Recognized by the
Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: IC3462C-1 (IC)
TCB ID: DE 0001

Accredited by the
German Accreditation Council
DAR–Registration Number
DAT-P-176/94-D1

Accredited Bluetooth® Test Facility (BQTF)

Test report no.	**:**	**1-0685-01-07/08-B**
Applicant	**:**	**Philips Medizin Systeme Böblingen GmbH**
Type	**:**	**MMS+WLAN a/b/g Modul für Monitore**
Test Standard	**:**	**FCC Part 15.407**
		RSS 210 Issue 7
FCC ID	**:**	**PQC-WLANBV1**
IC Certification No.	**:**	**3549C-WLANBV1**

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1. Administrative data

1.1. Administrative data of the test facility

1.1.1 Identification of the testing laboratory

Company name:	Cetecom ICT Services GmbH
Address:	Untertürkheimerstr. 6-10 D-66117 Saarbruecken Germany
Laboratory accreditation:	DAR-Registration No. DAT-P-176/94-D1 Bluetooth Qualification Test Facility (BQTF)
Responsible for testing laboratory:	Michael Berg Phone: +49 681 598 0 Fax: +49 681 598 9075 email: info@ict.cetecom.de

.....
Responsible for testing laboratory
(Michael Berg)

1.1.2 Organizational items

Reference No.:	1-0685-01-07/08-B
Order No.:	-/-
Responsible for test report and Project leader:	Stefan Bös / Marco Bertolino
Receipt of EUT:	2008-10-01
Date(s) of test:	2008-10-01 to 2009-01-27
Date of report:	2009-02-18
Number of report pages:	151
Number of diagram pages (annex):	0
Version of template: 1.9	

.....
Responsible for test report
(Stefan Bös)

.....
Responsible for test report
(Marco Bertolino)

Note:

The test results of this test report relate exclusively to the item tested as specified in this report. The 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.

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM ICT Services GmbH.

During the test no hardware and software changes are allowed to be performed at the EUT.

1.1.3 Applicant´s details

Applicant´s name:	**Philips Medizin Systeme Böblingen GmbH**
Address:	**Hewlett-Packard-Strasse 2** **71034 Böblingen** **Germany**
Contact person:	**Herrn Stefan Breuer** **stefan.breuer@philips.com** **+49-7031-463 2321**

1.2 Administrative data of manufacturer / member

Manufacturer´s name:	**Philips Medizin Systeme Böblingen GmbH**
Address:	**Hewlett-Packard-Strasse 2** **71034 Böblingen** **Germany**
Contact person:	**Herrn Stefan Breuer** **stefan.breuer@philips.com** **+49-7031-463 2321**

1.3 Description of the Equipment under test (EUT)

1.3.1 EUT: Type, S/N etc.

Product name		Description	S/N serial number	HW hardware status	SW software status
MMS+WLAN a/b/g Modul		Modul for healthcare monitoring systems	FH 830 000187	0839	-/-
Frequency Band [MHz]	**Type of Modulation**	**Number of channels**	**Antenna**	**Power Supply**	**Temperature Range**
ISM 5150 -5250 MHz 5250 – 5350 MHz	 OFDM OFDM	 4 4	2 PCB antennas 1 rod antenna	Nom. 5 V DC by power supply	0 °C to 55 °C

1.3.2 If RF component testing only, description of additional used HW/SW

	Product name	Product ID	Description	S/N serial number	HW hardware status	SW software status
1	--	--	--	--	--	--
2	--	--	--	--	--	--

1.3.3 Additional EUT information For IC Canada (appendix 2)

IC Certification Number:	**3549C-WLANBV1**
Model Name:	**MMS+WLAN a/b/g Modul für Monitore**
Manufacturer (complete Address):	**Philips Medizin Systeme Böblingen GmbH Hewlett-Packard-Strasse 2 71034 Böblingen Germany**
Tested to Radio Standards Specification (RSS) No.:	**RSS-210 Issue 7**
Open Area Test Site Industry Canada Number:	**IC 3462C-1**
Frequency Range (or fixed frequency) [MHz]:	**5180 MHz – 5320 MHz**
RF: Power [W] (max):	**OFDM:** **Band 1:** **Rad. EIRP: 49.20 mW** **Conducted : 18.75 mW** **Transmit power: 16.41 mW** **Band 2:** **Rad. EIRP: 102.57 mW** **Conducted : 48.64 mW** **Transmit power: 45.92 mW**
Antenna Type:	**Rod antenna**
Occupied Bandwidth [MHz]:	**OFDM 6 dB: 18.236** **OFDM 20 dB: 20.962** **OFDM 26 dB: 25.671**
Type of Modulation:	**OFDM**
Emission Designator (TRC-43):	**21M0G7D (OFDM) (20dB)**
Transmitter Spurious (worst case) [dBµV/m in 3m]:	**51.87**
Receiver Spurious (worst case) [dBµV/m in 3m]:	**51.53**

ATTESTATION:

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

Signature:

Test engineer: Stefan Bös Date: 2009-02-18

Signature:

Test engineer: Marco Bertolino Date: 2009-02-18

1.3.4 EUT operating modes

EUT operating mode no.*)	Description of operating modes	Additional information
Op. 0	normal mode	normal temperature and power source conditions
Op. 1		low temperature, low power source conditions
Op. 3		low temperature, high power source conditions
Op. 4		high temperature, low power source conditions
Op. 5		high temperature, high power source conditions

*) EUT operating mode no. is used to simplify the test report.

1.3.5 Extreme conditions testing values

Description	**Shortcut**	**Unit**	**Value**
Nominal Temperature	T_{nom}	°C	**20**
Nominal Humidity	H_{nom}	%	**54**
Nominal Power Source	V_{nom}	V	**5 V / 500 mA DC**

Type of power source: **DC by power supply**

Deviations from these values are reported in chapter 2

2 Test standard & summary list of all performed test cases

☒ **No deviations from the technical specifications were ascertained**

☐ There were deviations from the technical specifications ascertained

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 15 §15.247 - CANADA RSS-210	passed	2009-02-18	-/-

Test Specification Clause	Test Case	Passed	Fail	Not applicable	Not performed
Range:	5.150 to 5.350 GHz				
None	Antenna Gain	Yes			
§15.407a(3)+(4)	Peak transmit power	Yes			
§15.407	Emission bandwidth (6 dB, 20 dB, 26 dB)	Yes			
§15.407a(5)	Peak power spectral density conducted	Yes			
§ 15.407a (6)	Ratio of peak excursion	Yes			
§ 15.407b (3)	Undesirable emissions conducted	Yes			
§ 15.209	Spurious Emission -radiated (TX)	Yes			
§ 15.209	Spurious Emission -radiated (RX)	Yes			
§ 15.107/207	Conducted Emissions <30 MHz	Yes			

3 RF measurement testing

3.1 Description of test set-up

3.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 20 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 C63.4-2003 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 set-ups 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 C63.4-2003 clause 4.2.

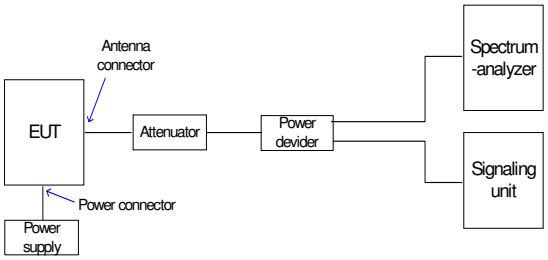
Antennas are confirmed with ANSI C63.2-1996 item 15.

9 kHz - 150 MHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna
150 kHz - 30 MHz: Quasi Peak measurement, 9 kHz Bandwidth, passive loop antenna
30 MHz - 200 MHz: Quasi Peak measurement, 120 kHz Bandwidth, bi-conical antenna
200MHz - 1GHz: Quasi Peak measurement, 120 kHz Bandwidth, log periodic antenna
>1GHz: Average, RBW 1MHz, VBW 10 Hz, wave guide horn

All measurement settings are according to FCC 15.209 and 15.207

3.1.2 Conducted measurements

The EUT's RF signal is coupled out by the antenna connector which is supplied by the manufacturer. The signal is connected to the spectrum analyzer. The specific losses for signal path are first checked within a calibration. The measurement readings on the 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.



3.2 Referenced Documents

CENTURION™ Specifications

WTS - WLAN Tri-band Small Diameter

External Antenna – Connector Mount

Model Number:
WTS2450-RPSMA

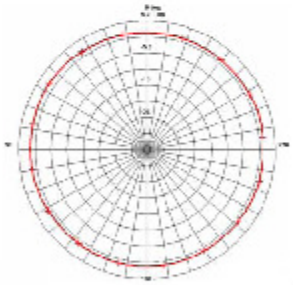
Specifications:

- Covers 2.4 to 2.5 GHz for 802.11b, and 4.9 to 6 GHz for 802.11a and all US, European, and Japanese WLAN applications
- Omni-directional patterns at all frequencies with increased gain in upper bands for optimal coverage

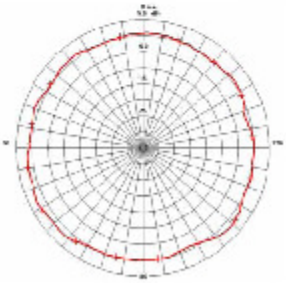
Frequency	2.4 – 2.5 GHz 4.9 – 5.875 GHz
Gain	2.5 dBi (2.45 GHz) 3.6 dBi (4.9 GHz) 3.0 dBi (5.25 GHz) 3.4 dBi (5.875 GHz)
Polarization	Vertical, Omnidirectional
Nominal Impedance	50 ohms
VSWR	2:1 max across all bands
Size	95.9 mm (180°) or 75.4 mm (90°) x 9.3 mm diameter

Cable and Connector:

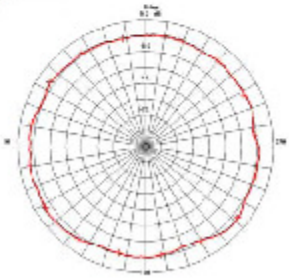
Model #	Part #	Connector
WTS2450-RPSMA	MAF94051	RP-SMA



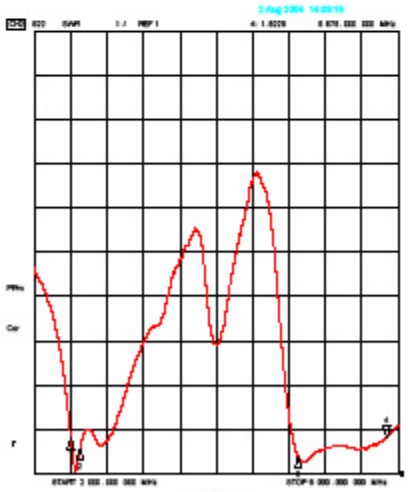
Azimuth
2.45 GHz



Azimuth
5.25 GHz



Azimuth
5.75 GHz



VSWR

Specifications subject to change without notice. WTS RPSMA - a – 9/15/04

CENTURION
3425 N.44th Street, LINCOLN, NE 68504 USA
SALES PHONE: 800.228.4563
PHONE: 402.467.4491 • **FAX**: 402.467.4528
www.centurion.com • sales@centurion.com

Test report: 1-0685-01-17 delta measurement antenna 2

Test report: 1-0685-01-18 delta measurement antenna 3

3.3 Additional comments

The followings power settings are declared by the manufacture. All measurements are performed with the specified settings.

```
# target power file for AR6000 802.11a/b/g with super a/g TB111 Reference Design card

# 11a Target Power table:
#       Rules:
#               1. up to a maximum of 8 test frequencies
#               2. test frequencies DO NOT need to cover the entire range of 5180-5850. It
#                  is allowed to provide data for a smaller range. for all channels
#                  outside of test frequencies range, target power will be assumed 0dB.
#               3. specify mask/PER limited target power for various rates
#
#BEGIN_11a_TARGET_POWER_TABLE
# test_frequencies  6-24_target  36_target 48_target  54_target
  5180                  15        15       15        15
  5240                  15        15       15        15
  5320                  15        15       15        15
  5440                  15        15       15        15
  5460                  15        15       15        15
  5500                  15        15       15        15
  5700                  15        15       15        15
  5745                  15        15       15        15
#END_11a_TARGET_POWER_TABLE


# 11b Target Power table:
#       Rules:
#               1. Need to define exactly 2 test frequencies in 2.412 - 2.484 G range.
#               2. test frequencies DO NOT need to cover the entire range of 2412-2484. It
#                  is allowed to provide data for a smaller range. for all channels
#                  outside of test frequencies range, target power will be assumed 0dB.
#               3. specify mask/PER limited target power for various rates
#
#BEGIN_11b_TARGET_POWER_TABLE
# test_frequencies  1_target  2_target 5.5_target 11_target
  2412                  15         15        15         15
  2484                  15         15        15         15
#END_11b_TARGET_POWER_TABLE


# ofdm@2p4 Target Power table:
#       Rules:
#               1. up to a maximum of 3 test frequencies in 2.412 - 2.484 G range
#               2. test frequencies DO NOT need to cover the entire range of 2412-2484. It
#                  is allowed to provide data for a smaller range. for all channels
#                  outside of test frequencies range, target power will be assumed 0dB.
#               3. specify mask/PER limited target power for various rates
```

```
#
#BEGIN_11g_TARGET_POWER_TABLE
#  test_frequencies   6-24_target  36_target 48_target   54_target
  2412                    15        15      15        15
  2437                    15        15      15        15
  2472                    15        15      15        15
#END_11g_TARGET_POWER_TABLE


# Test Groups:
#     Rules:
#                   1. Specify up to 8 band edges for each test group.
#                   2. If no backoff desired at a band edge, give a large number (e.g, 30) so
#                     that the driver determined limit becomes the target power.
#

#BEGIN_TEST_GROUPS

# Test Group 1: US and CANADA (FCC)
#         test_group_code  BE1     BE2     BE3     BE4     BE5     BE6     BE7     BE8
          0x10             5180    5200    5260    5320    5500    5520    5700    5745
                            11     11       15      15      17      17      17      17  # Band Edge Max Power
                            0       1       1       0       0       1       0       1  # in-band flag


# Test Group 3: US and CANADA (FCC) 802.11b mode CTL
# test_group_code          BE1     BE2     BE3
          0x11             2412    2437    2442
                            17      18      17      # Band Edge Max Power
                            1       0       1       # in-band flag

# Test Group 4: US and CANADA (FCC) 802.11g mode CTL
# test_group_code          BE1     BE2     BE3     BE4
          0x12             2412    2417    2457    2462
                            16      18      18      17      # Band Edge Max Power
                            0       1       0       0       # in-band flag


# Test Group 6: JAPAN (MKK)
# test_group_code          BE1     BE2
          0x40             5170    5230
                            17      17      # Band Edge Max Power
                            0       0       # in-band flag


# Test Group 7: EUROPE (ETSI)
# test_group_code          BE1     BE2     BE3     BE4     BE5     BE6     BE7
          0x30             5180    5320    5500    5700    5745    5765    5825
                            17      17      17      17      17      17      17      # Band Edge Max Power
                            0       0       0       0       0       1       0       # in-band flag

# Test Group 8: EUROPE (ETSI) 802.11b mode CTL
#         test_group_code  BE1     BE2     BE3
          0x31             2412    2417    2472
                            16      16      16      # Band Edge Max Power
                            0       1       0       # in-band flag
#END_TEST_GROUPS
```

3.4 Manufacturer's Declaration

The manufacturer attests that the power settings used for testing are part of the firmware and cannot be changed by the user or host. These settings are specific for different countries and are related to the local requirements. The following measurements were performed with the specific power settings fulfilling the requirements of the FCC- and IC- rules.

3.5 Antenna gain

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module.

	low channel (36) 5180 MHz	mid channel (40) 5200 MHz	high channel (48) 5240 MHz
Conducted power [dBm]	**12.73**	12.58	12.64
Radiated power [dBm]	16.74	**16.92**	16.08
Gain [dBi]	4.01	**4.34**	3.44

	low channel (52) 5260 MHz	mid channel (56) 5280 MHz	high channel (64) 5320 MHz
Conducted power [dBm]	16.23	16.71	**16.87**
Radiated power [dBm]	20.01	19.92	**20.11**
Gain [dBi]	**3.78**	3.21	3.24

Limits:

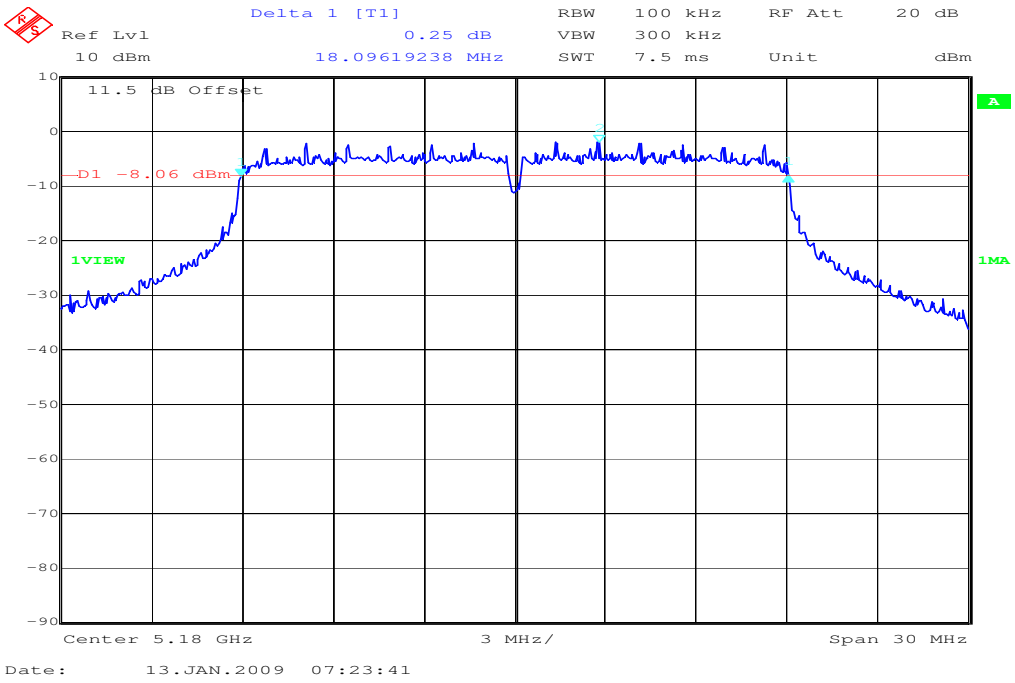
Under normal test conditions only	max. 6 dBi

3.6 Emission bandwidth

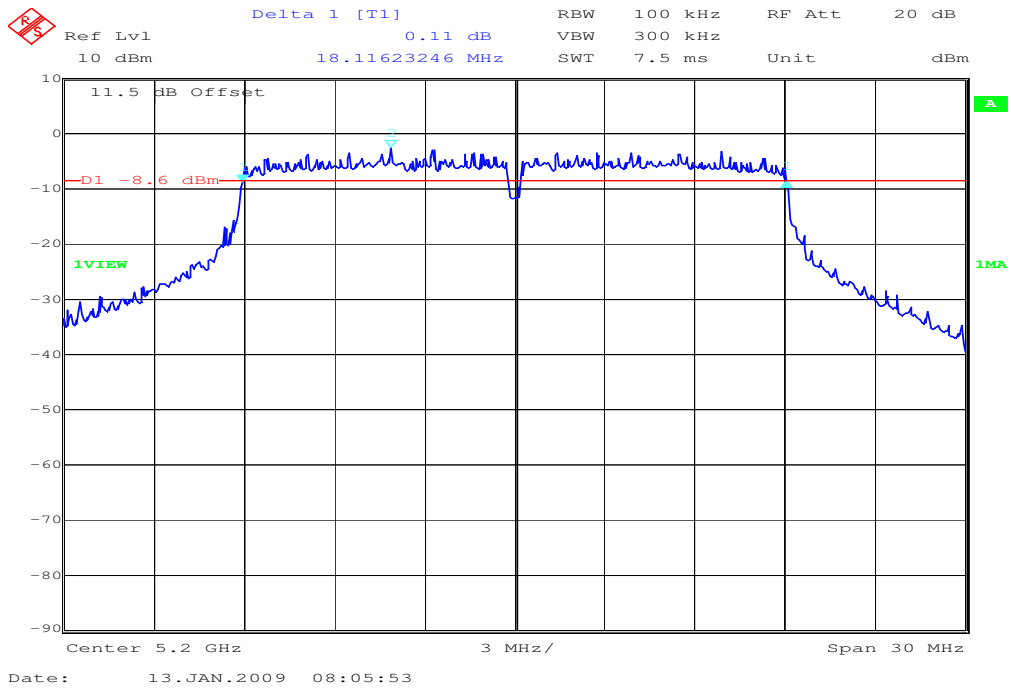
3.6.1 Measurement 1: 6 dB emission bandwidth of the sample

Low data rate:

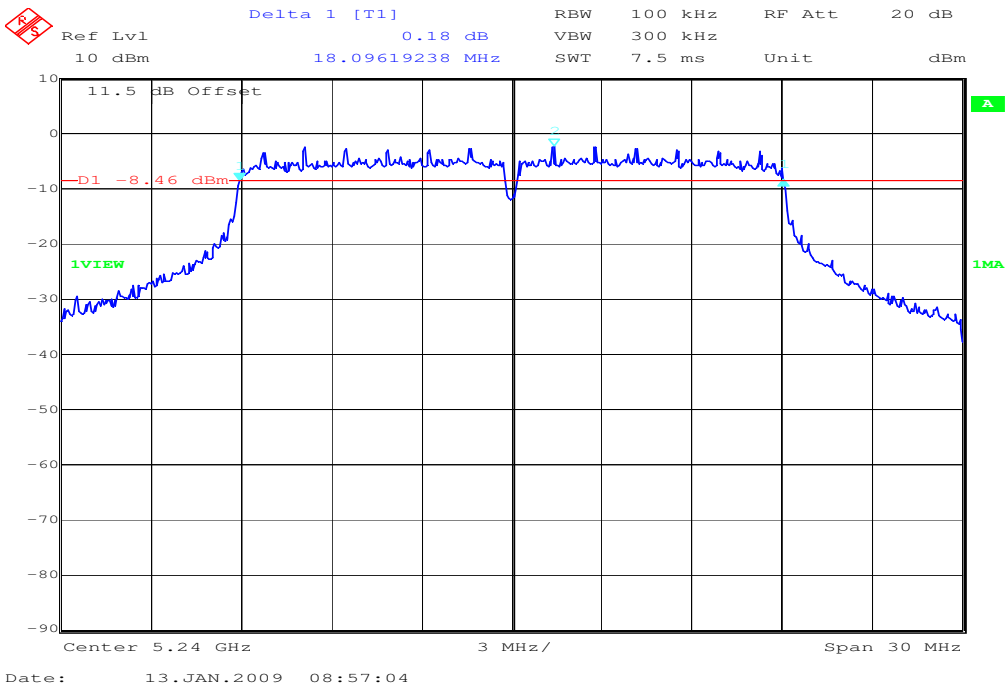
Plot 1: channel 36, 5180 MHz



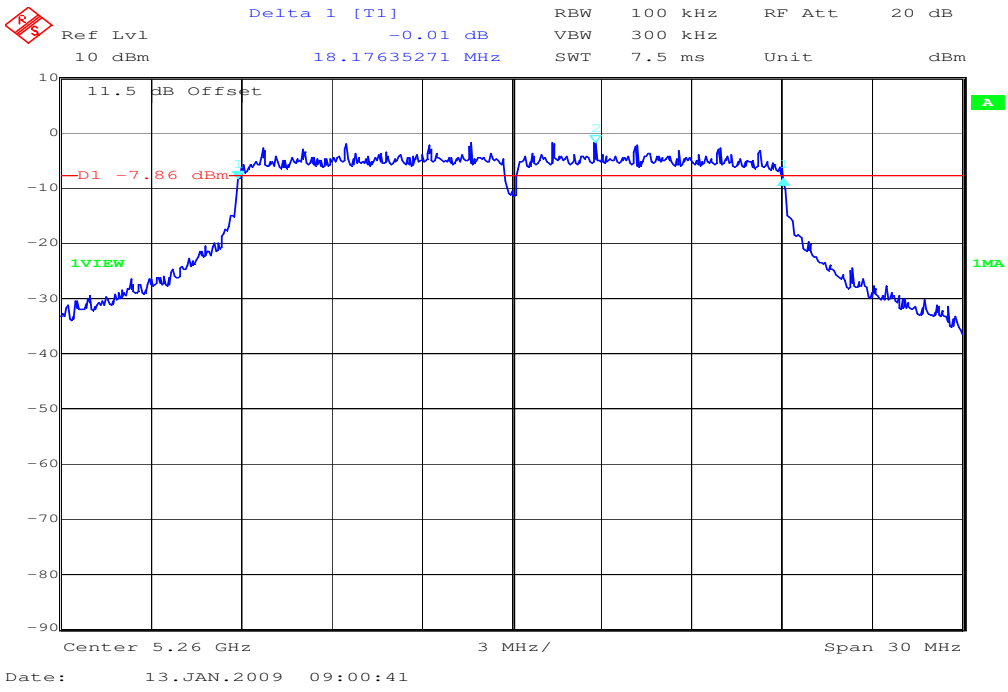
Plot 2: channel 40, 5200 MHz



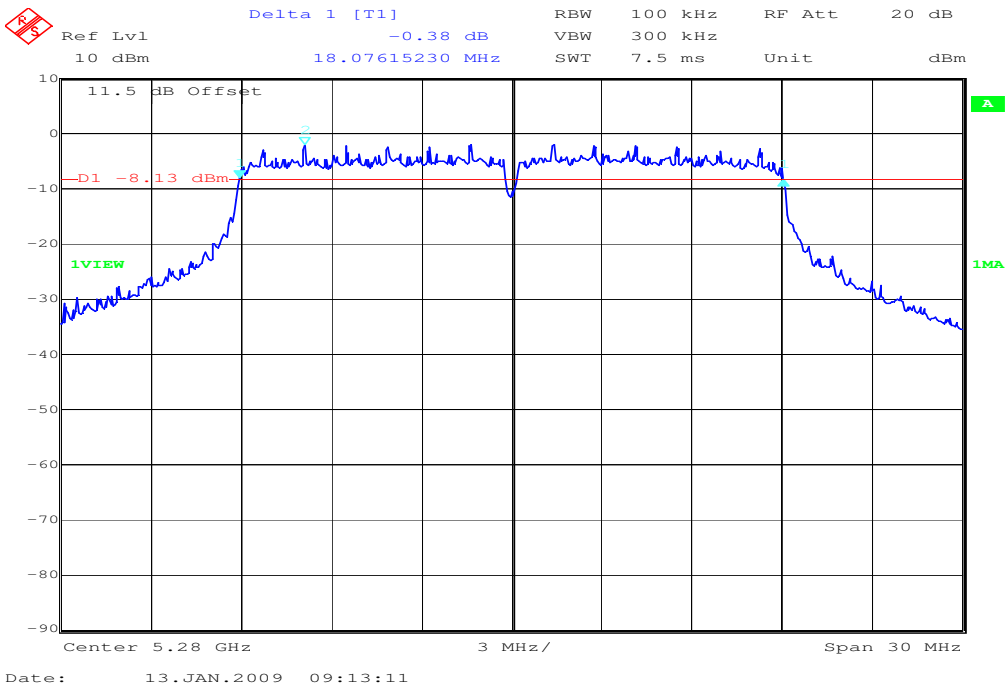
Plot 3: channel 48, 5240 MHz



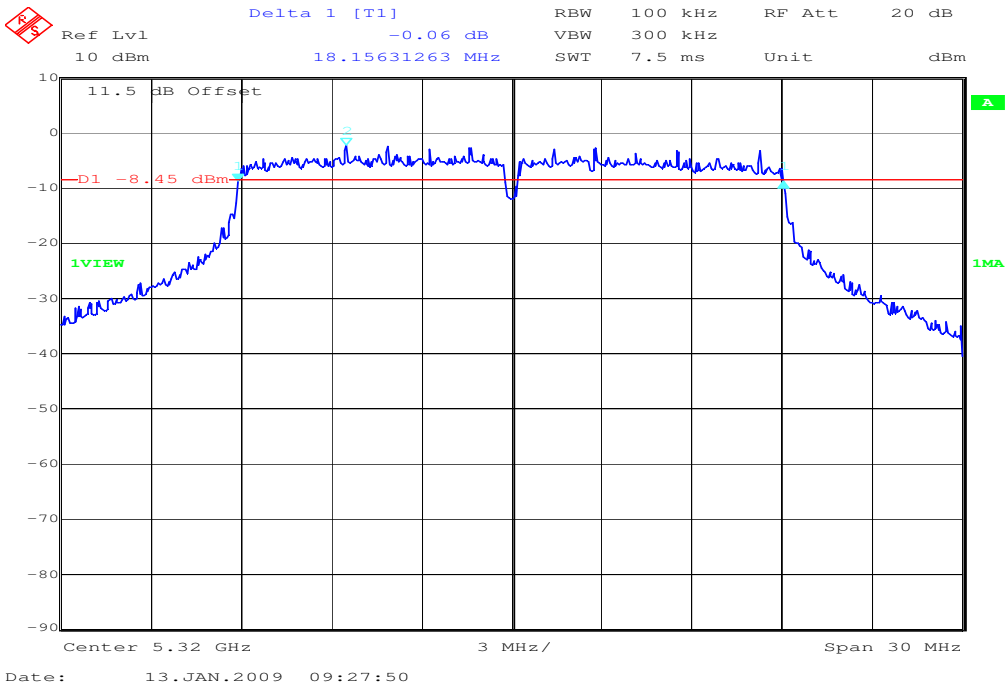
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz

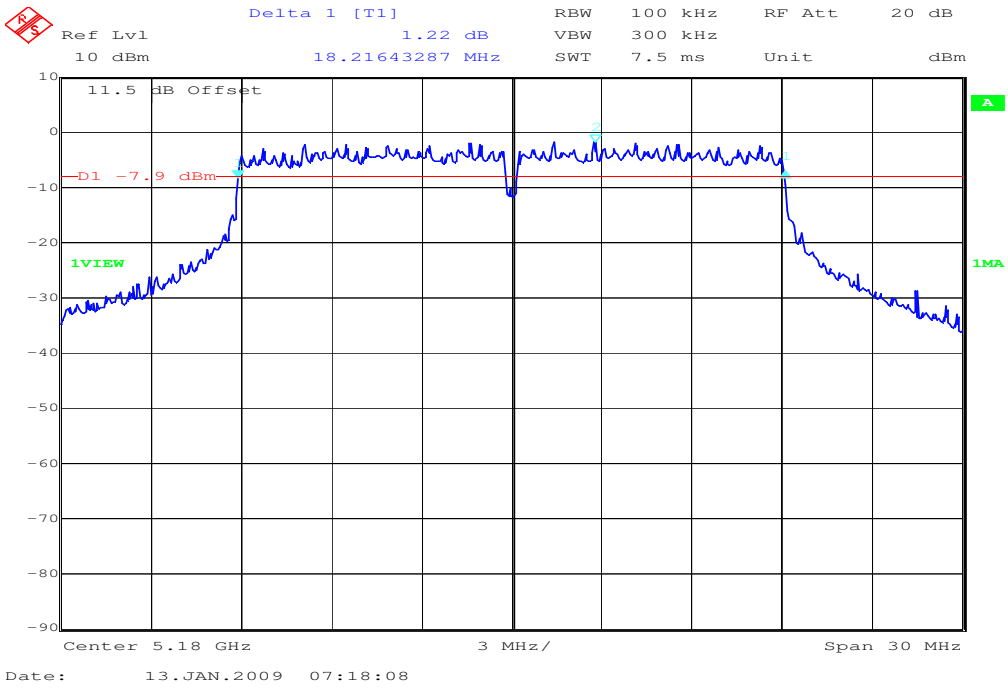


Results:

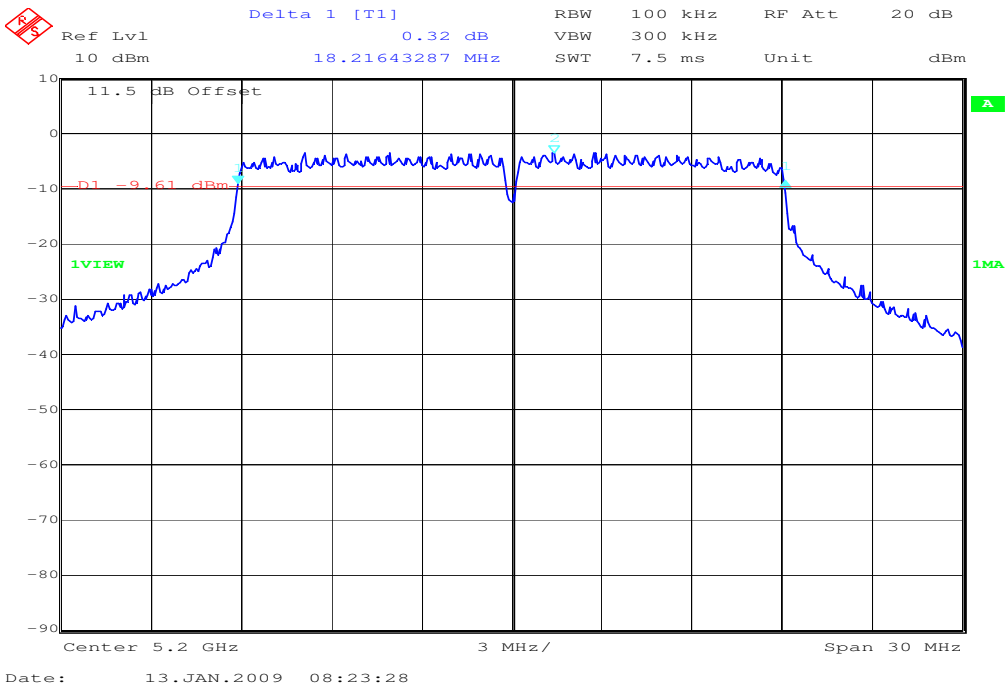
Frequenz (MHz)	6 dB BW (MHz)
5180	18.096
5200	18.116
5240	18.096
5260	18.176
5280	18.076
5320	18.156

<u>High data rate:</u>

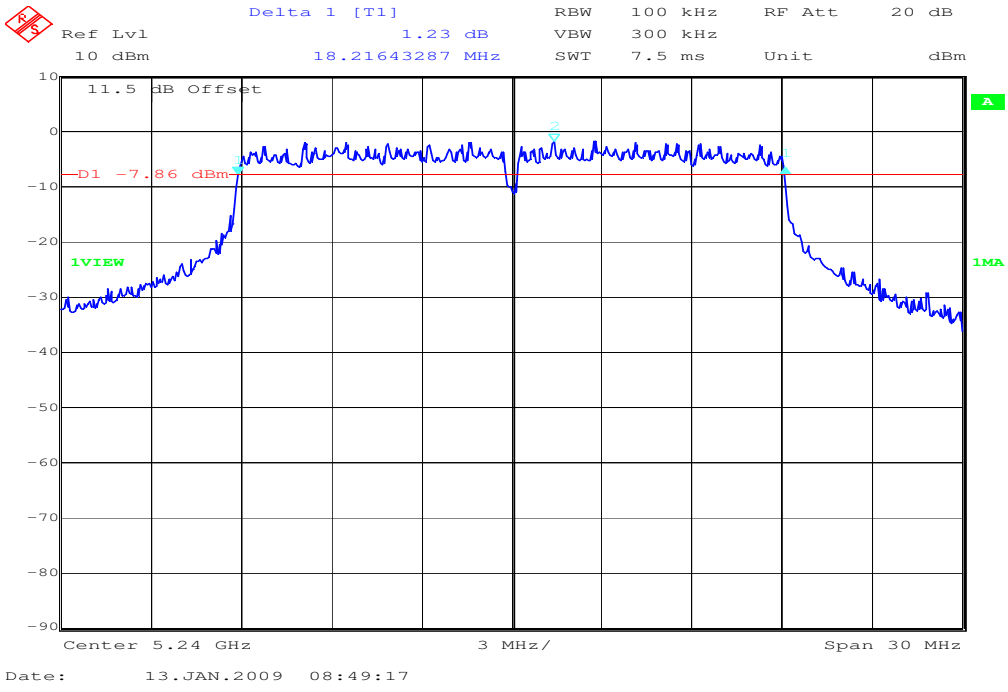
Plot 1: channel 36, 5180 MHz



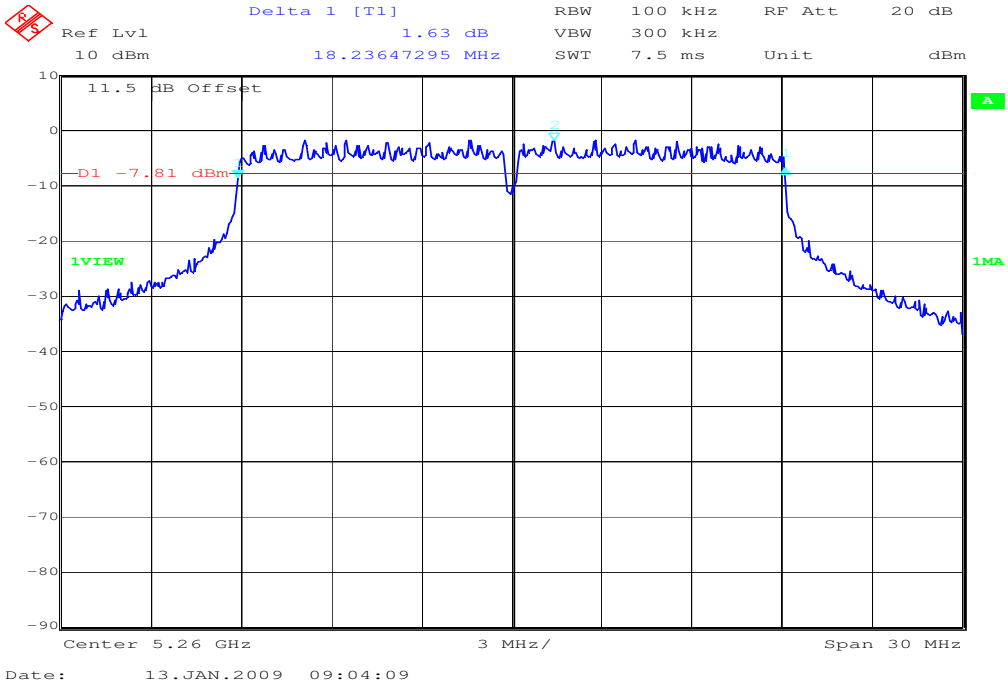
Plot 2: channel 40, 5200 MHz



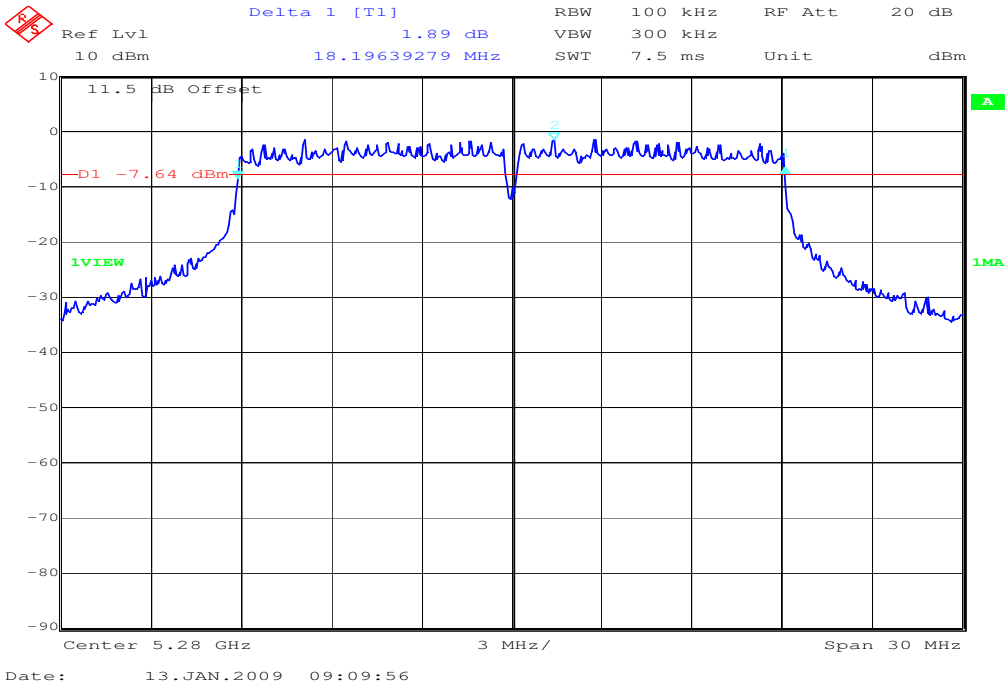
Plot 3: channel 48, 5240 MHz



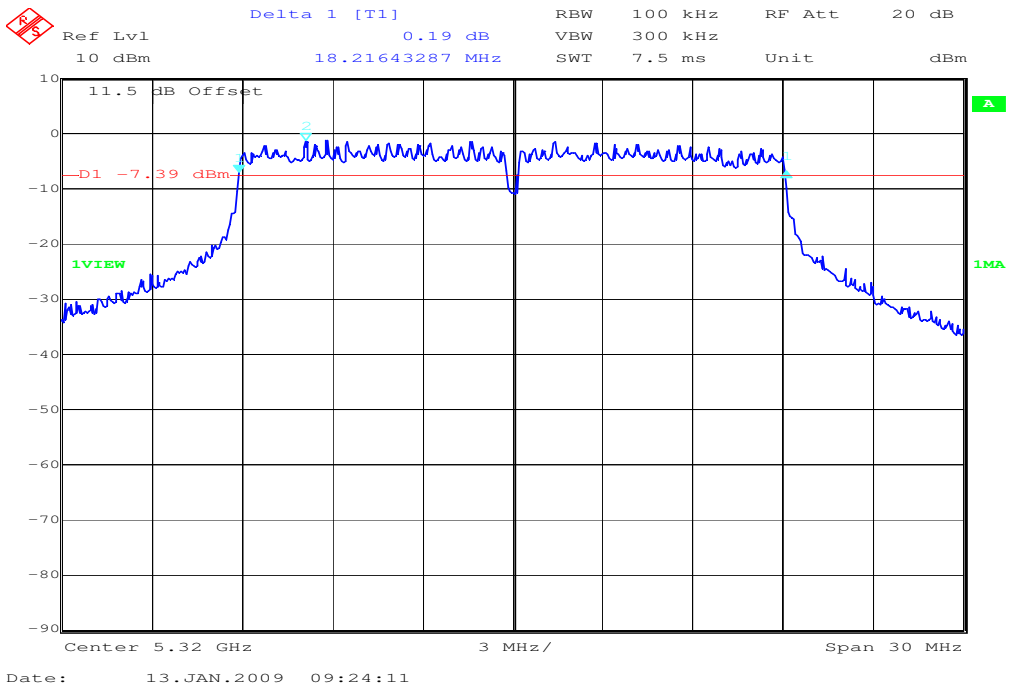
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz



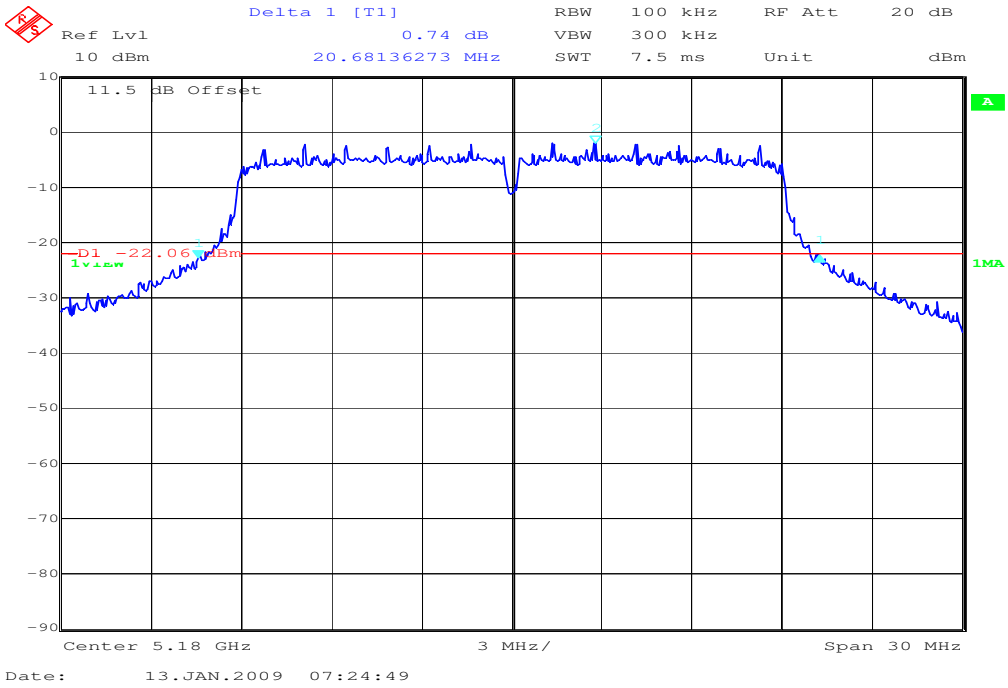
Results:

Frequenz (MHz)	6 dB BW (MHz)
5180	18.216
5200	18.216
5240	18.216
5260	18.236
5280	18.196
5320	18.216

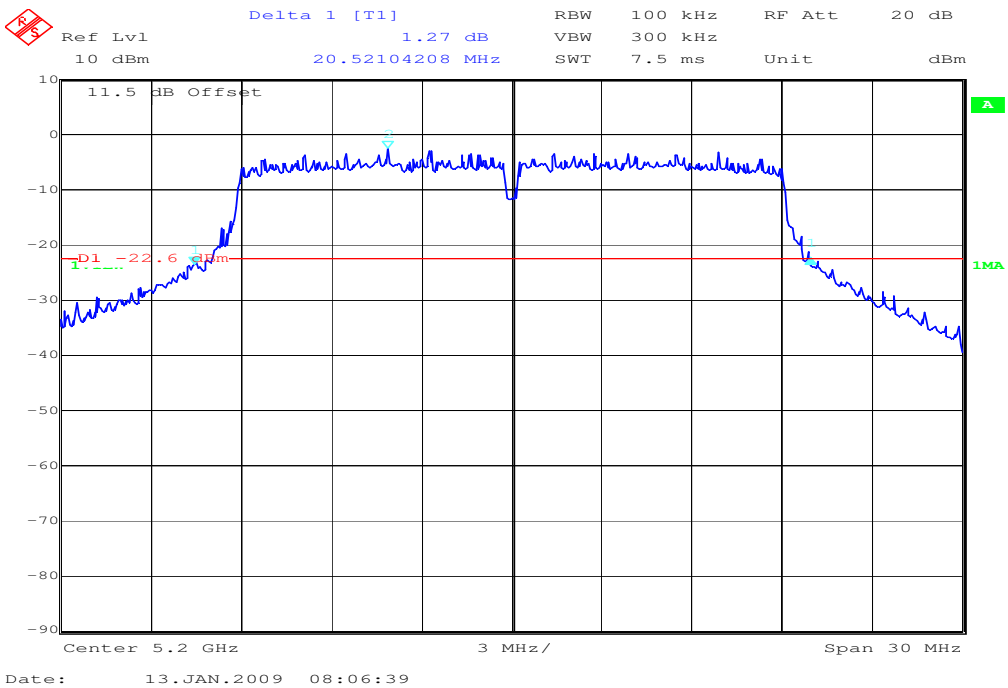
3.6.2 Measurement 2: 20 dB emission bandwidth of the sample

Low data rate:

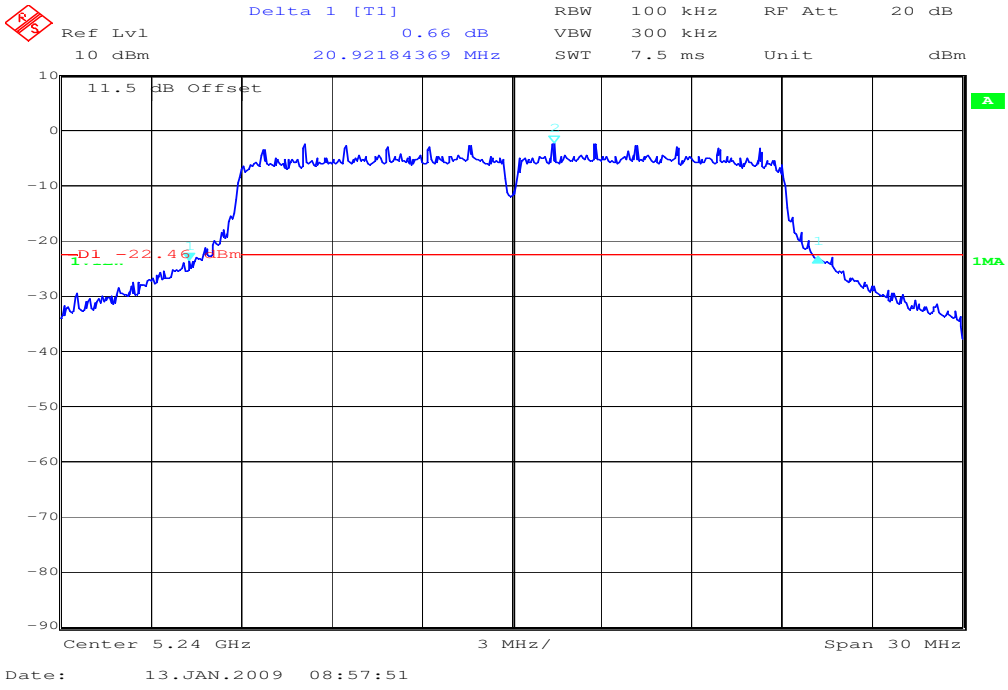
Plot 1: channel 36, 5180 MHz



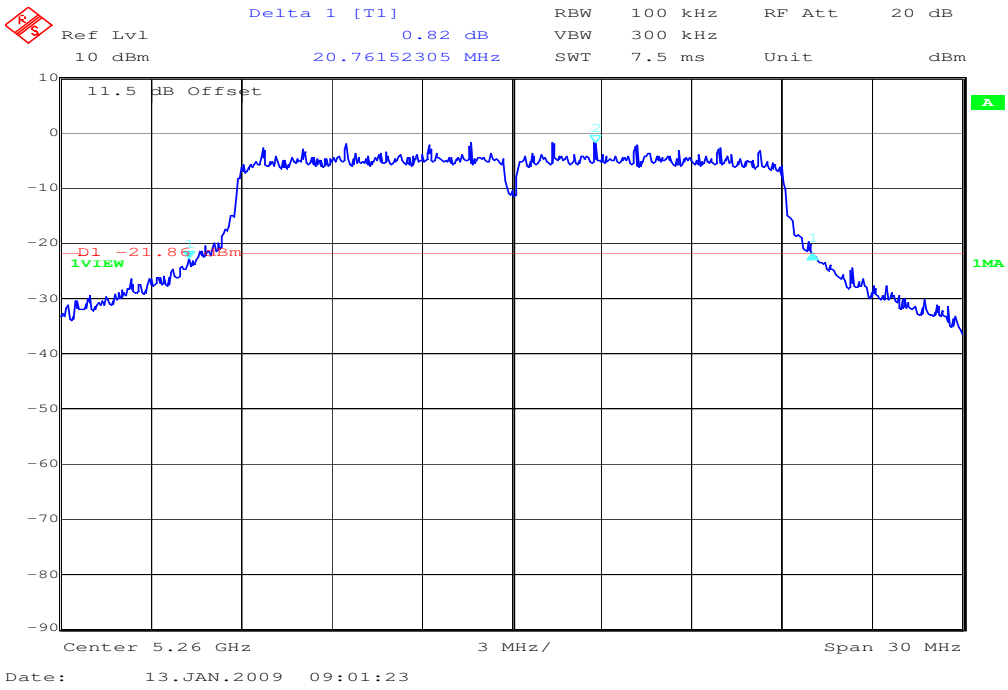
Plot 2: channel 40, 5200 MHz



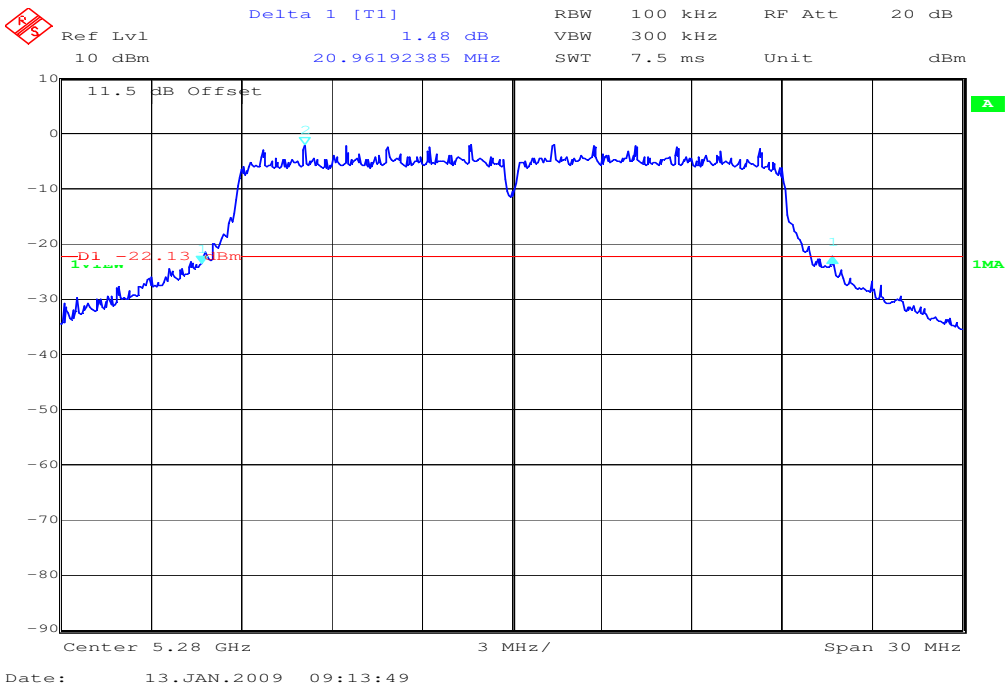
Plot 3: channel 48, 5240 MHz



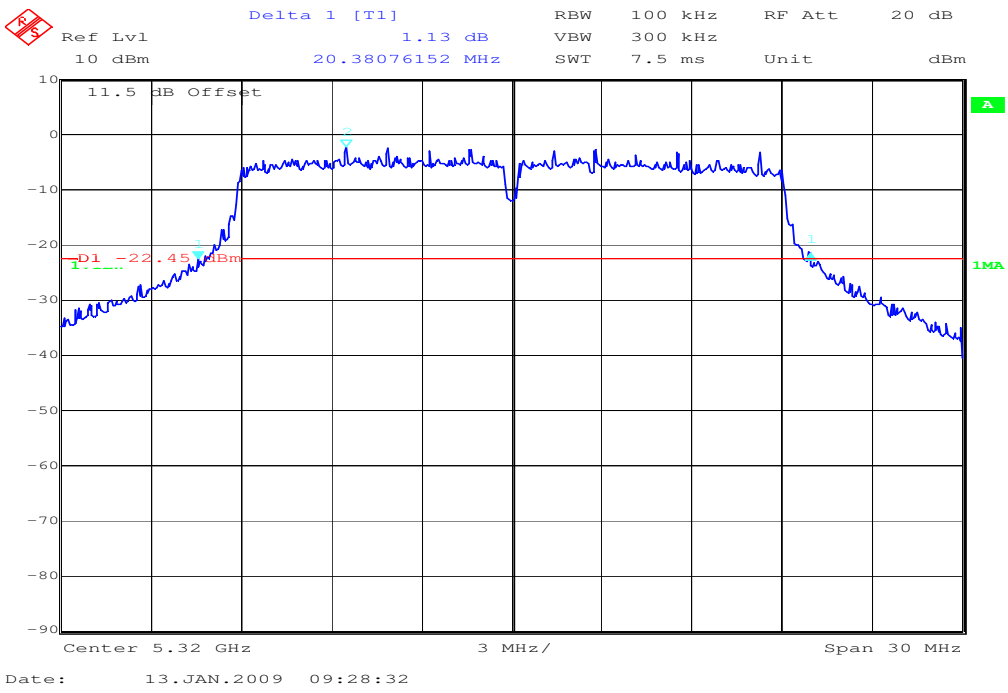
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz

