

## TEST REPORT

Test report no.: 1-1554-01-16/09-Part 1-A



### Testing laboratory

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**Accredited test laboratory:**  
 The test laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025  
 DAR registration number: DGA-PL-176/94-D1  
 Area of Testing: Radio/Satellite Communications

### Applicant

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### Manufacturer

**Digi International GmbH**  
**Branch Breisach**  
 Kueferstr.8  
 79206 Breisach / Germany

### Test standard/s

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

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

### Test item

Kind of test item: **WLAN module**  
 Model name: **ConnectCore Wi-i.Mx51**  
 FCC ID: **MCQ-50M1699**  
 IC: **1846A-50M1699**  
 Frequency [MHz]: **5150 MHz – 5250 MHz ISM band 1**  
**5250 MHz – 5350 MHz ISM band 2**  
**5470 MHz – 5725 MHz ISM band 3**  
 Power supply: **115.0V AC by AC/DC power supply**  
 Temperature range: **-20 °C to +55 °C**

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

**Test performed:**

**Test report authorised:**

Marco Bertolino

Stefan Bös

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## 2 General information

### 2.1 Notes

The test results of this test report relate exclusively to the test item specified in this test report. CETECOM ICT Services GmbH does not assume responsibility for any conclusions and generalisations 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 CETECOM ICT Services GmbH.

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

### 2.2 Application details

|                                    |            |
|------------------------------------|------------|
| Date of receipt of order:          | 2010-09-22 |
| Date of receipt of test item:      | 2010-11-11 |
| Start of test:                     | 2010-12-02 |
| End of test:                       | 2010-12-17 |
| Person(s) present during the test: | -/-        |

## 3 Test standard/s

| Test standard     | Version | Test standard description   |
|-------------------|---------|---|
| 47 CFR Part 15    | 2009-10 | Title 47 of the Code of Federal Regulations; Chapter I-Federal Communications Commission<br>subchapter A - general, Part 15-Radio frequency devices                           |
| RSS - 210 Issue 8 | 2010-12 | Spectrum Management and Telecommunications - Radio Standards Specification<br>Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment |

## 4 Test environment

|                            |           |                                       |
|----------------------------|-----------|---------------------------------------|
| Temperature:               | $T_{nom}$ | +24 °C during room temperature tests  |
|                            | $T_{max}$ | +55 °C during high temperature test   |
|                            | $T_{min}$ | -20 °C during low temperature test    |
| Relative humidity content: |           | 60 %                                  |
| Air pressure:              |           | not relevant for this kind of testing |
| Power supply:              | $V_{nom}$ | 115.0 V AC by AC/DC power supply      |
|                            | $V_{max}$ | 126.5 V                               |
|                            | $V_{min}$ | 103.5 V                               |

## 5 Test item

|                      |   |   |
|----------------------|---|---|
| Kind of test item    | : | <b>WLAN module</b>  |
| Type identification  | : | <b>ConnectCore Wi-i.Mx51</b>  |
| S/N serial number    | : | <b>Prototype 55001445-92</b>  |
| HW hardware status   | : | <b>No information available!</b>  |
| SW software status   | : | <b>No information available!</b>  |
| Frequency band [MHz] | : | <b>5150 MHz – 5250 MHz ISM band 1<br/>(lowest channel 5180; highest channel 5240 MHz)</b><br><br><b>5250 MHz – 5350 MHz ISM band 2<br/>(lowest channel 5260; highest channel 5320 MHz)</b><br><br><b>5470 MHz – 5725 MHz ISM band 3<br/>(lowest channel 5500; highest channel 5700 MHz)</b> |
| Type of modulation   | : | <b>ODFM technology with BPSK; QPSK; 16- &amp; 64-QAM modulation.</b>  |
| Number of channels   | : | <b>ISM band 1: 4<br/>ISM band 2: 4<br/>ISM band 3: 11</b>   |
| Antenna              | : | <b>External rod antenna → for more information please take a look at the annex B – photos of the EUT.</b>   |
| Power supply         | : | <b>115.0 V AC by AC/DC power supply</b>   |
| Temperature range    | : | <b>-20 °C to +55 °C</b>   |

## 6 Test laboratories sub-contracted

None

## 7 Summary of measurement results



No deviations from the technical specifications were ascertained



There were deviations from the technical specifications ascertained

| TC Identifier | Description                          | Verdict | Date       | Remark |
|---------------|--------------------------------------|---------|------------|--------|
| RF-Testing    | FCC Part 15 §15.407 - CANADA RSS-210 | Passed  | 2011-01-13 | -/-    |

| Test specification clause                        | Test case  | Temperature conditions | Power source voltages | Mode | Pass                                | Fail                     | NA                       | NP                       | Remark   |
|--|--|------------------------|-----------------------|------|-------------------------------------|--------------------------|--------------------------|--------------------------|----------|
|  | Antenna gain   | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| §15.407a(3)+(4)/<br>RSS-210 Issue 8 A<br>9.2 (1) | Peak transmit power                                      | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| §15.407/ Rss-Gen                                 | Spectrum bandwidth of a<br>OFDM system 6dB<br>bandwidth  | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| §15.407/ Rss-Gen                                 | Spectrum bandwidth of a<br>OFDM system 20dB<br>bandwidth | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| §15.407/ Rss-Gen                                 | Spectrum bandwidth of a<br>OFDM system 26dB<br>bandwidth | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| §15.205<br>RSS-210 / A8.5                        | Band edge compliance<br>radiated                         | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| §15.407a(5)<br>RSS-210 Issue 8<br>A9.2 (1)       | Peak power spectral<br>density conducted                 | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| RSS-210 Annex<br>9.5(5)                          | Emission stability under<br>extrem conditions            | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| § 15.407a (6)/<br>RSS-210 Issue 8 A<br>9.2 (1)   | Ratio of peak excursion                                  | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| § 15.407b (3)/<br>RSS-210 Issue 8 A<br>9.3 (1)   | Undesirable emissions<br>conducted                       | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| § 15.209/<br>RSS-210 Issue 8 A<br>9.3 (1)        | Spurious Emission -<br>radiated (TX)                     | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| § 15.209/<br>RSS-210 Issue 8<br>2.7              | Spurious Emission -<br>radiated (RX)                     | Nominal                | Nominal               | OFDM | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |
| § 15.107/207/<br>RSS-210 Issue 8<br>2.7          | Conducted Emissions <30<br>MHz                           | Nominal                | Nominal               | -/-  | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Complies |

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

## 8 RF measurement testing

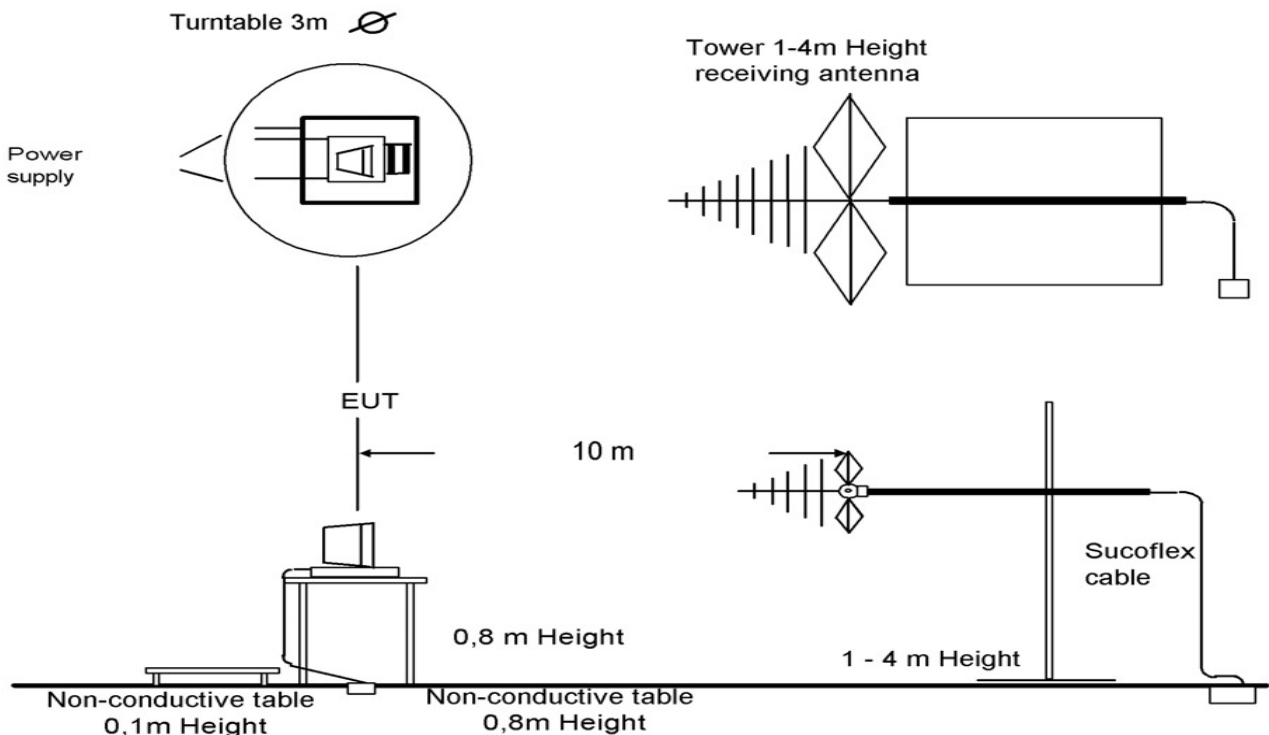
### 8.1 Description of test setup

#### 8.1.1 Radiated measurements

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

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

Semi anechoic chamber



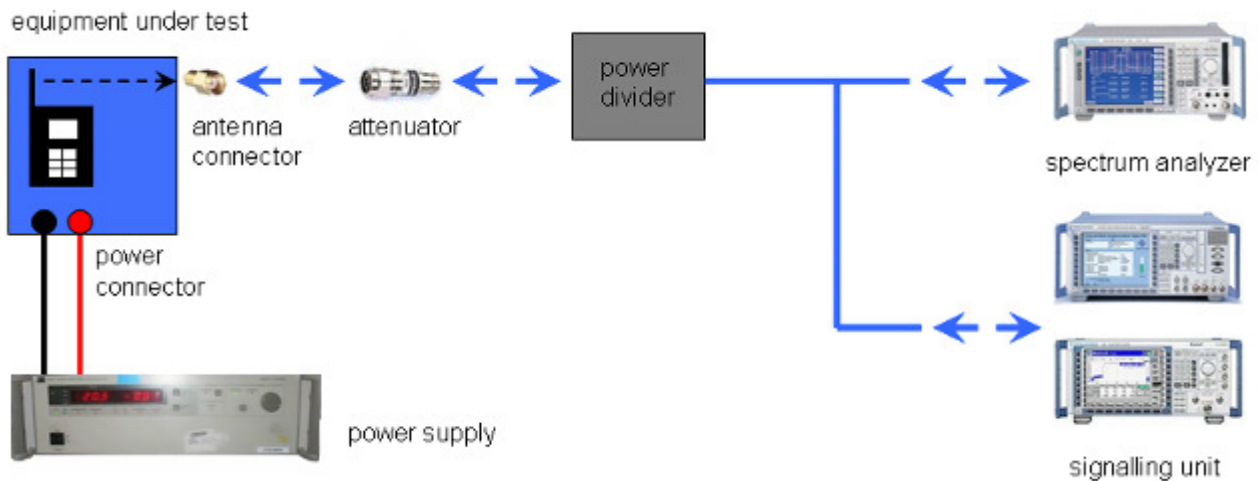
Picture 1: Diagram radiated measurements

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

The EUT is powered by an external power supply with nominal voltage. The signalling is performed from outside the chamber with a signalling unit (CMU200 or other) by air link using signalling antenna.

## 8.1.2 Conducted measurements

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



Picture 2: Diagram conducted measurements

## 8.2 Additional comments

- Reference documents: This test report consists of three parts 1-1554-01-06\_09-Part 1-A, 1-1554-01-06\_09-Part 2-A and 1-1554-01-06\_09-Part 3 due to file size requirements of the pdf for granting. A complete test report 1-1554-01-06\_09 is also available.
- Special test descriptions: None
- Configuration descriptions: None
- Test mode:
- No test mode available.  
lperf was used to ping another device with the largest support packet size
  - Special software is used.  
EUT is transmitting pseudo random data by itself

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

|  |   |   |
|--|---|---|
| Test report number                               | : | 1-1554-01-16/09-A   |
| Equipment model number                           | : | ConnectCore Wi-i.Mx51   |
| Certification number                             | : | 1846A-50M1699   |
| Manufacturer (complete address)                  | : | Digi International GmbH<br>Branch Breisach<br>Kueferstr.8<br>79206 Breisach / Germany   |
| Tested to radio standards specification no.      | : | RSS 210, Issue 8, Annex 8   |
| Open area test site IC No.                       | : | IC 3462C-1  |
| Frequency range                                  | : | 5150 MHz – 5250 MHz ISM band 1<br>(lowest channel 5180; highest channel 5240 MHz)<br><br>5250 MHz – 5350 MHz ISM band 2<br>(lowest channel 5260; highest channel 5320 MHz)<br><br>5470 MHz – 5725 MHz ISM band 3<br>(lowest channel 5500; highest channel 5700 MHz)   |
| RF-power [W] (max.)                              | : | <b>Band 1 :</b> cond.: 17.78 mW (OFDM a – mode)<br>18.41 mW (OFDM n – mode)<br>EIRP: 17.95 mW (OFDM a – mode)<br>48.08 mW (OFDM n – mode)<br><b>Band 2 :</b> cond.: 17.95 mW (OFDM a – mode)<br>18.20 mW (OFDM n – mode)<br>EIRP: 48.53 mW (OFDM a – mode)<br>48.98 mW (OFDM n – mode)<br><b>Band 3 :</b> cond.: 26.00 mW (OFDM a – mode)<br>27.73 mW (OFDM n – mode)<br>EIRP: 73.11 mW (OFDM a – mode)<br>77.98 mW (OFDM n – mode) |
| Occupied bandwidth (99%-BW) [kHz]                | : | <b>Band 1 :</b> a mode: 19.23 MHz<br>n mode: 19.98 MHz<br><b>Band 2 :</b> a mode: 19.05 MHz<br>n mode: 19.90 MHz<br><b>Band 3 :</b> a mode: 18.91 MHz<br>n mode: 19.71 MHz  |
| Type of modulation                               | : | OFDM – BPSK; QPSK, 16 QAM, 64 QAM   |
| Emission designator (TRC-43)                     | : | <b>Band 1 :</b> a mode: 19M2G7D<br>n mode: 20M0G7D<br><b>Band 2 :</b> a mode: 19M1G7D<br>n mode: 19M9G7D<br><b>Band 3 :</b> a mode: 18M9G7D<br>n mode: 19M7G7D  |
| Antenna information                              | : | External rod antenna → for more information please take a look at the annex B – photos of the EUT.  |
| Transmitter spurious (worst case) [dBμV/m @ 3m]: |   | 50.73 dBμV/m @ 10.64 GHz  |
| Receiver spurious (worst case) [dBμV/m @ 3m]:    |   | 43.06 dBμV/m @ 4.16 GHz   |

**ATTESTATION:**

**DECLARATION OF COMPLIANCE:**

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

**Laboratory manager:**

2011-01-13                      Marco Bertolino  
Date                                      Name

  
Signature



## 9 Measurement results

### 9.1 Data rate / output power conducted

**Description:**

Measurement of the maximum output power conducted. This measurement is performed only at the middle channel in both modes and all data rates to determine the data rate per mode which results in the highest output power. This mode will be selected for all further measurements.

Measured with the spectrum analyzer band power measurement function according to the guidelines of the FCC public notice DA 02-2138 – method #3. (UNII guideline)

**Measurement:**

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Sample   |
| Sweep time:           | Auto     |
| Video bandwidth:      | 1 MHz    |
| Resolution bandwidth: | 1 MHz    |
| Span:                 | 30 MHz   |
| Trace-Mode:           | Max hold |

**Results: band 1**

| OFDM                    | Maximum Output Power Conducted [dBm] |       |       |       |       |       |       |              |
|-------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------------|
|                         | 6                                    | 9     | 12    | 18    | 24    | 36    | 48    | 54           |
| Data Rate [MBit/s]      |                                      |       |       |       |       |       |       |              |
| Ch 40 - 5200 MHz        | 11.77                                | 11.76 | 11.64 | 11.60 | 11.96 | 12.18 | 12.30 | <b>12.46</b> |
| Measurement uncertainty | ± 0.5 dB                             |       |       |       |       |       |       |              |

| OFDM                    | Maximum Output Power Conducted [dBm] |       |       |       |       |       |       |              |
|-------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------------|
|                         | mcs0                                 | mcs1  | mcs2  | mcs3  | mcs4  | mcs5  | mcs6  | mcs7         |
| Data Rate [MBit/s]      |                                      |       |       |       |       |       |       |              |
| Ch 40 - 5200 MHz        | 11.94                                | 11.91 | 11.80 | 12.34 | 12.52 | 12.44 | 12.60 | <b>12.65</b> |
| Measurement uncertainty | ± 0.5 dB                             |       |       |       |       |       |       |              |

**Result:** Selected data rate for all measurements:

OFDM / a – mode: 54 MBit/s  
OFDM / n – mode: mcs 7

**Results: band 2**

| OFDM<br>Data Rate [MBit/s] | Maximum Output Power Conducted [dBm] |       |       |       |       |       |       |              |
|----------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------------|
|                            | 6                                    | 9     | 12    | 18    | 24    | 36    | 48    | 54           |
| Ch 56 - 5280 MHz           | 11.64                                | 11.62 | 11.50 | 11.64 | 12.14 | 12.24 | 12.31 | <b>12.47</b> |
| Measurement uncertainty    | ± 0.5 dB                             |       |       |       |       |       |       |              |

| OFDM<br>Data Rate [MBit/s] | Maximum Output Power Conducted [dBm] |       |       |       |       |       |       |              |
|----------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------------|
|                            | mcs0                                 | mcs1  | mcs2  | mcs3  | mcs4  | mcs5  | mcs6  | mcs7         |
| Ch 56 - 5280 MHz           | 12.08                                | 11.86 | 11.83 | 11.92 | 12.34 | 12.43 | 12.54 | <b>12.59</b> |
| Measurement uncertainty    | ± 0.5 dB                             |       |       |       |       |       |       |              |

**Result:** Selected data rate for all measurements:

OFDM / a – mode: 54 MBit/s  
OFDM / n – mode: mcs 7

**Results: band 3**

| OFDM<br>Data Rate [MBit/s] | Maximum Output Power Conducted [dBm] |       |       |       |       |       |       |              |
|----------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------------|
|                            | 6                                    | 9     | 12    | 18    | 24    | 36    | 48    | 54           |
| Ch 120 - 5600 MHz          | 12.33                                | 12.38 | 12.51 | 12.62 | 13.02 | 13.19 | 13.30 | <b>13.41</b> |
| Measurement uncertainty    | ± 0.5 dB                             |       |       |       |       |       |       |              |

| OFDM<br>Data Rate [MBit/s] | Maximum Output Power Conducted [dBm] |       |       |       |       |       |       |              |
|----------------------------|--------------------------------------|-------|-------|-------|-------|-------|-------|--------------|
|                            | mcs0                                 | mcs1  | mcs2  | mcs3  | mcs4  | mcs5  | mcs6  | mcs7         |
| Ch 120 - 5600 MHz          | 13.14                                | 12.81 | 12.94 | 13.22 | 13.42 | 13.46 | 13.56 | <b>13.57</b> |
| Measurement uncertainty    | ± 0.5 dB                             |       |       |       |       |       |       |              |

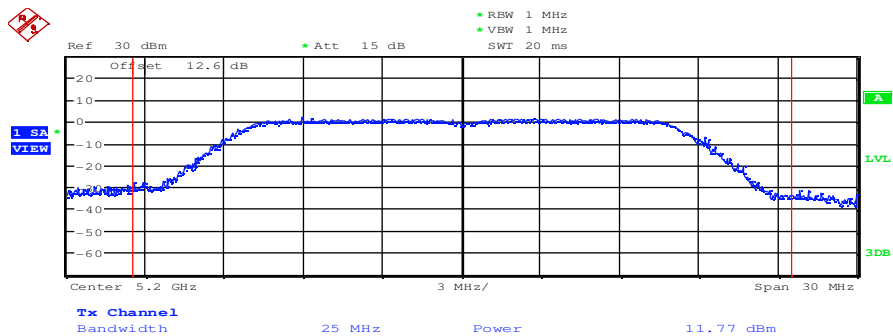
**Result:** Selected data rate for all measurements:

OFDM / a – mode: 54 MBit/s  
OFDM / n – mode: mcs 7

**Band 1: 5150 MHz – 5250 MHz**

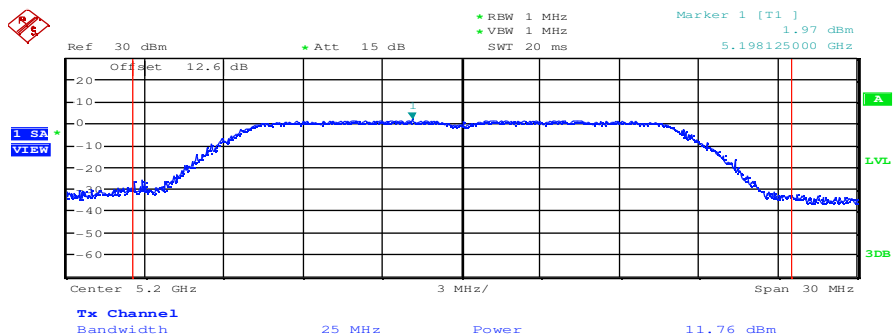
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; middle channel – 5200 MHz; power index 21; 6 MBit/s**



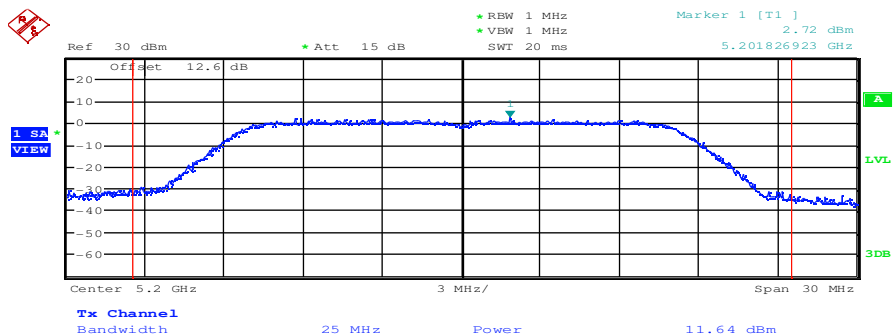
Date: 1.DEC.2010 13:58:26

**Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; 9 MBit/s**



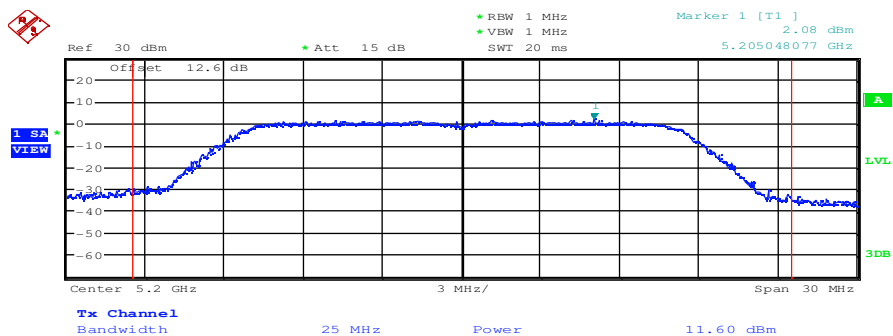
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Plot 3: OFDM – mode; middle channel – 5200 MHz; power index 21; 12 MBit/s



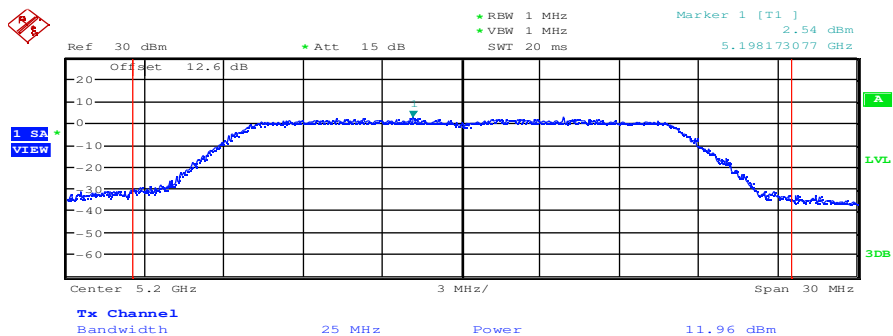
Date: 1.DEC.2010 14:03:16

Plot 4: OFDM – mode; middle channel – 5200 MHz; power index 21; 18 MBit/s



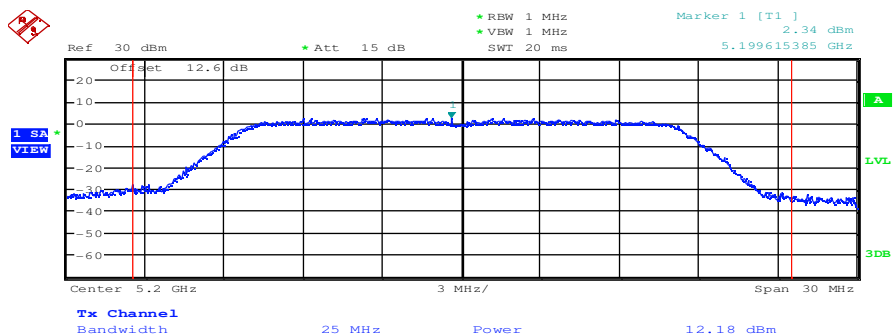
Date: 1.DEC.2010 14:04:56

Plot 5: OFDM – mode; middle channel – 5200 MHz; power index 21; 24 MBit/s



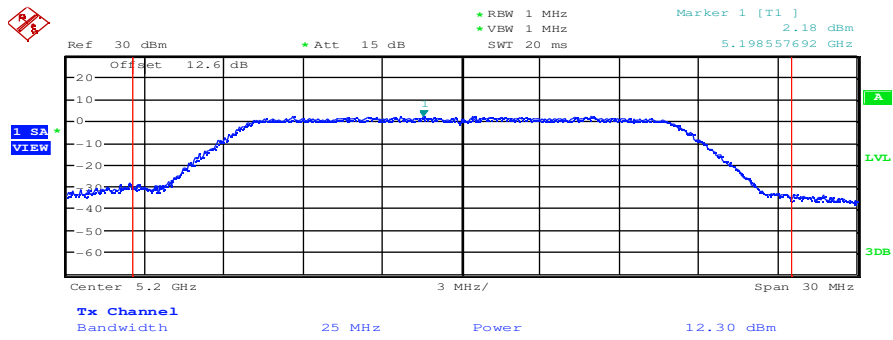
Date: 1.DEC.2010 14:06:12

Plot 6: OFDM – mode; middle channel – 5200 MHz; power index 21; 36 MBit/s



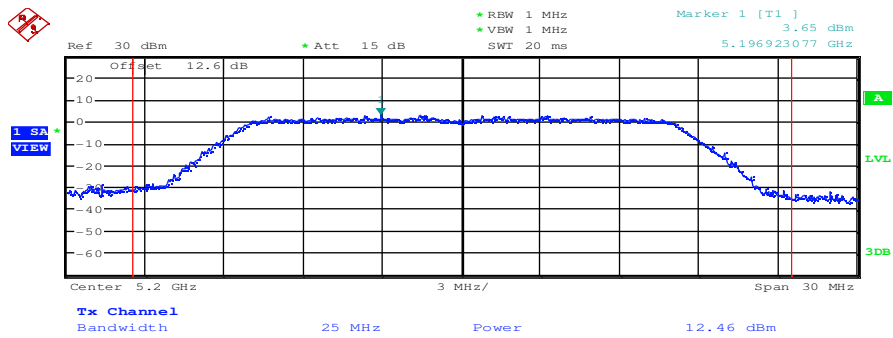
Date: 1.DEC.2010 14:08:15

Plot 7: OFDM – mode; middle channel – 5200 MHz; power index 21; 48 MBit/s



Date: 1.DEC.2010 14:10:12

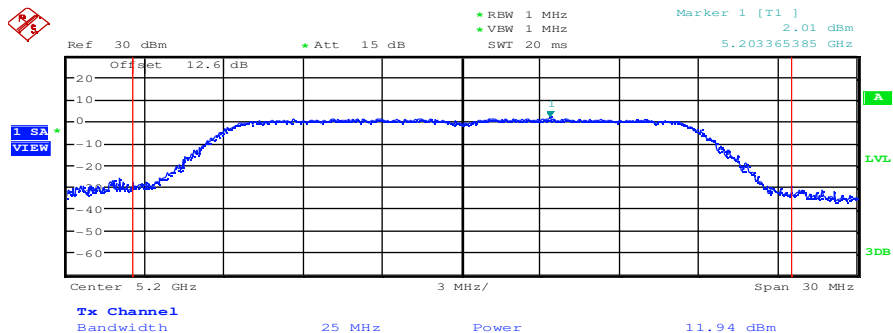
Plot 8: OFDM – mode; middle channel – 5200 MHz; power index 21; 54 MBit/s



Date: 1.DEC.2010 14:12:35

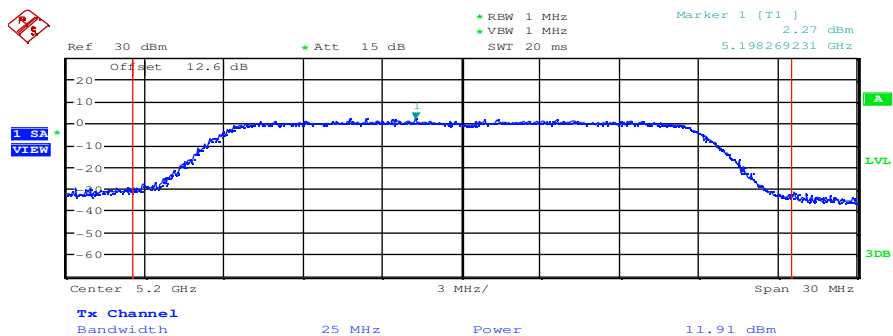
**OFDM – mode / n – mode:**

**Plot 1: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs0**



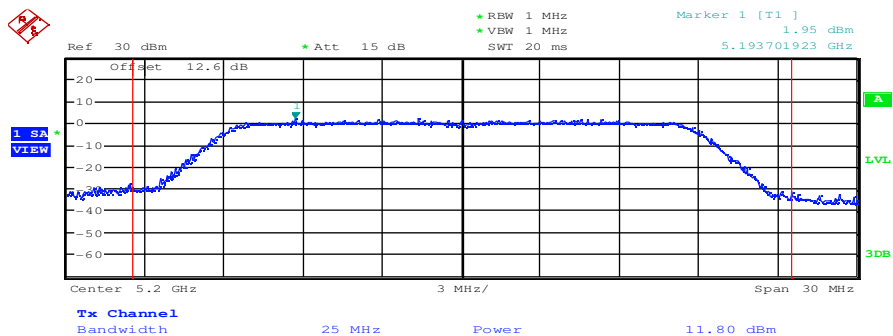
Date: 1.DEC.2010 14:20:25

**Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs1**



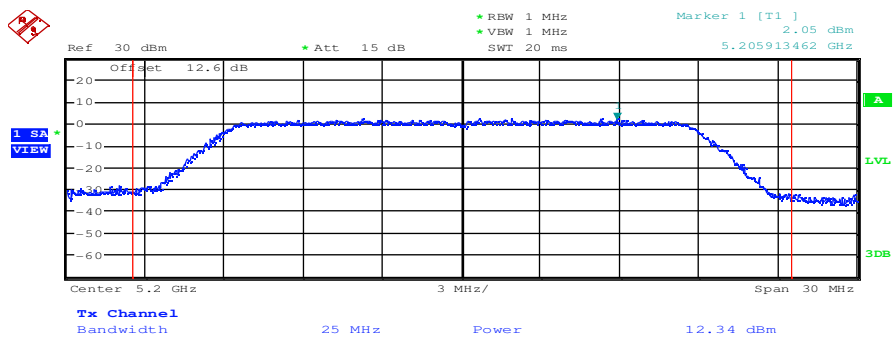
Date: 1.DEC.2010 14:27:52

Plot 3: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs2



Date: 1.DEC.2010 14:29:23

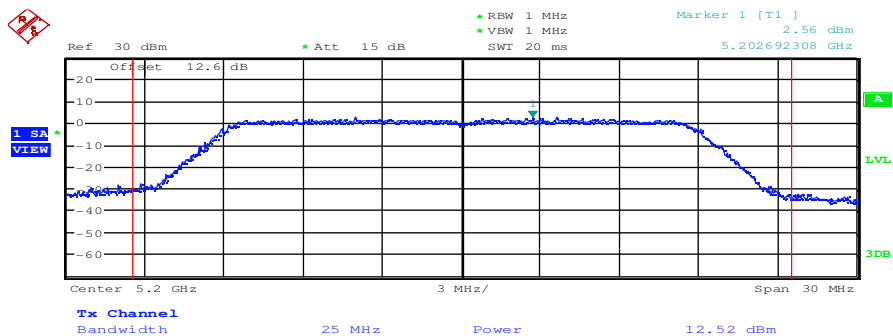
Plot 4: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs3



Date: 1.DEC.2010 14:30:49

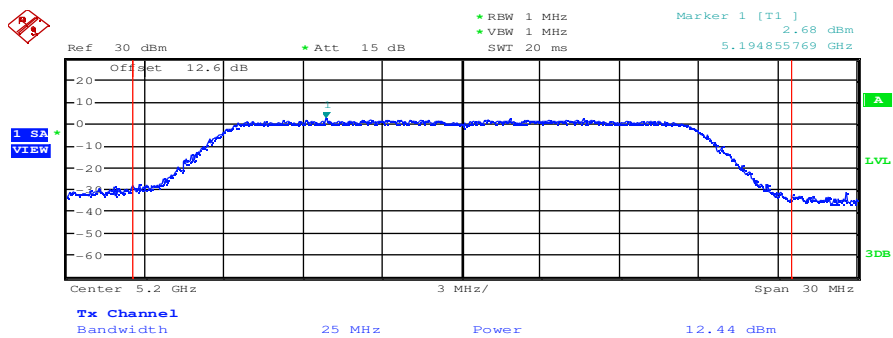


Plot 5: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs4



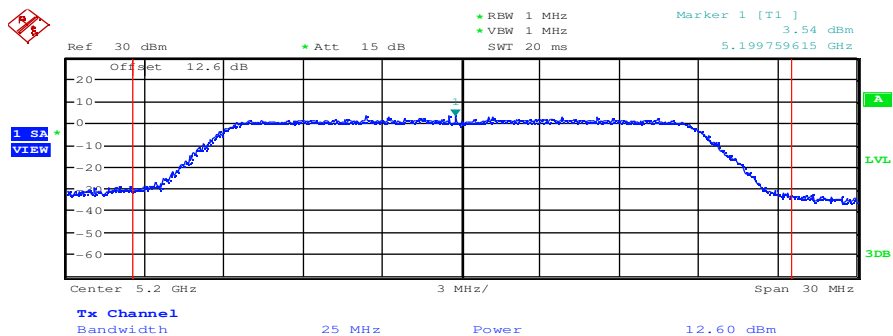
Date: 1.DEC.2010 14:32:30

Plot 6: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs5



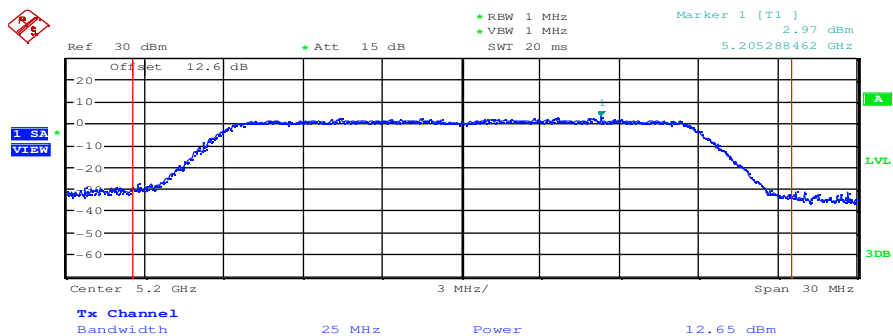
Date: 1.DEC.2010 14:34:03

Plot 7: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs6



Date: 1.DEC.2010 14:35:46

Plot 8: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs7

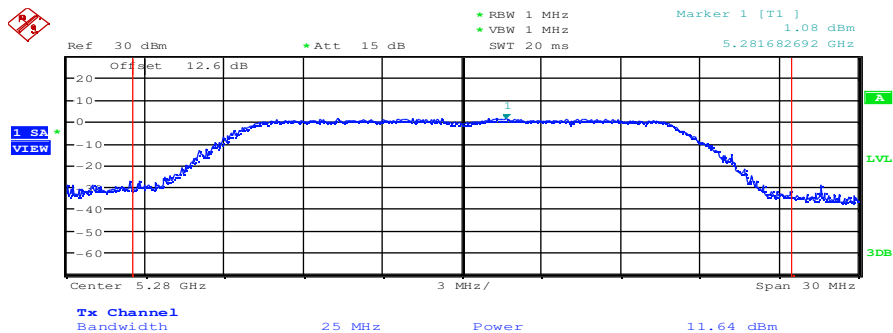


Date: 1.DEC.2010 14:37:43

**Band 2: 5250 MHz – 5350 MHz**

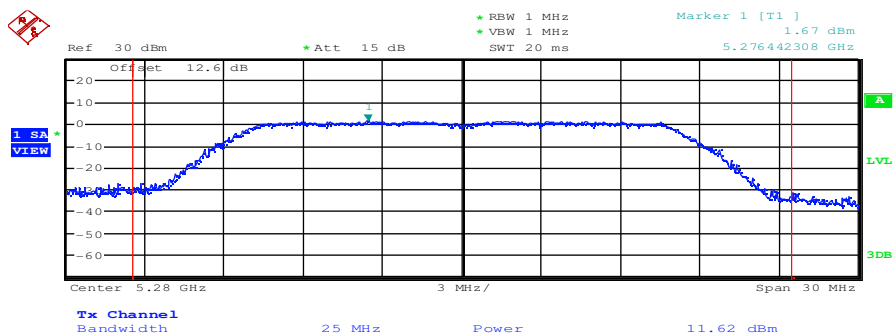
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; middle channel – 5280 MHz; power index 21; 6 MBit/s**



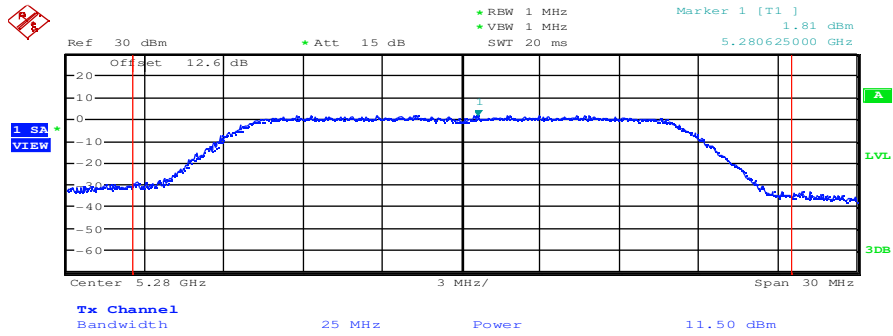
Date: 1.DEC.2010 14:45:19

**Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; 9 MBit/s**



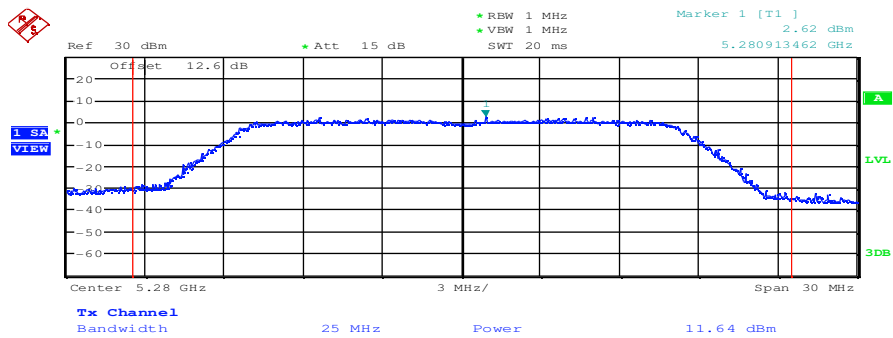
Date: 1.DEC.2010 14:47:03

Plot 3: OFDM – mode; middle channel – 5280 MHz; power index 21; 12 MBit/s



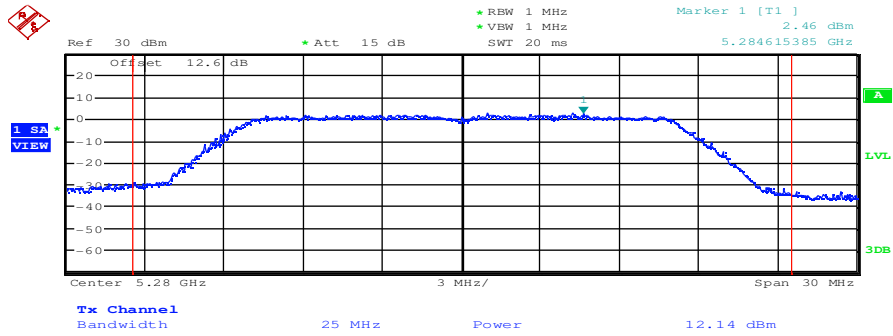
Date: 1.DEC.2010 14:48:34

Plot 4: OFDM – mode; middle channel – 5280 MHz; power index 21; 18 MBit/s



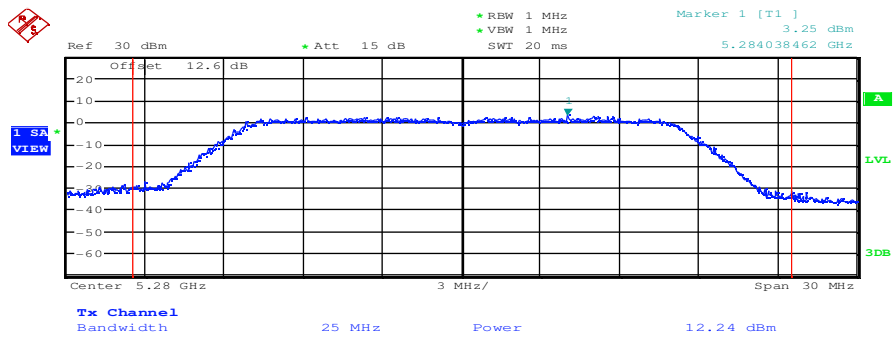
Date: 1.DEC.2010 14:50:27

Plot 5: OFDM – mode; middle channel – 5280 MHz; power index 21; 24 MBit/s



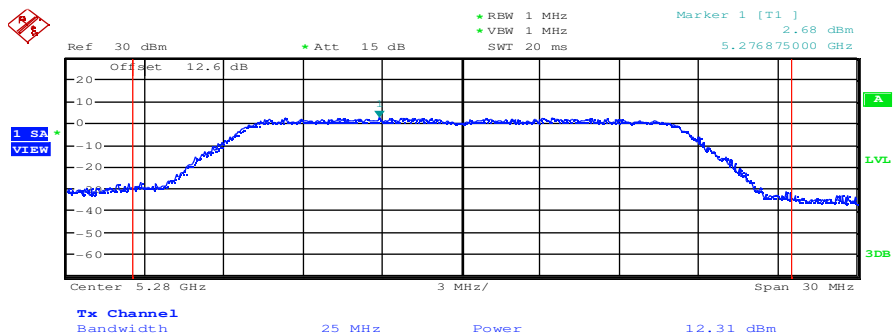
Date: 1.DEC.2010 14:52:26

Plot 6: OFDM – mode; middle channel – 5280 MHz; power index 21; 36 MBit/s



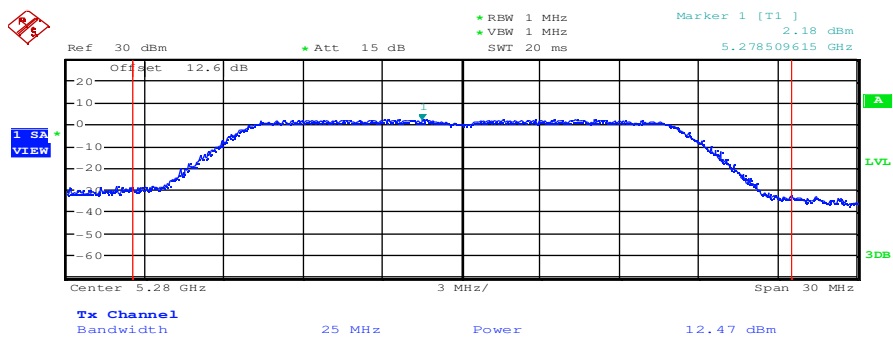
Date: 1.DEC.2010 14:54:33

Plot 7: OFDM – mode; middle channel – 5280 MHz; power index 21; 48 MBit/s



Date: 1.DEC.2010 14:56:35

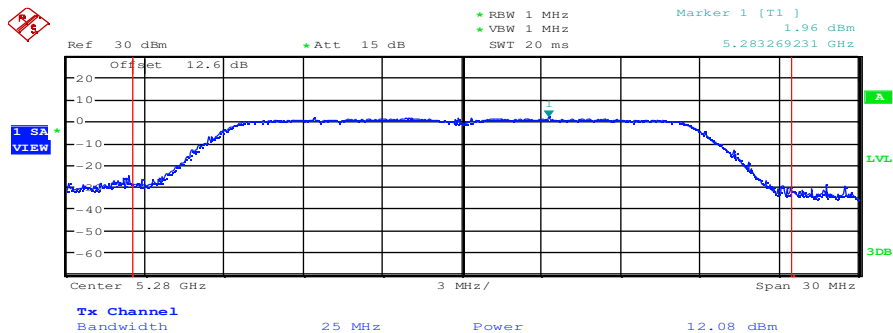
Plot 8: OFDM – mode; middle channel – 5280 MHz; power index 21; 54 MBit/s



Date: 1.DEC.2010 14:59:02

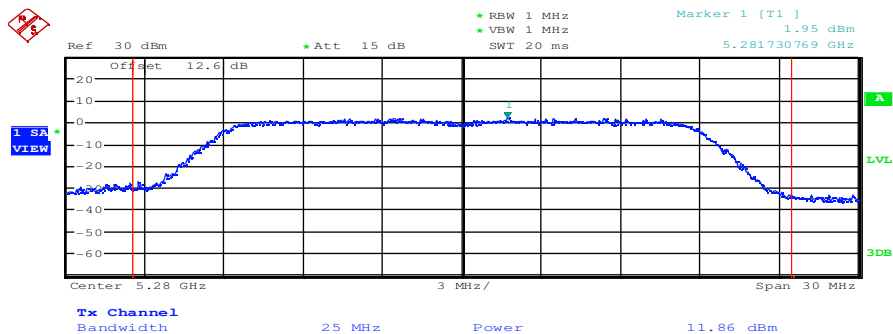
**OFDM – mode / n – mode:**

**Plot 1: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs0**



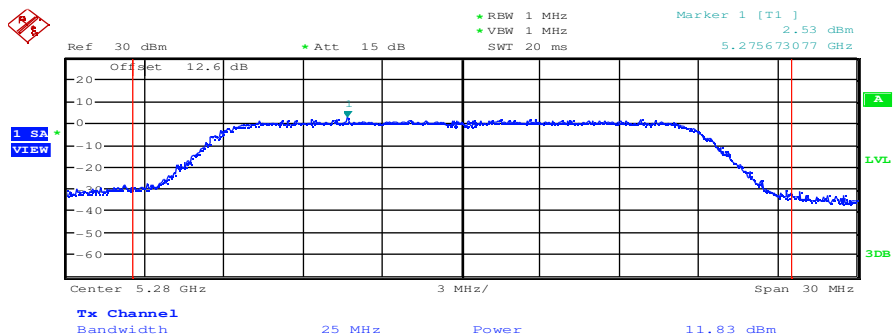
Date: 1.DEC.2010 15:07:12

**Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs1**



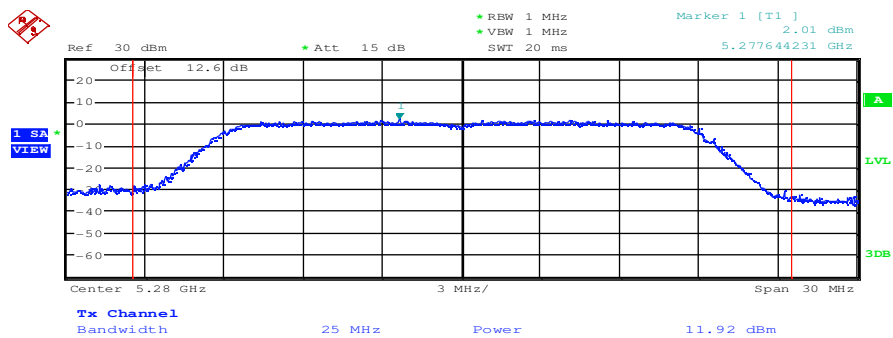
Date: 1.DEC.2010 15:08:50

Plot 3: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs2



Date: 1.DEC.2010 15:10:18

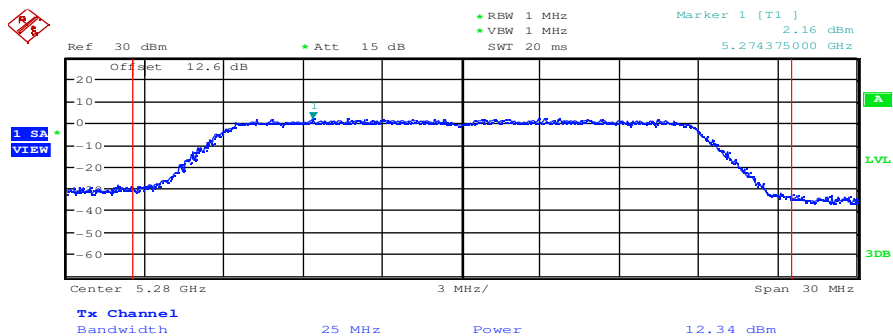
Plot 4: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs3



