

## TEST REPORT

Test report no.: 1-5623/12-01-07-C



### Testing laboratory

**CETECOM ICT Services GmbH**  
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#### Accredited Testing Laboratory:

The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS). The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-01  
Area of Testing: Radio/Satellite Communications

### Applicant

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74072 Heilbronn / GERMANY  
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Fax: +49 7131 617-215  
Contact: Ulrich Roth  
e-mail: [roth@beyerdynamic.de](mailto:roth@beyerdynamic.de)  
Phone: +49 7131 617-155

### Manufacturer

**beyerdynamic GmbH & Co. KG**  
Theresienstraße 8  
74072 Heilbronn / GERMANY

### Test standard/s

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

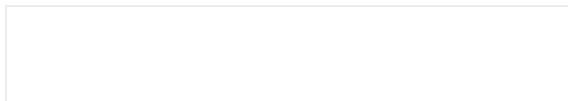
For further applied test standards please refer to section 3 of this test report.

### Test Item

<b>Kind of test item:</b>	Discussion unit
<b>Model name:</b>	Quinta MU 31 and Quinta MU 33
<b>FCC ID:</b>	OSDQUINTAMU3X
<b>IC:</b>	3628A-QUINTAMU3X
<b>Frequency:</b>	UNII band 5150 MHz to 5250 MHz (lowest channel 5180, highest channel 5240 MHz)
<b>Technology tested:</b>	DSSS
<b>Antenna:</b>	2 integrated antennas
<b>Power Supply:</b>	110 / 10V AC by external power supply / DC by internal battery
<b>Temperature Range:</b>	+22

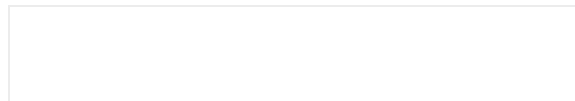
This test report is electronically signed and valid without handwriting signature. For verification of the electronic signatures, the public keys can be requested at the testing laboratory.

### Test report authorised:



Stefan Bös  
Senior Testing Manager

### Test performed:



Tobias Wittenmeier  
Expert

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## 2 General information

### 2.1 Notes and disclaimer

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item.

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In no case this test report can be considered as a Letter of Approval.

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

### 2.2 Application details

Date of receipt of order:	2013-02-26
Date of receipt of test item:	2013-05-13
Start of test:	2013-05-13
End of test:	2013-10-28
Person(s) present during the test:	-/-

## 3 Test standard/s

Test standard	Date	Test standard description
47 CFR Part 15	2012-10	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices
RSS - 210 Issue 8	2010-12	Spectrum Management and Telecommunications - Radio Standards Specification Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment

### 3.1 Measurement guidance

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

Temperature:	$T_{nom}$	+22 °C during room temperature tests
	$T_{max}$	-/- °C during high temperature tests
	$T_{min}$	-/- °C during low temperature tests
Relative humidity content:		44 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	$V_{nom}$	110 / 10 V
		AC by external power supply / DC by internal battery
	$V_{max}$	121 V
	$V_{min}$	99 V

#### 5 Test item

Kind of test item	:	Discussion unit
Type identification	:	Quinta MU 31 and Quinta MU 33
S/N serial number	:	Radiated unit: 00001 Conducted unit: 00006
HW hardware status	:	Rev. 1
SW software status	:	1.0.33
Frequency band [MHz]	:	DTS band 2400 MHz to 2483.5 MHz (lowest channel 2412 MHz; highest channel 2464 MHz)
Type of radio transmission	:	DSSS
Use of frequency spectrum	:	
Type of modulation	:	BPSK, QPSK
Number of channels	:	3 (test mode)
Antenna	:	2 integrated antennas
Power supply	:	110 / 10 V AC by external power supply / DC by internal battery
Temperature range	:	No range needed!

#### 5.1 Additional information

Test setup - and EUT - photos are included in the following test reports:

External EUT photos: 1-5623/12-01-01\_AnnexA  
 Internal EUT photos: 1-5623/12-01-01\_AnnexB  
 Test setup: 1-5623/12-01-01\_AnnexD

#### 6 Test laboratories sub-contracted

None

## 7 Summary of measurement results

- No deviations from the technical specifications were ascertained  
 There were deviations from the technical specifications ascertained

TC Identifier	Description	Verdict	Date	Remark
RF-Testing	CFR Part 15 RSS 210, Issue 8, Annex 9	Passed	2013-10-29	-/-

Test specification clause	Test case	Temperature conditions	Power source voltages	Pass	Fail	NA	NP	Remark
-/-	Output power verification (conducted)	Nominal	Nominal			<input type="checkbox"/>	<input type="checkbox"/>	No passed / fail criteria!
-/-	Gain	Nominal	Nominal			<input type="checkbox"/>	<input type="checkbox"/>	No passed / fail criteria!
U-NII Part 15	Duty cycle	Nominal	Nominal			<input type="checkbox"/>	<input type="checkbox"/>	No passed / fail criteria!
§15.407(a) RSS-210	Maximum output power (conducted & radiated)	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a) RSS-210	Power spectral density	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a) RSS-210	Spectrum bandwidth 26dB bandwidth	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(a) RSS-210	Peak excursion measurements	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.205 RSS-210	Band edge compliance radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.407(b) RSS-210	TX spurious emissions radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.109 RSS-Gen	RX spurious emissions radiated	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.209(a) RSS-Gen	Spurious emissions radiated < 30 MHz	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies
§15.107(a) §15.207(a)	Spurious emissions conducted emissions < 30 MHz	Nominal	Nominal	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	complies

**Note:** NA = Not Applicable; NP = Not Performed

## 8 RF measurements

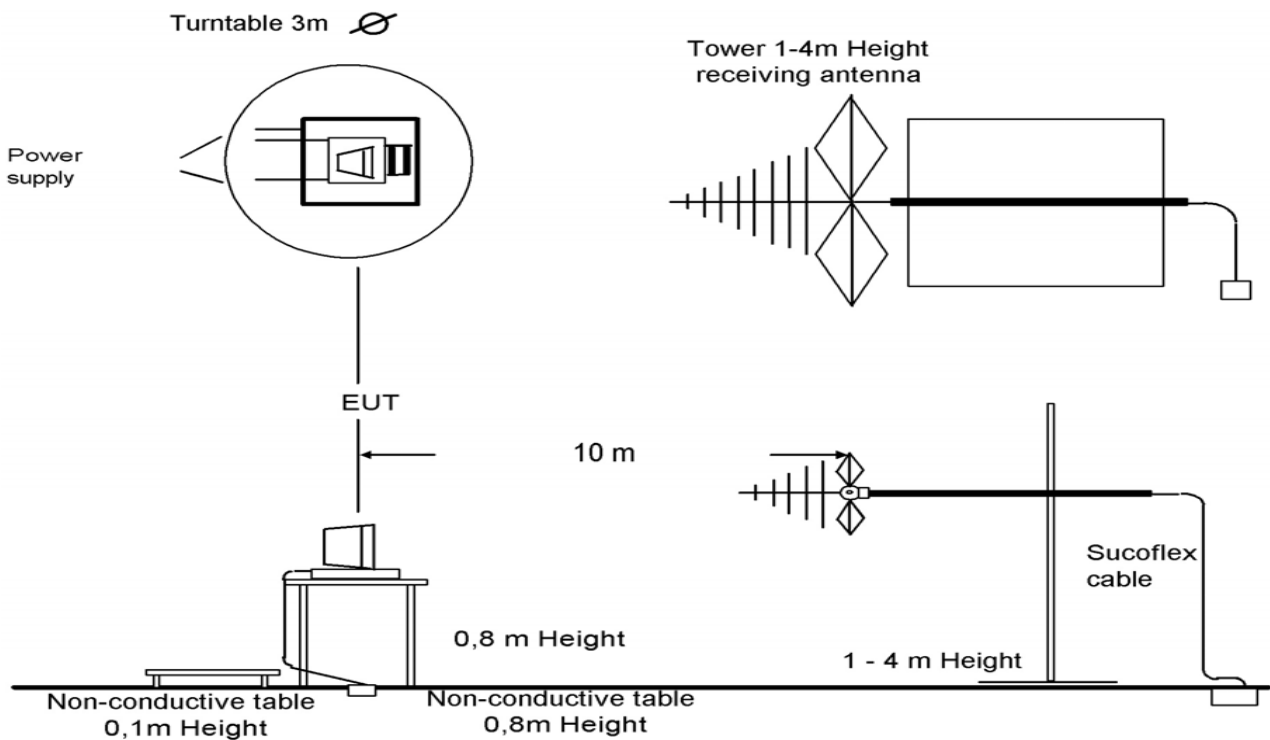
### 8.1 Description of test setup

#### 8.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2009 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2009 clause 4.2.

Antennas are confirmed with ANSI C63.2-1996 item 15.

Semi anechoic chamber



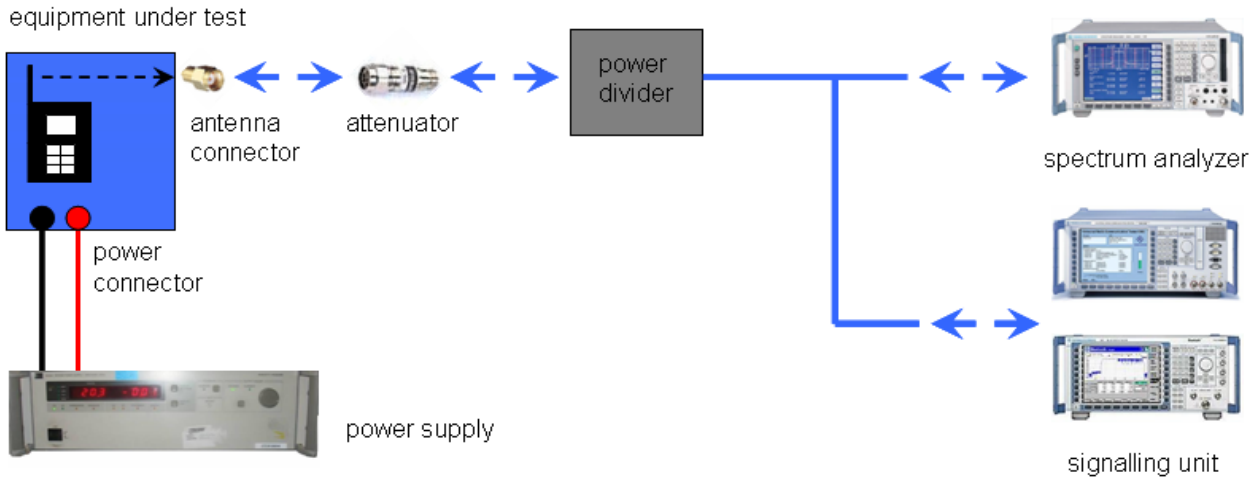
Picture 1: Diagram radiated measurements

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

The EUT is powered by an external power supply with nominal voltage

### 8.1.2 Conducted measurements

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



Picture 2: Diagram conducted measurements

## 8.2 Additional comments

Reference documents:



beyerdynamic GmbH & Co. KG, Postfach 1320, 74003 Heilbronn - Germany

Federal Communication Commission  
Equipment Authorization Division, Application Processing Branch  
7435 Oakland Mills Road  
Columbia, MD 21048

Certification and Engineering Bureau  
Industry Canada  
Spectrum Engineering Branch  
3701 Carling Avenue, Building 94  
Ottawa, Ontario K2H 8S2

March 11<sup>th</sup>, 2013

### Declaration on Electrically Identical Models

TO WHOM IT MAY CONCERN

We, beyerdynamic GmbH & Co. KG, declare on our sole responsibility that the new model

**Quinta MU 31**

**with FCC ID: OSDQUINTAMU3X and IC: 3628A-QUINTAMU3X**

is identical in hardware and software to the certified model

**Quinta MU 33 under FCC ID: OSDQUINTAMU3X and IC: 3628A-QUINTAMU3X**

The only differences between the new models and the original model are:  
Model Quinta MU 31 uses one button and model Quinta MU 33 three control buttons.

We attest that above changing are not relevant for any RF behaviour subject to regulatory items. Additional Spurious Emissions measurements on representative configurations have been performed to justify.

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Heilbronn  
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IBAN DE88 6207 0081 0018 6304 00  
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WEEE-Reg. No. DE 76451448





Therefore all test reports remains applicable.

If you have any questions, please feel free to contact us at the address shown below

Sincerely,

Signature: 

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Fax No: +49 7131 617 215  
Email: roth@beyerdynamic.de

Special test descriptions: None

Configuration descriptions: None

Test mode:  No test mode available.  
 Special software is used.  
EUT is transmitting pseudo random data by itself

### 8.3 RSP100 test report cover sheet / performance test data

Test report number	:	1-5623/12-01-07-C			
Equipment model number	:	Quinta MU 31 and Quinta MU 33			
Certification number	:	3628A-QUINTAMU3X			
Manufacturer (complete address)	:	beyerdynamic GmbH & Co. KG Theresienstraße 8 74072 Heilbronn / GERMANY			
Tested to radio standards specification no.	:	RSS 210, Issue 8, Annex 9			
Open area test site IC No.	:	IC 3462C-1			
Frequency range	:	UNII bands: 5150 MHz to 5250 MHz			
RF-power [mW] (max.)	:	Conducted values:			
		Band	DSSS port A	DSSS port B	-/-
		5180 – 5240 MHz BPSK	39.81 mW	20.14 mW	
		5180 – 5240 MHz QPSK	52.72 mW	56.36 mW	
		5190 – 5230 MHz			-/-
		5260 – 5320 MHz	-/-	-/-	
		5270 – 5310 MHz			-/-
		5500 – 5700 MHz	-/-	-/-	
		5510 – 5670 MHz			-/-
		Radiated values:			
		Band	DSSS port A	DSSS port B	-/-
		5180 – 5240 MHz BPSK	151.36 mW	57.15 mW	
		5180 – 5240 MHz QPSK	200.45 mW	171.4 mW	
		5190 – 5230 MHz			-/-
5260 – 5320 MHz	-/-	-/-			
5270 – 5310 MHz			-/-		
5500 – 5700 MHz	-/-	-/-			
5510 – 5670 MHz			-/-		
Occupied bandwidth (99%-BW) [MHz] / Emission designator (TRC-43)	:	Band	DSSS port A	DSSS port B	-/-
		5180 – 5240 MHz BPSK	15.21 MHz 15M2G1D	15.22 MHz 15M2G1D	
		5180 – 5240 MHz QPSK	15.10 MHz 15M1G1D	15.10 MHz 15M1G1D	-/-
		5260 – 5320 MHz	-/-	-/-	
		5270 – 5310 MHz			-/-
		5500 – 5700 MHz	-/-	-/-	
5510 – 5670 MHz			-/-		
Type of modulation	:	QPSK, 16 – QAM, 64 – QAM			
Antenna information	:	Integrated PCB antenna			
Transmitter spurious (worst case)[dBµV/m @ 3m]:	:	44.5 dBµV/m @ 3.45 GHz (peak)			

**ATTESTATION:**

**DECLARATION OF COMPLIANCE:**

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

**Laboratory manager:**

2013-10-29

Date

Tobias Wittenmeier

Name

Signature

## 9 Measurement results

### 9.1 Output power verification (conducted)

Not applicable!

### 9.2 Gain

#### Description:

Measurement of the maximum output power conducted and radiated

#### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	5s
Resolution bandwidth:	3 MHz
Video bandwidth:	3 MHz
Span:	See complete signal!
Trace-Mode:	Max Hold

#### Limits:

Antenna Gain
Maximum 6 dBi

**Result: DSSS, antenna port A**

DSSS Band 5150 MHz to 5250 MHz Channel	Gain		
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz
Conducted power for gain calculation	10.90	10.17	9.22
Radiated power for gain calculation	16.70	15.89	15.22
Gain	+5.80	+5.72	+6.00

**Result: Passed****Result: DSSS, antenna port B**

DSSS Band 5150 MHz to 5250 MHz Channel	Gain		
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz
Conducted power for gain calculation	10.47	10.89	9.86
Radiated power for gain calculation	15.30	15.30	13.76
Gain	+4.83	+4.41	+3.90

**Result: Passed**

### 9.3 Duty cycle

**Measurement:**

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	10 MHz
Video bandwidth:	10 MHz
Span:	Zero
Trace-Mode:	Video trigger / view / single sweep

**Results:**

**Duty cycle and correction factor:** 100 % duty cycle = 0.0 dB correction factor

## 9.4 Maximum output power conducted and radiated

### Description:

Measurement of the maximum output power conducted and radiated

### Measurement:

Measurement parameter	
Detector:	RMS
Sweep time:	60s
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> EBW
Trace-Mode:	Max hold
Analyzer function	Band power / channel power Interval > 26 dB EBW

### Limits:

Radiated output power	Conducted output power
Conducted power + 6dBi antenna gain	The lesser one of 50mW or 4 dBm + 10 log Bandwidth 5.150-5.250 GHz 250mW or 11 dBm + 10 log Bandwidth 5.250-5.350 GHz 250mW or 11 dBm + 10 log Bandwidth 5.470-5.725 GHz 1W or 17 dBm + 10 log Bandwidth 5.725-5.825 GHz (where Bandwidth is the 26dB Bandwidth [MHz])

**Result: DSSS, antenna port A, BPSK**

Port A Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	16.00	15.23	14.28	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

Port A Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	21.80	20.95	20.28	-/-
Measurement uncertainty	± 3 dB			

**Result: Passed**



**Result: DSSS, antenna port B, BPSK**

Port B Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	12.74	13.04	12.61	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

Port B Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	17.57	17.45	16.51	-/-
Measurement uncertainty	± 3 dB			

**Result: Passed**

**Result: DSSS, antenna port A, QPSK**

Port A Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	17.22	15.71	16.21	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

Port A Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	23.02	21.43	22.21	-/-
Measurement uncertainty	± 3 dB			

**Result: Passed**

**Result: DSSS, antenna port B, QPSK**

Port B Channel	Maximum output power conducted [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	17.51	17.12	16.92	-/-
Measurement uncertainty	± 1 dB			

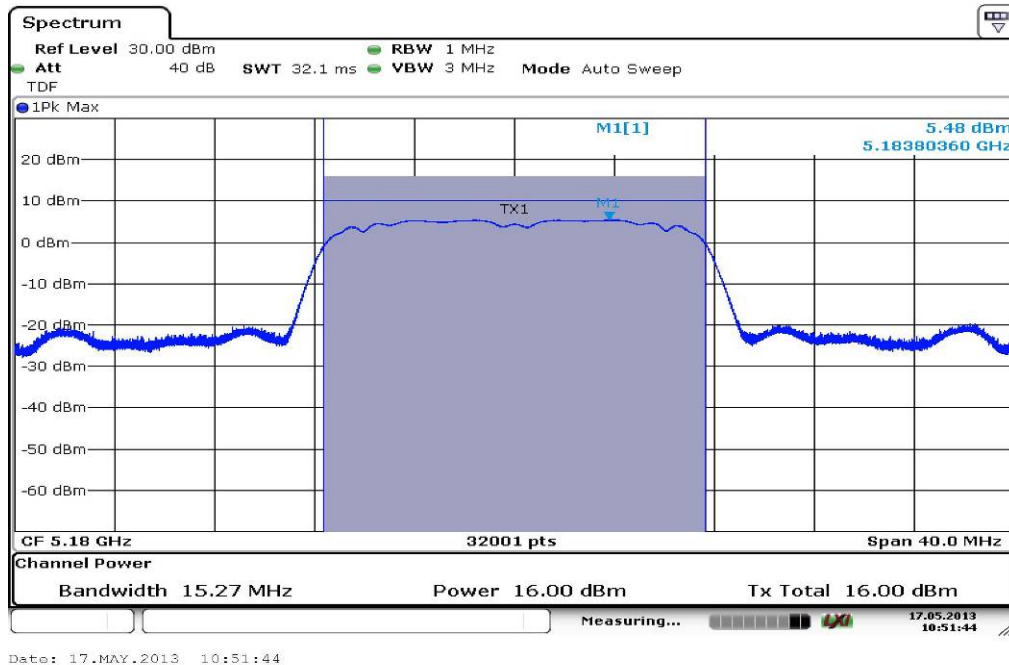
**Result: Passed**

Port B Channel	Maximum output power radiated - EIRP [dBm]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	22.34	21.53	20.82	-/-
Measurement uncertainty	± 3 dB			