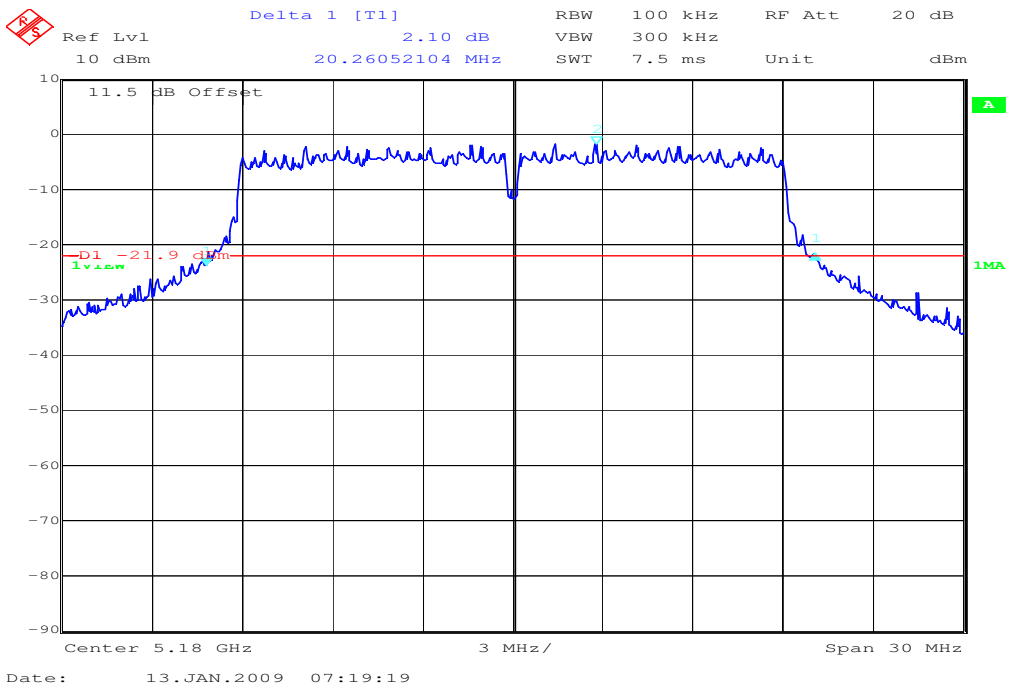


Results:

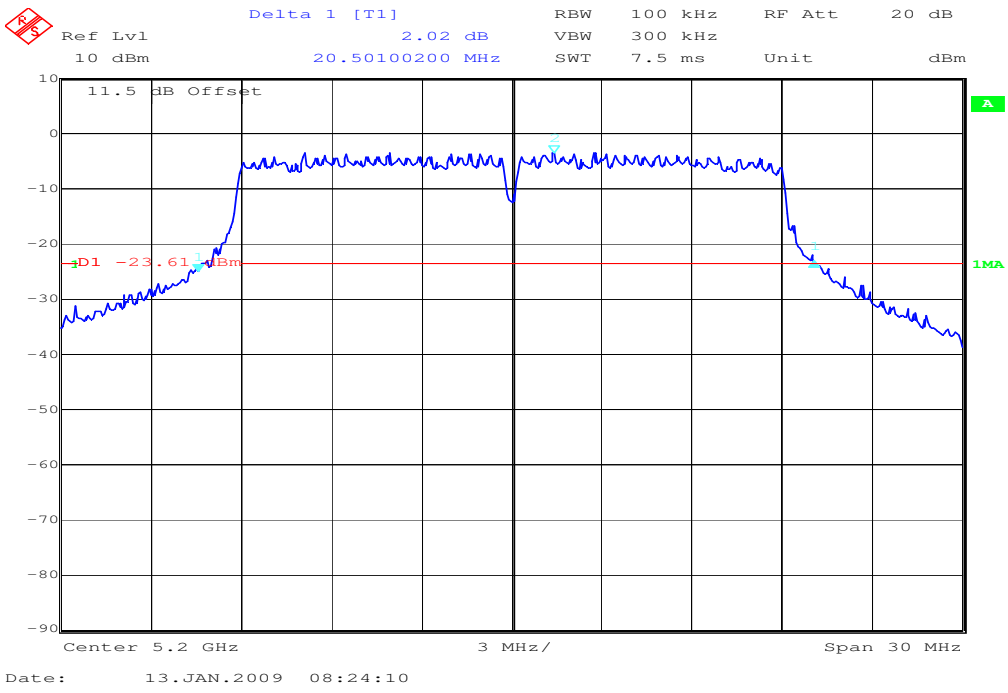
Frequenz (MHz)	20 dB BW (MHz)
5180	20.681
5200	20.521
5240	20.922
5260	20.762
5280	20.962
5320	20.381

High data rate:

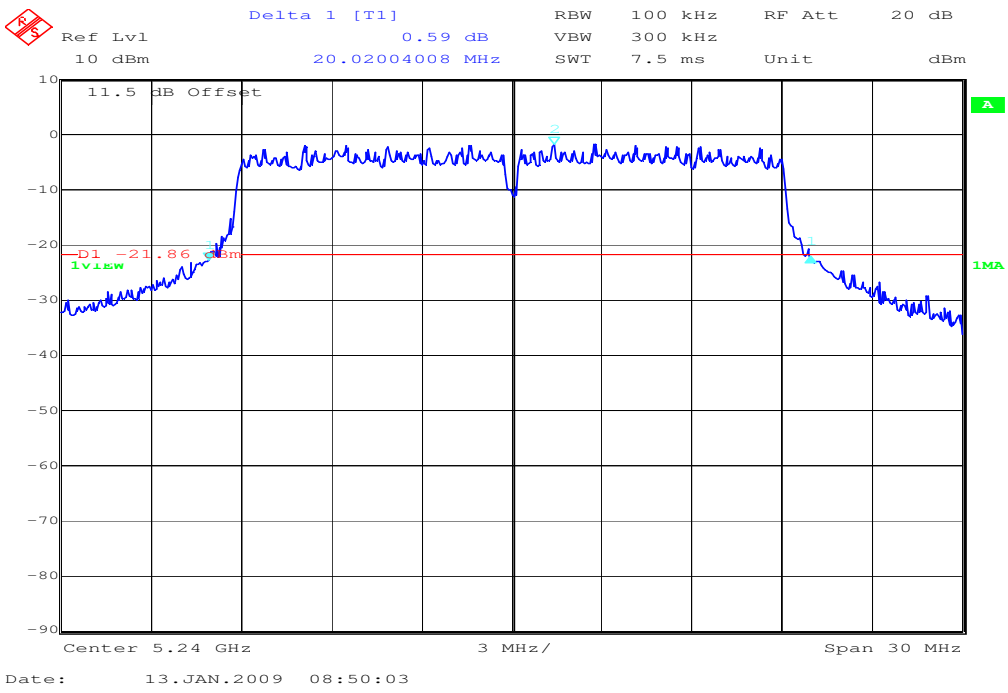
Plot 1: channel 36, 5180 MHz



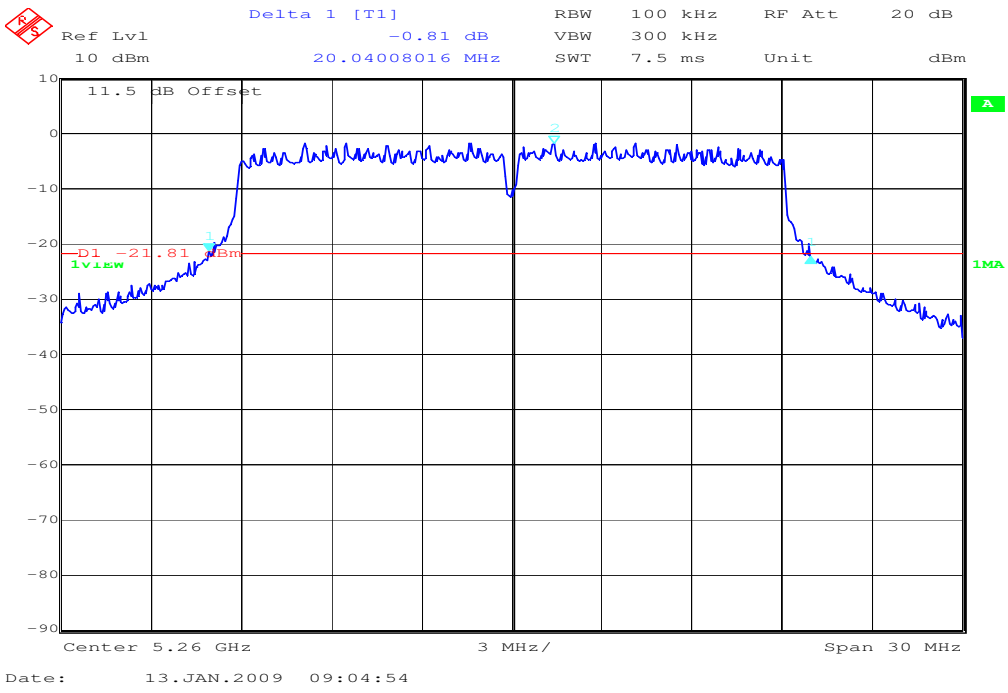
Plot 2: channel 40, 5200 MHz



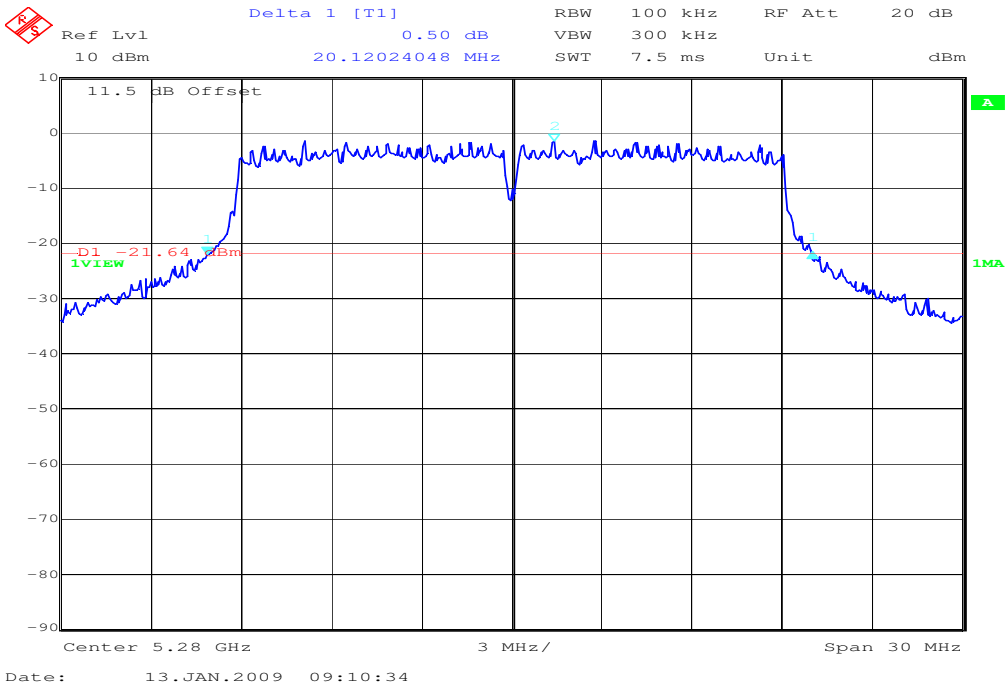
Plot 3: channel 48, 5240 MHz



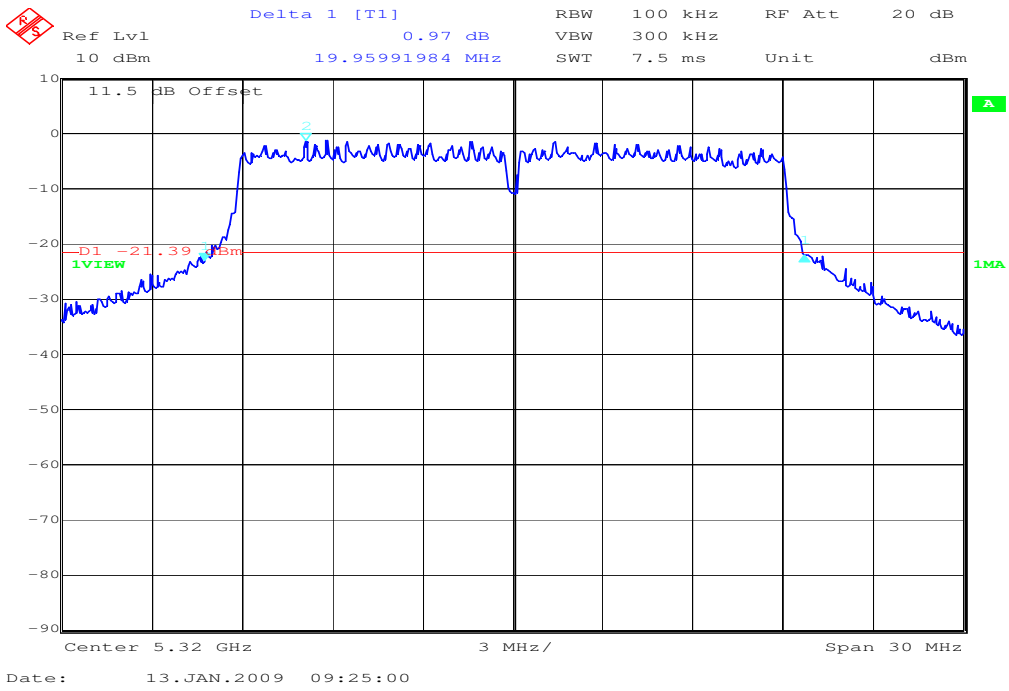
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz



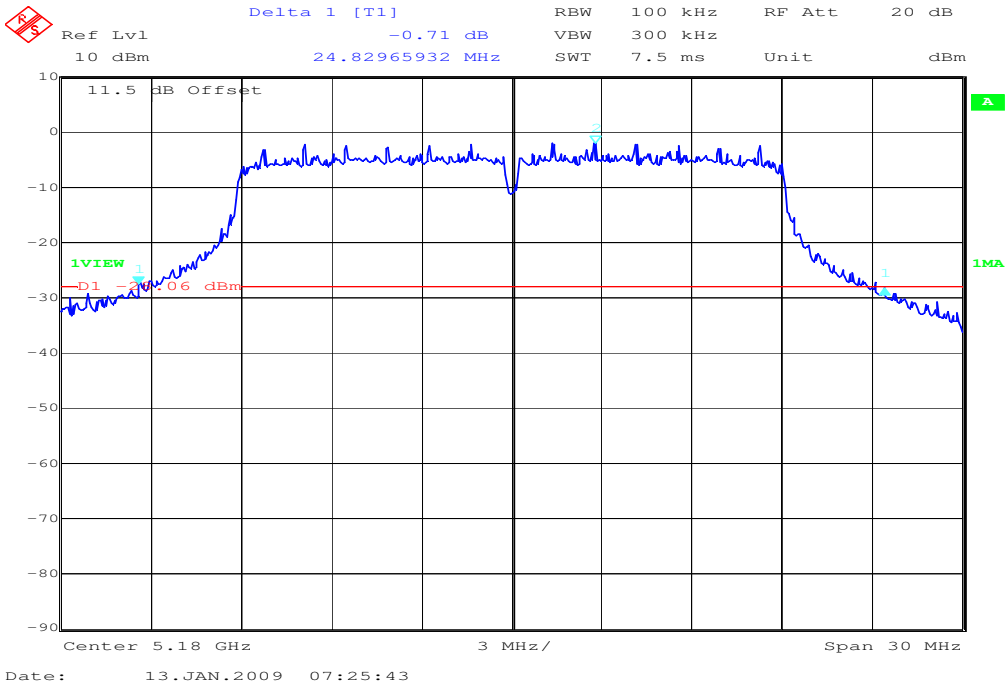
Results:

Frequenz (MHz)	20 dB BW (MHz)
5180	20.261
5200	20.501
5240	20.020
5260	20.040
5280	20.120
5320	19.960

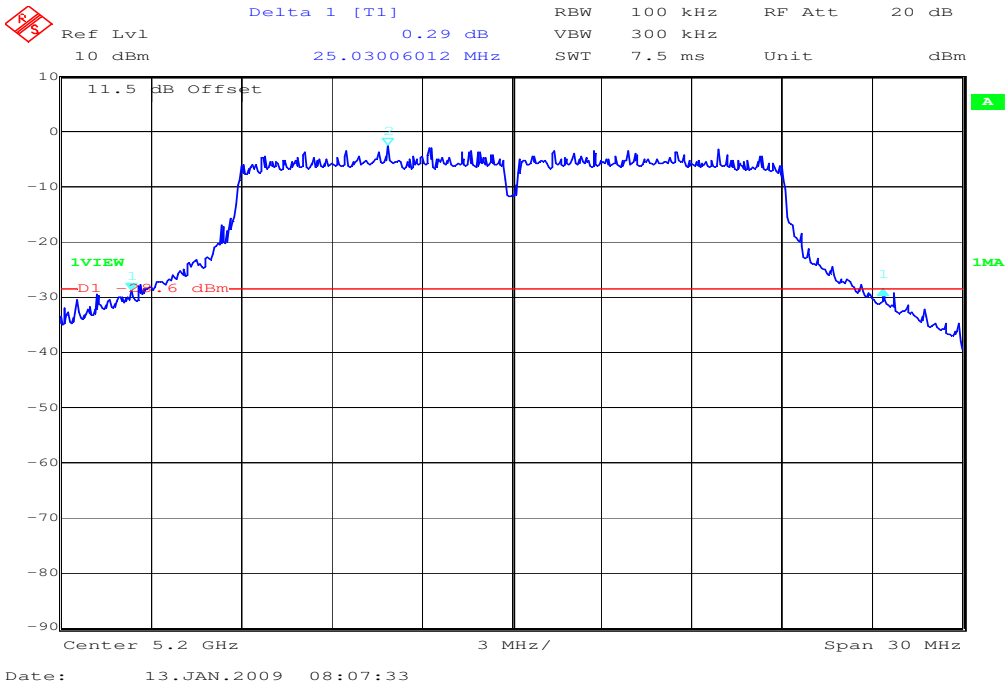
3.6.3 Measurement 3: 26 dB emission bandwidth of the sample

Low data rate:

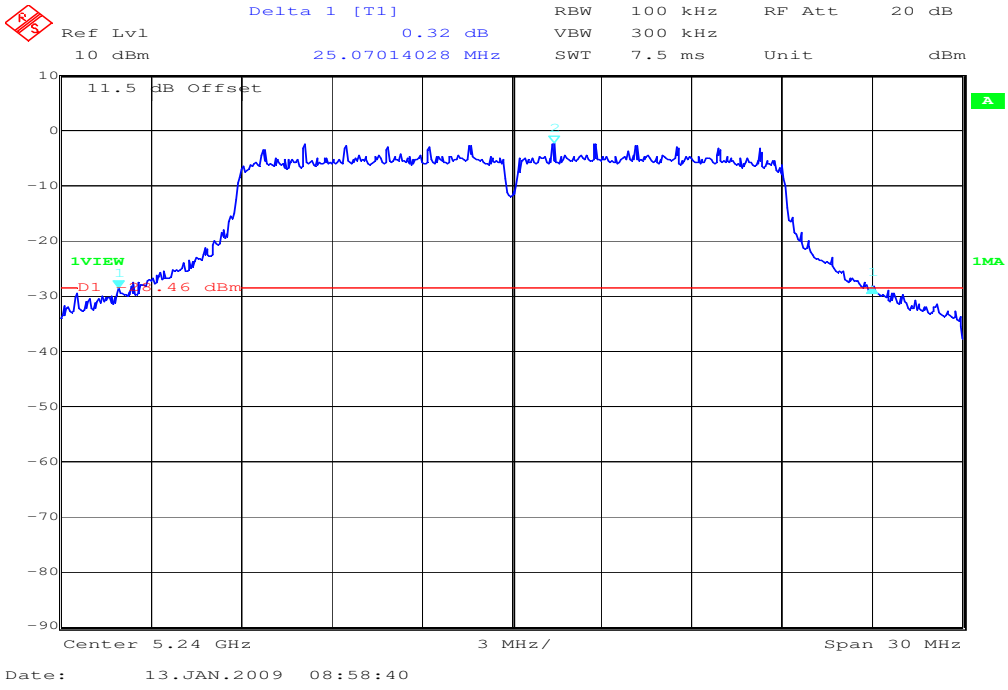
Plot 1: channel 36, 5180 MHz



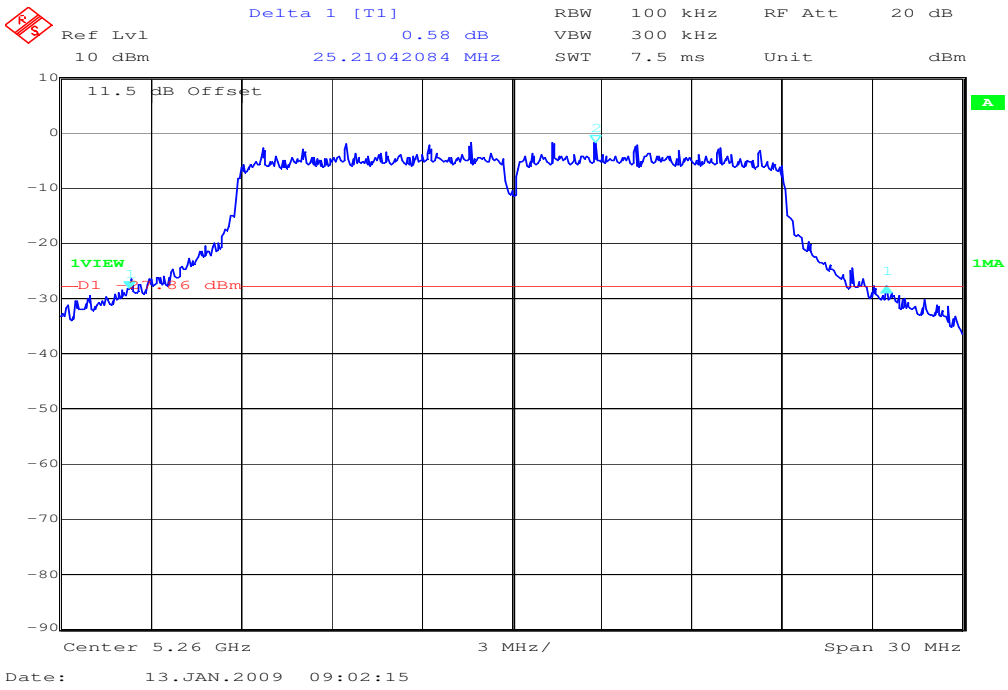
Plot 2: channel 40, 5200 MHz



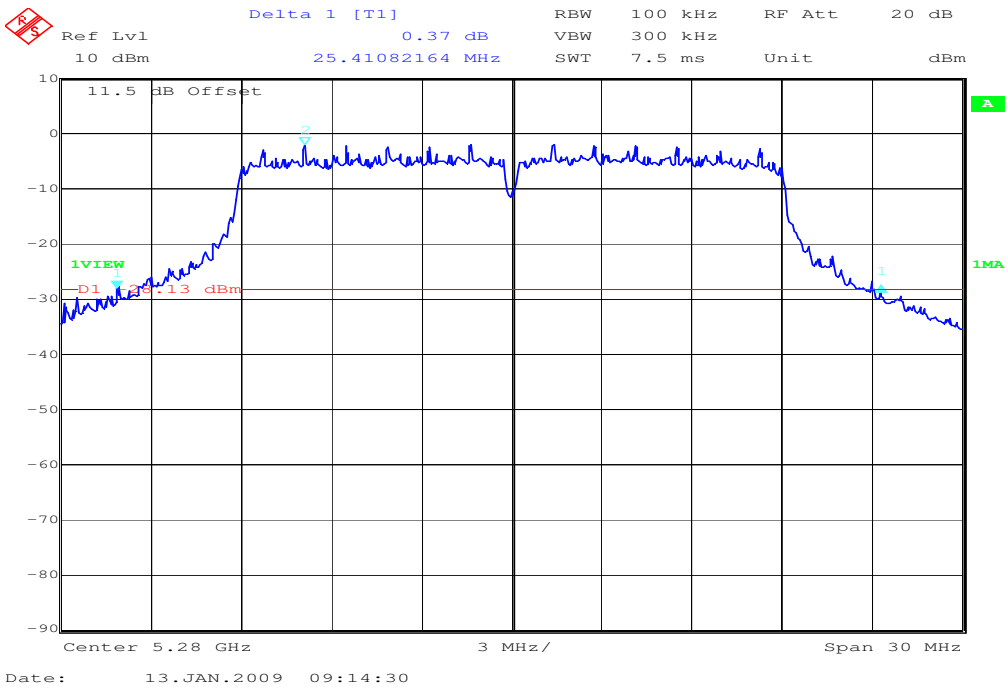
Plot 3: channel 48, 5240 MHz



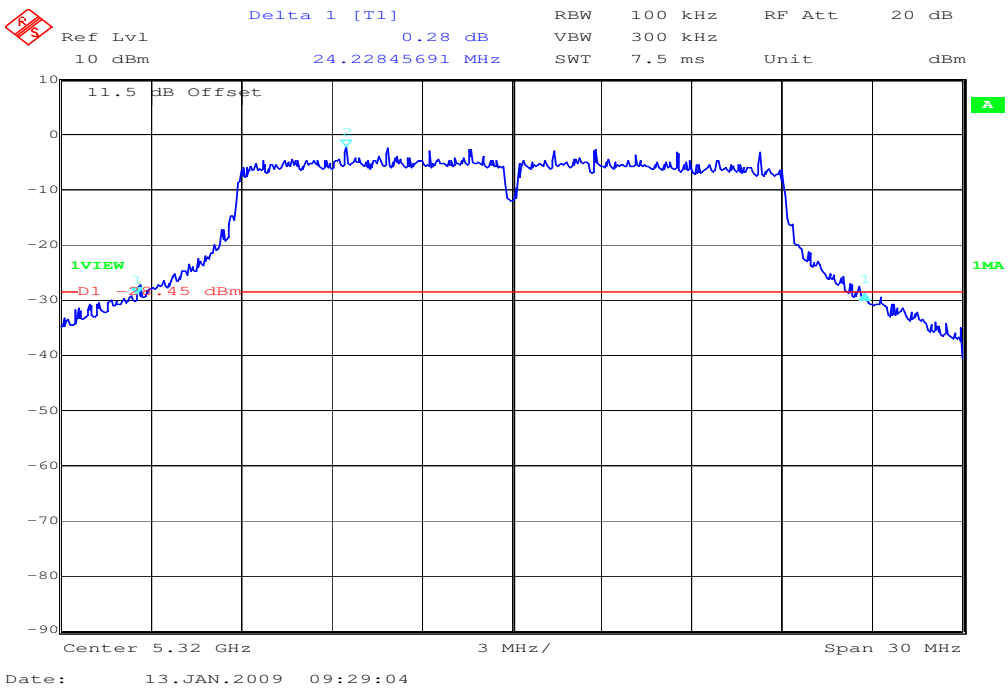
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz

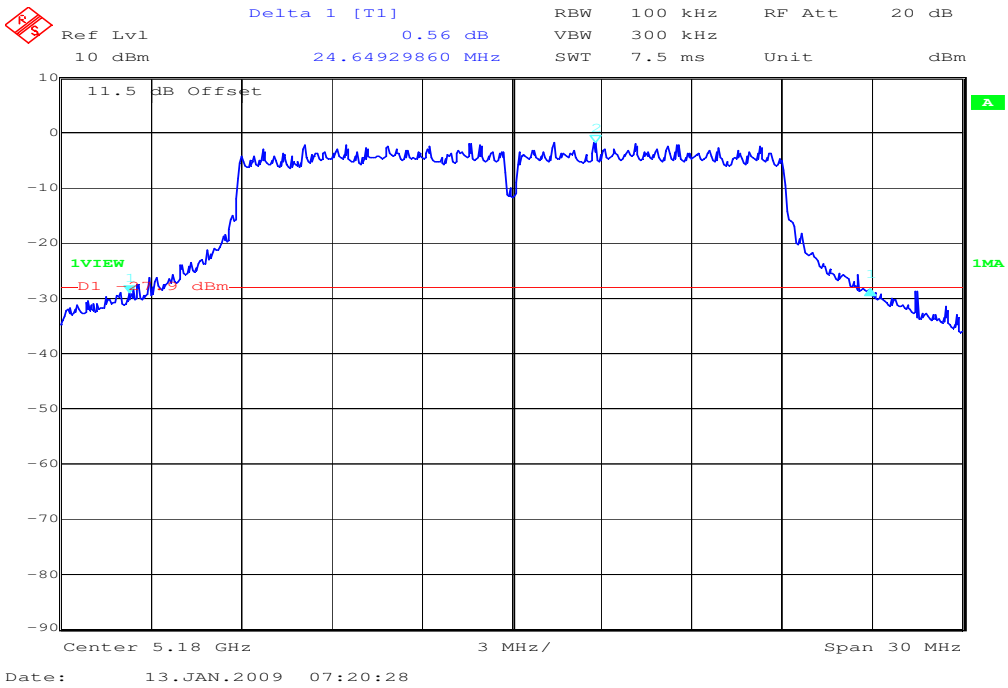


Results:

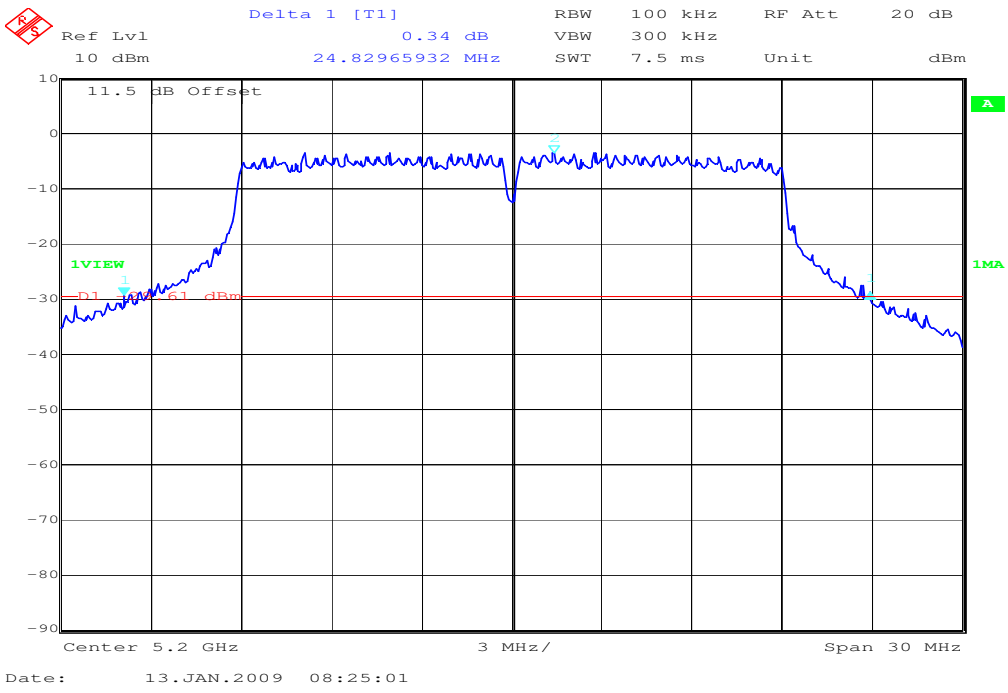
Frequenz (MHz)	26 dB BW (MHz)
5180	24.830
5200	25.030
5240	25.070
5260	25.210
5280	25.411
5320	24.228

High data rate:

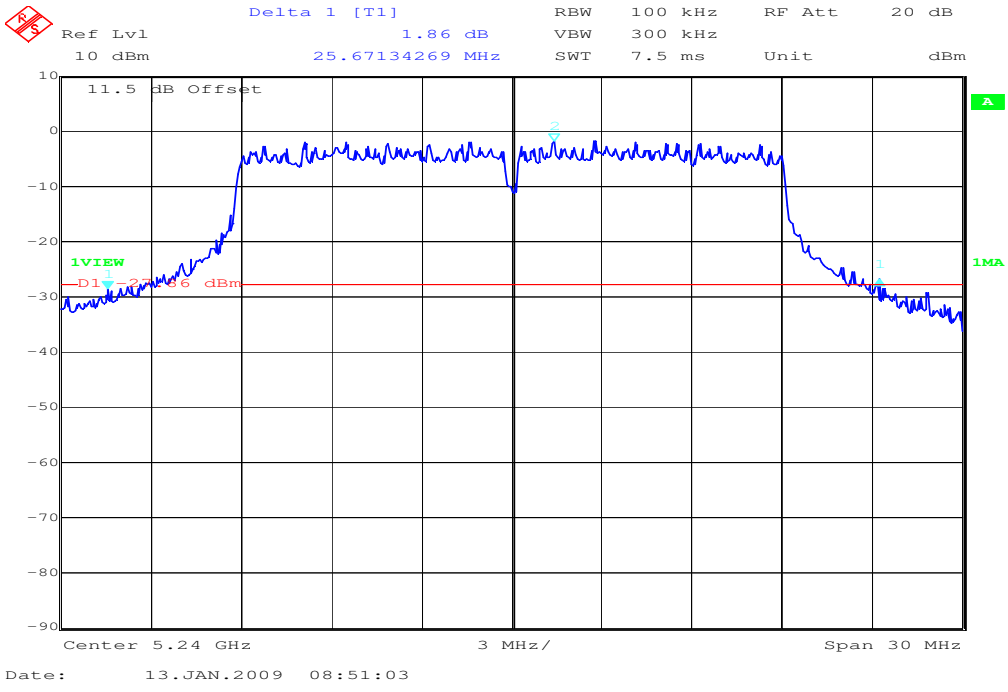
Plot 1: channel 36, 5180 MHz



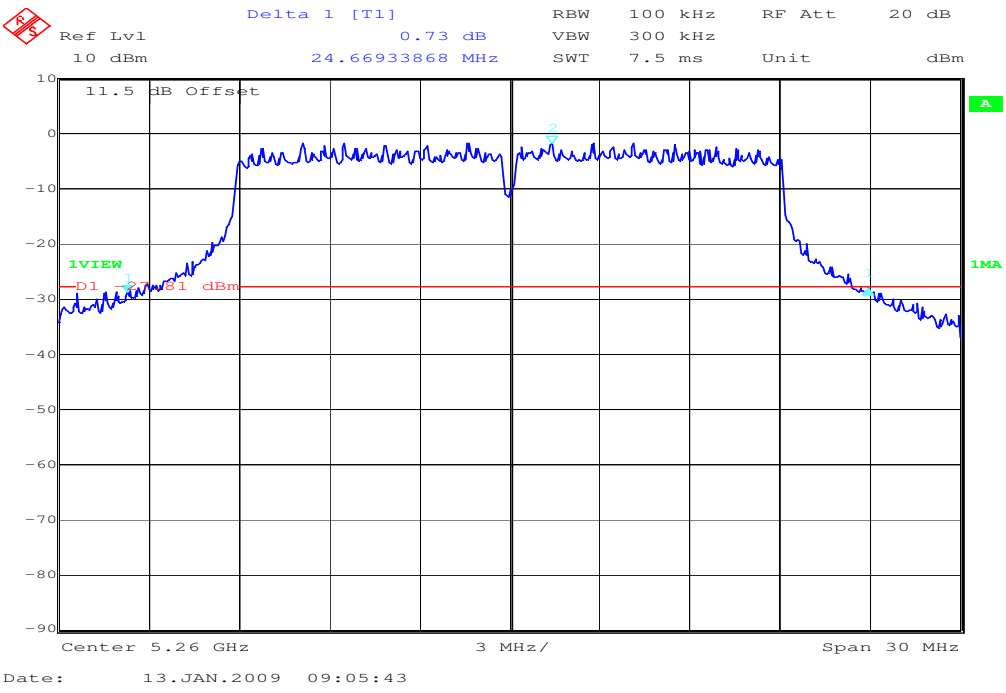
Plot 2: channel 40, 5200 MHz



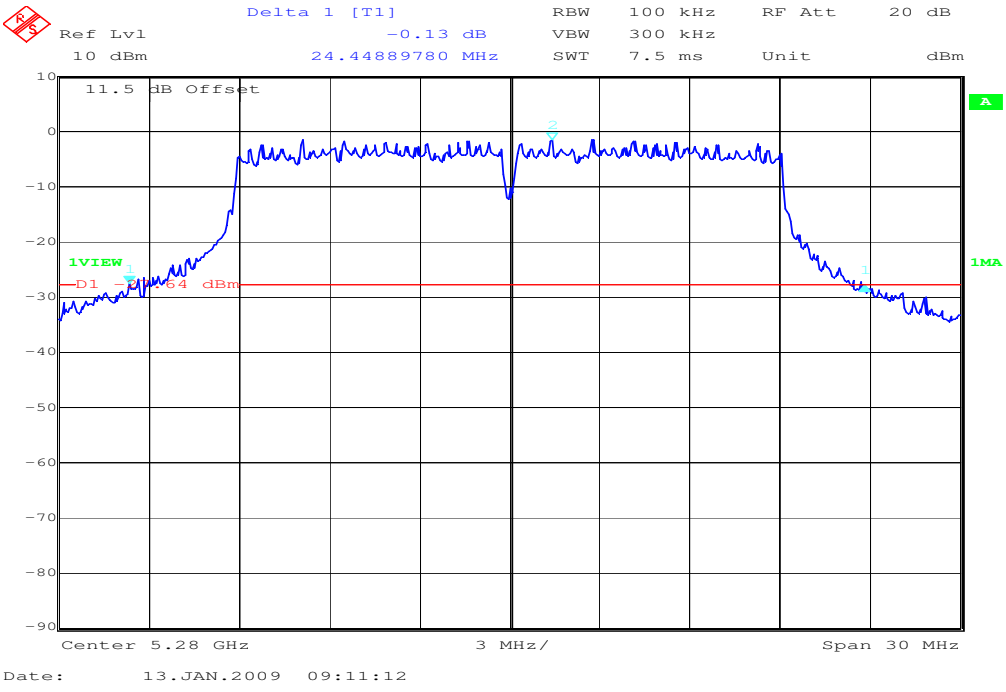
Plot 3: channel 48, 5240 MHz



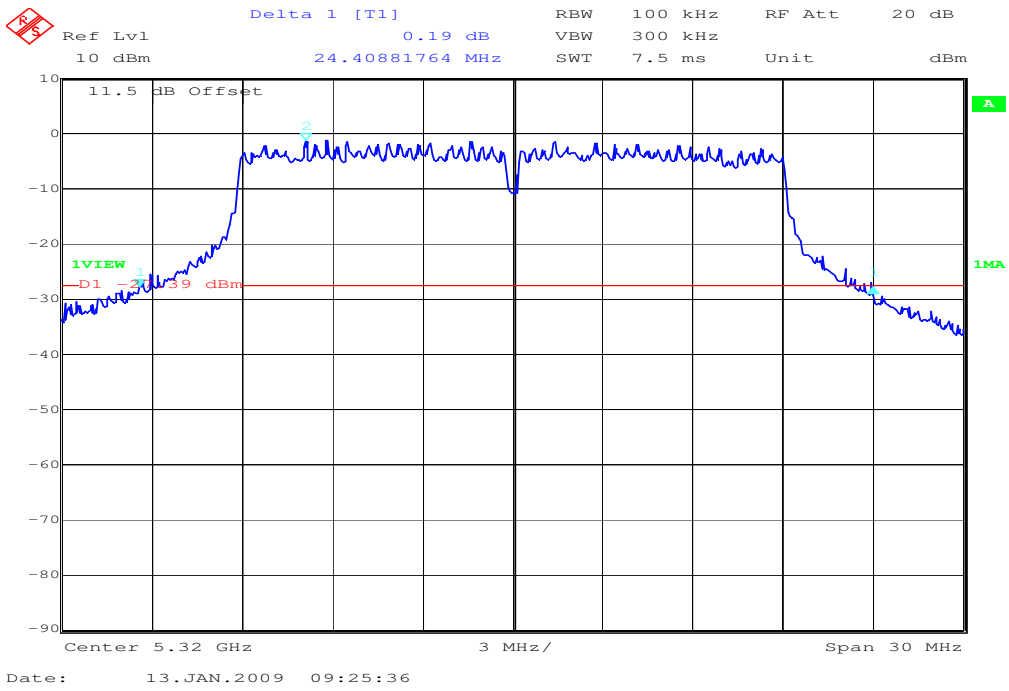
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz



Results:

Frequenz (MHz)	26 dB BW (MHz)
5180	24.649
5200	24.830
5240	25.671
5260	24.669
5280	24.449
5320	24.409

3.7 Peak conducted transmit output power

Measured with the spectrum analyzer`s band power measurement according to the guidelines of the FCC public notice DA 02-2138 - method #3:

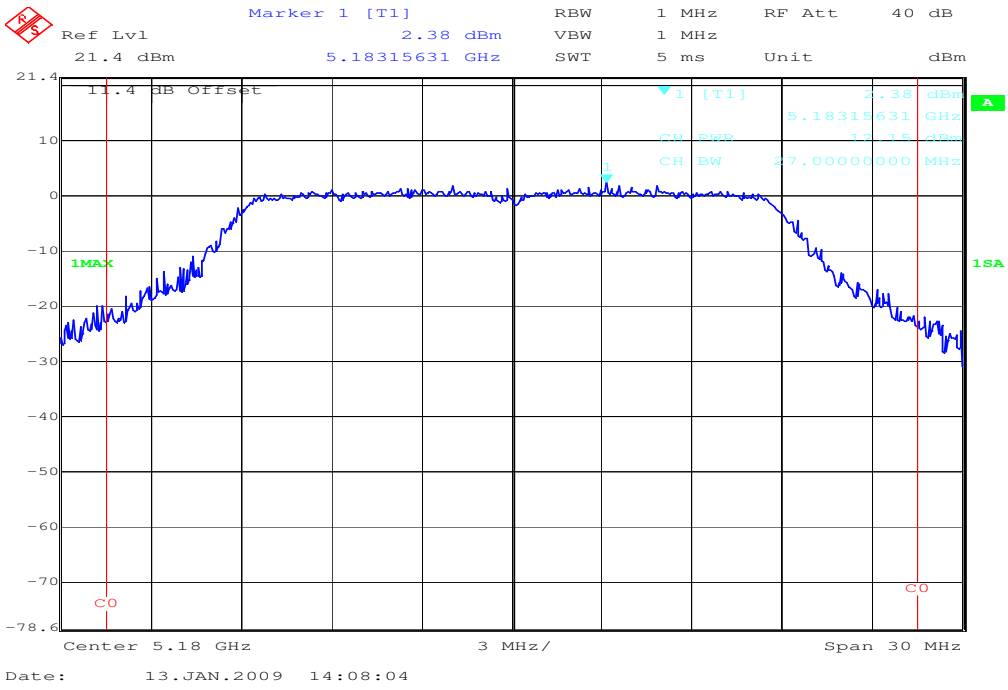
- Set span to encompass the entire emission bandwidth (EBW) of the signal
- Set sweep trigger to “free run”
- Set RBW = 1 MHz. Set VBW ≥ 1/T
- Use linear display mode
- Use sample detector mode if bin width (i.e., span/number of points in spectrum) < 0.5 RBW. Otherwise use peak detector mode
- Set max hold
- Allow max hold to run for 60 seconds
- Compute power by integrating the spectrum across the 26 dB EBW or apply a bandwidth correction factor of 10*log(EBW/1 MHz) to the spectral peak of the emission. The integration can be performed using the spectrum analyzer´s band power measurement function with band limits set to the EBW band edges or by summing power levels in each 1 MHz band in linear power terms. The 1 MHz band power levels to be summed can be obtained by averaging, in linear power terms, power levels in each frequency bin across the 1 MHz.

Limits:

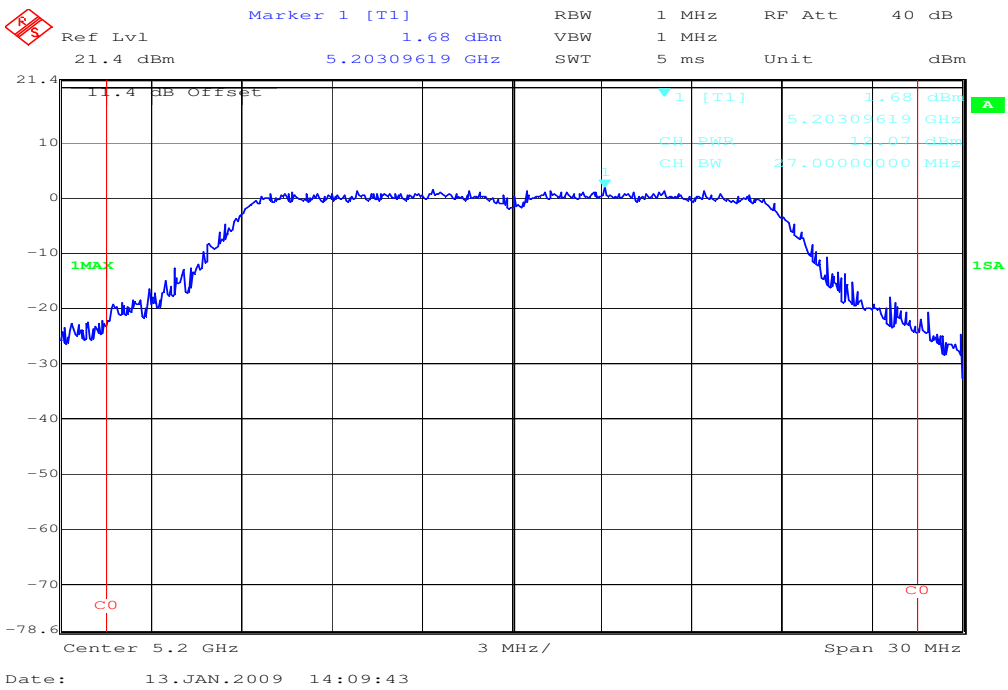
Under normal test conditions only	For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10logB, where B is the 26dB-emission bandwidth in MHz. If transmitting antennas if directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

Low data rate:

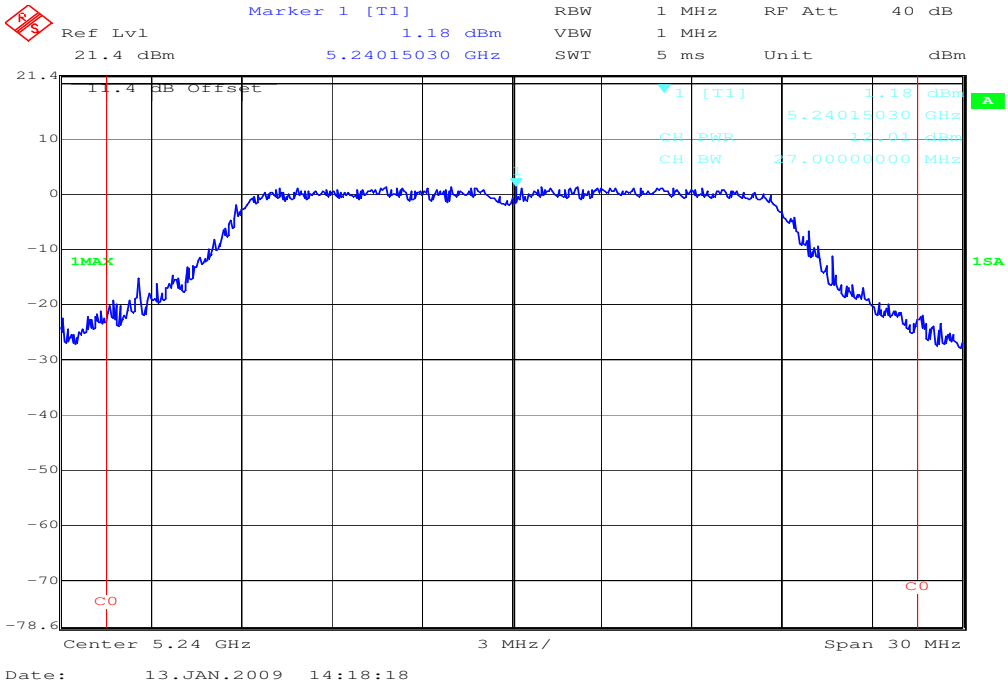
Plot 1: channel 36, 5180 MHz, power setting 11



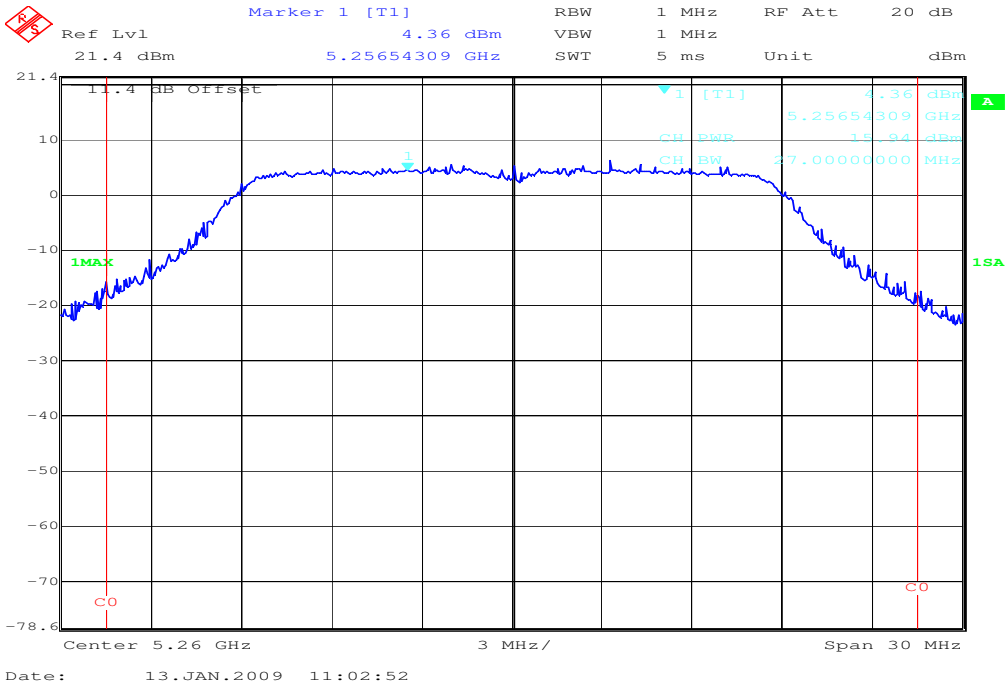
Plot 2: channel 40, 5200 MHz, power setting 11



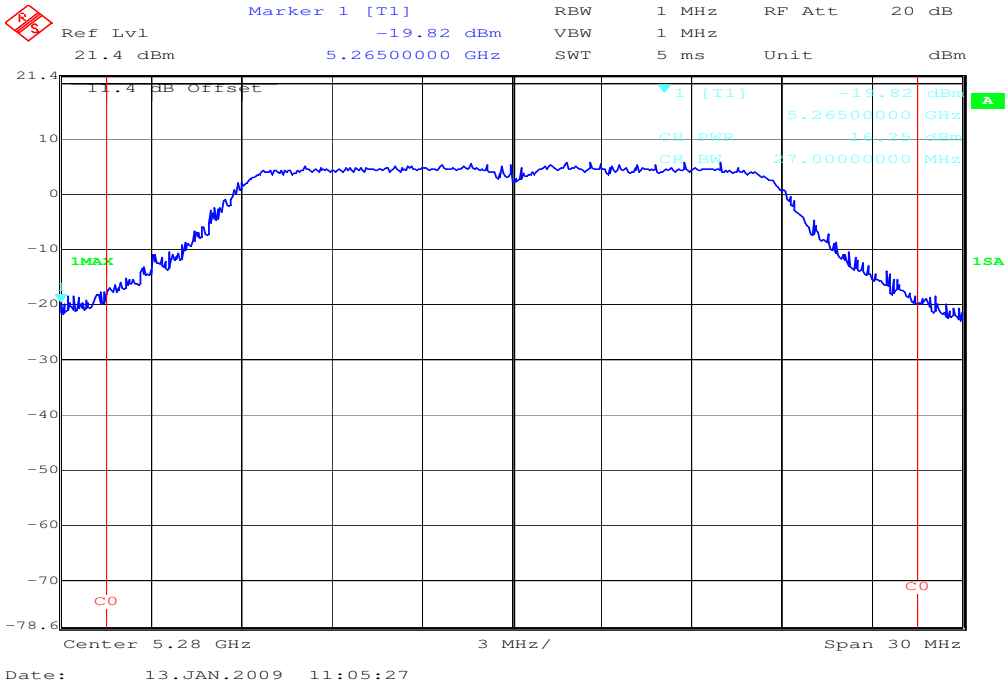
Plot 3: channel 48, 5240 MHz, power setting 11