Date: 1.DEC.2010 15:12:07

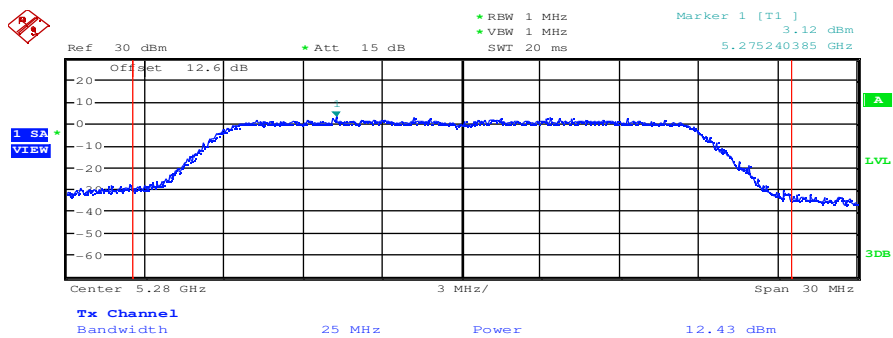


Plot 5: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs4



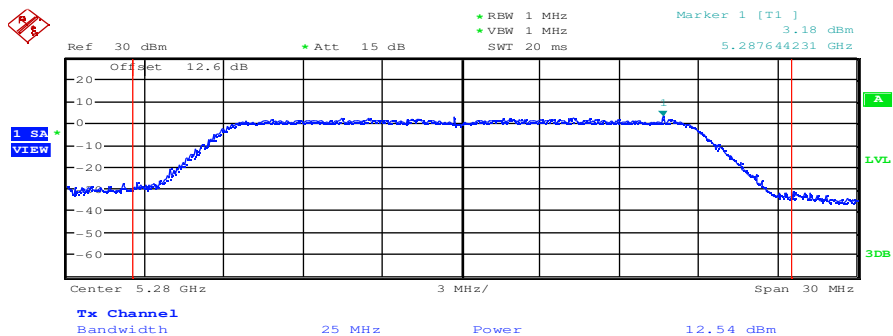
Date: 1.DEC.2010 15:13:39

Plot 6: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs5



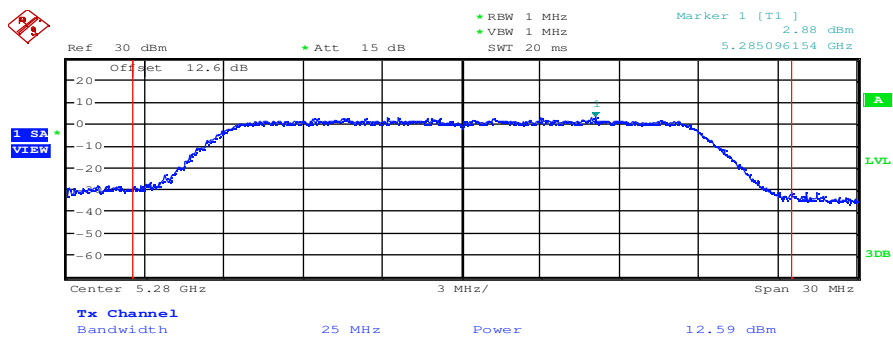
Date: 1.DEC.2010 15:15:28

Plot 7: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs6



Date: 1.DEC.2010 15:17:38

Plot 8: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs7

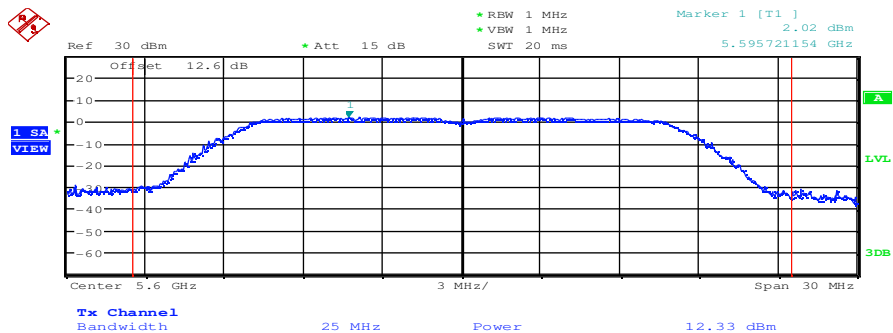


Date: 1.DEC.2010 15:19:22

**Band 1: 5470 MHz – 5725 MHz**

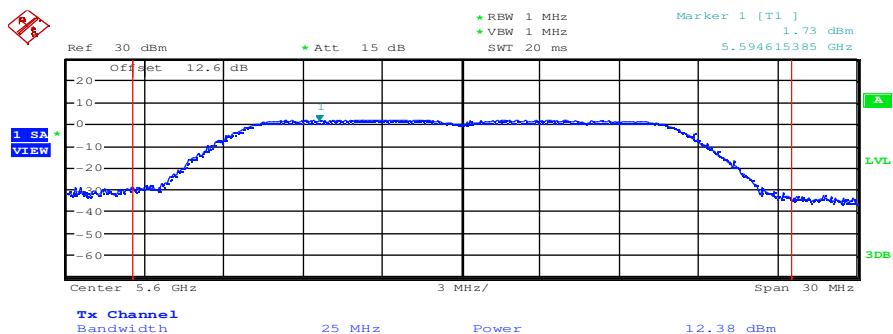
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; middle channel – 5600 MHz; power index 26; 6 MBit/s**



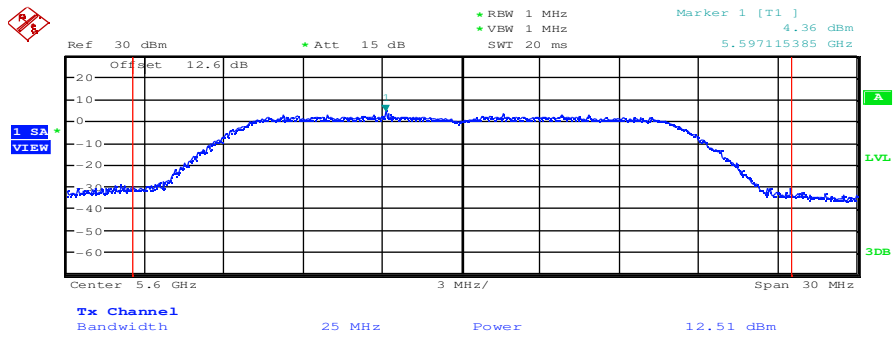
Date: 1.DEC.2010 15:28:19

**Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; 9 MBit/s**



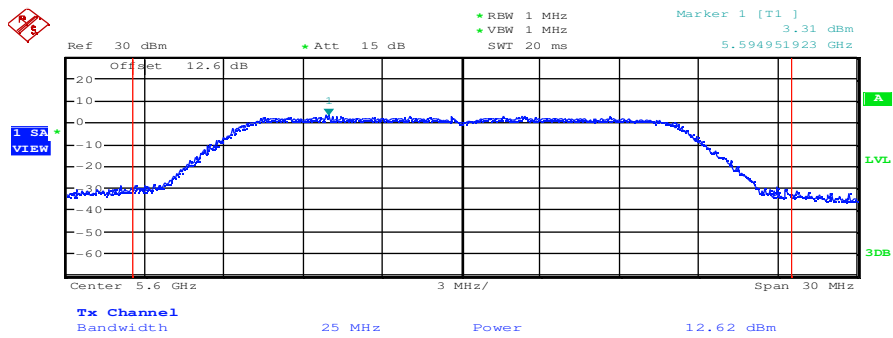
Date: 1.DEC.2010 15:31:47

Plot 3: OFDM – mode; middle channel – 5600 MHz; power index 26; 12 MBit/s



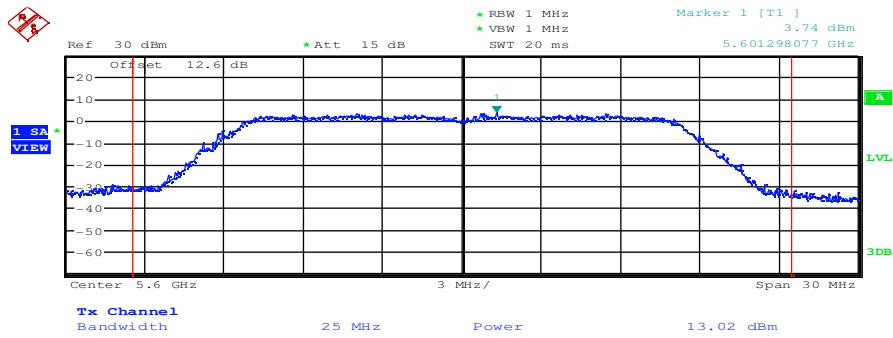
Date: 1.DEC.2010 15:34:43

Plot 4: OFDM – mode; middle channel – 5600 MHz; power index 26; 18 MBit/s



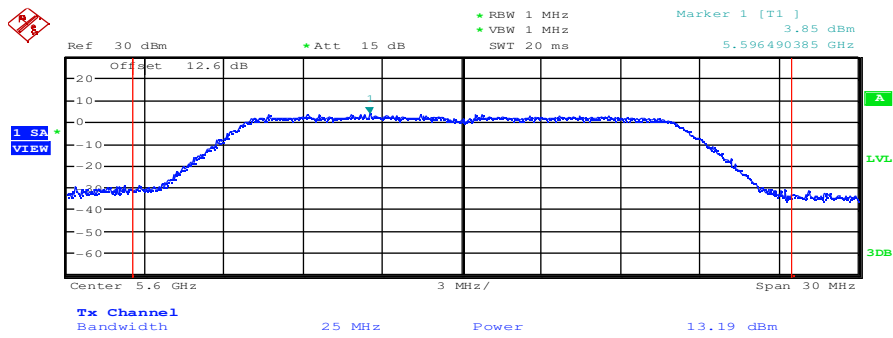
Date: 1.DEC.2010 15:36:27

Plot 5: OFDM – mode; middle channel – 5600 MHz; power index 26; 24 MBit/s



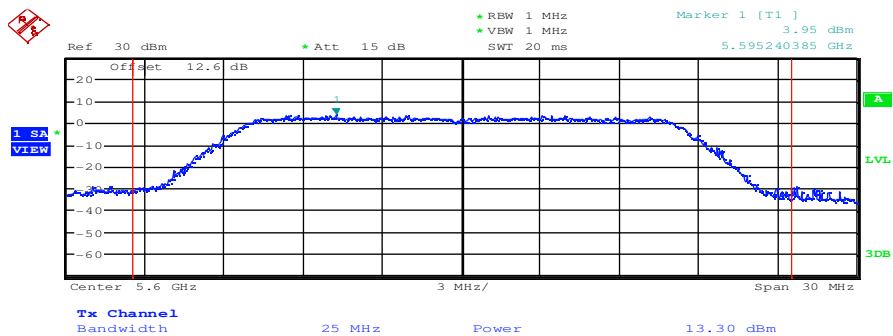
Date: 1.DEC.2010 15:37:48

Plot 6: OFDM – mode; middle channel – 5600 MHz; power index 26; 36 MBit/s



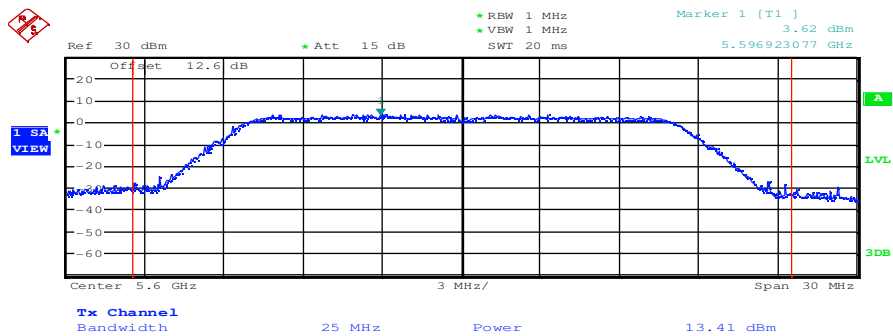
Date: 1.DEC.2010 15:39:28

Plot 7: OFDM – mode; middle channel – 5600 MHz; power index 26; 48 MBit/s



Date: 1.DEC.2010 15:41:16

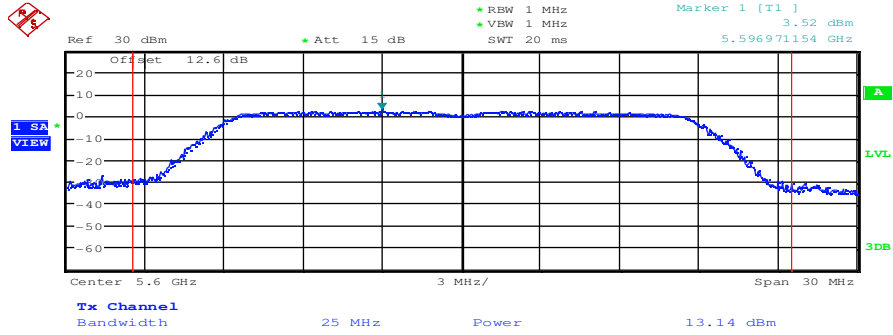
Plot 8: OFDM – mode; middle channel – 5600 MHz; power index 26; 54 MBit/s



Date: 1.DEC.2010 15:43:31

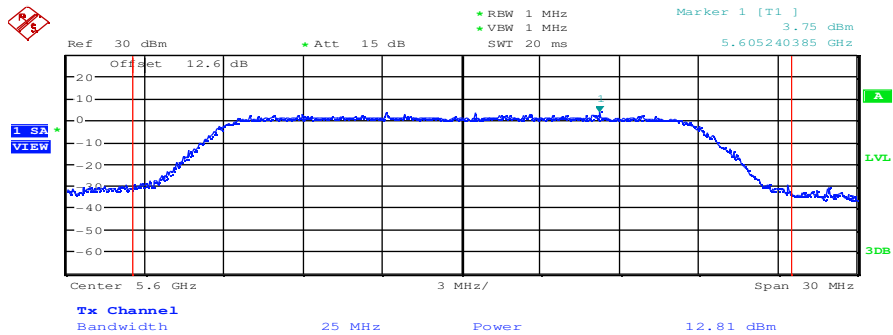
**OFDM – mode / n – mode:**

**Plot 1: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs0**



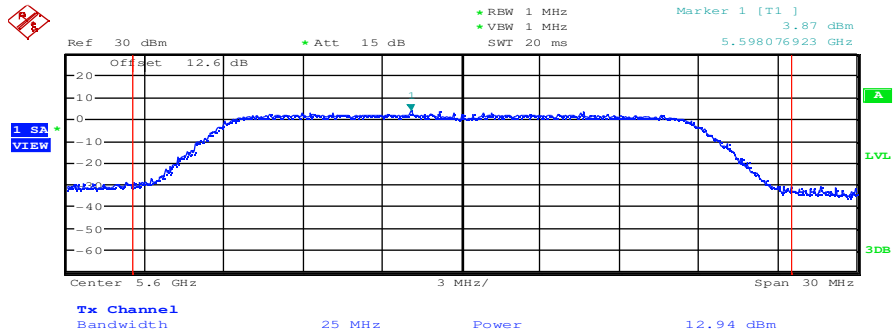
Date: 2.DEC.2010 07:06:22

**Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs1**



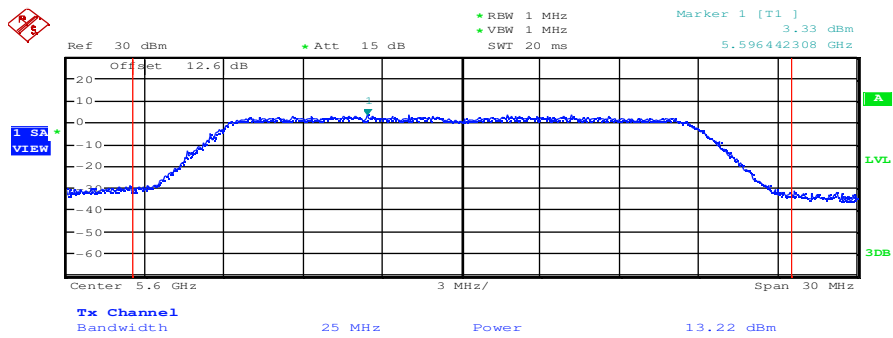
Date: 2.DEC.2010 07:08:40

Plot 3: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs2



Date: 2.DEC.2010 07:11:14

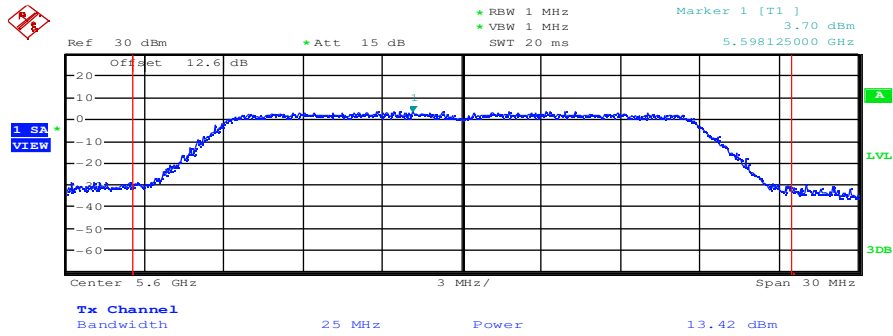
Plot 4: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs3



Date: 2.DEC.2010 07:13:14

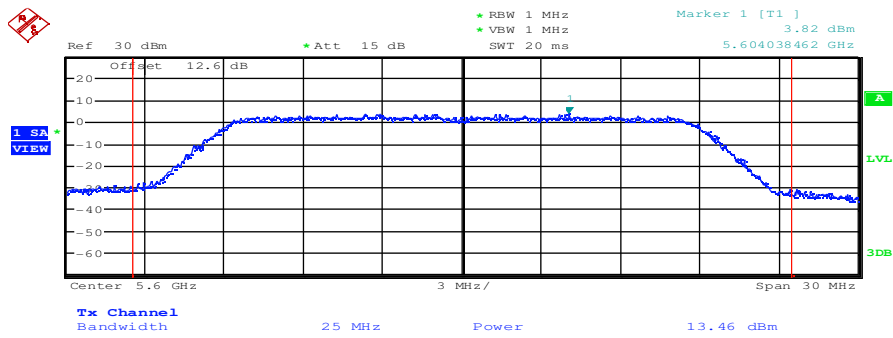


Plot 5: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs4



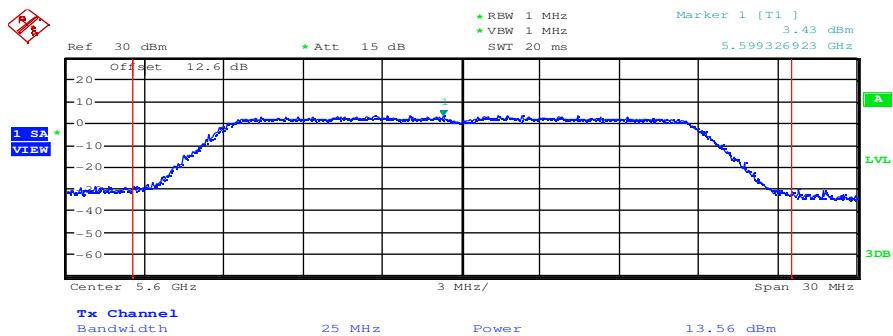
Date: 2.DEC.2010 07:14:52

Plot 6: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs5



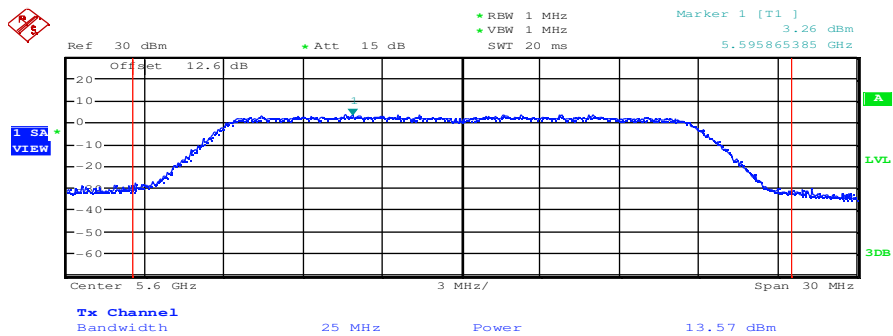
Date: 2.DEC.2010 07:16:49

Plot 7: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs6



Date: 2.DEC.2010 07:19:34

Plot 8: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs7



Date: 2.DEC.2010 07:22:33

## 9.2 Antenna gain

### Measurement:

The antenna gain of the complete system is calculated by the difference of radiated power in EIRP and the conducted power of the module. For normal WLAN devices, the DSSS mode is used.

### Measurement parameters:

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Peak     |
| Sweep time:           | Auto     |
| Video bandwidth:      | 3 MHz    |
| Resolution bandwidth: | 3 MHz    |
| Span:                 | 50 MHz   |
| Trace-Mode:           | Max hold |

### Limits:

| FCC                    | IC                        |
|------------------------|---------------------------|
| CFR Part 15.407 (a)(1) | RSS 210, Issue 8, Annex 9 |
| Antenna Gain           |                           |
| No limitation!         |                           |

**Results:** band 1 – 5150 MHz to 5250 MHz

| $T_{nom}$                   | $V_{nom}$ | lowest channel<br>5180 MHz | middle channel<br>5200 MHz | highest channel<br>5240 MHz |
|-----------------------------|-----------|----------------------------|----------------------------|-----------------------------|
| Radiated value<br>Measured  |           | 12.77                      | 13.00                      | 13.29                       |
| Conducted value<br>Measured |           | 8.70                       | 8.89                       | 9.05                        |
| Gain [dBi]<br>Calculated    |           | 4.07                       | 4.11                       | 4.24                        |

**Results:** band 2 – 5250 MHz to 5350 MHz

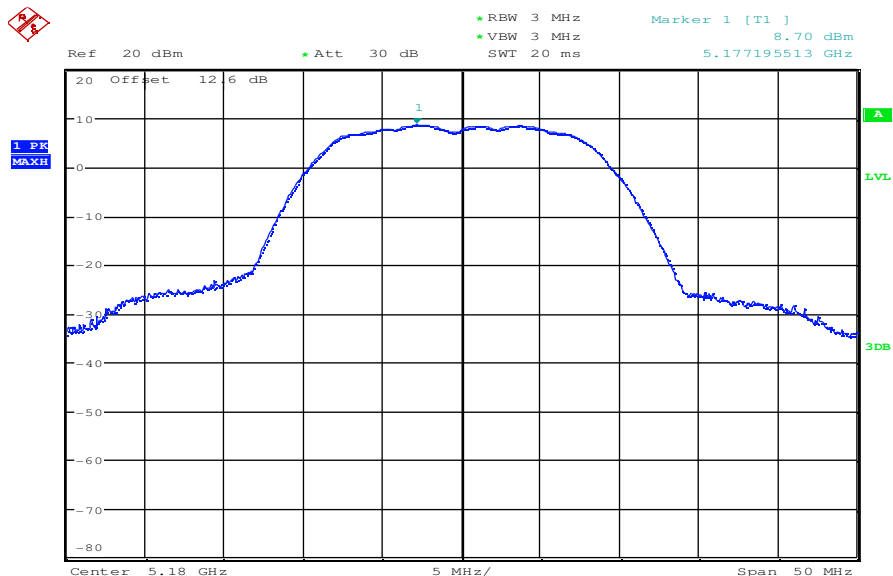
| $T_{nom}$                   | $V_{nom}$ | lowest channel<br>5260 MHz | middle channel<br>5280 MHz | highest channel<br>5320 MHz |
|-----------------------------|-----------|----------------------------|----------------------------|-----------------------------|
| Radiated value<br>Measured  |           | 12.89                      | 12.78                      | 12.68                       |
| Conducted value<br>Measured |           | 8.44                       | 8.47                       | 8.43                        |
| Gain [dBi]<br>Calculated    |           | 4.45                       | 4.31                       | 4.25                        |

**Results:** band 3 – 5470 MHz to 5725 MHz

| $T_{nom}$                   | $V_{nom}$ | lowest channel<br>5500 MHz | middle channel<br>5600 MHz | highest channel<br>5700 MHz |
|-----------------------------|-----------|----------------------------|----------------------------|-----------------------------|
| Radiated value<br>Measured  |           | 15.47                      | 13.69                      | 10.60                       |
| Conducted value<br>Measured |           | 10.98                      | 10.11                      | 7.58                        |
| Gain [dBi]<br>Calculated    |           | 4.49                       | 3.58                       | 3.02                        |

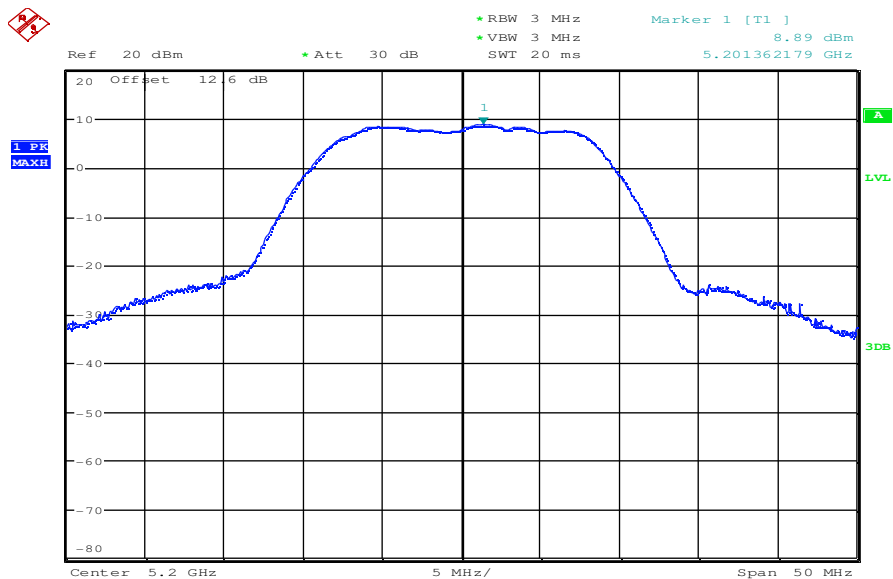
**Result:** The result of the measurement is passed.

Plot 1: band 1; lowest channel – 5180 MHz; power index 21



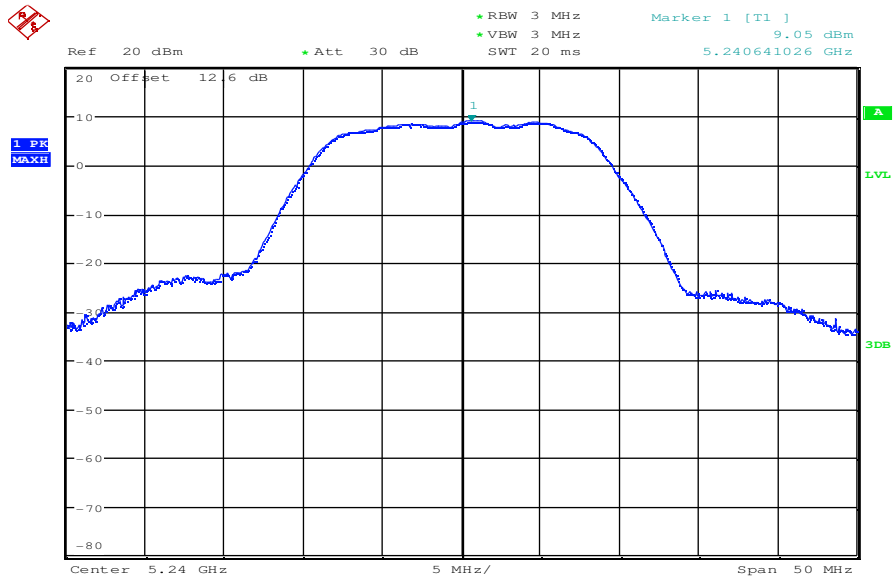
Date: 2.DEC.2010 12:57:15

Plot 2: band 1; middle channel – 5200 MHz; power index 21



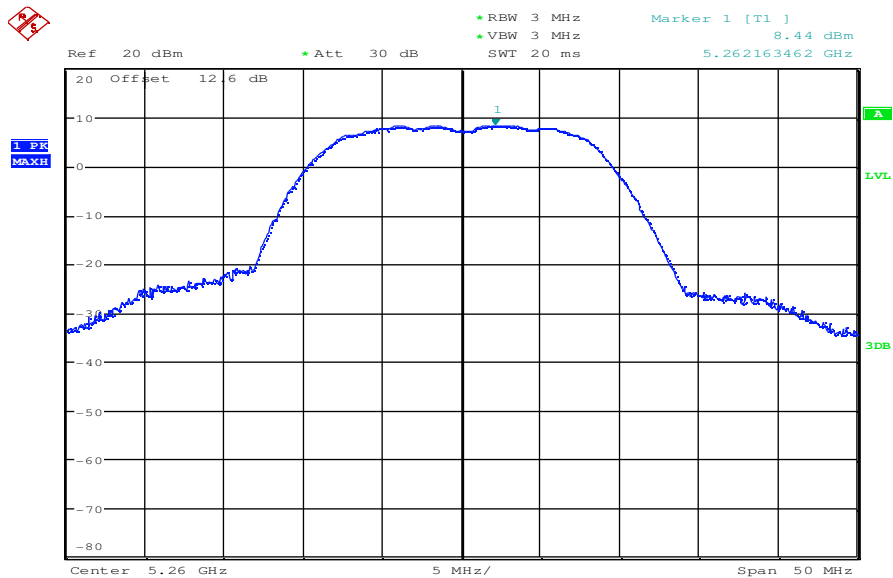
Date: 2.DEC.2010 12:59:26

Plot 3: band 1; highest channel – 5240 MHz; power index 21



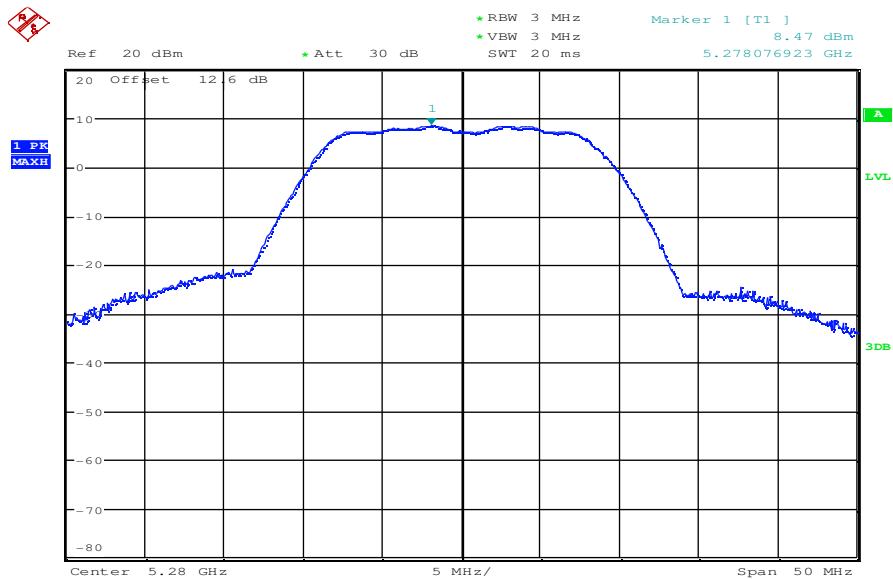
Date: 2.DEC.2010 13:01:18

Plot 4: band 2; lowest channel – 5260 MHz; power index 21



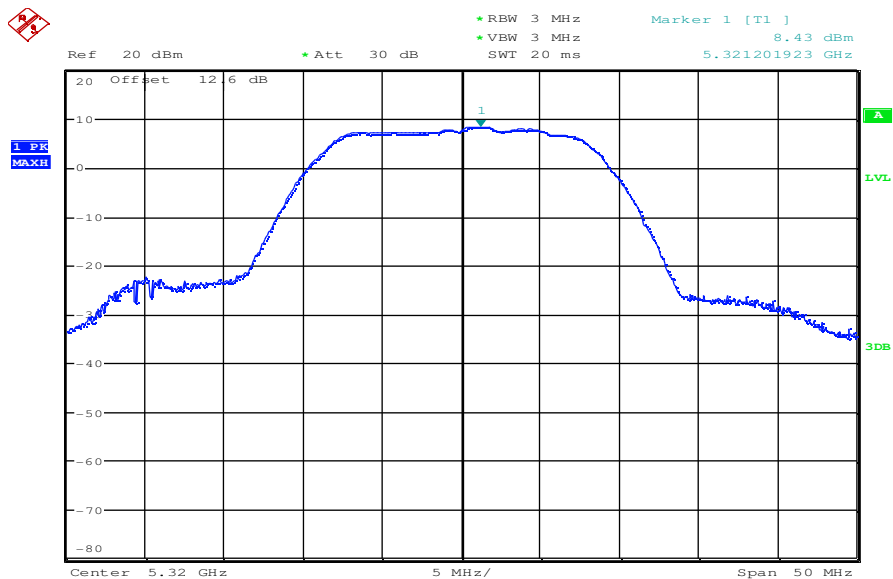
Date: 2.DEC.2010 13:02:40

Plot 5: band 2; middle channel – 5280 MHz; power index 21



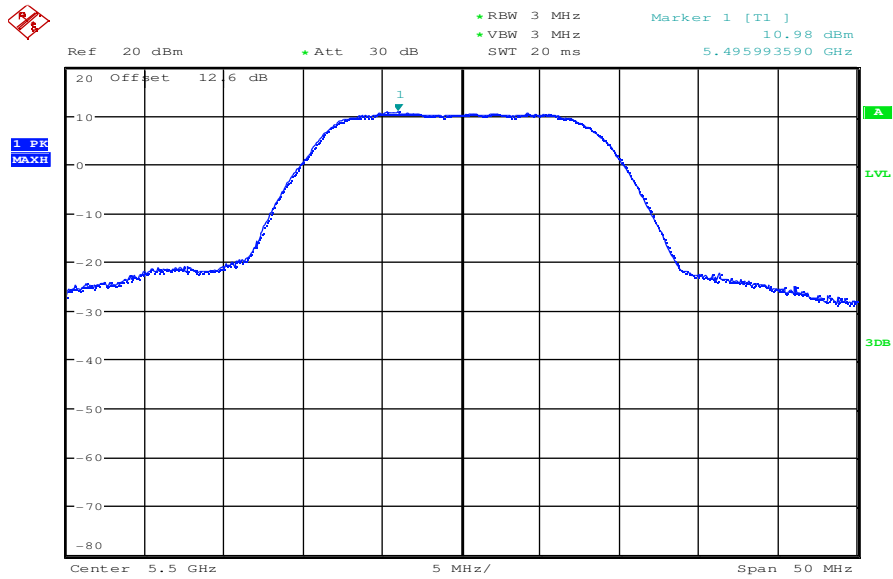
Date: 2.DEC.2010 13:04:15

Plot 6: band 2; highest channel – 5320 MHz; power index 21



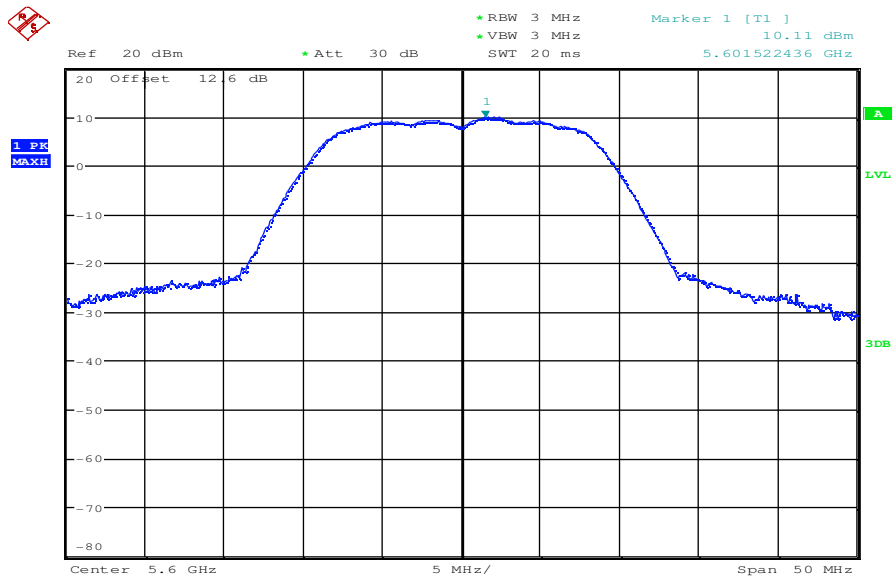
Date: 2.DEC.2010 13:08:46

Plot 7: band 3; lowest channel – 5500 MHz; power index 26



Date: 2.DEC.2010 13:19:09

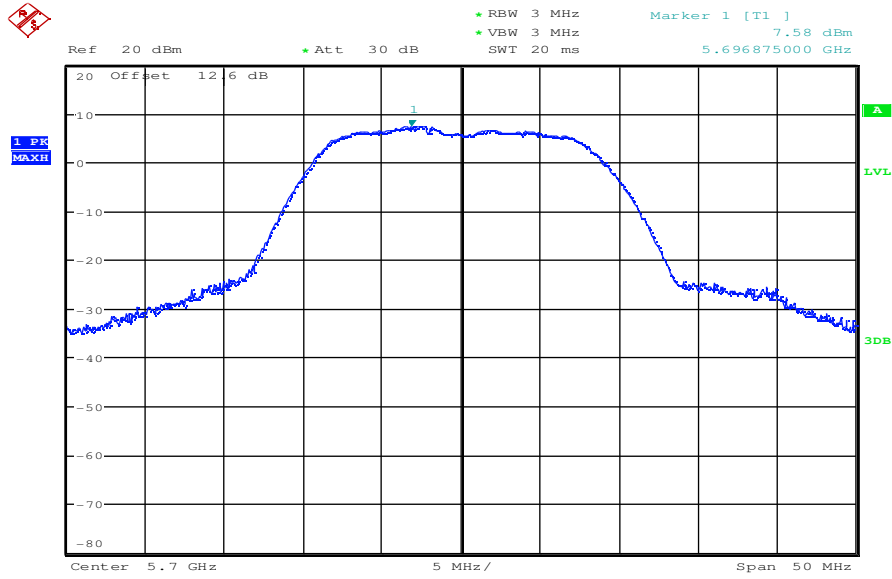
Plot 8: band 3; middle channel – 5600 MHz; power index 26



Date: 2.DEC.2010 13:24:51



Plot 9: band 3; highest channel – 5700 MHz; power index 26



Date: 2.DEC.2010 13:28:42

### 9.3 Emission bandwidth – 6 dB bandwidth

**Description:**

Measurement of the 6 dB bandwidth of the modulated signal.

**Measurement:**

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Peak     |
| Sweep time:           | 1s       |
| Video bandwidth:      | 300 kHz  |
| Resolution bandwidth: | 300 kHz  |
| Span:                 | 50 MHz   |
| Trace-Mode:           | Max Hold |

**Limits:**

| FCC             | IC                         |
|-----------------|----------------------------|
| CFR Part 15.407 | RSS 210, Issue 8, A 8.2(a) |

**Results:** band 1

| Modulation              | 6 dB BANDWIDTH [MHz] |          |          |
|-------------------------|----------------------|----------|----------|
|                         | 5180 MHz             | 5200 MHz | 5240 MHz |
| Frequency               |                      |          |          |
| OFDM / a – mode         | 16.83                | 16.70    | 16.67    |
| OFDM / n – mode         | 17.87                | 17.98    | 17.87    |
| Measurement uncertainty | ± 300 kHz            |          |          |

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

**Results:** band 2

| Modulation<br>Frequency | 6 dB BANDWIDTH [MHz] |          |          |
|-------------------------|----------------------|----------|----------|
|                         | 5260 MHz             | 5280 MHz | 5320 MHz |
| OFDM / a – mode         | 16.70                | 16.73    | 16.83    |
| OFDM / n – mode         | 17.98                | 17.85    | 17.87    |
| Measurement uncertainty | ± 300 kHz            |          |          |

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

**Results:** band 3

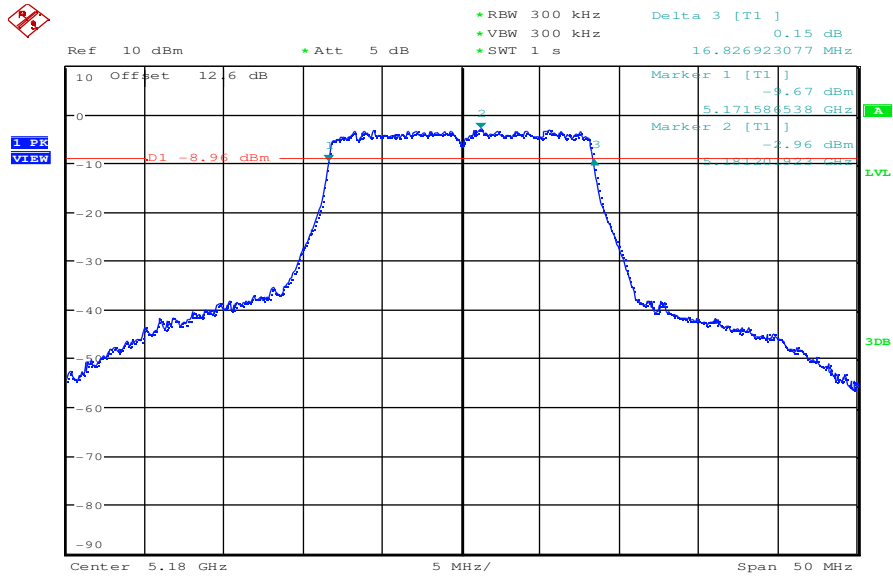
| Modulation<br>Frequency | 6 dB BANDWIDTH [MHz] |          |          |
|-------------------------|----------------------|----------|----------|
|                         | 5500 MHz             | 5600 MHz | 5700 MHz |
| OFDM / a – mode         | 16.59                | 16.75    | 16.83    |
| OFDM / n – mode         | 17.87                | 17.87    | 18.03    |
| Measurement uncertainty | ± 300 kHz            |          |          |

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

**Frequency band 1:**

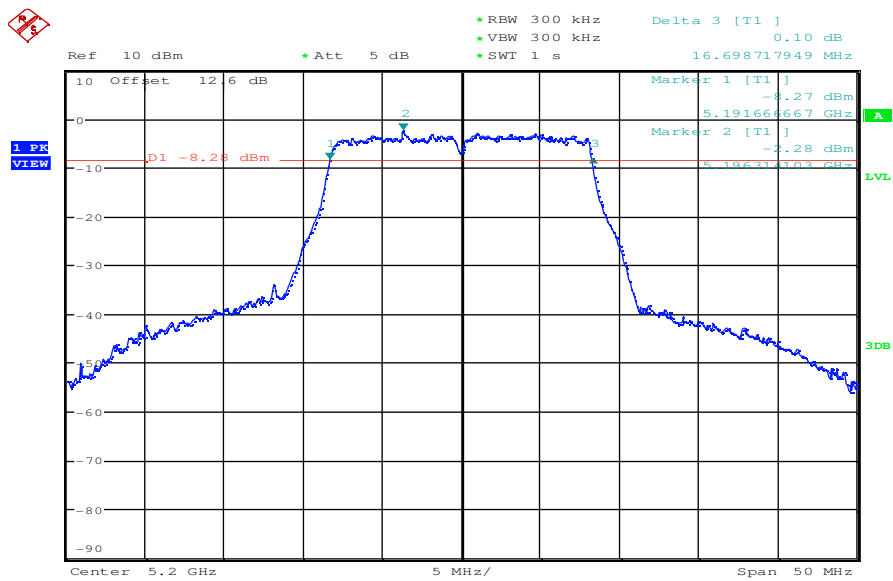
**OFDM – mode / a – mode:**

**Plot 1:** OFDM – mode; lowest channel – 5180 MHz; power index 21; 54 MBit/s



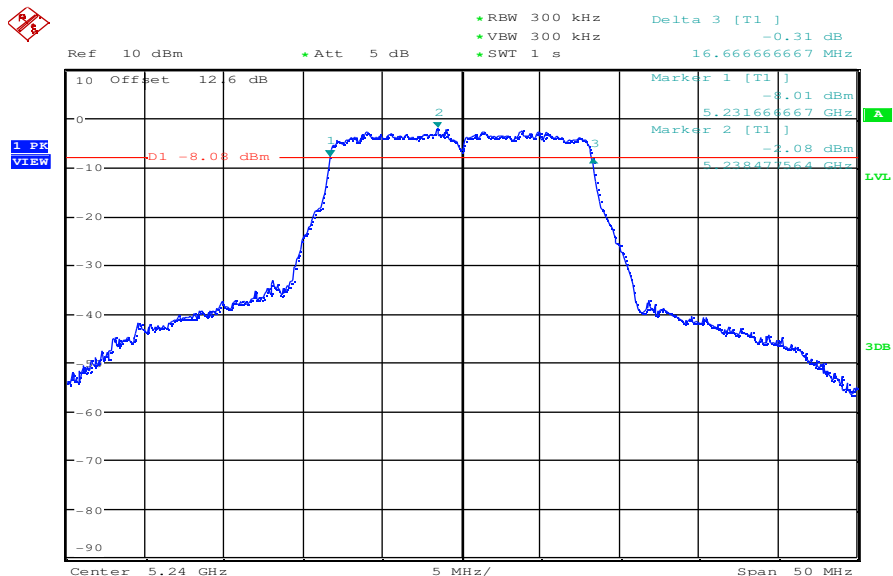
Date: 2.DEC.2010 13:46:37

**Plot 2:** OFDM – mode; middle channel – 5200 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 13:49:53

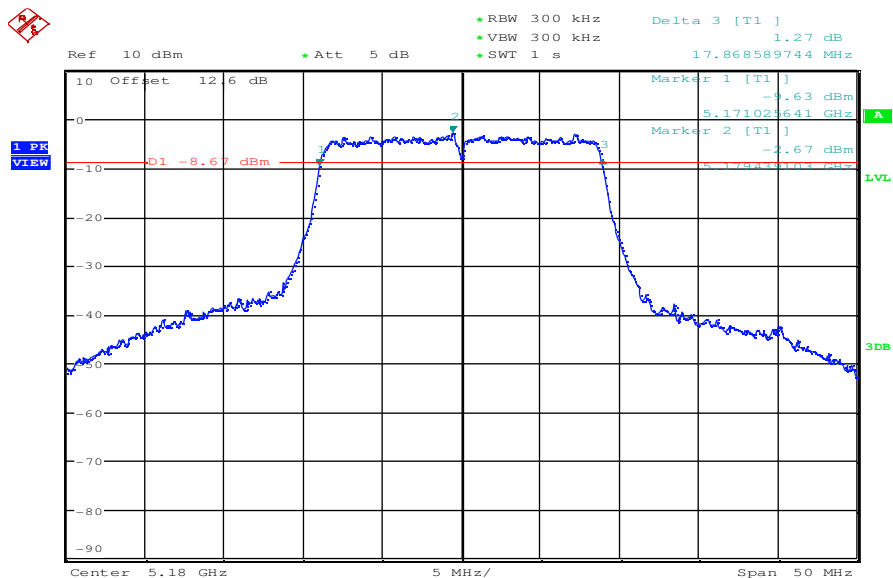
Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 13:54:33

