

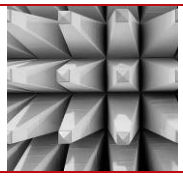

CETECOM™
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consulting - testing - certification

TEST REPORT

Test report no.: 1-3933/11-01-03

ilac-MRA DAkkS Deutsche Akkreditierungsstelle D-PL-12076-01-01

Testing laboratory

CETECOM ICT Services GmbH
Untertuerkheimer Strasse 6 – 10
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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-12076-01-01
Area of Testing: Radio/Satellite Communications

Applicant

Cognex
Vaalser Straße 259
52074 Aachen / GERMANY
Phone: +49 241 17301426
Fax: +49 241 17301444
Contact: Guido Schuetzeichel
e-mail: Guido.schuetzeichel@cognex.com
Phone: +49 241 17301426

Manufacturer

Cognex
Vaalser Straße 259
52074 Aachen / 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 Low-power Licence-exempt Radiocommunication Devices (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:	**Barcode Scanner**
Model name:	**DM8500**
FCC ID:	**TXH-DM8000**
IC:	**6315A-DM8000**
Frequency [MHz]:	ISM-band 2400 MHz – 2483.5 MHz (Lowest Channel 2412 MHz – Highest Channel 2462 MHz)
Technology tested:	WLAN
Antenna:	Integrated Antenna
Power Supply:	3.70 V DC by Li-Ion battery
Temperature Range:	-20°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:

cn=Marco Bertolino, o=CETECOM ICT Services GmbH, ou=BTL-100826, email=marco.bertolino@cetecom.com, c=DE
2011.12.13 15:57:46 +01'00'

Marco Bertolino
Testing Manager

Test performed:

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Stefan Bös
Senior Testing Manager

1 Table of contents

2 General information

2.1 Notes and disclaimer

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

2.2 Application details

Date of receipt of order:	2011-09-16
Date of receipt of test item:	2011-11-28
Start of test:	2011-11-28
End of test:	2011-12-07
Person(s) present during the test:	-/-

3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 15	2010-10	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices
RSS - 210 Issue 8	2010-12	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

4 Test environment

Temperature:	T_{nom}	+22 °C during room temperature tests
	T_{max}	+55 °C during high temperature tests
	T_{min}	-20 °C during low temperature tests
Relative humidity content:		55 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	3.70 V DC by Li-Ion battery
	V_{max}	-/-
	V_{min}	-/-

5 Test item

Kind of test item	**:**	**Barcode Scanner**
Type identification	**:**	**DM8500**
S/N serial number	**:**	**1A1132XN005045**
HW hardware status	**:**	**Unknown**
SW software status	**:**	**Unknown**
Frequency band [MHz]	**:**	**ISM-band 2400 MHz – 2483.5 MHz** **(Lowest Channel 2412 MHz – Highest Channel 2462 MHz)**
Type of radio transmission **Use of frequency spectrum**	**:** **:**	**DSSS, OFDM**
Type of modulation	**:**	**BPSK, QPSK, 16 - & 64 - QAM modulation.**
Number of channels	**:**	**11**
Antenna	**:**	**Integrated Antenna**
Power supply	**:**	**3.70 V DC by Li-Ion battery**
Temperature range	**:**	**-20°C to +55 °C**

6 Test laboratories sub-contracted

None

7 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, Annex 8	Passed	2011-12-13	Only delta measurements performed

Test specification clause	Test case	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	☐	☐	☐	☒	-/-
§15.247(e) RSS 210 / A8.2(b)	Power spectral density	Nominal	Nominal	DSSS OFDM g	☐ ☐	☐ ☐	☐ ☐	☒ ☒	-/-
§15.247(a)(2) RSS 210 / A8.2(a)	Spectrum bandwidth of a FHSS system 6dB bandwidth	Nominal	Nominal	DSSS OFDM g	☐ ☐	☐ ☐	☐ ☐	☒ ☒	-/-
§15.247(a)(2) RSS 210 / A8.2(a)	Spectrum bandwidth of a FHSS system 20dB bandwidth	Nominal	Nominal	DSSS OFDM g	☐ ☐	☐ ☐	☐ ☐	☒ ☒	-/-
§15.247(b)(3) RSS-210 / A8.4(4)	Maximum output power	Nominal	Nominal	DSSS OFDM g	☒ ☒	☐ ☐	☐ ☐	☐ ☐	Only radiated measurements
§15.247(d) RSS-210 / A8.5	Band edge compliance conducted	Nominal	Nominal	DSSS OFDM g	☐ ☐	☐ ☐	☐ ☐	☒ ☒	-/-
§15.205 RSS-210 / A8.5	Band edge compliance radiated	Nominal	Nominal	DSSS OFDM g	☒ ☒	☐ ☐	☐ ☐	☐ ☐	complies
§15.247(d) RSS-210 / A8.5	TX spurious emissions conducted	Nominal	Nominal	DSSS OFDM g	☐ ☐	☐ ☐	☐ ☐	☒ ☒	-/-
§15.247(d) RSS-210 / A8.5	TX spurious emissions radiated	Nominal	Nominal	DSSS OFDM g	☒ ☒	☐ ☐	☐ ☐	☐ ☐	complies
§15.109 RSS-Gen.	RX spurious emissions radiated	Nominal	Nominal	-/-	☒	☐	☐	☐	complies
§15.209(a) RSS-Gen	TX spurious emissions radiated < 30 MHz	Nominal	Nominal	DSSS OFDM g	☒ ☒	☐ ☐	☐ ☐	☐ ☐	complies
§15.207(a)	Conducted emissions < 30 MHz	Nominal	Nominal	DSSS OFDM g	☐ ☐	☐ ☐	☐ ☐	☒ ☒	-/-

Note: NA = Not Applicable; NP = Not Performed

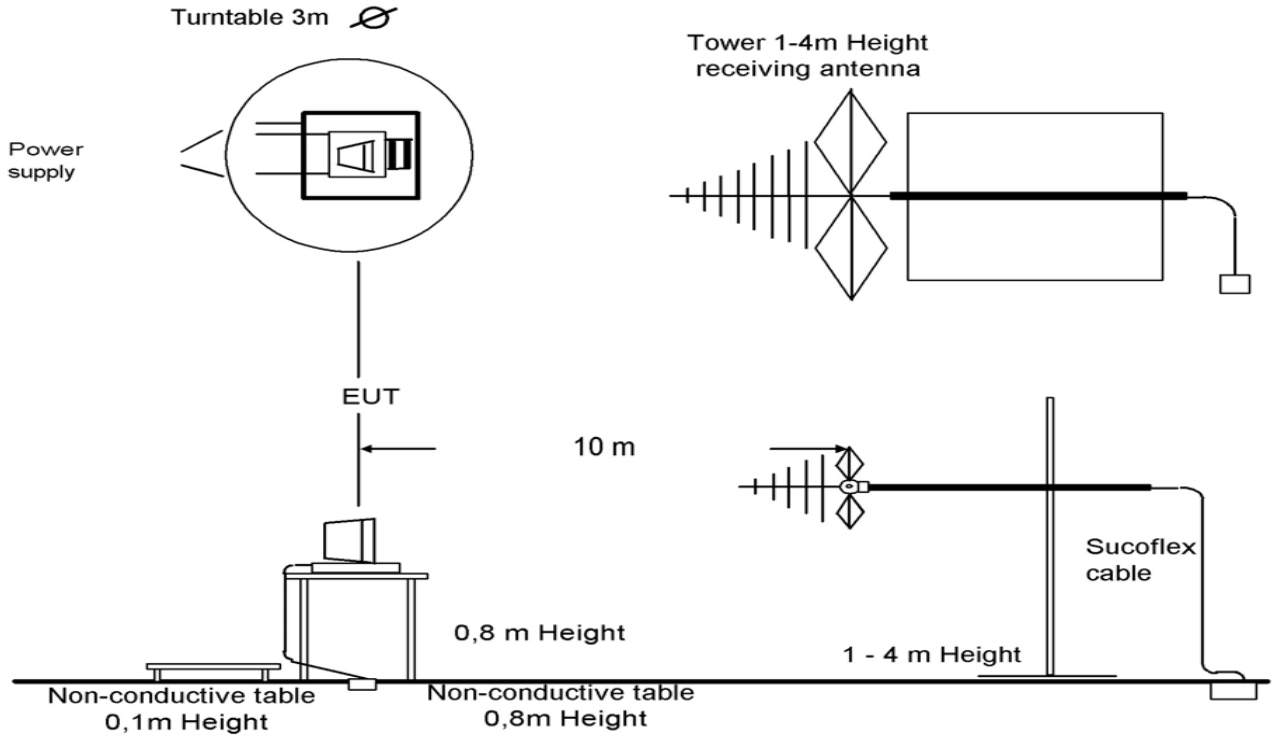
8 RF measurements

8.1 Description of test setup

8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 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 C63.2-1996 clause 15 and ANSI C63.4-2009 clause 4.1.5. 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 analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2009 clause 4.2.
Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber

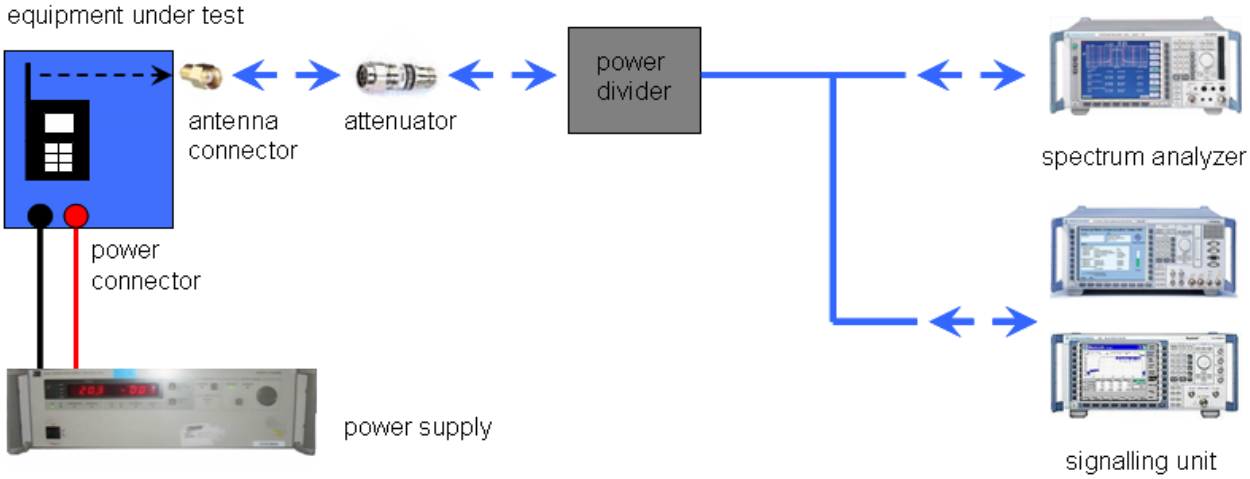


Picture 1: Diagram radiated measurements

9 kHz - 30 MHz:	active loop antenna
30 MHz – 1 GHz:	tri-log antenna
> 1 GHz:	horn antenna

8.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is first 10dB attenuated before it is power divided (~6dB loss per branch). One of the signal paths is connected to the communication base Station (CMU200 or other), the other one is connected to the spectrum analyzer. The specific losses for both signal paths are first checked within a calibration. The measurement readings on the signaling unit/spectrum analyzer are corrected by the specific test set-up loss. The attenuator, power divider, signaling unit and the spectrum analyzer are impedance matched on 50 Ohm.



Picture 2: Diagram conducted measurements

8.2 Additional comments

Reference documents: None

Special test descriptions: The power setting was 12 for all modes and channels except for channel 11 in b-mode. Here a power setting of 10 was used. These settings will be implemented in the firmware of the unit. The measured data rates were 2 MBit/s in b-mode and 54 MBit/s in g-mode (according manufacturer information)

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

8.3 RSP100 test report cover sheet / performance test data

Test report number	:	**1-3933/11-01-03**
Equipment model number	:	**DM8500**
Certification number	:	**6315A-DM8000**
Manufacturer (complete address)	:	**Cognex Vaalser Straße 259 52074 Aachen / GERMANY**
Tested to radio standards specification no.	:	**RSS 210, Issue 8, Annex 8**
Open area test site IC No.	:	**IC 3462C-1**
Frequency range	:	**ISM band 2400 MHz to 2483.5 MHz (lowest channel 2412 MHz, highest channel 2462 MHz)**
RF-power [W] (max.)	:	**cond.: 30.0 mW (DSSS) *) 17.4 mW (OFDM) *) EIRP: 79.4 mW (DSSS) 49.0 mW (OFDM)**
Occupied bandwidth (99%-BW)	:	**DSSS: 13.63 MHz *) OFDM: 16.49 MHz *)**
Type of modulation	:	**DSSS & OFDM technology with BPSK, QPSK, 16- and 64 QAM modulation.**
Emission designator (TRC-43)	:	**13M6G1D (DSSS) 16M5G7D (OFDM)**
Antenna information	:	**Integrated Antenna**
Transmitter spurious (worst case) [dBµV/m @ 3m]:		**53.8 @ 4924 MHz**
Receiver spurious (worst case) [dBµV/m @ 3m]:		**48.6 @ 19295 MHz**

*) Values overtaken from test report R0708036 issued by Bay Area Compliance Lab Corp from 2007-09-26.

ATTESTATION:
DECLARATION OF COMPLIANCE:

I attest that the testing was performed or supervised by me; that the test measurements were made in accordance with the above-mentioned Industry Canada standard(s); and that the equipment identified in this application has been subjected to all the applicable test conditions specified in the Industry Canada standards and all of the requirements of the standard have been met.

Laboratory manager:

2011-12-13	Stefan Bös	
Date	Name	Signature

9 Measurement results

9.1 Maximum output power (conducted)

Not performed

9.2 Antenna gain

Not performed

9.3 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. The determination of these data rates was performed at the beginning of the tests.

The power setting was 12 for all modes and channels except for channel 11 in b-mode. Here a power setting of 10 was used. These settings will be implemented in the firmware of the unit. These settings will be implemented in the firmware of the unit. The measured data rates were 2 MBit/s in b-mode and 54 MBit/s in g-mode (according manufacturer information)

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	30 MHz
Resolution bandwidth:	50 MHz
Span:	30 MHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.247 (b)(3)	RSS 210, Issue 8, A 8.4(4)
Maximum Output Power	
Conducted: 1.0 W – Antenna Gain max. 6 dBi	

Results: DSSS / b – mode

DSSS / b – mode	Maximum Output Power [dBm]		
Frequency	2412 MHz	2437 MHz	2462 MHz
Peak Output Power Conducted	Not performed	Not performed	Not performed
Output Power Radiated – EIRP	18.0	18.2	19.0
Measurement uncertainty	± 1.5 dB (cond.) / ± 3 dB (rad.)		

Result: **The measurement is passed.**

Results: OFDM / g – mode

OFDM / g – mode	Maximum Output Power [dBm]		
Frequency	2412 MHz	2437 MHz	2462 MHz
Peak Output Power Conducted	Not performed	Not performed	Not performed
Output Power Radiated – EIRP	16.5	15.8	16.9
Measurement uncertainty	± 1.5 dB (cond.) / ± 3 dB (rad.)		

Result: **The measurement is passed.**

9.4 Power spectral density

Not performed

9.5 Spectrum bandwidth of a FHSS system – 6 dB bandwidth

Not performed

9.6 Spectrum bandwidth of a FHSS system – 20 dB bandwidth

Not performed

9.7 Band edge compliance conducted

Not performed

9.8 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	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	10 Hz
Resolution bandwidth:	1 MHz
Span:	Lower Band: 2300 – 2400 MHz Higher Band: 2480 – 2500 MHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.205	RSS 210, Issue 8, A 8.5
Band Edge Compliance 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 Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).	
54 dBµV/m AVG	

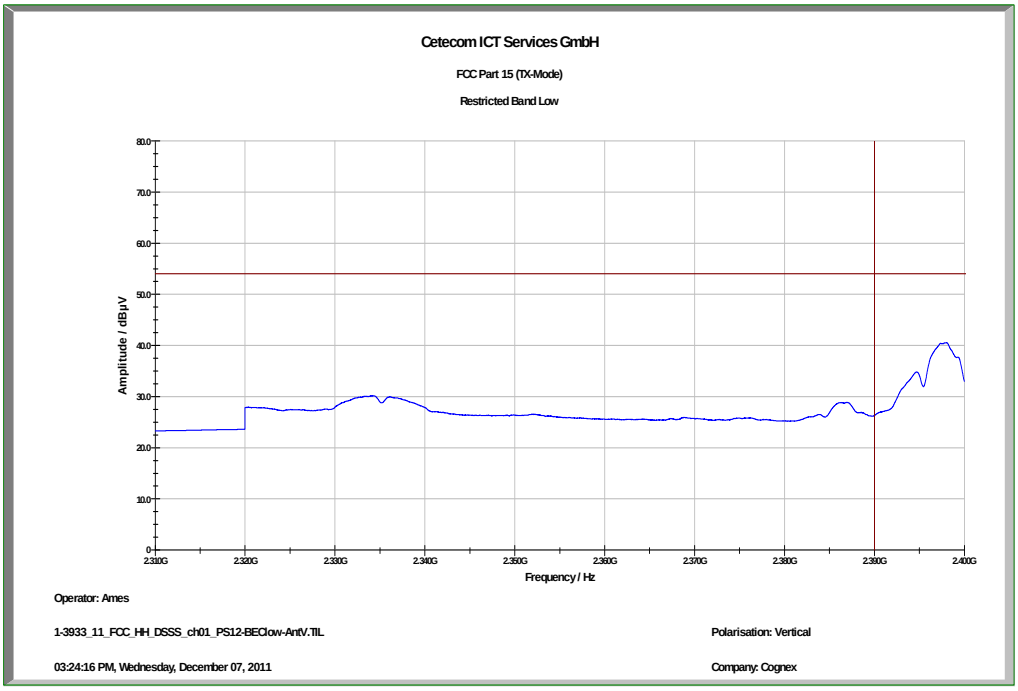
Results:

Szenario	Band Edge Compliance Conducted [dB]		
Modulation	DSSS / b – mode	OFDM / g – mode	OFDM / n – mode
Lower Band Edge – Channel 1	> 20 dB	> 20 dB	-/-
Upper Band Edge – Channel 11	> 20 dB	> 20 dB	-/-
Measurement uncertainty	± 3 dB		

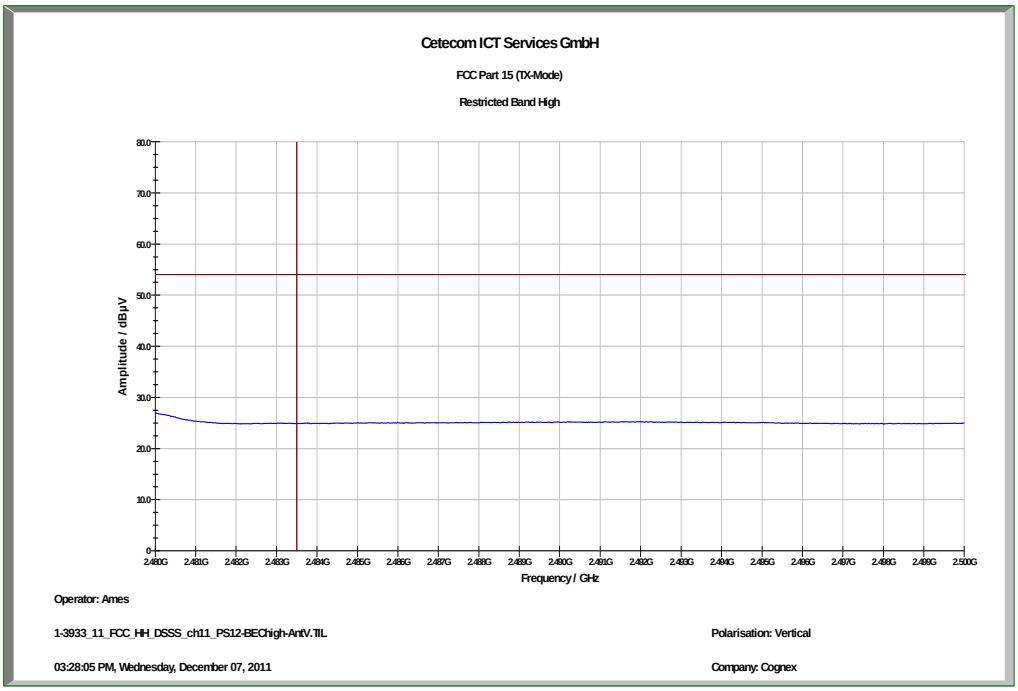
Result: **The measurement is passed.**

Plots: DSSS / b – mode

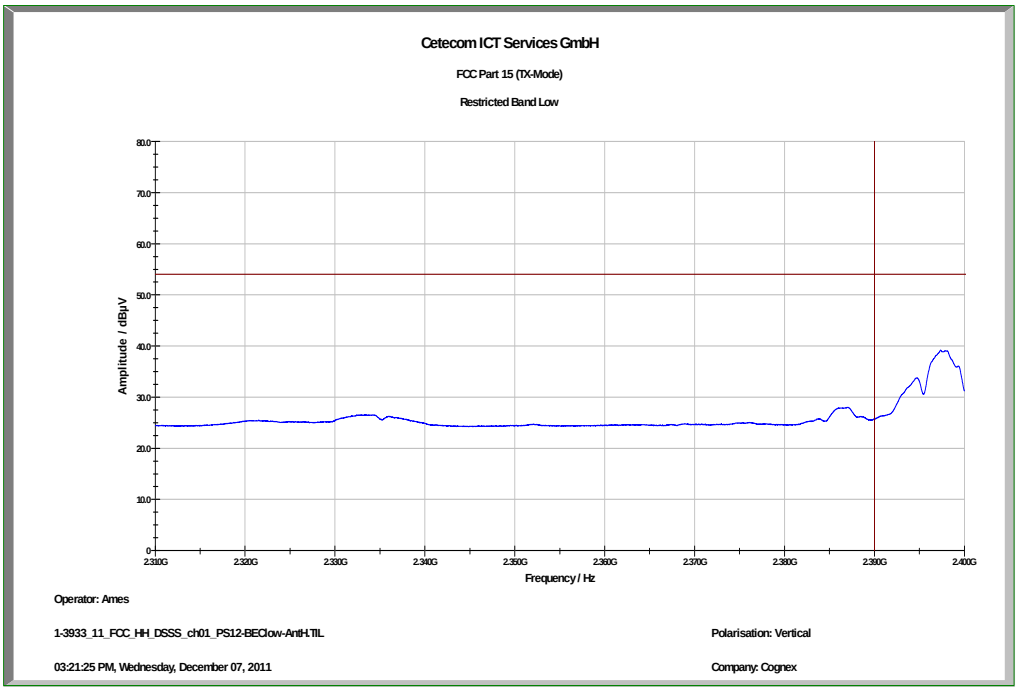
Plot 1: TX mode, lower band edge, vertical polarization



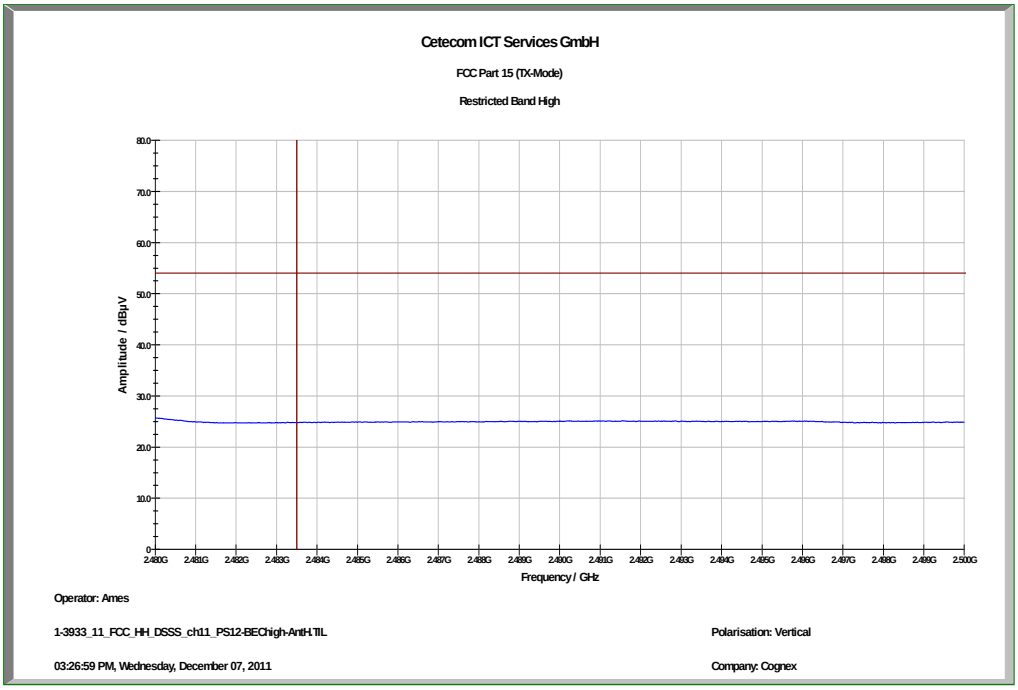
Plot 2: TX mode, upper band edge, vertical polarization



Plot 3: TX mode, lower band edge, horizontal polarization

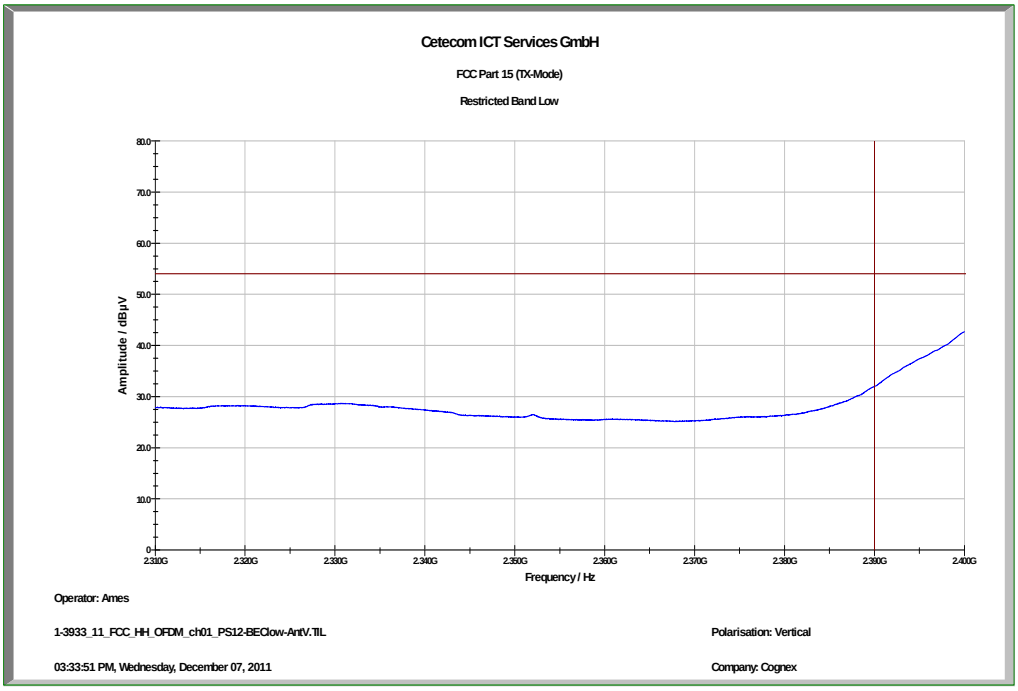


Plot 4: TX mode, upper band edge, horizontal polarization

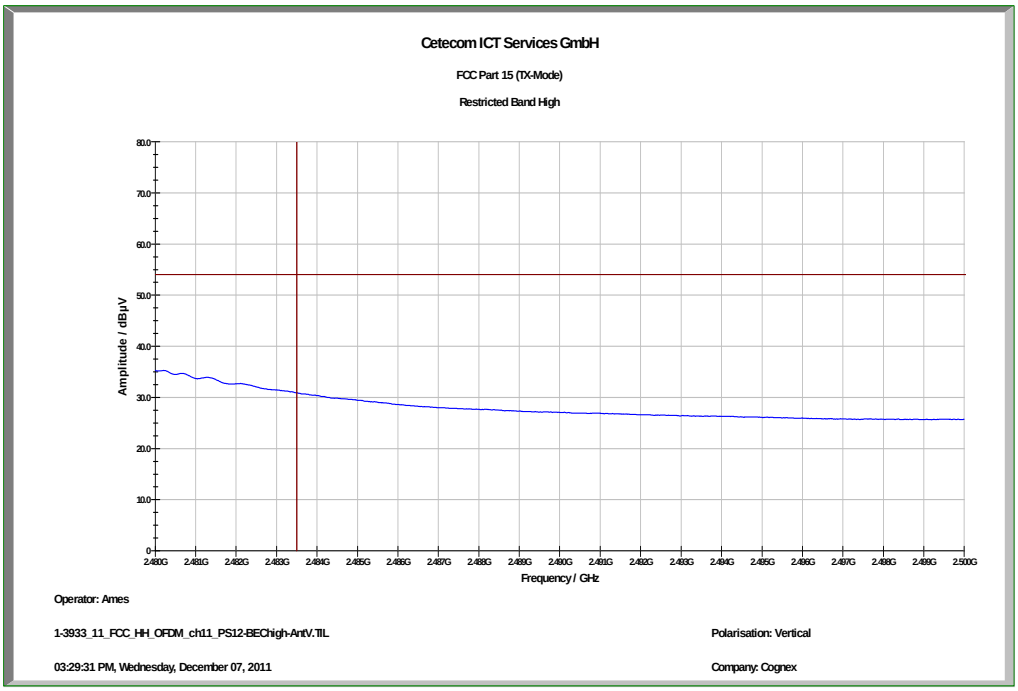


Plots: OFDM / g – mode

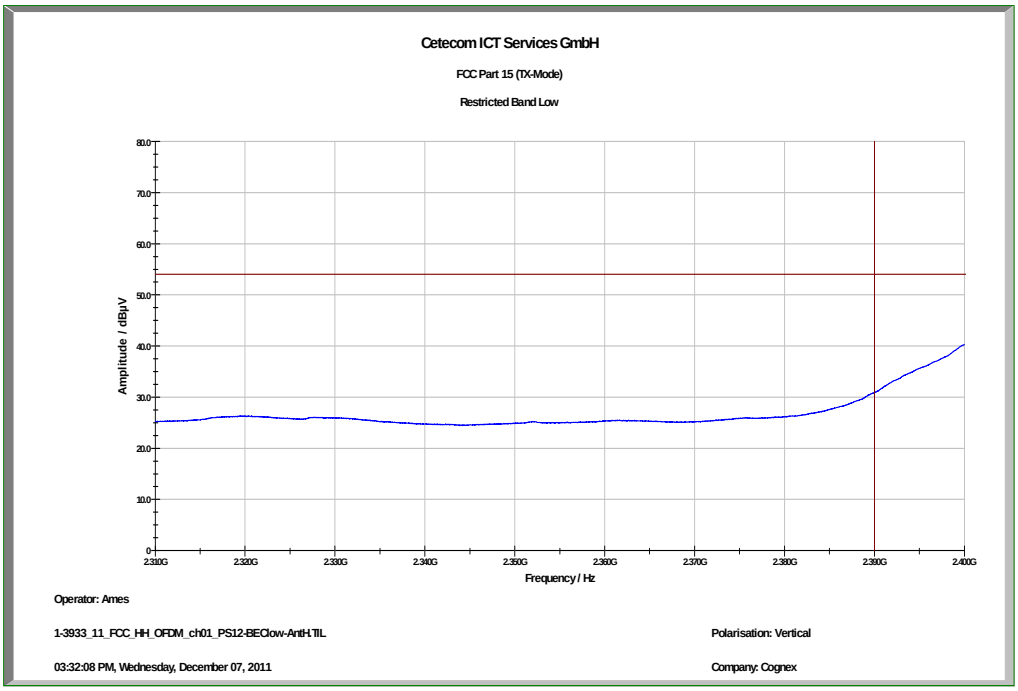
Plot 1: TX mode, lower band edge, vertical polarization



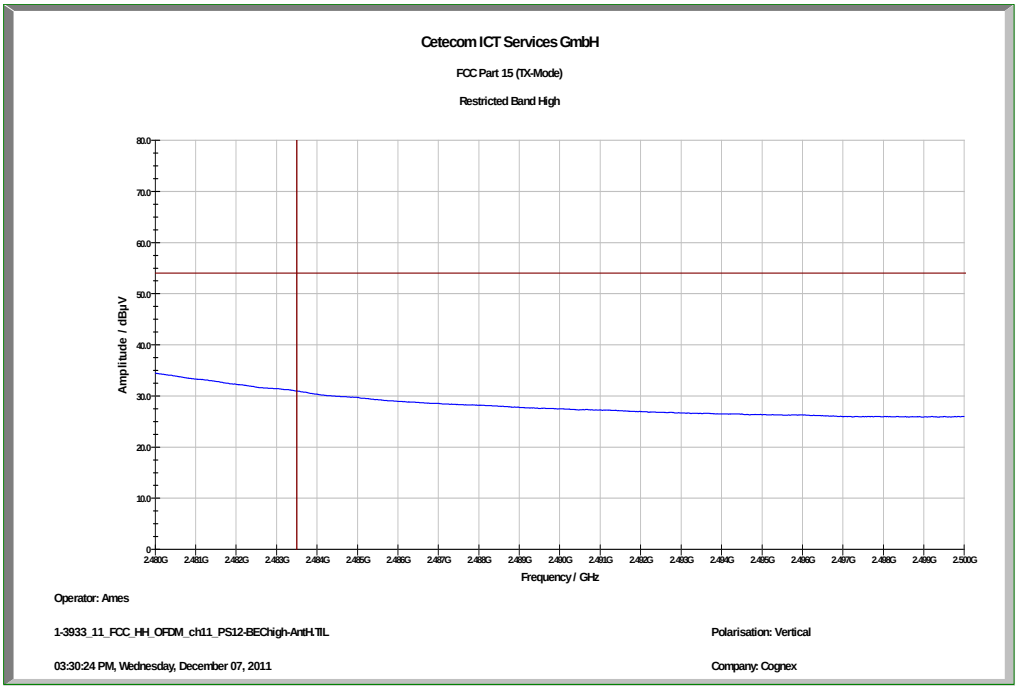
Plot 2: TX mode, upper band edge, vertical polarization



Plot 3: TX mode, lower band edge, horizontal polarization



Plot 4: TX mode, upper band edge, horizontal polarization



9.9 TX spurious emissions conducted

Not performed

9.10 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 above 1 GHz
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz / 1 MHz Remeasurement: 100 kHz / 1 MHz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold
Measured Modulation	☒ DSSS b – mode ☒ OFDM g – mode ☐ 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
CFR Part 15.247(d)		RSS 210, Issue 8, A 8.5
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: DSSS / b – mode

TX Spurious Emissions Radiated [dBµV/m]								
DSSS – 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]
1296	AVG	45.2	1296	AVG	46.0	1296	AVG	43.0
1463	AVG	46.0	1463	AVG	46.0	1463	AVG	46.5
4824	AVG	46.0	4874	AVG	47.0	4924	AVG	53.8
19295	PP	47.2	19498	PP	46.6	19694	PP	44.7
Also see plots			Also see plots			Also see plots		
Measurement uncertainty			± 3 dB					

Result: **The measurement is passed.**

Results: OFDM / g – mode

TX Spurious Emissions Radiated [dBµV/m]								
OFDM – 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]
1296	AVG	42.0	1296	AVG	43.1	1296	AVG	44.0
1463	AVG	46.4	1463	AVG	50.0	1463	AVG	51.4
4824	AVG	40.0	4874	AVG	41.0	4924	AVG	52.0
19295	PP	48.3	19498	PP	45.2	19694	PP	46.7
Also see plots			Also see plots			Also see plots		
Measurement uncertainty			± 3 dB					

