PHOENIX
TESTLAB

Königswinkel 10

32825 Blomberg

Germany

Phone: +49 (0) 52 35 95 00-0

Fax: +49 (0) 52 35 95 00-10

Test Report

Report Number: F102732E2

Applicant:

7 layers AG

Manufacturer:

DATALOGIC MOBILE SRL

Equipment under Test (EUT):

ELF 701-902

Laboratory (CAB) accredited by
Deutsche Gesellschaft für Akkreditierung mbH
in compliance with DIN EN ISO/IEC 17025
under the Reg. No. DGA-PL-105/99-22,
FCC Test site registration number 90877

REFERENCES

[1] ANSI C63.4-2009 American National Standard for Methods of Measuring of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

[2] FCC CFR 47 Part 15 (October 2009) Radio Frequency Devices

[3] FCC Public Notice DA 00-705 (March 2000)

[4] Publication Number 913591 (March 2007) Measurement of radiated emissions at the edge of the band for a Part 15 RF Device

TEST RESULT

The requirements of the tests performed as shown in the overview (clause 4) were fulfilled by the equipment under test.
The complete test results are presented in the following.

Test engineer:	Thomas KÜHN		02 November 2010
	Name	Signature	Date
Authorized reviewer:	Bernd STEINER		02 November 2010
	Name	Signature	Date

RESERVATION

T h i s   t e s t   r e p o r t   i s   o n l y   v a l i d   i n   i t s   o r i g i n a l   f o r m .

Any reproduction of its contents in extracts without written permission of the accredited test laboratory PHOENIX TESTLAB GmbH is prohibited.

The test results herein refer only to the tested sample. PHOENIX TESTLAB GmbH is not responsible for any generalisations or conclusions drawn from these test results concerning further samples. Any modification of the tested samples is prohibited and leads to the invalidity of this test report. Each page necessarily contains the PHOENIX TESTLAB Logo and the TEST REPORT NUMBER.

Contents: Page

1 IDENTIFICATION

1.1 Applicant

Name:	7 layers AG
Address:	Borsigstr. 11 40880 Ratingen
Country:	Germany
Name for contact purposes:	Mr. Holger LEUTFELD
Phone:	+49 21 02 749 - 317
Fax:	+49 21 02 749 - 350
eMail Address:	holger.leutfeld@7layers.de
Applicant represented during the test by the following person:	-

1.2 Manufacturer

Name:	DATALOGIC MOBILE SRL
Address:	Via S. Vitalino n. 13 Lippo di Calderara di Reno 40012- Bologna
Country:	Italy
Name for contact purposes:	Davide E. Vaccaneo
Phone:	+39 051 314 72 16
Fax:	+39 051 314 75 61
eMail Address:	davide.vaccaneo@datalogic.com
Applicant represented during the test by the following person:	-

1.3 Test laboratory

The tests were carried out at: **PHOENIX TESTLAB GmbH**
Königswinkel 10
32825 Blomberg
Germany

accredited by DGA Deutsche Gesellschaft für Akkreditierung mbH in compliance with
DIN EN ISO/IEC 17025 under Reg. No. DGA-PL-105/99-22, FCC Test site registration number
90877.

1.4 EUT (Equipment Under Test)

Test object: *	ELF
Type: *	Mobile Computer
FCC ID: *	U4G-004W
Serial number: *	D10P00128
Hardware version: *	1.0
Software version: *	1.40

*: Declared by the applicant

1.5 Technical data of equipment

Antenna type: *	Internal
Antenna gain: *	0.5 dBi
Type of modulation: *	OFDM, 2GFSK, 4GFSK, DBPSK, DQPSK (for a, b, g mode)
Operating frequency range: *	5.150 GHz to 5.350 GHz 5.470 GHz to 5.725 GHz 5.725 GHz to 5.850 GHz
Number of channels: *	8 (5.150 GHz to 5.350 GHz) 11 (5.470 GHz to 5.725 GHz) 5 (5.725 GHz to 5.850 GHz)

*: Declared by the applicant

The following external I/O cables were used:

Identification	Connector		Length *
	EUT	Ancillary	
Power supply (for back up the internal battery)	Mini USB	-	2.0 m
-	-	-	-
-	-	-	-
-	-	-	-

*: Length during the test if no other specified.

1.6 Dates

Date of receipt of test sample:	08 September 2010
Start of test:	04 October 2010
End of test:	04 October 2010

2 OPERATIONAL STATES

The EUT is a mobile computer with an integrated WLAN module. The tested sample was equipped with a temporary SMA antenna connector.

During all tests the EUT was powered by the internal battery, which was buffered by an external power supply type PSM08R-050.

The operation mode was adjusted with the help of a configuration-software on the EUT. With this software the used RF channel and the data rate could be chosen.

The EUT contains also a 2.4 GHz WLAN and a GSM-module. Object of this test report is the 5.2 GHz and 5.6 GHz WLAN, which falls into the requirements of FCC 47 CFR Part 15 E. The results of the measurements of the 5.8 GHz WLAN (FCC 47 CFR Part 15 C) will be documented in a separate test report.

The following operation modes were used during the tests:

Operation mode	Description of the operation mode
1	Continuous transmitting on 5180 MHz, with all applicable data rates
2	Continuous transmitting on 5200 MHz, with all applicable data rates
3	Continuous transmitting on 5240 MHz, with all applicable data rates
4	Continuous transmitting on 5260 MHz, with all applicable data rates
5	Continuous transmitting on 5280 MHz, with all applicable data rates
6	Continuous transmitting on 5320 MHz, with all applicable data rates
7	Continuous transmitting on 5500 MHz, with all applicable data rates
8	Continuous transmitting on 5600 MHz, with all applicable data rates
9	Continuous transmitting on 5700 MHz, with all applicable data rates

Physical boundary of the EUT
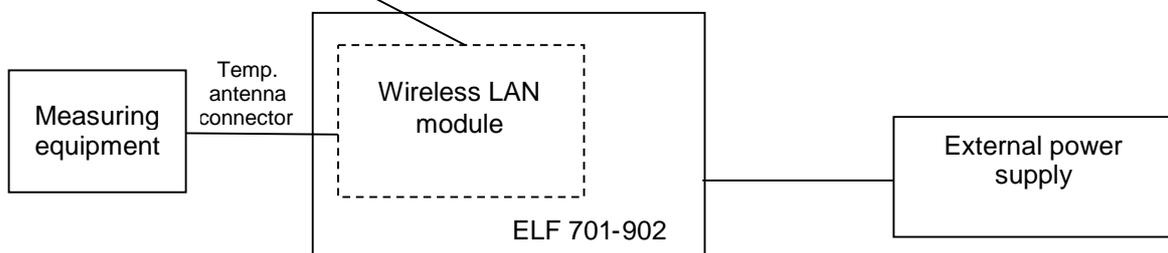
Preliminary tests were performed in different data rates to find worst-case configuration. The data rate shown in the table below shows the found worst-case rate with respect to specific test item. The following table shows a list of the test modes used for the worst-case results, documented in this report.

The following test modes were adjusted during the tests:

Test item	Operation mode
6 dB bandwidth	1 – 3 with 9 Mbps
Maximum peak output power	1 – 3 with 9 Mbps
Power spectral density	1 – 3 with 9 Mbps
Band edge compliance (conducted)	1 – 3 with 9 Mbps
Conducted emissions (transmitter)	1 – 3 with 9 Mbps

3 ADDITIONAL INFORMATION

None.

4 OVERVIEW

Application	Frequency range [MHz]	FCC 47 CFR Part 15 section	Status	Refer page
26 dB spectrum bandwidth	5,150 – 5,250 5,250 – 5,350 5,470 – 5,725	15.407 (a)	Passed	8 et seq.
Maximum conducted output power	5,150 – 5,250 5,250 – 5,350 5,470 – 5,725	15.407 (a)	Passed	14 et seq.
Power spectral density	5,150 – 5,250 5,250 – 5,350 5,470 – 5,725	15.407 (a)	Passed	21 et seq.
Peak excursion	5,150 – 5,250 5,250 – 5,350 5,470 – 5,725	15.407 (a)	Passed	28 et seq.
Bandedge compliance	5,150 – 5,250 5,250 – 5,350 5,470 – 5,725	15.407 (b)	Not ordered by the applicant	-
Frequency stability	5,150 – 5,250 5,250 – 5,350 5,470 – 5,725	15.407 (g)	Not ordered by the applicant	-
Out of band emissions (conducted)	30 * – 40,000	15.407 (b)	Passed	35 et seq.
Conducted emissions on supply line	0.15 – 30	15.207 (a)	Not ordered by the applicant	-

*: This measurement was carried out from the lower frequency of 30 MHz (not 1 GHz). The results below 1 GHz were used as orientation only. This was agreed between the applicant and the test laboratory.

5   TEST RESULTS

5.1   26 dB bandwidth

5.1.1   Method of measurement (26 dB bandwidth)

The calibration of the spectrum analyser has to be checked with the help of a known signal from a signal generator. The EUT has to be connected to the spectrum analyser via a low loss cable. If the EUT is not equipped with an antenna connector, a temporary antenna connector has to be installed. The EUT has to be switched on, the transmitter shall work with its maximum data rate. In case of multiple antennas, a combiner shall be used to couple the signal to the spectrum analyser.

The following spectrum analyser settings shall be used:
- Span: App. 2 to 3 times the 26 dB bandwidth, centred on the actual channel.
- Resolution bandwidth: 300 kHz.
- Video bandwidth: 1 MHz.
- Sweep: Auto.
- Detector function: peak.
- Trace mode: Max hold.

After trace stabilisation the marker shall be set on the signal peak. Use the 26 dB down measurement functionality of the spectrum analyser

The measurement will be performed on all channels.

Test set-up:

5.1.2   Test results (26 dB bandwidth)

| Ambient temperature	20 °C		Relative humidity	57 %

102732_030.wmf: 26 dB bandwidth on 5.18 GHz, 9 Mbps:
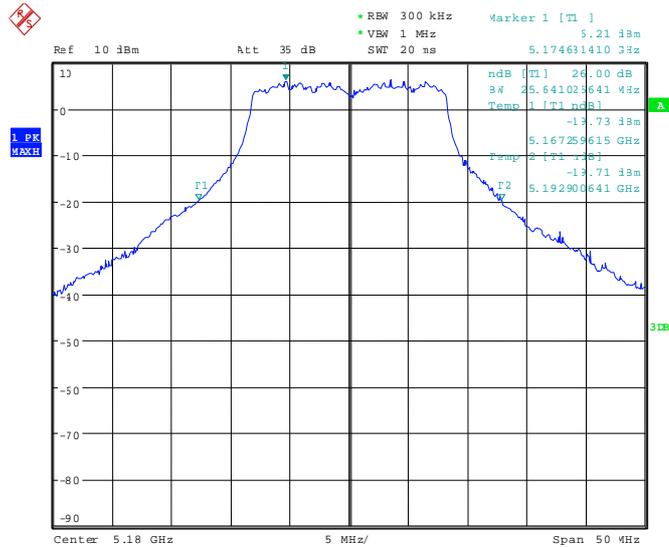
102732_031.wmf: 26 dB bandwidth on 5.20 GHz, 9 Mbps:
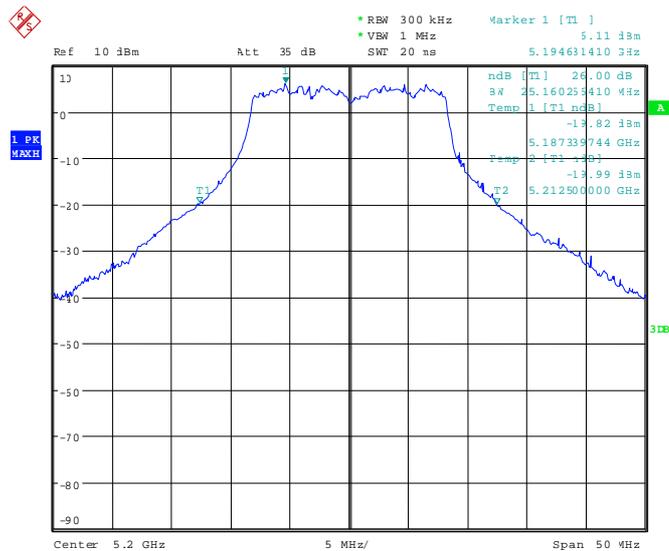
102732_032.wmf: 26 dB bandwidth on 5.24 GHz, 9 Mbps:
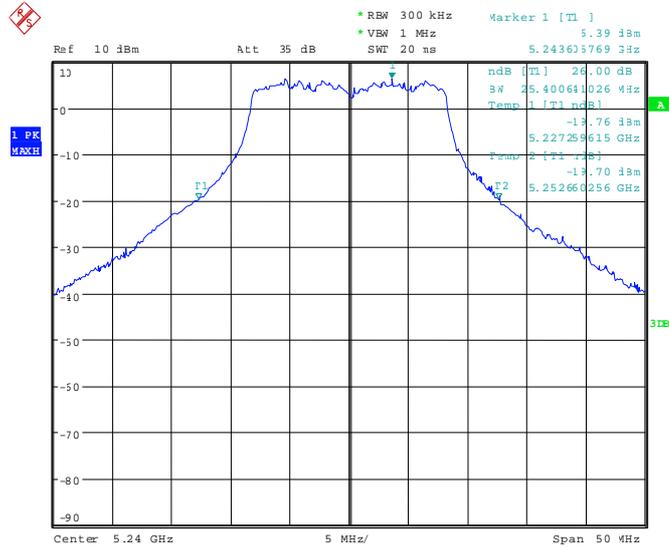
102732_033.wmf: 26 dB bandwidth on 5.26 GHz, 9 Mbps:
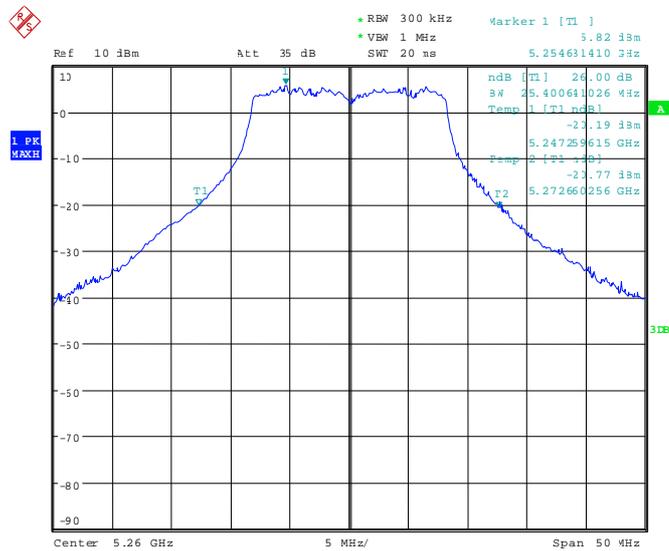
102732_034.wmf: 26 dB bandwidth on 5.28 GHz, 9 Mbps:
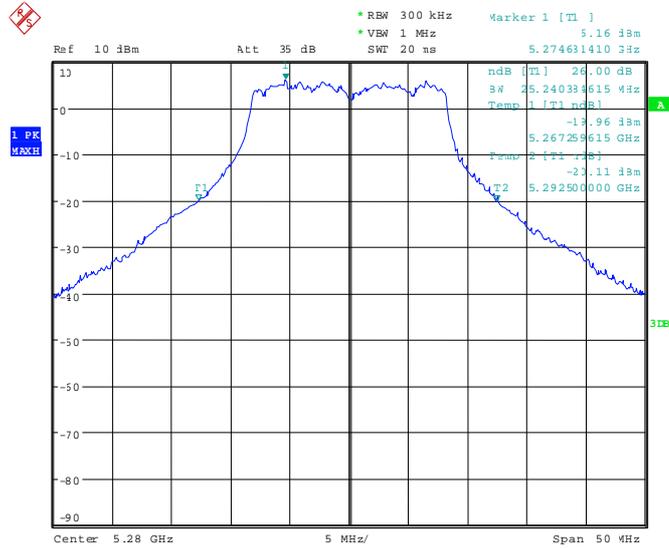
## 102732_035.wmf: 26 dB bandwidth on 5.32 GHz, 9 Mbps:
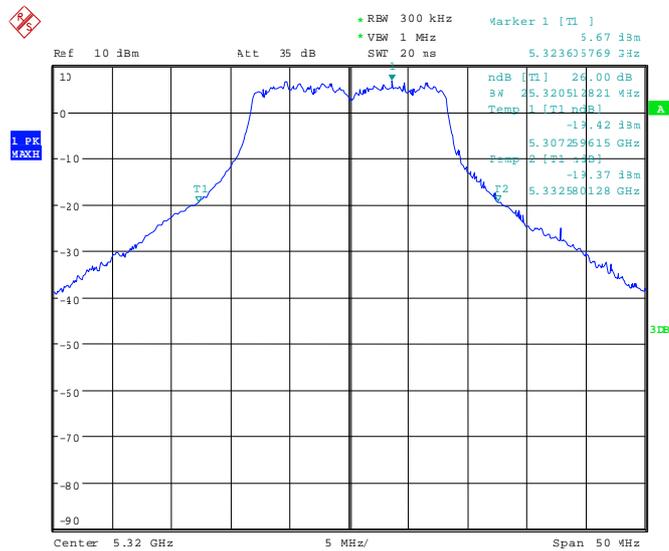
102732_036.wmf: 26 dB bandwidth on 5.50 GHz, 9 Mbps:
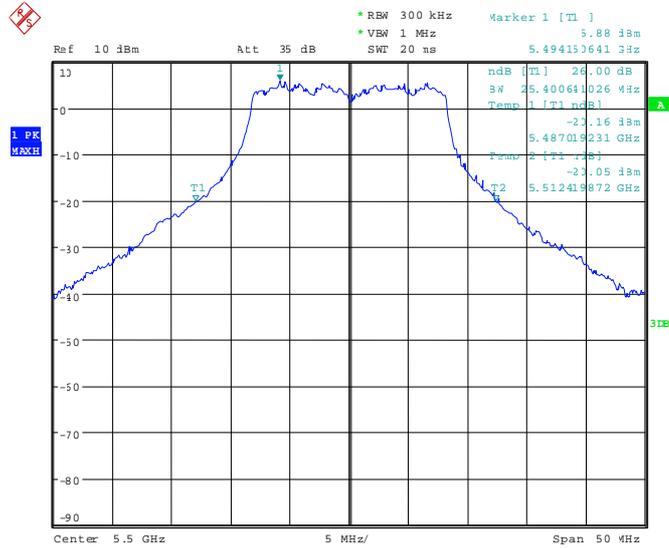
102732_037.wmf: 26 dB bandwidth on 5.60 GHz, 9 Mbps:
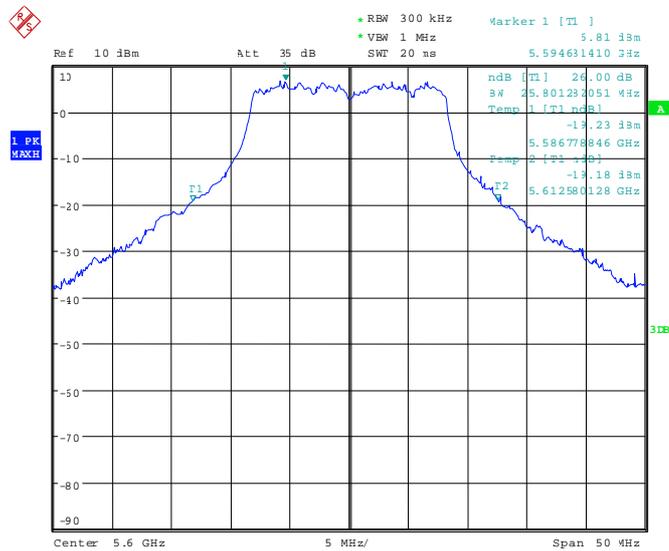
102732_038.wmf: 26 dB bandwidth on 5.70 GHz, 9 Mbps:
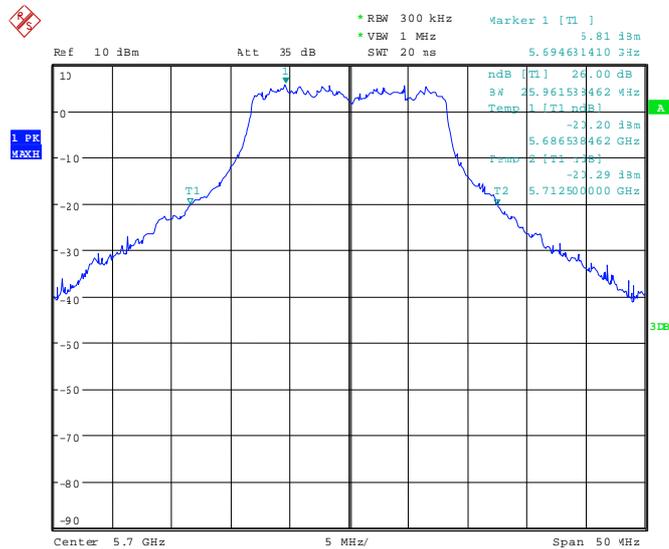
Operation mode 1 to 3 with 9 Mbps data rate (worst-case)		
Channel number	Channel frequency [MHz]	26 dB bandwidth [MHz]
36	5180	25.641026
40	5200	25.160256
48	5240	25.400642
Operation mode 4 to 6 with 9 Mbps data rate (worst-case)		
Channel number	Channel frequency [MHz]	26 dB bandwidth [MHz]
52	5260	25.400641
56	5280	25.240385
64	5320	25.320513
Operation mode 7 to 9 with 9 Mbps data rate (worst-case)		
Channel number	Channel frequency [MHz]	26 dB bandwidth [MHz]
100	5500	25.400641
120	5600	25.801282
140	5700	25.961538
Measurement uncertainty		$< \pm 1*10^{-7}$

TEST EQUIPMENT USED FOR THE TEST:
30

5.2 Maximum conducted output power

5.2.1 Method of measurement (maximum conducted output power)

The calibration of the spectrum analyser has to be checked with the help of a known signal from a signal generator. The EUT has to be connected to the spectrum analyser via a low loss cable. If the EUT is not equipped with an antenna connector, a temporary antenna connector has to be installed. The EUT has to be switched on, the transmitter shall work with its maximum data rate.

The following spectrum analyser settings shall be used:
- Span: Wide enough to encompass the entire emissions bandwidth (EBW) of the signal, centered on the actual channel.
- Resolution bandwidth: 1 MHz.
- Video bandwidth: 5 MHz.
- Sweep: Auto.
- Detector function: Sample
- Trace mode: Max hold.

Test will be performed in accordance with FCC Public Notice DA 02-2138, method 3. After trace stabilisation the marker shall be set on the signal peak. In case of multiple antennas, the measurement has to be repeated on each antenna port and the results have to be assumed.

The measurement will be performed on all channels.

Test set-up:

5.2.2 Test results (maximum conducted output power)

Ambient temperature	20 °C

Relative humidity	57 %

Measurement Procedure: Method 1

102732_048.wmf: Peak conducted transmit output power on 5.18 GHz, 9 Mbps:

Tx Channel				
Bandwidth	26 MHz	Power	10.82 dBm	
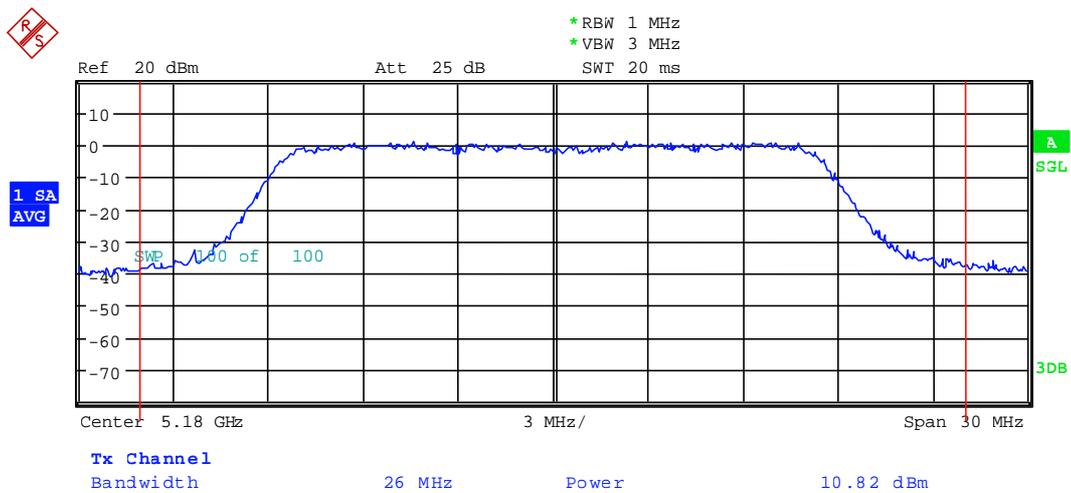
102732_049.wmf: Peak conducted transmit output power on 5.20 GHz, 9 Mbps:

Tx Channel				
Bandwidth	26 MHz	Power	10.77 dBm	
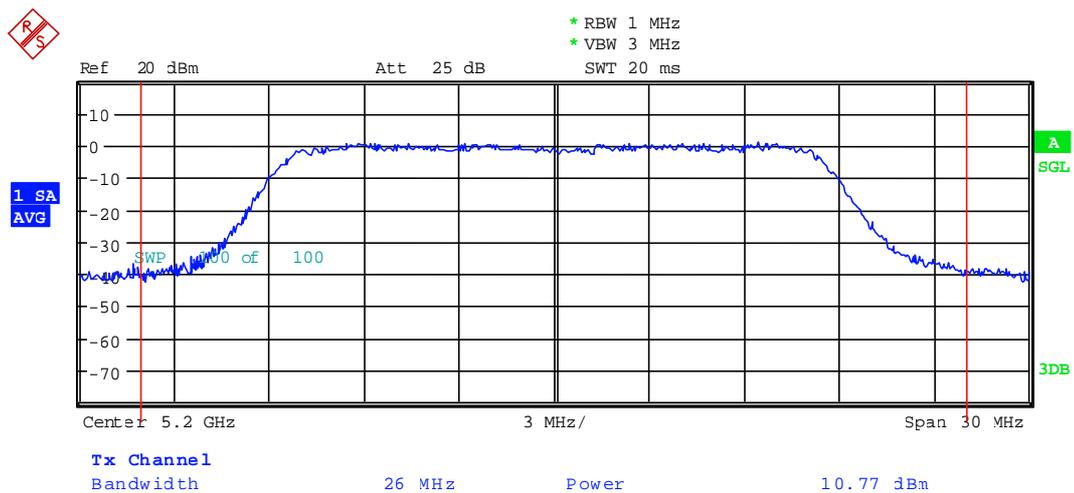
102732_050.wmf: Peak conducted transmit output power on 5.24 GHz, 9 Mbps:


```
                                          * RBW 1 MHz
                                          * VBW 3 MHz
        Ref   20 dBm          Att  25 dB    SWT 20 ms

          10
           0                                                      A
         -10                                                      SGL
  1 SA
  AVG    -20
         -30
         -40   SWP  100 of  100
         -50
         -60
         -70                                                      3DB

        Center 5.24 GHz            3 MHz/           Span 30 MHz
```

Tx Channel
Bandwidth   26 MHz   Power   11.05 dBm
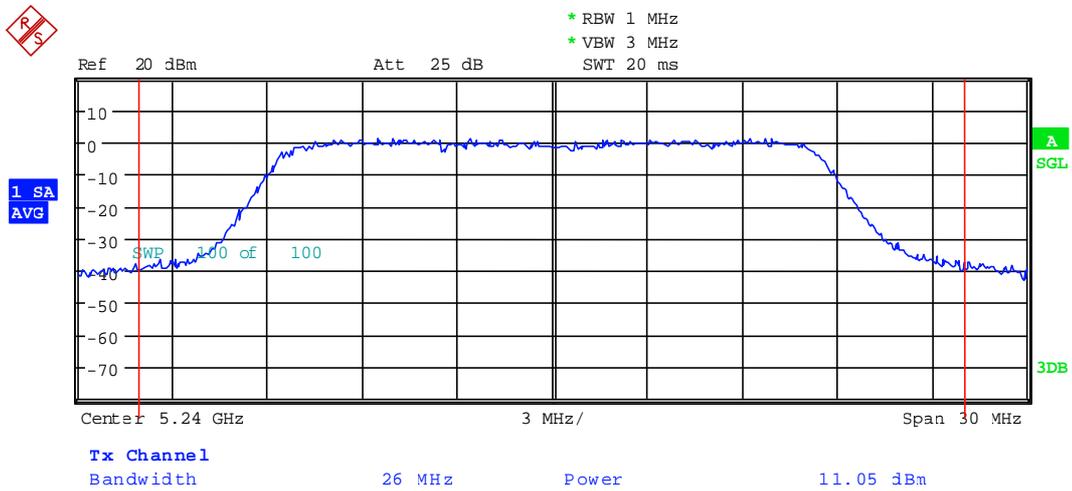
102732_051.wmf: Peak conducted transmit output power on 5.26 GHz, 9 Mbps:


```
                                          * RBW 1 MHz
                                          * VBW 3 MHz
        Ref   20 dBm          Att  25 dB    SWT 20 ms

          10
           0                                                      A
         -10                                                      SGL
  1 SA
  AVG    -20
         -30
         -40   SWP  100 of  100
         -50
         -60
         -70                                                      3DB

        Center 5.26 GHz            3 MHz/           Span 30 MHz
```

Tx Channel
Bandwidth   26 MHz   Power   10.63 dBm
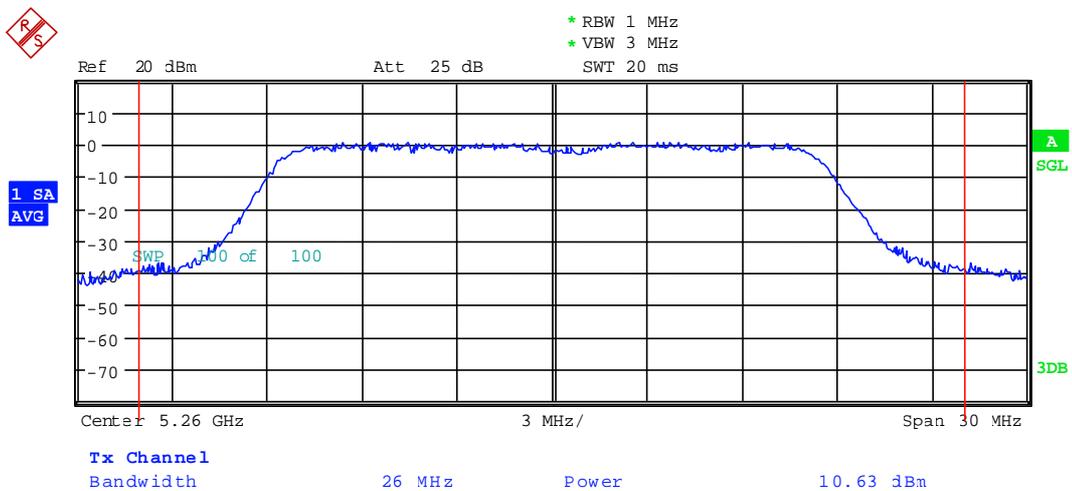
102732_056.wmf: Peak conducted transmit output power on 5.28 GHz, 9 Mbps:

```
                                              * RBW 1 MHz
                                              * VBW 3 MHz
        Ref   20 dBm            Att   25 dB      SWT 20 ms
```



```
Center 5.28 GHz                    3 MHz/              Span 30 MHz
```

Tx Channel
Bandwidth   26 MHz   Power   10.97 dBm
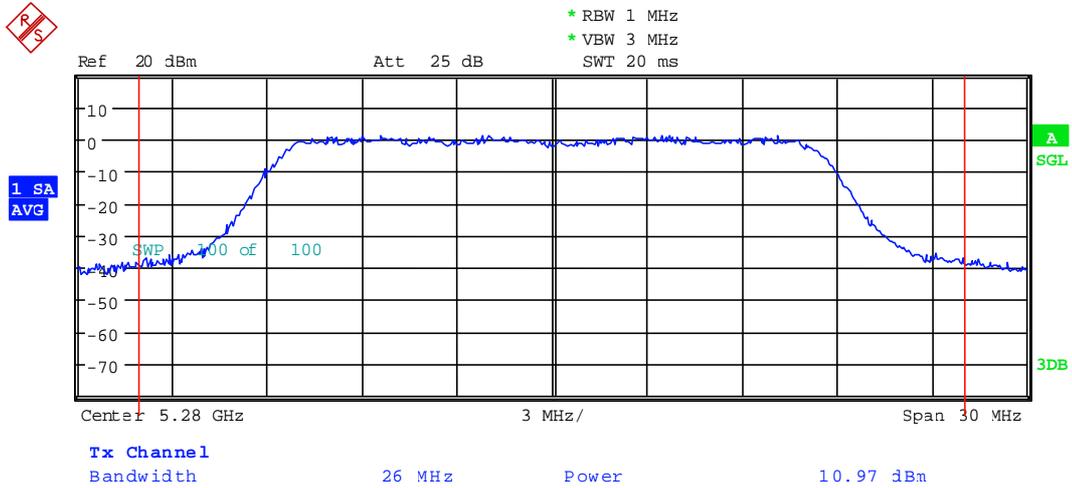
102732_052.wmf: Peak conducted transmit output power on 5.32 GHz, 9 Mbps:

```
                                              * RBW 1 MHz
                                              * VBW 3 MHz
        Ref   20 dBm            Att   25 dB      SWT 20 ms
```



```
Center 5.32 GHz                    3 MHz/              Span 30 MHz
```

Tx Channel
Bandwidth   26 MHz   Power   11.34 dBm
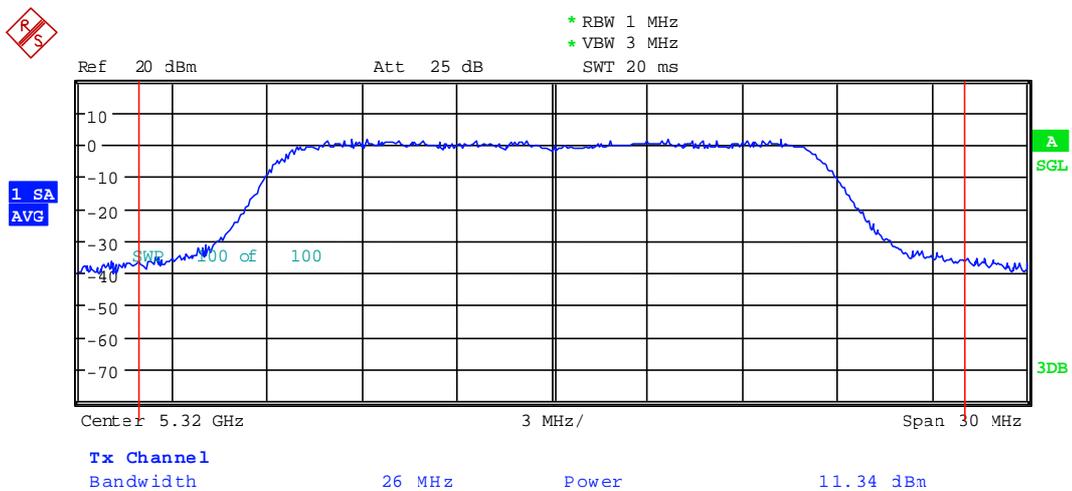
102732_053.wmf: Peak conducted transmit output power on 5.50 GHz, 9 Mbps:


```
                                          * RBW 1 MHz
                                          * VBW 3 MHz
    Ref   20 dBm              Att   25 dB    SWT 20 ms

     10
      0                                                        A
    -10                                                        SGL
  1 SA
  AVG
    -20
    -30
        AVG  100 of   100
    -40
    -50
    -60
    -70                                                        3DB

    Center 5.5 GHz              3 MHz/              Span 30 MHz
```

Tx Channel
Bandwidth   26 MHz   Power   10.83 dBm
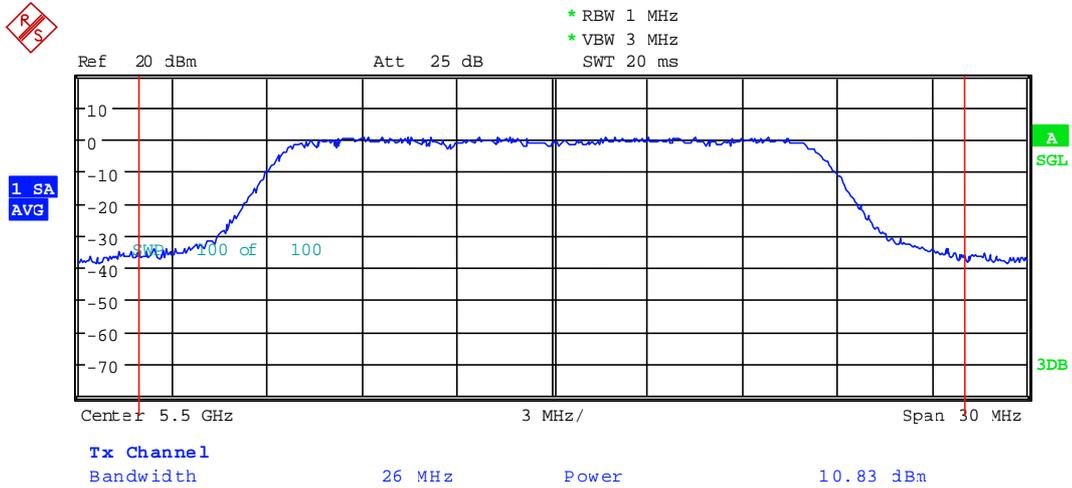
102732_054.wmf: Peak conducted transmit output power on 5.60 GHz, 9 Mbps:


```
                                          * RBW 1 MHz
                                          * VBW 3 MHz
    Ref   20 dBm              Att   25 dB    SWT 20 ms

     10
      0                                                        A
    -10                                                        SGL
  1 SA
  AVG
    -20
    -30
        AVG  100 of   100
    -40
    -50
    -60
    -70                                                        3DB

    Center 5.6 GHz              3 MHz/              Span 30 MHz
```