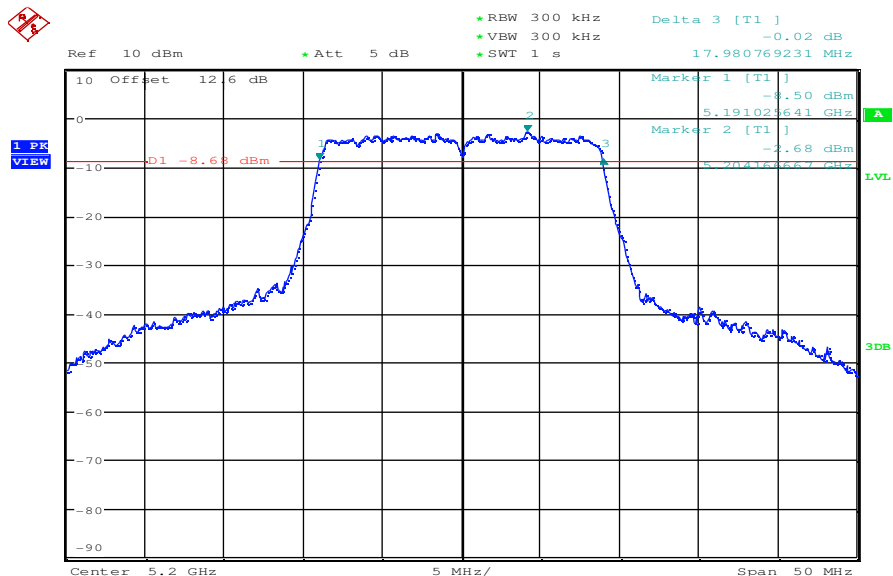
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5180 MHz; power index 21; mcs 7



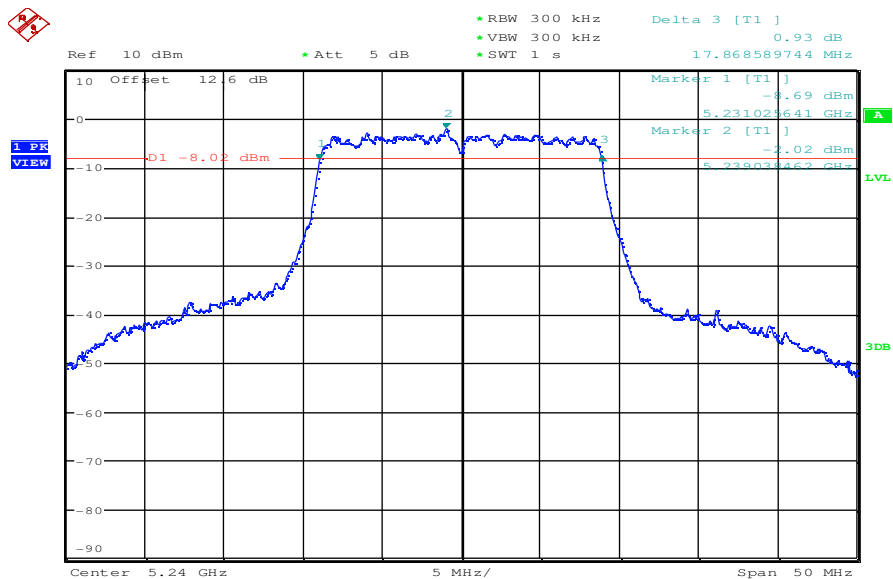
Date: 2.DEC.2010 14:15:27

Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:18:45

Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; mcs 7

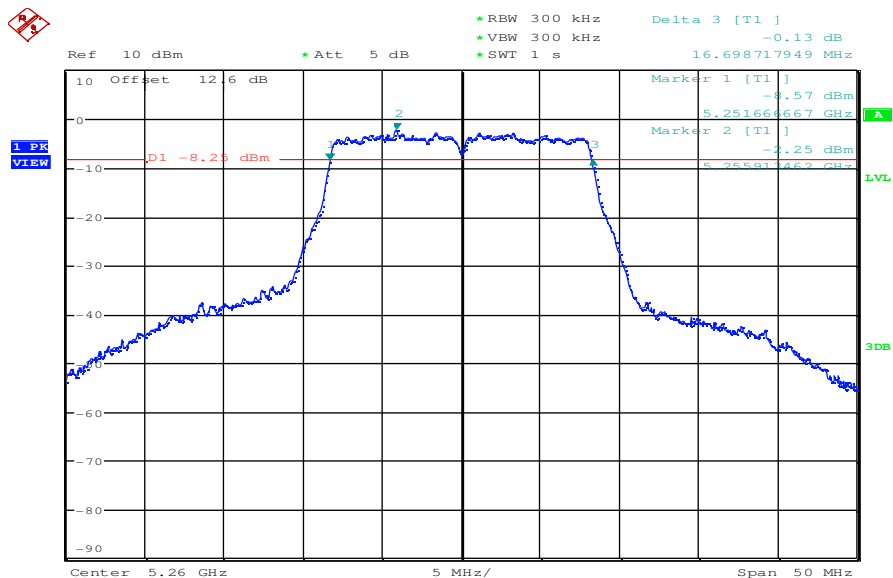


Date: 2.DEC.2010 14:21:21

**Frequency band 2:**

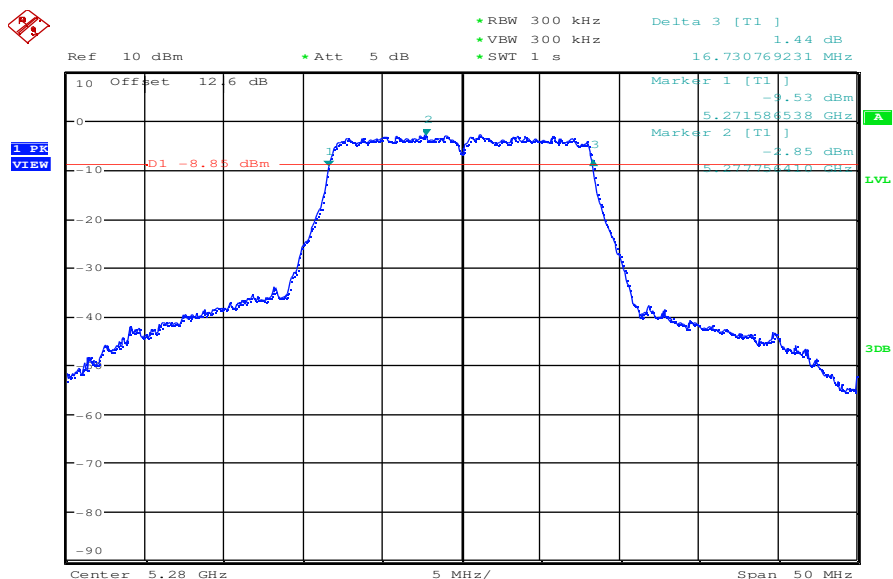
**OFDM – mode / a – mode:**

**Plot 1:** OFDM – mode; lowest channel – 5260 MHz; power index 21; 54 MBit/s



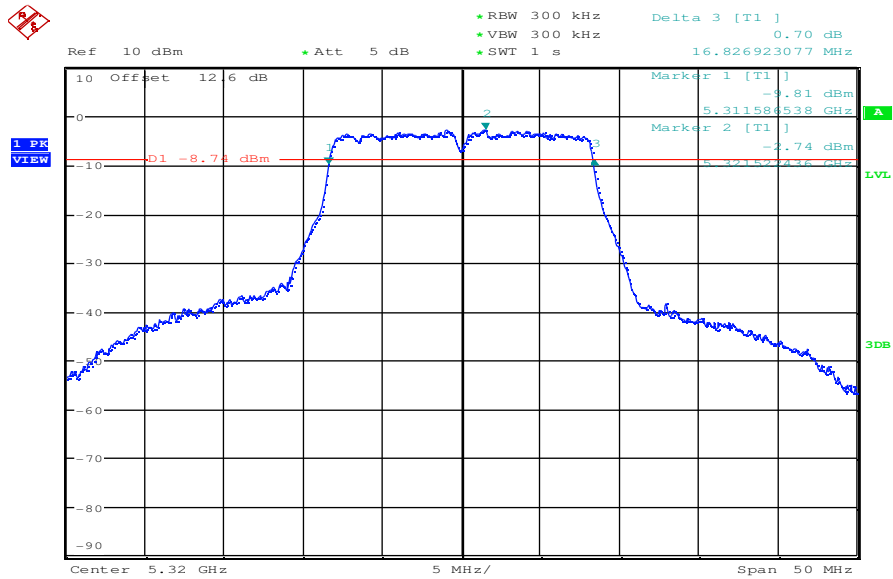
Date: 2.DEC.2010 13:57:43

**Plot 2:** OFDM – mode; middle channel – 5280 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 14:00:34

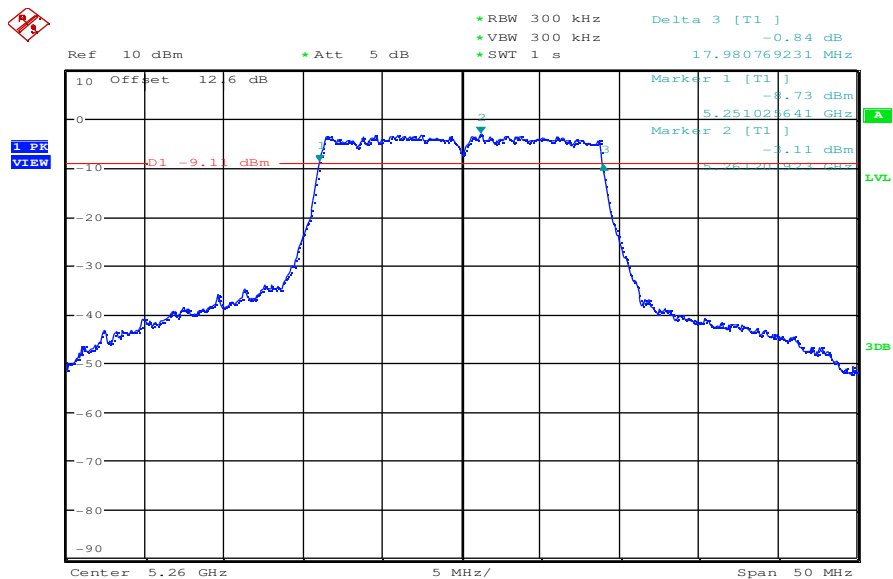
Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 14:03:31

**OFDM – mode / n – mode:**

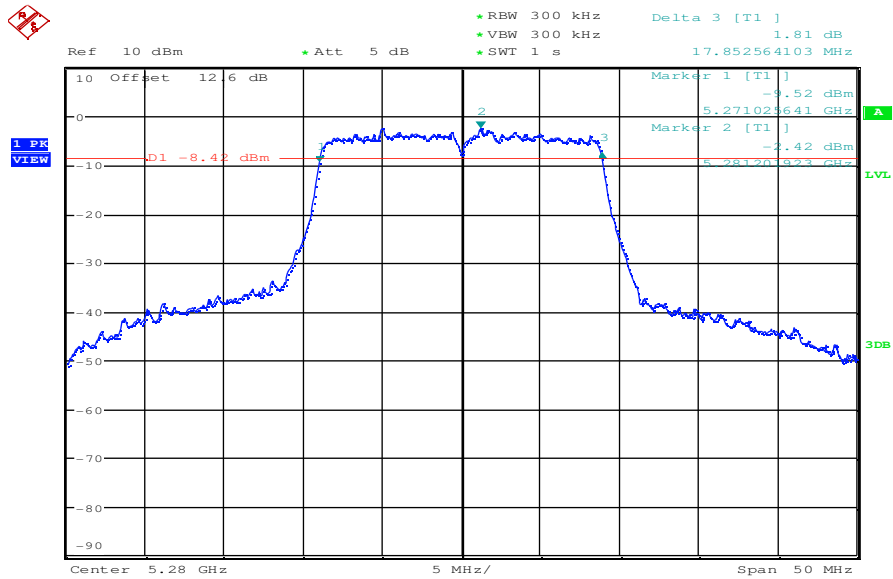
Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:24:19

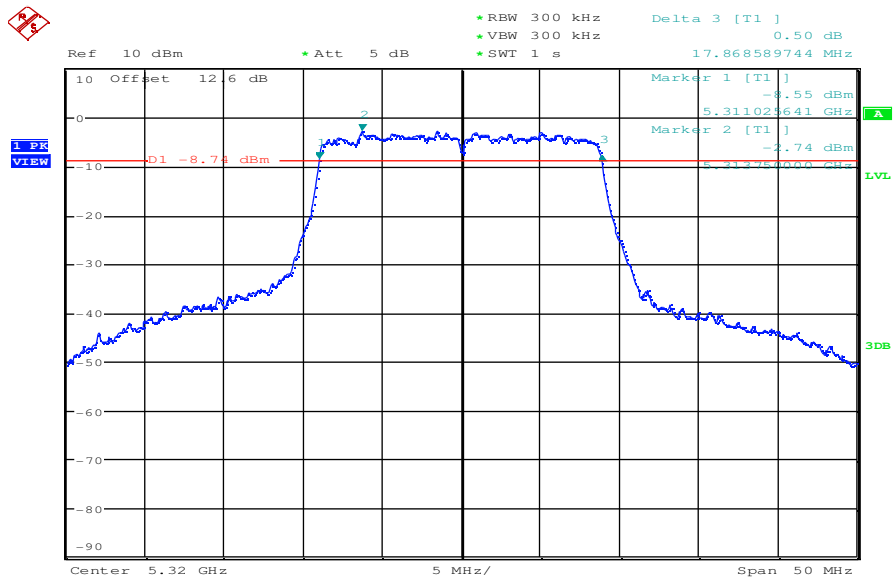


Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:26:53

Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; mcs 7

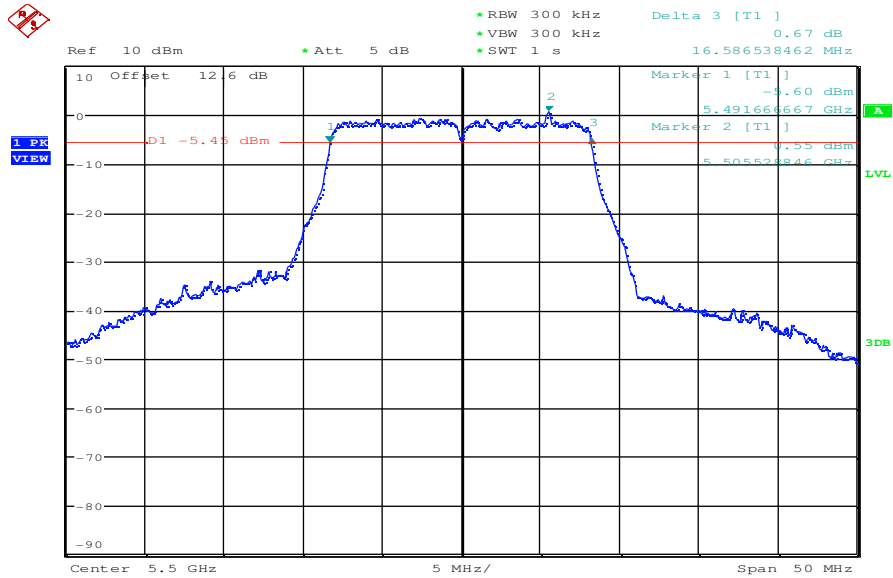


Date: 2.DEC.2010 14:36:04

**Frequency band 3:**

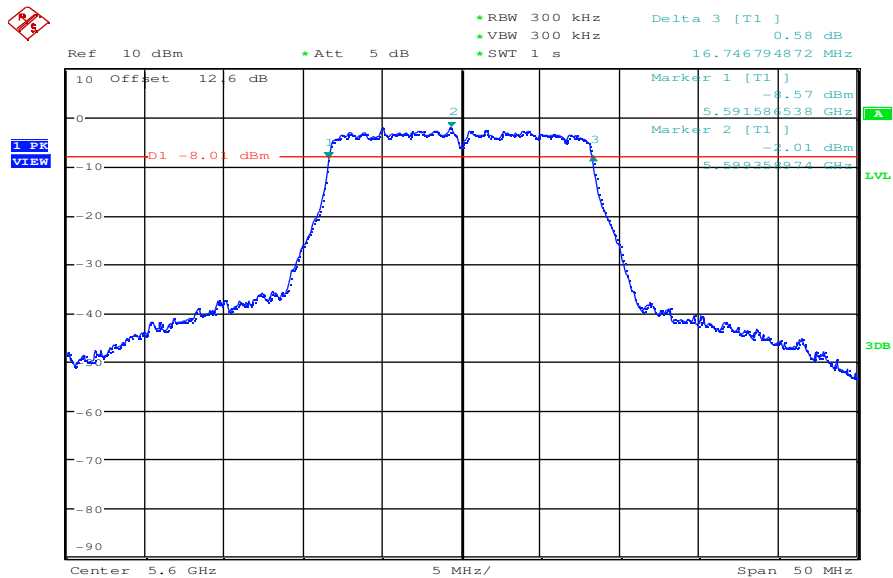
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; 54 MBit/s**



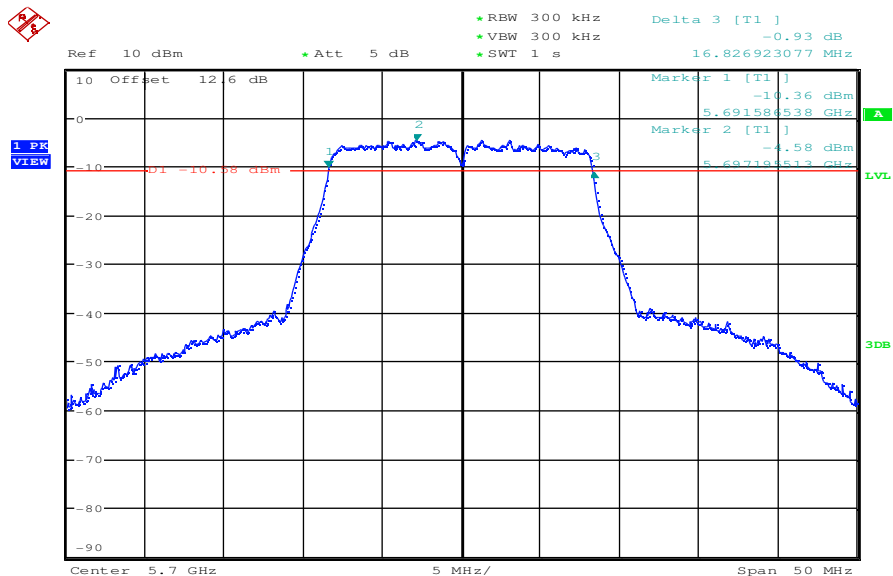
Date: 2.DEC.2010 14:05:53

**Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; 54 MBit/s**



Date: 2.DEC.2010 14:08:45

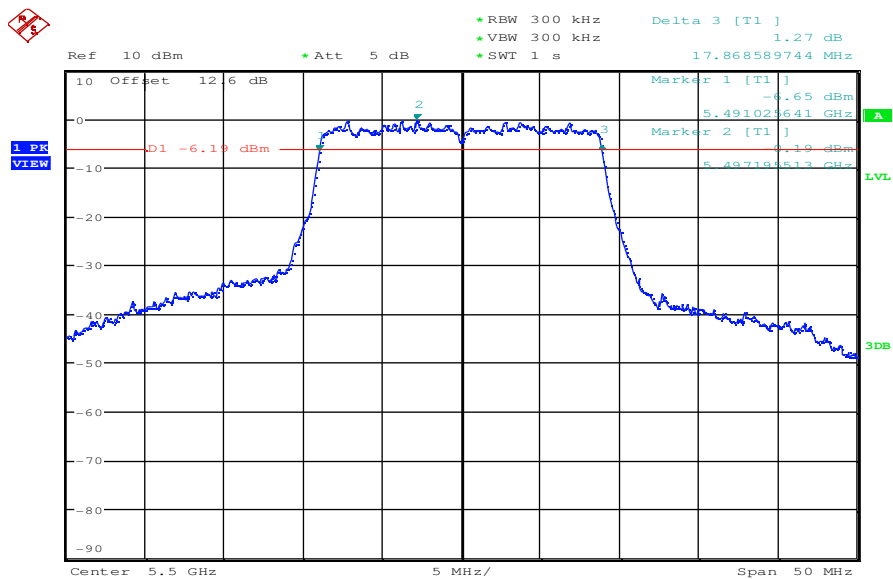
Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; 54 MBit/s



Date: 2.DEC.2010 14:12:22

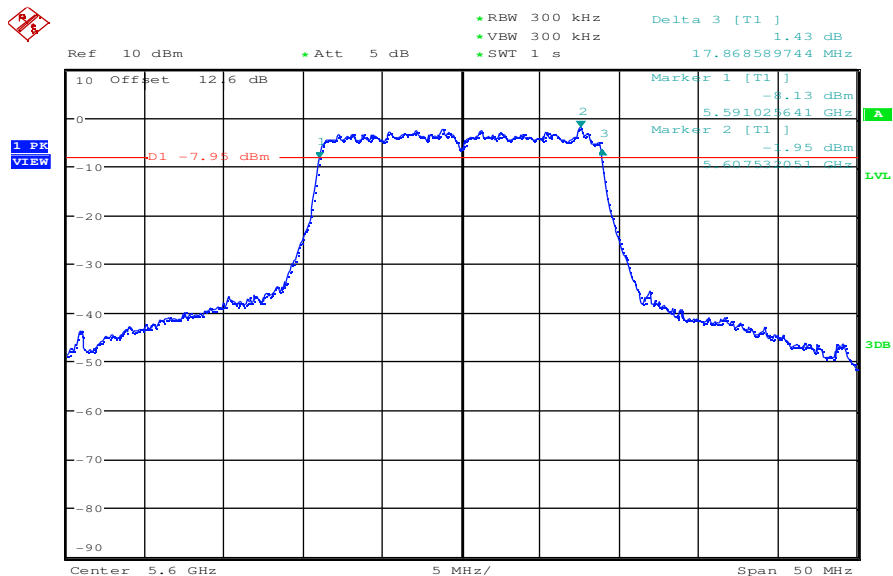
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; mcs 7



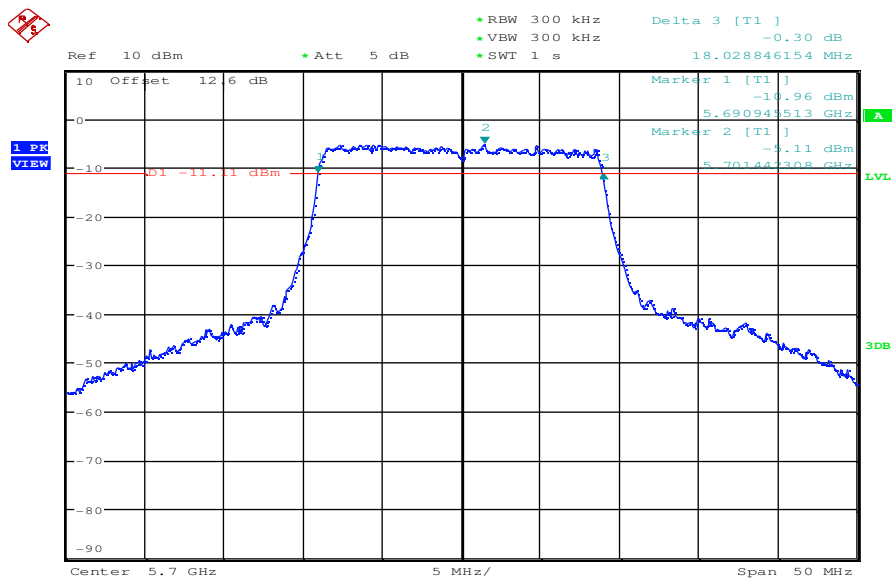
Date: 2.DEC.2010 14:38:31

Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs 7



Date: 2.DEC.2010 14:41:16

Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; mcs 7



Date: 2.DEC.2010 14:44:06

## 9.4 Emission bandwidth – 20 dB bandwidth

### Description:

Measurement of the 20 dB bandwidth of the modulated signal.

### Measurement:

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Peak     |
| Sweep time:           | 1s       |
| Video bandwidth:      | 300 kHz  |
| Resolution bandwidth: | 300 kHz  |
| Span:                 | 50 MHz   |
| Trace-Mode:           | Max Hold |

### Limits:

| FCC             | IC                         |
|-----------------|----------------------------|
| CFR Part 15.407 | RSS 210, Issue 8, A 8.2(a) |

### Results: band 1

| Modulation              | 20 dB BANDWIDTH [MHz] |          |          |
|-------------------------|-----------------------|----------|----------|
|                         | 5180 MHz              | 5200 MHz | 5240 MHz |
| Frequency               |                       |          |          |
| OFDM / a – mode         | 18.83                 | 19.02    | 19.23    |
| OFDM / n – mode         | 19.55                 | 19.98    | 19.63    |
| Measurement uncertainty | ± 300 kHz             |          |          |

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

**Results:** band 2

| Modulation<br>Frequency | 20 dB BANDWIDTH [MHz] |          |          |
|-------------------------|-----------------------|----------|----------|
|                         | 5260 MHz              | 5280 MHz | 5320 MHz |
| OFDM / a – mode         | 19.02                 | 19.05    | 18.91    |
| OFDM / n – mode         | 19.90                 | 19.54    | 19.71    |
| Measurement uncertainty | ± 300 kHz             |          |          |

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

**Results:** band 3

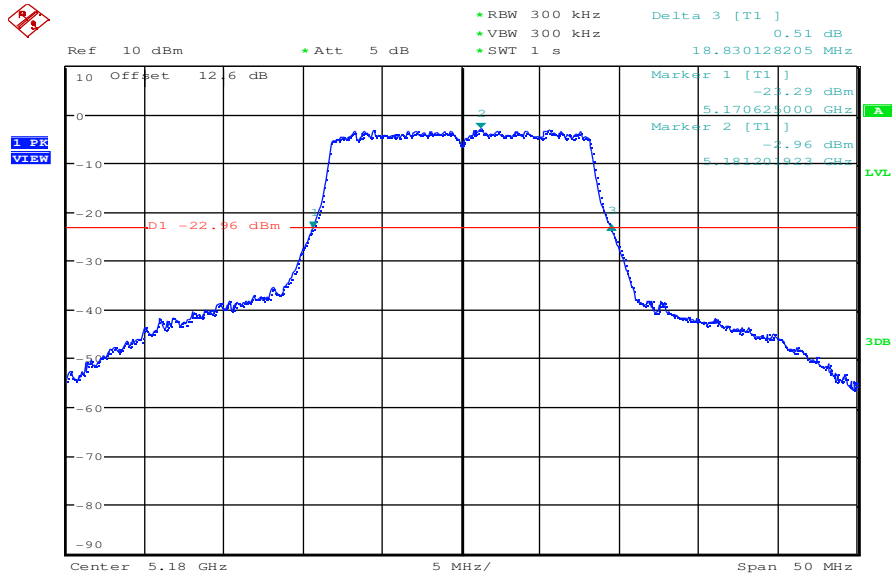
| Modulation<br>Frequency | 20 dB BANDWIDTH [MHz] |          |          |
|-------------------------|-----------------------|----------|----------|
|                         | 5500 MHz              | 5600 MHz | 5700 MHz |
| OFDM / a – mode         | 18.75                 | 18.91    | 18.91    |
| OFDM / n – mode         | 19.63                 | 19.47    | 19.71    |
| Measurement uncertainty | ± 300 kHz             |          |          |

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

**Frequency band 1:**

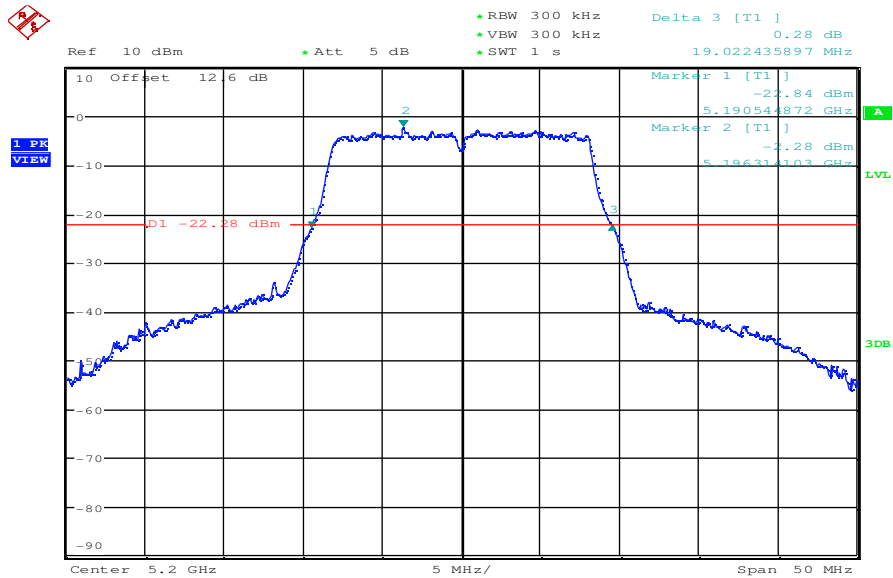
**OFDM – mode / a – mode:**

**Plot 1:** OFDM – mode; lowest channel – 5180 MHz; power index 21; 54 MBit/s



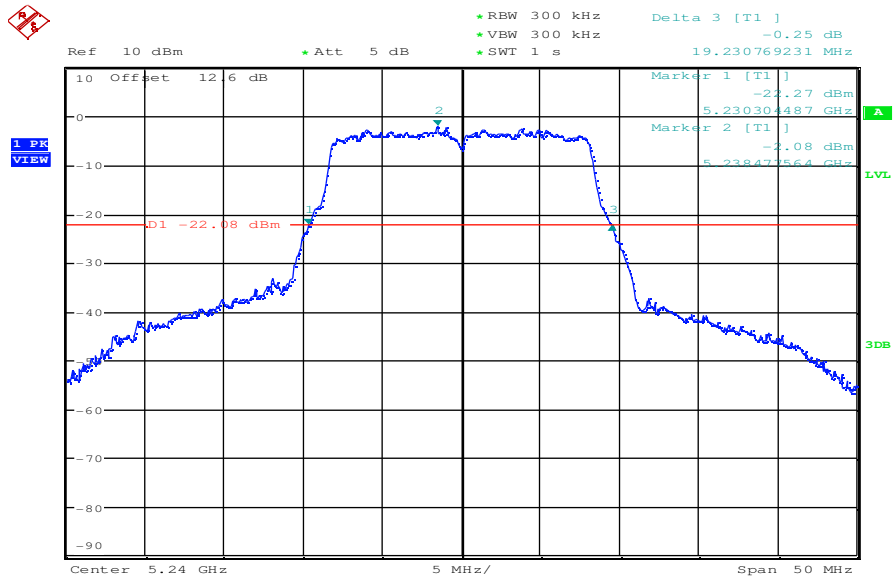
Date: 2.DEC.2010 13:47:09

**Plot 2:** OFDM – mode; middle channel – 5200 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 13:50:31

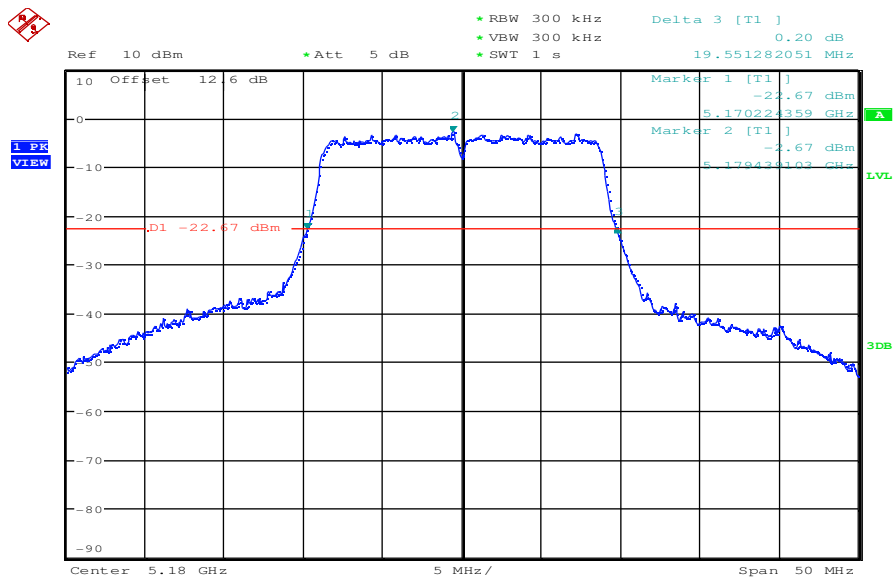
Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 13:55:27

**OFDM – mode / n – mode:**

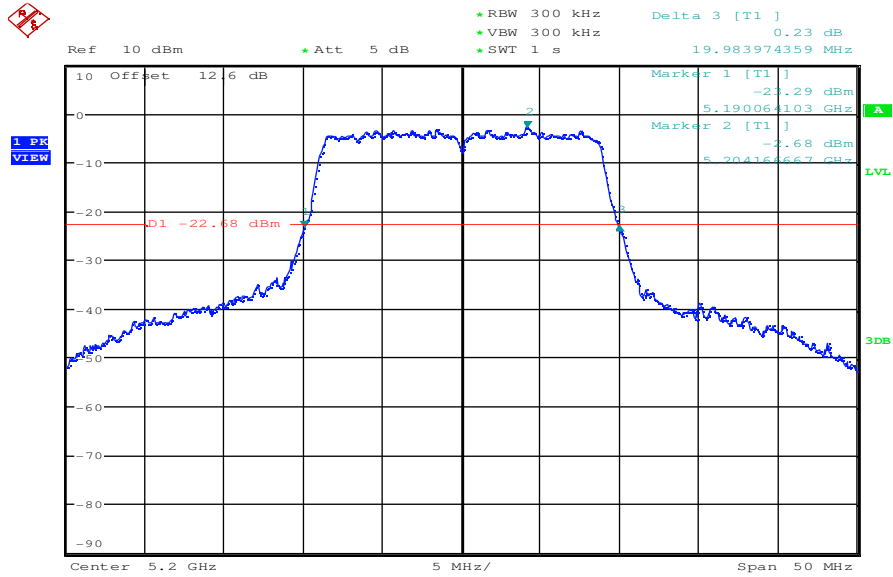
Plot 1: OFDM – mode; lowest channel – 5180 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:16:17

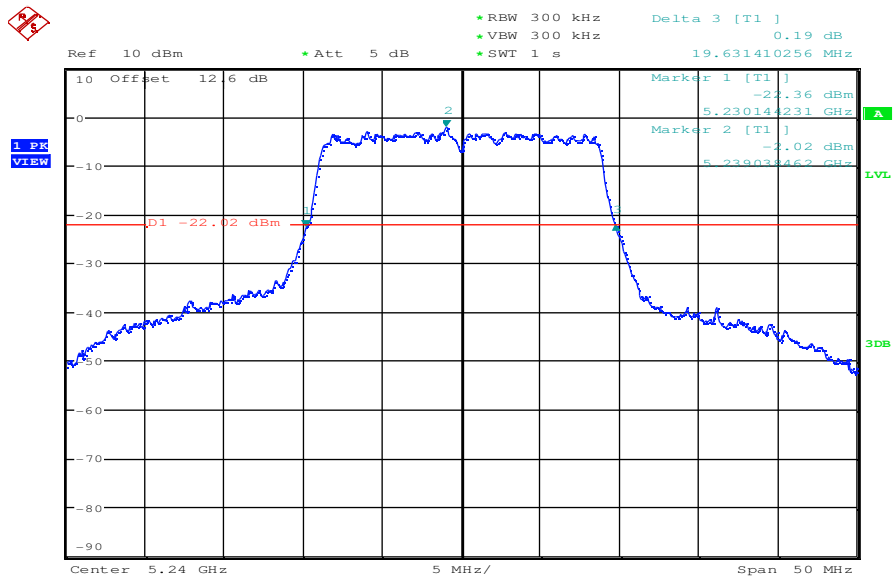


Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:19:19

Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; mcs 7

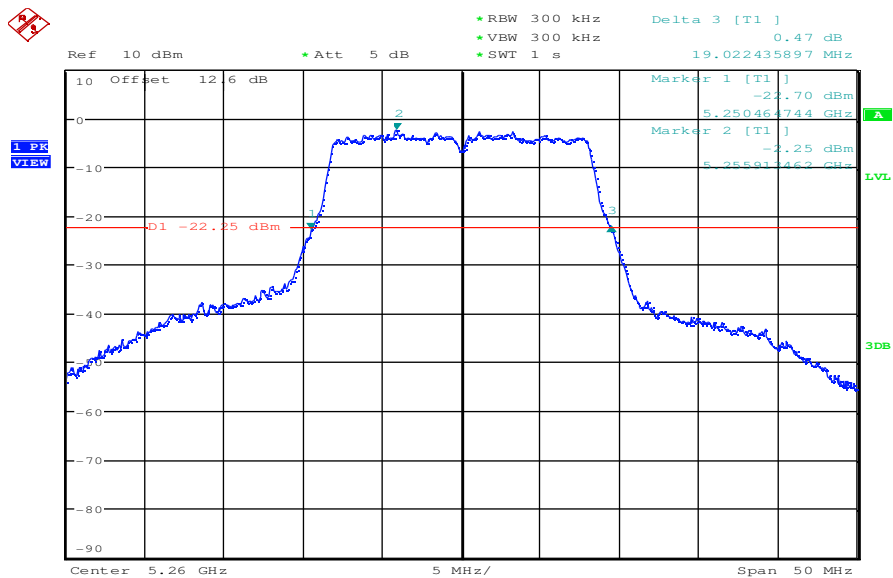


Date: 2.DEC.2010 14:21:54

**Frequency band 2:**

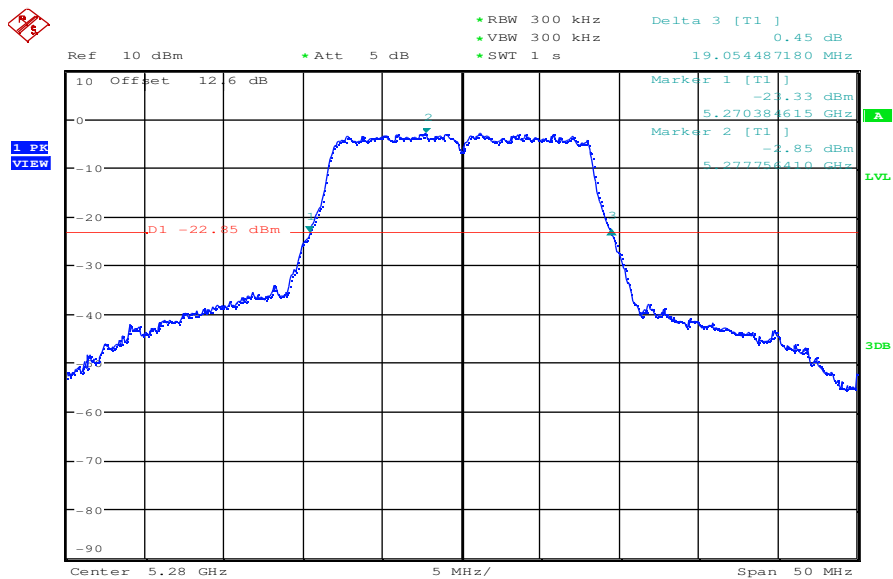
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; 54 MBit/s**



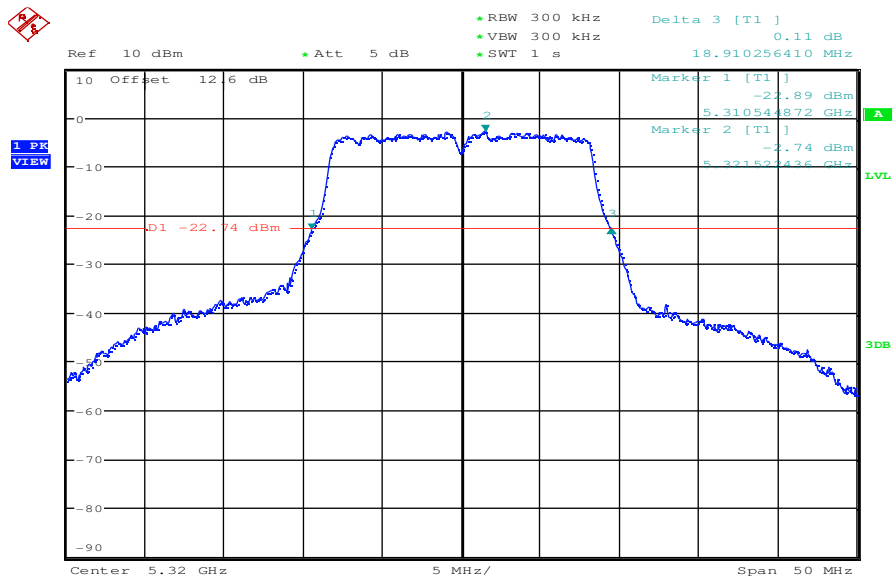
Date: 2.DEC.2010 13:58:17

**Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; 54 MBit/s**



Date: 2.DEC.2010 14:01:25

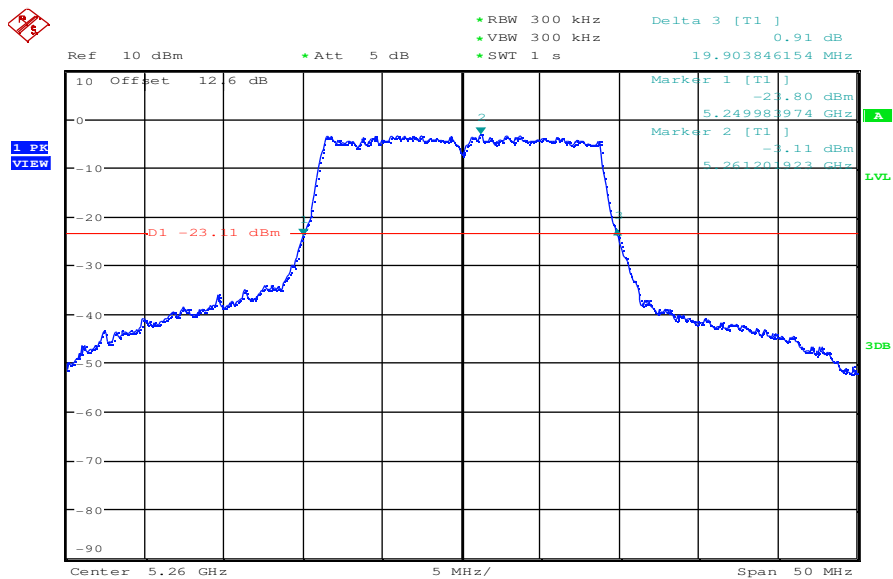
Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 14:04:03

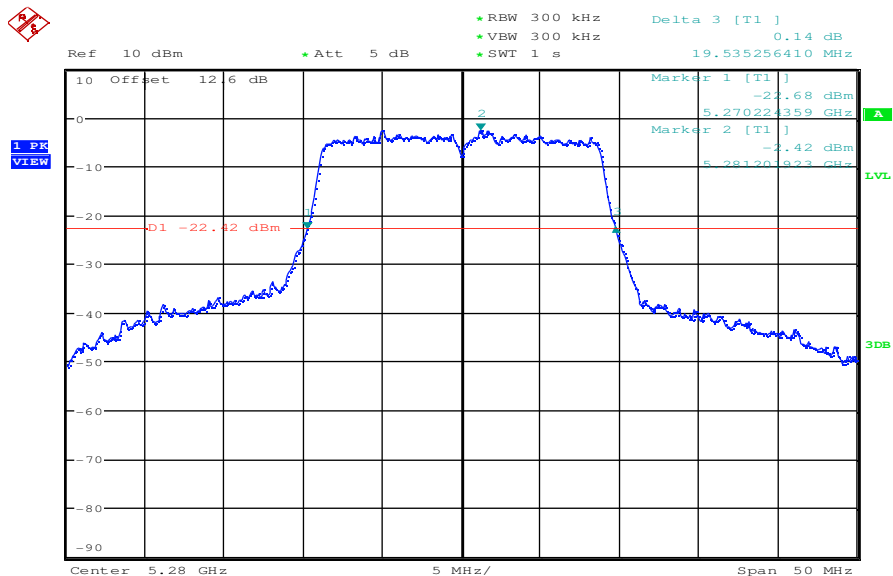
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; mcs 7



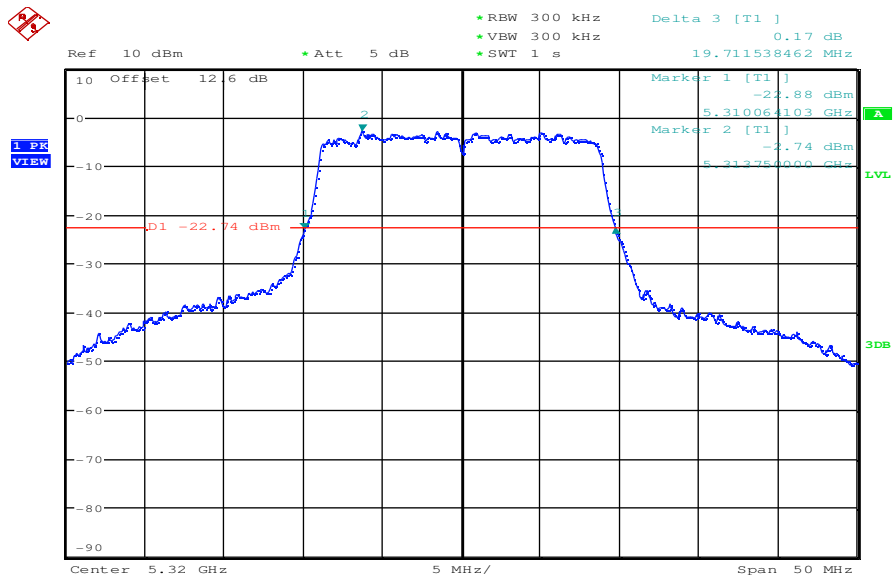
Date: 2.DEC.2010 14:24:53

Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:27:21

Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; mcs 7

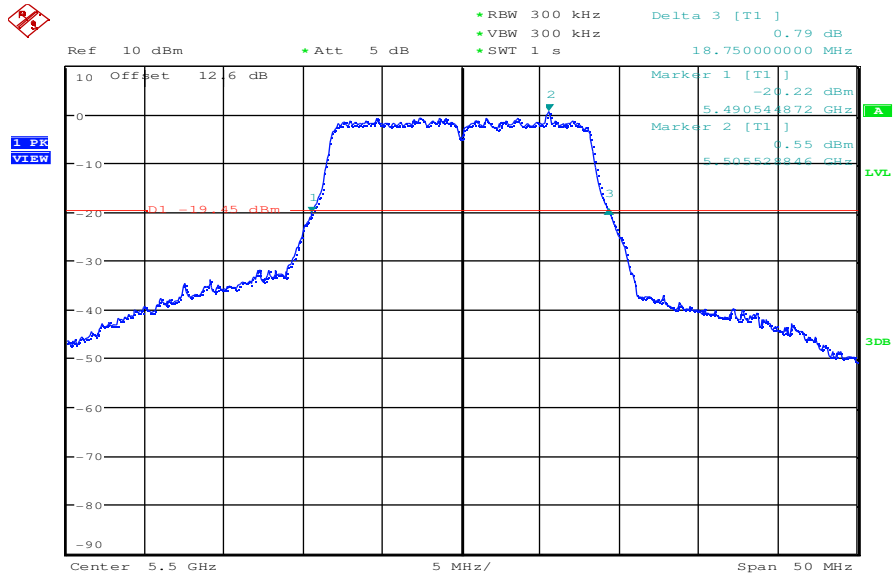


Date: 2.DEC.2010 14:36:30

**Frequency band 3:**

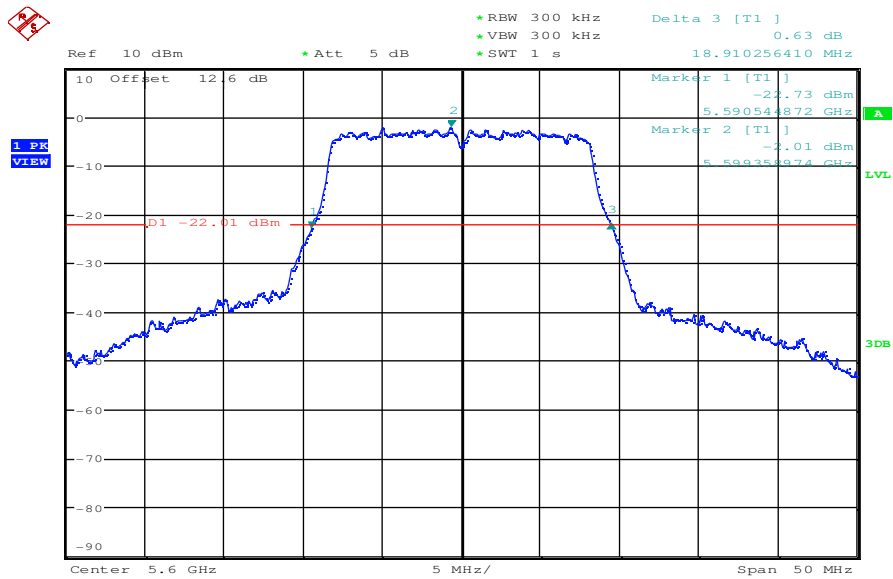
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; 54 MBit/s**



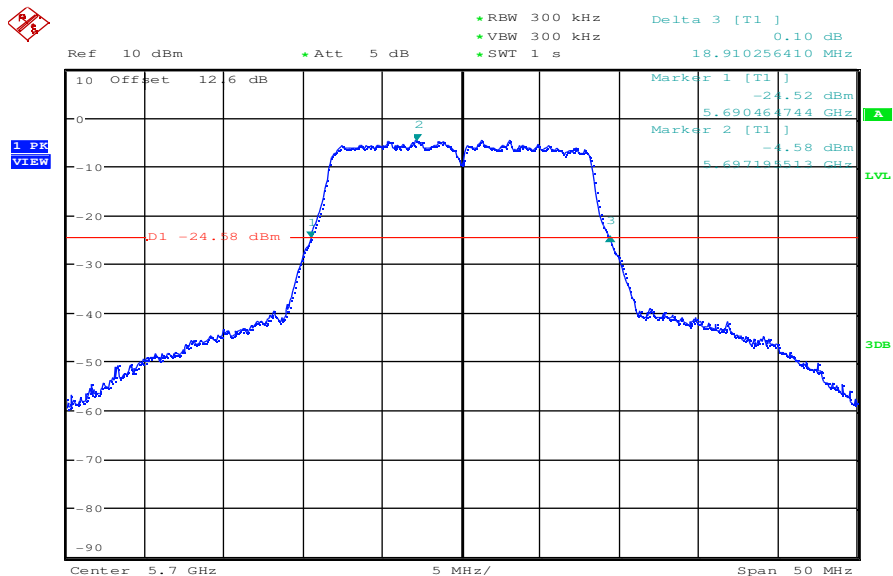
Date: 2.DEC.2010 14:06:28

**Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; 54 MBit/s**



Date: 2.DEC.2010 14:10:07

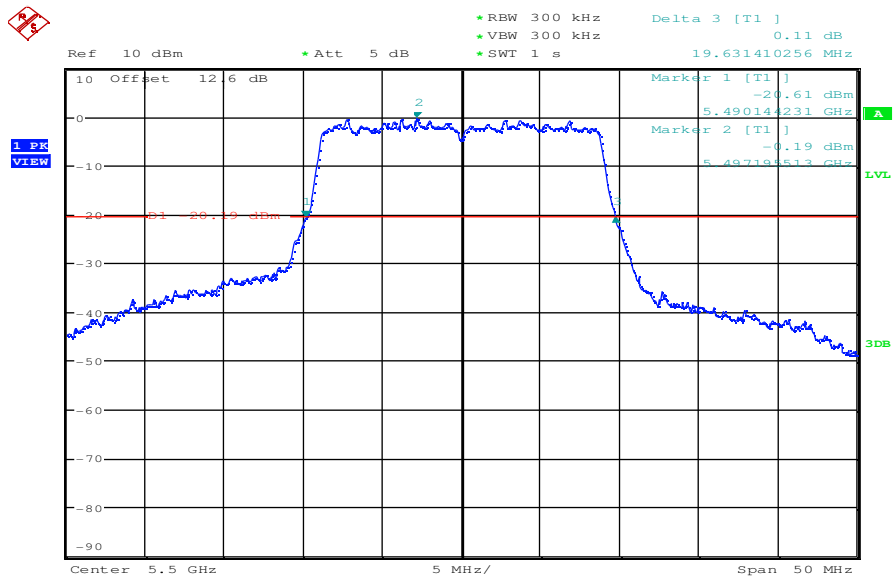
Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; 54 MBit/s



Date: 2.DEC.2010 14:12:58

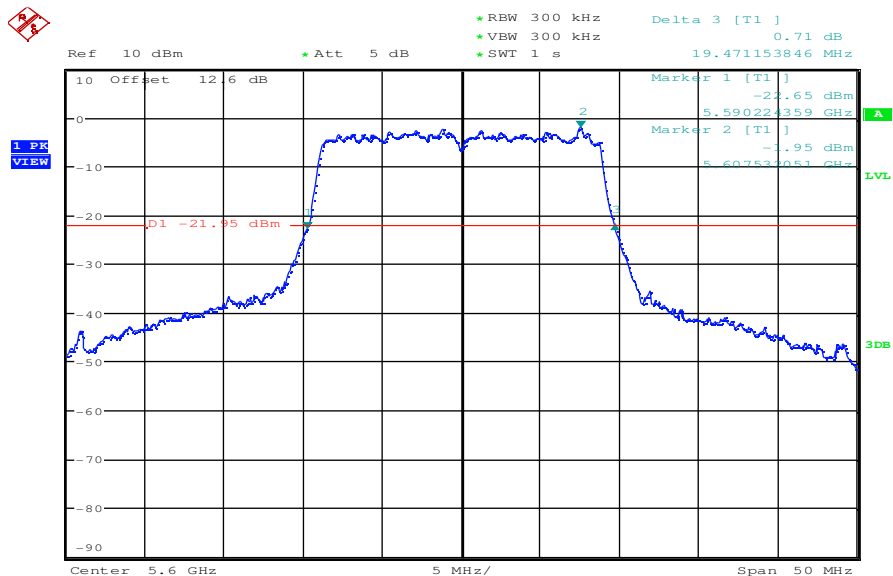
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; mcs 7



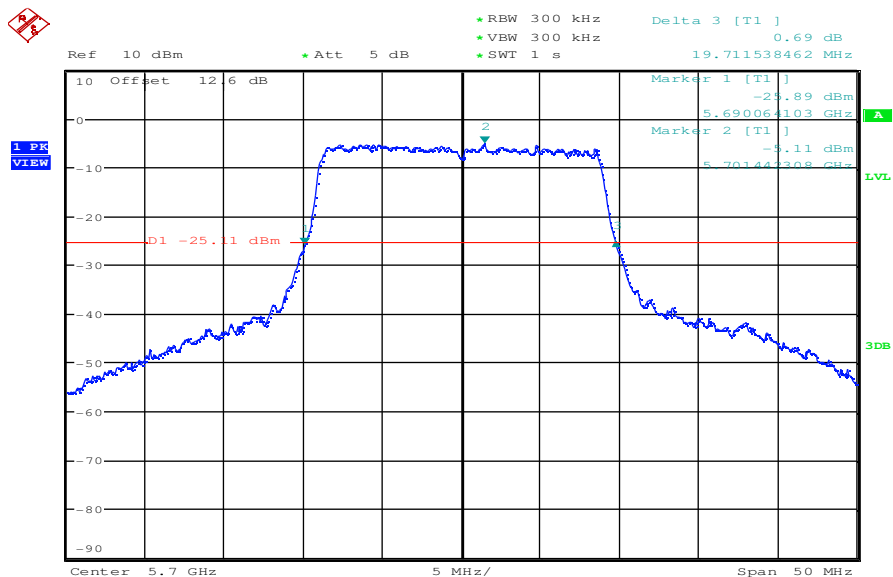
Date: 2.DEC.2010 14:39:01

Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs 7



Date: 2.DEC.2010 14:41:43

Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; mcs 7



Date: 2.DEC.2010 14:44:43

## 9.5 Emission bandwidth – 26 dB bandwidth

### Description:

Measurement of the 26 dB bandwidth of the modulated signal.