Result: **The measurement is passed.**

Plots: DSSS / b – mode

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

Common Information

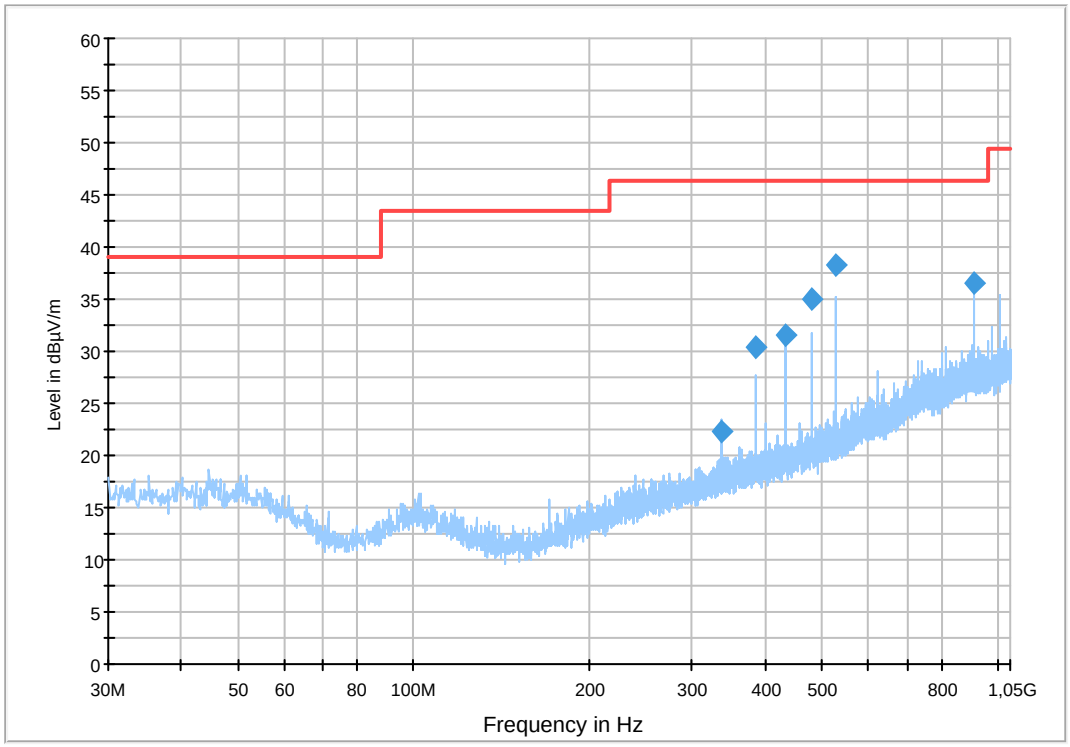
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN b-mode TX Ch. 1
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(B)



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
336.038100	22.3	1000.0	120.000	285.0	H	102.0	15.6	24.1	46.4	
383.993550	30.4	1000.0	120.000	248.0	H	79.0	16.6	16.0	46.4	
432.004200	31.5	1000.0	120.000	207.0	H	259.0	17.4	14.9	46.4	
480.022800	35.0	1000.0	120.000	200.0	H	265.0	18.3	11.4	46.4	
528.006600	38.3	1000.0	120.000	183.0	H	270.0	19.1	8.1	46.4	
912.005700	36.6	1000.0	120.000	13.0	H	135.0	25.2	9.8	46.4	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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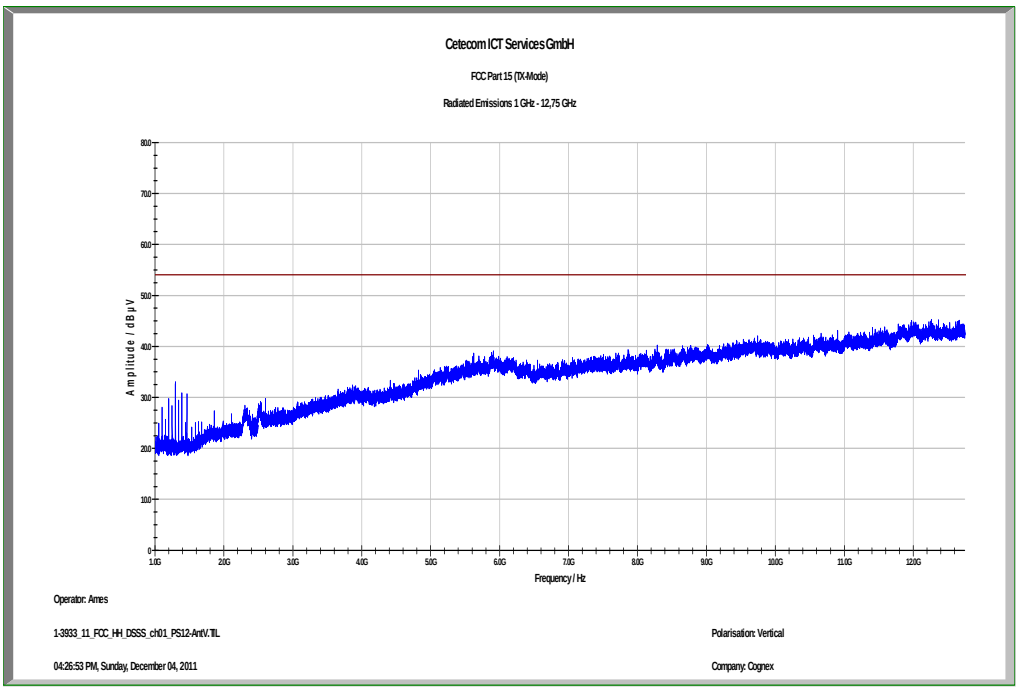
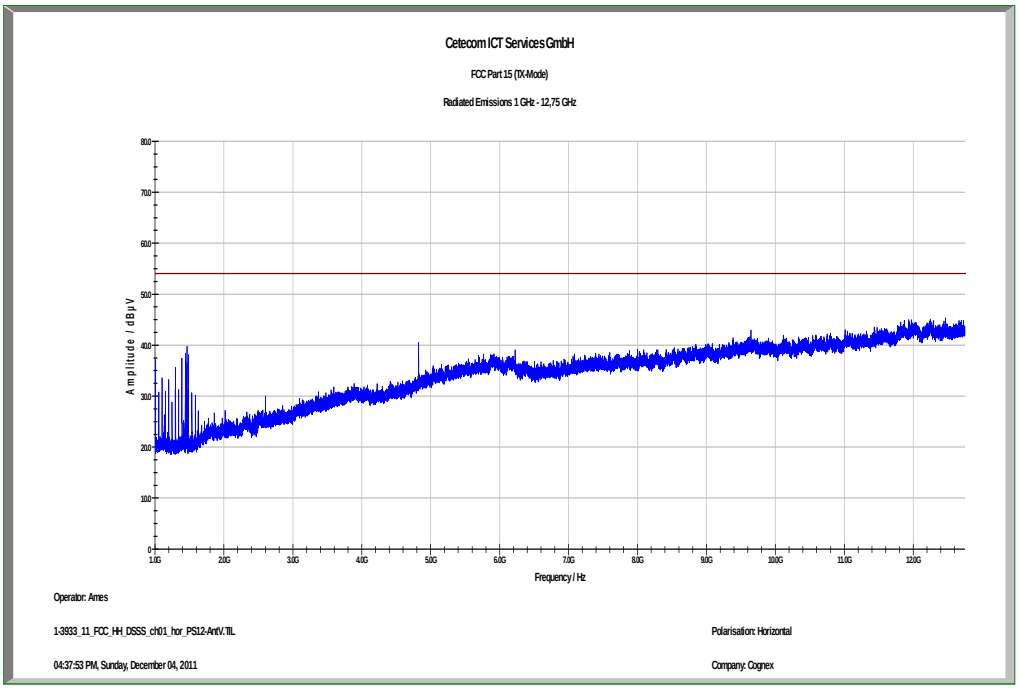
Plot 2: Lowest channel, 1 GHz to 12.75 GHz, vertical polarization



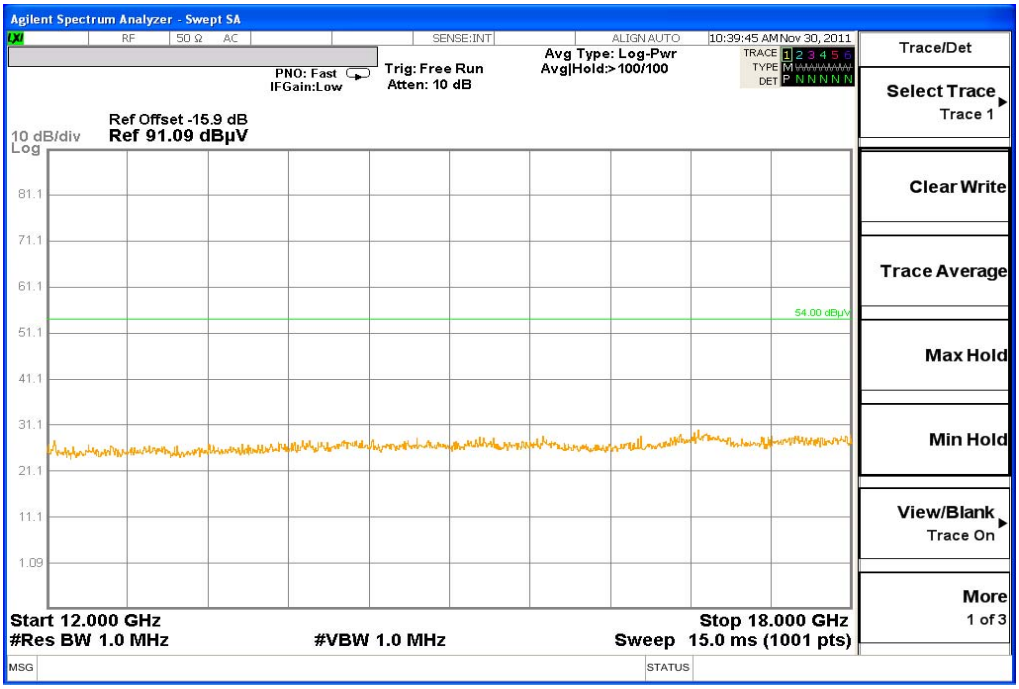
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 3: Lowest channel, 1 GHz to 12.75 GHz, horizontal polarization

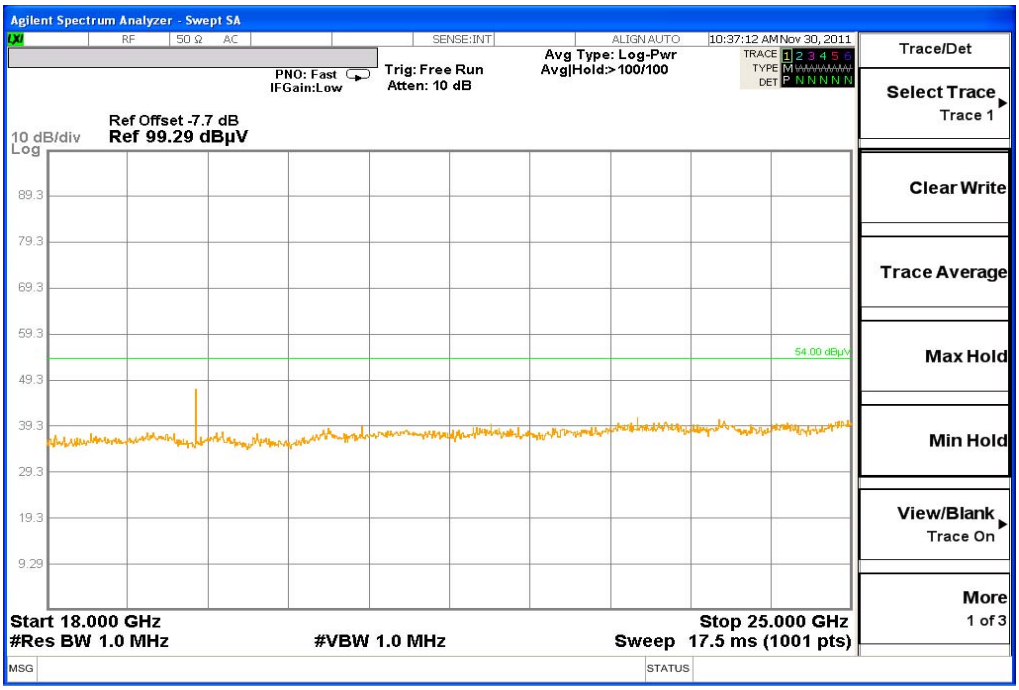


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 4: Lowest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 5: Lowest channel, 18 GHz to 25 GHz, vertical & horizontal polarization



Plot 6: Middle channel, 30 MHz to 1 GHz, vertical & horizontal polarization

Common Information

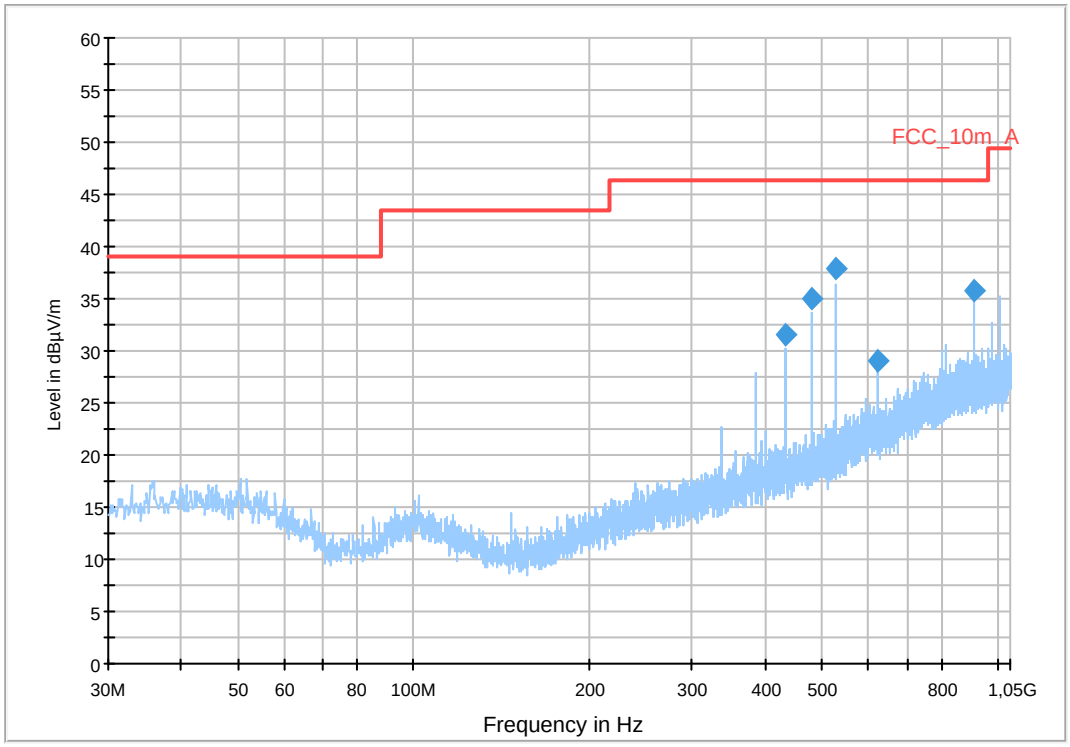
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN b-mode TX Ch. 6
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(A)_3



