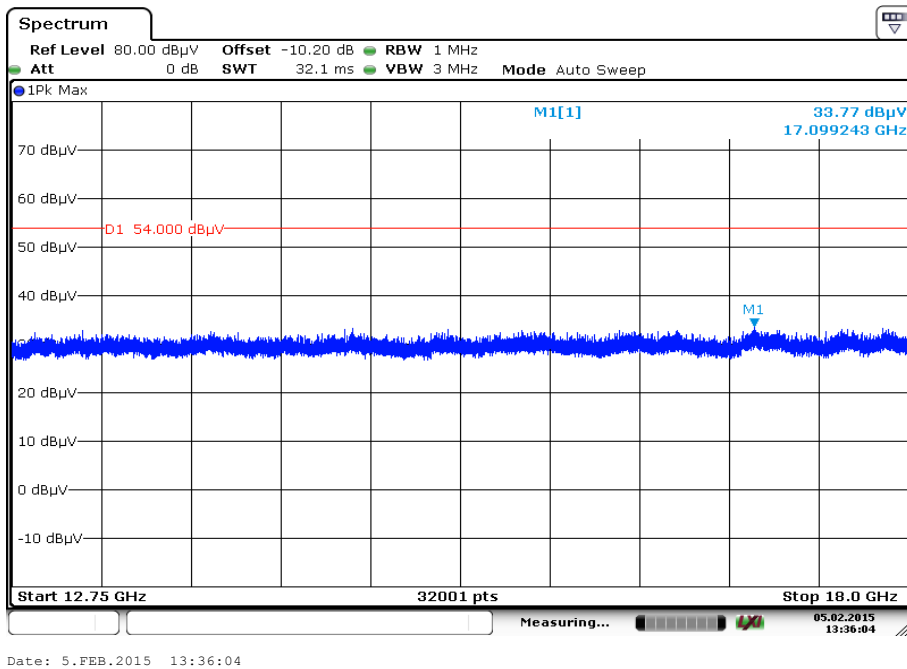
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.367100	17.00	30.00	13.00	1000.0	120.000	101.0	V	-25	13.5
35.977050	18.49	30.00	11.51	1000.0	120.000	101.0	V	287	13.8
107.166000	12.27	33.50	21.23	1000.0	120.000	101.0	V	87	11.4
179.953950	14.31	33.50	19.19	1000.0	120.000	98.0	V	107	10.4
362.208900	12.76	36.00	23.24	1000.0	120.000	170.0	V	107	16.2
720.052050	29.24	36.00	6.76	1000.0	120.000	98.0	H	287	22.0

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

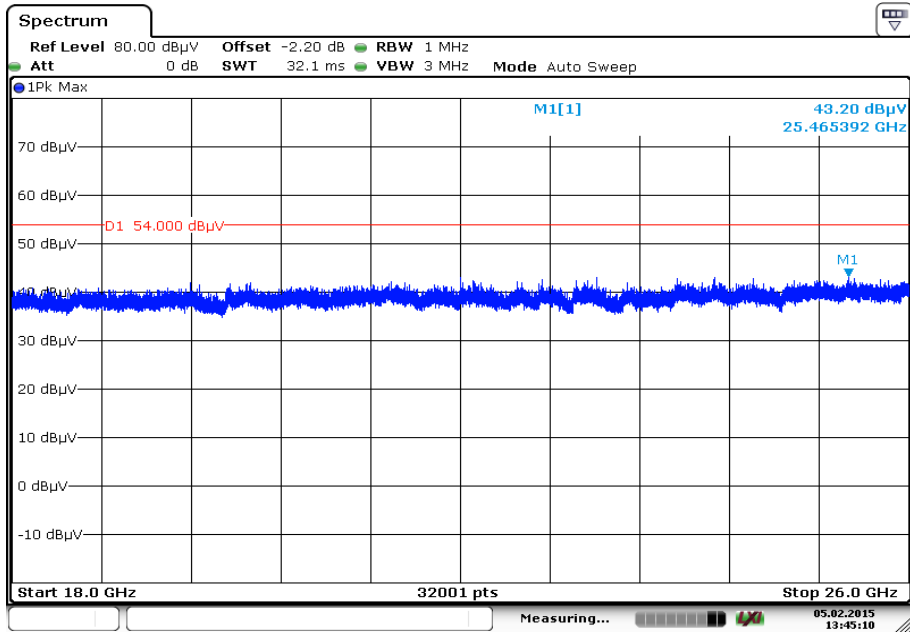


The carrier signal is notched with a 2.4 GHz band rejection filter.

