

Annex D



This test report annex 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 annex authorized:

Thomas Vogler
Lab Manager
Radio Communications & EMC

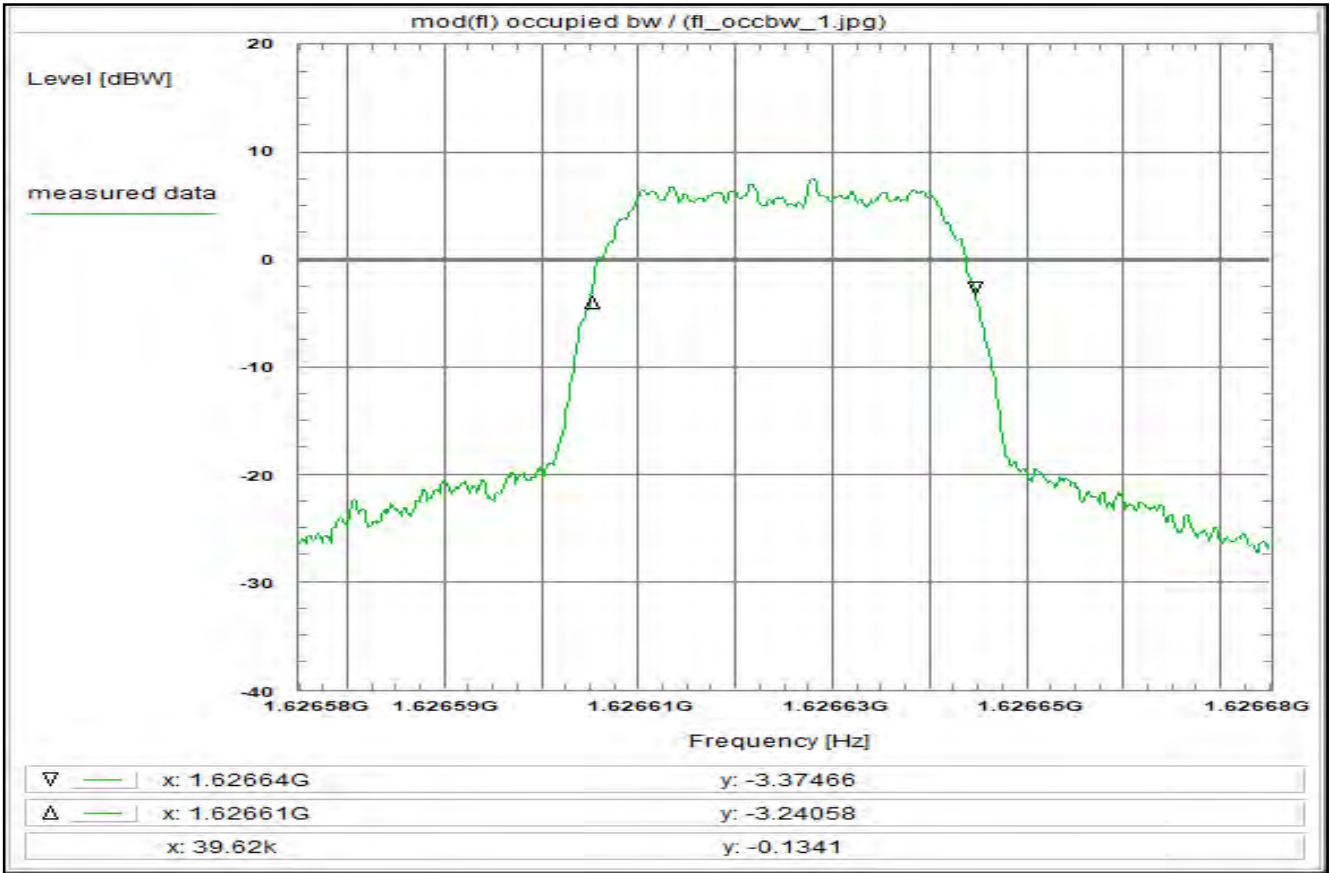
1 Table of contents

1	Table of contents.....	2
2	Measurement results, FCC Part 87 and FCC Part 25	3
3	Measurement results, Spurious emissions 30MHz - 18 GHz	136
4	Measurement results, Spurious emissions 30MHz - 18 GHz	137
5	Measurement results, FCC Part 15B.....	140
6	Document history	141

2 Measurement results, FCC Part 87 and FCC Part 25

This chapter consists of 133 pages including this page.

Plot No. 1



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fl)
Determination of the 'occupied bandwidth'

Limit:
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

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

Operating condition of DUT:
operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fl, R5T1XD

Test setup:
see test report chapter 7.2: 1.1hgj

Test equipment:
see test report chapter 7.x: C220, R001, U311, U312, POWER SPLITTER

Remark:

Test result: Determination of the occupied bandwidth

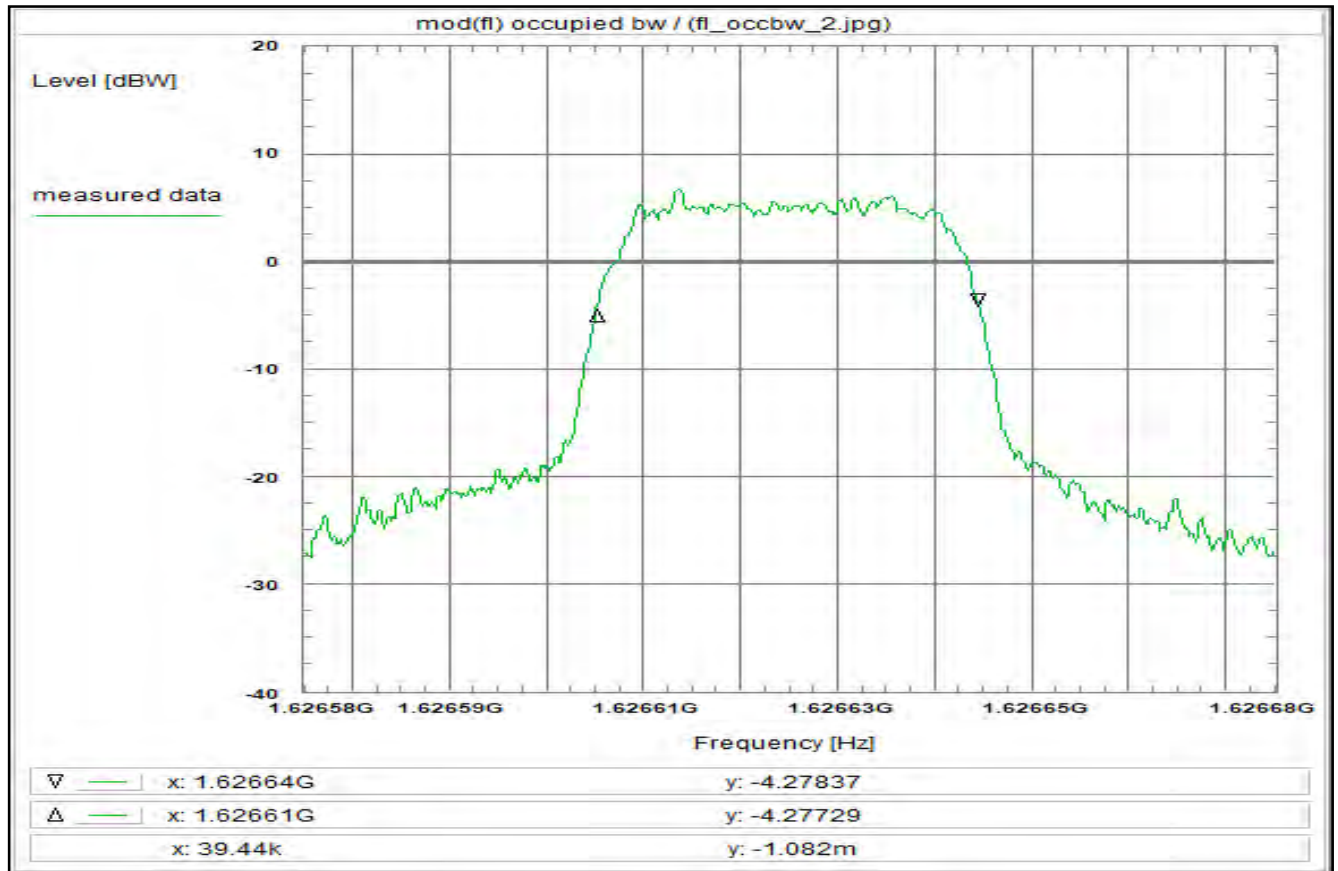
Environment condition:
Date & Time: Wed 20/May/2020 14:12:35
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:
Start frequency: 1.626575 GHz
Stop frequency: 1.626675 GHz
Center frequency: 1.626625 GHz
Frequency span: 100 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

Correction:
Directional coupler + 0.0 dB
Coaxial cable (C220) + 0.9 dB
DUT-Antenna (on-axis) + 0.0 dBi
Test antenna + 0.0 dB
BW correction factor + 0.0 dB
Atten. between HPA and feedhorn + 0.0 dB
10 dB Attenuator (U311) + 9.7 dB
20 dB Attenuator + 19.7 dB
Power splitter + 6.7 dB
TOTAL CORRECTION: + 37.0 dB

Remarks:
Determination of the 'occupied bandwidth' at fl:
The measured value is about 39.6 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 2



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:15:40
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626575 GHz
 Stop frequency: 1.626675 GHz
 Center frequency: 1.626625 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

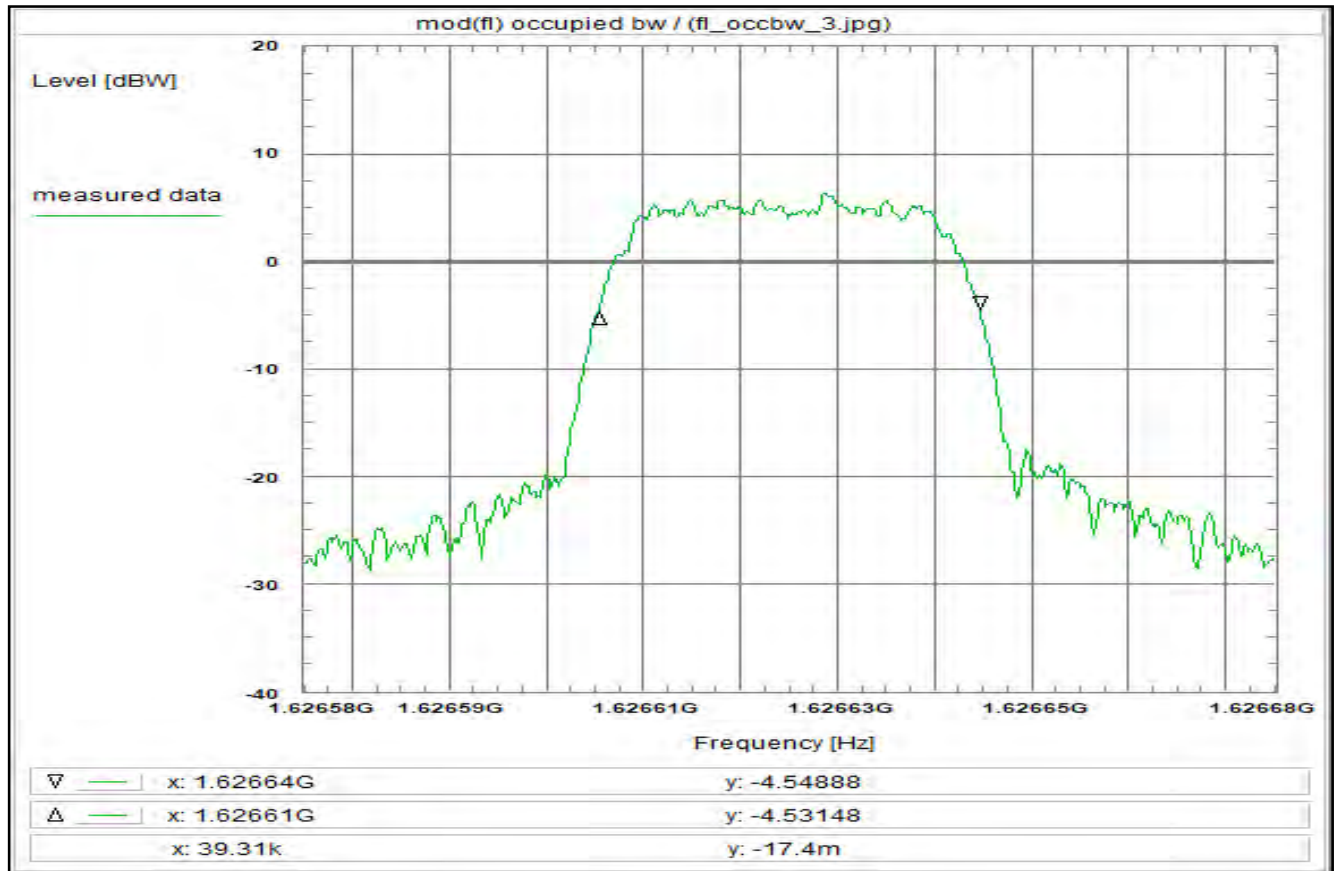
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 39.5 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 3



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T1QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:17:27
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626575 GHz
 Stop frequency: 1.626675 GHz
 Center frequency: 1.626625 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

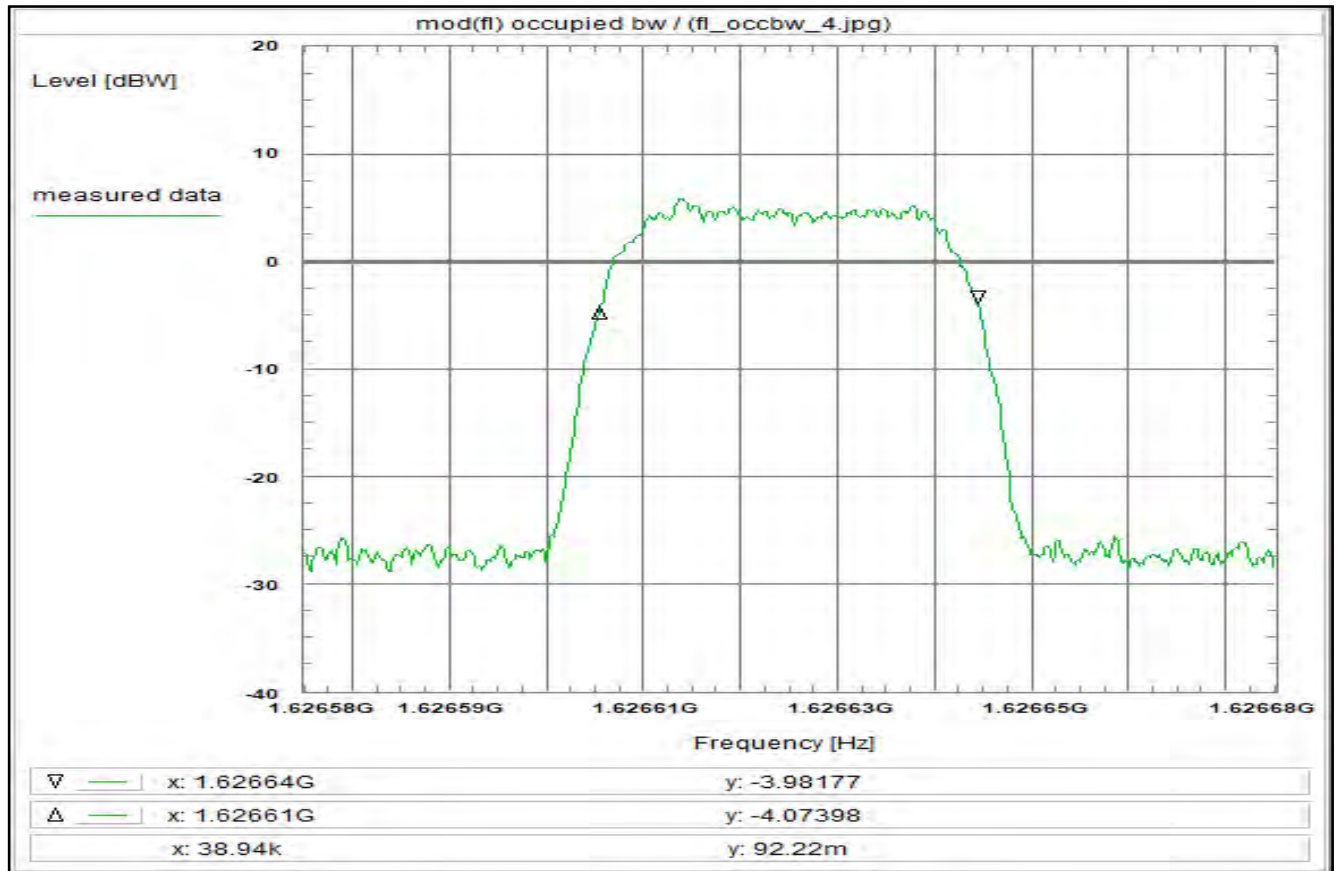
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 39.3 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 4



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fl)
Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fm, R80T1Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:19:47
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626575 GHz
Stop frequency: 1.626675 GHz
Center frequency: 1.626625 GHz
Frequency span: 100 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

Correction:

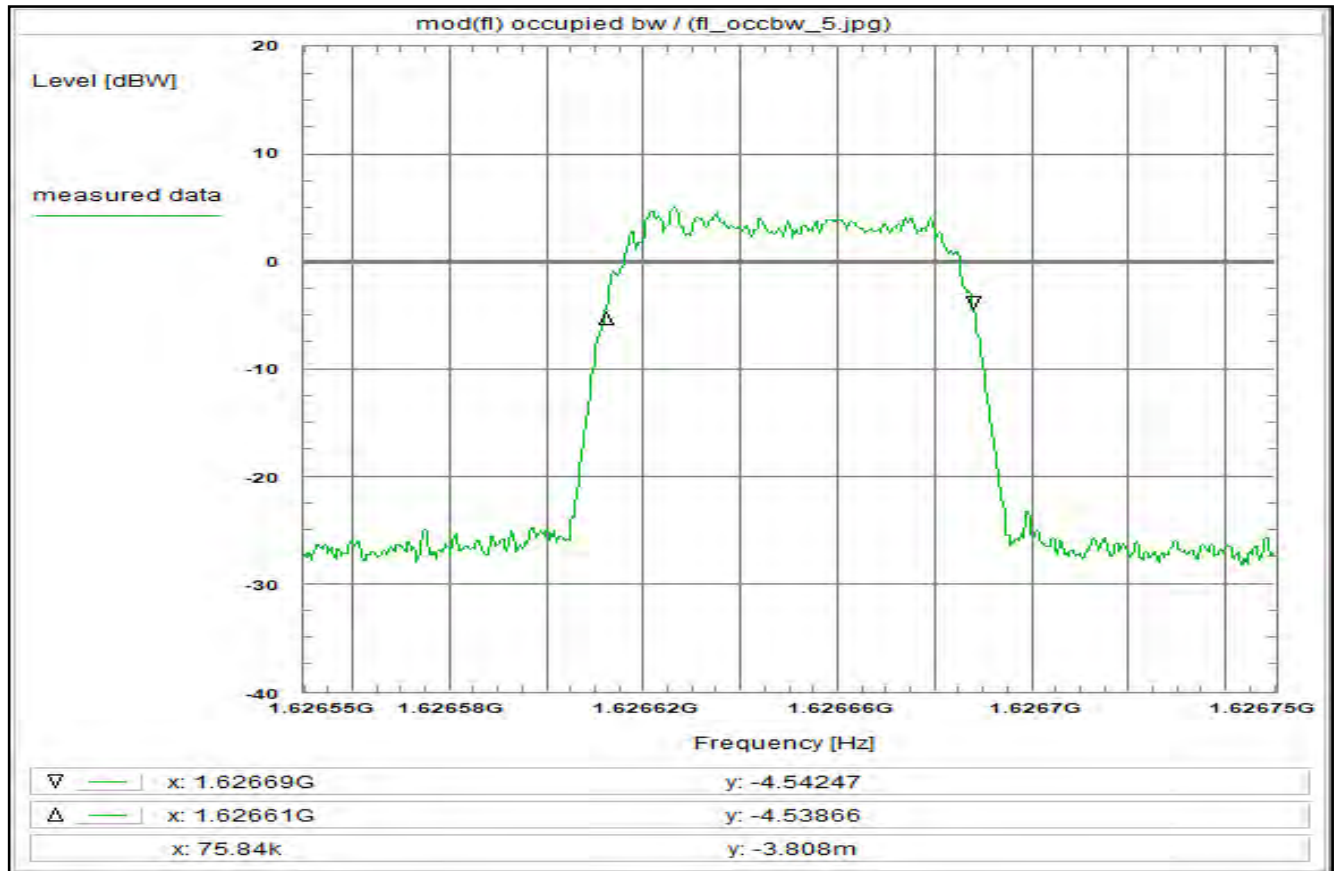
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 39 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 5



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:
 The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

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

Operating condition of DUT:
 operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T2XD

Test setup:
 see test report chapter 7.2 setup 1.1hgj

Test equipment:
 see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:23:21
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62655 GHz
 Stop frequency: 1.62675 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

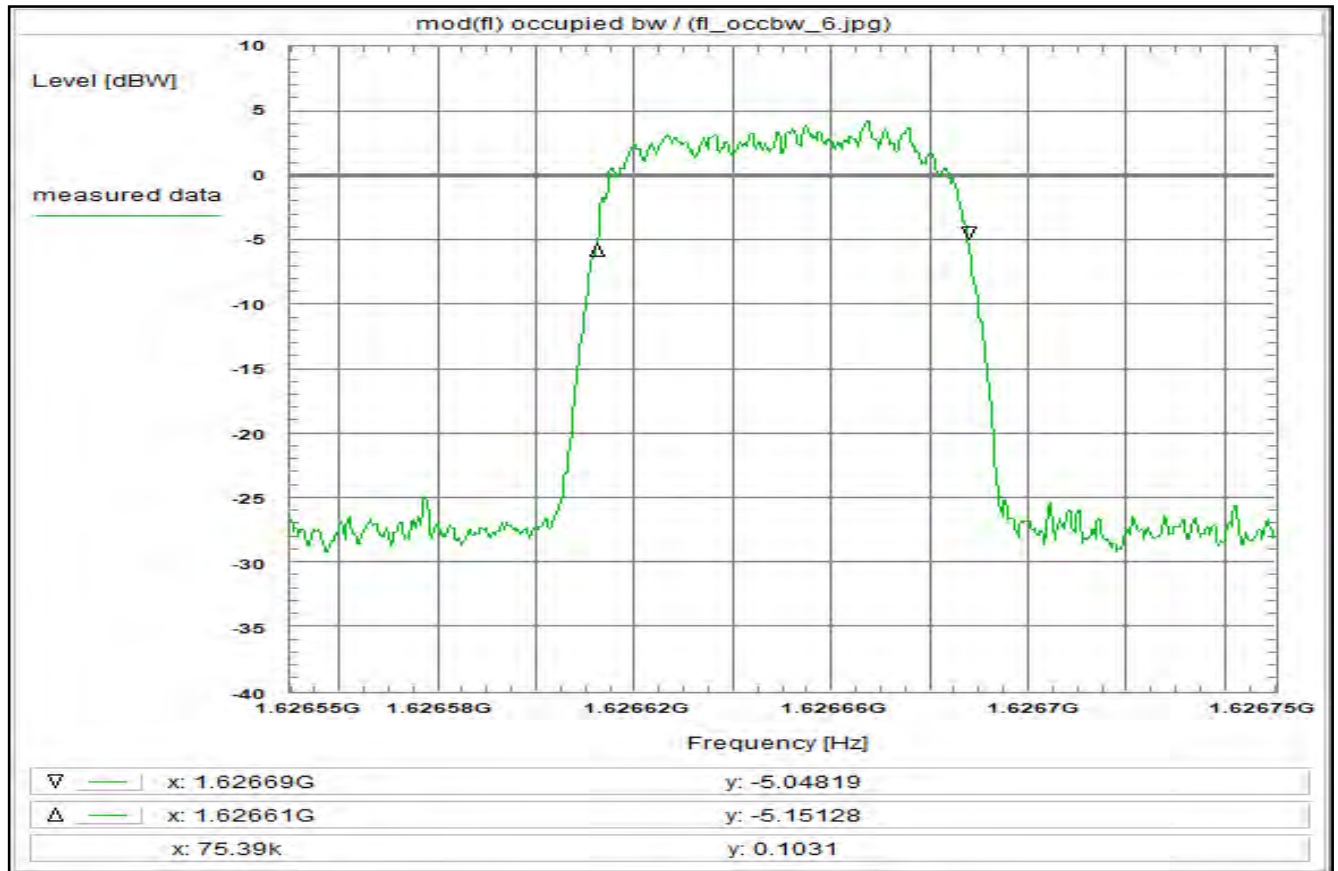
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:
 The measured value is about 76 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 6



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:25:10
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62655 GHz
 Stop frequency: 1.62675 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

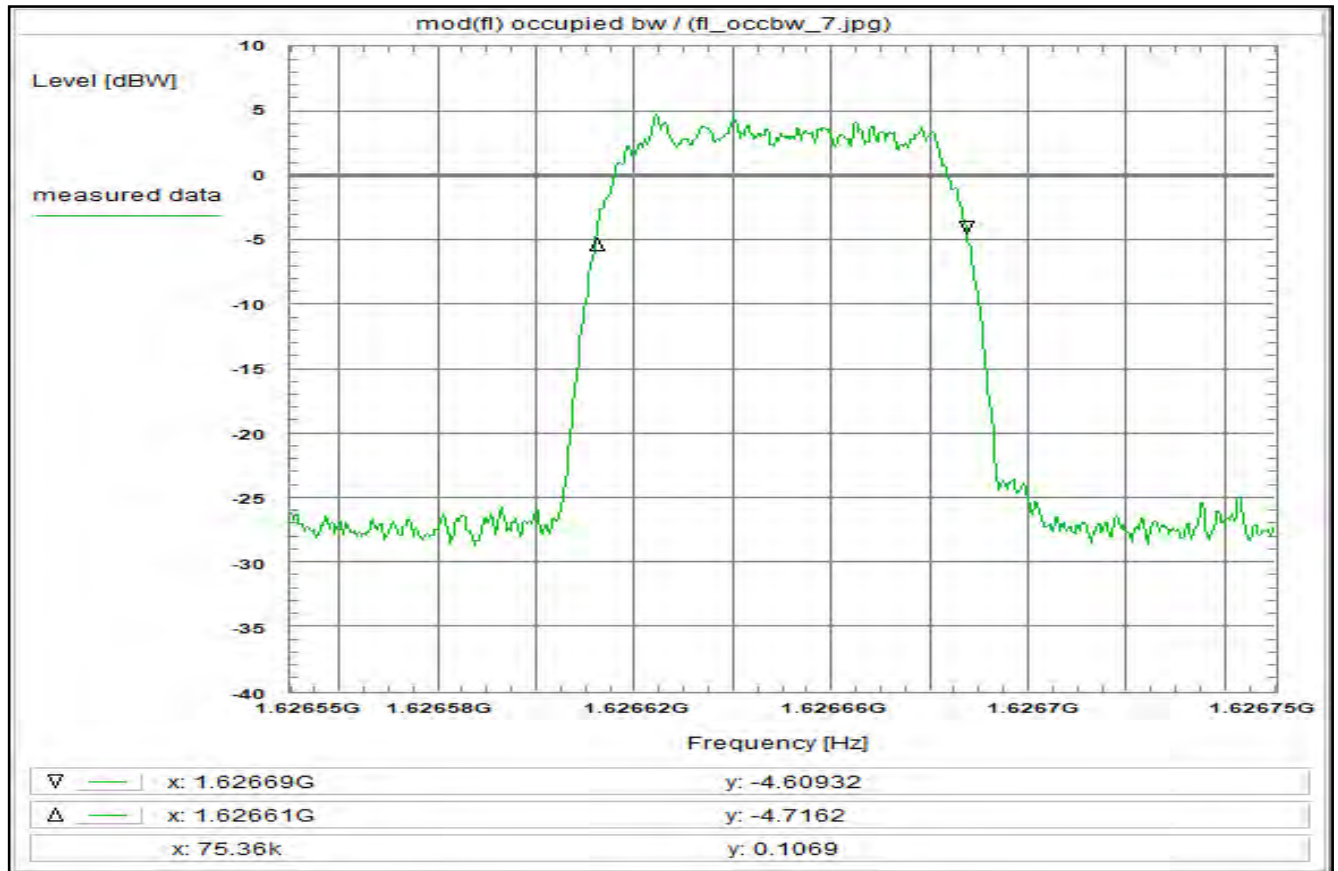
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 75.4 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 7



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:27:20
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62655 GHz
 Stop frequency: 1.62675 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

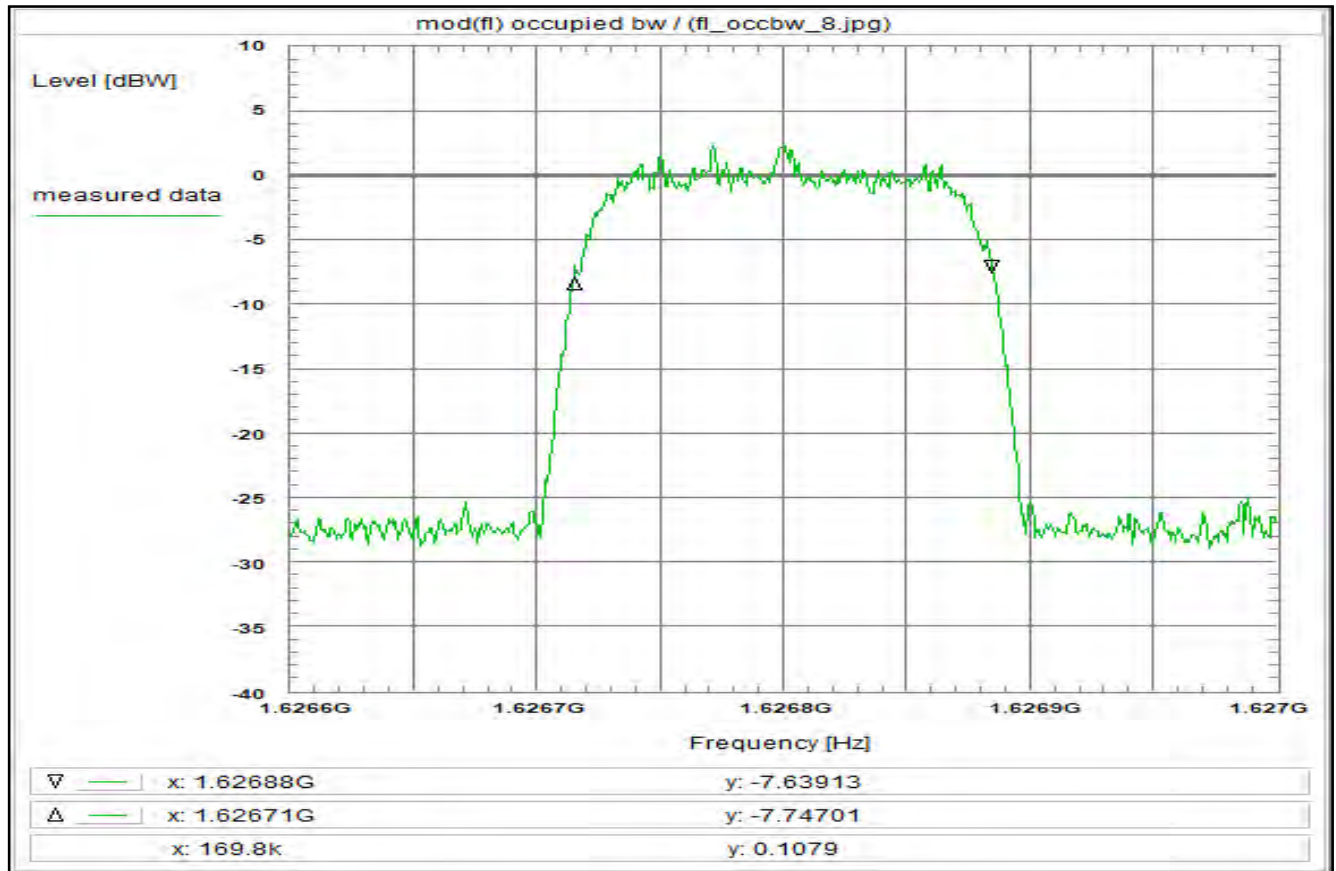
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 75.4 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 8



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (f1)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:49:49
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6266 GHz
 Stop frequency: 1.627 GHz
 Center frequency: 1.6268 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

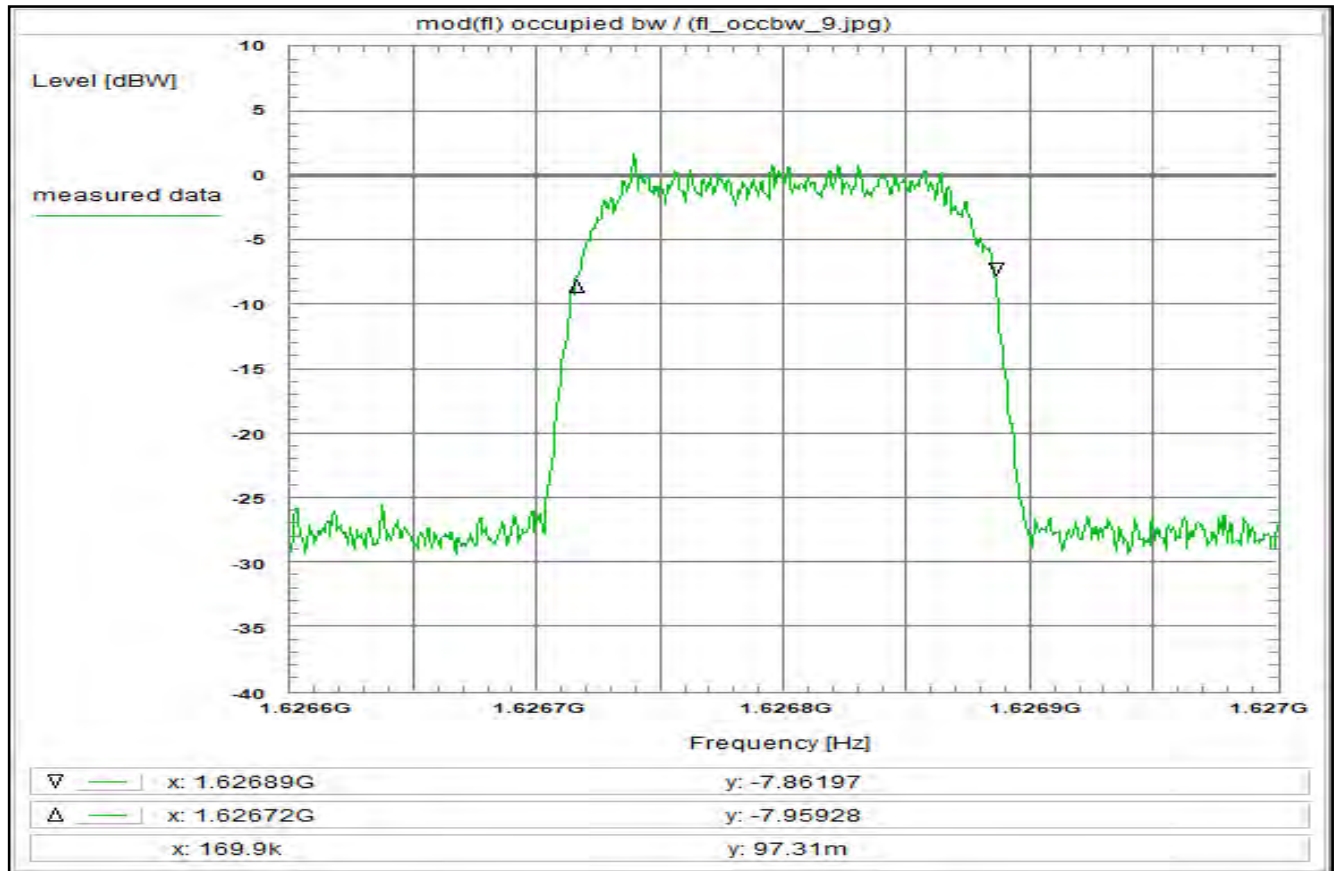
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at f1:

The measured value is about 170 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 9



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:51:46
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6266 GHz
 Stop frequency: 1.627 GHz
 Center frequency: 1.6268 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

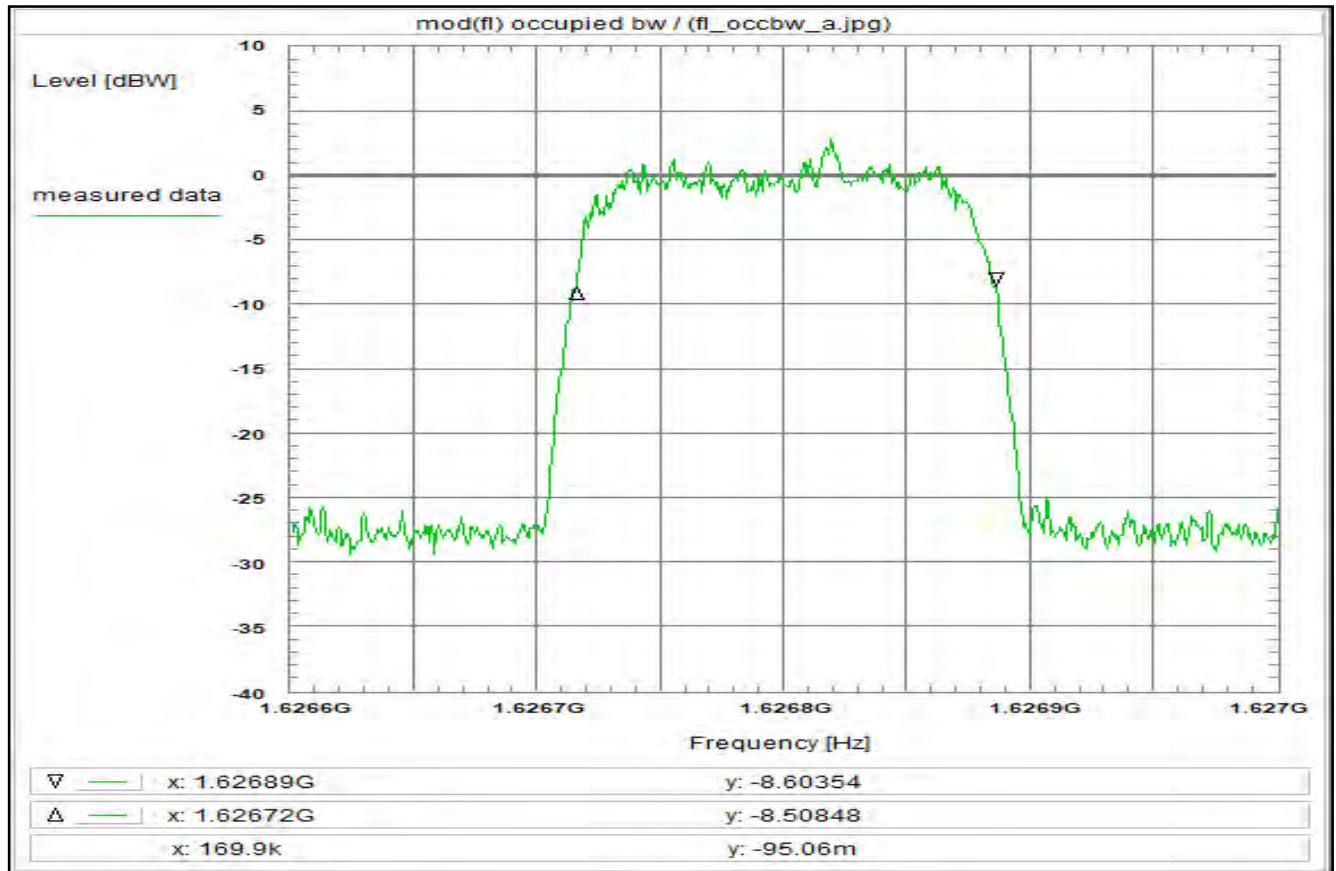
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 170 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 10



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 14:54:48
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6266 GHz
 Stop frequency: 1.627 GHz
 Center frequency: 1.6268 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

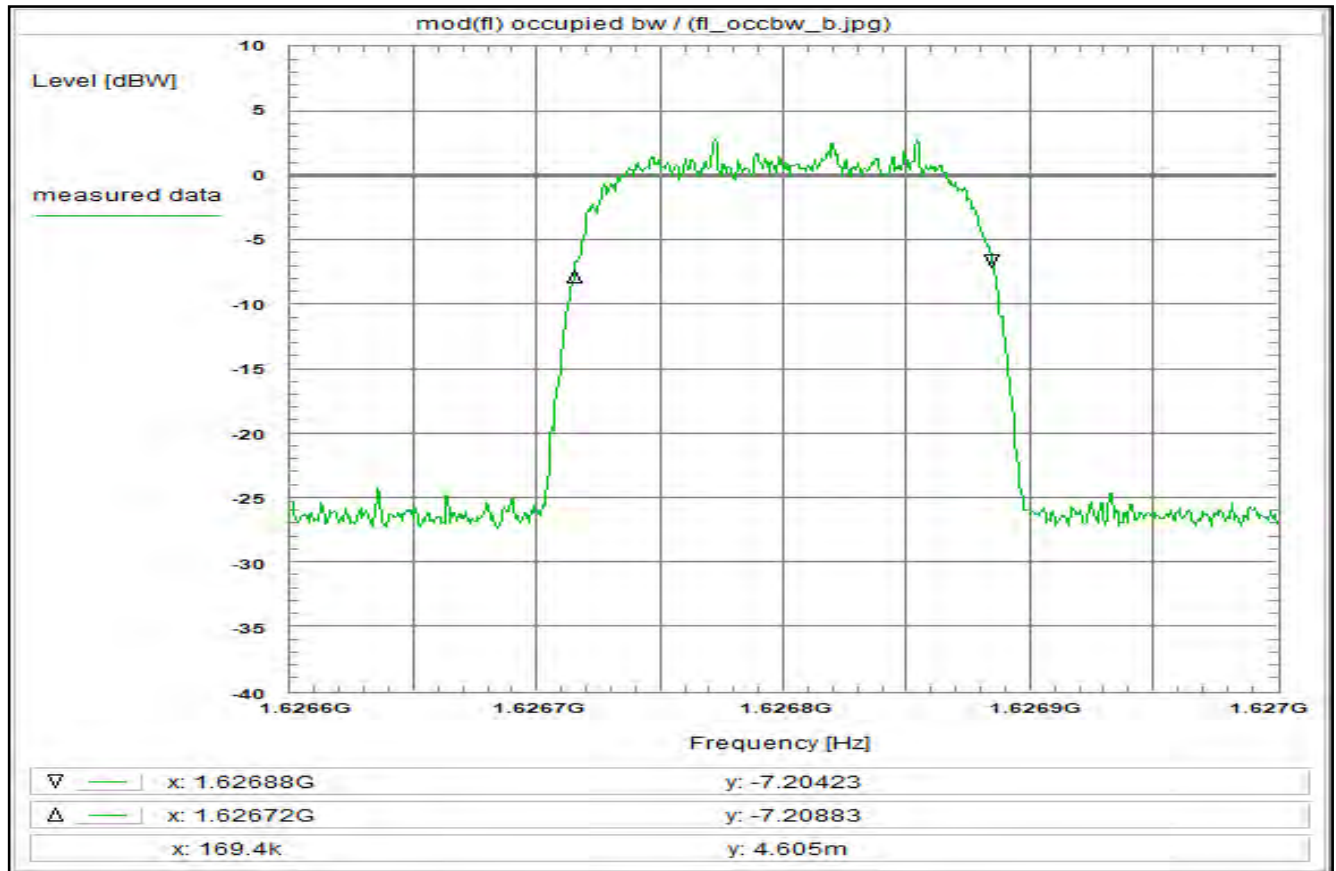
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 170 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 11



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:09:12
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6266 GHz
 Stop frequency: 1.627 GHz
 Center frequency: 1.6268 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

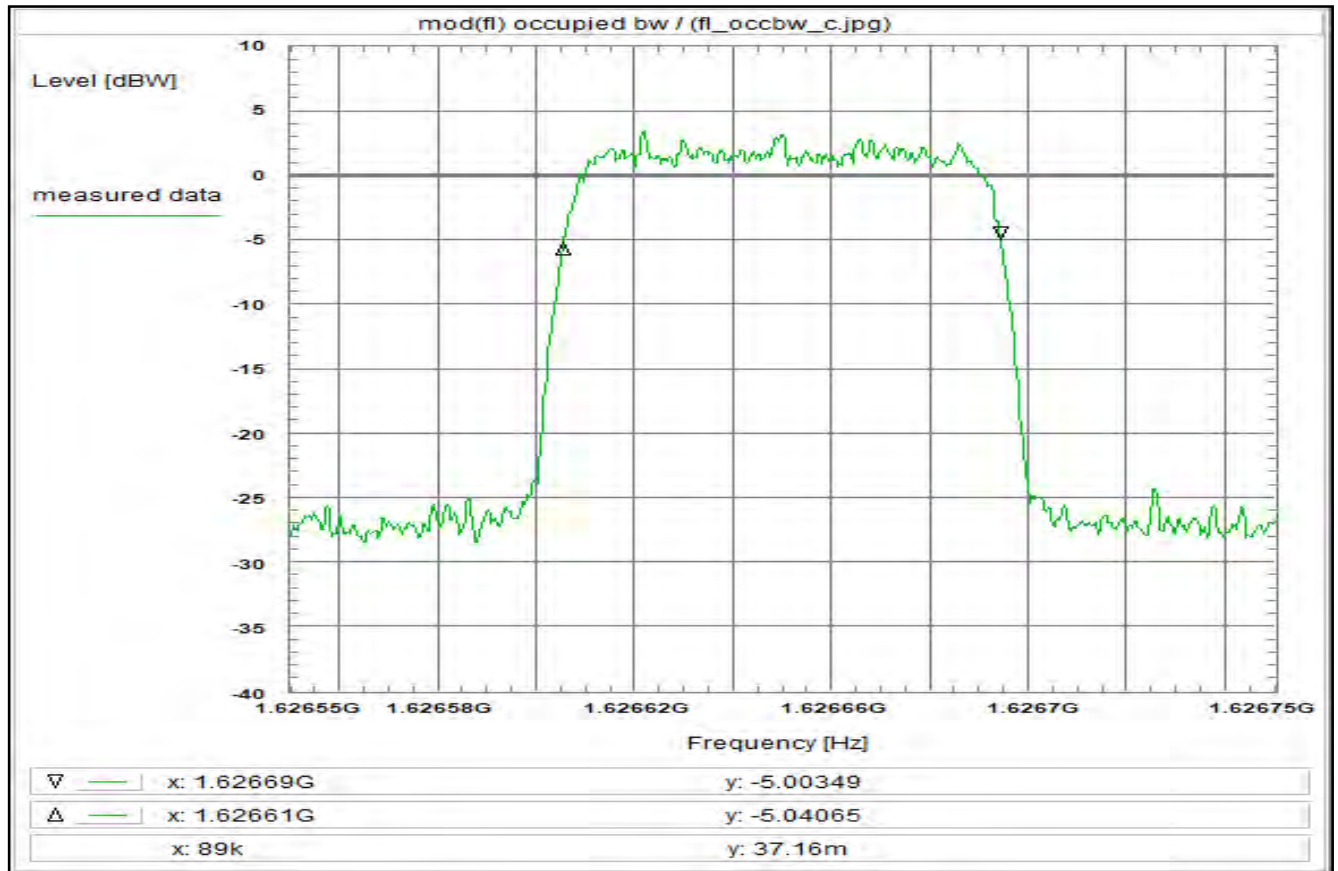
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 169.4 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 12



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, FR80T2.5X4

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:12:35
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62655 GHz
 Stop frequency: 1.62675 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

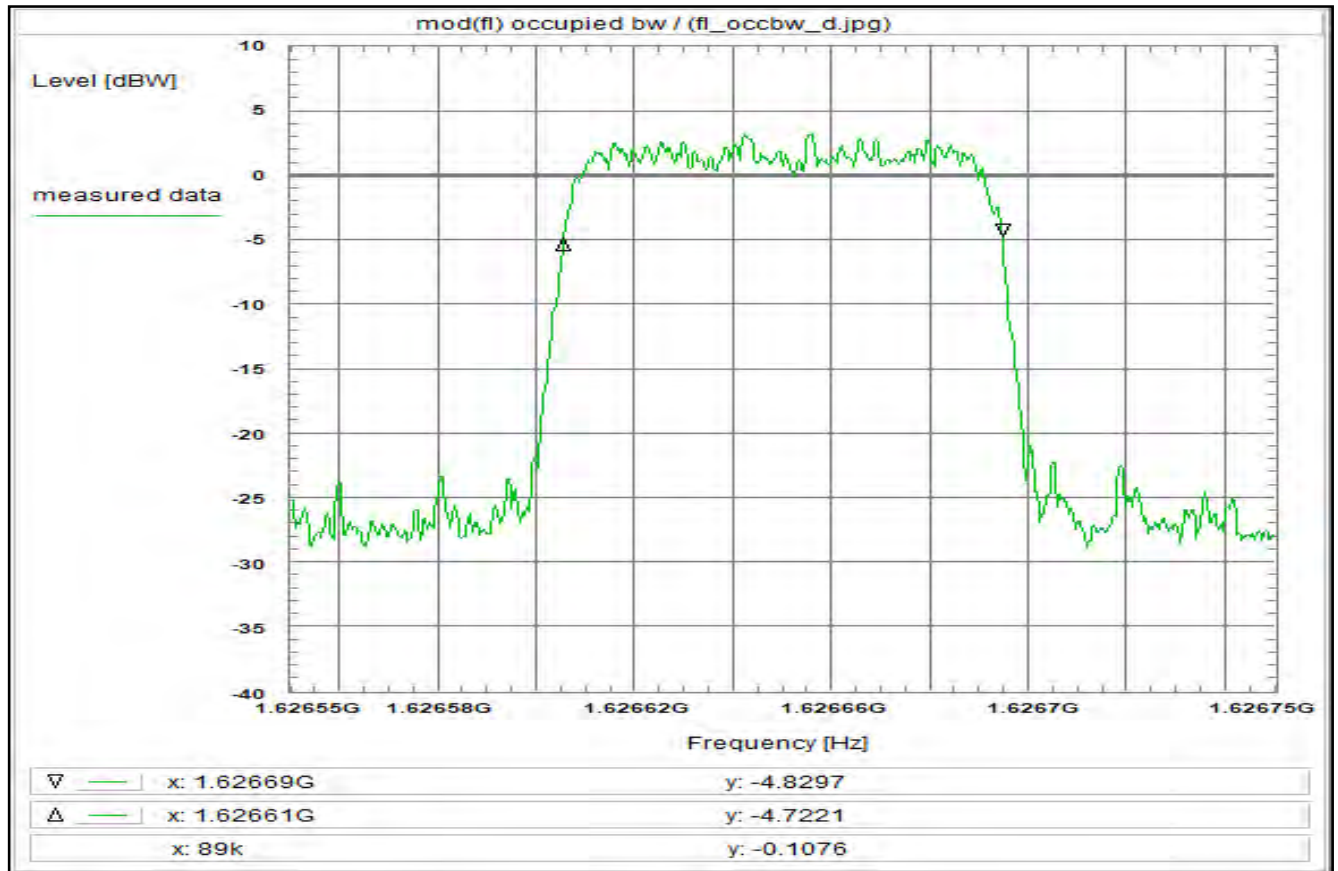
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 89 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 13



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, FR80T2.5X16

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:13:47
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62655 GHz
 Stop frequency: 1.62675 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

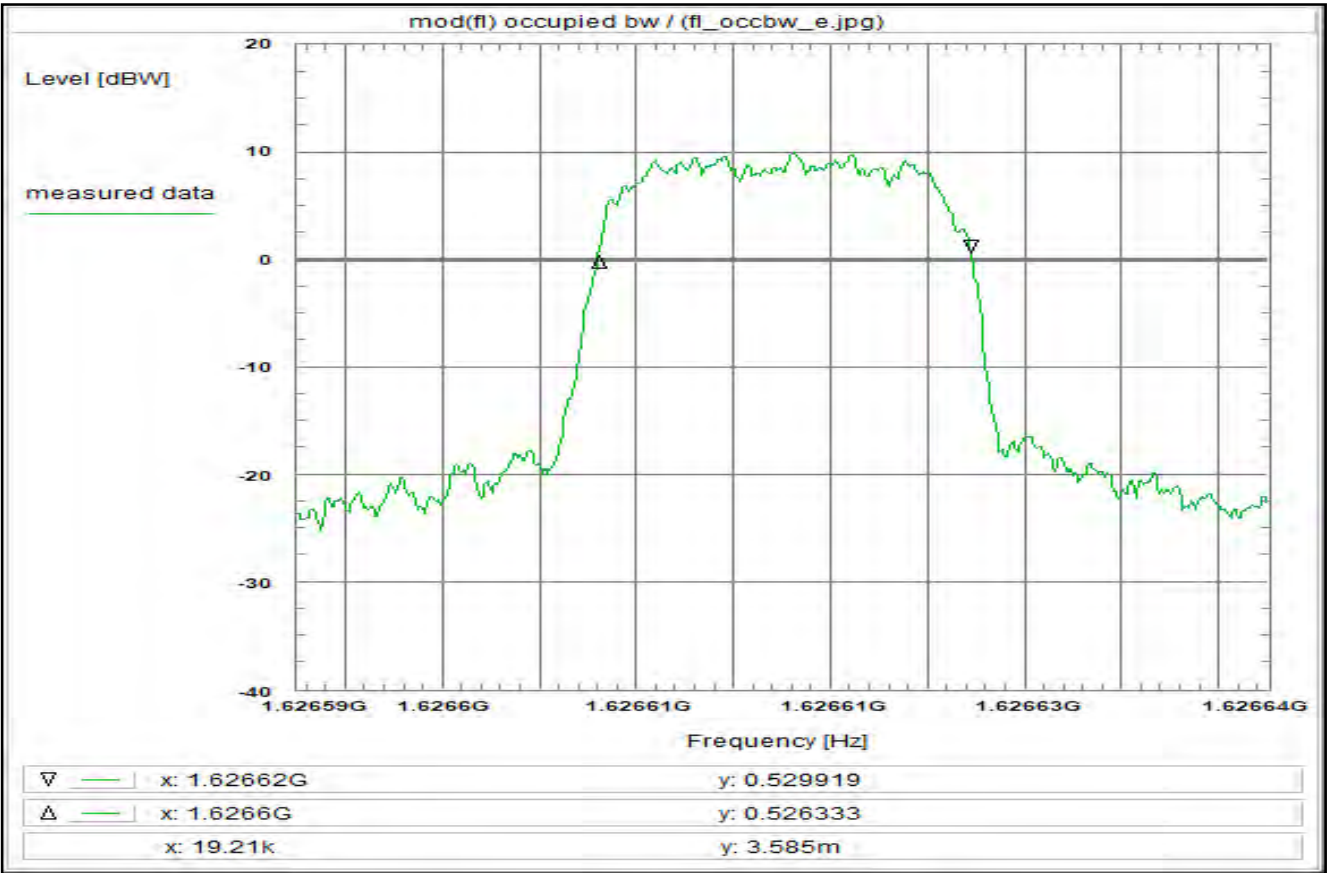
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 89 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 14



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fl)
Determination of the 'occupied bandwidth'

Limit:
The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

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

Operating condition of DUT:
operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fm, R20T0.5QD

Test setup:
see test report chapter 7.2 setup 1.1hgj

Test equipment:
see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

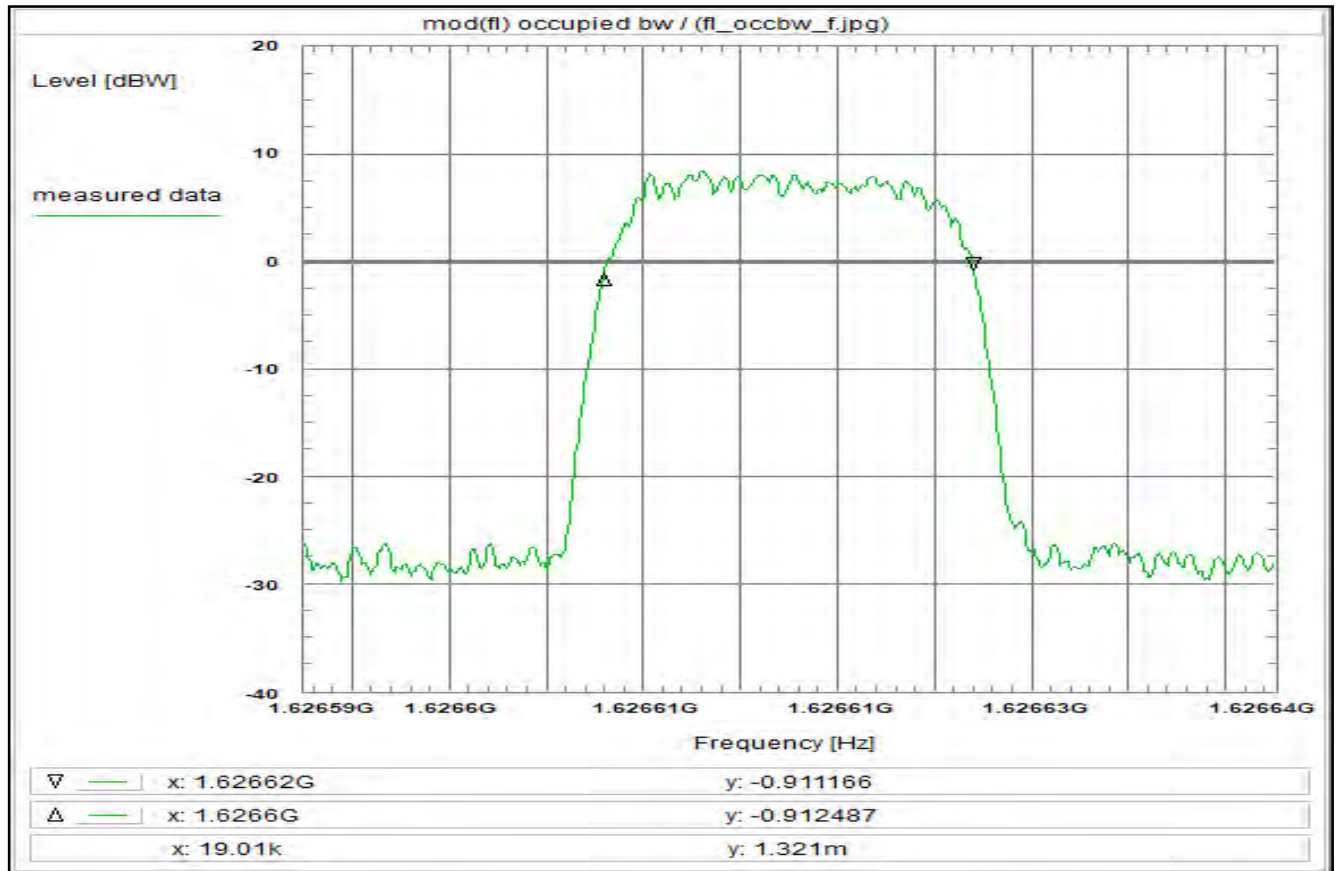
Environment condition:
Date & Time: Wed 20/May/2020 15:19:12
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:
Start frequency: 1.6265875 GHz
Stop frequency: 1.6266375 GHz
Center frequency: 1.6266125 GHz
Frequency span: 50 kHz
Resolution-BW: 1 kHz
Video-BW: 3 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

Correction:
Directional coupler + 0.0 dB
Coaxial cable (C220) + 0.9 dB
DUT-Antenna (on-axis) + 0.0 dBi
Test antenna + 0.0 dB
BW correction factor (1k -> 3k) + 4.8 dB
Atten. between HPA and feedhorn + 0.0 dB
10 dB Attenuator (U311) + 9.7 dB
20 dB Attenuator + 19.7 dB
Power splitter + 6.7 dB
TOTAL CORRECTION: + 41.8 dB

Remarks:
Determination of the 'occupied bandwidth' at fl:
The measured value is about 19.2 kHz (delta marker)
Measurement with 1 kHz resolution filter and noise averaging.

Plot No. 15



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (f1)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R80T0.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:20:34
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6265875 GHz
 Stop frequency: 1.6266375 GHz
 Center frequency: 1.6266125 GHz
 Frequency span: 50 kHz
 Resolution-BW: 1 kHz
 Video-BW: 3 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

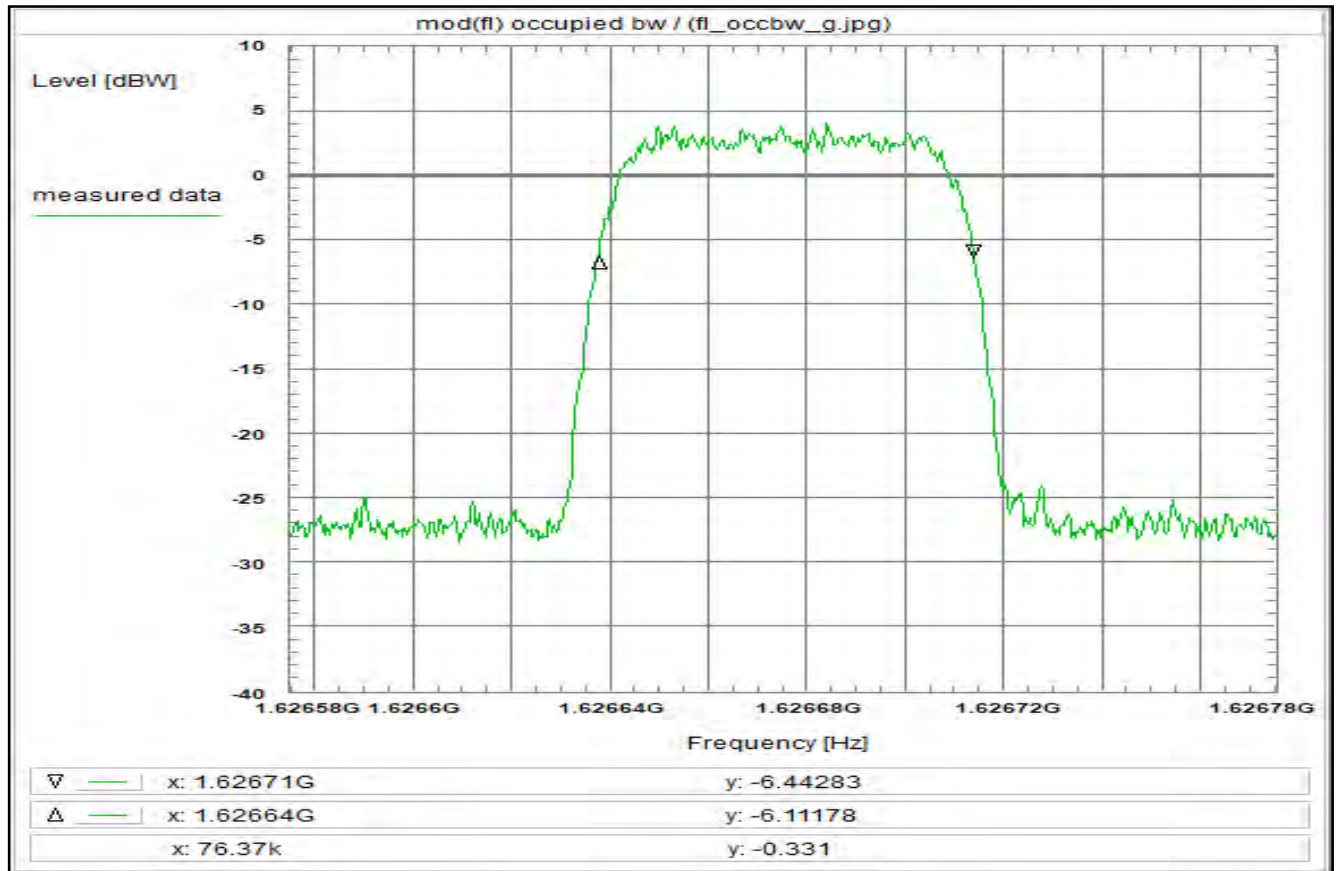
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (1k -> 3k)	+ 4.8 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

Determination of the 'occupied bandwidth' at f1:

The measured value is about 19 kHz (delta marker)
 Measurement with 1 kHz resolution filter and noise averaging.

