

Annex D



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Test report annex authorized:

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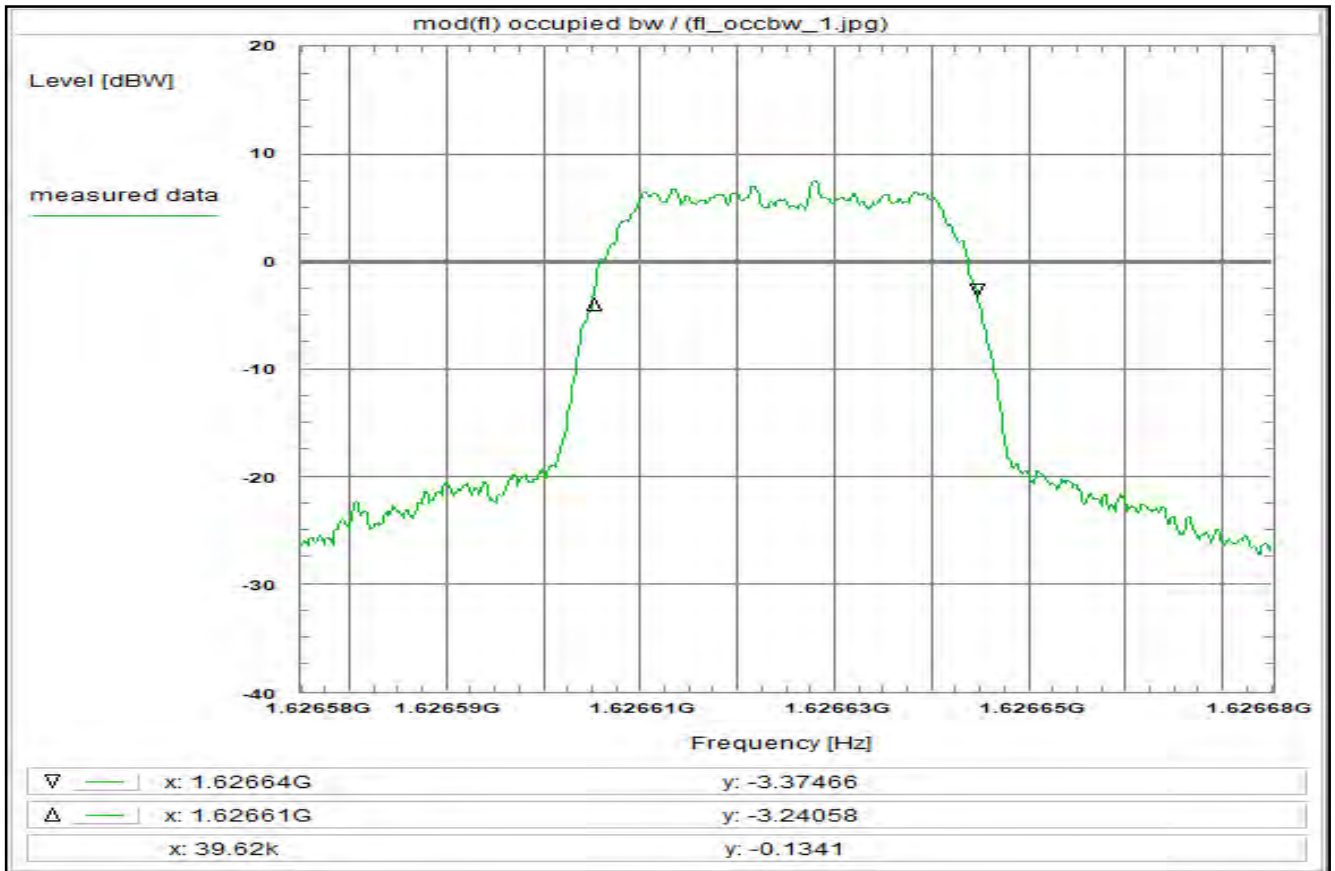
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2 Measurement results, FCC Part 87 and FCC Part 25

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

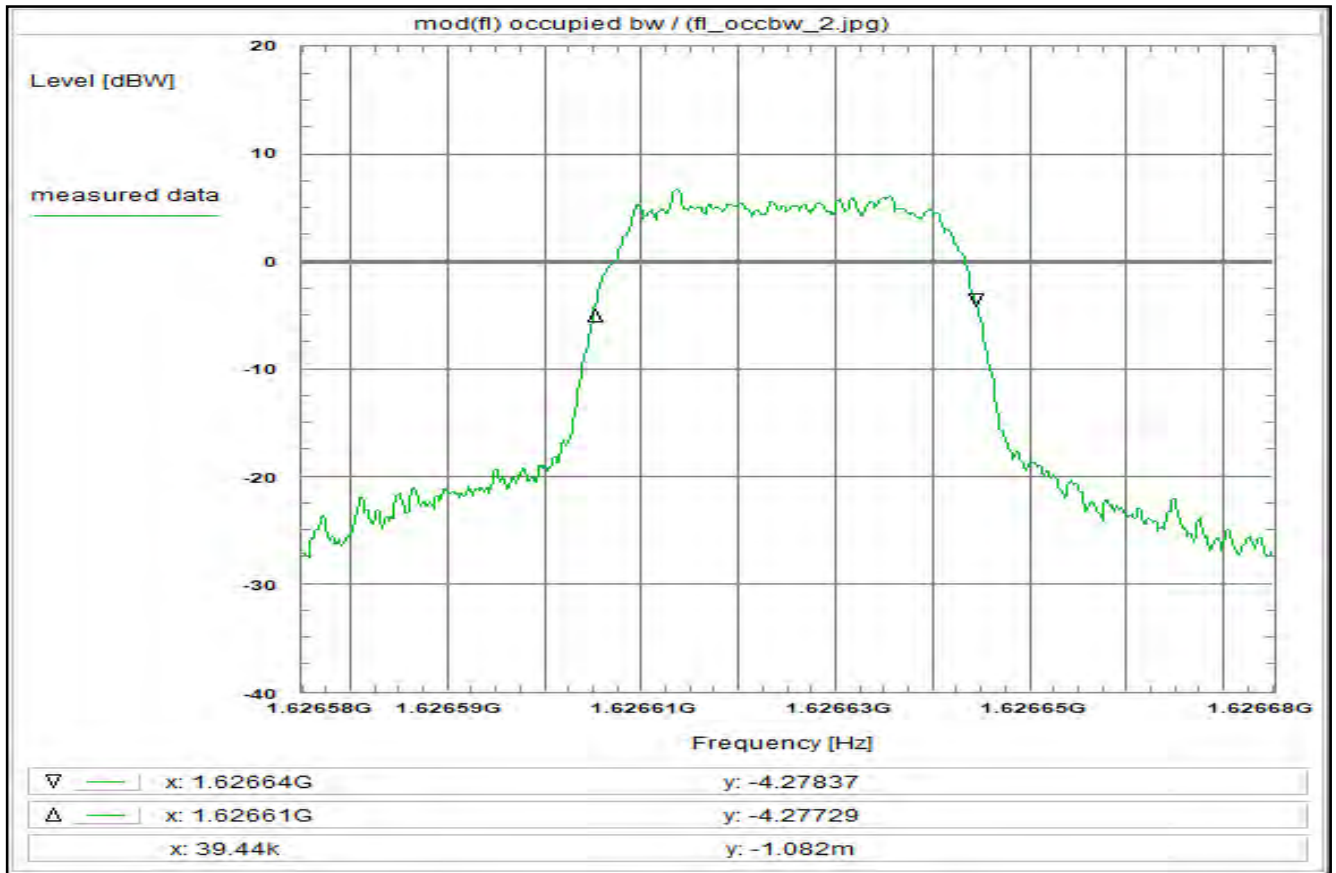
Environment condition:
Date & Time: Wed 20/May/2020 14:12:35
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

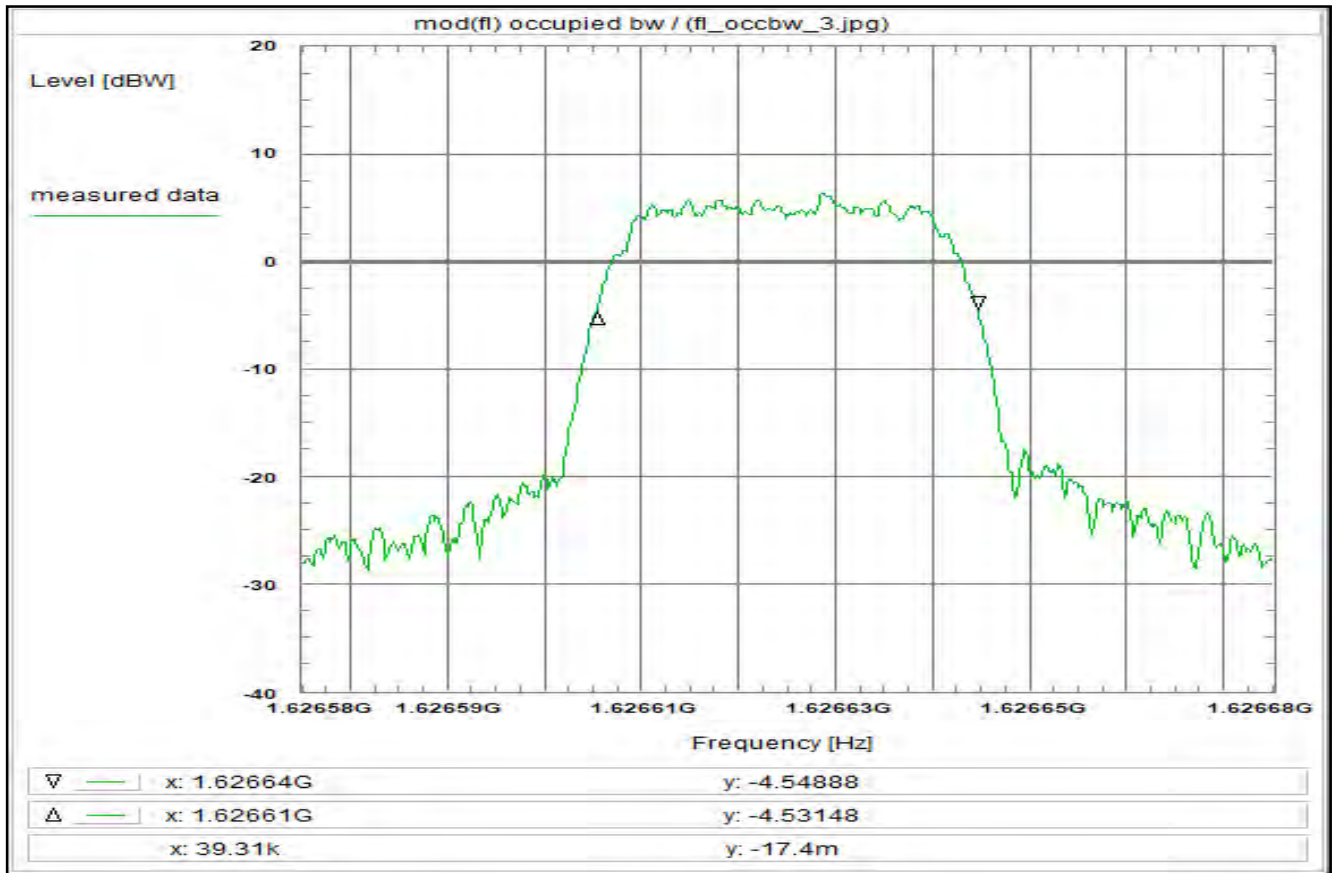
Environment condition:
Date & Time: Wed 20/May/2020 14:15:40
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

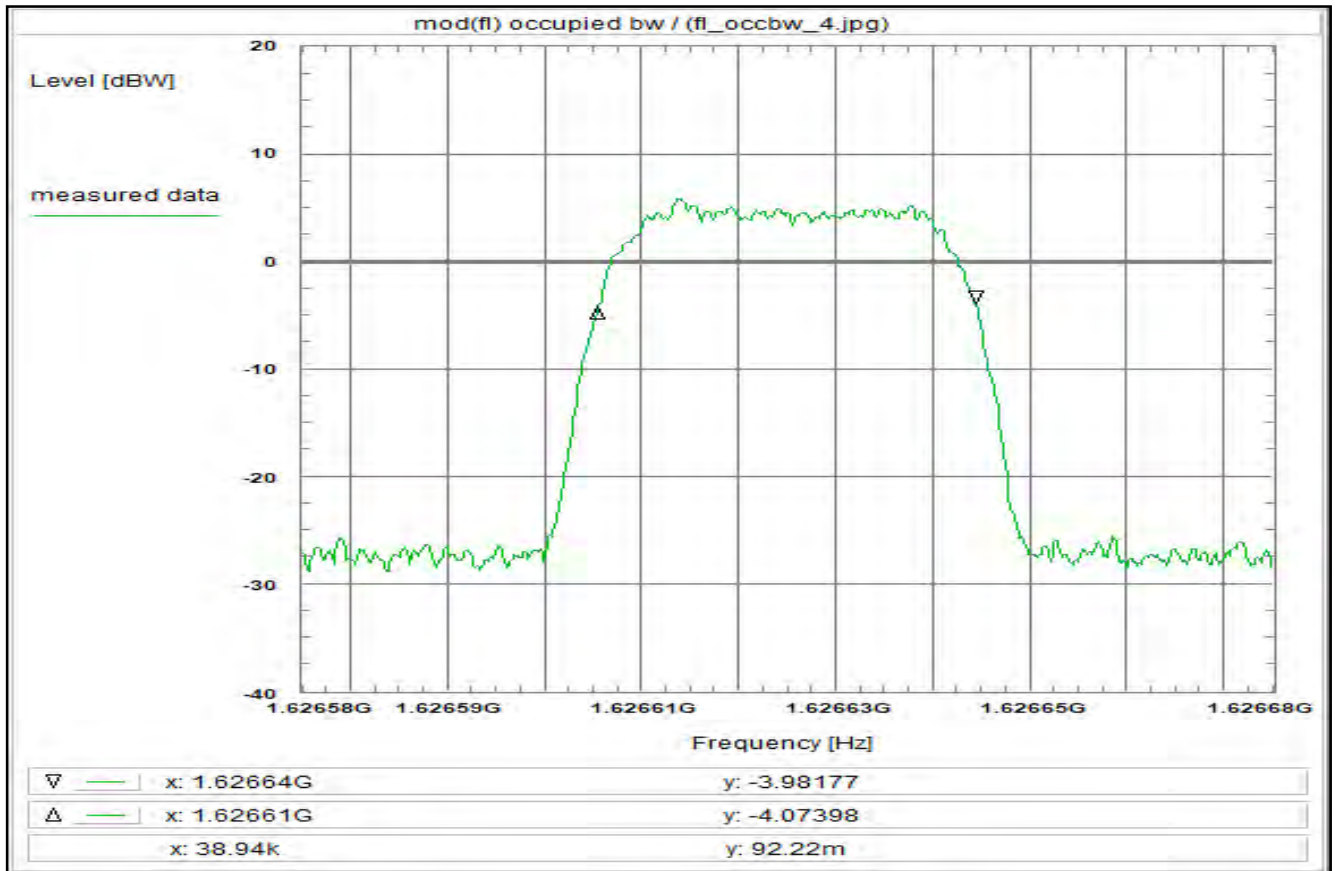
Environment condition:
Date & Time: Wed 20/May/2020 14:17:27
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

