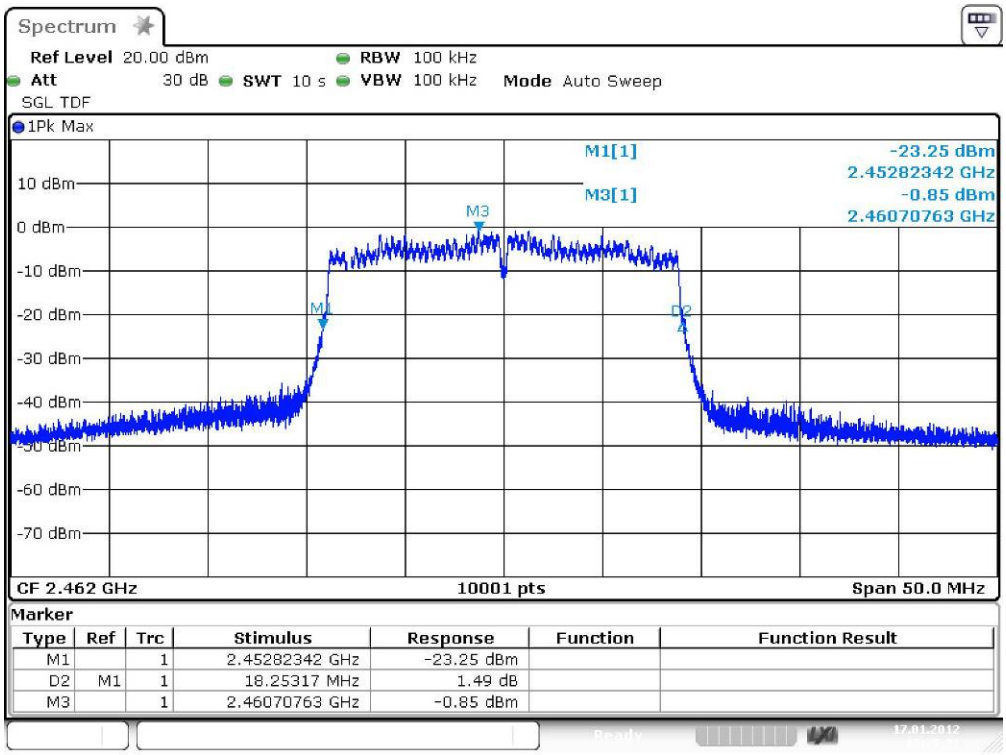
Plot 3: TX mode, highest channel, 20 dB bandwidth



9.7 Band edge compliance conducted

Description:

Measurement of the conducted band edge compliance. EUT is measured at the lower and upper band edge in both modes.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	500 kHz
Resolution bandwidth:	100 kHz
Span:	Lower Band Edge: 2300 – 2425 MHz Upper Band Edge: 2450 – 2500 MHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.247 (d)	RSS 210, Issue 8, A 8.5
Band Edge Compliance Conducted	
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.	

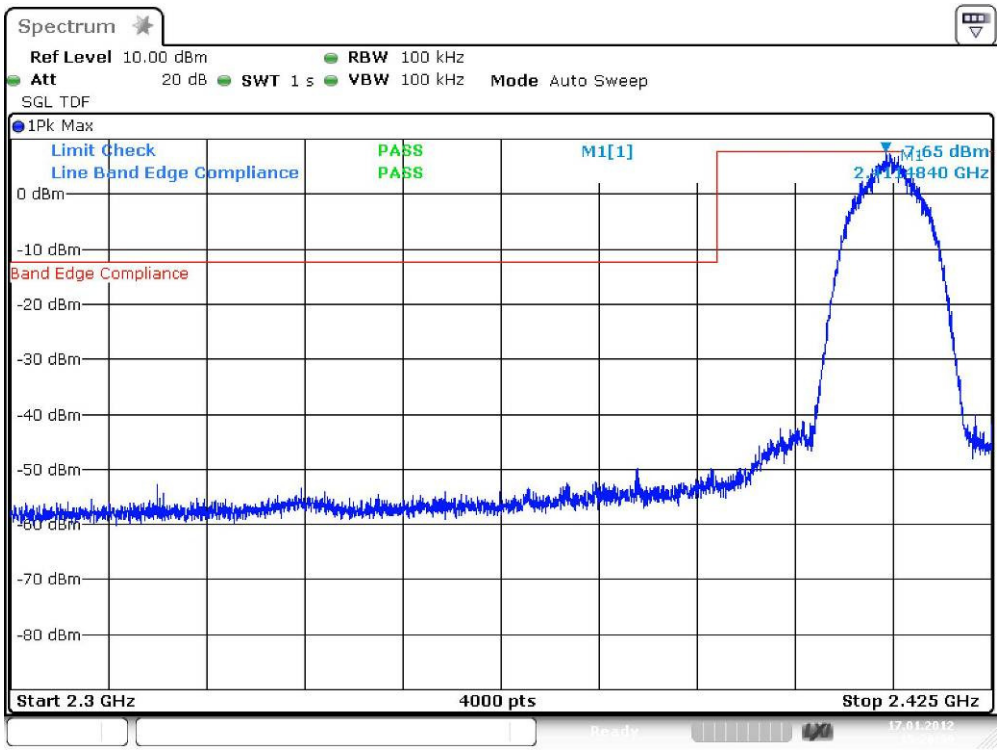
Results:

Scenario Modulation	Band Edge Compliance Conducted [dB]		
	DSSS / b – mode	OFDM / g – mode	OFDM / n – mode
Lower Band Edge – Channel 1	> 20 dB (see plot 1)	> 20 dB (see plot 3)	> 20 dB (see plot 5)
Upper Band Edge – Channel 11	> 20 dB (see plot 2)	> 20 dB (see plot 4)	> 20 dB (see plot 6)
Measurement uncertainty	± 1.5 dB		

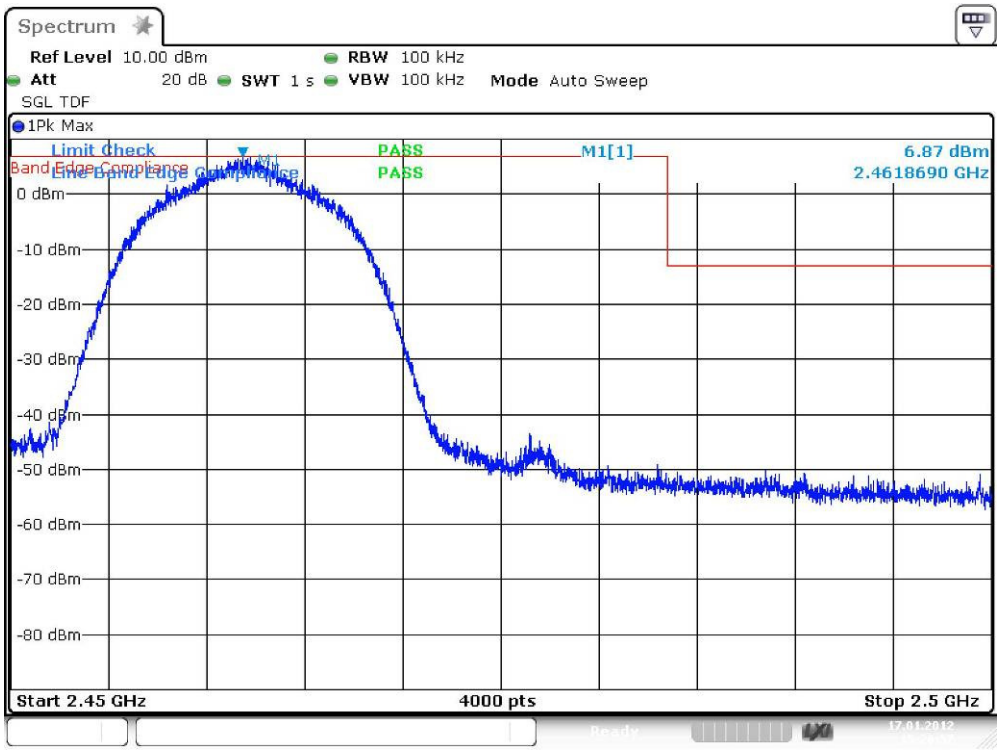
Result: **The result of the measurement is passed.**

Plots: DSSS / b – mode

Plot 1: TX mode, lower band edge

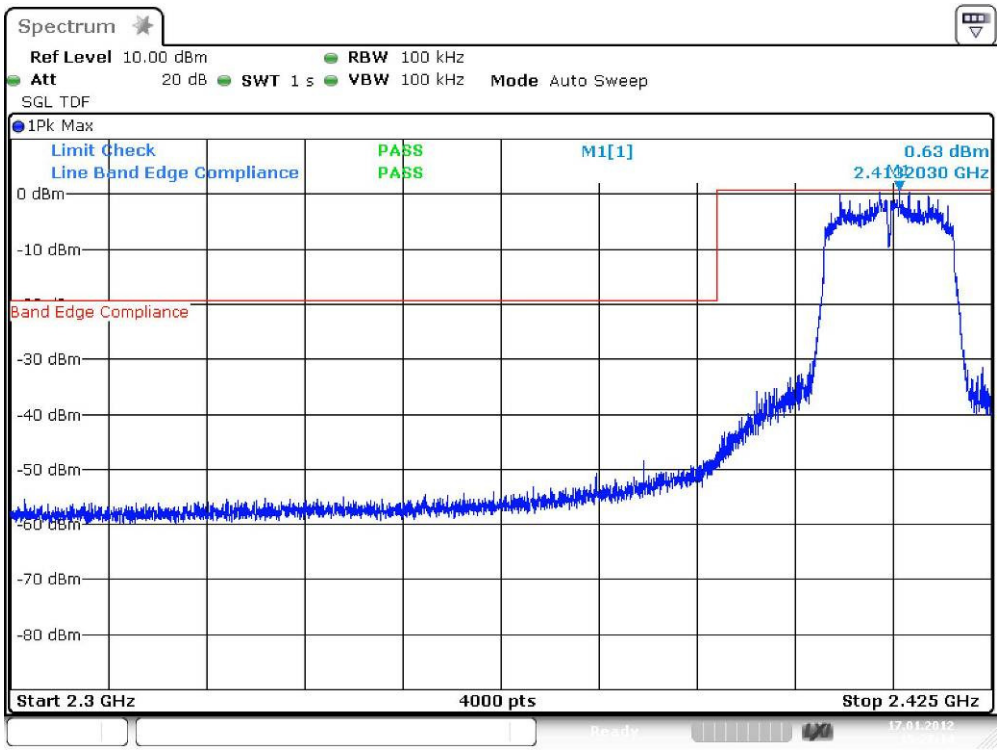


Plot 2: TX mode, upper band edge

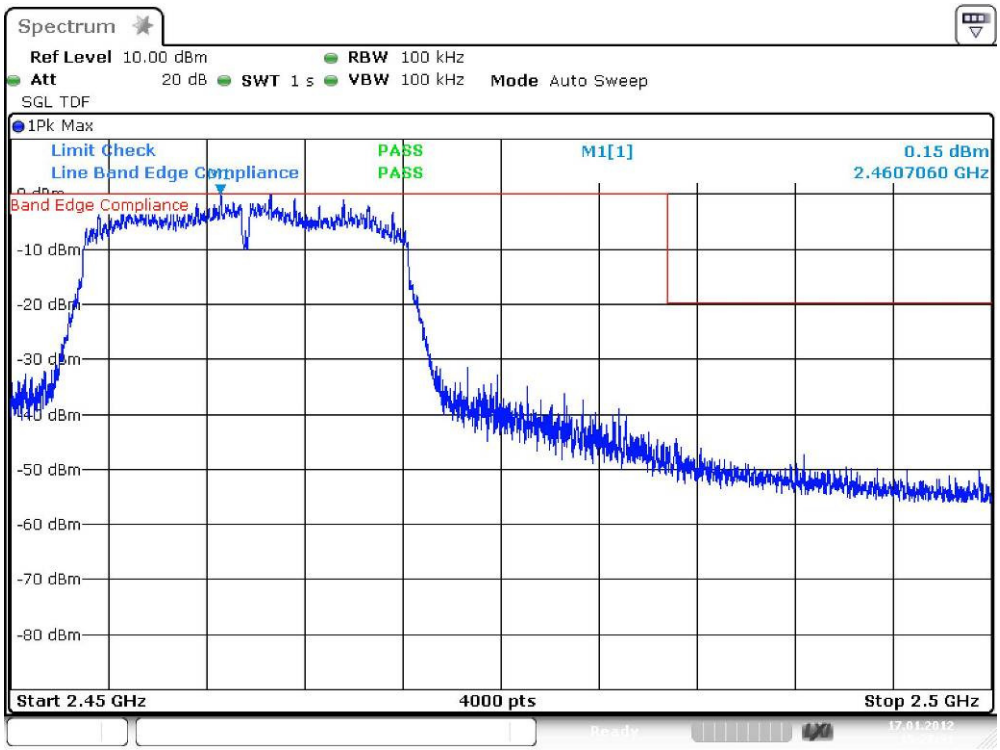


Plots: OFDM / g – mode

Plot 1: TX mode, lower band edge

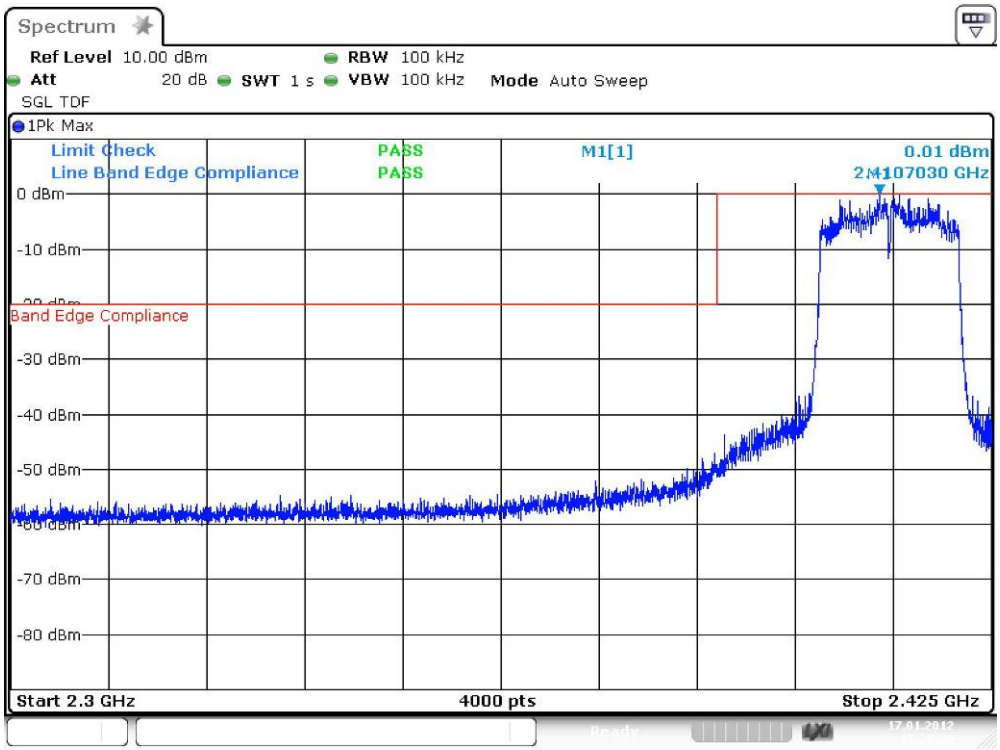


Plot 2: TX mode, upper band edge

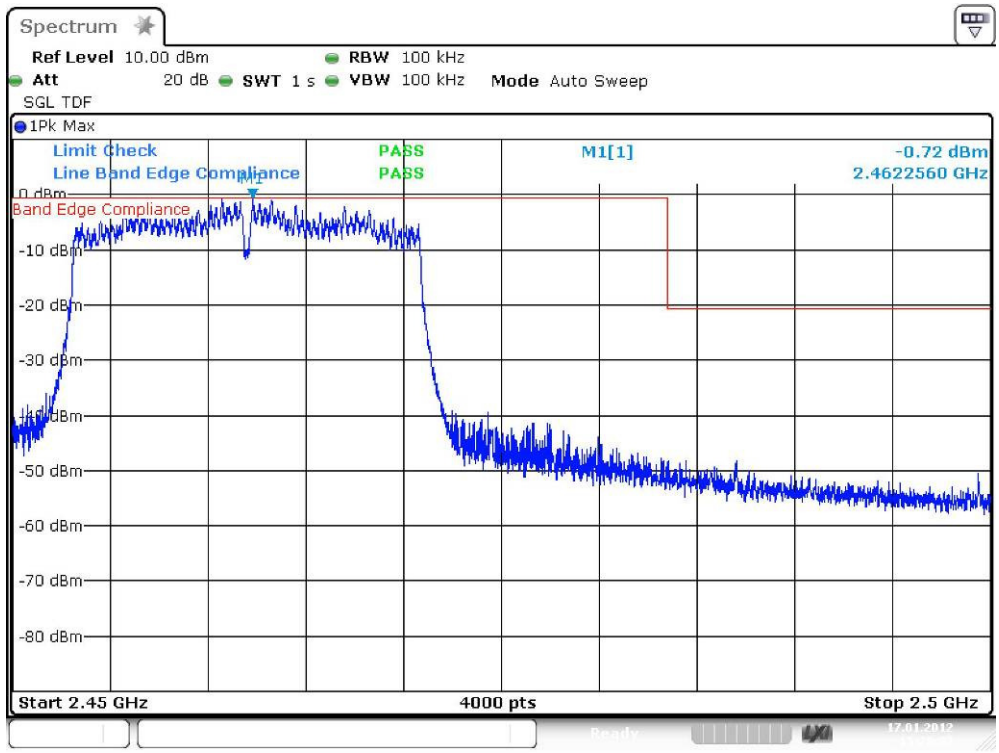


Plots: OFDM / n – mode

Plot 1: TX mode, lower band edge



Plot 2: TX mode, upper band edge



9.8 Band edge compliance radiated

Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to channel 1 for the lower restricted band and to channel 11 for the upper restricted band. The measurement is repeated for all modulations. Measurement distance is 3m.

Measurement:

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

Limits:

FCC	IC
CFR Part 15.205	RSS 210, Issue 8, A 8.5
Band Edge Compliance Radiated	
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).	
54 dBµV/m AVG	

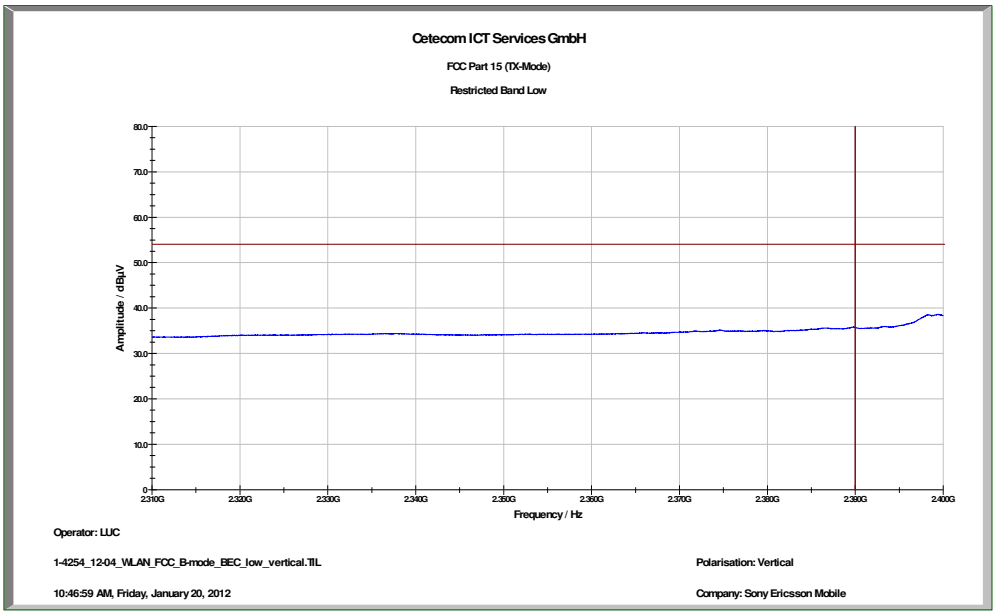
Results:

Scenario	Band Edge Compliance Conducted [dB]		
Modulation	DSSS / b – mode	OFDM / g – mode	OFDM / n – mode
Lower Band Edge – Channel 1	> 10 dB	> 10 dB	> 10 dB
Upper Band Edge – Channel 11	> 10 dB	> 10 dB	> 10 dB
Measurement uncertainty	± 3 dB		

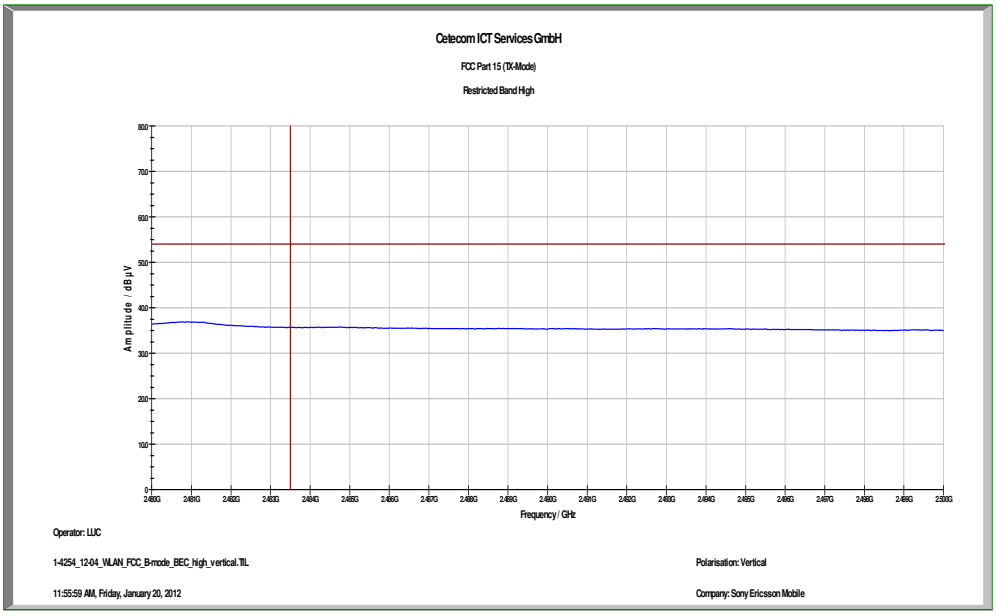
Result: **The result of the measurement is passed.**

Plots: DSSS / b – mode

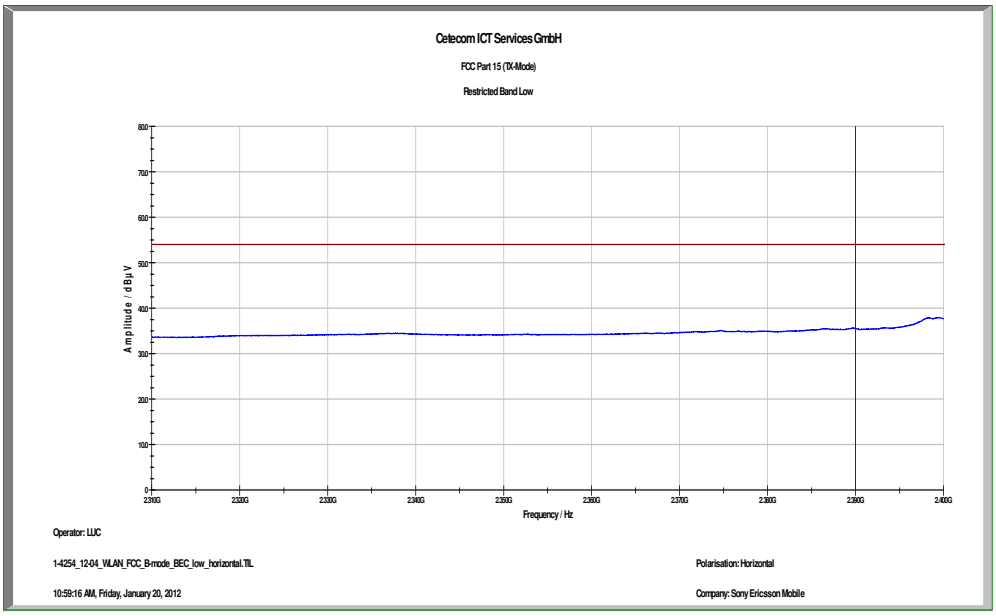
Plot 1: TX mode, lower band edge, vertical polarization



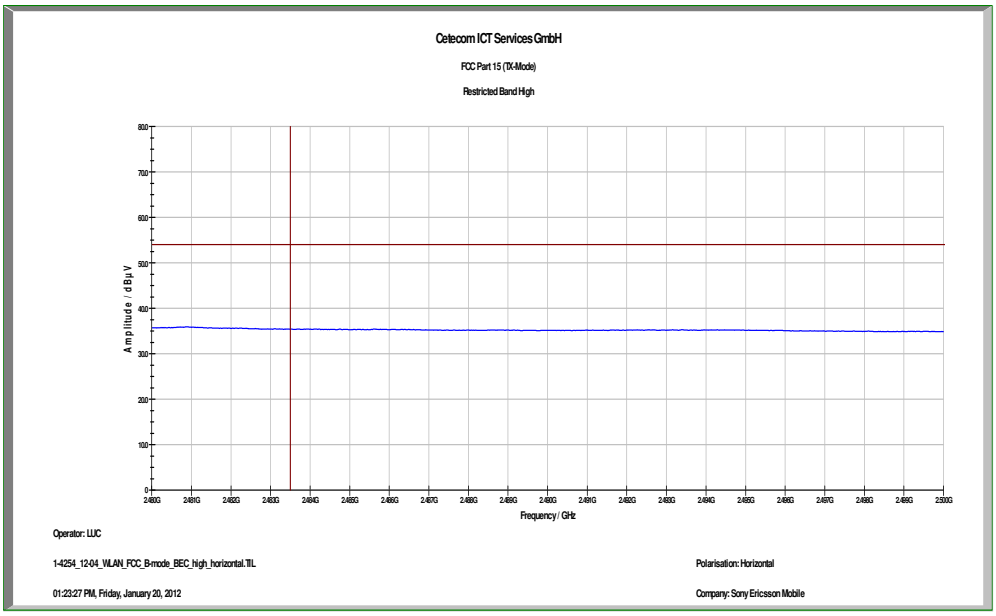
Plot 2: TX mode, upper band edge, vertical polarization



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

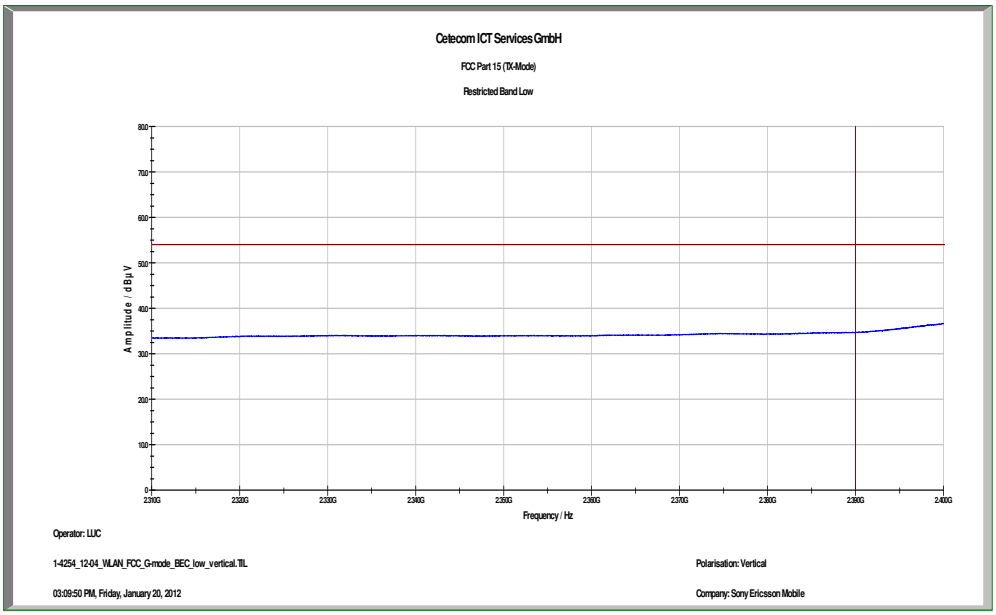


Plot 4: TX mode, upper band edge, horizontal polarization

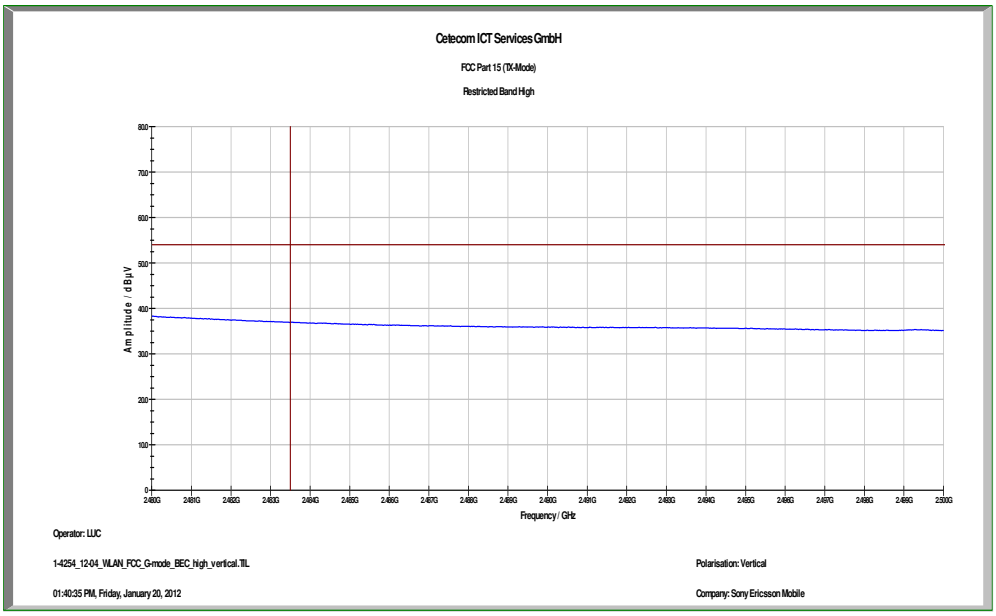


Plots: OFDM / g – mode

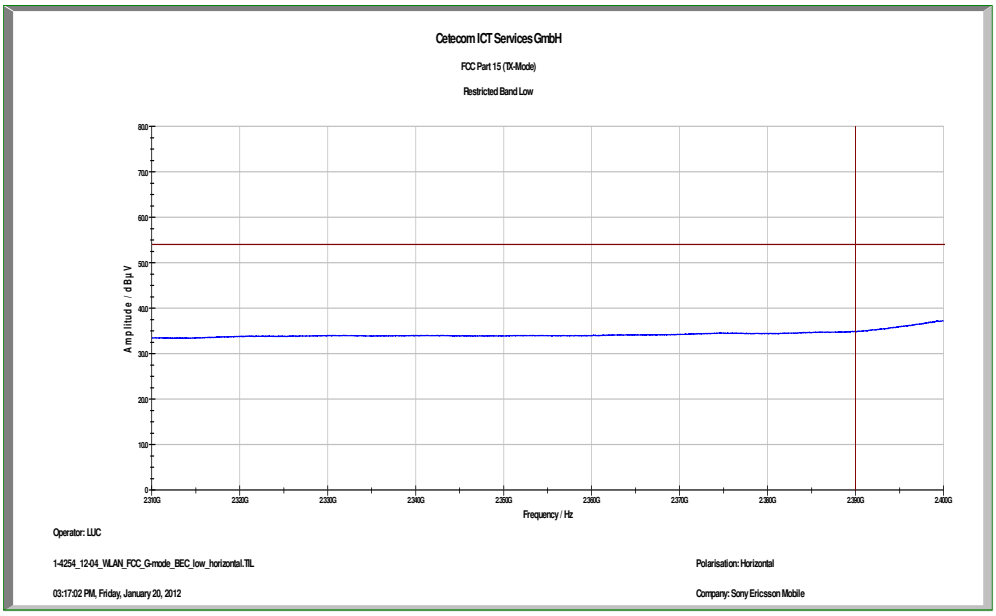
Plot 1: TX mode, lower band edge, vertical polarization



