

Plots: OFDM / n / ac – mode HT40

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

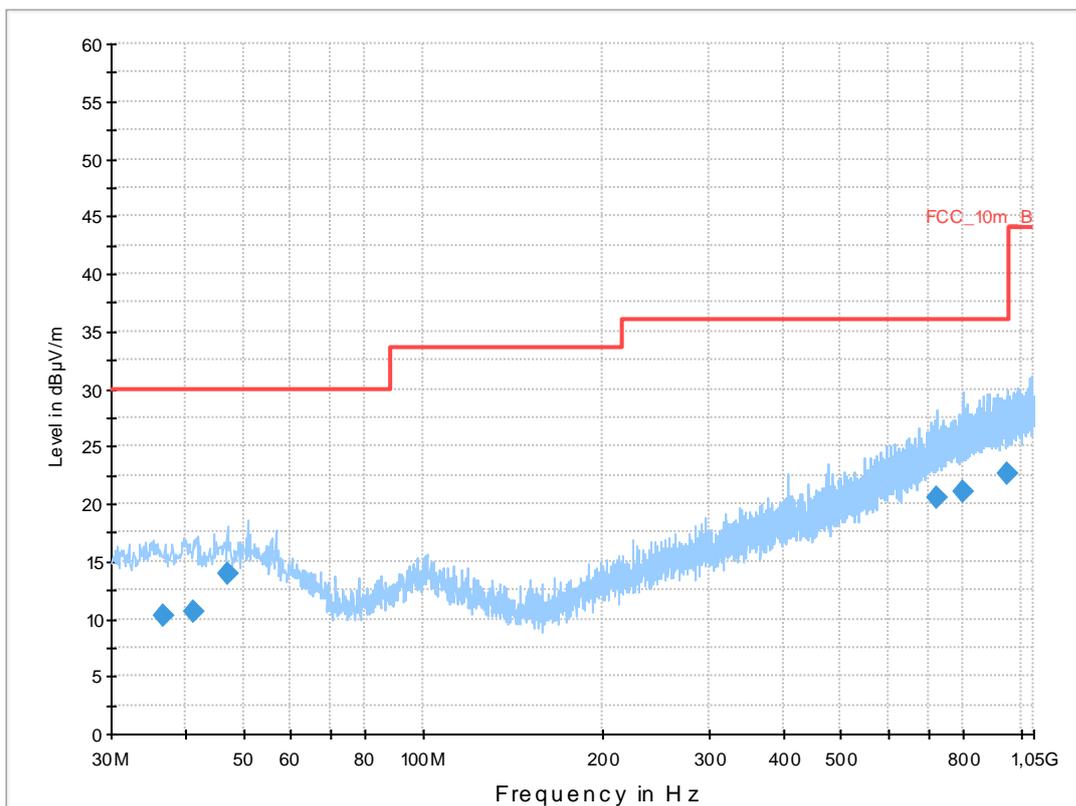
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n/ac-mode (HT40) tx ch 38
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

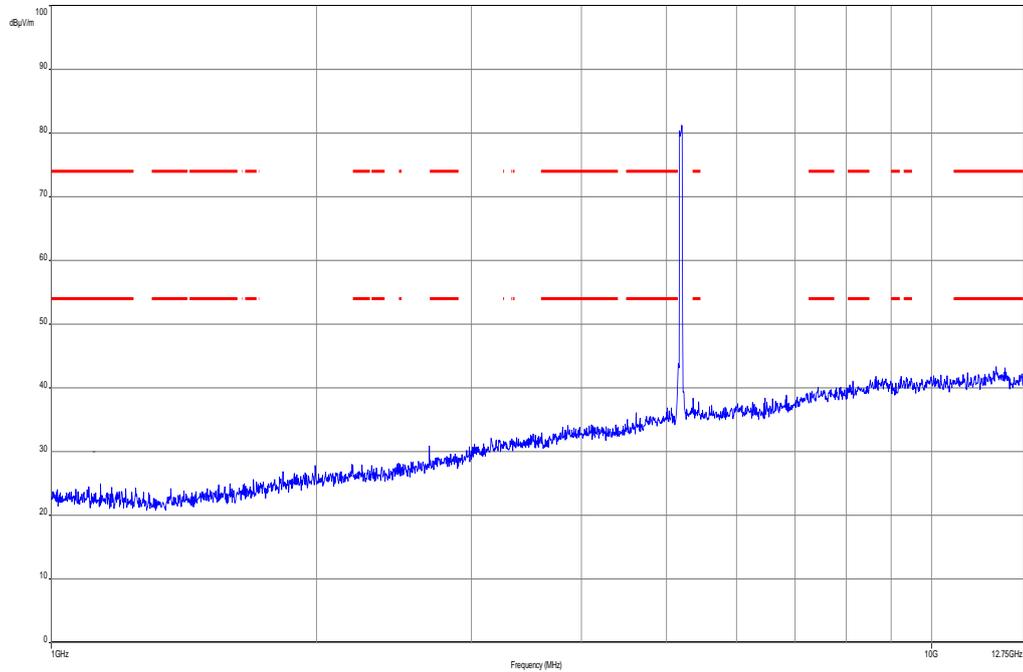
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



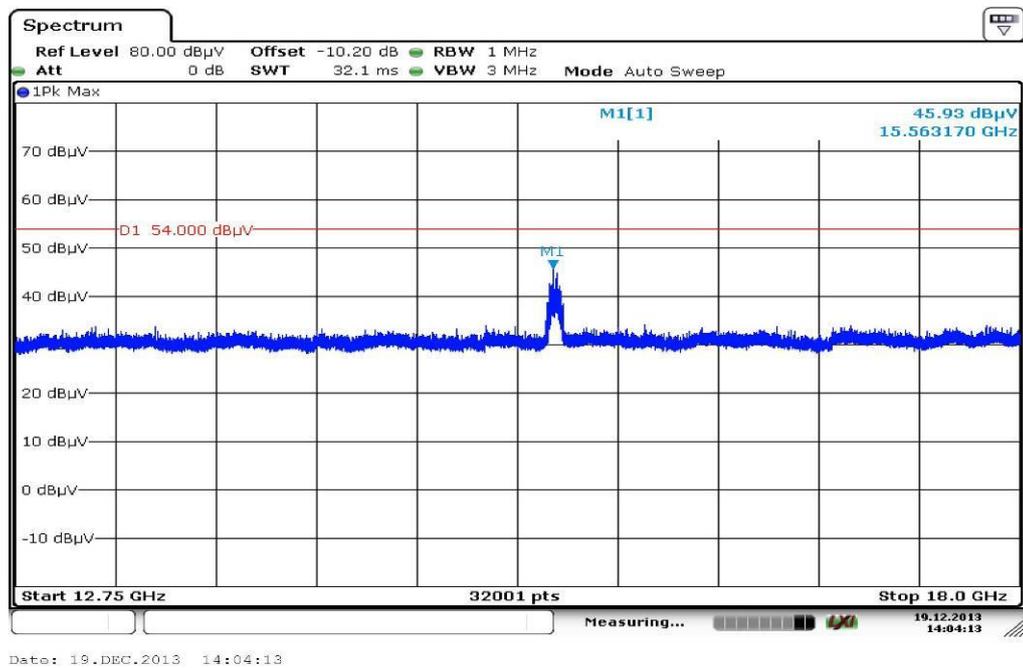
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.688650	10.3	1000.0	120.000	170.0	V	2.0	13.2	19.7	30.0	
41.327100	10.5	1000.0	120.000	170.0	H	190.0	13.4	19.5	30.0	
47.026800	13.9	1000.0	120.000	98.0	V	100.0	13.3	16.1	30.0	
720.996300	20.5	1000.0	120.000	111.0	H	190.0	23.0	15.5	36.0	
799.450650	21.1	1000.0	120.000	170.0	H	265.0	23.8	14.9	36.0	
946.842900	22.7	1000.0	120.000	170.0	V	10.0	25.3	13.3	36.0	

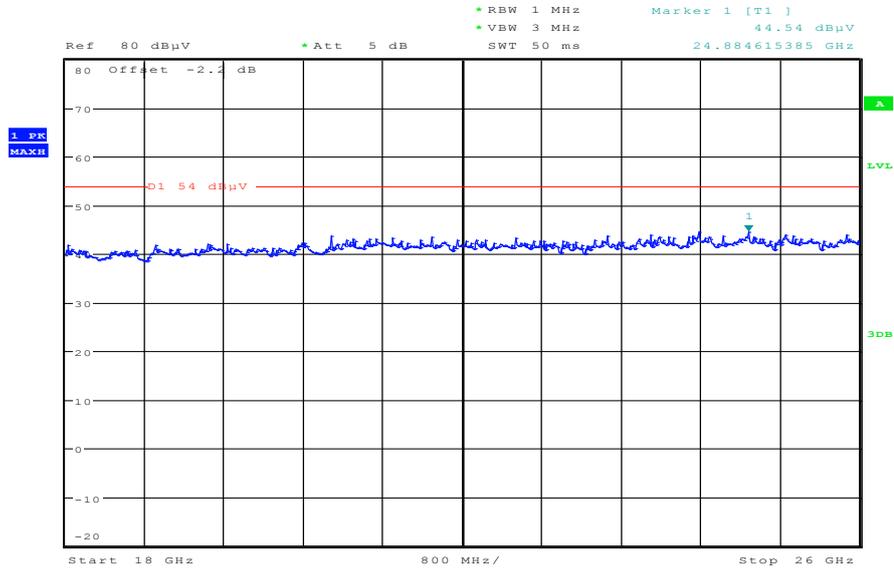
Plot 2: 1 GHz to 12.75 GHz, 5190 MHz, vertical & horizontal polarization



Plot 3: 12.75 GHz to 18 GHz, 5190 MHz, vertical & horizontal polarization

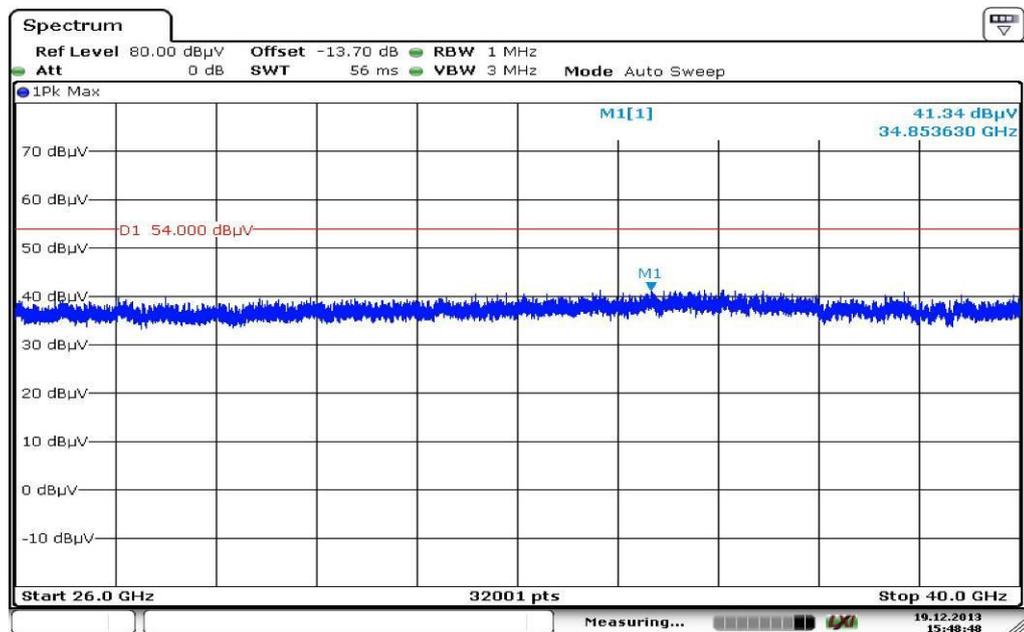


Plot 4: 18 GHz to 26 GHz, 5190 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:29:33

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



Date: 19.DEC.2013 15:48:48

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

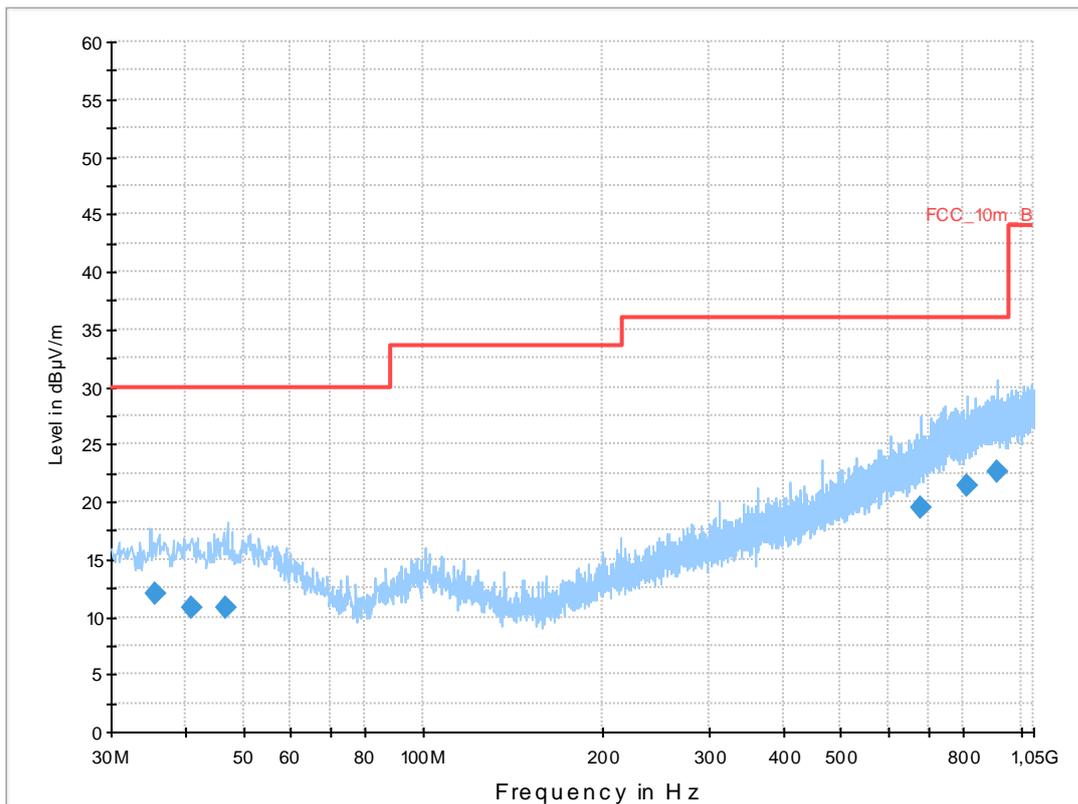
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n/ac-mode (HT40) tx ch 46
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

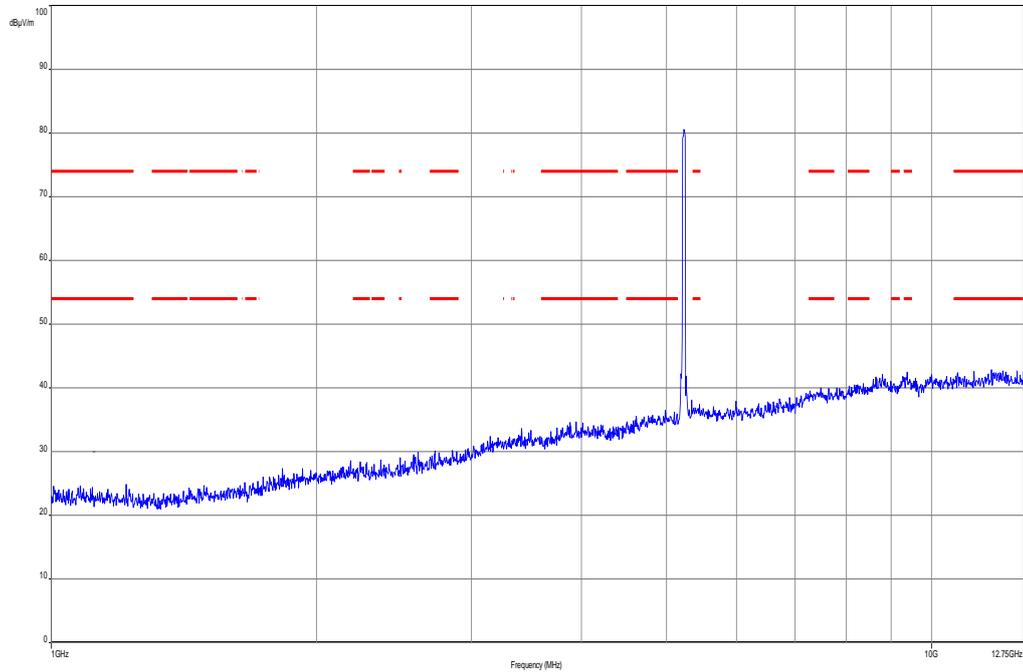
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



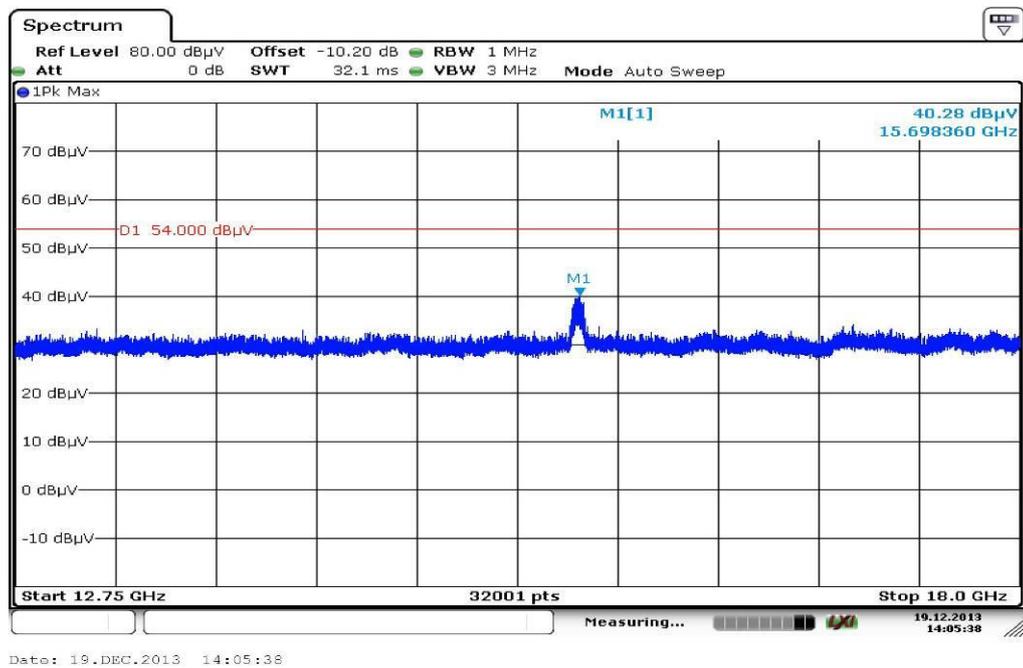
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.493750	12.0	1000.0	120.000	170.0	V	100.0	13.1	18.0	30.0	
40.897350	10.8	1000.0	120.000	152.0	V	261.0	13.4	19.2	30.0	
46.529250	10.7	1000.0	120.000	98.0	V	90.0	13.3	19.3	30.0	
678.588450	19.4	1000.0	120.000	170.0	H	177.0	21.9	16.6	36.0	
809.839950	21.3	1000.0	120.000	170.0	H	260.0	24.0	14.7	36.0	
914.401050	22.7	1000.0	120.000	170.0	V	190.0	25.2	13.3	36.0	