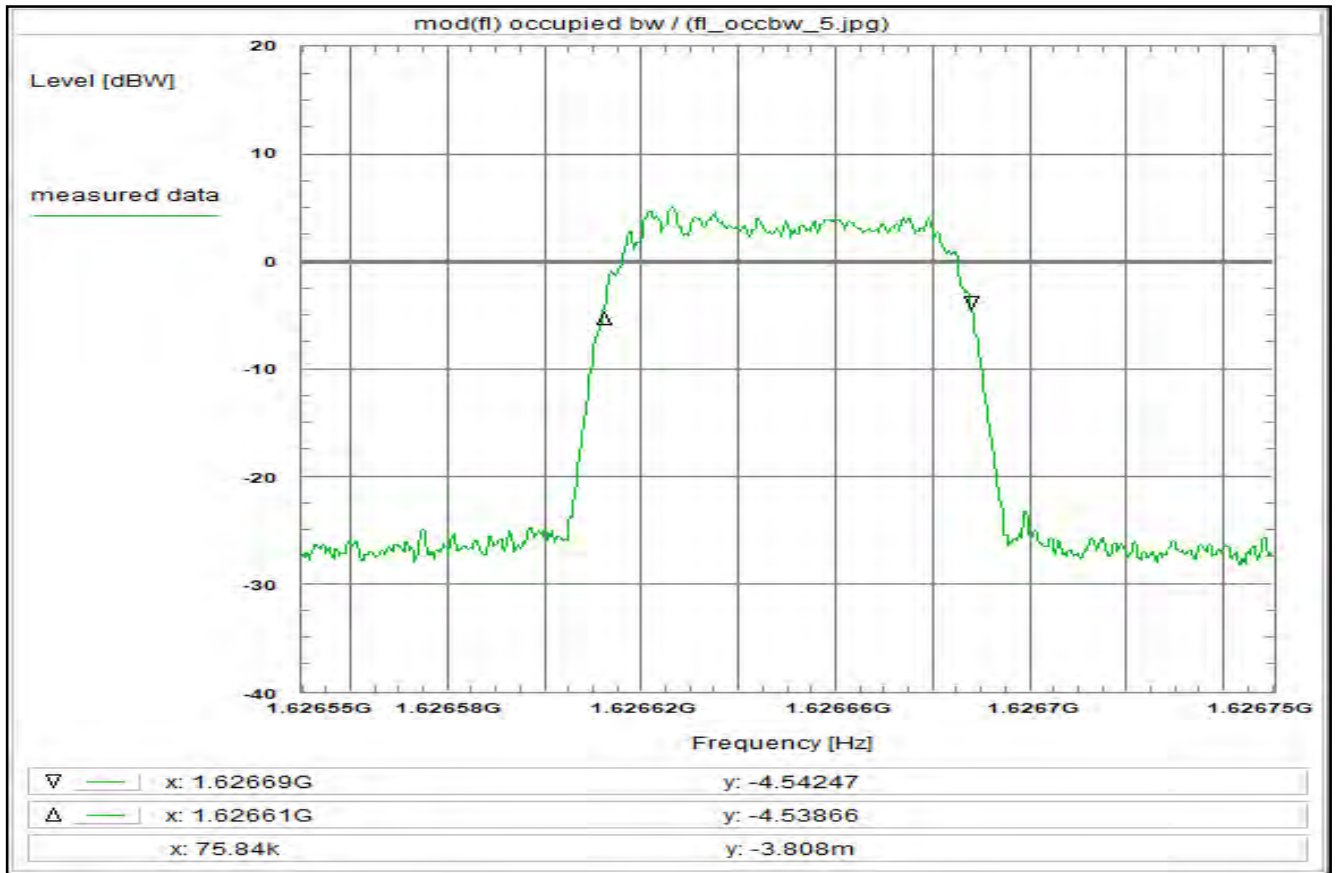
Remarks:
Determination of the 'occupied bandwidth' at fl:
The measured value is about 39.3 kHz (delta marker)
Measurement with 3 kHz resolution filter and noise averaging.

Plot No. 4



<p><u>Subclause:</u> -/- Function test Modulated rf-carrier at the lower edge of the band (fl) Determination of the 'occupied bandwidth'</p> <p><u>Limit:</u> 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).</p> <p><u>Test results:</u> see plot (an explicit table was not generated)</p> <p><u>Operating condition of DUT:</u> operating condition 1, see test report chapter 5.4 A200S Class 4 ACD, fm, R80T1Q</p> <p><u>Test setup:</u> see test report chapter 7.2 setup 1.1hgj</p> <p><u>Test equipment:</u> see test report chapter 7.2: C220, R001, U311, U312, Power Splitter</p> <p><u>Remark:</u></p> <p>Test result: Determination of the occupied bandwidth</p>	<p><u>Environment condition:</u> 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</p> <p><u>Setup of measurement equipment:</u> 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</p> <p><u>Correction:</u> 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</p> <p><u>Remarks:</u> <u>Determination of the 'occupied bandwidth' at fl:</u> The measured value is about 39 kHz (delta marker) Measurement with 3 kHz resolution filter and noise averaging.</p>
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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, R512XD

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

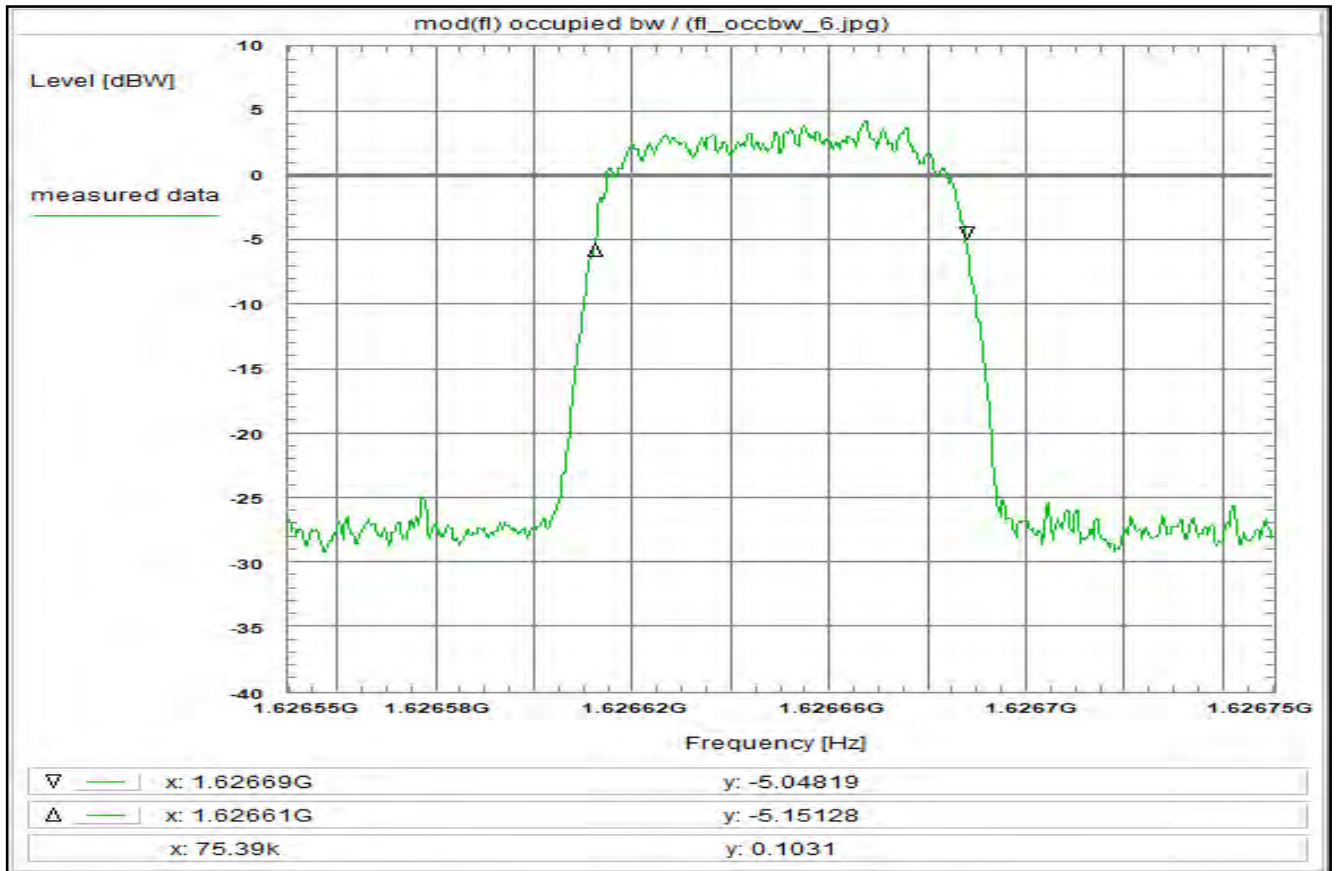
Environment condition:
Date & Time: Wed 20/May/2020 14:23:21
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

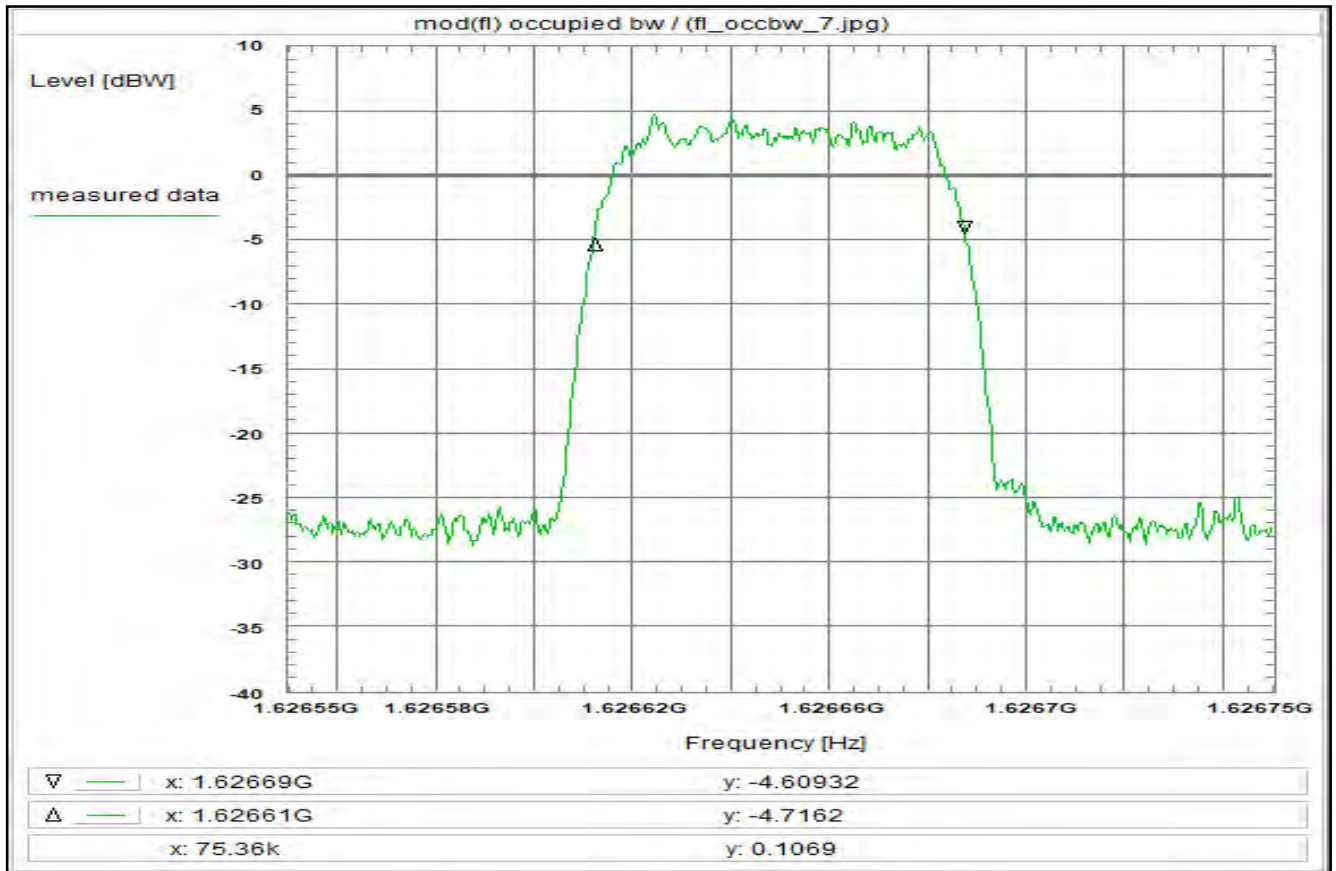
Environment condition:
Date & Time: Wed 20/May/2020 14:25:10
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R5120D

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

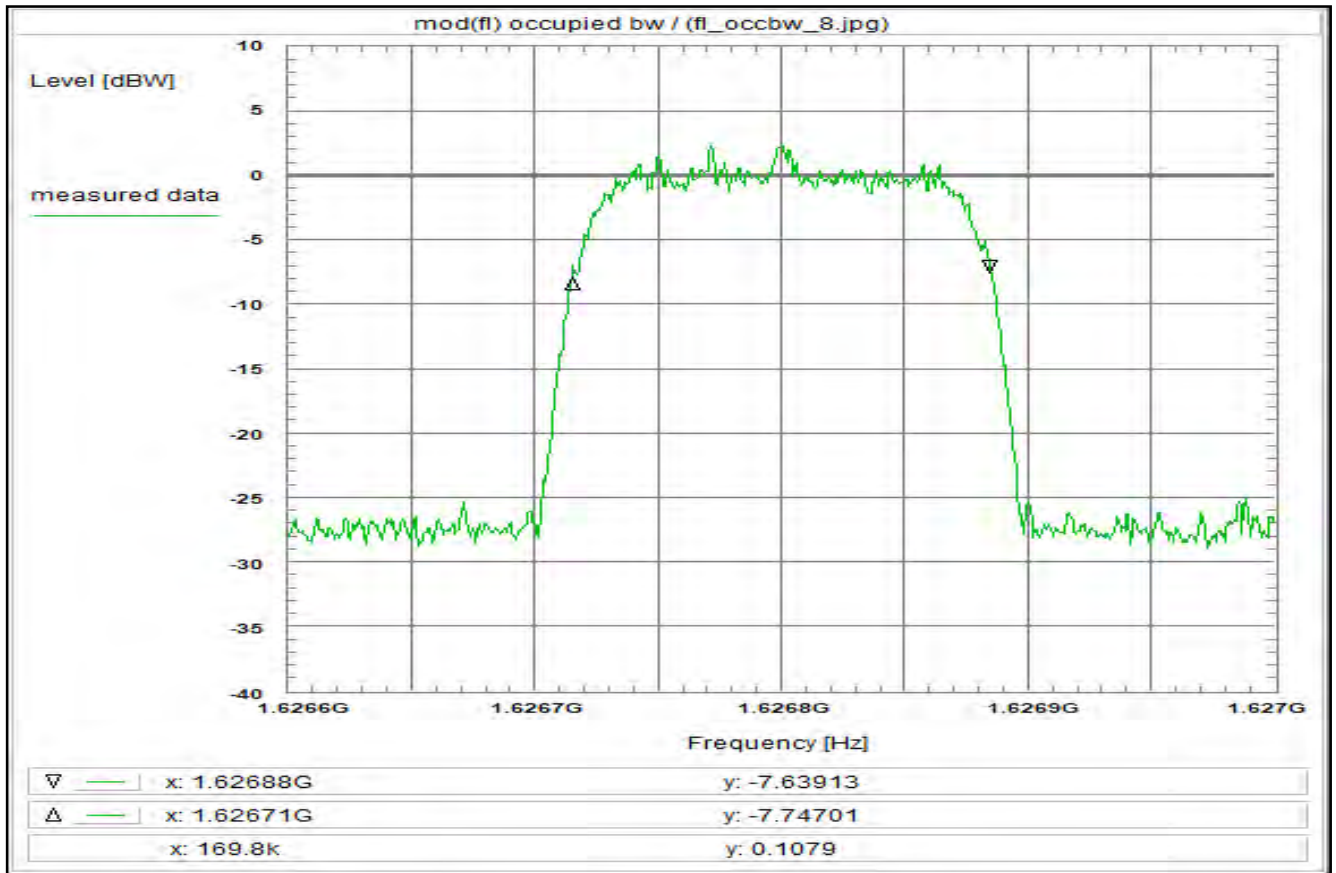
Environment condition:
Date & Time: Wed 20/May/2020 14:27:20
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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 (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, R514.5XD