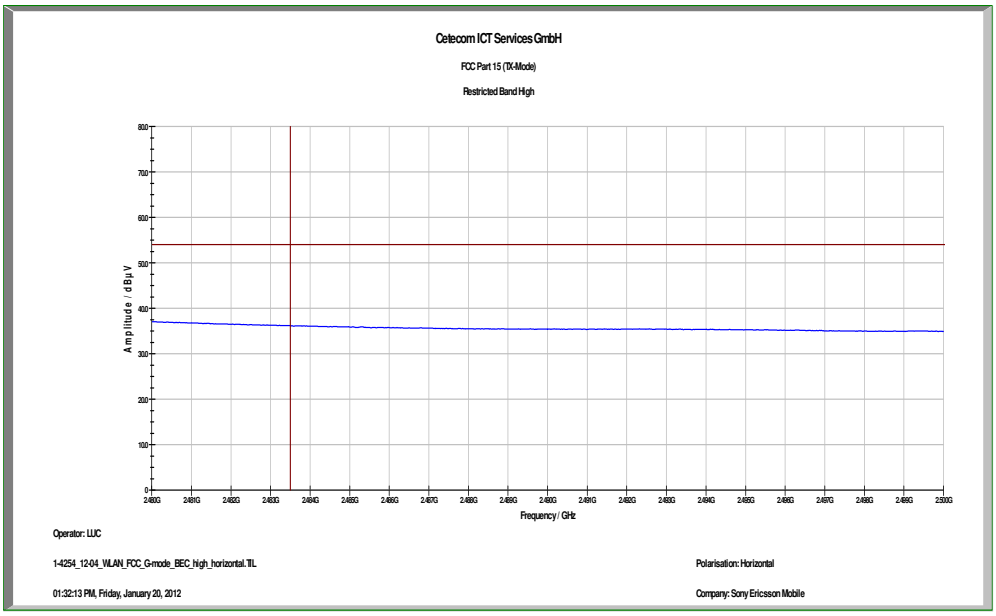
Plot 2: TX mode, upper band edge, vertical polarization



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

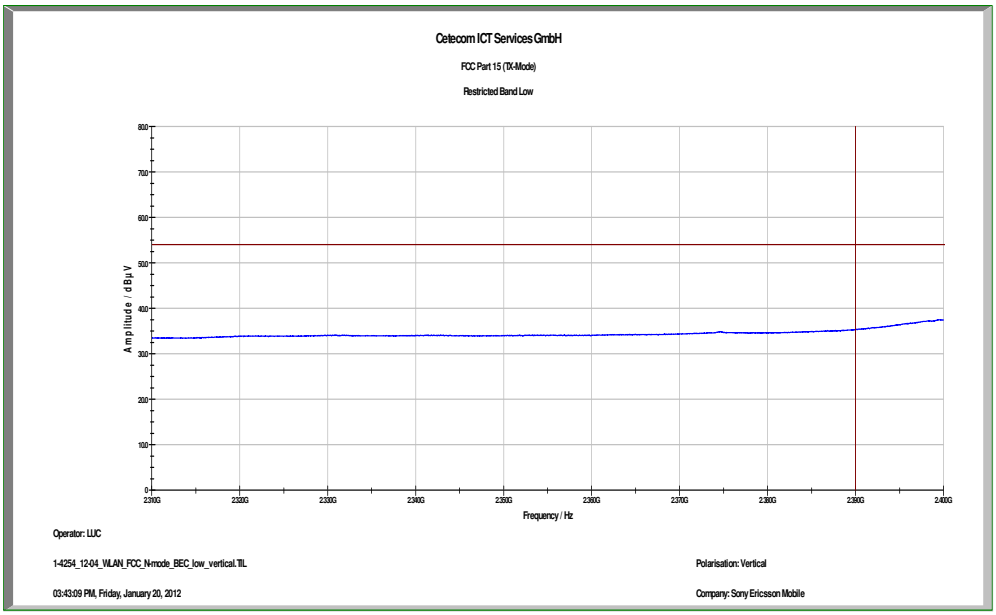


Plot 4: TX mode, upper band edge, horizontal polarization

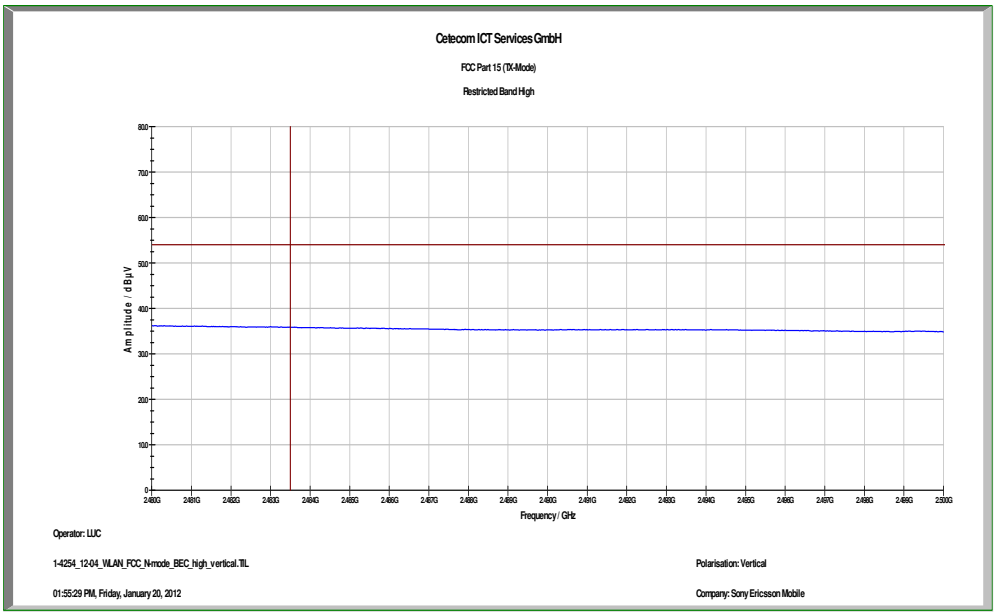


Plots: OFDM / n – mode

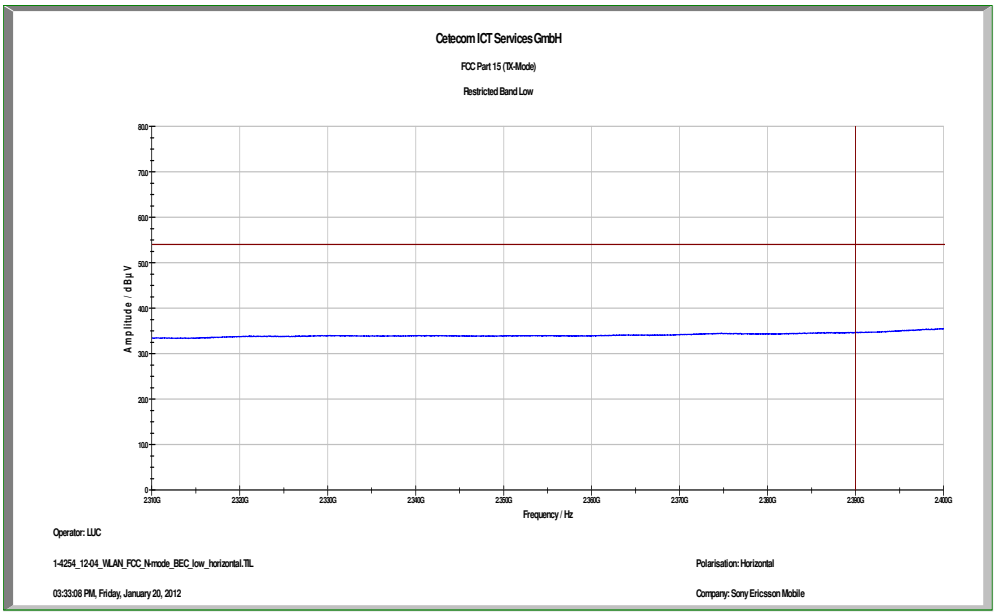
Plot 1: TX mode, lower band edge, vertical polarization



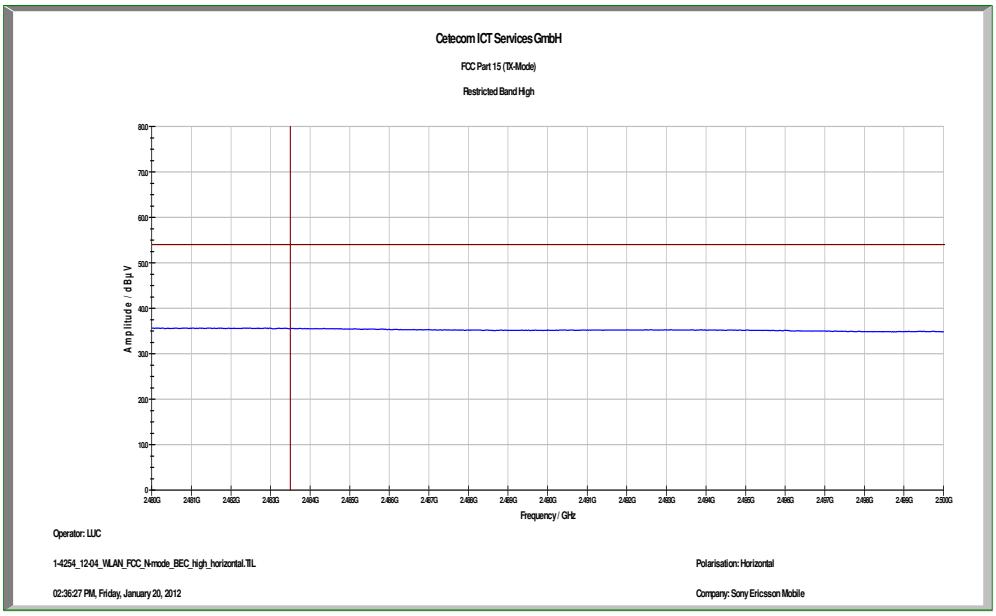
Plot 2: TX mode, upper band edge, vertical polarization



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



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



9.9 TX spurious emissions conducted

Description:

Measurement of the conducted spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 100 kHz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 100 kHz
Span:	9 kHz to 25 GHz
Trace-Mode:	Max Hold

Limits:

FCC	IC
CFR Part 15.247(d)	RSS 210, Issue 8, A 8.5
TX Spurious Emissions Conducted	
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	

Results: DSSS / b – mode

TX Spurious Emissions Conducted					
DSSS - mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		7.57	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2437		7.57	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2462		7.52	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
Measurement uncertainty		± 3 dB			

Result: **The result of the measurement is passed.**

Results: OFDM / g – mode

TX Spurious Emissions Conducted					
OFDM - mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		1.74	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2437		1.74	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2462		0.82	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
Measurement uncertainty		± 3 dB			

Result: **The result of the measurement is passed.**

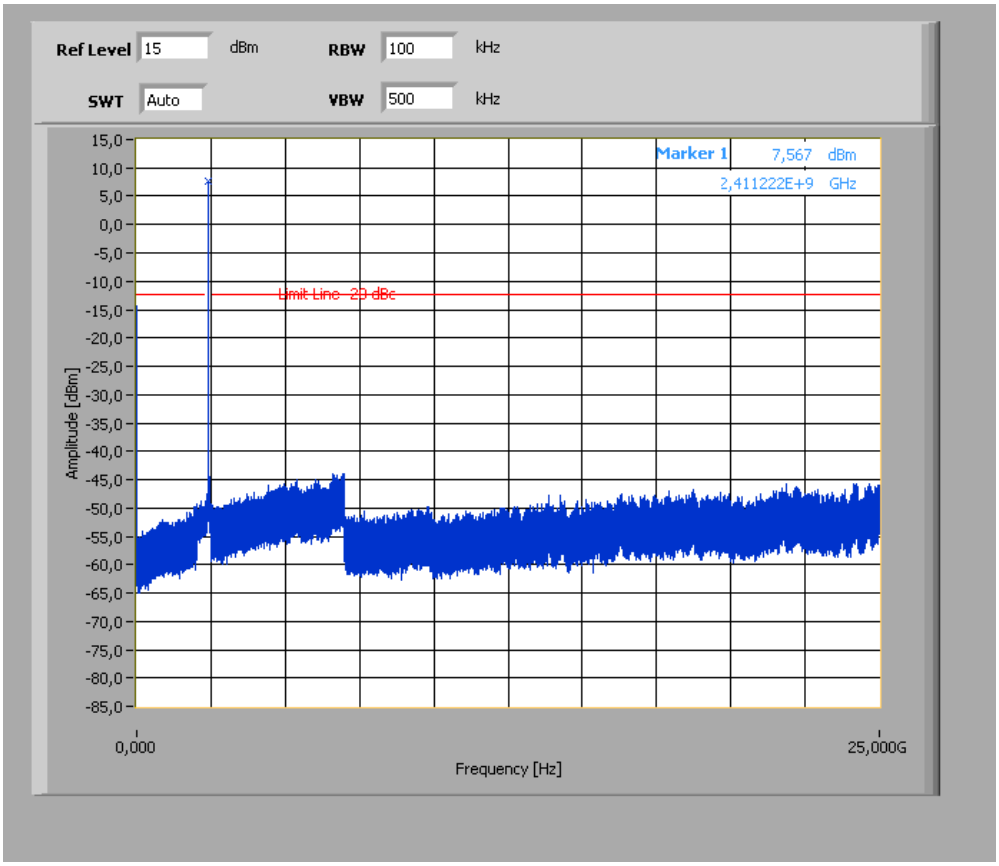
Results: OFDM / n – mode

TX Spurious Emissions Conducted					
OFDM - mode					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
2412		0.85	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2437		0.85	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
2462		0.03	30 dBm		Operating frequency
No critical peaks found			-20 dBc		complies
Measurement uncertainty		± 3 dB			

Result: **The result of the measurement is passed.**

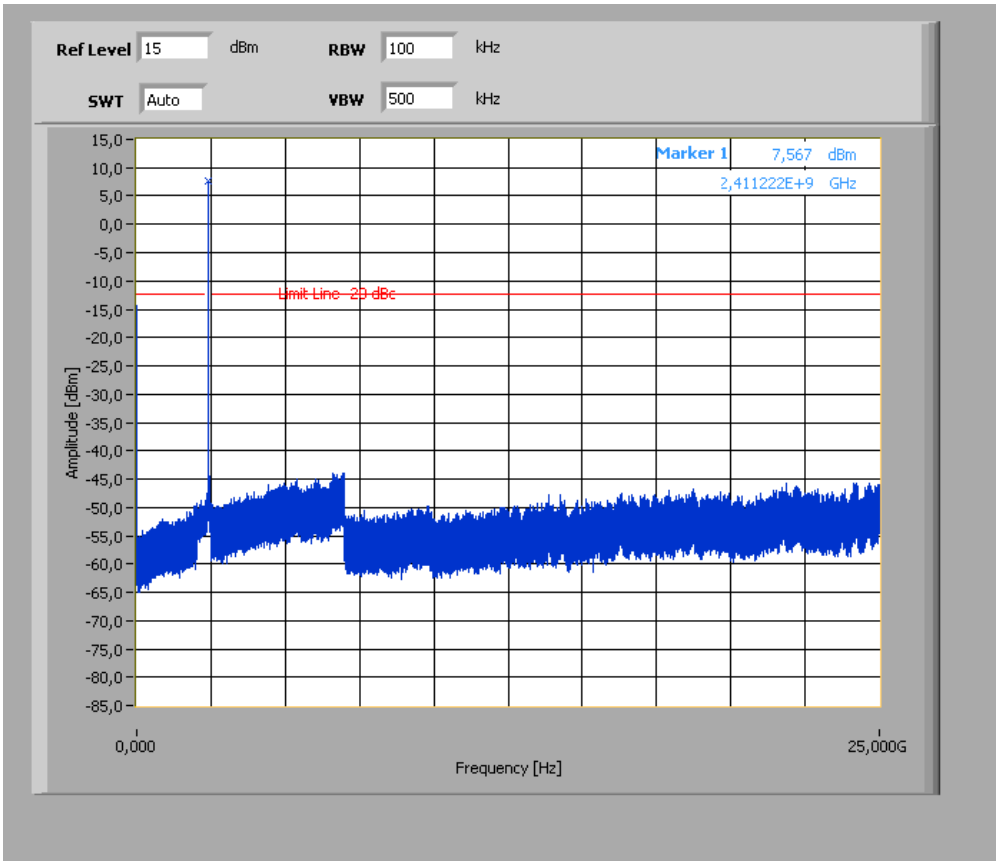
Plots: DSSS / b – mode

Plot 1: TX mode, lowest channel, up to 25 GHz



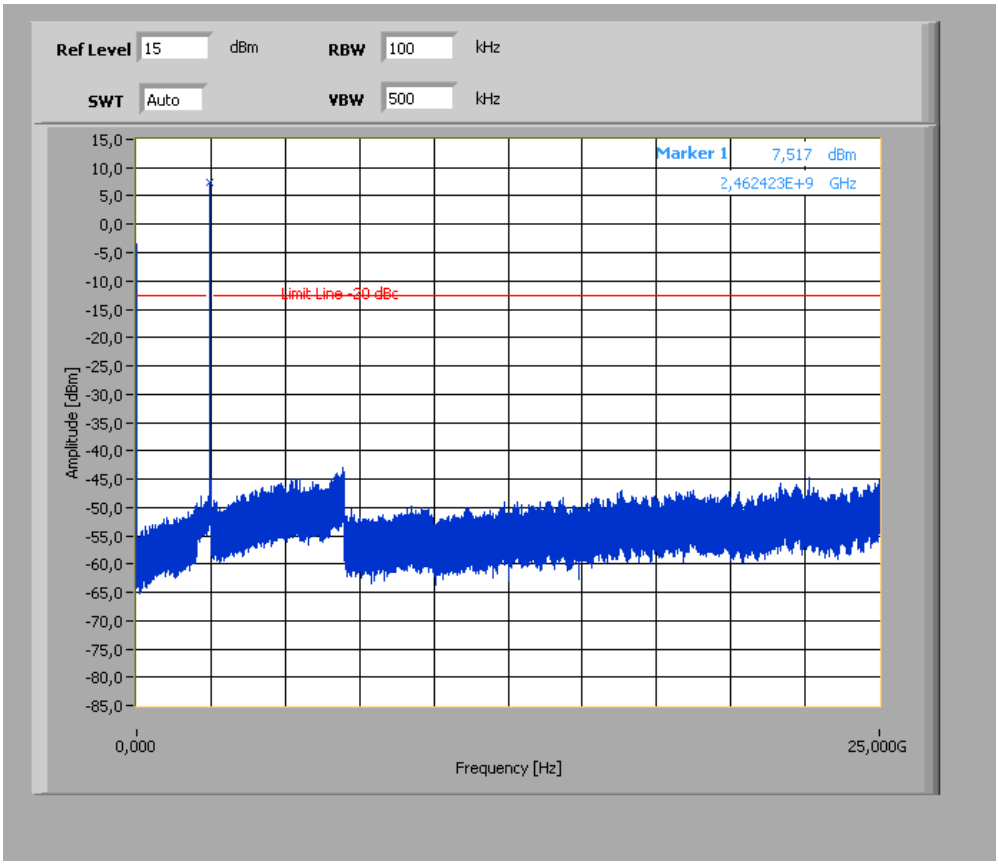
The peak at the beginning of the plot is the LO from the SA.

Plot 2: TX mode, middle channel, up to 25 GHz



The peak at the beginning of the plot is the LO from the SA.

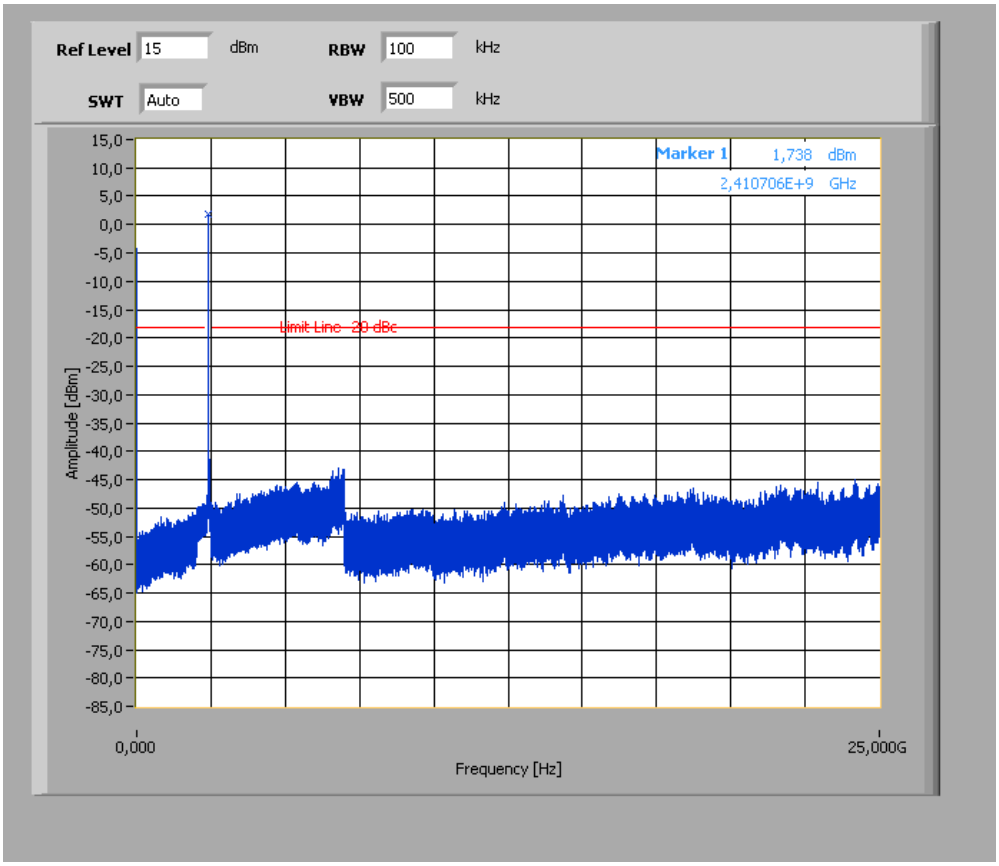
Plot 3: TX mode, highest channel, up to 25 GHz



The peak at the beginning of the plot is the LO from the SA.

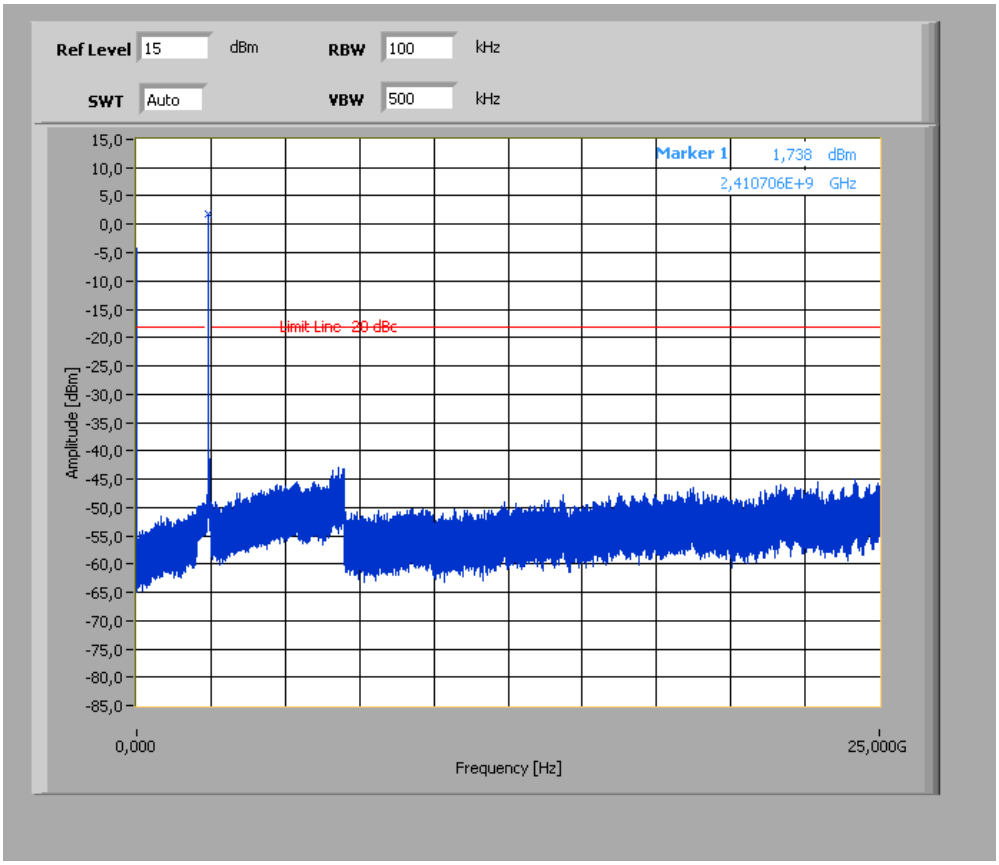
Plots: OFDM / g – mode

Plot 1: TX mode, lowest channel, up to 25 GHz



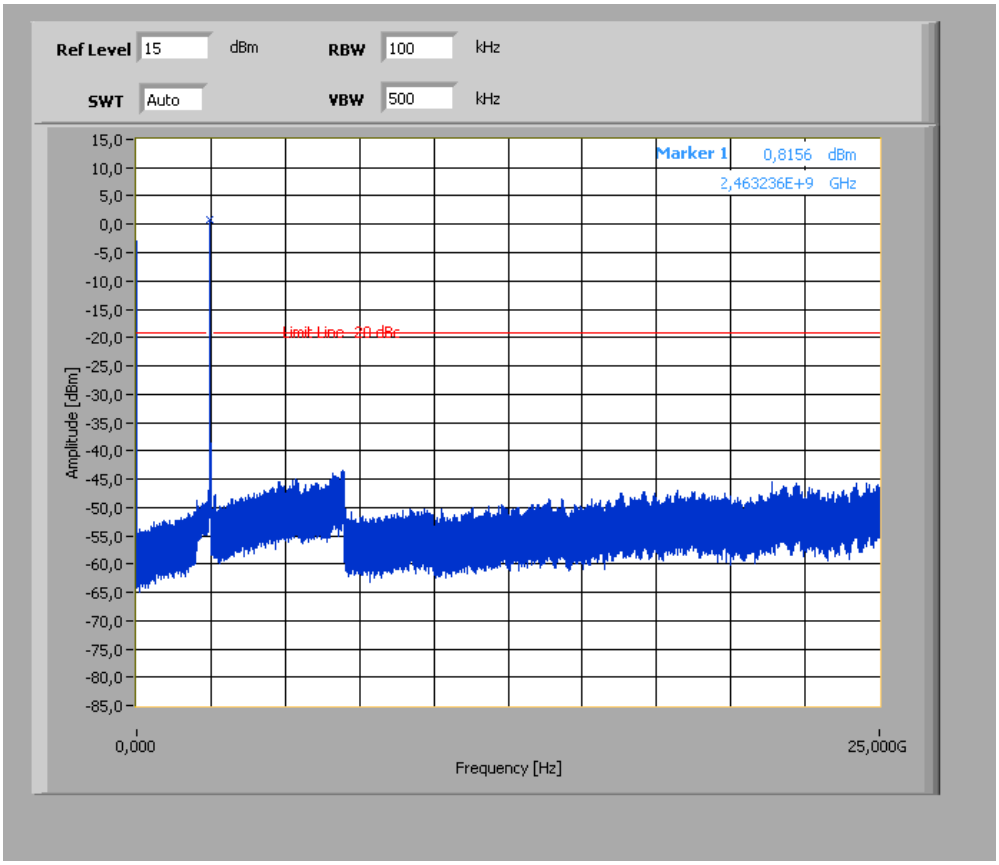
The peak at the beginning of the plot is the LO from the SA.

Plot 2: TX mode, middle channel, up to 25 GHz



The peak at the beginning of the plot is the LO from the SA.

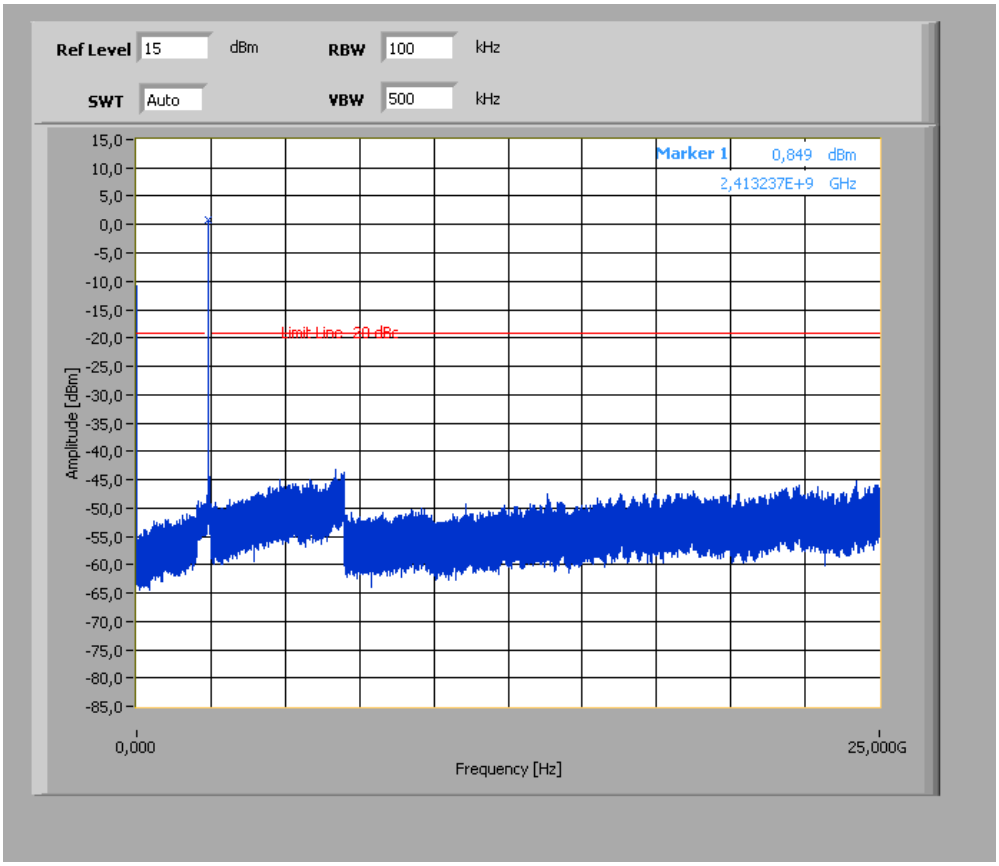
Plot 3: TX mode, highest channel, up to 25 GHz



The peak at the beginning of the plot is the LO from the SA.