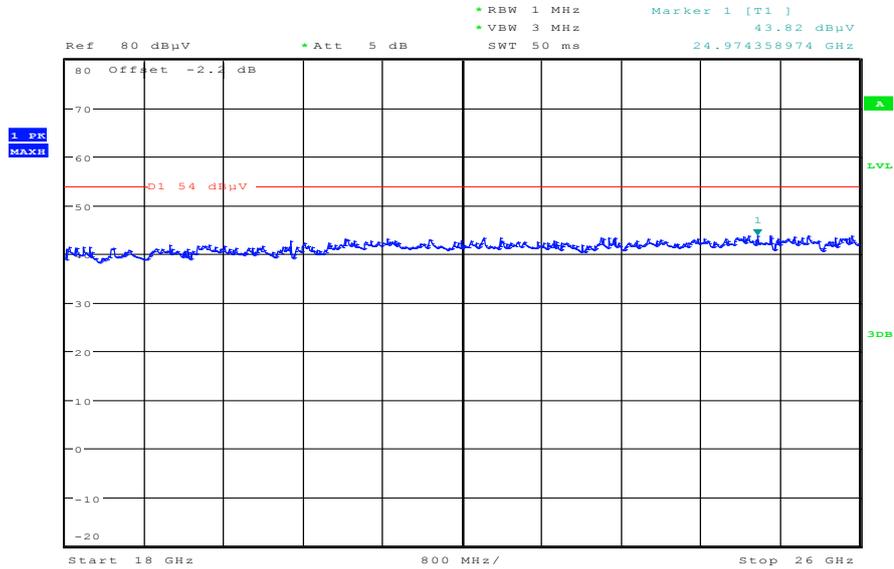
Plot 7: 1 GHz to 12.75 GHz, 5230 MHz, vertical & horizontal polarization



Plot 8: 12.75 GHz to 18 GHz, 5230 MHz, vertical & horizontal polarization

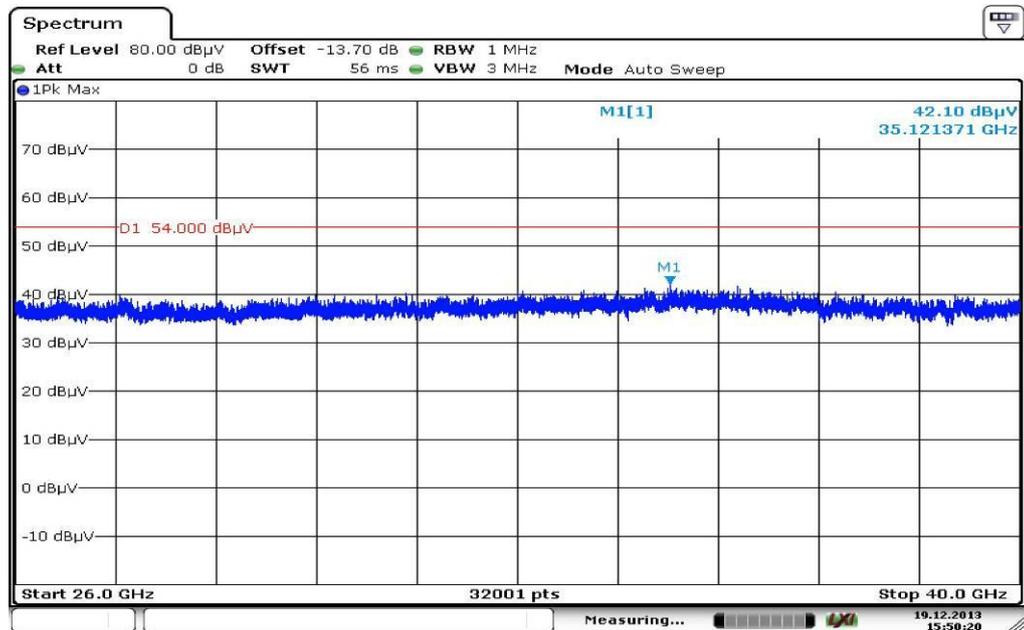


Plot 9: 18 GHz to 26 GHz, 5230 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:30:21

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



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

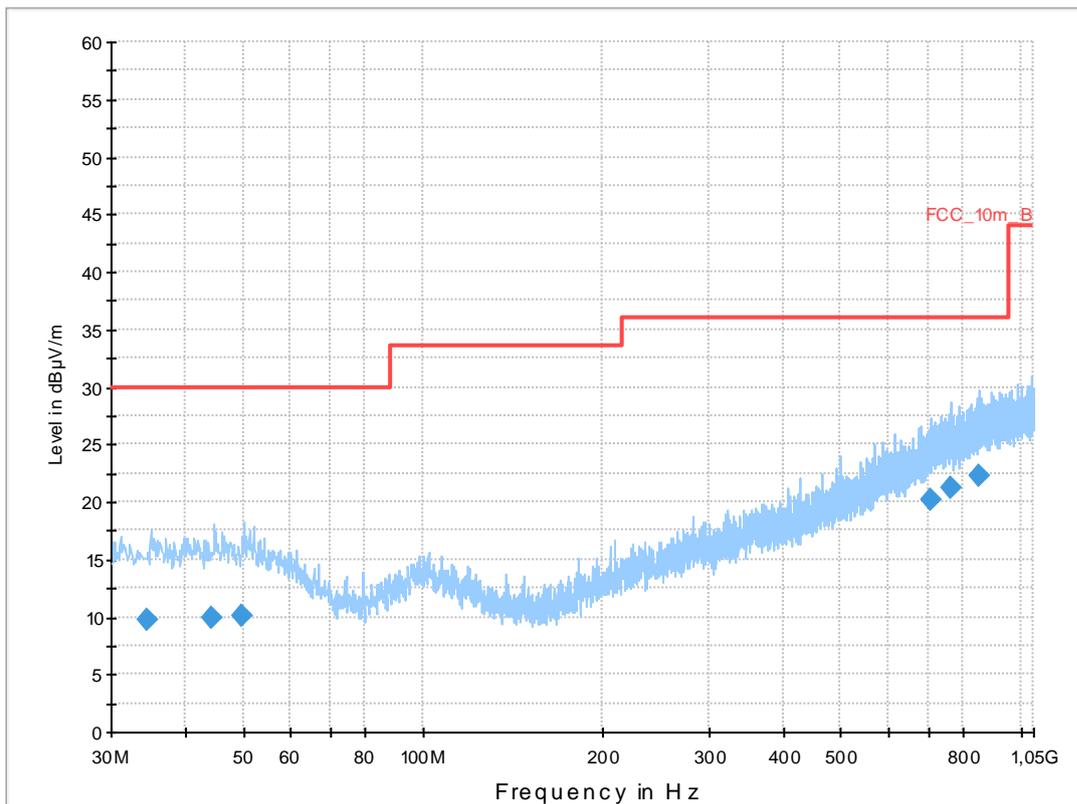
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n/ac-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

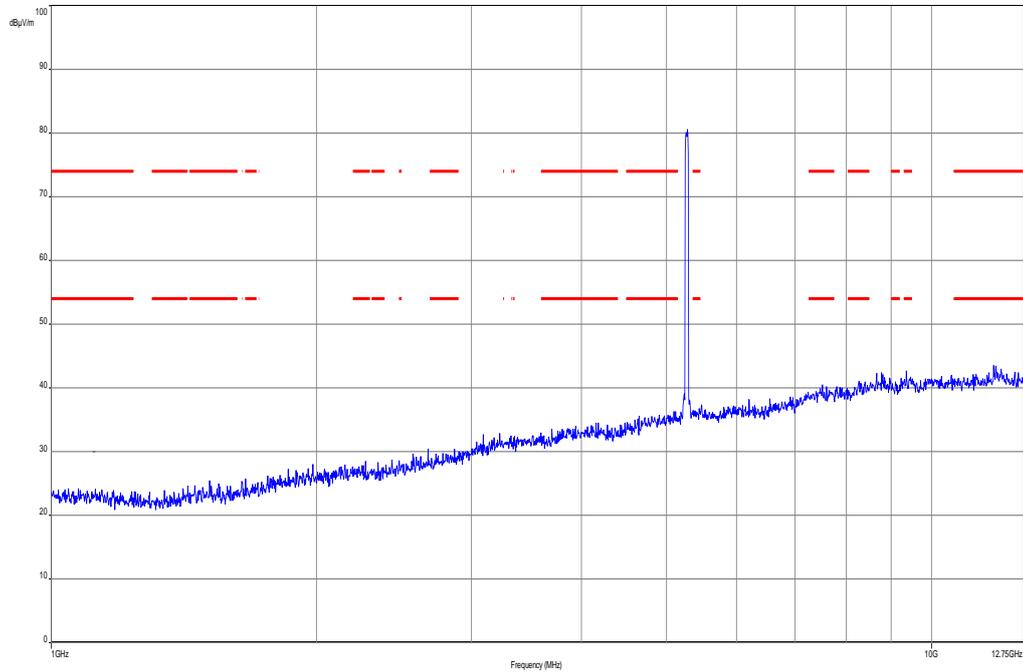
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



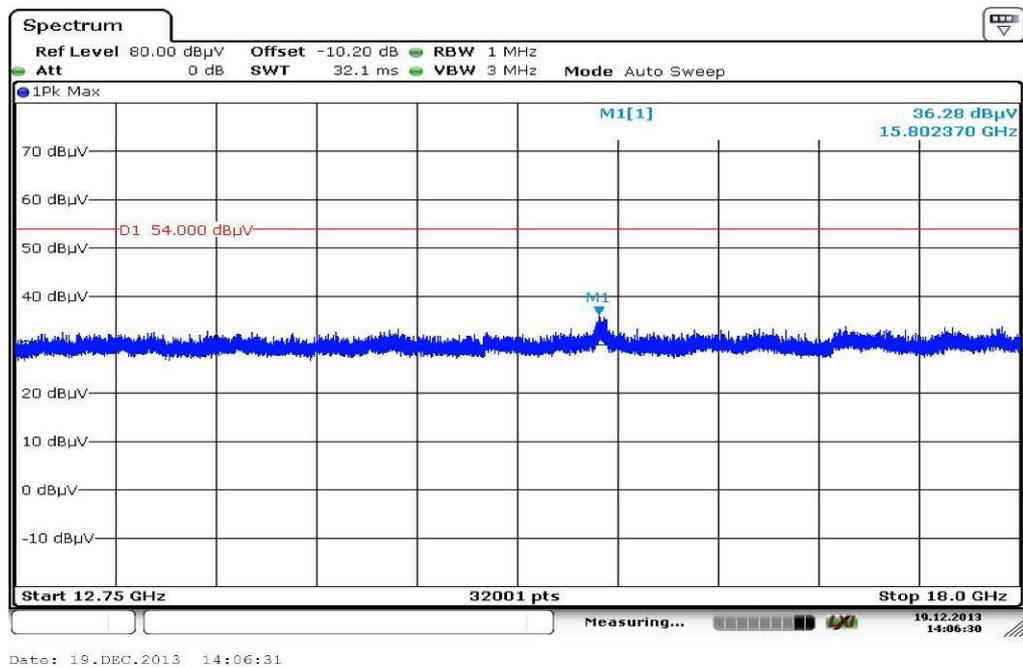
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.436100	9.7	1000.0	120.000	161.0	V	260.0	13.0	20.3	30.0	
44.362500	9.8	1000.0	120.000	133.0	V	260.0	13.3	20.2	30.0	
49.819950	10.2	1000.0	120.000	170.0	V	280.0	13.4	19.8	30.0	
706.281000	20.2	1000.0	120.000	112.0	H	260.0	22.6	15.8	36.0	
761.179500	21.1	1000.0	120.000	170.0	H	10.0	23.7	14.9	36.0	
850.178550	22.2	1000.0	120.000	98.0	V	-2.0	24.6	13.8	36.0	

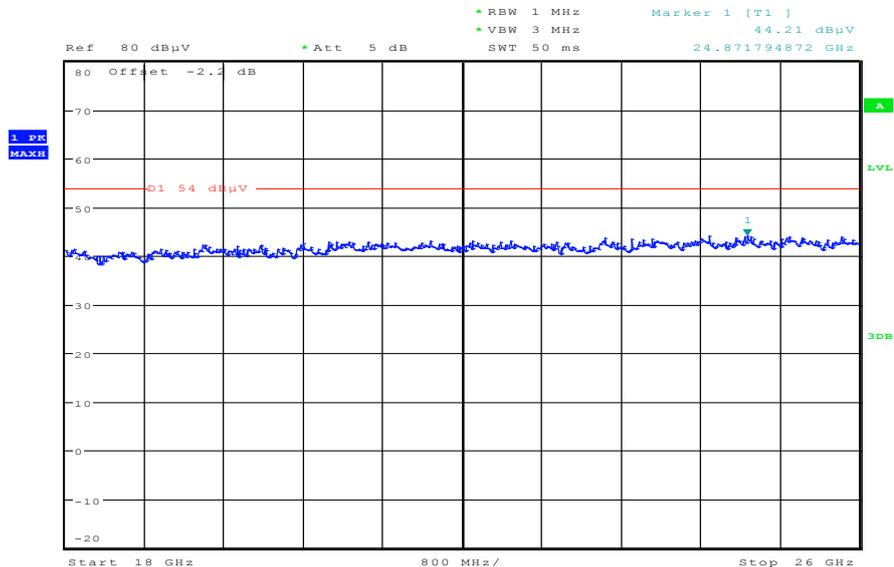
Plot 12: 1 GHz to 12.75 GHz, 5270 MHz, vertical & horizontal polarization



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

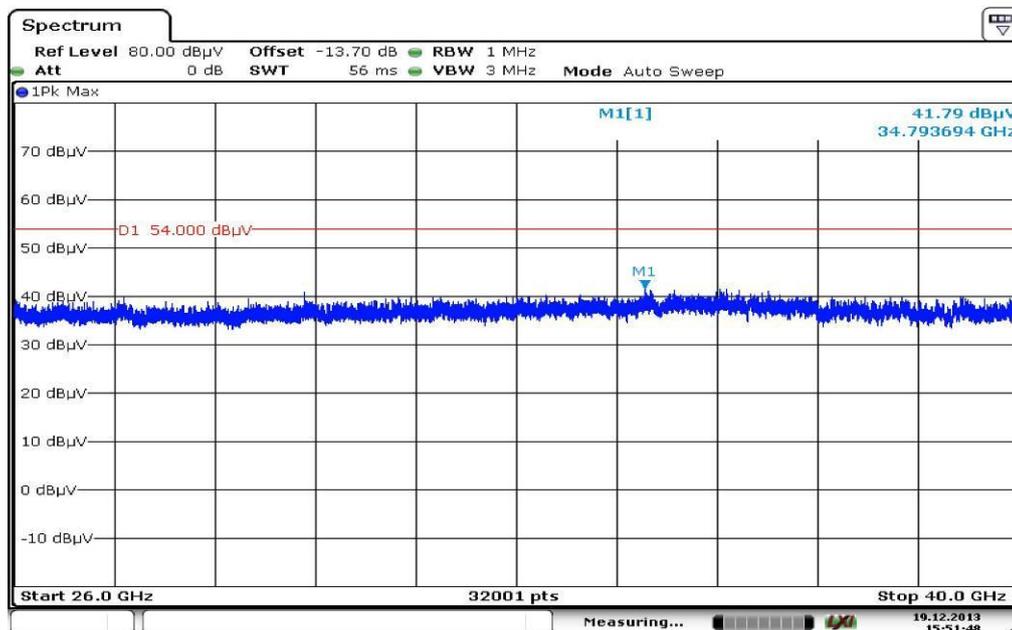


Plot 14: 18 GHz to 26 GHz, 5270 MHz, vertical & horizontal polarization



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



Date: 19.DEC.2013 15:51:48

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

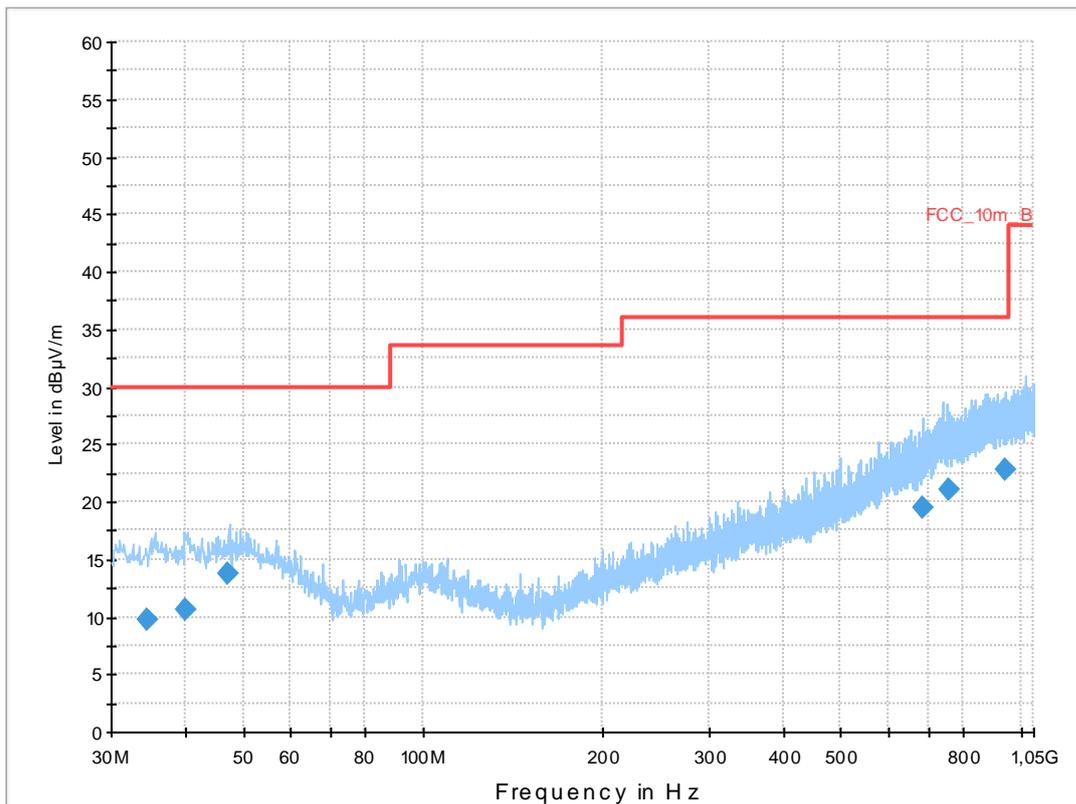
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n/ac-mode (HT40) tx ch 62
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

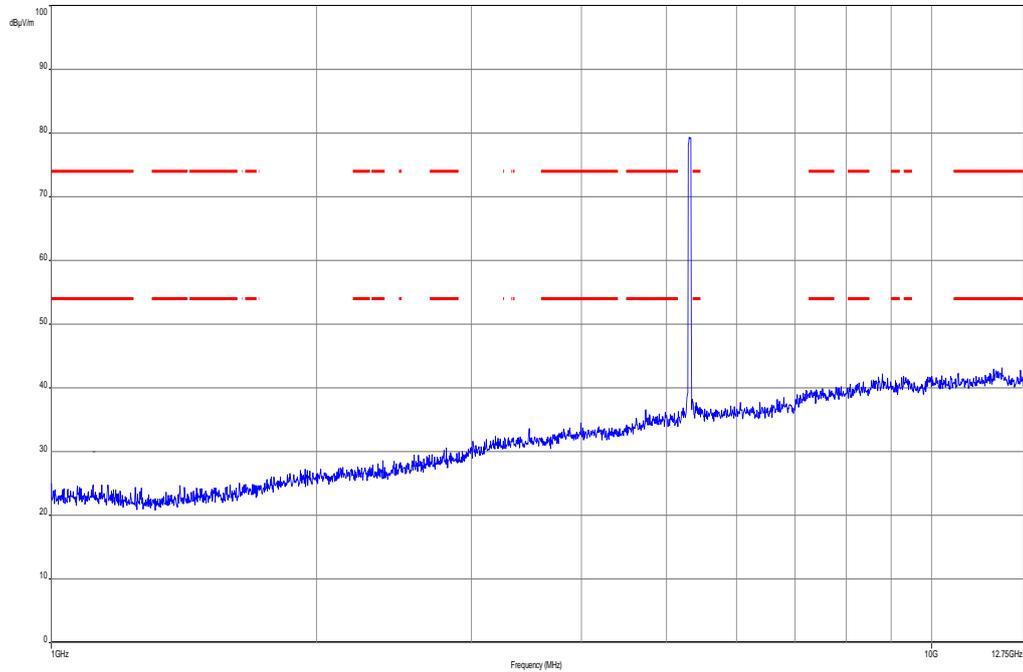
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