### Measurement:

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Peak     |
| Sweep time:           | 1s       |
| Video bandwidth:      | 300 kHz  |
| Resolution bandwidth: | 300 kHz  |
| Span:                 | 50 MHz   |
| Trace-Mode:           | Max Hold |

### Limits:

| FCC             | IC                         |
|-----------------|----------------------------|
| CFR Part 15.407 | RSS 210, Issue 8, A 8.2(a) |

### Results: band 1

| Modulation              | 26 dB BANDWIDTH [MHz] |          |          |
|-------------------------|-----------------------|----------|----------|
|                         | 5180 MHz              | 5200 MHz | 5240 MHz |
| Frequency               |                       |          |          |
| OFDM / a – mode         | 20.51                 | 20.54    | 20.75    |
| OFDM / n – mode         | 20.91                 | 21.11    | 20.83    |
| Measurement uncertainty | ± 300 kHz             |          |          |

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



**Results:** band 2

| Modulation<br>Frequency | 26 dB BANDWIDTH [MHz] |          |          |
|-------------------------|-----------------------|----------|----------|
|                         | 5260 MHz              | 5280 MHz | 5320 MHz |
| OFDM / a – mode         | 20.38                 | 20.50    | 20.51    |
| OFDM / n – mode         | 21.19                 | 20.98    | 20.99    |
| Measurement uncertainty | ± 300 kHz             |          |          |

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

**Results:** band 3

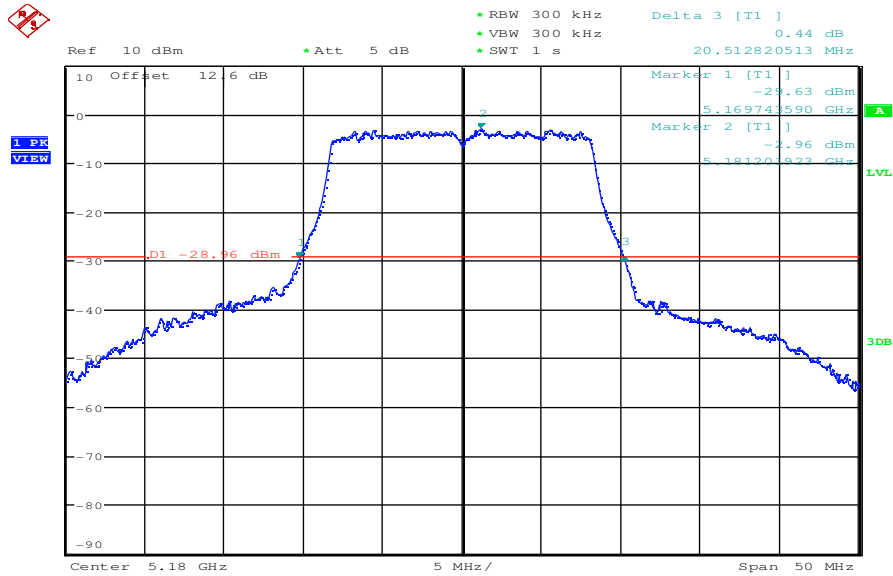
| Modulation<br>Frequency | 26 dB BANDWIDTH [MHz] |          |          |
|-------------------------|-----------------------|----------|----------|
|                         | 5500 MHz              | 5600 MHz | 5700 MHz |
| OFDM / a – mode         | 20.43                 | 20.43    | 20.51    |
| OFDM / n – mode         | 20.99                 | 20.67    | 20.91    |
| Measurement uncertainty | ± 300 kHz             |          |          |

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

**Frequency band 1:**

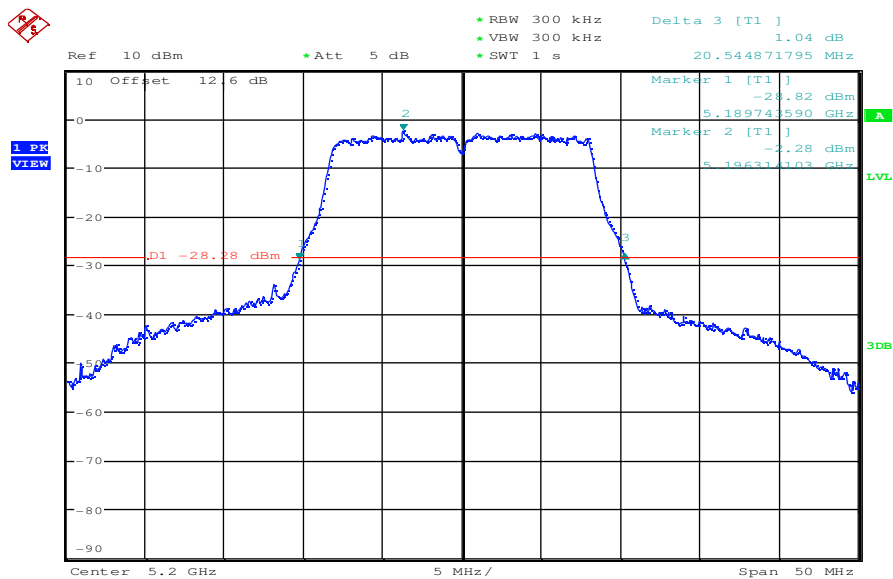
**OFDM – mode / a – mode:**

**Plot 1:** OFDM – mode; lowest channel – 5180 MHz; power index 21; 54 MBit/s



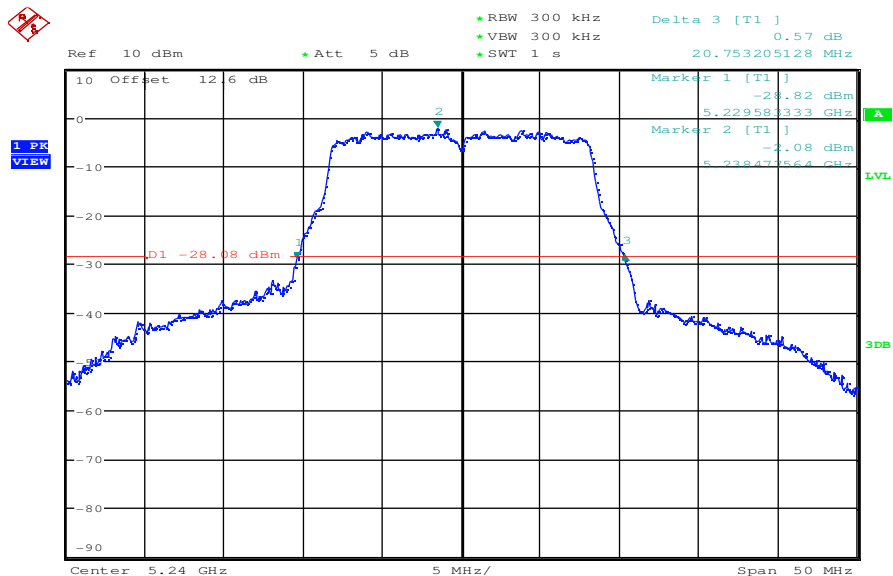
Date: 2.DEC.2010 13:47:37

**Plot 2:** OFDM – mode; middle channel – 5200 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 13:51:07

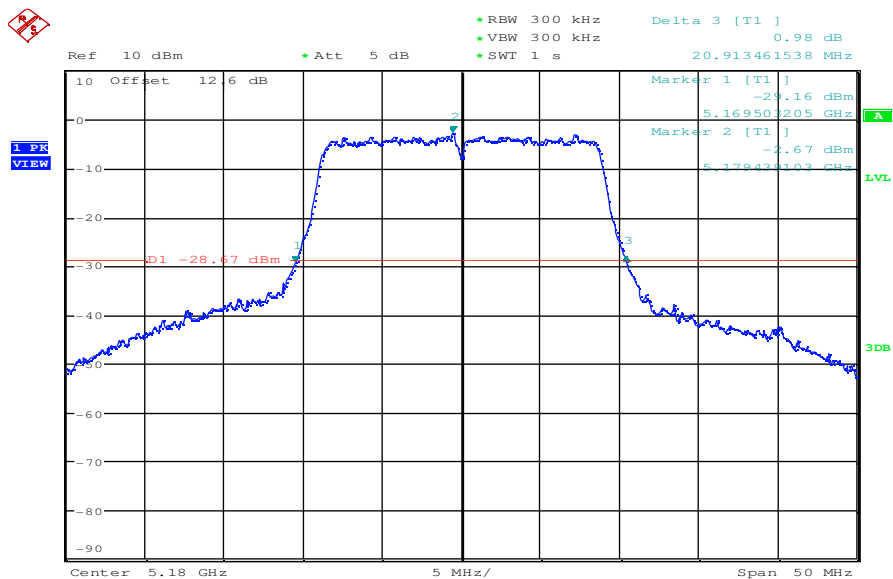
Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 13:56:04

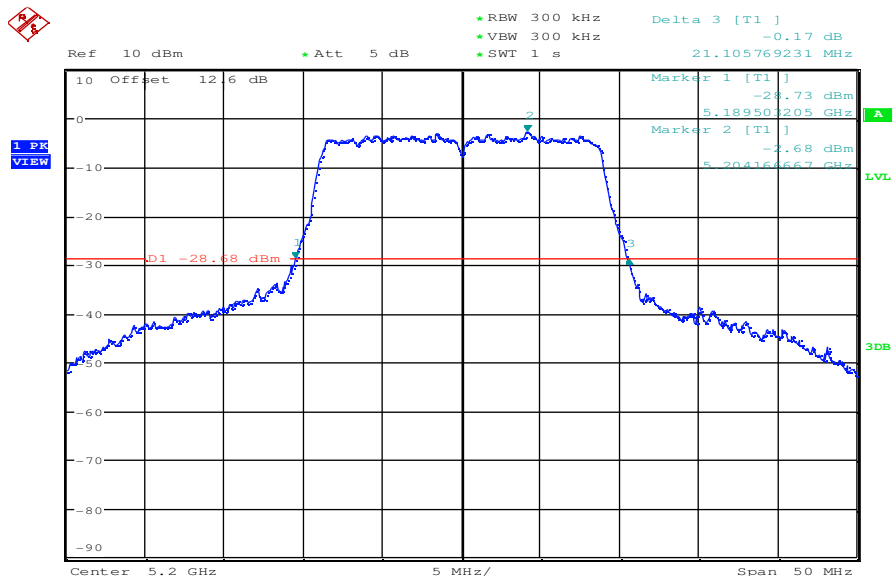
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5180 MHz; power index 21; mcs 7



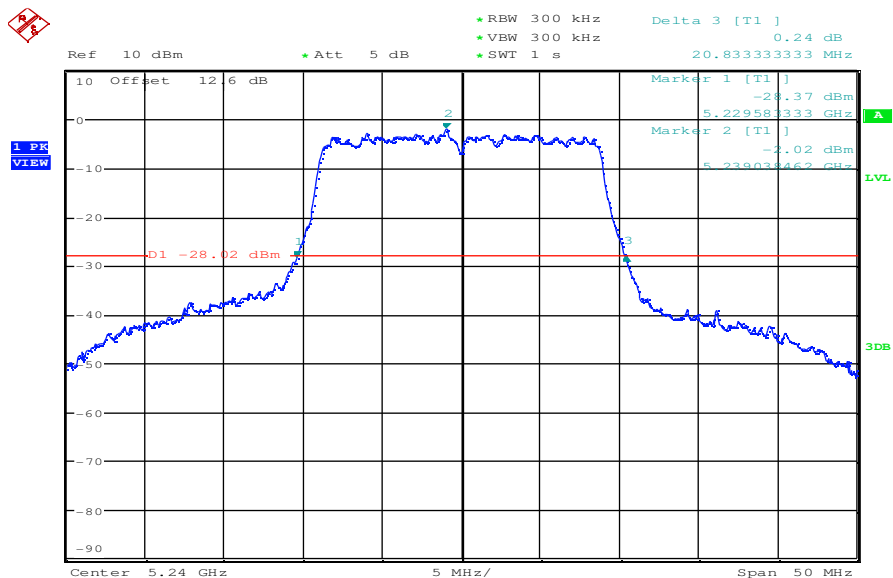
Date: 2.DEC.2010 14:17:09

Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:19:52

Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; mcs 7

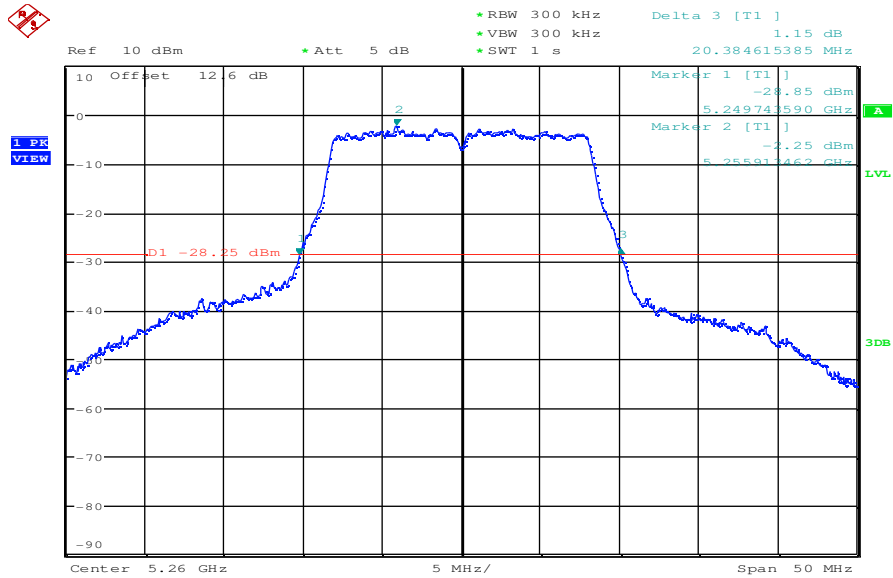


Date: 2.DEC.2010 14:22:29

**Frequency band 2:**

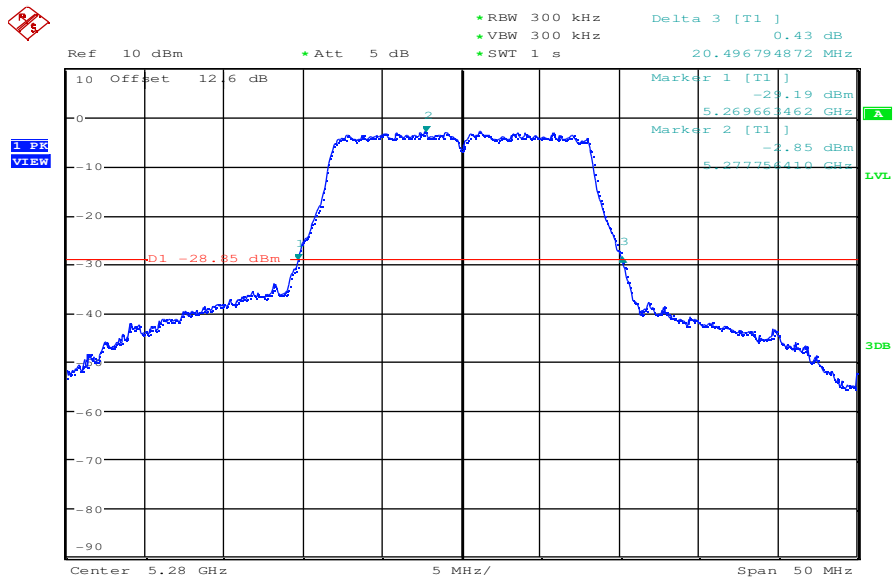
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; 54 MBit/s**



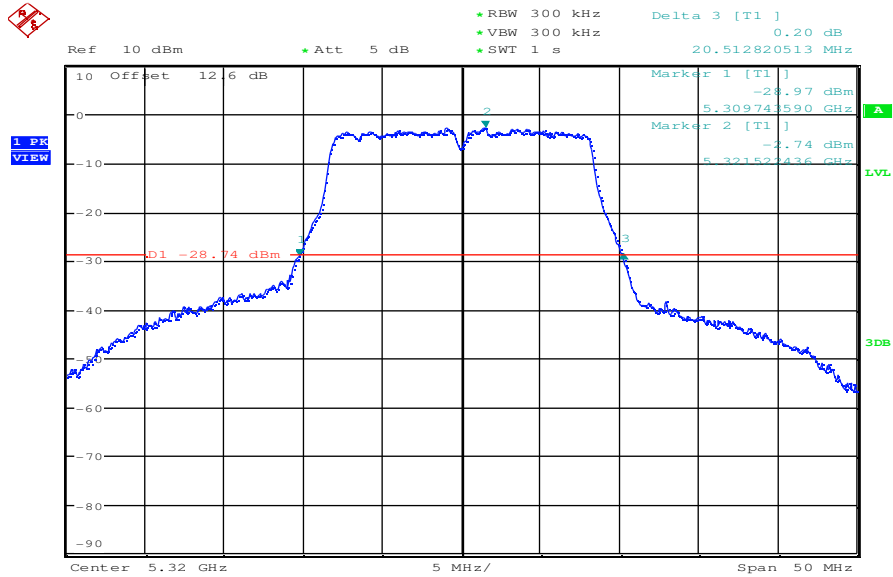
Date: 2.DEC.2010 13:58:49

**Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; 54 MBit/s**



Date: 2.DEC.2010 14:01:57

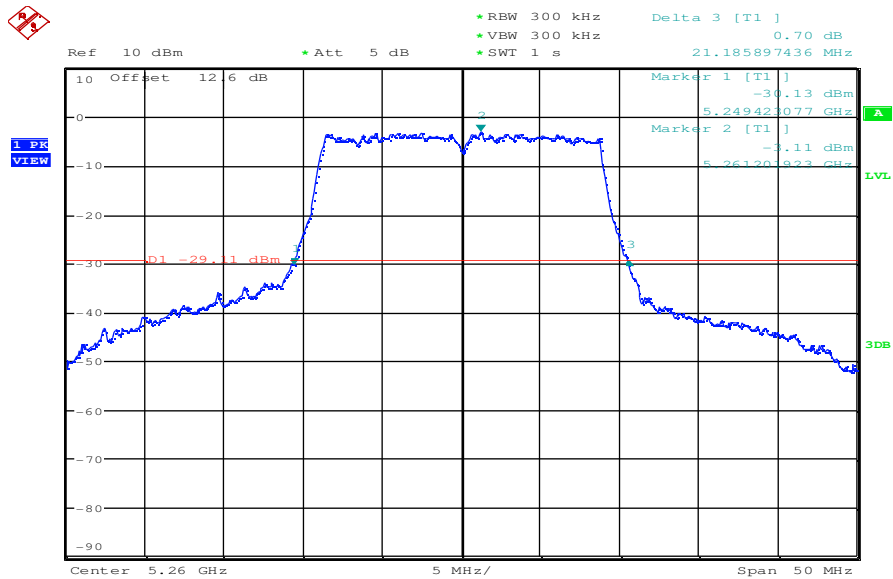
Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; 54 MBit/s



Date: 2.DEC.2010 14:04:29

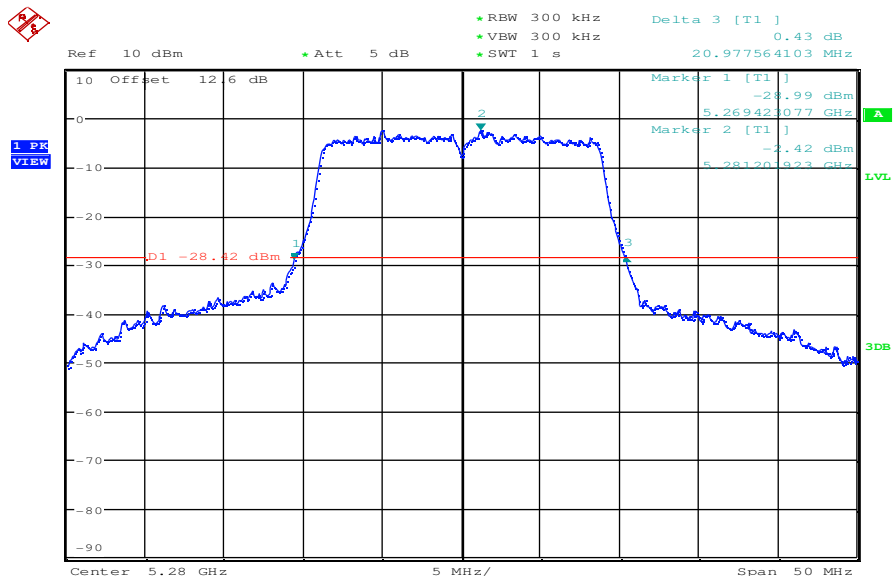
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; mcs 7



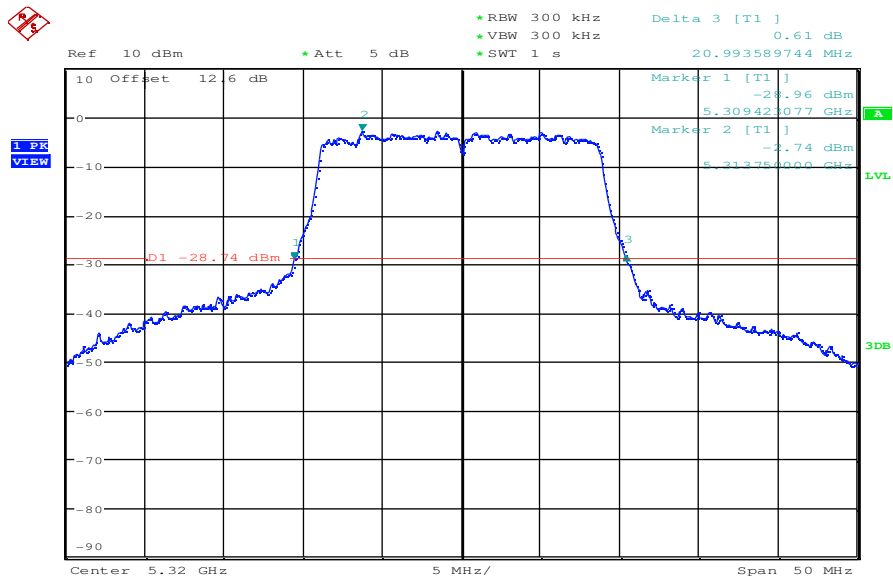
Date: 2.DEC.2010 14:25:21

Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs 7



Date: 2.DEC.2010 14:27:49

Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; mcs 7

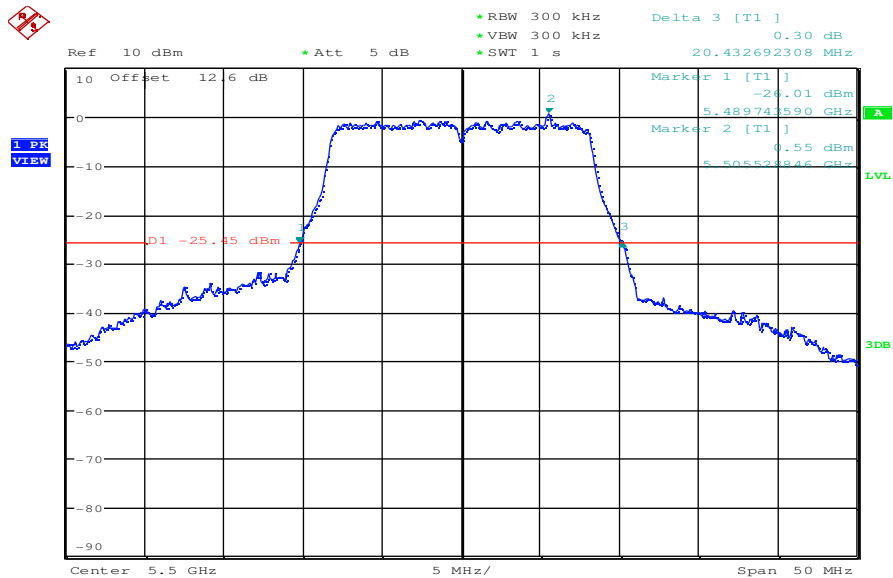


Date: 2.DEC.2010 14:36:56

**Frequency band 3:**

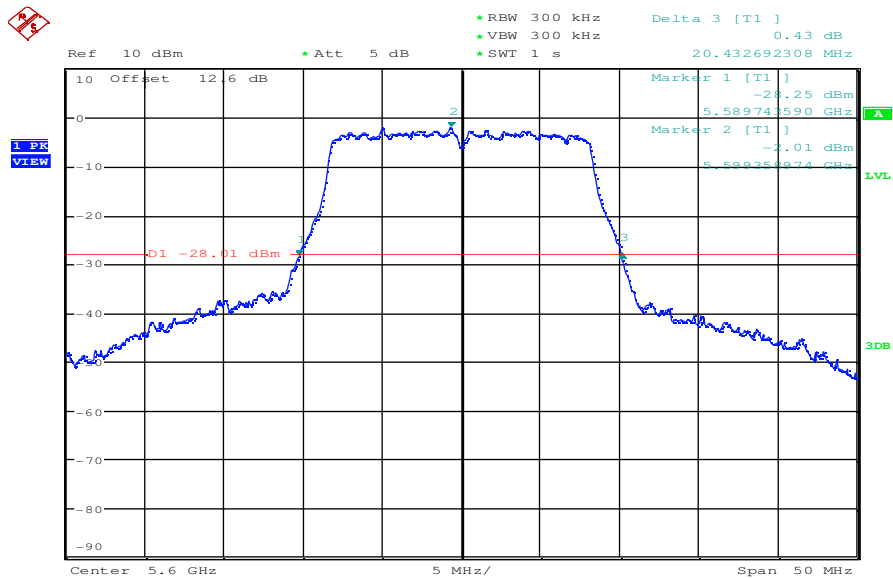
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; 54 MBit/s**



Date: 2.DEC.2010 14:06:58

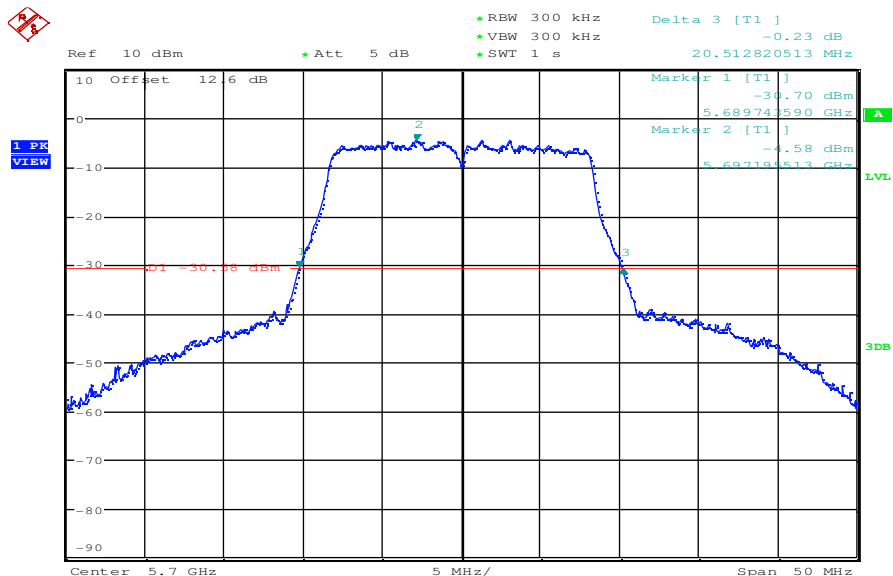
**Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; 54 MBit/s**



Date: 2.DEC.2010 14:10:39



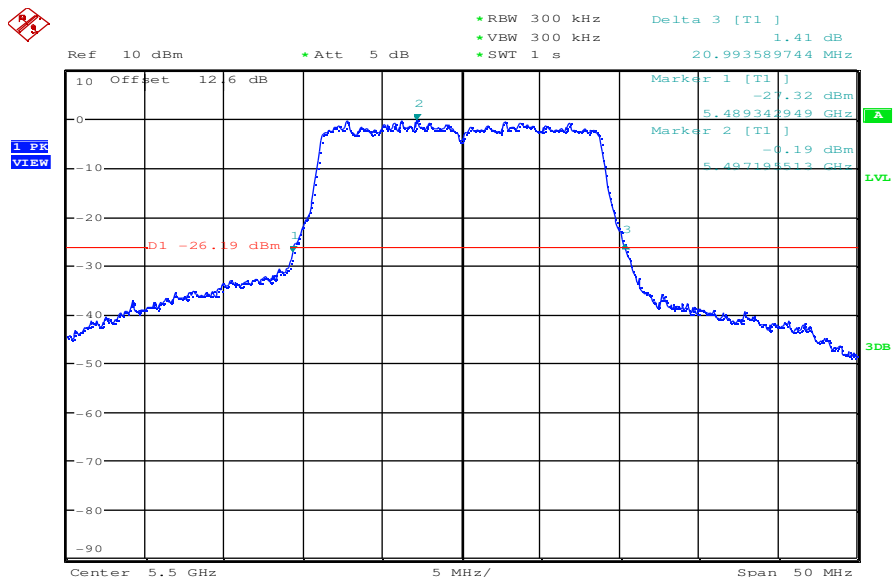
Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; 54 MBit/s



Date: 2.DEC.2010 14:13:31

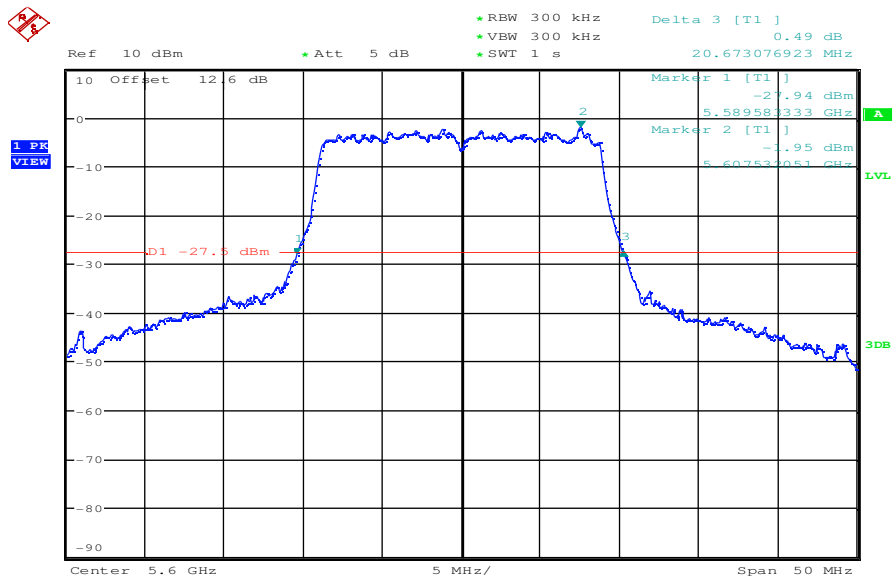
**OFDM – mode / n – mode:**

Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; mcs 7



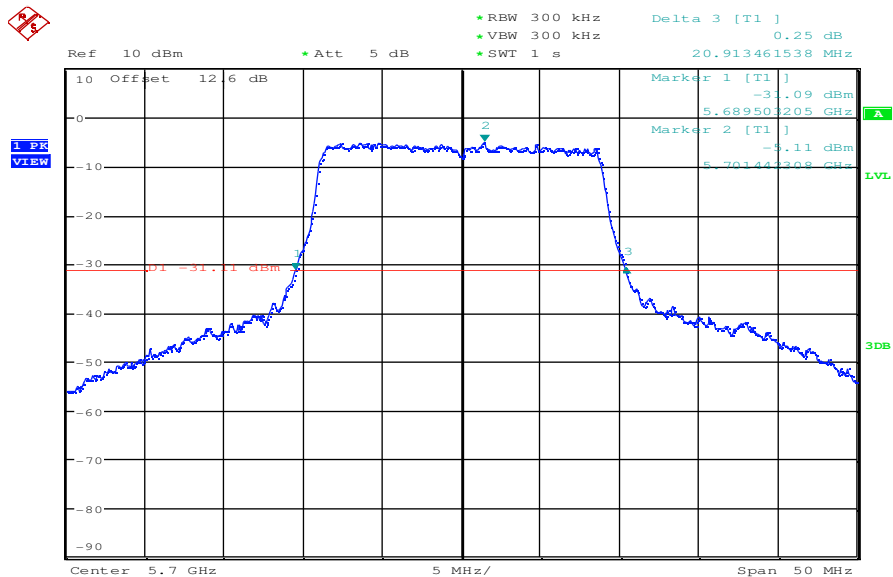
Date: 2.DEC.2010 14:39:32

Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; mcs 7



Date: 2.DEC.2010 14:42:16

Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; mcs 7



Date: 2.DEC.2010 14:45:29

## 9.6 Maximum conducted output power

### Description:

Measurement of the maximum output power conducted and radiated. The measurements are performed using the data rate producing the highest conducted output power. The determination of these data rates was performed at the beginning of the tests. Additionally the average power can be measured using a wideband power meter.

Measured with the spectrum analyzer band power measurement function according to the guidelines of the FCC public notice DA 02-2138 – method #3. (UNII guideline)

### Measurement:

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Sample   |
| Sweep time:           | Auto     |
| Video bandwidth:      | 1 MHz    |
| Resolution bandwidth: | 1 MHz    |
| Span:                 | 30 MHz   |
| Trace-Mode:           | Max hold |

### Limits:

| FCC  | IC              |
|--|-----------------|
| CFR Part 15.247 (a)(1)   | RSS 210 Issue 8 |
| Maximum Output Power   |                 |
| <p>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 <math>4 \text{ dBm} + 10\log B</math>, 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.</p> <p>For the band 5.25-5.35 GHz and 5.47-5.725 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or <math>11 \text{ dBm} + 10\log B</math>, where B is the 26dB-emission bandwidth in MHz.</p> |                 |

**Results:** band 1 – 5150 MHz to 5250 MHz

| OFDM – a mode<br>Frequency   | Maximum Output Power [dBm]     |                         |                          |
|------------------------------|--------------------------------|-------------------------|--------------------------|
|                              | low channel<br>5180 MHz        | mid channel<br>5200 MHz | high channel<br>5240 MHz |
| Output Power Conducted       | 12.50                          | 12.46                   | 12.34                    |
| Output Power Radiated - EIRP | 16.57                          | 16.57                   | 16.58                    |
| Measurement uncertainty      | ± 1 dB (cond.) / ± 3 dB (rad.) |                         |                          |

| OFDM – n mode<br>Frequency   | Maximum Output Power [dBm]     |                         |                          |
|------------------------------|--------------------------------|-------------------------|--------------------------|
|                              | low channel<br>5180 MHz        | mid channel<br>5200 MHz | high channel<br>5240 MHz |
| Output Power Conducted       | 12.46                          | 12.65                   | 12.58                    |
| Output Power Radiated - EIRP | 16.53                          | 16.76                   | 16.82                    |
| Measurement uncertainty      | ± 1 dB (cond.) / ± 3 dB (rad.) |                         |                          |

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

**Results:** band 2 – 5250 MHz to 5350 MHz

| OFDM – a mode<br>Frequency   | Maximum Output Power [dBm]     |                         |                          |
|------------------------------|--------------------------------|-------------------------|--------------------------|
|                              | low channel<br>5260 MHz        | mid channel<br>5280 MHz | high channel<br>5320 MHz |
| Output Power Conducted       | 12.41                          | 12.47                   | 12.54                    |
| Output Power Radiated - EIRP | 16.86                          | 16.78                   | 16.79                    |
| Measurement uncertainty      | ± 1 dB (cond.) / ± 3 dB (rad.) |                         |                          |

| OFDM – n mode<br>Frequency   | Maximum Output Power [dBm]     |                         |                          |
|------------------------------|--------------------------------|-------------------------|--------------------------|
|                              | low channel<br>5260 MHz        | mid channel<br>5280 MHz | high channel<br>5320 MHz |
| Output Power Conducted       | 12.40                          | 12.59                   | 12.60                    |
| Output Power Radiated - EIRP | 16.85                          | 16.90                   | 16.85                    |
| Measurement uncertainty      | ± 1 dB (cond.) / ± 3 dB (rad.) |                         |                          |

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

**Results:** band 3 – 5470 MHz to 5725 MHz

| OFDM – a mode<br>Frequency   | Maximum Output Power [dBm]     |                         |                          |
|------------------------------|--------------------------------|-------------------------|--------------------------|
|                              | low channel<br>5500 MHz        | mid channel<br>5600 MHz | high channel<br>5700 MHz |
| Output Power Conducted       | 14.15                          | 13.41                   | 10.75                    |
| Output Power Radiated - EIRP | 18.64                          | 16.99                   | 13.77                    |
| Measurement uncertainty      | ± 1 dB (cond.) / ± 3 dB (rad.) |                         |                          |

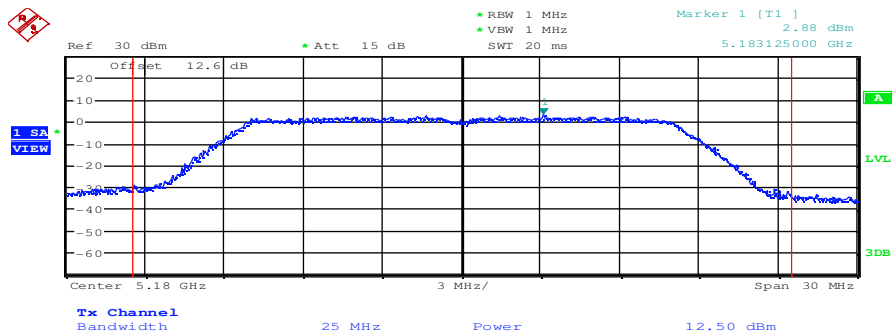
| OFDM – n mode<br>Frequency   | Maximum Output Power [dBm]     |                         |                          |
|------------------------------|--------------------------------|-------------------------|--------------------------|
|                              | low channel<br>5500 MHz        | mid channel<br>5600 MHz | high channel<br>5700 MHz |
| Output Power Conducted       | 14.43                          | 13.57                   | 10.97                    |
| Output Power Radiated - EIRP | 18.92                          | 17.15                   | 13.99                    |
| Measurement uncertainty      | ± 1 dB (cond.) / ± 3 dB (rad.) |                         |                          |

**Result:** [The result of the measurement is passed.](#)

**Band 1: 5150 MHz to 5250 MHz**

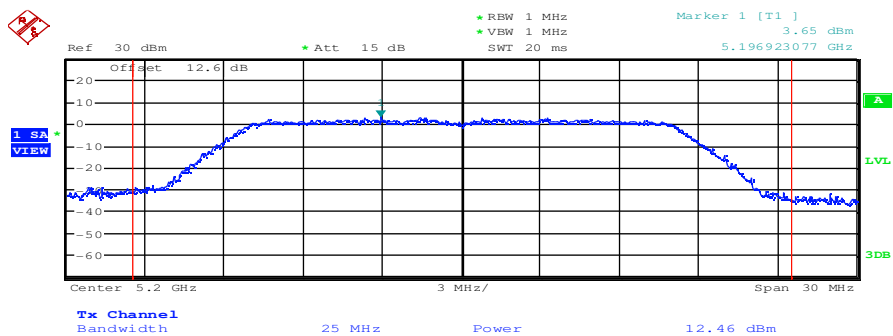
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5180 MHz; power index 21; 54 MBit/s**



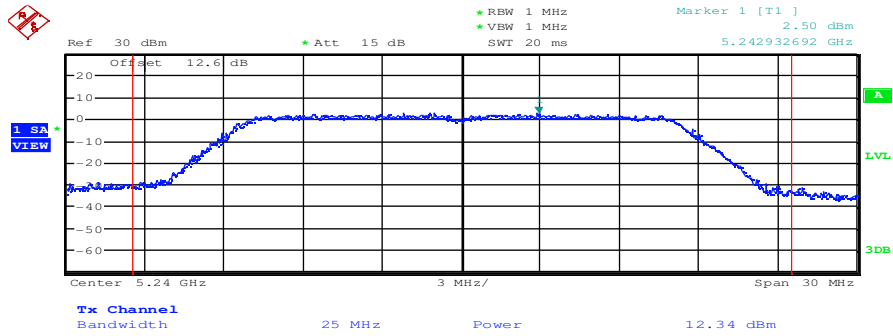
Date: 1.DEC.2010 14:15:43

**Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; 54 MBit/s**



Date: 1.DEC.2010 14:12:35

Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; 54 MBit/s

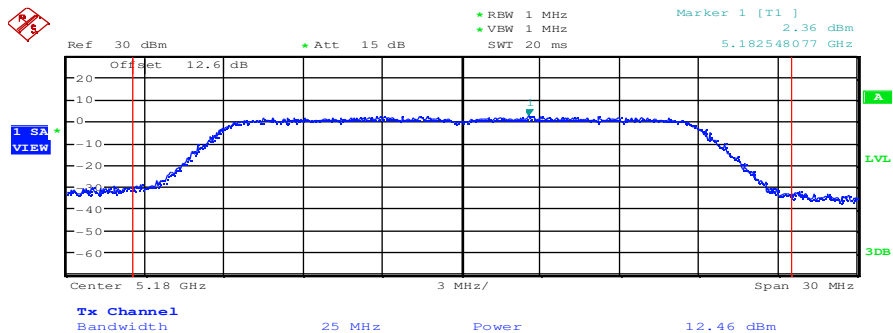


Date: 1.DEC.2010 14:18:20



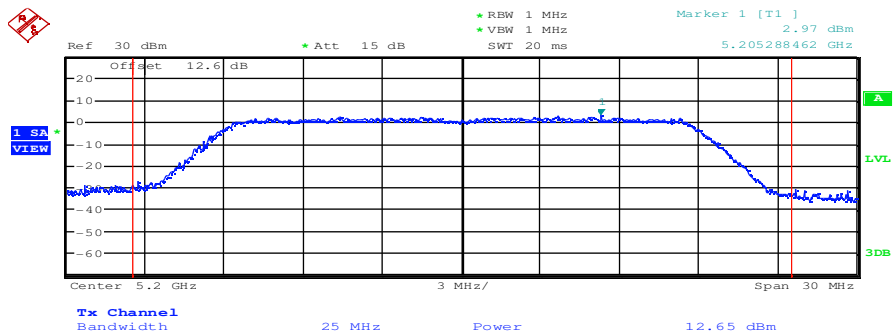
**OFDM – mode / n – mode:**

**Plot 1: OFDM – mode; lowest channel – 5180 MHz; power index 21; mcs 7**



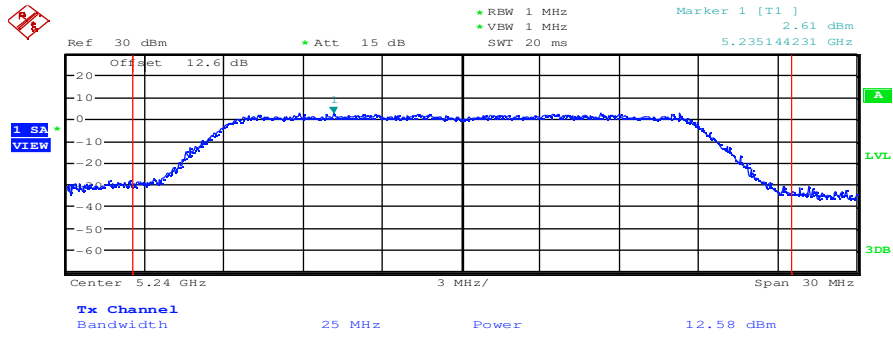
Date: 1.DEC.2010 14:39:39

**Plot 2: OFDM – mode; middle channel – 5200 MHz; power index 21; mcs 7**



Date: 1.DEC.2010 14:37:43

Plot 3: OFDM – mode; highest channel – 5240 MHz; power index 21; mcs 7

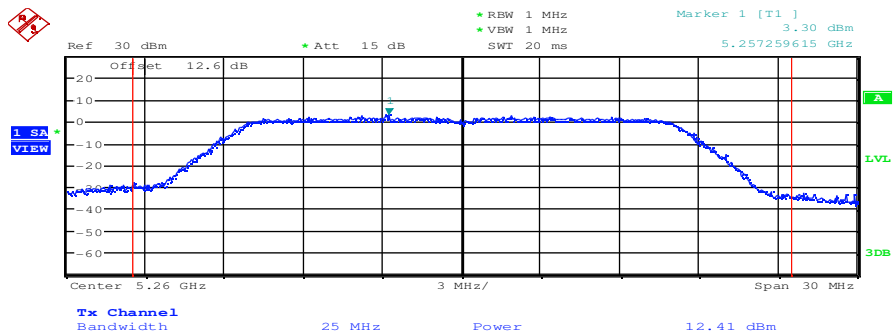


Date: 1.DEC.2010 14:41:28

**Band 2: 5250 MHz to 5350 MHz**

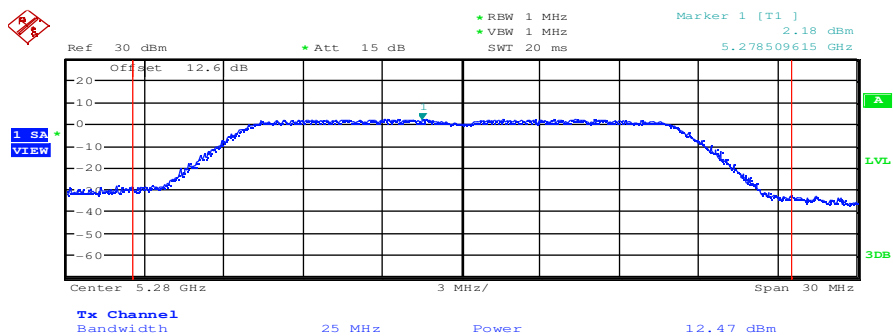
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; 54 MBit/s**



