Recognized by the
Federal Communications Commission
Anechoic chamber registration no.: 90462 (FCC)
Anechoic chamber registration no.: IC3463A-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.	**:**	**2-4689-01-04/07**
Applicant	**:**	**Ads-tec GmbH**
Type	**:**	**WLAN AP/Client RAP/RAC1X1X**
Test Standard	**:**	**FCC Part 15.407**
		RSS 210 Issue 7
FCC ID	**:**	**T9GRAX1X1X**
IC Certification No.	**:**	**6275A-RAX1X1X**

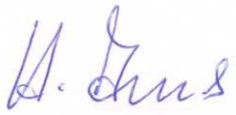
Table of contents

1. Administrative data

1.1. Administrative data of the test facility

1.1.1 Identification of the testing laboratory

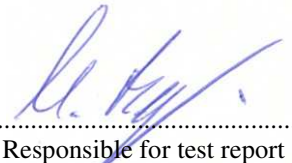
Company name:	Cetecom ICT Services GmbH
Address:	Untertürkheimerstr. 6-10 D-66117 Saarbruecken Germany
Laboratory accreditation:	DAR-Registration No. DAT-P-176/94-D1 Bluetooth Qualification Test Facility (BQTF)
Responsible for testing laboratory:	Harro Ames, Michael Berg Phone: +49 681 598 0 Fax: +49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



.....
Responsible for testing laboratory
(Harro Ames)

1.1.2 Organizational items

Reference No.:	2-4689-01-04/07
Order No.:	
Responsible for test report and project leader:	Harro Ames, Michael Berg
Receipt of EUT:	2007-10-22
Date(s) of test:	2007-10-22 to 2007-11-20
Date of report:	2007-12-05
Number of report pages:	67
Number of diagram pages (annex):	
Version of template: 1.6	



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Responsible for test report
(Michael Berg)

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:	ads-tec GmbH
Address:	Raiffeisenstr. 14 D- 70771 Leinfelden-Echterdingen Germany
Contact person:	Mr. Steffen Pfendtner Tel: +49 (0)711 45894-380 Fax: +49 (0)711 45894-987 email: s.pfendtner@ads-tec.de

1.2 Administrative data of manufacturer / member

Manufacturer´s name:	- applicant -
Address:	

1.3 Description of the Equipment under test (EUT)

1.3.1 EUT: Type, S/N etc.

Product name	Product ID	Description	S/N serial number	HW hardware status	SW software status
RAP1X1X RAC1X1X		Dual WLAN AP / Client single card version	-	-	-
Frequency Band [MHz]	**Type of Modulation**	**Number of channels**	**Antenna**	**Power Supply**	**Temperature Range**
5150 - 5250	OFDM	4	2 external rod antennas RBH-H01-01	External AC power supply	-20°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

The sample is a dual access point / dual client for dualband use. (2.4 and 5 GHz).
Inside the AP there is only one RF part, able to work on 2.4 and 5 GHz.
The only difference between AP and client is the software setting, RF-part is identical.
There are no differences in RF behaviour between AP and client.
In this report we test the AP the dedicated rod antennas at 5.2 GHz.

Other antennas and frequency ranges are tested in separate reports.

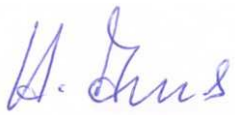
Access Point	RAP1110	RAP1111	RAP1210	RAP1211	RAP1120	RAP1121	RAP1220	RAP1221
1 WLAN Module	X	X	X	X				
2 WLAN Modules					X	X	X	X
1xCU Ethernet Port (RJ45)	X	X			X	X		
5xCU Ethernet Port (integrated switch) (RJ45)								
1xOptical Ethernet Port			X	X			X	X
PoE (IEEE 802.3af) 48V DC	X	X			X	X		
24 V DC	X		X		X		X	
AC integrated 110-230 V AC		X		X		X		X
Client Mode available	X	X	X	X	X	X	X	X
Access Client	**RAC1110**	**RAC1111**	**RAC1510**	**RAC1511**	**RAC1120**	**RAC1121**	**RAC1220**	**RAC1221**
1 WLAN Module	X	X	X	X				
2 WLAN Modules					X	X	X	X
1xCU Ethernet Port	X	X			X	X		
5xCU Ethernet Port (integrated switch)			X	X				
1xOptical Ethernet Port							X	X
PoE (IEEE 802.3af) 48V DC	X	X	X	X	X	X		
24 V DC	X		X		X		X	
AC integrated 110-230 V AC		X		X		X		X

1.3.4 Additional EUT information For IC Canada (appendix 2)

IC Certification Number:	6275A-RAX1X1X
Model Name:	RAP1110, RAP1111,RAP1210,RAP1211 / RAC1110, RAC1111,RAC1510, RAC1511
Manufacturer (complete Adress):	ads-tec GmbH Raiffeisenstr. 14 D-70771 Leinfelden-Echterdingen Germany
Tested to Radio Standards Specification (RSS) No.:	RSS-210 Issue 7
Open Area Test Site Industry Canada Number:	IC 3463A-1
Frequency Range (or fixed frequency) [MHz]:	5180 to 5240 MHz
RF: Power [W] (max):	Rad. EIRP: 46.8 mW Conducted : 22.9 mW
Antenna Type:	rod antennas: DZ-PCKO-11033-0
Occupied Bandwidth (99% BW) [MHz]:	19.18
Type of Modulation:	OFDM
Emission Designator (TRC-43):	19M2G7D
Transmitter Spurious (worst case) [µV/m in 3m]:	No peaks found
Receiver Spurious (worst case) [µV/m in 3m]:	No peaks found

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 the applicable test conditions specified in the departmental standards and all of the requirements of the standards have been met.

Signature:



Date: 2007-12-05

Testengineer: Harro Ames

1.3.5 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.

1.3.6 Extreme conditions testing values

Description	Shortcut	Unit	Value
Nominal Temperature / humidity	T_{nom}	°C / %	22°C / 33%
Low Temperature	T_{low}	°C	-20°C
High Temperature	T_{high}	°C	55°C
Nominal Power Source	V_{nom}	V	115V AC
Low Power Source	V_{low}	V	100V AC
High Power Source	V_{high}	V	130V AC

Type of powersource: External DC power supply delivered by the customer

2 Test standard & summary list of all performed test cases

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC Part 15 §15.407 - CANADA RSS-210	pass	2007-12-05	

Test Specification Clause	Test Case	Pass	Fail	Not applicable	Not performed
None	Antenna Gain	Yes			
Range:	5.150 to 5.250 GHz				
§15.407a(3)+(4)	Peak transmit power	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

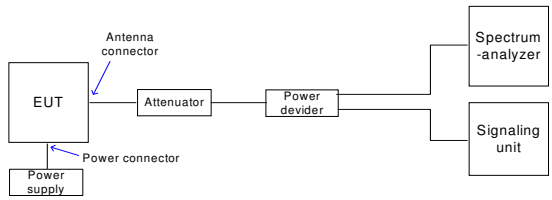
3.1.1 Radiated measurements

The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 25 GHz in semi-anechoic chambers. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are conform with specifications ANSI C63.2-1987 clause 15 and ANSI C63.4-1992 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test setups for the various frequency ranges. For each measurement, the EUT is rotated in all three axes until the maximum field strength is received. The wanted and unwanted emissions are received by spectrum analysers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-1992 clause 4.2.

Antennas are conform with ANSI C63.2-1996 item 15.
9 kHz - 150 kHz: Quasi Peak measurement, 200 Hz Bandwidth, passive loop antenna.
150 kHz - 30 MHz: Quasi Peak measurement, 9kHz Bandwidth, passive loop antenna.
30 MHz - 200 MHz: Quasi Peak measurement, 120KHz Bandwidth, biconical antenna
200MHz - 1GHz: Quasi Peak measurement, 120KHz Bandwidth, log periodic antenna
>1GHz: Average, RBW 1MHz, VBW 10 MHz, waveguide horn with lownoise preamp

3.1.2 Conducted measurements (if possible)

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 paths is first checked within a calibration. The measuerment readings on the spectrum analyzer is corrected by the specific test set-up loss. The attenuator, power divider, signaling unit and the spectrum analyzer are impedance matched on 50 Ohm.



3.1.3 AC-conducted measurements

We used the dedicated power supply delivered by the customer.

3.2 Referenced Documents

none

3.3 Additional comments

This test report covers all type of hosts that includes one RF-card only.

3.4 Antenna gain

The antenna gain is calculated by subtracting the conducted from the radiated power.

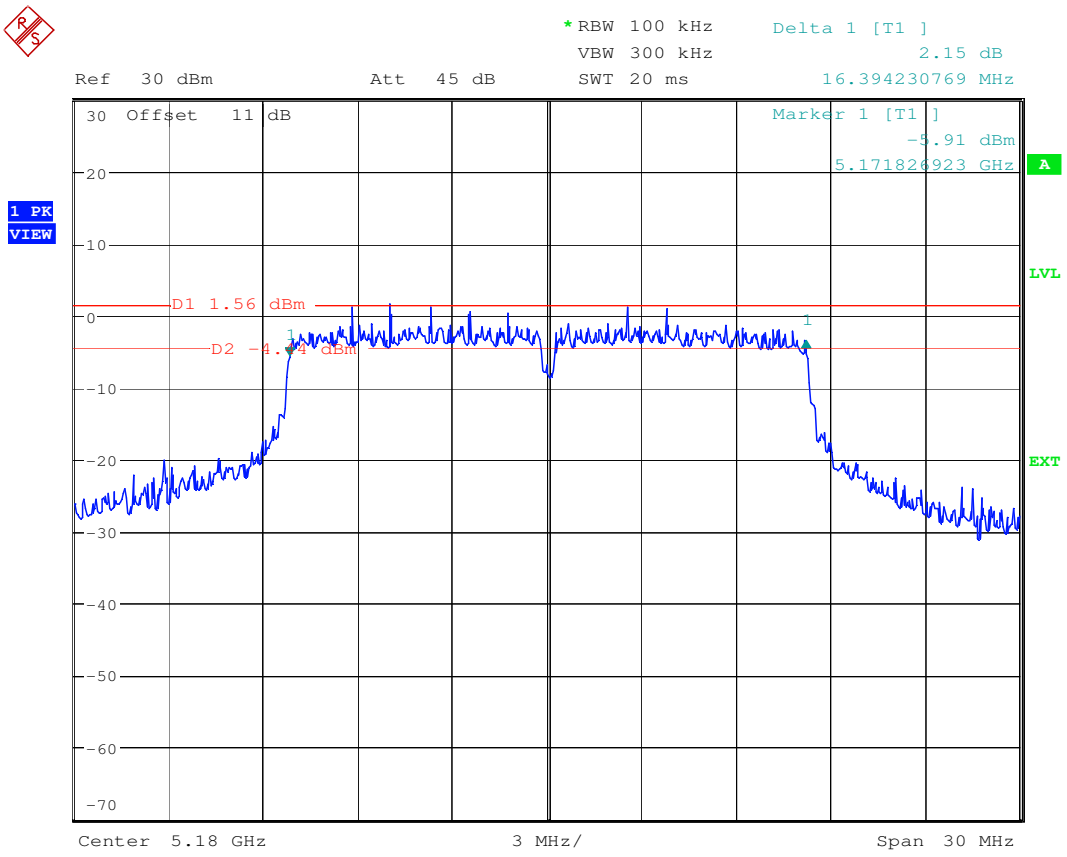
For the dedicated rod antenna, we calculated ~ 2.9 dBi at 5240 MHz. (see also chapter 3.11)

Frequency range of the sample : 5150 to 5250 MHz
Measurements according to the measurement procedure for U-NII bands (August 2002)

3.5 Transmit Power §15.407a(1)+(4)

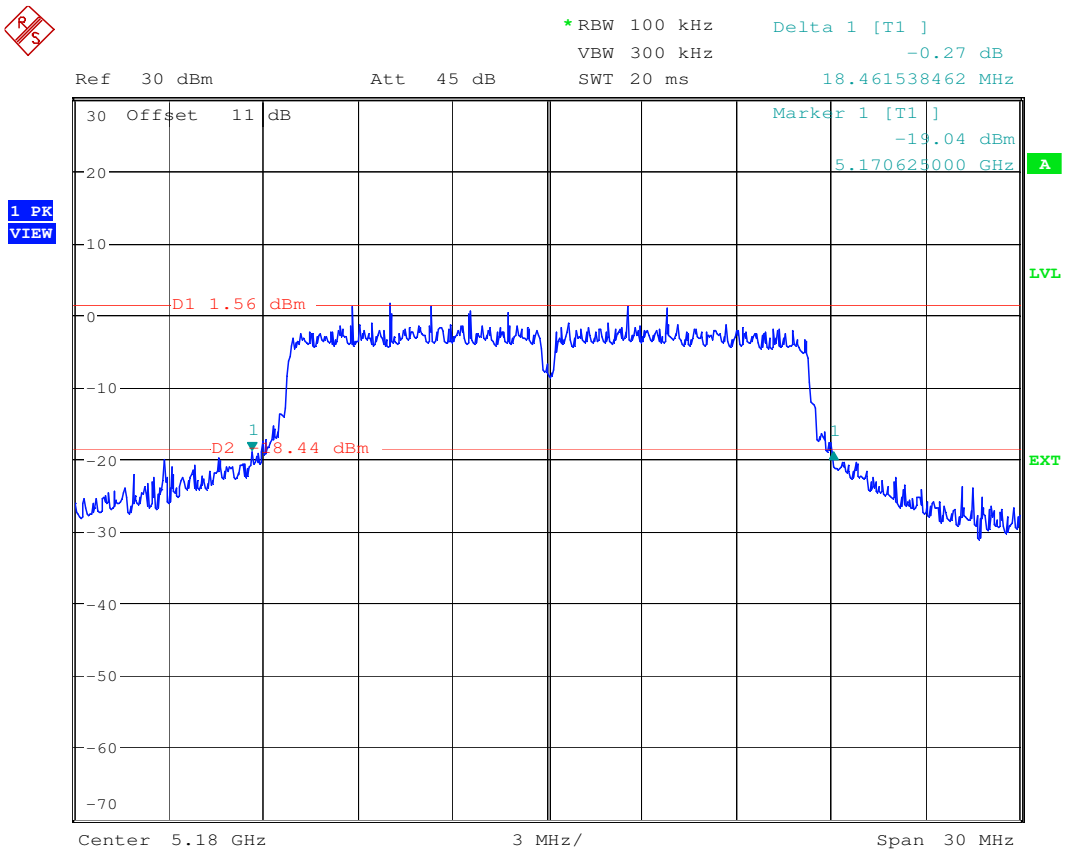
3.5.1 Measurement 1: Emission BW of the sample (6 dB, 20 dB, 26 dB)

Plot 1: 5180 MHz 6 dB BW



Date: 12.NOV.2007 07:25:04

Plot 2: 5180 MHz 20 dB BW



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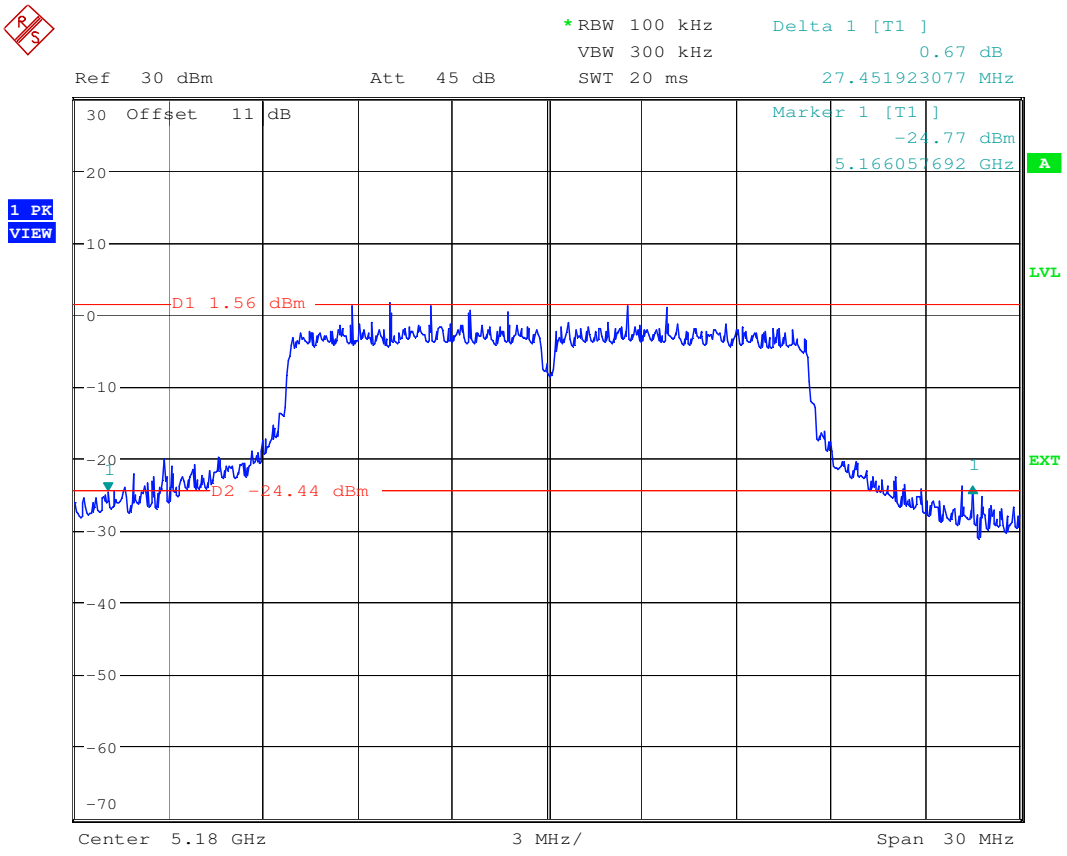
Plot 3: 5180 MHz 26 dB BW