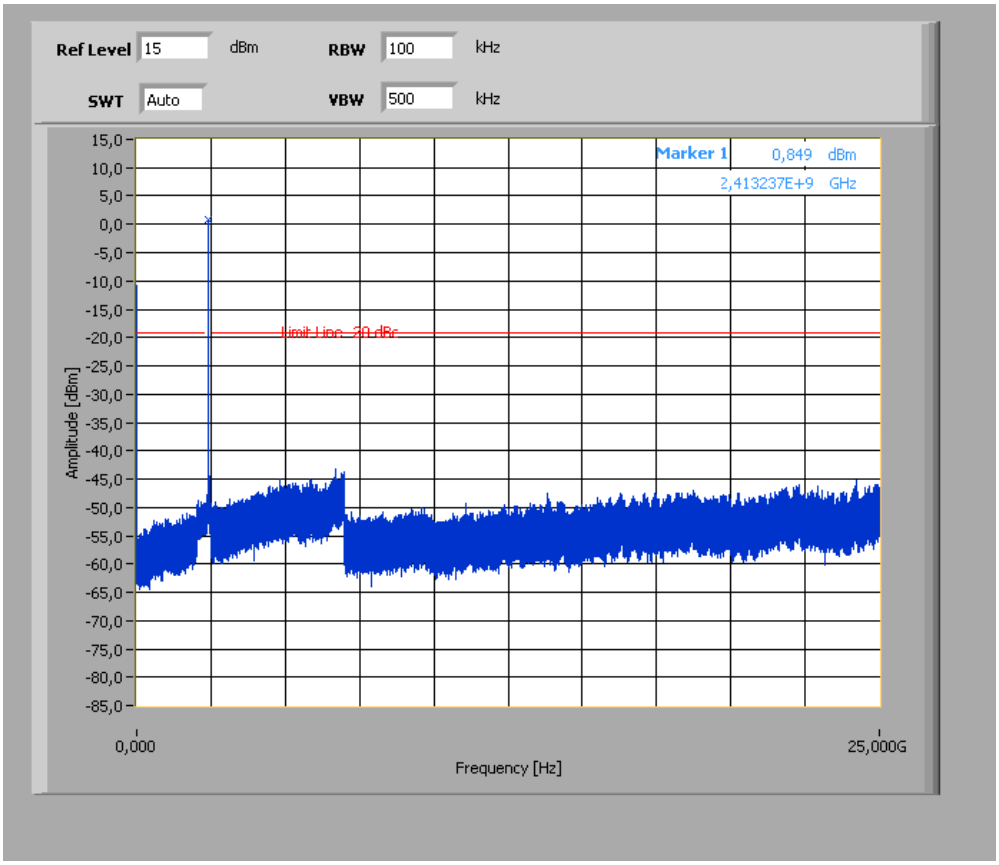
Plots: OFDM / n – mode

Plot 1: TX mode, lowest channel, up to 25 GHz



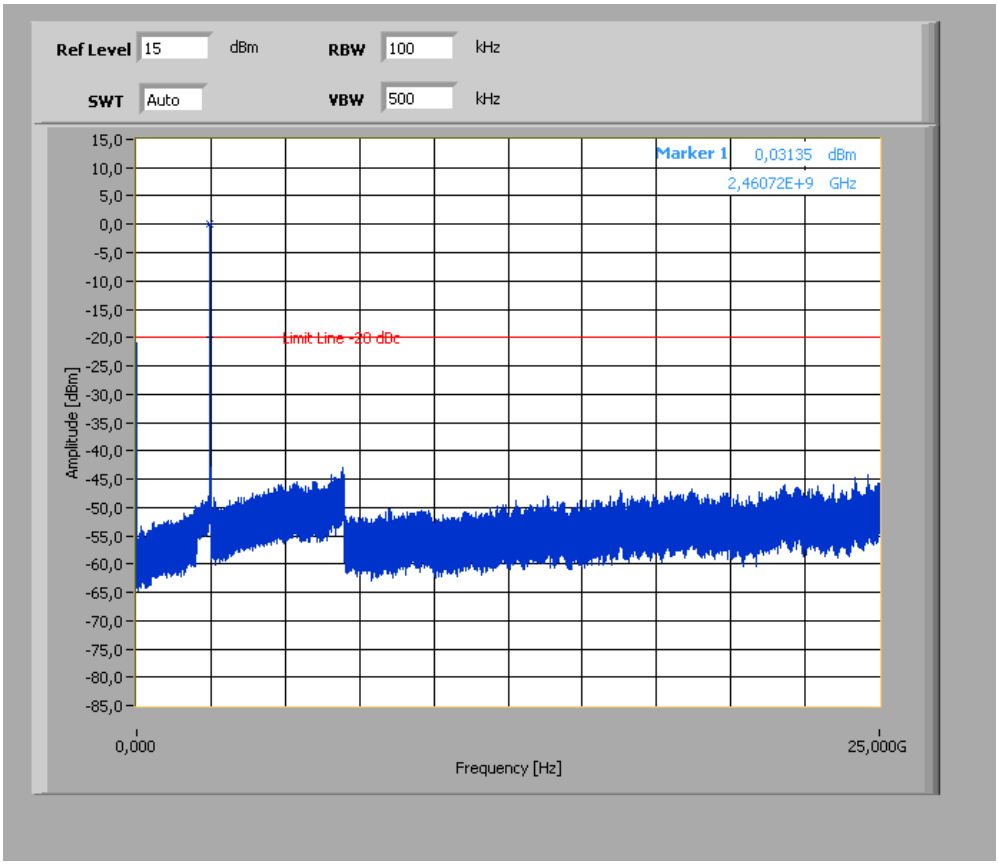
The peak at the beginning of the plot is the LO from the SA.

Plot 2: TX mode, middle channel, up to 25 GHz



The peak at the beginning of the plot is the LO from the SA.

Plot 3: TX mode, highest channel, up to 25 GHz



The peak at the beginning of the plot is the LO from the SA.

9.10 TX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at channel 1, 6 and 11. The measurement is repeated for all modulations.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 26 GHz
Trace-Mode:	Max Hold
Measured Modulation	☒ DSSS b – mode ☒ OFDM g – mode ☒ OFDM n – mode

The modulation with the highest output power was used to perform the transmitter spurious emissions. If spurious were detected a re-measurement was performed on the detected frequency with each modulation.

Limits:

FCC		IC
CFR Part 15.247(d)		RSS 210, Issue 8, A 8.5
TX Spurious Emissions Radiated		
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).		
§15.209		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Results: DSSS / b – mode

TX Spurious Emissions Radiated [dBµV/m]								
DSSS – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No critical peaks found			No critical peaks found			No critical peaks found		
Measurement uncertainty			± 3 dB					

Result: **The result of the measurement is passed.**

Results: OFDM / g – mode

TX Spurious Emissions Radiated [dBµV/m]								
OFDM – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No critical peaks found			No critical peaks found			No critical peaks found		
Measurement uncertainty			± 3 dB					

Result: **The result of the measurement is passed.**

Results: OFDM / n – mode

TX Spurious Emissions Radiated [dBµV/m]								
OFDM – mode								
2412 MHz			2437 MHz			2462 MHz		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
No critical peaks found			No critical peaks found			No critical peaks found		
Measurement uncertainty			± 3 dB					

Result: **The result of the measurement is passed.**

Plots: DSSS / b – mode

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

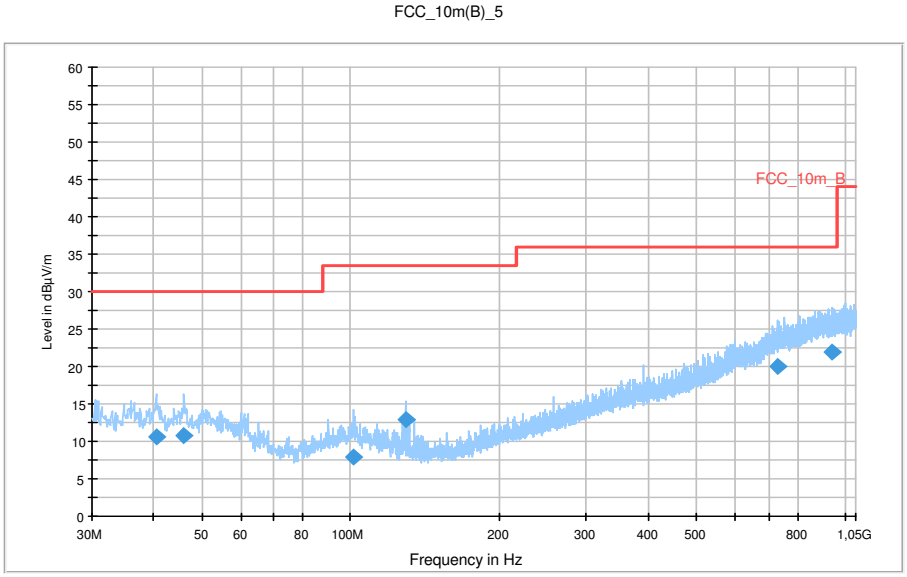
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN b-mode 11MBit/s TX Ch. 1 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

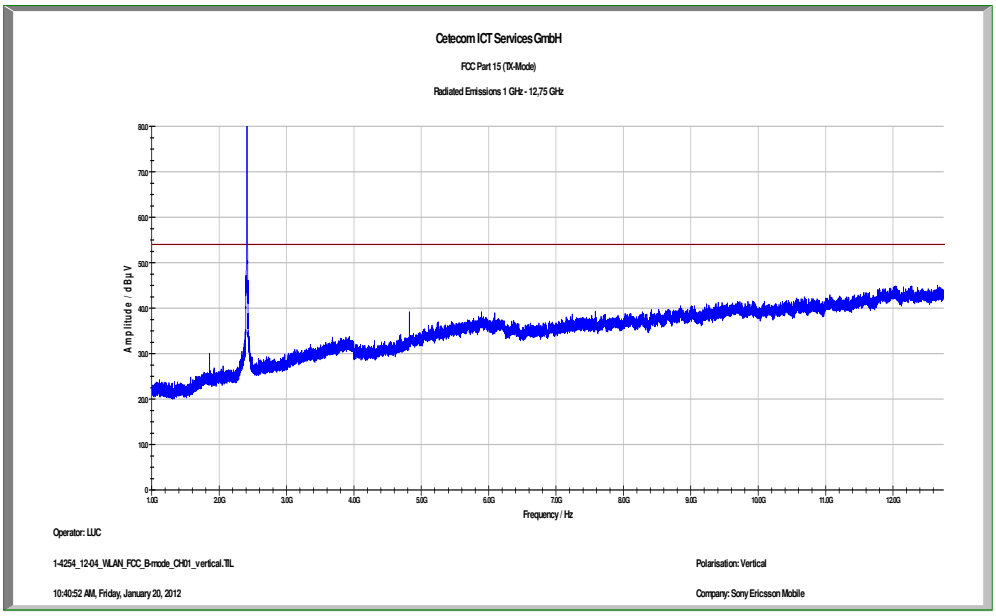
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



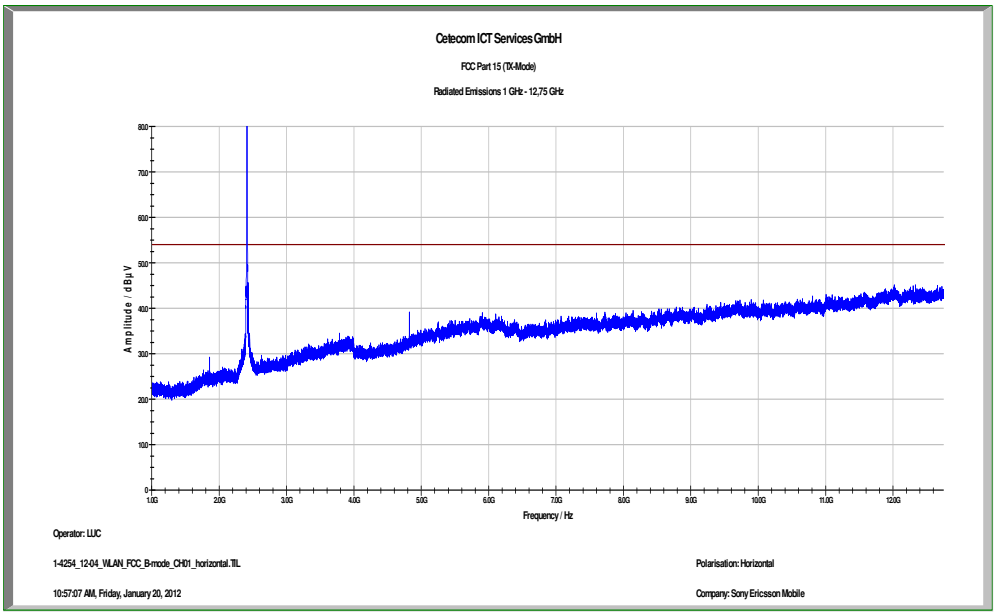
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
40.440000	10.5	1000.0	120.000	270.0	V	97.0	13.4	19.5	30.0	
46.080000	10.9	1000.0	120.000	270.0	V	252.0	13.3	19.1	30.0	
101.160000	7.8	1000.0	120.000	134.0	H	54.0	11.8	25.7	33.5	
129.000000	13.0	1000.0	120.000	145.0	V	128.0	9.5	20.5	33.5	
727.800000	19.9	1000.0	120.000	270.0	V	333.0	23.2	16.1	36.0	
939.720000	21.9	1000.0	120.000	270.0	V	30.0	25.3	14.1	36.0	

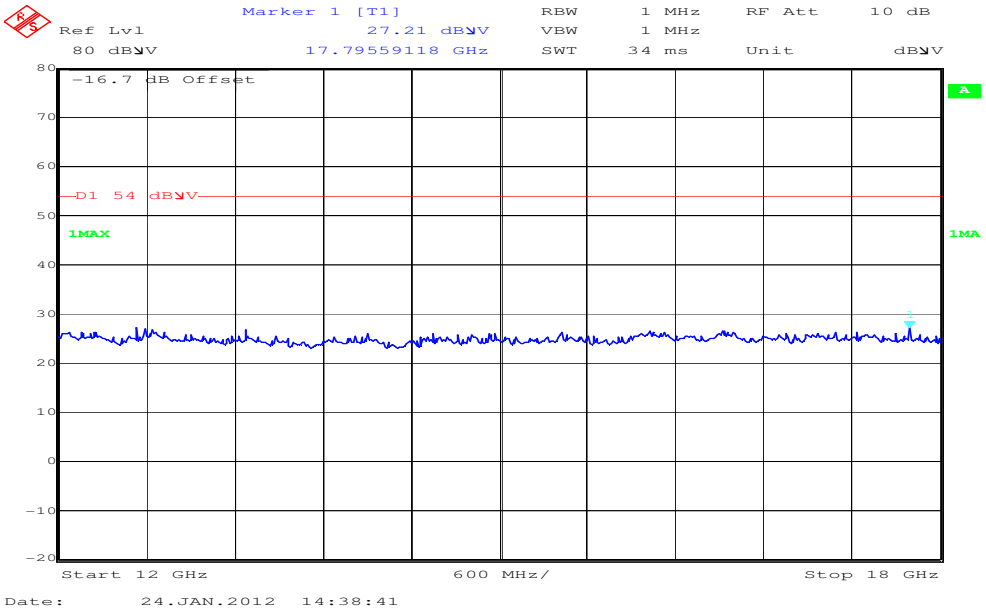
Plot 2: Lowest channel, 1 GHz to 12.75 GHz, vertical polarization



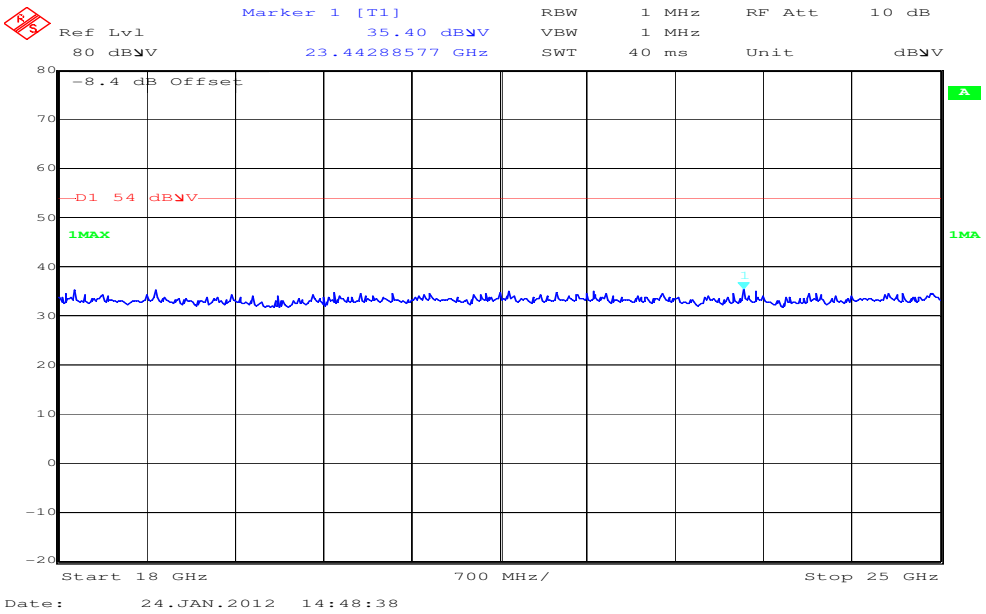
Plot 3: Lowest channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 5: Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



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

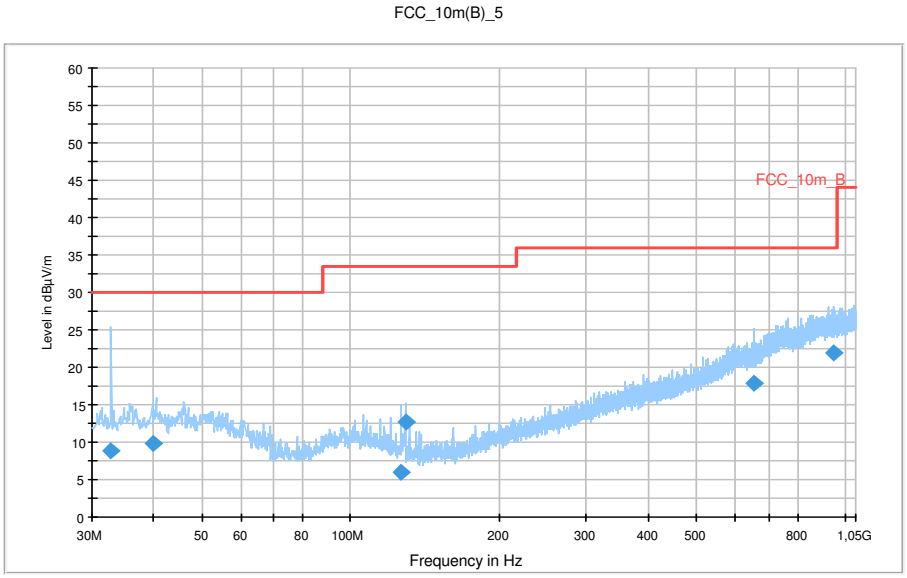
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN b-mode 11MBit/s TX Ch. 6 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

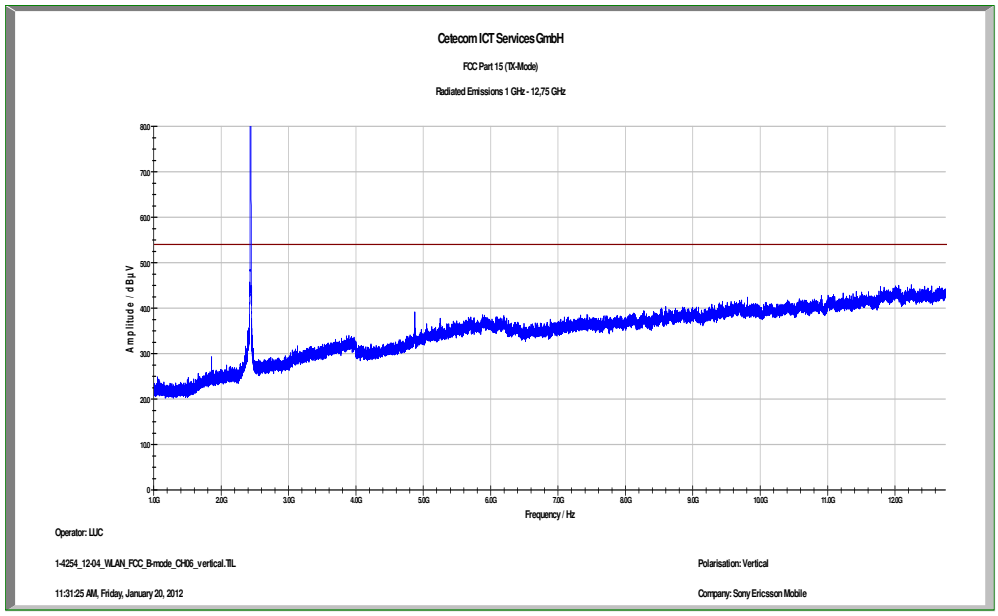
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



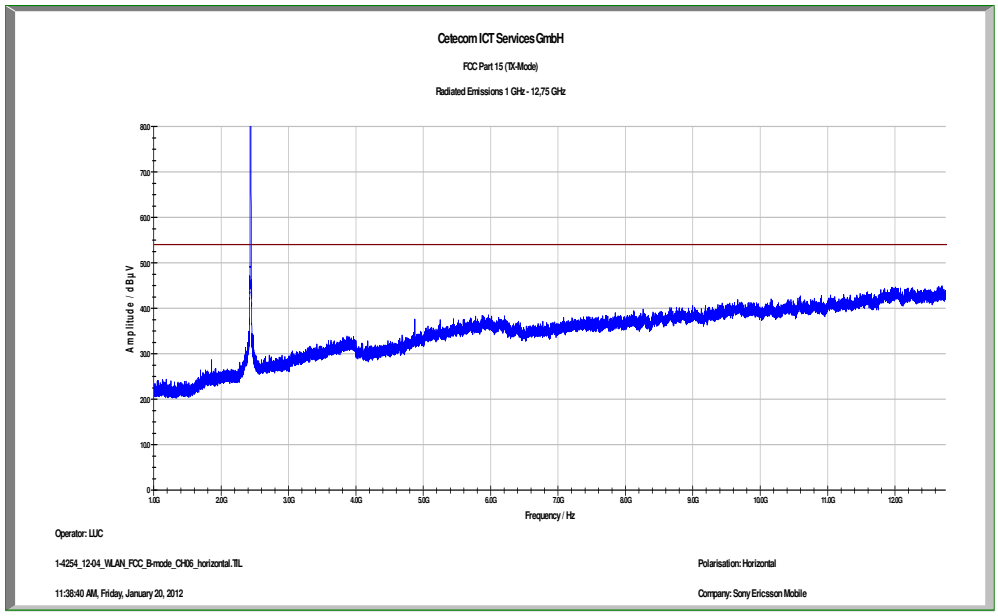
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
32.760000	8.9	1000.0	120.000	257.0	V	-2.0	12.8	21.1	30.0	
39.720000	9.8	1000.0	120.000	241.0	V	120.0	13.4	20.2	30.0	
126.240000	5.9	1000.0	120.000	98.0	V	271.0	9.7	27.6	33.5	
129.000000	12.8	1000.0	120.000	165.0	V	120.0	9.5	20.7	33.5	
652.320000	17.9	1000.0	120.000	114.0	H	219.0	21.2	18.1	36.0	
947.040000	21.9	1000.0	120.000	172.0	H	219.0	25.3	14.1	36.0	

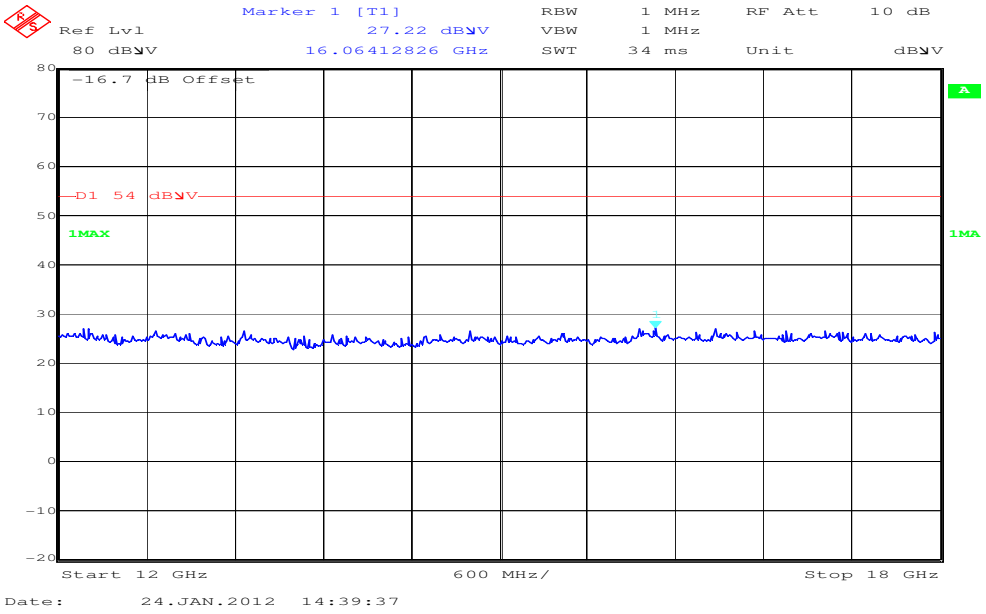
Plot 7: Middle channel, 1 GHz to 12.75 GHz, vertical polarization



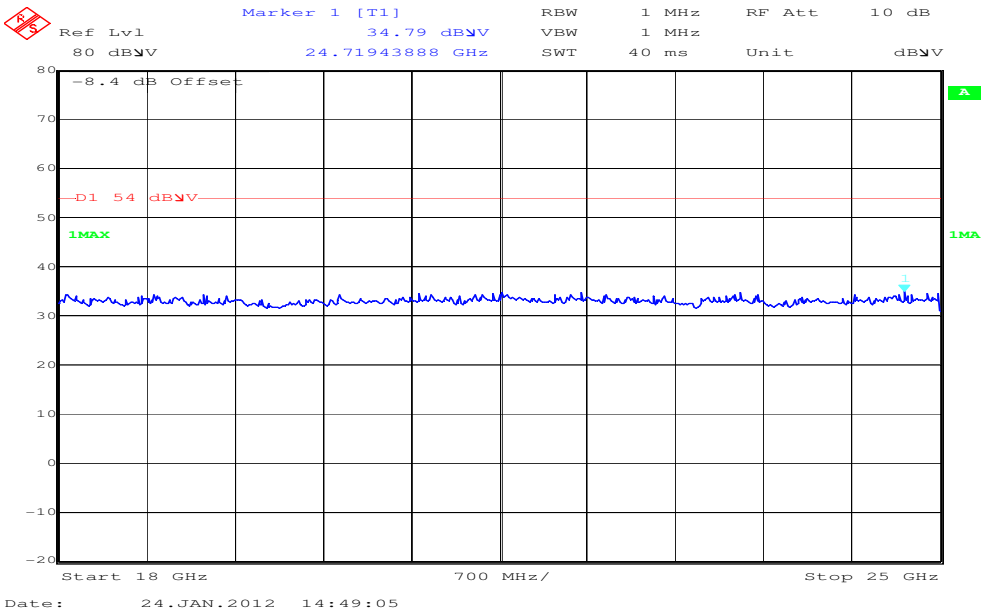
Plot 8: Middle channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 10: Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization



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

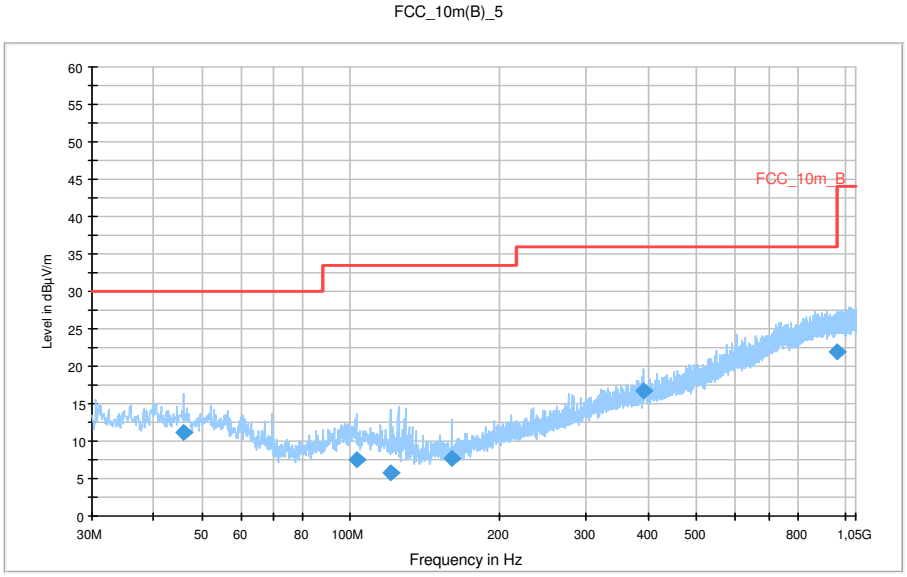
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN b-mode 11MBit/s TX Ch. 11 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

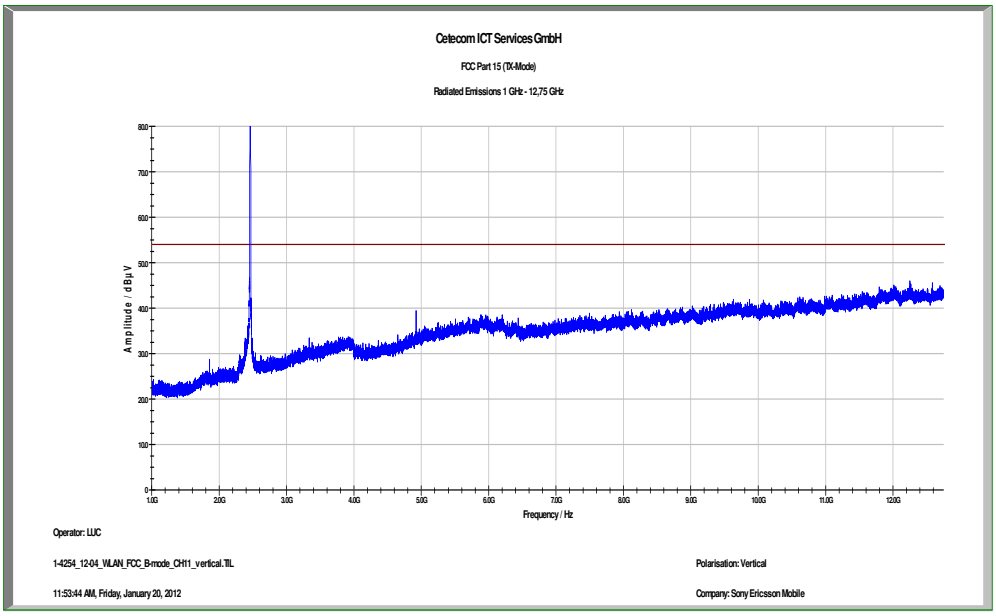
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



