**CETECOM™****CETECOM ICT Services**
consulting - testing - certification >>>**TEST REPORT**

Test report no.: 1-8390/14-01-05

Deutsche
Akkreditierungsstelle
D-PL-12076-01-00**Testing laboratory****CETECOM ICT Services GmbH**
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The testing laboratory (area of testing) is accredited according to DIN EN ISO/IEC 17025 (2005) by the Deutsche Akkreditierungsstelle GmbH (DAkkS). The accreditation is valid for the scope of testing procedures as stated in the accreditation certificate with the registration number: D-PL-12076-01-00

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Phone: +45 3955 8209**Manufacturer****Thrane & Thrane A/S**
Lundtoftegaardsvej 93D
DK-2800 Kgs Lyngby / DENMARK**Test standard/s**CFR 47 Part 25 Satellite Communications
RSS-170 Mobile Earth Stations and Ancillary Terrestrial Component Equipment Operating in the Mobile-Satellite Service Bands

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

Test Item**Kind of test item:** **BGAN Satellite Terminal**
Model name: **TT-3711A**
FCC ID: **ROJ-3711A**
IC: **6200B-3711A**
Frequency: Tx: 1626.5 – 1660.5 MHz
 Rx: 1525.0 – 1559.0 MHz
Antenna: Integrated patch antenna
Power supply: 24.0V DC
Temperature range: -25°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 report authorised:Thomas Vogler
Professional
Radio Communications & EMC**Test performed:**Karsten GERALDY
Professional
Radio Communications & EMC

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2 General information

2.1 Notes and disclaimer

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

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

2.2 Application details

Date of receipt of order:	2014-08-22
Date of receipt of test item:	2014-10-06
Start of test:	2014-10-06
End of test:	2014-10-10
Person(s) present during the test:	-/-

3 Test standard/s

Test standard	Date	Test standard description
CFR 47 Part 25	2013-10	Satellite Communications
RSS-170	2011-03	Mobile Earth Stations and Ancillary Terrestrial Component Equipment Operating in the Mobile-Satellite Service Bands

4 Test location

CETECOM ICT Services GmbH
Untertuerkheimer Strasse 6 – 10
66117 Saarbruecken / Germany
Phone: + 49 681 5 98 - 0
Fax: + 49 681 5 98 - 9075

5 Test environment

Temperature:	T _{nom}	+23 °C during room temperature tests
	T _{min}	-30 °C
	T _{max}	+50 °C
Relative humidity:		45 %
Barometric pressure:		not relevant for this kind of testing
Power supply:	V _{nom}	24.0 V DC
	V _{min}	10.5 V DC
	V _{max}	32.0 V DC

6 Test laboratory/ies sub-contracted

None

7 Additional information

The content of the following annexes is defined in the QA. It may be that not all of the listed annexes are necessary for this report, thus some values in between may be missing.

Test setup- and EUT-photos are included in test report: 1-8390/14-01-08_AnnexA
1-8390/14-01-08_AnnexB
1-8390/14-01-08_AnnexC

8 Test item

8.1 General Description

Kind of test item	BGAN Satellite Terminal
Type identification	TT-3711A
Operating characteristics	BGAN, Rx/Tx, QPSK-pi/4, 16-QAM
S/N serial number	0873940016
HW hardware status	A
SW software status	0.05 Build 506
TX frequency range / CS ¹⁾	1626.5 – 1660.5 MHz // 1.25 kHz
RX frequency range	1525.0 – 1559.0 MHz
TX output power cond.	max. 34.0 dBm (measured value)
TX output power rad. (EIRP) ²⁾	max. 45.2 dBm (measured value)
Kind of baseband signal	data
Occupied bandwidth ³⁾	< 168 kHz
Data rate	33.6 – 604.8 kbps
Type of modulation	QPSK-pi/4, 16-QAM
Type of radio transmission	G7W, D7W
Antenna	integrated patch antenna
Power supply	24.0 V DC
Temperature range	-30 °C to +50 °C

¹⁾ channel spacing of modem / transceiver

²⁾ for an antenna with an on-axis gain of 11.25 dBi (RHCP) within the transmit band

³⁾ for operating conditions defined below

8.2 Operating conditions

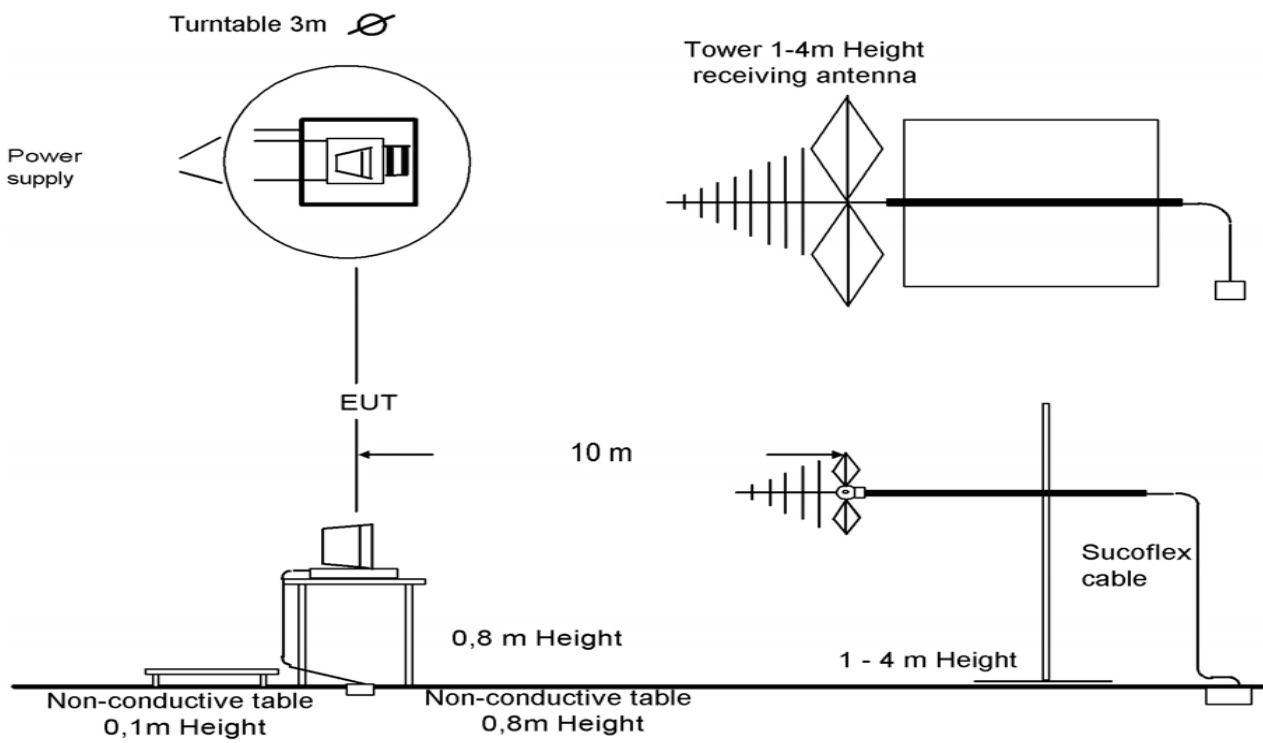
Modulation Scheme	Modulation	Bitrate (kbps)	f _{low}	f _{mid}	f _{high}
R20T05Q	QPSK-pi/4	33.6	1626.6 MHz	1643.5 MHz	1660.4 MHz
R20T1Q	QPSK-pi/4	67.2	1626.6 MHz	1643.5 MHz	1660.4 MHz
R5T1X R20T1X	16QAM	134.4	1626.6 MHz	1643.5 MHz	1660.4 MHz
R5T2Q R20T2Q	QPSK-pi/4	134.4	1626.6 MHz	1643.5 MHz	1660.4 MHz
R5T2X R20T2X	16QAM	268.8	1626.6 MHz	1643.5 MHz	1660.4 MHz
R5T45Q R20T45Q	QPSK-pi/4	302.4	1626.6 MHz	1643.5 MHz	1660.4 MHz
R5T45X R20T45X	16QAM	604.8	1626.6 MHz	1643.5 MHz	1660.4 MHz

9.1.2 Radiated measurements

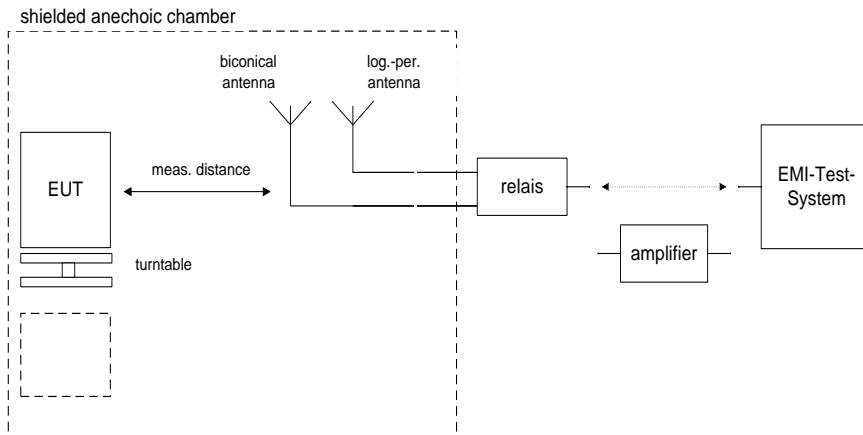
The radiated measurements are performed in vertical and horizontal plane in the frequency range from 9 kHz to 12 GHz in a semi-anechoic chamber. The EUT is positioned on a non-conductive support with a height of 0.80 m above a conductive ground plane that covers the whole chamber. The receiving antennas are confirmed with specifications ANSI C63.2-1996 clause 15 and ANSI C63.4-2003 clause 4.1.5. These antennas can be moved over the height range between 1.0 m and 4.0 m in order to search for maximum field strength emitted from EUT. The measurement distances between EUT and receiving antennas are indicated in the test 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 analyzers where the detector modes and resolution bandwidths over various frequency ranges are set according to requirement ANSI C63-4-2003 clause 4.2.

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

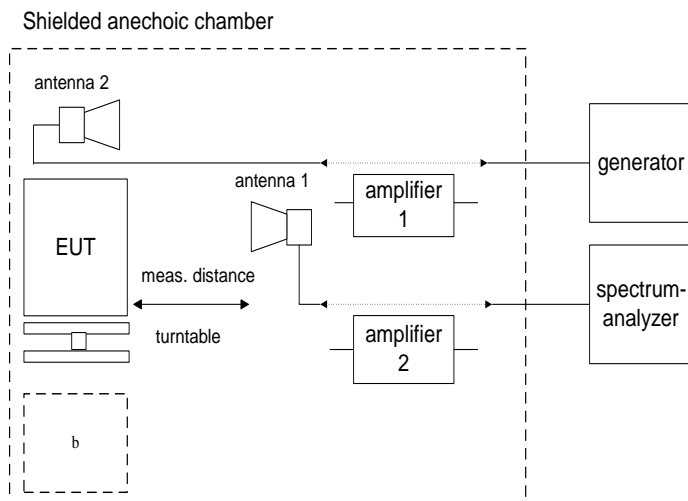
Setup 2.0: Radiated measurements (semi-anechoic chamber)



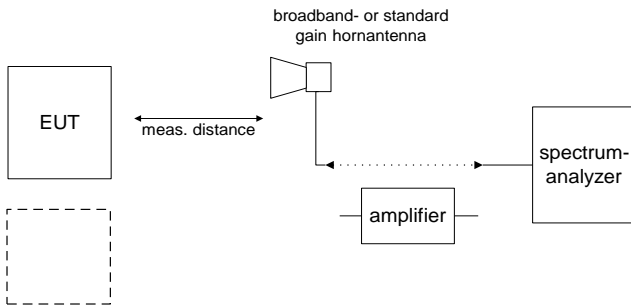
- | | |
|-----------------|---------------------|
| 9 kHz - 30 MHz: | active loop antenna |
| 30 MHz – 1 GHz: | tri-log antenna |
| > 1 GHz: | horn antenna |



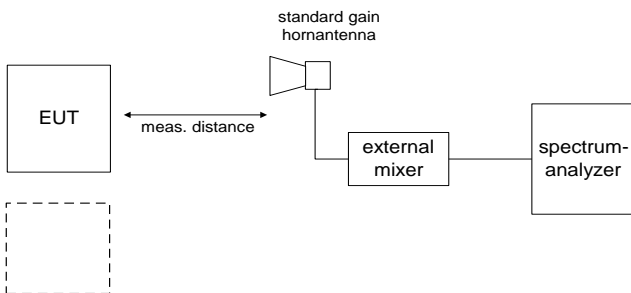
Setup 2.1



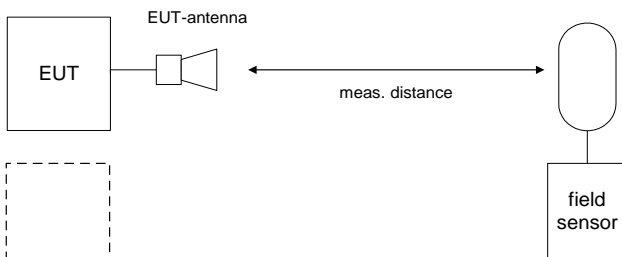
Setup 2.2



Setup 2.3



Setup 2.4



Setup 2.5

10 Measurement results

10.1 Summary

The present test report:

<input checked="" type="checkbox"/>	describes the first test
<input type="checkbox"/>	describes an additional test
<input type="checkbox"/>	is a verification of documents
<input type="checkbox"/>	is only valid with the test report no.:

<input checked="" type="checkbox"/>	No deviations from the technical specifications were ascertained
<input type="checkbox"/>	There were deviations from the technical specifications ascertained

TC identifier	Description	Verdict	Date	Remark
RF-Testing	CFR 47 Part 25 / RSS-170	PASS	2014-12-08	-/-

Test Specification Clause	Test Case	Pass	Fail	N/A	N/P	Results
§2.1046 / §25.204/ RSS-170, 5.3.2	Measurements required: RF power output / Power limits	X				complies
§2.1049	Measurements required: Occupied bandwidth	X				complies
§2.1051/ §25.202/ RSS-170, 5.4.3.1	Measurements required: Spurious emissions at antenna terminals / Emission limitations (conducted emissions)	X				complies
§2.1053/ §25.202/ RSS-170, 5.4.3.1	Measurements required: Field strength of spurious radiation / Emission limitations (radiated emissions)	X				complies
§2.1055 / §25.202/ RSS-170, 5.2	Measurements required: Frequency stability / Frequency tolerances	X				complies
§25.216/ RSS-170, 5.4.3.2 & 5.4.4	Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service / Carrier-Off State Emissions	X				complies
RSS-170, 5.5	Receiver Spurious Emissions	X				see test report 1-8390/14-01-06_A

Note:

NA = Not applicable; NP = Not performed

10.2 Overview

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I. RF power output / Power limits

Description / Limit:

§25.204 Power limits

(b) In bands shared coequally with terrestrial radiocommunication services, the equivalent isotropically radiated power transmitted in any direction towards the horizon by an earth station operating in frequency bands between 1 and 15 GHz shall not exceed the following limits except as provided for in paragraph (c) of this section:

+40 dBW in any 4 kHz band for $\theta \leq 0^\circ$

+40 + 3 * θ dBW in any 4 kHz band for $0^\circ < \theta \leq 5^\circ$

θ = elevation angle above horizon

(c) For angles of elevation of the horizon greater than 5° there shall be no restriction as to the equivalent isotropically radiated power transmitted by an earth station towards the horizon.

Test setup(s):

Test setup 1.2cdk

Measurement results:

Modulation Scheme	Transmitter conducted output power [dBW]			Transmitter radiated output power / EIRP [dBW]		
	f _{low}	f _{mid}	f _{high}	f _{low}	f _{mid}	f _{high}
R20T05Q	3.5	3.5	3.5	14.8	14.7	14.7
R20T1Q	3.4	3.5	3.4	14.7	14.7	14.6
R5T1X	3.9	4.0	3.9	15.2	15.2	15.1
R20T1X	3.7	3.8	3.7	15.0	15.0	14.9
R5T2Q	3.3	3.2	3.2	14.6	14.4	14.4
R20T2Q	3.4	3.5	3.5	14.7	14.7	14.7
R5T2X	3.6	3.7	3.5	14.9	14.9	14.7
R20T2X	3.5	3.6	3.5	14.8	14.8	14.7
R5T45Q	3.2	3.2	3.2	14.5	14.4	14.4
R20T45Q	3.4	3.5	3.5	14.7	14.7	14.7
R5T45X	3.3	3.4	3.3	14.6	14.6	14.5
R20T45X	3.5	3.5	3.5	14.8	14.7	14.7

Operating conditions of DUT:

Carrier-on radio state (for more details see table above)

Verdict: Passed

II. Occupied bandwidth

Description:

§2.1 Occupied Bandwidth

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage $b/2$ of the total mean power of a given emission. NOTE: Unless otherwise specified in an ITU-R Recommendation for the appropriate class of emission, the value of $b/2$ should be taken as 0.5%. (RR).

Test setup(s):

Test setup 1.2hgj

Measurement results:

Modulation Scheme	Occupied Bandwidth (99%)		
	f_{low}	f_{mid}	f_{high}
R20T05Q	18.5 kHz	18.6 kHz	18.6 kHz
R20T1Q	37.3 kHz	37.2 kHz	37.3 kHz
R5T1X	36.9 kHz	37.1 kHz	37.1 kHz
R20T1X	37.3 kHz	37.5 kHz	37.5 kHz
R5T2Q	73.75 kHz	74.25 kHz	74.00 kHz
R20T2Q	74.25 kHz	74.25 kHz	74.25 kHz
R5T2X	73.75 kHz	73.75 kHz	73.75 kHz
R20T2X	74.25 kHz	74.25 kHz	74.00 kHz
R5T45Q	166.6 kHz	166.5 kHz	166.5 kHz
R20T45Q	167.4 kHz	166.8 kHz	167.0 kHz
R5T45X	166.3 kHz	166.8 kHz	166.7 kHz
R20T45X	166.8 kHz	167.4 kHz	166.8 kHz

Operating conditions of DUT:

Carrier-on radio state (for more details see table above)

Plots:

see also annex B, plot 1 - 36

Verdict: Passed

III. Emission limitations (RF spectrum mask)

Description / Limit:

§25.202 Frequencies, frequency tolerance and emission limitations

(f) Emission limitations. Except for SDARS terrestrial repeaters, the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section.

- (1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;
- (2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;
- (3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth:

An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;

- (4) In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

Test setup: 1.2hgj

Measurement results:

Mode	see following plots
Tx-mode, f_{low}	41, 43, 45
Tx-mode, f_{mid}	62, 64, 66
Tx-mode, f_{high}	83, 85, 87

Verdict: Passed

IV. Emissions limitations (conducted emissions)

Description / Limit:

§25.202 Frequencies, frequency tolerance and emission limitations

(f) Emission limitations. Except for SDARS terrestrial repeaters, the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section.

- (1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;
- (2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;
- (3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth:

An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;

(4) In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

Test setup: 1.2hgj

Measurement results:

Conducted Spurious Emissions [dBm]								
f _{low}			f _{mid}			f _{high}		
F [MHz]	Detector	Level [dBm]	F [GHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
6520	Pos-Peak	-30.3	6587	Pos-Peak	-47.0	8320	Pos-Peak	-30.1
8147	Pos-Peak	-34.5						
Measurement uncertainty			± 1.5 dB					

n.f. = nothing found

Plots:

see also Annex B, plots 41 - 101

Verdict: Passed

V. Emissions limits (radiated emissions)

Description / Limit:

§25.202 Frequencies, frequency tolerance and emission limitations

(f) Emission limitations. Except for SDARS terrestrial repeaters, the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the schedule set forth in paragraphs (f)(1) through (f)(4) of this section.

- (1) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: 25 dB;
- (2) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: 35 dB;
- (3) In any 4 kHz band, the center frequency of which is removed from the assigned frequency by more than 250 percent of the authorized bandwidth:

An amount equal to 43 dB plus 10 times the logarithm (to the base 10) of the transmitter power in watts;

(4) In any event, when an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in paragraphs (f) (1), (2) and (3) of this section.

Test setup: 2.0 - 2.4

Measurement results:

Radiated Spurious Emissions [dBm]								
f _{low}			f _{mid}			f _{high}		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
3253.2	Pos-Peak	-29.1	3287.0	Pos-Peak	-30.8	3320.8	Pos-Peak	-28.2
4879.8	Pos-Peak	-47.8	4930.5	Pos-Peak	-49.1	4981.2	Pos-Peak	-43.4
6506.4	Pos-Peak	-43.2	6574.0	Pos-Peak	-40.6	6641.6	Pos-Peak	-42.3
8133.0	Pos-Peak	-38.3	8217.5	Pos-Peak	-44.8	8302.0	Pos-Peak	-37.1
						11622.8	Pos-Peak	-46.7
Measurement uncertainty			± 3 dB					

n.f. = nothing found
 v / h = vertical / horizontal

Plots:
 see also Annex B, plots 37 - 40

Verdict: Passed

VI. Emissions limitations (conducted emissions)

Description / Limit:

§ 25.216 Limits on emissions from mobile earth stations for protection of aeronautical radionavigation-satellite service.

(h) Mobile earth stations manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 with assigned uplink frequencies in the 1626.5–1660.5 MHz band shall suppress the power density of emissions in the 1605–1610 MHz band-segment to an extent determined by linear interpolation from -70 dBW/MHz at 1605 MHz to -46 dBW/MHz at 1610 MHz, averaged over any 2 millisecond active transmission interval. The e.i.r.p of discrete emissions of less than 700 Hz bandwidth from such stations shall not exceed a level determined by linear interpolation from -80 dBW at 1605 MHz to -56 dBW at 1610 MHz, averaged over any 2 millisecond active transmission interval.

(i) The e.i.r.p density of carrier-off state emissions from mobile earth stations manufactured more than six months after FEDERAL REGISTER publication of the rule changes adopted in FCC 03–283 with assigned uplink frequencies between 1 and 3 GHz shall not exceed -80 dBW/MHz in the 1559–1610 MHz band averaged over any two millisecond interval.

Test setup: 1.2gj

Measurement results:

Conducted Spurious Emissions [dBm]								
f _{low}			f _{mid}			f _{high}		
F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]	F [MHz]	Detector	Level [dBm]
no critical peaks found			no critical peaks found			no critical peaks found		
Measurement uncertainty			± 1.5 dB					

n.f. = nothing found

Plots:

see also Annex B, plots 101 - 111

Verdict: Passed

VII. Transmitter frequency tolerance

Description / Limit:

§25.202 Frequencies, frequency tolerance and emission limitations

(d) Frequency tolerance, Earth stations.

The carrier frequency of each earth station transmitter authorized in these services shall be maintained within 0.001 percent of the reference frequency.

Test setup: 1.2hgj

Measurement results:

Low Channel

Temperature [°C]	Voltage [V DC]	Reference Frequency [MHz]	Measured Frequency [MHz]	Deviation [Hz]	Deviation [ppm]
-30	24.0	1626.6	1626.600715	715	0.44
-20	24.0	1626.6	1626.600937	937	0.58
-10	24.0	1626.6	1626.600763	763	0.47
0	24.0	1626.6	1626.600738	738	0.45
10	24.0	1626.6	1626.600441	441	0.27
20	24.0	1626.6	1626.600014	14	0.01
20	10.5	1626.6	1626.600014	14	0.01
20	32.0	1626.6	1626.600015	15	0.01
30	24.0	1626.6	1626.599448	-552	-0.34
40	24.0	1626.6	1626.599020	-980	-0.60
50	24.0	1626.6	1626.598740	-1260	-0.77

lowest measured frequency: 1626.598740 MHz
highest measured frequency: 1626.600937 MHz
maximum deviation: -1260 Hz (-0.77 ppm)

Mid Channel

Temperature [°C]	Voltage [V DC]	Reference Frequency [MHz]	Measured Frequency [MHz]	Deviation [Hz]	Deviation [ppm]
-30	24.0	1643.5	1643.500733	733	0.45
-20	24.0	1643.5	1643.500943	943	0.57
-10	24.0	1643.5	1643.500767	767	0.47
0	24.0	1643.5	1643.500740	740	0.45
10	24.0	1643.5	1643.500445	445	0.27
20	24.0	1643.5	1643.500006	6	0.00
20	10.5	1643.5	1643.500007	7	0.00
20	32.0	1643.5	1643.500005	5	0.00
30	24.0	1643.5	1643.499448	-552	-0.34
40	24.0	1643.5	1643.498999	-1001	-0.61
50	24.0	1643.5	1643.498724	-1276	-0.78

lowest measured frequency: 1643.498724 MHz
highest measured frequency: 1643.500943 MHz
maximum deviation: -1276 Hz (-0.78 ppm)

High Channel

Temperature [°C]	Voltage [V DC]	Reference Frequency [MHz]	Measured Frequency [MHz]	Deviation [Hz]	Deviation [ppm]
-30	24.0	1660.4	1660.400715	715	0.43
-20	24.0	1660.4	1660.400947	947	0.57
-10	24.0	1660.4	1660.400770	770	0.46
0	24.0	1660.4	1660.400742	742	0.45
10	24.0	1660.4	1660.400453	453	0.27
20	24.0	1660.4	1660.399998	-2	0.00
20	10.5	1660.4	1660.399996	-4	0.00
20	32.0	1660.4	1660.399994	-6	0.00
30	24.0	1660.4	1660.399448	-552	-0.33
40	24.0	1660.4	1660.398979	-1021	-0.61
50	24.0	1660.4	1660.398710	-1290	-0.78

lowest measured frequency: 1660.398710 MHz
highest measured frequency: 1660.400947 MHz
maximum deviation: -1290 Hz (-0.78 ppm)

Verdict: Passed

Annex A Test equipment and ancillaries used for tests

Typically, the calibrations of the test apparatus are commissioned to and performed by an accredited calibration laboratory. The calibration intervals are determined in accordance with the DIN EN ISO/IEC 17025. In addition to the external calibrations, the laboratory executes comparison measurements with other calibrated test systems or effective verifications. Weekly chamber inspections and range calibrations are performed. Where possible, rf-generating and signalling equipment as well as measuring receivers and analyzers are connected to an external high-precision 10 MHz reference (GPS-based or rubidium frequency standard).

In order to simplify the identification of the equipment used at some special tests, some items of test equipment and ancillaries can be provided with an identifier or number in the equipment list below (Lab/Item).

No.	Lab / Item	Equipment	Type	Manufact.	Serial No.	INV. No Cetecom	Kind of Calibration	Last Calibration	Next Calibration
1	n. a.	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2818A03450	300001040	Ve	12.01.2012	12.01.2015
2	n. a.	Double-Ridged Waveguide Horn Antenna 1-18.0GHz	3115	EMCO	8812-3088	300001032	VIKI!	08.05.2013	08.05.2015
3	n. a.	Anechoic chamber	FAC 3/5m	MWB / TDK	87400/02	300000996	ev		
4	n. a.	Switch / Control Unit	3488A	HP Meßtechnik	*	300000199	ne		
5	9	Artificial Mains 9 kHz to 30 MHz	ESH3-Z5	R&S	828576/020	300001210	Ve	30.01.2014	30.01.2016
6	9	Isolating Transformer	MPL IEC625 Bus Regeltrenntravo	Erfi	91350	300001155	ne		
7	90	Active Loop Antenna 10 kHz to 30 MHz	6502	Kontron Psychotech	8905-2342	300000256	k	13.06.2013	13.06.2015
8	90	Amplifier	js42-00502650-28-5a	Parzich GMBH	928979	300003143	ne		
9	90	Band Reject filter	WRCG1855/1910-1835/1925-40/8SS	Wainwright	7	300003350	ev		
10	90	Band Reject filter	WRCG2400/2483-2375/2505-50/10SS	Wainwright	11	300003351	ev		
11	90	Highpass Filter	WHKX7.0/18G-8SS	Wainwright	18	300003789	ne		
12	90	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	371	300003854	VIKI!	29.10.2014	29.10.2017
13	90	MXE EMI Receiver 20 Hz bis 26,5 GHz	N9038A	Agilent Technologies	MY51210197	300004405	k	13.03.2014	13.03.2015
14	90	4U RF Switch Platform	L4491A	Agilent Technologies	MY50000037	300004509	ne		
15	45	Switch-Unit	3488A	HP Meßtechnik	2719A14505	300000368	g		
16	50	DC power supply, 60Vdc, 50A, 1200 W	6032A	HP Meßtechnik	2920A04466	300000580	ne		
17	50	EMI Test Receiver	ESCI 3	R&S	100083	300003312	k	27.01.2014	27.01.2015
18	50	Analyzer-Reference-System (Harmonics and Flicker)	ARS 16/1	SPS	A3509 07/0 0205	300003314	Ve	11.02.2014	11.02.2015
19	50	Antenna Tower	Model 2175	ETS-LINDGREN	64762	300003745	izw		
20	50	Positioning Controller	Model 2090	ETS-LINDGREN	64672	300003746	izw		
21	50	Turntable Interface-Box	Model 105637	ETS-LINDGREN	44583	300003747	izw		
22	50	TRILOG Broadband Test-Antenna 30 MHz - 3 GHz	VULB9163	Schwarzbeck	295	300003787	k	22.04.2014	22.04.2016
23	50	Spectrum-Analyzer	FSU26	R&S	200809	300003874	k	22.01.2014	22.01.2015
24	50	Breitband Doppelsteg-Hornantenne	BBHA9120 B	Schwarzbeck	188	300003896	k	10.06.2013	10.06.2015
25	C217	HF-Cable	KPS1533-590-KPS	Insulated Wire		300002290	ev		
26	R001	Spectrum Analyzer 9kHz-50GHz portable spectrum analyzer	8565E	HP Meßtechnik	3515A00283	300000916	Ve	28.01.2013	28.01.2015
27	A026	Std. Gain Horn Antenna 12.4 to 18.0 GHz	639	Narda	8402	300000787	k	22.07.2013	22.07.2015
28	U005	Attenuator	9498A	Hewlett Packard	2702A04550	300002403	ev	-/-	-/-
29	U311	Attenuator 10 dB/100W, N-kon.	WA91-10-34	Weinschel Associates	A244	300004265	ev	-/-	-/-
30	F227	HPF 2275	VHF-2275+	Mini-Circuits	30719	-	ev	-/-	-/-
31	R011	Power Meter	438A	Hewlett Packard	2730U00683	300000852	VIKI!	14.01.2013	14.01.2015
32	R013	Power-Sensor	8481A	Hewlett-Packard	2702A65984	300001197	Ve	21.01.2014	21.01.2016

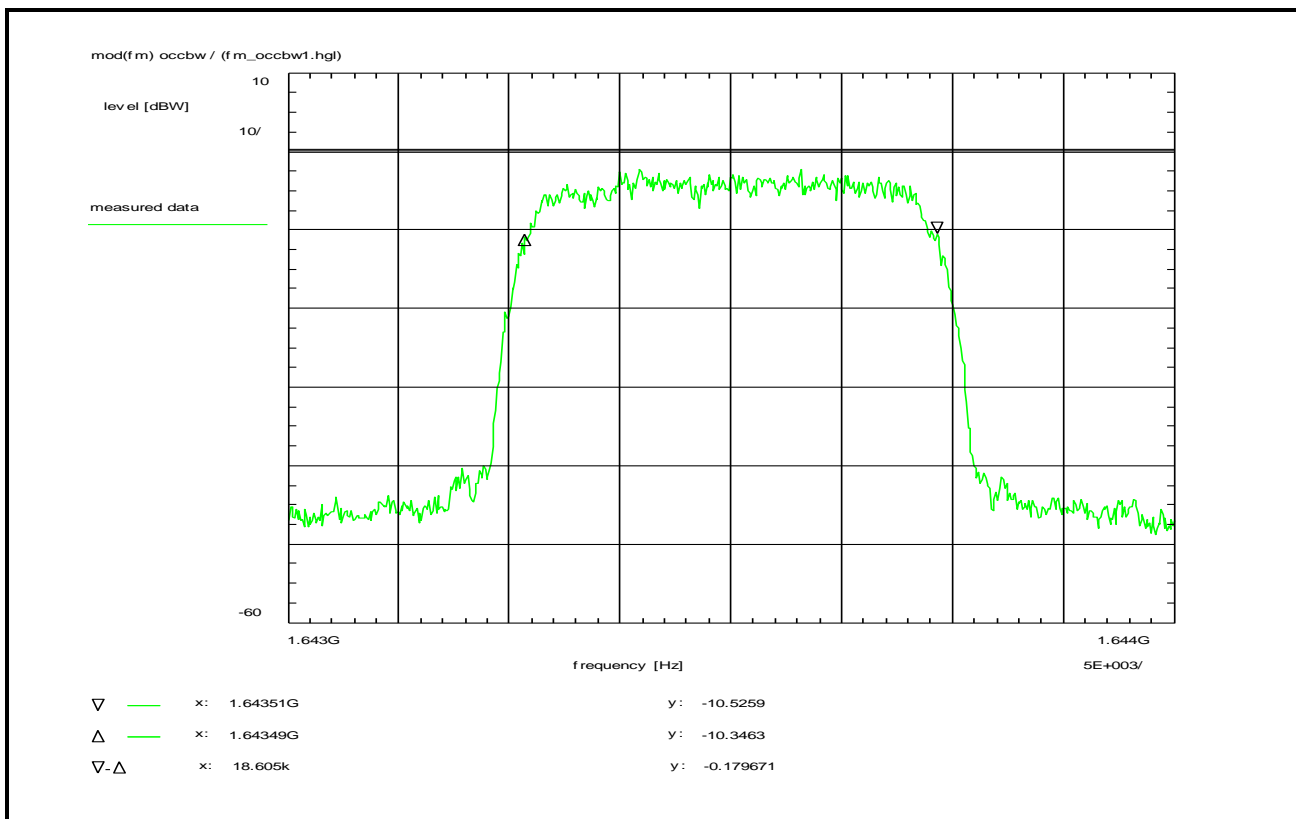
Agenda: Kind of Calibration

k	calibration / calibrated	EK	limited calibration
ne	not required (k, ev, izw, zw not required)	zw	cyclical maintenance (external cyclical maintenance)
ev	periodic self verification	izw	internal cyclical maintenance
Ve	long-term stability recognized	g	blocked for accredited testing
vk!!	Attention: extended calibration interval		
NK!	Attention: not calibrated	*)	next calibration ordered / currently in progress

Annex B Measurement results

This annex consists of 112 pages including this page.

Plot No. 1 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R20T05Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

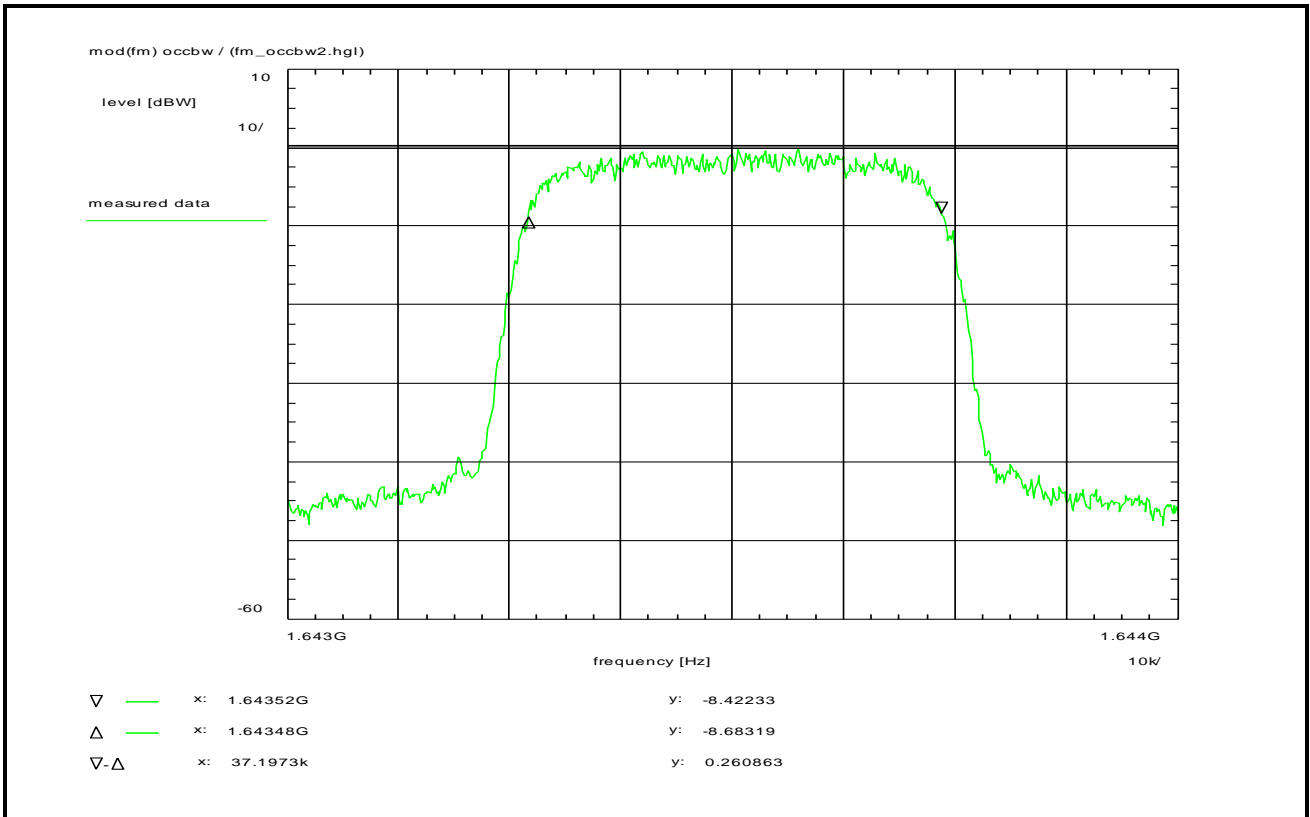
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:10:07
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.64348 GHz
 Stop frequency: 1.64352 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 40 kHz
 Input attenuation: 20 dB
 Resolution-BW: 300 Hz
 Video-BW: 300 Hz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 18.6 kHz (delta marker)
 Noise average measurement.

Plot No. 2 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R20T1Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

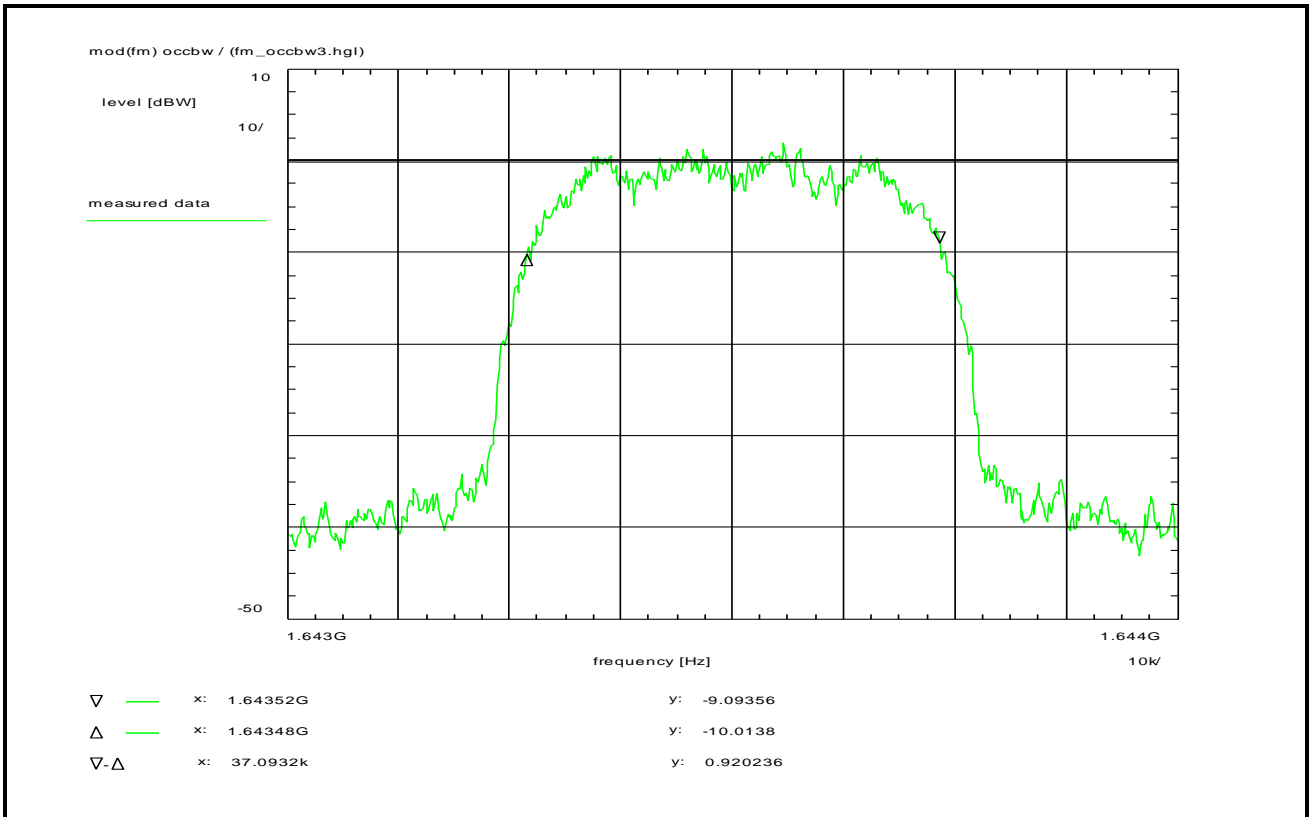
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:12:39
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.64346 GHz
 Stop frequency: 1.64354 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.2 kHz (delta marker)
 Noise average measurement.

Plot No. 3 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R5T1X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

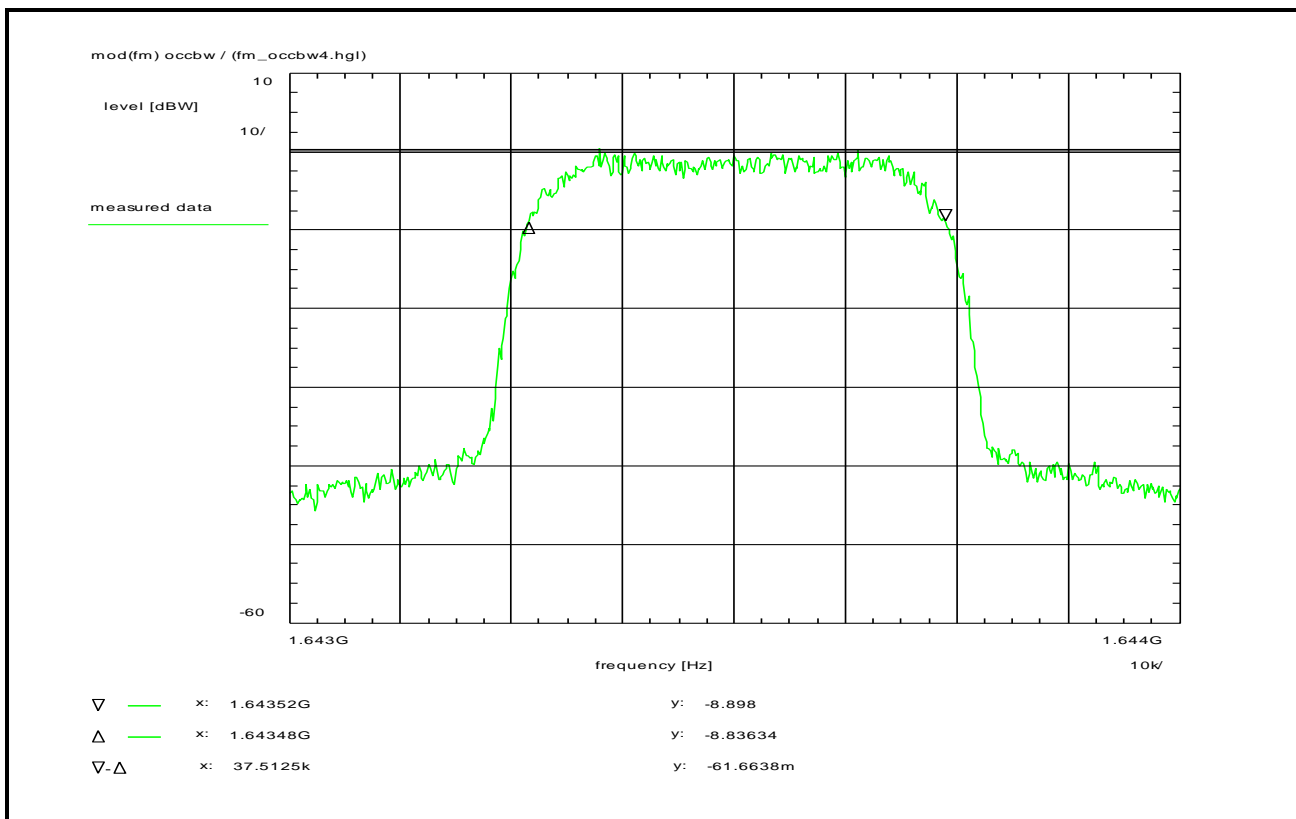
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:17:28
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.64346 GHz
 Stop frequency: 1.64354 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.1 kHz (delta marker)
 Noise average measurement.

Plot No. 4 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R20T1X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

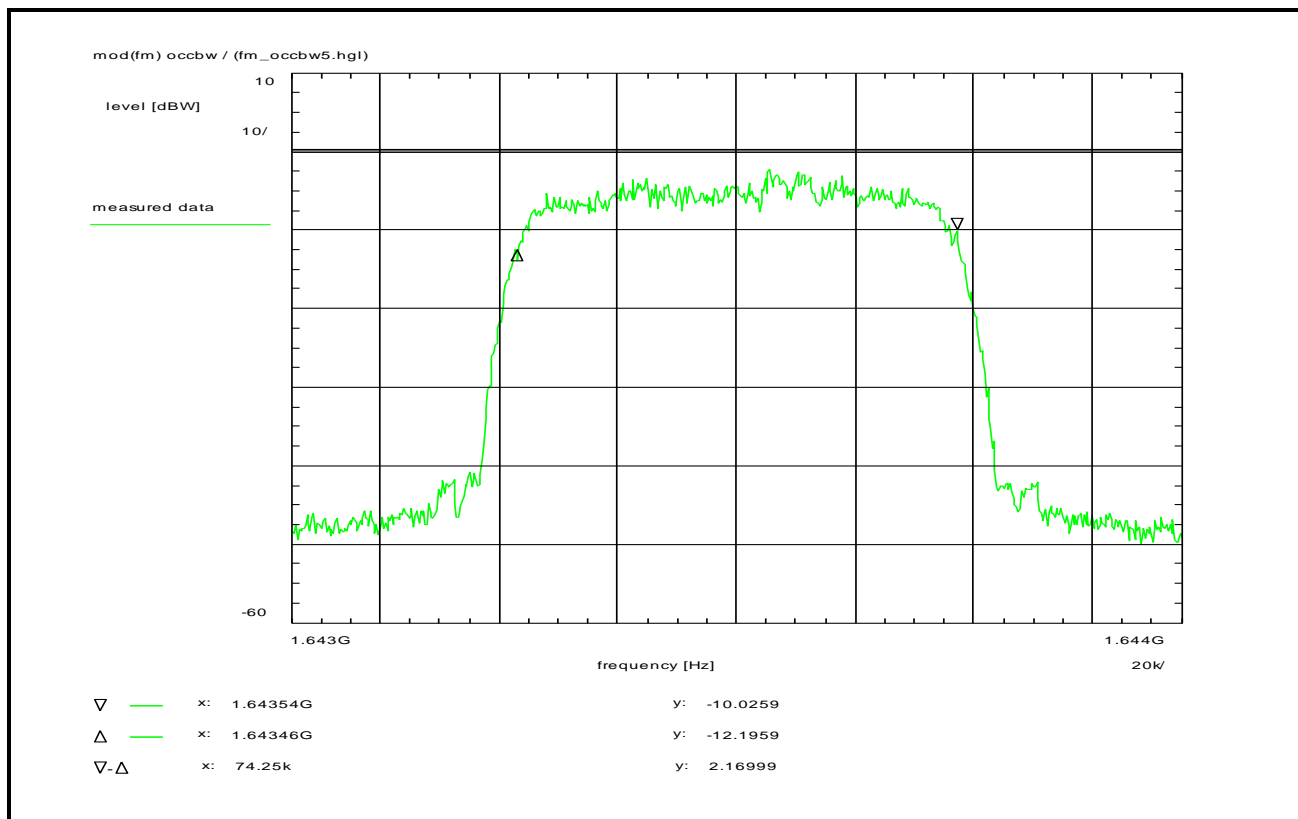
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:19:23
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.64346 GHz
 Stop frequency: 1.64354 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.5 kHz (delta marker)
 Noise average measurement.

Plot No. 5 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R5T2Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

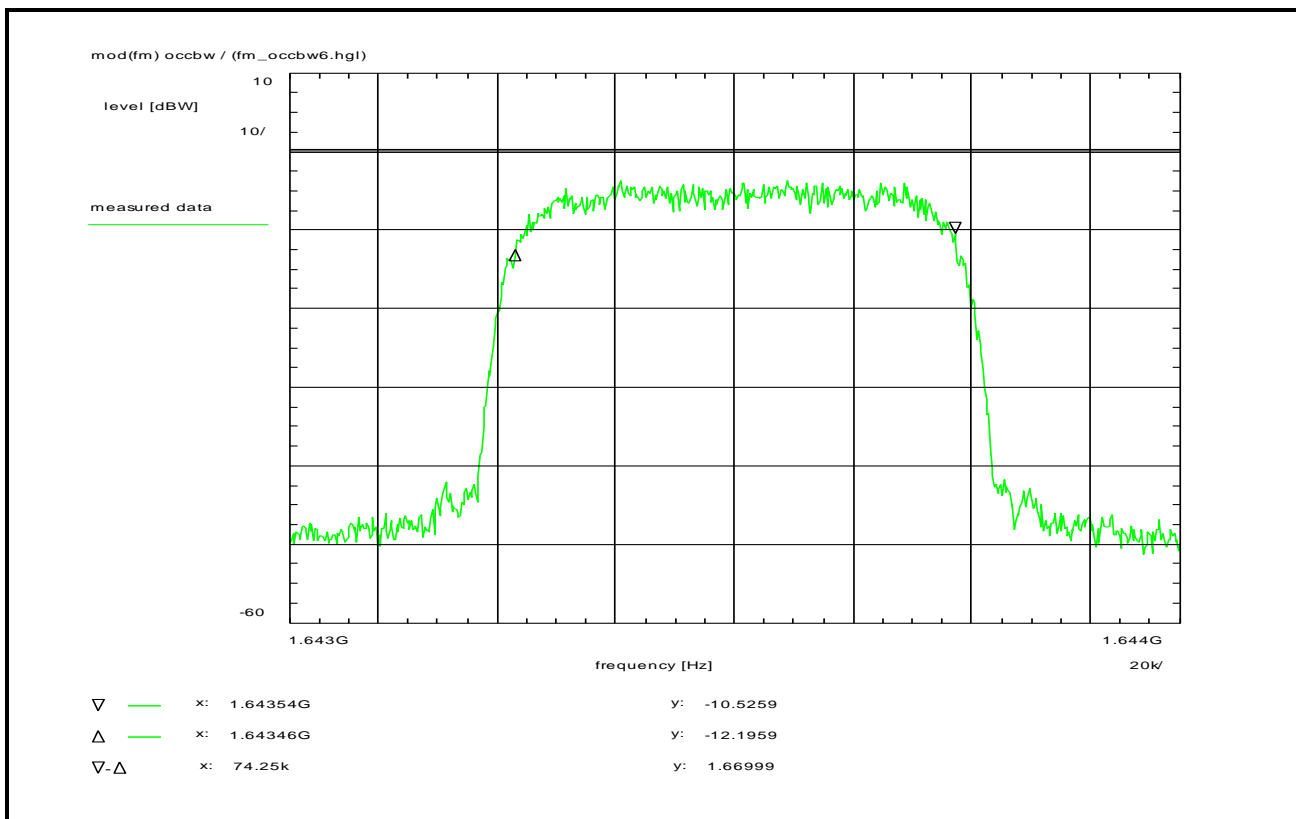
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:23:08
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643425 GHz
 Stop frequency: 1.643575 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74.25 kHz (delta marker)
 Noise average measurement.

Plot No. 6 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R20T2Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

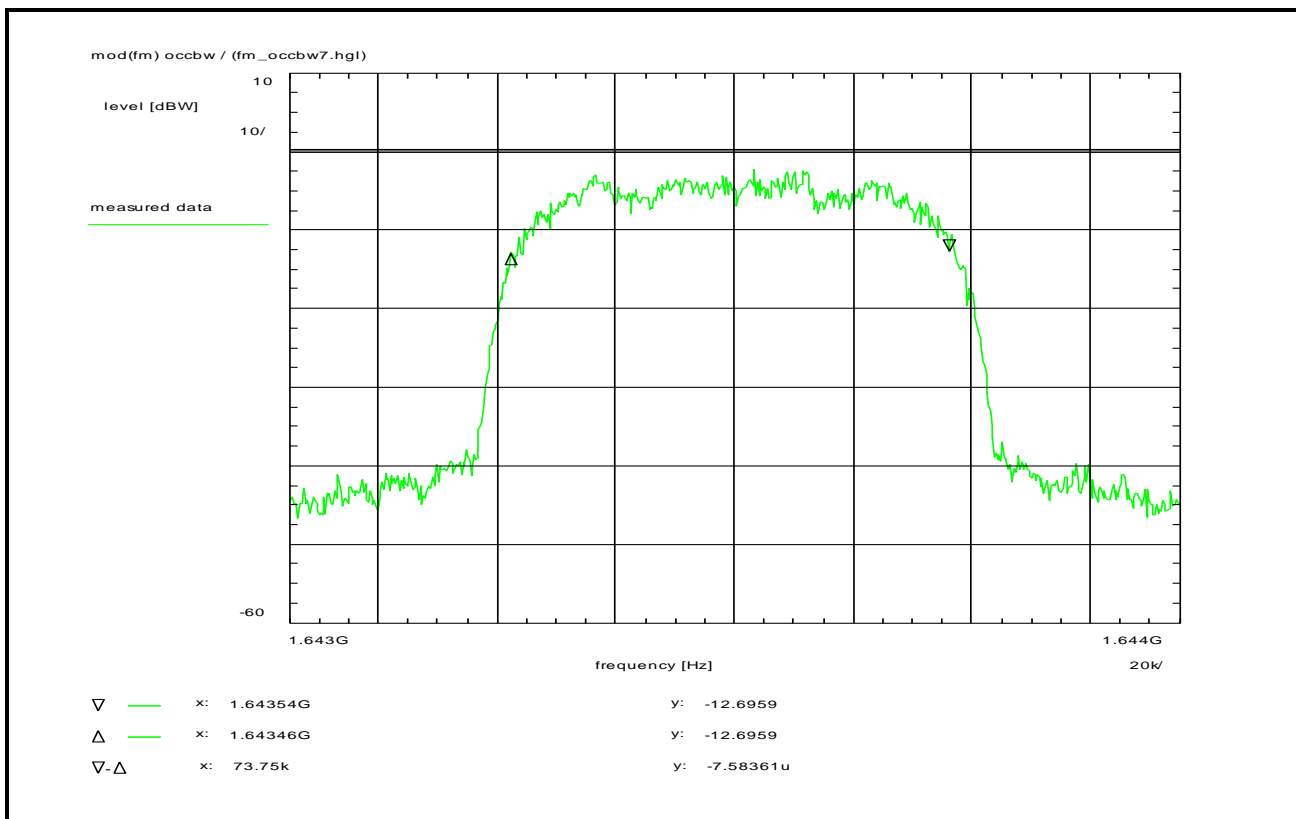
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:24:26
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643425 GHz
 Stop frequency: 1.643575 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74.25 kHz (delta marker)
 Noise average measurement.