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

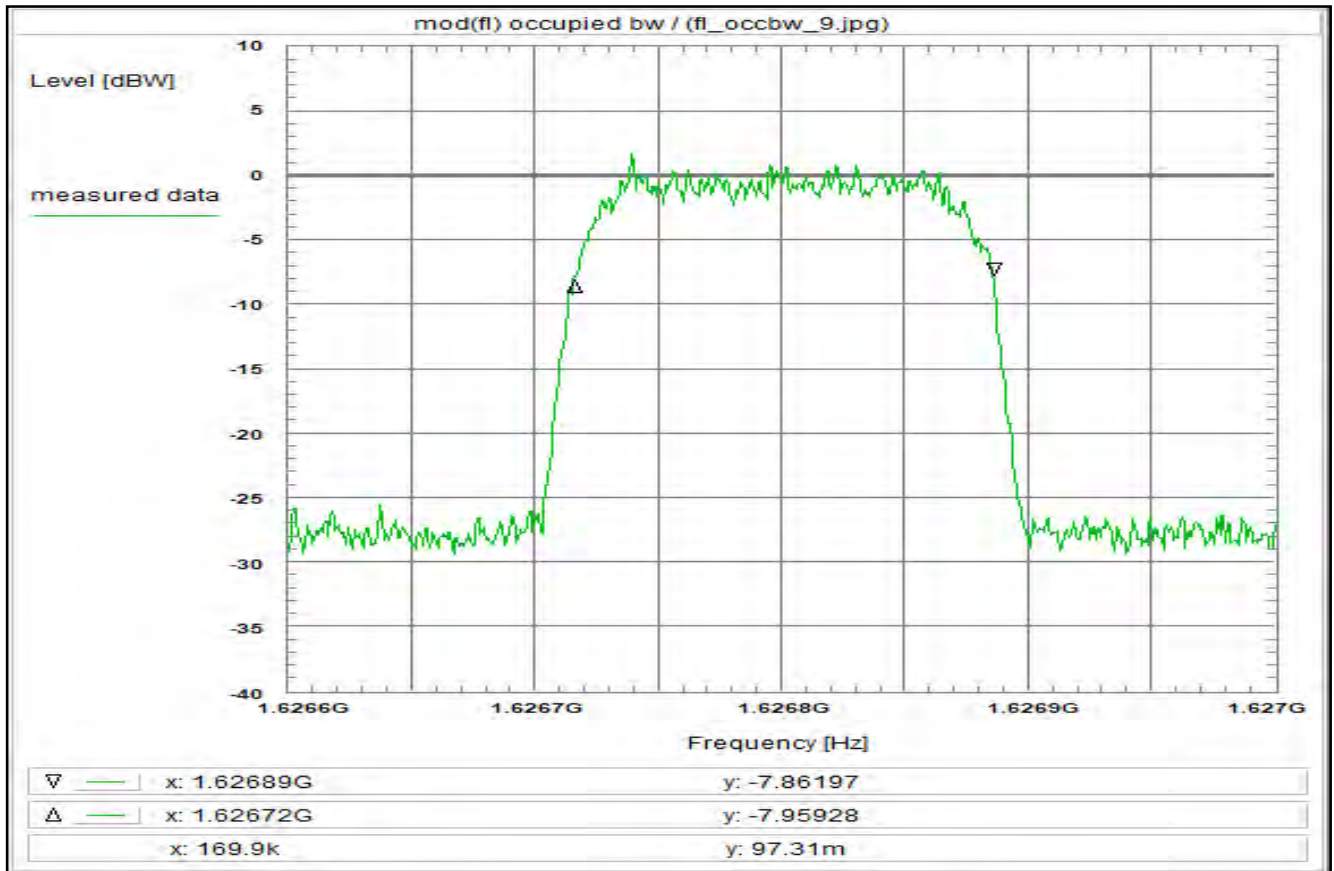
Environment condition:
Date & Time: Wed 20/May/2020 14:49:49
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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 fl:
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

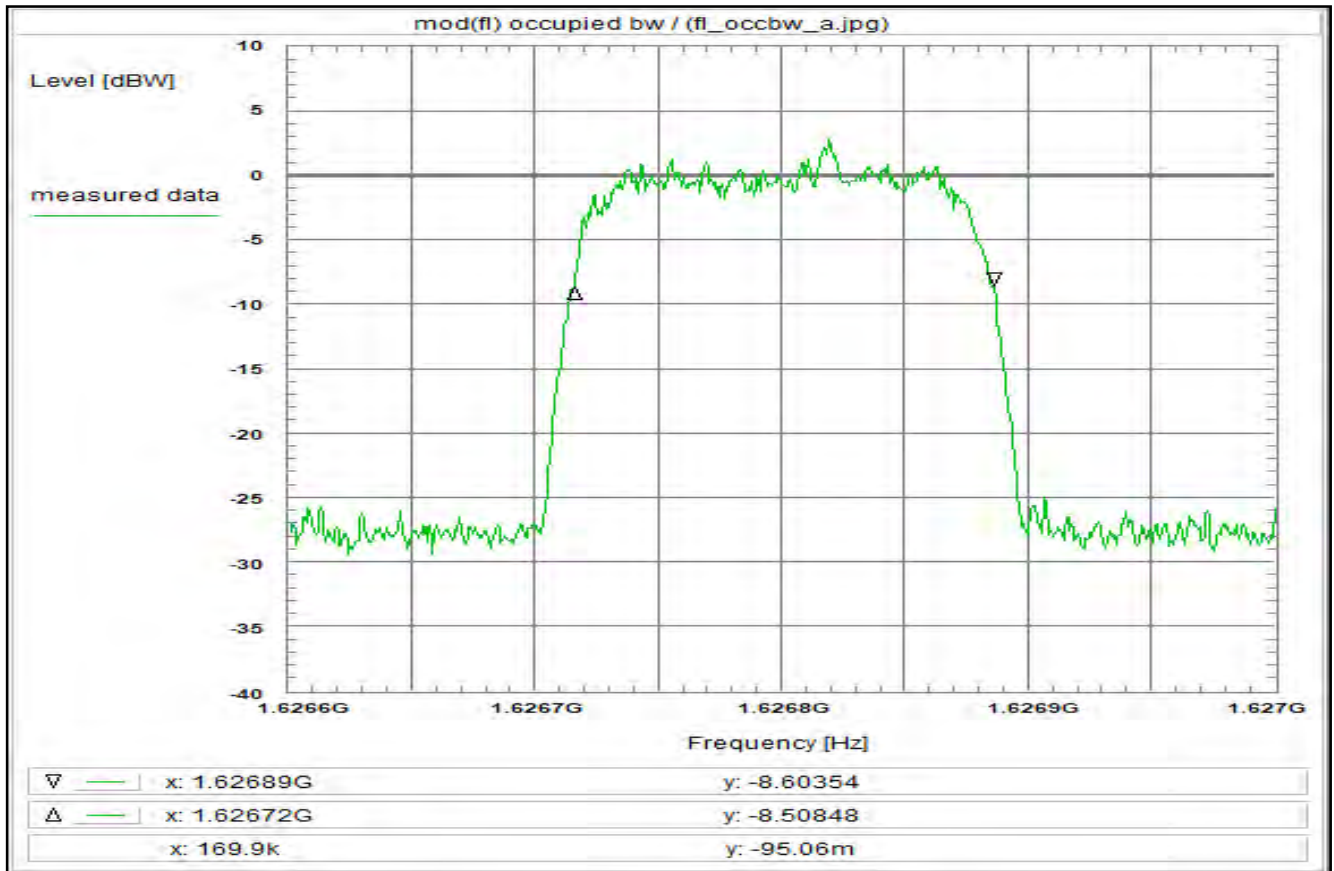
Environment condition:
Date & Time: Wed 20/May/2020 14:51:46
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R514.5QD

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

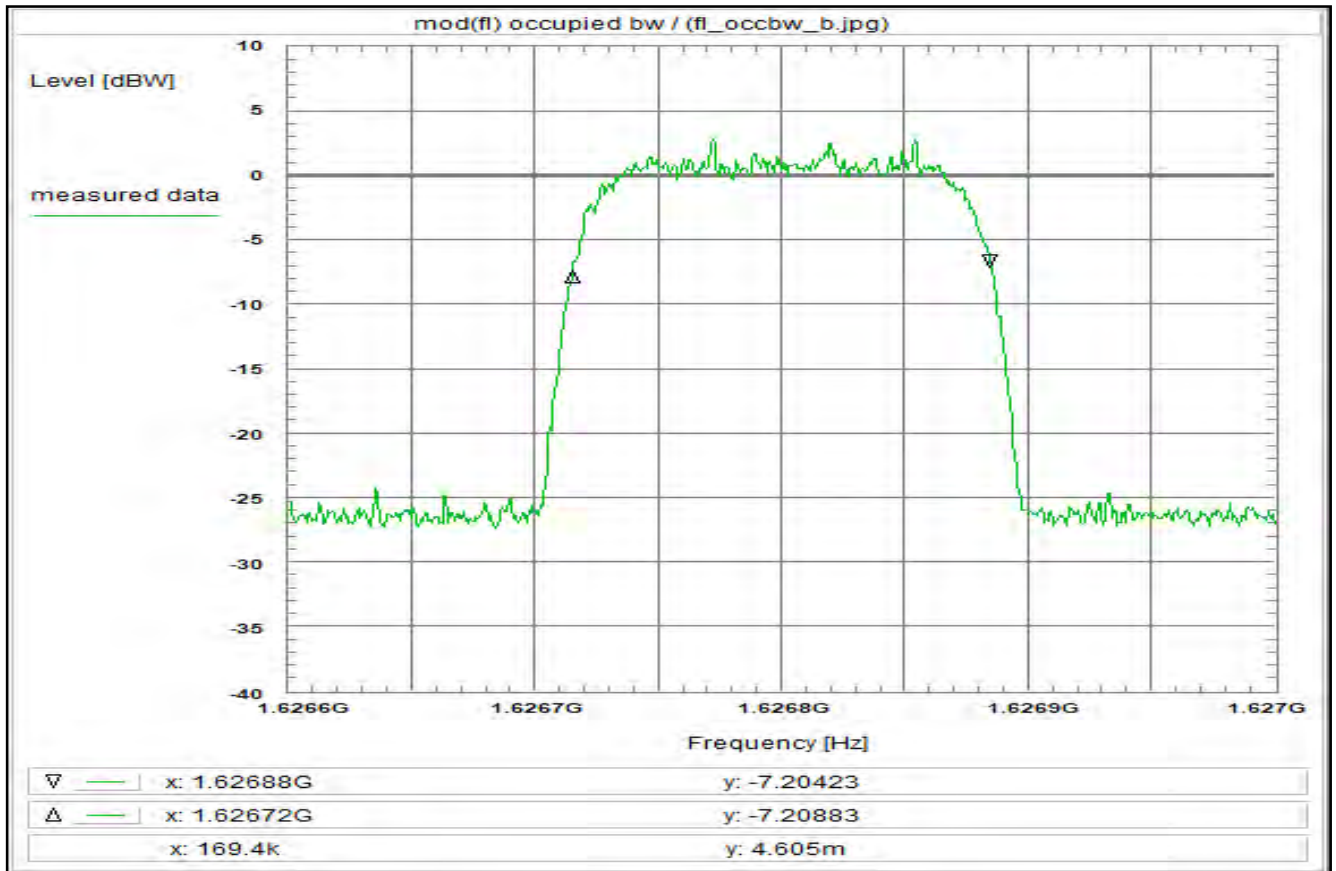
Environment condition:
Date & Time: Wed 20/May/2020 14:54:48
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R20T4.50D

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

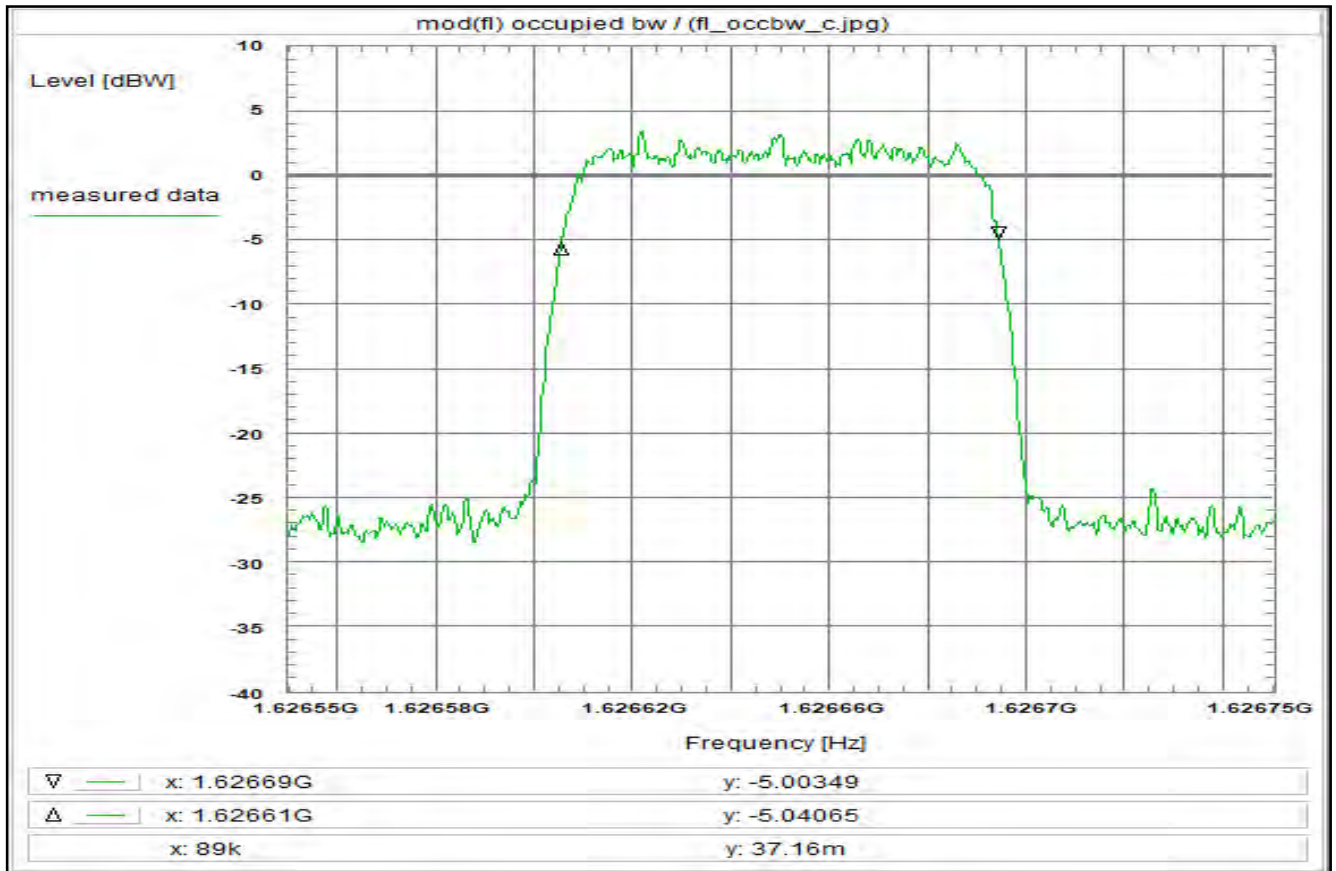
Environment condition:
Date & Time: Wed 20/May/2020 15:09:12
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