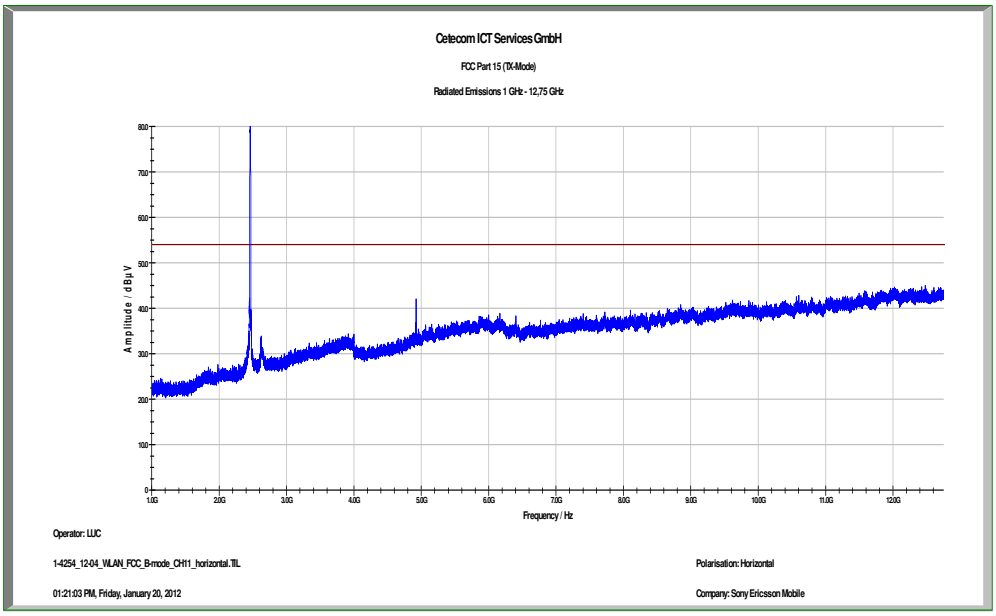
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
45.960000	11.1	1000.0	120.000	104.0	V	46.0	13.3	18.9	30.0	
102.720000	7.5	1000.0	120.000	270.0	H	312.0	11.7	26.0	33.5	
120.240000	5.8	1000.0	120.000	98.0	V	252.0	10.2	27.7	33.5	
159.960000	7.7	1000.0	120.000	217.0	V	173.0	9.2	25.8	33.5	
390.000000	16.7	1000.0	120.000	270.0	V	46.0	16.7	19.3	36.0	
959.280000	22.0	1000.0	120.000	180.0	V	312.0	25.4	14.0	36.0	

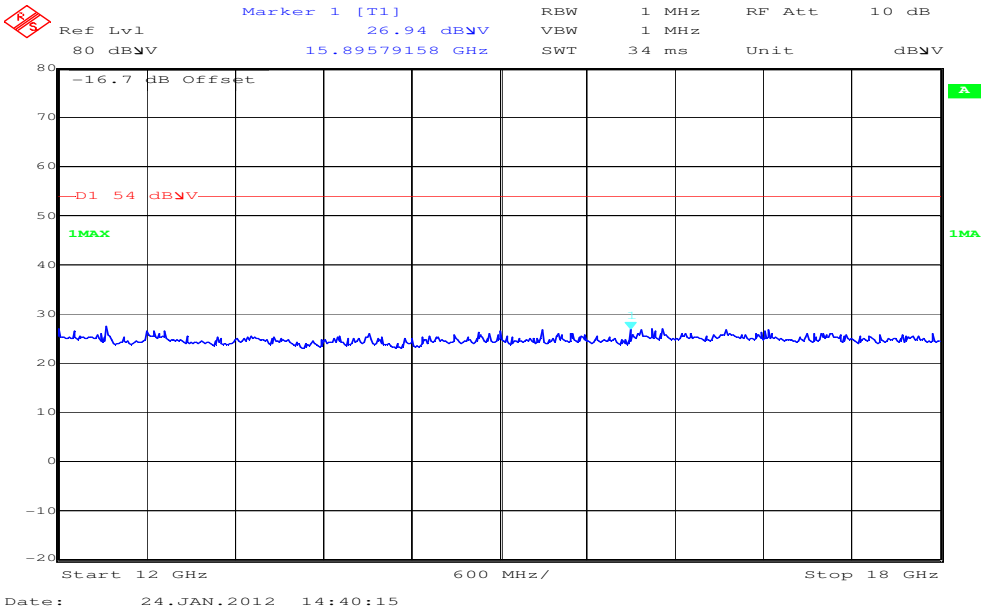
Plot 12: Highest channel, 1 GHz to 12.75 GHz, vertical polarization



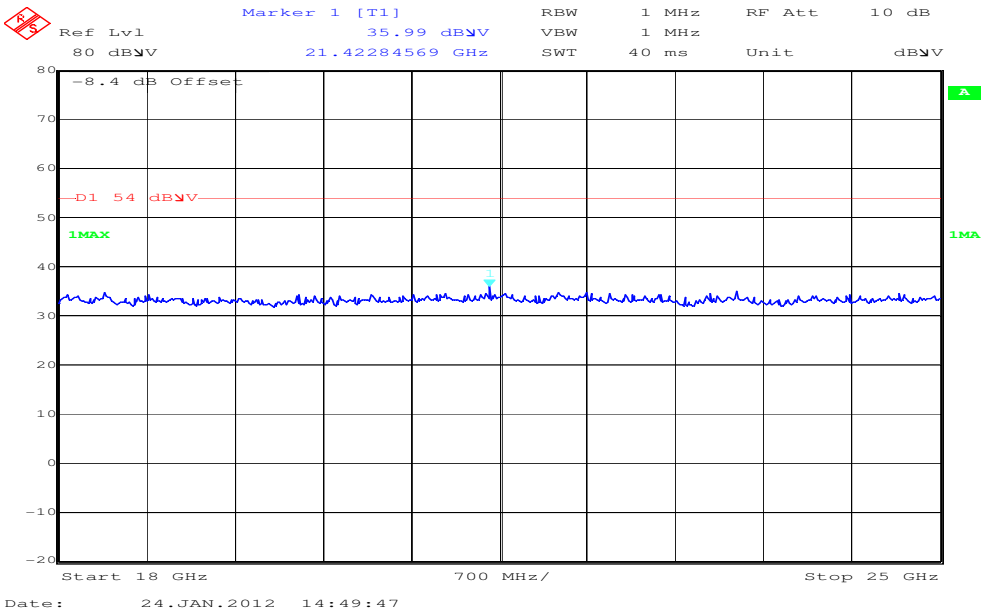
Plot 13: Highest channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 15: Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



Plots: OFDM / g – mode

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

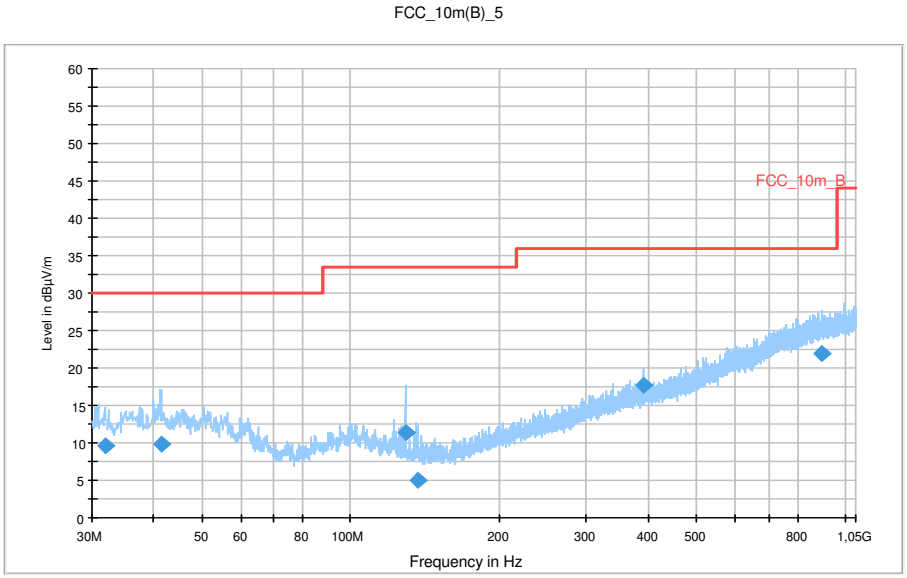
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN g-mode 6MBit/s TX Ch. 1 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

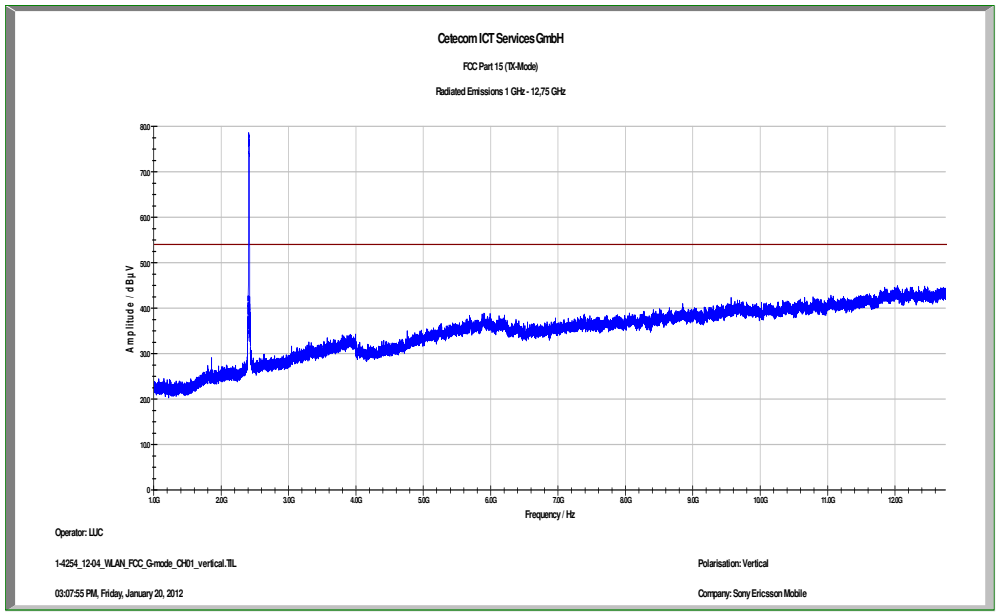
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



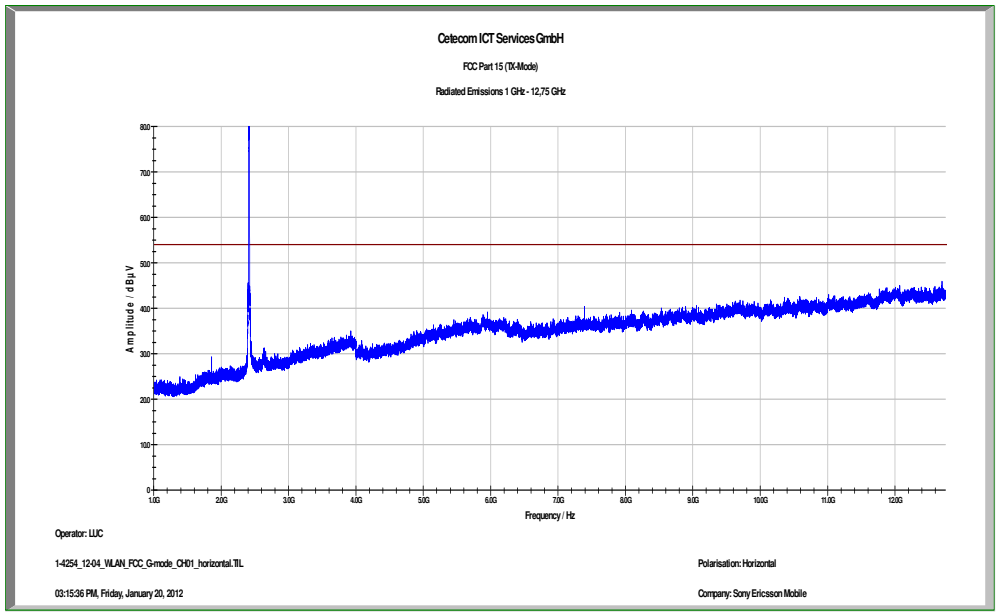
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.920000	9.5	1000.0	120.000	270.0	H	-2.0	12.7	20.5	30.0	
41.520000	9.9	1000.0	120.000	243.0	V	125.0	13.4	20.1	30.0	
129.000000	11.3	1000.0	120.000	182.0	V	279.0	9.5	22.2	33.5	
136.680000	5.1	1000.0	120.000	98.0	V	231.0	8.9	28.4	33.5	
390.000000	17.7	1000.0	120.000	105.0	V	86.0	16.7	18.3	36.0	
898.800000	21.9	1000.0	120.000	270.0	H	322.0	25.2	14.1	36.0	

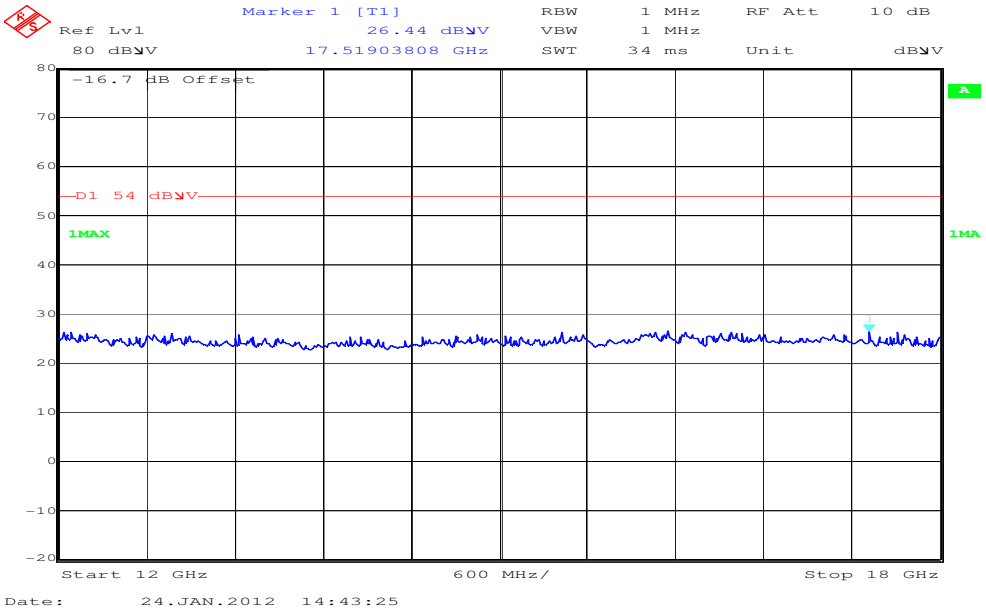
Plot 2: Lowest channel, 1 GHz to 12.75 GHz, vertical polarization



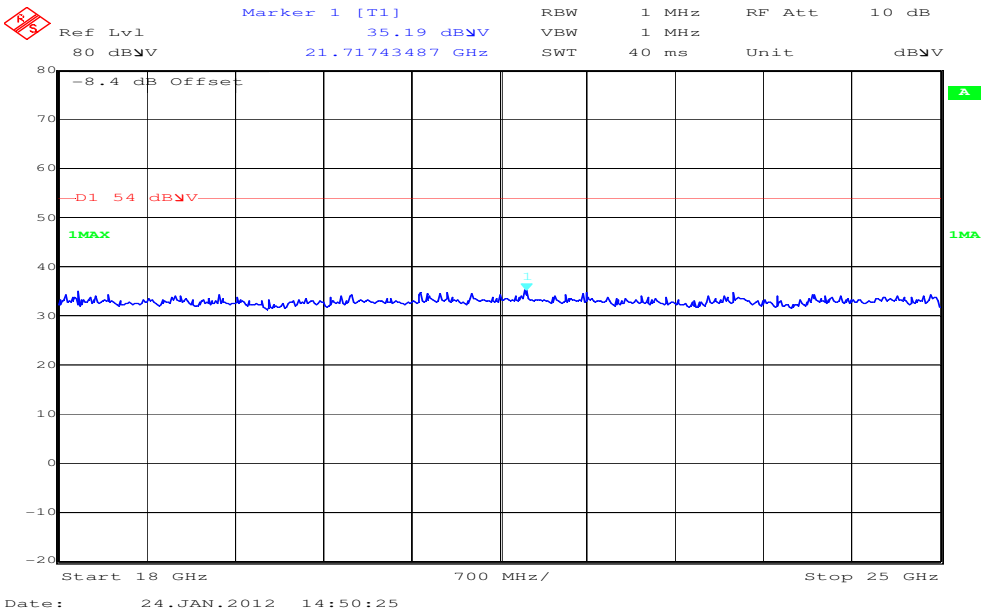
Plot 3: Lowest channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 5: Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



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

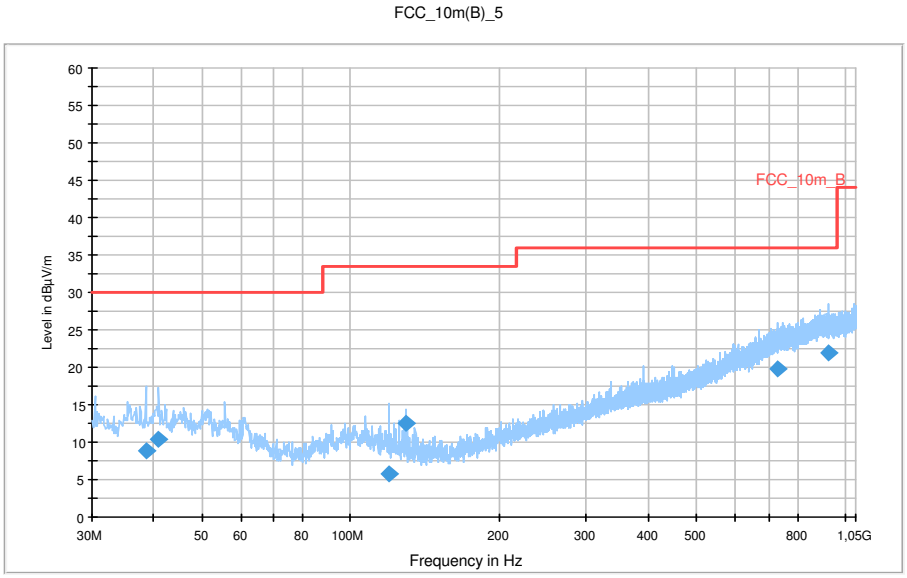
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN g-mode 6MBit/s TX Ch. 6 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

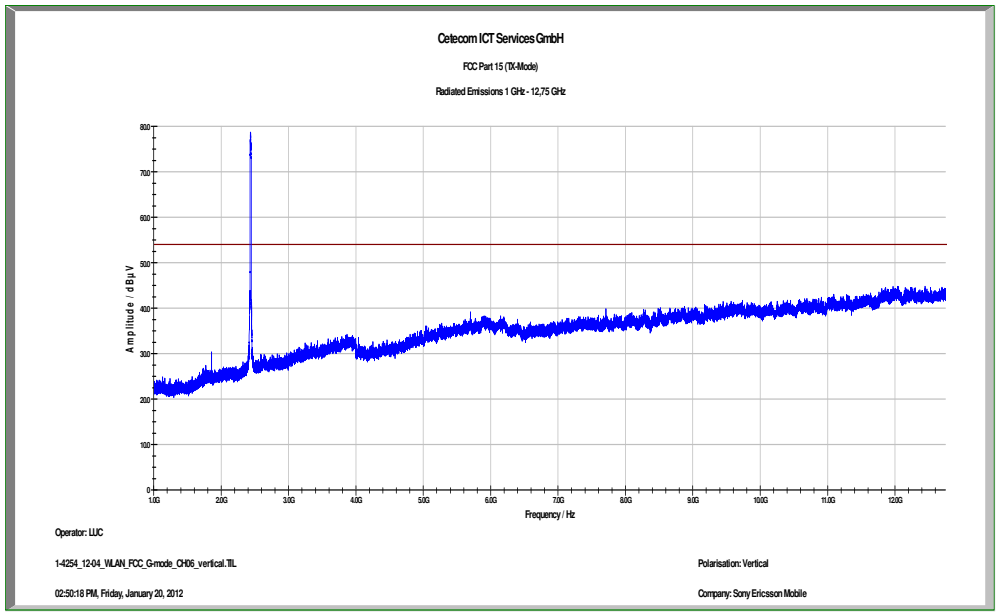
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



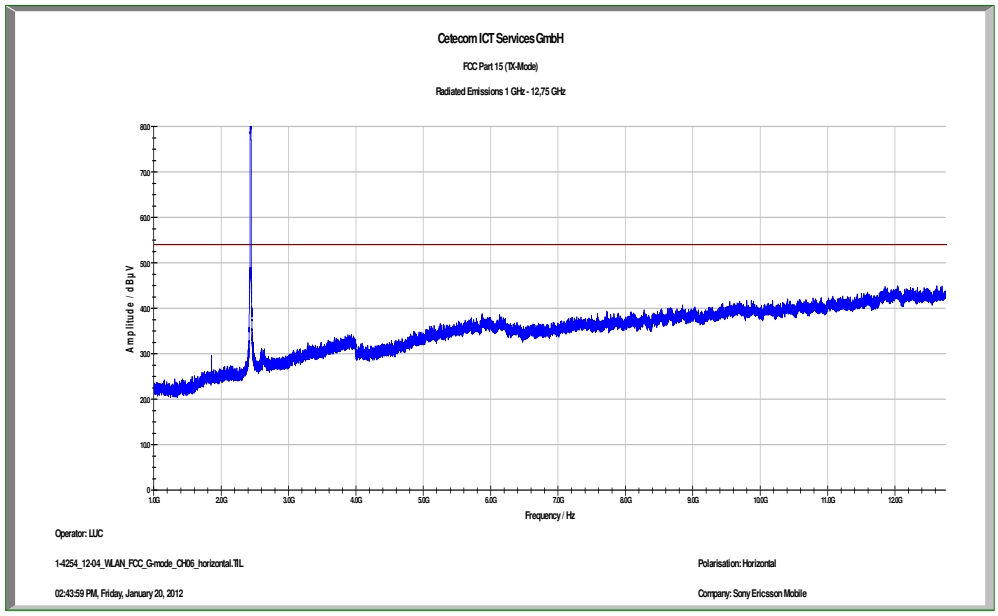
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
38.520000	8.8	1000.0	120.000	185.0	V	39.0	13.3	21.2	30.0	
40.920000	10.4	1000.0	120.000	98.0	V	13.0	13.4	19.6	30.0	
119.400000	5.8	1000.0	120.000	270.0	V	149.0	10.3	27.7	33.5	
129.000000	12.5	1000.0	120.000	163.0	V	140.0	9.5	21.0	33.5	
727.320000	19.9	1000.0	120.000	187.0	H	39.0	23.1	16.1	36.0	
924.480000	21.9	1000.0	120.000	270.0	V	164.0	25.3	14.1	36.0	

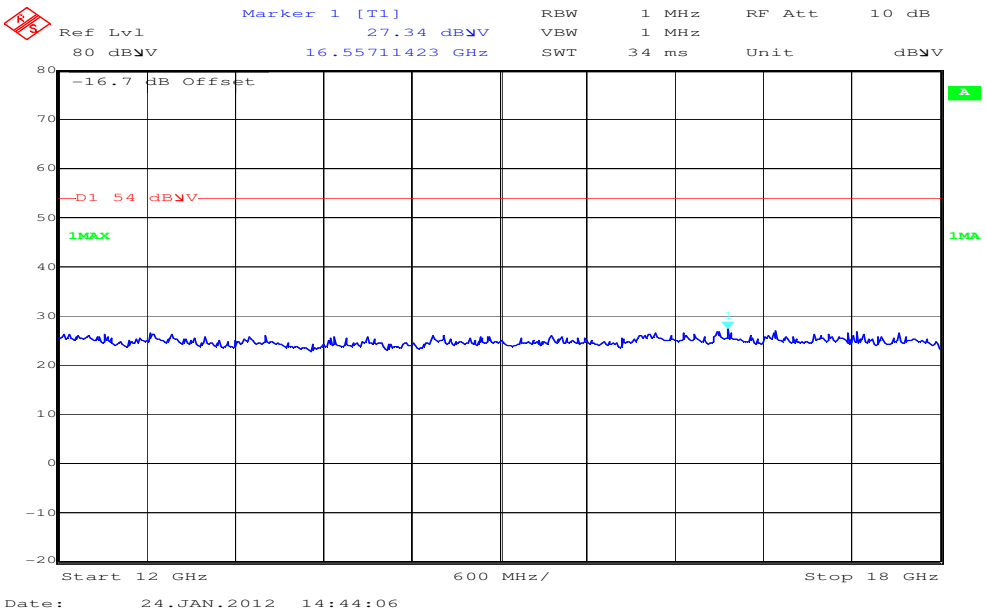
Plot 7: Middle channel, 1 GHz to 12.75 GHz, vertical polarization



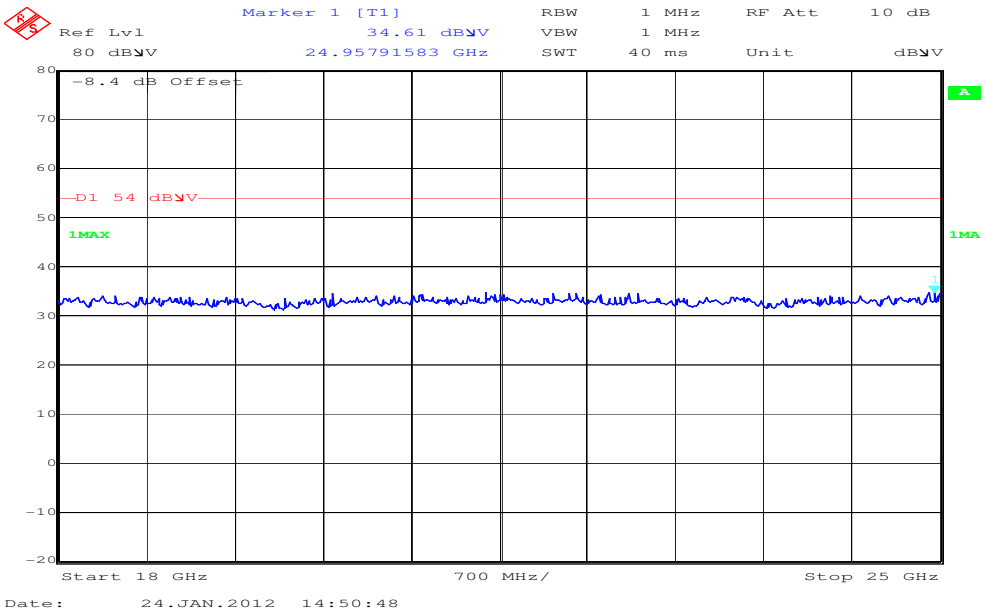
Plot 8: Middle channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 10: Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization



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

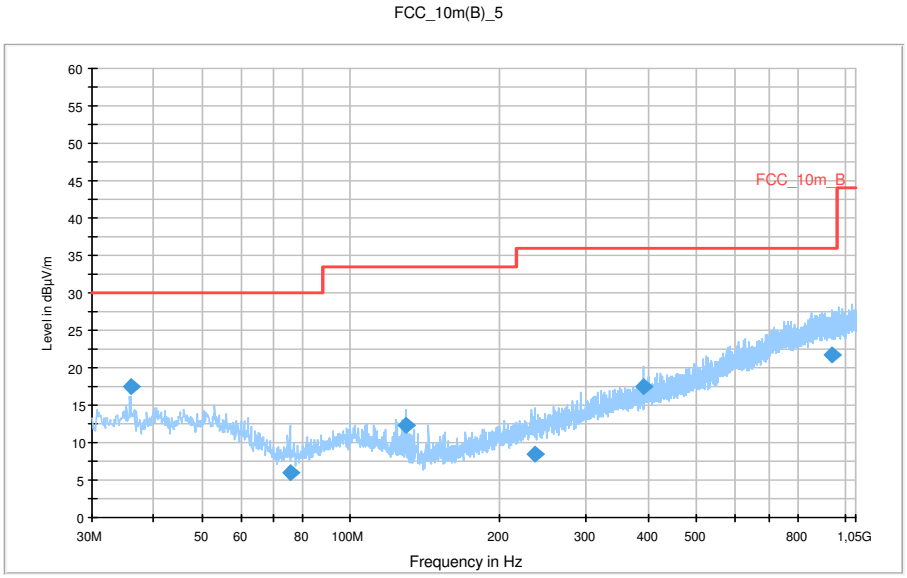
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN g-mode 6MBit/s TX Ch. 11 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

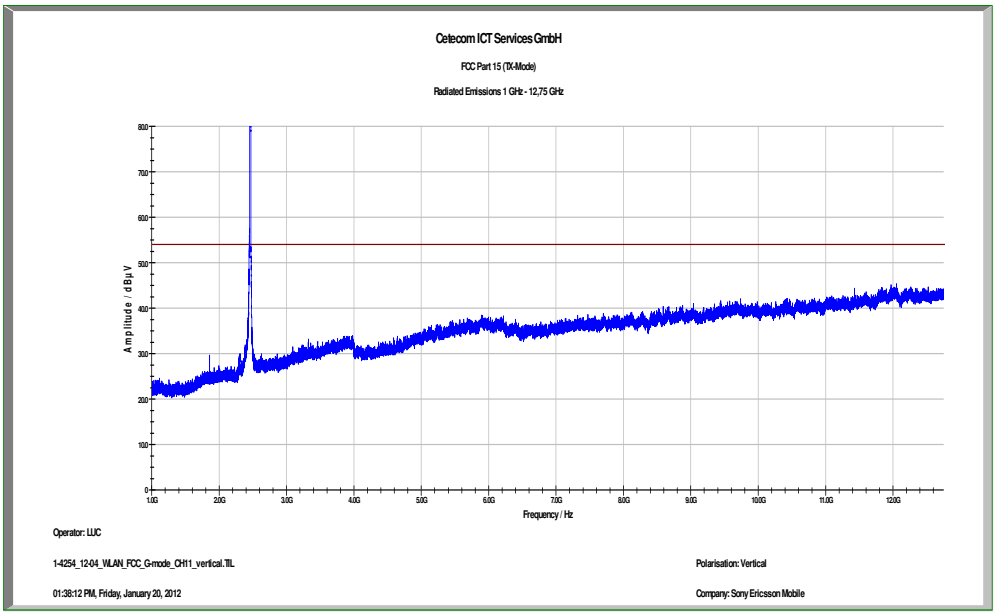
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