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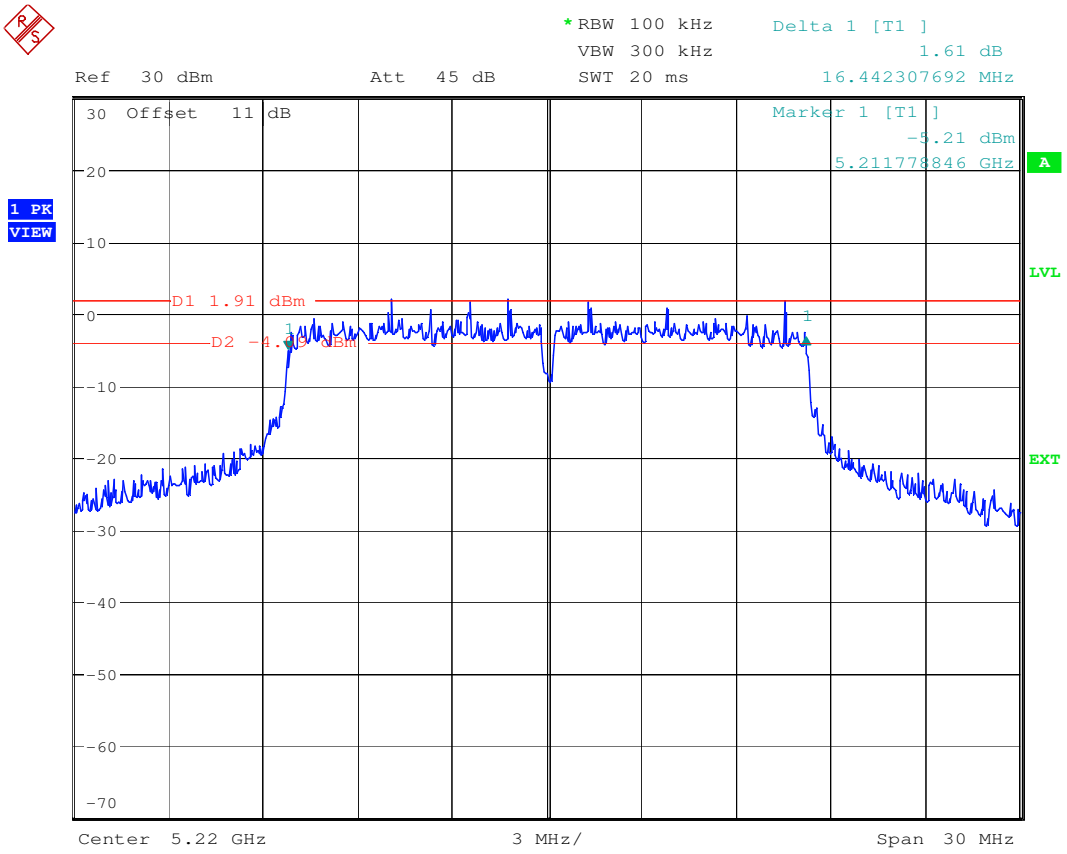
Plot 4: 5220 MHz 6 dB BW



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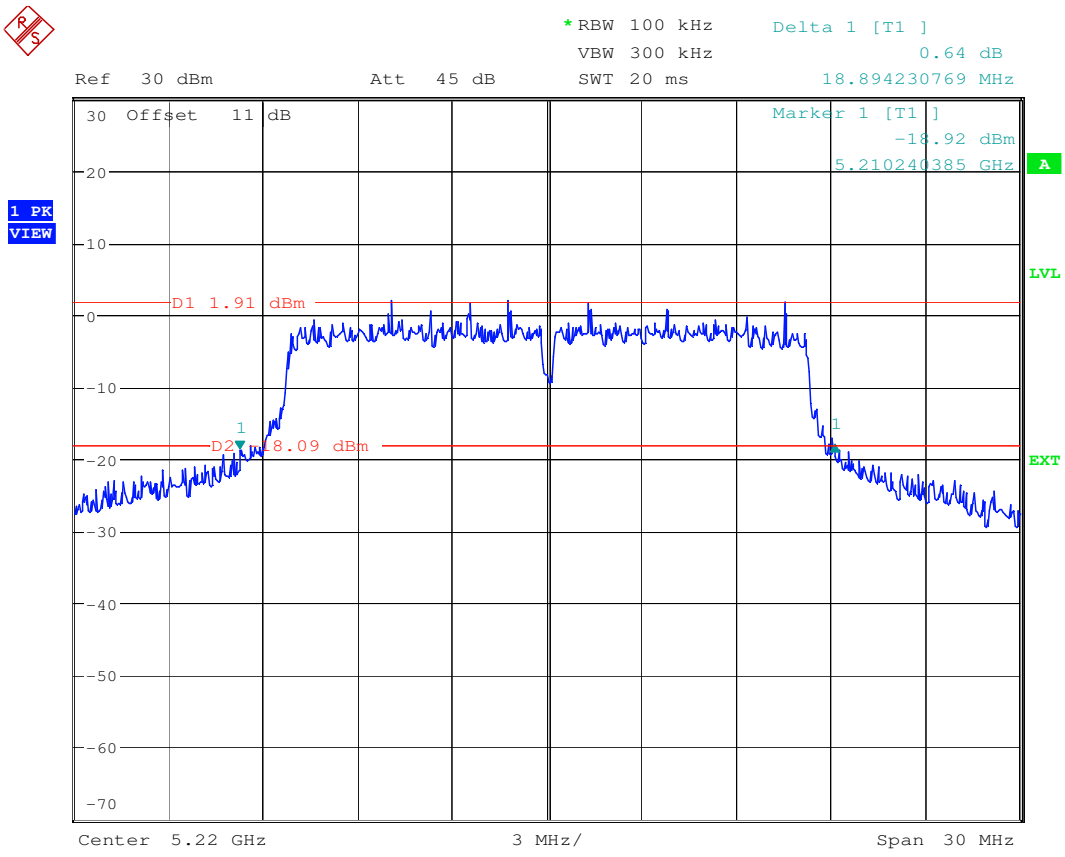
Plot 5: 5220 MHz 20 dB BW



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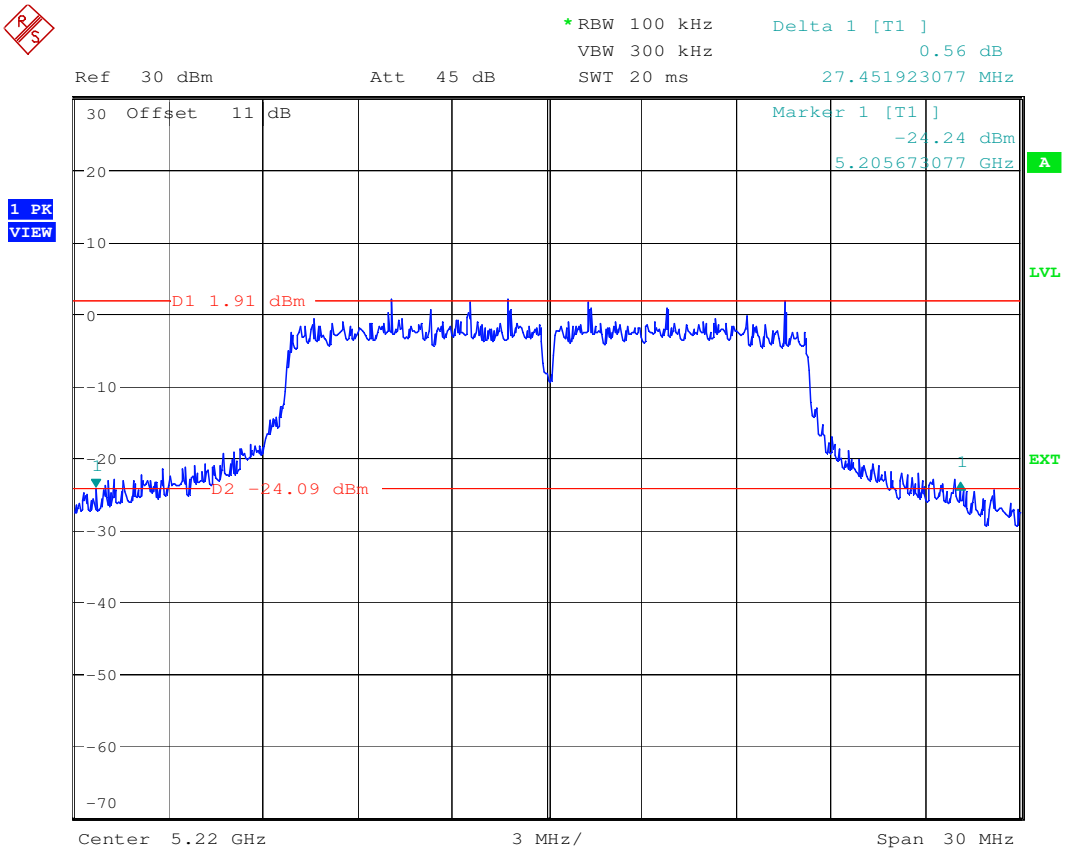
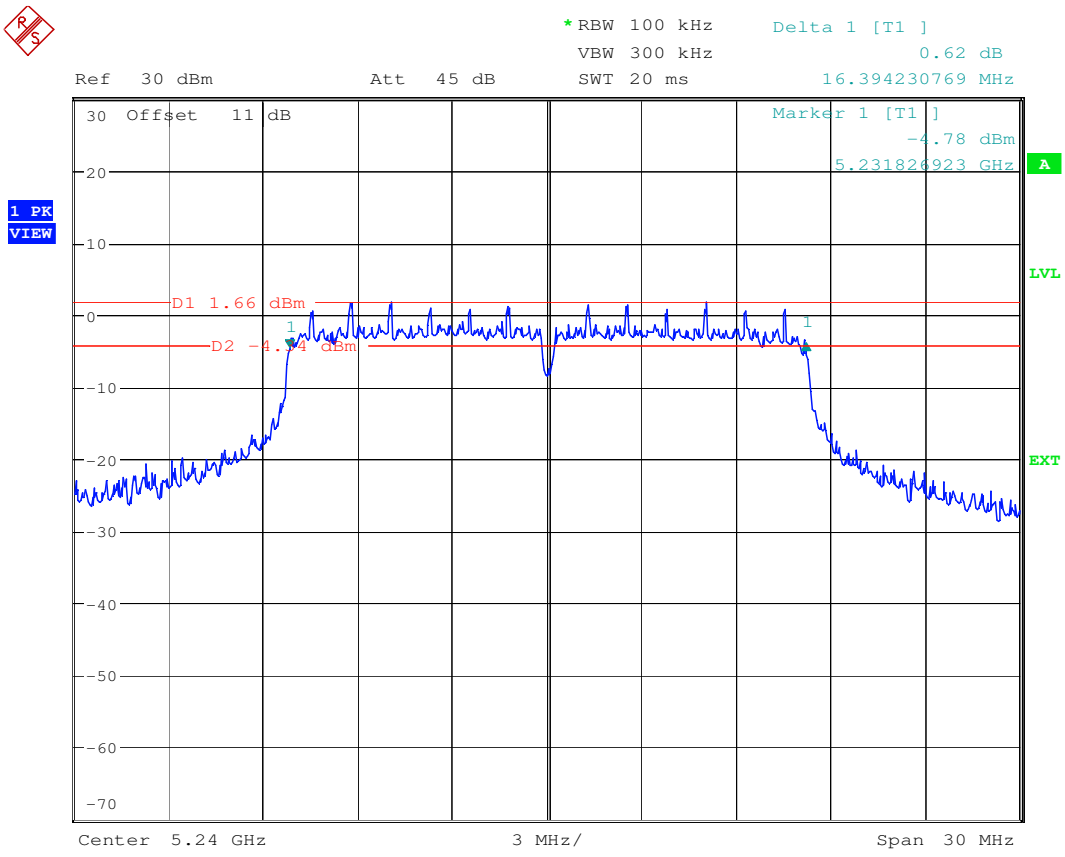
Plot 6: 5220 MHz 26 dB BW

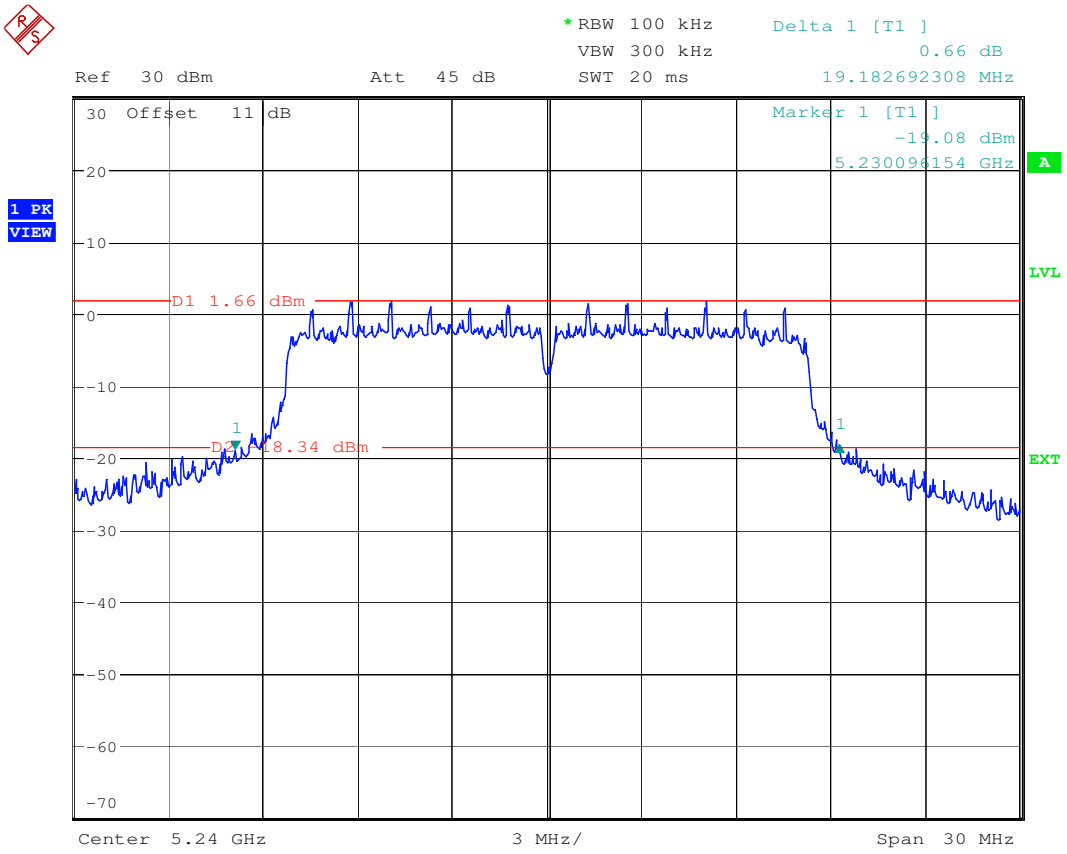


Date: 12.NOV.2007 08:14:25

Plot 7: 5240 MHz 6 dB BW



Plot 8: 5240 MHz 20 dB BW



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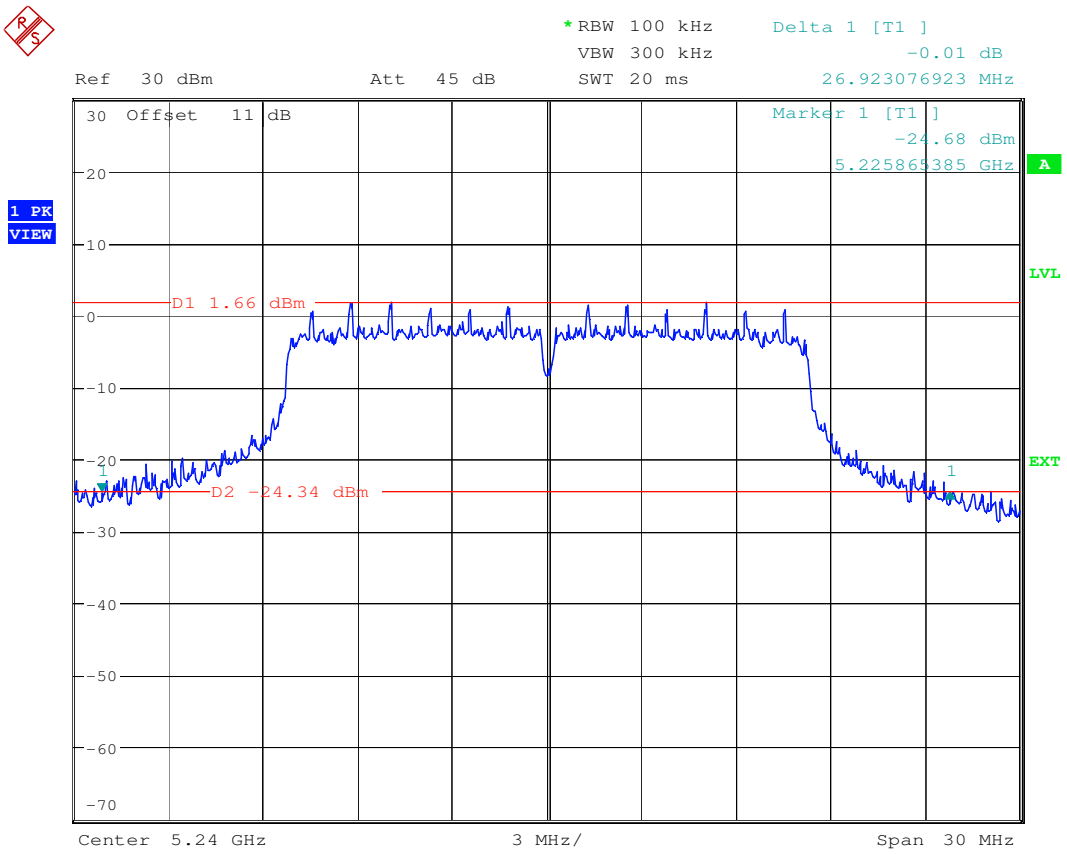
Plot 9: 5240 MHz 26 dB BW



Date: 12.NOV.2007 08:27:35

Results:

Frequenz (MHz)	6 dB BW (MHz)	20 dB BW (MHz)	26 dB BW (MHz)
5180	16.39	18.46	27.45
5220	16.44	18.89	27.45
5240	16.39	19.18	26.92

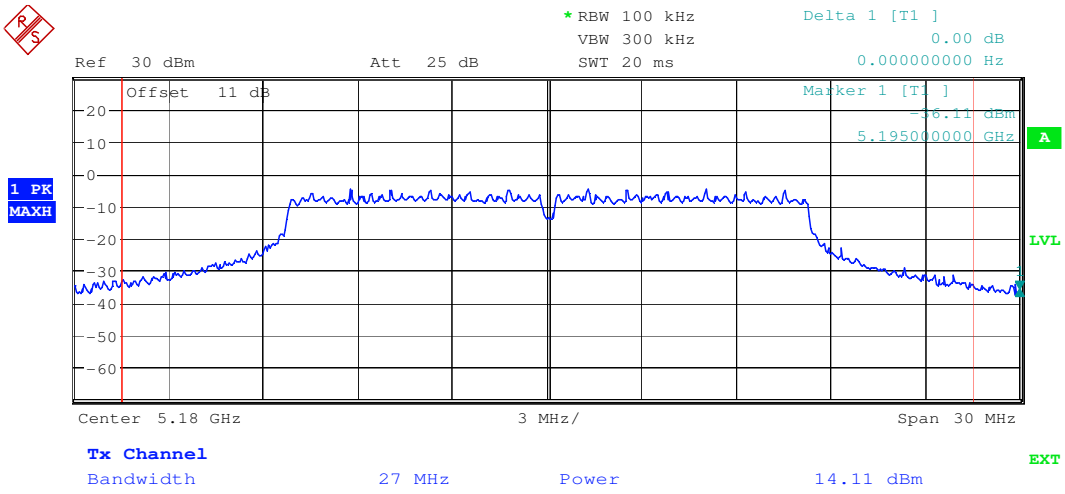
Measurement 2: Peak conducted transmit output power

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.

