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TEST REPORT

Test report no.: 1-9368/15-01-11



Deutsche
Akkreditierungsstelle
D-PL-12076-01-00

Testing laboratory

CETECOM ICT Services GmbH

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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

Alpina Watch International SA

Route de la Galaise 8

1228 Plan-les-Ouates / SWITZERLAND

Contact: Guido Benedini

Phone: 0041 (0)22 860 04 40

Manufacturer

Alpina Watch International SA

Route de la Galaise 8

1228 Plan-les-Ouates / SWITZERLAND

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

RSS - 210 Issue 8
Amendment 1

RSS-210, Amendment 1 — Licence-Exempt, Low-Power Radio Apparatus Operating in the Television Bands (February 2015)

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

Test Item

Kind of test item: Horological Smart Watch

Model name: Alpina Woman AL285X3AQ6x

FCC ID: 2AD7G0001

IC: 12729A-0001

Frequency: DTS band 2400 MHz to 2483.5 MHz;
(lowest ch.: 2402MHz; highest ch.: 2480MHz)

Technology tested: Bluetooth®, LE

Antenna: Integrated antenna

Power supply: 3.0 V DC by battery (CR2430)

Temperature range: -15°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:

David Lang
Radio Communications & EMC

Test performed:

Tobias Wittenmeier
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.

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2.2 Application details

Date of receipt of order:	2015-04-08
Date of receipt of test item:	2015-04-06
Start of test:	2015-04-08
End of test:	2015-04-25
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
RSS - 210 Issue 8 Amendment 1	05.02.2015	RSS-210, Amendment 1 — Licence-Exempt, Low-Power Radio Apparatus Operating in the Television Bands (February 2015)

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}	-15 °C during low temperature tests
Relative humidity content:		52 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	3.0 V DC by battery (CR2430)
	V_{max}	3.3 V
	V_{min}	2.7 V

5 Test item

Kind of test item	:	Horological Smart Watch
Type identification	:	Alpina Woman AL285X3AQ6x
S/N serial number	:	Rad. Not available! Cond. Not available!
HW hardware status	:	4
SW software status	:	6.0.9
Frequency band	:	DTS band 2400 MHz to 2483.5 MHz; (lowest ch.: 2402MHz; highest ch.: 2480MHz)
Type of radio transmission	:	DSSS
Use of frequency spectrum	:	
Type of modulation	:	GFSK
Number of channels	:	40
Antenna	:	Integrated antenna
Power supply	:	3.0 V DC by battery (CR2430)
Temperature range	:	-15°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: 1-9368/15-01-19_AnnexA
1-9368/15-01-19_AnnexB
1-9368/15-01-19_AnnexD

6 Test laboratories sub-contracted

None

7 Summary of measurement results

<input type="checkbox"/>	No deviations from the technical specifications were ascertained
<input type="checkbox"/>	There were deviations from the technical specifications ascertained
<input checked="" type="checkbox"/>	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 8, Annex 8	See table!	2015-04-27	Reduced test plan according customers specification (radiated only).

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	GFSK	<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	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input 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	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
RSS Gen clause 4.6.1	Occupied bandwidth	-/-	Nominal	Nominal	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
§15.247(b)(3) RSS-210 / A8.4(4)	Maximum output power	KDB 558074 DTS clause: 9.1.1	Nominal	Nominal	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
§15.247(d) RSS-210 / A8.5	Detailed spurious emissions @ the band edge - conducted	-/-	Nominal	Nominal	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input 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	GFSK	<input checked="" 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	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	-/-
§15.247(d) RSS-210 / A8.5	TX spurious emissions radiated	-/-	Nominal	Nominal	GFSK	<input checked="" 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	GFSK	<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	GFSK	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-/-

Note: NA = Not Applicable; NP = Not Performed

8 Additional comments

The Bluetooth® word mark and logos are owned by the Bluetooth SIG Inc. and any use of such marks by Cetecom ICT Services GmbH is under license.

Reference documents: Test report containing conducted results of the integrated module:
1-9368/15-01-10 issued by Cetecom ICT Services GmbH, 2015-04-21.

Special test descriptions: None

Configuration descriptions: TX tests: were performed with LE packets (37 byte payload) and
static PRBS pattern.
RX/Standby tests: BT enabled, TX Idle

Test mode:

- Bluetooth LE Test mode enabled
(EUT is controlled over CBT)
- Special software is used.
EUT is transmitting pseudo random data by itself

9 Measurement results

9.1 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 Bluetooth® devices, the GFSK modulation is used.

Measurement parameters:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	3 MHz
Video bandwidth:	3 MHz
Span:	5 MHz
Trace-Mode:	Max hold

Limits:

FCC	IC
Antenna Gain	
6 dBi	

Results:

T _{nom}	V _{nom}	lowest channel 2402 MHz	middle channel 2440 MHz	highest channel 2480 MHz
Conducted peak power [dBm] Measured with GFSK modulation		-8.3	-5.6	-5.1
Radiated peak power [dBm] Measured with GFSK modulation		-5.7	-4.6	-6.4
Gain [dBi] Calculated		+2.6	+1.0	-1.3

Verdict: **complies**

9.2 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 single channel mode and the transmit channel is channel 00 for the lower restricted band and channel 39 for the upper restricted band. Measurement distance is 3m.

Measurement:

Measurement parameter	
Detector:	Peak / RMS
Sweep time:	Auto / 30 s
Resolution bandwidth:	1 MHz
Video bandwidth:	1 MHz
Span:	Lower Band: 2300 – 2400 MHz higher Band: 2480 – 2500 MHz
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>	
74 dB μ V/m Peak 54 dB μ V/m AVG	

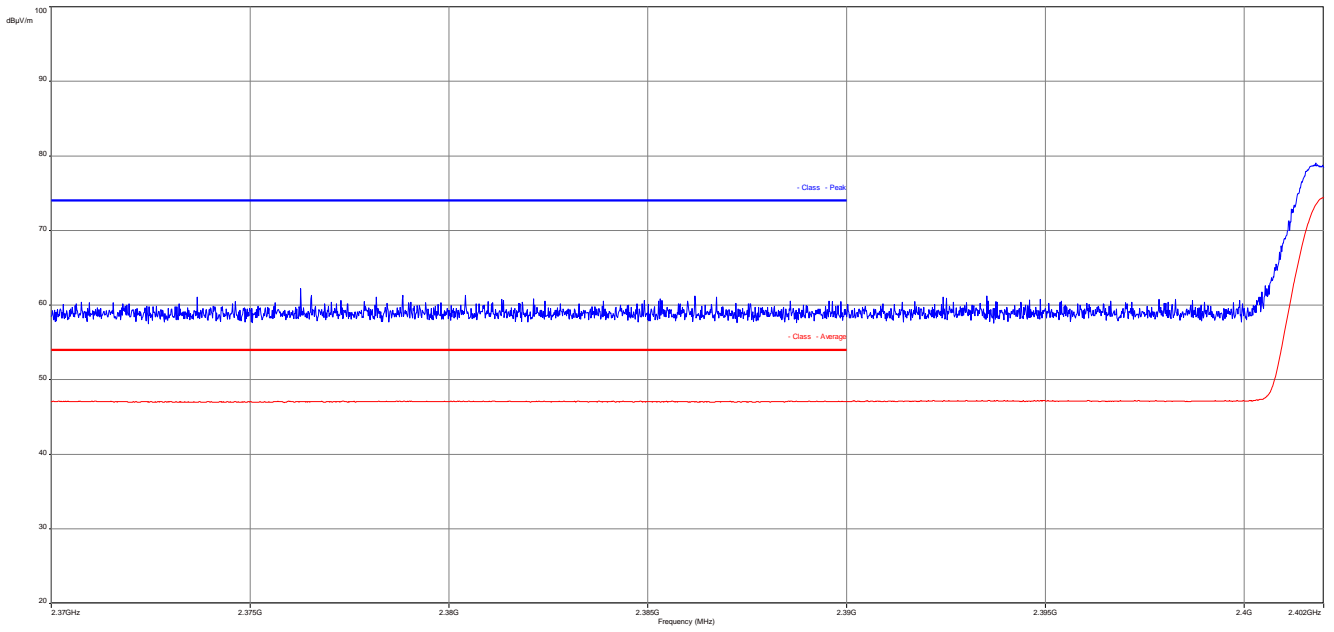
Result:

Scenario	Band edge compliance radiated [dB μ V/m]
Modulation	GFSK
Lower restricted band	< 74 (peak) < 54 (AVG)
Upper restricted band	< 74 (peak) < 54 (AVG)
Measurement uncertainty	\pm 3 dB

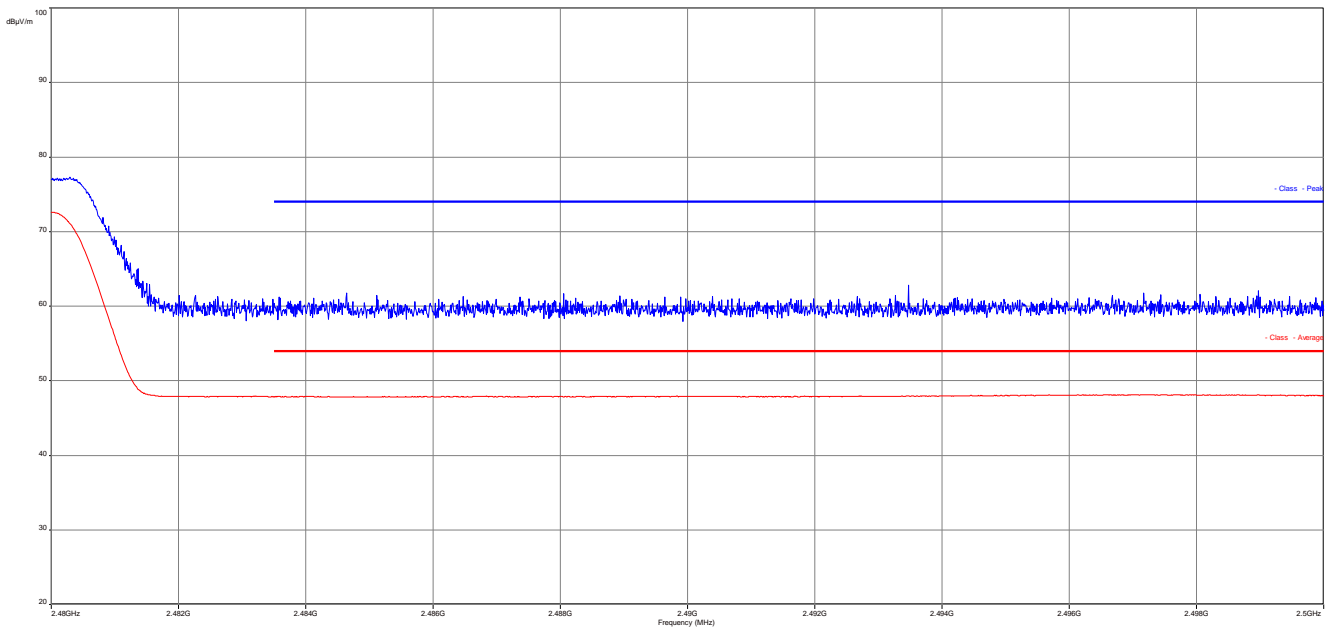
Verdict: complies

Plots:

Plot 1: Lower restricted band



Plot 2: Upper restricted band



9.3 TX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in transmit mode. The EUT is set to single channel mode and the transmit channel is channel 00, channel 19 and channel 39.

Measurement:

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

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)).		
§15.209		
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:

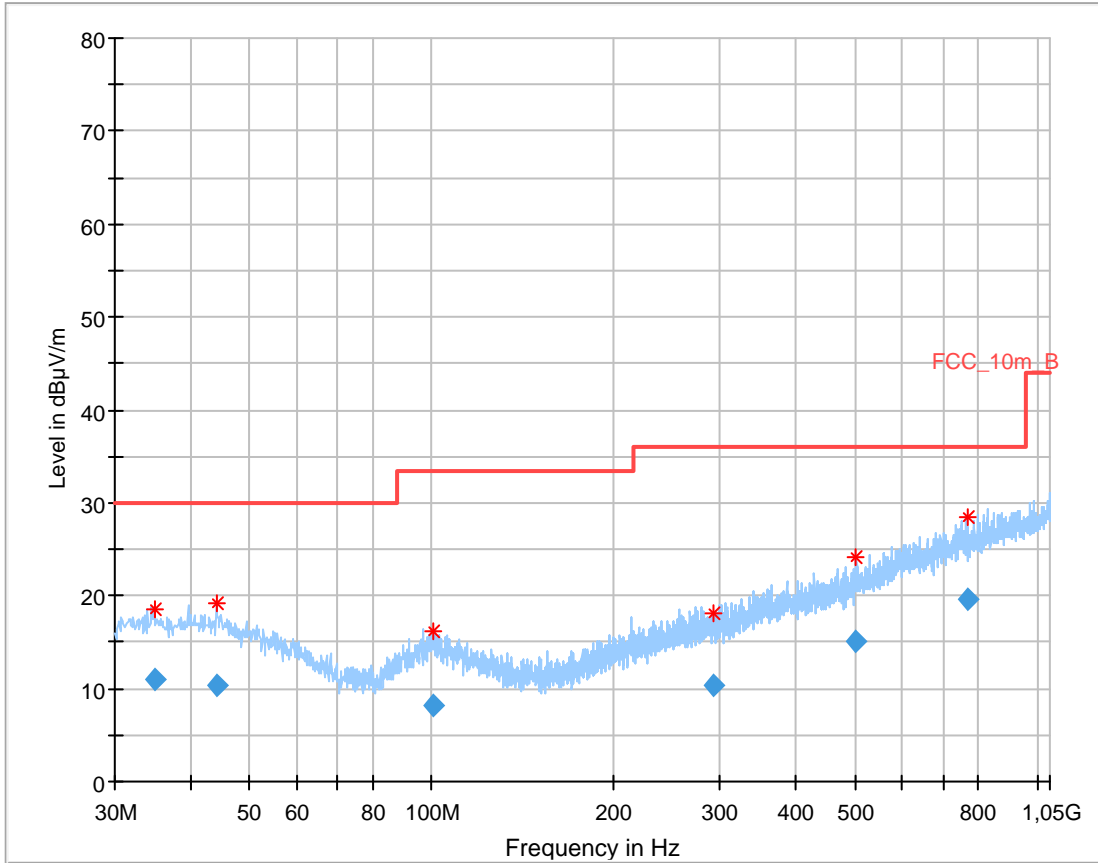
TX spurious emissions radiated [dB μ V/m]								
2402 MHz			2440 MHz			2480 MHz		
F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]	F [MHz]	Detector	Level [dB μ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please 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 peaks found!			No peaks found!			No peaks found!		
Measurement uncertainty			± 3 dB					