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

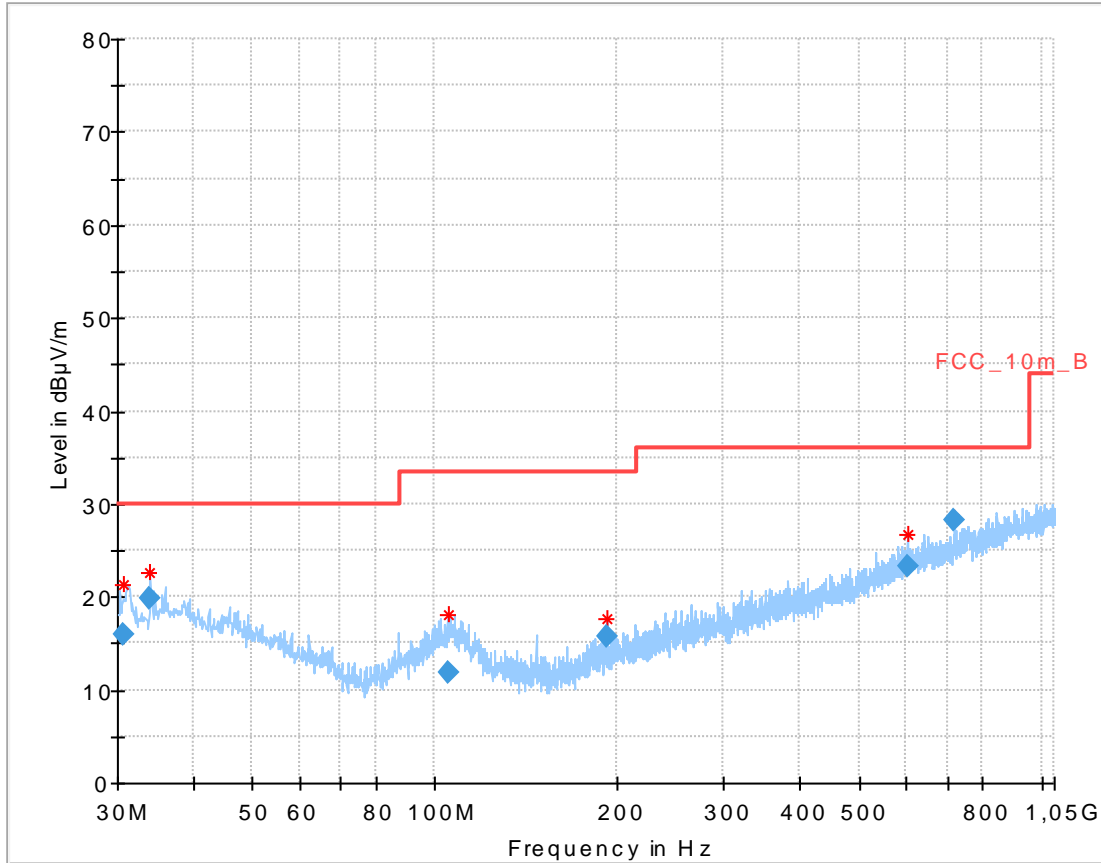


Plot 4: Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



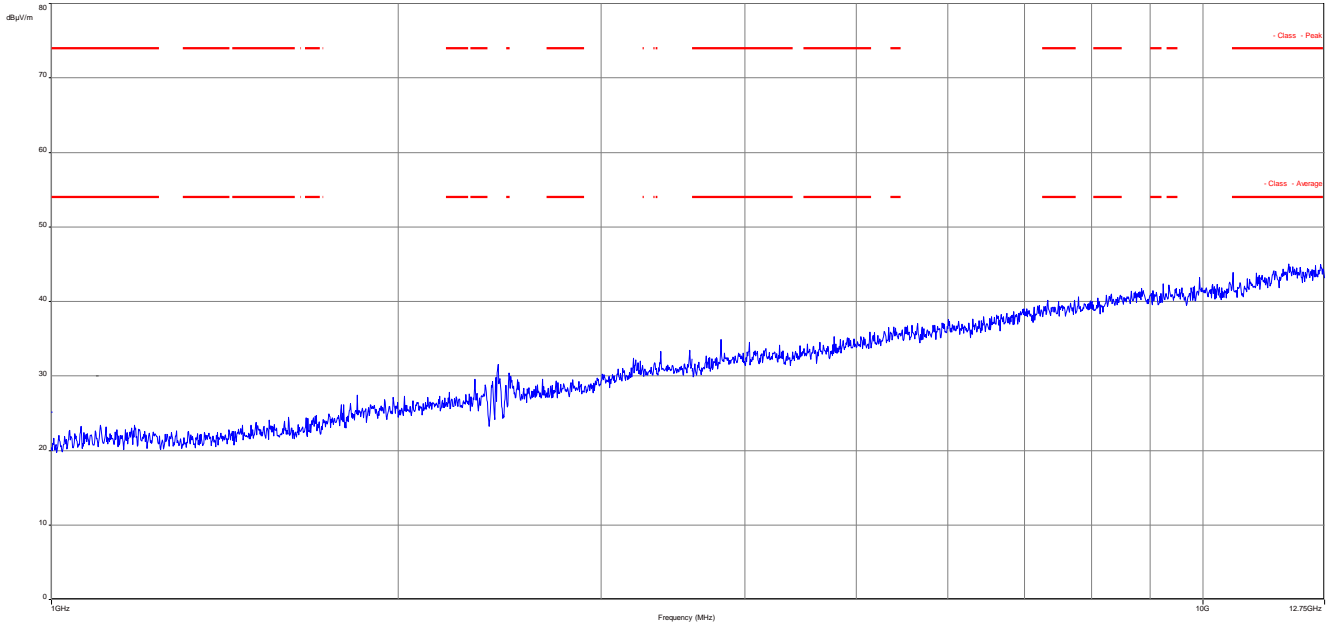
Date: 5.FEB.2015 13:45:10

Plot 5: Middle channel, 30 MHz to 1 GHz, vertical & horizontal polarization



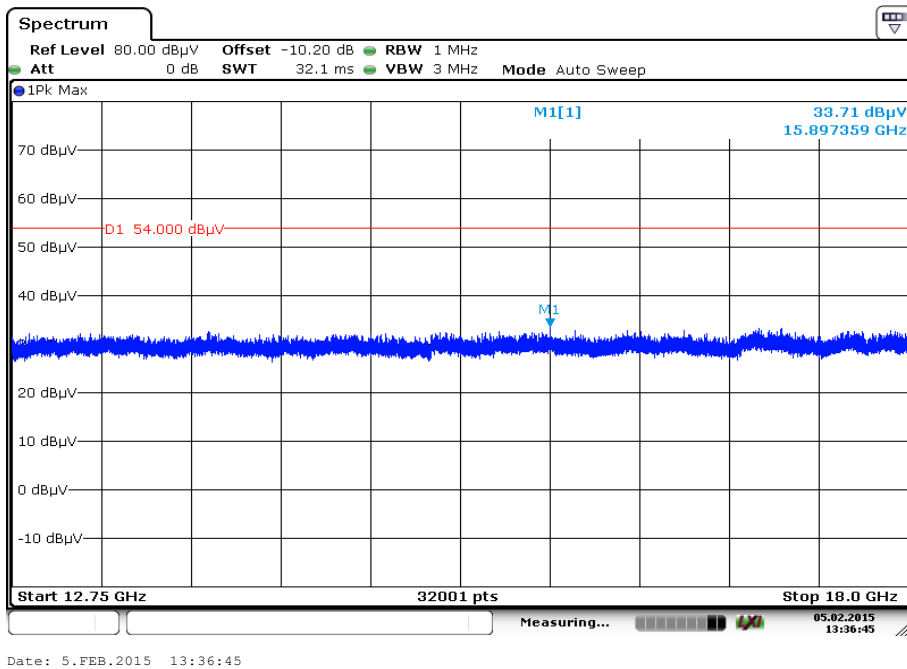
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.733650	15.99	30.00	14.01	1000.0	120.000	170.0	V	295	13.4
33.999000	19.93	30.00	10.07	1000.0	120.000	101.0	V	83	13.7
105.444000	11.94	33.50	21.56	1000.0	120.000	101.0	V	107	11.6
192.024000	15.83	33.50	17.67	1000.0	120.000	98.0	V	-7	11.2
600.058350	23.30	36.00	12.70	1000.0	120.000	101.0	H	295	20.7
720.050850	28.22	36.00	7.78	1000.0	120.000	101.0	H	287	22.0

Plot 6: Middle channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

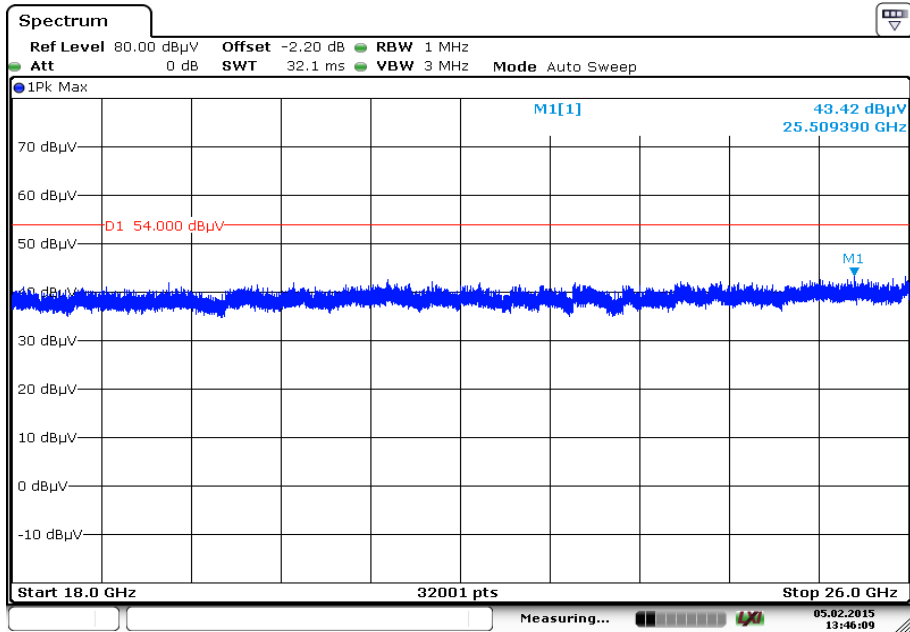


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 7: Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