Plot No. 16



Subclause: -/- Function test
 Modulated rf-carrier at the lower edge of the band (fl)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 14:30:42
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626575 GHz
 Stop frequency: 1.626775 GHz
 Center frequency: 1.626675 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 30 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: AVG

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 36.8 dB

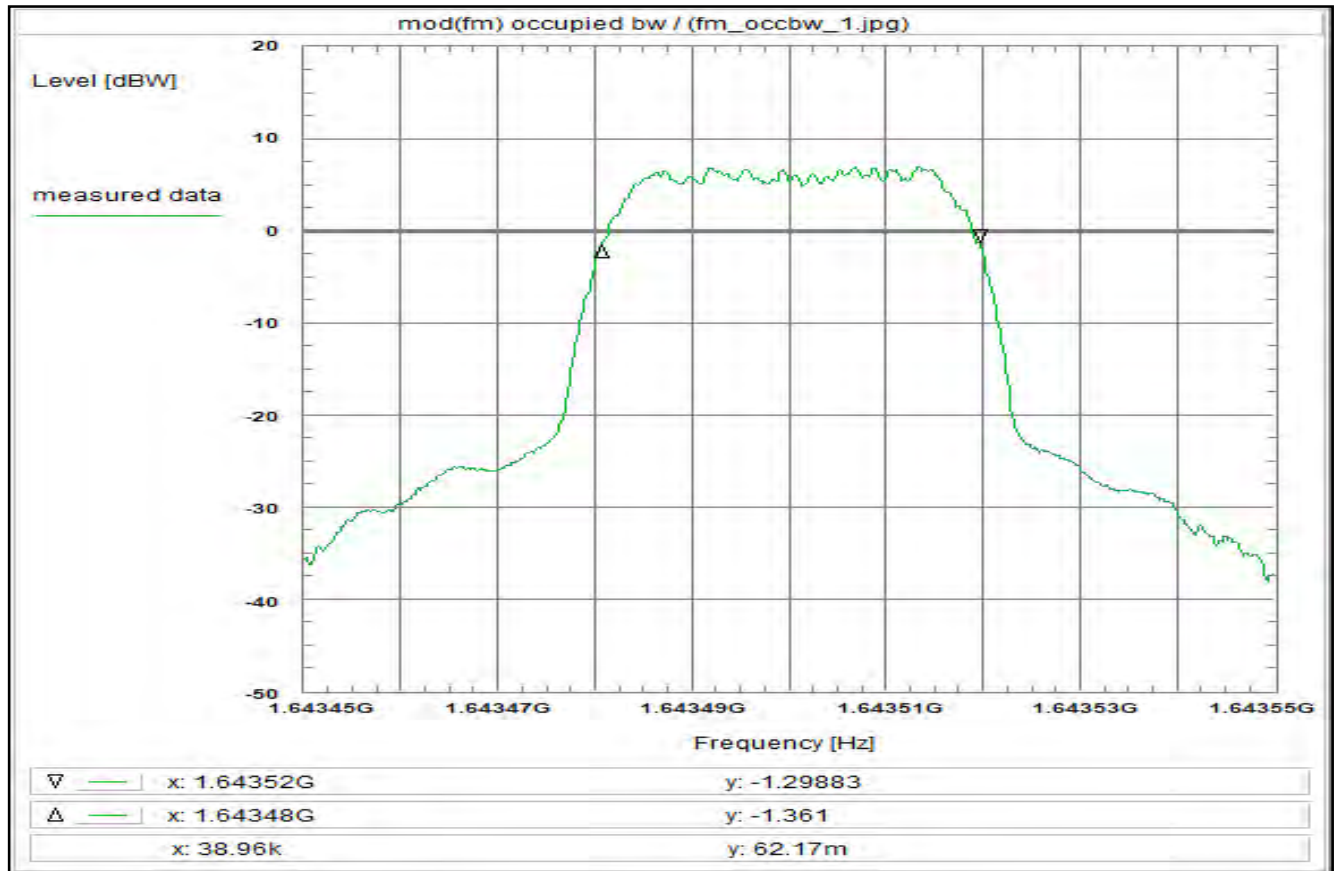
Remarks:

Determination of the 'occupied bandwidth' at fl:

The measured value is about 75.3 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

dwith

Plot No. 17



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 20/May/2020 10:41:38
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.64345 GHz
 Stop frequency: 1.64355 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

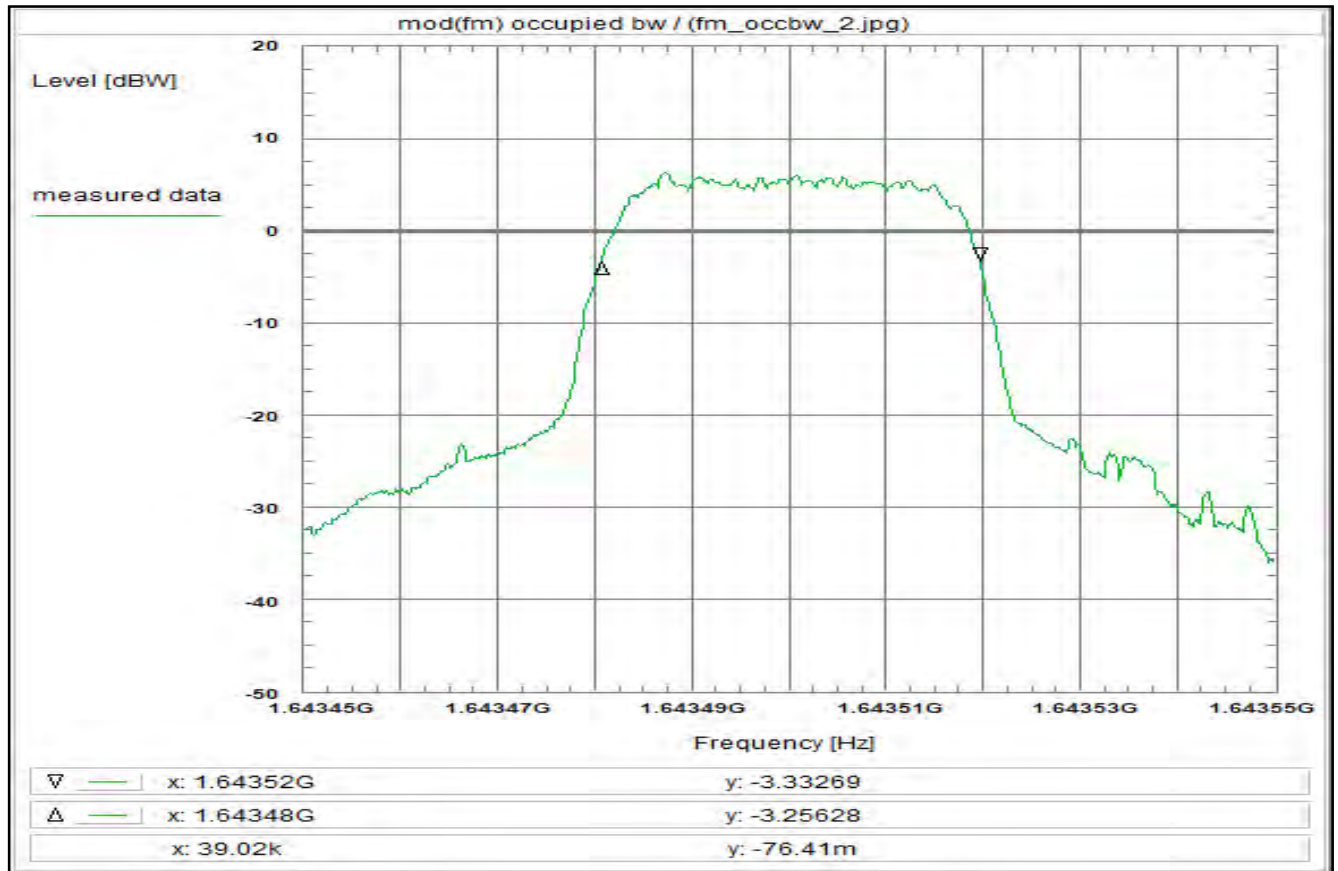
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 39 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 18



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 20/May/2020 10:47:46
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.64345 GHz
 Stop frequency: 1.64355 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

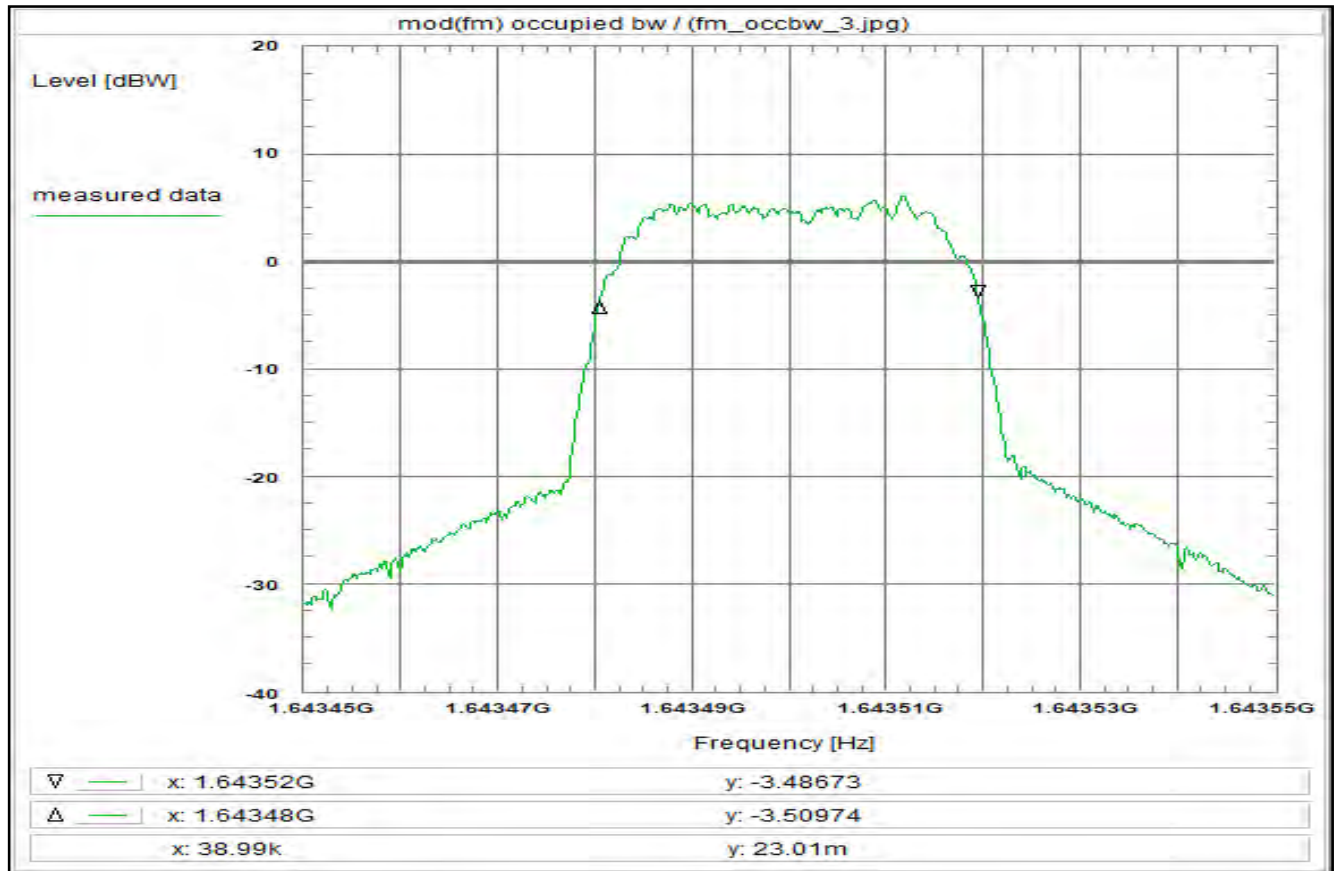
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 39 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 19



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T1QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Determination of the occupied bandwidth

Test result: Test passed

Environment condition:

Date & Time: Wed 20/May/2020 10:52:09
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.64345 GHz
 Stop frequency: 1.64355 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

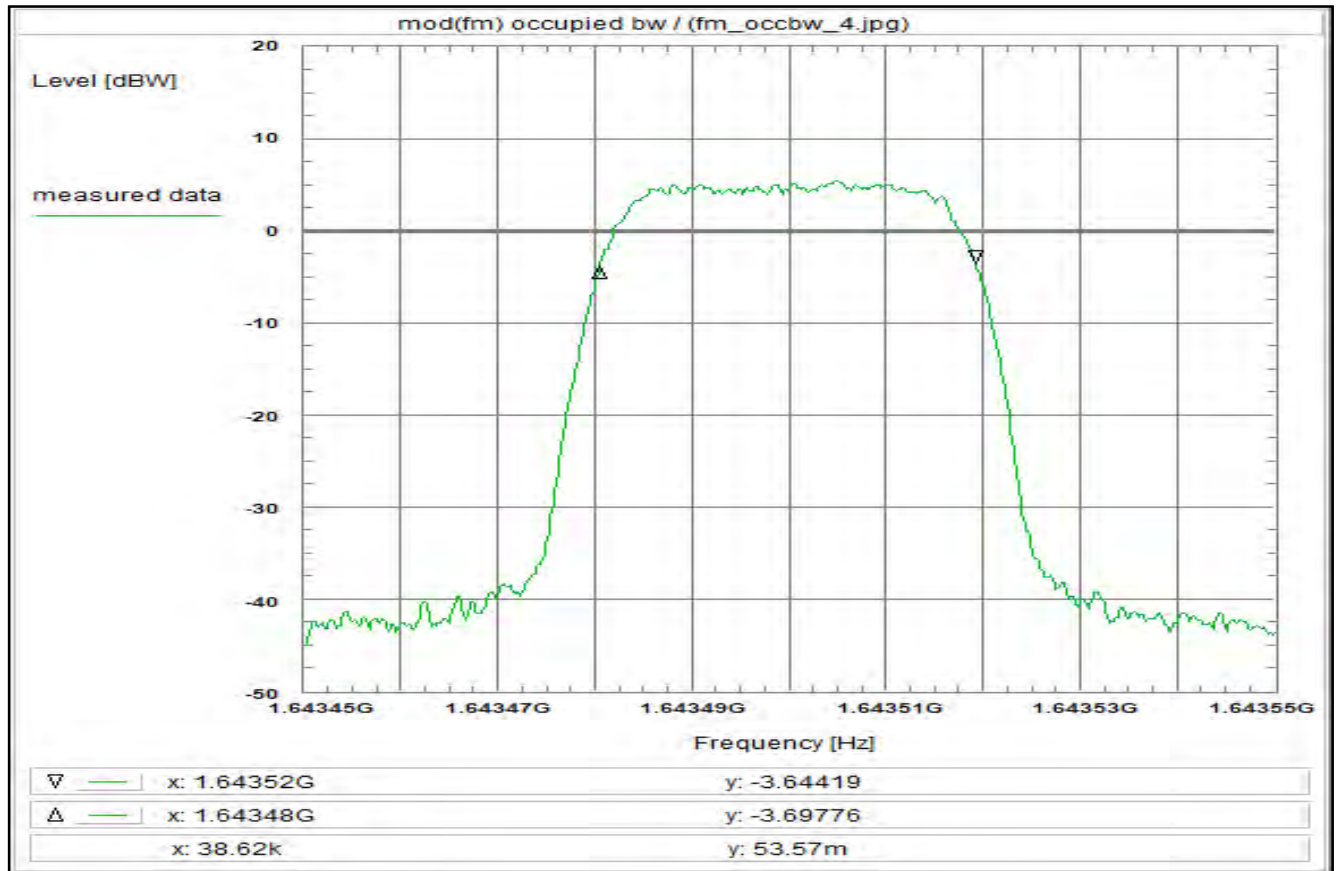
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 39 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 20



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R80T1Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Determination of the occupied bandwidth

Test result: Test passed

Environment condition:

Date & Time: Wed 20/May/2020 10:56:12
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.64345 GHz
 Stop frequency: 1.64355 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

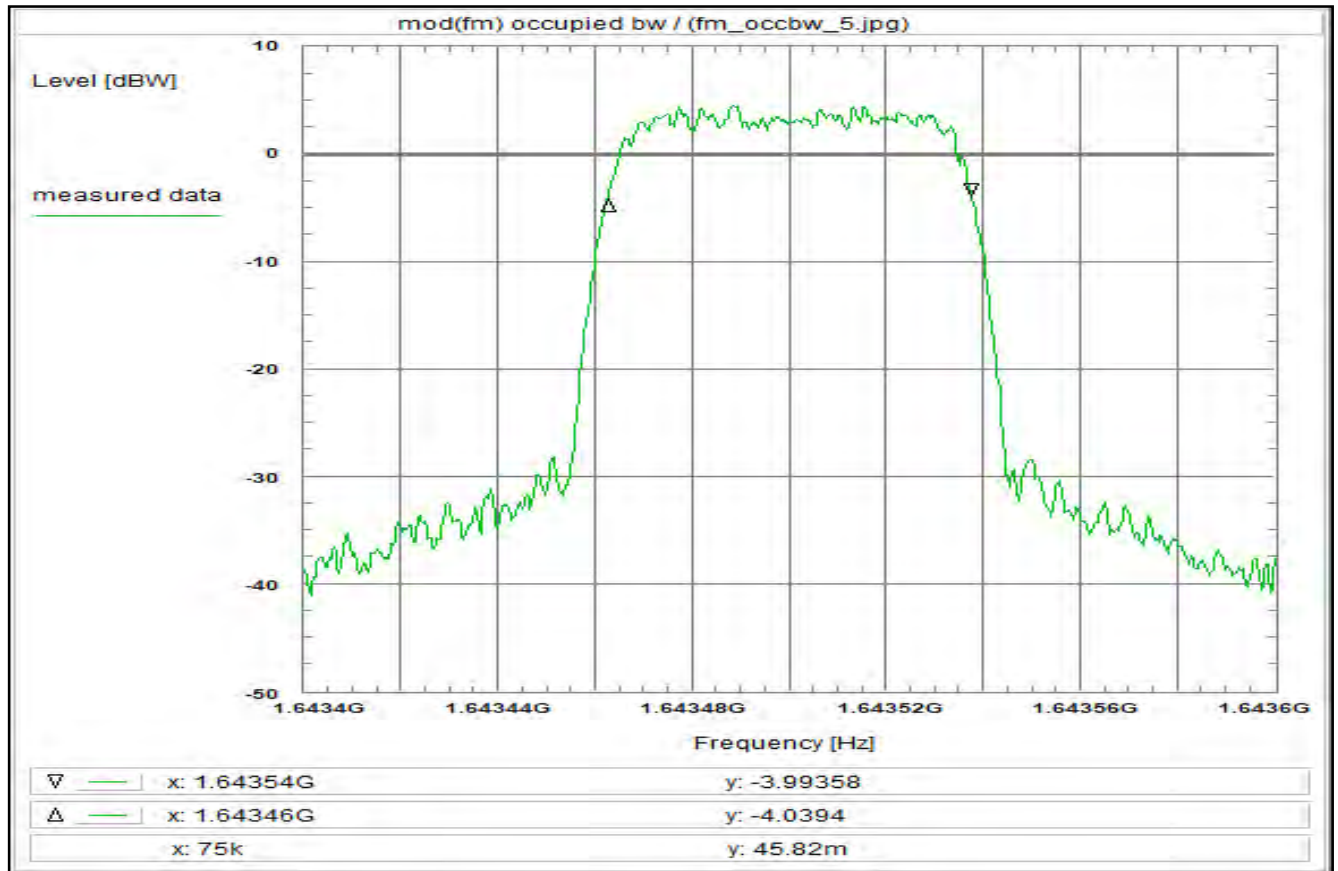
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 38.7 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 21



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fm, R5T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:34:36
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6434 GHz
Stop frequency: 1.6436 GHz
Center frequency: 1.6435 GHz
Frequency span: 200 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 40 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

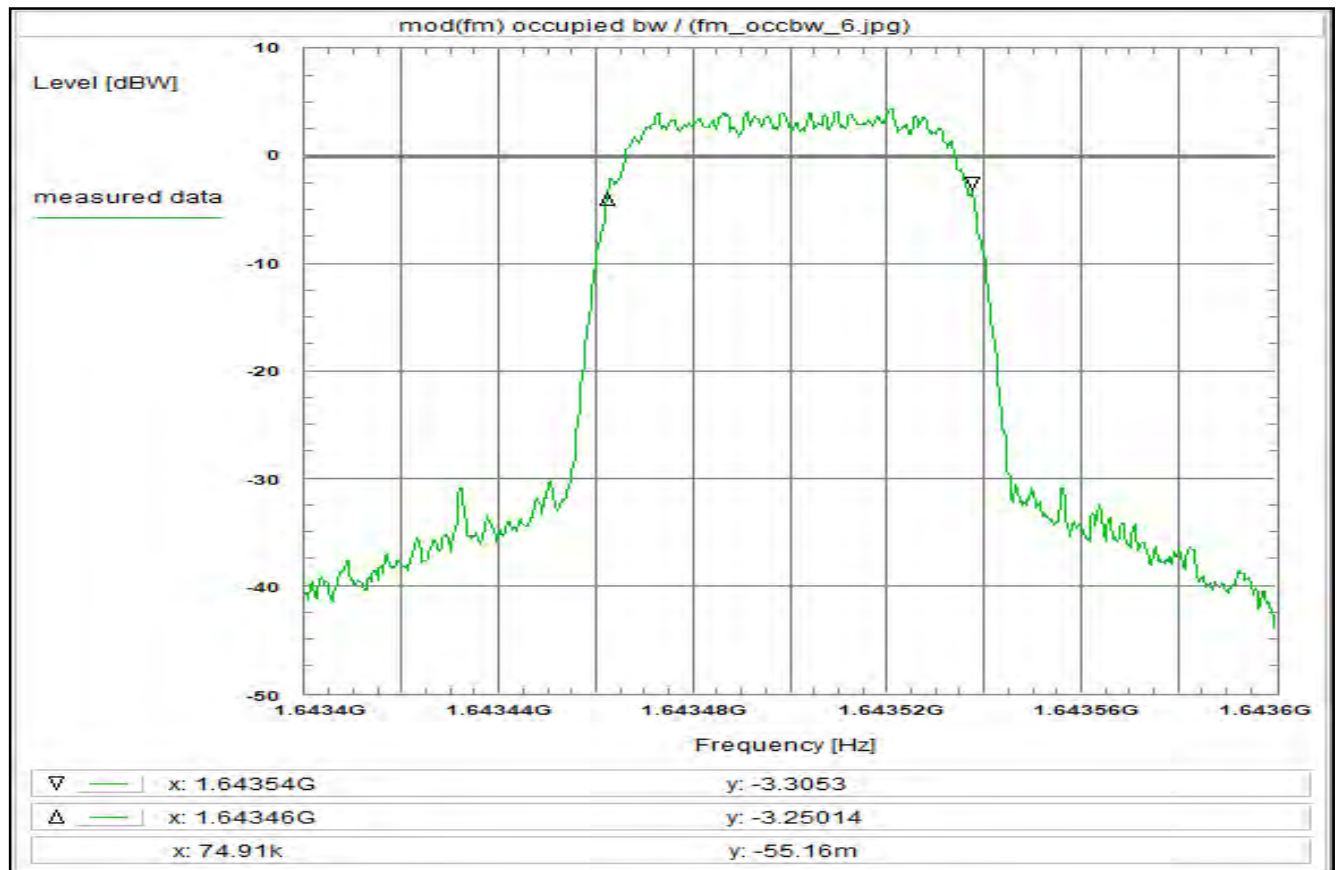
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 75 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 22



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fm, R20T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:38:03
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6434 GHz
Stop frequency: 1.6436 GHz
Center frequency: 1.6435 GHz
Frequency span: 200 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 40 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

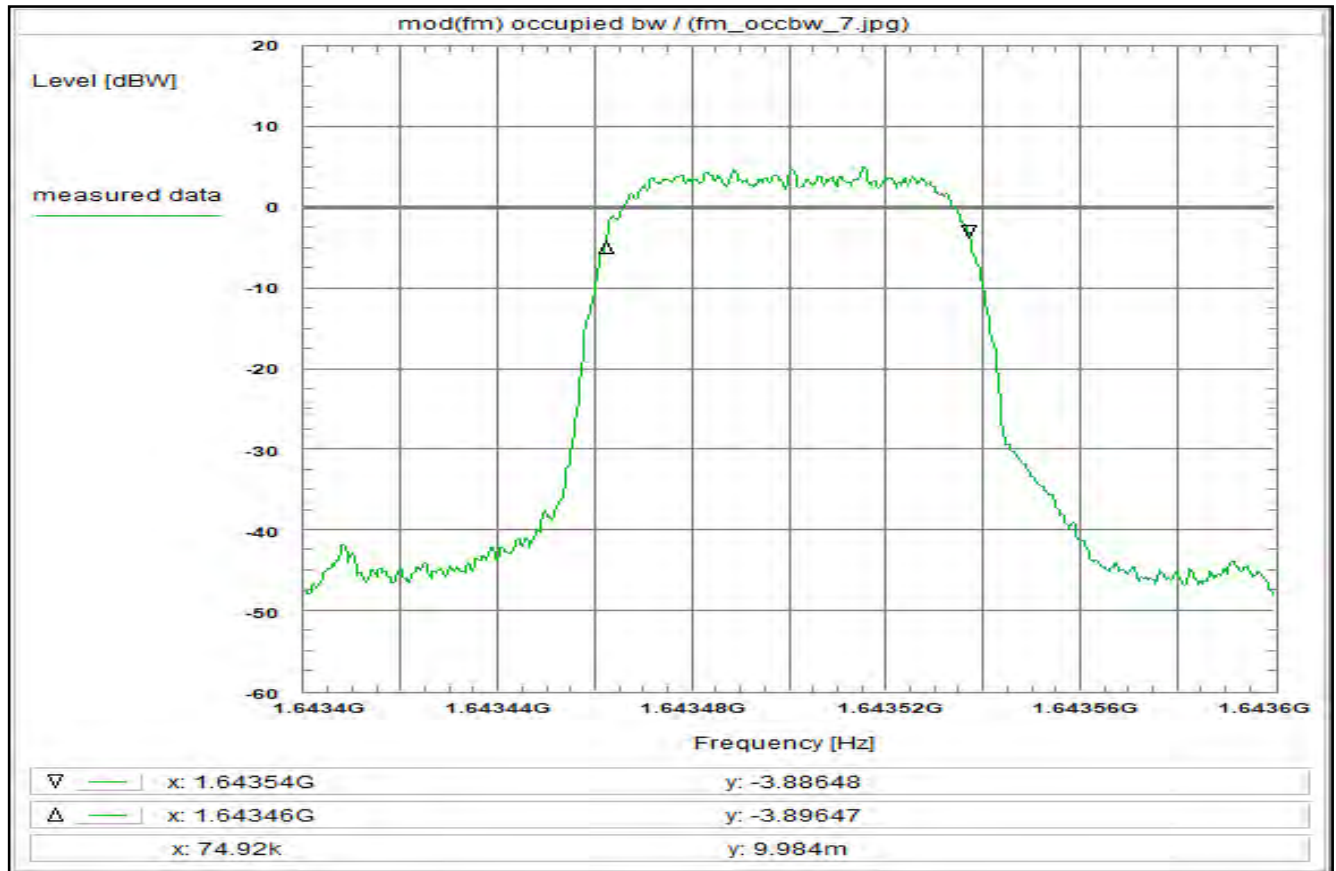
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 75 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 23



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:41:50
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6434 GHz
 Stop frequency: 1.6436 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

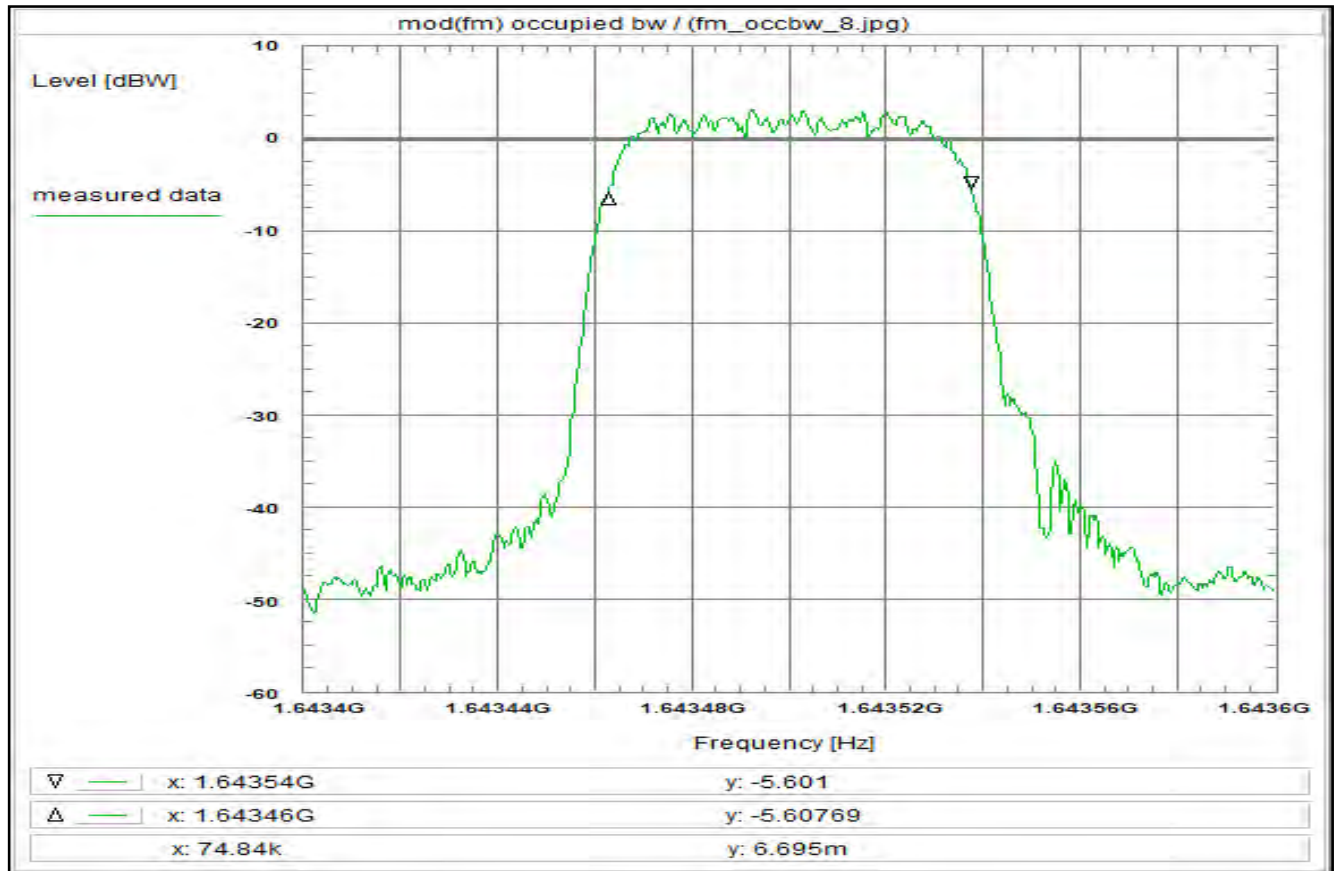
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 75 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 24



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:45:18
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6434 GHz
 Stop frequency: 1.6436 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

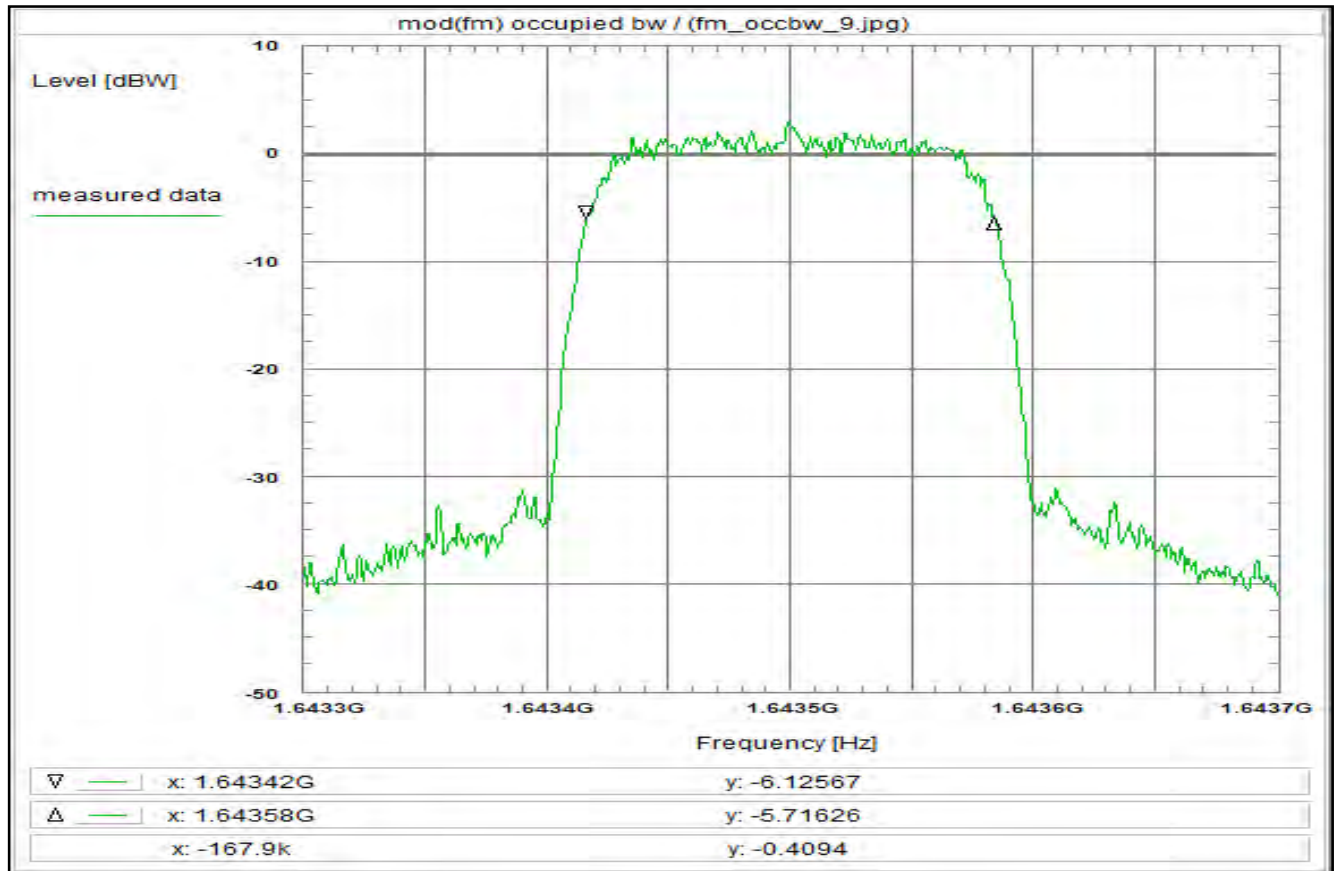
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 75 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 25



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:54:13
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6433 GHz
 Stop frequency: 1.6437 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

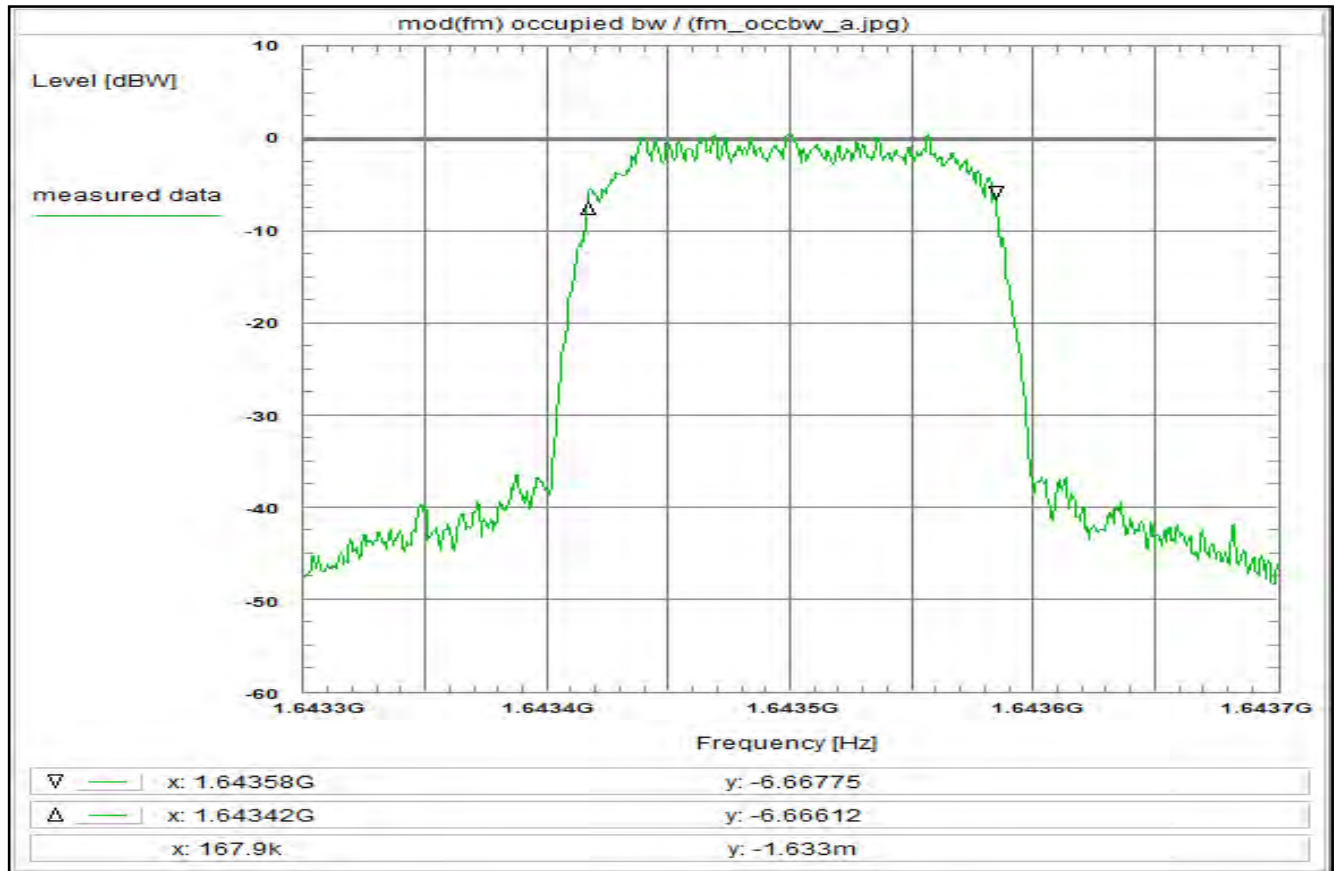
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 168 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 26



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:56:39
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6433 GHz
 Stop frequency: 1.6437 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

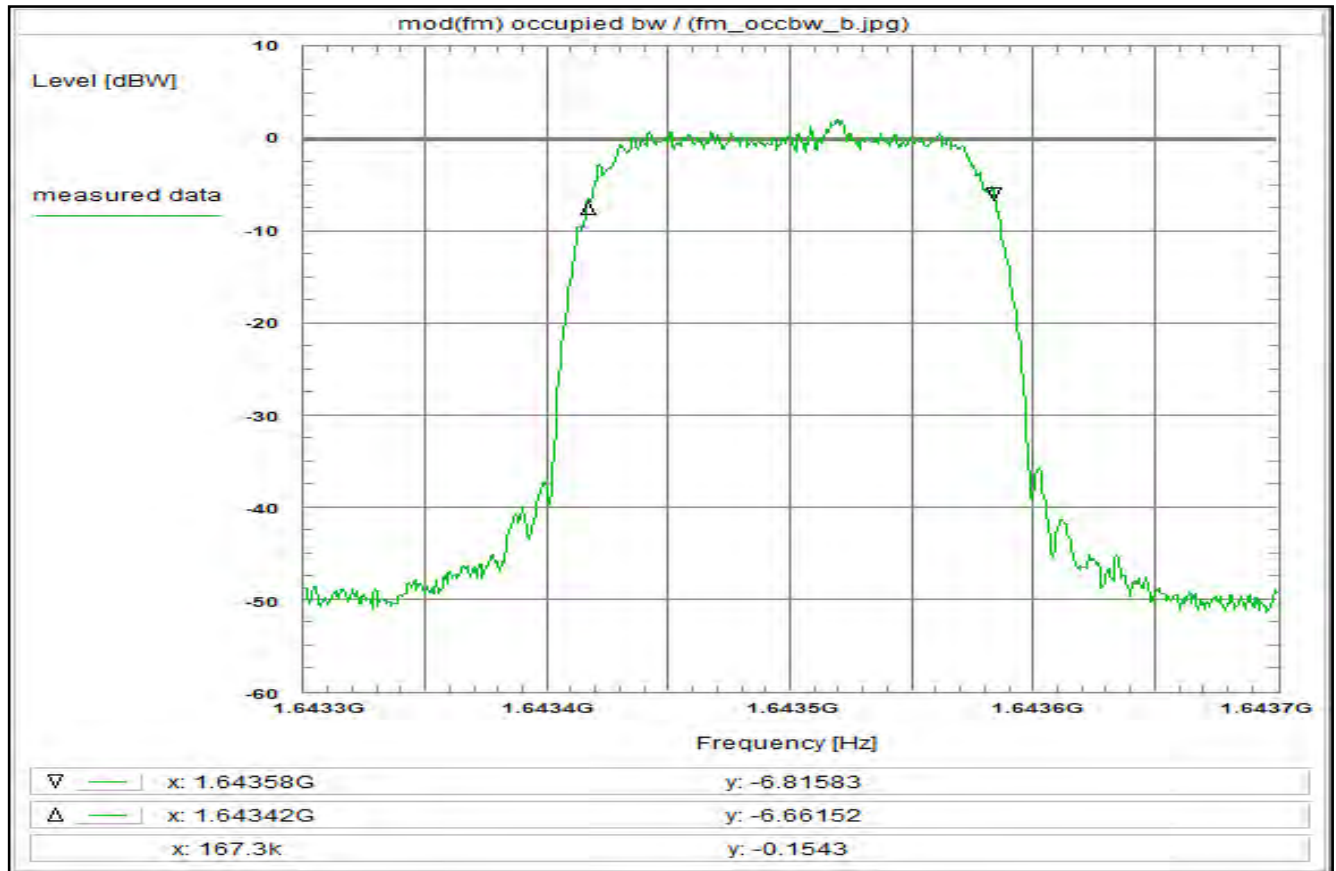
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 168 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 27



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 11:59:13
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6433 GHz
 Stop frequency: 1.6437 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

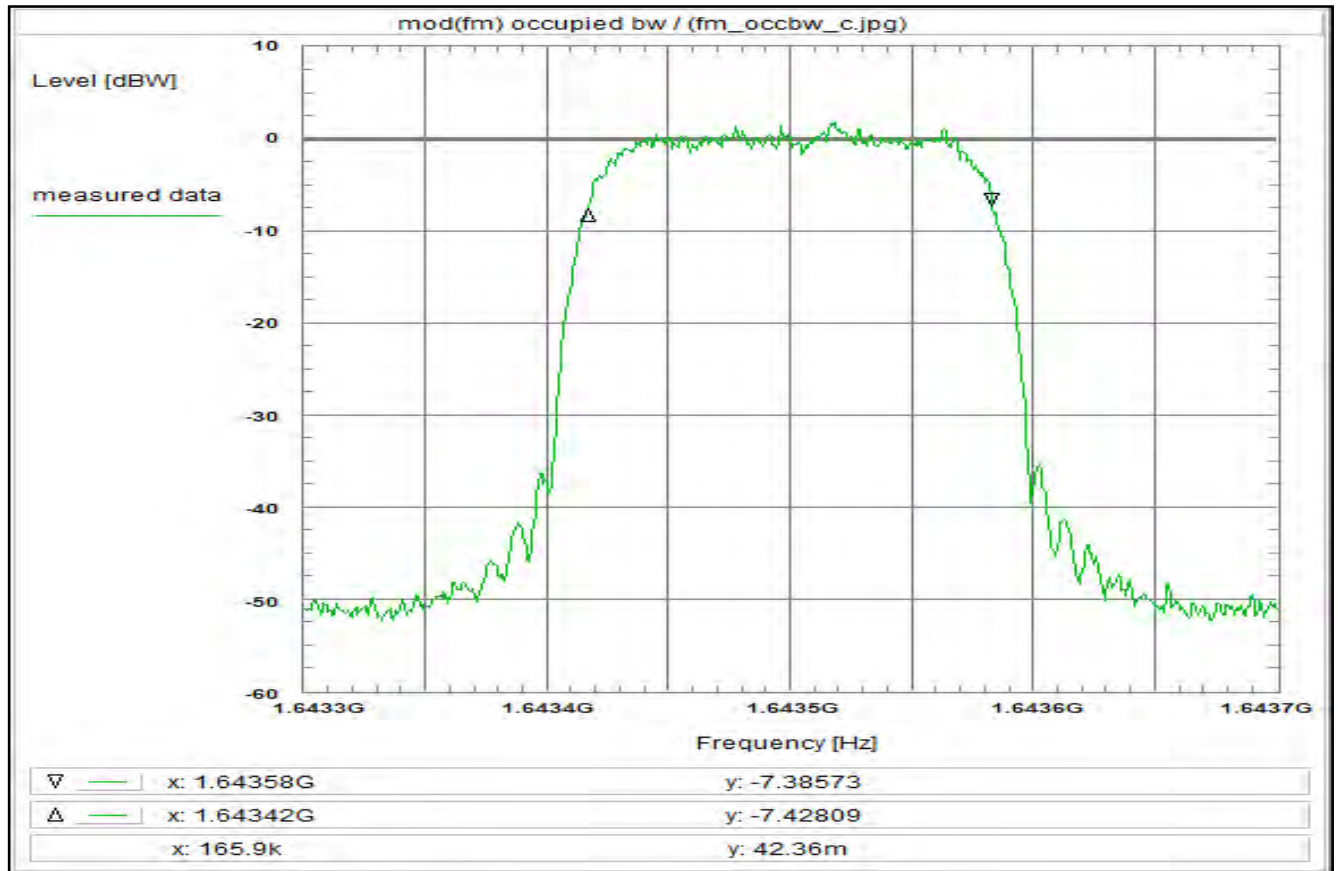
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 167.4 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 28



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 12:02:47
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6433 GHz
 Stop frequency: 1.6437 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

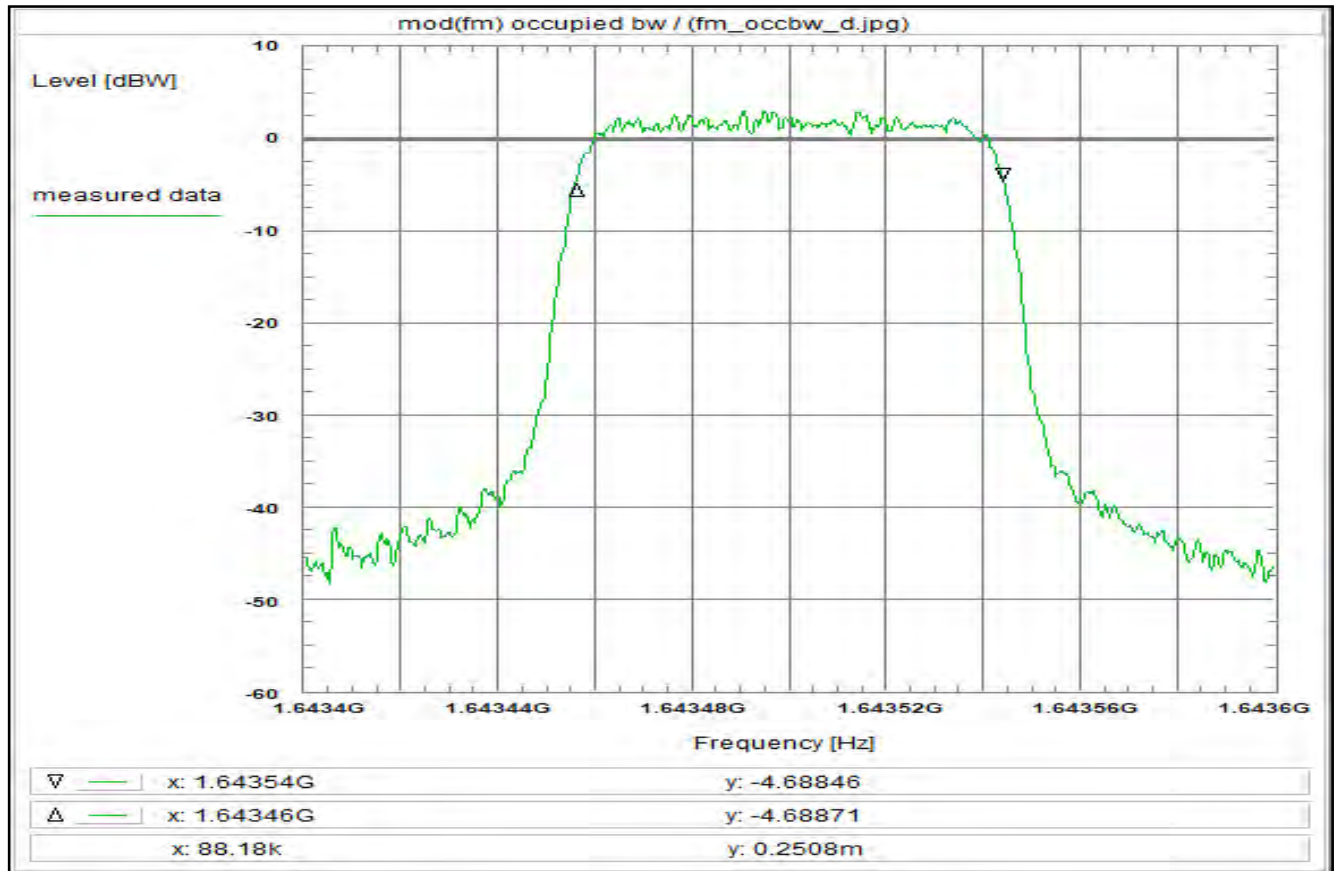
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 166 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 29



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, FR80T2.5X4

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 13:35:10
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6434 GHz
 Stop frequency: 1.6436 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

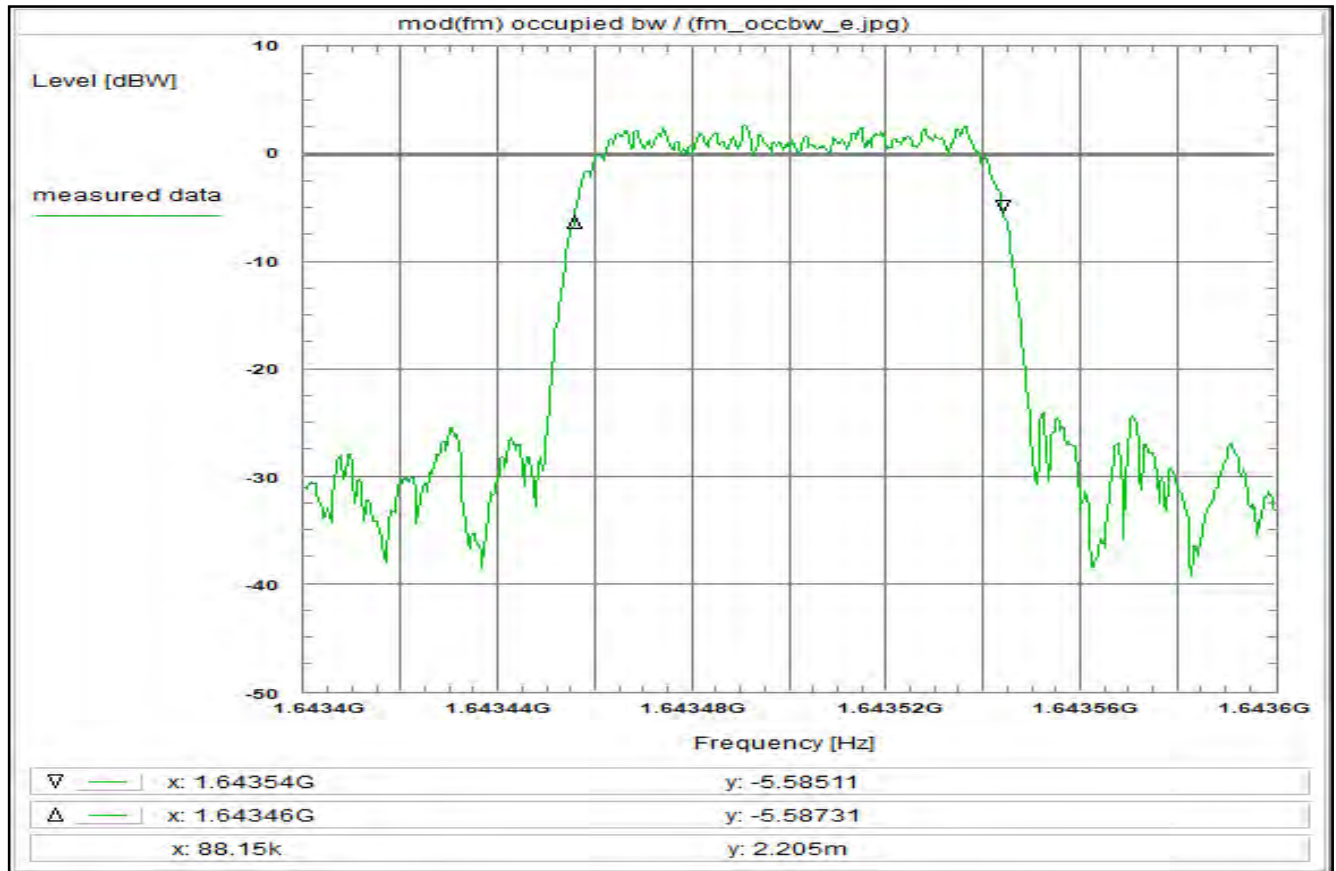
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 88.2 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 30



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, FR80T2.5X16

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 13:37:49
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6434 GHz
 Stop frequency: 1.6436 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

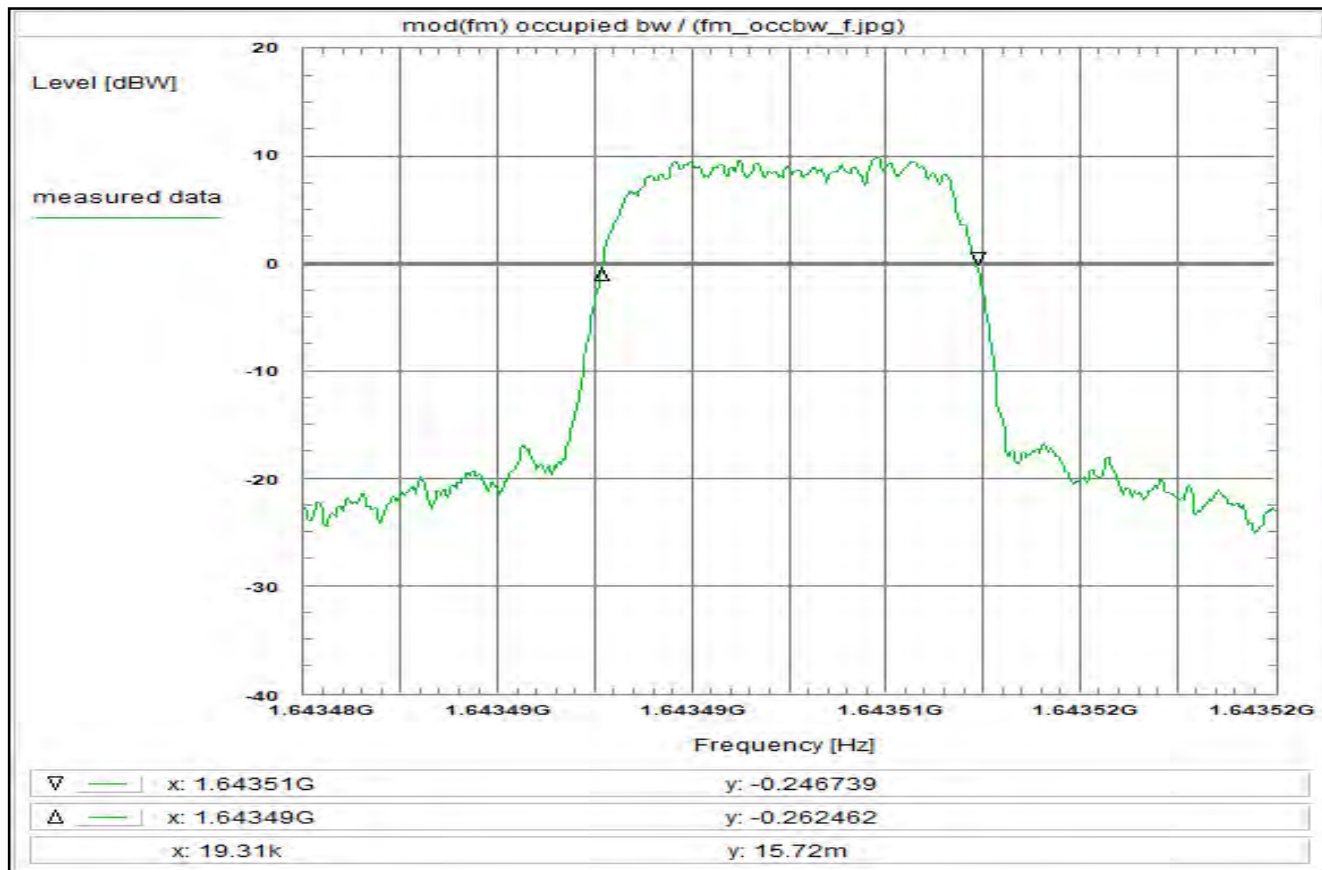
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fm:

The measured value is about 88.2 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 31



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T0.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 13:50:43
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643475 GHz
 Stop frequency: 1.643525 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 50 kHz
 Resolution-BW: 1 kHz
 Video-BW: 3 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

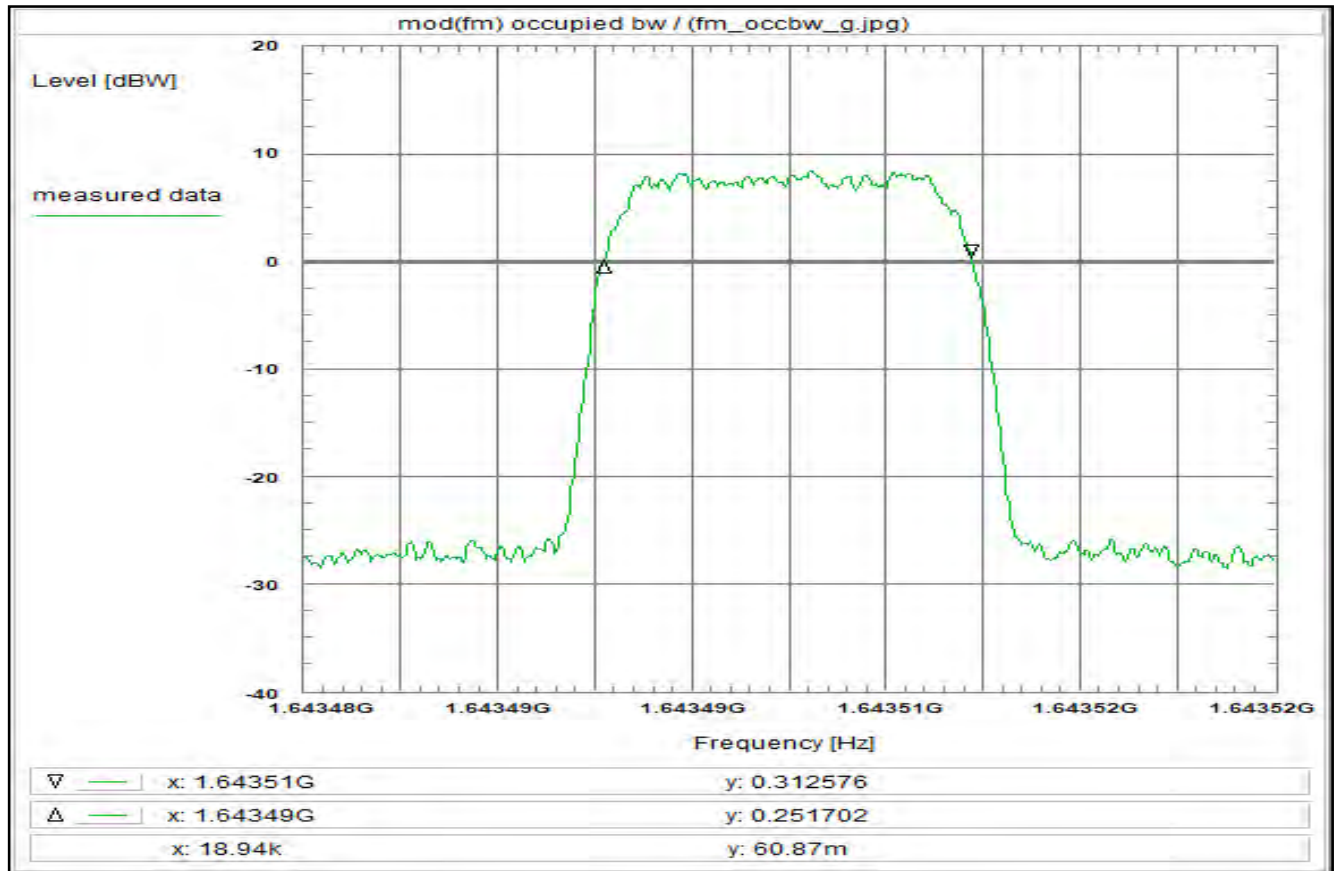
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (1k -> 3k)	+ 4.8 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 19.3 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 32



Subclause: -/- Function test
 Modulated rf-carrier in the middle of the band (fm)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R80T0.5Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 13:56:14
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643475 GHz
 Stop frequency: 1.643525 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 50 kHz
 Resolution-BW: 1 kHz
 Video-BW: 3 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

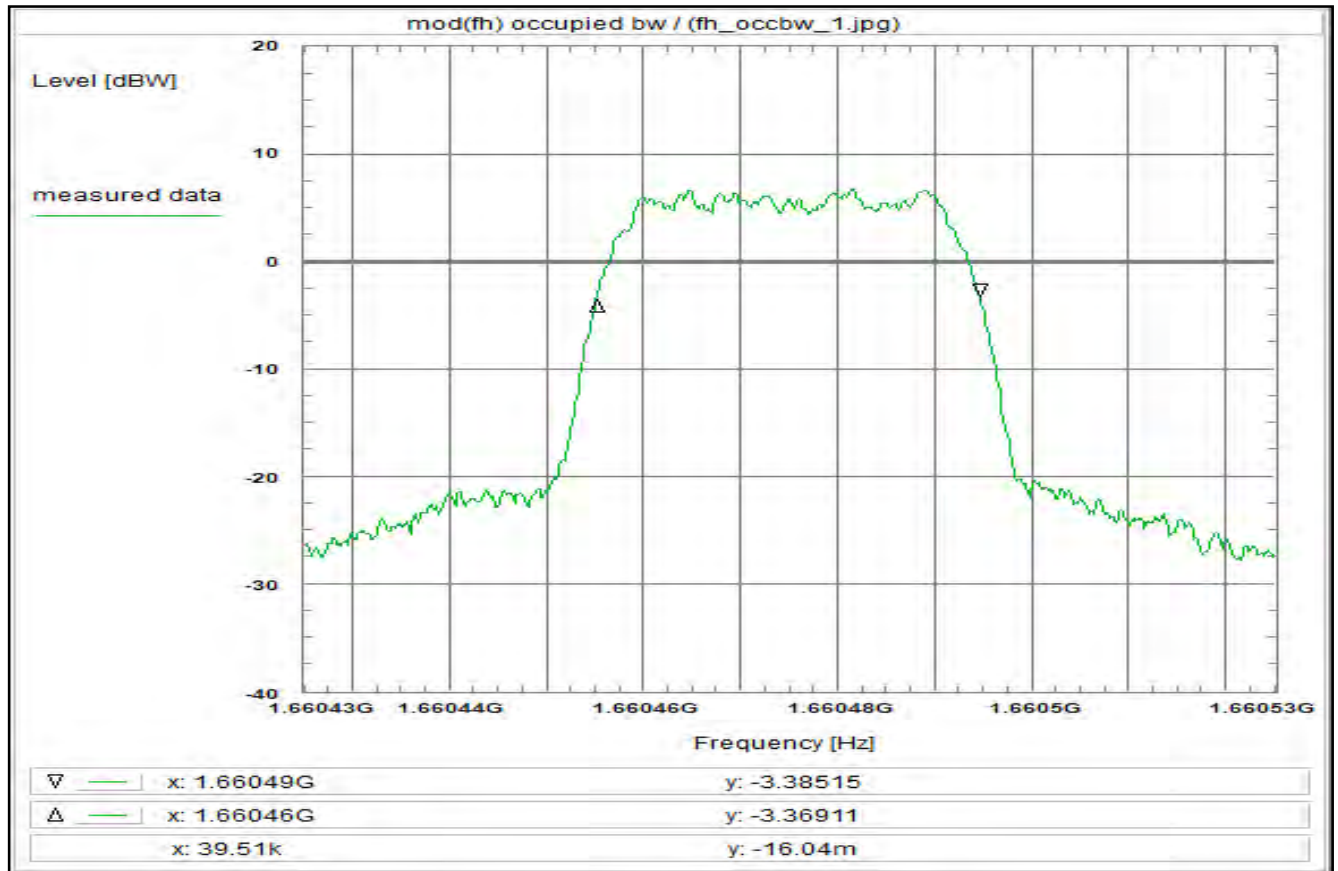
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (1k -> 3k)	+ 4.8 dB
Atten. between HPA and feedhorn	- 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:Determination of the 'occupied bandwidth' at fm:

The measured value is about 18.9 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 33



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:26:11
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660425 GHz
 Stop frequency: 1.660525 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