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
431.991450	31.5	1000.0	120.000	220.0	H	265.0	17.4	14.9	46.4	
479.997000	34.9	1000.0	120.000	143.0	H	83.0	18.3	11.5	46.4	
528.018900	37.9	1000.0	120.000	186.0	H	265.0	19.1	8.5	46.4	
624.029400	29.0	1000.0	120.000	124.0	H	87.0	20.9	17.4	46.4	
912.075000	35.7	1000.0	120.000	105.0	H	20.0	25.2	10.7	46.4	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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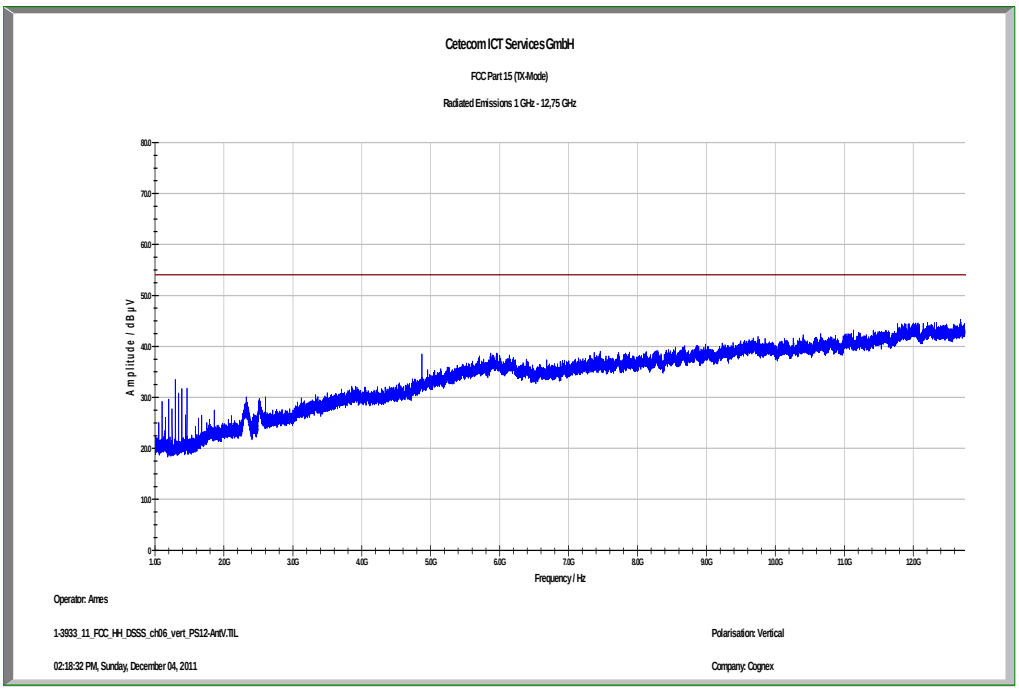
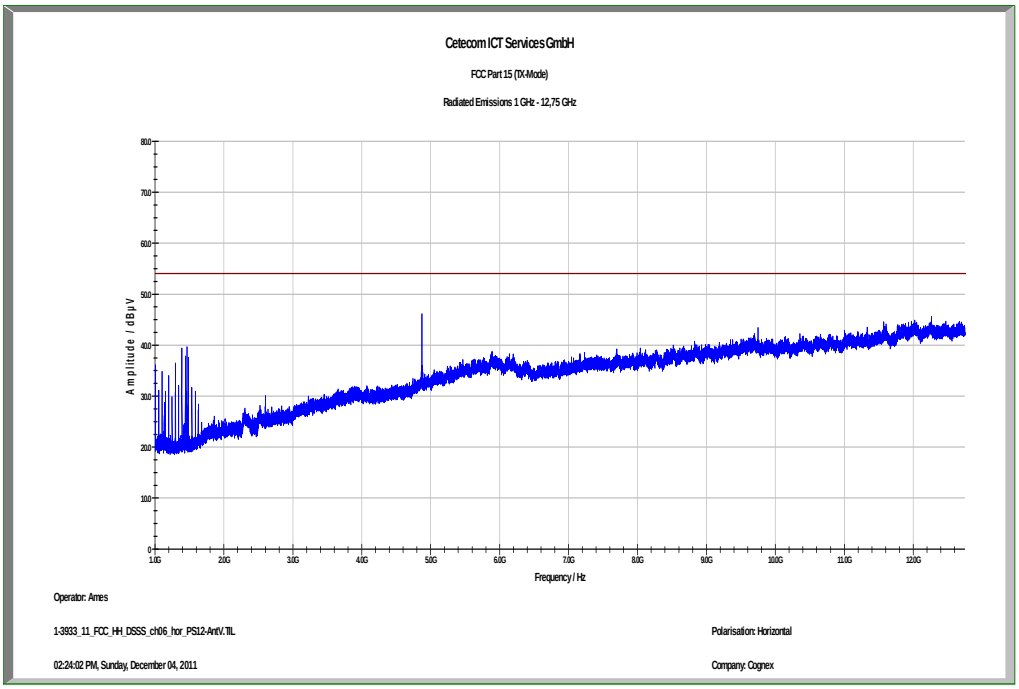
Plot 7: Middle channel, 1 GHz to 12.75 GHz, vertical polarization



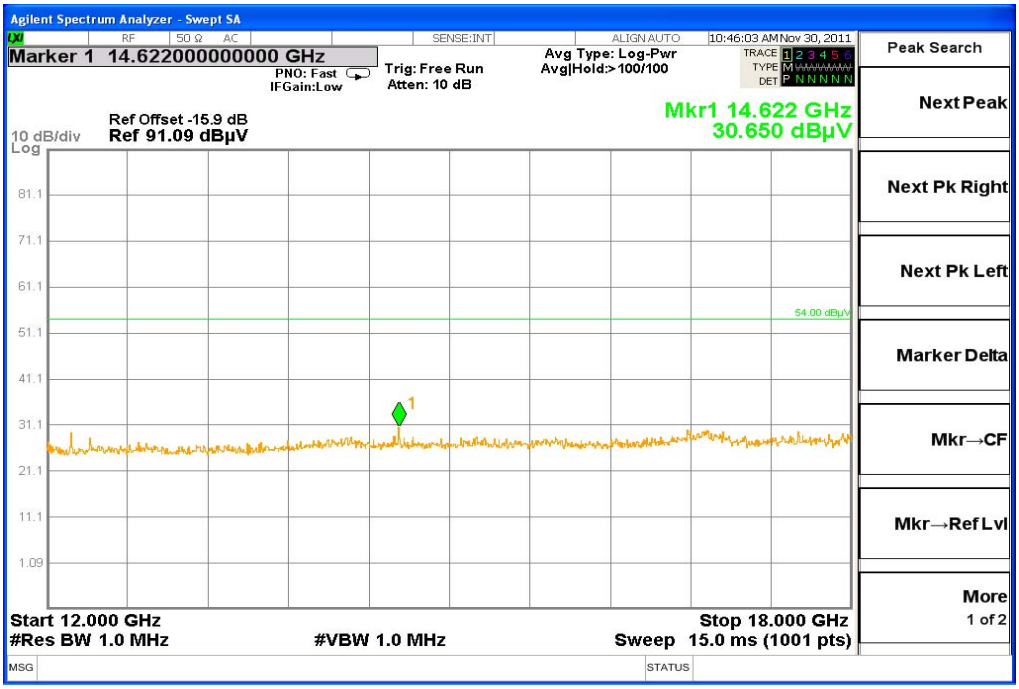
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 8: Middle channel, 1 GHz to 12.75 GHz, horizontal polarization

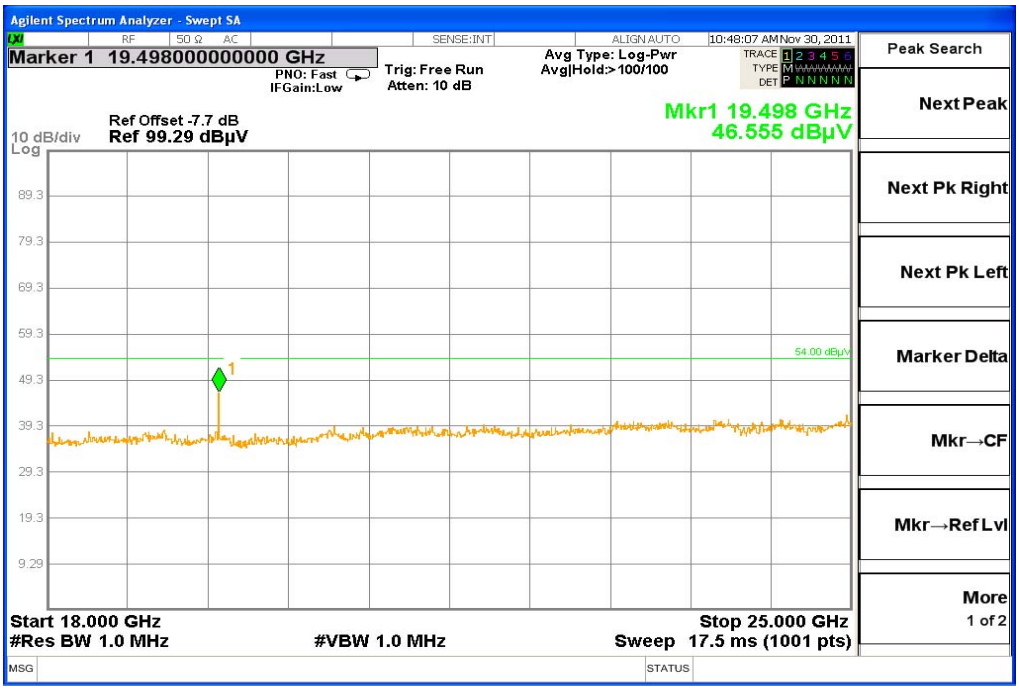


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 9: Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 10: Middle channel, 18 GHz to 25 GHz, vertical & horizontal polarization



Plot 11: Highest channel, 30 MHz to 1 GHz, vertical & horizontal polarization

Common Information

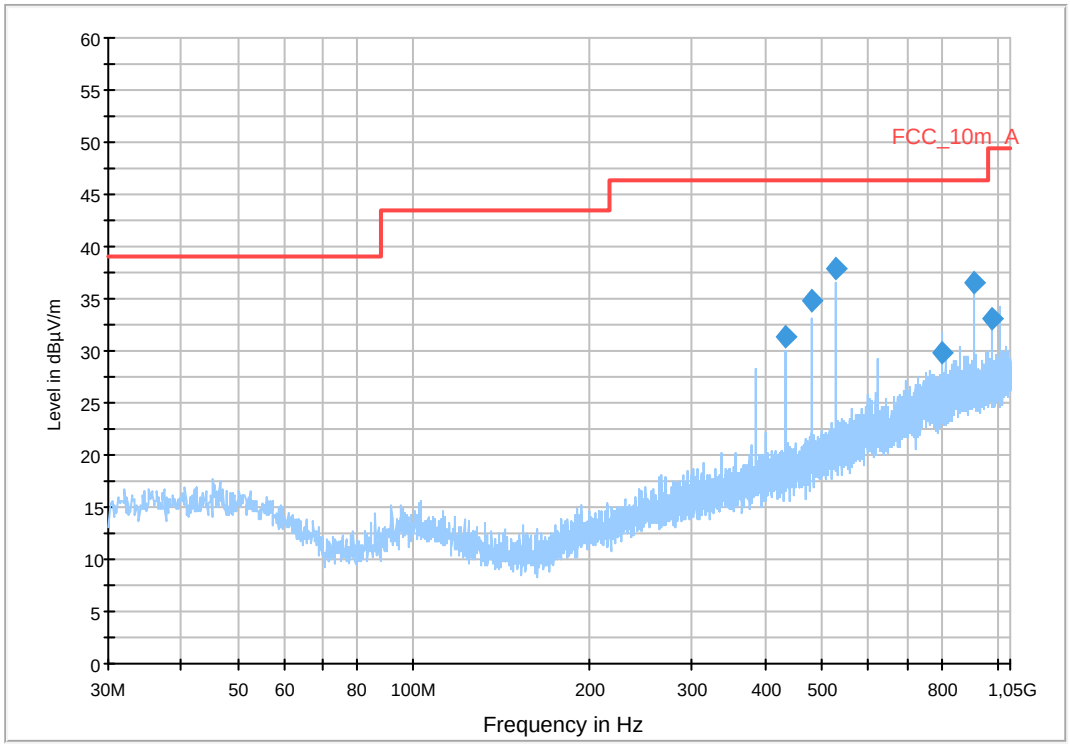
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN b-mode TX Ch. 11
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(A)_3



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
432.028350	31.4	1000.0	120.000	220.0	H	263.0	17.4	15.0	46.4	
480.005850	34.8	1000.0	120.000	178.0	H	96.0	18.3	11.6	46.4	
527.998200	37.9	1000.0	120.000	186.0	H	265.0	19.1	8.5	46.4	
800.034750	29.9	1000.0	120.000	126.0	H	16.0	23.8	16.5	46.4	
911.985000	36.6	1000.0	120.000	105.0	H	16.0	25.2	9.8	46.4	
975.047850	33.0	1000.0	120.000	114.0	H	7.0	25.6	16.5	49.5	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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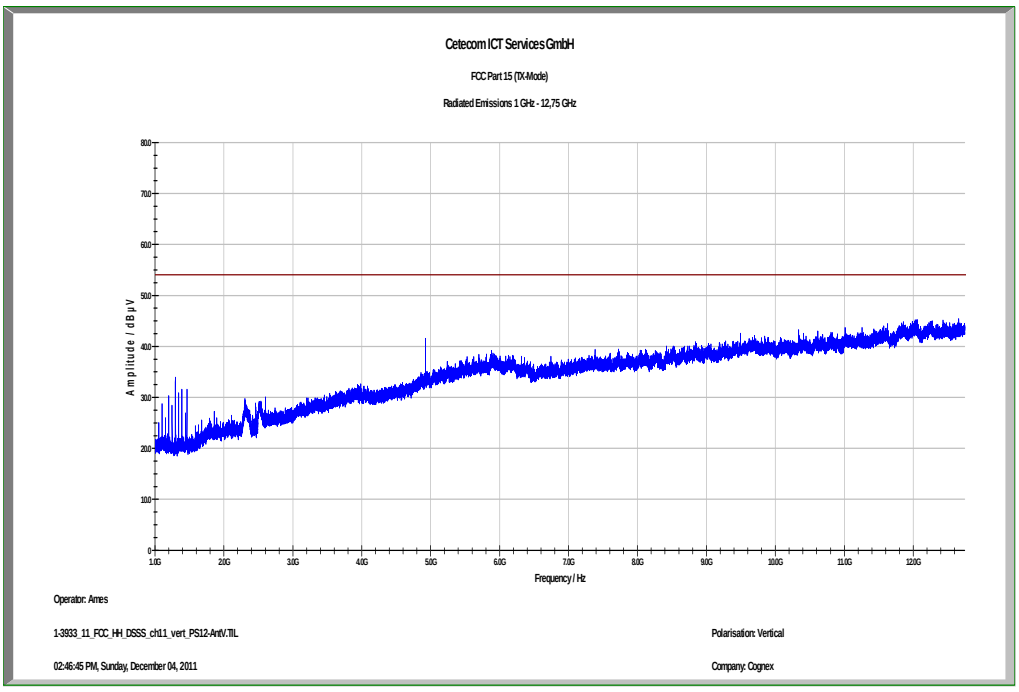
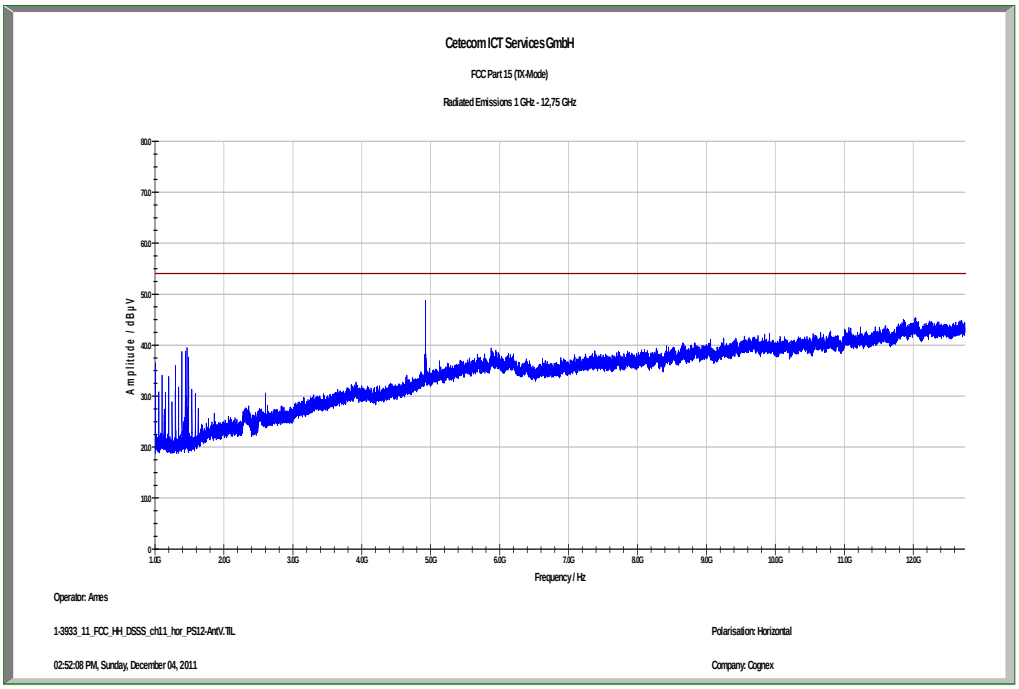
Plot 12: Highest channel, 1 GHz to 12.75 GHz, vertical polarization



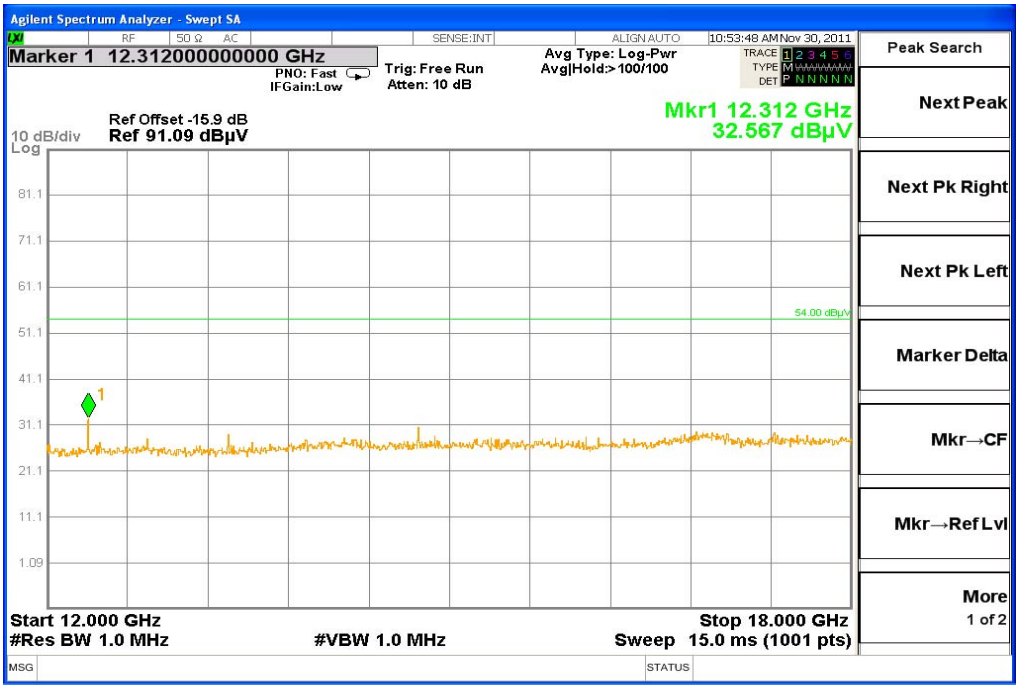
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 13: Highest channel, 1 GHz to 12.75 GHz, horizontal polarization