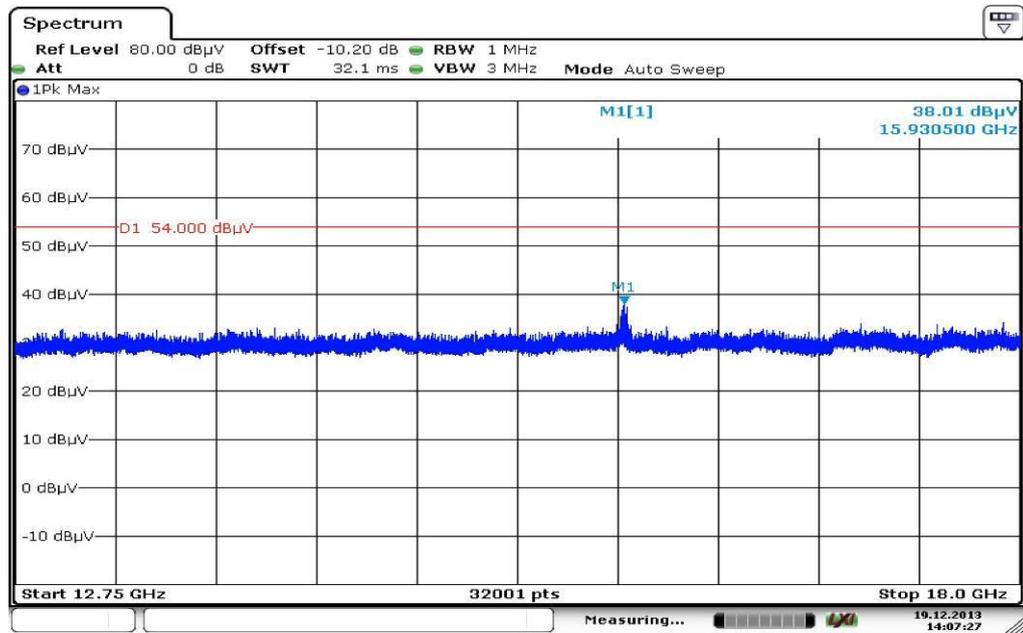
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.377900	9.7	1000.0	120.000	170.0	V	-9.0	13.0	20.3	30.0	
39.904050	10.6	1000.0	120.000	121.0	H	273.0	13.4	19.4	30.0	
46.970550	13.8	1000.0	120.000	98.0	V	0.0	13.3	16.2	30.0	
682.915650	19.4	1000.0	120.000	170.0	V	190.0	22.0	16.6	36.0	
756.982950	21.1	1000.0	120.000	121.0	H	90.0	23.7	14.9	36.0	
943.613550	22.7	1000.0	120.000	154.0	H	100.0	25.3	13.3	36.0	

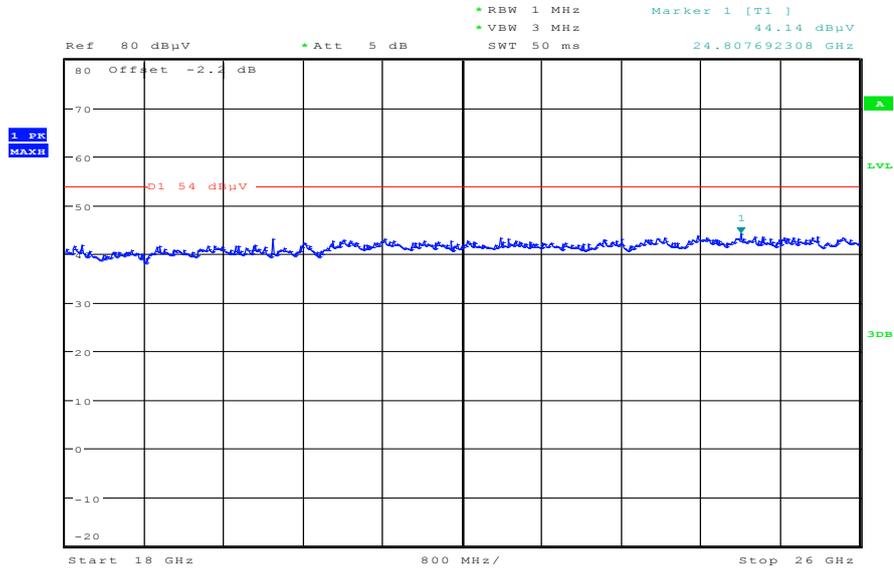
Plot 17: 1 GHz to 12.75 GHz, 5310 MHz, vertical & horizontal polarization



Plot 18: 12.75 GHz to 18 GHz, 5310 MHz, vertical & horizontal polarization

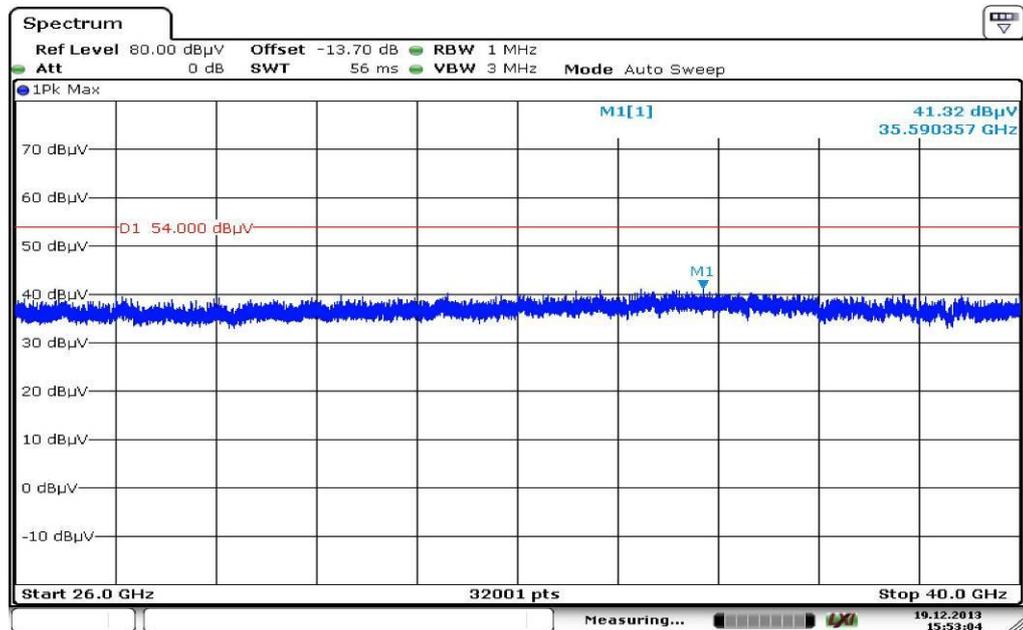


Plot 19: 18 GHz to 26 GHz, 5310 MHz, vertical & horizontal polarization



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



Date: 19.DEC.2013 15:53:04

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

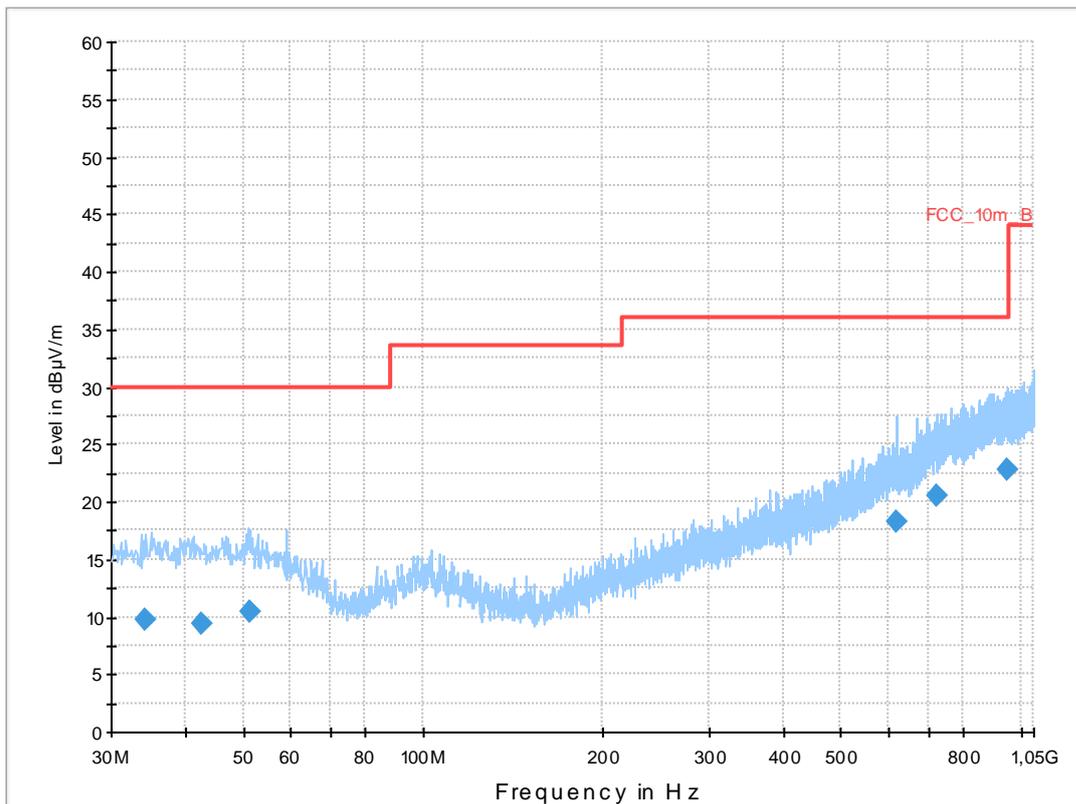
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan n/ac-mode (HT40) tx ch 102
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

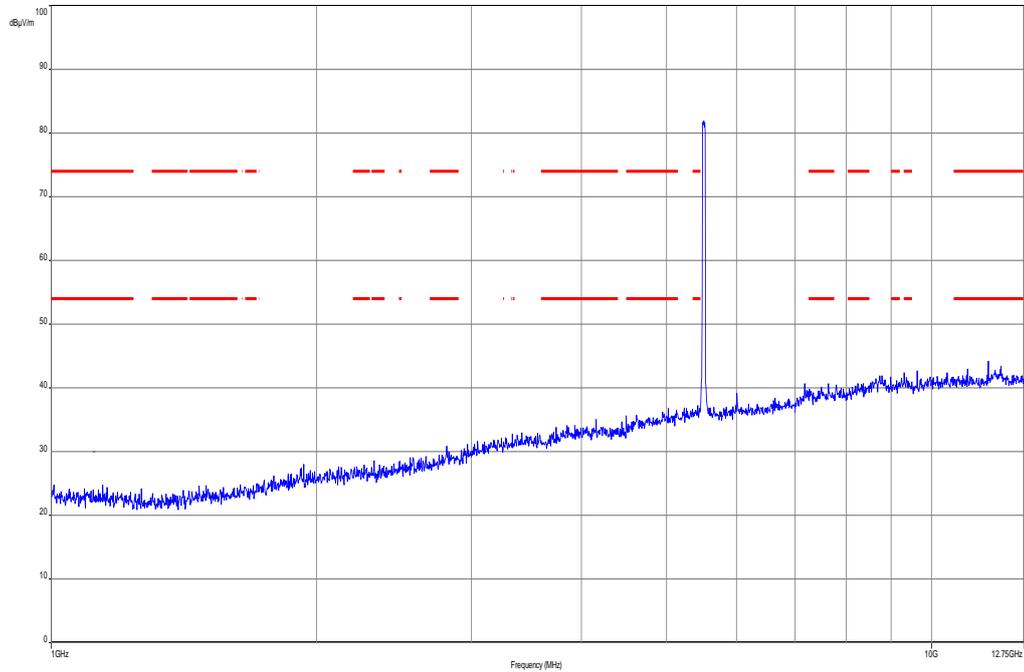
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



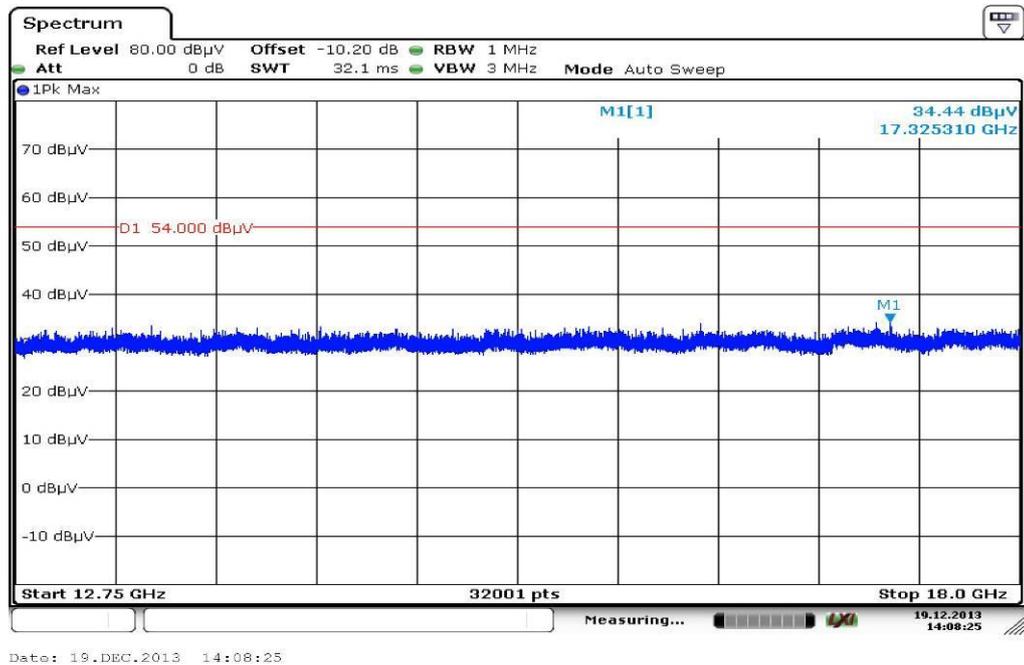
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.323450	9.7	1000.0	120.000	98.0	V	280.0	13.0	20.3	30.0	
42.700200	9.3	1000.0	120.000	170.0	H	80.0	13.3	20.7	30.0	
51.085200	10.5	1000.0	120.000	154.0	H	272.0	13.3	19.5	30.0	
619.216350	18.3	1000.0	120.000	112.0	H	3.0	20.9	17.7	36.0	
721.049550	20.5	1000.0	120.000	170.0	V	88.0	23.0	15.5	36.0	
947.925900	22.7	1000.0	120.000	170.0	V	-2.0	25.3	13.3	36.0	

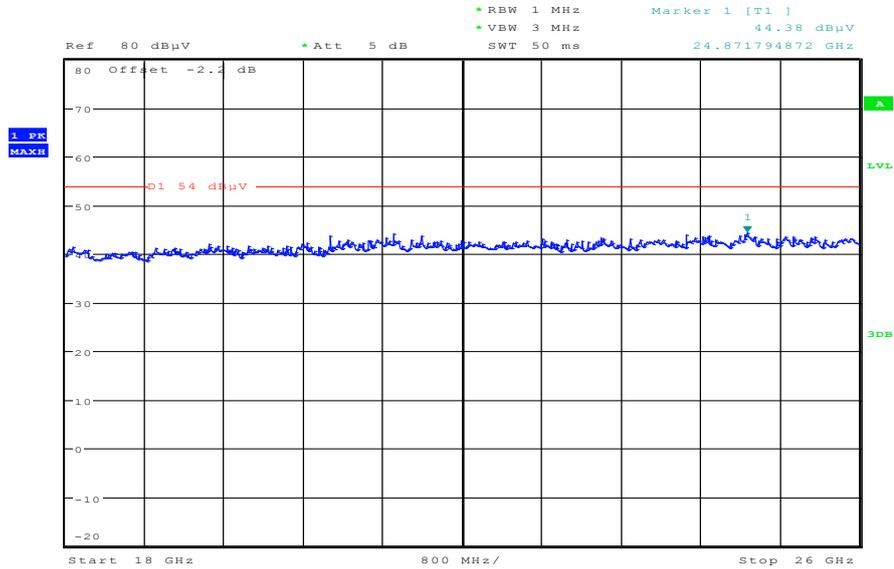
Plot 22: 1 GHz to 12.75 GHz, 5510 MHz, vertical & horizontal polarization



Plot 23: 12.75 GHz to 18 GHz, 5510 MHz, vertical & horizontal polarization

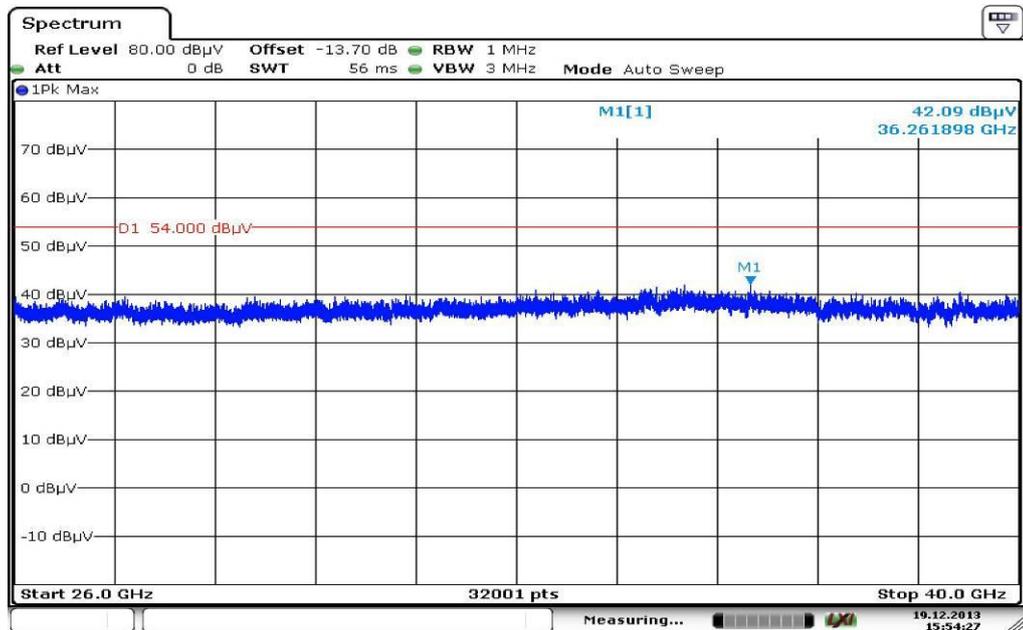


Plot 24: 18 GHz to 26 GHz, 5510 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:33:19