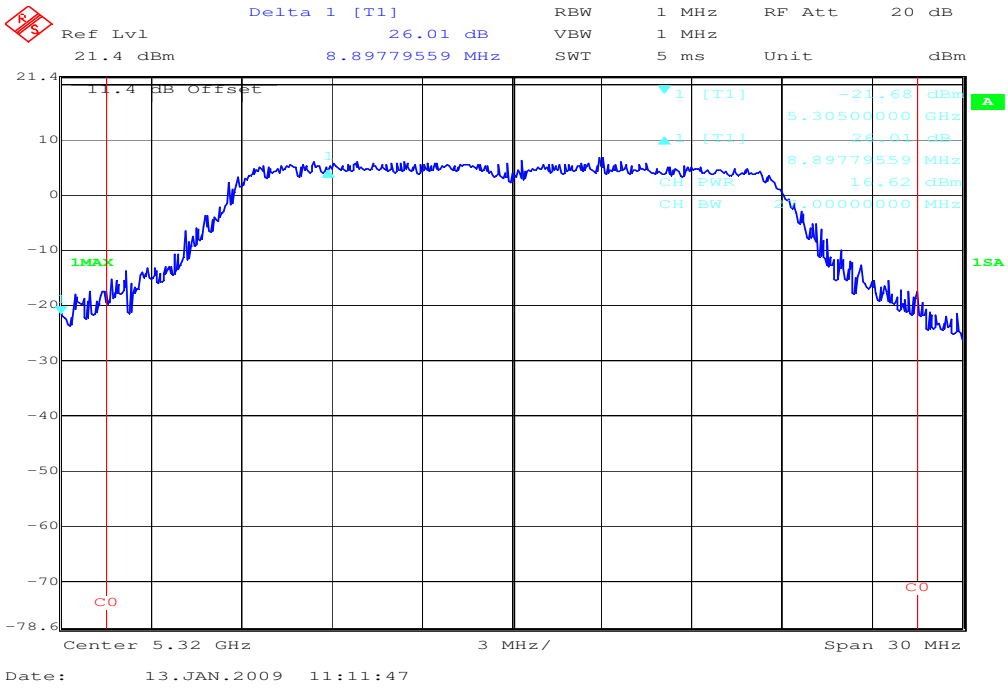
Plot 4: channel 52, 5260 MHz, power setting 15



Plot 5: channel 56, 5280 MHz, power setting 15



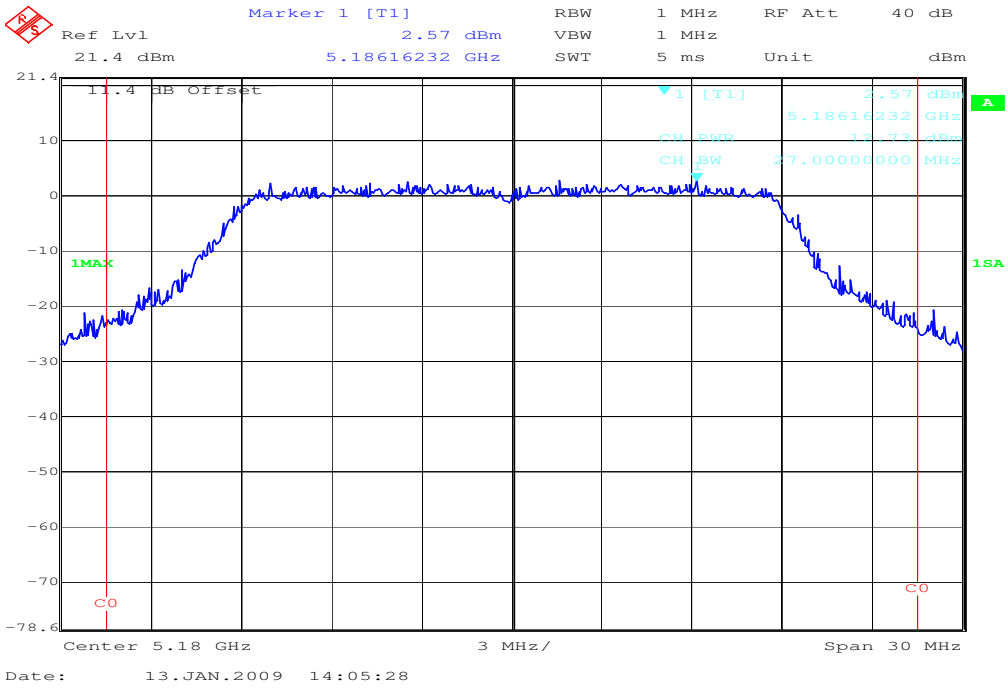
Plot 6: channel 64, 5320 MHz, power setting 15



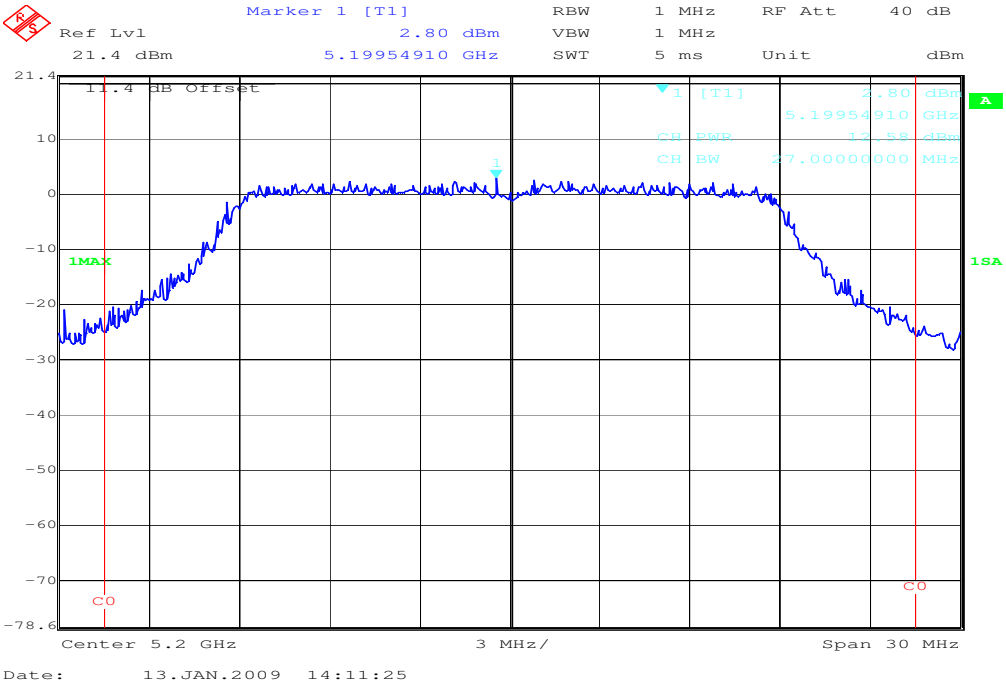
Results: Plot 1: Peak transmit power: 16.41 mW / 12.15 dBm
Plot 2: Peak transmit power: 16.11 mW / 12.07 dBm
Plot 3: Peak transmit power: 15.89 mW / 12.01 dBm
Plot 4: Peak transmit power: 39.26 mW / 15.94 dBm
Plot 5: Peak transmit power: 42.17 mW / 16.25 dBm
Plot 6: Peak transmit power: 45.92 mW / 16.62 dBm

<u>High data rate:</u>

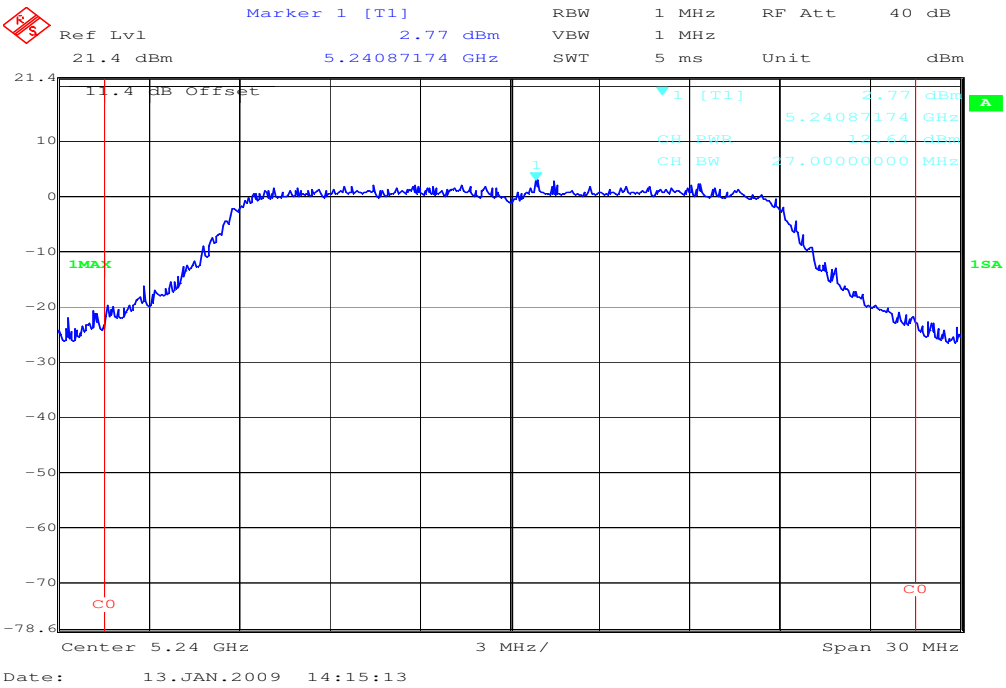
Plot 1: channel 36, 5180 MHz, power setting 11



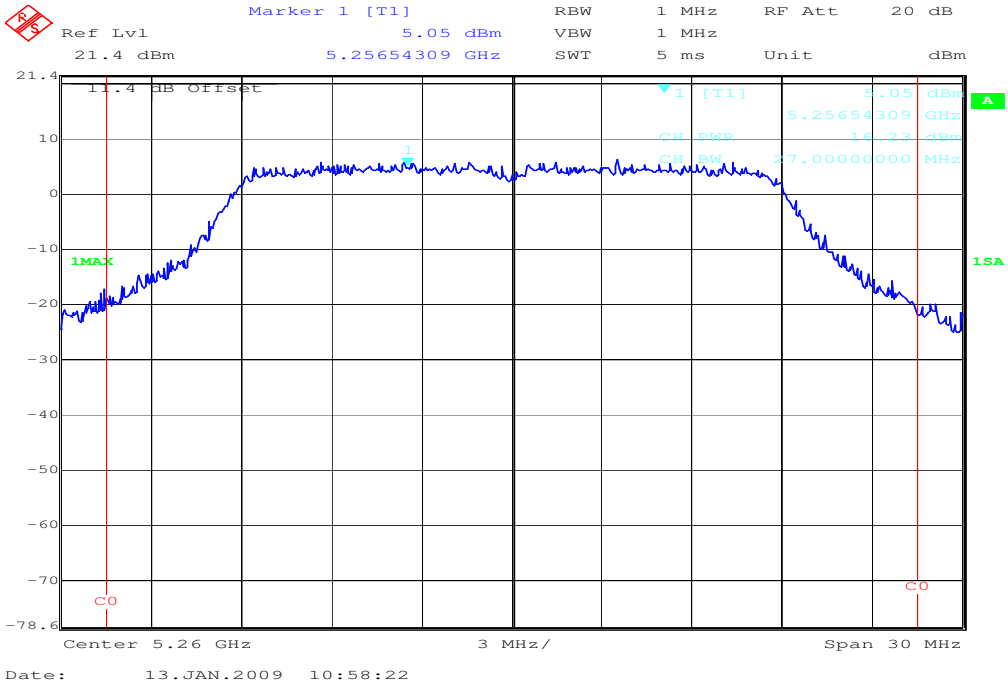
Plot 2: channel 40, 5200 MHz, power setting 11



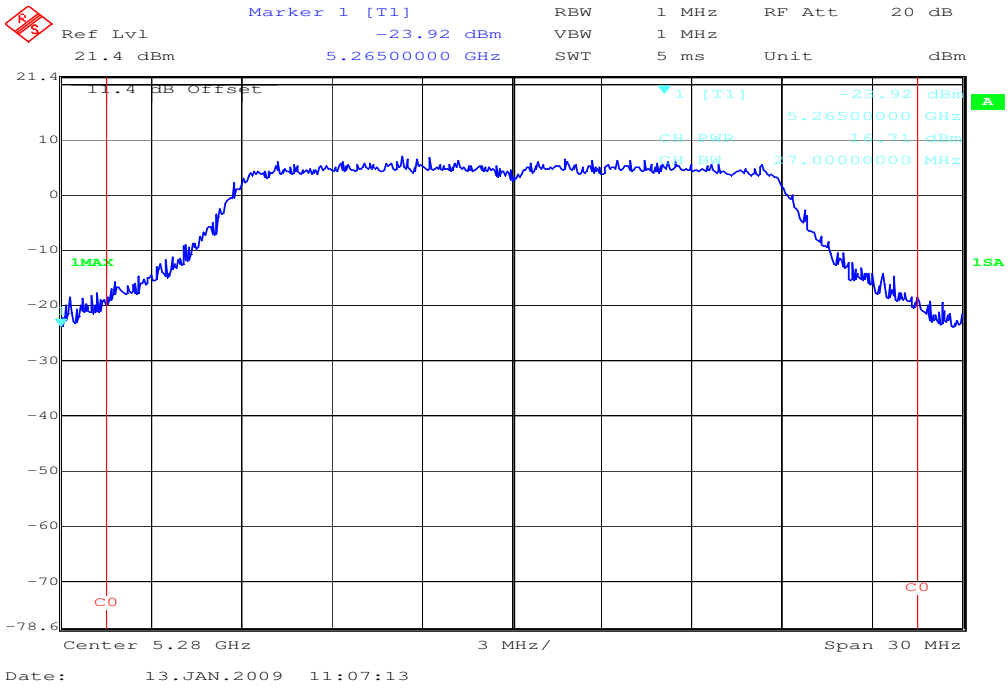
Plot 3: channel 48, 5240 MHz, power setting 11



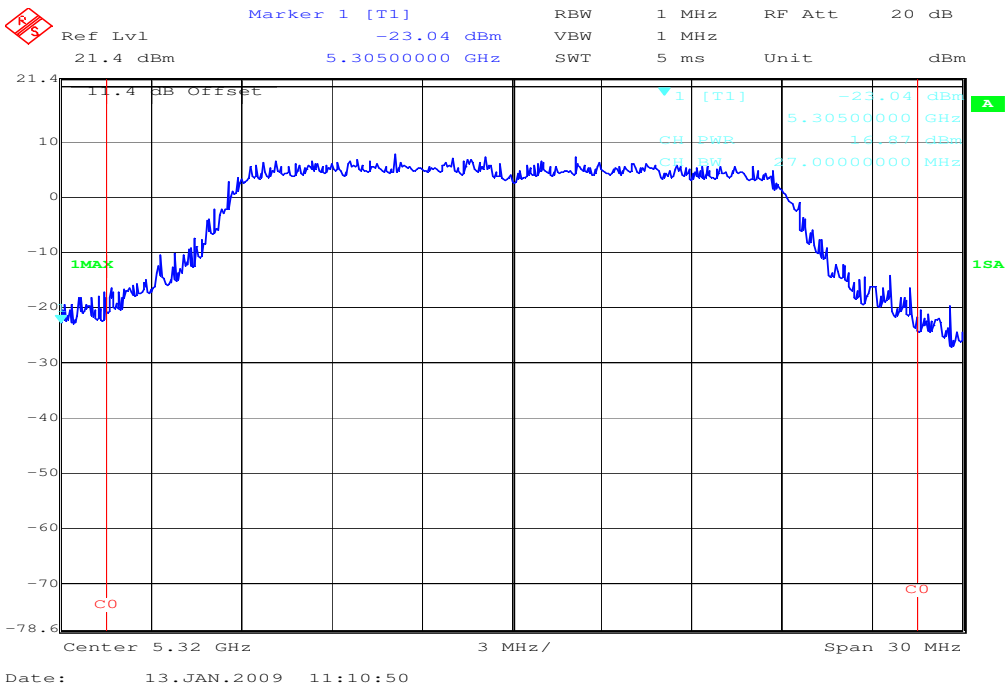
Plot 4: channel 52, 5260 MHz, power setting 15



Plot 5: channel 56, 5280 MHz, power setting 15



Plot 6: channel 64, 5320 MHz, power setting 15



Results:

Plot 1: Peak transmit power: 18.75 mW / 12.73 dBm
Plot 2: Peak transmit power: 18.11 mW / 12.58 dBm
Plot 3: Peak transmit power: 18.37 mW / 12.64 dBm
Plot 4: Peak transmit power: 41.98 mW / 16.23 dBm
Plot 5: Peak transmit power: 46.88 mW / 16.71 dBm
Plot 6: Peak transmit power: 48.64 mW / 16.87 dBm

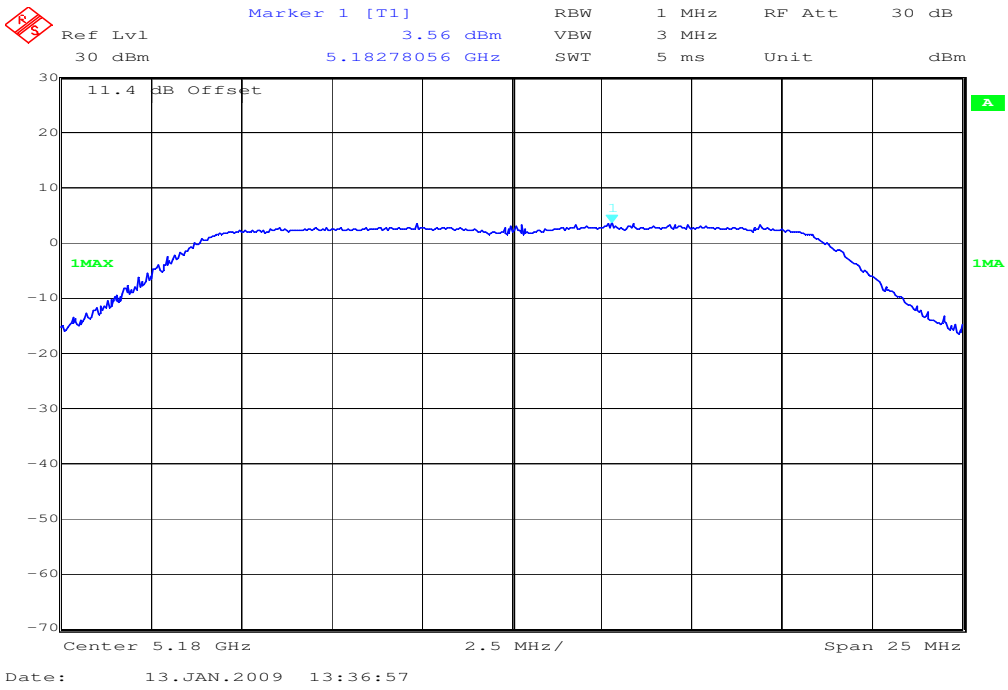
3.8 Peak power spectral density §15.407(a5)

Measured according to the guidelines of the FCC public notice DA 02-2138 - method #1:

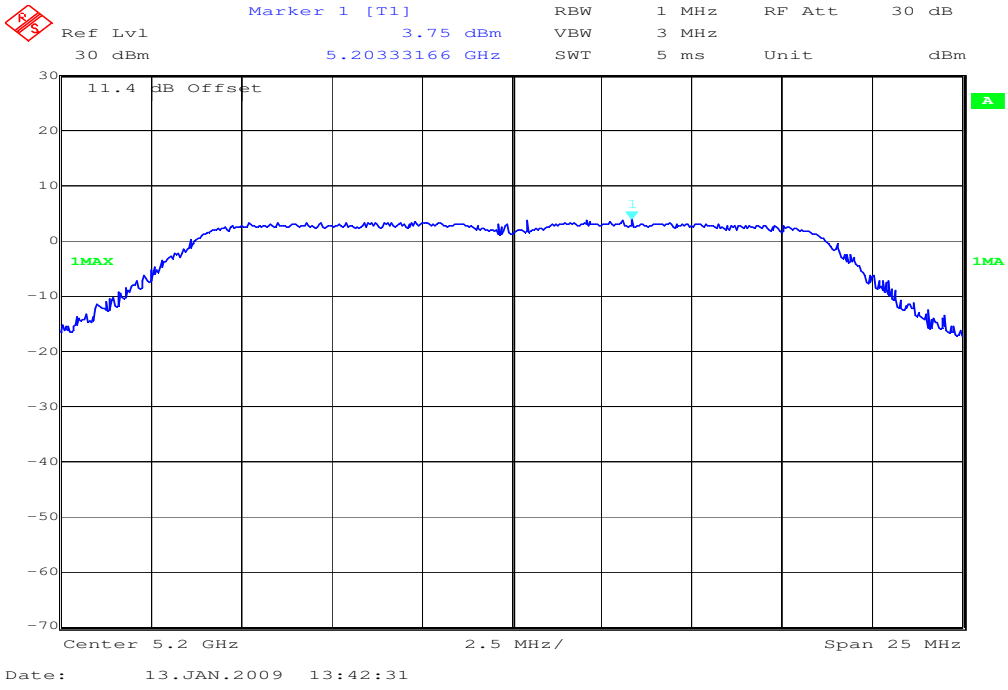
- Use peak detector and max hold
- Set RBW = 1 MHz. Set VBW > 1 MHz
- The PPSD is the highest level found across the emission in any 1 MHz band.

Band 1: low data rate

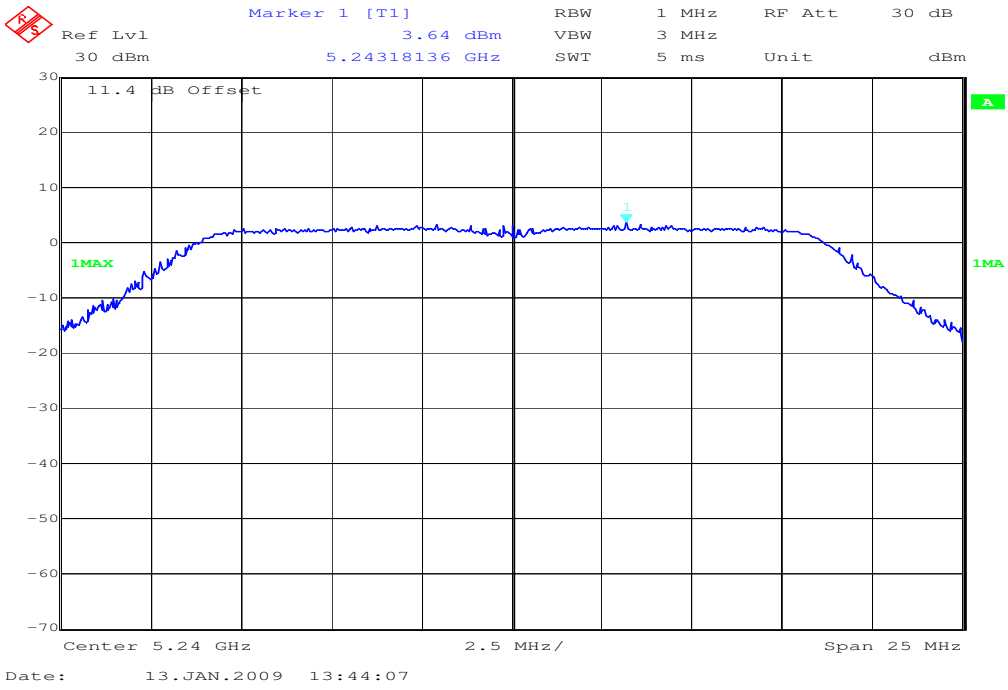
Plot 1: channel 36, 5180 MHz



Plot 2: channel 40, 5200 MHz



Plot 3: channel 48, 5240 MHz



Results:

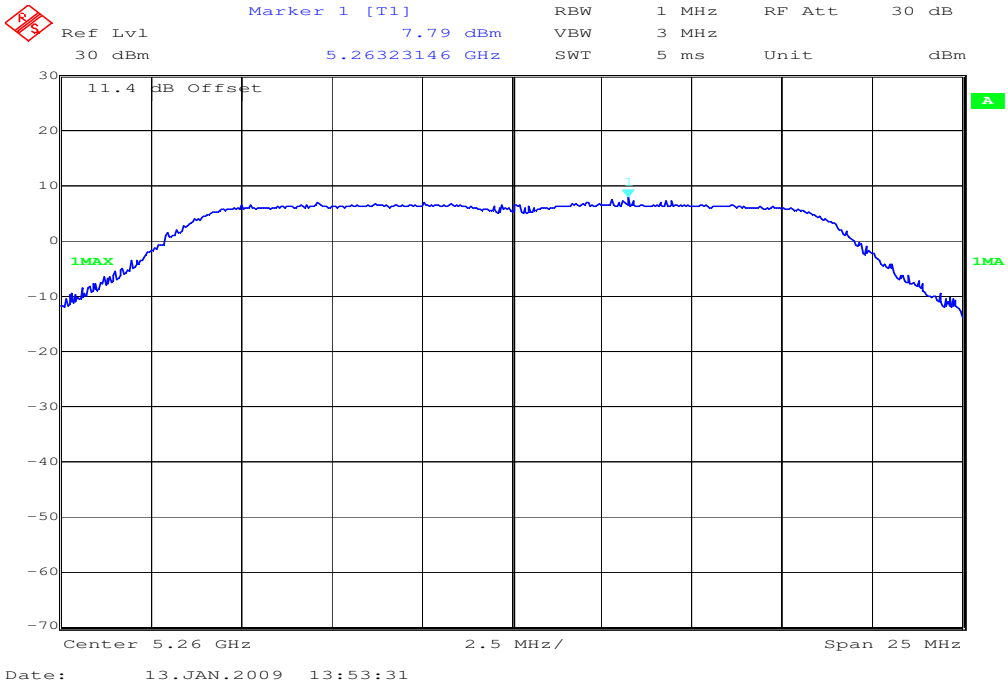
Test conditions Frequency [MHz]	Spectral density 1 MHz BW
5180 MHz	3.56 dBm
5200 MHz	3.75 dBm
5240 MHz	3.64 dBm

Limits:

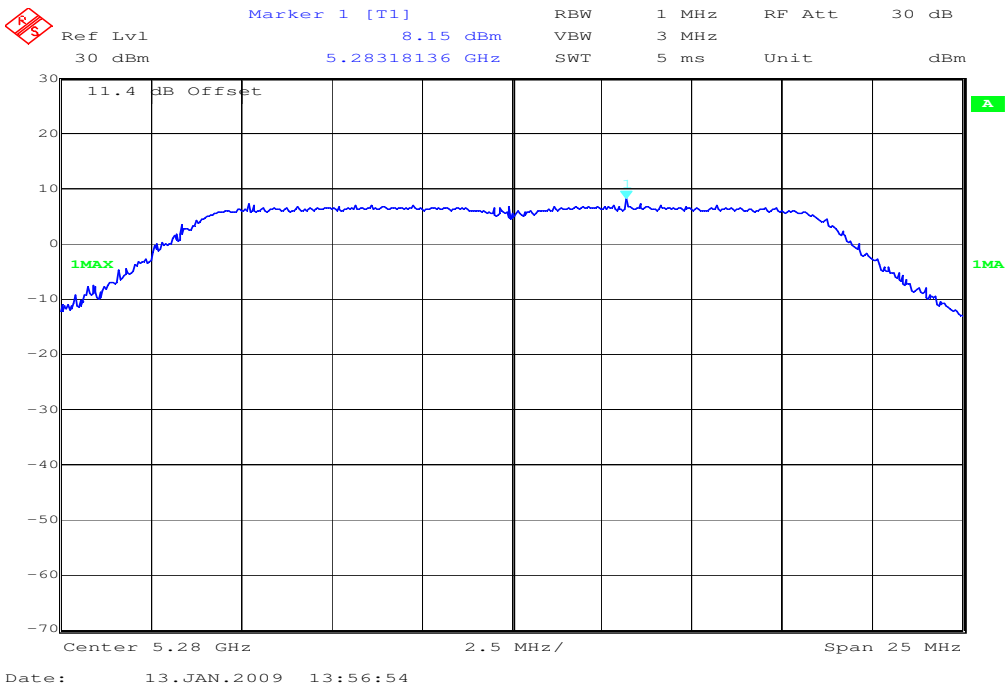
Under normal test conditions only	For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1 MHz-band. If transmitting antennas if directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

Band 2: low data rate

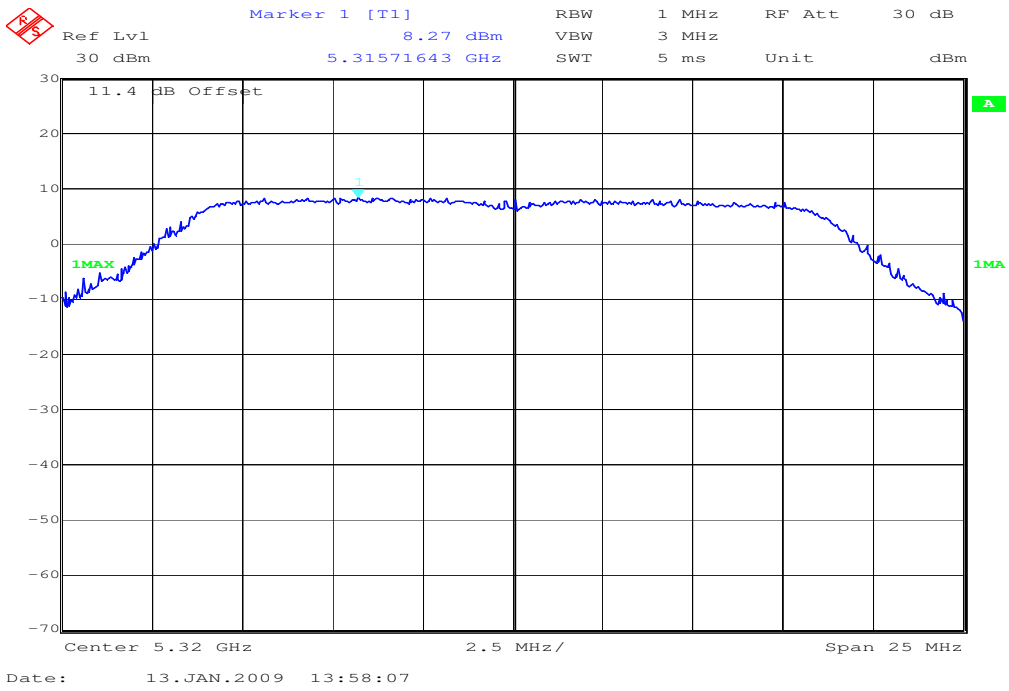
Plot 1: channel 52, 5260 MHz



Plot 2: channel 56, 5280 MHz



Plot 3: channel 64, 5320 MHz



Results:

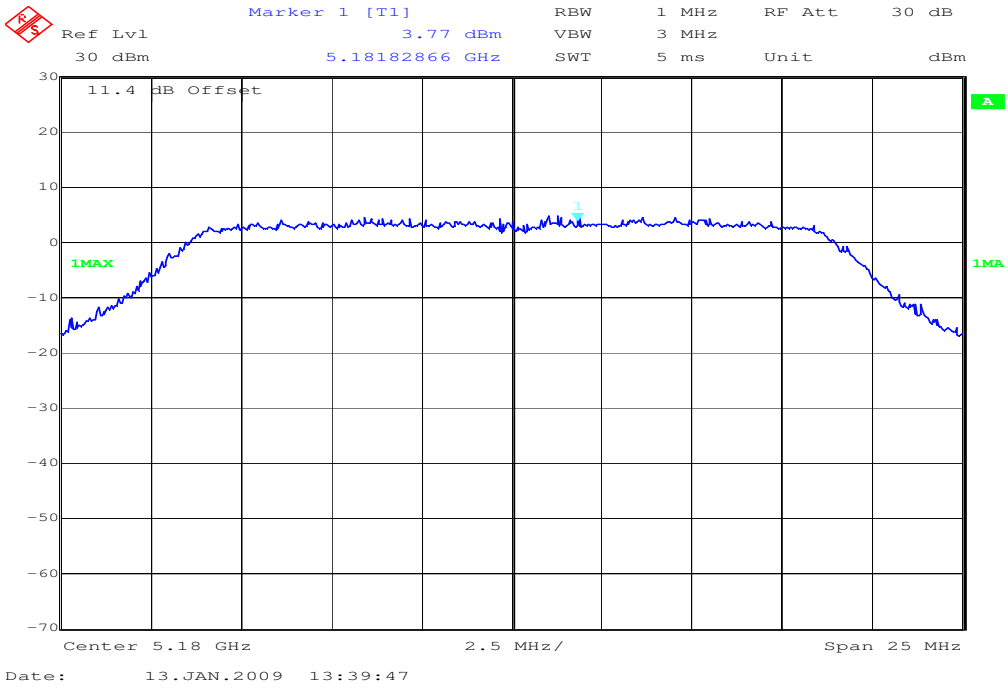
Test conditions Frequency [MHz]	Spectral density 1 MHz BW
5260 MHz	7.79 dBm
5280 MHz	8.15 dBm
5320 MHz	8.27 dBm

Limits:

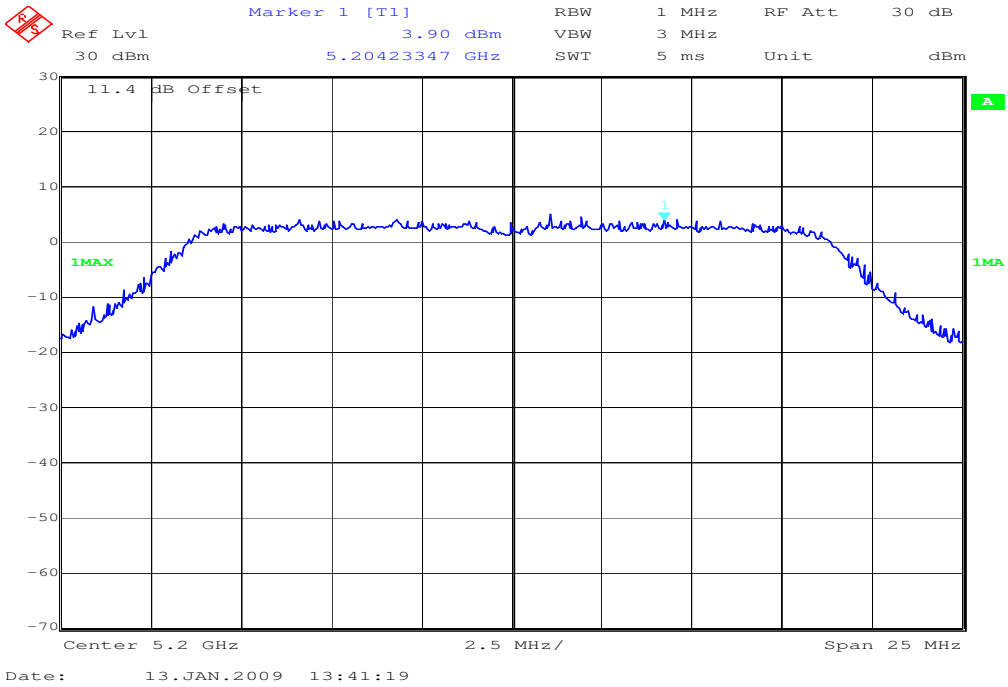
Under normal test conditions only	For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1 MHz-band. If transmitting antennas if directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

Band 1: high data rate

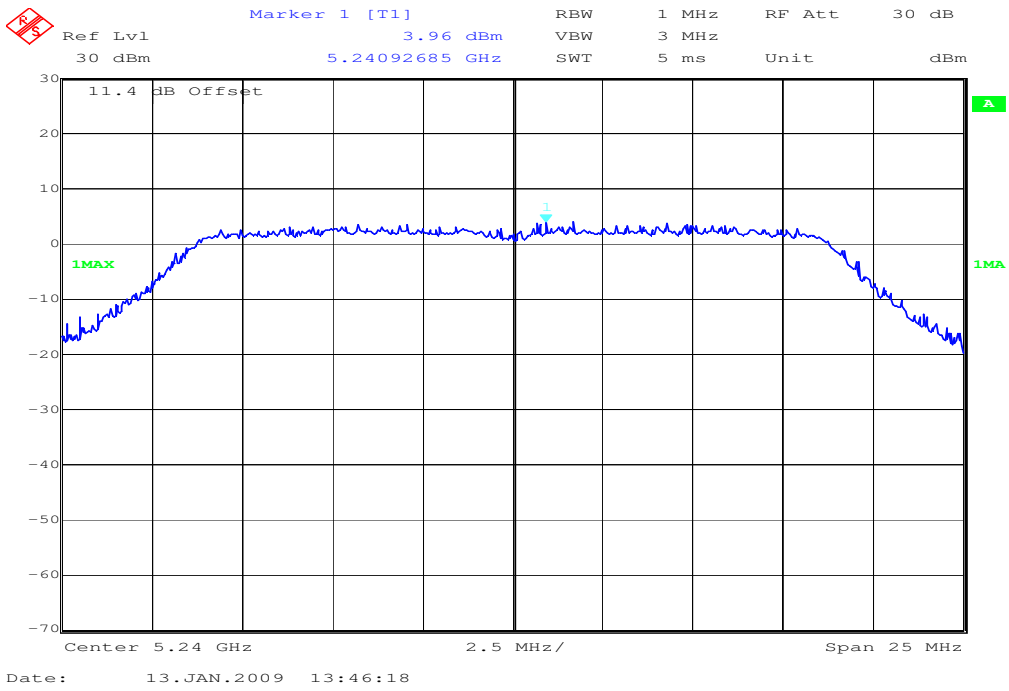
Plot 1: channel 36, 5180 MHz



Plot 2: channel 40, 5200 MHz



Plot 3: channel 48, 5240 MHz



Results:

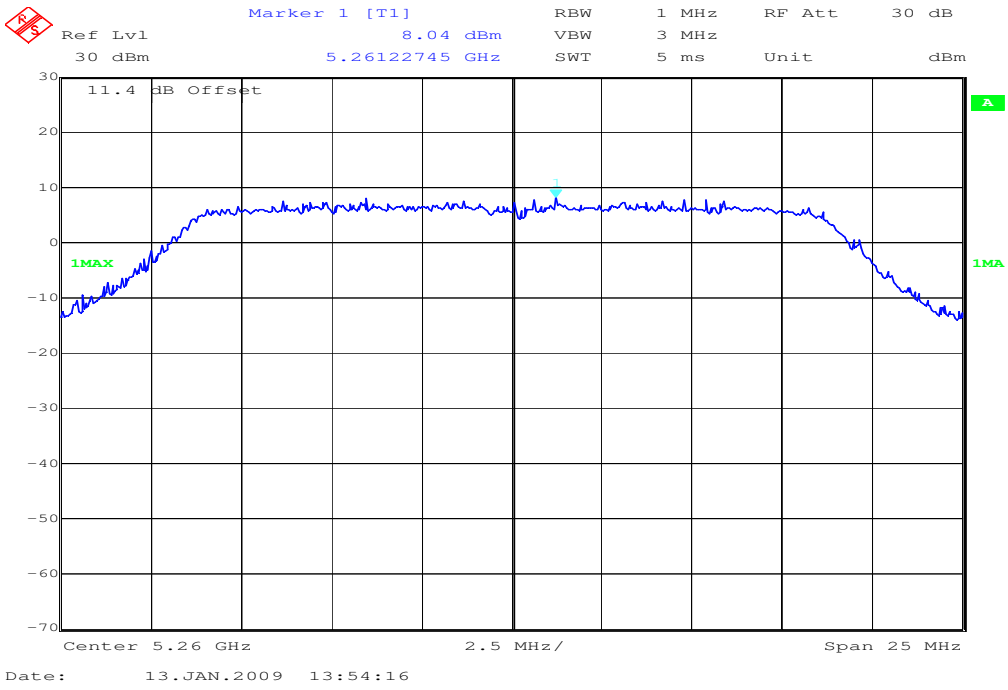
Test conditions Frequency [MHz]	Spectral density 1 MHz BW
5180 MHz	3.77 dBm
5200 MHz	3.90 dBm
5240 MHz	3.96 dBm

Limits:

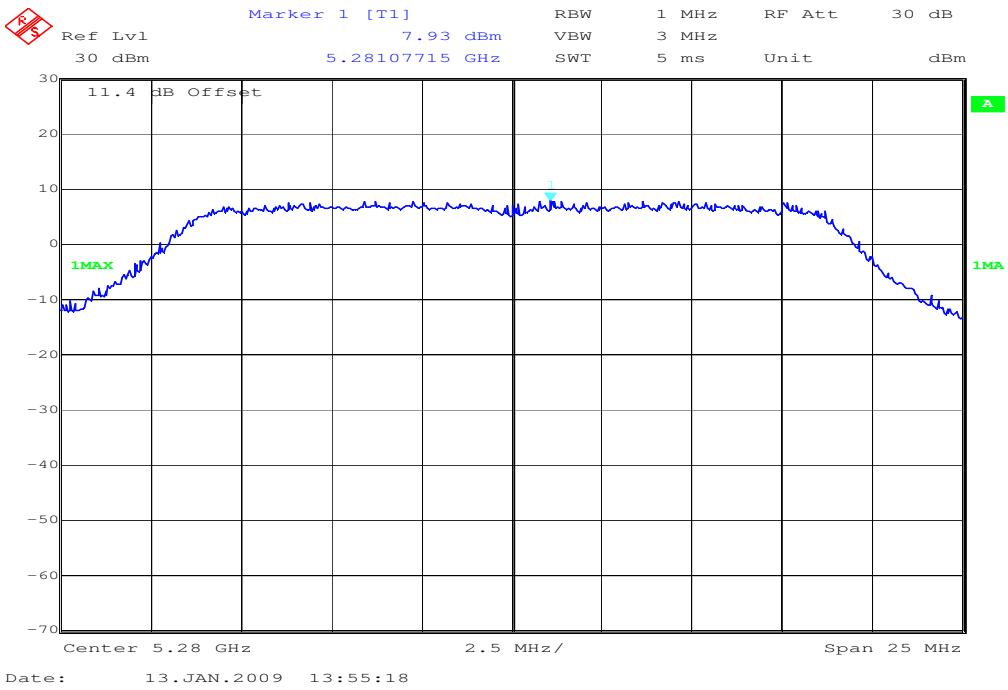
Under normal test conditions only	For the band 5.15-5.25 GHz, the peak power spectral density shall not exceed 4 dBm in any 1 MHz-band. If transmitting antennas if directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

Band 2: high data rate

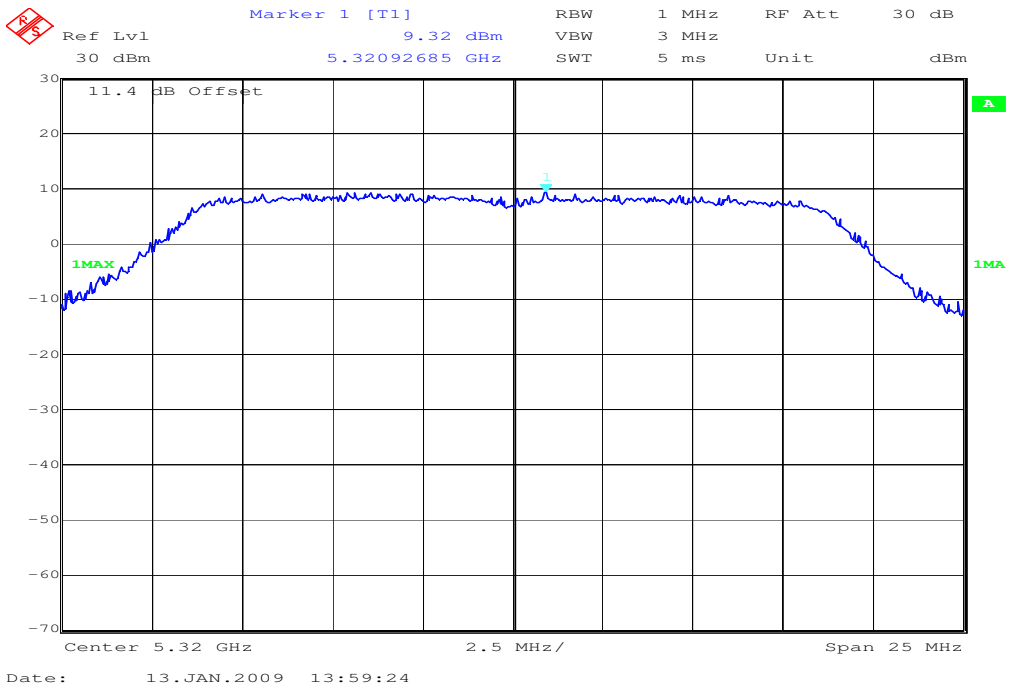
Plot 1: channel 52, 5260 MHz



Plot 2: channel 56, 5280 MHz



Plot 3: channel 64, 5320 MHz



Results:

Test conditions Frequency [MHz]	Spectral density 1 MHz BW
5260 MHz	8.04 dBm
5280 MHz	7.93 dBm
5320 MHz	9.32 dBm

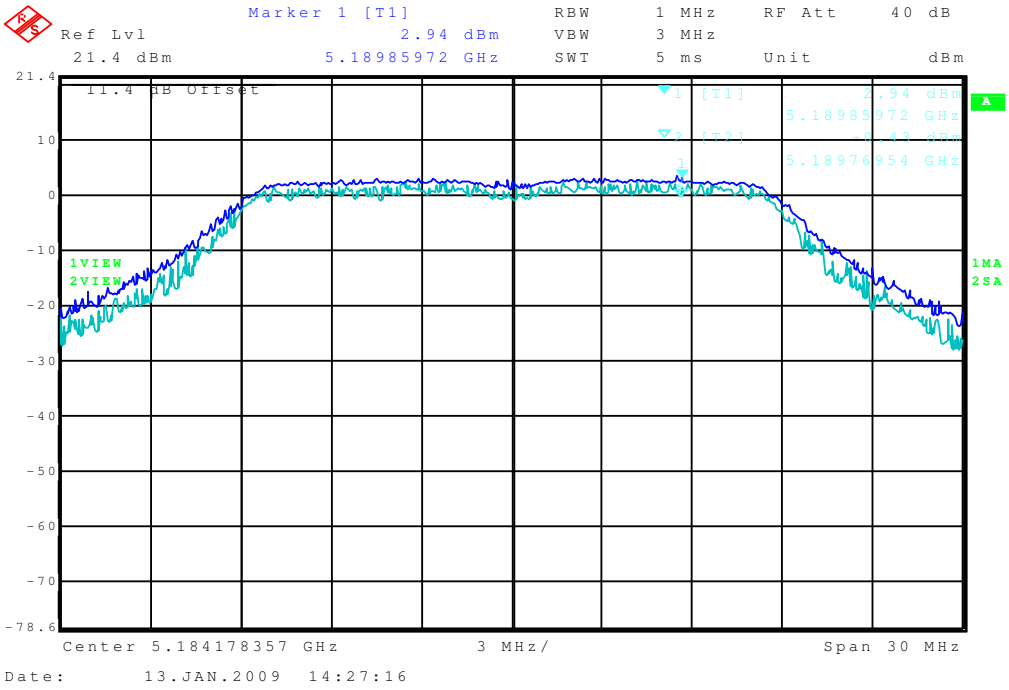
Limits:

Under normal test conditions only	For the band 5.25-5.35 GHz, the peak power spectral density shall not exceed 11 dBm in any 1 MHz-band. If transmitting antennas if directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in dB that the gain of the antenna exceeds 6 dBi.

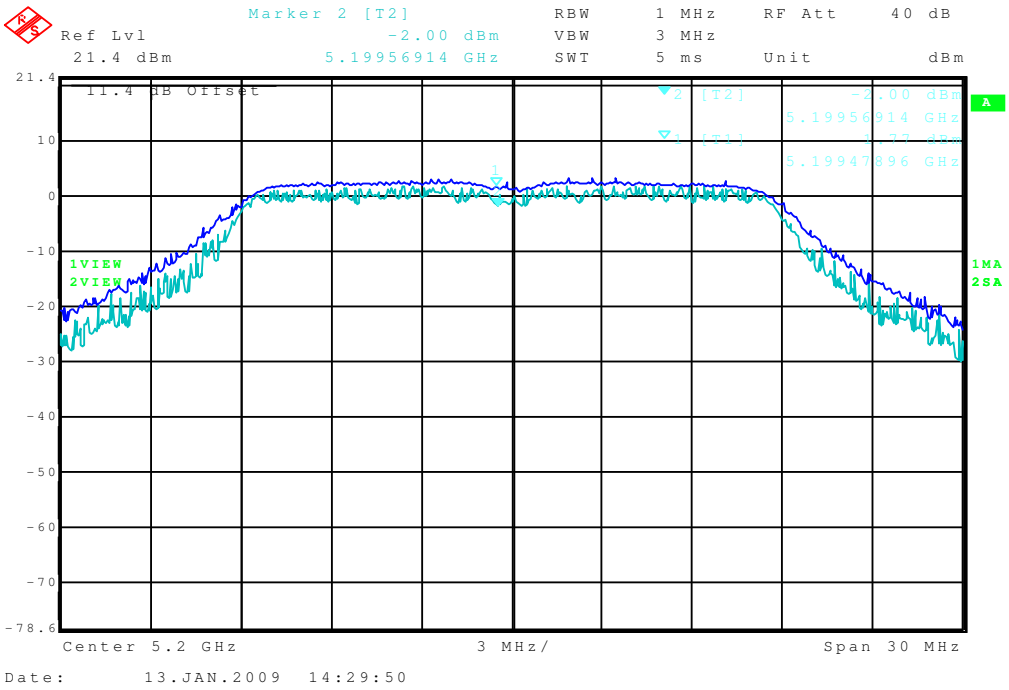
3.9 Ratio of Peak Excursion §15.407(a6)

Measured according to the guidelines of the FCC public notice DA 02-2138.