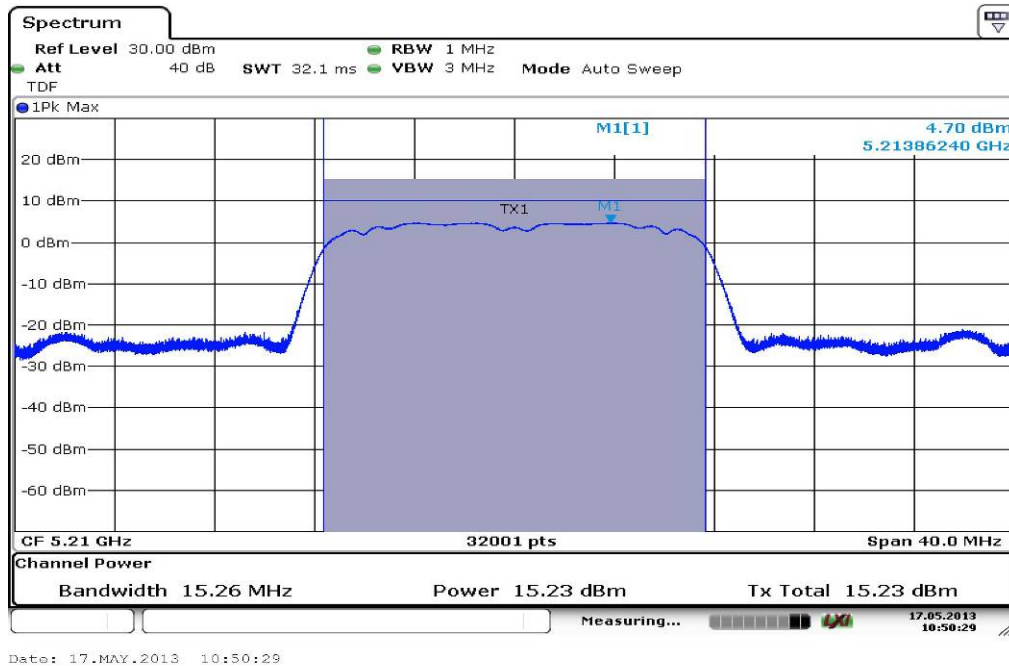
**Result: Passed**

**Plots: DSSS, antenna port A, BPSK**

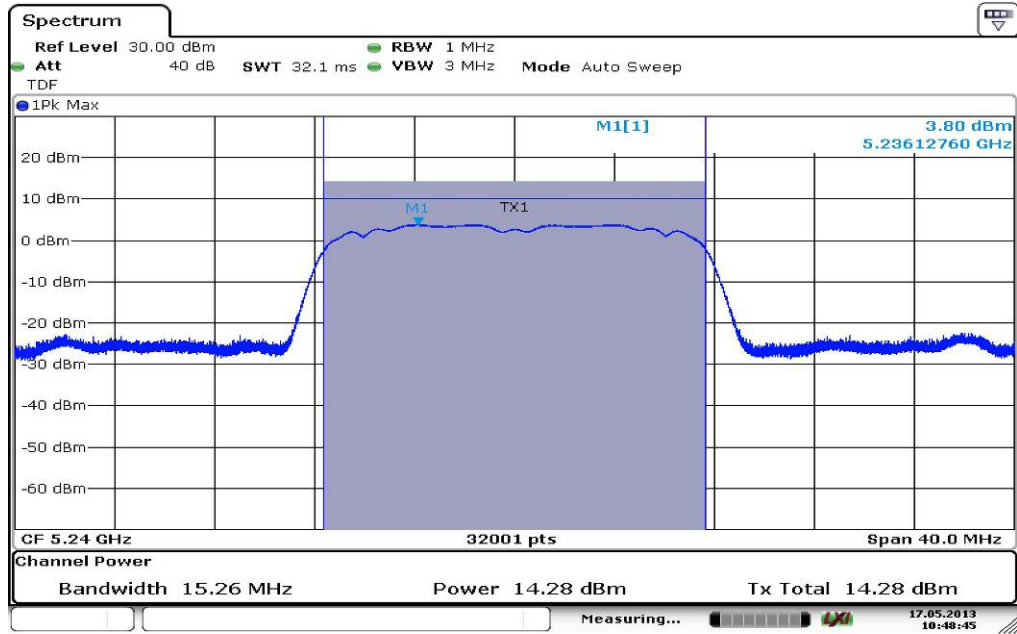
**Plot 1: 5180 MHz**



**Plot 2: 5210 MHz**



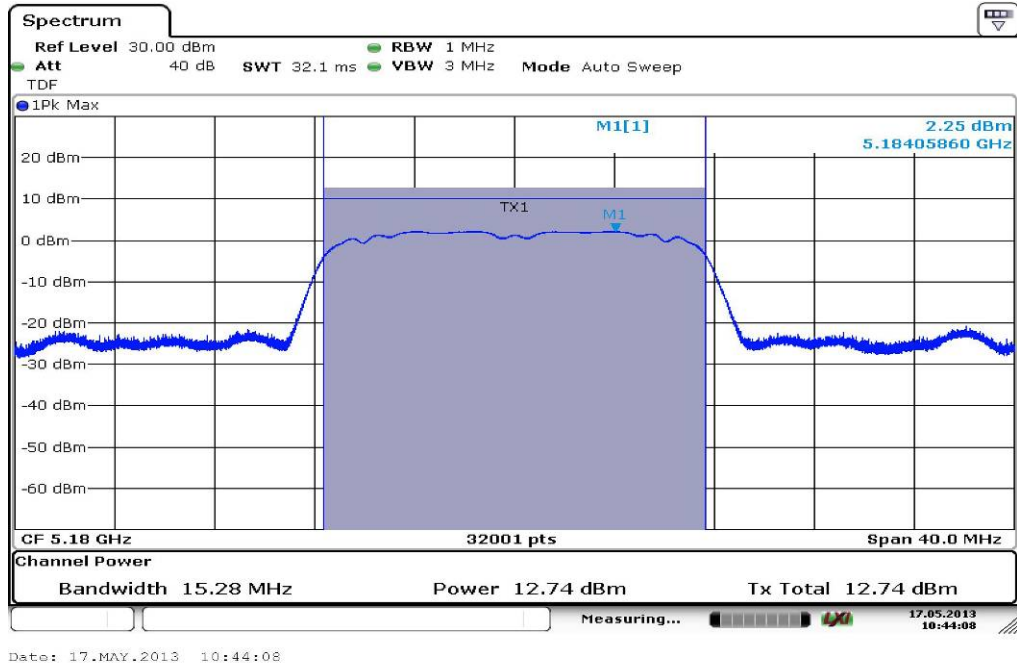
Plot 3: 5240 MHz



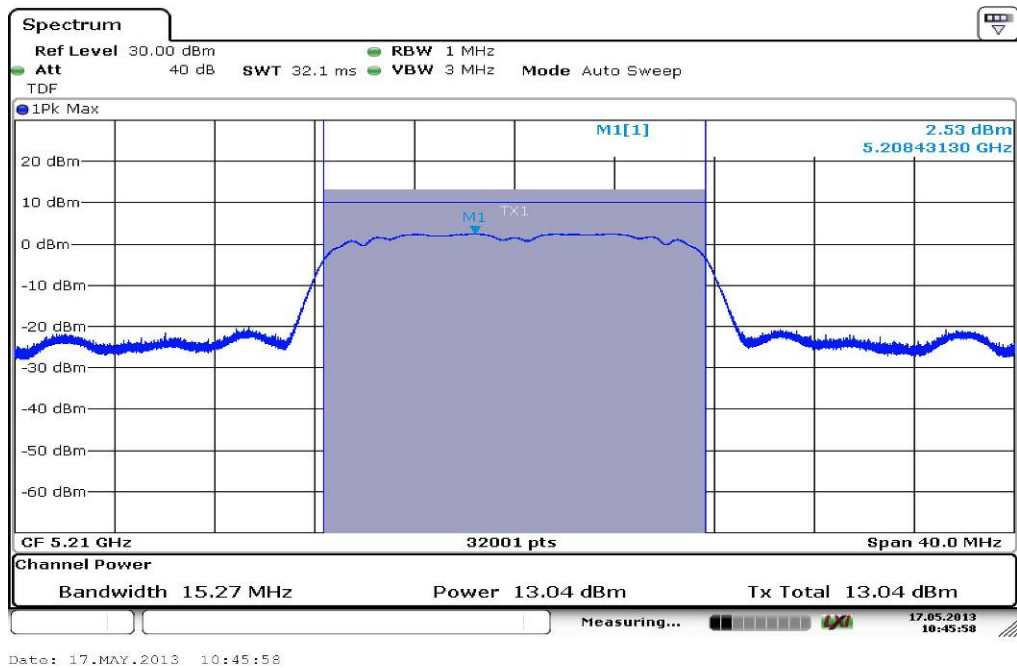
Date: 17.MAY.2013 10:48:45

**Plots: DSSS, antenna port B, BPSK**

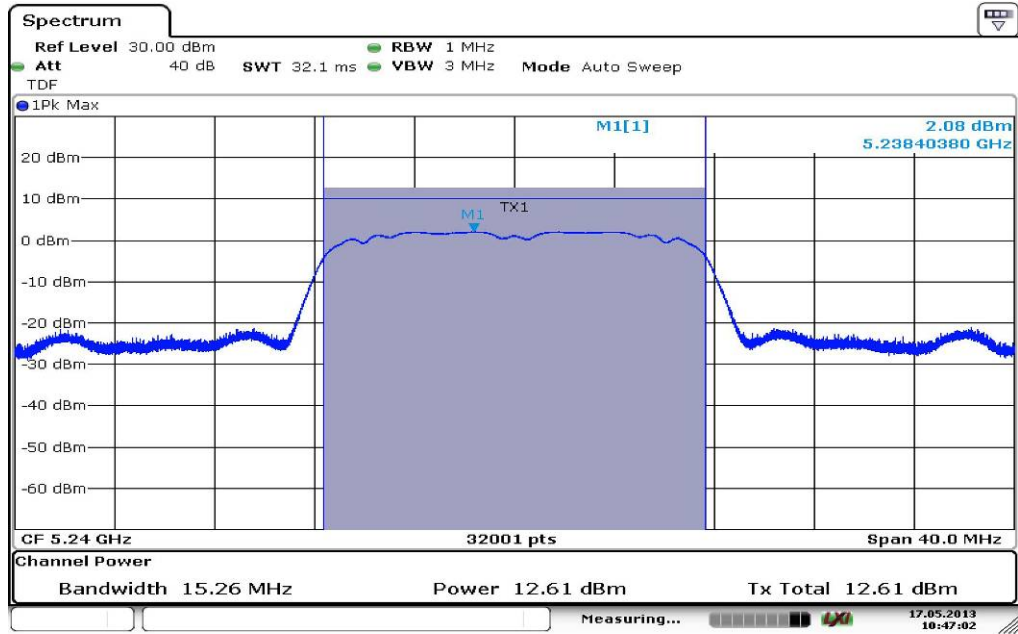
**Plot 4: 5180 MHz**



**Plot 5: 5210 MHz**



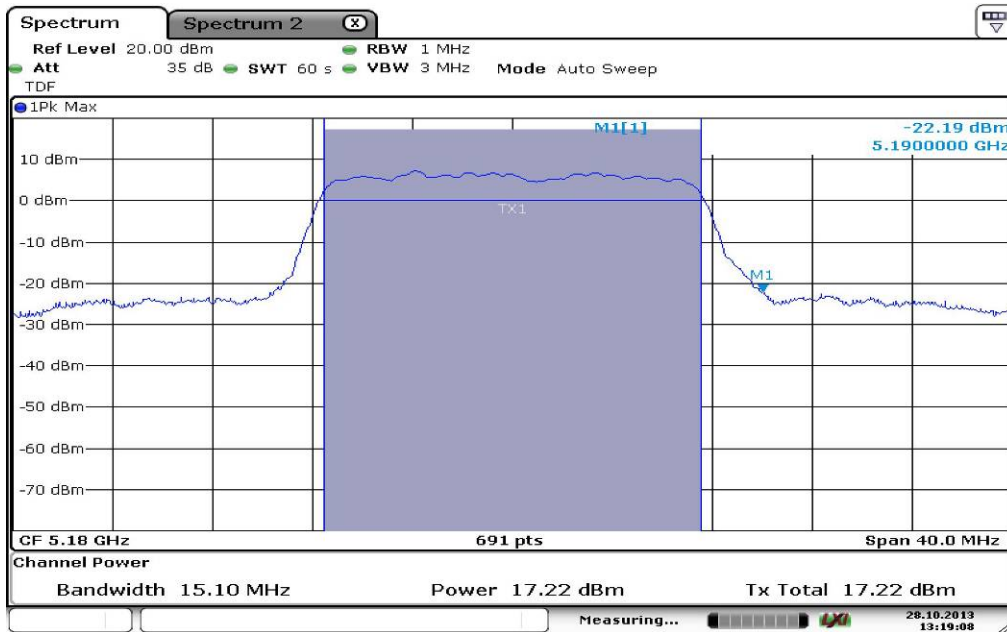
Plot 6: 5240 MHz



Date: 17.MAY.2013 10:47:02

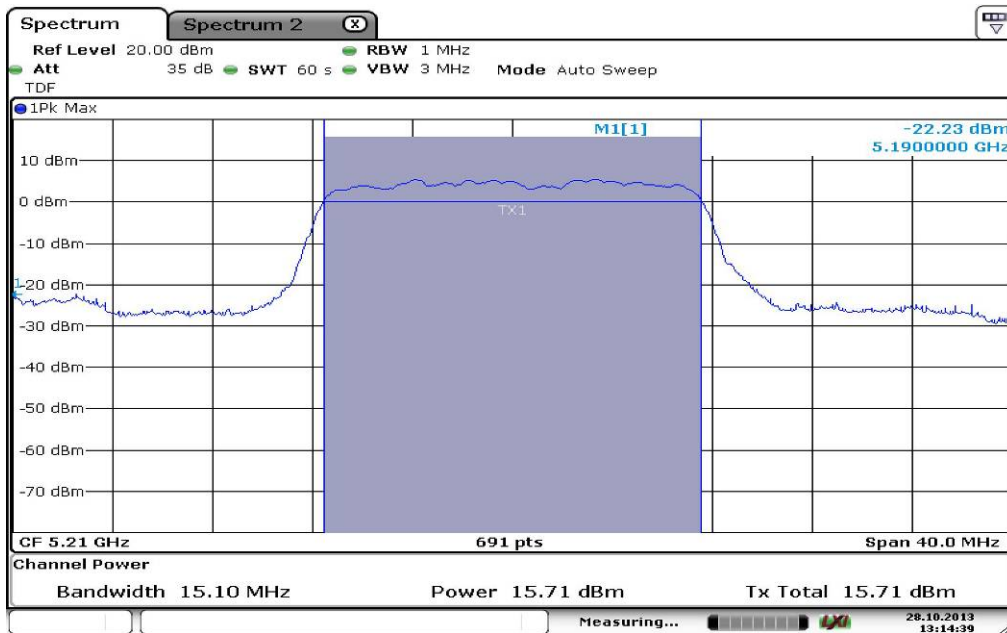
**Plots: DSSS, antenna port A, QPSK**

**Plot 7: 5180 MHz**



Date: 28.OCT.2013 13:19:08

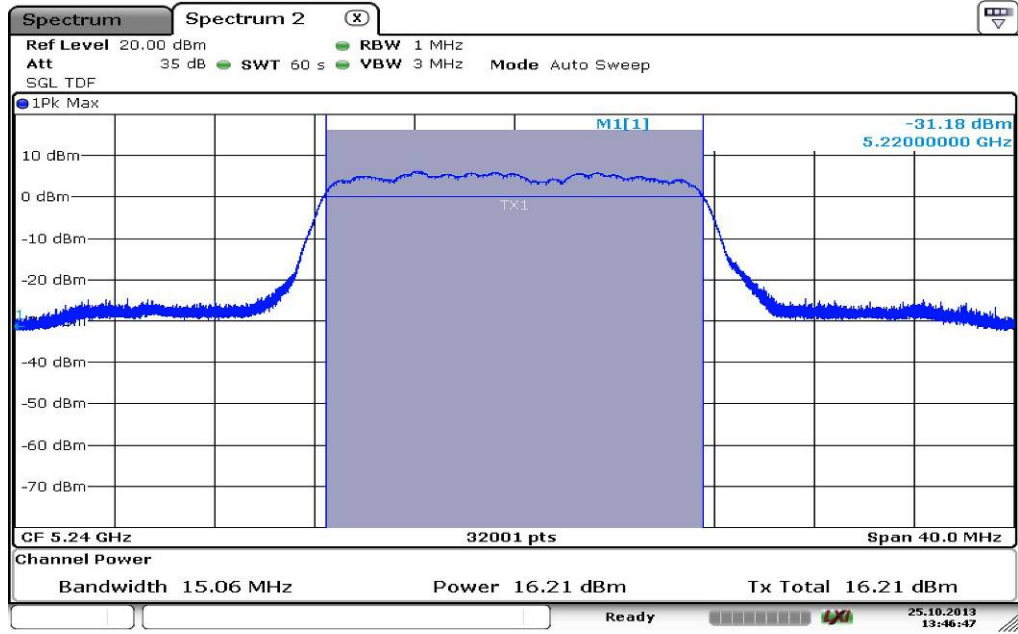
**Plot 8: 5210 MHz**



Date: 28.OCT.2013 13:14:39



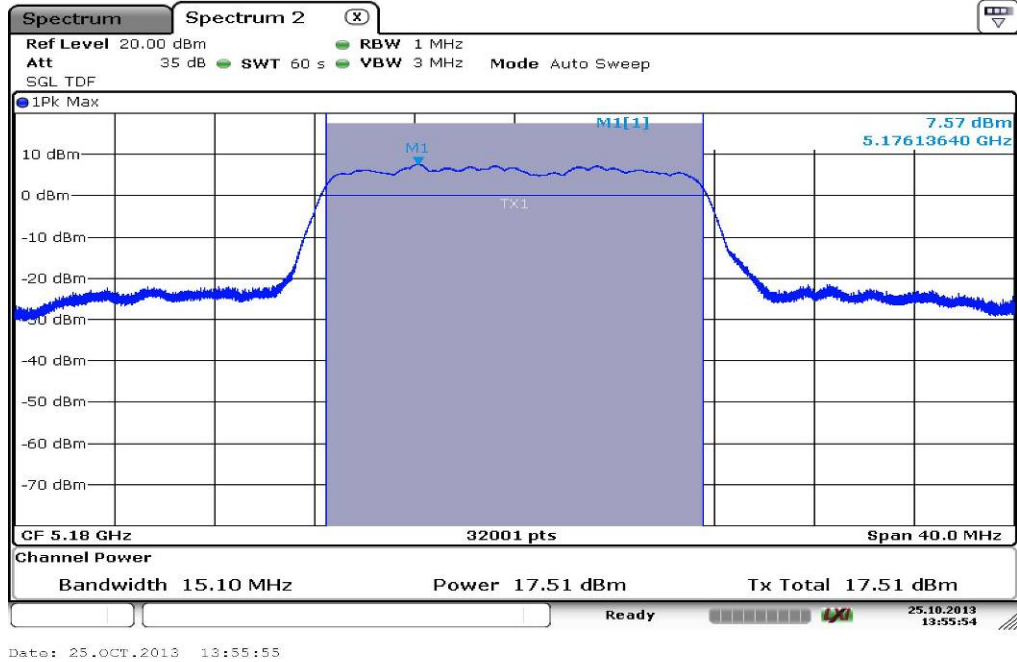
Plot 9: 5240 MHz



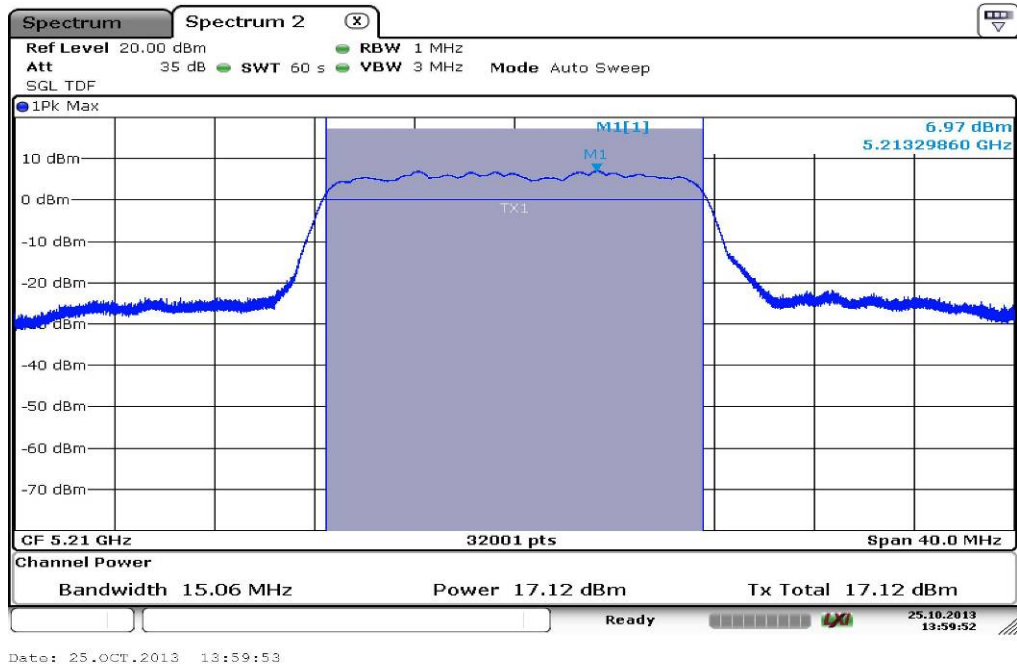
Date: 25.OCT.2013 13:46:47

**Plots: DSSS, antenna port B, QPSK**

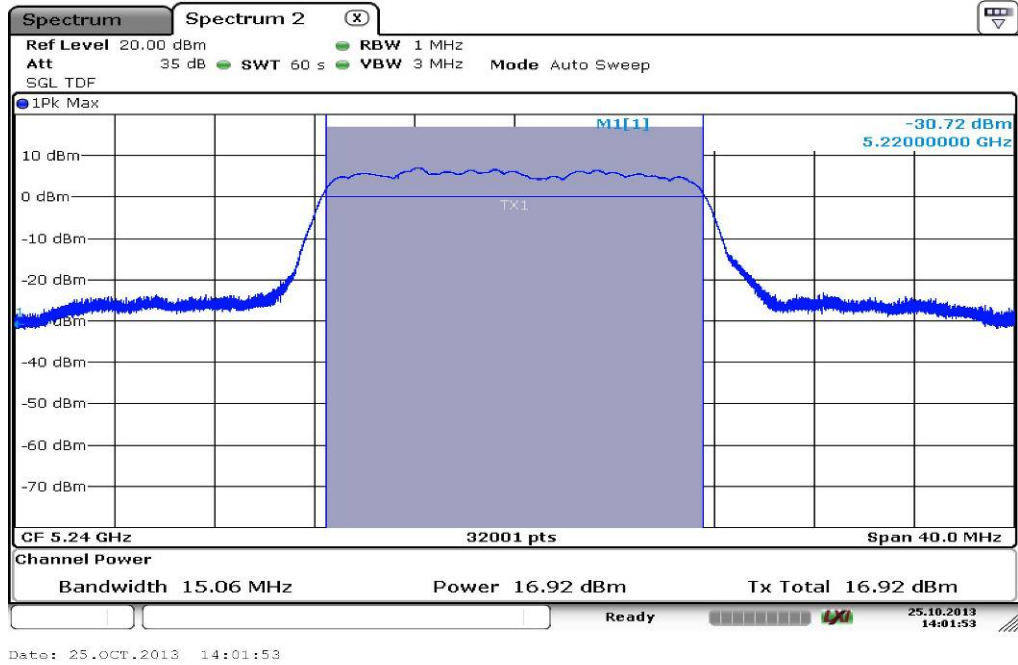
**Plot 10: 5180 MHz**



**Plot 11: 5210 MHz**



Plot 12: 5240 MHz



## 9.5 Power spectral density

### Description:

Measurement of the power spectral density of a digital modulated system. The measurement is repeated at the lowest, middle and highest channel.

### Measurement:

Measurement parameter	
Detector:	RMS
Sweep time:	60 s / 120 s
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> EBW
Trace-Mode:	Max hold

### Limits:

Power Spectral Density
power spectral density conducted ≤ 4 dBm in any 1 MHz band (band 5150 – 5250 MHz)
power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5250 – 5350 MHz)
power spectral density conducted ≤ 11 dBm in any 1 MHz band (band 5470 – 5725 MHz)
power spectral density conducted ≤ 17 dBm in any 1 MHz band (band 5725 – 5825 MHz)

### Result: DSSS, antenna port A, BPSK

Port A Channel	Power Spectral density [dBm/MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	1.57	0.95	-0.03	-/-
Measurement uncertainty	± 1 dB			

Result: **Passed**

### Result: DSSS, antenna port B, BPSK

Port B Channel	Power Spectral density [dBm/MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	2.06	2.03	1.56	-/-
Measurement uncertainty	± 1 dB			

Result: **Passed**

**Result: DSSS, antenna port A, QPSK**

Port A Channel	Power Spectral density [dBm/MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	-5.56	-6.42	-5.94	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

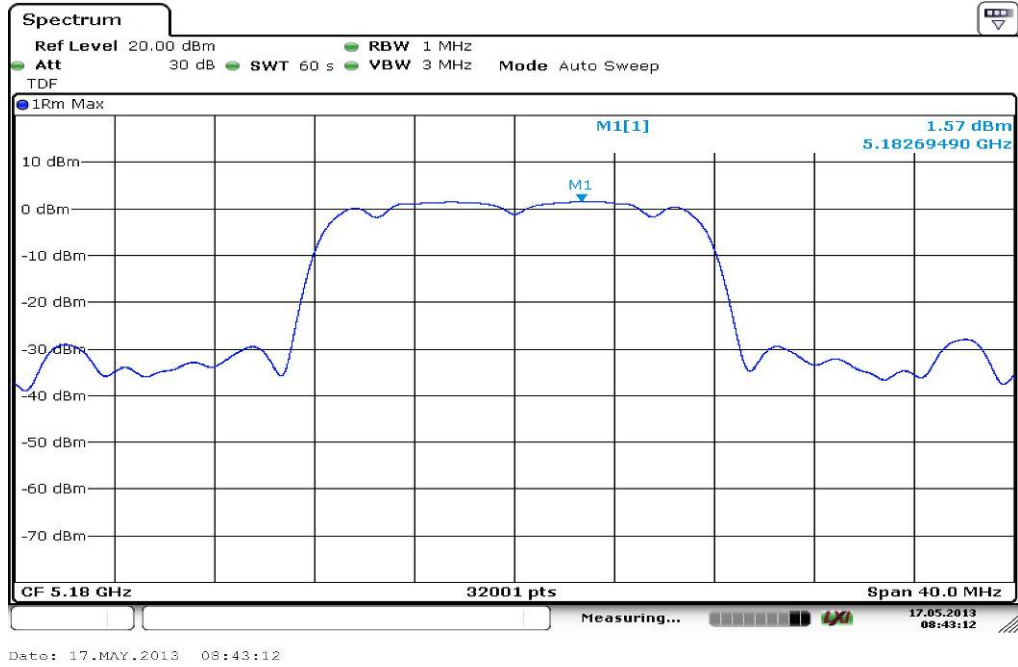
**Result: DSSS, antenna port B, QPSK**

Port B Channel	Power Spectral density [dBm/MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
+0.0 dB duty cycle correction	-5.49	-5.65	-5.42	-/-
Measurement uncertainty	± 1 dB			