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



Date: 19.DEC.2013 15:54:27

Plot 26: 30 MHz to 1 GHz, 5590 MHz, vertical & horizontal polarization

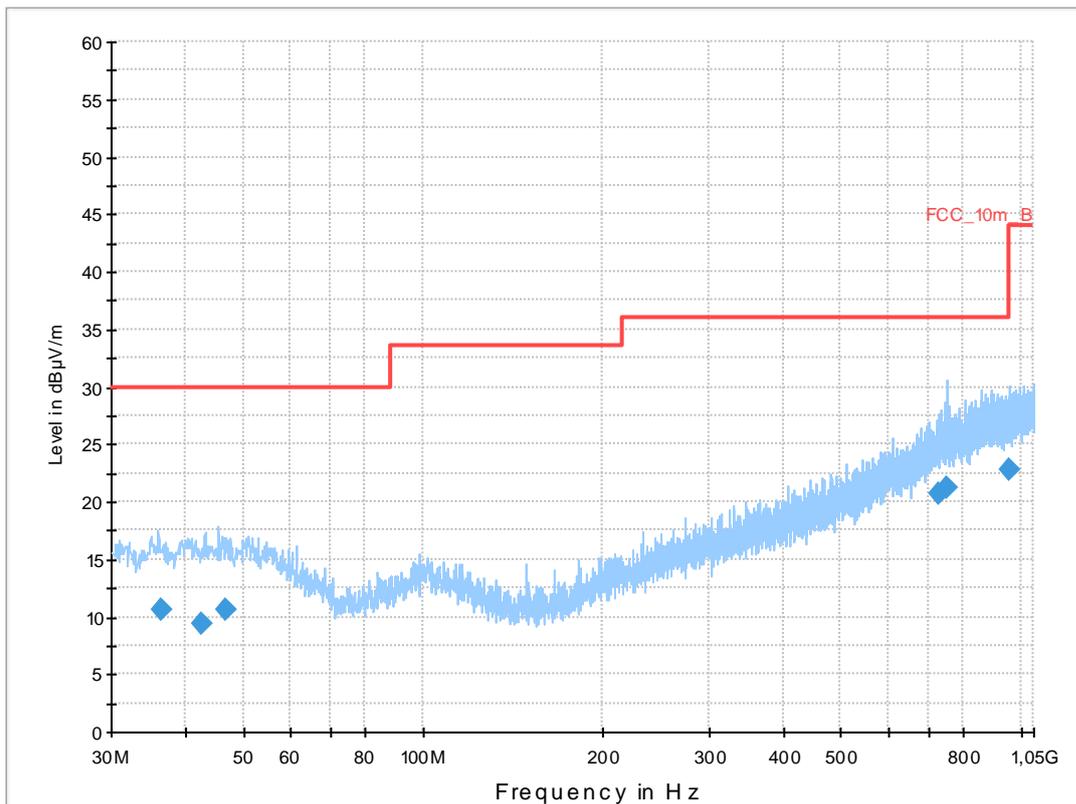
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT40) tx ch 118
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

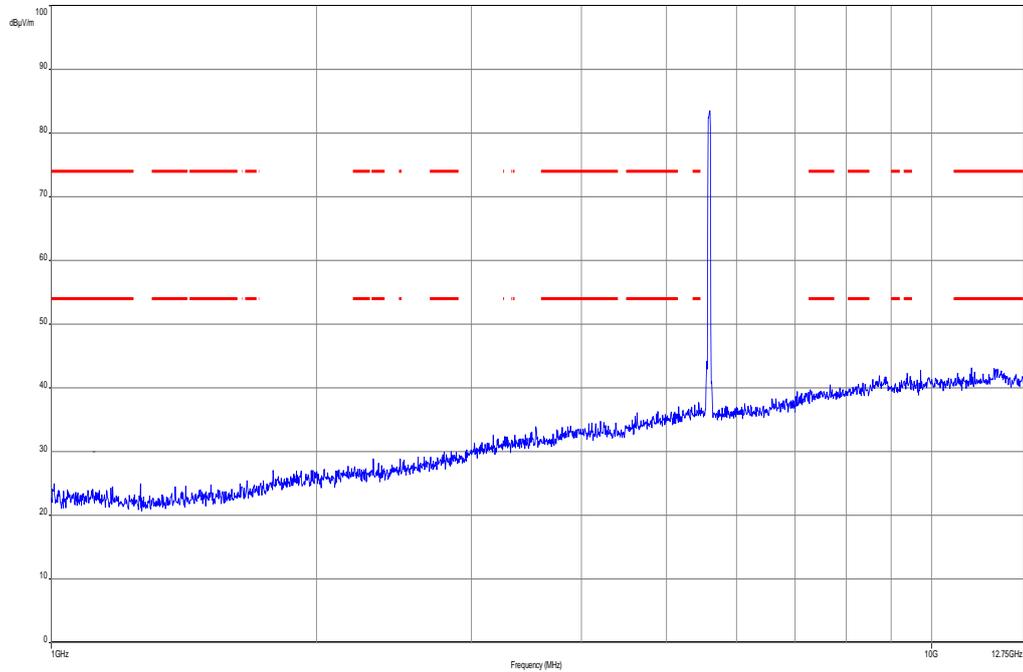
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



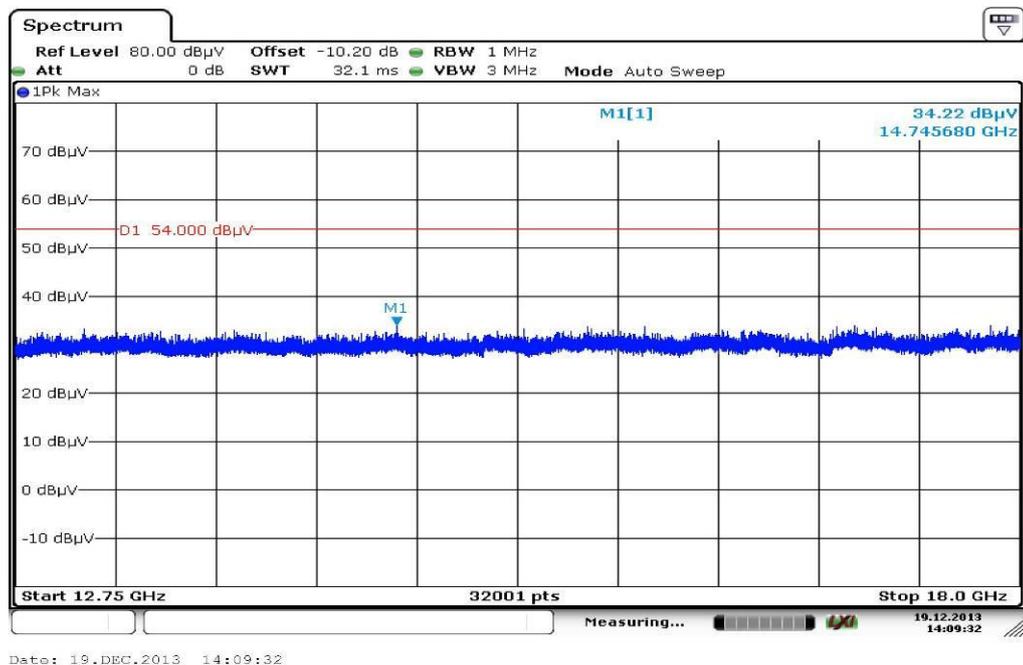
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.368100	10.6	1000.0	120.000	170.0	V	0.0	13.1	19.4	30.0	
42.578400	9.5	1000.0	120.000	170.0	H	-5.0	13.3	20.5	30.0	
46.561350	10.6	1000.0	120.000	132.0	V	265.0	13.3	19.4	30.0	
728.306700	20.7	1000.0	120.000	98.0	H	175.0	23.2	15.3	36.0	
750.106050	21.1	1000.0	120.000	170.0	H	270.0	23.7	14.9	36.0	
955.927800	22.8	1000.0	120.000	145.0	H	272.0	25.4	13.2	36.0	

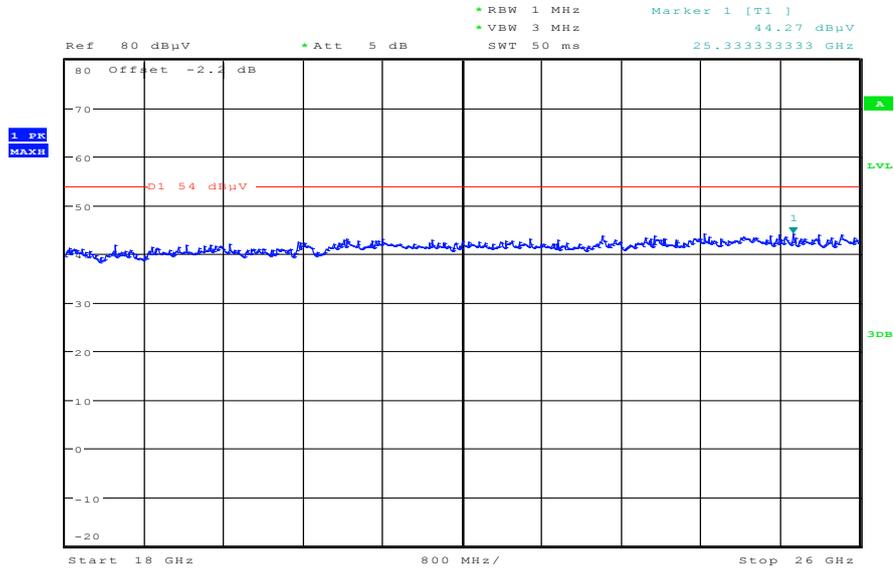
Plot 27: 1 GHz to 12.75 GHz, 5590 MHz, vertical & horizontal polarization



Plot 28: 12.75 GHz to 18 GHz, 5590 MHz, vertical & horizontal polarization

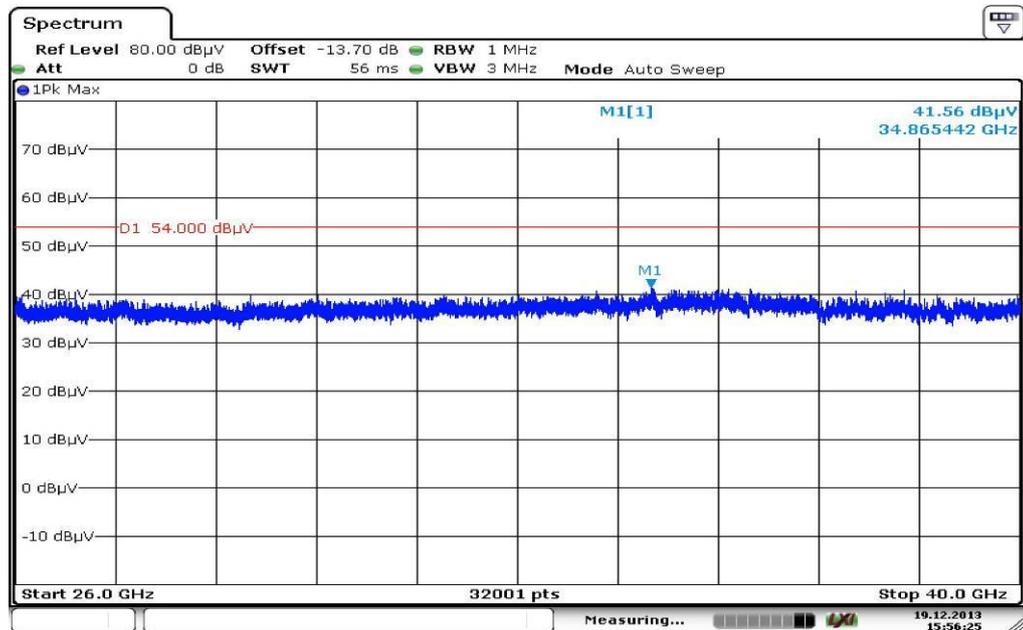


Plot 29: 18 GHz to 26 GHz, 5590 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:34:55

Plot 30: 26 GHz to 40 GHz, 5590 MHz, vertical & horizontal polarization



Date: 19.DEC.2013 15:56:25

Plot 31: 30 MHz to 1 GHz, 5670 MHz, vertical & horizontal polarization

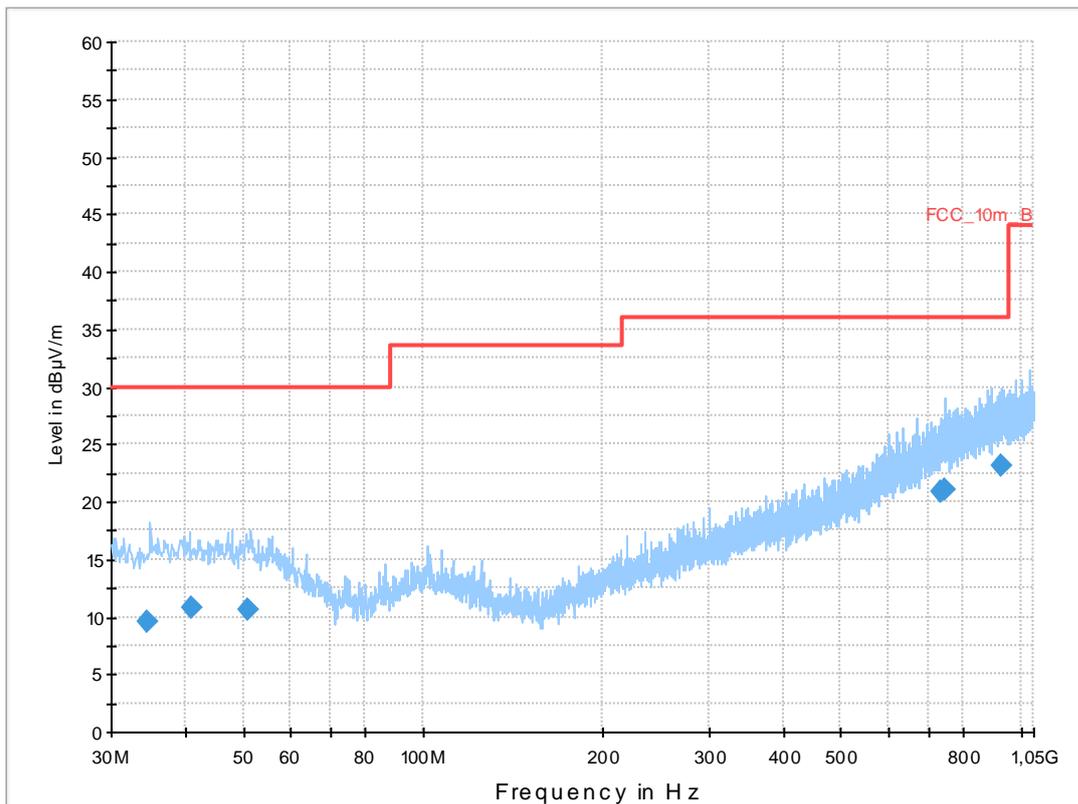
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT40) tx ch 134
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

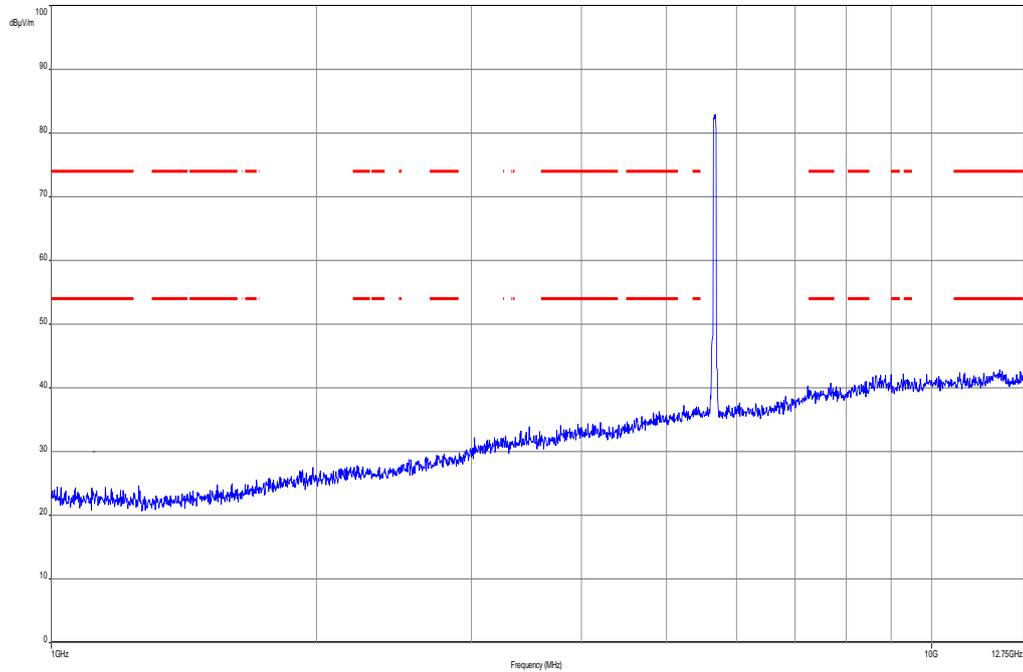
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



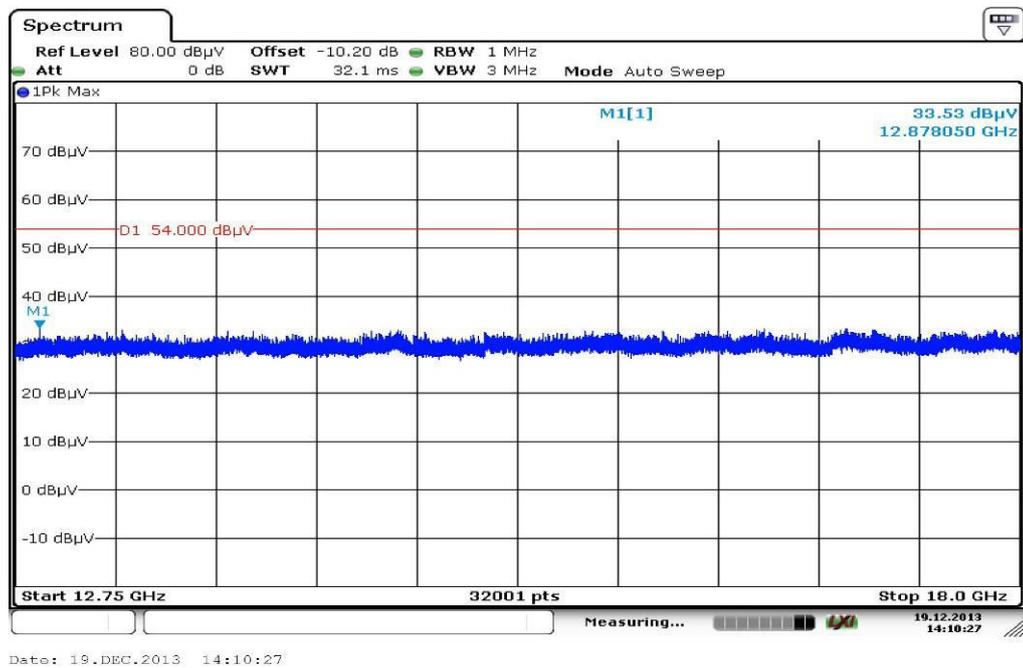
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
34.464750	9.6	1000.0	120.000	170.0	H	260.0	13.0	20.4	30.0	
40.869600	10.8	1000.0	120.000	170.0	V	-10.0	13.4	19.2	30.0	
50.999400	10.5	1000.0	120.000	170.0	V	81.0	13.3	19.5	30.0	
733.181250	20.8	1000.0	120.000	170.0	H	170.0	23.3	15.2	36.0	
748.820850	21.0	1000.0	120.000	111.0	V	170.0	23.6	15.0	36.0	
927.332100	23.1	1000.0	120.000	170.0	V	177.0	25.3	12.9	36.0	