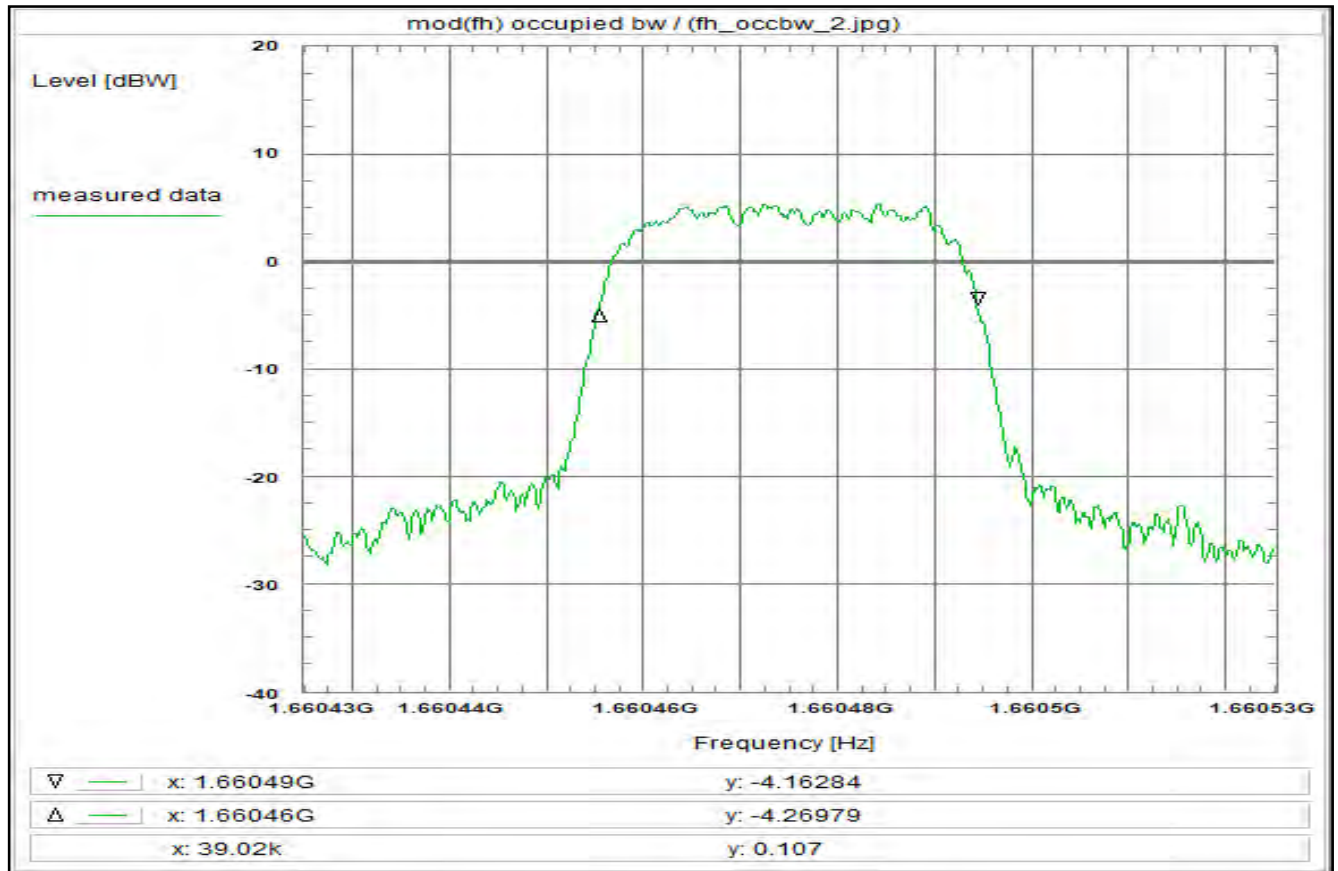
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 39.5 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 34



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:27:43
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660425 GHz
 Stop frequency: 1.660525 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

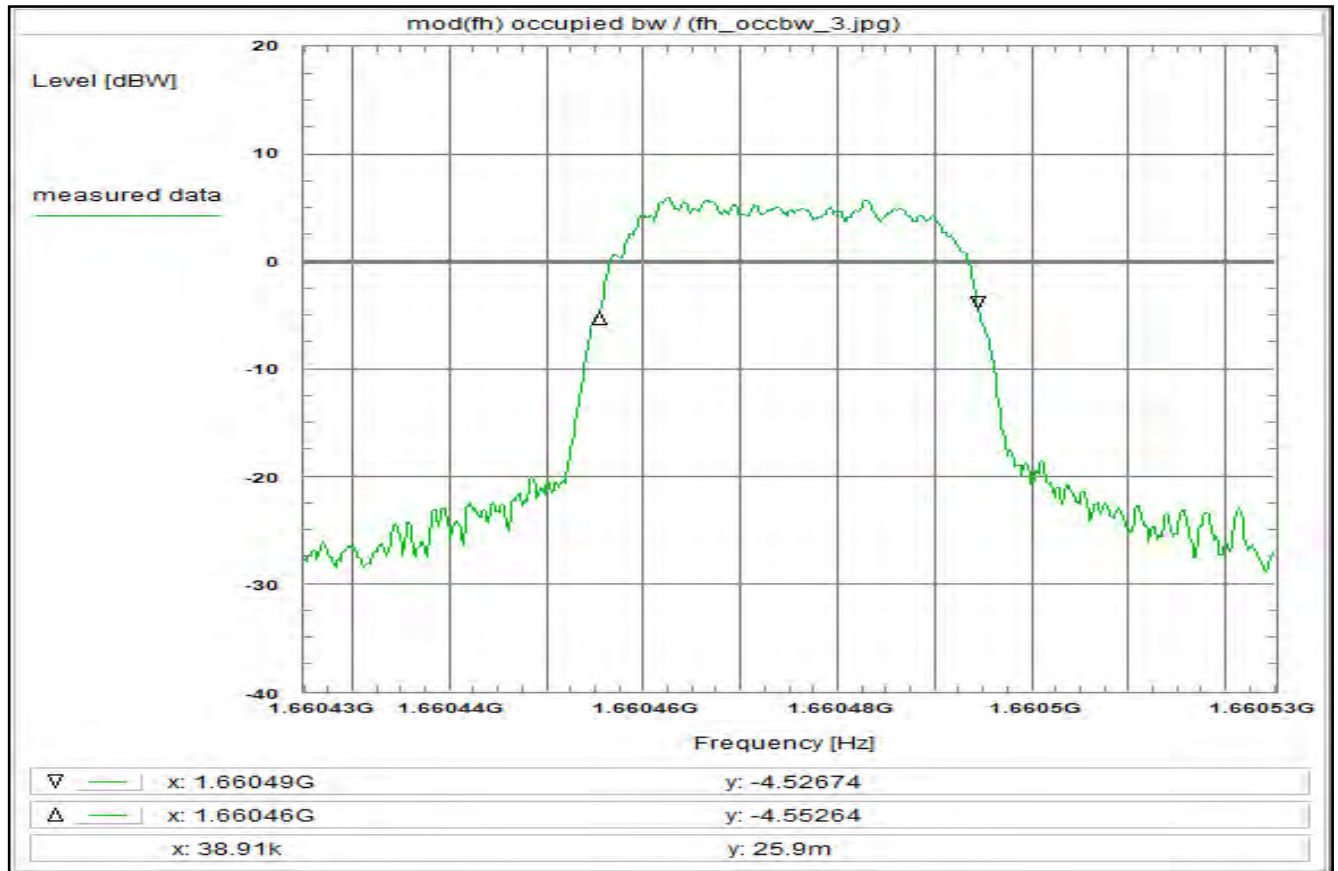
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 39 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 35



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T1QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:30:21
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660425 GHz
 Stop frequency: 1.660525 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

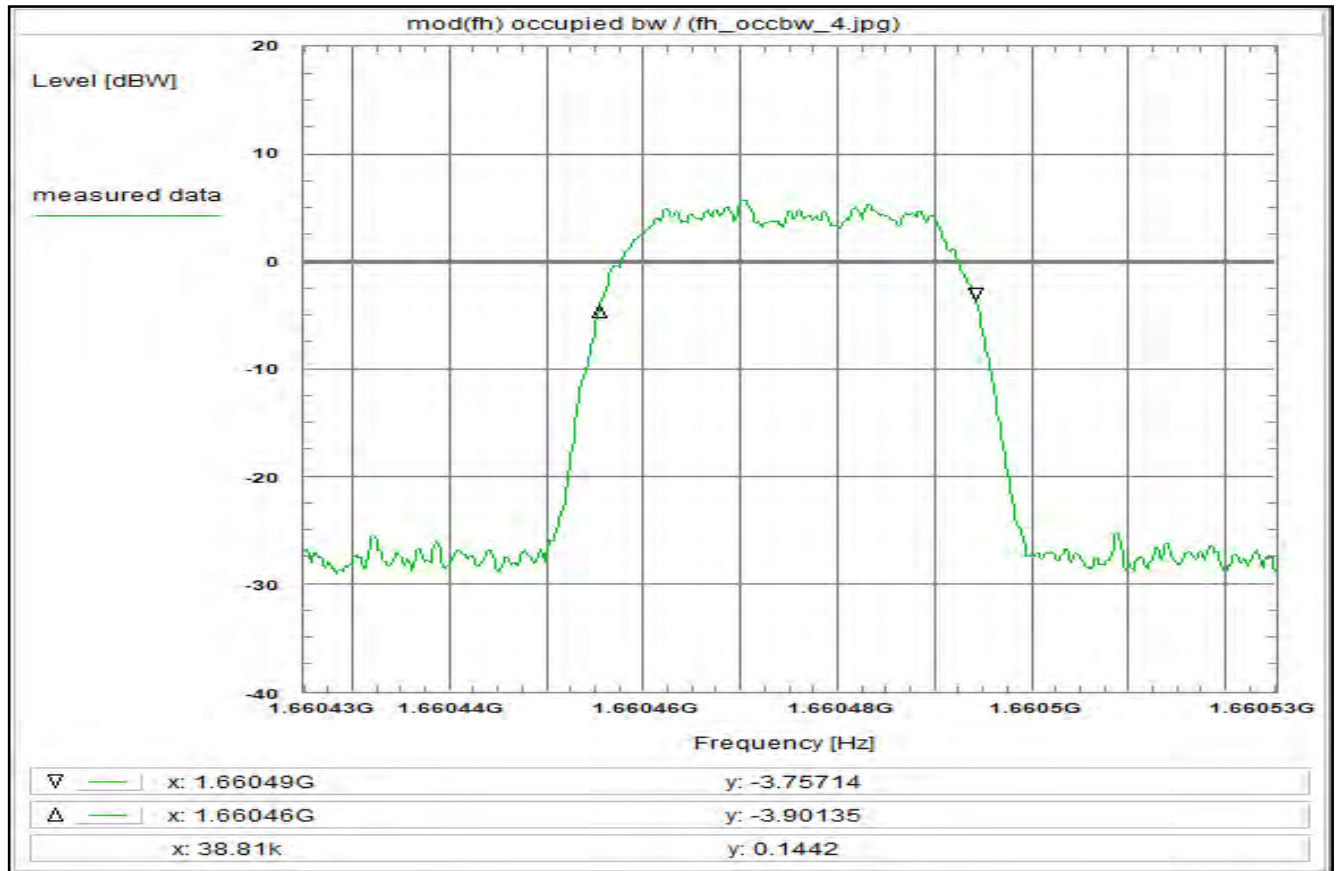
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 39 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 36



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R80T1Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:35:55
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660425 GHz
 Stop frequency: 1.660525 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 100 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

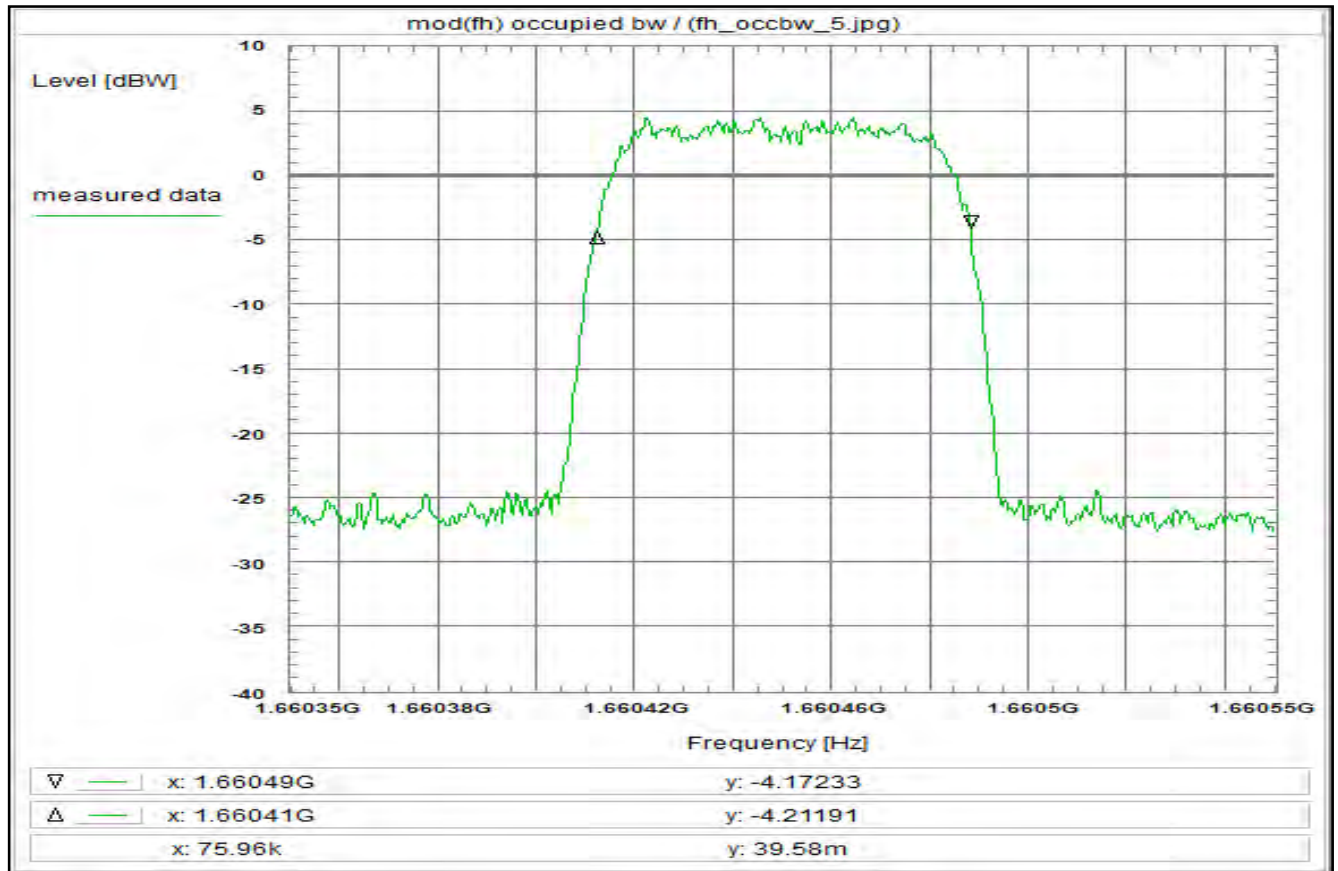
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fh:

The measured value is about 39 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 37



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:42:57
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66035 GHz
 Stop frequency: 1.66055 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

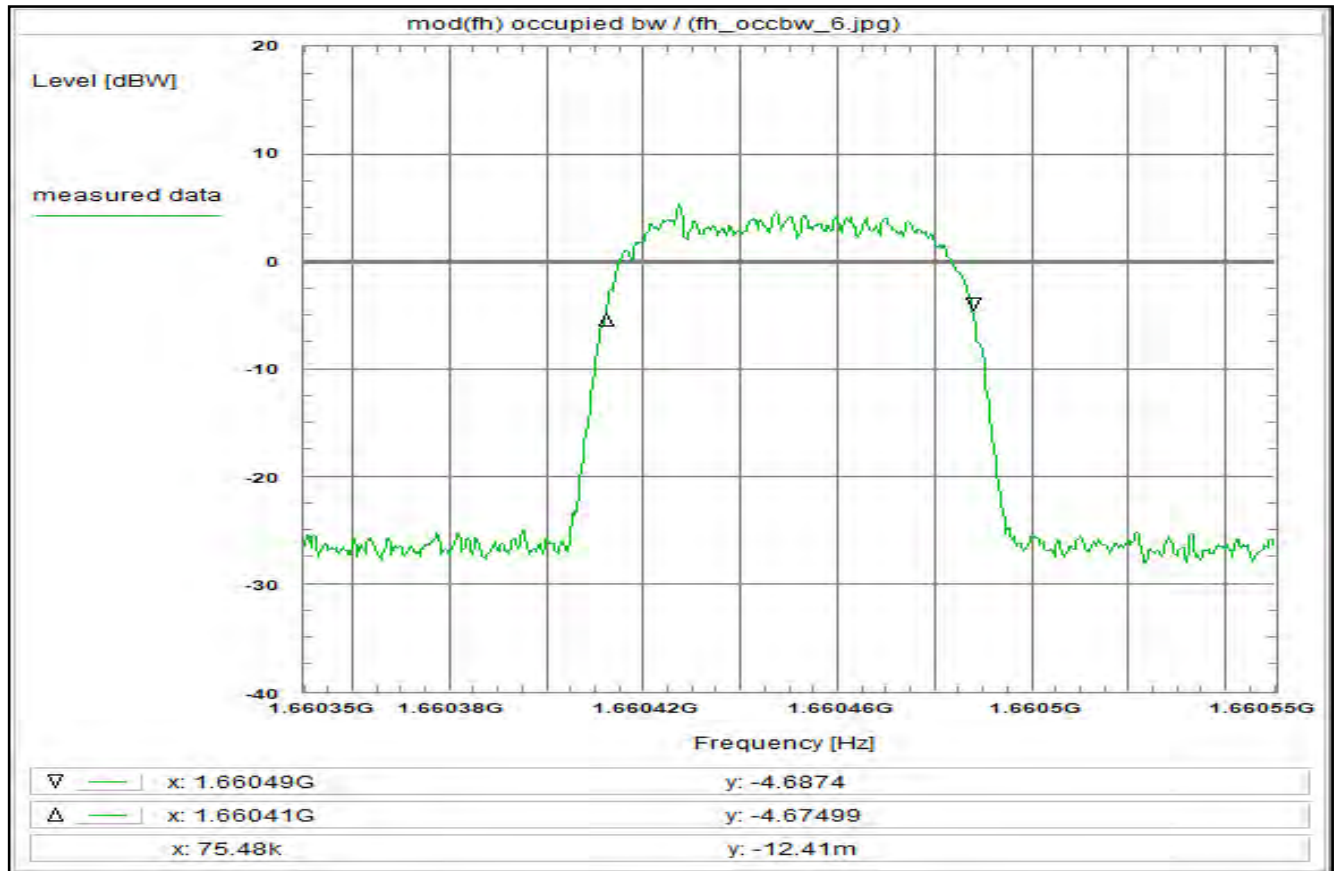
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fh:

The measured value is about 76 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 38



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:46:29
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66035 GHz
 Stop frequency: 1.66055 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

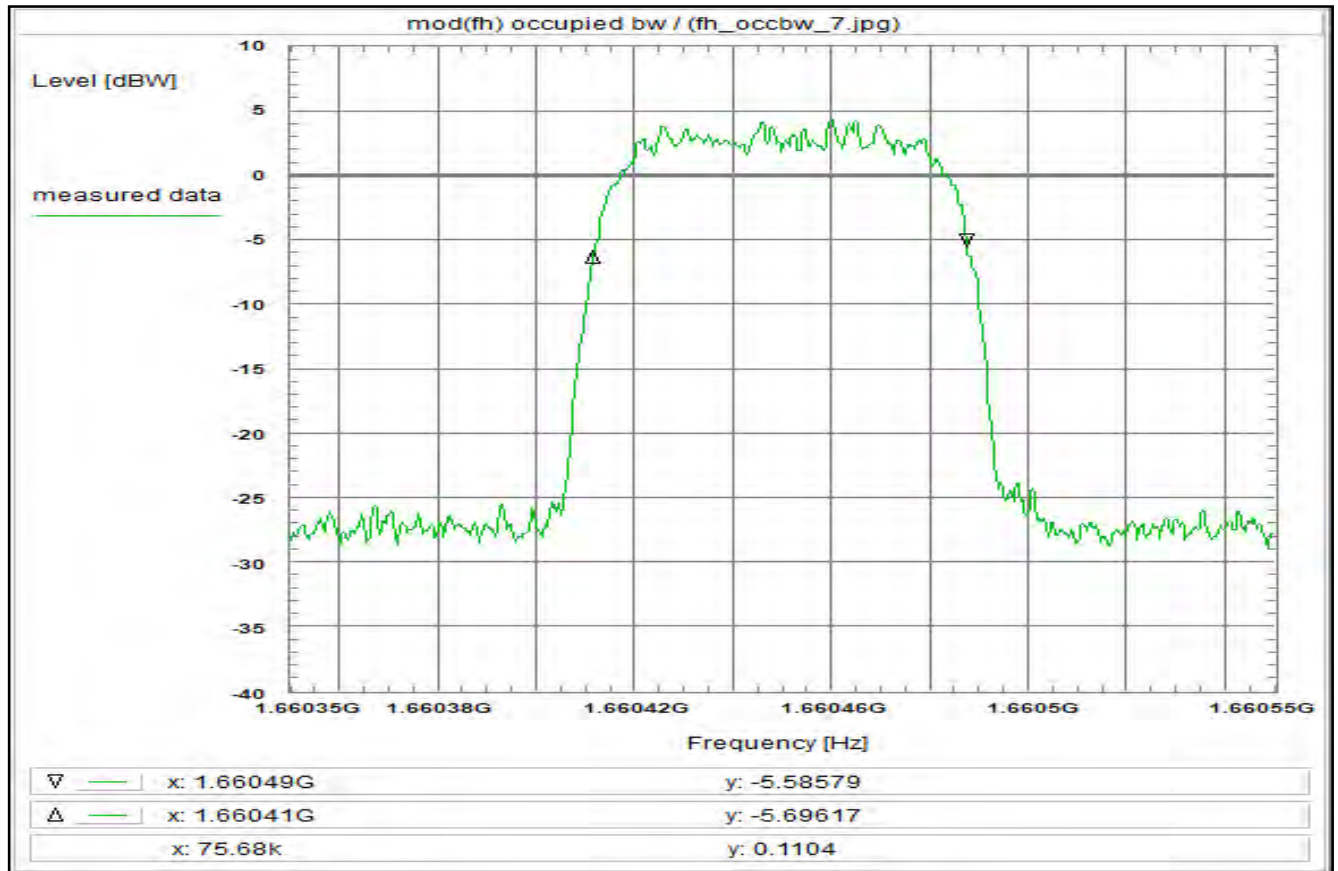
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 75.5 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 39



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fh)
Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fm, R5T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:49:32
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66035 GHz
Stop frequency: 1.66055 GHz
Center frequency: 1.66045 GHz
Frequency span: 200 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

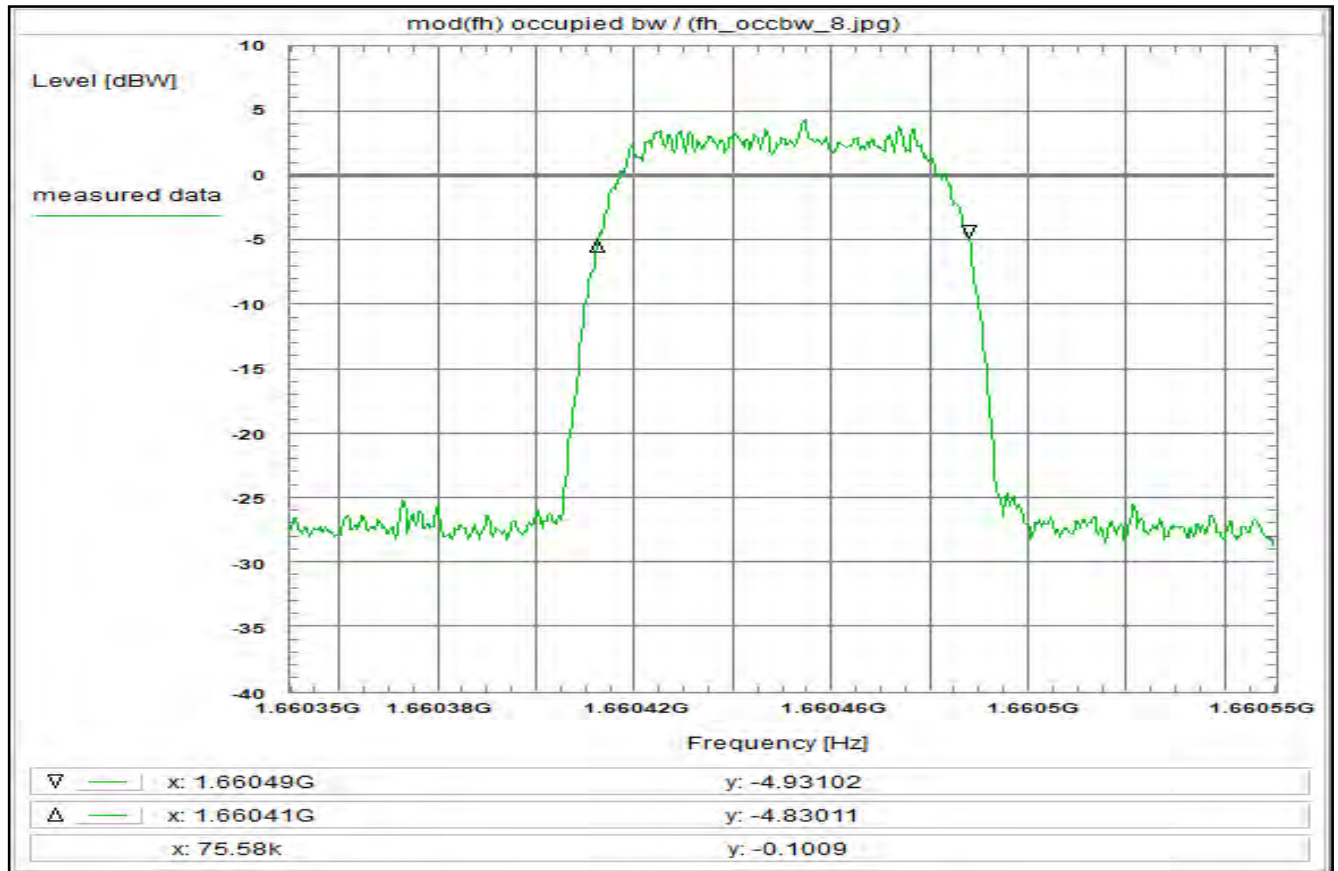
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fh:

The measured value is about 75.6 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 40



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:52:10
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66035 GHz
 Stop frequency: 1.66055 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

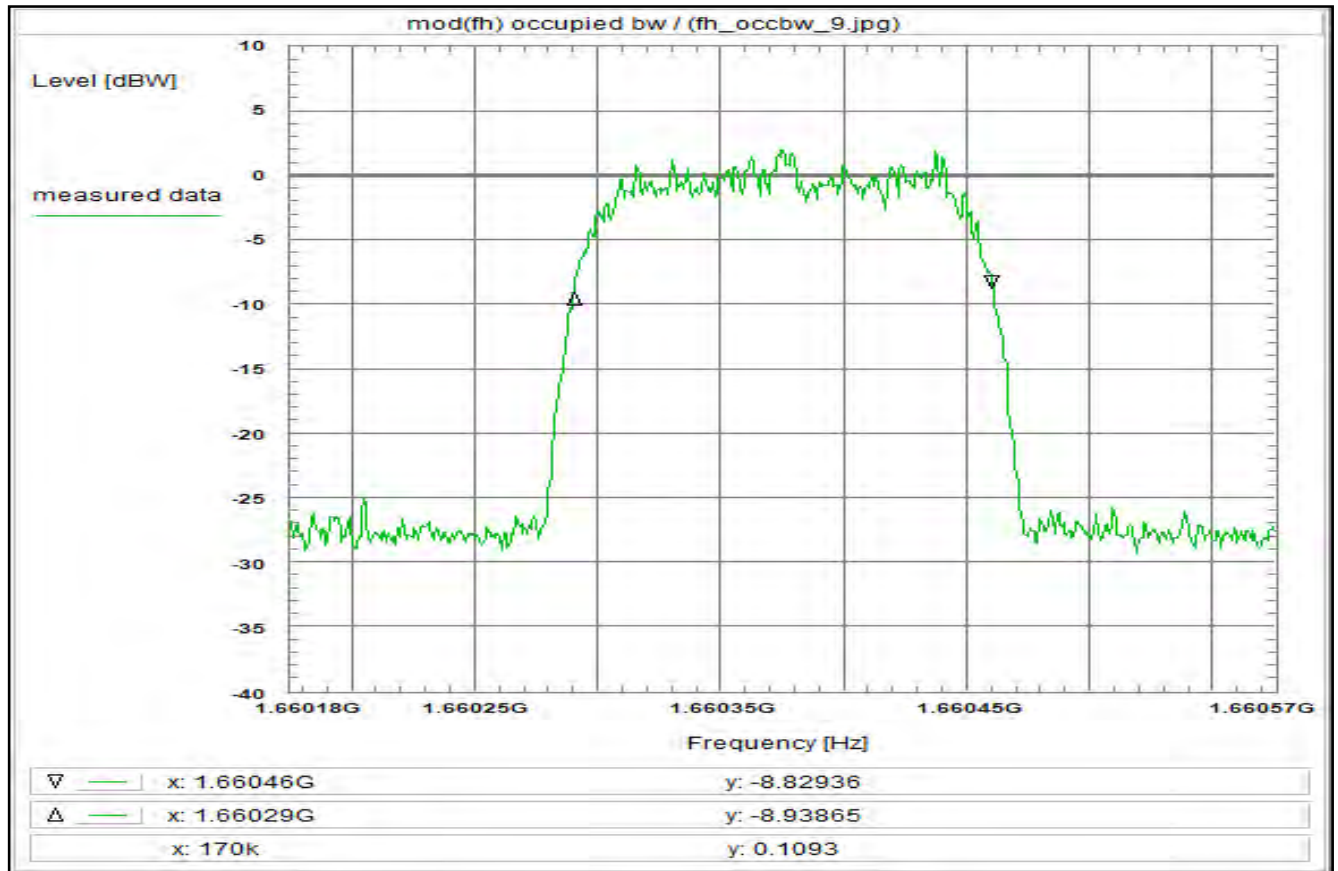
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 75.7 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 41



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:55:58
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660175 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.660375 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

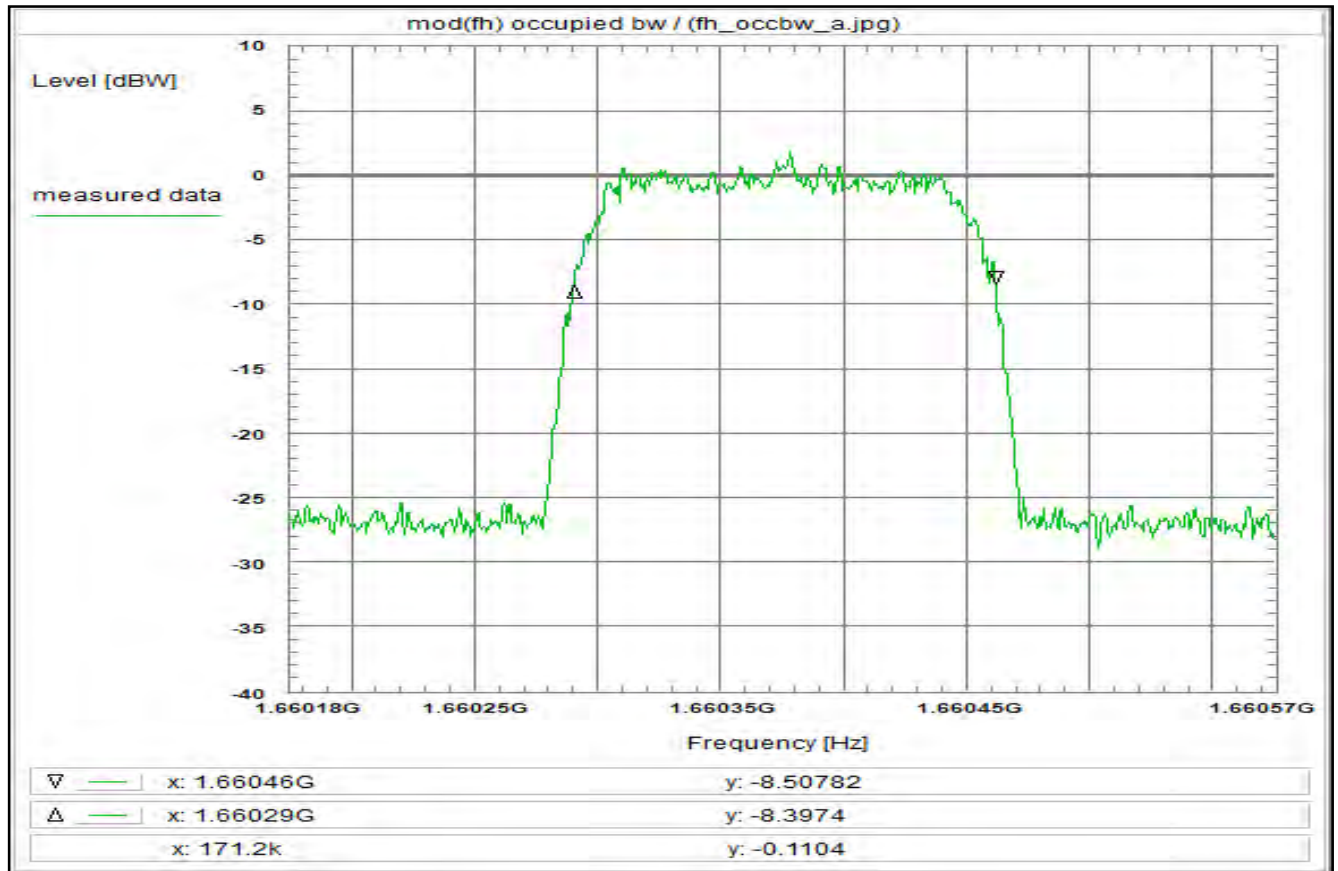
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fh:

The measured value is about 170 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 42



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fh)
Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fm, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 15:59:16
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660175 GHz
Stop frequency: 1.660575 GHz
Center frequency: 1.660375 GHz
Frequency span: 400 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

Correction:

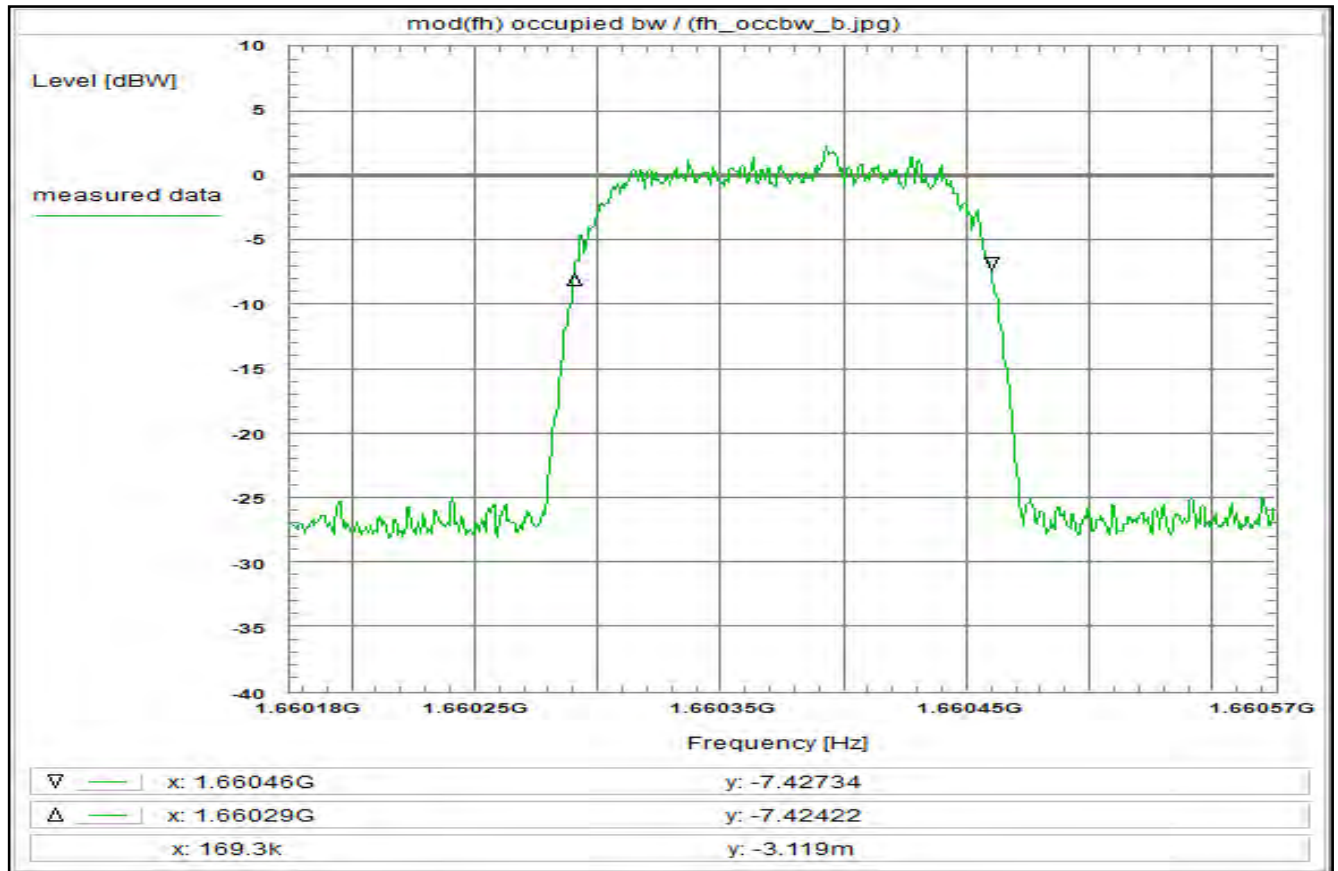
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 171.2 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 43



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R5T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 16:02:29
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660175 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.660375 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

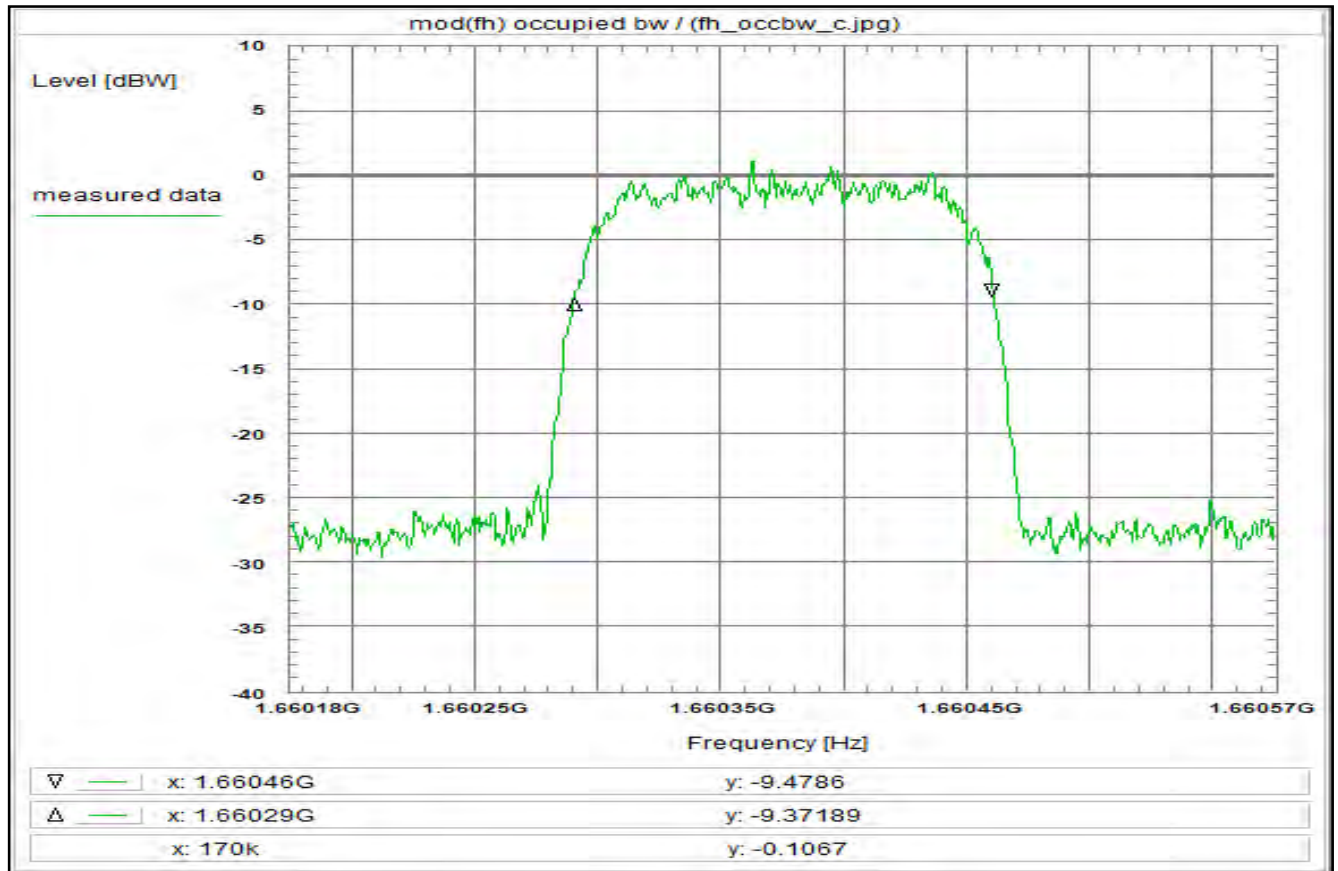
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 169.3 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 44



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fm, R20T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 16:04:39
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660175 GHz
 Stop frequency: 1.660575 GHz
 Center frequency: 1.660375 GHz
 Frequency span: 400 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

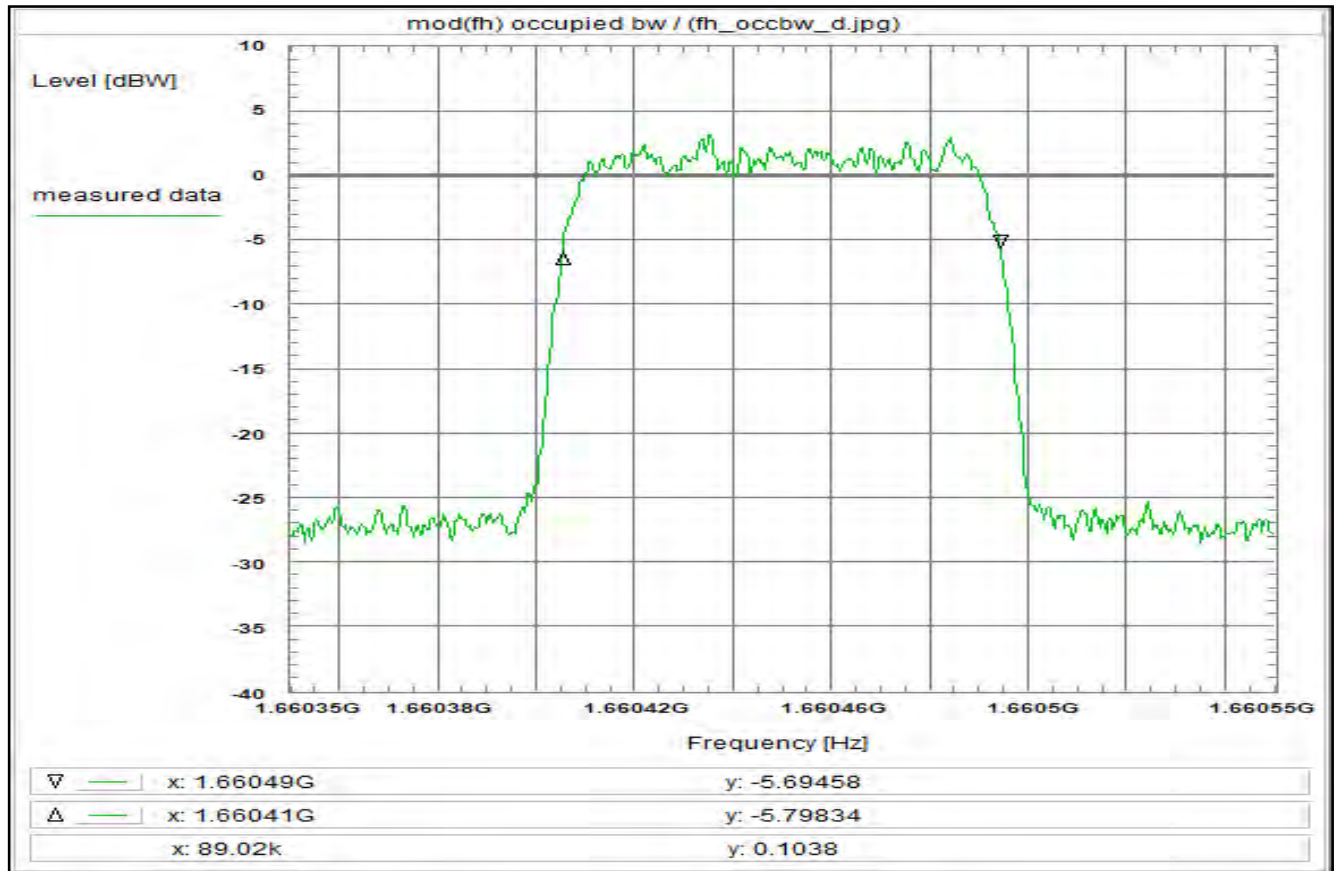
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 170 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 45



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fh, FR80T2.5X4

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 16:06:46
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66035 GHz
 Stop frequency: 1.66055 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

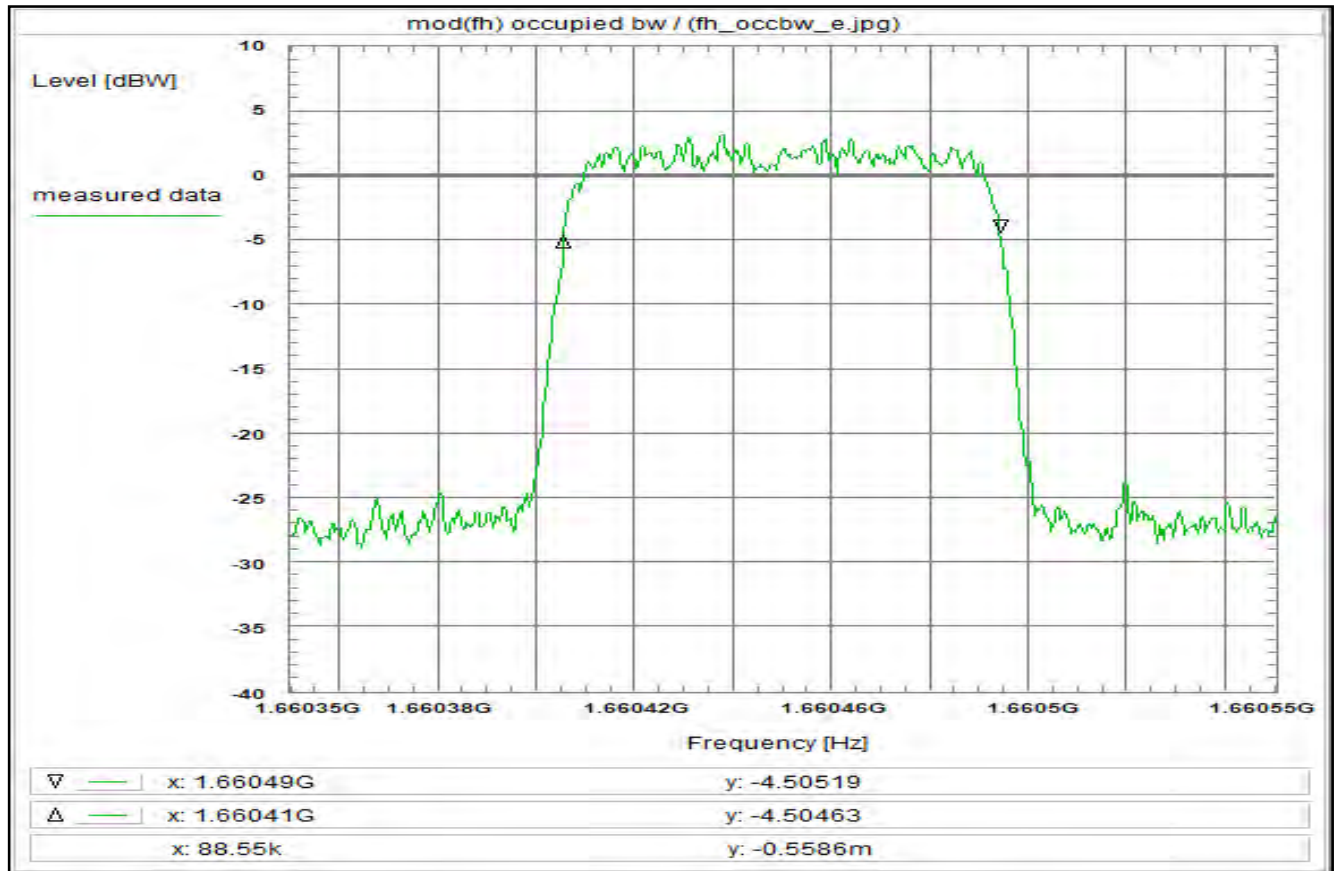
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:Determination of the 'occupied bandwidth' at fh:

The measured value is about 89 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 46



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fh, FR80T2.5X16

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 16:08:47
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66035 GHz
 Stop frequency: 1.66055 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

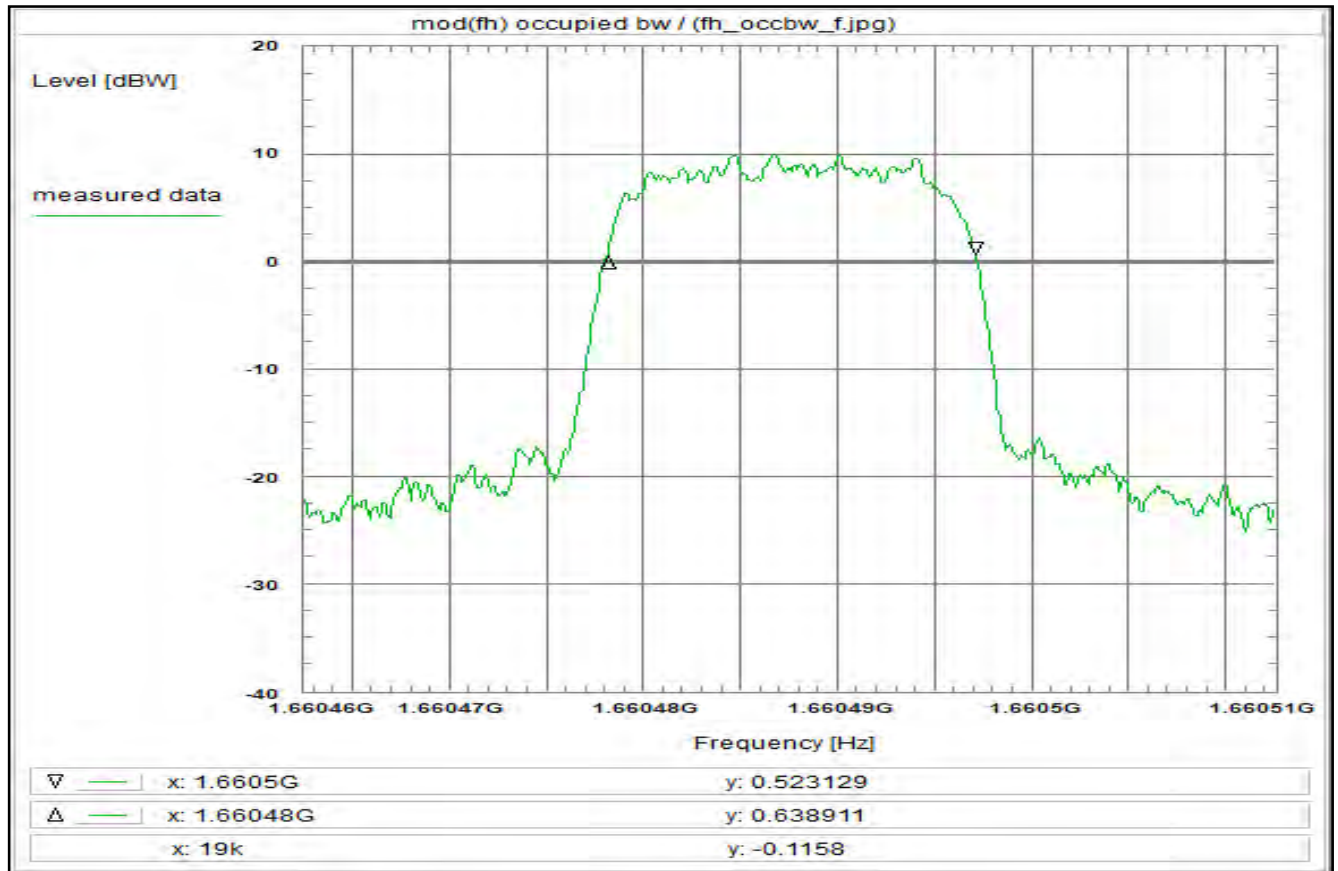
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor	+ 0.0 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 37.0 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 88.5 kHz (delta marker)
 Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 47



Subclause: -/- Function test
 Modulated rf-carrier at the upper edge of the band (fh)
 Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 ACD, fh, R20T0.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 16:11:36
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6604625 GHz
 Stop frequency: 1.6605125 GHz
 Center frequency: 1.6604875 GHz
 Frequency span: 50 kHz
 Resolution-BW: 1 kHz
 Video-BW: 3 kHz
 Input attenuation: 75 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

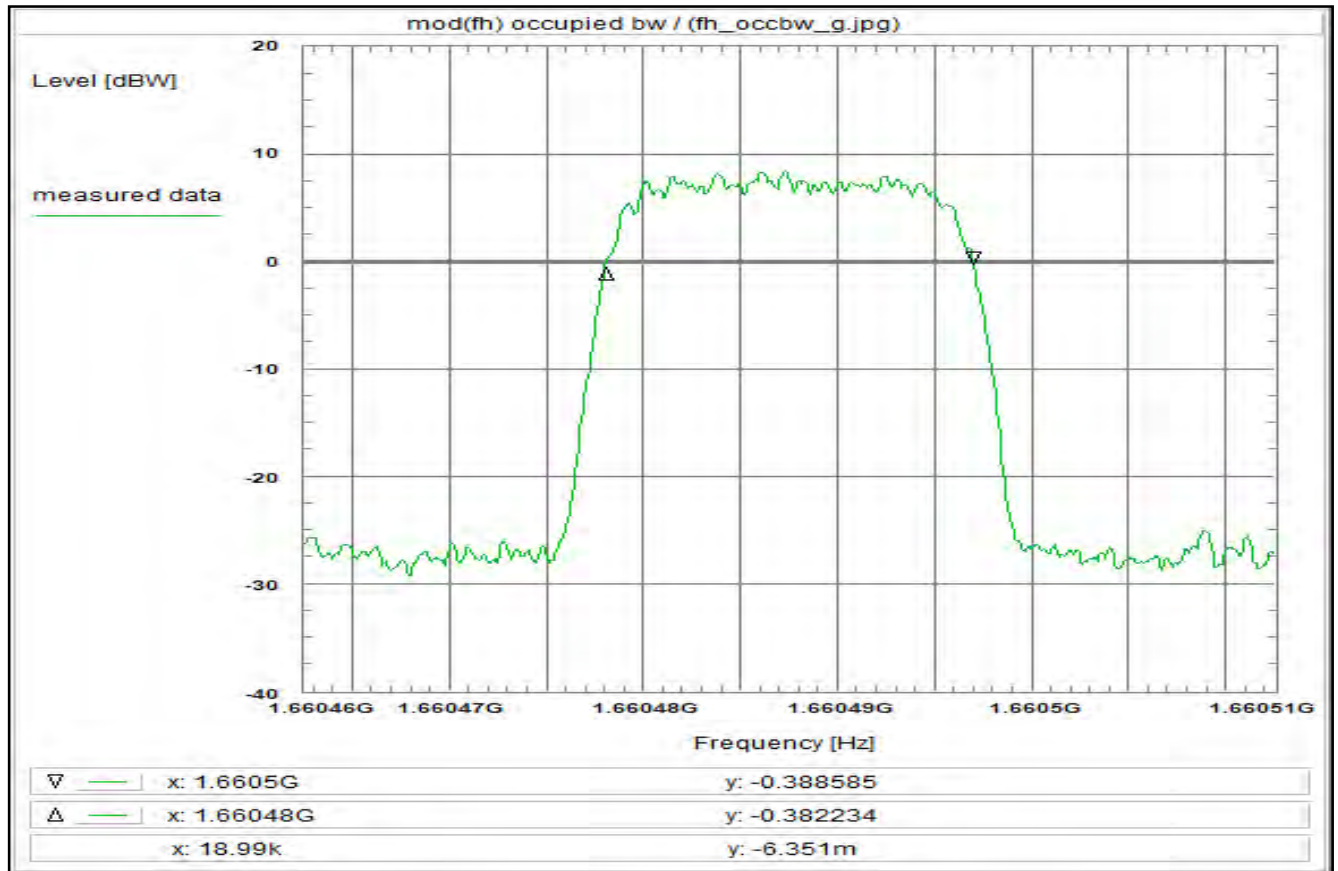
Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (1k -> 3k)	+ 4.8 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:Determination of the 'occupied bandwidth' at fh:

The measured value is about 19 kHz (delta marker)
 Measurement with 1 kHz resolution filter and noise averaging.

Plot No. 48



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fh)
Determination of the 'occupied bandwidth'

Limit:

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 % of the total mean power radiated by a given emission. (see §2.1049).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
A200S Class 4 ACD, fh, R80T0.5Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312, Power Splitter

Remark:

Test result: Determination of the occupied bandwidth

Environment condition:

Date & Time: Wed 20/May/2020 16:13:11
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6604625 GHz
Stop frequency: 1.6605125 GHz
Center frequency: 1.6604875 GHz
Frequency span: 50 kHz
Resolution-BW: 1 kHz
Video-BW: 3 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

Correction:

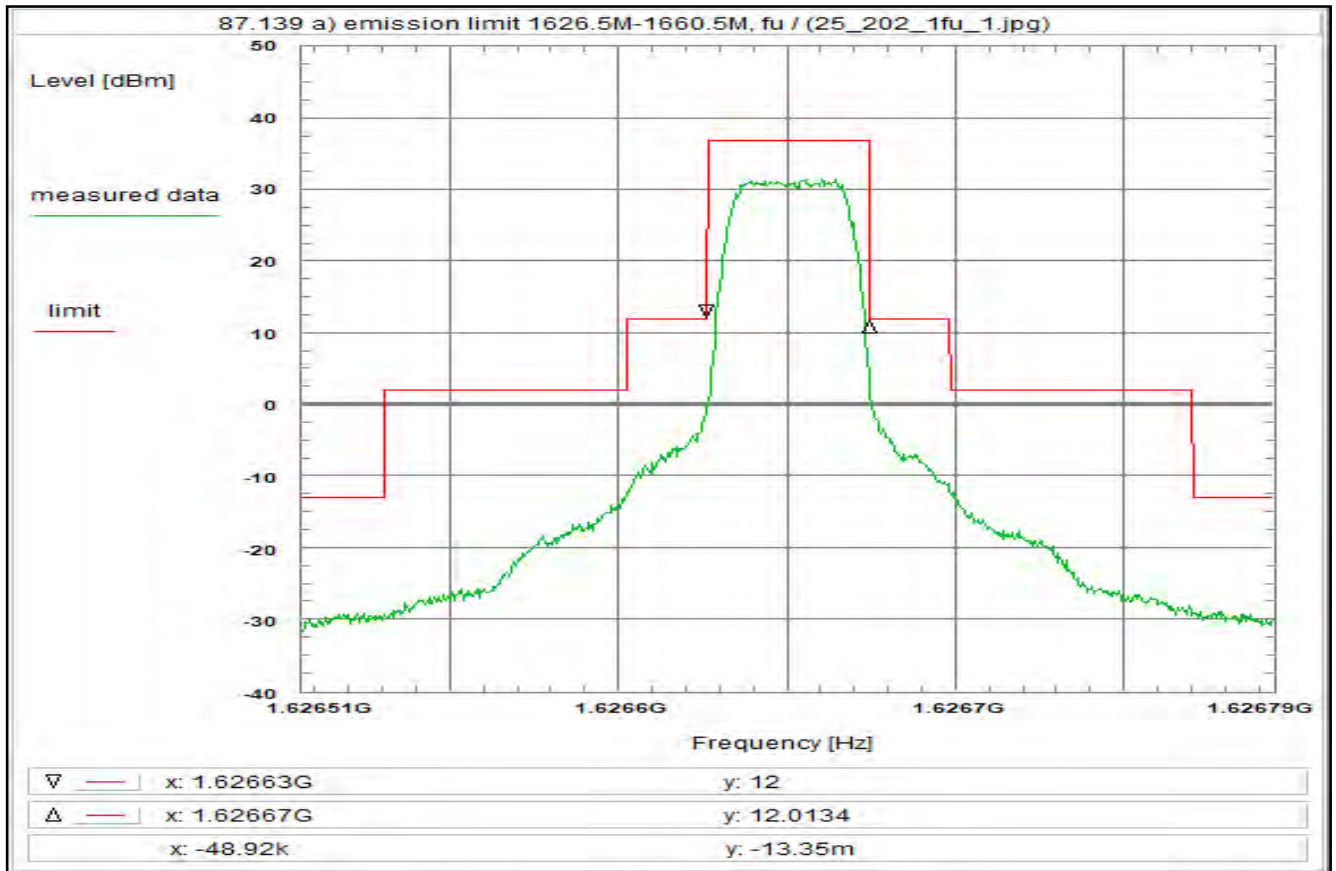
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna (on-axis)	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (1k -> 3k)	+ 4.8 dB
Atten. between HPA and feedhorn	+ 0.0 dB
10 dB Attenuator (U311)	+ 9.7 dB
20 dB Attenuator	+ 19.7 dB
Power splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

Determination of the 'occupied bandwidth' at fh:

The measured value is about 19 kHz (delta marker)
Measurement with 1 kHz resolution filter and noise averaging.