Plot No. 7 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R5T2X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

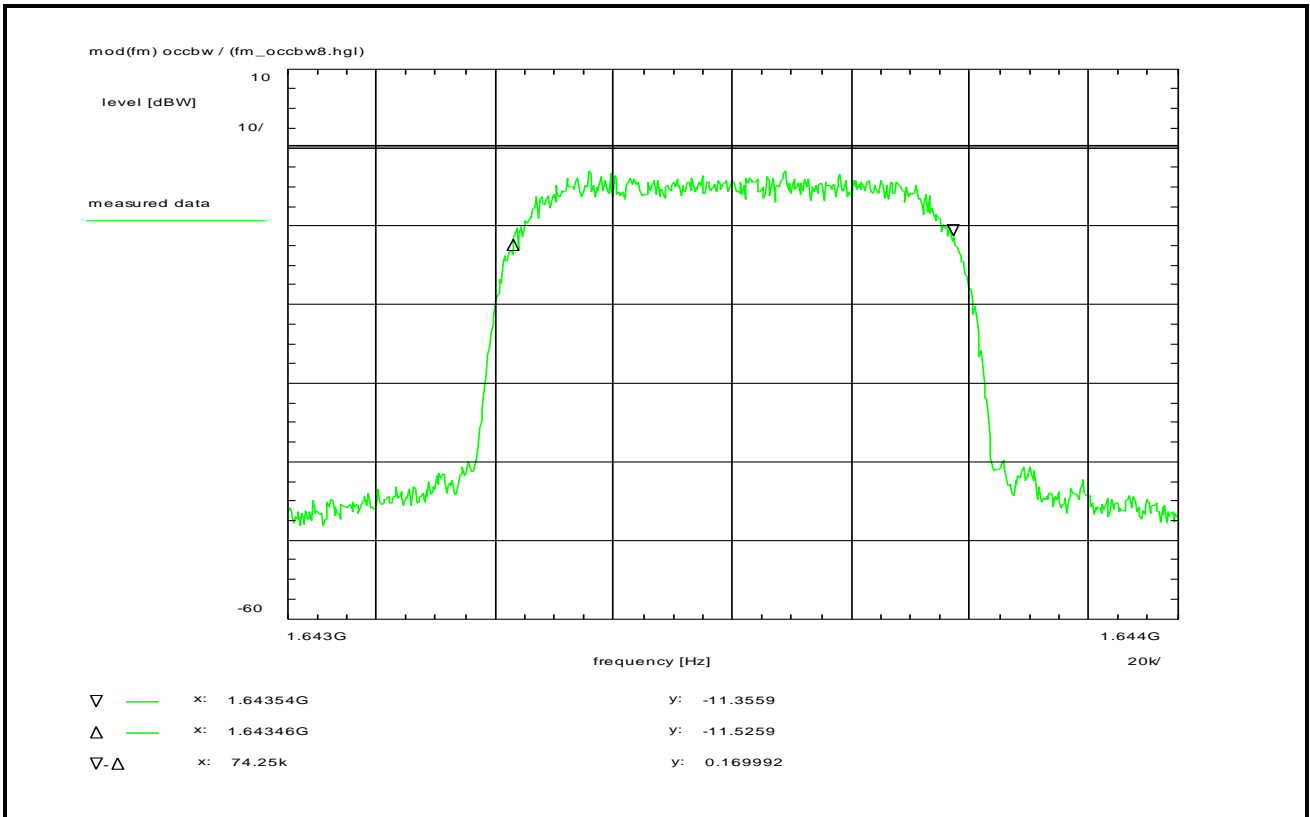
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:26:58
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643425 GHz
 Stop frequency: 1.643575 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 73.75 kHz (delta marker)
 Noise average measurement.

Plot No. 8 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R20T2X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

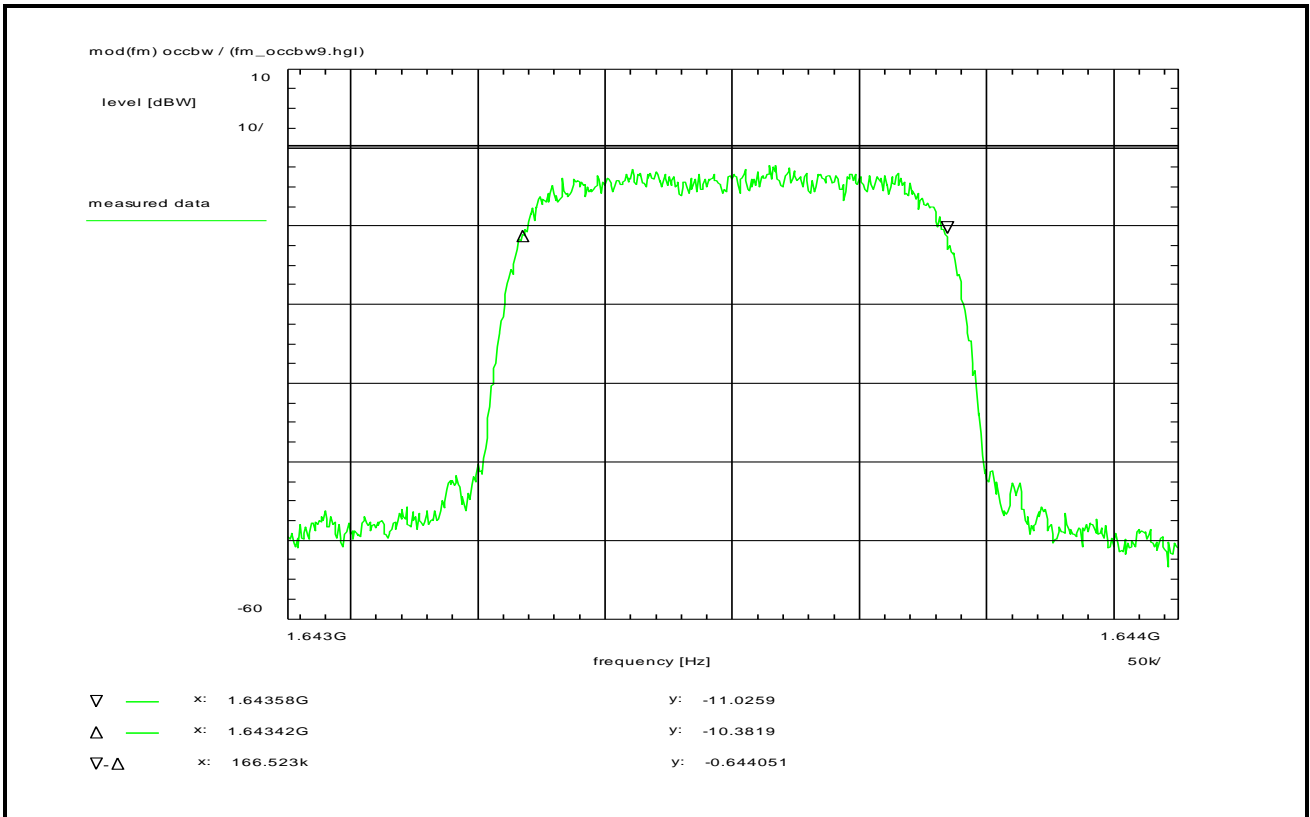
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:28:57
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643425 GHz
 Stop frequency: 1.643575 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74.25 kHz (delta marker)
 Noise average measurement.

Plot No. 9 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R5T45Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

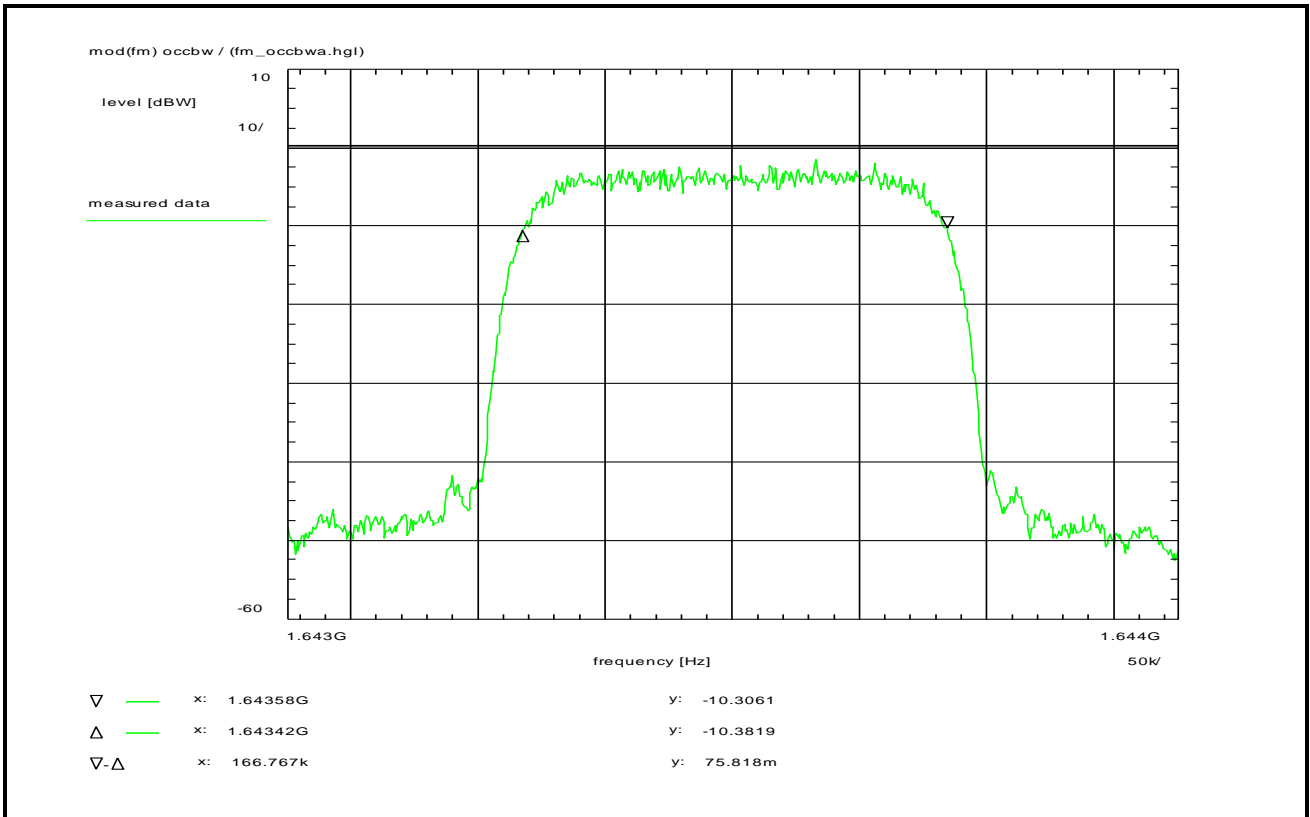
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:32:45
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643325 GHz
 Stop frequency: 1.643675 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.5 kHz (delta marker)
 Noise average measurement.

Plot No. 10 (111)



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fmid)
Verification of the occupied bandwidth

Limit:
This tests serves to verify the occupied bandwidth.
The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fm, see section 7.4
R20T45Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

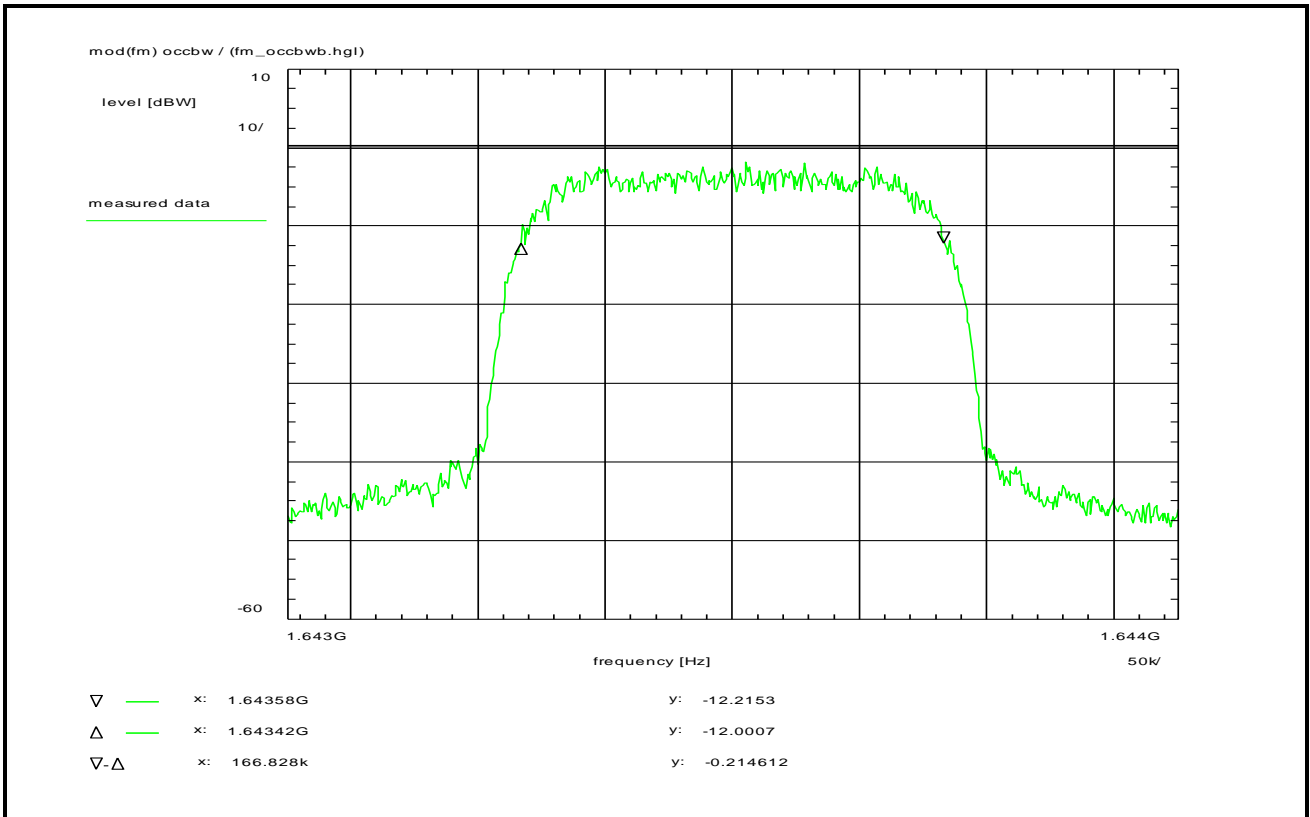
Environment condition:
Date & Time: Mon 06/Oct/2014 13:34:16
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:
Start frequency: 1.643325 GHz
Stop frequency: 1.643675 GHz
Center frequency: 1.6435 GHz
Frequency span: 350 kHz
Input attenuation: 20 dB
Resolution-BW: 3 kHz
Video-BW: 3 kHz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

Remarks:
Verification of the occupied bandwidth at fmid.
The internal function of the spectrum analyzer was used.
The measured value is about 166.8 kHz (delta marker)
Noise average measurement.

Plot No. 11 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R5T45X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

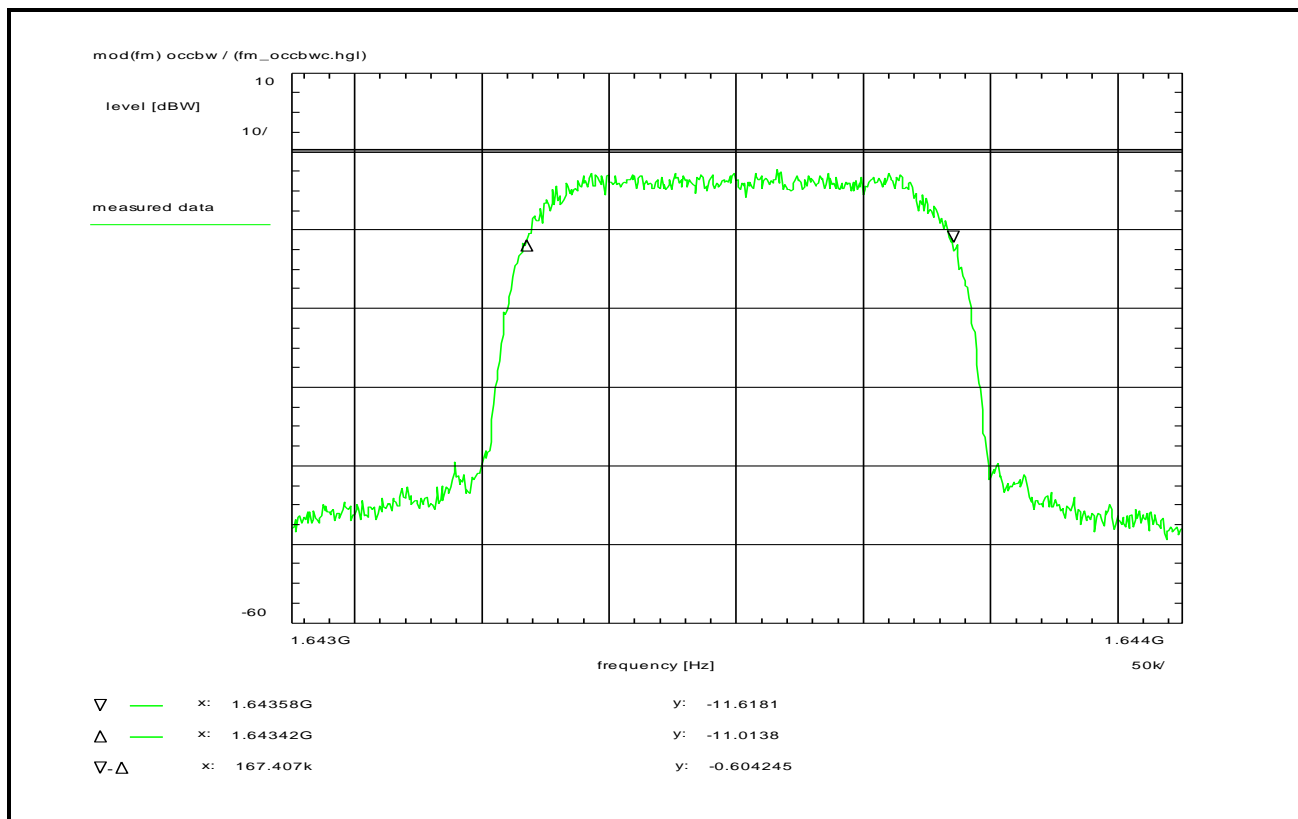
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:36:44
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643325 GHz
 Stop frequency: 1.643675 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.8 kHz (delta marker)
 Noise average measurement.

Plot No. 12 (111)



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fmid)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fm, see section 7.4
 R20T45X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

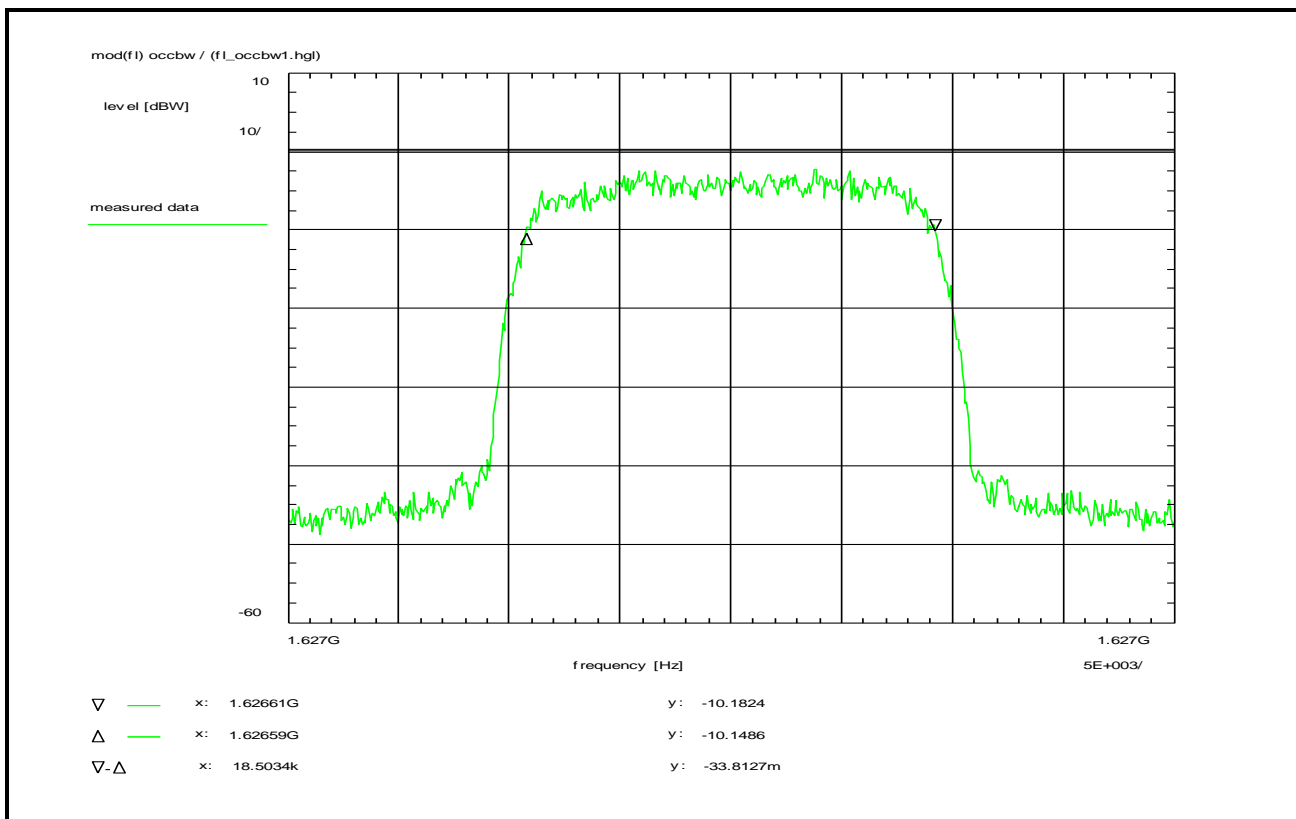
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:38:13
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.643325 GHz
 Stop frequency: 1.643675 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fmid.
 The internal function of the spectrum analyzer was used.
 The measured value is about 167.4 kHz (delta marker)
 Noise average measurement.

Plot No. 13 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T05Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

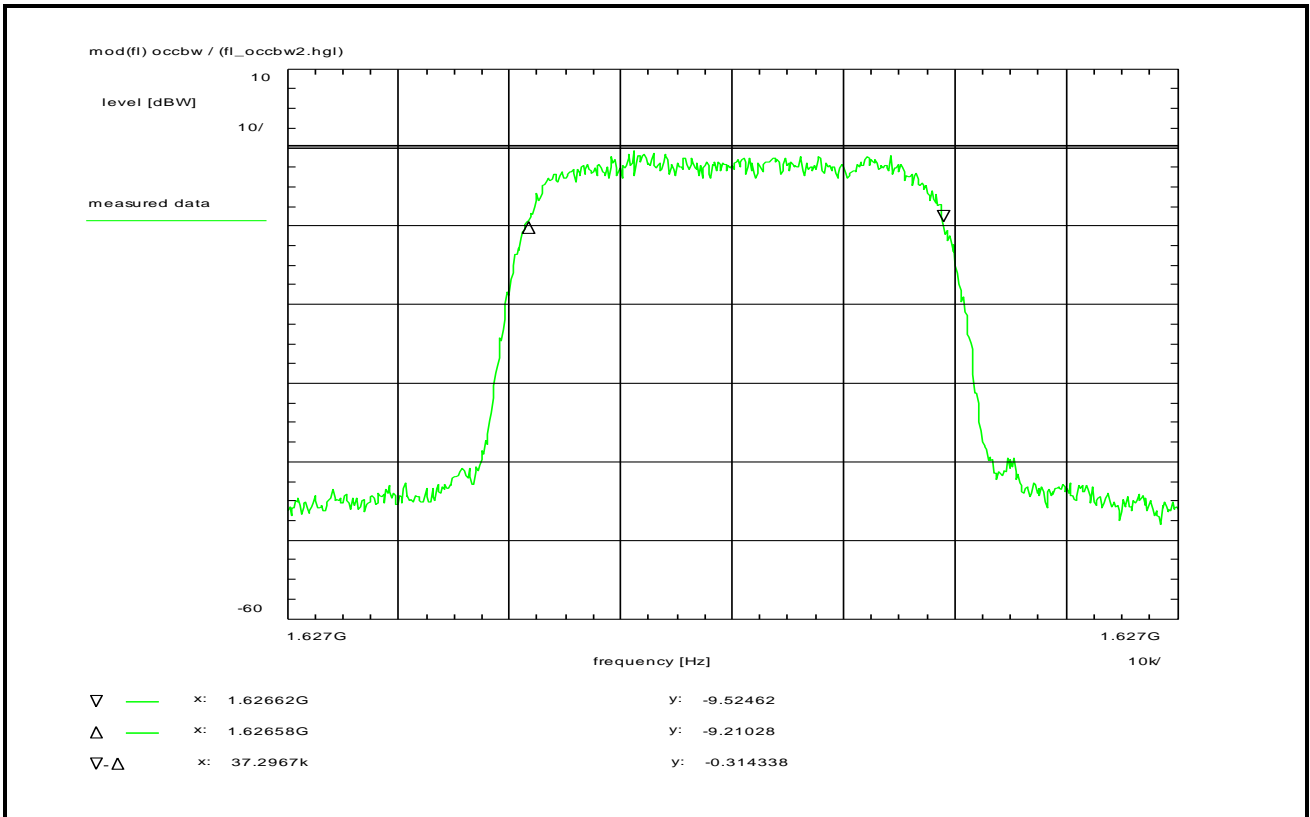
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:42:54
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.62658 GHz
 Stop frequency: 1.62662 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 40 kHz
 Input attenuation: 20 dB
 Resolution-BW: 300 Hz
 Video-BW: 300 Hz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 18.5 kHz (delta marker)
 Noise average measurement

Plot No. 14 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T1Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

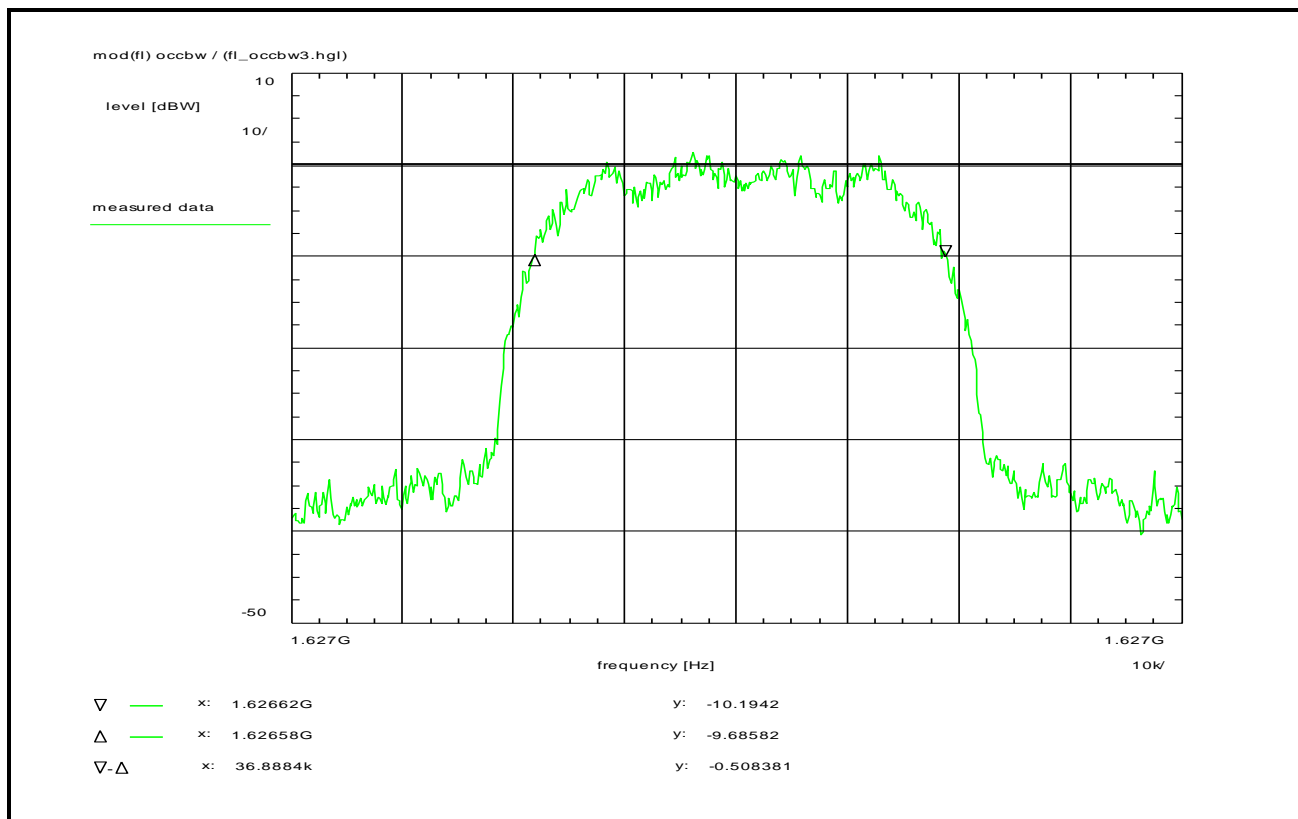
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:46:04
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.62656 GHz
 Stop frequency: 1.62664 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.3 kHz (delta marker)
 Noise average measurement

Plot No. 15 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R5T1X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

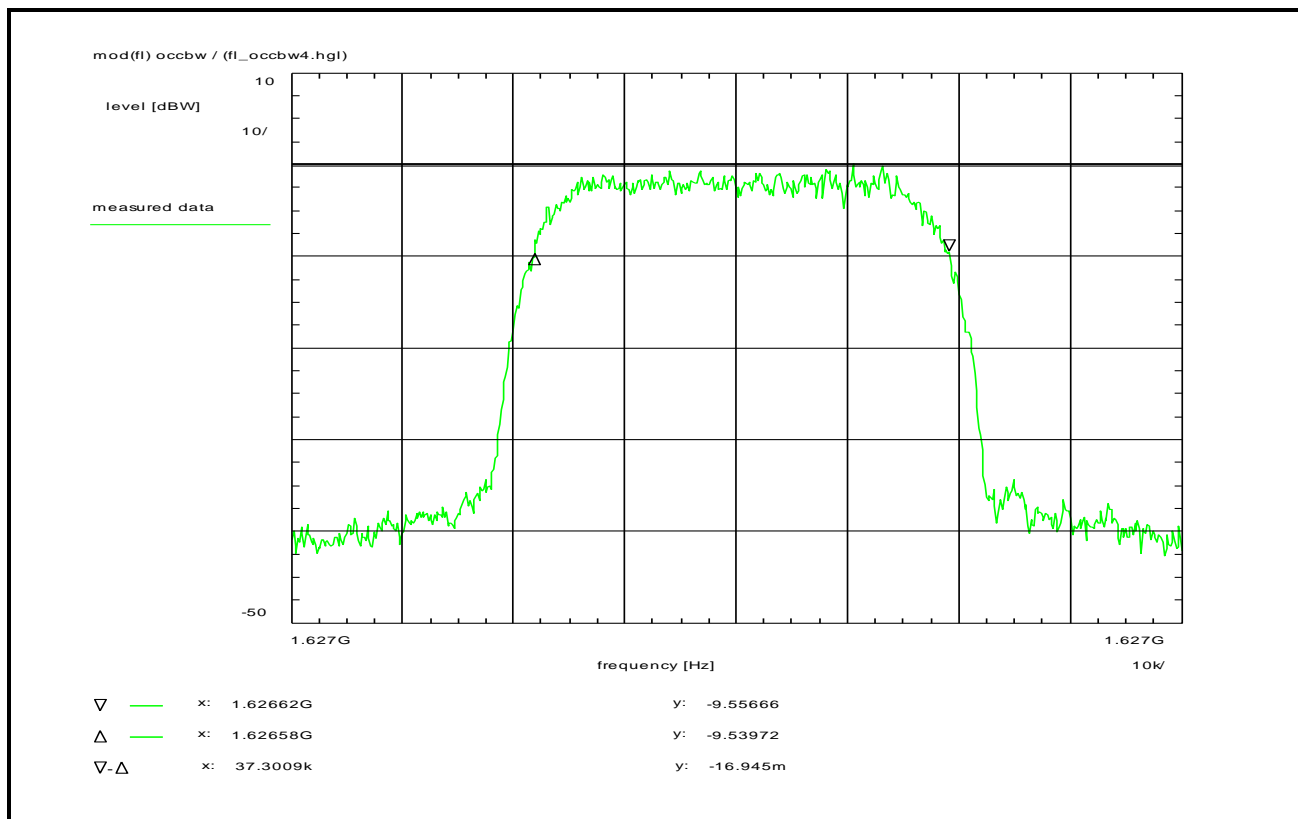
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:47:48
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.62656 GHz
 Stop frequency: 1.62664 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 36.9 kHz (delta marker)
 Noise average measurement

Plot No. 16 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T1X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

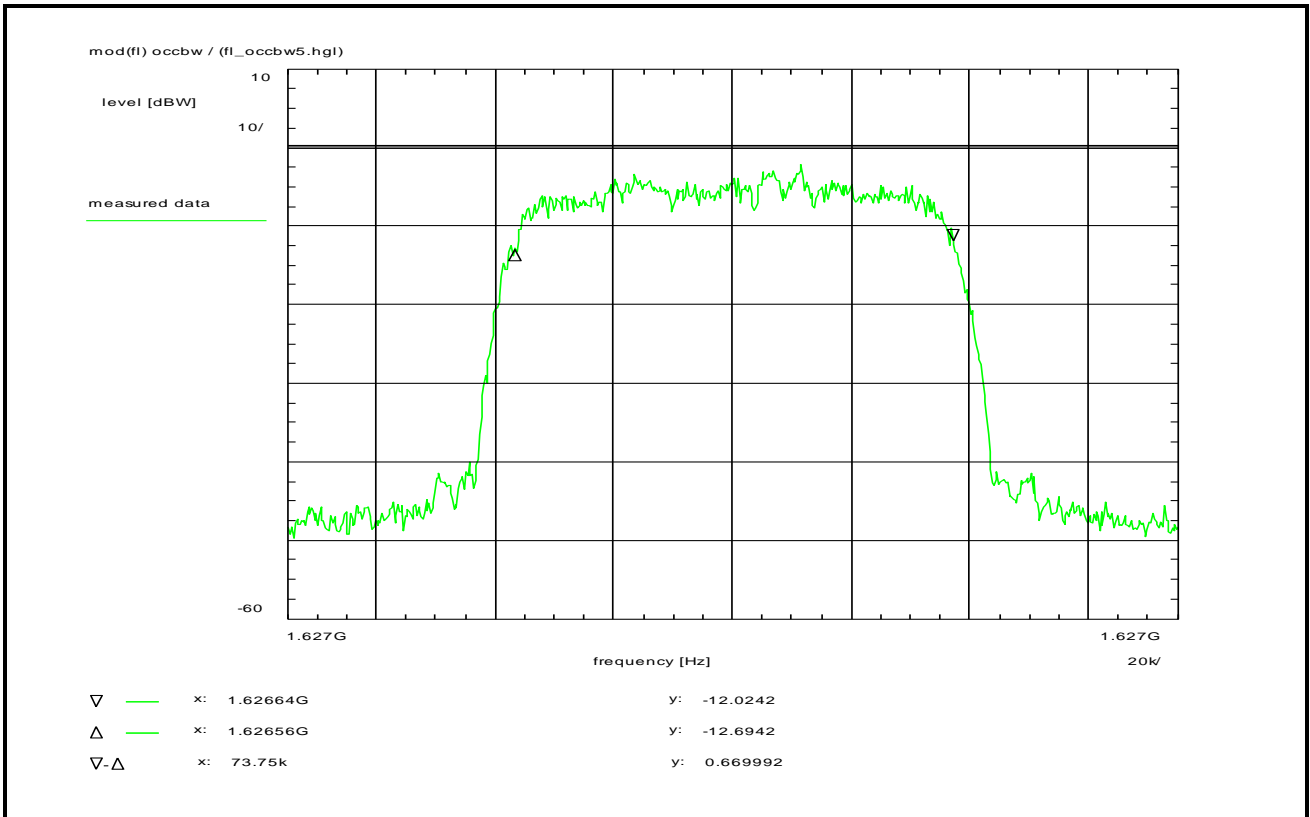
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:48:59
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.62656 GHz
 Stop frequency: 1.62664 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.3 kHz (delta marker)
 Noise average measurement

Plot No. 17 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R5T2Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

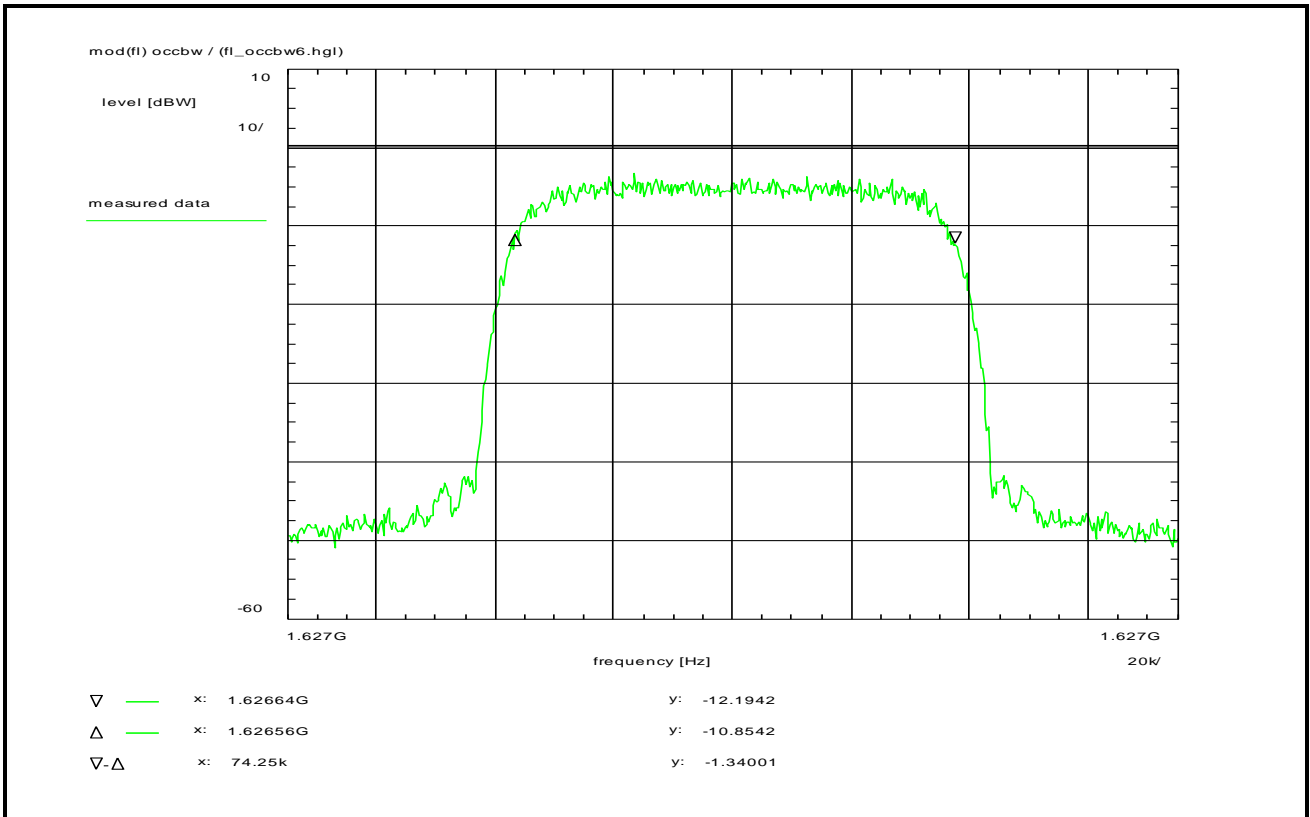
Environment condition:
 Date & Time: Mon 06/Oct/2014 13:52:14
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626525 GHz
 Stop frequency: 1.626675 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 73.75 kHz (delta marker)
 Noise average measurement

Plot No. 18 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T2Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

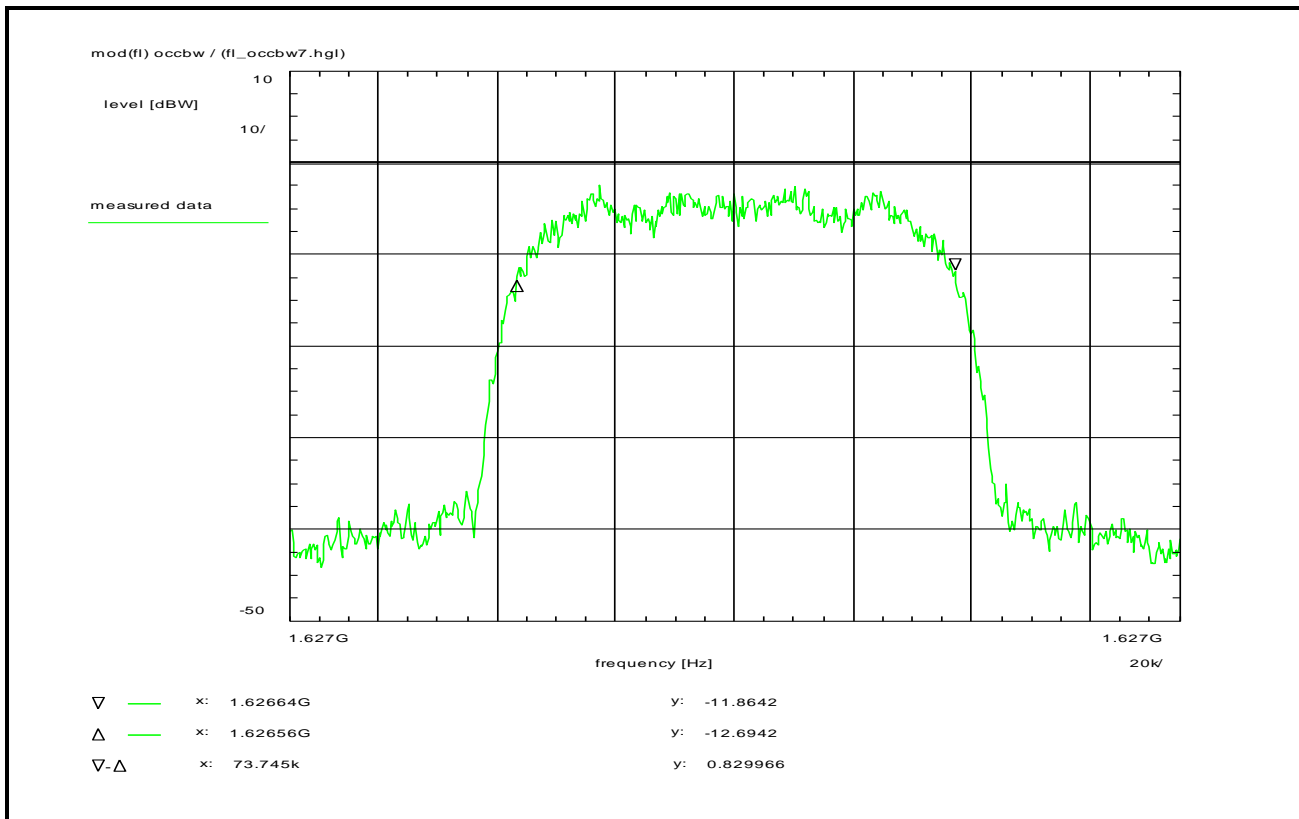
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:02:42
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626525 GHz
 Stop frequency: 1.626675 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74.25 kHz (delta marker)
 Noise average measurement

Plot No. 19 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R5T2X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

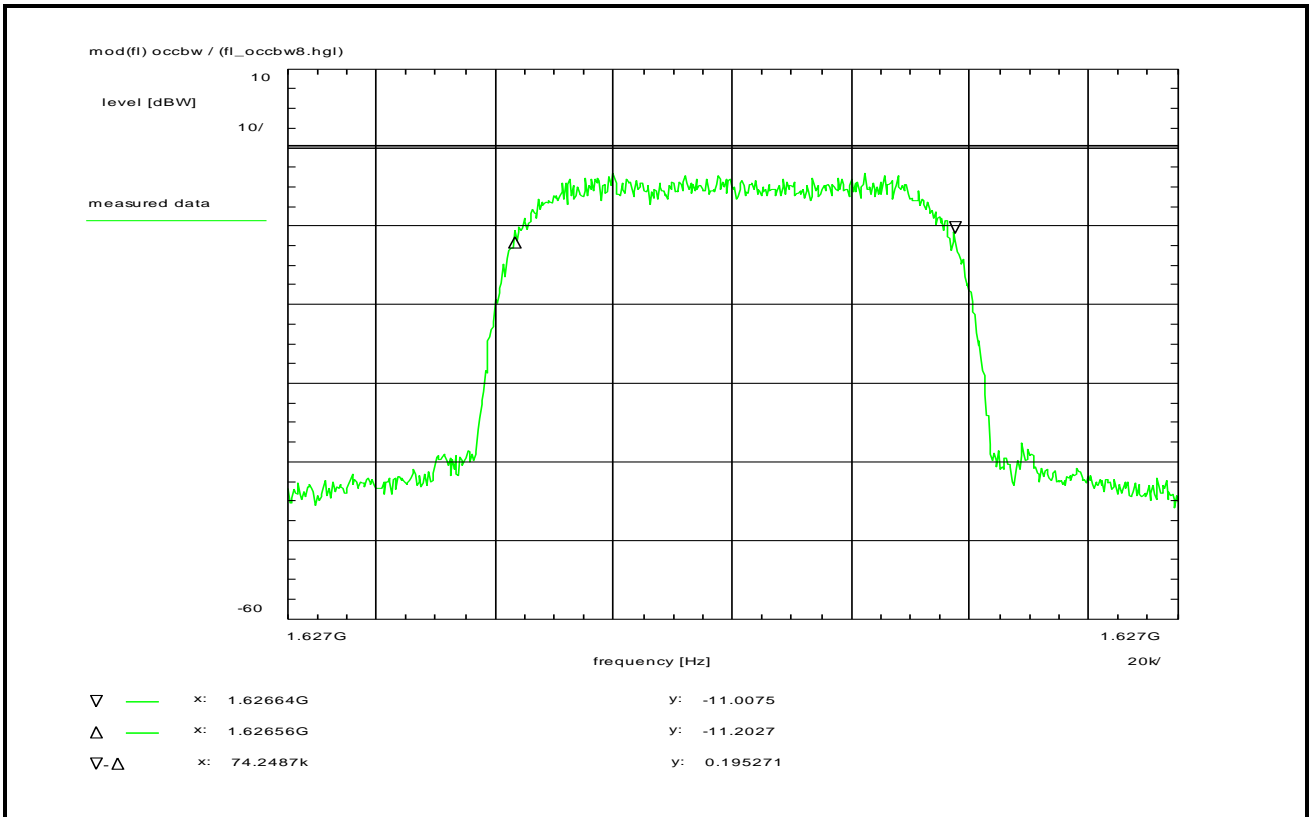
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:05:34
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626525 GHz
 Stop frequency: 1.626675 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 73.75 kHz (delta marker)
 Noise average measurement

Plot No. 20 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power.
 This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T2X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

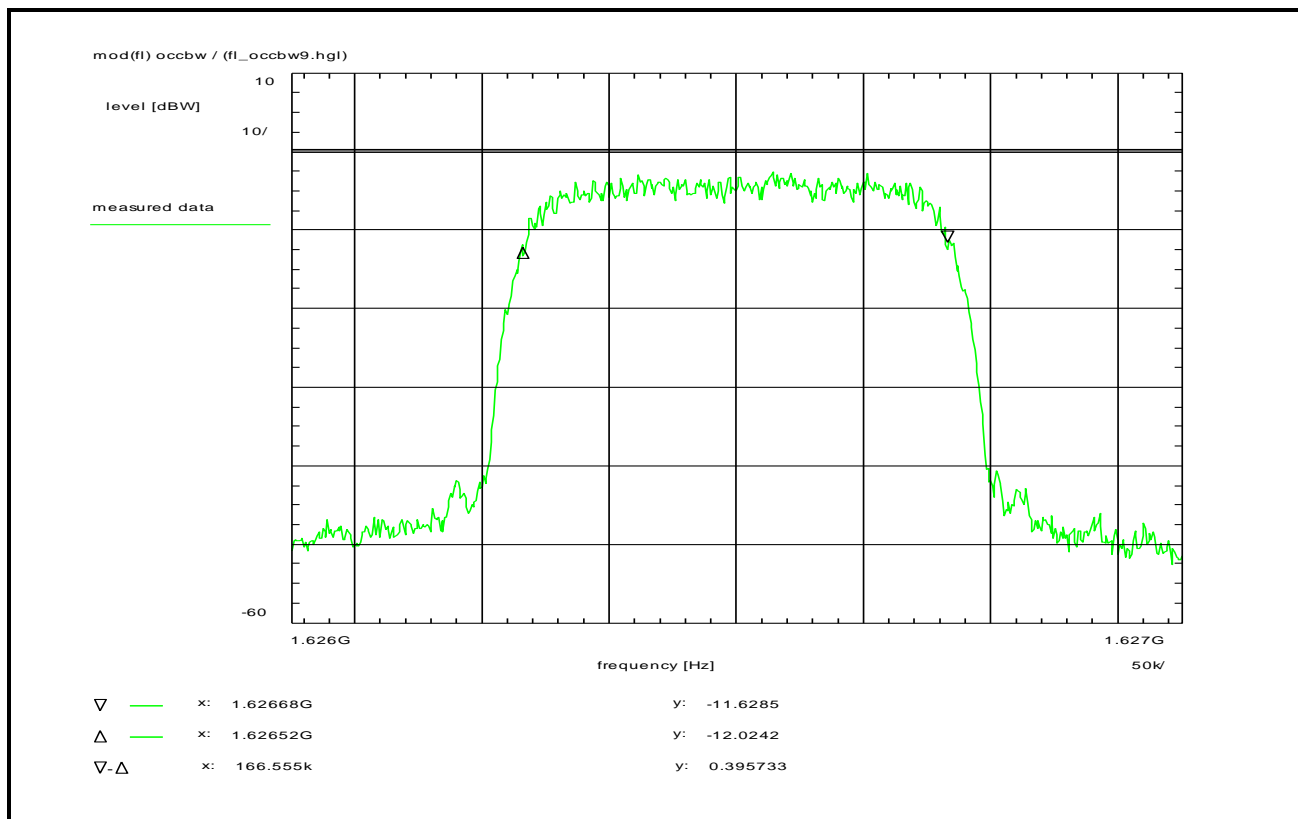
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:08:13
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626525 GHz
 Stop frequency: 1.626675 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74.25 kHz (delta marker)
 Noise average measurement

Plot No. 21 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R5T45Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

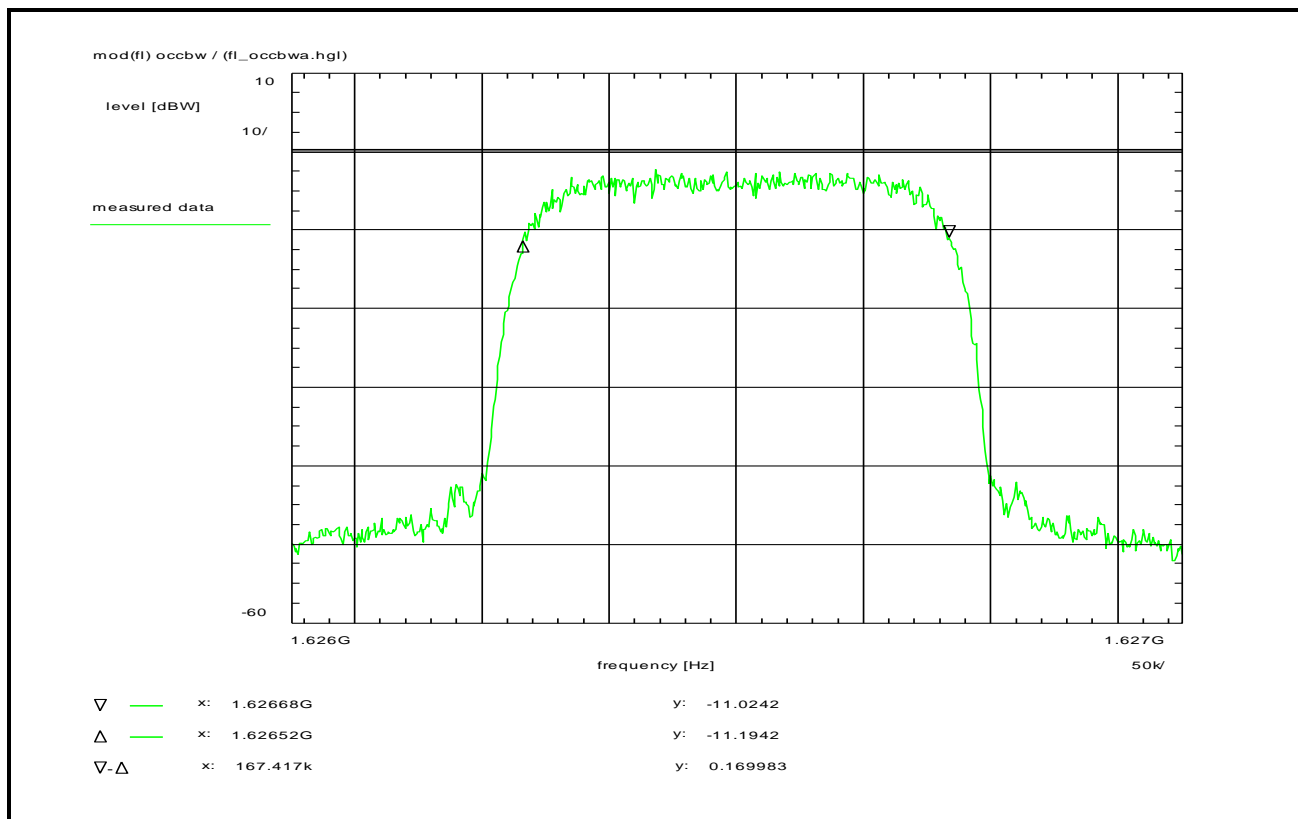
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:12:12
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626425 GHz
 Stop frequency: 1.626775 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.6 kHz (delta marker)
 Noise average measurement