TX-Power-reduction factor set to 9. (Implemented in the standard firmware of the unit)

Plot 1: 5180 MHz



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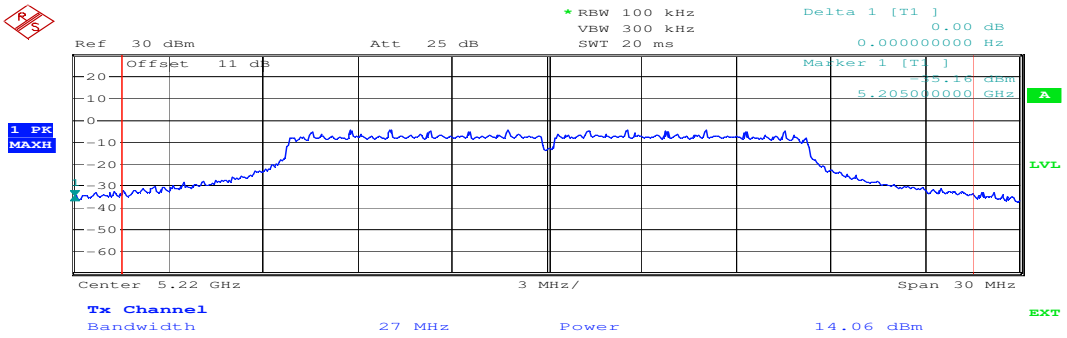
Plot 2: 5220 MHz



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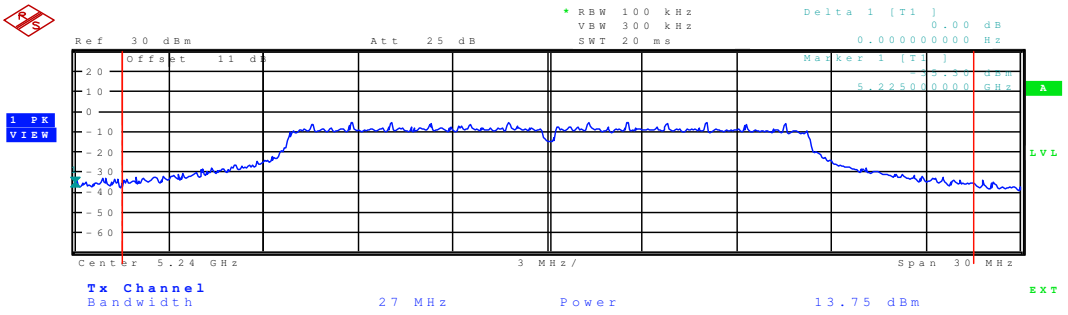
Plot 3: 5240 MHz



Results:

Plot 1: Peak transmit power: 25.76 mW / 14.11 dBm
Plot 2: Peak transmit power: 25.18 mW / 14.01 dBm
Plot 3: Peak transmit power: 23.71 mW / 13.75 dBm

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.

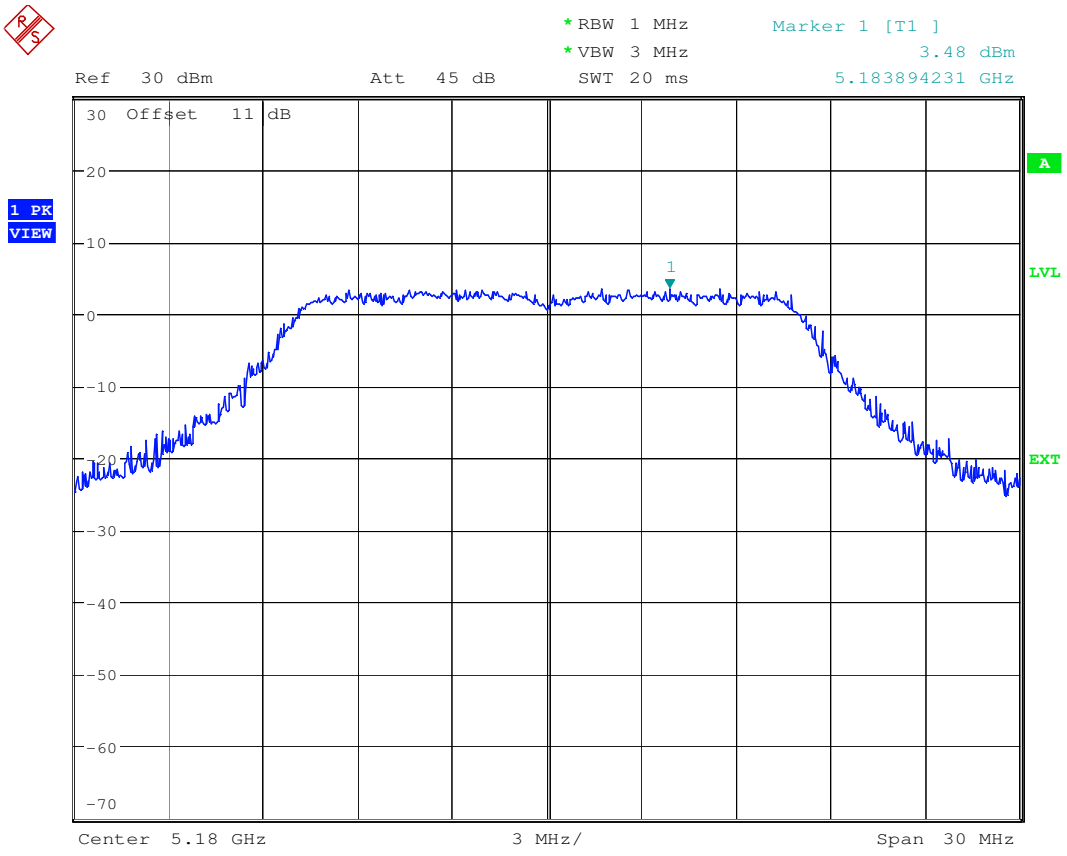
3.6 Peak power spectral density §15.407(a5)

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

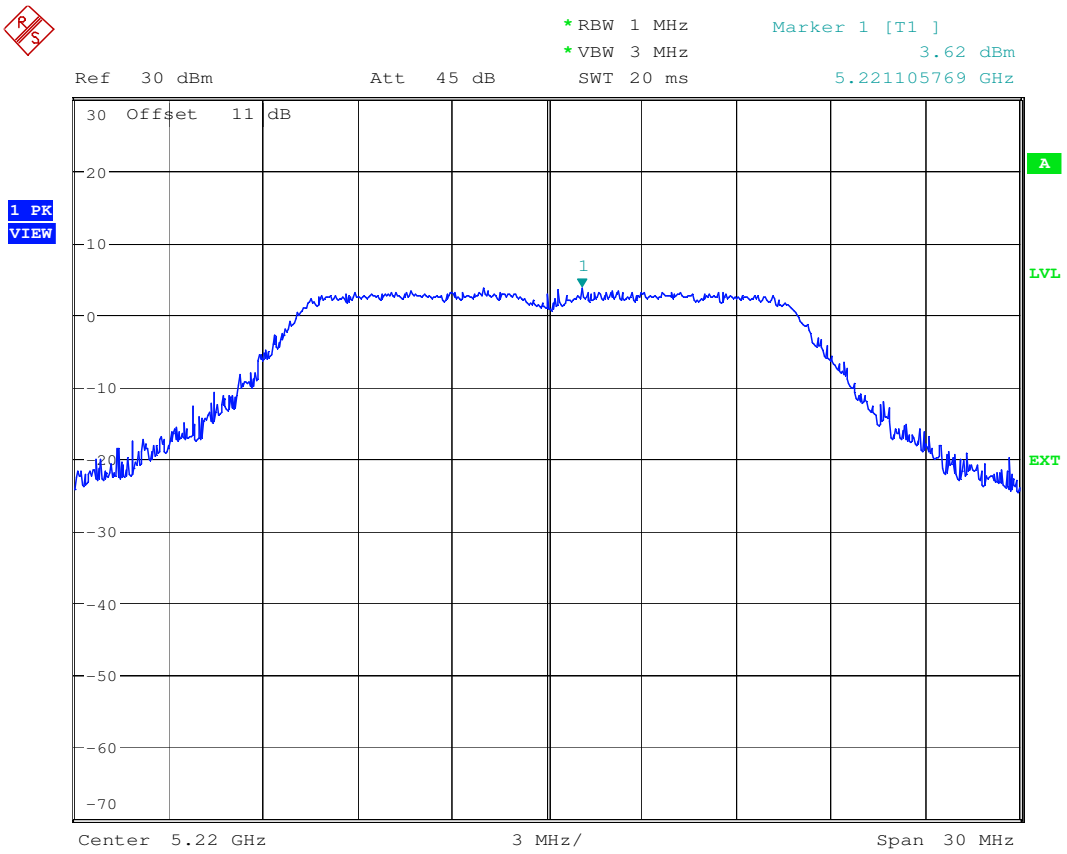
- Use peak detector and max hold
- Set RBW = 1 MHz. Set VBW > 1 MHz
- The PPSD is the highest level found across the emission in any 1 MHz band.

TX-Power-reduction factor set to 9. (Implemented in the standard firmware of the unit)

Plot 1 : 5180 MHz



Plot 2: 5220 MHz



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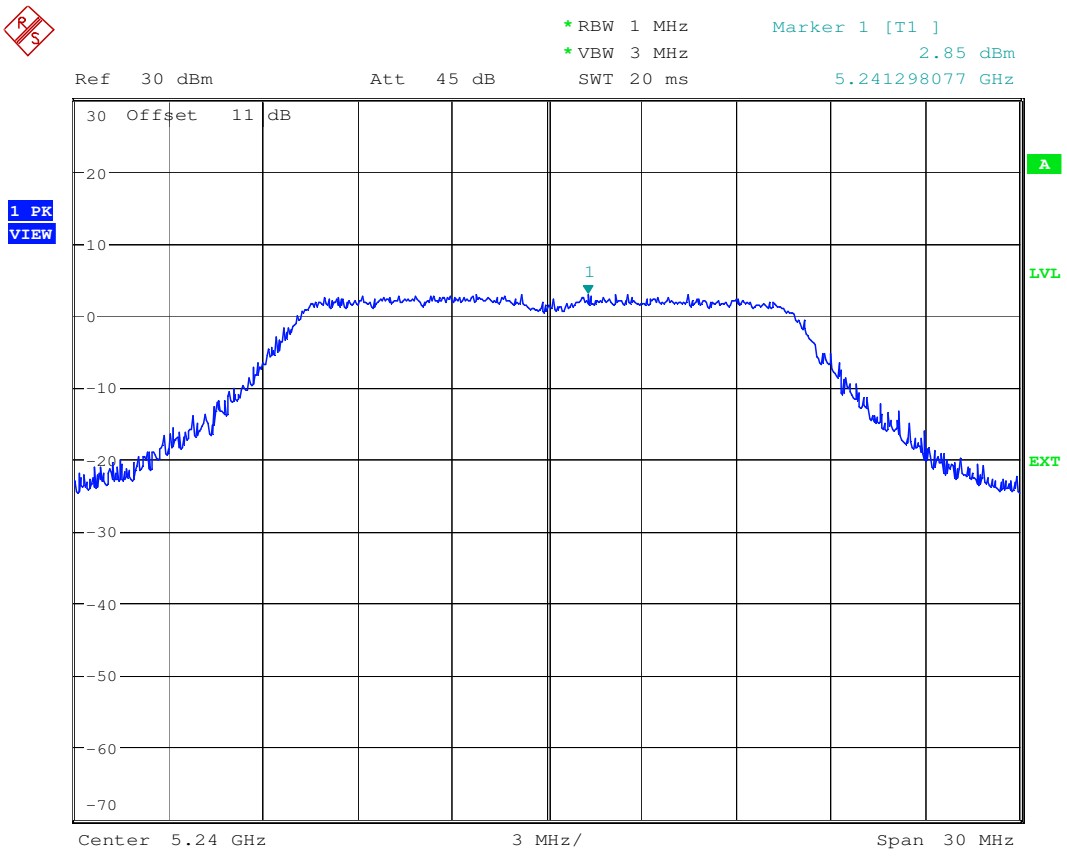
Plot 3: 5240 MHz



Test conditions	Spectral density		
Frequency [MHz]		1 MHz BW	
5180 MHz		3.48 dBm	
5220 MHz		3.62 dBm	
5240 MHz		2.85dBm	

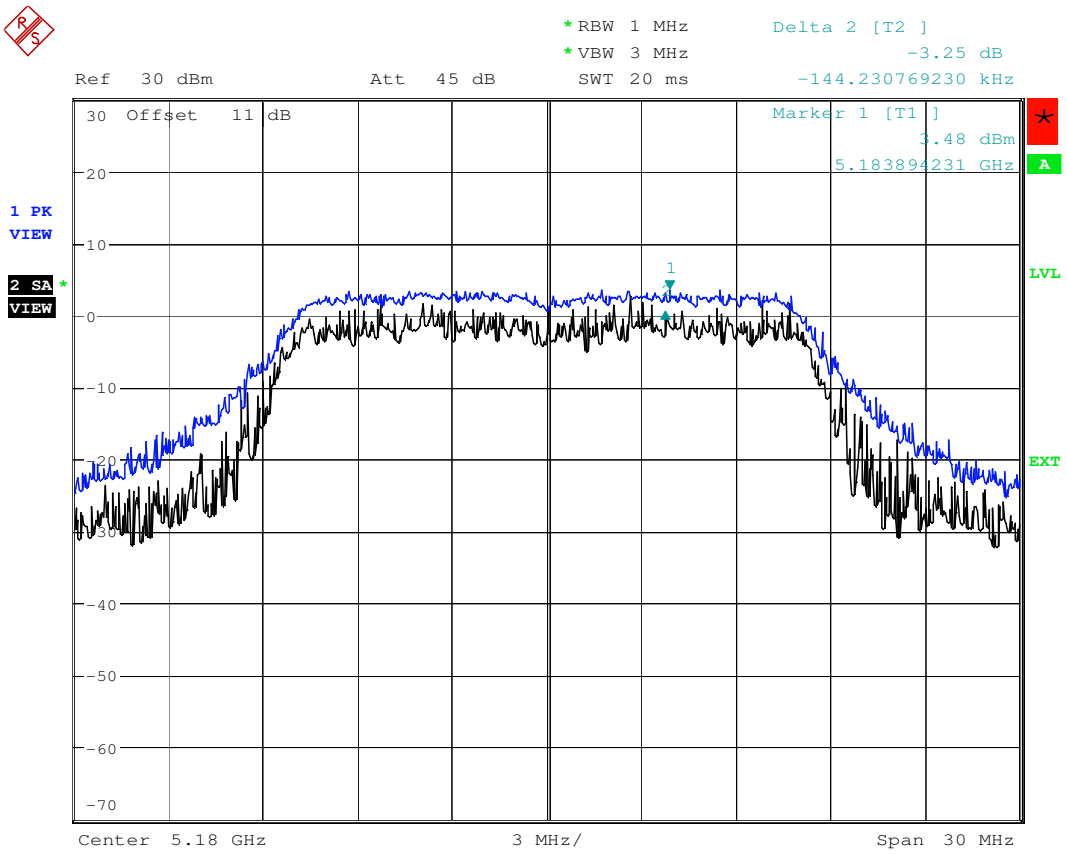
Limits:

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.

3.7 Ratio of Peak Excursion §15.407(a6)

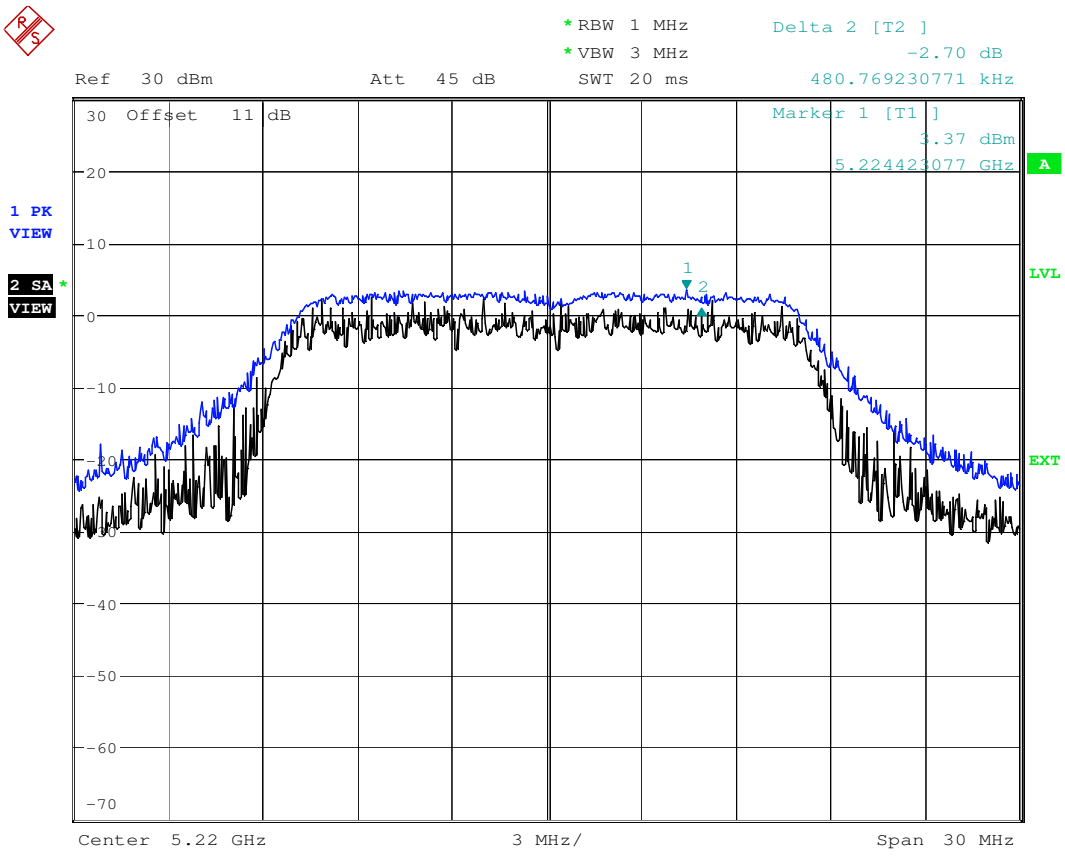
Measured according to the guidelines of the FCC public notice DA 02-2138.