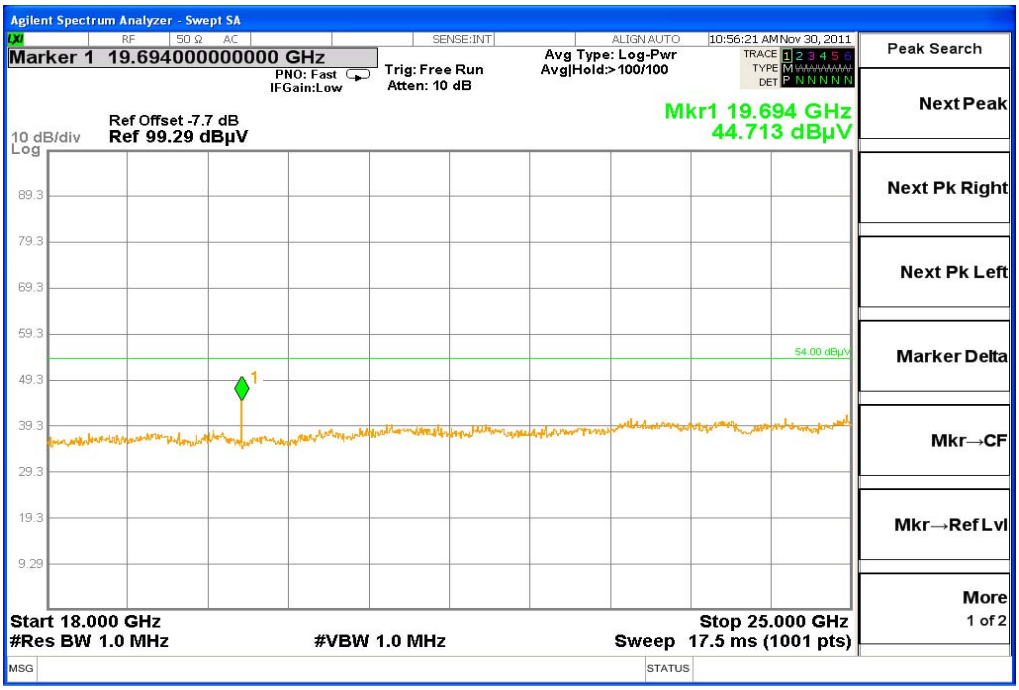


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 14: Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 15: Highest channel, 18 GHz to 25 GHz, vertical & horizontal polarization



Plots: OFDM / g – mode

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

Common Information

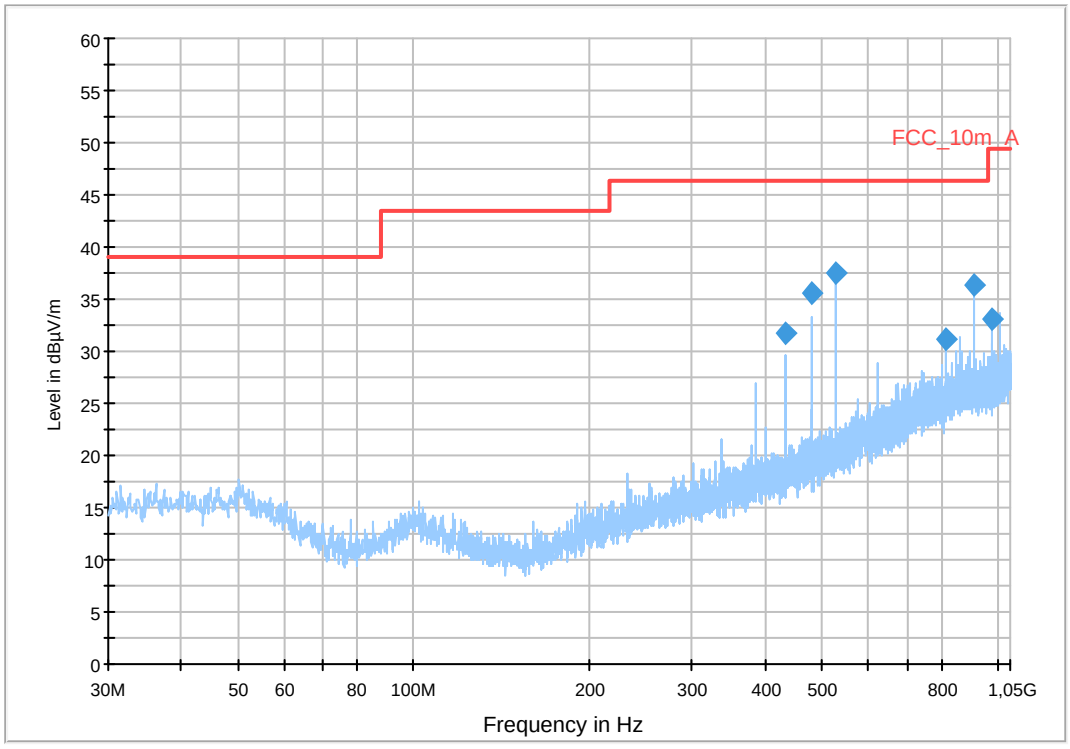
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN g-mode 54 Mbit/s TX Ch. 1
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(A)_3



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
432.008400	31.7	1000.0	120.000	220.0	H	272.0	17.4	14.7	46.4	
480.027600	35.6	1000.0	120.000	177.0	H	275.0	18.3	10.8	46.4	
528.027300	37.6	1000.0	120.000	185.0	H	95.0	19.1	8.8	46.4	
815.995500	31.2	1000.0	120.000	114.0	H	14.0	24.0	15.2	46.4	
912.058350	36.3	1000.0	120.000	106.0	H	16.0	25.2	10.1	46.4	
975.033450	33.2	1000.0	120.000	98.0	H	7.0	25.6	16.3	49.5	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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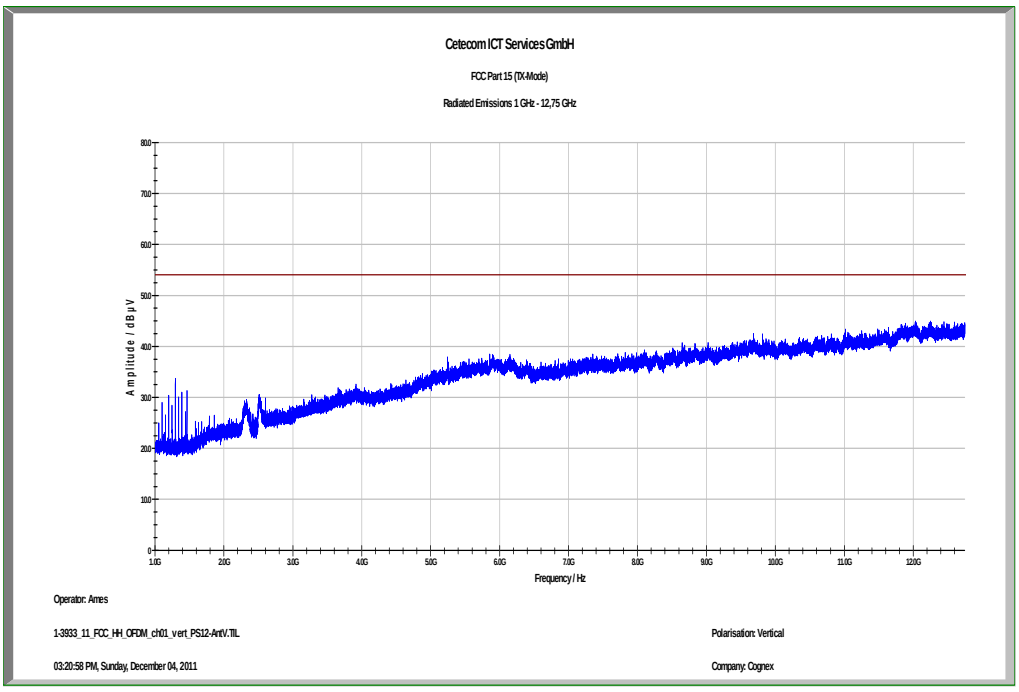
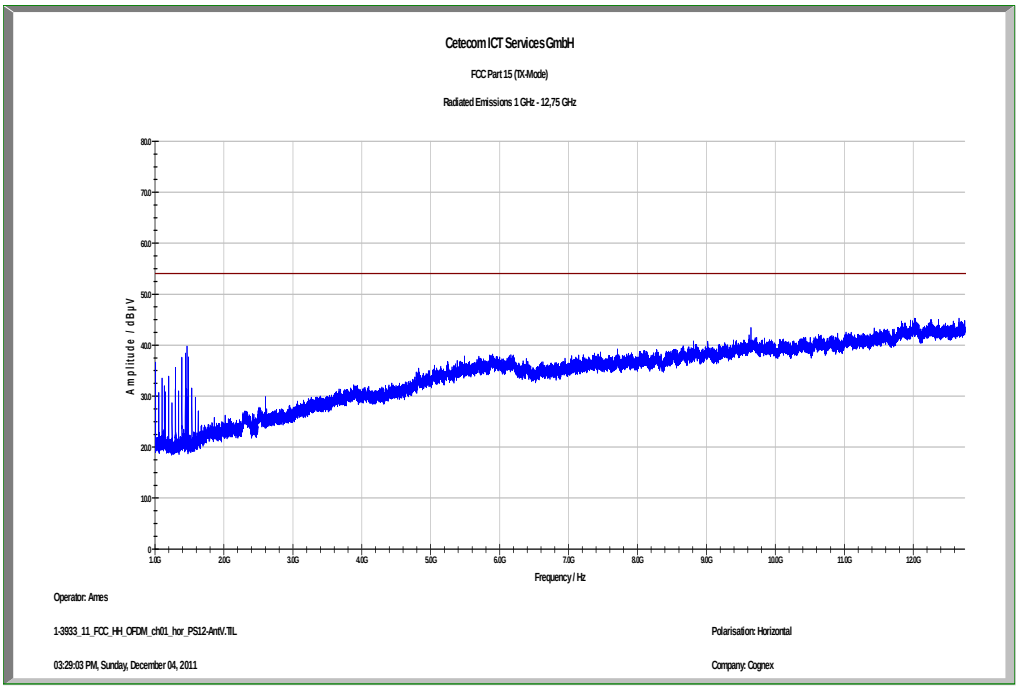
Plot 2: Lowest channel, 1 GHz to 12.75 GHz, vertical polarization



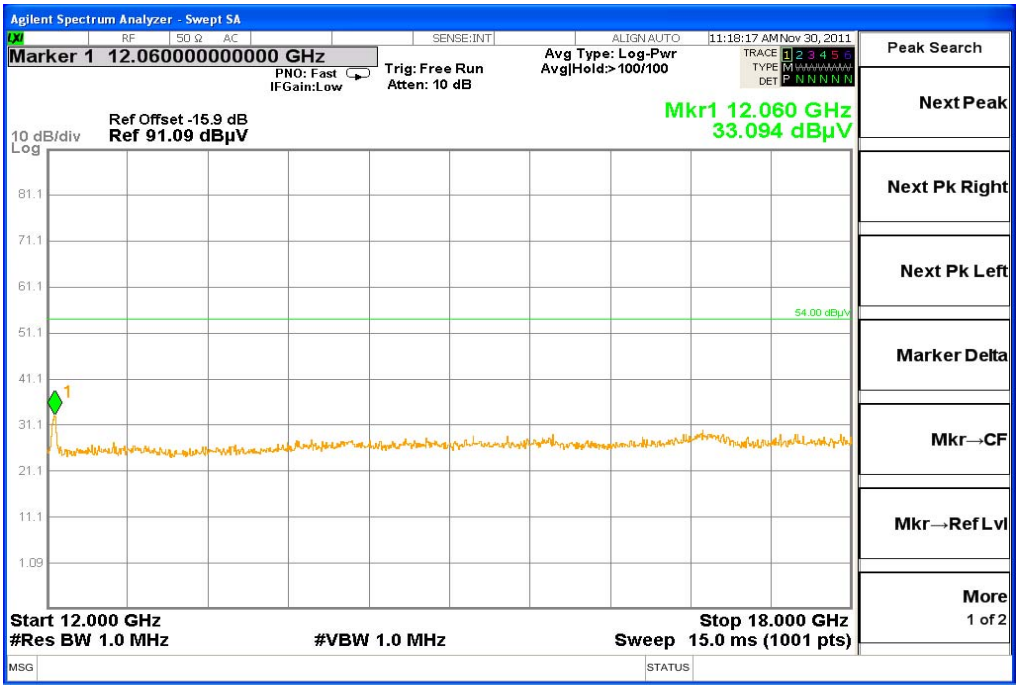
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 3: Lowest channel, 1 GHz to 12.75 GHz, horizontal polarization

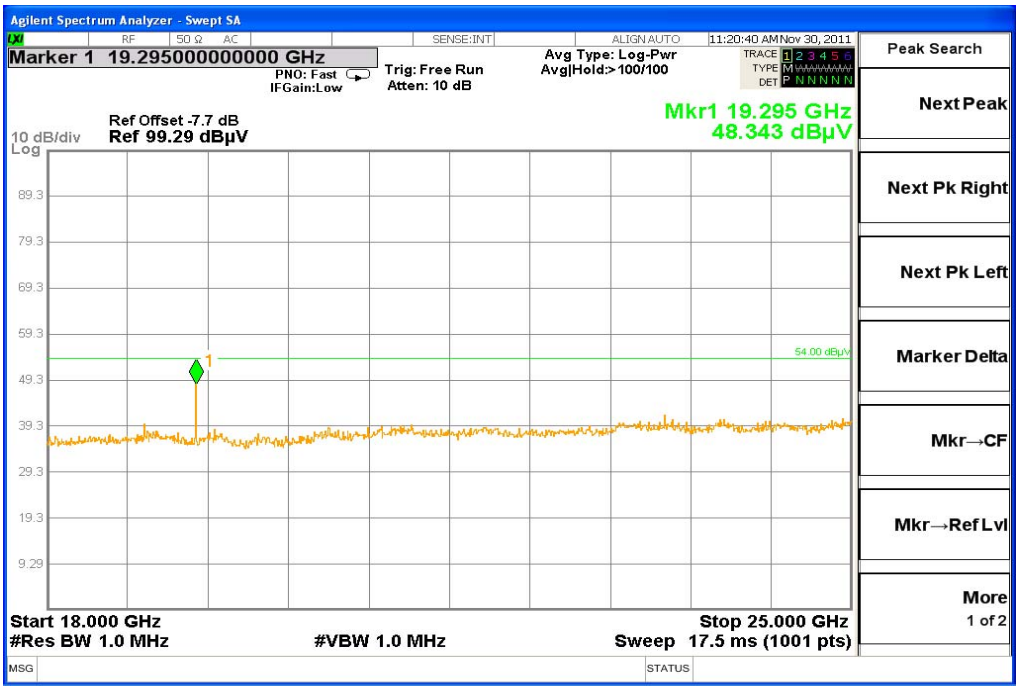


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 4: Lowest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 5: Lowest channel, 18 GHz to 25 GHz, vertical & horizontal polarization



Plot 6: Middle channel, 30 MHz to 1 GHz, vertical & horizontal polarization

Common Information

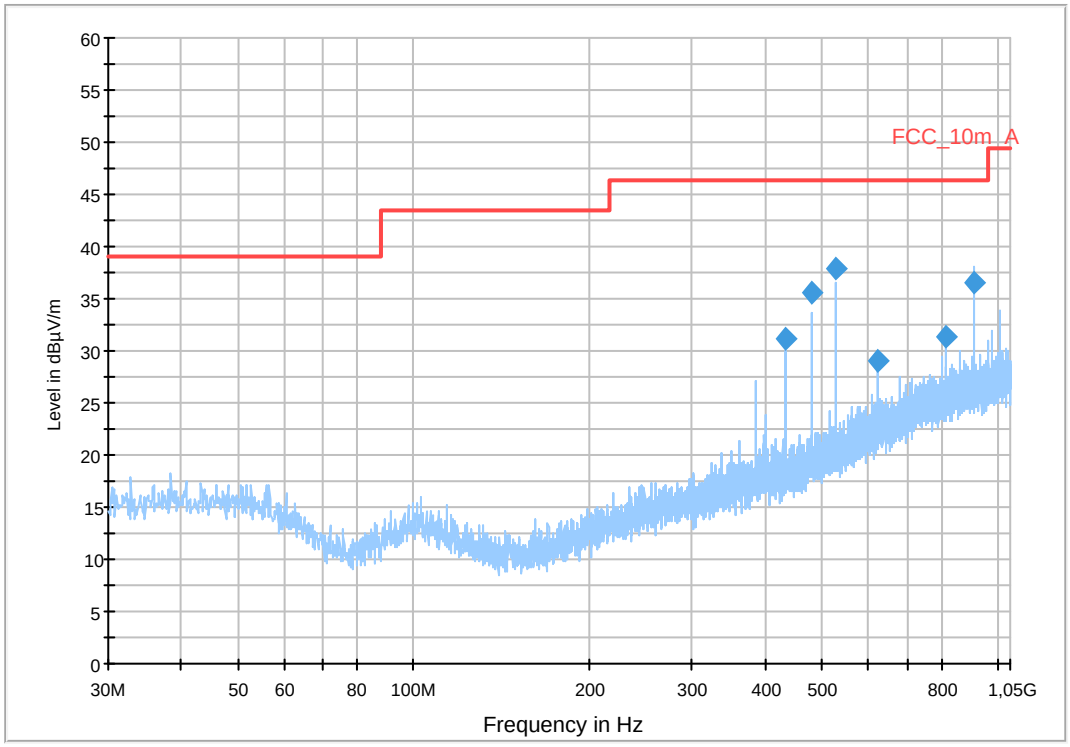
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN g-mode 54 Mbit/s TX Ch. 6
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(A)_3