Verdict: **complies**

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)

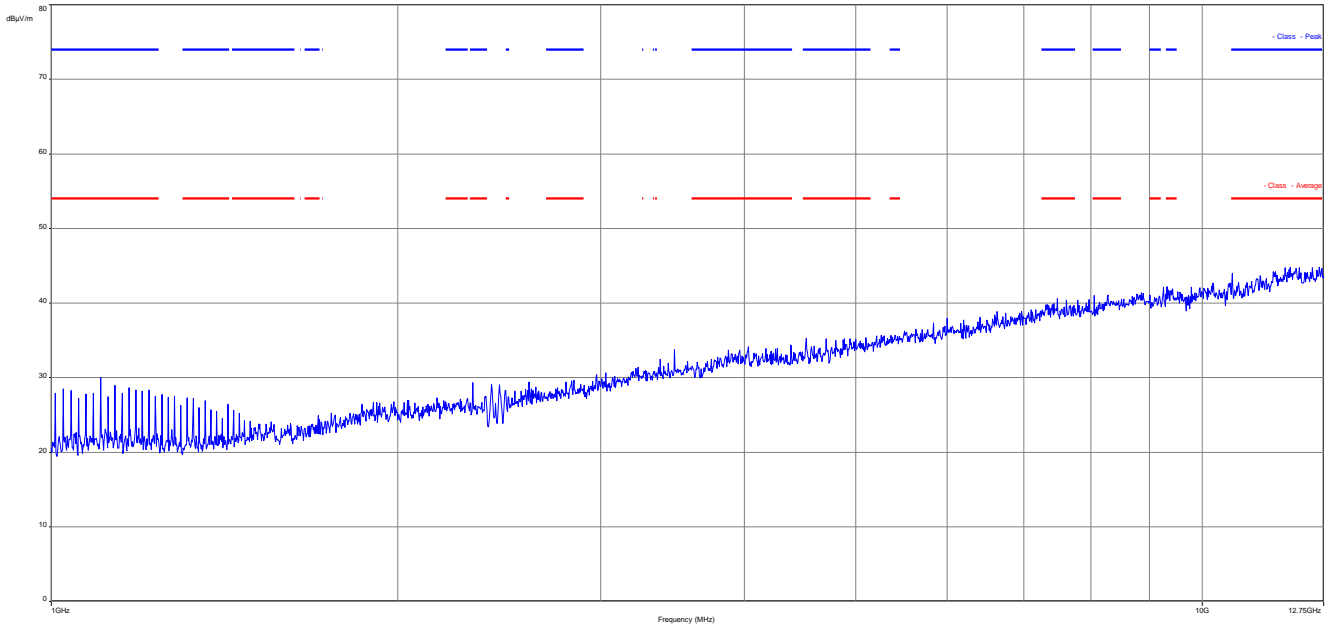
Plots:

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



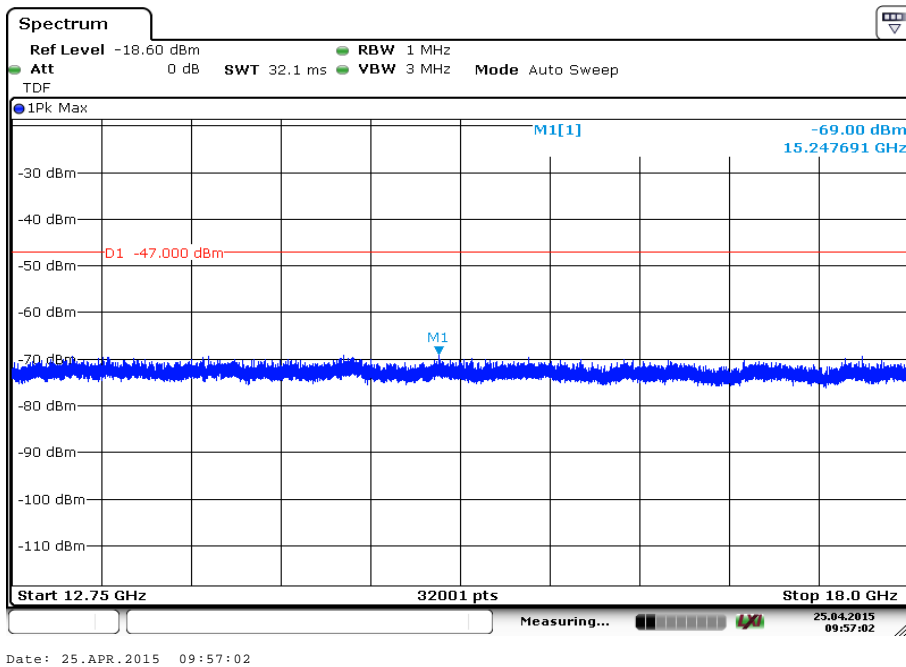
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
35.026500	10.92	30.00	19.08	1000.0	120.000	170.0	V	-10	13.8
44.137950	10.34	30.00	19.66	1000.0	120.000	101.0	V	280	13.9
100.821600	8.15	33.50	25.35	1000.0	120.000	170.0	H	190	12.1
291.943200	10.38	36.00	25.62	1000.0	120.000	170.0	H	-9	14.3
503.570400	15.07	36.00	20.93	1000.0	120.000	170.0	V	280	18.8
765.560850	19.52	36.00	16.48	1000.0	120.000	98.0	H	280	22.7

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

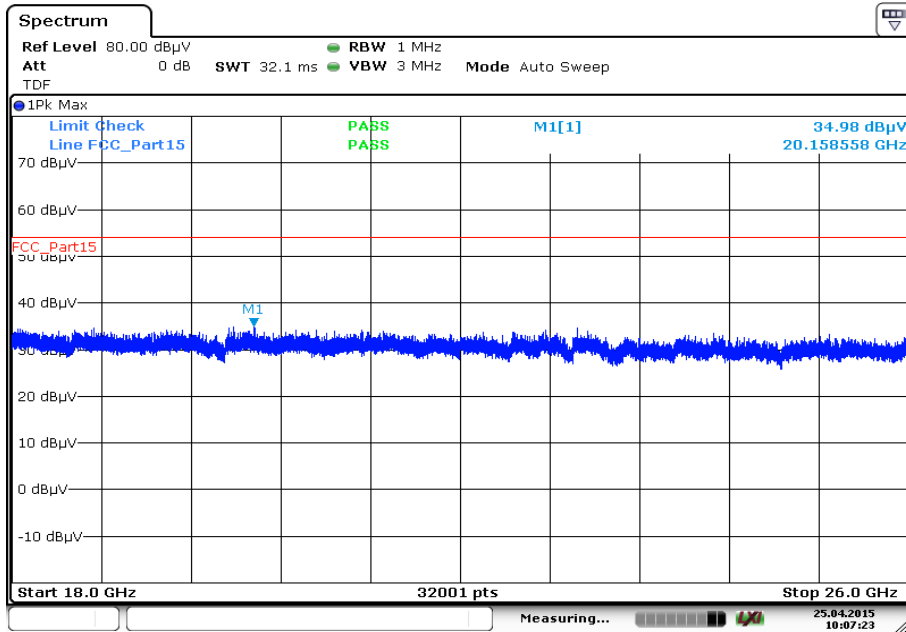


Carrier suppressed with a 2.4 GHz-band rejection filter.