Plot 1 : 5180 MHz

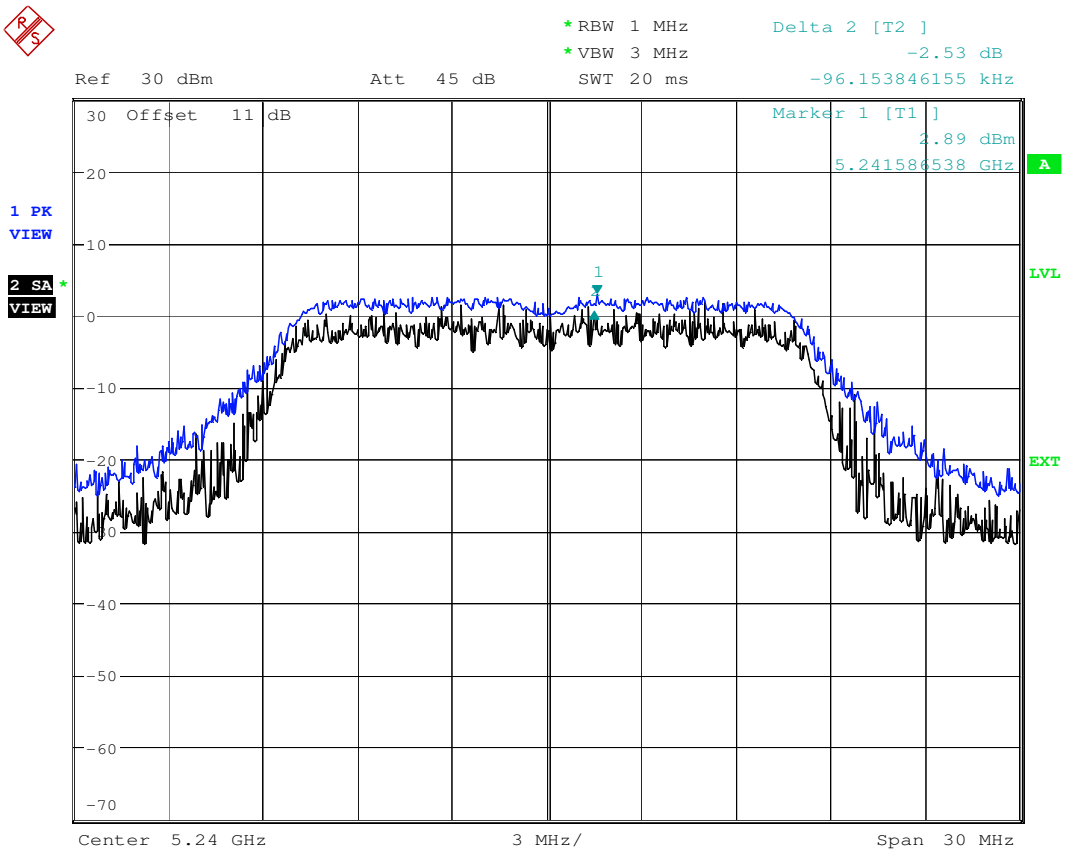


Date: 12.NOV.2007 08:49:23

Plot 2: 5220 MHz



Plot 3: 5240 MHz



Results

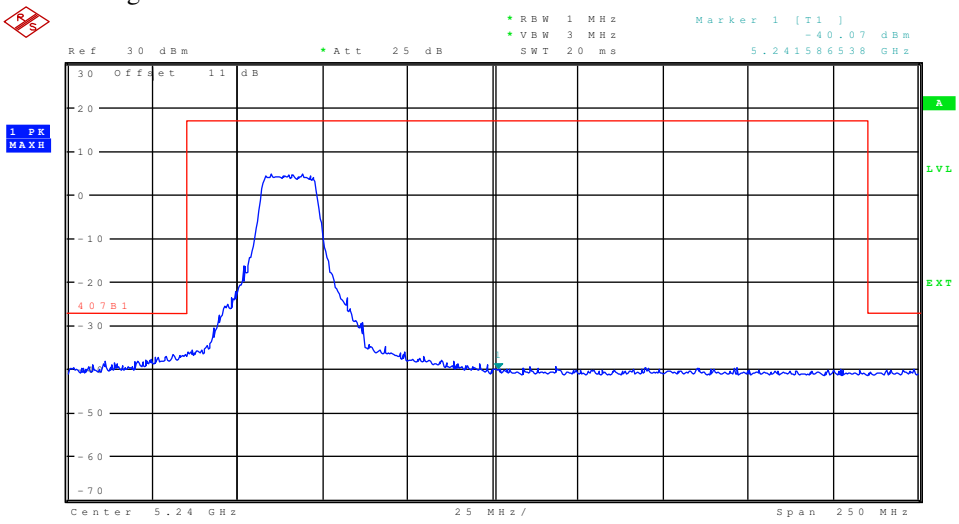
Frequency	Ratio of peak excursion of the modulation envelope		
		Ratio(dB)	Pass/fail
5180 MHz		< 13 dB	pass
5220 MHz		< 13 dB	pass
5240 MHz		< 13 dB	pass
Measurement uncertainity	±1dB		

Limits:

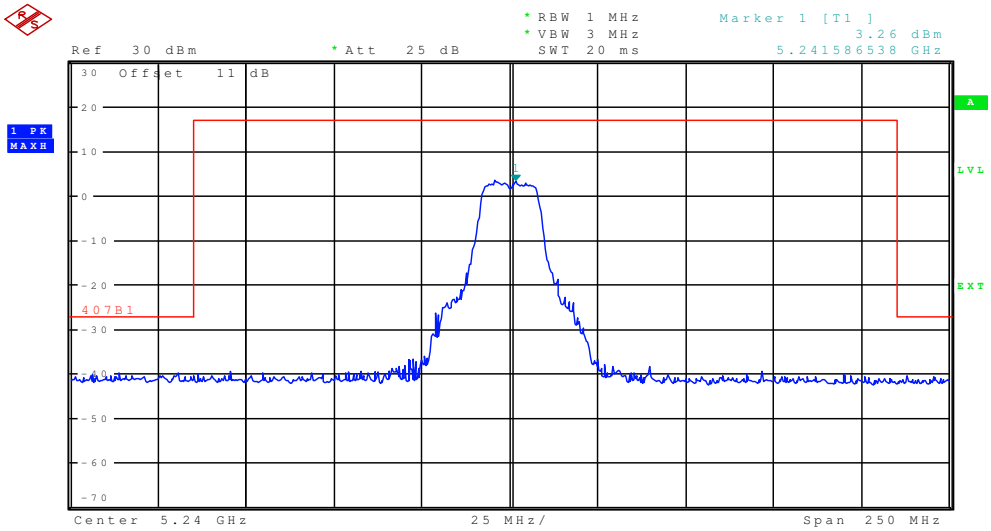
Under normal test conditions only	The ratio of peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

3.8 Undesirable emission limits at band edges 15.407 (b3)

Plot 1: lower band edge



Plot 2: upper band edge

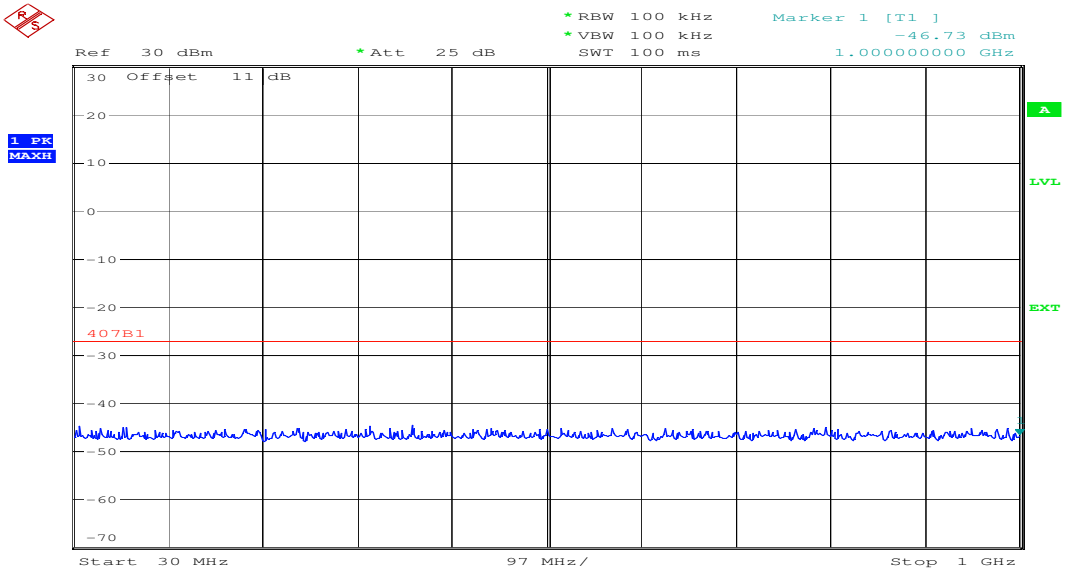


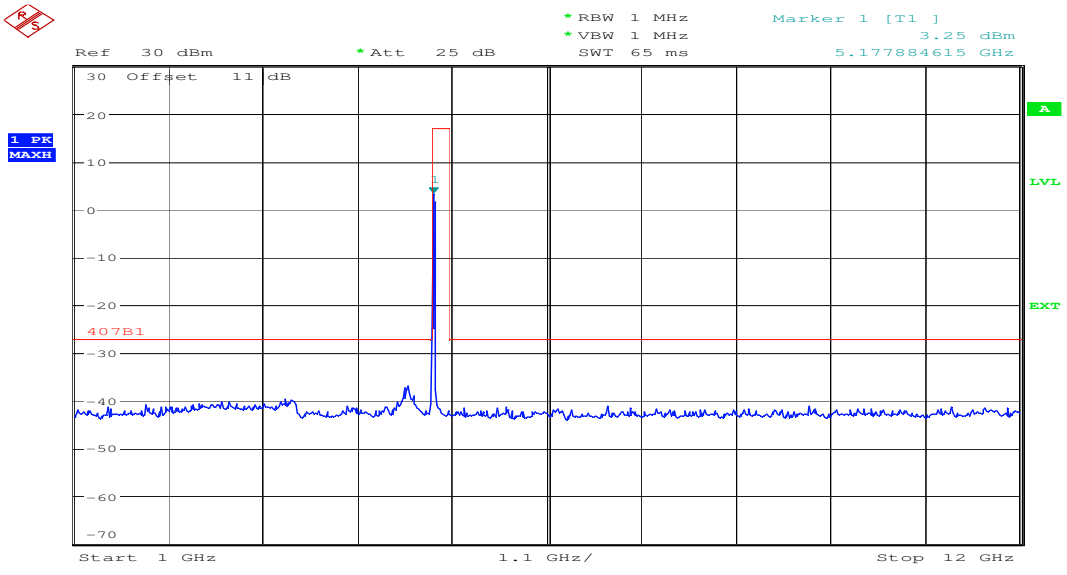
Limits: - above or below -27 dBm/MHz

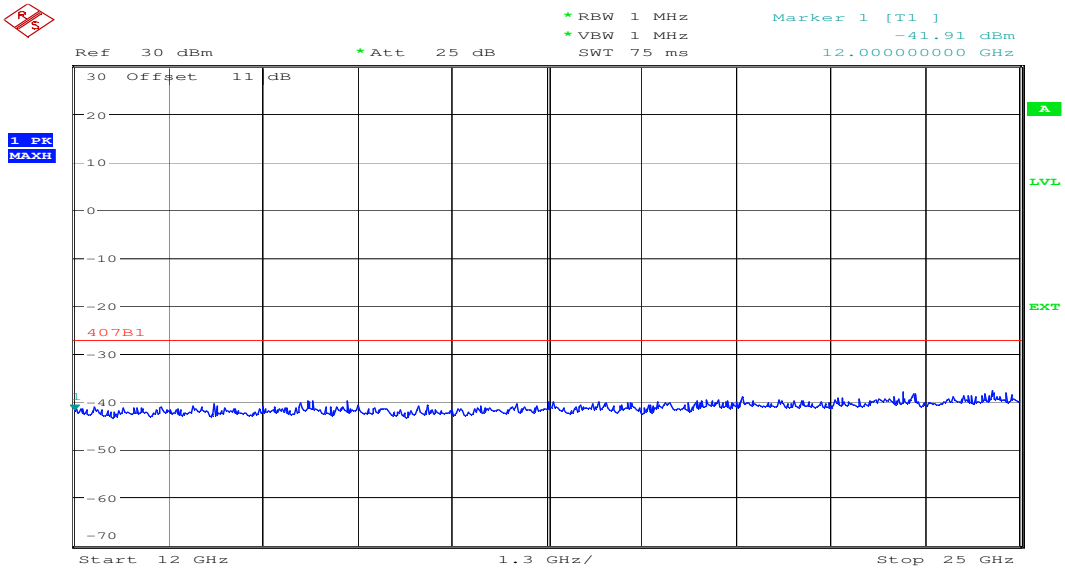
Result: - all frequencies above or below band edge < -30 dBm/MHz => pass