Plot No. 49



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

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

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, see test report chapter 5.4

Class 4 LDR, R5T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:33:35

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626506 GHz

Stop frequency: 1.626794 GHz

Center frequency: 1.62665 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

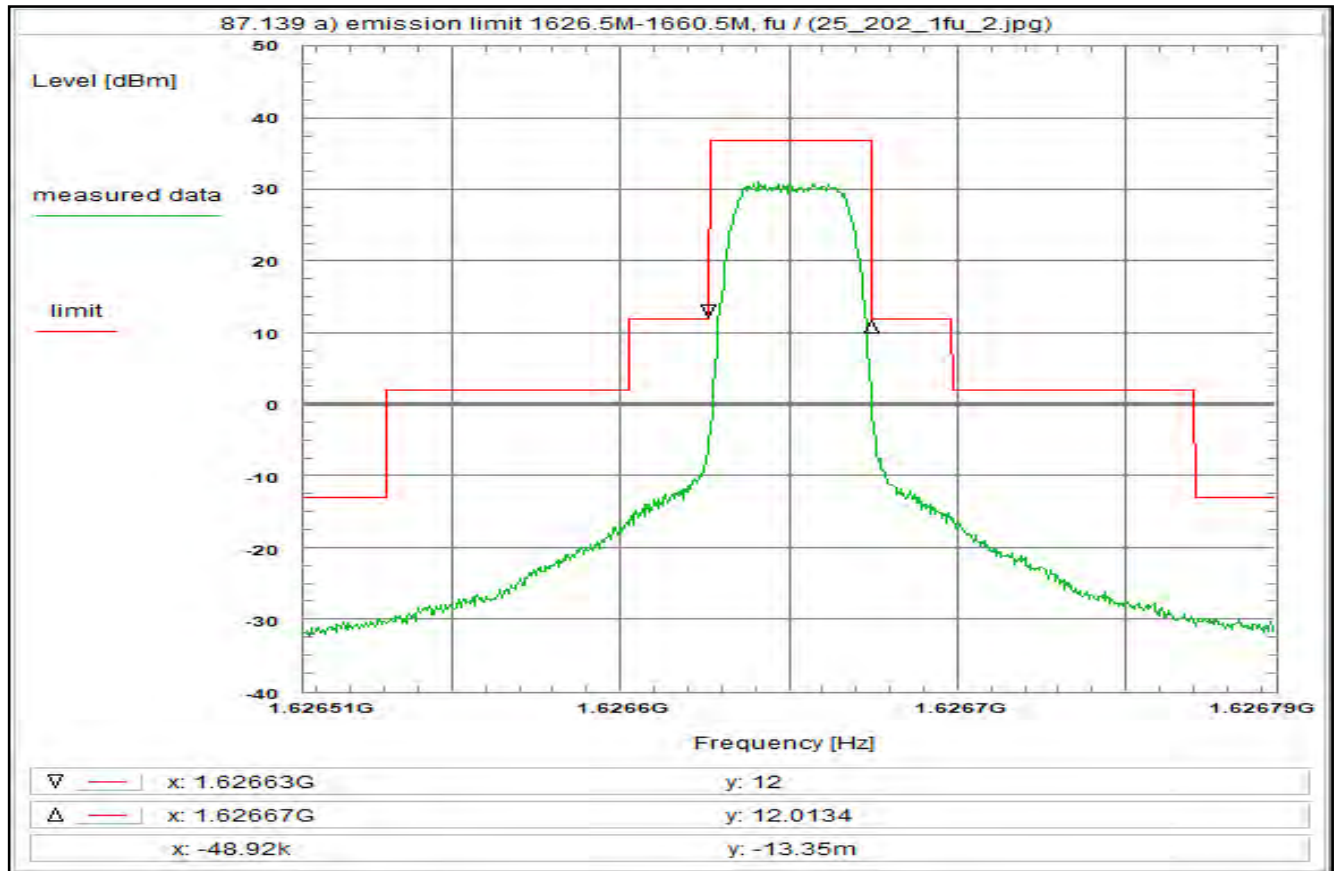
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 50



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:34:18

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626506 GHz

Stop frequency: 1.626794 GHz

Center frequency: 1.62665 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

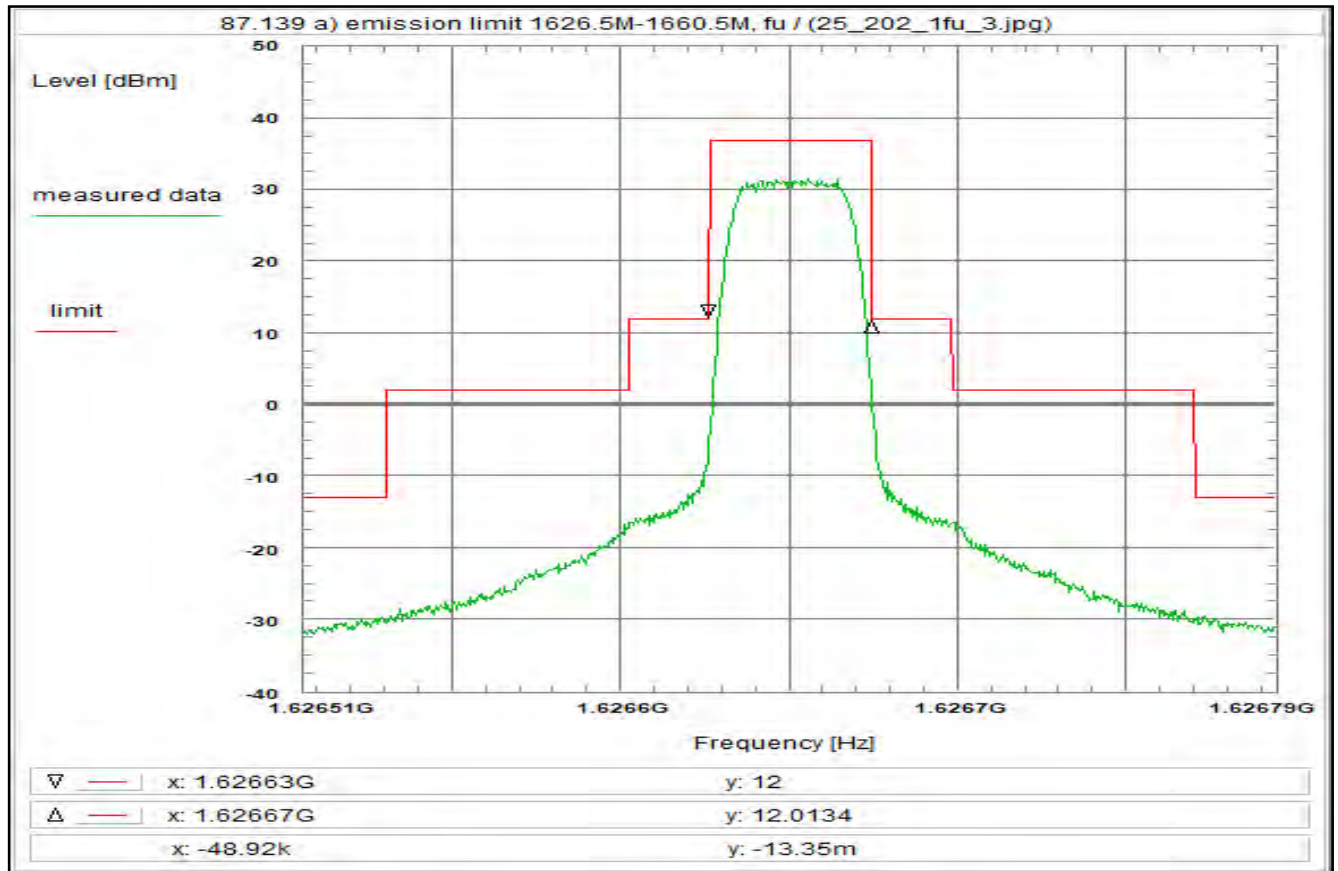
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 51



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T1QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:35:15

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626506 GHz

Stop frequency: 1.626794 GHz

Center frequency: 1.62665 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

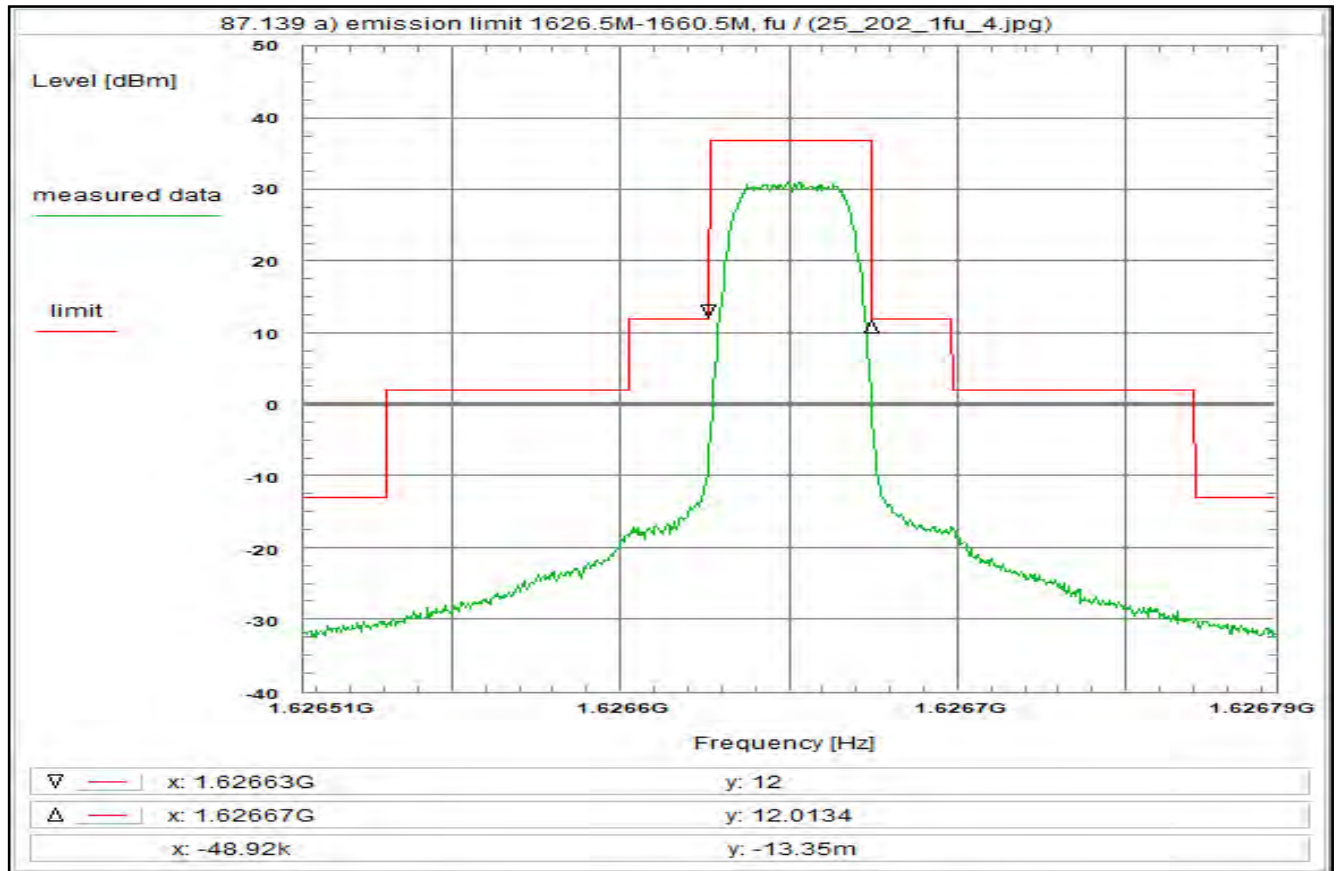
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 52



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: $-43 + 10 \log(P_{max})$ dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R80T1Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:35:54

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626506 GHz

Stop frequency: 1.626794 GHz

Center frequency: 1.62665 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

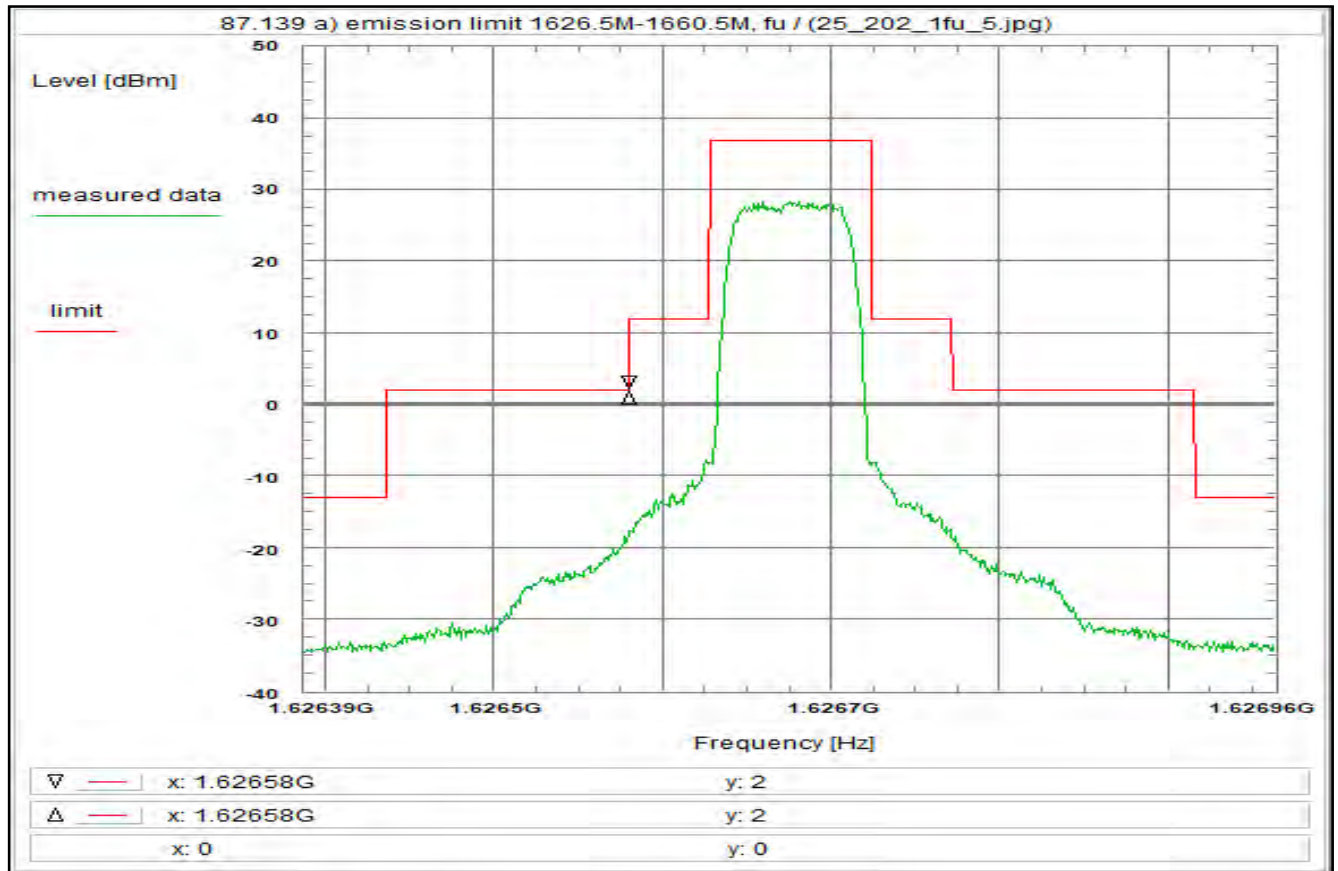
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 53



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

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

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, see test report chapter 5.4

Class 4 LDR, R5T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:38:07

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626387 GHz

Stop frequency: 1.626963 GHz

Center frequency: 1.626675 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

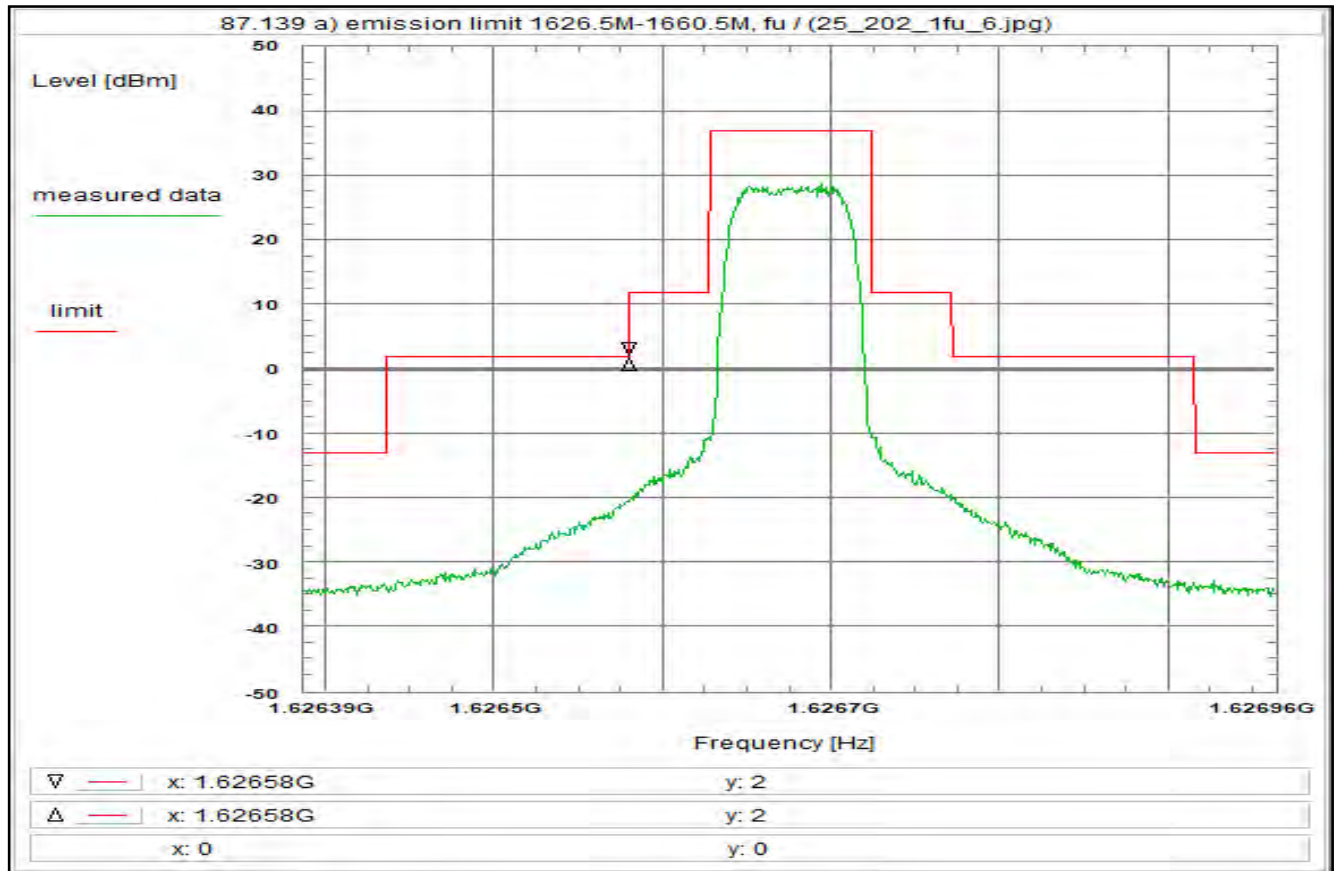
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 54



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:39:16

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626387 GHz

Stop frequency: 1.626963 GHz

Center frequency: 1.626675 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

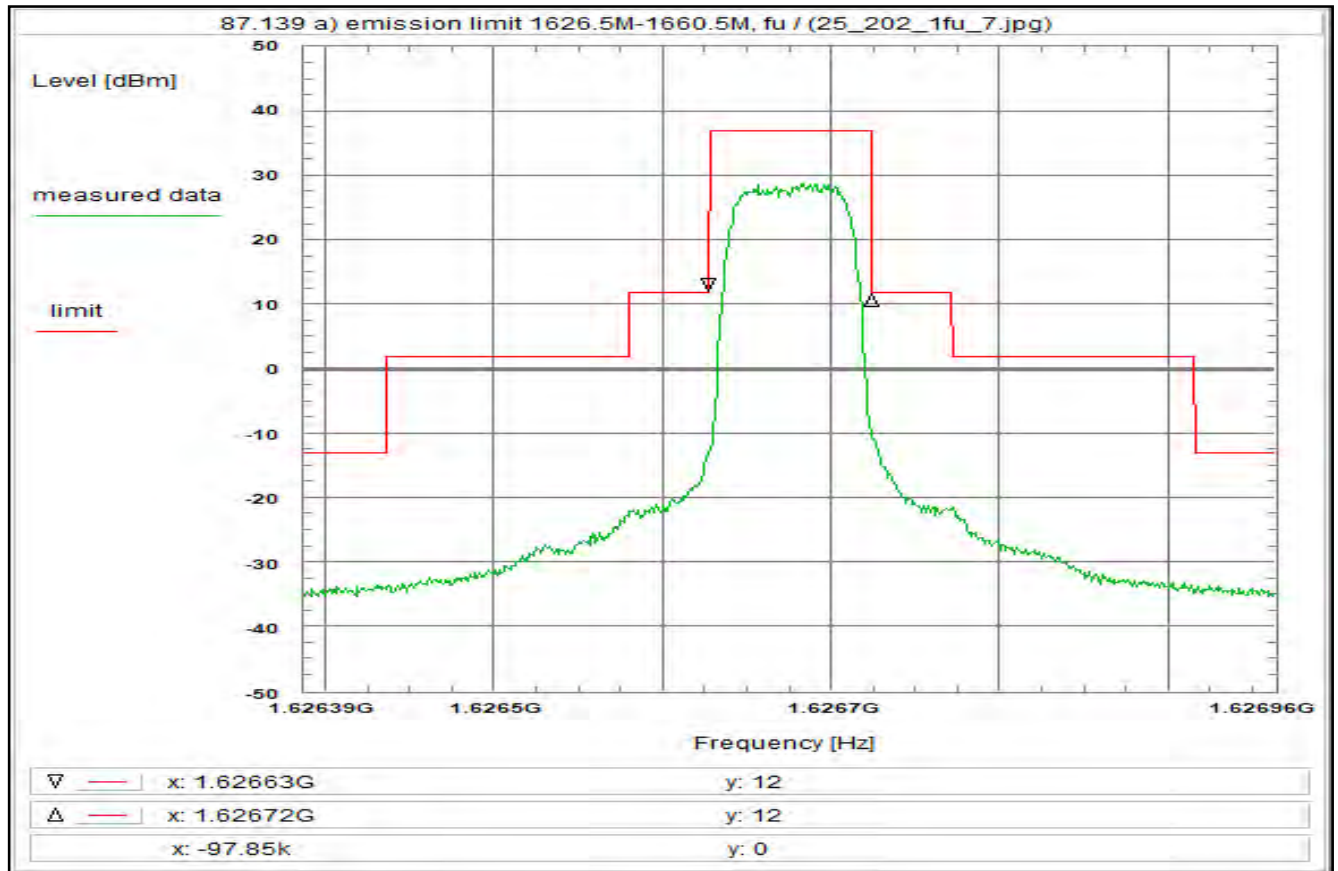
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 55



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:40:03

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626387 GHz

Stop frequency: 1.626963 GHz

Center frequency: 1.626675 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

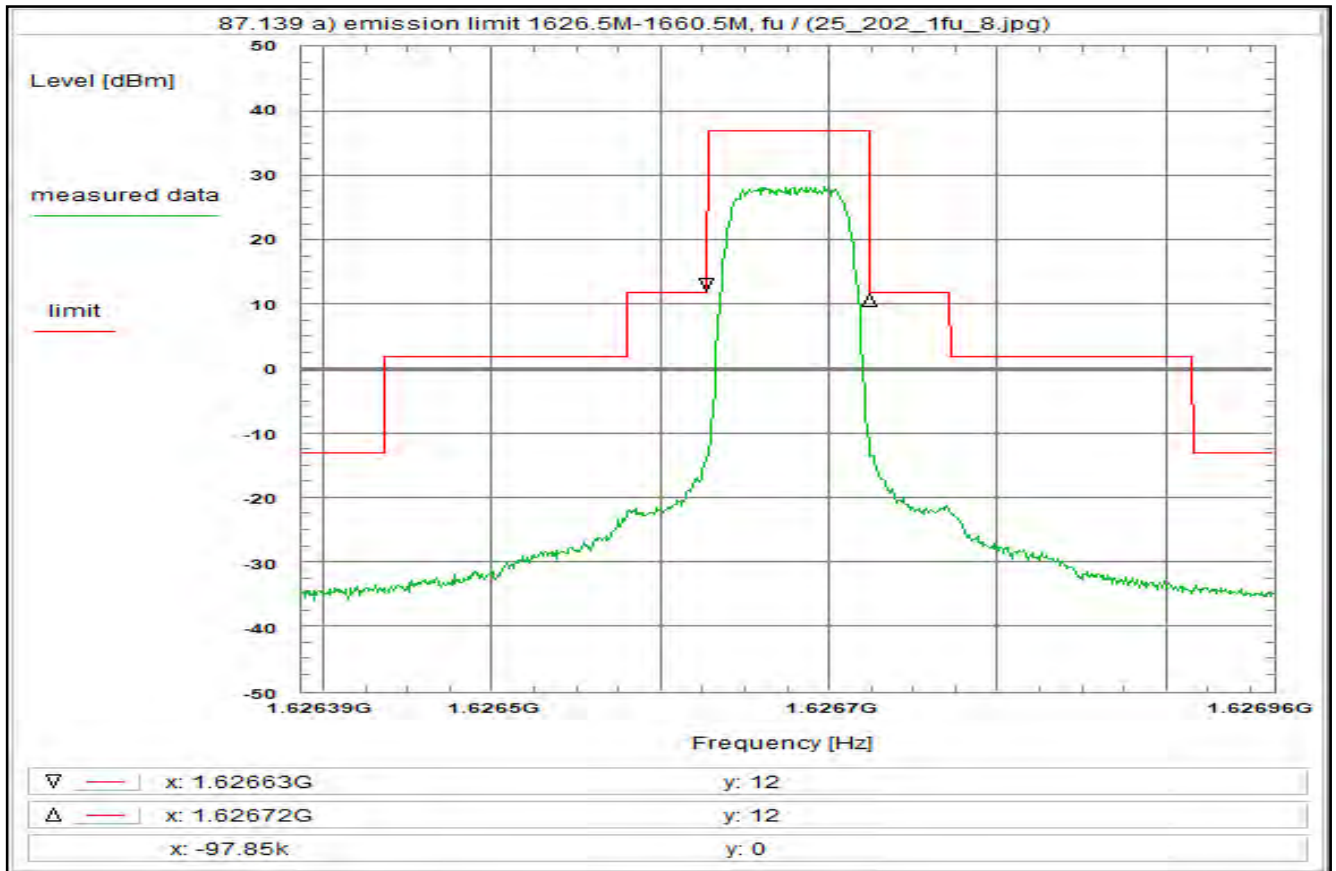
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 56



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:42:57

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626387 GHz

Stop frequency: 1.626963 GHz

Center frequency: 1.626675 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

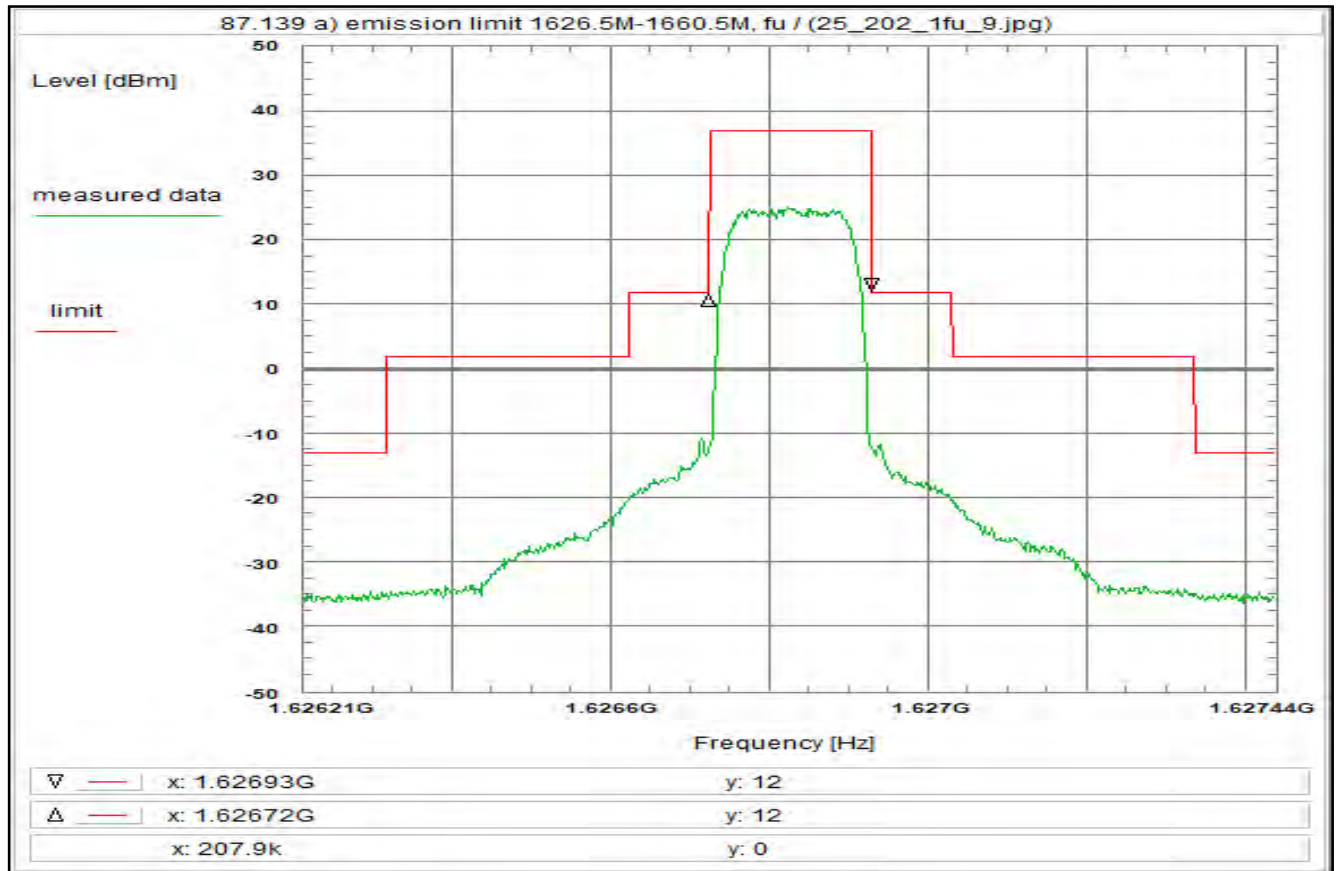
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 57



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:44:51

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626213 GHz

Stop frequency: 1.627437 GHz

Center frequency: 1.626825 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

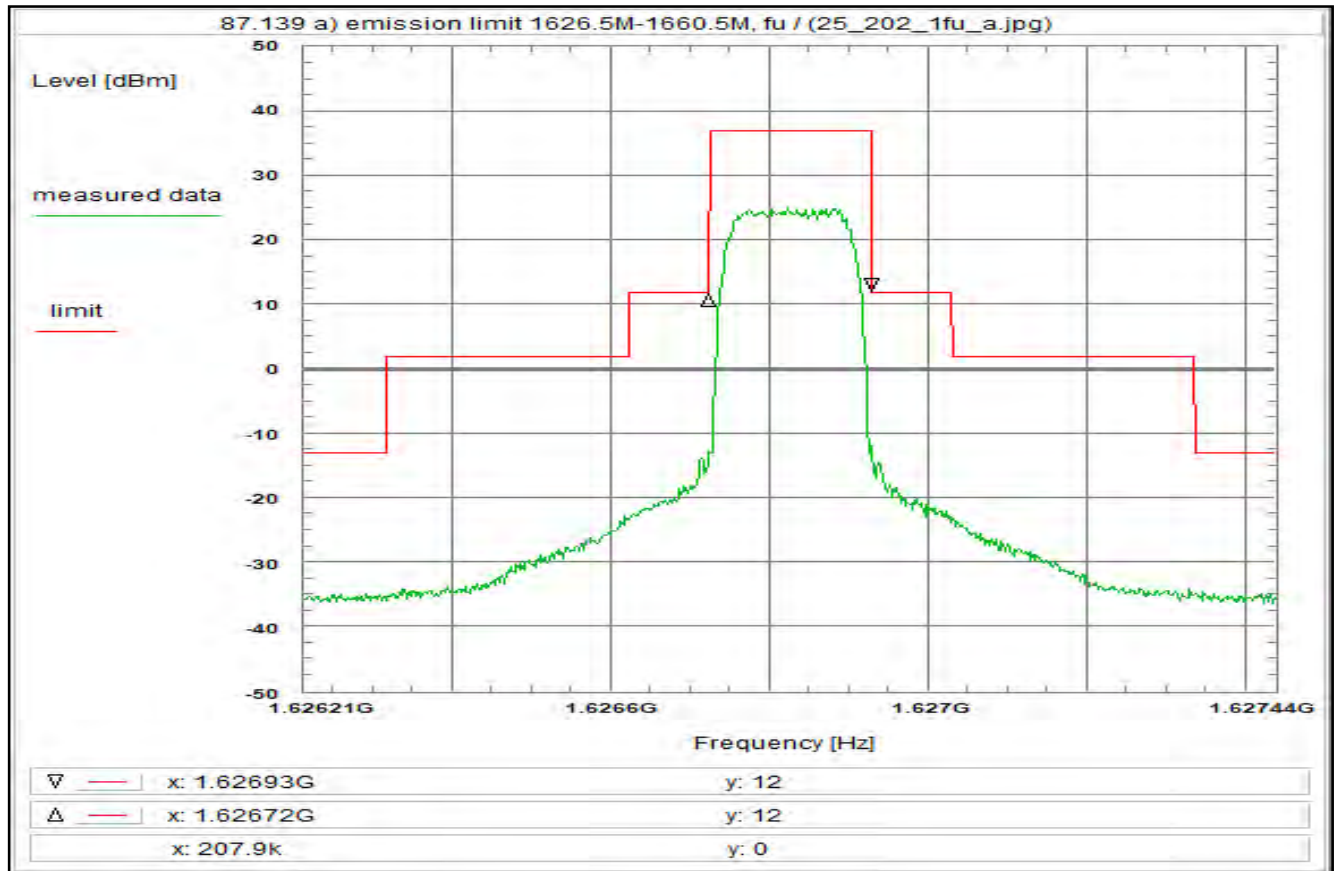
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 58



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:45:40

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626213 GHz

Stop frequency: 1.627437 GHz

Center frequency: 1.626825 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

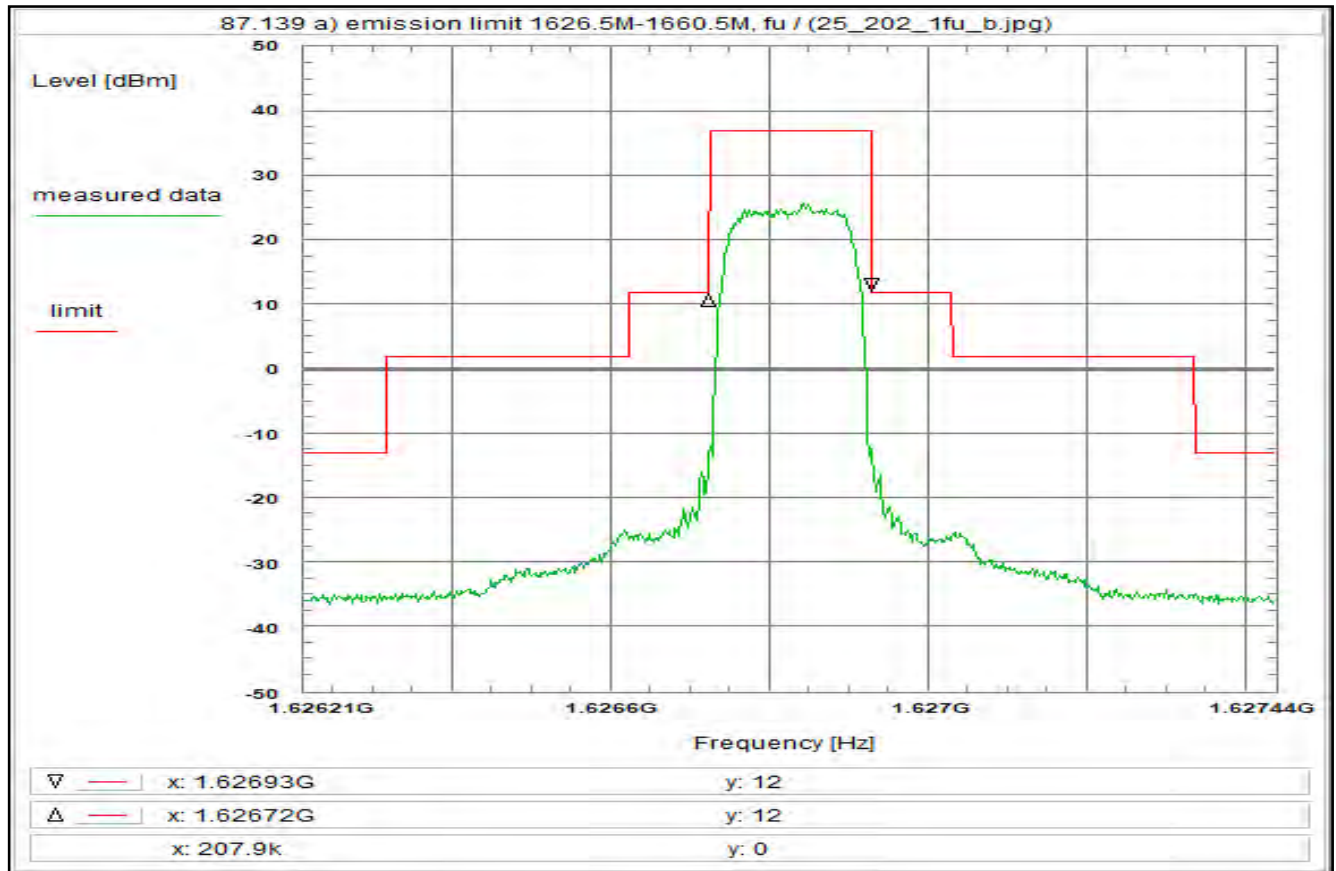
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 59



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:48:15

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626213 GHz

Stop frequency: 1.627437 GHz

Center frequency: 1.626825 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

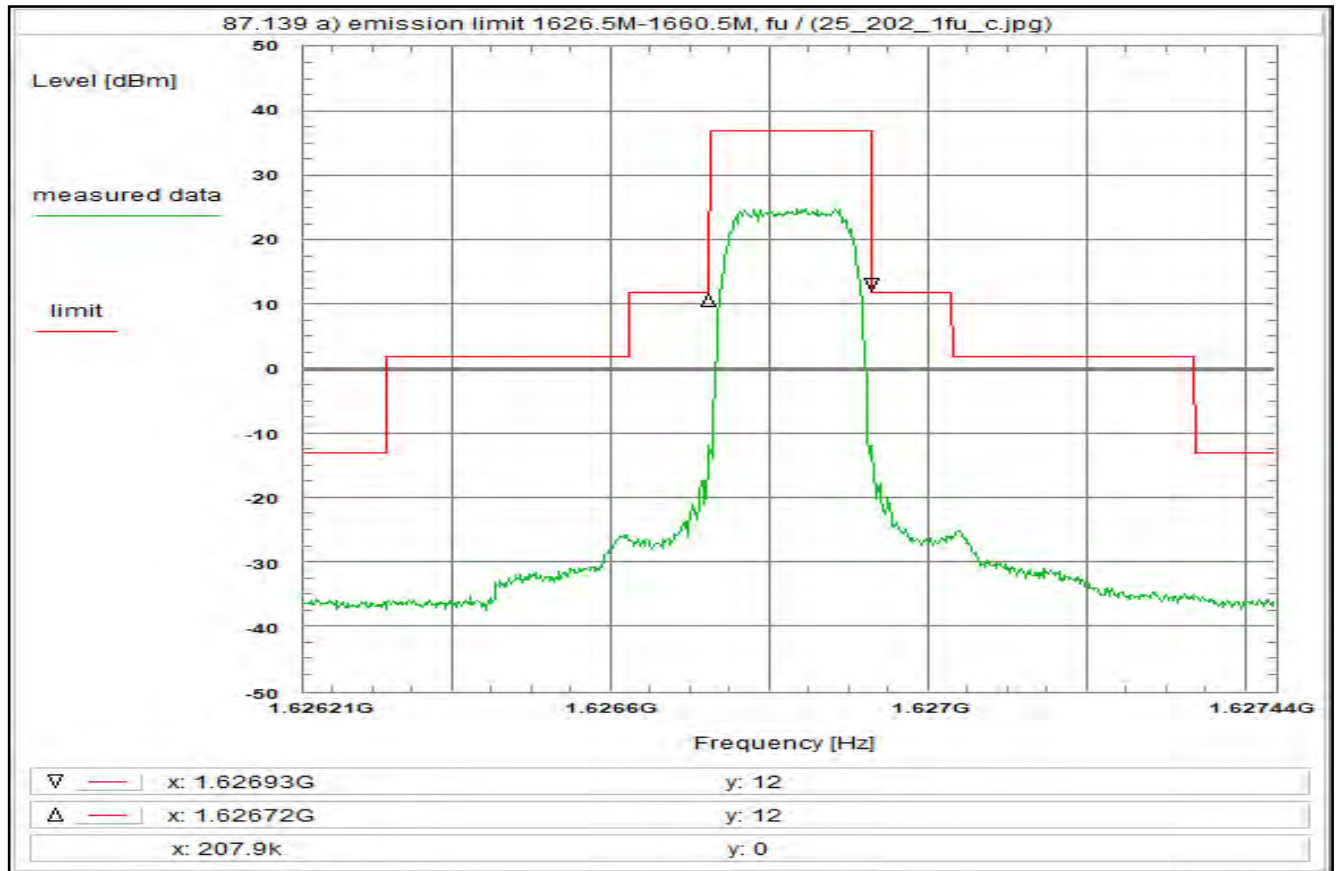
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 60



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:49:45

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626213 GHz

Stop frequency: 1.627437 GHz

Center frequency: 1.626825 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

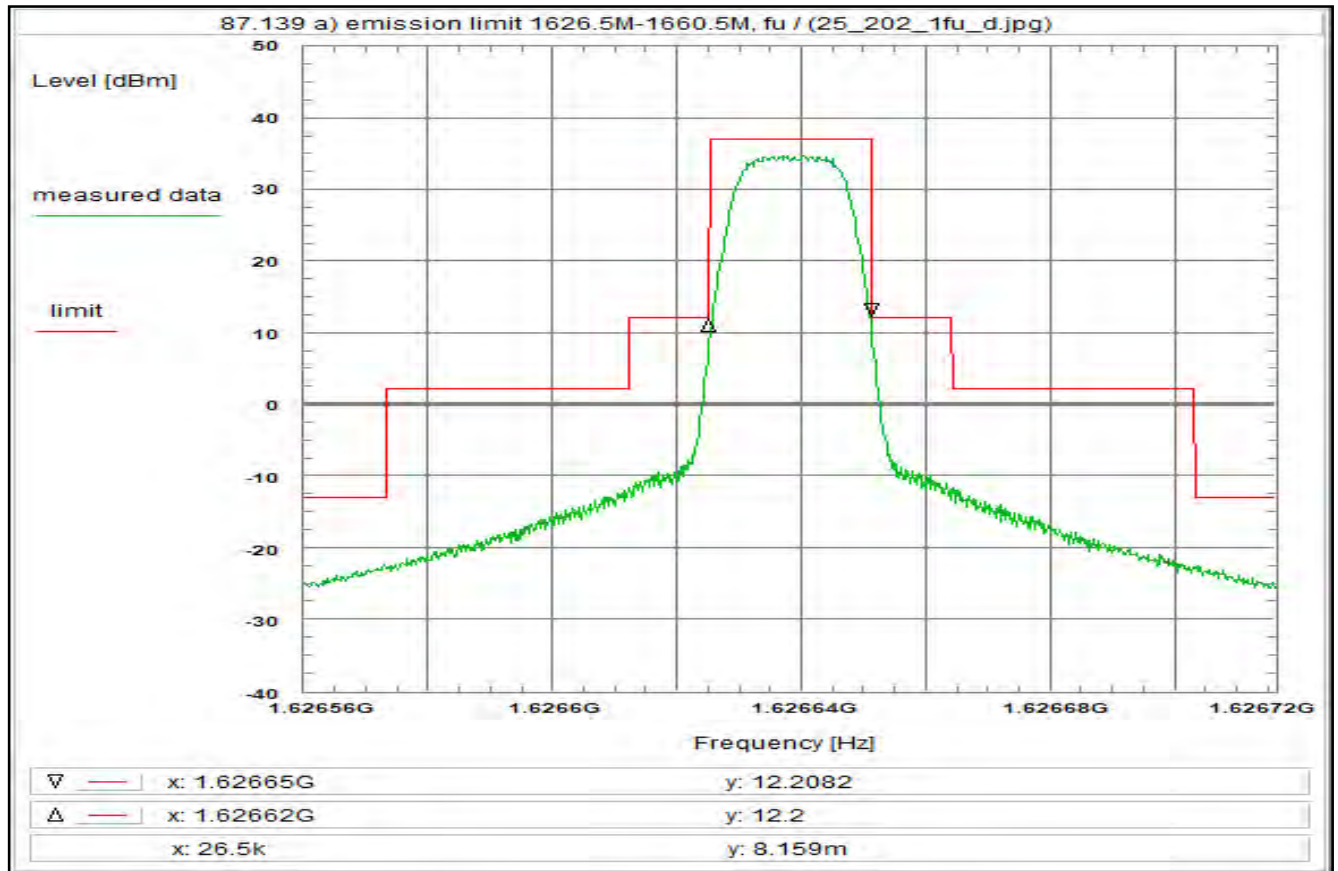
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 61



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

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

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, see test report chapter 5.4

Class 4 LDR, R20T05QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:00:12

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62656 GHz

Stop frequency: 1.626716 GHz

Center frequency: 1.626638 GHz

Frequency span: 156 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Average

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

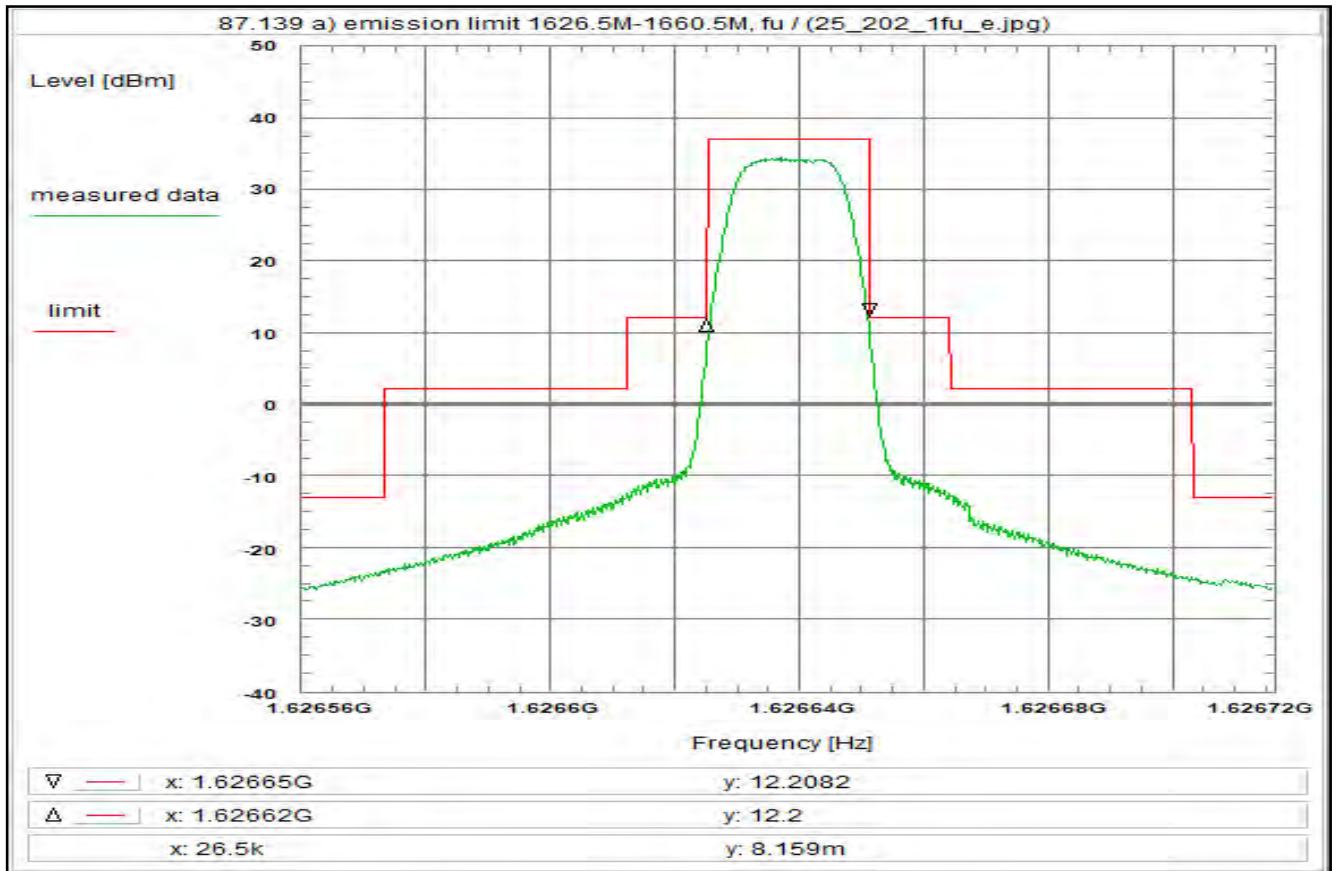
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 62



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R80T05Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:01:16

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62656 GHz

Stop frequency: 1.626716 GHz

Center frequency: 1.626638 GHz

Frequency span: 156 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Average

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

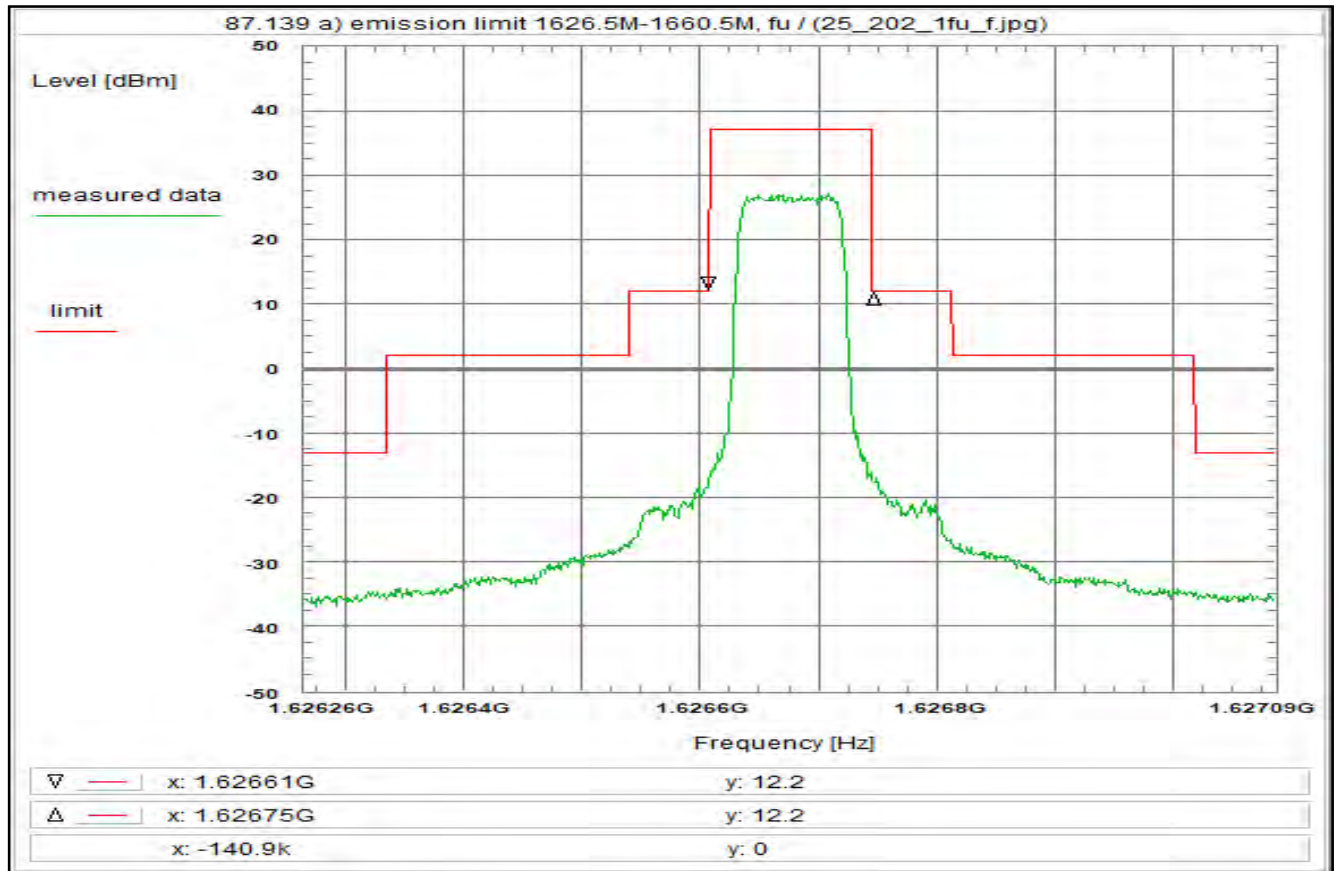
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 63



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, FR80T2X4

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:09:52
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626264 GHz
 Stop frequency: 1.627086 GHz
 Center frequency: 1.626675 GHz
 Frequency span: 822 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

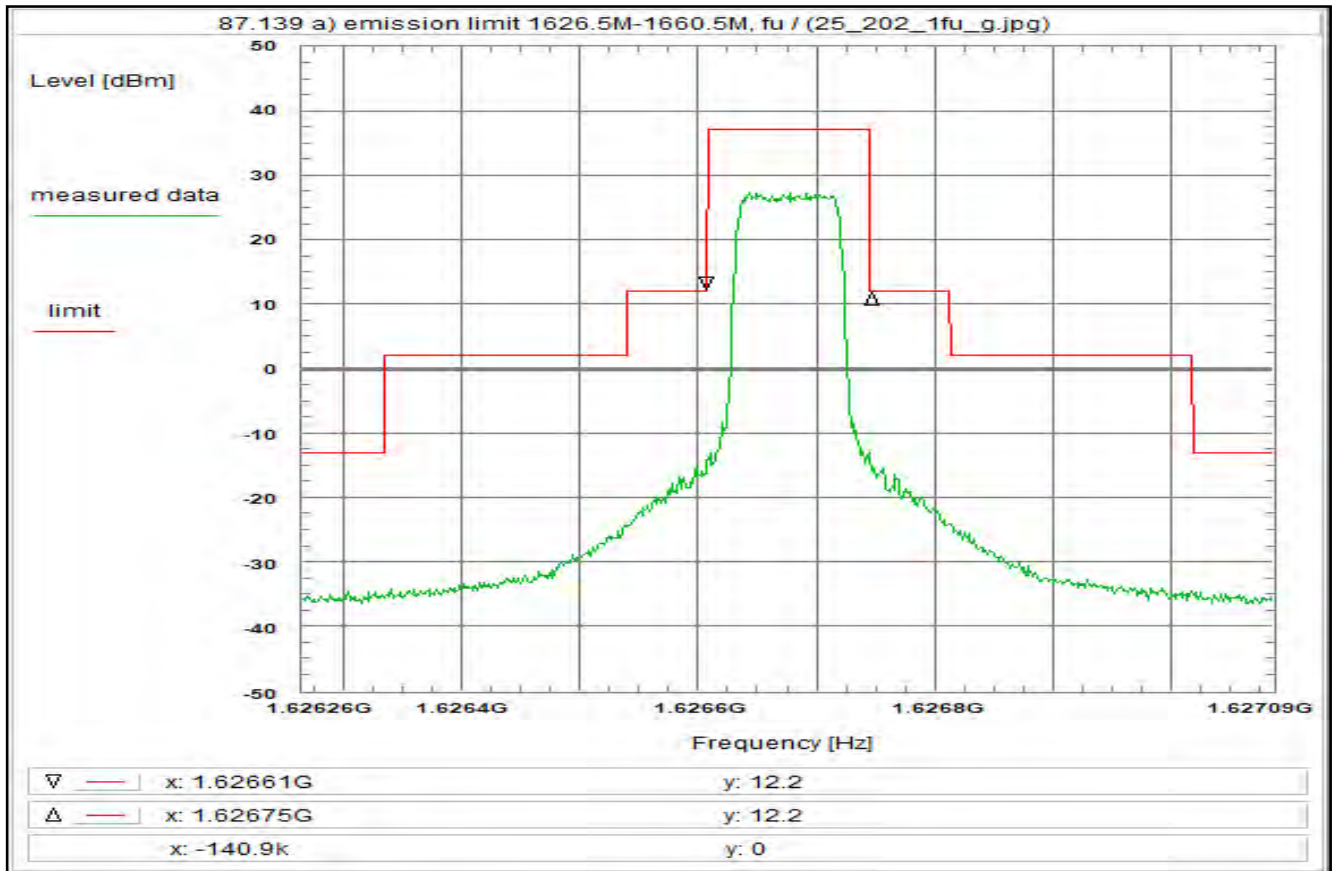
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 64



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, FR80T2X16

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:10:55
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626264 GHz
 Stop frequency: 1.627086 GHz
 Center frequency: 1.626675 GHz
 Frequency span: 822 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

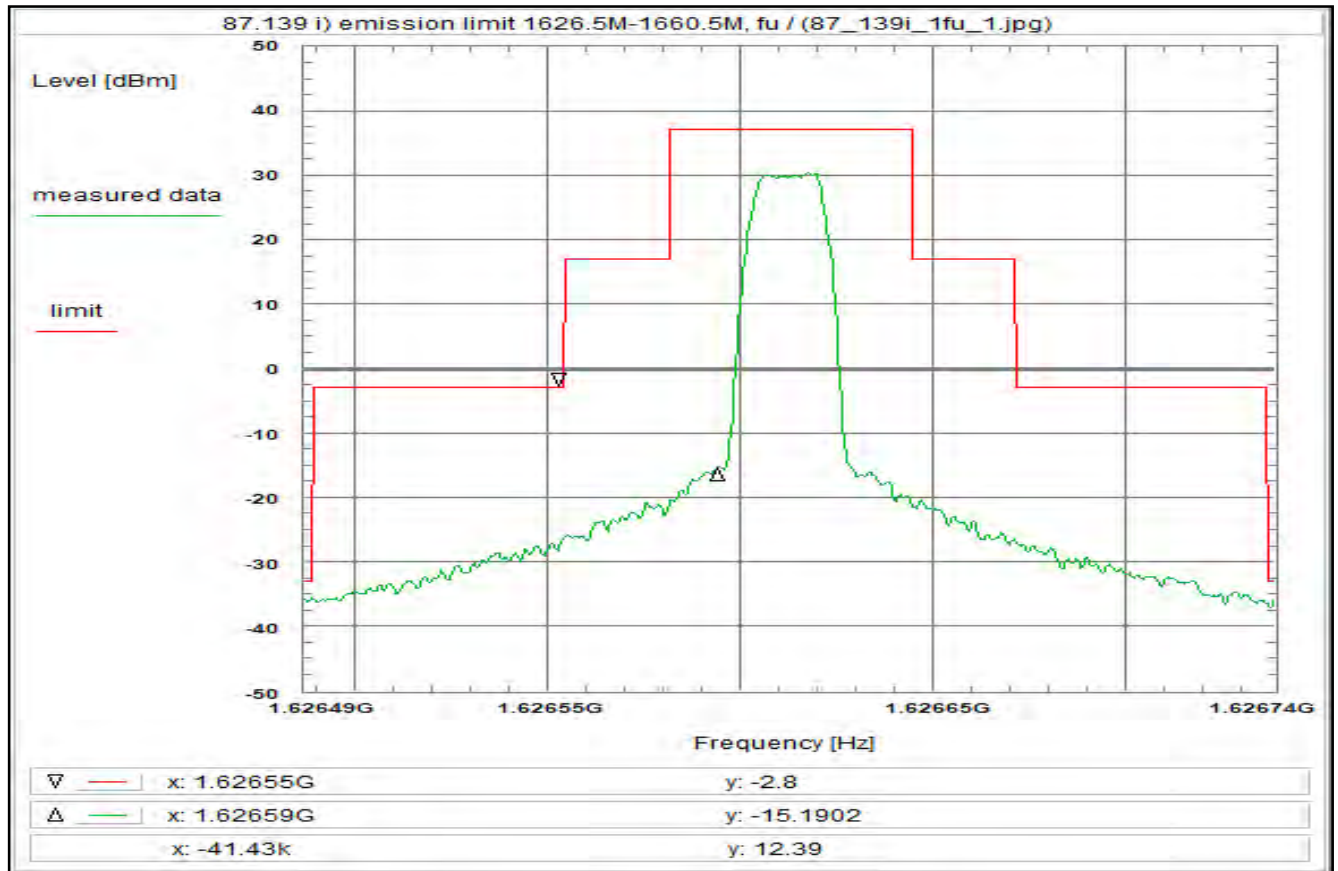
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 65



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T0.5QD, QPSK, 16.8 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:44:36
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6264865 GHz
 Stop frequency: 1.6267385 GHz
 Center frequency: 1.6266125 GHz
 Frequency span: 252 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

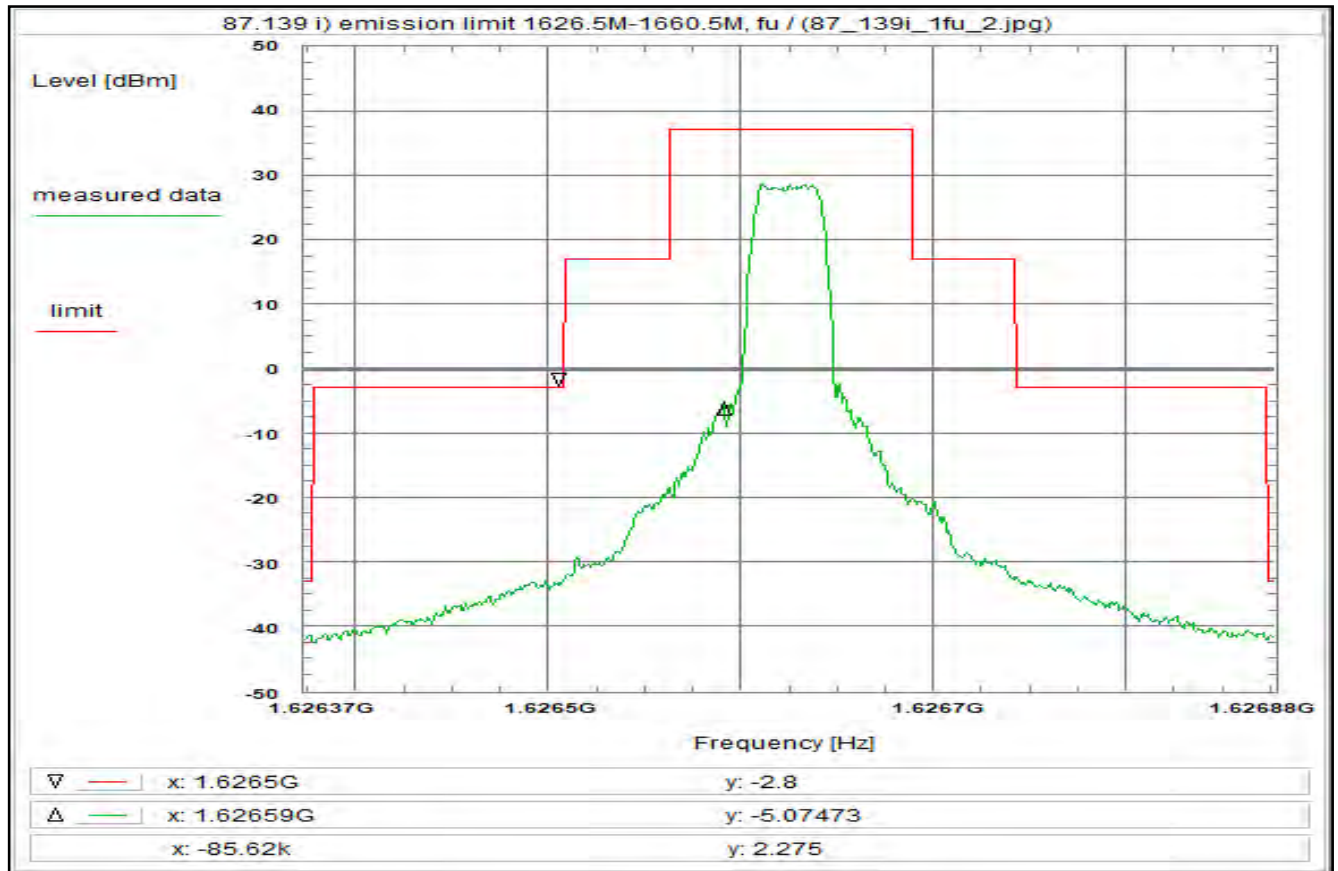
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 66



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T1XD/R20T1XD, 16QAM, 33.6 ksymbols

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:50:41
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626373 GHz
 Stop frequency: 1.626877 GHz
 Center frequency: 1.626625 GHz
 Frequency span: 504 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

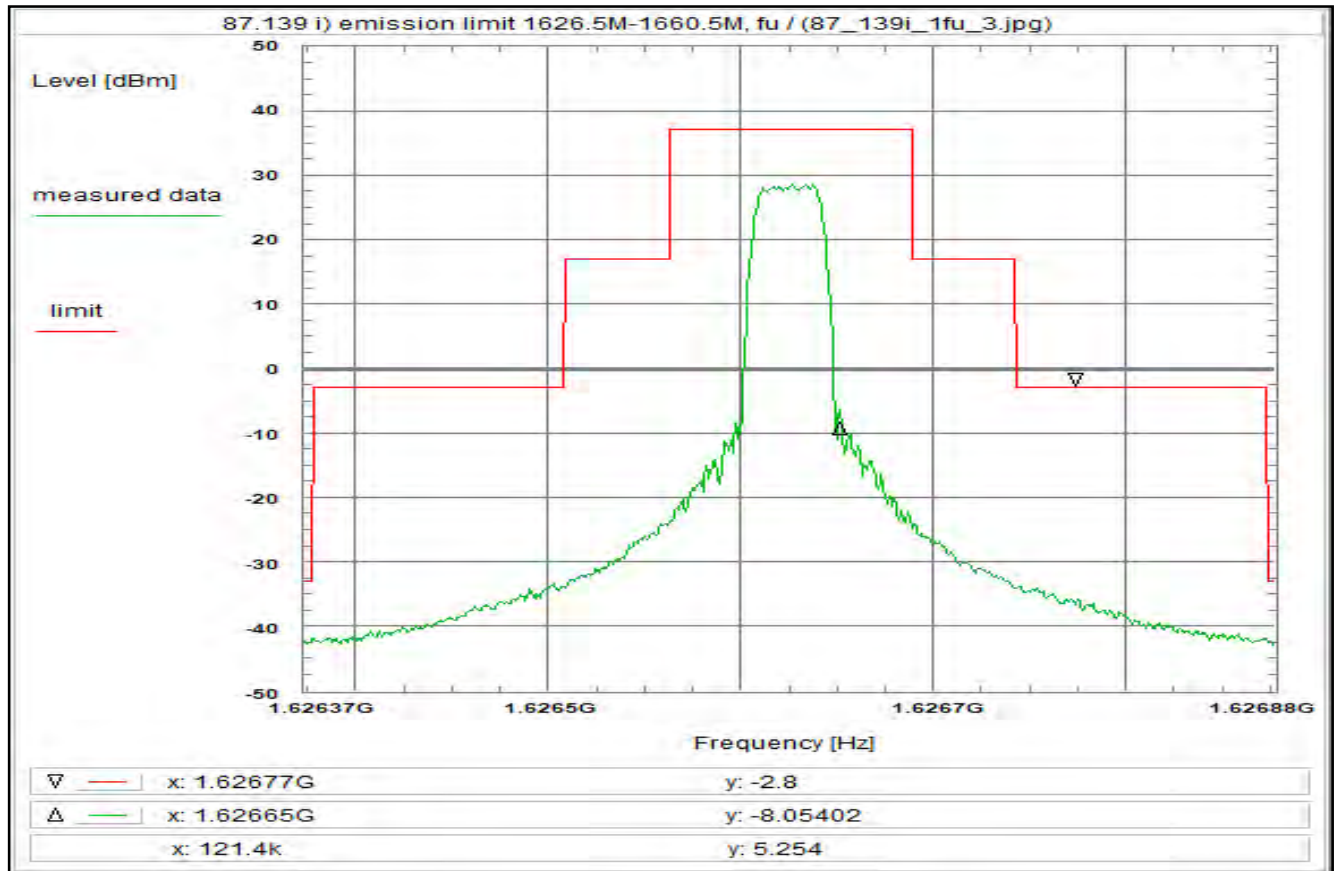
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 67



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T1QD/R80T1Q, QPSK, 33.6 ksymbols

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:52:22
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626373 GHz
 Stop frequency: 1.626877 GHz
 Center frequency: 1.626625 GHz
 Frequency span: 504 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