Plot No. 22 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T45Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

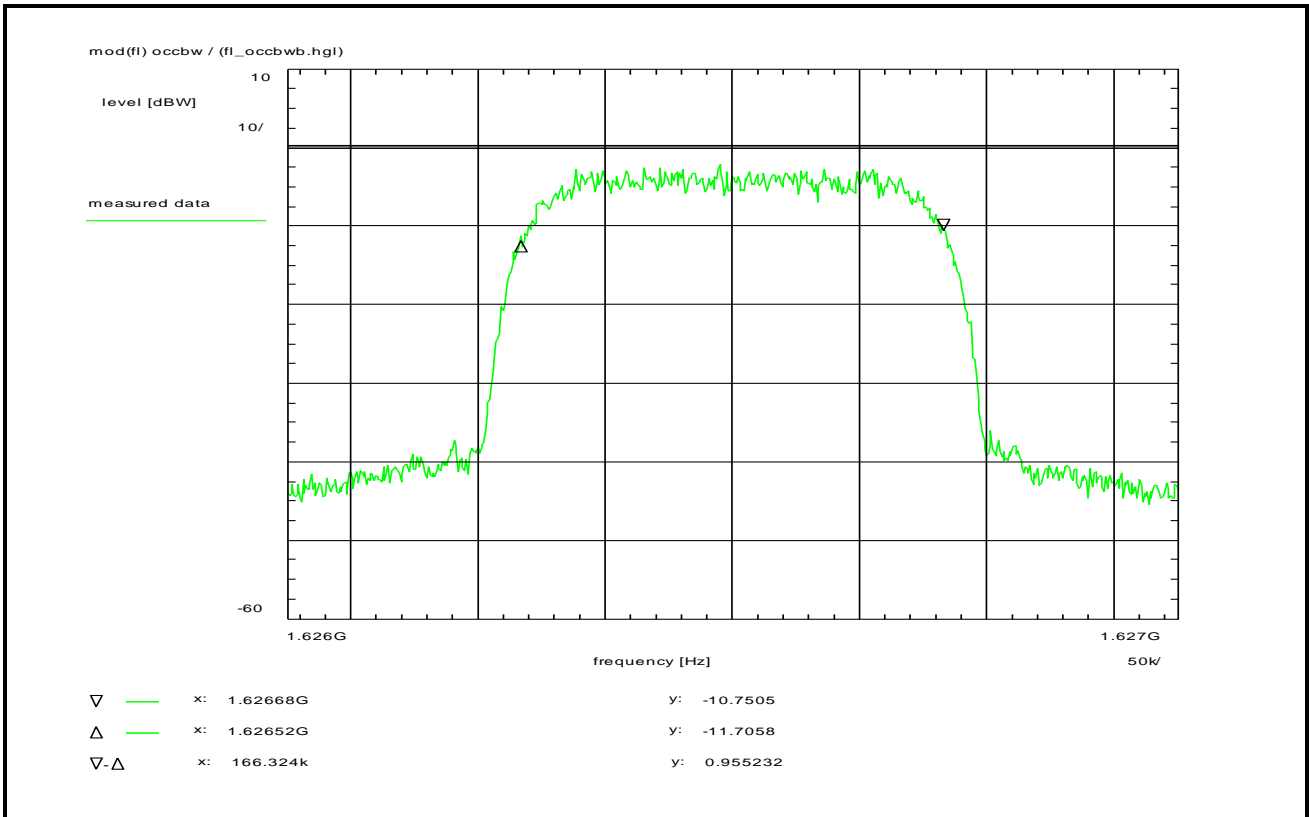
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:23:53
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626425 GHz
 Stop frequency: 1.626775 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 167.4 kHz (delta marker)
 Noise average measurement

Plot No. 23 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R5T45X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

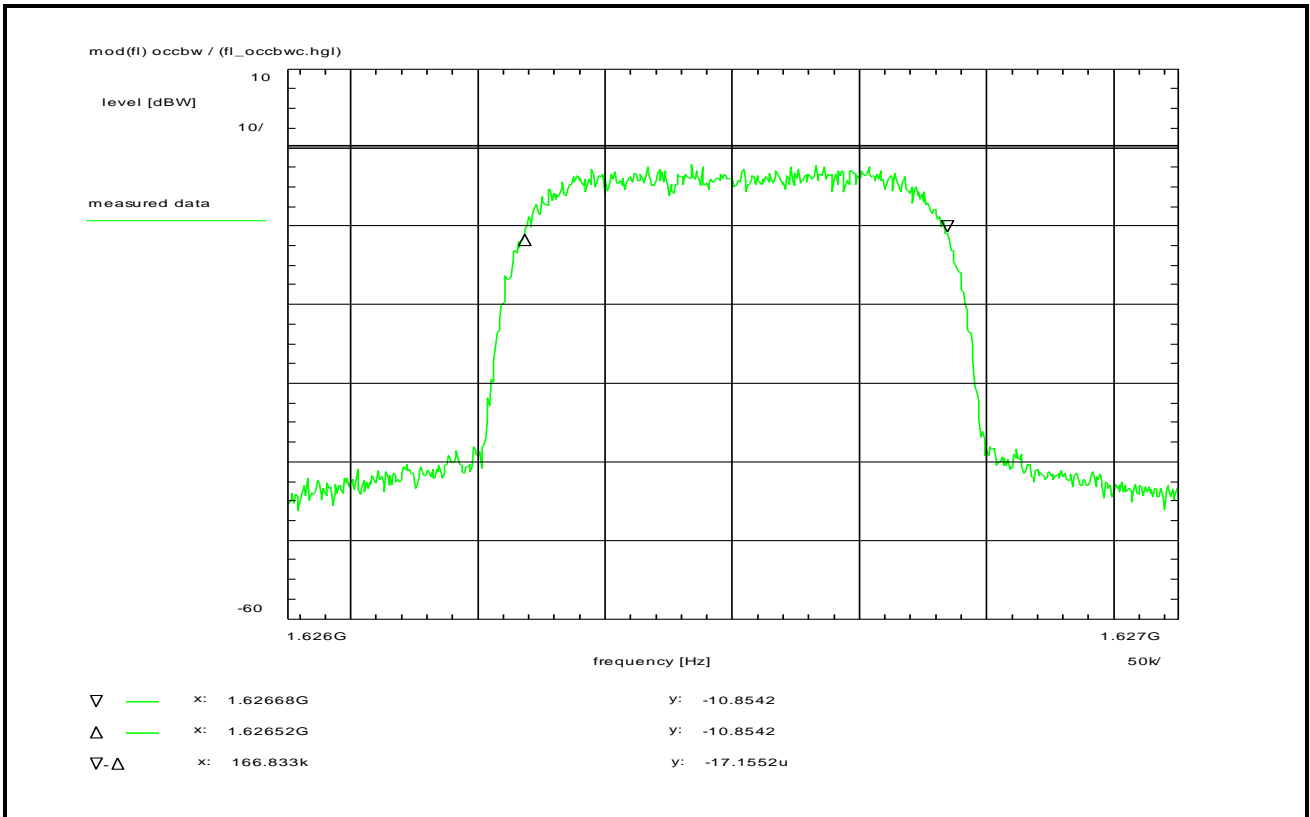
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:25:58
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626425 GHz
 Stop frequency: 1.626775 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.3 kHz (delta marker)
 Noise average measurement

Plot No. 24 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (flow)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power.
 This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R20T45X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

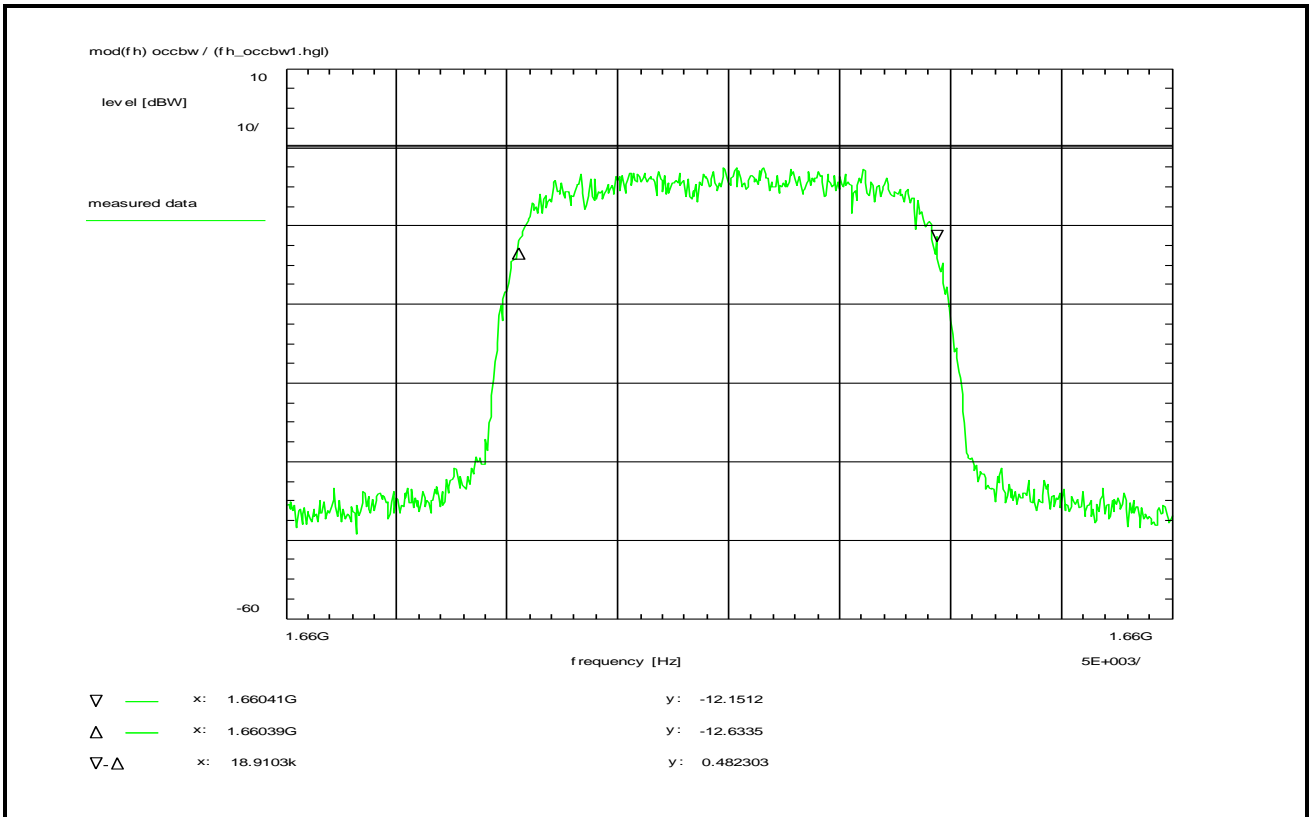
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:27:24
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.626425 GHz
 Stop frequency: 1.626775 GHz
 Center frequency: 1.6266 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at flow.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.8 kHz (delta marker)
 Noise average measurement

Plot No. 25 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhigh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhigh, see section 7.4
 R20T05Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

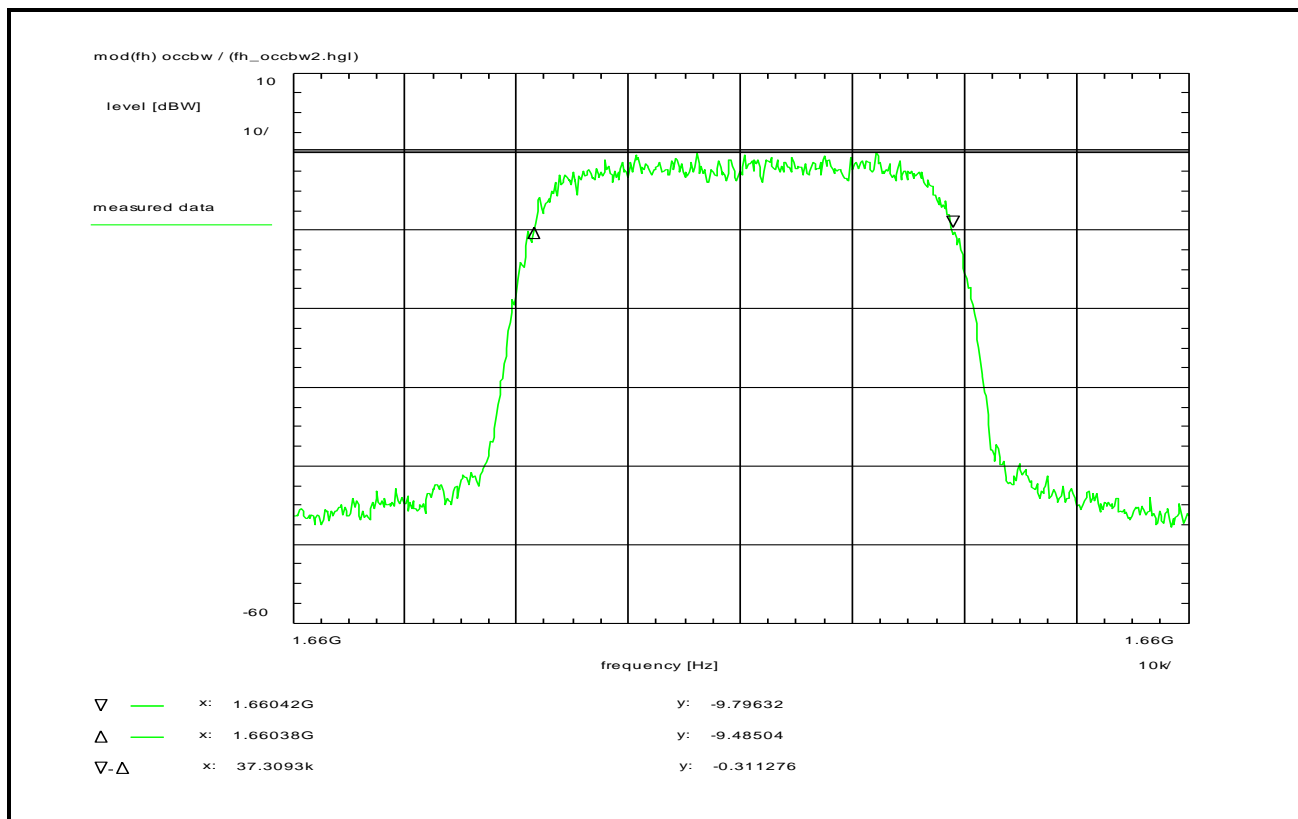
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:30:12
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.66038 GHz
 Stop frequency: 1.66042 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 40 kHz
 Input attenuation: 20 dB
 Resolution-BW: 300 Hz
 Video-BW: 300 Hz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhigh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 18.6 kHz (delta marker)
 Noise average measurement.

Plot No. 26 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhigh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhigh, see section 7.4
 R20T1Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

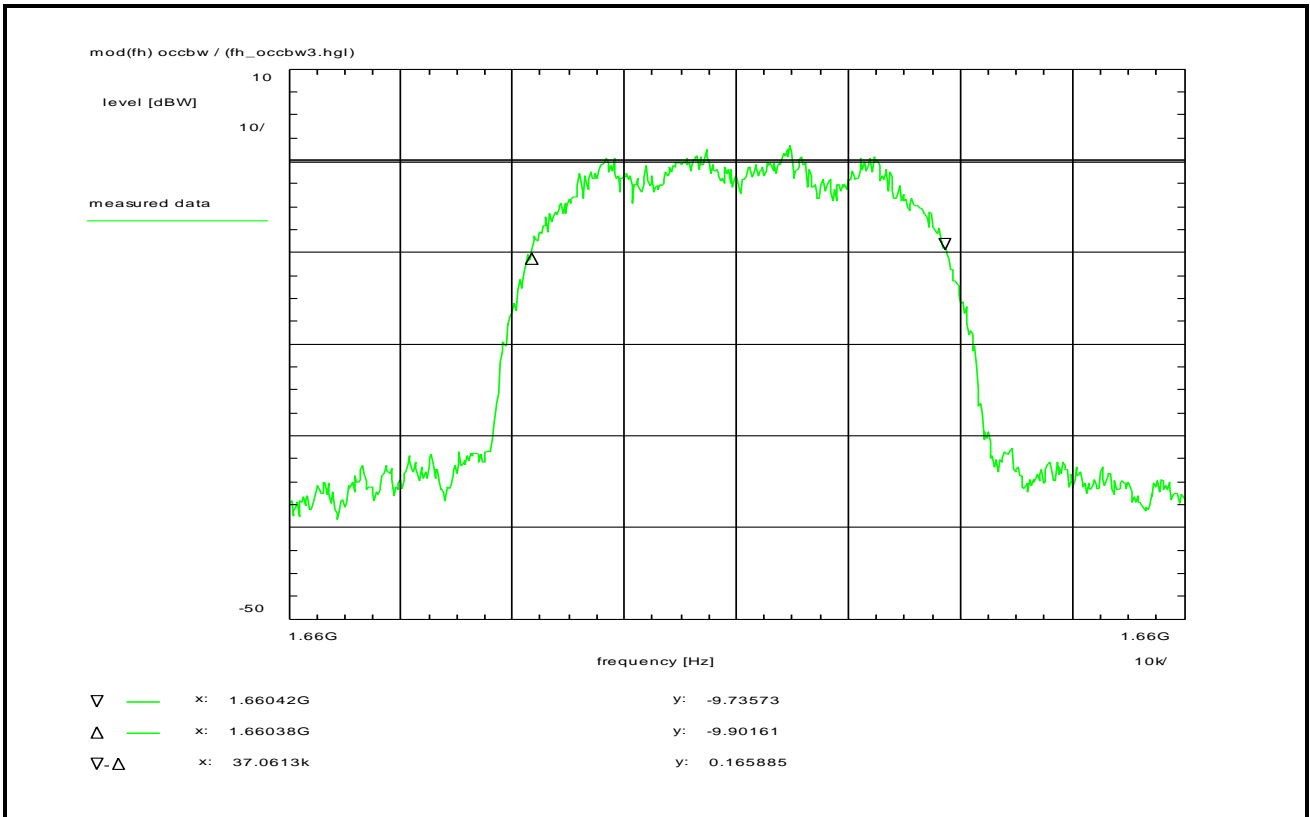
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:33:45
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.66036 GHz
 Stop frequency: 1.66044 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhigh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.3 kHz (delta marker)
 Noise average measurement.

Plot No. 27 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power.
 This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R5T1X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

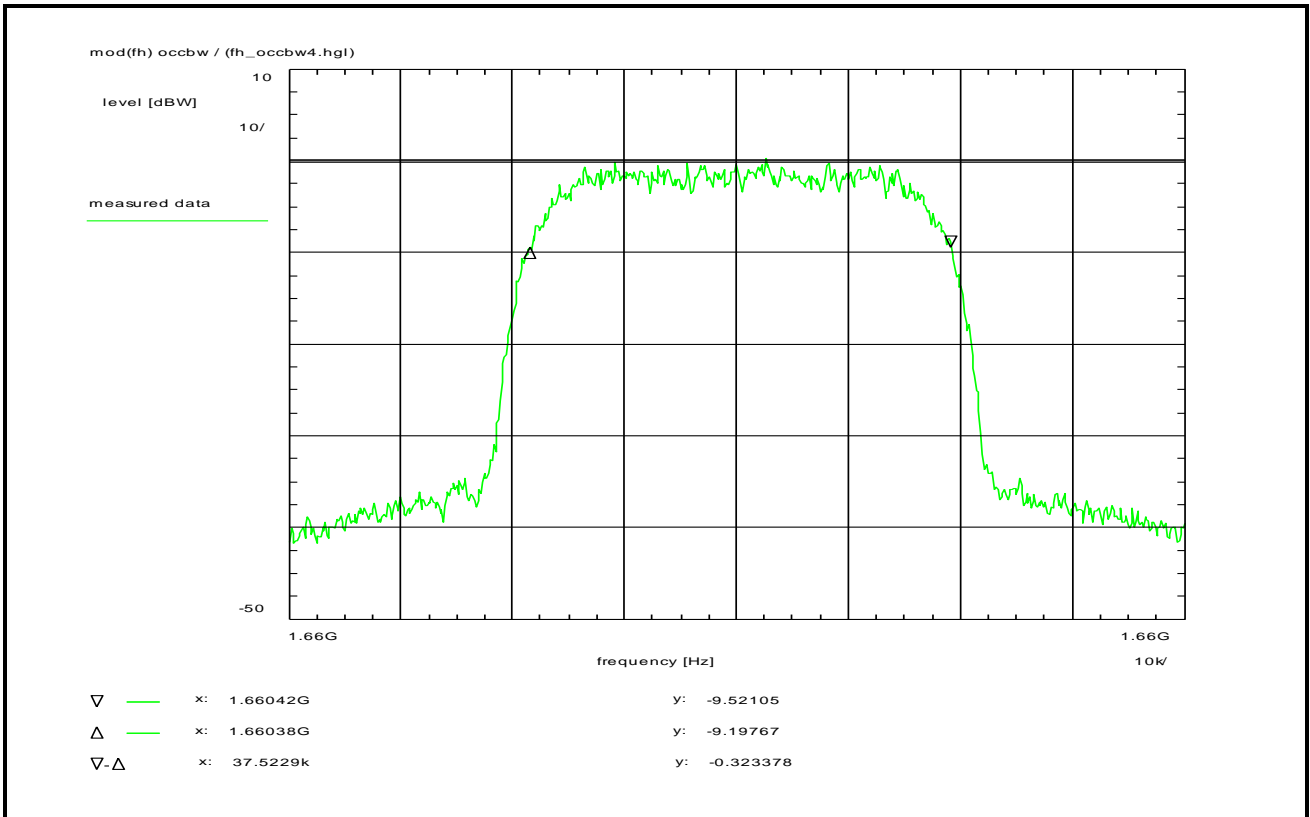
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:35:49
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.66036 GHz
 Stop frequency: 1.66044 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 80 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 37.1 kHz (delta marker)
 Noise average measurement.

Plot No. 28 (111)



Subclause: -/- Function test
Modulated rf-carrier at the higher edge of the band (fhgh)
Verification of the occupied bandwidth

Limit:
This tests serves to verify the occupied bandwidth.
The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhgh, see section 7.4
R20T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

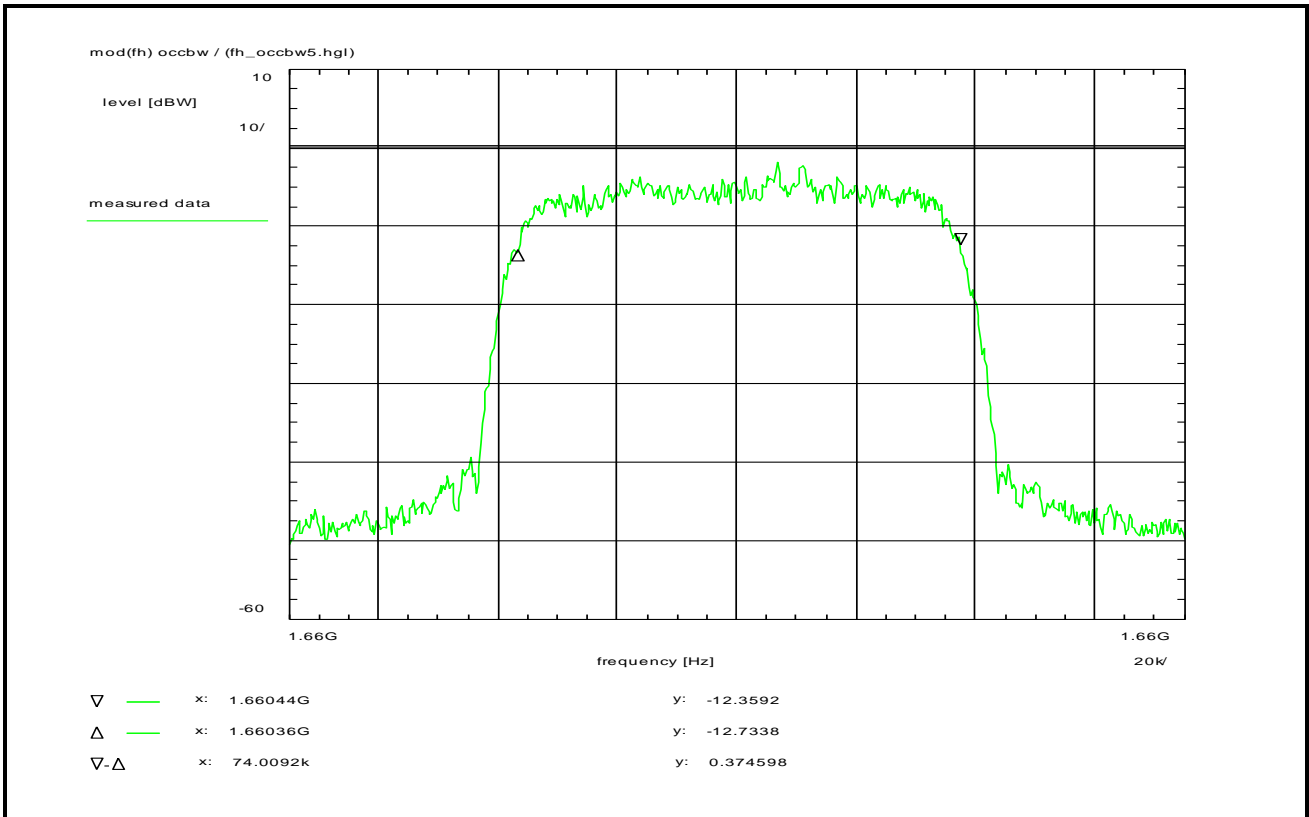
Environment condition:
Date & Time: Mon 06/Oct/2014 14:38:32
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:
Start frequency: 1.66036 GHz
Stop frequency: 1.66044 GHz
Center frequency: 1.6604 GHz
Frequency span: 80 kHz
Input attenuation: 20 dB
Resolution-BW: 1 kHz
Video-BW: 1 kHz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

Remarks:
Verification of the occupied bandwidth at fhgh.
The internal function of the spectrum analyzer was used.
The measured value is about 37.5 kHz (delta marker)
Noise average measurement.

Plot No. 29 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhigh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhigh, see section 7.4
 R5T2Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

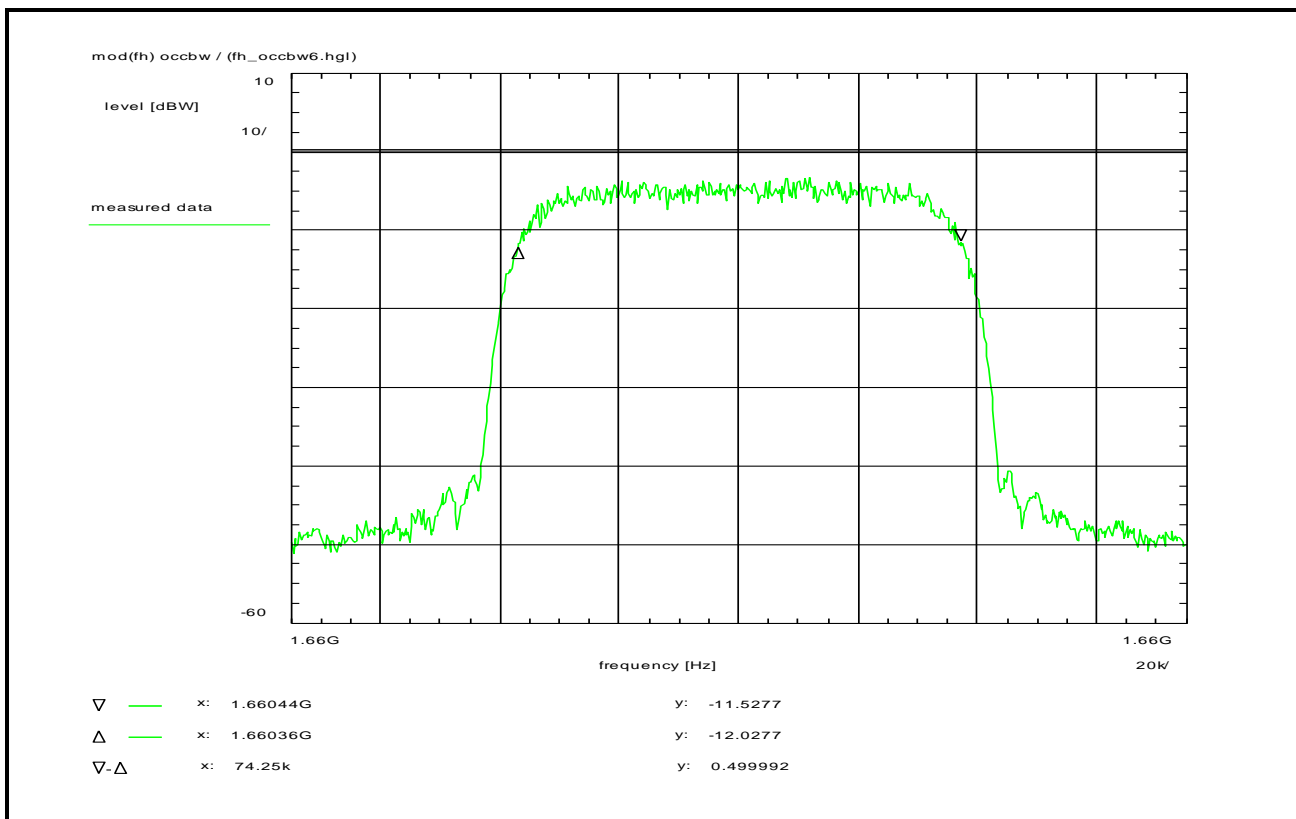
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:40:42
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660325 GHz
 Stop frequency: 1.660475 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhigh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74 kHz (delta marker)
 Noise average measurement.

Plot No. 30 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R20T2Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

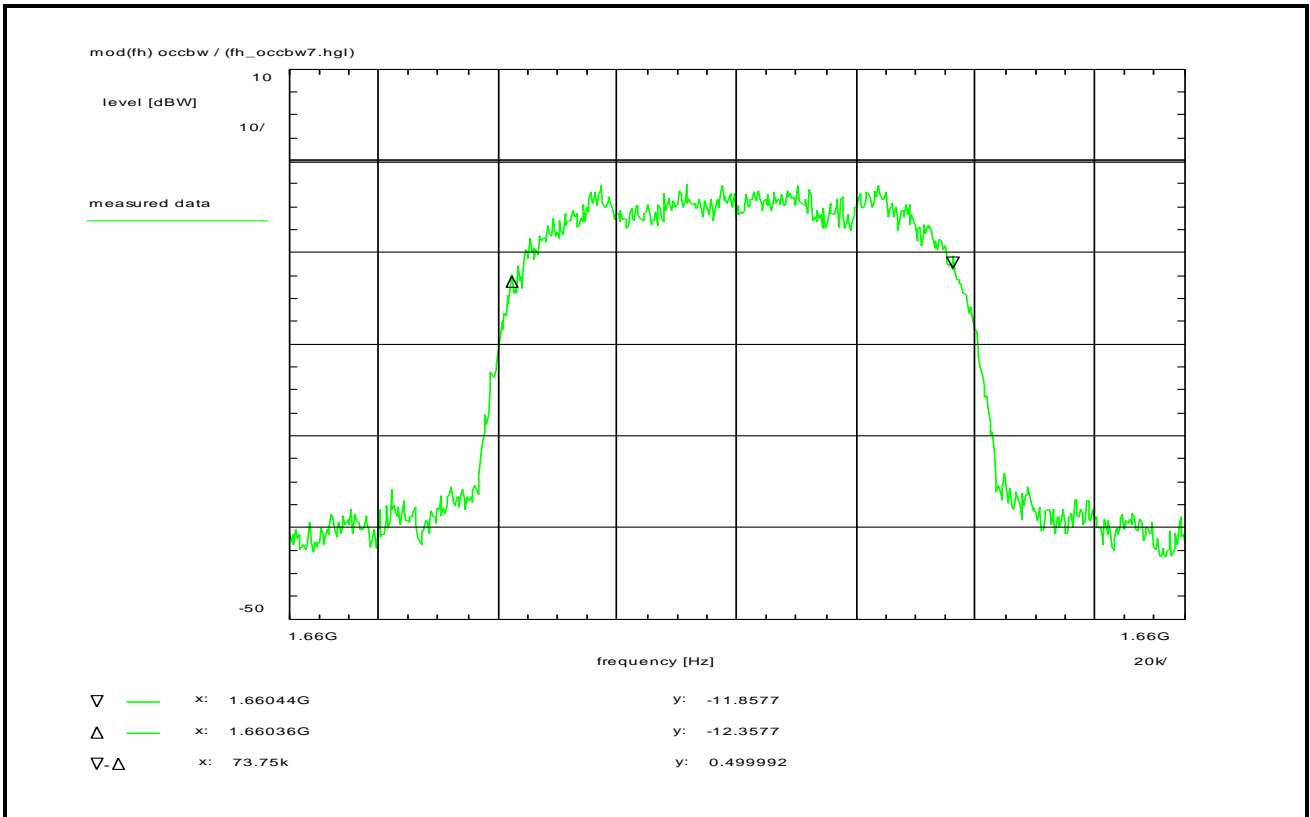
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:43:45
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660325 GHz
 Stop frequency: 1.660475 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74.25 kHz (delta marker)
 Noise average measurement.

Plot No. 31 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R5T2X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

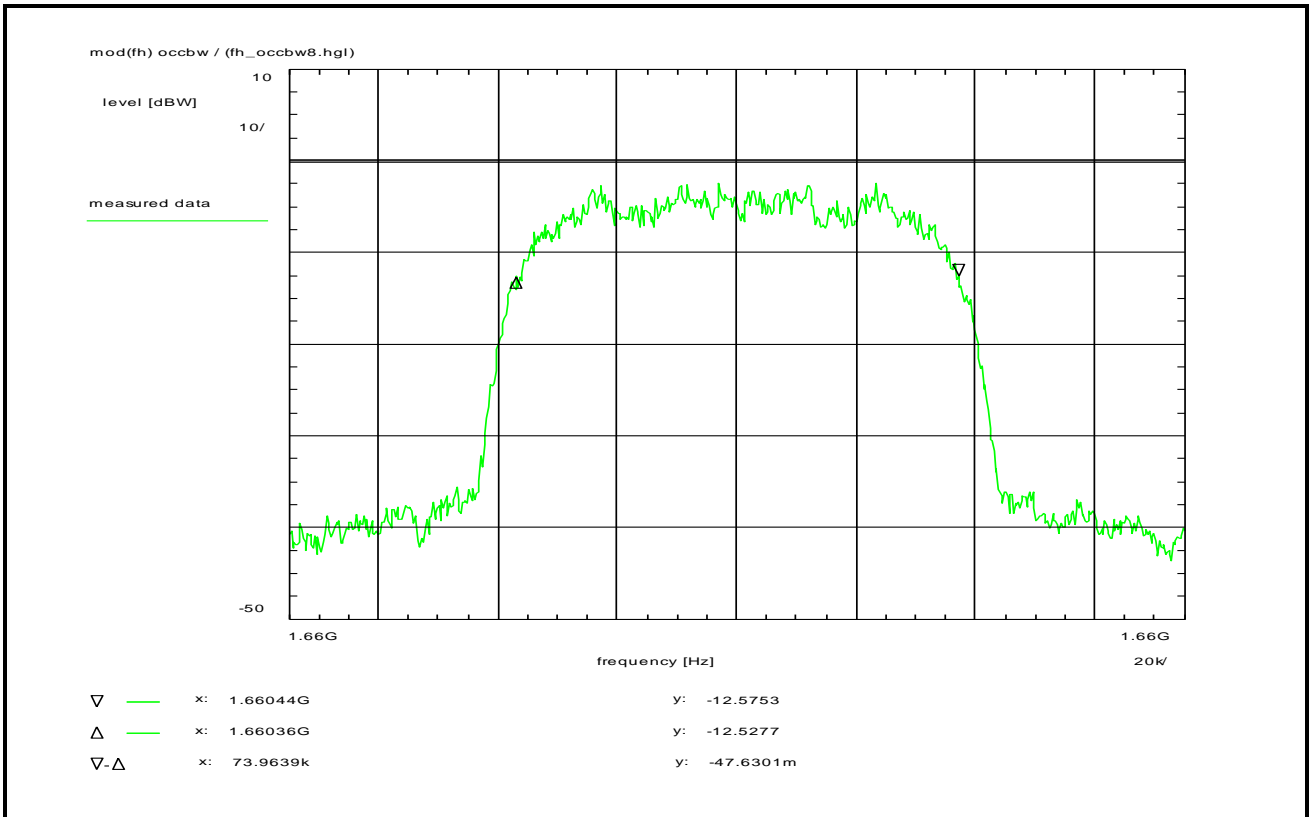
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:47:39
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660325 GHz
 Stop frequency: 1.660475 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 73.75 kHz (delta marker)
 Noise average measurement.

Plot No. 32 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R20T2X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

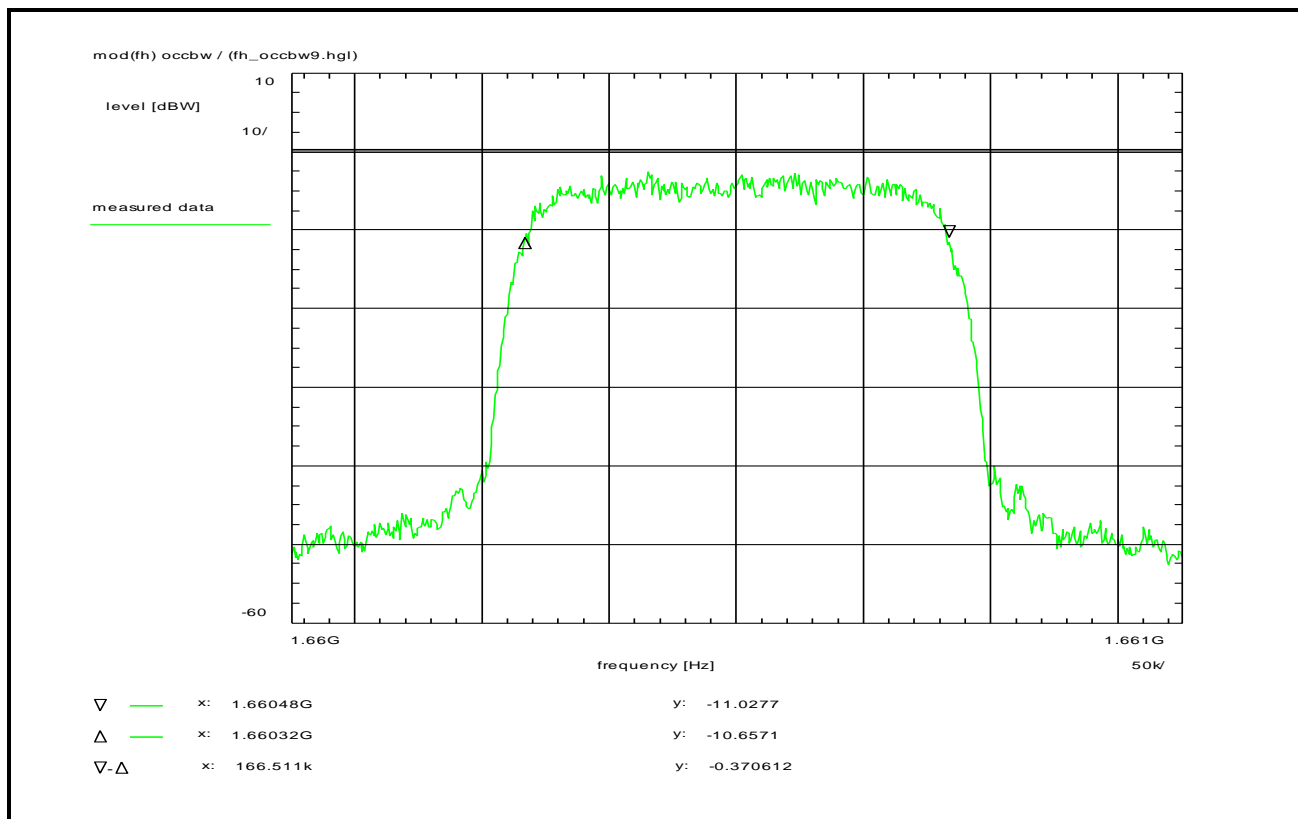
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:50:57
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660325 GHz
 Stop frequency: 1.660475 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 150 kHz
 Input attenuation: 20 dB
 Resolution-BW: 1 kHz
 Video-BW: 1 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 74 kHz (delta marker)
 Noise average measurement.

Plot No. 33 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power.
 This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R5T45Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

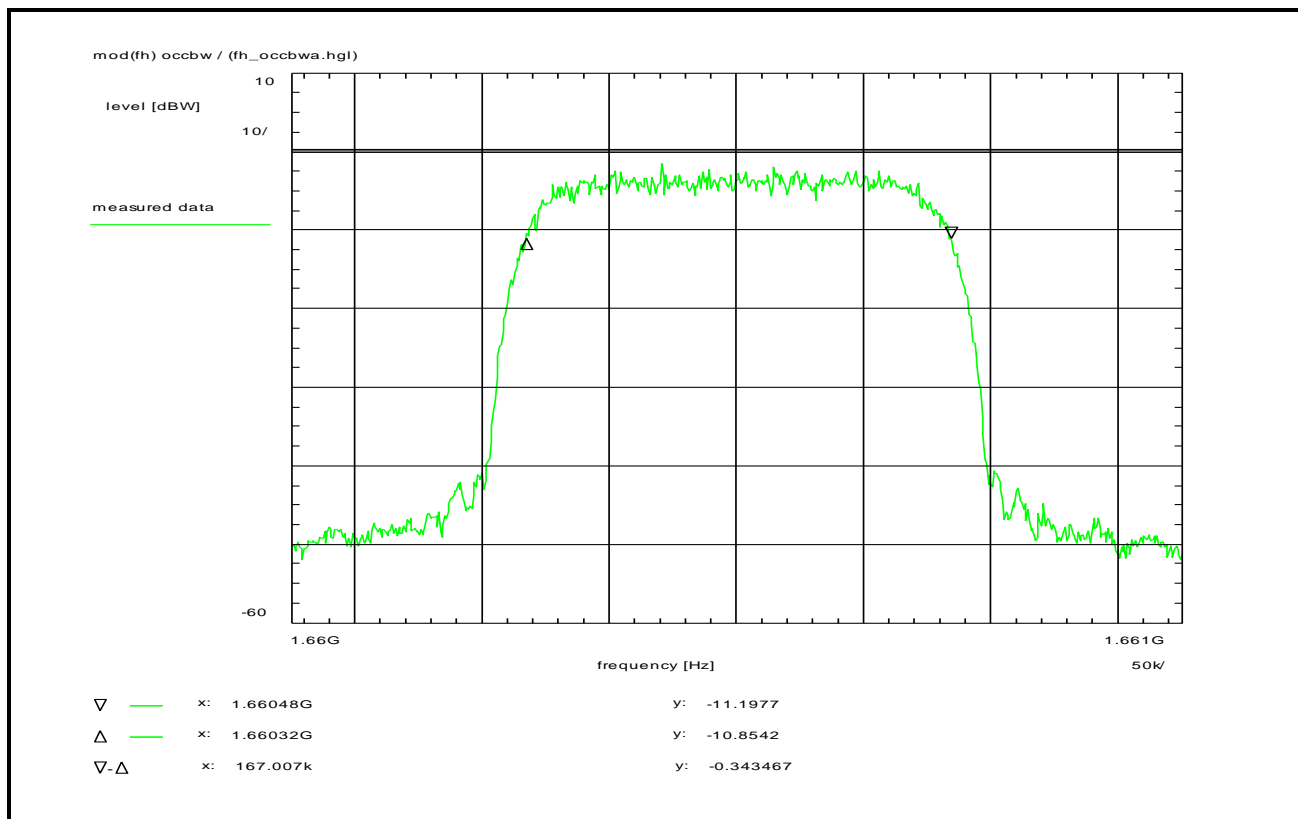
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:53:06
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660225 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.5 kHz (delta marker)
 Noise average measurement.

Plot No. 34 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R20T45Q

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

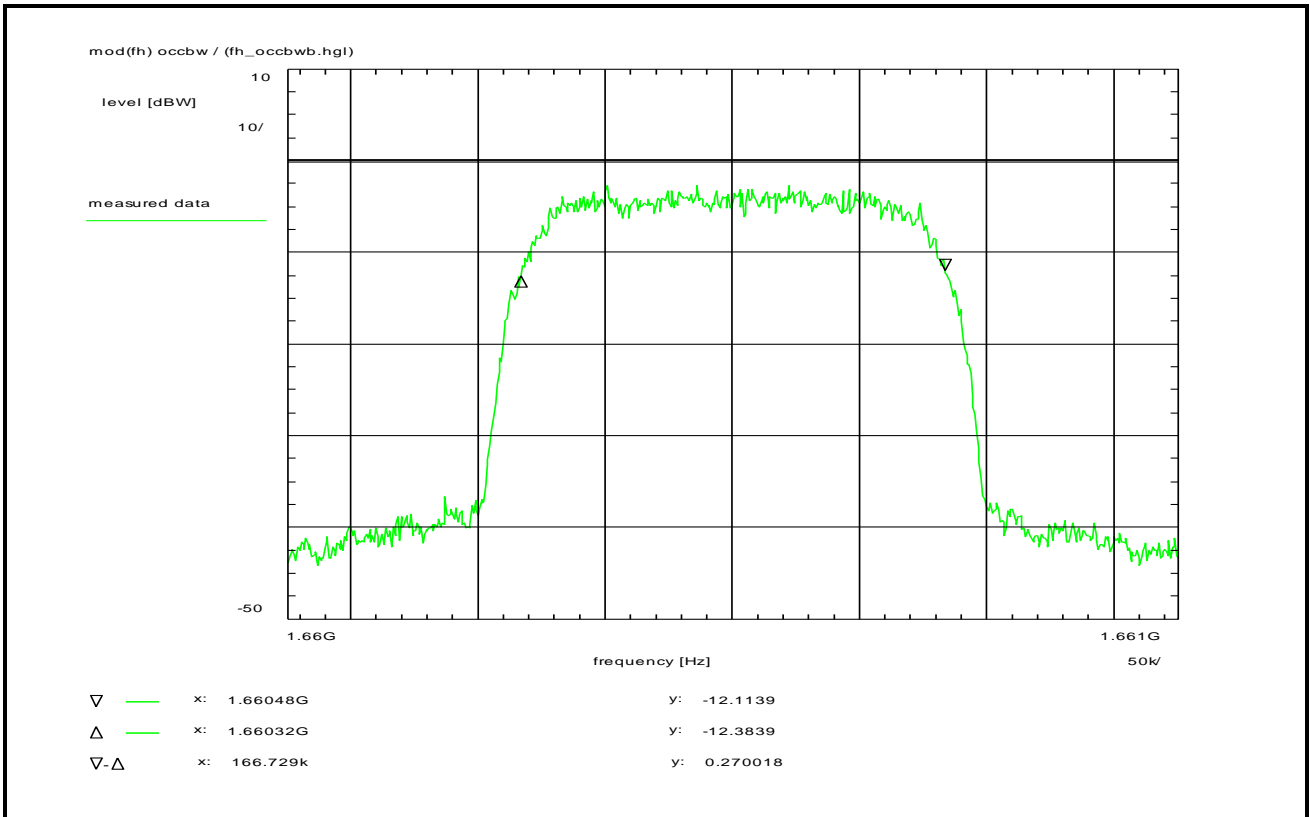
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:55:30
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660225 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 167 kHz (delta marker)
 Noise average measurement.

Plot No. 35 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhig)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhig, see section 7.4
 R5T45X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

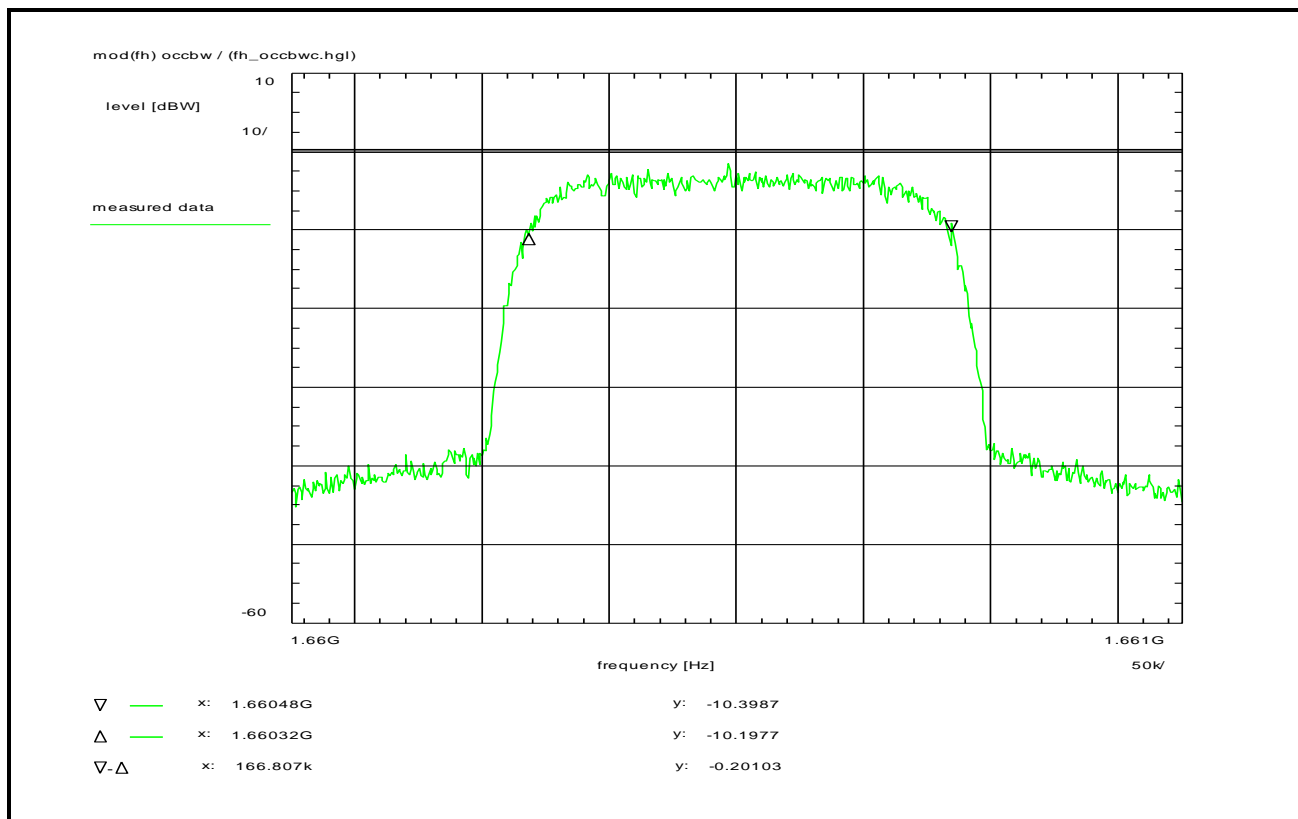
Environment condition:
 Date & Time: Mon 06/Oct/2014 14:59:29
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660225 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhig.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.7 kHz (delta marker)
 Noise average measurement.

Plot No. 36 (111)



Subclause: -/- Function test
 Modulated rf-carrier at the higher edge of the band (fhgh)
 Verification of the occupied bandwidth

Limit:
 This tests serves to verify the occupied bandwidth.
 The occupied bandwidth is defined as the width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to 0.5% of the emitted power. This is also known as the 99% emission bandwidth.