3.9 Spurious (conducted) 15.407 (b3)

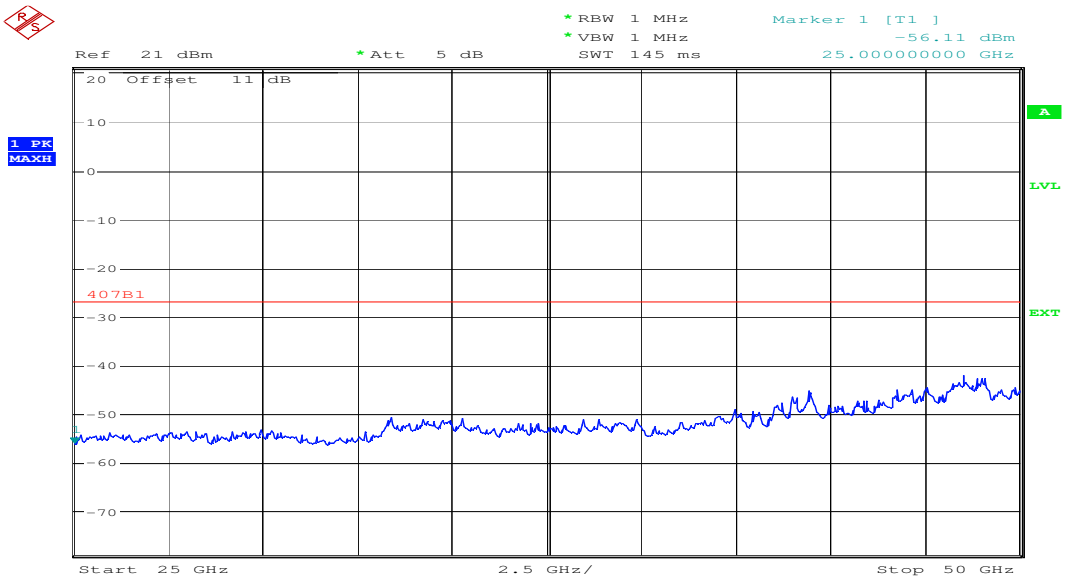
5180 MHz





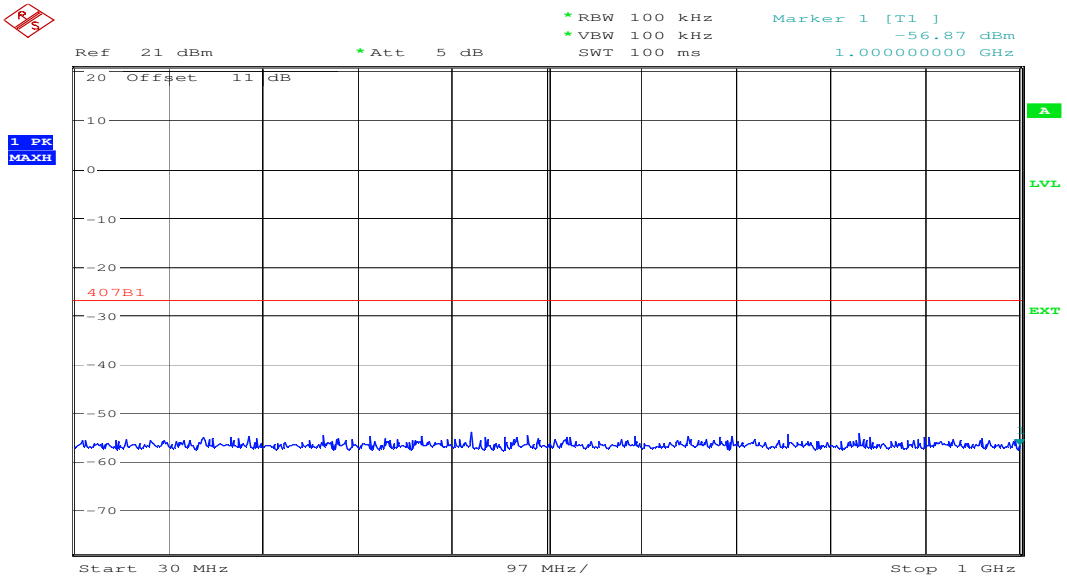


Date: 12.NOV.2007 09:15:16

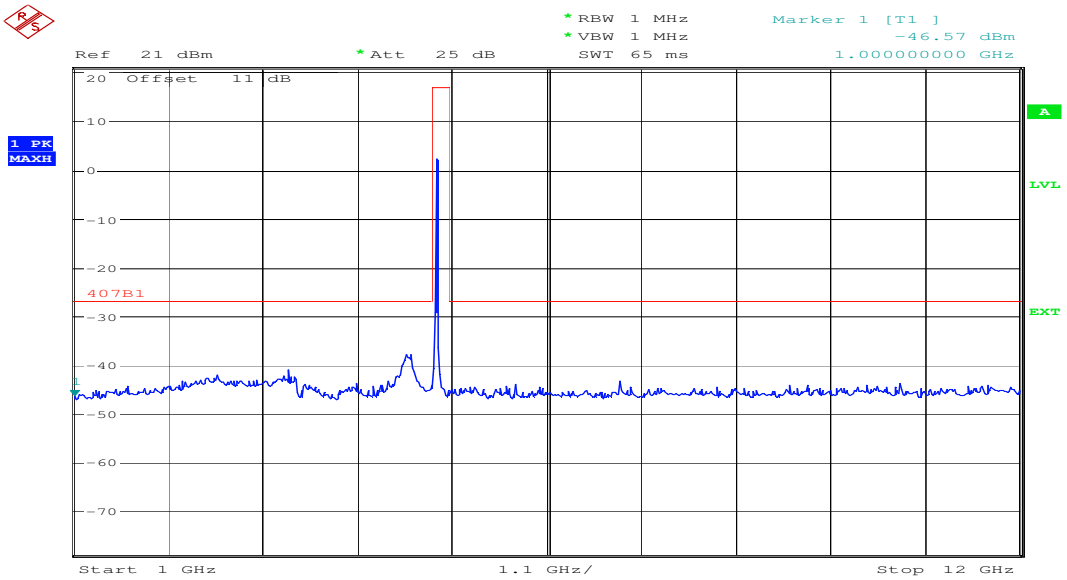


Date: 12.NOV.2007 09:16:11

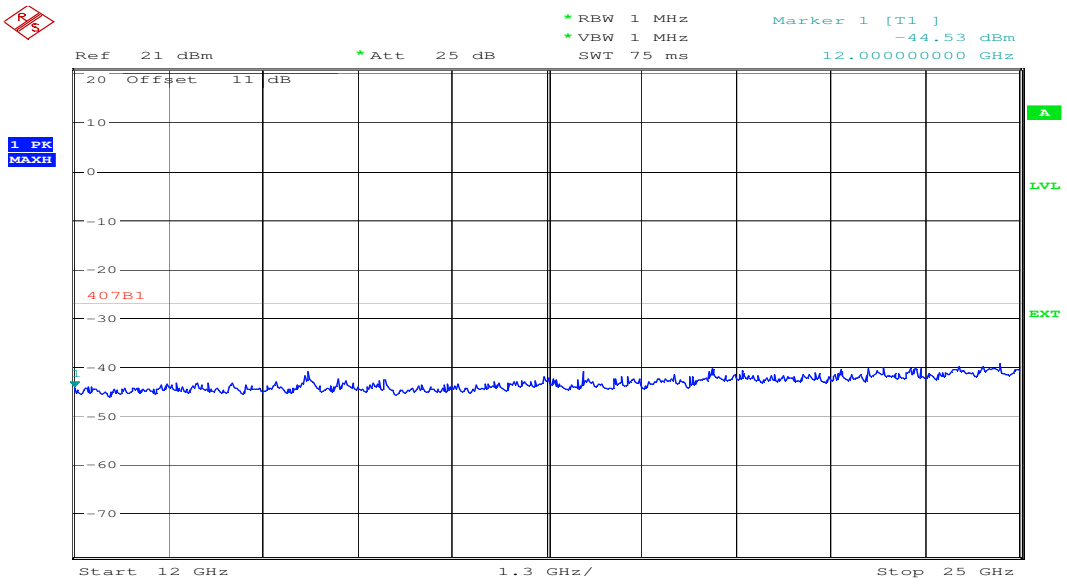
5220 MHz



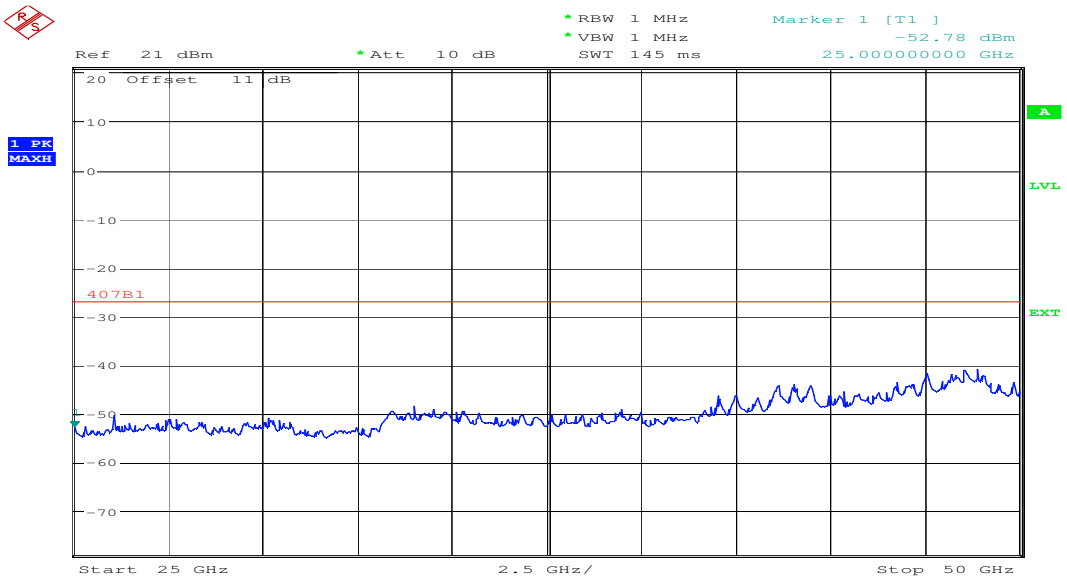
Date: 12.NOV.2007 09:17:15



Date: 12.NOV.2007 09:19:09

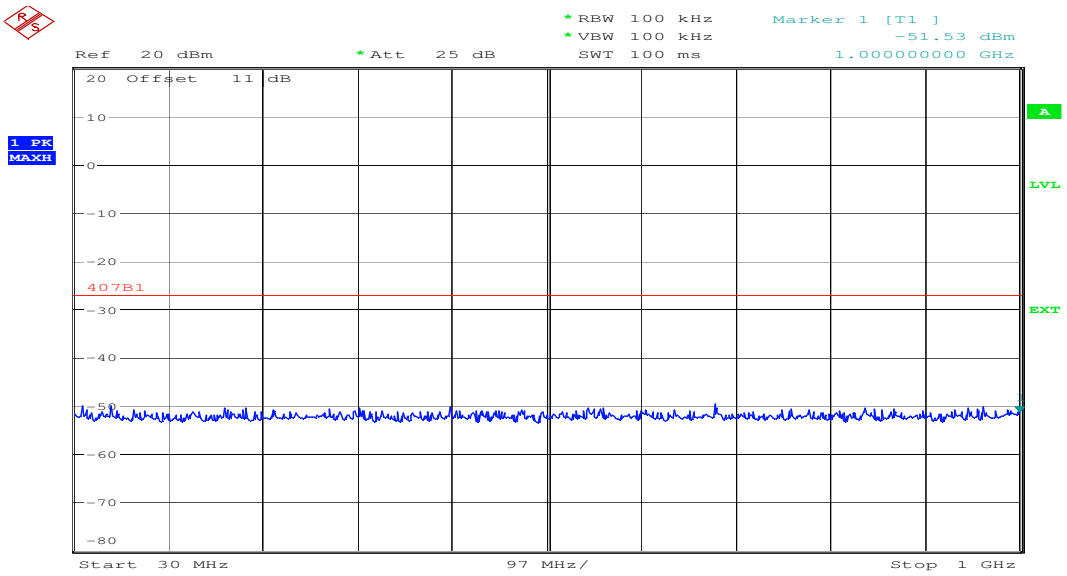


Date: 12.NOV.2007 09:19:39

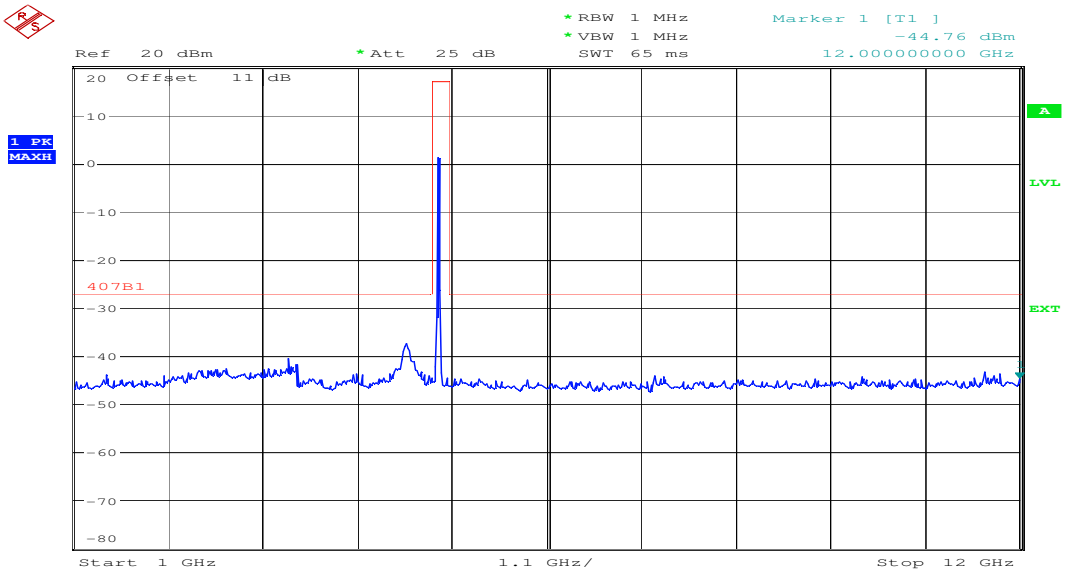


Date: 12.NOV.2007 09:20:12

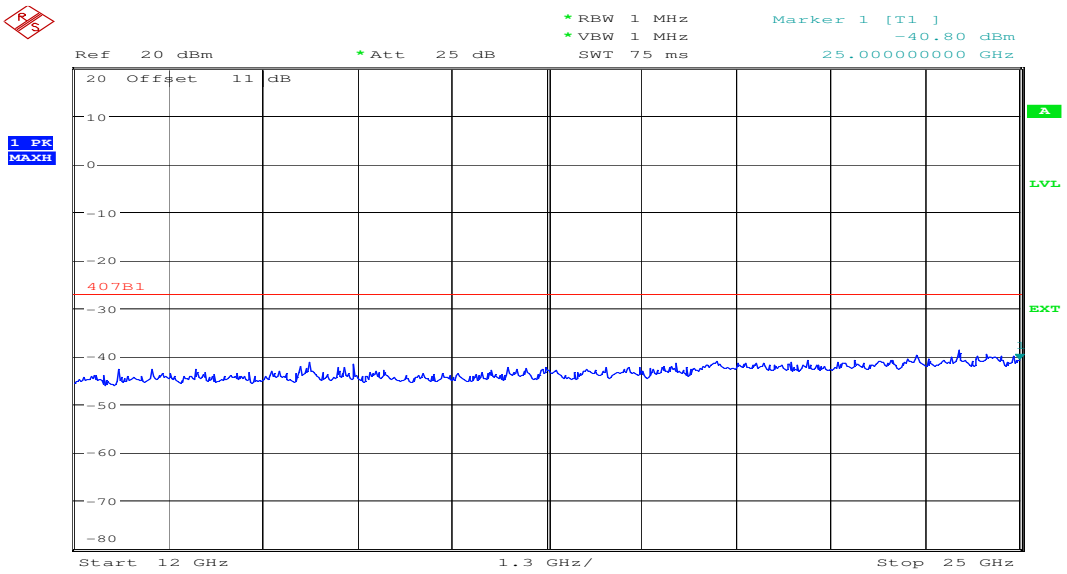
5240 MHz



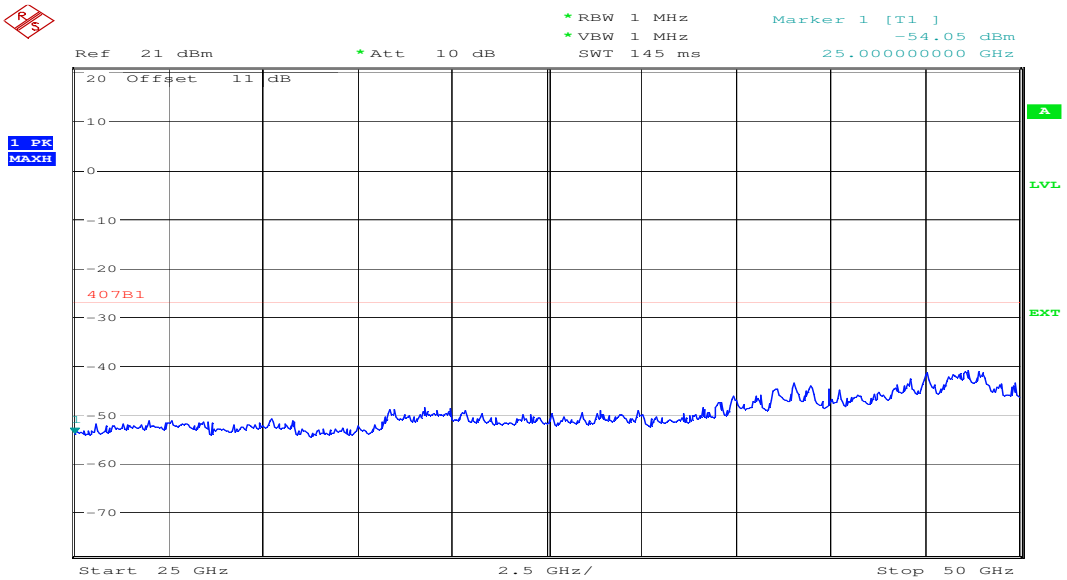
Date: 12.NOV.2007 09:22:39



Date: 12.NOV.2007 09:22:10



Date: 12.NOV.2007 09:21:33



Date: 12.NOV.2007 09:20:58

Spurious emissions conducted

Result & Limits

Emission Limitations					
f [MHz]		amplitude of emission [dBm]	limit max. allowed emmision power	actual attenuation below frequency of operation [dB]	results
5180		14.1	17 dBm	-	Operating frequency
5220		14.0	17 dBm	-	Operating frequency
5240		13.8	17 dBm	-	Operating frequency
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.

3.10 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: **16.7** dBm = 46.7 mW (Peak power)
calculated at distance of 20 cm:

power density = $46.7 /4\pi 20^2 = 0.009$ 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.

3.11 Max. peak output power (radiated and conducted) §15.247 (b) (1)

Results:

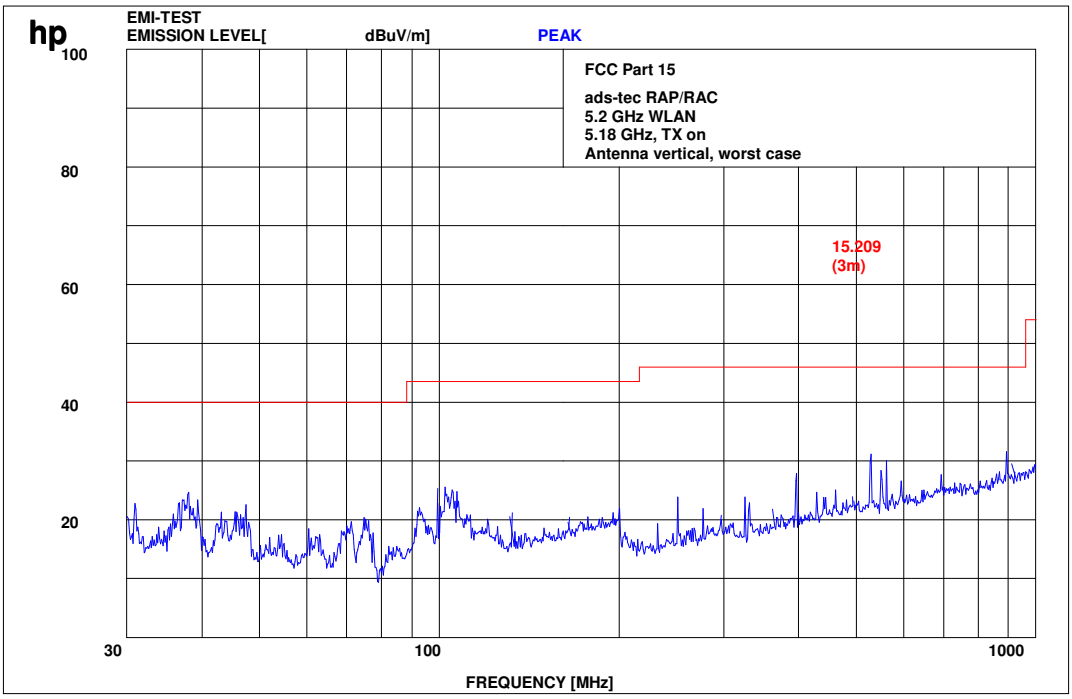
Test conditions		Max. peak output power EIRP [dBm]		
Frequency [MHz]		5180 MHz	5220 MHz	5240 MHz
T_{nom}	V_{nom}	14.1 cond 16.3 rad	14.0 cond 16.5 rad	13.8 cond 16.7 rad
	Antenna gain	2.2	2.5	2.9
Measurement uncertainty		±3dB		

Limits:

Under normal test conditions	Max. 0.05 Watt / 17 dBm
for antennas with gain > 6 dBi	reduce the conducted output power by the amount in dB that the directional gain exceeds 6 dBi

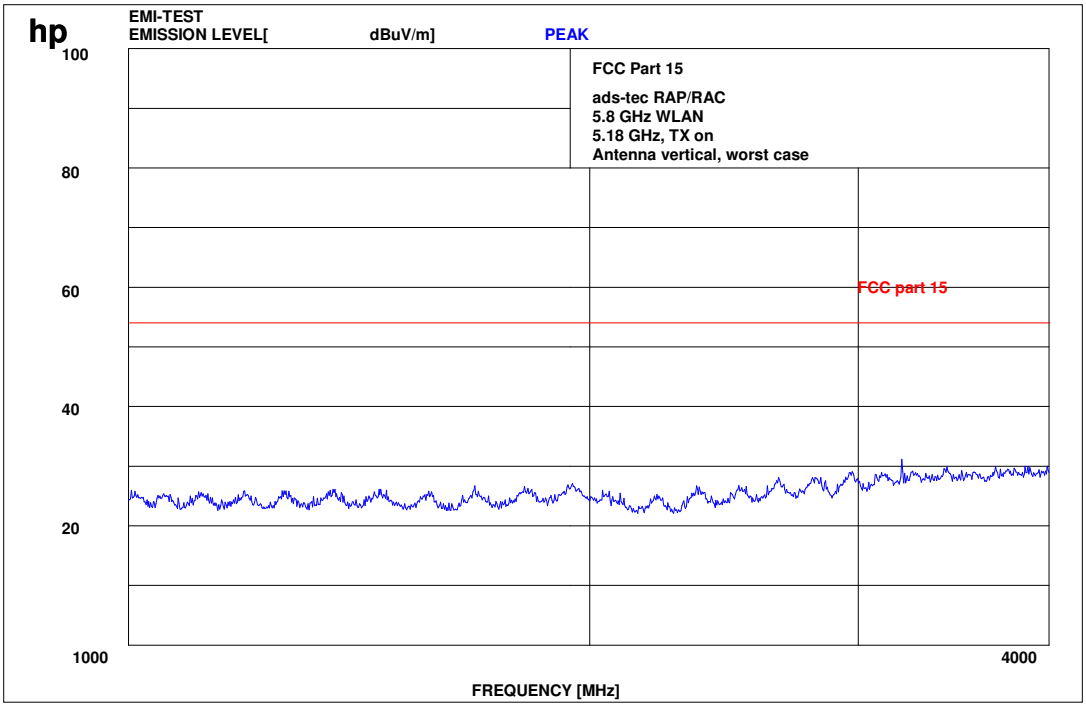
3.12 Spurious Emissions - radiated (Transmitter) §15.209

Plot 1: 0.03 - 1 GHz vertical (lowest channel) (worst case)



