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

TEST REPORT

Test report no.: 1-6965/13-09-08

Deutsche
Akkreditierungsstelle
D-PL-12076-01-01

Testing laboratory

CETECOM ICT Services GmbH

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Internet: <http://www.cetecom.com>e-mail: ict@cetecom.com**Accredited Testing Laboratory:**

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

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

Area of Testing:

Radio Communications & EMC (RCE)

Applicant

Sony Mobile Communications AB

Nya Vattentornet

22188 Lund / SWEDEN

Phone: +46 46 19 30 00

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Contact: Mikael Nilsson

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Phone: +46 7 03 22 75 03

Manufacturer

Sony Mobile Communications AB

Nya Vattentornet

22188 Lund / SWEDEN

Test standard/s

47 CFR Part 15

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

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

Test Item

Kind of test item: Smart Phone GPRS/EGPRS 850/900/1800/1900; UMTS HSPA FDDI/V/VI/XIX; LTE FDD1/3/19/21; WLAN b/g/n/a/ac; BT 4.0; RFID; A-GPS**FCC ID:** PY7PM-0741**Frequency:** UNII bands: 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz
5470 MHz to 5725 MHz**Technology tested:** WLAN (OFDM/a – mode, n/ac HT20 – & n/ac HT40 – mode and ac HT80 – mode)**Antenna:** Integrated antenna**Power supply:** 3.7 V DC by Li - polymer battery**Temperature range:** -30°C to +60°C

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

Test report authorised:

p. o.

cn=David Lang, o=CETECOM ICT
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2014.03.05 15:32:13 +01'00'Andreas Luckenbill
Expert

Test performed:

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email=marco.bertolino@cetecom.com, c=DE
2014.03.05 15:25:42 +01'00'Marco Bertolino
Testing Manager

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

2.2 Application details

Date of receipt of order:	2013-12-19
Date of receipt of test item:	2014-02-03
Start of test:	2014-02-03
End of test:	2014-02-14
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

3.1 Measurement guidance

UNII: KDB 789033	2013-04	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E
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4 Test environment

Temperature:	T_{nom}	+22 °C during room temperature tests
	T_{max}	+60 °C during high temperature tests
	T_{min}	-30 °C during low temperature tests
Relative humidity content:		42 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V_{nom}	3.7 V DC by Li - polymer battery
	V_{max}	4.2 V
	V_{min}	3.3 V

5 Test item

Kind of test item	:	Smart Phone GPRS/EGPRS 850/900/1800/1900; UMTS HSPA FDDI/V/VI/XIX; LTE FDD1/3/19/21; WLAN b/g/n/a/ac; BT 4.0; RFID; A-GPS
S/N serial number	:	Radiated unit: CB5A1X9G1M, CB5A1X9G4T Conducted unit: CB5A1X7XCZ
HW hardware status	:	AP2.0
SW software status	:	RF test software
Frequency band	:	UNII bands: 5150 MHz to 5250 MHz; 5250 MHz to 5350 MHz 5470 MHz to 5725 MHz
Type of radio transmission	:	OFDM
Use of frequency spectrum	:	
Type of modulation	:	BPSK, QPSK, 16 – QAM; 64 – QAM and 256 – QAM
Number of channels	:	19
Antenna	:	Integrated antenna
Power supply	:	3.7 V DC by Li - polymer battery
Temperature range	:	-30°C to +60°C

5.1 Additional information

Test setup- and EUT-photos are included in test report: 1-6965/13-09-01_AnnexA
1-6965/13-09-01_AnnexB
1-6965/13-09-01_AnnexD

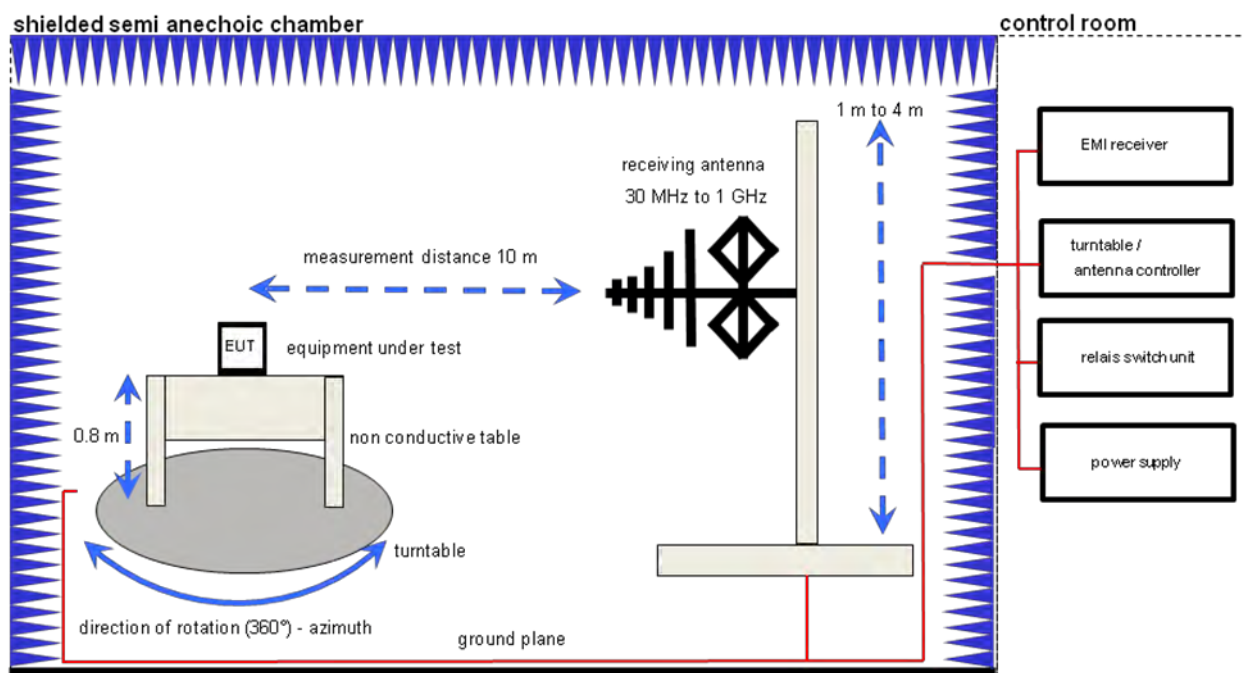
6 Test laboratories sub-contracted

None

7 Description of the test setup

7.1 Radiated measurements chamber F

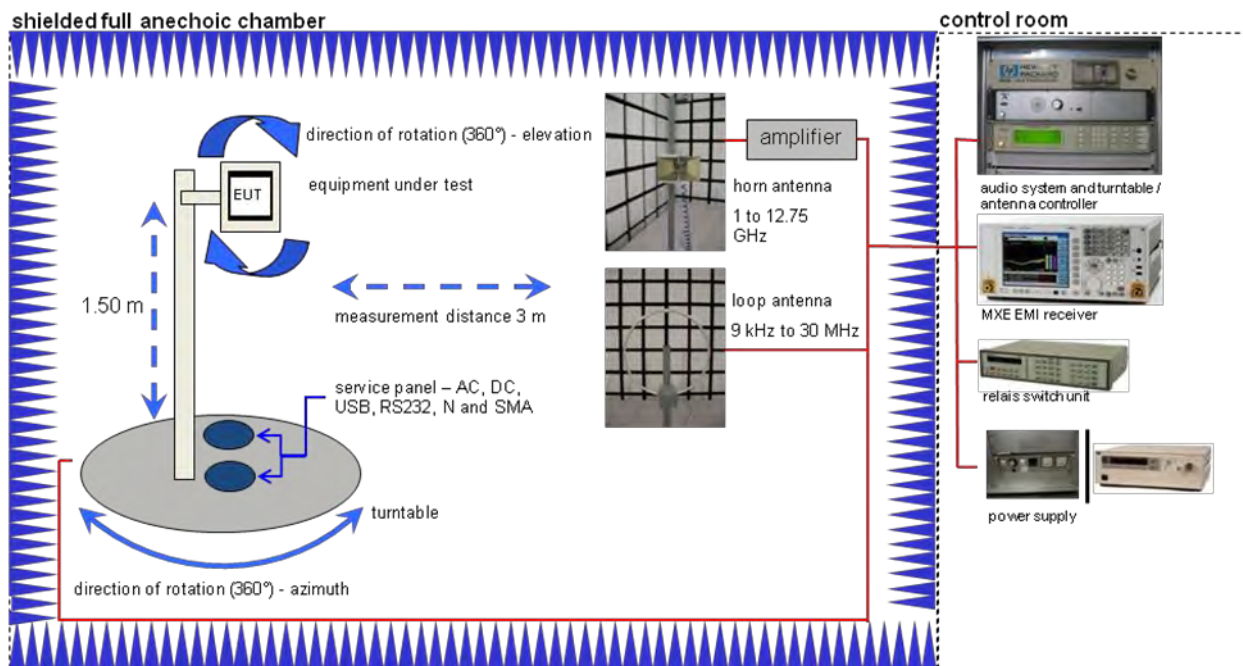
The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 1 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas 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:

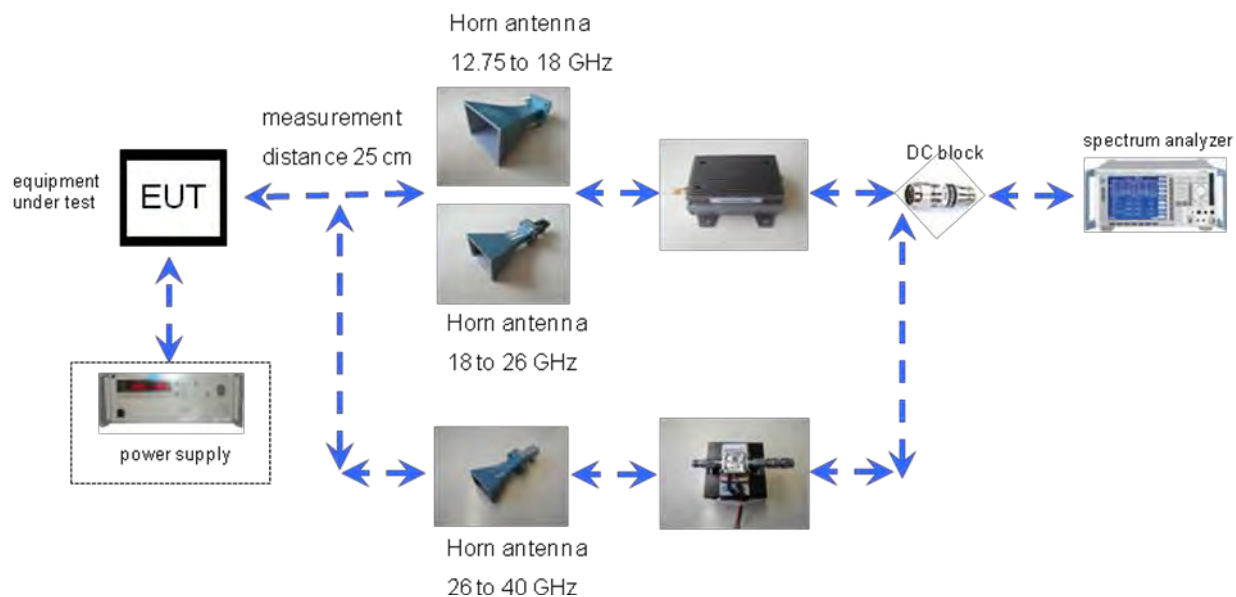
Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368
DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580
EMI Test Receiver	ESCI 3	R&S	100083	300003312
Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379
Antenna Tower	Model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

7.2 Radiated measurements chamber C



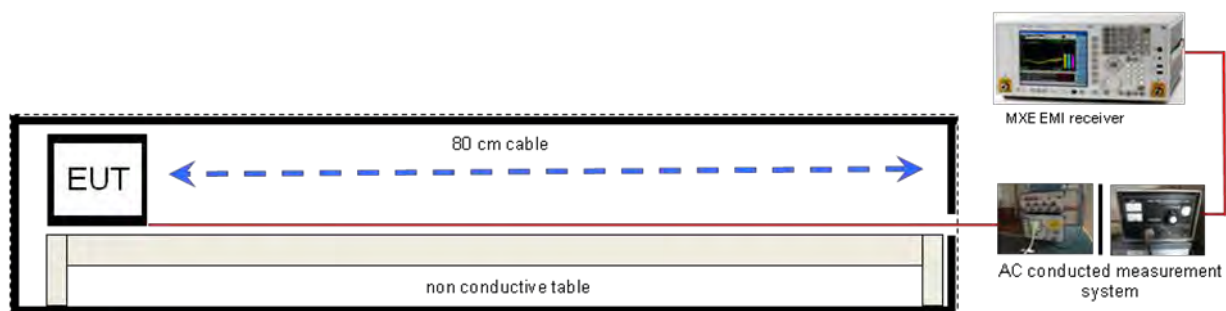
Equipment table:

Equipment	Type	Manufacturer	Serial No.	INV. No Cetecom
MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405
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 40 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
Std. Gain Horn Antenna 26.5-40.0 GHz	V637	Narda	7911	300001751
Broadband Low Noise Amplifier 18-50 GHz	CBL18503070-XX	CERNEX	19338	300004273
Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443
Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517

7.4 AC conducted



Equipment table:

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

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	Passed	2014-03-05	Delta tests according to manufacturer test plan!

Test specification clause	Test case	Temperature conditions	Power source voltages	Pass	Fail	NA	NP	Remark
-/-	Output power verification (conducted)	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
-/-	Gain	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
U-NII Part 15	Duty cycle	Nominal	Nominal	☐	☐	☐	☐	No passed / fail criteria!
§15.407(a)	Maximum output power (conducted & radiated)	Nominal	Nominal	☐	☐	☐	☒	-/-
§15.407(a)	Power spectral density	Nominal	Nominal	☐	☐	☐	☒	-/-
§15.407(a)	Spectrum bandwidth 26dB bandwidth	Nominal	Nominal	☐	☐	☐	☒	-/-
§15.407(a)	Peak excursion measurements	Nominal	Nominal	☐	☐	☐	☒	-/-
§15.205	Band edge compliance radiated	Nominal	Nominal	☒	☐	☐	☐	complies
§15.407(b)	TX spurious emissions radiated	Nominal	Nominal	☒	☐	☐	☐	complies
§15.109	RX spurious emissions radiated	Nominal	Nominal	☒	☐	☐	☐	complies
§15.209(a)	Spurious emissions radiated < 30 MHz	Nominal	Nominal	☒	☐	☐	☐	complies
§15.107(a) §15.207	Spurious emissions conducted emissions < 30 MHz	Nominal	Nominal	☒	☐	☐	☐	complies

Note: NA = Not Applicable; NP = Not Performed

9 Additional comments

Reference documents: Main test report:
1-6965/13-13-09-A / PY7TS-0020 (conducted values)

Special test descriptions: None

Configuration descriptions: None

Test mode: ☐ No test mode available.

☒ Special software is used.
EUT is transmitting pseudo random data by itself

10 Measurement results

10.1 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 the lowest channel for the lower restricted band and to the highest channel for the upper restricted band. Measurement distance is 3m.

Measurement:

Measurement parameter	
Detector:	Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	10 Hz / 1 MHz
Span:	See plots!
Trace-Mode:	Max Hold

Limits:

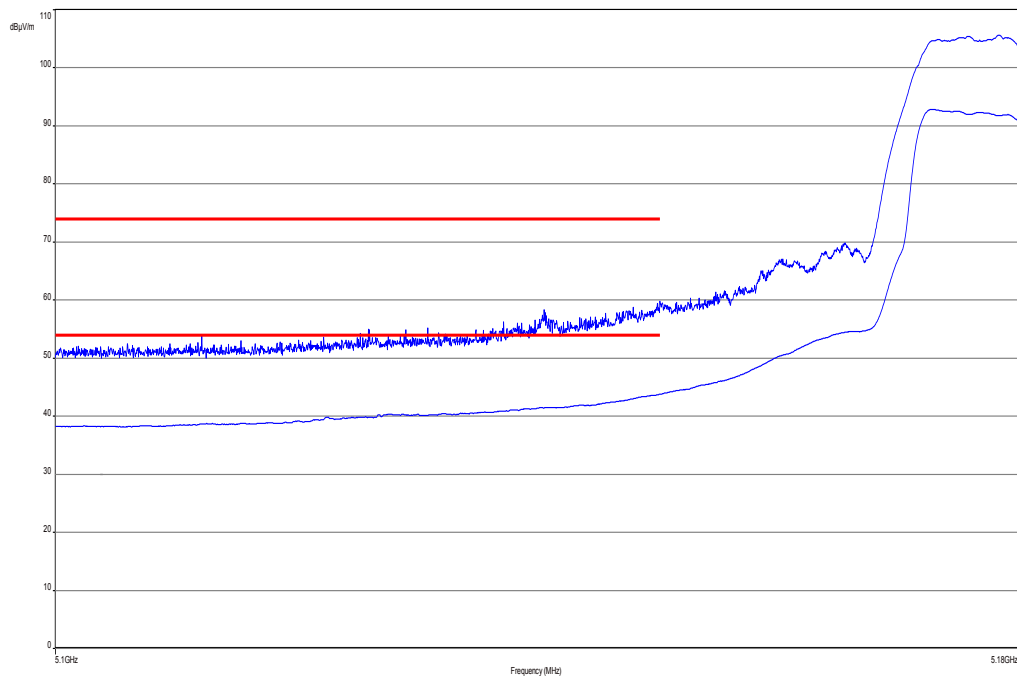
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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)).
74 dB μ V/m Peak 54 dB μ V/m AVG

Result:

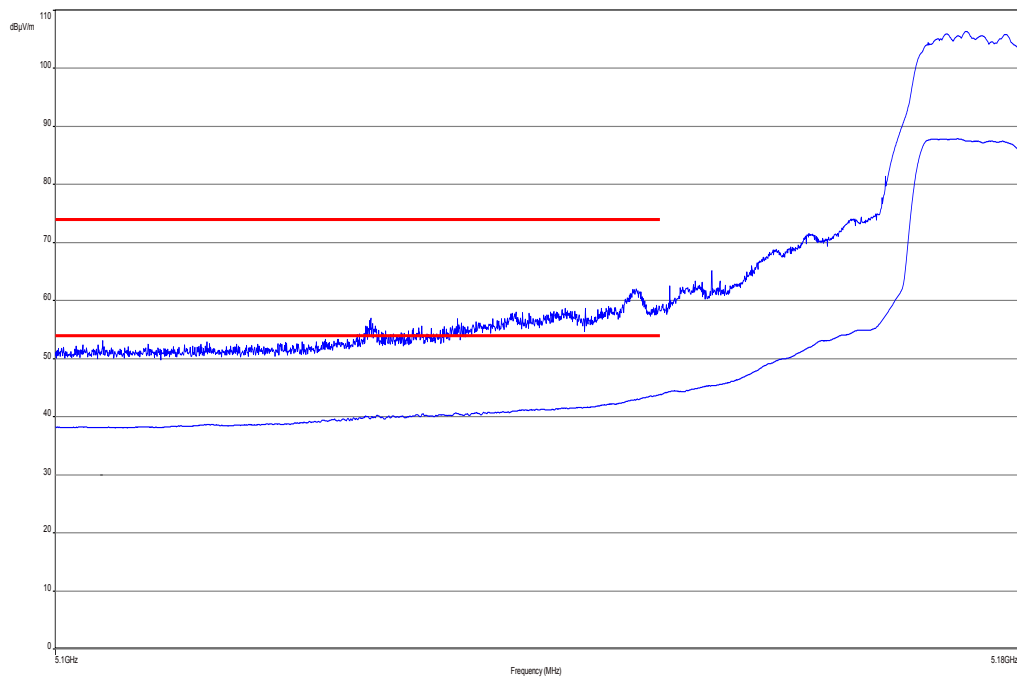
Scenario	Band Edge Compliance Radiated [dB μ V/m]
band edge	< 74 dB μ V/m (Peak) < 54 dB μ V/m (AVG)
Measurement uncertainty	± 3 dB

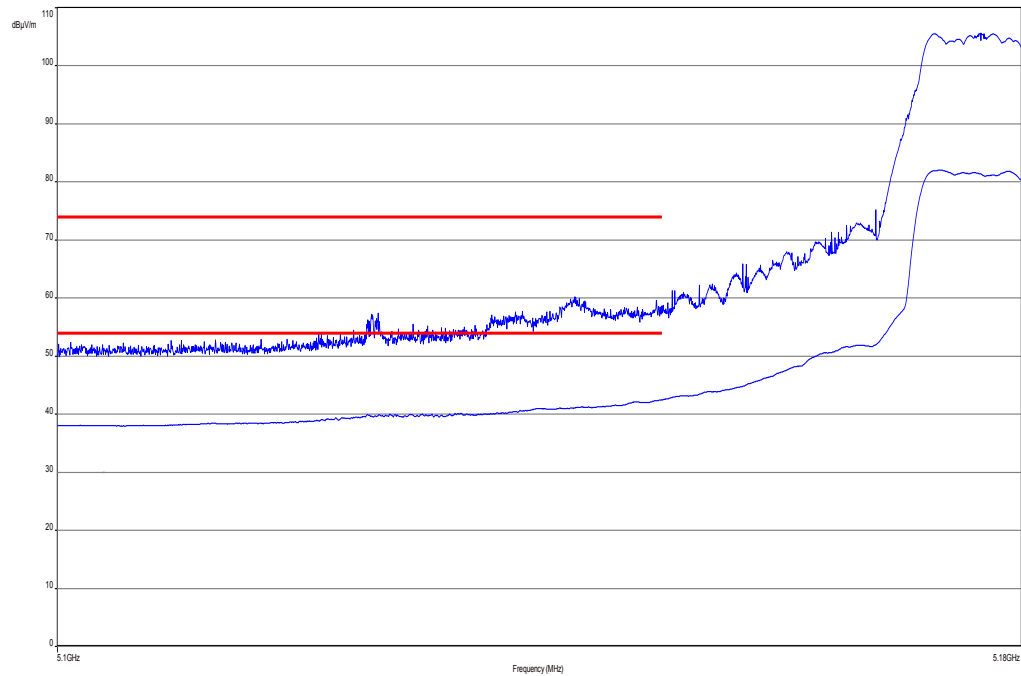
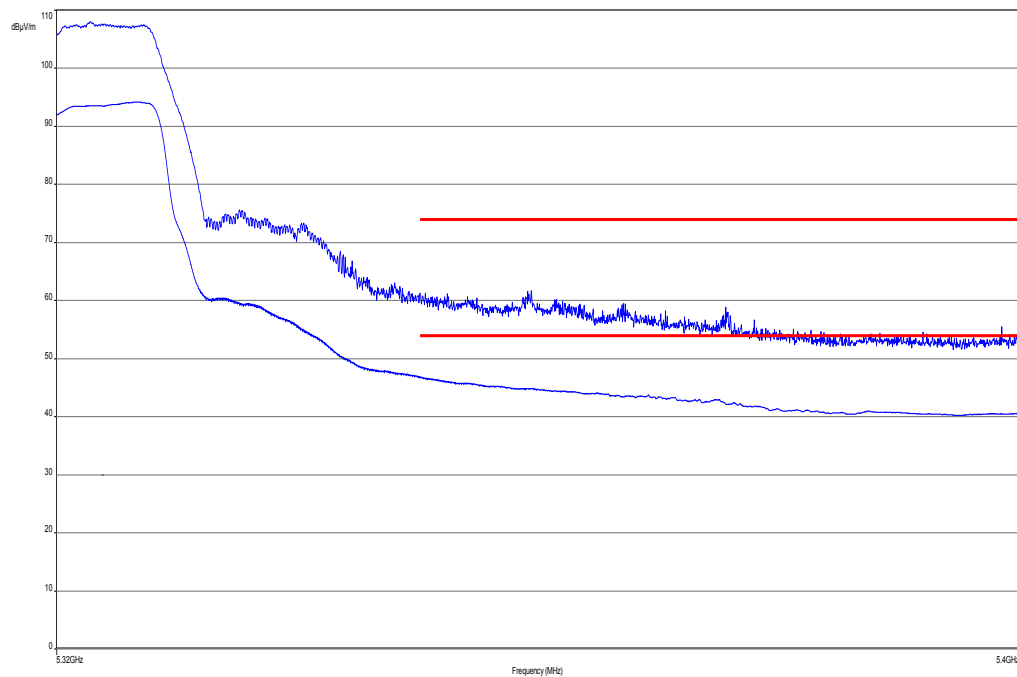
Plots:

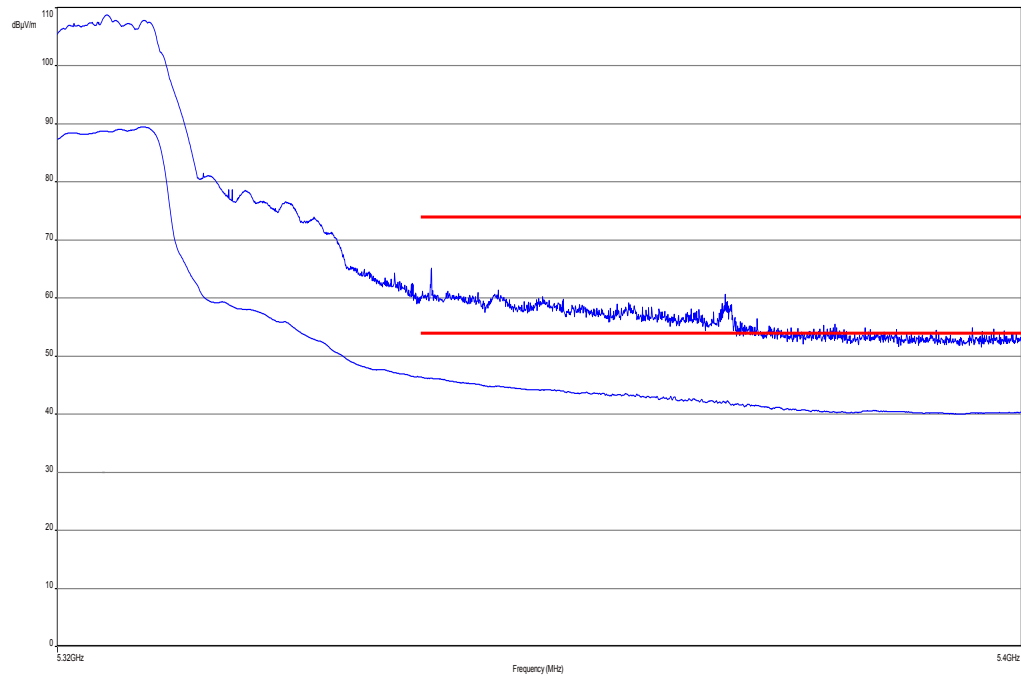
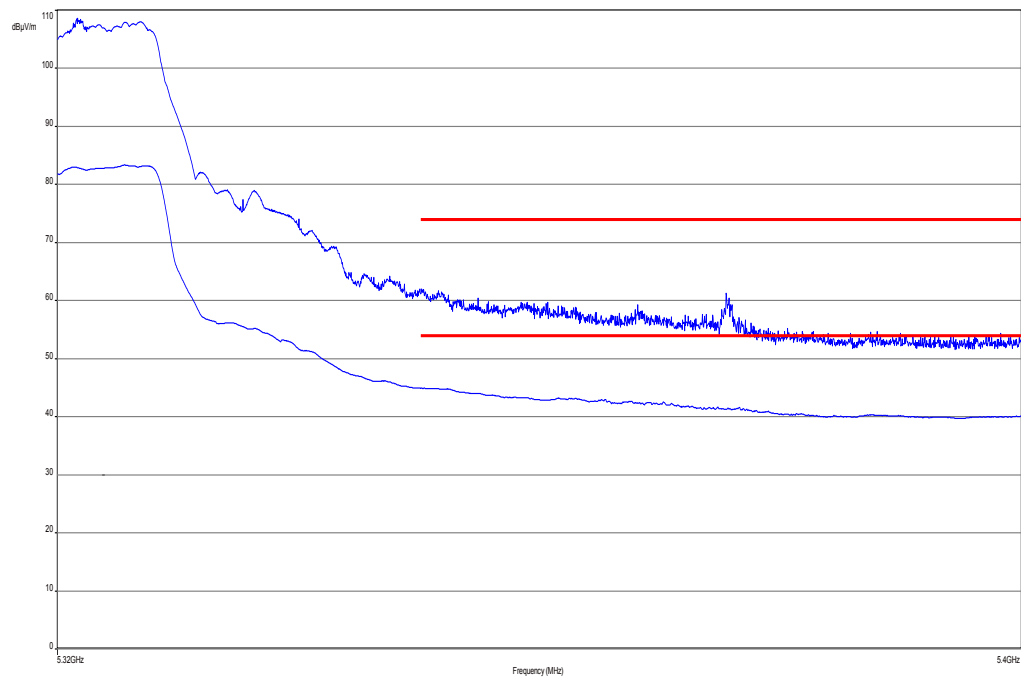
Plot 1: lower band edge, vertical & horizontal polarization (a mode), channel 36, low d. r.

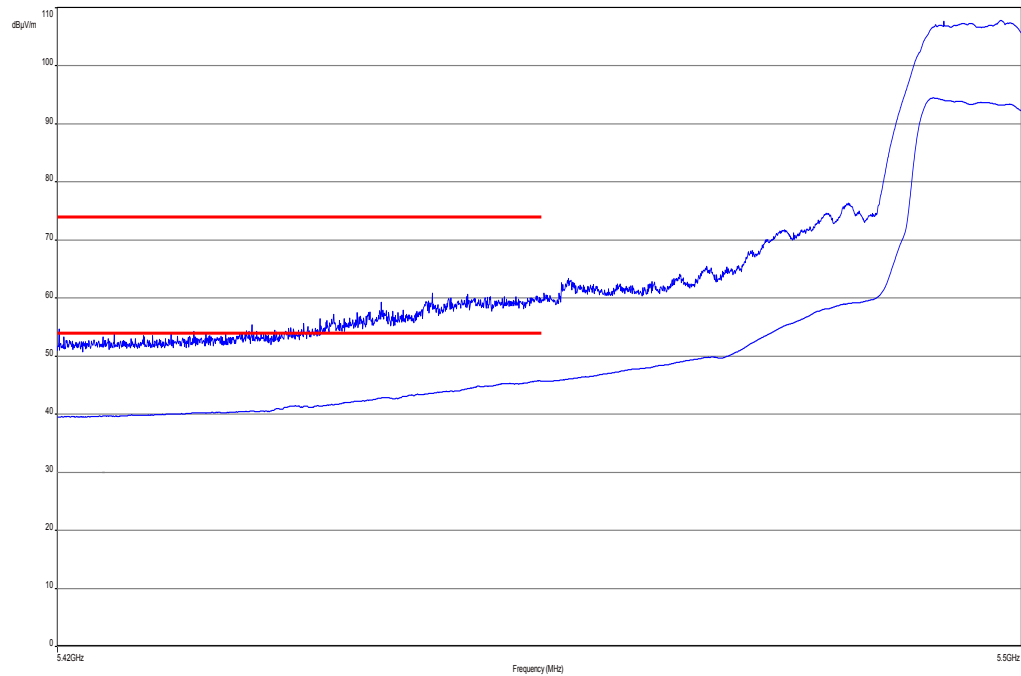
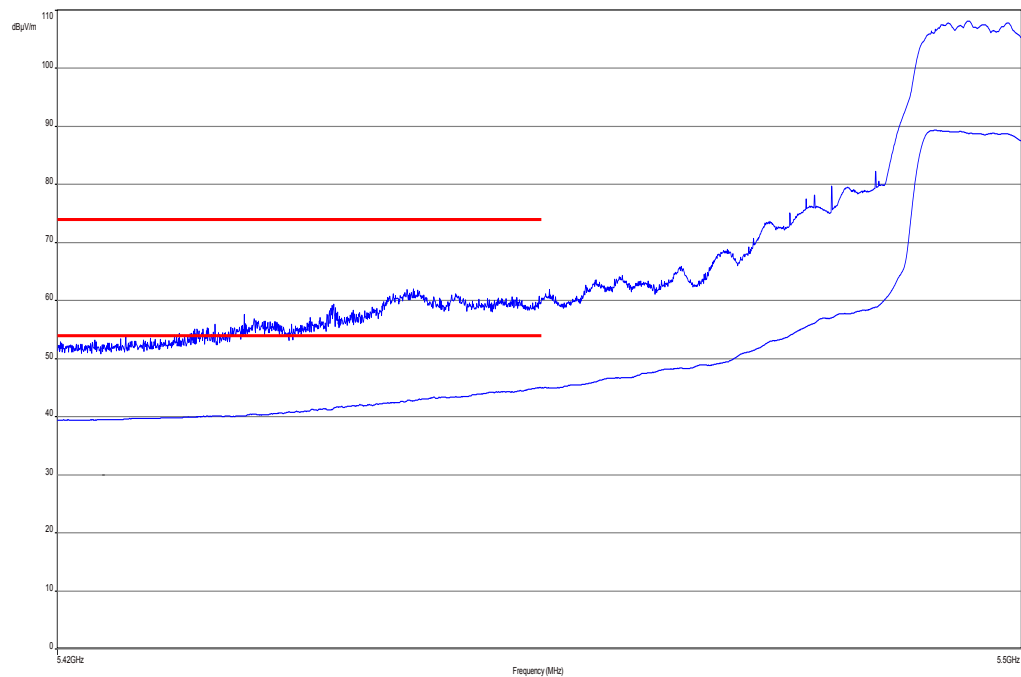


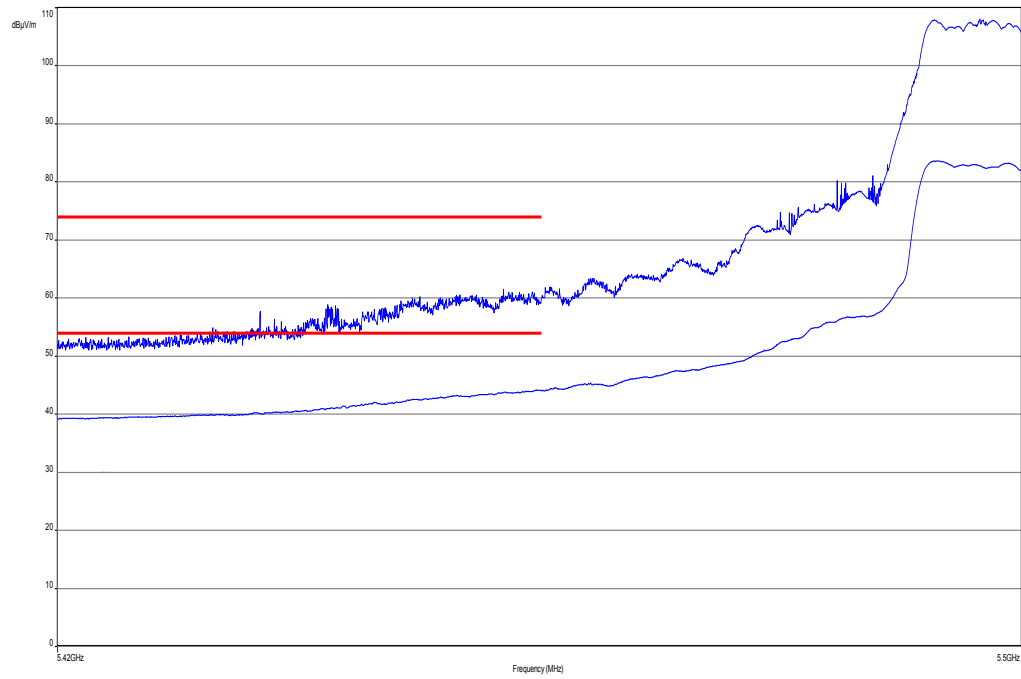
Plot 2: lower band edge, vertical & horizontal polarization (a mode), channel 36, high power d. r.

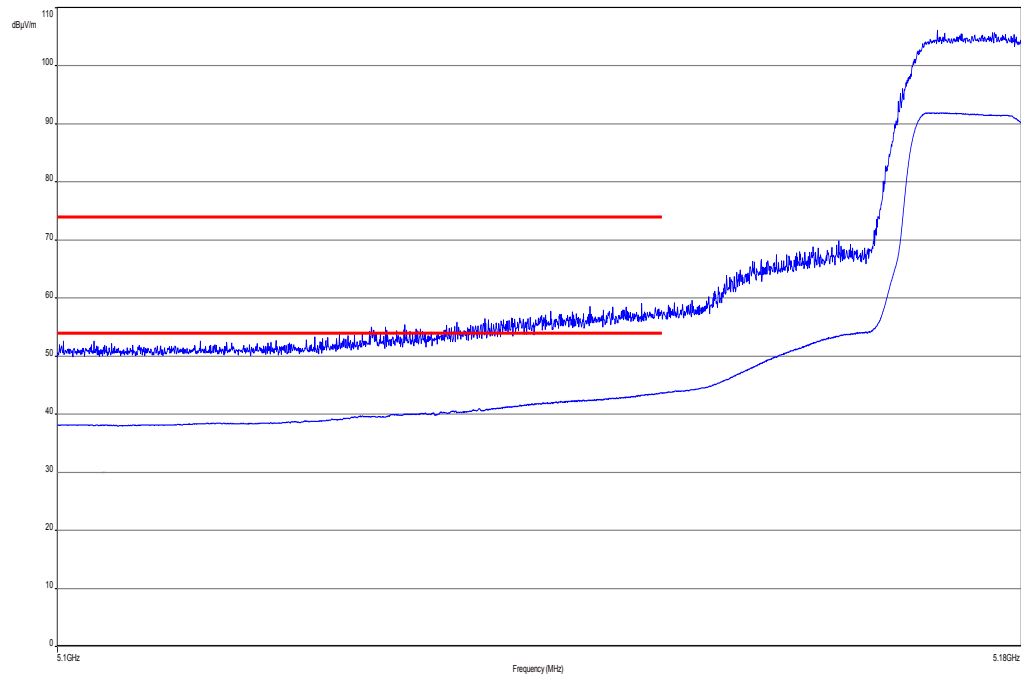
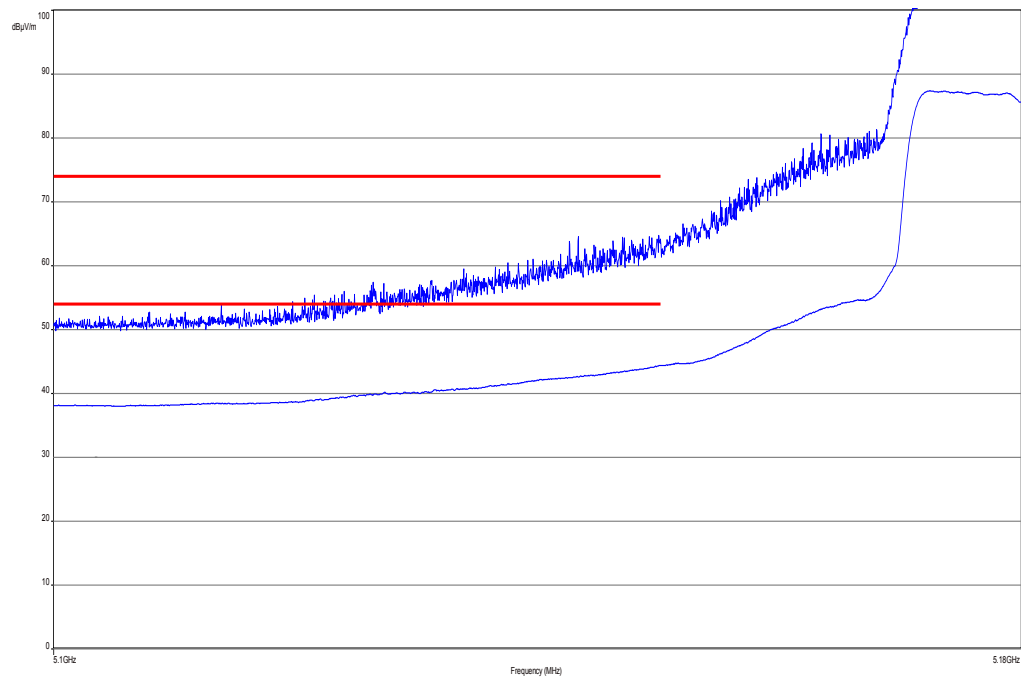


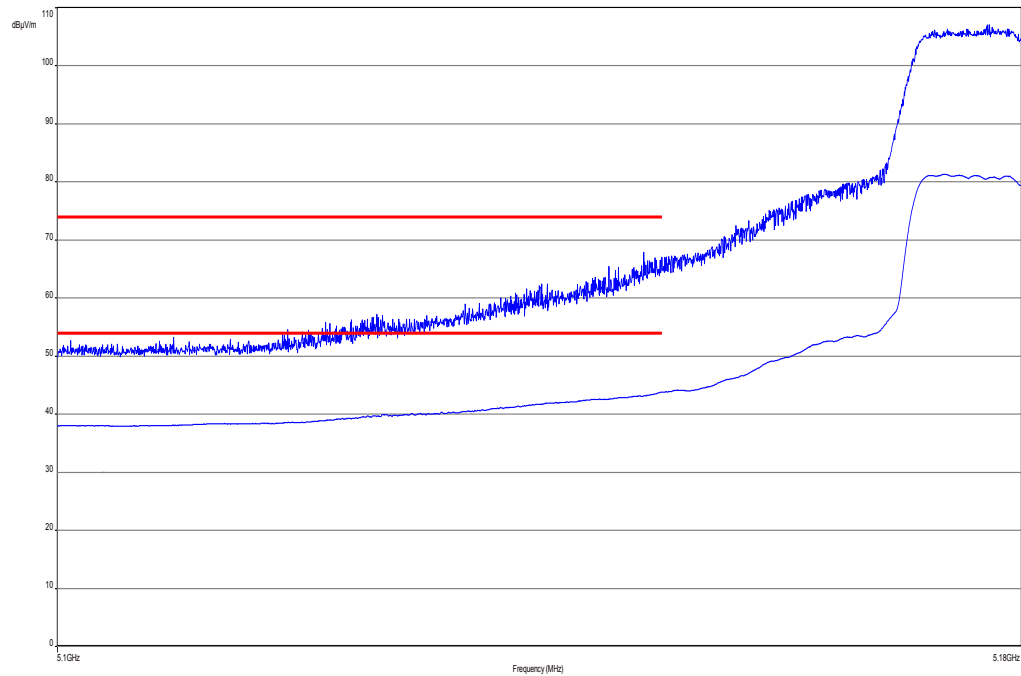
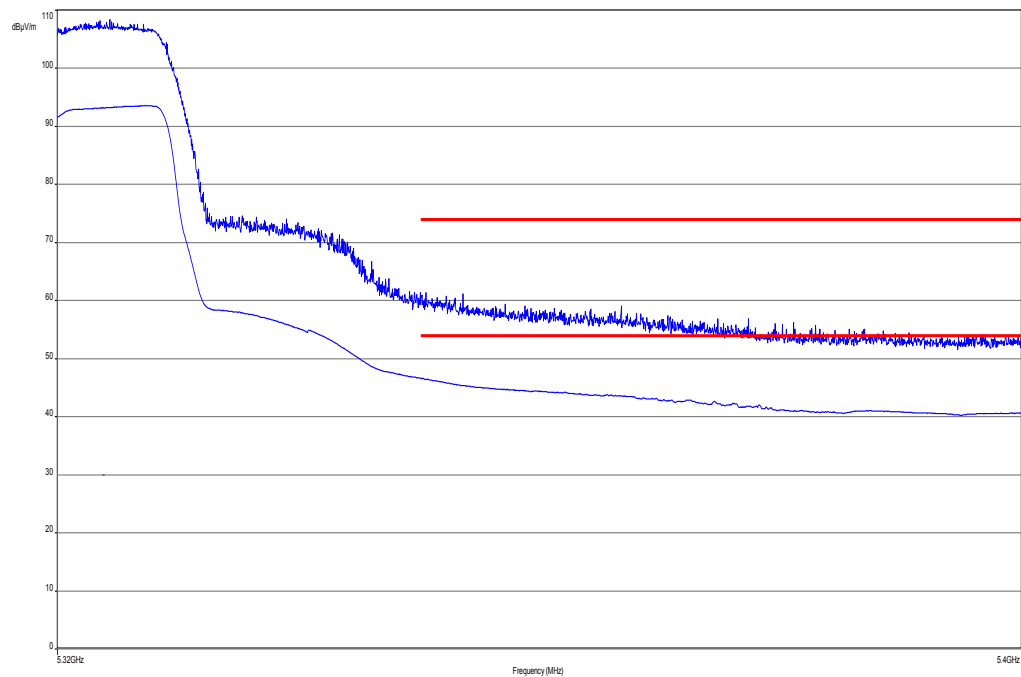
Plot 3: lower band edge, vertical & horizontal polarization (a mode), channel 36, high d. r.**Plot 4:** upper band edge, vertical & horizontal polarization (a mode), channel 64, low d. r.

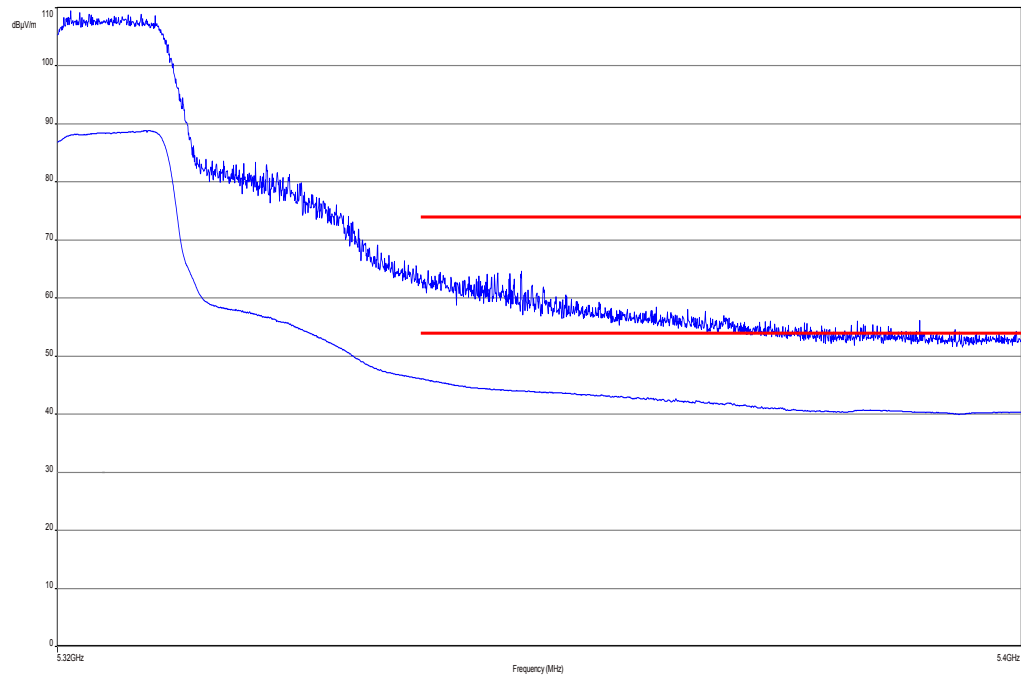
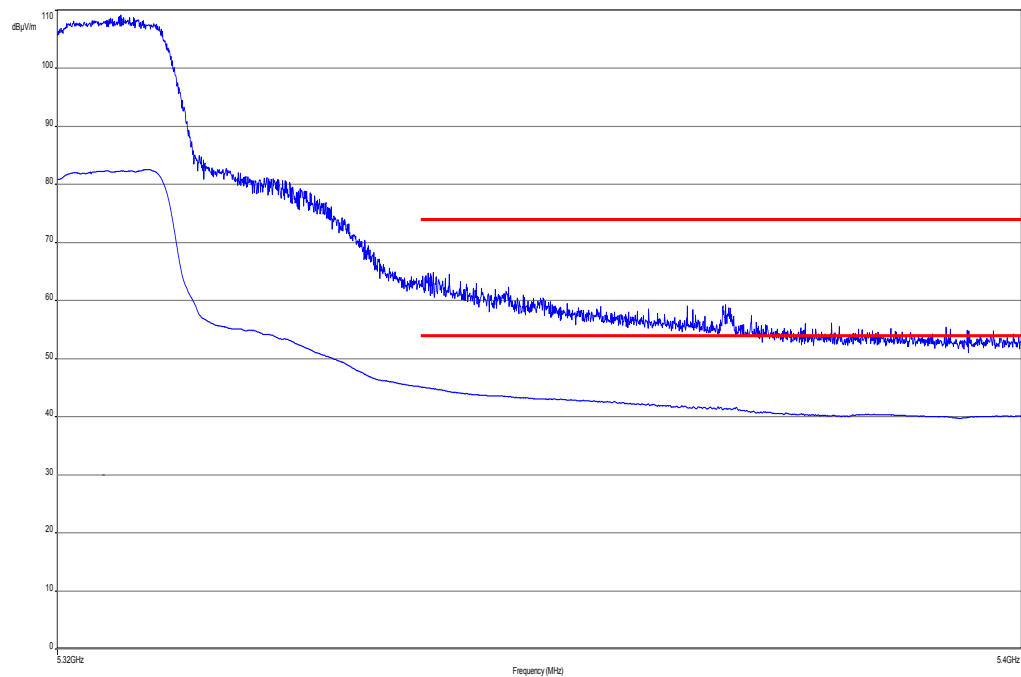
Plot 5: upper band edge, vertical & horizontal polarization (a mode), channel 64, high power d. r.**Plot 6:** upper band edge, vertical & horizontal polarization (a mode), channel 64, high d. r.