Tx Channel
Bandwidth   26 MHz   Power   11.23 dBm
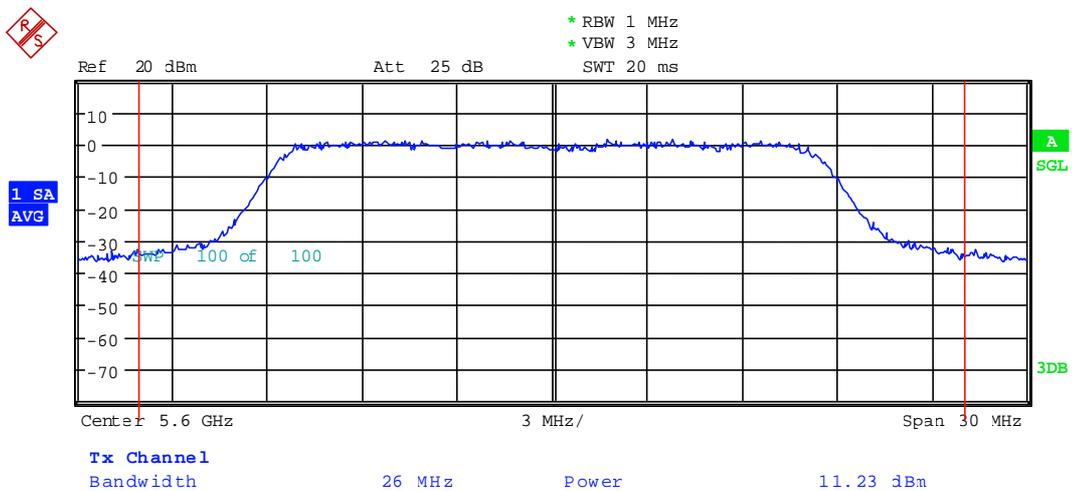
102732_055.wmf: Peak conducted transmit output power on 5.70 GHz, 9 Mbps:
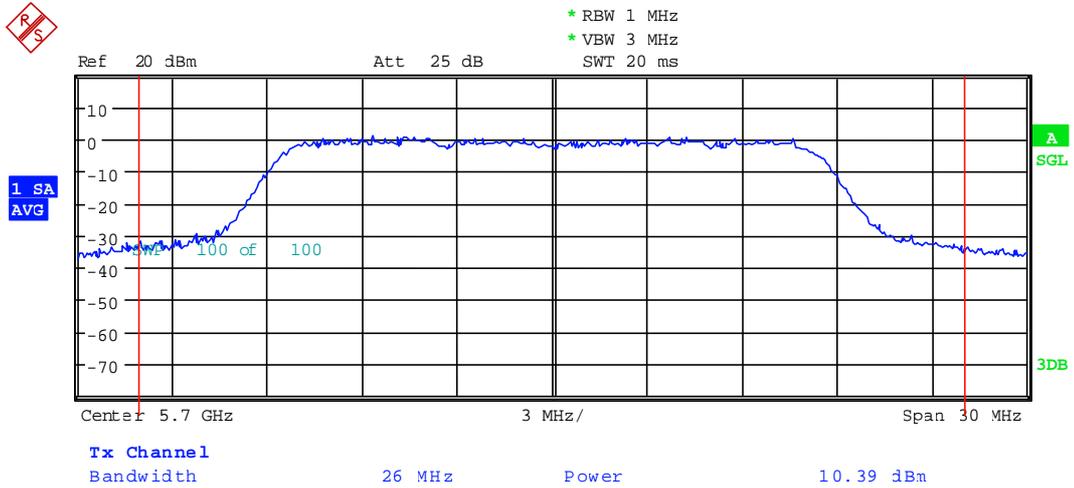
Tx Channel				
Bandwidth	26 MHz	Power	10.39 dBm

Operation mode 1 to 3 with 9 Mbps data rate (worst-case)				
Channel number	Channel frequency [MHz]	Maximum conducted output power [dBm]	Antenna gain [dBi]	Limit [dBm]
36	5180	10.8	0.5	17.0
44	5220	10.8	0.5	17.0
48	5240	11.1	0.5	17.0
Operation mode 4 to 6 with 9 Mbps data rate (worst-case)				
Channel number	Channel frequency [MHz]	Maximum peak output power [dBm]	Antenna gain [dBi]	Limit [dBm]
52	5260	10.6	0.5	24.0
56	5280	11.0	0.5	24.0
64	5320	11.3	0.5	24.0
Operation mode 7 to 9 with 9 Mbps data rate (worst-case)				
Channel number	Channel frequency [MHz]	Maximum peak output power [dBm]	Antenna gain [dBi]	Limit [dBm]
100	5500	10.8	0.5	24.0
120	5600	11.2	0.5	24.0
140	5700	10.4	0.5	24.0
Measurement uncertainty			+0.66 dB / -0.72 dB	

Test: Passed

TEST EQUIPMENT USED FOR THE TEST:
30

5.3 Peak power spectral density

5.3.1 Method of measurement (peak power spectral density)

The calibration of the spectrum analyser has to be checked with the help of a known signal from a signal generator. The EUT has to be connected to the spectrum analyser via a low loss cable. If the EUT is not equipped with an antenna connector, a temporary antenna connector has to be installed. In case of multiple antennas, a combiner shall be used to couple the signal to the spectrum analyser.

The following spectrum analyser settings shall be used:
- Span: Wide enough to encompass the entire emissions bandwidth (EBW) of the signal.
- Resolution bandwidth: 1 MHz.
- Video bandwidth: 3 MHz.
- Sweep: Auto.
- Trace mode: Sweep average with 100 sweeps.

After trace stabilisation the marker shall be set on the signal peak. The indicated level is the power spectral density.

Test set-up:

```
 +-------------------+              +-------------------+
 |                   |              |                   |
 |       EUT         |--------------| Spectrum analyser |
 |                   |              |                   |
 +-------------------+              +-------------------+
```
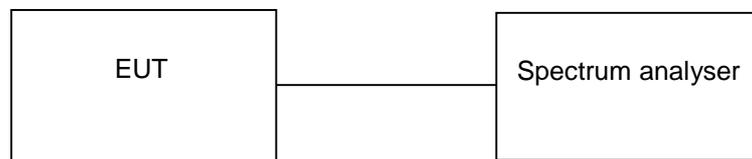
5.3.2 Test results (peak power spectral density)

| Ambient temperature	20 °C		Relative humidity	57 %

Measurement Procedure: Method 2

102732_039.wmf: Peak power spectral density on 5.18 GHz, 9 Mbps:
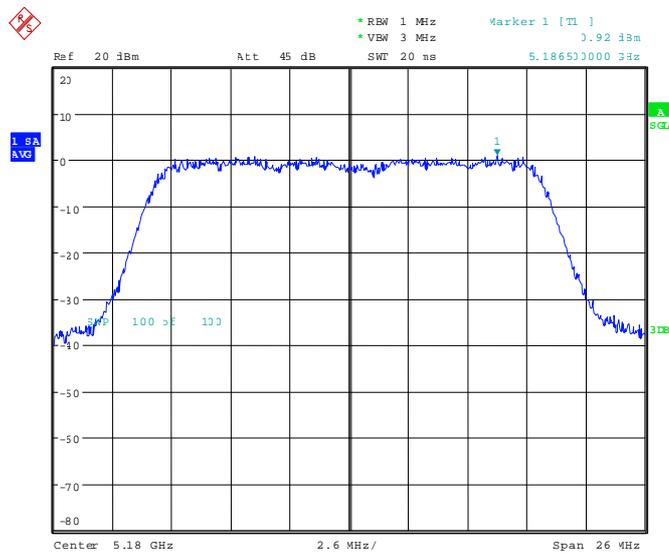

102732_040.wmf: Peak power spectral density on 5.20 GHz, 9 Mbps:
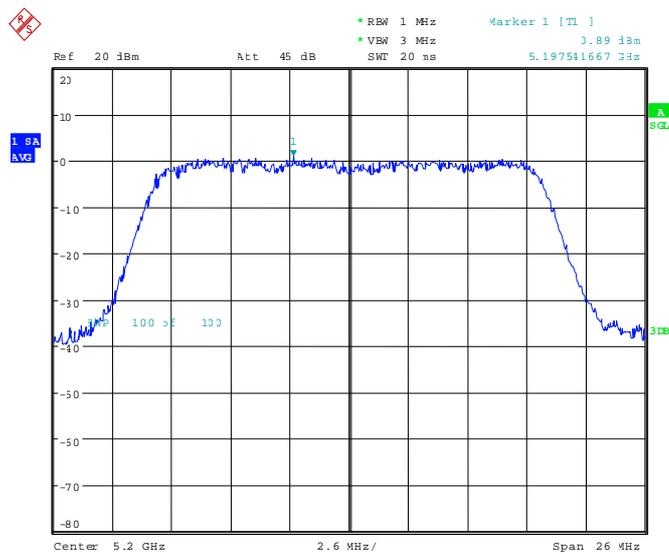
## 102732_041.wmf: Peak power spectral density on 5.24 GHz, 9 Mbps:
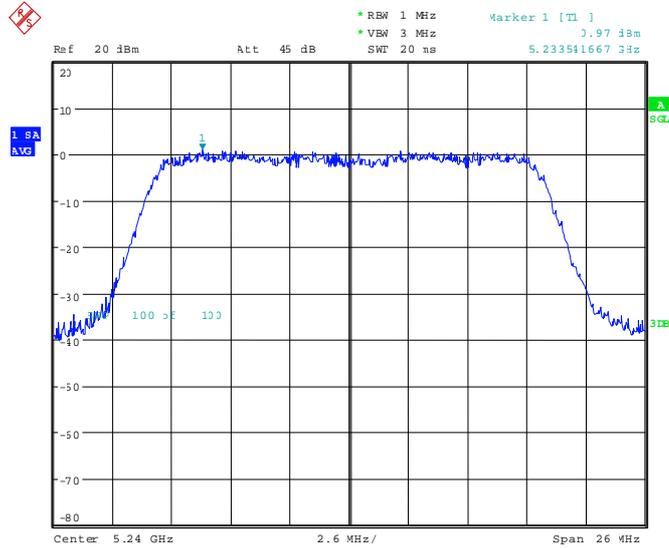
## 102732_042.wmf: Peak power spectral density on 5.26 GHz, 9 Mbps:
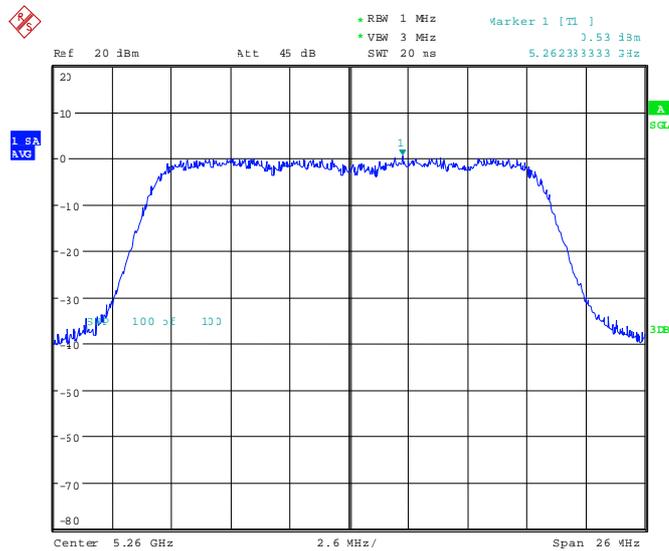
## 102732_043.wmf: Peak power spectral density on 5.28 GHz, 9 Mbps:
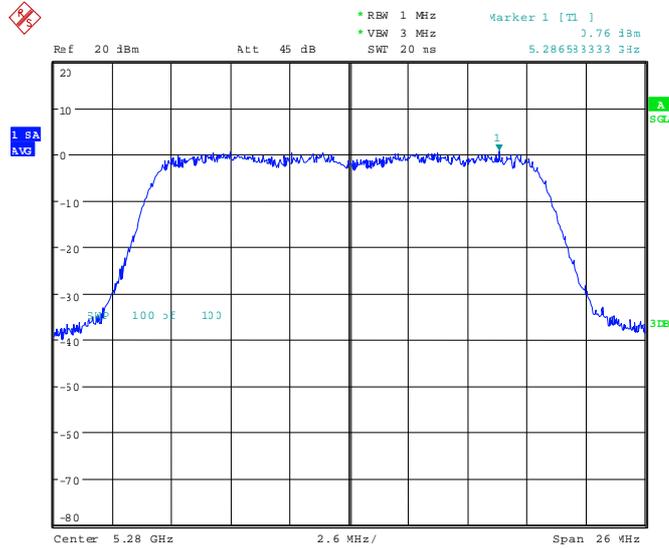
102732_044.wmf: Peak power spectral density on 5.32 GHz, 9 Mbps:
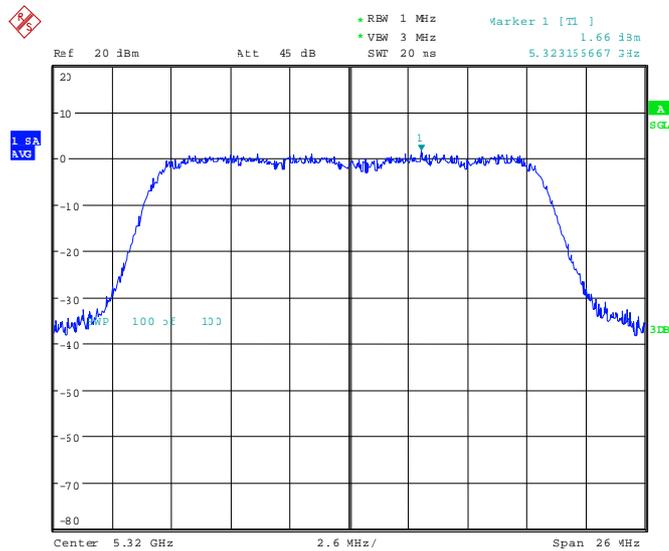
102732_045.wmf: Peak power spectral density on 5.50 GHz, 9 Mbps:
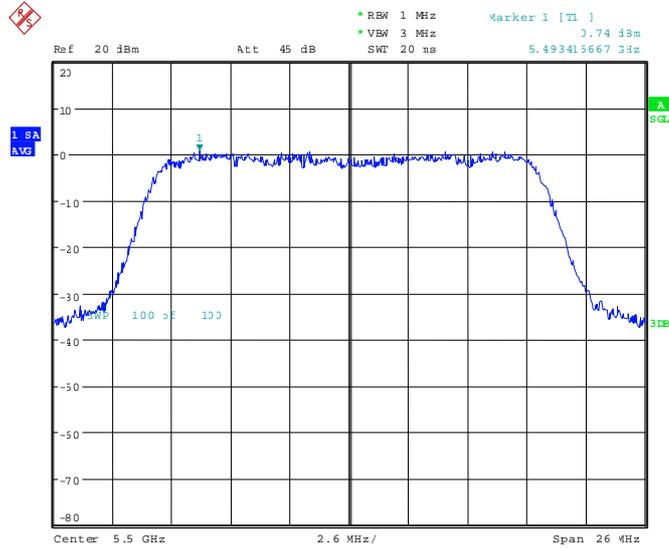
102732_046.wmf: Peak power spectral density on 5.60 GHz, 9 Mbps:
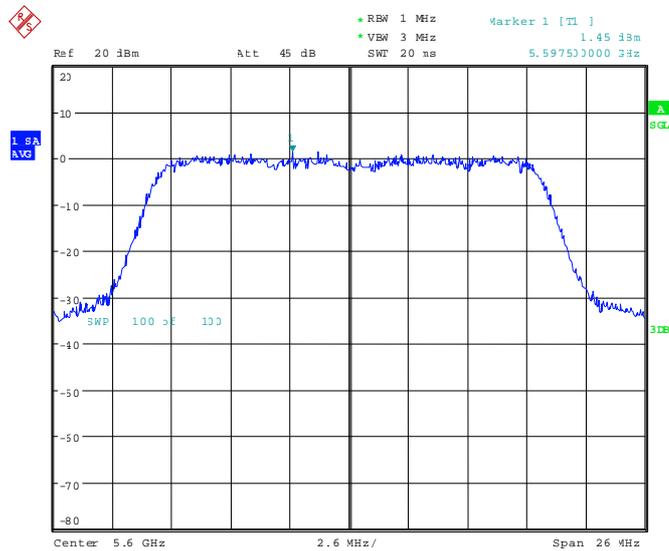
102732_047.wmf: Peak power spectral density on 5.70 GHz, 9 Mbps:
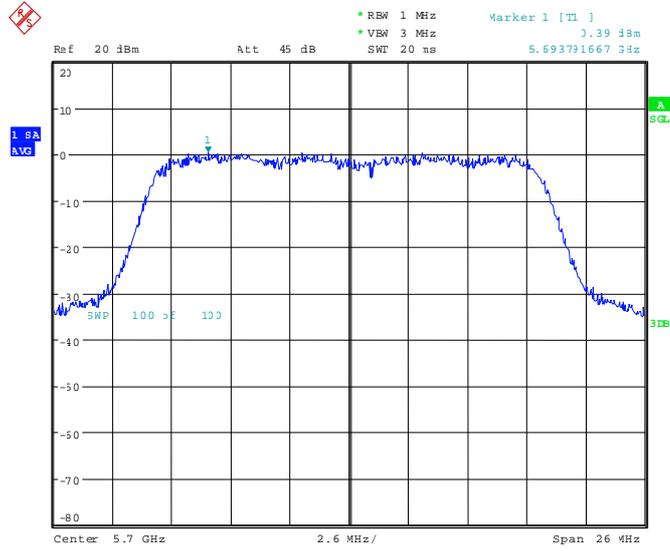
Operation mode 1 to 3 with 9 Mbps data rate (worst-case)				
Channel number	Channel frequency [MHz]	Power spectral density [dBm / 1 MHz]	Antenna gain [dBi]	Power spectral density limit [dBm / 1 MHz]
36	5180	0.9	0.5	4.0
44	5220	0.9	0.5	4.0
48	5240	1.0	0.5	4.0
Operation mode 4 to 6 n-mode with 9 Mbps data rate (worst-case)				
Channel number	Channel frequency [MHz]	Power spectral density [dBm / 1 MHz]	Antenna gain [dBi]	Power spectral density limit [dBm / 1 MHz]
52	5260	0.5	0.5	11.0
56	5280	0.8	0.5	11.0
64	5320	1.7	0.5	11.0
Operation mode 7 to 9 n-mode with 9 Mbps data rate (worst-case)				
Channel number	Channel frequency [MHz]	Power spectral density [dBm / 1 MHz]	Antenna gain [dBi]	Power spectral density limit [dBm / 1 MHz]
100	5500	0.7	0.5	11.0
120	5600	1.5	0.5	11.0
140	5700	0.4	0.5	11.0
Measurement uncertainty			+1.1 dB / -1.5 dB	