Test results:
 see plot (an explicit table was not generated)

Operating condition of DUT:
 operating condition 1, fhgh, see section 7.4
 R20T45X

Test setup:
 see section 8.1: 1.2hgj

Test equipment:
 see annex A: C217, R001, U005

Remark:

Test result: Verification of the occupied bandwidth

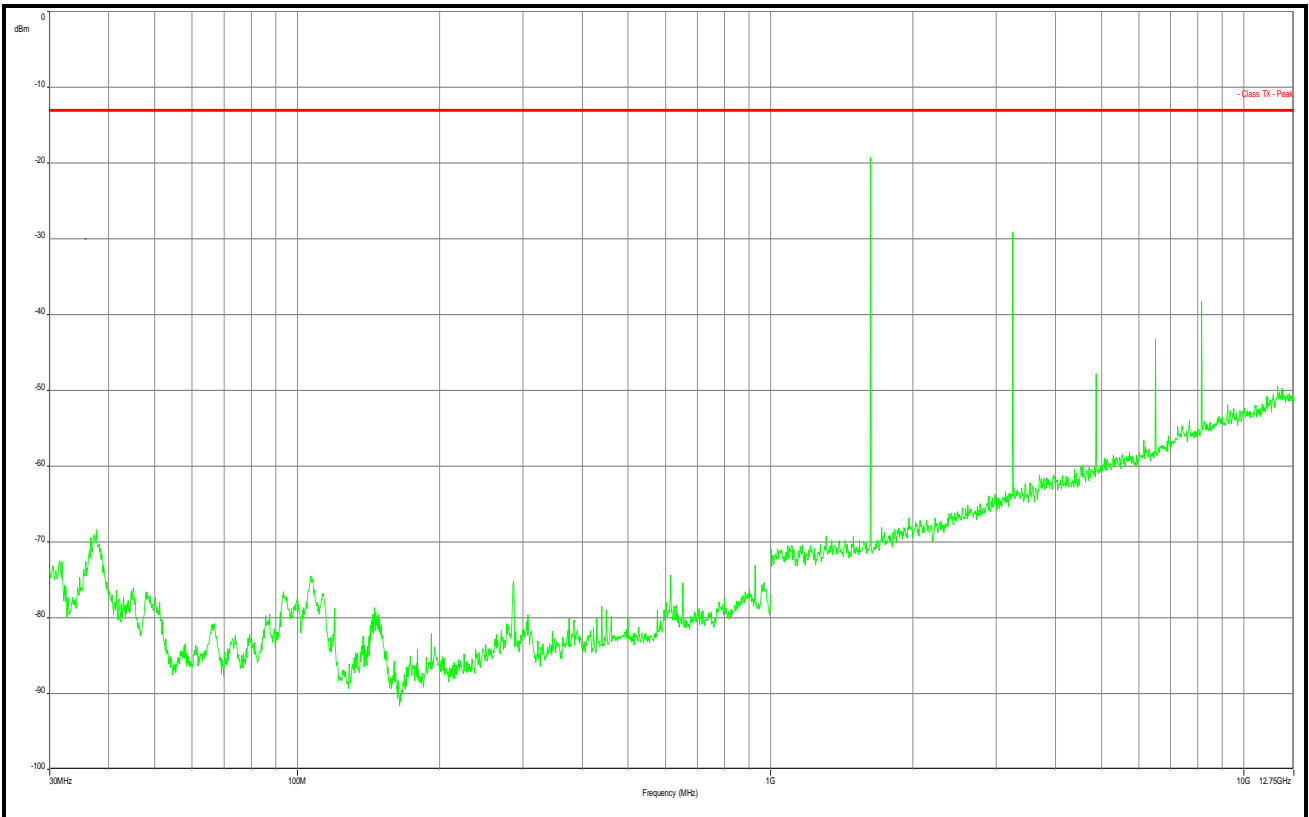
Environment condition:
 Date & Time: Mon 06/Oct/2014 15:05:09
 Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
 Temperature: 23 °C
 Humidity: 45 %
 Voltage: 24 Vdc

Setup of measurement equipment:
 Start frequency: 1.660225 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 350 kHz
 Input attenuation: 20 dB
 Resolution-BW: 3 kHz
 Video-BW: 3 kHz
 Video-Average: 100 sweep(s) (>1)
 Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
 Directional coupler + 0.0 dB
 Coaxial cable (C217) + 0.8 dB
 DUT-Antenna (on-axis) + 11.2 dBi
 Test antenna + 0.0 dB
 BW correction factor + 0.0 dB
 Atten. between HPA and feedhorn + 0.0 dB
 Attenuation (U005) + 29.8 dB
 TOTAL CORRECTION: + 41.8 dB

Remarks:
 Verification of the occupied bandwidth at fhgh.
 The internal function of the spectrum analyzer was used.
 The measured value is about 166.8 kHz (delta marker)
 Noise average measurement.

Plot No. 37 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
 Emission limitations, modulated carrier at the lower edge of the band
 Radiation coming out of DUT-cabinet(s): 30 MHz - 12.75 GHz

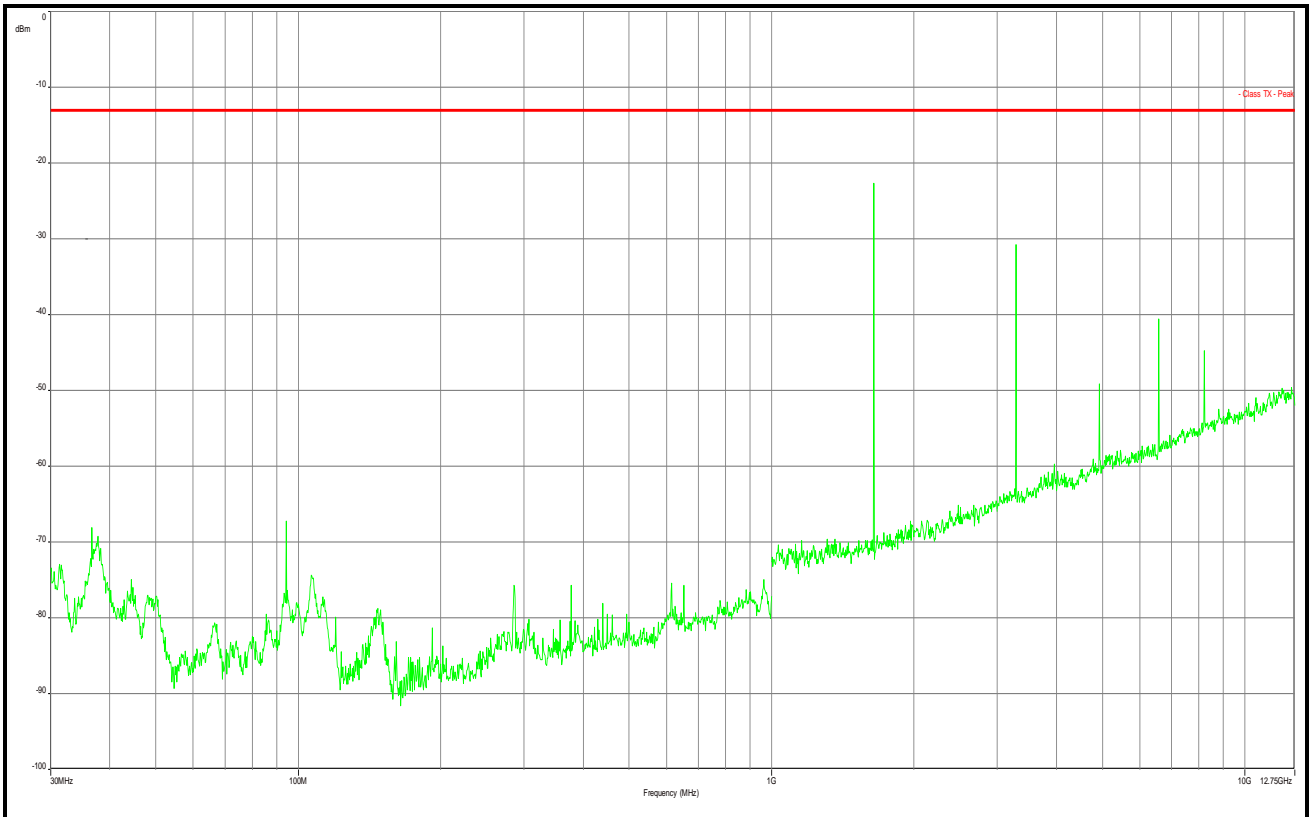
Operating condition of DUT:
 operating condition 1, flow, see section 7.4
 R1T5X (highest Pout)

Test results:

1626.6 MHz	-19.2 dBm (wanted signal)
3253.2 MHz	-29.1 dBm (2 nd harmonic)
4879.8 MHz	-47.8 dBm (3 rd harmonic)
6506.4 MHz	-43.2 dBm (4 th harmonic)
8133.0 MHz	-38.3 dBm (5 th harmonic)

Test result: Test passed

Plot No. 38 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
 Emission limitations, modulated carrier in the middle of the band
 Radiation coming out of DUT-cabinet(s): 30 MHz - 12.75 GHz

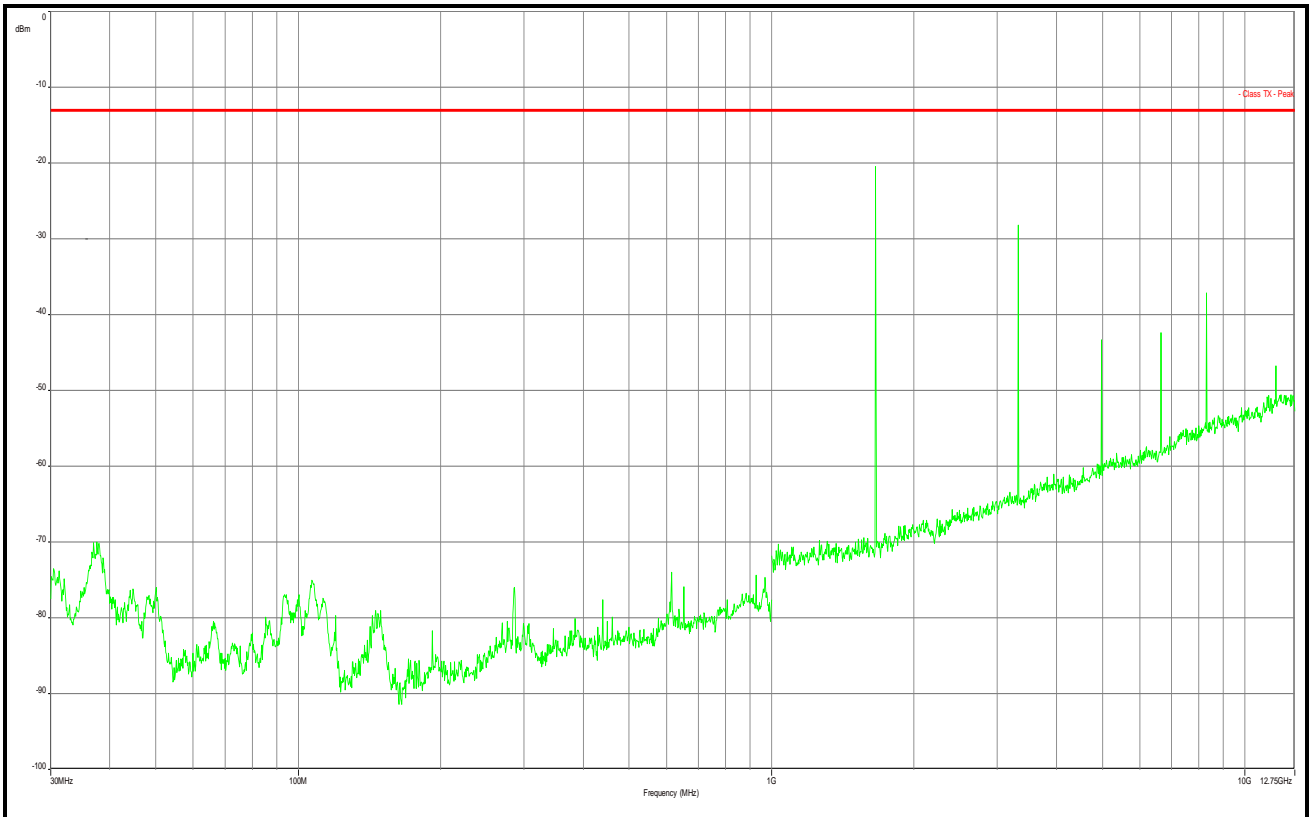
Operating condition of DUT:
 operating condition 1, fmid, see section 7.4
 R1T5X (highest Pout)

Test results:

1643.5 MHz	-22.7 dBm (wanted signal)
3287.0 MHz	-30.8 dBm (2 nd harmonic)
4930.5 MHz	-49.1 dBm (3 rd harmonic)
6574.0 MHz	-40.6 dBm (4 th harmonic)
8217.5 MHz	-44.8 dBm (5 th harmonic)

Test result: Test passed

Plot No. 39 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
 Emission limitations, modulated carrier in the higher edge of the band
 Radiation coming out of DUT-cabinet(s): 30 MHz - 12.75 GHz

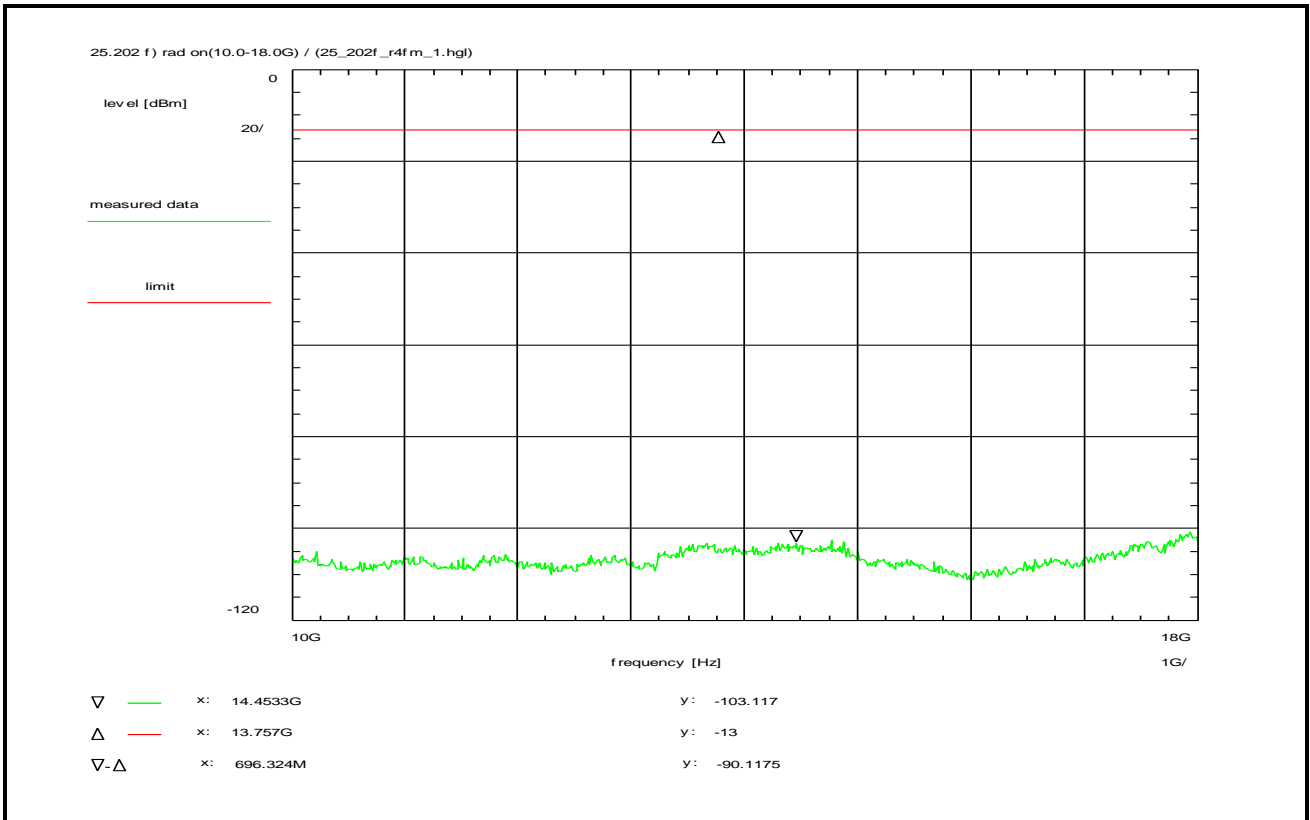
Operating condition of DUT:
 operating condition 1, fhigh, see section 7.4
 R1T5X (highest Pout)

Test results:

1660.4 MHz	-20.4 dBm (wanted signal)
3320.8 MHz	-28.2 dBm (2 nd harmonic)
4981.2 MHz	-43.4 dBm (3 rd harmonic)
6641.6 MHz	-42.3 dBm (4 th harmonic)
8302.0 MHz	-37.1 dBm (5 th harmonic)
11622.8 MHz	-46.7 dBm (7 th harmonic)

Test result: Test passed

Plot No. 40 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations, modulated carrier in the middle of the band
Radiation coming out of DUT-cabinet(s): 10.0 GHz - 18.0 GHz

Limit:
Limit according to 25.202 f): $-43.0 + 10 \log(P_{max}) \text{ dBc/4kHz}$
This corresponds to -13.0 dBm.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow/mid/high, see section 7.4
R1T5X (highest Pout)

Test setup:
see section 8.1: 2.3

Test equipment:
see annex A: A037, C217, R001, U019

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:31:59
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 100 kHz
Video-BW: 100 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

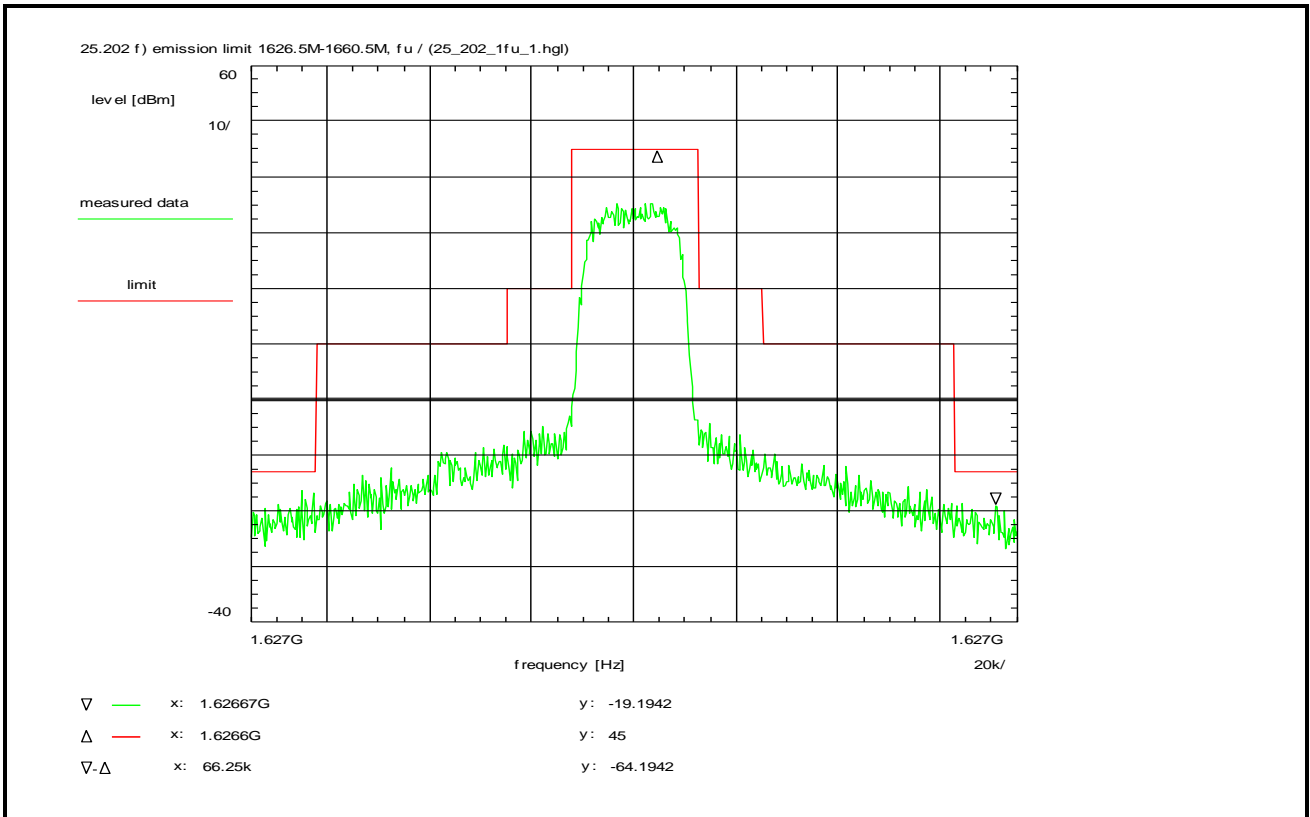
Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna + 0.0 dBi
Test antenna (A037) - 13.1 dB
BW correction factor (100k -> 4k) - 14.0 dB
Atten. between HPA and feedhorn - 0.0 dB
Attenuation + 0.0 dB
TOTAL CORRECTION: - 24.2 dB

Remarks:

Carrier-on state. Carrier in the middle of the band (fm).
Radiated measurement in 1 m test distance.

Plot No. 41 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, flow, see section 7.4
R20T05Q

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 12:07:54
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.626525 GHz
Stop frequency: 1.626675 GHz
Center frequency: 1.6266 GHz
Frequency span: 150 kHz
Input attenuation: 10 dB
Resolution-BW: 1 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

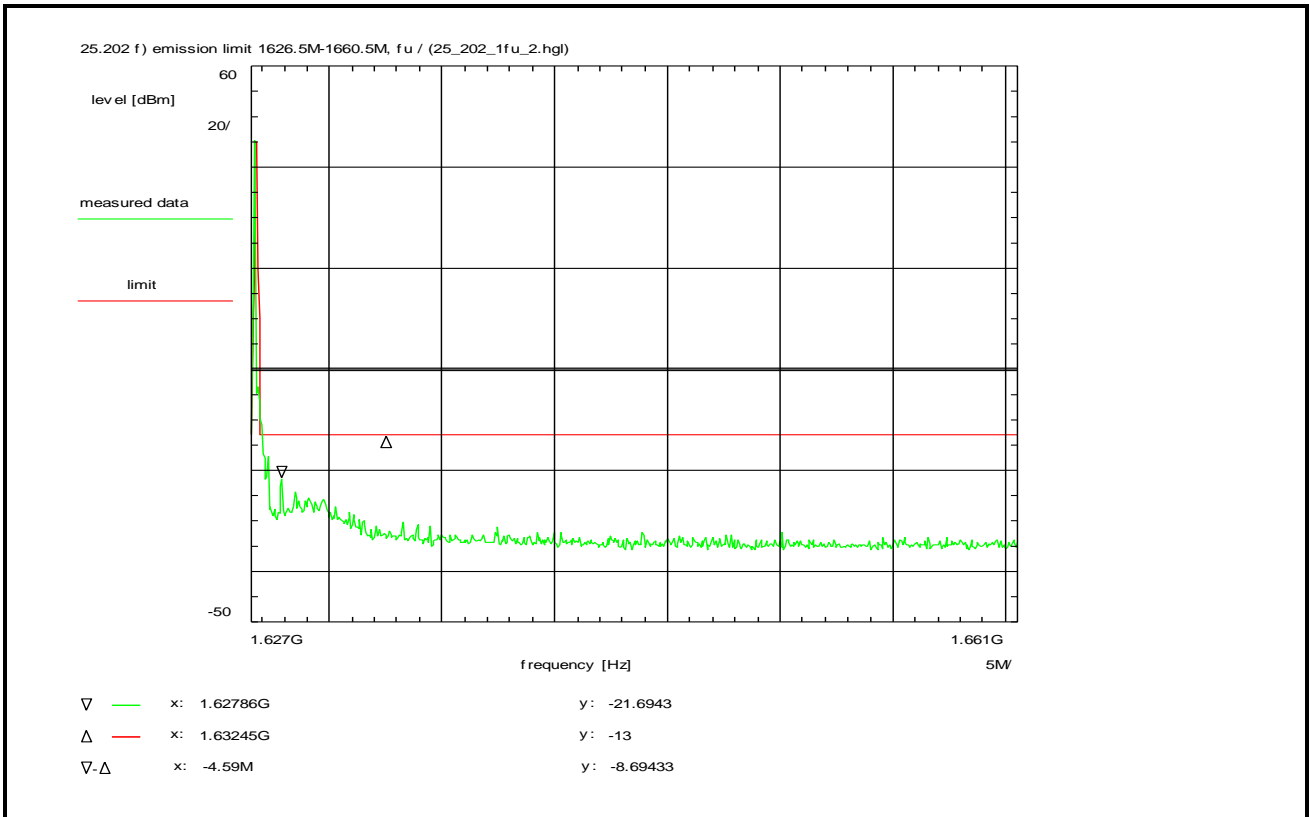
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 42 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, flow, see section 7.4
R20T05Q

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 12:11:23
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 3 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

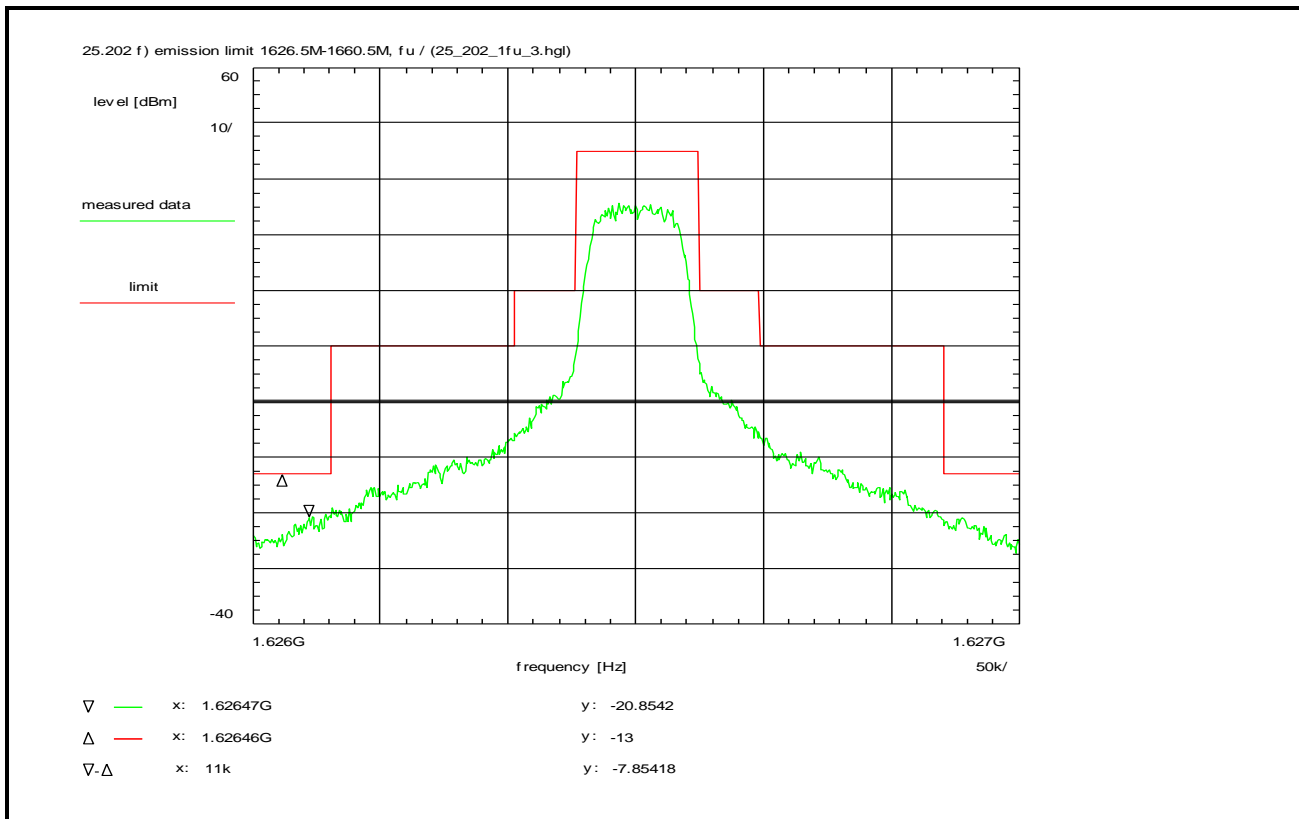
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 43 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, flow, see section 7.4 R5T1X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:25:50
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.62645 GHz
Stop frequency: 1.62675 GHz
Center frequency: 1.6266 GHz
Frequency span: 300 kHz
Input attenuation: 10 dB
Resolution-BW: 3 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

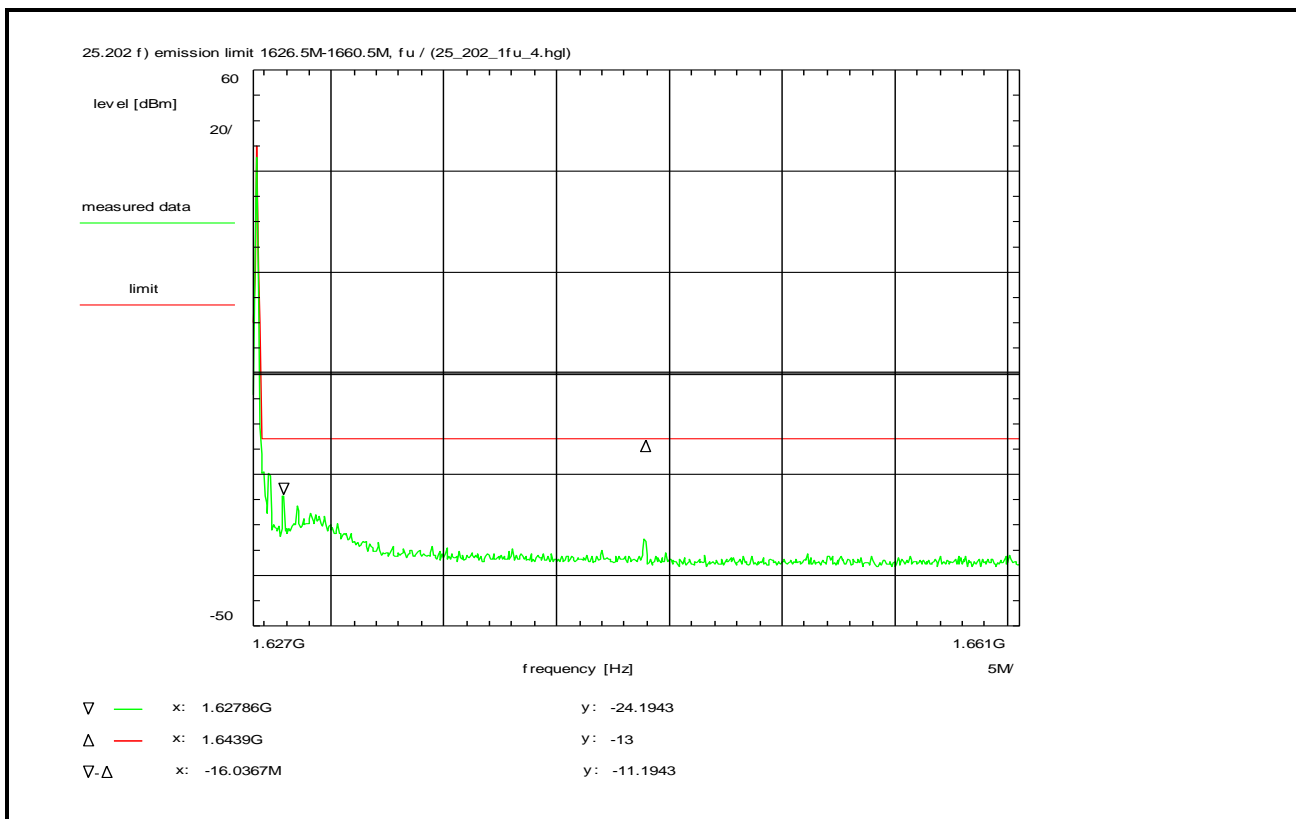
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 44 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, flow, see section 7.4 R5T1X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:26:42
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

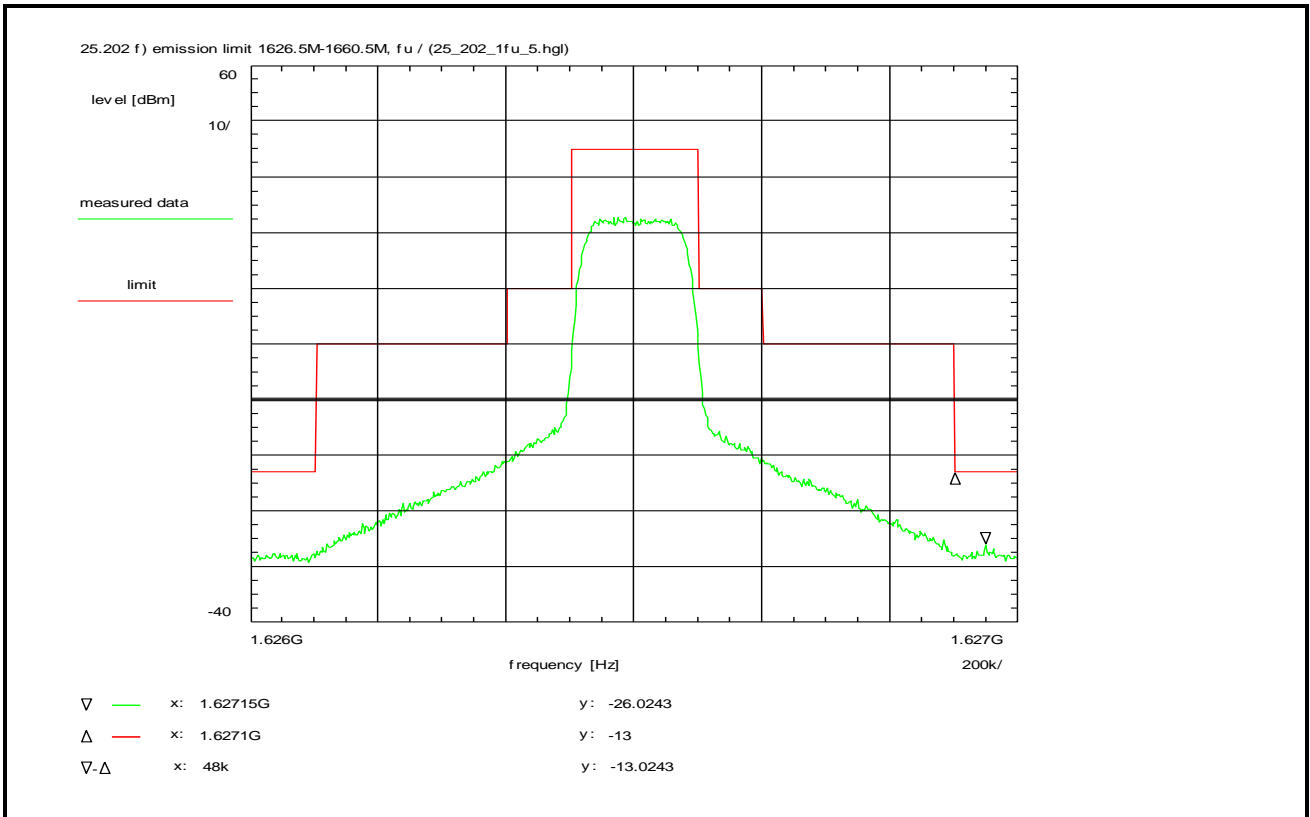
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 45 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:42:58
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.626 GHz
Stop frequency: 1.6272 GHz
Center frequency: 1.6266 GHz
Frequency span: 1.2 MHz
Input attenuation: 10 dB
Resolution-BW: 10 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

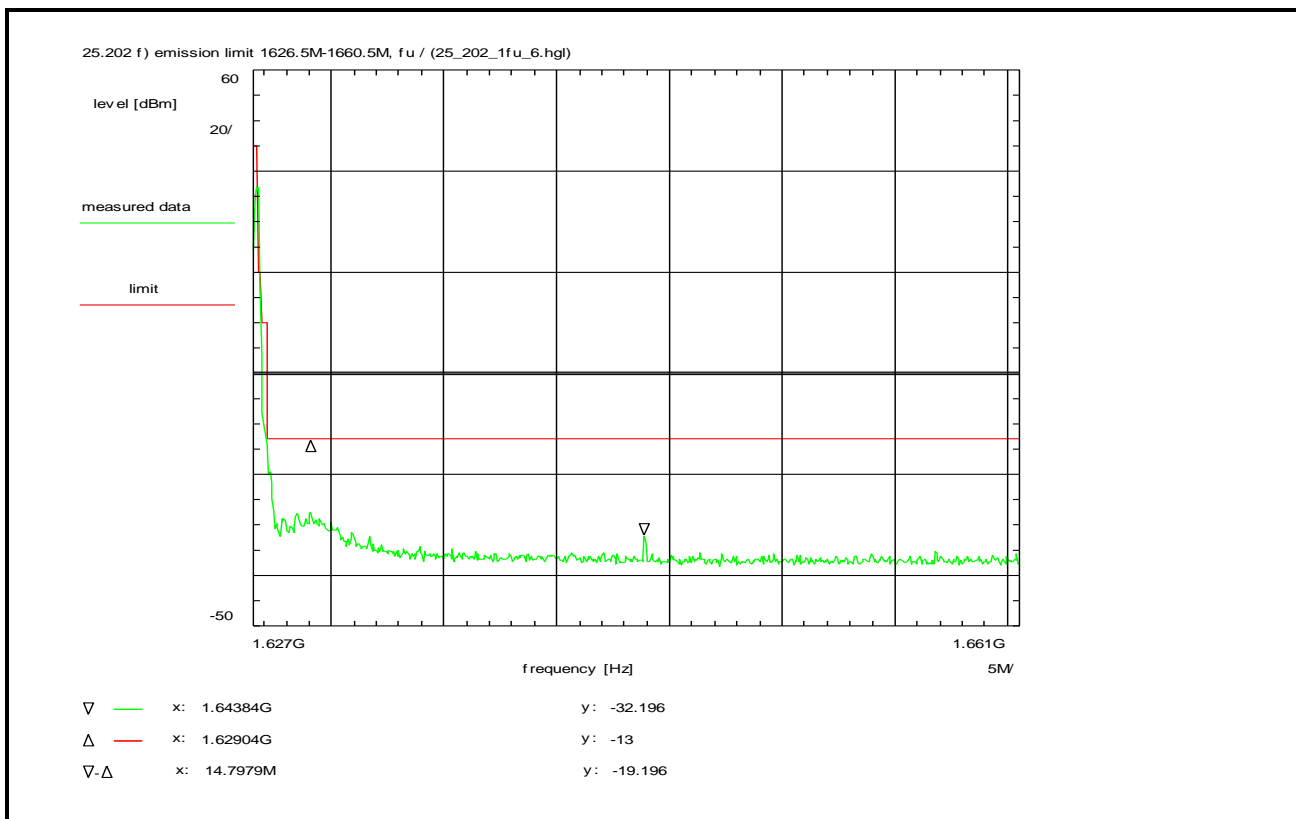
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 46 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:
see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:43:55
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

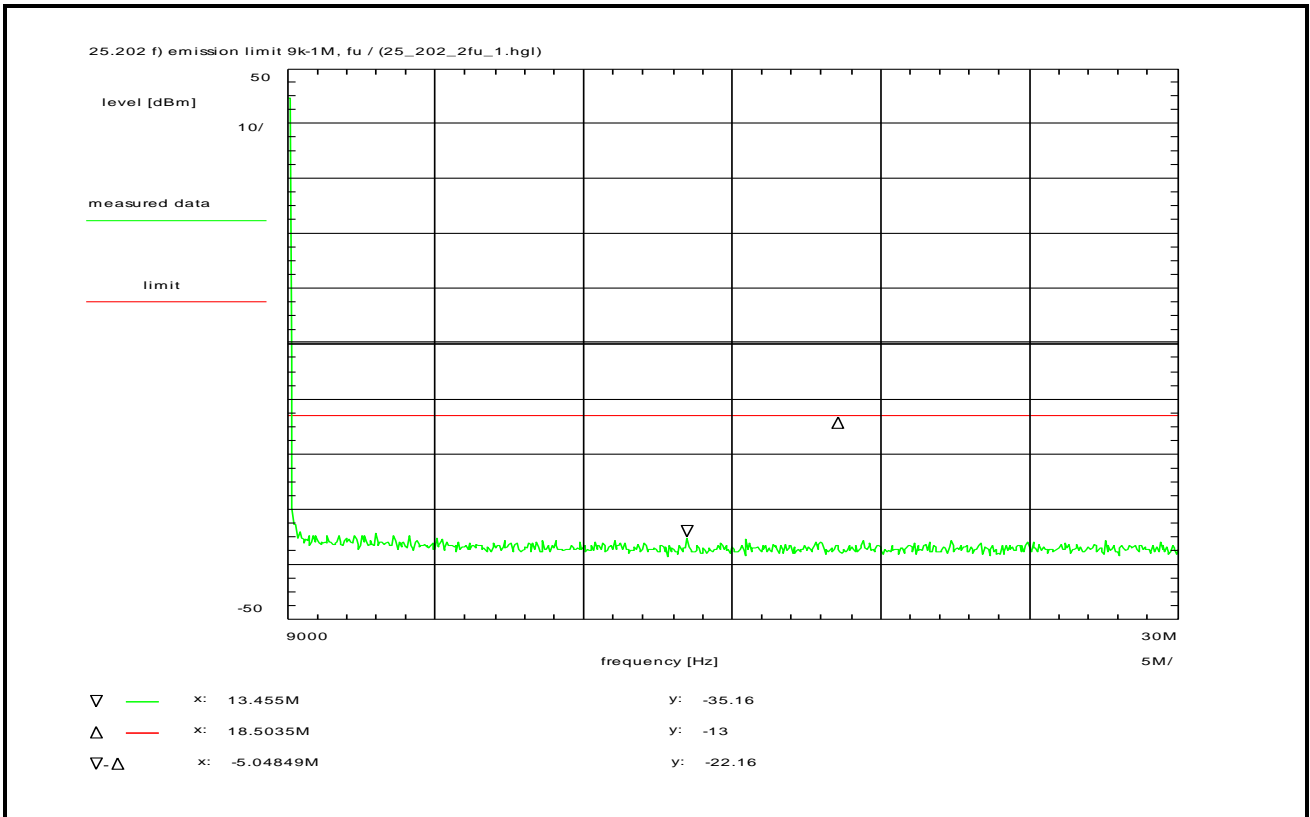
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 47 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:23:53
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

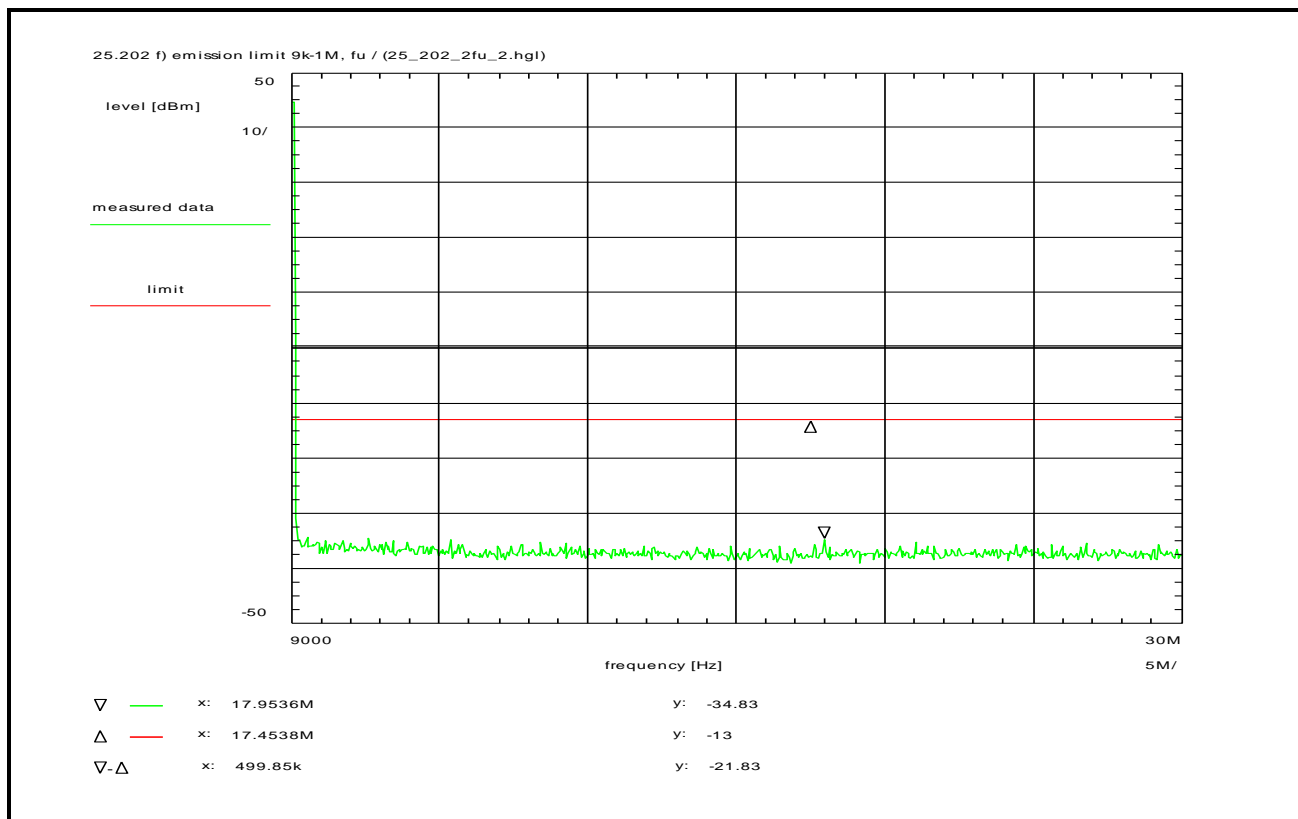
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 48 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:24:15
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

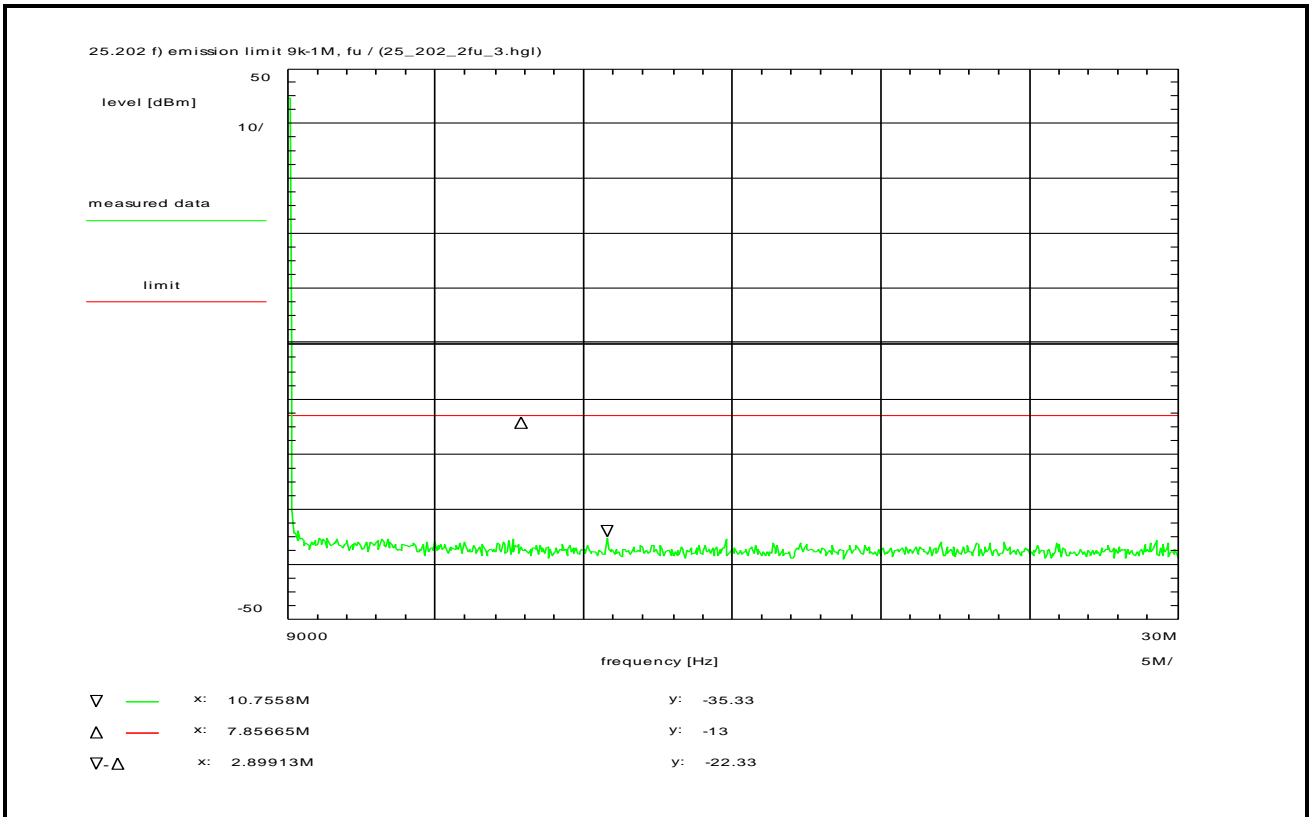
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 49 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:24:34
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

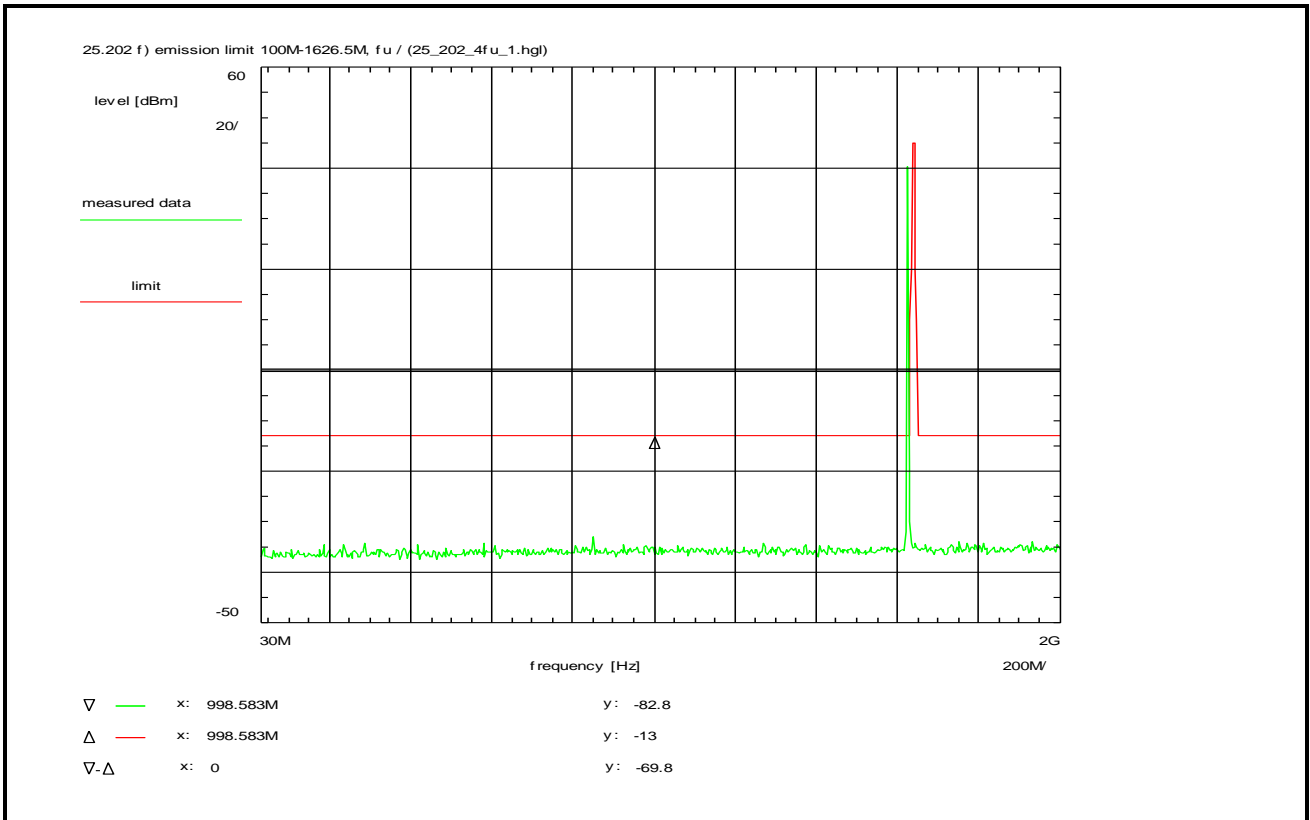
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 50 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:08:33
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

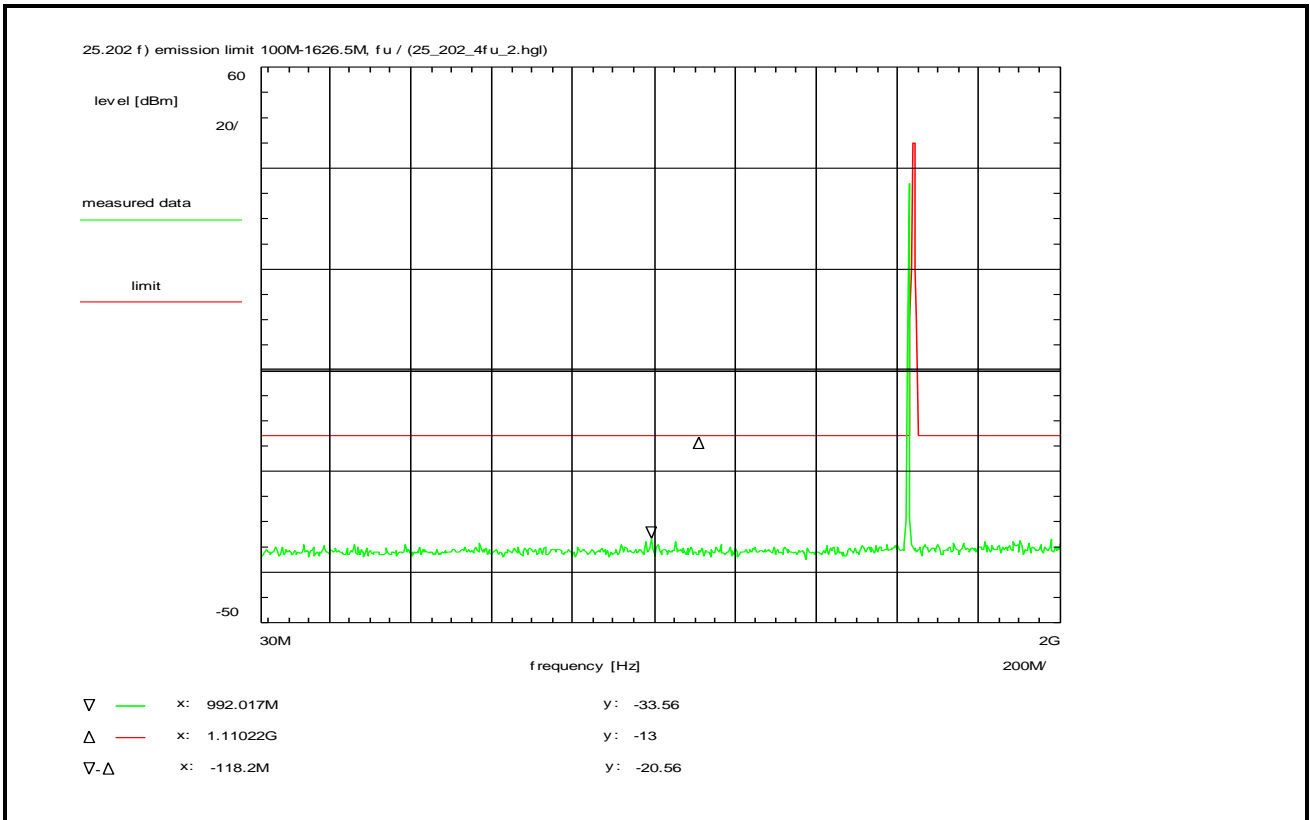
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 51 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, flow, see section 7.4 R5T1X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:10:32
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