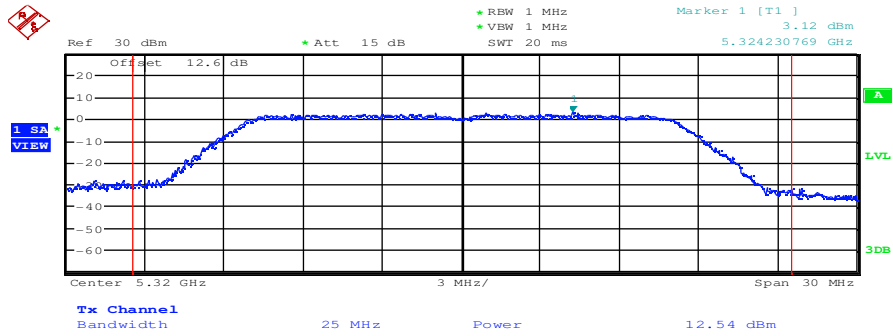
Date: 1.DEC.2010 15:01:49

**Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; 54 MBit/s**



Date: 1.DEC.2010 14:59:02

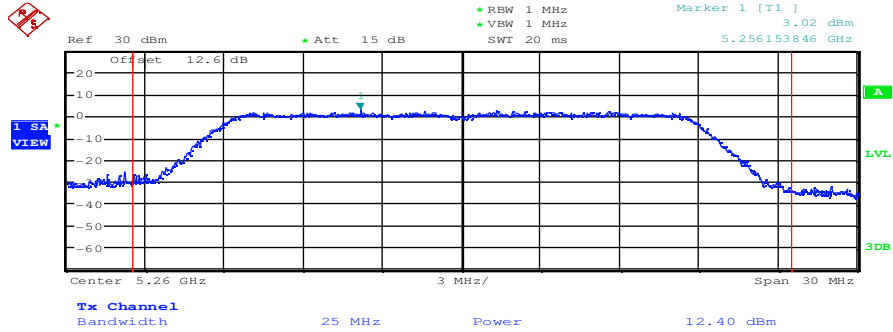
Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; 54 MBit/s



Date: 1.DEC.2010 15:04:08

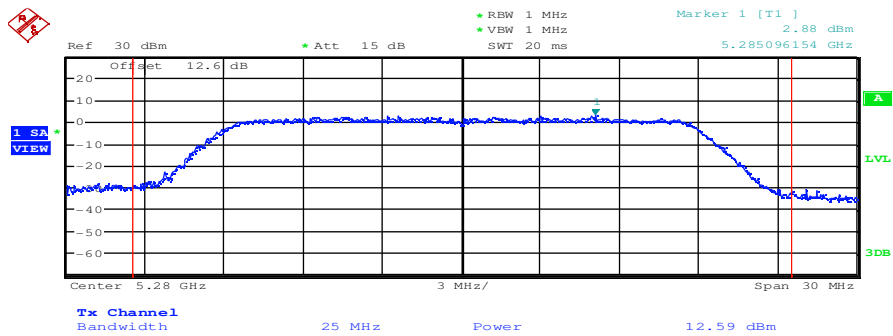
**OFDM – mode / n – mode:**

**Plot 1: OFDM – mode; lowest channel – 5260 MHz; power index 21; mcs 7**



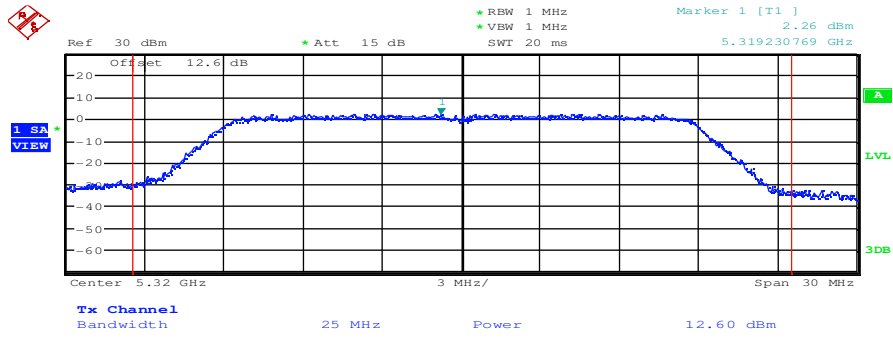
Date: 1.DEC.2010 15:21:13

**Plot 2: OFDM – mode; middle channel – 5280 MHz; power index 21; mcs 7**



Date: 1.DEC.2010 15:19:22

Plot 3: OFDM – mode; highest channel – 5320 MHz; power index 21; mcs 7

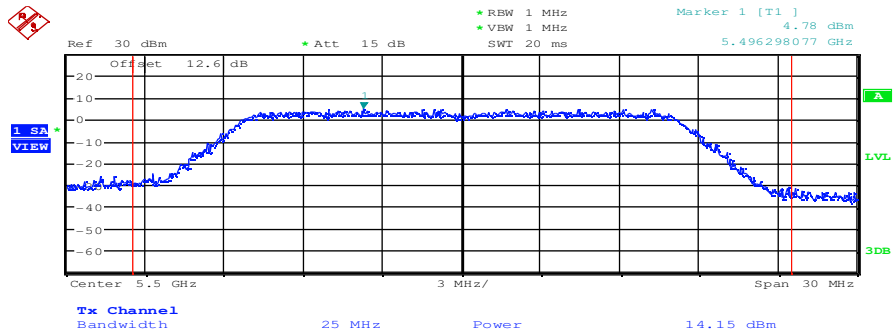


Date: 1.DEC.2010 15:23:15

**Band 2: 5470 MHz to 5725 MHz**

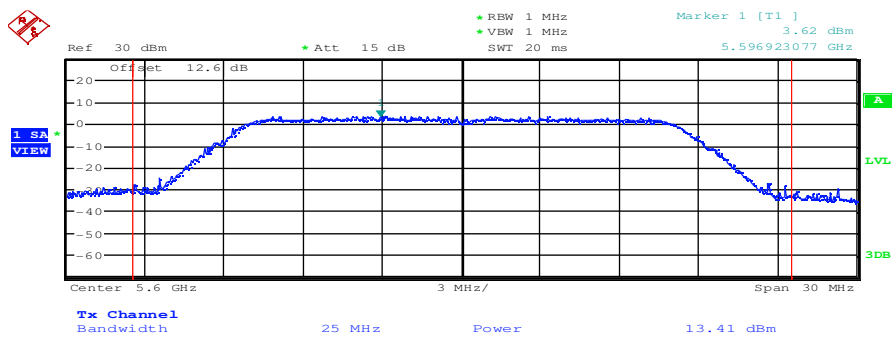
**OFDM – mode / a – mode:**

**Plot 1: OFDM – mode; lowest channel – 5500 MHz; power index 26; 54 MBit/s**



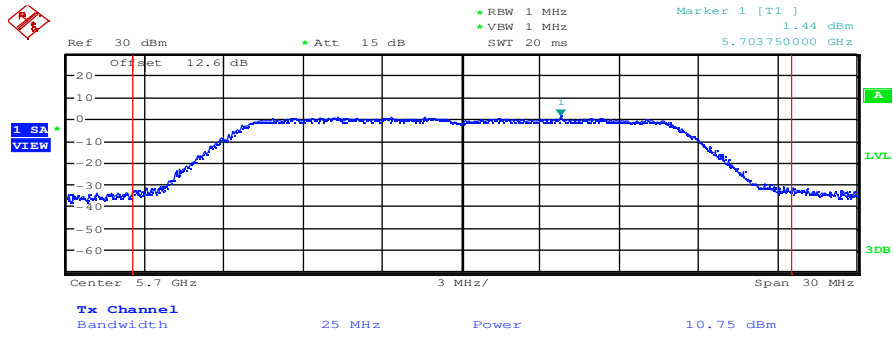
Date: 1.DEC.2010 15:46:51

**Plot 2: OFDM – mode; middle channel – 5600 MHz; power index 26; 54 MBit/s**



Date: 1.DEC.2010 15:43:31

Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; 54 MBit/s

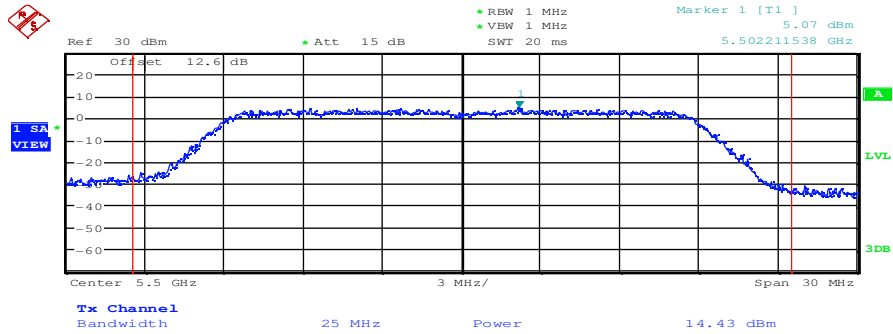


Date: 1.DEC.2010 15:49:46



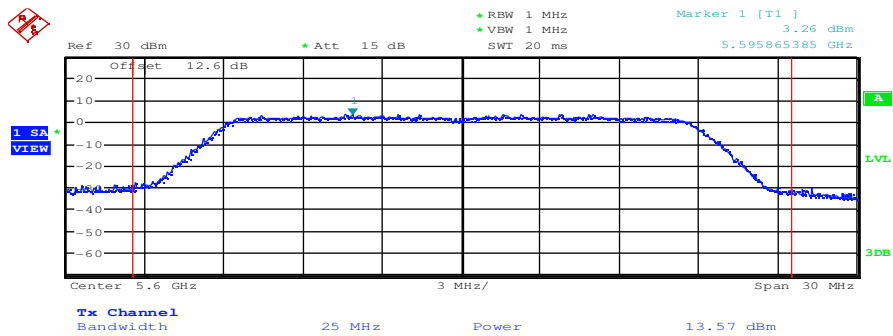
**OFDM – mode / n – mode:**

**Plot 1:** OFDM – mode; lowest channel – 5500 MHz; power index 26; mcs 7



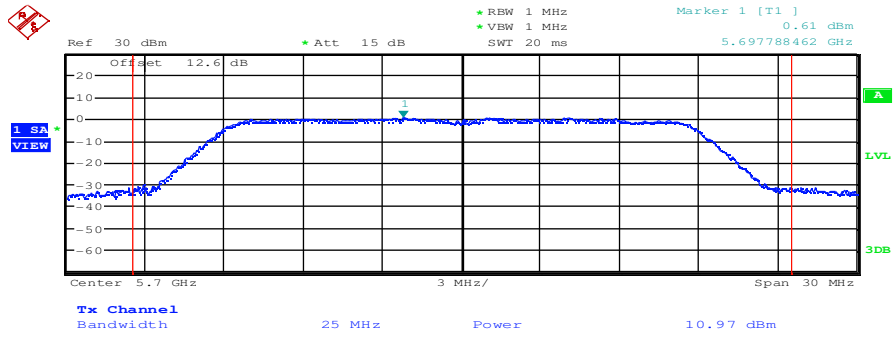
Date: 2.DEC.2010 07:24:13

**Plot 2:** OFDM – mode; middle channel – 5600 MHz; power index 26; mcs 7



Date: 2.DEC.2010 07:22:33

Plot 3: OFDM – mode; highest channel – 5700 MHz; power index 26; mcs 7



Date: 2.DEC.2010 07:30:34

## 9.7 Peak Power Spectral Density

### Description:

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

Measured according to the guidelines of the FCC IEEE+C63.10-2009 method #1:

### Measurement:

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Peak     |
| Sweep time:           | Auto     |
| Video bandwidth:      | 3 MHz    |
| Resolution bandwidth: | 1 MHz    |
| Span:                 | 30 MHz   |
| Trace-Mode:           | Max Hold |

### Limits:

| FCC  | IC                         |
|--|----------------------------|
| CFR Part 15.407  | RSS 210, Issue 8 / RSS GEN |
| Power Spectral Density   |                            |
| 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. |                            |

**Results:** band 1 – 5150 MHz to 5250 MHz

| Modulation<br>Frequency | Power Spectral density [dBm/MHz] |          |          |
|-------------------------|----------------------------------|----------|----------|
|                         | 5180 MHz                         | 5200 MHz | 5240 MHz |
| OFDM g – mode           | 0.51                             | 0.60     | 0.68     |
| OFDM n – mode           | 0.55                             | 0.69     | 0.60     |
| Measurement uncertainty | ± 0.5 dB                         |          |          |

**Results:** band 2 – 5250 MHz to 5350 MHz

| Modulation<br>Frequency | Power Spectral density [dBm/MHz] |          |          |
|-------------------------|----------------------------------|----------|----------|
|                         | 5260 MHz                         | 5280 MHz | 5320 MHz |
| OFDM g – mode           | 0.60                             | 0.50     | 0.49     |
| OFDM n – mode           | 0.63                             | 0.60     | 0.68     |
| Measurement uncertainty | ± 0.5 dB                         |          |          |

**Results:** band 3 – 5470 MHz to 5725 MHz

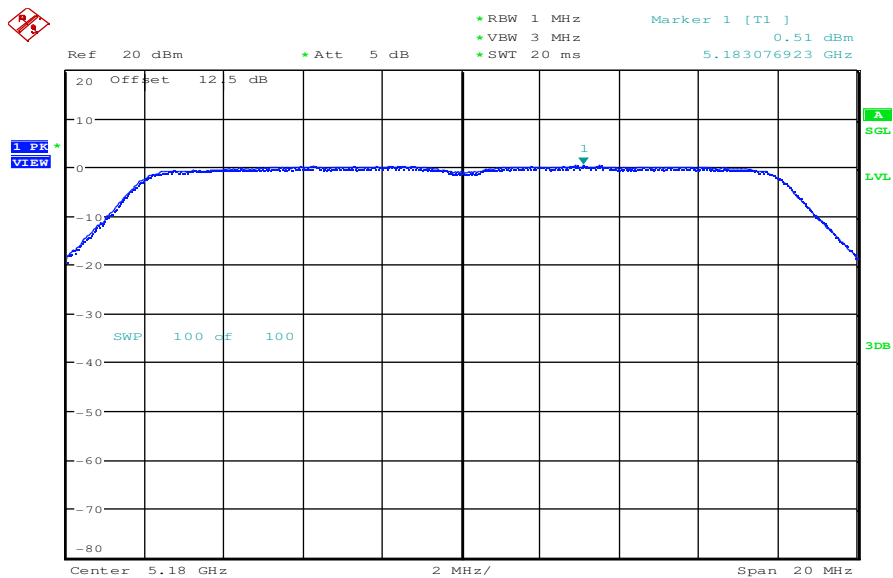
| Modulation<br>Frequency | Power Spectral density [dBm/MHz] |          |          |
|-------------------------|----------------------------------|----------|----------|
|                         | 5500 MHz                         | 5600 MHz | 5700 MHz |
| OFDM g – mode           | 2.95                             | 1.22     | -1.23    |
| OFDM n – mode           | 2.88                             | 1.26     | -1.23    |
| Measurement uncertainty | ± 0.5 dB                         |          |          |

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

**Plots:**

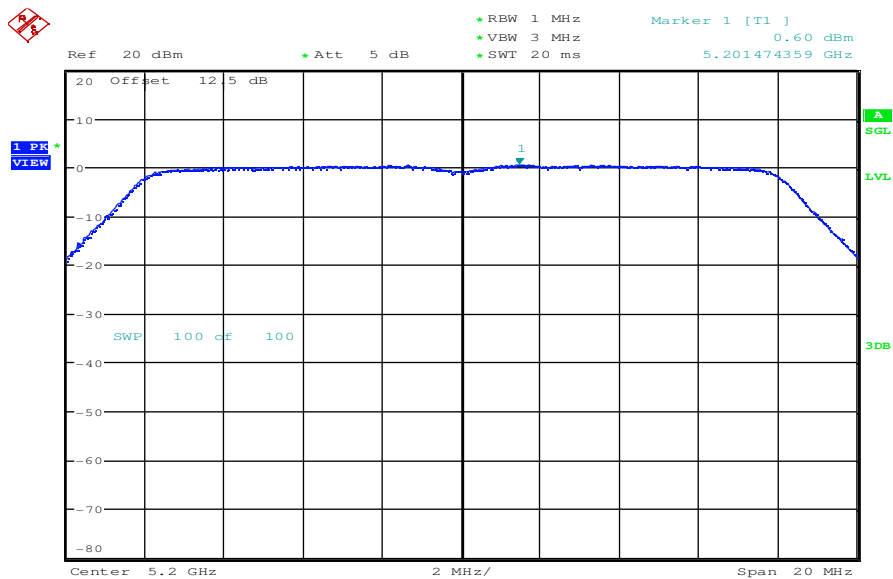
**WLAN a – mode:**

Plot 1: 5180 MHz; a – mode; 54 Mbit/s; power index 21



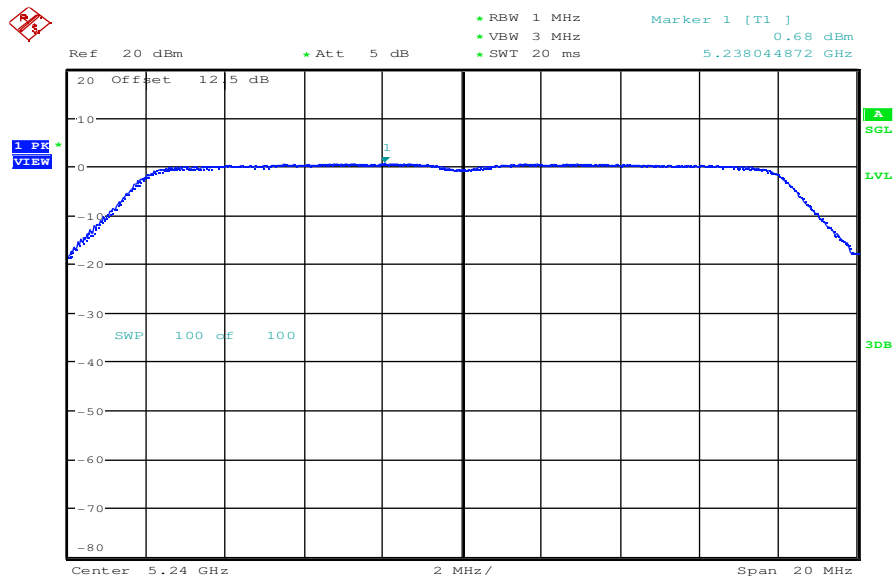
Date: 7.DEC.2010 14:13:46

Plot 2: 5200 MHz; a – mode; 54 Mbit/s; power index 21



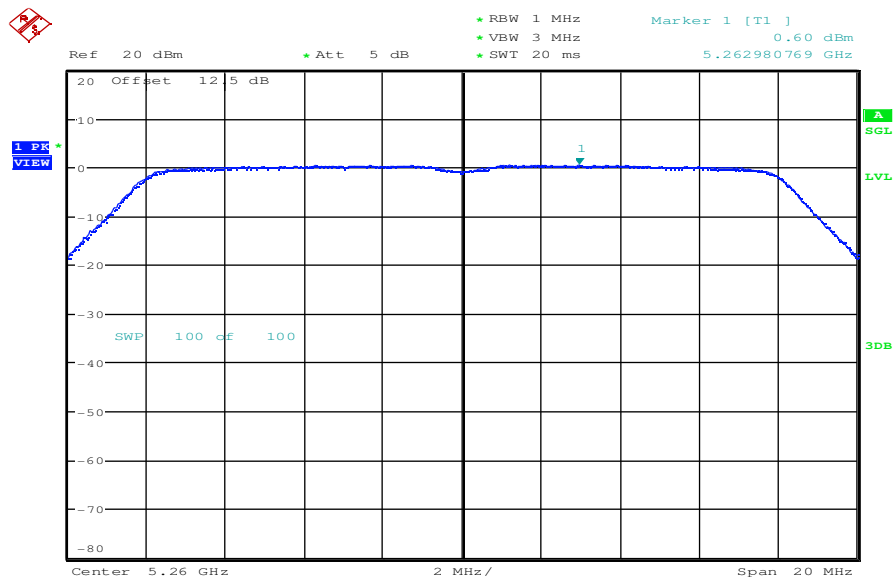
Date: 7.DEC.2010 14:14:46

Plot 3: 5240 MHz; a – mode; 54 Mbit/s; power index 21



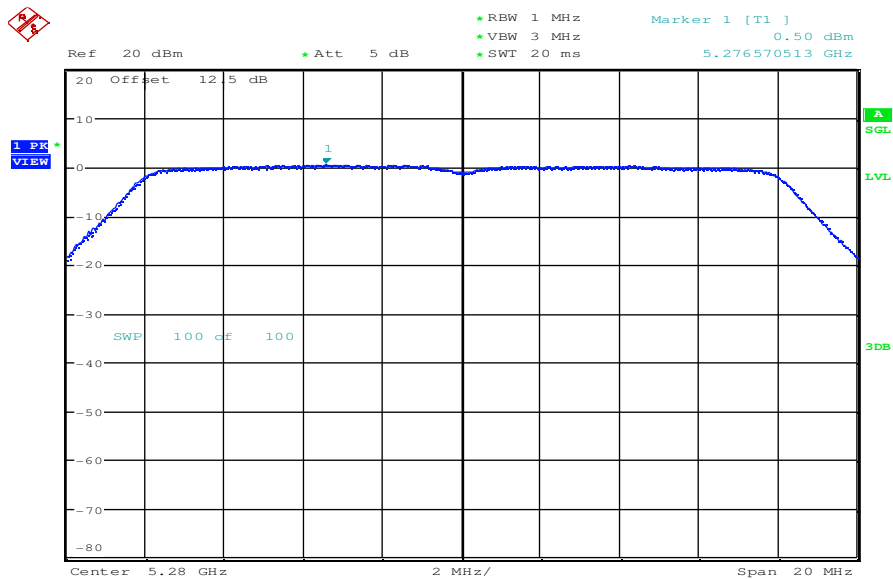
Date: 7.DEC.2010 14:15:26

Plot 4: 5260 MHz; a – mode; 54 Mbit/s; power index 21



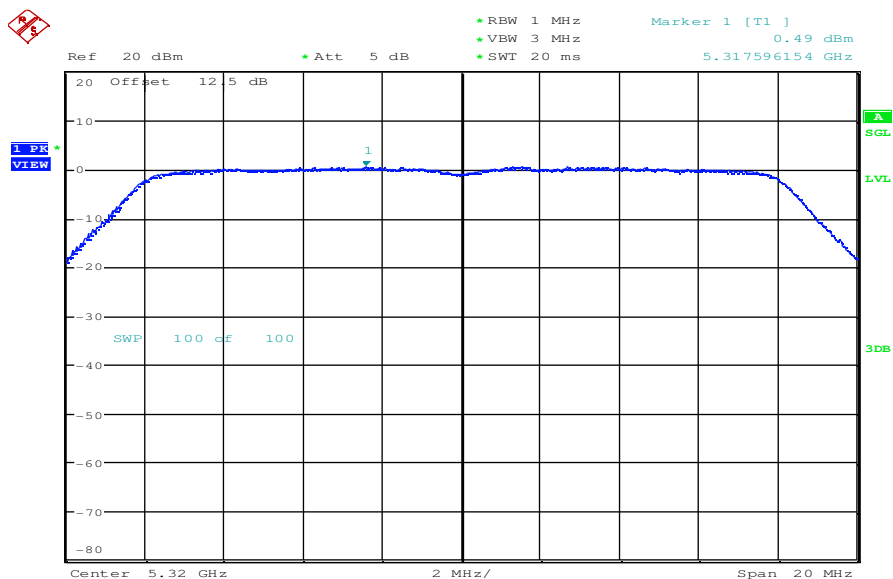
Date: 7.DEC.2010 14:16:05

Plot 5: 5280 MHz; a – mode; 54 Mbit/s; power index 21



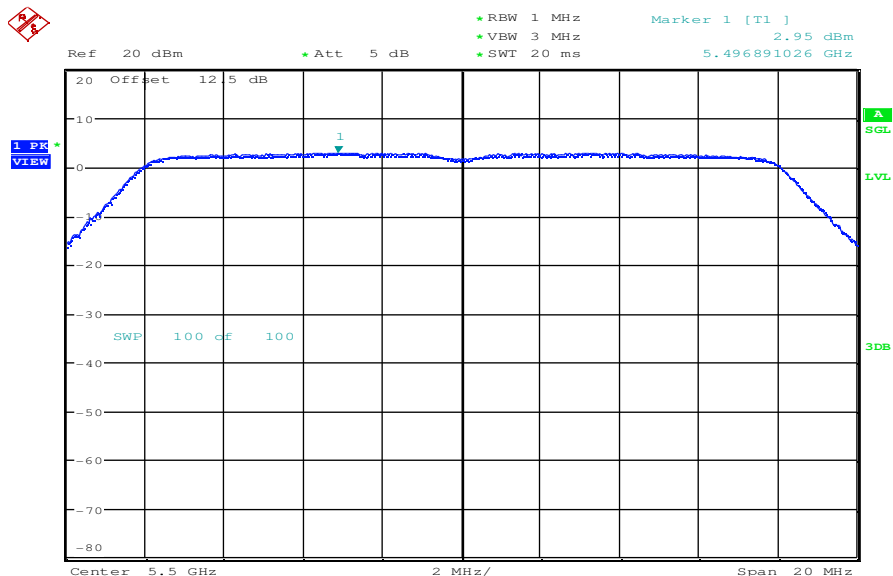
Date: 7.DEC.2010 14:16:48

Plot 6: 5320 MHz; a – mode; 54 Mbit/s; power index 21



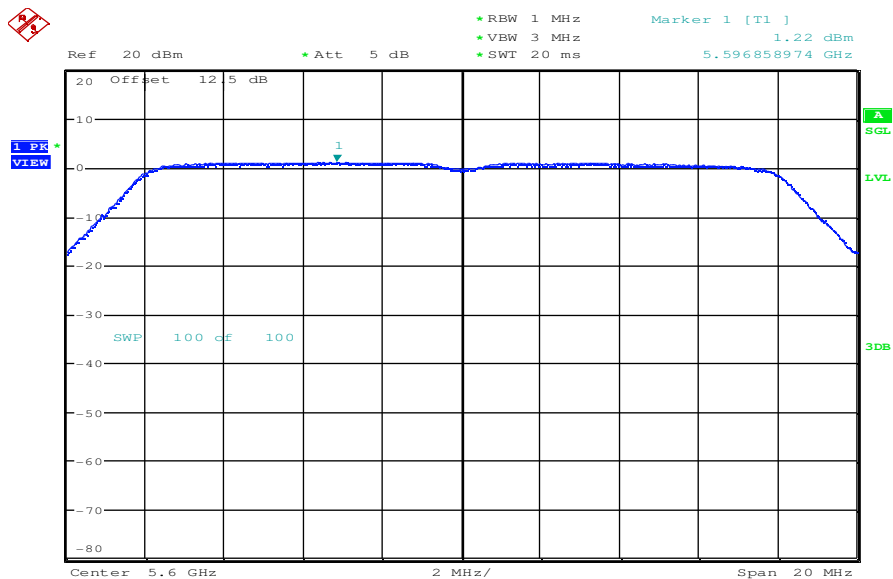
Date: 7.DEC.2010 14:18:19

Plot 7: 5500 MHz; a – mode; 54 Mbit/s; power index 26



Date: 7.DEC.2010 14:19:42

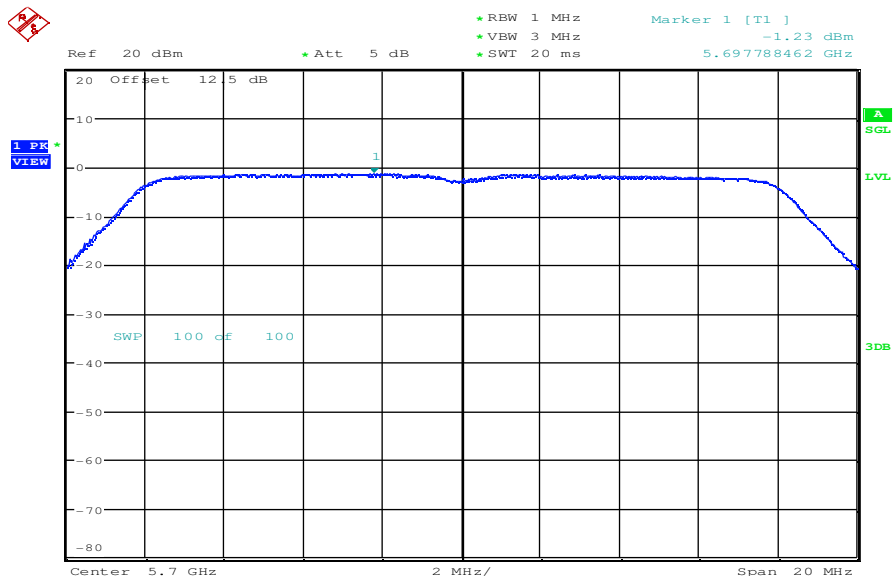
Plot 8: 5600 MHz; a – mode; 54 Mbit/s; power index 26



Date: 7.DEC.2010 14:20:21



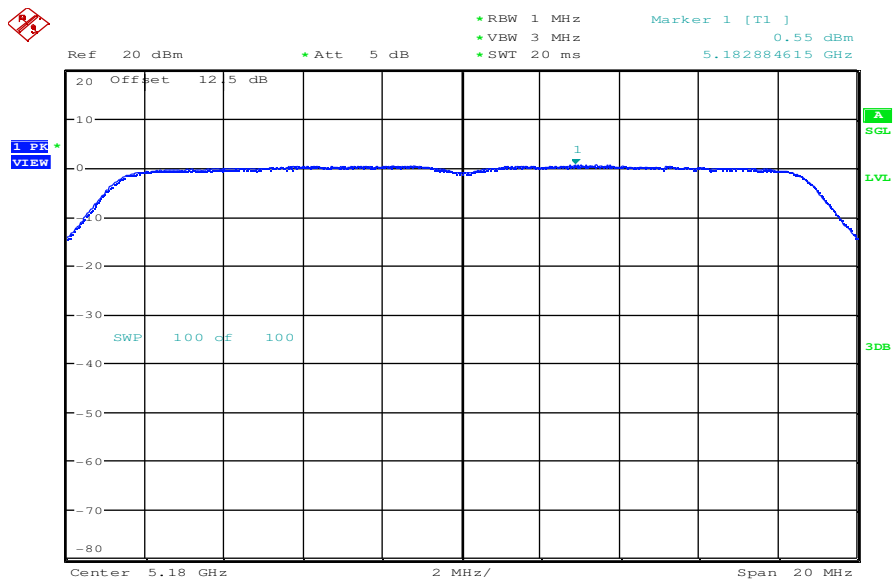
Plot 9: 5700 MHz; a – mode; 54 Mbit/s; power index 26



Date: 7.DEC.2010 14:20:58

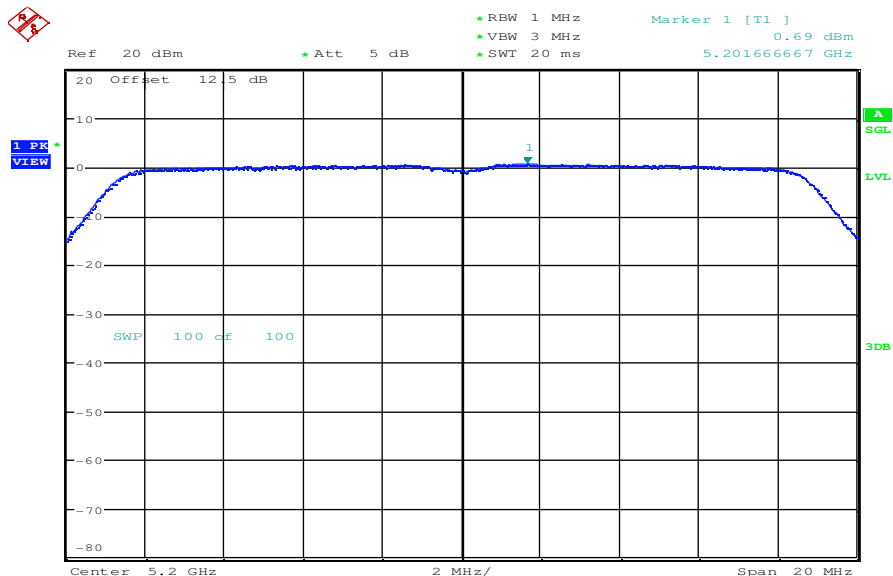
**WLAN n – mode:**

Plot 1: 5180 MHz; n – mode; mcs 7; power index 21



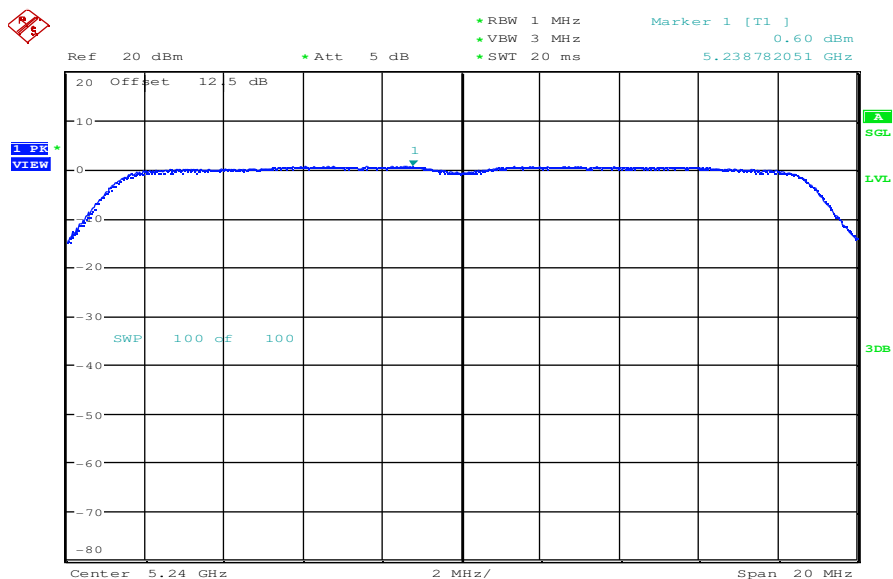
Date: 7.DEC.2010 14:50:47

Plot 2: 5200 MHz; n – mode; mcs 7; power index 21



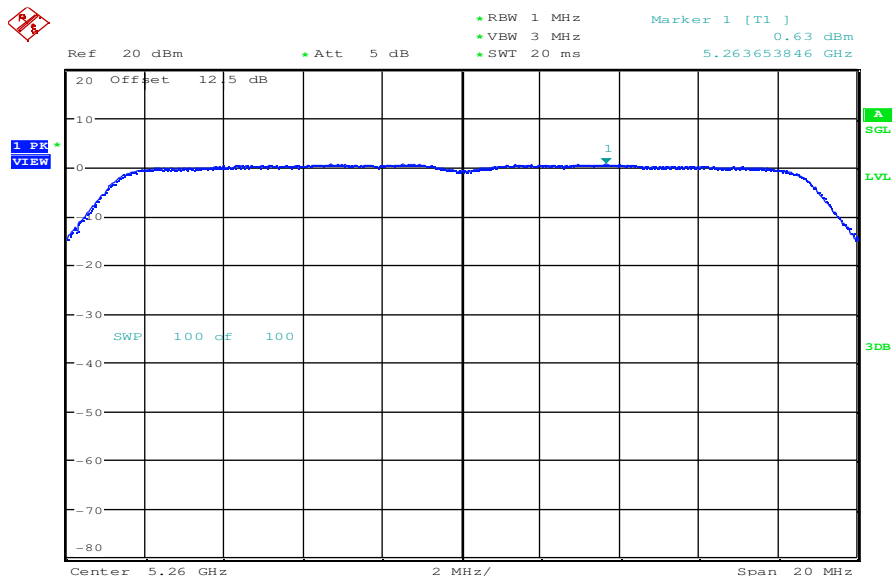
Date: 7.DEC.2010 14:51:30

Plot 3: 5240 MHz; n – mode; mcs 7; power index 21



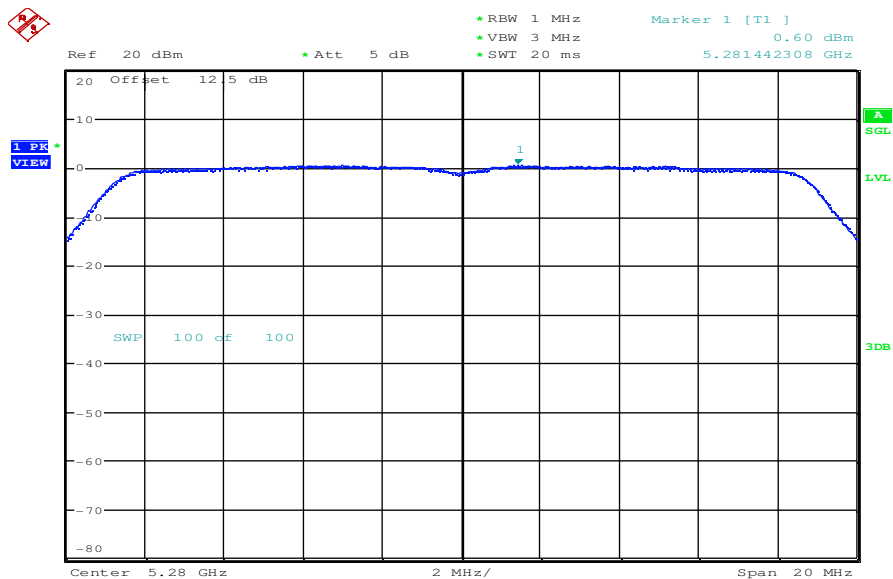
Date: 7.DEC.2010 14:52:09

Plot 4: 5260 MHz; n – mode; mcs 7; power index 21



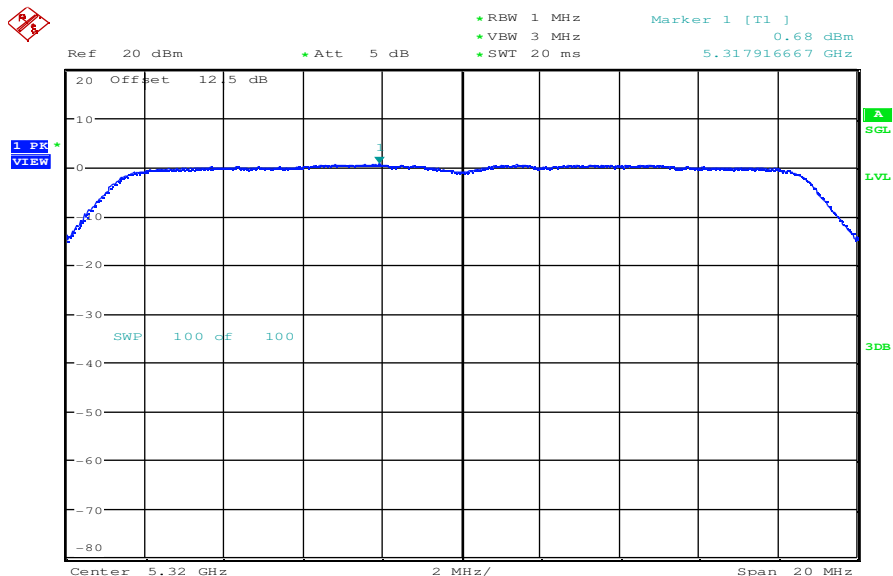
Date: 7.DEC.2010 14:52:44

Plot 5: 5280 MHz; n – mode; mcs 7; power index 21



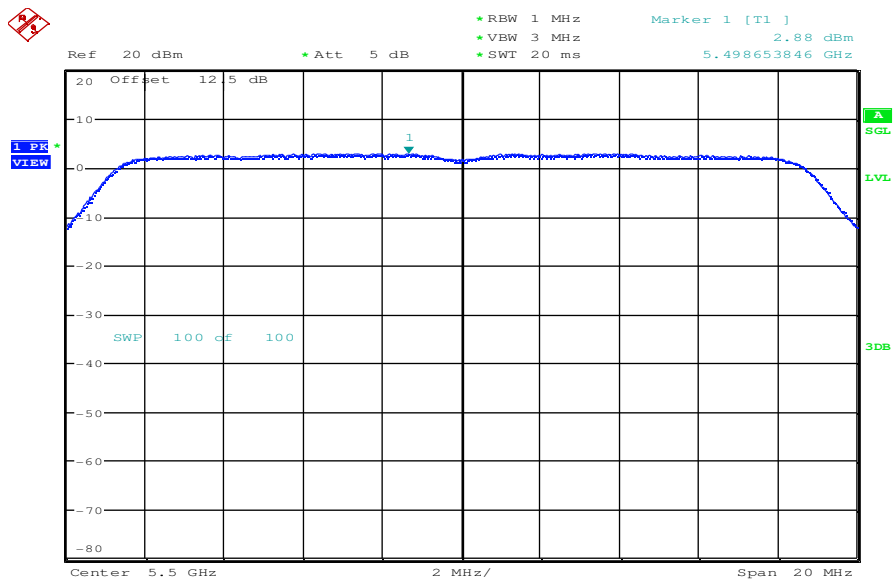
Date: 7.DEC.2010 14:53:34

Plot 6: 5320 MHz; n – mode; mcs 7; power index 21



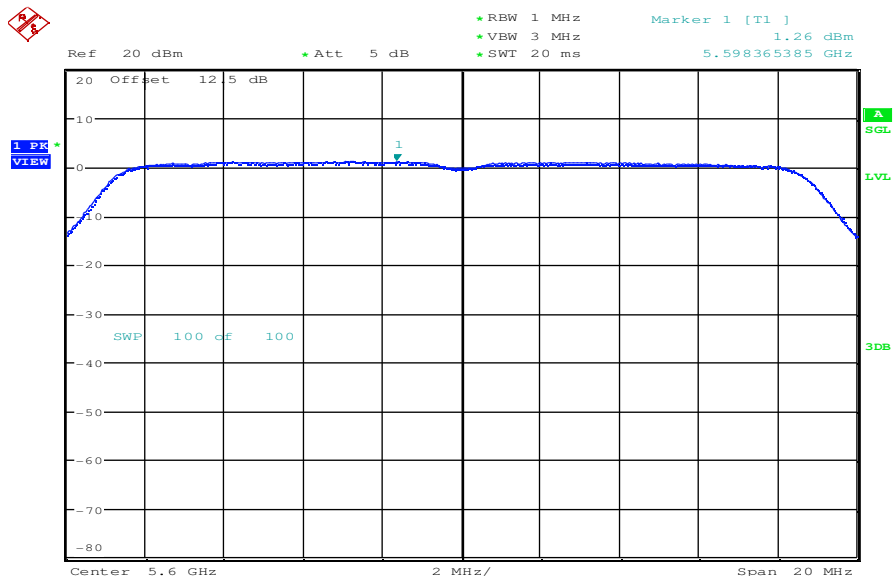
Date: 7.DEC.2010 14:54:12

Plot 7: 5500 MHz; n – mode; mcs 7; power index 26



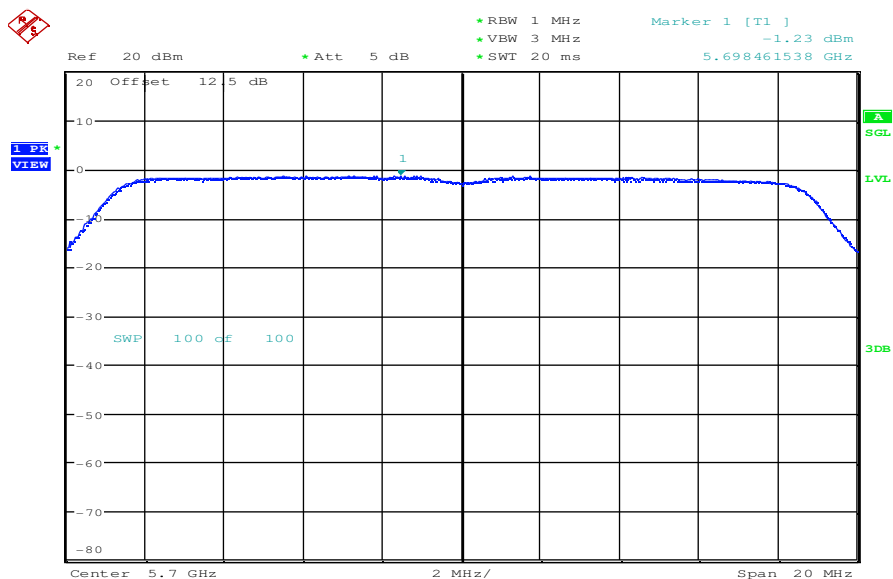
Date: 7.DEC.2010 14:54:50

Plot 8: 5600 MHz; n – mode; mcs 7; power index 26



Date: 7.DEC.2010 14:55:28

Plot 9: 5700 MHz; n – mode; mcs 7; power index 26



Date: 7.DEC.2010 14:56:07

## 9.8 Ratio of peak excursion

### Description:

Measurement performed according to the guideline of the FCC ANSI C63.10 - 2009 - 6.10.4 peak excursion measurement for U-NII devices.