Test: Passed

TEST EQUIPMENT USED FOR THE TEST:
30

5.4 Peak excursion

### 5.4.1 Method of measurement (peak excursion)

The calibration of the spectrum analyser has to be checked with the help of a known signal from a signal generator. The EUT has to be connected to the spectrum analyser via a low loss cable. If the EUT is not equipped with an antenna connector, a temporary antenna connector has to be installed. In case of multiple antennas, a combiner shall be used to couple the signal to the spectrum analyser.

The following spectrum analyser settings shall be used:

- Span: Wide enough to encompass the entire emissions bandwidth (EBW) of the signal.
- Resolution bandwidth: 1 MHz (peak and average trace).
- Video bandwidth: 3 MHz (peak trace) / 300 kHz (average trace).
- Sweep: Auto.
- Detector function: Peak (peak trace) / sample (average trace).
- Trace mode: Max hold (for 60 s at least).

After trace stabilisation the marker shall be set on the signal peak. Set the first marker on the peak of the peak trace. The second (delta) marker has to be set on the minimum of the average trace.

Test set-up:

5.4.2 Test results (peak excursion)

| Ambient temperature	20 °C		Relative humidity	57 %

102732_057.wmf: Peak excursion on 5.18 GHz, 9 Mbps:
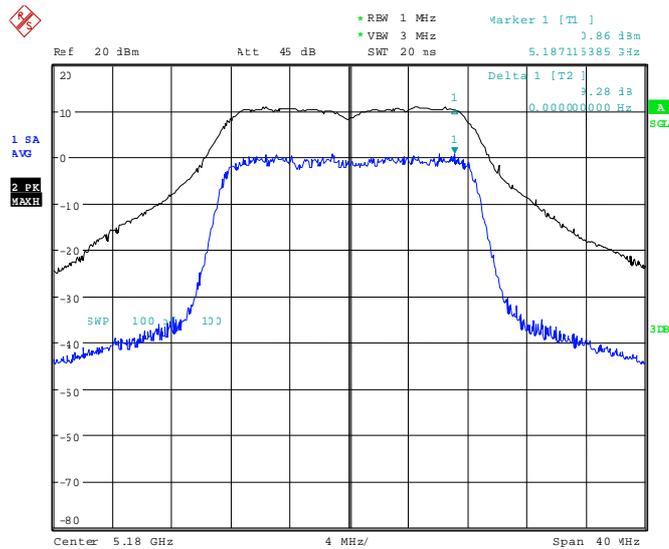
102732_058.wmf: Peak excursion on 5.20 GHz, 9 Mbps:
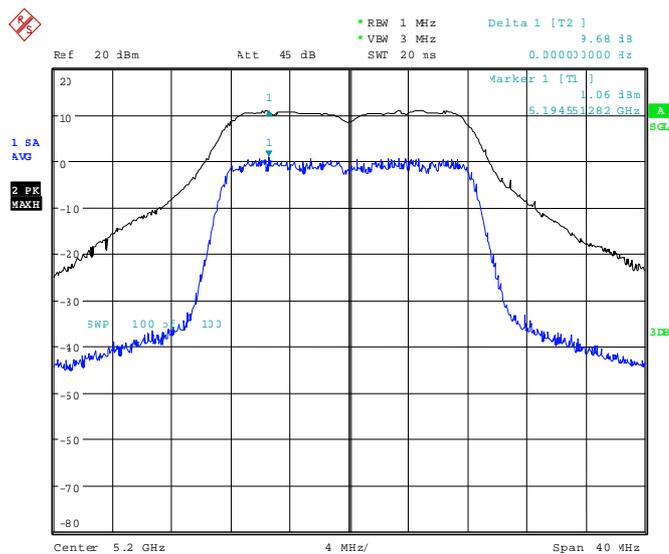
102732_059.wmf: Peak excursion on 5.24 GHz, 9 Mbps:
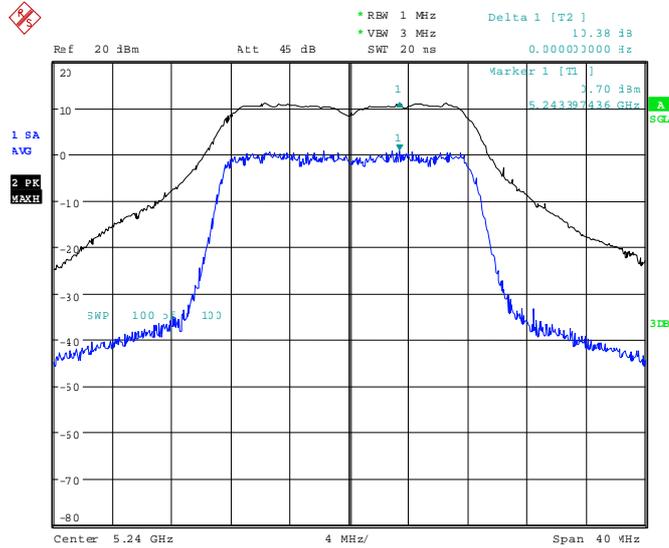

102732_060.wmf: Peak excursion on 5.26 GHz, 9 Mbps:
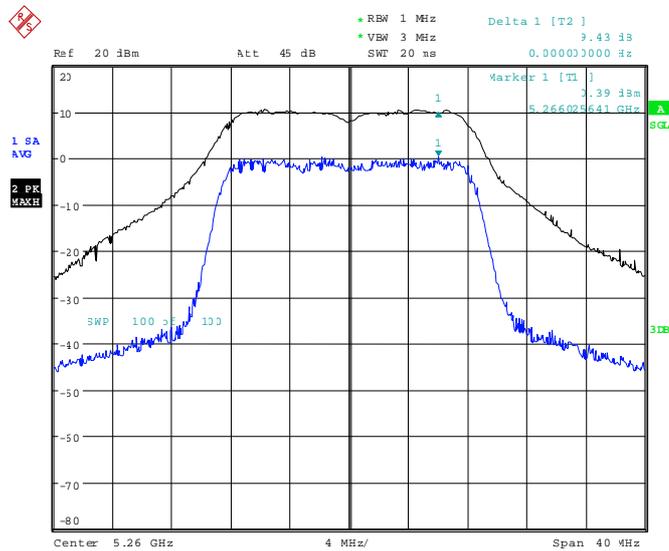
102732_061.wmf: Peak excursion on 5.28 GHz, 9 Mbps:
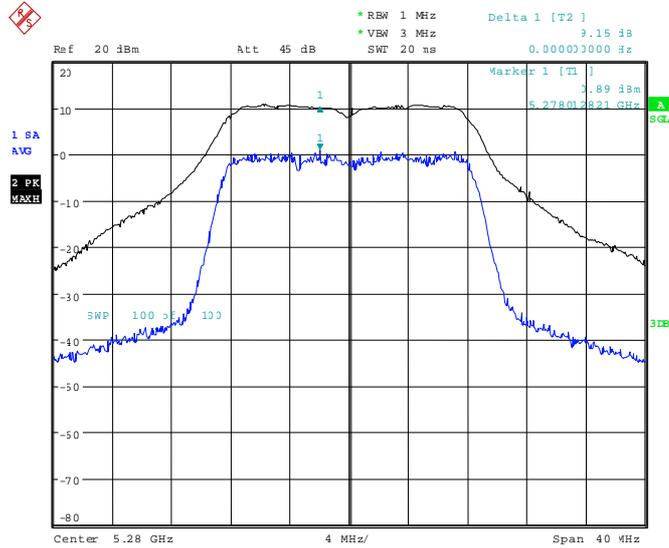