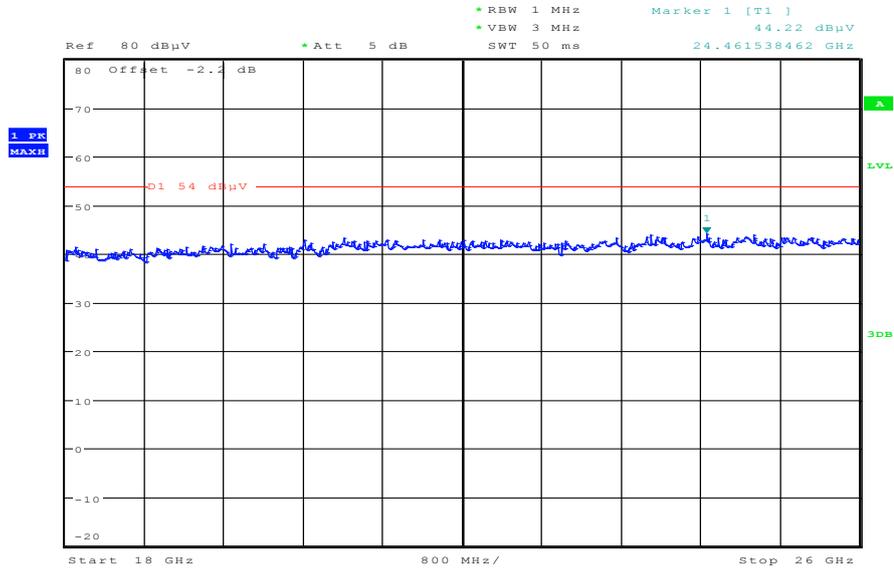
Plot 32: 1 GHz to 12.75 GHz, 5670 MHz, vertical & horizontal polarization



Plot 33: 12.75 GHz to 18 GHz, 5670 MHz, vertical & horizontal polarization

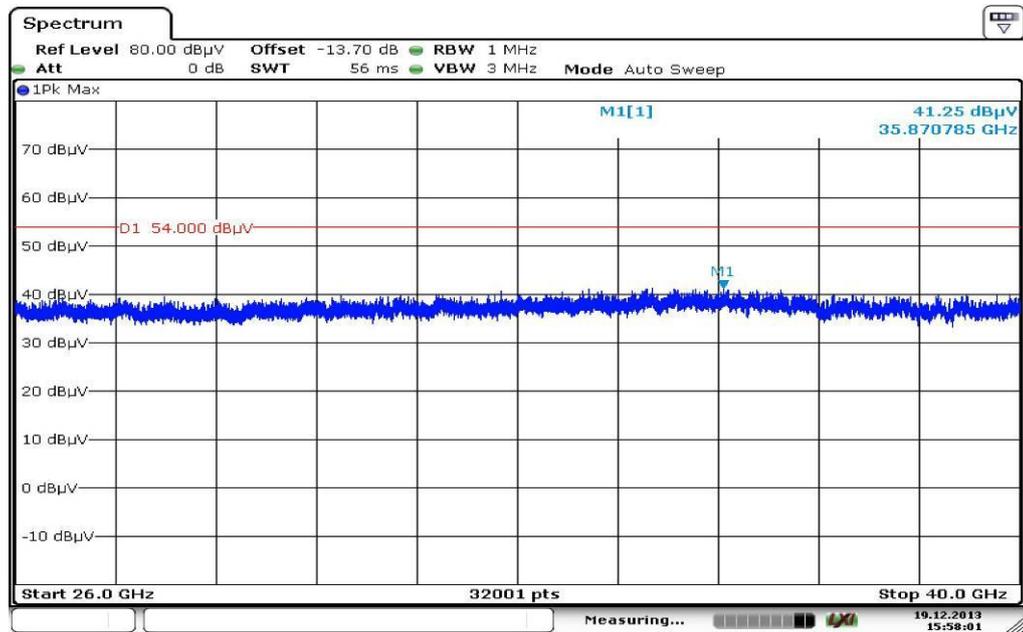


Plot 34: 18 GHz to 26 GHz, 5670 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:36:03

Plot 35: 26 GHz to 40 GHz, 5670 MHz, vertical & horizontal polarization



Date: 19.DEC.2013 15:58:01

Plots: OFDM / ac – mode HT80

Plot 36: 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization

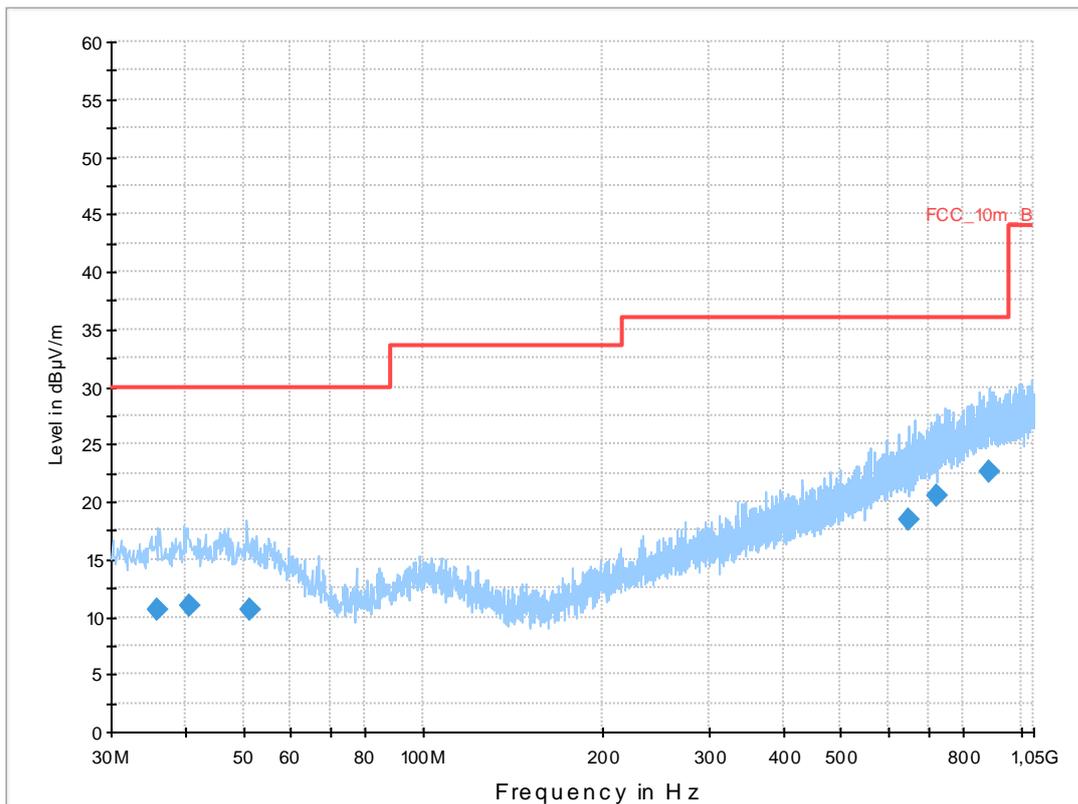
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 42
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

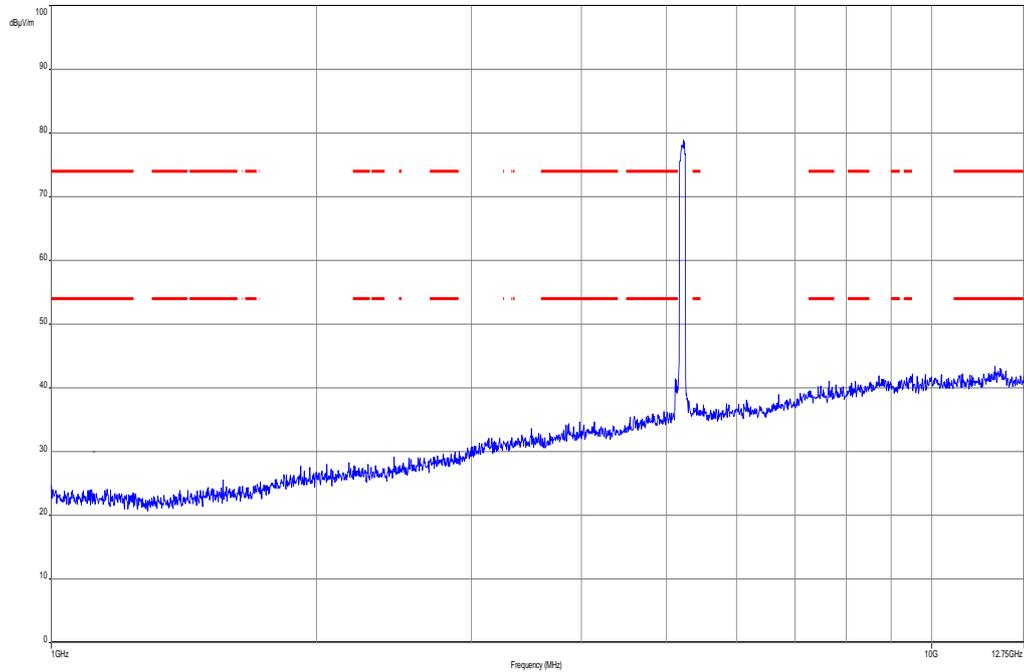
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



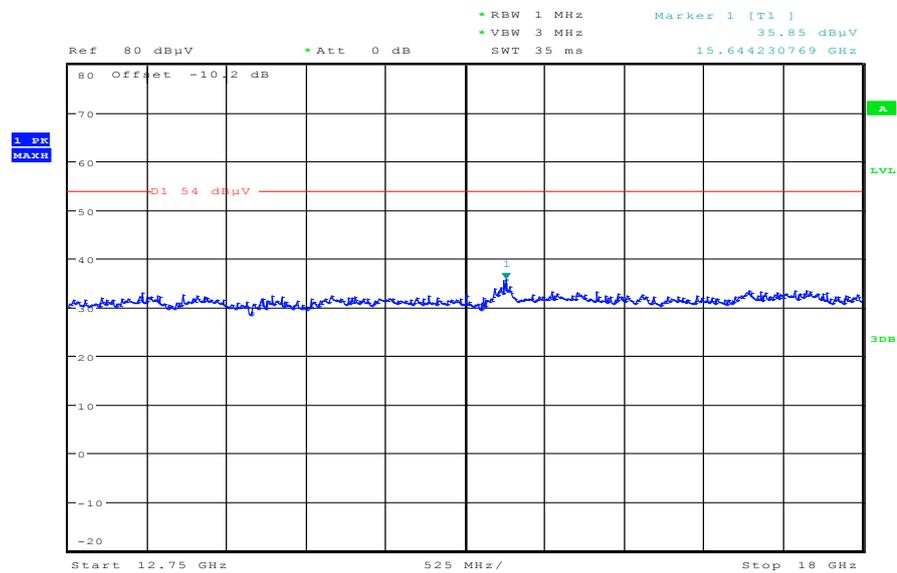
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.762700	10.6	1000.0	120.000	170.0	H	10.0	13.1	19.4	30.0	
40.607550	11.0	1000.0	120.000	170.0	V	190.0	13.4	19.0	30.0	
51.130200	10.6	1000.0	120.000	170.0	V	270.0	13.3	19.4	30.0	
648.903000	18.5	1000.0	120.000	105.0	H	3.0	21.1	17.5	36.0	
725.046900	20.5	1000.0	120.000	111.0	V	280.0	23.1	15.5	36.0	
883.773300	22.6	1000.0	120.000	170.0	H	3.0	25.0	13.4	36.0	

Plot 37: 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

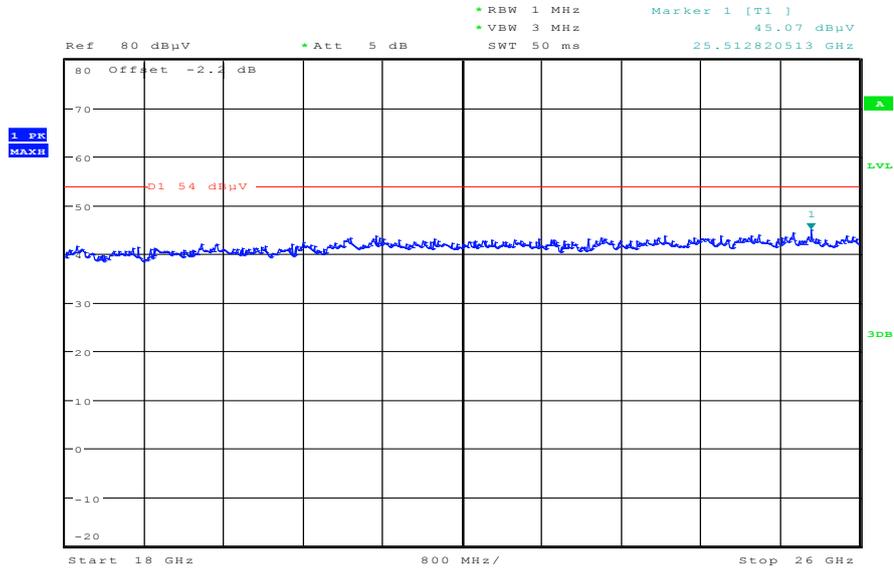


Plot 38: 12.75 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



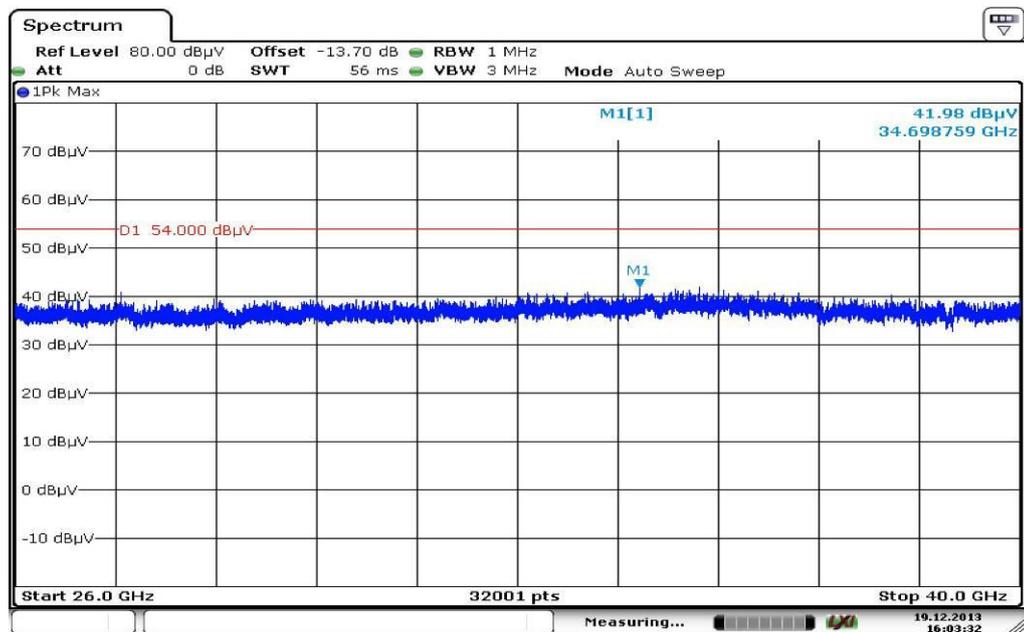
Date: 18.DEC.2013 21:41:39

Plot 39: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:53:27

Plot 40: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 19.DEC.2013 16:03:32

Plot 41: 30 MHz to 1 GHz, 5290 MHz, vertical & horizontal polarization

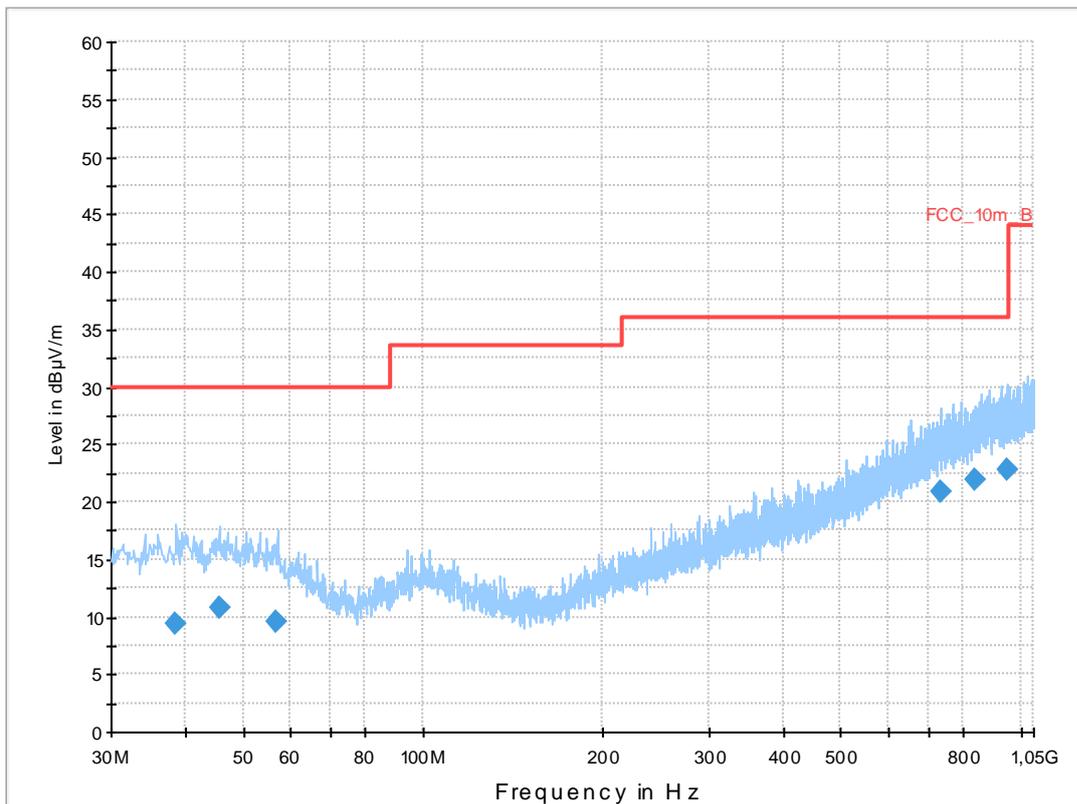
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 58
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

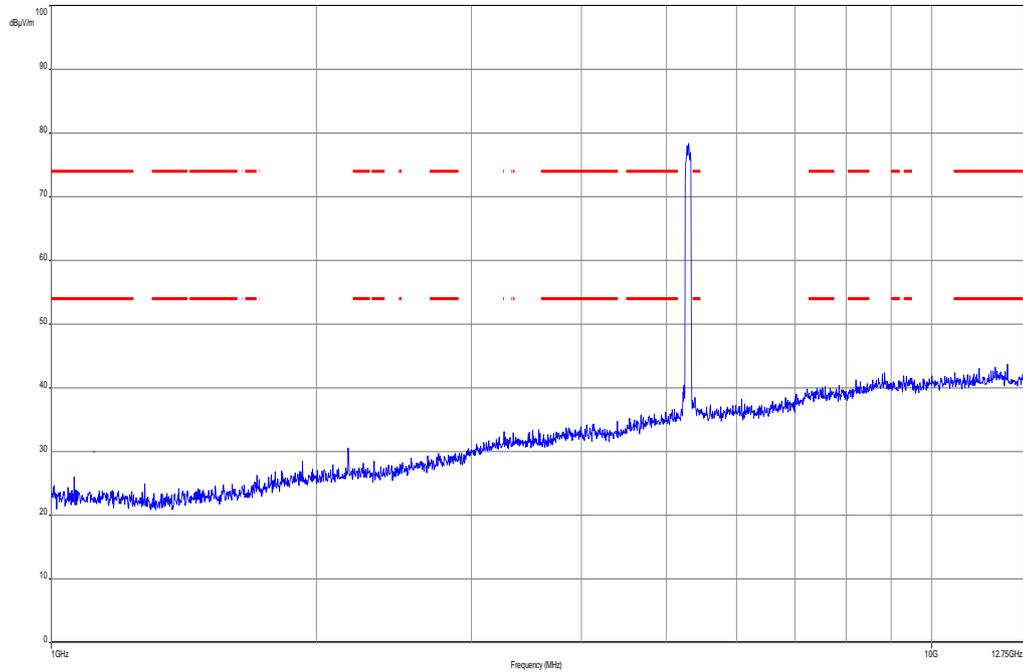
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