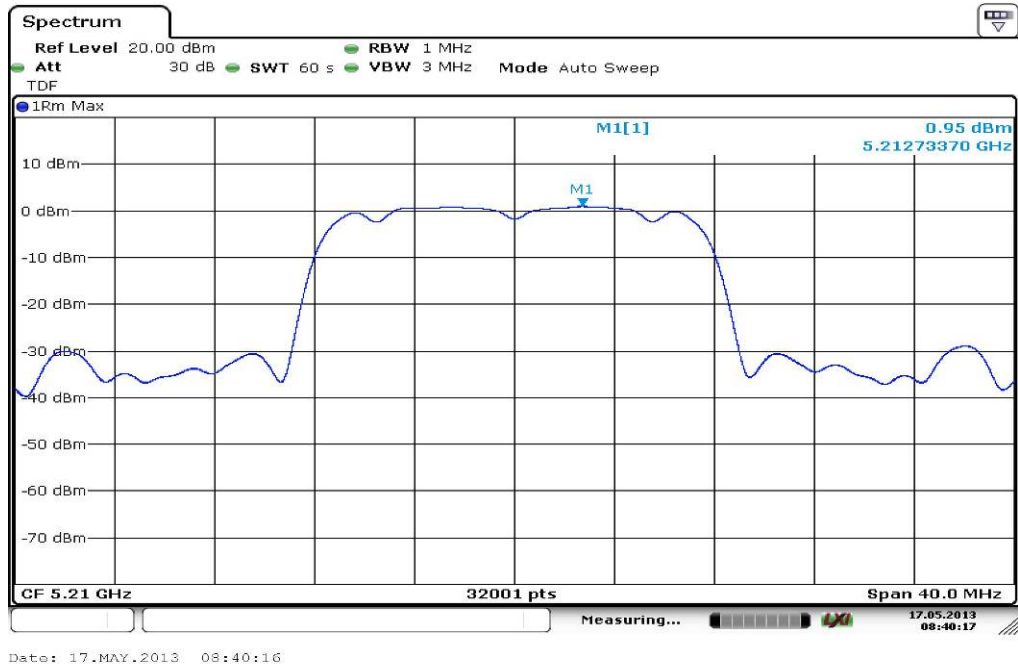
**Result: Passed**

**Plots: DSSS, antenna port A, BPSK**

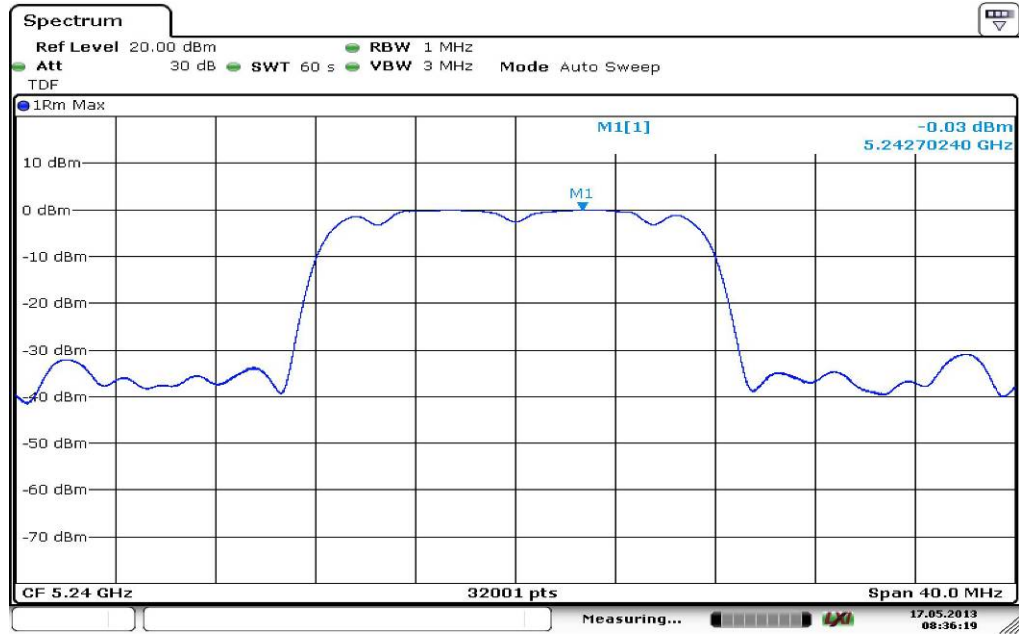
**Plot 1: 5180 MHz**



**Plot 2: 5210 MHz**



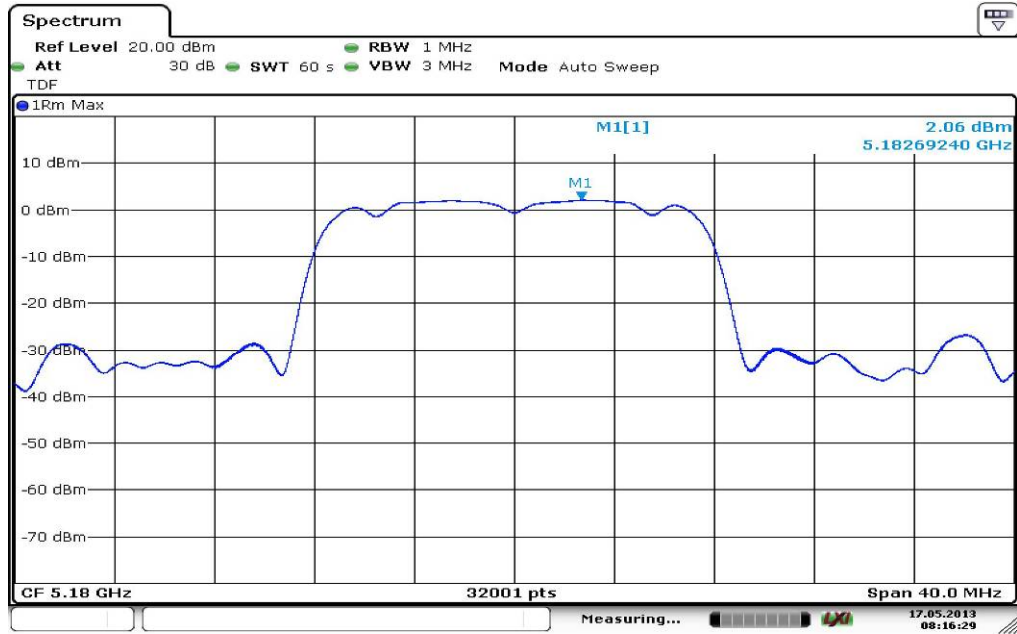
Plot 3: 5240 MHz



Date: 17.MAY.2013 08:36:19

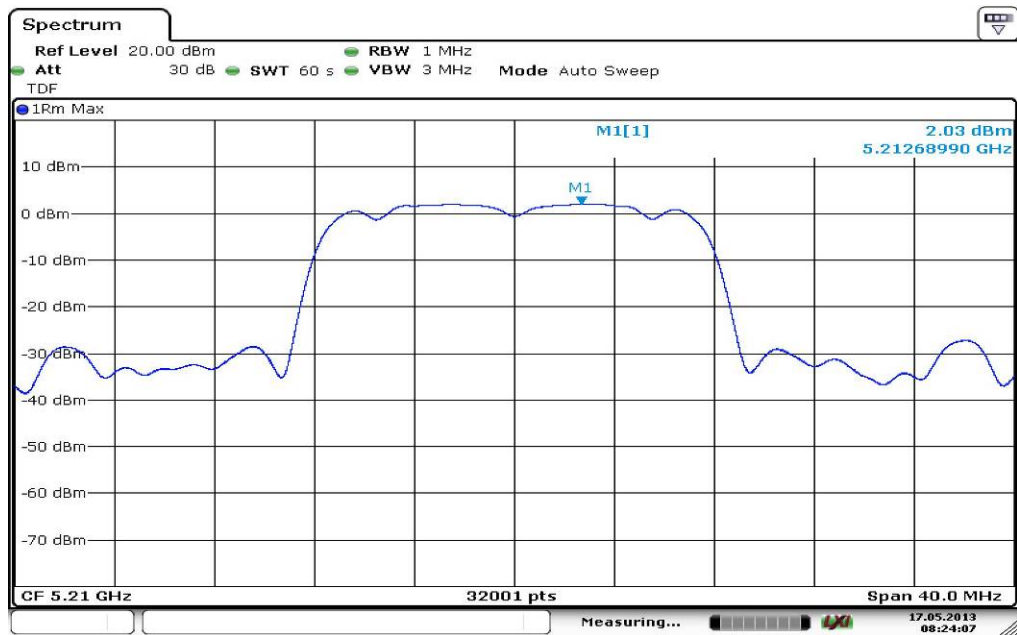
**Plots: DSSS, antenna port B, BPSK**

**Plot 4: 5180 MHz**



Date: 17.MAY.2013 08:16:29

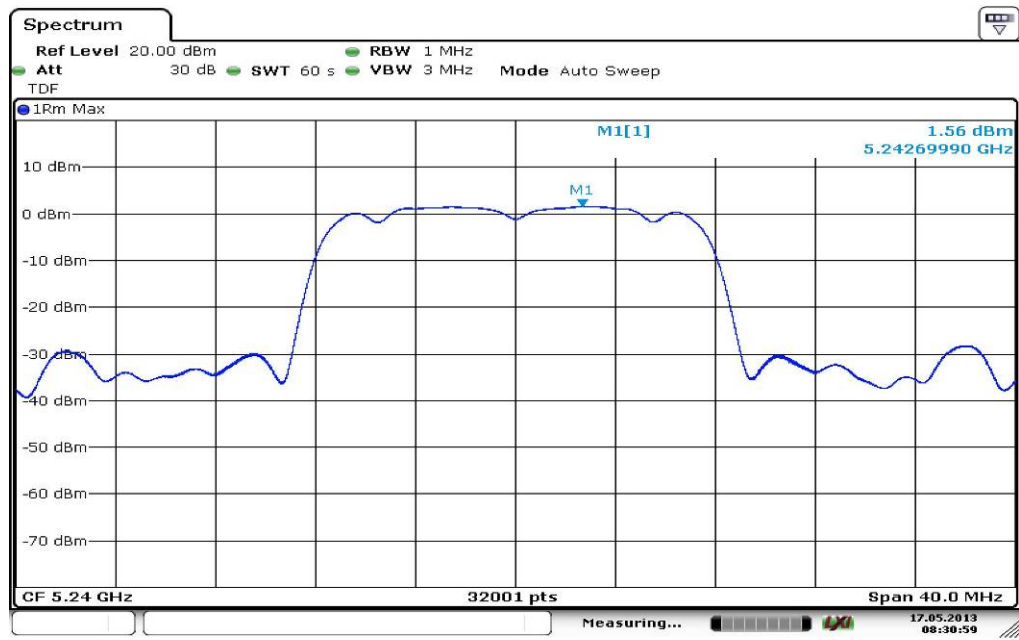
**Plot 5: 5210 MHz**



Date: 17.MAY.2013 08:24:07

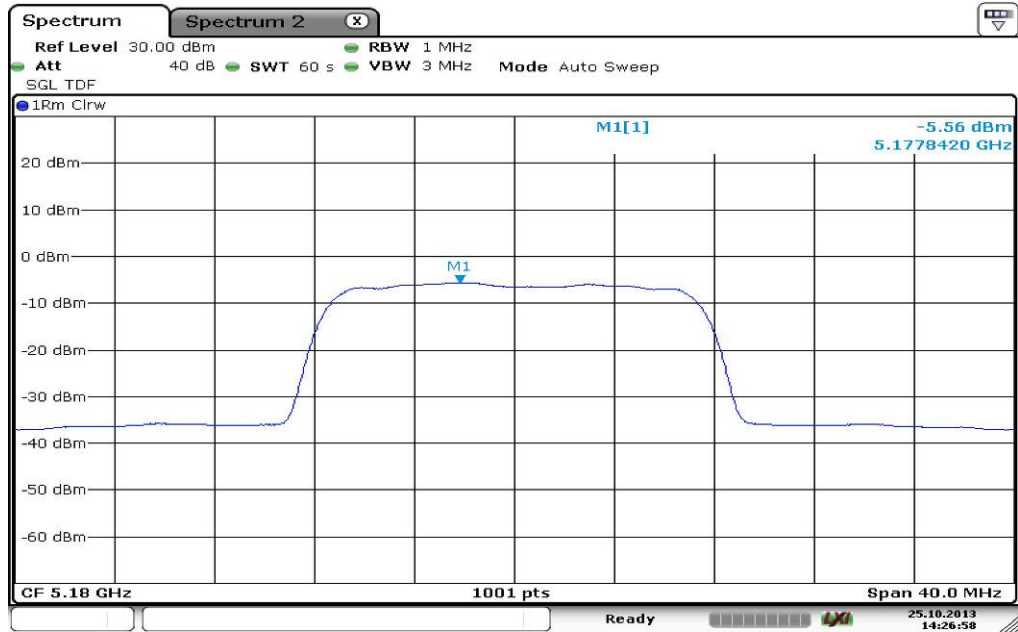


Plot 6: 5240 MHz



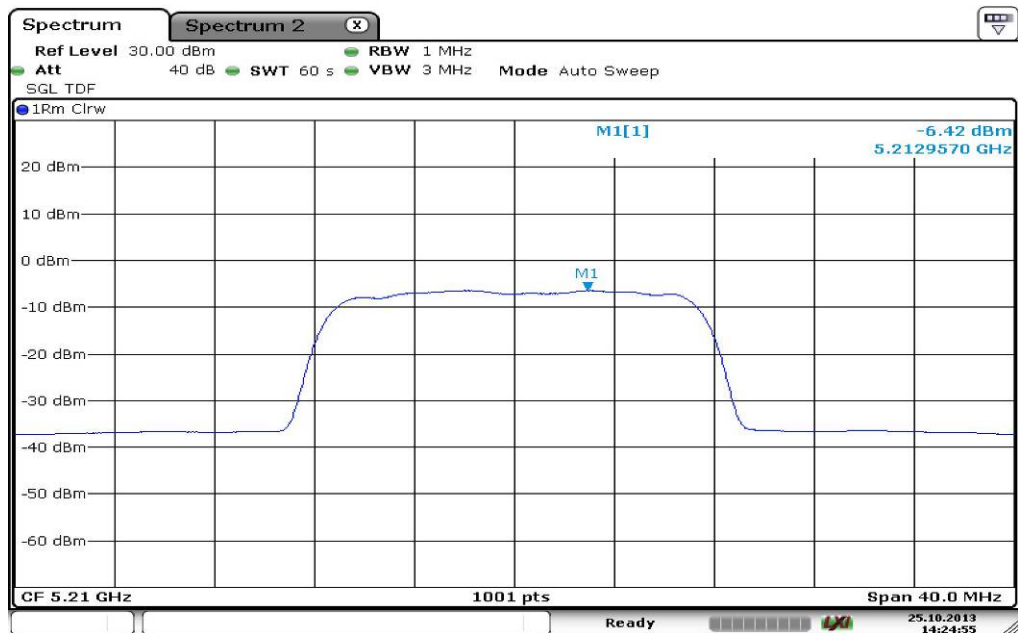
**Plots: DSSS, antenna port A, QPSK**

**Plot 7: 5180 MHz**



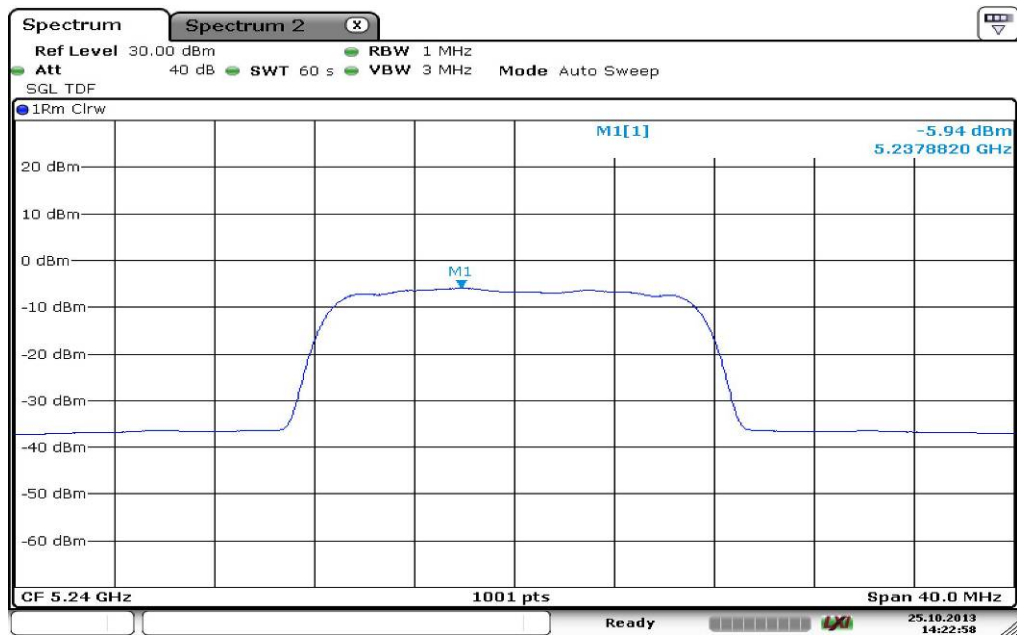
Date: 25.OCT.2013 14:26:59

**Plot 8: 5210 MHz**



Date: 25.OCT.2013 14:24:55

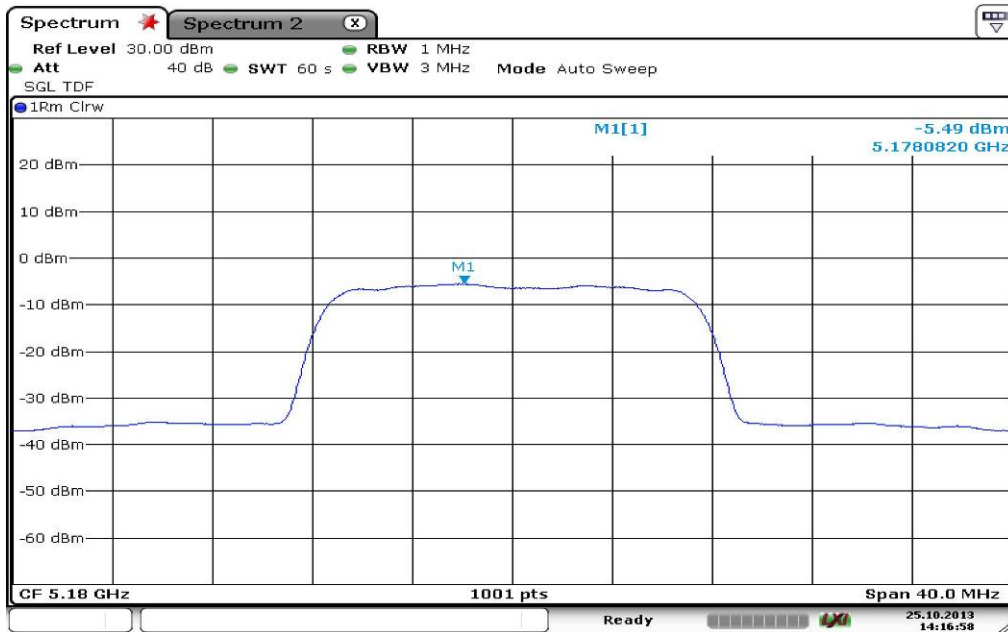
Plot 9: 5240 MHz



Date: 25.OCT.2013 14:22:59

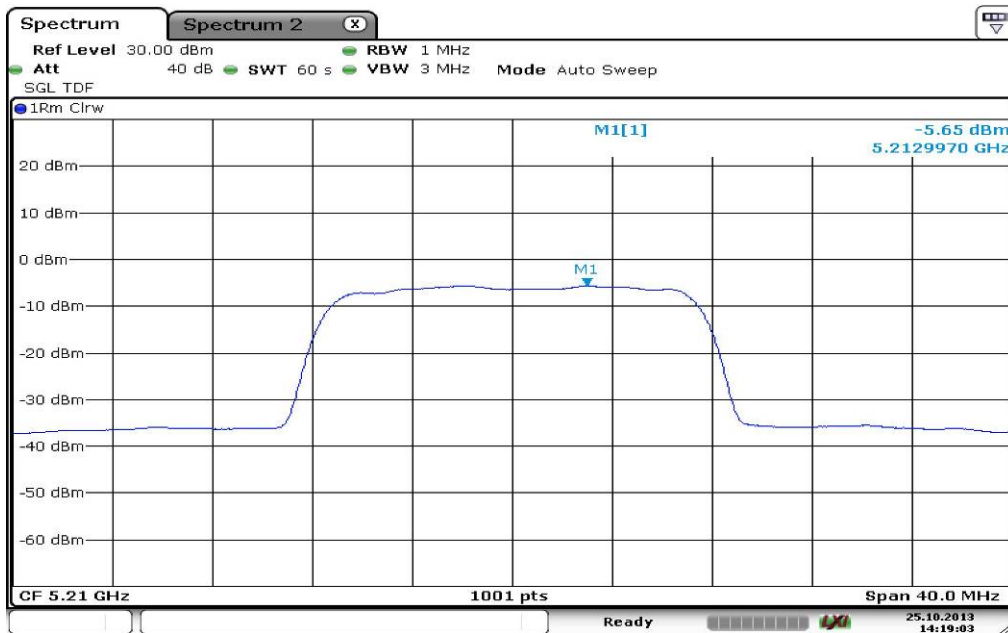
**Plots: DSSS, antenna port B, QPSK**

**Plot 10: 5180 MHz**



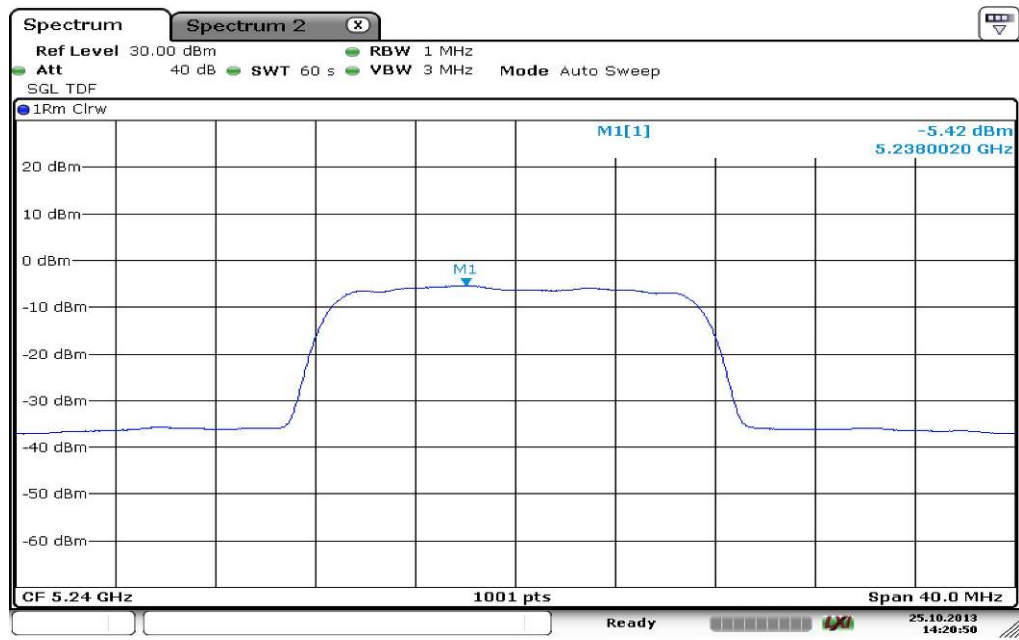
Date: 25.OCT.2013 14:16:58

**Plot 11: 5210 MHz**



Date: 25.OCT.2013 14:19:04

Plot 12: 5240 MHz



Date: 25.OCT.2013 14:20:51

**9.6 Spectrum bandwidth – 26 dB bandwidth or optionally 99 % bandwidth**

**Description:**

Measurement of the 26 dB bandwidth of the modulated signal.

**Measurement:**

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	300 kHz
Video bandwidth:	1 MHz
Span:	> complete signal!
Trace-Mode:	Max hold

**Limits:**

Spectrum Bandwidth – 26 dB bandwidth or optionally 99 % bandwidth
-/-

**Result: DSSS, antenna port A, BPSK**

Port A Channel	99 % BANDWIDTH [MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
	15.27	15.26	15.26	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

**Result: DSSS, antenna port B, BPSK**

Port B Channel	99 % BANDWIDTH [MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
	15.28	15.27	15.26	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

**Result: DSSS, antenna port A, QPSK**

Port A Channel	99 % BANDWIDTH [MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
	15.10	15.06	15.06	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

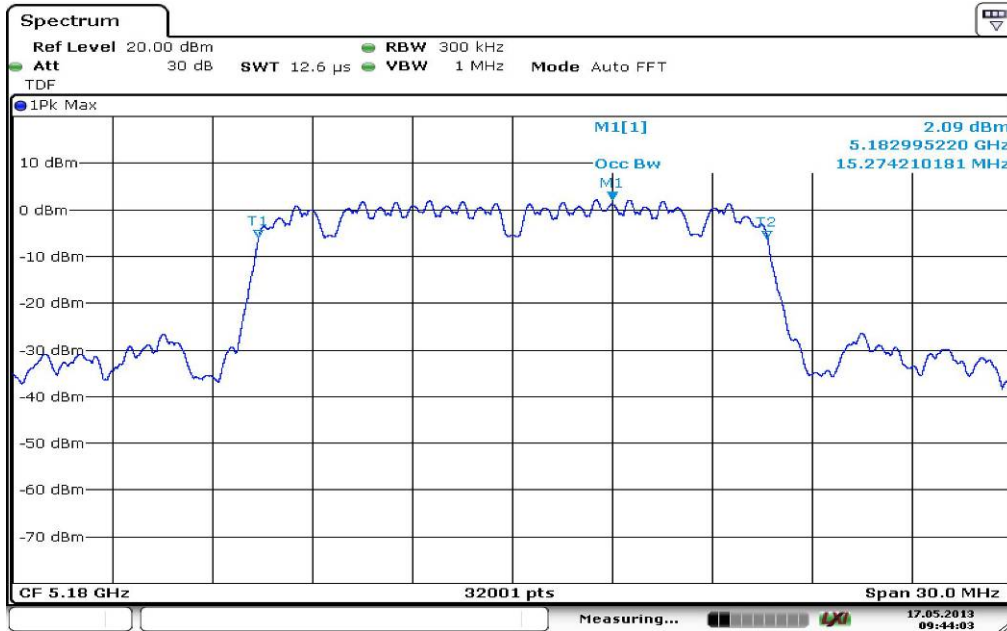
**Result: DSSS, antenna port B, QPSK**

Port B Channel	99 % BANDWIDTH [MHz]			
	Lowest 5180 MHz	Middle 5210 MHz	Highest 5240 MHz	-/-
	15.10	15.06	15.06	-/-
Measurement uncertainty	± 1 dB			