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
431.978100	31.2	1000.0	120.000	220.0	H	255.0	17.4	15.2	46.4	
480.018450	35.5	1000.0	120.000	178.0	H	274.0	18.3	10.9	46.4	
527.999850	37.9	1000.0	120.000	187.0	H	265.0	19.1	8.5	46.4	
623.997900	29.1	1000.0	120.000	157.0	H	270.0	20.9	17.3	46.4	
815.990100	31.4	1000.0	120.000	98.0	H	10.0	24.0	15.0	46.4	
912.048300	36.5	1000.0	120.000	98.0	H	17.0	25.2	9.9	46.4	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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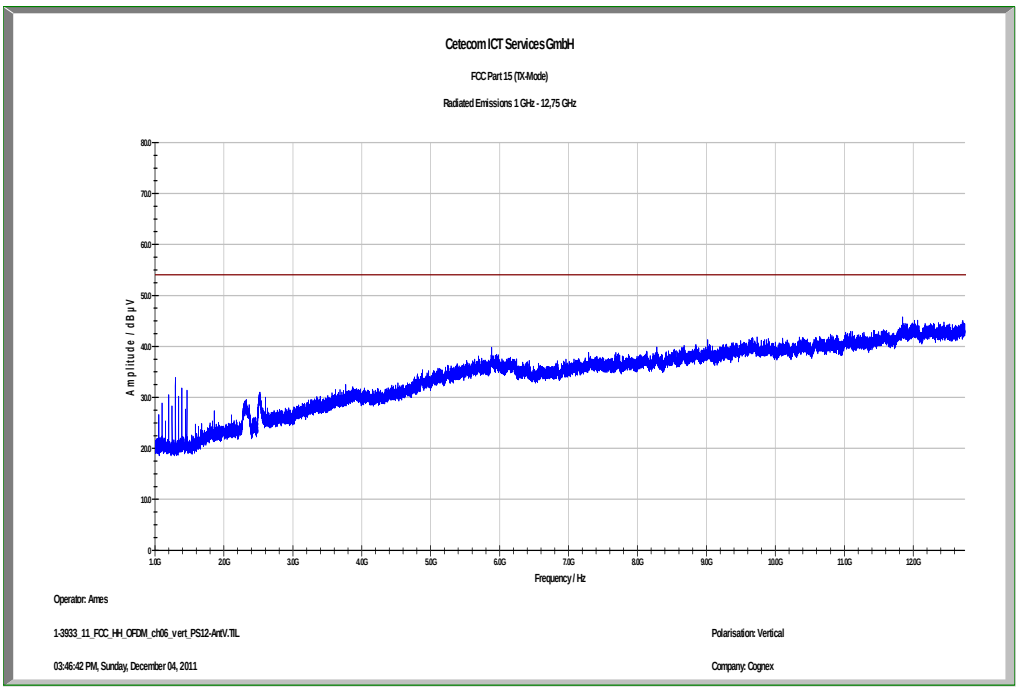
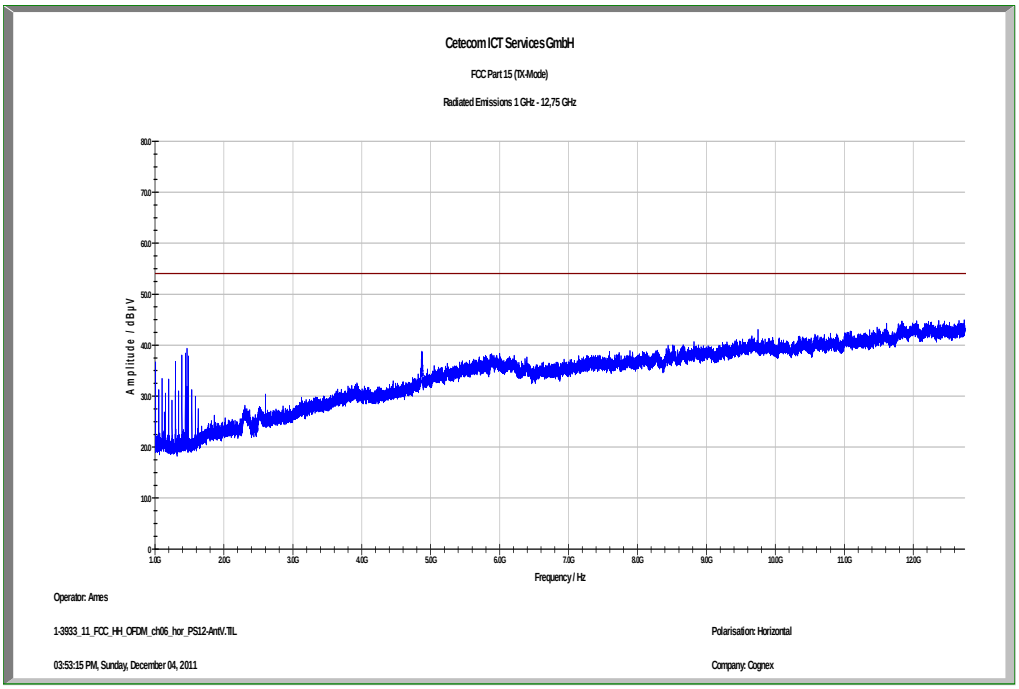
Plot 7: Middle channel, 1 GHz to 12.75 GHz, vertical polarization



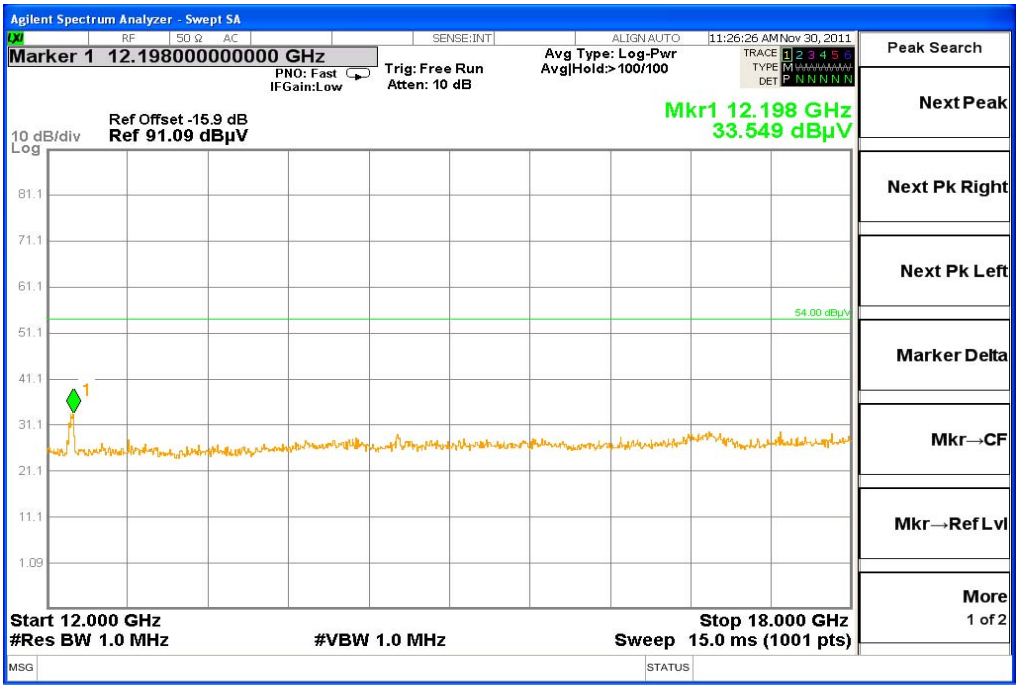
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 8: Middle channel, 1 GHz to 12.75 GHz, horizontal polarization

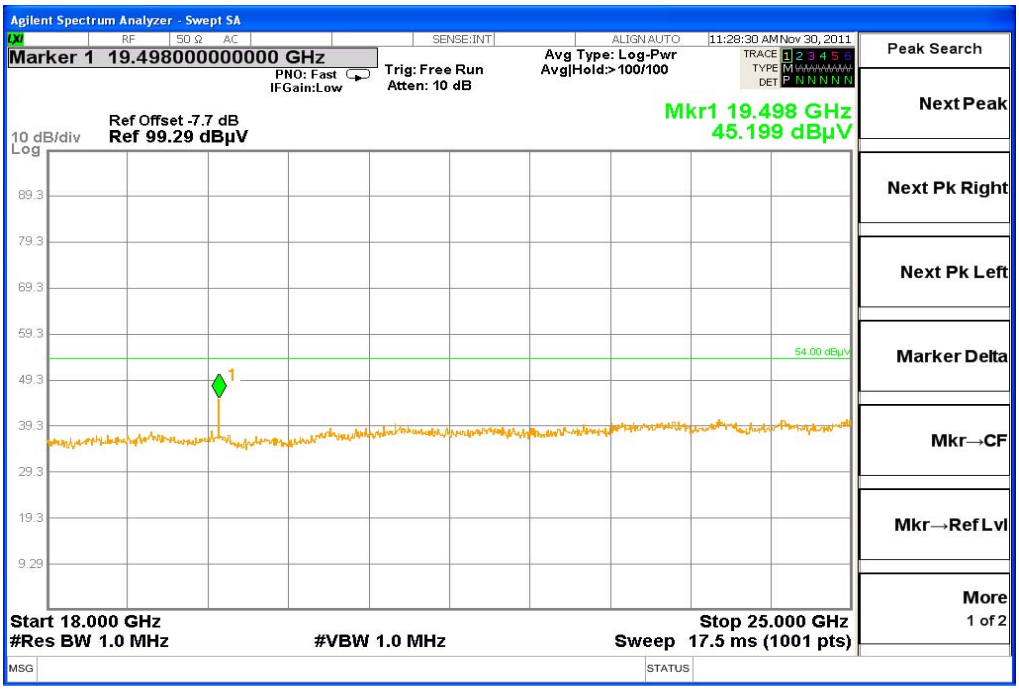


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 9: Middle channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 10: Middle channel, 18 GHz to 25 GHz, vertical & horizontal polarization



Plot 11: Highest channel, 30 MHz to 1 GHz, vertical & horizontal polarization

Common Information

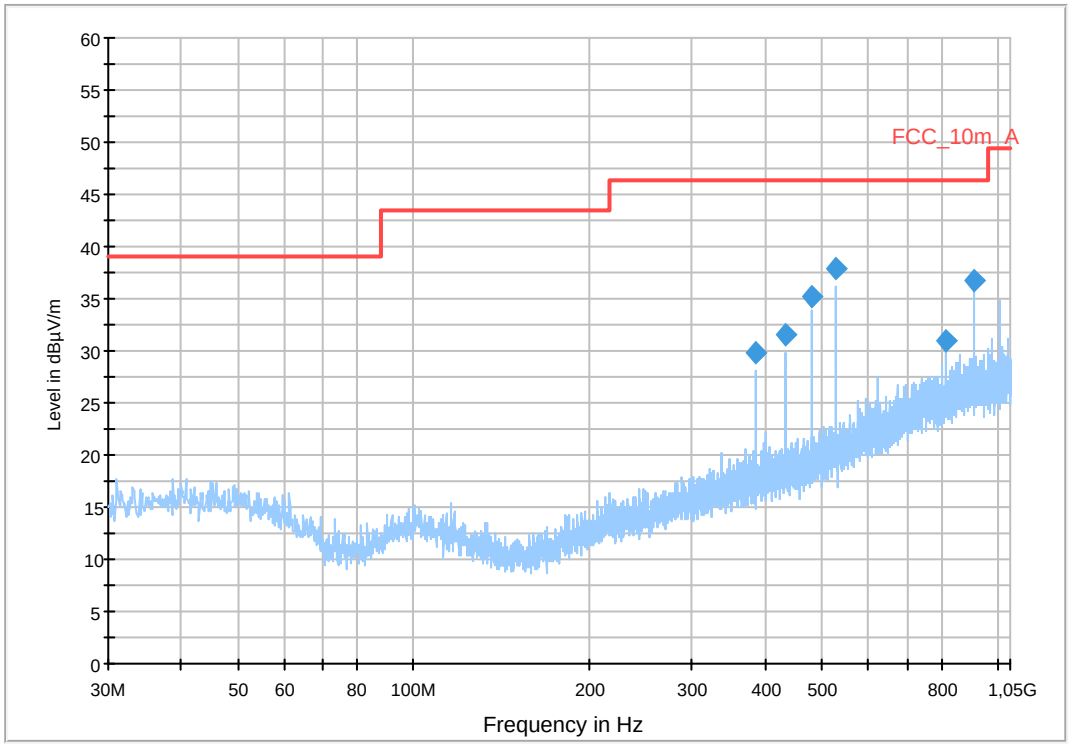
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN g-mode 54 Mbit/s TX Ch. 11
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(A)_3



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
384.002850	29.8	1000.0	120.000	220.0	H	269.0	16.6	16.6	46.4	
432.005100	31.6	1000.0	120.000	220.0	H	275.0	17.4	14.8	46.4	
480.010650	35.3	1000.0	120.000	187.0	H	270.0	18.3	11.1	46.4	
528.017550	37.8	1000.0	120.000	187.0	H	268.0	19.1	8.6	46.4	
816.035250	31.0	1000.0	120.000	120.0	H	26.0	24.0	15.4	46.4	
912.003300	36.8	1000.0	120.000	98.0	H	10.0	25.2	9.6	46.4	

Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

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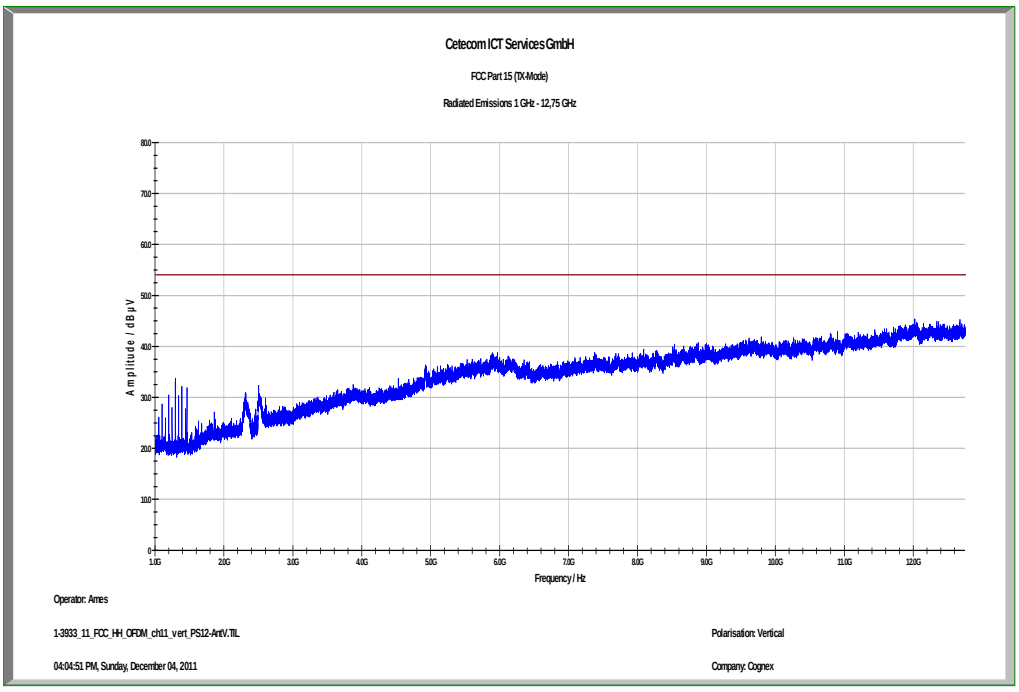
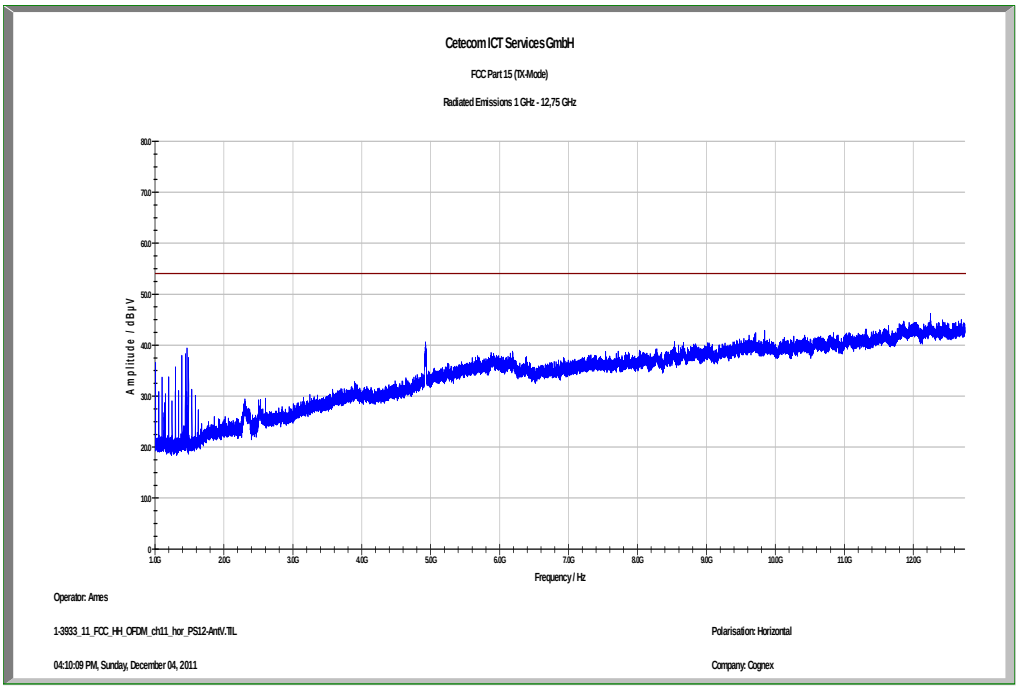
Plot 12: Highest channel, 1 GHz to 12.75 GHz, vertical polarization