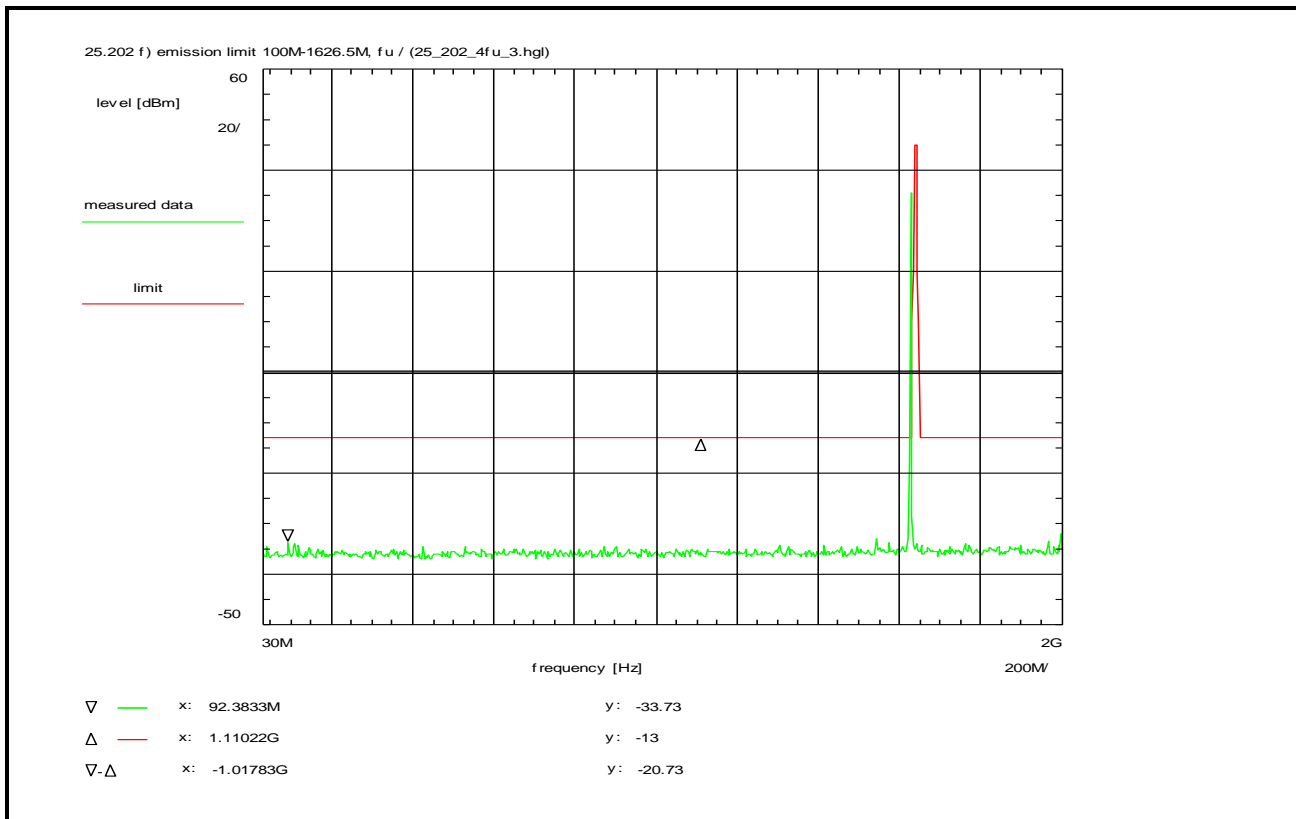
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 52 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:12:06
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

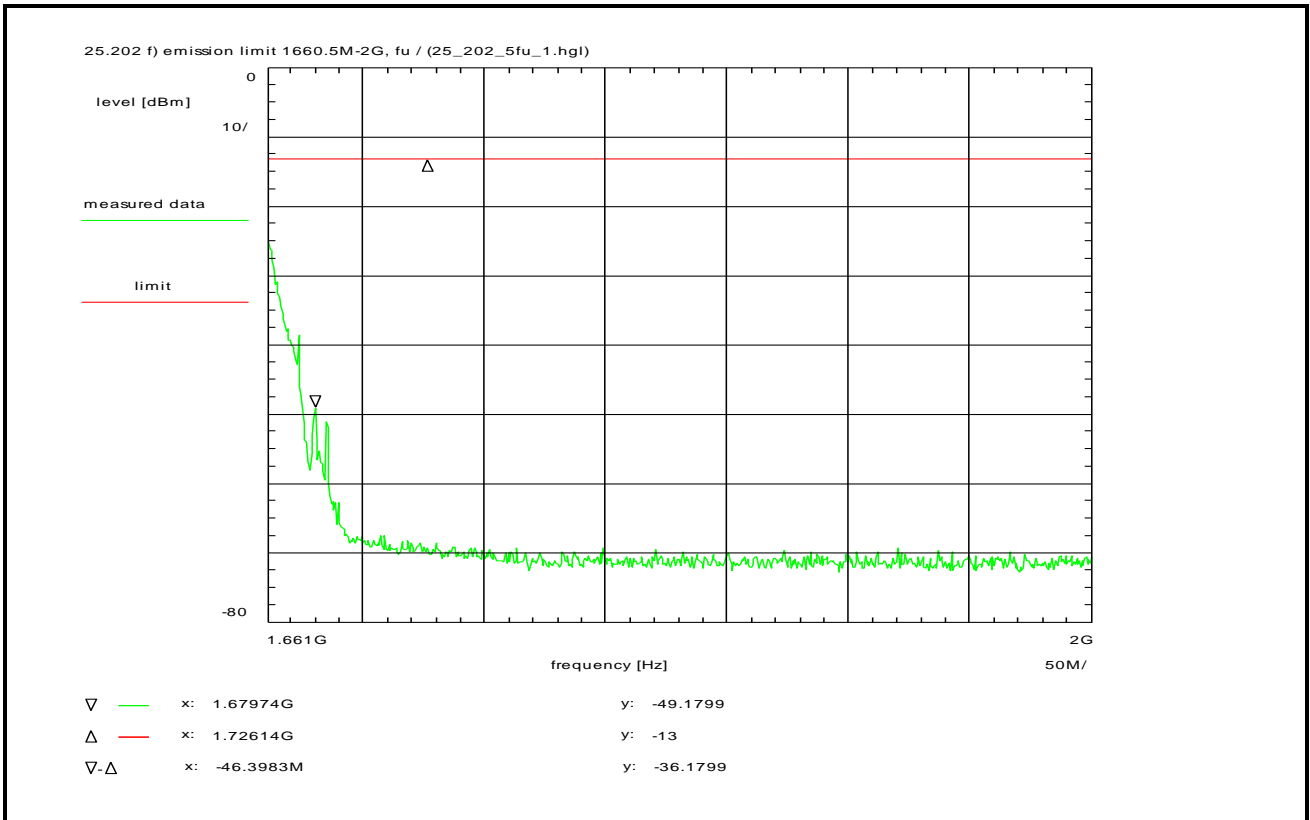
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 53 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 13:13:25
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

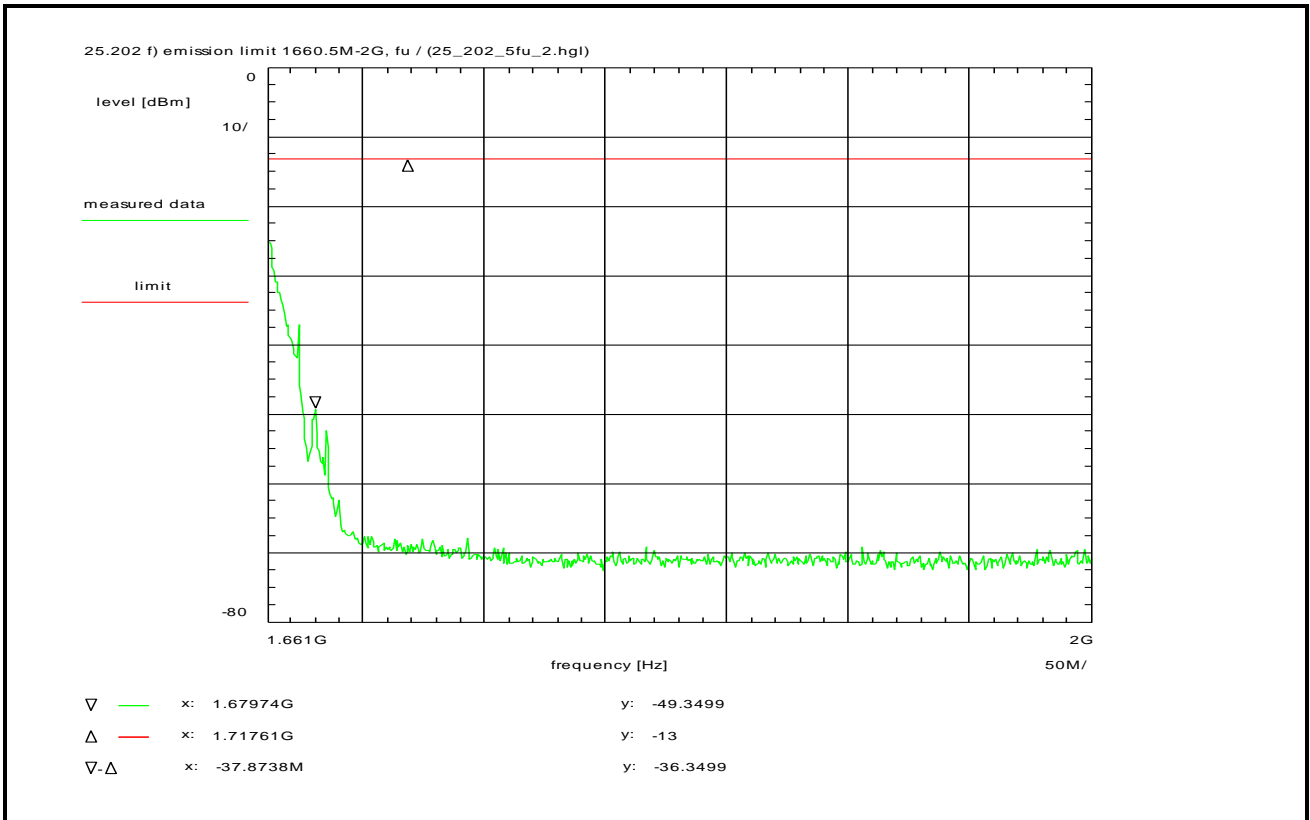
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 54 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higi

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 13:14:33
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

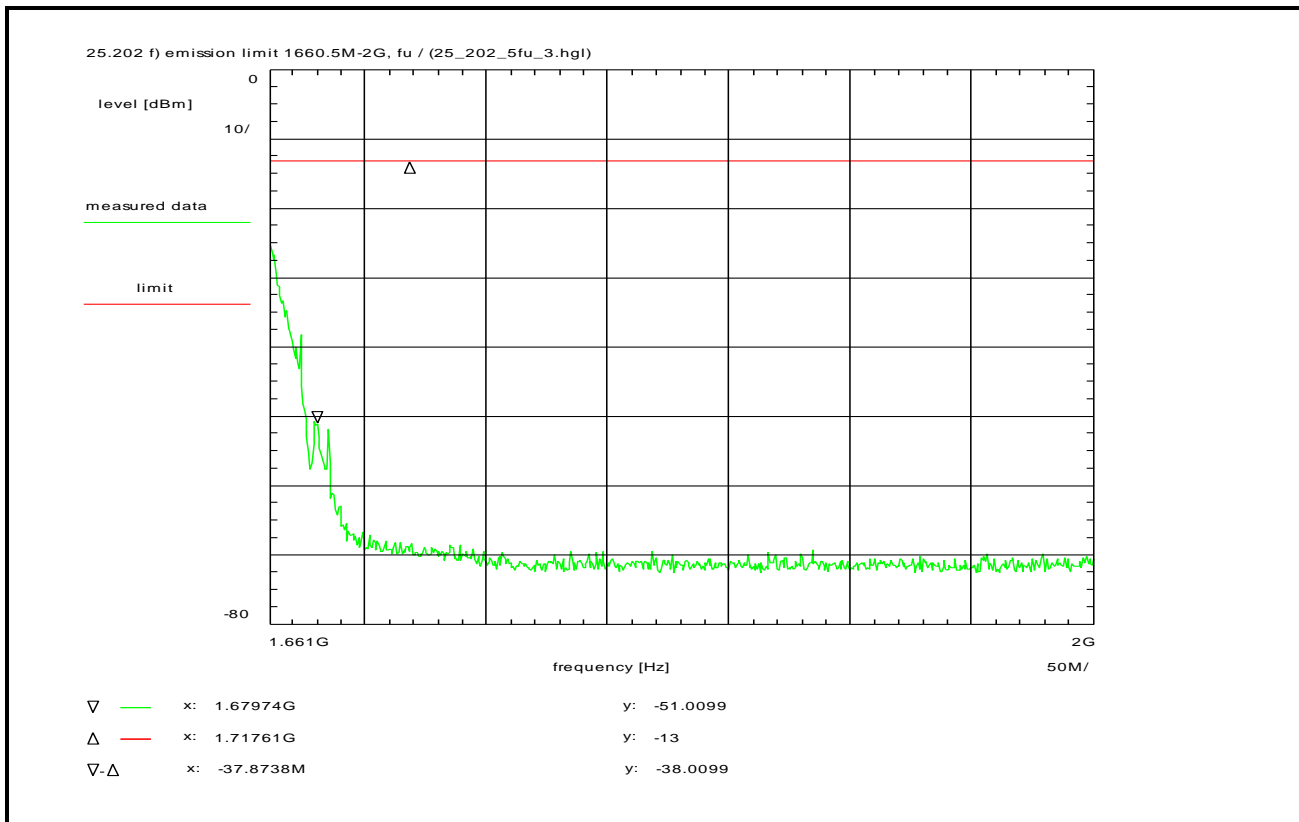
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 55 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higi

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 13:15:56
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

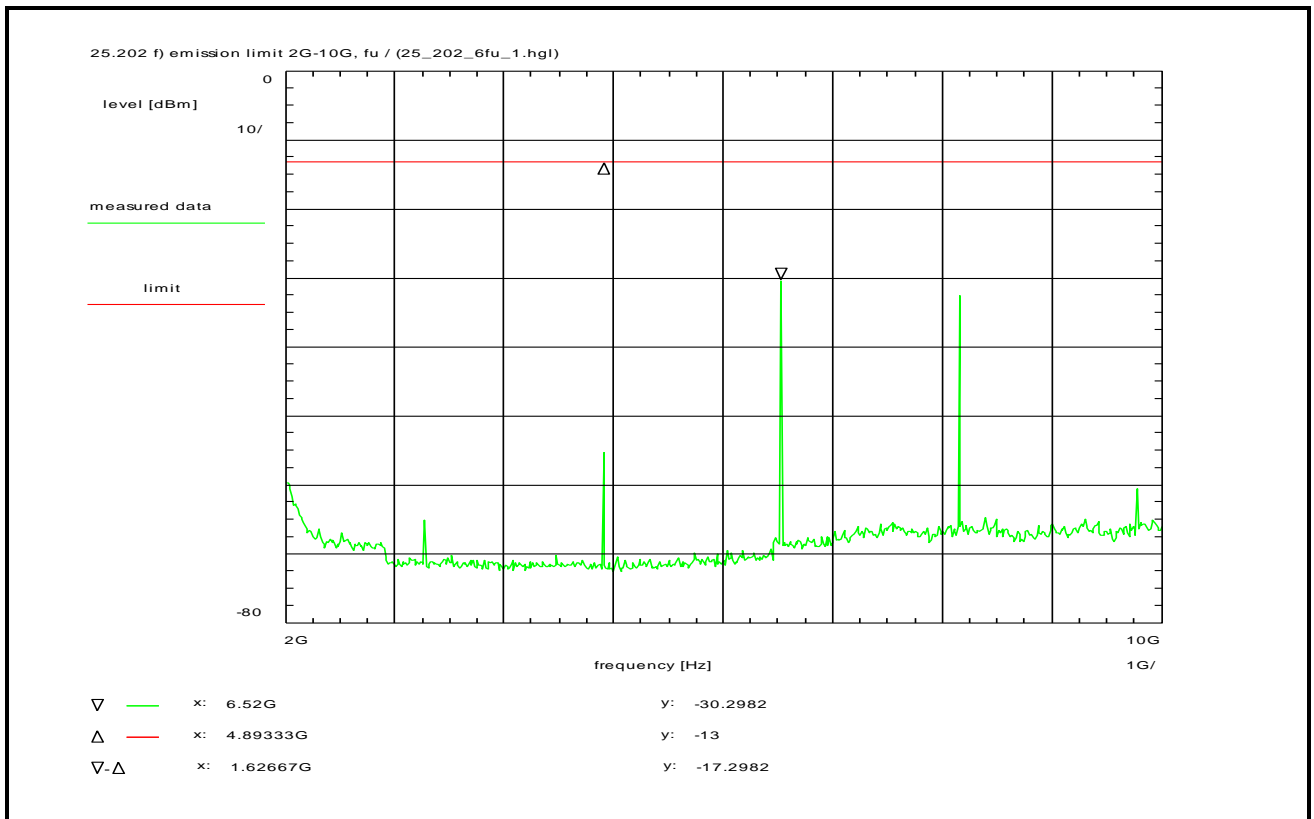
Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 56 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: A015, C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Tue 07/Oct/2014 14:55:33
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

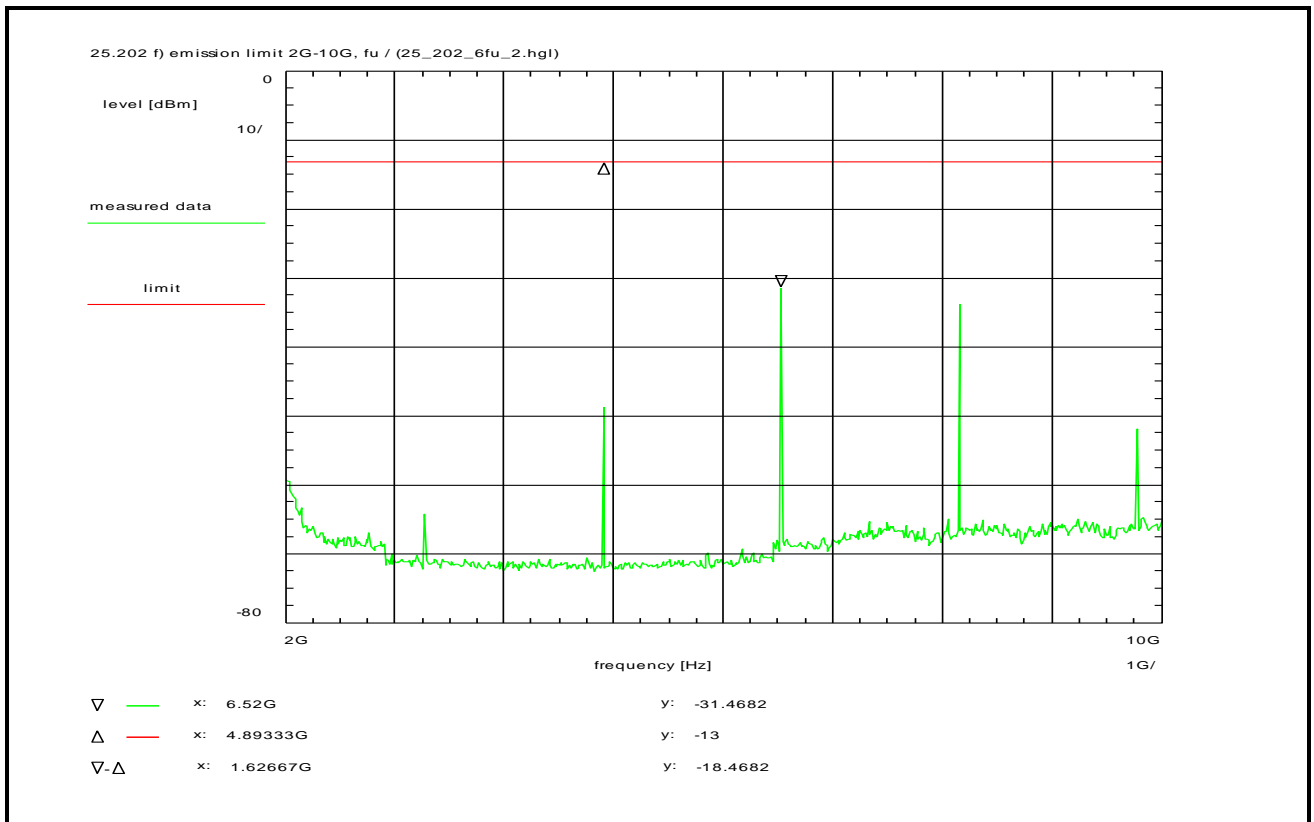
Setup of measurement equipment:
Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor - 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:
2nd harm.: -65.0 dBm
3rd harm.: -55.3 dBm
4th harm.: -30.3 dBm
5th harm.: -32.8 dBm
6th harm.: -60.6 dBm

Plot No. 57 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: A015, C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 15:01:15
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor - 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

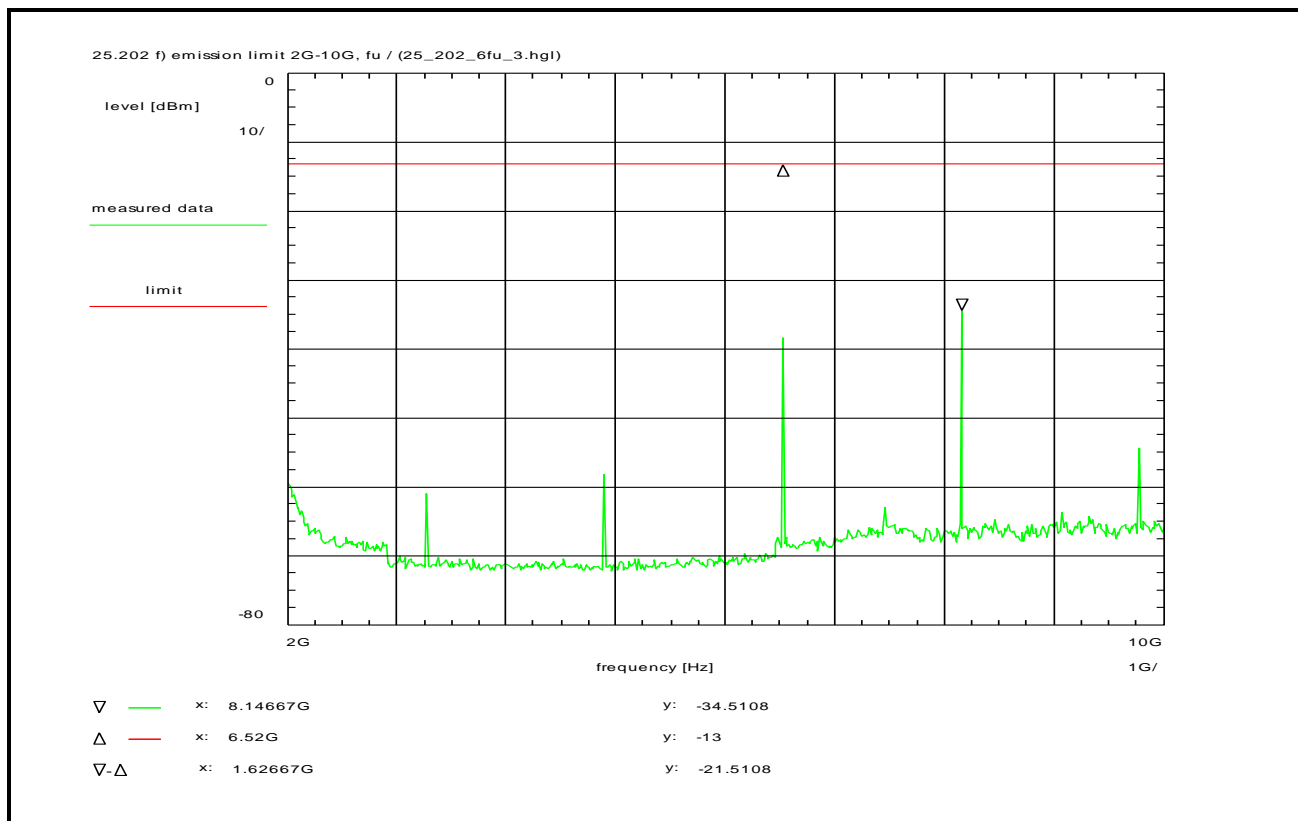
Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -64.2 dBm
3rd harm.: -48.7 dBm
4th harm.: -31.5 dBm
5th harm.: -33.8 dBm
6th harm.: -51.7 dBm

Plot No. 58 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 15:11:15
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

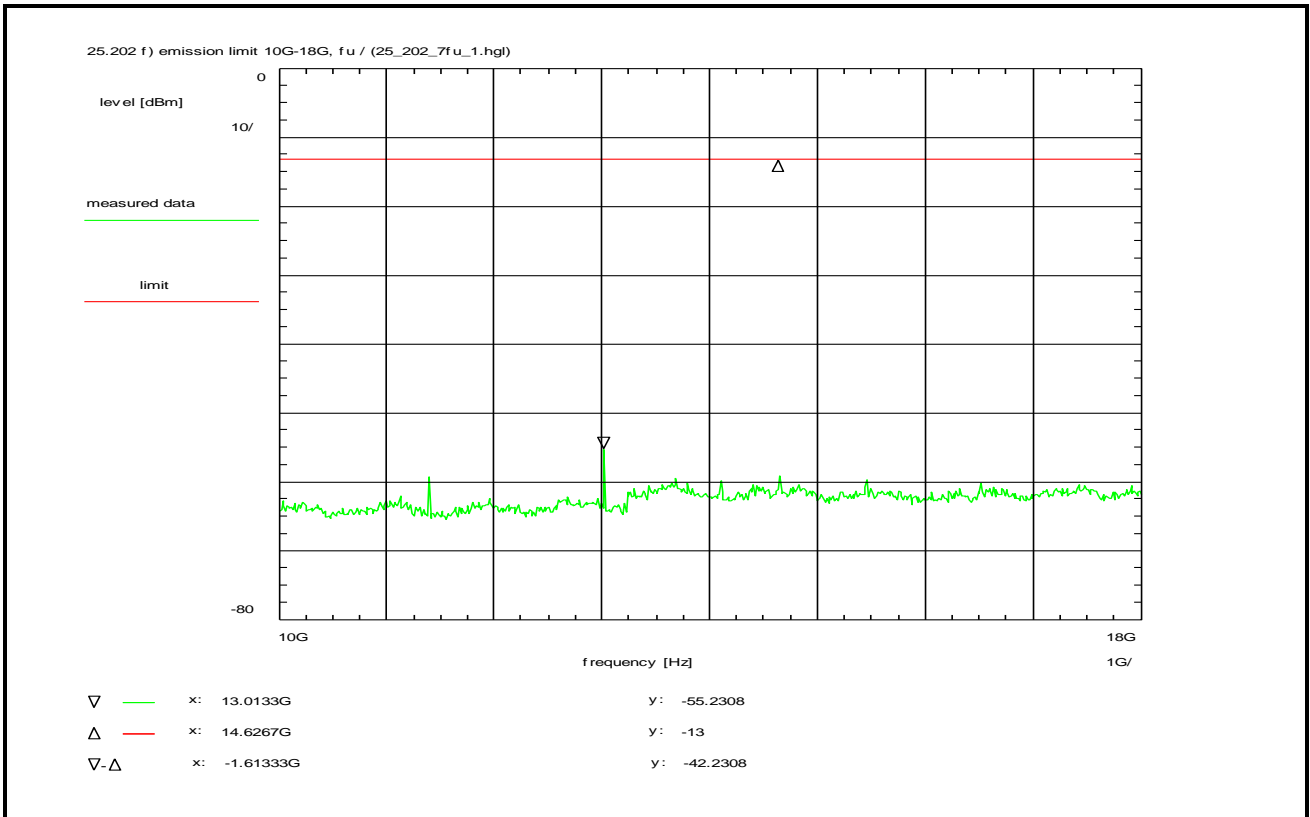
Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -60.9 dBm
3rd harm.: -59.4 dBm
4th harm.: -38.3 dBm
5th harm.: -34.5 dBm
6th harm.: -54.4 dBm

Plot No. 59 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higi

Test equipment:
see annex A: C217, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 10:11:47
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

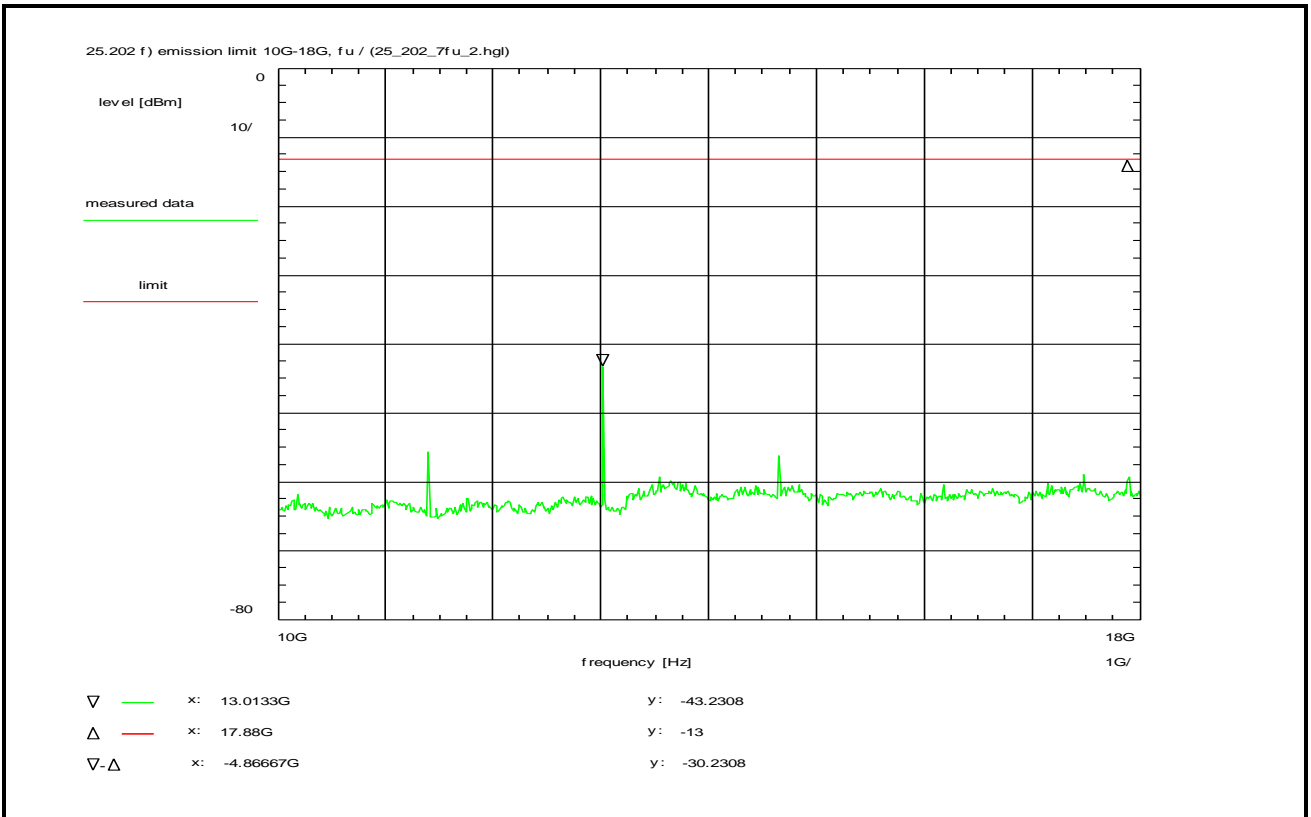
Carrier-on state / Carrier at the lower edge of the band (fu)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -59.4 dBm
8th harm.: -55.2 dBm
9th harm.: -59.1 dBm

Plot No. 60 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4 R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 10:27:42
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

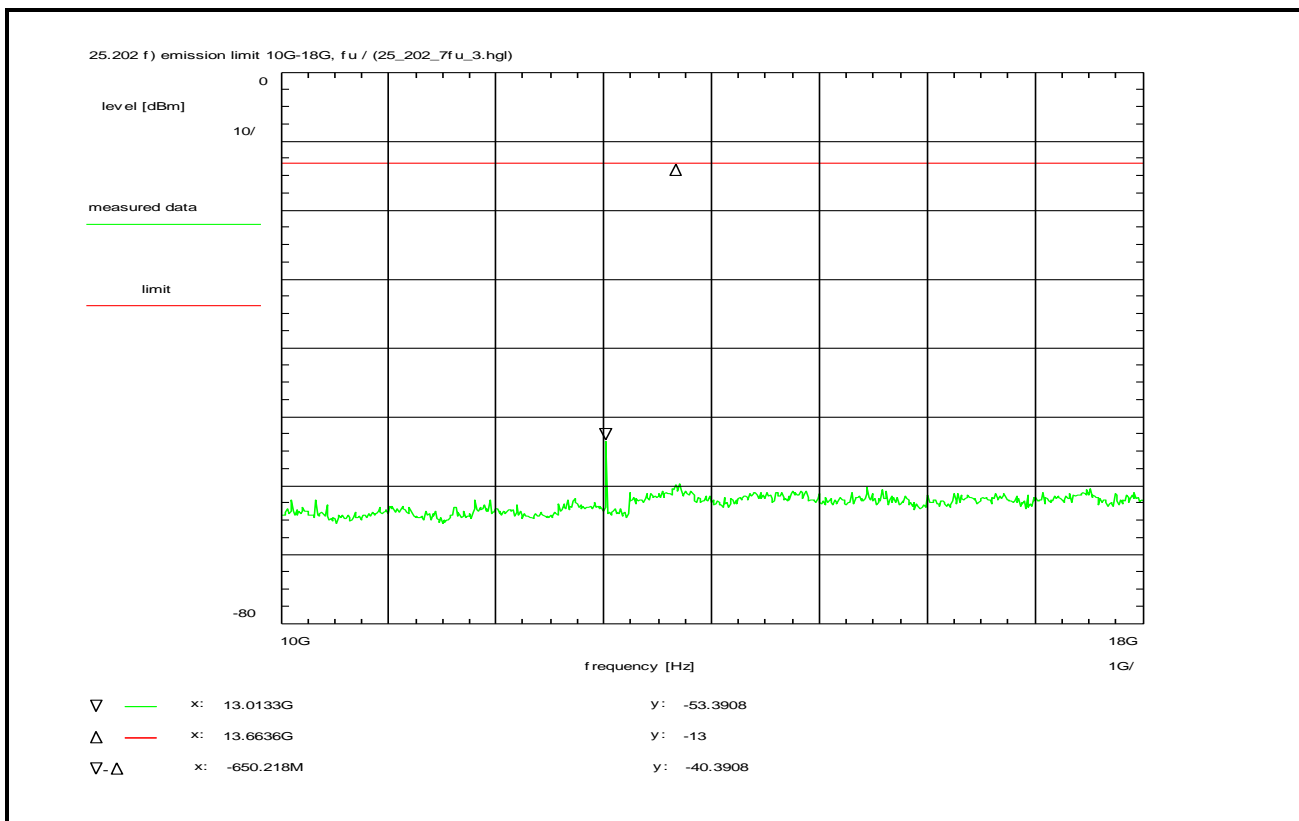
Setup of measurement equipment:
Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:
7th harm.: -55.7 dBm
8th harm.: -43.2 dBm
9th harm.: -56.1 dBm
11th harm.: -59.2 dBm

Plot No. 61 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, flow, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2higi

Test equipment:

see annex A: C217, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 10:44:04
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

Carrier-on state / Carrier at the lower edge of the band (fu)

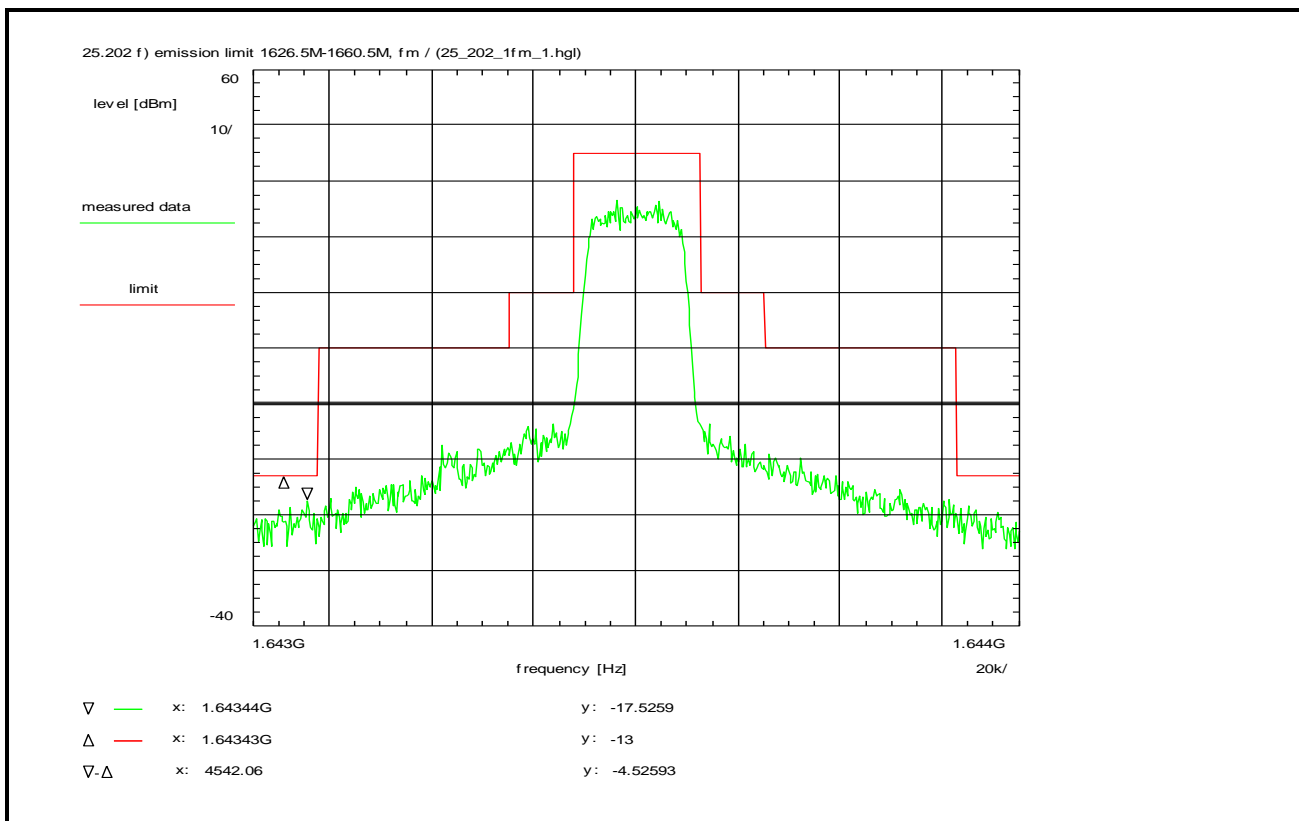
For EIRP calculation:

'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -/- dBm
8th harm.: -53.4 dBm
9th harm.: -/- dBm

Plot No. 62 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4 R20T05Q

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 12:01:17
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.643425 GHz
Stop frequency: 1.643575 GHz
Center frequency: 1.6435 GHz
Frequency span: 150 kHz
Input attenuation: 10 dB
Resolution-BW: 1 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

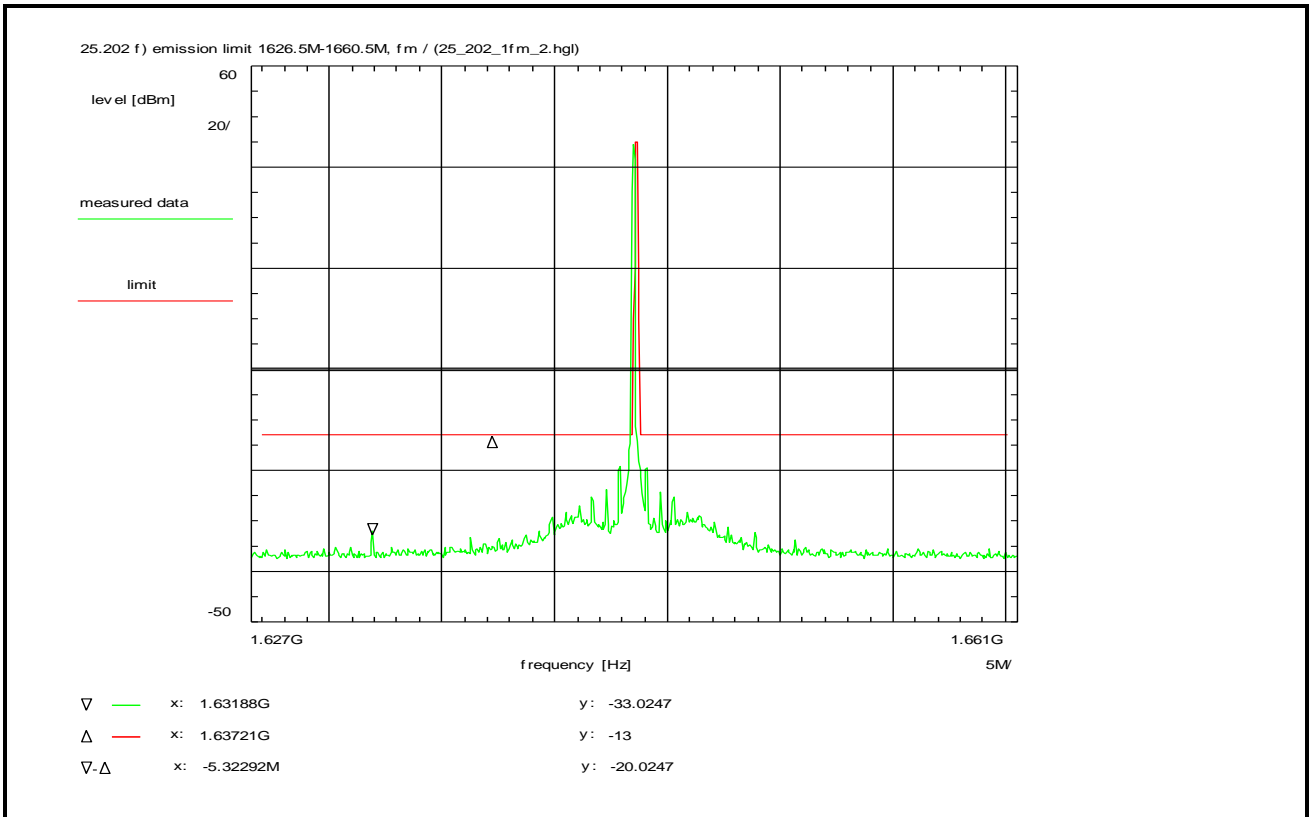
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 63 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 12:02:48
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

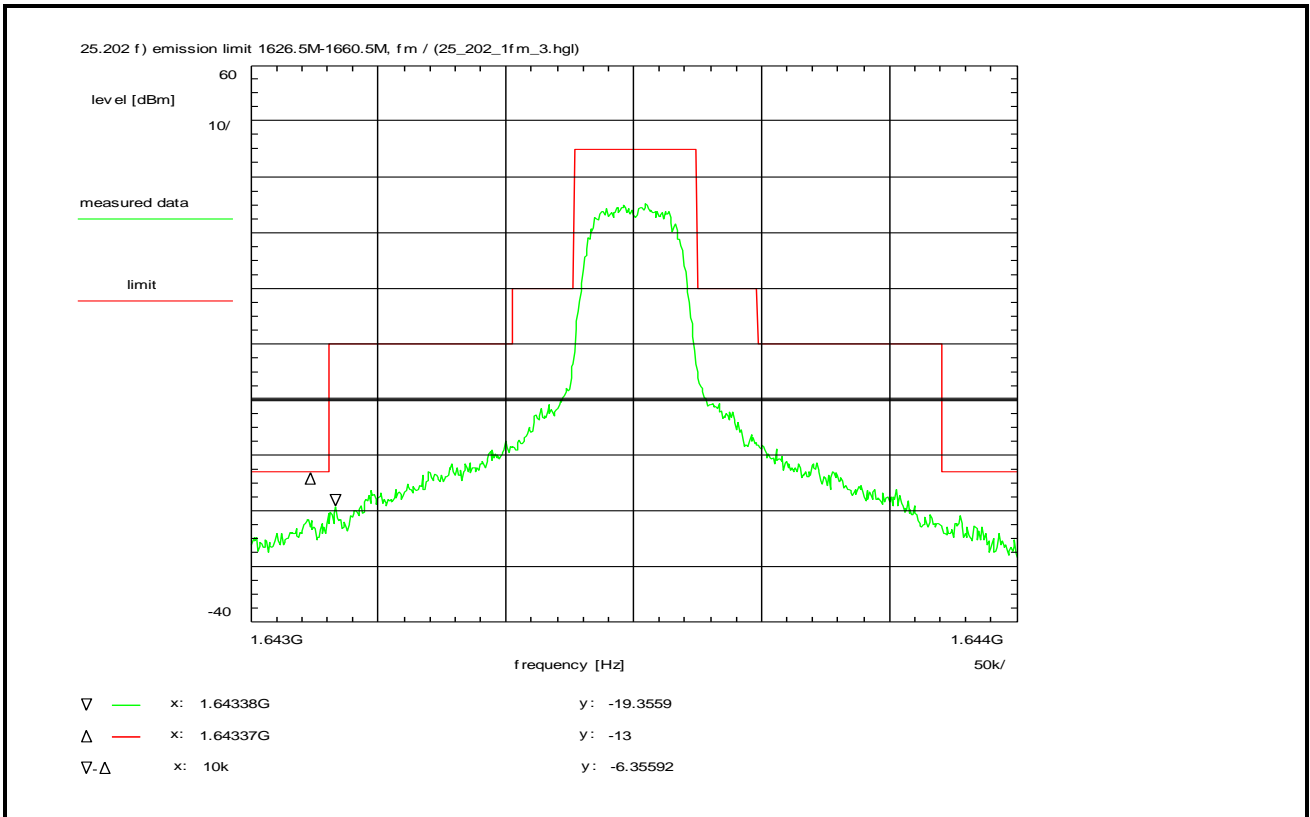
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 64 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4 R5T1X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:28:13
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.64335 GHz
Stop frequency: 1.64365 GHz
Center frequency: 1.6435 GHz
Frequency span: 300 kHz
Input attenuation: 10 dB
Resolution-BW: 3 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

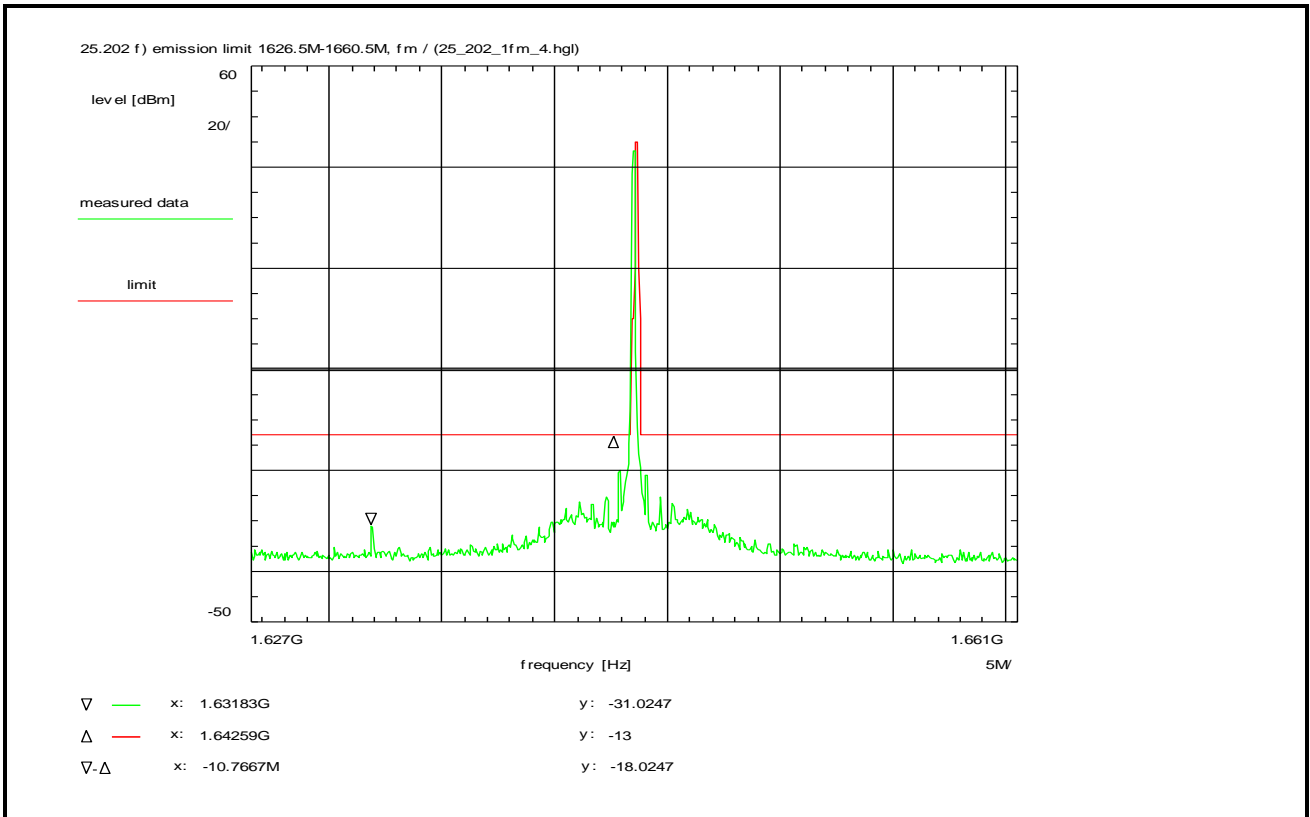
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 65 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4 R5T1X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:28:56
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

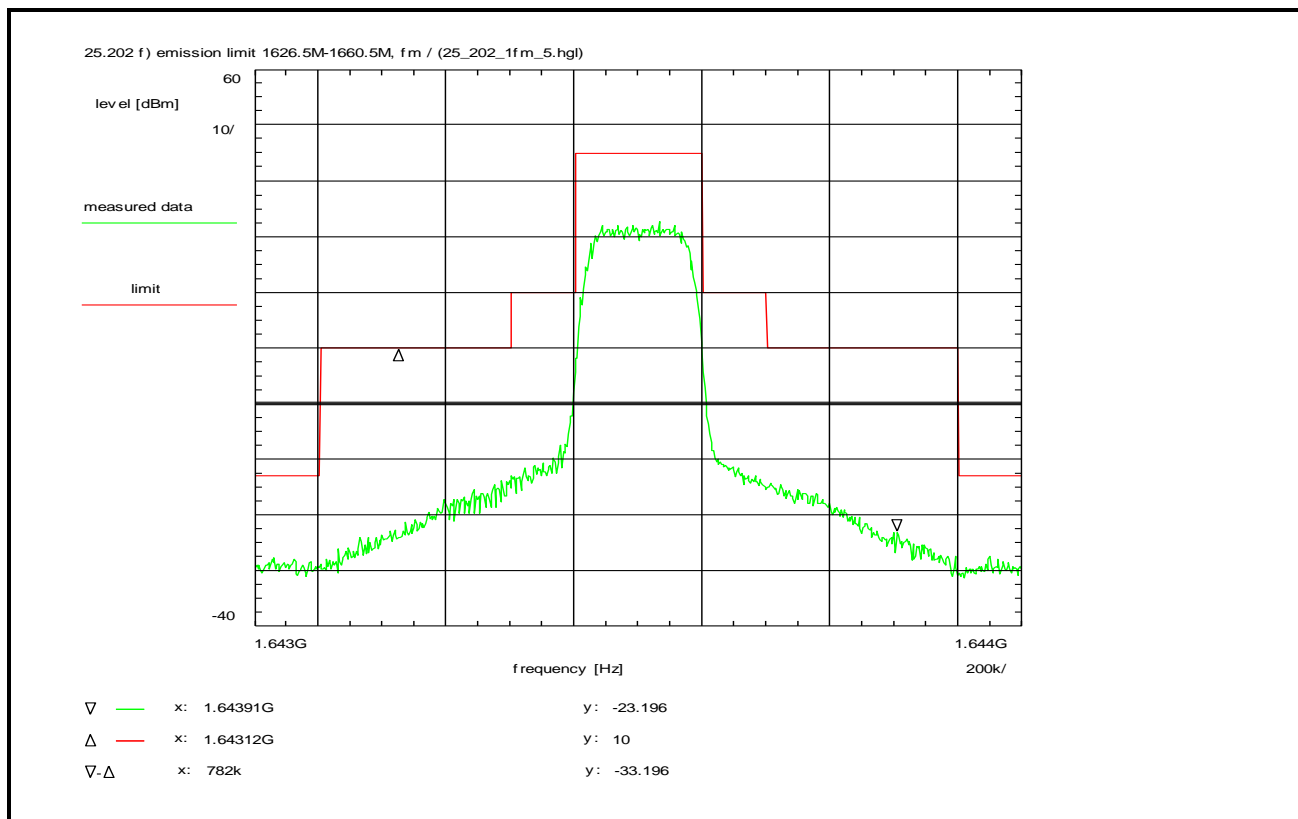
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 66 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz

100-250% of assigned bw: -35dBc/4kHz

> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:40:21
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6429 GHz
Stop frequency: 1.6441 GHz
Center frequency: 1.6435 GHz
Frequency span: 1.2 MHz
Input attenuation: 10 dB
Resolution-BW: 10 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