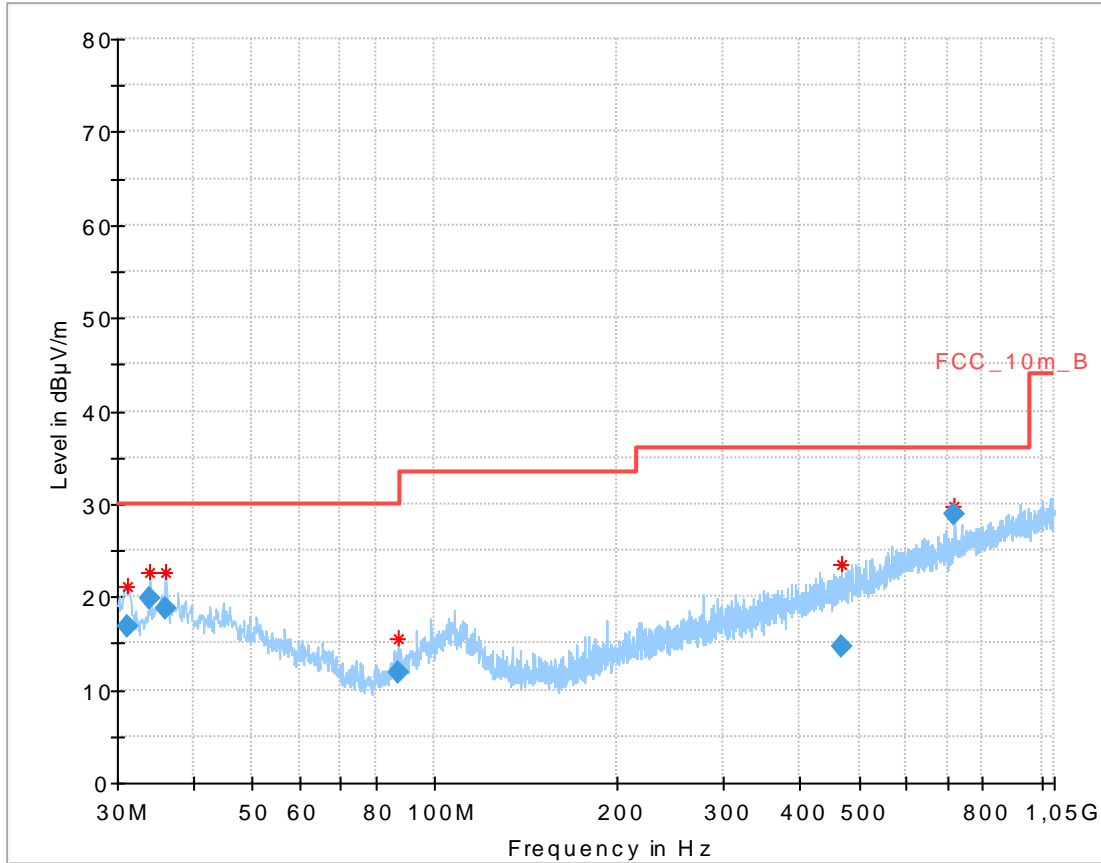


Plot 8: Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization



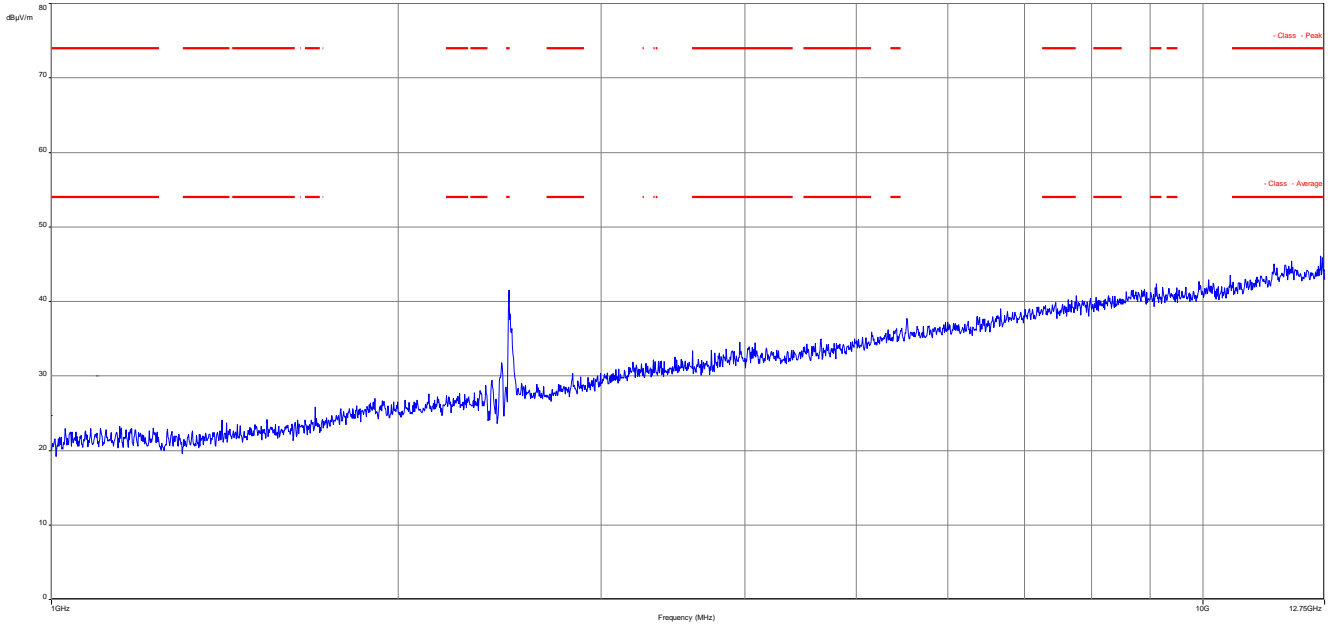
Date: 5.FEB.2015 13:46:09

Plot 9: Highest channel, 30 MHz to 1 GHz, vertical & horizontal polarization



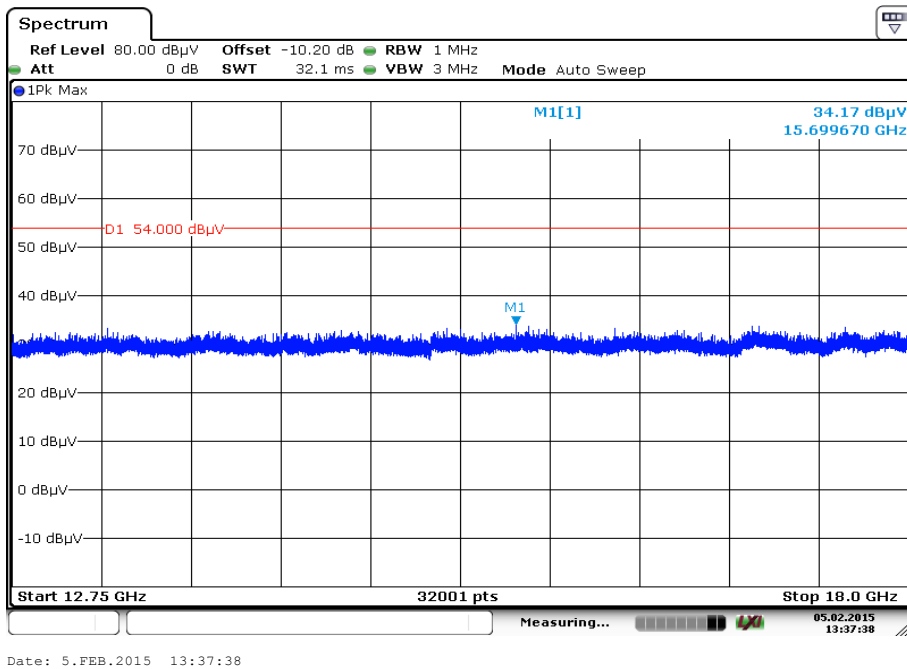
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.253550	16.86	30.00	13.14	1000.0	120.000	101.0	V	263	13.5
33.993000	19.91	30.00	10.09	1000.0	120.000	106.0	V	295	13.7
35.994150	18.83	30.00	11.17	1000.0	120.000	101.0	V	295	13.8
87.008100	11.80	30.00	18.20	1000.0	120.000	101.0	V	-6	9.8
469.828500	14.70	36.00	21.30	1000.0	120.000	100.0	H	25	18.1
720.041400	28.79	36.00	7.21	1000.0	120.000	98.0	H	263	22.0

Plot 10: Highest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

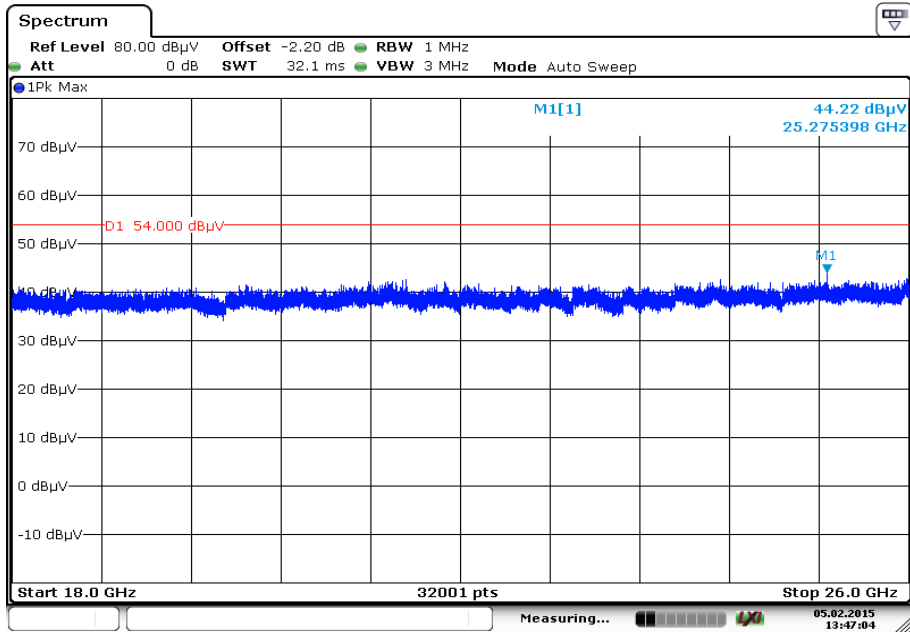


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 11: Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



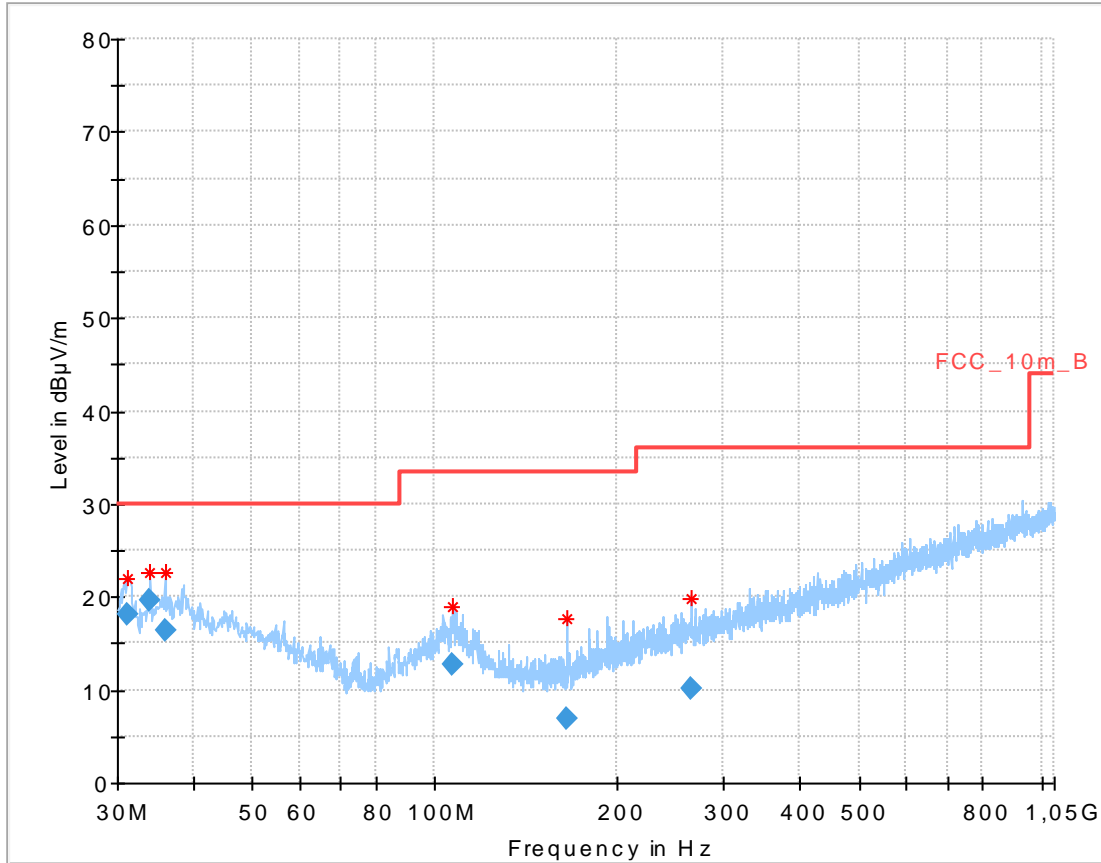
Plot 12: Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