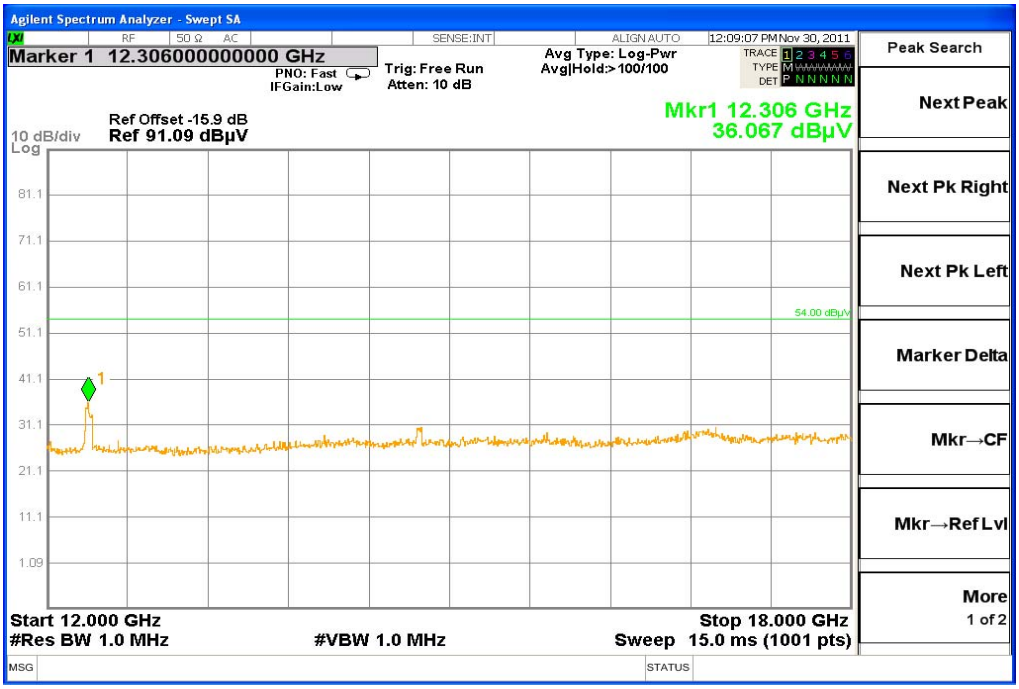
The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 13: Highest channel, 1 GHz to 12.75 GHz, horizontal polarization

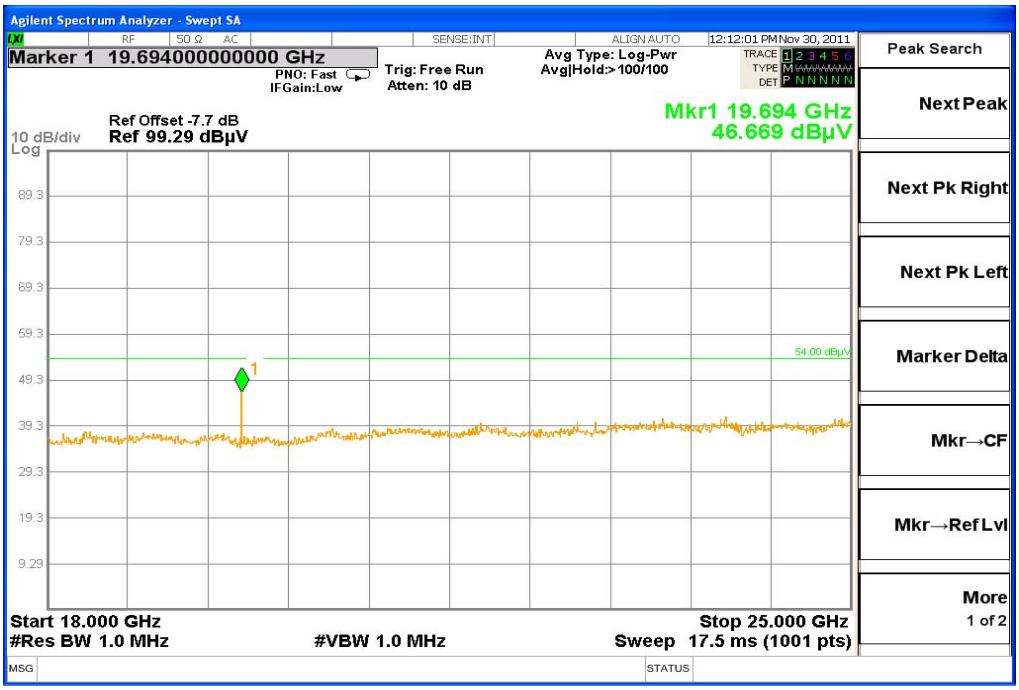


The carrier signal is notched with a 2.4 GHz band rejection filter.

Plot 14: Highest channel, 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 15: Highest channel, 18 GHz to 25 GHz, vertical & horizontal polarization



9.11 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
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 25 GHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
CFR Part 15.109		RSS Gen, Issue 2, 4.10
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]
1296	AVG	43.0
12060	PP	41.4
19295	PP	48.6
Also see plots		
Measurement uncertainty	± 3 dB	

Result: **The measurement is passed.**

Plots: RX / Idle – mode

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

Common Information

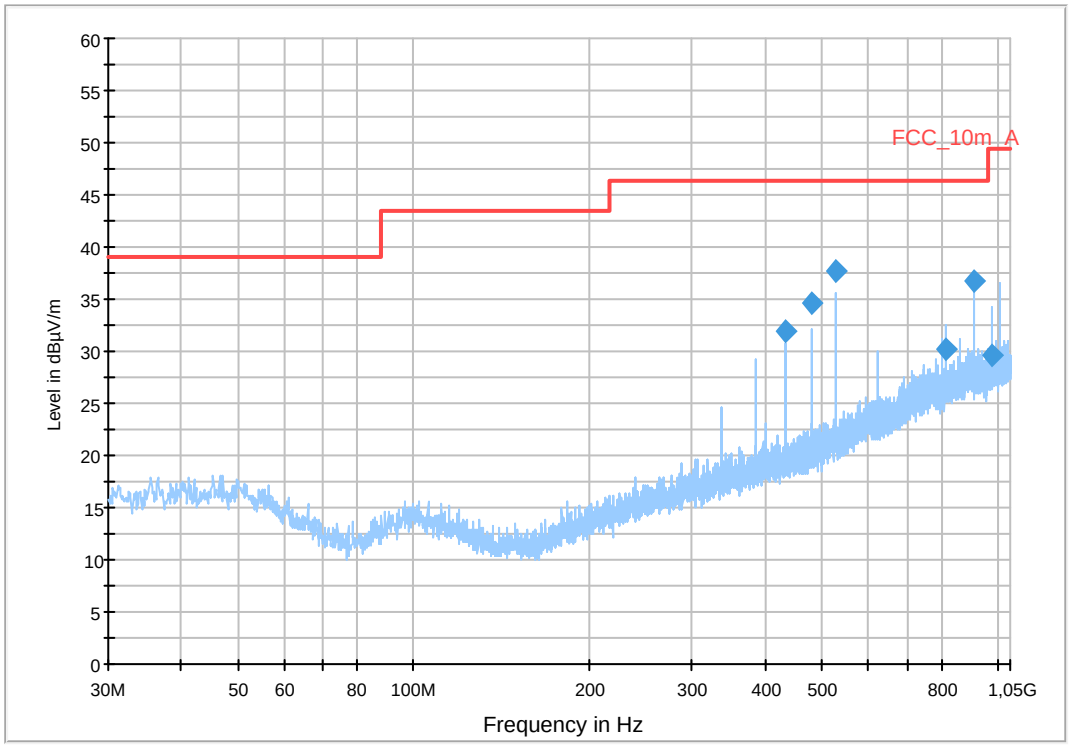
EUT:	DataMan 8500
Serial Number:	1A1132XN005045
Test Description:	FCC part 15 class A @ 10 m
Operating Conditions:	WLAN RX
Operator Name:	Hennemann
Comment:	battery powered

Scan Setup: STAN_Fin [EMI radiated]

Hardware Setup:	Electric Field (NOS)
Receiver:	[ESCI 3]
Level Unit:	dBµV/m

Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB

FCC_10m(A)



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
432.025050	31.9	1000.0	120.000	216.0	H	78.0	17.4	14.5	46.4	
480.022050	34.6	1000.0	120.000	207.0	H	82.0	18.3	11.8	46.4	
528.036750	37.6	1000.0	120.000	189.0	H	271.0	19.1	8.8	46.4	
816.064950	30.2	1000.0	120.000	125.0	H	9.0	24.0	16.2	46.4	
912.022950	36.8	1000.0	120.000	100.0	H	18.0	25.2	9.6	46.4	
975.100650	29.6	1000.0	120.000	100.0	H	208.0	25.6	19.9	49.5	

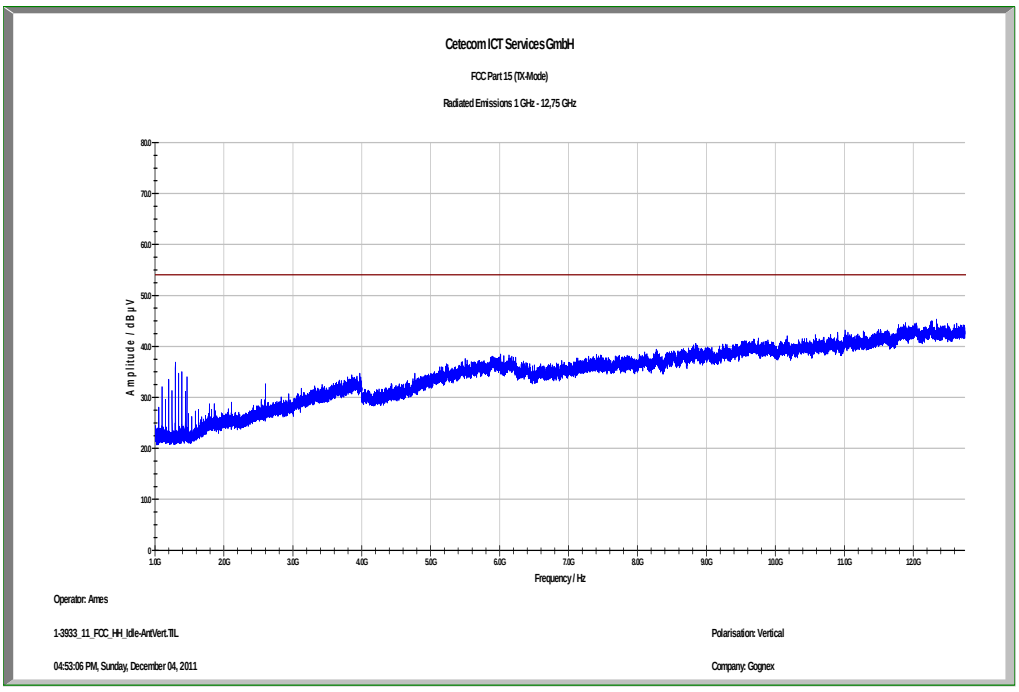
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

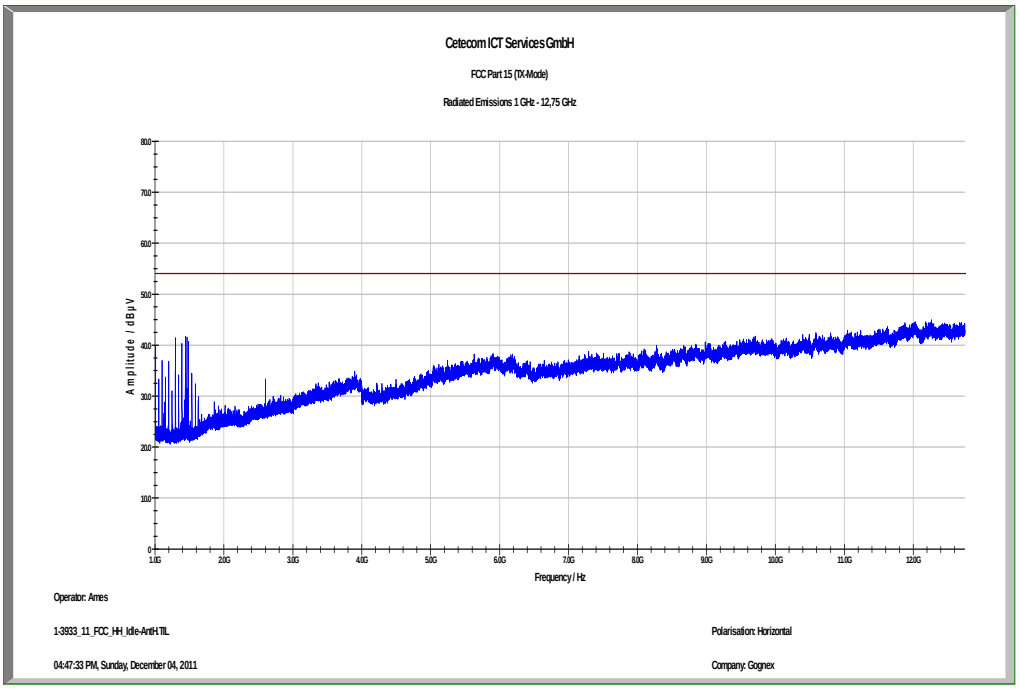
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005) Correction Table (horizontal): Cable_EN_1GHz (1005)
Antenna Tower:	Tower [EMCO 2090 Antenna Tower] @ GPIB0 (ADR 8), FW REV 3.12
Turntable:	Turntable [EMCO Turntable] @ GPIB0 (ADR 9), FW REV 3.12

EMC 32 Version 8.10.00

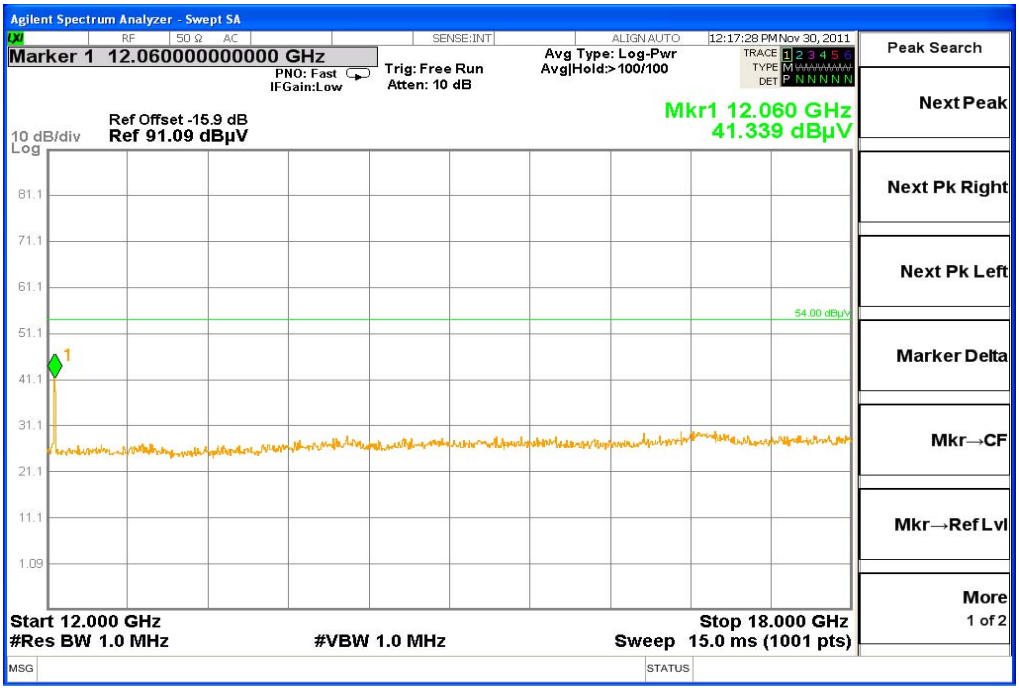
Plot 2: 1 GHz to 12.75 GHz, vertical polarization



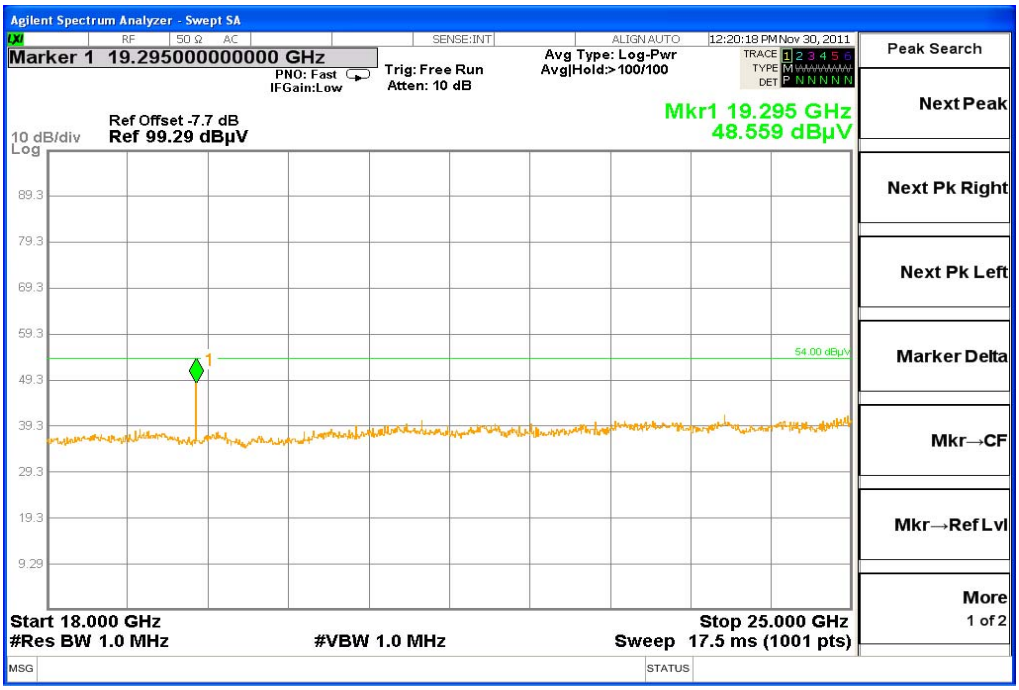
Plot 3: 1 GHz to 12.75 GHz, horizontal polarization



Plot 4: 12.75 GHz to 18 GHz, vertical & horizontal polarization



Plot 5: 18 GHz to 25 GHz, vertical & horizontal polarization



9.12 TX 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 critical 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
CFR Part 15.209(a)		RSS –Gen
TX Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dBµV/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