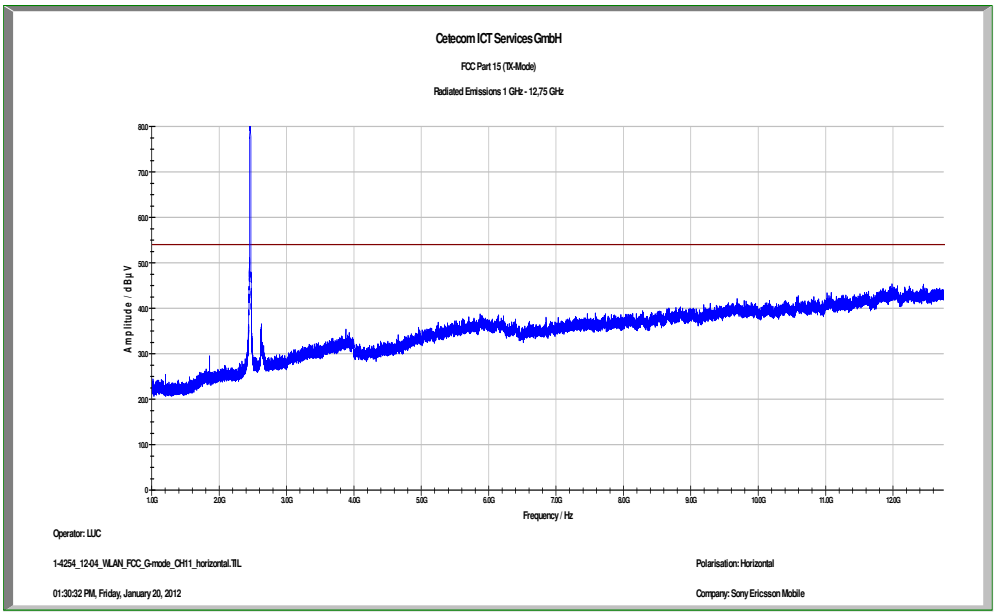
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.000000	17.5	1000.0	120.000	98.0	V	241.0	13.1	12.5	30.0	
75.360000	6.0	1000.0	120.000	219.0	V	329.0	9.2	24.0	30.0	
129.000000	12.3	1000.0	120.000	158.0	V	169.0	9.5	21.2	33.5	
235.200000	8.5	1000.0	120.000	270.0	H	-2.0	12.9	27.5	36.0	
390.000000	17.5	1000.0	120.000	98.0	V	241.0	16.7	18.5	36.0	
940.200000	21.8	1000.0	120.000	115.0	H	96.0	25.3	14.2	36.0	

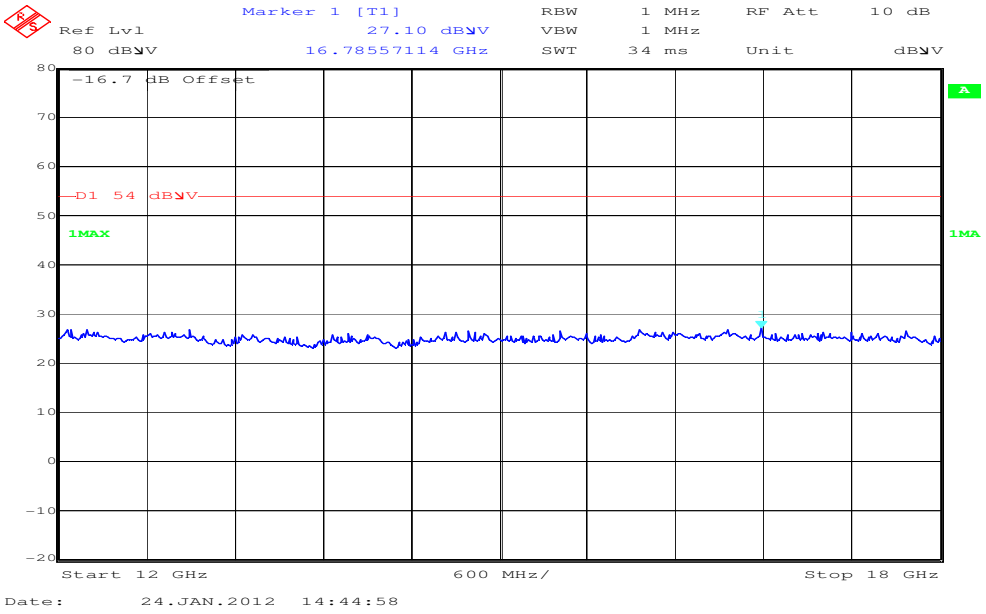
Plot 12: Highest channel, 1 GHz to 12.75 GHz, vertical polarization



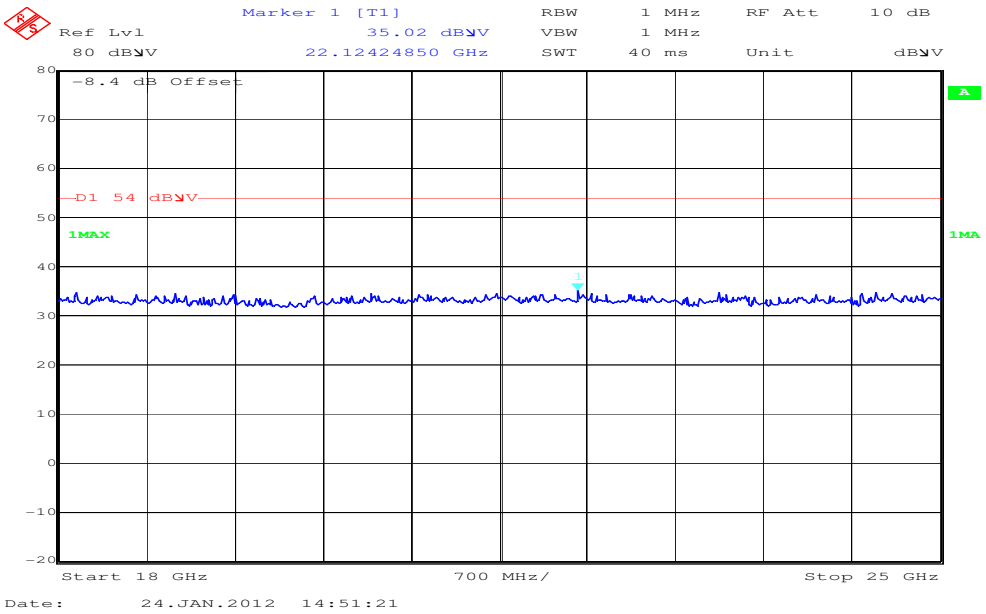
Plot 13: Highest channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 15: Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



Plots: OFDM / n – mode

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

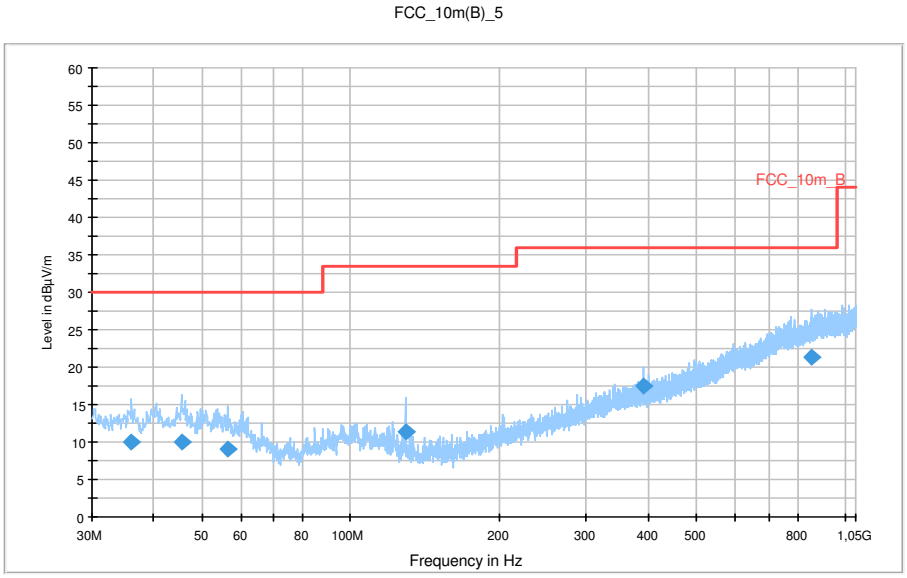
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN n-mode MCS 6 TX Ch. 1 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

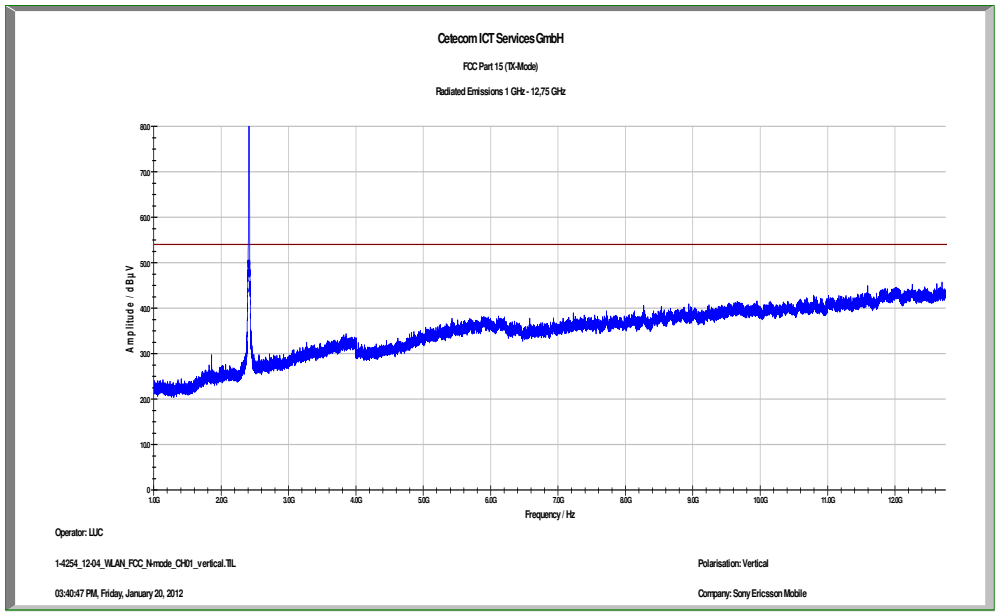
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



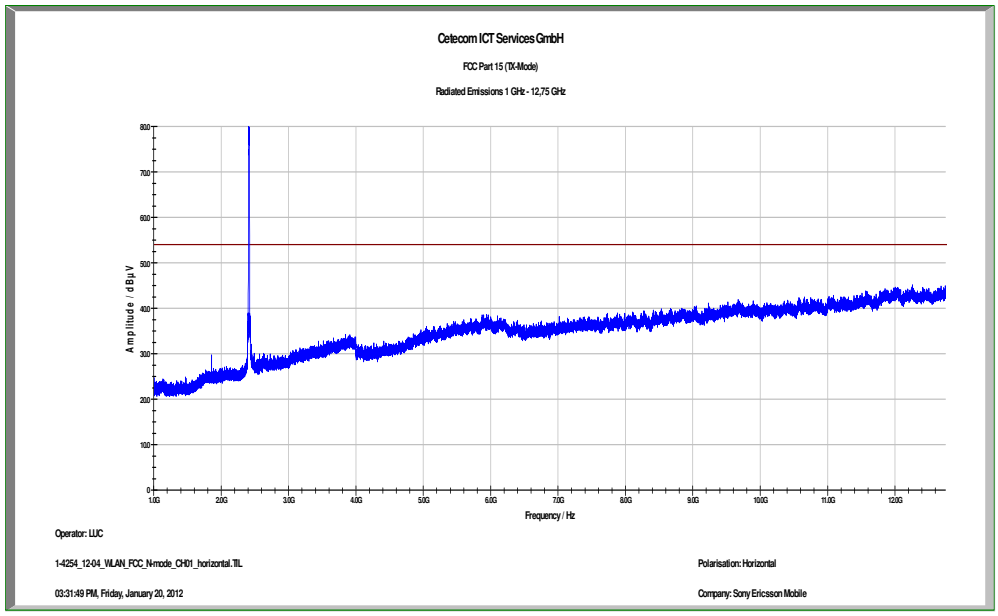
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
36.120000	10.1	1000.0	120.000	270.0	V	125.0	13.1	19.9	30.0	
45.480000	10.0	1000.0	120.000	234.0	V	10.0	13.3	20.0	30.0	
56.400000	9.1	1000.0	120.000	249.0	V	144.0	12.5	20.9	30.0	
129.000000	11.4	1000.0	120.000	98.0	V	320.0	9.5	22.1	33.5	
390.000000	17.6	1000.0	120.000	134.0	V	307.0	16.7	18.4	36.0	
857.520000	21.4	1000.0	120.000	270.0	V	125.0	24.7	14.6	36.0	

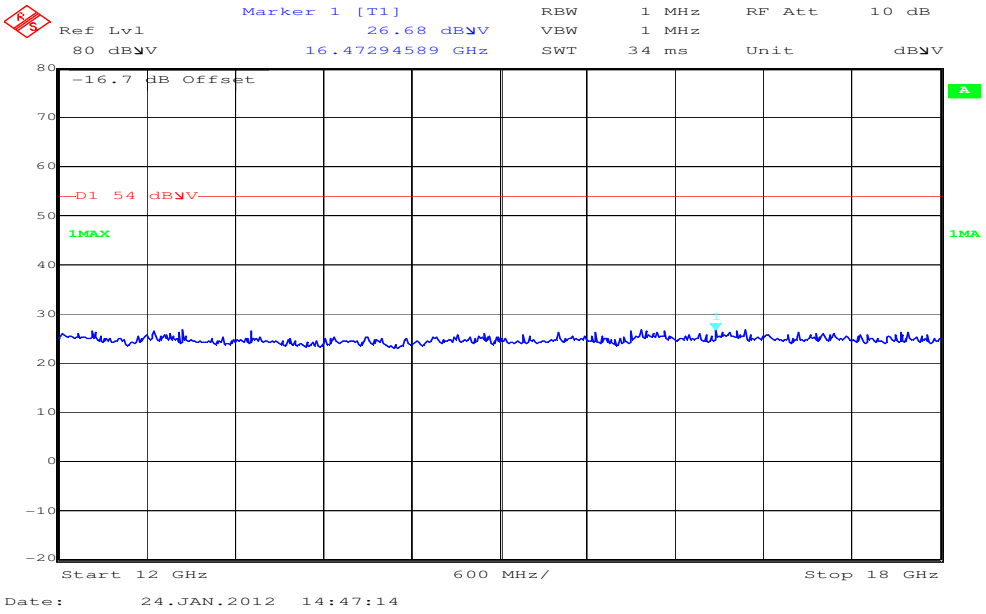
Plot 2: Lowest channel, 1 GHz to 12.75 GHz, vertical polarization



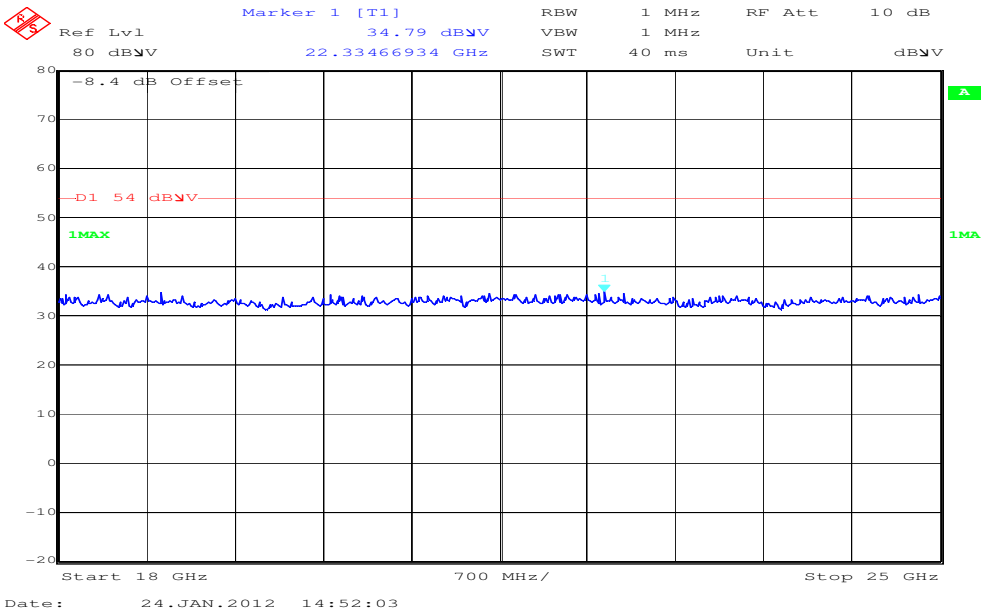
Plot 3: Lowest channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 5: Lowest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



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

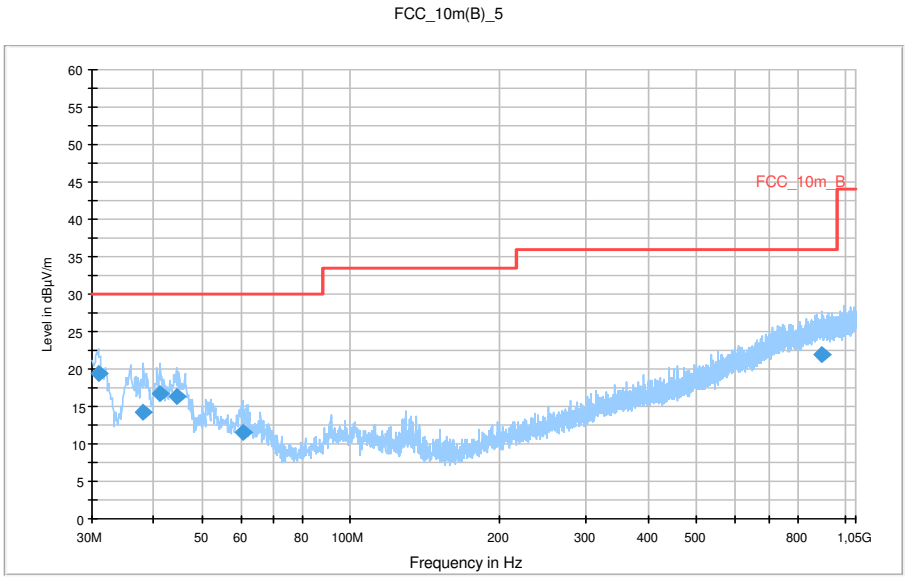
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN n-mode MCS 6 TX Ch. 6 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

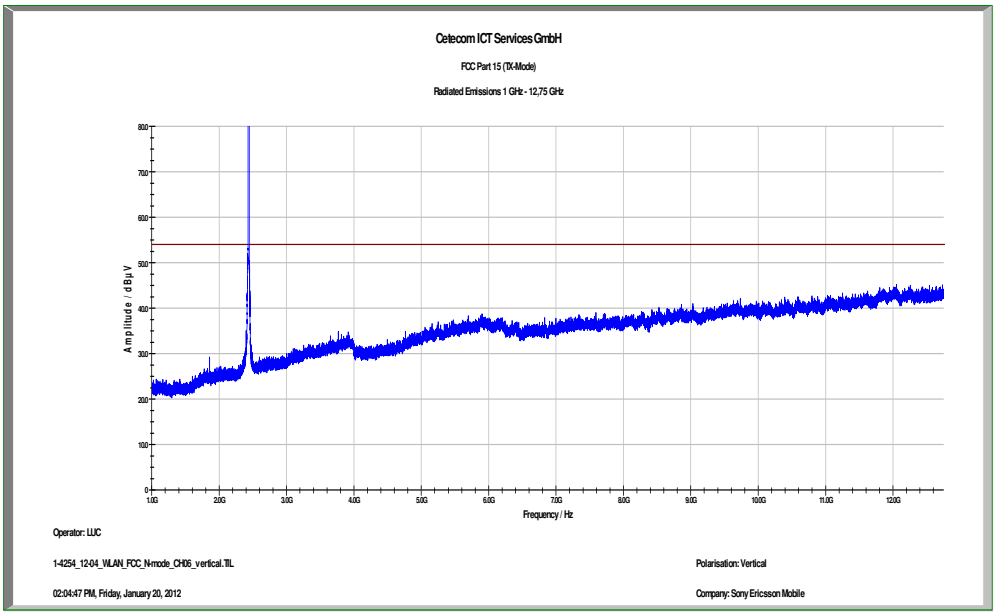
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



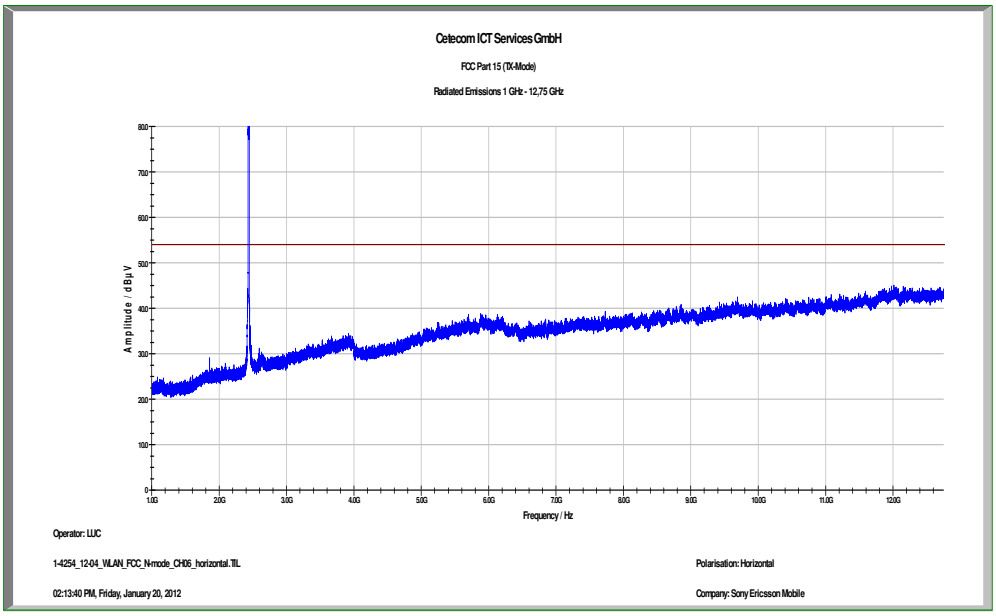
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.960000	19.5	1000.0	120.000	157.0	V	30.0	12.6	10.5	30.0	
38.160000	14.2	1000.0	120.000	270.0	V	-2.0	13.3	15.8	30.0	
41.280000	16.7	1000.0	120.000	98.0	V	-2.0	13.4	13.3	30.0	
44.400000	16.3	1000.0	120.000	98.0	V	-2.0	13.3	13.7	30.0	
60.480000	11.4	1000.0	120.000	120.0	V	-2.0	11.5	18.6	30.0	
897.720000	22.0	1000.0	120.000	195.0	H	-2.0	25.2	14.0	36.0	

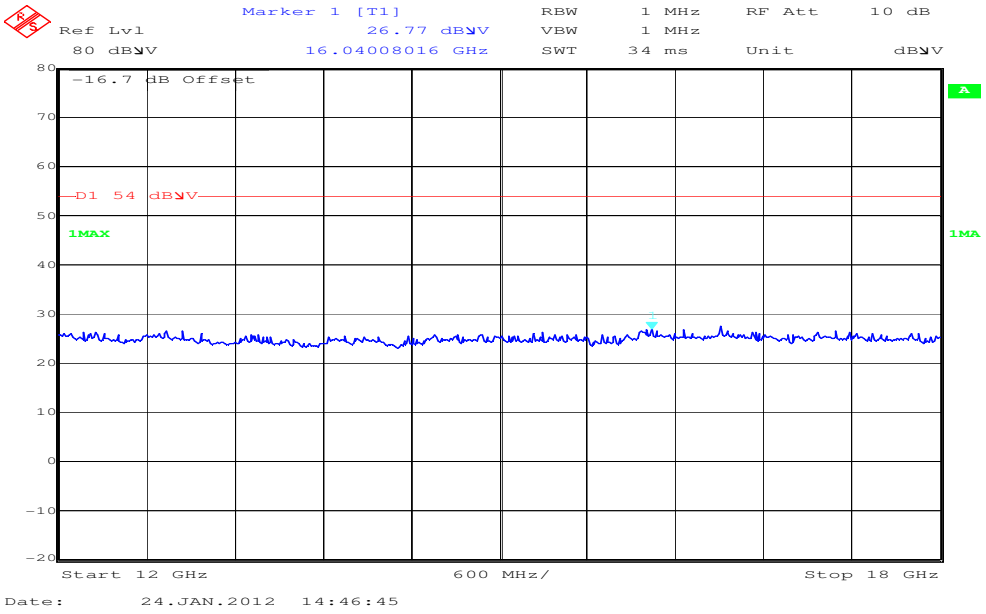
Plot 7: Middle channel, 1 GHz to 12.75 GHz, vertical polarization



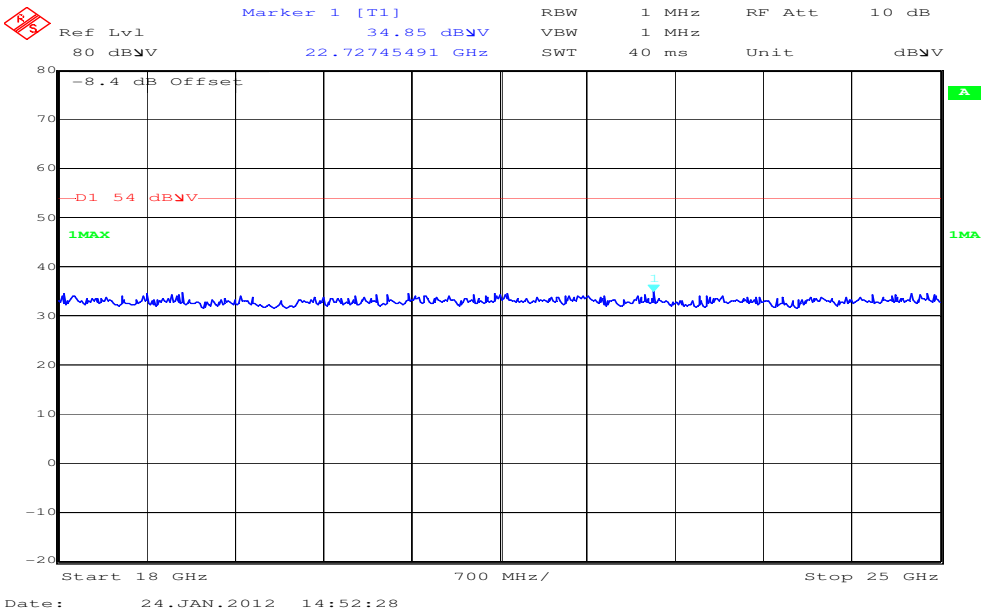
Plot 8: Middle channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 10: Middle channel, 18 GHz to 26 GHz, vertical & horizontal polarization



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

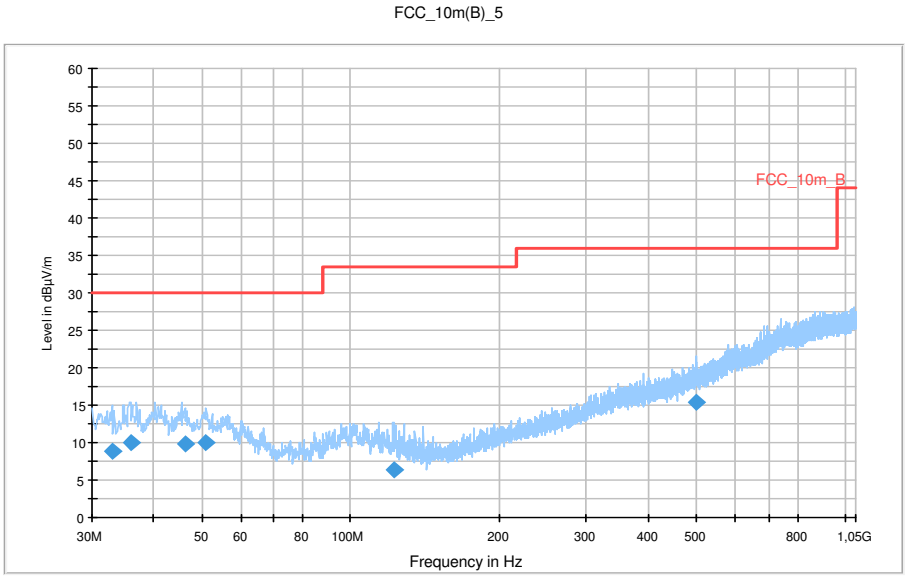
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN n-mode MCS 6 TX Ch. 11 + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

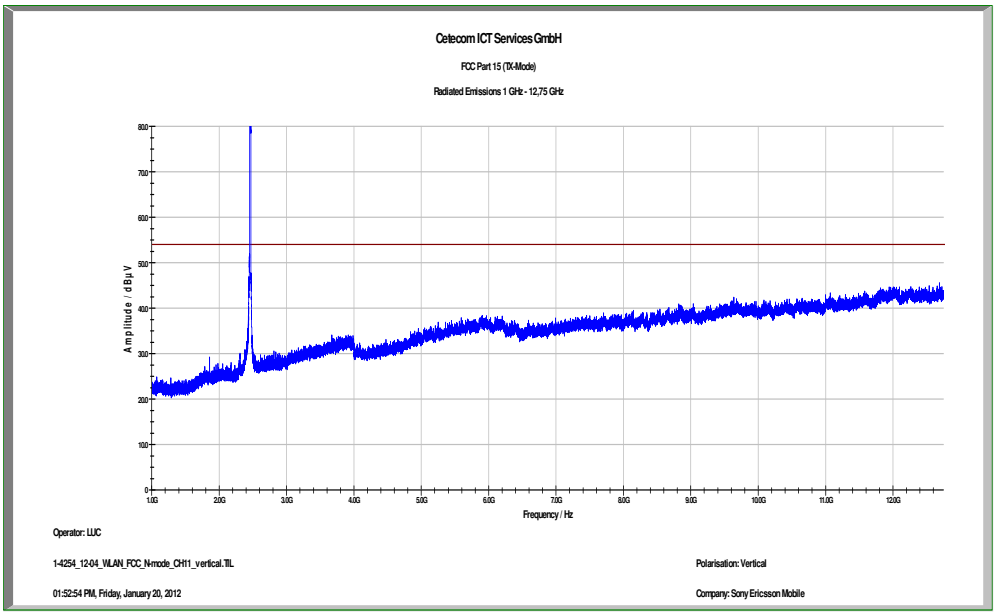
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



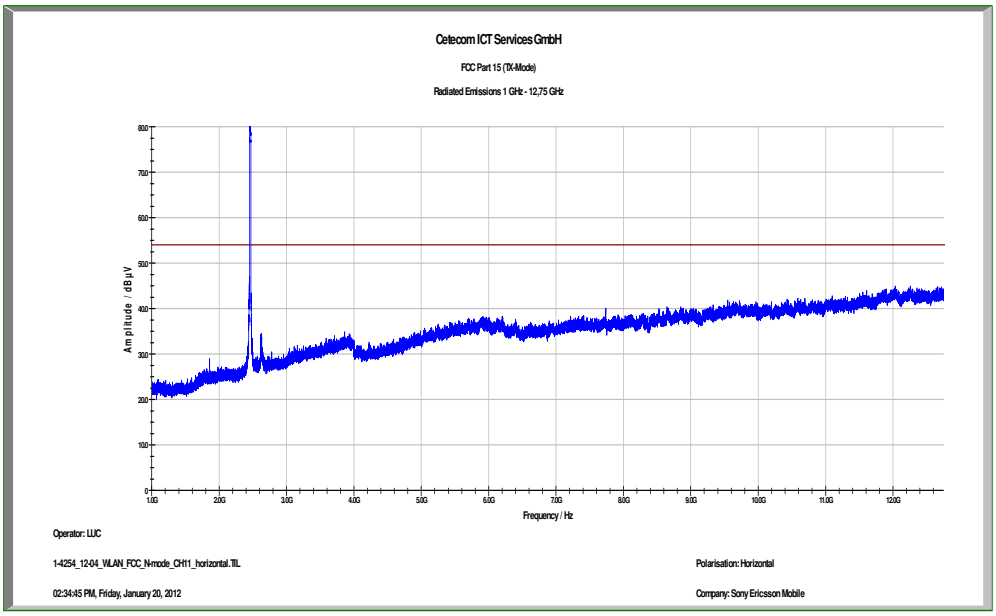
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
32.880000	8.9	1000.0	120.000	270.0	H	351.0	12.8	21.1	30.0	
35.880000	10.0	1000.0	120.000	270.0	H	177.0	13.1	20.0	30.0	
46.200000	9.9	1000.0	120.000	124.0	H	279.0	13.3	20.1	30.0	
51.120000	9.9	1000.0	120.000	120.0	H	87.0	13.3	20.1	30.0	
122.040000	6.3	1000.0	120.000	175.0	V	243.0	10.1	27.2	33.5	
498.480000	15.3	1000.0	120.000	270.0	V	231.0	18.7	20.7	36.0	