Date: 5.FEB.2015 13:47:04

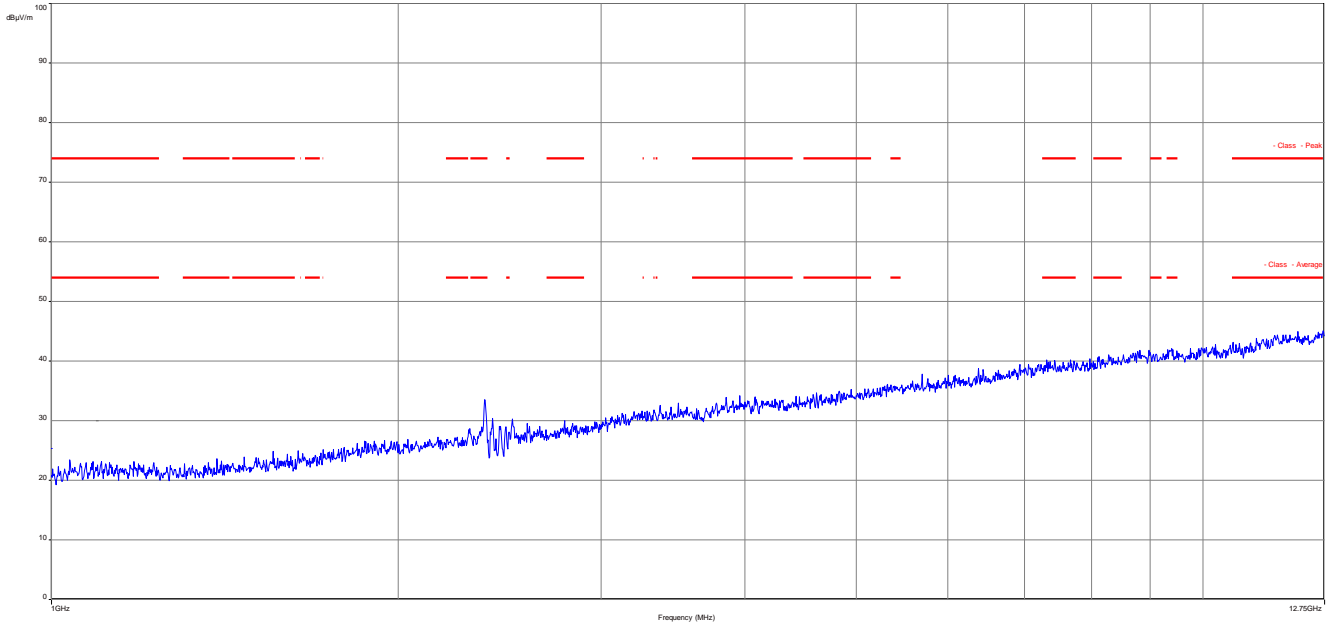
Plots: OFDM / n – mode

Plot 1: Lowest channel, 30 MHz to 1 GHz, vertical & horizontal polarization



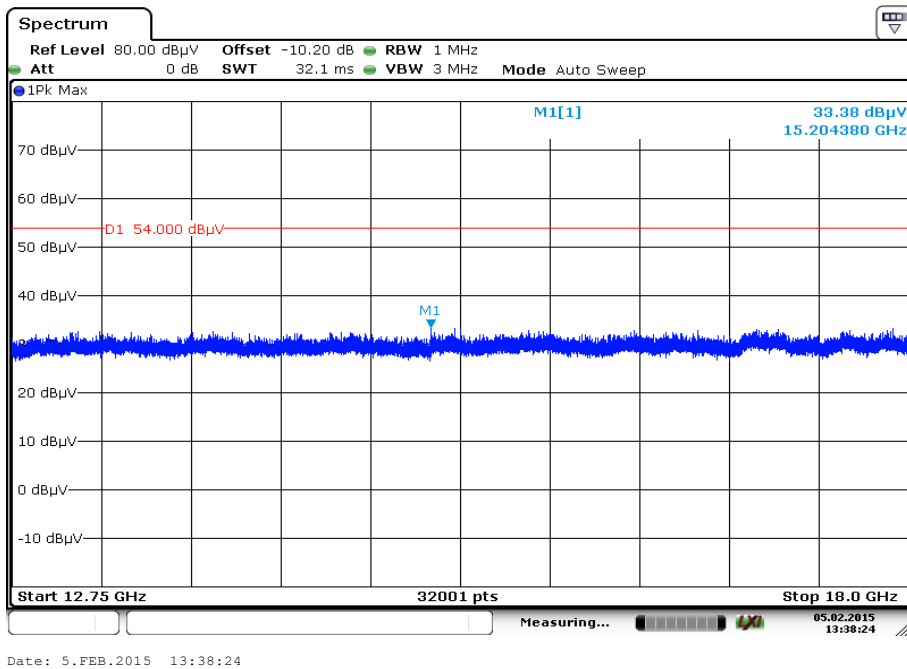
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.176300	18.12	30.00	11.88	1000.0	120.000	101.0	V	65	13.4
33.965700	19.54	30.00	10.46	1000.0	120.000	101.0	V	17	13.7
36.045600	16.49	30.00	13.51	1000.0	120.000	101.0	V	25	13.8
107.255550	12.67	33.50	20.83	1000.0	120.000	170.0	V	287	11.4
164.817900	6.90	33.50	26.60	1000.0	120.000	101.0	V	65	9.4
265.039950	10.13	36.00	25.87	1000.0	120.000	170.0	H	-6	13.7

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

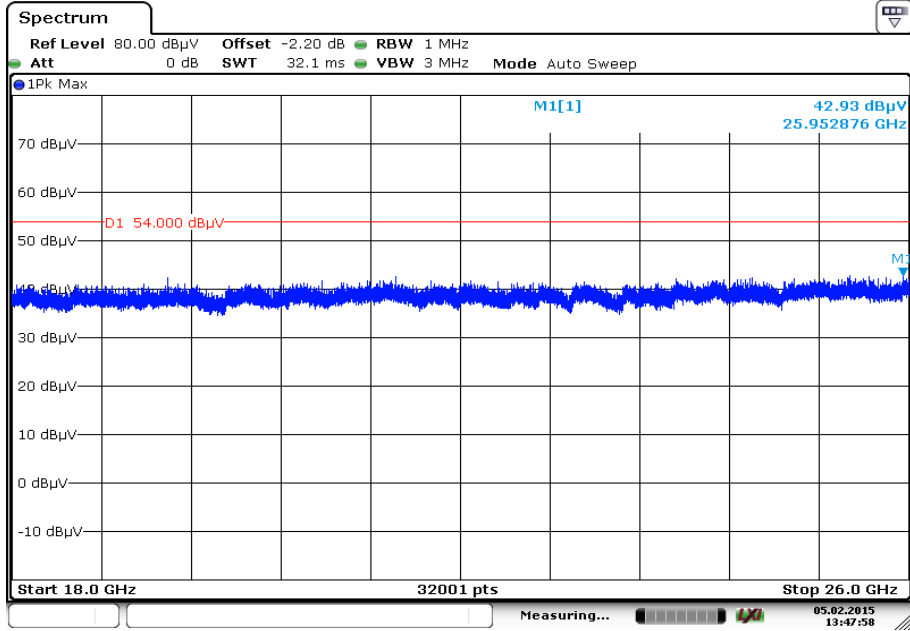


The carrier signal is notched with a 2.4 GHz band rejection filter.