**Result: Passed**

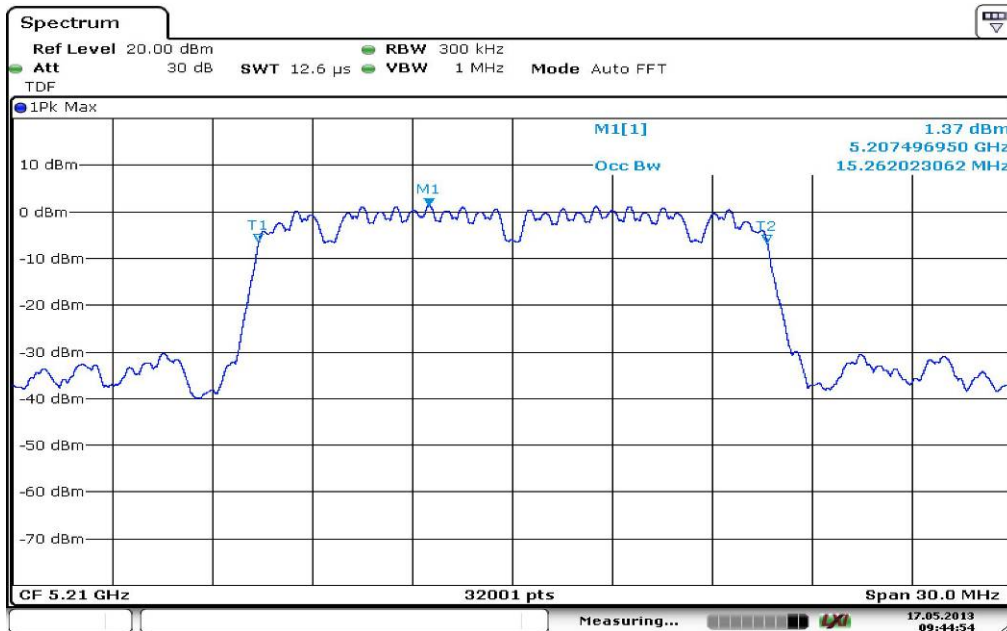
**Plots: DSSS, antenna port A, BPSK**

**Plot 13: 5180 MHz**



Date: 17.MAY.2013 09:44:02

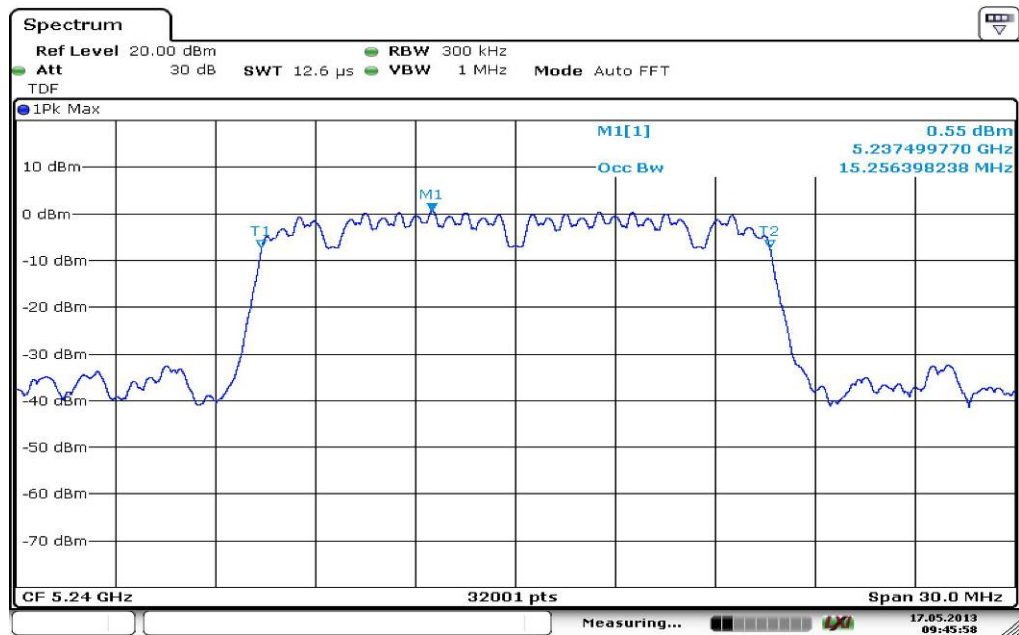
**Plot 14: 5210 MHz**



Date: 17.MAY.2013 09:44:53



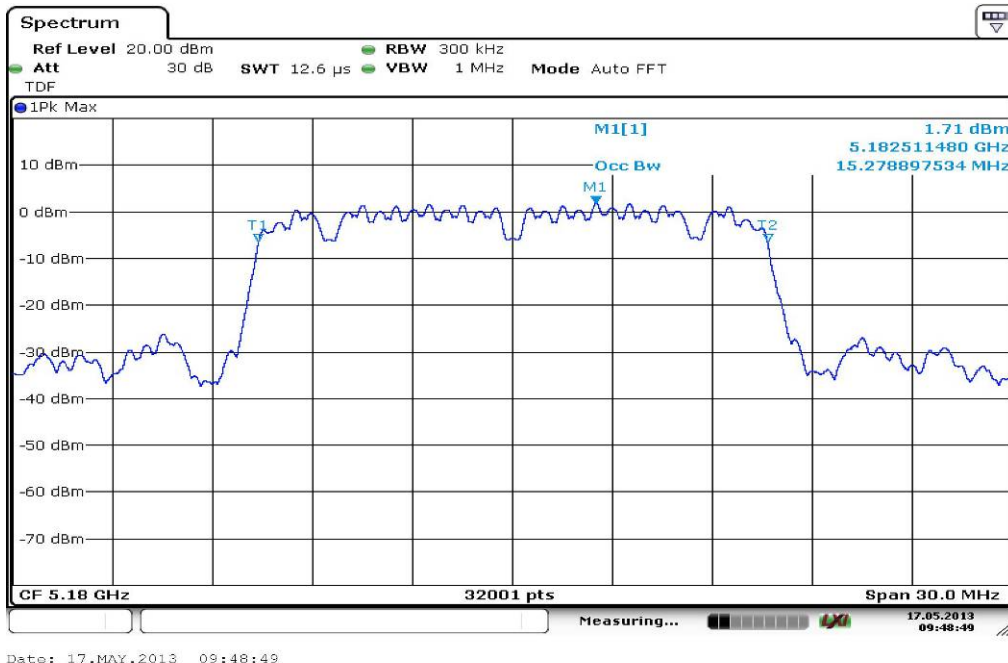
Plot 15: 5240 MHz



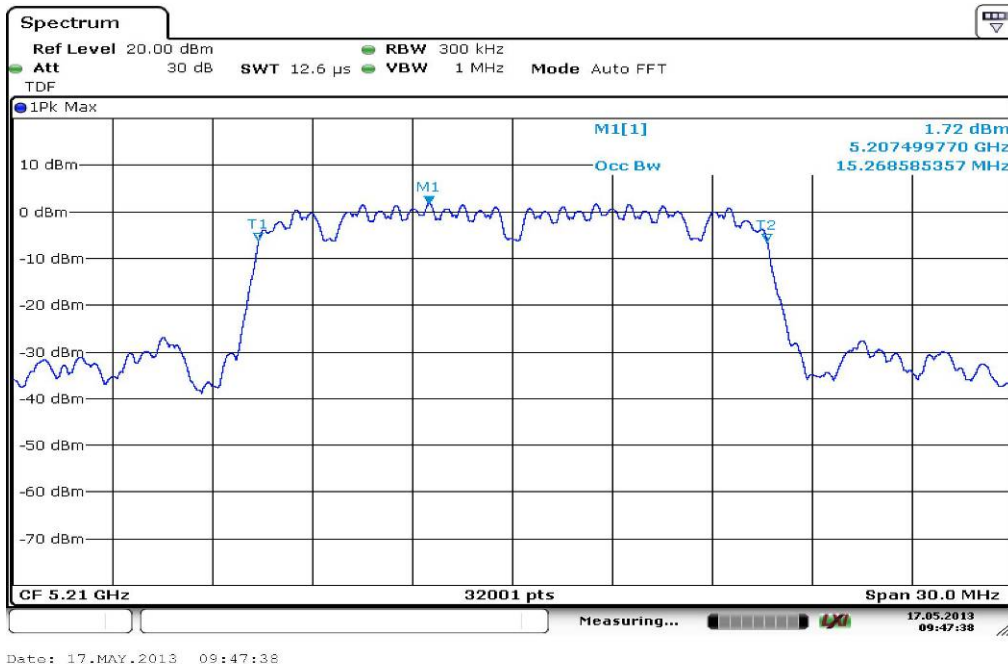
Date: 17.MAY.2013 09:45:58

**Plots: DSSS, antenna port B, BPSK**

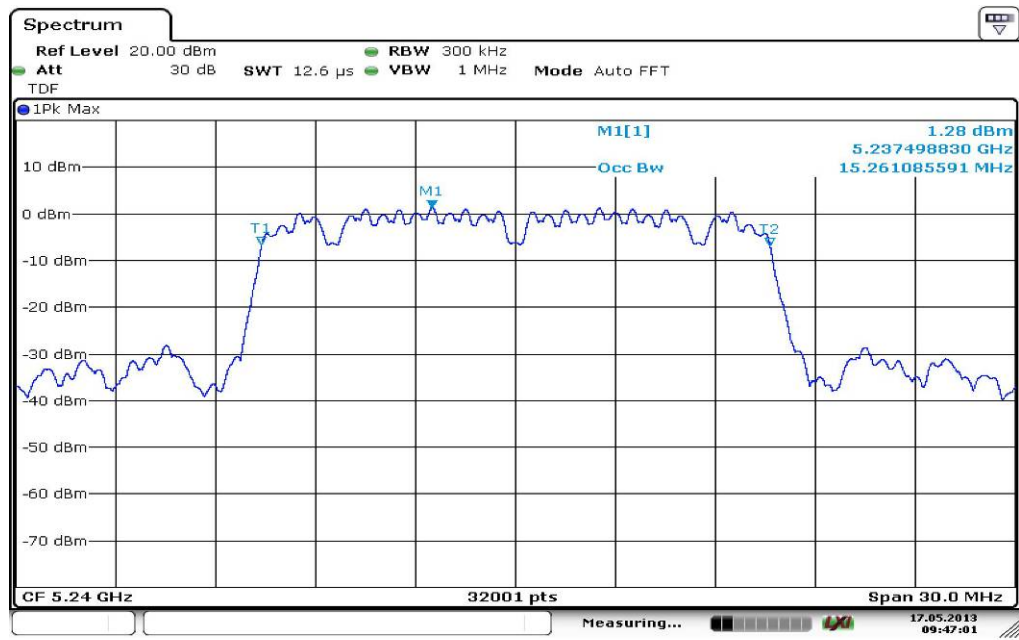
**Plot 16: 5180 MHz**



**Plot 17: 5210 MHz**



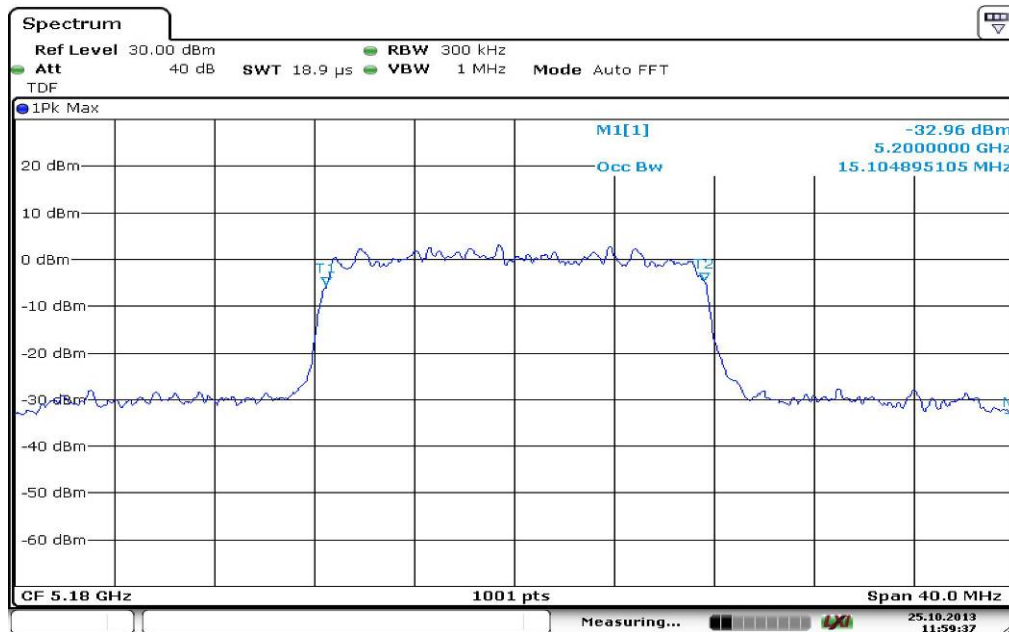
Plot 18: 5240 MHz



Date: 17.MAY.2013 09:47:00

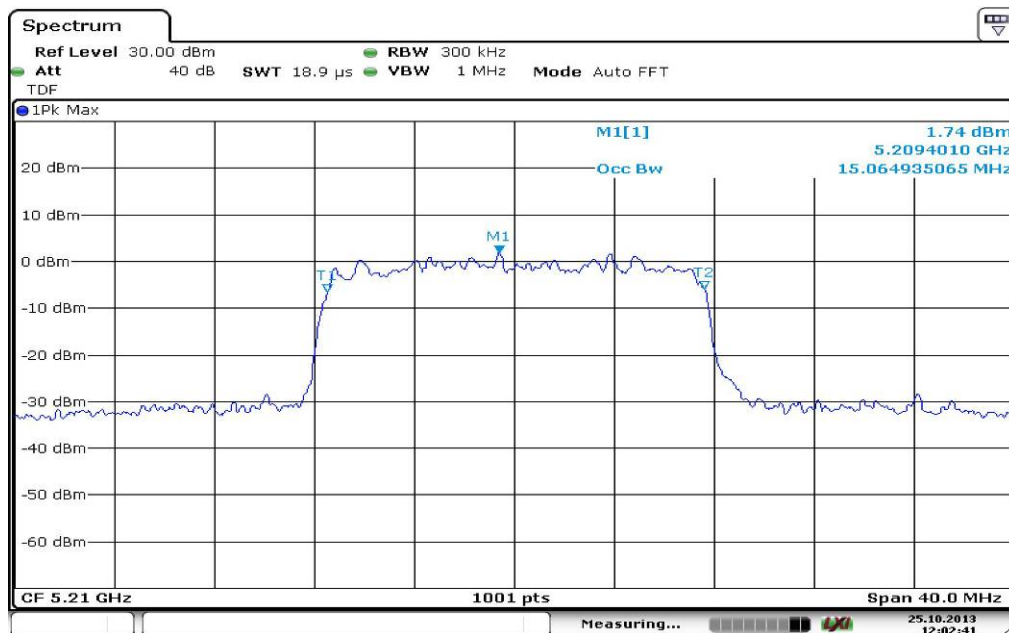
**Plots: DSSS, antenna port A, QPSK**

**Plot 19: 5180 MHz**



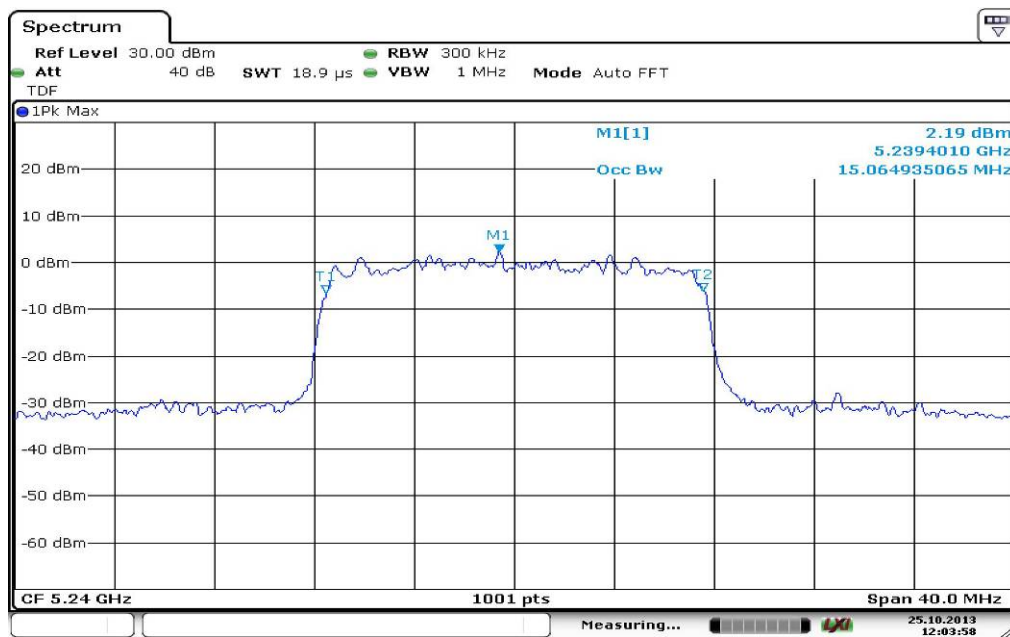
Date: 25.OCT.2013 11:59:37

**Plot 20: 5210 MHz**



Date: 25.OCT.2013 12:02:41

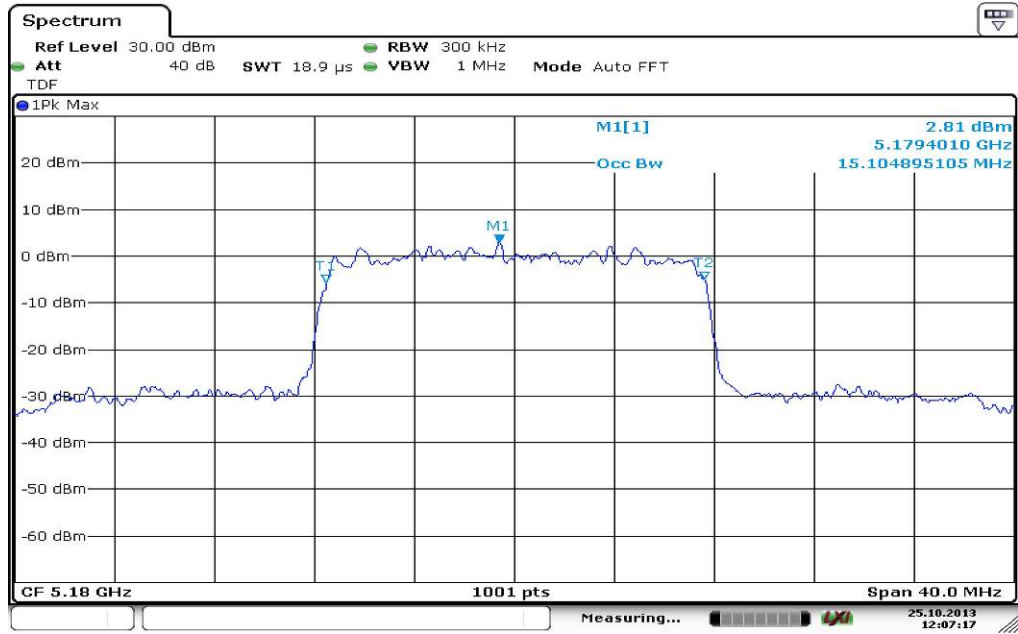
Plot 21: 5240 MHz



Date: 25.OCT.2013 12:03:59

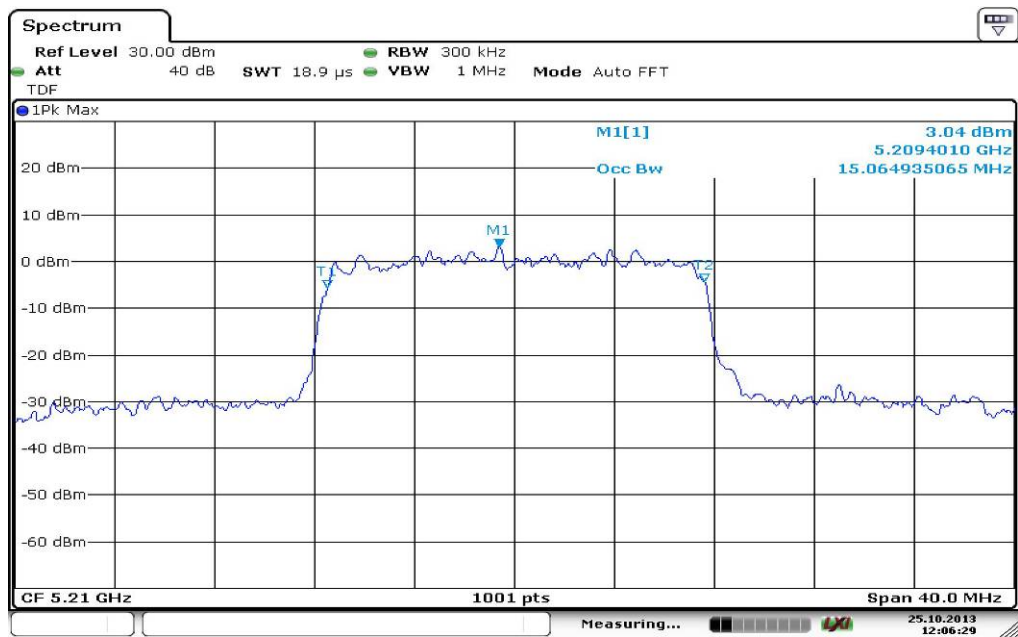
**Plots: DSSS, antenna port B, QPSK**

**Plot 22: 5180 MHz**



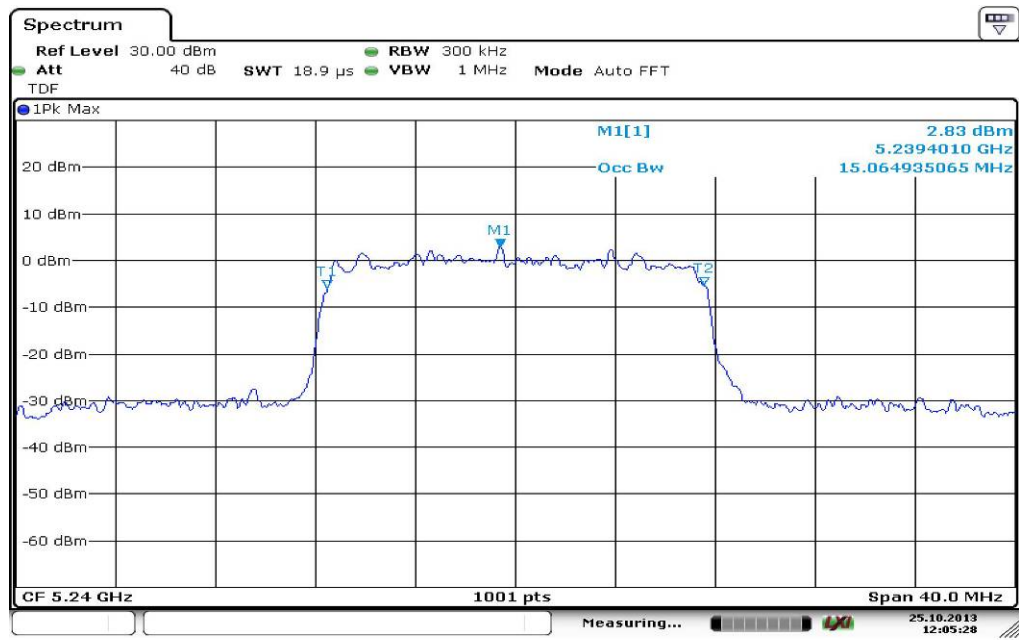
Date: 25.OCT.2013 12:07:18

**Plot 23: 5210 MHz**



Date: 25.OCT.2013 12:06:29

Plot 24: 5240 MHz



Date: 25.OCT.2013 12:05:29

## 9.7 Peak excursion measurements

### Description:

Peak to average value.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	60 s / 120 s
Resolution bandwidth:	1 MHz
Video bandwidth:	≥ 3 MHz
Span:	> Complete signal
Trace-Mode:	Max hold

### Limits:

Peak excursion value
Does not exceed 13 dB.

### Results:

Modulation DSSS, antenna port A BPSK	Peak excursion value		
	5180 MHz	5210 MHz	5240 MHz
Channel			
RMS	1.57	0.95	-0.03
Peak	4.40	4.04	3.05
Peak excursion value	2.83	3.09	3.08
Measurement uncertainty	± 1 dB		

**Result:** Passed

### Results:

Modulation DSSS, antenna port B BPSK	Peak excursion value		
	5180 MHz	5210 MHz	5240 MHz
Channel			
RMS	2.06	2.03	1.56
Peak	5.08	4.99	4.52
Peak excursion value	3.02	2.96	2.96
Measurement uncertainty	± 1 dB		

**Result:** Passed



**Results:**

Modulation DSSS, antenna port A QPSK	Peak excursion value		
	5180 MHz	5210 MHz	5240 MHz
Channel			
RMS	-5.56	-6.42	-5.94
Peak	7.12	5.70	5.97
Peak excursion value	12.72	12.12	11.91
Measurement uncertainty	± 1 dB		

**Result: Passed**

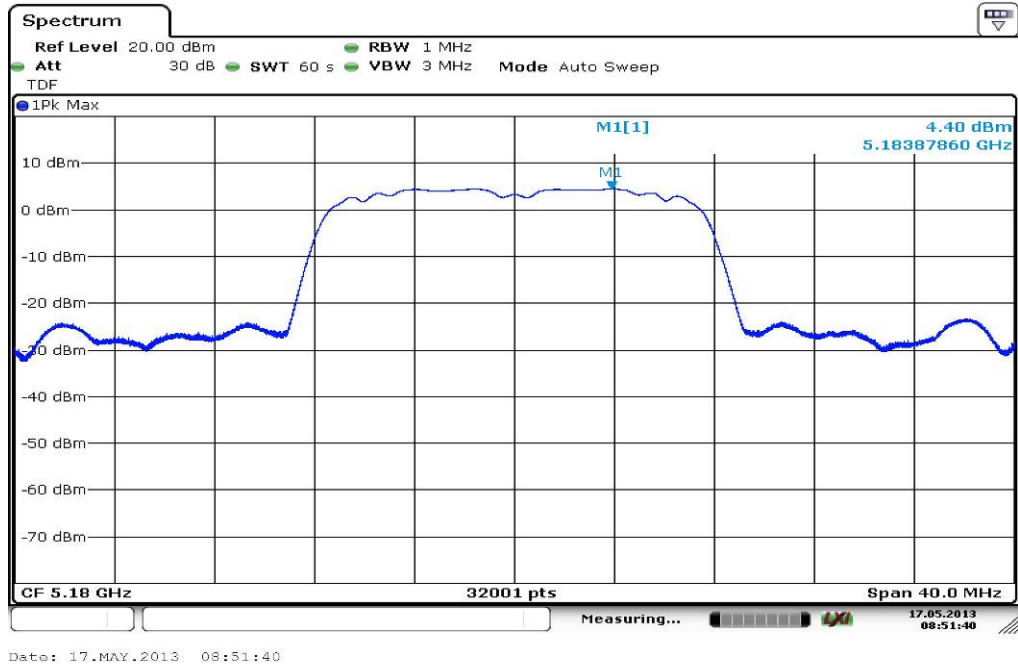
**Results:**

Modulation DSSS, antenna port B QPSK	Peak excursion value		
	5180 MHz	5210 MHz	5240 MHz
Channel			
RMS	-5.49	-5.65	-5.42
Peak	7.50	6.90	7.04
Peak excursion value	12.99	12.55	12.46
Measurement uncertainty	± 1 dB		

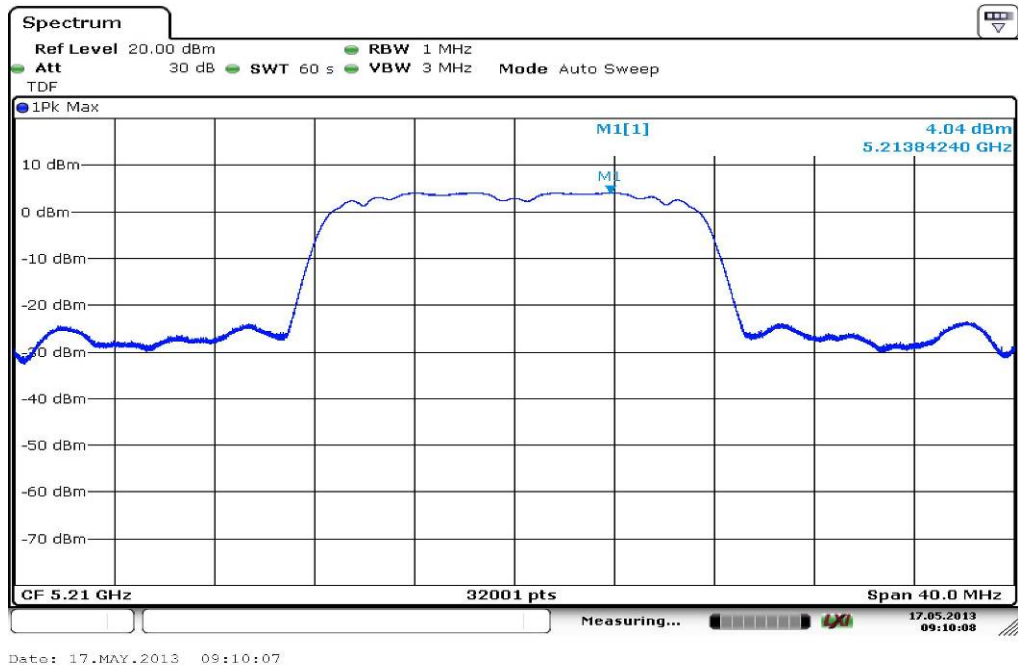
**Result: Passed**

**Plots: DSSS, antenna port A, BPSK**

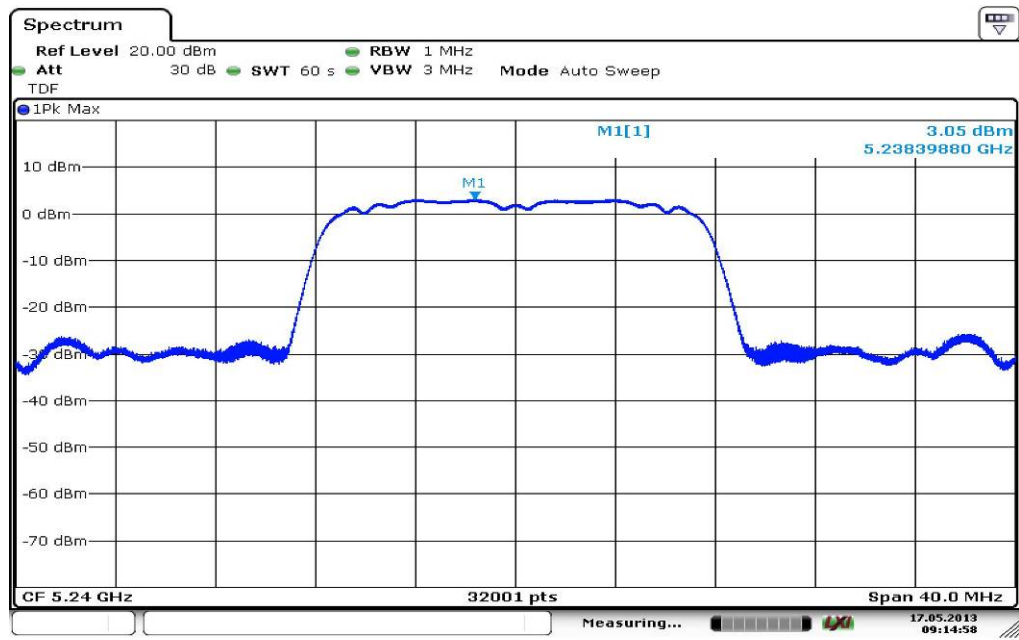
**Plot 25: 5180 MHz**



**Plot 26: 5210 MHz**



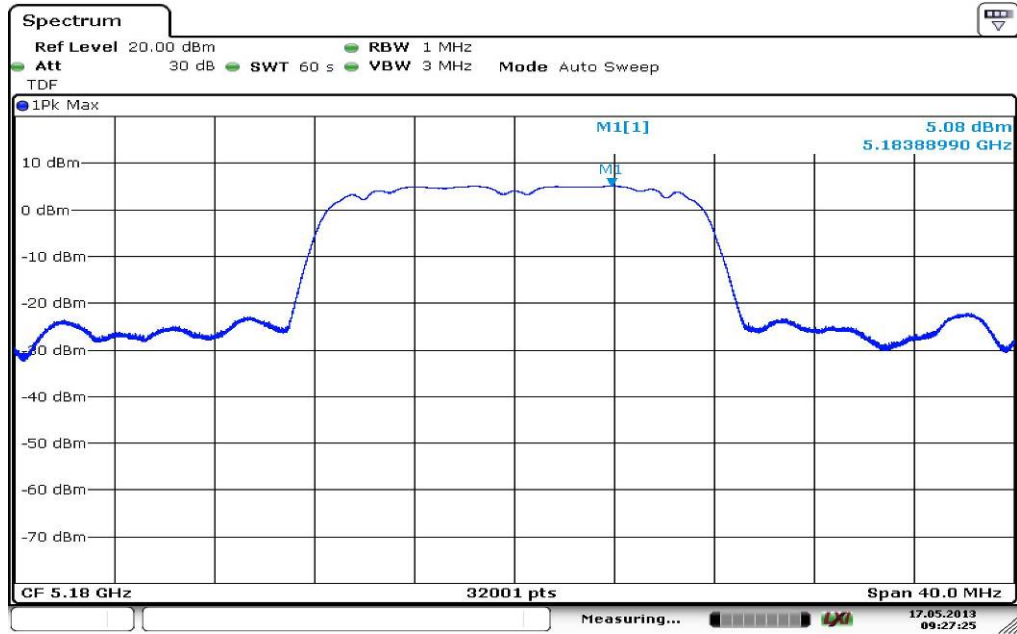
Plot 27: 5240 MHz



Date: 17.MAY.2013 09:14:57

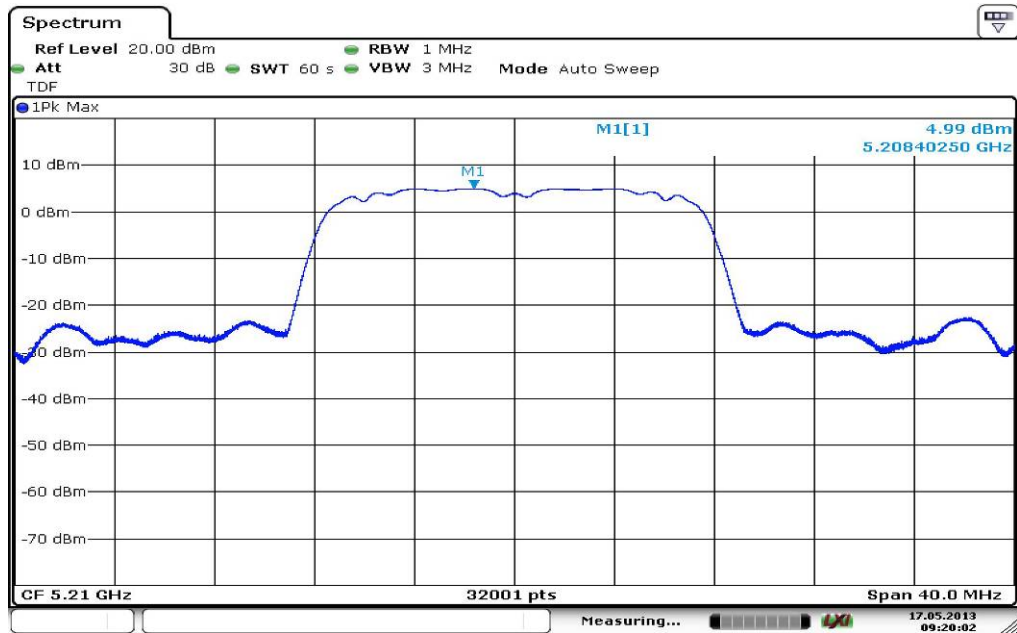
**Plots: DSSS, antenna port B, BPSK**

**Plot 28: 5180 MHz**



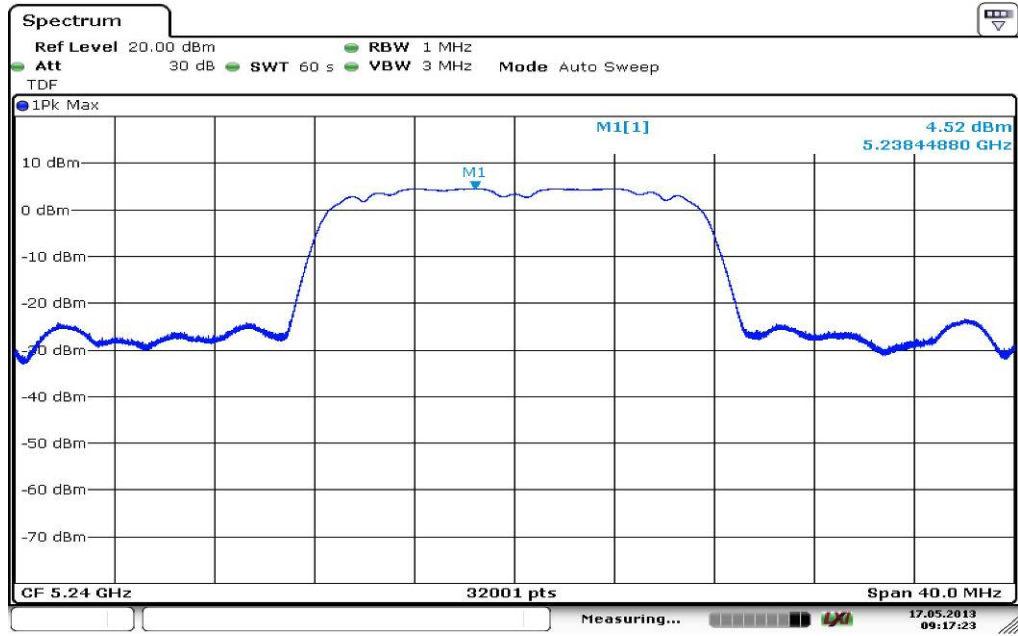
Date: 17.MAY.2013 09:27:24

**Plot 29: 5210 MHz**



Date: 17.MAY.2013 09:20:01

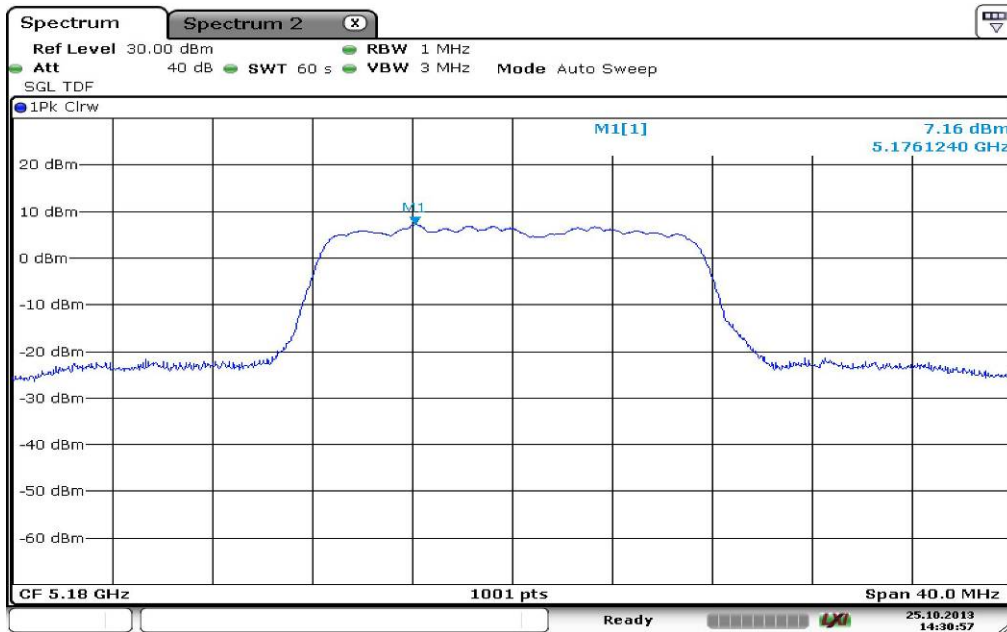
Plot 30: 5240 MHz



Date: 17.MAY.2013 09:17:22

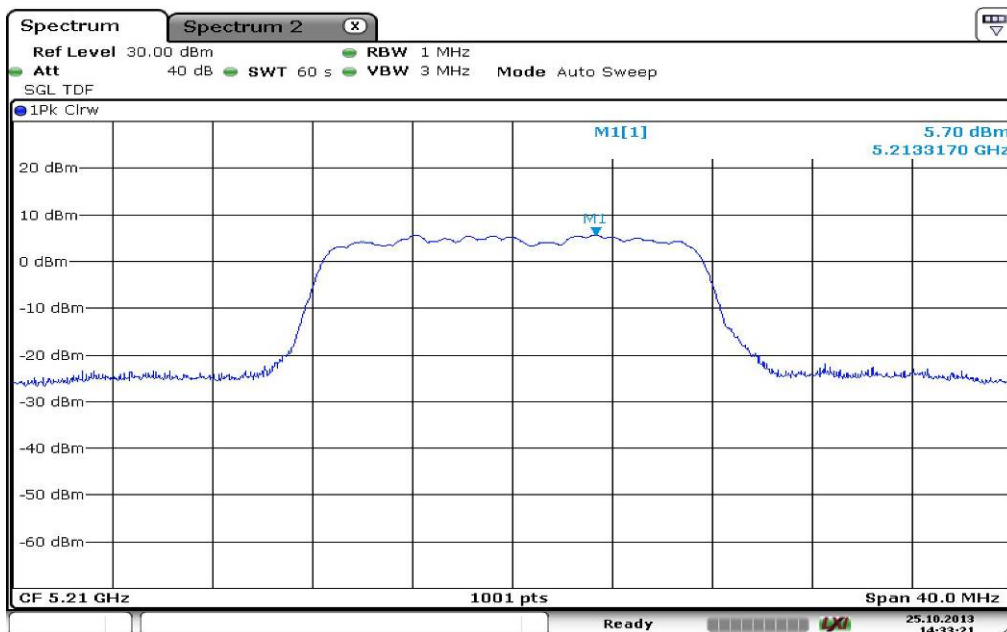
**Plots: DSSS, antenna port A, QPSK**

**Plot 31: 5180 MHz**



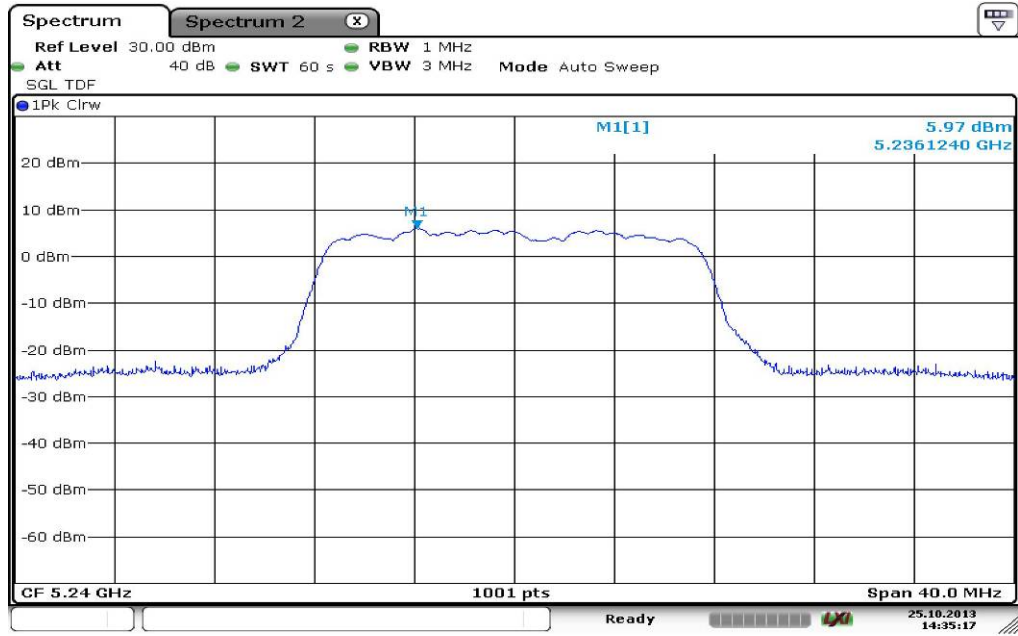
Date: 25.OCT.2013 14:30:57

**Plot 32: 5210 MHz**



Date: 25.OCT.2013 14:33:21

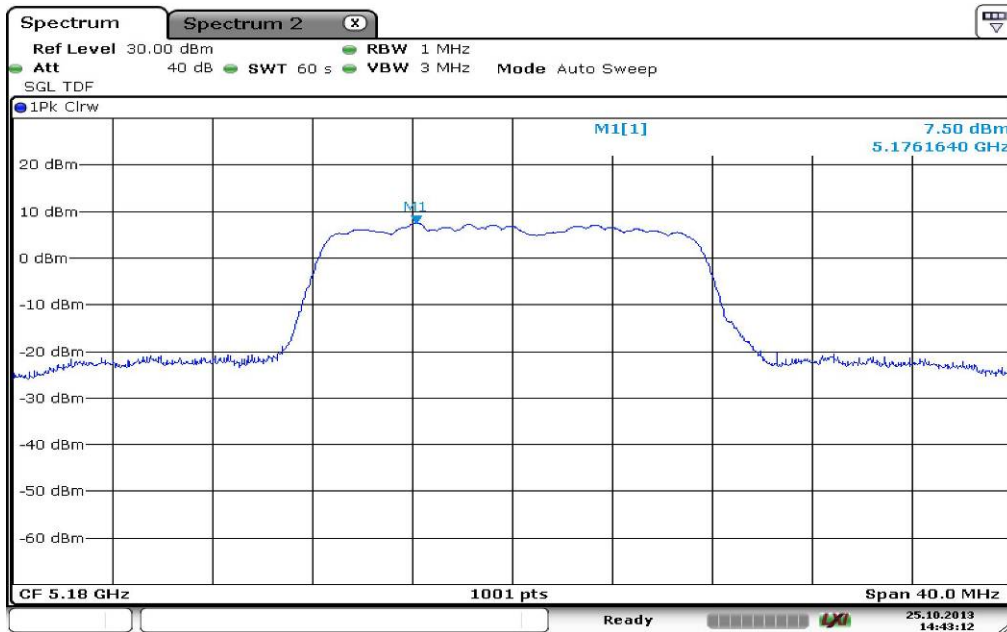
Plot 33: 5240 MHz



Date: 25.OCT.2013 14:35:17

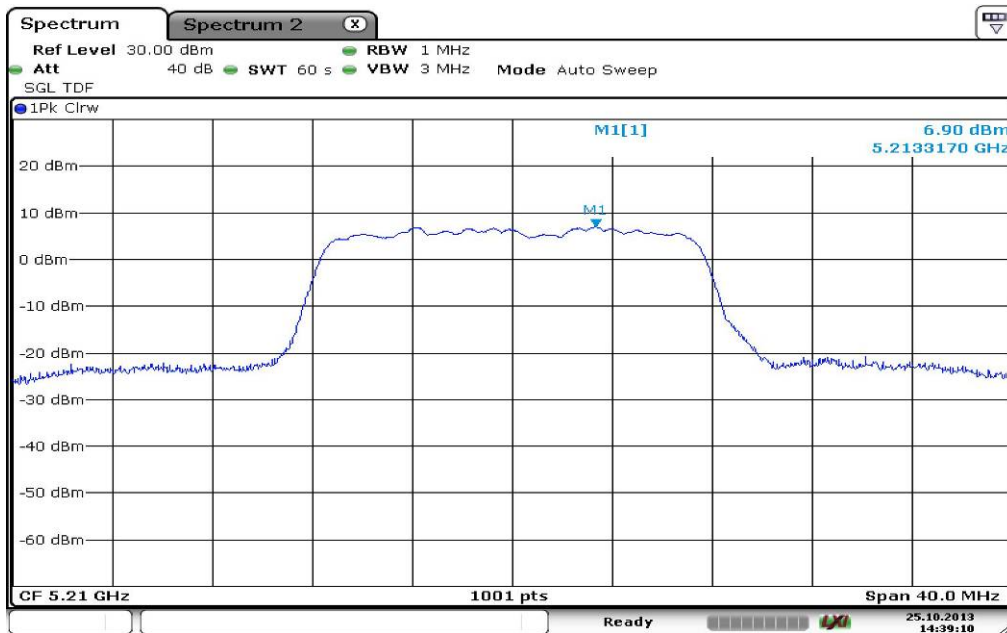
**Plots: DSSS, antenna port B, QPSK**

**Plot 34: 5180 MHz**



Date: 25.OCT.2013 14:43:12

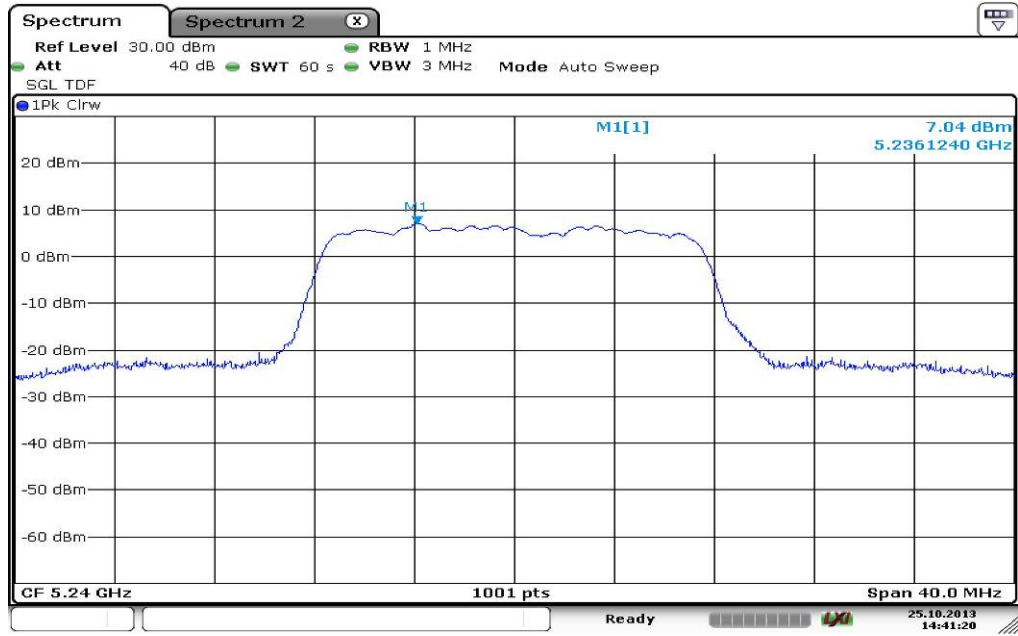
**Plot 35: 5210 MHz**



Date: 25.OCT.2013 14:39:10



Plot 36: 5240 MHz



Date: 25.OCT.2013 14:41:21

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

### Measurement:

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

### Limits:

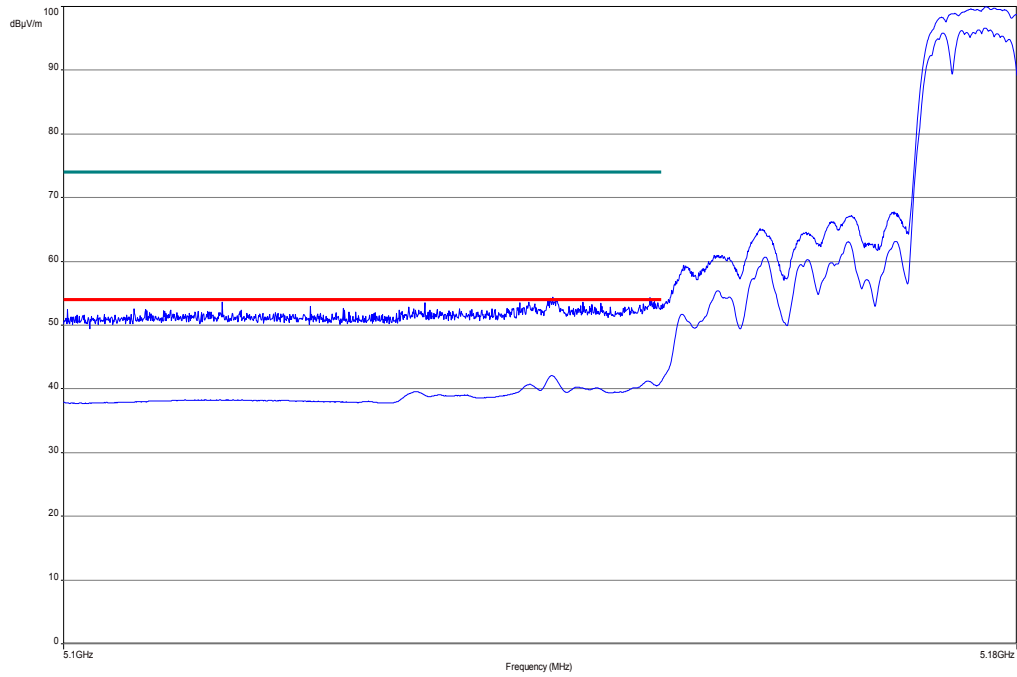
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within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