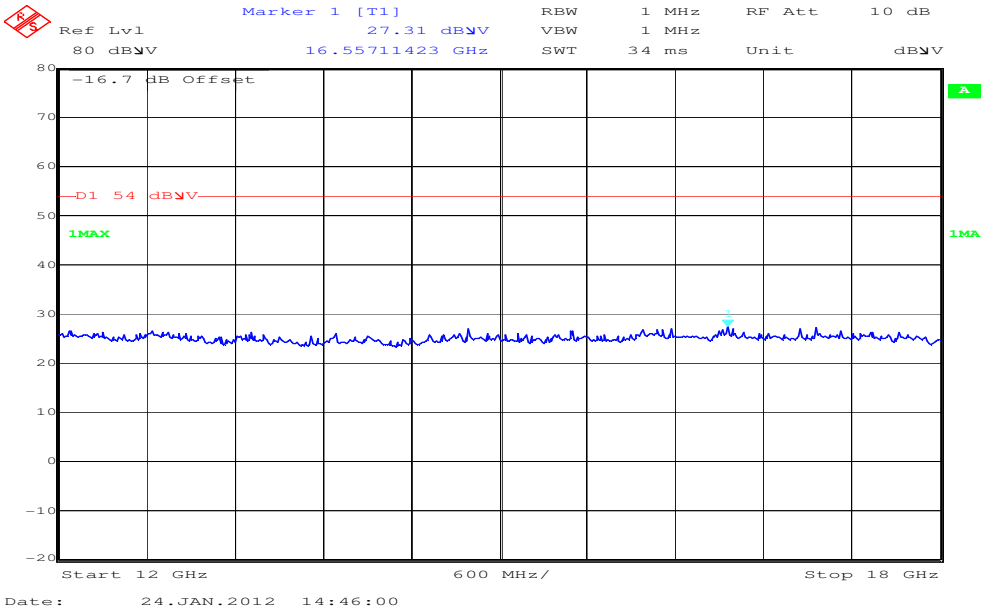
Plot 12: Highest channel, 1 GHz to 12.75 GHz, vertical polarization



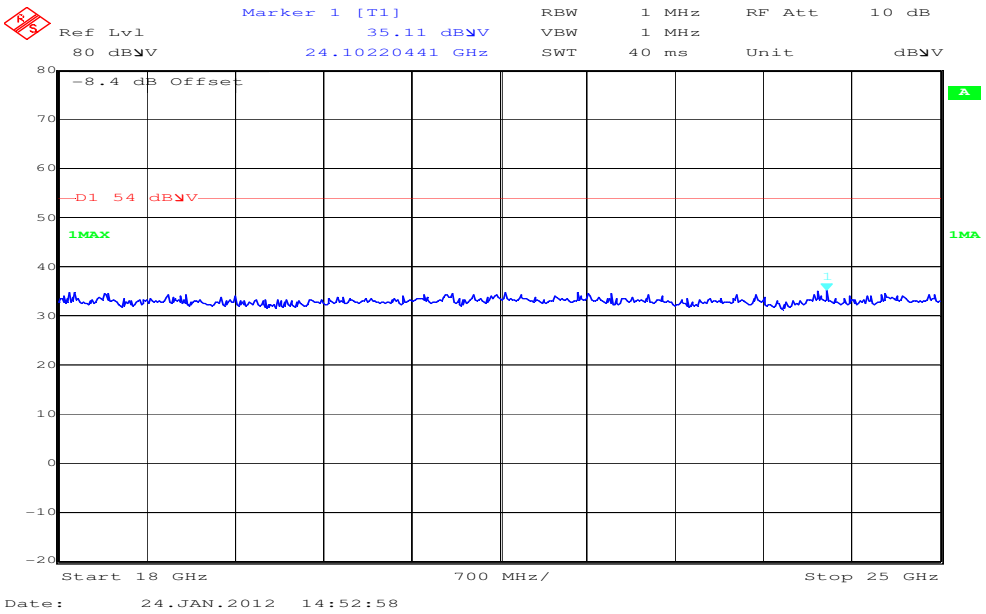
Plot 13: Highest channel, 1 GHz to 12.75 GHz, horizontal polarization



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



Plot 15: Highest channel, 18 GHz to 26 GHz, vertical & horizontal polarization



9.11 RX spurious emissions radiated

Description:

Measurement of the radiated spurious emissions in idle/receive mode. The results are valid for both modes.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	Sweep: 100 kHz Remeasurement: 10 Hz
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Span:	30 MHz to 26 GHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
CFR Part 15.109		RSS Gen, Issue 2, 4.10
RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Results:

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

Result: The result of the measurement is passed.

Plots: RX / Idle – mode

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

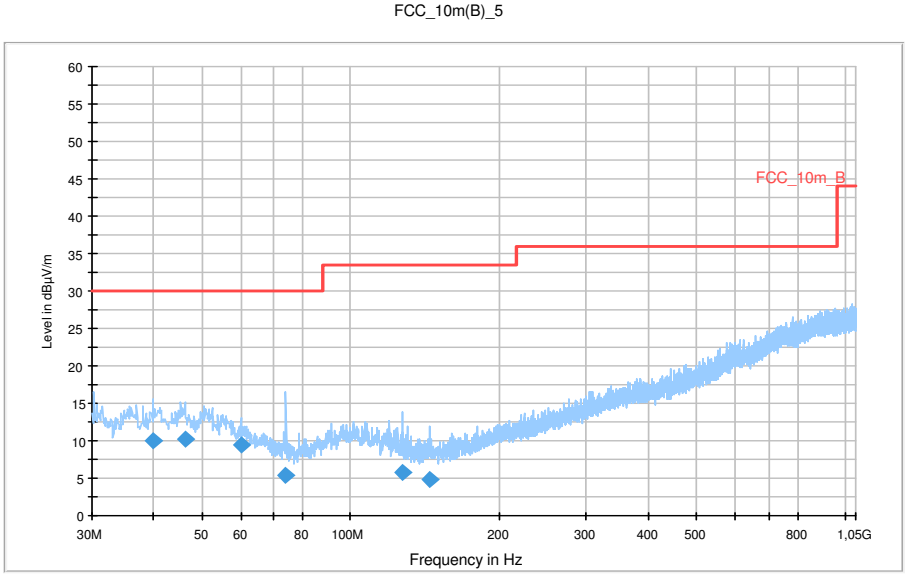
Common Information

EUT:	AAL-8880001-BV
Serial Number:	CB5A1JE2RN
Test Description:	FCC part 15 C class B @ 10 m
Operating Conditions:	WLAN RX-mode + charging
Operator Name:	Wolsdorfer
Comment:	AC: 115 V / 60 Hz

Scan Setup: STAN_Fin [EMI radiated]

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

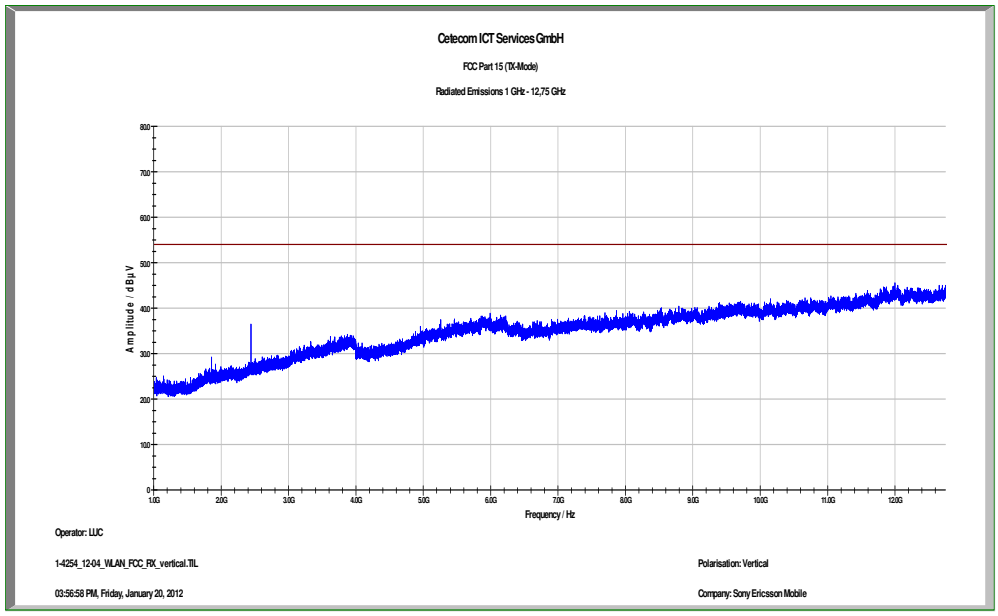
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



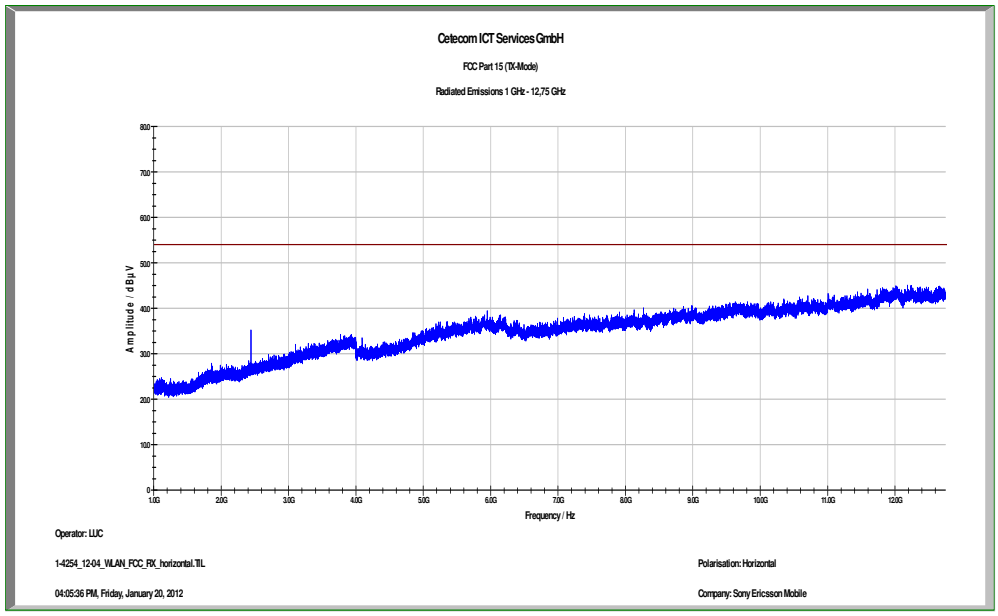
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
39.840000	10.0	1000.0	120.000	225.0	V	47.0	13.4	20.0	30.0	
46.200000	10.1	1000.0	120.000	98.0	V	-1.0	13.3	19.9	30.0	
60.000000	9.3	1000.0	120.000	98.0	V	223.0	11.6	20.7	30.0	
74.040000	5.5	1000.0	120.000	237.0	V	328.0	9.2	24.5	30.0	
127.080000	5.9	1000.0	120.000	227.0	V	303.0	9.6	27.6	33.5	
144.960000	4.9	1000.0	120.000	270.0	V	328.0	8.8	28.6	33.5	

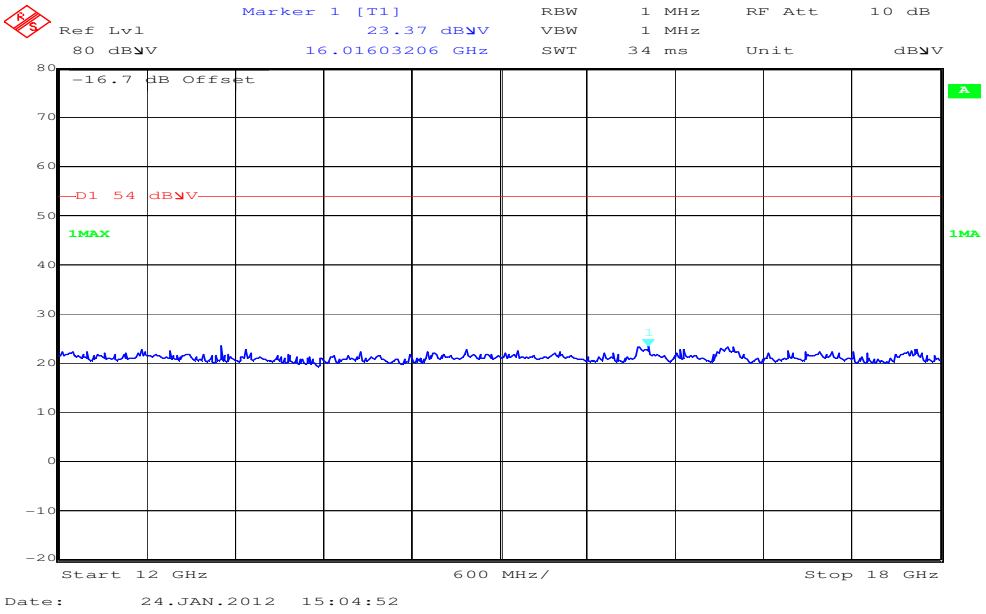
Plot 2: 1 GHz to 12.75 GHz, vertical polarization



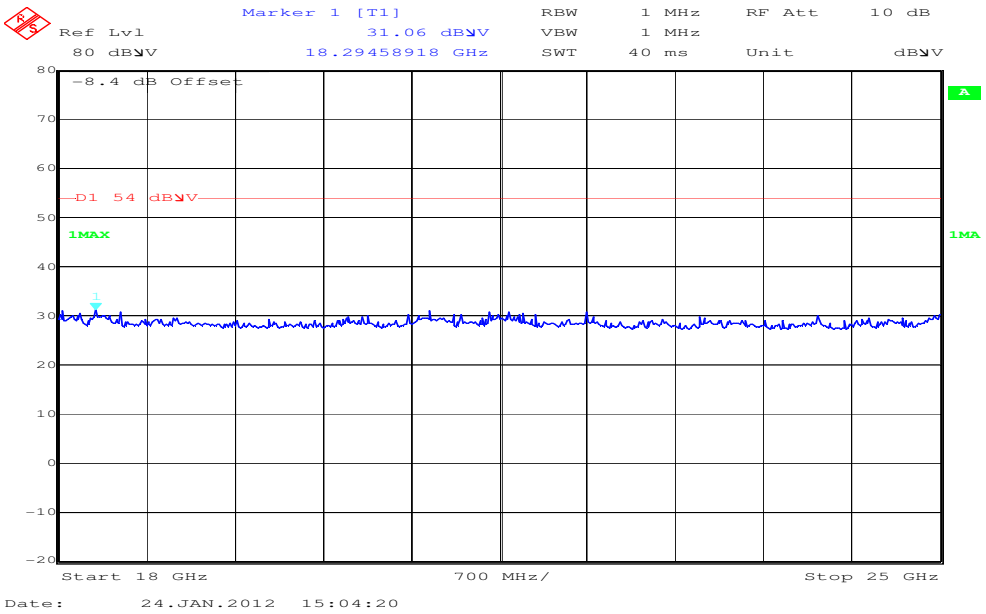
Plot 3: 1 GHz to 12.75 GHz, horizontal polarization



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



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



9.12 TX spurious emissions radiated < 30 MHz

Description:

Measurement of the radiated spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is representative for all channels and modes. If critical peaks are found channel 1 and channel 11 will be measured too. The measurement is performed with the data rate producing the highest output power. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
CFR Part 15.209(a)		RSS –Gen
TX Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

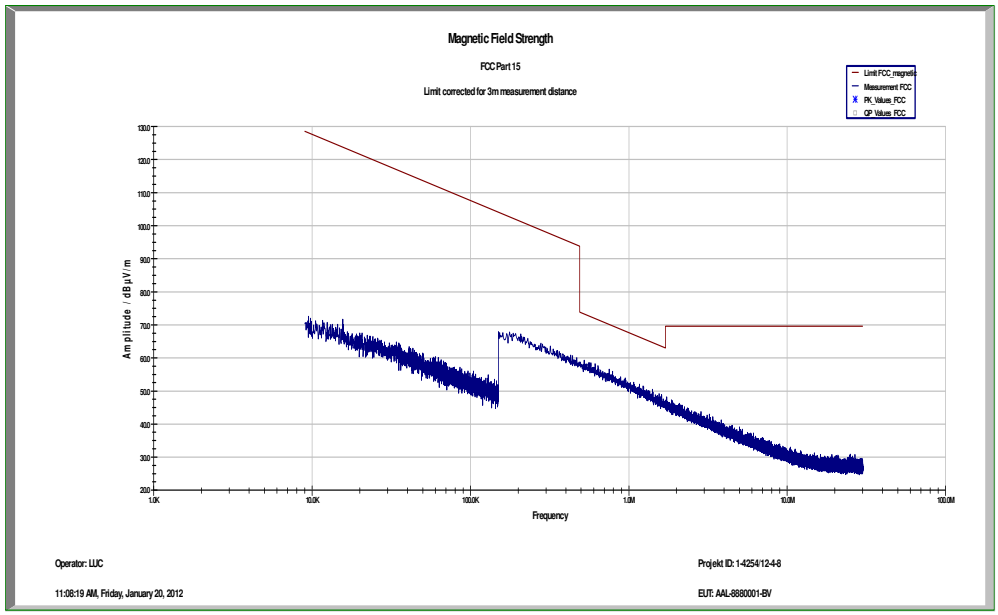
Results:

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

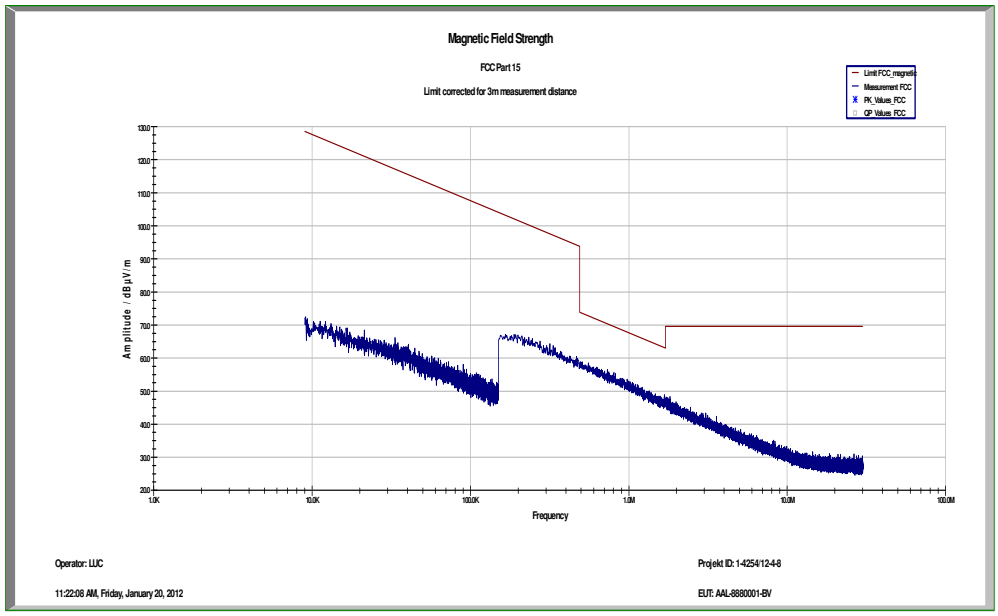
Result: **The result of the measurement is passed.**