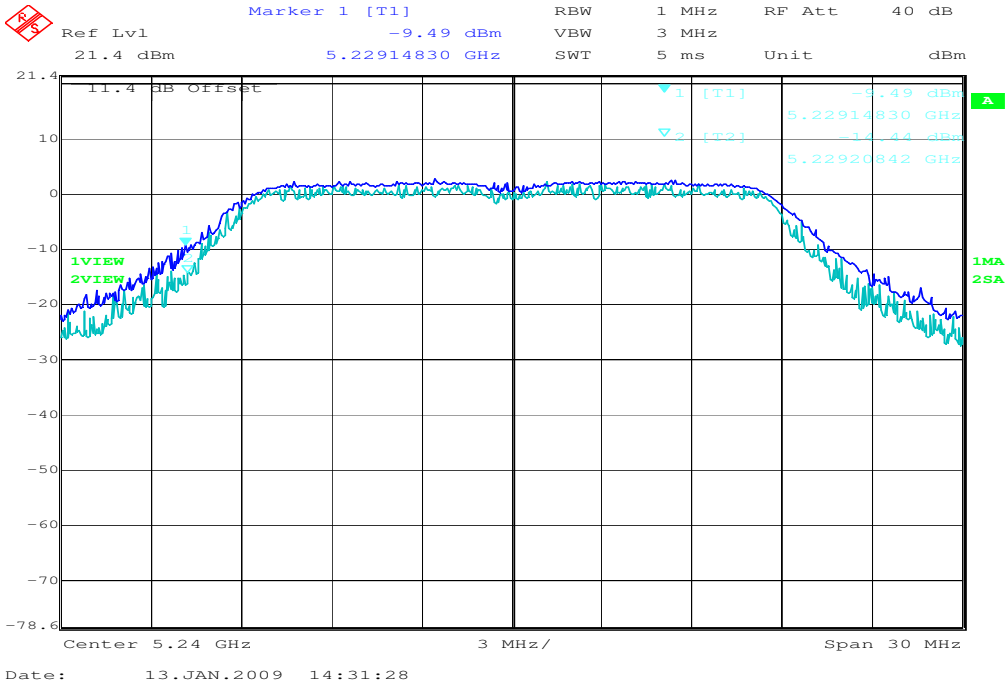
Plot 1: channel 36, 5180 MHz



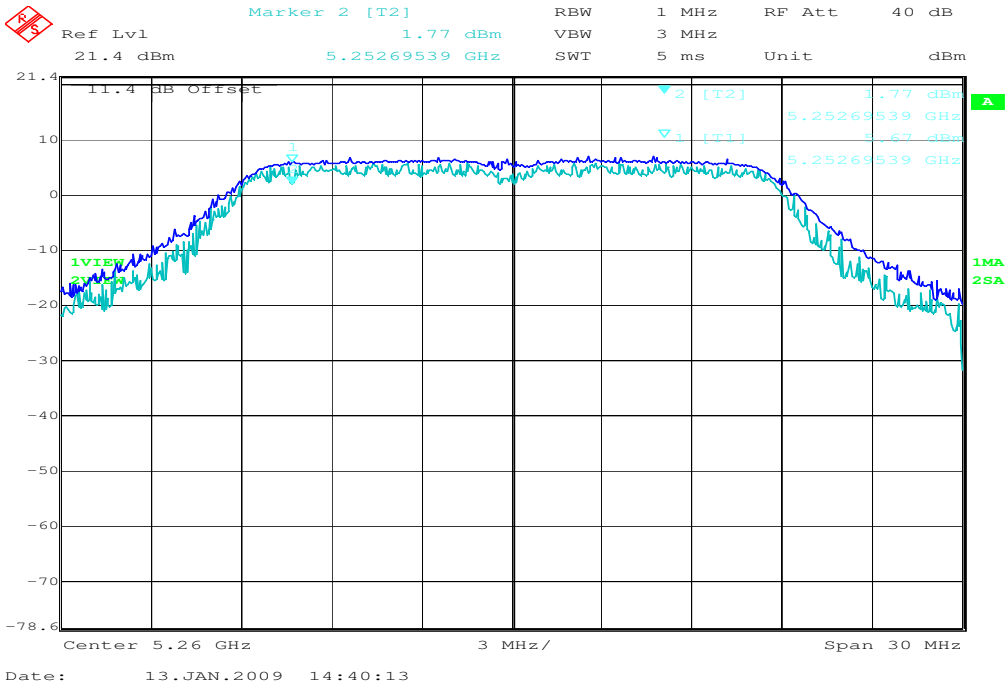
Plot 2: channel 40, 5200 MHz



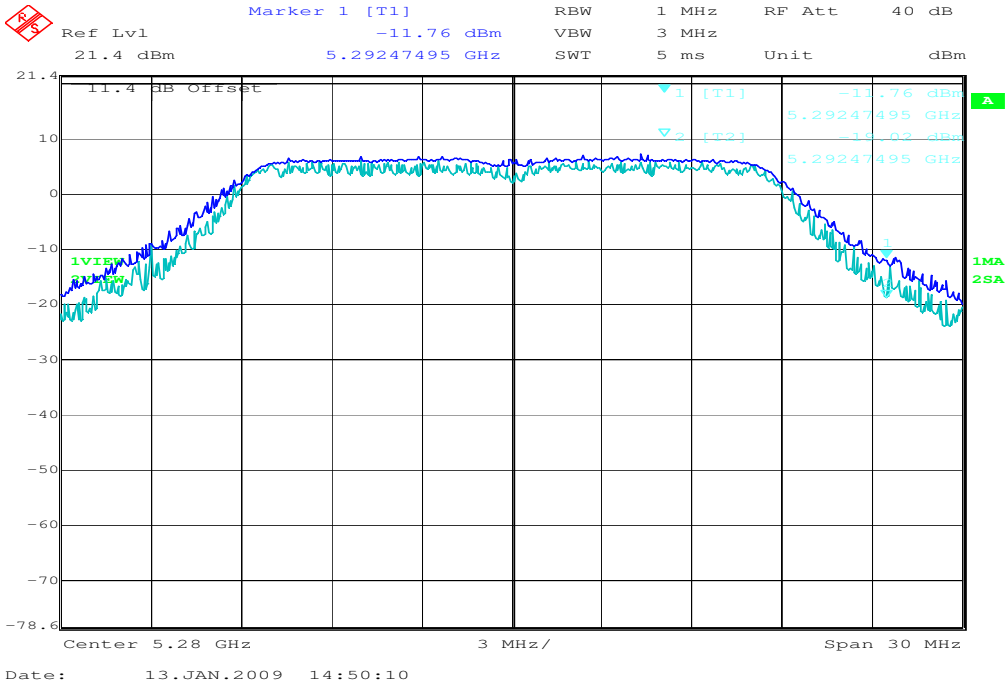
Plot 3: channel 48, 5240 MHz



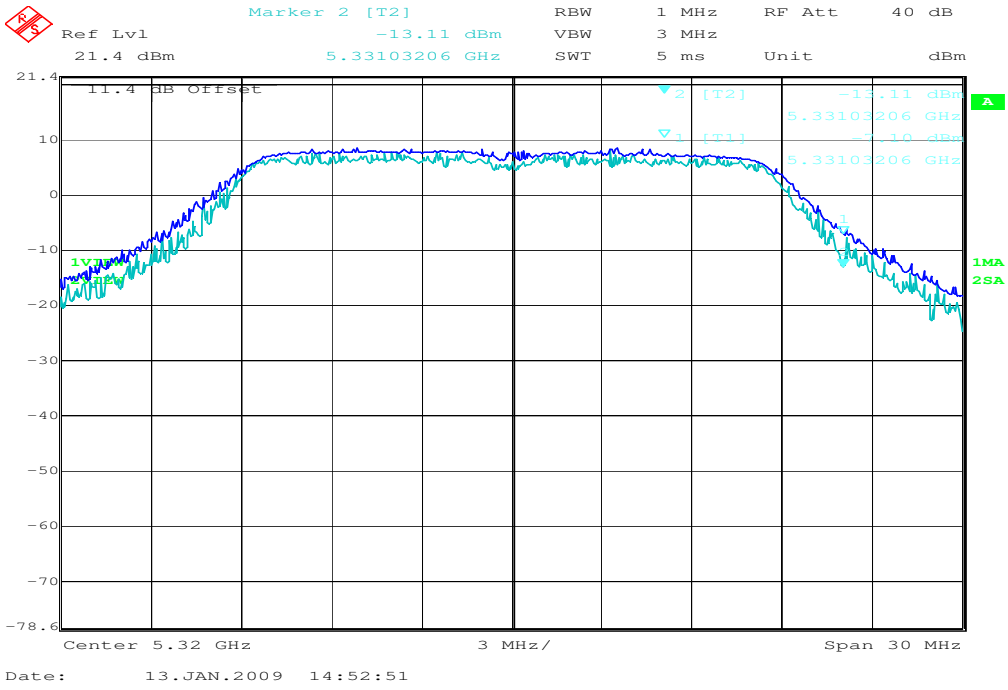
Plot 4: channel 52, 5260 MHz



Plot 5: channel 56, 5280 MHz



Plot 6: channel 64, 5320 MHz



Results:

Frequency	Ratio of peak excursion of the modulation envelope		
	Limit	Ratio(dB)	passed/fail
5180 MHz	< 13 dB	3.37	passed
5200 MHz	< 13 dB	3.77	passed
5240 MHz	< 13 dB	4.95	passed
5260 MHz	< 13 dB	3.90	passed
5280 MHz	< 13 dB	7.26	passed
5320 MHz	< 13 dB	6.01	passed
Measurement uncertainity	± 1dB		

Limits:

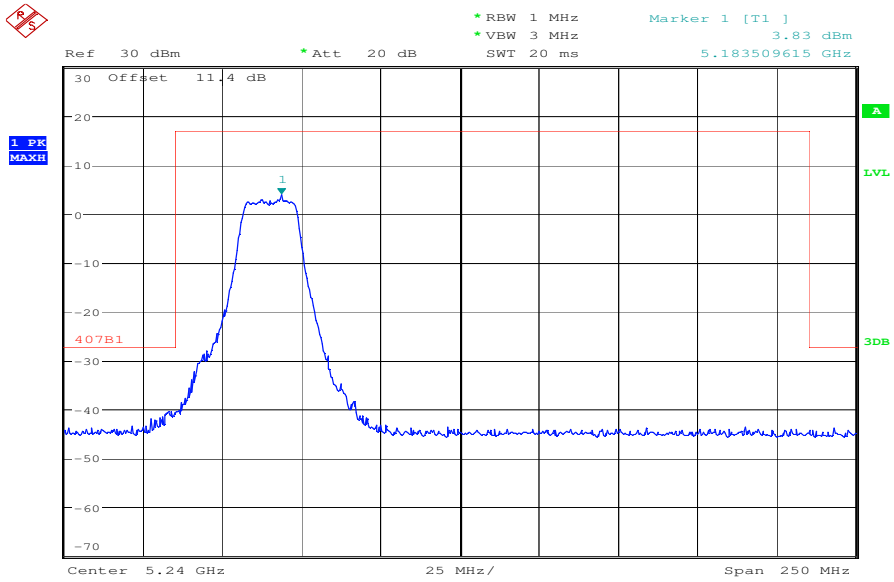
Under normal test conditions only	The ratio of peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

3.10 Undesirable emission limits at band edges 15.407 (b3)

Low data rate:

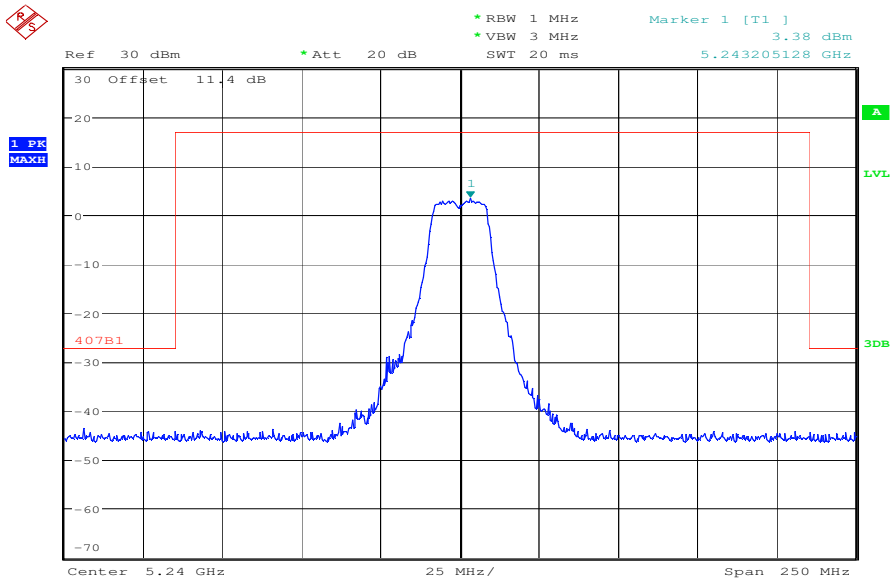
Band 1:

Plot 1: lower band edge



Date: 14.JAN.2009 06:42:24

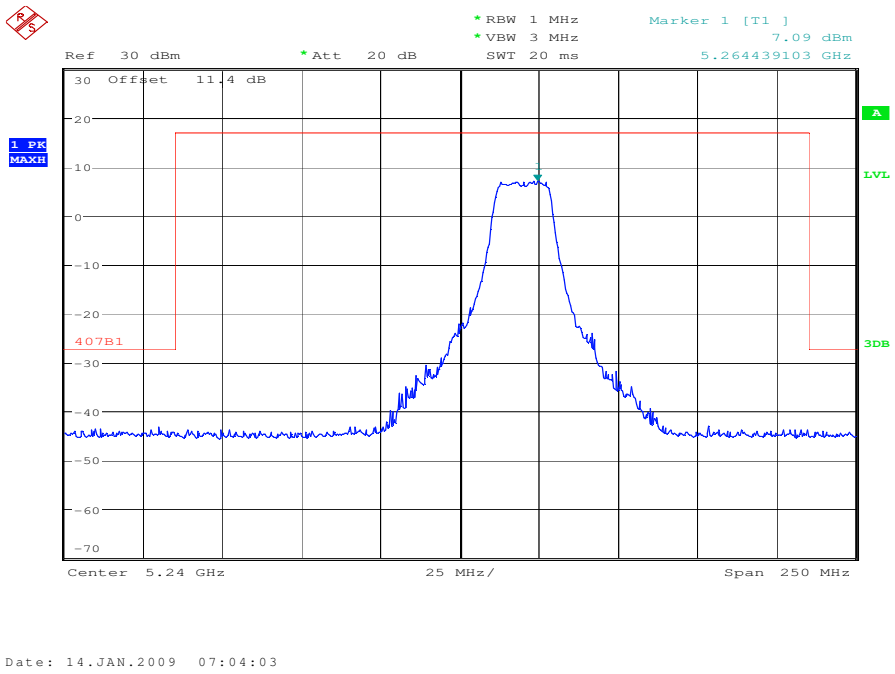
Plot 2: upper band edge



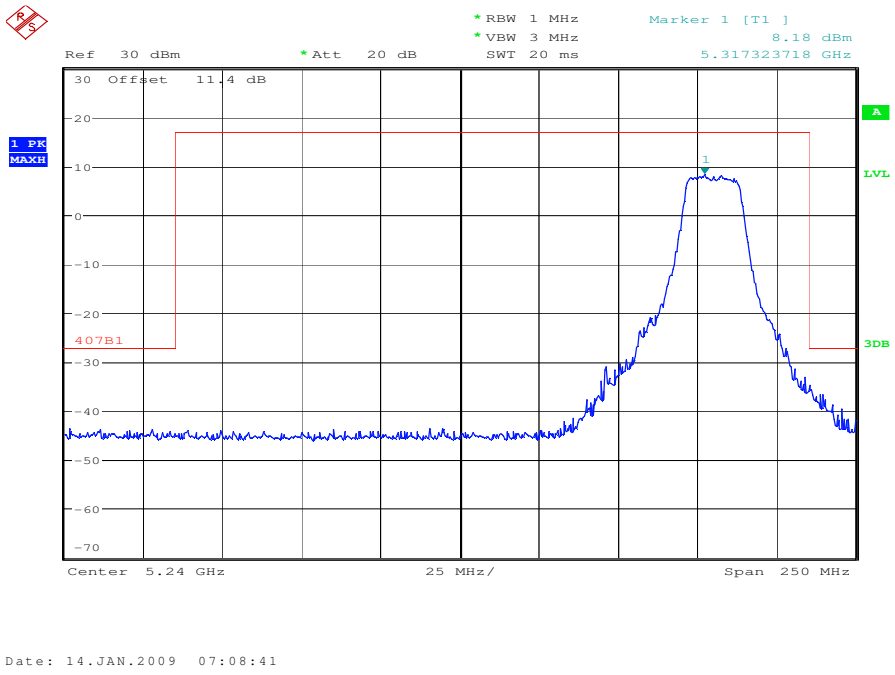
Date: 14.JAN.2009 06:56:43

Band 2:

Plot 1: lower band edge



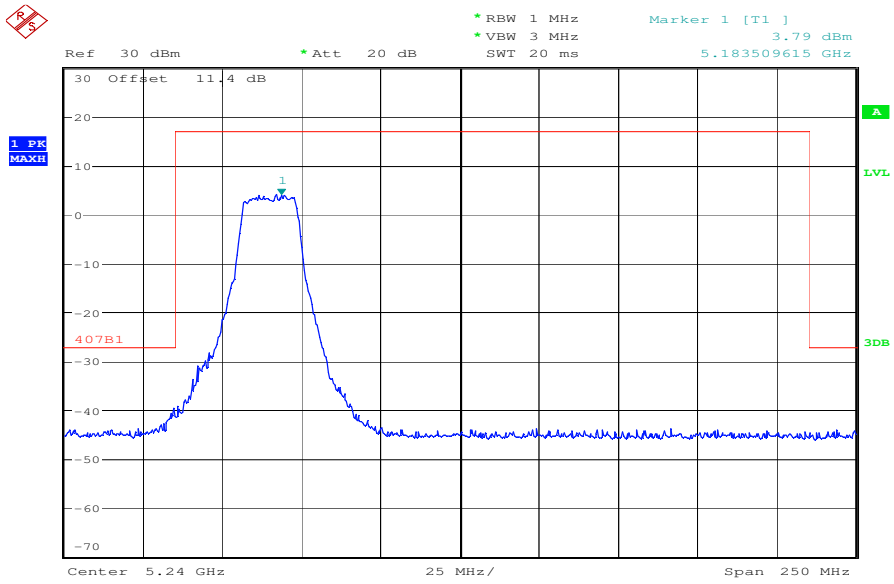
Plot 2: upper band edge



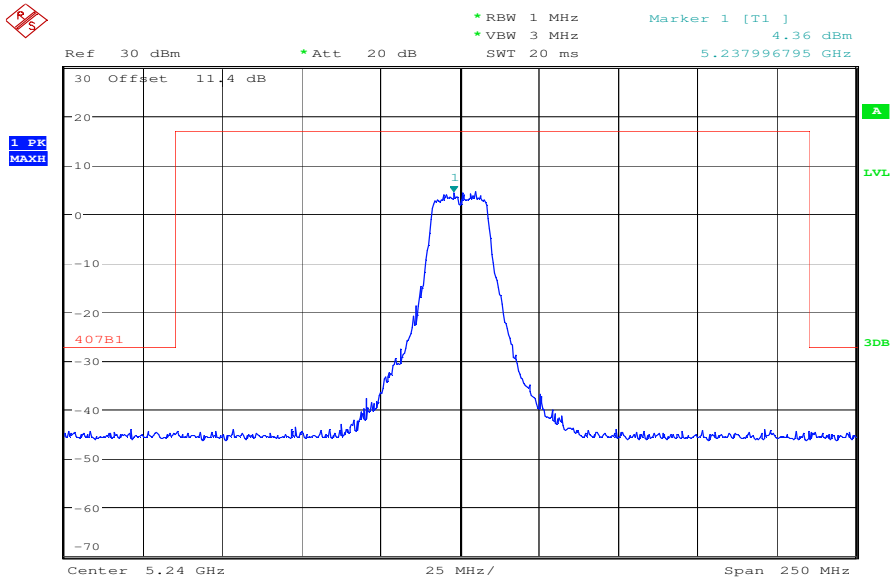
High data rate:

Band 1:

Plot 1: lower band edge

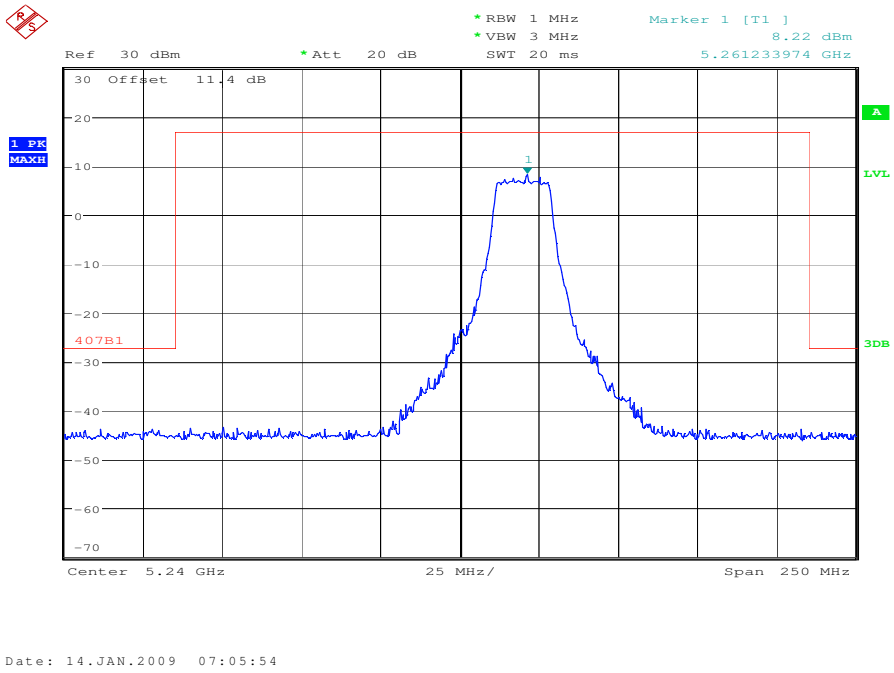


Plot 2: upper band edge

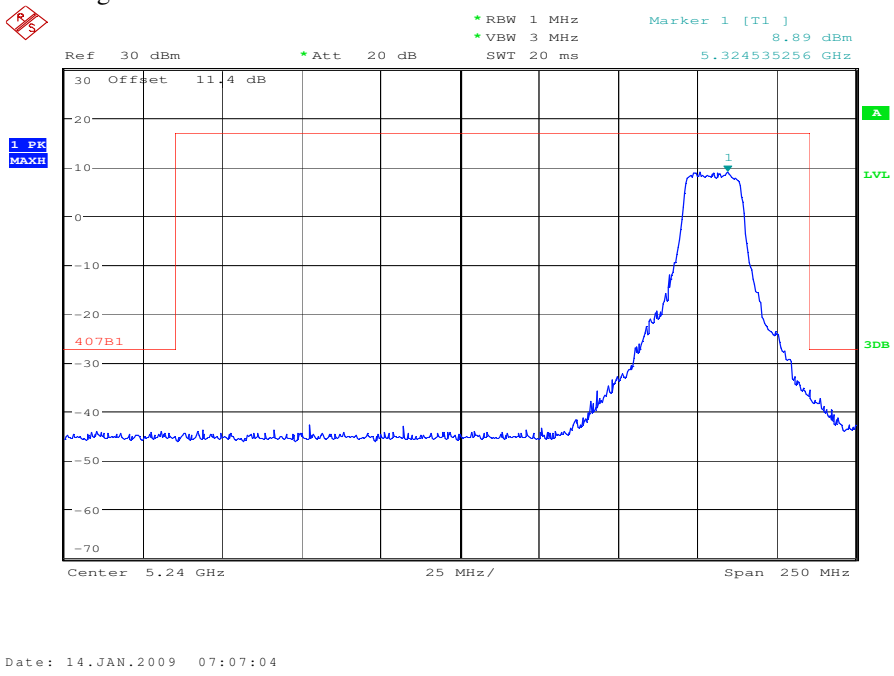


Band 2:

Plot 1: lower band edge



Plot 2: upper band edge



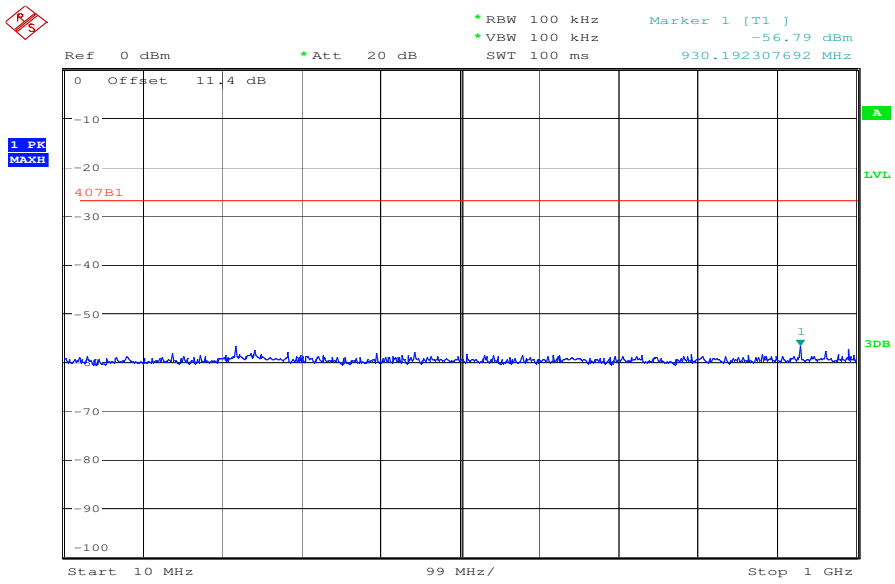
Limits:

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. 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)).

3.11 Spurious emissions (conducted) 15.407 (b3)

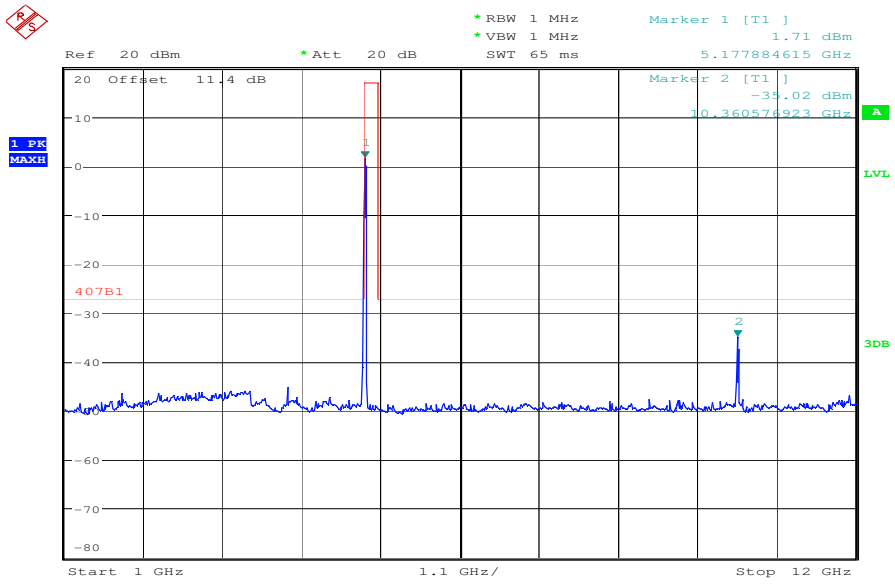
Low data rate:

Plot 1: channel 36, 5180 MHz



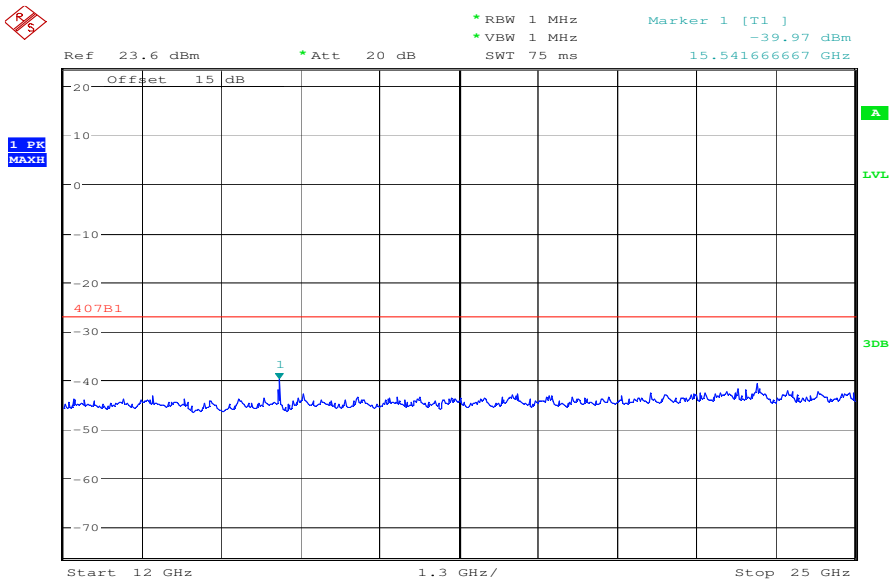
Date: 14.JAN.2009 08:44:46

Plot 2: channel 36, 5180 MHz

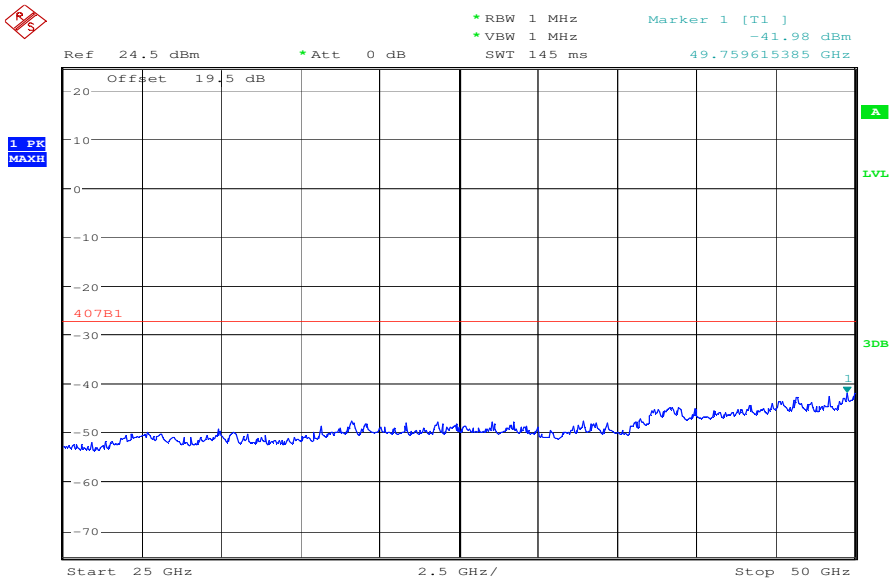


Date: 14.JAN.2009 09:14:12

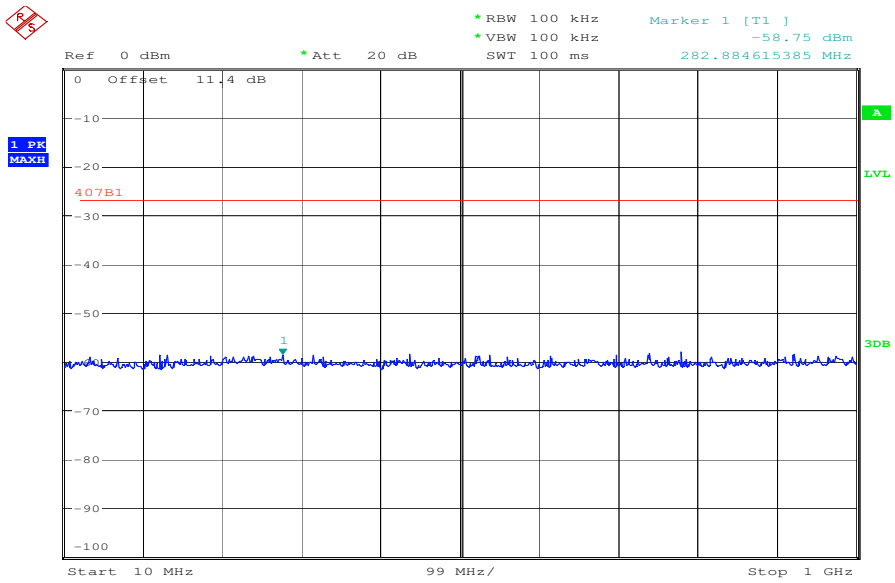
Plot 3: channel 36, 5180 MHz



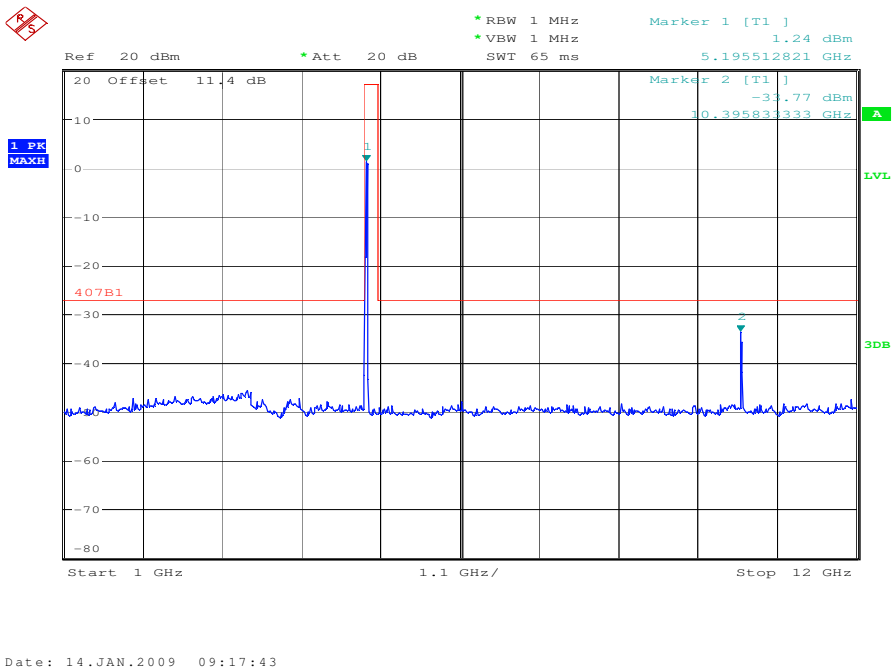
Plot 4: channel 36, 5180 MHz



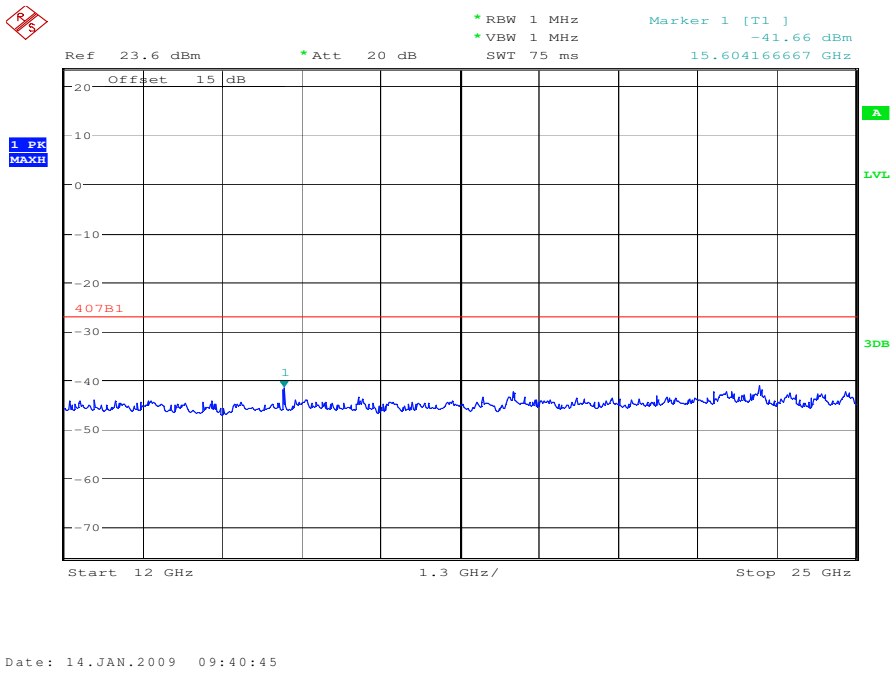
Plot 5: channel 40, 5200 MHz



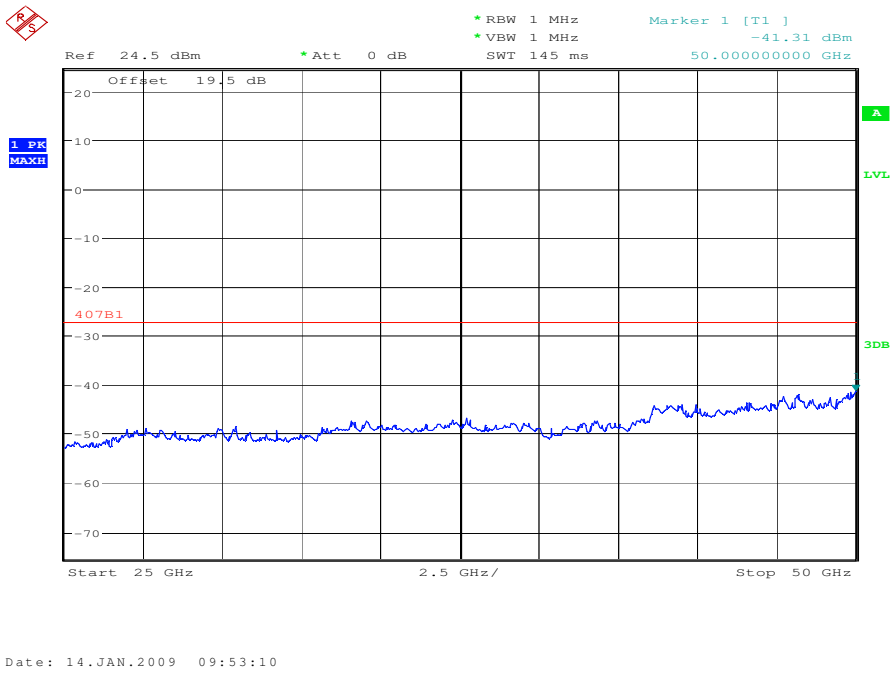
Plot 6: channel 40, 5200 MHz



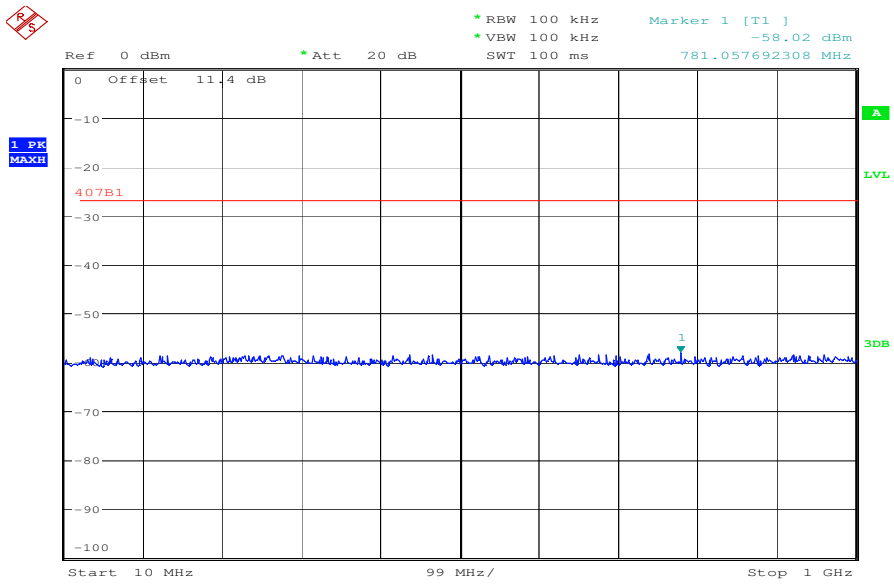
Plot 7: channel 40, 5200 MHz



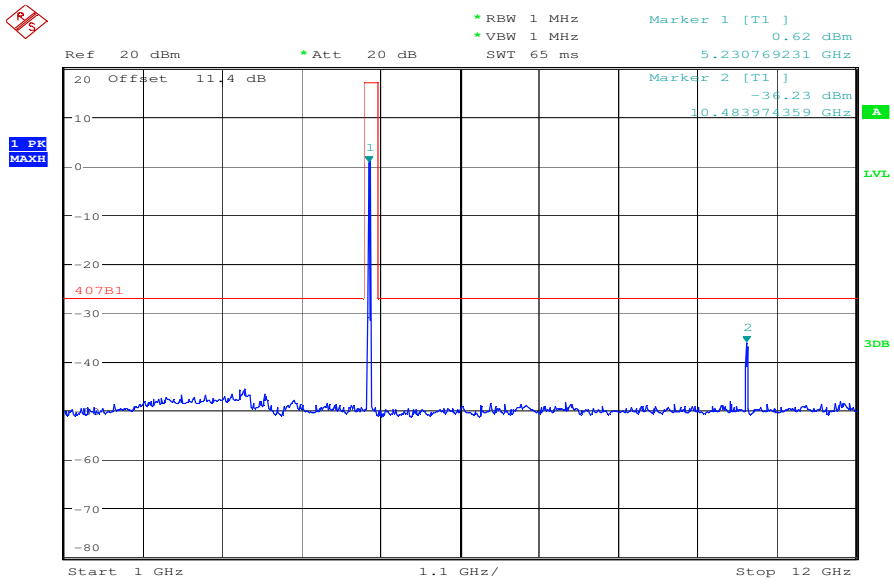
Plot 8: channel 40, 5200 MHz



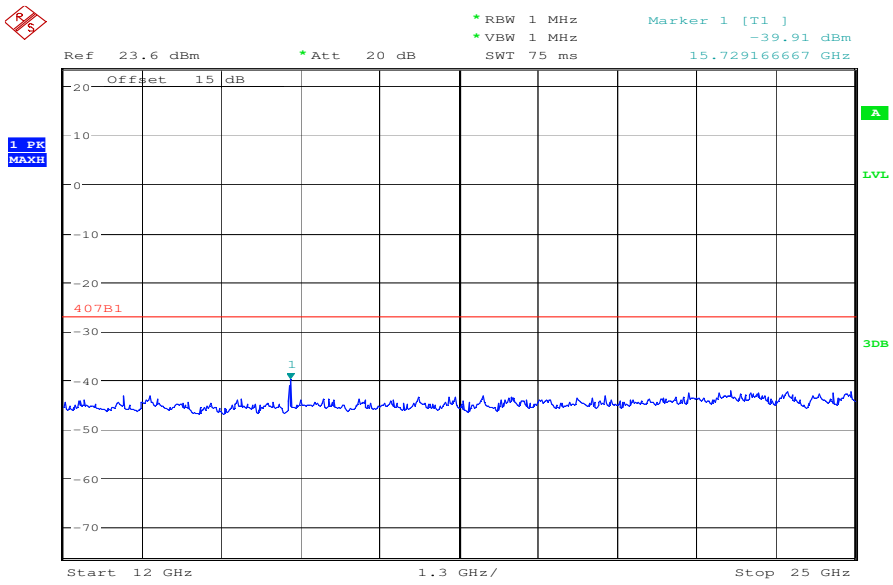
Plot 9: channel 48, 5240 MHz



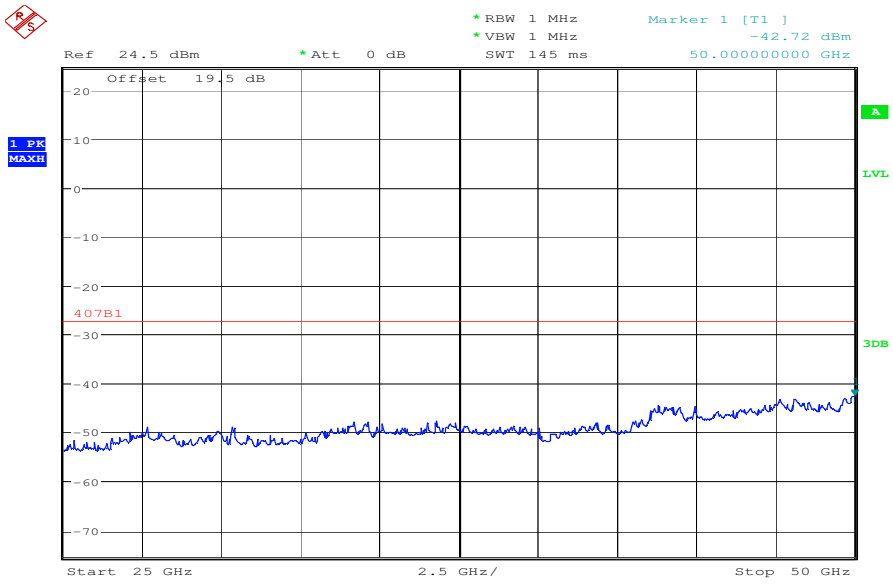
Plot 10: channel 48, 5240 MHz



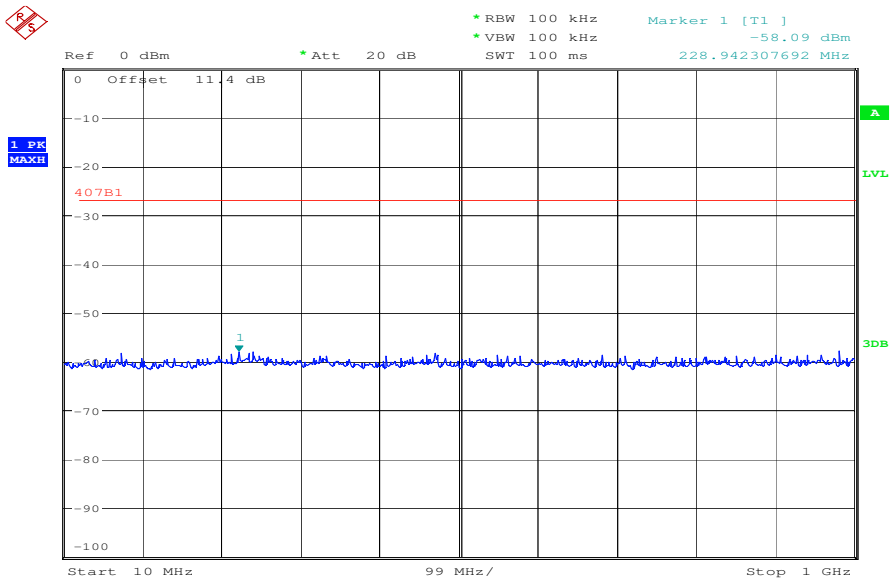
Plot 11: channel 48, 5240 MHz



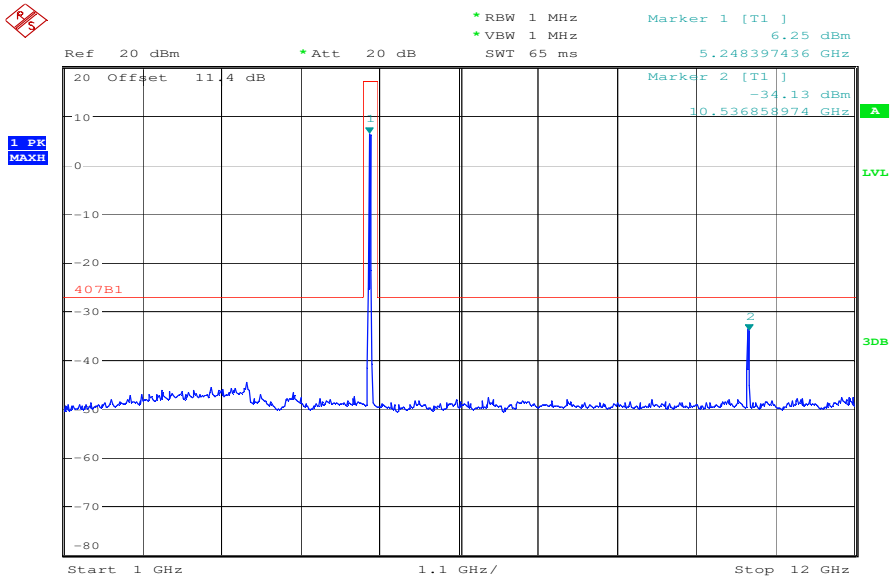
Plot 12: channel 48, 5240 MHz



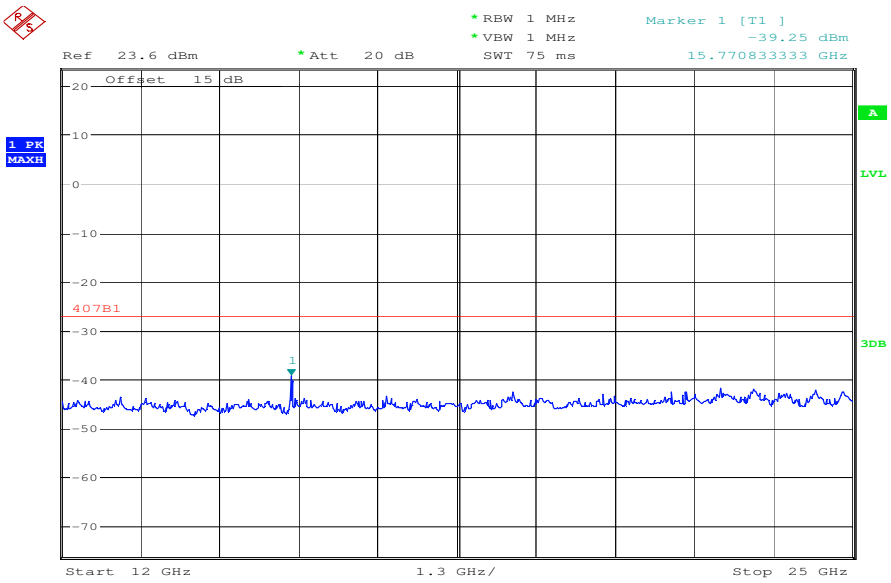
Plot 13: channel 52, 5260 MHz



Plot 14: channel 52, 5260 MHz

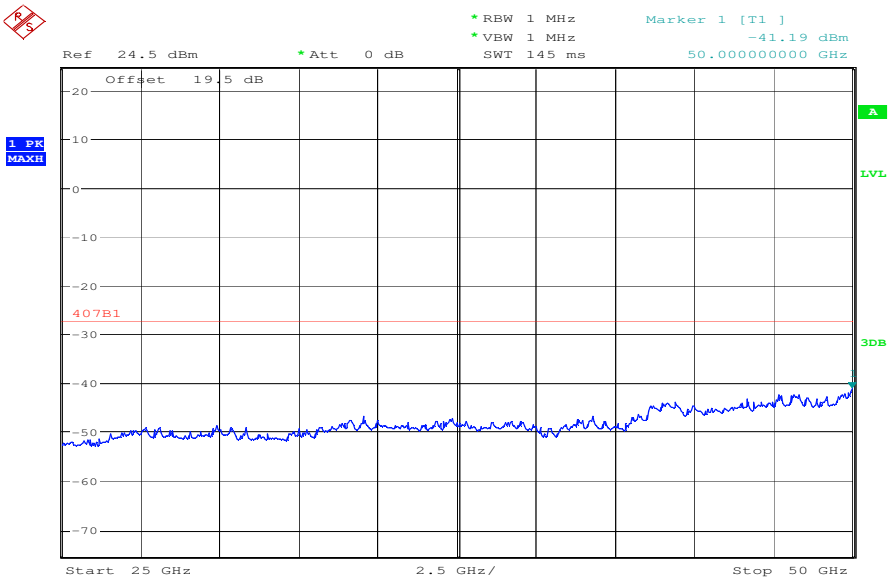


Plot 15: channel 52, 5260 MHz



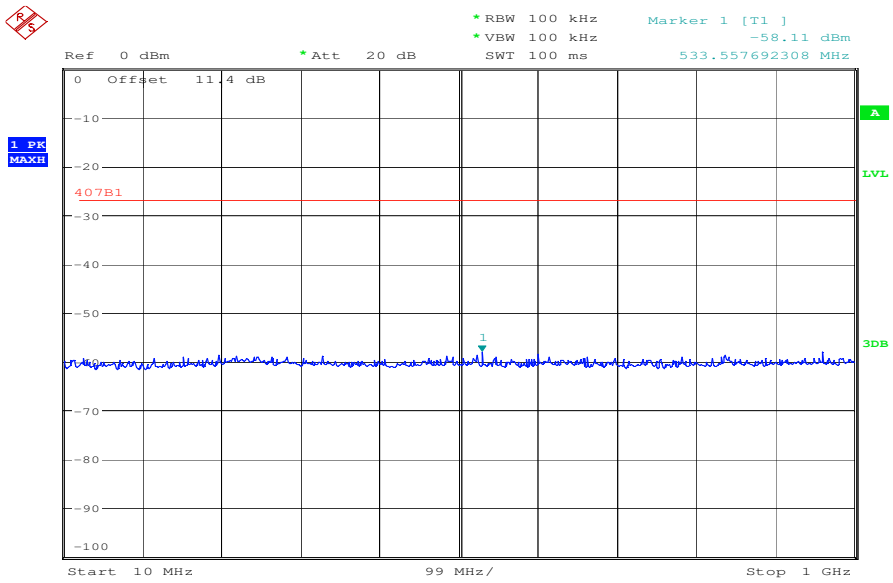
Date: 14.JAN.2009 09:35:49

Plot 16: channel 52, 5260 MHz

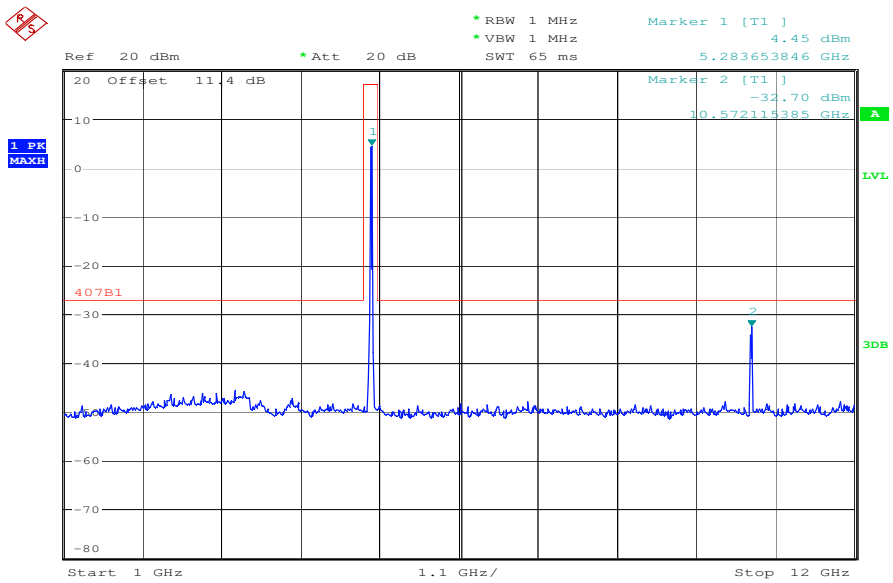


Date: 14.JAN.2009 10:03:06

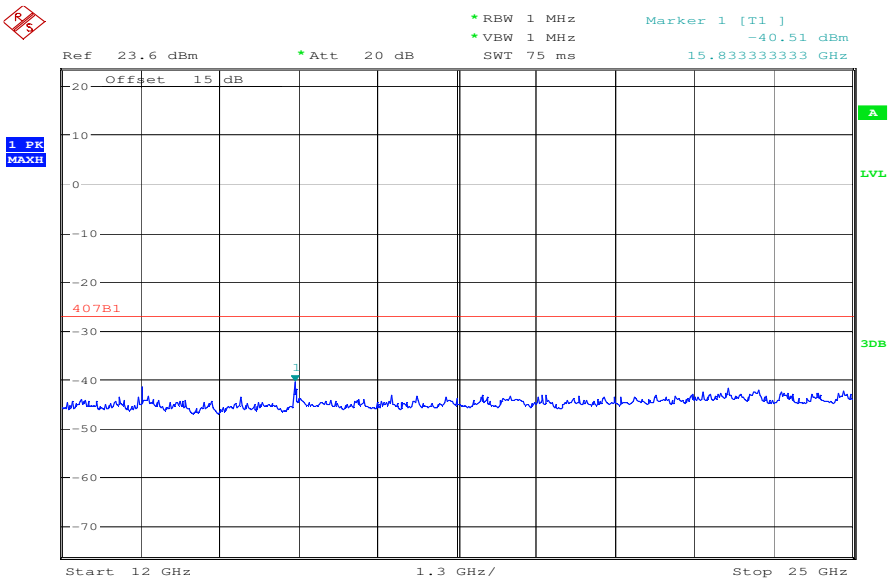
Plot 17: channel 56, 5280 MHz



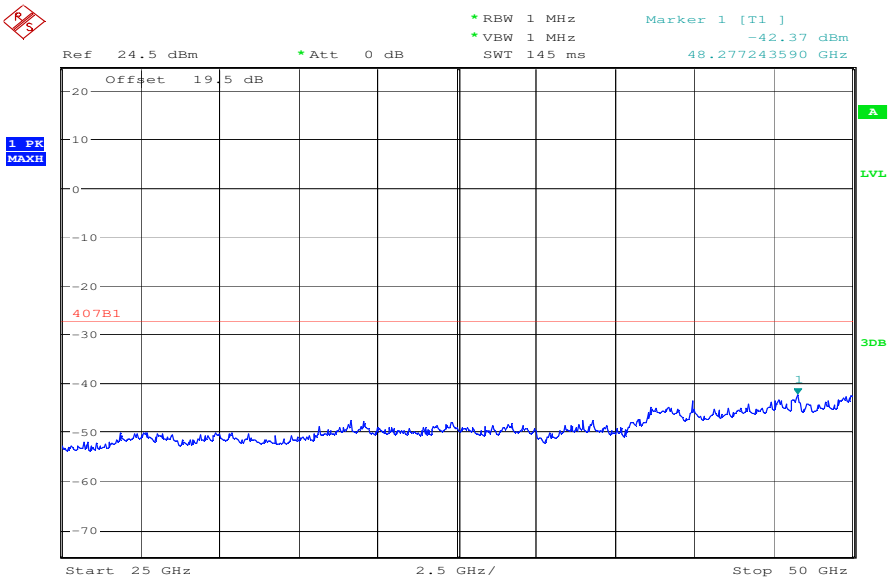
Plot 18: channel 56, 5280 MHz



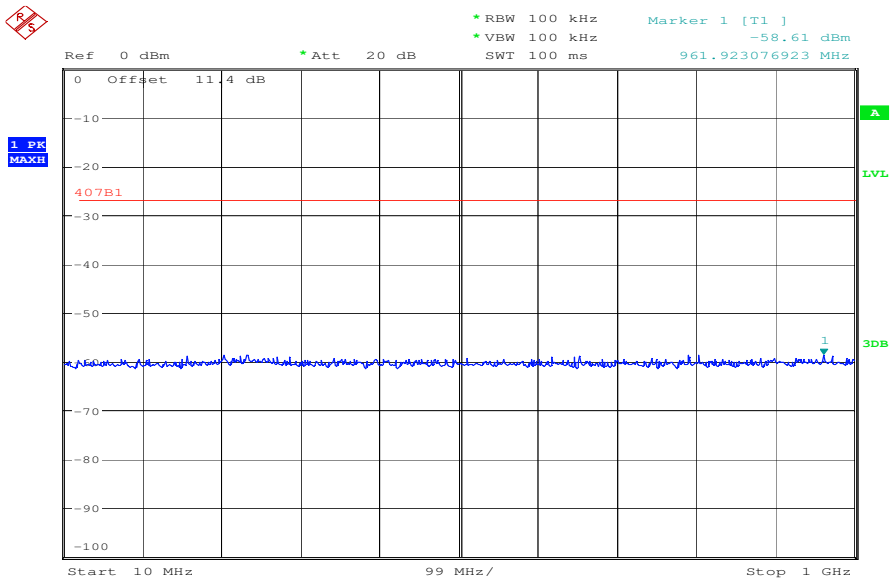
Plot 19: channel 56, 5280 MHz



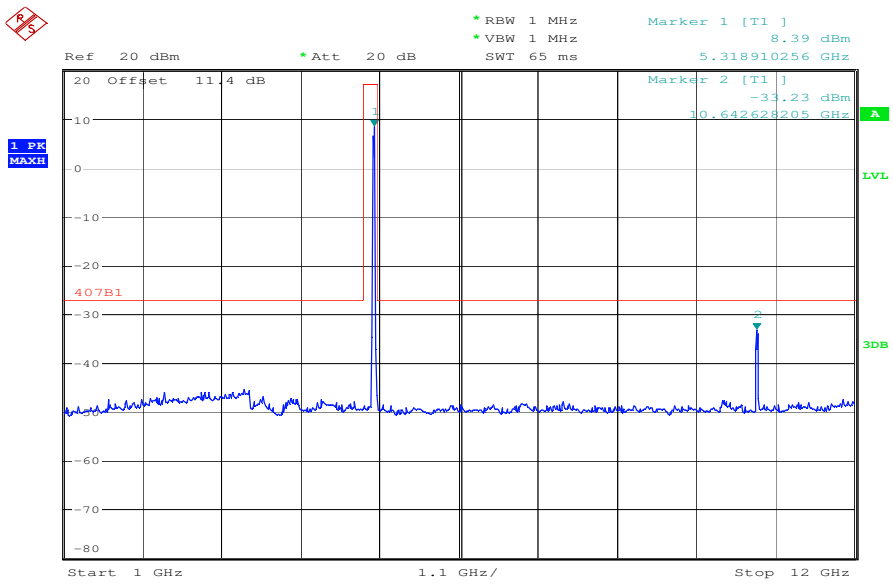
Plot 20: channel 56, 5280 MHz



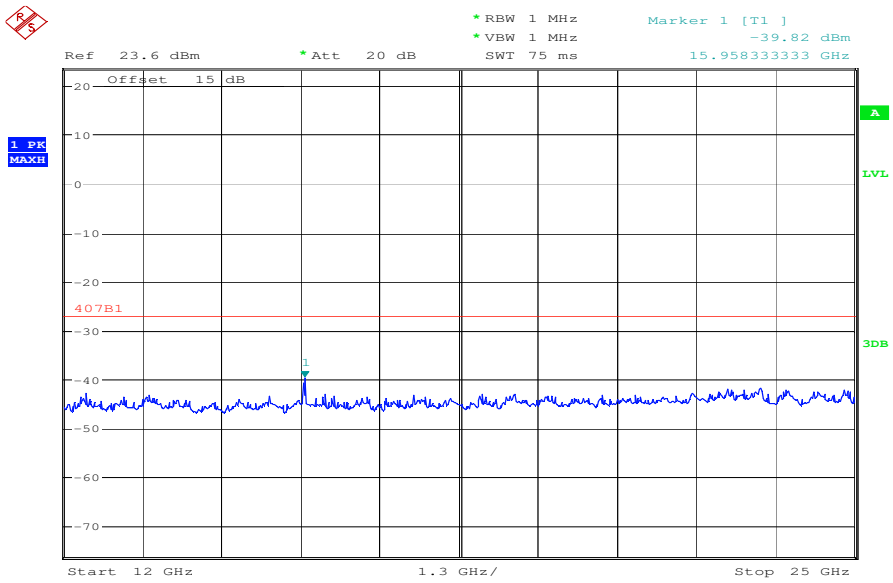
Plot 21: channel 64, 5320 MHz



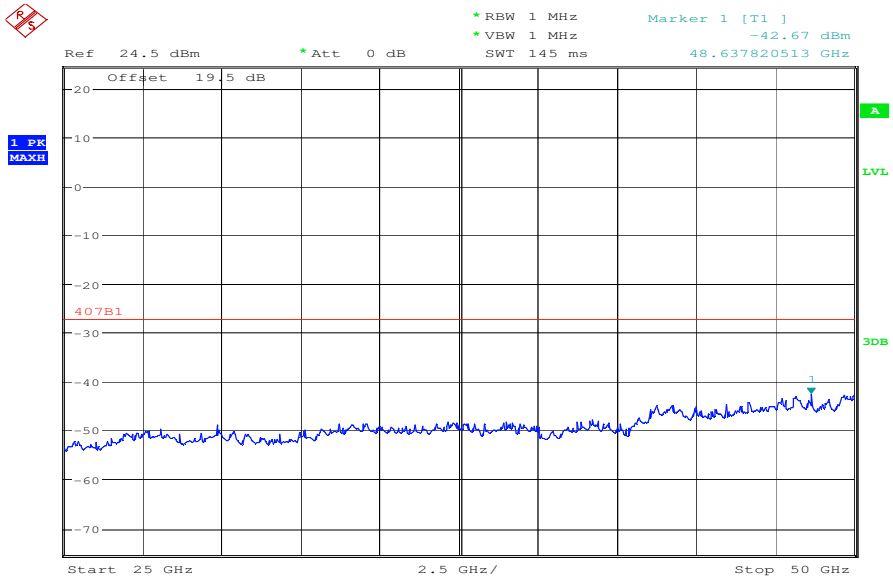
Plot 22: channel 64, 5320 MHz



Plot 23: channel 64, 5320 MHz



Plot 24: channel 64, 5320 MHz



Results & Limits

Emission Limitation					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
5180			17 dBm		Operating frequency
	All unwanted spurious emissions are below the limit.				passed
5220			17 dBm		Operating frequency
	All unwanted spurious emissions are below the limit.				passed
5240			17 dBm		Operating frequency
	All unwanted spurious emissions are below the limit.				passed
Measurement uncertainty		± 3dB			