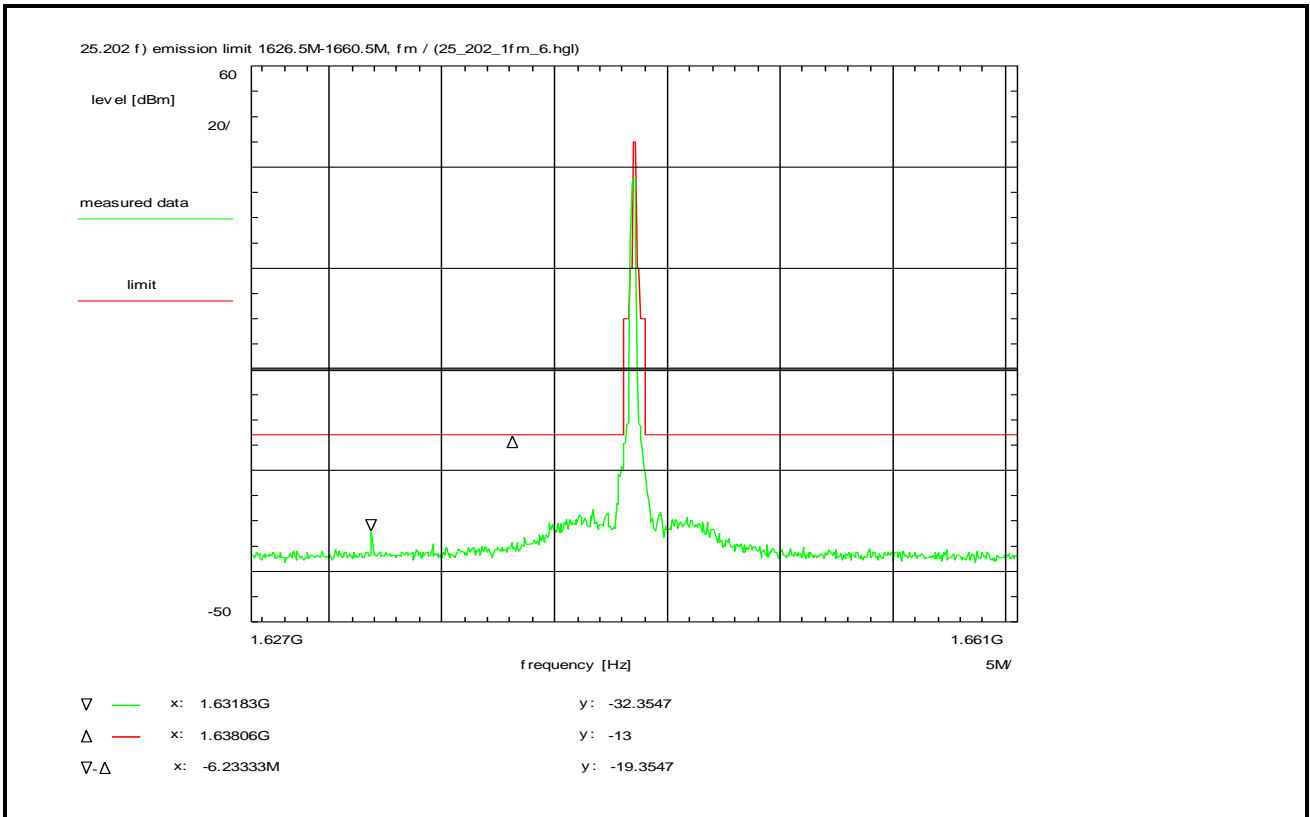
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 67 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:41:07
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

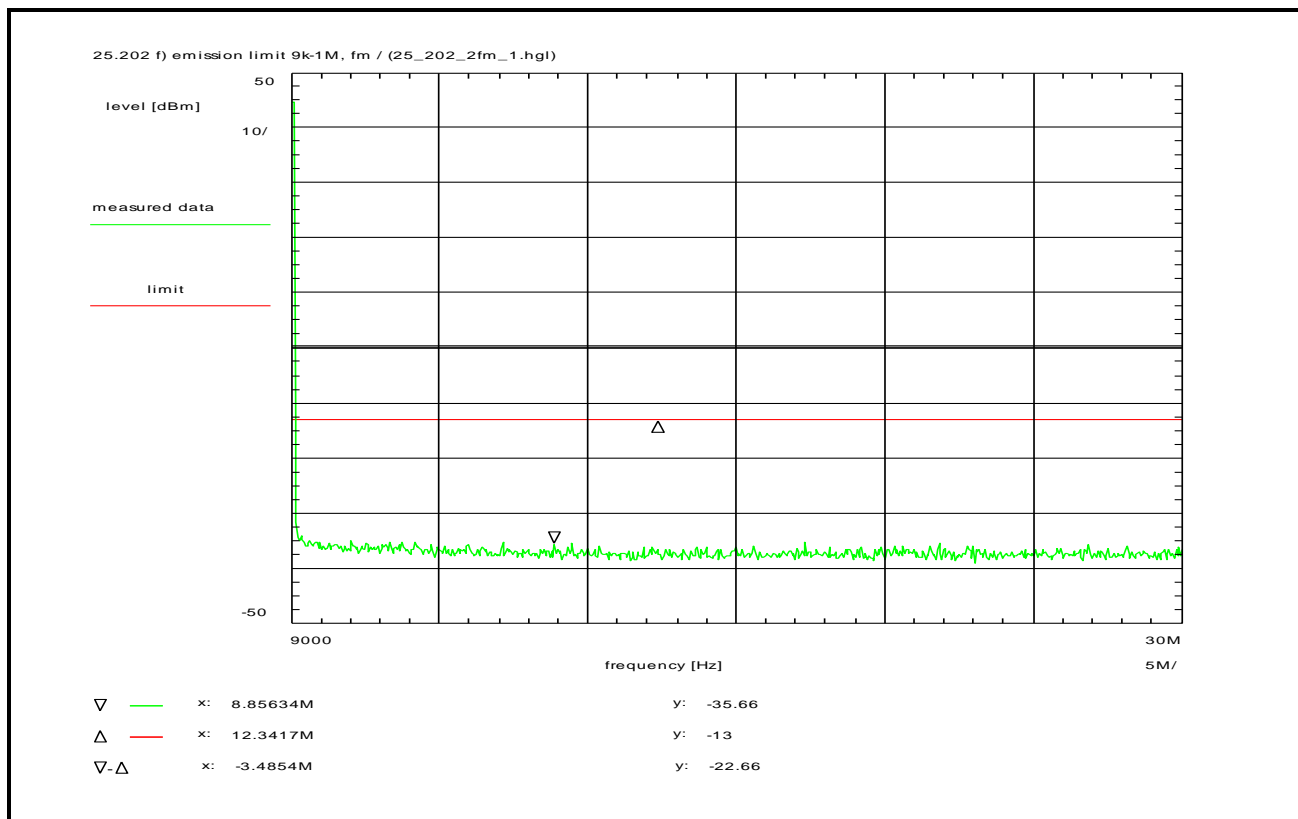
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 68 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:22:10
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

Remarks:

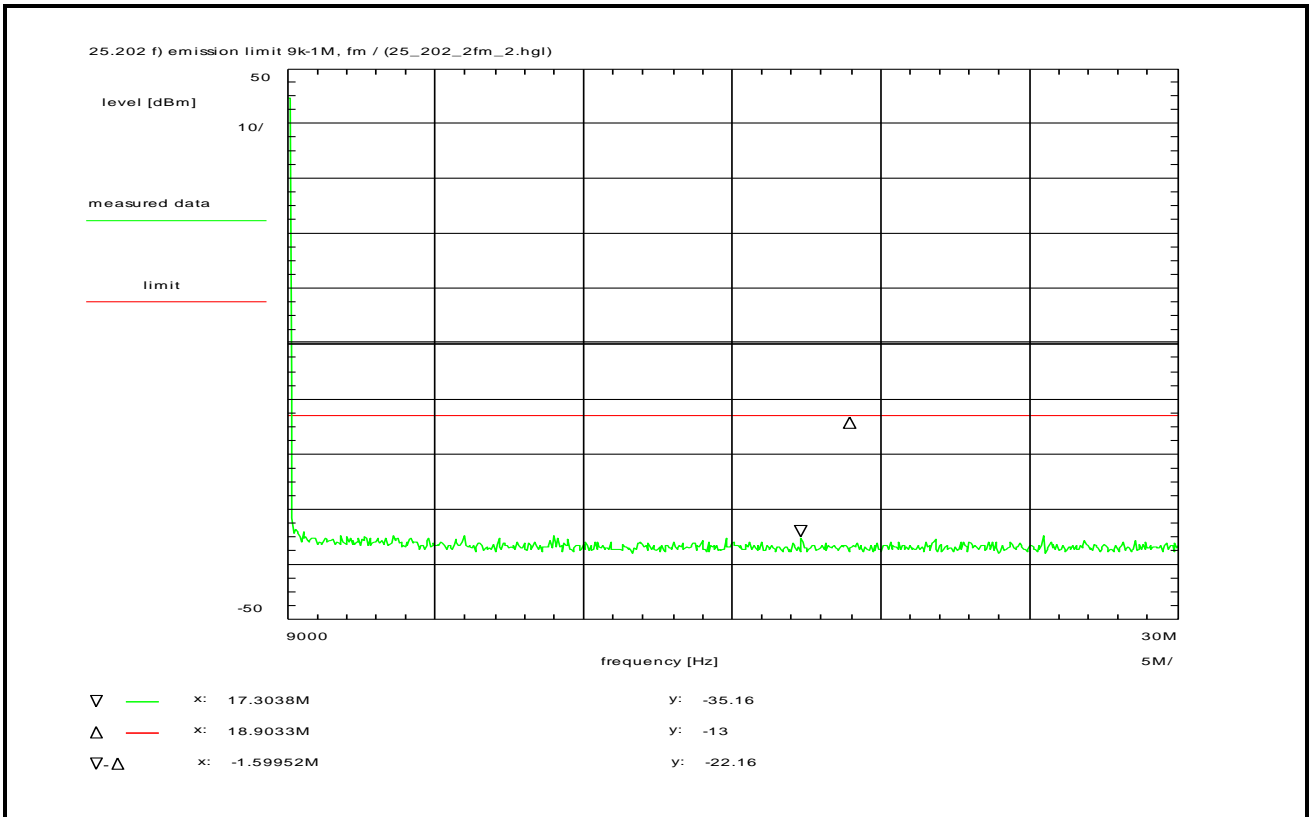
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 69 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4 R5T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: **Test passed**

Environment condition:
Date & Time: Wed 08/Oct/2014 14:22:33
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

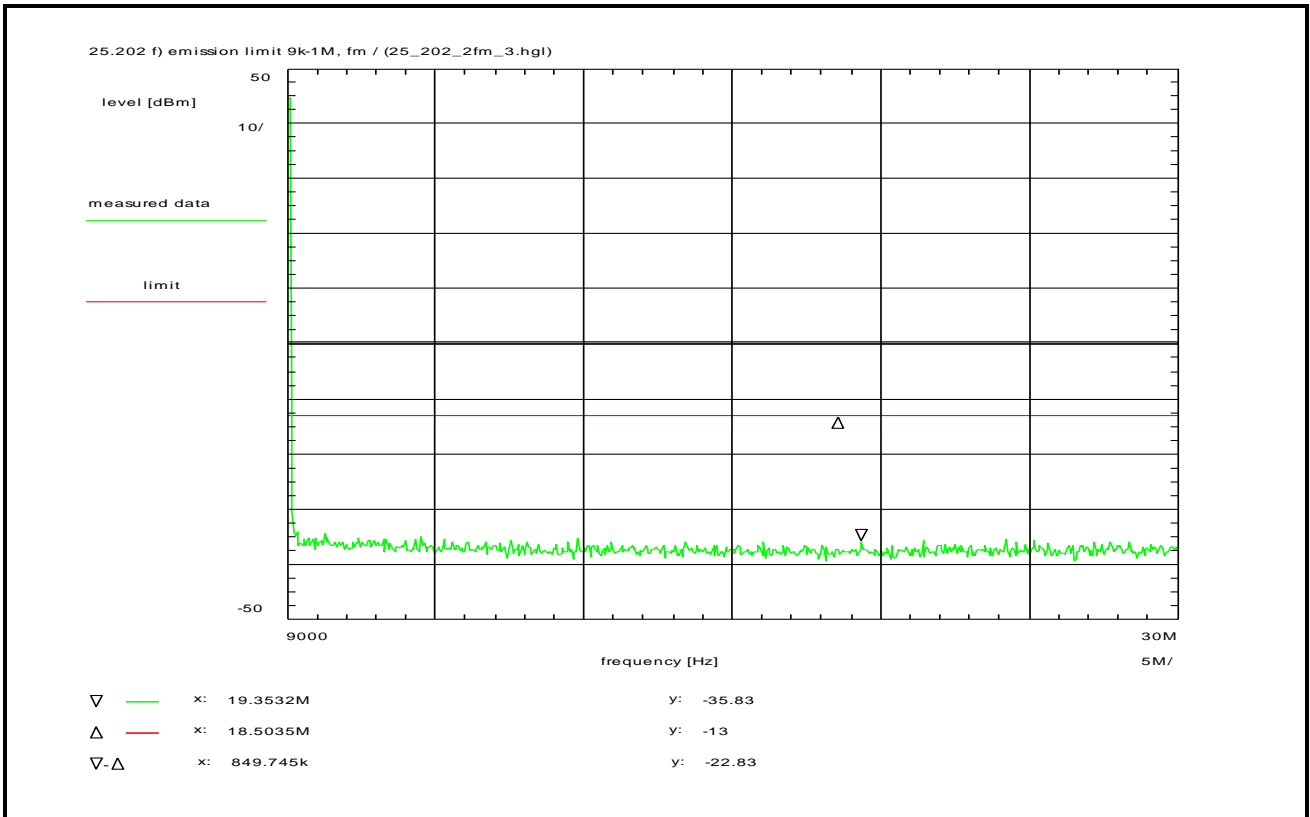
Setup of measurement equipment:
Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 70 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:22:54
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

Remarks:

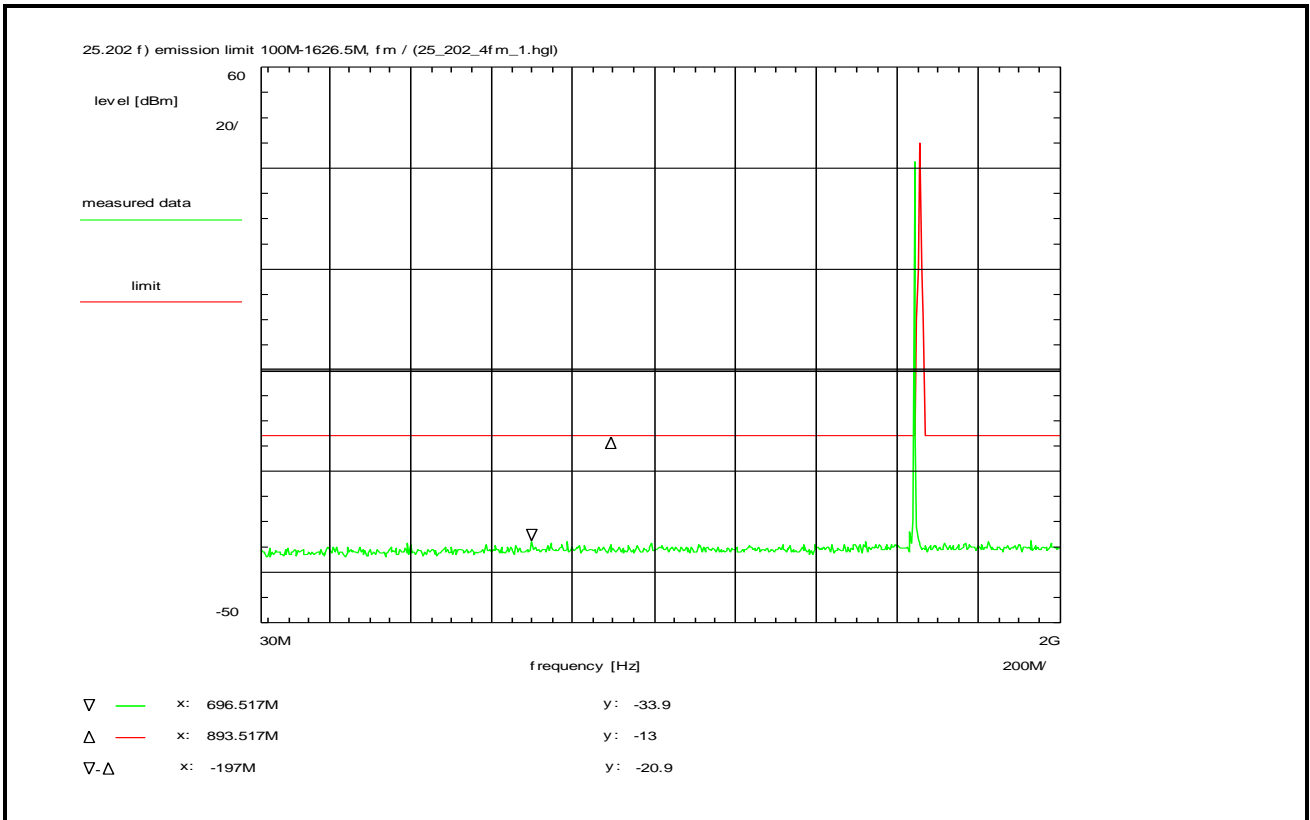
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 71 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 13:55:32
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

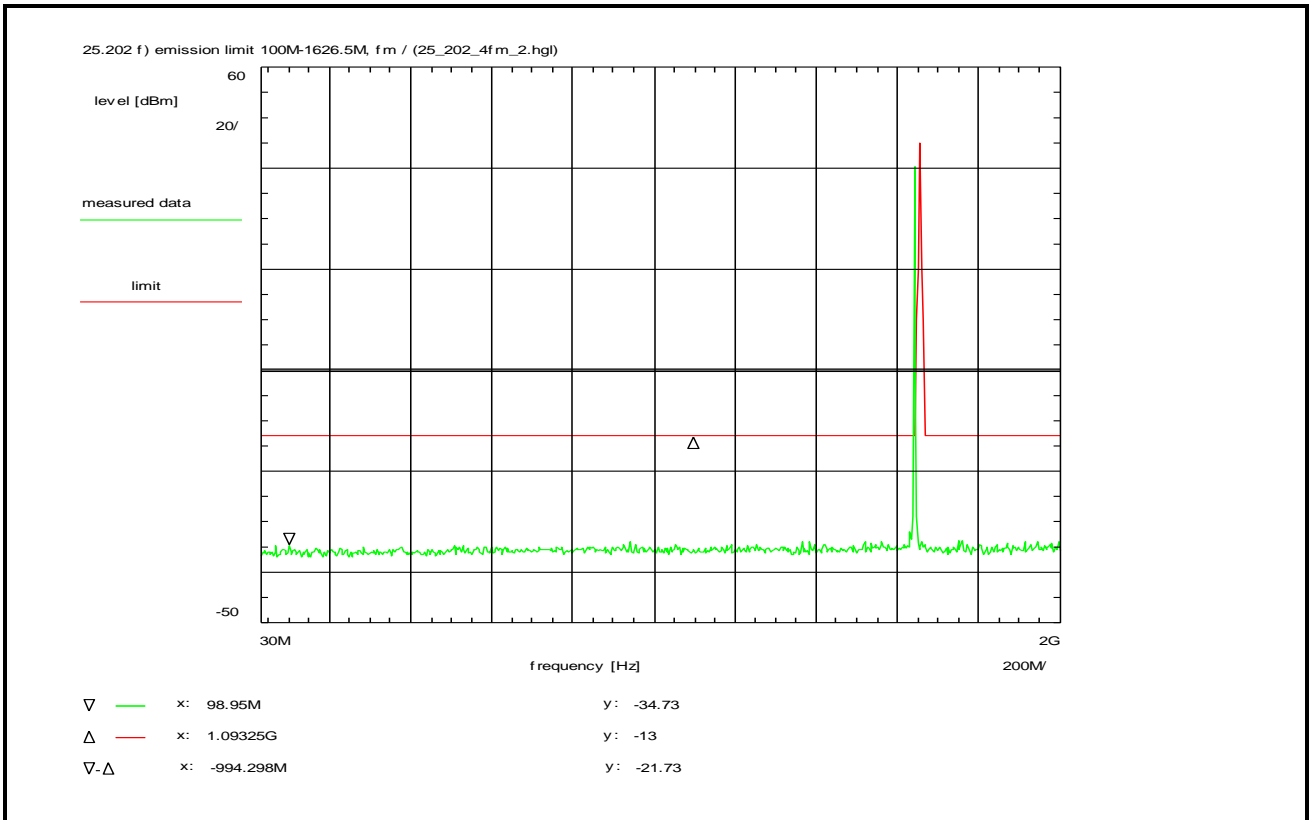
Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

Remarks:

Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 72 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:04:24
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

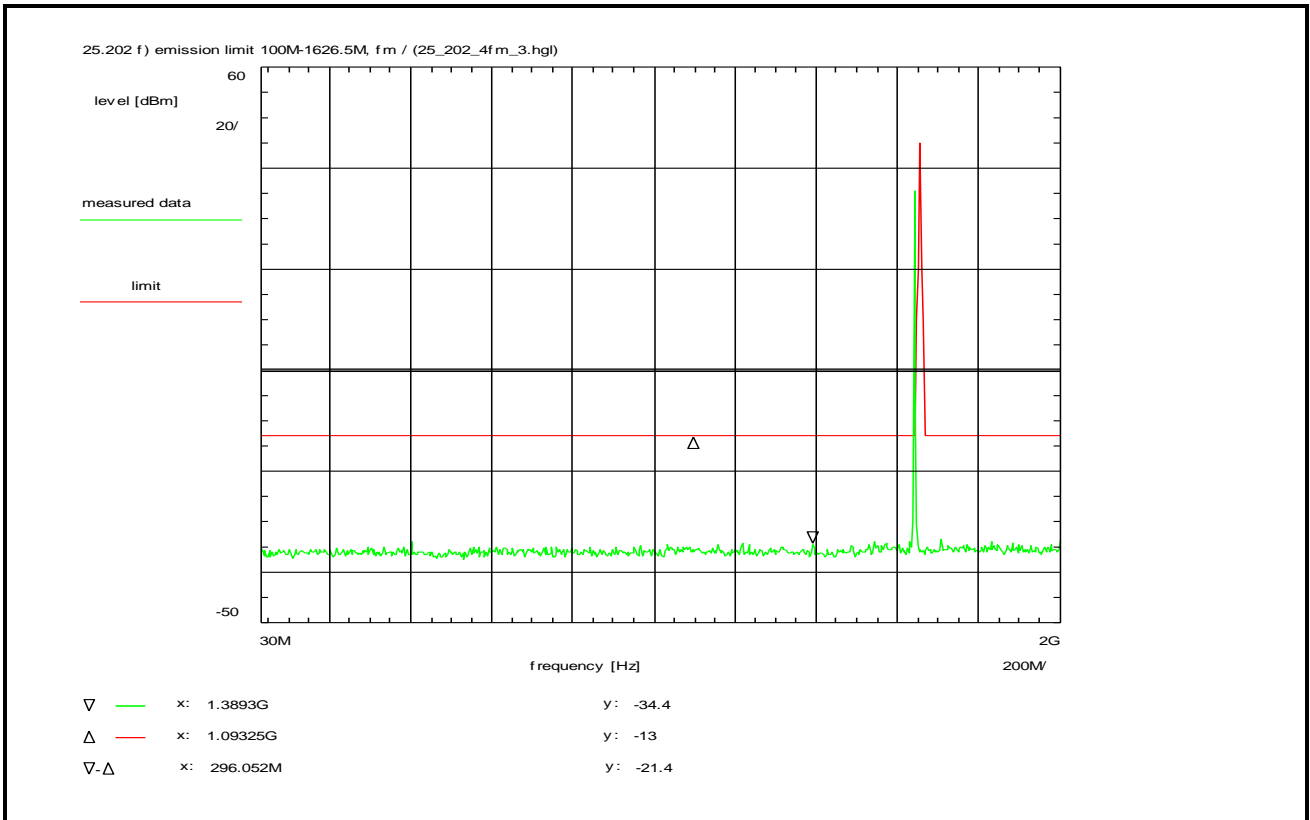
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 73 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:05:52
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

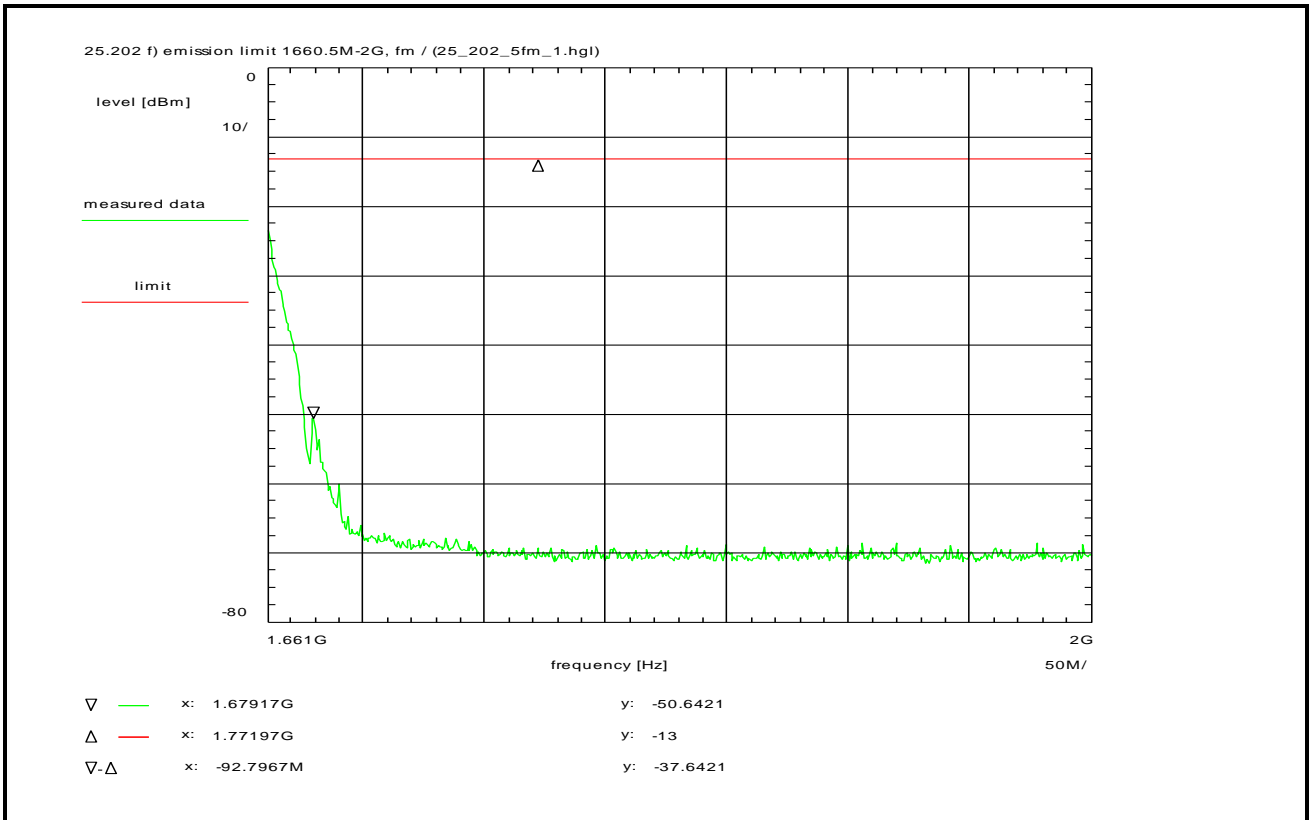
Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

Remarks:

Carrier-on state / Carrier in the middle of the band (fm)
For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 74 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 11:51:17
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

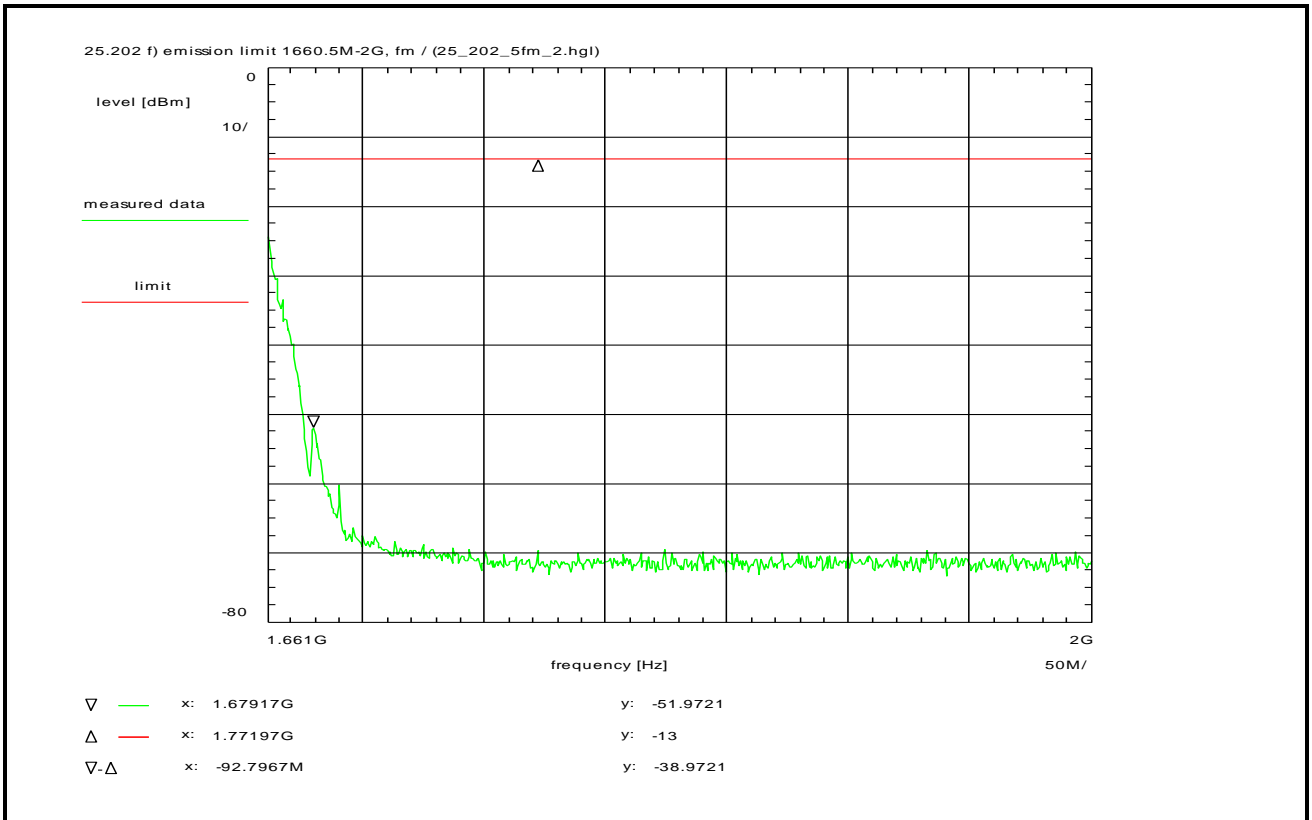
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 75 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4 R5T1X

Test setup:
see section 8.1: 1.2higi

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 11:52:15
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

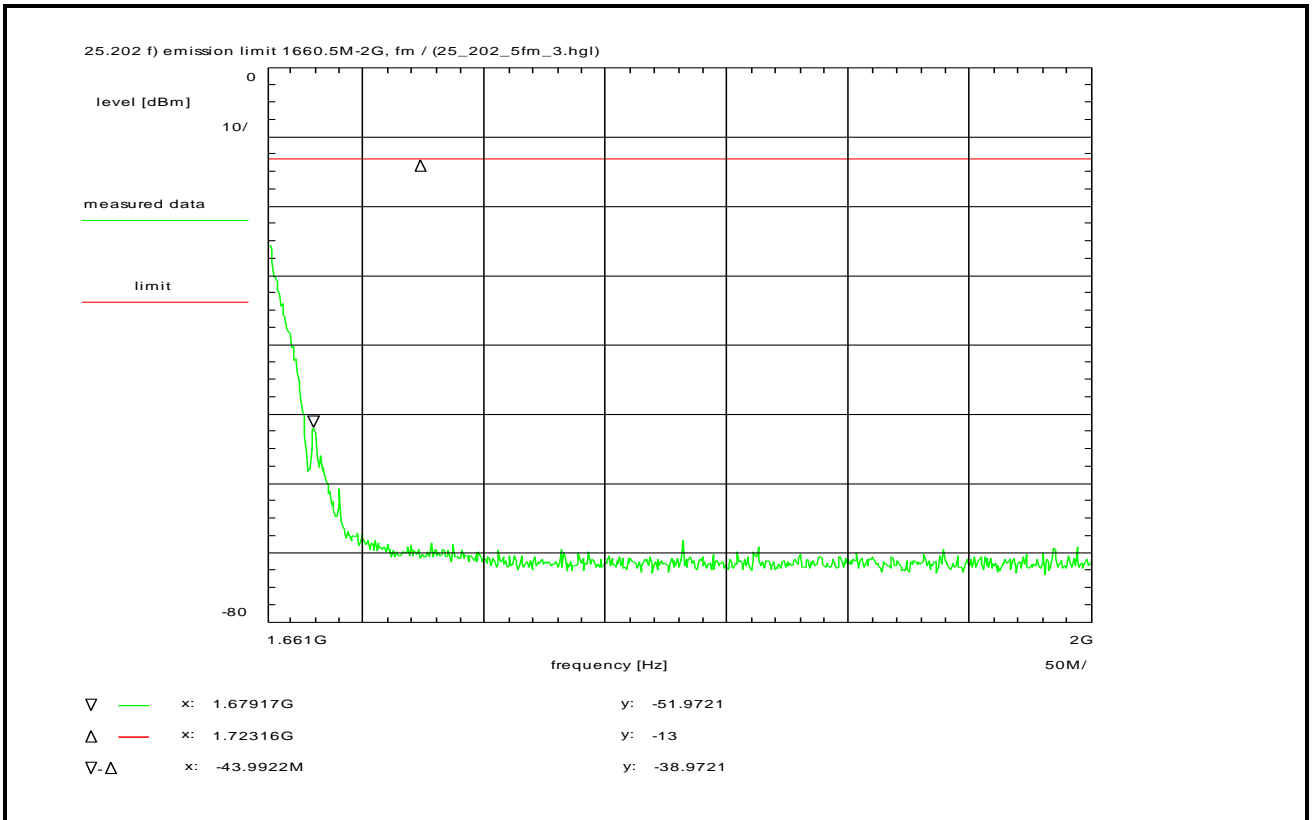
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 76 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 11:52:42
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

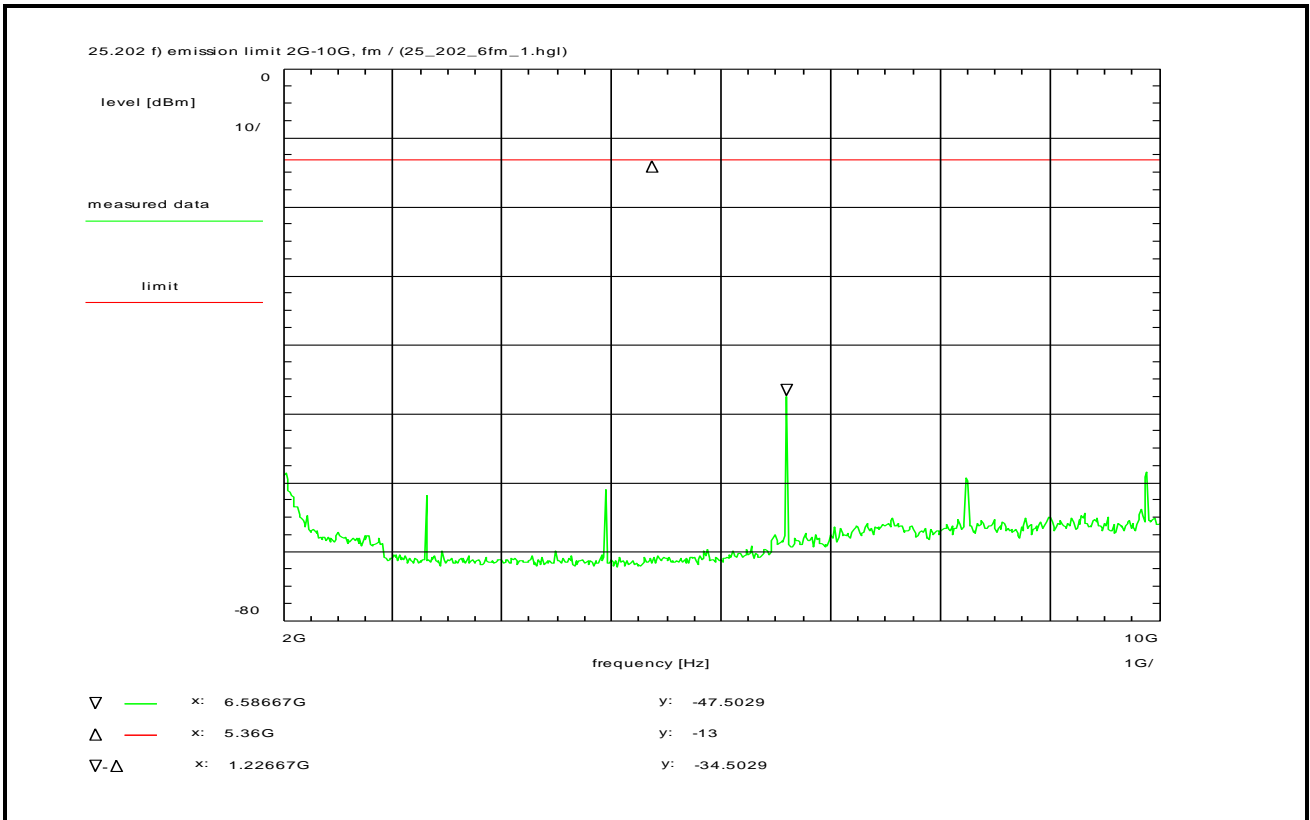
Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 77 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U005, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 14:25:58
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

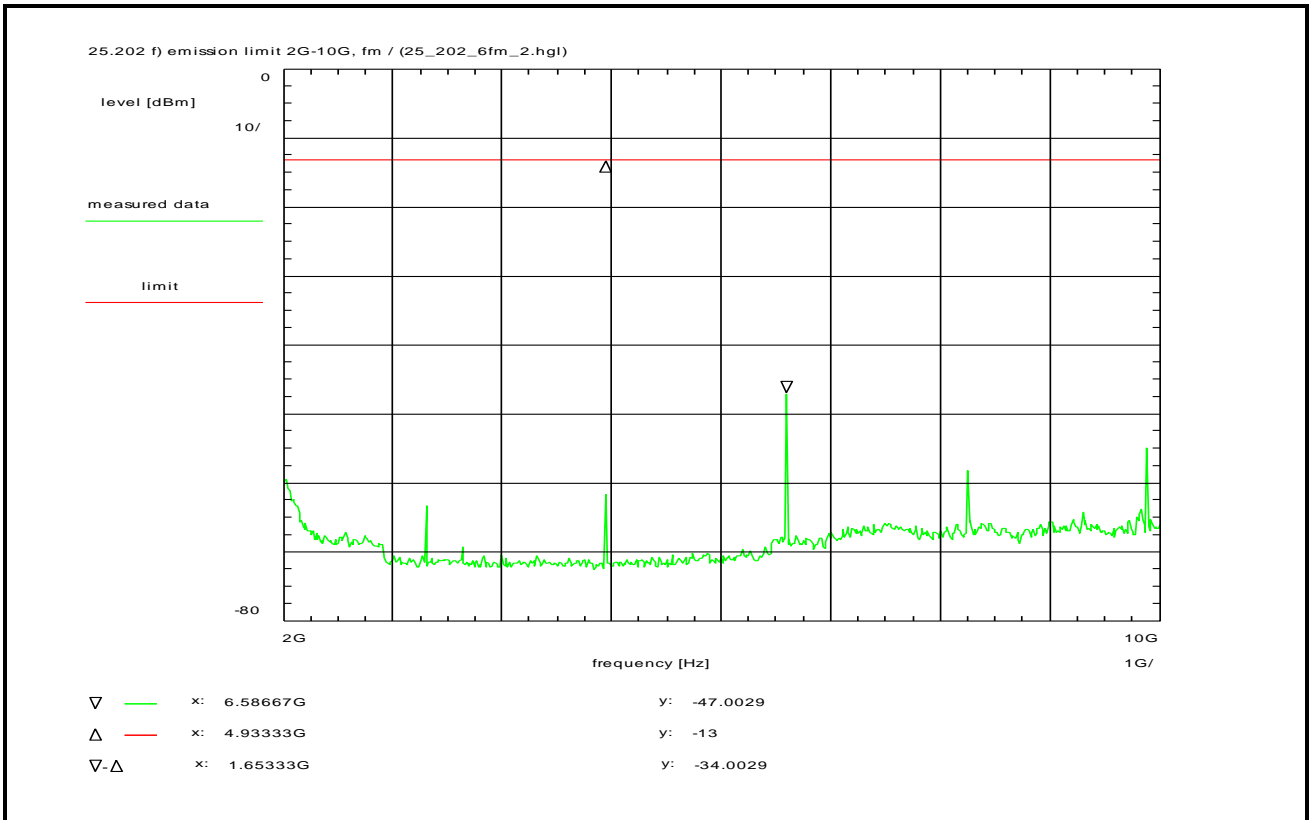
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -61.9 dBm
3rd harm.: -61.0 dBm
4th harm.: -47.5 dBm
5th harm.: -59.2 dBm
6th harm.: -58.3 dBm

Plot No. 78 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U005, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 14:32:51
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

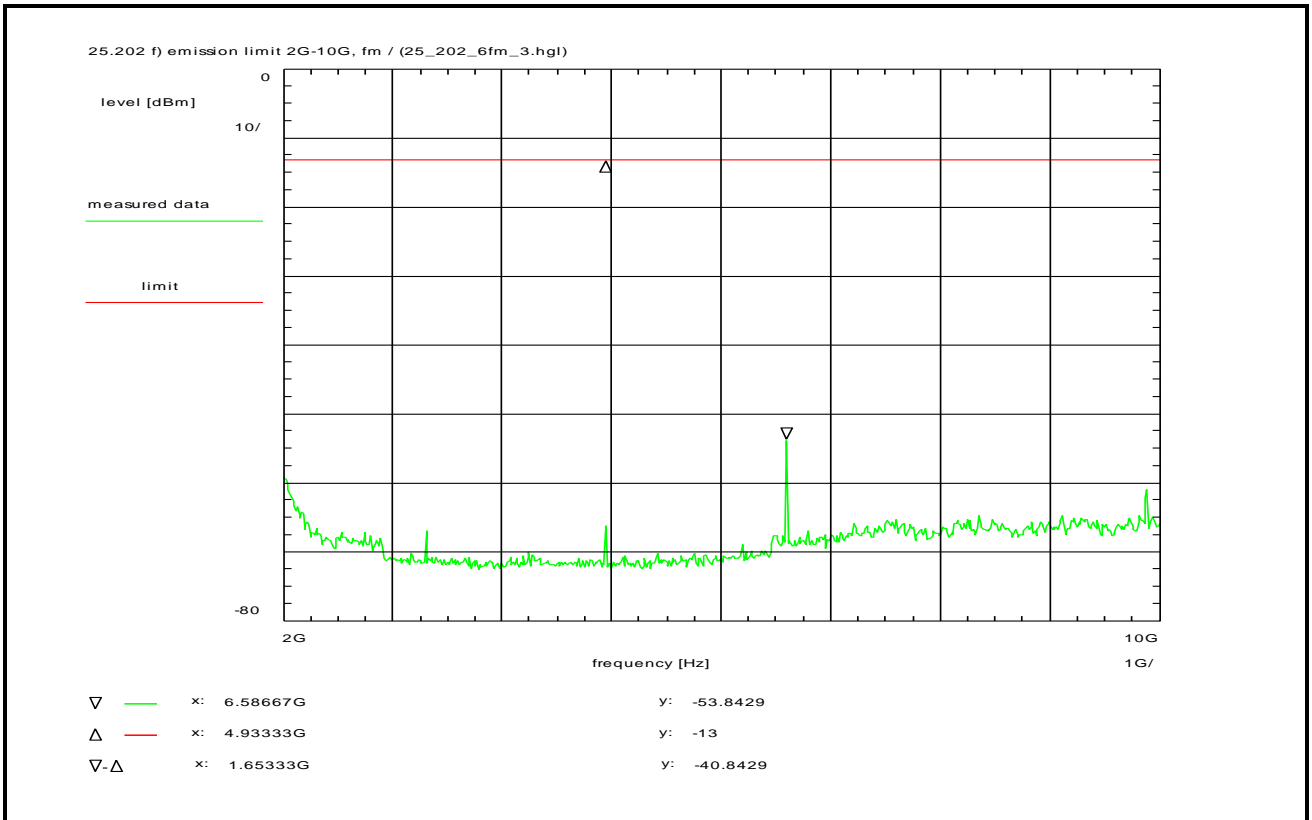
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -63.2 dBm
3rd harm.: -61.7 dBm
4th harm.: -47.0 dBm
5th harm.: -58.2 dBm
6th harm.: -54.8 dBm

Plot No. 79 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U005, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 14:40:37
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

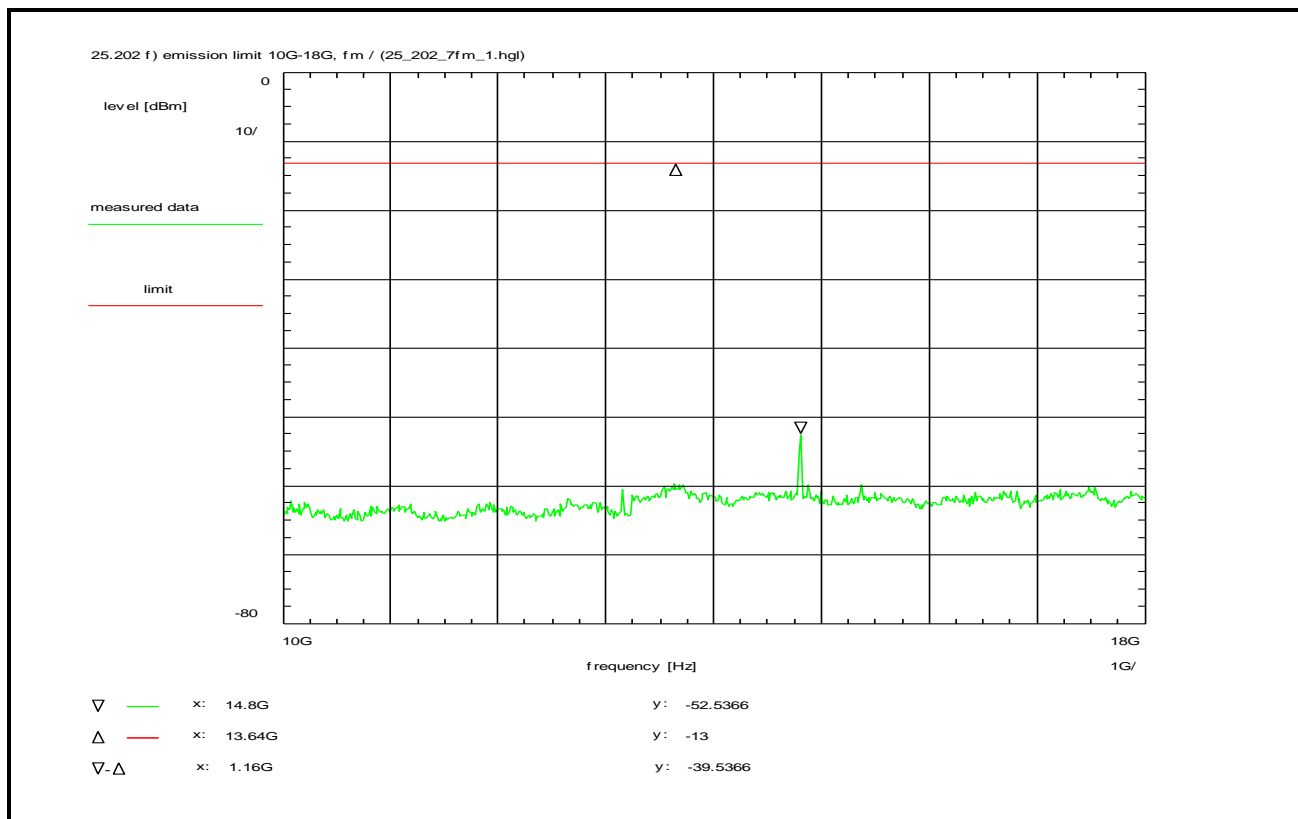
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -66.9 dBm
3rd harm.: -66.2 dBm
4th harm.: -53.8 dBm
5th harm.: -64.7 dBm
6th harm.: -61.0 dBm

Plot No. 80 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 09:45:47
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

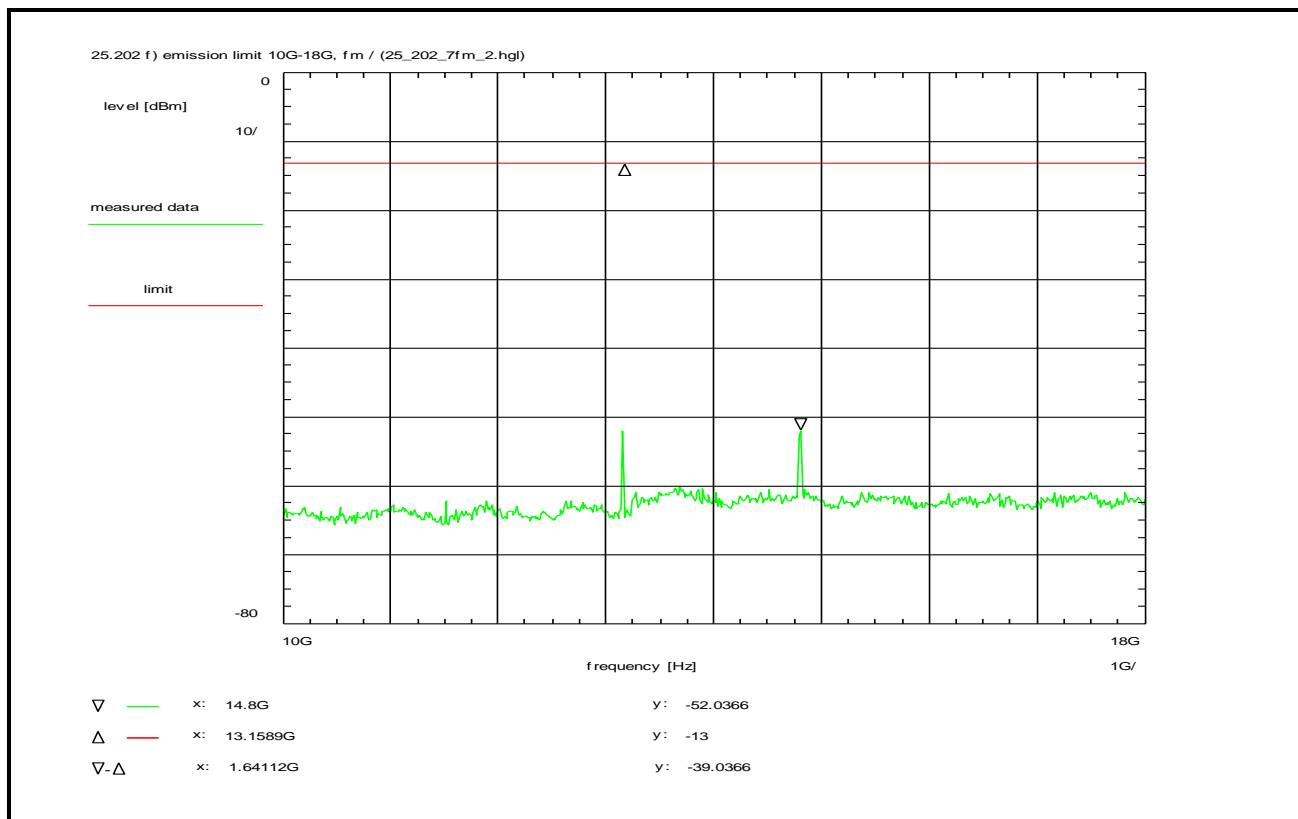
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

9th harm.: -52.5 dBm

Plot No. 81 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 09:53:32
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

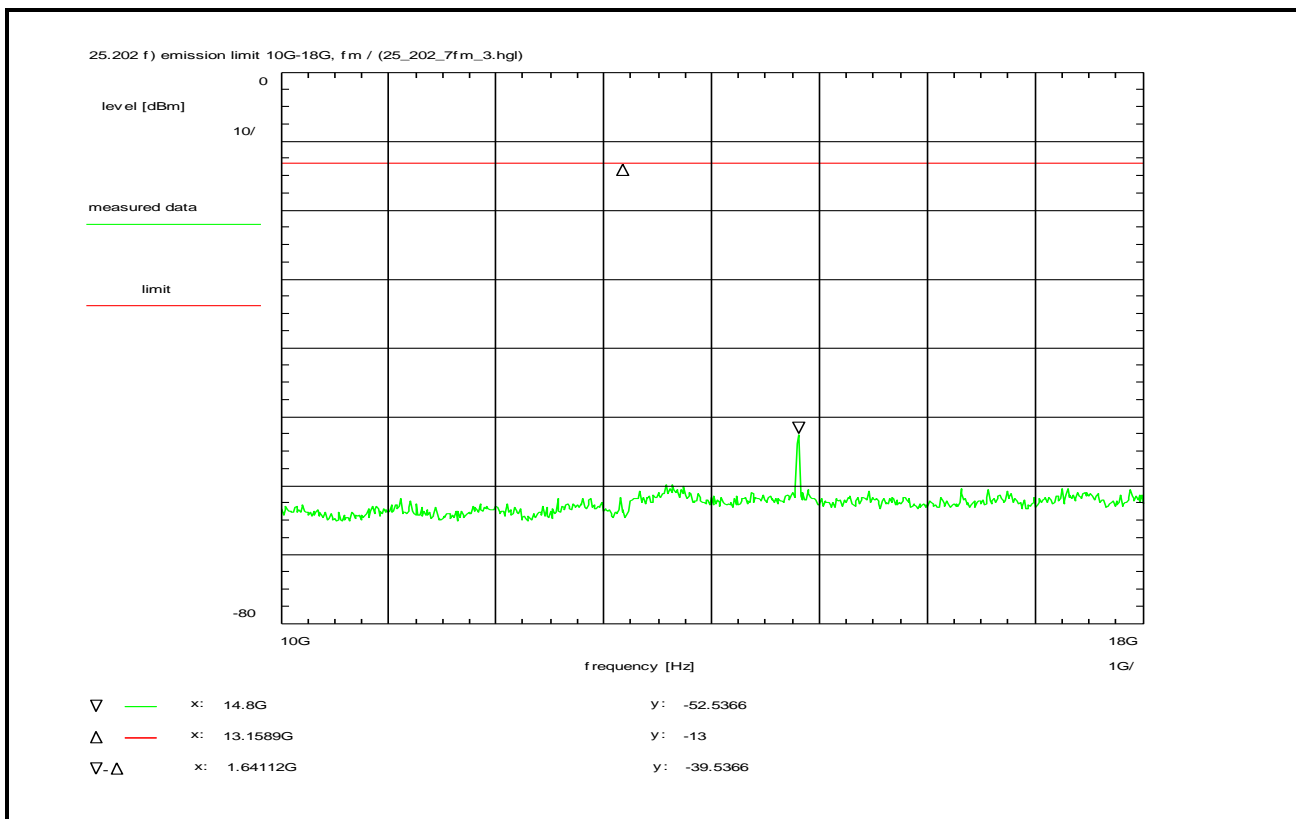
Carrier-on state / Carrier in the middle of the band (fm)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -62.3 dBm
8th harm.: -52.0 dBm
9th harm.: -52.0 dBm

Plot No. 82 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz

100-250% of assigned bw: -35dBc/4kHz

> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fmid, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2higi

Test equipment:

see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 09:59:50
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

Carrier-on state / Carrier in the middle of the band (fm)