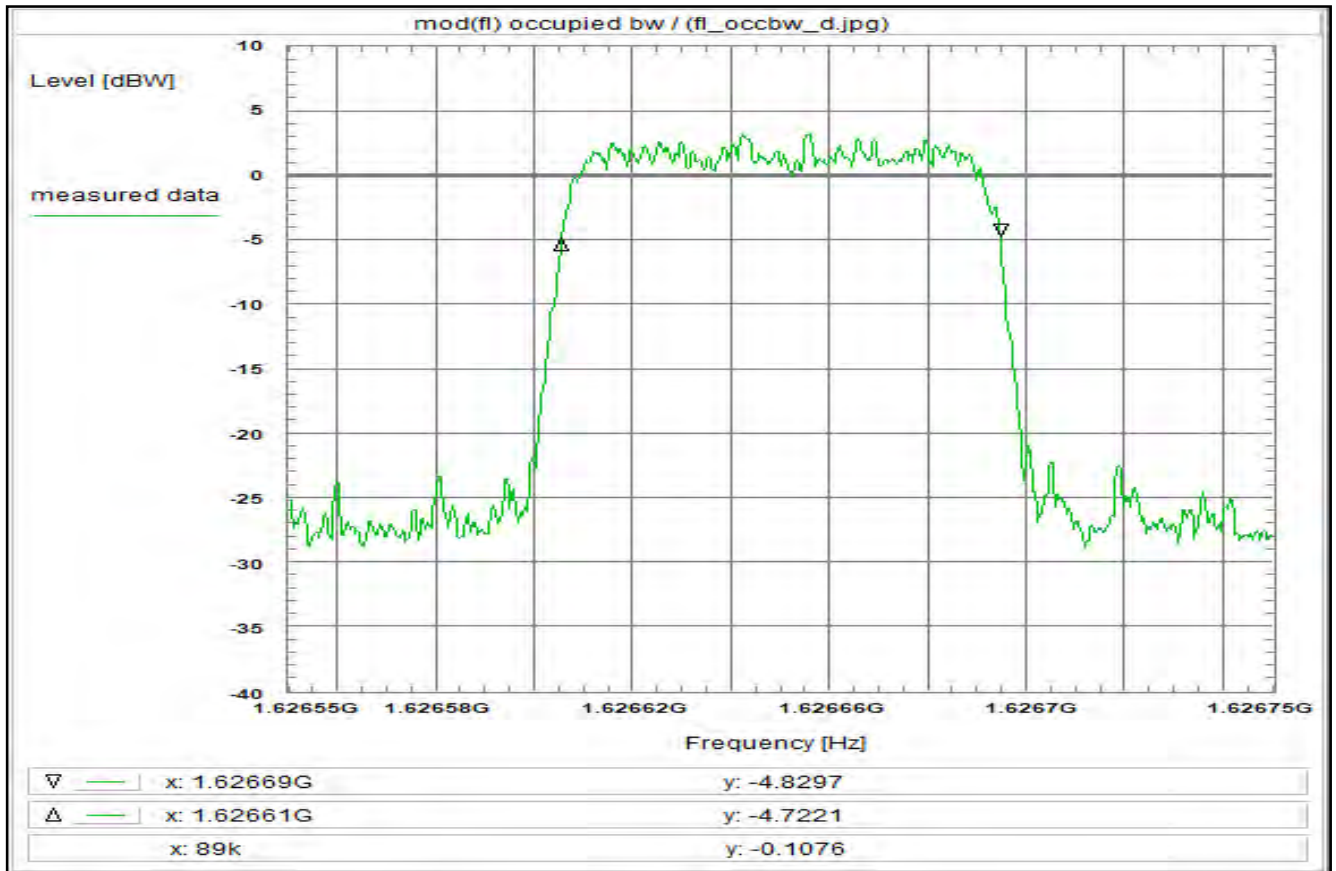
Environment condition:
Date & Time: Wed 20/May/2020 15:12:35
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

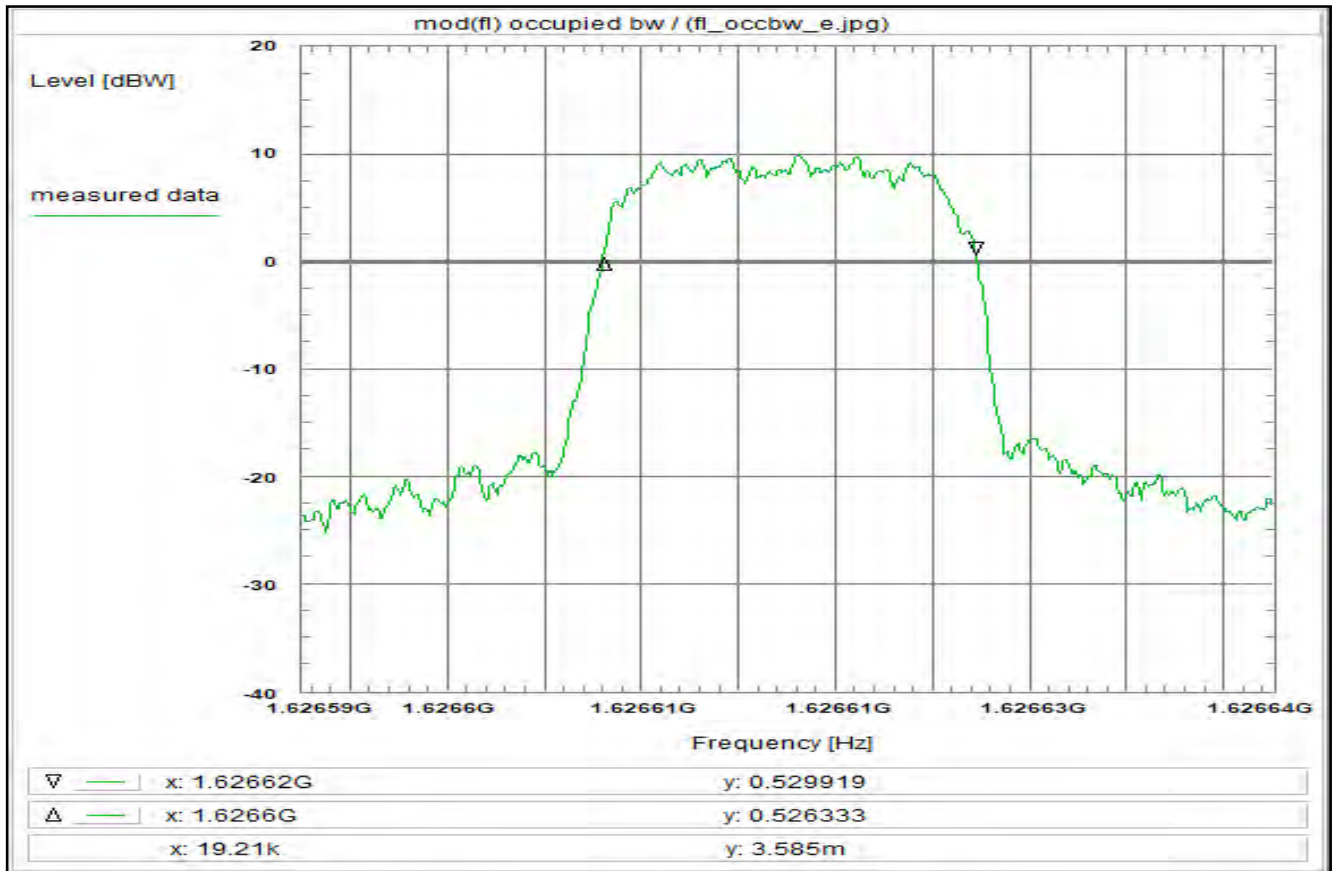
Environment condition:
Date & Time: Wed 20/May/2020 15:13:47
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R20T0.50D

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

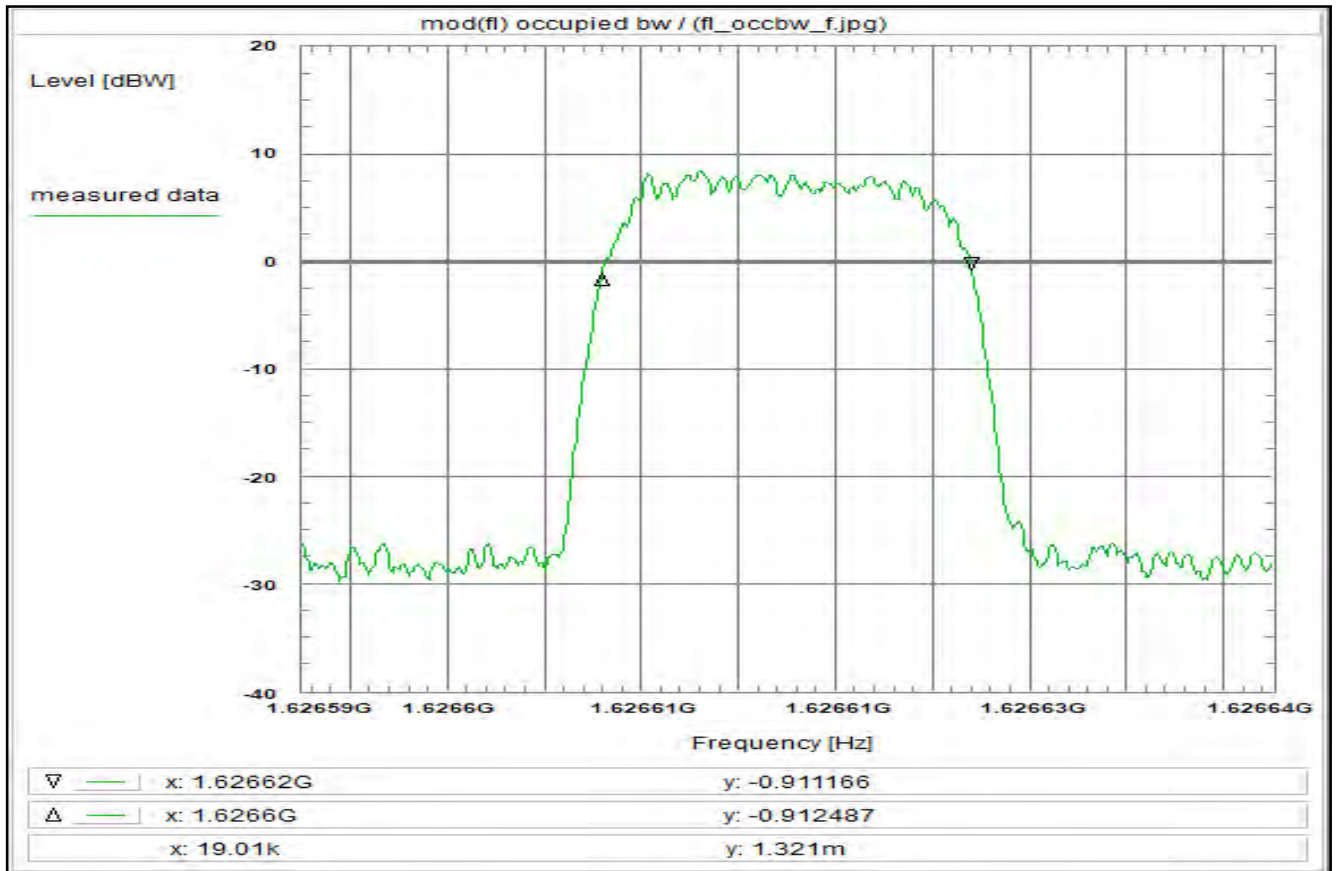
Environment condition:
Date & Time: Wed 20/May/2020 15:19:12
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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 (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, R80T0.50D

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

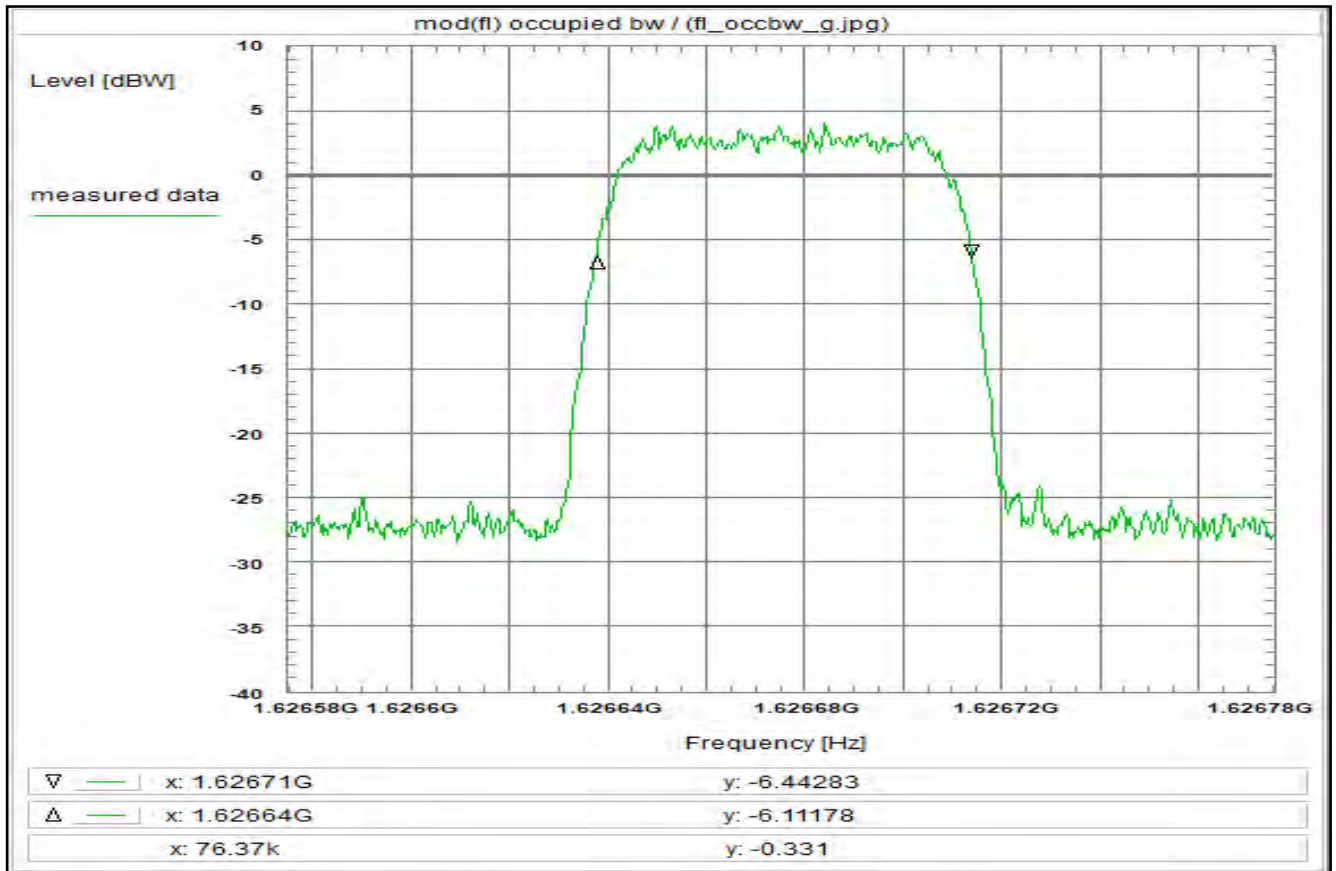
Environment condition:
Date & Time: Wed 20/May/2020 15:20:34
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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 fl:
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, R20T20D