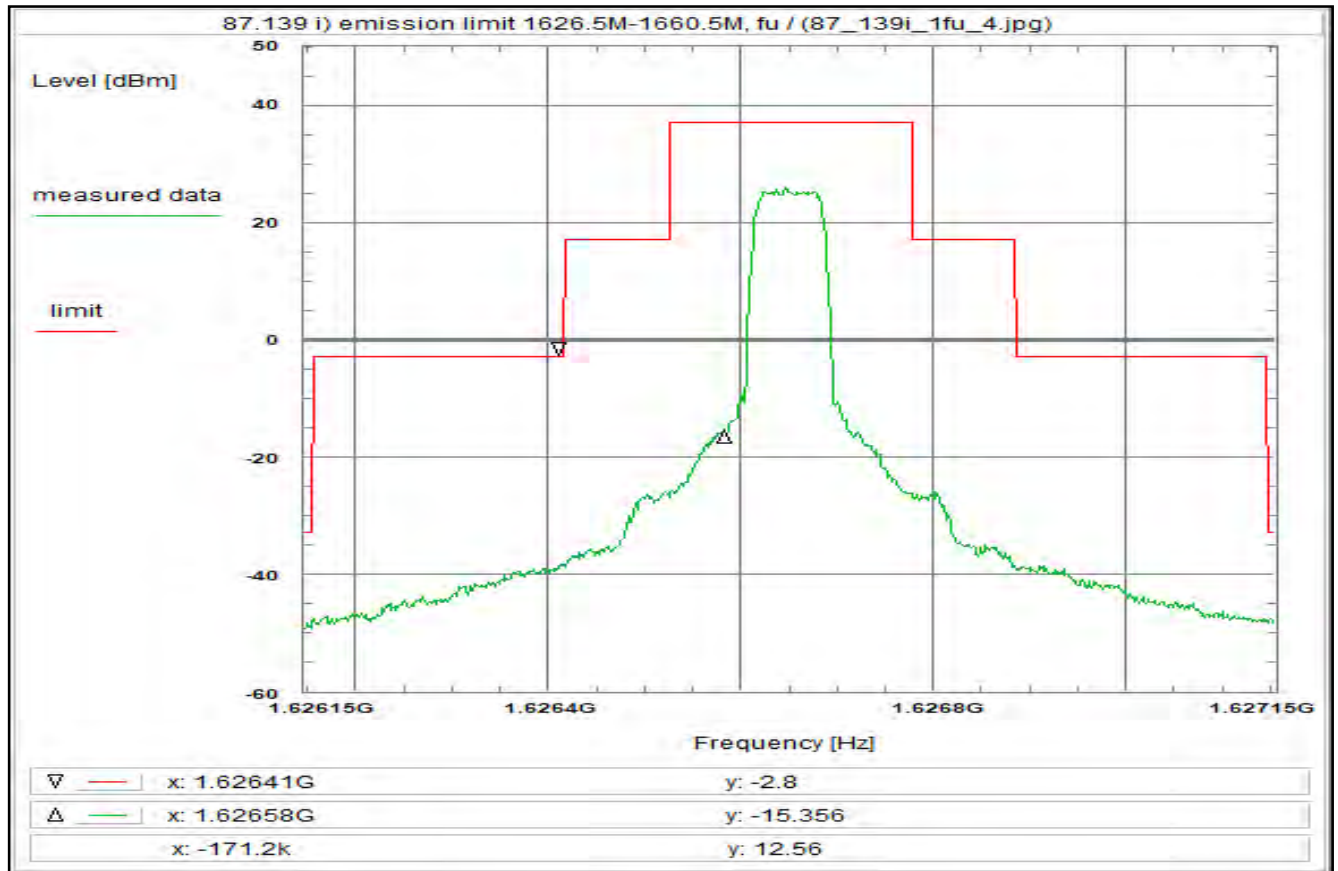
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 68



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T2XD/R20T2XD, 16QAM, 67.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:10:48
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626146 GHz
 Stop frequency: 1.627154 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 1.008 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

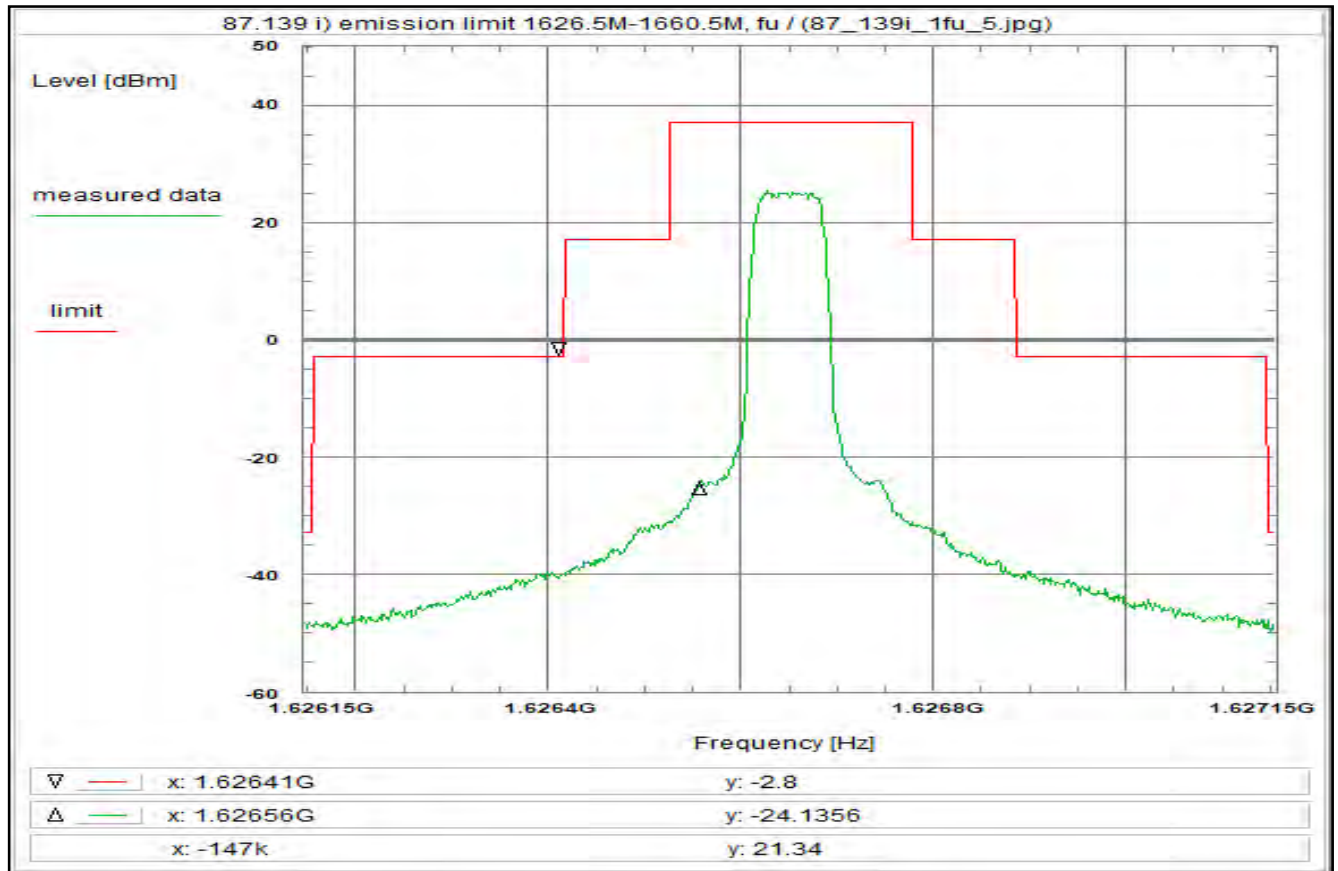
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 69



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T2QD/R20T2QD, QPSK, 67.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:12:35
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626146 GHz
 Stop frequency: 1.627154 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 1.008 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

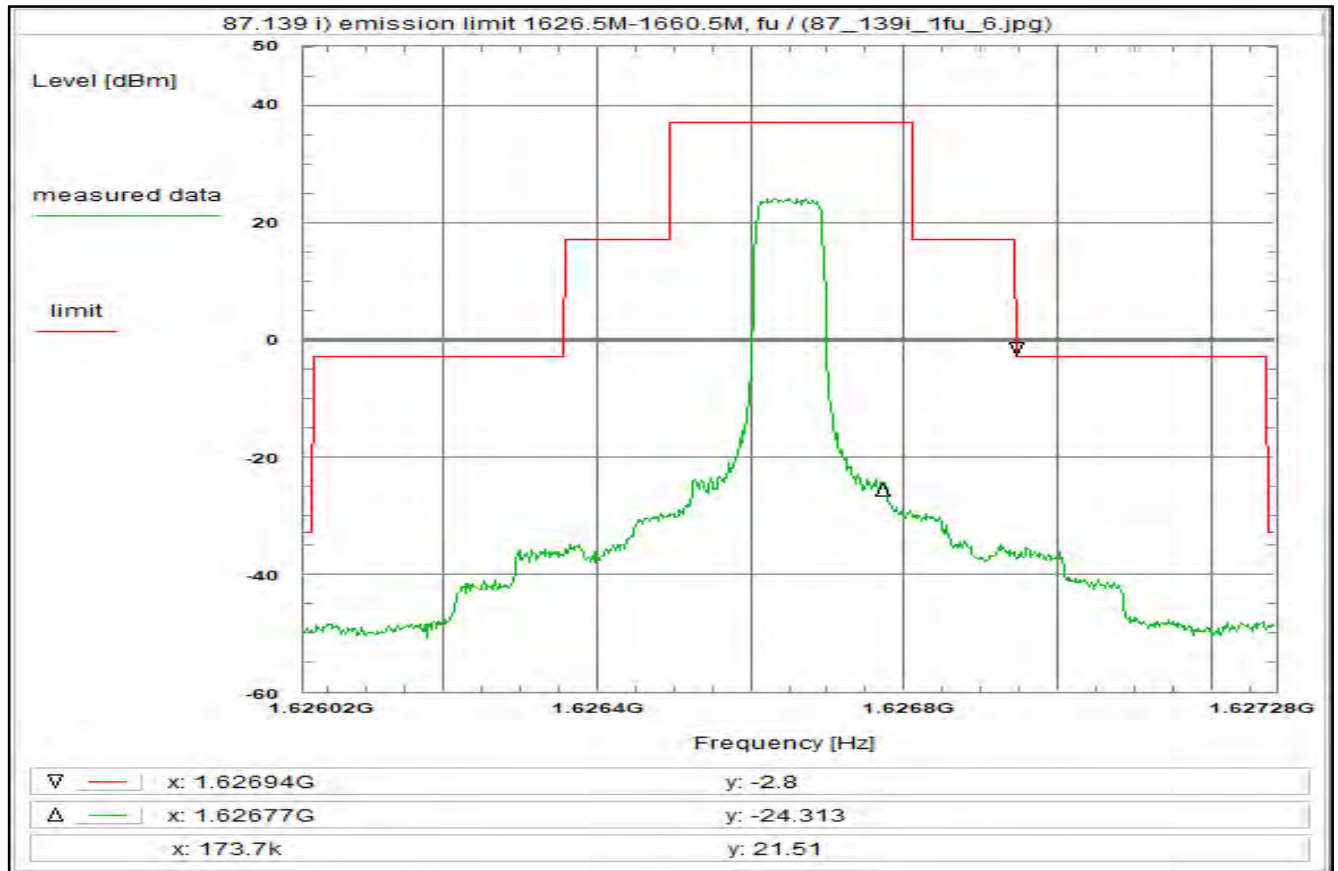
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 70



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, FR80T2.5X4, QPSK, 84 kHz

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:18:03
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62602 GHz
 Stop frequency: 1.62728 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 1.26 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

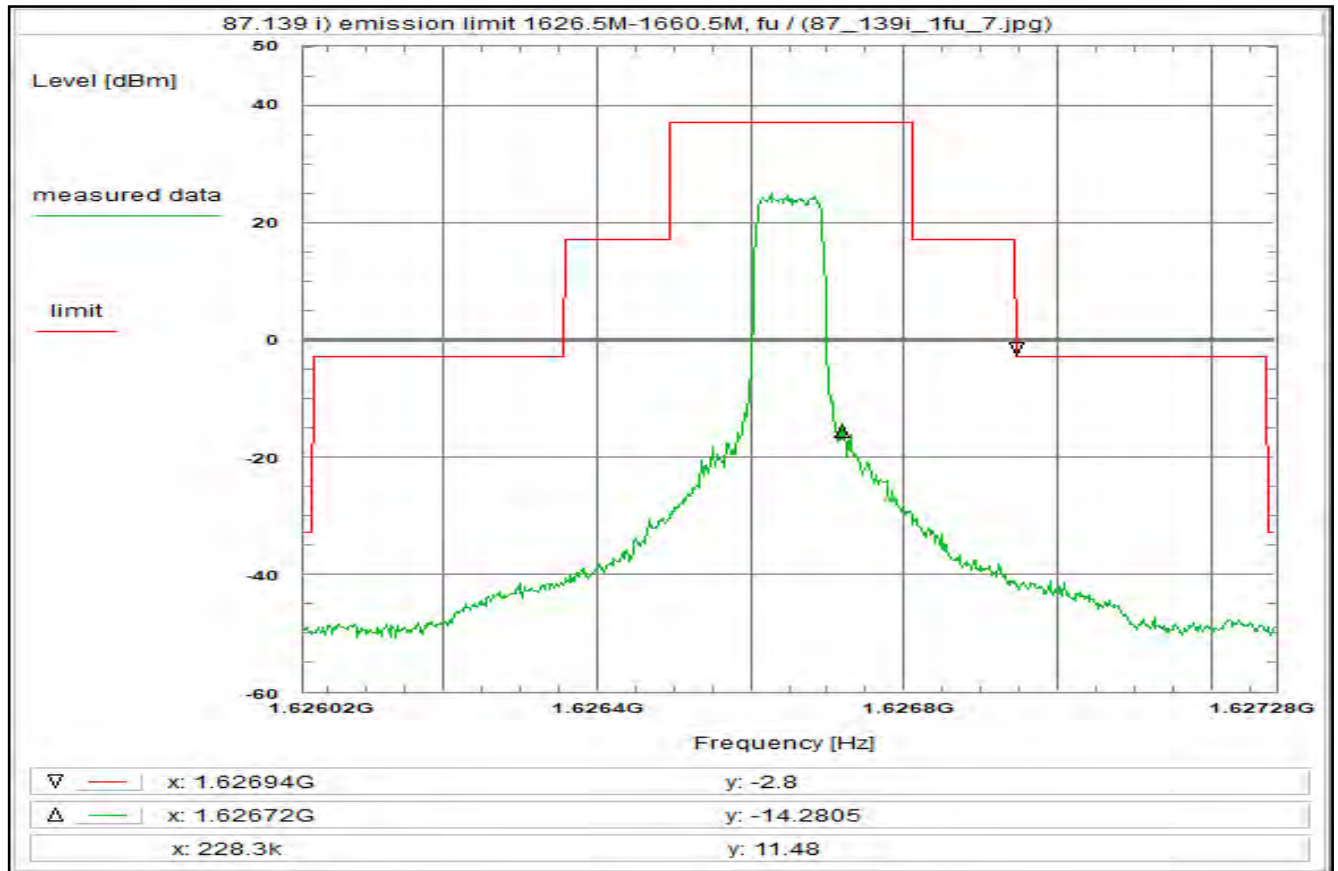
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 71



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, FR80T2.5X16, 16QAM, 84 kHz

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:19:36
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.62602 GHz
 Stop frequency: 1.62728 GHz
 Center frequency: 1.62665 GHz
 Frequency span: 1.26 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

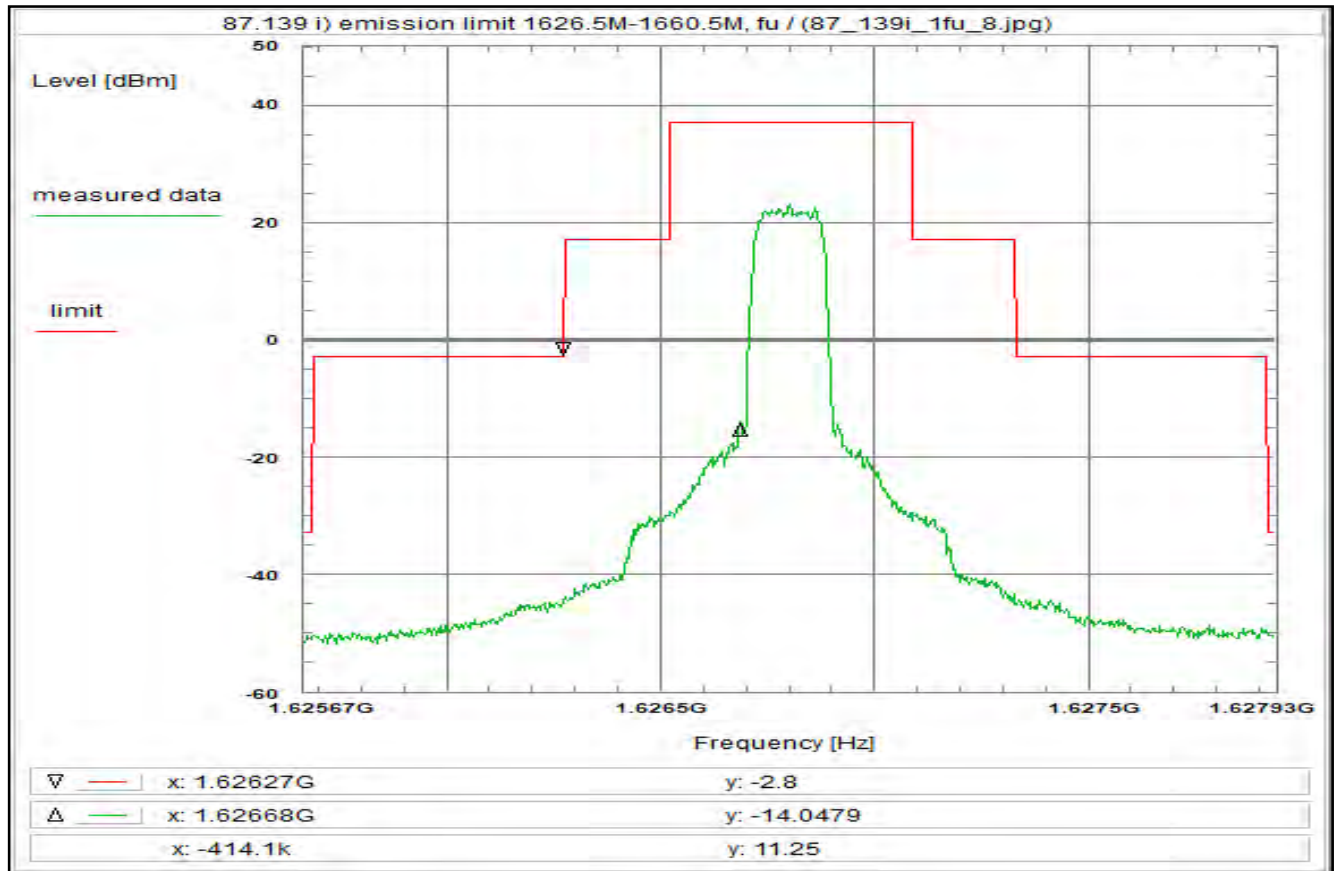
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 72



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T4.5XD/R20T4.5XD, 16QAM, 151.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:23:58
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.625666 GHz
 Stop frequency: 1.627934 GHz
 Center frequency: 1.6268 GHz
 Frequency span: 2.268 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

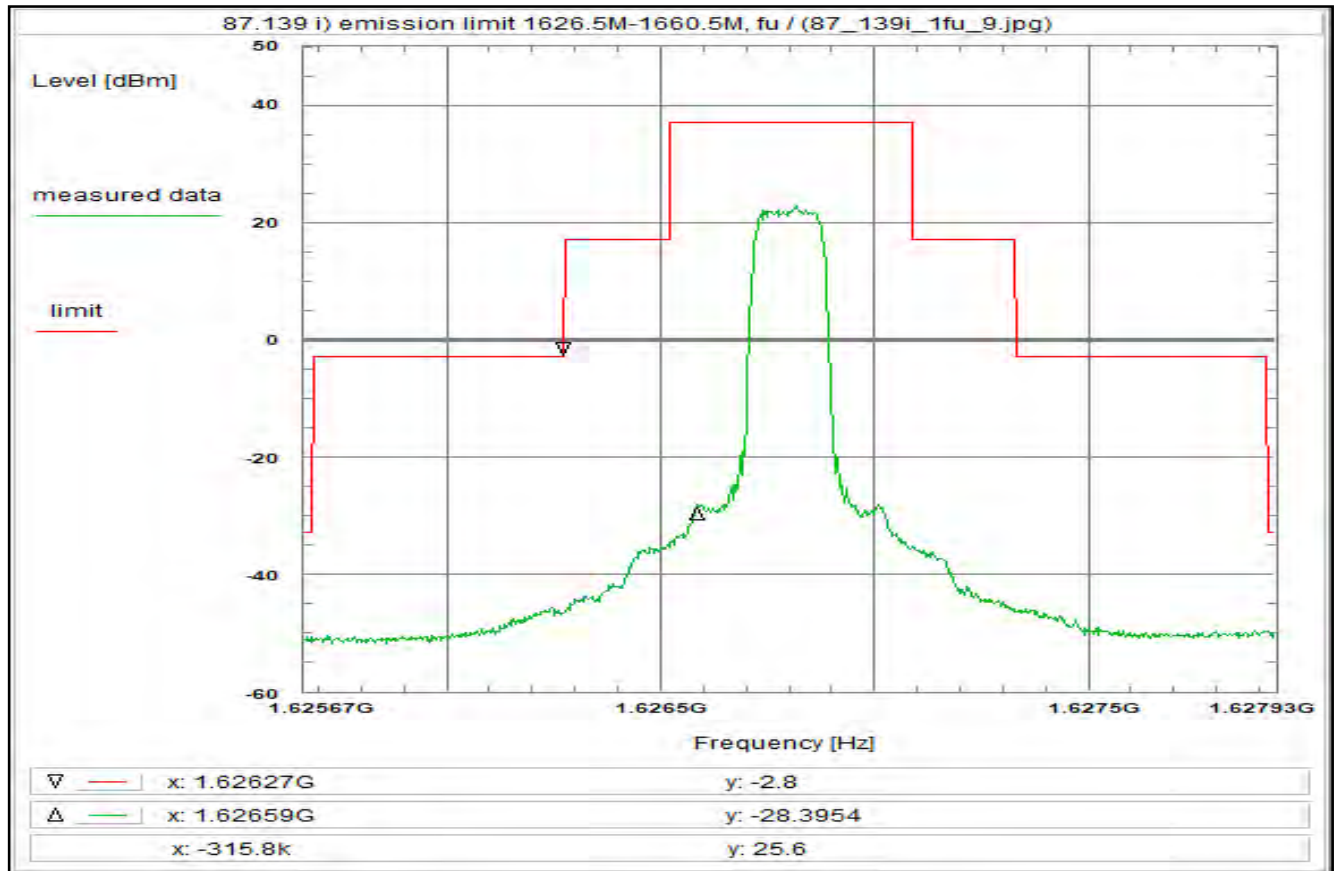
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 73



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T4.5QD/R20T4.5QD, QPSK, 151.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:28:23
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.625666 GHz
 Stop frequency: 1.627934 GHz
 Center frequency: 1.6268 GHz
 Frequency span: 2.268 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

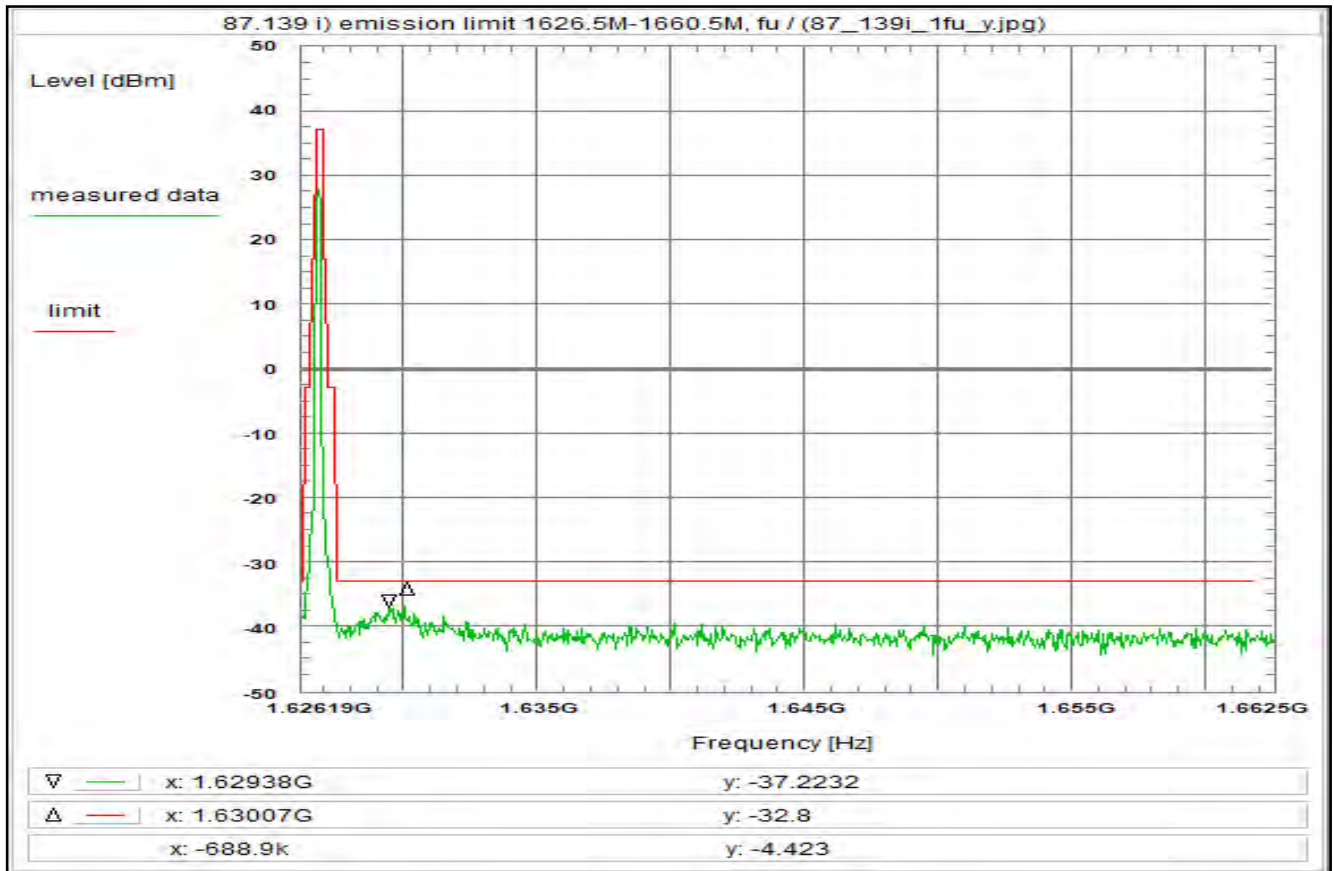
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 74



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the lower edge of the band (fu)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 LDR worst case modulation, whole band

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 09/Jul/2020 12:16:49
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.626188 GHz
 Stop frequency: 1.6625 GHz
 Center frequency: 1.644344 GHz
 Frequency span: 36.312 MHz
 Resolution-BW: 3 kHz
 Video-BW: 30 kHz
 Input attenuation: 30 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Freefield attenuation (U312)	+ 19.5 dB
U311	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

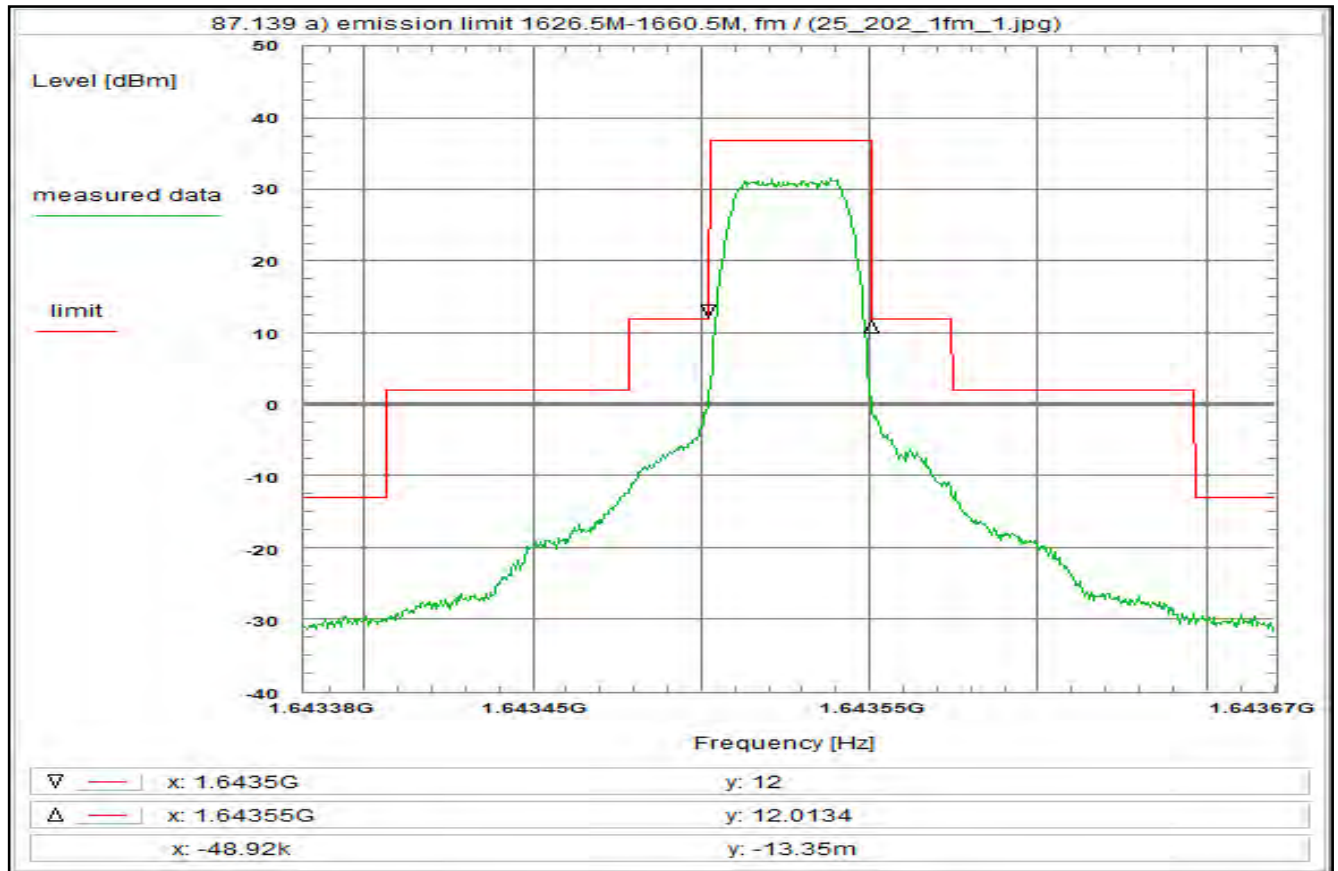
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 75



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 11:55:55

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643382 GHz

Stop frequency: 1.64367 GHz

Center frequency: 1.643526 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

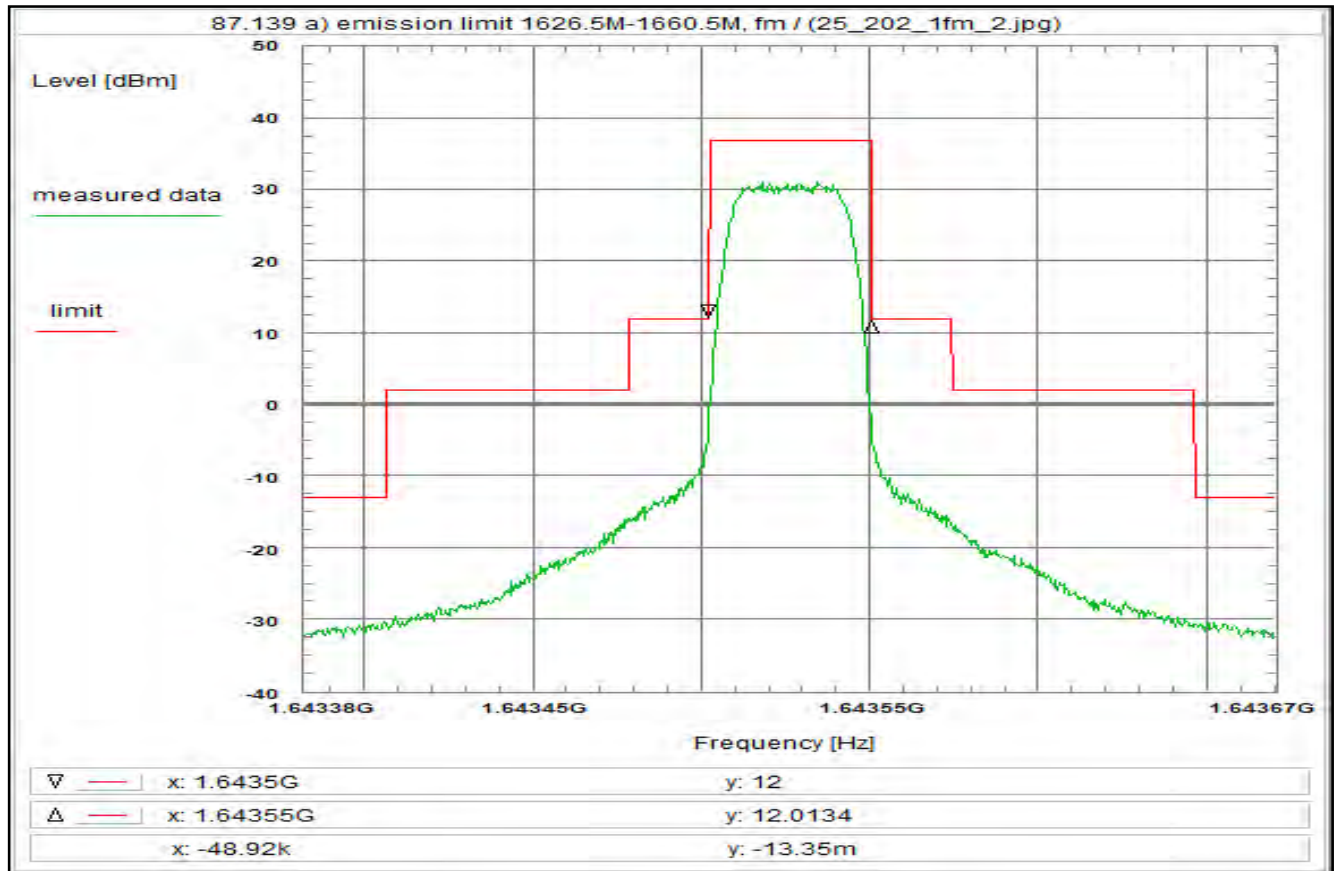
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 76



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 11:57:38

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643382 GHz

Stop frequency: 1.64367 GHz

Center frequency: 1.643526 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

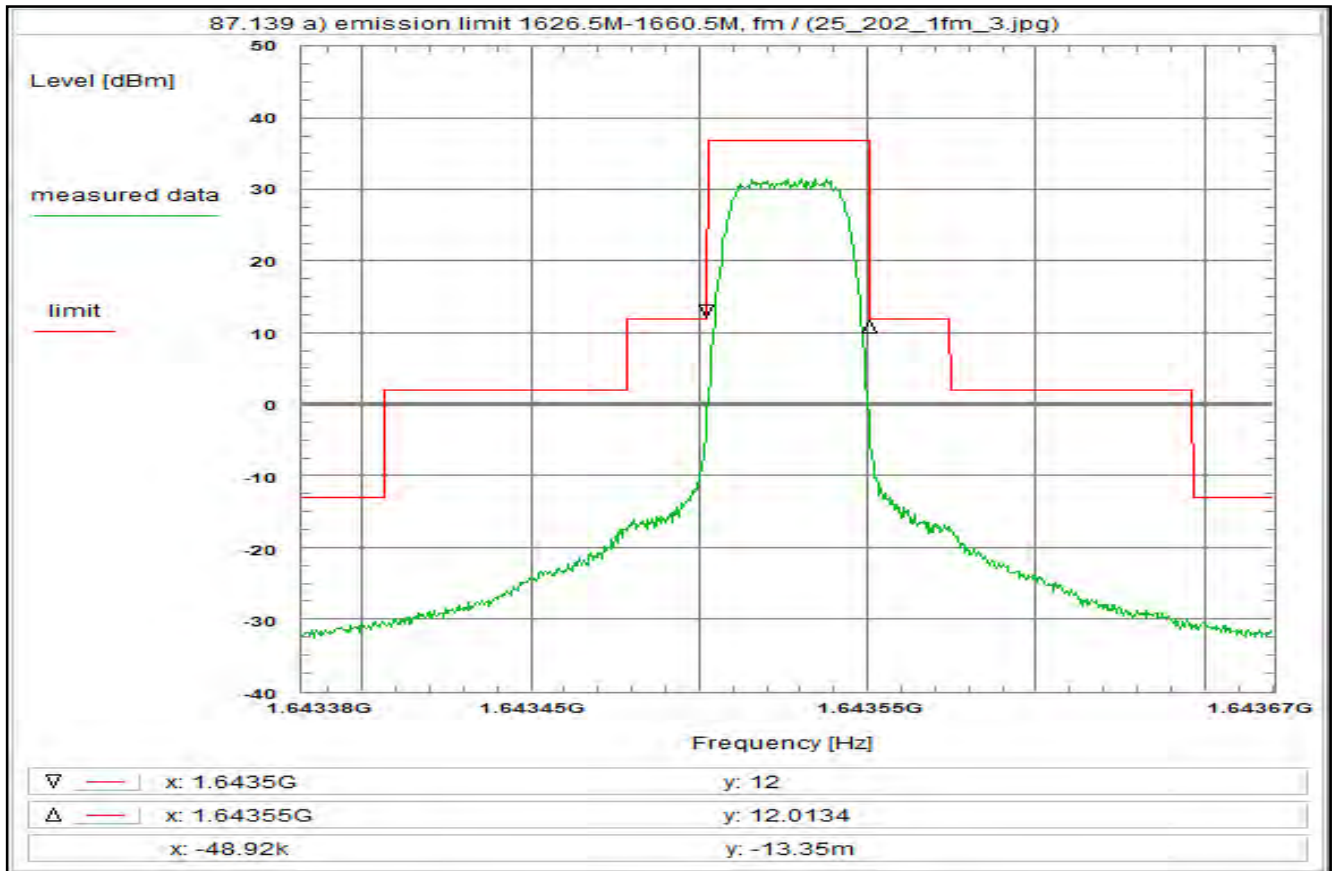
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 77



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T1QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 11:59:01

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643382 GHz

Stop frequency: 1.64367 GHz

Center frequency: 1.643526 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

87.139 a) emission limit 1626.5M-1660.5M, fm / (25_202_1fm_4.jpg)

Level [dBm]

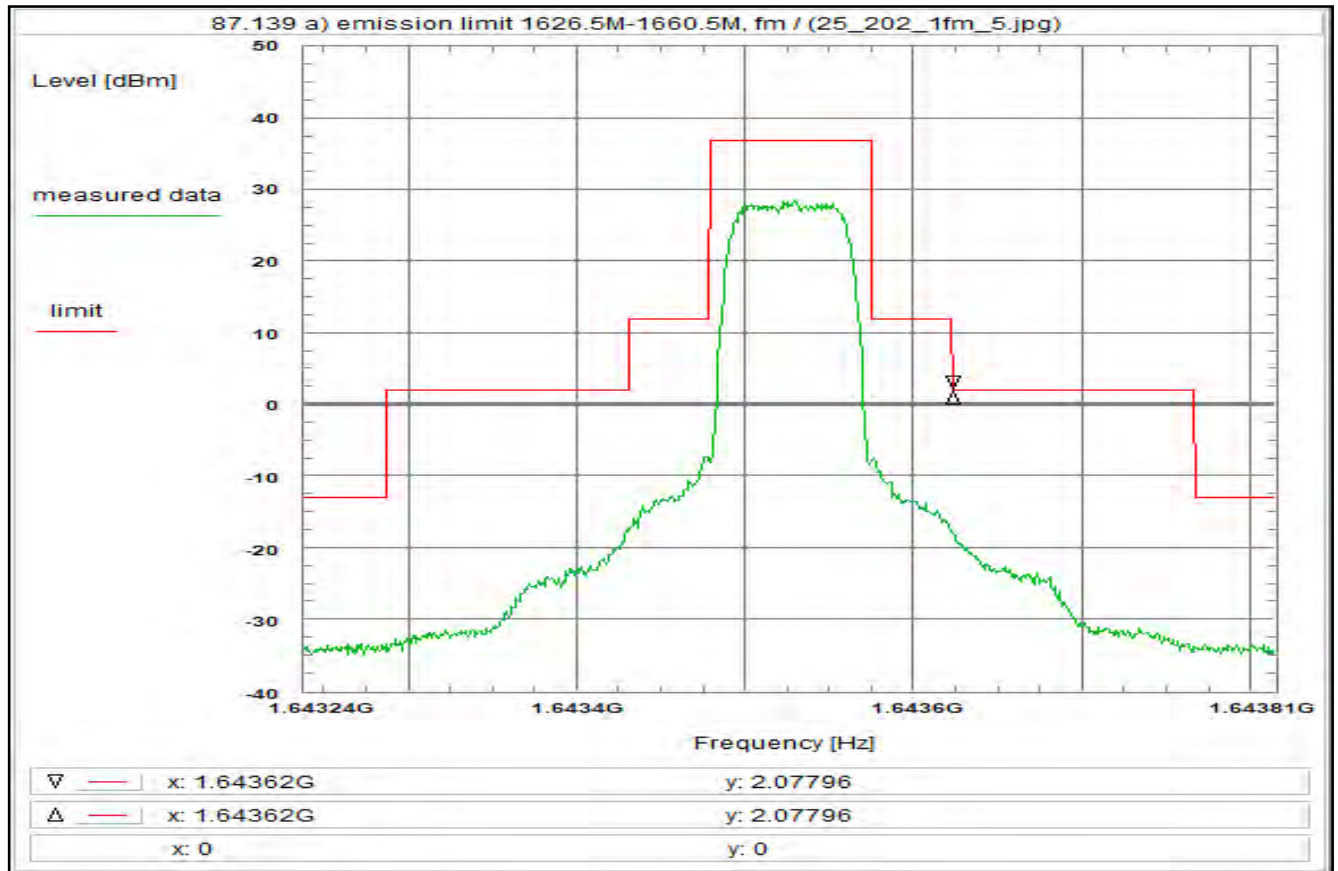
measured data

limit

Frequency [Hz]

▽	x: 1.6435G	y: 12
Δ	x: 1.64355G	y: 12.0134
	x: -48.92k	y: -13.35m

Plot No. 79



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R5T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:01:42
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643238 GHz
 Stop frequency: 1.643814 GHz
 Center frequency: 1.643526 GHz
 Frequency span: 576 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

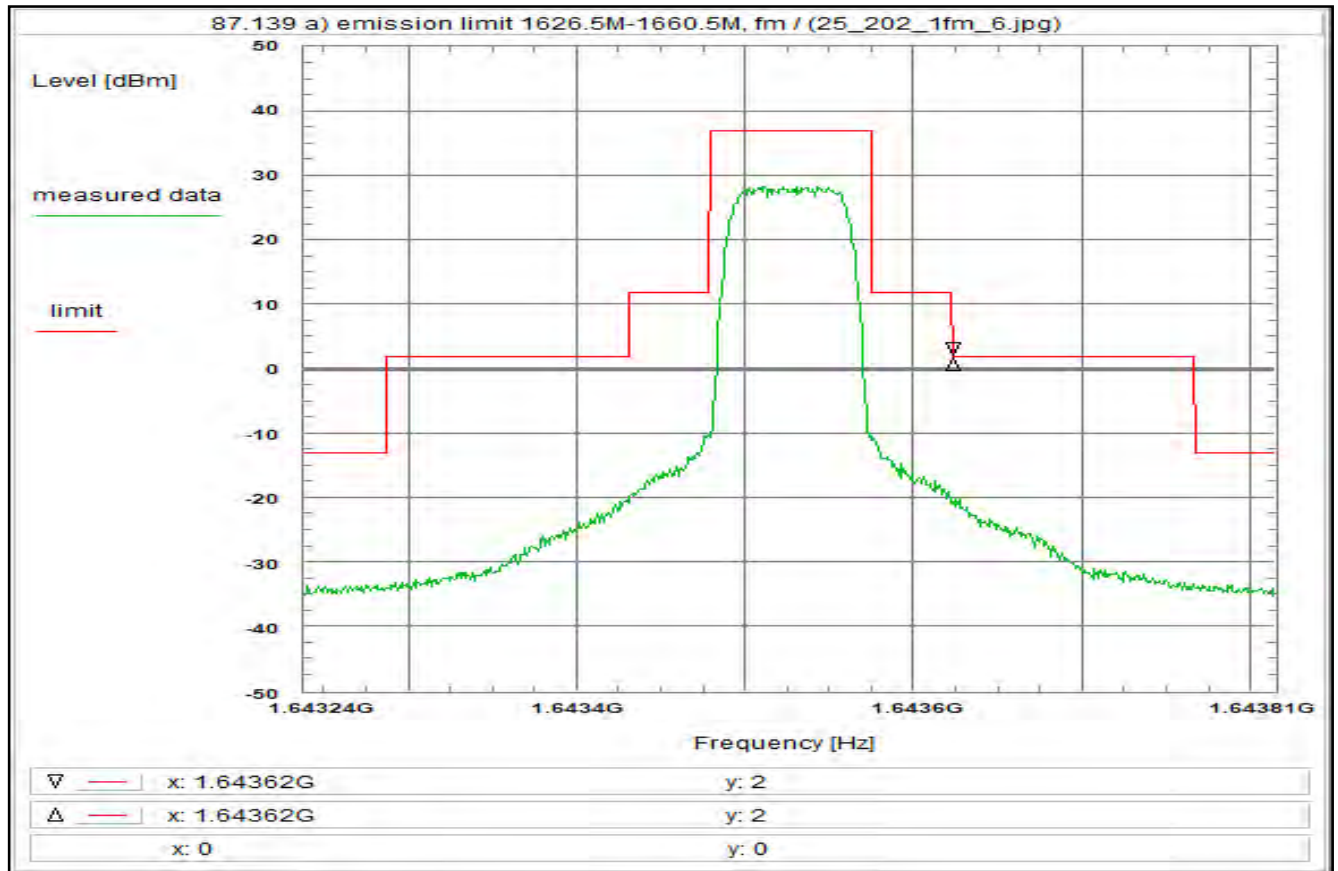
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 80



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R20T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:03:58
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643238 GHz
 Stop frequency: 1.643814 GHz
 Center frequency: 1.643526 GHz
 Frequency span: 576 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

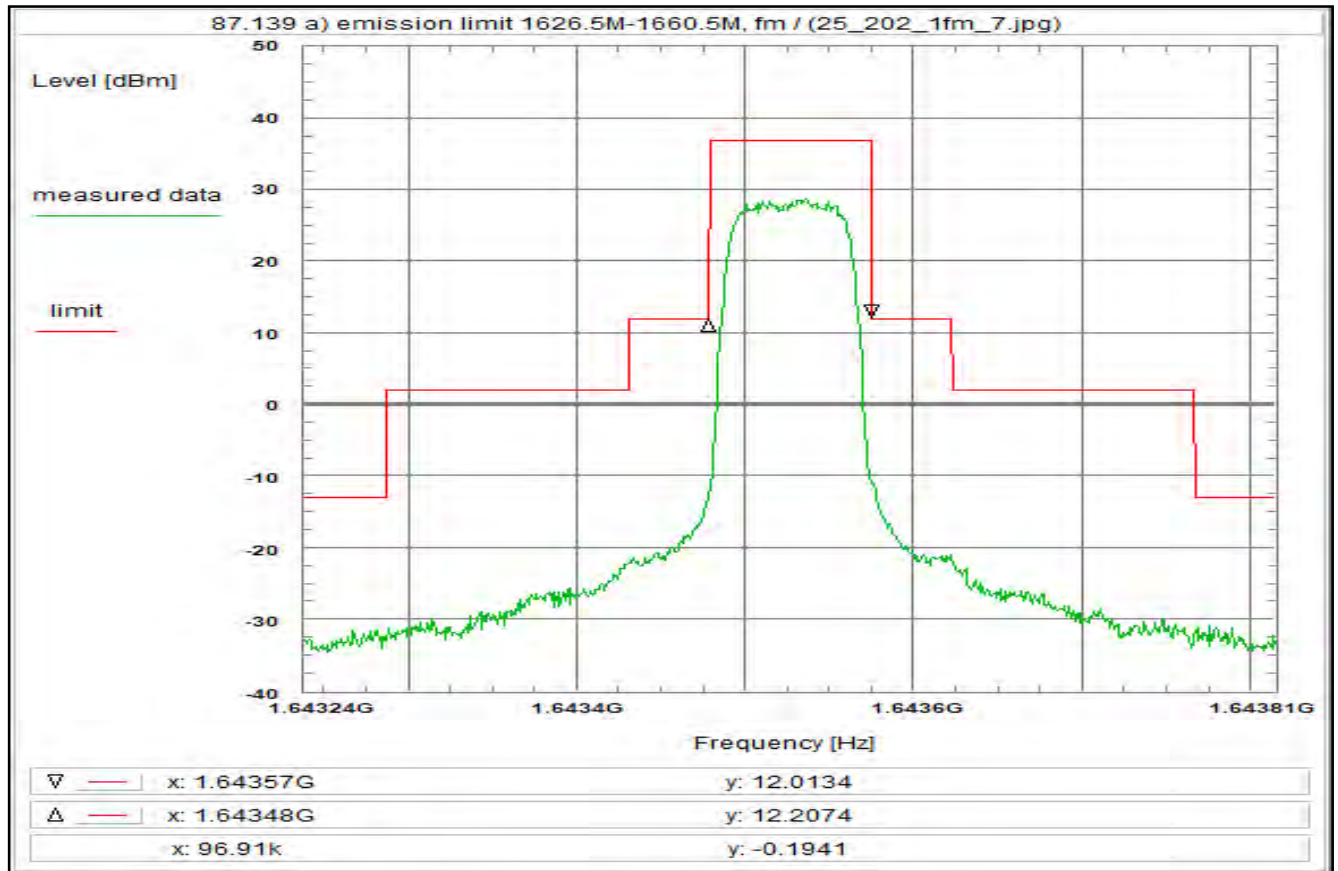
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 81



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R5T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:05:13

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643238 GHz

Stop frequency: 1.643814 GHz

Center frequency: 1.643526 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

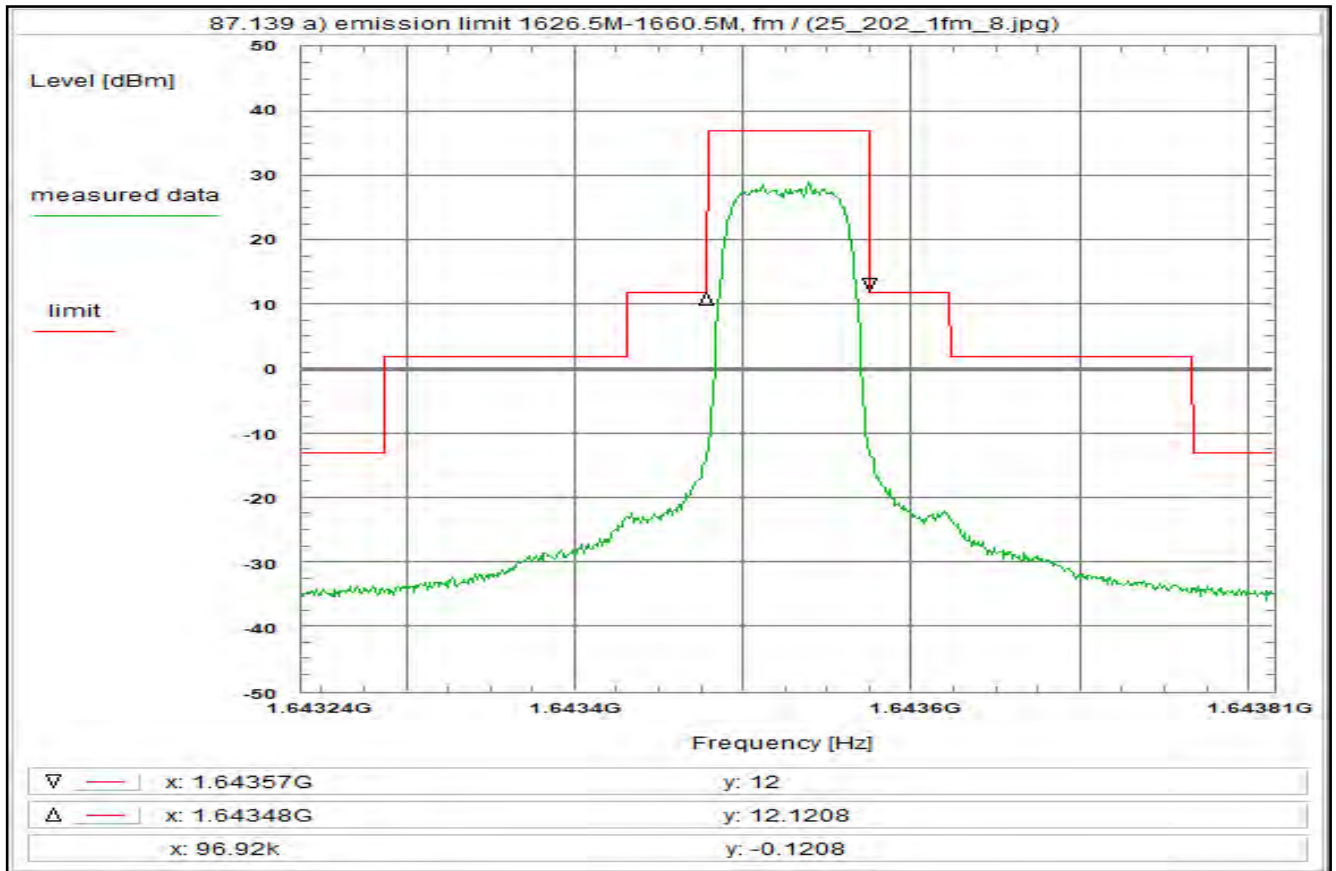
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 82



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:06:21

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643238 GHz

Stop frequency: 1.643814 GHz

Center frequency: 1.643526 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

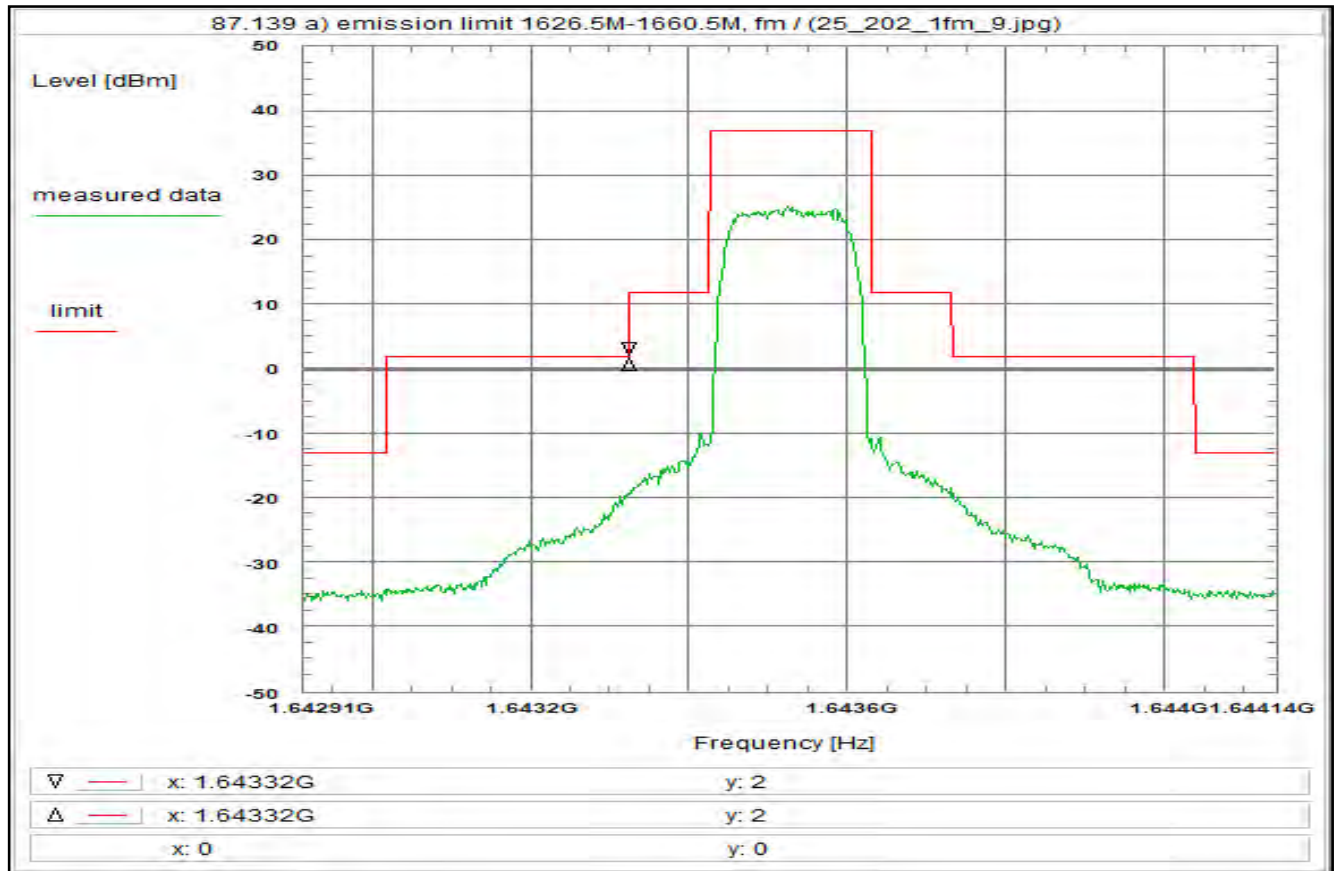
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 83



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R5T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:09:25
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642914 GHz
 Stop frequency: 1.644138 GHz
 Center frequency: 1.643526 GHz
 Frequency span: 1.224 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

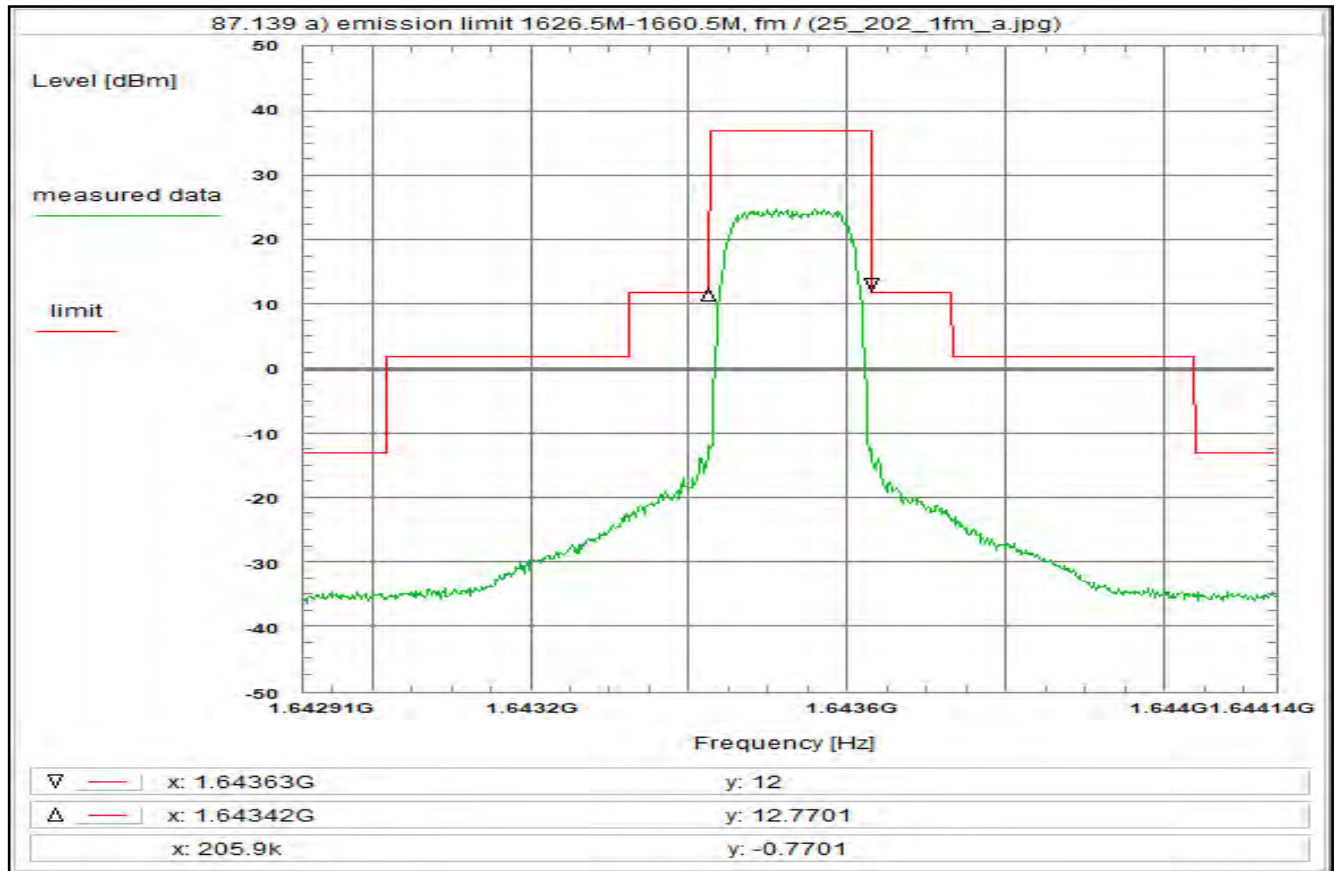
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 84



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:10:38

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642914 GHz

Stop frequency: 1.644138 GHz

Center frequency: 1.643526 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

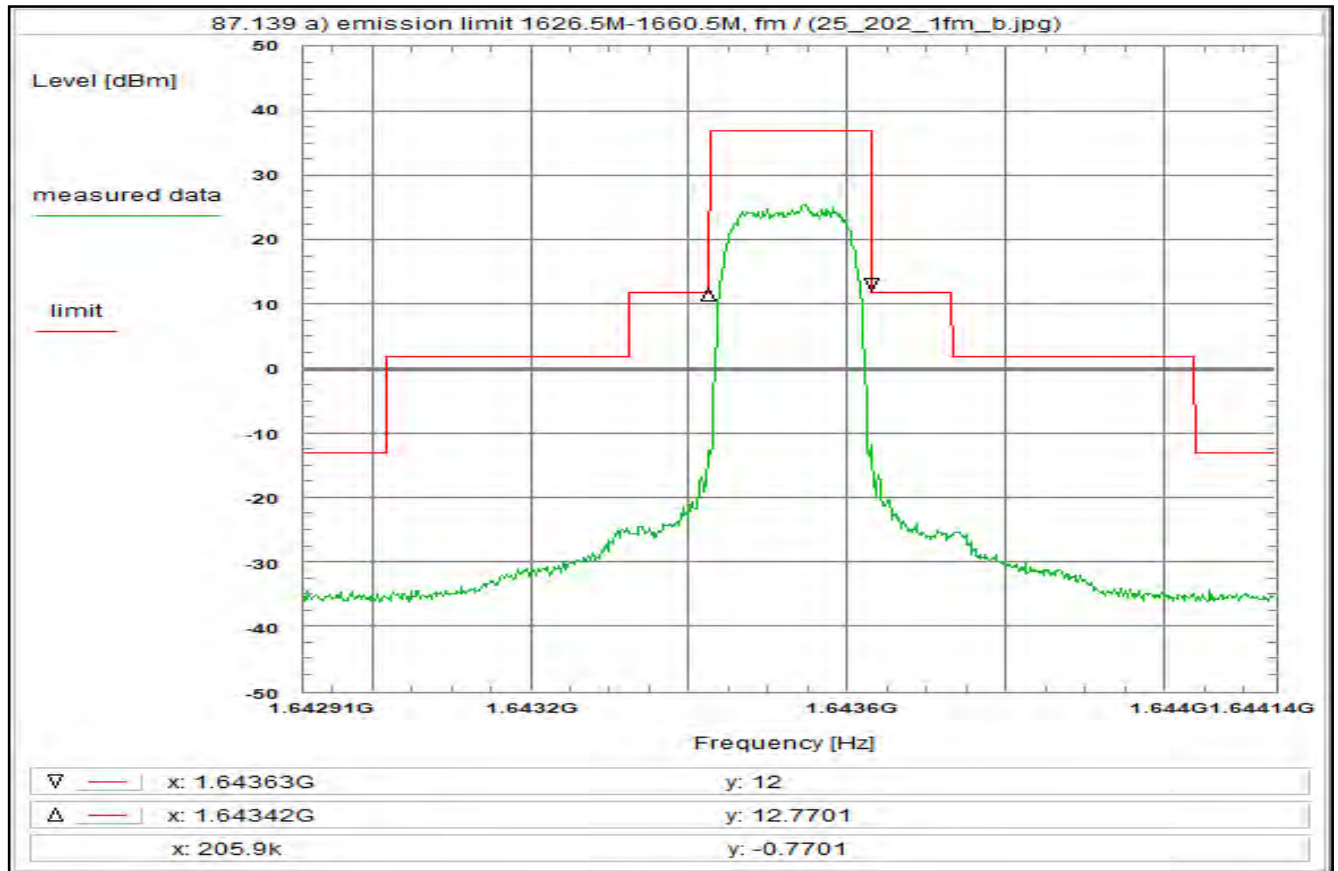
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 85