### Measurement:

| Measurement parameter |  |
|-----------------------|--|
| Detector:             | Peak / Sample                                    |
| Sweep time:           | Auto   |
| Video bandwidth:      | 3 MHz  |
| Resolution bandwidth: | 1 MHz  |
| Span:                 | 30 MHz   |
| Trace-Mode:           | Trace 1: Max hold<br>Trace 2: Average 100 counts |

### Limits:

| FCC   | IC                         |
|---|----------------------------|
| CFR Part 15.407   | RSS 210, Issue 8 / RSS GEN |
| Ratio of peak excursion   |                            |
| 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. |                            |

**Results:** a – mode

| Frequency               | Ratio of peak excursion of the modulation envelope |           |               |
|-------------------------|--|-----------|---------------|
|                         | Limit  | Ratio(dB) | passed / fail |
| 5180 MHz                | < 13 dB  | 12.81     | passed        |
| 5200 MHz                | < 13 dB  | 12.84     | passed        |
| 5240 MHz                | < 13 dB  | 12.76     | passed        |
| 5260 MHz                | < 13 dB  | 12.77     | passed        |
| 5280 MHz                | < 13 dB  | 12.99     | passed        |
| 5320 MHz                | < 13 dB  | 12.77     | passed        |
| 5500 MHz                | < 13 dB  | 12.24     | passed        |
| 5600 MHz                | < 13 dB  | 11.78     | passed        |
| 5700 MHz                | < 13 dB  | 12.46     | passed        |
| Measurement uncertainty | ±2dB   |           |               |

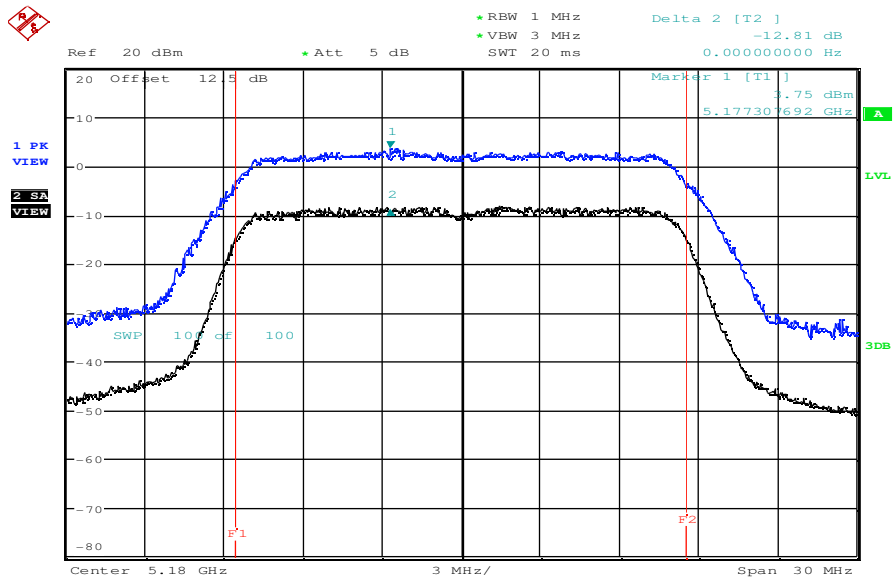
**Results:** n - mode

| Frequency               | Ratio of peak excursion of the modulation envelope |           |               |
|-------------------------|--|-----------|---------------|
|                         | Limit  | Ratio(dB) | passed / fail |
| 5180 MHz                | < 13 dB  | 12.50     | passed        |
| 5200 MHz                | < 13 dB  | 12.88     | passed        |
| 5240 MHz                | < 13 dB  | 12.32     | passed        |
| 5260 MHz                | < 13 dB  | 12.79     | passed        |
| 5280 MHz                | < 13 dB  | 12.68     | passed        |
| 5320 MHz                | < 13 dB  | 12.40     | passed        |
| 5500 MHz                | < 13 dB  | 12.48     | passed        |
| 5600 MHz                | < 13 dB  | 12.73     | passed        |
| 5700 MHz                | < 13 dB  | 12.74     | passed        |
| Measurement uncertainty | ±2dB   |           |               |

**Plots:**

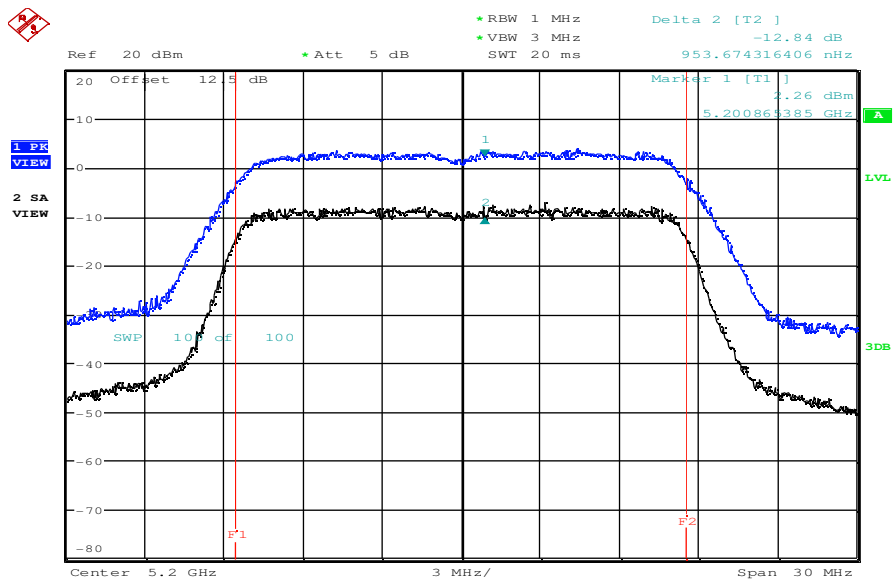
**WLAN a – mode:**

Plot 1: 5180 MHz; a – mode; 54 Mbit/s; power index 21



Date: 8.DEC.2010 10:32:36

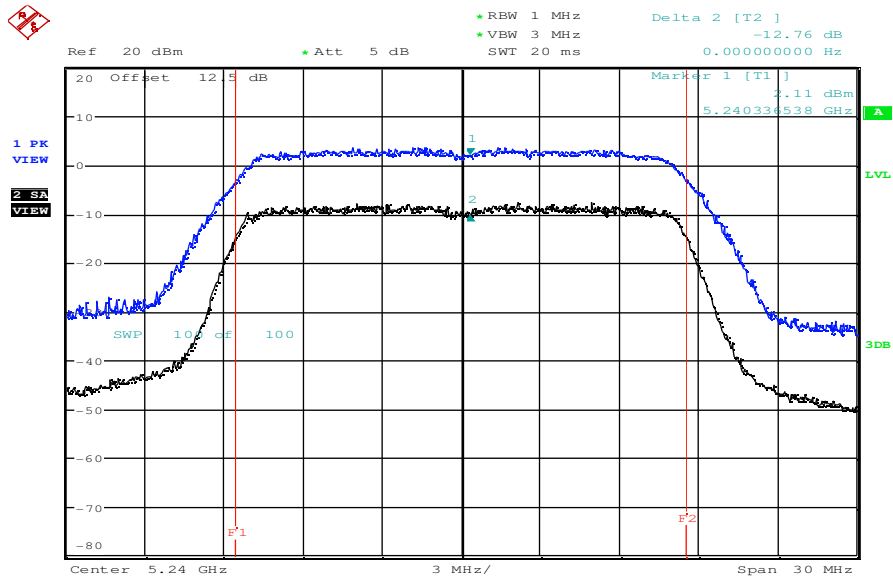
Plot 2: 5200 MHz; a – mode; 54 Mbit/s; power index 21



Date: 8.DEC.2010 10:48:34

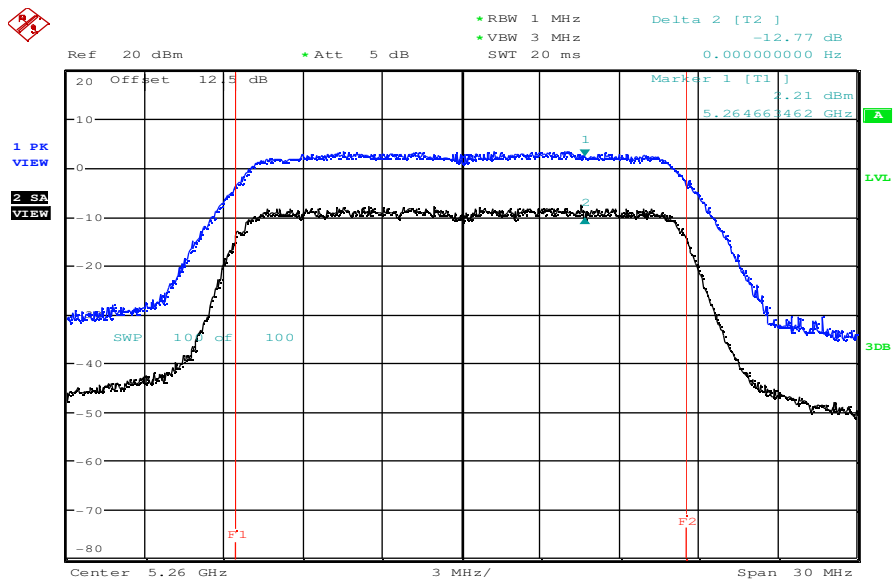


Plot 3: 5240 MHz; a – mode; 54 Mbit/s; power index 21



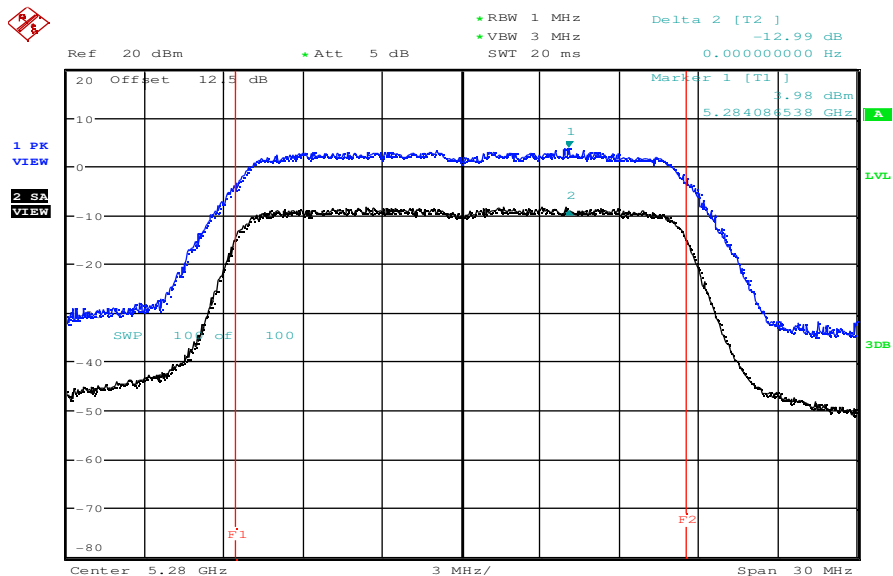
Date: 8.DEC.2010 10:51:32

Plot 4: 5260 MHz; a – mode; 54 Mbit/s; power index 21



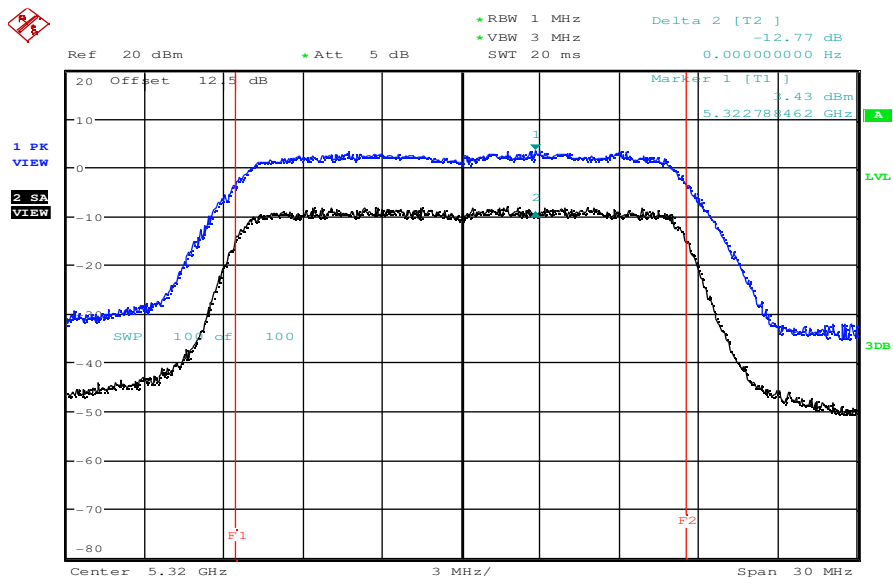
Date: 8.DEC.2010 10:53:03

Plot 5: 5280 MHz; a – mode; 54 Mbit/s; power index 21



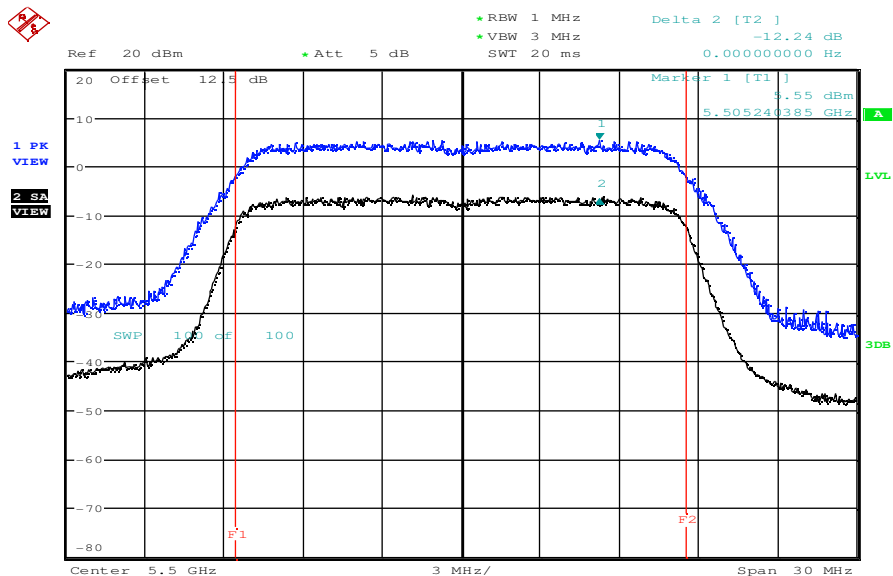
Date: 8.DEC.2010 10:55:45

Plot 6: 5320 MHz; a – mode; 54 Mbit/s; power index 21



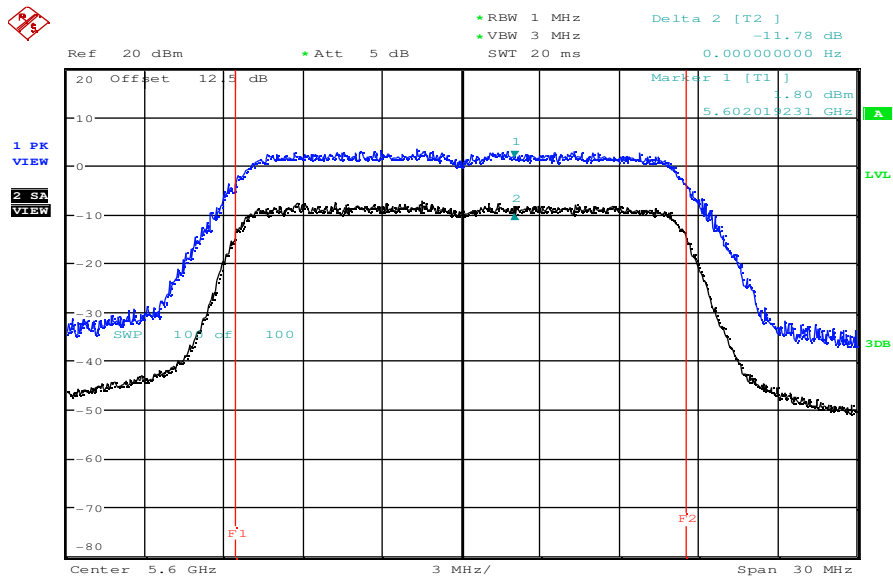
Date: 8.DEC.2010 10:57:41

Plot 7: 5500 MHz; a – mode; 54 Mbit/s; power index 26



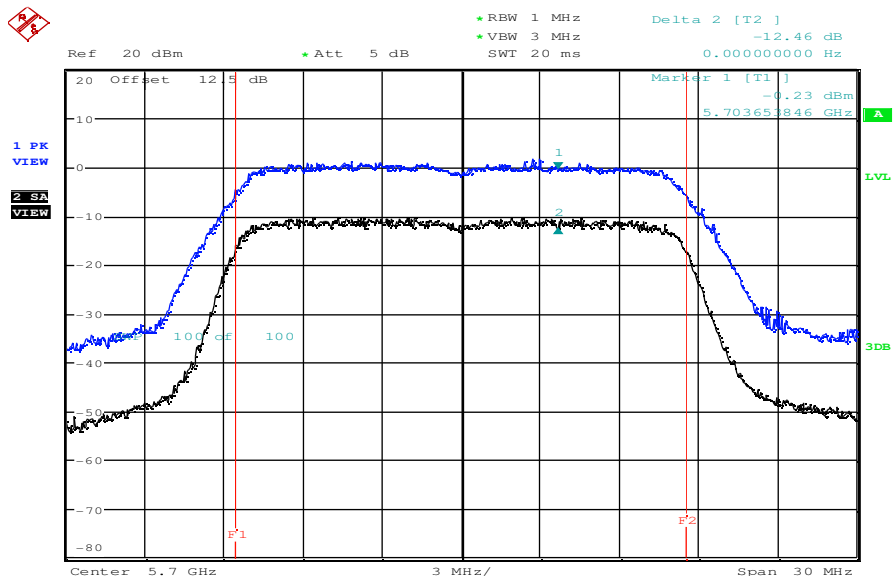
Date: 8.DEC.2010 10:59:45

Plot 8: 5600 MHz; a – mode; 54 Mbit/s; power index 26



Date: 8.DEC.2010 11:01:31

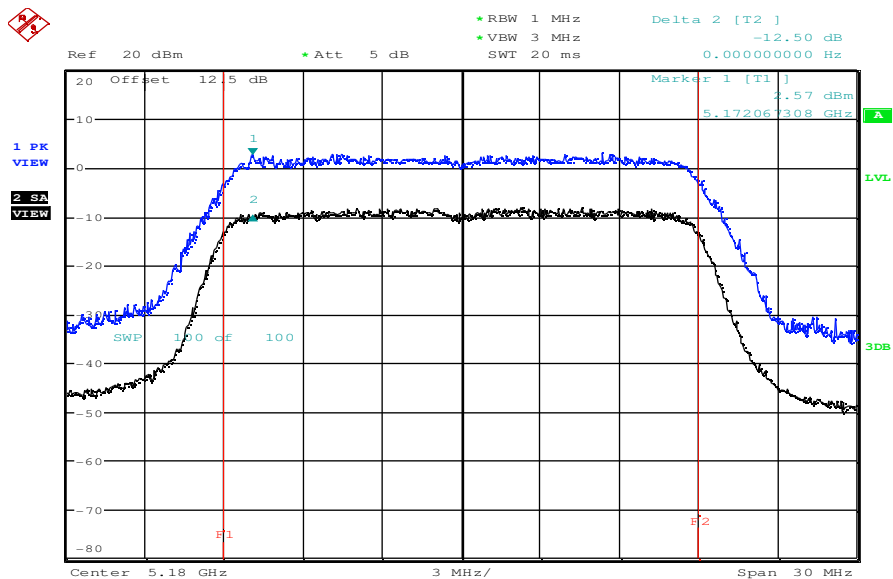
Plot 9: 5700 MHz; a – mode; 54 Mbit/s; power index 26



Date: 8.DEC.2010 11:03:09

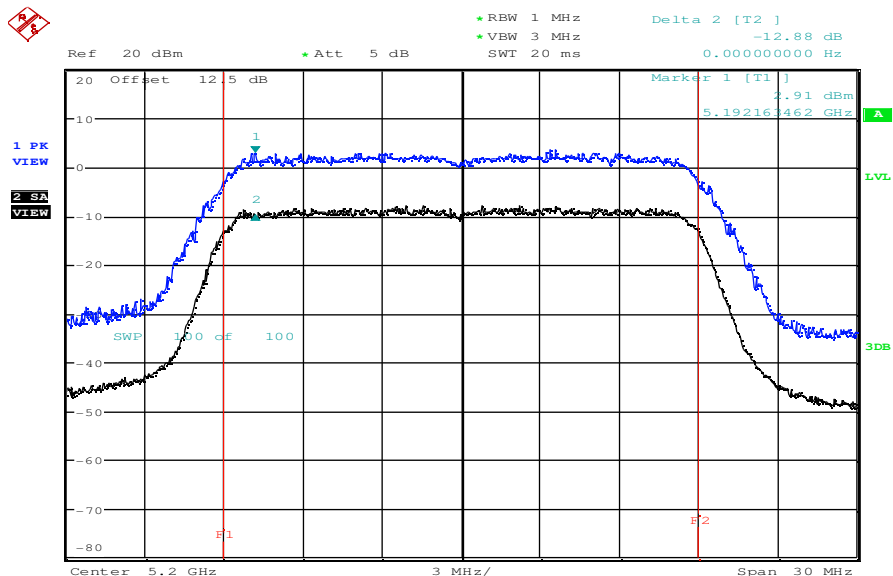
**WLAN n – mode:**

Plot 1: 5180 MHz; n – mode; mcs 7; power index 21



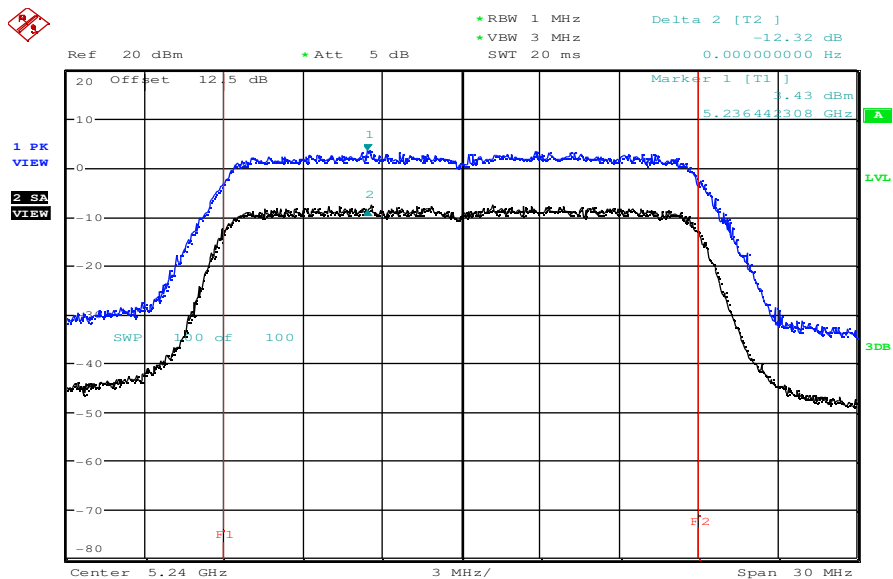
Date: 8.DEC.2010 11:06:10

Plot 2: 5200 MHz; n – mode; mcs 7; power index 21



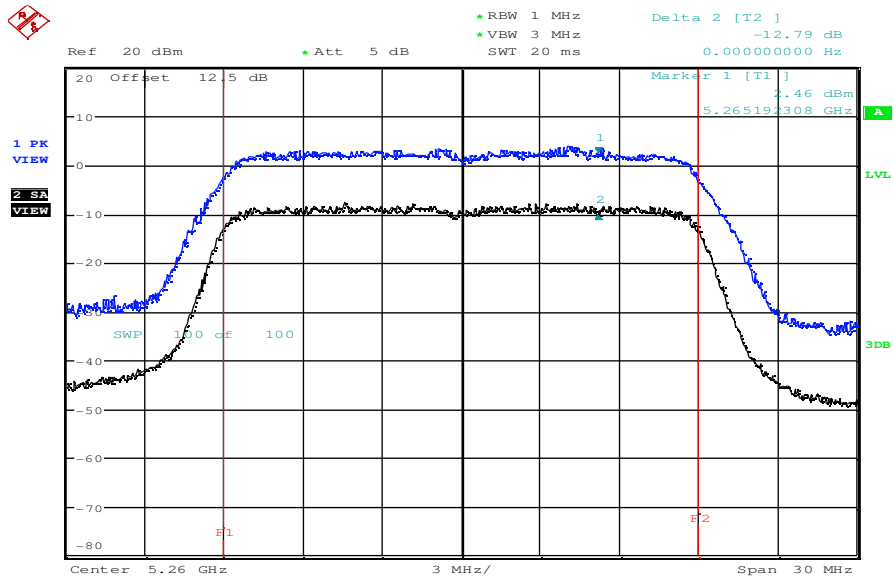
Date: 8.DEC.2010 11:07:59

Plot 3: 5240 MHz; n – mode; mcs 7; power index 21



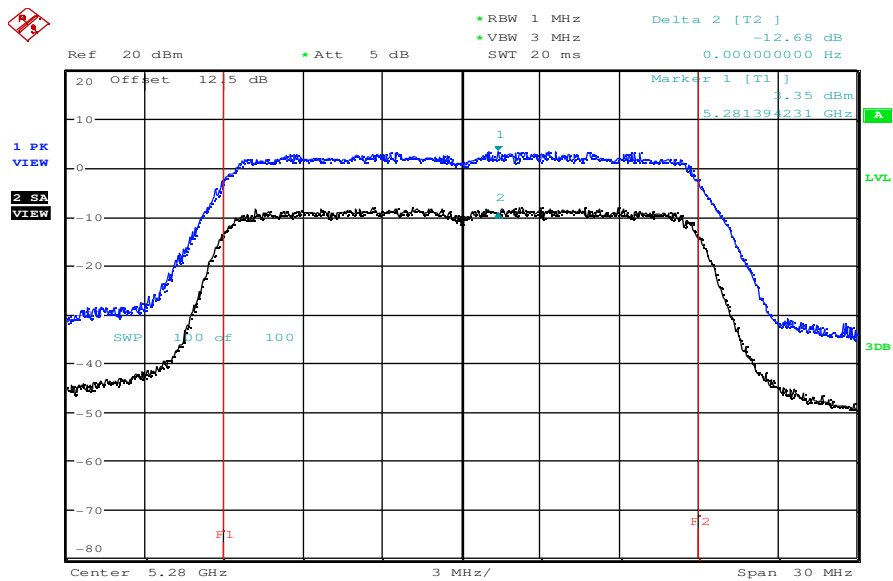
Date: 8.DEC.2010 11:14:49

Plot 4: 5260 MHz; n – mode; mcs 7; power index 21



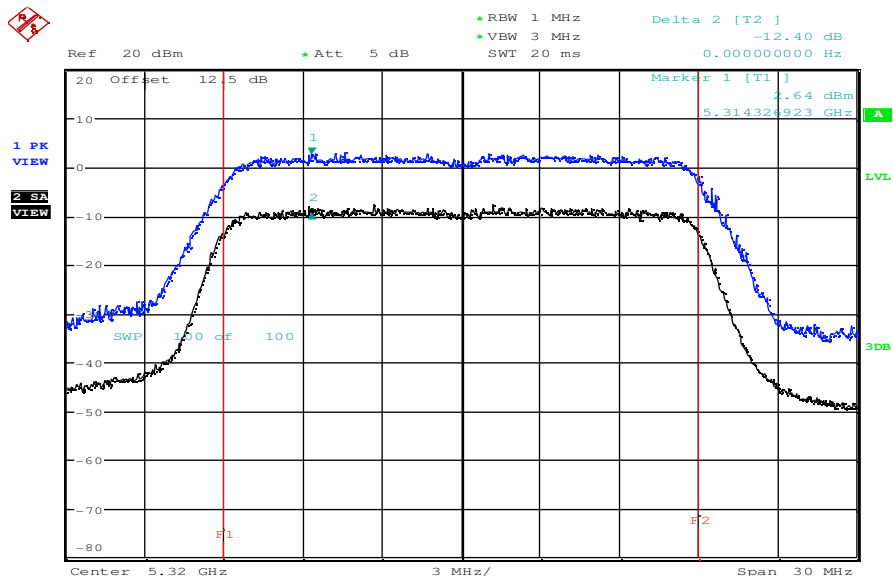
Date: 8.DEC.2010 11:16:48

Plot 5: 5280 MHz; n – mode; mcs 7; power index 21



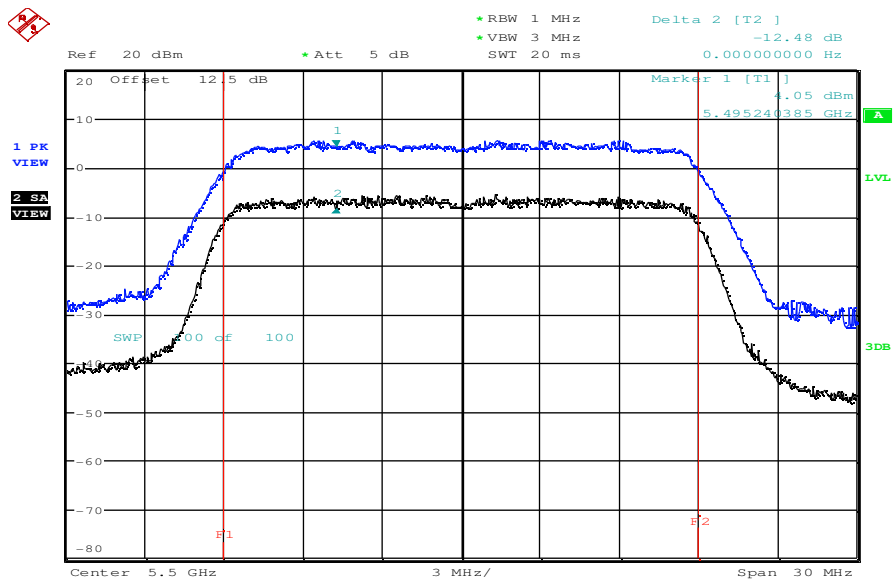
Date: 8.DEC.2010 11:18:01

Plot 6: 5320 MHz; n – mode; mcs 7; power index 21



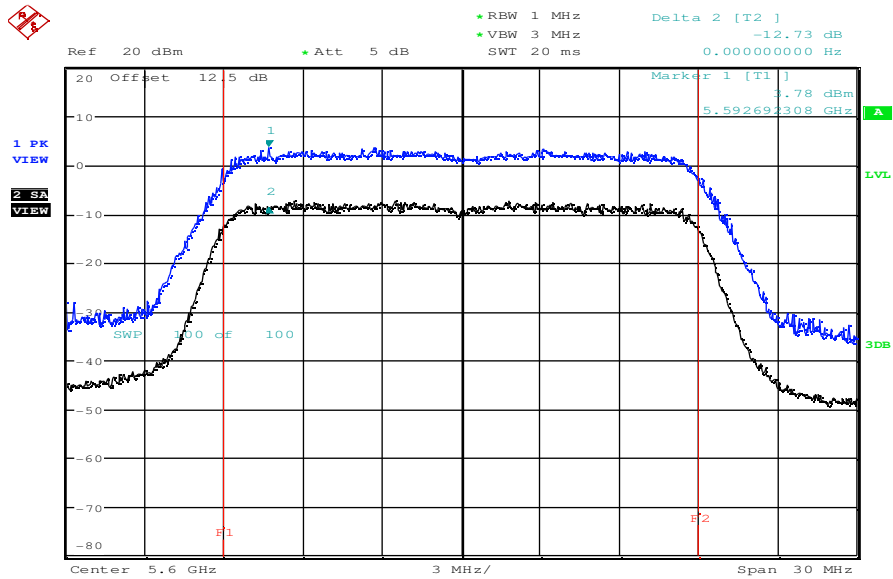
Date: 8.DEC.2010 11:20:09

Plot 7: 5500 MHz; n – mode; mcs 7; power index 26



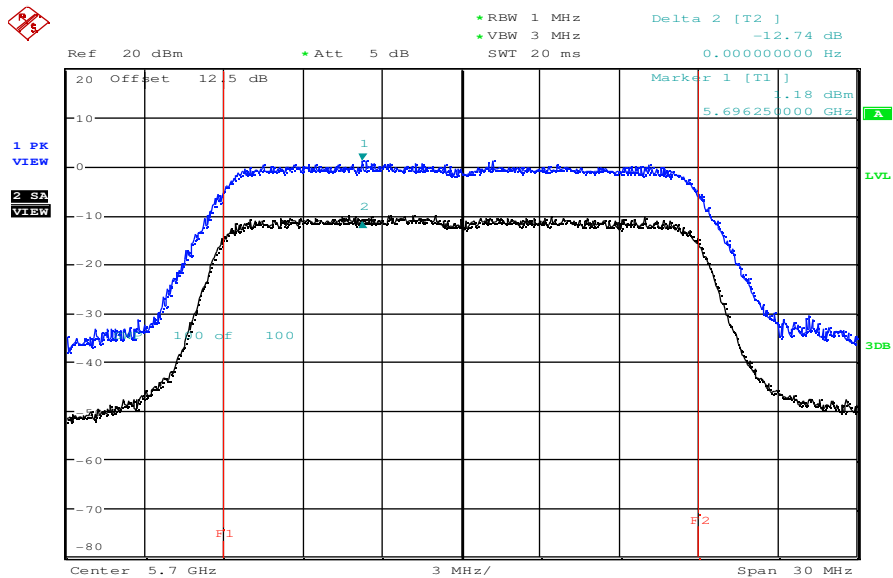
Date: 8.DEC.2010 11:21:35

Plot 8: 5600 MHz; n – mode; mcs 7; power index 26



Date: 8.DEC.2010 11:27:47

Plot 9: 5700 MHz; n – mode; mcs 7; power index 26



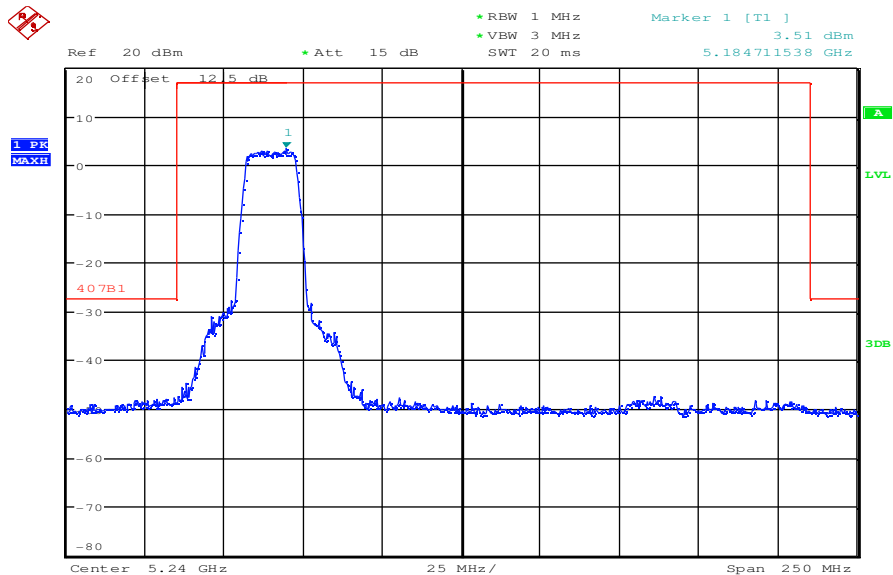
Date: 8.DEC.2010 11:29:00



## 9.9 Undesirable emission limits at band edges

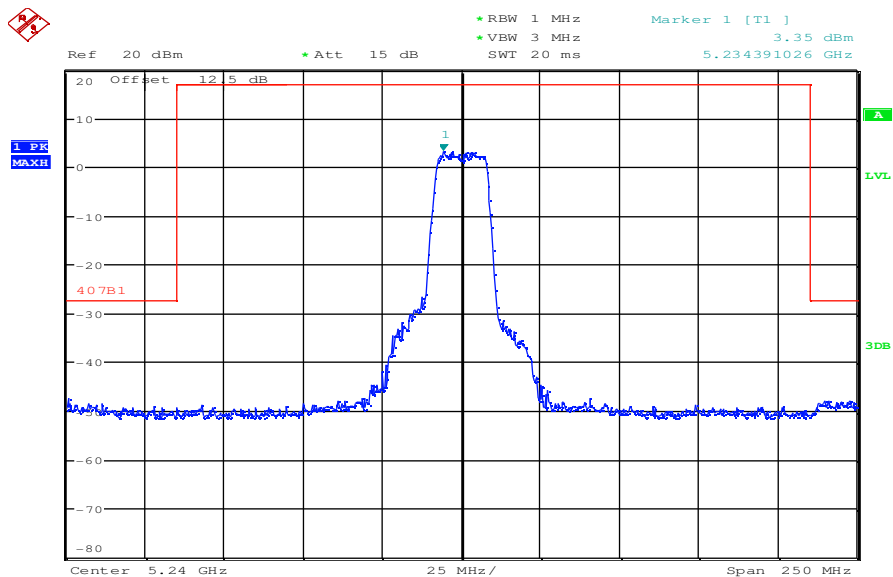
### WLAN a – mode:

Plot 1: 5180 MHz; power index 21, a – mode



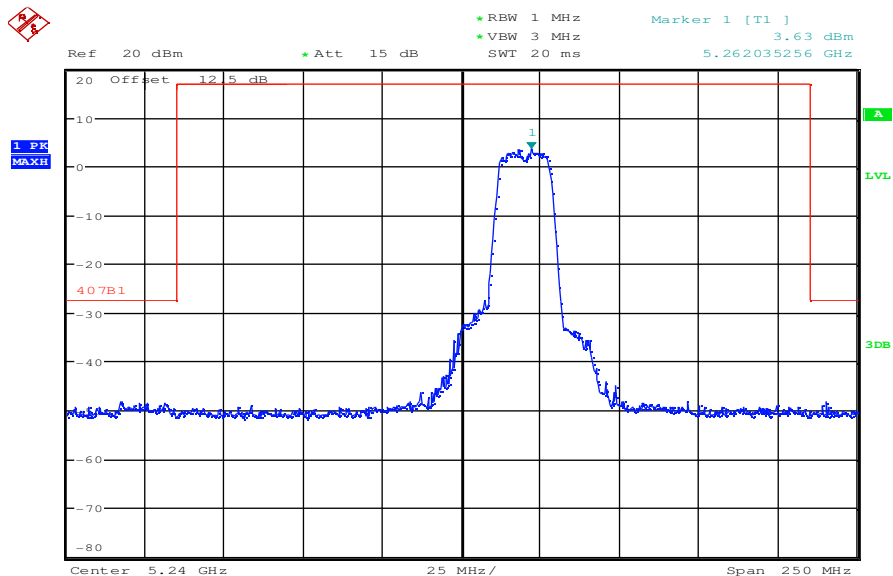
Date: 8.DEC.2010 11:47:21

Plot 2: 5240 MHz; power index 21, a – mode



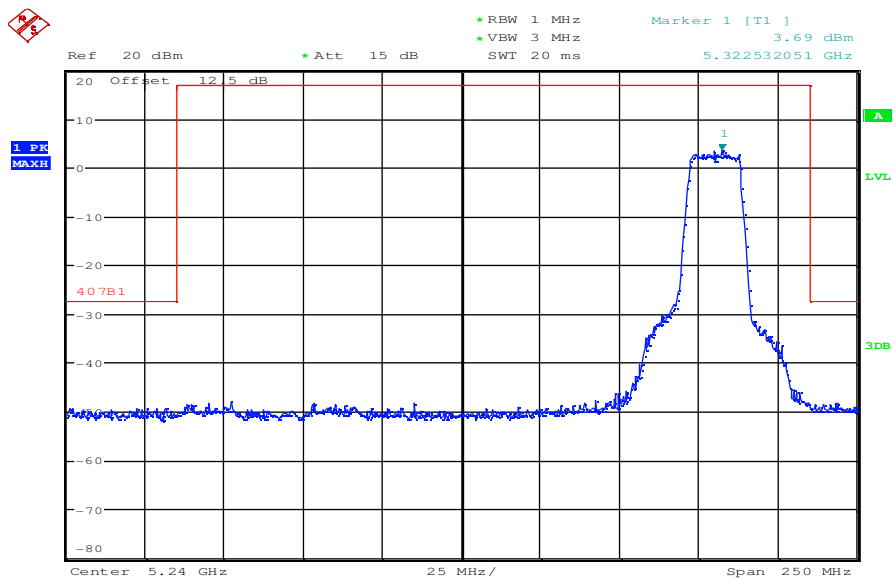
Date: 8.DEC.2010 11:48:16

Plot 3: 5260 MHz; power index 21, a – mode



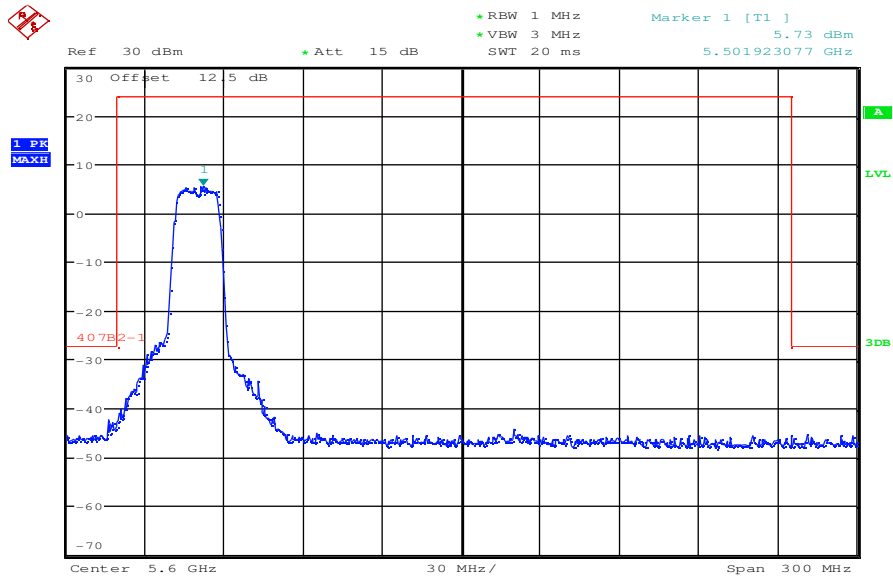
Date: 8.DEC.2010 11:49:02

Plot 4: 5320 MHz; power index 21, a – mode



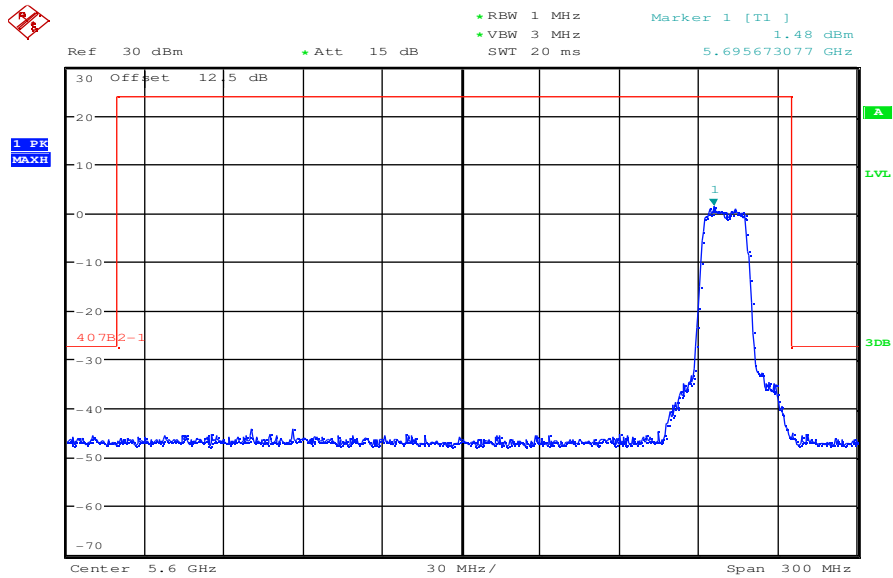
Date: 8.DEC.2010 11:49:52

Plot 5: 5500 MHz; power index 26, a – mode



Date: 8.DEC.2010 11:52:02

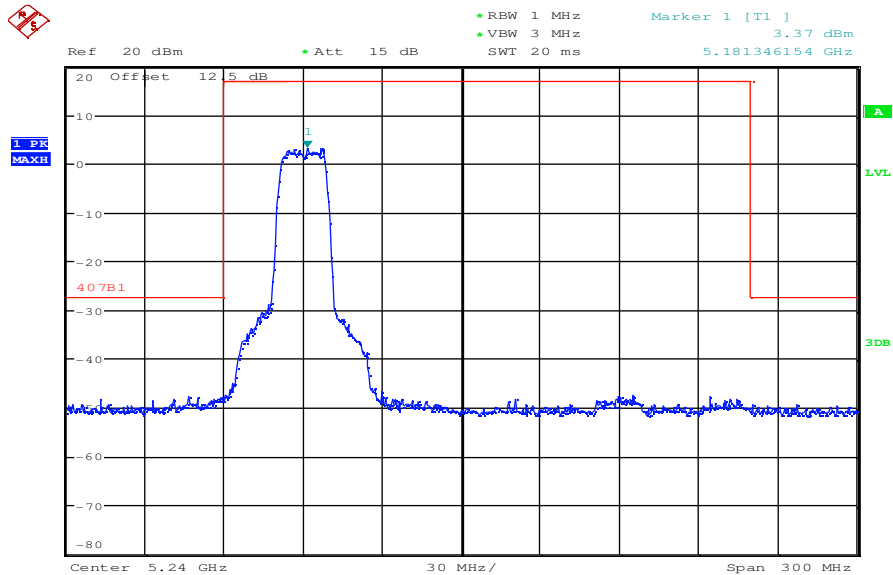
Plot 6: 5700 MHz; power index 26, a – mode