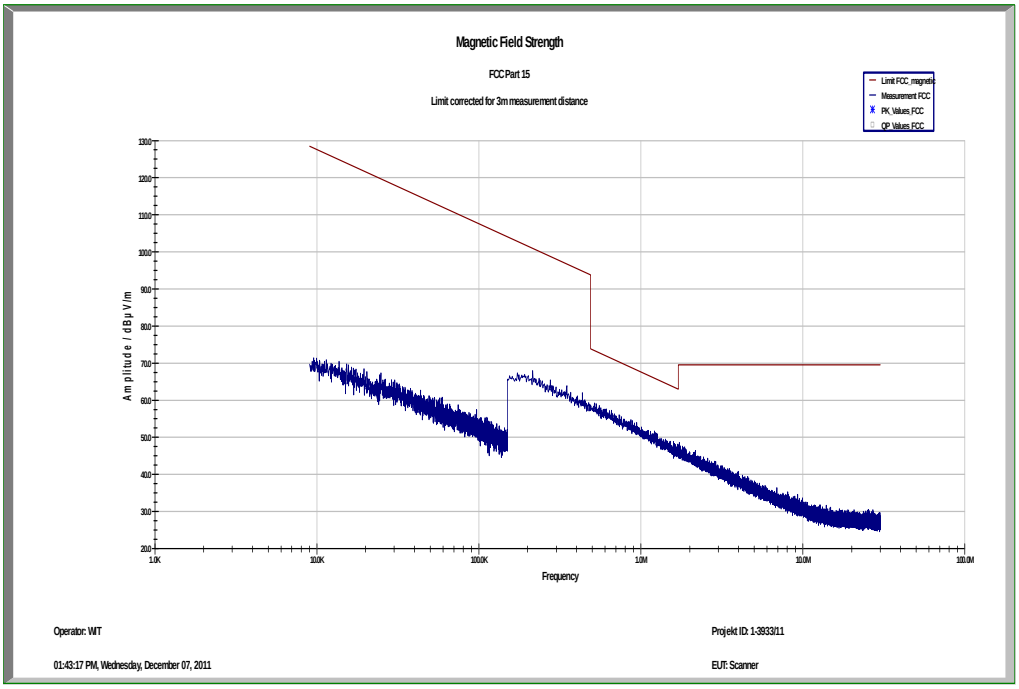
Results:

TX Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
No critical peaks found		
Measurement uncertainty	± 3 dB	

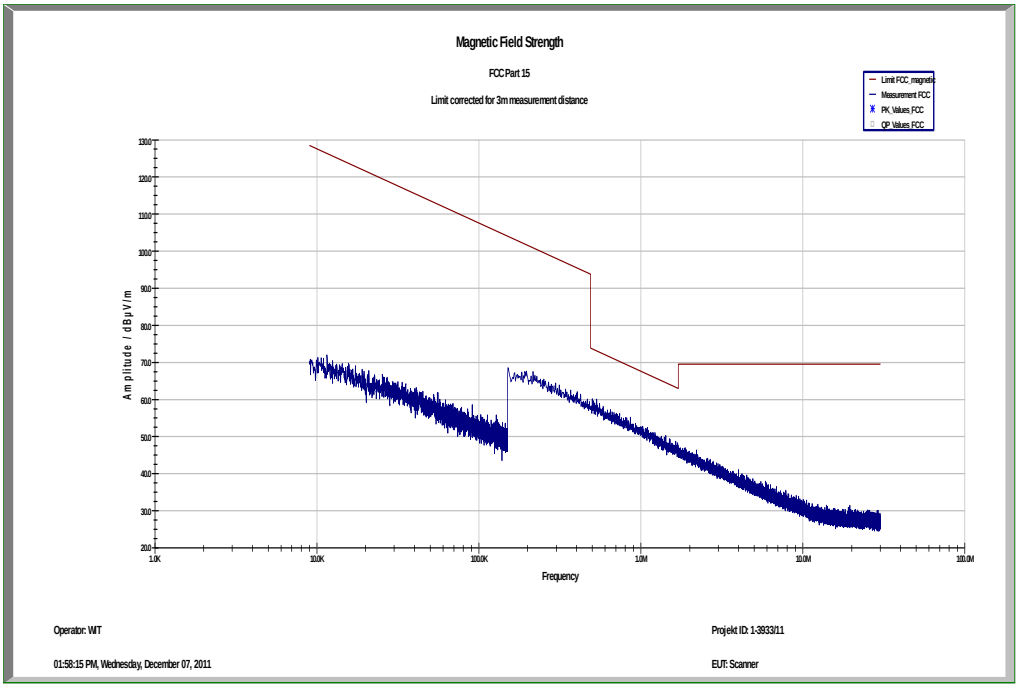
Result: **The measurement is passed.**

Plots: DSSS / b – mode

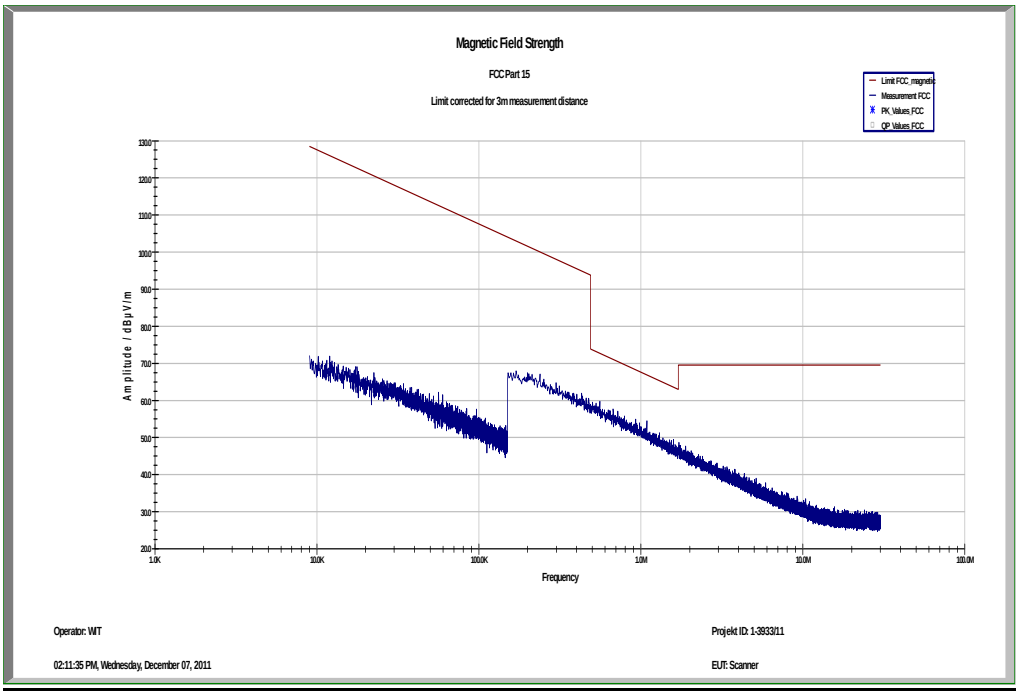
Plot 1: Lowest channel, 9 kHz to 30 MHz



Plot 2: Middle channel, 9 kHz to 30 MHz

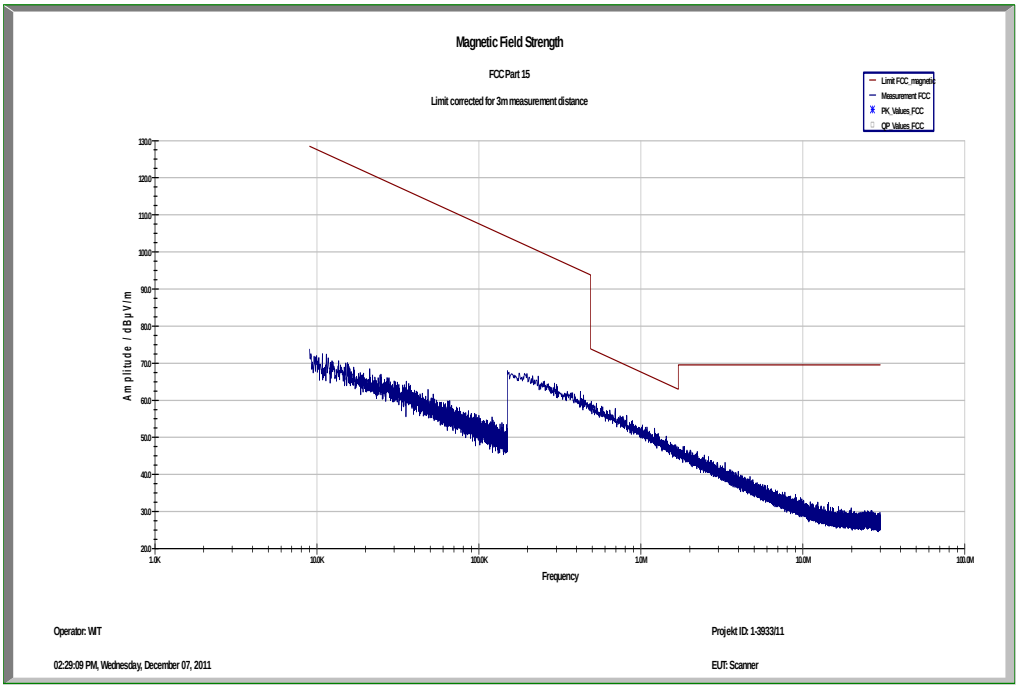


Plot 3: Highest channel, 9 kHz to 30 MHz

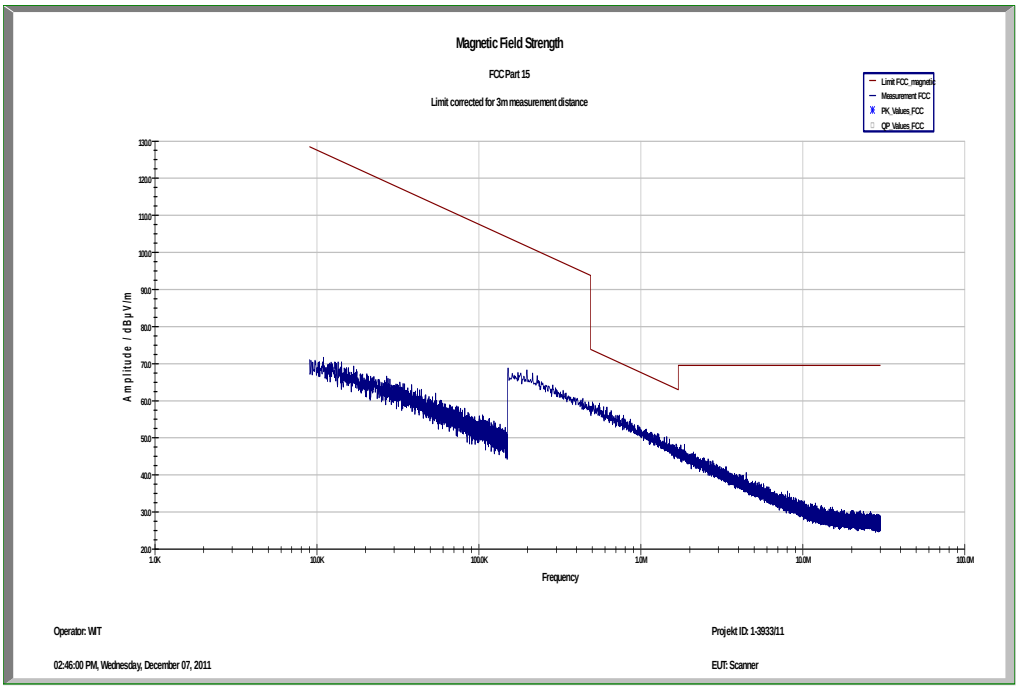


Plots: OFDM / g – mode

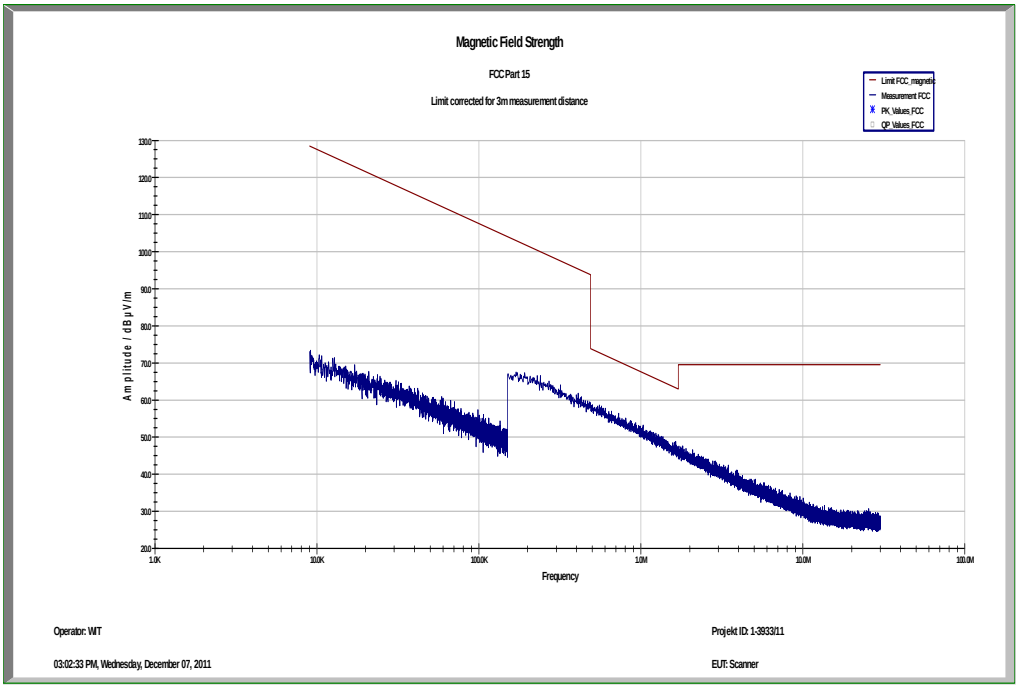
Plot 1: Lowest channel, 9 kHz to 30 MHz



Plot 2: Middle channel, 9 kHz to 30 MHz

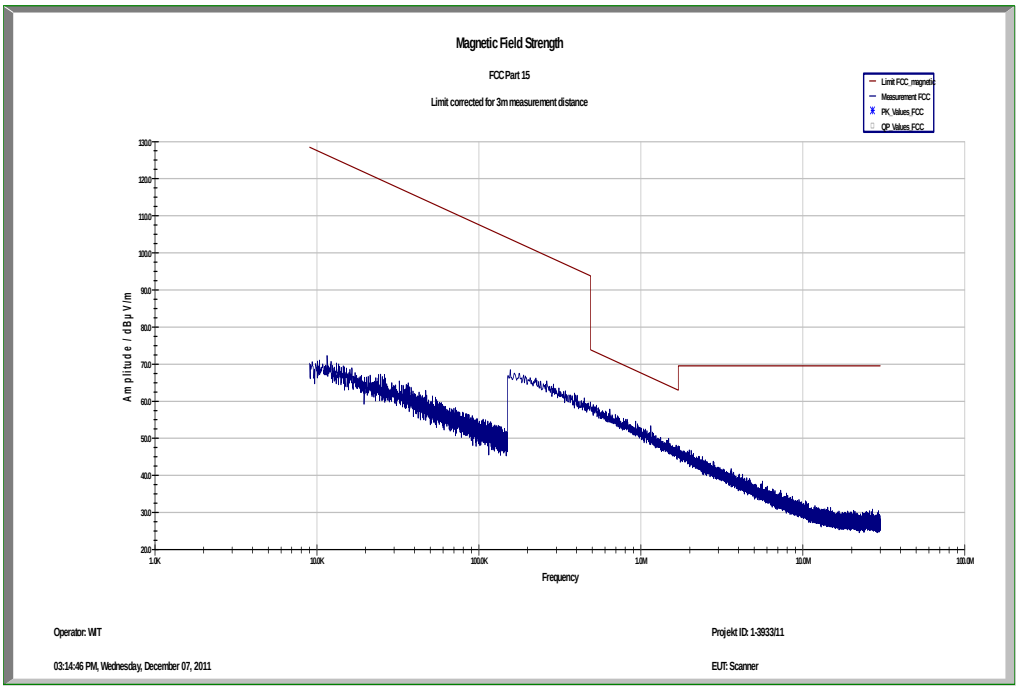


Plot 3: Highest channel, 9 kHz to 30 MHz



Plots: RX / Idle – mode

Plot 1: 9 kHz to 30 MHz



9.13 TX spurious emissions conducted < 30 MHz

Not performed

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 (Labor/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	Isolating Transformer	RT5A	Grundig	8041	300001626	g		
2	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	08.01.2009	08.01.2012
3	n. a.	Coaxial Attenuator 30dB/500W	8325	Bird	1530	300001595	ev		
4	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vlKl!	11.05.2011	11.05.2013
5	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
6	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996		23.03.2009	
7	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000222	ne		
8	9	Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	Ve	06.01.2010	06.01.2012
9	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
10	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
11	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
12	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
13	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
14	n. a.	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
15	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
16	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
17	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
18	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		
19	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
20	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
21	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k	08.09.2010	08.09.2012
22	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY47420220	300003813	k	13.09.2010	13.09.2012
23	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vlKl!	08.09.2010	08.09.2012

24	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vlKl!	14.10.2011	14.10.2014
25	A016	Std. Gain Horn Antenna 14.5-22.0 GHz	1924-20	Flann	33	300001963	ne		
26	A019	Std. Gain Horn Antenna 17.6-26.7 GHz	2024-20	Flann	156	300001968	ne		
27	n. a.	Amplifier	FLNA-28B	Farran	FTL 1067B	300002843	ne		
28	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
29	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580	ne		
30	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B5979	300000210	ne		
31	n. a.	EMI Test Receiver	ESCI 1166.5950.03	R&S	100083	300003312	k	05.01.2011	05.01.2013
32	n. a.	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	14.07.2011	14.07.2013
33	n. a.	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379	ev		
34	n. a.	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
35	n. a.	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
36	n. a.	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747	izw		
37	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	01.04.2010	01.04.2012
38	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	10.01.2011	10.01.2013

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

11 Observations

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