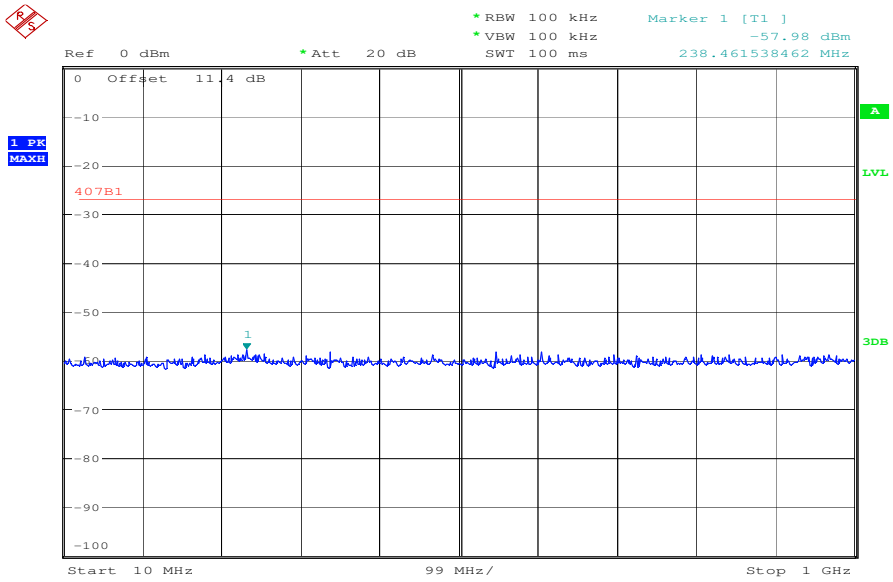
RBW : 1 MHz VBW: 1 MHz

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. 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)).

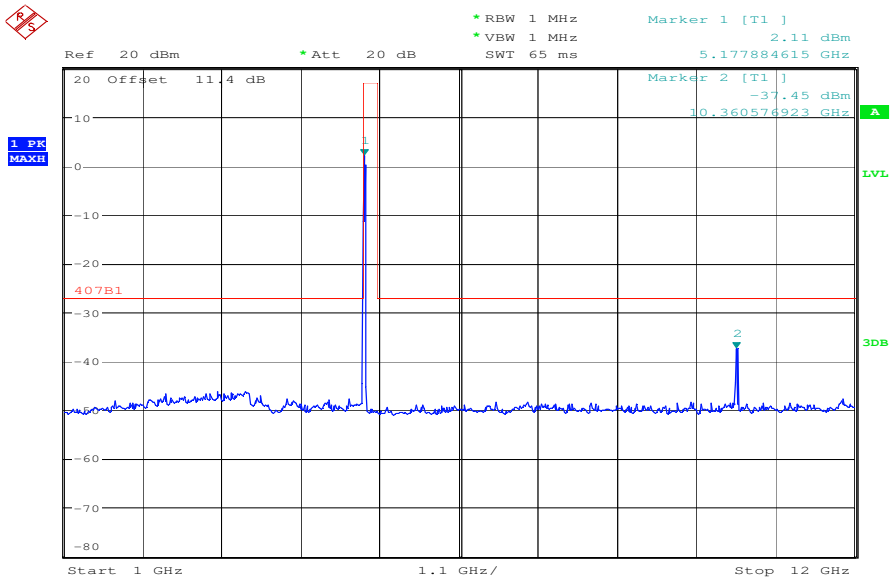
Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

High data rate:

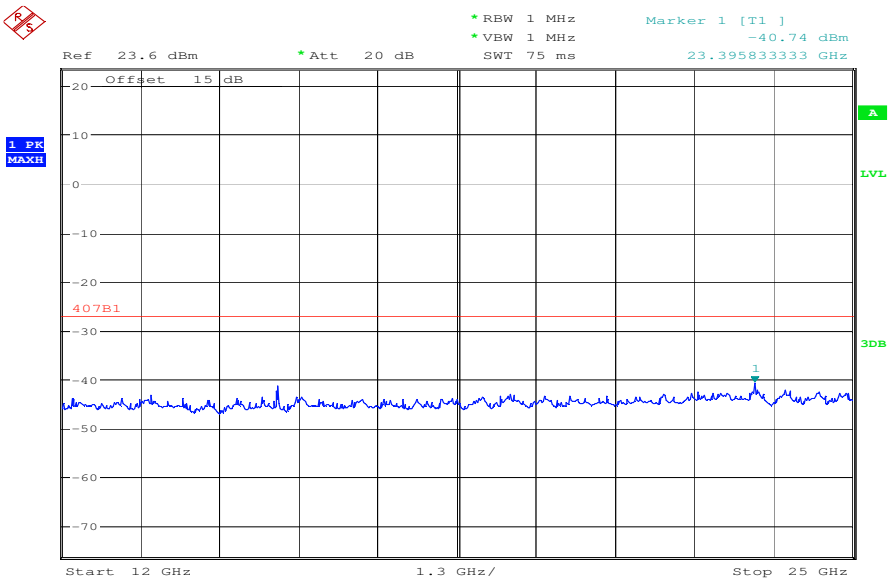
Plot 1: channel 36, 5180 MHz



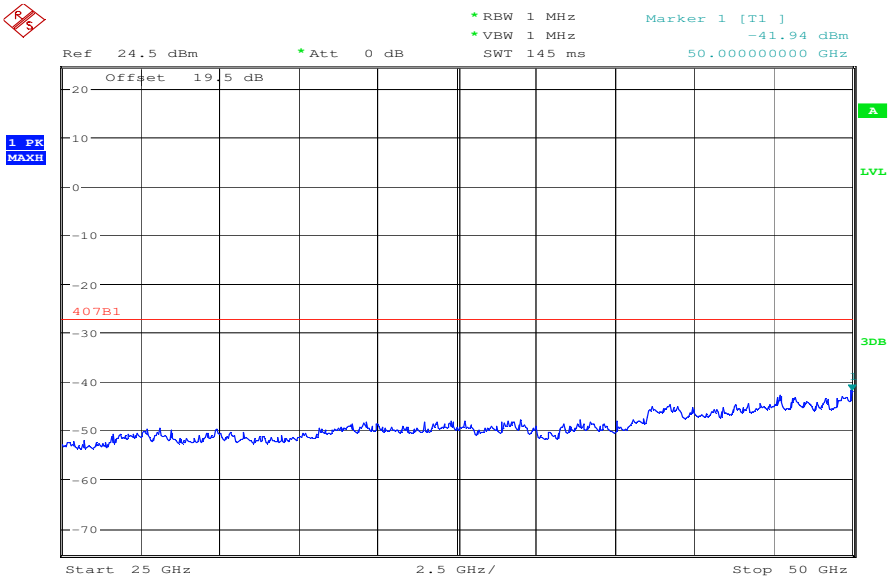
Plot 2: channel 36, 5180 MHz



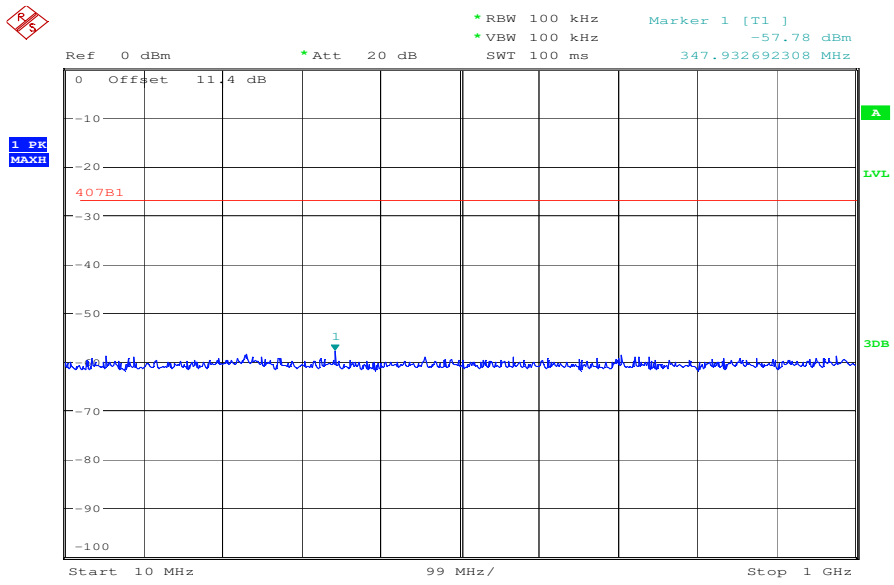
Plot 3: channel 36, 5180 MHz



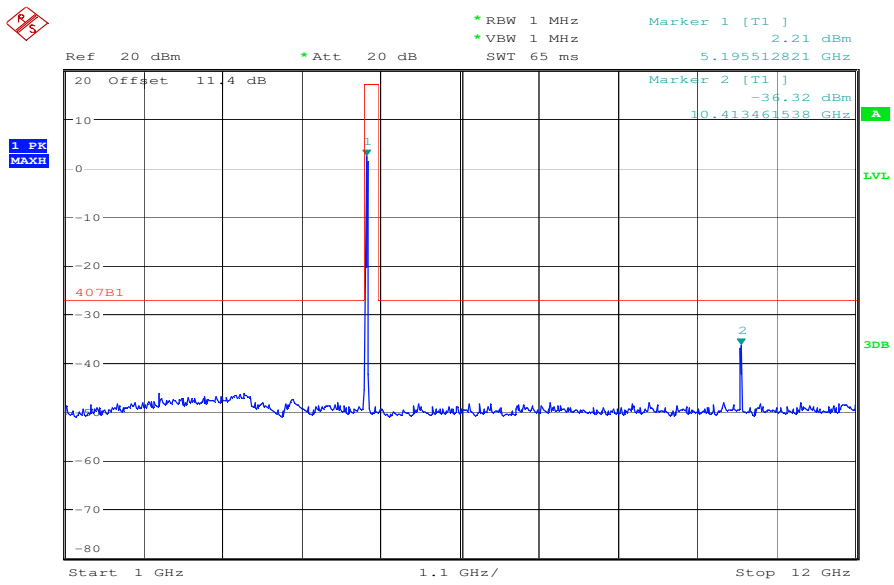
Plot 4: channel 36, 5180 MHz



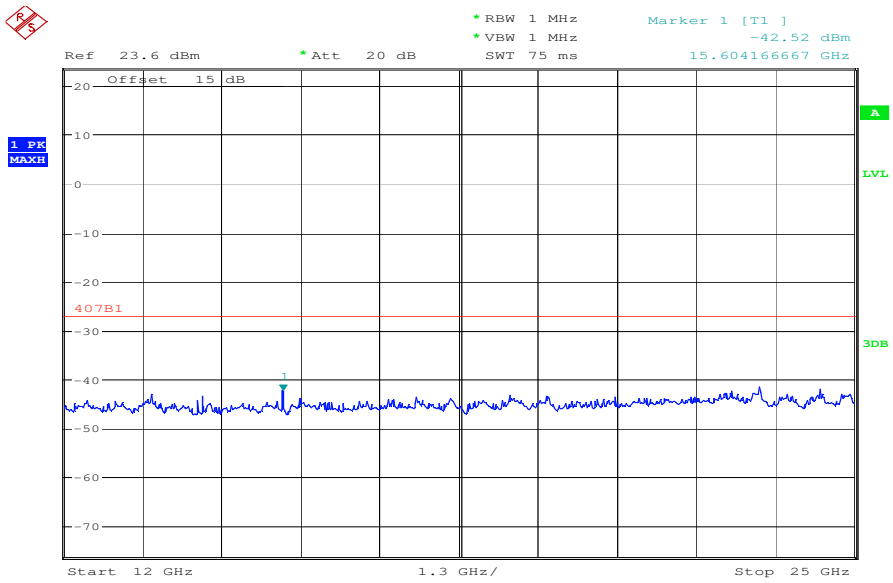
Plot 5: channel 40, 5200 MHz



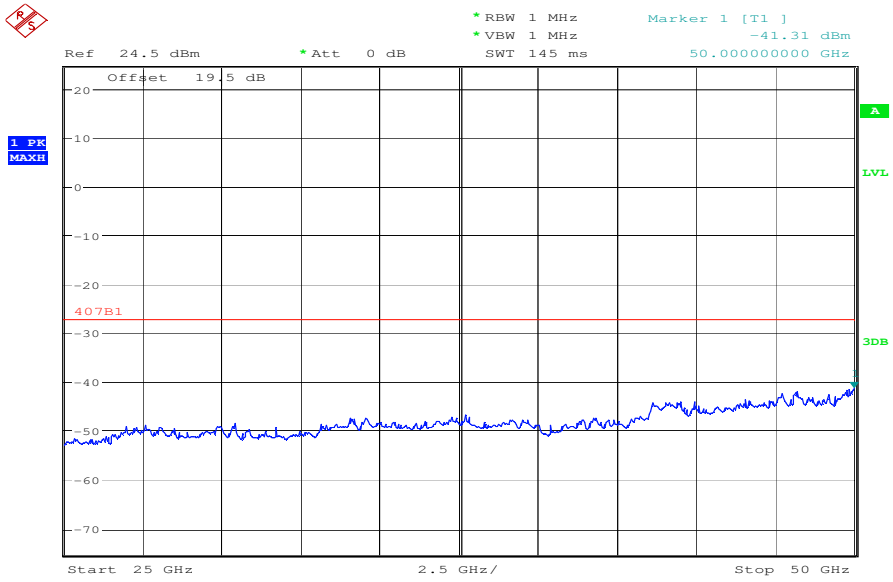
Plot 6: channel 40, 5200 MHz



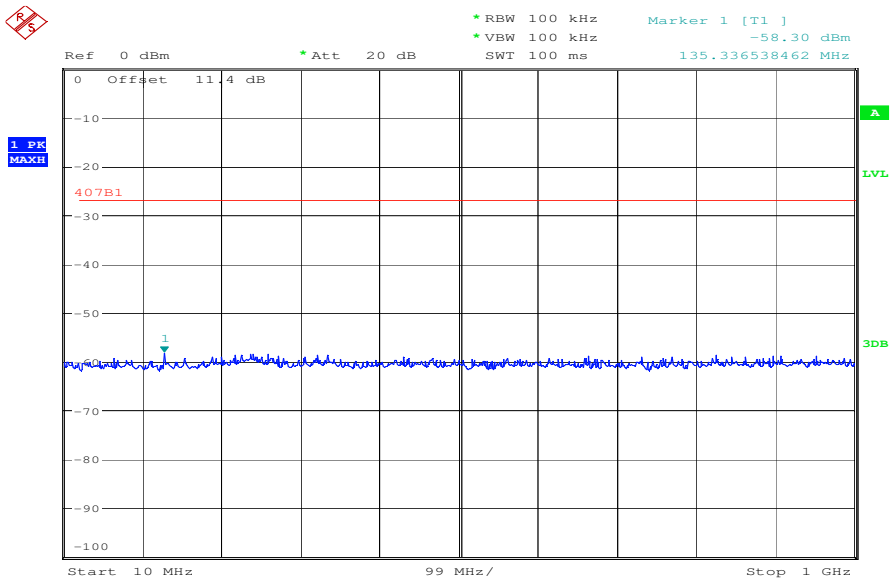
Plot 7: channel 40, 5200 MHz



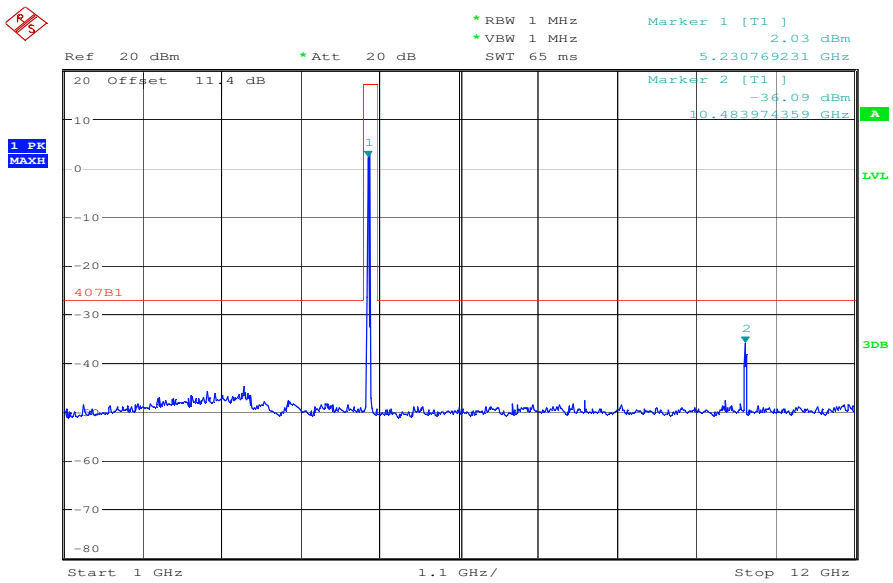
Plot 8: channel 40, 5200 MHz



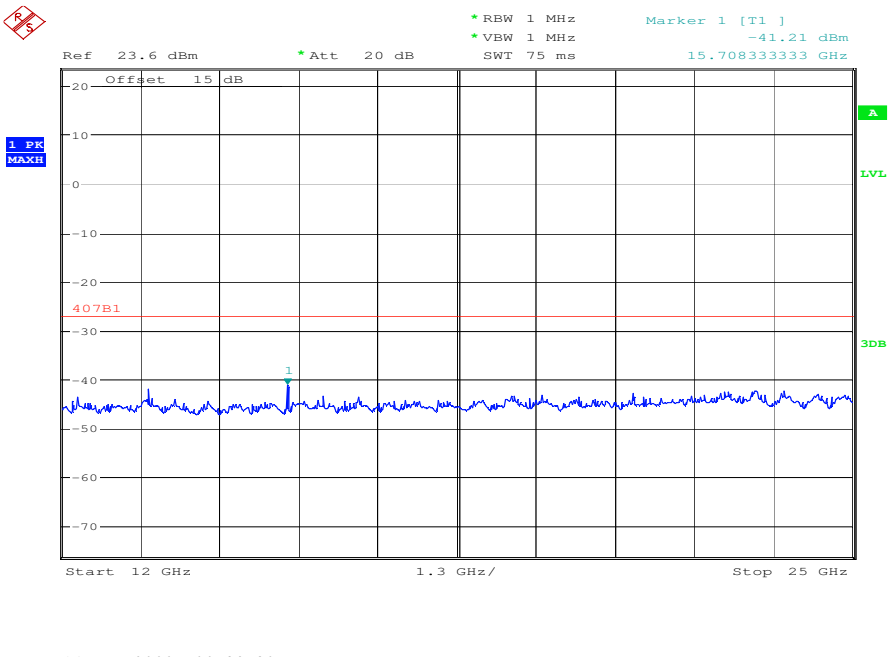
Plot 9: channel 48, 5240 MHz



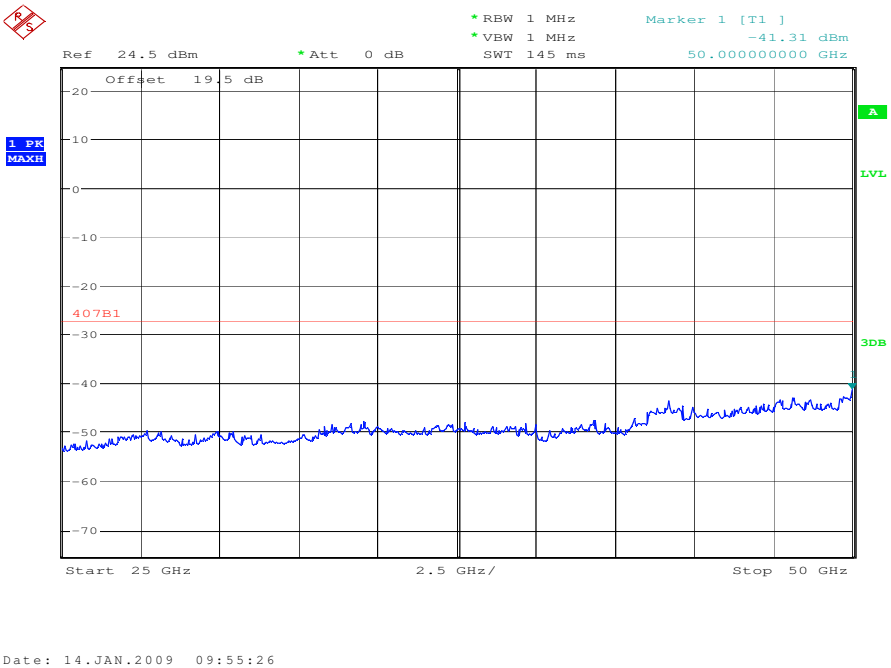
Plot 10: channel 48, 5240 MHz



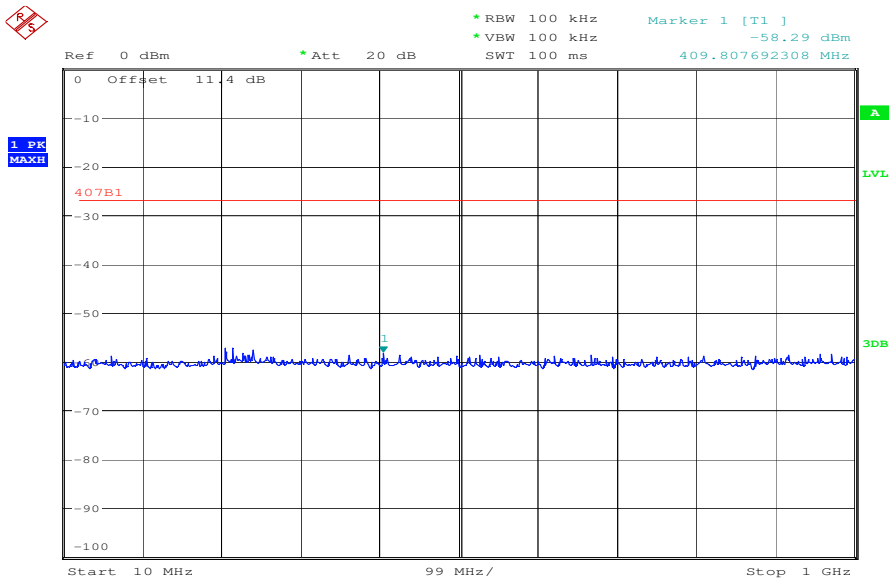
Plot 11: channel 48, 5240 MHz



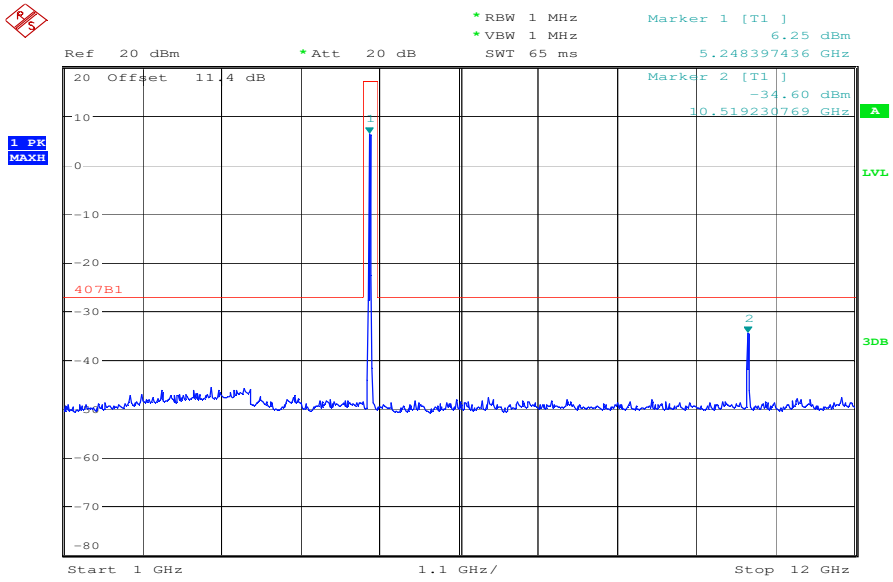
Plot 12: channel 48, 5240 MHz



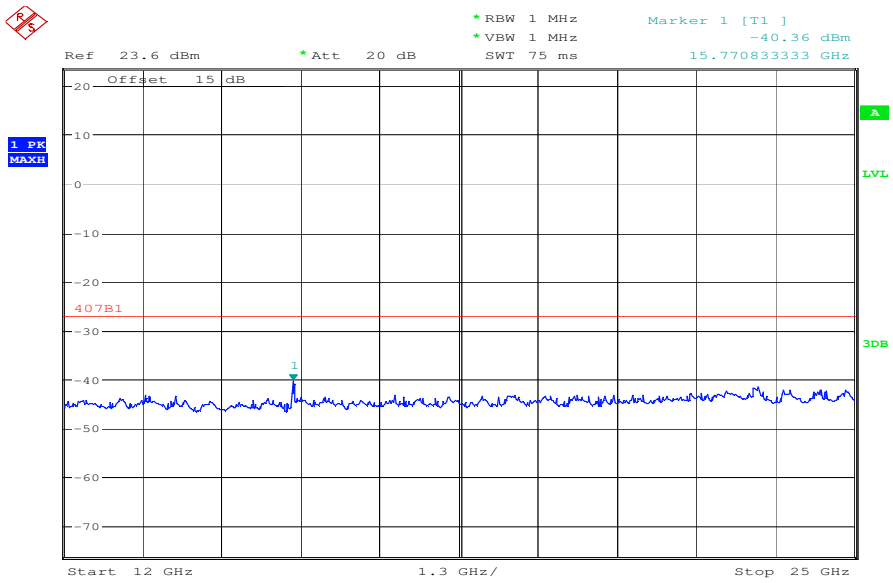
Plot 13: channel 52, 5260 MHz



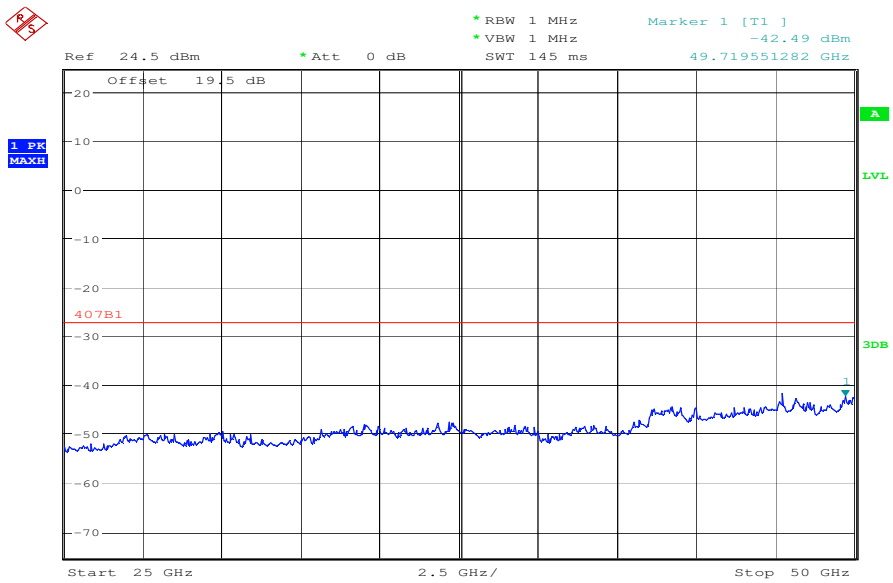
Plot 14: channel 52, 5260 MHz



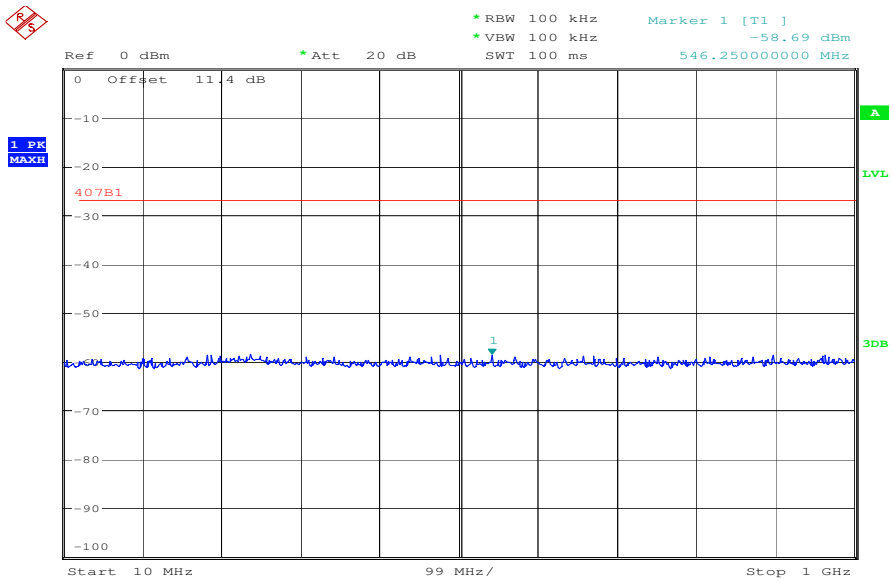
Plot 15: channel 52, 5260 MHz



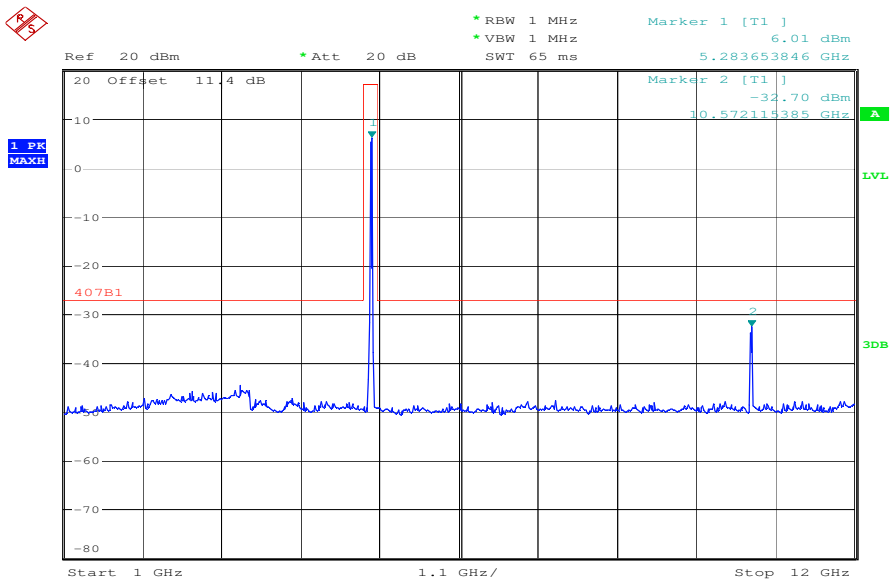
Plot 16: channel 52, 5260 MHz



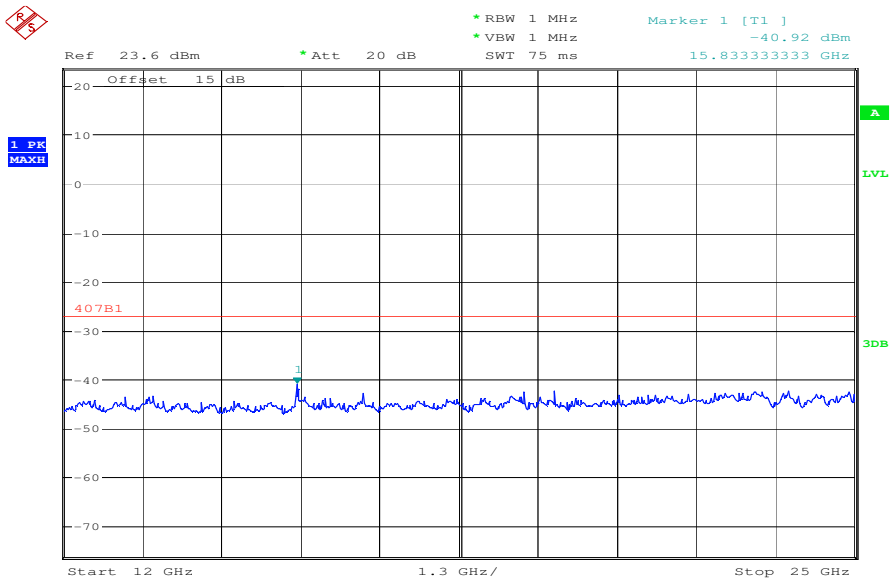
Plot 17: channel 56, 5280 MHz



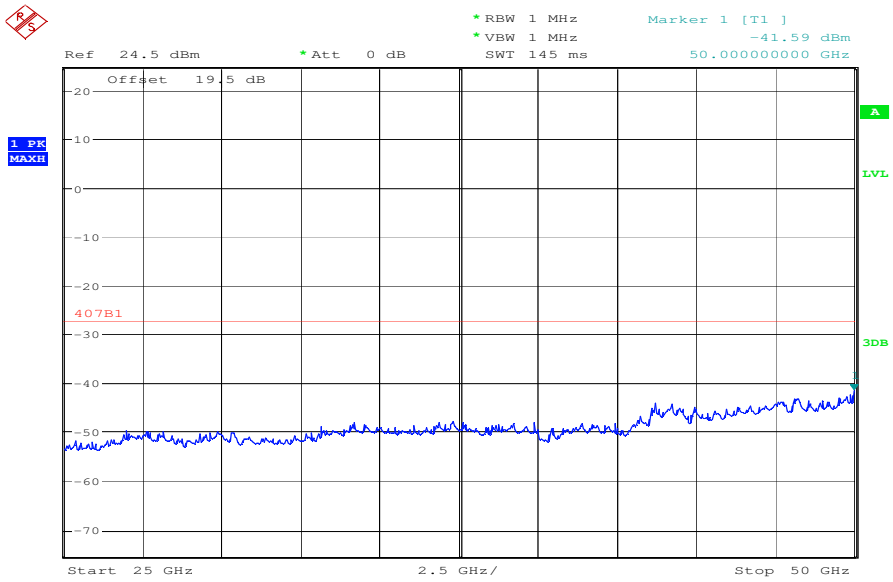
Plot 18: channel 56, 5280 MHz



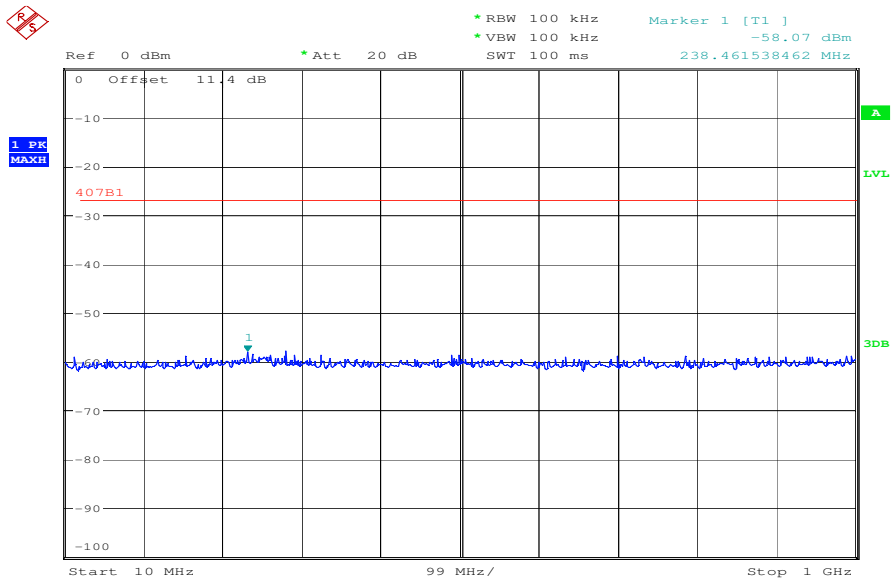
Plot 19: channel 56, 5280 MHz



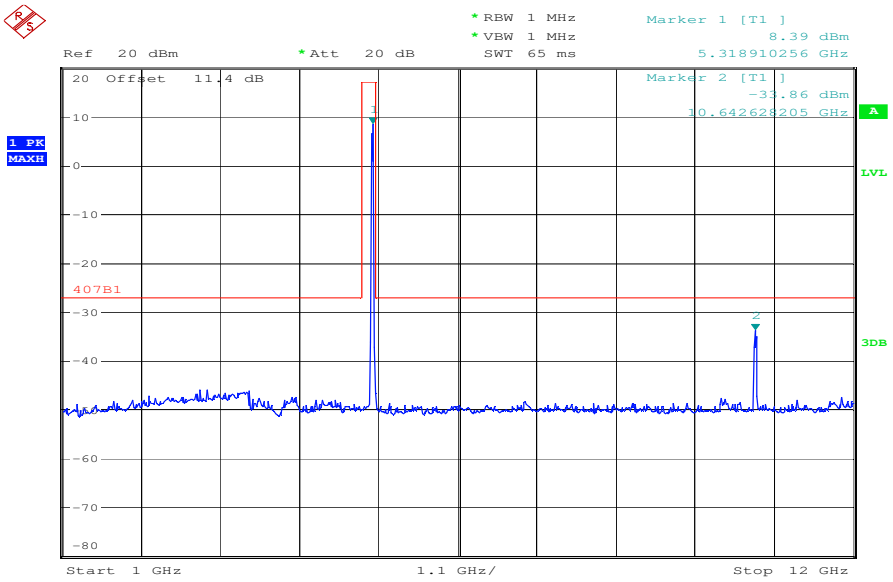
Plot 20: channel 56, 5280 MHz



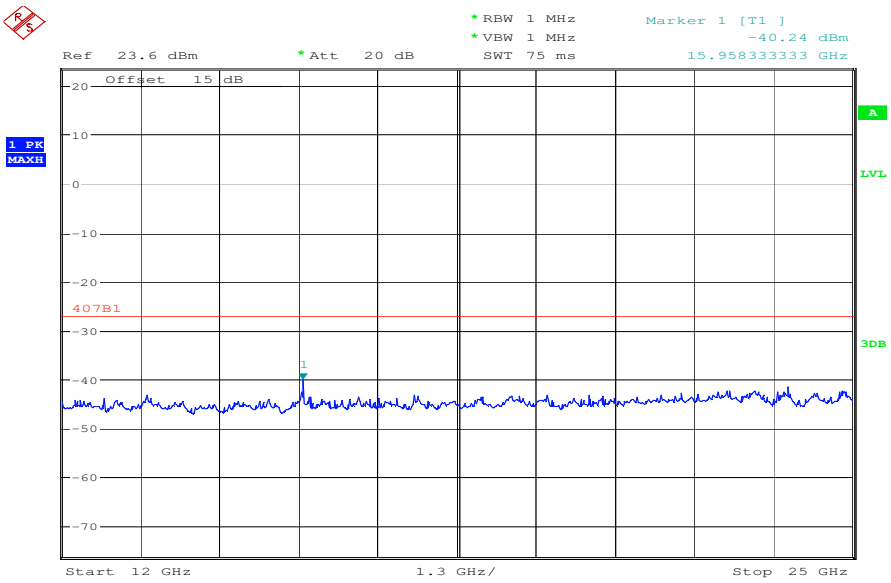
Plot 21: channel 64, 5320 MHz



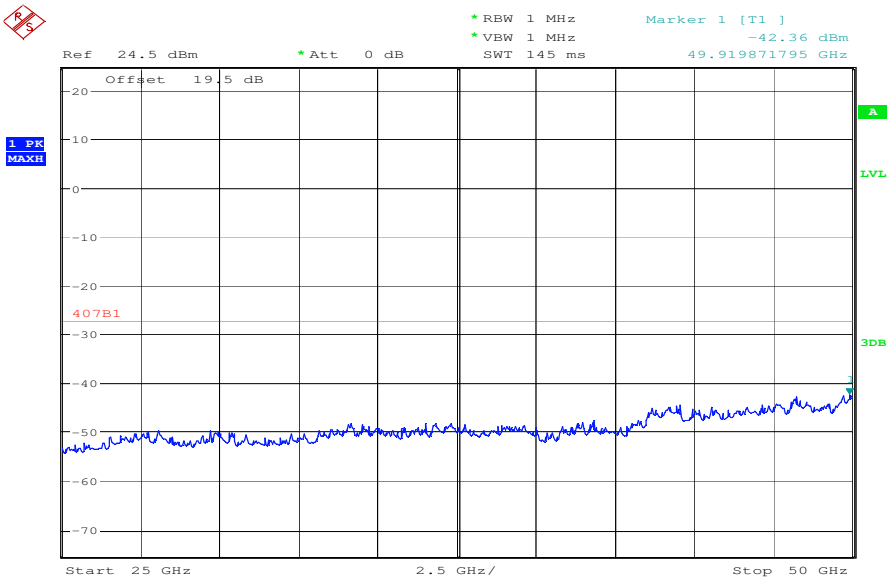
Plot 22: channel 64, 5320 MHz



Plot 23: channel 64, 5320 MHz



Plot 24: channel 64, 5320 MHz



Results & Limits

Emission Limitation					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emission power	actual attenuation below frequency of operation [dB]	results
5180			17 dBm		Operating frequency
	All unwanted spurious emissions are below the limit.				passed
5220			17 dBm		Operating frequency
	All unwanted spurious emissions are below the limit.				passed
5240			17 dBm		Operating frequency
	All unwanted spurious emissions are below the limit.				passed
Measurement uncertainty		± 3dB			

RBW : 1 MHz VBW: 1 MHz

Under normal test conditions only	In any 100 kHz bandwidth outside the frequency band at least 20dB below the highest level of the desired power. 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)).

Note: For emissions that fall into restricted bands you find the radiated emissions later in the report.

3.12 MPE calculation

These equations are generally accurate in the far field of an antenna but will over predict power density in the near field, where they could be used for making a “worst case” prediction.

$$S = PG/4\pi R^2$$

where S = power density (in appropriate units, e.g. mW/cm^2)
P = power input to the antenna (in appropriate units e.g. mW)
G = power gain of the antenna in the direction of interest relative to the isotropic radiator
R = distance to the center of radiation of the antenna (appropriate units e.g. cm)

Or

$$S = EIRP/4\pi R^2$$

where EIRP = equivalent isotropically radiated power

Calculation:
(Calculated for max. EIRP)

EIRP dBm 128.82 mW (20.11 Peak power)
calculated at distance of 20 cm:

power density = $128.82 / 4\pi 20^2 = 0.0256$ mW/ cm^2

Limit:

1mW/ cm^2 is the reference level for general public exposure according to the OET Bulletin 65, Edition 97-01 Table 1.