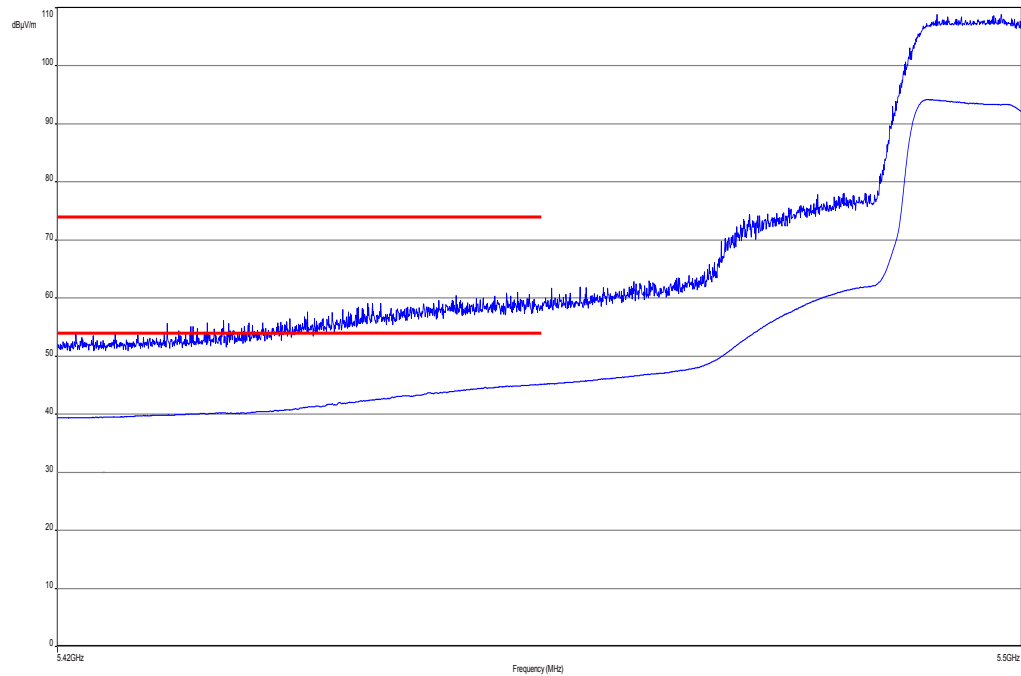
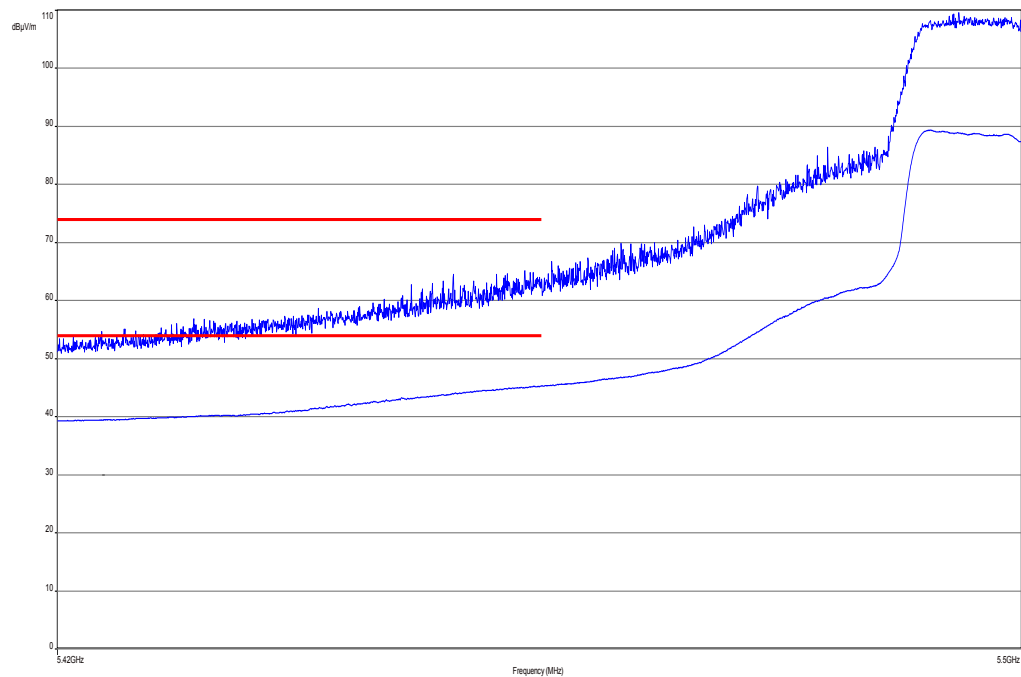
Plot 7: lower band edge, vertical & horizontal polarization (a mode), channel 100, low d. r.**Plot 8:** lower band edge, vertical & horizontal polarization (a mode), channel 100, high power d. r.

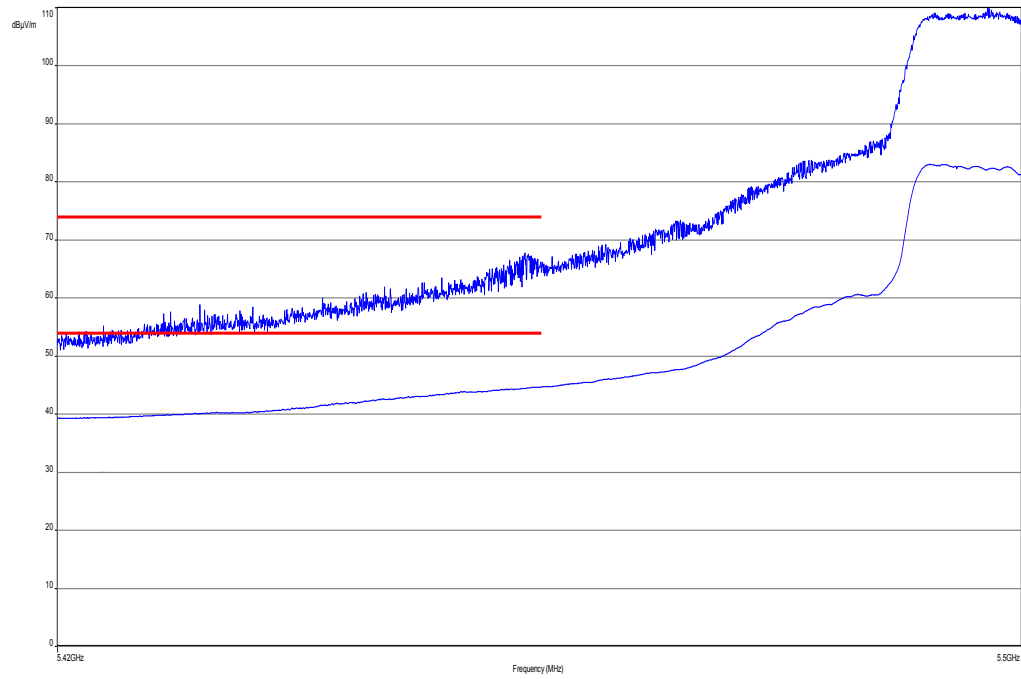
Plot 9: lower band edge, vertical & horizontal polarization (a mode), channel 100, high d. r.

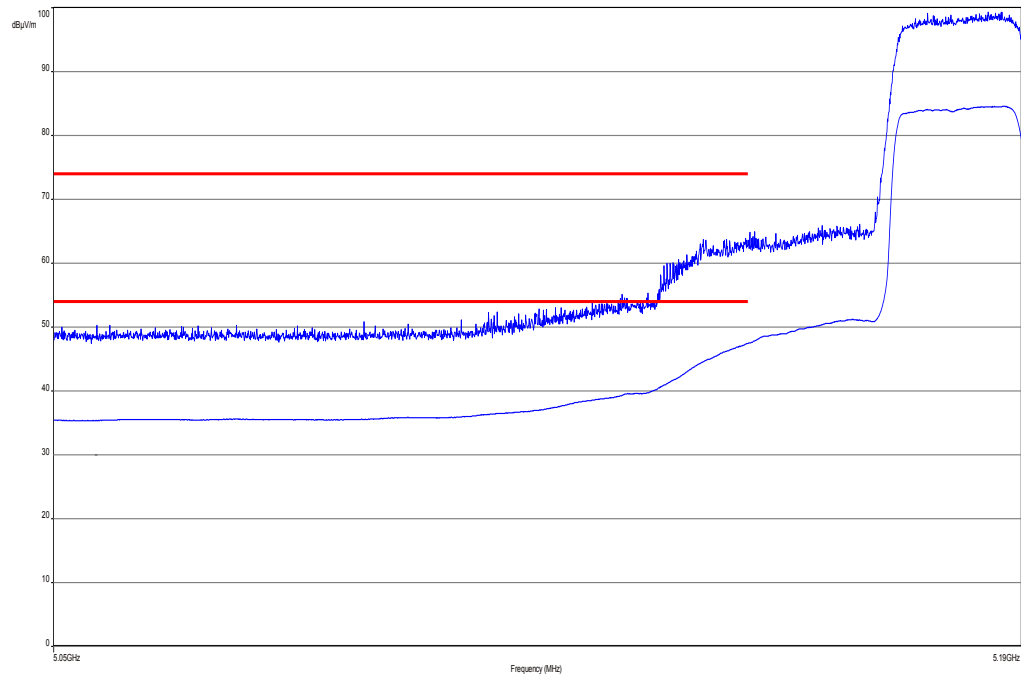
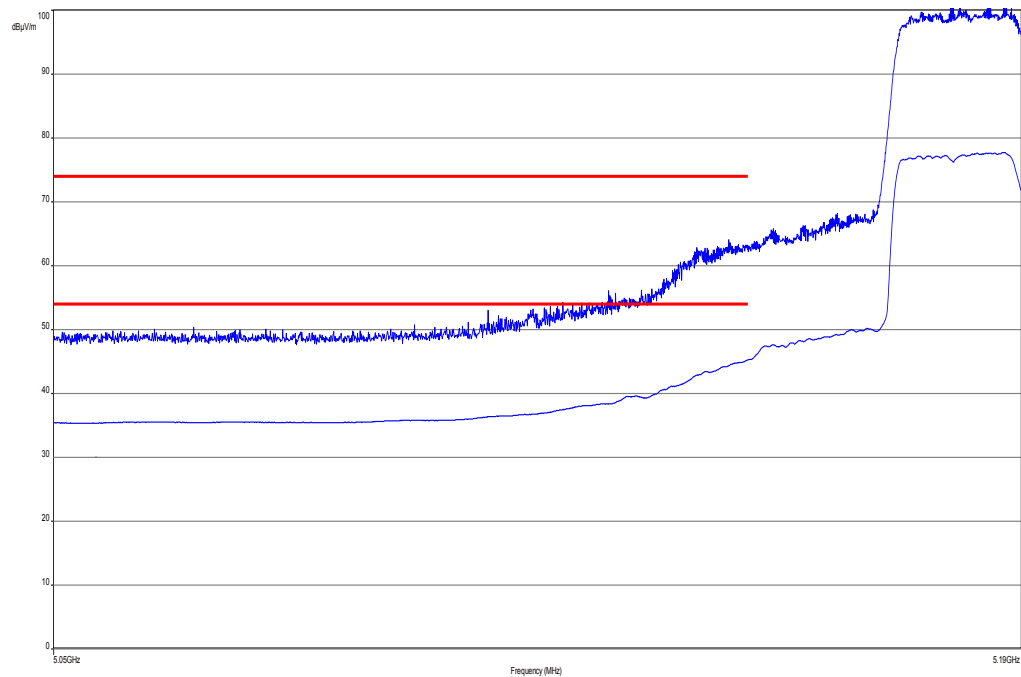
Plot 10: lower band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 36, low d. r.**Plot 11:** lower band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 36, high power d. r.

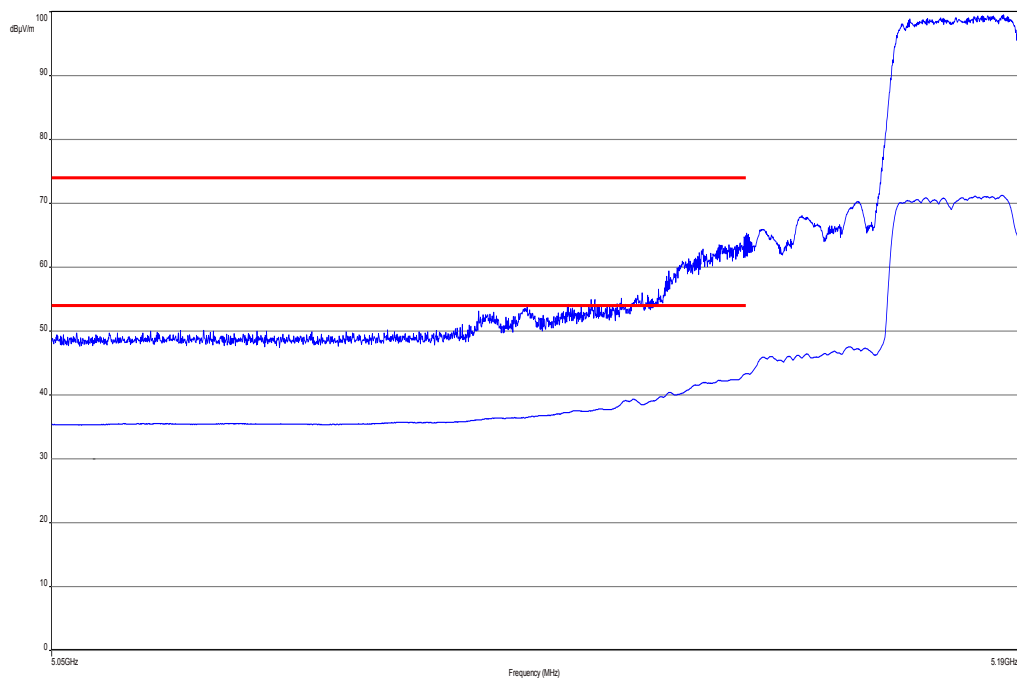
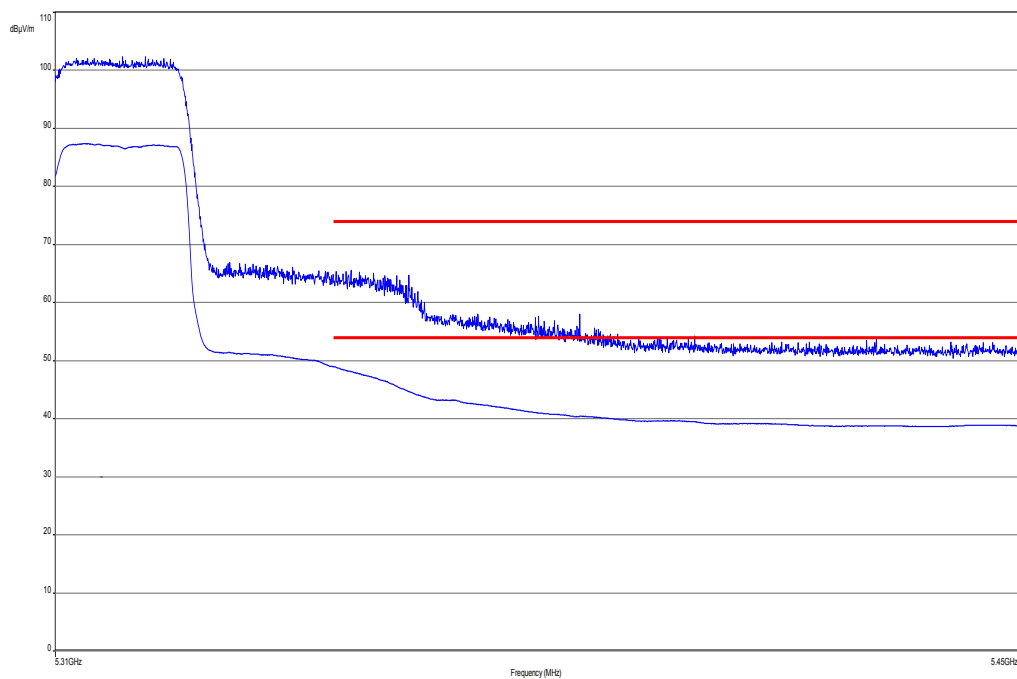
Plot 12: lower band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 36, high d. r.**Plot 13:** upper band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 64, low d. r.

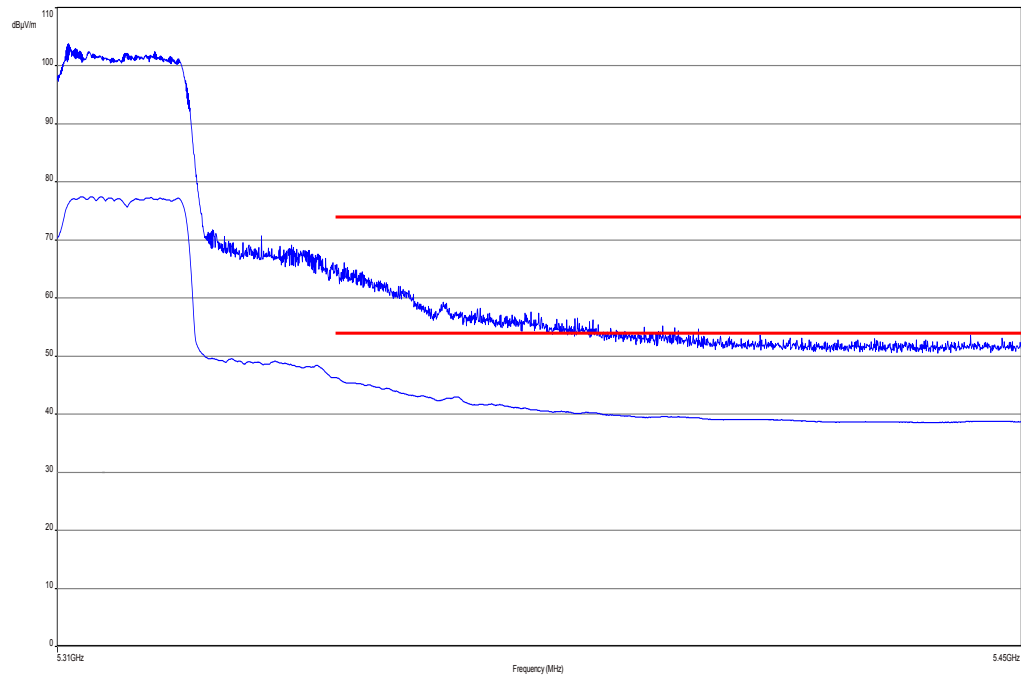
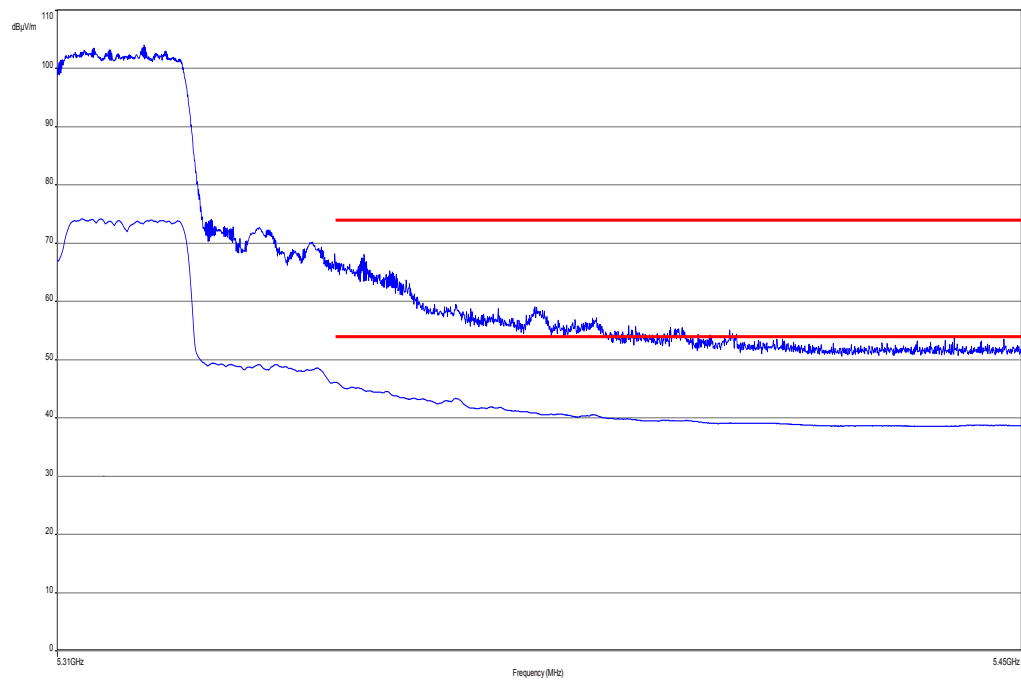
Plot 14: upper band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 64, high power d. r.**Plot 15:** upper band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 64, high d. r.

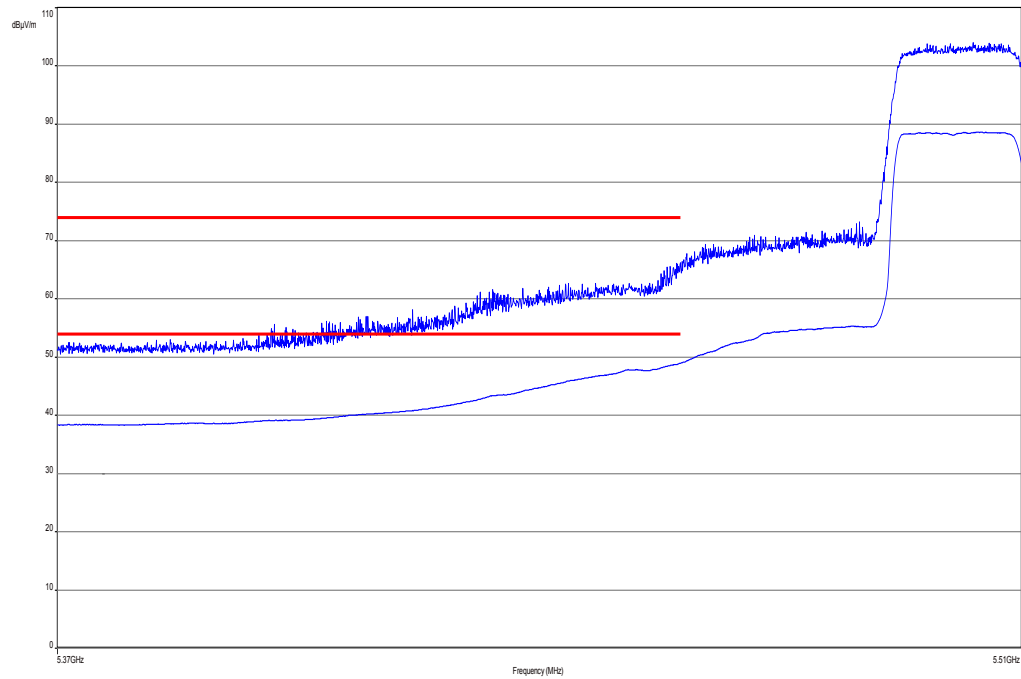
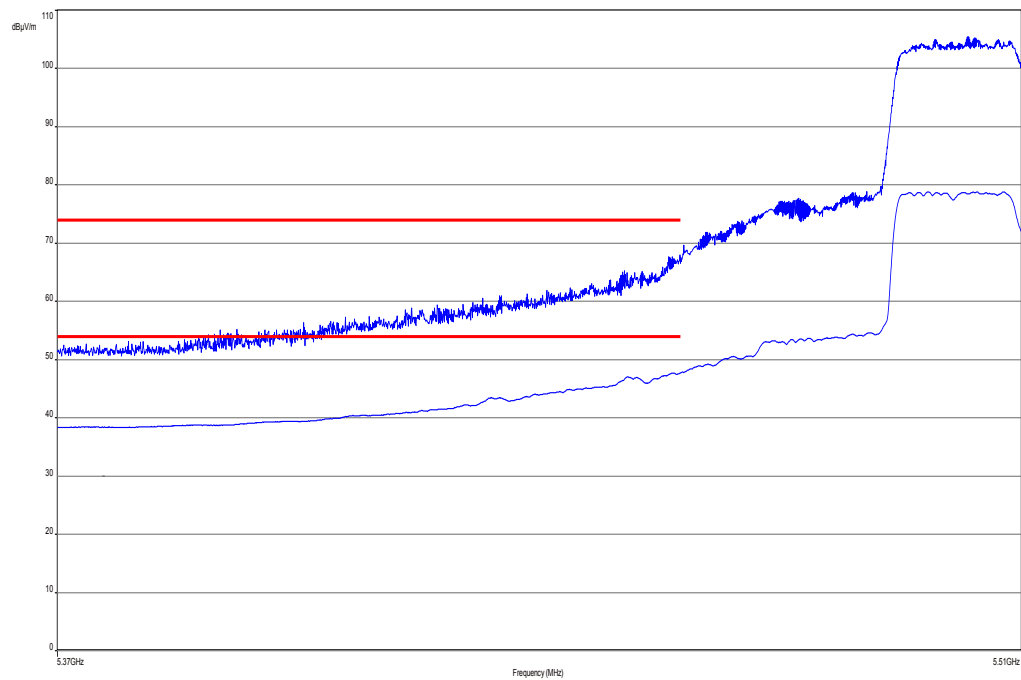
Plot 16: lower band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 100, low d. r.**Plot 17:** lower band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 100, high power d. r.

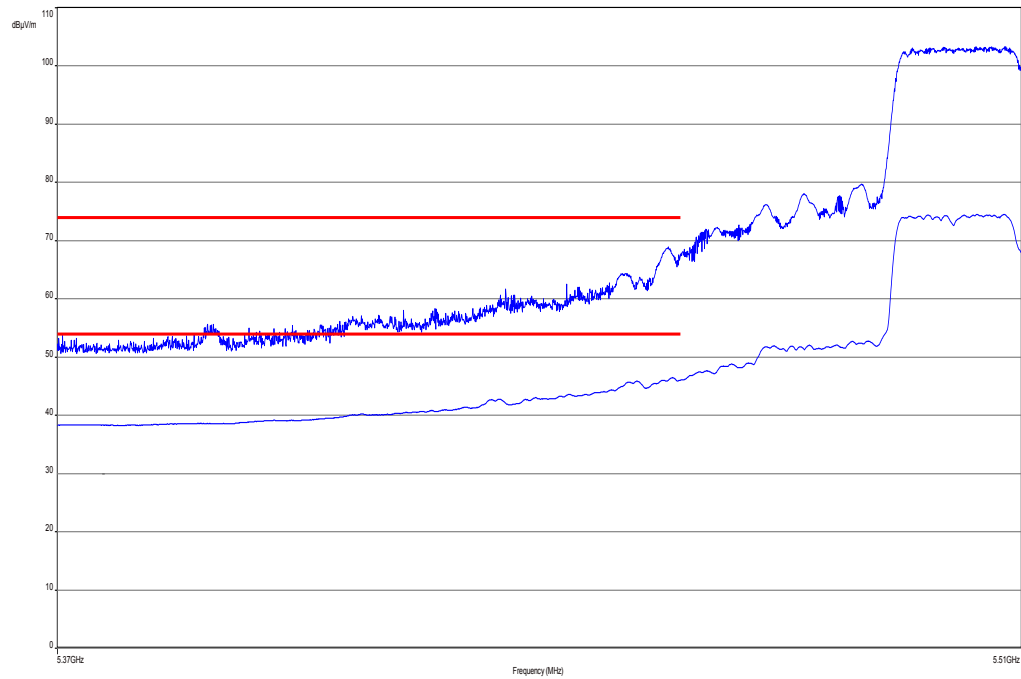
Plot 18: lower band edge, vertical & horizontal polarization (n/ac HT 20 mode), channel 100, high d. r.

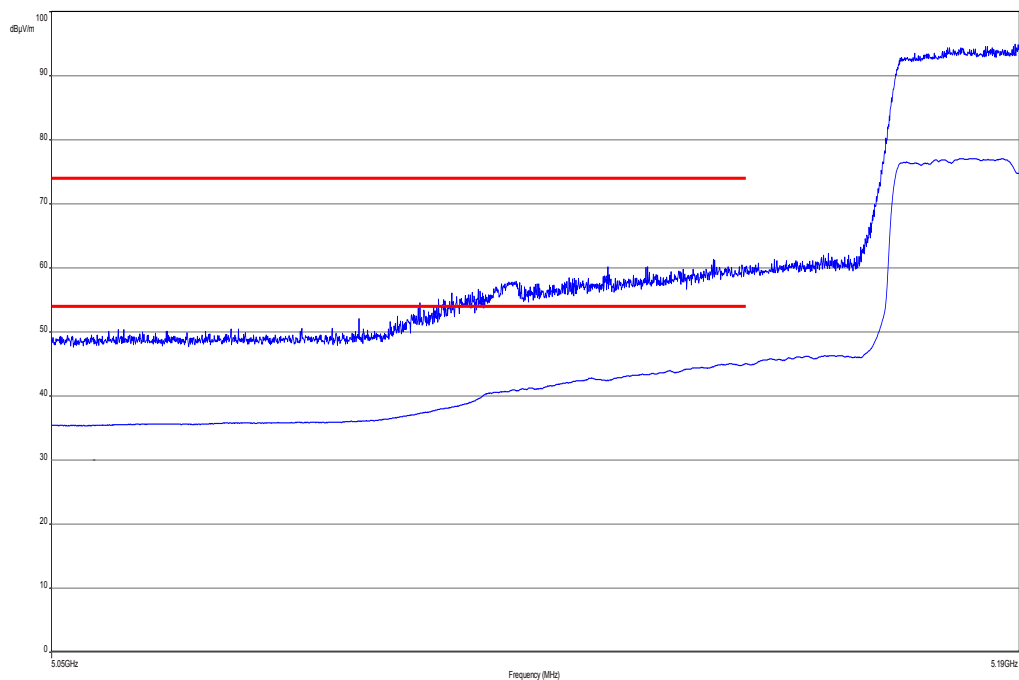
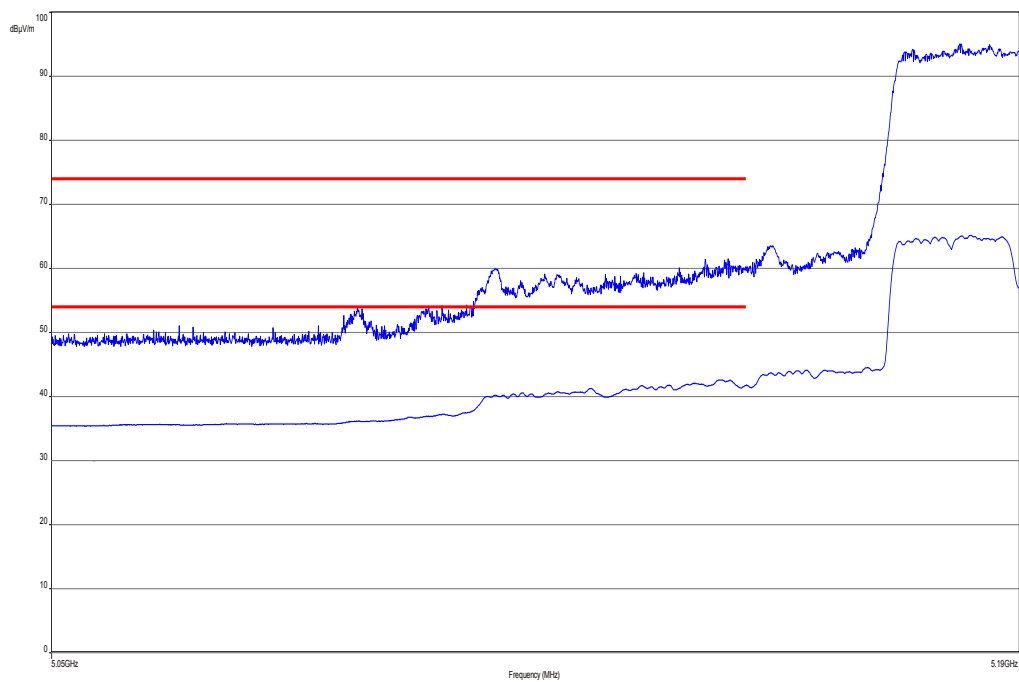
Plot 19: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 38, low d. r.**Plot 20:** lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 38, high power d. r.

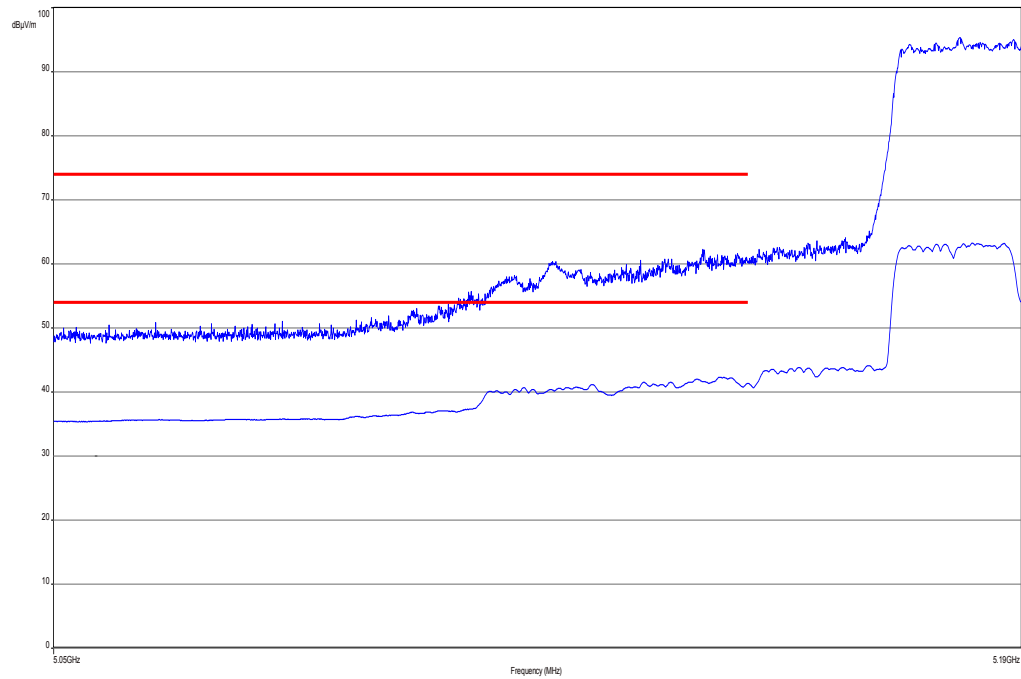
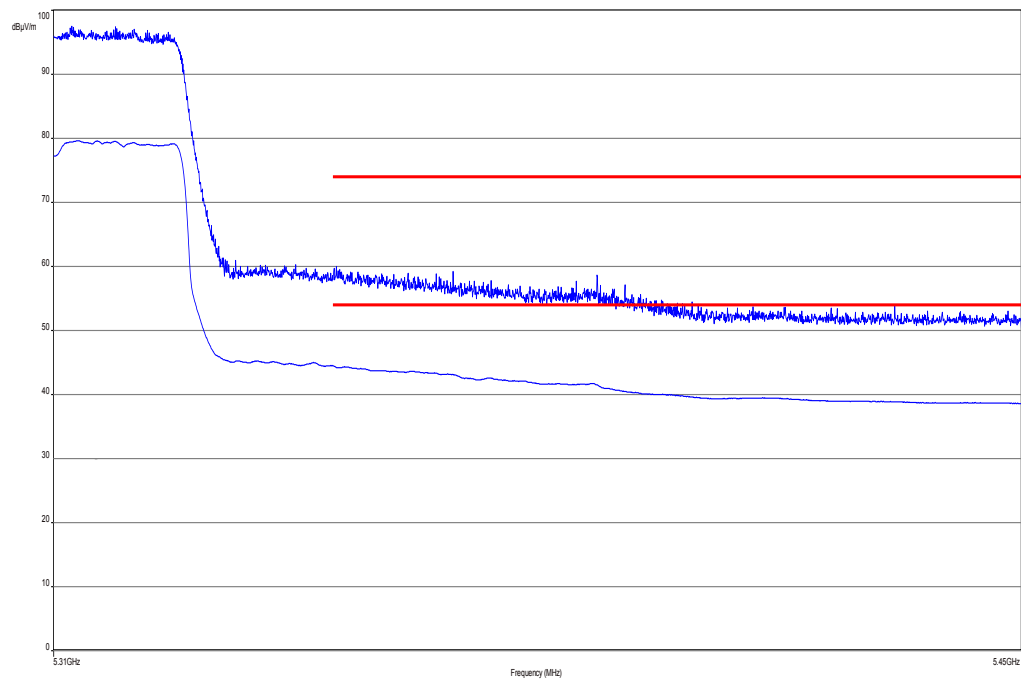
Plot 21: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 38, high d. r.**Plot 22:** upper band edge, vertical & horizontal polarization (n HT 40 mode), channel 62, low d. r.

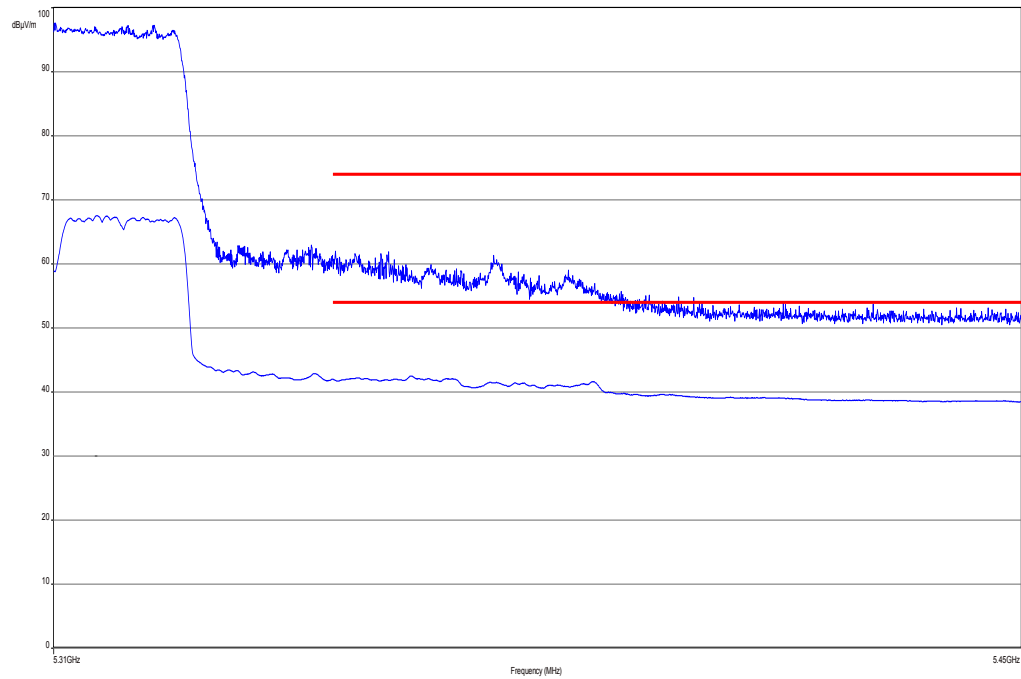
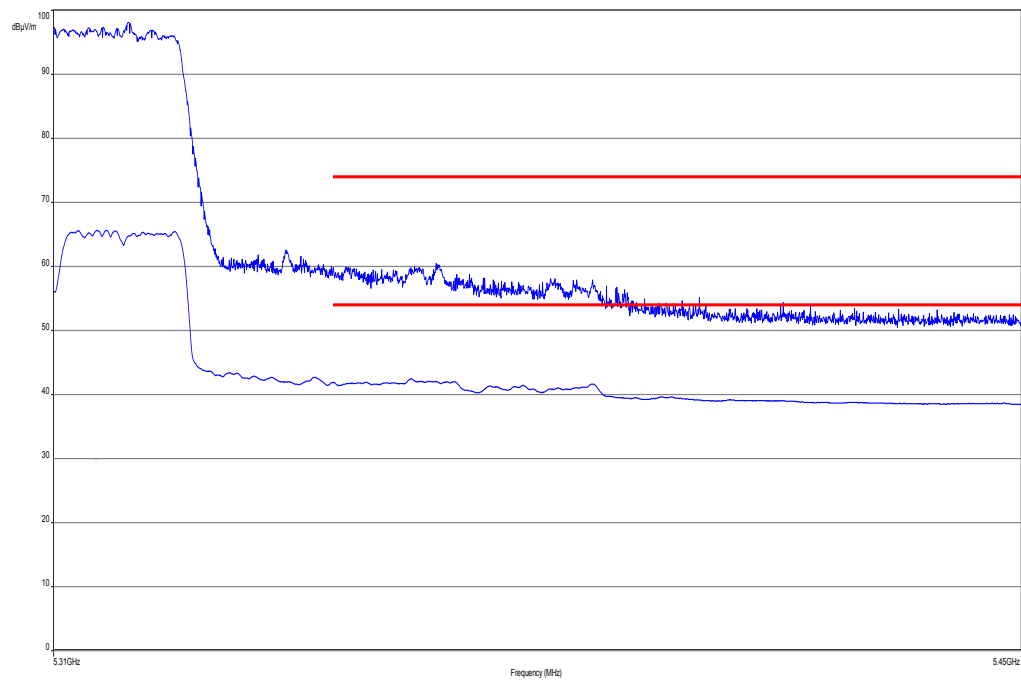
Plot 23: upper band edge, vertical & horizontal polarization (n HT 40 mode), channel 62, high power d. r.**Plot 24:** upper band edge, vertical & horizontal polarization (n HT 40 mode), channel 62, high d. r.

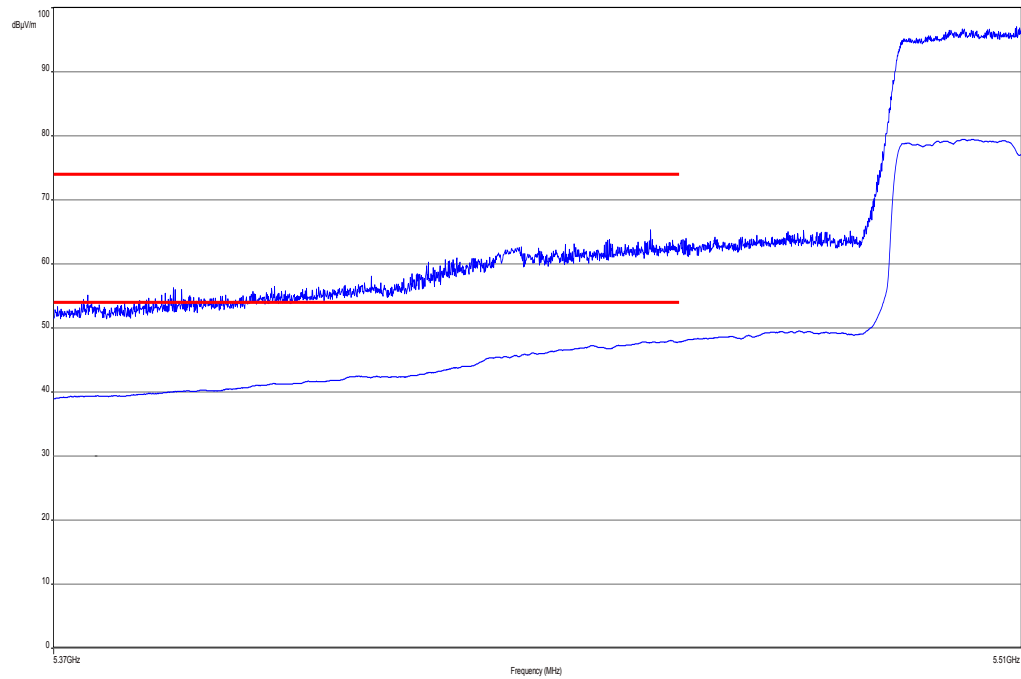
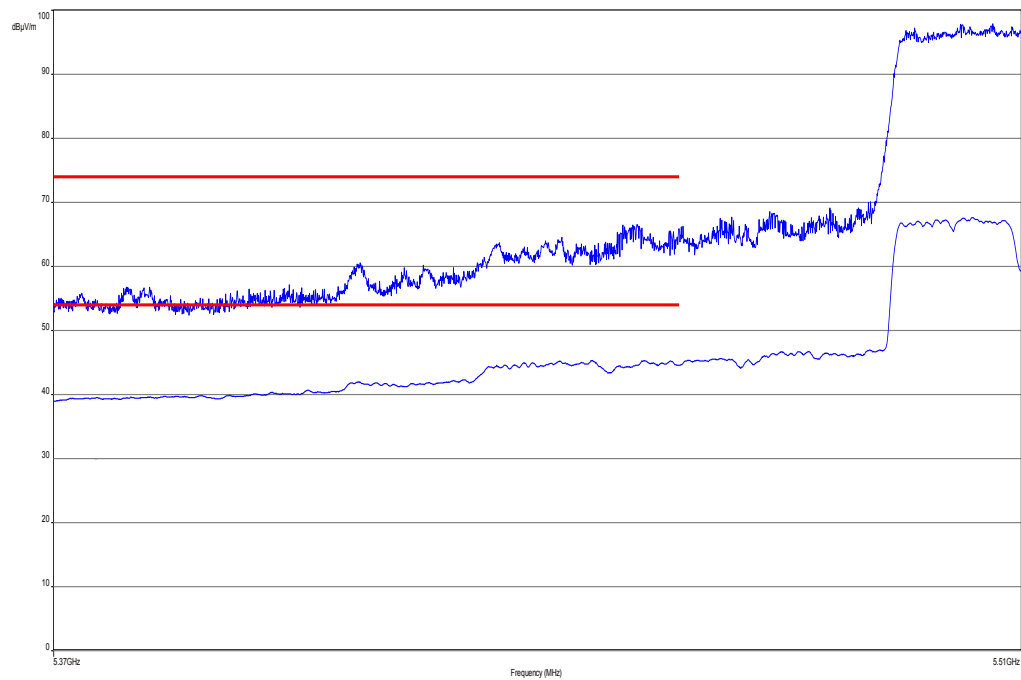
Plot 25: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 102, low d. r.**Plot 26:** lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 102, high power d. r.

Plot 27: lower band edge, vertical & horizontal polarization (n HT 40 mode), channel 102, high d. r.

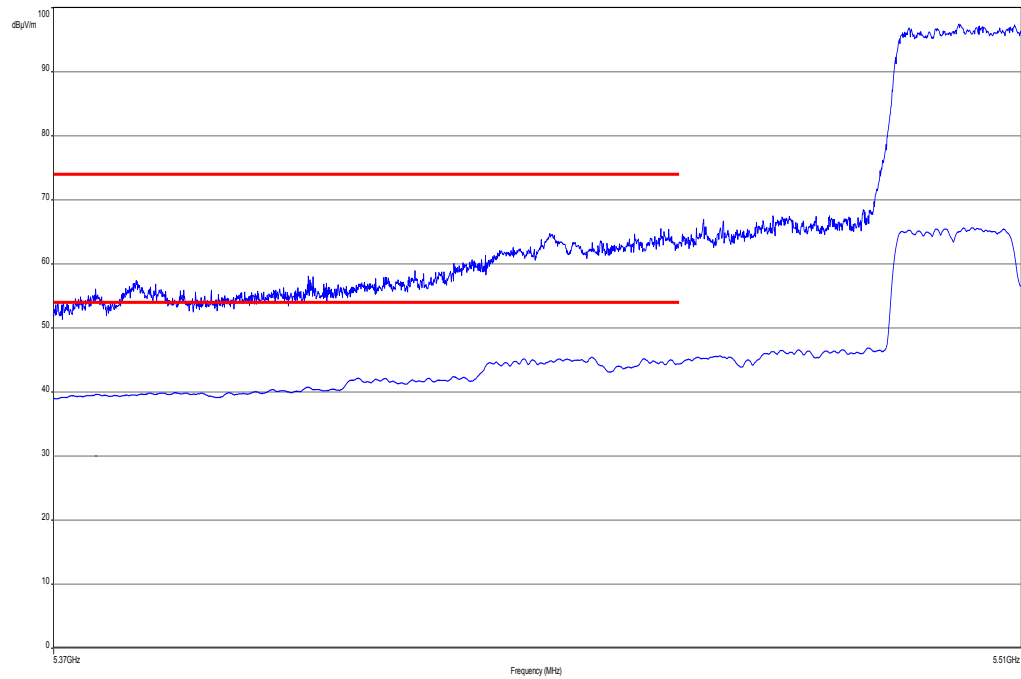
Plot 28: lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 42, low d. r.**Plot 29:** lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 42, high power d. r.