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

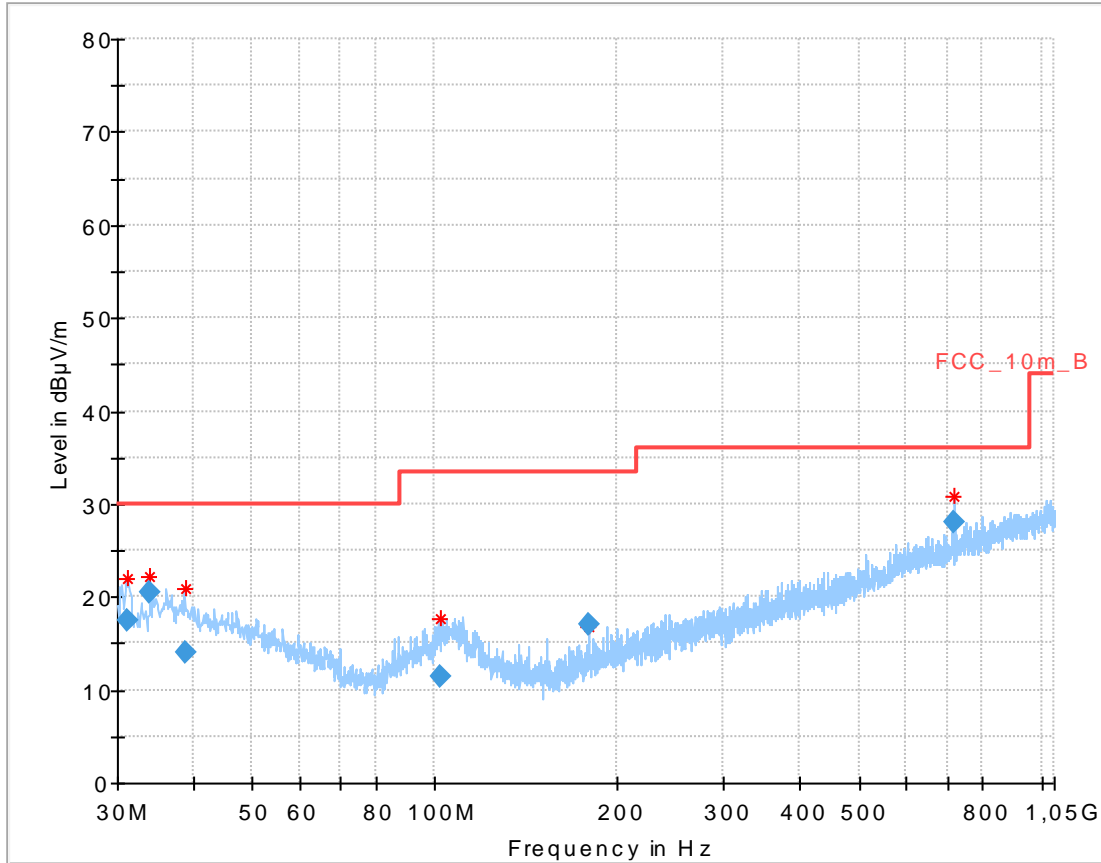


Plot 4: Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



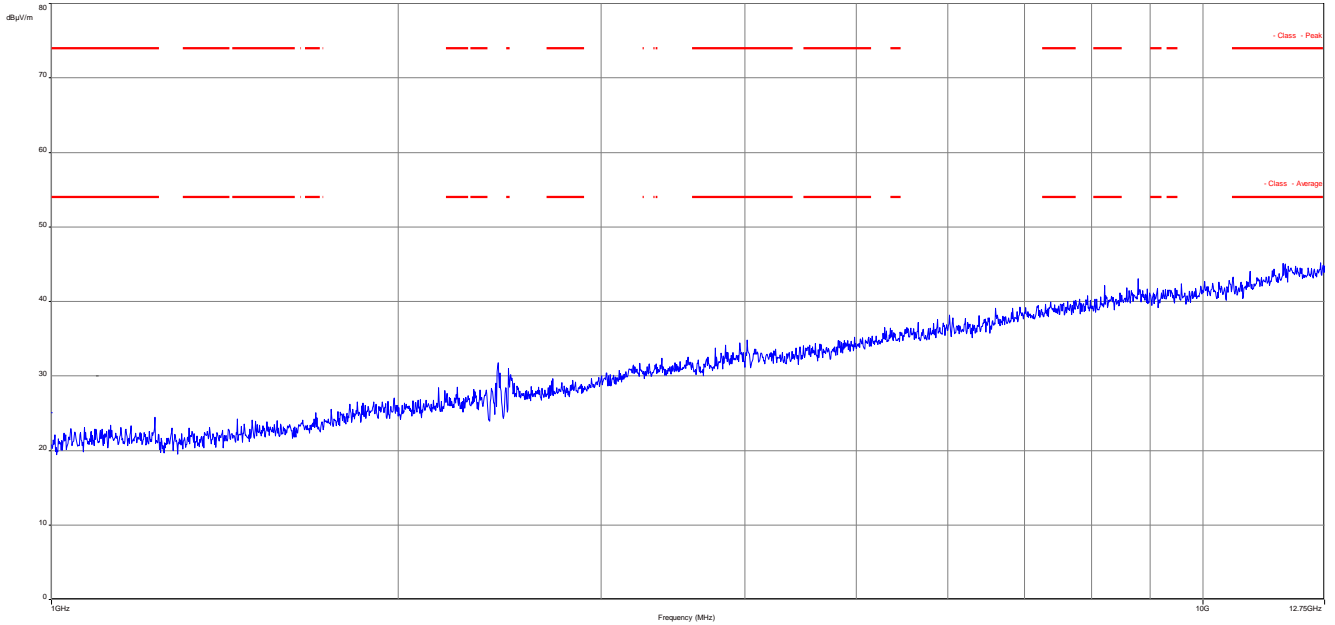
Date: 5.FEB.2015 13:47:58

Plot 5: Middle channel, 30 MHz to 1 GHz, vertical & horizontal polarization



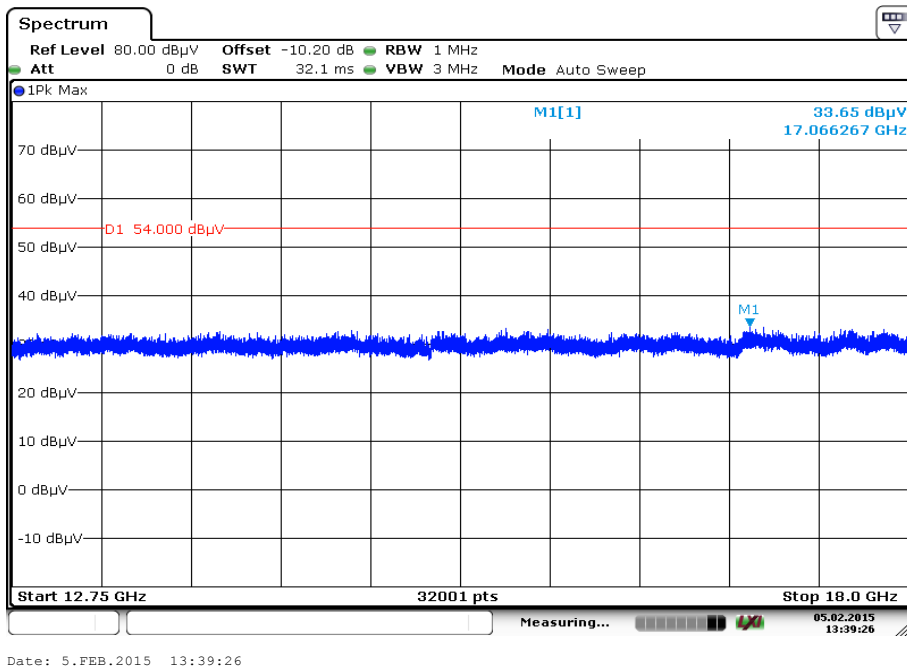
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.181400	17.43	30.00	12.57	1000.0	120.000	170.0	V	65	13.4
33.991800	20.55	30.00	9.45	1000.0	120.000	101.0	V	264	13.7
38.901150	14.01	30.00	15.99	1000.0	120.000	98.0	V	289	14.0
102.318000	11.52	33.50	21.98	1000.0	120.000	101.0	V	25	11.9
179.970600	16.93	33.50	16.57	1000.0	120.000	98.0	V	155	10.4
720.060450	28.04	36.00	7.96	1000.0	120.000	98.0	H	264	22.0

Plot 6: Middle channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

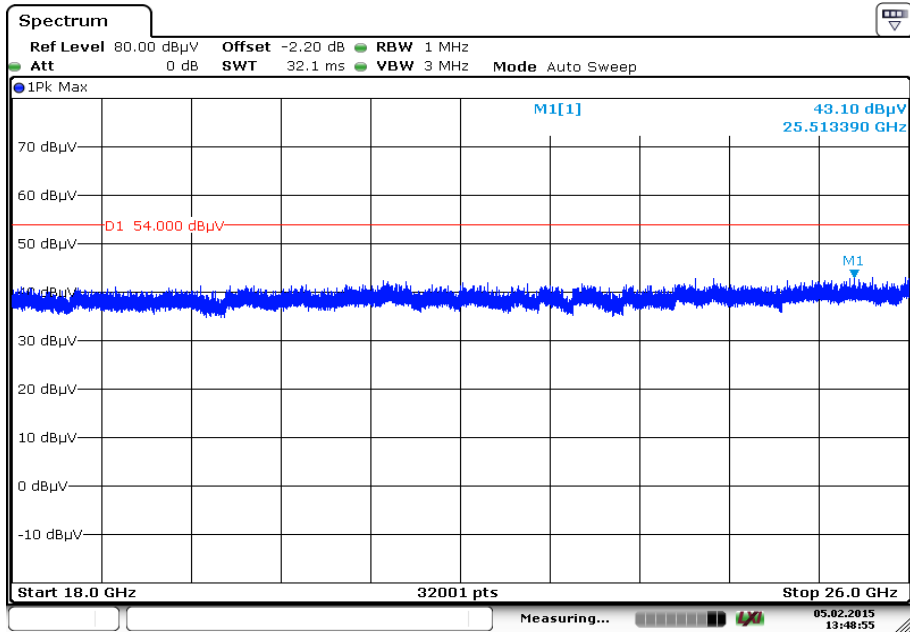


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 7: Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization

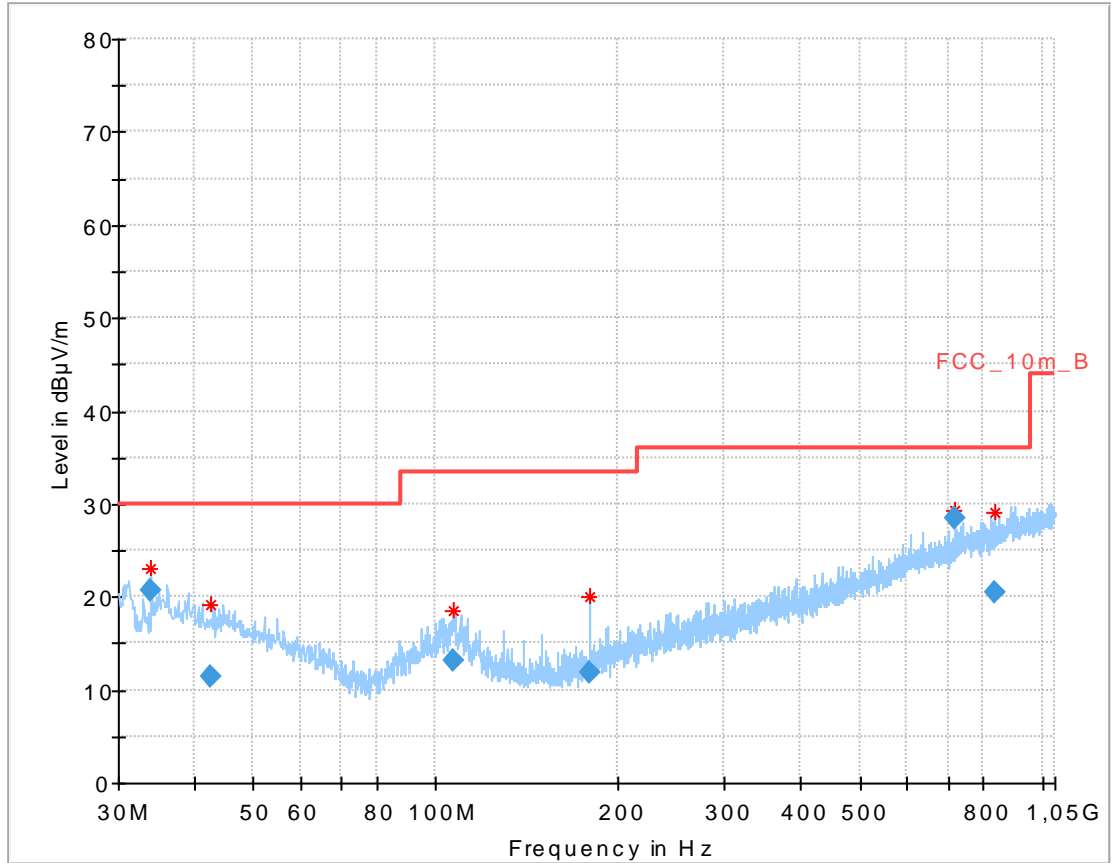


Plot 8: Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization



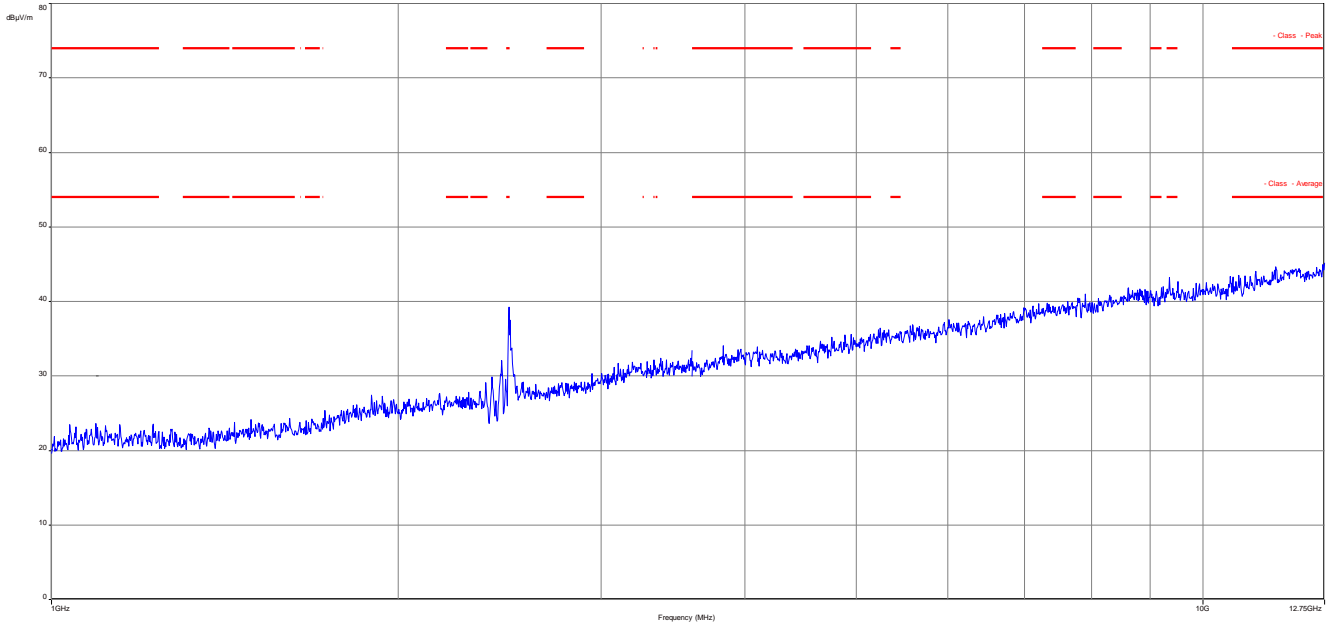
Date: 5.FEB.2015 13:48:55

Plot 9: Highest channel, 30 MHz to 1 GHz, vertical & horizontal polarization



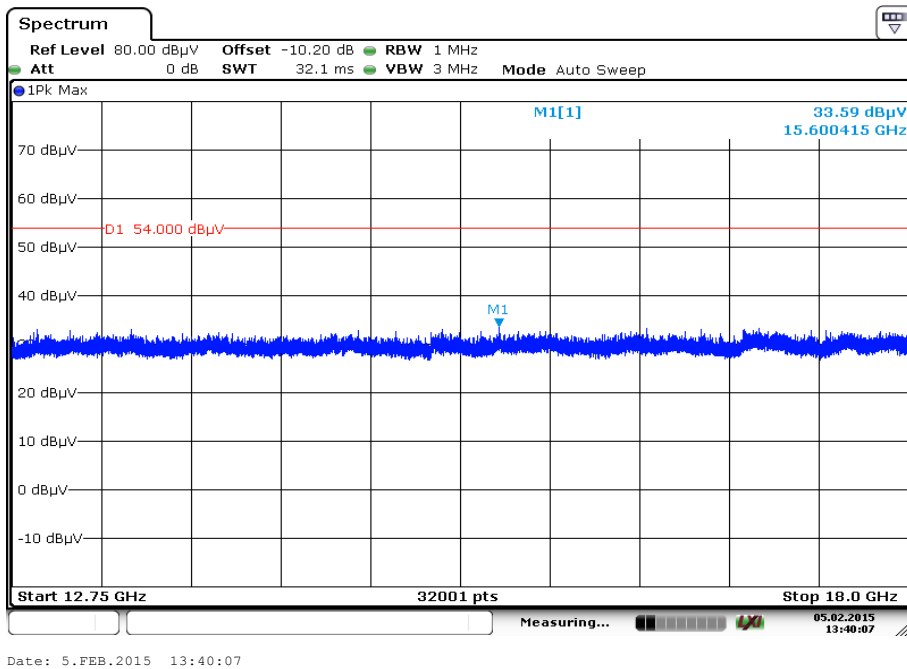
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.994350	20.65	30.00	9.35	1000.0	120.000	101.0	V	107	13.7
42.508950	11.52	30.00	18.48	1000.0	120.000	98.0	V	115	13.9
107.340000	13.12	33.50	20.38	1000.0	120.000	170.0	V	-6	11.4
180.041250	11.81	33.50	21.69	1000.0	120.000	170.0	V	173	10.4
720.061950	28.37	36.00	7.63	1000.0	120.000	101.0	H	295	22.0
832.879350	20.57	36.00	15.43	1000.0	120.000	101.0	V	-25	23.2

Plot 10: Highest channel, 1 GHz to 12.75 GHz, vertical & horizontal polarization

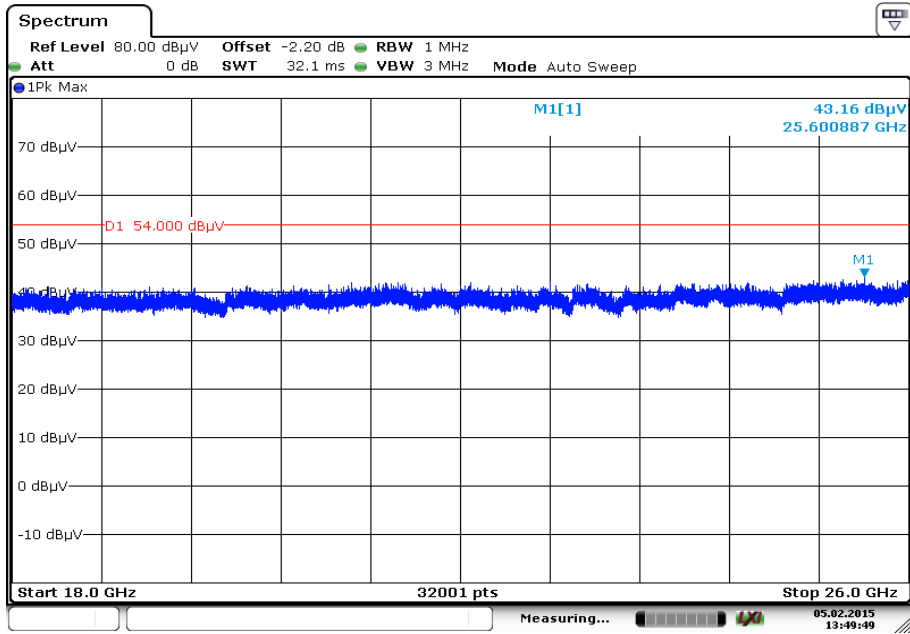


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 11: Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 12: Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



Date: 5.FEB.2015 13:49:49

10.5 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 (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:

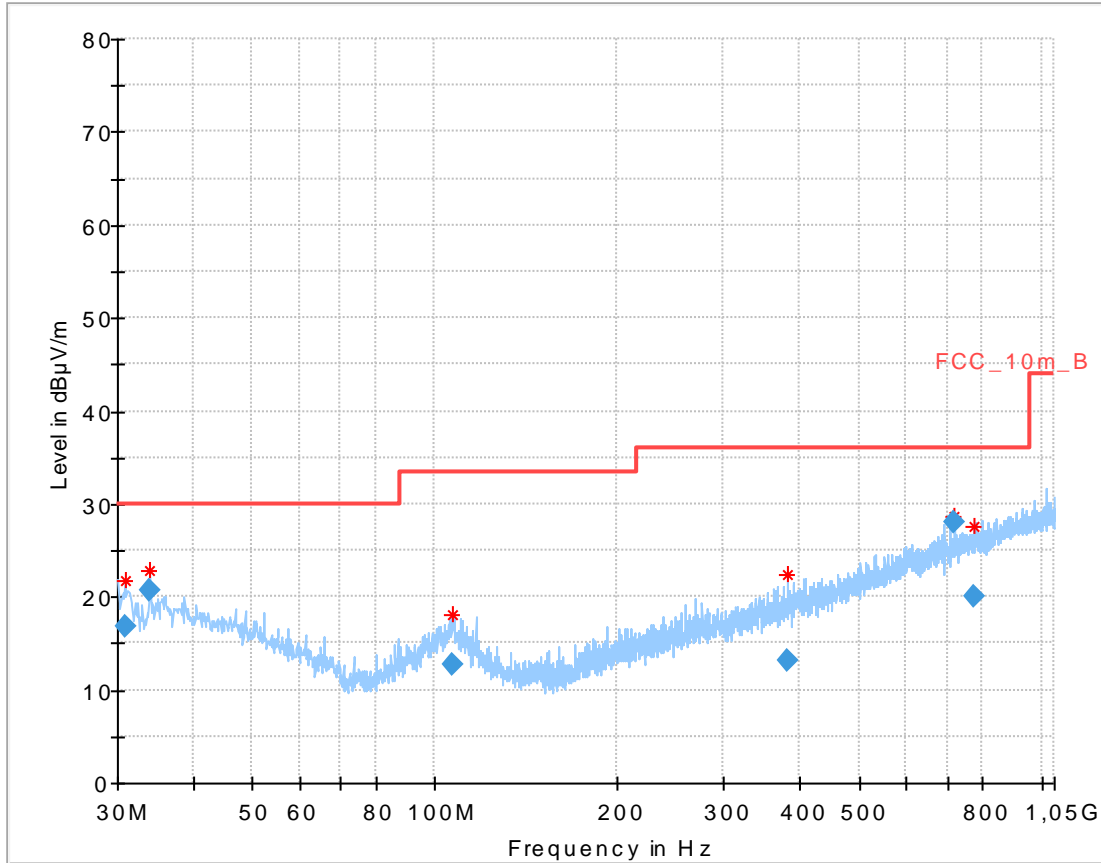
RX Spurious Emissions Radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
No spurious emissions above 1 GHz detected.		
Measurement uncertainty	± 3 dB	

Verdict: 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)

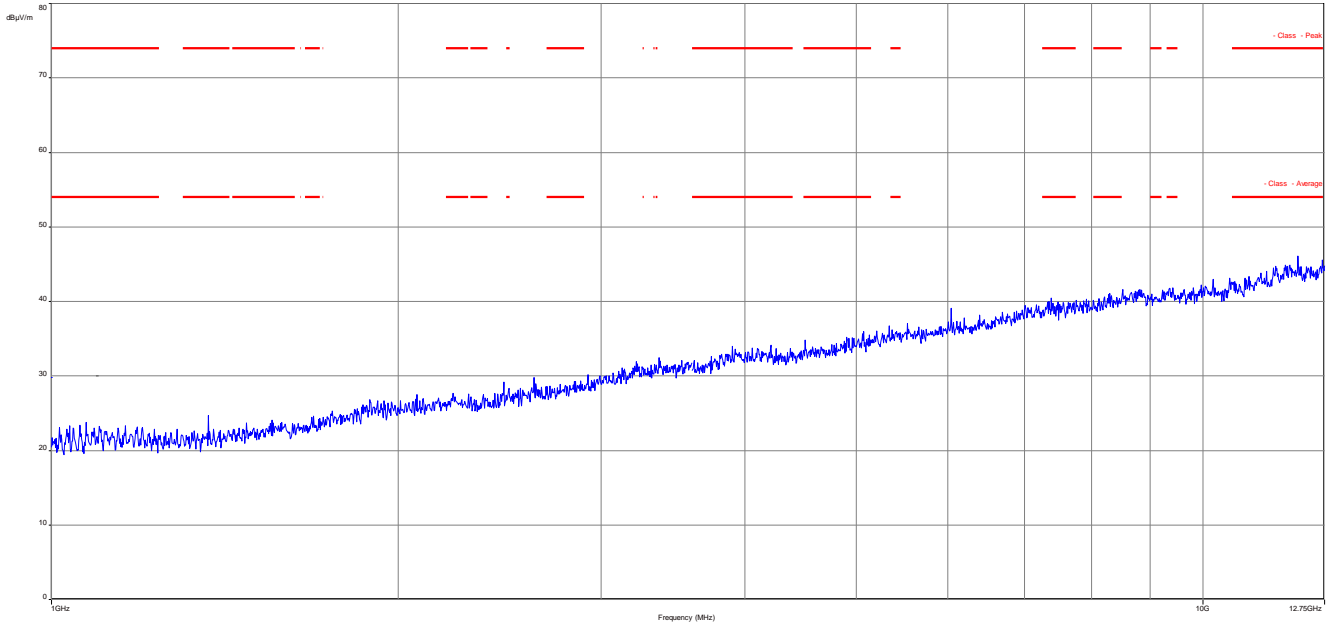
Plots: RX / Idle – mode

Plot 1: 30 MHz to 1 GHz, vertical & horizontal polarization

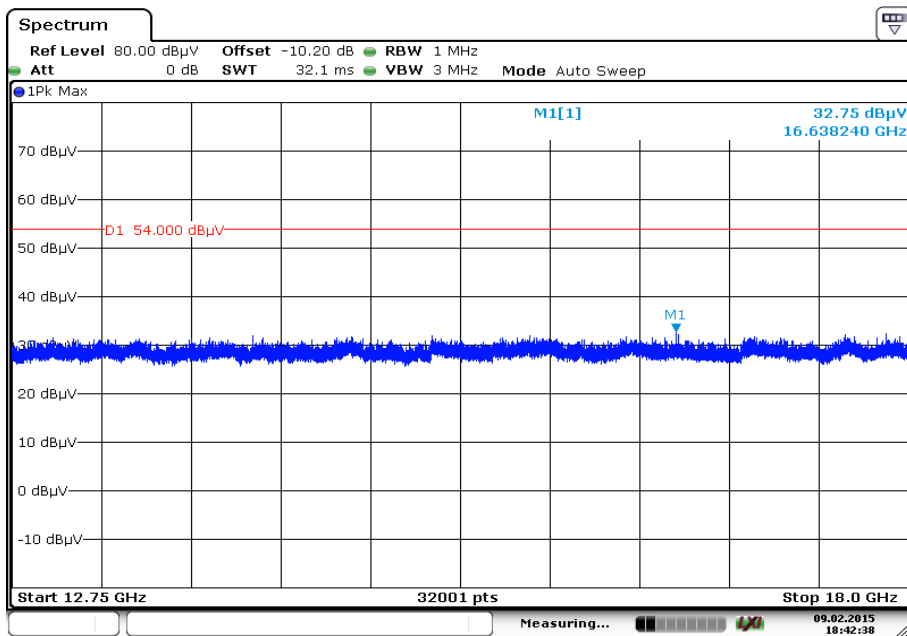


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.867450	16.74	30.00	13.26	1000.0	120.000	101.0	V	263	13.4
34.000950	20.65	30.00	9.35	1000.0	120.000	98.0	V	295	13.7
107.196750	12.79	33.50	20.71	1000.0	120.000	170.0	V	106	11.4
382.420050	13.18	36.00	22.82	1000.0	120.000	170.0	V	197	16.6
720.052650	28.13	36.00	7.87	1000.0	120.000	170.0	H	295	22.0
776.297400	19.97	36.00	16.03	1000.0	120.000	101.0	H	245	22.7