Plot 3: 12 GHz to 18 GHz, lowest channel, vertical & horizontal polarization – valid for all channels

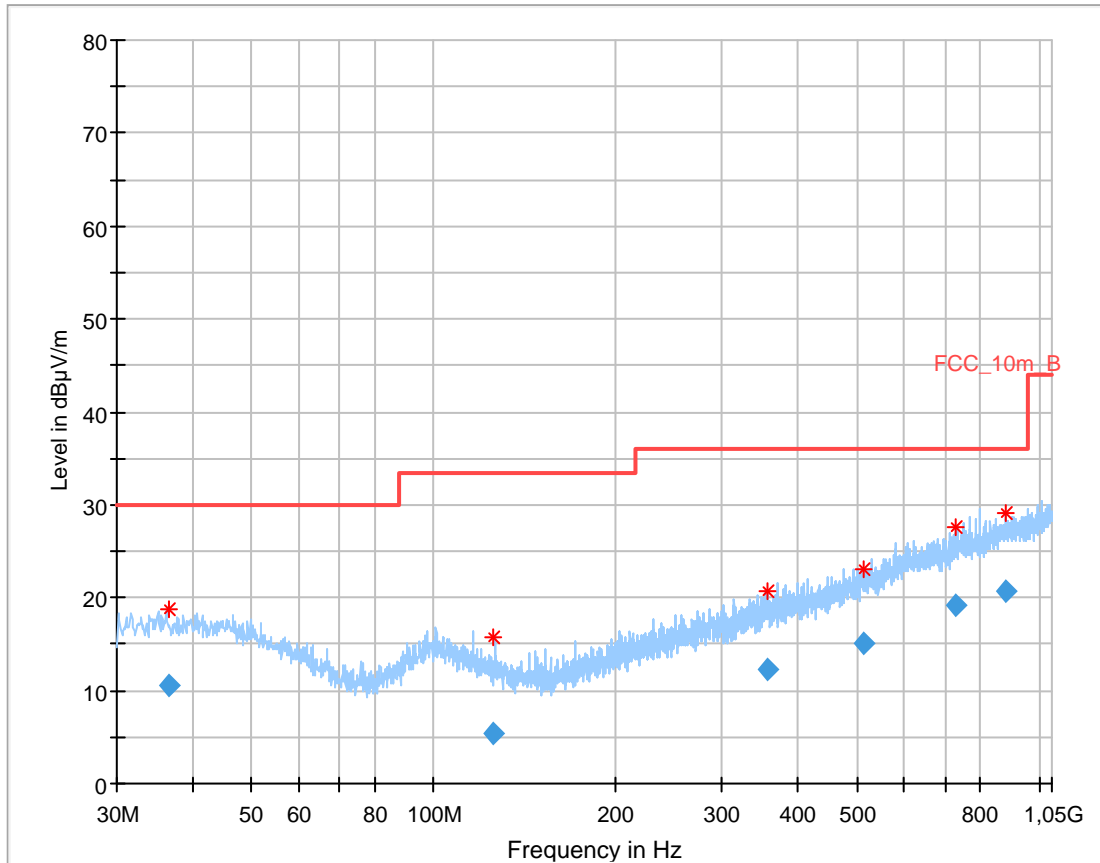


Plot 4: 18 GHz to 26 GHz, lowest channel, vertical & horizontal polarization



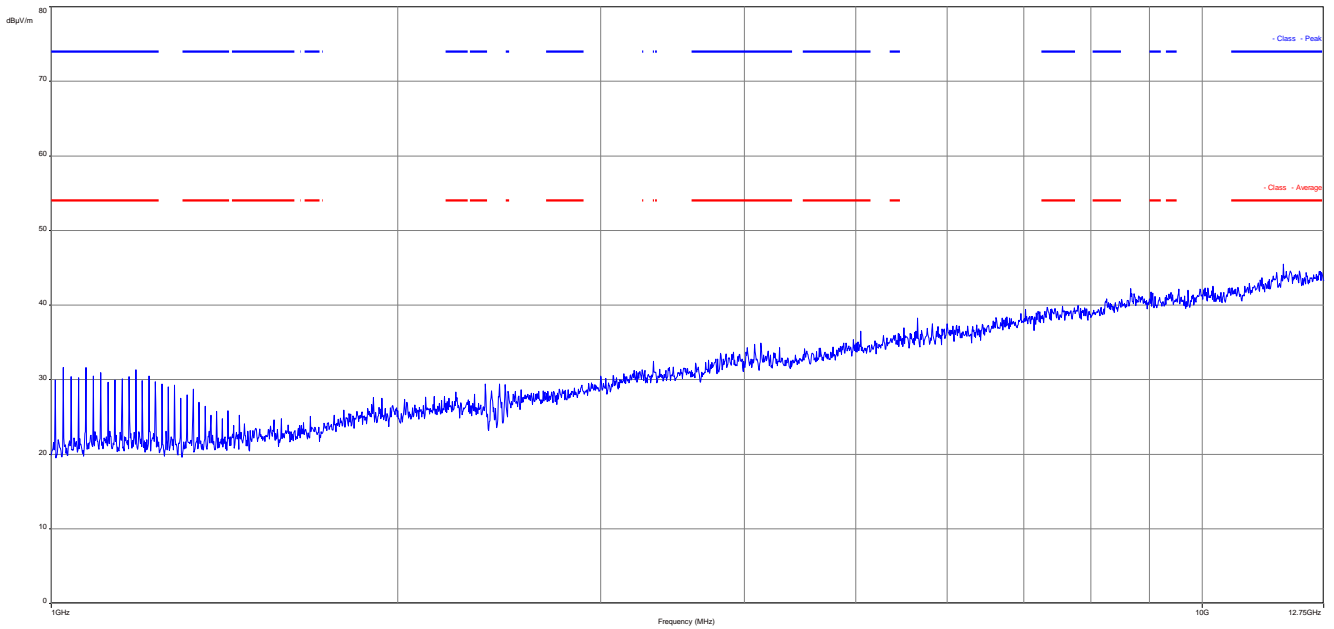
Date: 25.APR.2015 10:07:23

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



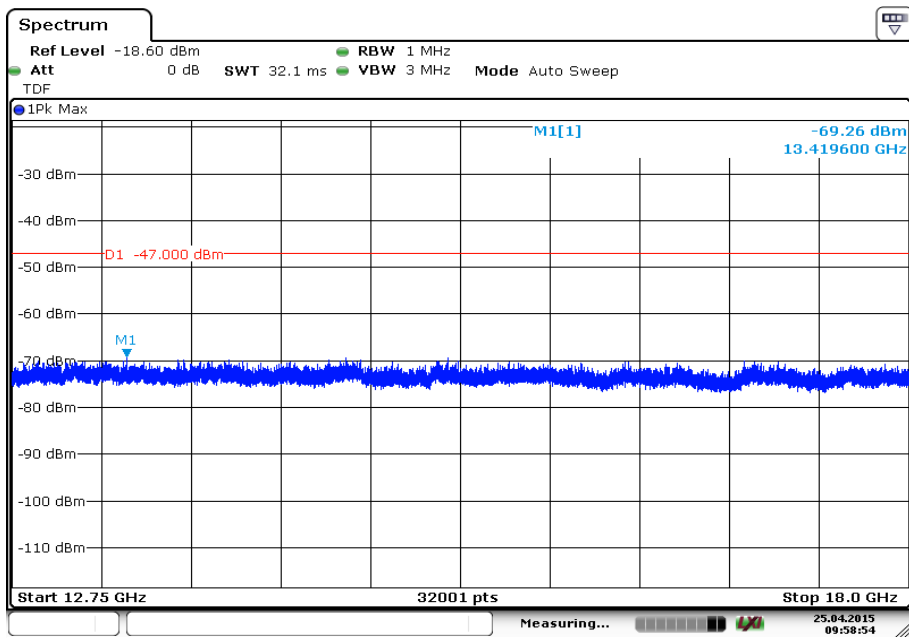
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
36.478350	10.60	30.00	19.40	1000.0	120.000	100.0	V	10	13.9
125.697750	5.48	33.50	28.02	1000.0	120.000	101.0	V	-9	9.7
356.146950	12.19	36.00	23.81	1000.0	120.000	98.0	H	280	16.1
511.492350	15.07	36.00	20.93	1000.0	120.000	101.0	V	80	18.8
730.590900	19.12	36.00	16.88	1000.0	120.000	170.0	H	-10	22.2
880.425300	20.76	36.00	15.24	1000.0	120.000	170.0	V	81	23.9