Plot 30: lower band edge, vertical & horizontal polarization (ac HT 80 mode), channel 42, high d. r.**Plot 31:** highest band edge, vertical & horizontal polarization (ac HT 80 mode), channel 58, low d. r.

Plot 32: highest band edge, vertical & horizontal polarization (ac HT 80 mode), channel 58, high power d. r.**Plot 33:** highest band edge, vertical & horizontal polarization (ac HT 80 mode), channel 58, high d. r.

Plot 34: lowest band edge, vertical & horizontal polarization (ac HT80 mode), channel 106, low d. r.**Plot 35:** lowest band edge, vertical & horizontal polarization (ac HT80 mode), channel 106, high power d. r.

Plot 36: lowest band edge, vertical & horizontal polarization (ac HT80 mode), channel 106, high d. r.



Result: Passed

10.2 TX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at lowest, middle and highest channel.

Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz / 10 Hz
Span:	30 MHz to 40 GHz
Trace-Mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %

Limits:

TX Spurious Emissions Radiated		
§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
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

Results: OFDM / a – mode

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz			-/-			Highest 5240 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM a – mode								
Lowest 5260 MHz			-/-			Highest 5320 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dB μ V/m] / dBm								
OFDM a – mode								
Lowest 5500 MHz			-/-			Highest 5700 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

Result: Passed

Results: OFDM / n/ac – modeHT20

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM n/ac – mode HT20								
Lowest 5180 MHz			-/-			Highest 5240 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM n/ac – mode HT20								
Lowest 5260 MHz			-/-			Highest 5320 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM n/ac – mode HT20								
Lowest 5500 MHz			-/-			Highest 5700 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

Result: Passed

Results: OFDM / n/ac – modeHT40

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM n/ac – mode HT40								
Lowest 5190 MHz			Middle 5230 MHz			Highest 5270 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.		
For emissions above 1 GHz, please take a look at the plots.			For emissions above 1 GHz, please take a look at the plots.			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM n/ac – mode HT40								
Lowest 5310 MHz			Middle 5510 MHz			Highest 5670 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.		
For emissions above 1 GHz, please take a look at the plots.			For emissions above 1 GHz, please take a look at the plots.			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

Results: OFDM / ac – modeHT80

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM ac – mode HT80								
Lowest 5210 MHz						Highest 5290 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 above 1 GHz, please take a look at the plots.			-/-			For emissions above 1 GHz, please take a look at the plots.		
Measurement uncertainty			± 3 dB					

TX Spurious Emissions Radiated [dBμV/m] / dBm								
OFDM ac – mode HT80								
-/-			Middle 5530 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 above 1 GHz, please take a look at the plots.			-/-		
Measurement uncertainty			± 3 dB					

Result: **Passed**

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

Plots: OFDM / a – mode

Plot 1: 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization

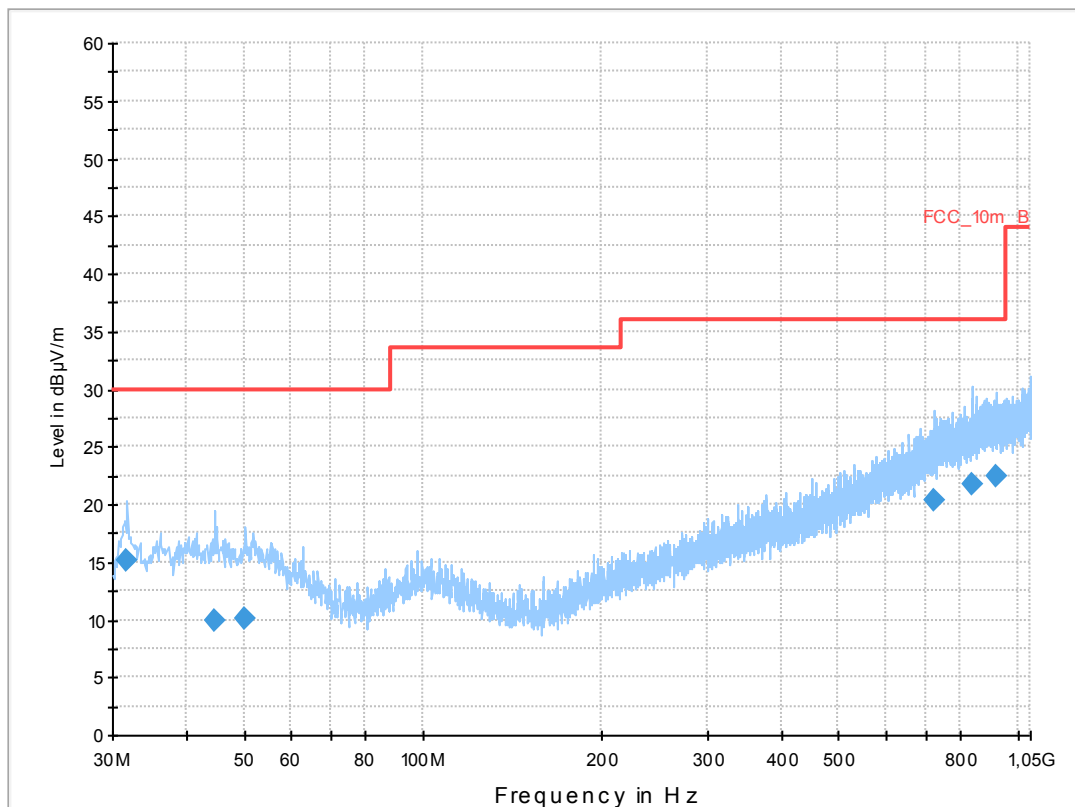
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan a-mode tx ch 36
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

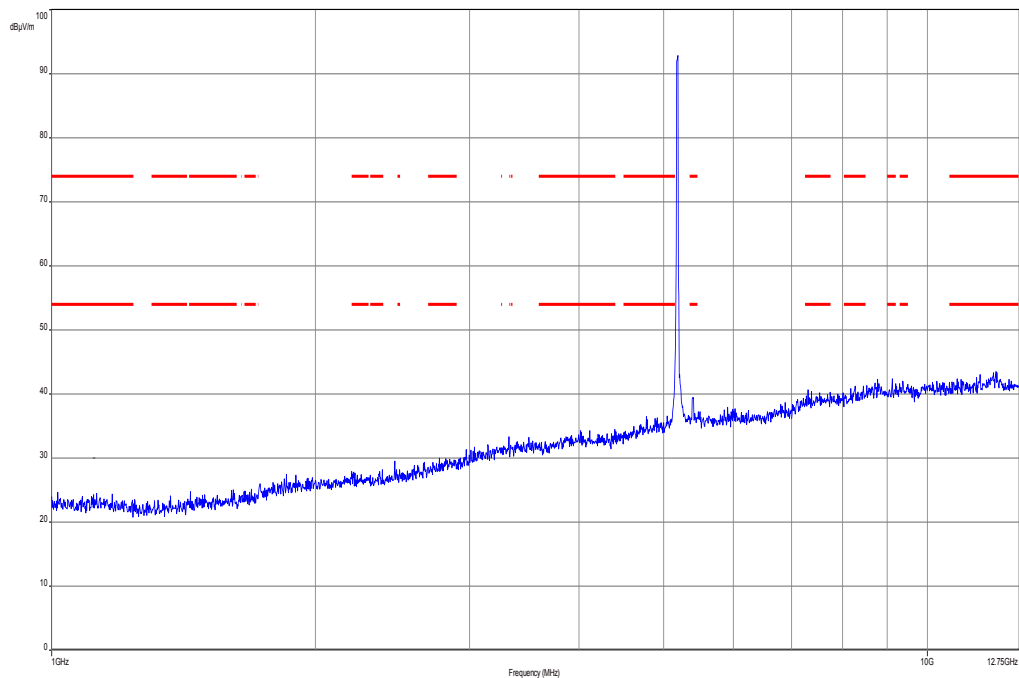
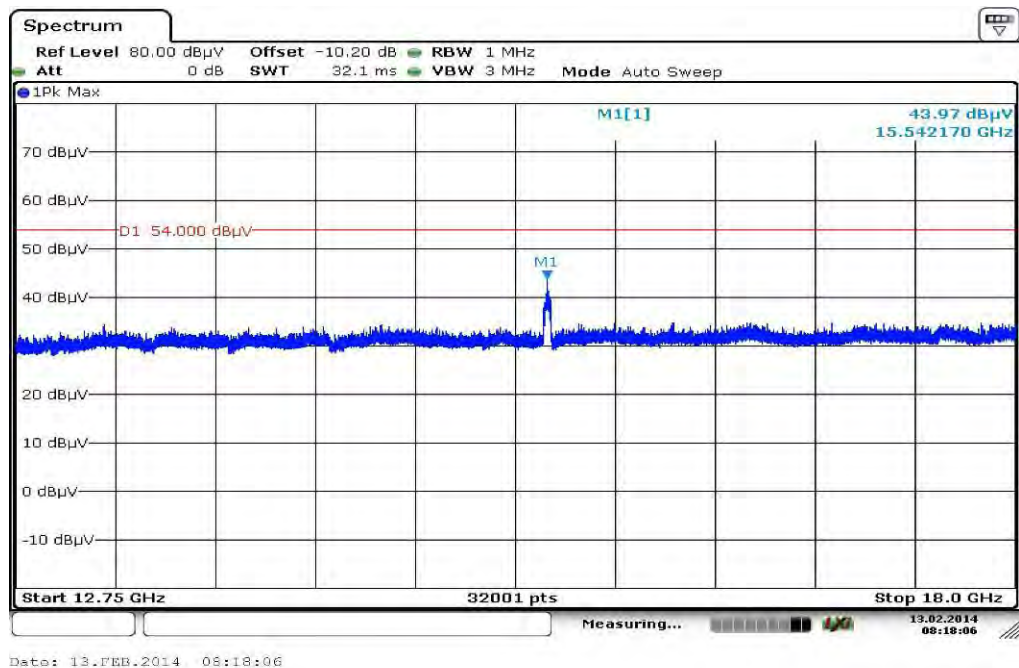
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

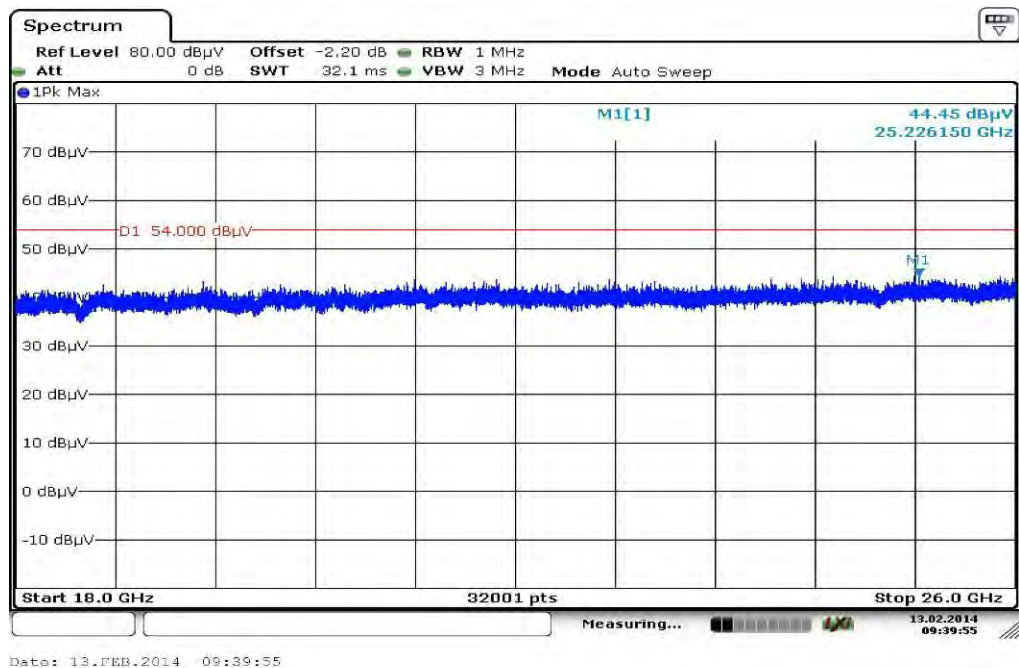
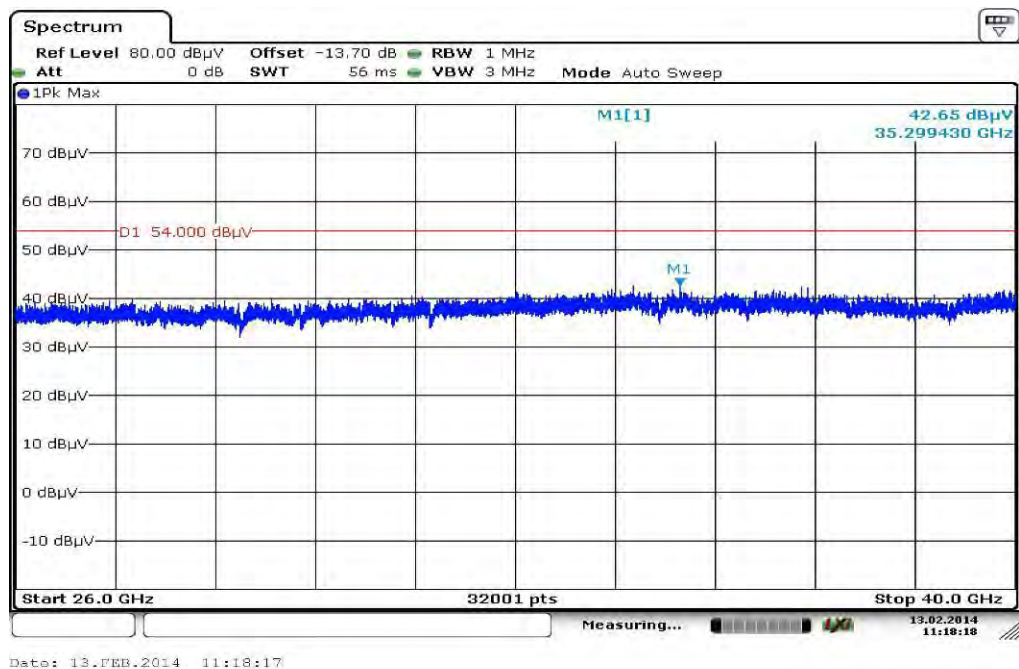
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.778400	15.1	1000.0	120.000	143.0	V	190.0	12.7	14.9	30.0	
44.511750	10.0	1000.0	120.000	170.0	V	280.0	13.3	20.0	30.0	
49.947300	10.0	1000.0	120.000	170.0	H	280.0	13.4	20.0	30.0	
724.182150	20.4	1000.0	120.000	120.0	H	280.0	23.1	15.6	36.0	
840.254250	21.7	1000.0	120.000	170.0	H	178.0	24.4	14.3	36.0	
919.975050	22.4	1000.0	120.000	170.0	H	177.0	25.3	13.6	36.0	

Plot 2: 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization**Plot 3:** 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization

Plot 4: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization**Plot 5:** 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization

Plot 6: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization

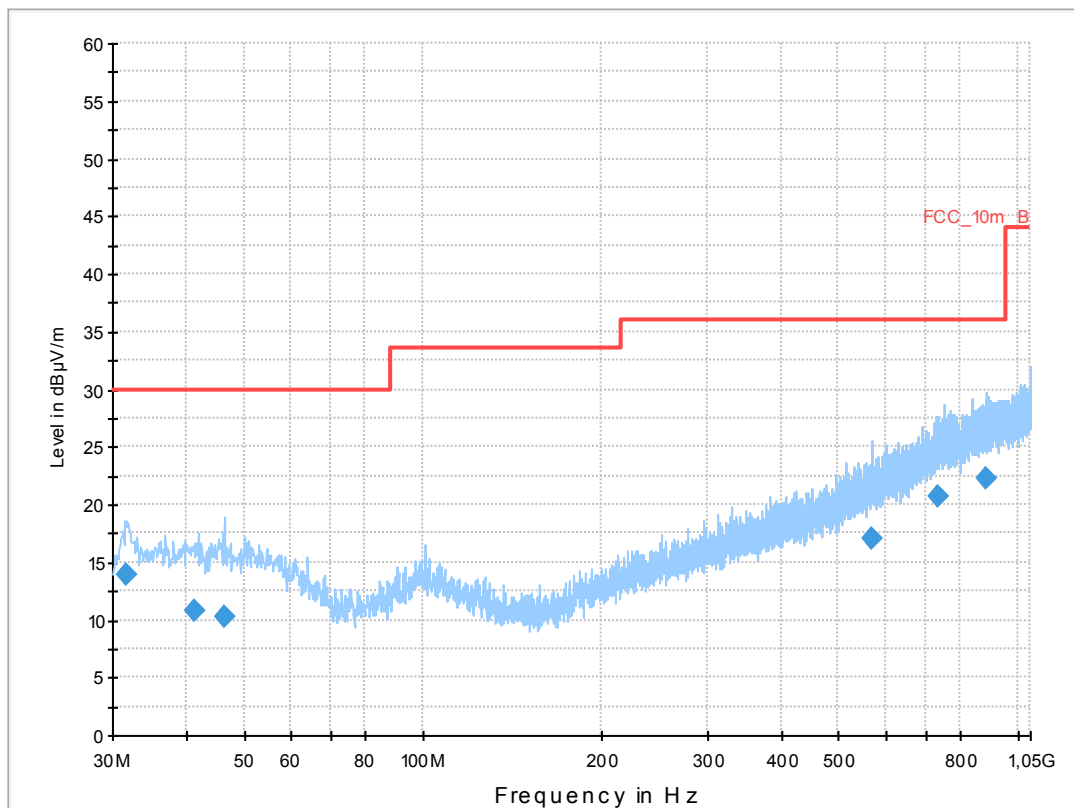
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan a-mode tx ch 48
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

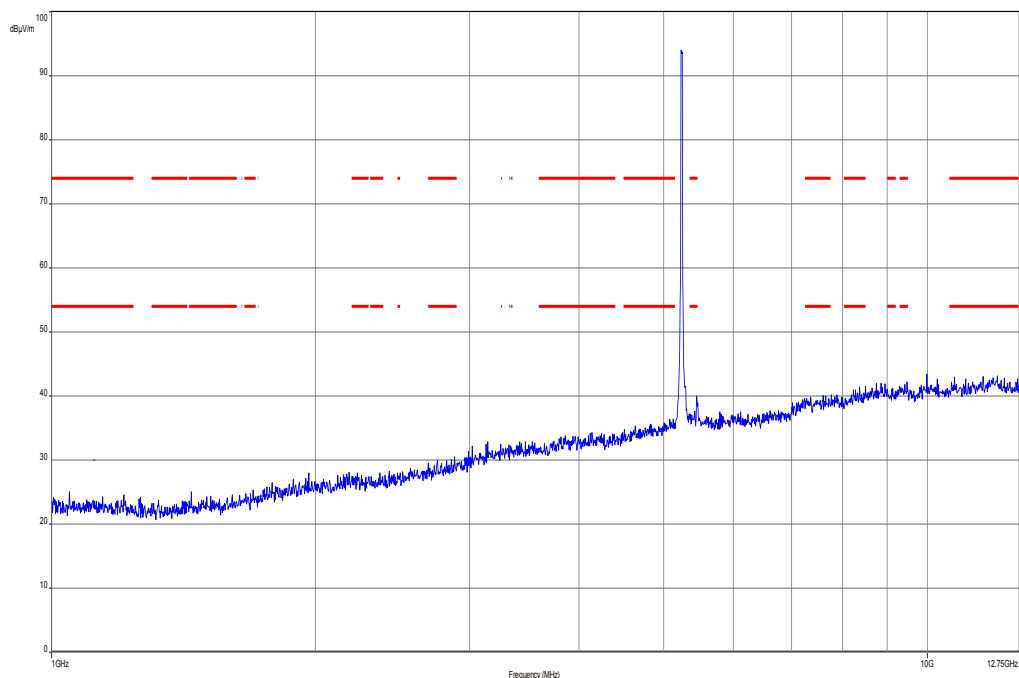
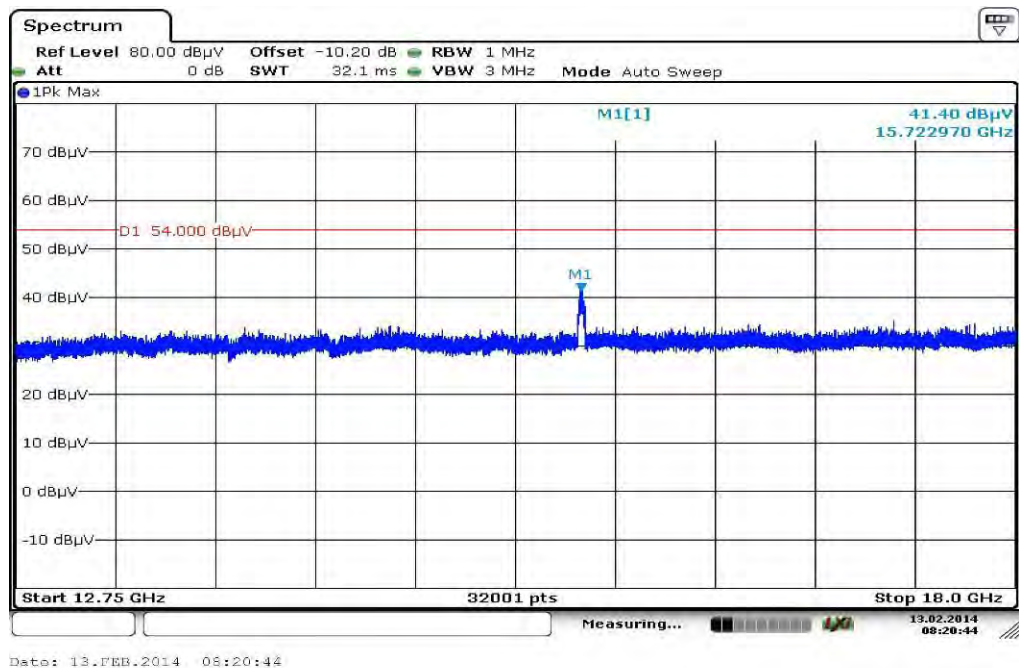
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dB μ V/m

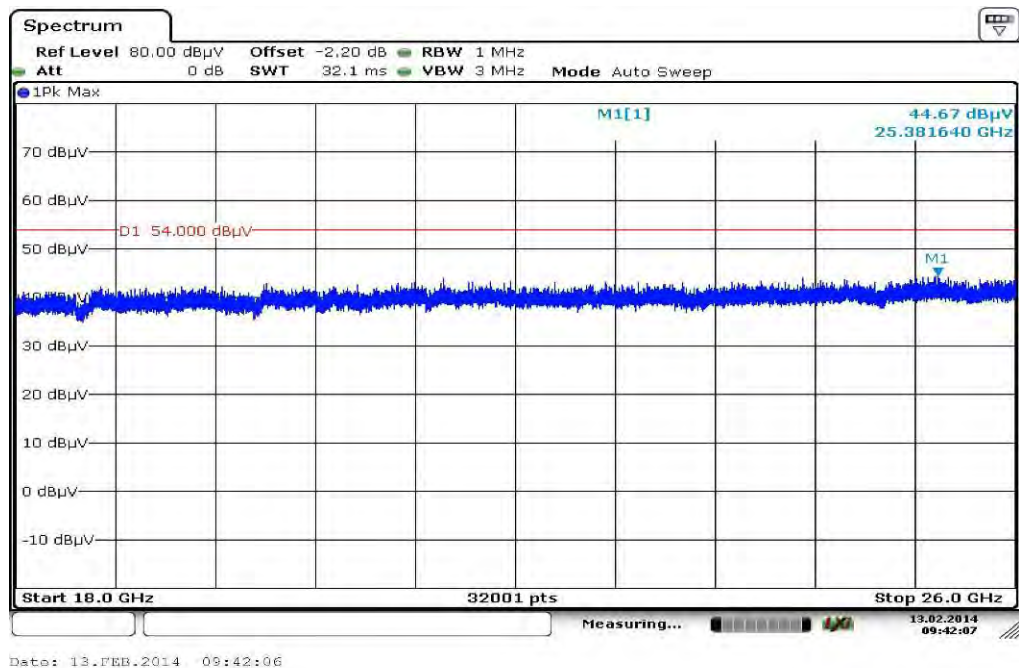
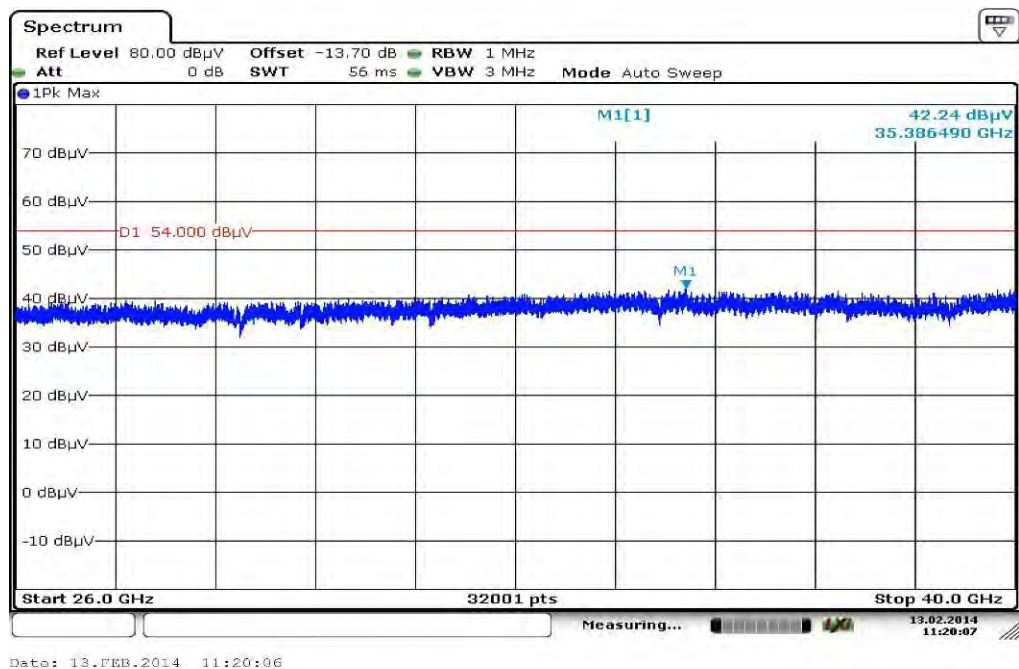
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamplifier
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
31.723500	13.9	1000.0	120.000	98.0	V	88.0	12.7	16.1	30.0	
41.198700	10.7	1000.0	120.000	170.0	V	280.0	13.4	19.3	30.0	
46.372800	10.3	1000.0	120.000	145.0	H	272.0	13.3	19.7	30.0	
568.701900	17.1	1000.0	120.000	120.0	V	93.0	19.9	18.9	36.0	
734.085750	20.7	1000.0	120.000	98.0	V	88.0	23.3	15.3	36.0	
887.722950	22.3	1000.0	120.000	170.0	H	-10.0	25.0	13.7	36.0	

Plot 7: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization**Plot 8:** 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization

Plot 9: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization**Plot 10:** 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization

Plot 11: 30 MHz to 1 GHz, 5260 MHz, vertical & horizontal polarization

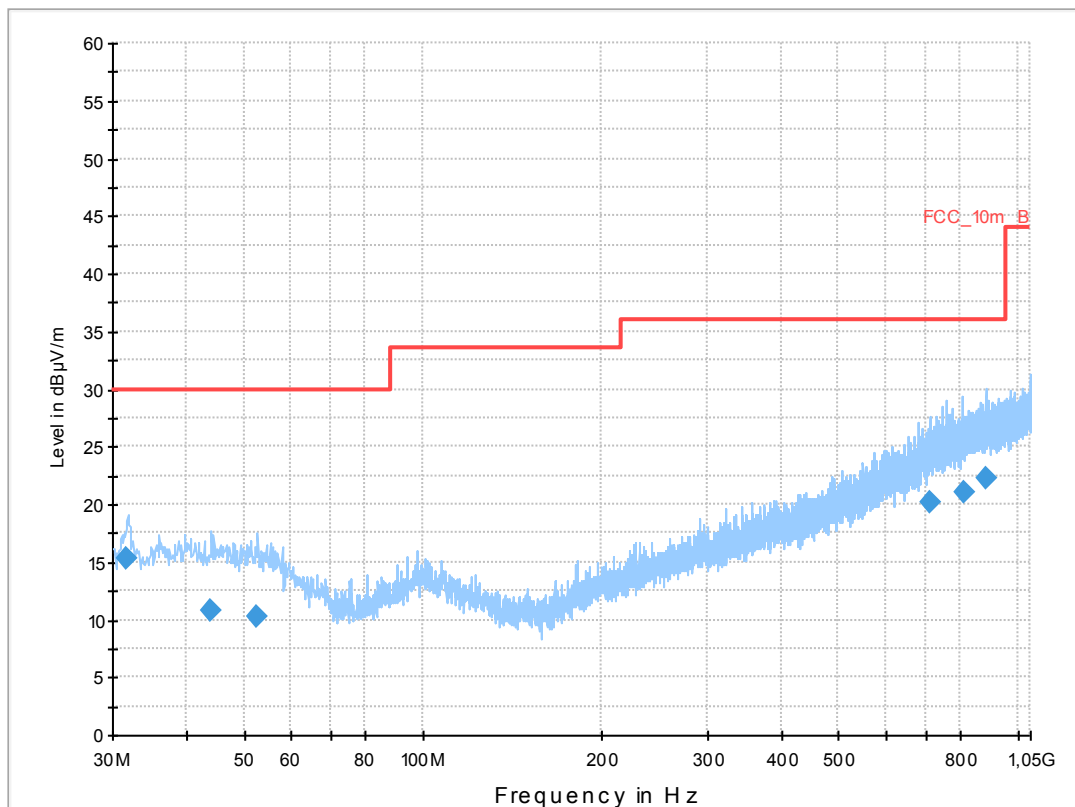
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan a-mode tx ch 52
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

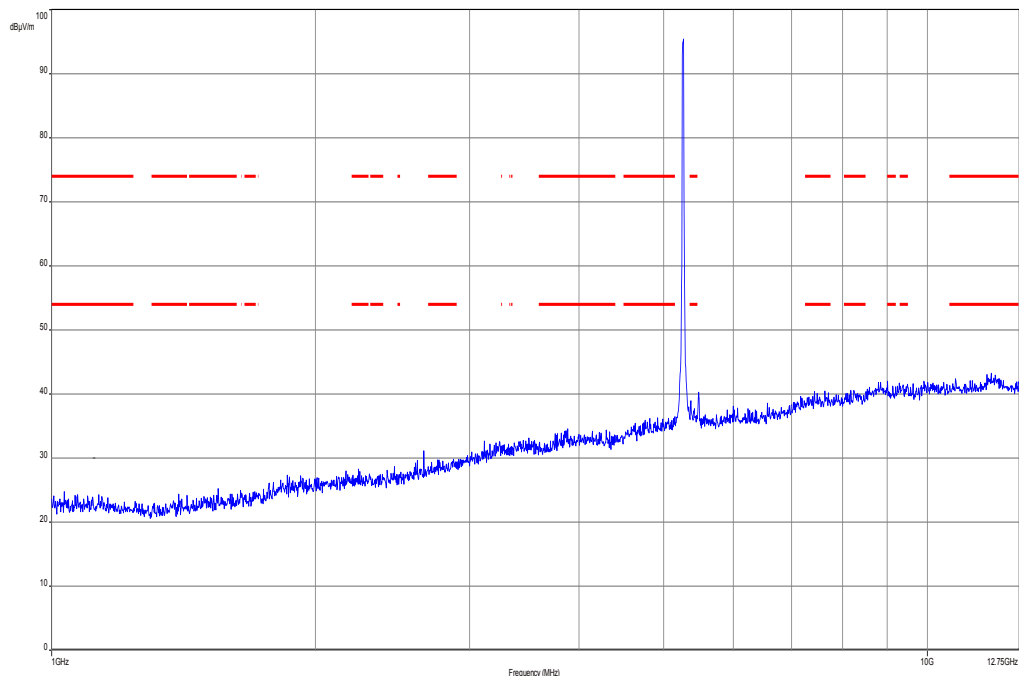
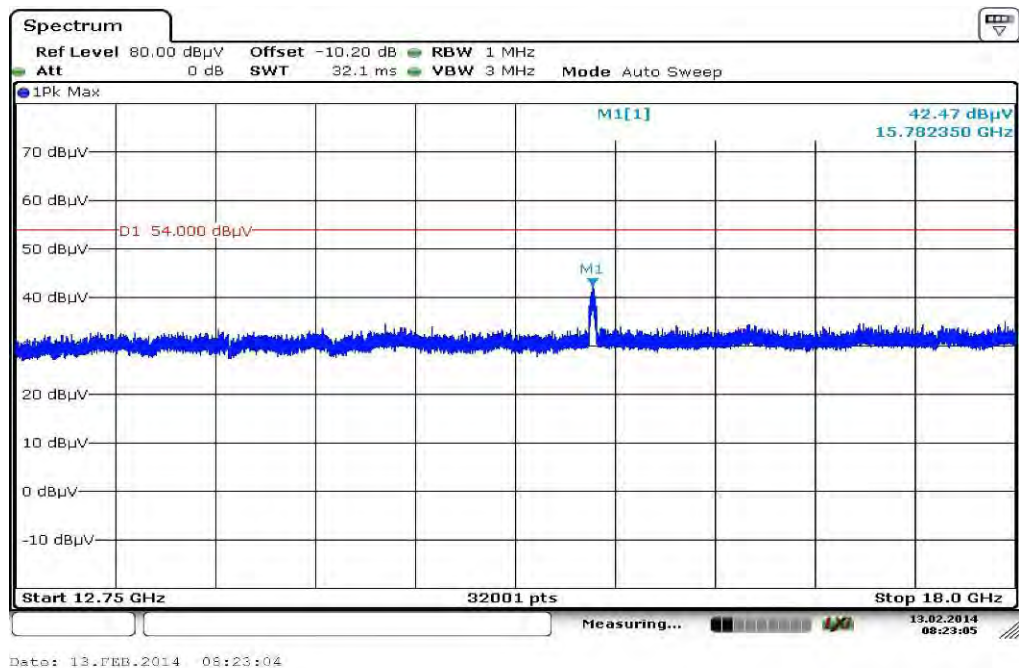
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

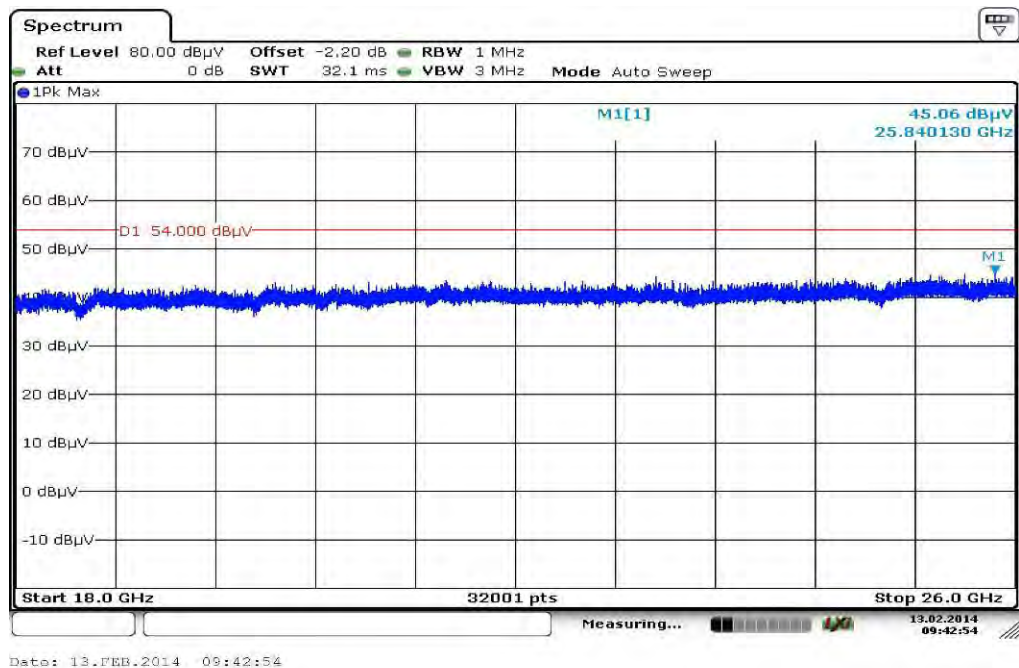
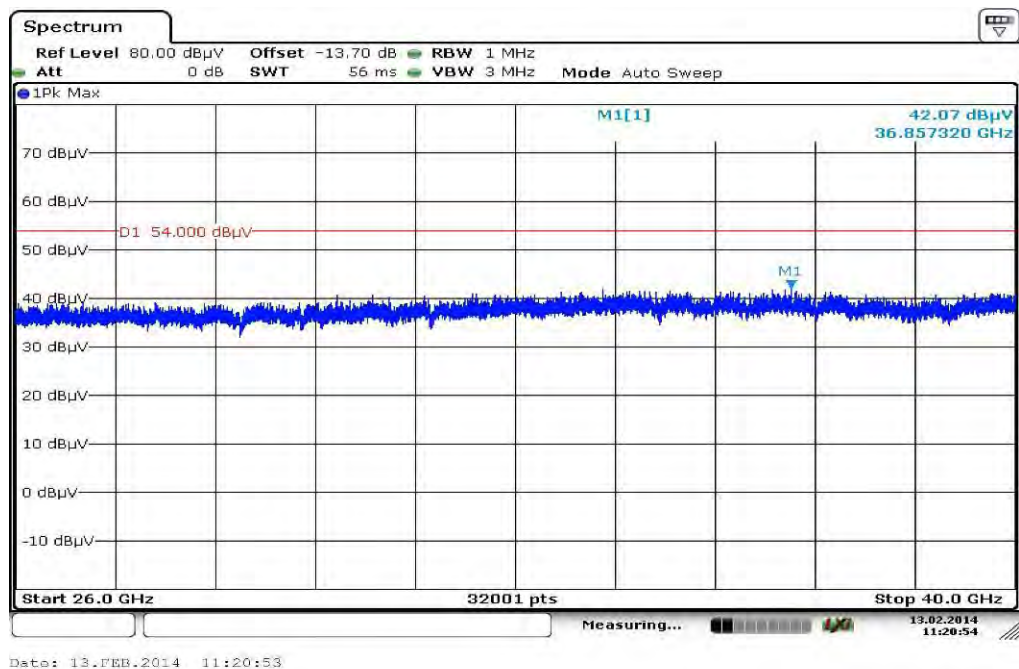
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.771350	15.3	1000.0	120.000	98.0	V	100.0	12.7	14.7	30.0	
43.994700	10.7	1000.0	120.000	98.0	V	-3.0	13.3	19.3	30.0	
52.270650	10.2	1000.0	120.000	121.0	V	100.0	13.1	19.8	30.0	
709.918800	20.1	1000.0	120.000	111.0	V	85.0	22.7	15.9	36.0	
809.671500	21.1	1000.0	120.000	170.0	V	-1.0	23.9	14.9	36.0	
882.171300	22.3	1000.0	120.000	170.0	H	280.0	25.0	13.7	36.0	

Plot 12: 1 GHz to 12.75 GHz, 5260 MHz, vertical & horizontal polarization**Plot 13:** 12 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization

Plot 14: 18 GHz to 26 GHz, 5260 MHz, vertical & horizontal polarization**Plot 15:** 26 GHz to 40 GHz, 5260 MHz, vertical & horizontal polarization

Plot 16: 30 MHz to 1 GHz, 5320 MHz, vertical & horizontal polarization

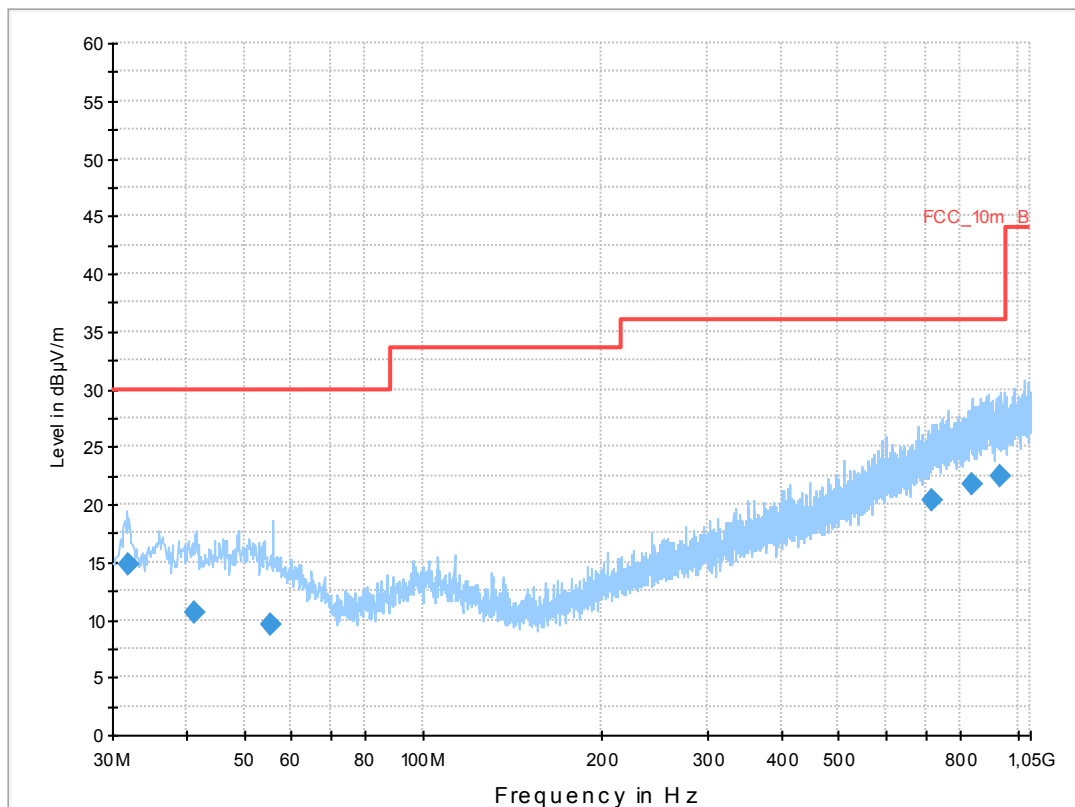
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan a-mode tx ch 64
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

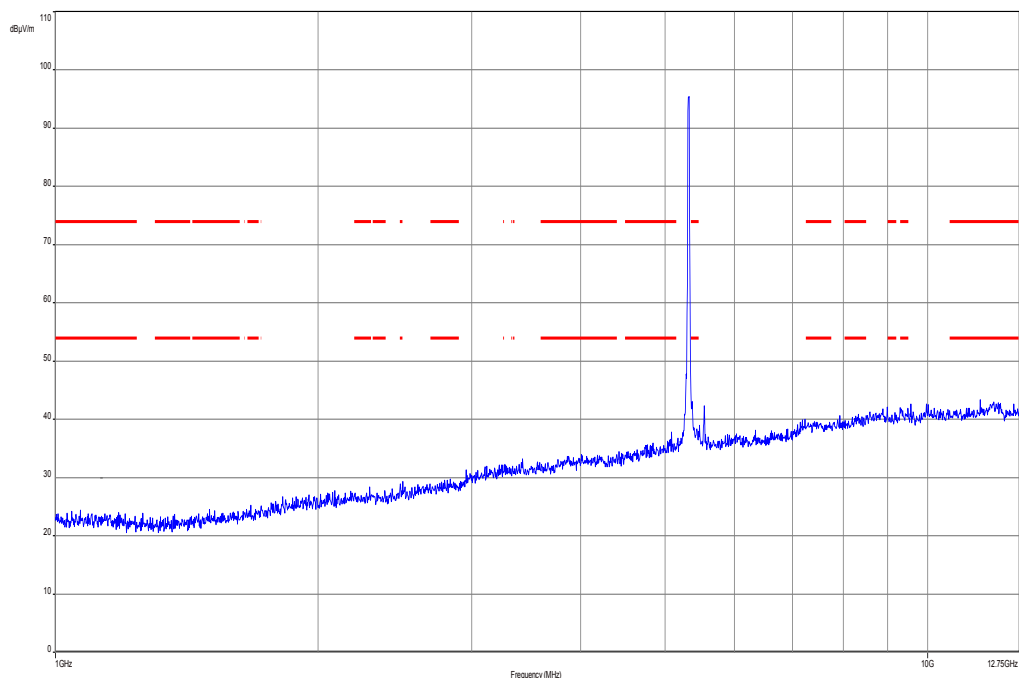
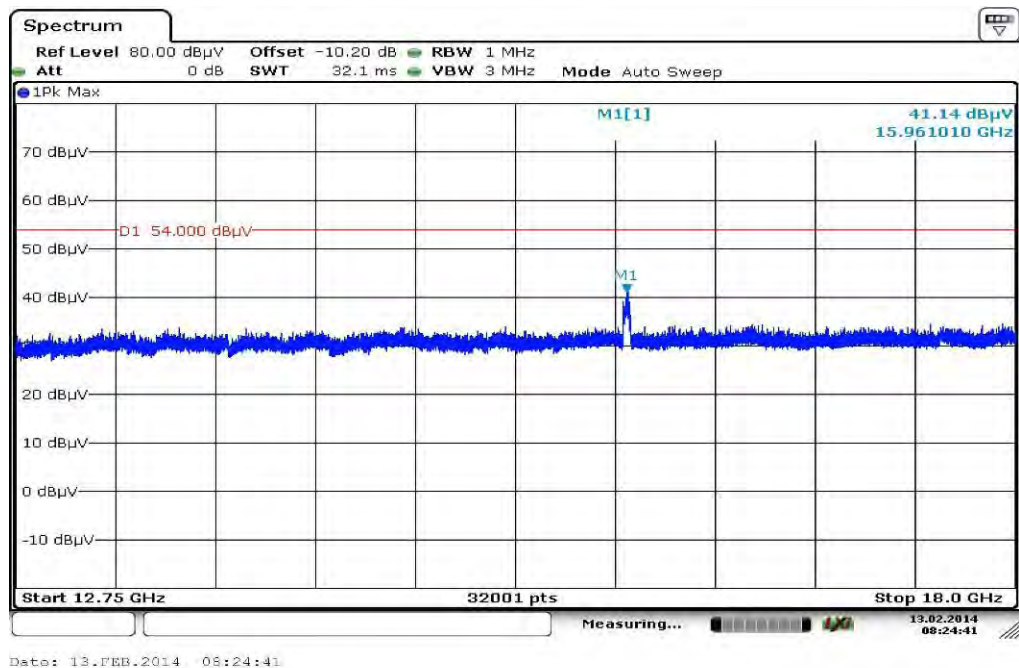
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