3.13 Spurious Emissions - radiated (Transmitter) §15.209

Low data rate:

Plot 1: 0.03 - 1 GHz (5180 MHz)

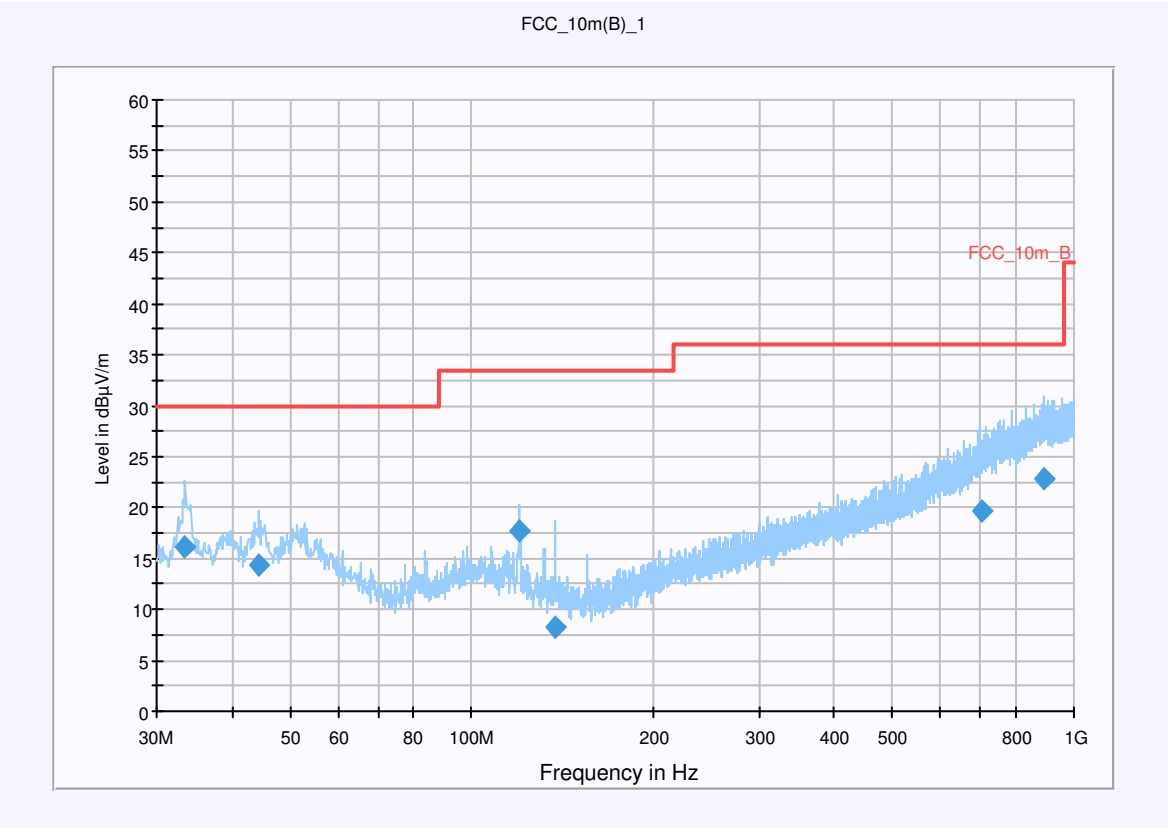
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 6 Mbits; Ch 5.180 Ghz; Output Power = 11
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: FCC_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



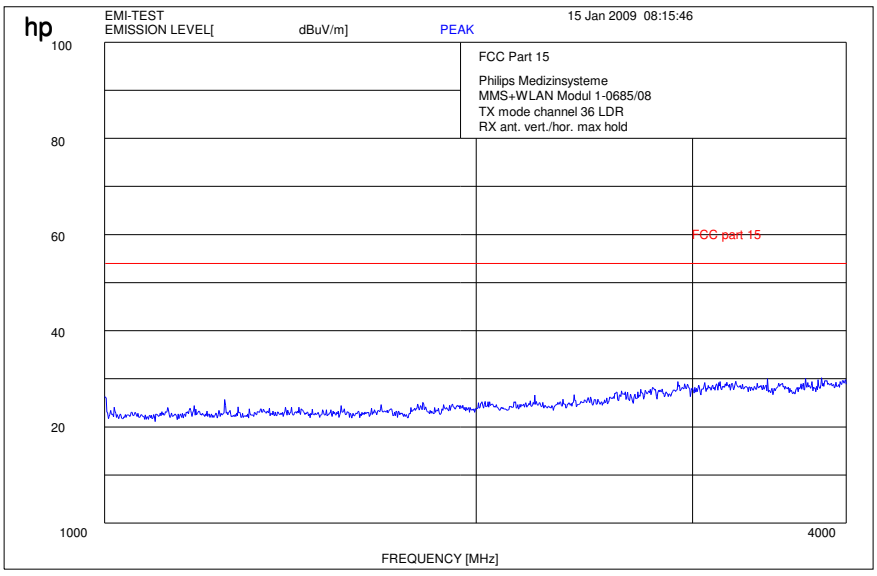
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
33.471250	16.2	15000.000	120.000	100.0	V	233.0	13.0	13.8	30.0	
44.421800	14.4	15000.000	120.000	100.0	V	222.0	13.4	15.6	30.0	
119.884750	17.7	15000.000	120.000	183.0	V	110.0	10.6	15.8	33.5	
137.705550	8.3	15000.000	120.000	115.0	V	50.0	9.1	25.2	33.5	
700.483300	19.7	15000.000	120.000	352.0	H	136.0	22.6	16.3	36.0	
892.578500	22.8	15000.000	120.000	295.0	V	313.0	25.7	13.2	36.0	

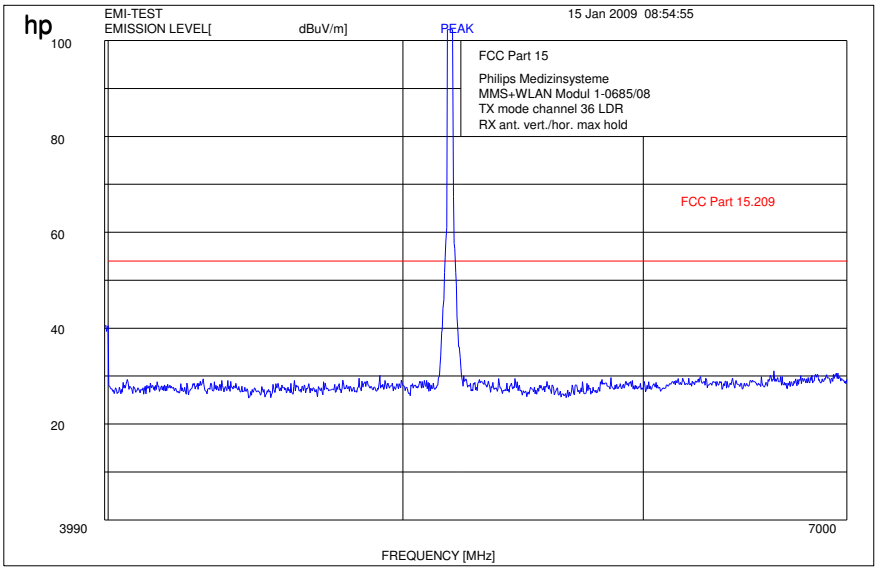
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

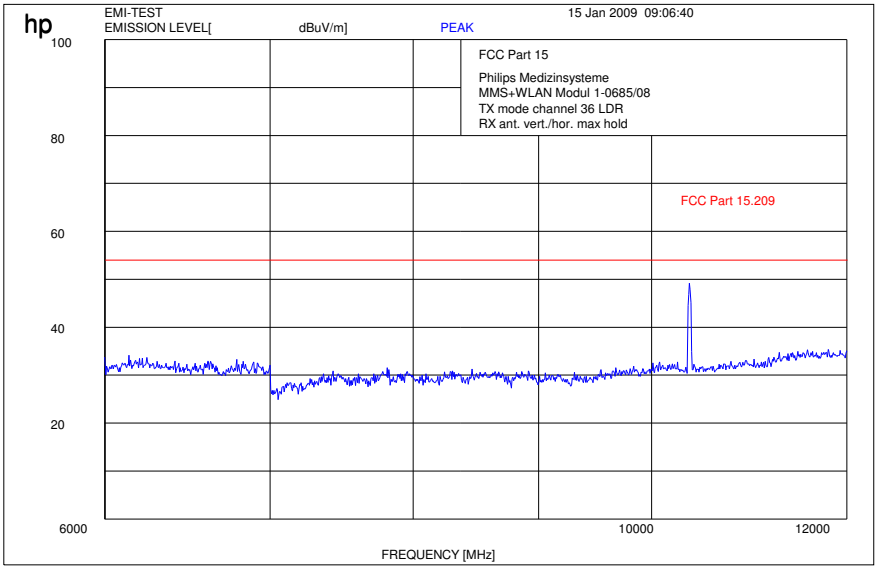
Plot 2: 1 GHz - 4 GHz (5180 MHz)



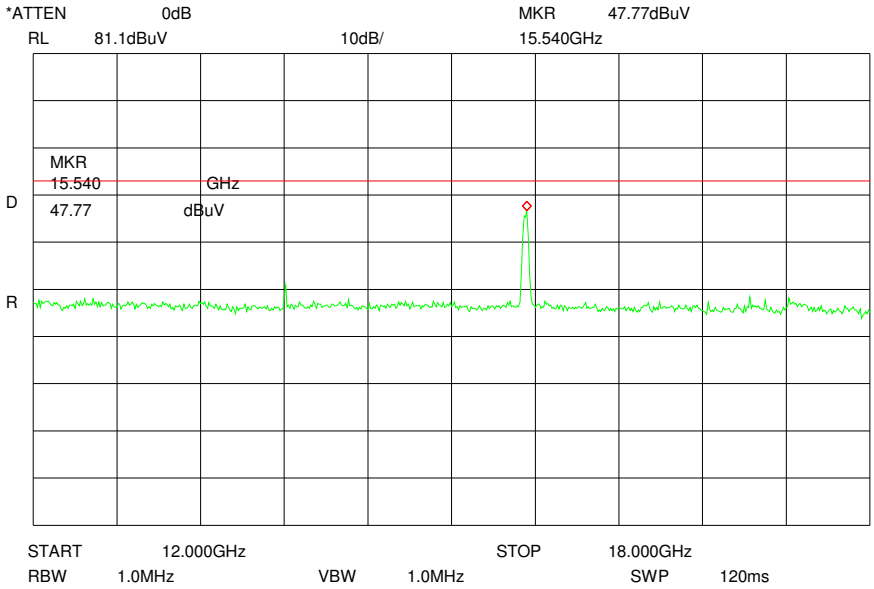
Plot 3: 4 GHz - 7 GHz (5180 MHz)



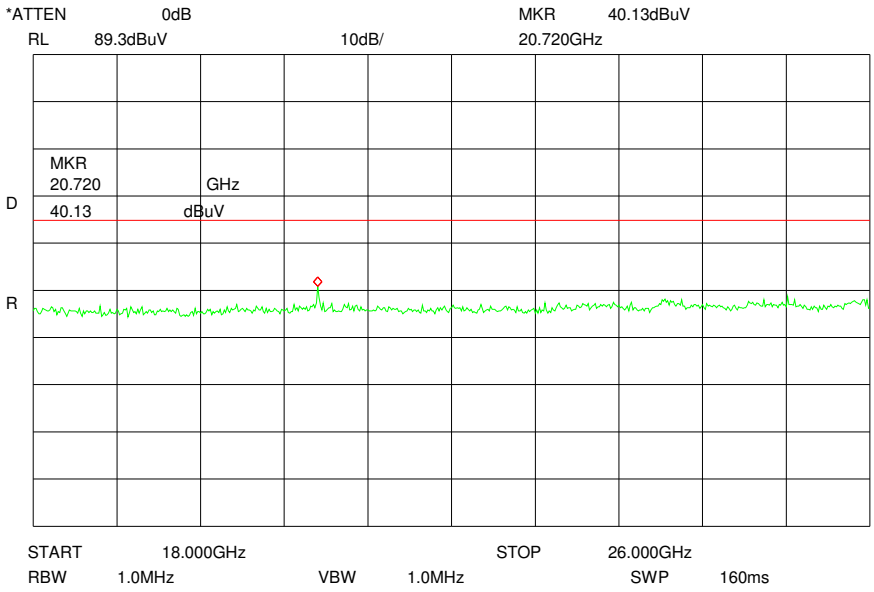
Plot 4: 6 GHz - 12 GHz (5180 MHz)



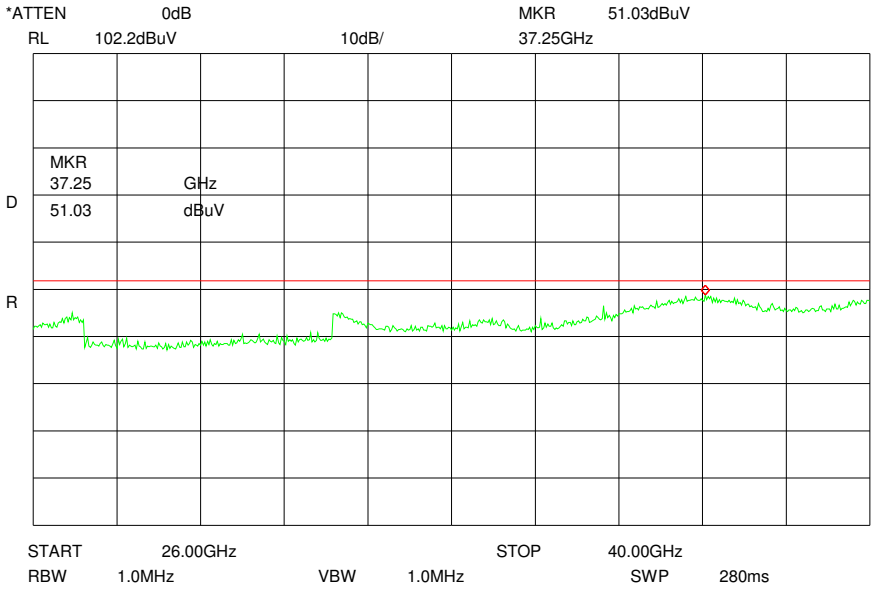
Plot 5: 12 - 18 GHz (valid for all three channels)



Plot 6: 18 - 26 GHz (valid for all three channels)



Plot 7: 26 - 40 GHz (valid for all three channels)



Plot 8: 30 MHz to 1 GHz (5200 MHz)

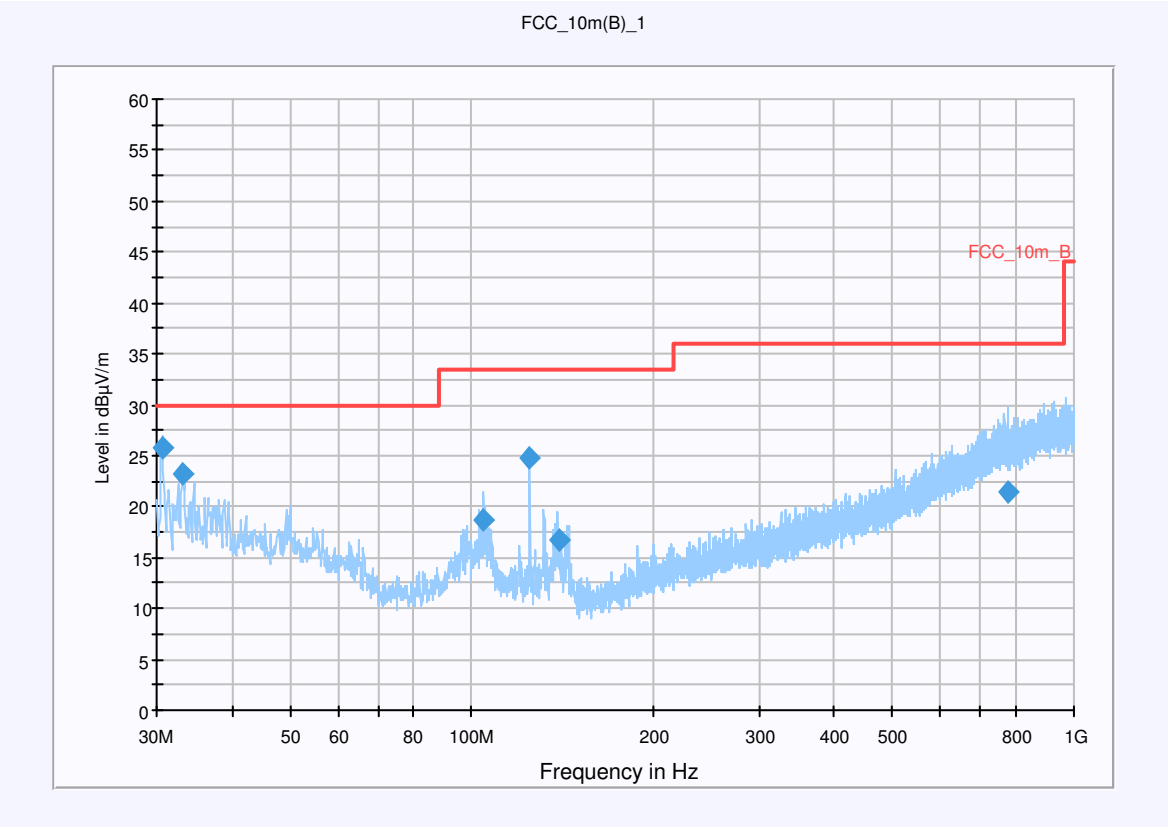
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 6 Mbits; Ch 5.200 Ghz; Output Power = 11
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



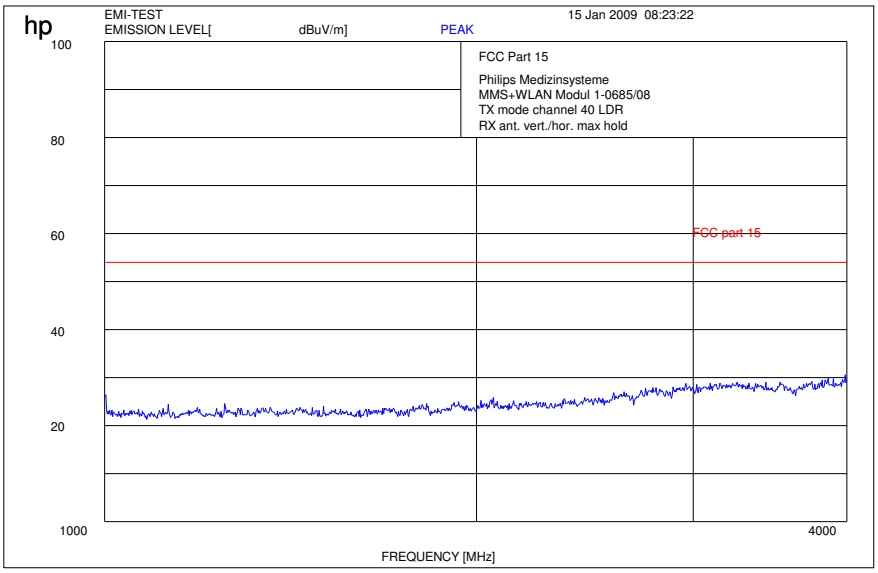
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.618850	25.8	15000.000	120.000	100.0	V	136.0	12.7	4.2	30.0	
33.180650	23.2	15000.000	120.000	100.0	V	306.0	13.0	6.8	30.0	
104.786200	18.7	15000.000	120.000	265.0	V	40.0	11.8	14.8	33.5	
125.004000	24.7	15000.000	120.000	132.0	V	125.0	10.1	8.8	33.5	
139.271250	16.7	15000.000	120.000	120.0	V	35.0	8.9	16.8	33.5	
778.648950	21.4	15000.000	120.000	100.0	V	143.0	24.2	14.6	36.0	

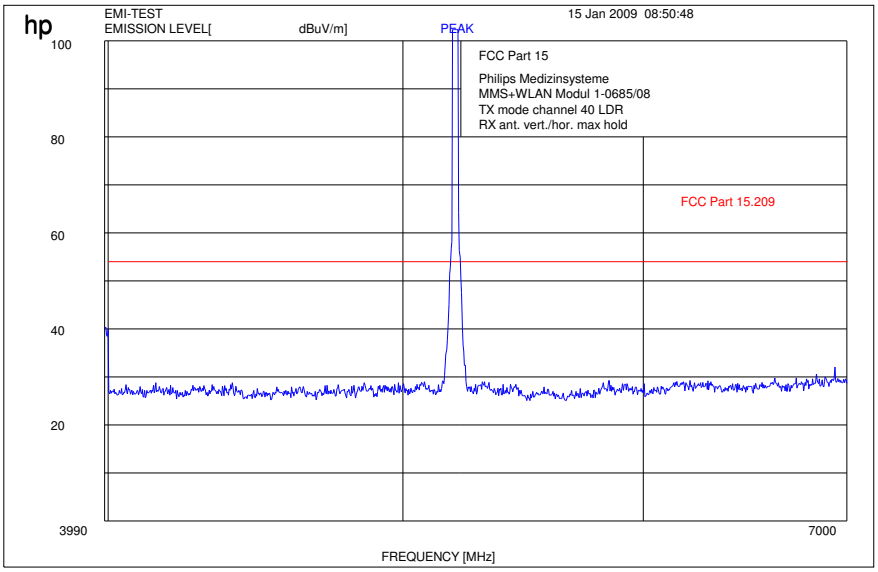
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

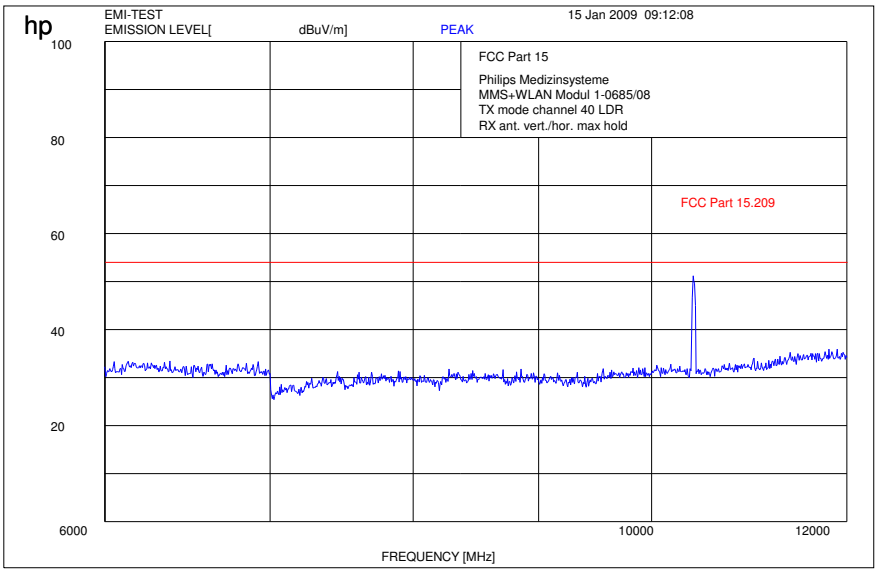
Plot 9: 1 GHz to 4 GHz (5200 MHz)



Plot 10: 4 GHz to 7 GHz (5200 MHz)



Plot 11: 6 GHz to 12 GHz (5200 MHz)



Plot 12: 30 MHz to 1 GHz (5240 MHz)

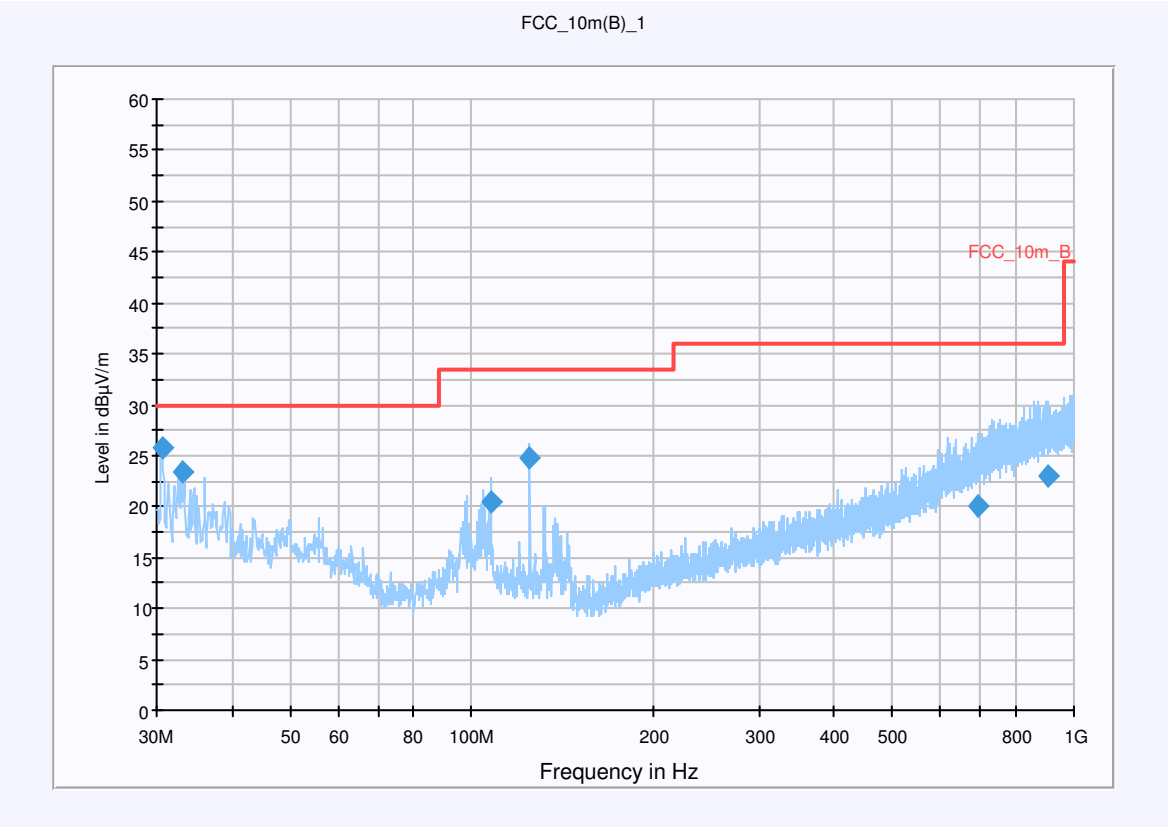
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 6 Mbits; Ch 5.240 Ghz; Output Power = 11
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



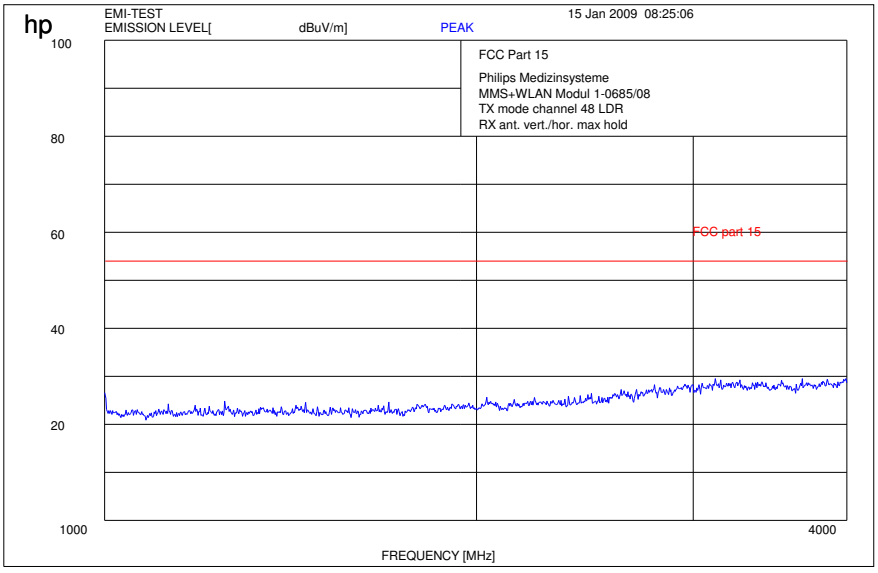
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.620350	25.7	15000.000	120.000	191.0	V	306.0	12.7	4.3	30.0	
33.179000	23.4	15000.000	120.000	161.0	V	323.0	13.0	6.6	30.0	
107.880650	20.4	15000.000	120.000	168.0	V	30.0	11.6	13.1	33.5	
125.018850	24.7	15000.000	120.000	106.0	V	214.0	10.1	8.8	33.5	
692.005600	20.1	15000.000	120.000	157.0	H	21.0	22.8	15.9	36.0	
907.923900	23.0	15000.000	120.000	125.0	V	92.0	25.7	13.0	36.0	

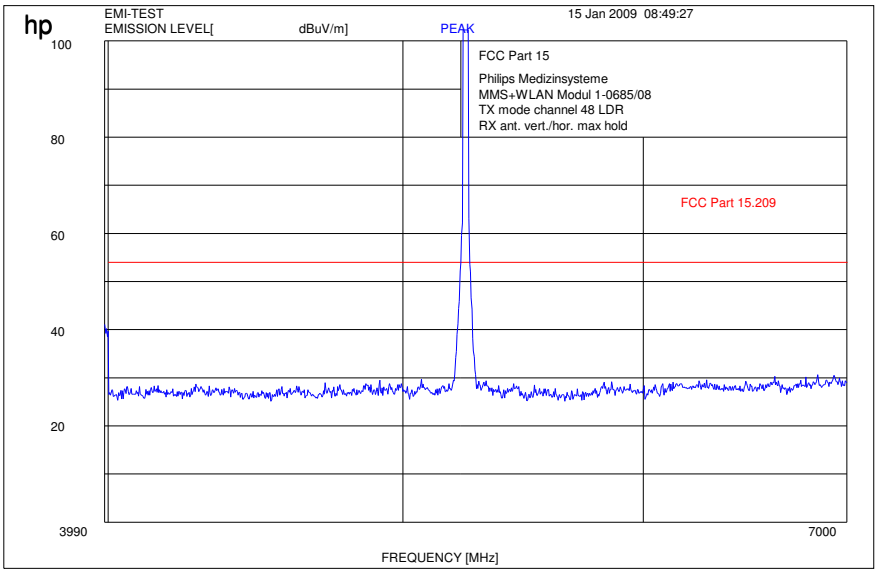
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

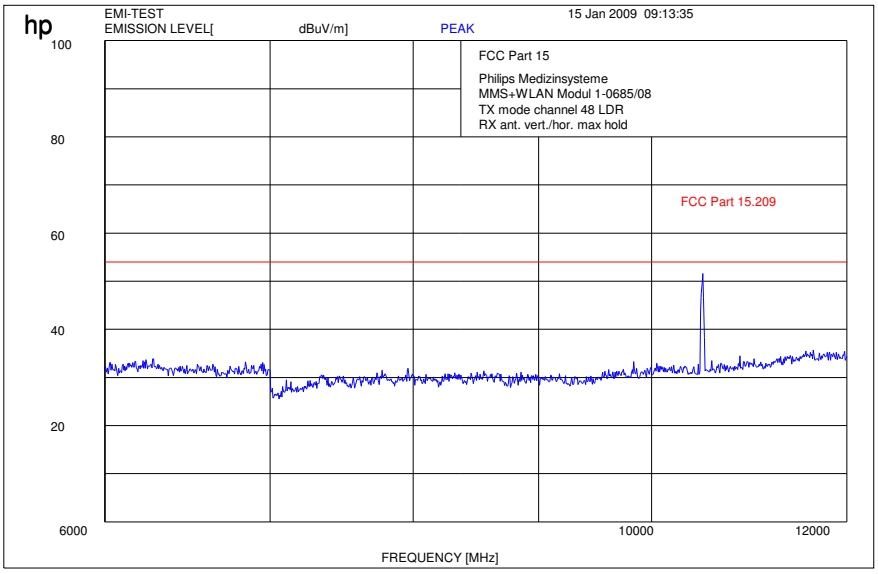
Plot 13: 1 GHz to 4 GHz (5240 MHz)



Plot 14: 4 GHz to 7 GHz (5240 MHz)



Plot 15: 6 GHz to 12 GHz (5240 MHz)



Plot 16: 30 MHz to 1 GHz (5260 MHz)

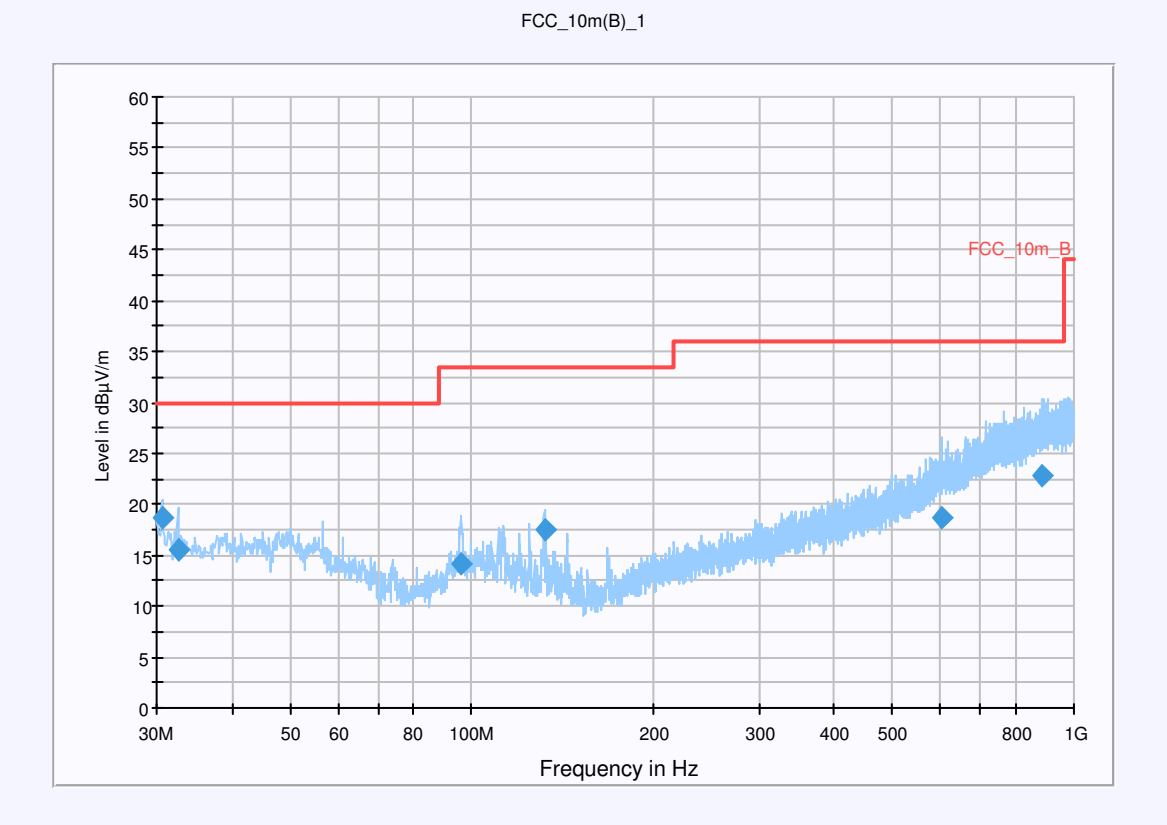
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 6 Mbits; Ch 5.260 Ghz; Output Power = 15
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



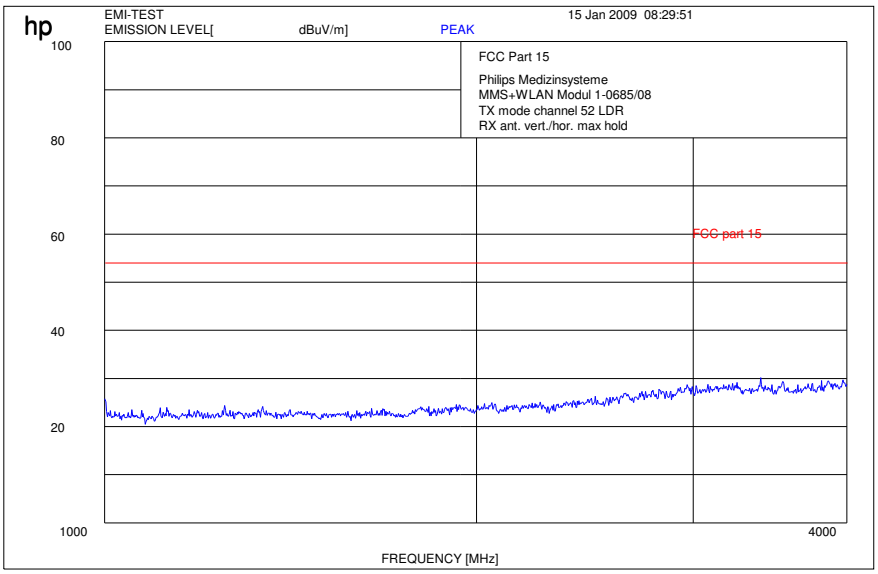
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.632650	18.7	15000.000	120.000	185.0	V	237.0	12.7	11.3	30.0	
32.599200	15.6	15000.000	120.000	266.0	V	277.0	12.9	14.4	30.0	
95.983650	14.2	15000.000	120.000	300.0	V	164.0	11.8	19.3	33.5	
132.099100	17.5	15000.000	120.000	100.0	V	23.0	9.5	16.0	33.5	
602.608800	18.7	15000.000	120.000	400.0	H	230.0	21.4	17.3	36.0	
882.284200	22.8	15000.000	120.000	400.0	V	68.0	25.5	13.2	36.0	

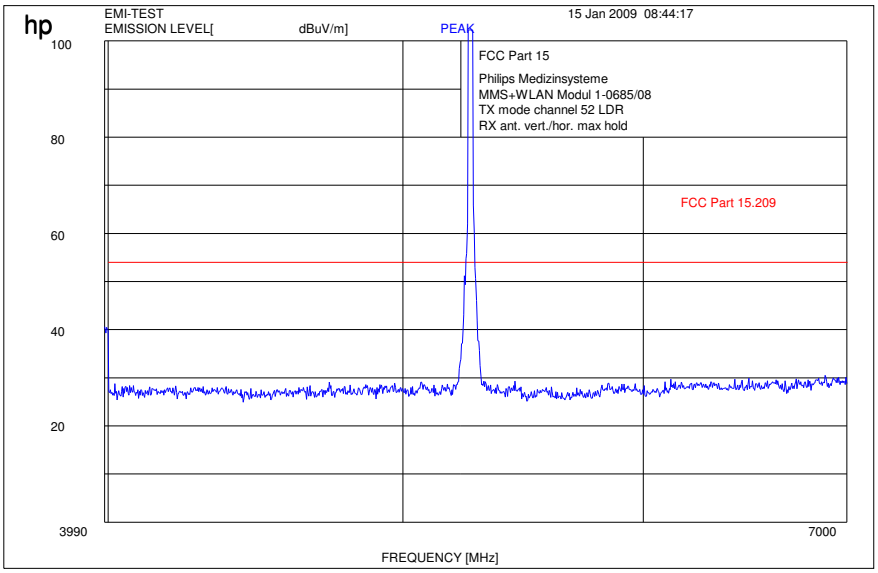
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

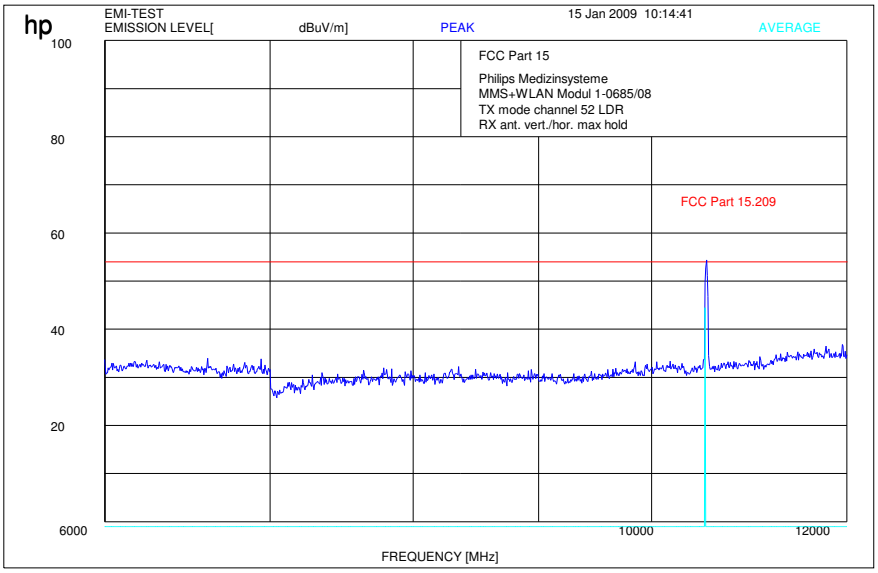
Plot 17: 1 GHz to 4 GHz (5260 MHz)



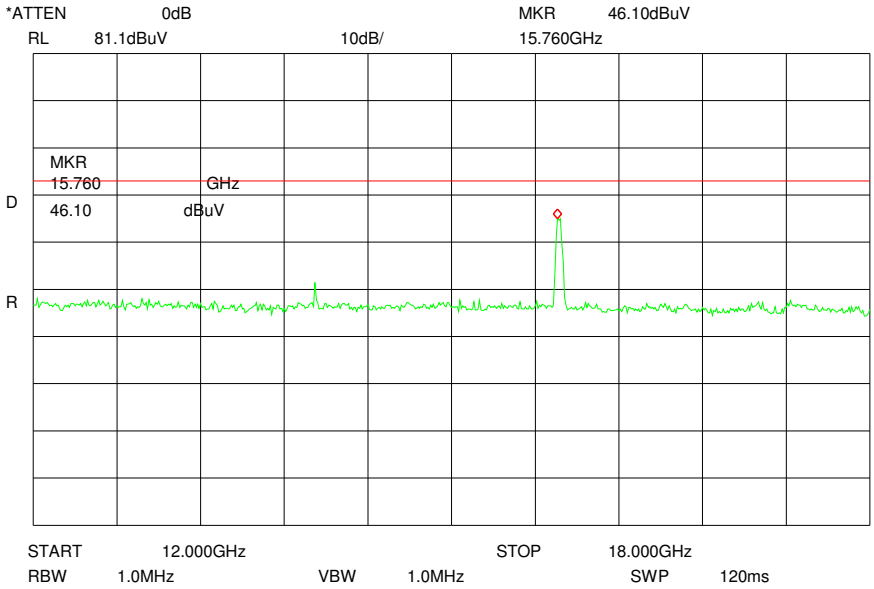
Plot 18: 4 GHz to 7 GHz (5260 MHz)



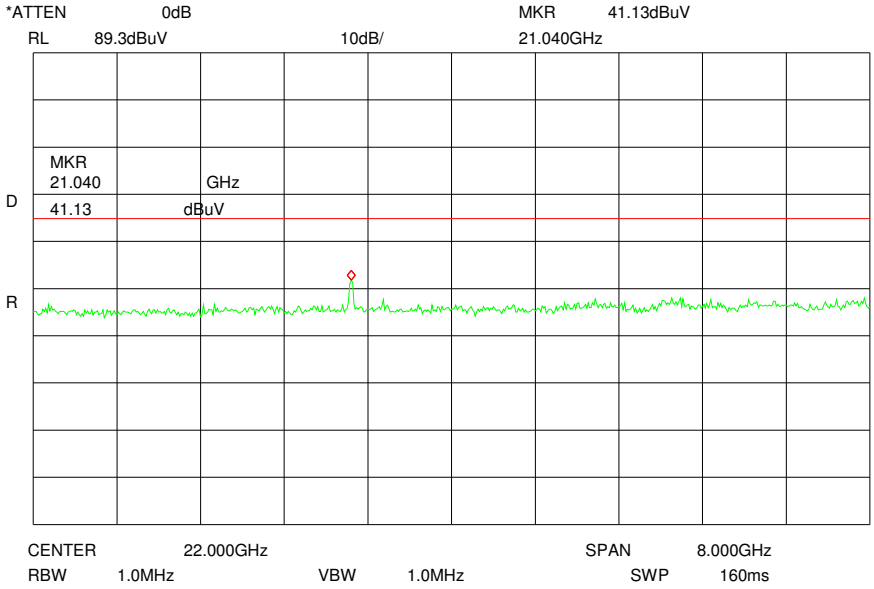
Plot 19: 6 GHz to 12 GHz (5260 MHz)



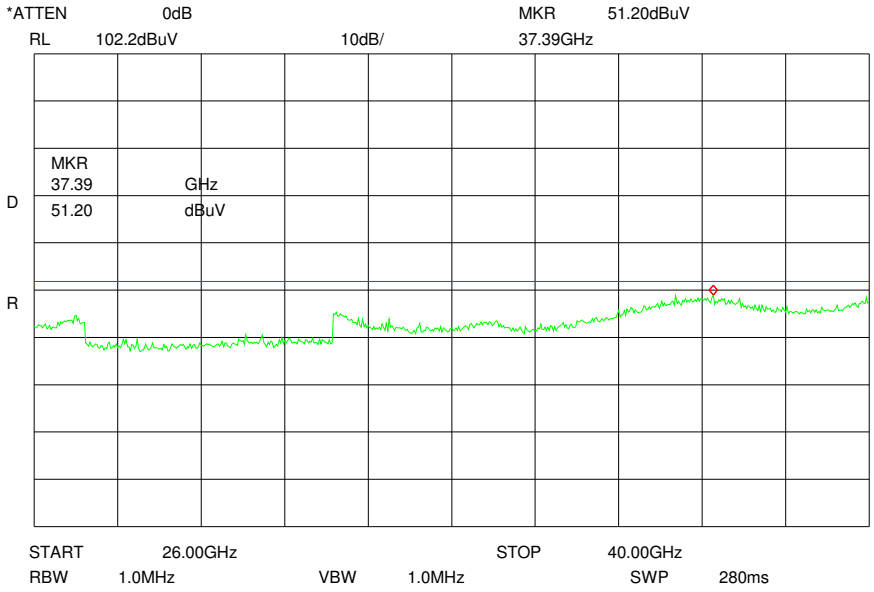
Plot 20: 12 - 18 GHz (valid for all three channels)



Plot 21: 18 - 26 GHz (valid for all three channels)



Plot 22: 26 - 40 GHz (valid for all three channels)



Plot 23: 30 MHz to 1 GHz (5280 MHz)

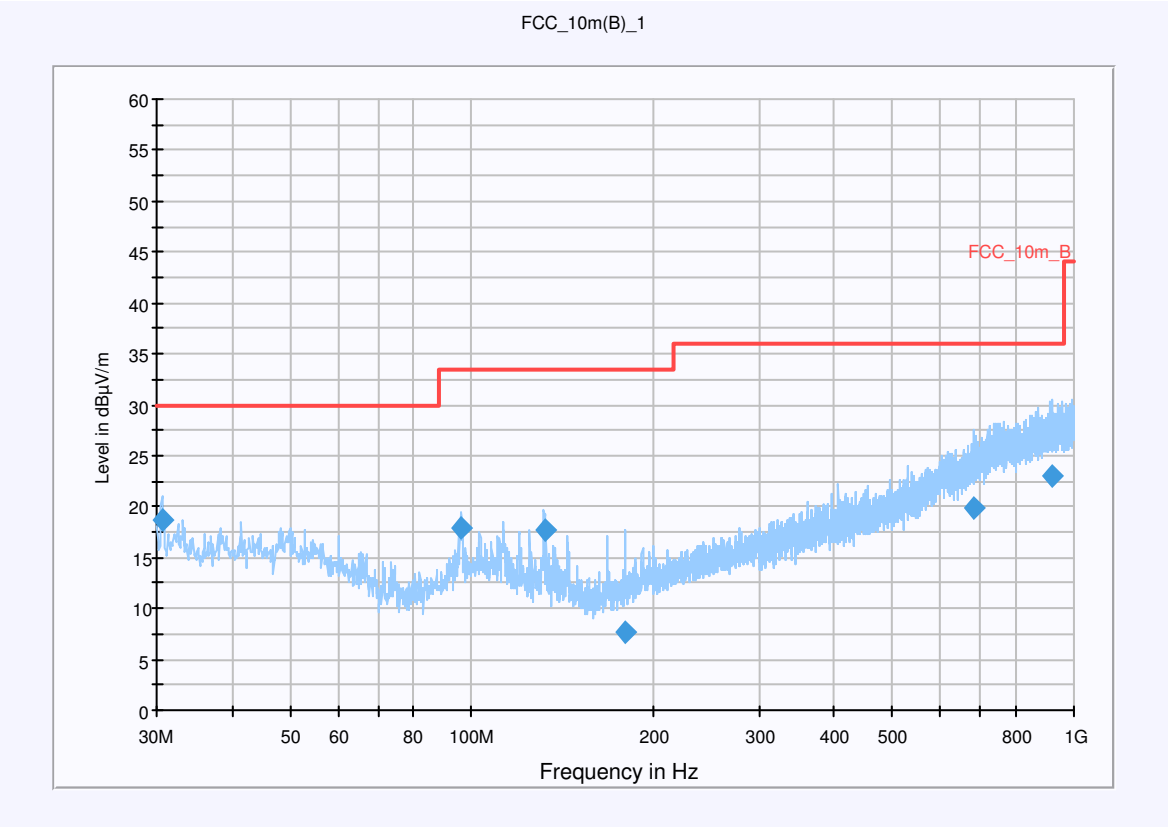
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 6 Mbits; Ch 5.280 Ghz; Output Power = 15
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



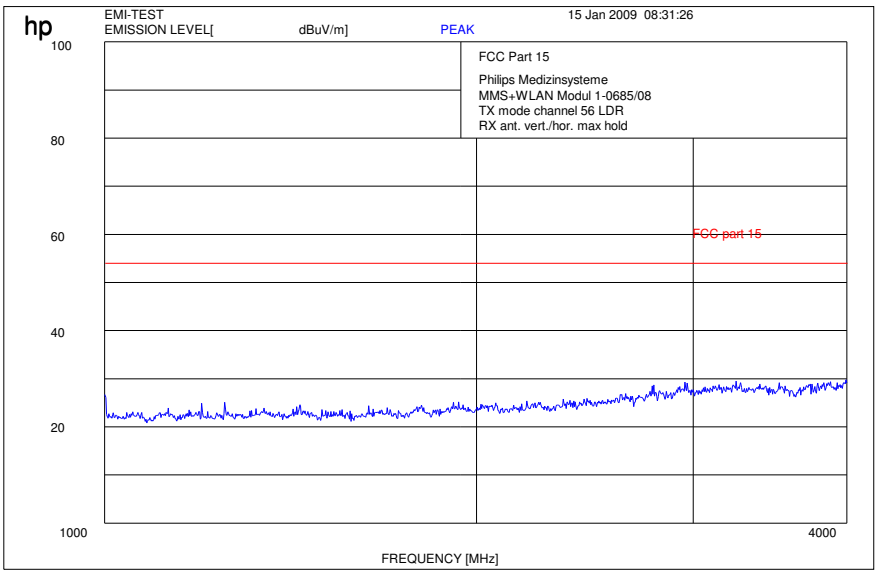
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.632350	18.7	15000.000	120.000	200.0	V	202.0	12.7	11.3	30.0	
95.788400	18.0	15000.000	120.000	130.0	V	233.0	11.7	15.5	33.5	
131.985800	17.8	15000.000	120.000	136.0	V	46.0	9.5	15.7	33.5	
180.193700	7.7	15000.000	120.000	200.0	V	171.0	10.7	25.8	33.5	
682.983550	19.8	15000.000	120.000	361.0	V	266.0	22.6	16.2	36.0	
919.516600	23.0	15000.000	120.000	200.0	H	27.0	25.8	13.0	36.0	

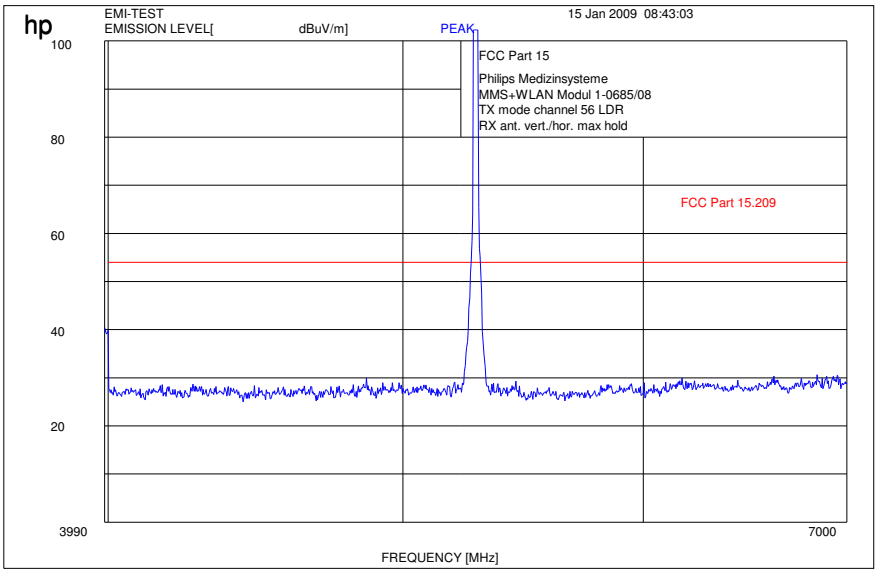
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

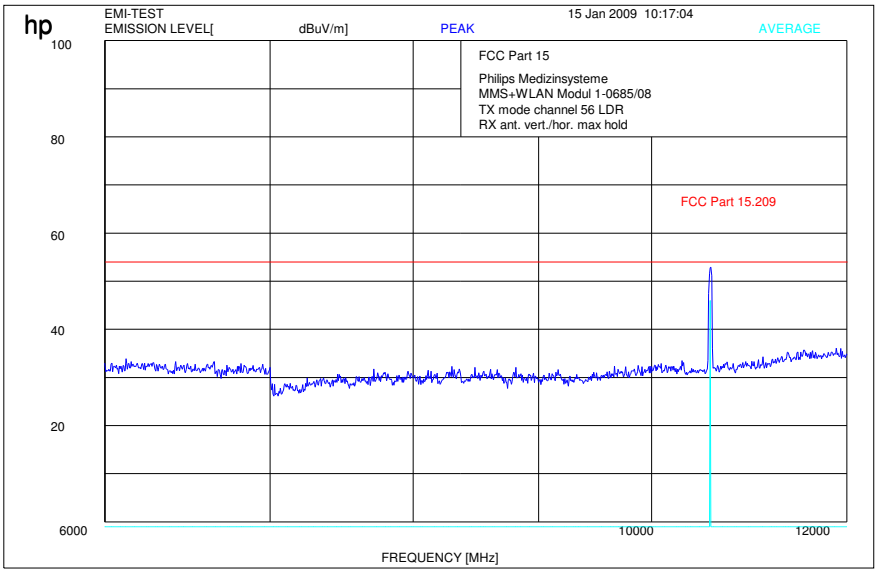
Plot 24: 1 GHz to 4 GHz (5280 MHz)



Plot 25: 4 GHz to 7 GHz (5280 MHz)



Plot 26: 6 GHz to 12 GHz (5280 MHz)



Plot 27: 30 MHz to 1 GHz (5320 MHz)

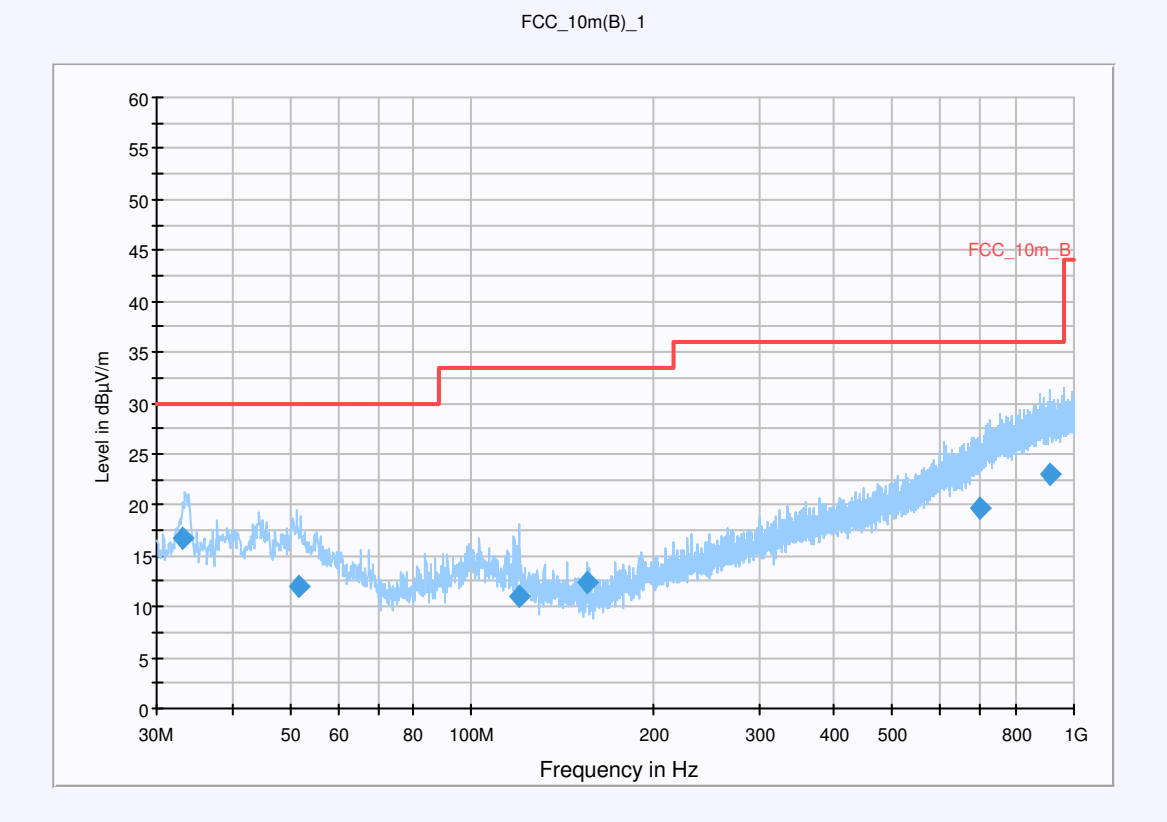
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 6 Mbits; Ch 5.320 Ghz; Output Power = 15.0
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: FCC_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