### Result:

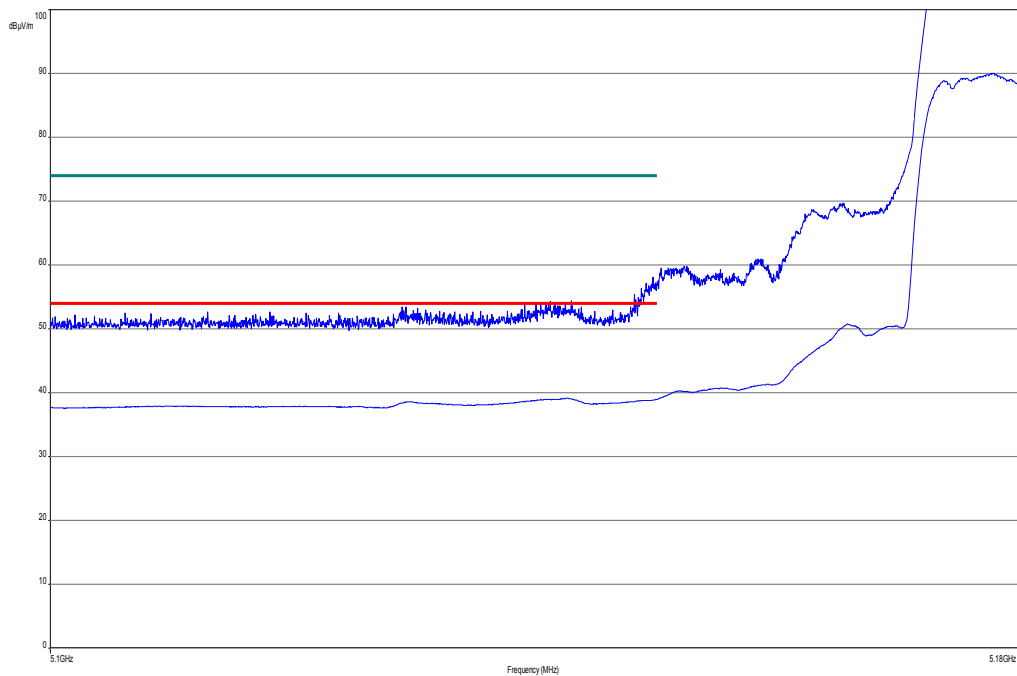
Scenario	Band Edge Compliance Radiated [dB $\mu$ V/m]
band edge BPSK / QPSK	< 74 dB $\mu$ V/m (AVG) < 54 dB $\mu$ V/m (PEAK)
Measurement uncertainty	$\pm$ 3 dB

**Plots: Valid for antenna port A & B**

**Plot 1:** lower band edge, vertical & horizontal polarization (a mode), channel 36, BPSK



**Plot 2:** lower band edge, vertical & horizontal polarization (a mode), channel 36, QPSK



**Result: Passed**

## 9.9 TX spurious emissions radiated

### Description:

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

### Measurement:

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

### Limits:

TX Spurious Emissions Radiated		
§15.209		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

**Results: DSSS, antenna port A, BPSK**

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.		
Measurement uncertainty			± 3 dB					

**Result: Passed**

**Results: DSSS, antenna port B, BPSK**

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.		
Measurement uncertainty			± 3 dB					

**Result: Passed**

**Results: DSSS, antenna port A, QPSK**

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.		
Measurement uncertainty			± 3 dB					

**Result: Passed**

**Results: DSSS, antenna port B, QPSK**

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
OFDM a – mode								
Lowest 5180 MHz			Middle 5210 MHz			Highest 5240 MHz		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.			For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.			All detected emissions are more than 15 dB below the limit.		
Measurement uncertainty			± 3 dB					

**Result: Passed**

**Plots:** DSSS, antenna port A, BPSK

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

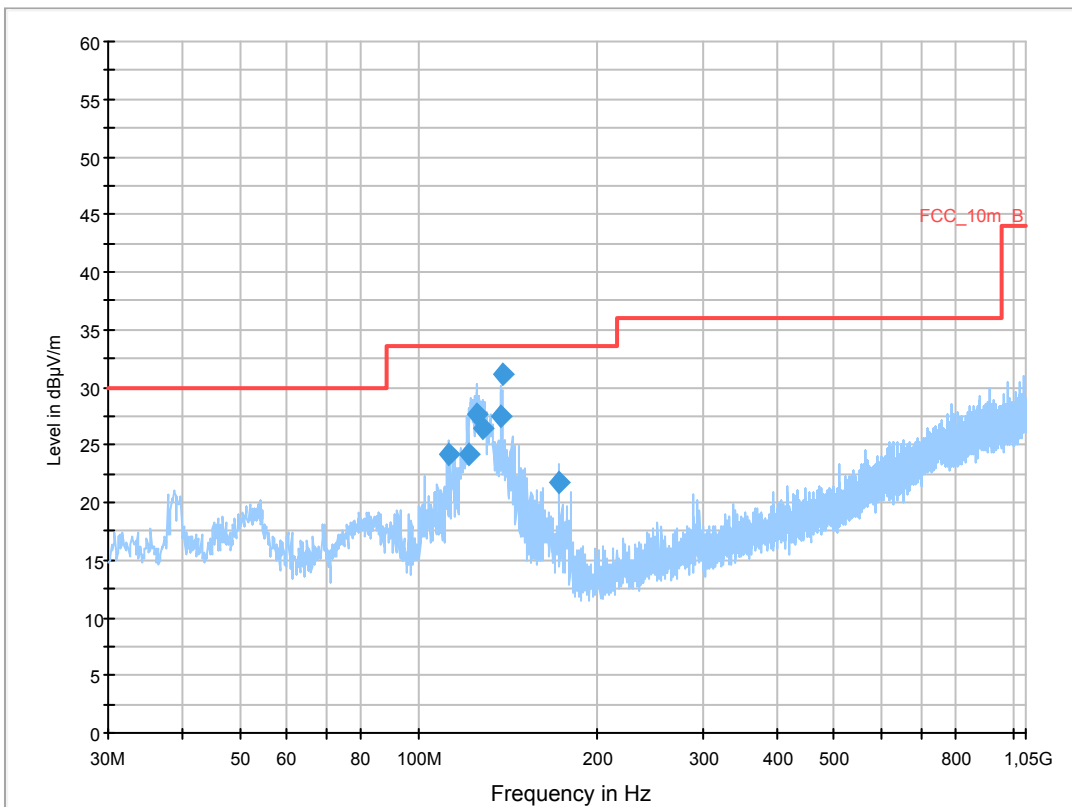
### Common Information

EUT: Quinta MU 3x (Revoluto)  
 Serial Number: 00001  
 Test Description: FCC part 15 C class B @ 10 m  
 Operating Conditions: 5,2G, ANT A, 5180MHz  
 Operator Name: Medrow  
 Comment: AC 115V / 60Hz

### Scan Setup: STAN\_Fin [EMI radiated]

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

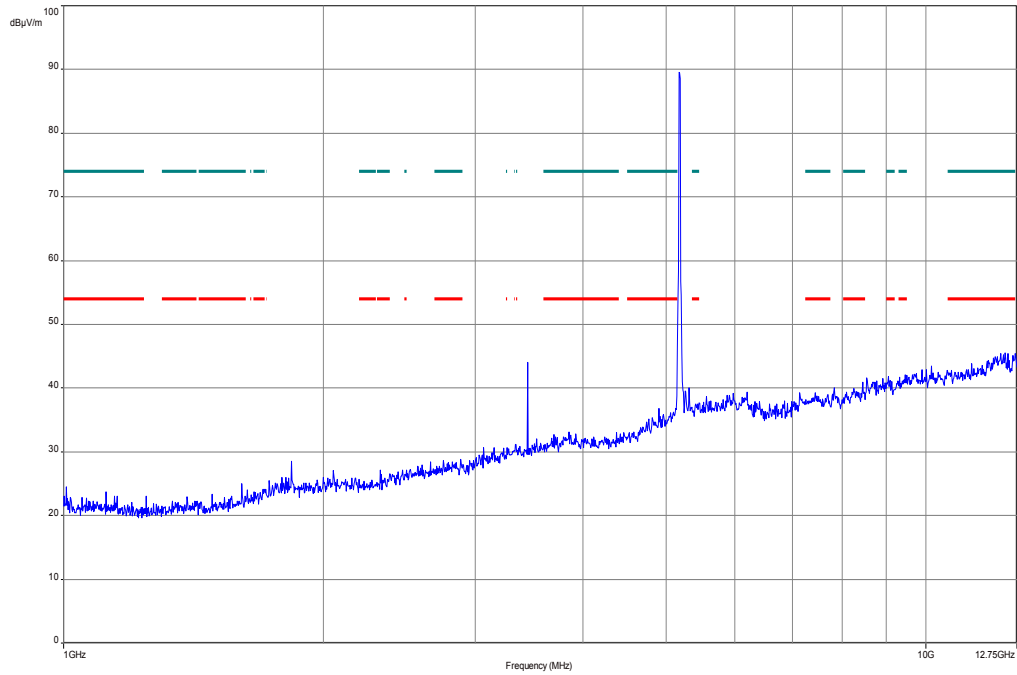
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



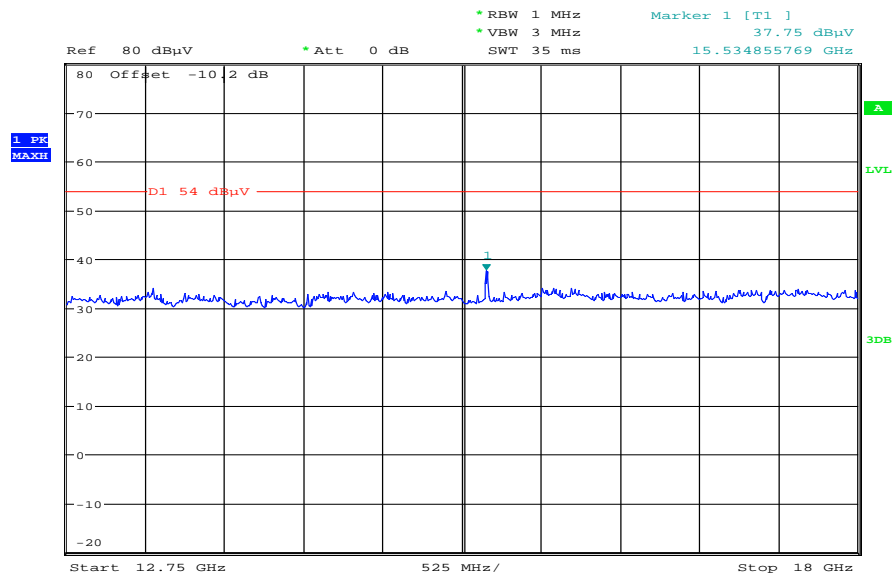
### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
112.640250	24.2	1000.0	120.000	142.0	V	80.0	10.8	9.3	33.5	
121.618350	24.1	1000.0	120.000	170.0	V	170.0	10.1	9.4	33.5	
125.410350	27.7	1000.0	120.000	98.0	V	171.0	9.8	5.8	33.5	
128.079450	26.4	1000.0	120.000	122.0	V	170.0	9.6	7.1	33.5	
137.855250	27.5	1000.0	120.000	170.0	V	80.0	8.8	6.0	33.5	
137.970300	31.1	1000.0	120.000	170.0	V	10.0	8.8	2.4	33.5	

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



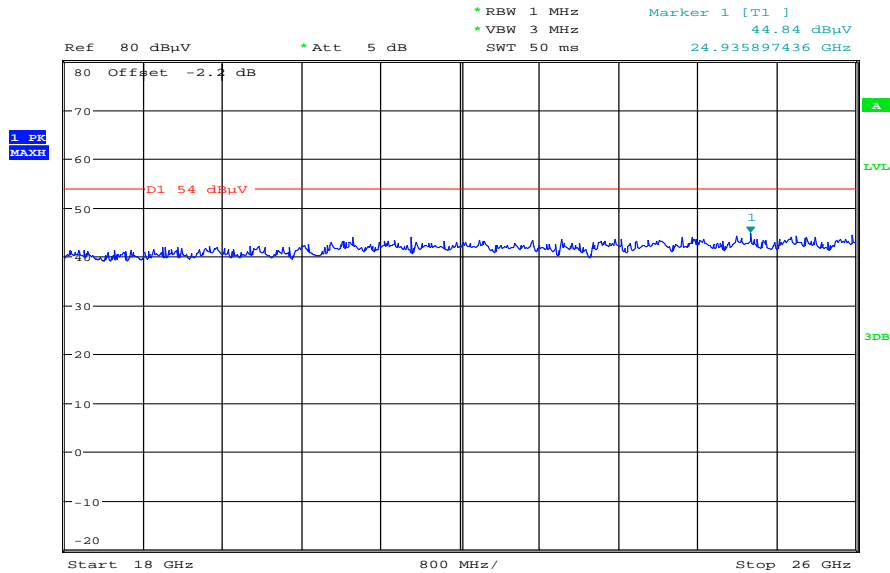
**Plot 3:** 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 12:40:13

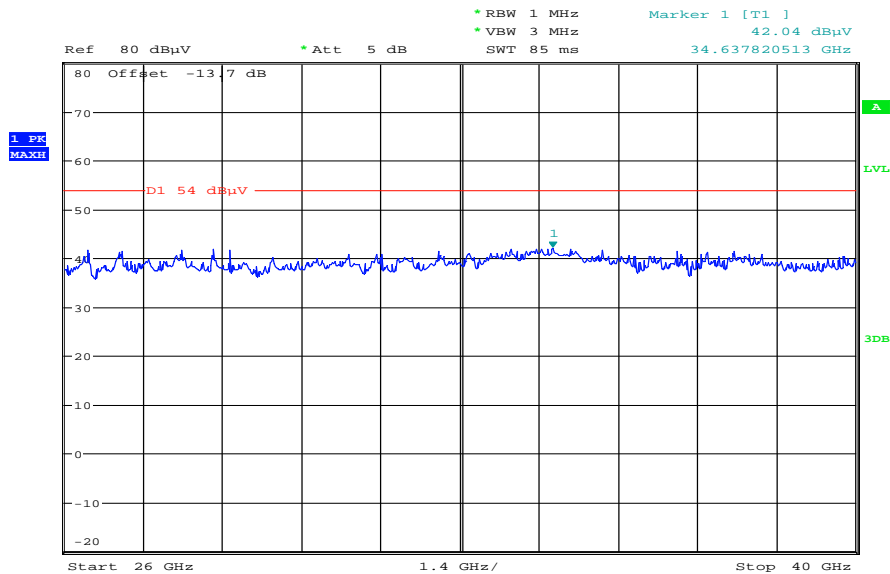


**Plot 4:** 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:04:52

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



Date: 16.MAY.2013 13:35:58

**Plot 6:** 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization

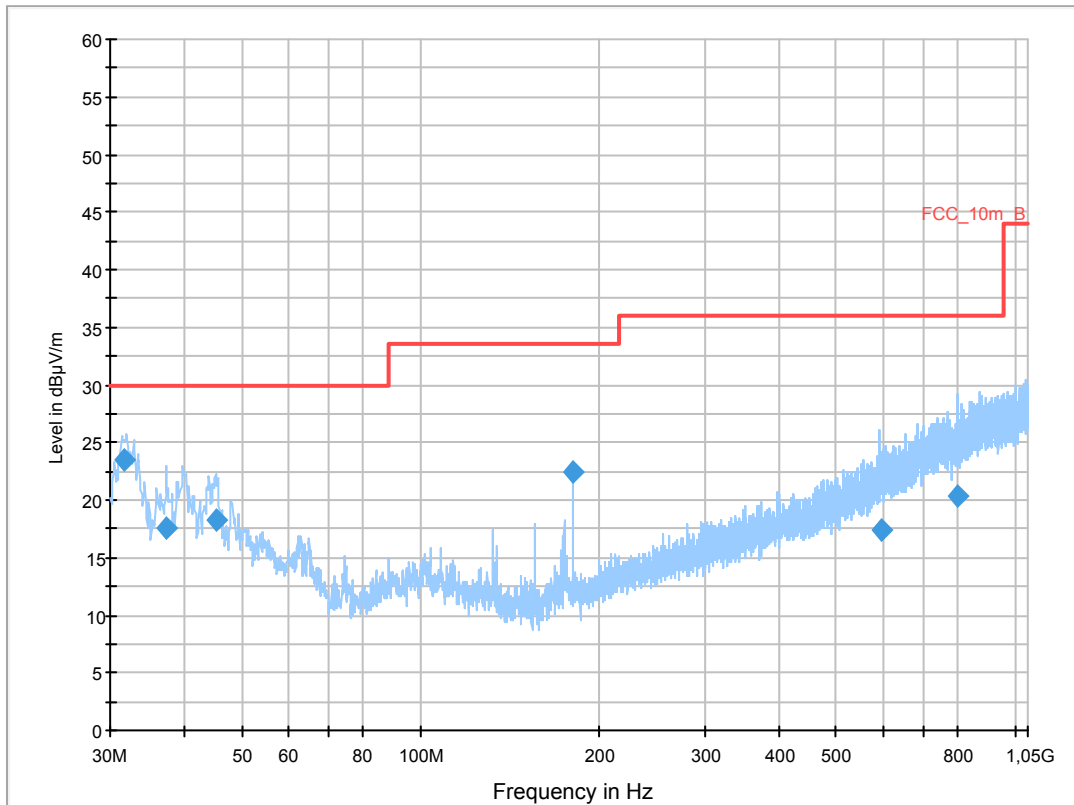
### Common Information

EUT: Quinta MU 3x (Revoluto)  
 Serial Number: 00001  
 Test Description: FCC part 15 C class B @ 10 m  
 Operating Conditions: 5,2G, ANT A, 5210MHz  
 Operator Name: Wolsdorfer  
 Comment: AC 115V / 60Hz

### Scan Setup: STAN\_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)  
 Level Unit: dBµV/m

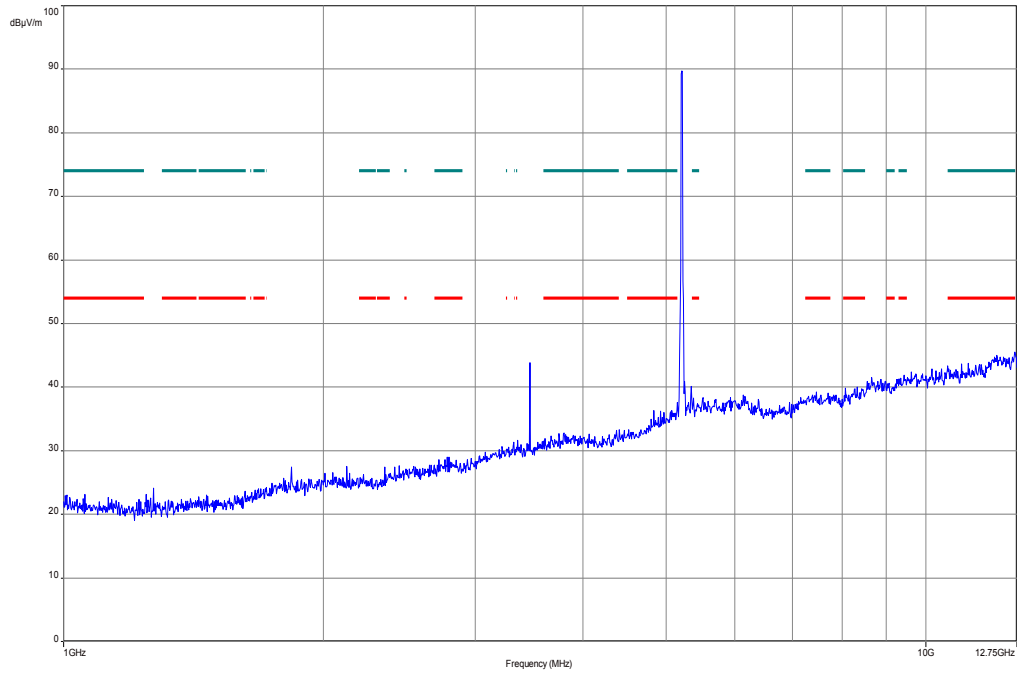
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



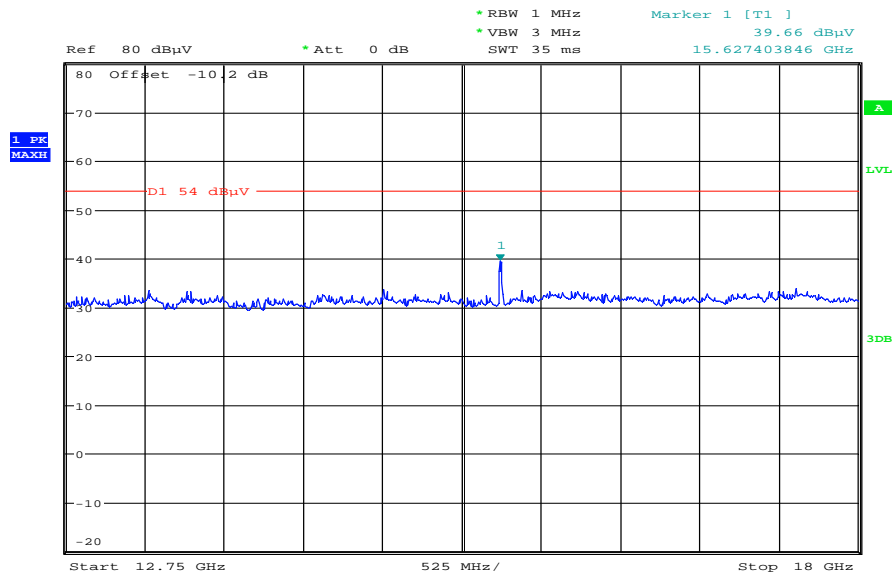
### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.711200	23.5	1000.0	120.000	170.0	V	280.0	12.7	6.5	30.0	
37.364850	17.6	1000.0	120.000	98.0	V	3.0	13.2	12.4	30.0	
45.300900	18.2	1000.0	120.000	104.0	V	260.0	13.3	11.8	30.0	
180.016200	22.4	1000.0	120.000	122.0	V	270.0	10.4	11.1	33.5	
593.709150	17.3	1000.0	120.000	153.0	V	260.0	20.6	18.7	36.0	
800.731500	20.3	1000.0	120.000	170.0	V	-10.0	23.8	15.7	36.0	

**Plot 7:** 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

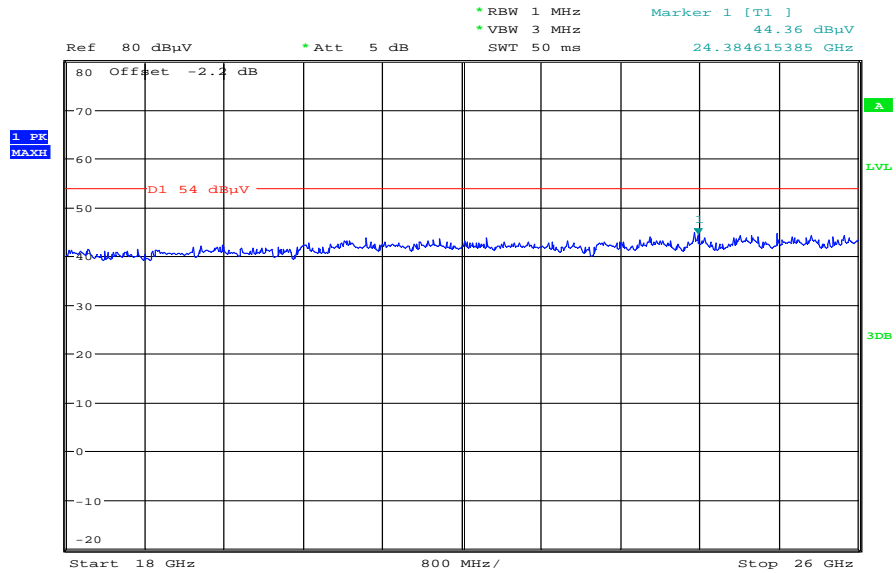


**Plot 8:** 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



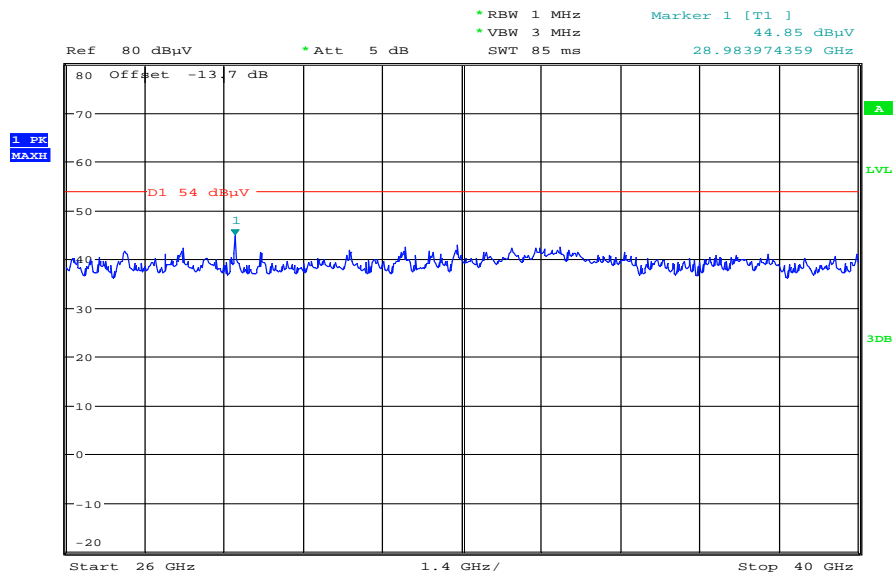
Date: 16.MAY.2013 12:41:41

Plot 9: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:05:42

Plot 10: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:37:09

Plot 11: 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization

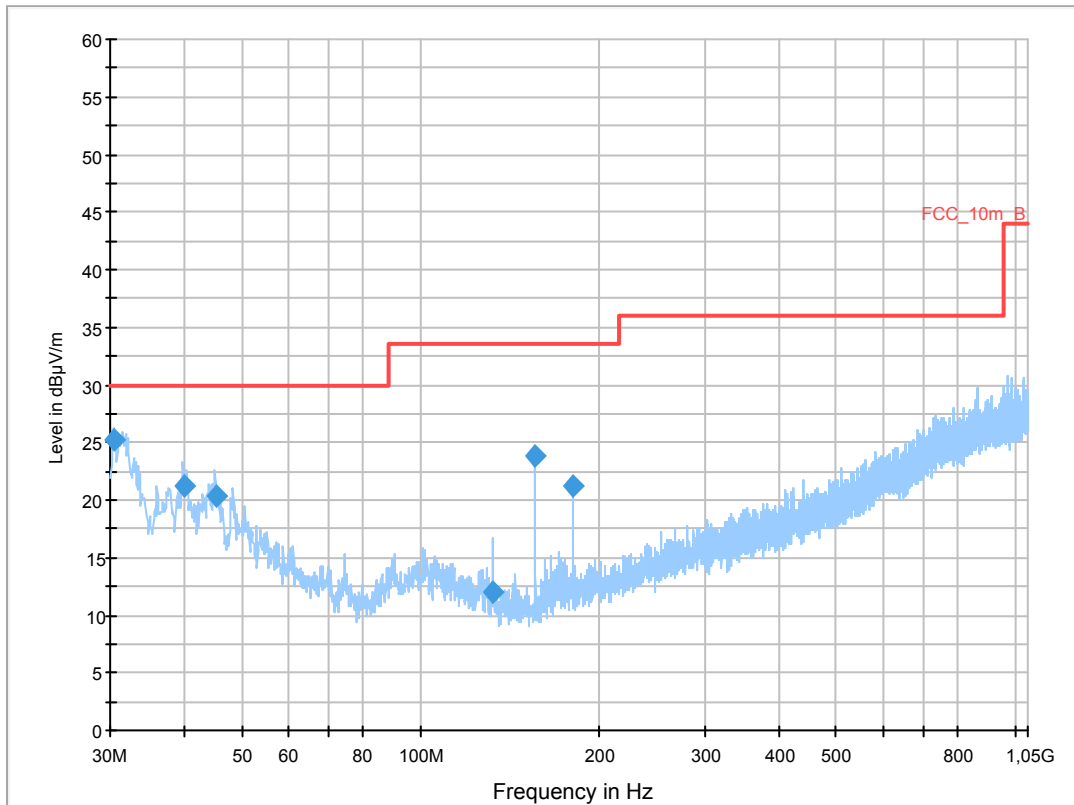
### Common Information

EUT: Quinta MU 3x (Revoluto)  
 Serial Number: 00001  
 Test Description: FCC part 15 C class B @ 10 m  
 Operating Conditions: 5,2G, ANT A, 5240MHz  
 Operator Name: Medrow  
 Comment: AC 115V / 60Hz