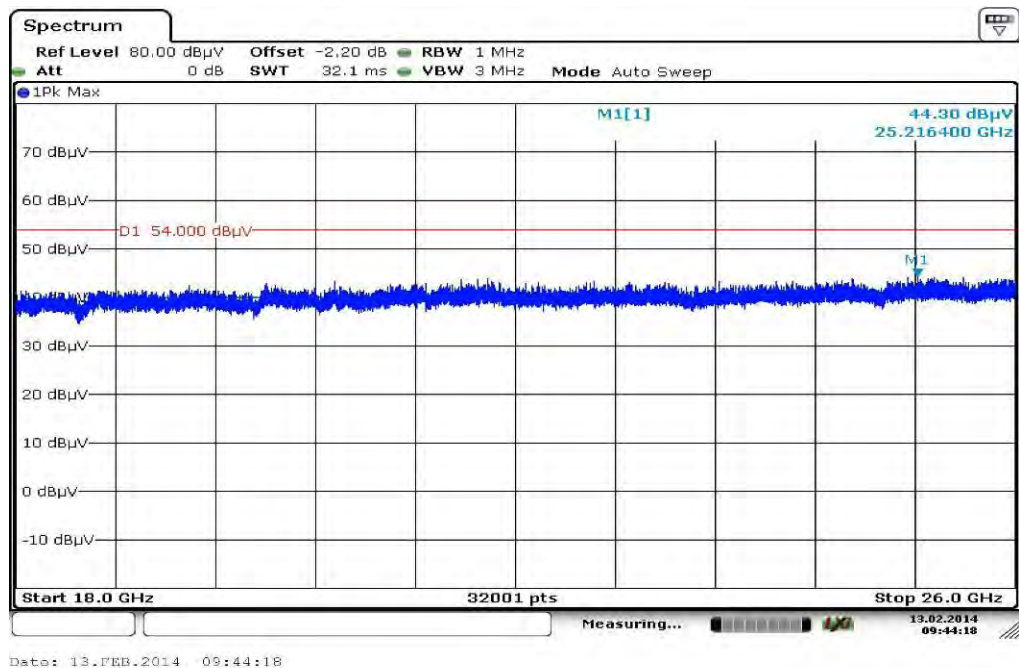
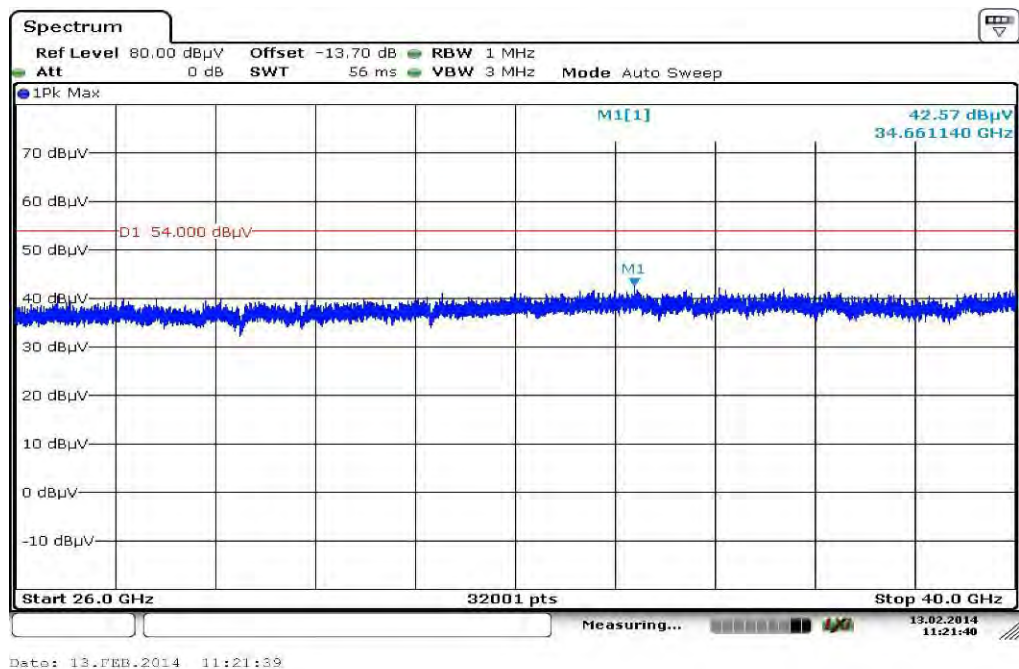
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.948350	14.8	1000.0	120.000	98.0	V	175.0	12.7	15.2	30.0	
41.116650	10.7	1000.0	120.000	170.0	V	85.0	13.4	19.3	30.0	
55.471500	9.5	1000.0	120.000	133.0	H	10.0	12.8	20.5	30.0	
717.475500	20.3	1000.0	120.000	98.0	H	272.0	22.9	15.7	36.0	
839.203650	21.7	1000.0	120.000	98.0	V	272.0	24.4	14.3	36.0	
937.681500	22.5	1000.0	120.000	113.0	V	10.0	25.3	13.5	36.0	

Plot 17: 1 GHz to 12.75 GHz, 5320 MHz, vertical & horizontal polarization**Plot 18:** 12 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization

Plot 19: 18 GHz to 26 GHz, 5320 MHz, vertical & horizontal polarization**Plot 20:** 26 GHz to 40 GHz, 5320 MHz, vertical & horizontal polarization

Plot 21: 30 MHz to 1 GHz, 5500 MHz, vertical & horizontal polarization

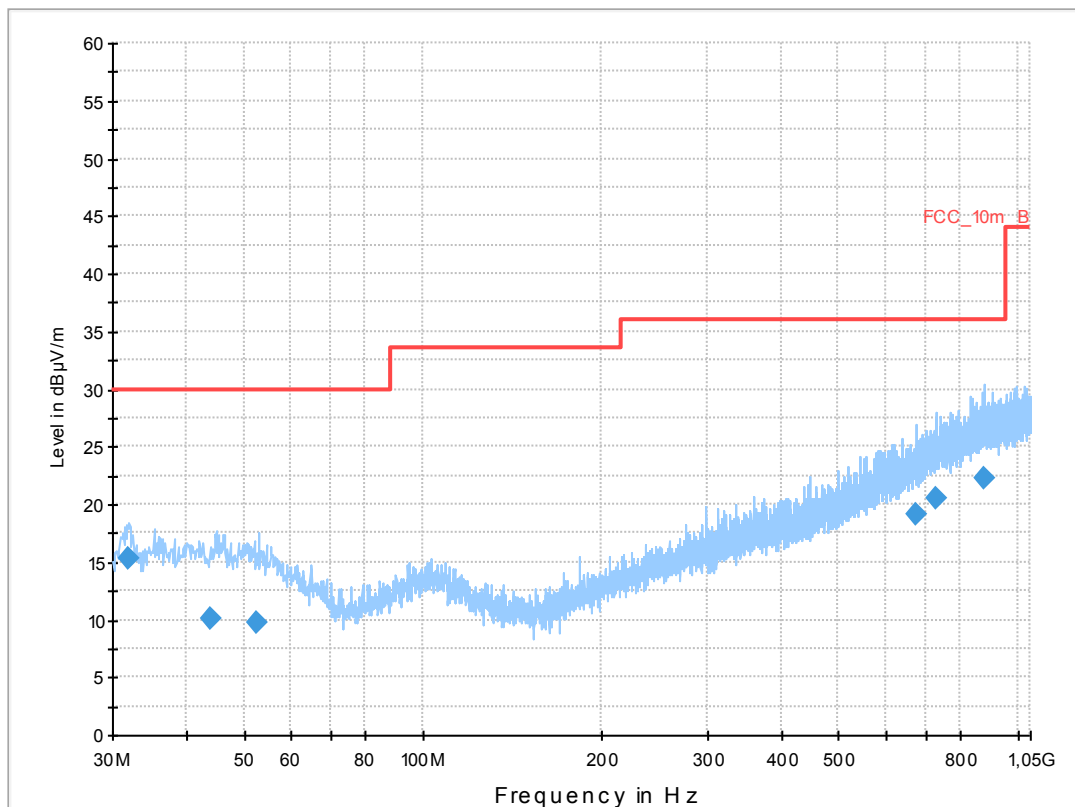
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan a-mode tx ch 100
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

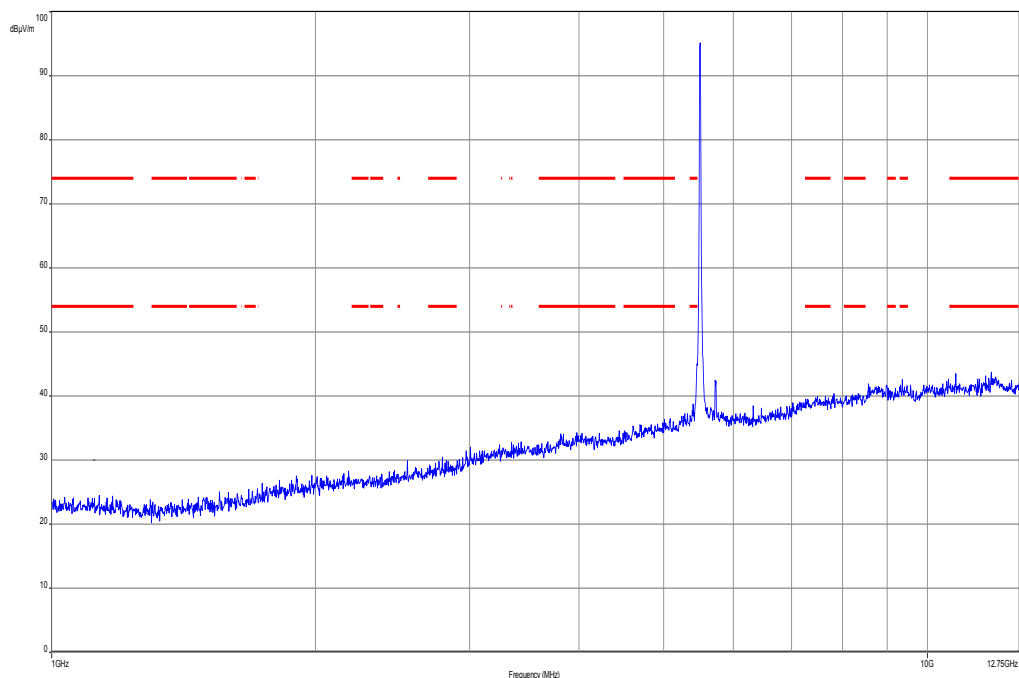
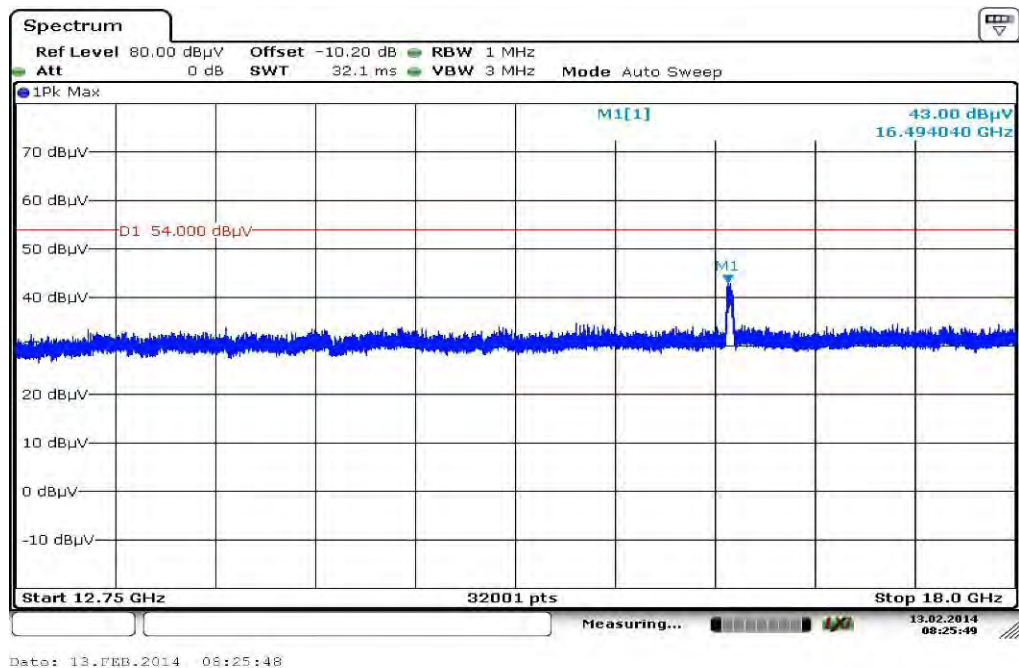
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

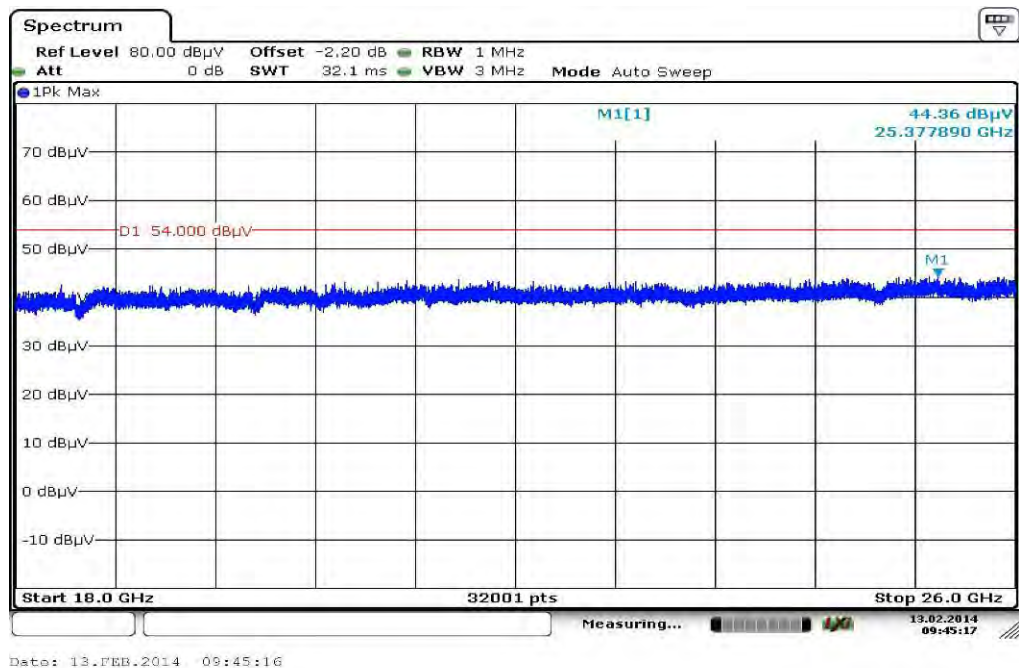
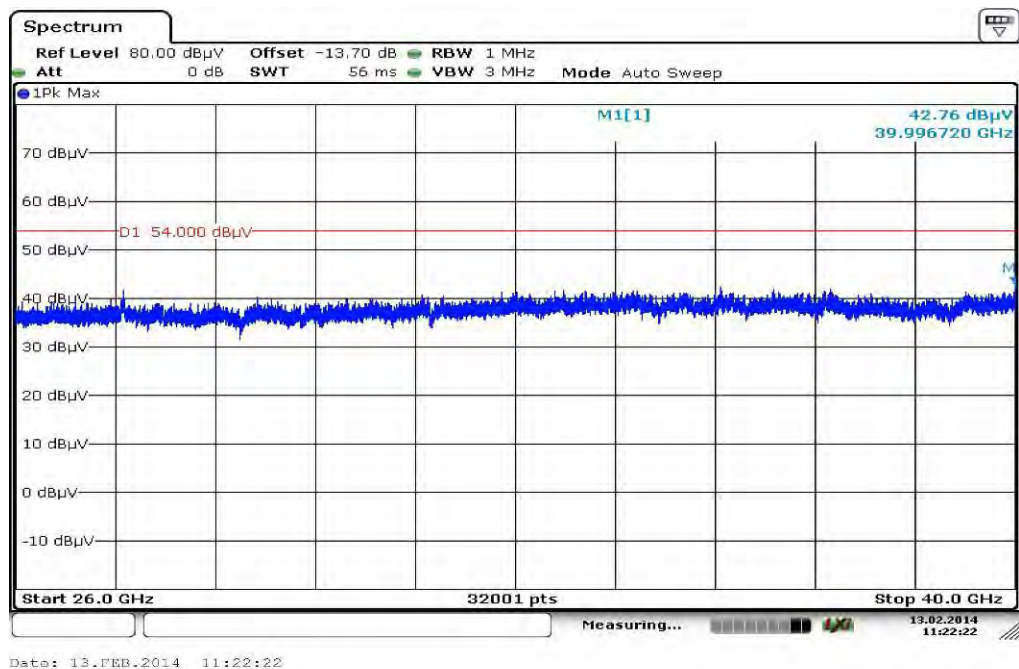
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
32.014650	15.2	1000.0	120.000	111.0	V	2.0	12.7	14.8	30.0	
43.953600	10.1	1000.0	120.000	122.0	V	280.0	13.3	19.9	30.0	
52.607100	9.8	1000.0	120.000	170.0	V	100.0	13.1	20.2	30.0	
673.954200	19.1	1000.0	120.000	170.0	V	-10.0	21.8	16.9	36.0	
730.247550	20.5	1000.0	120.000	170.0	H	10.0	23.2	15.5	36.0	
875.351400	22.3	1000.0	120.000	170.0	V	85.0	24.9	13.7	36.0	

Plot 22: 1 GHz to 12.75 GHz, 5500 MHz, vertical & horizontal polarization**Plot 23:** 12 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization

Plot 24: 18 GHz to 26 GHz, 5500 MHz, vertical & horizontal polarization**Plot 25:** 26 GHz to 40 GHz, 5500 MHz, vertical & horizontal polarization

Plot 26: 30 MHz to 1 GHz, 5700 MHz, vertical & horizontal polarization

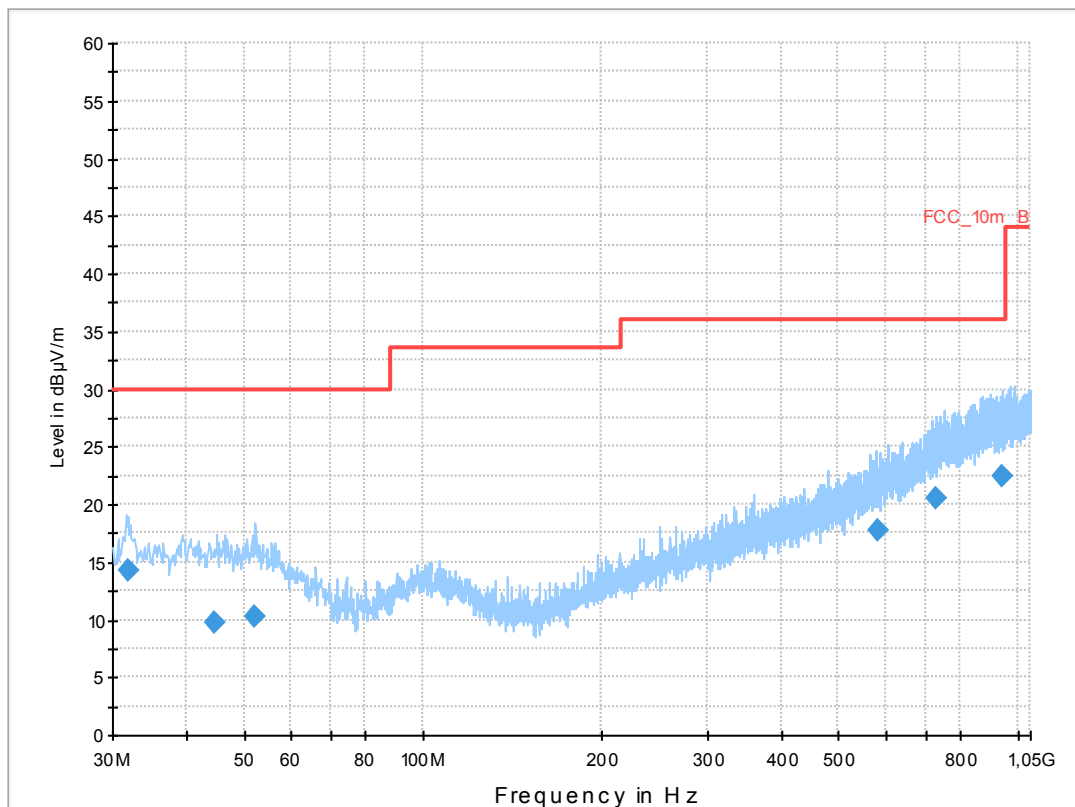
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan a-mode tx ch 140
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

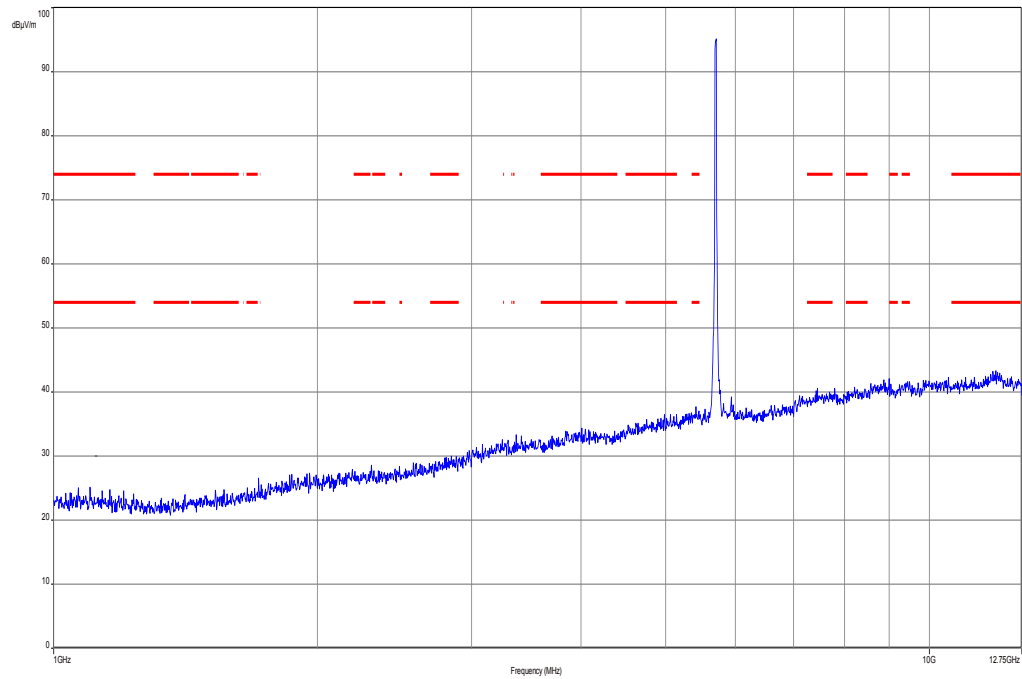
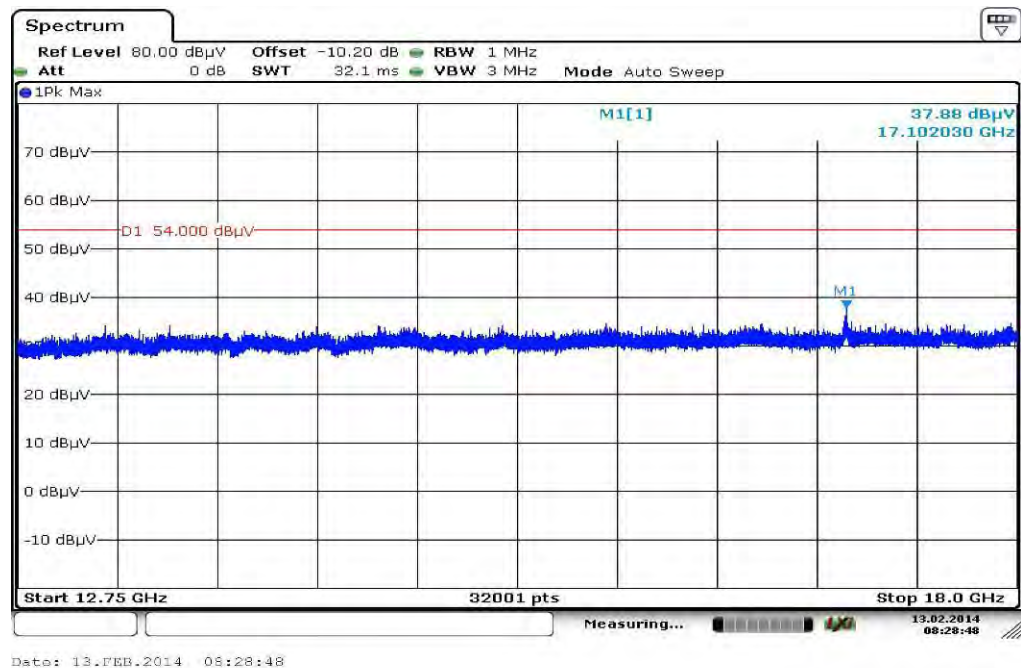
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

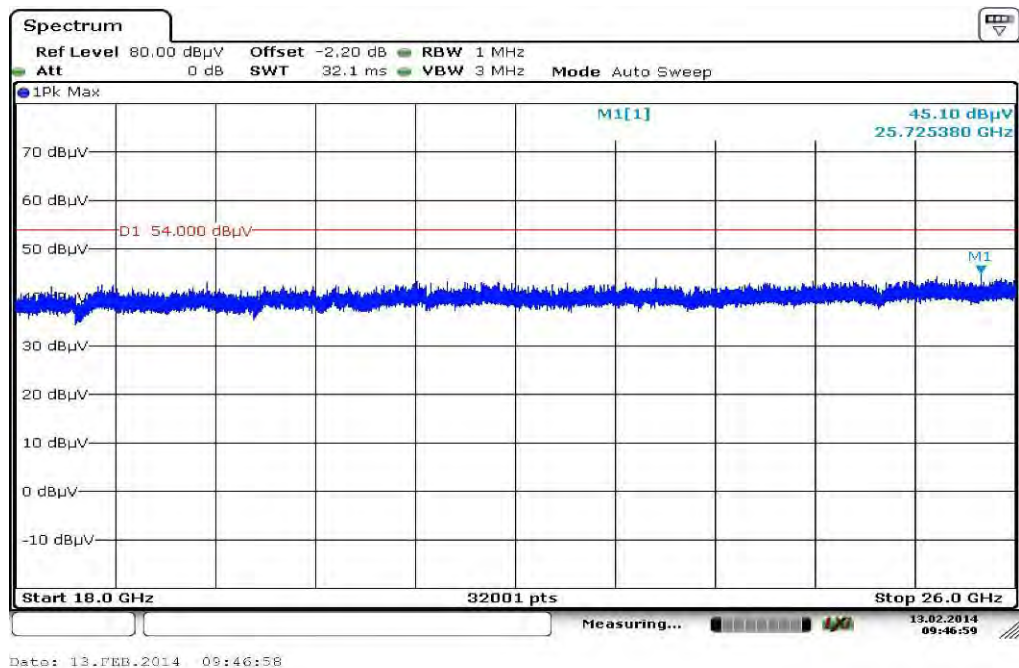
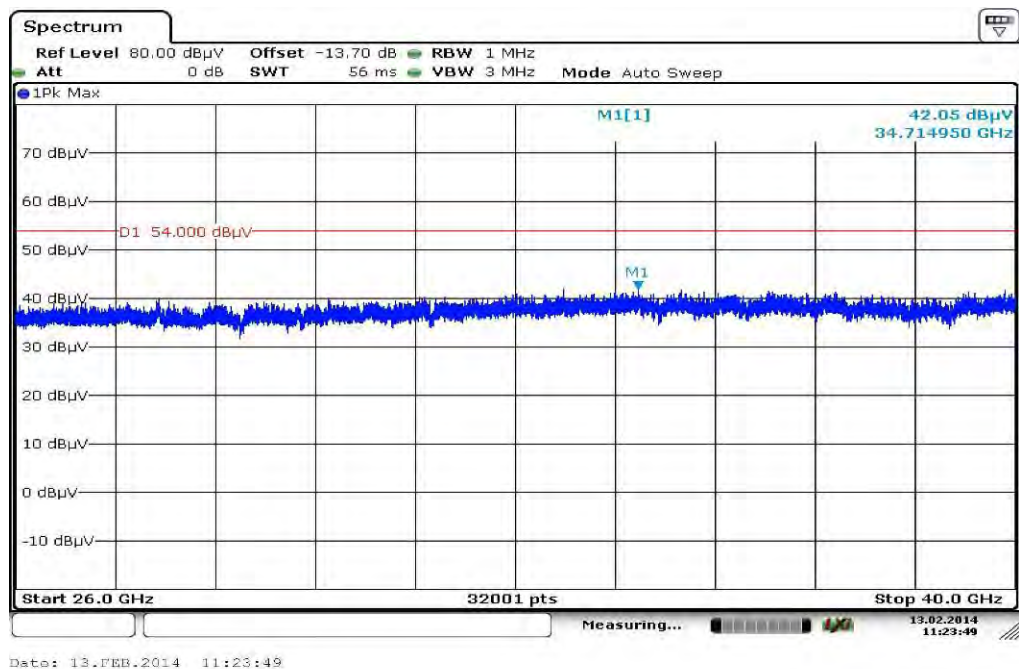
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
32.020350	14.3	1000.0	120.000	170.0	V	100.0	12.7	15.7	30.0	
44.399700	9.8	1000.0	120.000	170.0	V	190.0	13.3	20.2	30.0	
51.920700	10.3	1000.0	120.000	170.0	V	170.0	13.2	19.7	30.0	
584.174700	17.7	1000.0	120.000	170.0	V	280.0	20.4	18.3	36.0	
730.124550	20.4	1000.0	120.000	170.0	V	265.0	23.2	15.6	36.0	
938.694300	22.4	1000.0	120.000	170.0	H	190.0	25.3	13.6	36.0	

Plot 27: 1 GHz to 12.75 GHz, 5700 MHz, vertical & horizontal polarization**Plot 28:** 12 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization

Plot 29: 18 GHz to 26 GHz, 5700 MHz, vertical & horizontal polarization**Plot 30:** 26 GHz to 40 GHz, 5700 MHz, vertical & horizontal polarization

Plots: OFDM / n/ac – mode HT20

Plot 1: 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization

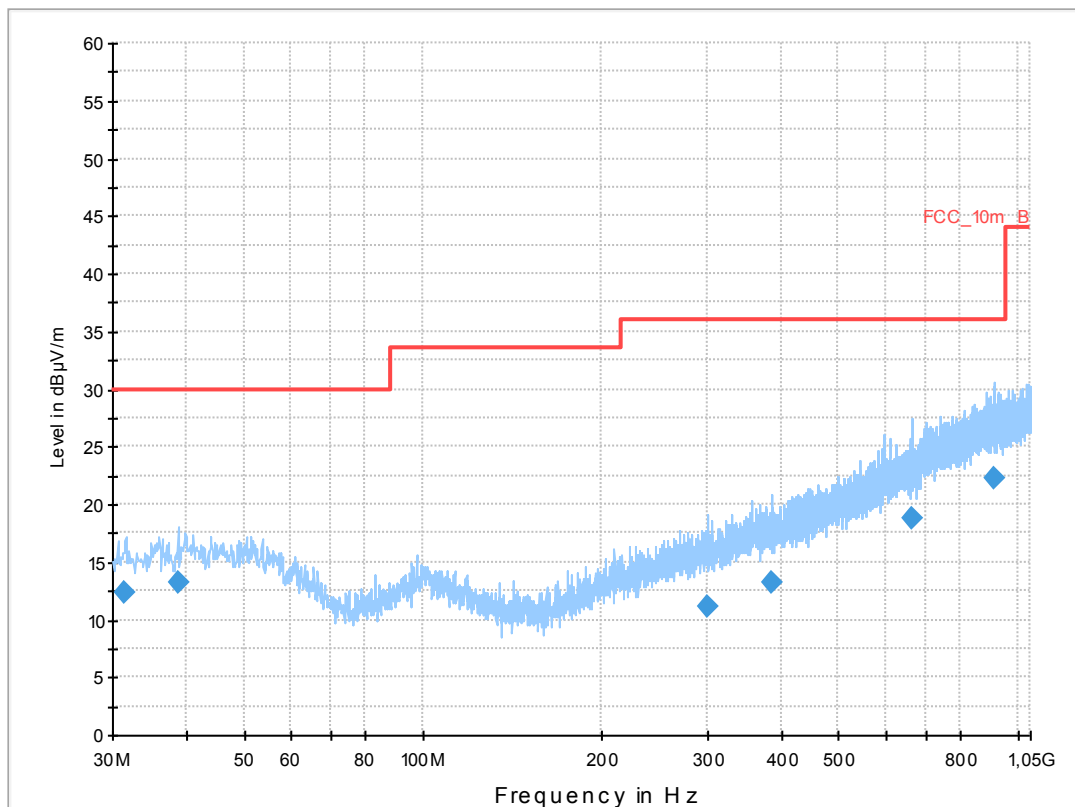
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT20) tx ch 36
 Operator Name: Wolsdorfer
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

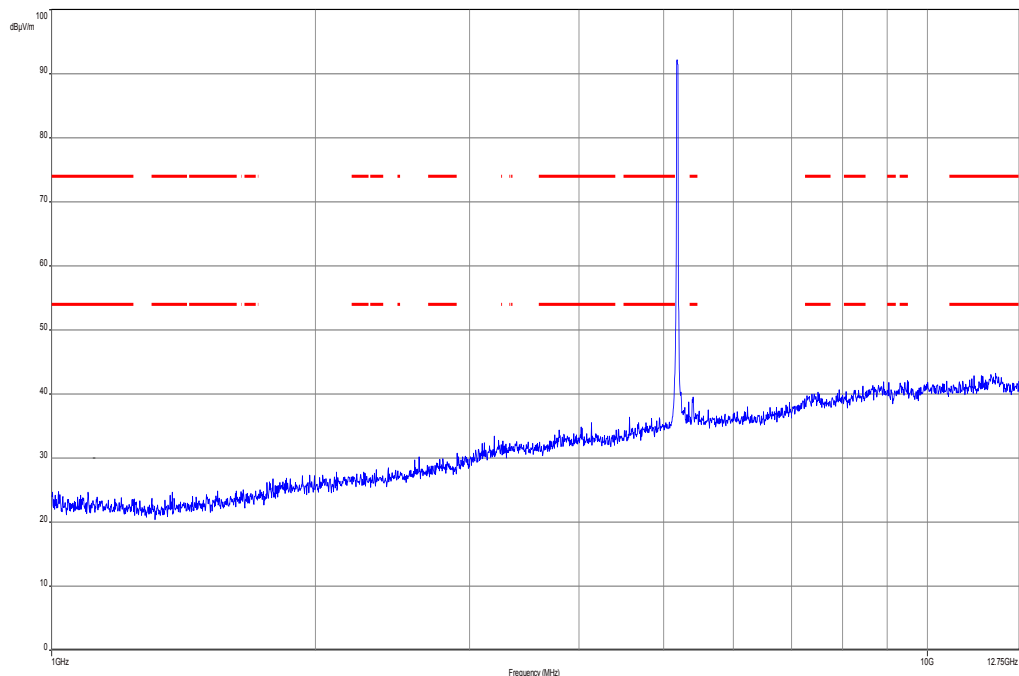
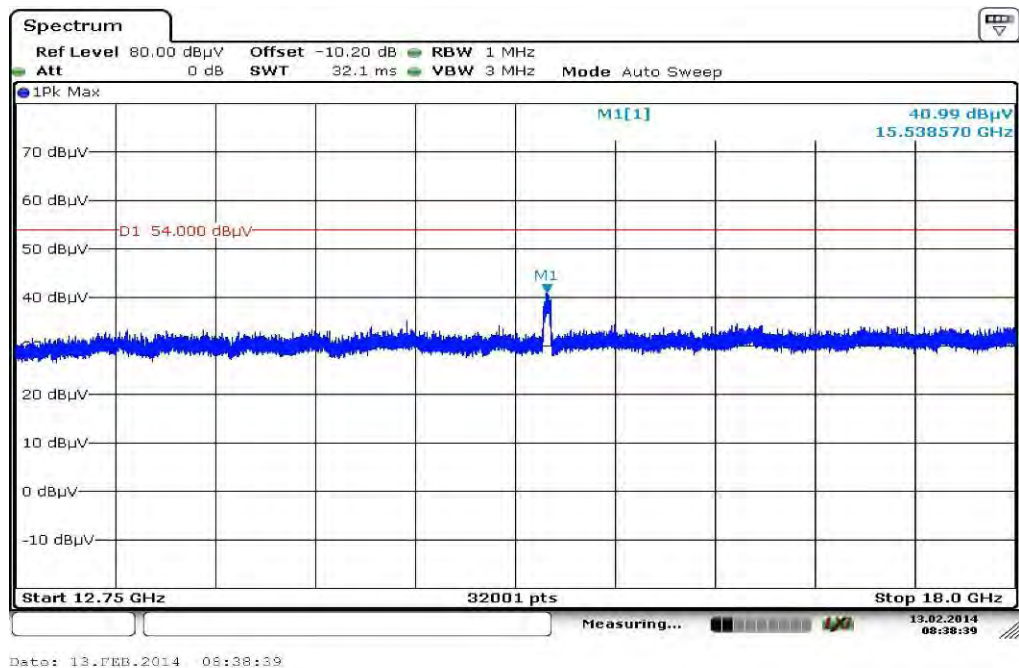
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

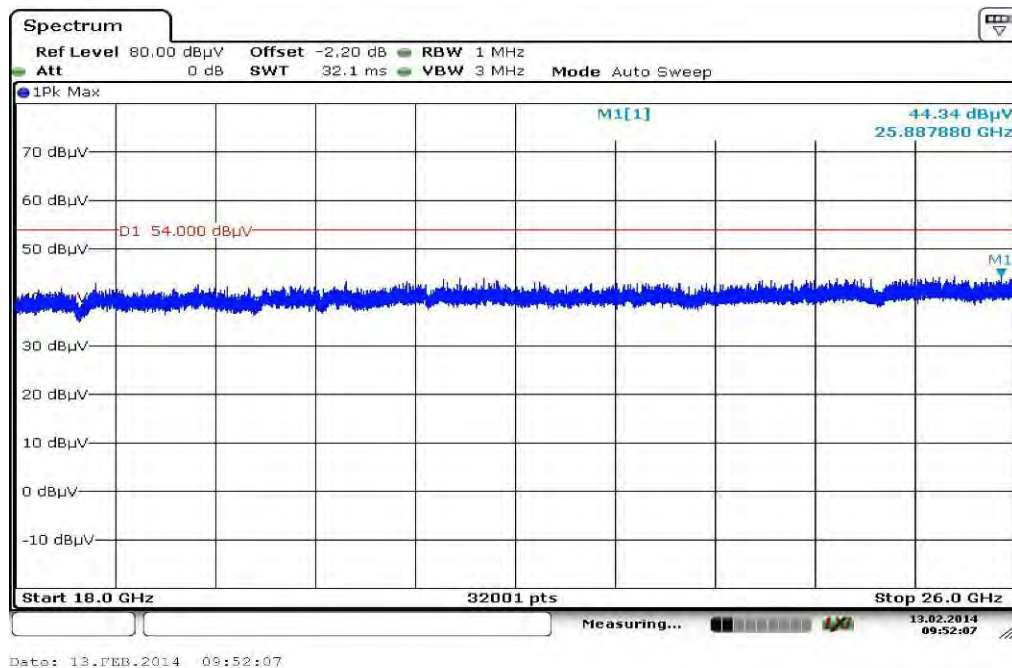
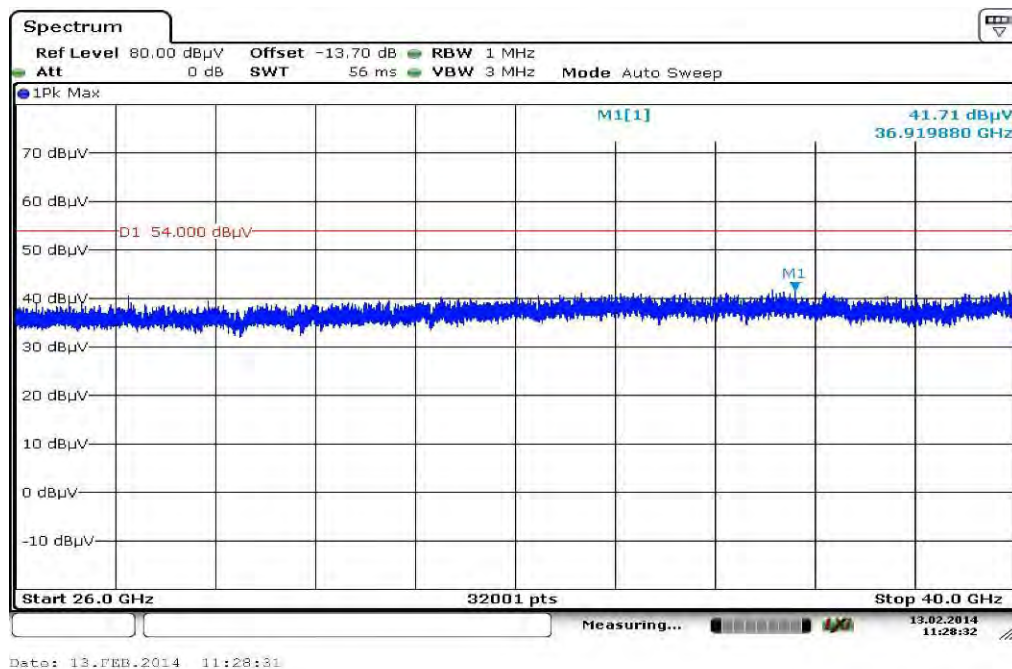
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.340700	12.4	1000.0	120.000	98.0	V	180.0	12.6	17.6	30.0	
38.694900	13.1	1000.0	120.000	133.0	V	270.0	13.3	16.9	30.0	
300.396900	11.1	1000.0	120.000	145.0	V	0.0	14.5	24.9	36.0	
386.388450	13.2	1000.0	120.000	145.0	H	90.0	16.7	22.8	36.0	
664.881900	18.8	1000.0	120.000	122.0	H	90.0	21.5	17.2	36.0	
910.843500	22.3	1000.0	120.000	145.0	H	0.0	25.2	13.7	36.0	

Plot 2: 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization**Plot 3:** 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization

Plot 4: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization**Plot 5:** 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization

Plot 6: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization

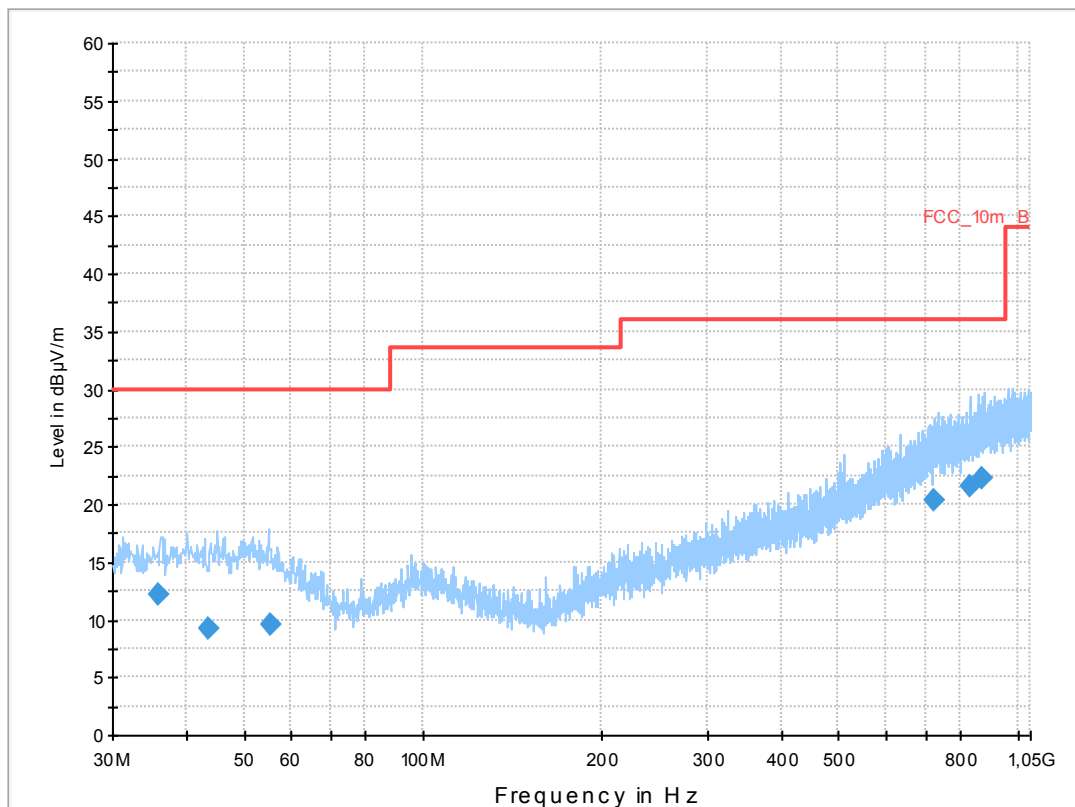
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT20) tx ch 48
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

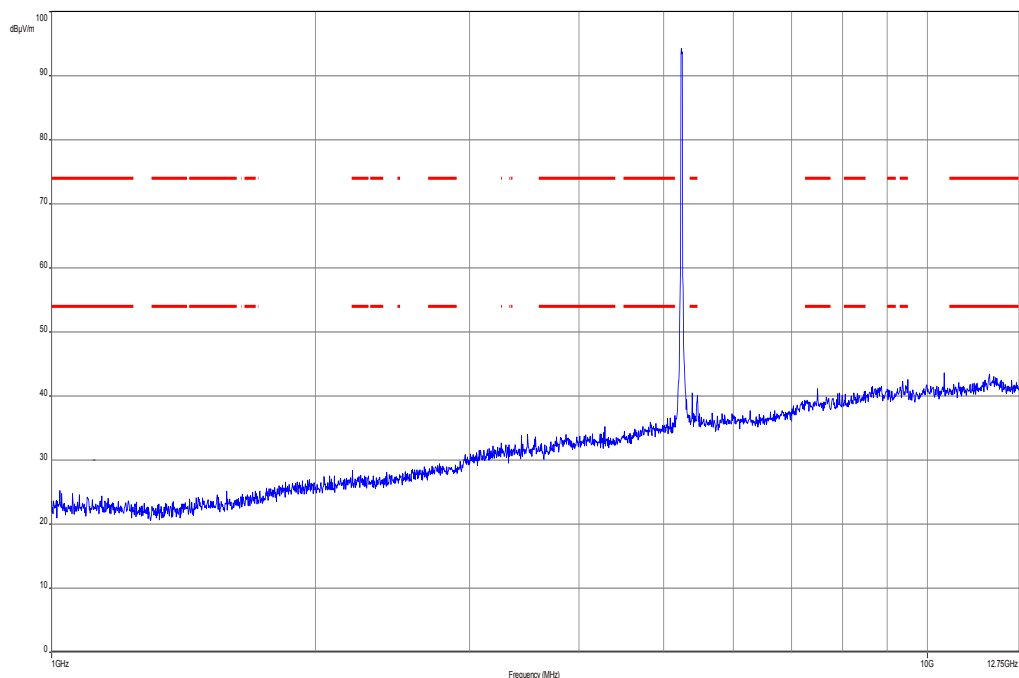
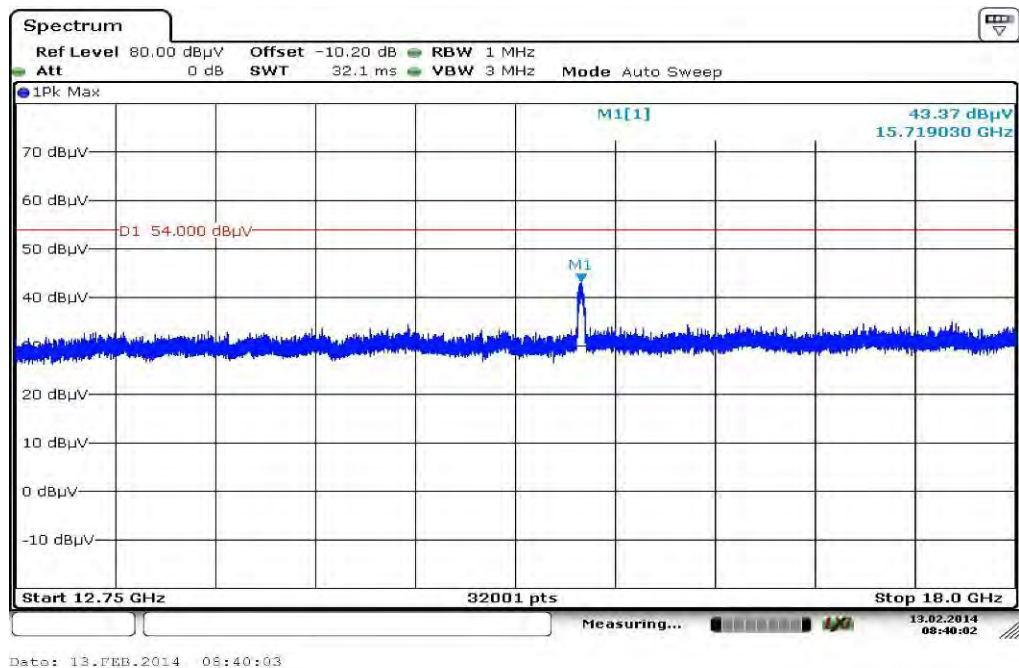
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