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

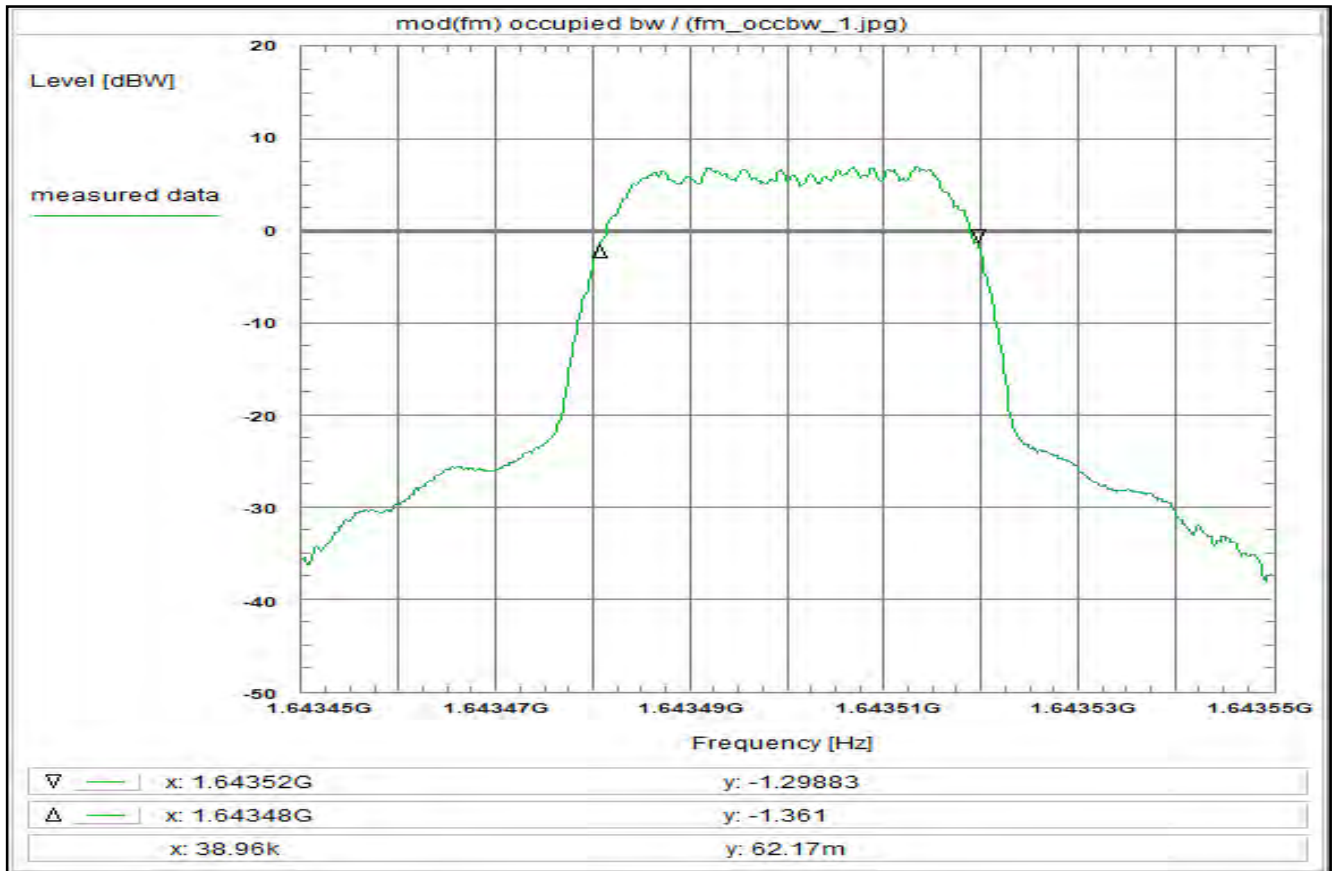
Setup of measurement equipment:
Start frequency: 1.626575 GHz
Stop frequency: 1.626775 GHz
Center frequency: 1.626675 GHz
Frequency span: 200 kHz
Resolution-BW: 3 kHz
Video-BW: 30 kHz
Input attenuation: 75 dB
Trace-Mode: Max-Hold
Detector-Mode: AVG

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, R511XD

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

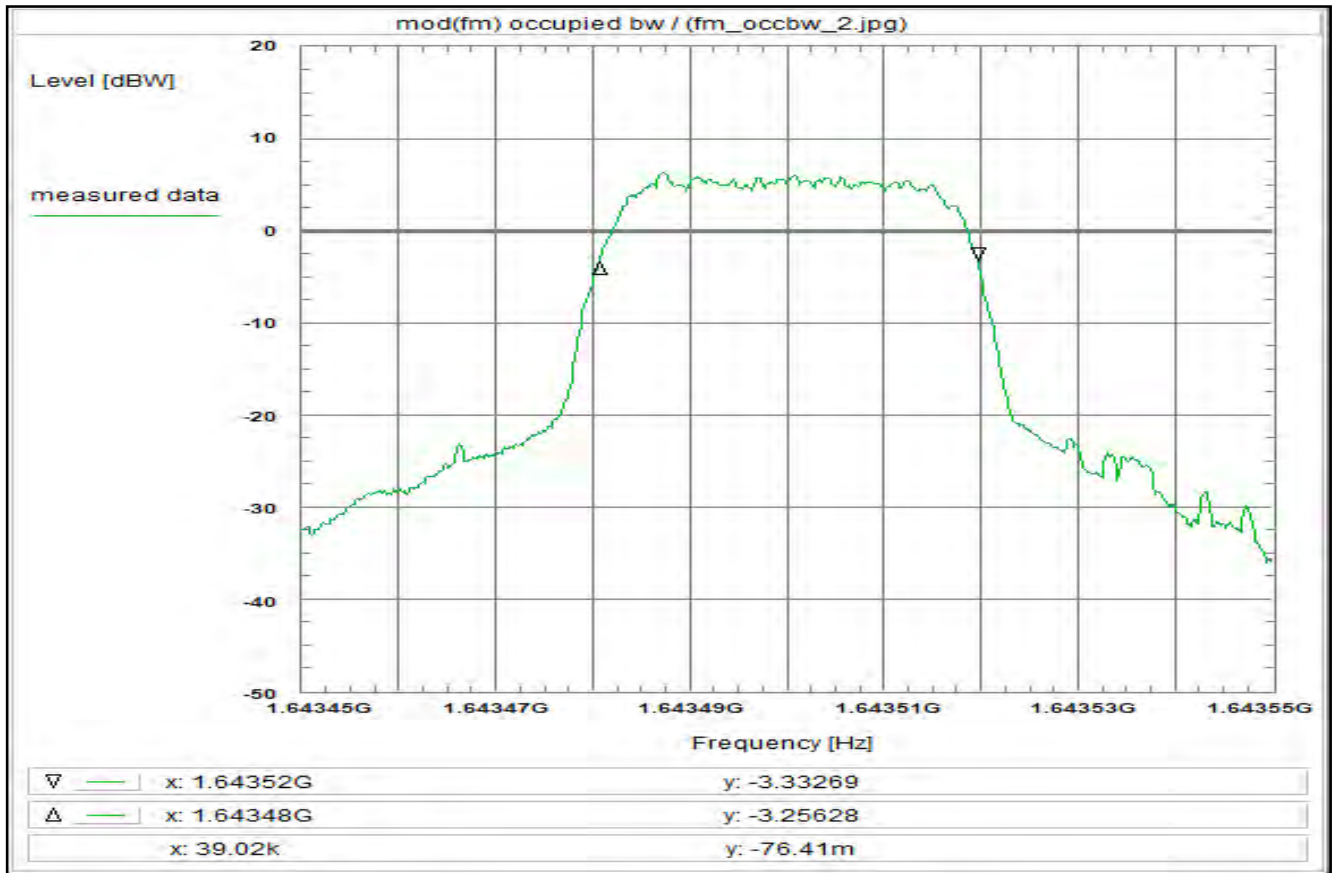
Environment condition:
Date & Time: Wed 20/May/2020 10:41:38
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

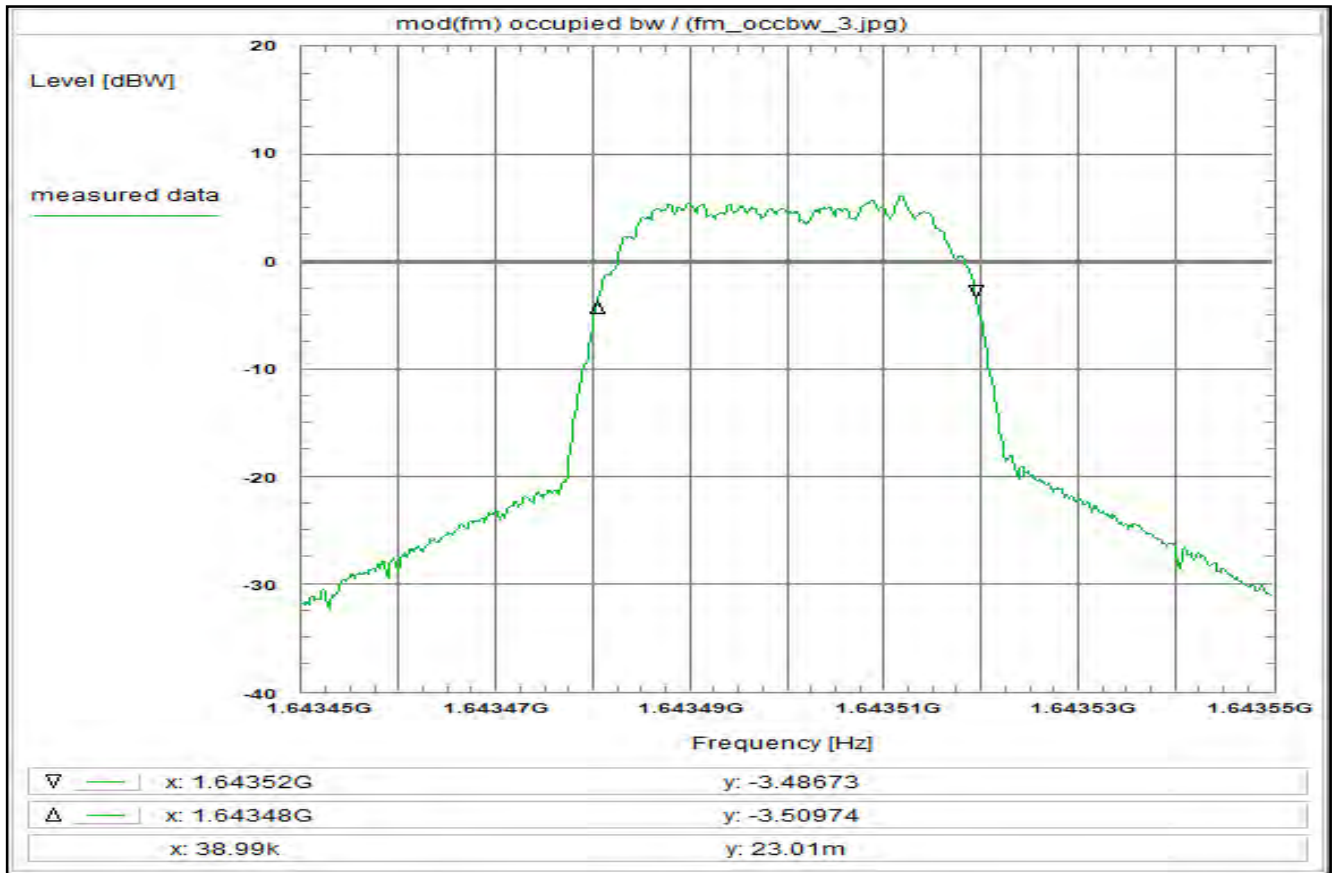
Environment condition:
Date & Time: Wed 20/May/2020 10:47:46
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

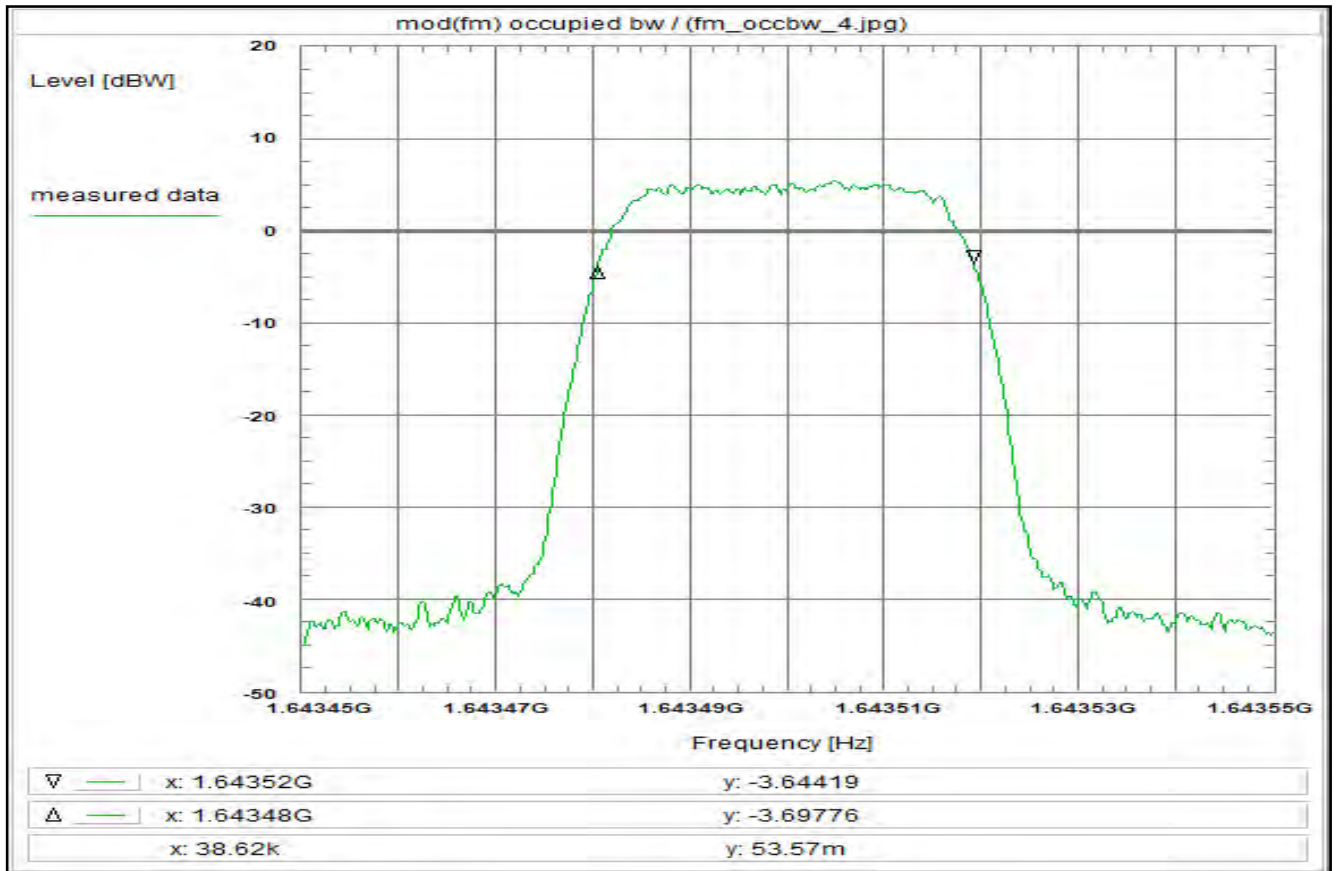
Environment condition:
Date & Time: Wed 20/May/2020 10:52:09
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