Plots: DSSS / b – mode

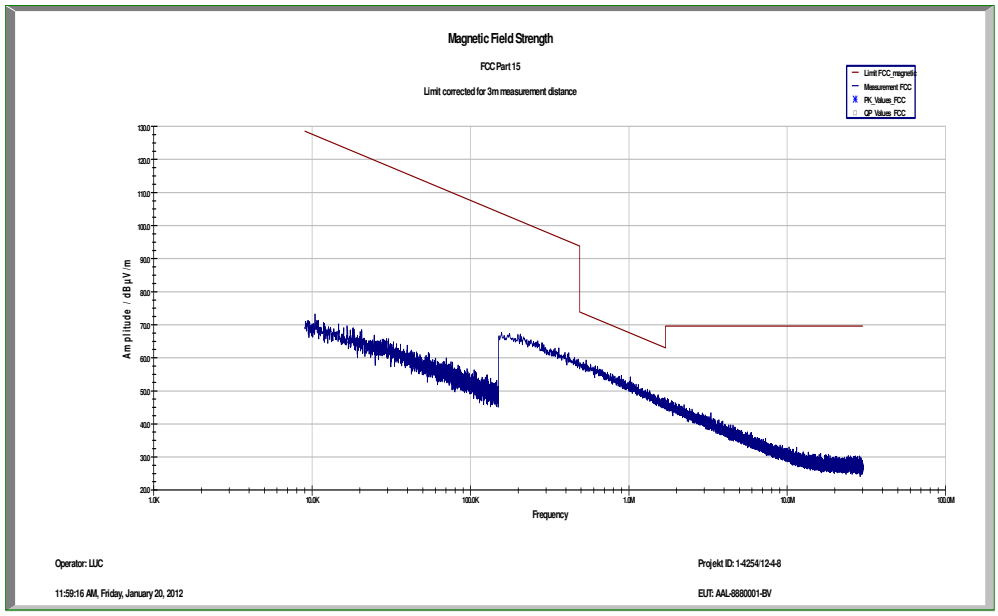
Plot 1: Lowest channel, 9 kHz to 30 MHz



Plot 2: Middle channel, 9 kHz to 30 MHz

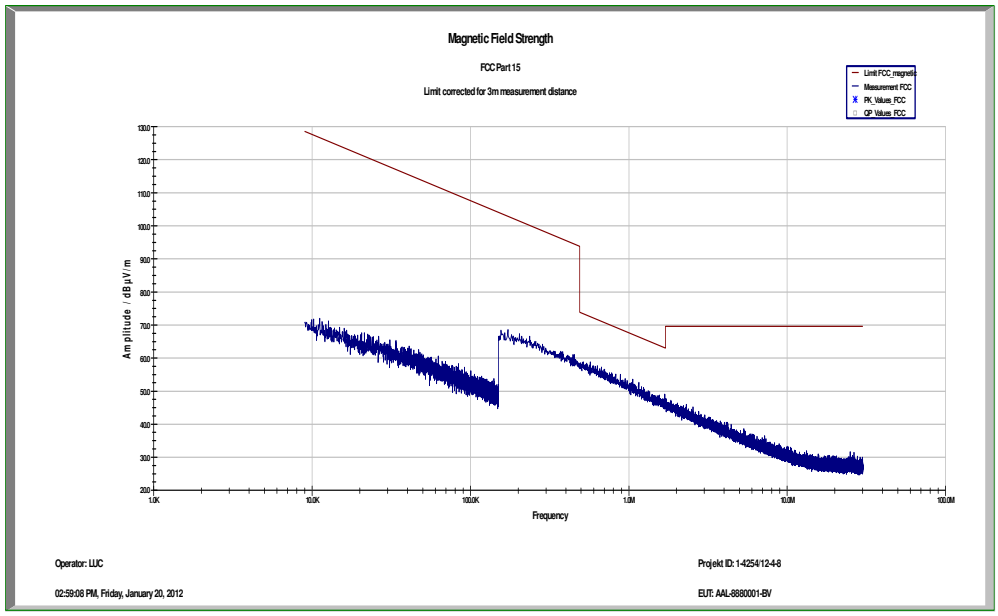


Plot 3: Highest channel, 9 kHz to 30 MHz

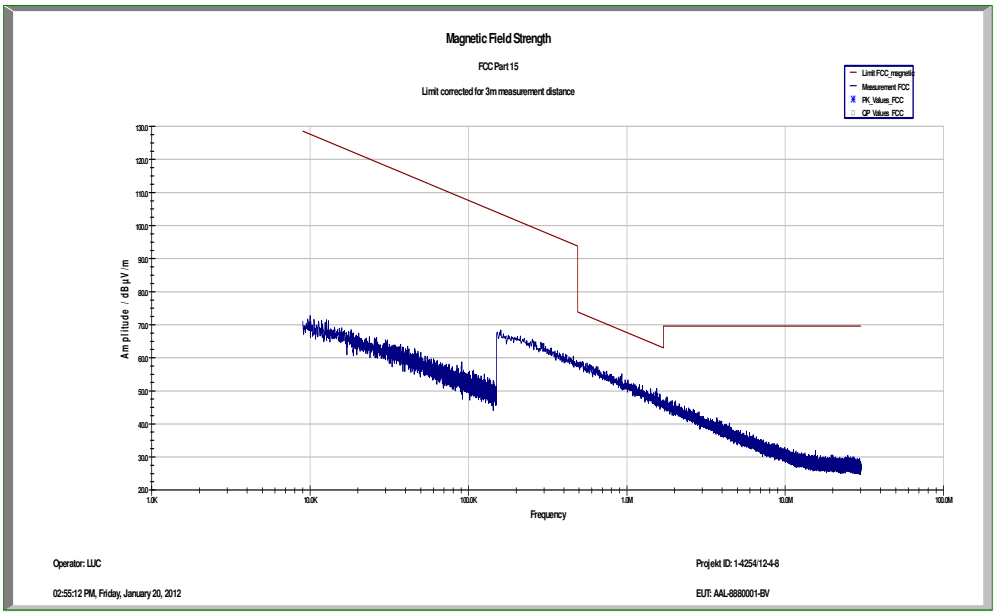


Plots: OFDM / g – mode

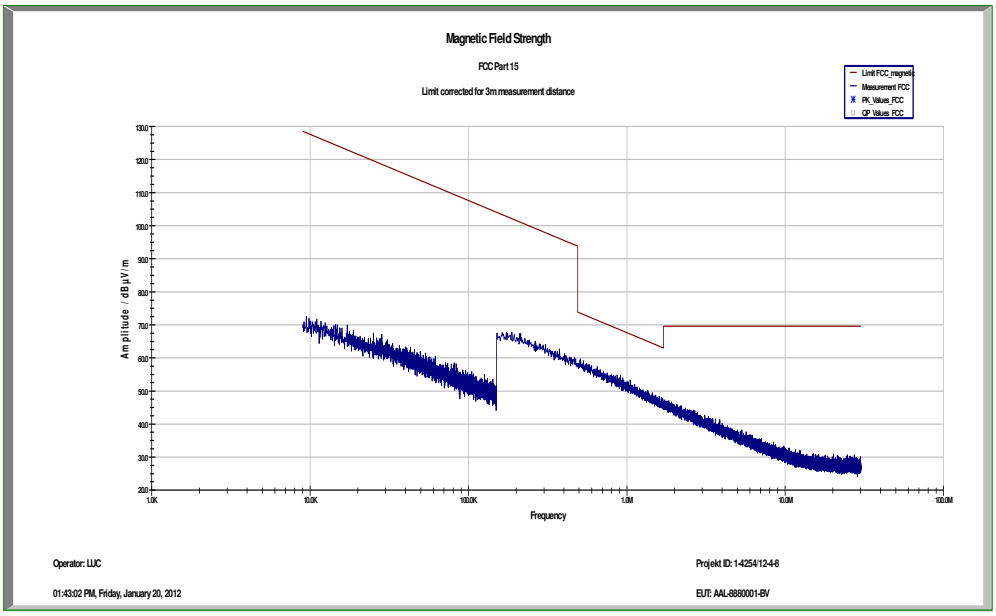
Plot 1: Lowest channel, 9 kHz to 30 MHz



Plot 2: Middle channel, 9 kHz to 30 MHz

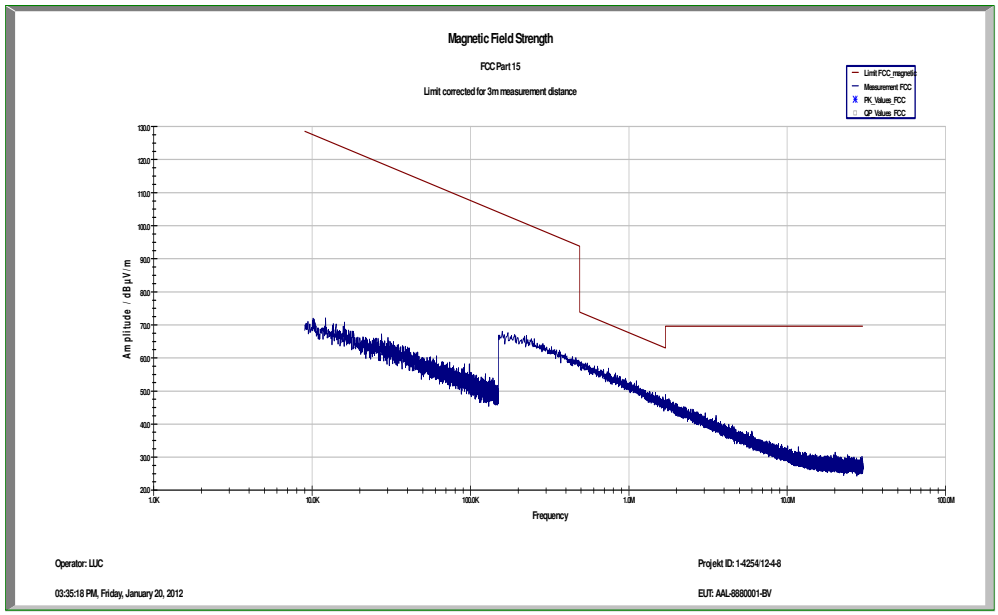


Plot 3: Highest channel, 9 kHz to 30 MHz

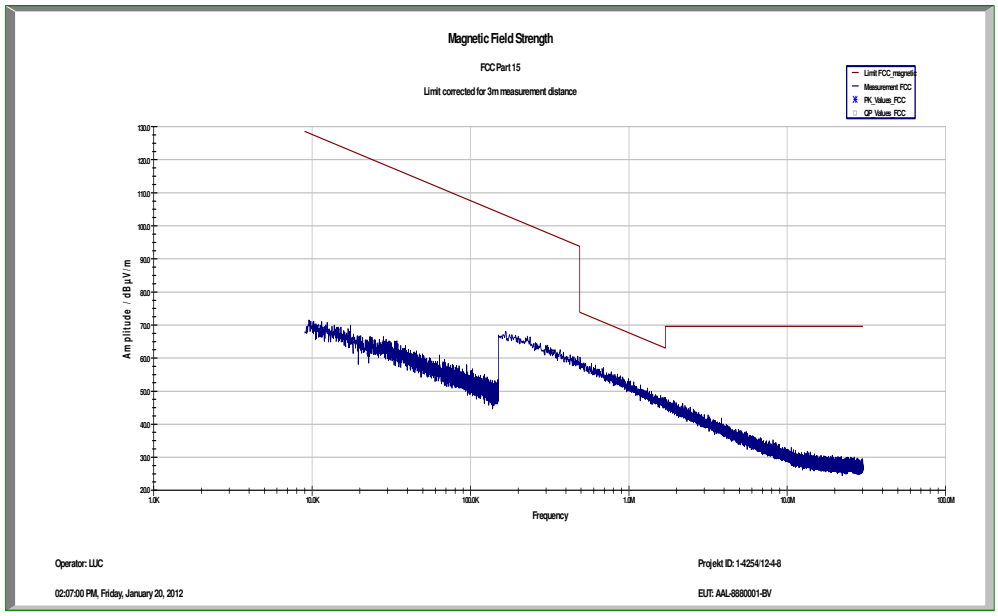


Plots: OFDM / n – mode

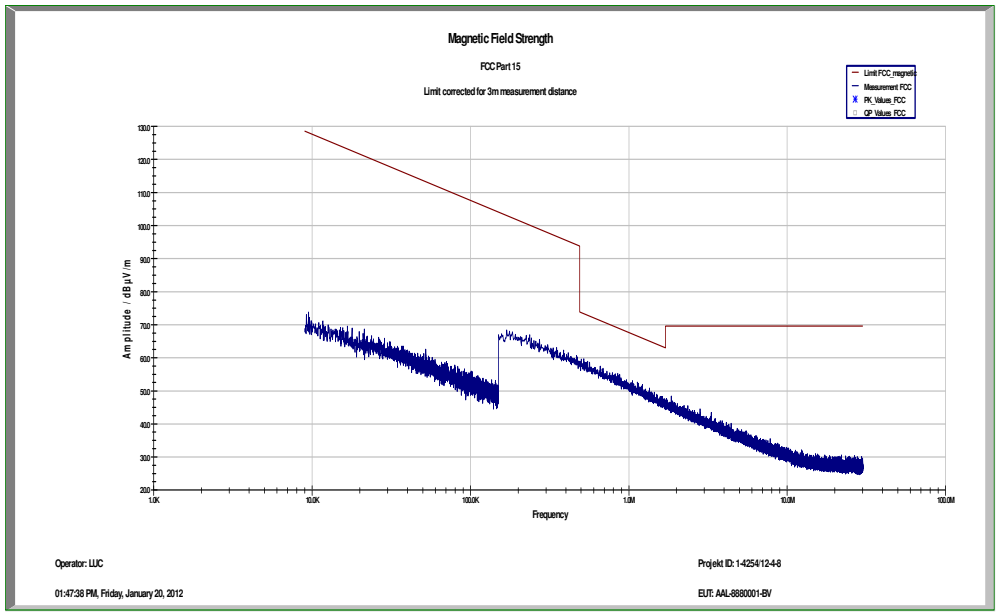
Plot 1: Lowest channel, 9 kHz to 30 MHz



Plot 2: Middle channel, 9 kHz to 30 MHz

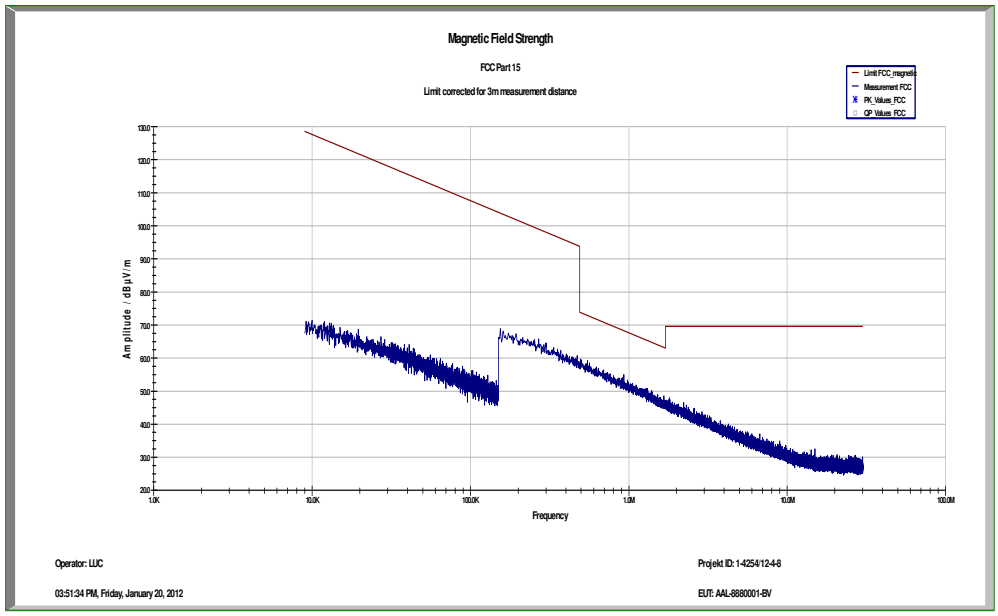


Plot 3: Highest channel, 9 kHz to 30 MHz



Plots: RX / Idle – mode

Plot 1: 9 kHz to 30 MHz



9.13 TX spurious emissions conducted < 30 MHz

Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to channel 6. This measurement is repeated for DSSS and OFDM modulation. If critical peaks are found channel 1 and channel 11 will be measured too. The measurement is performed with the data rate producing the highest output power. Both power lines, phase and neutral line, are measured. Found peaks are remeasured with average and quasi peak detection to show compliance to the limits.

Measurement:

Measurement parameter	
Detector:	Peak - Quasi Peak / Average
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace-Mode:	Max Hold

Limits:

FCC		IC
CFR Part 15.107(a)		ICES-003, Issue 4
TX Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dBµV/m)	Average (dBµV/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

*Decreases with the logarithm of the frequency

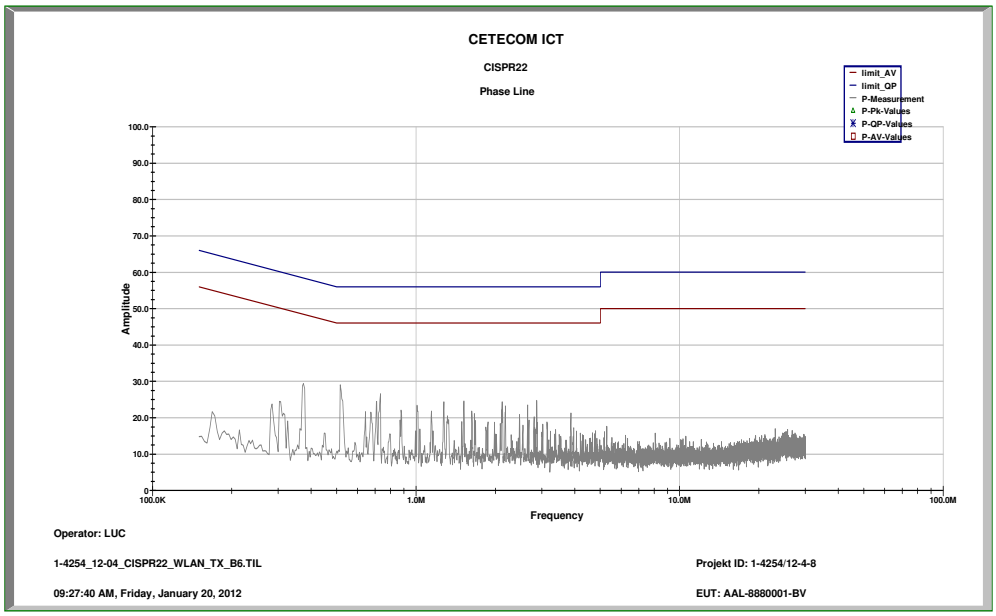
Results:

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

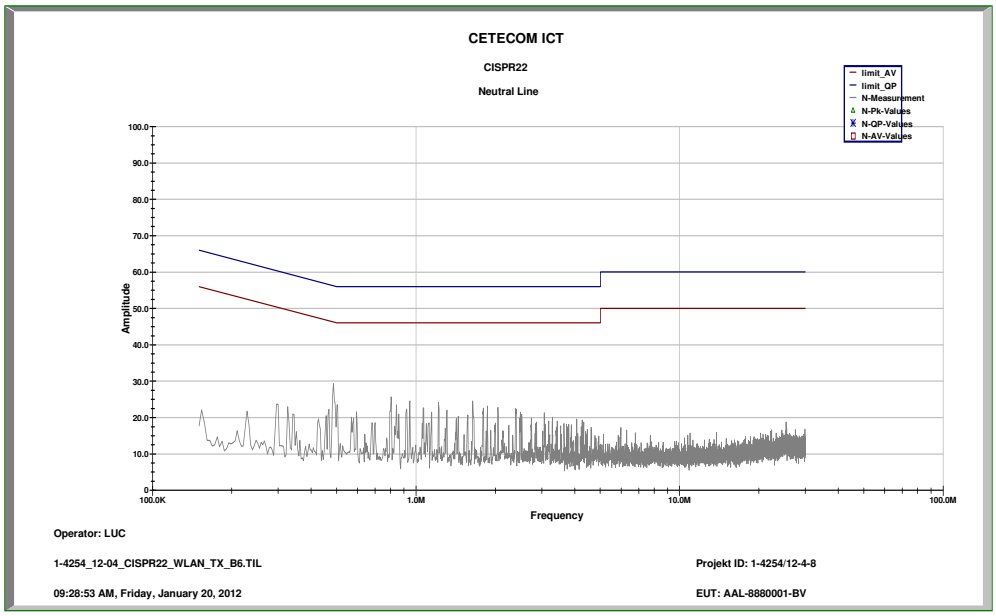
Result: **The result of the measurement is passed.**

Plots:

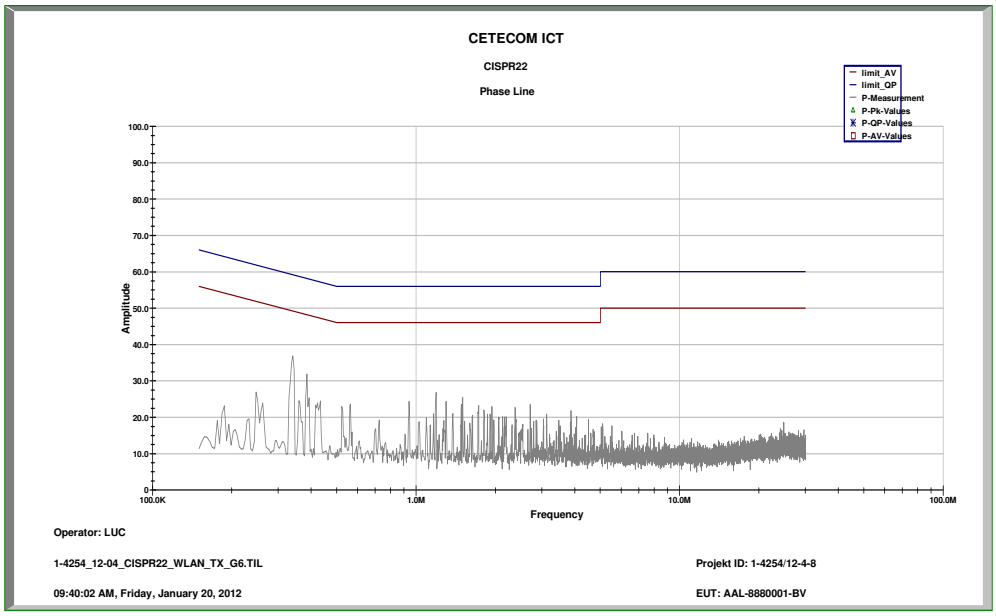
Plot 1: DSSS / b – mode, 9 kHz to 30 MHz, phase line



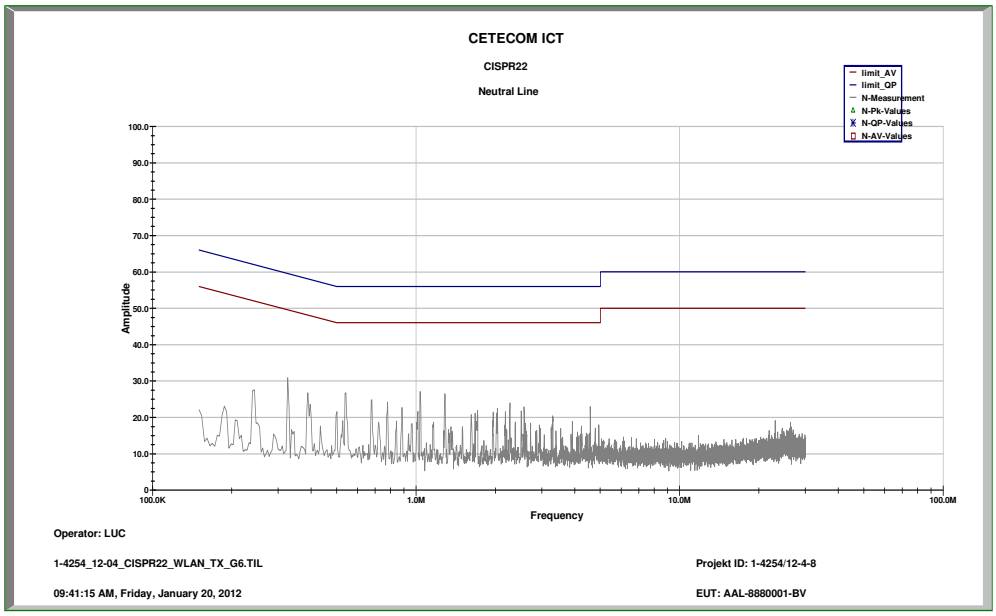
Plot 2: DSSS / b – mode, 9 kHz to 30 MHz, neutral line



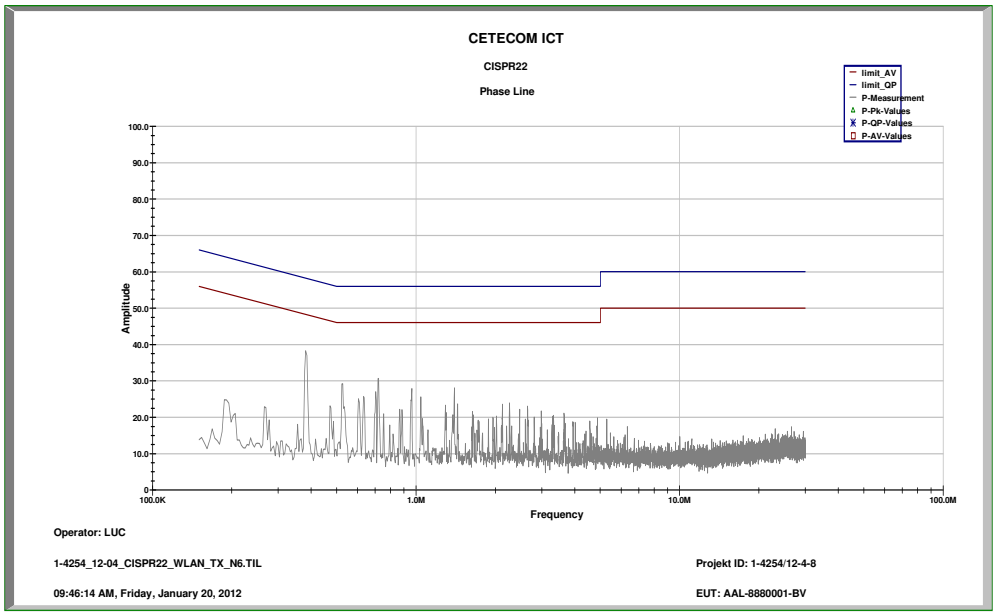
Plot 3: OFDM / g – mode, 9 kHz to 30 MHz, phase line



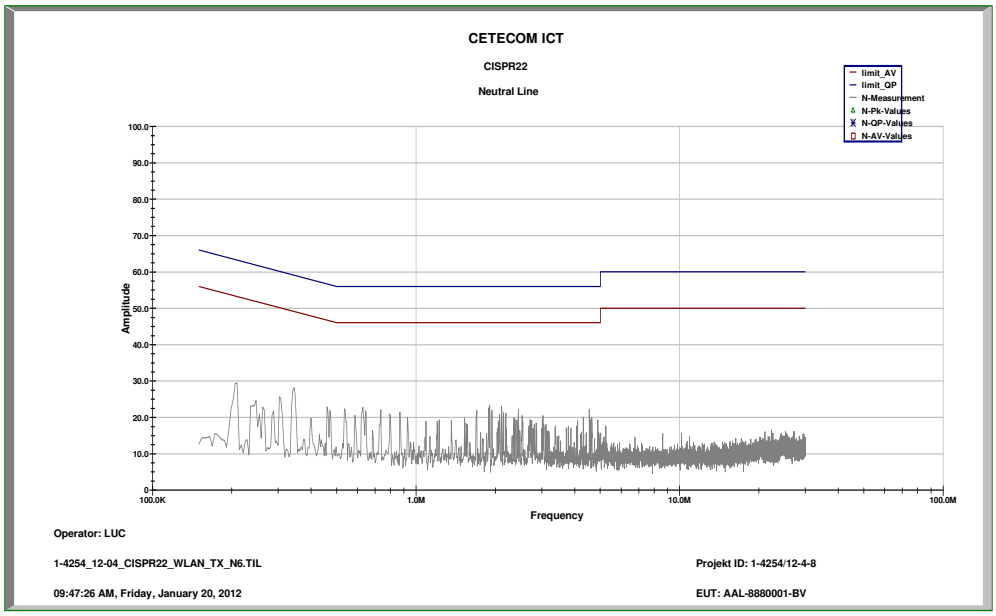
Plot 4: OFDM / g – mode, 9 kHz to 30 MHz, neutral line



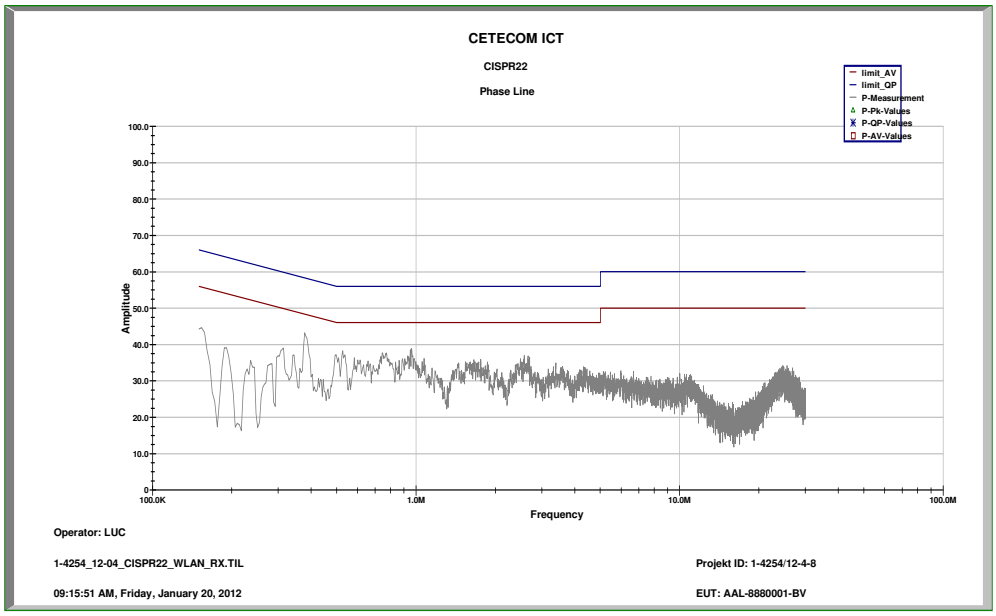
Plot 5: OFDM / n – mode, 9 kHz to 30 MHz, phase line



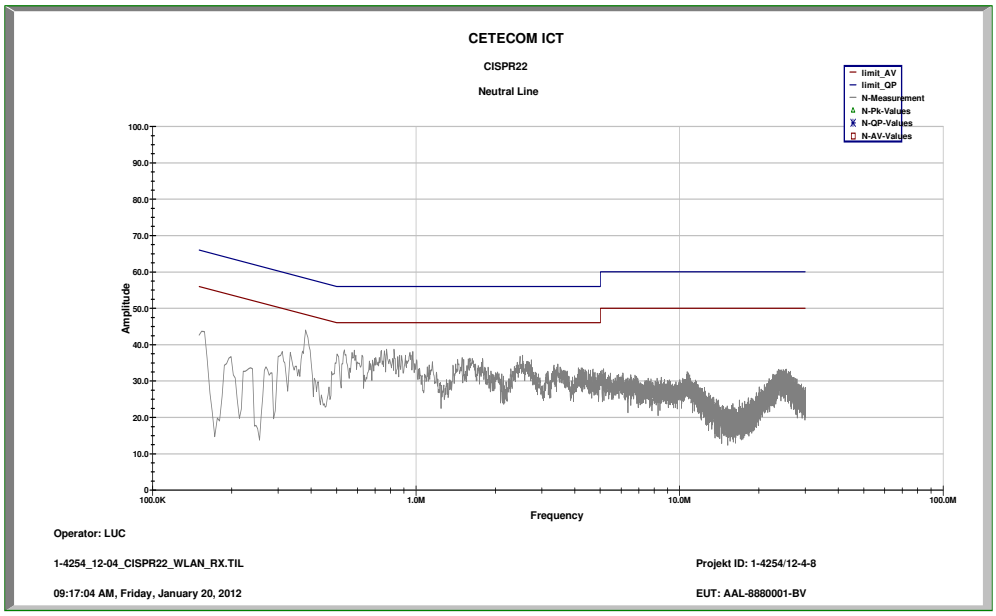
Plot 6: OFDM / n – mode, 9 kHz to 30 MHz, neutral line



Plot 7: RX / Idle – mode, 9 kHz to 30 MHz, phase line



Plot 8: RX / Idle – mode, 9 kHz to 30 MHz, neutral line



10 Test equipment and ancillaries used for tests

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

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

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	Temperaturprüfschrank	T-40/50	CTS GmbH		300003592	ne		
2	n. a.	Netzgerät	E3634A	Agilent Technologies	MY40011505	300003742	k	12.01.2011	12.01.2013
3	n. a.	Spectrumanalyzer	FSV30	R&S	100763	300003950	k		
4	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
5	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580	ne		
6	n. a.	software	SPS_PHE 1.4f	Spitzberger & Spieß	B5981; 5D1081;B5979	300000210	ne		
7	n. a.	EMI Test Receiver	ESCI 1166.5950.03	R&S	100083	300003312	k	05.01.2011	05.01.2013
8	n. a.	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	k	14.07.2011	14.07.2013
9	n. a.	Amplifier	JS42-00502650-28-5A	MITEQ	1084532	300003379	ev		
10	n. a.	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
11	n. a.	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
12	n. a.	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747	izw		
13	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	01.04.2010	01.04.2012
14	n. a.	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	10.01.2011	10.01.2013
15	n. a.	Isolating Transformer	RT5A	Grundig	8041	300001626	g		
16	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	12.01.2012	12.01.2015
17	n. a.	Coaxial Attenuator 30dB/500W	8325	Bird	1530	300001595	ev		
18	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	vlKl!	11.05.2011	11.05.2013
19	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
20	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996		23.03.2009	
21	Spec.A. 2_2e	System rack for EMI measurement solution	85900	HP I.V.	*	300000222	ne		
22	9	Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	Ve	06.01.2012	06.01.2014
23	n. a.	Relais Matrix	3488A	HP Meßtechnik	2719A15013	300001156	ne		
24	n. a.	Relais Matrix	PSU	R&S	890167/024	300001168	ne		
25	n. a.	Isolating Transformer	RT5A	Grundig	9242	300001263	ne		
26	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
27	n. a.	Switch / Control Unit	3488A	HP	2605e08770	300001443	ne		
28	n. a.	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
29	n. a.	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
30	n. a.	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
31	n. a.	TILE-Software Emission	Quantum Change, Modell TILE-ICS/FULL	EMCO	none	300003451	ne		
32	n. a.	Highpass Filter	WHKX2.9/18G-12SS	Wainwright	1	300003492	ev		

33	n. a.	Highpass Filter	WHK1.1/15G-10SS	Wainwright	3	300003255	ev		
34	n. a.	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
35	n. a.	PSA Spectrum Analyzer 3 Hz - 26.5 GHz	E4440A	Agilent Technologies	MY48250080	300003812	k	08.09.2010	08.09.2012
36	n. a.	MXG Microwave Analog Signal Generator	N5183A	Agilent Technologies	MY47420220	300003813	k	13.09.2010	13.09.2012
37	n. a.	RF Filter Section 9kHz - 1GHz	N9039A	Agilent Technologies	MY48260003	300003825	vlKl!	08.09.2010	08.09.2012
38	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	vlKl!	14.10.2011	14.10.2014
39	11b	Microwave System Amplifier, 0.5-26.5 GHz; 25 dB gain	83017A	HP Meßtechnik	00419	300002268	ev	10.03.2011	
40	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000787	ne		
41	A029	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300002442	ne		
42	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	ve	01.07.2010	01.07.2012

Agenda: Kind of Calibration

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

11 Observations

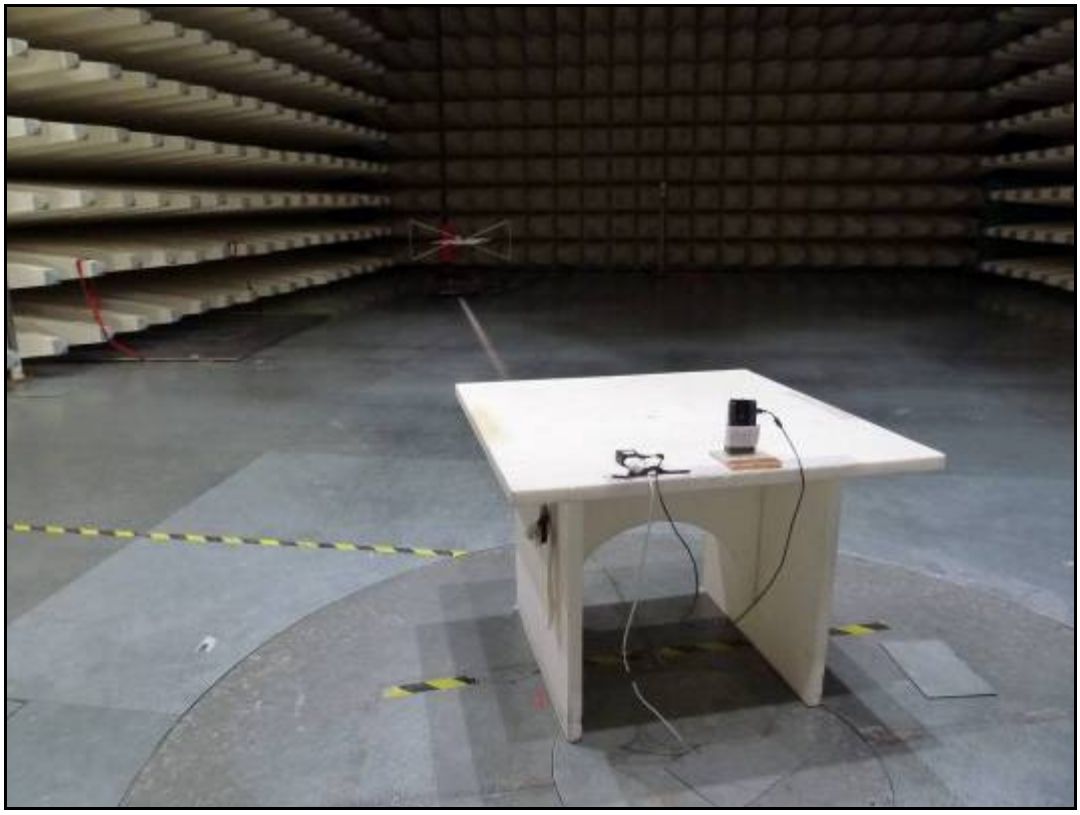
No observations exceeding those reported with the single test cases have been made.