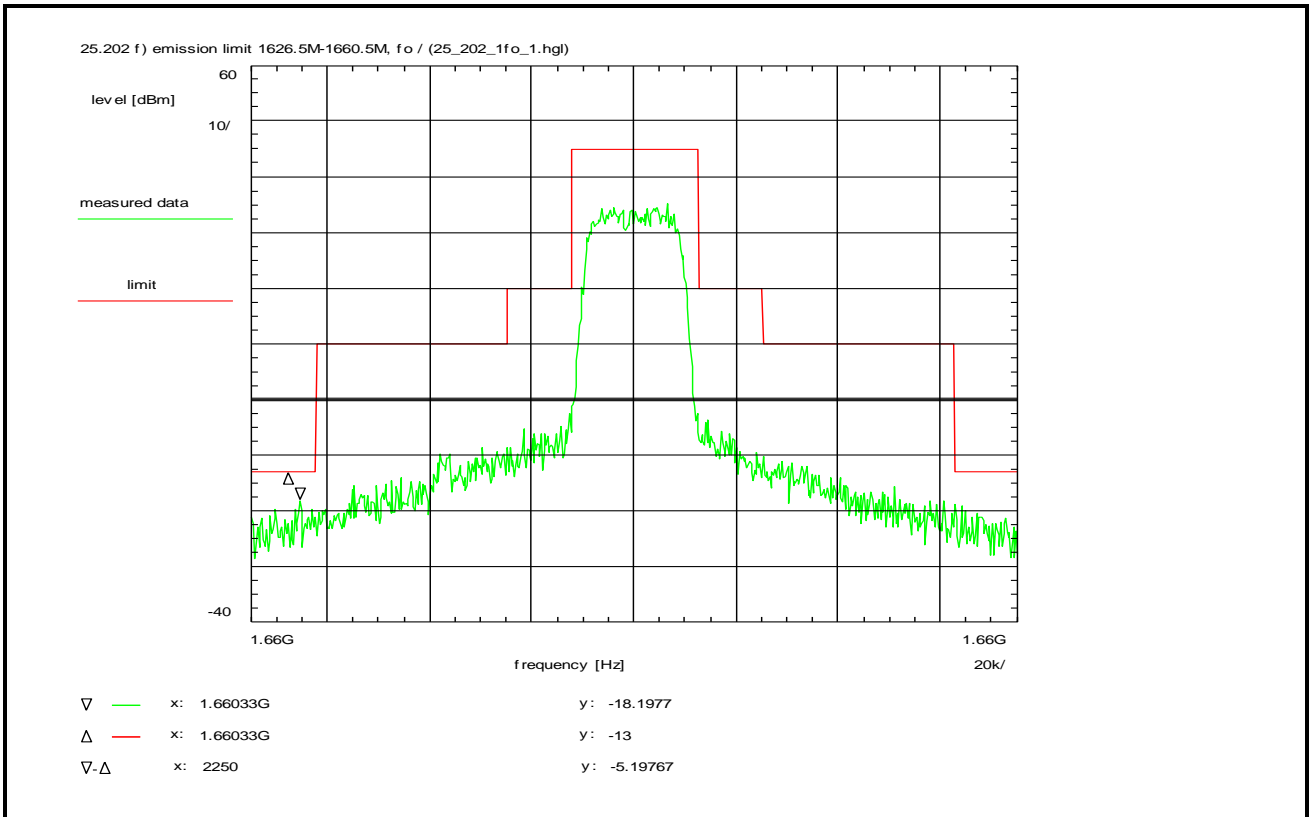
For EIRP calculation:

'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -/- dBm
8th harm.: -61.7 dBm
9th harm.: -52.5 dBm

Plot No. 83 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:09:50
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.660325 GHz
Stop frequency: 1.660475 GHz
Center frequency: 1.6604 GHz
Frequency span: 150 kHz
Input attenuation: 10 dB
Resolution-BW: 1 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

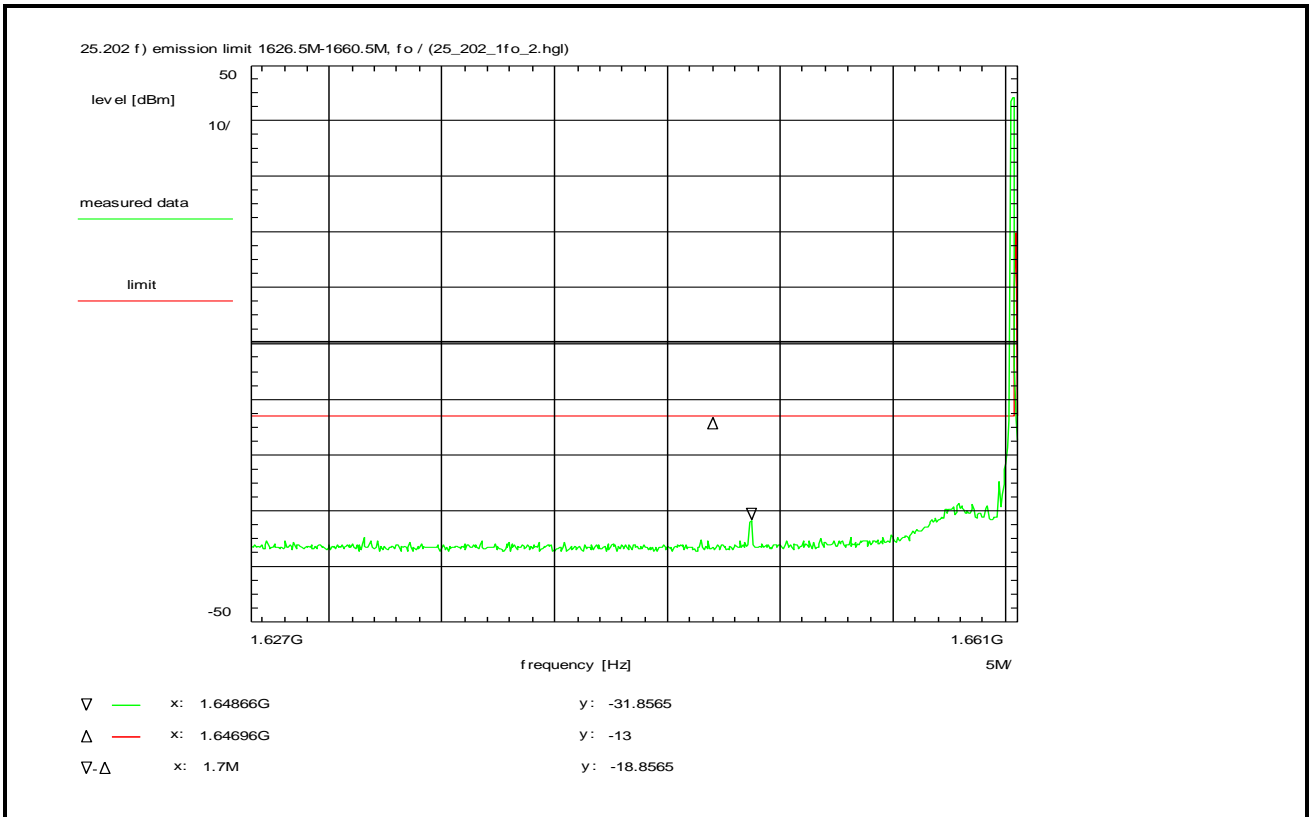
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 84 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:
see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:11:40
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

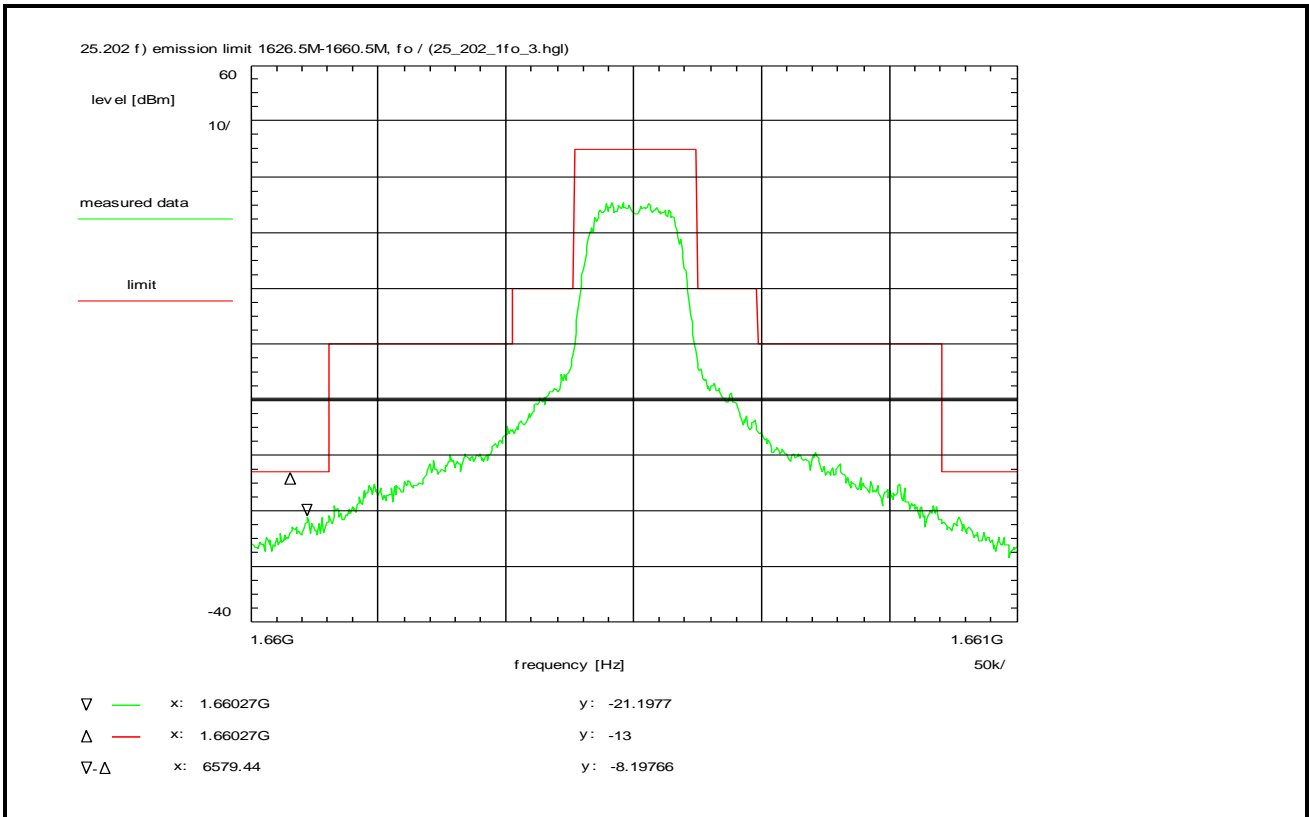
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 85 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:30:37
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.66025 GHz
Stop frequency: 1.66055 GHz
Center frequency: 1.6604 GHz
Frequency span: 300 kHz
Input attenuation: 10 dB
Resolution-BW: 3 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

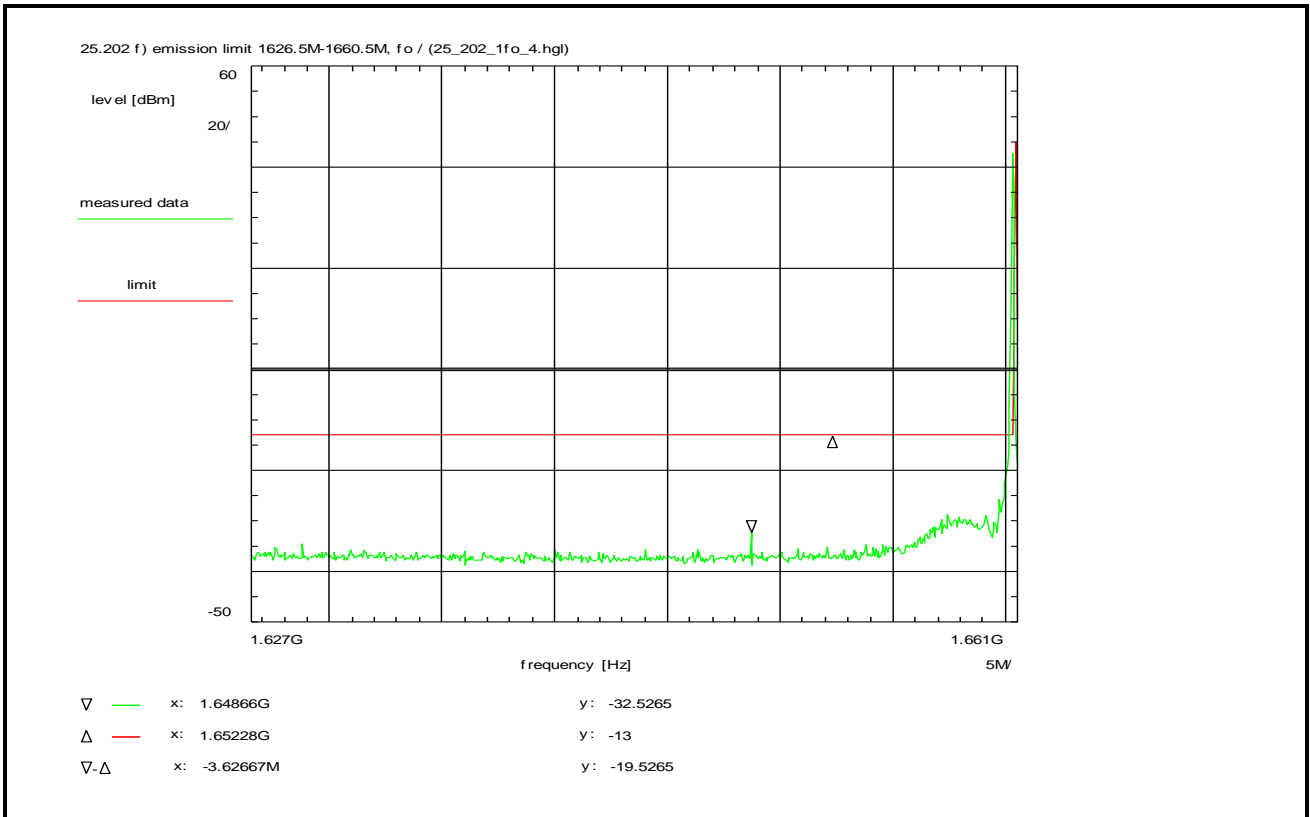
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 86 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:
see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:31:23
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

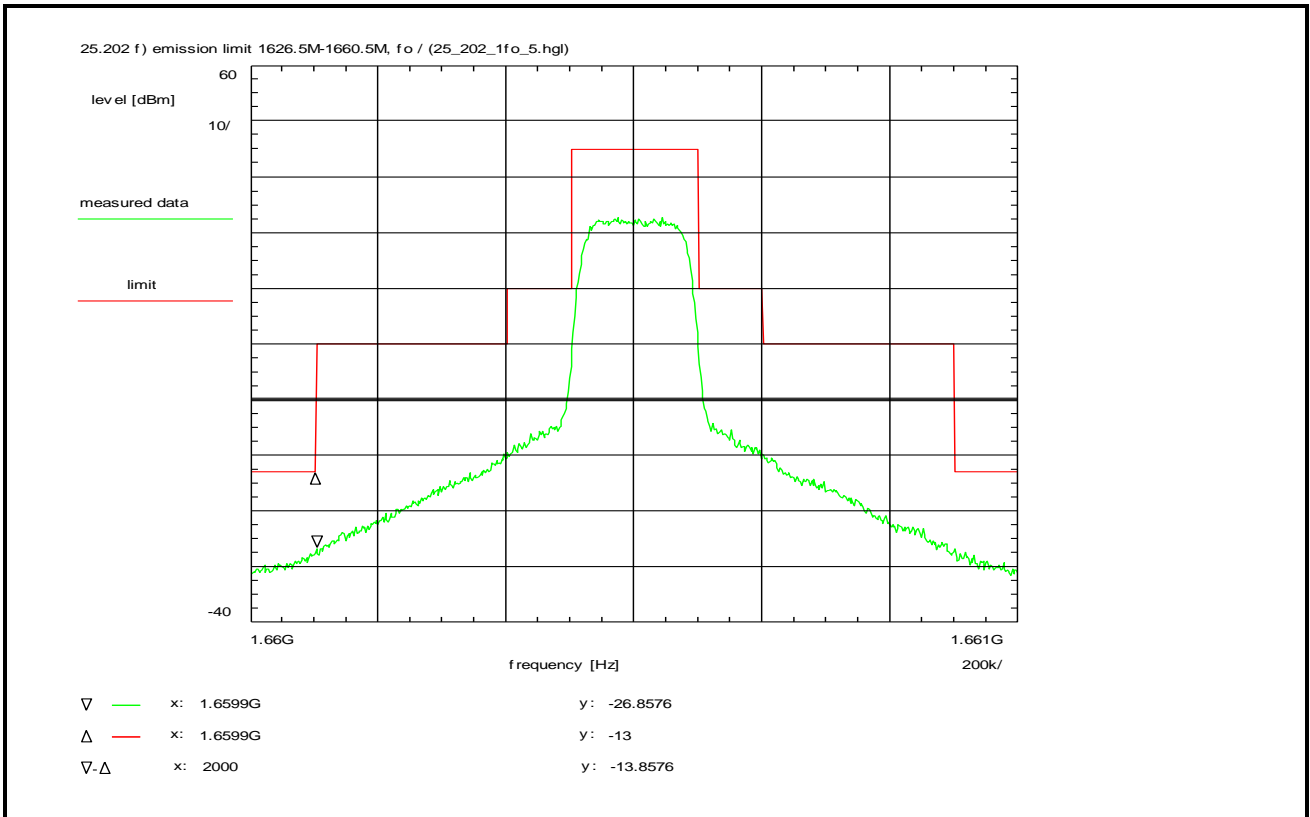
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 87 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:37:28
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6598 GHz
Stop frequency: 1.661 GHz
Center frequency: 1.6604 GHz
Frequency span: 1.2 MHz
Input attenuation: 10 dB
Resolution-BW: 10 kHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

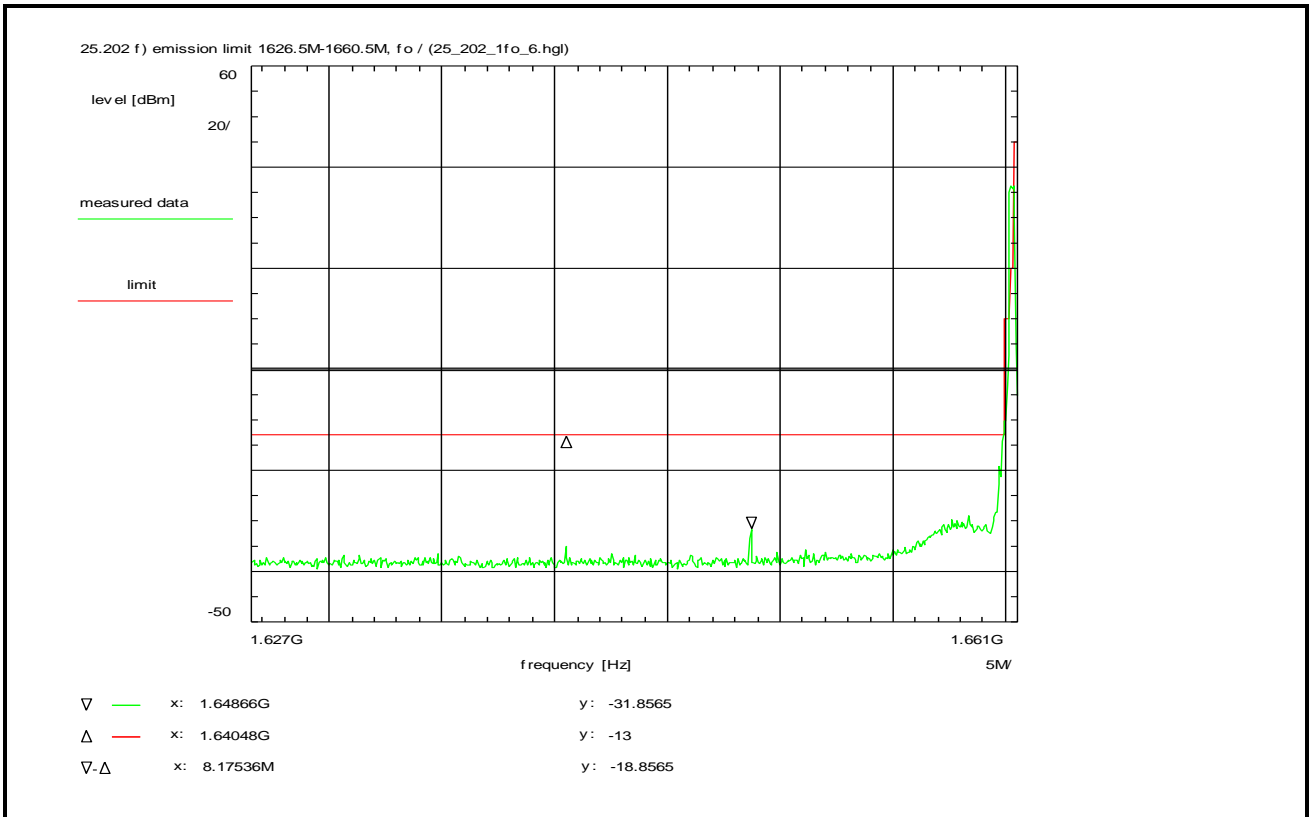
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 88 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

see also previous plot

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 13:38:24
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 1.6265 GHz
Stop frequency: 1.6605 GHz
Center frequency: 1.6435 GHz
Frequency span: 34 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 1 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.8 dB

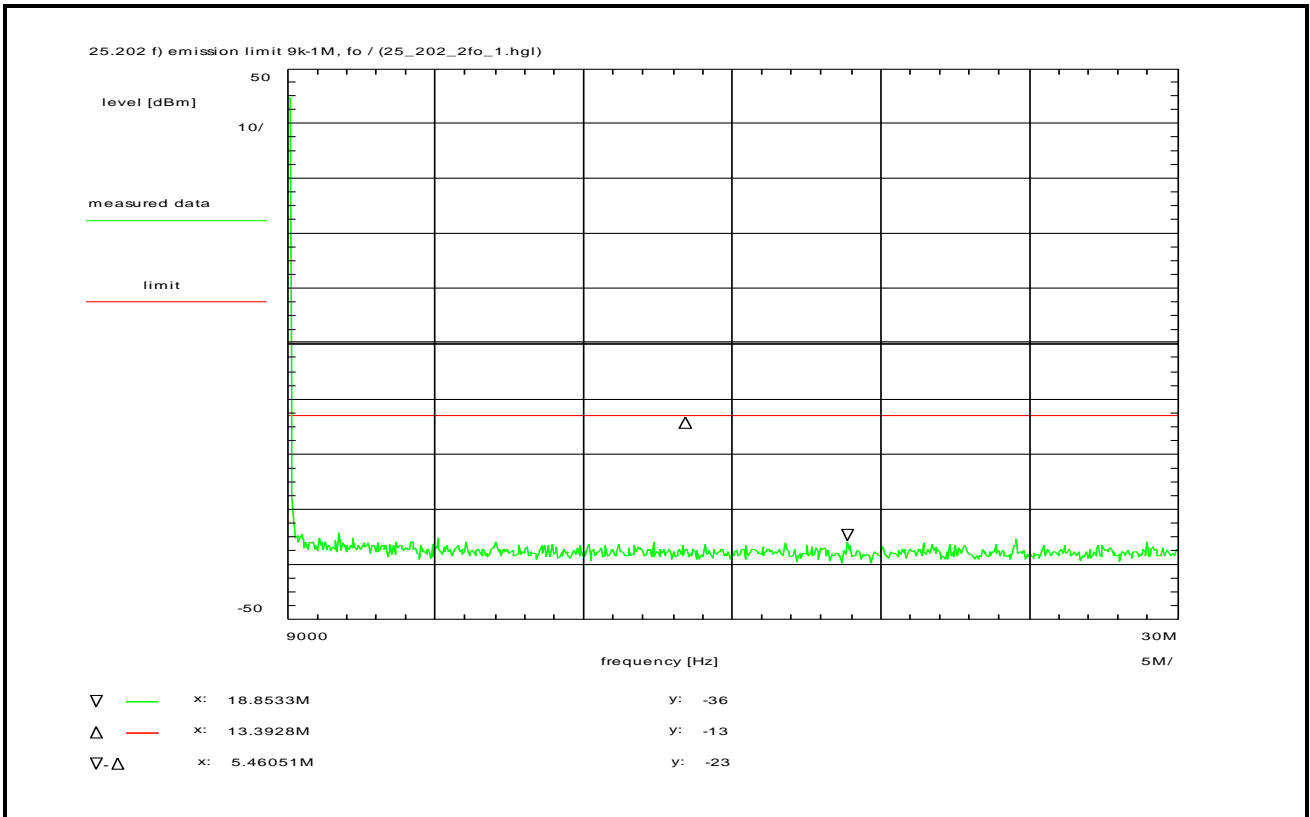
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 89 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:19:58
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

Remarks:

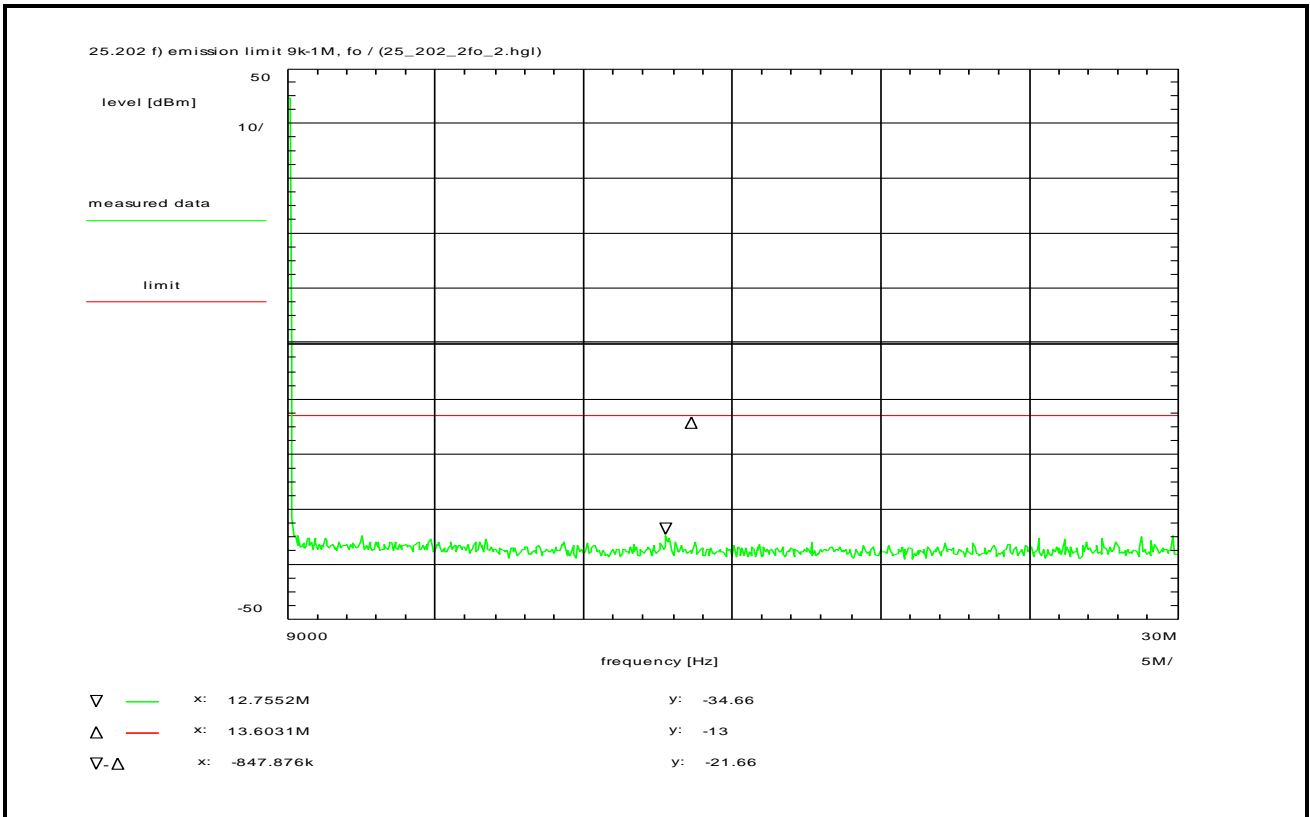
Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 90 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:20:44
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

Remarks:

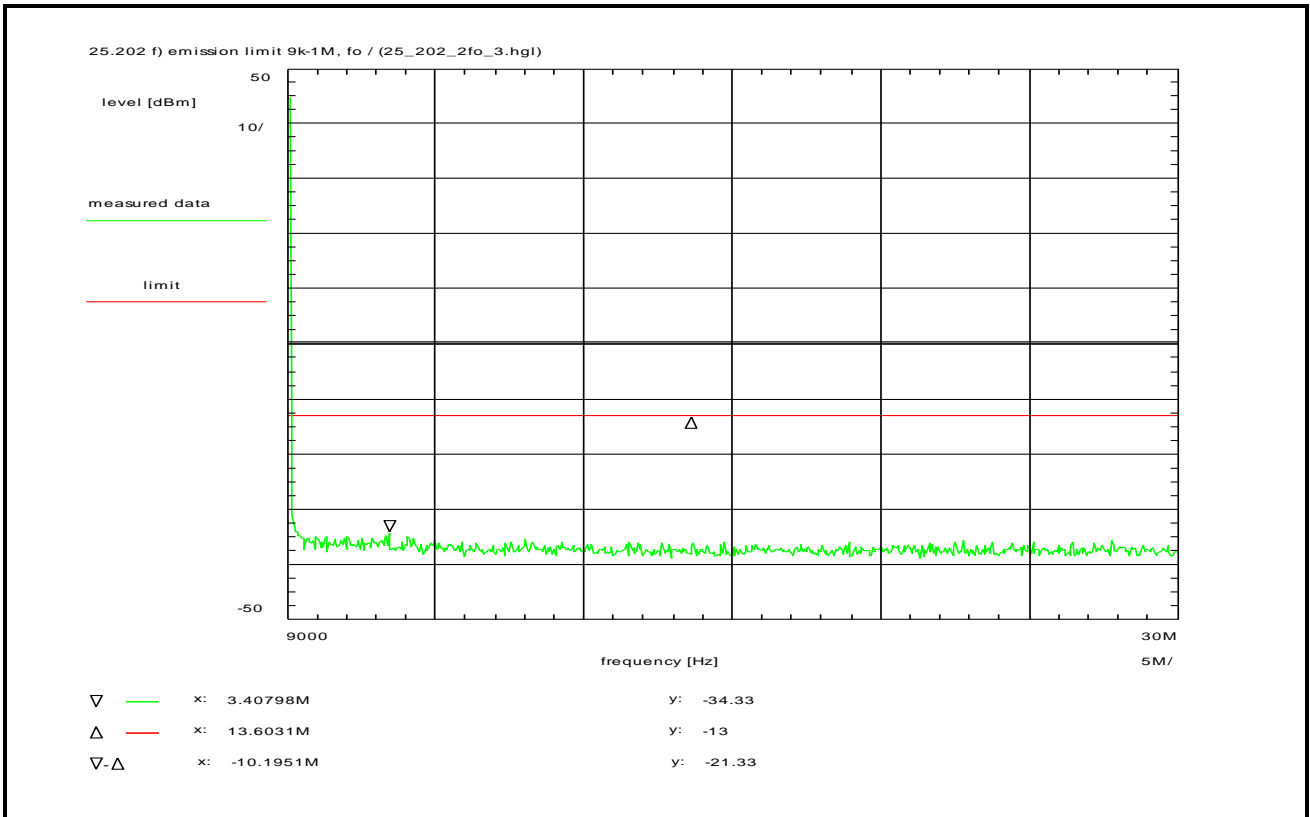
Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 91 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:21:09
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 9 kHz
Stop frequency: 30 MHz
Center frequency: 15.0045 MHz
Frequency span: 29.991 MHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.5 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.5 dB

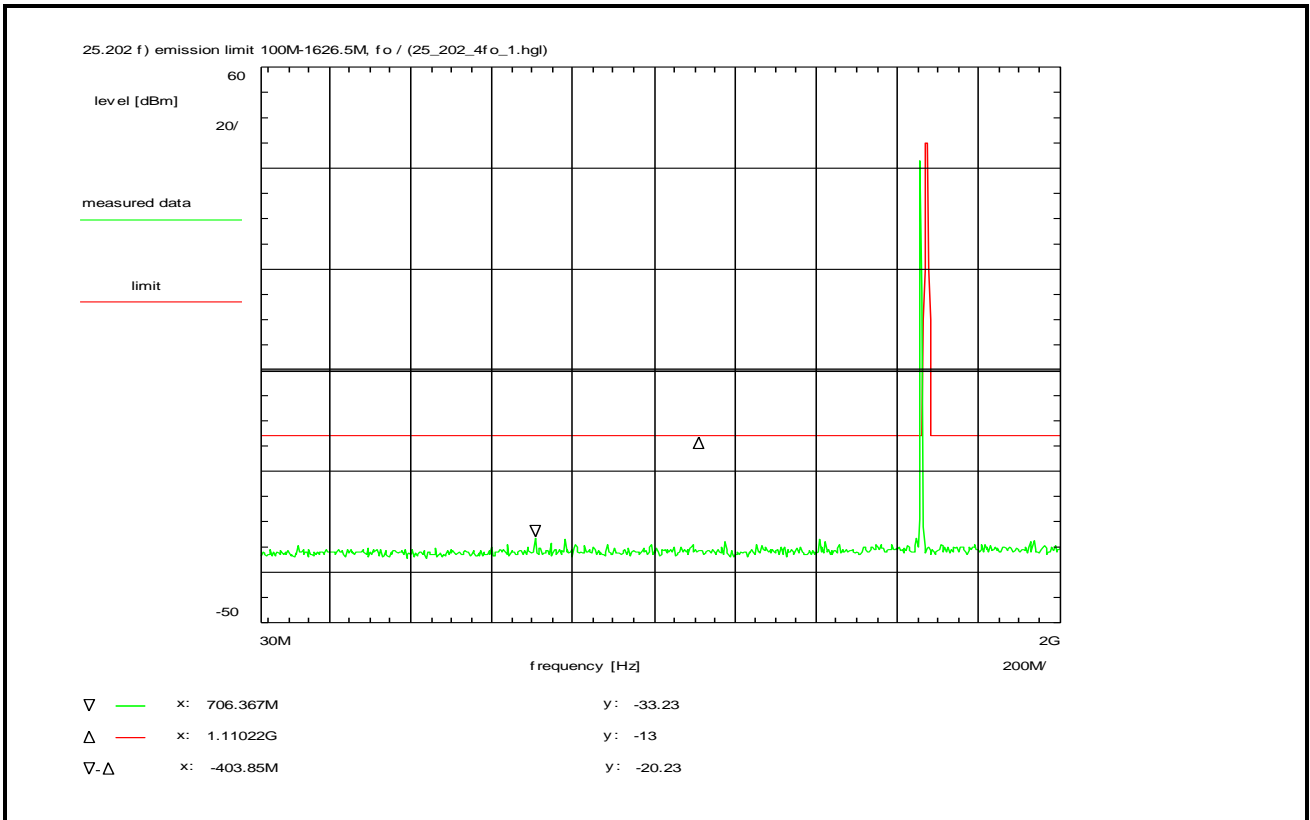
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:
'worst-case' = maximum antenna gain

Rather left the plot shows the zero line of the spectrum analyzer.

Plot No. 92 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:14:04
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

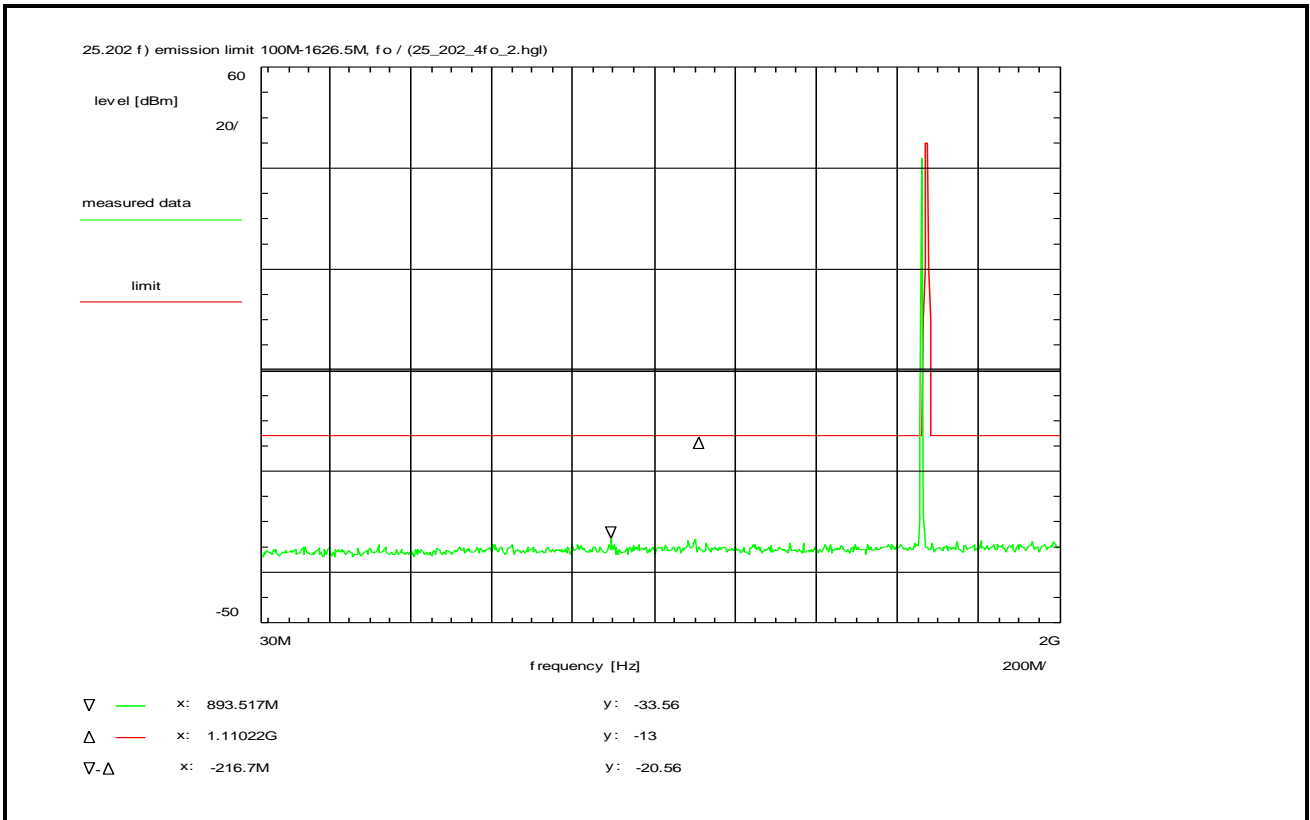
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 93 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2hgj

Test equipment:
see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:16:12
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

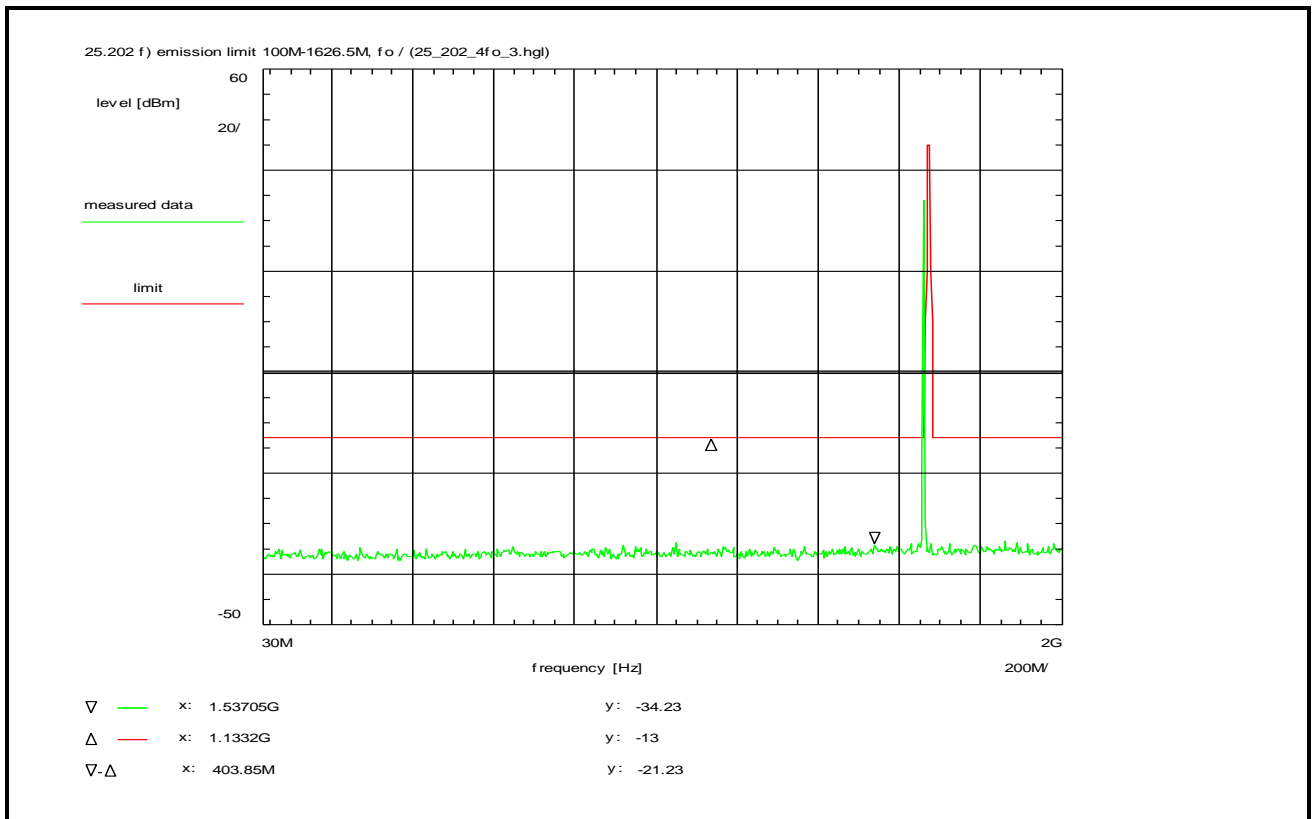
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 94 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2hgj

Test equipment:

see annex A: C217, R001, U005

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 14:17:42
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 30 MHz
Stop frequency: 2 GHz
Center frequency: 1.015 GHz
Frequency span: 1.97 GHz
Input attenuation: 20 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.6 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U005) + 29.8 dB
TOTAL CORRECTION: + 41.6 dB

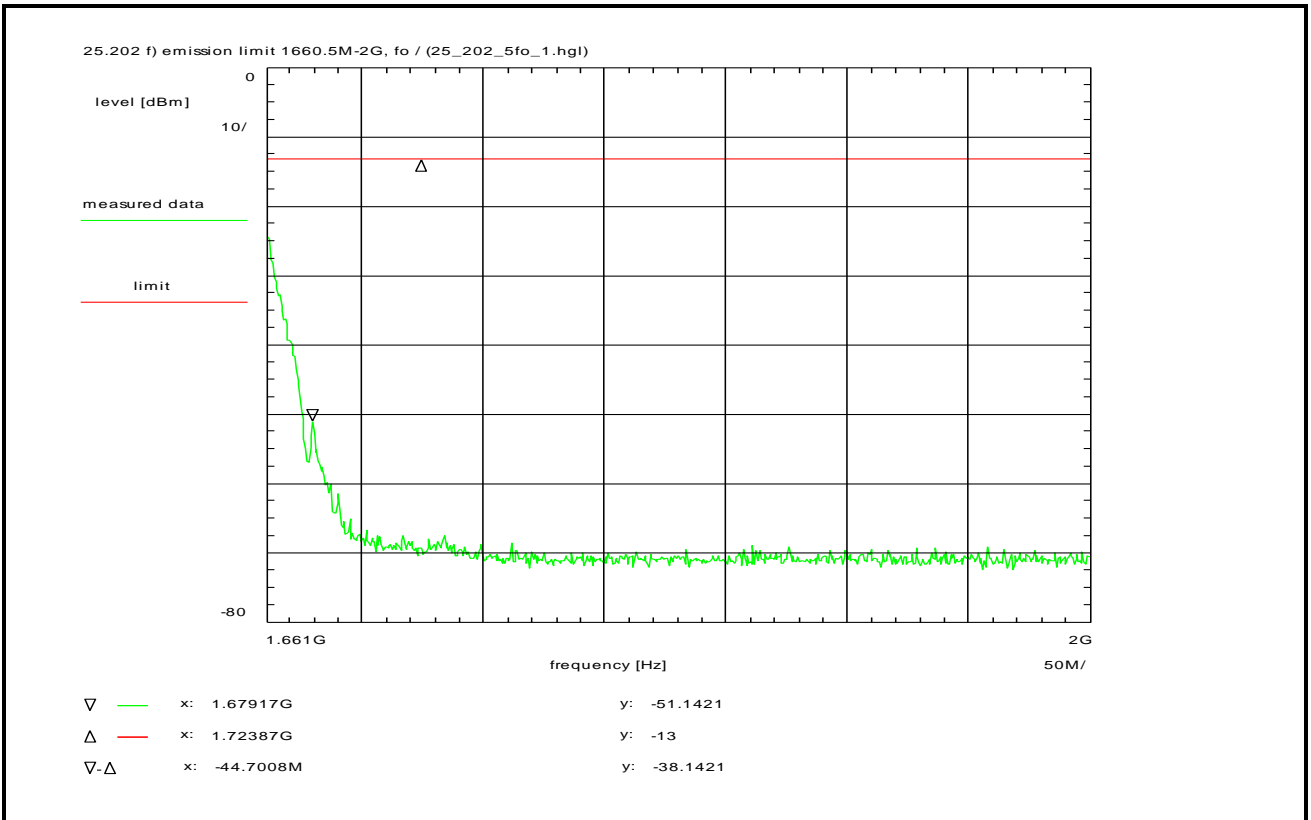
Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 95 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4 R20T05Q

Test setup:
see section 8.1: 1.2higi

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 11:55:43
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

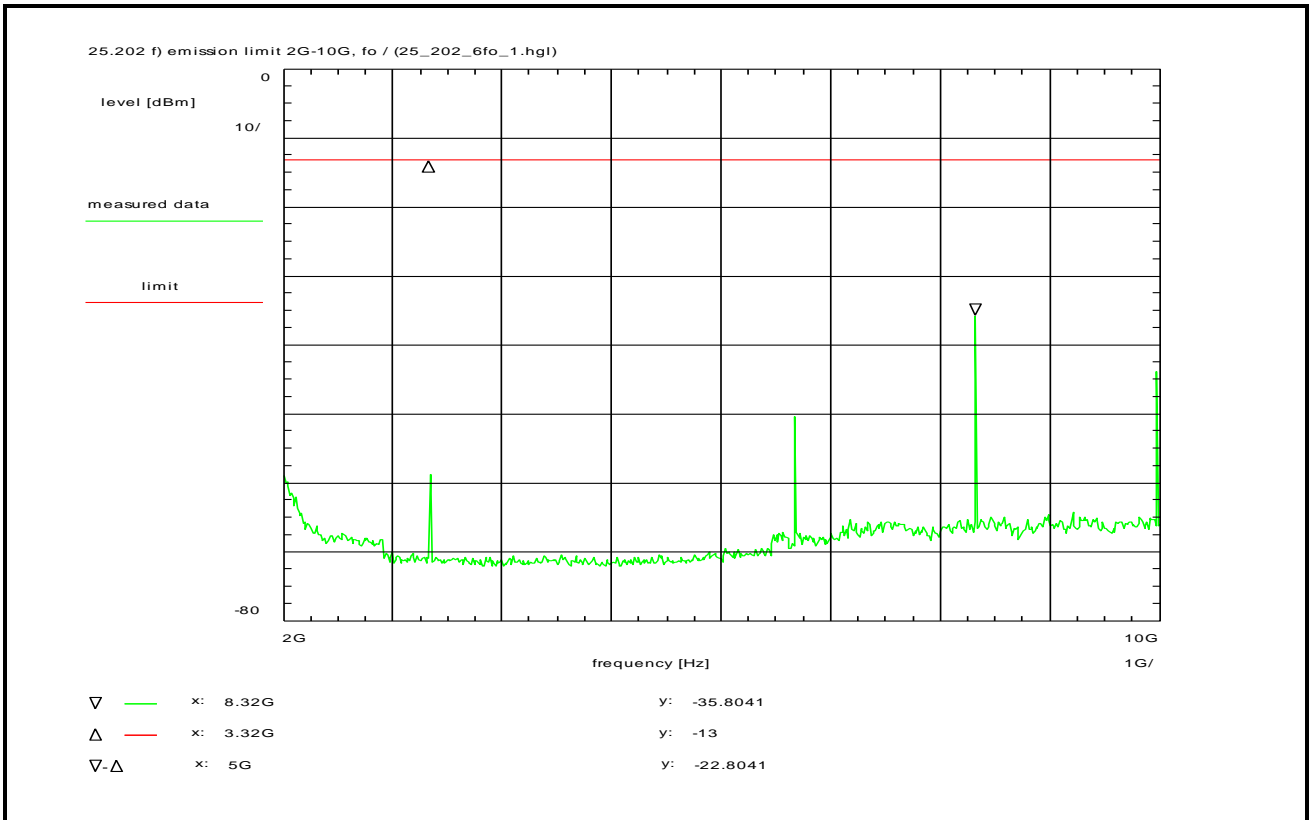
Setup of measurement equipment:
Start frequency: 1.6605 GHz
Stop frequency: 2 GHz
Center frequency: 1.83025 GHz
Frequency span: 339.5 MHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 3.0 dB
TOTAL CORRECTION: + 24.8 dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows frequency response of band stop filter.