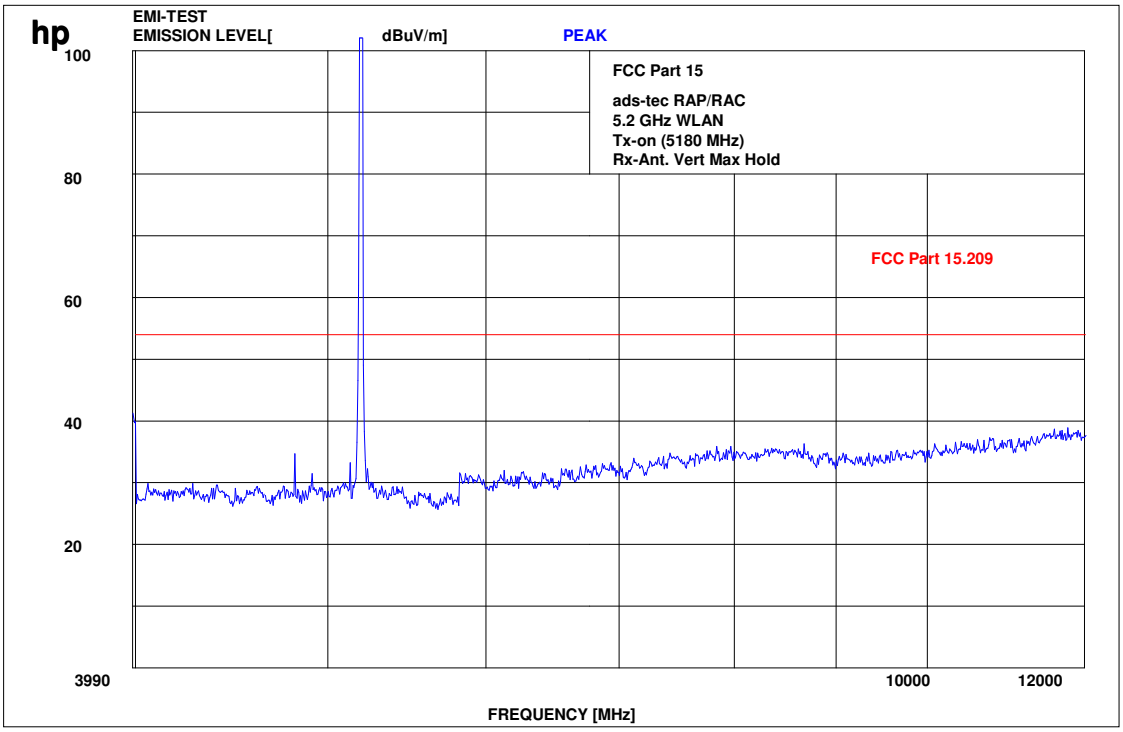
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 2: 1 GHz - 4 GHz vertical (lowest channel) (worst case)



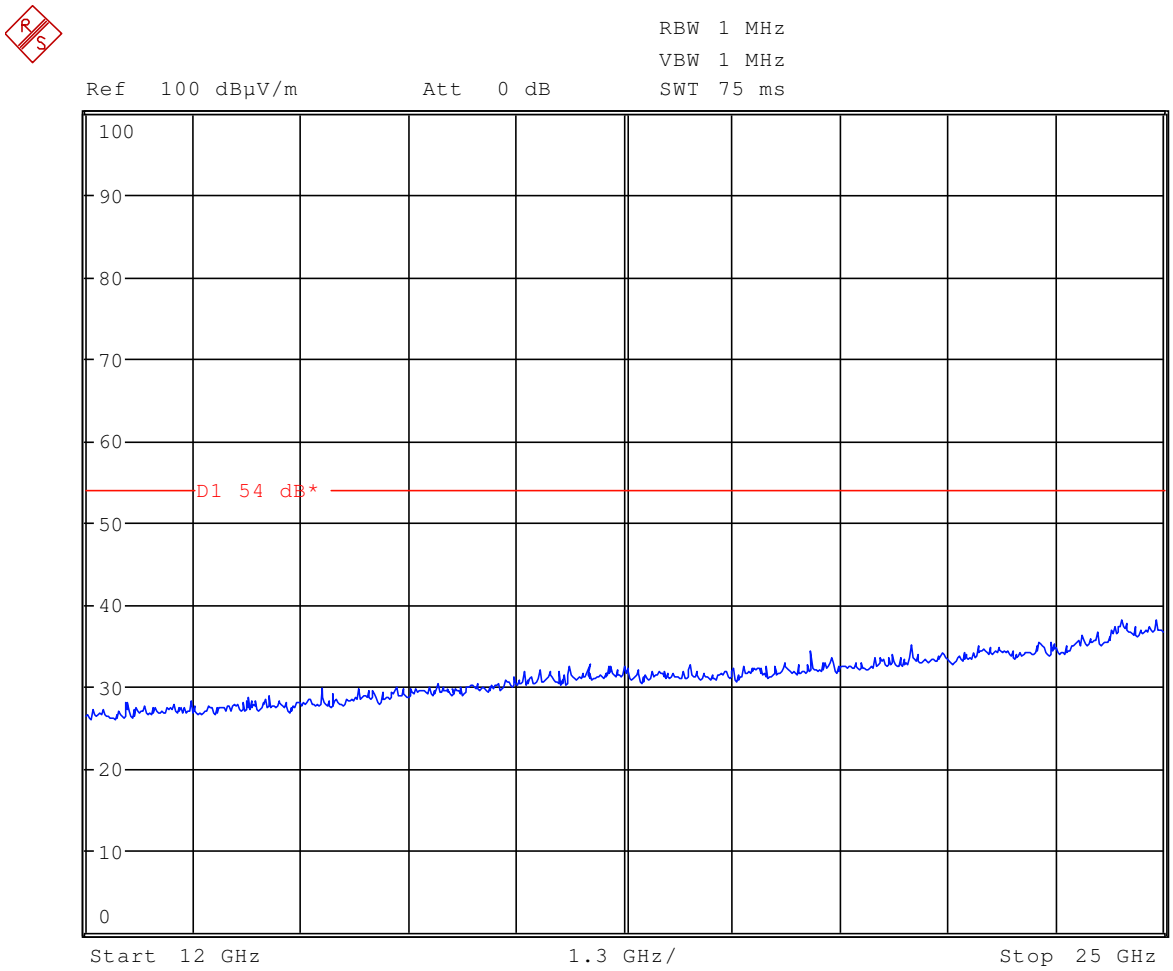
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 3: 4 GHz – 12 GHz vertical (lowest channel) (worst case)



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

Plot 4: 12-25 GHz vertical (valid for all three channels) (worst case)

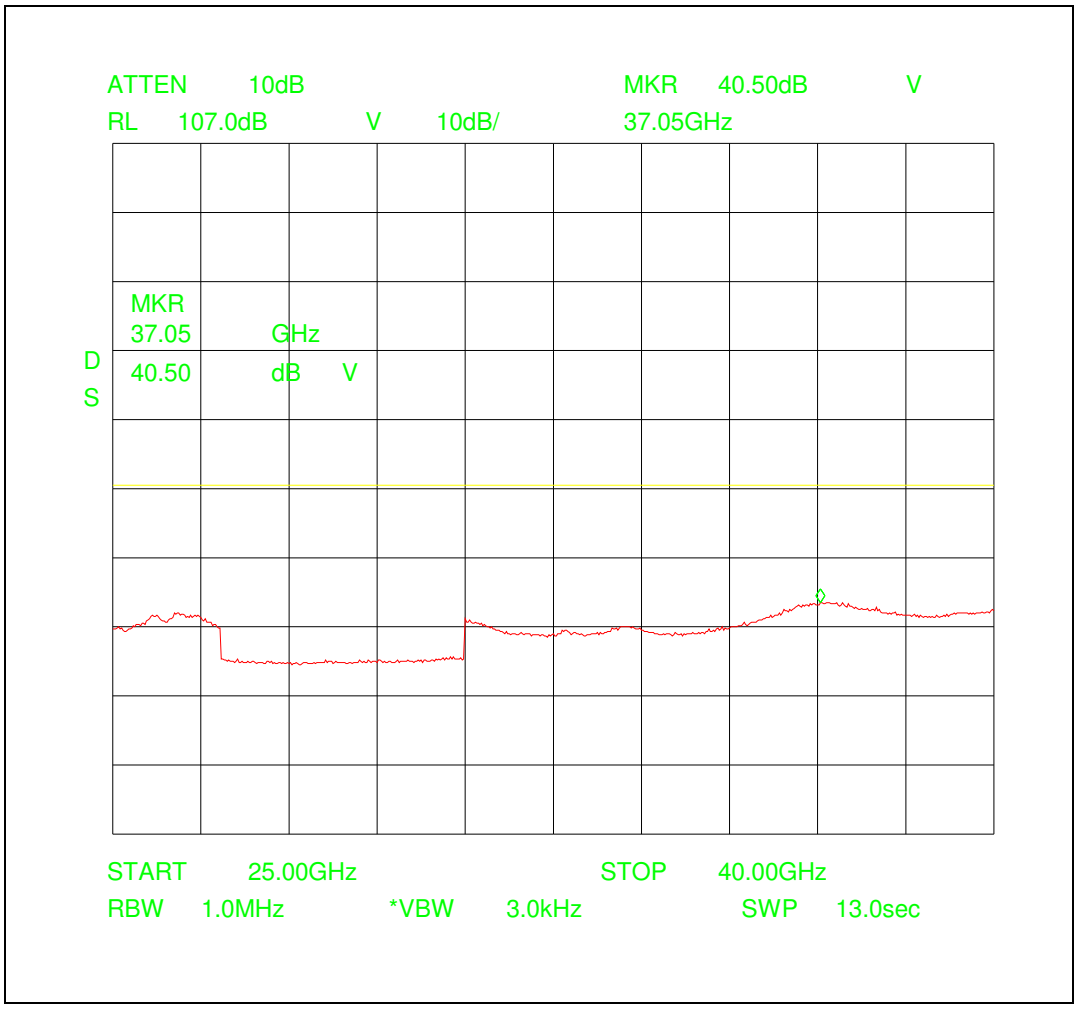


f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

We also measured with external mixers up to 40 GHz.

The plots are valid for all three channels. There were no peaks found.

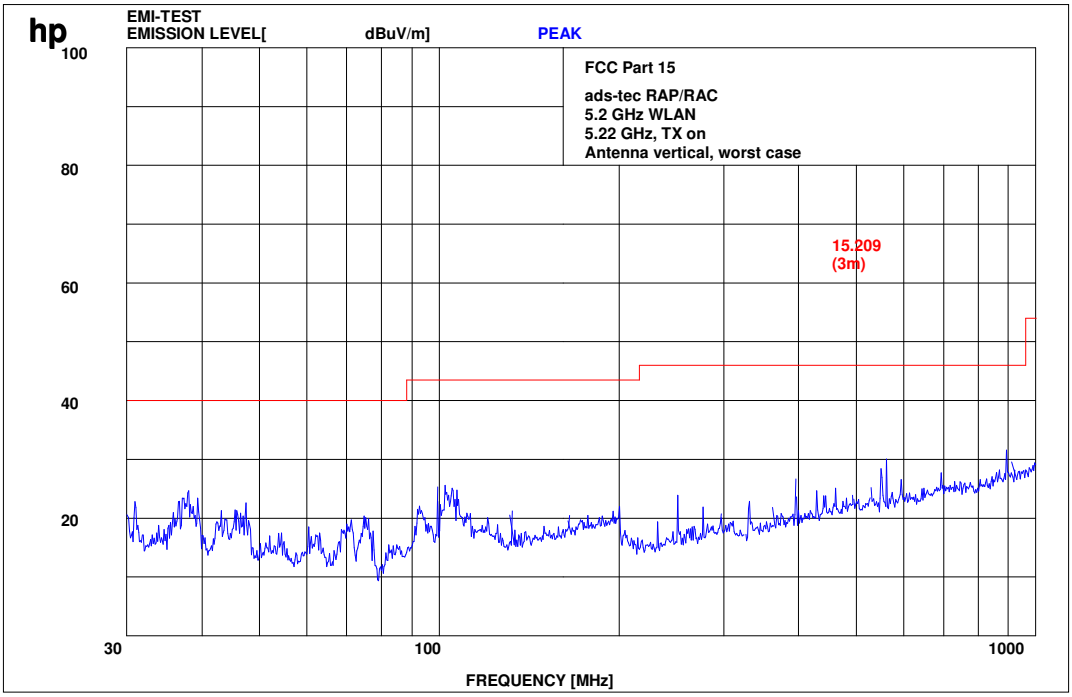
Plot 5: 25 – 40 GHz



Measured under following conditions.

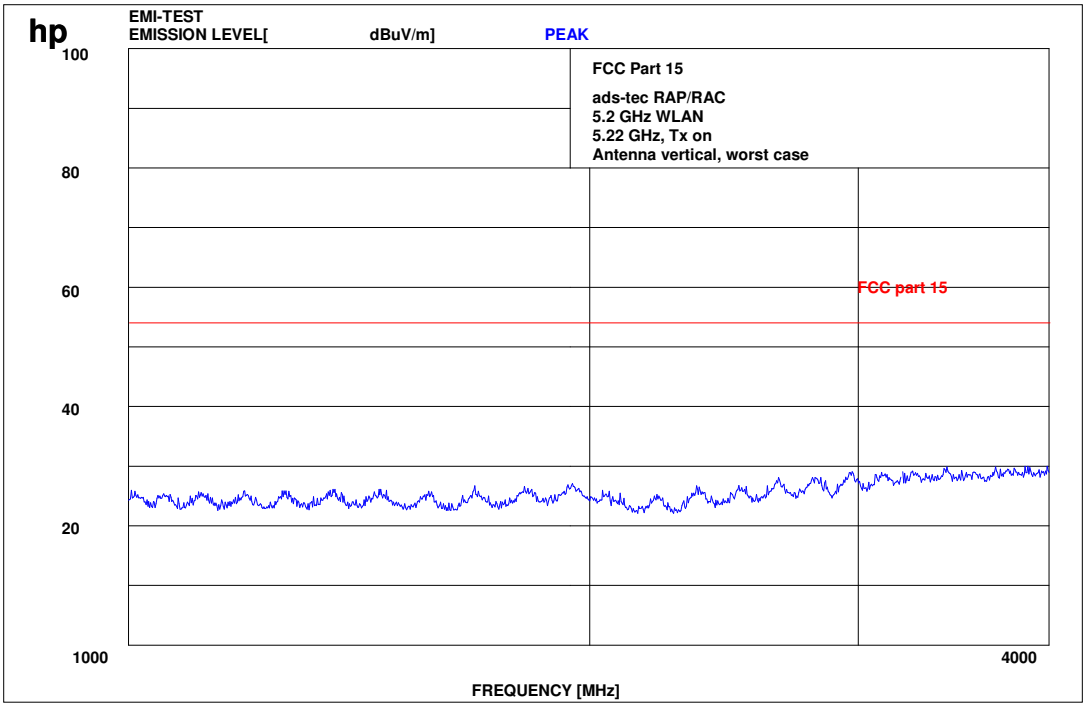
Distance 0.5 Meter - 15.56 dB,
Antenna k-factor 37.5 dB (1/m),
Amplifier 30 dB,
Cabel loss 3.5 dB

Plot 6: 30 MHz to 1 GHz (middle channel)



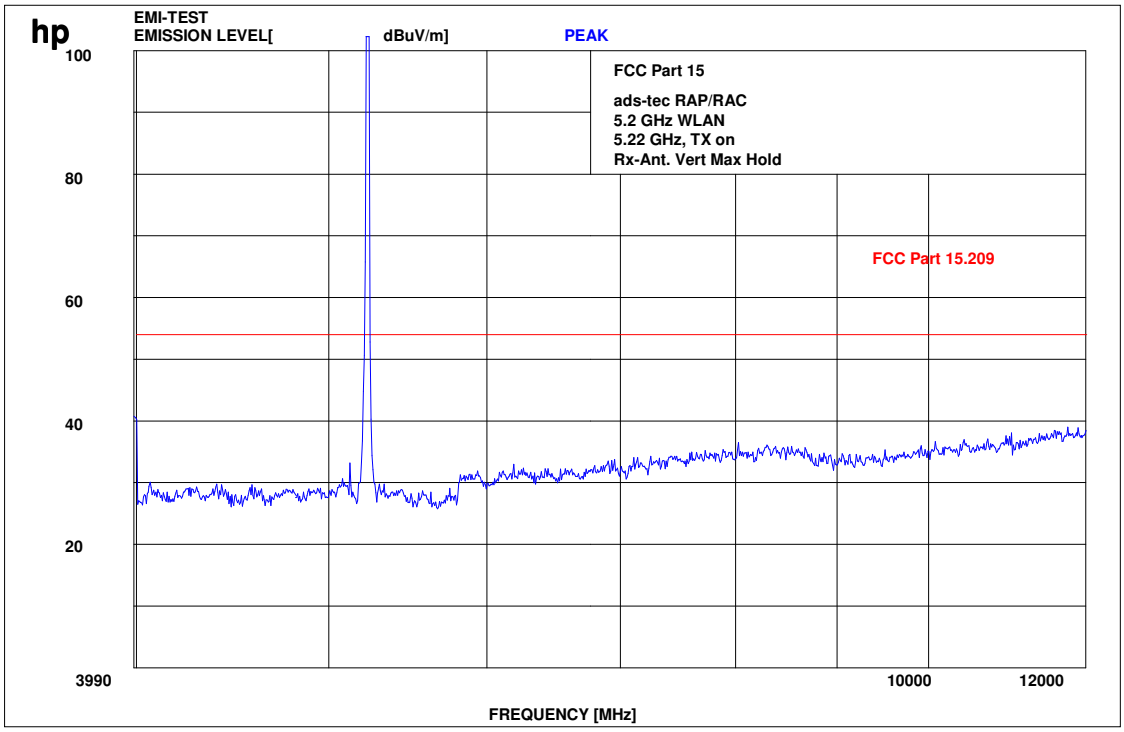
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 7: 1 GHz to 4 GHz (middle channel)



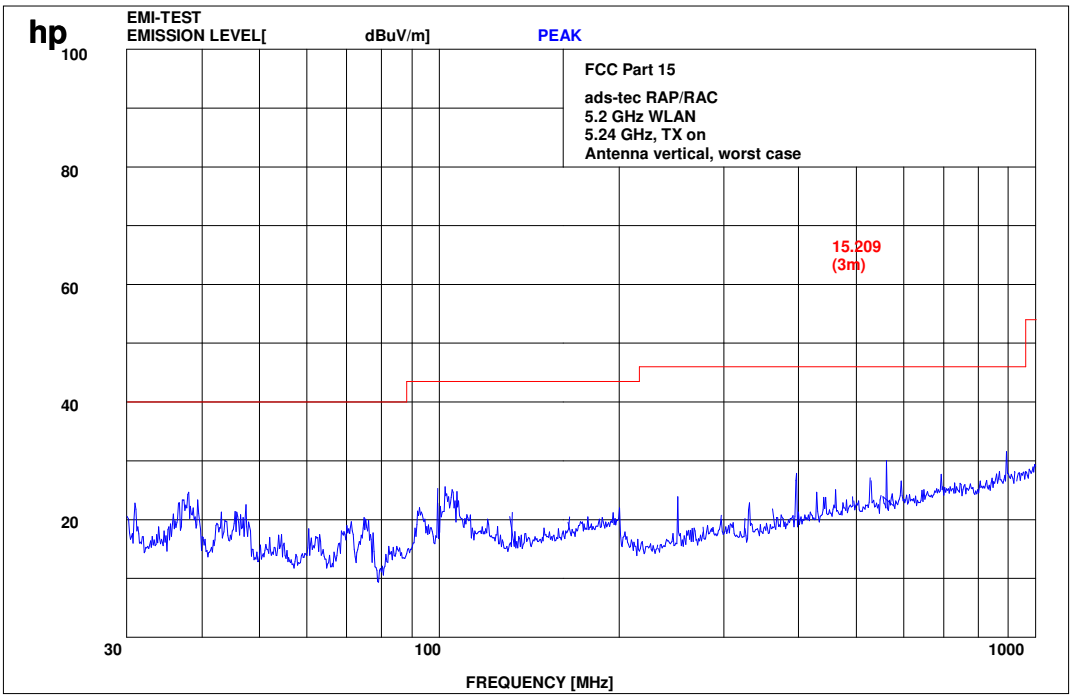
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 8: 4 GHz to 12 GHz (middle channel)