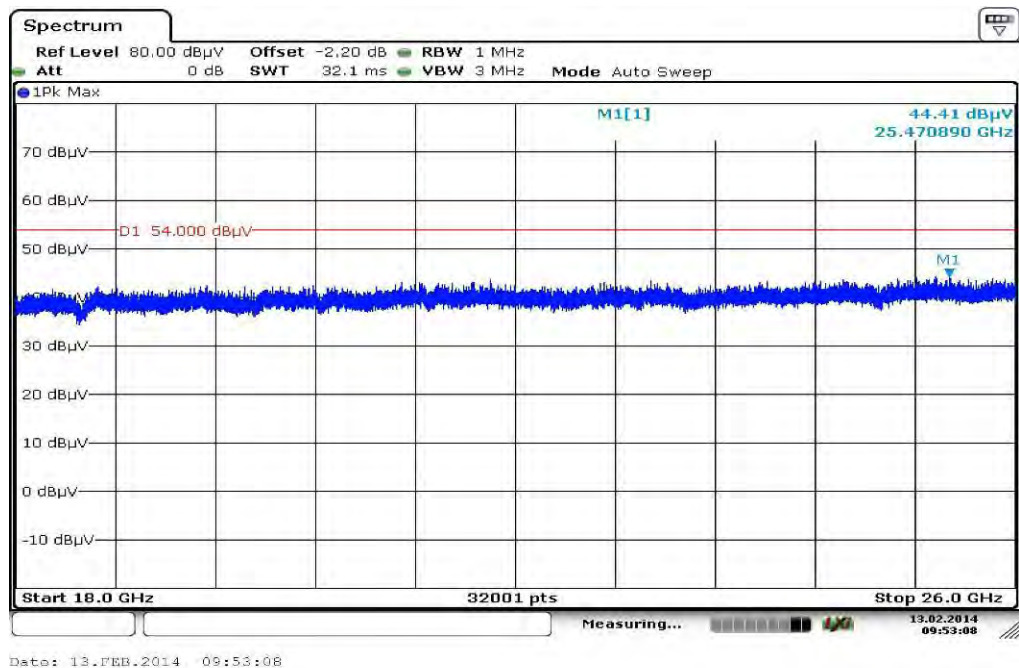
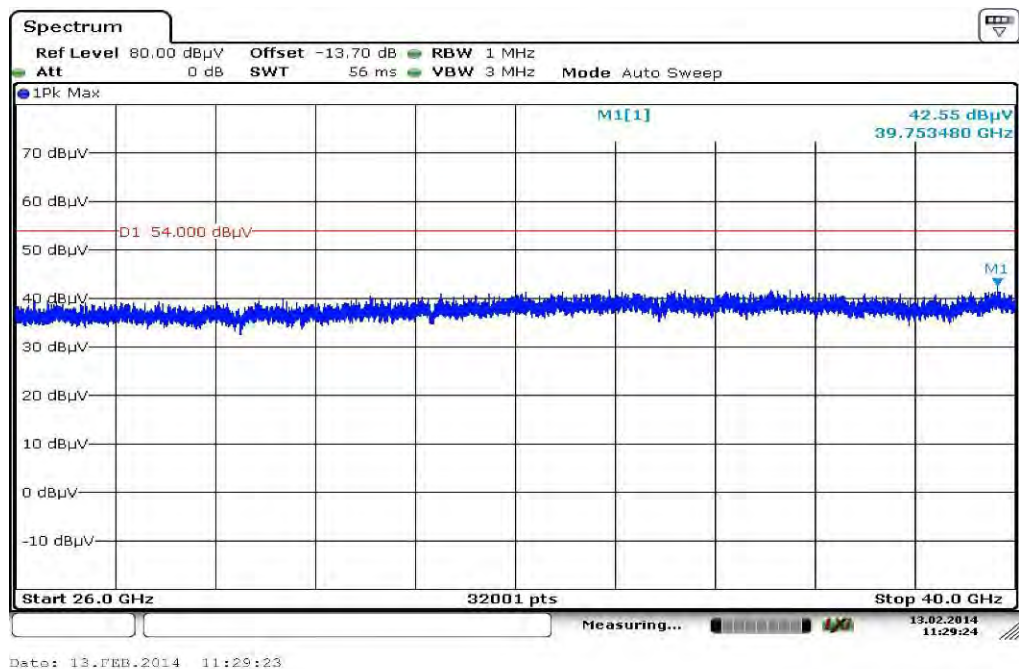
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
35.979300	12.1	1000.0	120.000	105.0	V	90.0	13.1	17.9	30.0	
43.580400	9.2	1000.0	120.000	121.0	H	90.0	13.3	20.8	30.0	
55.311900	9.6	1000.0	120.000	105.0	V	270.0	12.8	20.4	30.0	
725.214150	20.4	1000.0	120.000	145.0	V	270.0	23.1	15.6	36.0	
833.290950	21.5	1000.0	120.000	138.0	H	180.0	24.3	14.5	36.0	
874.606650	22.3	1000.0	120.000	120.0	V	90.0	24.9	13.7	36.0	

Plot 7: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization**Plot 8:** 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization

Plot 9: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization**Plot 10:** 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization

Plot 11: 30 MHz to 1 GHz, 5260 MHz, vertical & horizontal polarization

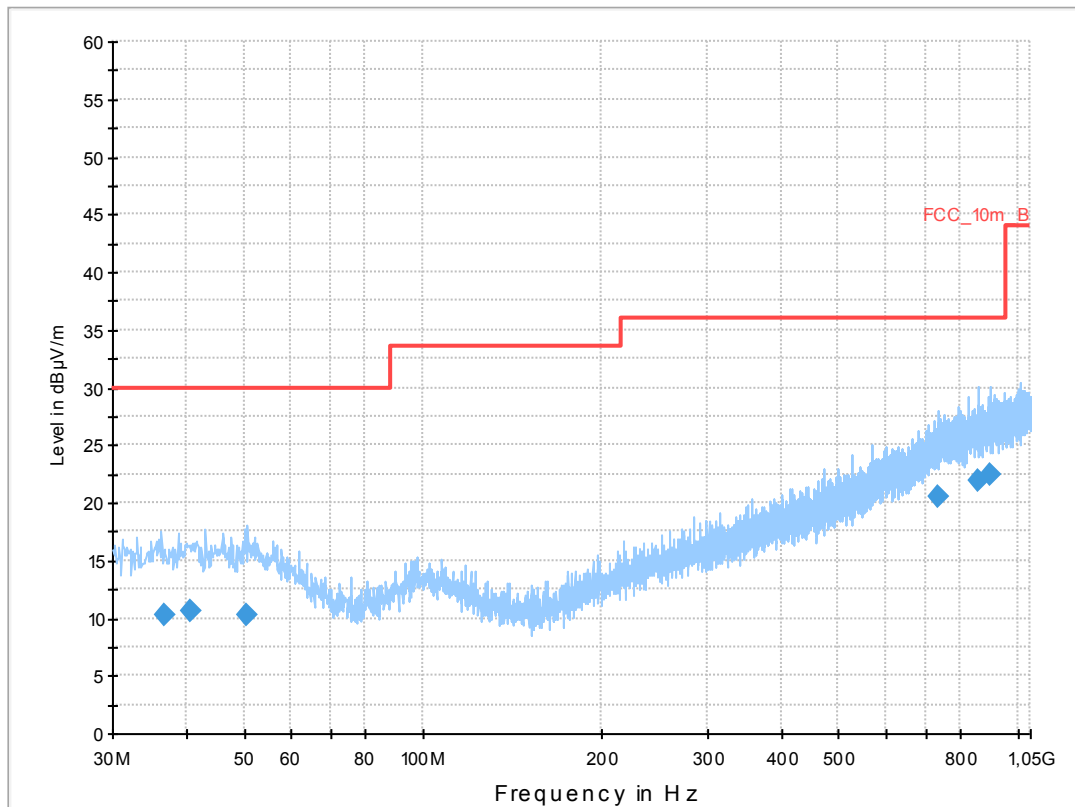
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT20) tx ch 52
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

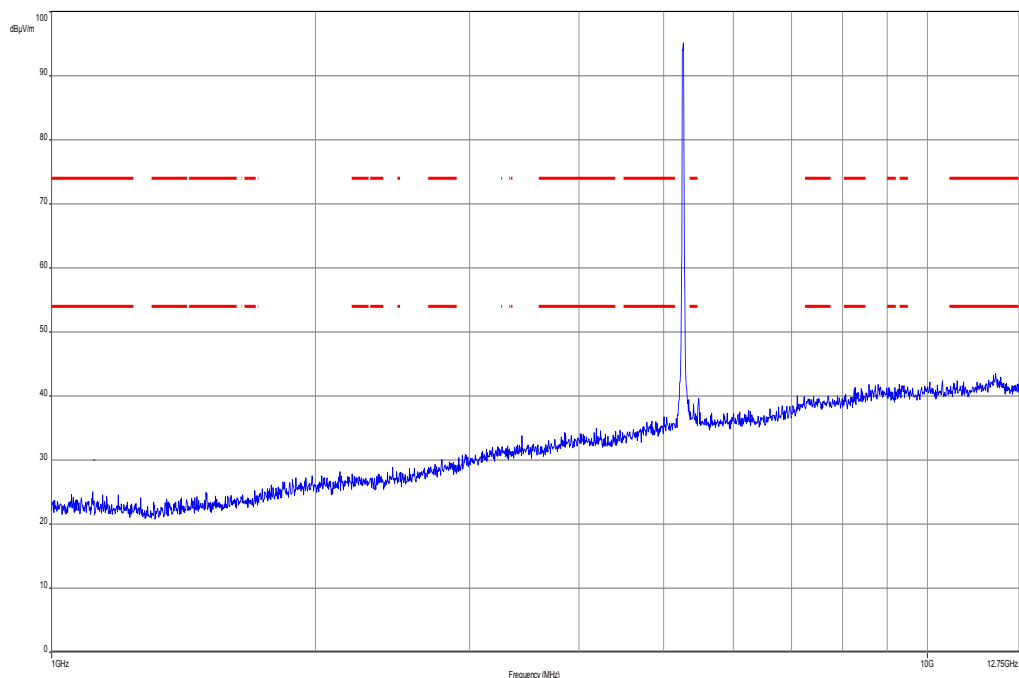
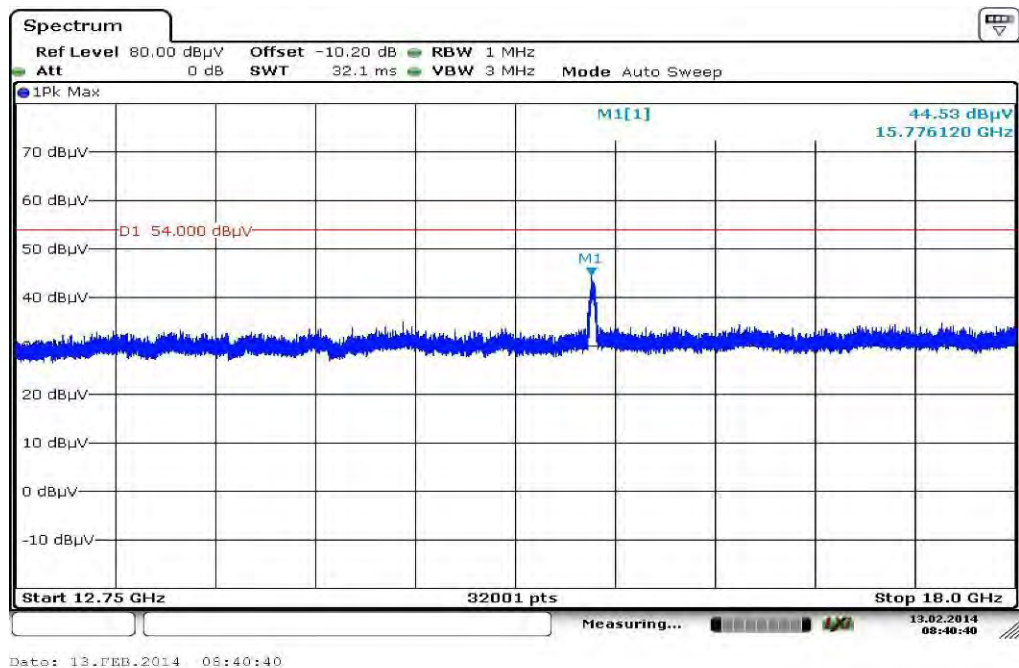
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

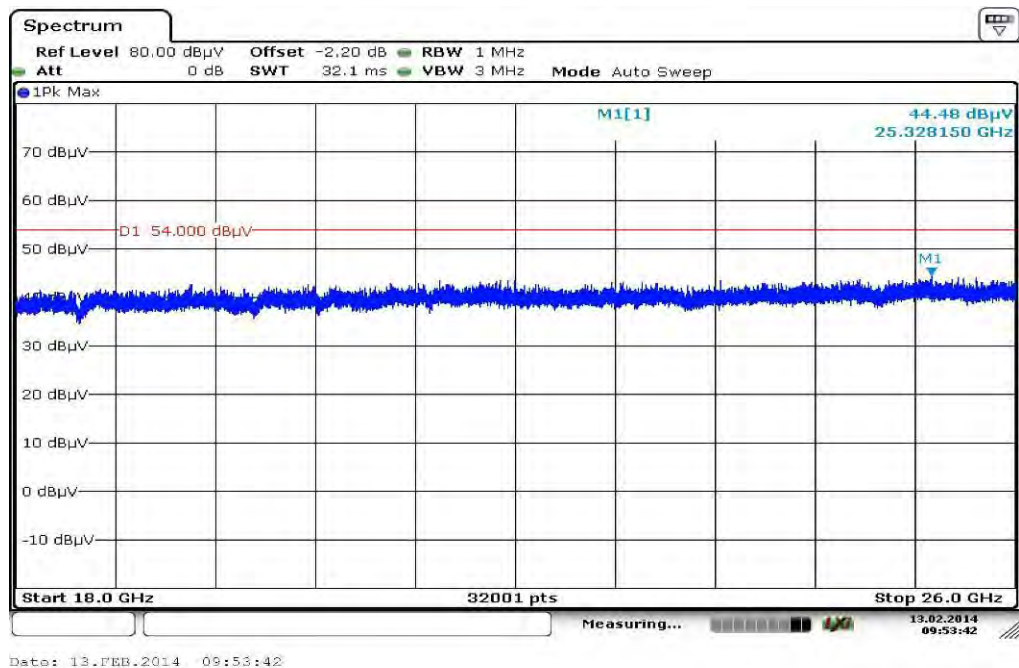
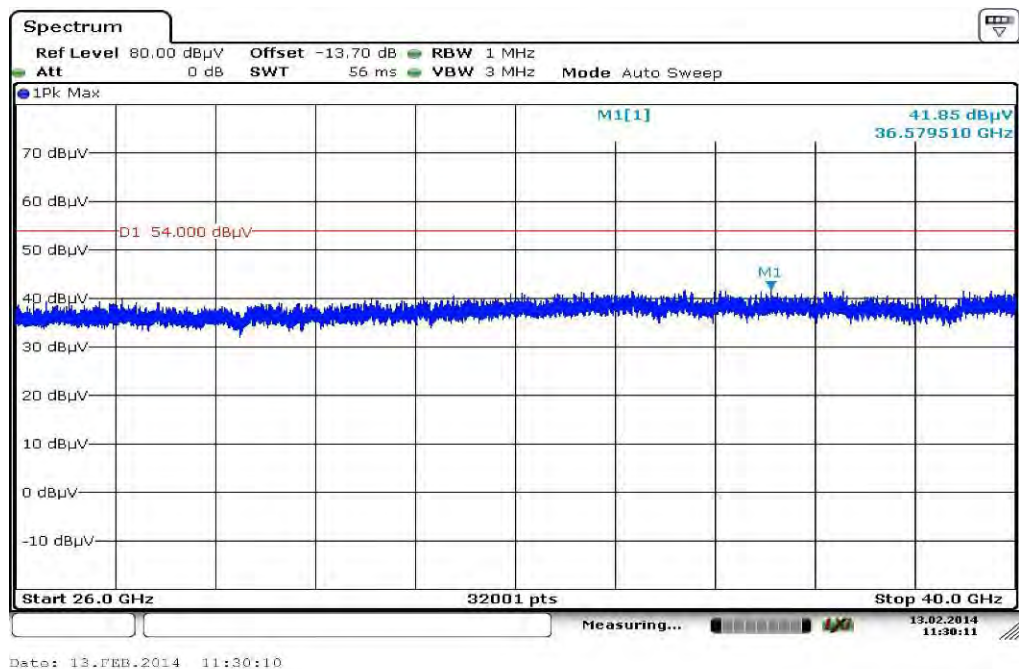
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
36.832350	10.3	1000.0	120.000	138.0	V	270.0	13.2	19.7	30.0	
40.611150	10.6	1000.0	120.000	145.0	H	90.0	13.4	19.4	30.0	
50.367150	10.3	1000.0	120.000	145.0	V	90.0	13.3	19.7	30.0	
732.979200	20.6	1000.0	120.000	145.0	H	90.0	23.3	15.4	36.0	
859.686000	22.0	1000.0	120.000	145.0	H	180.0	24.7	14.0	36.0	
899.698650	22.4	1000.0	120.000	145.0	H	180.0	25.2	13.6	36.0	

Plot 12: 1 GHz to 12.75 GHz, 5260 MHz, vertical & horizontal polarization**Plot 13:** 12 GHz to 18 GHz, 5260 MHz, vertical & horizontal polarization

Plot 14: 18 GHz to 26 GHz, 5260 MHz, vertical & horizontal polarization**Plot 15:** 26 GHz to 40 GHz, 5260 MHz, vertical & horizontal polarization

Plot 16: 30 MHz to 1 GHz, 5320 MHz, vertical & horizontal polarization

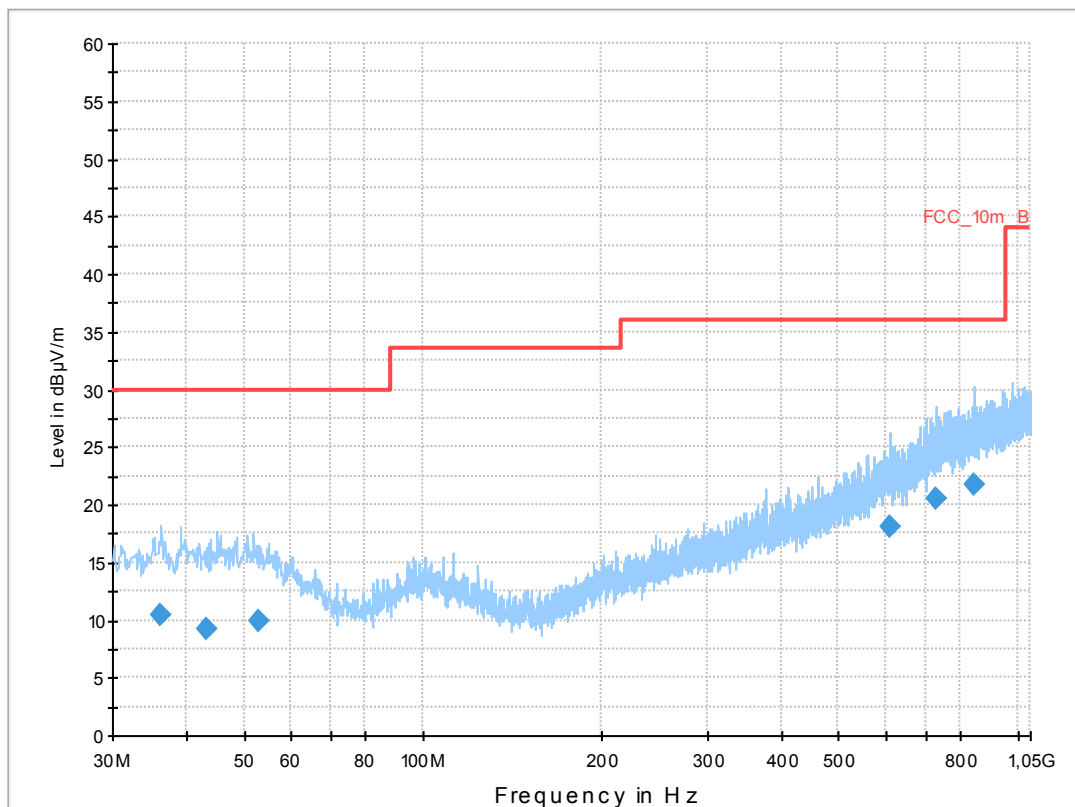
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT20) tx ch 64
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

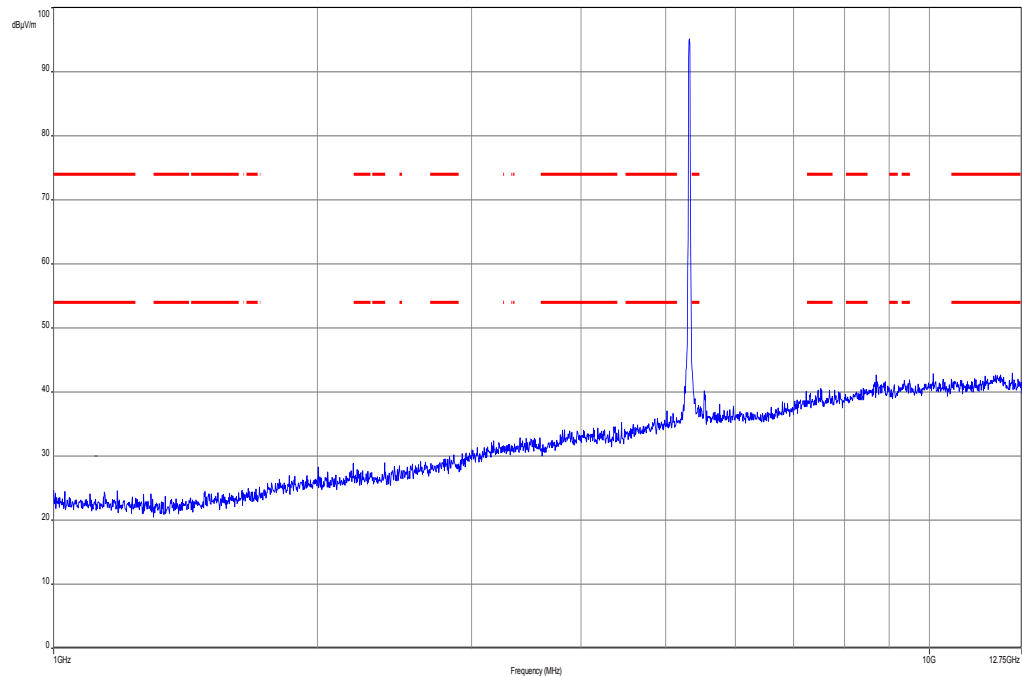
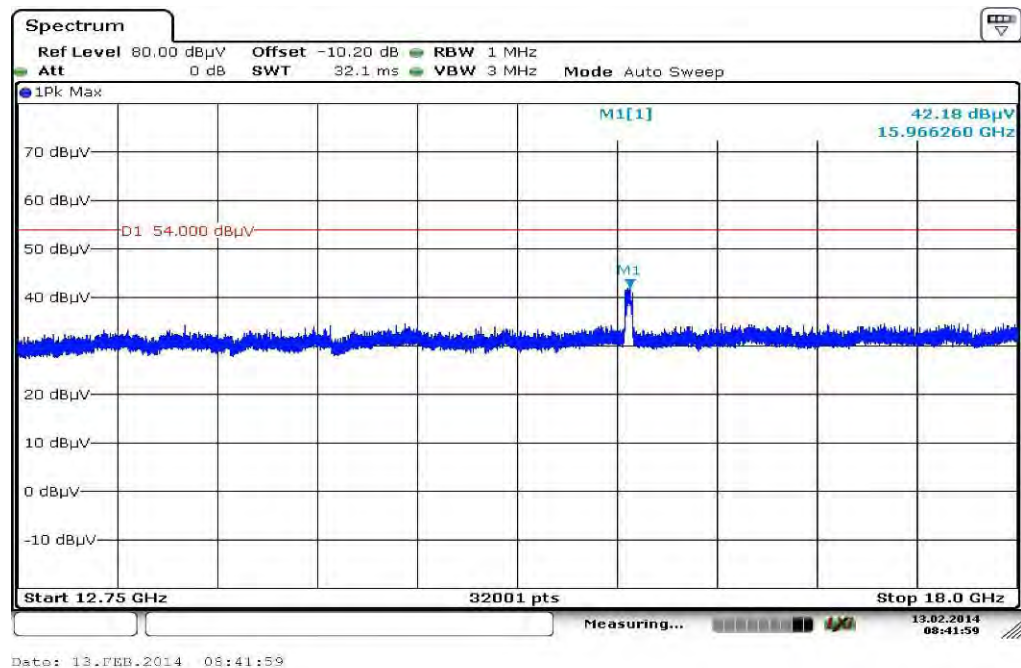
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

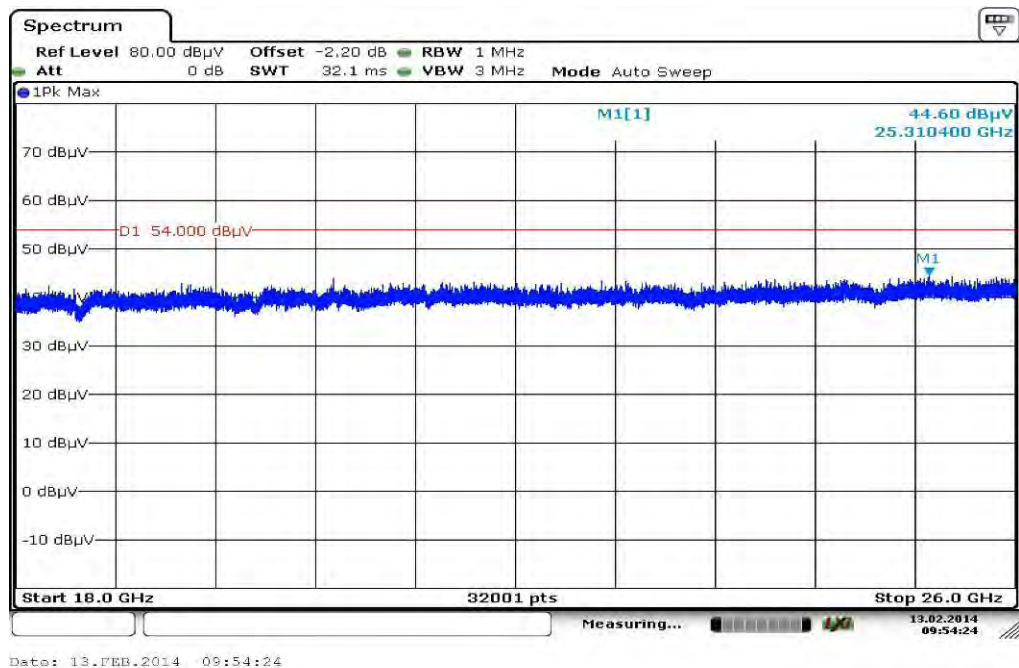
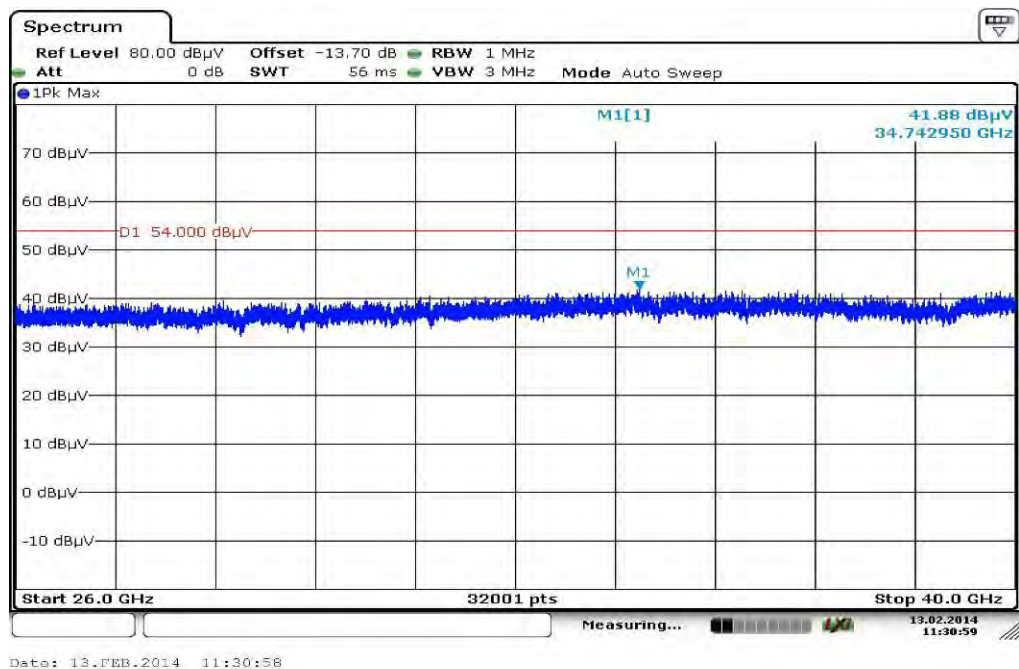
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
36.095250	10.4	1000.0	120.000	145.0	H	0.0	13.1	19.6	30.0	
43.223100	9.2	1000.0	120.000	145.0	V	270.0	13.3	20.8	30.0	
53.012400	9.9	1000.0	120.000	130.0	V	180.0	13.1	20.1	30.0	
611.348100	18.2	1000.0	120.000	145.0	V	180.0	20.9	17.8	36.0	
729.422100	20.5	1000.0	120.000	145.0	V	90.0	23.2	15.5	36.0	
847.063800	21.8	1000.0	120.000	111.0	V	0.0	24.5	14.2	36.0	

Plot 17: 1 GHz to 12.75 GHz, 5320 MHz, vertical & horizontal polarization**Plot 18:** 12 GHz to 18 GHz, 5320 MHz, vertical & horizontal polarization

Plot 19: 18 GHz to 26 GHz, 5320 MHz, vertical & horizontal polarization**Plot 20:** 26 GHz to 40 GHz, 5320 MHz, vertical & horizontal polarization

Plot 21: 30 MHz to 1 GHz, 5500 MHz, vertical & horizontal polarization

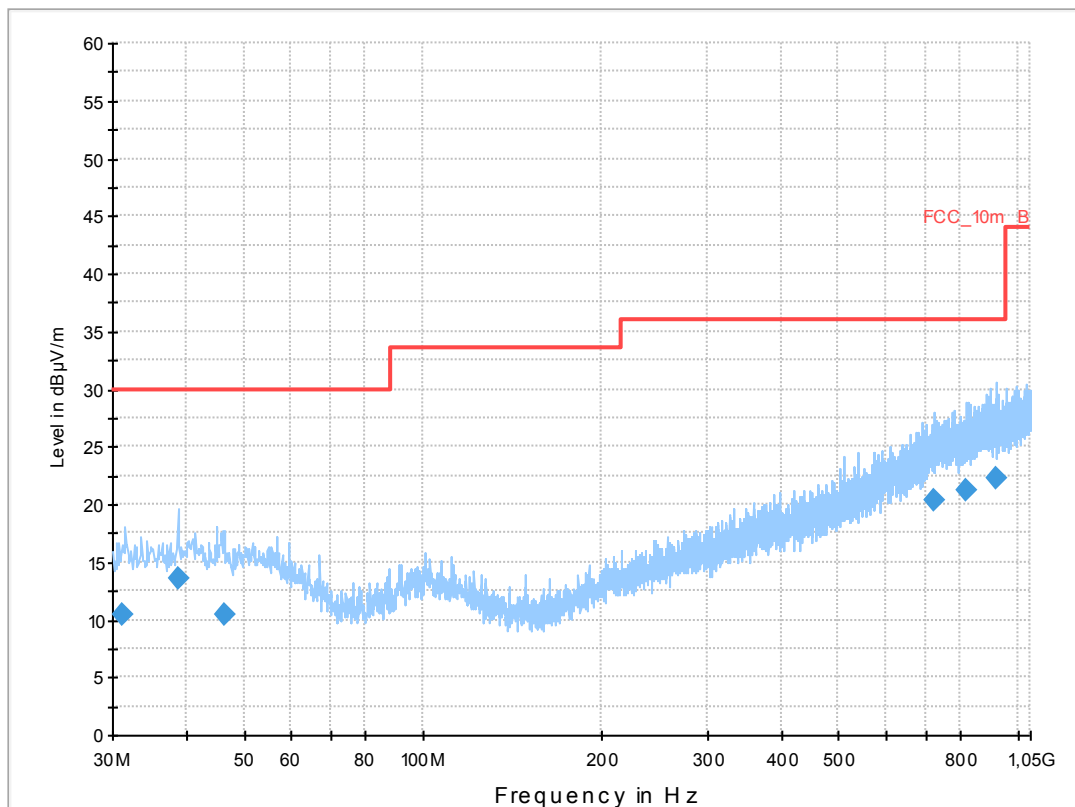
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT20) tx ch 100
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

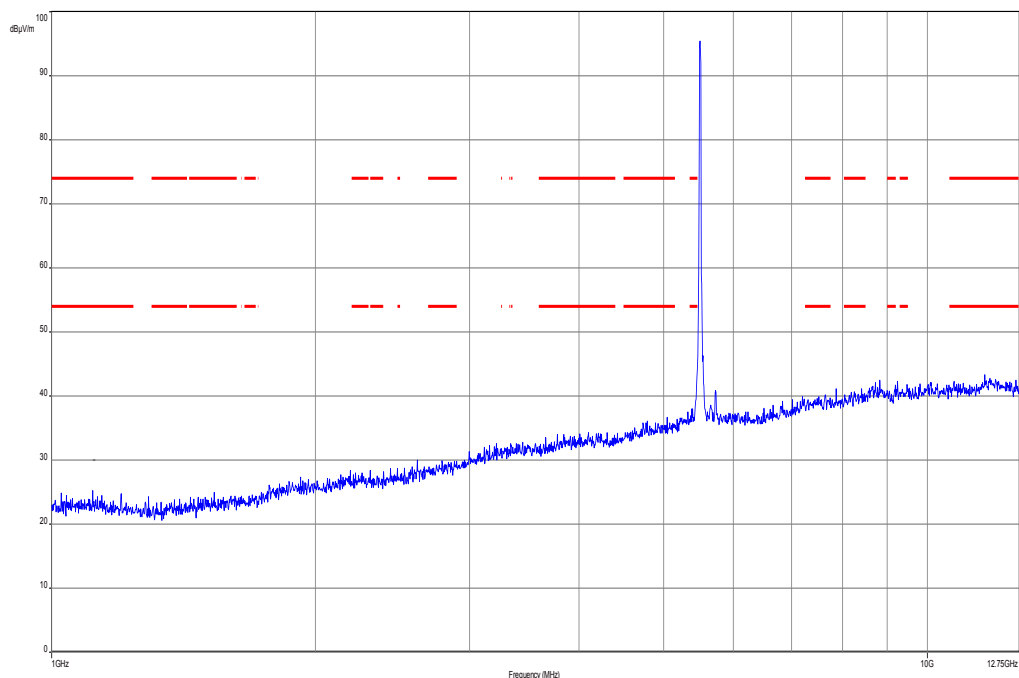
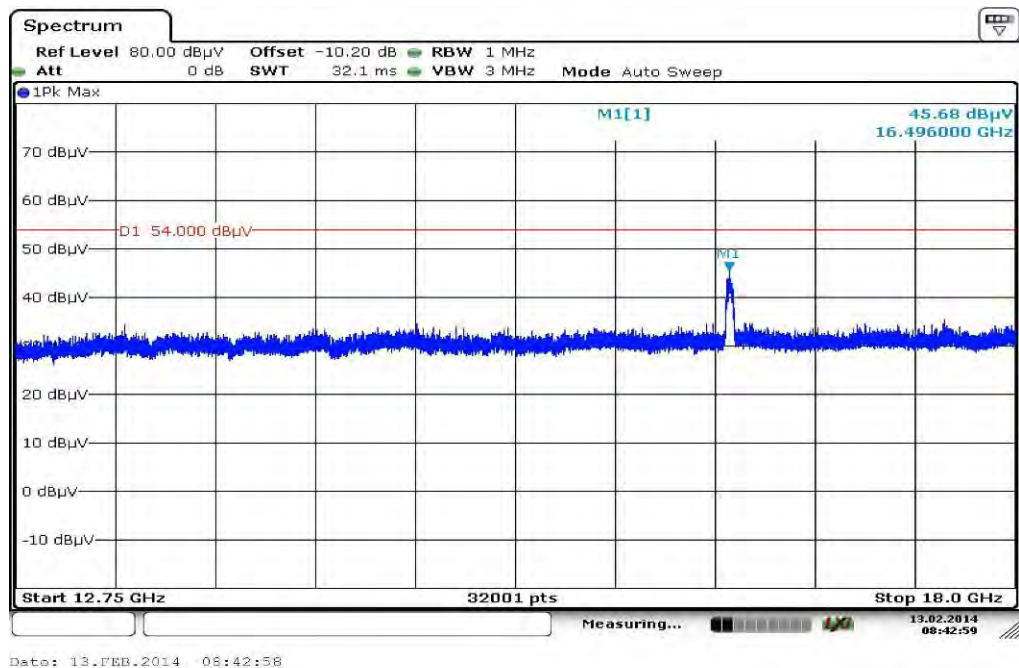
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

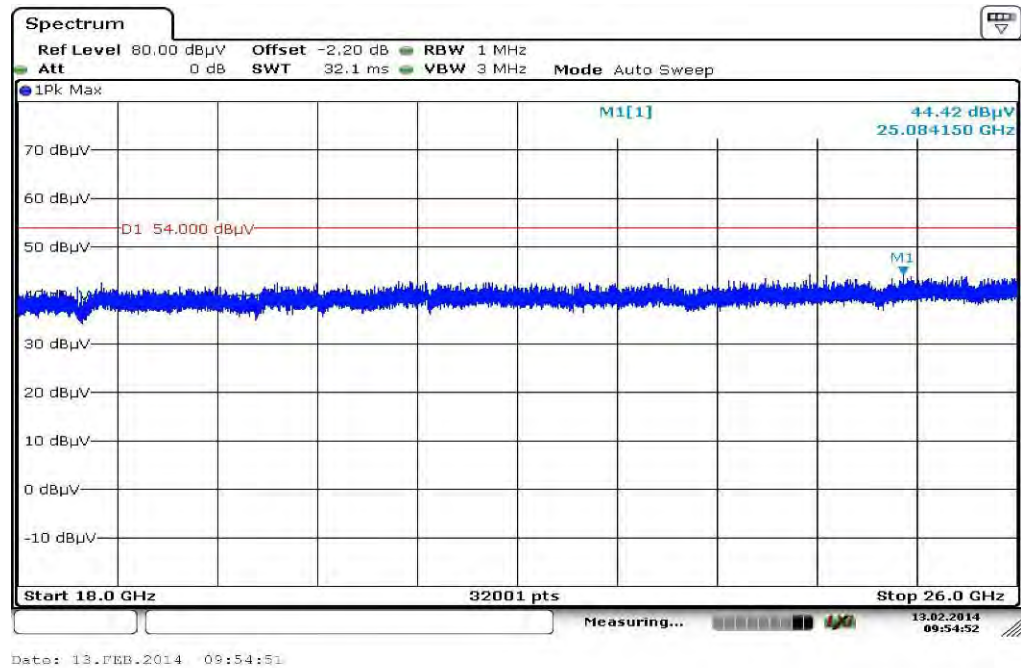
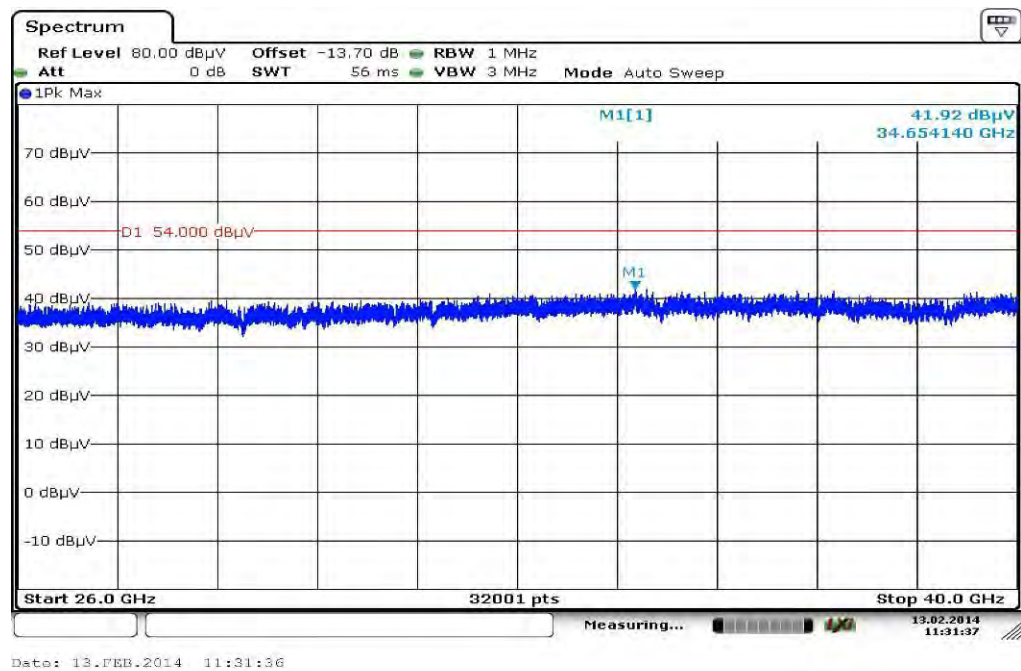
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.271850	10.4	1000.0	120.000	145.0	V	270.0	12.6	19.6	30.0	
38.706000	13.5	1000.0	120.000	98.0	V	270.0	13.3	16.5	30.0	
46.197600	10.4	1000.0	120.000	107.0	V	270.0	13.3	19.6	30.0	
725.932350	20.3	1000.0	120.000	145.0	V	270.0	23.1	15.7	36.0	
819.484350	21.3	1000.0	120.000	145.0	V	0.0	24.1	14.7	36.0	
921.248550	22.3	1000.0	120.000	98.0	V	90.0	25.3	13.7	36.0	

Plot 22: 1 GHz to 12.75 GHz, 5500 MHz, vertical & horizontal polarization**Plot 23:** 12 GHz to 18 GHz, 5500 MHz, vertical & horizontal polarization

Plot 24: 18 GHz to 26 GHz, 5500 MHz, vertical & horizontal polarization**Plot 25:** 26 GHz to 40 GHz, 5500 MHz, vertical & horizontal polarization

Plot 26: 30 MHz to 1 GHz, 5700 MHz, vertical & horizontal polarization

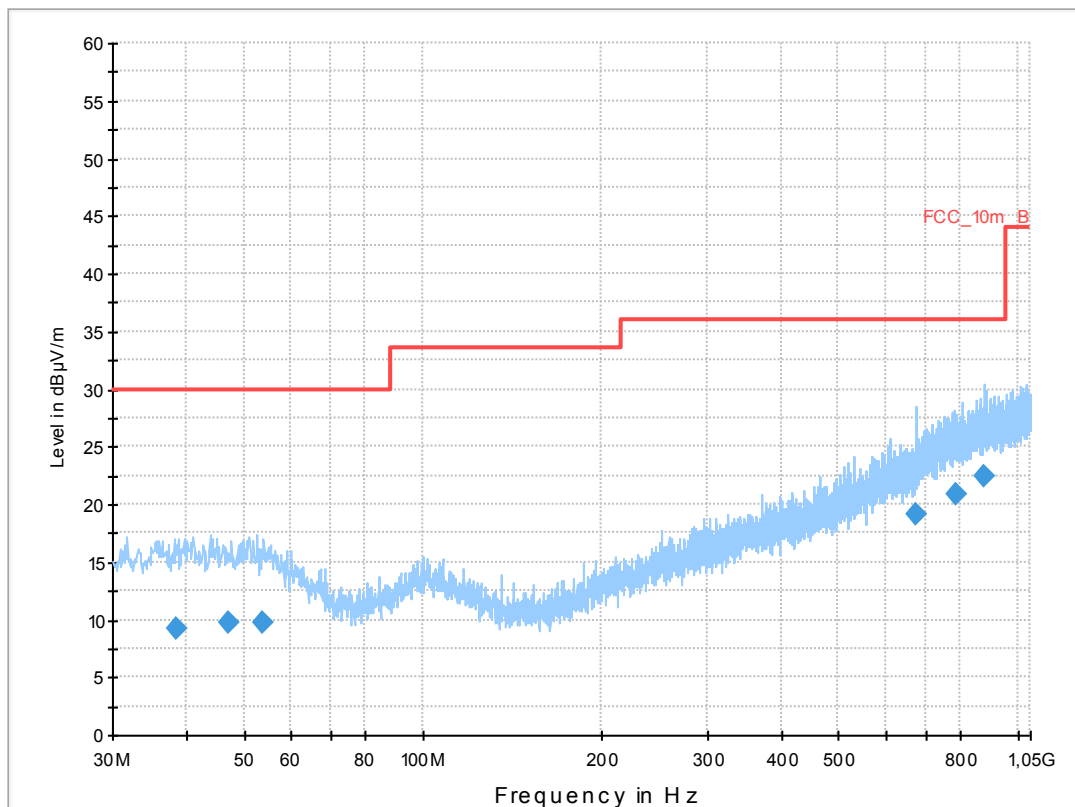
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT20) tx ch 140
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

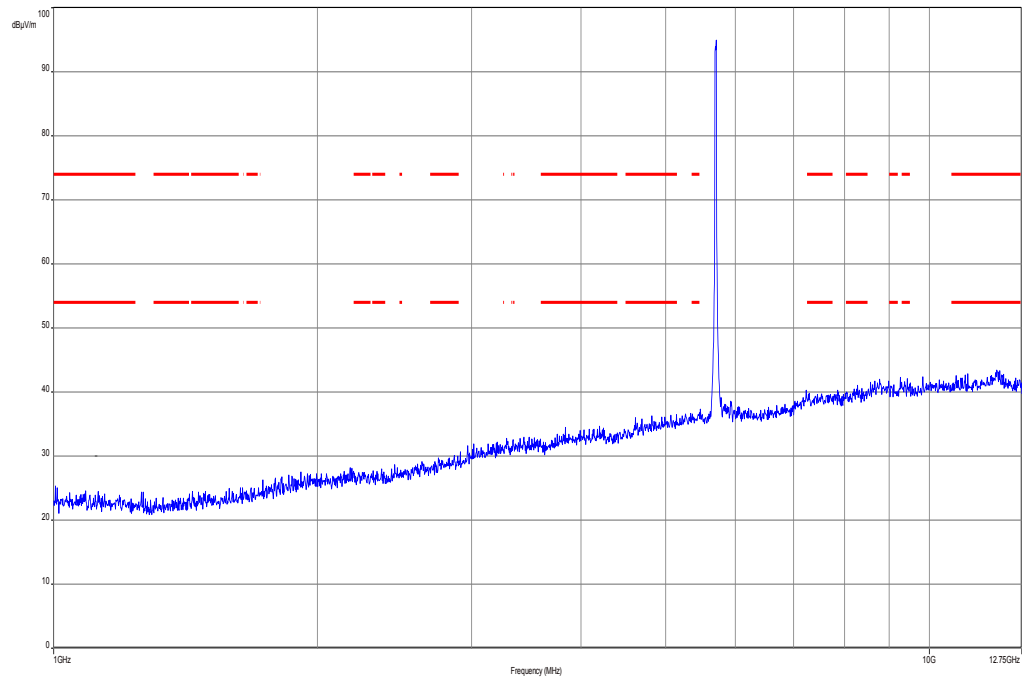
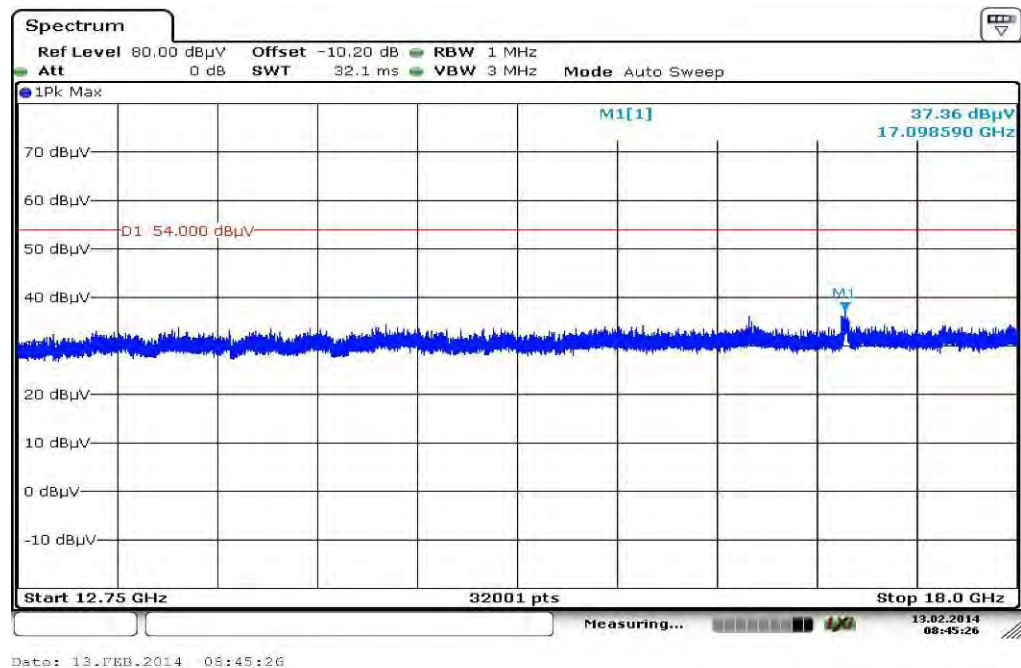
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