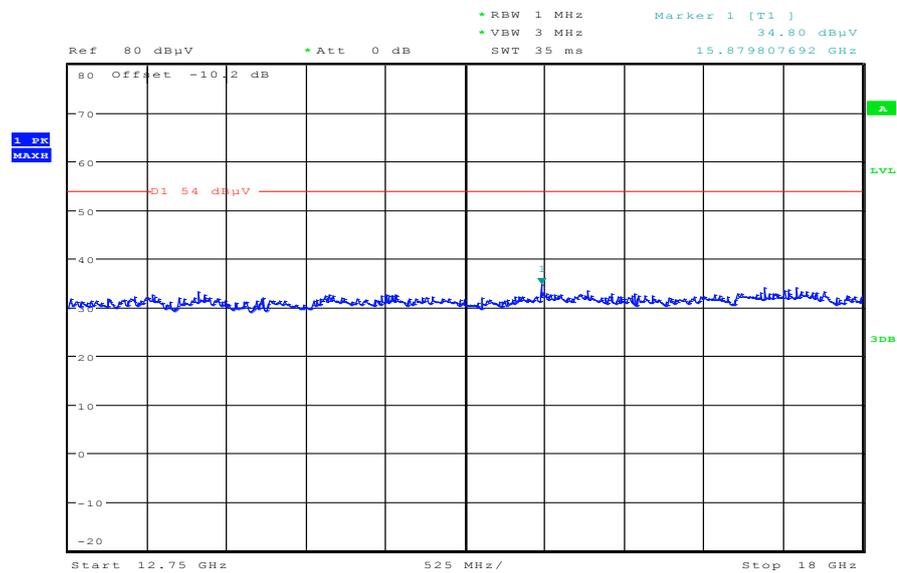
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
38.319000	9.3	1000.0	120.000	143.0	H	88.0	13.3	20.7	30.0	
45.517950	10.7	1000.0	120.000	98.0	V	-9.0	13.3	19.3	30.0	
56.700150	9.6	1000.0	120.000	98.0	H	80.0	12.4	20.4	30.0	
733.455300	20.8	1000.0	120.000	170.0	H	280.0	23.3	15.2	36.0	
837.012450	21.9	1000.0	120.000	170.0	H	260.0	24.4	14.1	36.0	
952.277250	22.7	1000.0	120.000	105.0	V	-10.0	25.4	13.3	36.0	

Plot 42: 1 GHz to 12.75 GHz, 5290 MHz, vertical & horizontal polarization

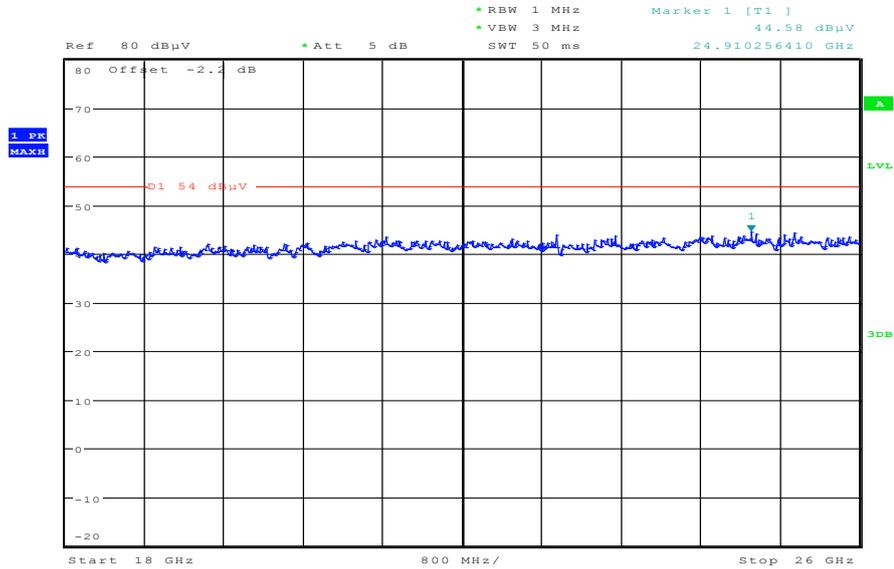


Plot 43: 12.75 GHz to 18 GHz, 5290 MHz, vertical & horizontal polarization



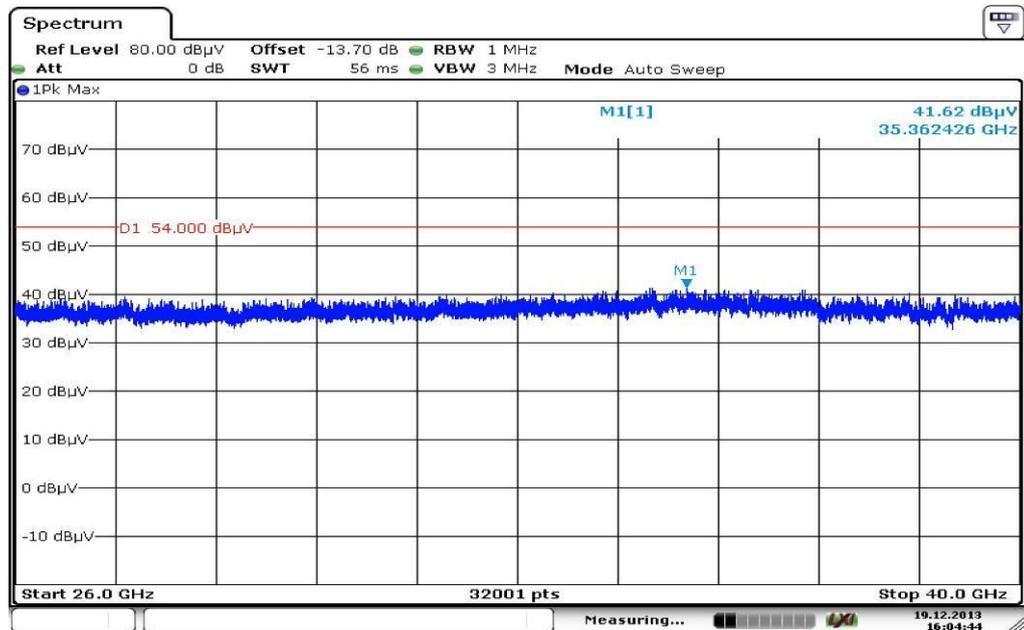
Date: 18.DEC.2013 21:42:28

Plot 44: 18 GHz to 26 GHz, 5290 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:54:14

Plot 45: 26 GHz to 40 GHz, 5290 MHz, vertical & horizontal polarization



Date: 19.DEC.2013 16:04:44

Plot 46: 30 MHz to 1 GHz, 5530 MHz, vertical & horizontal polarization

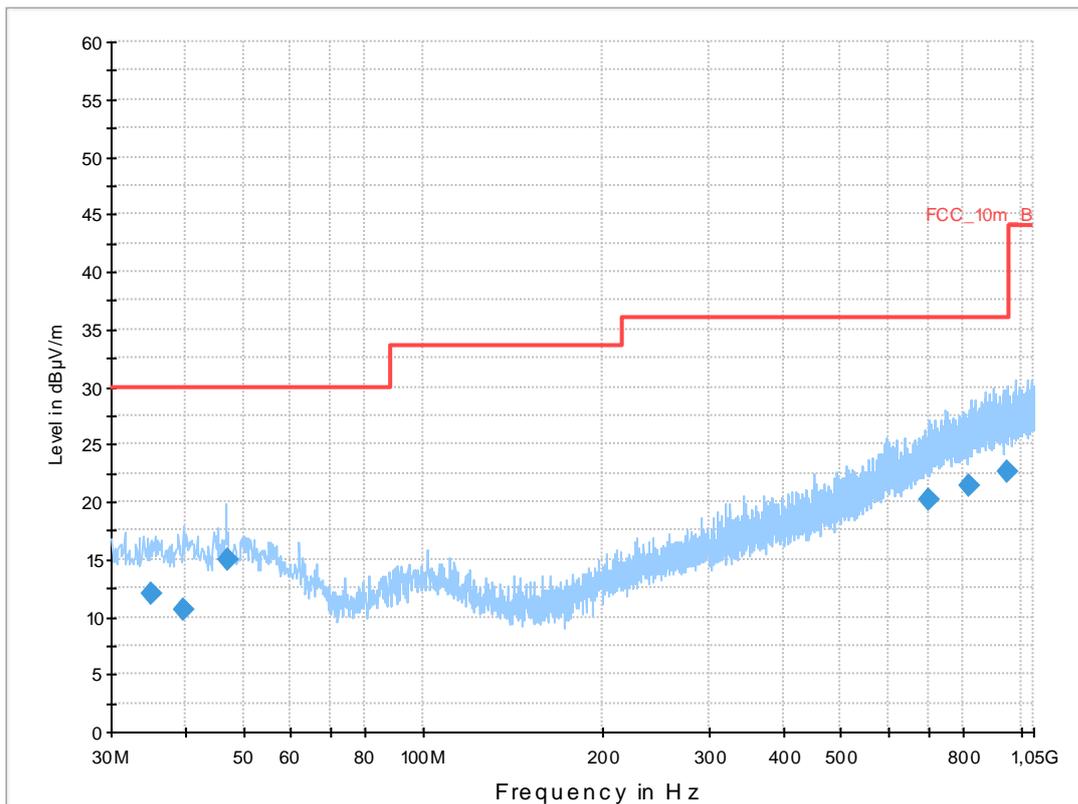
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 106
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

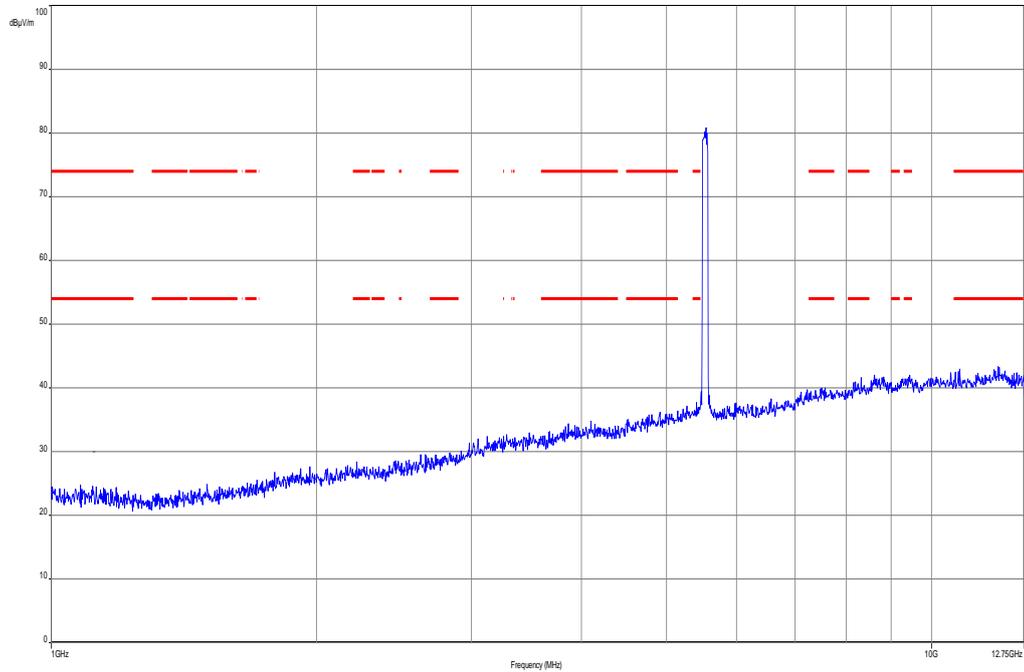
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



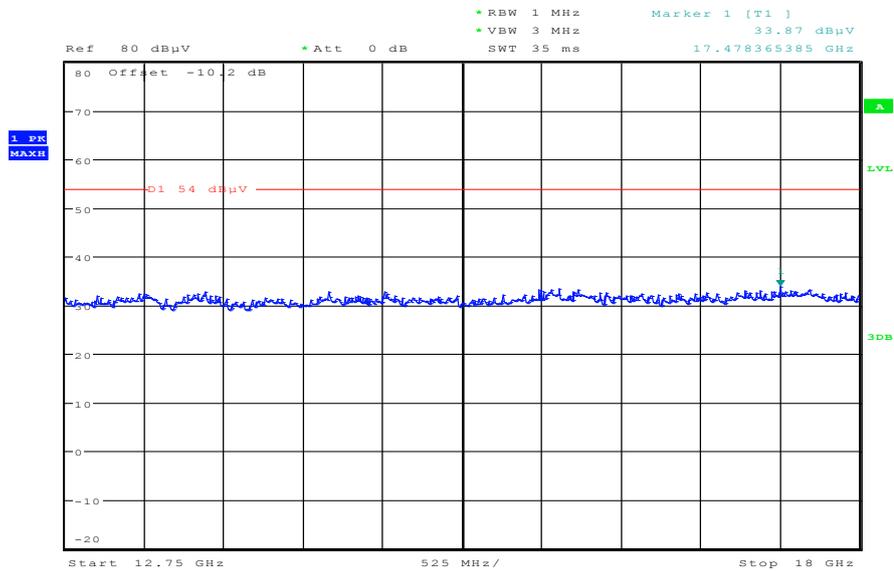
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
35.047950	12.0	1000.0	120.000	170.0	V	280.0	13.0	18.0	30.0	
39.791250	10.7	1000.0	120.000	98.0	V	88.0	13.4	19.3	30.0	
46.999350	15.0	1000.0	120.000	98.0	V	266.0	13.3	15.0	30.0	
702.396900	20.1	1000.0	120.000	155.0	H	10.0	22.6	15.9	36.0	
816.767700	21.4	1000.0	120.000	170.0	V	170.0	24.1	14.6	36.0	
947.930400	22.7	1000.0	120.000	121.0	V	10.0	25.3	13.3	36.0	

Plot 47: 1 GHz to 12.75 GHz, 5530 MHz, vertical & horizontal polarization

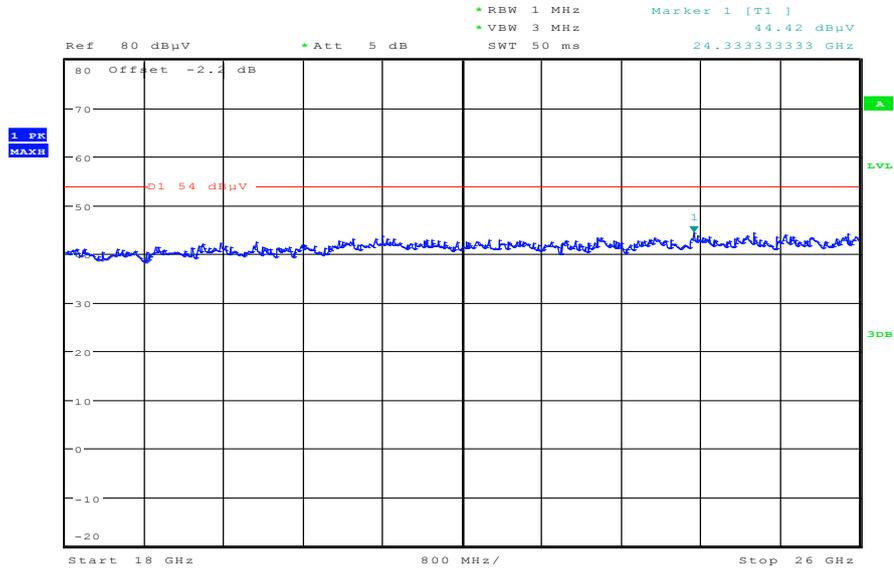


Plot 48: 12.75 GHz to 18 GHz, 5530 MHz, vertical & horizontal polarization



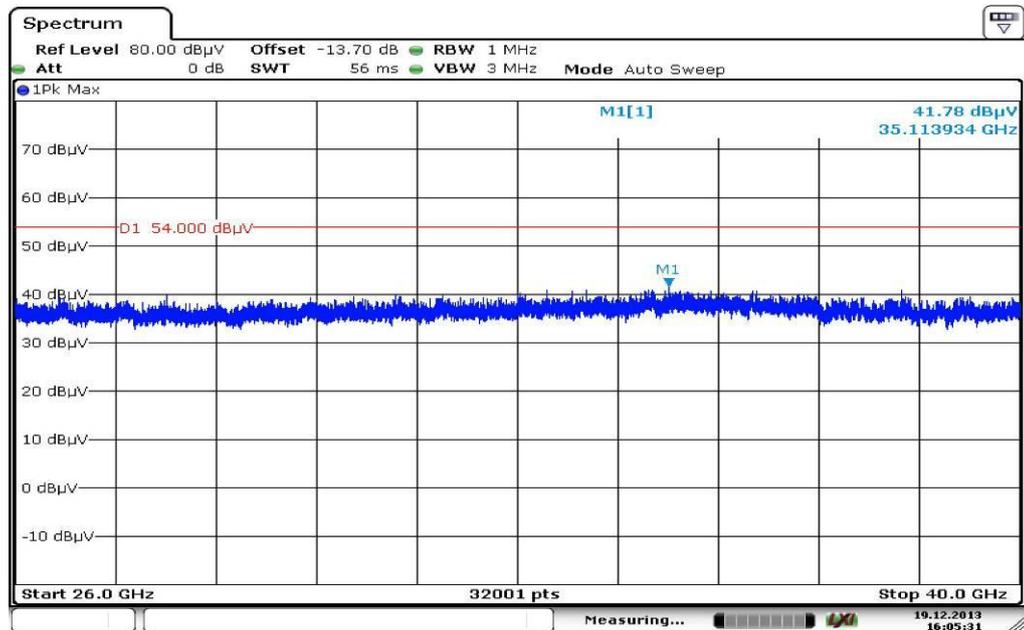
Date: 18.DEC.2013 21:43:13

Plot 49: 18 GHz to 26 GHz, 5530 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:55:04

Plot 50: 26 GHz to 40 GHz, 5530 MHz, vertical & horizontal polarization



Date: 19.DEC.2013 16:05:31

Plot 51: 30 MHz to 1 GHz, 5610 MHz, vertical & horizontal polarization

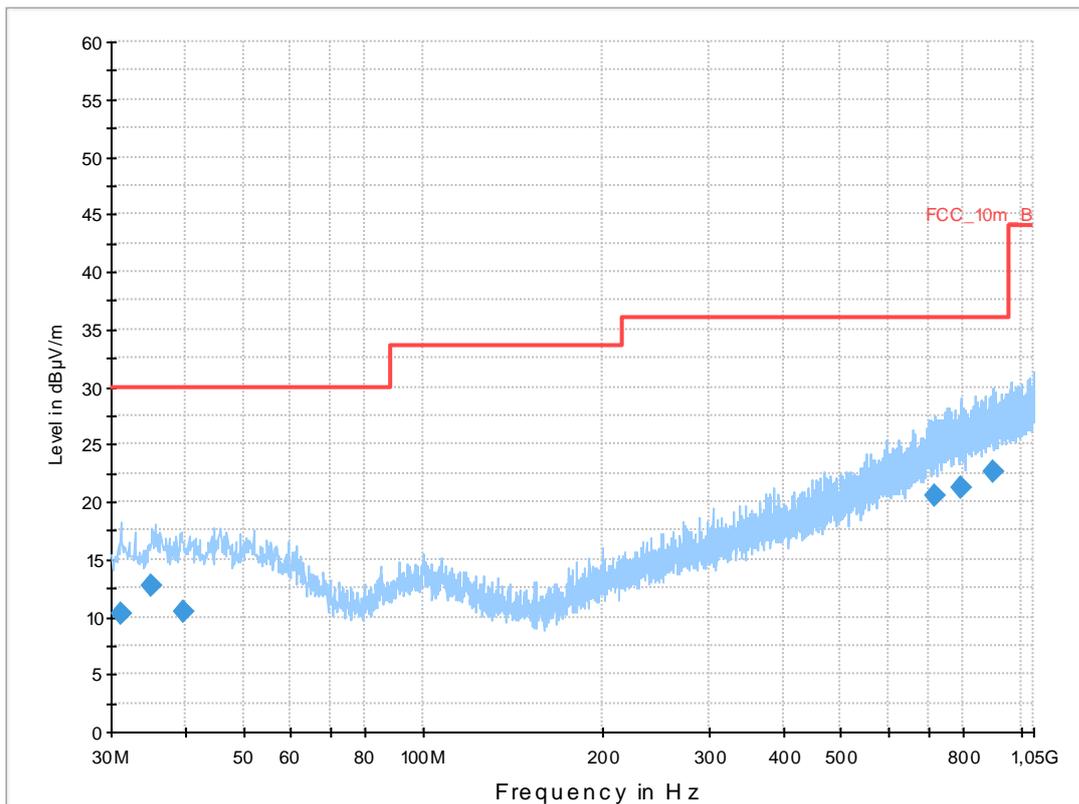
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: w-lan ac-mode (HT80) tx ch 122
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