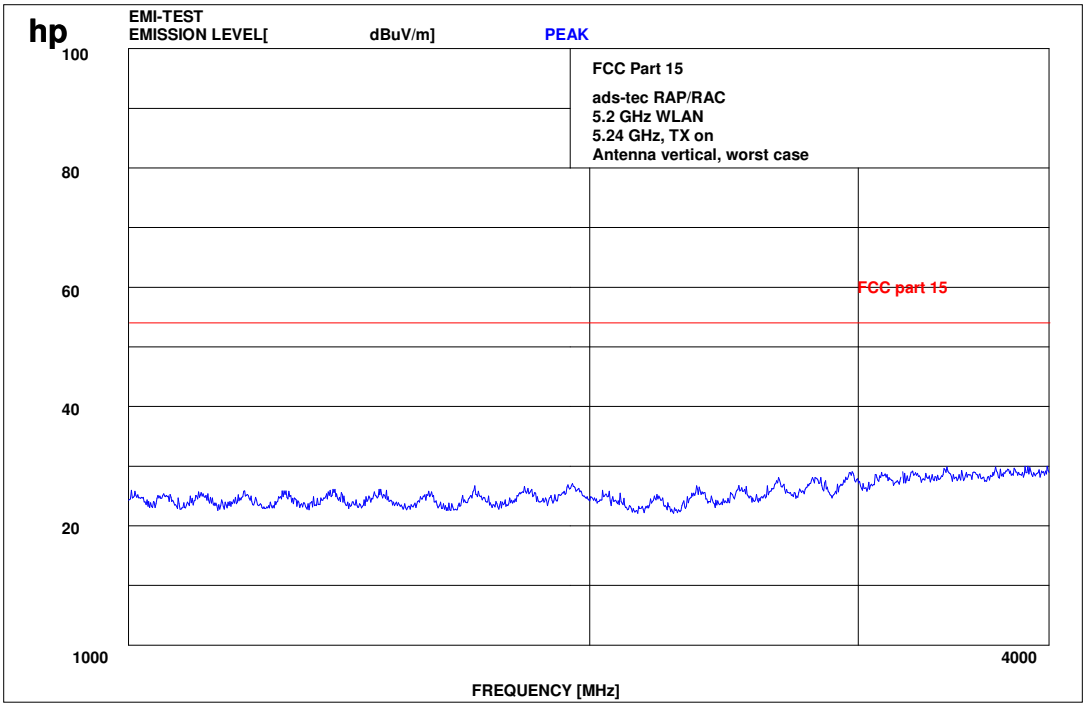
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 9: 30 MHz to 1 GHz (highest channel)



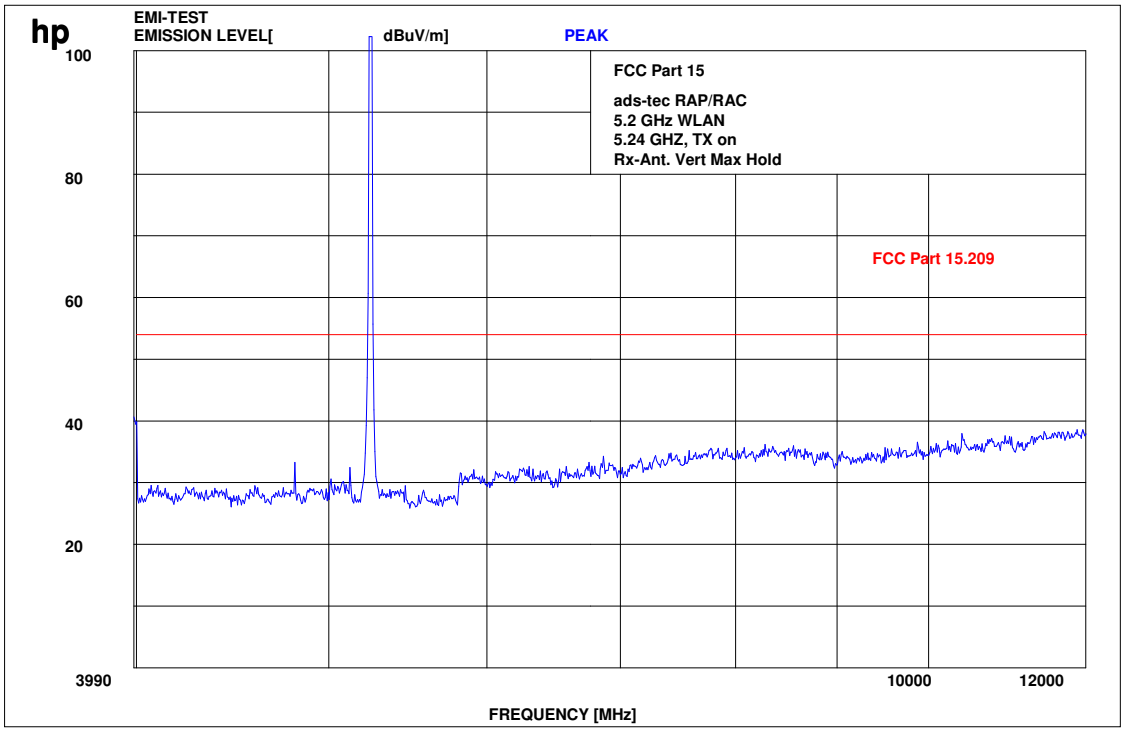
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 10: 1 GHz to 4 GHz (highest channel)



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

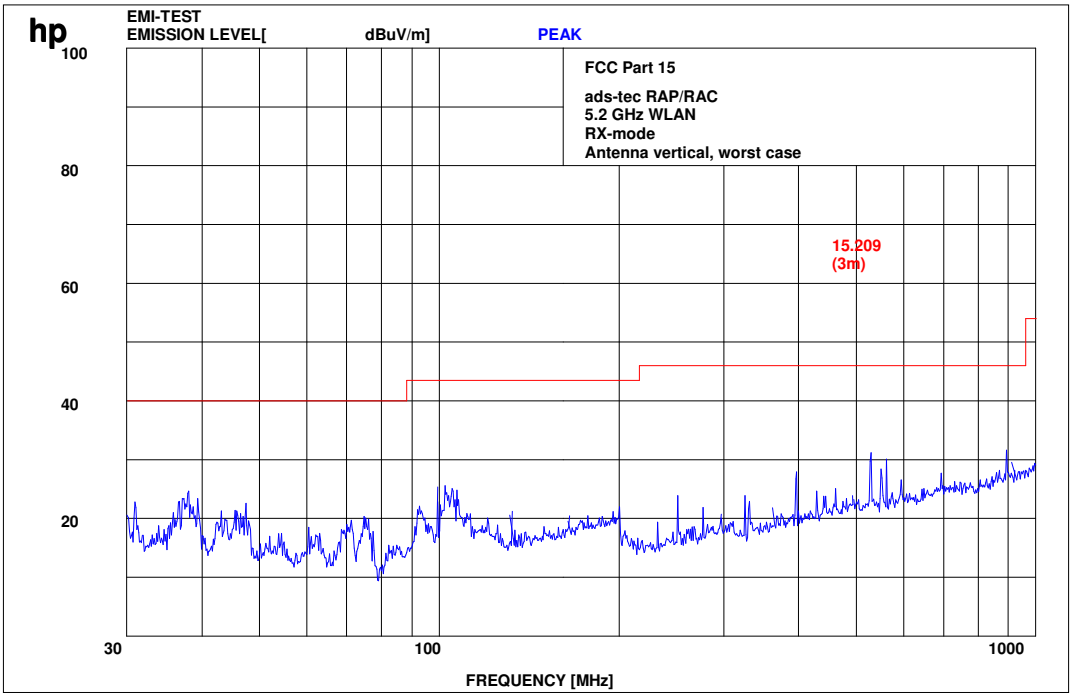
Plot 11: 1 GHz to 12 GHz (highest channel)



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

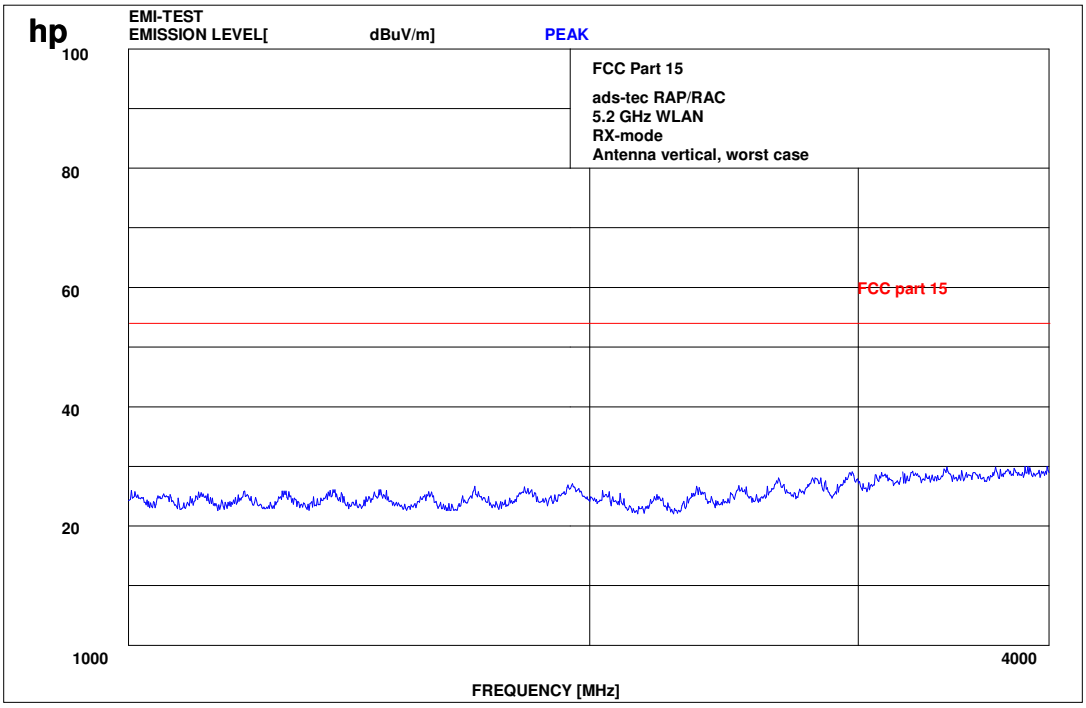
3.13 Spurious emissions radiated (RX) § 15.209

Plot 1: 30 to 1000 MHz



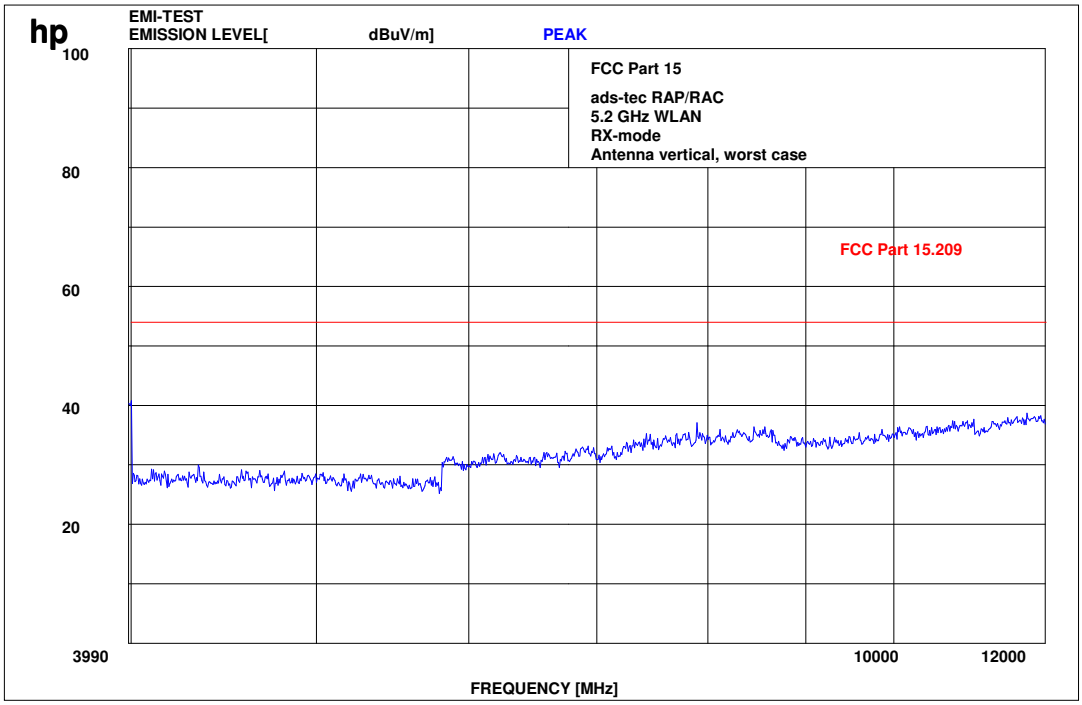
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 2: 1 GHz to 4 GHz



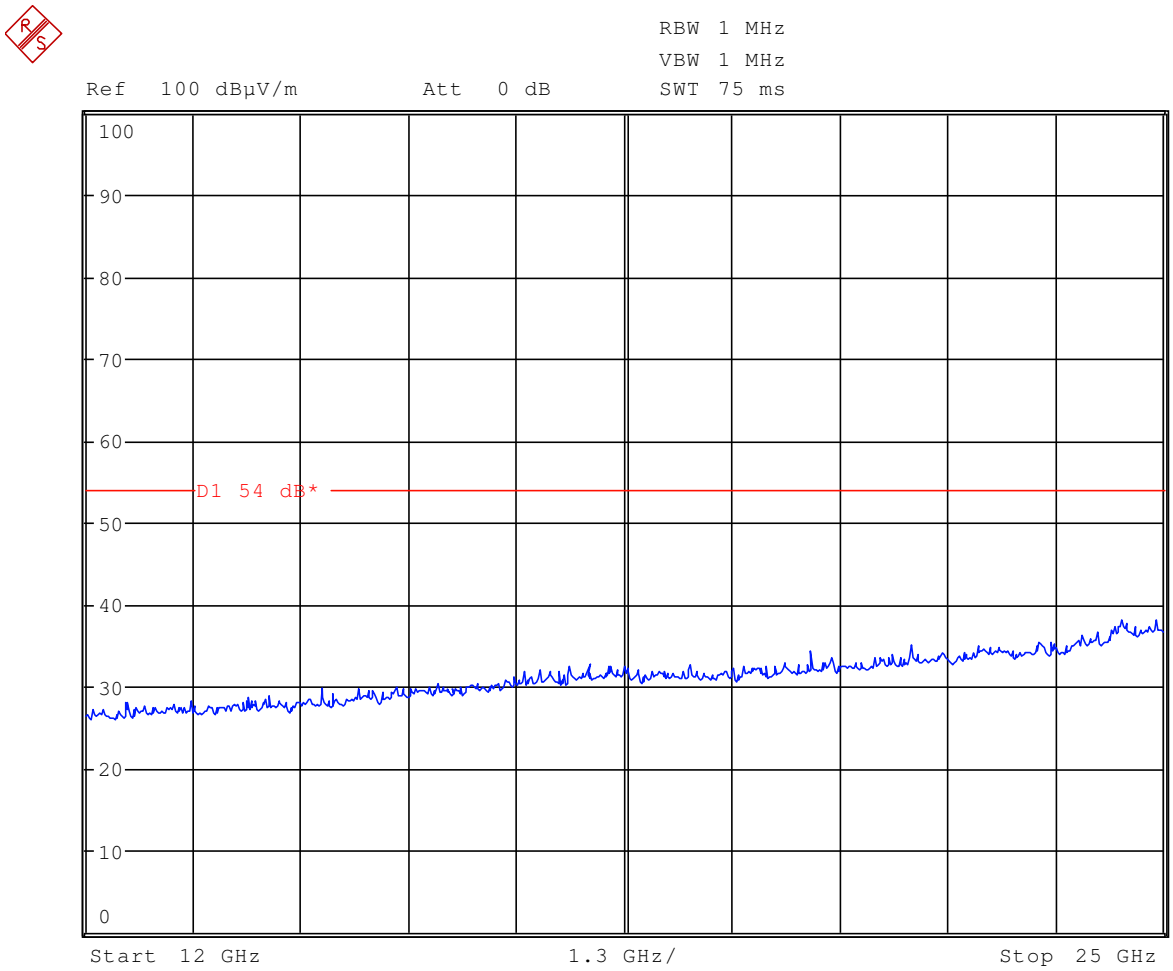
f < 1 GHz : RBW/VBW: 100 kHz f ≥ 1GHz : RBW/VBW: 1 MHz

Plot 3: 4 GHz to 12 GHz



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

Plot 4: - 25 GHz



The measurements were performed up to 40 GHz (see TX-plots). There were no peaks found.