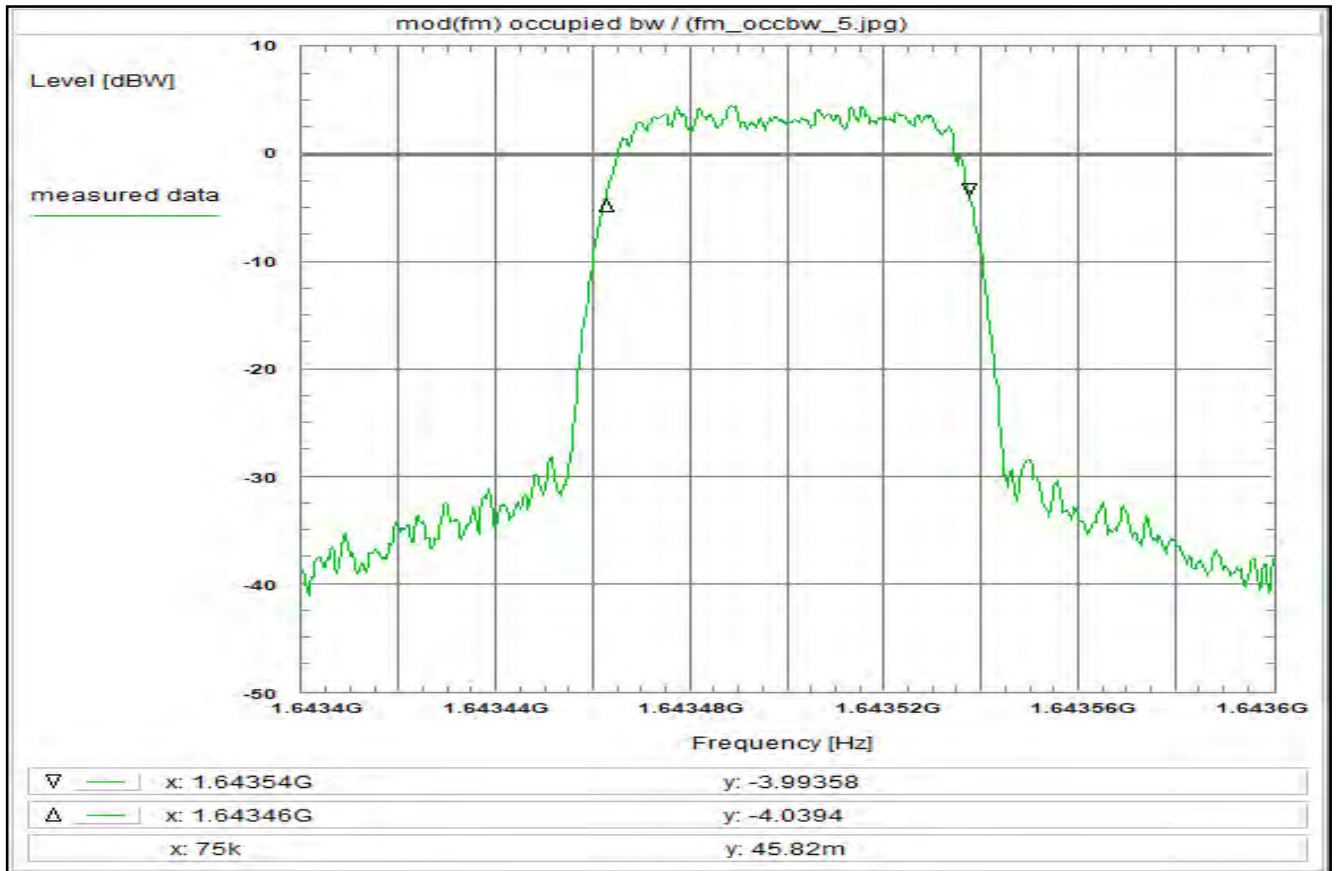
Setup of measurement equipment:
Start frequency: 1.64345 GHz
Stop frequency: 1.64355 GHz
Center frequency: 1.6435 GHz
Frequency span: 100 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 40 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

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, R512XD

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

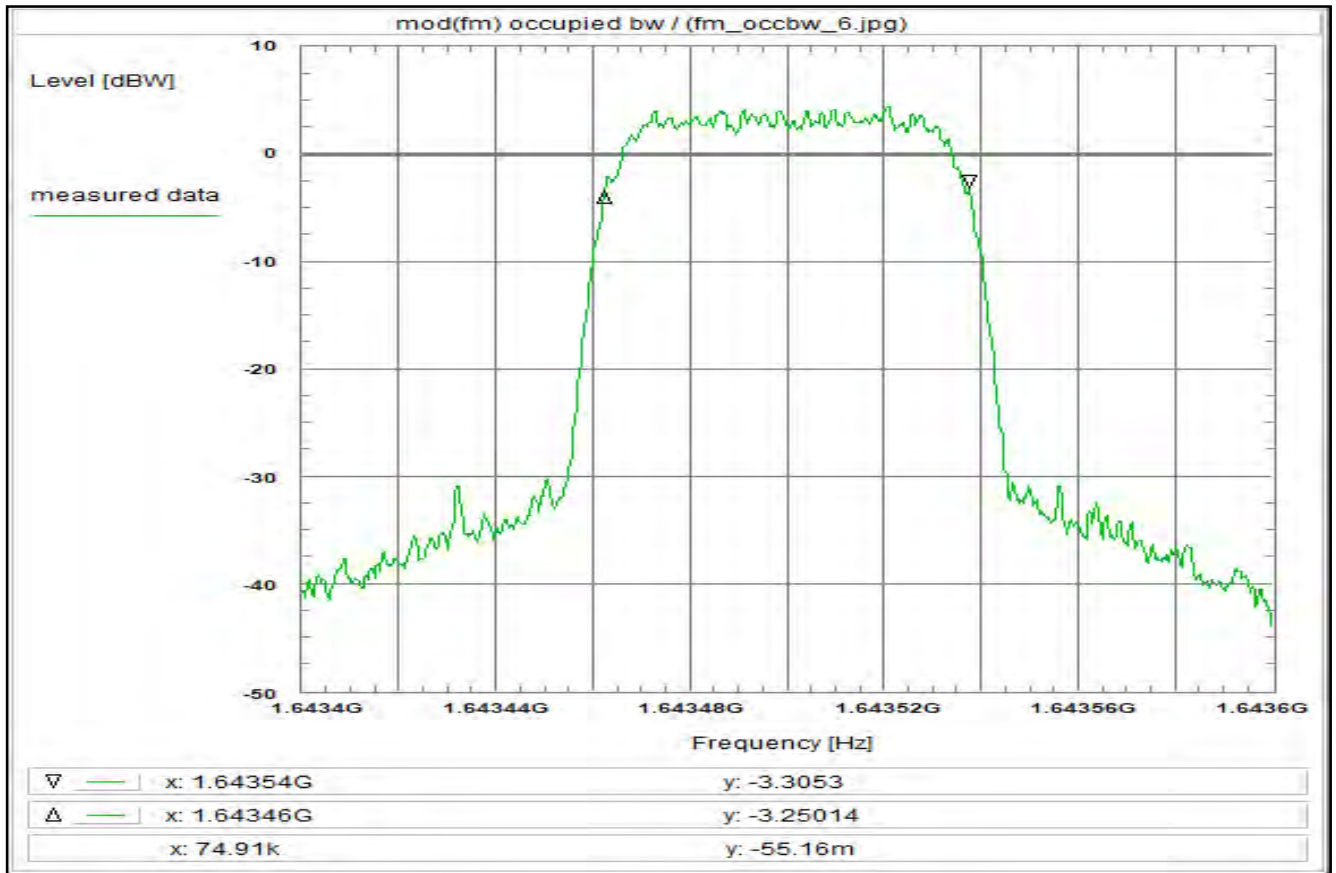
Environment condition:
Date & Time: Wed 20/May/2020 11:34:36
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

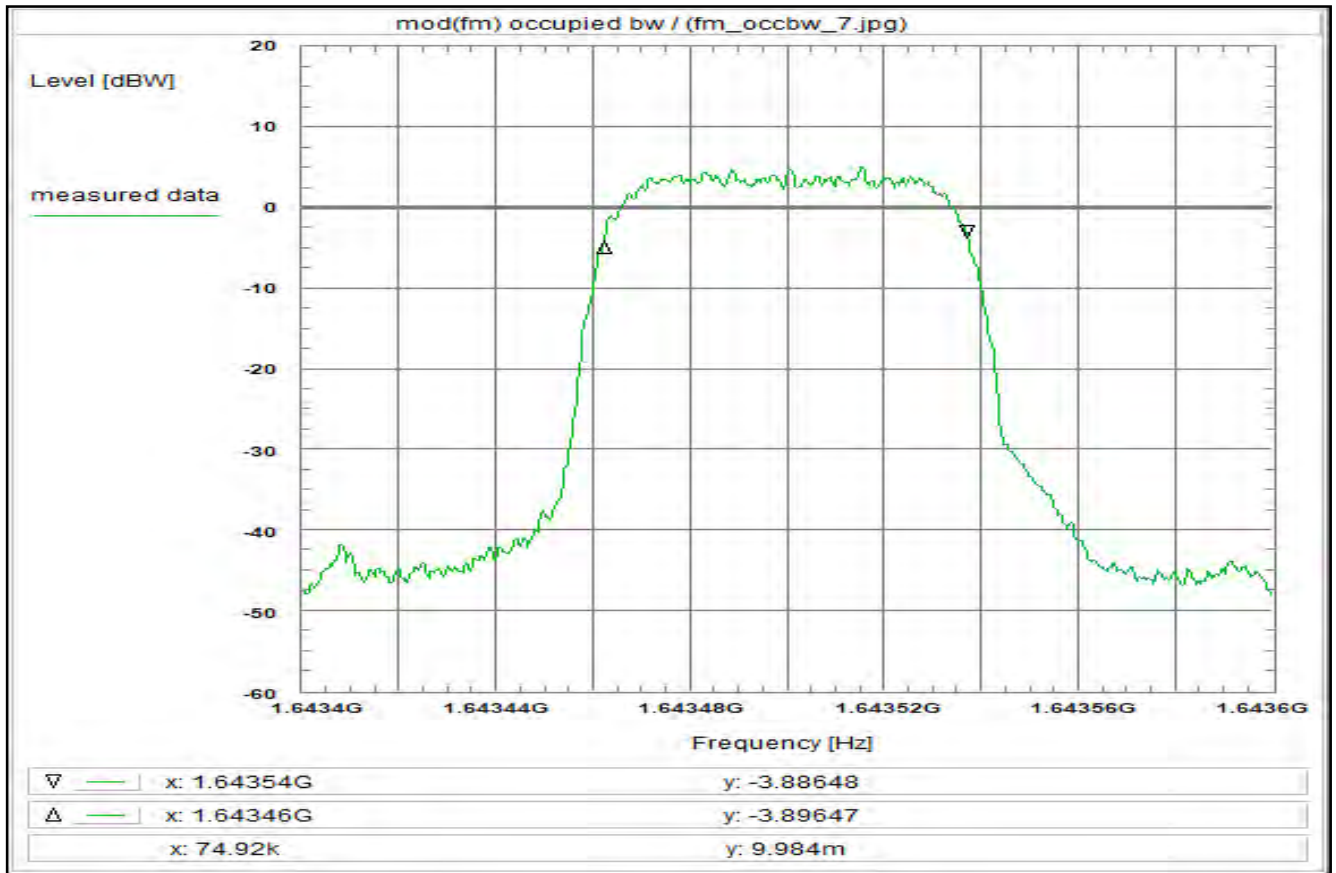
Environment condition:
Date & Time: Wed 20/May/2020 11:38:03
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R512QD

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

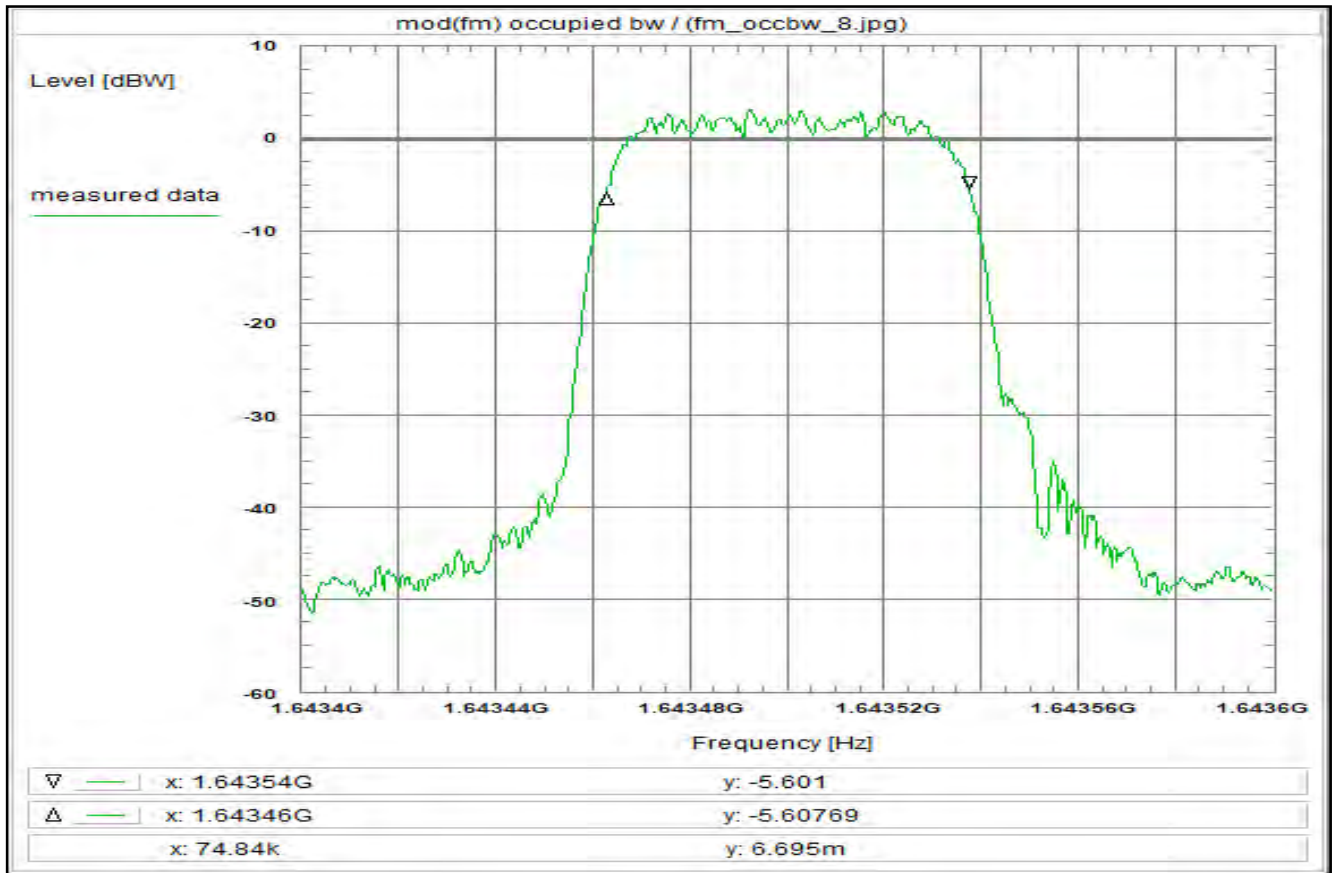
Environment condition:
Date & Time: Wed 20/May/2020 11:41:50
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