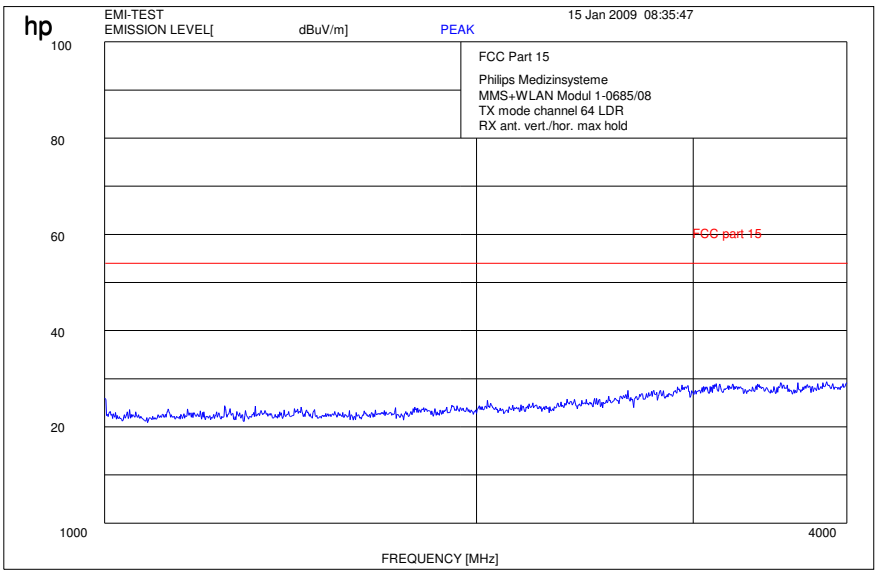
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
33.265750	16.8	15000.000	120.000	124.0	V	22.0	13.0	13.2	30.0	
51.567400	12.1	15000.000	120.000	174.0	V	117.0	13.4	17.9	30.0	
120.064600	11.1	15000.000	120.000	187.0	V	-1.0	10.5	22.4	33.5	
156.088250	12.3	15000.000	120.000	122.0	V	17.0	9.3	21.2	33.5	
696.157050	19.7	15000.000	120.000	158.0	V	233.0	22.5	16.3	36.0	
910.966150	23.1	15000.000	120.000	162.0	V	27.0	25.8	12.9	36.0	

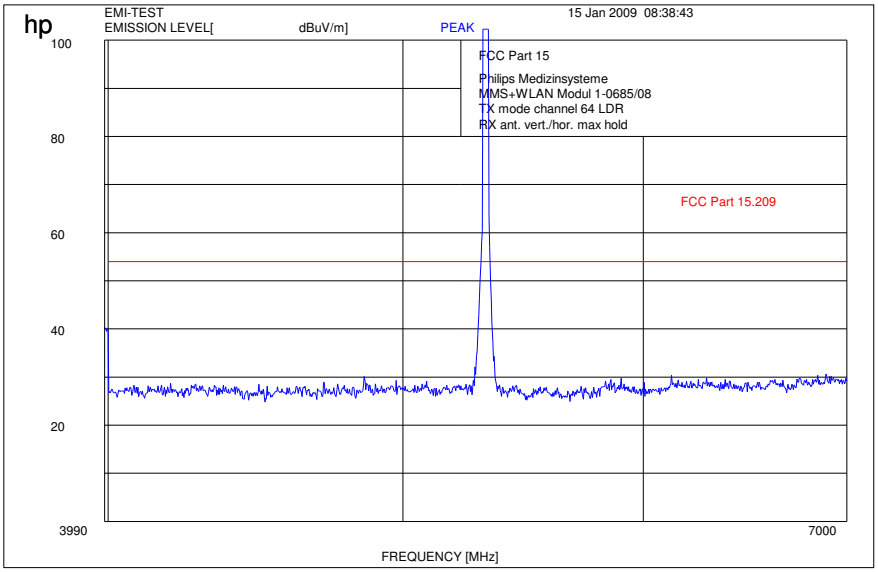
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

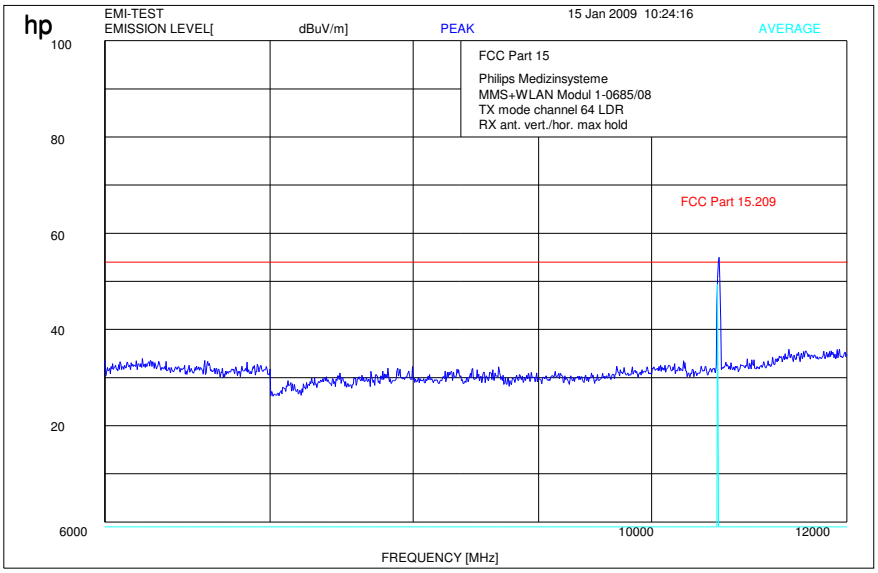
Plot 28: 1 GHz to 4 GHz (5320 MHz)



Plot 29: 4 GHz to 7 GHz (5320 MHz)



Plot 30: 6 GHz to 12 GHz (5320 MHz)



Results:

Spurious Emissions level [µV/m]								
Channel 36			Channel 40			Channel 48		
f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]
See plots			See plots			See plots		
Measurement uncertainty			±3 dB					

f < 1 GHz: RBW/VBW: 100 kHz f ≥ 1GHz: RBW/VBW: 1 MHz
see above plots

Results:

Spurious Emissions level [µV/m]								
Channel 52			Channel 56			Channel 64		
f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]
See plots			See plots			See plots		
Measurement uncertainty			±3 dB					

f < 1 GHz: RBW/VBW: 100 kHz f ≥ 1GHz: RBW/VBW: 1 MHz
see above plots

Limits :

Under normal test conditions only	See plots

High data rate:

Plot 1: 0.03 - 1 GHz (5180 MHz)

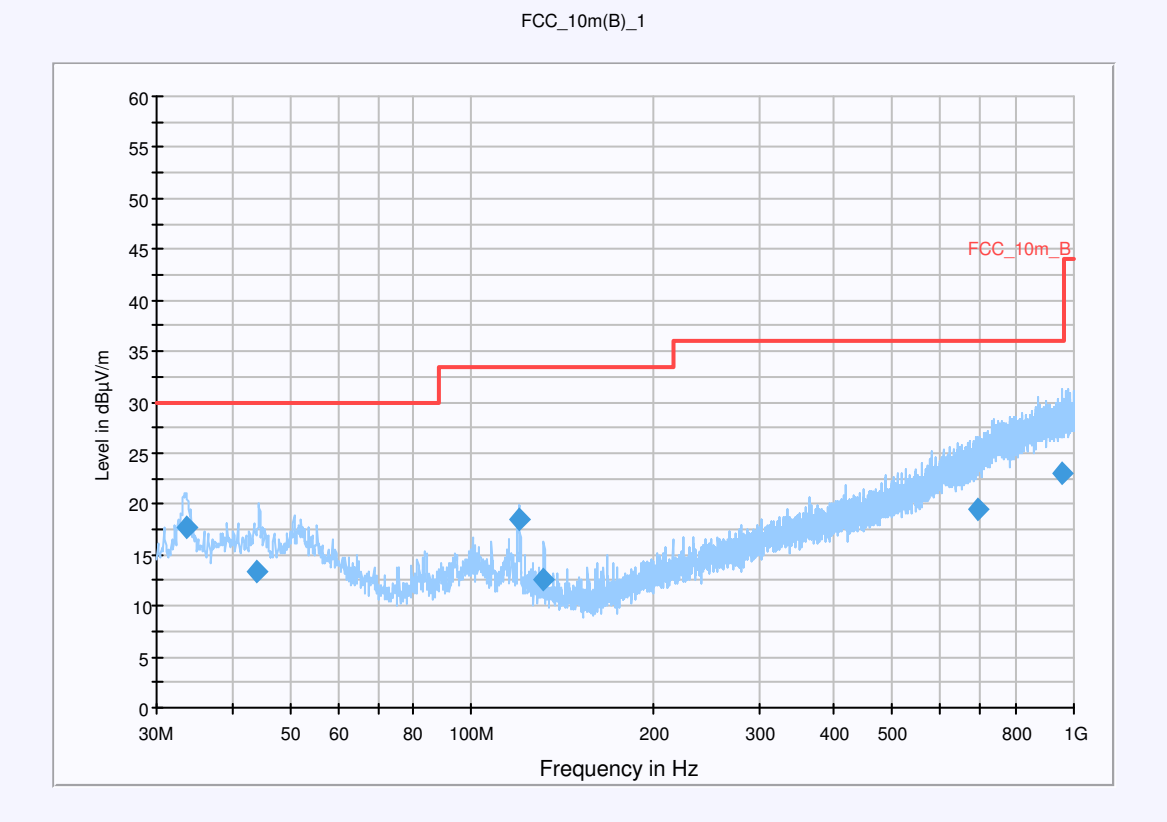
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 54 Mbits; Ch 5.180 Ghz; Output Power = 11
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: FCC_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



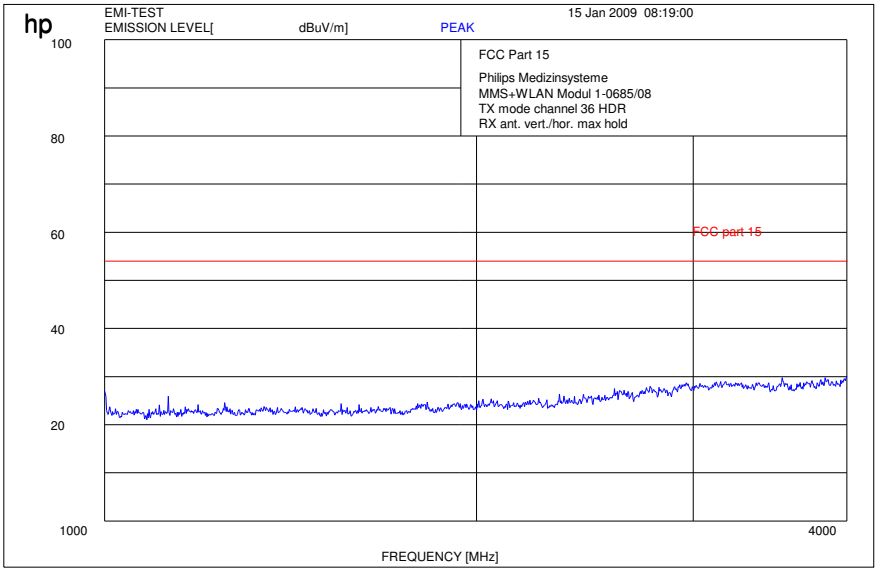
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
33.656650	17.6	15000.000	120.000	114.0	V	50.0	13.0	12.4	30.0	
44.039600	13.3	15000.000	120.000	100.0	V	117.0	13.4	16.7	30.0	
119.907900	18.5	15000.000	120.000	159.0	V	80.0	10.6	15.0	33.5	
131.960750	12.7	15000.000	120.000	152.0	V	13.0	9.5	20.8	33.5	
692.434000	19.5	15000.000	120.000	339.0	V	92.0	22.4	16.5	36.0	
952.504750	23.1	15000.000	120.000	343.0	V	236.0	26.0	12.9	36.0	

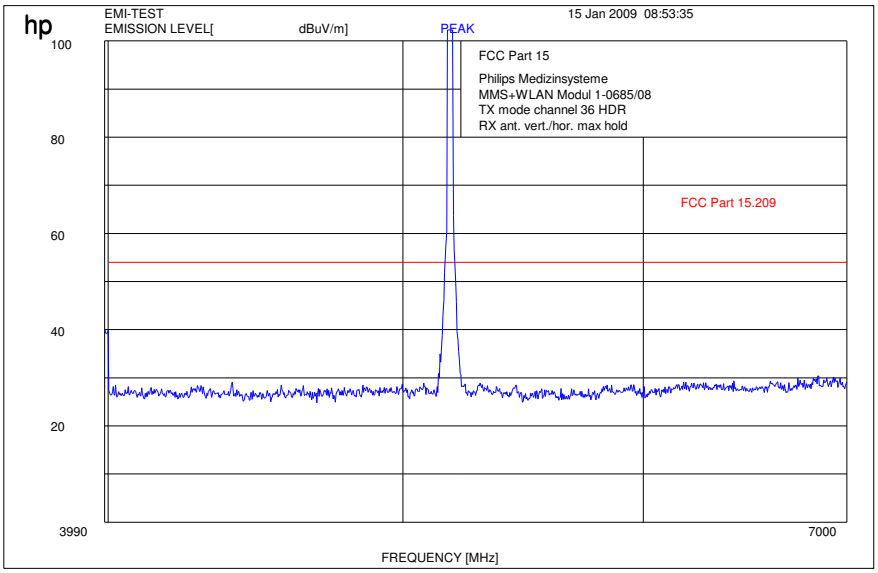
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

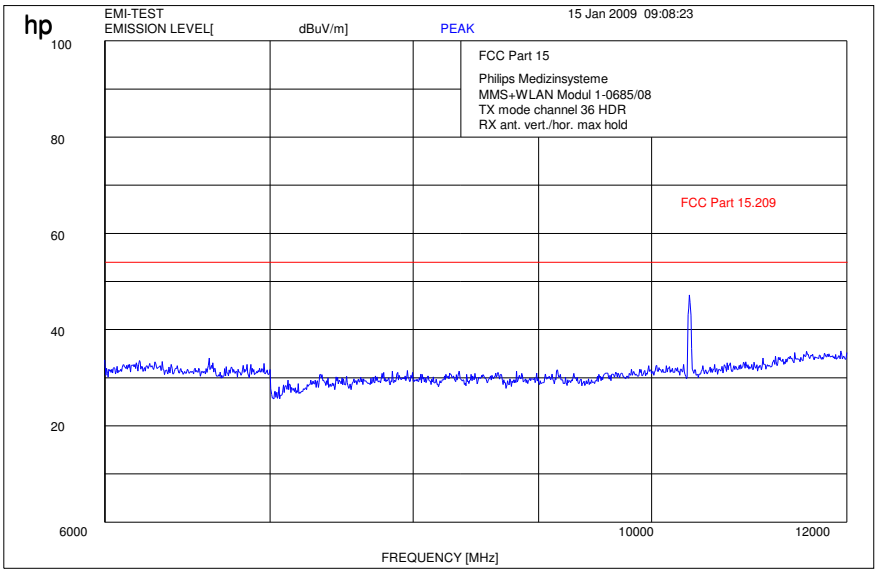
Plot 2: 1 GHz - 4 GHz (5180 MHz)



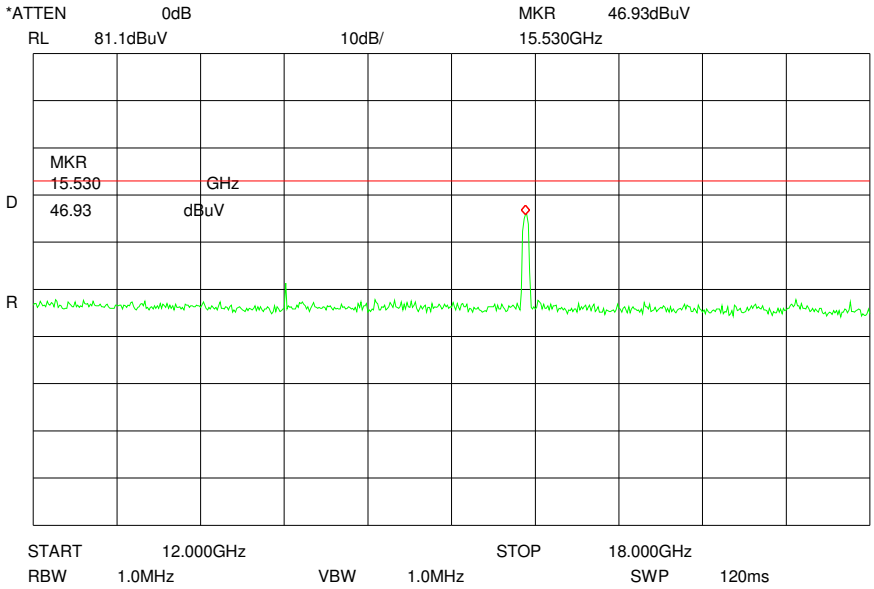
Plot 3: 4 GHz - 7 GHz (5180 MHz)



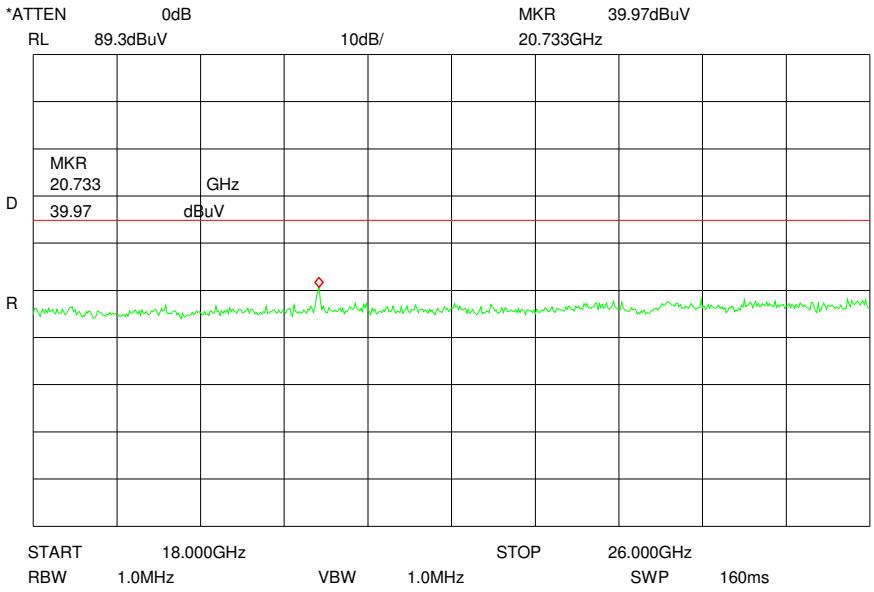
Plot 4: 6 GHz - 12 GHz (5180 MHz)



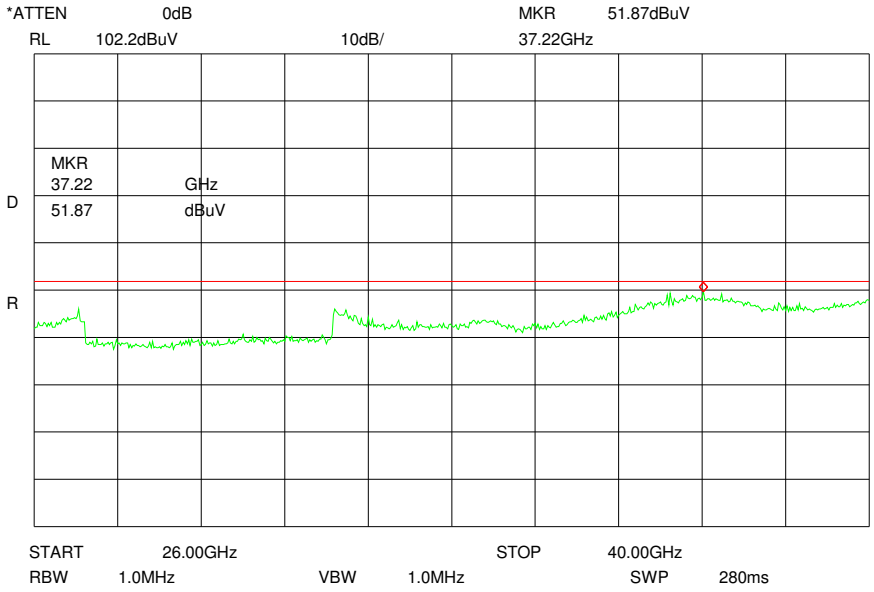
Plot 5: 12 - 18 GHz (valid for all three channels)



Plot 6: 18 - 26 GHz (valid for all three channels)



Plot 7: 26 - 40 GHz (valid for all three channels)



Plot 8: 30 MHz to 1 GHz (5200 MHz)

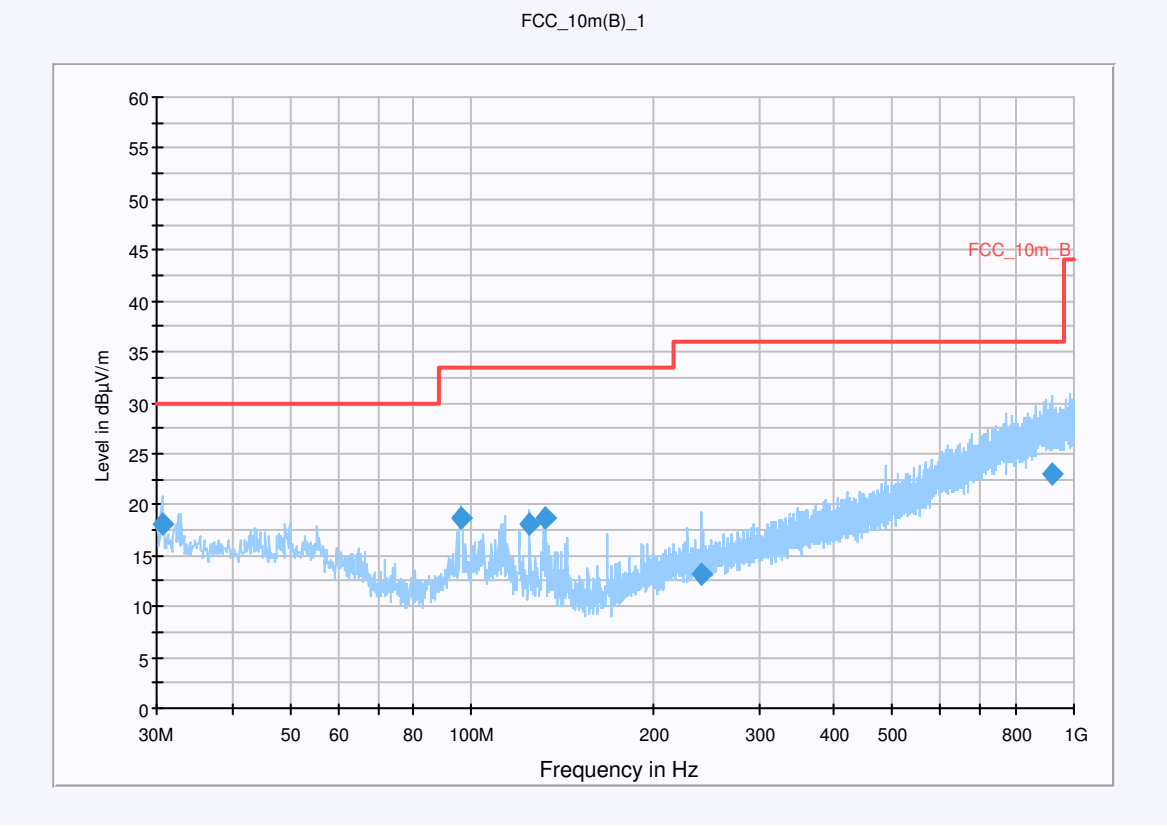
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 54 Mbits; Ch 5.200 Ghz; Output Power = 11
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



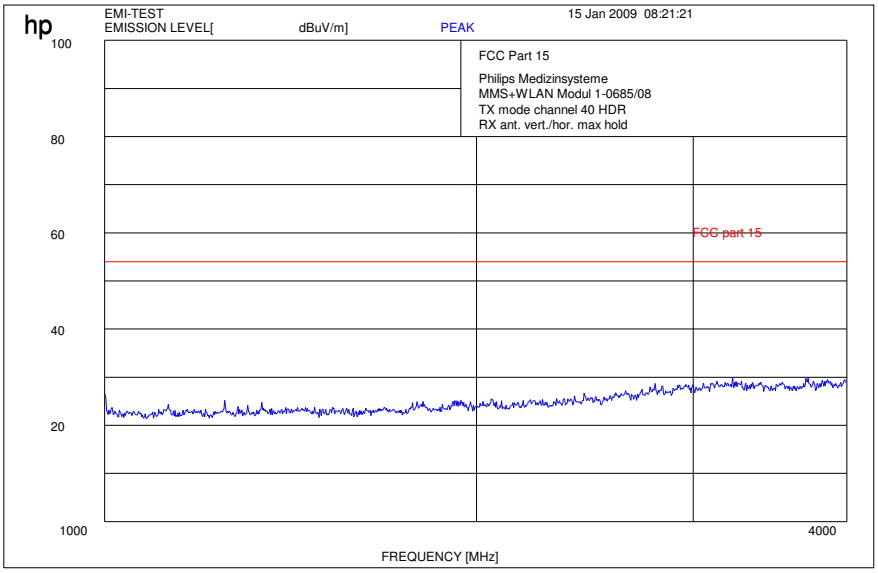
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.603850	18.1	15000.000	120.000	114.0	V	35.0	12.7	11.9	30.0	
95.785500	18.7	15000.000	120.000	116.0	V	154.0	11.7	14.8	33.5	
125.011500	18.2	15000.000	120.000	100.0	V	192.0	10.1	15.3	33.5	
132.049050	18.7	15000.000	120.000	125.0	V	92.0	9.5	14.8	33.5	
240.051650	13.3	15000.000	120.000	200.0	V	104.0	13.3	22.8	36.0	
921.736500	23.0	15000.000	120.000	200.0	H	233.0	25.8	13.0	36.0	

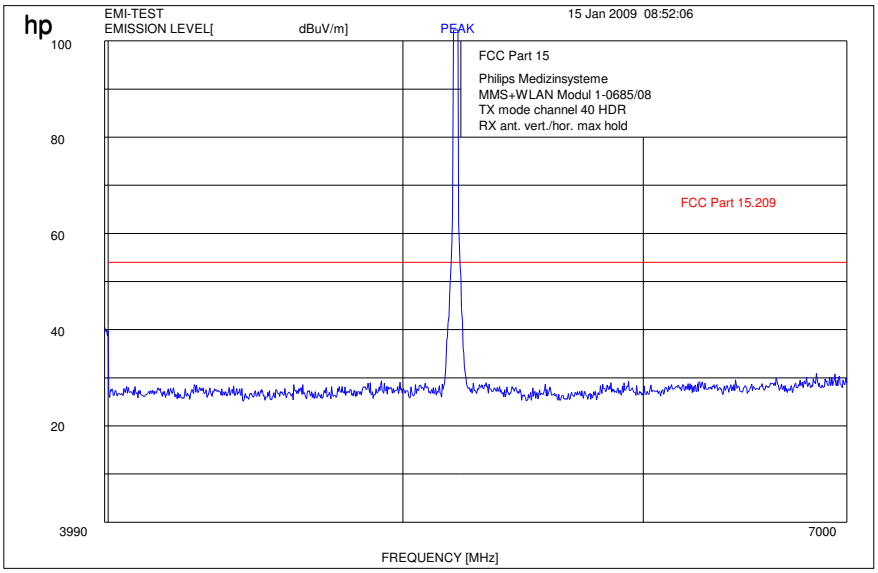
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

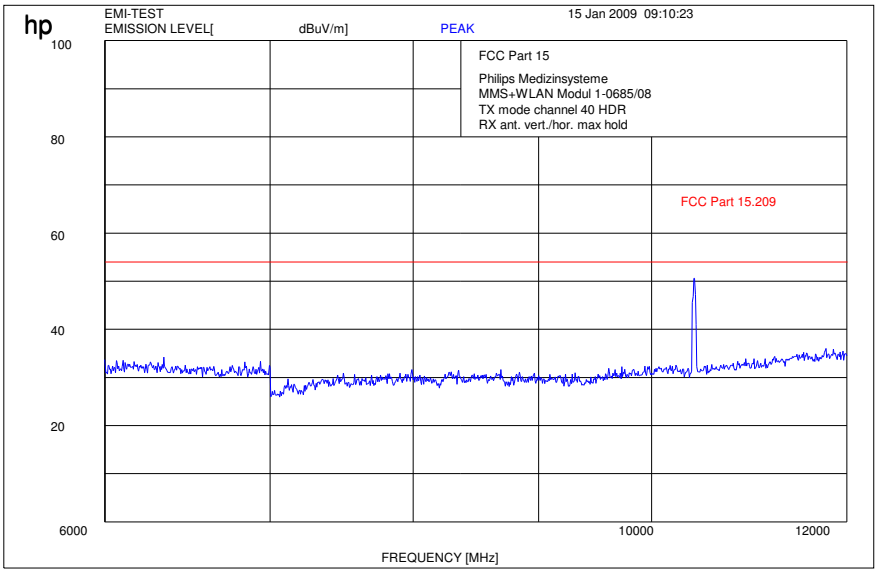
Plot 9: 1 GHz to 4 GHz (5200 MHz)



Plot 10: 4 GHz to 7 GHz (5200 MHz)



Plot 11: 6 GHz to 12 GHz (5200 MHz)



Plot 12: 30 MHz to 1 GHz (5240 MHz)

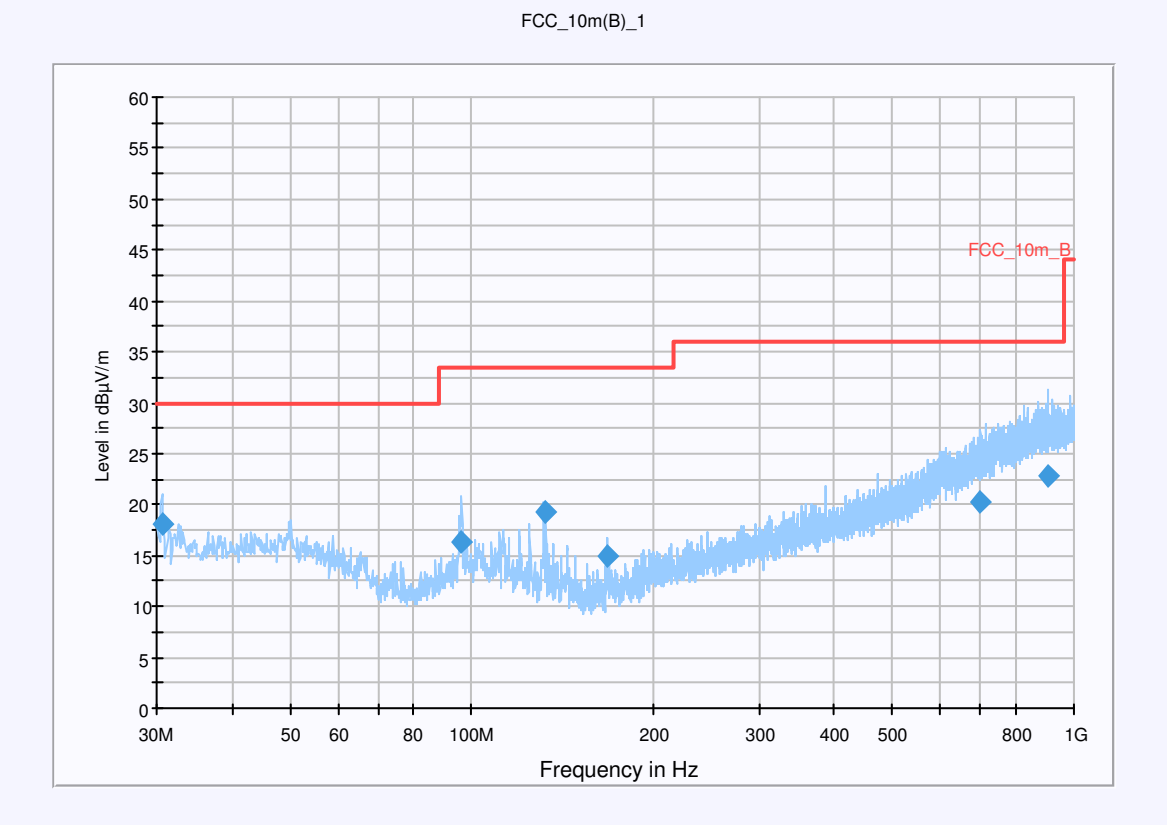
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 54 Mbits; Ch 5.240 Ghz; Output Power = 11
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



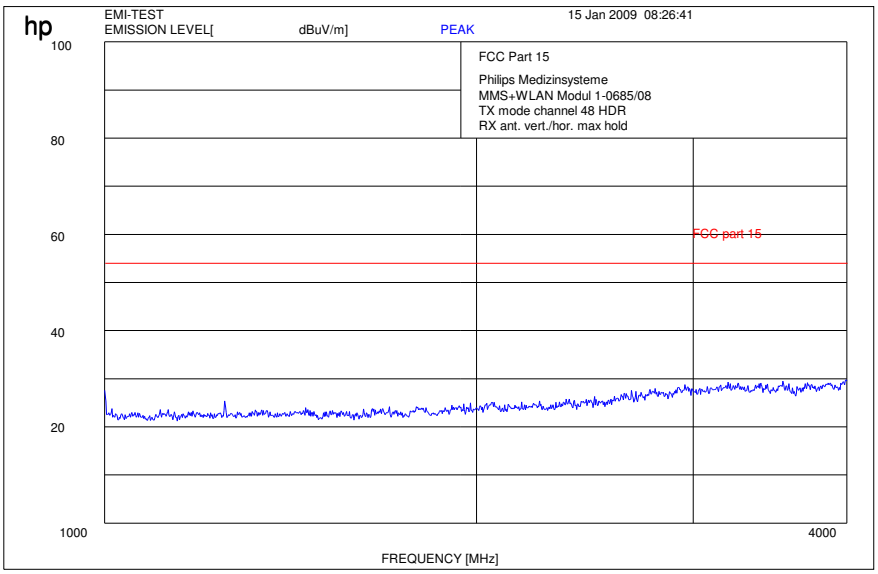
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.652300	18.0	15000.000	120.000	200.0	V	220.0	12.7	12.0	30.0	
95.904800	16.4	15000.000	120.000	259.0	V	151.0	11.7	17.1	33.5	
132.033500	19.3	15000.000	120.000	118.0	V	90.0	9.5	14.2	33.5	
167.999000	15.0	15000.000	120.000	100.0	V	0.0	9.9	18.5	33.5	
700.383750	20.2	15000.000	120.000	372.0	V	13.0	23.0	15.8	36.0	
905.491600	22.9	15000.000	120.000	200.0	H	137.0	25.7	13.1	36.0	

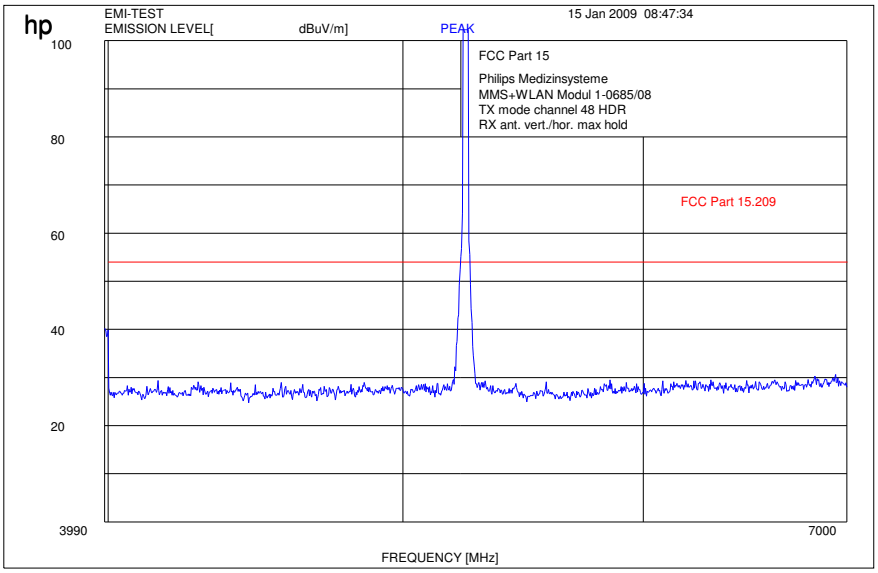
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

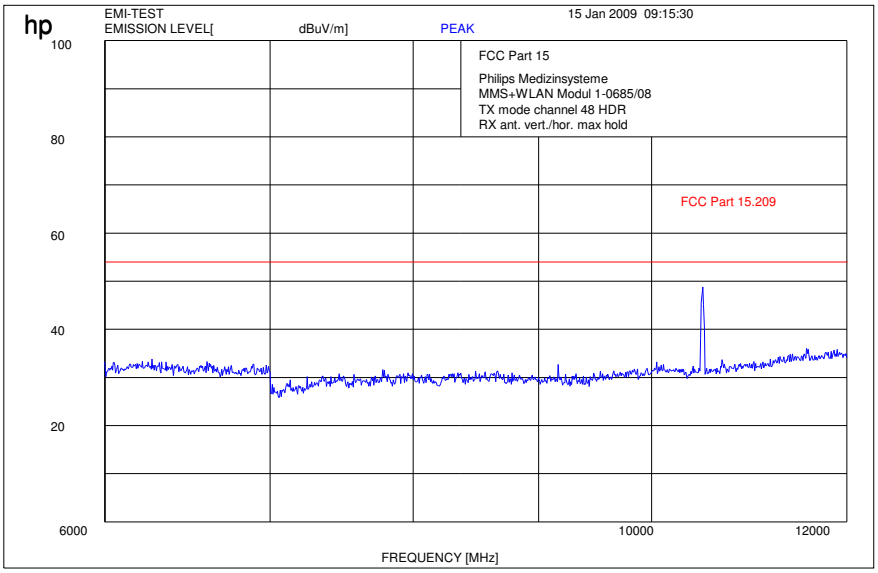
Plot 13: 1 GHz to 4 GHz (5240 MHz)



Plot 14: 4 GHz to 7 GHz (5240 MHz)



Plot 15: 6 GHz to 12 GHz (5240 MHz)



Plot 16: 30 MHz to 1 GHz (5260 MHz)

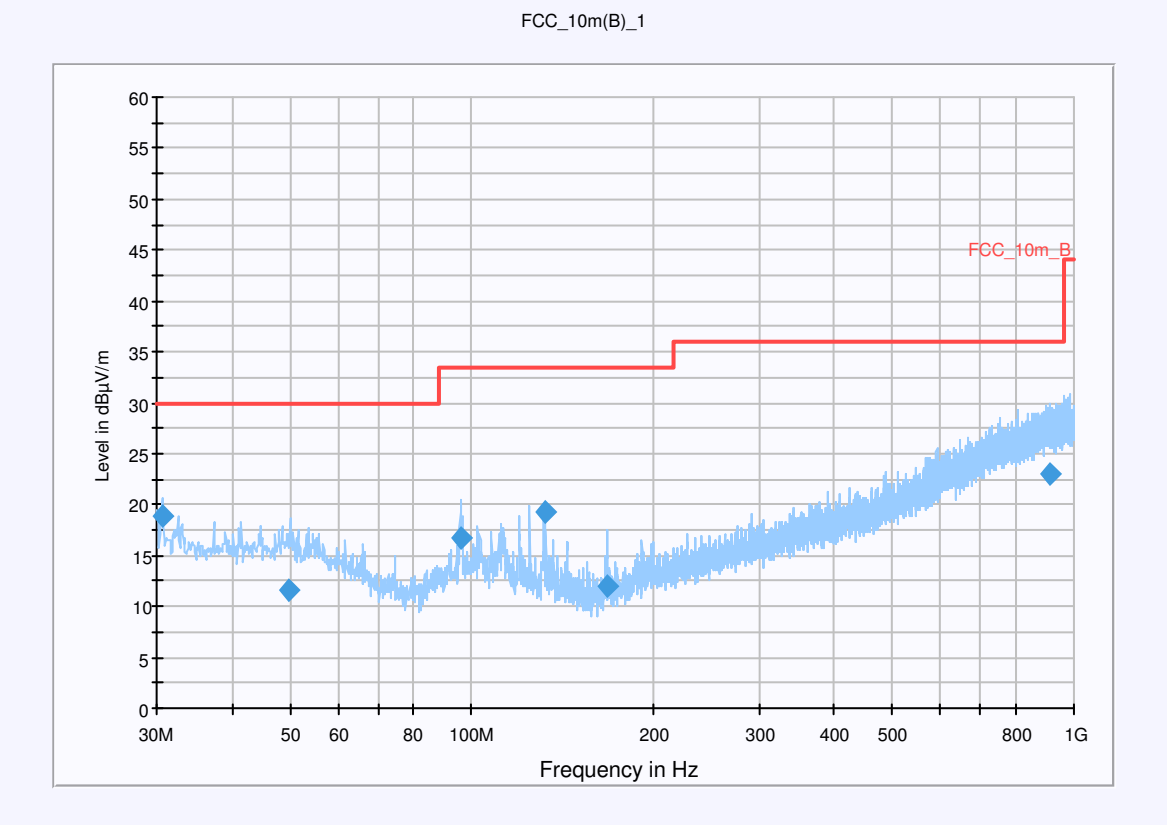
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 54 Mbits; Ch 5.260 Ghz; Output Power = 15
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



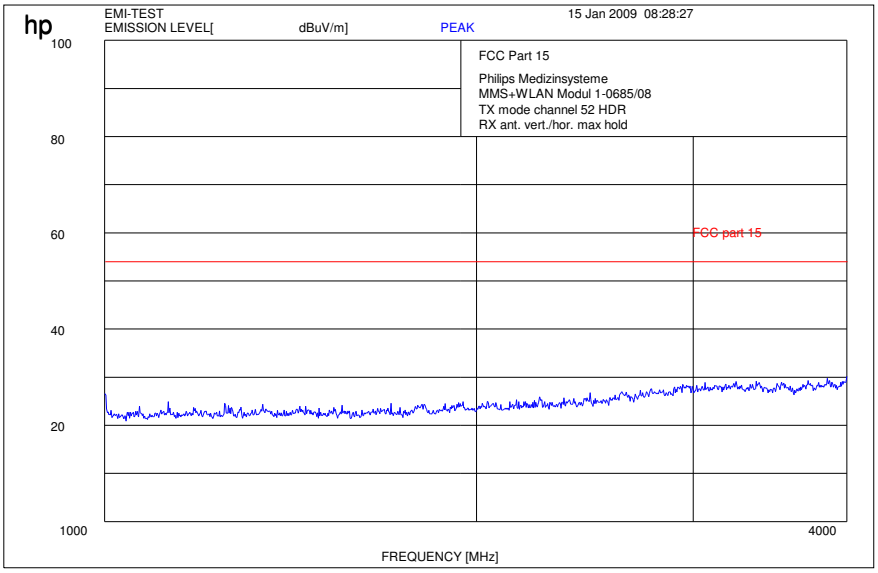
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.616000	18.8	15000.000	120.000	118.0	V	292.0	12.7	11.2	30.0	
49.779150	11.6	15000.000	120.000	137.0	V	143.0	13.5	18.4	30.0	
95.854800	16.7	15000.000	120.000	139.0	V	181.0	11.7	16.8	33.5	
132.050900	19.2	15000.000	120.000	113.0	V	42.0	9.5	14.3	33.5	
168.066050	12.1	15000.000	120.000	200.0	V	89.0	9.9	21.4	33.5	
912.477200	23.0	15000.000	120.000	326.0	V	229.0	25.7	13.0	36.0	

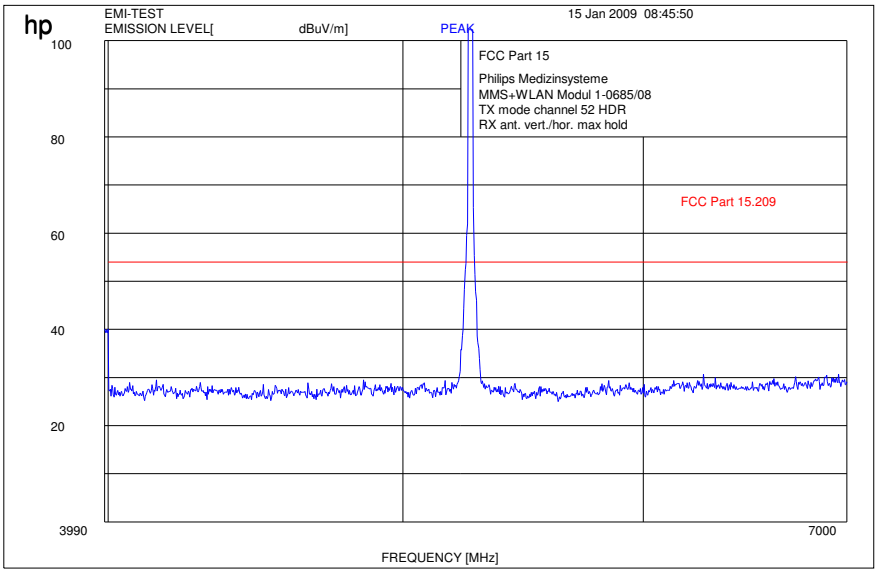
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

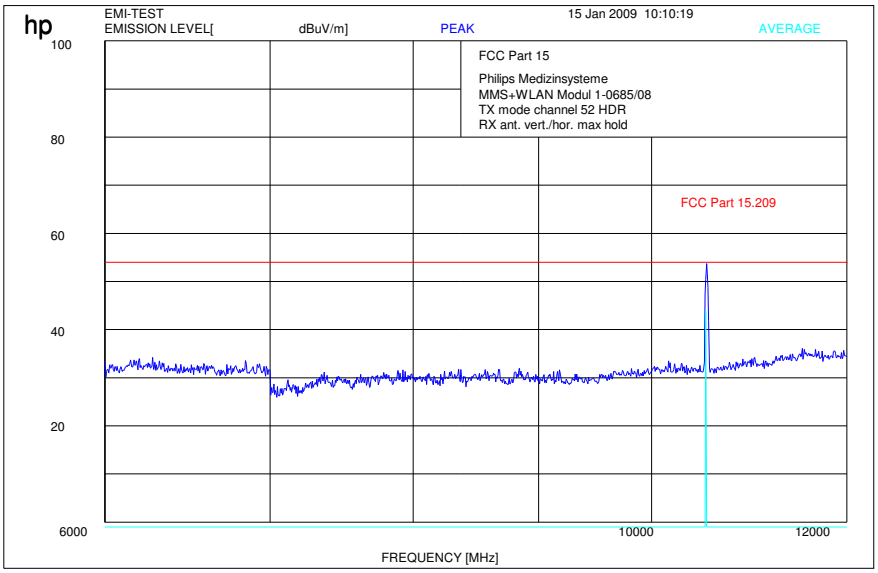
Plot 17: 1 GHz to 4 GHz (5260 MHz)



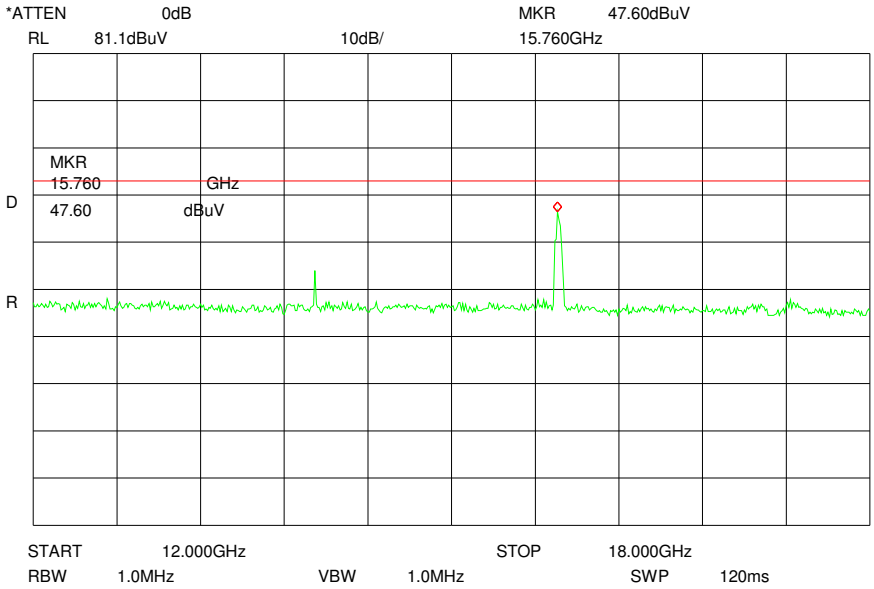
Plot 18: 4 GHz to 7 GHz (5260 MHz)



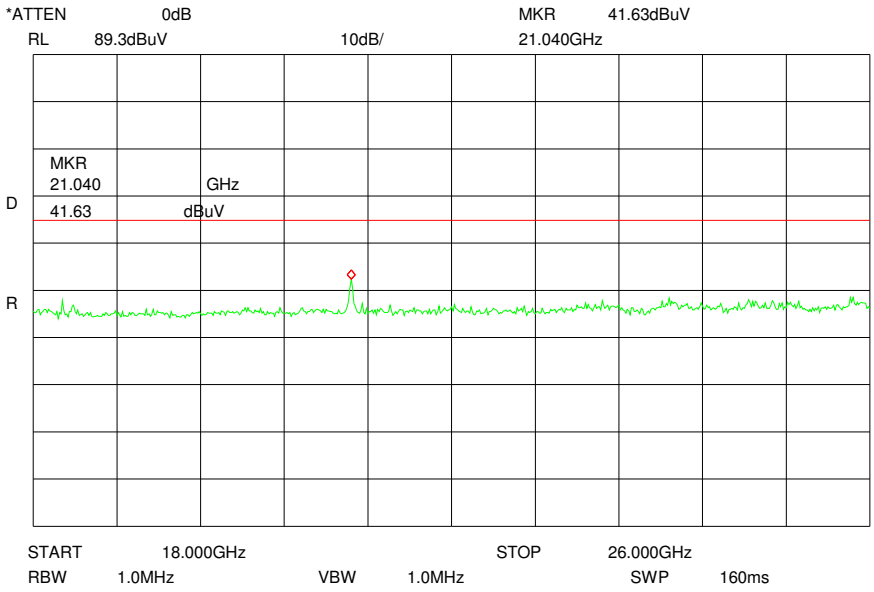
Plot 19: 6 GHz to 12 GHz (5260 MHz)



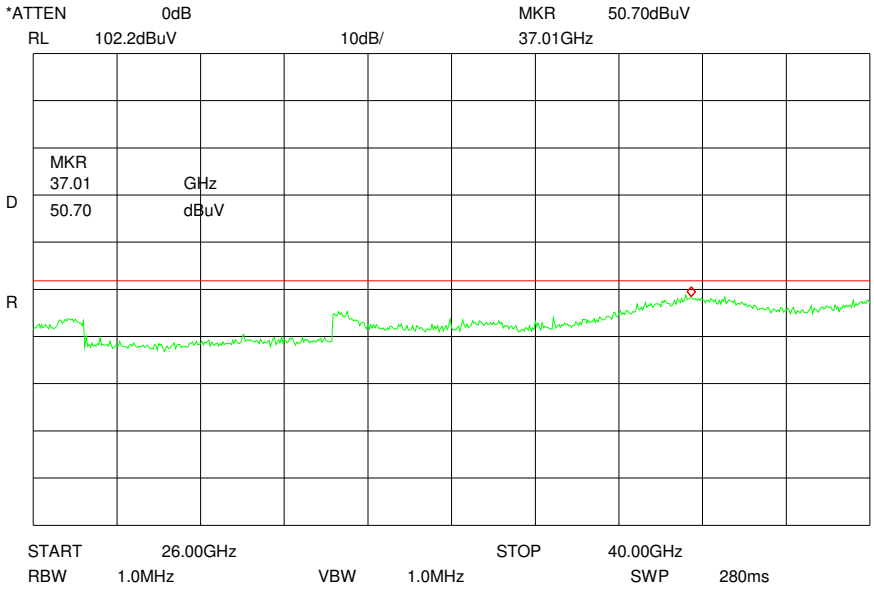
Plot 20: 12 - 18 GHz (valid for all three channels)



Plot 21: 18 - 26 GHz (valid for all three channels)



Plot 22: 26 - 40 GHz (valid for all three channels)



Plot 23: 30 MHz to 1 GHz (5280 MHz)

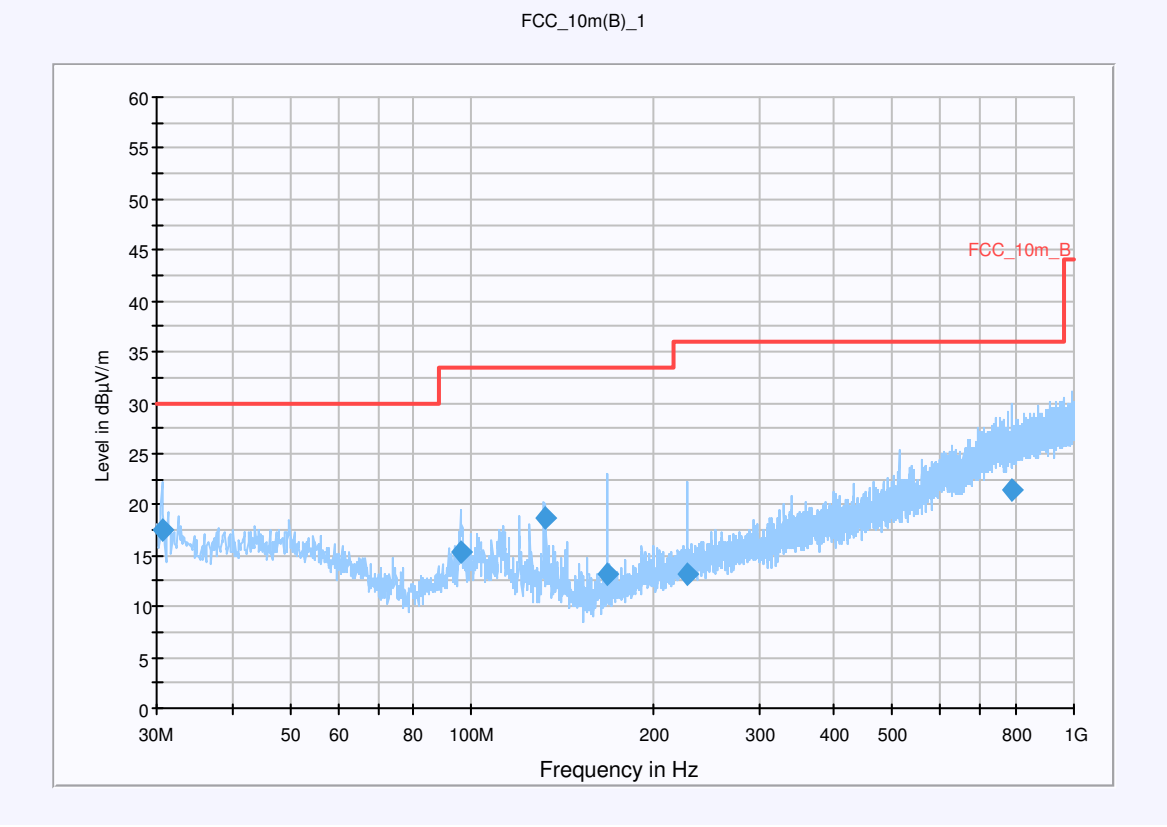
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A; 54 Mbits; Ch 5.280 Ghz; Output Power = 15
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: STAN_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