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:11:30

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642914 GHz

Stop frequency: 1.644138 GHz

Center frequency: 1.643526 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

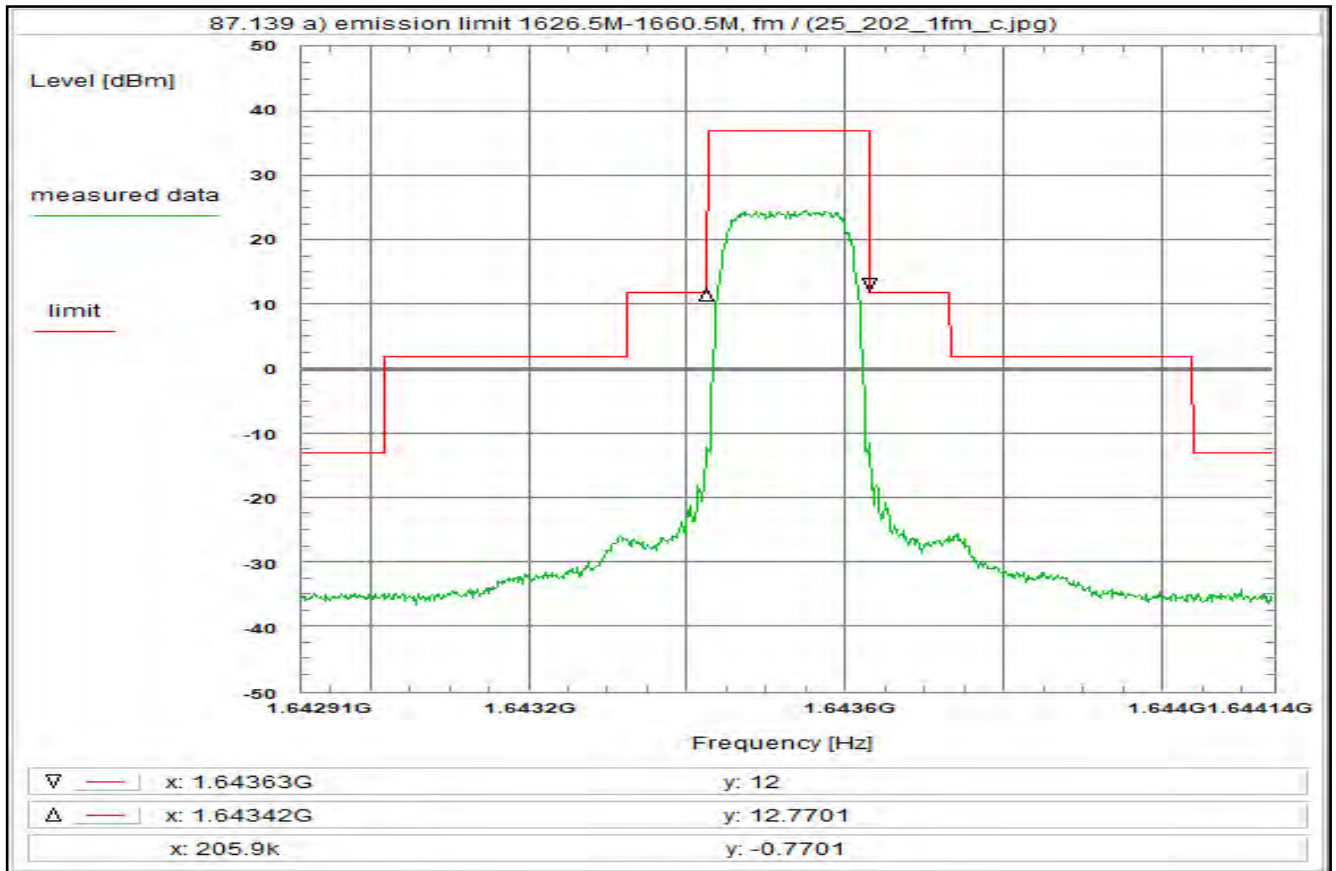
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 86



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:12:41

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642914 GHz

Stop frequency: 1.644138 GHz

Center frequency: 1.643526 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

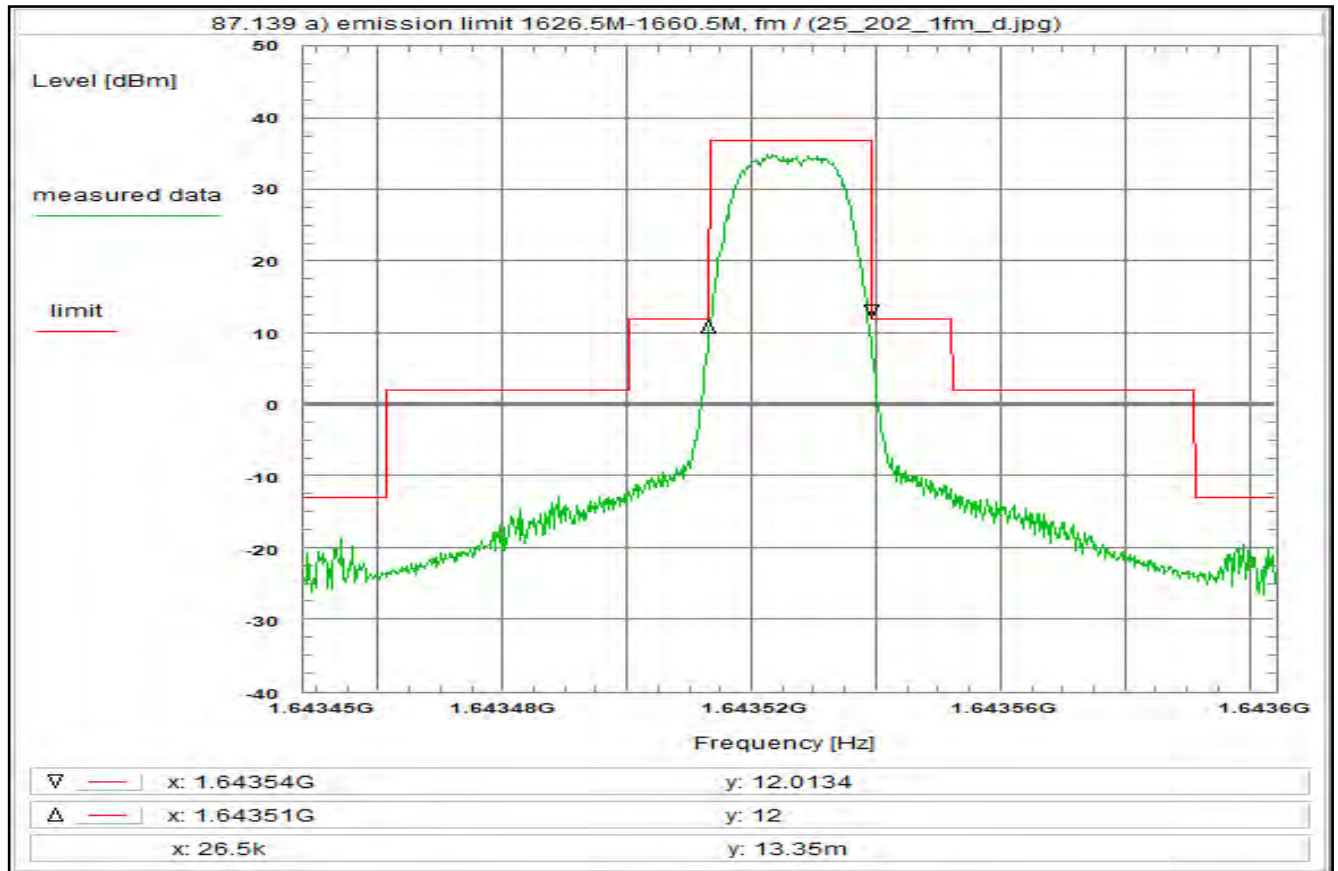
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 87



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: $-43 + 10 \log(P_{max})$ dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T05QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:16:35

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643448 GHz

Stop frequency: 1.643604 GHz

Center frequency: 1.643526 GHz

Frequency span: 156 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

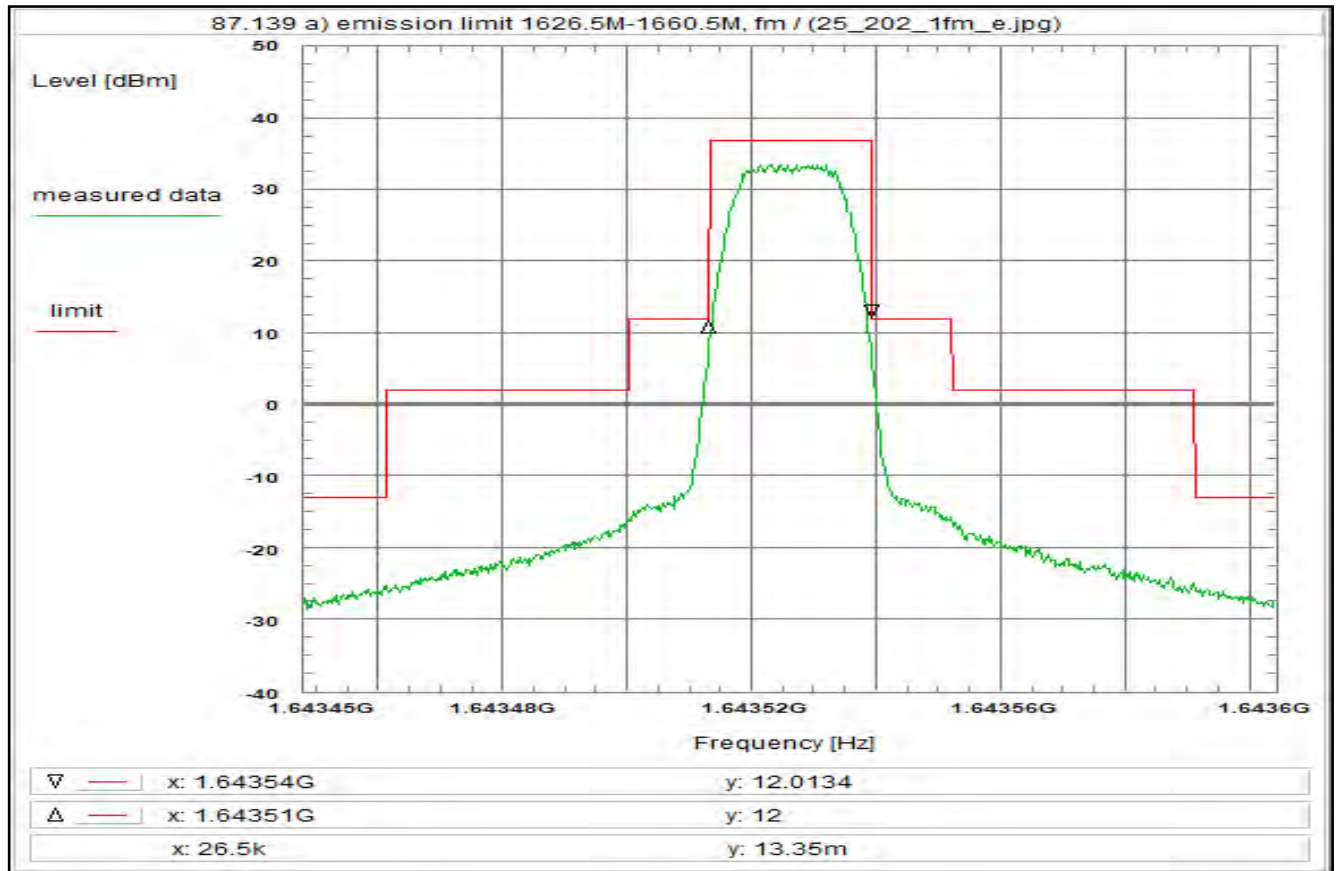
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 88



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R80T05Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:17:37

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643448 GHz

Stop frequency: 1.643604 GHz

Center frequency: 1.643526 GHz

Frequency span: 156 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

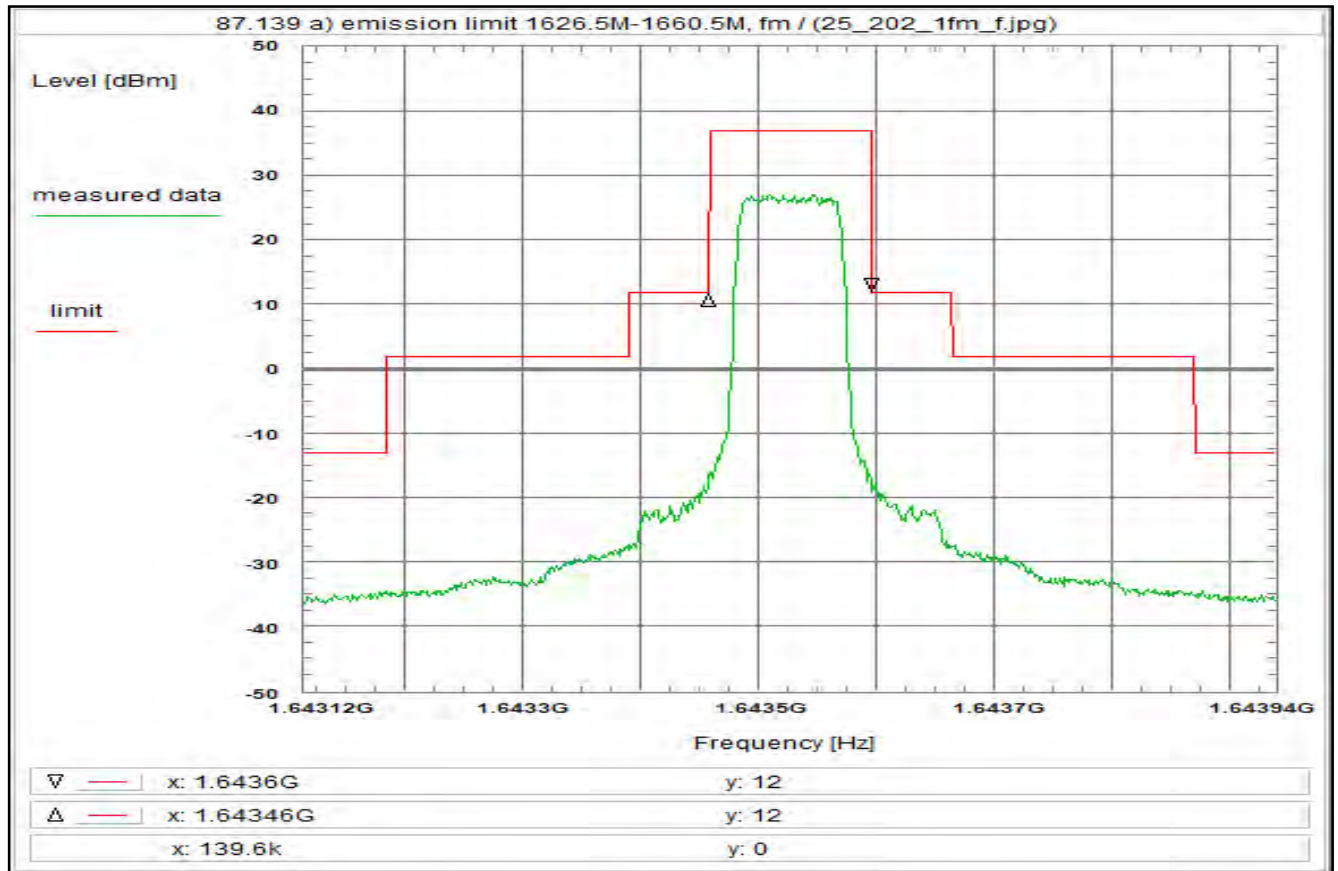
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 89



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, FR80T2.5X4

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:19:45

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643115 GHz

Stop frequency: 1.643937 GHz

Center frequency: 1.643526 GHz

Frequency span: 822 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

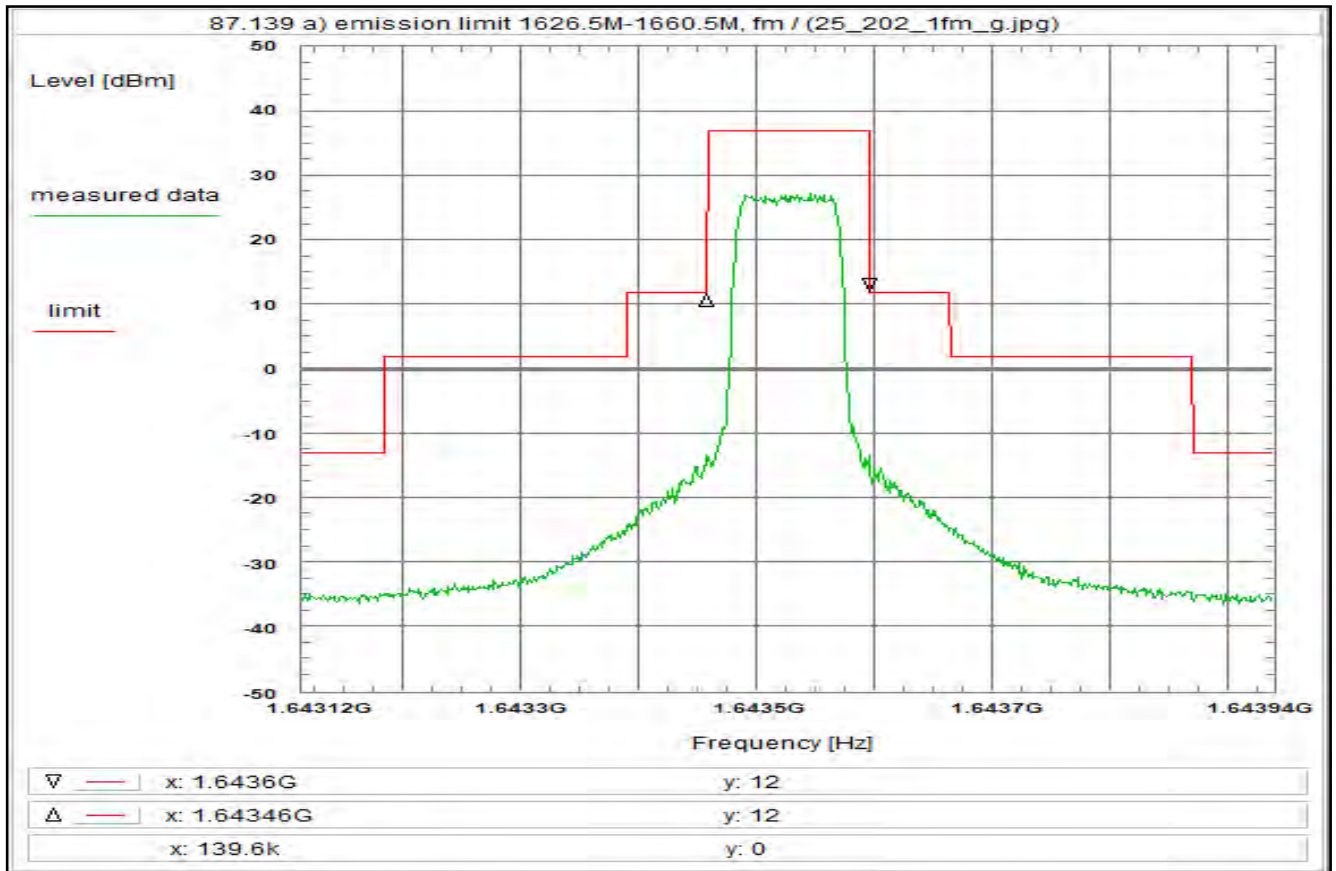
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 90



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, FR80T2.5X16

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 12:20:34

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643115 GHz

Stop frequency: 1.643937 GHz

Center frequency: 1.643526 GHz

Frequency span: 822 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dB

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

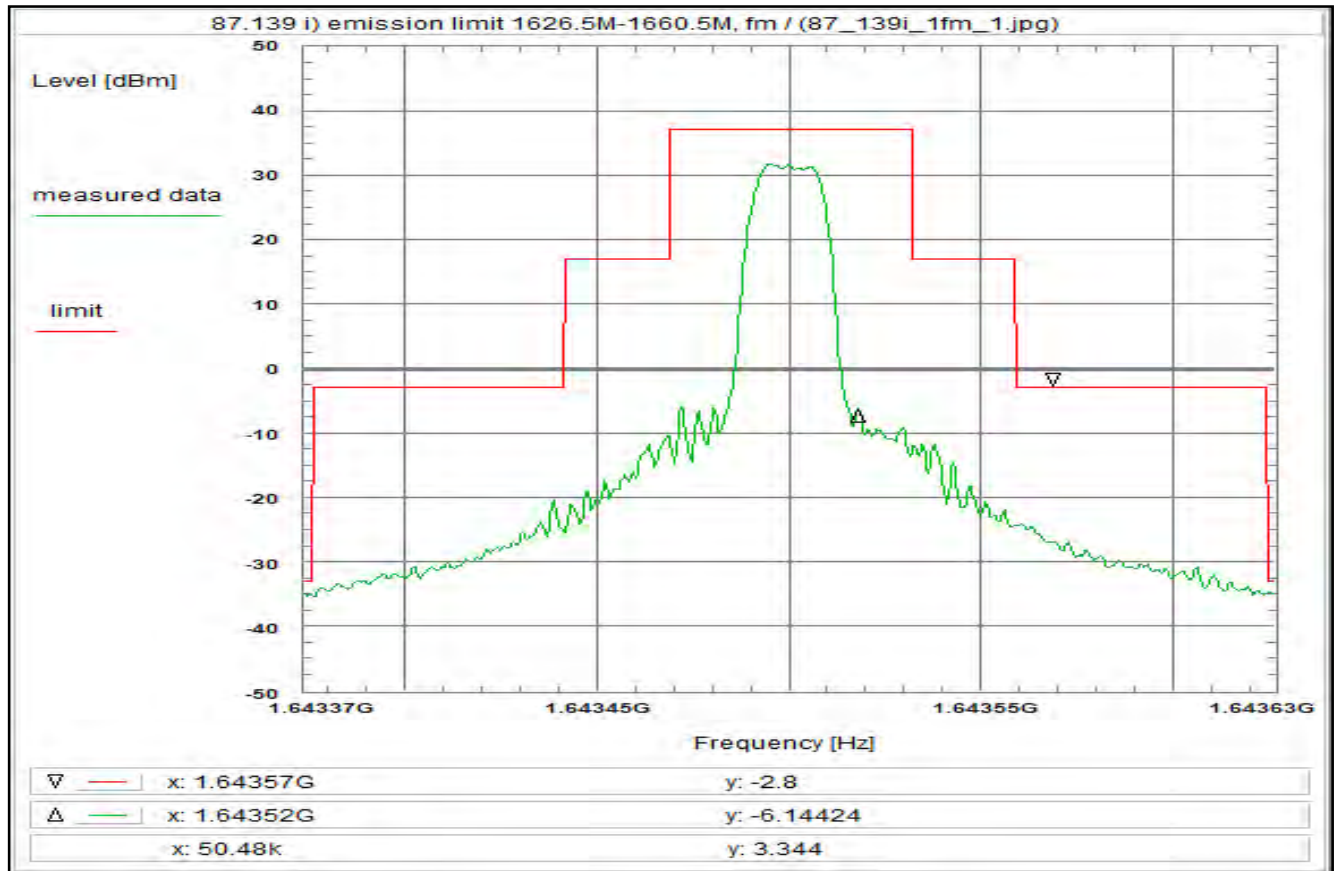
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 91



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T0.5QD/R80T0.5QD, QPSK, 16.8 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:02:26
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.643374 GHz
 Stop frequency: 1.643626 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 252 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

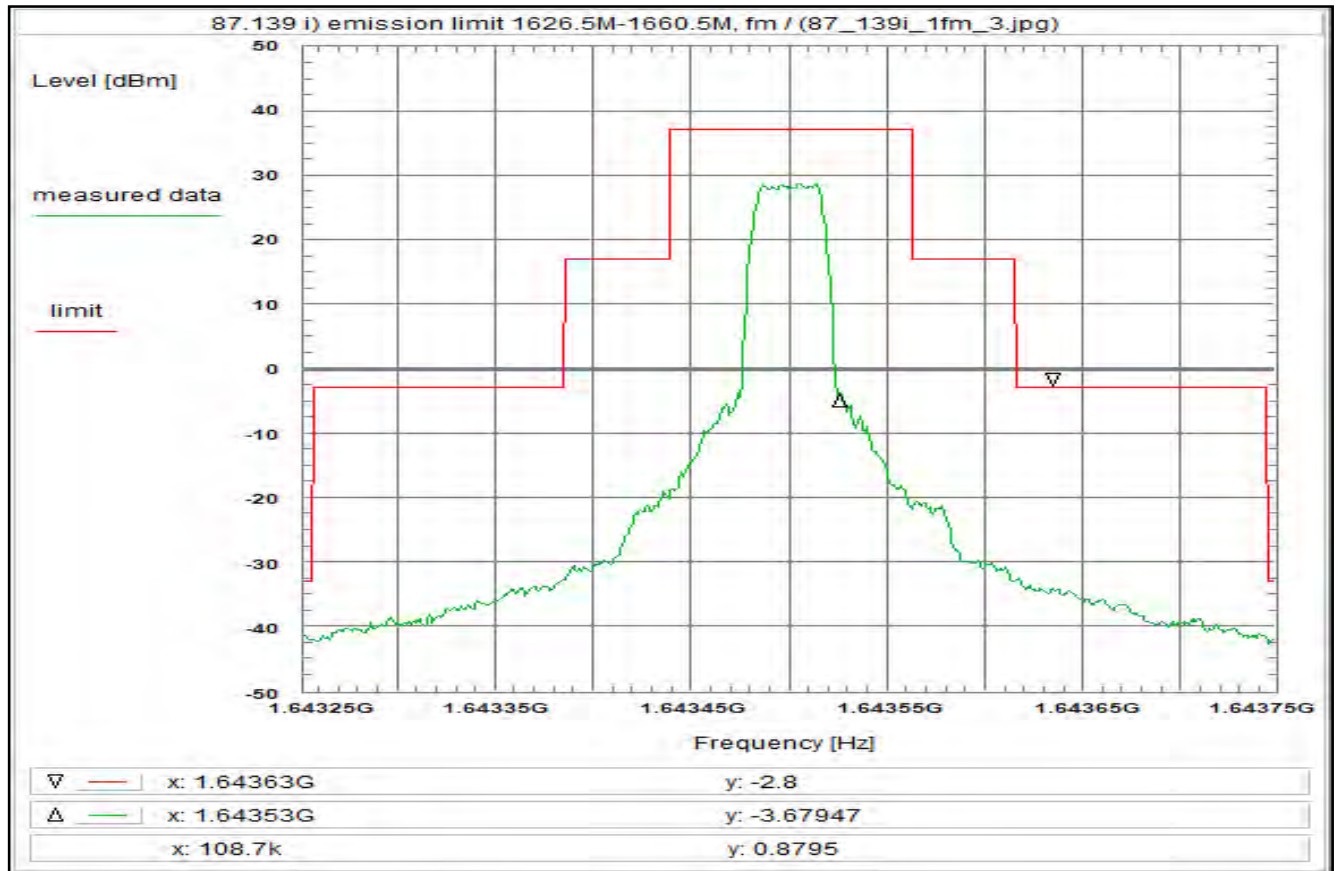
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 92



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T1XD/R20T1XD, 16QAM, 33.6ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:06:11
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6432525 GHz
 Stop frequency: 1.6437475 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 495 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

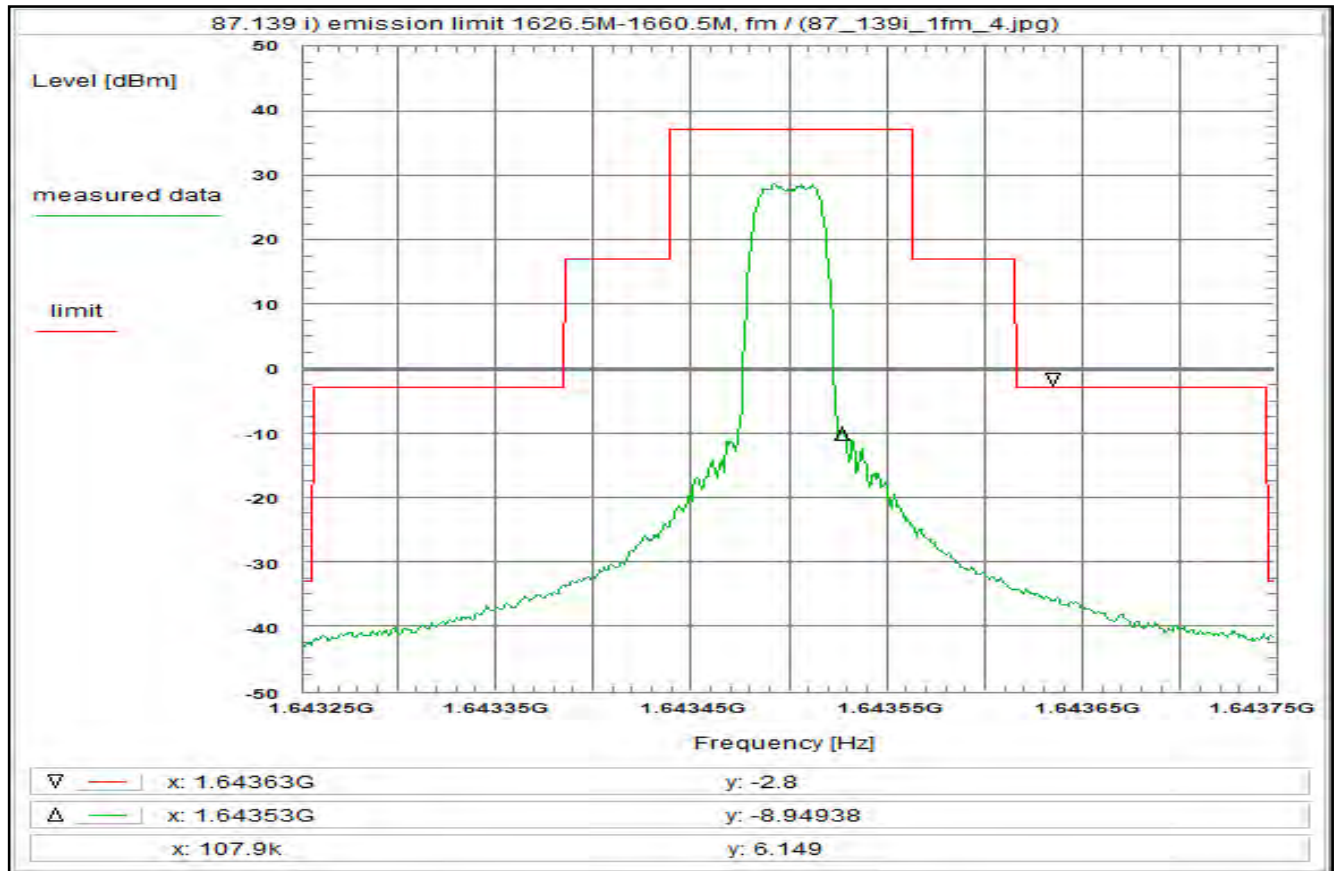
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 93



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T1QD/R80T1Q, QPSK, 33.6ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:07:45
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6432525 GHz
 Stop frequency: 1.6437475 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 495 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

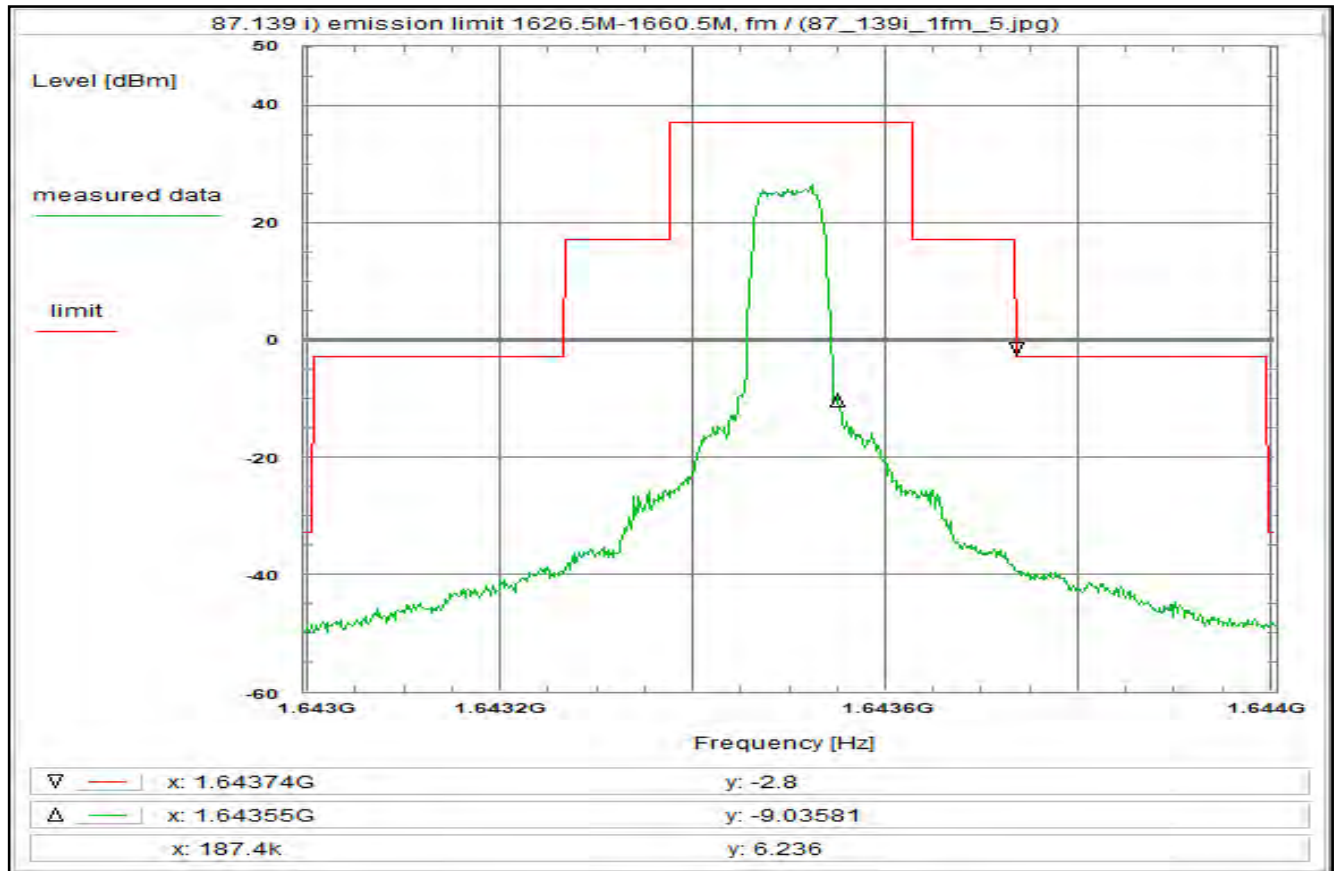
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 94



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T2XD/R20T2XD, 16QAM, 67.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:11:16
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642996 GHz
 Stop frequency: 1.644004 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 1.008 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U005)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

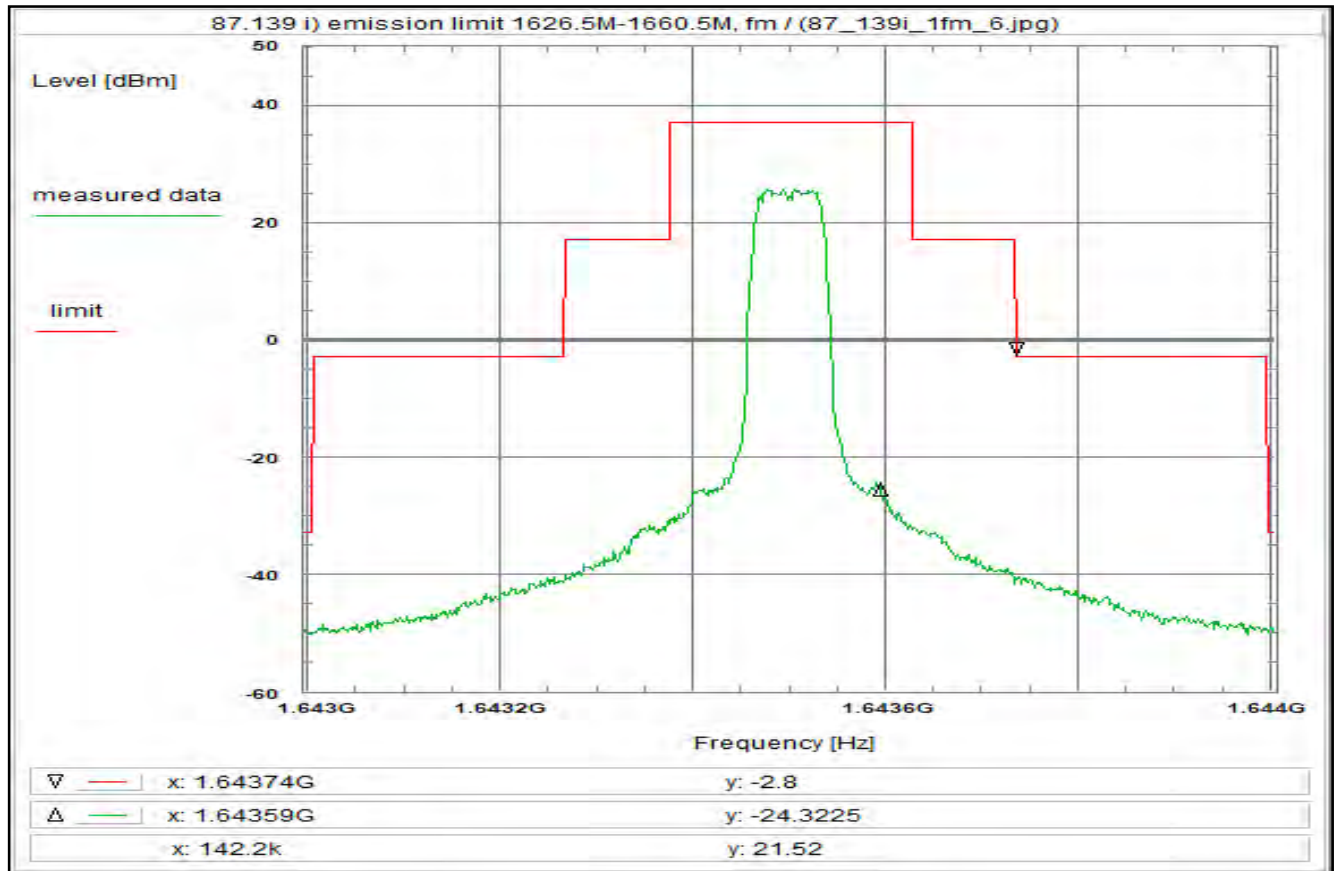
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 95



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T2QD/R20T2QD, QPSK, 67.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:13:20
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642996 GHz
 Stop frequency: 1.644004 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 1.008 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U005)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

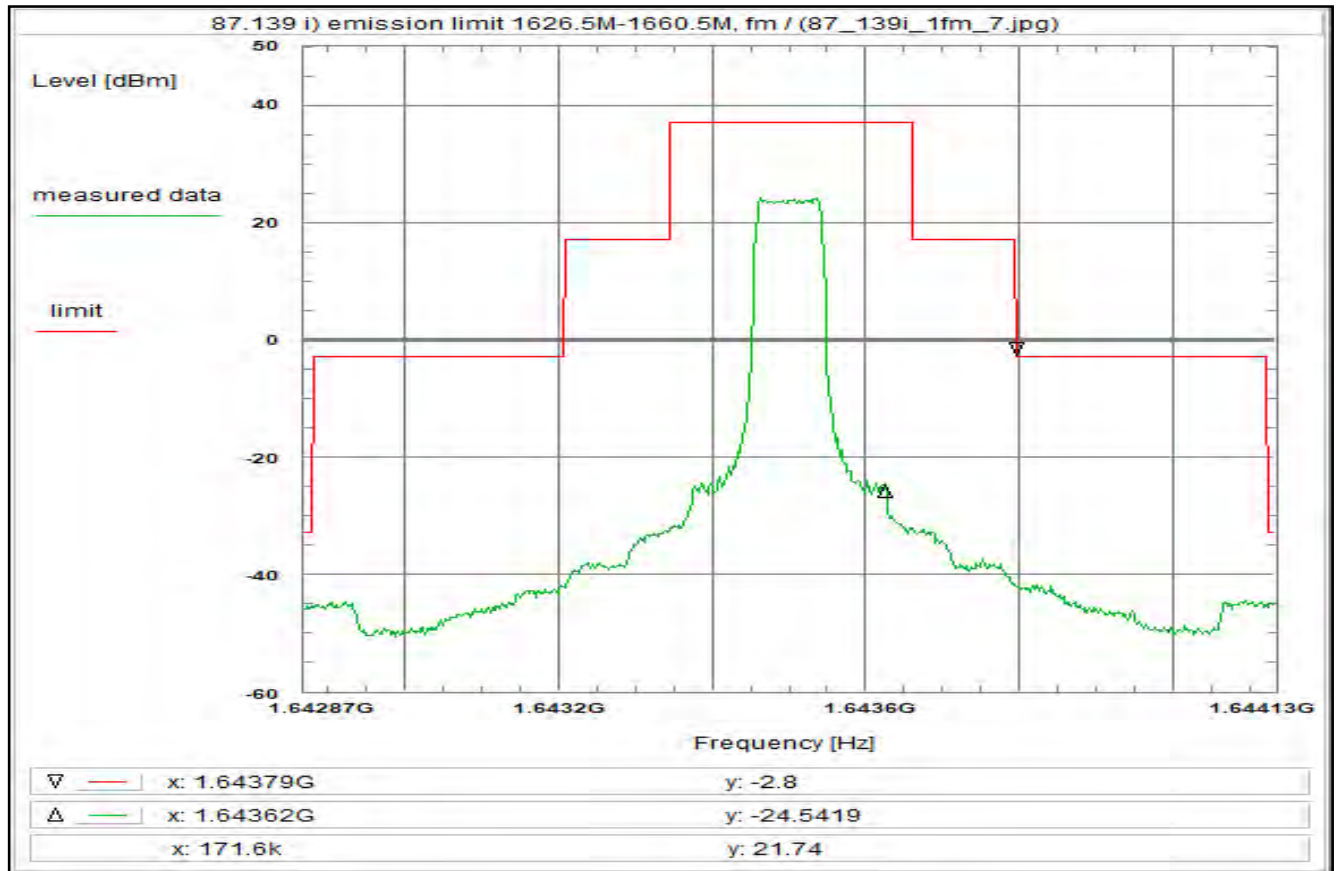
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 96



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, FR80T2.5X4, QPSK, 84kHz

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:16:16
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.64287 GHz
 Stop frequency: 1.64413 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 1.26 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

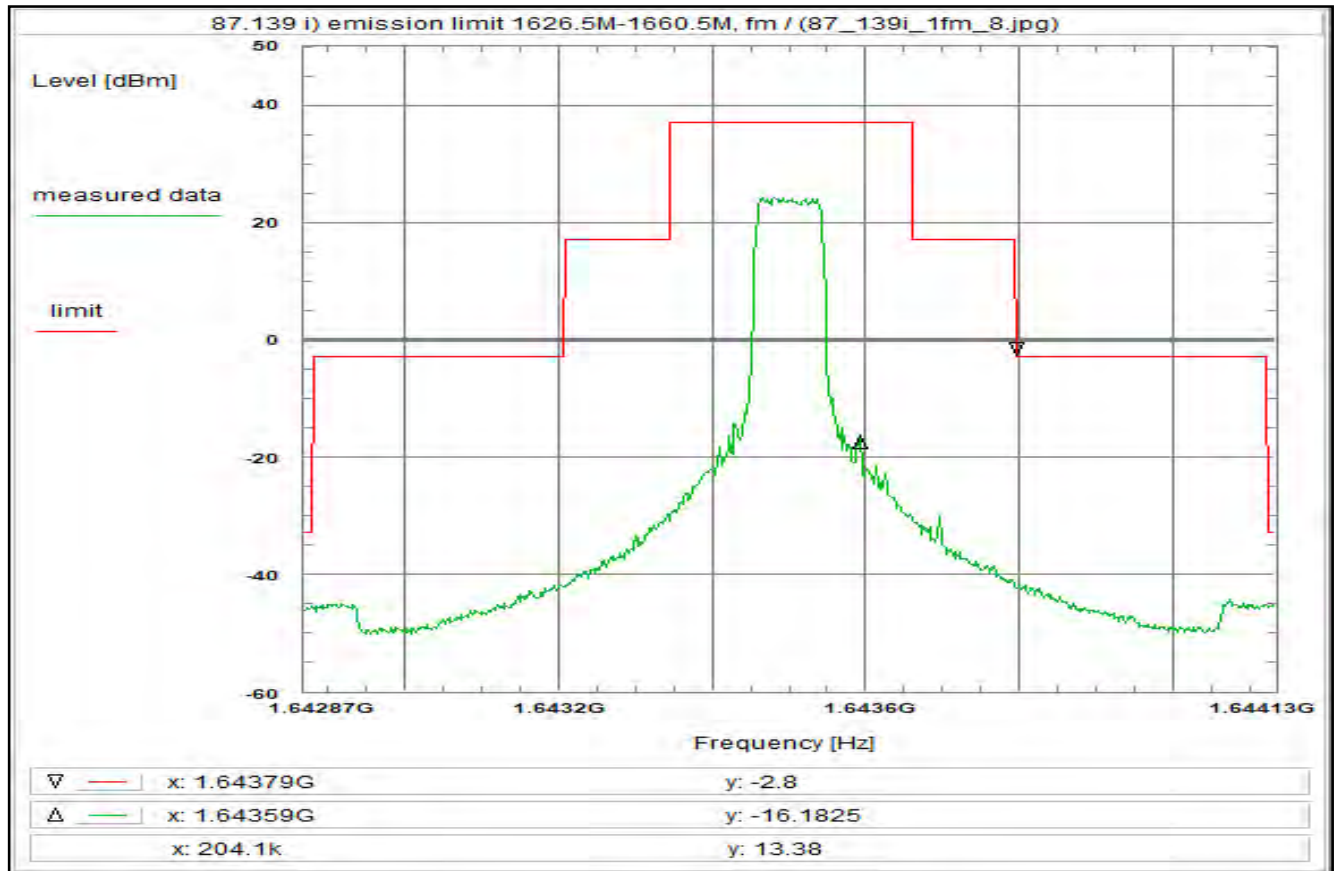
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 97



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, FR80T2.5X16, 16QAM, 84kHz

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:17:51
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.64287 GHz
 Stop frequency: 1.64413 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 1.26 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U005)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

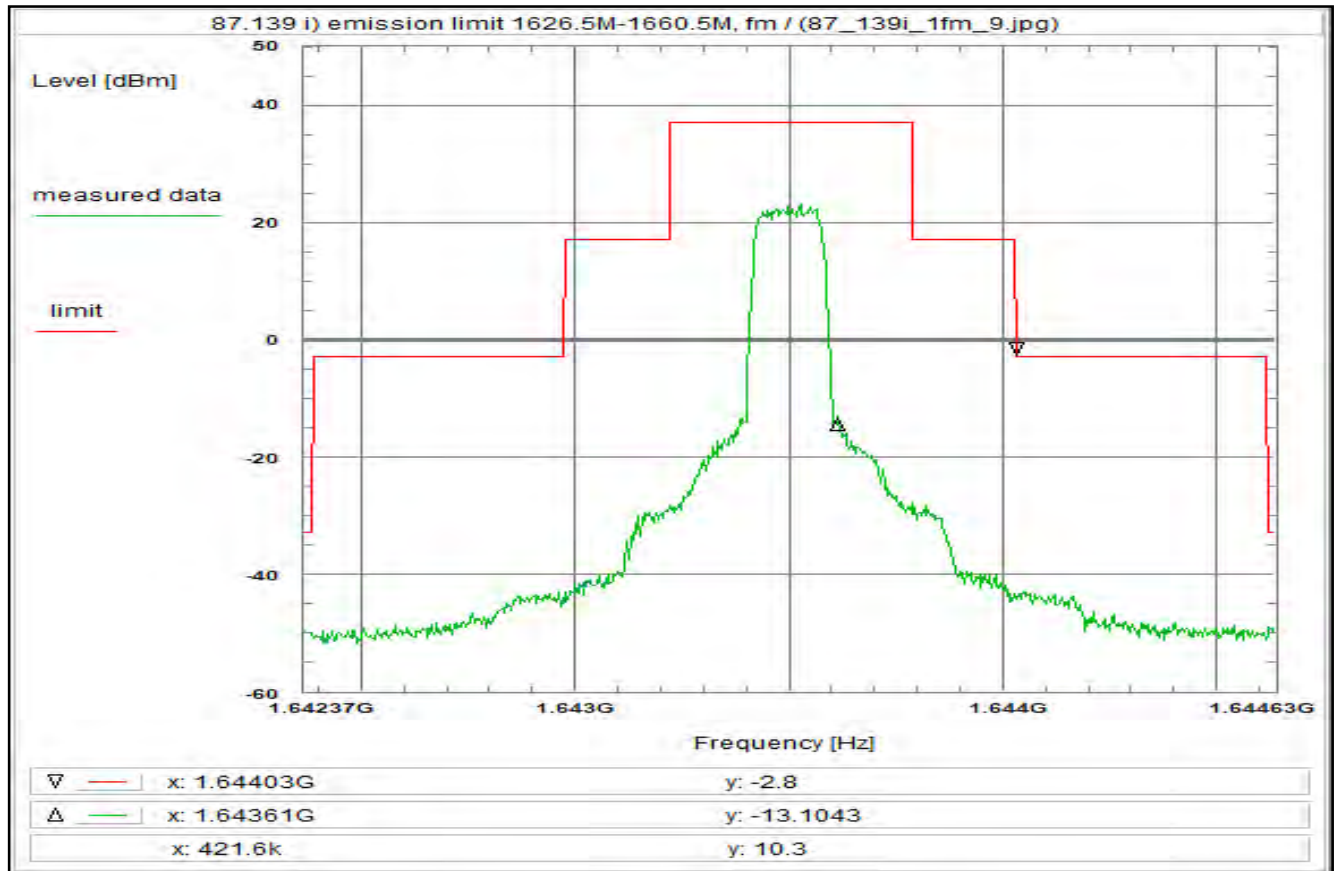
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 98



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T4.5XD/R20T4.5XD, 16QAM, 151.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:20:17
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642366 GHz
 Stop frequency: 1.644634 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 2.268 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

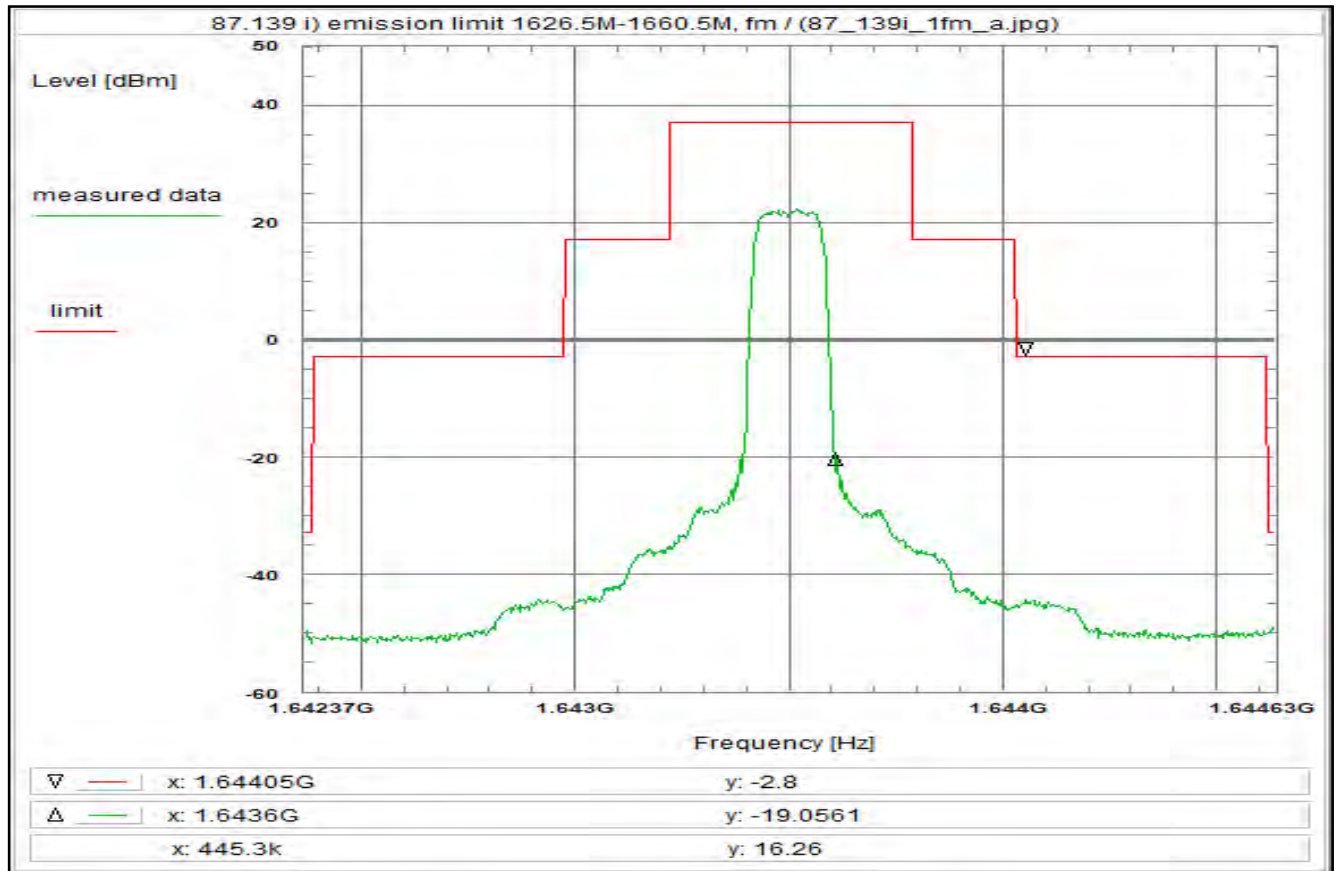
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 99



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T4.5QD/R20T4.5QD, QPSK, 151.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:23:47
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.642366 GHz
 Stop frequency: 1.644634 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 2.268 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U005) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

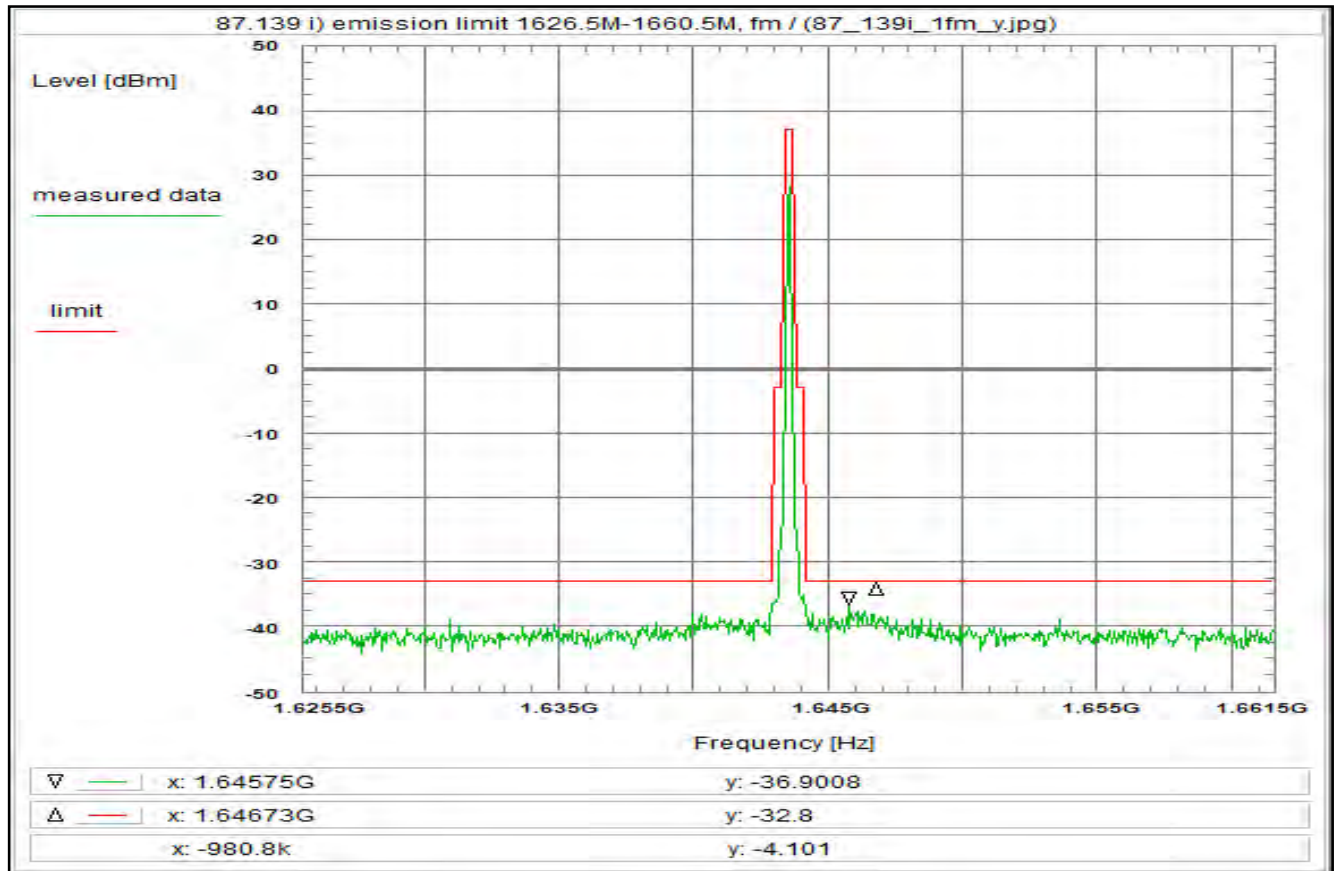
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 100



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 LDR worst case modulation, whole band

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 09/Jul/2020 12:14:03
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6255 GHz
 Stop frequency: 1.6615 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 36 MHz
 Resolution-BW: 3 kHz
 Video-BW: 30 kHz
 Input attenuation: 30 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Freefield attenuation (U312)	+ 19.5 dB
U311	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

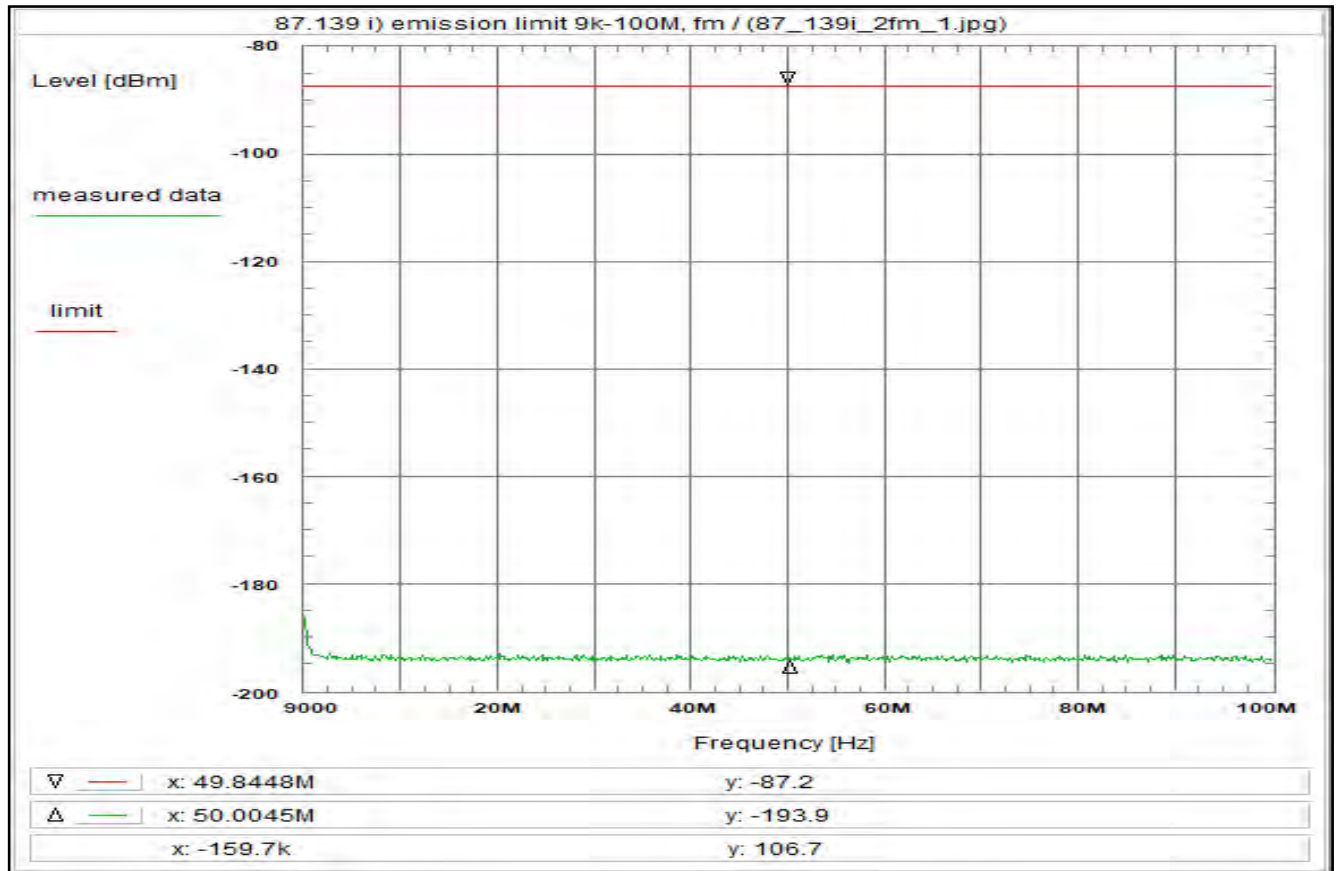
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 101



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 14:59:47
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 9 kHz
 Stop frequency: 100 MHz
 Center frequency: 50.0045 MHz
 Frequency span: 99.991 MHz
 Resolution-BW: 3 kHz
 Video-BW: 30 kHz
 Input attenuation: 15 dB
 Trace-Mode: Max-Hold
 Detector-Mode: RMS

Correction:

Directional coupler (WDPL)	- 114.3 dB
Coaxial cable (C220)	+ 0.8 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(BNCo)	+ 10.0 dB
TOTAL CORRECTION:	- 102.3 dB

Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 102



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 15:45:35
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 100 MHz
 Stop frequency: 1.559 GHz
 Center frequency: 829.5 MHz
 Frequency span: 1.459 GHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 0 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

Correction:

Directional coupler (WDPL)	- 63.2 dB
Coaxial cable (C220)	+ 0.6 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(BNCo)	+ 10.1 dB
TOTAL CORRECTION:	- 51.3 dB

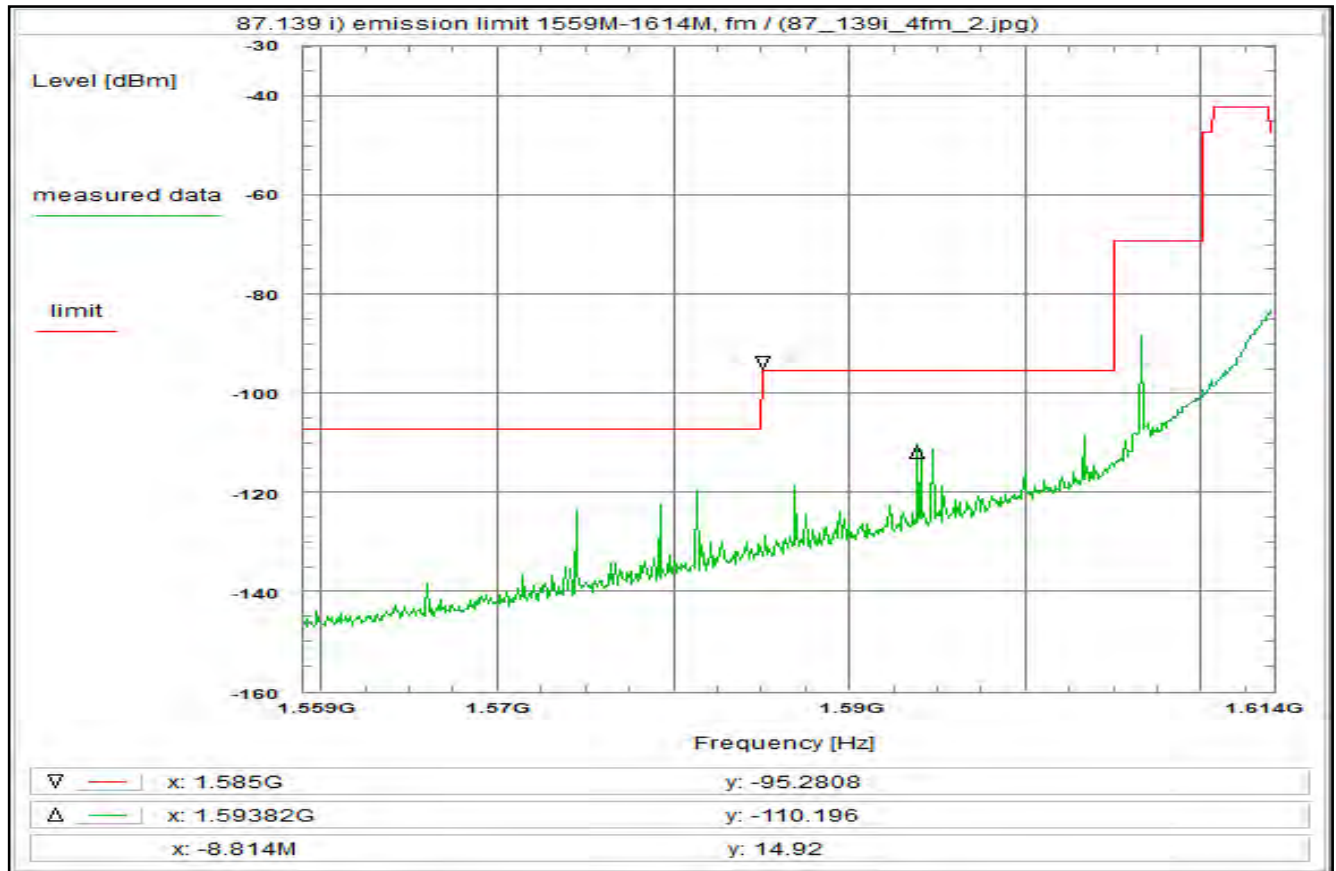
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 103