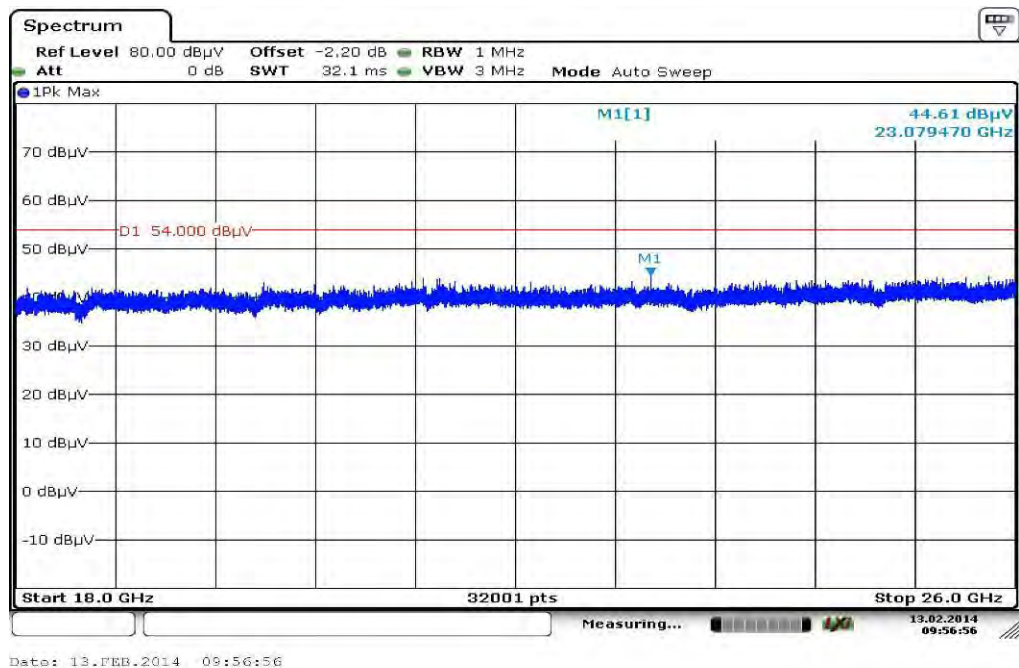
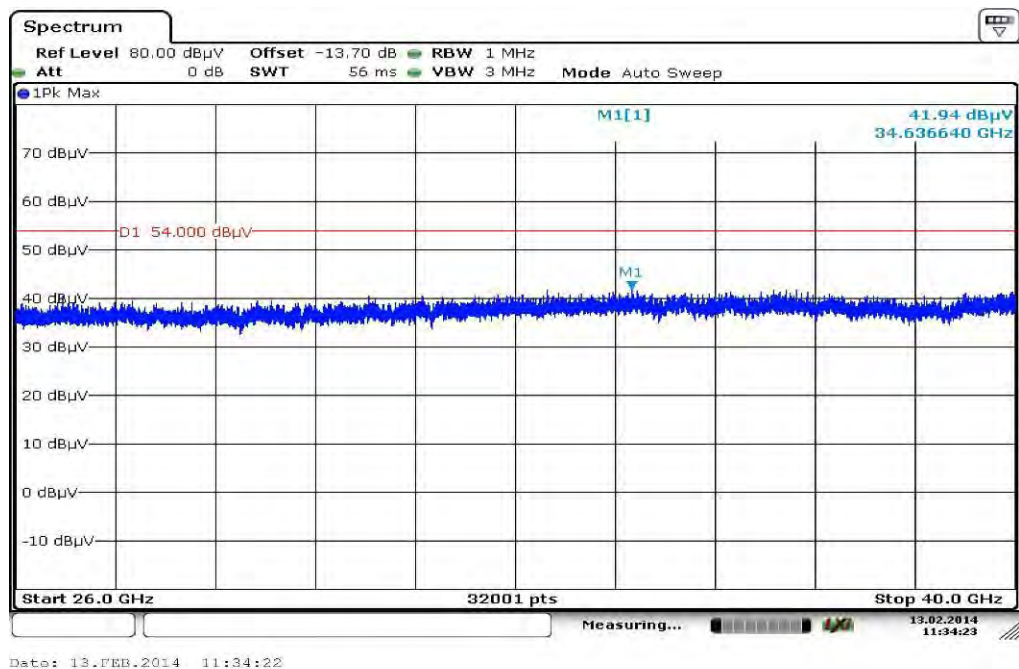
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
38.566500	9.3	1000.0	120.000	145.0	V	0.0	13.3	20.7	30.0	
47.139300	9.8	1000.0	120.000	145.0	V	180.0	13.3	20.2	30.0	
53.646000	9.7	1000.0	120.000	120.0	V	270.0	13.0	20.3	30.0	
675.521100	19.1	1000.0	120.000	112.0	V	90.0	21.8	16.9	36.0	
788.067600	20.9	1000.0	120.000	145.0	V	0.0	23.8	15.1	36.0	
880.477350	22.4	1000.0	120.000	145.0	V	90.0	25.0	13.6	36.0	

Plot 27: 1 GHz to 12.75 GHz, 5700 MHz, vertical & horizontal polarization**Plot 28:** 12 GHz to 18 GHz, 5700 MHz, vertical & horizontal polarization

Plot 29: 18 GHz to 26 GHz, 5700 MHz, vertical & horizontal polarization**Plot 30:** 26 GHz to 40 GHz, 5700 MHz, vertical & horizontal polarization

Plots: OFDM / n/ac – mode HT40

Plot 1: 30 MHz to 1 GHz, 5190 MHz, vertical & horizontal polarization

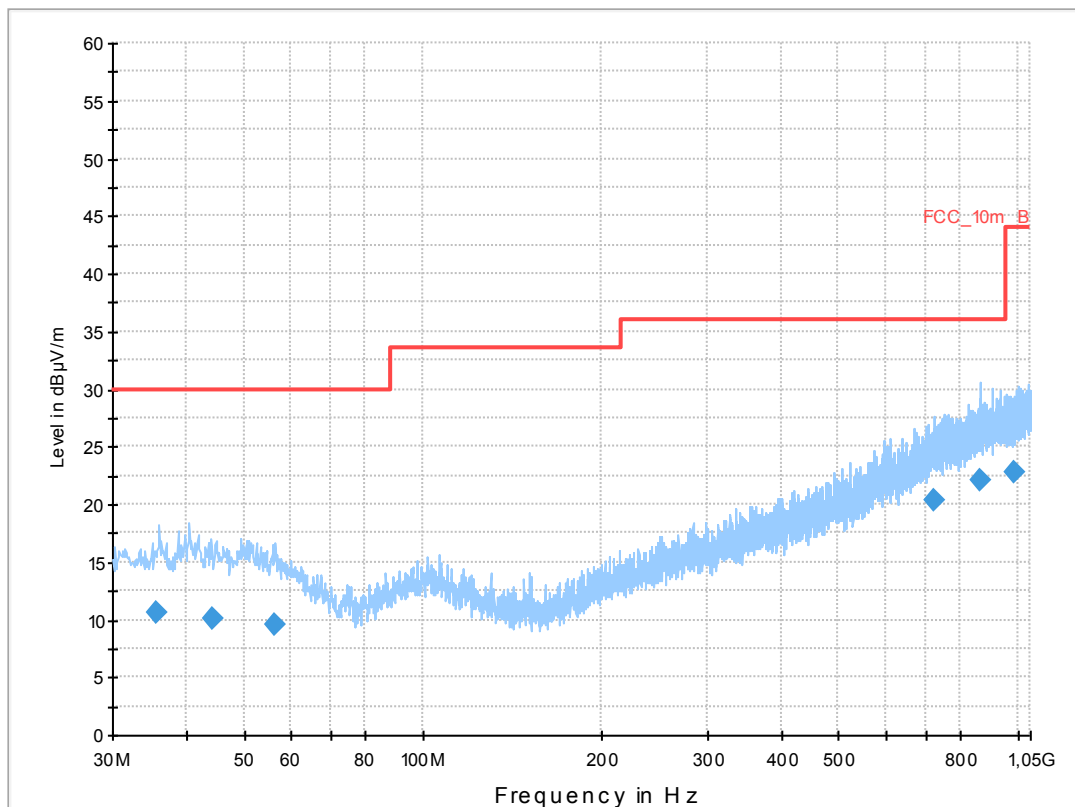
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT40) tx ch 38
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

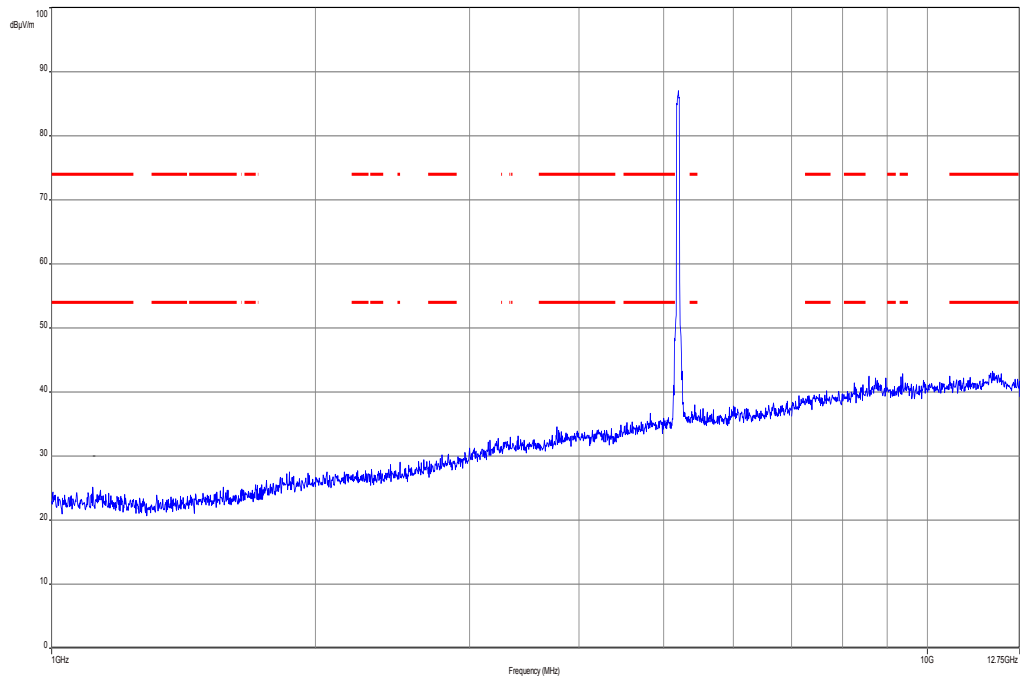
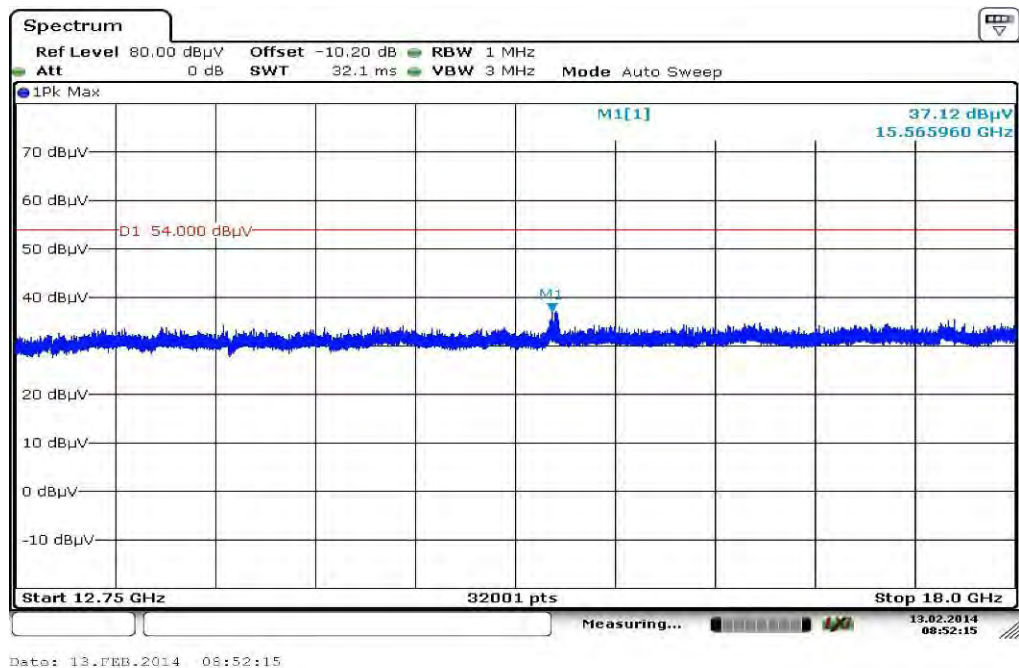
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

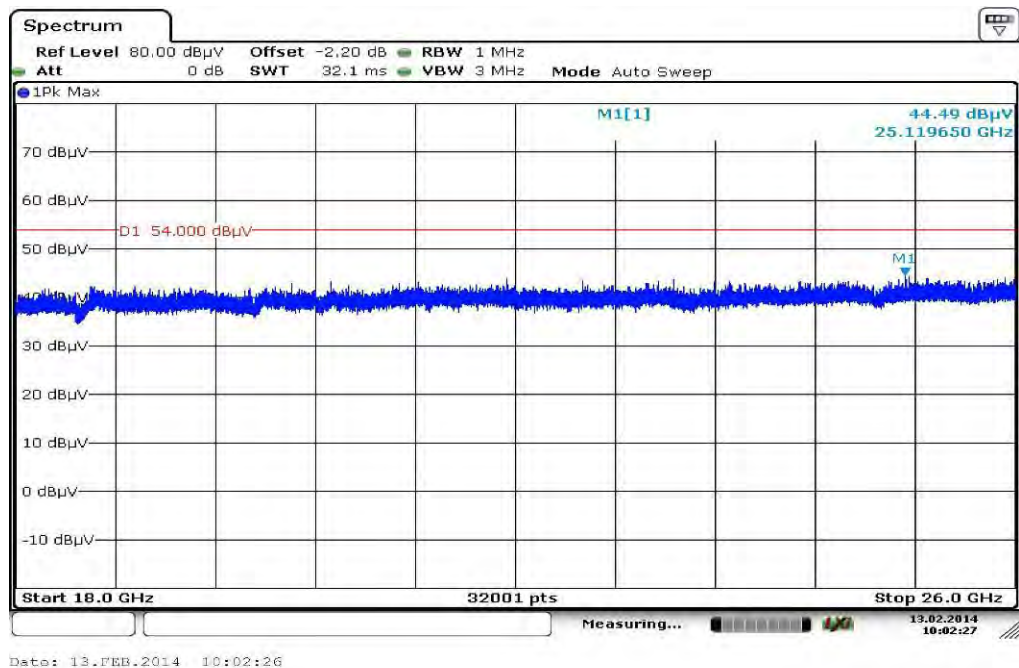
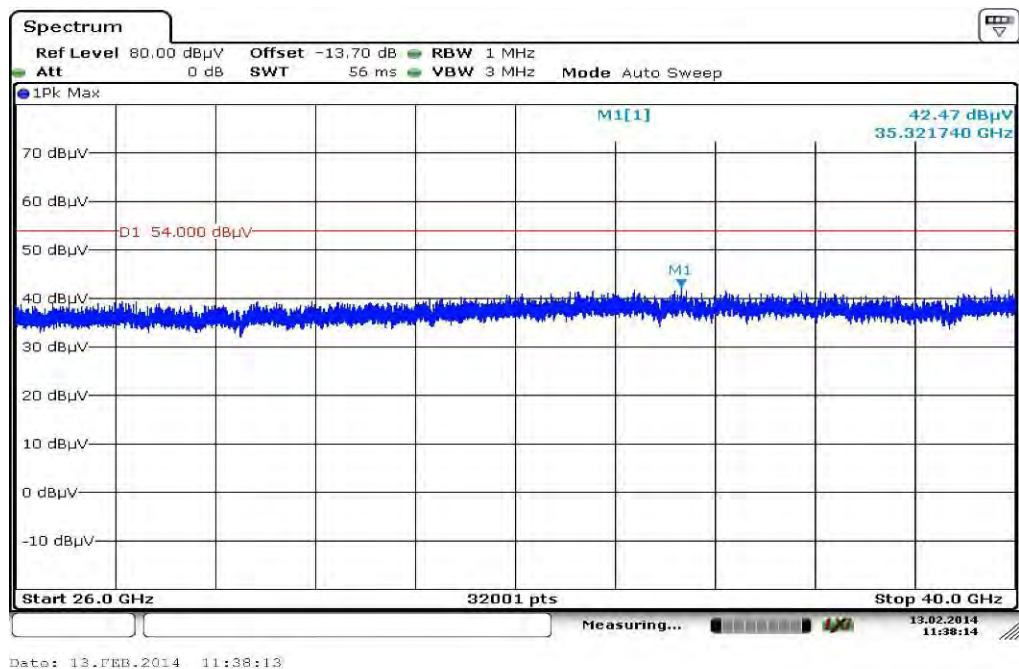
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
35.615550	10.5	1000.0	120.000	145.0	V	90.0	13.1	19.5	30.0	
44.374500	10.0	1000.0	120.000	105.0	V	90.0	13.3	20.0	30.0	
56.416800	9.5	1000.0	120.000	131.0	V	270.0	12.5	20.5	30.0	
725.774250	20.4	1000.0	120.000	145.0	H	0.0	23.1	15.6	36.0	
863.448300	22.1	1000.0	120.000	120.0	V	270.0	24.7	13.9	36.0	
985.297350	22.8	1000.0	120.000	98.0	V	0.0	25.7	21.2	44.0	

Plot 2: 1 GHz to 12.75 GHz, 5190 MHz, vertical & horizontal polarization**Plot 3:** 12 GHz to 18 GHz, 5190 MHz, vertical & horizontal polarization

Plot 4: 18 GHz to 26 GHz, 5190 MHz, vertical & horizontal polarization**Plot 5:** 26 GHz to 40 GHz, 5190 MHz, vertical & horizontal polarization

Plot 6: 30 MHz to 1 GHz, 5230 MHz, vertical & horizontal polarization

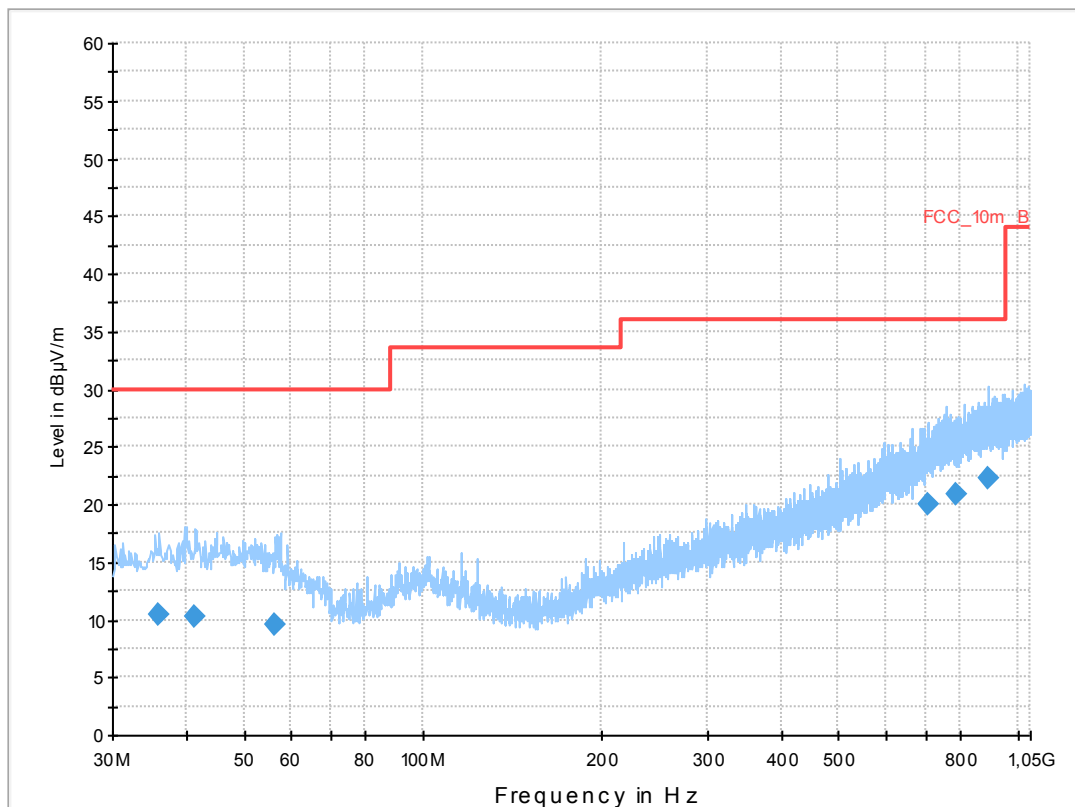
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT40) tx ch 46
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

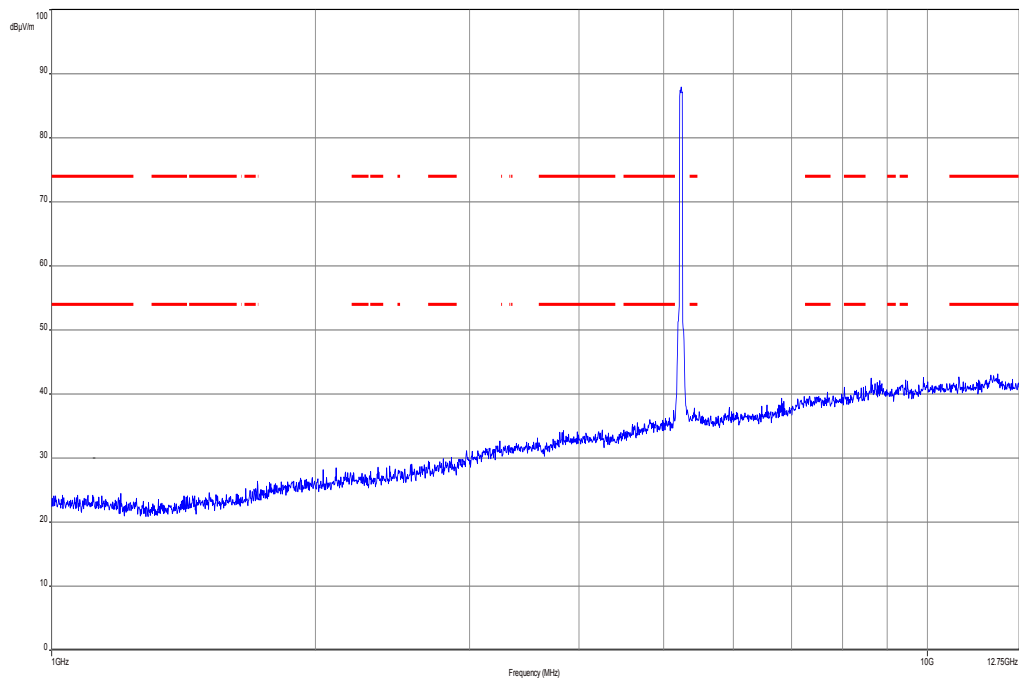
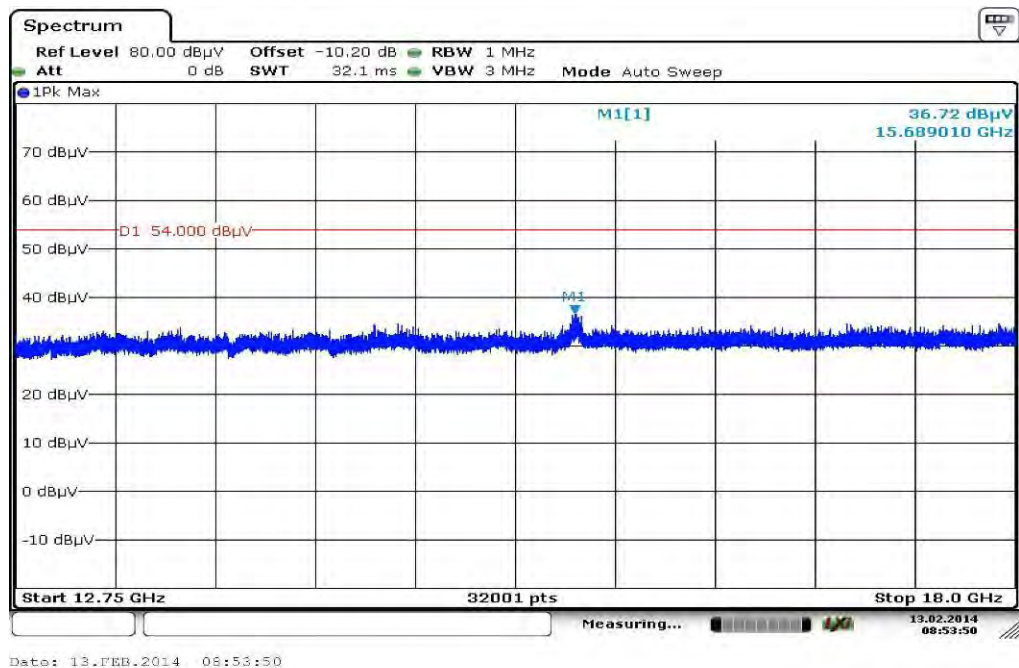
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

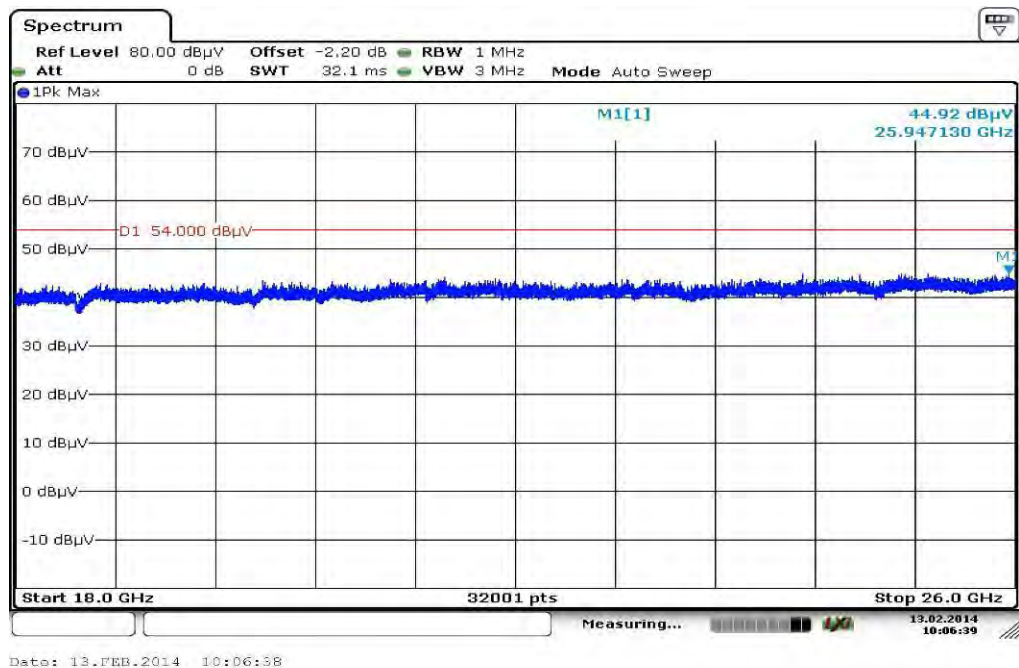
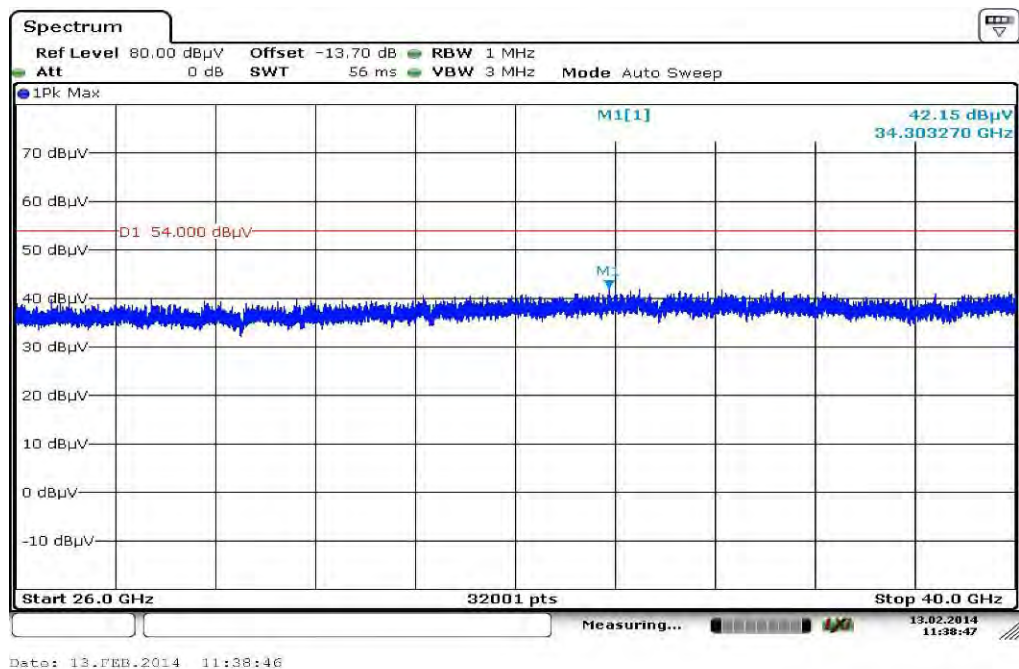
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
35.726100	10.5	1000.0	120.000	145.0	H	0.0	13.1	19.5	30.0	
41.280600	10.3	1000.0	120.000	145.0	H	180.0	13.4	19.7	30.0	
56.269950	9.6	1000.0	120.000	145.0	V	0.0	12.6	20.4	30.0	
705.314700	20.0	1000.0	120.000	145.0	V	90.0	22.6	16.0	36.0	
790.645500	20.9	1000.0	120.000	145.0	H	90.0	23.8	15.1	36.0	
889.238700	22.3	1000.0	120.000	145.0	V	180.0	25.1	13.7	36.0	

Plot 7: 1 GHz to 12.75 GHz, 5230 MHz, vertical & horizontal polarization**Plot 8:** 12 GHz to 18 GHz, 5230 MHz, vertical & horizontal polarization

Plot 9: 18 GHz to 26 GHz, 5230 MHz, vertical & horizontal polarization**Plot 10:** 26 GHz to 40 GHz, 5230 MHz, vertical & horizontal polarization

Plot 11: 30 MHz to 1 GHz, 5270 MHz, vertical & horizontal polarization

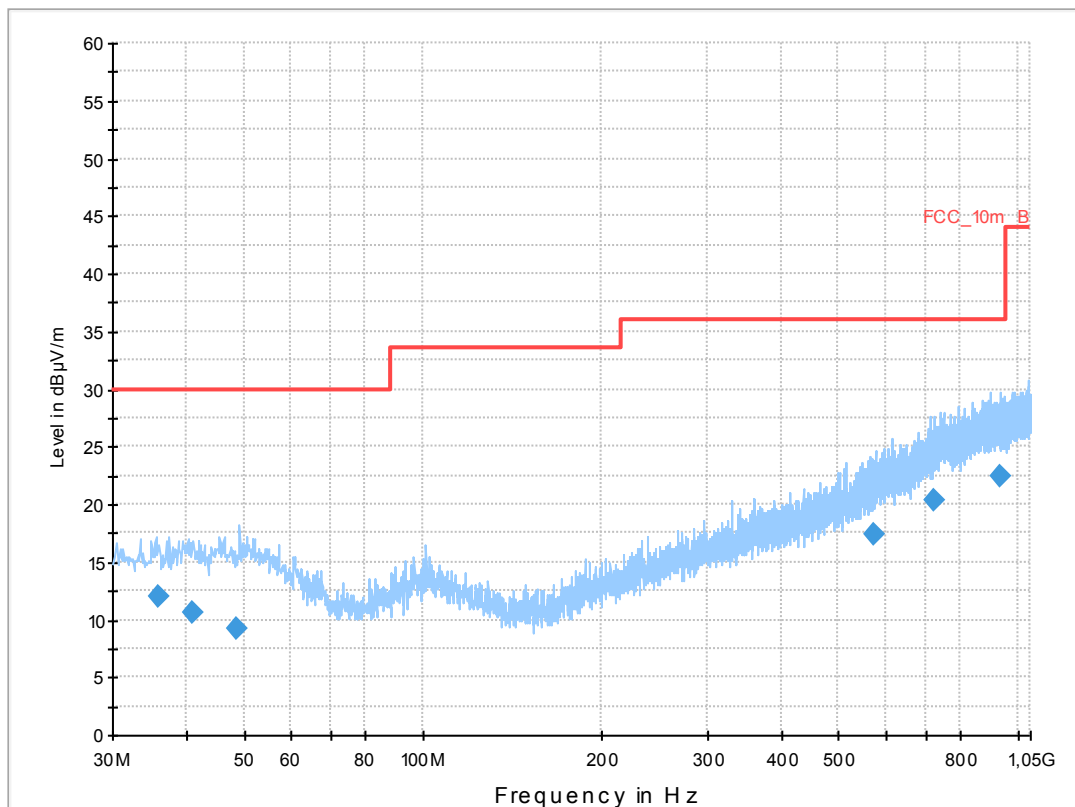
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT40) tx ch 54
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

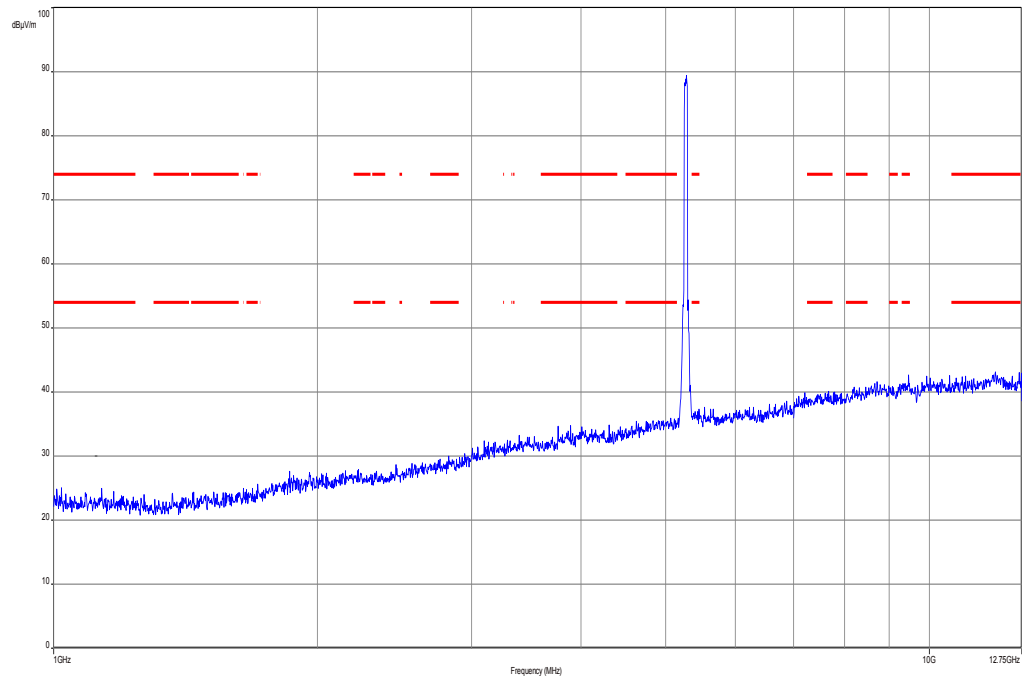
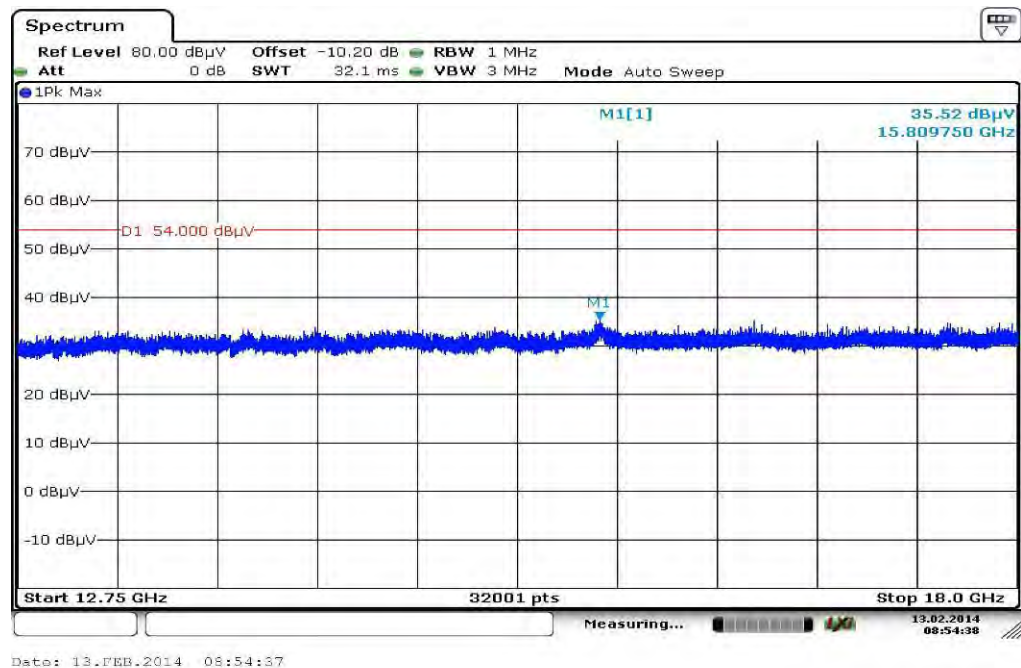
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

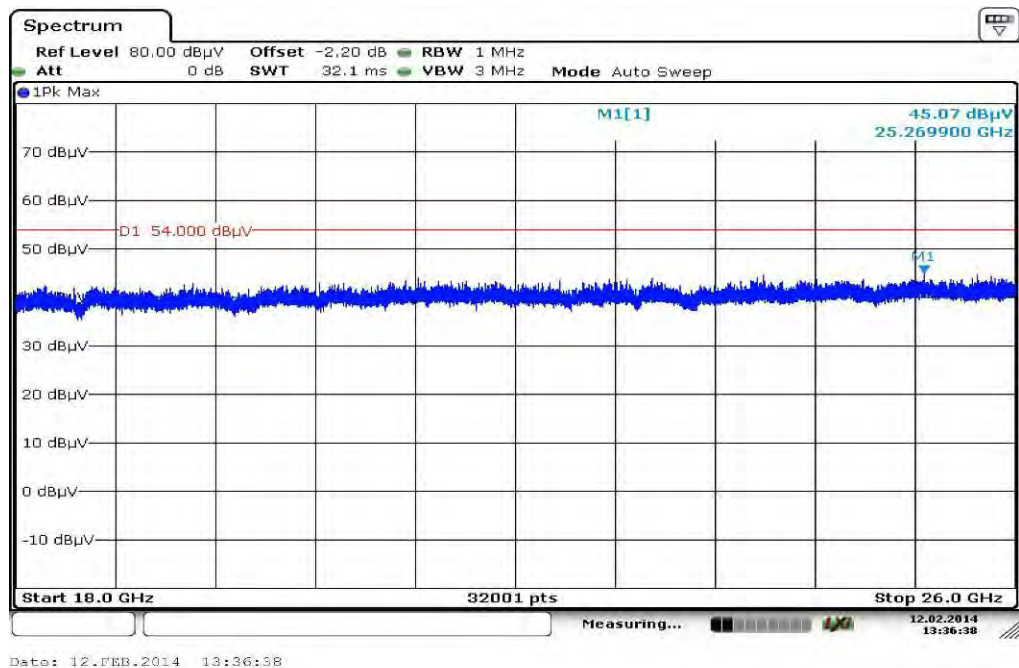
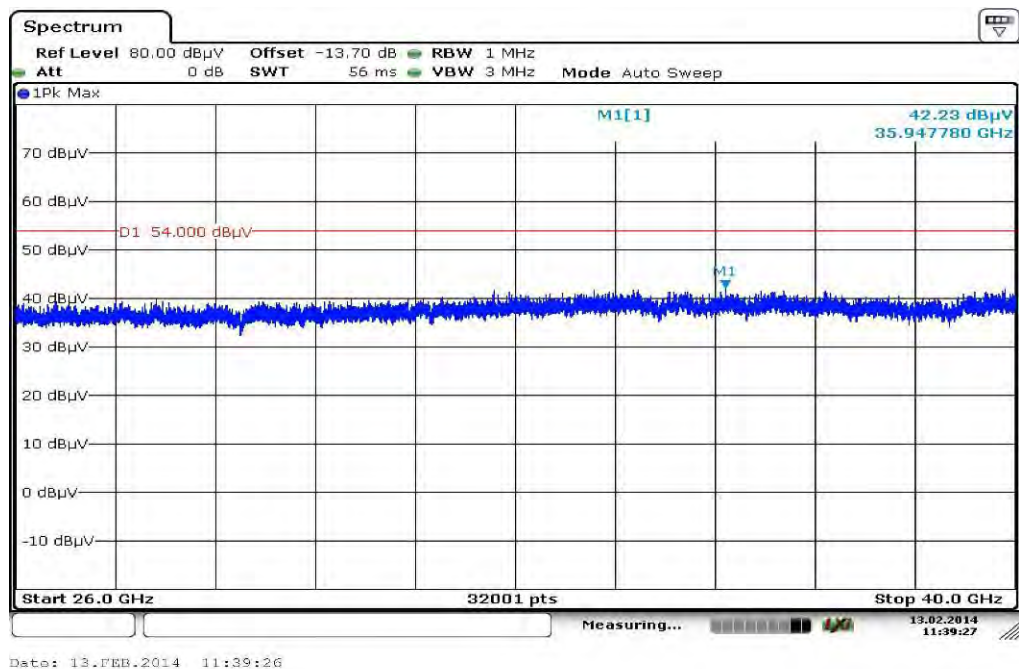
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
35.978400	12.0	1000.0	120.000	145.0	V	180.0	13.1	18.0	30.0	
40.987050	10.6	1000.0	120.000	145.0	H	270.0	13.4	19.4	30.0	
48.645750	9.2	1000.0	120.000	145.0	H	180.0	13.3	20.8	30.0	
574.443150	17.3	1000.0	120.000	145.0	V	90.0	20.1	18.7	36.0	
722.871000	20.4	1000.0	120.000	138.0	V	270.0	23.0	15.6	36.0	
935.803200	22.5	1000.0	120.000	145.0	V	180.0	25.3	13.6	36.0	

Plot 12: 1 GHz to 12.75 GHz, 5270 MHz, vertical & horizontal polarization**Plot 13:** 12 GHz to 18 GHz, 5270 MHz, vertical & horizontal polarization

Plot 14: 18 GHz to 26 GHz, 5270 MHz, vertical & horizontal polarization**Plot 15:** 26 GHz to 40 GHz, 5270 MHz, vertical & horizontal polarization

Plot 16: 30 MHz to 1 GHz, 5310 MHz, vertical & horizontal polarization

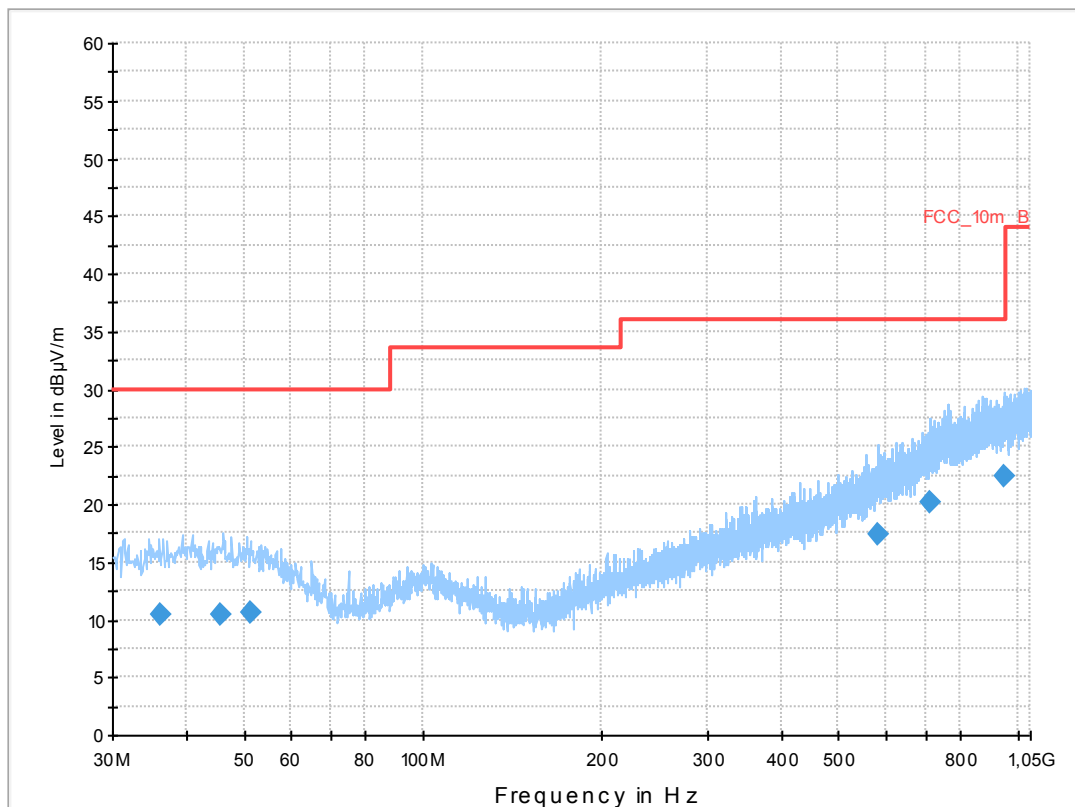
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT40) tx ch 62
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

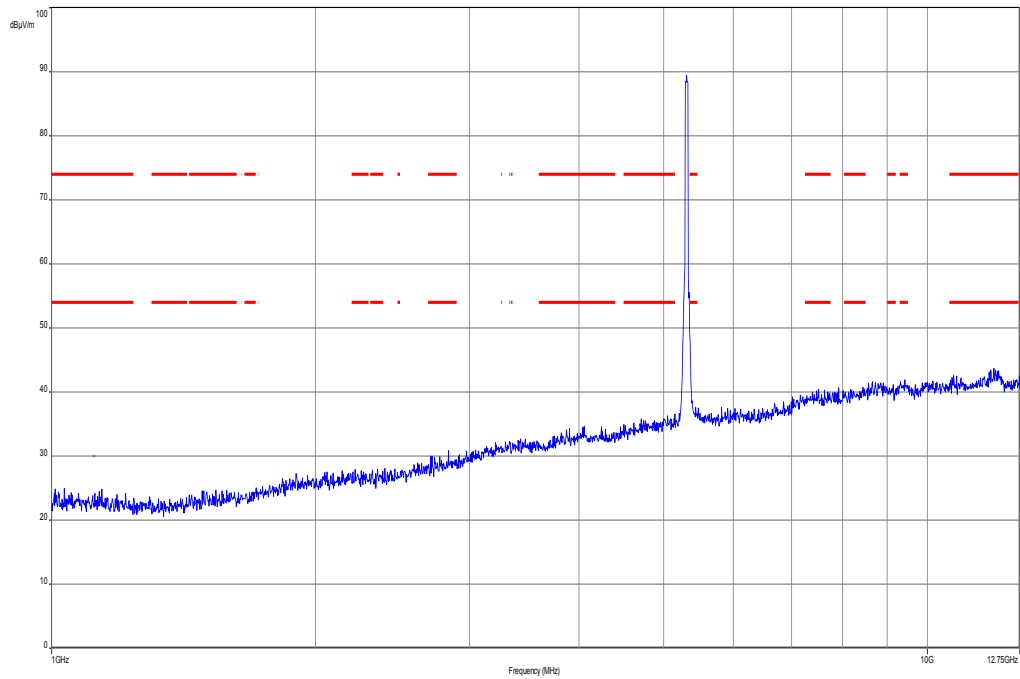
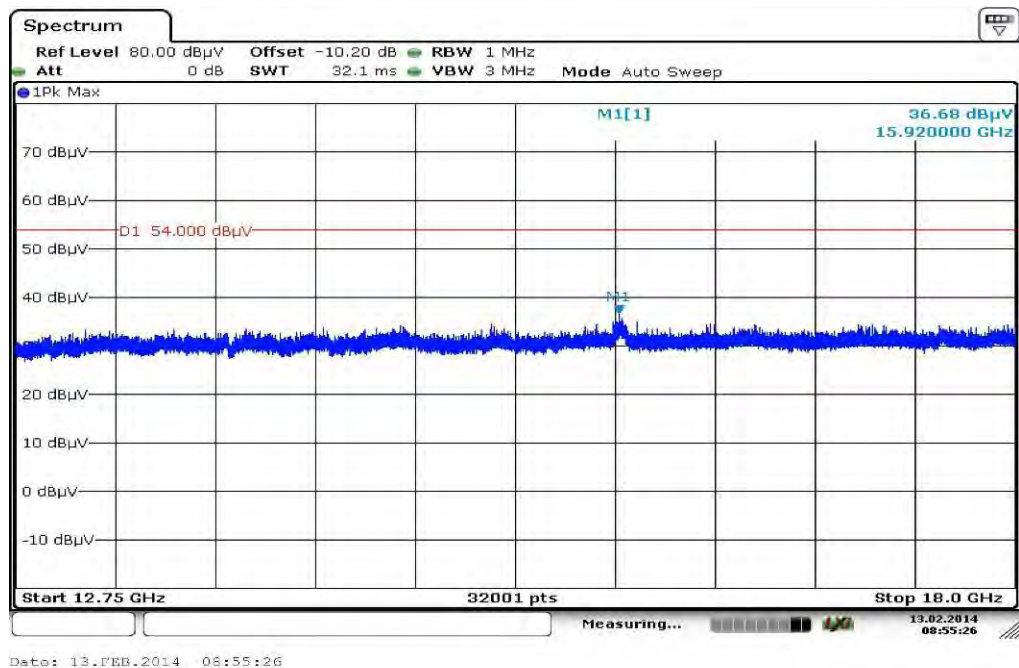
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