Date: 8.DEC.2010 11:53:02

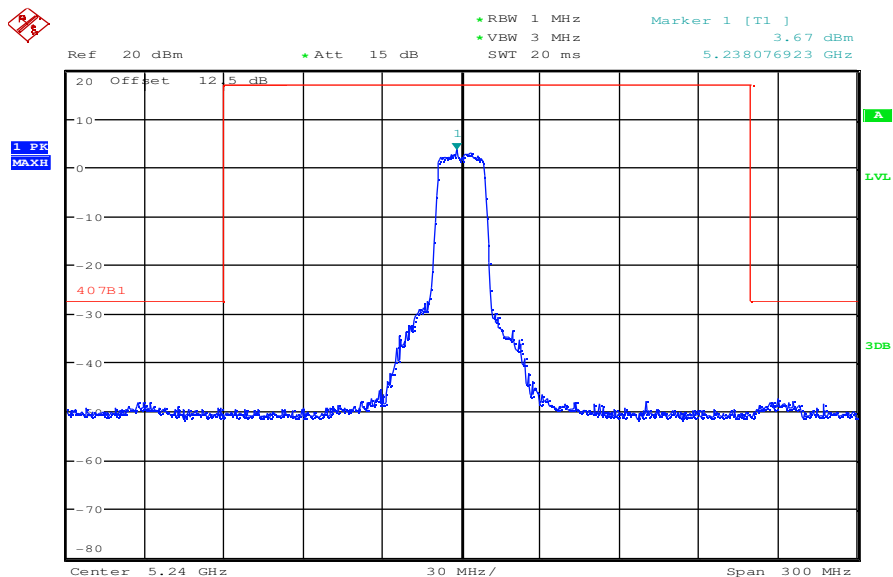
**WLAN n – mode:**

**Plot 1: 5180 MHz; power index 21, n – mode**



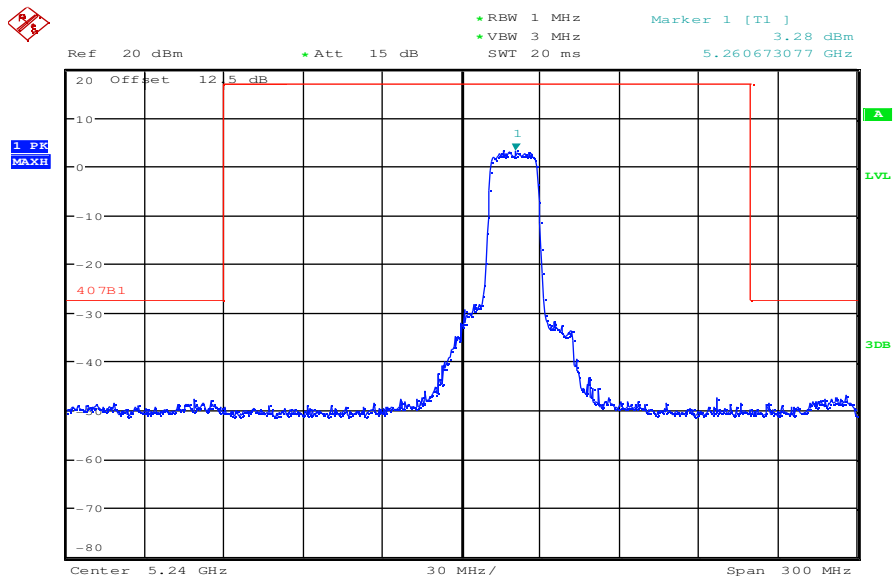
Date: 8.DEC.2010 11:56:17

**Plot 2: 5240 MHz; power index 21, n – mode**



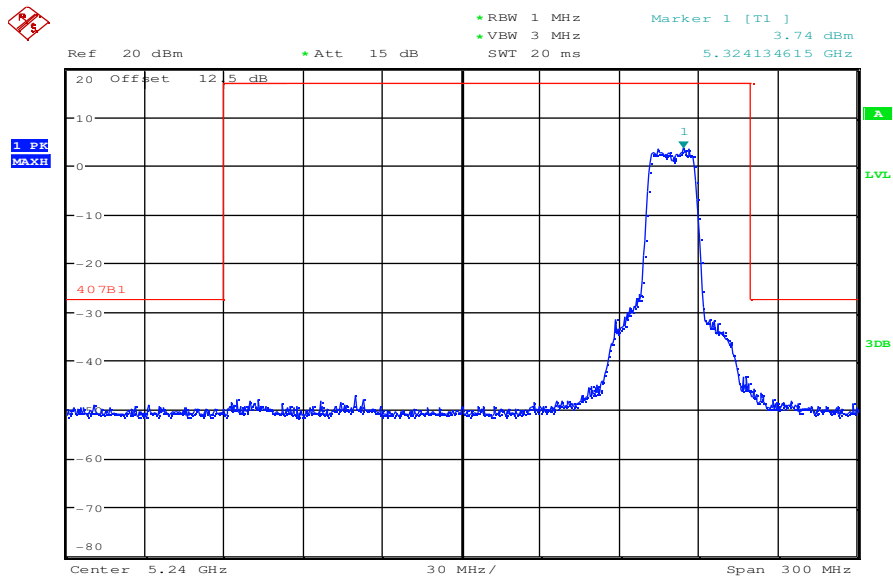
Date: 8.DEC.2010 11:56:58

Plot 3: 5260 MHz; power index 21, n – mode



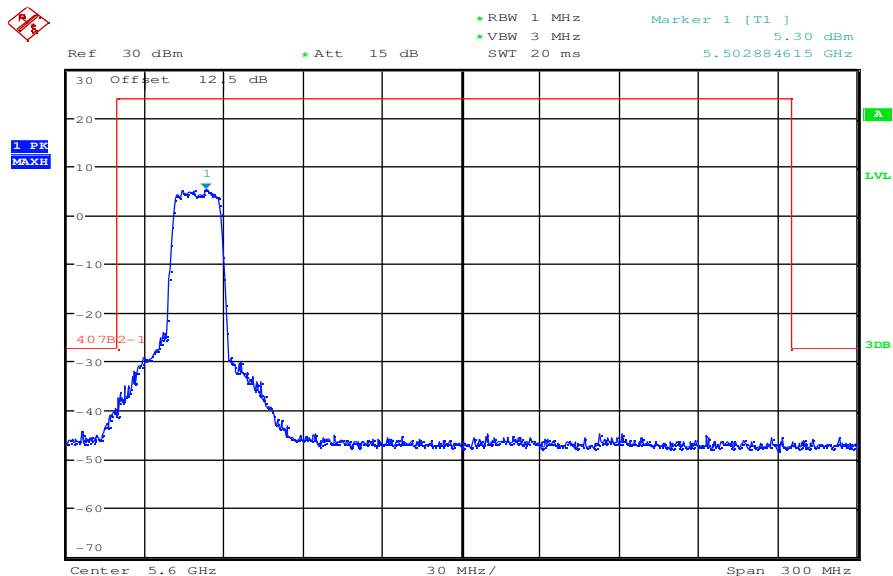
Date: 8.DEC.2010 11:57:56

Plot 4: 5320 MHz; power index 21, n – mode



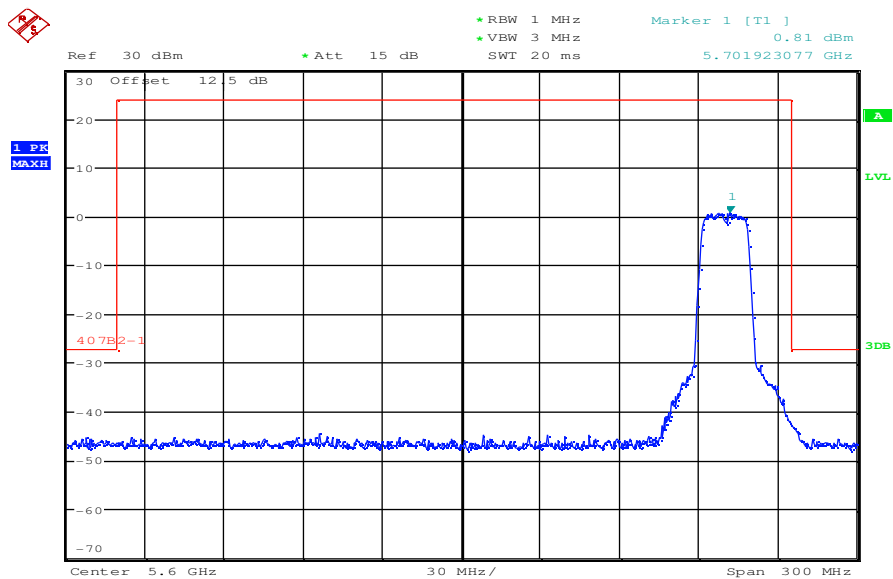
Date: 8.DEC.2010 11:58:58

Plot 5: 5500 MHz; power index 26, n – mode



Date: 8.DEC.2010 11:54:59

Plot 6: 5700 MHz; power index 26, n – mode



Date: 8.DEC.2010 11:54:09

## 9.10 Band edge compliance radiated

### Description:

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

### Measurement:

| Measurement parameter |          |
|-----------------------|----------|
| Detector:             | Peak     |
| Sweep time:           | Auto     |
| Video bandwidth:      | 10 Hz    |
| Resolution bandwidth: | 1 MHz    |
| Span:                 | 100 MHz  |
| Trace-Mode:           | Max Hold |

### Limits:

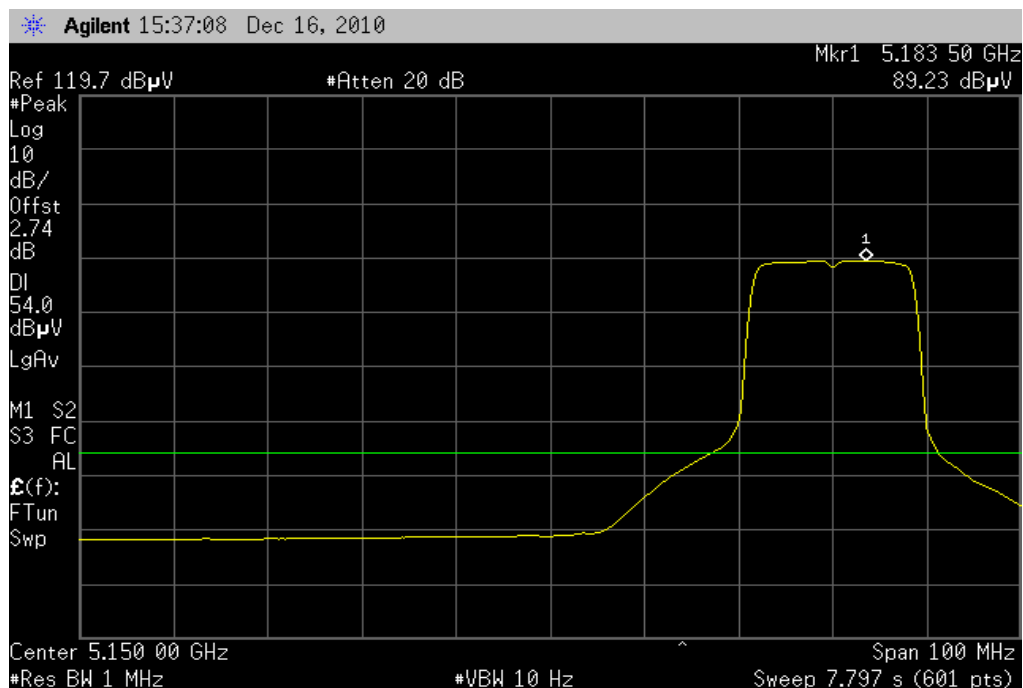
| FCC   | IC                      |
|---|-------------------------|
| CFR Part 15.205   | RSS 210, Issue 8, A 8.5 |
| Band Edge Compliance Radiated   |                         |
| <p>In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator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

**Result:**

| Szenario<br>Modulation       | Band Edge Compliance Radiated [dB $\mu$ V/m] |                                |
|------------------------------|--|--------------------------------|
|                              | OFDM a – mode                                | OFDM n – mode                  |
| Lower Band Edge – Channel 1  | < 54 dB $\mu$ V/m (see plot 1)               | < 54 dB $\mu$ V/m (see plot 3) |
| Upper Band Edge – Channel 11 | < 54 dB $\mu$ V/m (see plot 2)               | < 54 dB $\mu$ V/m (see plot 4) |
| Measurement uncertainty      | $\pm 3$ dB                                   |                                |

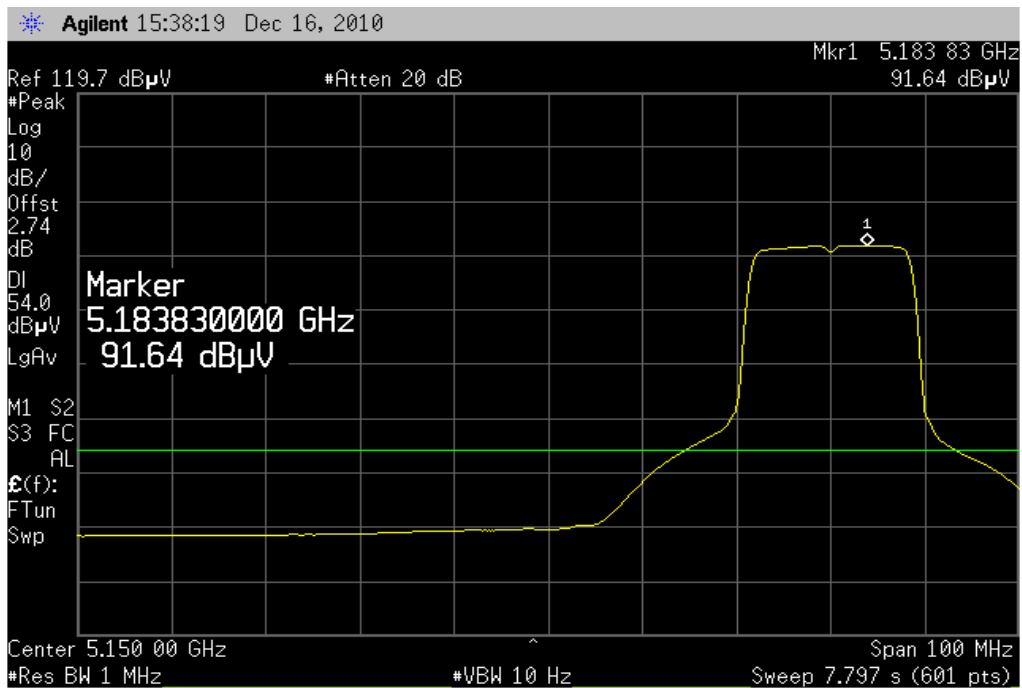
**Result:** The result of the measurement is passed.

**Plot 1:** a – mode; lowest channel – 5180 MHz; power index 21; lower band edge; vertical polarization

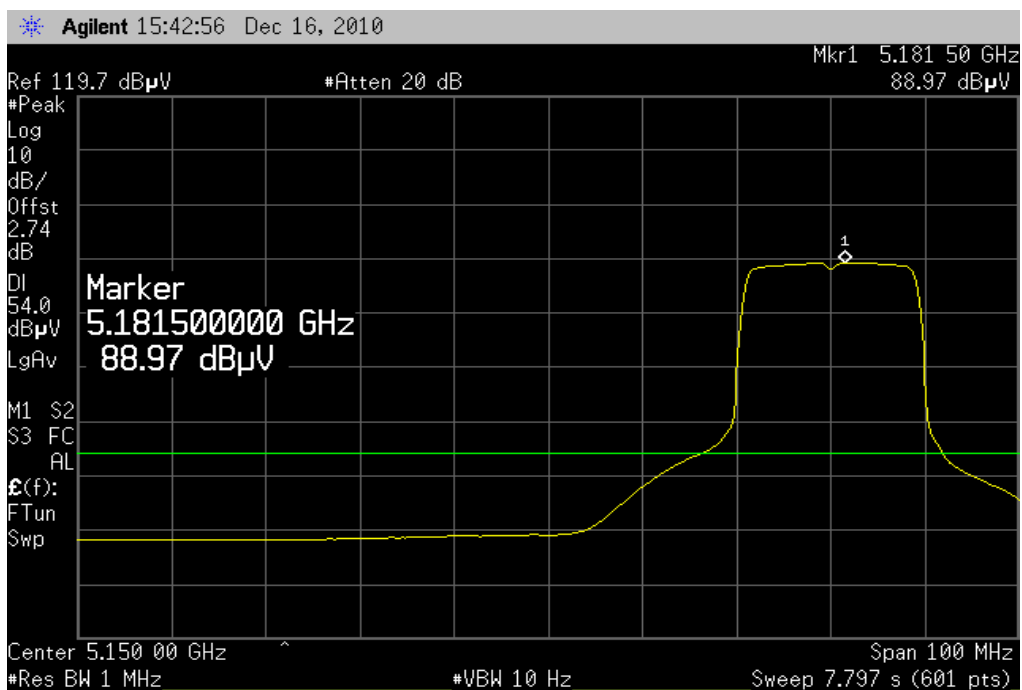




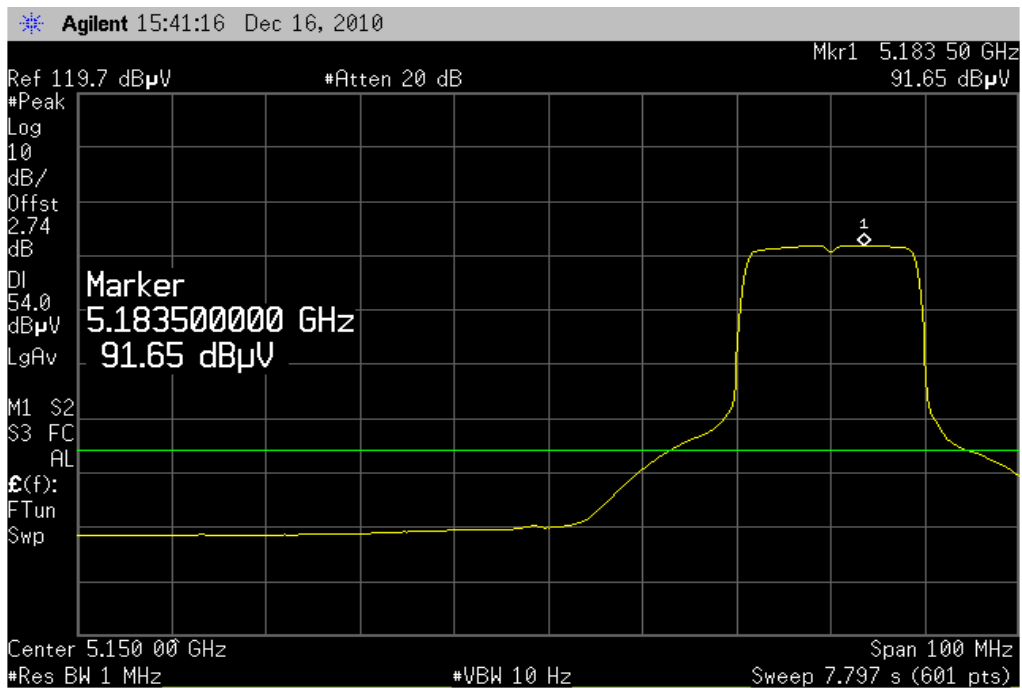
**Plot 2:** a – mode; lowest channel – 5180 MHz; power index 21; lower band edge; horizontal polarization



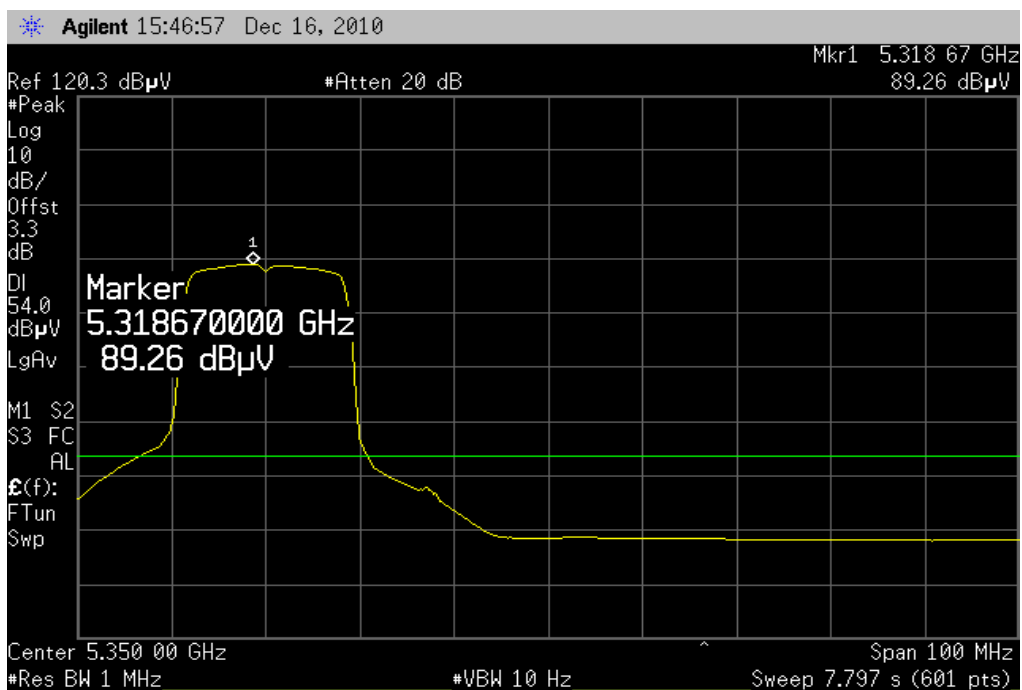
**Plot 3:** n – mode; lowest channel – 5180 MHz; power index 21; lower band edge; vertical polarization



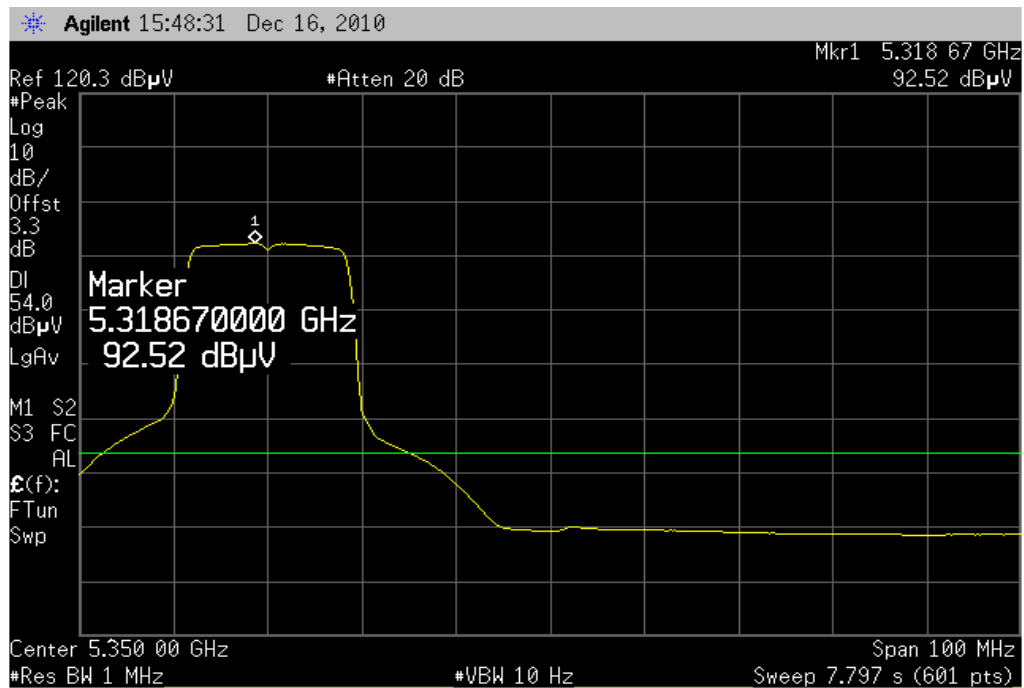
**Plot 4:** n – mode; lowest channel – 5180 MHz; power index 21; lower band edge; horizontal polarization



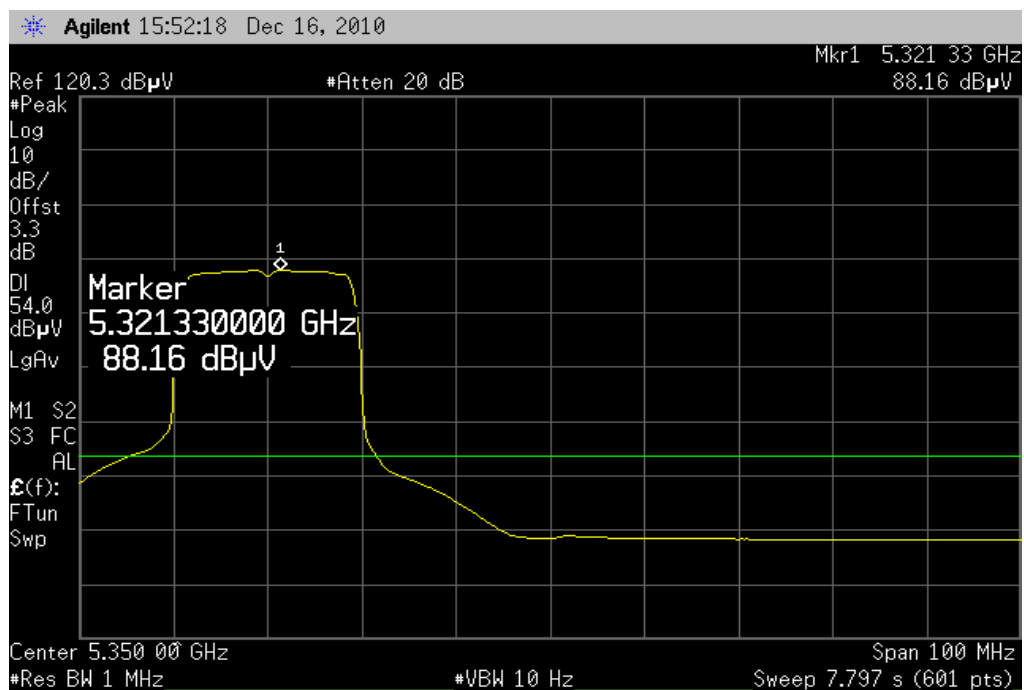
**Plot 5:** a – mode; highest channel – 5320 MHz; power index 21; higher band edge; vertical polarization



Plot 6: a – mode; highest channel – 5320 MHz; power index 21; higher band edge; horizontal polarization



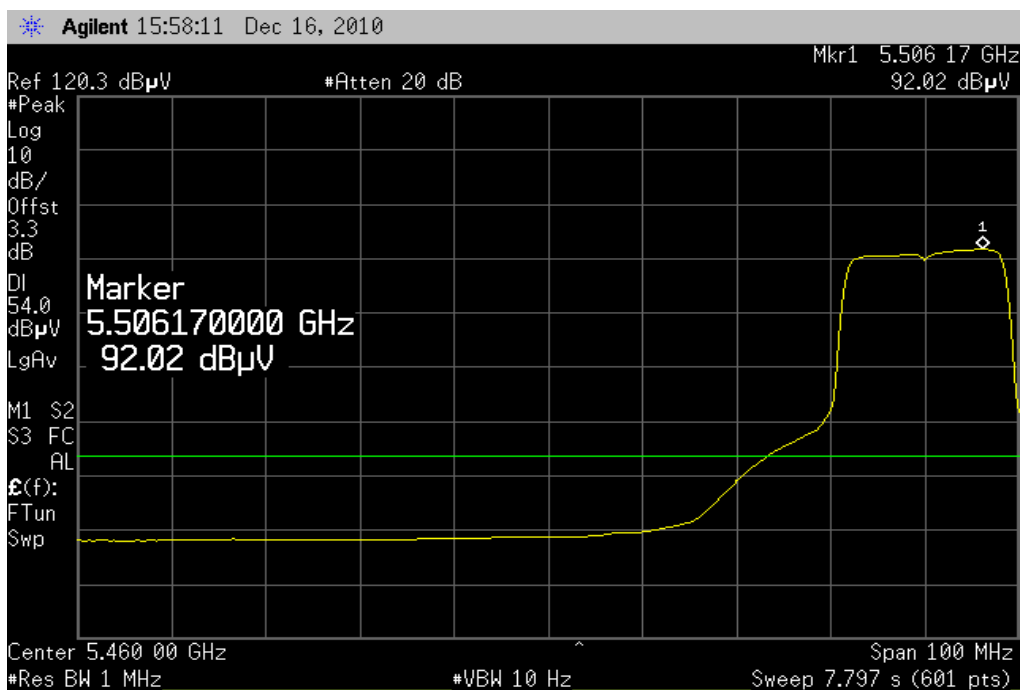
Plot 7: n – mode; highest channel – 5320 MHz; power index 21; higher band edge; vertical polarization



**Plot 8:** n – mode; highest channel – 5320 MHz; power index 21; higher band edge; horizontal polarization



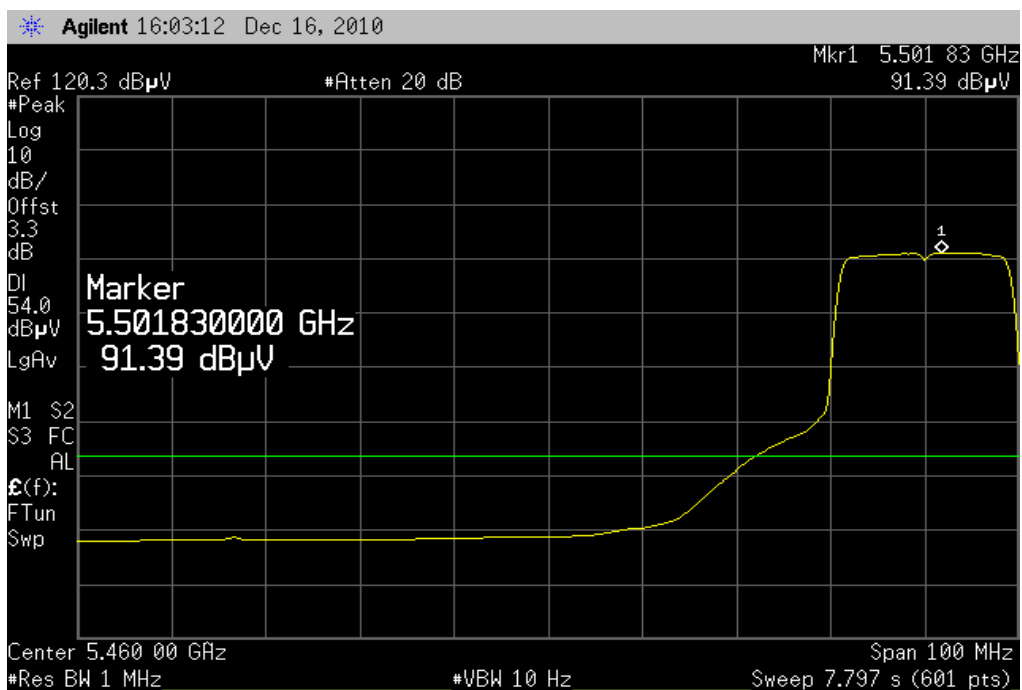
**Plot 9:** a – mode; lowest channel – 5500 MHz; power index 26; lower band edge; vertical polarization



Plot 10: a – mode; lowest channel – 5500 MHz; power index 26; lower band edge; horizontal polarization



Plot 11: n – mode; lowest channel – 5500 MHz; power index 26; lower band edge; vertical polarization



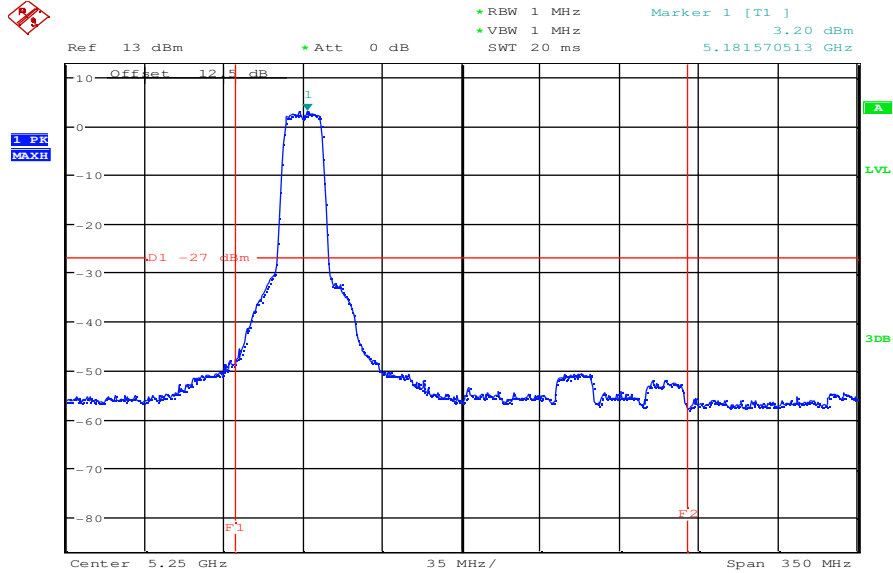
**Plot 12:** n – mode; lowest channel – 5500 MHz; power index 26; lower band edge; horizontal polarization



### 9.11 Emission stability under extreme conditions (Canada requirement) Annex 9.5(5)

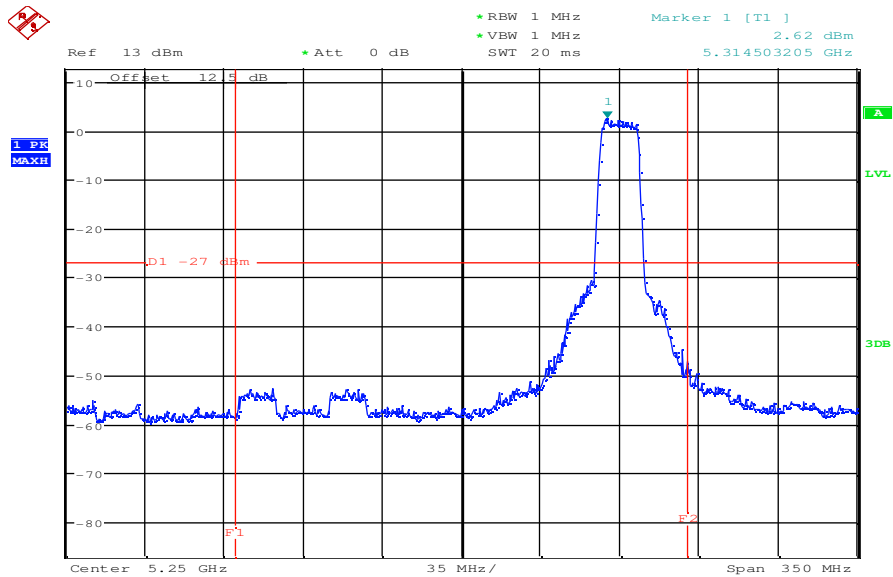
#### Plots:

Plot 1: 5180 MHz; power index 21, a – mode,  $T_{nom}$  (20 °C),  $V_{nom}$  (115 V AC)



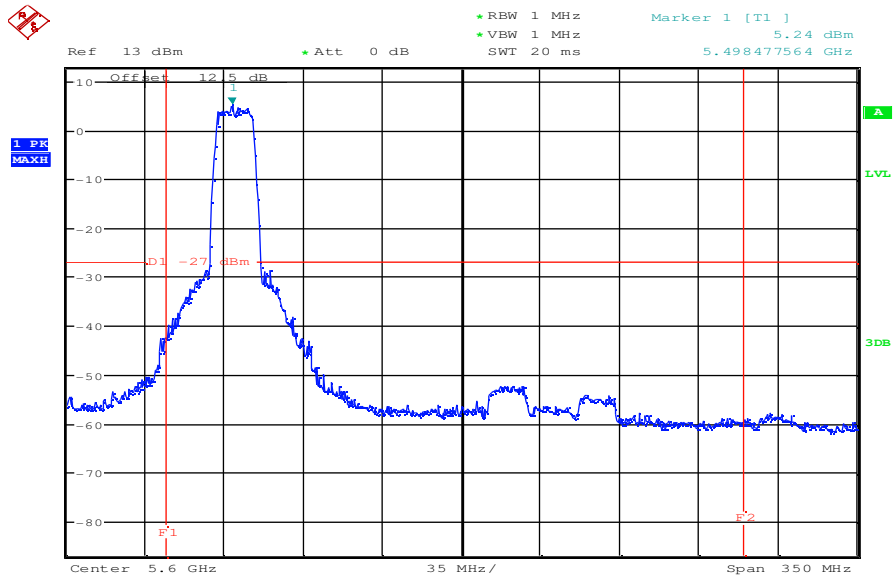
Date: 15.DEC.2010 08:07:26

Plot 2: 5320 MHz; power index 21, a – mode,  $T_{nom}$  (20 °C),  $V_{nom}$  (115 V AC)



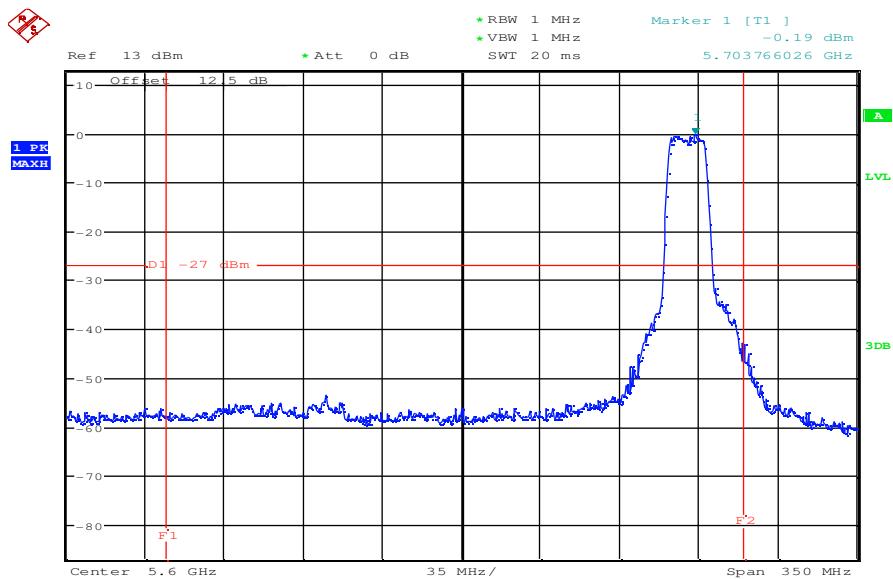
Date: 15.DEC.2010 08:15:34

Plot 3: 5500 MHz; power index 26, a – mode,  $T_{nom}$  (20 °C),  $V_{nom}$  (115 V AC)



Date: 15.DEC.2010 08:18:36

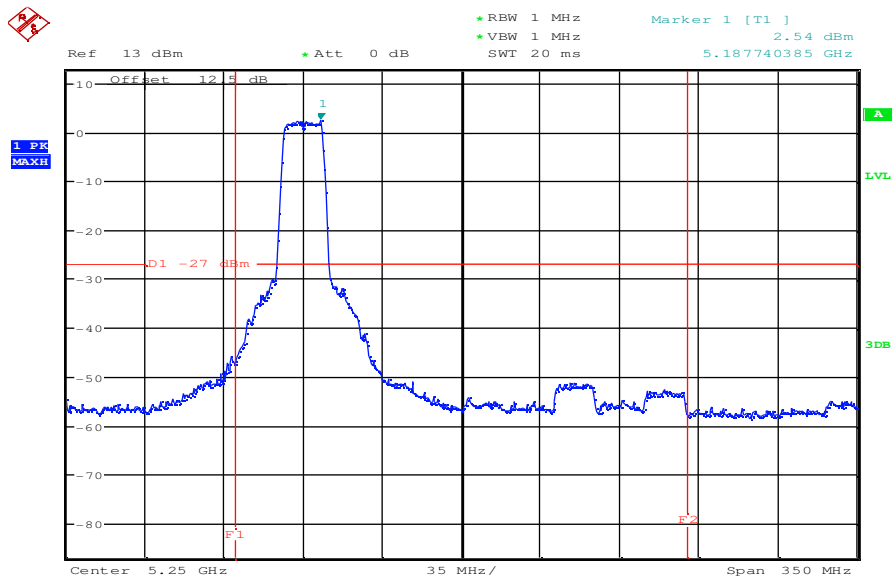
Plot 4: 5700 MHz; power index 26, a – mode,  $T_{nom}$  (20 °C),  $V_{nom}$  (115 V AC)



Date: 15.DEC.2010 08:20:52

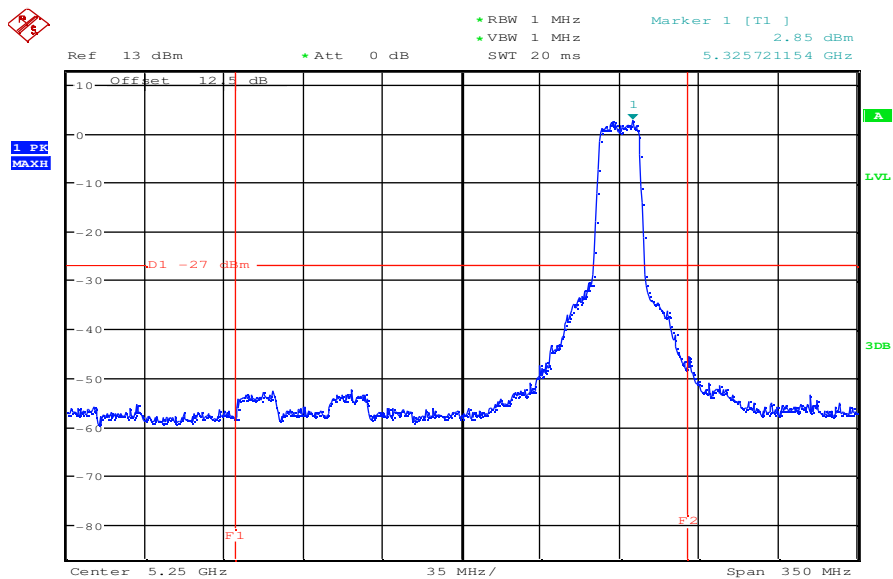


Plot 5: 5180 MHz; power index 21, n – mode,  $T_{nom}$  (20°C),  $V_{nom}$  (115 V AC)



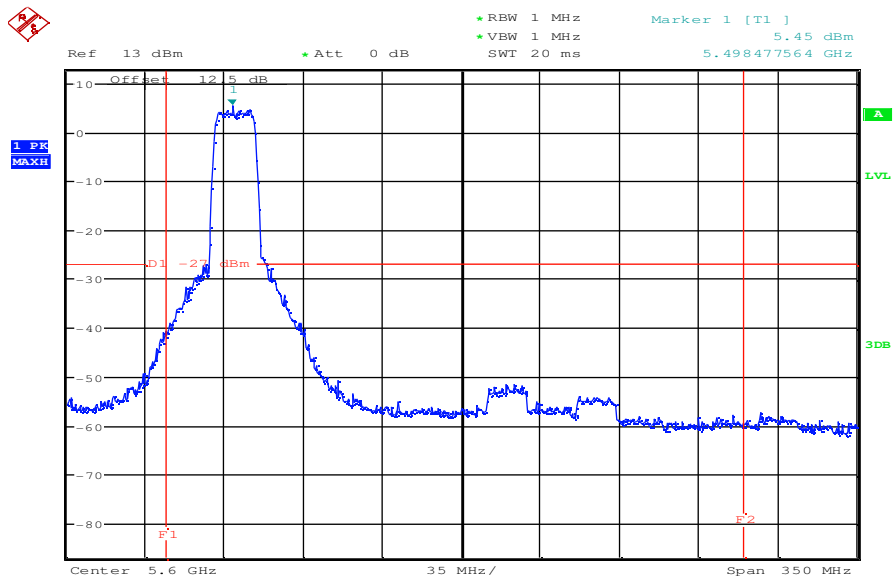
Date: 15.DEC.2010 08:14:49

Plot 6: 5320 MHz; power index 21, n – mode,  $T_{nom}$  (20°C),  $V_{nom}$  (115 V AC)



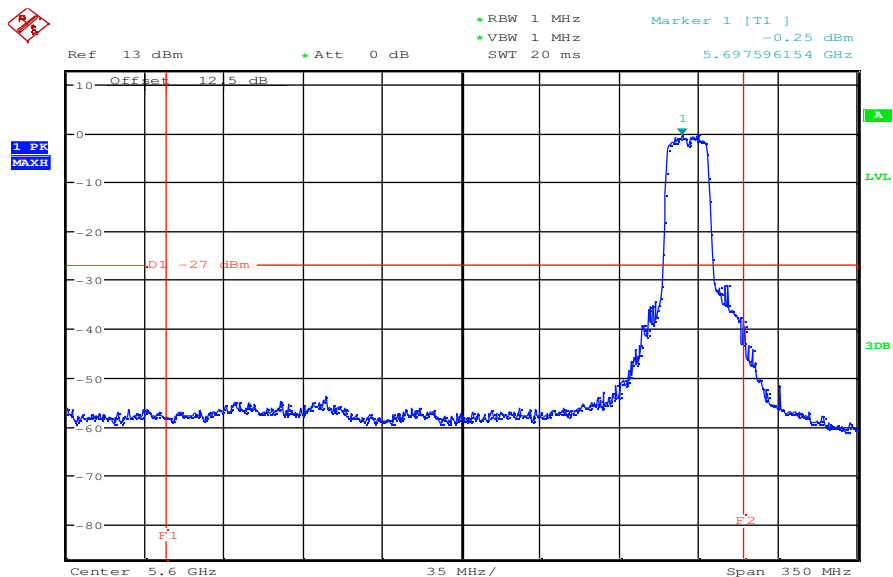
Date: 15.DEC.2010 08:16:24

Plot 7: 5500 MHz; power index 26, n – mode,  $T_{nom}$  (20°C),  $V_{nom}$  (115 V AC)



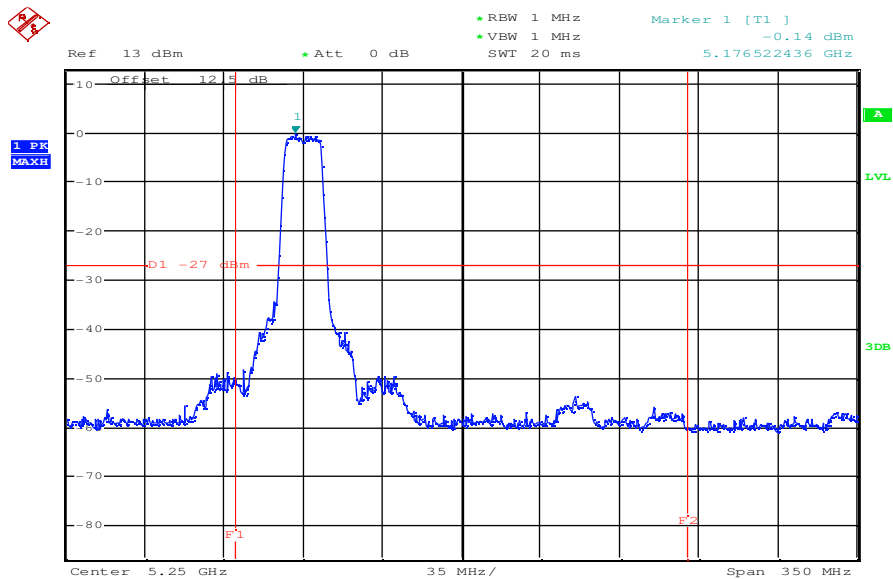
Date: 15.DEC.2010 08:19:23

Plot 8: 5700 MHz; power index 26, n – mode,  $T_{nom}$  (20°C),  $V_{nom}$  (115 V AC)



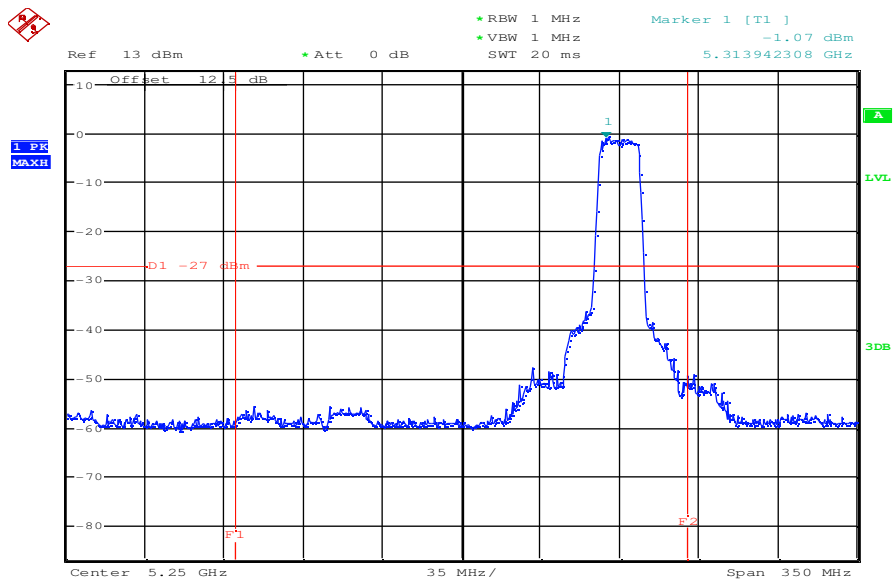
Date: 15.DEC.2010 08:20:10

Plot 9: 5180 MHz; power index 21, a – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



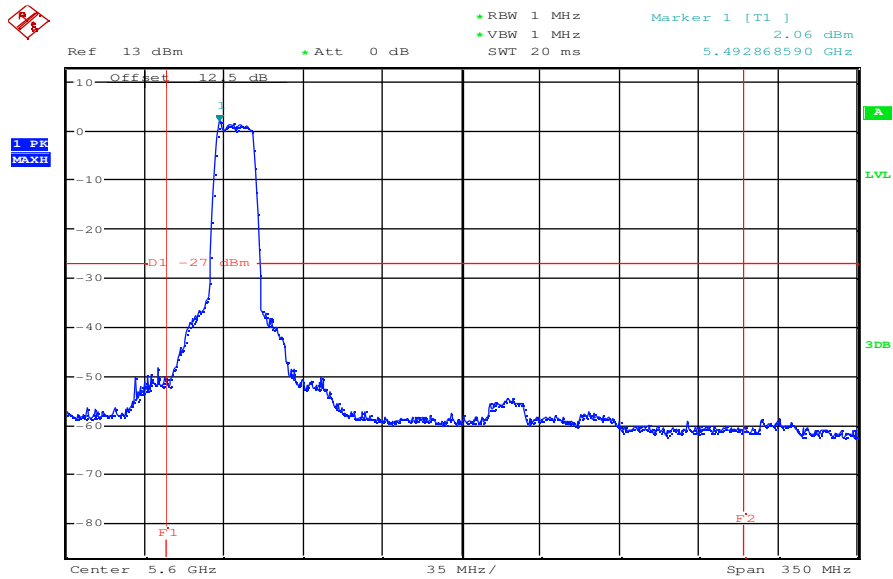
Date: 15.DEC.2010 09:15:54

Plot 10: 5320 MHz; power index 21, a – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



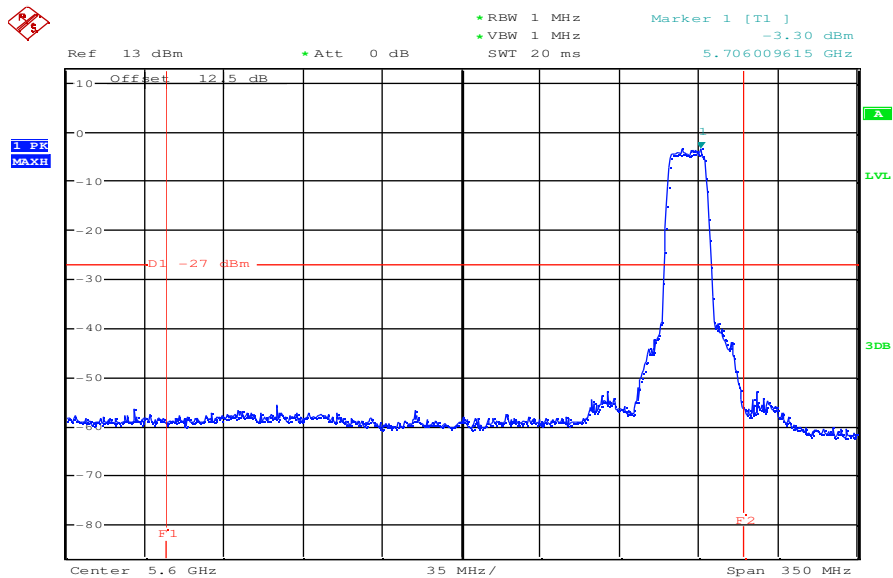
Date: 15.DEC.2010 09:21:56

Plot 11: 5500 MHz; power index 26, a – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