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

Limits: § 15.209

Frequency [MHz]	Field strength [µV/m]	Measurement distance (m)
30 - 88	100 (40 dBµV/m)	3
88 - 216	150 (43.5 dBµV/m)	3
216 - 960	200 (46 dBµV/m)	3
above 960	500 (54 dBµV/m)	3

Results:

Spurious Emissisons level [µV/m]								
CH 1 / 2 / 3								
f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]	f[MHz]	Detector	Level [µV/m]
No peaks found < 15 dB below limit								
Measurement uncertainty			±3 dB					

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

Measurement distance see table

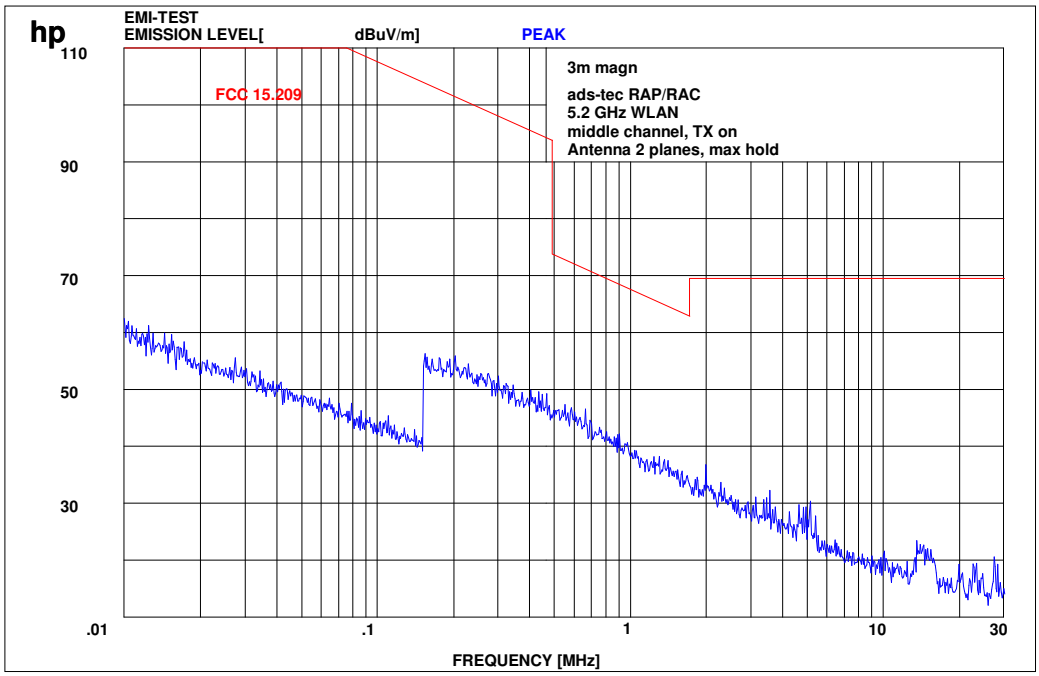
Limits : § 15.109 / 209

Frequency (MHz)	Field strength (µV/m)	Measurement distance (m)
30 - 88	100 (40 dBµV/m)	3
88 - 216	150 (43.5 dBµV/m)	3
216 - 960	200 (46 dBµV/m)	3
above 960	500 (54 dBµV/m)	3

3.14 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:



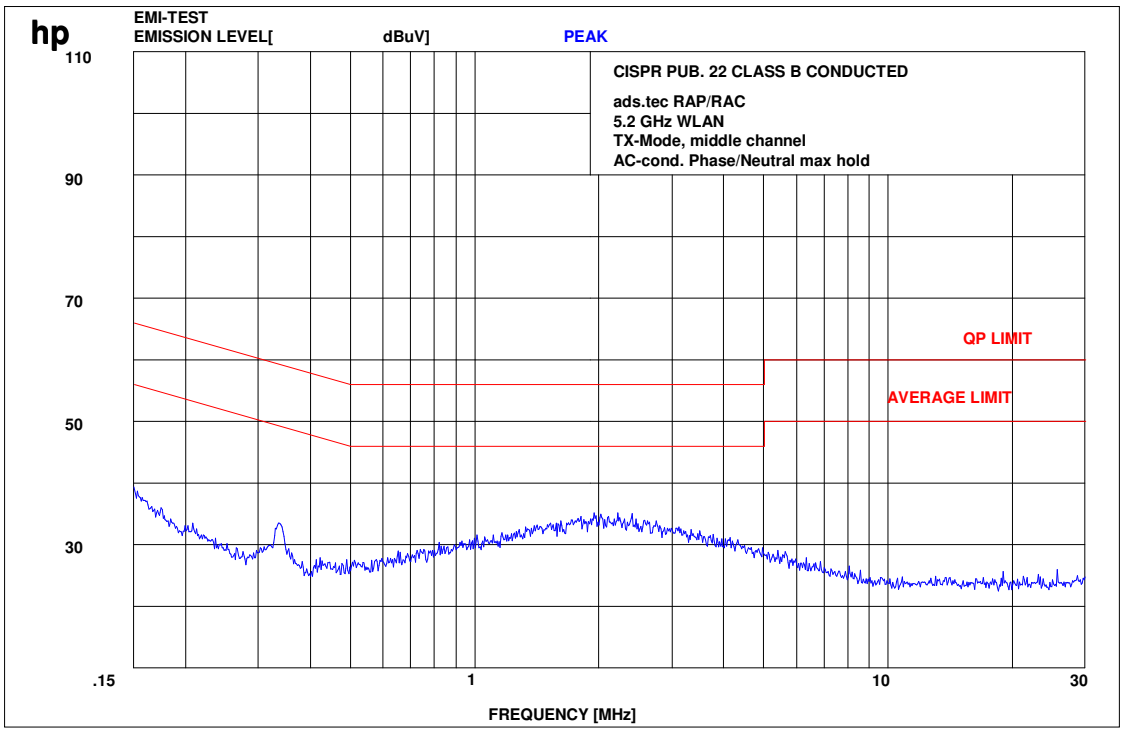
Limits:

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

3.15 Conducted Emissions <30 MHz §15.107/207

(measured with the 110V AC power supplied by the customer)

Plot 1: CISPR 22



We measured in TX and RX mode, L1 and N floating and grounded, max value was hold.

Limits :

Under normal test conditions only	See plots

3.16 Testequipment

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.

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	2747A05306	300001000	05.10.2006	24	05.10.2008
5	Spektrum Analyzer Display 85662A	HP	2816A16541	300002297	05.10.2006	24	05.10.2008
6	Quasi-Peak-Adapter 85650A	HP	2811A01131	300000999	05.10.2006	24	05.10.2008
7	RF-Preselector 85685A	HP	2837A00779	300000218	08.11.2006	24	08.11.2008
8	PC Vectra VL	HP		300001688	n.a.		
9	Software EMI	HP		300000983	n.a.		
10	Measurement System 2						
11	FSP 30	R&S	100623	ICT 300003464	05.10.2007	24	15.10.2009
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.)		

SRD Laboratory Room 002:

No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	System Controller PSM 12	R&S	835259/007	3000002681-00xx	n.a.		
2	Memory Extension PSM-K10	R&S	To 1	3000002681	n.a.		
3	Operating Software PSM-B2	R&S	To 1	3000002681	n.a.		
4	19'' Monitor		22759020-ED	3000002681	n.a.		
5	Mouse		LZE 0095/6639	3000002681	n.a.		
6	Keyboard		G00013834L461	3000002681	n.a.		
7	Spectrum Analyser FSIQ 26	R&S	835540/018	3000002681-0005	01.08.2006	24	01.08.2008
8	Tracking Generator FSIQ-B10	R&S	835107/015	3000002681	s.No.7		
10	RF-Generator SMIQ03 (B1 Signal)	R&S	835541/056	3000002681-0002	01.08.2006	36	01.08.2009
11	Modulation Coder SMIQ-B20	R&S	To 10	3000002681	s.No.10		
12	Data Generator SMIQ-B11	R&S	To 10	3000002681	s.No.10		
13	RF Rear Connection SMIQ-B19	R&S	To 10	3000002681	s.No.10		
14	Fast CPU SM-B50	R&S	To 10	3000002681	s.No.10		
15	FM Modulator SM-B5	R&S	835676/033	3000002681	s.No.10		
16	RF-Generator SMIQ03 (B2 Signal)	R&S	835541/055	3000002681-0001	01.08.2006	36	01.08.2009
17	Modulation Coder SMIQ-B20	R&S	To 16	3000002681	s.No.16		
18	Data Generator SMIQ-B11	R&S	To 16	3000002681	s.No.16		
19	RF Rear Connection SMIQ-B19	R&S	To 16	3000002681	s.No.16		
20	Fast CPU SM-B50	R&S	To 16	3000002681	s.No.16		
21	FM Modulator SM-B5	R&S	836061/022	3000002681	s.No.16		
22	RF-Generator SMP03 (B3 Signal)	R&S	835133/011	3000002681-0003	01.08.2006	36	01.08.2009
23	Attenuator SMP-B15	R&S	835136/014	3000002681	S.No.22		
24	RF Rear Connection SMP-B19	R&S	834745/007	3000002681	S.No.22		
25	Power Meter NRVD	R&S	835430/044	3000002681-0004	01.08.2006	24	01.08.2008
26	Power Sensor NRVD-Z1	R&S	833894/012	3000002681-0013	01.08.2006	24	01.08.2008
27	Power Sensor NRVD-Z1	R&S	833894/011	3000002681-0010	01.08.2006	24	01.08.2008
28	Rubidium Standard RUB	R&S		3000002681-0009	01.08.2006	24	01.08.2008
29	Switching and Signal Conditioning Unit SSCU	R&S	338864/003	3000002681-0006	01.08.2006	24	01.08.2008
30	Laser Printer HP Deskjet 2100	HP	N/A	3000002681-0011	n.a.		
31	19'' Rack	R&S	11138363000004	3000002681	n.a.		
32	RF-cable set	R&S	N/A	3000002681	n.a.		
33	IEEE-cables	R&S	N/A	3000002681	n.a.		
34	Sampling System FSIQ-B70	R&S	835355/009	3000002681	s.No.7		

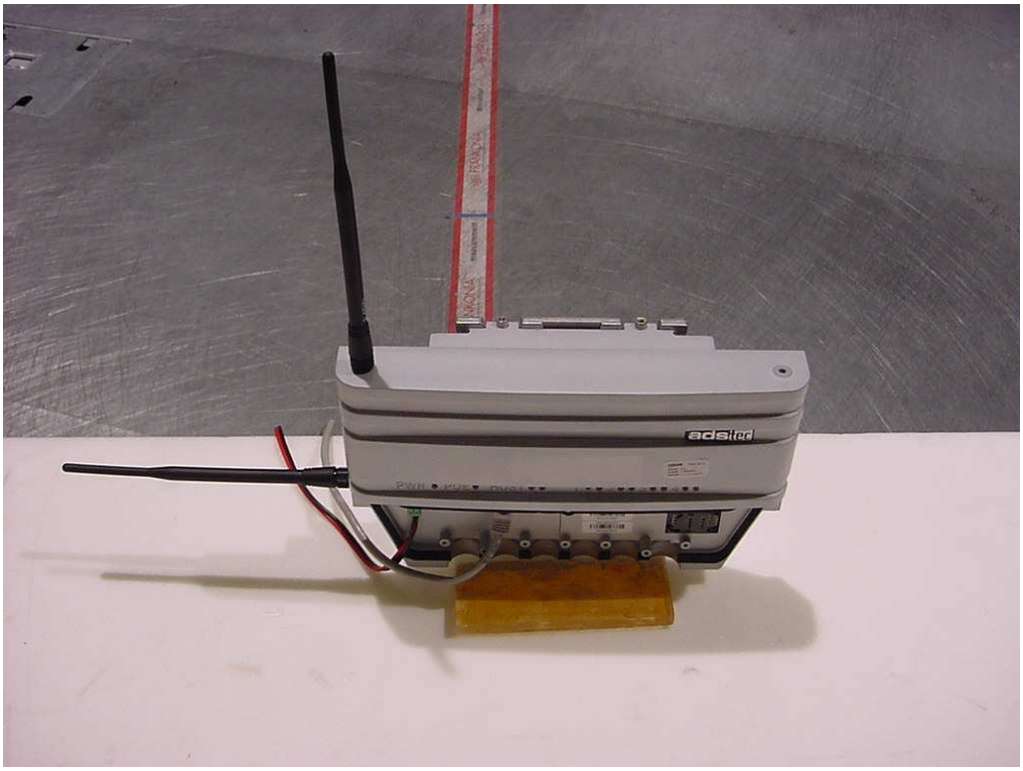
35	RSP programmable attenuator	R&S	834500/010	3000002681-0007	01.08.2006	24	01.08.2008
36	Signalling Unit	R&S	838312/011	3000002681	n.a.		
37	NGPE programmable Power Supply for EUT	R&S	192.033.41	3000002681			
38	Climatic box VT 4002	Heraeus Vötsch	58566046820 010	300003019	11.05.2007	24	11.05.2009
39	Signaling Unit CMU200	R&S	832221/0055	300002862	12.01.2006	24	12.01.2008
40	Power Splitter 6005-3	Inmet Corp.	none	300002841	23.12.2006	24	23.12.2008
41	SMA Cables SPS-1151-985-SPS	Insulated Wire	different	different	n.a.		
42	CBT32 with EDR Signaling Unit	R&S					
43	Coupling unit	Narda	N/A	--	n.a.		
44	2xSwitch Matrix PSU	R&S	872584/021	300001329	n.a.		
45	RF-cable set	R&S	N/A	different	n.a.		
46	IEEE-cables	R&S	N/A	--	n.a.		

SRD Laboratory Room 005:

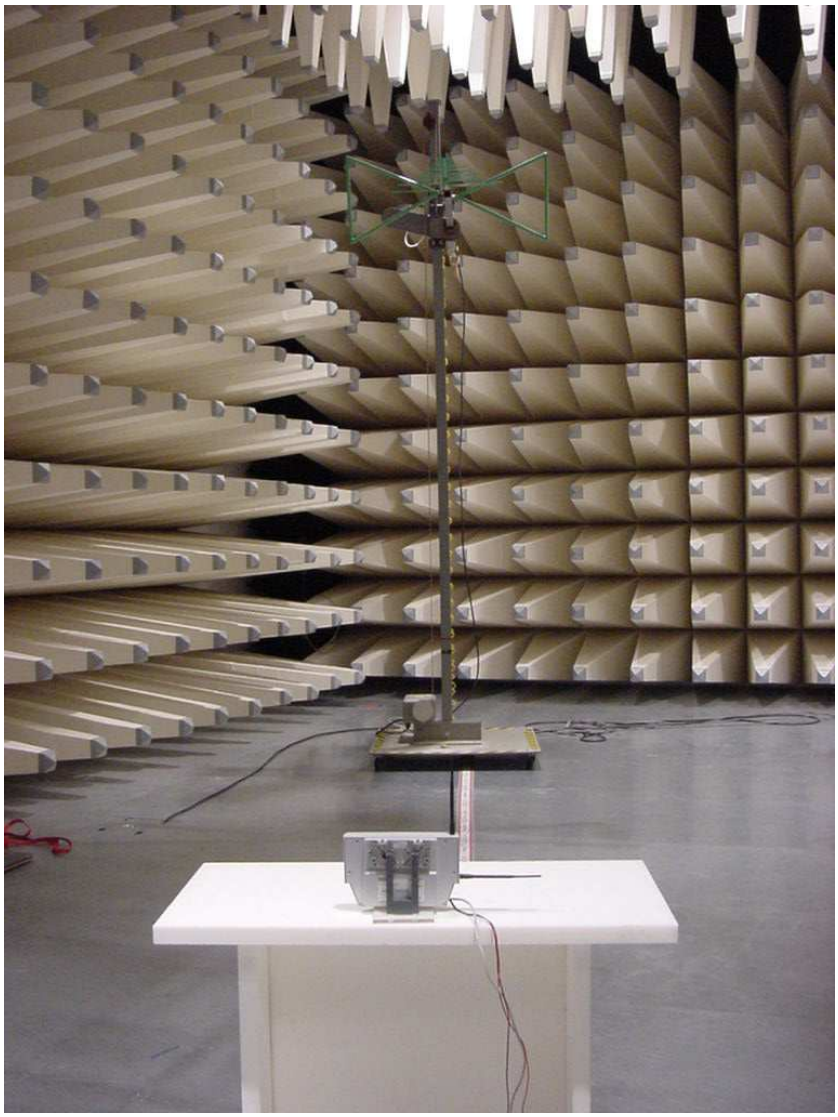
No	Equipment/Type	Manuf.	Serial Nr.	Inv. No. Cetecom	Last Calibration	Frequency (months)	Next Calibration
1	Spektrum Analyzer 8566B	HP	2747A05275	300000219	08.11.2006	24	08.11.2008
2	Spektrum Analyzer Display 85662A	HP	2816A16497	300001690	08.11.2006	24	08.11.2008
3	Quasi-Peak-Adapter 85650A	HP	2811A01135	300000216	08.11.2006	24	08.11.2008
4	Power Supply	Heiden	003202	300001187	12.05.2007	36	12.05.2010
5	Power Supply	Heiden	1701	300001392	12.05.2007	36	12.05.2010

4 Photographs

Test site Radiated Emisssions:



Test site Radiated Emisssions:



AC-conducted:

5 Photographs of equipment under test

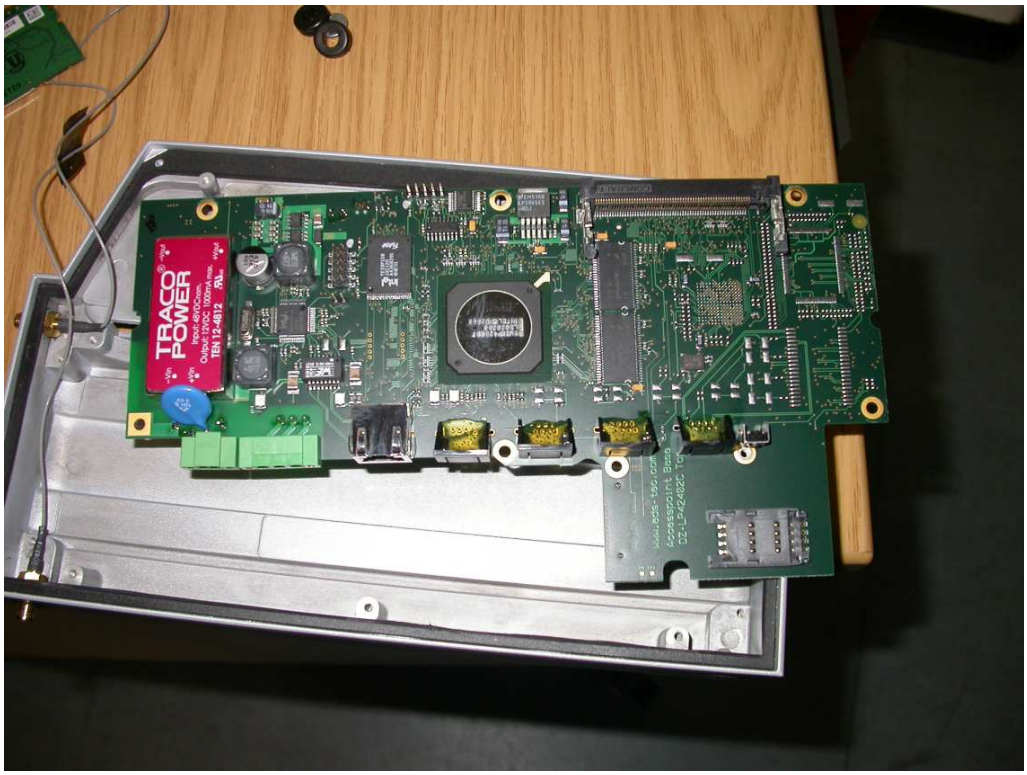
Photograph No.: 1

Photograph No.: 2

Photograph No.: 3

Photograph No.: 4

Photograph No.: 5



Photograph No.: 6

Photograph No.: 7

Photograph No.: 8

Photograph No.: 9