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 16:40:25
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.559 GHz
 Stop frequency: 1.614 GHz
 Center frequency: 1.5865 GHz
 Frequency span: 55 MHz
 Resolution-BW: 1 kHz
 Video-BW: 3 kHz
 Input attenuation: 0 dB
 Trace-Mode: Clear Write
 Detector-Mode: Pos Peak

Correction:

Directional coupler (WDPL)	- 41.7 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (1k -> 1M)	+ 30.0 dB
(BNCo)	+ 12.6 dB
TOTAL CORRECTION:	+ 1.8 dB

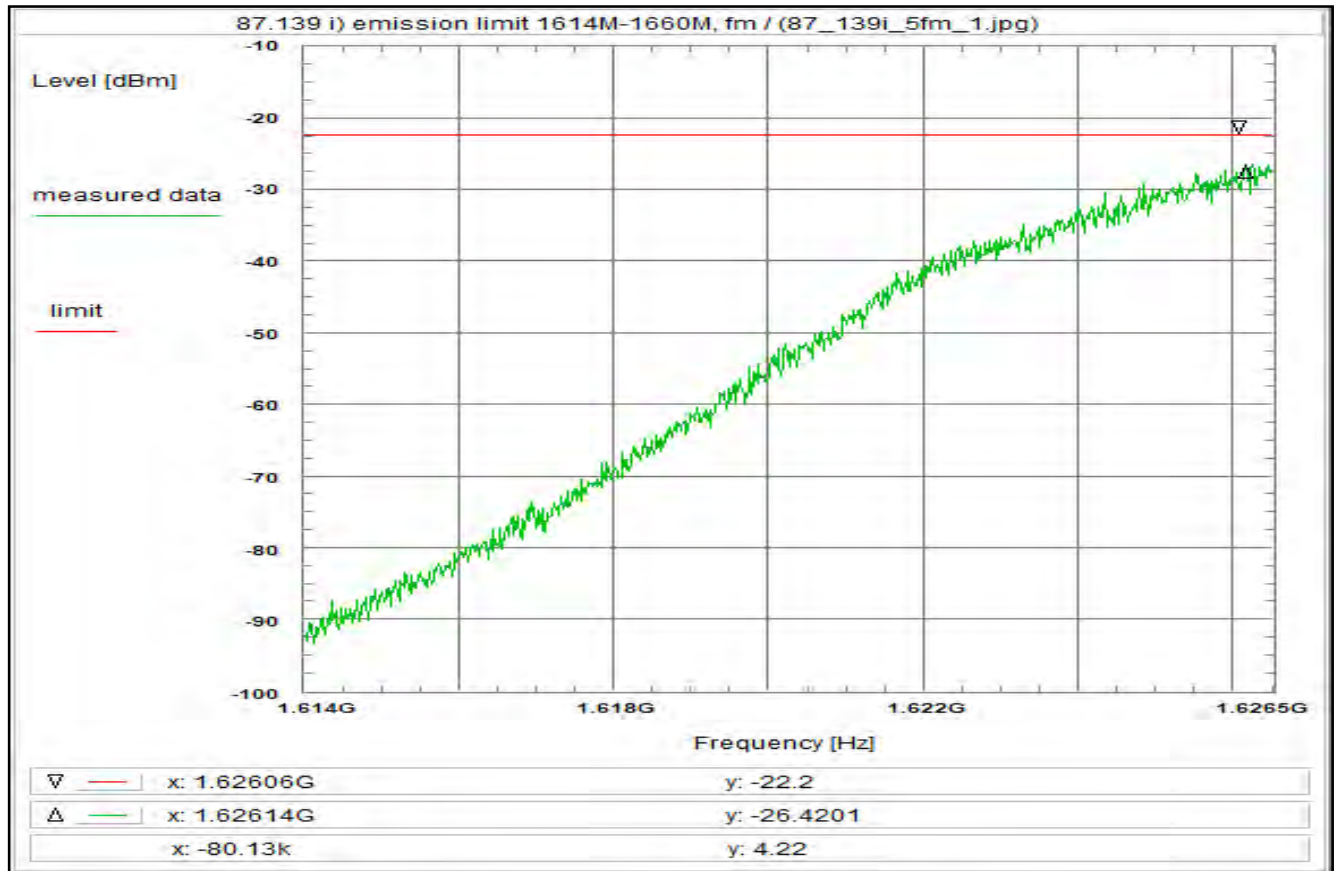
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 104



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 valid for all modulations and channels

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:Test result:Environment condition:

Date & Time: Mon 25/May/2020 15:57:31
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.614 GHz
 Stop frequency: 1.6265 GHz
 Center frequency: 1.62025 GHz
 Frequency span: 12.5 MHz
 Resolution-BW: 500 Hz
 Video-BW: 2 kHz
 Input attenuation: 0 dB
 Trace-Mode: Clear Write
 Detector-Mode: Normal

Correction:

Directional coupler (WDPL)	- 2.8 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3 -> 4k)	+ 1.2 dB
(BNCo)	+ 64.9 dB
TOTAL CORRECTION:	+ 64.2 dB

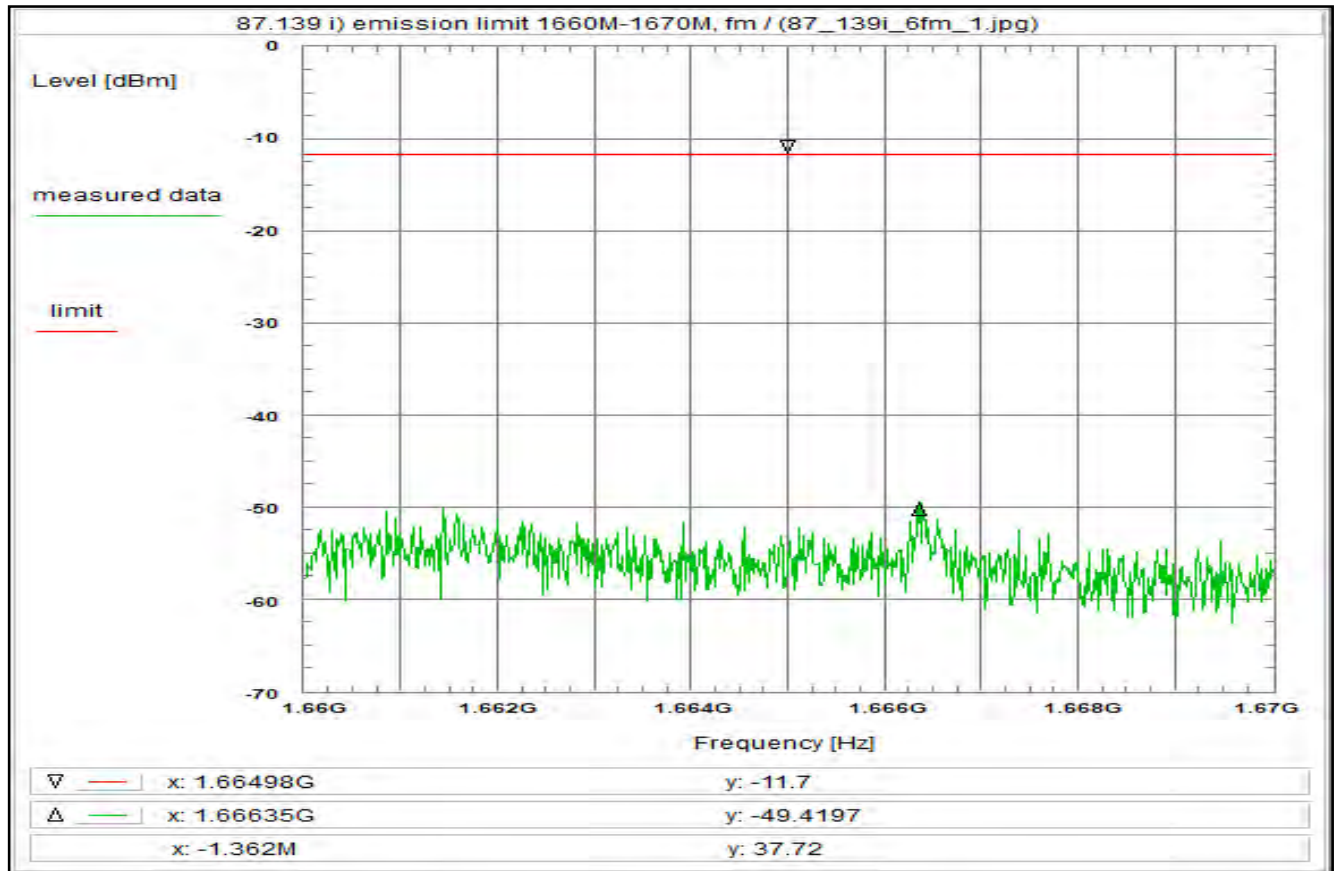
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 105



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 valid for all modulations and channels

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:Test result:Environment condition:

Date & Time: Mon 25/May/2020 15:59:36
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.66 GHz
 Stop frequency: 1.67 GHz
 Center frequency: 1.665 GHz
 Frequency span: 10 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 0 dB
 Trace-Mode: Clear Write
 Detector-Mode: Normal

Correction:

Directional coupler (WDPL)	- 0.9 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 20k)	+ 8.2 dB
(BNCo)	+ 26.8 dB
TOTAL CORRECTION:	+ 35.0 dB

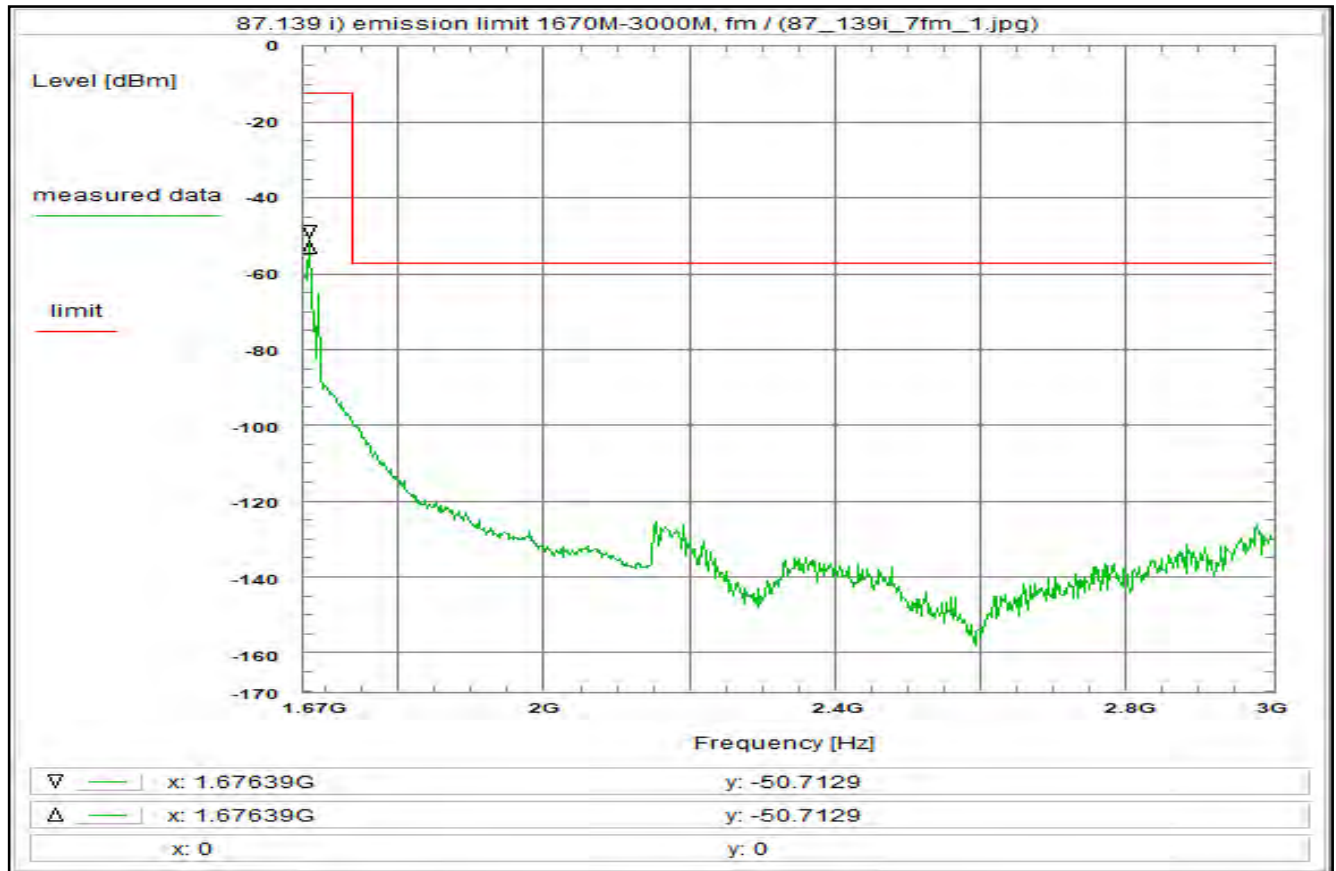
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 106



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 valid for all modulations and channels

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 25/May/2020 12:53:14
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.67 GHz
 Stop frequency: 3 GHz
 Center frequency: 2.335 GHz
 Frequency span: 1.33 GHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 5 dB
 Trace-Mode: Clear Write
 Detector-Mode: Normal

Correction:

Directional coupler (WDPL)	- 30.7 dB
Coaxial cable (C220)	+ 1.1 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(BNCo)	+ 10.2 dB
TOTAL CORRECTION:	- 18.2 dB

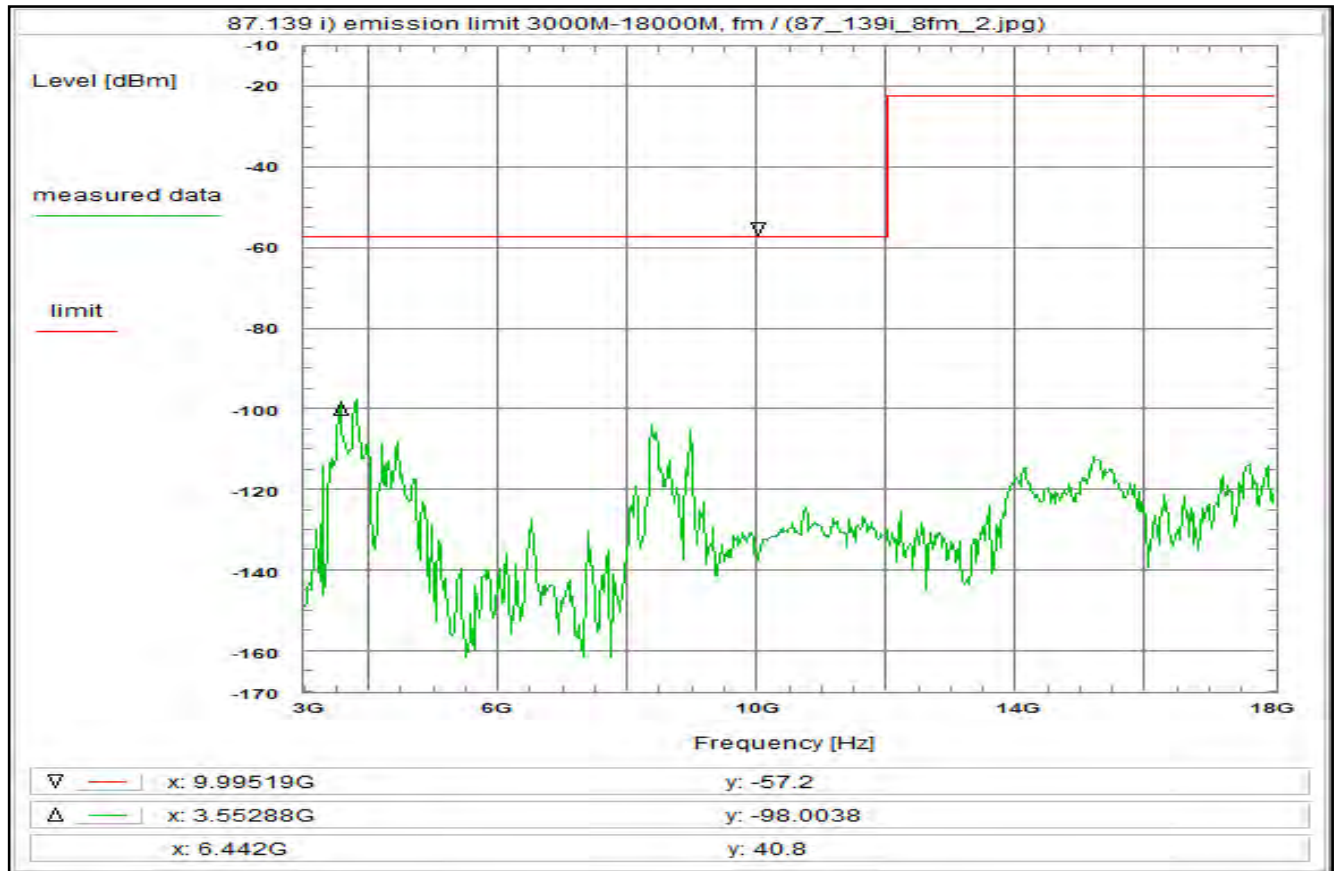
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 107



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fm)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 2, see test report chapter 5.4
 R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgij

Test equipment:

see test report chapter 7.2: C220, HPF, R001, WDPL

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 28/May/2020 09:56:05
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 3 GHz
 Stop frequency: 18 GHz
 Center frequency: 10.5 GHz
 Frequency span: 15 GHz
 Resolution-BW: 10 kHz
 Video-BW: 100 kHz
 Input attenuation: 5 dB
 Trace-Mode: Max-Hold
 Detector-Mode: RMS

Correction:

Directional coupler (WDPL)	- 42.1 dB
Coaxial cable (C220)	+ 2.3 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (10k -> 4k)	- 4.0 dB
Atten. between HPA and feedhorn	- 0.0 dB
(HPF)	+ 20.6 dB
TOTAL CORRECTION:	- 23.2 dB

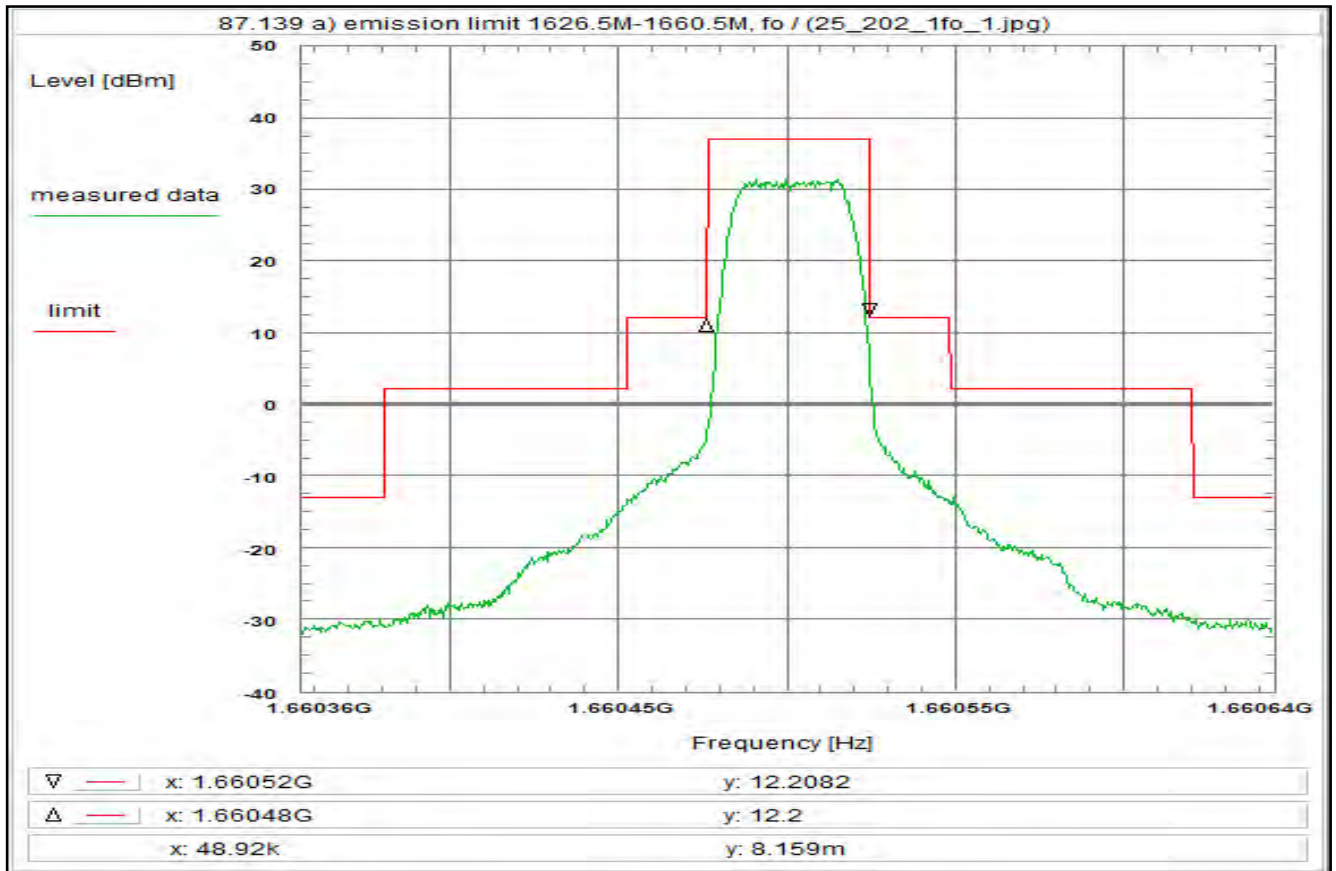
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain
 RMS, max hold

Plot No. 108



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:

Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:46:00

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660356 GHz

Stop frequency: 1.660644 GHz

Center frequency: 1.6605 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

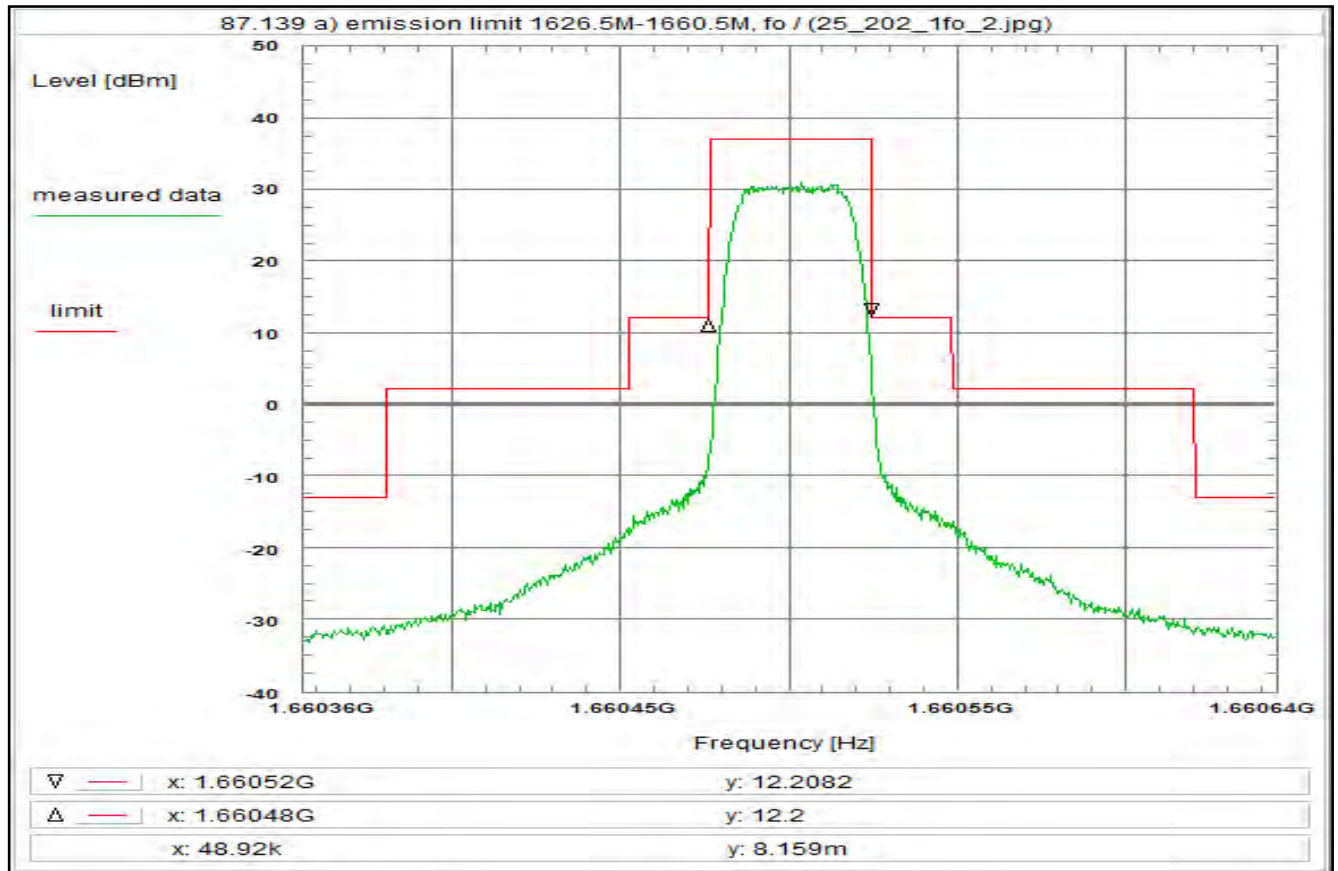
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 109



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
Emission limitations
Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

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

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, see test report chapter 5.4

Class 4 LDR, R20T1XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:47:13

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660356 GHz

Stop frequency: 1.660644 GHz

Center frequency: 1.6605 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

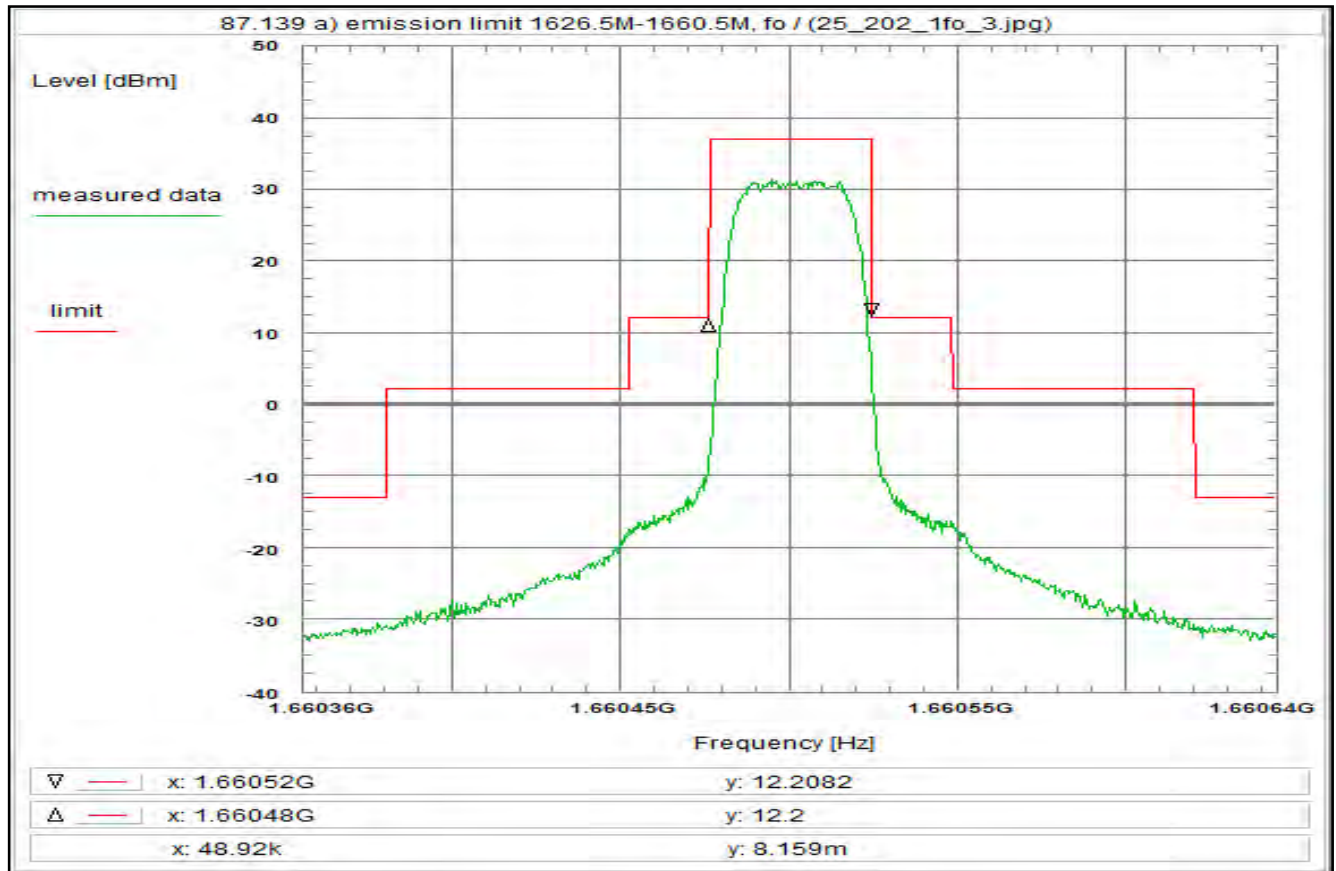
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 110



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:

Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R20T1QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:47:55
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660356 GHz
 Stop frequency: 1.660644 GHz
 Center frequency: 1.6605 GHz
 Frequency span: 288 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

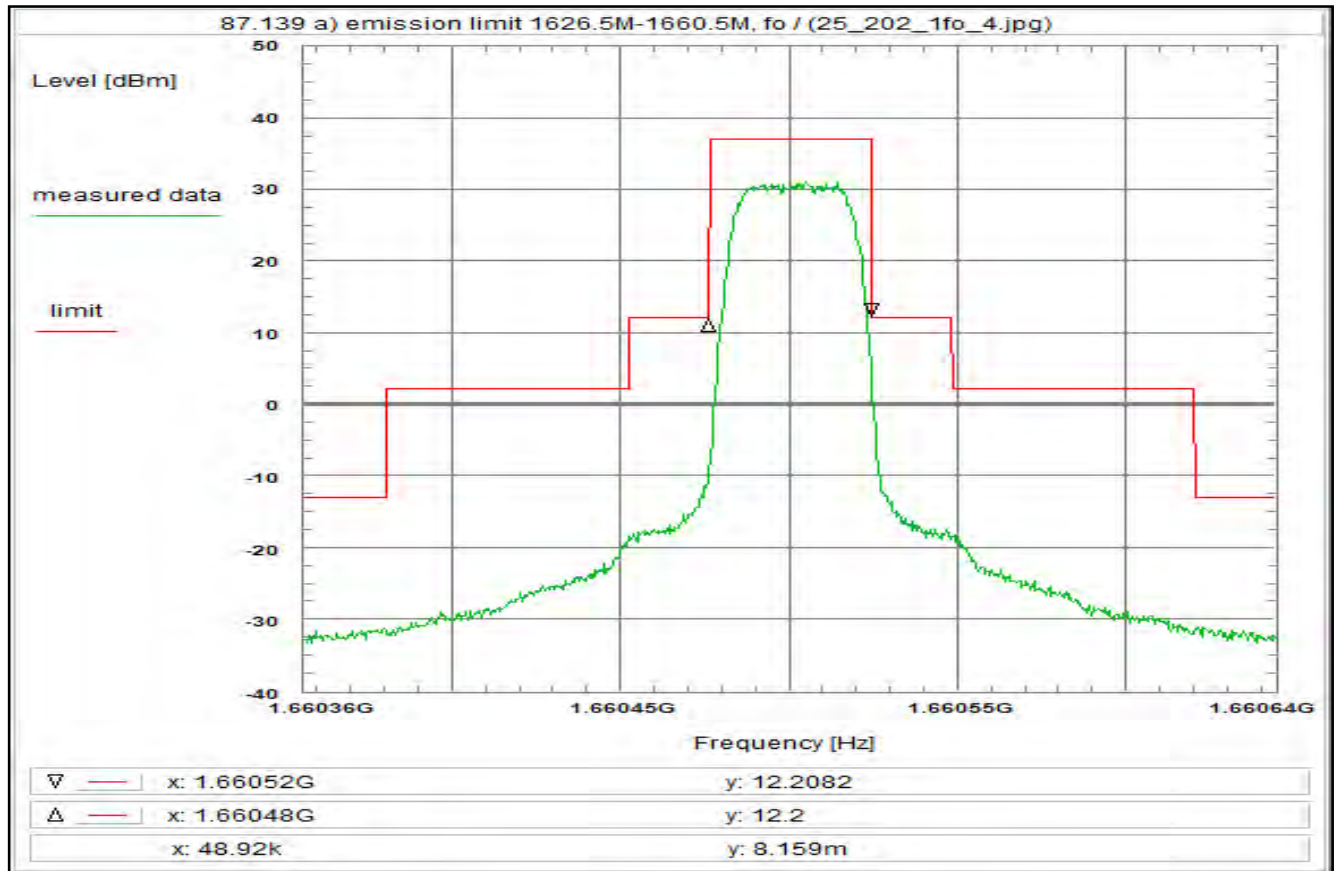
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 111



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R80T1Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:48:49

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660356 GHz

Stop frequency: 1.660644 GHz

Center frequency: 1.6605 GHz

Frequency span: 288 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

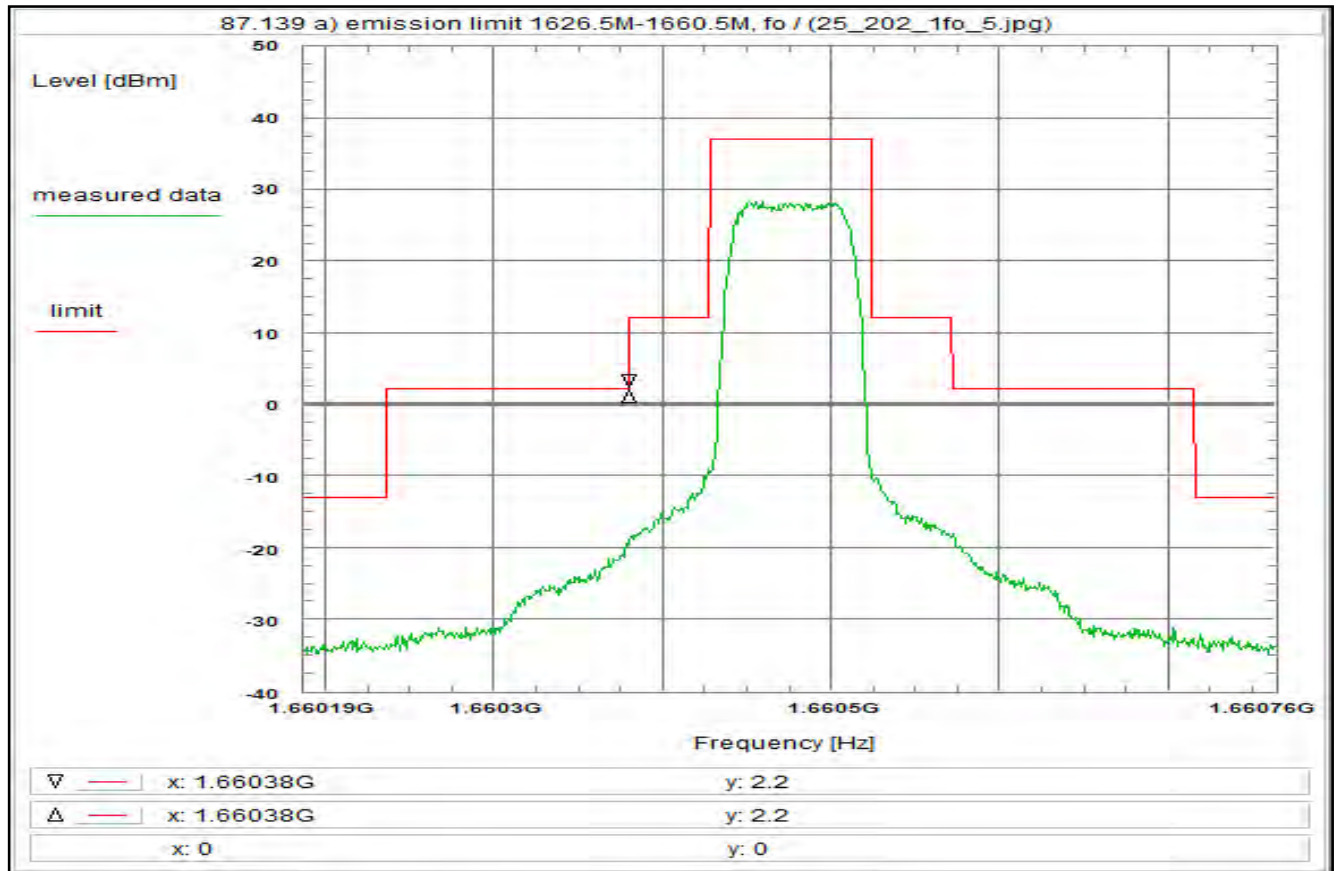
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 112



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

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

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, see test report chapter 5.4
 Class 4 LDR, R5T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:52:34
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660187 GHz
 Stop frequency: 1.660763 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 576 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

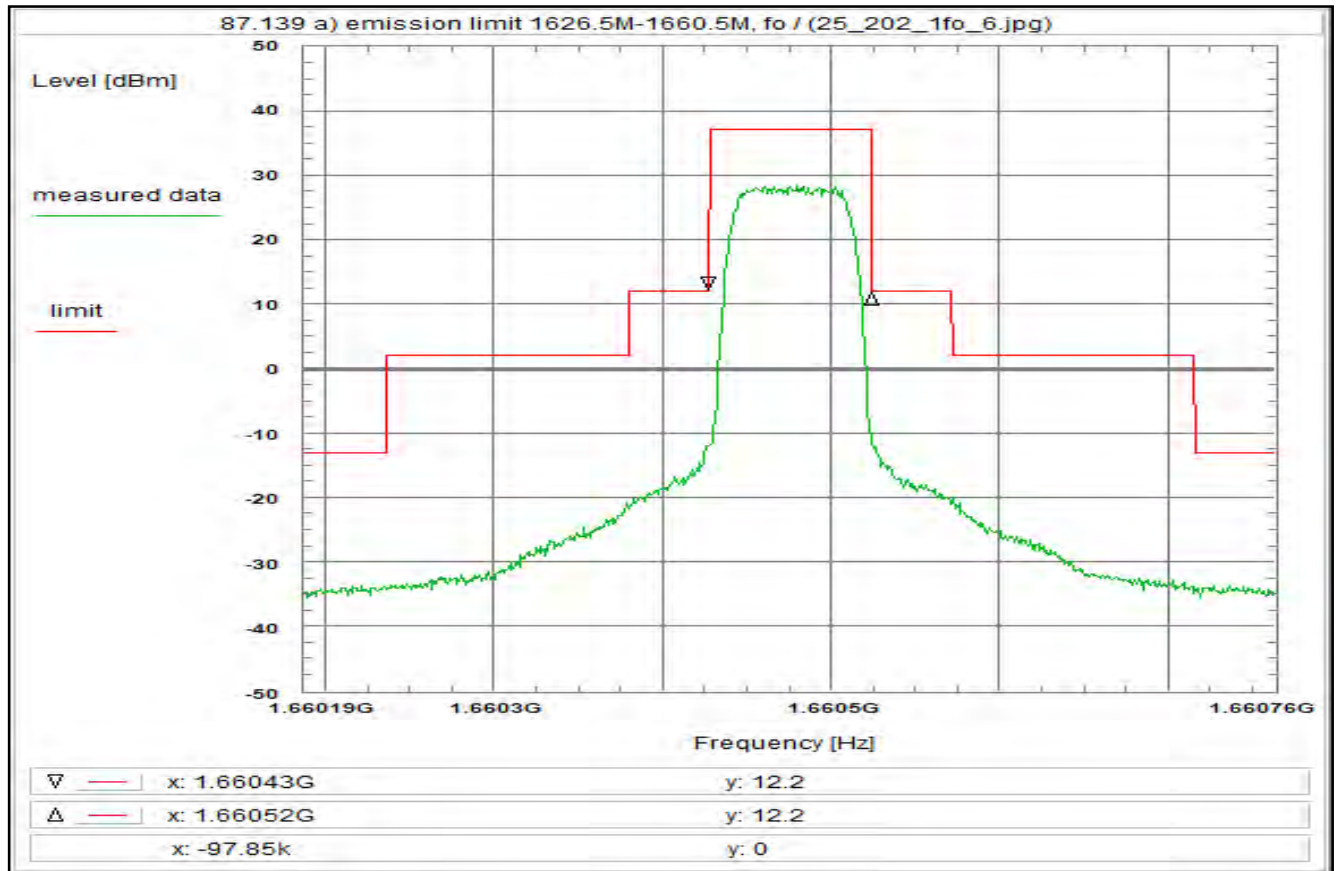
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 113



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R20T2XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:53:40
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660187 GHz
 Stop frequency: 1.660763 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 576 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

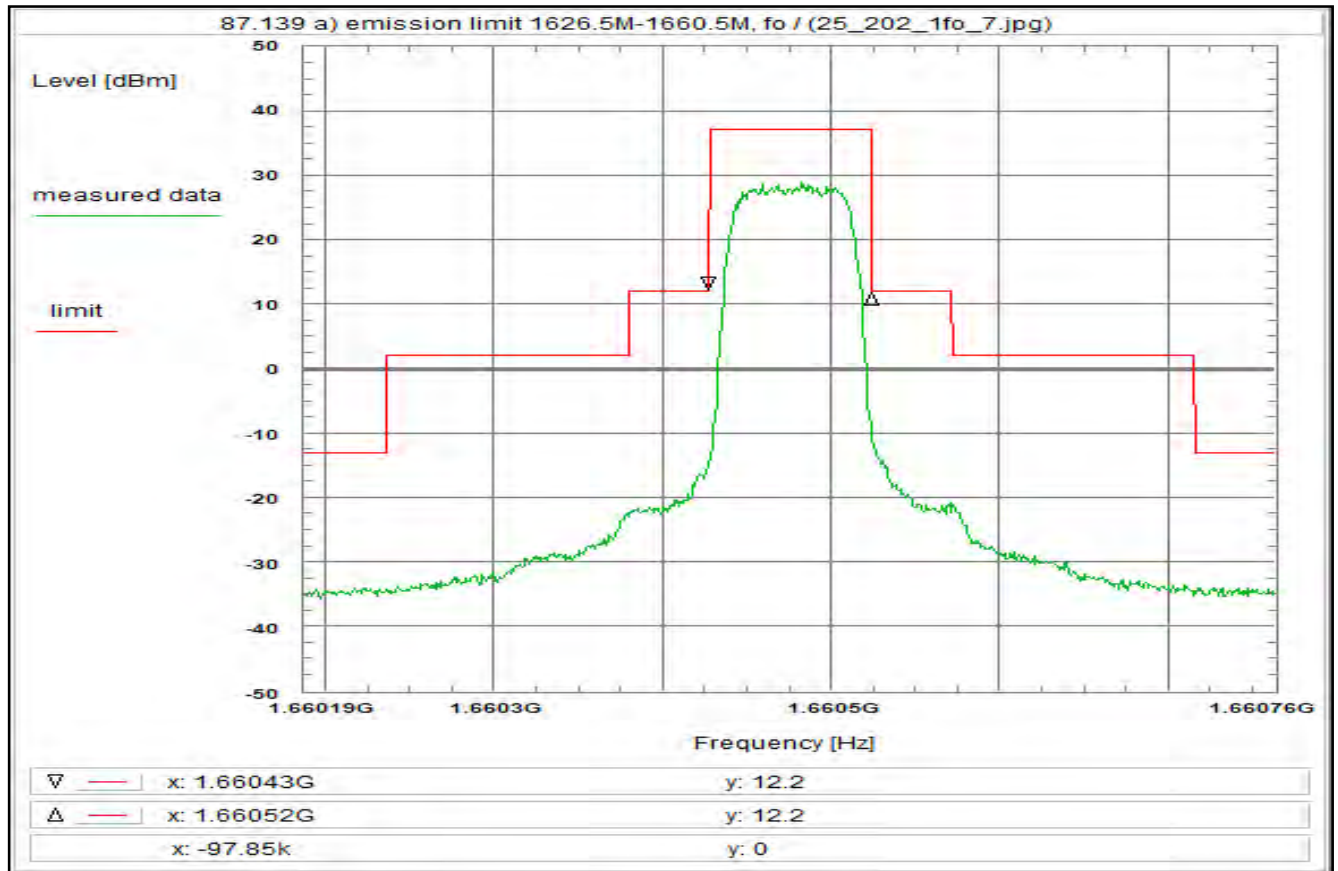
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 114



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:

Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R5T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:54:50
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660187 GHz
 Stop frequency: 1.660763 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 576 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

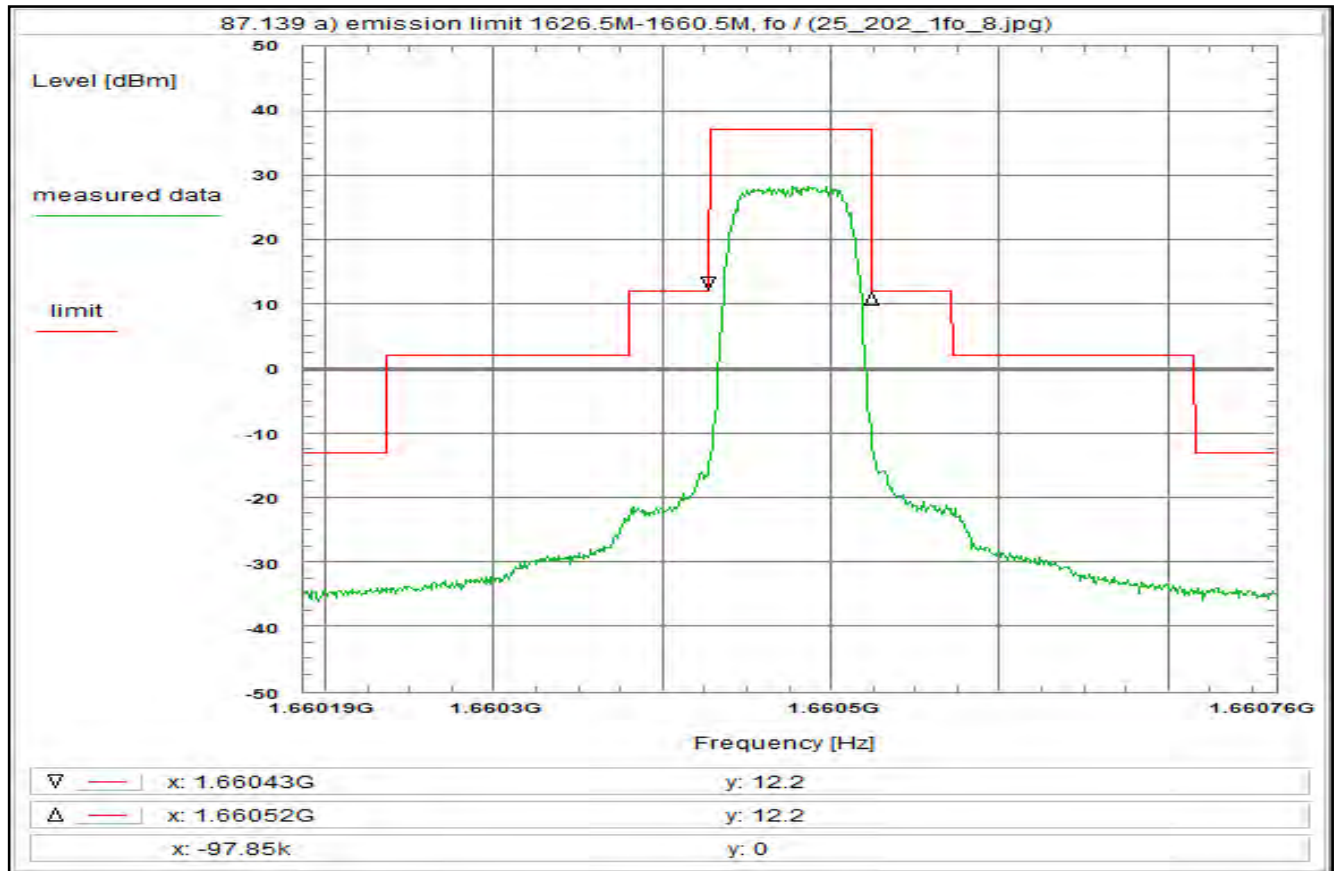
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 115



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R20T2QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 13:55:50
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660187 GHz
 Stop frequency: 1.660763 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 576 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

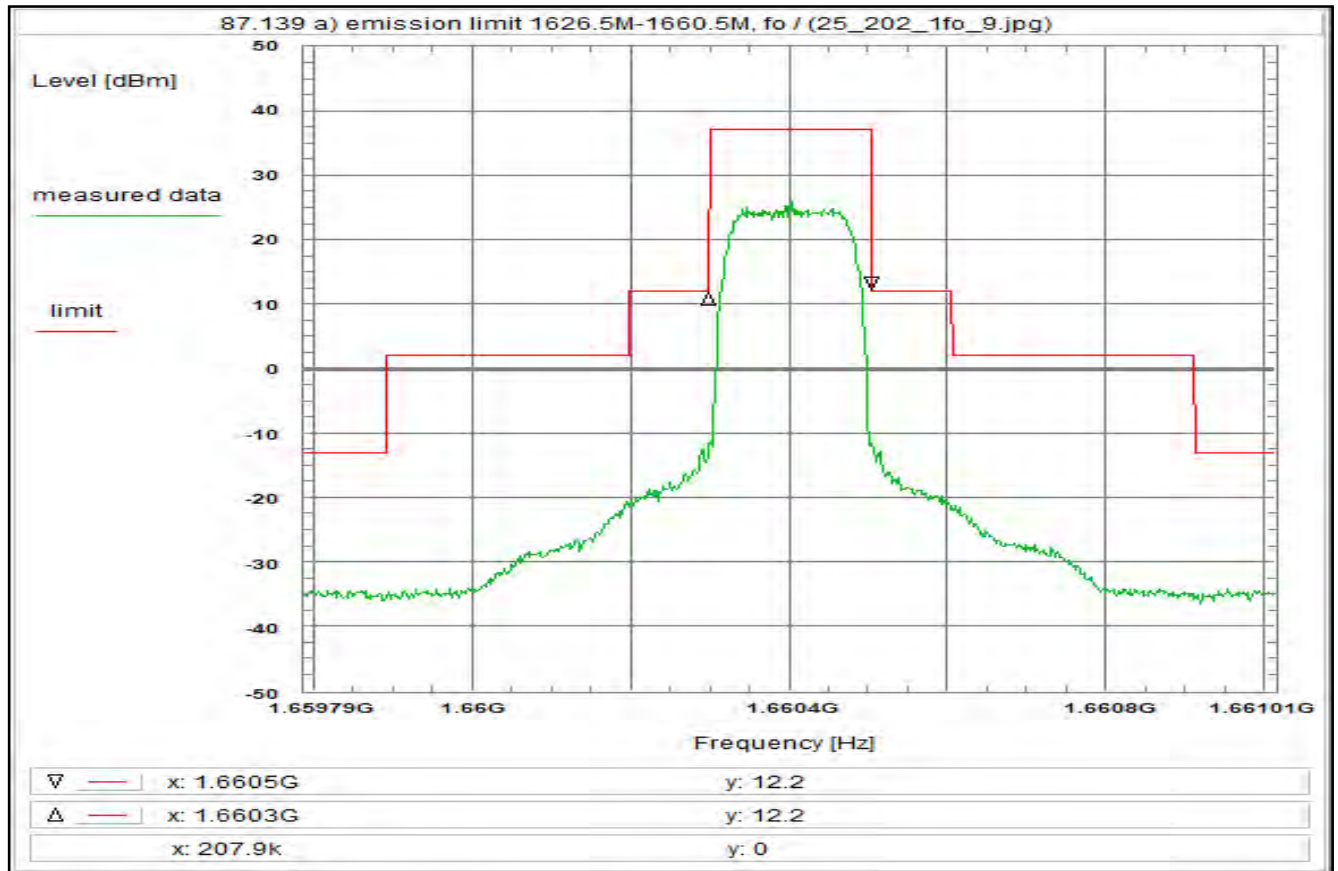
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 116



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:

Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R5T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:58:12
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659788 GHz
 Stop frequency: 1.661012 GHz
 Center frequency: 1.6604 GHz
 Frequency span: 1.224 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

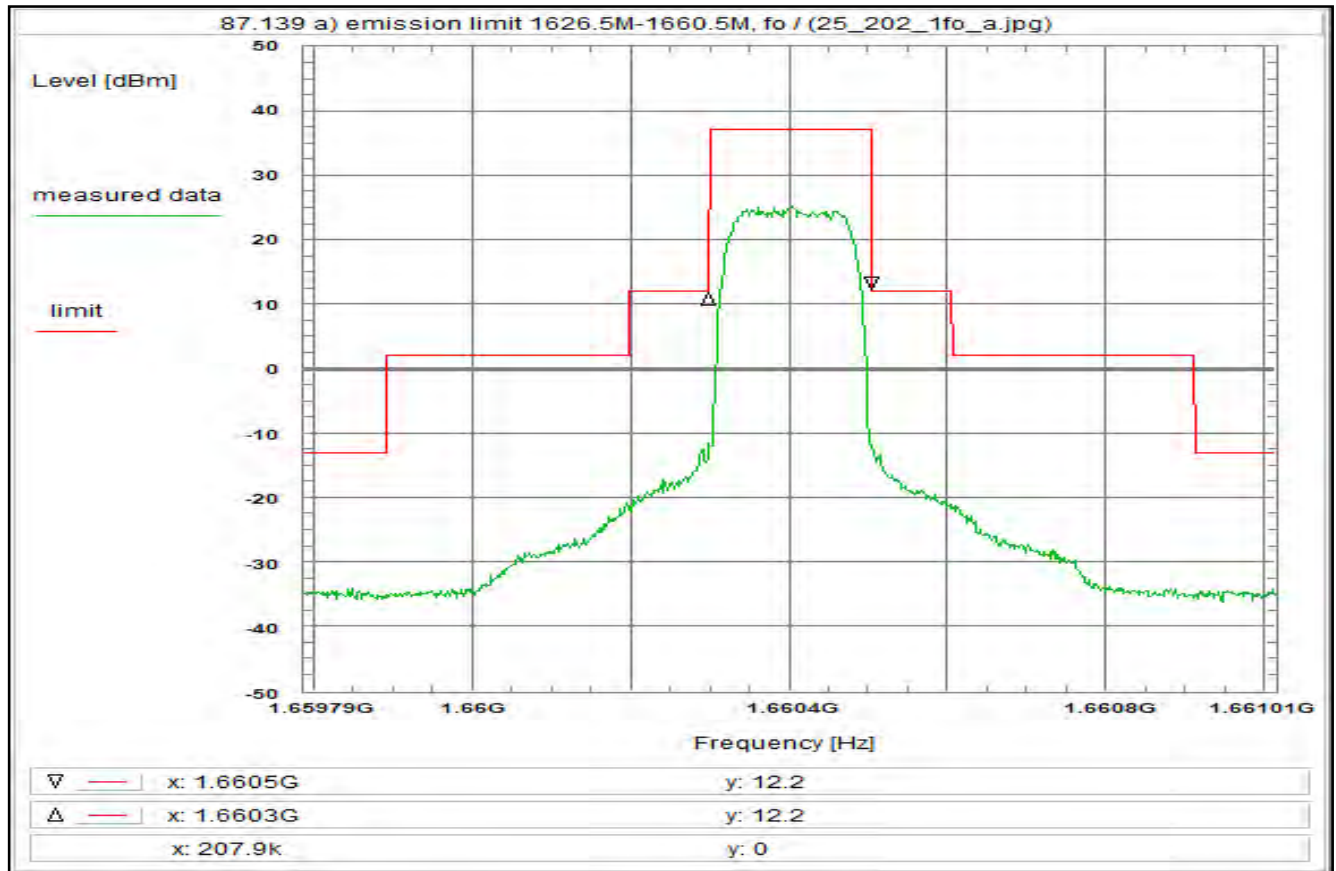
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 117



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:

Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T4.5XD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Mon 29/Jun/2020 13:59:20

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659788 GHz

Stop frequency: 1.661012 GHz

Center frequency: 1.6604 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

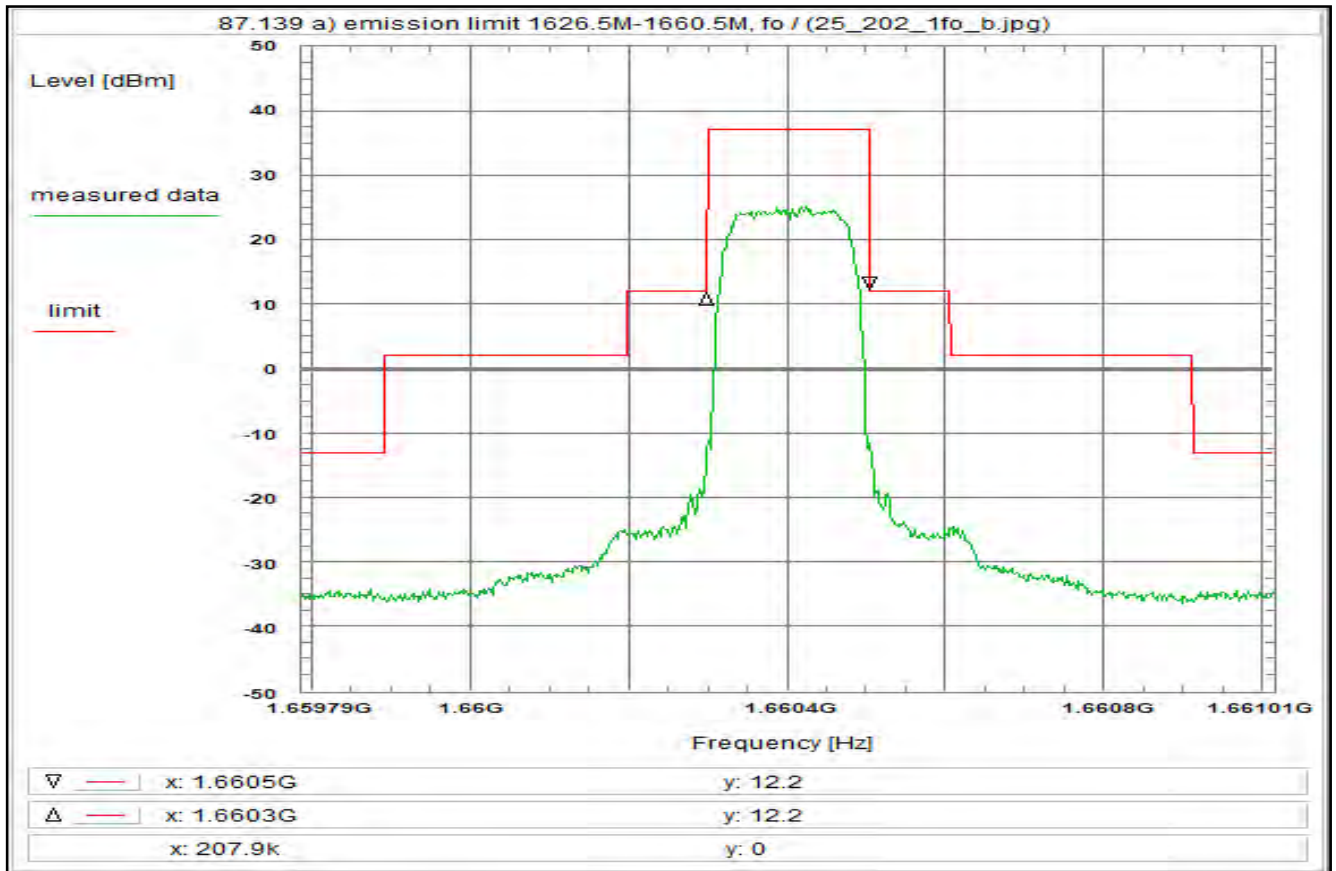
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 118



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R5T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 14:00:22

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659788 GHz

Stop frequency: 1.661012 GHz

Center frequency: 1.6604 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

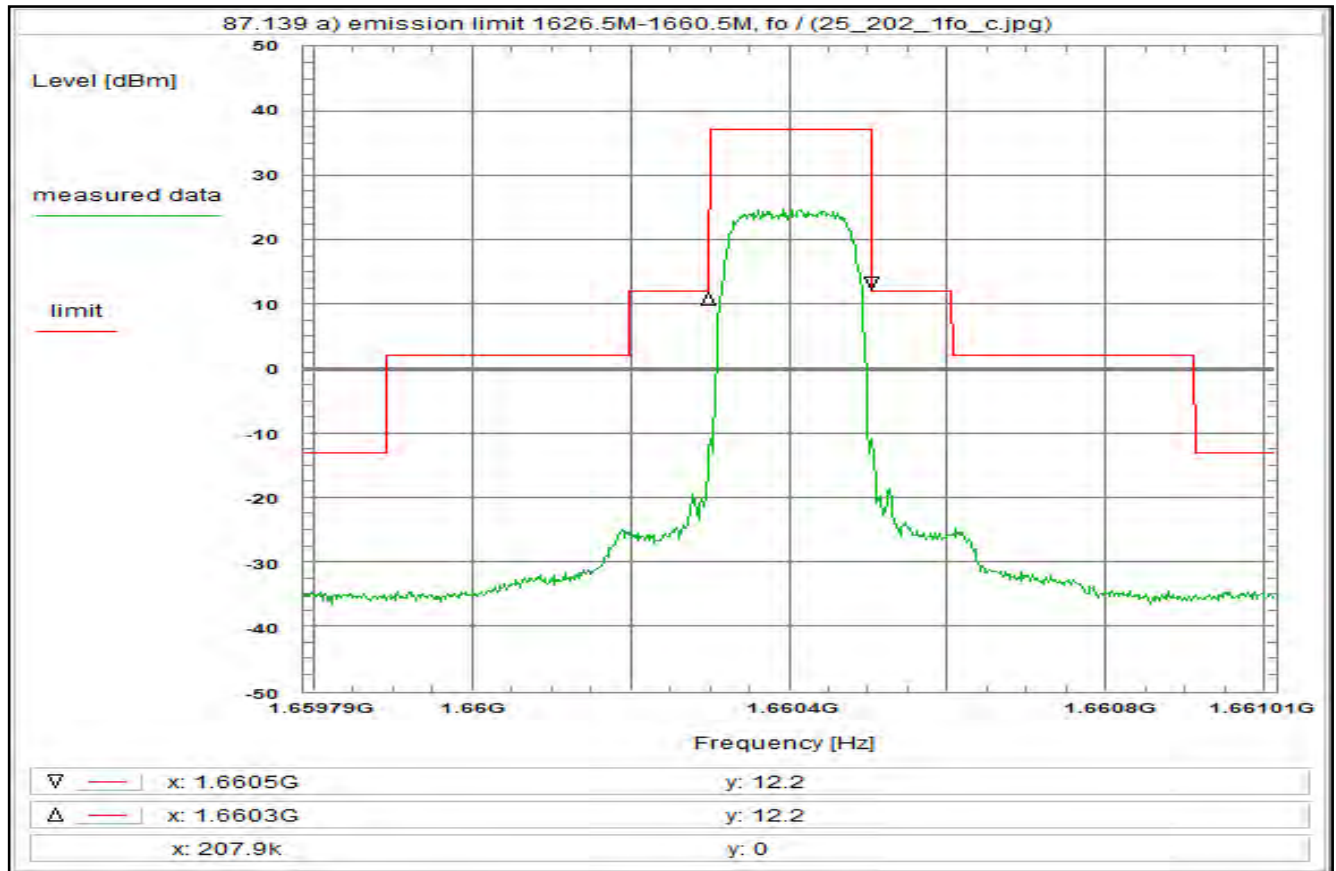
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 119



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T4.5QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 14:01:27