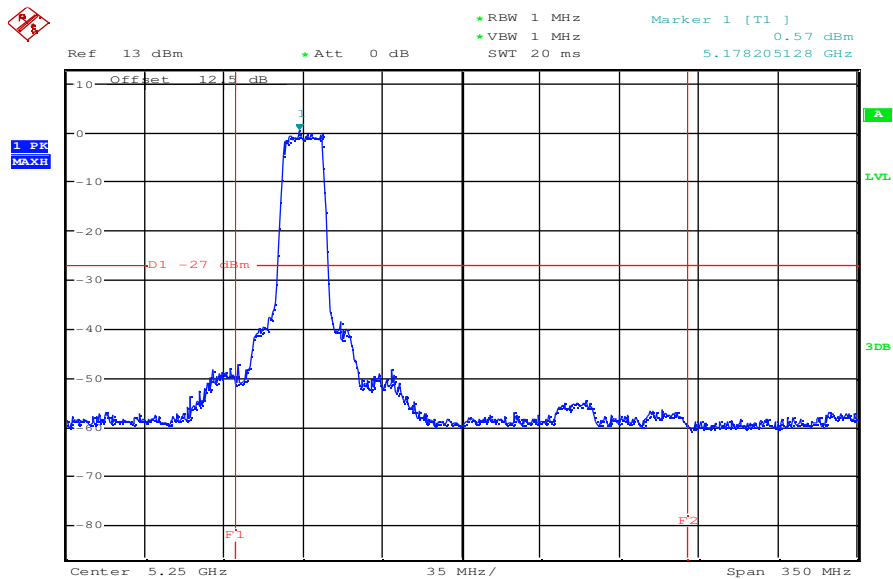
Date: 15.DEC.2010 09:14:45

Plot 12: 5700 MHz; power index 26, a – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



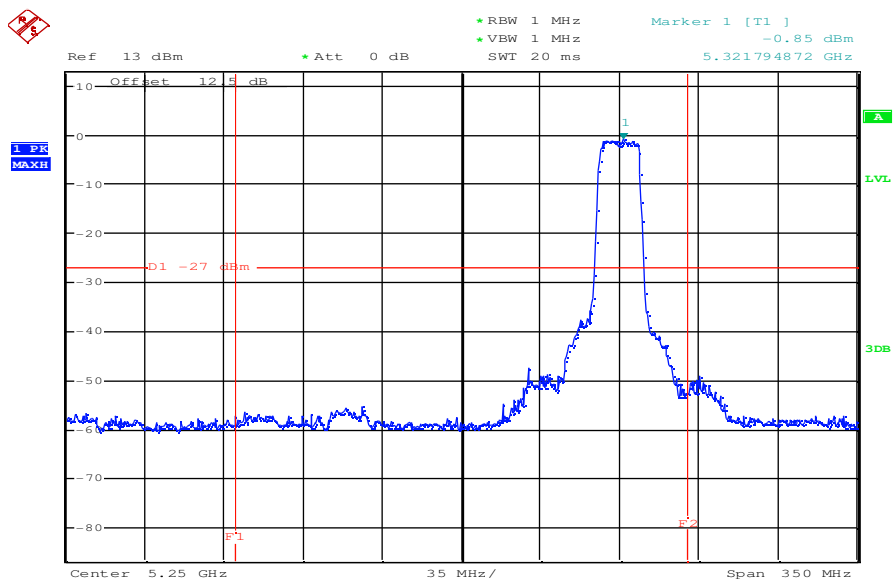
Date: 15.DEC.2010 09:08:05

Plot 13: 5180 MHz; power index 21, n – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



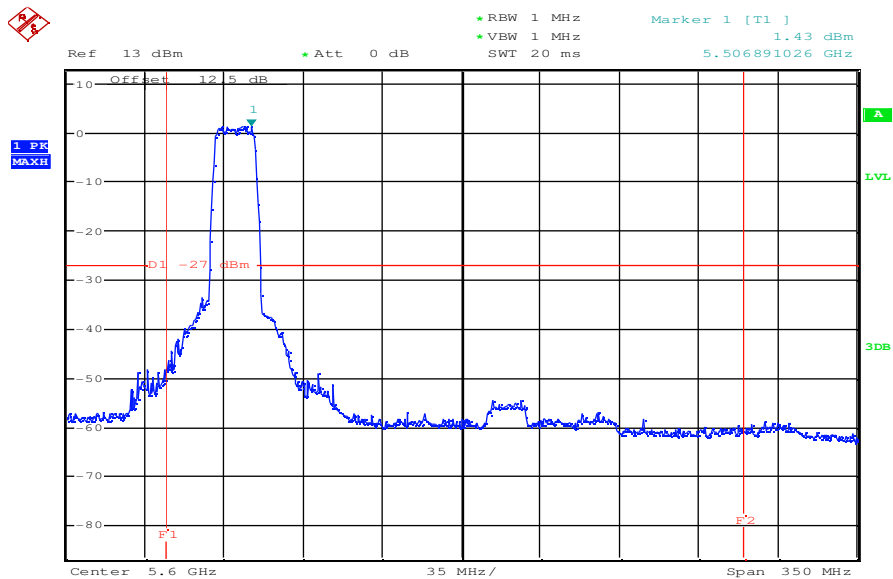
Date: 15.DEC.2010 09:16:56

Plot 14: 5320 MHz; power index 21, n – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



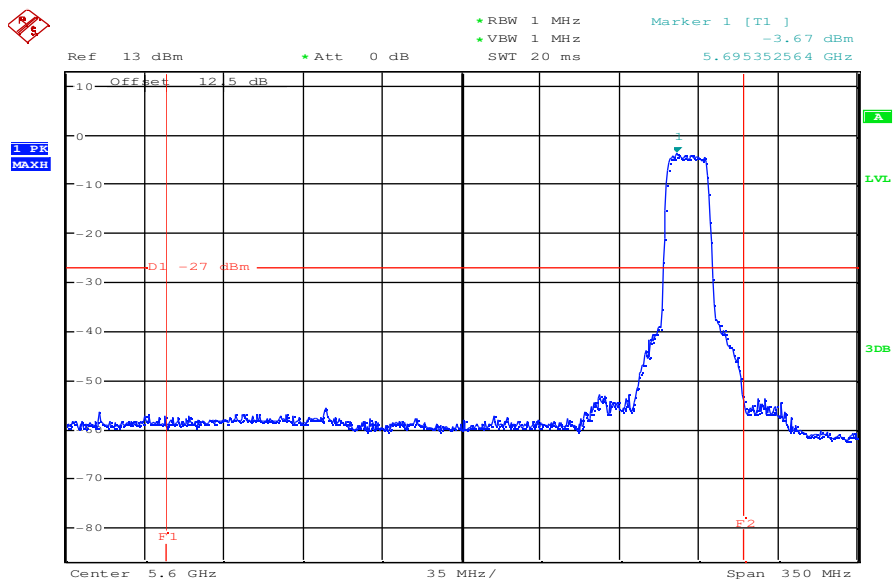
Date: 15.DEC.2010 09:21:07

Plot 15: 5500 MHz; power index 26, n – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



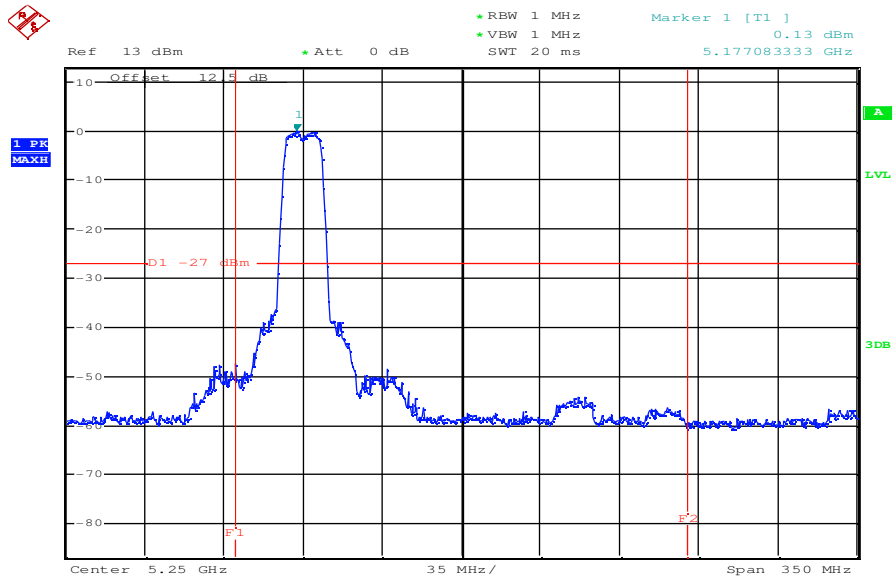
Date: 15.DEC.2010 09:13:37

Plot 16: 5700 MHz; power index 26, n – mode,  $T_{high}$  (+55°C),  $V_{low}$  (100 V AC)



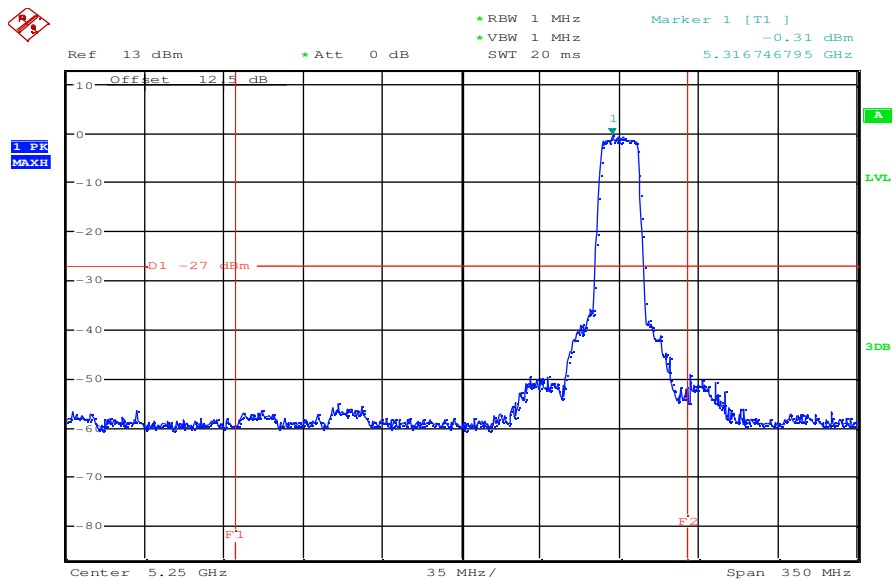
Date: 15.DEC.2010 09:09:20

Plot 17: 5180 MHz; power index 21, a – mode,  $T_{high}$  (+55°C),  $V_{high}$  (240 V AC)



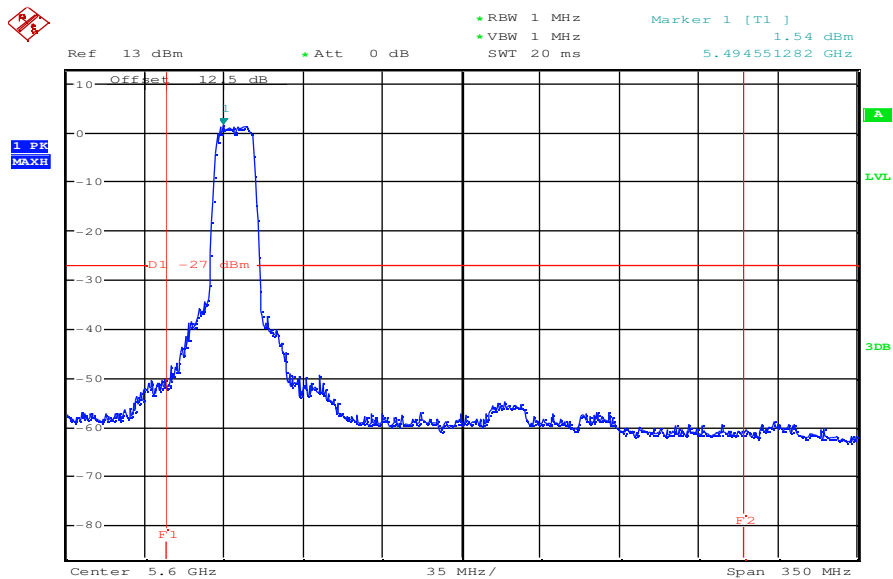
Date: 15.DEC.2010 09:18:21

Plot 18: 5320 MHz; power index 21, a – mode,  $T_{high}$  (+55°C),  $V_{high}$  (240 V AC)



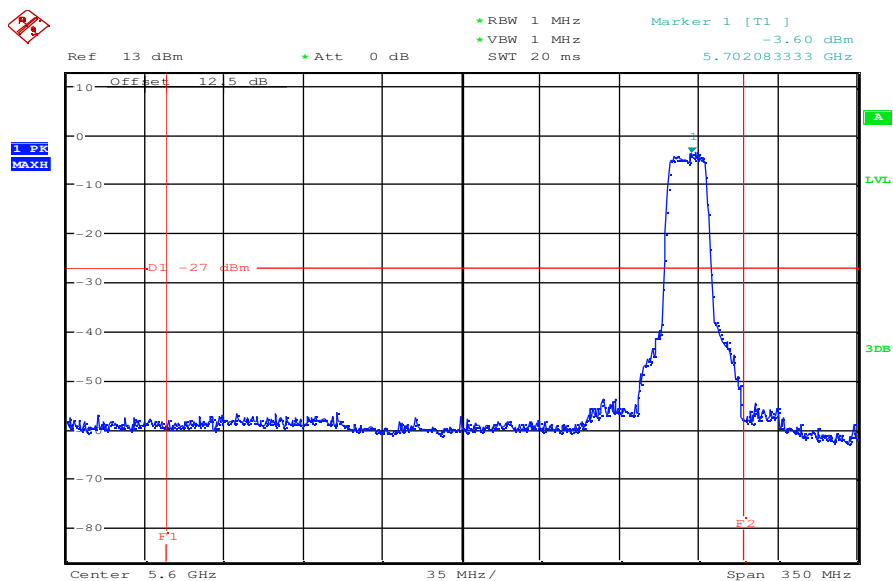
Date: 15.DEC.2010 09:19:22

Plot 19: 5500 MHz; power index 26, a – mode, T<sub>high</sub> (+55°C), V<sub>high</sub> (240 V AC)



Date: 15.DEC.2010 09:11:58

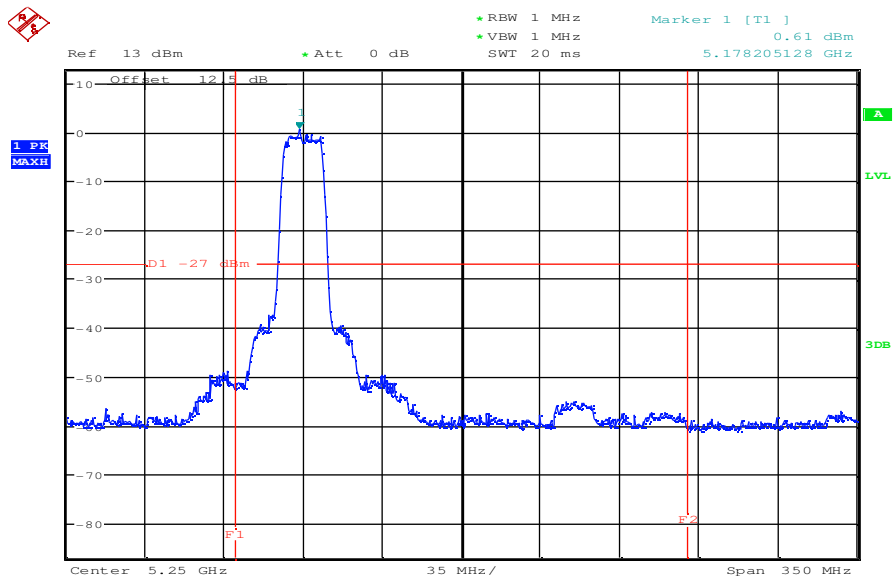
Plot 20: 5700 MHz; power index 26, a – mode, T<sub>high</sub> (+55°C), V<sub>high</sub> (240 V AC)



Date: 15.DEC.2010 09:11:07

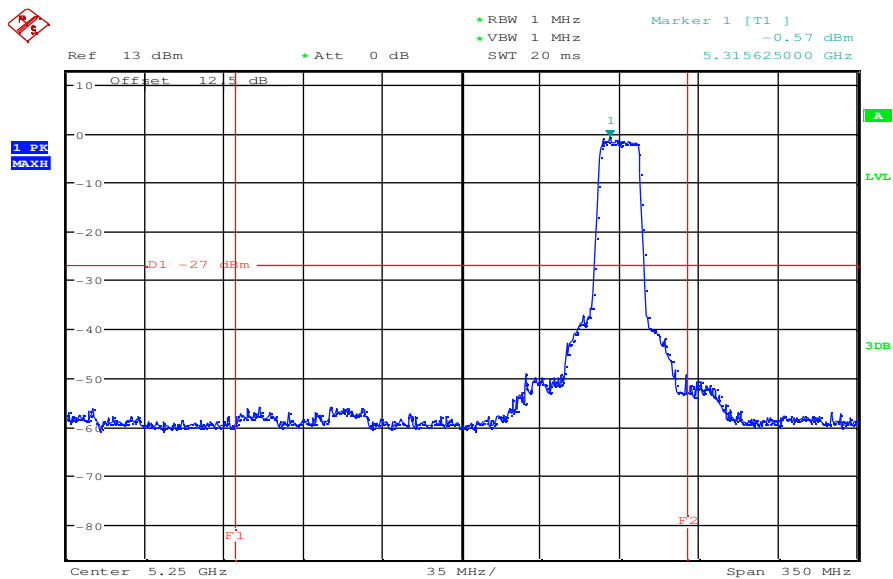


Plot 21: 5180 MHz; power index 21, n – mode,  $T_{high}$  (+55°C),  $V_{high}$  (240 V AC)



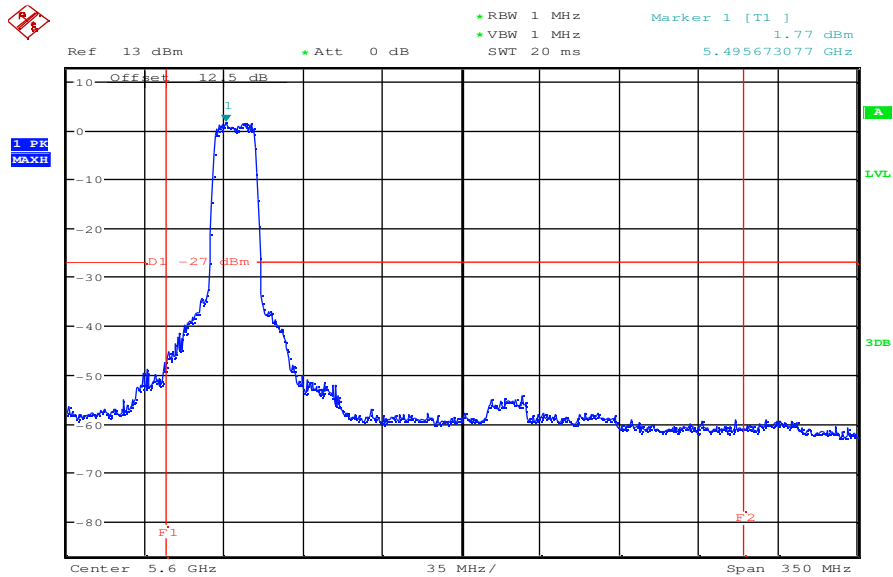
Date: 15.DEC.2010 09:17:28

Plot 22: 5320 MHz; power index 21, n – mode,  $T_{high}$  (+55°C),  $V_{high}$  (240 V AC)



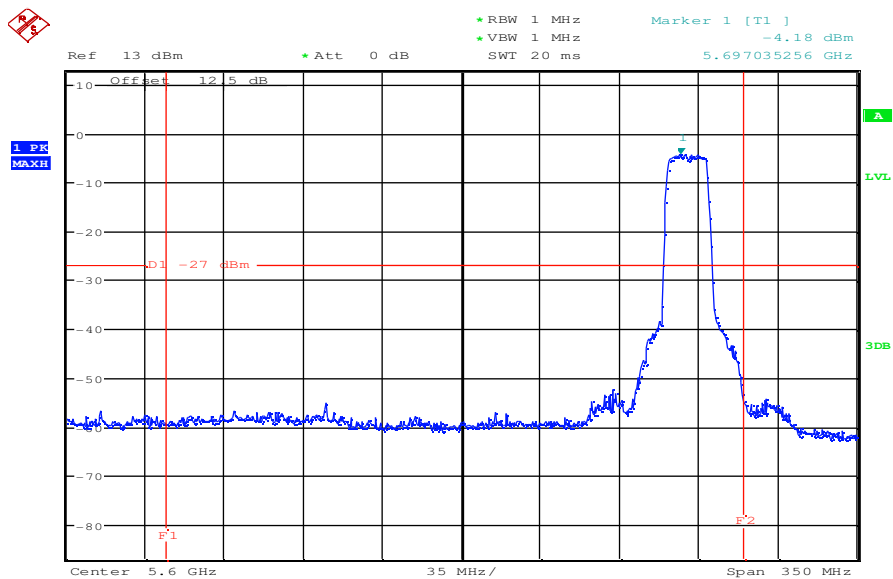
Date: 15.DEC.2010 09:20:17

Plot 23: 5500 MHz; power index 26, n – mode,  $T_{high}$  (+55°C),  $V_{high}$  (240 V AC)



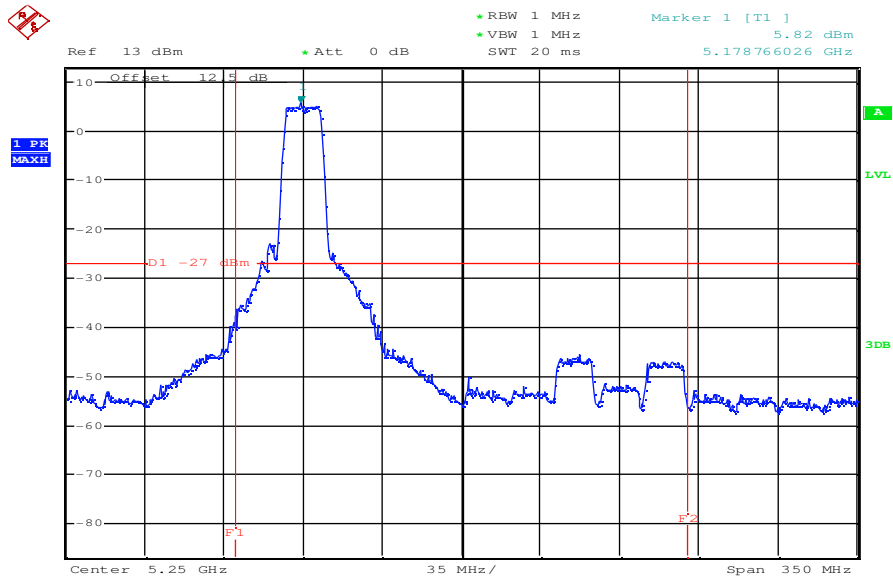
Date: 15.DEC.2010 09:12:53

Plot 24: 5700 MHz; power index 26, n – mode,  $T_{high}$  (+55°C),  $V_{high}$  (240 V AC)



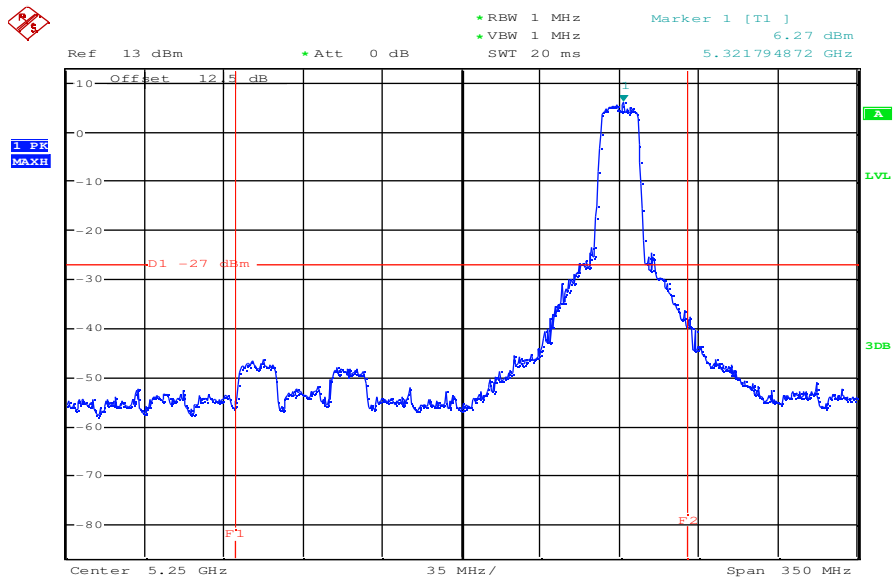
Date: 15.DEC.2010 09:10:14

Plot 25: 5180 MHz; power index 21, a – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



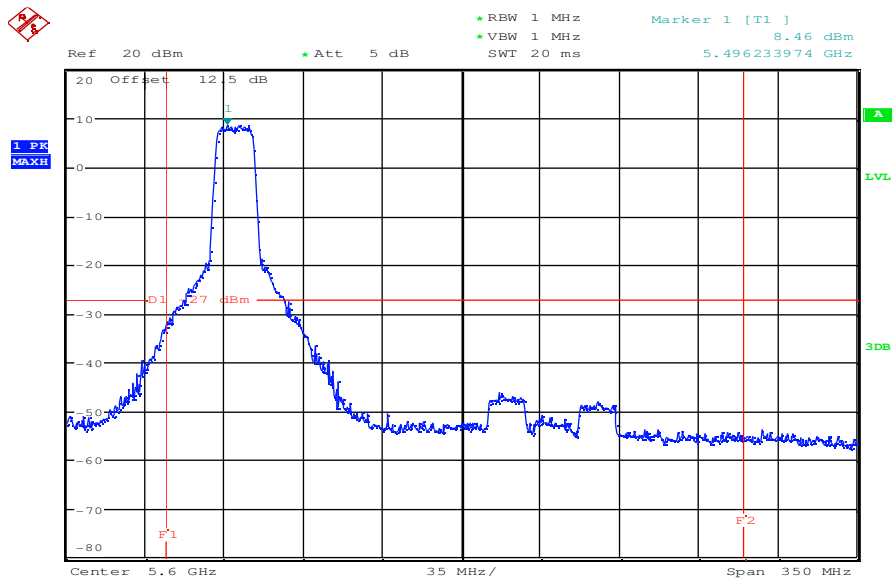
Date: 15.DEC.2010 09:59:41

Plot 26: 5320 MHz; power index 21, a – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



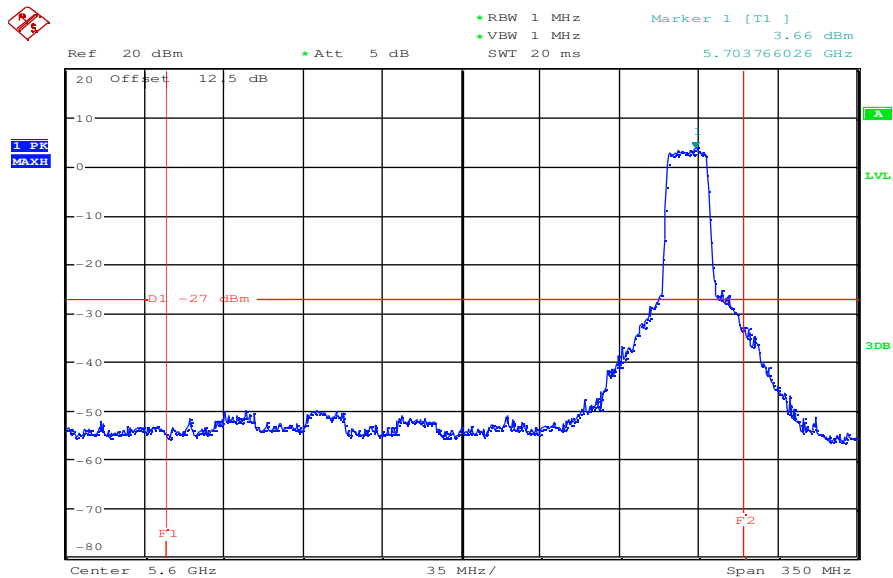
Date: 15.DEC.2010 10:06:58

Plot 27: 5500 MHz; power index 26, a – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



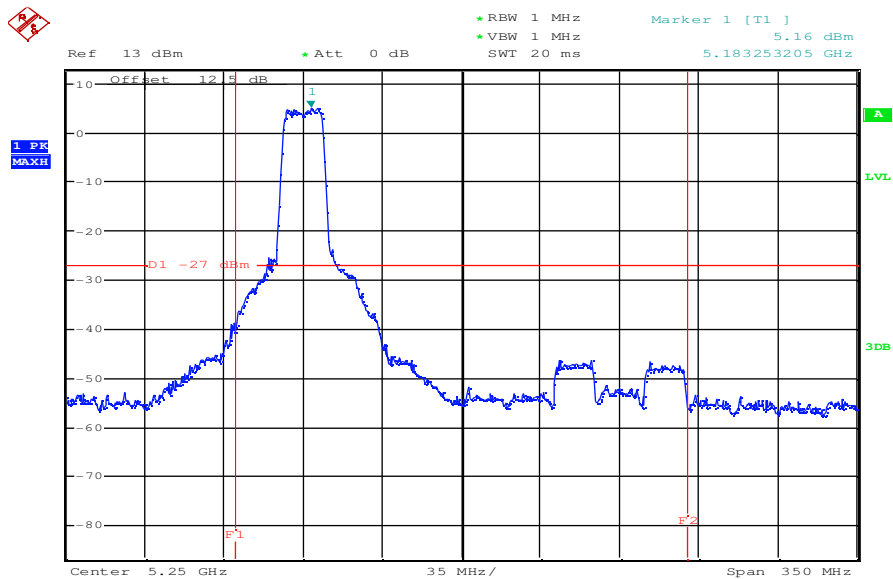
Date: 15.DEC.2010 10:37:53

Plot 28: 5700 MHz; power index 26, a – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



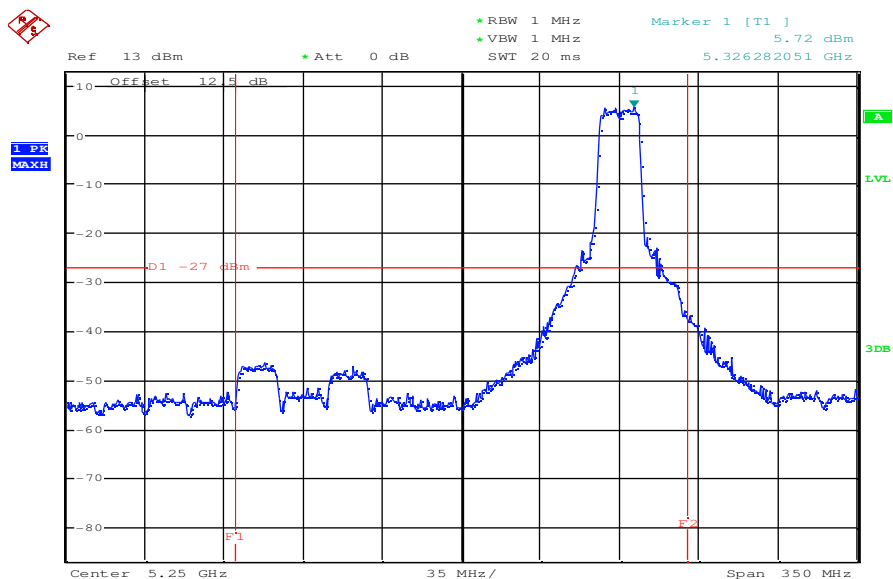
Date: 15.DEC.2010 10:43:53

Plot 29: 5180 MHz; power index 21, n – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



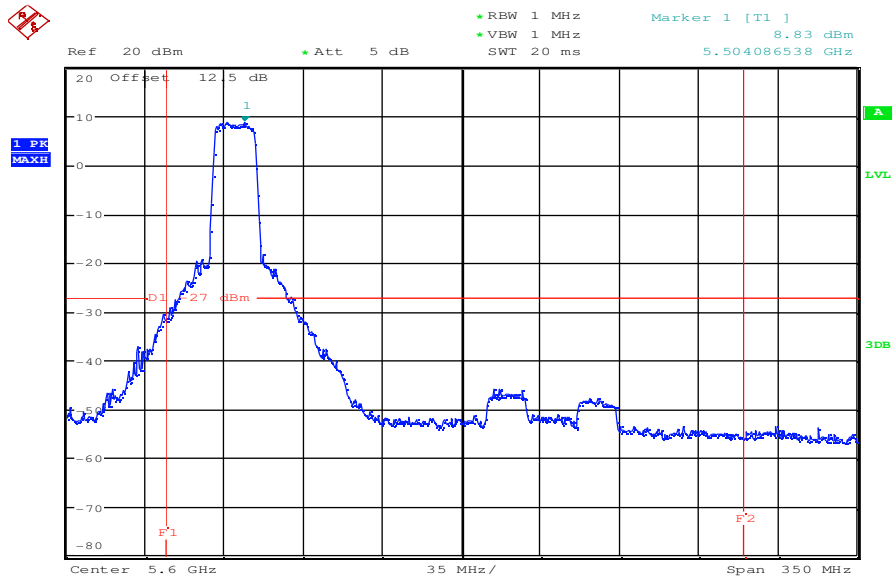
Date: 15.DEC.2010 10:00:53

Plot 30: 5320 MHz; power index 21, n – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



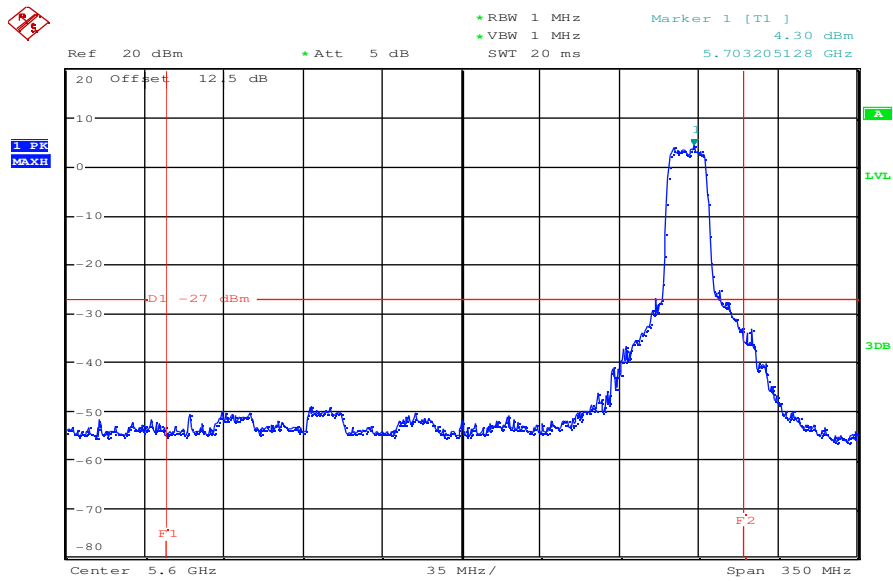
Date: 15.DEC.2010 10:06:06

Plot 31: 5500 MHz; power index 26, n – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



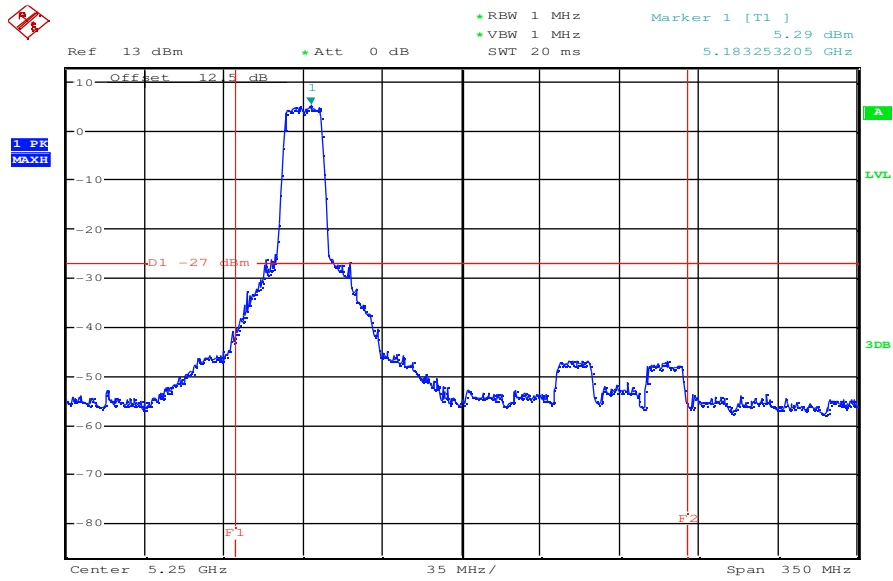
Date: 15.DEC.2010 10:39:09

Plot 32: 5700 MHz; power index 26, n – mode,  $T_{low}$  (-20°C),  $V_{low}$  (100 V AC)



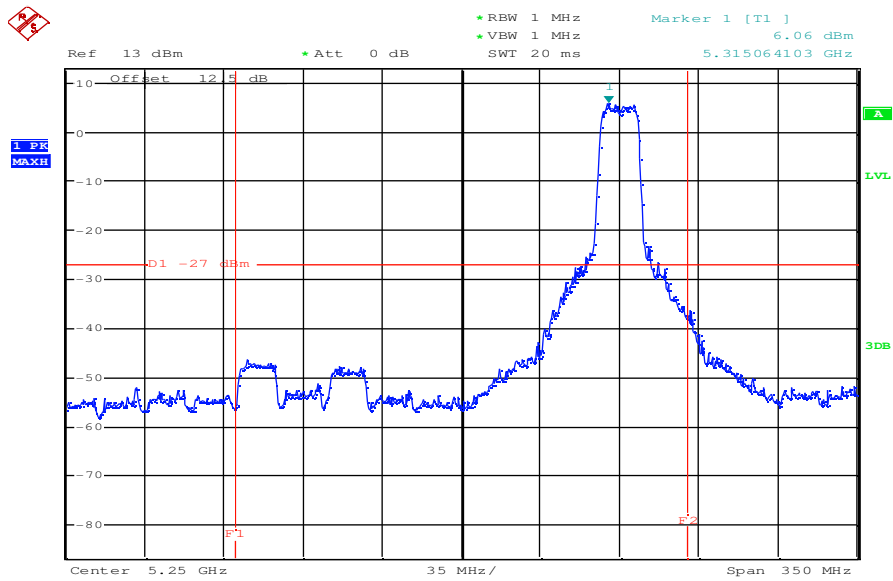
Date: 15.DEC.2010 10:43:12

Plot 33: 5180 MHz; power index 21, a – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



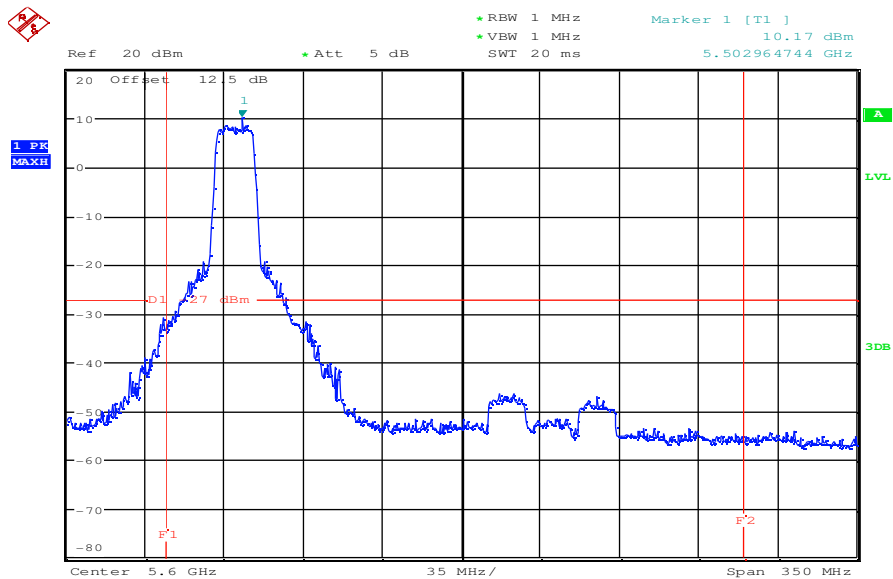
Date: 15.DEC.2010 10:02:56

Plot 34: 5320 MHz; power index 21, a – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



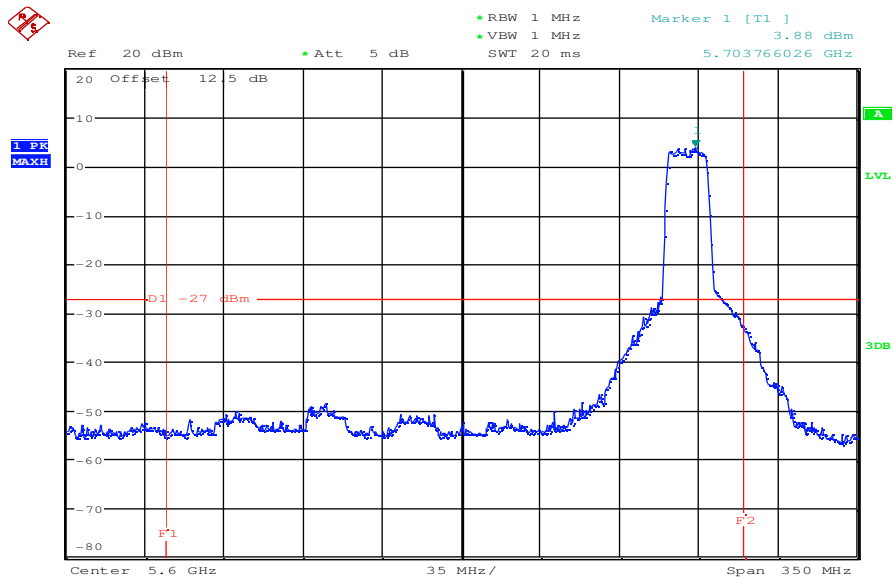
Date: 15.DEC.2010 10:03:59

Plot 35: 5500 MHz; power index 26, a – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



Date: 15.DEC.2010 10:40:51

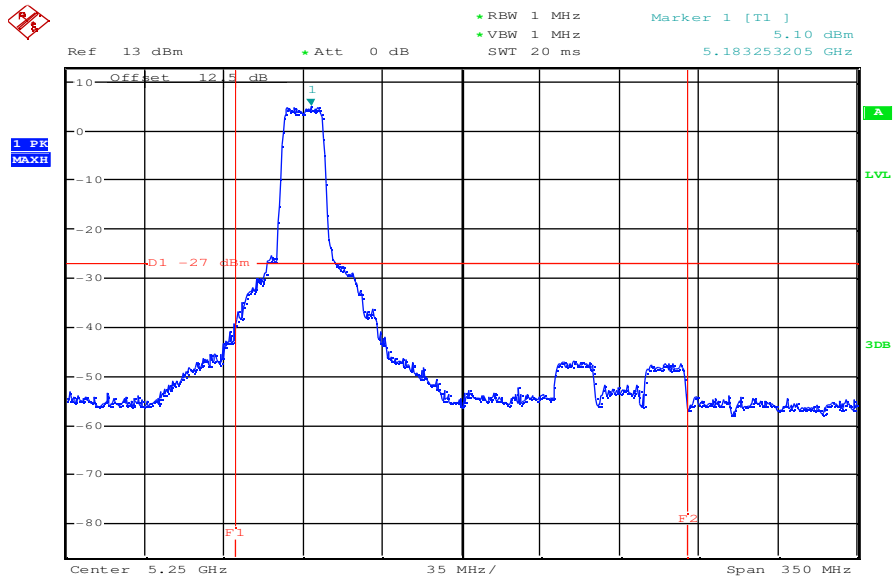
Plot 36: 5700 MHz; power index 26, a – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



Date: 15.DEC.2010 10:41:36

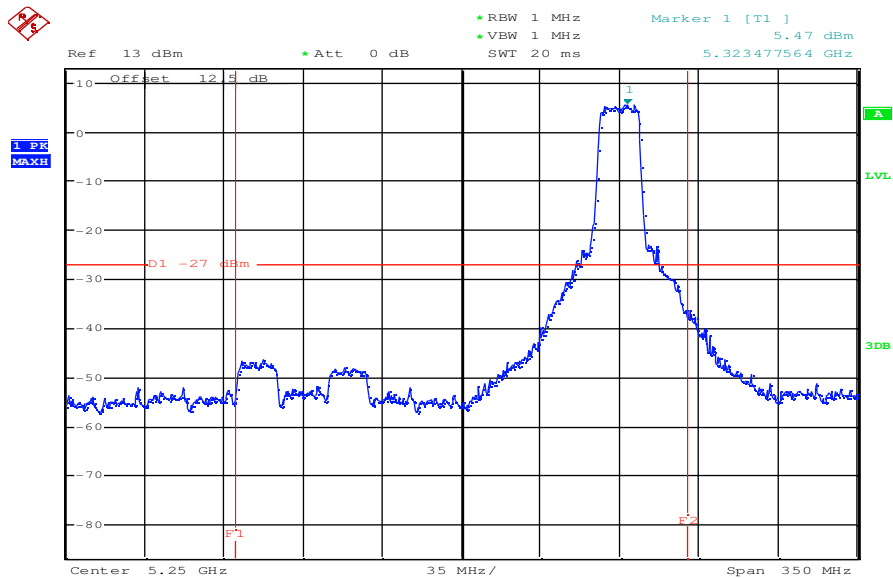


Plot 37: 5180 MHz; power index 21, n – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



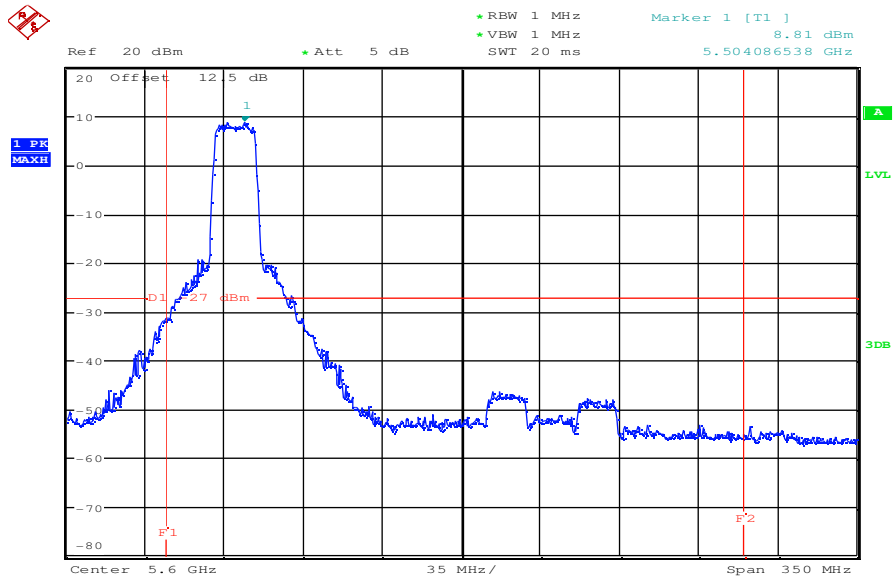
Date: 15.DEC.2010 10:01:41

Plot 38: 5320 MHz; power index 21, n – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



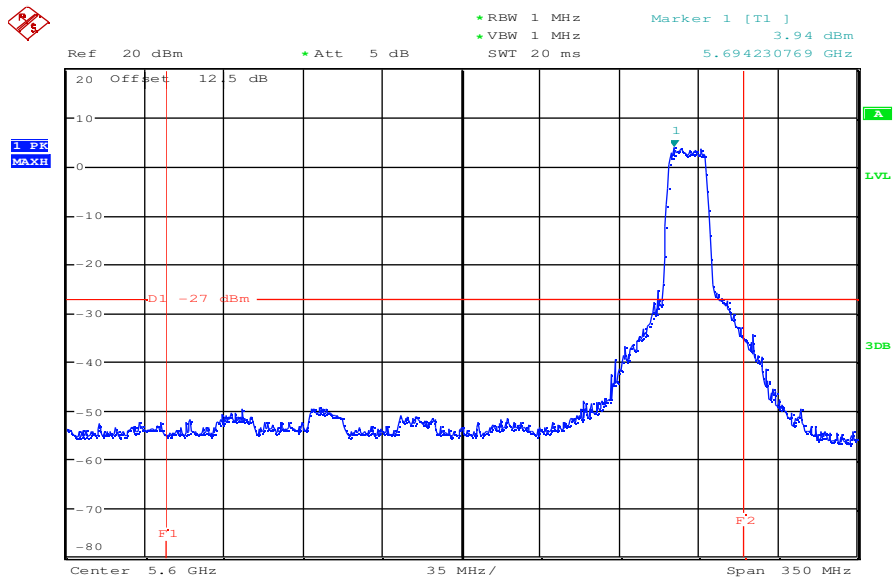
Date: 15.DEC.2010 10:04:57

Plot 39: 5500 MHz; power index 26, n – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



Date: 15.DEC.2010 10:39:47

Plot 40: 5700 MHz; power index 26, n – mode,  $T_{low}$  (-20°C),  $V_{high}$  (240 V AC)



Date: 15.DEC.2010 10:42:27