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



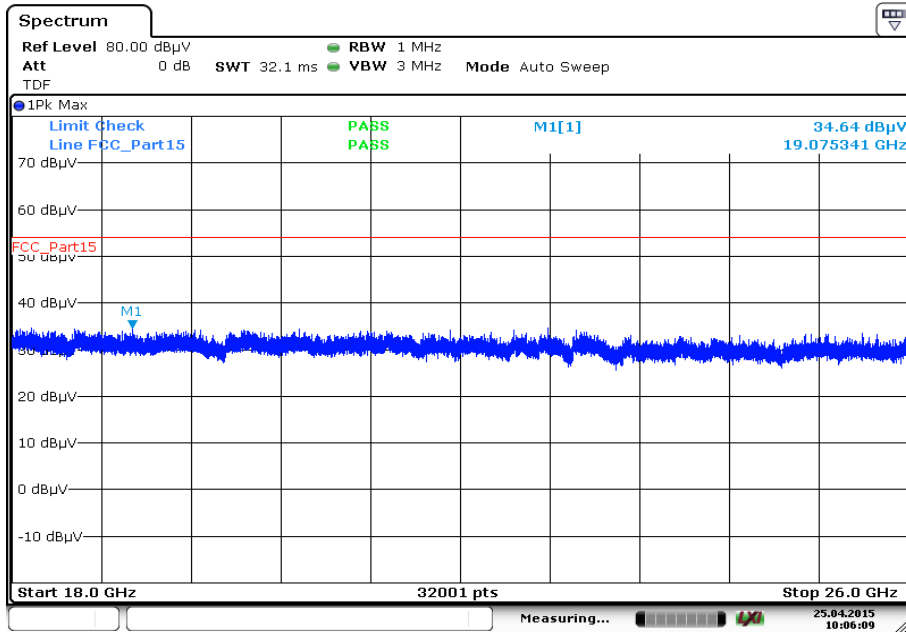
Carrier suppressed with a 2.4 GHz-band rejection filter.