## 102732_062.wmf: Peak excursion on 5.32 GHz, 9 Mbps:
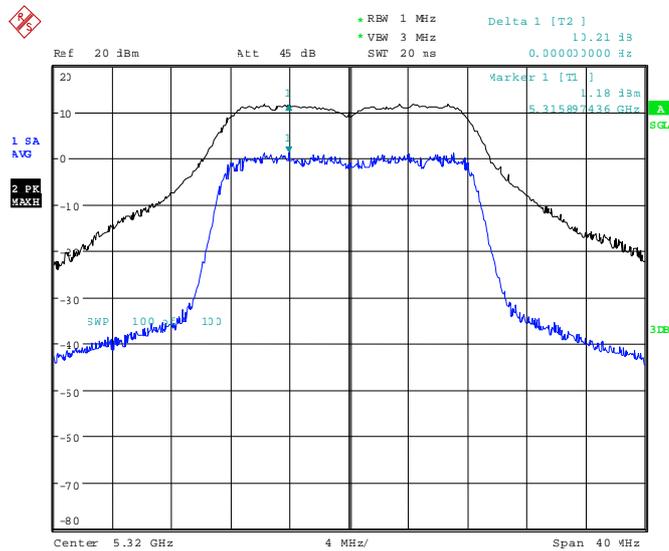
102732_063.wmf: Peak excursion on 5.50 GHz, 9 Mbps:
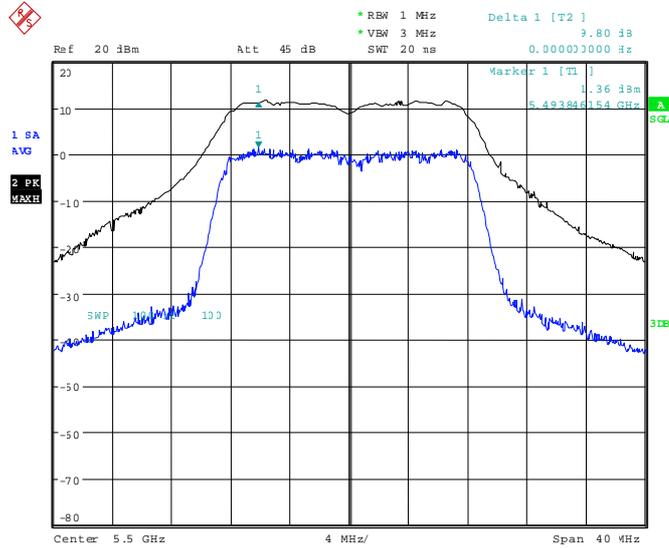
102732_064.wmf: Peak excursion on 5.60 GHz, 9 Mbps:
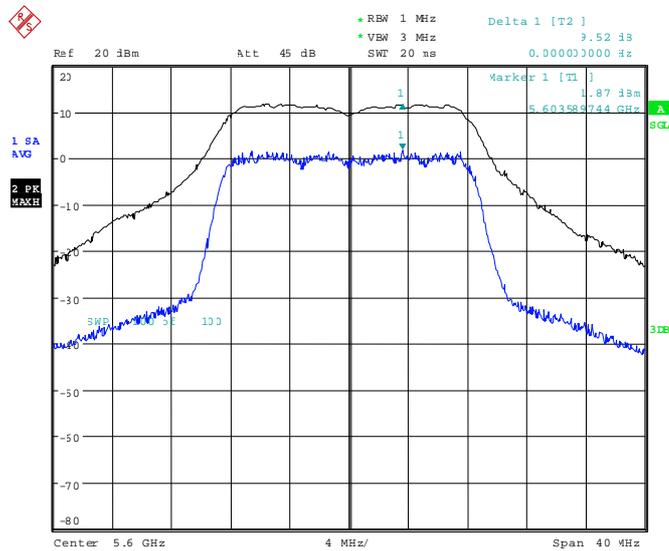
102732_065.wmf: Peak excursion on 5.70 GHz, 9 Mbps:
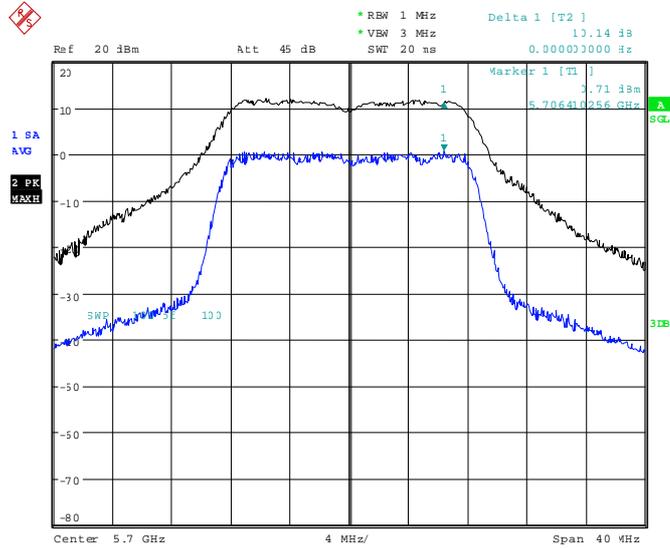
Operation mode 1 to 3 with 9 Mbps data rate (worst-case)			
Channel number	Channel frequency [MHz]	Peak excursion [dB]	Peak excursion limit [dB]
36	5180	9.3	13.0
44	5220	9.7	13.0
48	5240	10.4	13.0
Operation mode 4 to 6 n-mode with 9 Mbps data rate (worst-case)			
Channel number	Channel frequency [MHz]	Peak excursion [dB]	Peak excursion limit [dB]
52	5260	9.4	13.0
56	5280	9.2	13.0
64	5320	10.2	13.0
Operation mode 4 to 6 n-mode with 9 Mbps data rate (worst-case)			
Channel number	Channel frequency [MHz]	Peak excursion [dB]	Peak excursion limit [dB]
100	5500	9.8	13.0
120	5600	9.5	13.0
140	5700	10.1	13.0
Measurement uncertainty			+1.1 dB / -1.5 dB

Test: Passed

TEST EQUIPMENT USED FOR THE TEST:
30

5.5 Out of band emissions (conducted)

5.5.1 Method of measurement (out of band emissions (conducted)

The calibration of the spectrum analyser has to be checked with the help of a known signal from a signal generator. The EUT has to be connected to the spectrum analyser via a low loss cable. If the EUT is not equipped with an antenna connector, a temporary antenna connector has to be installed.

The following spectrum analyser settings shall be used:

- Frequency range: 30 MHz to 1 GHz, 1 GHz to 5.15 / 5.47 GHz and 5.35 / 5.725 GHz to 40 GHz.
- Resolution bandwidth: 1 MHz.
- Video bandwidth: 1 MHz.
- Sweep: Auto.
- Detector function: Peak.
- Trace mode: Max hold.

After trace stabilisation the marker shall be set on the signal peak. The correct frequency of the emission and its amplitude should be measured.

5.5.2 Test results (out of band emissions (conducted))

Ambient temperature	20 °C		Relative humidity	57 %

Transmitter operates on 5.18 GHz:

102732_093.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
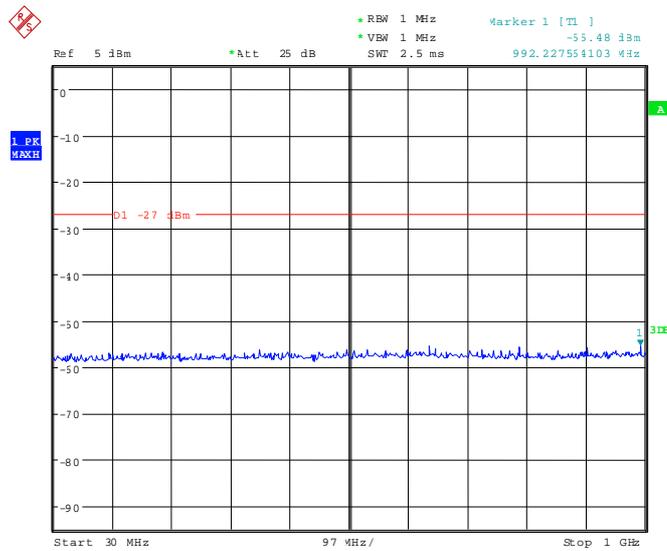
102732_066.wmf: Out of band emissions from 1 GHz to 5.15 GHz:
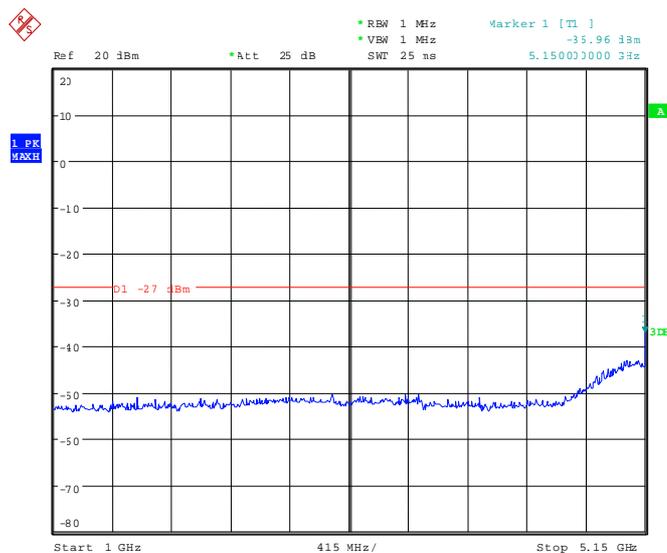
102732_071.wmf: Out of band emissions from 5.35 GHz to 8 GHz:
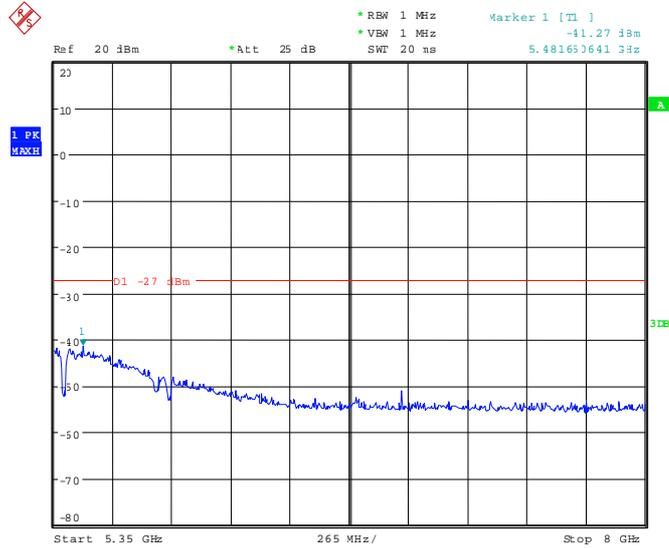
102732_072.wmf: Out of band emissions from 8 GHz to 40 GHz:
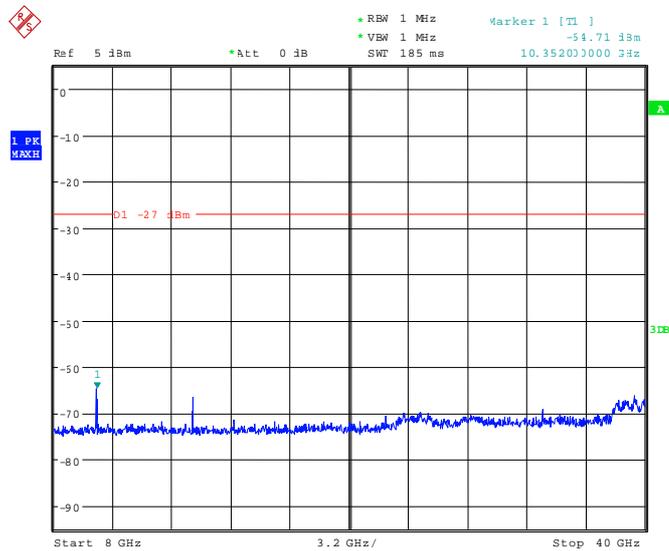
All emissions were at least 10 dB below the limit.