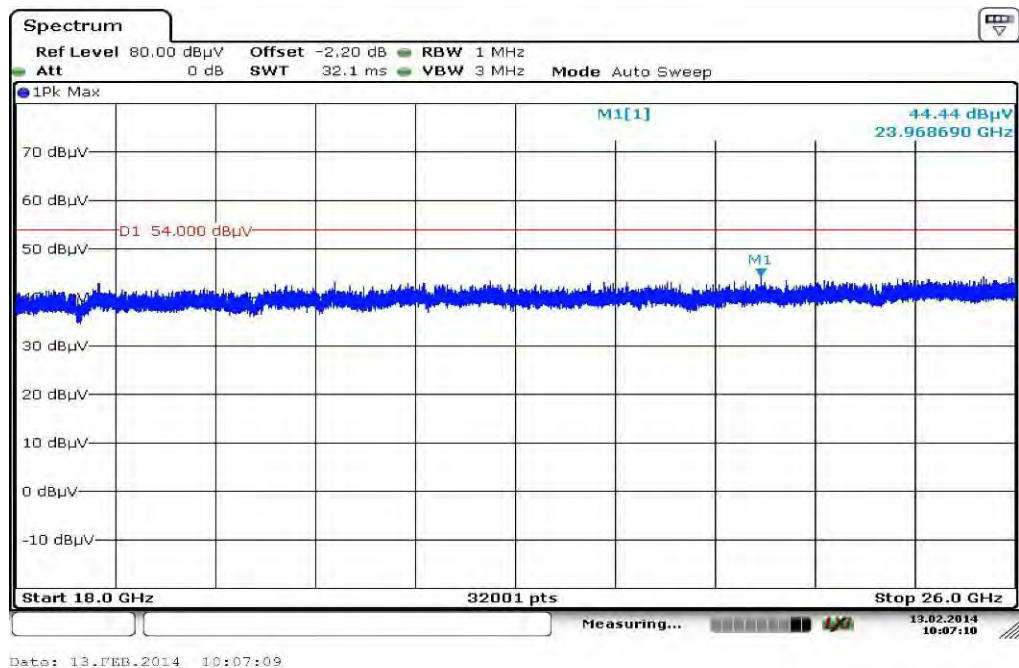
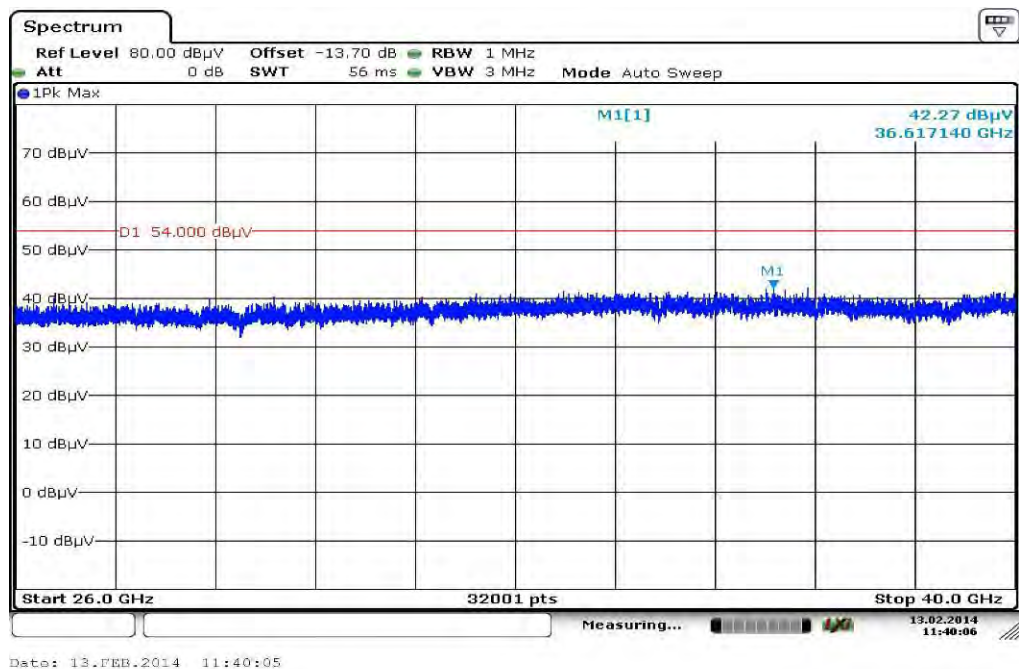
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
36.183750	10.4	1000.0	120.000	145.0	H	180.0	13.1	19.6	30.0	
45.653250	10.4	1000.0	120.000	145.0	V	180.0	13.3	19.6	30.0	
51.285750	10.6	1000.0	120.000	145.0	V	90.0	13.2	19.4	30.0	
581.785350	17.5	1000.0	120.000	111.0	V	270.0	20.3	18.5	36.0	
711.497250	20.2	1000.0	120.000	130.0	V	270.0	22.8	15.8	36.0	
947.064600	22.4	1000.0	120.000	145.0	V	270.0	25.3	13.6	36.0	

Plot 17: 1 GHz to 12.75 GHz, 5310 MHz, vertical & horizontal polarization**Plot 18:** 12 GHz to 18 GHz, 5310 MHz, vertical & horizontal polarization

Plot 19: 18 GHz to 26 GHz, 5310 MHz, vertical & horizontal polarization**Plot 20:** 26 GHz to 40 GHz, 5310 MHz, vertical & horizontal polarization

Plot 21: 30 MHz to 1 GHz, 5510 MHz, vertical & horizontal polarization

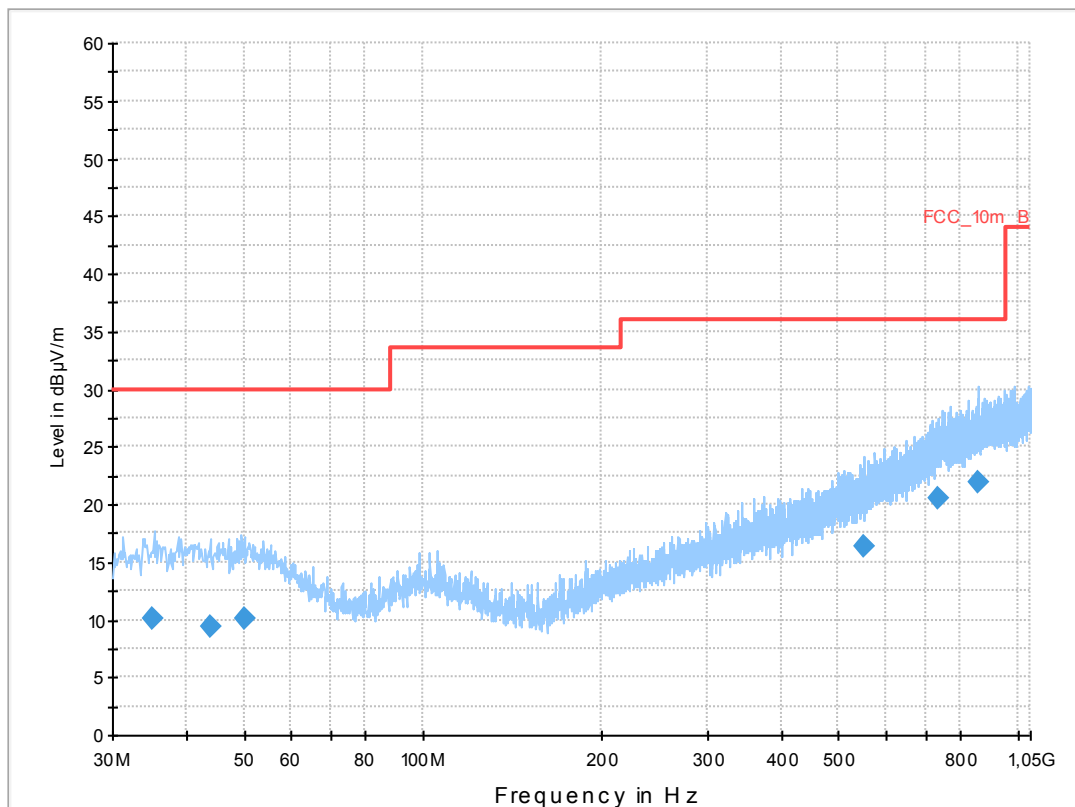
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT40) tx ch 102
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

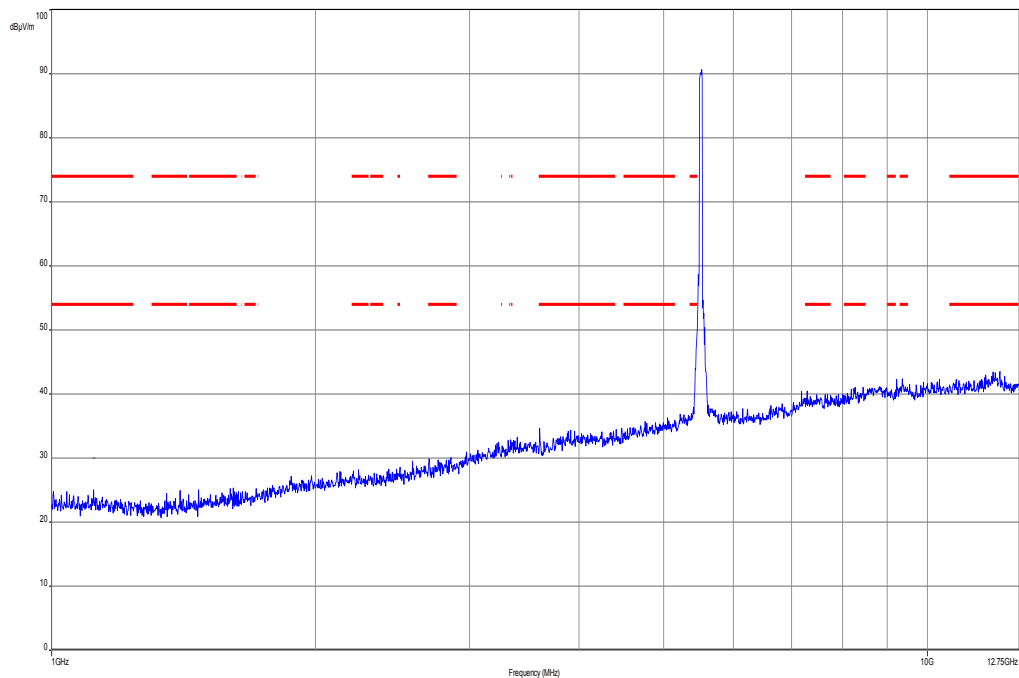
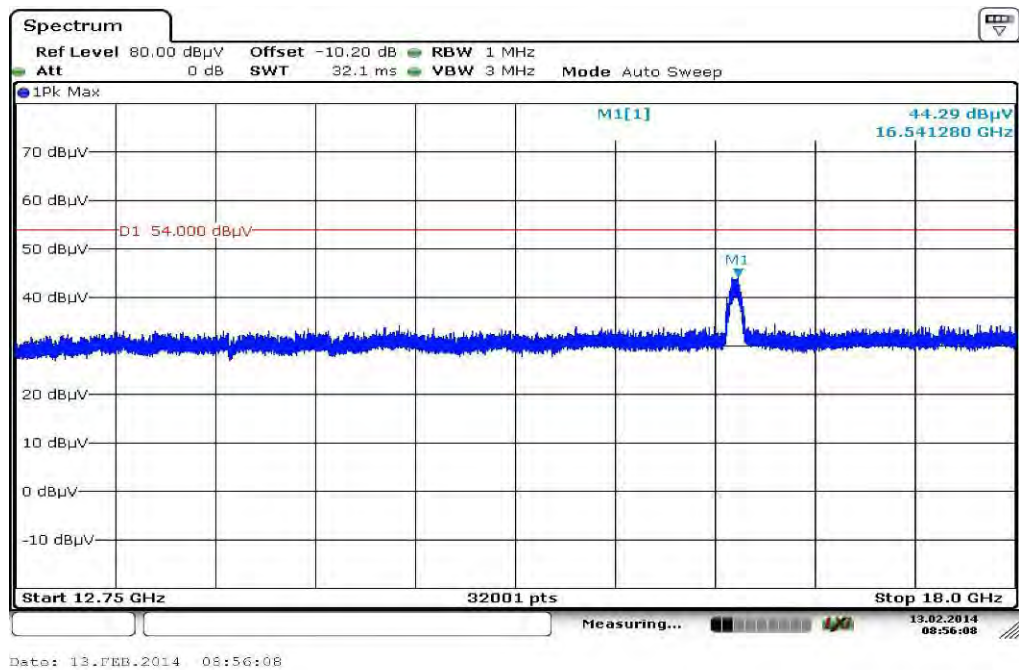
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

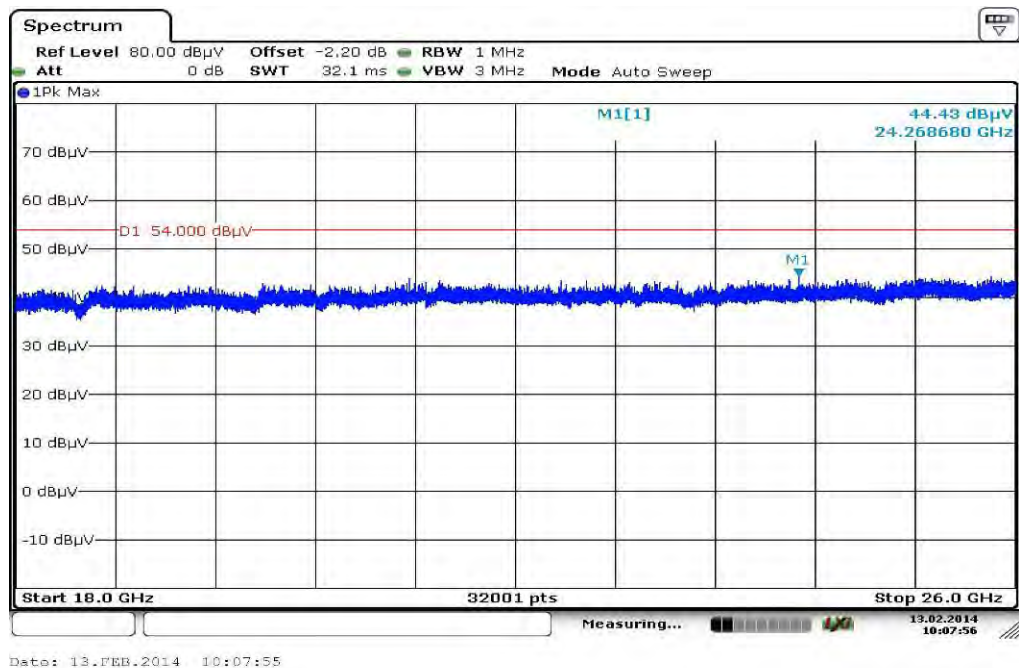
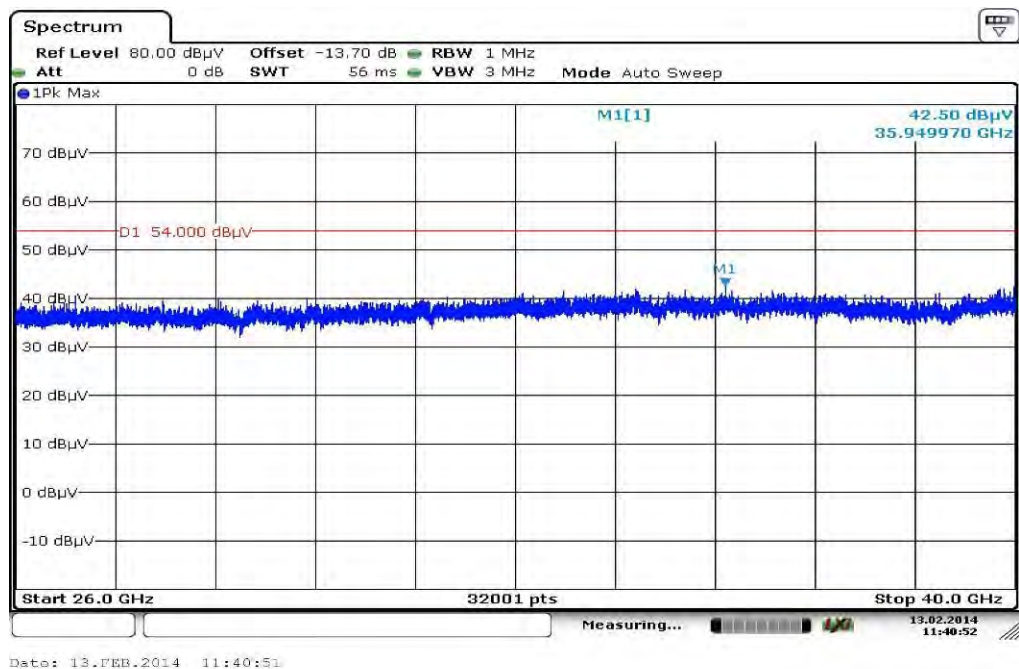
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
35.133300	10.1	1000.0	120.000	98.0	H	270.0	13.0	19.9	30.0	
43.996950	9.4	1000.0	120.000	121.0	H	90.0	13.3	20.6	30.0	
50.181900	10.1	1000.0	120.000	145.0	H	0.0	13.4	19.9	30.0	
550.576950	16.3	1000.0	120.000	145.0	V	270.0	19.4	19.7	36.0	
732.724200	20.6	1000.0	120.000	145.0	H	180.0	23.3	15.4	36.0	
855.738600	21.9	1000.0	120.000	145.0	V	90.0	24.6	14.1	36.0	

Plot 22: 1 GHz to 12.75 GHz, 5510 MHz, vertical & horizontal polarization**Plot 23:** 12 GHz to 18 GHz, 5510 MHz, vertical & horizontal polarization

Plot 24: 18 GHz to 26 GHz, 5510 MHz, vertical & horizontal polarization**Plot 25:** 26 GHz to 40 GHz, 5510 MHz, vertical & horizontal polarization

Plot 26: 30 MHz to 1 GHz, 5670 MHz, vertical & horizontal polarization

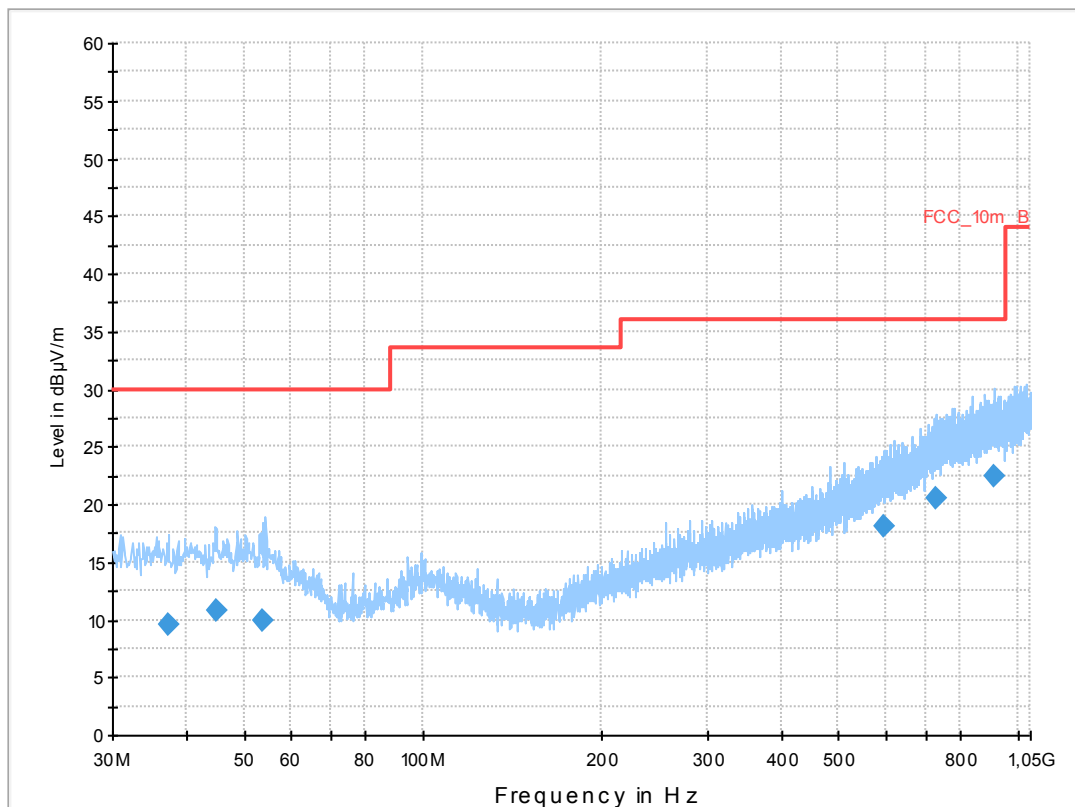
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n-mode (HT40) tx ch 134
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

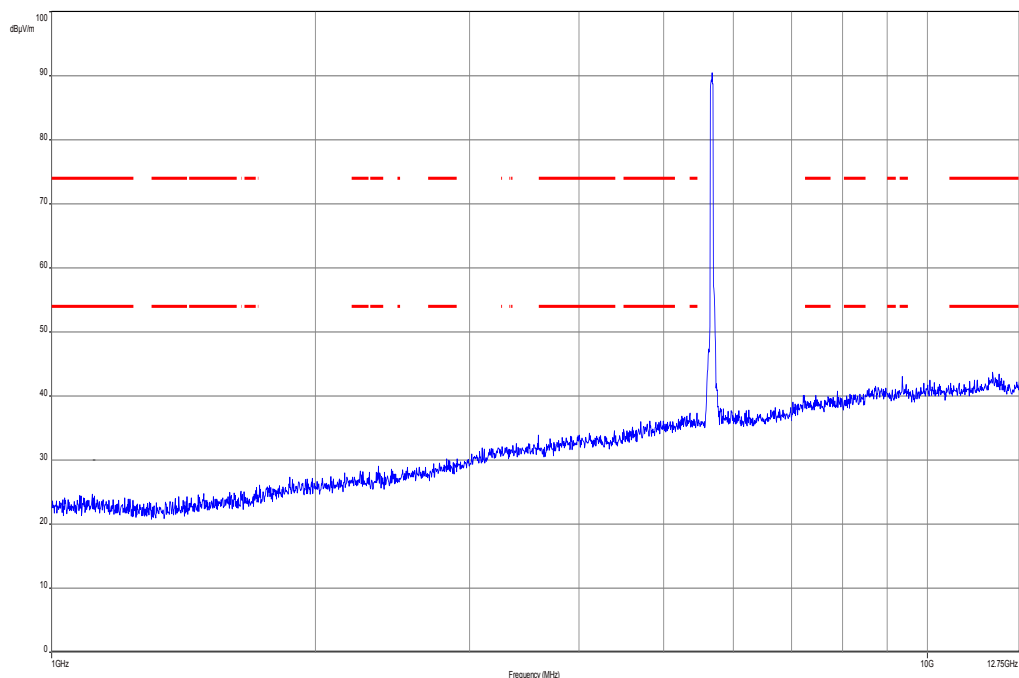
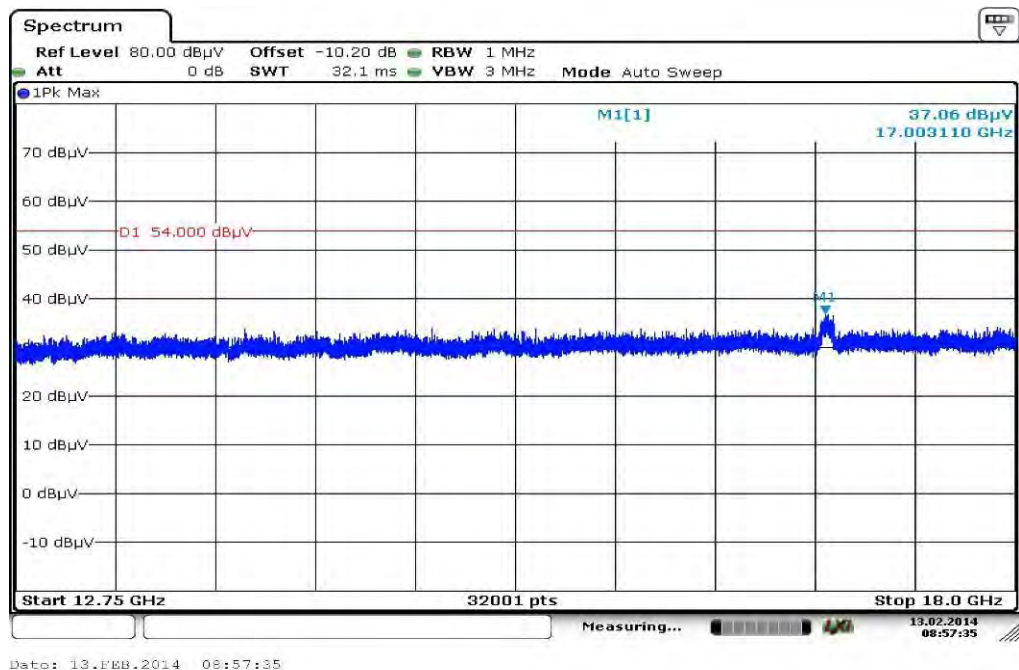
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

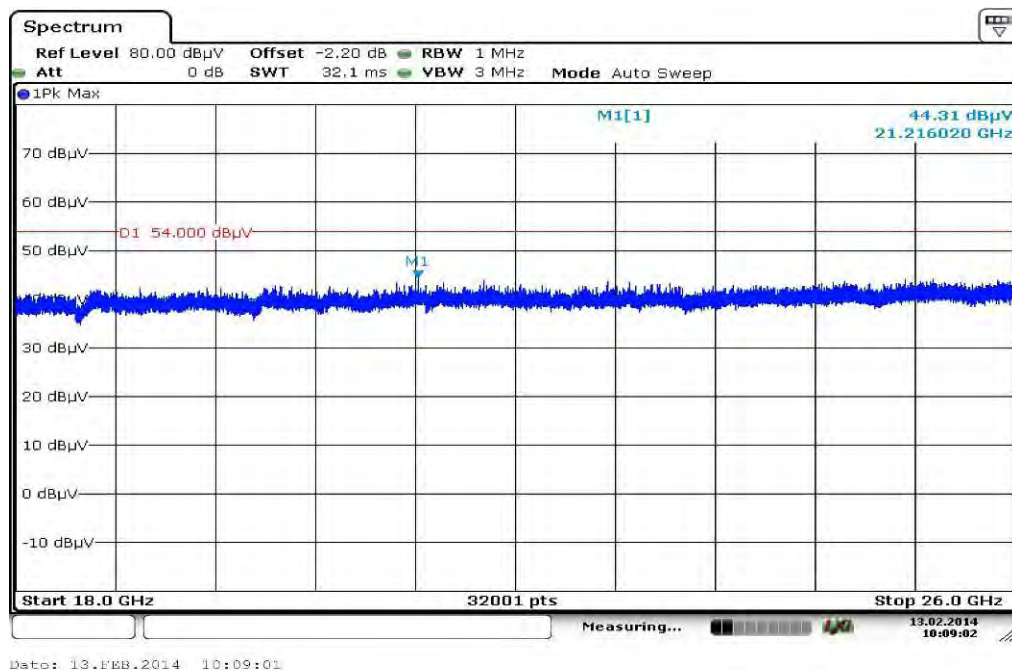
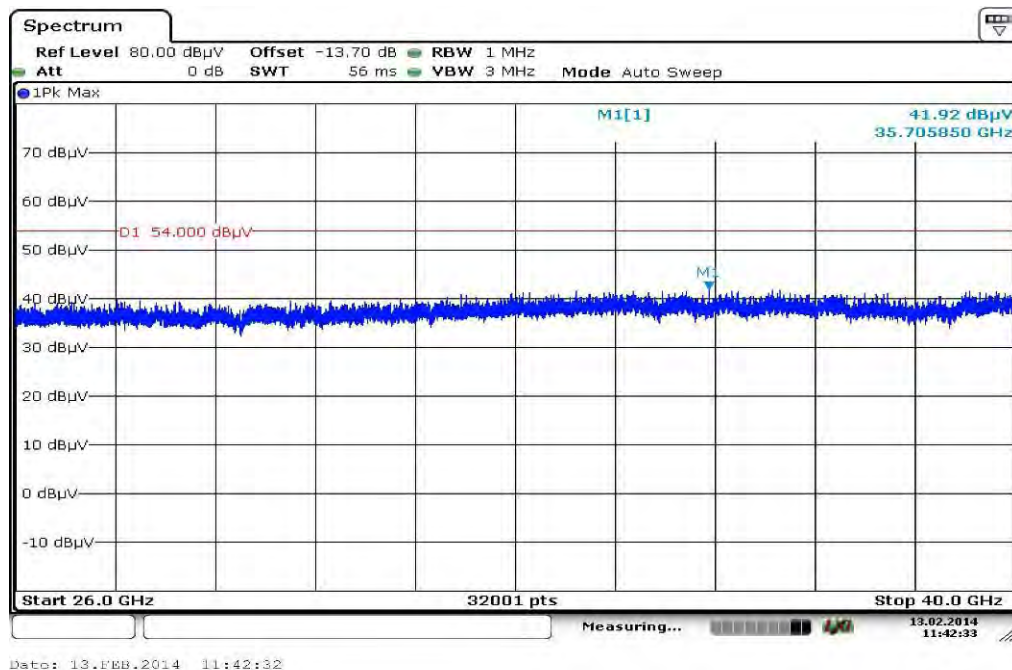
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
37.390650	9.6	1000.0	120.000	145.0	V	0.0	13.2	20.4	30.0	
44.954700	10.8	1000.0	120.000	98.0	V	180.0	13.3	19.2	30.0	
53.715600	9.9	1000.0	120.000	104.0	V	180.0	13.0	20.1	30.0	
595.107450	18.0	1000.0	120.000	145.0	H	180.0	20.7	18.0	36.0	
728.800200	20.5	1000.0	120.000	145.0	H	180.0	23.2	15.5	36.0	
911.573250	22.4	1000.0	120.000	145.0	V	90.0	25.2	13.6	36.0	

Plot 27: 1 GHz to 12.75 GHz, 5670 MHz, vertical & horizontal polarization**Plot 28:** 12 GHz to 18 GHz, 5670 MHz, vertical & horizontal polarization

Plot 29: 18 GHz to 26 GHz, 5670 MHz, vertical & horizontal polarization**Plot 30:** 26 GHz to 40 GHz, 5670 MHz, vertical & horizontal polarization

Plots: OFDM / ac – mode HT80

Plot 1: 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization

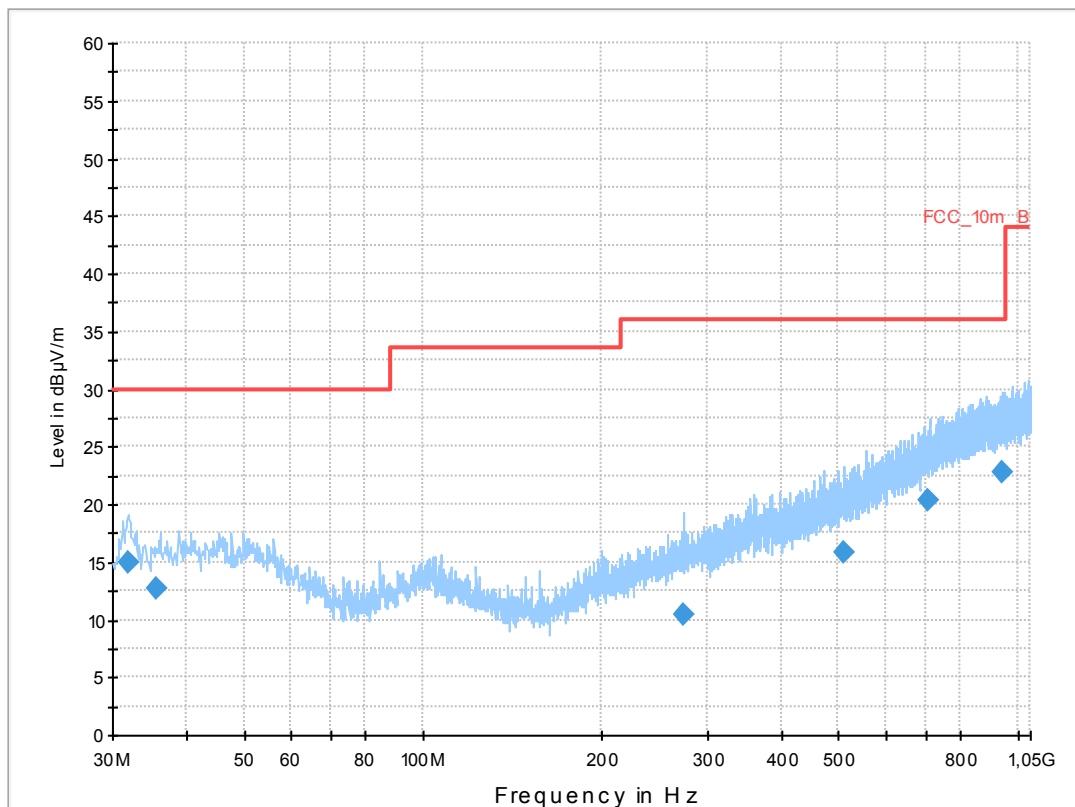
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 42
 Operator Name: Wolsdorfer
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

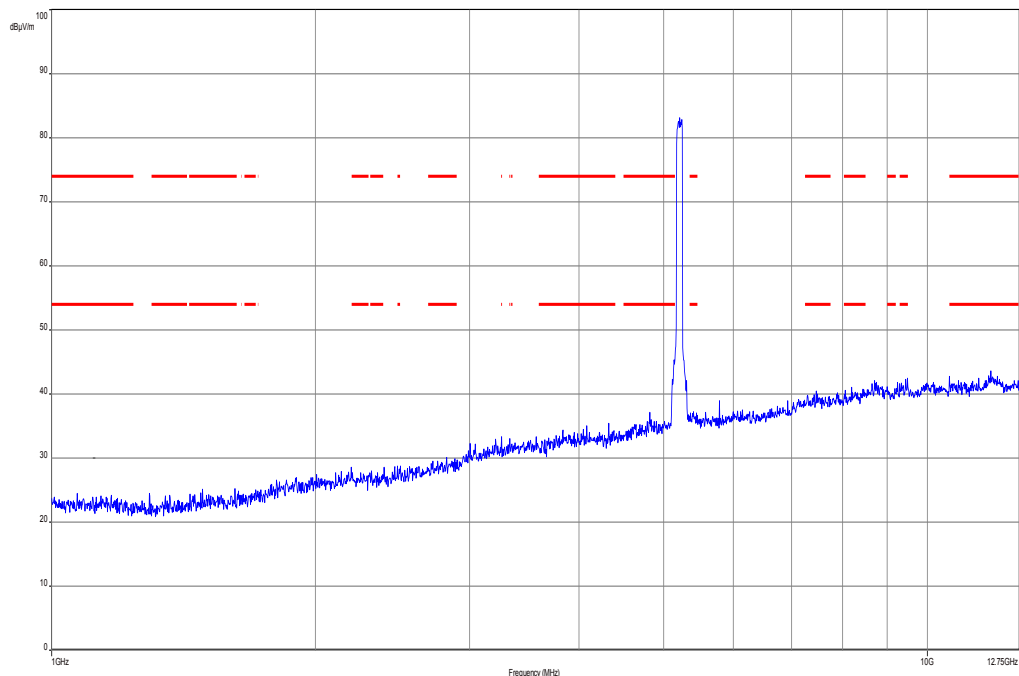
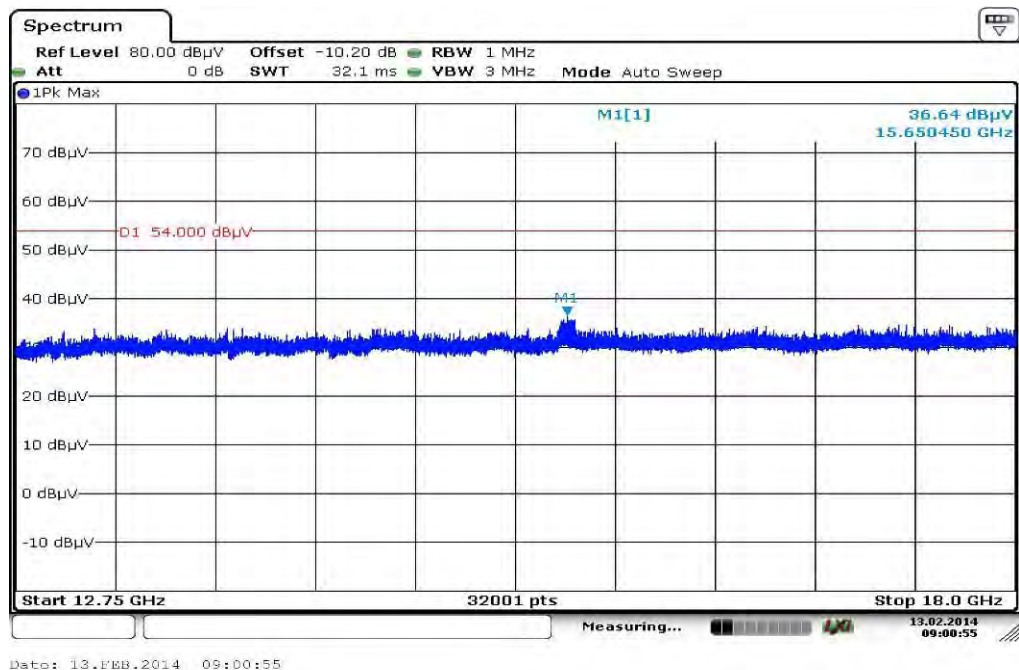
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

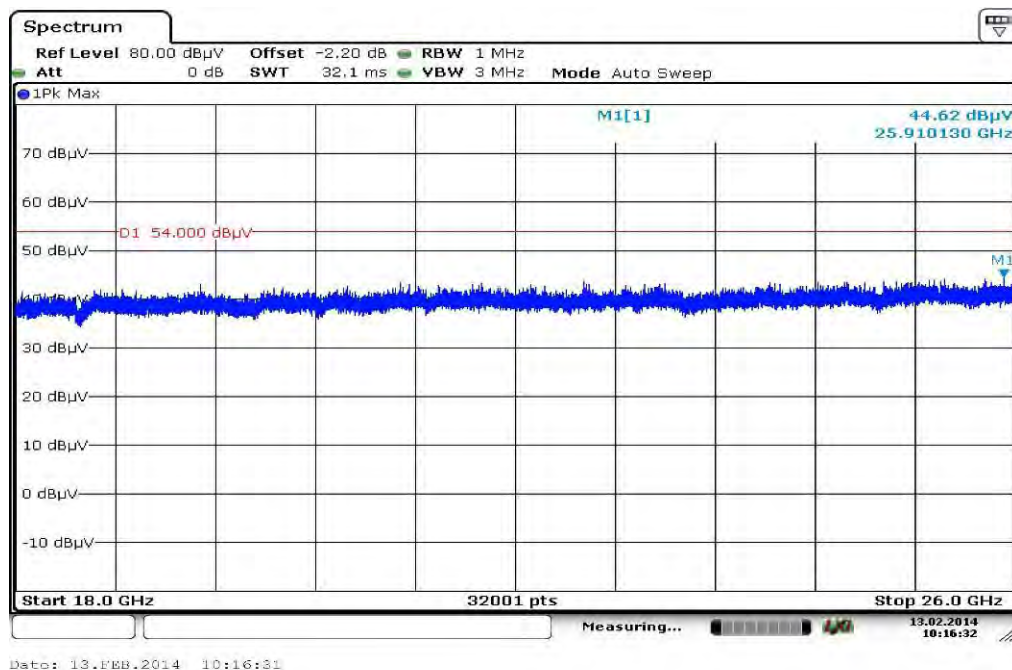
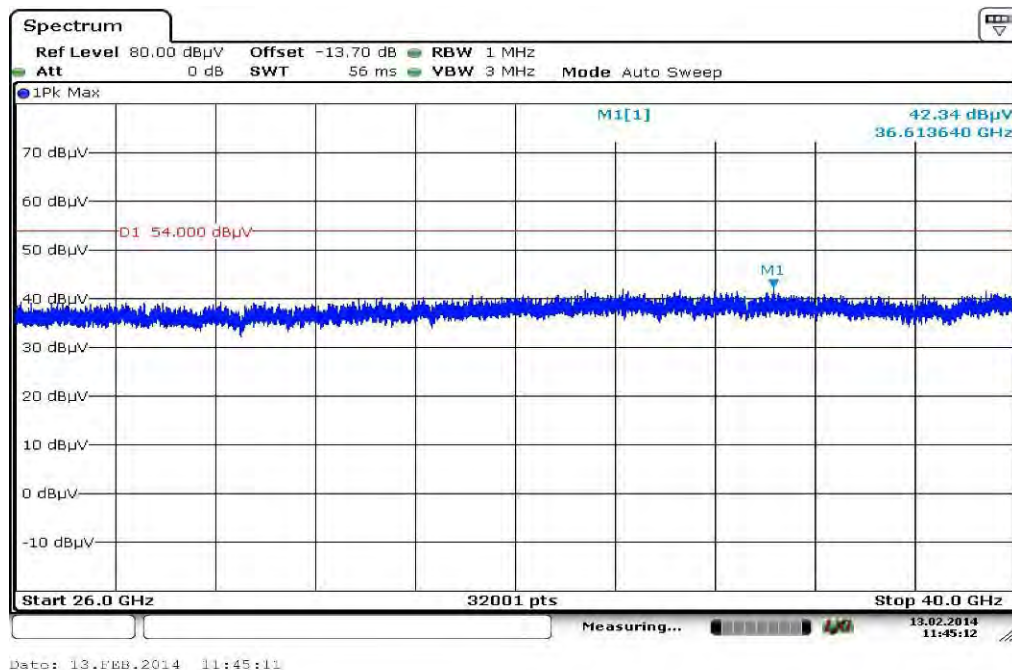
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.864050	14.9	1000.0	120.000	98.0	V	178.0	12.7	15.1	30.0	
35.636250	12.7	1000.0	120.000	98.0	V	190.0	13.1	4.3	30.0	
274.401750	10.4	1000.0	120.000	170.0	H	178.0	13.9	25.6	36.0	
510.797400	15.8	1000.0	120.000	170.0	H	93.0	18.8	20.2	36.0	
709.282800	20.3	1000.0	120.000	154.0	V	100.0	22.7	15.7	36.0	
942.510750	22.7	1000.0	120.000	170.0	V	88.0	25.3	13.3	36.0	

Plot 2: 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization**Plot 3:** 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization

Plot 4: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization**Plot 5:** 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization

Plot 6: 30 MHz to 1 GHz, 5290 MHz, vertical & horizontal polarization

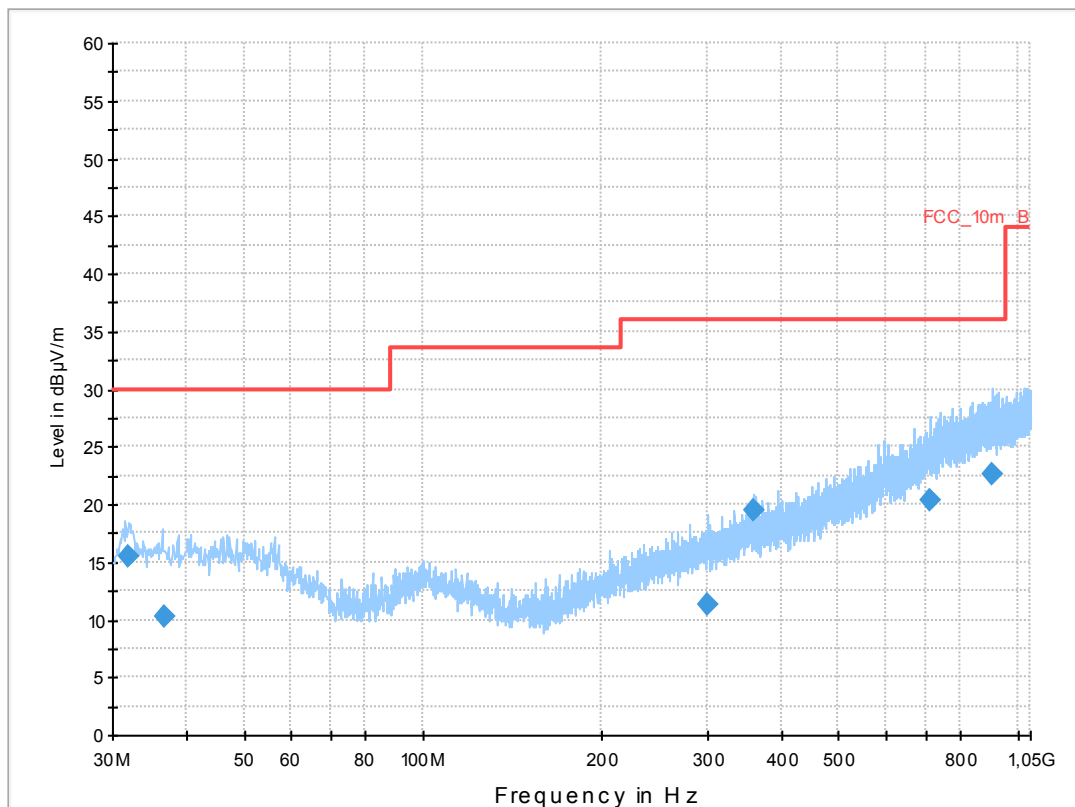
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 58
 Operator Name: Wolsdorfer
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

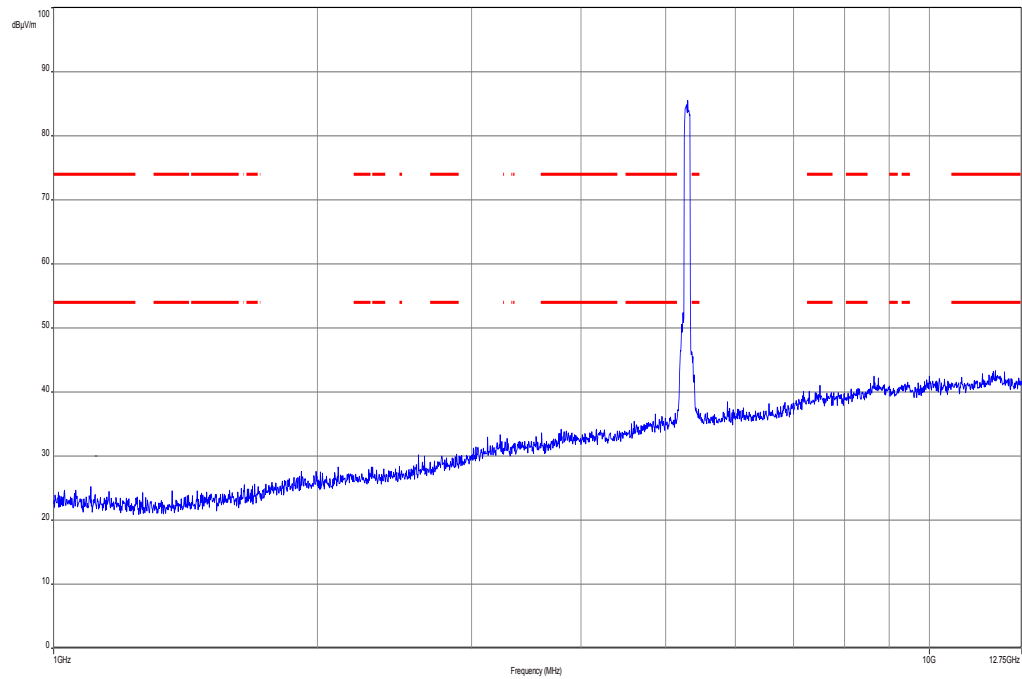
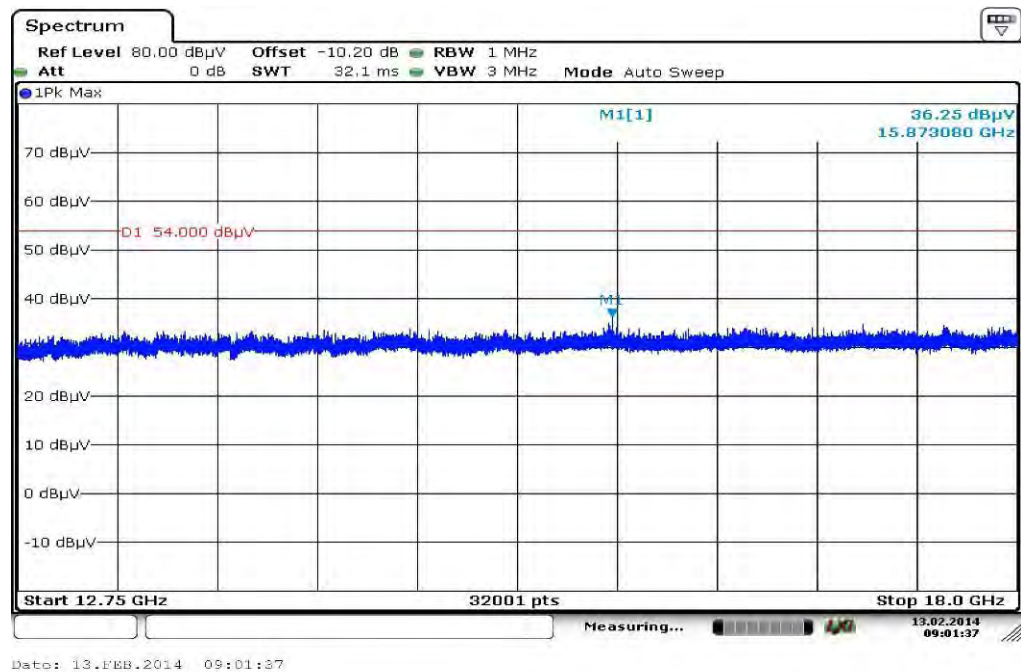
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dB μ V/m