Plot 7: 12 GHz to 18 GHz, mid channel, vertical & horizontal polarization



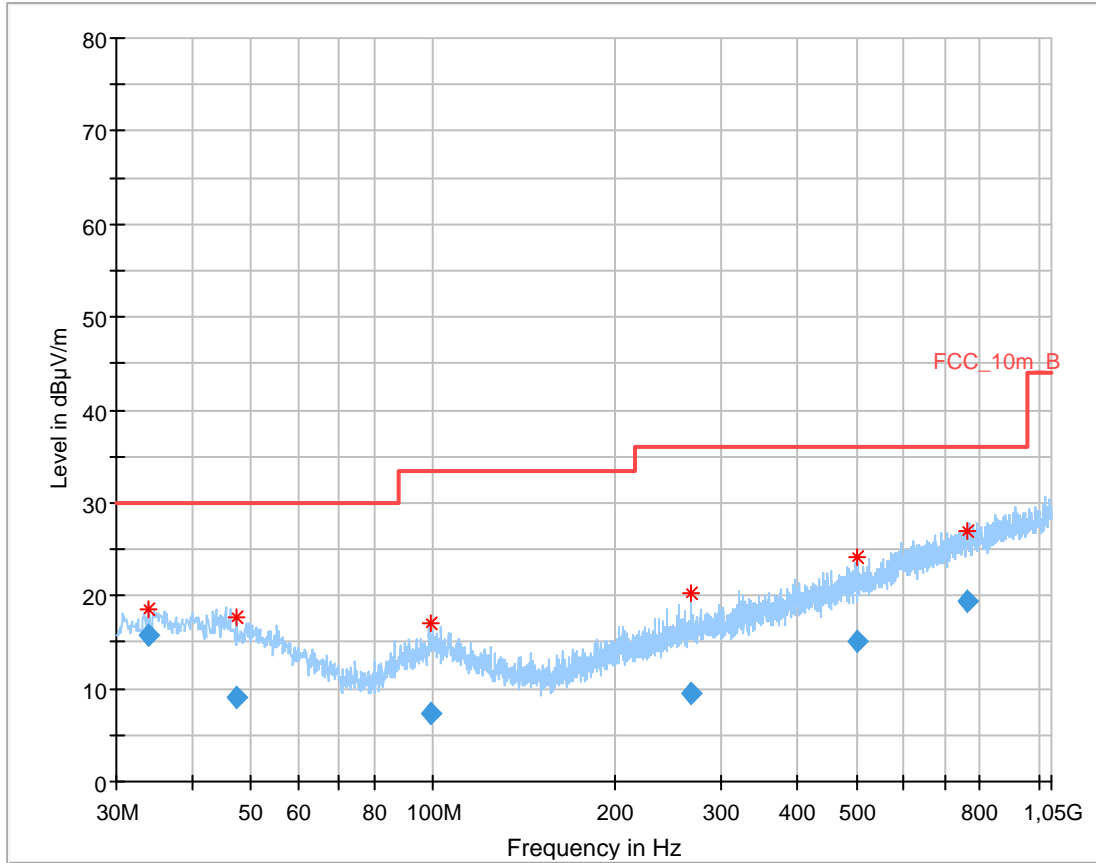
Date: 25.APR.2015 09:58:54

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



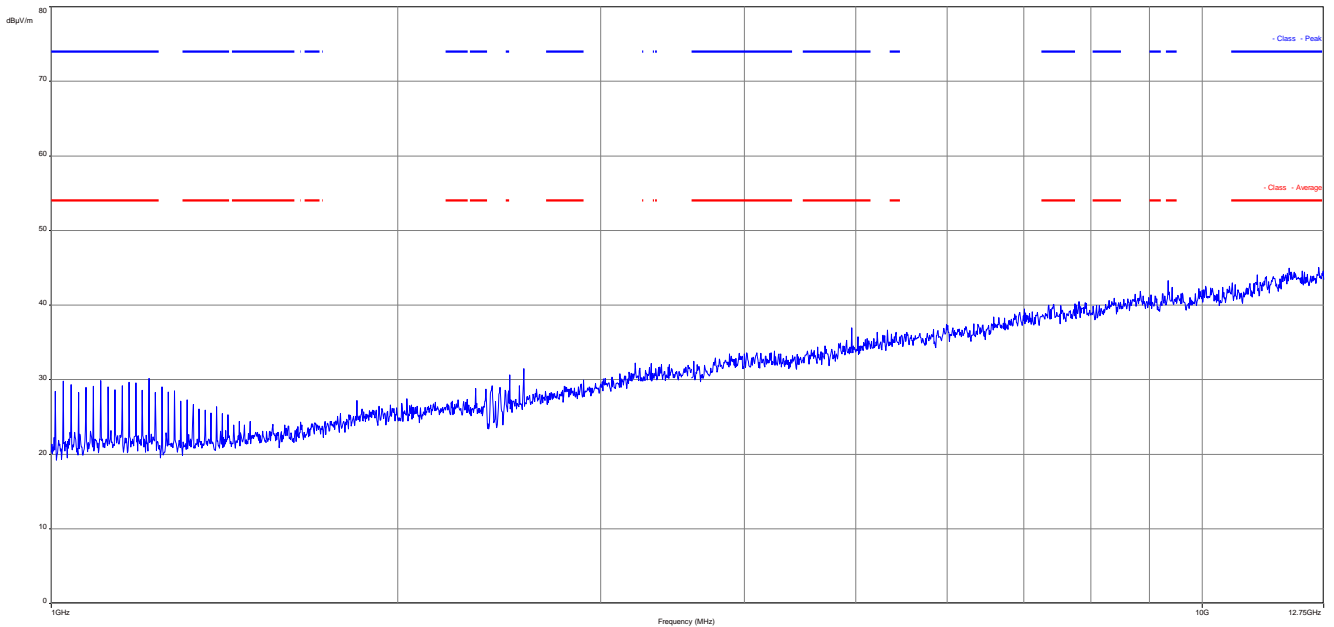
Date: 25.APR.2015 10:06:09

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



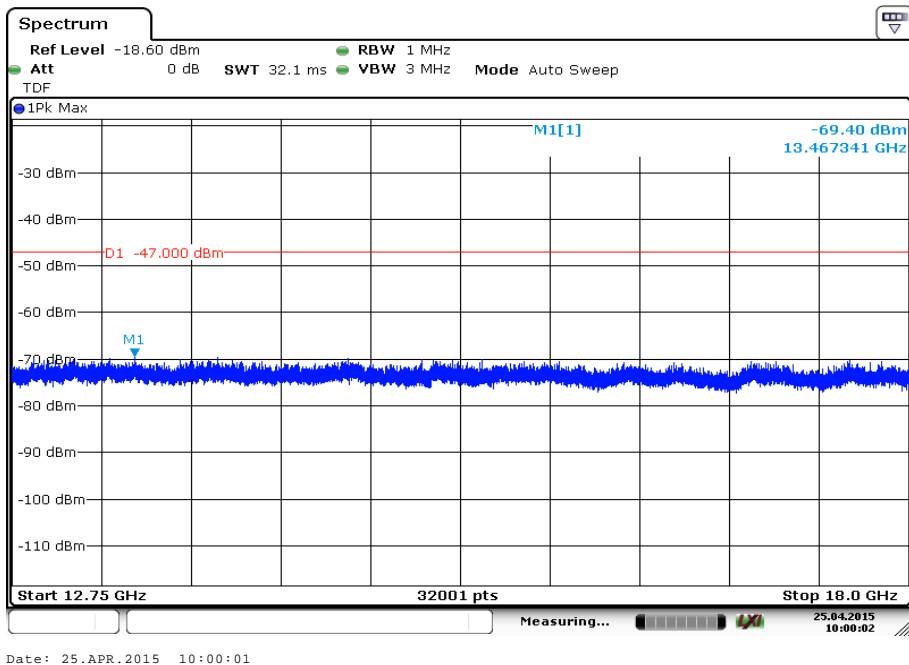
Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
33.993450	15.72	30.00	14.28	1000.0	120.000	100.0	V	190	13.7
47.457450	9.00	30.00	21.00	1000.0	120.000	101.0	V	260	13.2
98.767800	7.28	33.50	26.22	1000.0	120.000	101.0	V	-9	12.0
266.622000	9.50	36.00	26.50	1000.0	120.000	170.0	V	100	13.7
503.070000	15.07	36.00	20.93	1000.0	120.000	98.0	H	80	18.7
762.039150	19.41	36.00	16.59	1000.0	120.000	170.0	V	190	22.7

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

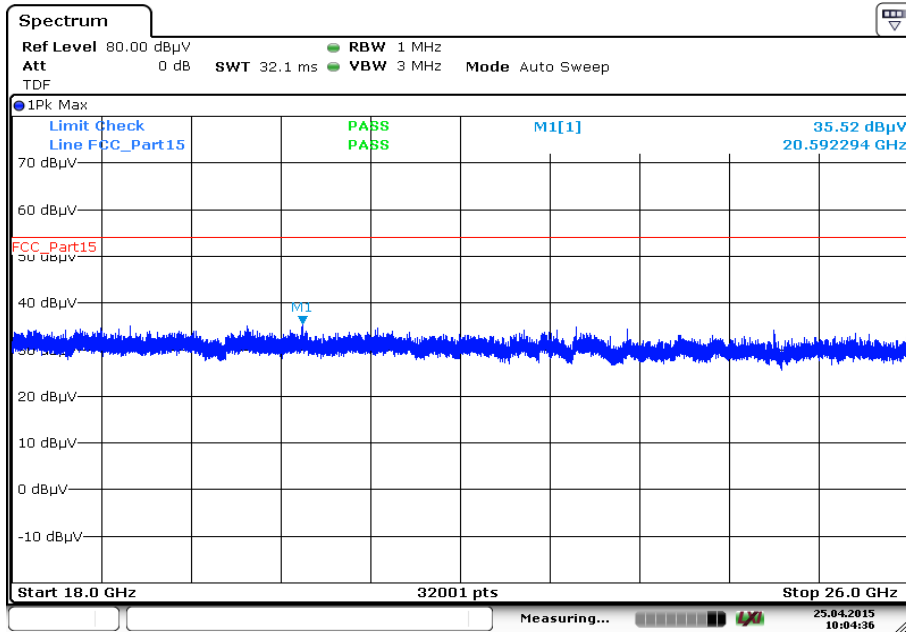


Carrier suppressed with a 2.4 GHz-band rejection filter.

Plot 11: 12 GHz to 18 GHz, highest channel, vertical & horizontal polarization



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



Date: 25.APR.2015 10:04:36

9.4 RX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in idle/receive mode. The EUT is detached so all oscillators are active.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi peak
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	3 x RBW
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:

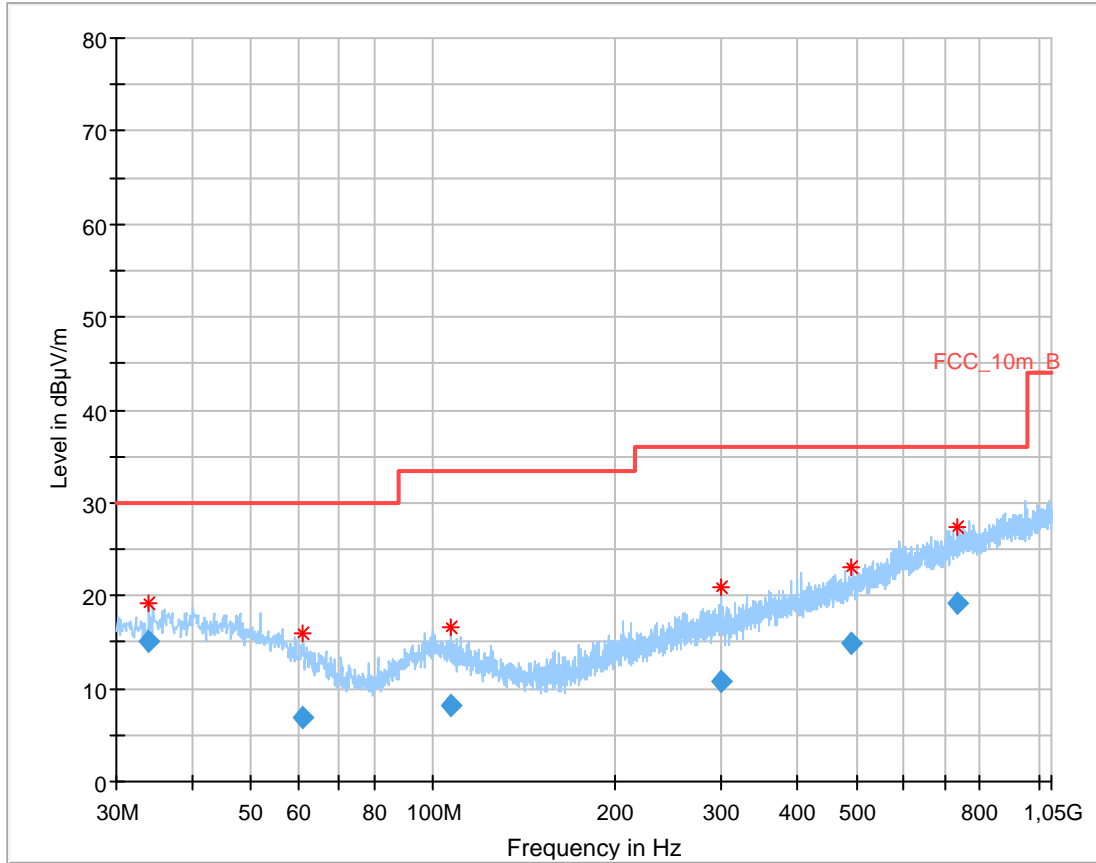
RX spurious emissions radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
No peaks found!		
Measurement uncertainty		±3 dB

Verdict: **complies**

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)

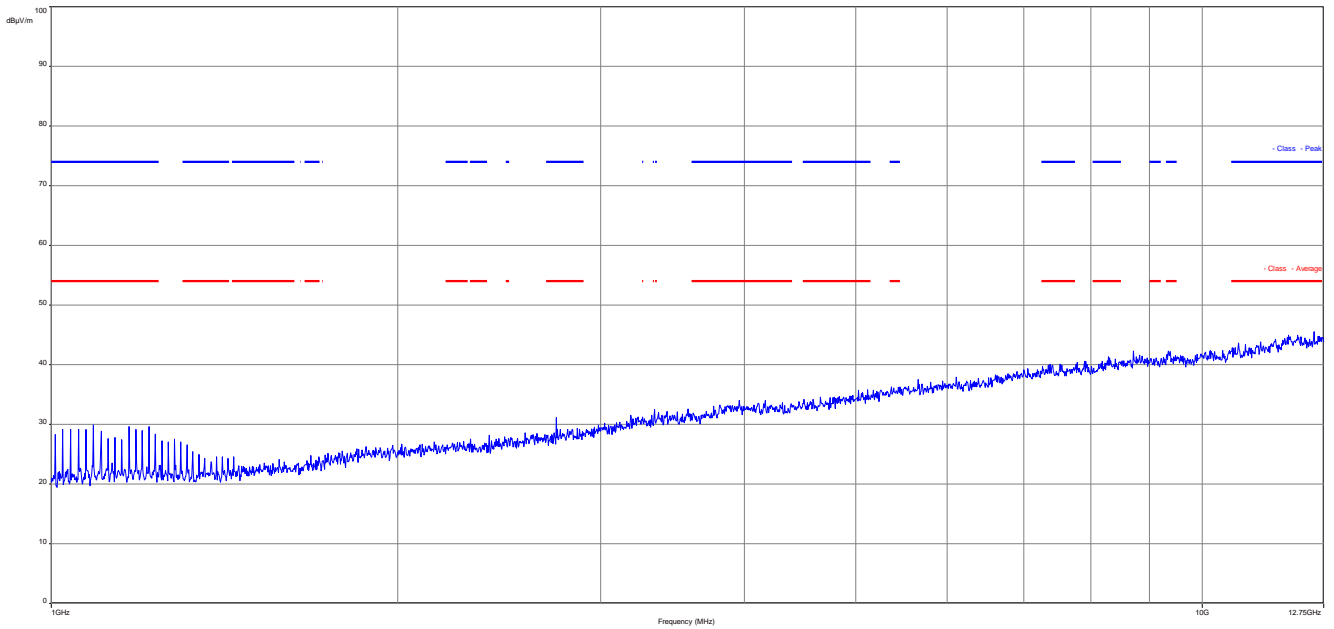
Plots:

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

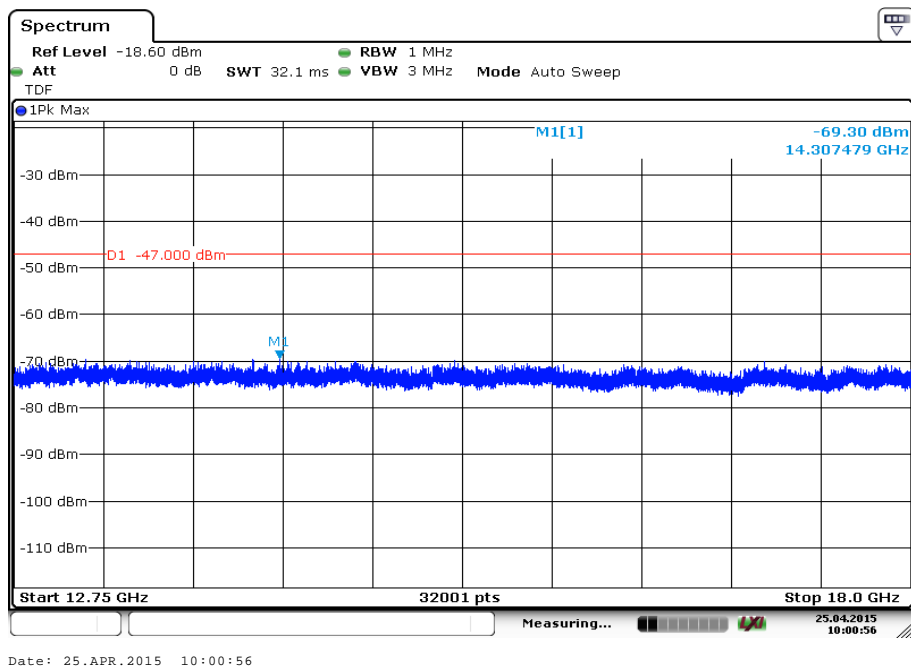


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
34.014000	15.12	30.00	14.88	1000.0	120.000	101.0	V	81	13.7
61.083150	6.93	30.00	23.07	1000.0	120.000	101.0	H	10	10.3
106.989150	8.15	33.50	25.35	1000.0	120.000	101.0	V	170	11.4
300.099000	10.68	36.00	25.32	1000.0	120.000	98.0	H	190	14.4
491.857950	14.85	36.00	21.15	1000.0	120.000	170.0	V	190	18.5
734.207100	19.09	36.00	16.91	1000.0	120.000	170.0	V	81	22.3