### Scan Setup: STAN\_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)  
 Level Unit: dBµV/m

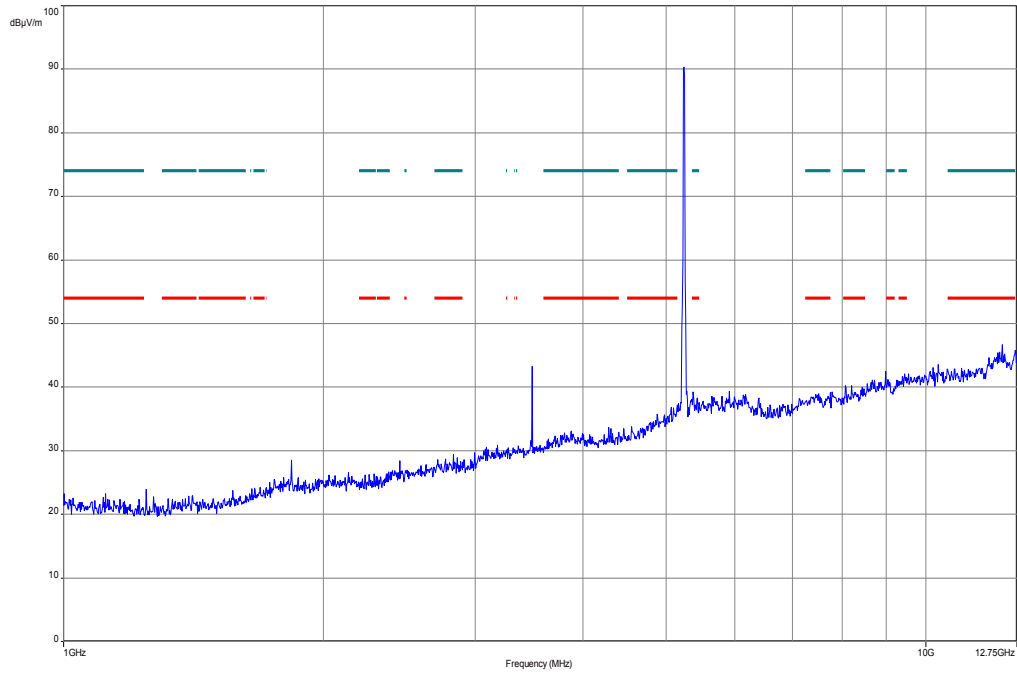
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



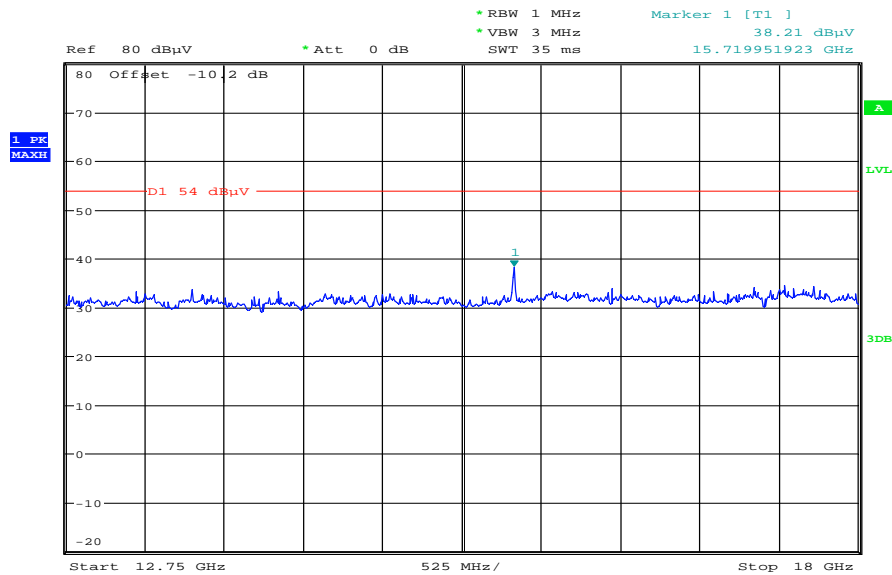
### Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.498619	25.1	1000.0	120.000	105.0	V	260.0	12.6	4.9	30.0	
39.893400	21.1	1000.0	120.000	98.0	V	280.0	13.4	8.9	30.0	
45.149250	20.3	1000.0	120.000	98.0	V	10.0	13.3	9.7	30.0	
131.988900	12.1	1000.0	120.000	170.0	V	265.0	9.3	21.4	33.5	
155.998950	23.7	1000.0	120.000	98.0	V	280.0	9.1	9.8	33.5	
180.002400	21.1	1000.0	120.000	98.0	V	190.0	10.4	12.4	33.5	

Plot 12: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization

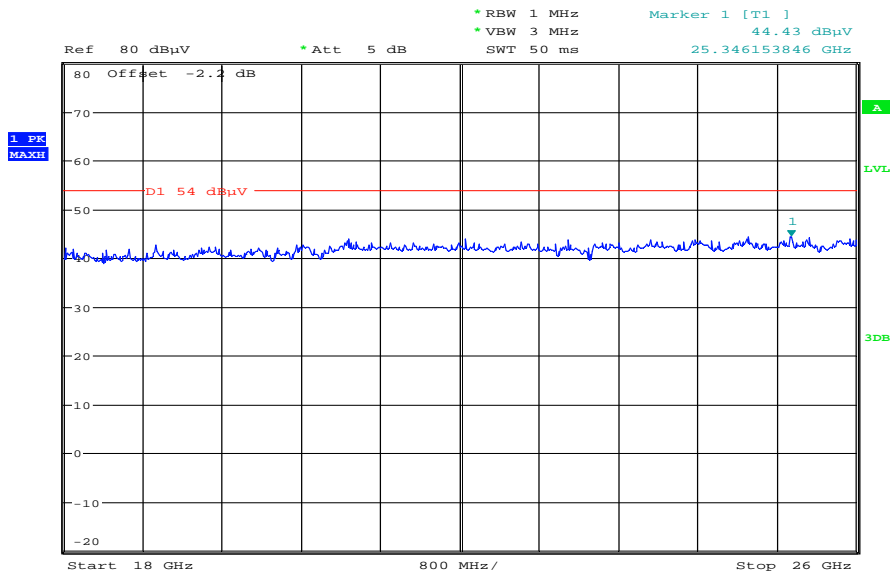


Plot 13: 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



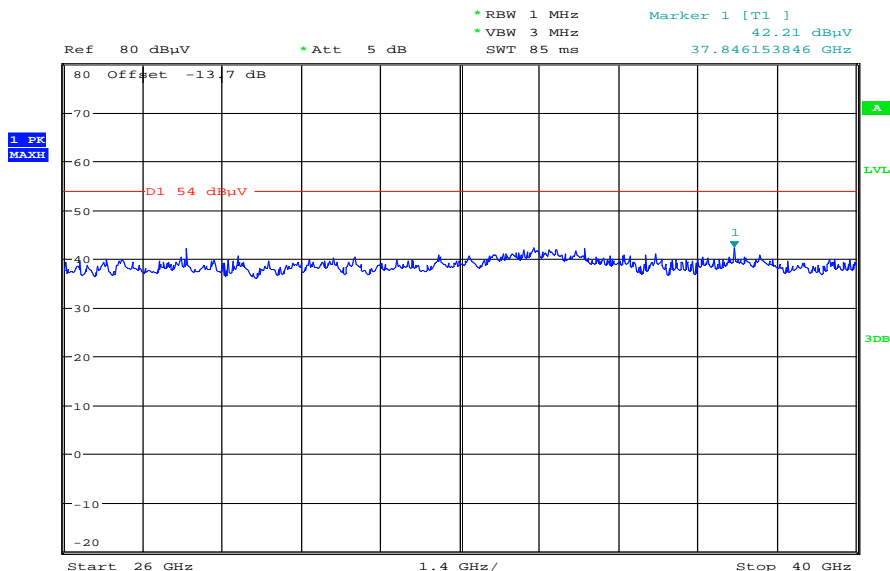
Date: 16.MAY.2013 12:42:47

Plot 14: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:07:00

Plot 15: 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:38:07

**Plots:** DSSS, antenna port B, BPSK

**Plot 16:** 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization

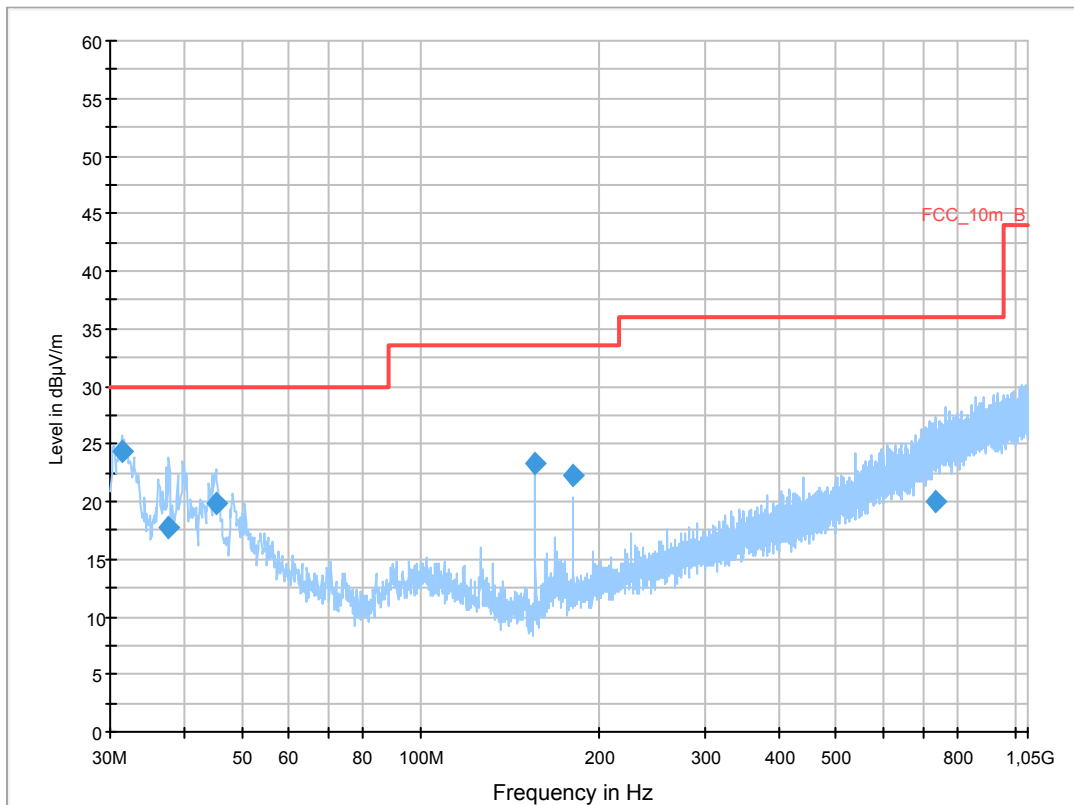
### Common Information

EUT: Quinta MU 3x (Revoluto) - USB removed - only premeasurement  
 Serial Number: 00001  
 Test Description: FCC part 15 C class B @ 10 m  
 Operating Conditions: 5,2G, ANT B, 5210MHz  
 Operator Name: Medrow  
 Comment: AC 115V / 60Hz

### Scan Setup: STAN\_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)  
 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

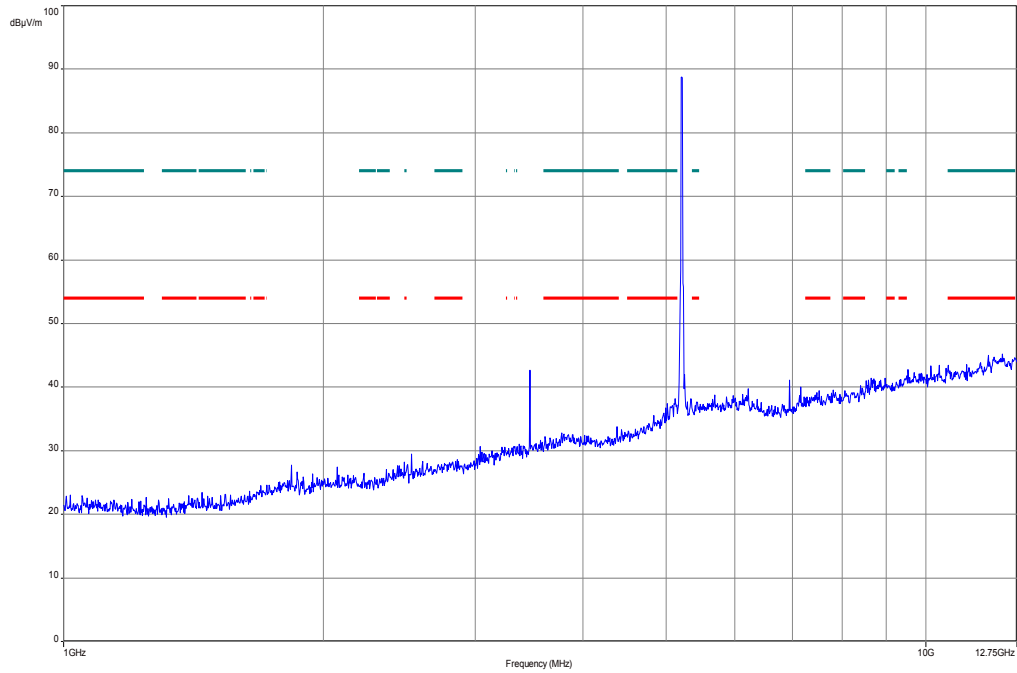


### Final Result 1

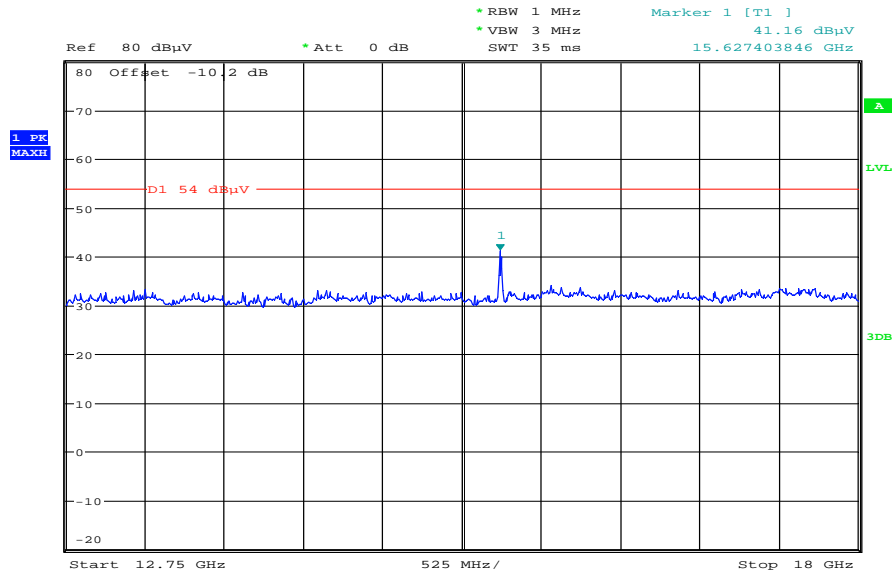
Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
31.378950	24.3	1000.0	120.000	98.0	V	268.0	12.7	5.7	30.0	
37.626450	17.8	1000.0	120.000	170.0	V	280.0	13.2	12.2	30.0	
45.272100	19.8	1000.0	120.000	98.0	V	10.0	13.3	10.2	30.0	
155.983350	23.4	1000.0	120.000	98.0	V	280.0	9.1	10.1	33.5	
180.000000	22.2	1000.0	120.000	98.0	V	-9.0	10.4	11.3	33.5	
735.195150	20.0	1000.0	120.000	170.0	V	178.0	23.3	16.0	36.0	



**Plot 17:** 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

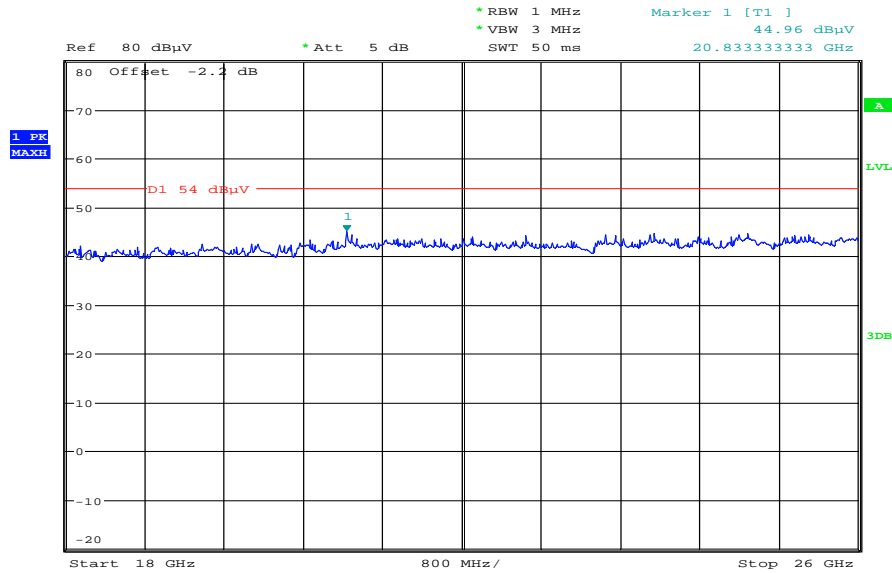


**Plot 18:** 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



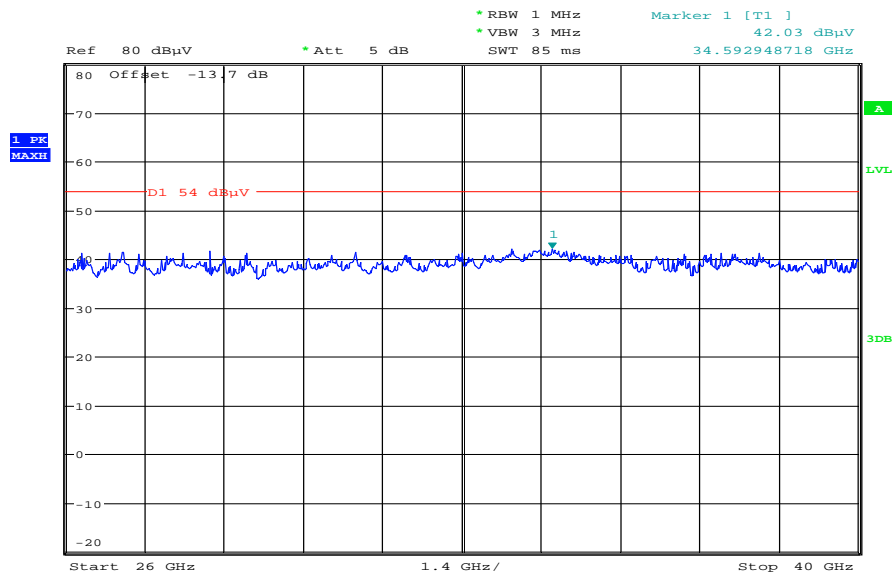
Date: 16.MAY.2013 12:44:37

Plot 19: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:08:14

Plot 20: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 16.MAY.2013 13:40:36

**Plots:** DSSS, antenna port A, BPSK

**Plot 21:** 30 MHz to 1 GHz, 5180 MHz, vertical & horizontal polarization

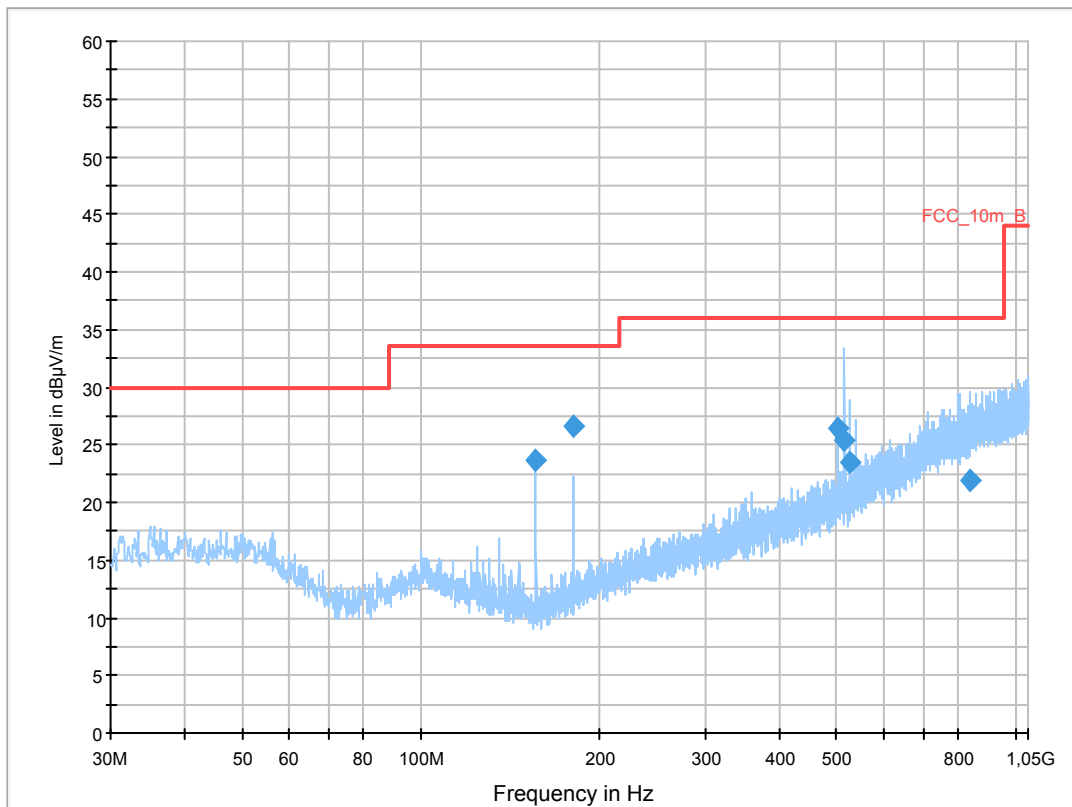
### Common Information

EUT: Revoluto  
 Serial Number:  
 Test Description: FCC part 15 class B  
 Operating Conditions: tx @5180MHz Ant. A  
 Operator Name: Wolsdorfer  
 Comment: AC: 115 V / 60 Hz

### 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
156.002400	23.7	1000.0	120.000	98.0	V	260.0	9.1	9.8	33.5	
180.004950	26.6	1000.0	120.000	98.0	V	280.0	10.4	6.9	33.5	
503.986650	26.4	1000.0	120.000	170.0	H	10.0	18.8	9.6	36.0	
516.004350	25.3	1000.0	120.000	170.0	H	10.0	18.9	10.7	36.0	
528.010050	23.6	1000.0	120.000	170.0	H	10.0	19.1	12.4	36.0	
837.817800	21.8	1000.0	120.000	170.0	V	80.0	24.4	14.2	36.0	

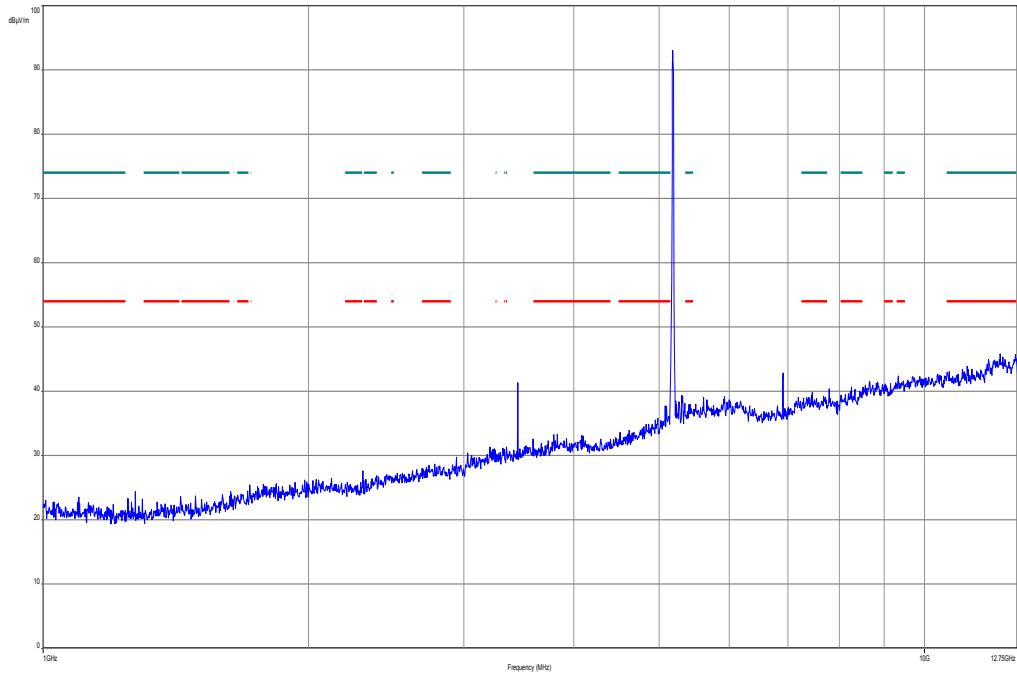
## Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

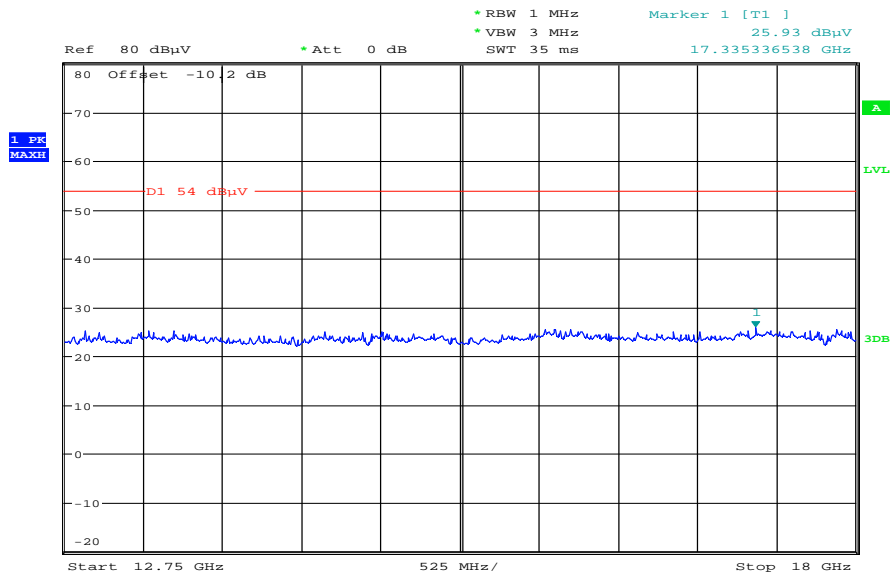
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005)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

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**Plot 22:** 1 GHz to 12.75 GHz, 5180 MHz, vertical & horizontal polarization