Plot No. 96 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Tue 07/Oct/2014 15:25:47
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

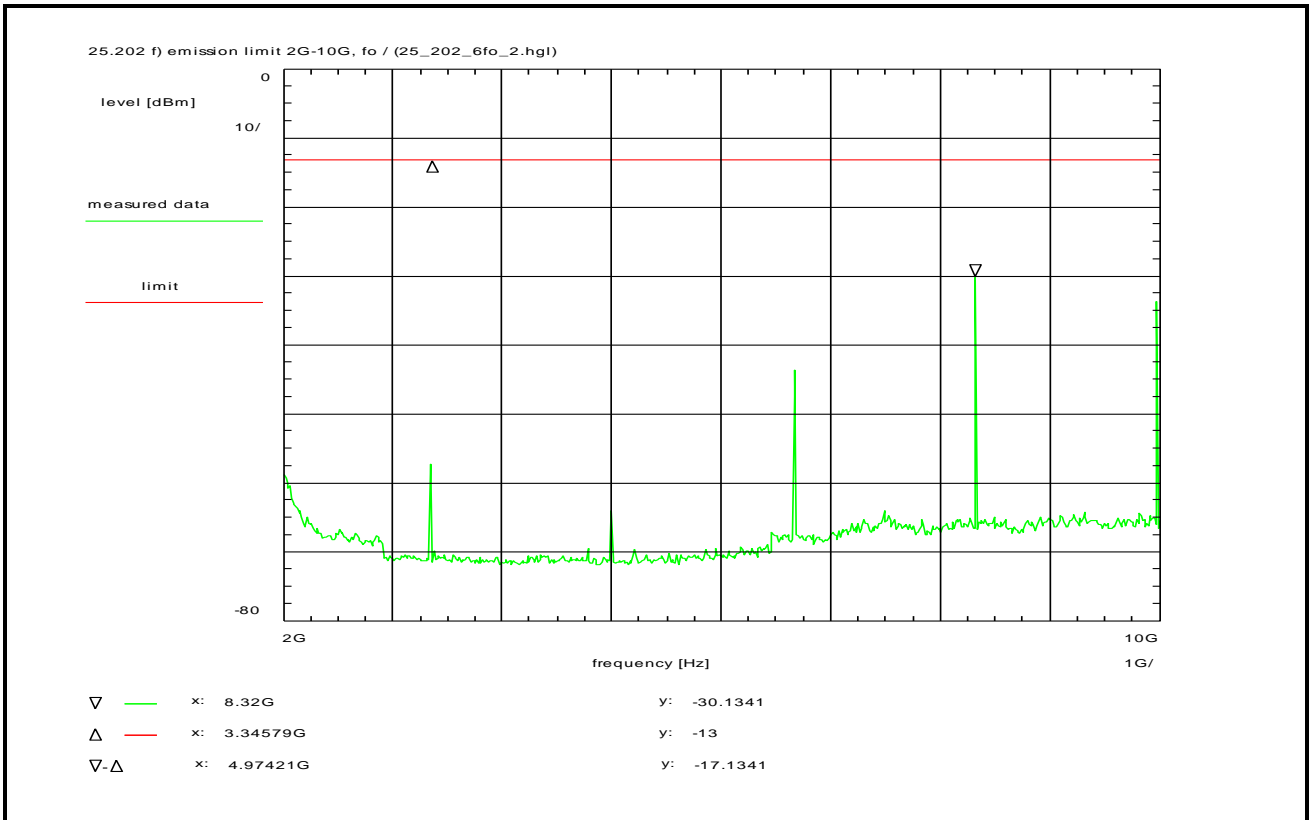
Setup of measurement equipment:
Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:
2nd harm.: -58.7 dBm
3rd harm.: -/- dBm
4th harm.: -50.3 dBm
5th harm.: -35.8 dBm
6th harm.: -43.8 dBm

Plot No. 97 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:
Limit according to 25.202 f):
50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 15:48:13
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

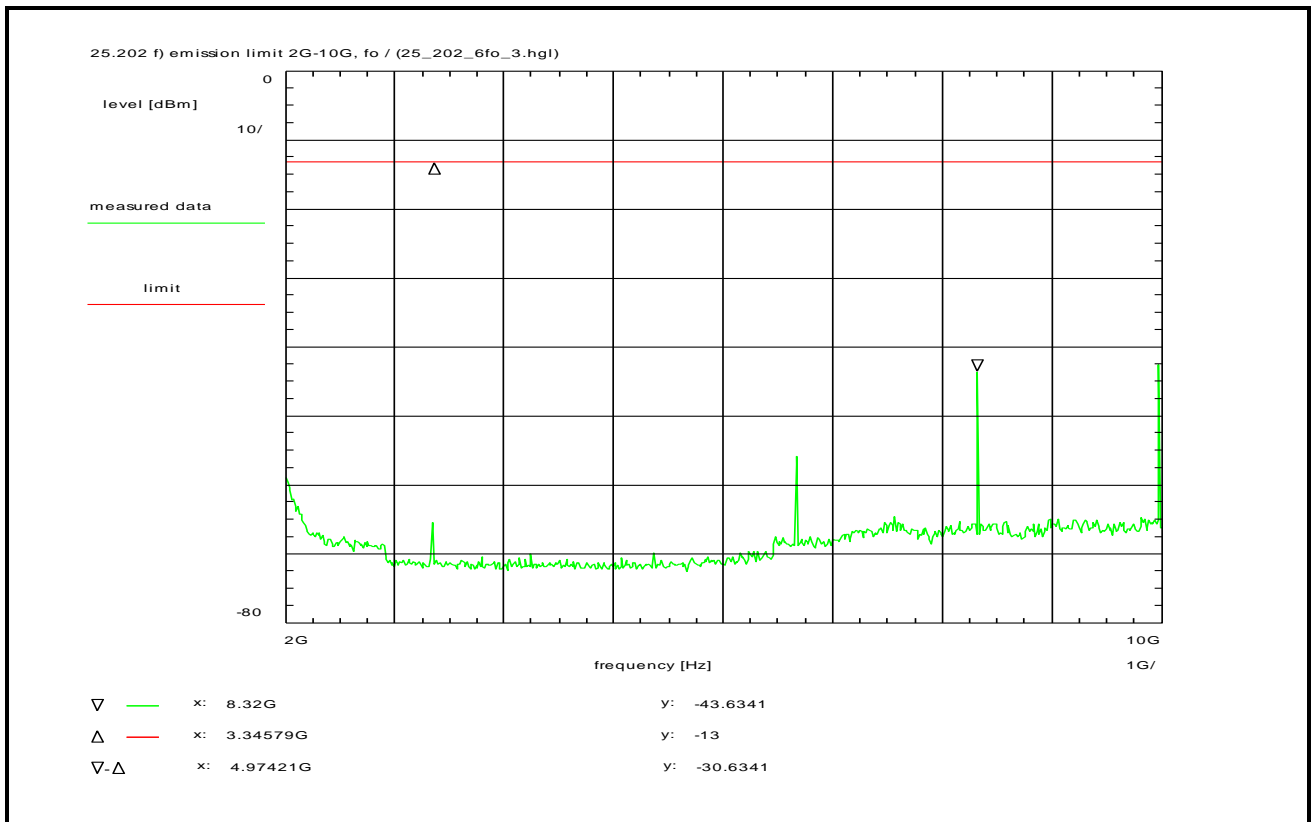
Carrier-on state / Carrier at the upper edge of the band (fo)

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -58.5 dBm
3rd harm.: -64.0 dBm
4th harm.: -43.6 dBm
5th harm.: -30.1 dBm
6th harm.: -33.6 dBm

Plot No. 98 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4
R20T45X

Test setup:

see section 8.1: 1.2higj

Test equipment:

see annex A: C217, F227, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 07/Oct/2014 15:55:37
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 2 GHz
Stop frequency: 10 GHz
Center frequency: 6 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 1.7 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.9 dB
HPF (F227) + 1.5 dB
TOTAL CORRECTION: + 24.3 dB

Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

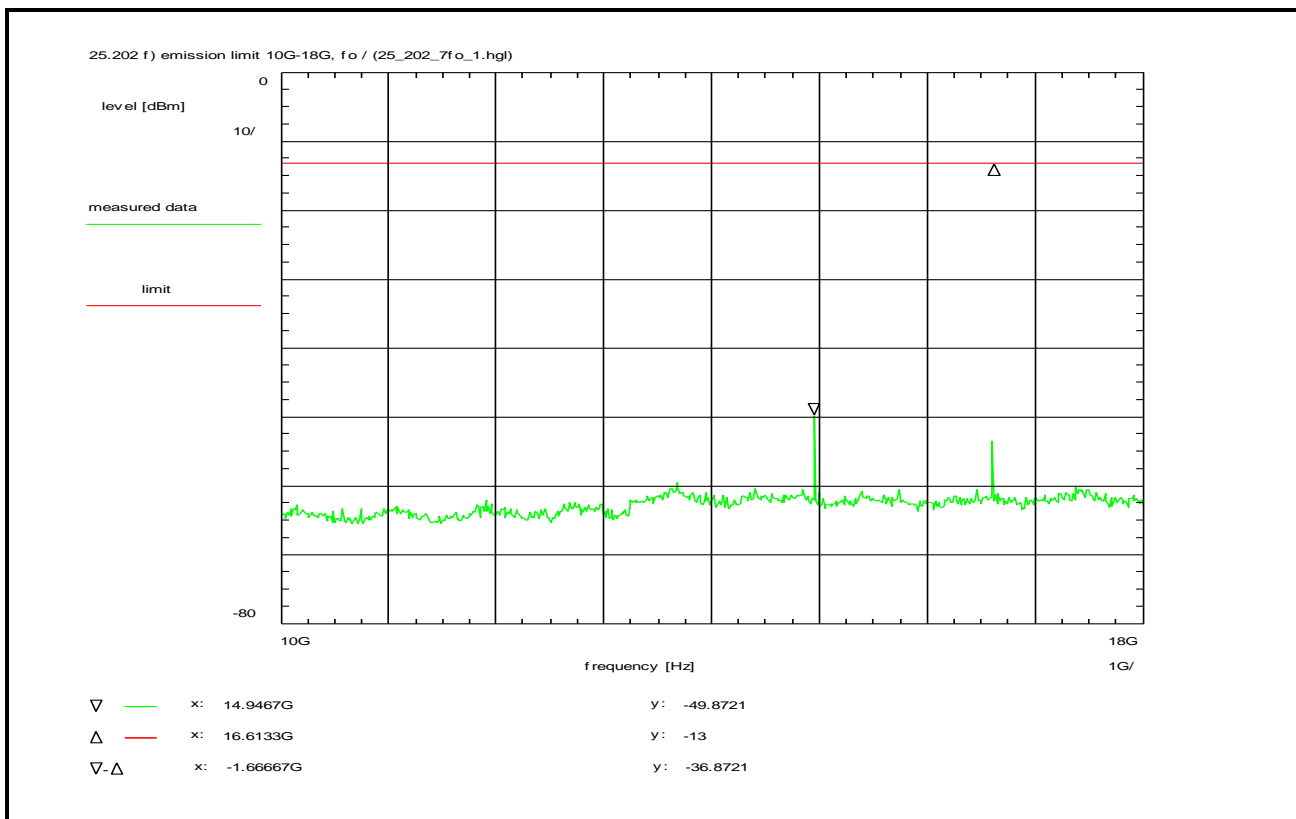
For EIRP calculation:

'worst-case' = maximum antenna gain

Plot shows:

2nd harm.: -65.4 dBm
3rd harm.: -/- dBm
4th harm.: -55.8 dBm
5th harm.: -43.6 dBm
6th harm.: -42.6 dBm

Plot No. 99 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz

100-250% of assigned bw: -35dBc/4kHz

> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:

see section 8.1: 1.2higi

Test equipment:

see annex A: C217, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 10:51:37
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

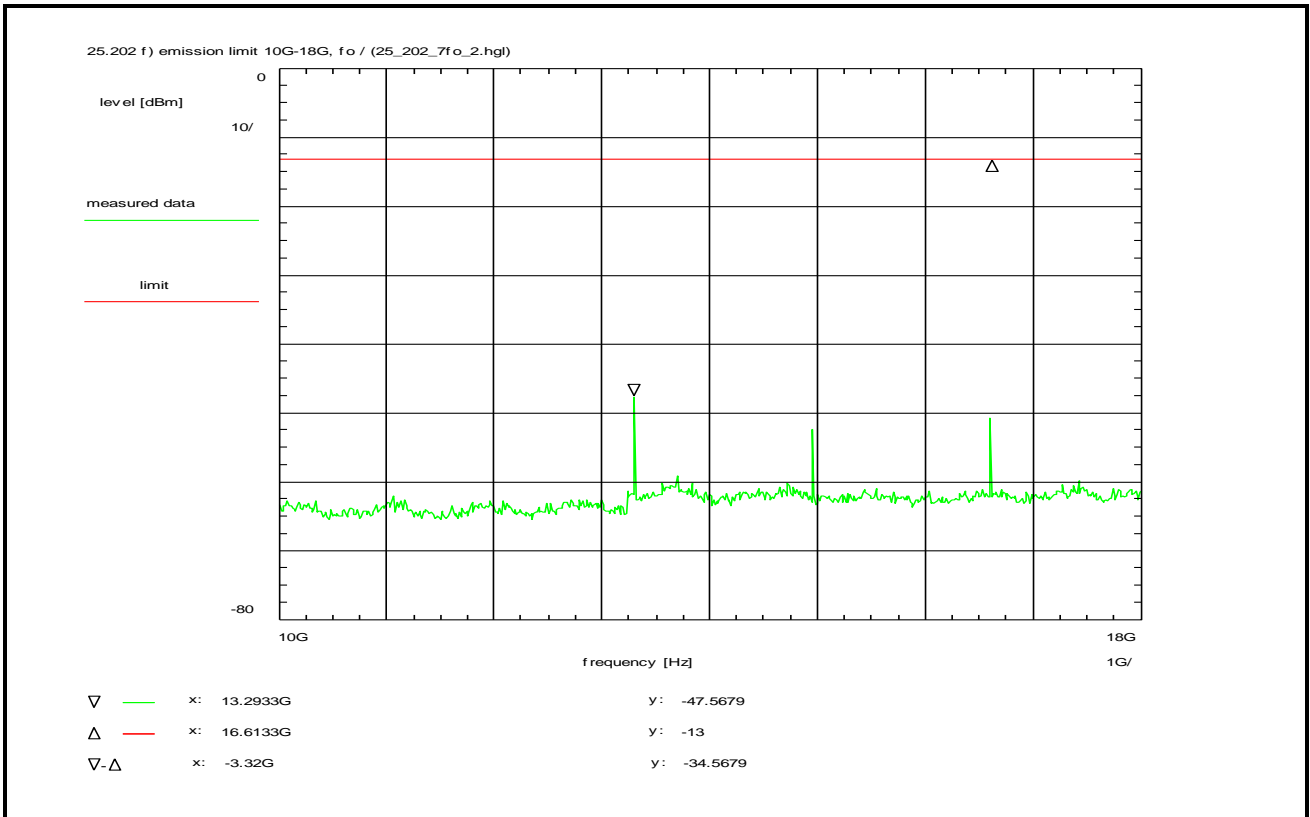
For EIRP calculation:

'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -/- dBm
8th harm.: -/- dBm
9th harm.: -49.9 dBm
10th harm.: -53.4 dBm

Plot No. 100 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz
100-250% of assigned bw: -35dBc/4kHz
> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43 \text{ dBW}$
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:

see section 8.1: 1.2higj

Test equipment:

see annex A: C217, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 10:59:26
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

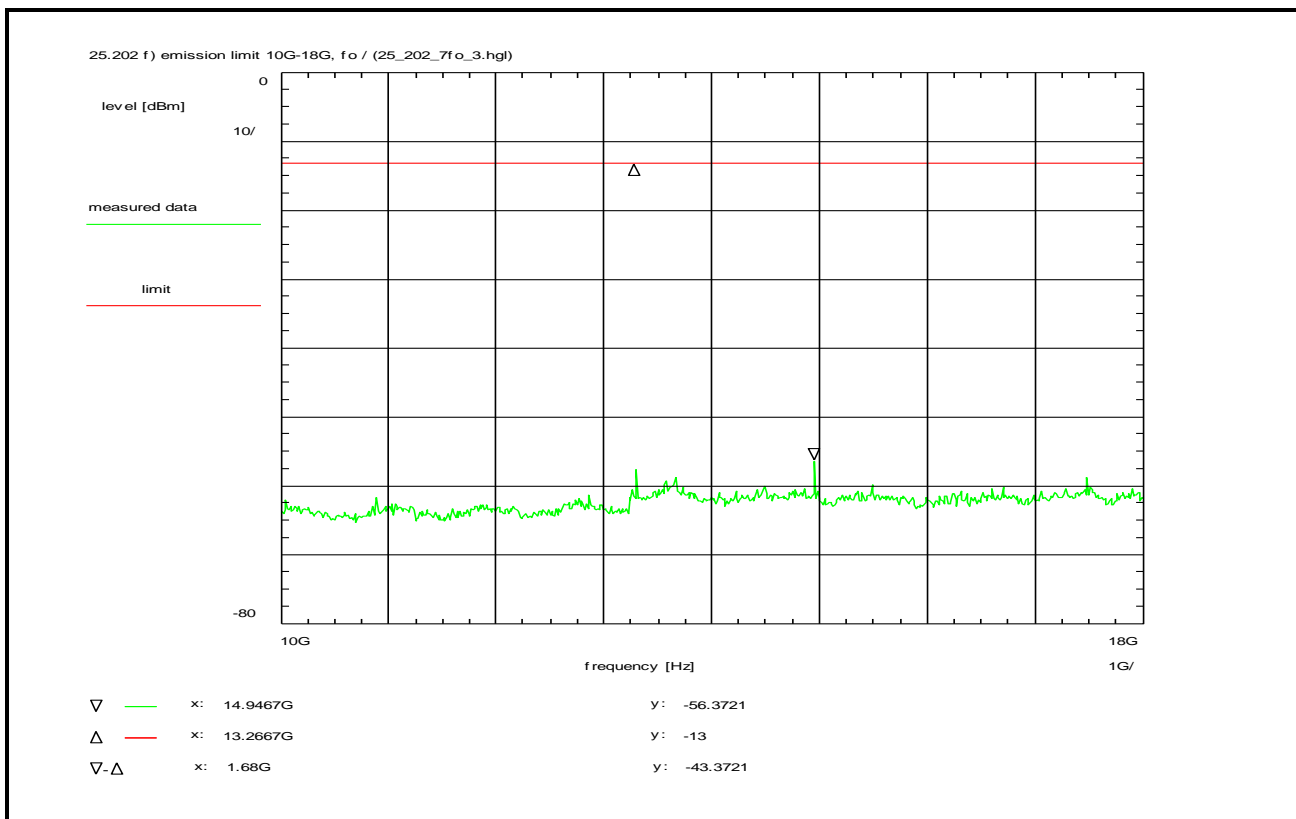
For EIRP calculation:

'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -/- dBm
8th harm.: -47.6 dBm
9th harm.: -52.4 dBm
10th harm.: -50.7 dBm

Plot No. 101 (111)



Subclause: 25.202 f) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 25.202 f):

50-100% of assigned bw: -25dBc/4kHz

100-250% of assigned bw: -35dBc/4kHz

> 250% of assigned bw: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$

The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, fhigh, see section 7.4 R20t45X

Test setup:

see section 8.1: 1.2higi

Test equipment:

see annex A: C217, R001, U311

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 08/Oct/2014 11:12:43
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 23 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:

Start frequency: 10 GHz
Stop frequency: 18 GHz
Center frequency: 14 GHz
Frequency span: 8 GHz
Input attenuation: 0 dB
Resolution-BW: 10 kHz
Video-BW: 10 kHz
Video-Average: 1 sweep(s) (>1)
Detector-Mode: 2 Pos Peak (Maximum-Hold)

Correction (average):

Directional coupler + 0.0 dB
Coaxial cable (C217) + 2.9 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuator (U311) + 10.2 dB
HPF (F227) + 4.3 dB
TOTAL CORRECTION: + 28.6 dB

Remarks:

Carrier-on state / Carrier at the upper edge of the band (fo)

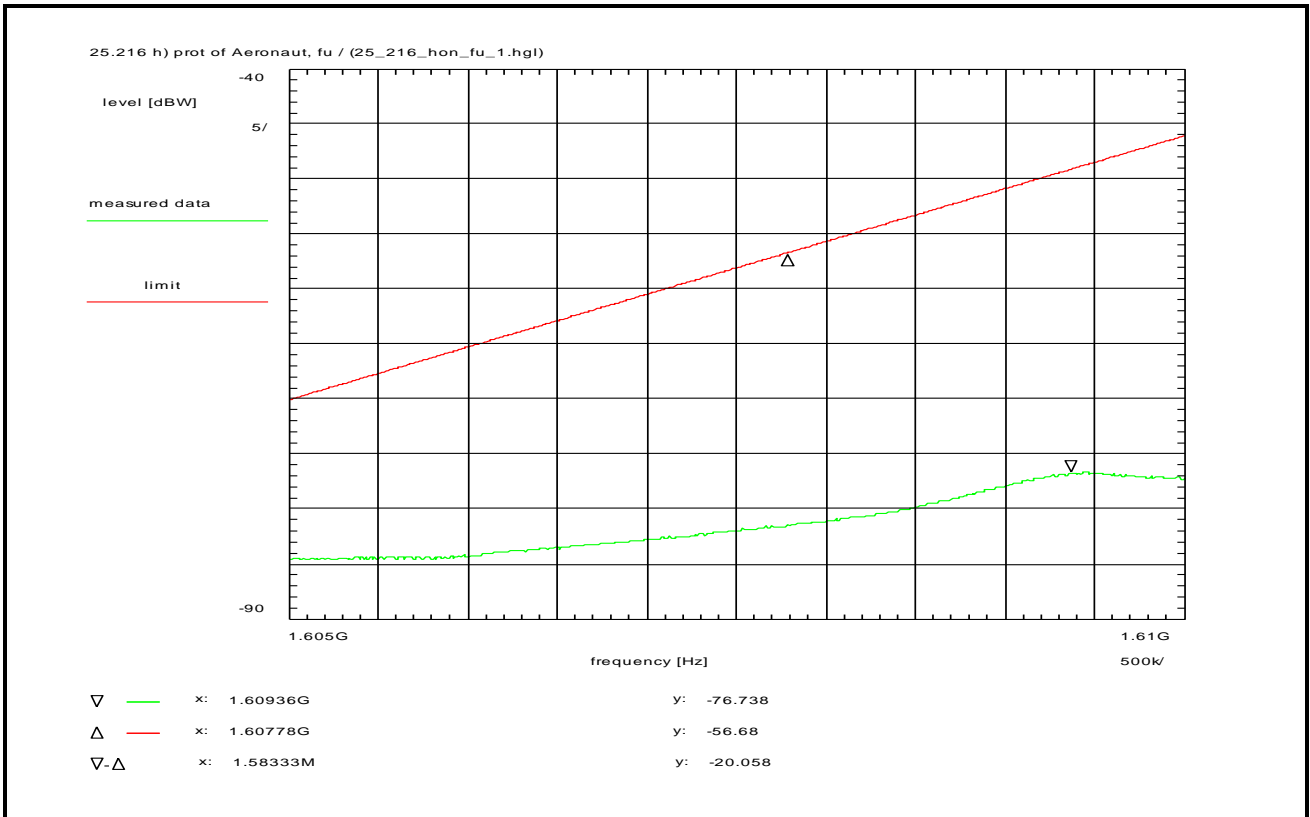
For EIRP calculation:

'worst-case' = maximum antenna gain

Plot shows:

7th harm.: -/- dBm
8th harm.: -57.6 dBm
9th harm.: -56.4 dBm
10th harm.: -/- dBm

Plot No. 102 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier at the lower edge of the band (fu)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:46:53
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

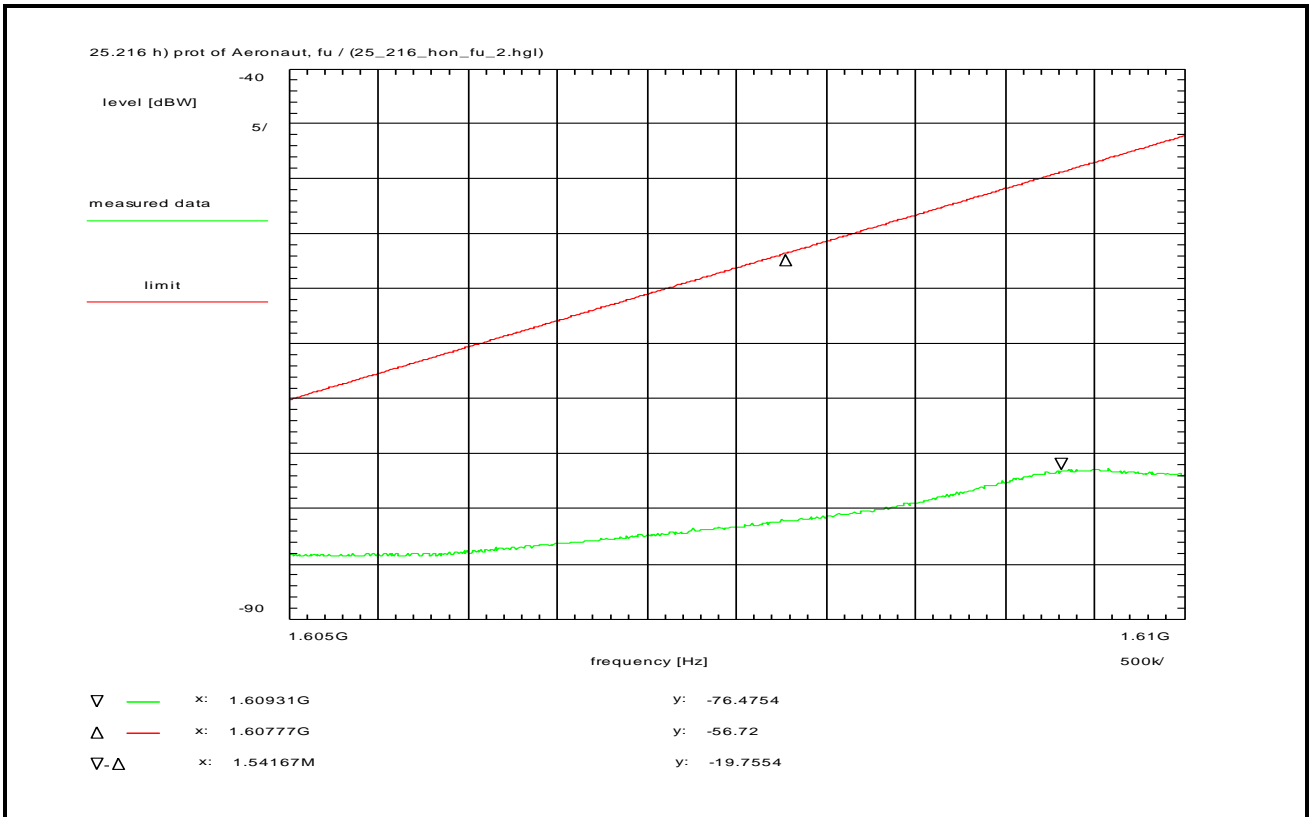
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 103 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier at the lower edge of the band (fu)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:57:34
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

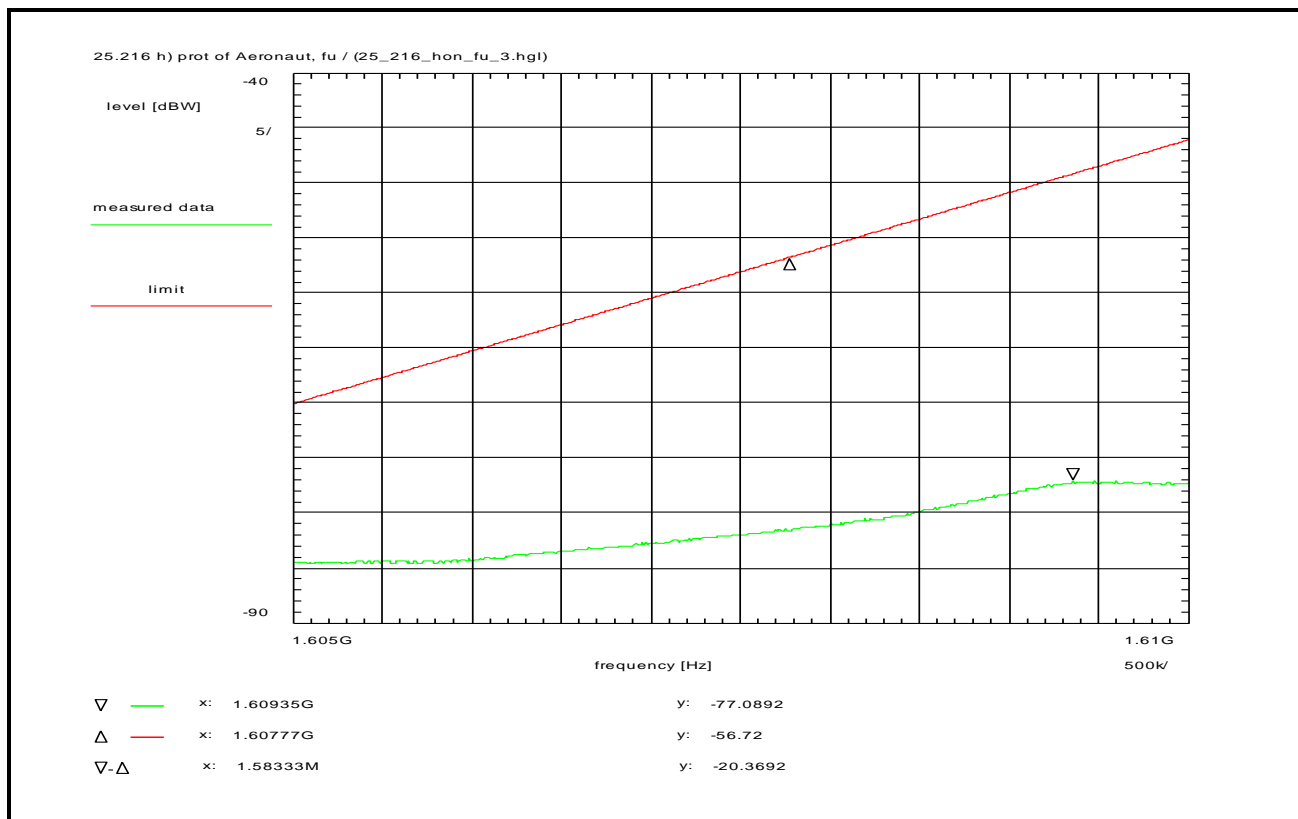
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 104 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier at the lower edge of the band (fu)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, flow, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:58:19
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

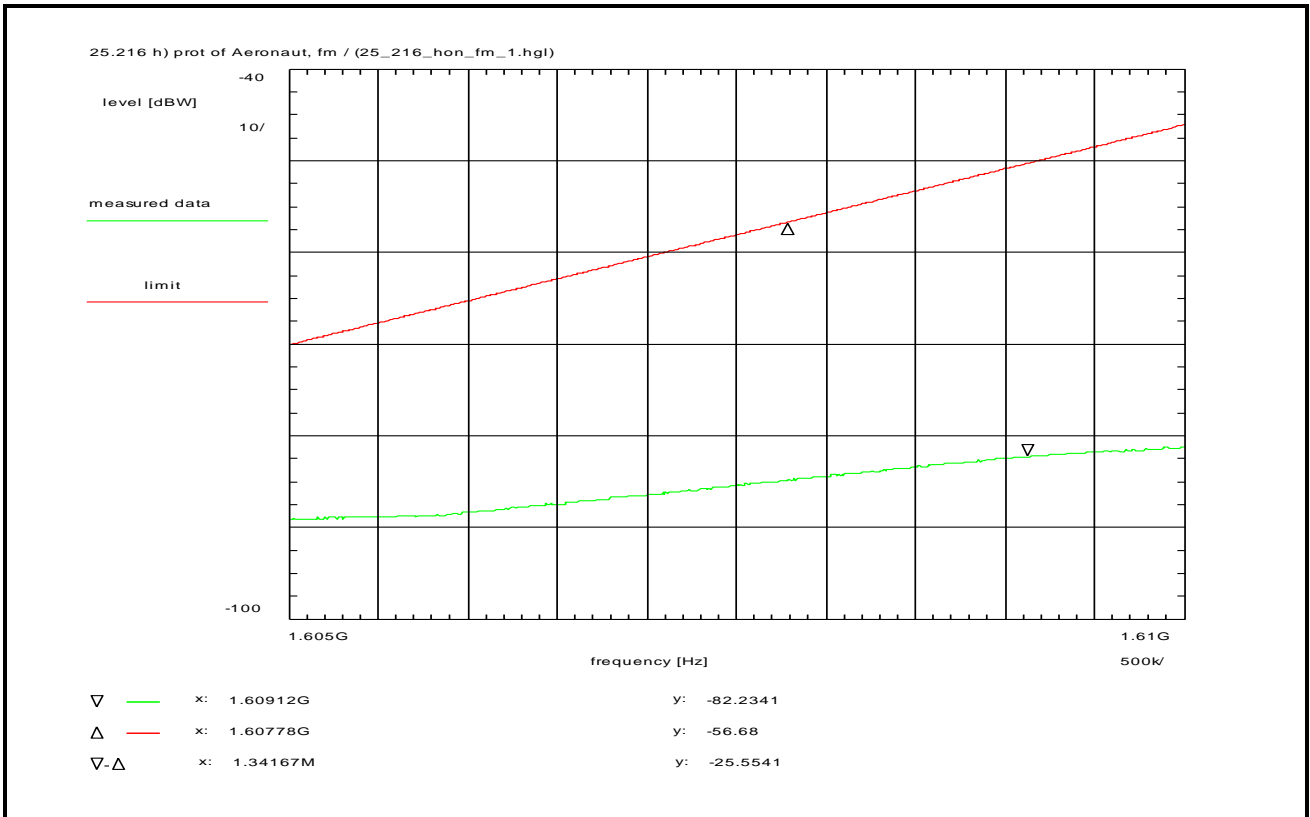
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 105 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier in the middle of the band (fm)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U005, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:38:44
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

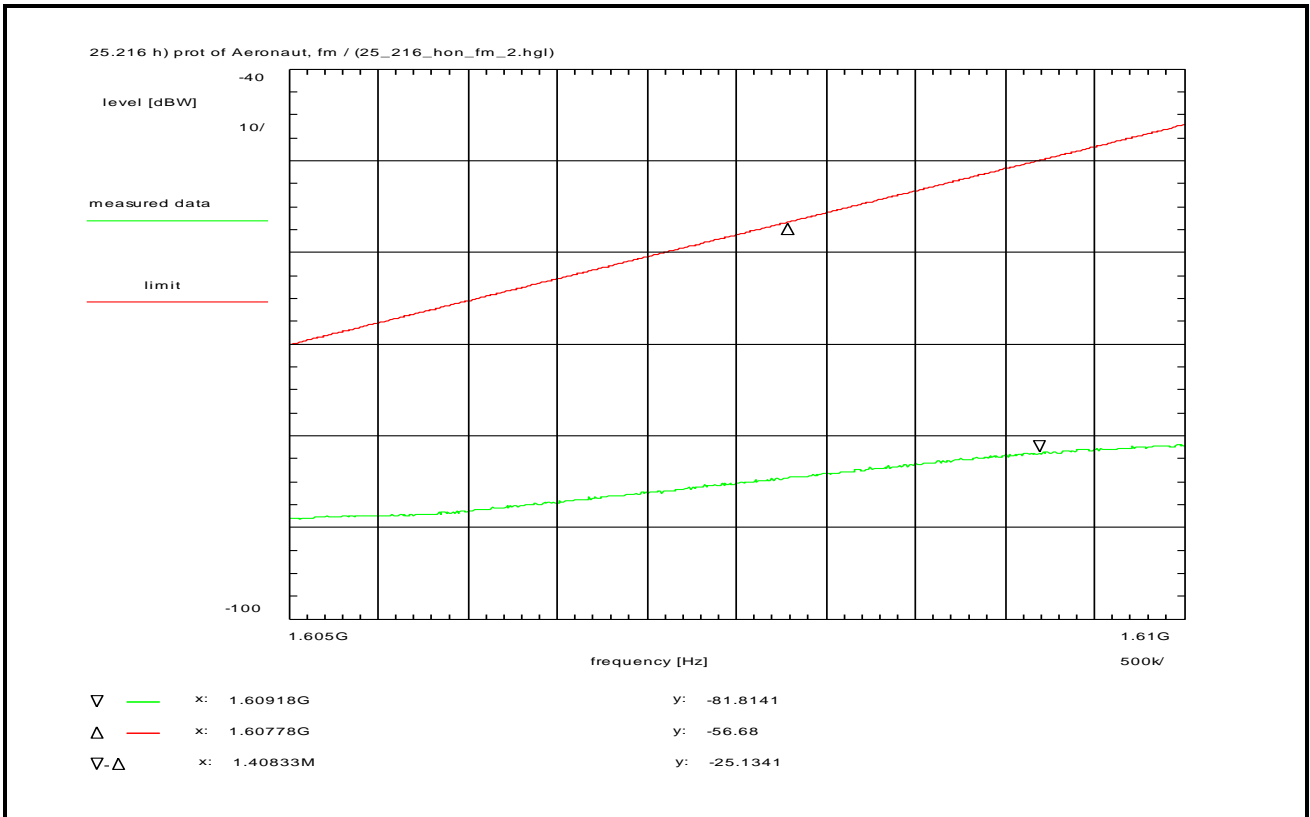
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 106 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier in the middle of the band (fm)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U005, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:39:20
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

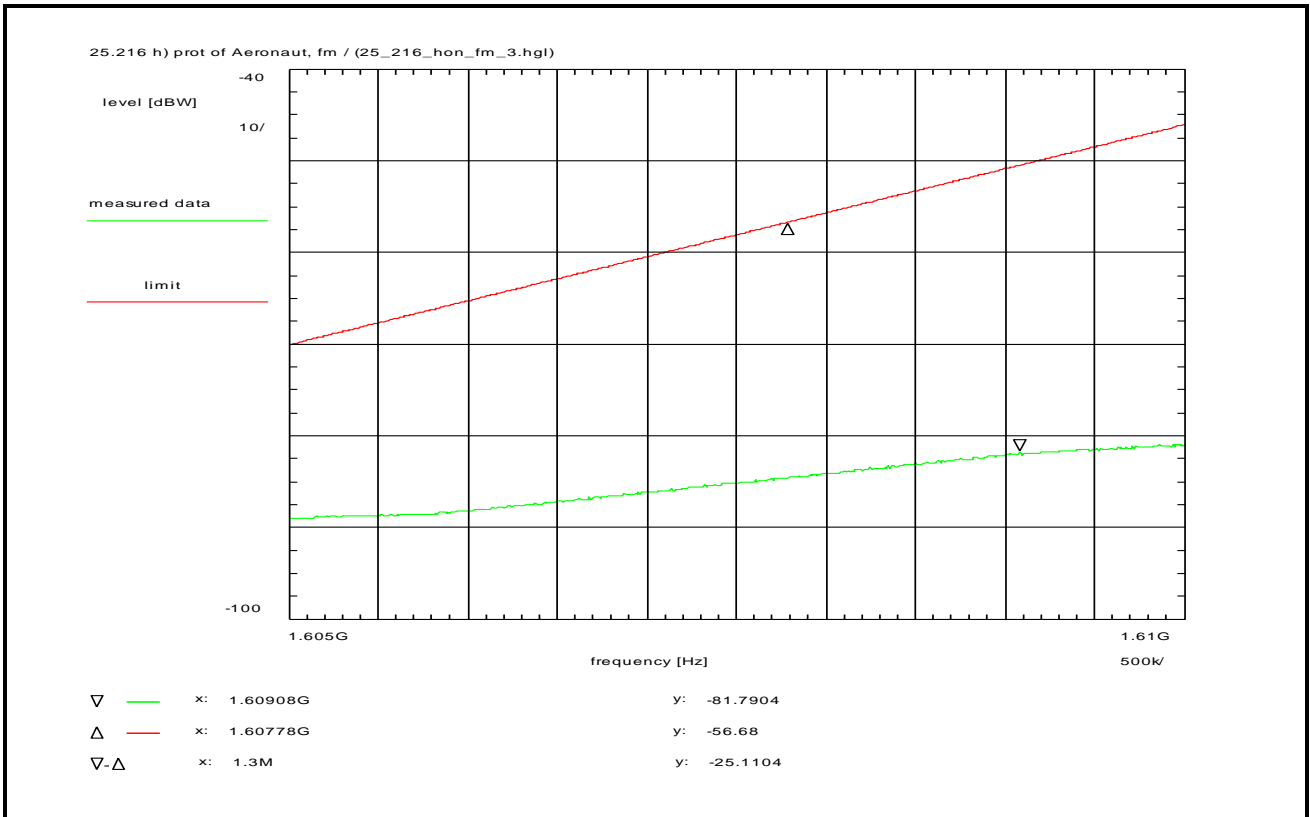
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 107 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier in the middle of the band (fm)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fmid, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U005, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:40:15
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

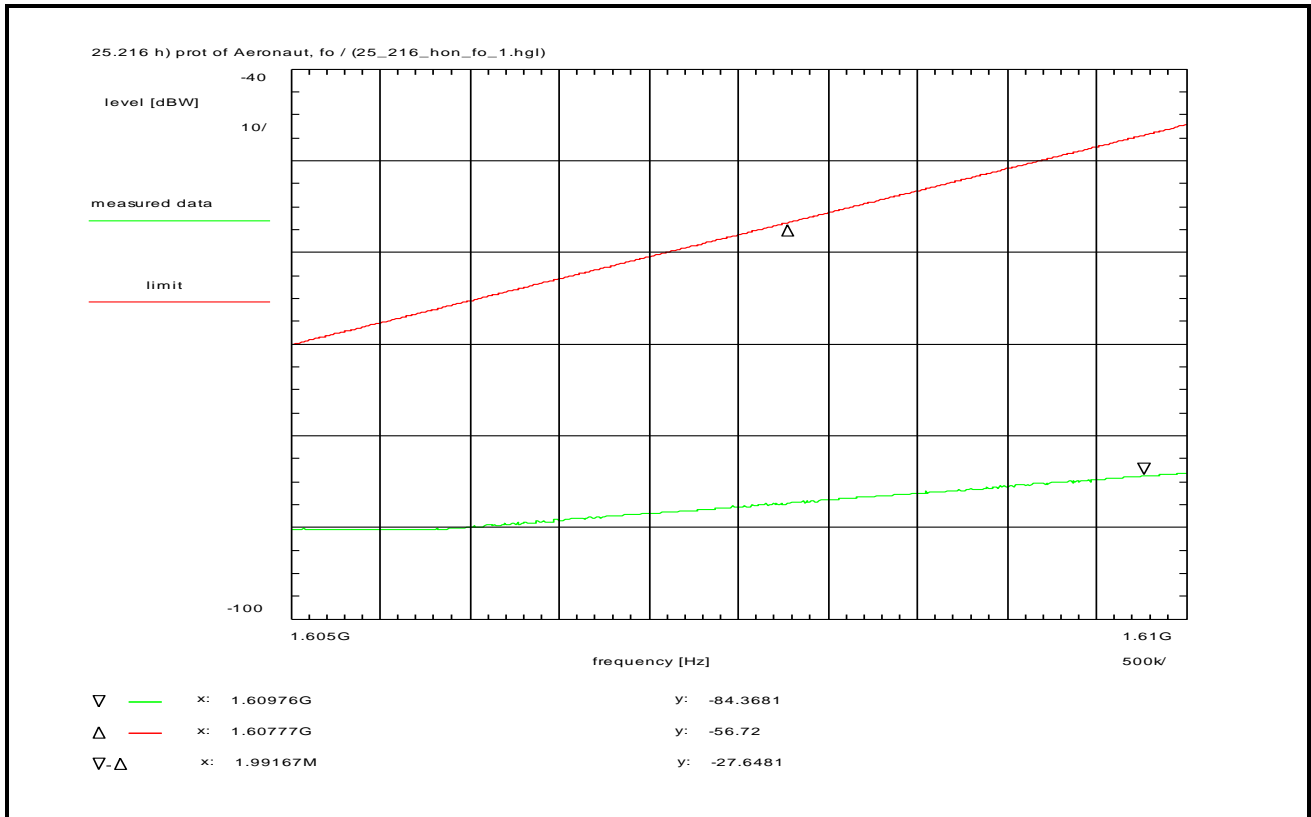
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 108 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier at the upper edge of the band (fo)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T05Q

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 15:00:41
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

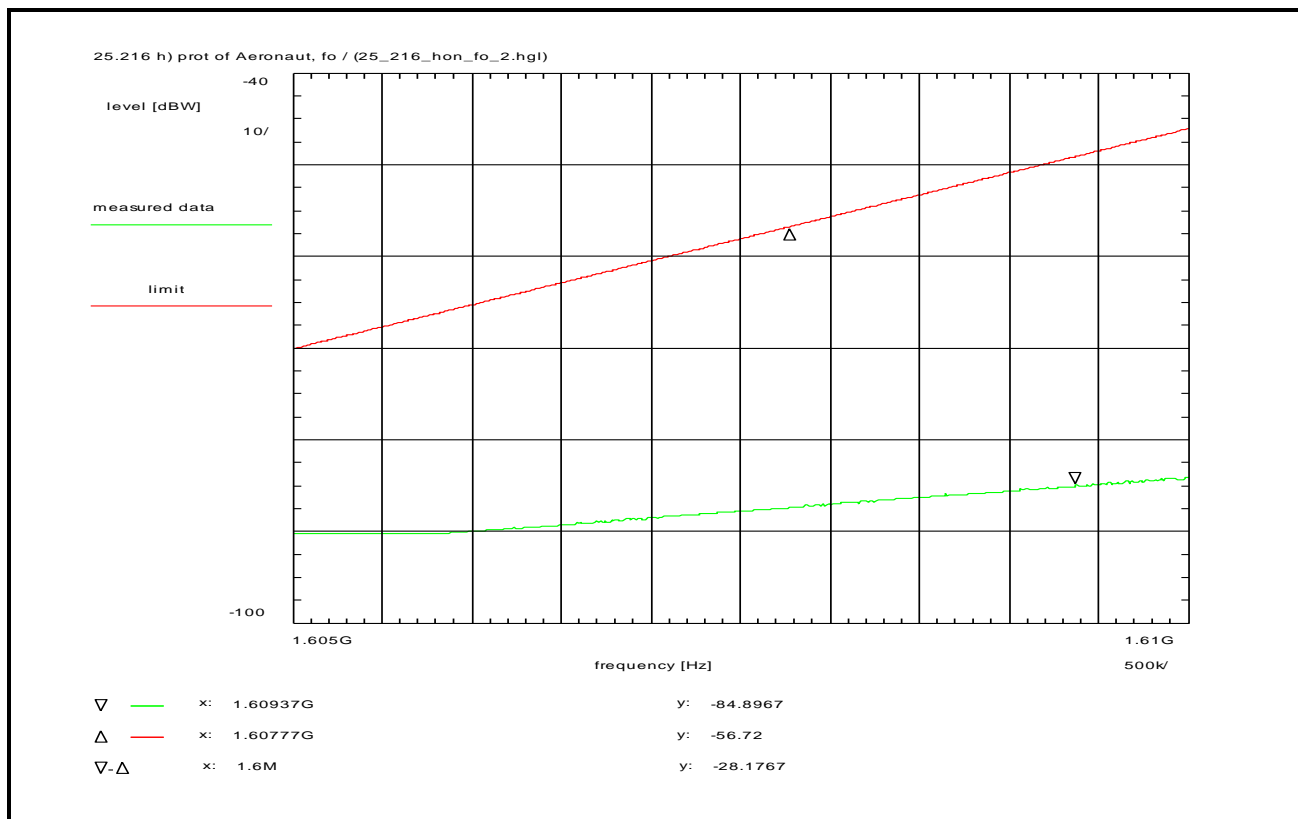
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 109 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier at the upper edge of the band (fo)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R5T1X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 14:59:51
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

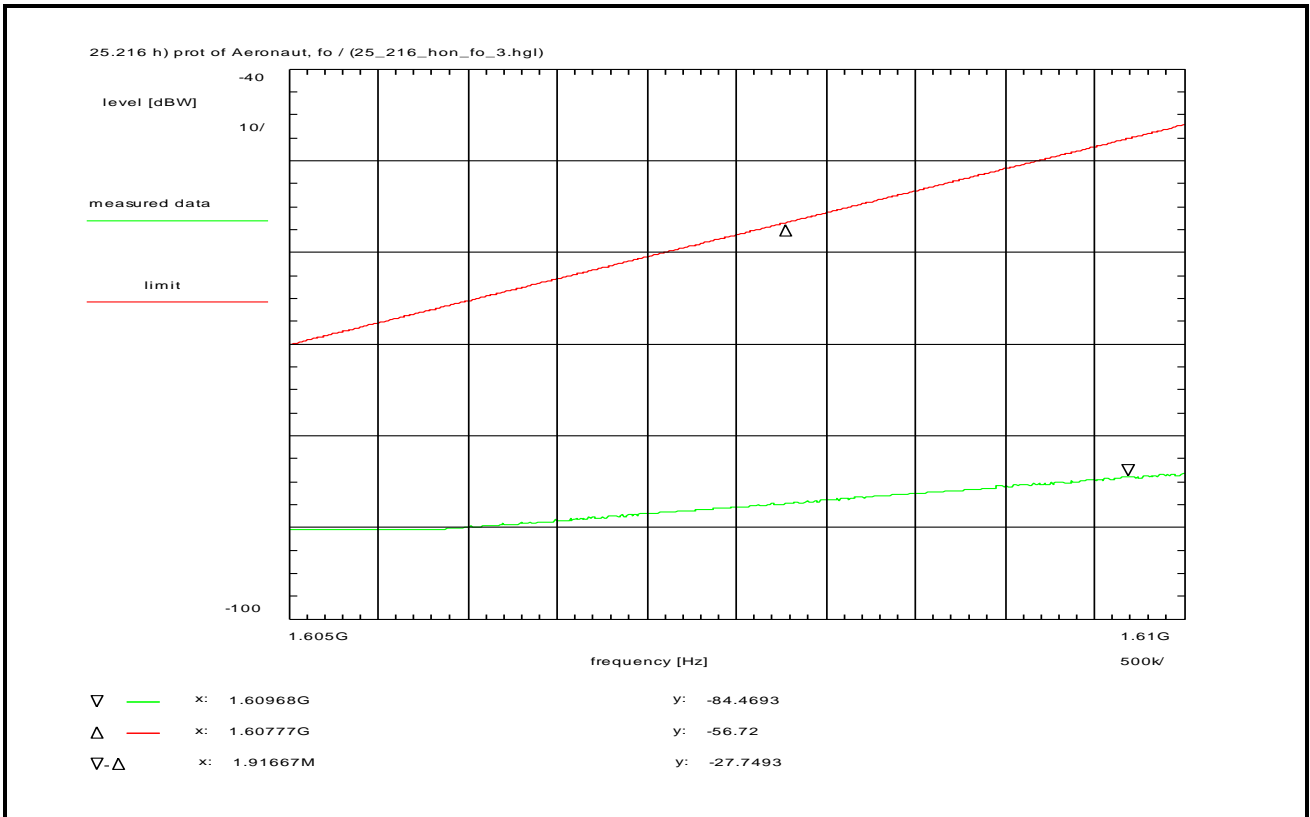
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 110 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-on state, modulated carrier at the upper edge of the band (fo)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 h)
1605.0 - 1610MHz: -70 to -46dBW/1MHz (linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 1, fhigh, see section 7.4
R20T45X

Test setup:
see section 8.1: 1.2higj

Test equipment:
see annex A: C217, FCob, R001, U311

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 15:01:17
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

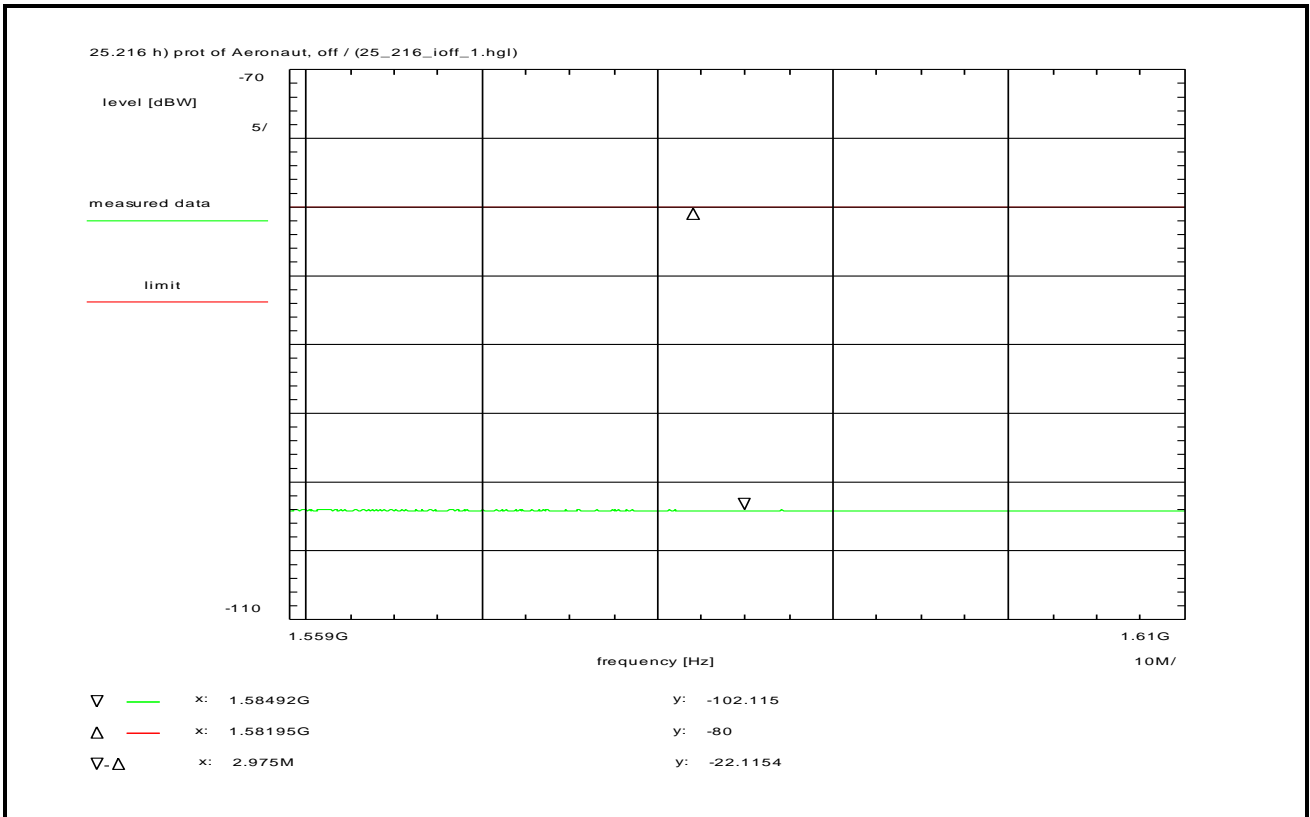
Setup of measurement equipment:
Start frequency: 1.605 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.6075 GHz
Frequency span: 5 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation (U311) + 9.7 dB
BSF (FCob) + 0.7 dB
TOTAL CORRECTION: + 22.4 dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
Measurement with 1 MHz resolution/video filter and noise averaging.

For EIRP calculation:
'worst-case' = maximum antenna gain

Plot No. 111 (111)



Subclause: 25.216 Protection of aeronautical radionavigation-satellite service
Carrier-off state, conducted measurement at the antenna-connector

Limit:
Limit according to 25.216 i) -80dBW/1MHz

The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-off state shall not exceed the limit above.

Test results:
see plot (an explicit table was not generated)

Operating condition of DUT:
operating condition 2, TX off, see section 7.4

Test setup:
see section 8.1: 1.2gj

Test equipment:
see annex A: C217, R001

Remark:

Test result: Test passed

Environment condition:
Date & Time: Wed 08/Oct/2014 15:04:50
Location: CETECOM ICT Services GmbH, Laboratory RSC-Sat
Temperature: 22 °C
Humidity: 45 %
Voltage: 24 Vdc

Setup of measurement equipment:
Start frequency: 1.559 GHz
Stop frequency: 1.61 GHz
Center frequency: 1.5845 GHz
Frequency span: 51 MHz
Input attenuation: 0 dB
Resolution-BW: 1 MHz
Video-BW: 100 Hz
Video-Average: 100 sweep(s) (>1)
Detector-Mode: 1 Sample (VidAvg / VidBW<300Hz)

Correction (average):
Directional coupler + 0.0 dB
Coaxial cable (C217) + 0.8 dB
DUT-Antenna (on-axis) + 11.2 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
Attenuation + 0.0 dB
TOTAL CORRECTION: + 12.0 dB

Remarks:
Carrier-off state.
Measurement with 1 MHz resolution filter and noise averaging.
For EIRP calculation:
'worst-case' = maximum antenna gain

Annex C Document history

Version	Applied changes	Date of release
	Initial release - DRAFT	2014-11-29
	FCC/IC ID changed	2014-12-08

Annex D Further information**Glossary**

AVG	-	Average
DUT	-	Device under test
EMC	-	Electromagnetic Compatibility
EN	-	European Standard
EUT	-	Equipment under test
ETSI	-	European Telecommunications Standard Institute
FCC	-	Federal Communication Commission
FCC ID	-	Company Identifier at FCC
HW	-	Hardware
IC	-	Industry Canada
Inv. No.	-	Inventory number
N/A	-	Not applicable
PP	-	Positive peak
QP	-	Quasi peak
S/N	-	Serial number
SW	-	Software

Annex E Accreditation Certificate

Front side of certificate

Back side of certificate



Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Akkreditierung



Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Prüflaboratorium

CETECOM ICT Services GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

die Kompetenz nach DIN EN ISO/IEC 17025:2005 besitzt, Prüfungen in folgenden Bereichen durchzuführen:

Drahtgebundene Kommunikation einschließlich xDSL
VoIP und DECT
Akustik
Funk einschließlich WLAN
Short Range Devices (SRD)
RFID
WiMax und Richtfunk
Mobilfunk (GSM / GPRS, Over the Air (OTA) Performance)
Elektromagnetische Verträglichkeit (EMV) einschließlich Automotive
Produktsicherheit
SAR und Hearing Aid Compatibility (HAC)
Umweltsimulation
Smart Card Terminals
Bluetooth
Wi-Fi Services

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 07.03.2014 mit der Akkreditierungsnummer D-PL-12076-01 und ist gültig bis 17.03.2018. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 77 Seiten.

Registrierungsnummer der Urkunde: D-PL-12076-01-00

Frankfurt am Main, 07.03.2014

Deutsche Akkreditierungsstelle

In Auftrag gegeben durch
Akkreditierungsstelle

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Der aktuelle Stand der Mitgliedschaft kann folgenden Webseiten entnommen werden:
EA: www.european-accreditation.org
IAF: www.iaf.or.jp
ILAC: www.ilac.or.jp

Note:

The current certificate including annex is published on our website (see link below) or may be received from CETECOM ICT Services on request.

<http://www.cetecom.com/eu/de/cetecom-group/europa/deutschland-saarbruecken/akkreditierungen.html>