Annex A Photographs of the test setup

Photo documentation

Photo 1:

Photo 2:



Annex B External photographs of the EUT

Photo documentation

Photo 3:

Photo 4:

Photo 5:

Photo 6:

Photo 7:

Photo 8:

Photo 9:

Annex C Internal photographs of the EUT

Photo documentation

Photo 10:

Photo 11:

Photo 12:

Photo 13:

Photo 14:

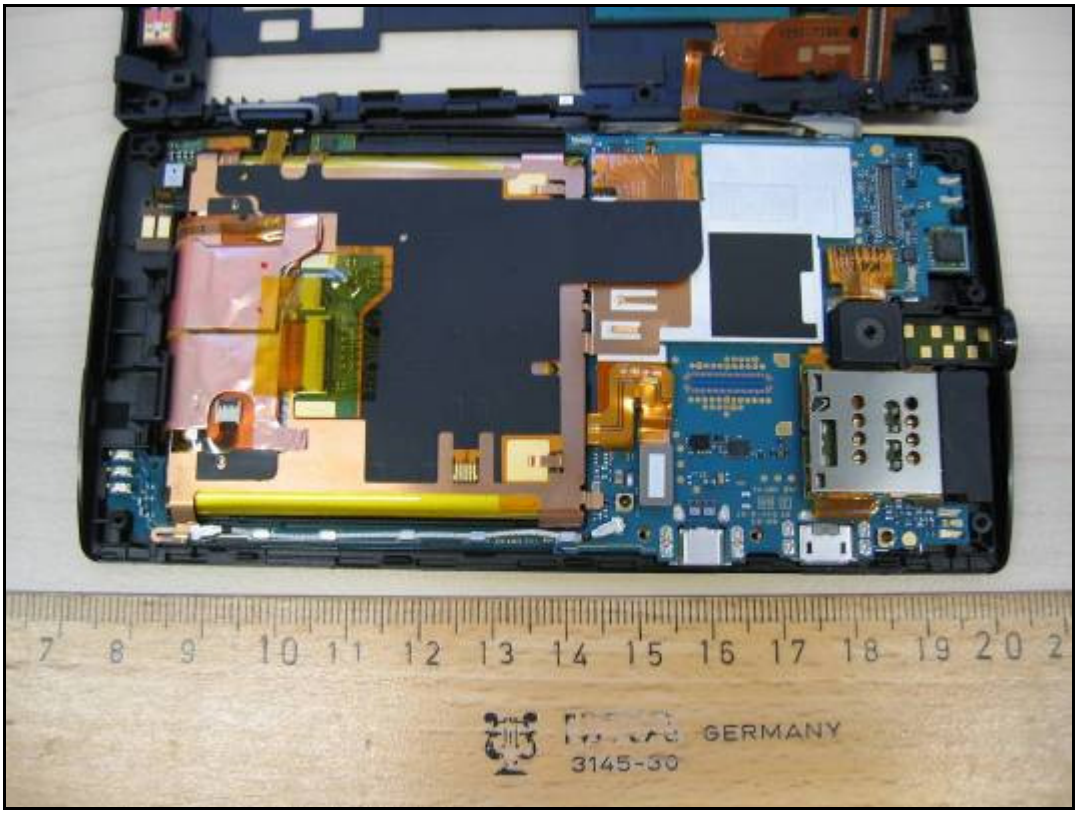


Photo 15:

Photo 16:

Photo 17:

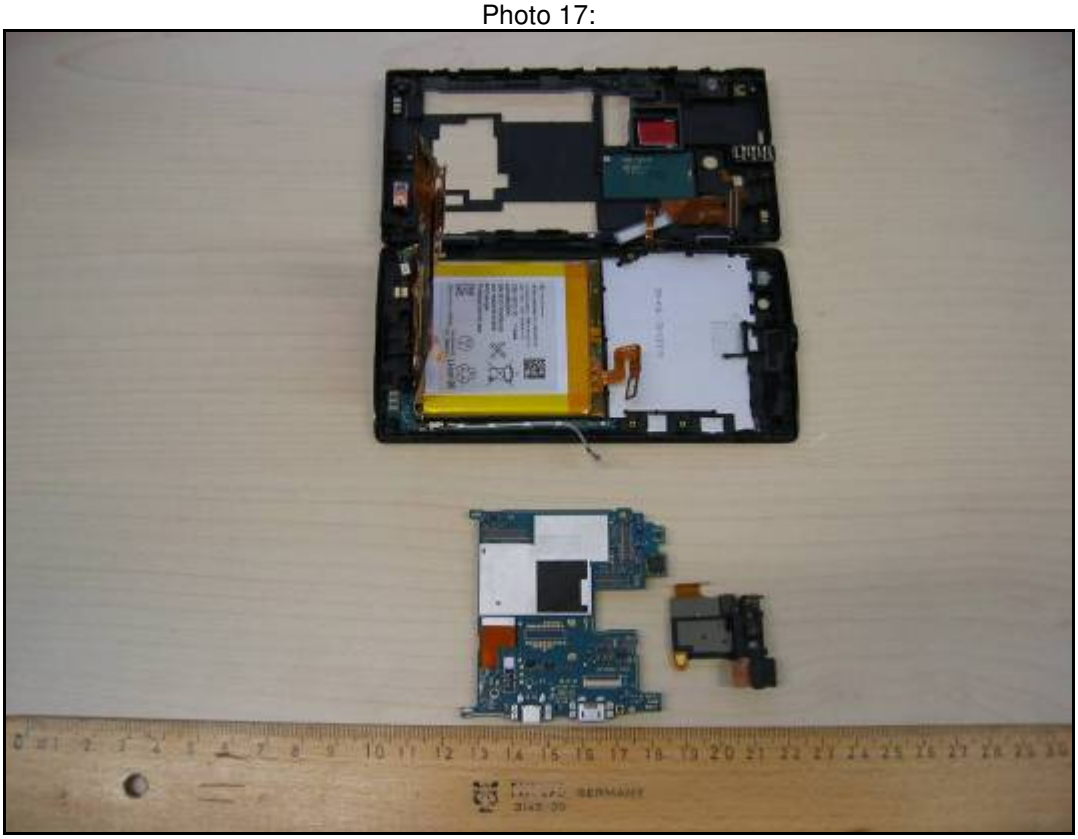


Photo 18:

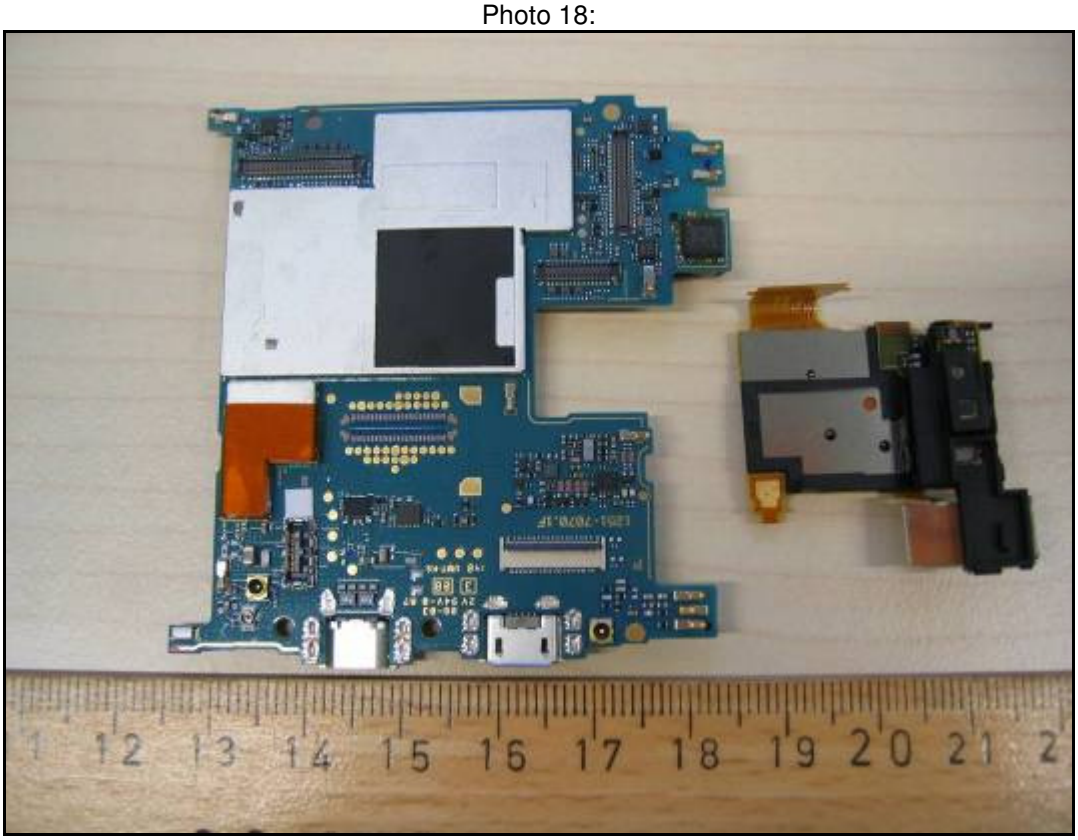


Photo 19:

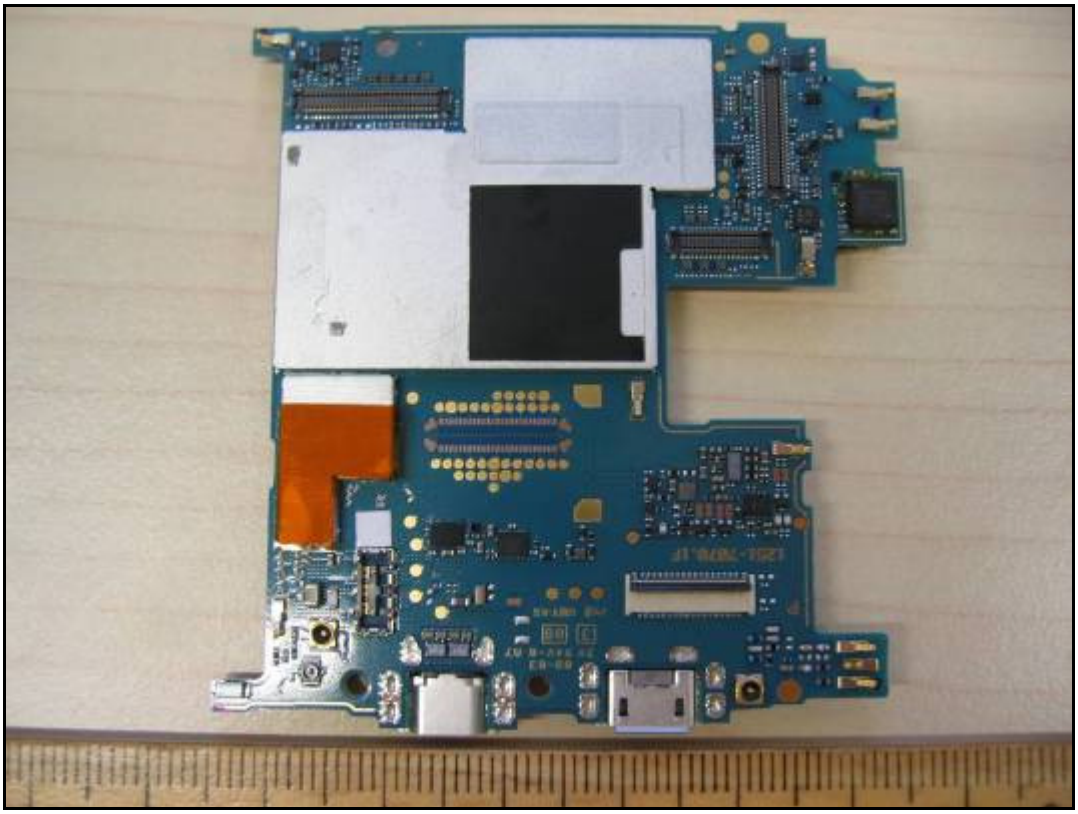
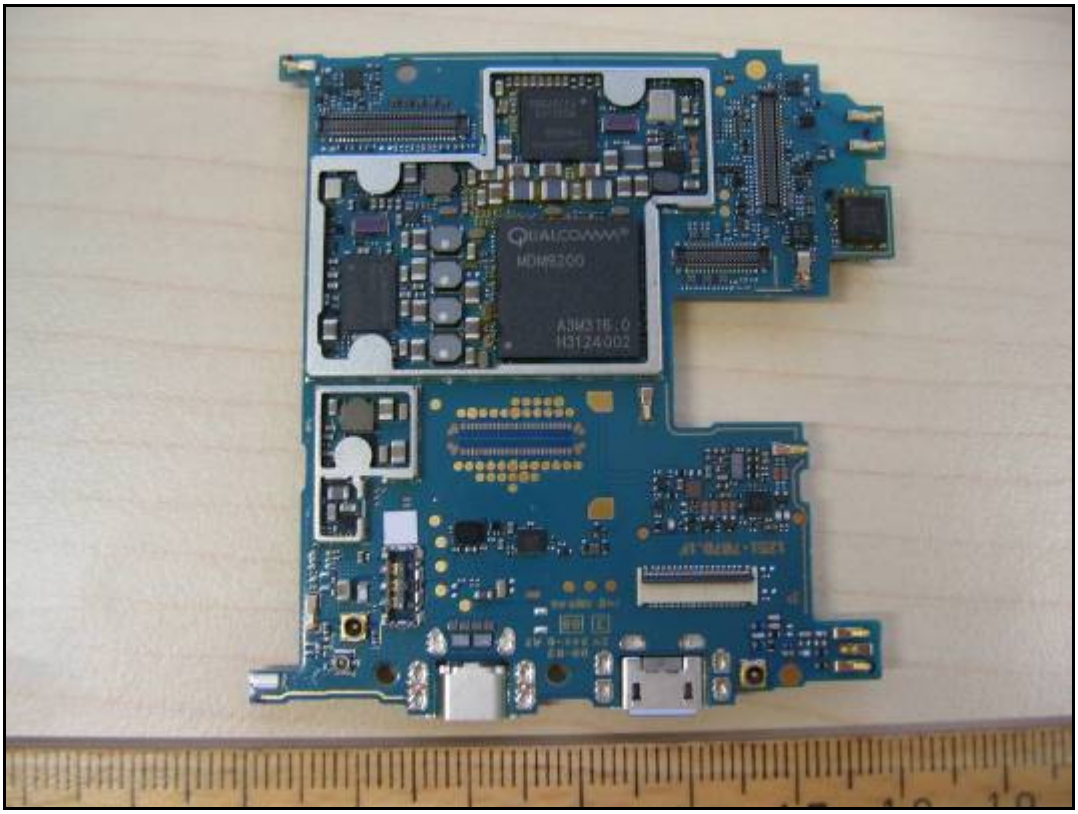


Photo 20:



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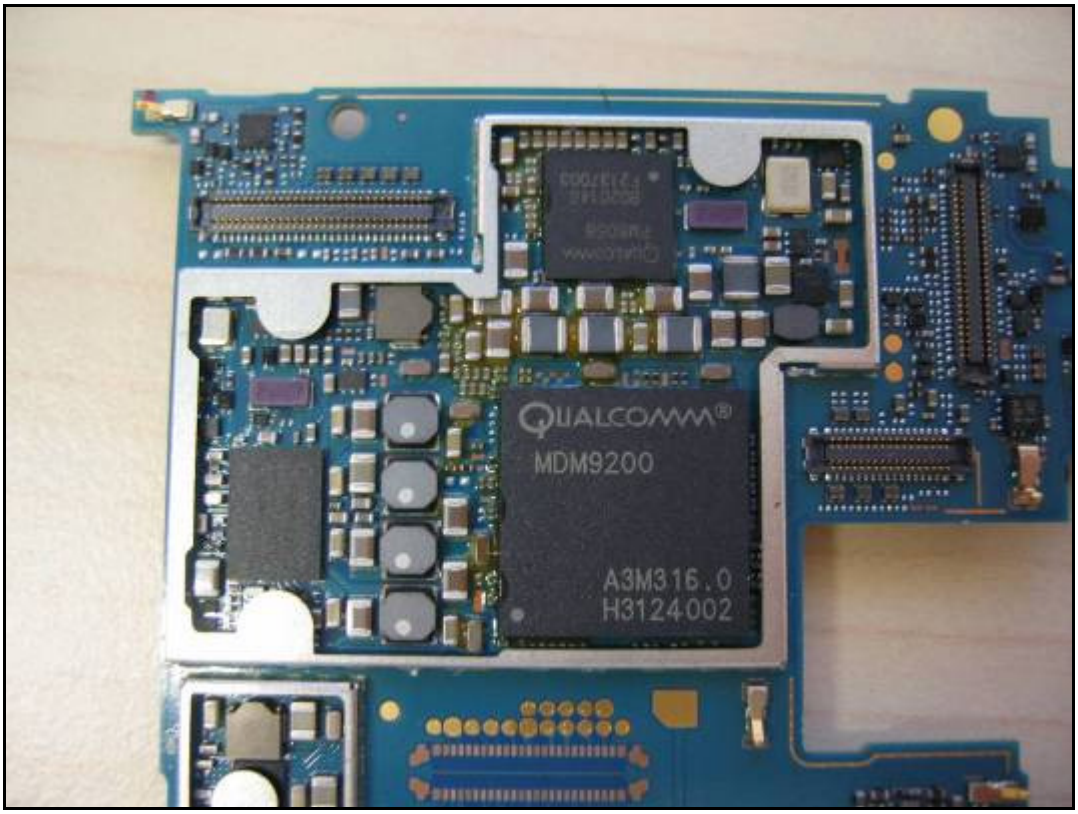


Photo 22:

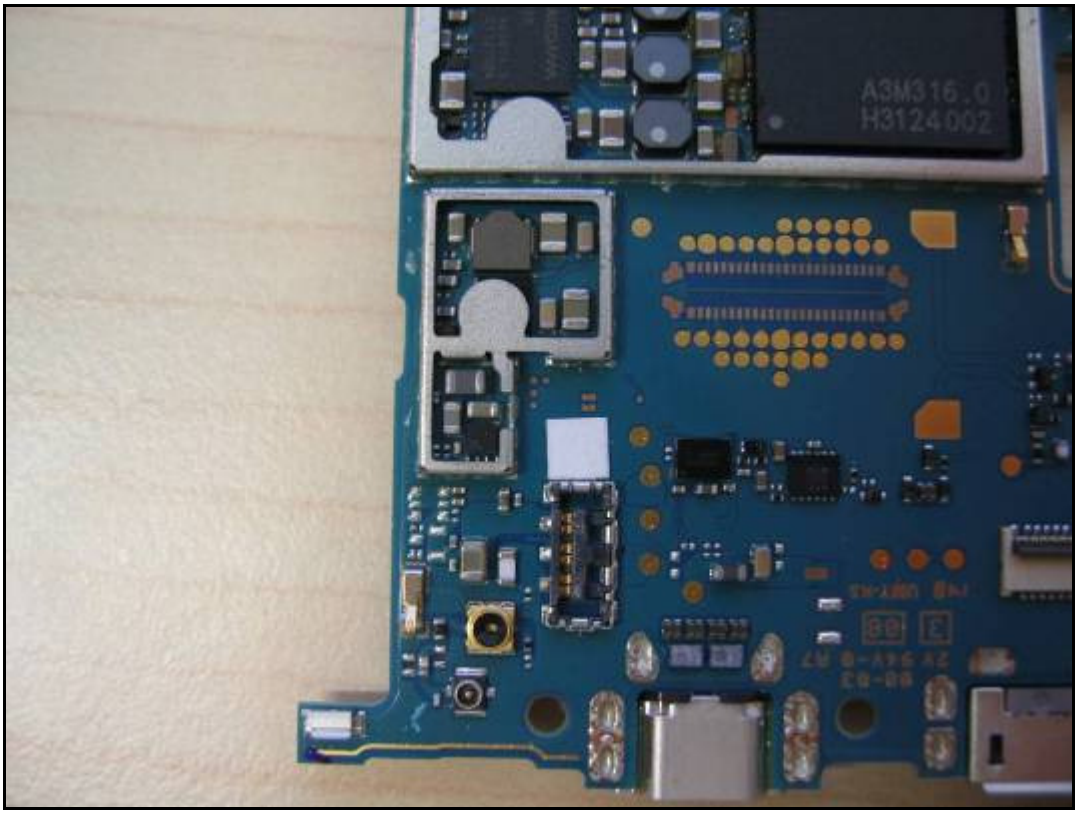


Photo 23:

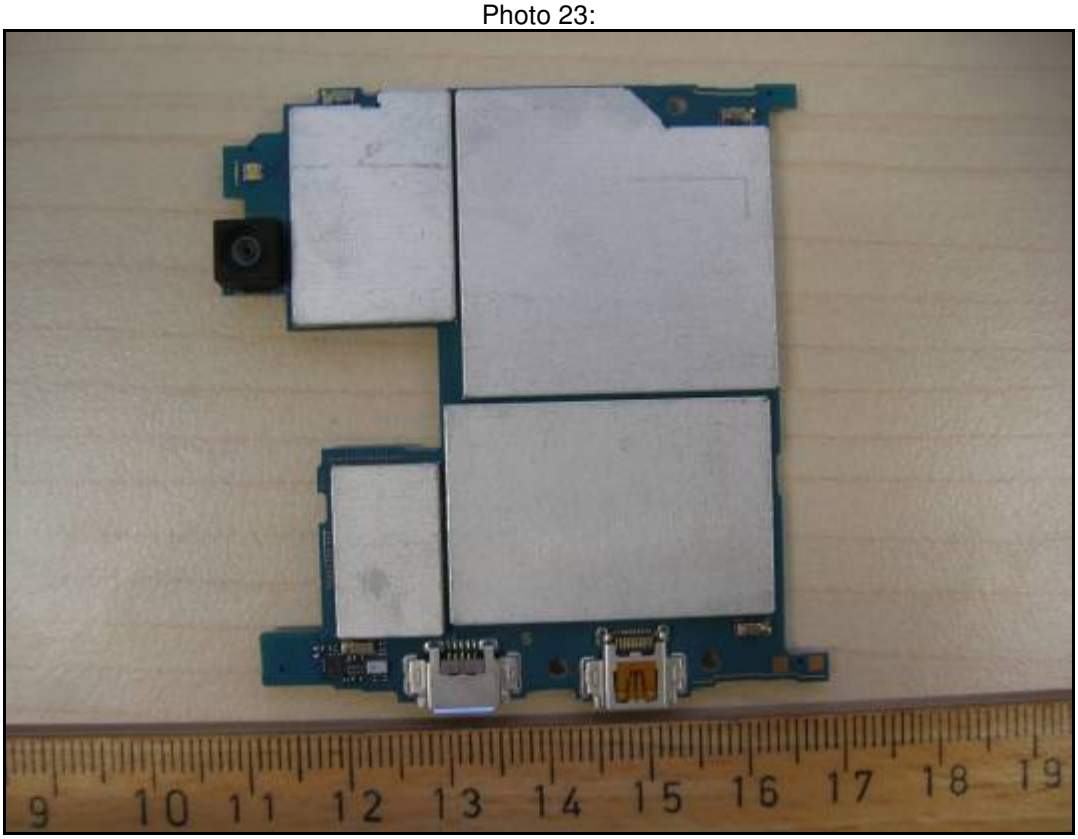


Photo 24:

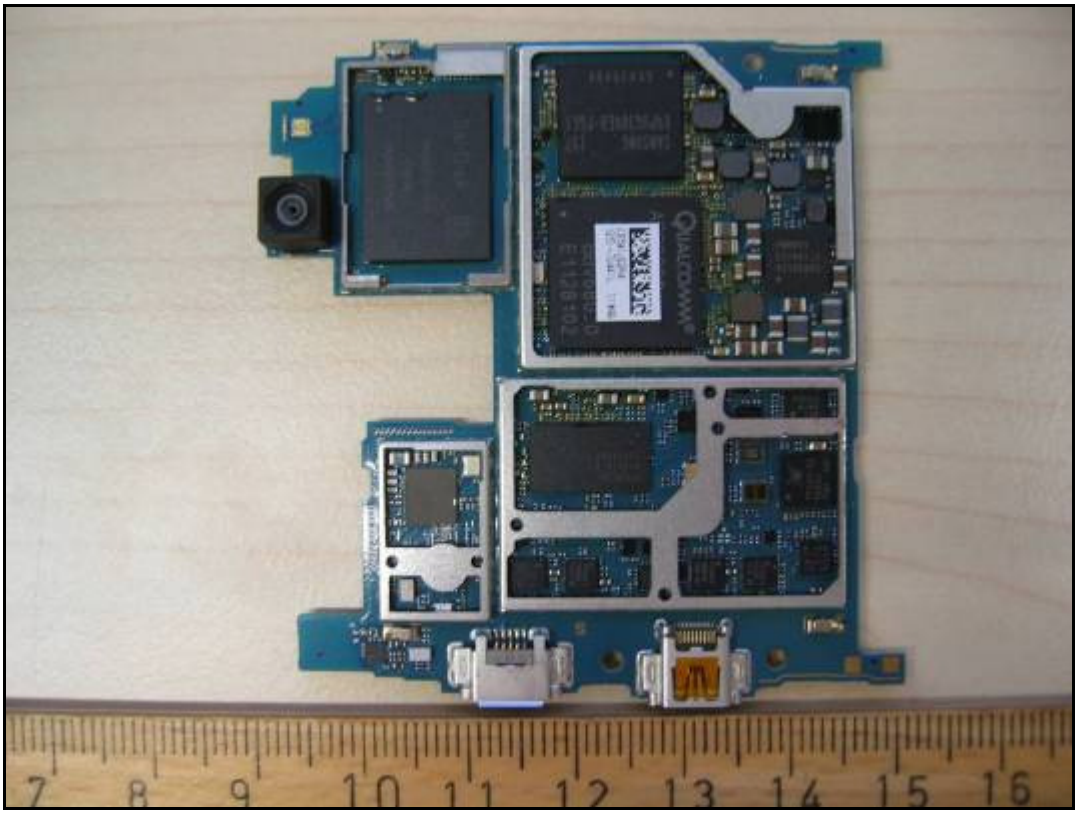


Photo 25:

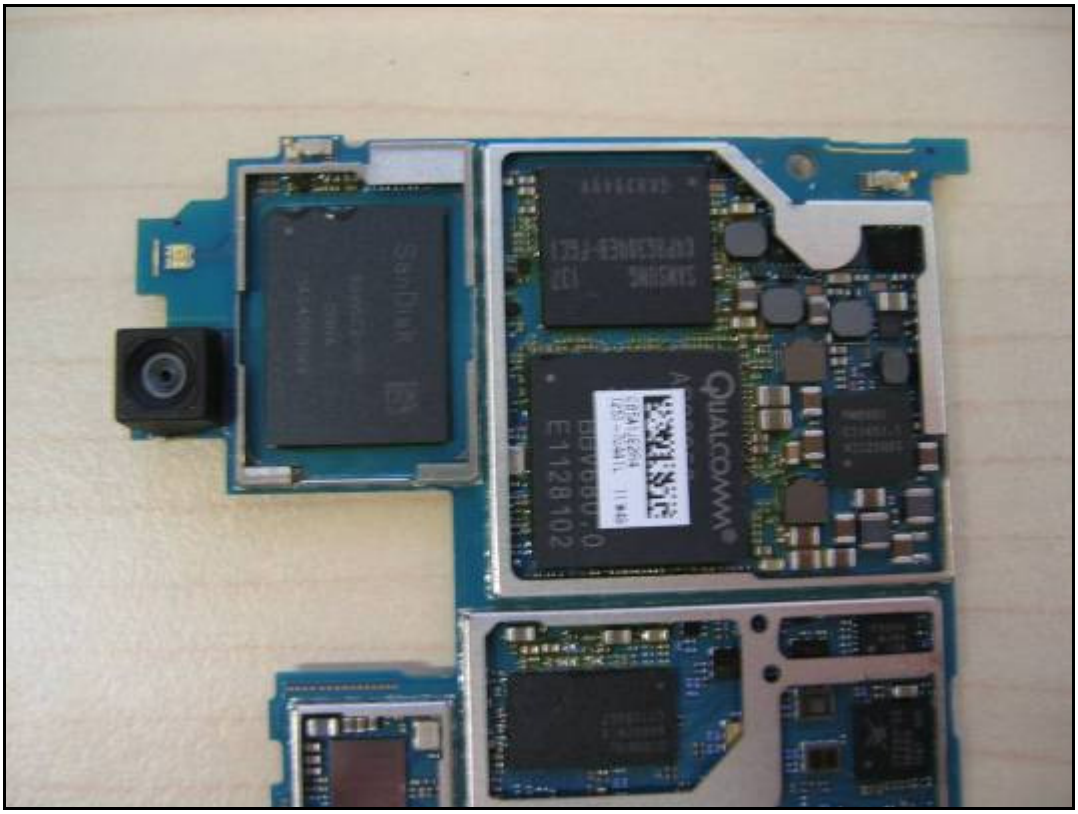
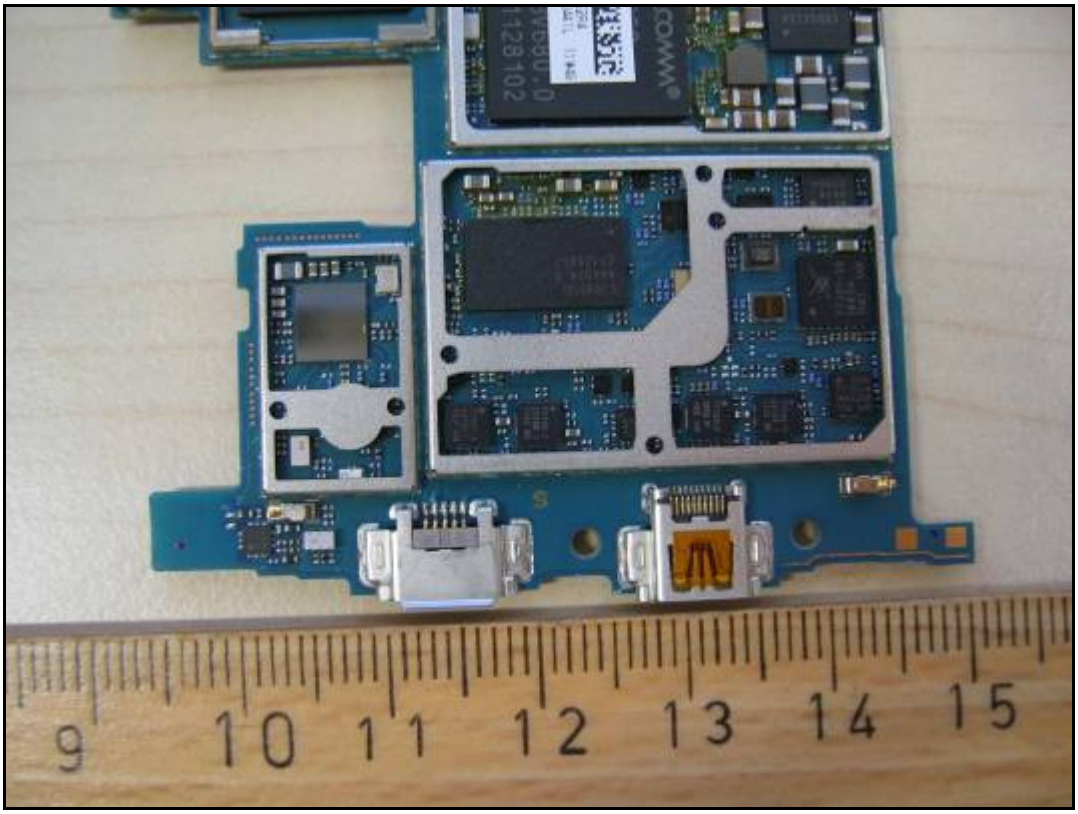


Photo 26:



Annex D Document history

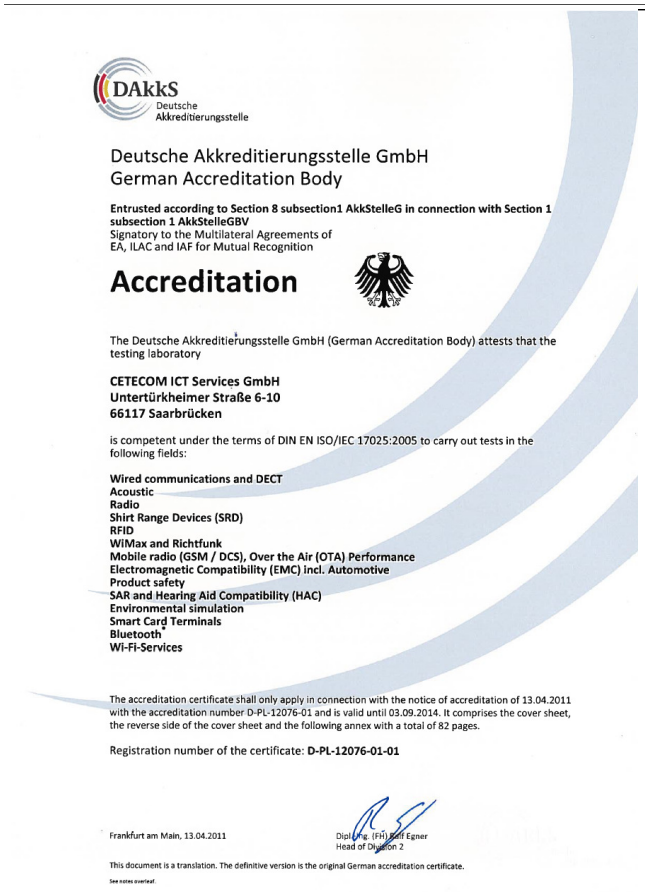
Version	Applied changes	Date of release
1.0	Initial release	2012-01-26

Annex E 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 F Accreditation Certificate



DAkkS
Deutsche
Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH
German Accreditation Body

Entrusted according to Section 8 subsection1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of
EA, ILAC and IAF for Mutual Recognition

Accreditation

The Deutsche Akkreditierungsstelle GmbH (German Accreditation Body) attests that the testing laboratory

CETECOM ICT Services GmbH
Untertürkheimer Straße 6-10
66117 Saarbrücken

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

Wired communications and DECT
Acoustic
Radio
Shirt Range Devices (SRD)
RFID
WiMax and Richtfunk
Mobile radio (GSM / DCS), Over the Air (OTA) Performance
Electromagnetic Compatibility (EMC) incl. Automotive
Product safety
SAR and Hearing Aid Compatibility (HAC)
Environmental simulation
Smart Card Terminals
Bluetooth
Wi-Fi-Services

The accreditation certificate shall only apply in connection with the notice of accreditation of 13.04.2011 with the accreditation number D-PL-12076-01 and is valid until 03.09.2014. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 82 pages.

Registration number of the certificate: **D-PL-12076-01-01**

Frankfurt am Main, 13.04.2011

Dipl.-Ing. (FH) Rolf Egner
Head of Division 2

This document is a translation. The definitive version is the original German accreditation certificate.

See notes overleaf.

Front side of certificate

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Gartenstraße 6
60594 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkkS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkkS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

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/fileadmin/de/CETECOM_D_Saarbruecken/accreditations_Jan_2010/DAKKS_AkkrediUrk_EN17025-En_incl_Annex.pdf