Transmitter operates on 5.20 GHz:

102732_094.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
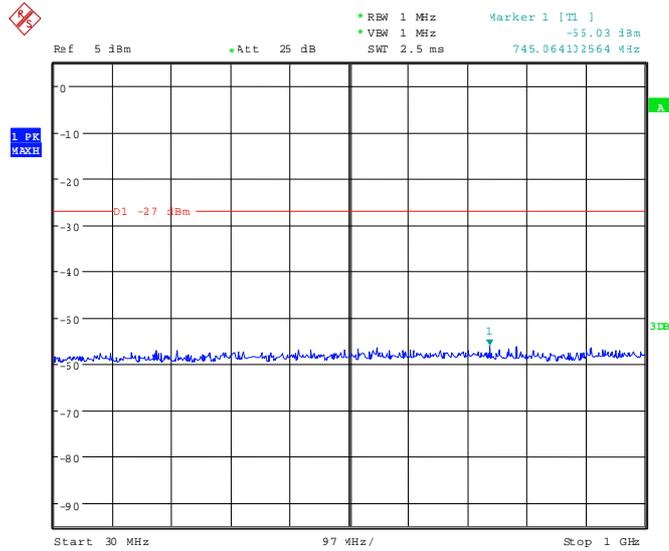
102732_067.wmf: Out of band emissions from 1 GHz to 5.15 GHz:

102732_070.wmf: Out of band emissions from 5.35 GHz to 8 GHz:

102732_073.wmf: Out of band emissions from 8 GHz to 40 GHz:

All emissions were at least 14 dB below the limit.
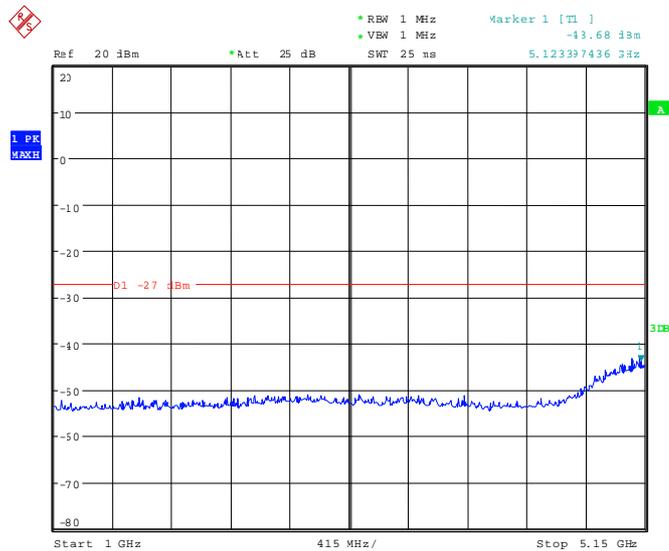
Transmitter operates on 5.24 GHz:

102732_095.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
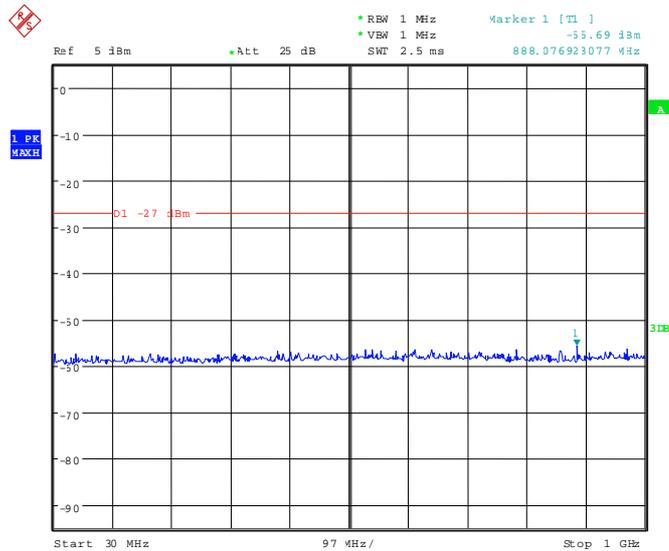
102732_068.wmf: Out of band emissions from 1 GHz to 5.15 GHz:
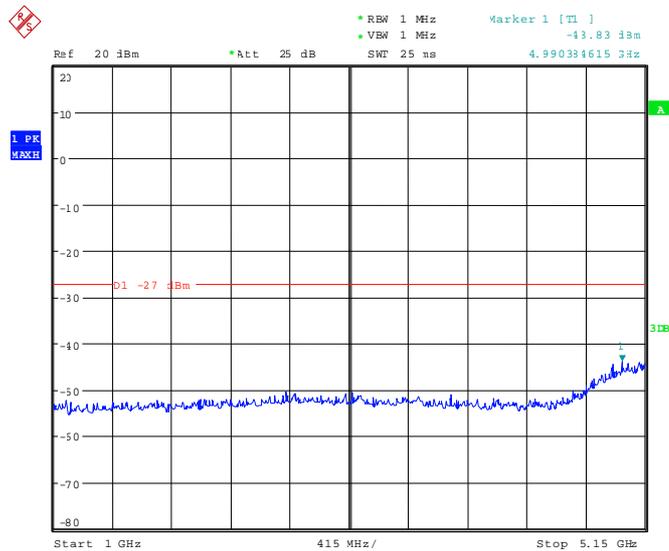
102732_069.wmf: Out of band emissions from 5.35 GHz to 8 GHz:
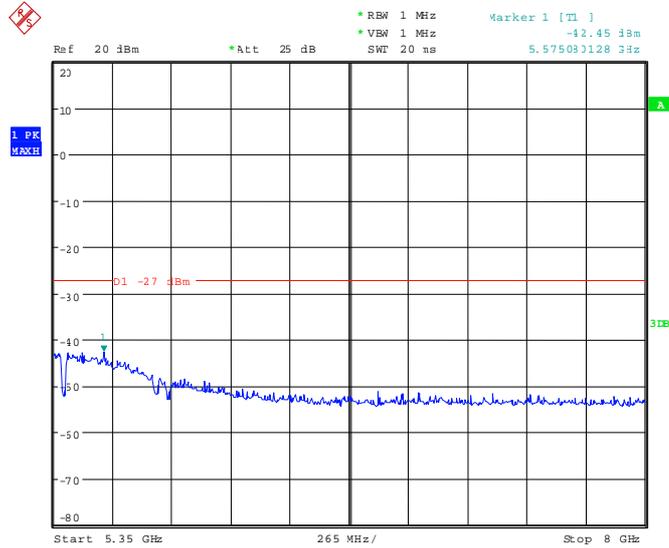
102732_074.wmf: Out of band emissions from 8 GHz to 40 GHz:
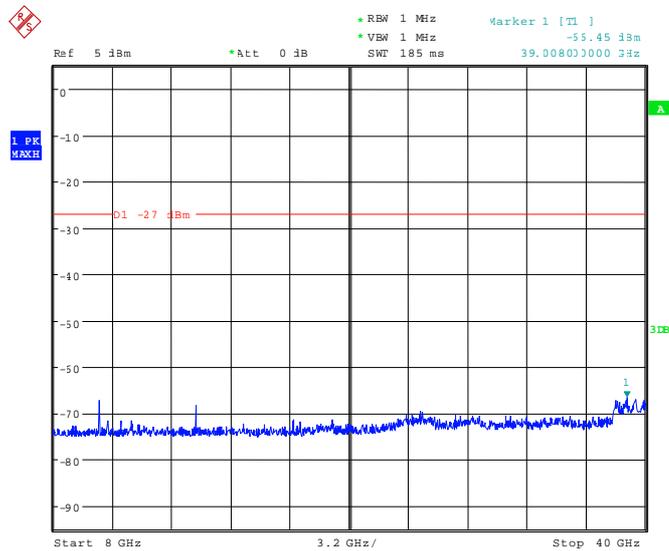
All emissions were at least 15 dB below the limit.

Transmitter operates on 5.26 GHz:

102732_096.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
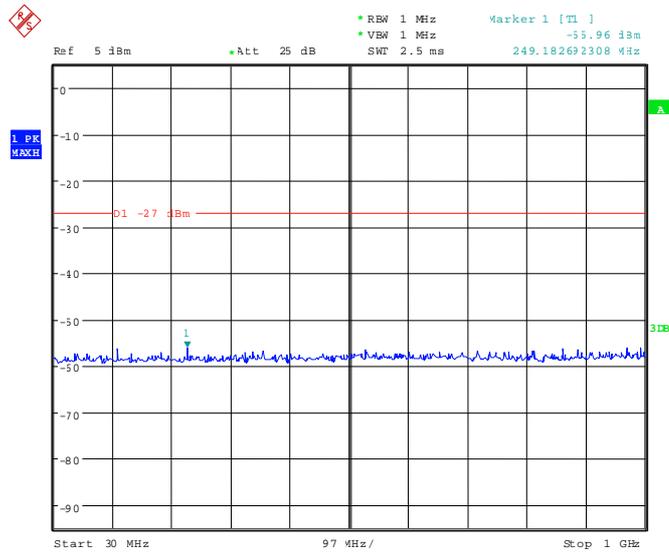

102732_075.wmf: Out of band emissions from 1 GHz to 5.15 GHz:

102732_080.wmf: Out of band emissions from 5.35 GHz to 8 GHz:

102732_081.wmf: Out of band emissions from 8 GHz to 40 GHz:

All emissions were at least 12 dB below the limit.
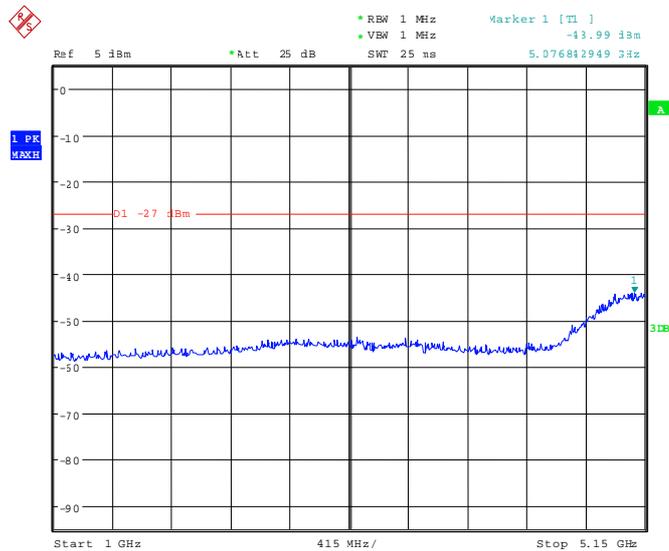
Transmitter operates on 5.28 GHz:

102732_097.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
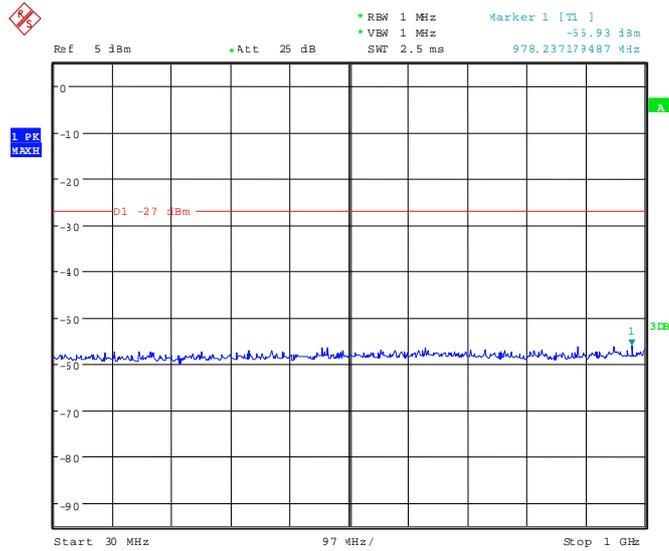
102732_076.wmf: Out of band emissions from 1 GHz to 5.15 GHz:

102732_079.wmf: Out of band emissions from 5.35 GHz to 8 GHz:

102732_082.wmf: Out of band emissions from 8 GHz to 40 GHz:

All emissions were at least 13 dB below the limit.
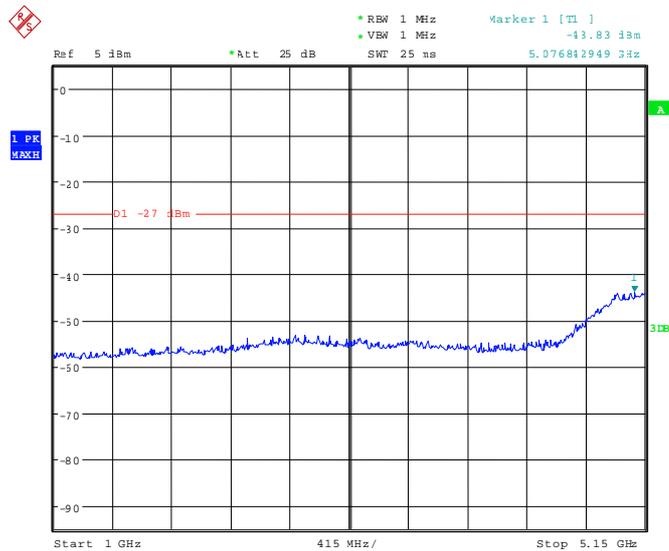
Transmitter operates on 5.32 GHz:

102732_098.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
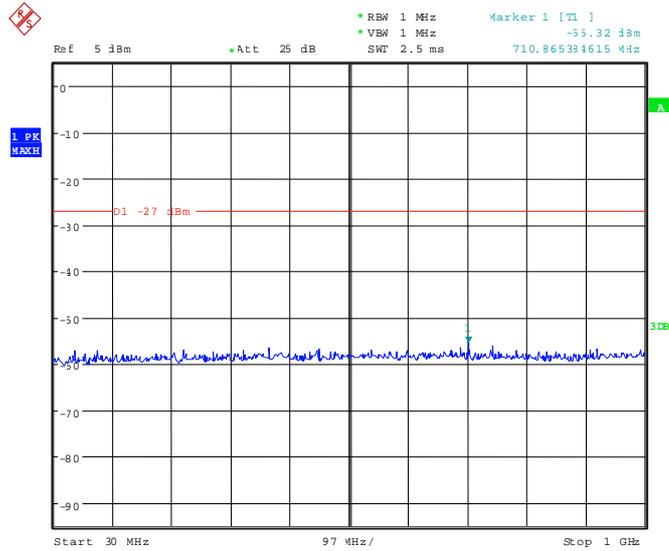
102732_077.wmf: Out of band emissions from 1 GHz to 5.15 GHz:
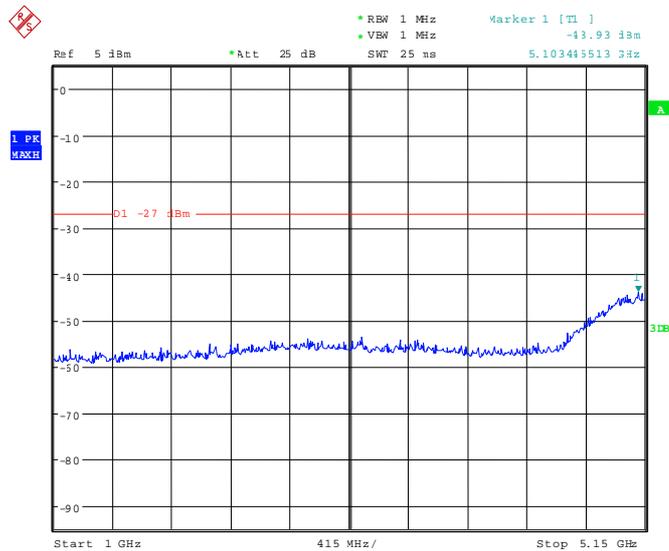
102732_078.wmf: Out of band emissions from 5.35 GHz to 8 GHz:
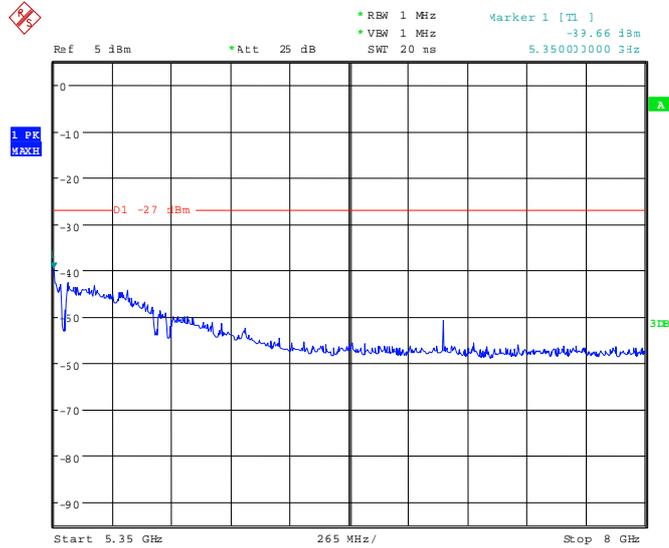
102732_083.wmf: Out of band emissions from 8 GHz to 40 GHz:

All emissions were at least 12 dB below the limit.

Transmitter operates on 5.50 GHz:

102732_099.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):


102732_090.wmf: Out of band emissions from 1 GHz to 5.47 GHz:

102732_089.wmf: Out of band emissions from 5.725 GHz to 8 GHz:

102732_084.wmf: Out of band emissions from 8 GHz to 40 GHz:

All emissions were at least 13 dB below the limit.

Transmitter operates on 5.60 GHz:

102732_100.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):

102732_091.wmf: Out of band emissions from 1 GHz to 5.47 GHz:

102732_088.wmf: Out of band emissions from 5.725 GHz to 8 GHz:
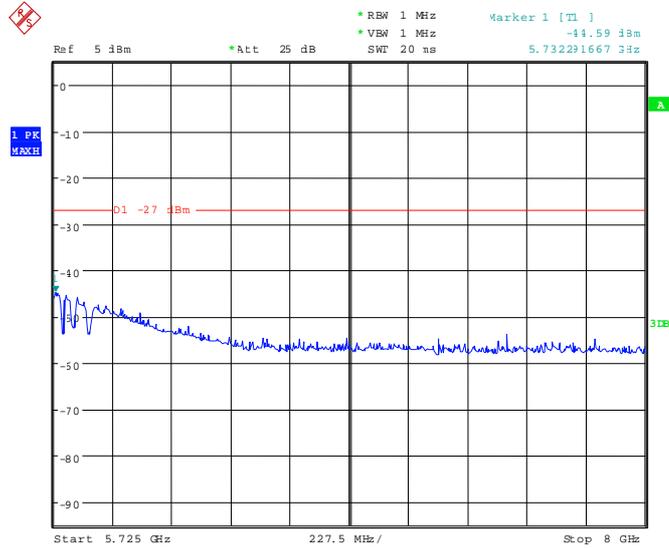
102732_085.wmf: Out of band emissions from 8 GHz to 40 GHz:
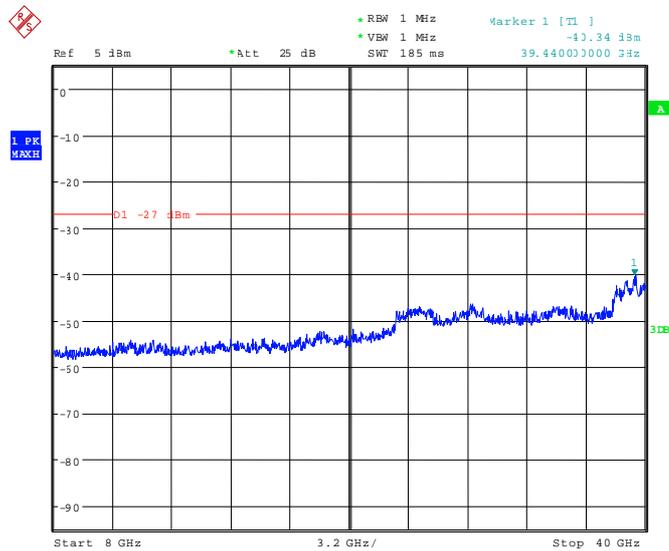
All emissions were at least 13 dB below the limit.

Transmitter operates on 5.70 GHz:

102732_101.wmf: Out of band emissions from 30 MHz to 1 GHz (for orientation only):
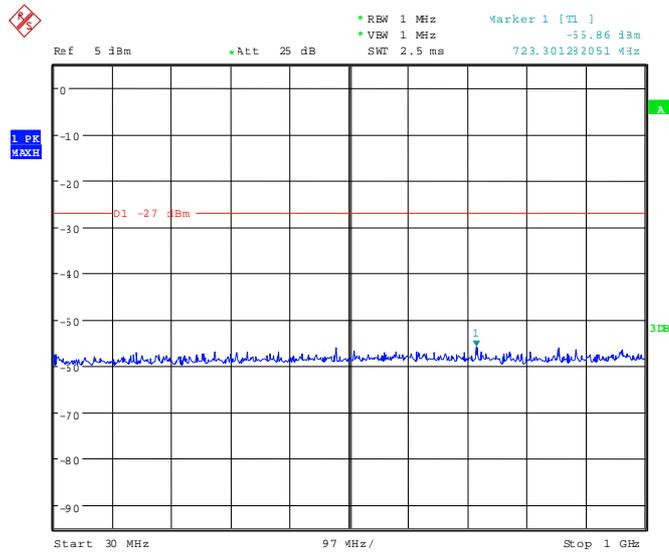

102732_092.wmf: Out of band emissions from 1 GHz to 5.47 GHz:
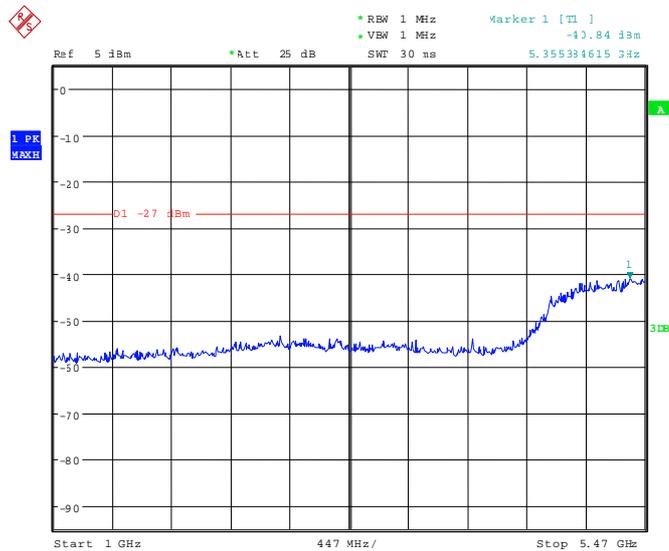
102732_087.wmf: Out of band emissions from 5.725 GHz to 8 GHz:
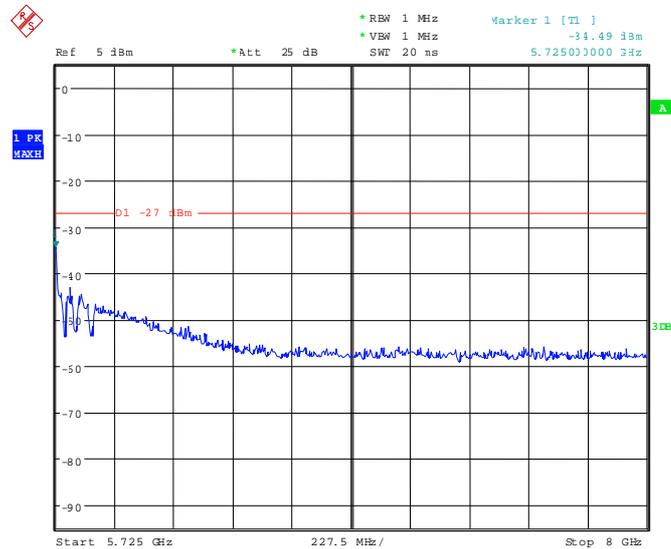
102732_086.wmf: Out of band emissions from 8 GHz to 40 GHz:
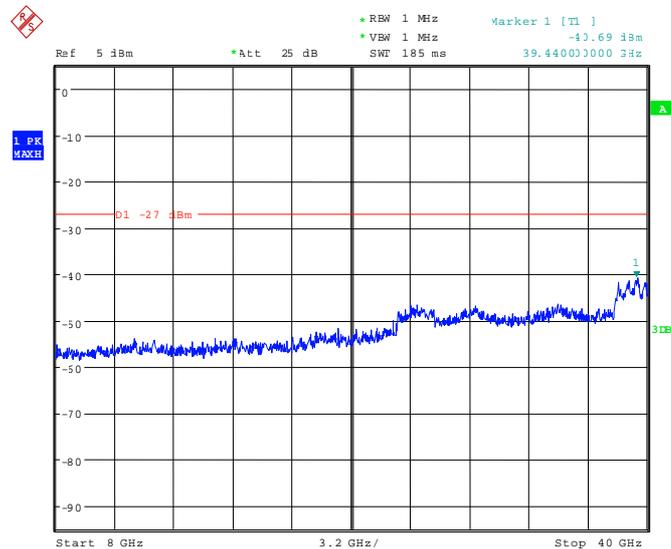
All emissions were at least 7.5 dB below the limit.

Test result: Test passed

TEST EQUIPMENT USED FOR THE TEST:
30, 74, 87

6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

No.	Test equipment	Type	Manufacturer	Serial No.	PM. No.	Cal. Date	Cal. due
30	Spectrum analyser	FSU	Rohde & Schwarz	200125	480956	04/15/2010	04/2012
74	High Pass Filter	WHKX8.0/18 G-8SS	Wainwright Instruments GmbH	4	480586	Monthly verification	
87	Tuneable Band reject Filter	WRCJ5100/5 850-20/50-8SSK	Wainwright Instruments GmbH	1	480681	Monthly verification	

7 REPORT HISTORY

Report Number	Date	Comment
F102732E2	02 November 2010	Document created

8 LIST OF ANNEXES

ANNEX A   TEST SETUP PHOTOS   1 page

     102732_a.jpg: ELF 701-902, test set-up

ANNEX B   INTERNAL PHOTOGRAPHS   15 pages

     102732_23.jpg: ELF 701-902, internal view
     102732_16.jpg: ELF 701-902, detail view to rear housing
     102732_19.jpg: ELF 701-902, main PCB, top view
     102732_24.jpg: ELF 701-902, main PCB, top view, display removed
     102732_22.jpg: ELF 701-902, main PCB, top view, shielding removed
     102732_18.jpg: ELF 701-902, main PCB, bottom view
     102732_21.jpg: ELF 701-902, main PCB, bottom view, WLAN-module removed
     102732_20.jpg: ELF 701-902, main PCB, bottom view, shielding removed
     102732_17.jpg: ELF 701-902, main PCB, bottom view, GSM-module removed
     102732_14.jpg: ELF 701-902, GSM-module, top view
     102732_15.jpg: ELF 701-902, GSM-module, bottom view
     102732_8.jpg: ELF 701-902, WLAN-module, top view
     102732_9.jpg: ELF 701-902, WLAN-module, top view, shielding removed
     102732_10.jpg: ELF 701-902, WLAN-module, bottom view
     102732_11.jpg: ELF 701-902, Display PCB

Annex C   EXTERNAL PHOTOGRAPHS   6 pages

     102732_1.jpg: ELF 701-902, 3-D view 1
     102732_2.jpg: ELF 701-902, 3-D view 2
     102732_3.jpg: ELF 701-902, type plate (rear) view
     102732_25.jpg: ELF 701-902, type plate (battery cover) view
     102732_4.jpg: ELF 701-902, rear view (battery cover removed)
     102732_5.jpg: ELF 701-902, AC/DC adaptor