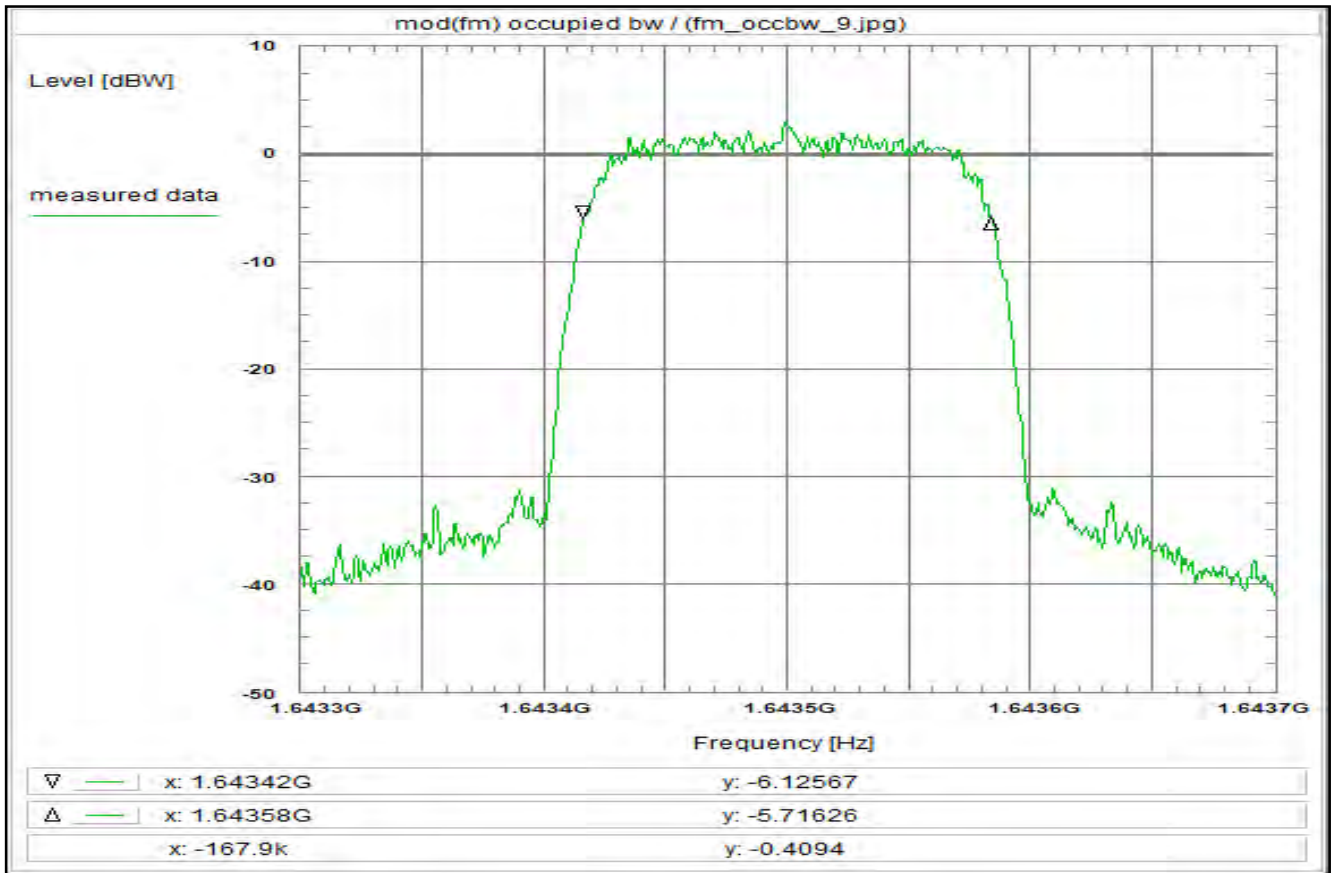
Setup of measurement equipment:
 Start frequency: 1.6434 GHz
 Stop frequency: 1.6436 GHz
 Center frequency: 1.6435 GHz
 Frequency span: 200 kHz
 Resolution-BW: 3 kHz
 Video-BW: 10 kHz
 Input attenuation: 40 dB
 Trace-Mode: Max-Hold
 Detector-Mode: Pos Peak

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, R514.5XD

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

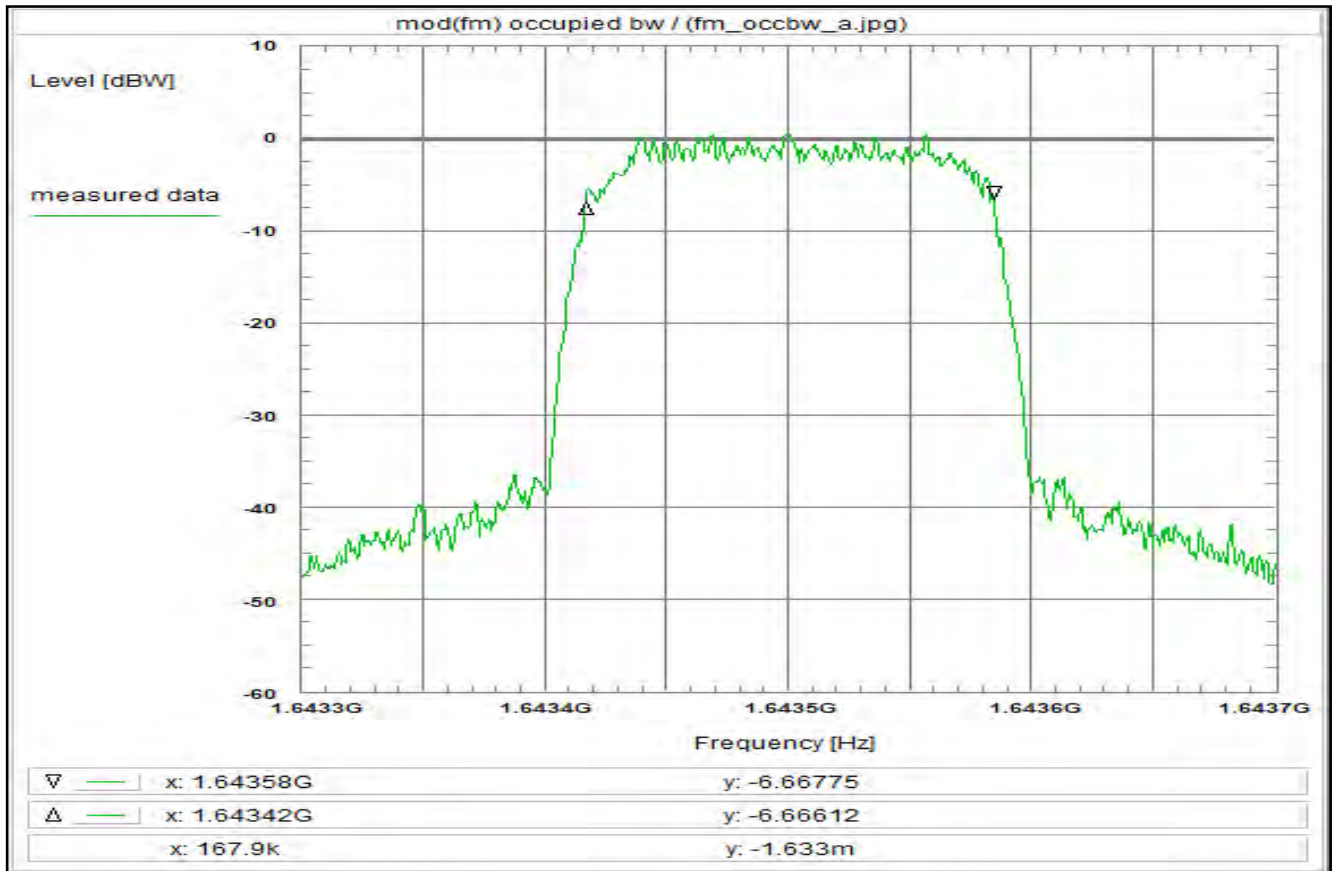
Environment condition:
Date & Time: Wed 20/May/2020 11:54:13
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

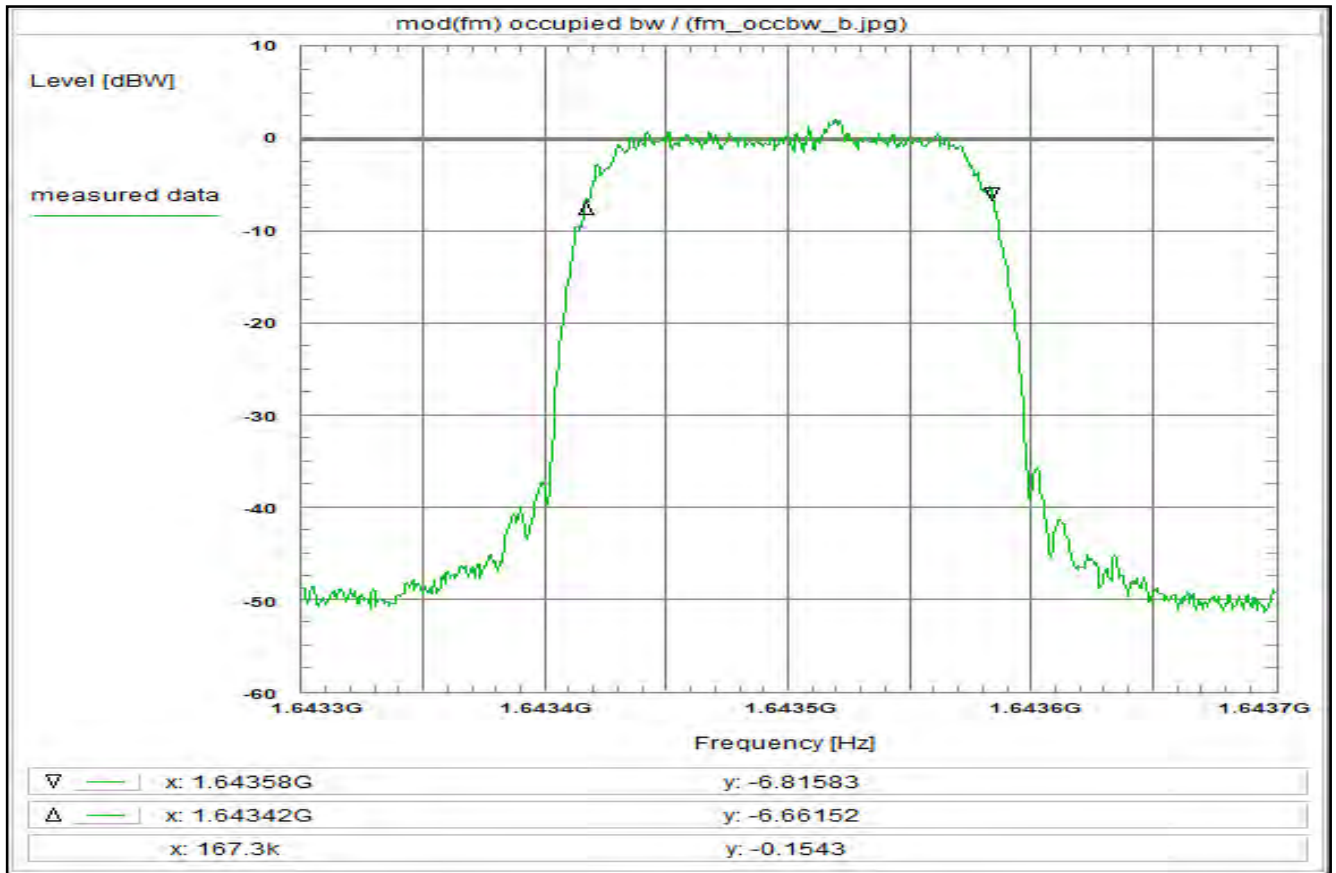
Environment condition:
Date & Time: Wed 20/May/2020 11:56:39
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R514.5QD

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

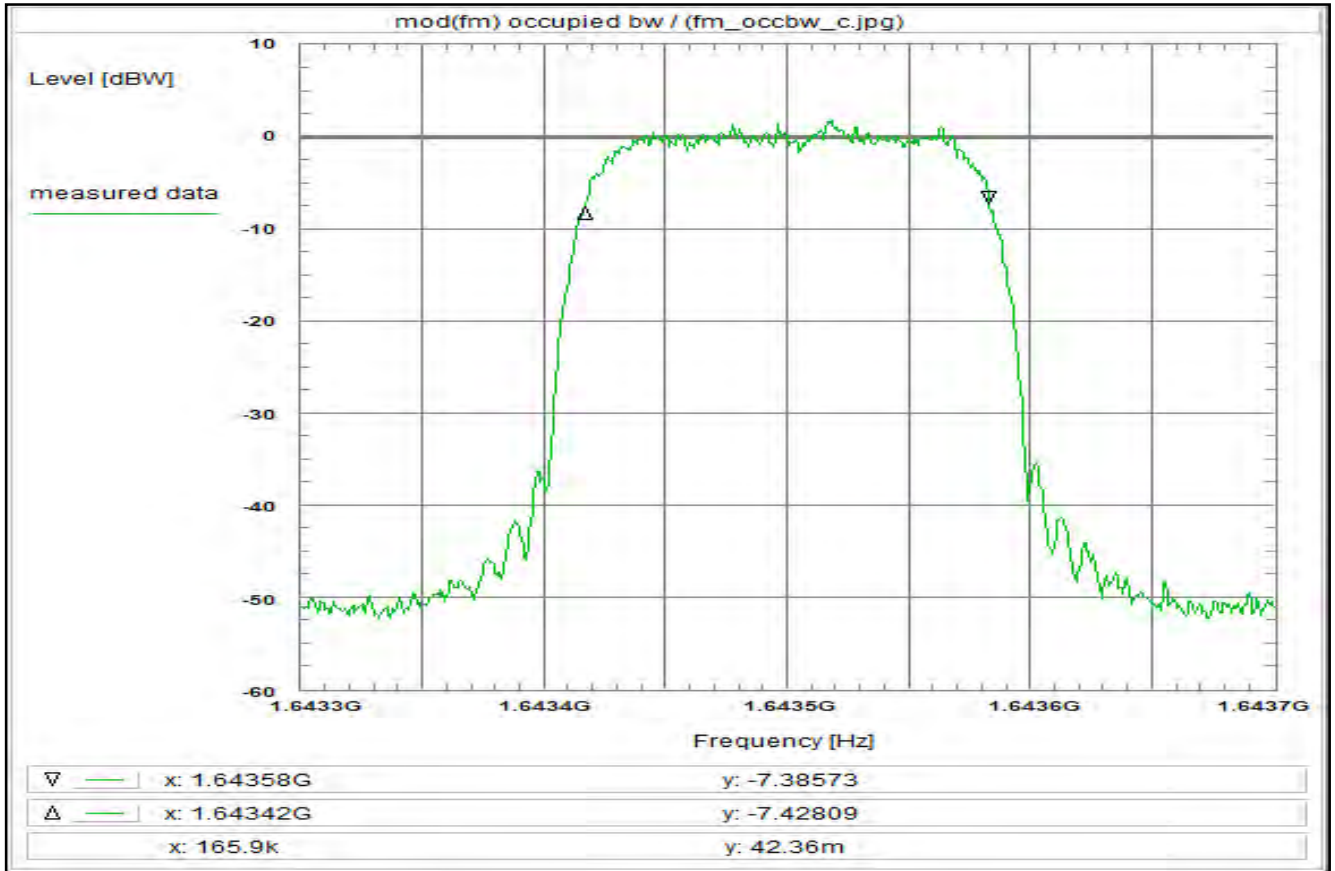
Environment condition:
Date & Time: Wed 20/May/2020 11:59:13
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R20T4.50D