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

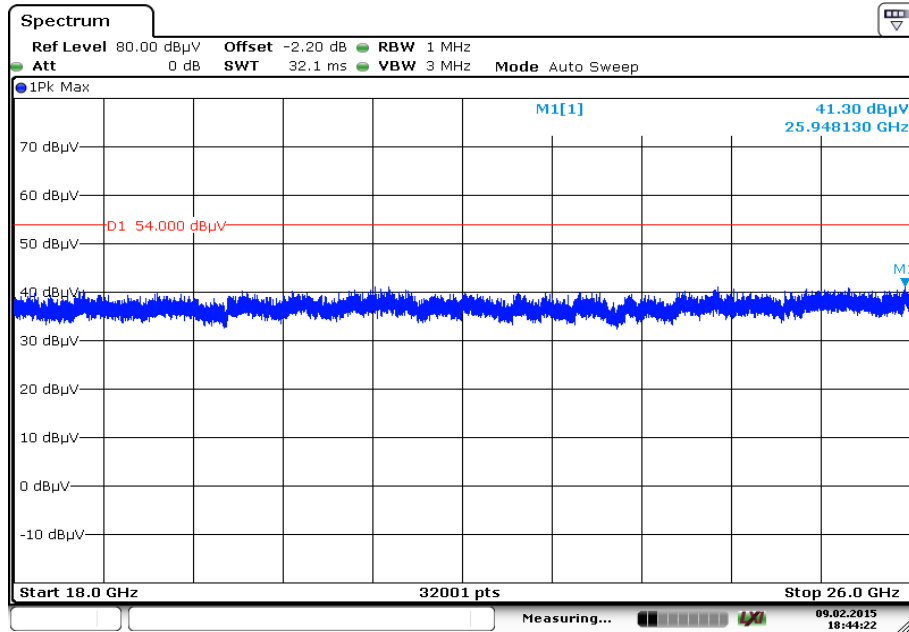


Plot 3: 12.75 GHz to 18 GHz, vertical & horizontal polarization



Date: 9.FEB.2015 18:42:38

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



Date: 9.FEB.2015 18:44:22

10.6 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 μ 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

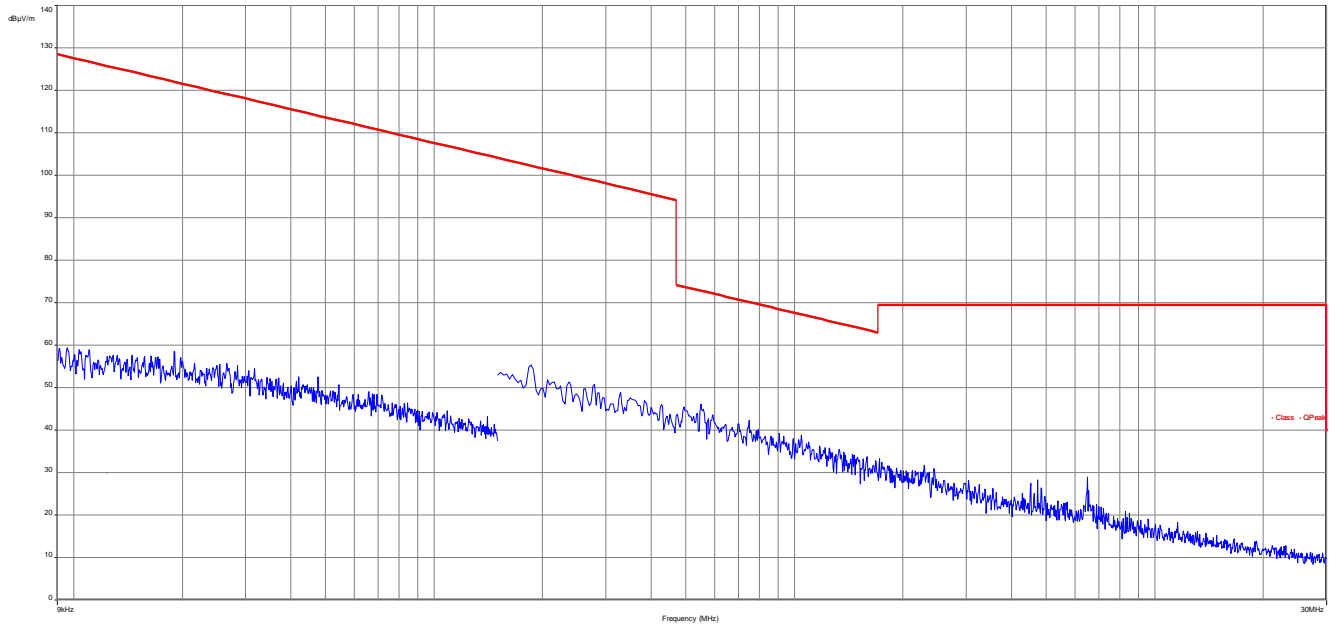
Results:

TX Spurious Emissions Radiated < 30 MHz [dB μ V/m]		
F [MHz]	Detector	Level [dB μ V/m]
No peaks detected.		
Measurement uncertainty	± 3 dB	

Verdict: Passed

Plots: TX mode

Plot 1: 9 kHz to 30 MHz



10.7 Spurious emissions conducted < 30 MHz

Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is repeated for DSSS and OFDM modulation. 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. 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
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 Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dBµV/m)	Average (dBµV/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

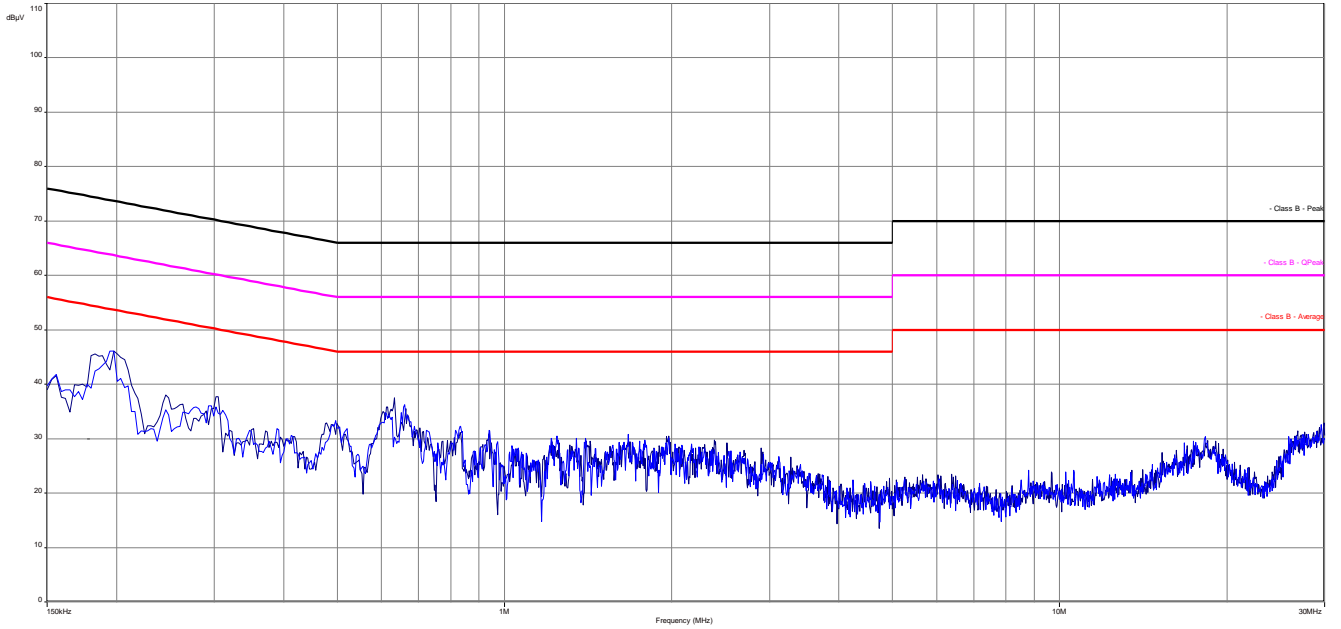
Results:

TX Spurious Emissions Conducted < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No peaks detected.		
Measurement uncertainty	± 3 dB	

Verdict: Passed

Plots:

Plot 1: 150 kHz to 30 MHz, phase line & neutral line



11 Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
2	45	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	27.01.2014	27.01.2015
3	45	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
4	45	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
5	45	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747	izw		
6	45	TRIOLOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	22.04.2014	22.04.2016
7	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vlKI!	08.05.2013	08.05.2015
8	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
9	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	*	300000199	ne		
10	9	Isolating Transformer	MPL IEC625 Bus Regeltrenntravo	Erfi	91350	300001155	ne		
11	90	Active Loop Antenna 10 kHz to 30 MHz	6502	Kontron Psychotech	8905-2342	300000256	k	13.06.2013	13.06.2015
12	90	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
13	90	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
14	90	TRIOLOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vlKI!	29.10.2014	29.10.2017
15	90	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	13.03.2014	13.03.2015
16	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
17	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787	k	22.07.2013	22.07.2015
18	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442	k	19.07.2013	19.07.2015
19	A029	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	21.01.2014	21.01.2015

Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vlKI!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

12 Observations

No observations except those reported with the single test cases have been made.

Annex A Document history

Version	Applied changes	Date of release
	Initial release	2015-02-12
-A	Additional output power measurement	2015-04-13

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

Bellehene 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
- VofP und DECT
- Akustik
- Funk einschließlich WLAN
- Short Range Devices (SRD)
- RFID
- WiMax und Richtfunk
- Mobilfunk (GSM / DCS, 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
 Datum des Bescheides

Dr. Ingrid Döll - B. V. M. H. Wagner
 stellv. Leiterin

Deutsche Akkreditierungsstelle GmbH

Standort Berlin Spittelmarkt 10 10117 Berlin	Standort Frankfurt am Main Gartenstraße 6 60594 Frankfurt am Main	Standort Braunschweig Bundesallee 100 38116 Braunschweig
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Die Akkreditierung erfolgte gemäß dem Gesetz über die Akkreditierungsstelle (AkkStelleG) vom 31. Juli 2005 (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 (Abbl. L 218 vom 9. Juli 2008, S. 20). Die DAkkS ist Unterzeichnerin der Multilateralen Abkommen zur gegenseitigen Anerkennung der Funktionen von Organisationen für Akkreditierung (EA), des Internationalen Akkreditationsforums (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-accord-lation.org
 IAC: www.ilac.org
 IAF: www.iaf.org

Note:

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

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