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659788 GHz

Stop frequency: 1.661012 GHz

Center frequency: 1.6604 GHz

Frequency span: 1.224 MHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

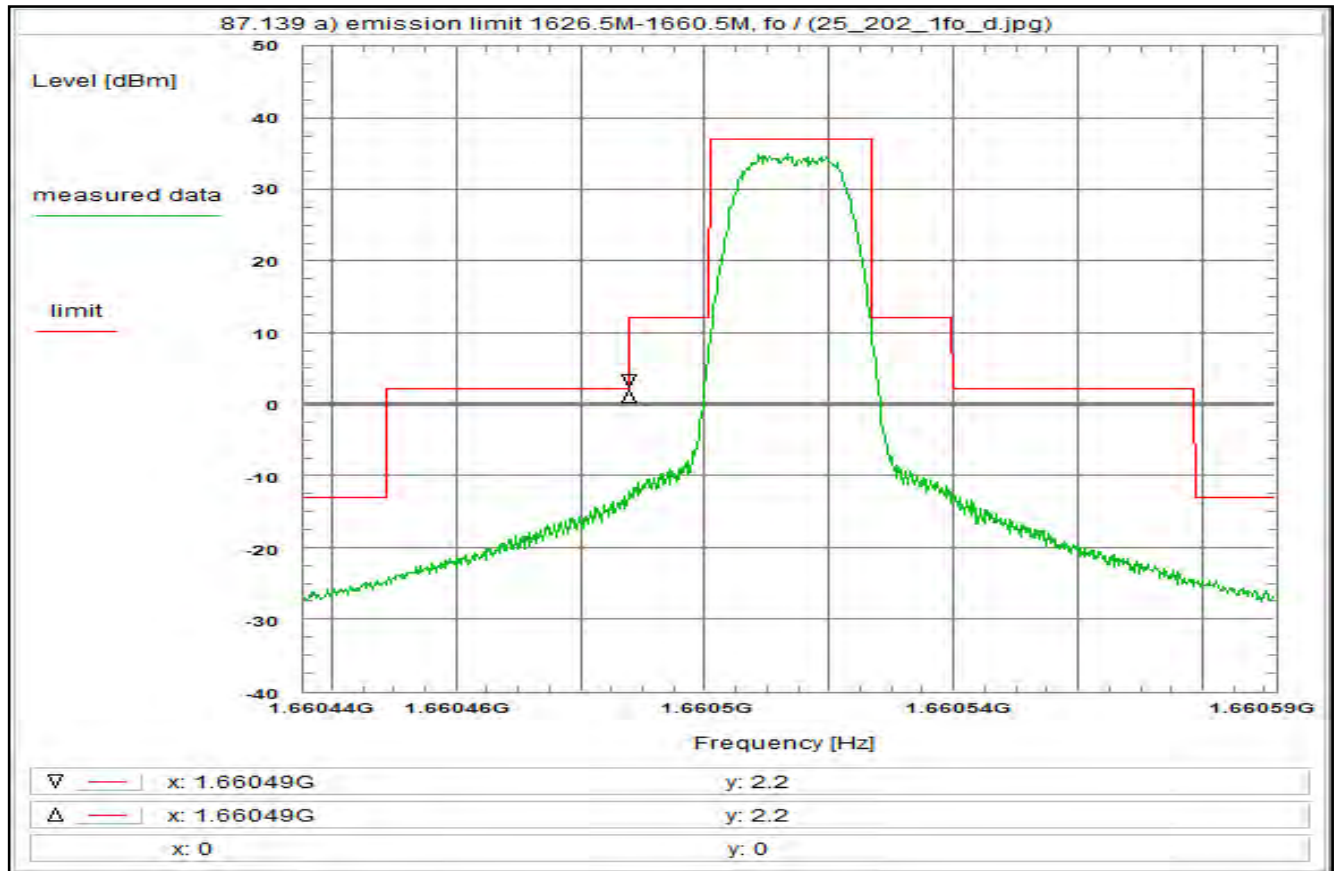
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 120



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, R20T05QD

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 14:05:59

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6604355 GHz

Stop frequency: 1.6605915 GHz

Center frequency: 1.6605135 GHz

Frequency span: 156 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

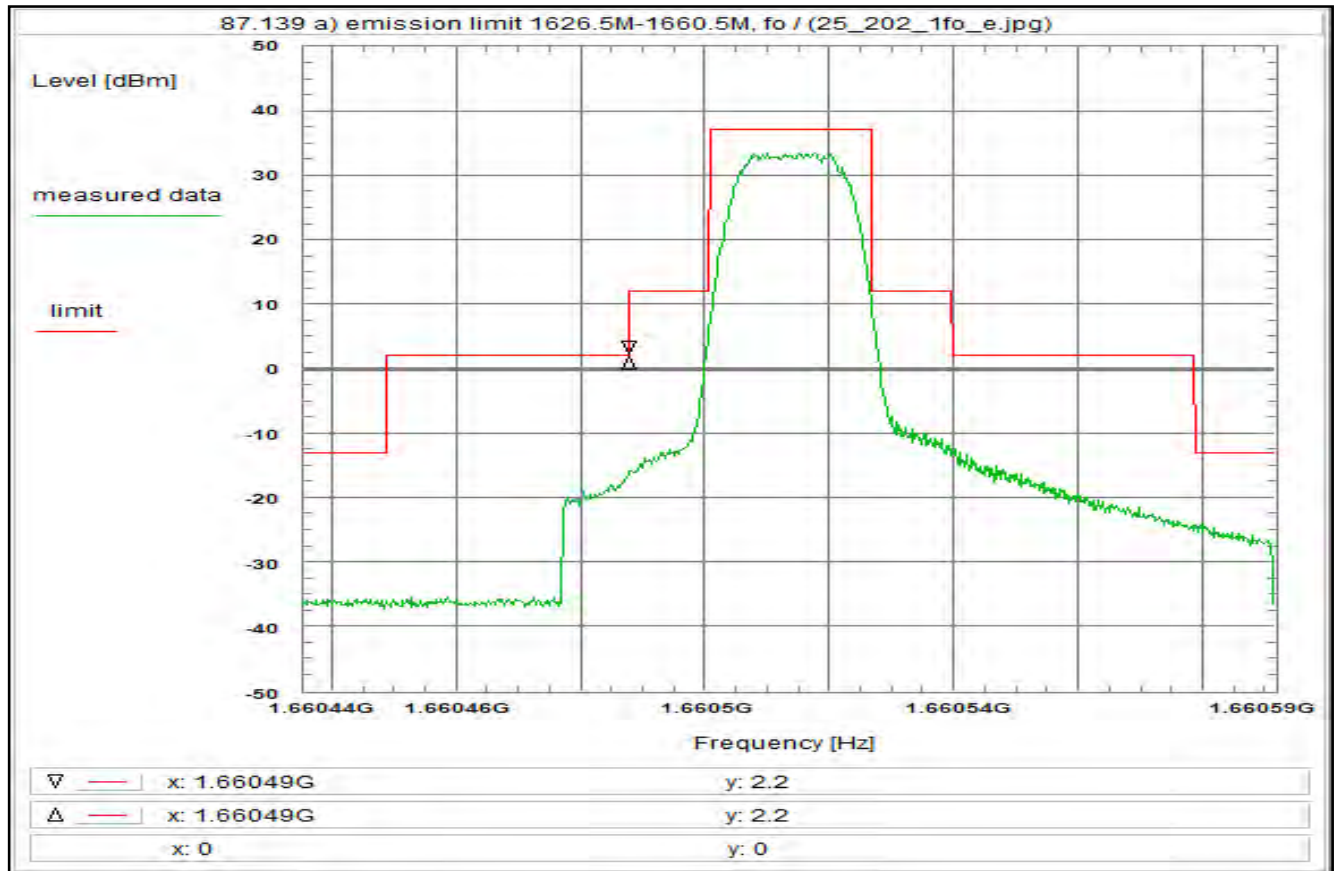
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 121



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4
 Class 4 LDR, R80T05Q

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 14:06:40
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6604355 GHz
 Stop frequency: 1.6605915 GHz
 Center frequency: 1.6605135 GHz
 Frequency span: 156 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

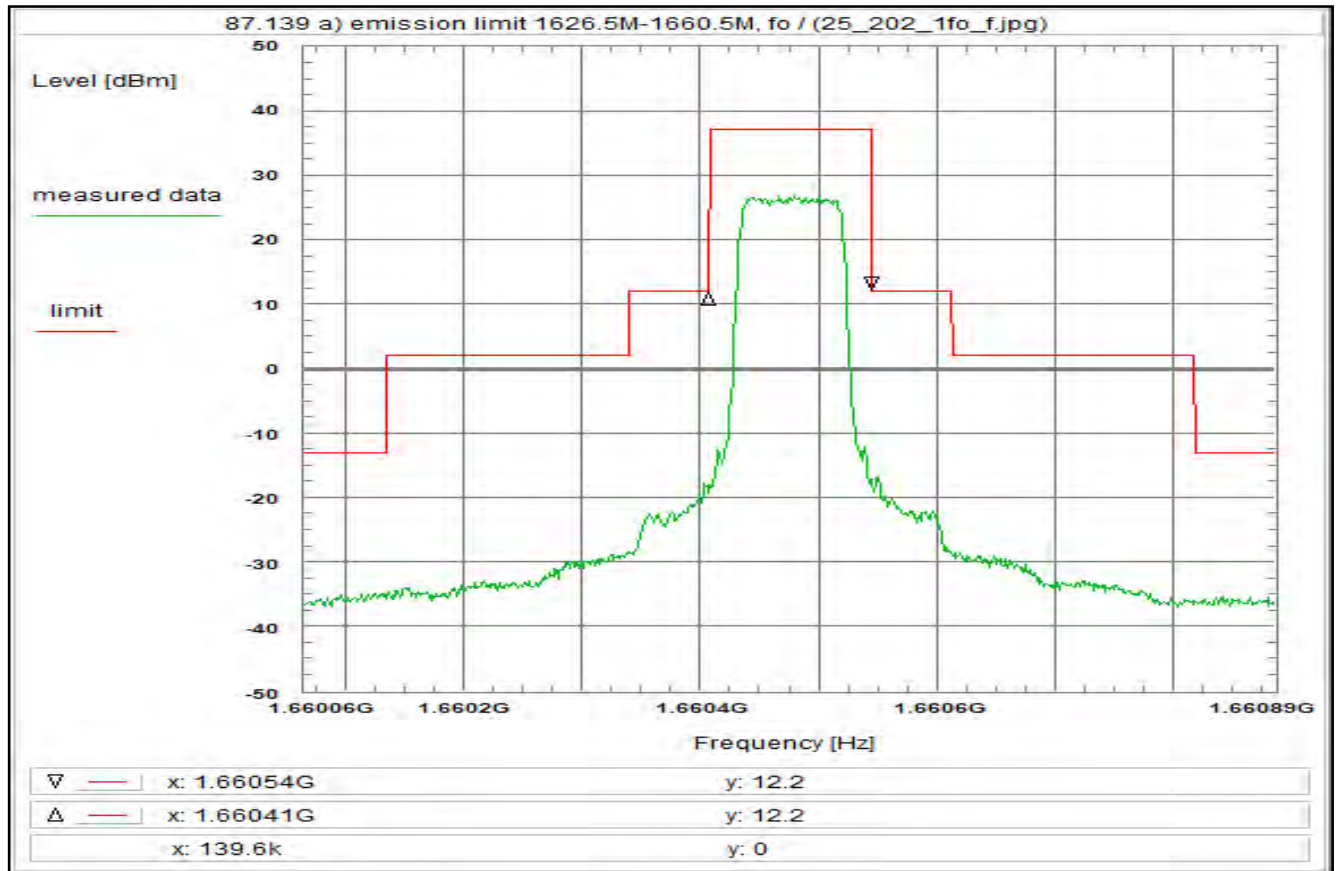
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 122



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, FR80T2.5X4

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 14:10:45

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660064 GHz

Stop frequency: 1.660886 GHz

Center frequency: 1.660475 GHz

Frequency span: 822 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

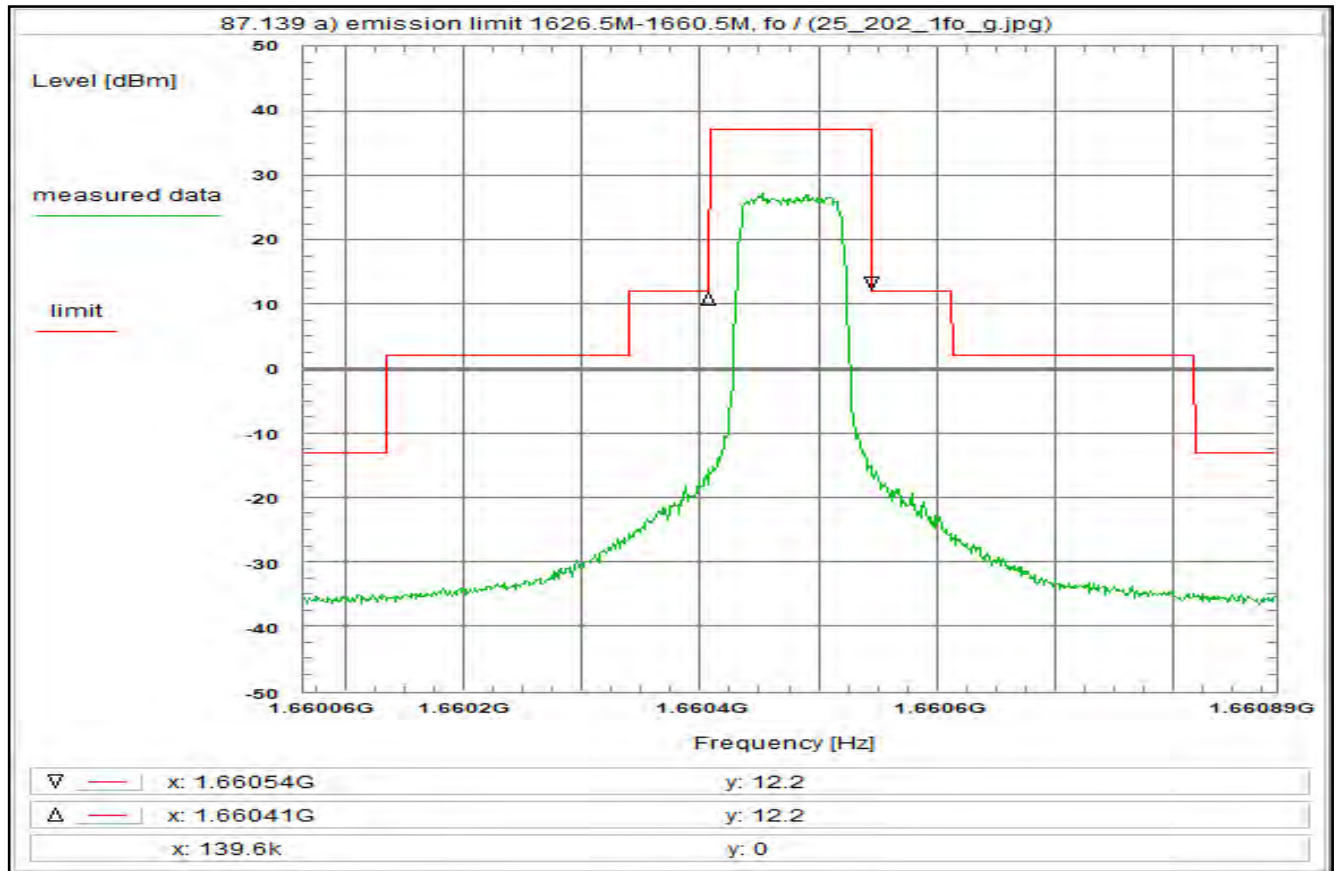
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 123



Subclause: 87.139 a) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier in the middle of the band (fo)

Limit:Limit according to 87.139 a):

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

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

> 250% of assigned bw: -43+10log(Pmax)dBc/4kHz = -43 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, see test report chapter 5.4

Class 4 LDR, FR80T2.5X16

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, Power Splitter, R001, U311, U312

Remark:

Test result: Test passedEnvironment condition:

Date & Time: Mon 29/Jun/2020 14:12:04

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660064 GHz

Stop frequency: 1.660886 GHz

Center frequency: 1.660475 GHz

Frequency span: 822 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 40 dB

Trace-Mode: Clear Write

Detector-Mode: AVG

Correction:

Directional coupler + 0.0 dB

Coaxial cable (C220) + 0.9 dB

DUT-Antenna + 3.8 dBi

Test antenna + 0.0 dB

BW correction factor (3k -> 4k) + 1.2 dB

Atten. between HPA and feedhorn - 0.0 dB

Attenuation (U312) + 19.5 dB

Attenuation (U311) + 9.7 dB

Power Splitter + 6.7 dB

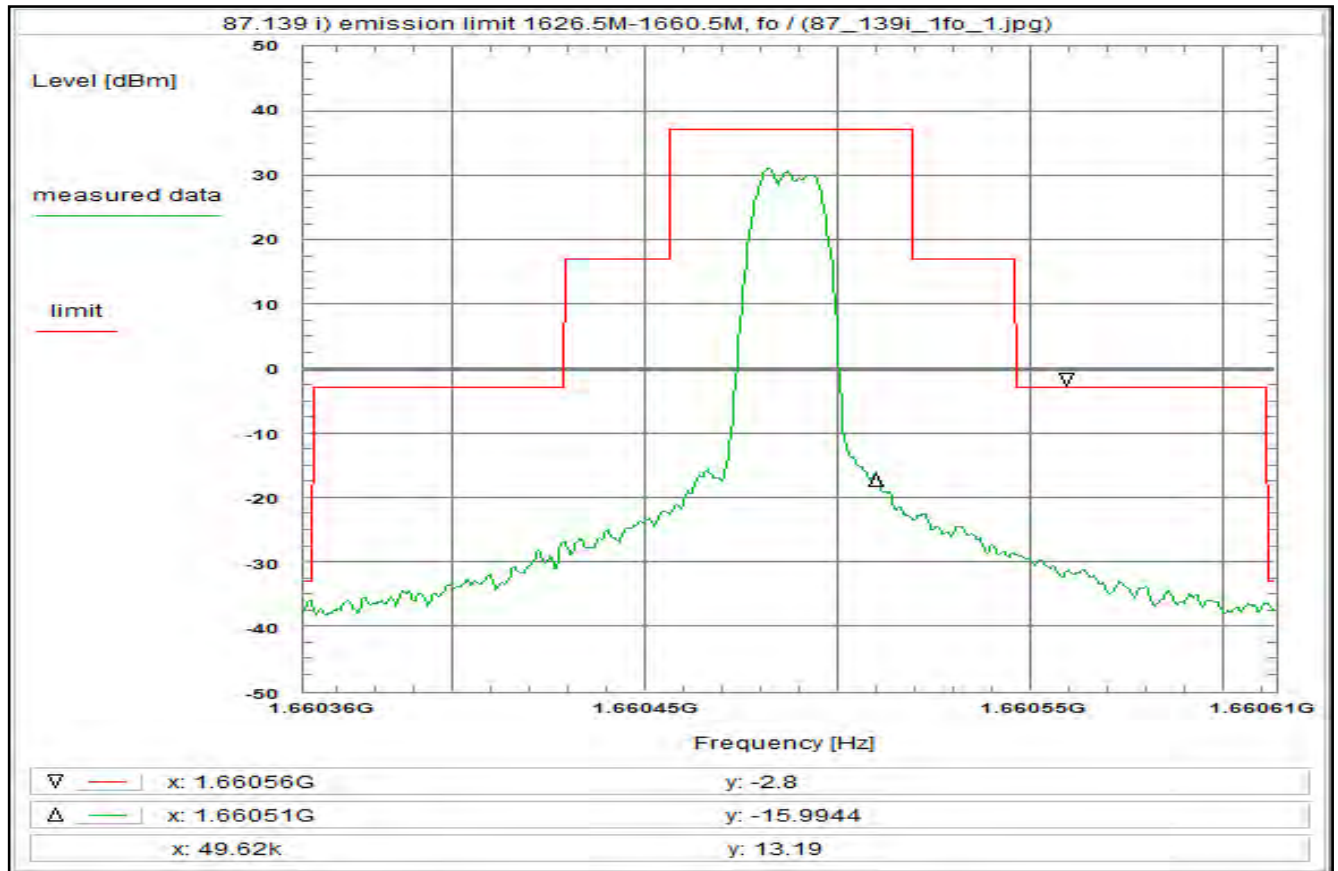
TOTAL CORRECTION: + 41.8 dB

Remarks:

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

Reference of limit = 37.2 dBm, spectrum mask referenced to necessary bandwidth

Plot No. 124



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T0.5QD/R80T0.5QD, QPSK, 16.8 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:46:35
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6603615 GHz
 Stop frequency: 1.6606135 GHz
 Center frequency: 1.6604875 GHz
 Frequency span: 252 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

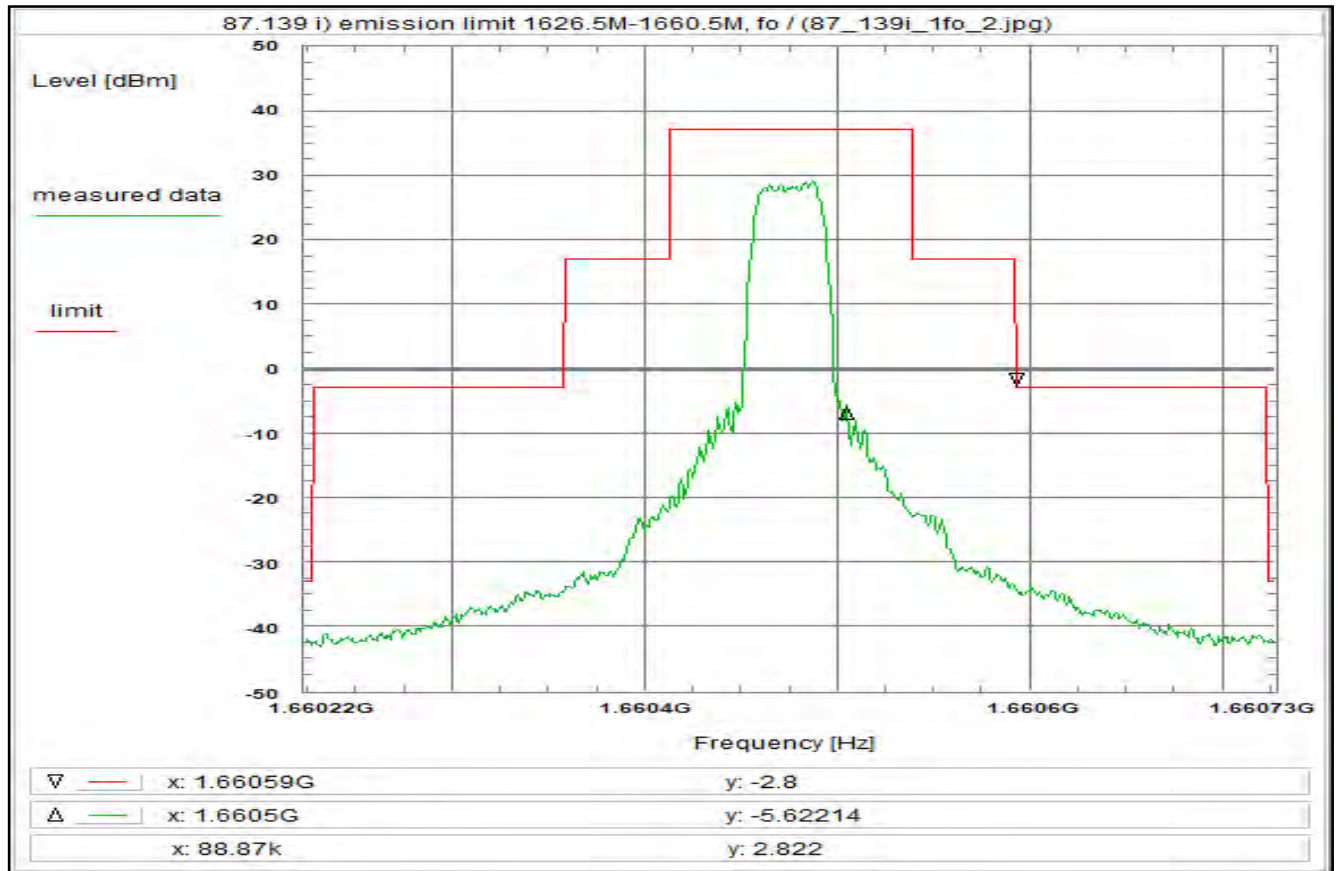
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 125



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T1QD/R20T1QD, QPSK, 33.6 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:48:52
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660223 GHz
 Stop frequency: 1.660727 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 504 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

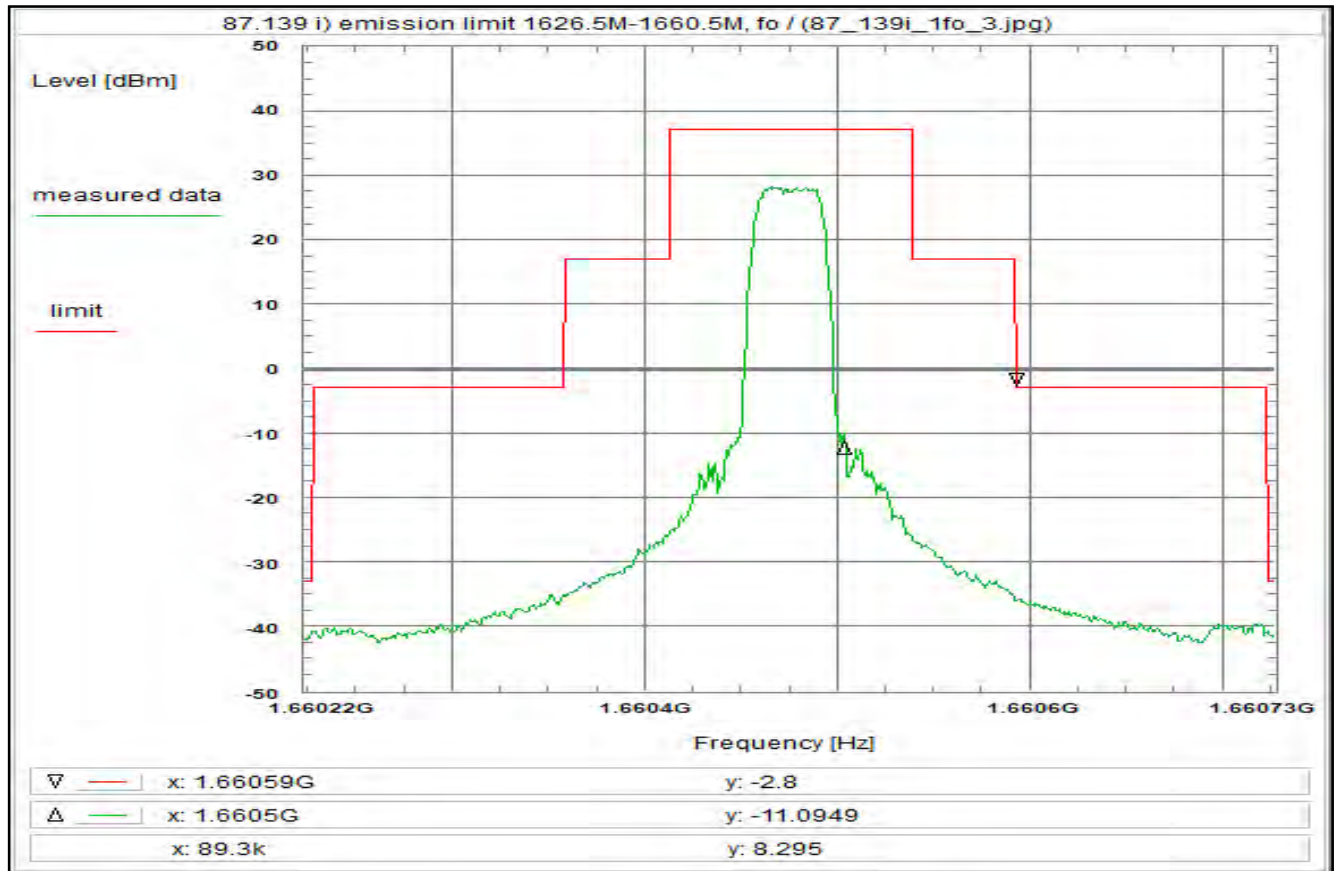
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 126



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R20T1QD/R80T1Q, QPSK, 33.6 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 10:53:28
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.660223 GHz
 Stop frequency: 1.660727 GHz
 Center frequency: 1.660475 GHz
 Frequency span: 504 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

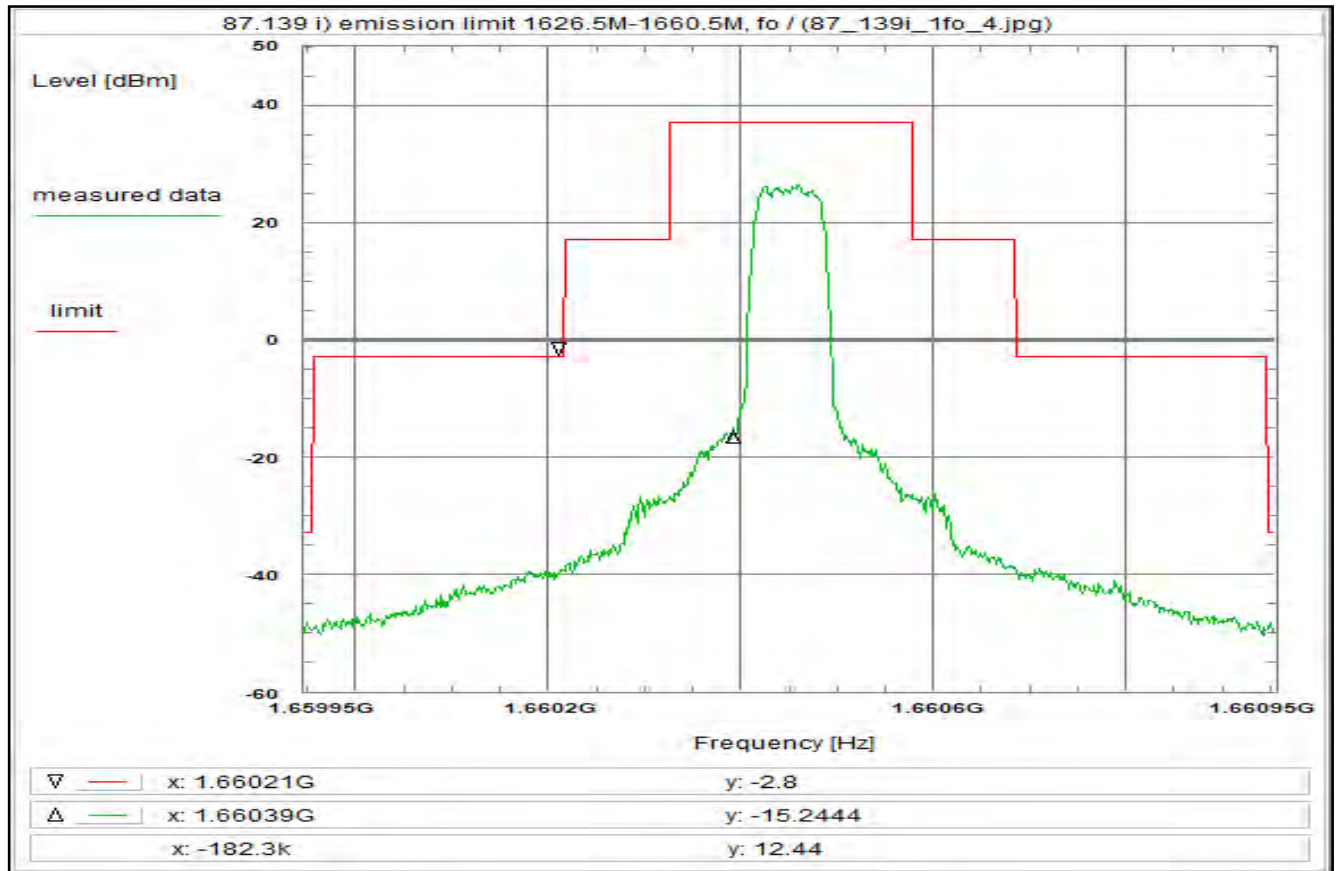
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 127



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T2XD/R20T2XD, 16QAM, 67.2 ksymbols

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:08:58
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659946 GHz
 Stop frequency: 1.660954 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 1.008 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

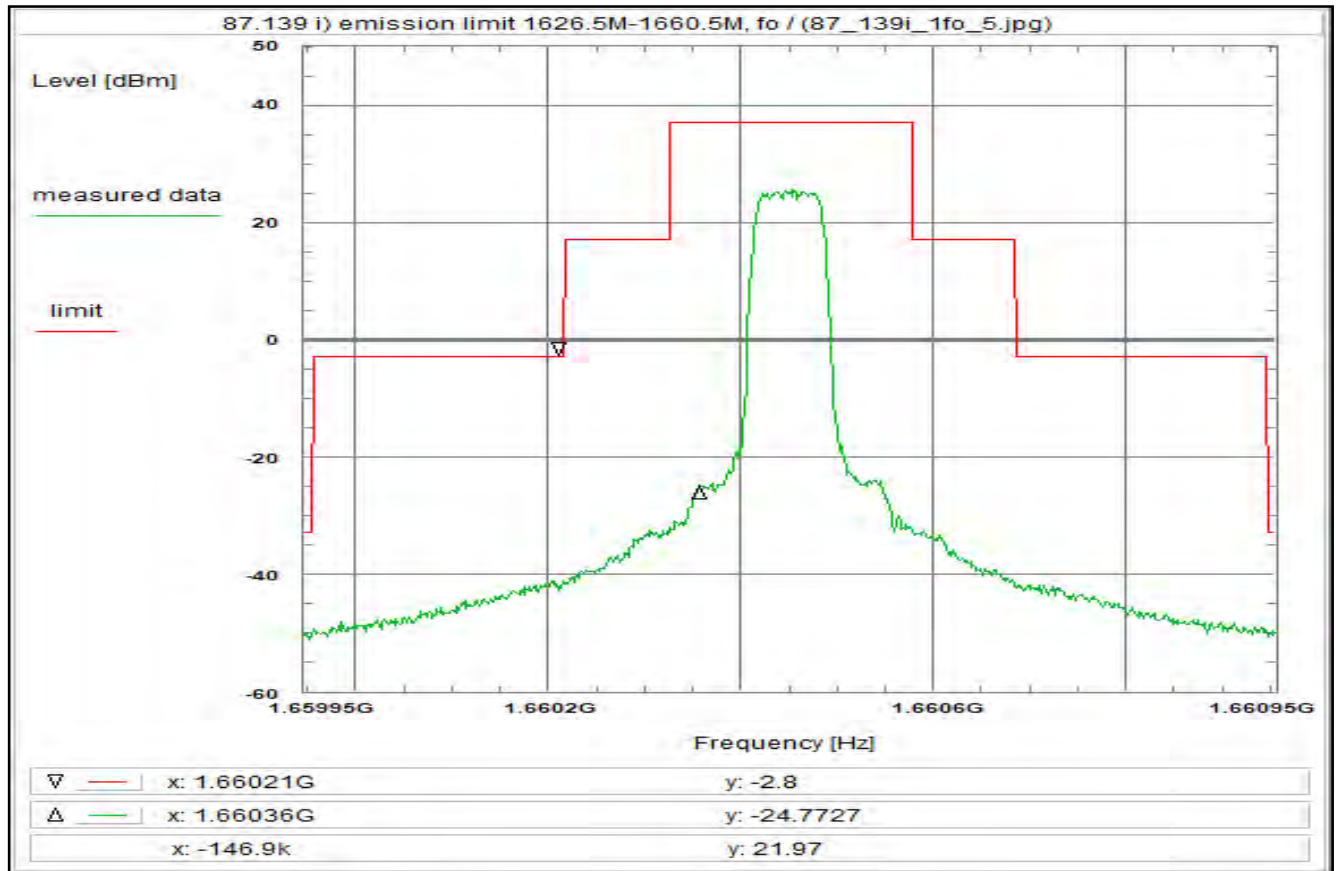
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 128



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T2QD/R20T2QD, QPSK, 67.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:14:15
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659946 GHz
 Stop frequency: 1.660954 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 1.008 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

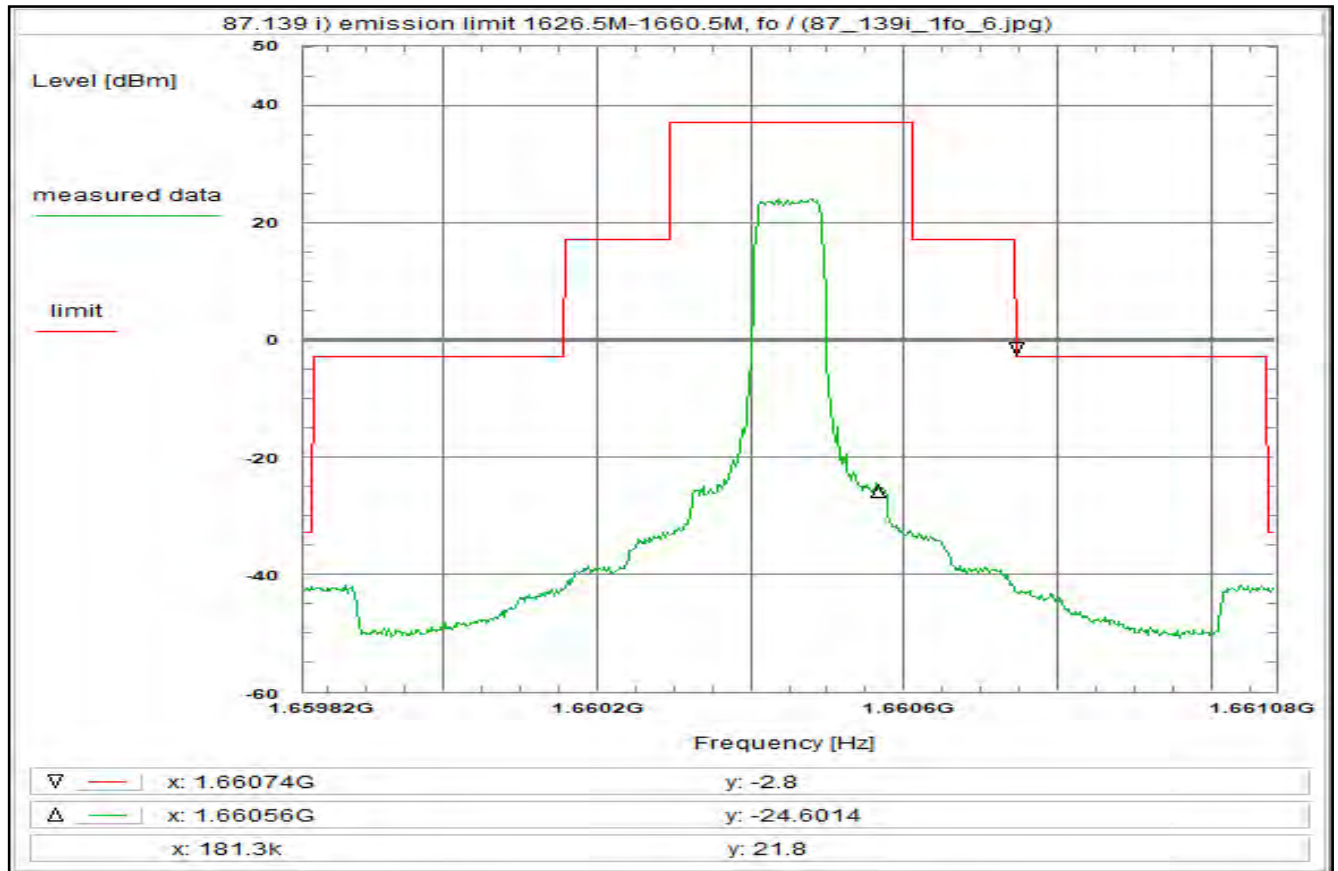
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 129



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, FR80T2.5X4, QPSK, 84 kHz

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:17:17
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.65982 GHz
 Stop frequency: 1.66108 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 1.26 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

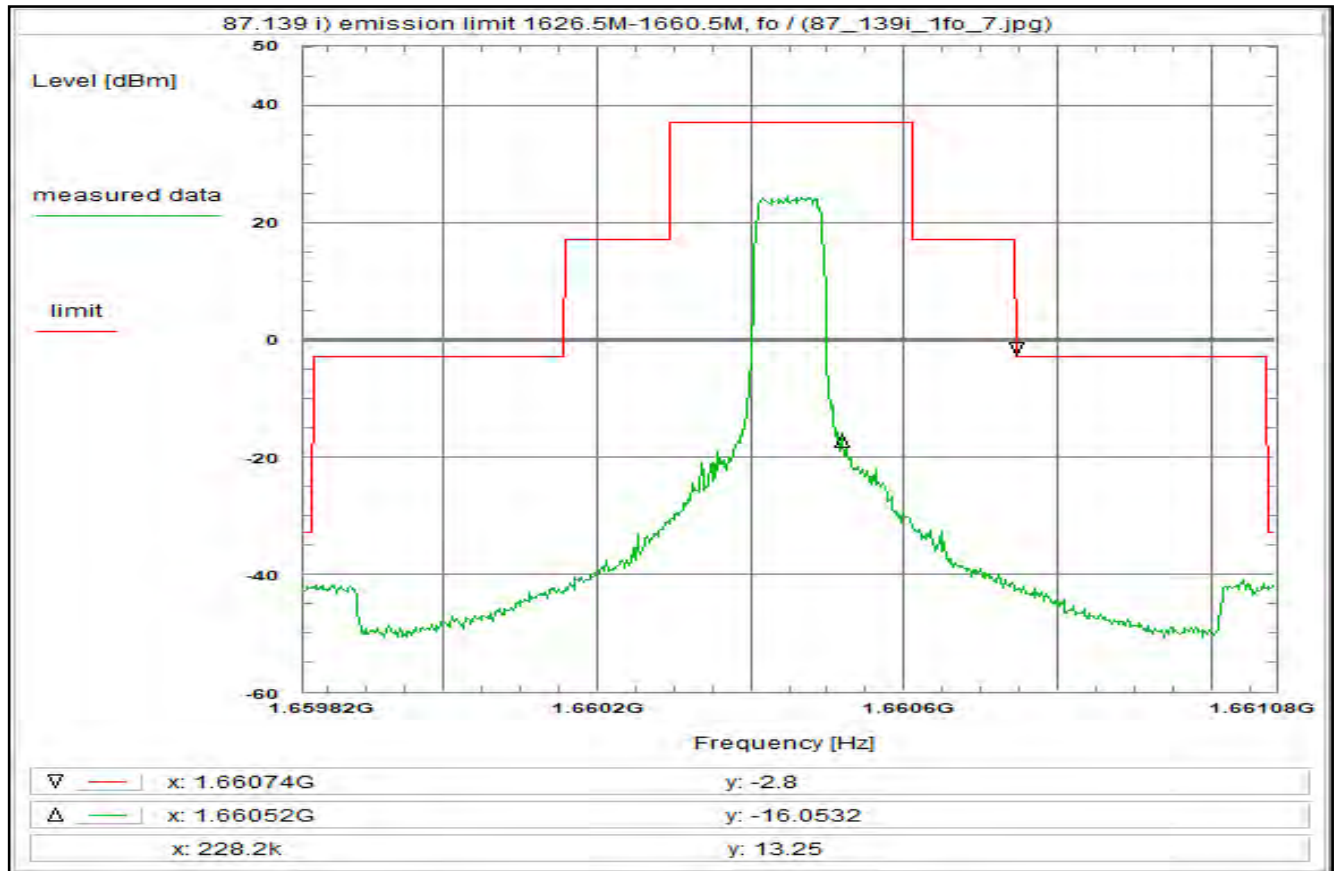
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 130



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, FR80T2.5X16, 16QAM, 84 kHz

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:20:39
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.65982 GHz
 Stop frequency: 1.66108 GHz
 Center frequency: 1.66045 GHz
 Frequency span: 1.26 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

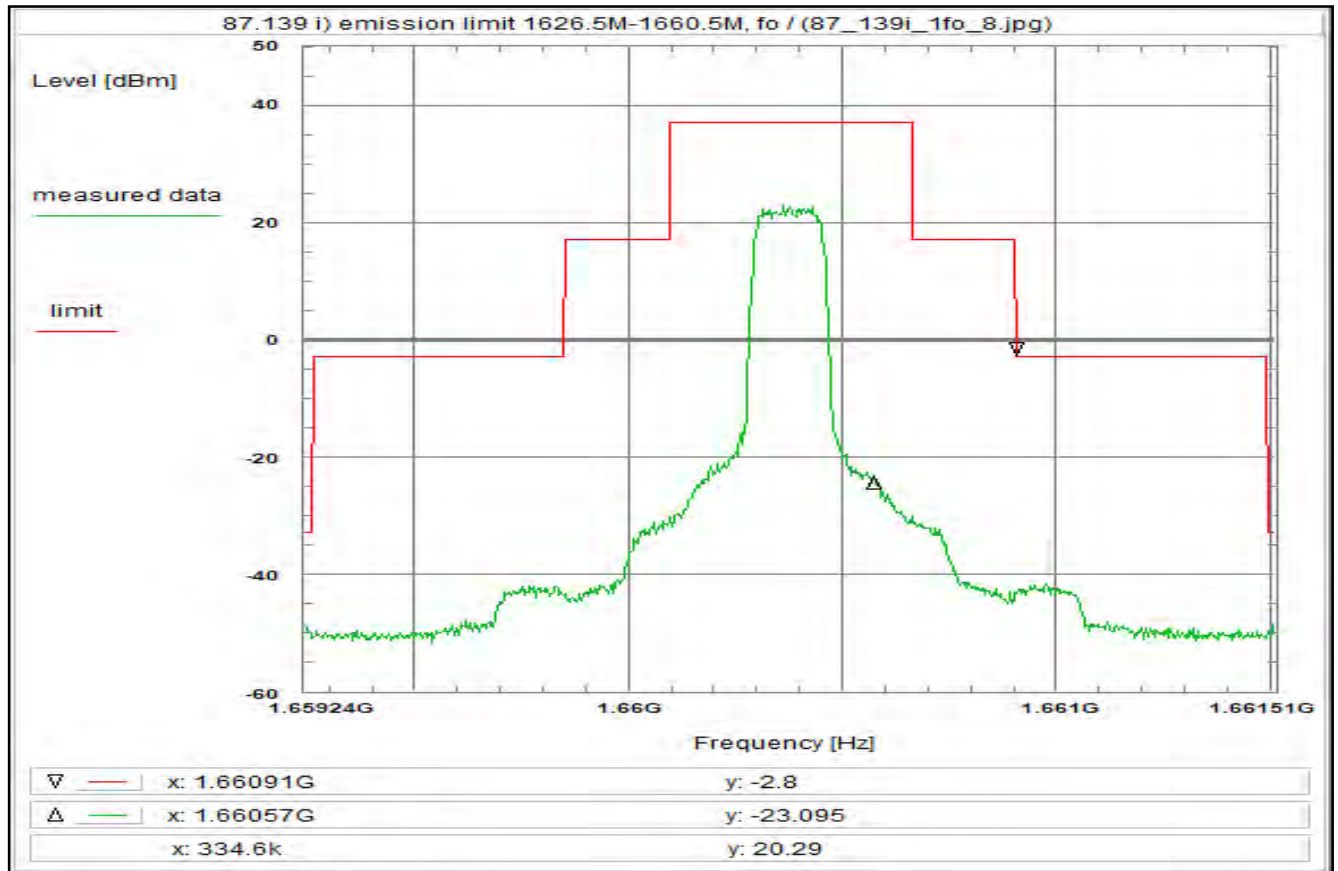
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 131



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T4.5XD/R20T4.5XD, 16QAM, 151.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:23:02
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659241 GHz
 Stop frequency: 1.661509 GHz
 Center frequency: 1.660375 GHz
 Frequency span: 2.268 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 0.0 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
(U311+U312)	+ 29.8 dB
TOTAL CORRECTION:	+ 31.9 dB

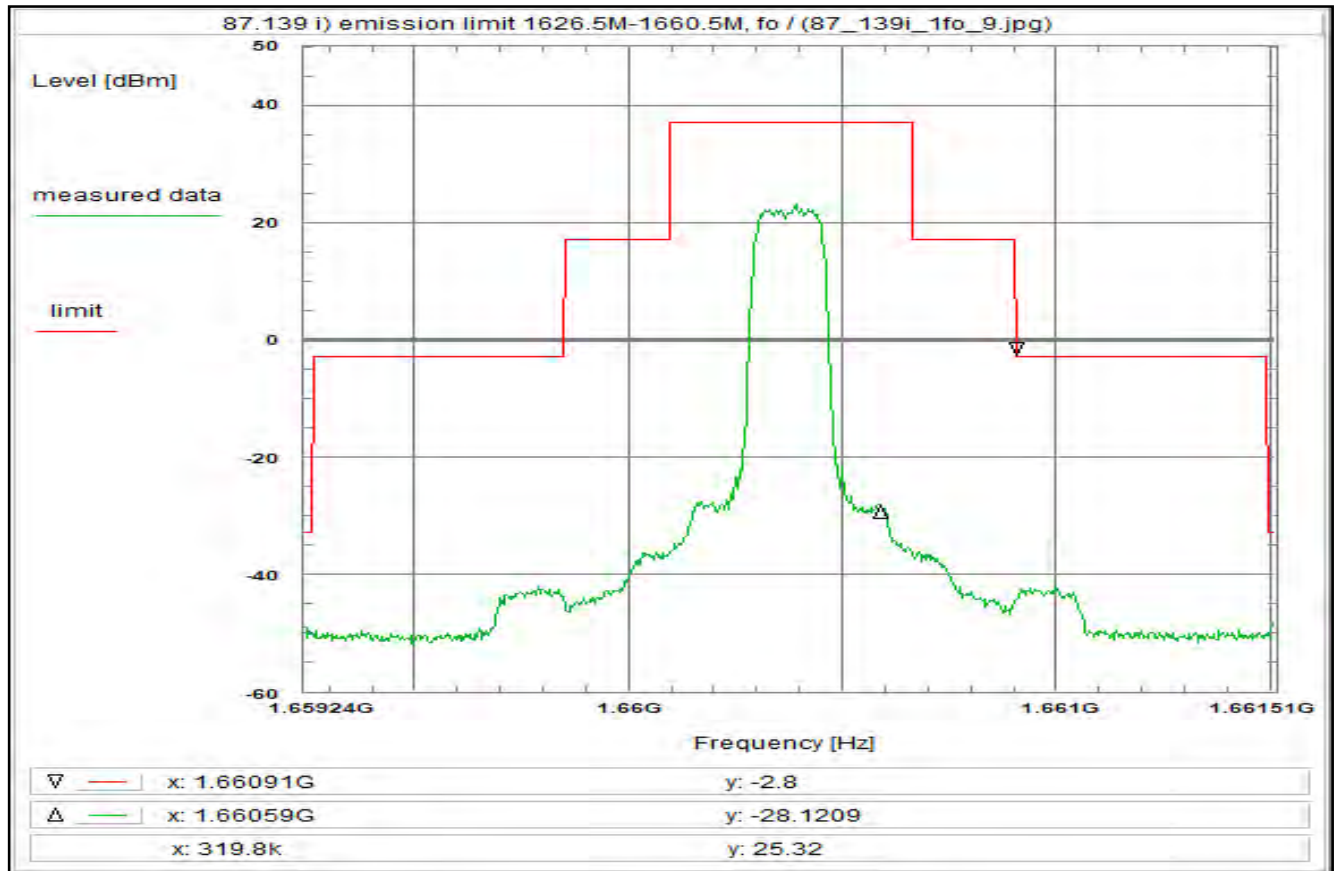
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 132



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 200S, R5T4.5QD/R20T4.5QD, QPSK, 151.2 ksym/s

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U311, U312

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 27/May/2020 11:29:27
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.659241 GHz
 Stop frequency: 1.661509 GHz
 Center frequency: 1.660375 GHz
 Frequency span: 2.268 MHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 15 dB
 Trace-Mode: Average
 Detector-Mode: Sample

Correction:

Directional coupler + 0.0 dB
 Coaxial cable (C220) + 0.9 dB
 DUT-Antenna + 0.0 dBi
 Test antenna + 0.0 dB
 BW correction factor (3k -> 4k) + 1.2 dB
 (U311+U312) + 29.8 dB
 TOTAL CORRECTION: + 31.9 dB

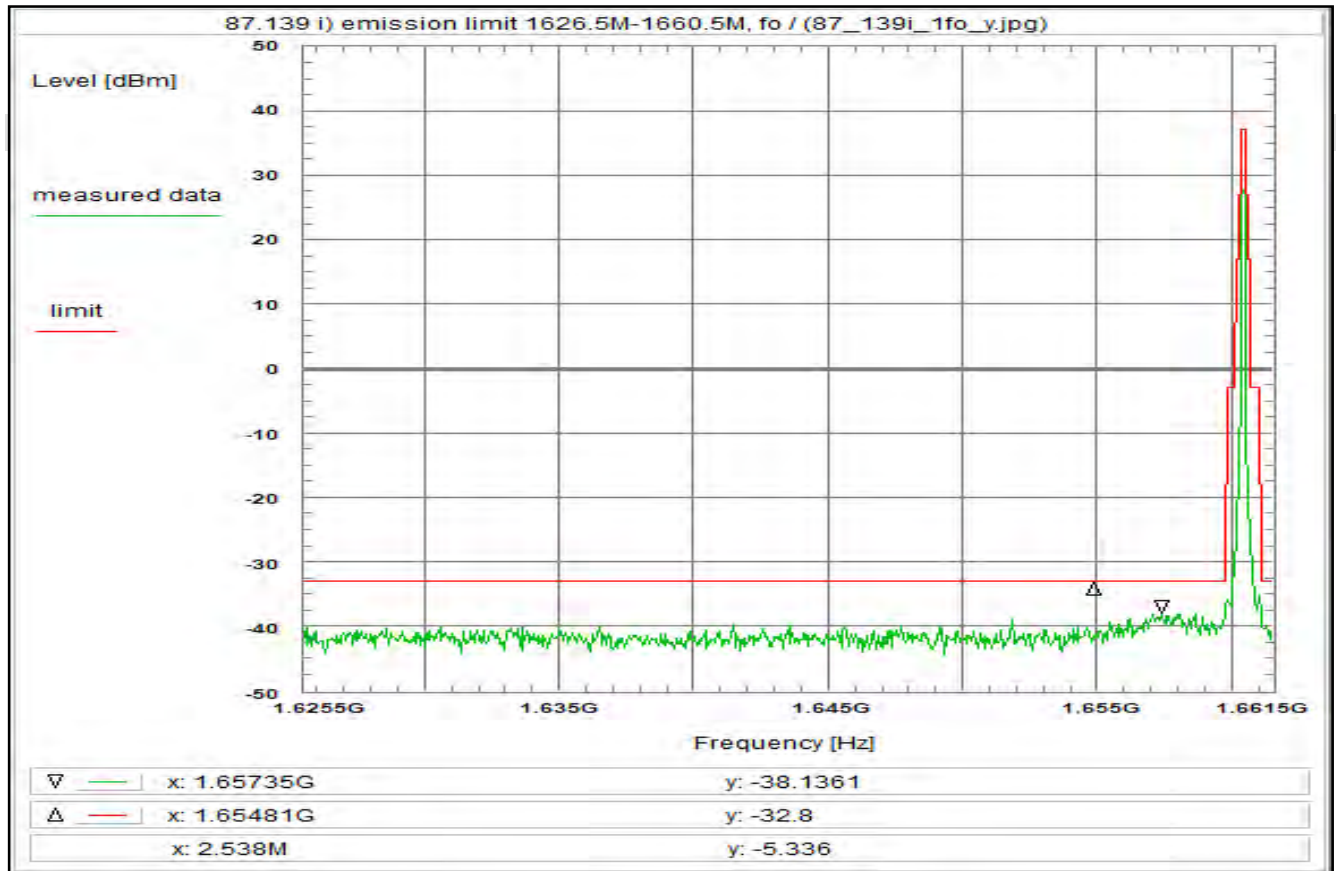
Remarks:

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

For EIRP calculation:

'worst-case' = maximum antenna gain

Plot No. 133



Subclause: 87.139 i) Frequencies, frequency tolerance and emission limitations
 Emission limitations
 Modulated rf-carrier at the upper edge of the band (fo)

Limit:

Limit according to 87.139(i)(1)
 The mean power of emissions shall be attenuated
 below the mean output power of the transmitter
 in accordance with 87.139(i)(1).

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, see test report chapter 5.4
 A200S Class 4 LDR worst case modulation, whole band

Test setup:

see test report chapter 7.2 setup 1.1hgj

Test equipment:

see test report chapter 7.2: C220, R001, U312, U311, Power Splitter

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 09/Jul/2020 12:20:55
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

Setup of measurement equipment:

Start frequency: 1.6255 GHz
 Stop frequency: 1.6615 GHz
 Center frequency: 1.643500025 GHz
 Frequency span: 36 MHz
 Resolution-BW: 3 kHz
 Video-BW: 30 kHz
 Input attenuation: 30 dB
 Trace-Mode: Clear Write
 Detector-Mode: AVG

Correction:

Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Freefield attenuation (U312)	+ 19.5 dB
U311	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

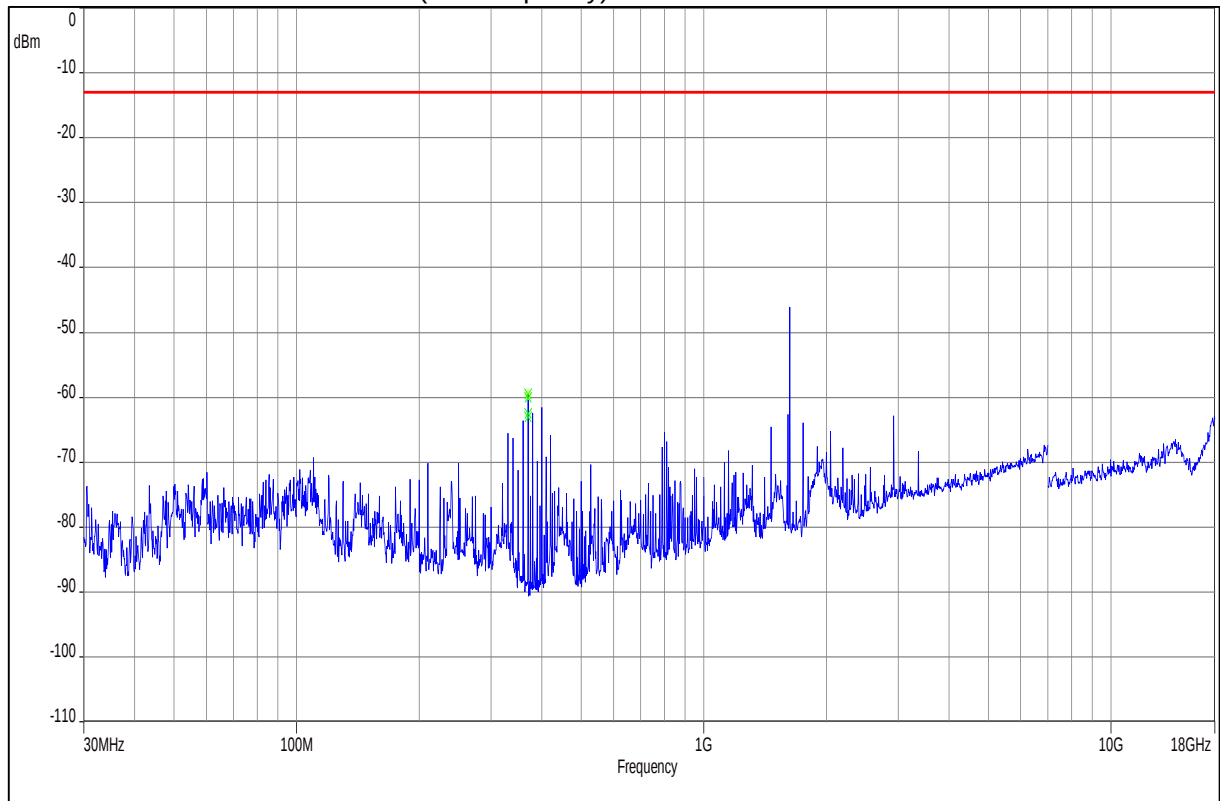
For EIRP calculation:

'worst-case' = maximum antenna gain

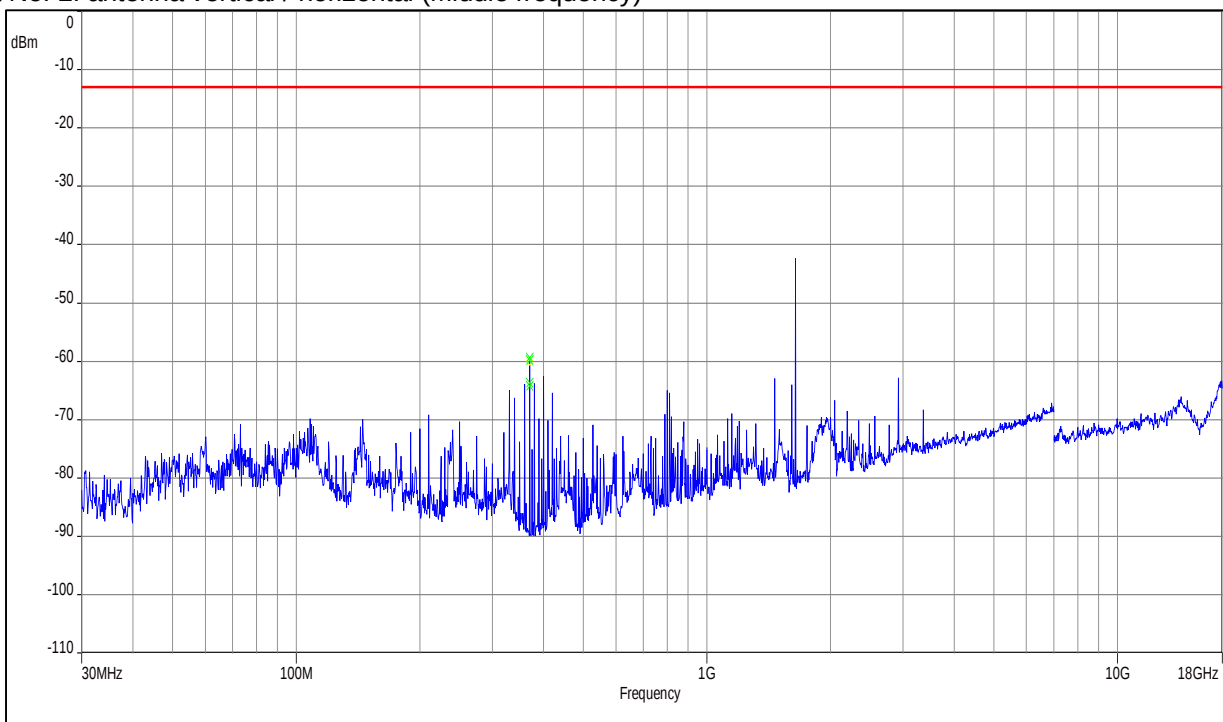
4 Measurement results, Spurious emissions 30MHz - 18 GHz

This Chapter 3 consists of 3 pages including this page.

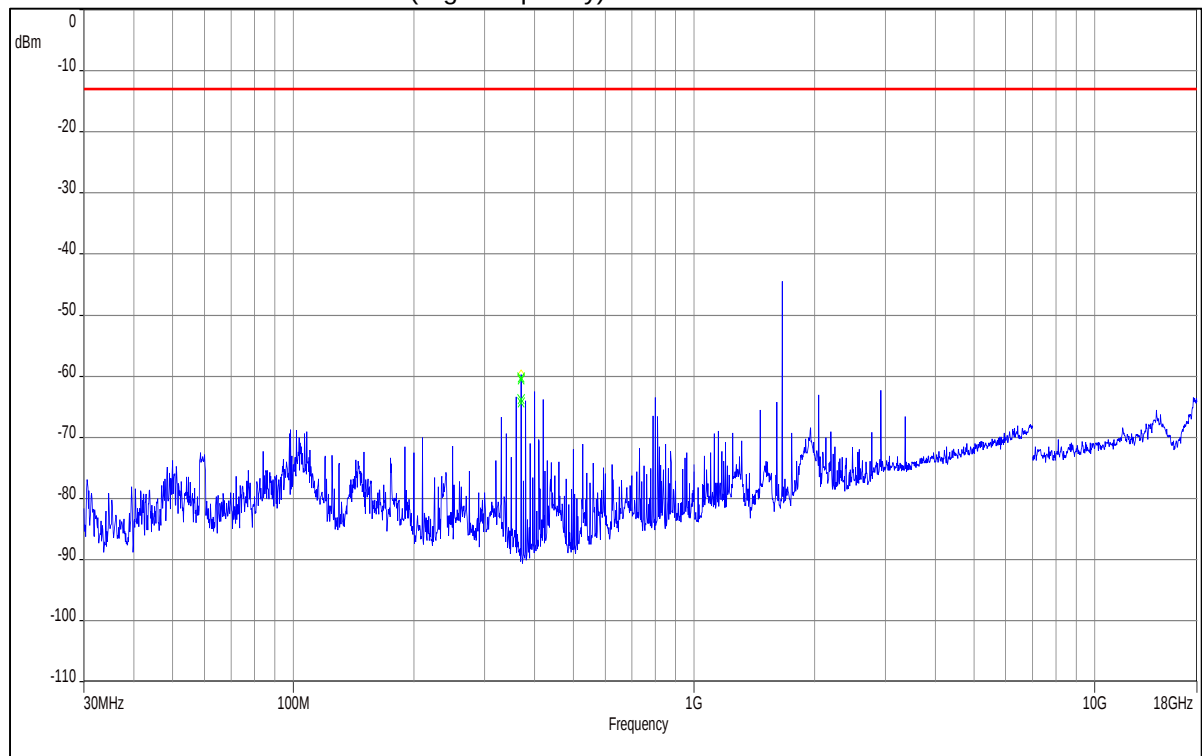
Plot No. 1: antenna vertical / horizontal (Low frequency)



Plot No. 2: antenna vertical / horizontal (Middle frequency)



Plot No. 3: antenna vertical / horizontal (High frequency)



5 Measurement results, FCC Part 15B

This Chapter 4 consists of 1 pages including this page.

Refer to test report 1-9547_19-01-03.pdf

6 Document history

Version	Applied changes	Date of release
	Initial release - DRAFT	2020-06-26
	Initial release – 2 nd DRAFT	2020-07-02