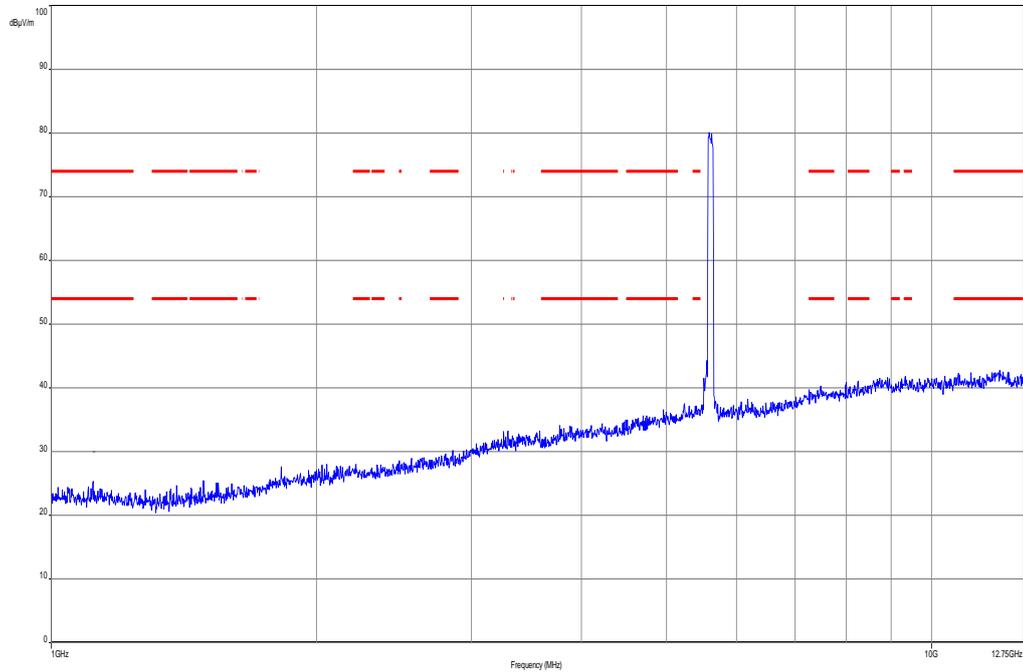
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



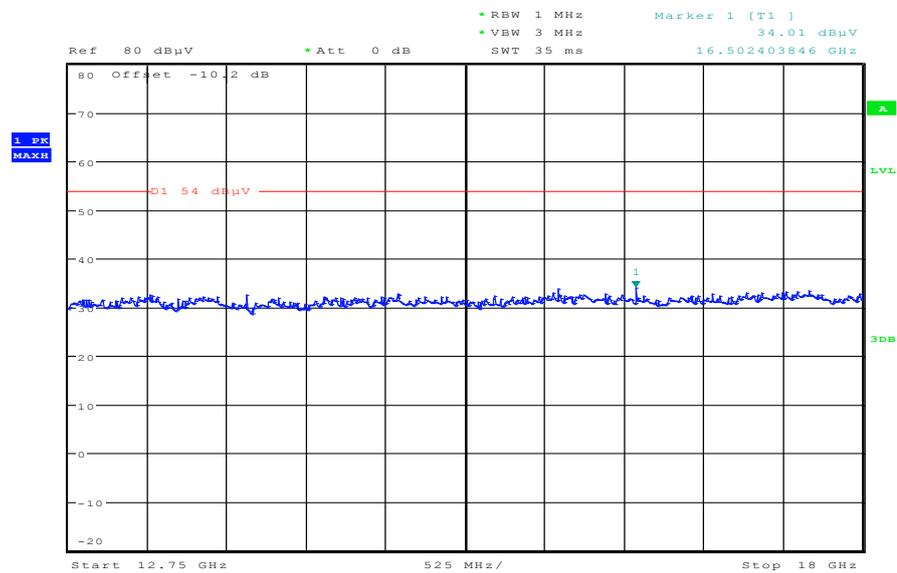
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.222500	10.3	1000.0	120.000	170.0	H	171.0	12.6	19.7	30.0	
35.039850	12.7	1000.0	120.000	98.0	V	3.0	13.0	17.3	30.0	
39.774900	10.4	1000.0	120.000	170.0	H	10.0	13.4	19.6	30.0	
717.913350	20.5	1000.0	120.000	98.0	H	3.0	22.9	15.5	36.0	
794.211900	21.1	1000.0	120.000	170.0	V	177.0	23.8	14.9	36.0	
898.530450	22.6	1000.0	120.000	170.0	H	2.0	25.2	13.4	36.0	

Plot 52: 1 GHz to 12.75 GHz, 5610 MHz, vertical & horizontal polarization

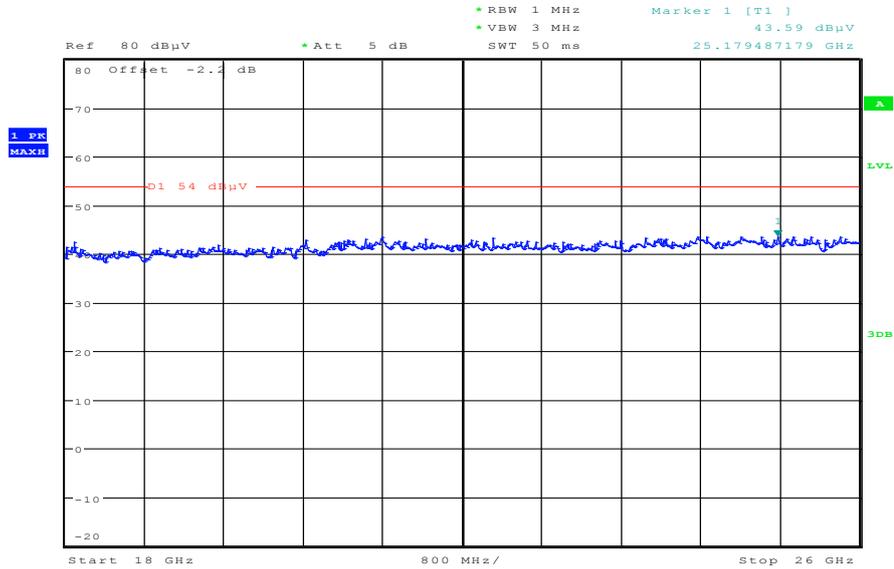


Plot 53: 12.75 GHz to 18 GHz, 5610 MHz, vertical & horizontal polarization



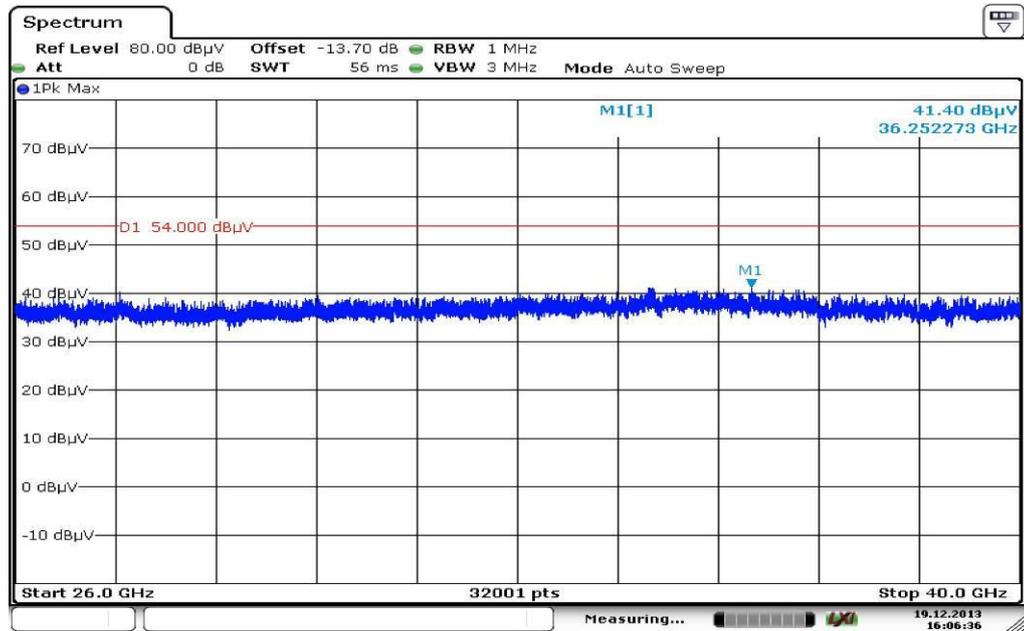
Date: 18.DEC.2013 21:44:50

Plot 54: 18 GHz to 26 GHz, 5610 MHz, vertical & horizontal polarization



Date: 18.DEC.2013 20:55:47

Plot 55: 26 GHz to 40 GHz, 5610 MHz, vertical & horizontal polarization



Date: 19.DEC.2013 16:06:36

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 (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Results:

RX Spurious Emissions Radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected peaks are below the average limit!		
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

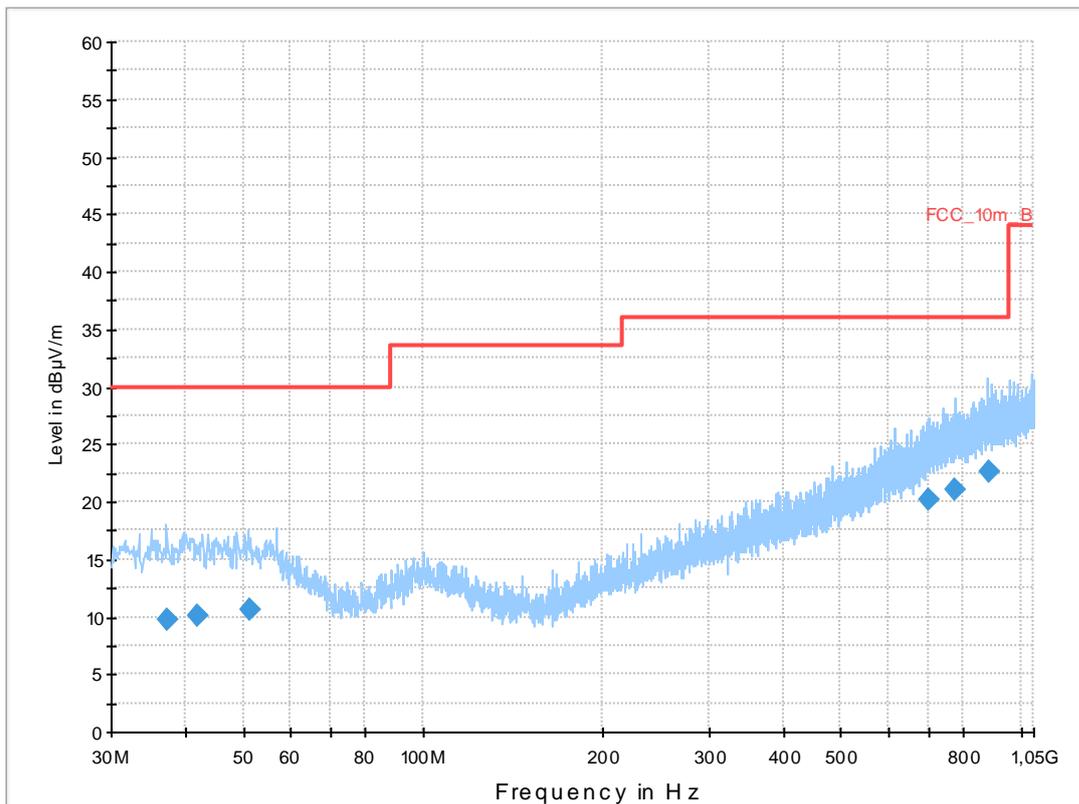
Common Information

EUT: TM-0043-BV
 Serial Number: CB51267QJZ
 Test Description: FCC part 15 class B @ 10 m
 Operating Conditions: RX
 Operator Name: Hennemann
 Comment: battery powered

Scan Setup: STAN_Fin [EMI radiated]

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

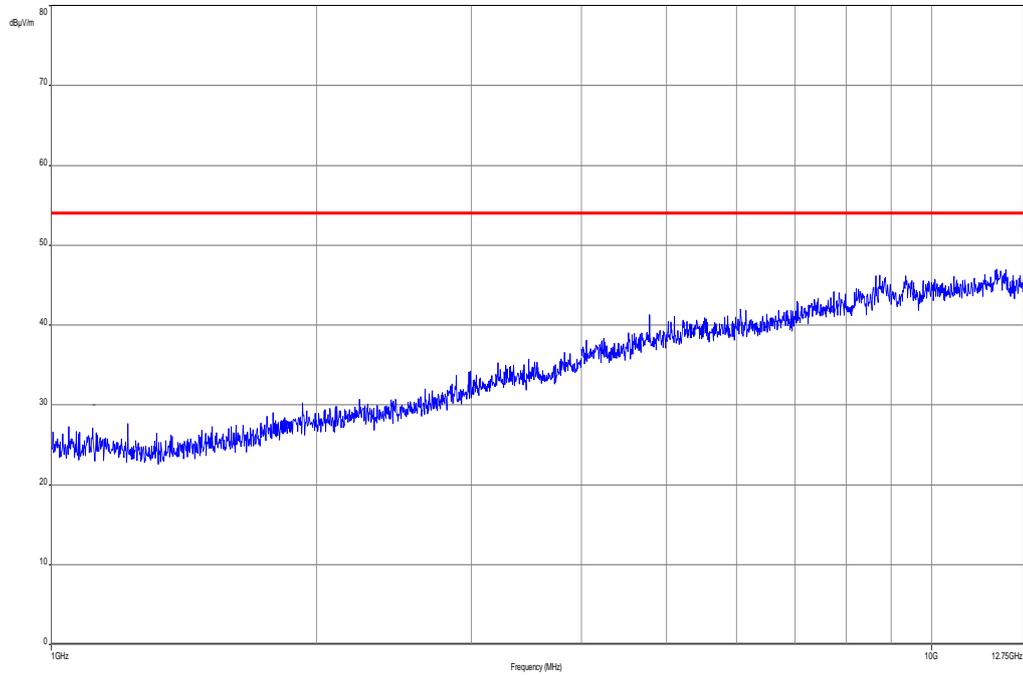
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



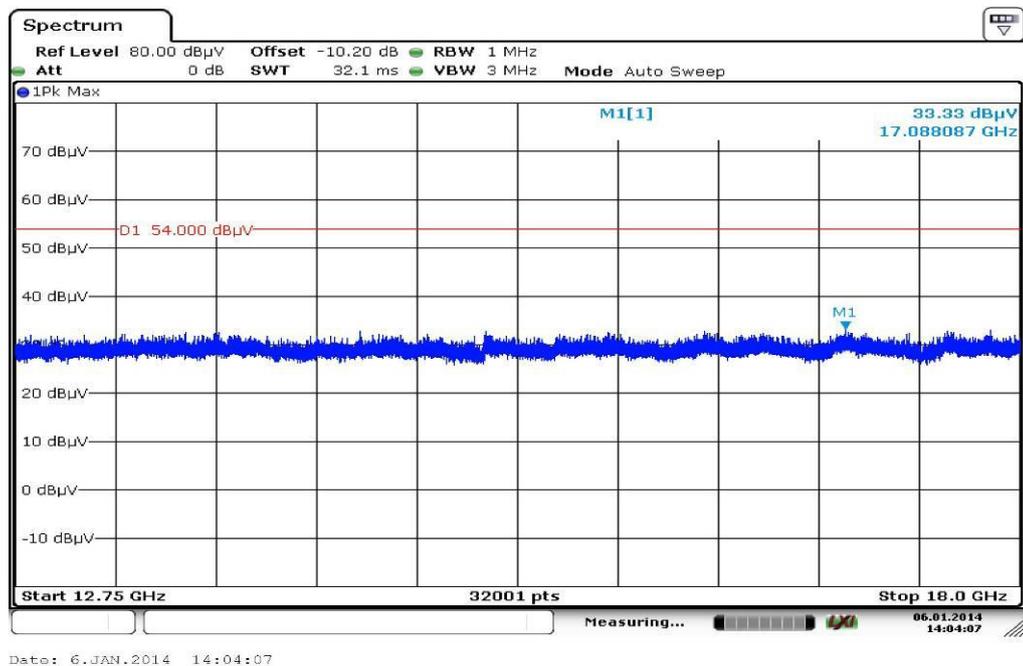
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
37.334700	9.8	1000.0	120.000	105.0	H	92.0	13.2	20.2	30.0	
41.862300	10.1	1000.0	120.000	170.0	H	190.0	13.4	19.9	30.0	
51.233700	10.5	1000.0	120.000	170.0	H	-5.0	13.2	19.5	30.0	
700.044900	20.1	1000.0	120.000	152.0	H	92.0	22.5	15.9	36.0	
775.995150	21.1	1000.0	120.000	98.0	V	272.0	23.7	14.9	36.0	
881.943150	22.6	1000.0	120.000	170.0	V	190.0	25.0	13.4	36.0	

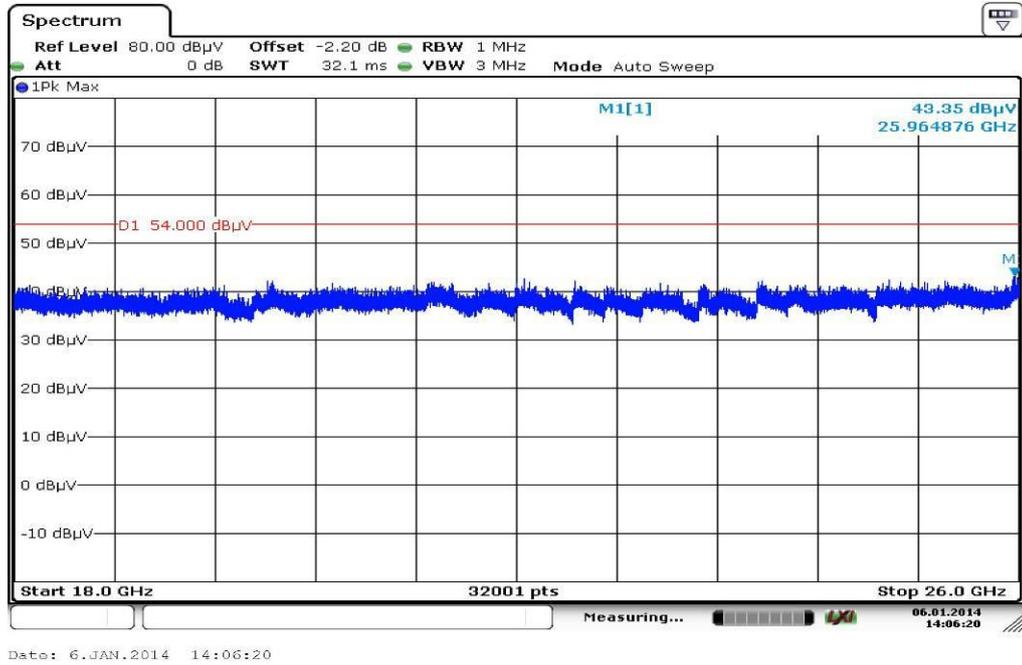
Plot 2: 1 GHz to 12.75 GHz, vertical & horizontal polarization