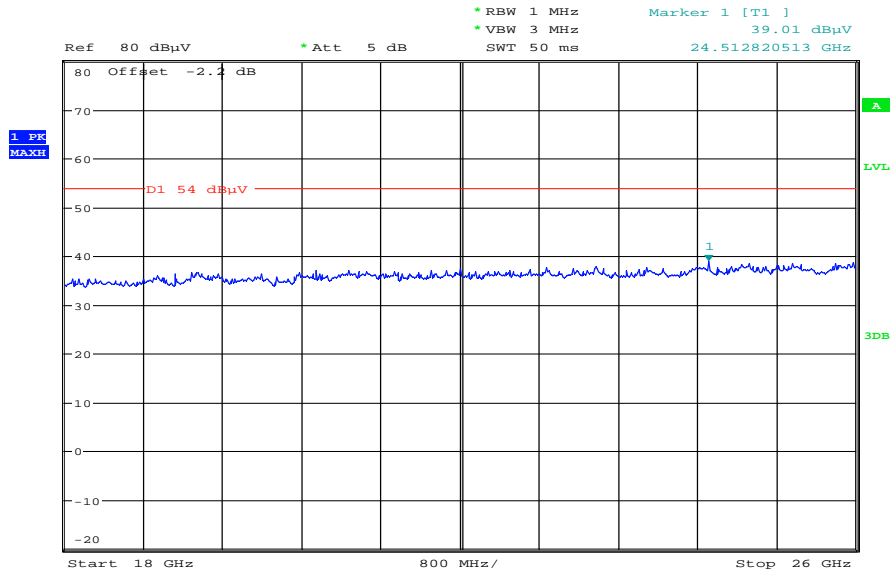


**Plot 23:** 12 GHz to 18 GHz, 5180 MHz, vertical & horizontal polarization



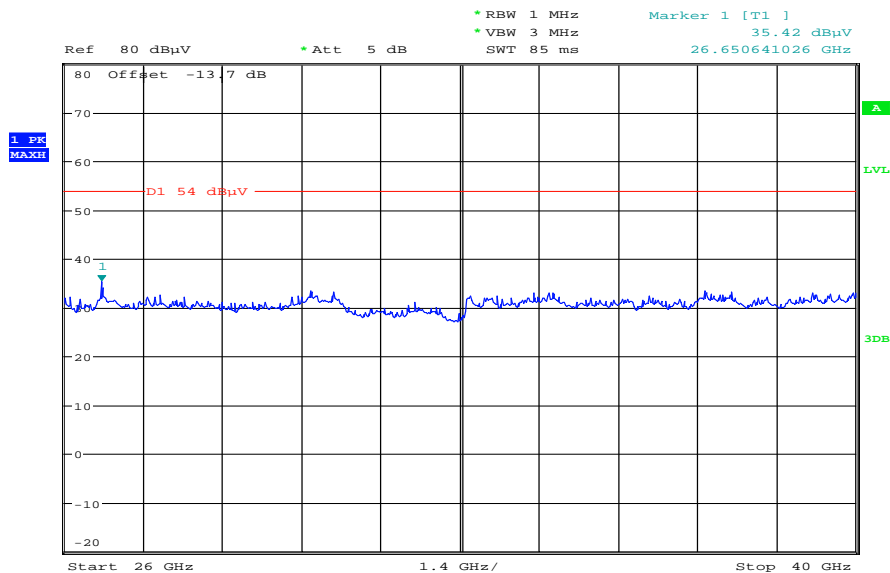
Date: 24.OCT.2013 14:24:35

Plot 24: 18 GHz to 26 GHz, 5180 MHz, vertical & horizontal polarization



Date: 24.OCT.2013 15:06:45

Plot 25: 26 GHz to 40 GHz, 5180 MHz, vertical & horizontal polarization



Date: 24.OCT.2013 15:20:18

**Plot 26:** 30 MHz to 1 GHz, 5210 MHz, vertical & horizontal polarization

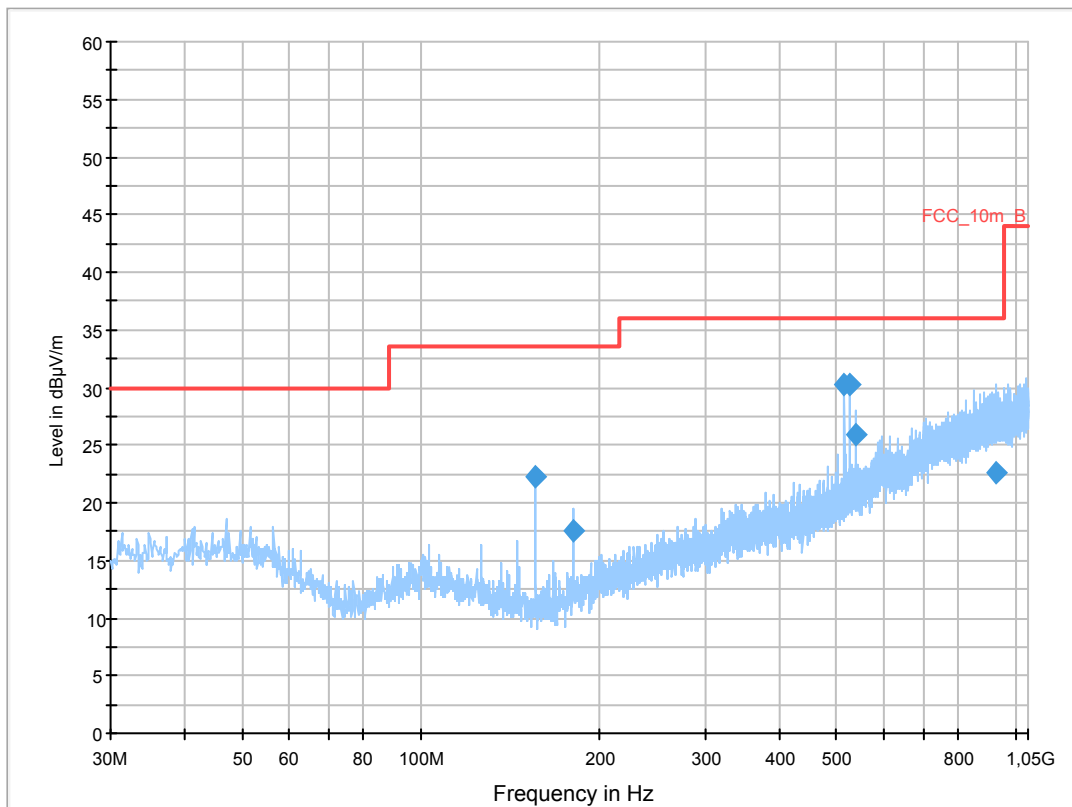
### Common Information

EUT: Revoluto  
 Serial Number:  
 Test Description: FCC part 15 class B  
 Operating Conditions: tx @5210MHz Ant. A  
 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
156.006300	22.2	1000.0	120.000	98.0	V	280.0	9.1	11.3	33.5	
180.055950	17.6	1000.0	120.000	98.0	V	270.0	10.4	15.9	33.5	
515.993400	30.2	1000.0	120.000	170.0	H	190.0	18.9	5.8	36.0	
527.997600	30.3	1000.0	120.000	170.0	H	2.0	19.1	5.7	36.0	
539.989050	25.9	1000.0	120.000	132.0	H	-3.0	19.2	10.1	36.0	
930.284400	22.6	1000.0	120.000	152.0	V	280.0	25.3	13.4	36.0	

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

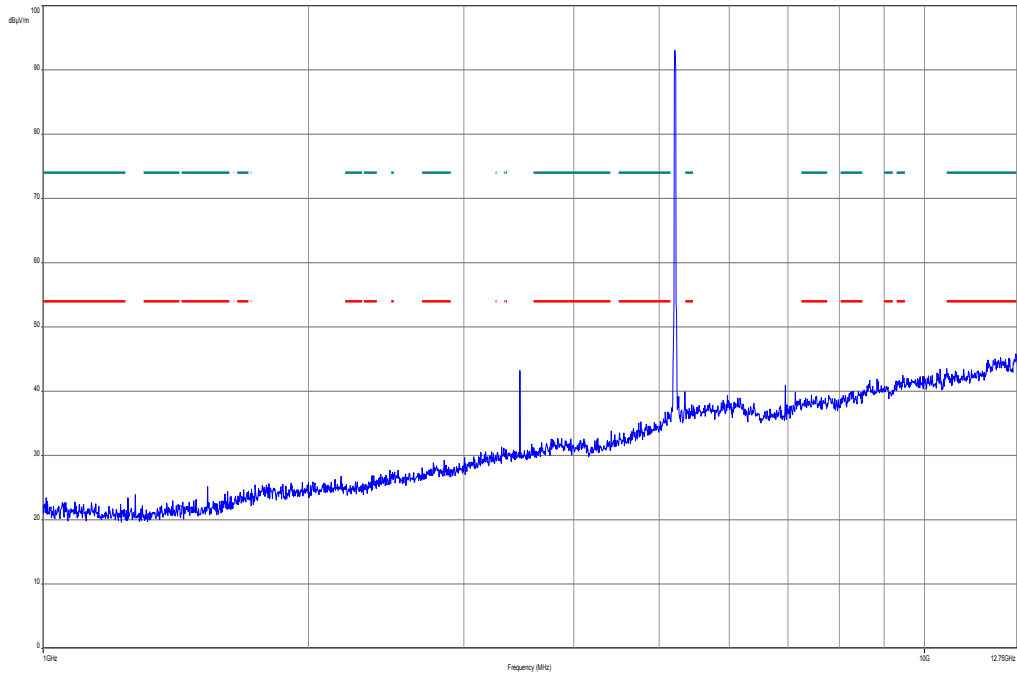
Subrange 1

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

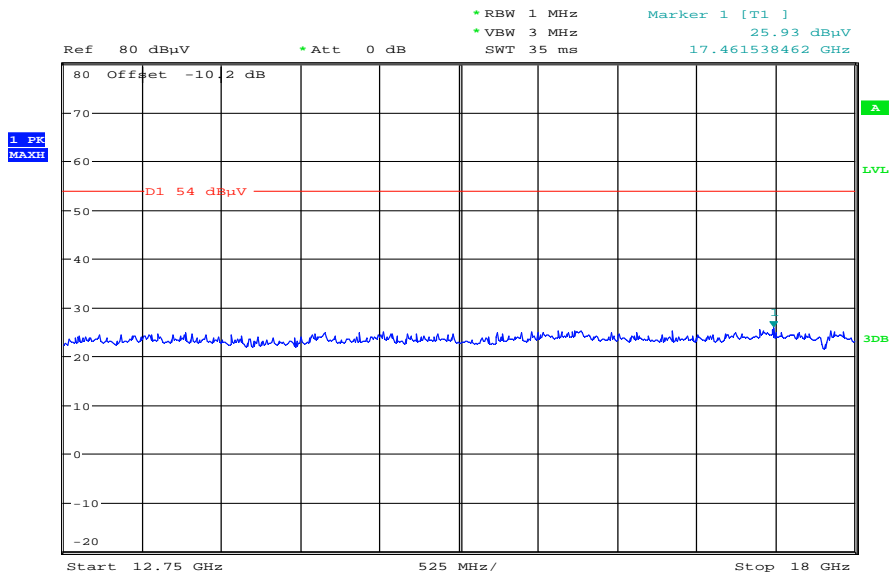
EMC 32 Version 8.52



**Plot 27:** 1 GHz to 12.75 GHz, 5210 MHz, vertical & horizontal polarization

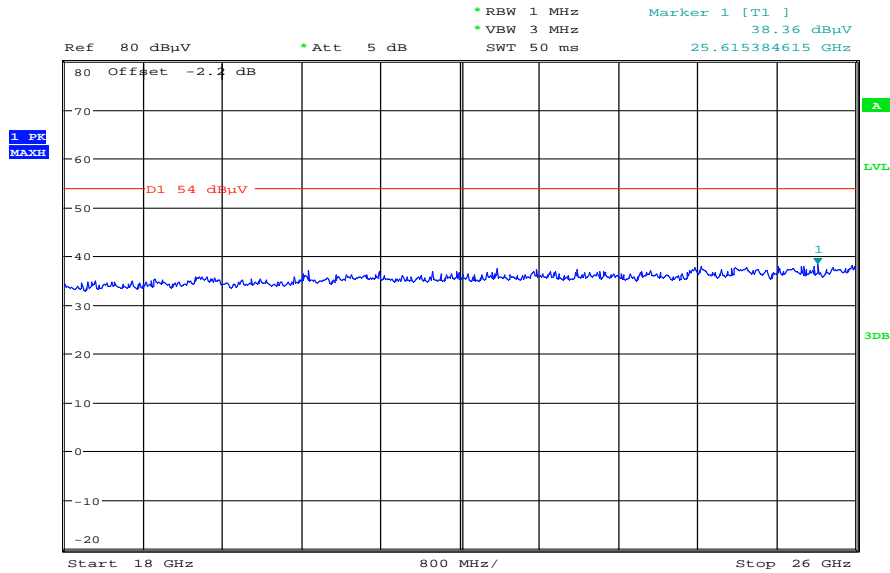


**Plot 28:** 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



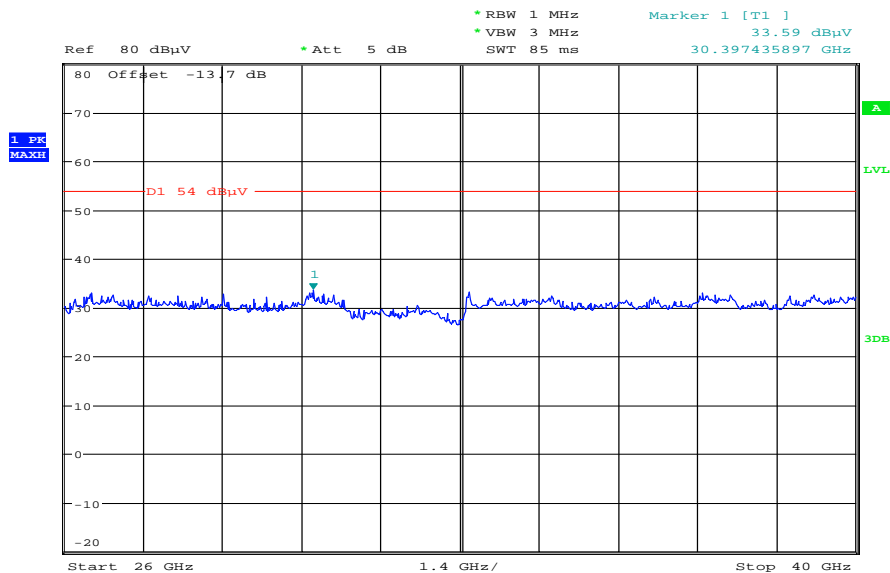
Date: 24.OCT.2013 14:25:48

Plot 29: 18 GHz to 26 GHz, 5210 MHz, vertical & horizontal polarization



Date: 24.OCT.2013 15:08:03

Plot 30: 26 GHz to 40 GHz, 5210 MHz, vertical & horizontal polarization



Date: 24.OCT.2013 15:22:06

**Plot 31:** 30 MHz to 1 GHz, 5240 MHz, vertical & horizontal polarization

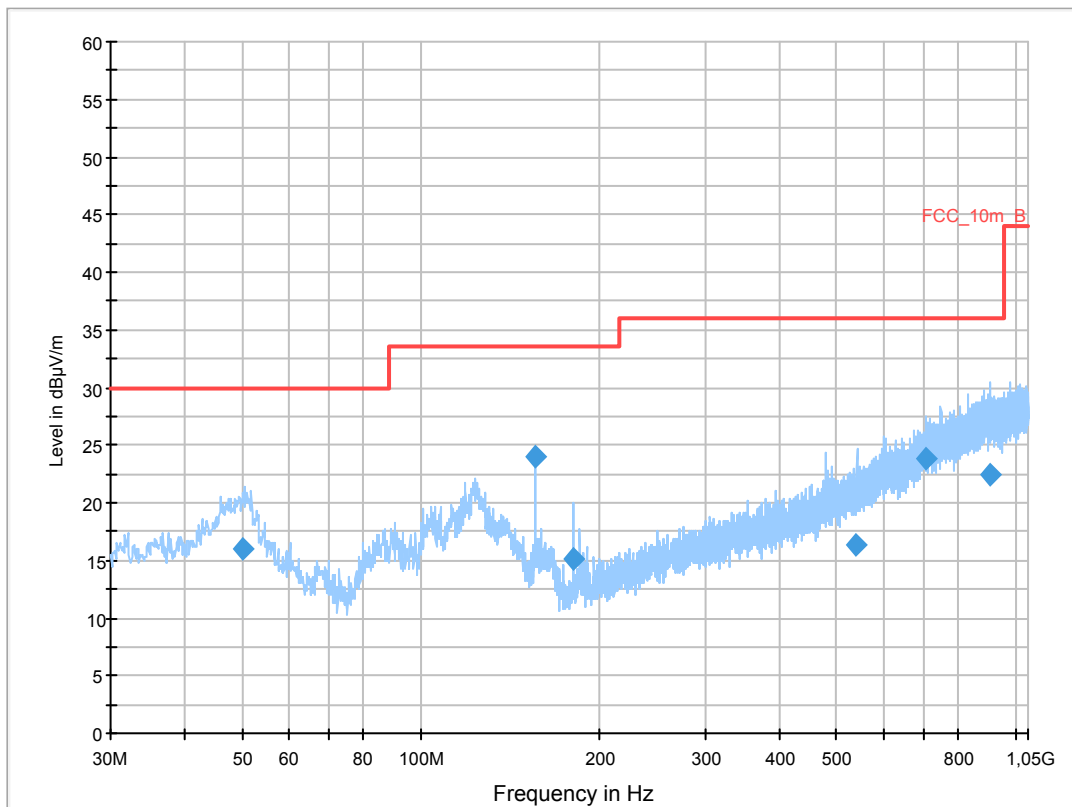
### Common Information

EUT: Revoluto  
 Serial Number:  
 Test Description: FCC part 15 class B  
 Operating Conditions: tx @5240MHz Ant. A  
 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
50.210100	16.1	1000.0	120.000	170.0	V	-10.0	13.4	13.9	30.0	
156.000600	24.1	1000.0	120.000	98.0	V	265.0	9.1	9.4	33.5	
180.018150	15.2	1000.0	120.000	170.0	V	100.0	10.4	18.3	33.5	
540.344850	16.3	1000.0	120.000	170.0	V	190.0	19.2	19.7	36.0	
707.993700	23.8	1000.0	120.000	161.0	H	-2.0	22.7	12.2	36.0	
909.518850	22.5	1000.0	120.000	170.0	H	-9.0	25.2	13.5	36.0	

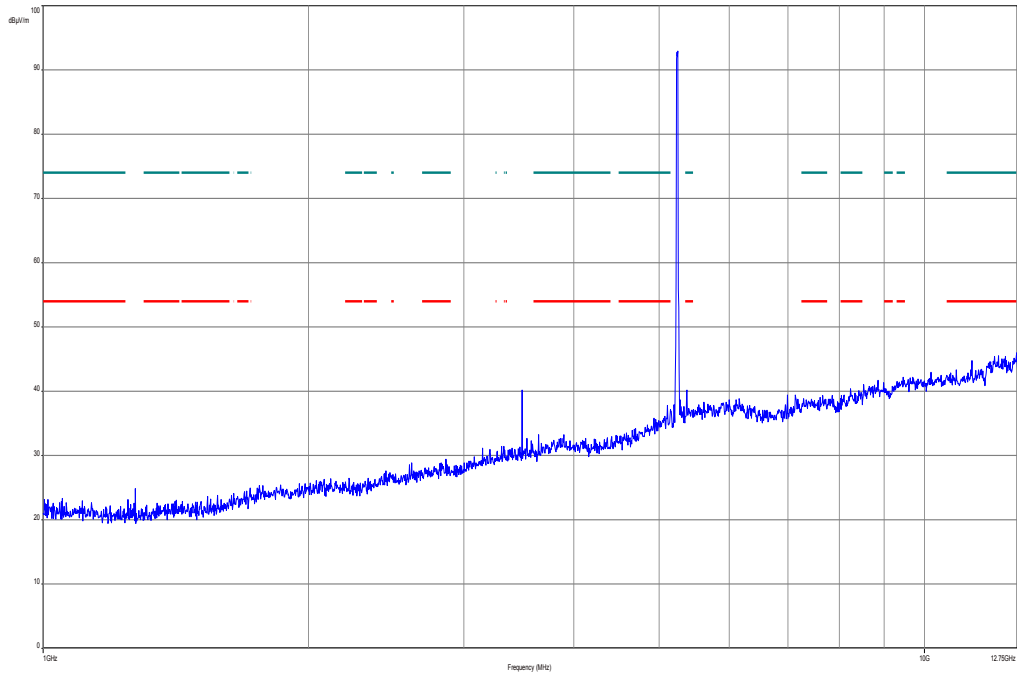
## Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1

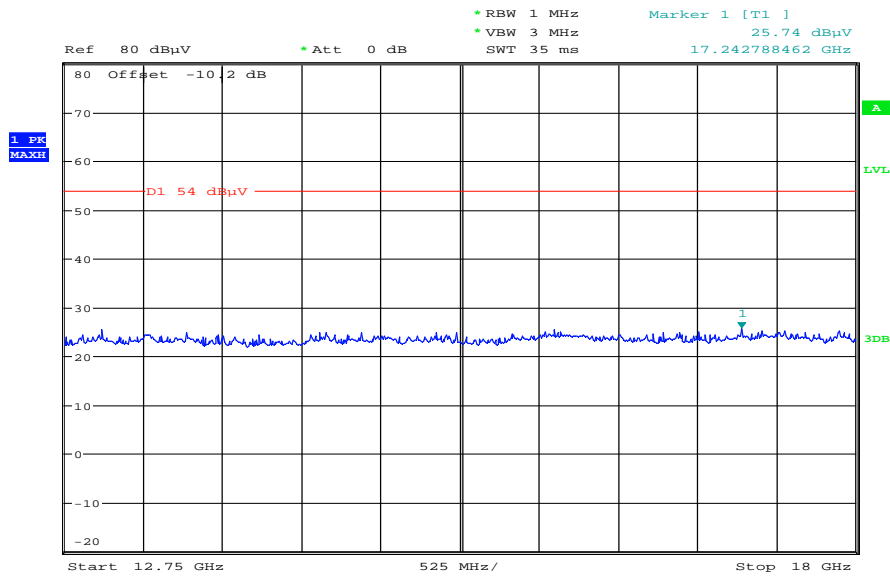
Frequency Range:	30 MHz - 2 GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 4.42
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW --- Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table (vertical): Cable_EN_1GHz (1005)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

EMC 32 Version 8.52

Plot 32: 1 GHz to 12.75 GHz, 5240 MHz, vertical & horizontal polarization

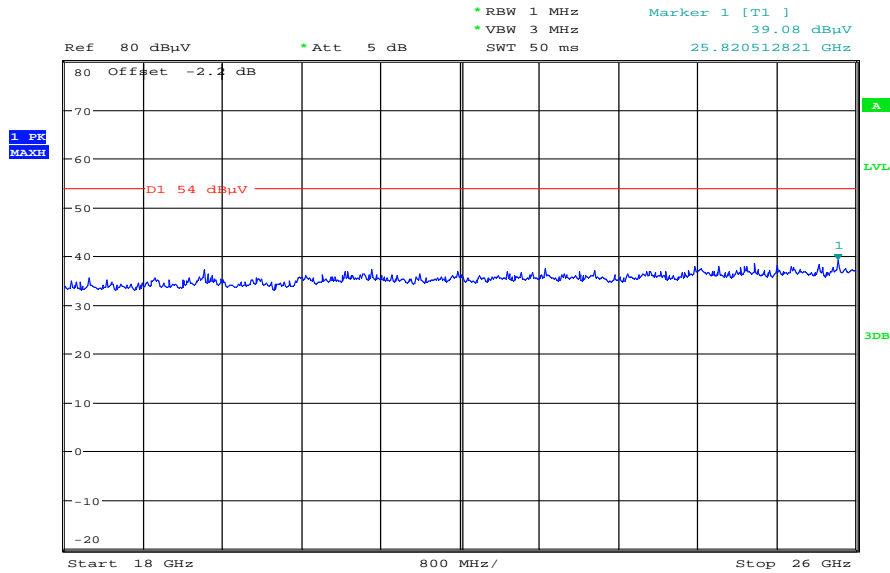


Plot 33: 12 GHz to 18 GHz, 5240 MHz, vertical & horizontal polarization



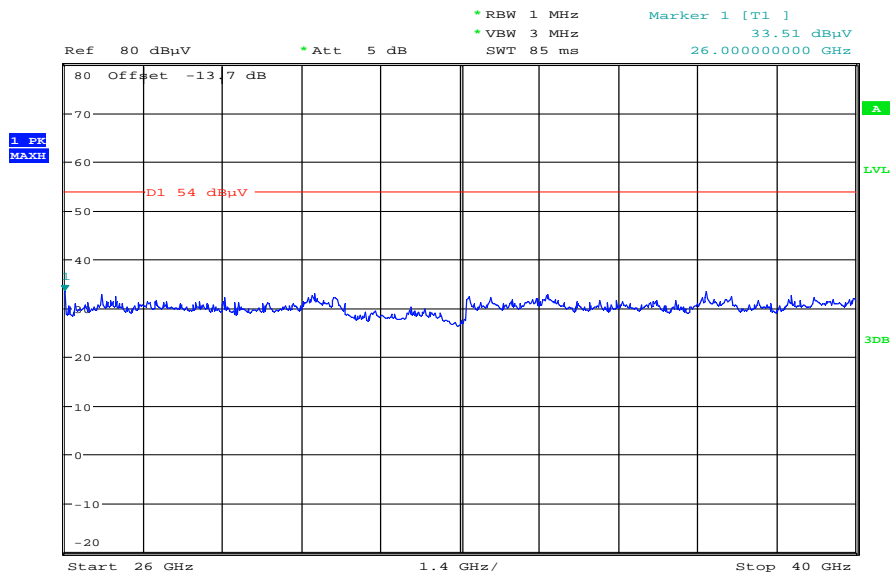
Date: 24.OCT.2013 14:28:02

Plot 34: 18 GHz to 26 GHz, 5240 MHz, vertical & horizontal polarization



Date: 24.OCT.2013 15:11:10

Plot 35: 26 GHz to 40 GHz, 5240 MHz, vertical & horizontal polarization



Date: 24.OCT.2013 15:24:25

**Plots:** DSSS, antenna port B, BPSK

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

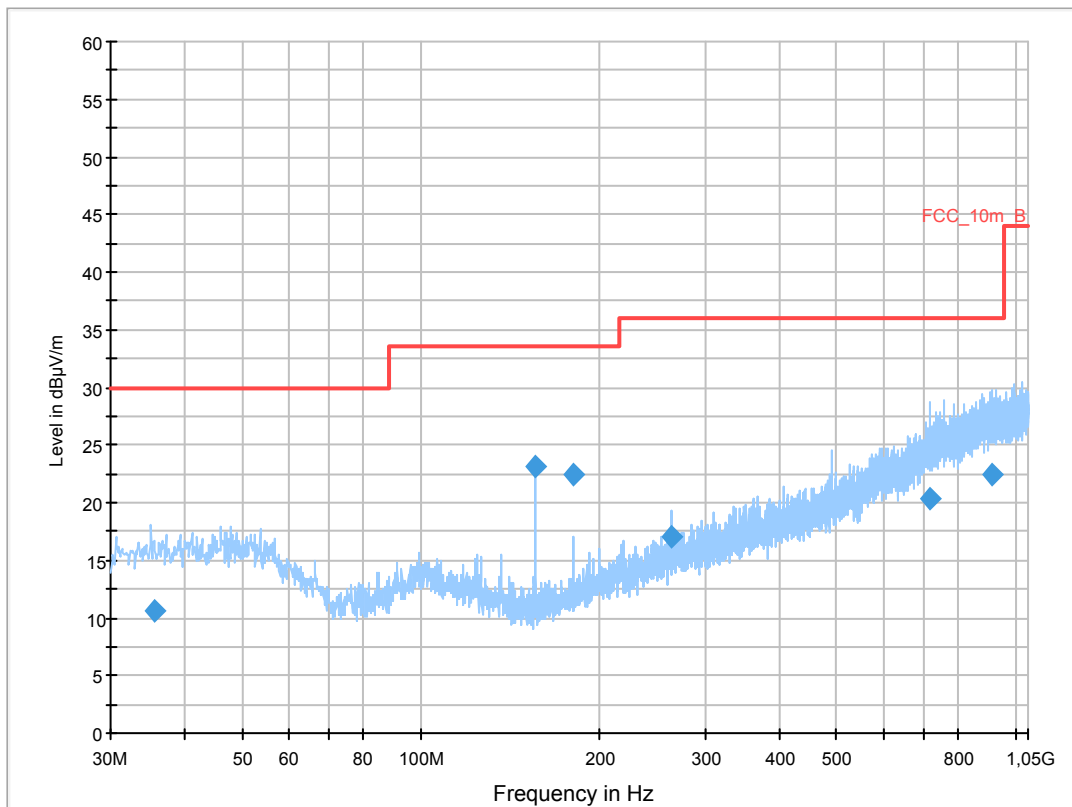
### Common Information

EUT: Revolutio  
 Serial Number:  
 Test Description: FCC part 15 class B  
 Operating Conditions: tx @5210MHz Ant. B  
 Operator Name: Wolsdorfer  
 Comment: AC: 115 V / 60 Hz

### Scan Setup: STAN\_Fin [EMI radiated]

Hardware Setup: Electric Field (NOS)  
 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
35.658750	10.6	1000.0	120.000	170.0	V	-2.0	13.1	19.4	30.0	
156.001200	23.2	1000.0	120.000	111.0	V	260.0	9.1	10.3	33.5	
180.009450	22.4	1000.0	120.000	104.0	V	280.0	10.4	11.1	33.5	
263.994600	17.0	1000.0	120.000	98.0	V	183.0	13.7	19.0	36.0	
717.688200	20.4	1000.0	120.000	170.0	V	10.0	22.9	15.6	36.0	
910.728600	22.5	1000.0	120.000	170.0	H	10.0	25.2	13.5	36.0	

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

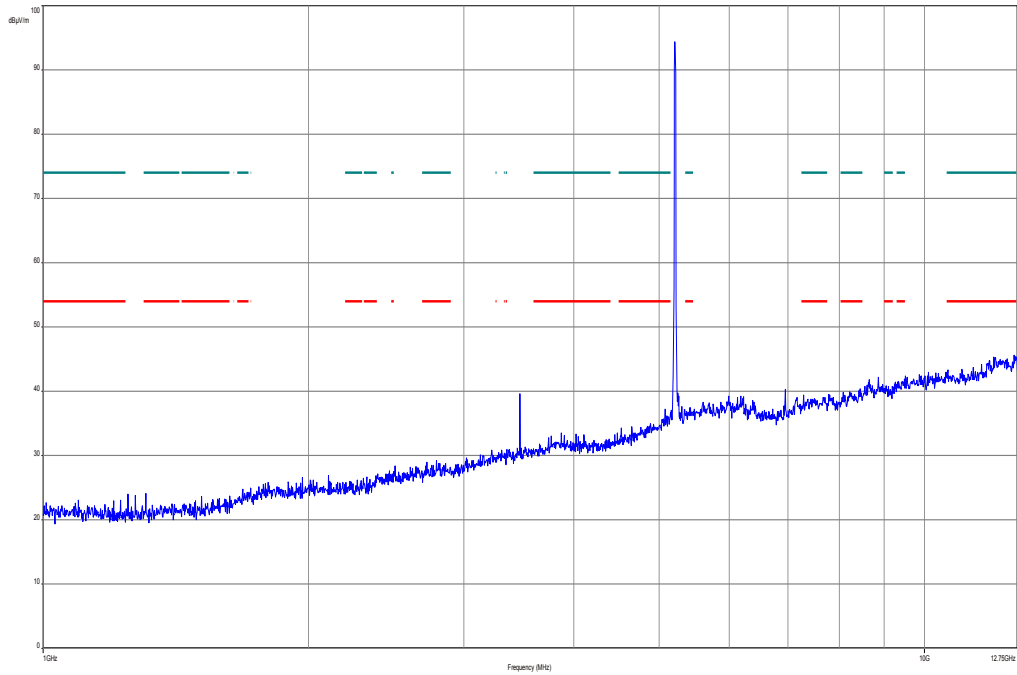
Subrange 1

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

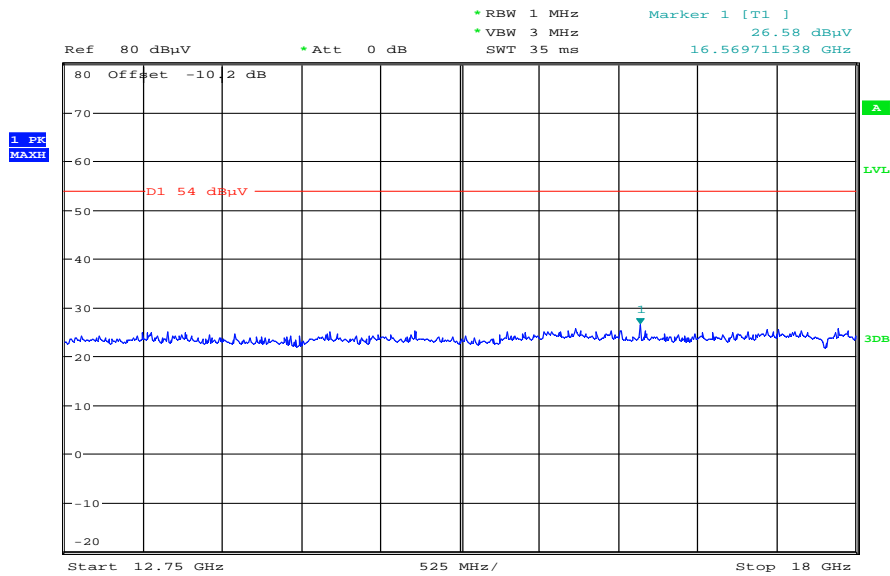
EMC 32 Version 8.52



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

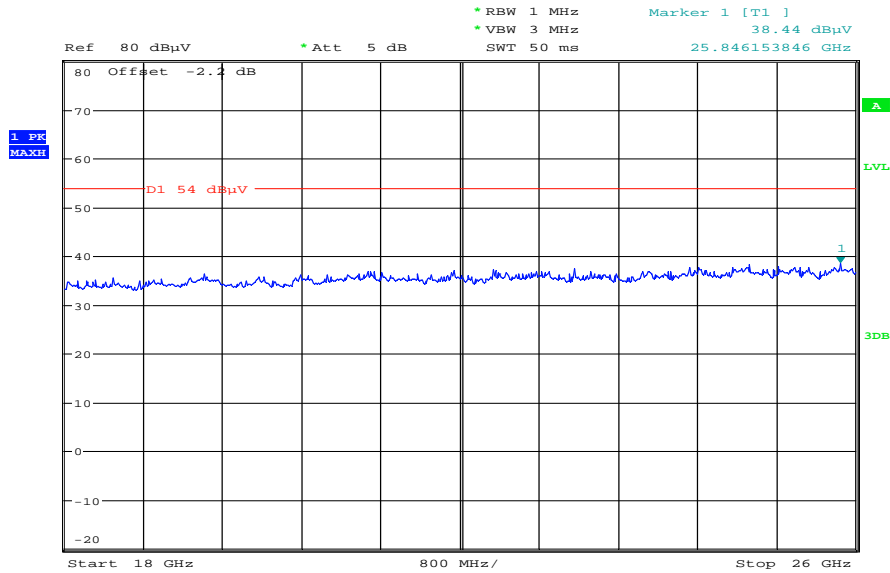


Plot 38: 12 GHz to 18 GHz, 5210 MHz, vertical & horizontal polarization



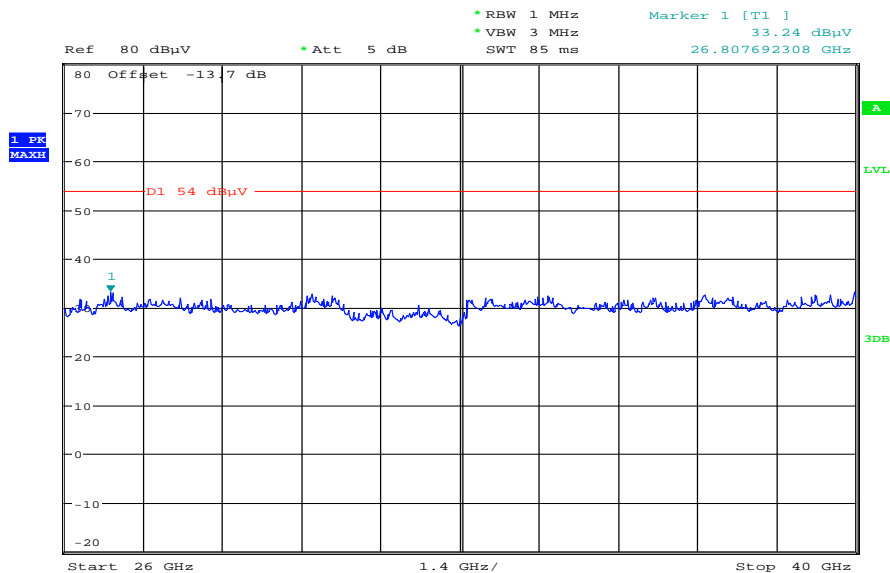
Date: 24.OCT.2013 14:26:51

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



Date: 24.OCT.2013 15:09:00

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



Date: 24.OCT.2013 15:22:50

## 9.10 RX spurious emissions radiated

### Description:

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

### Measurement:

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

### Limits:

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

### Results:

RX Spurious Emissions Radiated [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
For emissions below 1 GHz, please take a look at the table below the 1 GHz plot.		
All detected emissions are more than 15 dB below the limit.		
Measurement uncertainty	± 3 dB	