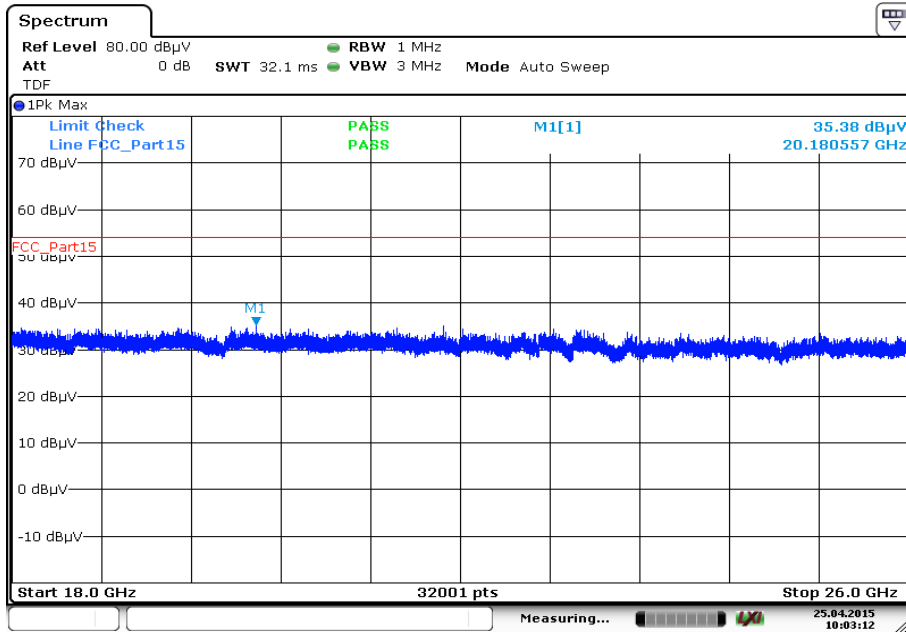
Plot 2: 1 GHz to 12.75 GHz, RX / idle – mode, vertical & horizontal polarization



Plot 3: 12 GHz to 18 GHz, RX / idle – mode, vertical & horizontal polarization



Plot 4: 18 GHz to 26 GHz, RX / idle – mode, vertical & horizontal polarization



Date: 25.APR.2015 10:03:12

9.5 Spurious emissions radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to single channel mode and the transmit channel is channel 19. This measurement is representative for all channels and modes. If critical peaks are found channel 00 and channel 39 will be measured too. The measurement is performed in the mode with 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
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 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

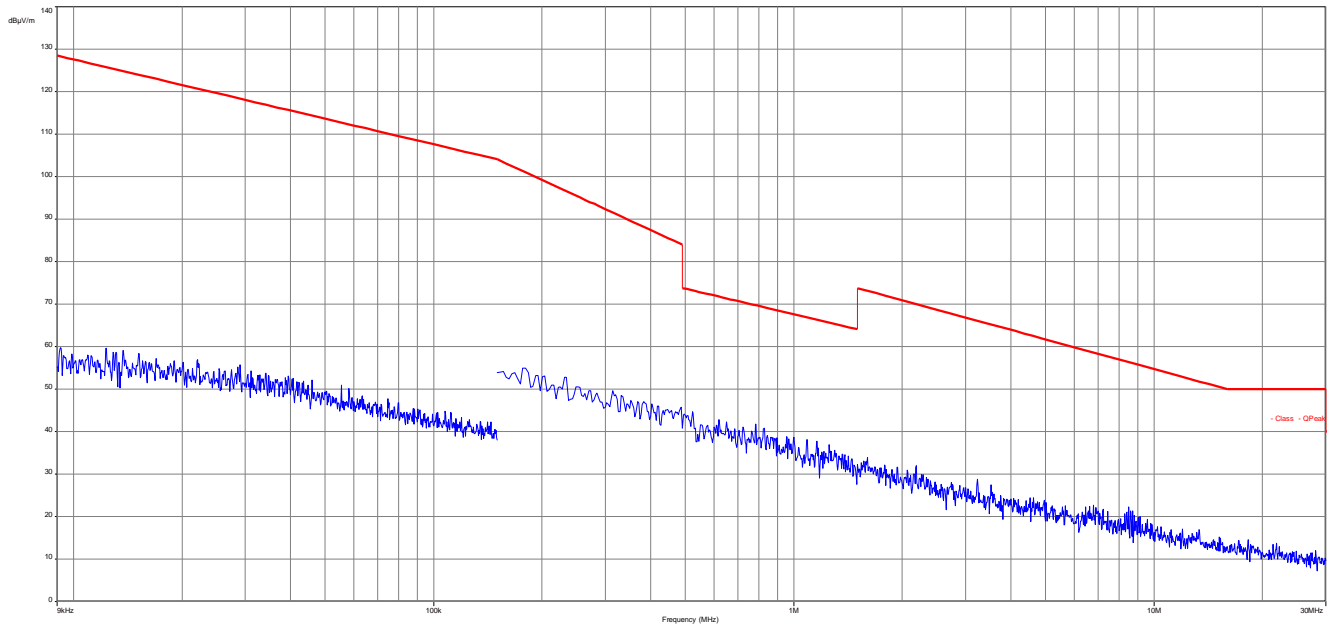
Results:

TX spurious emissions radiated < 30 MHz [dB μ V/m]		
F [MHz]	Detector	Level [dB μ V/m]
No peaks found!		
Measurement uncertainty	± 3 dB	

Verdict: complies

Plot:

Plot 1: 9 kHz to 30 MHz, TX mode



10 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	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787	k	22.07.2013	22.07.2015
2	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442	k	19.07.2013	19.07.2015
3	A029	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	22.01.2015	22.01.2016
4	n. a.	Amplifier 2-40 GHz	JS32-02004000-57-5P	MITEQ	1777200	300004541	ev		
5	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
6	n. a.	Switch / Control Unit	3488A	HP	*	300000199	ne		
7	90	Active Loop Antenna 10 kHz to 30 MHz	6502	Kontron Psychotech	8905-2342	300000256	k	13.06.2013	13.06.2015
8	90	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
9	90	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
10	90	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
11	90	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vKl!	29.10.2014	29.10.2017
12	90	MXE EMI Receiver 20 Hz to 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	06.03.2015	06.03.2016
13	90	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne		
14	45	Switch-Unit	3488A	HP	2719A14505	300000368	g		
15	45	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	26.01.2015	26.01.2016
16	45	Antenna Tower	Model 2175	ETS-Lindgren	64762	300003745	izw		
17	45	Positioning Controller	Model 2090	ETS-Lindgren	64672	300003746	izw		
18	45	Turntable Interface-Box	Model 105637	ETS-Lindgren	44583	300003747	izw		
19	45	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	22.04.2014	22.04.2016

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
vkl!	Attention: extended calibration interval	*)	next calibration ordered / currently in progress
NK!	Attention: not calibrated		

11 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	2015-04-25

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
- WiMax und Richtfunk
- Mobilefunk (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 bis 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und über folgenden Anlage mit insgesamt 77 Seiten.

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

Frankfurt am Main, 07.03.2014
 Deutsche Akkreditierungsstelle

in Auftrag gegeben von: Cetecom
 Akkreditierungsstelle

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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 Kontaktperson der Akkreditierungsstelle in unveränderter Form.

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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 Funktionen im System für Akkreditierung (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.natopen.accred.tellus.org
 IAF: www.iaf.or.jp
 ILAC: www.ilac.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.

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