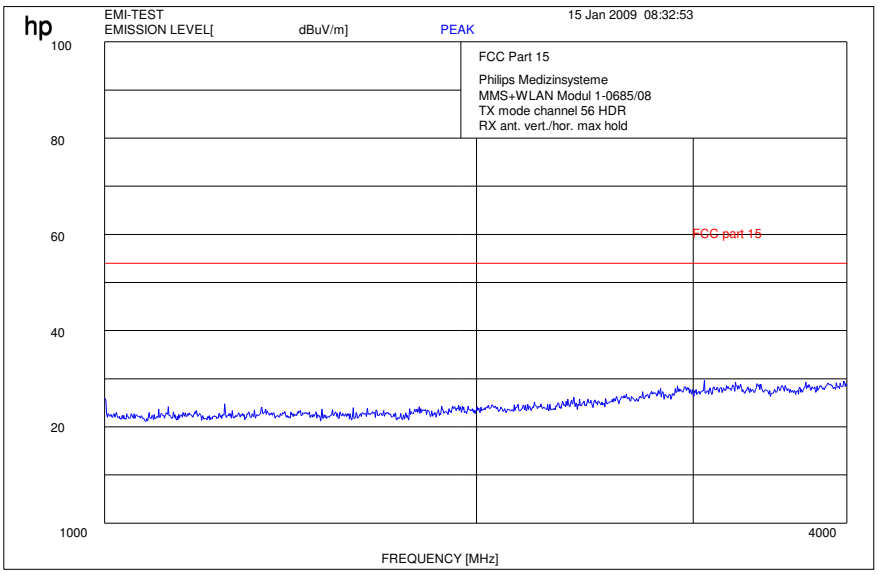
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
30.665650	17.4	15000.000	120.000	200.0	V	323.0	12.7	12.6	30.0	
96.028200	15.3	15000.000	120.000	136.0	V	188.0	11.8	18.2	33.5	
132.011100	18.7	15000.000	120.000	154.0	V	67.0	9.5	14.8	33.5	
167.927800	13.1	15000.000	120.000	135.0	V	91.0	9.9	20.4	33.5	
228.069950	13.3	15000.000	120.000	400.0	V	190.0	12.9	22.7	36.0	
786.376950	21.4	15000.000	120.000	400.0	V	305.0	24.3	14.6	36.0	

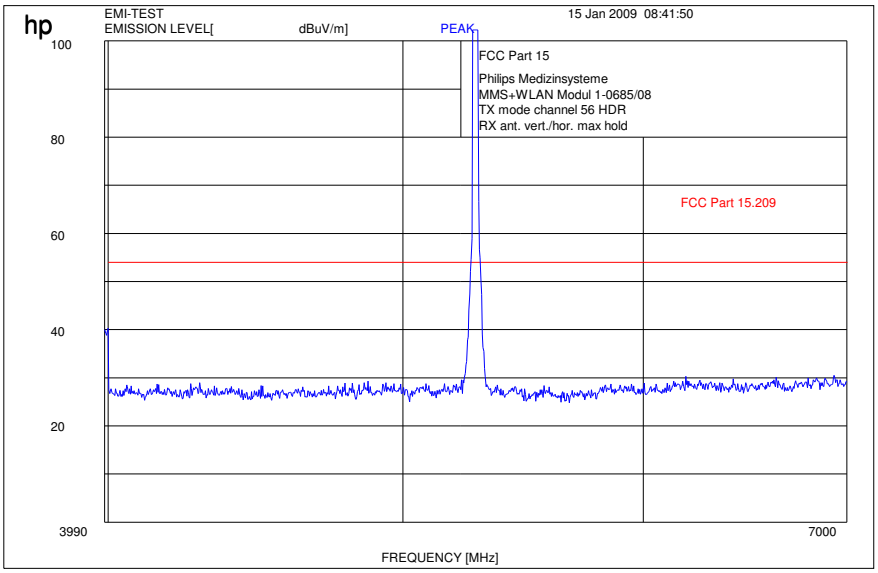
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

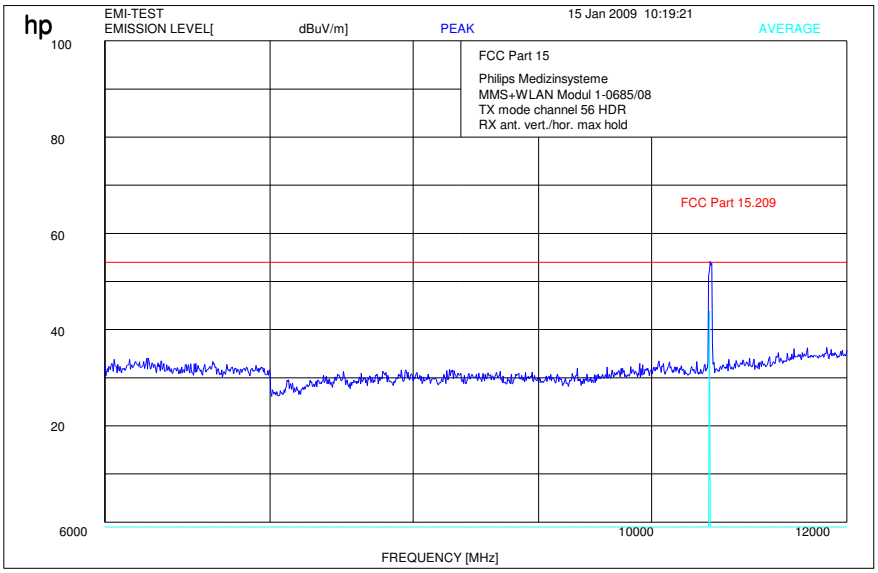
Plot 24: 1 GHz to 4 GHz (5280 MHz)



Plot 25: 4 GHz to 7 GHz (5280 MHz)



Plot 26: 6 GHz to 12 GHz (5280 MHz)



Plot 27: 30 MHz to 1 GHz (5320 MHz)

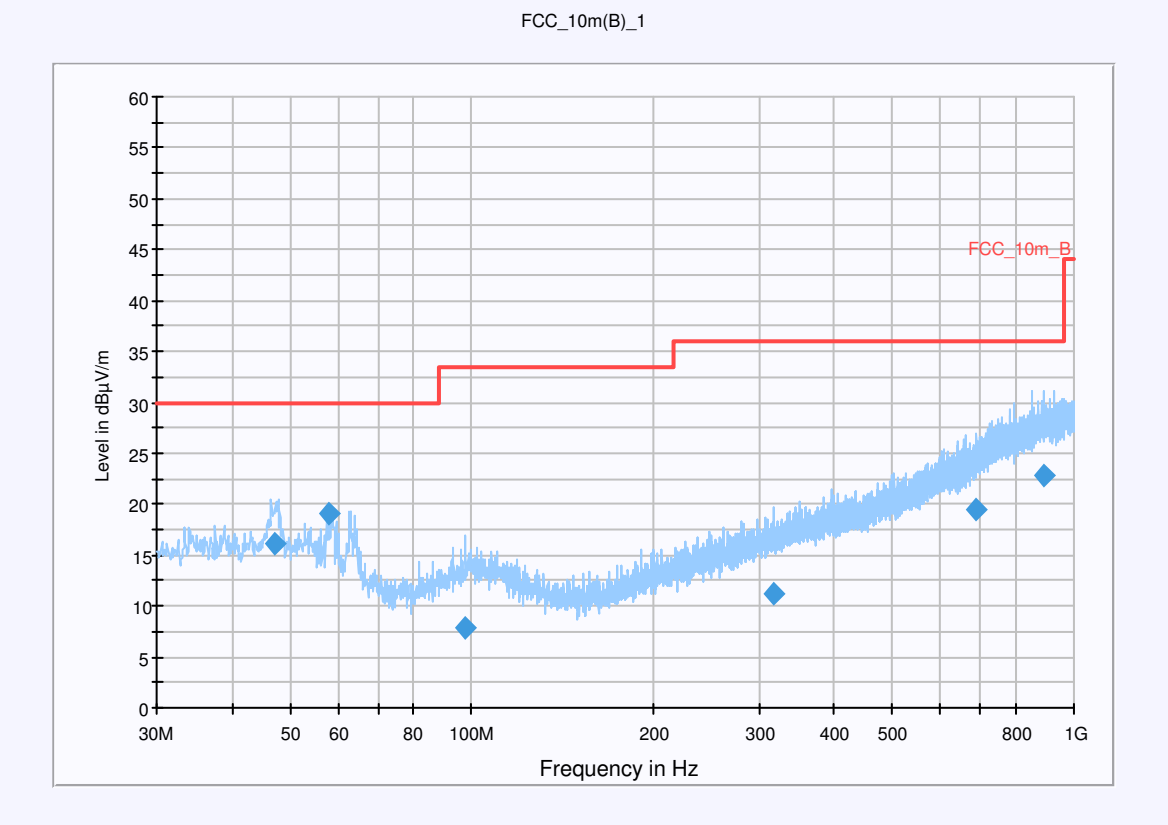
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	Antenna M8100-66490
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Mode A 54 Mbits; Ch 5.320 Ghz; Output Power = 15
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: FCC_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



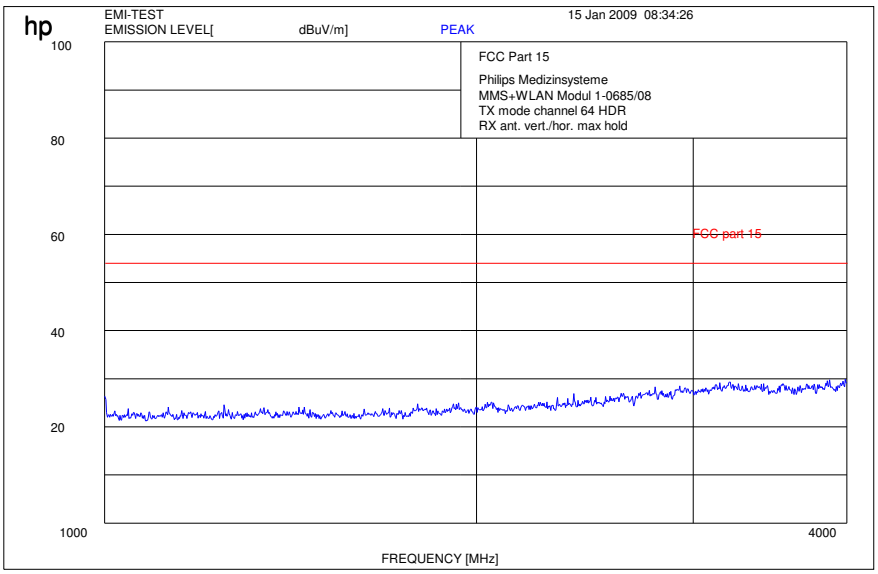
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
47.022200	16.0	15000.000	120.000	400.0	H	143.0	13.5	14.0	30.0	
58.066850	19.2	15000.000	120.000	160.0	H	50.0	12.3	10.8	30.0	
97.718000	7.9	15000.000	120.000	132.0	H	313.0	12.0	25.6	33.5	
317.276950	11.2	15000.000	120.000	239.0	H	44.0	15.2	24.8	36.0	
689.171650	19.4	15000.000	120.000	187.0	V	22.0	22.3	16.6	36.0	
892.016700	22.8	15000.000	120.000	194.0	V	167.0	25.7	13.2	36.0	

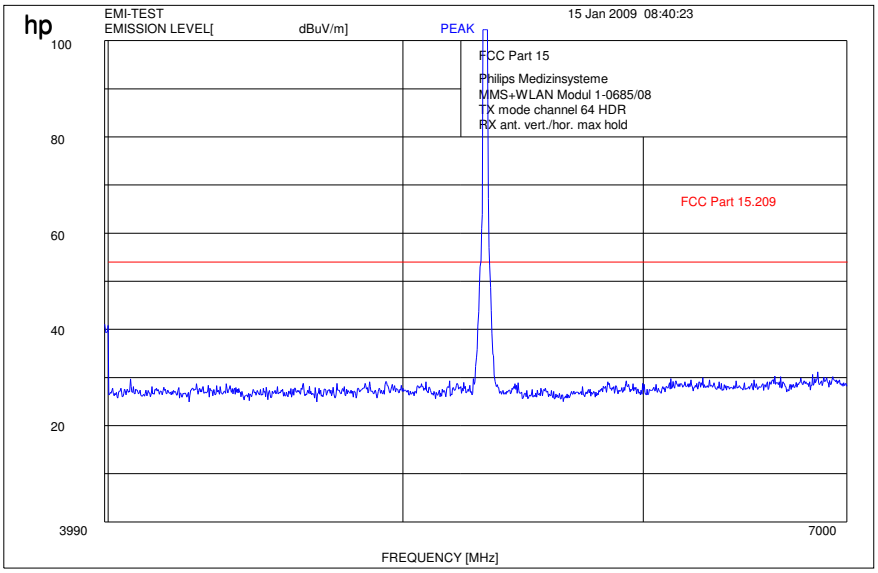
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

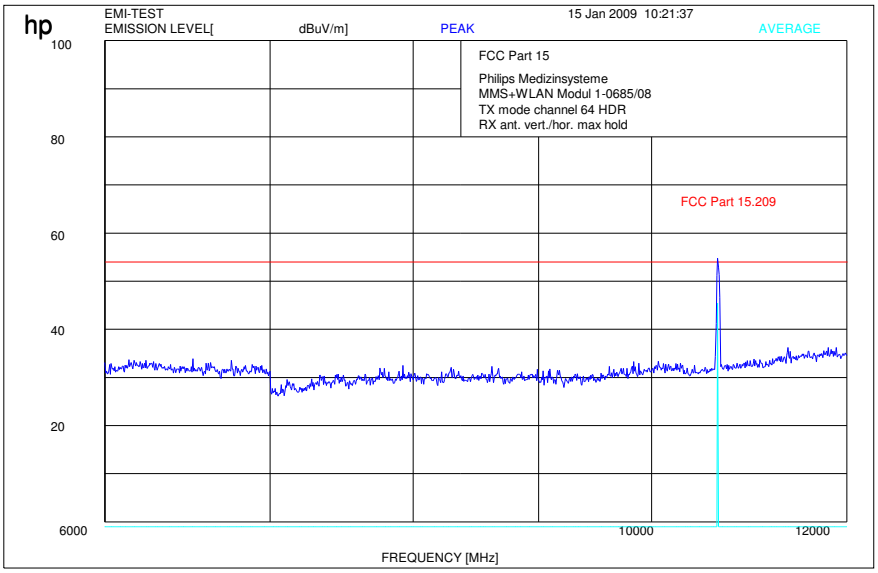
Plot 28: 1 GHz to 4 GHz (5320 MHz)



Plot 29: 4 GHz to 7 GHz (5320 MHz)



Plot 30: 6 GHz to 12 GHz (5320 MHz)



Results:

Spurious Emissions level [µV/m]								
Channel 36			Channel 40			Channel 48		
f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]
See plots			See plots			See plots		
Measurement uncertainty			±3 dB					

f < 1 GHz: RBW/VBW: 100 kHz f ≥ 1GHz: RBW/VBW: 1 MHz
see above plots

Results:

Spurious Emissions level [µV/m]								
Channel 52			Channel 56			Channel 64		
f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]
See plots			See plots			See plots		
Measurement uncertainty			±3 dB					

f < 1 GHz: RBW/VBW: 100 kHz f ≥ 1GHz: RBW/VBW: 1 MHz
see above plots

Limits :

Under normal test conditions only	See plots

3.14 Spurious emissions radiated (RX) § 15.209

Plot 1: 30 to 1000 MHz

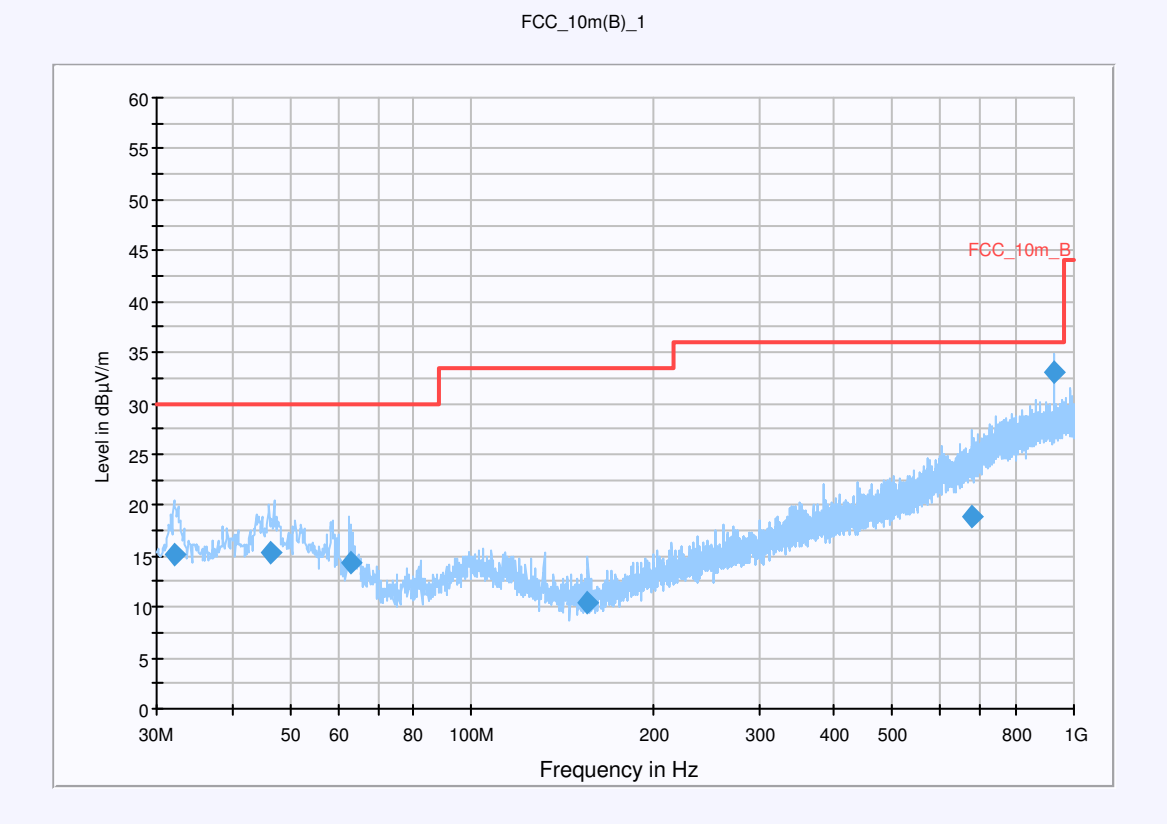
Common Information

EUT:	Philips Medizin MMS + WLAN a/b/g/ Modul
Serial Number:	
Test Description:	FCC part 15.407
Operating Conditions:	Wlan Rx Mode
Operator Name:	ZAK
Comment:	Powered with DC 5 V

Scan Setup: FCC_Fin [EMI radiated]

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

Subrange	Detectors	IF Bandwidth	Meas. Time	Receiver
30 MHz - 1 GHz	QuasiPeak	120 kHz	15 s	Receiver



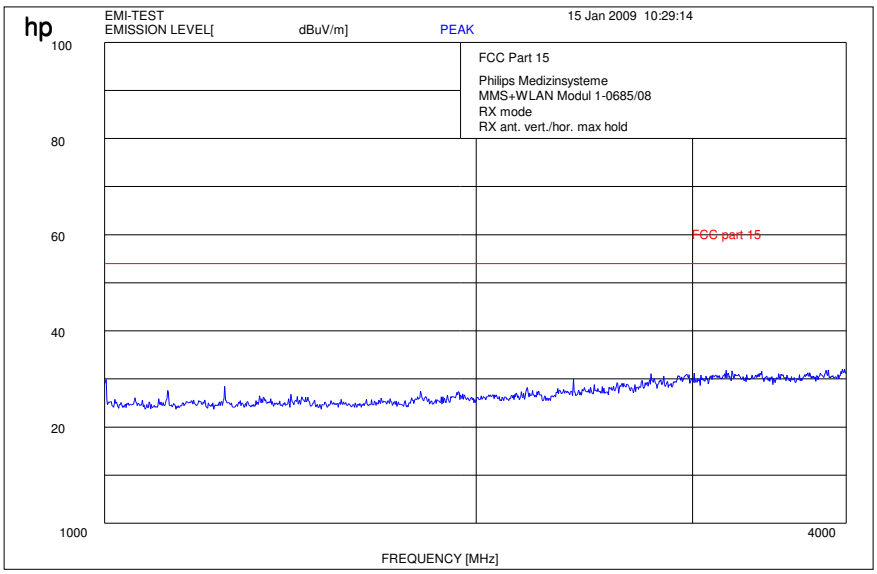
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV/m)	Meas. Time (ms)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dBµV/m)	Comment
32.087650	15.1	15000.000	120.000	175.0	V	143.0	12.8	14.9	30.0	
46.554550	15.4	15000.000	120.000	183.0	V	220.0	13.5	14.6	30.0	
63.092000	14.3	15000.000	120.000	159.0	V	182.0	11.1	15.7	30.0	
155.920300	10.5	15000.000	120.000	135.0	V	269.0	9.3	23.0	33.5	
675.292250	19.0	15000.000	120.000	400.0	H	168.0	21.9	17.0	36.0	
928.629550	33.0	15000.000	120.000	200.0	V	236.0	25.9	3.0	36.0	

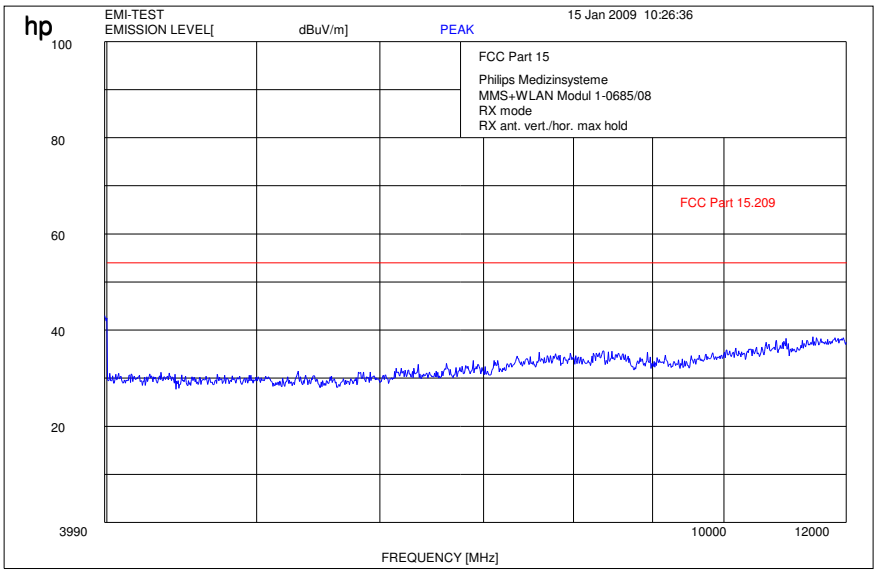
Hardware Setup: EMI radiated\Electric Field (NOS) - [EMI radiated]

Subrange 1	
Frequency Range:	30MHz - 2GHz
Receiver:	Receiver [ESCI 3] @ GPIB0 (ADR 20), SN 100083/003, FW 3.32, CAL 07.01.2009
Signal Path:	without Notch FW 1.0
Antenna:	VULB 9163 SN 9163-295, FW ---, CAL 08.04.2010 Correction Table (vertical): VULP6113 Correction Table (horizontal): VULP6113 Correction Table: Cabel with switch (0408)
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

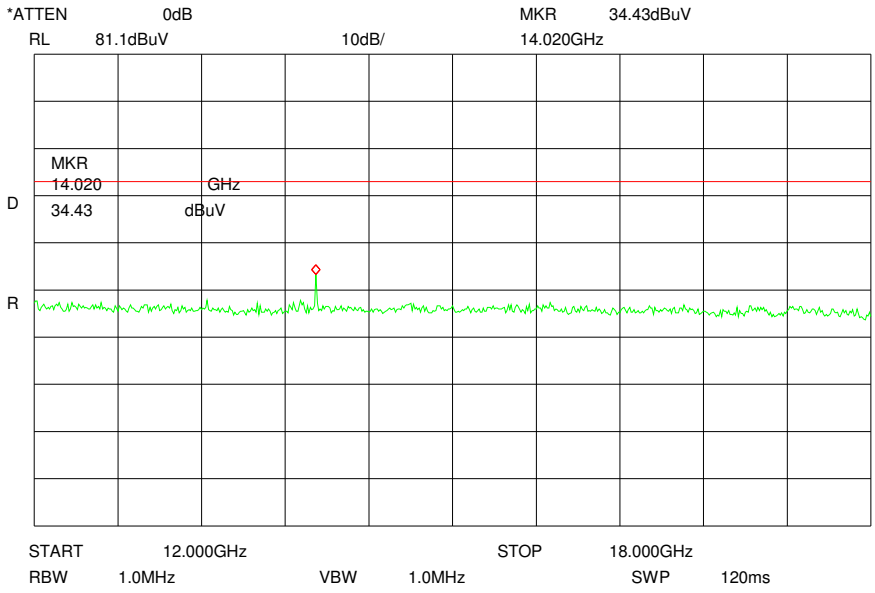
Plot 2: 1 GHz to 4 GHz



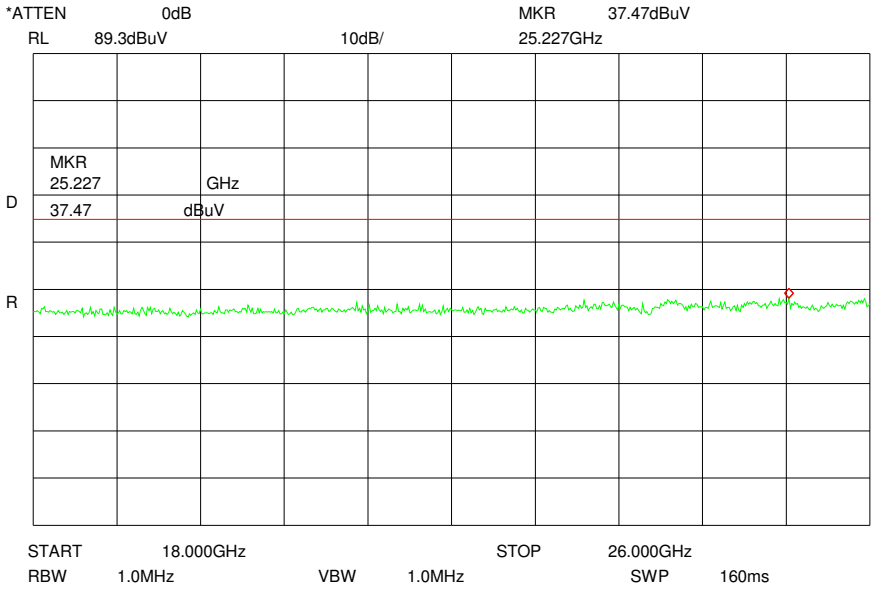
Plot 3: 4 GHz to 12 GHz



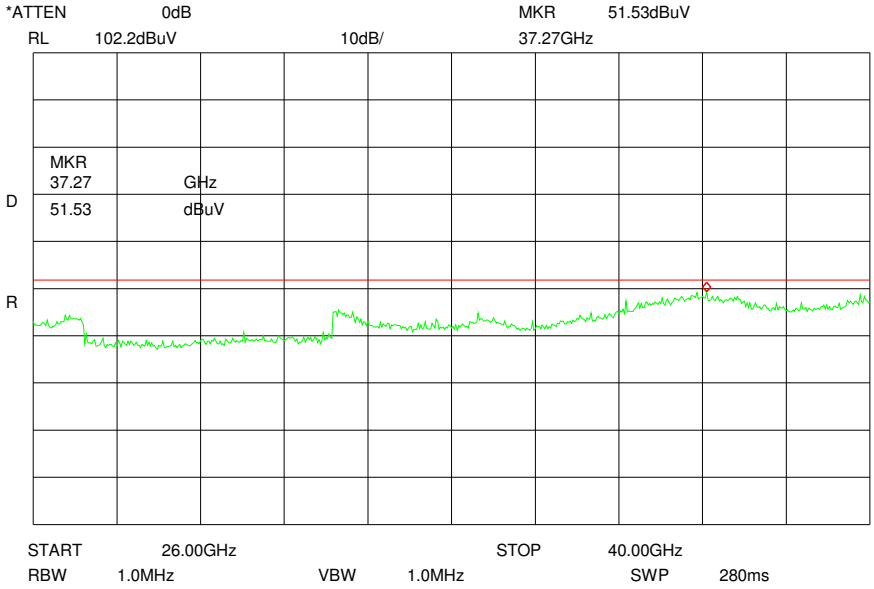
Plot 4: 12 GHz to 18 GHz



Plot 5: 18 GHz to 26 GHz



Plot 6: 26 GHz to 40GHz



Results:

Spurious Emissions level [µV/m]								
RX / Idle mode			--			--		
f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]
See plots								
Measurement uncertainty			±3 dB					

f < 1 GHz: RBW/VBW: 100 kHz f ≥ 1GHz: RBW/VBW: 1 MHz
see above plots

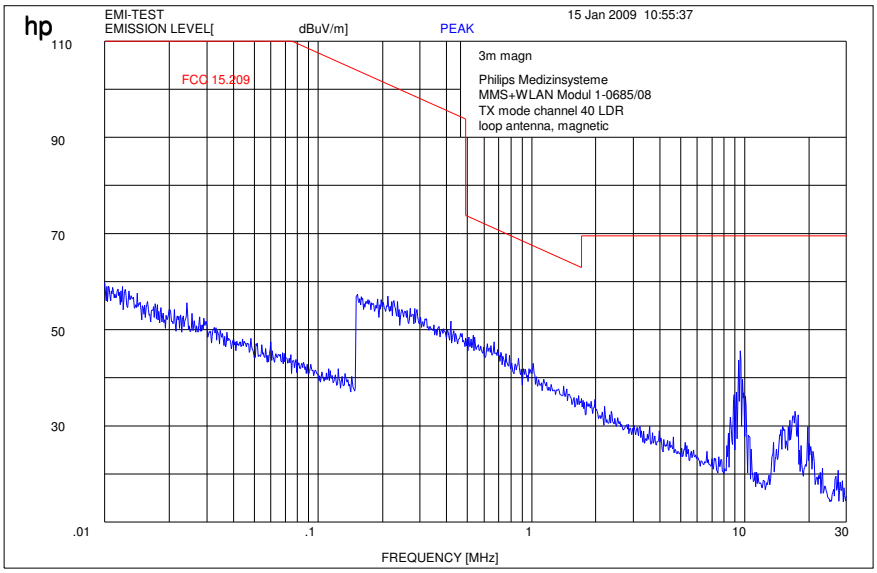
Limits :

Under normal test conditions only	See plots

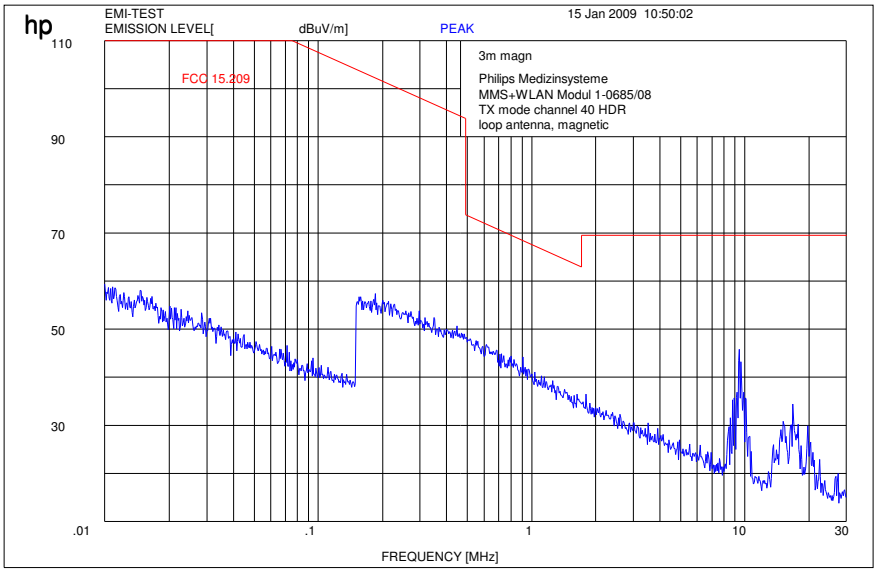
3.15 Spurious Emissions - radiated <30 MHz (valid for all antenna types) §15.109

Measured at 3 m distance.
Values recalculated with 40 dB/decade according to FCC rules.

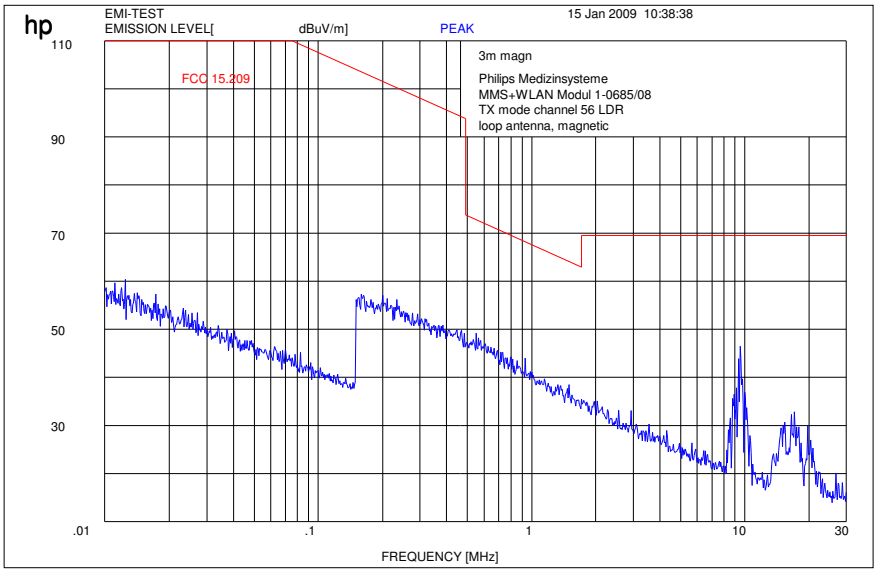
Plot 1: TX mode, channel 40, low data rate



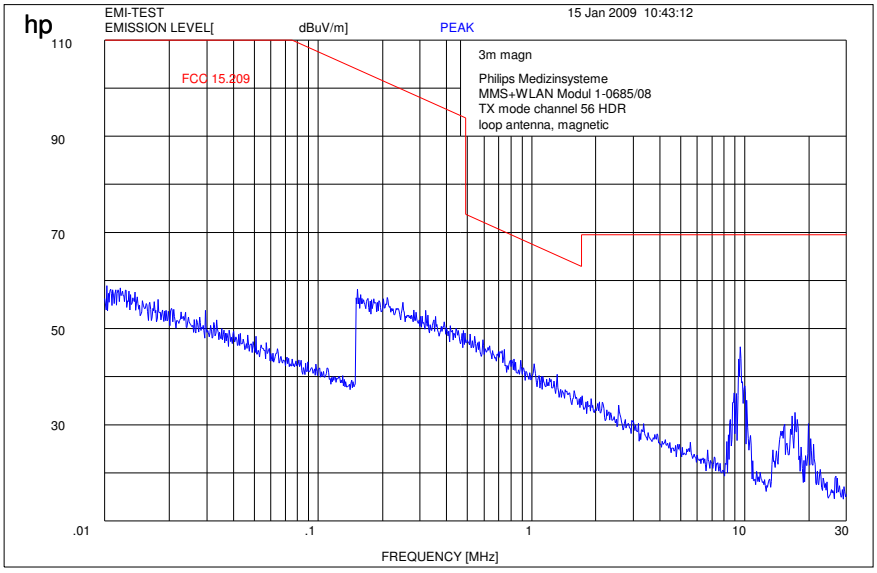
Plot 2: TX mode, channel 40, high data rate



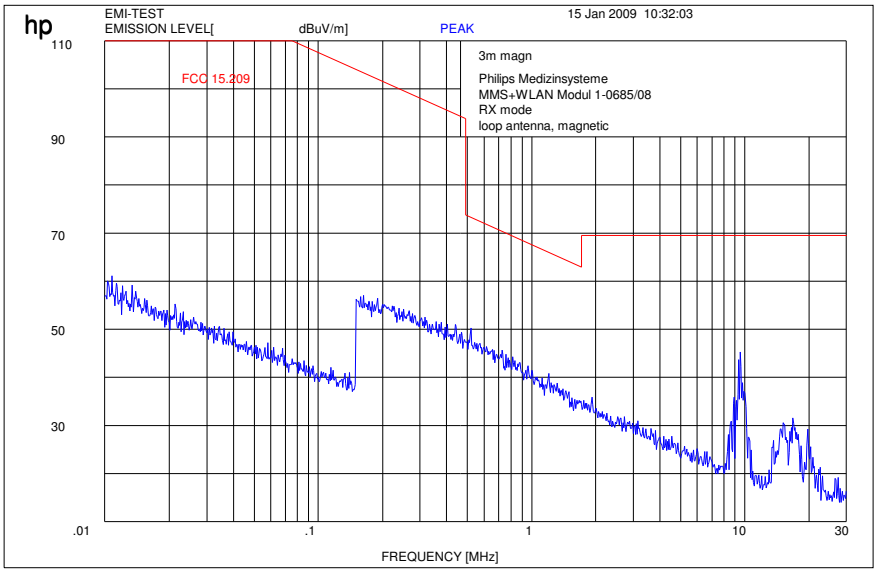
Plot 3: TX mode, channel 56, low data rate



Plot 4: TX mode, channel 56, high data rate



Plot 5: RX mode

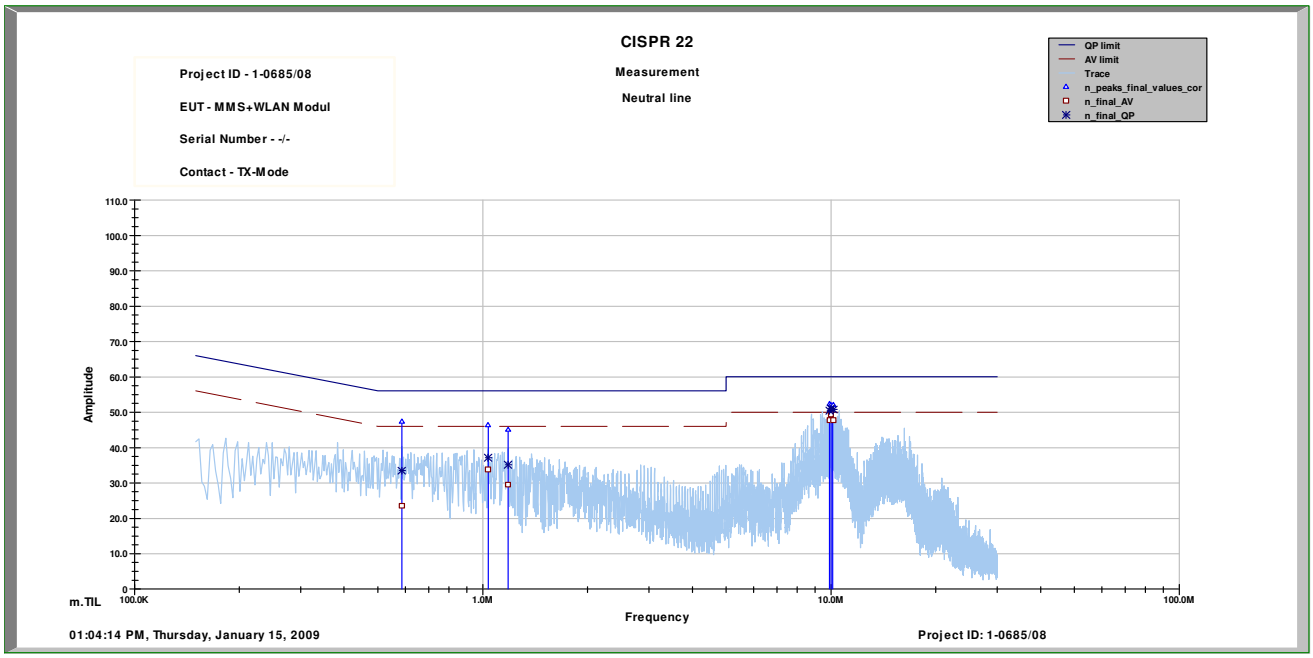


Limits:

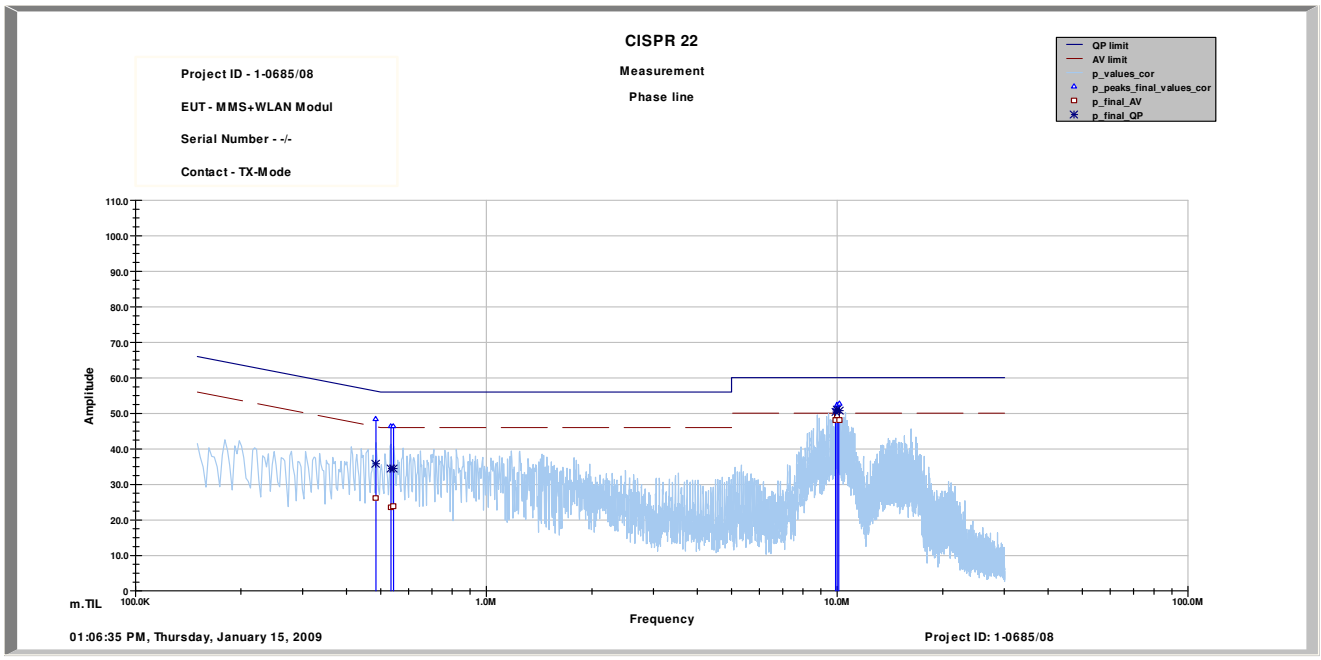
Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30 / 29.5 dBµV/m	30
30 - 88	100 / 40 dBµV/m	3
88 - 216	150 / 43.5 dBµV/m	3
216 - 960	200 / 46 dBµV/m	3
above 960	54 dBµV/m	3

3.16 Conducted Emissions <30 MHz §15.107/207

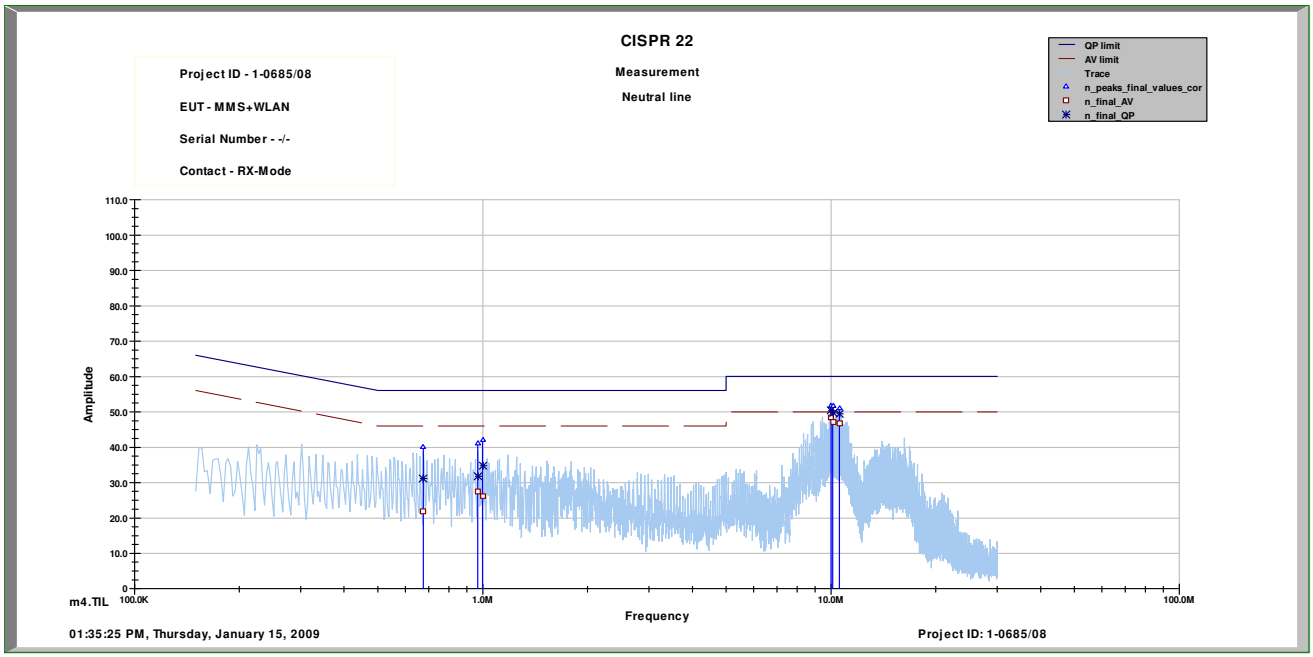
Plot 1: Neutral line TX mode



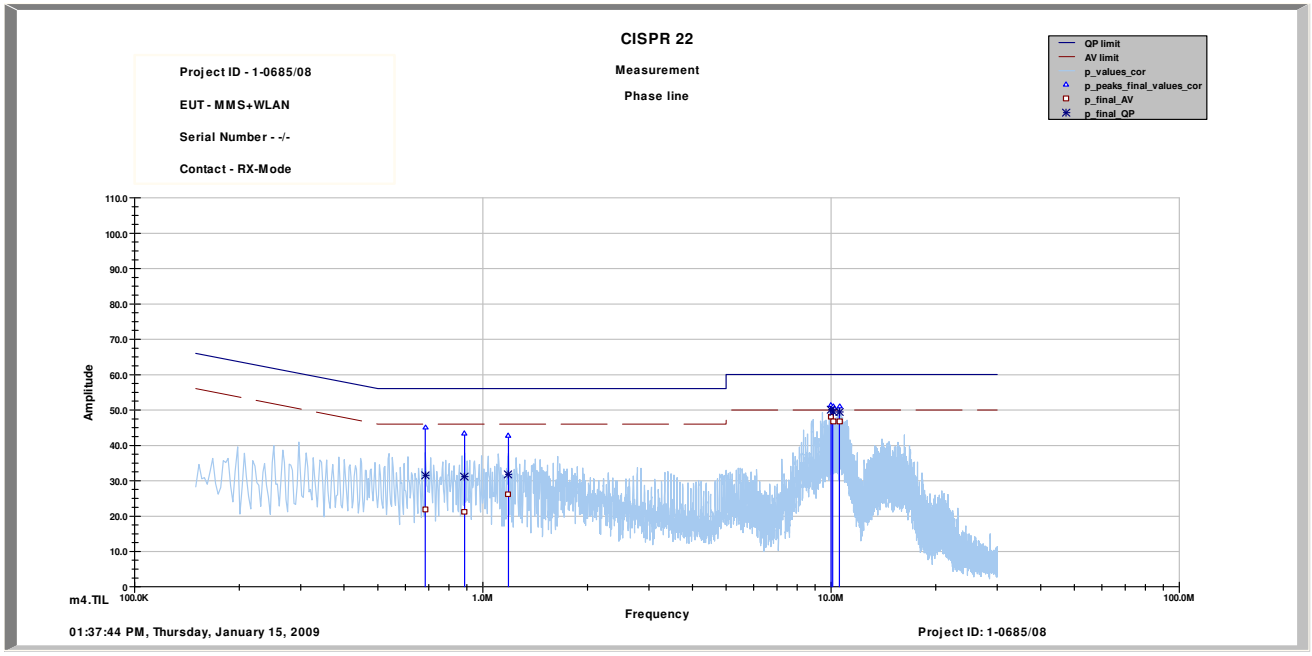
Plot 2: Phase line TX mode



Plot 3: Neutral line RX mode



Plot 4: Phase line RX mode



Limits:

Under normal test conditions only	See plots

3.17 Test equipment

To simplify the identification on each page of the test equipment used, on each page of the test report, each item of test equipment and ancillaries such as cables are identified (numbered) by the Test Laboratory, below.

All reported calibration intervals are calibrations according to the EN/ISO/IEC 17025 standard. These calibrations were performed from an accredited external calibration laboratory.
Additional to these calibrations the laboratory performed comparison measurements with other calibrated systems and performed a weekly chamber inspection.
All used devices are connected with a 10 MHz external reference.
According to the manufacturers' instruction is it possible to establish a calibration interval for the FSP unit of 24 month, if the device has an external 10 MHz reference.

Anechoic chamber C:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Anechoic chamber	MWB	87400/02	300000996	Monthly verification		
2	System-Rack 85900	HP I.V.	*	300000222	n.a.		
3	Measurement System 1						
4	Spektrum Analyzer 8566B	HP	3138A07614	300001207	13.12.2007	24	13.12.2009
5	Spektrum Analyzer Display 85662A	HP	3144A28627	300001208	13.12.2007	24	13.12.2009
6	Quasi-Peak-Adapter 85650A	HP	2811A01204	300002308	13.12.2007	24	13.12.2009
7	RF-Preselector 85685A	HP	2837A00778	300002448	13.12.2007	24	13.12.2009
8	PC Vectra VL	HP		300001688	n.a.		
9	Software EMI	HP		300000983	n.a.		
10	Measurement System 2						
11	FSP 30	R&S	100886	300003575	25.08.2008	24	25.08.2010
12	PC	F+W			n.a.		
13	TILE	TILE			n.a.		
14	Biconical antenna	EMCO	S/N: 860 942/003		Monthly verification (System cal.)		
15	Log. Period. Antenna 3146	EMCO	2130	300001603	Monthly verification (System cal.)		
16	Double Ridged Antenna HP 3115P	EMCO	3088	300001032	Monthly verification (System cal.)		
17	Active Loop Antenna 6502	EMCO	2210	300001015	Monthly verification (System cal.)		
18	Power Supply 6032A	HP	2818A03450	300001040	12.05.2007	36	12.05.2010
19	Busisolator	Kontron		300001056	n.a.		
20	Leitungsteiler 11850C	HP		300000997	Monthly verification (System cal.)		
21	Power attenuator 8325	Byrd	1530	300001595	Monthly verification (System cal.)		
22	Band reject filter WRCG1855/1910	Wainwright	7	300003350	Monthly verification (System cal.)		
23	Band reject filter WRCG2400/2483	Wainwright	11	300003351	Monthly verification (System cal.)		

System Rack Room 005 :

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	FSP 30	R&S	100886	300003575	25.08.2008	24	25.08.2010
2	CBT	R&S	100313	300003516	03.09.2008	24	03.09.2010
3	Switch Matrix	HP		300000929	n.a.		
4	Power Supply	HP	3041A00544	300002270	13.05.2007	36	13.05.2010
5	Signal Generator	R&S	836206/0092	300002680	30.05.2007	36	30.05.2010

Climatic Box:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Climatic box VT 4002	Heraeus Vötsch	58566046820010	300003019	11.05.2007	24	11.05.2009
2	Climatic box CTS T-40/50	CTS	064023	300003540	03.01.2007	24	03.01.2010

SRD Laboratory Room 011:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	NRP Power Meter	R&S	100212	300003780	27.02.2008	24	27.02.2010

Anechoic chamber F:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Control Computer	F+W	FW0502032	300003303	-/-	-/-	-/-
2	Trilog Antenna	9163-295	-/-	-/-	30.04.2008	24	30.04.2010
3	Amplifier - 0518C-138	Veritech Micro-wave Inc.	-/-	-/-	-/-	-/-	-/-
4	Switch - 3488A	HP		300000368	-/-	-/-	-/-
5	EMI Test receiver - ESCI	R&S	100083	300003312	31.01.2009	24	31.01.2009
6	Turntable Controller - 1061 3M	EMCO	1218	300000661	-/-	-/-	-/-
7	Tower Controller 1051 Controller	EMCO	1262	300000625	-/-	-/-	-/-
8	Tower - 1051	EMCO	1262	300000625	-/-	-/-	-/-
10	Ultra Notch-Filter Rejected band Ch. 62	WRCD	9	-/-	-/-	-/-	-/-