**Result: Passed**

**Plots: RX / Idle – mode**

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

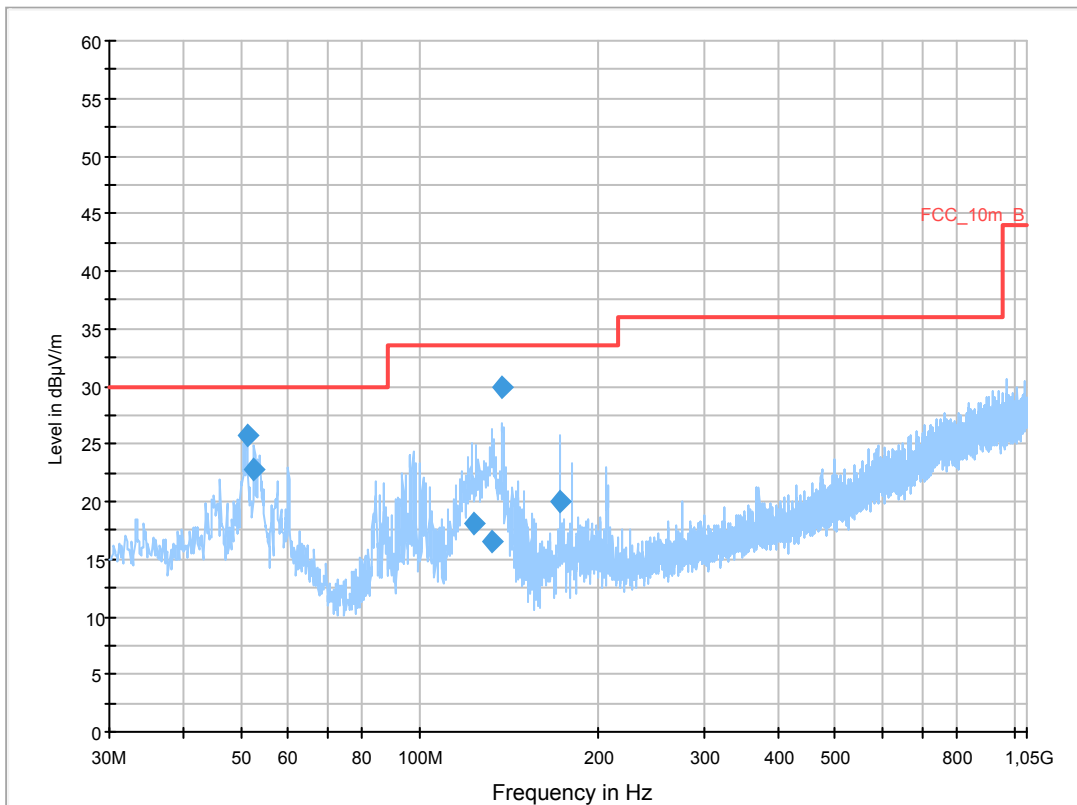
**Common Information**

EUT: Quinta MU 3x (Revoluto)  
 Serial Number: 00001  
 Test Description: FCC part 15 C class B @ 10 m  
 Operating Conditions: RX + charging  
 Operator Name: Wolsdorfer  
 Comment: AC 115V / 60Hz

**Scan Setup: STAN\_Fin [EMI radiated]**

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

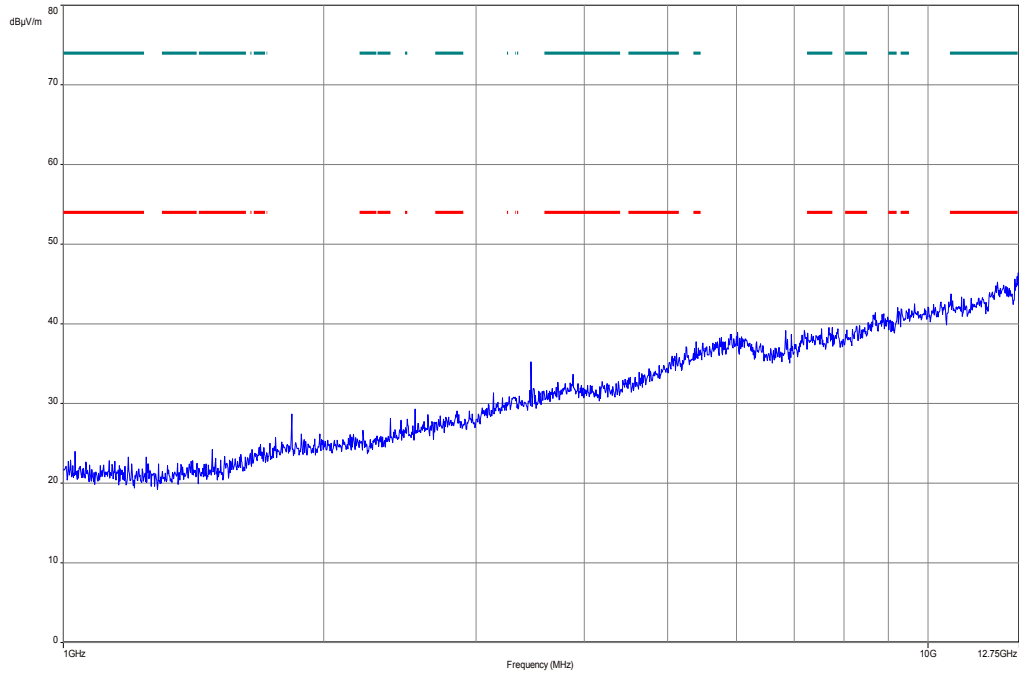
Subrange	Step Size	Detectors	IF BW	Meas. Time	Preamp
30 MHz - 2 GHz	60 kHz	QPK	120 kHz	1 s	20 dB



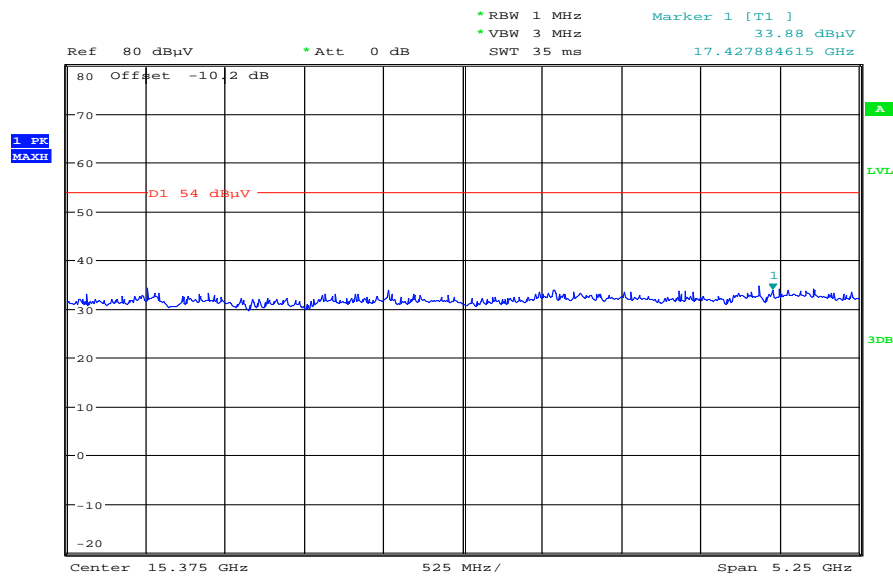
**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
51.228300	25.8	1000.0	120.000	98.0	V	190.0	13.2	4.2	30.0	
52.572300	22.9	1000.0	120.000	98.0	V	-10.0	13.1	7.1	30.0	
122.922150	18.0	1000.0	120.000	170.0	V	92.0	10.0	15.5	33.5	
131.873400	16.4	1000.0	120.000	111.0	V	100.0	9.3	17.1	33.5	
137.539800	29.8	1000.0	120.000	170.0	V	81.0	8.8	3.7	33.5	
171.898200	20.1	1000.0	120.000	111.0	V	182.0	9.9	13.4	33.5	

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

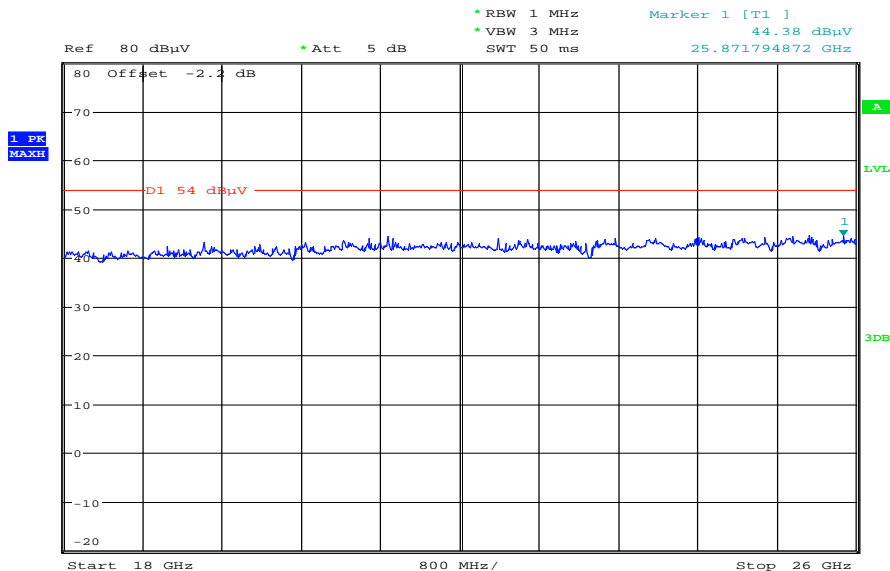


**Plot 3:** 12 GHz to 18 GHz, vertical & horizontal polarization



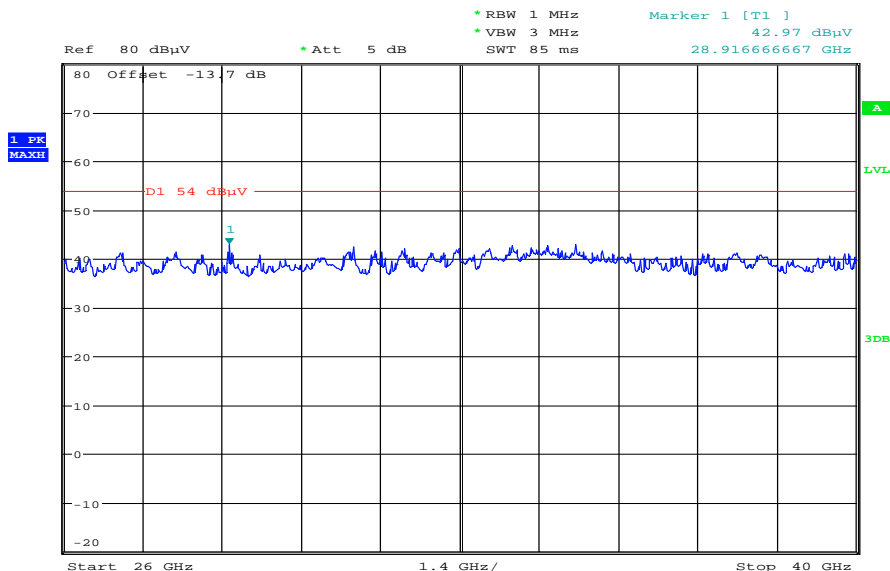
Date: 16.MAY.2013 13:21:20

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



Date: 16.MAY.2013 13:19:25

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



Date: 16.MAY.2013 13:45:23

### 9.11 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

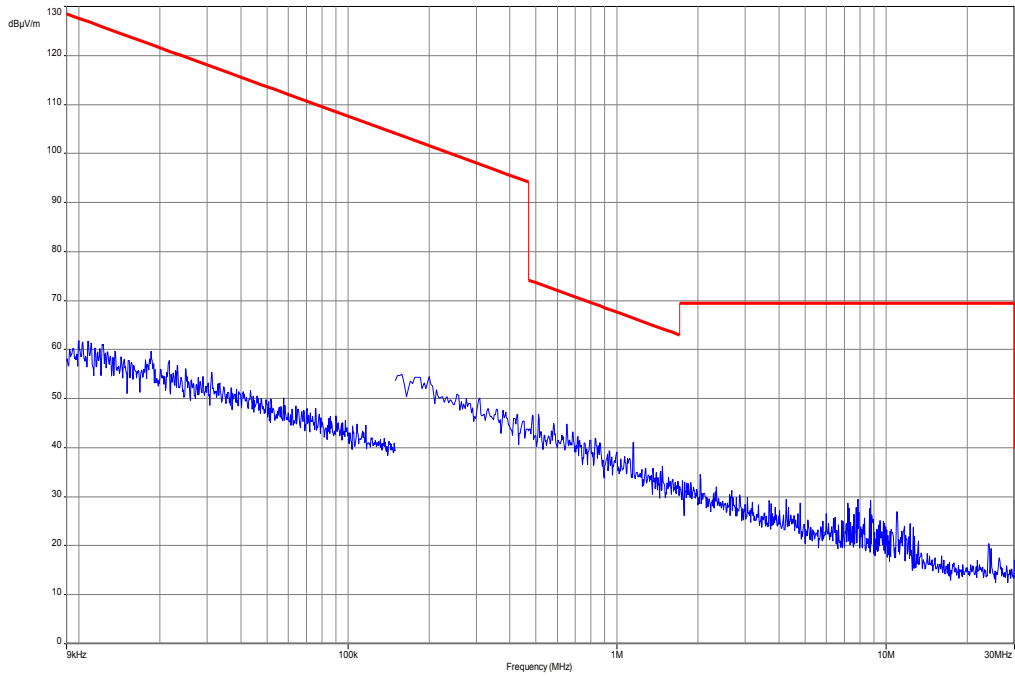
**Results:**

Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
All detected peak emissions are below the average limit.		
Measurement uncertainty	± 3 dB	

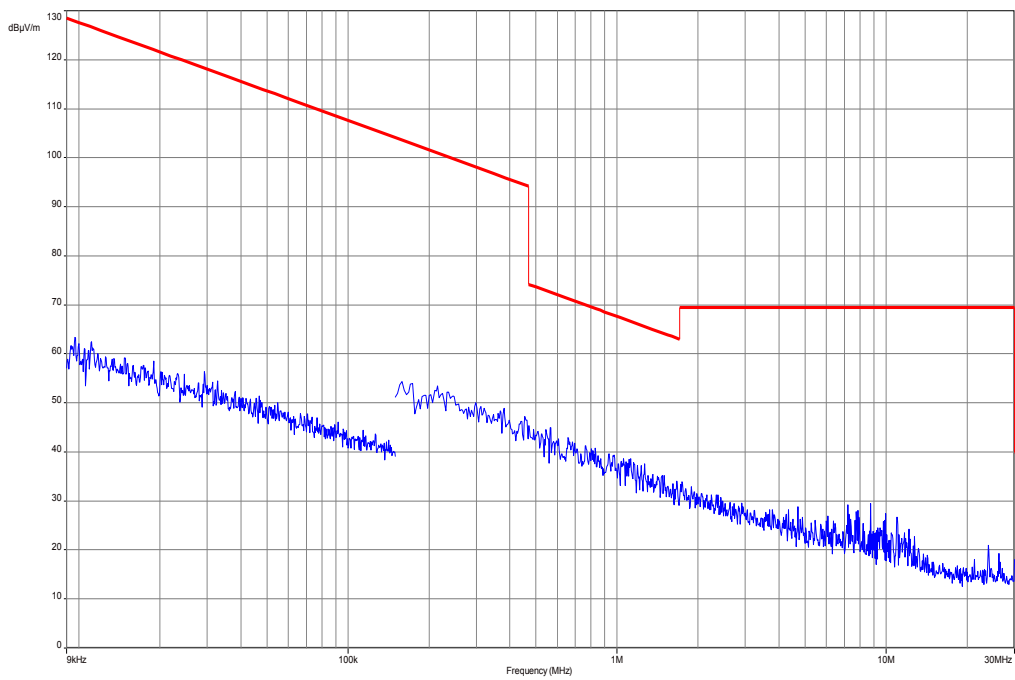
**Result: Passed**

**Plots:**

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



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





## 9.12 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 $\mu$ V/m)	Average (dB $\mu$ 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

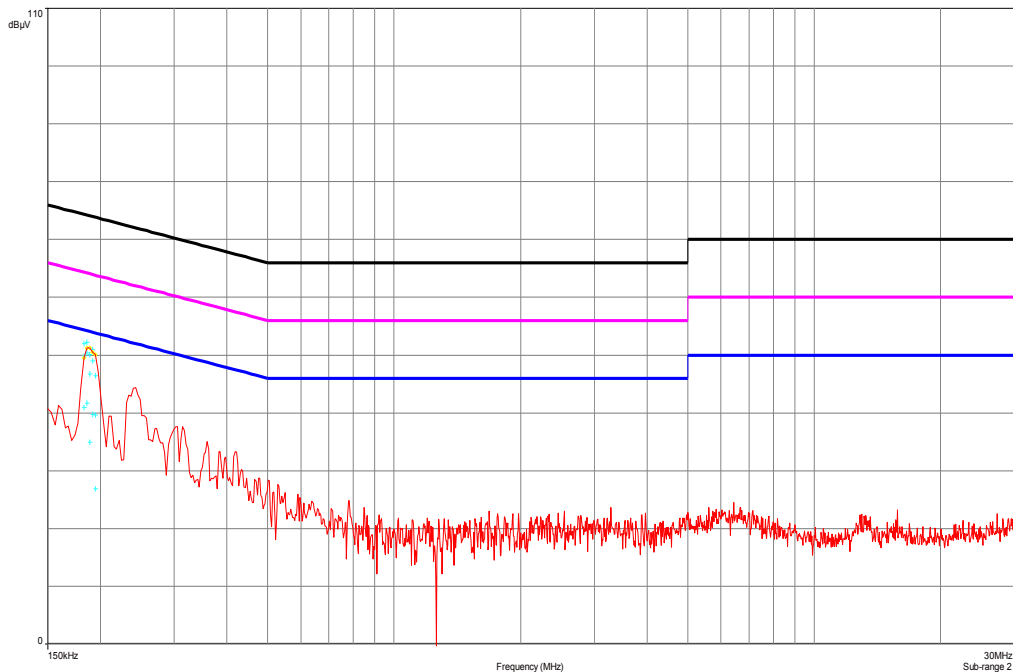
### Results:

Spurious Emissions Conducted < 30 MHz [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
All detected peak emissions are below the average limit.		
Measurement uncertainty	± 3 dB	

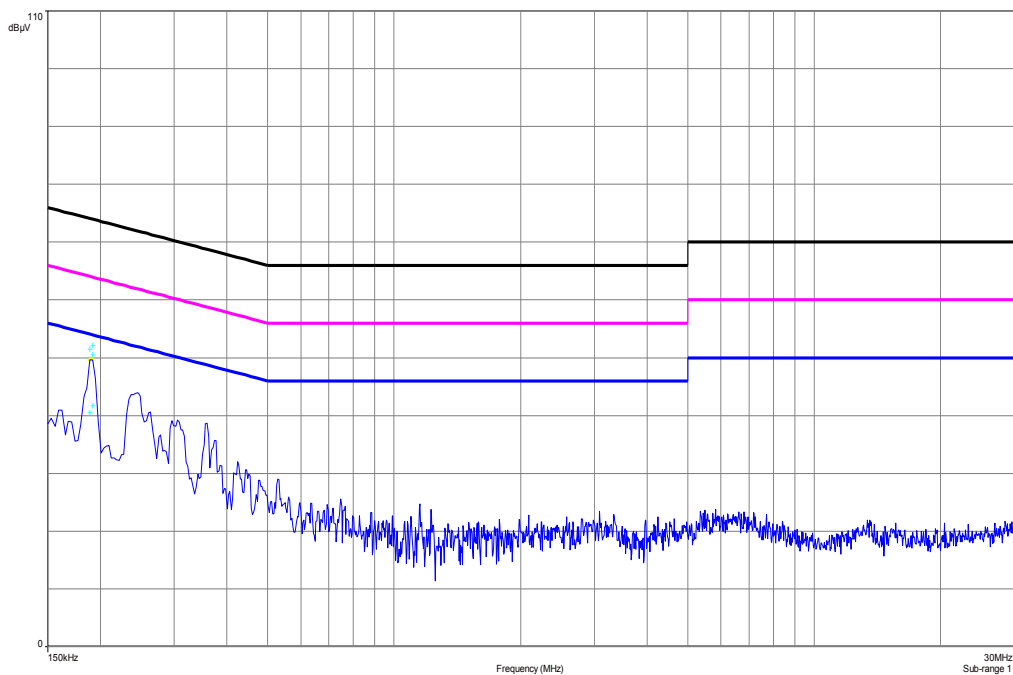
**Result: Passed**

**Plots:**

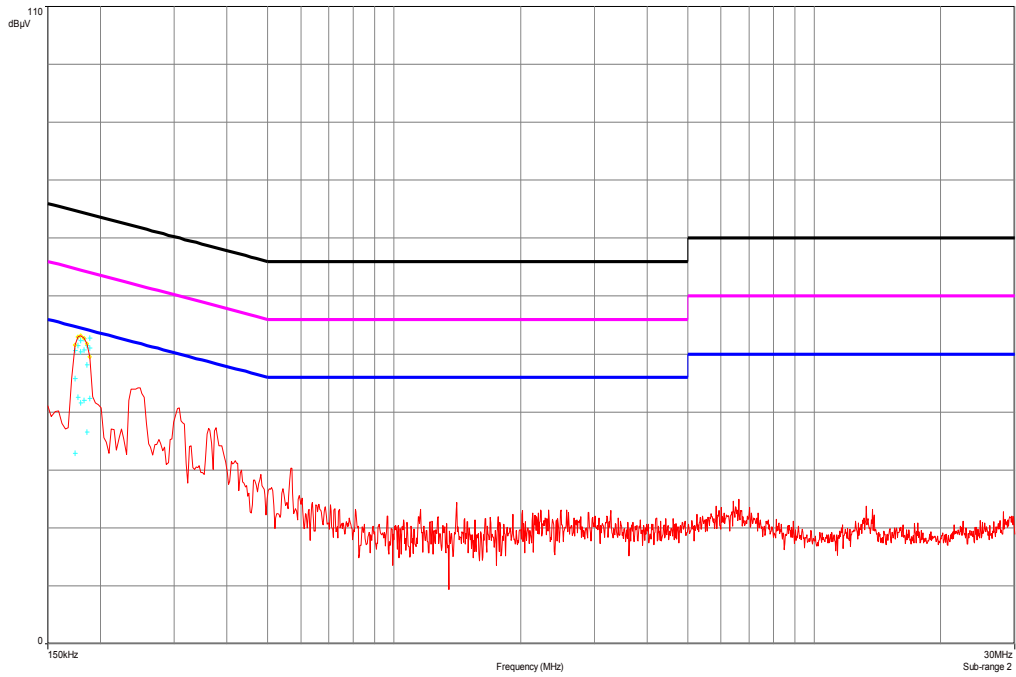
**Plot 1:** 150 kHz to 30 MHz / phase Line, TX mode



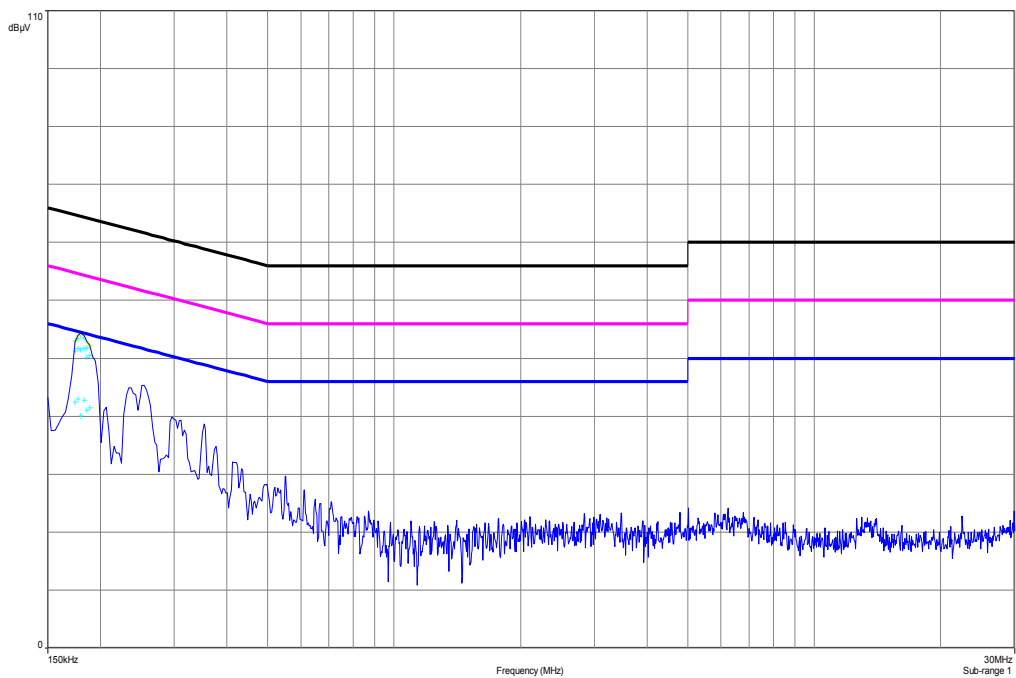
**Plot 2:** 150 kHz to 30 MHz / neutral Line, TX mode



Plot 3: RX / Idle – mode, 150 kHz to 30 MHz, phase line



Plot 4: RX / Idle – mode, 150 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	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	k	14.07.2012	14.07.2014
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.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	12.01.2012	12.01.2015
13	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	viKI!	08.05.2013	08.05.2015
14	n. a.	Active Loop Antenna	6502	EMCO	2210	300001015	ne		
15	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
16	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	*	300000199	ne		
17	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	2719A15013	300001156	ne		
18	9	Isolating Transformer	MPL IEC625 Bus Regeltrennt ravo	Erfi	91350	300001155	ne		
19	n. a.	Three-Way Power Splitter, 50 Ohm	11850C	HP Meßtechnik		300000997	ne		
20	n. a.	Amplifier	js42- 00502650- 28-5a	Parzich GMBH	928979	300003143	ne		
21	n. a.	Highpass Filter	WHKX7.0/1 8G-8SS	Wainwright	18	300003789	ne		
22	n. a.	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbe ck	371	300003854	viKI!	14.10.2011	14.10.2014
23	n. a.	MXE EMI	N9038A	Agilent	MY51210197	300004405	k	21.02.2013	21.02.2014

		Receiver 20 Hz bis 26,5 GHz		Technologies					
24	CR 79	Std. Gain Horn Antenna 26.5-40.0 GHz	V637	Narda	7911	300001751	ne		
25	11b	Microwave System Amplifier, 0.5-26.5 GHz	83017A	HP Meßtechnik	00419	300002268	ev		
26	A025	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda		300000786	ne		
27	A027	Std. Gain Horn Antenna 18.0 to 26.5 GHz	638	Narda		300000486	ne		
28	n. a.	Spectrum Analyzer 20 Hz - 50 GHz	FSU50	R&S	200012	300003443	Ve	09.10.2012	09.10.2014
29	n. a.	Broadband Low Noise Amplifier 18-50 GHz	CBL18503 070-XX	CERNEX	19338	300004273	ne		
30	n. a.	Signal Analyzer 40 GHz	FSV40	R&S	101042	300004517	k	22.10.2013	22.10.2014

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

**11 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	2013-05-16
A	Changed model name	2013-06-15
B	Added additional modulation	2013-10-25
C	Editorial changings	2013-10-29

**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



Deutsche Akkreditierungsstelle GmbH

Befehlene 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 Akkreditierungskurde 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  
Siehe Hinweis auf der Rückseite

Im Auftrag  
 Dörte Röhler  
 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  
 Bundesallee 100  
 38116 Braunschweig

Die auszugsweise Veröffentlichung der Akkreditierungskurde bedarf der vorherigen schriftlichen Zustimmung der Deutschen 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](http://www.european-accreditation.org)  
 ILAC: [www.ilac.org](http://www.ilac.org)  
 IAF: [www.iaf.nu](http://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>