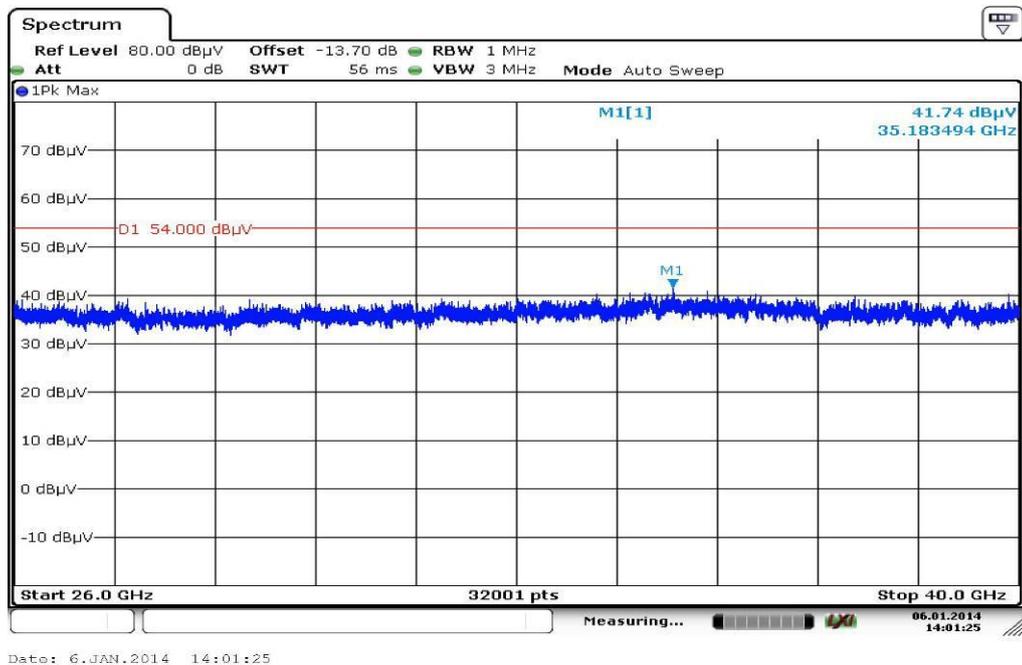
Plot 3: 12.75 GHz to 18 GHz, vertical & horizontal polarization



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



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 (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

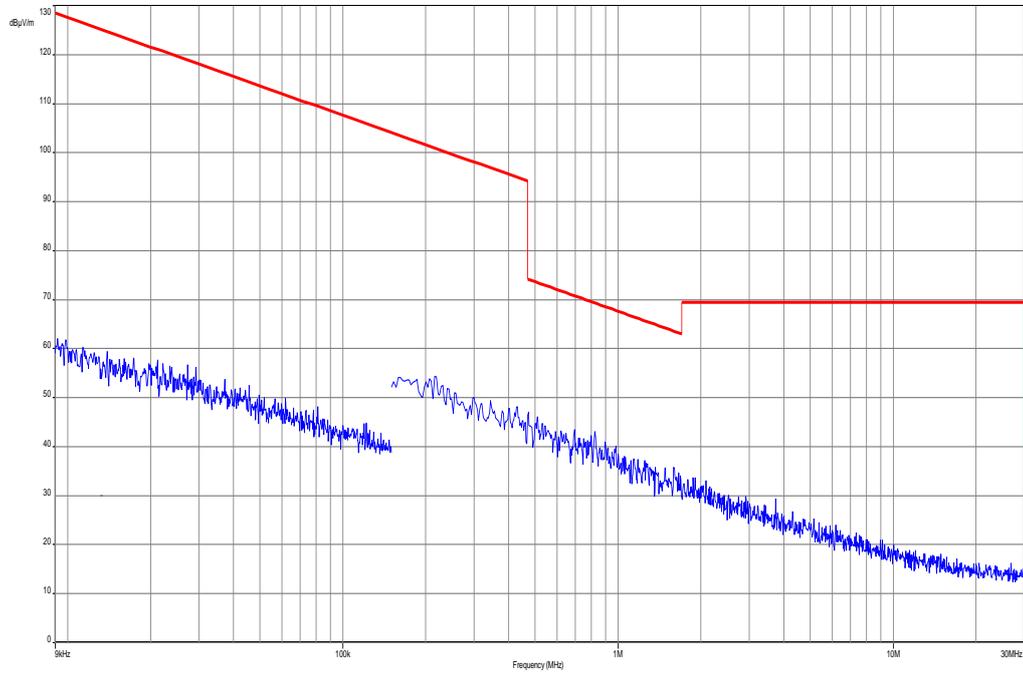
Results:

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

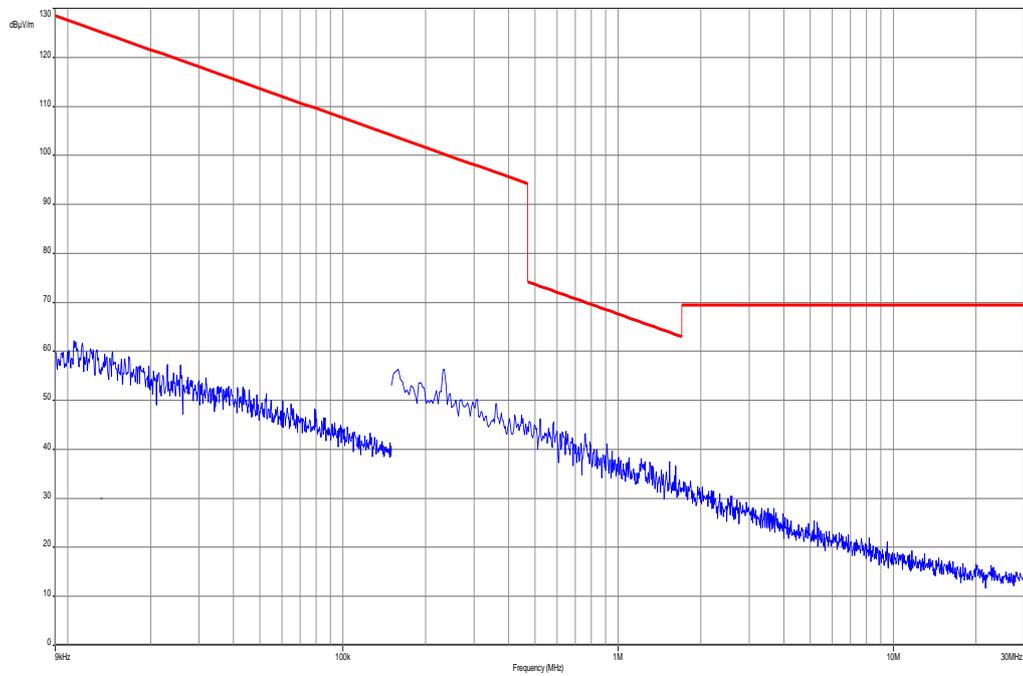
Result: Passed

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

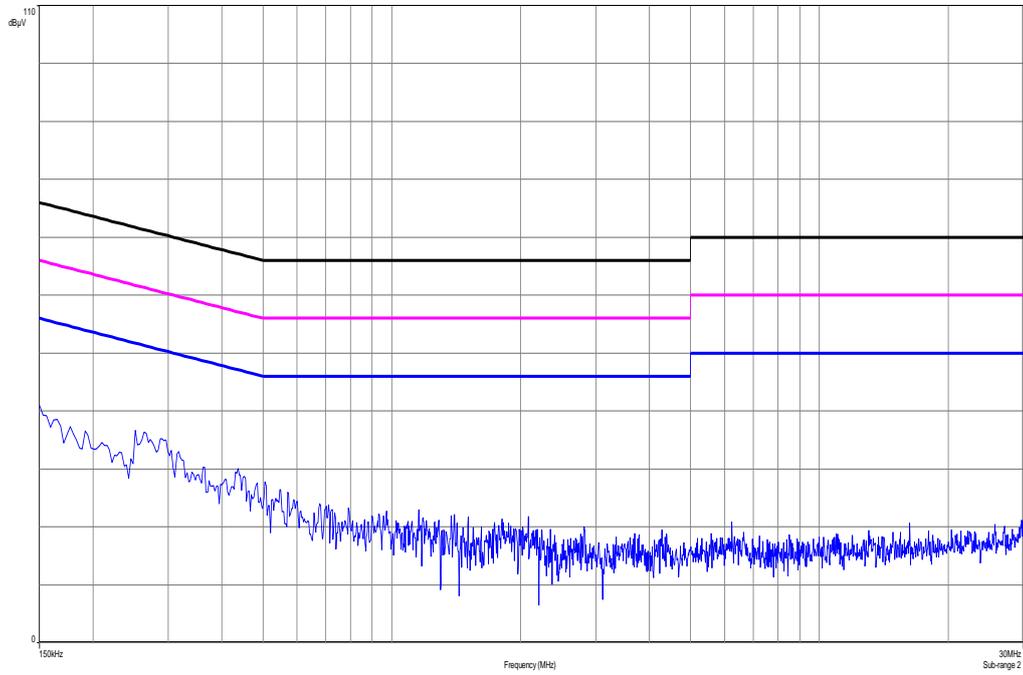
Results:

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

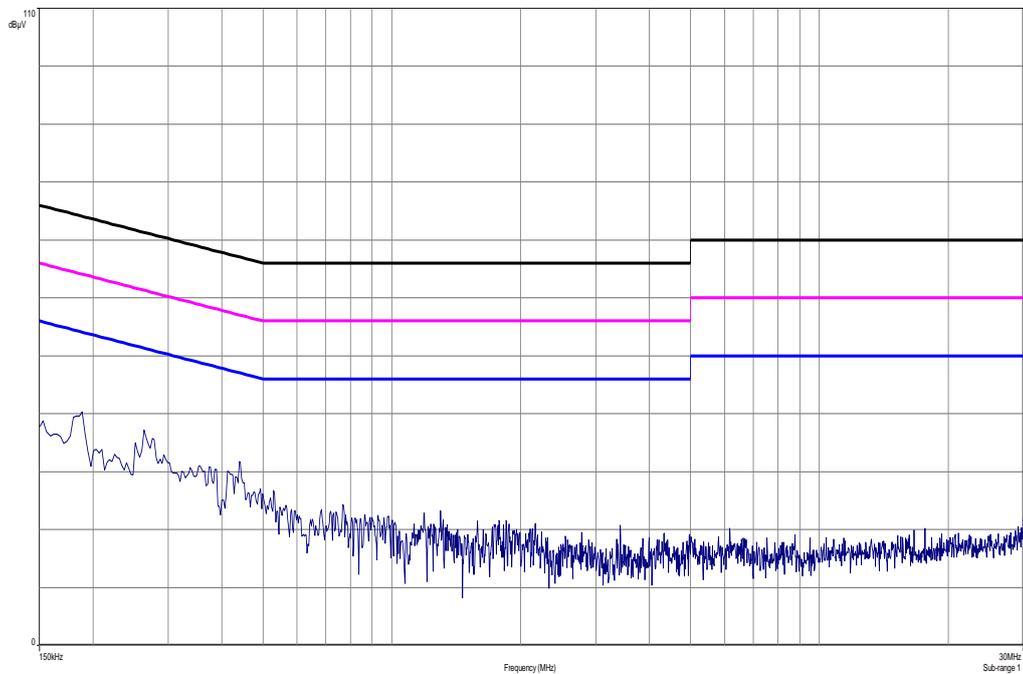
Result: Passed

Plots:

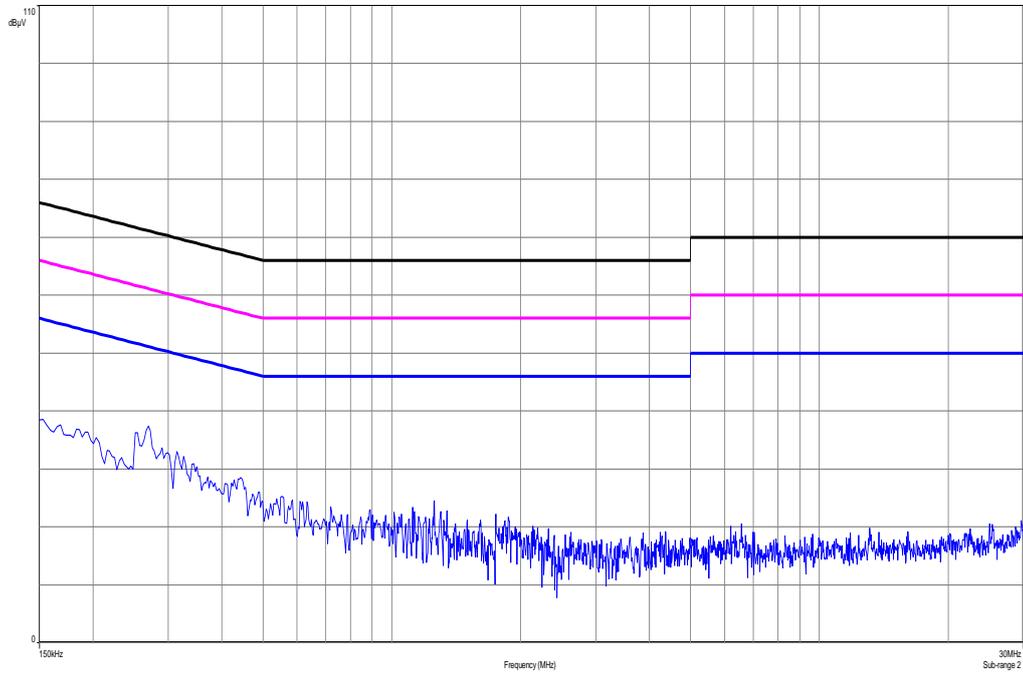
Plot 1: 150 kHz to 30 MHz / phase Line, TX mode



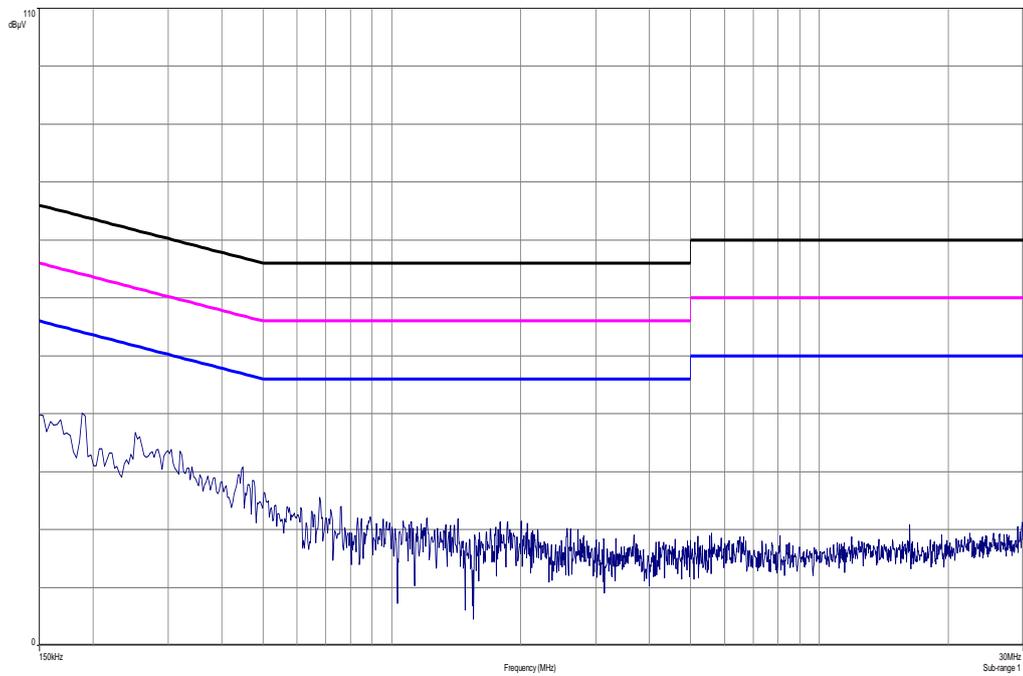
Plot 2: 150 kHz to 30 MHz / neutral Line, TX mode



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 (Labor/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.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B597 9	300000210	ne		
4	n. a.	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	09.01.2013	09.01.2014
5	n. a.	Analyzer- Reference- System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	Ve	14.07.2011	14.01.2014
6	n. a.	Amplifier	JS42- 00502650- 28-5A	MITEQ	1084532	300003379	ev		
7	n. a.	Antenna Tower	Model 2175	ETS- LINDGREN	64762	300003745	izw		
8	n. a.	Positioning Controller	Model 2090	ETS- LINDGREN	64672	300003746	izw		
9	n. a.	Turntable Interface-Box	Model 105637	ETS- LINDGREN	44583	300003747	izw		
10	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbe ck	295	300003787	k	12.04.2012	12.04.2014
11	n. a.	Spectrum- Analyzer	FSU26	R&S	200809	300003874	k	16.01.2013	16.01.2014
12	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vIKI!	08.05.2013	08.05.2015
13	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
14	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	*	300000199	ne		
15	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	2719A15013	300001156	ne		
16	9	Isolating Transformer	MPL IEC625 Bus Regeltrennt ravo	Erfi	91350	300001155	ne		
17	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
18	90	Active Loop Antenna 10 kHz to 30 MHz	6502	Kontron Psychotech	8905-2342	300000256	k	13.06.2013	13.06.2015
19	n. a.	Amplifier	js42- 00502650- 28-5a	Parzich GMBH	928979	300003143	ne		
20	n. a.	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologi es	MY51210197	300004405	k	21.02.2013	21.02.2014
21	11b	Microwave System Amplifier, 0.5- 26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
22	A026	Std. Gain Horn Antenna 12.4 to	639	Narda	8402	300000787	k	22.07.2013	22.07.2015

		18.0 GHz							
23	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda	8205	300002442	k	19.07.2013	19.07.2015
24	A031	Std. Gain Horn Antenna 26.5 to 40.0 GHz	637	Narda		300000510	k	19.07.2013	19.07.2015
25	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	Ve	09.10.2012	09.10.2014
26	n. a.	Broadband Low Noise Amplifier 18-50 GHz	CBL18503 070-XX	CERNEX	19338	300004273	ne		
27	n. a.	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	22.10.2012	22.01.2014

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
vk!!	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
1.0	Initial release	2014-01-23

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

DAkKS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

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

Akkreditierung

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

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

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

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

Die Akkreditierungskunde gilt nur in Verbindung mit dem Bescheid vom 18.01.2013 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig 17.01.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 80 Seiten.

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

Frankfurt am Main, 18.01.2013

Im Auftrag
Dirk von Pöhl, Abteilungsleiter

Back side of certificate

Deutsche Akkreditierungsstelle GmbH

Standort Berlin Spittelmarkt 10 10117 Berlin	Standort Frankfurt am Main Gartenstraße 6 60594 Frankfurt am Main	Standort Braunschweig Rundesalle 100 38116 Braunschweig
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Die auszugsweise Veröffentlichung der Akkreditierungskunde bedarf der vorherigen schriftlichen Zustimmung der Deutsche Akkreditierungsstelle GmbH (DAkKS). Ausgenommen davon ist die separate Weiterverbreitung des Deckblatts durch die umseitig genannte Konformitätsbewertungsstelle in unveränderter Form.

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

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

Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

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>