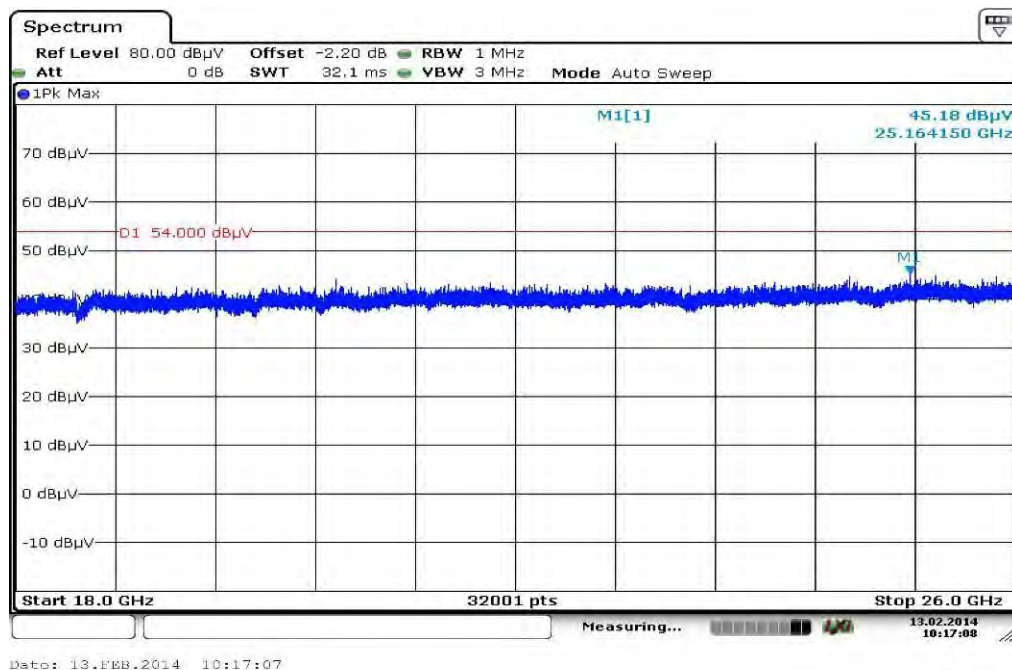
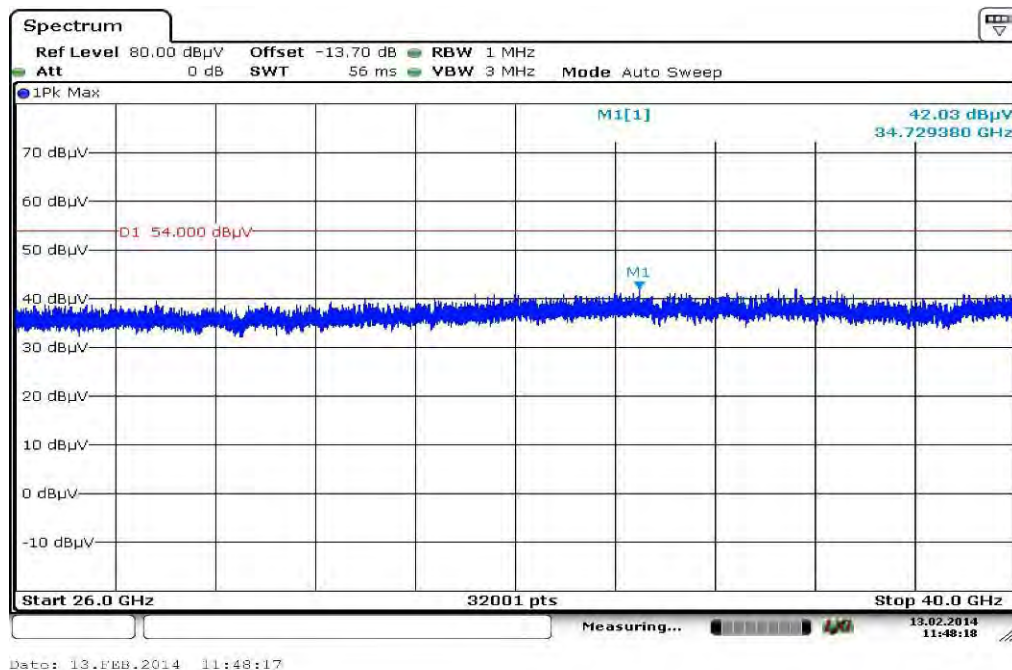
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



Final Result 1

Frequency (MHz)	QuasiPeak (dB μ V/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)	Comment
32.027700	15.6	1000.0	120.000	98.0	V	100.0	12.7	14.4	30.0	
36.659700	10.2	1000.0	120.000	143.0	H	10.0	13.2	19.8	30.0	
300.606150	11.3	1000.0	120.000	154.0	V	190.0	14.5	24.7	36.0	
360.006000	19.5	1000.0	120.000	98.0	V	100.0	16.2	16.5	36.0	
711.694500	20.3	1000.0	120.000	98.0	V	88.0	22.8	15.7	36.0	
902.706450	22.5	1000.0	120.000	170.0	H	178.0	25.2	13.5	36.0	

Plot 7: 1 GHz to 12.75 GHz, 5290 MHz, vertical & horizontal polarization**Plot 8:** 12 GHz to 18 GHz, 5290 MHz, vertical & horizontal polarization

Plot 9: 18 GHz to 26 GHz, 5290 MHz, vertical & horizontal polarization**Plot 10:** 26 GHz to 40 GHz, 5290 MHz, vertical & horizontal polarization

Plot 11: 30 MHz to 1 GHz, 5530 MHz, vertical & horizontal polarization

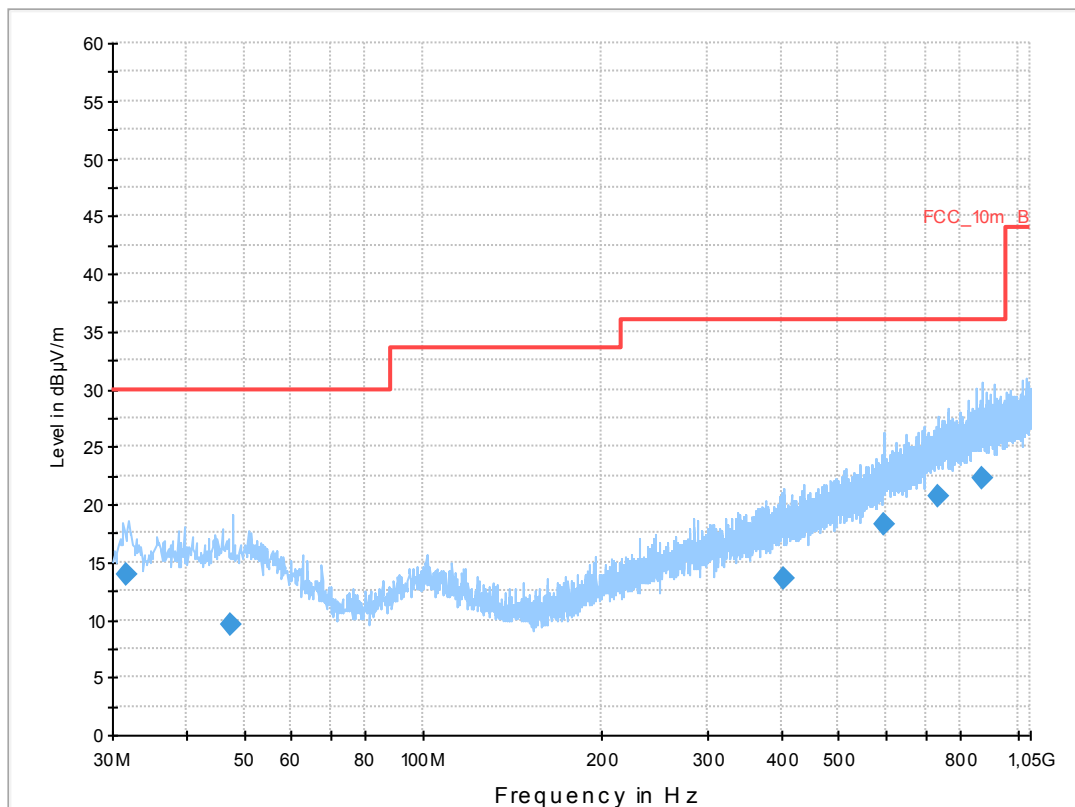
Common Information

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 106
 Operator Name: Wolsdorfer
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

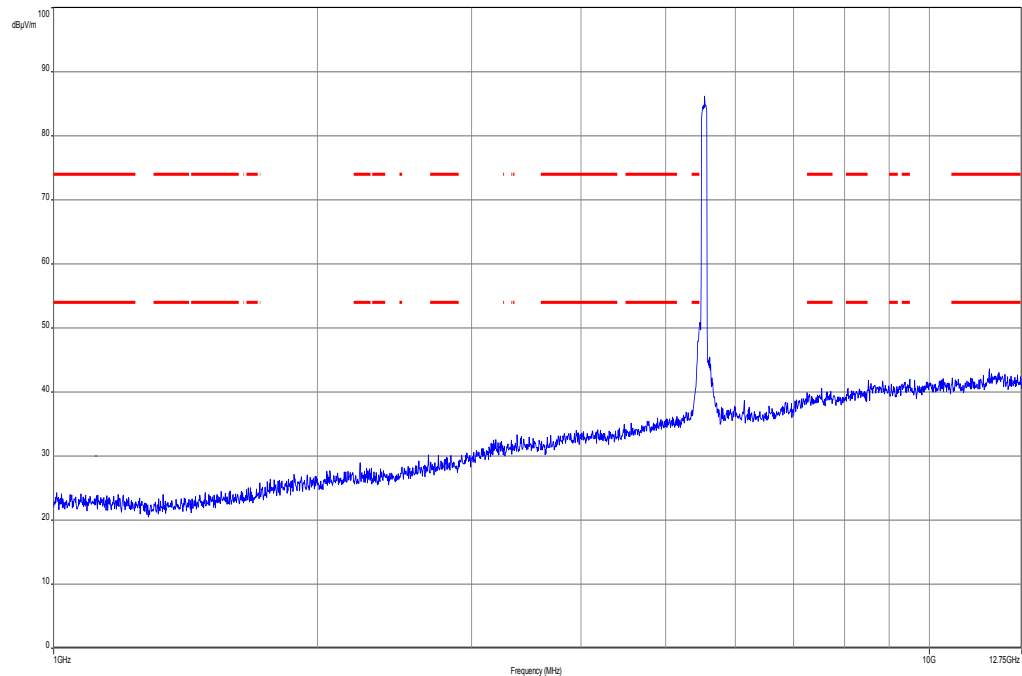
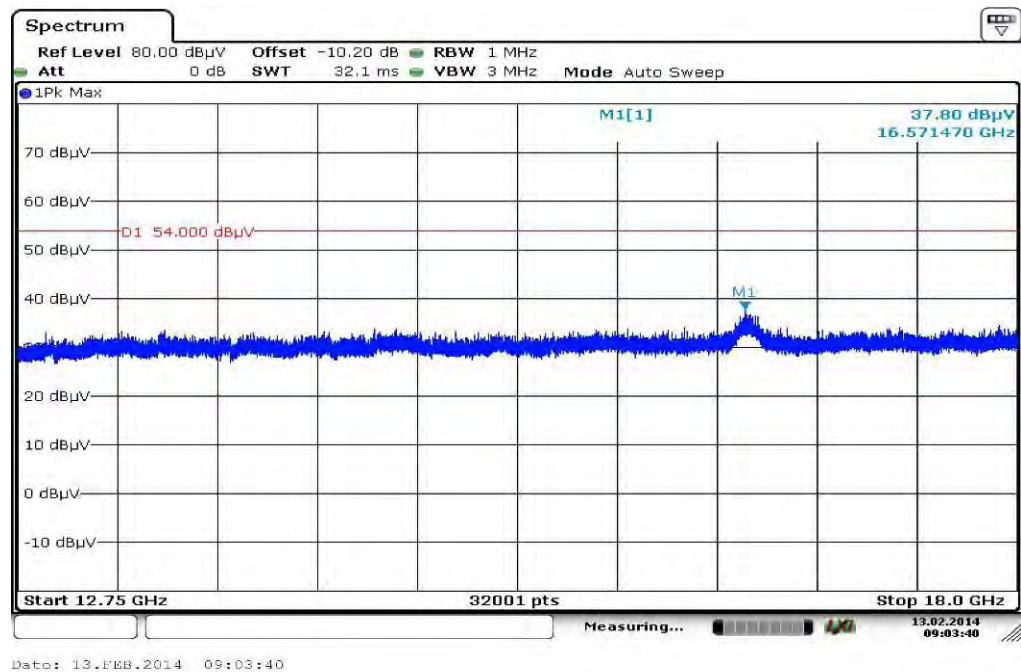
Hardware Setup: Electric Field (NOS)
 Receiver: [ESCI 3]
 Level Unit: dBμV/m

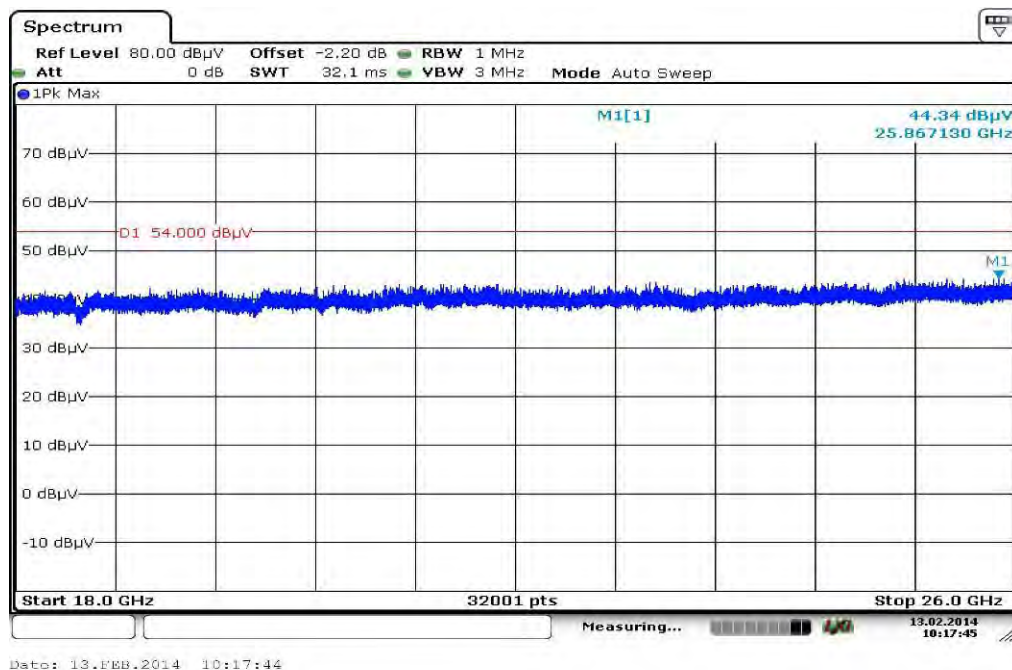
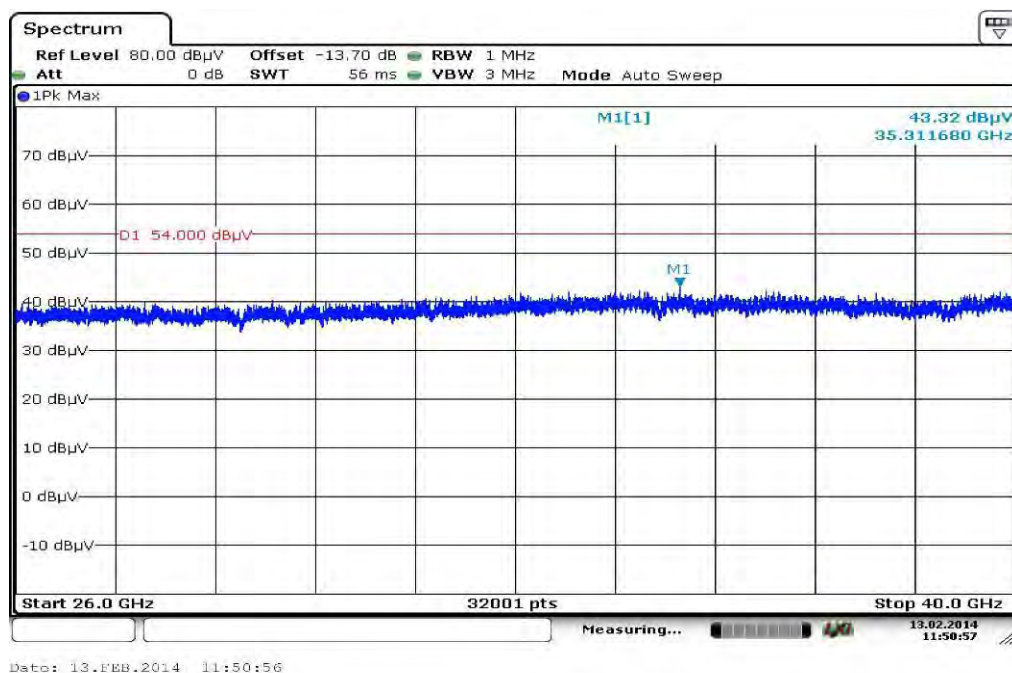
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



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
31.705500	14.0	1000.0	120.000	120.0	V	-10.0	12.7	16.0	30.0	
47.486700	9.6	1000.0	120.000	157.0	V	-9.0	13.3	20.4	30.0	
402.831600	13.5	1000.0	120.000	170.0	H	265.0	16.9	22.5	36.0	
597.099900	18.2	1000.0	120.000	98.0	V	81.0	20.7	17.8	36.0	
732.571800	20.6	1000.0	120.000	170.0	H	190.0	23.3	15.4	36.0	
871.472550	22.3	1000.0	120.000	170.0	H	171.0	24.8	13.7	36.0	

Plot 12: 1 GHz to 12.75 GHz, 5530 MHz, vertical & horizontal polarization**Plot 13:** 12 GHz to 18 GHz, 5530 MHz, vertical & horizontal polarization

Plot 14: 18 GHz to 26 GHz, 5530 MHz, vertical & horizontal polarization**Plot 15:** 26 GHz to 40 GHz, 5530 MHz, vertical & horizontal polarization

10.3 RX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in idle/receive mode.

Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz / 10 Hz
Span:	30 MHz to 40 GHz
Trace-Mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %

Limits:

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

Results:

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

Result: Passed

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

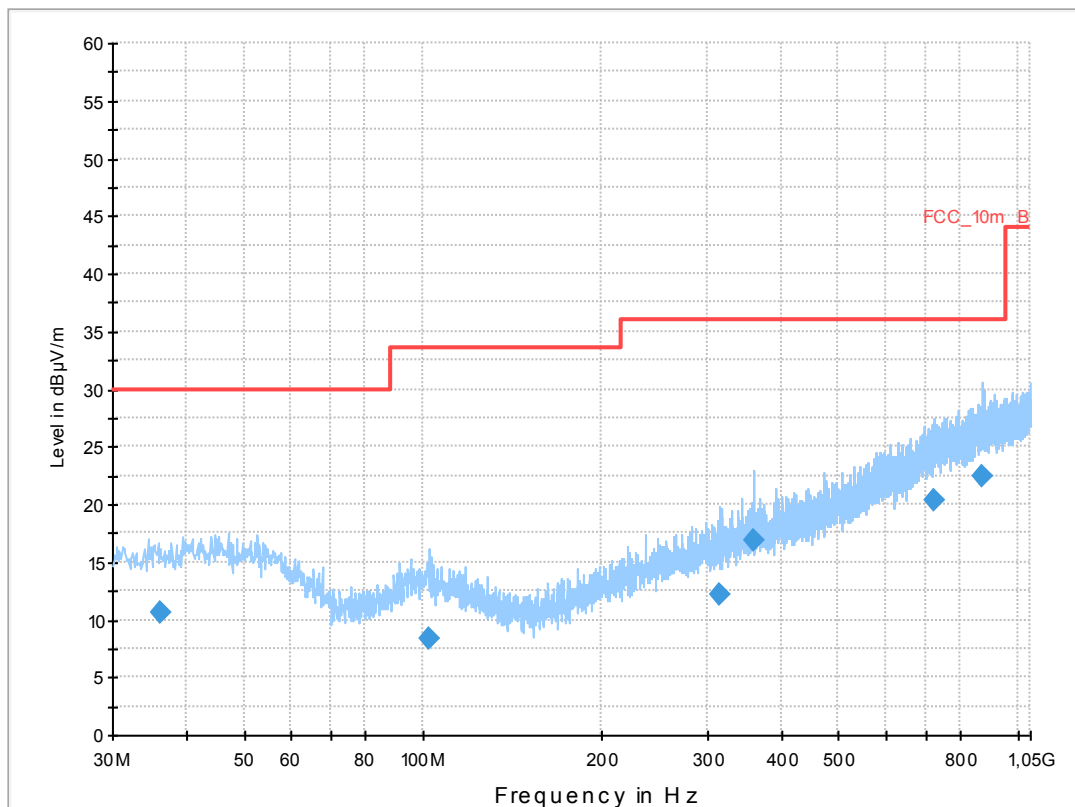
Plots: RX / Idle – mode**Plot 1:** 30 MHz to 1 GHz, vertical & horizontal polarization**Common Information**

Serial Number: CB5A1X9G4T
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan idle
 Operator Name: Wolsdorfer
 Comment: battery powered

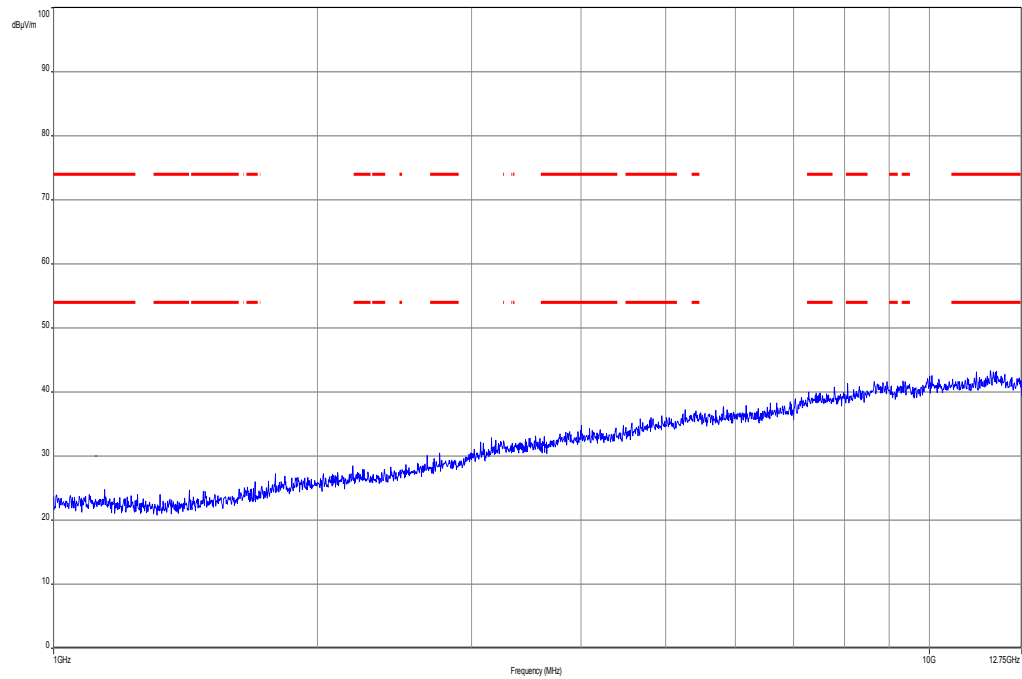
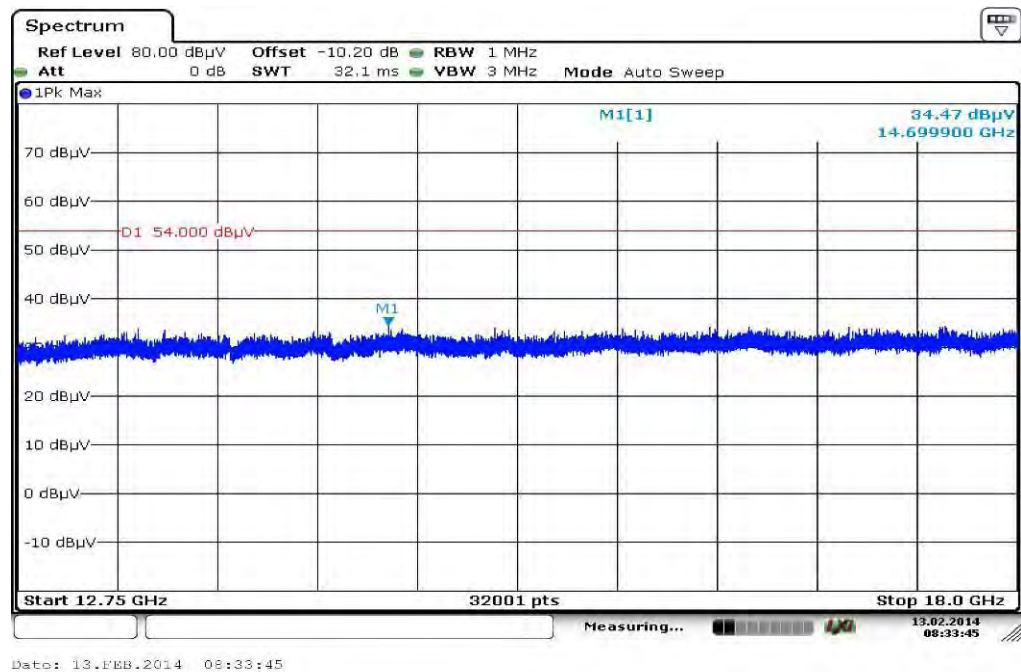
Scan Setup: STAN_Fin [EMI radiated]

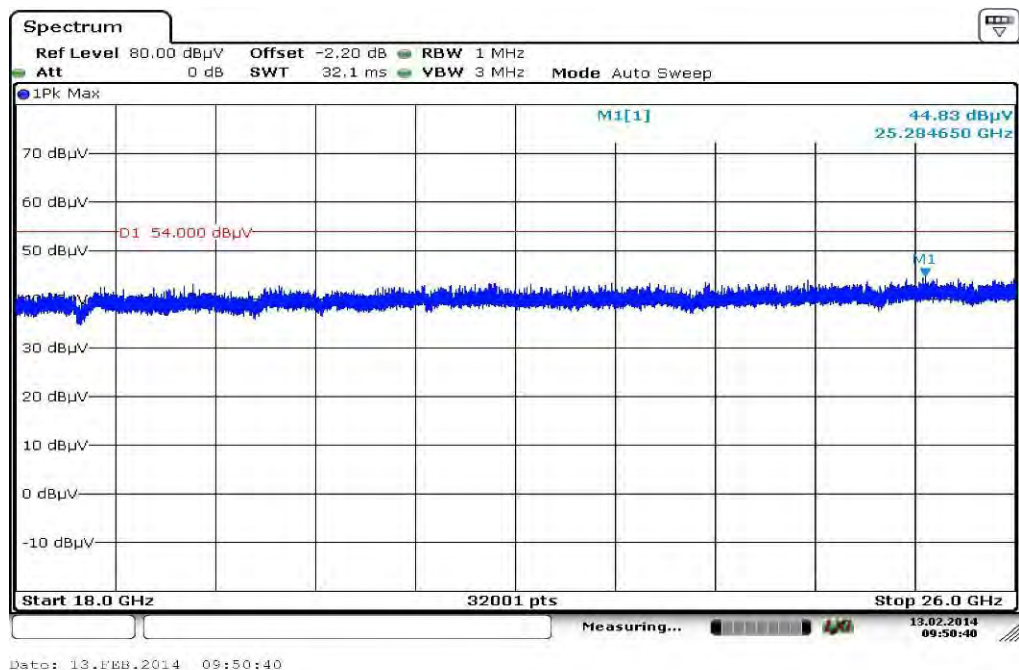
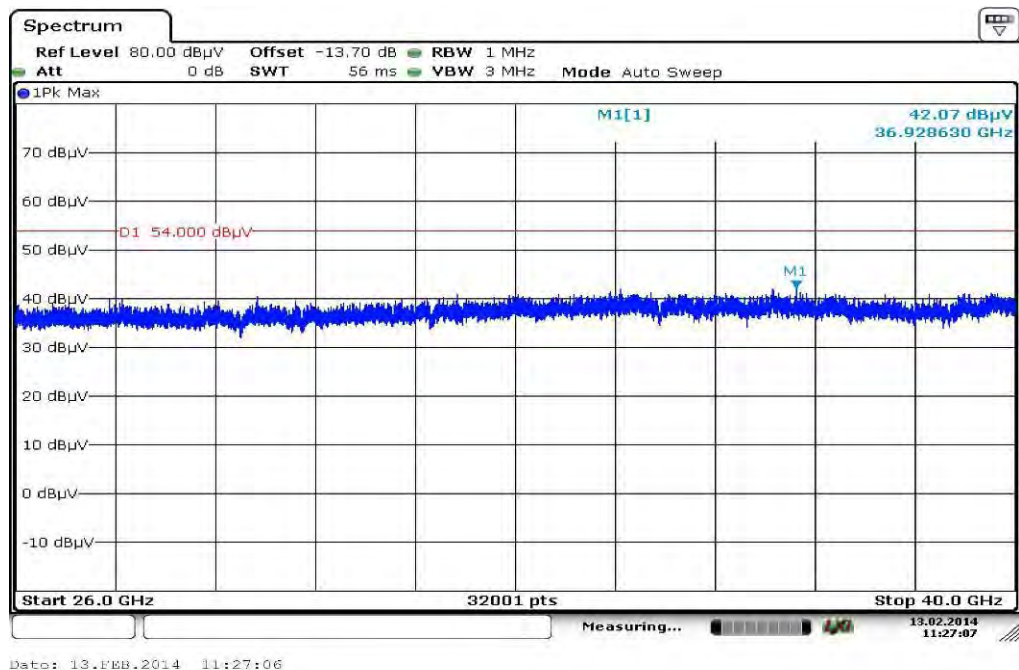
Hardware Setup: Electric Field (NOS)
 Receiver: [ESC1 3]
 Level Unit: dBμV/m

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

**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
36.010950	10.6	1000.0	120.000	170.0	H	90.0	13.1	19.4	30.0	
102.360750	8.3	1000.0	120.000	170.0	H	183.0	11.7	25.2	33.5	
314.983800	12.1	1000.0	120.000	111.0	V	-10.0	15.0	23.9	36.0	
359.976300	16.9	1000.0	120.000	170.0	V	100.0	16.2	19.1	36.0	
723.804300	20.4	1000.0	120.000	98.0	H	190.0	23.1	15.6	36.0	
873.219600	22.4	1000.0	120.000	170.0	H	0.0	24.9	13.6	36.0	

Plot 2: 1 GHz to 12.75 GHz, vertical & horizontal polarization**Plot 3:** 12 GHz to 18 GHz, vertical & horizontal polarization

Plot 4: 18 GHz to 26 GHz, vertical & horizontal polarization**Plot 5:** 26 GHz to 40 GHz, vertical & horizontal polarization

10.4 Spurious emissions radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode and receive mode below 30 MHz. The EUT is set first to middle channel. This measurement is representative for all channels and modes. If critical peaks are found the lowest channel and the highest channel will be measured too. Then the EUT is set to receive or idle mode. 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:

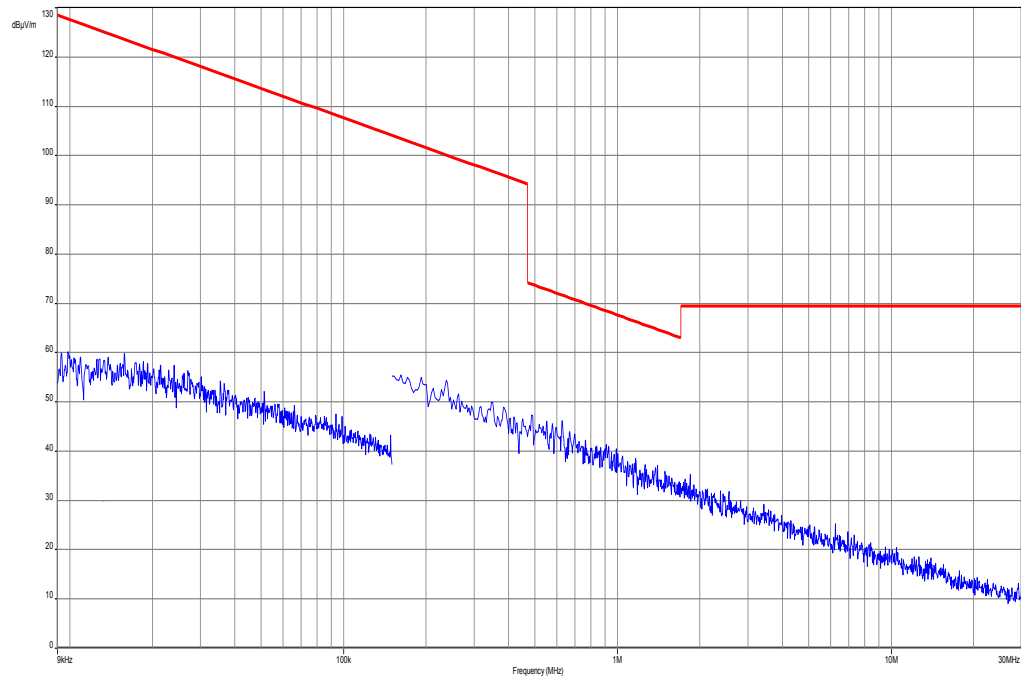
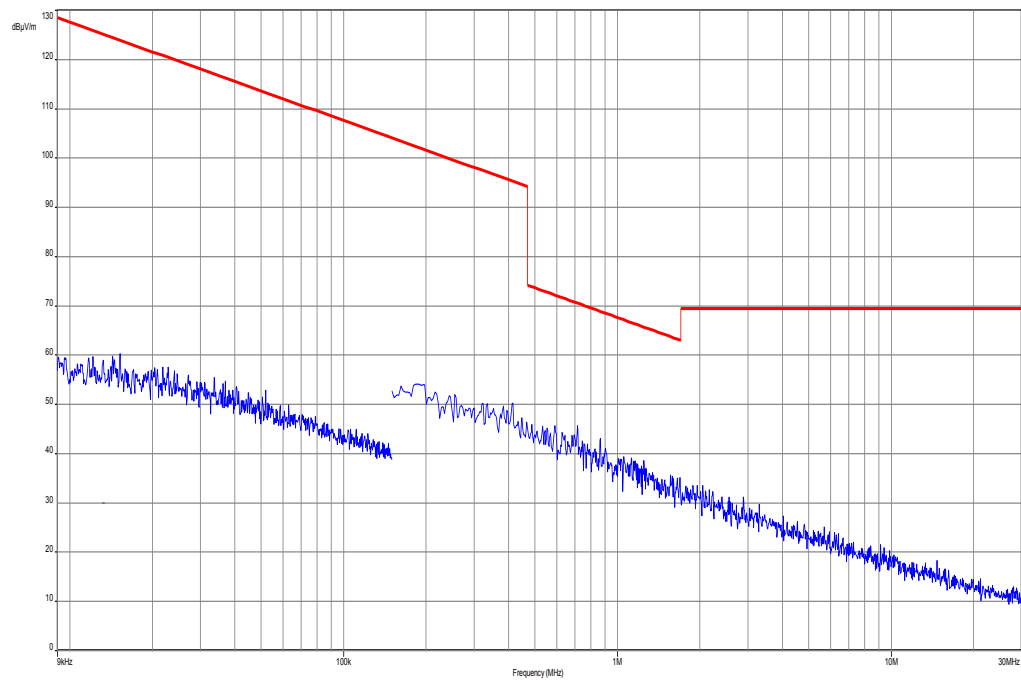
Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dB μ V/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Results:

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

Result: Passed

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

Plots:**Plot 1:** 9 kHz to 30 MHz, TX mode**Plot 2:** 9 kHz to 30 MHz, RX mode

10.5 Spurious emissions conducted < 30 MHz

Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to middle channel. If critical peaks are found the lowest channel and the highest channel will be measured too. 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: 9 kHz
Resolution bandwidth:	F > 150 kHz: 100 kHz
Span:	150 kHz to 30 MHz
Trace-Mode:	Max Hold

Limits:

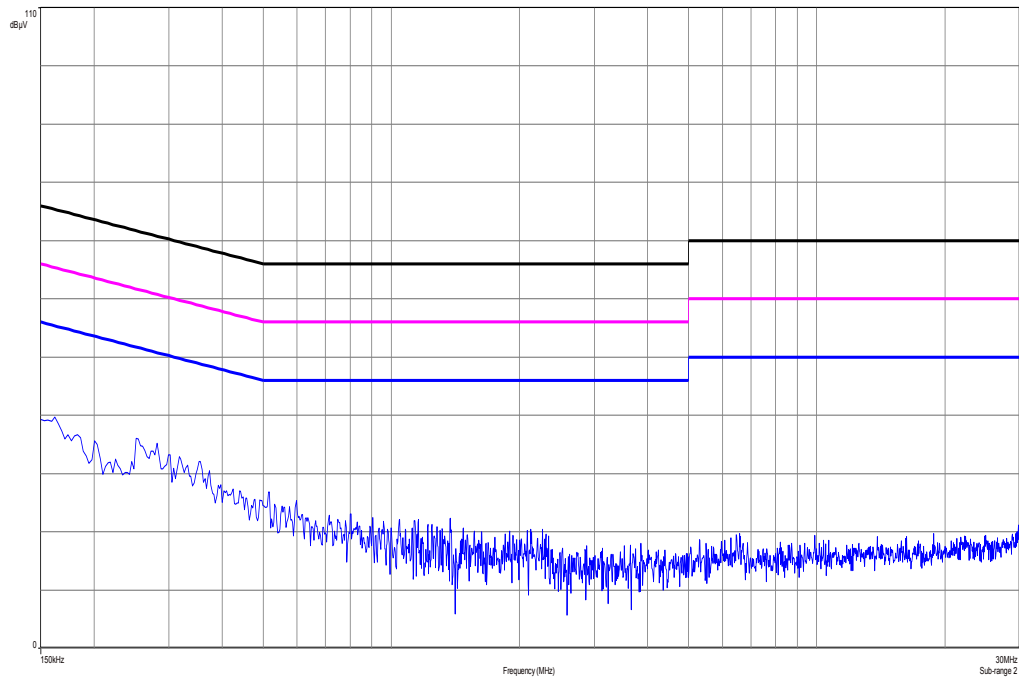
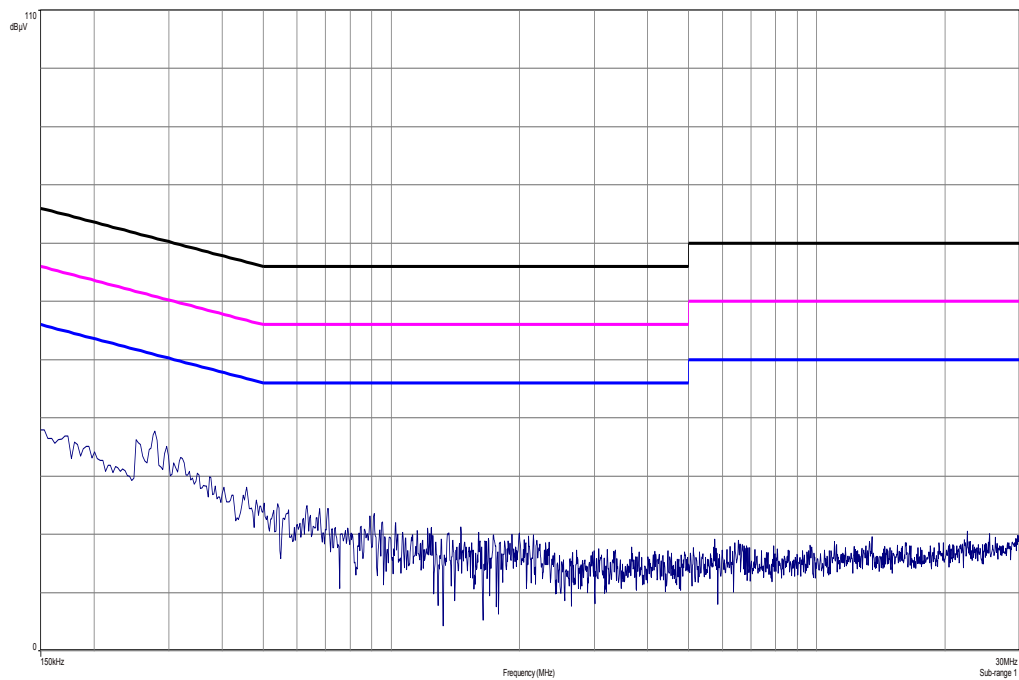
Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dB μ V/m)	Average (dB μ V/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

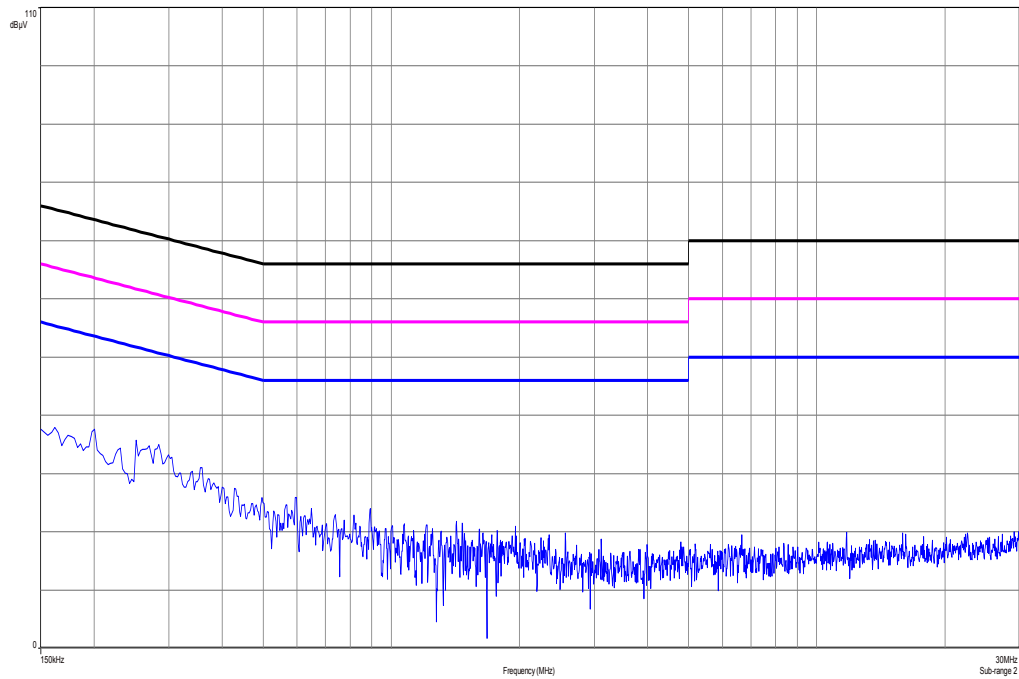
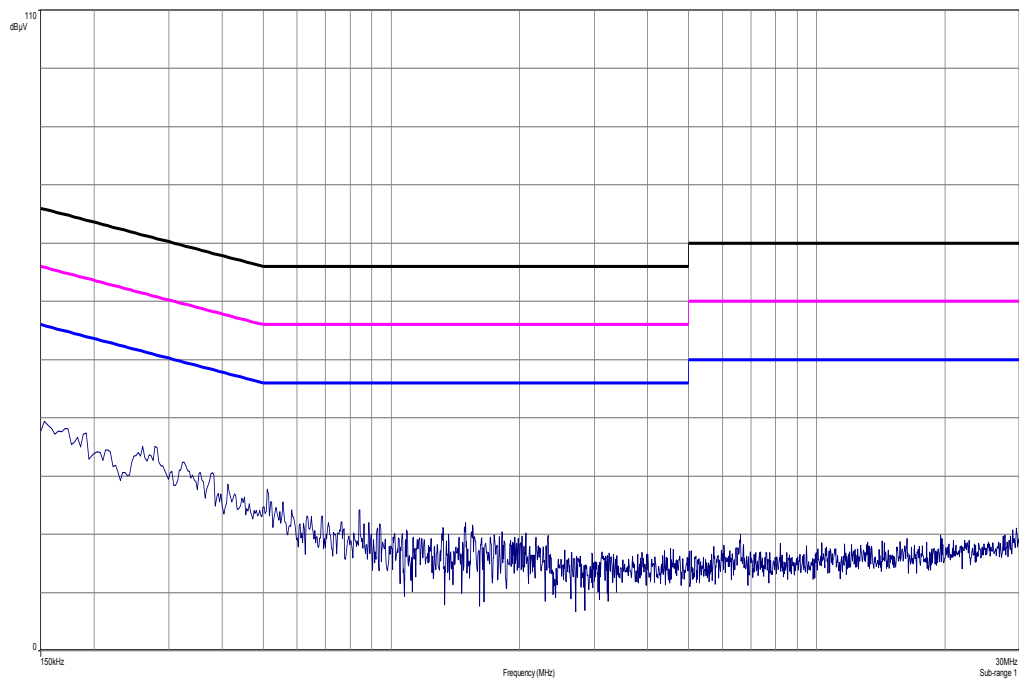
*Decreases with the logarithm of the frequency

Results:

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

Result: Passed

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

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

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	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580	ne		
3	n. a.	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	27.01.2014	27.01.2015
4	n. a.	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
5	n. a.	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
6	n. a.	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747	izw		
7	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	12.04.2012	12.04.2014
8	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vIKII	08.05.2013	08.05.2015
9	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
10	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	*	300000199	ne		
11	9	Isolating Transformer	MPL IEC625 Bus Regeltrennt ravo	Erfi	91350	300001155	ne		
12	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
13	90	Active Loop Antenna 10 kHz to 30 MHz	6502	Kontron Psychotech	8905-2342	300000256	k	13.06.2013	13.06.2015
14	n. a.	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
15	n. a.	Band Reject filter	WRCG240 0/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
16	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vIKII	14.10.2011	14.10.2014
17	n. a.	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	21.02.2013	21.02.2014
18	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
19	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787	k	22.07.2013	22.07.2015
20	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442	k	19.07.2013	19.07.2015
21	A031	Std. Gain Horn Antenna 26.5 to 40.0 GHz	637	Narda		300000510	k	19.07.2013	19.07.2015

22	n. a.	Broadband Low Noise Amplifier 18-50 GHz	CBL18503 070-XX	CERNEX	19338	300004273	ne		
23	n. a.	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
vlk!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

12 Observations

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

Annex A Document history

Version	Applied changes	Date of release
	Initial release	2014-03-05

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



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>