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

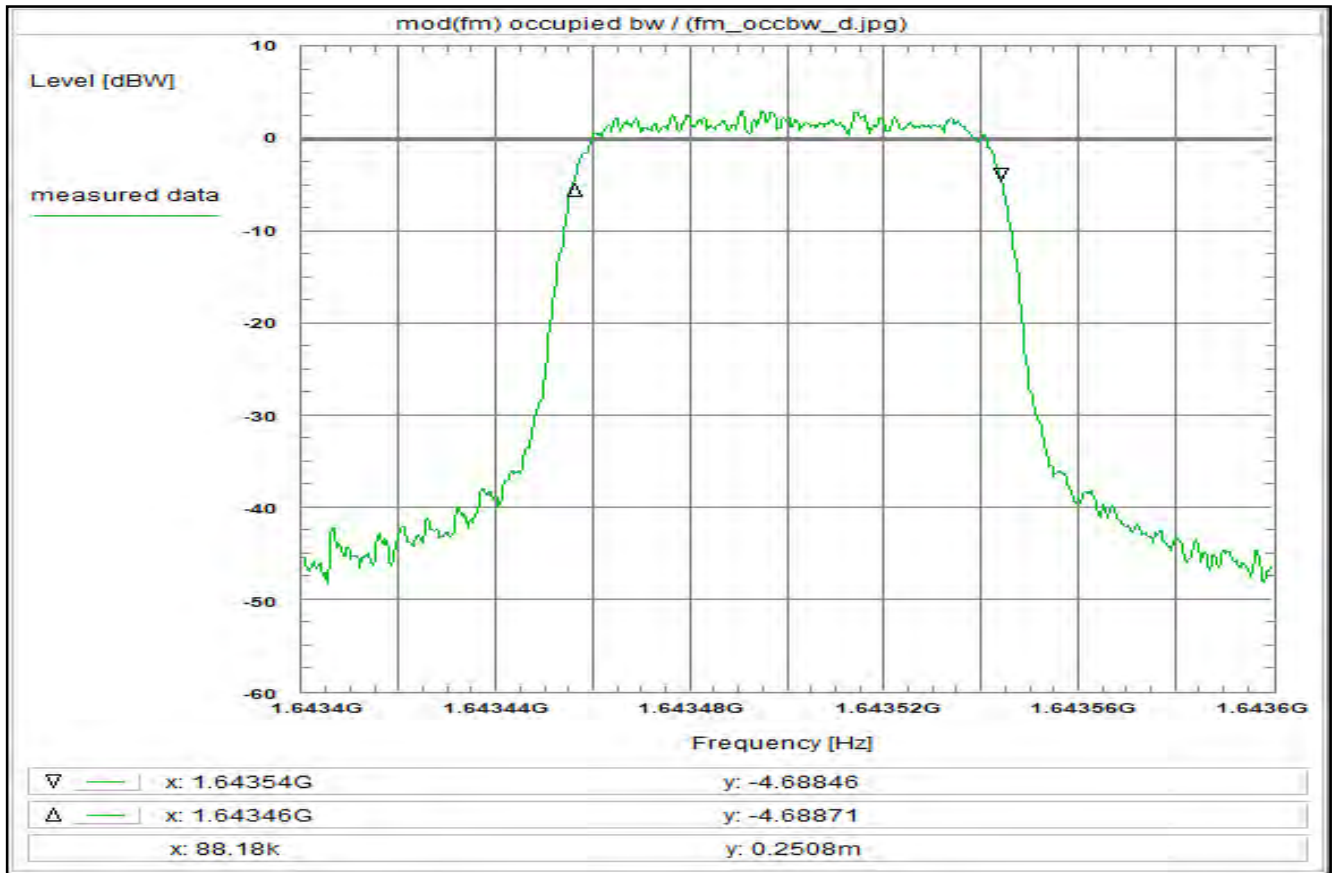
Environment condition:
Date & Time: Wed 20/May/2020 12:02:47
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

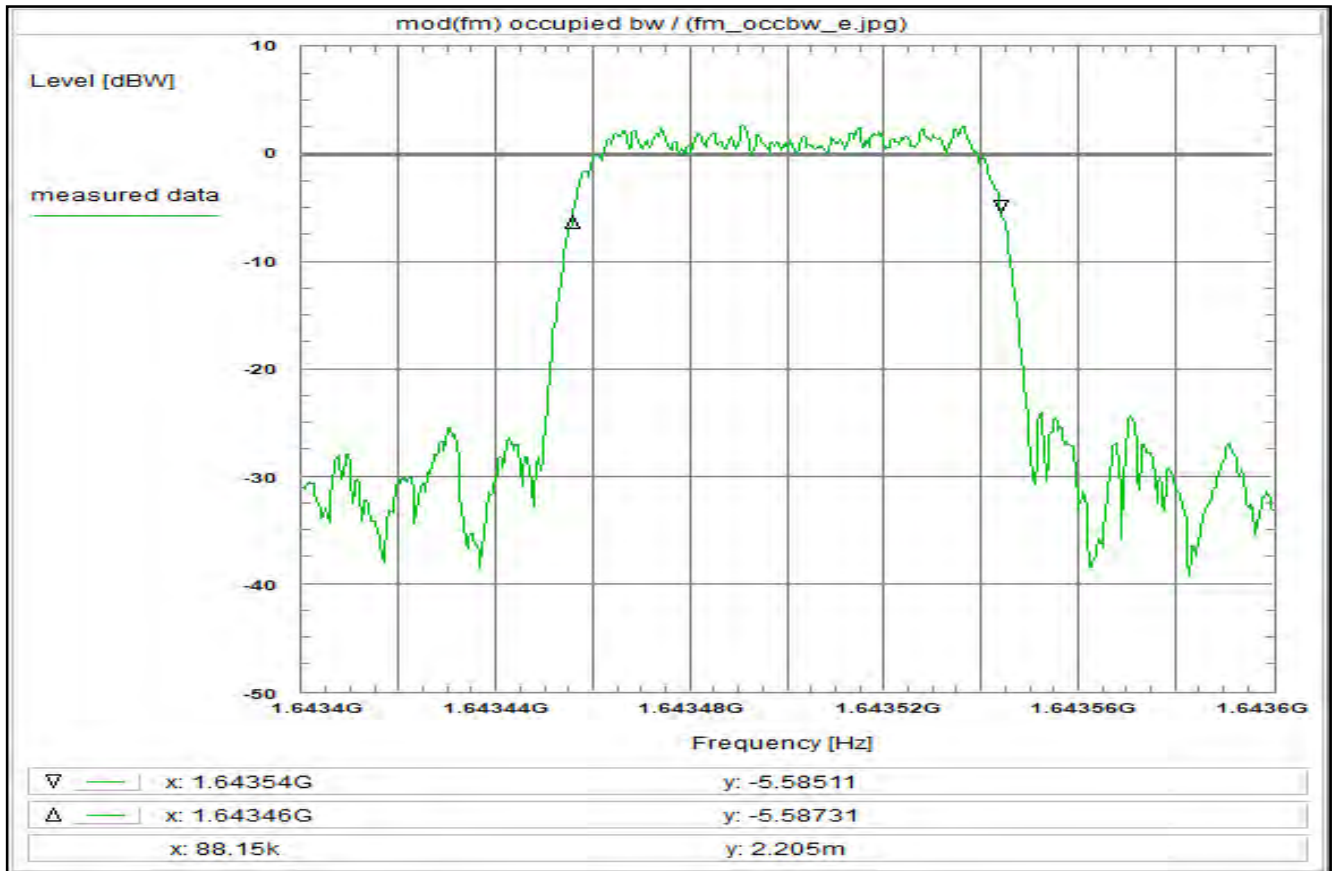
Setup of measurement equipment:
Start frequency: 1.6434 GHz
Stop frequency: 1.6436 GHz
Center frequency: 1.6435 GHz
Frequency span: 200 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 40 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

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

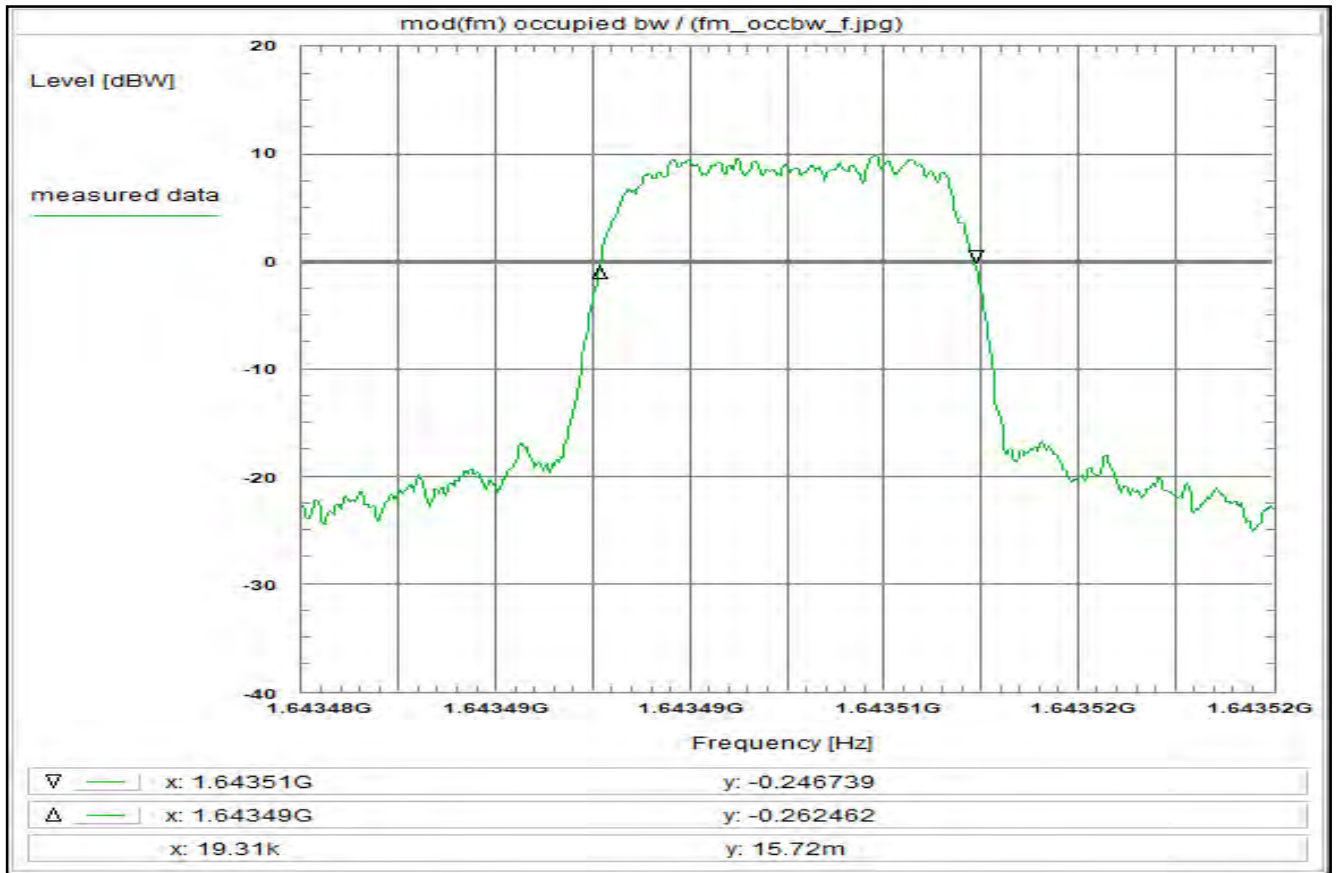
Setup of measurement equipment:
Start frequency: 1.6434 GHz
Stop frequency: 1.6436 GHz
Center frequency: 1.6435 GHz
Frequency span: 200 kHz
Resolution-BW: 3 kHz
Video-BW: 10 kHz
Input attenuation: 40 dB
Trace-Mode: Max-Hold
Detector-Mode: Pos Peak

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, R20T0.50D

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

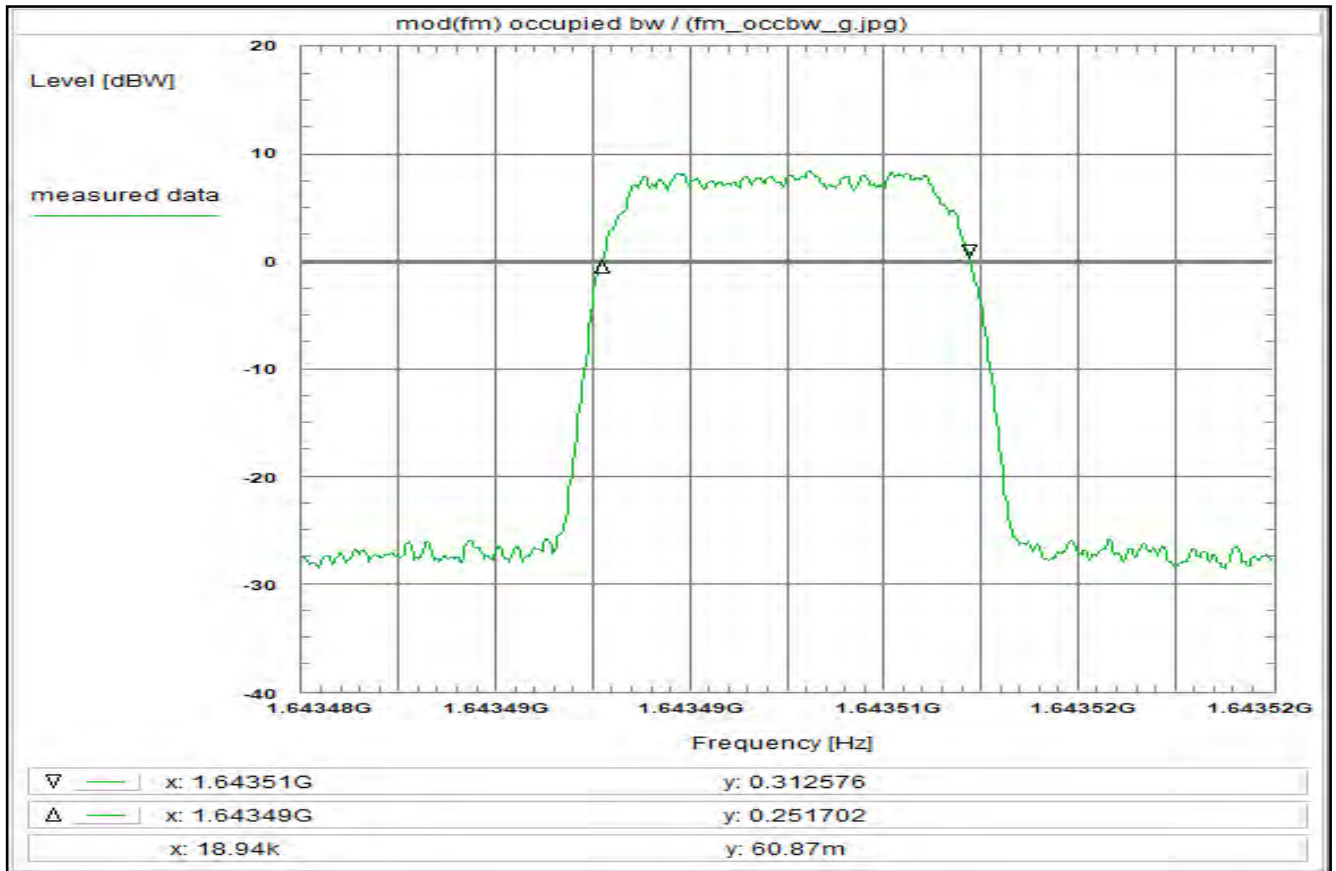
Environment condition:
Date & Time: Wed 20/May/2020 13:50:43
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

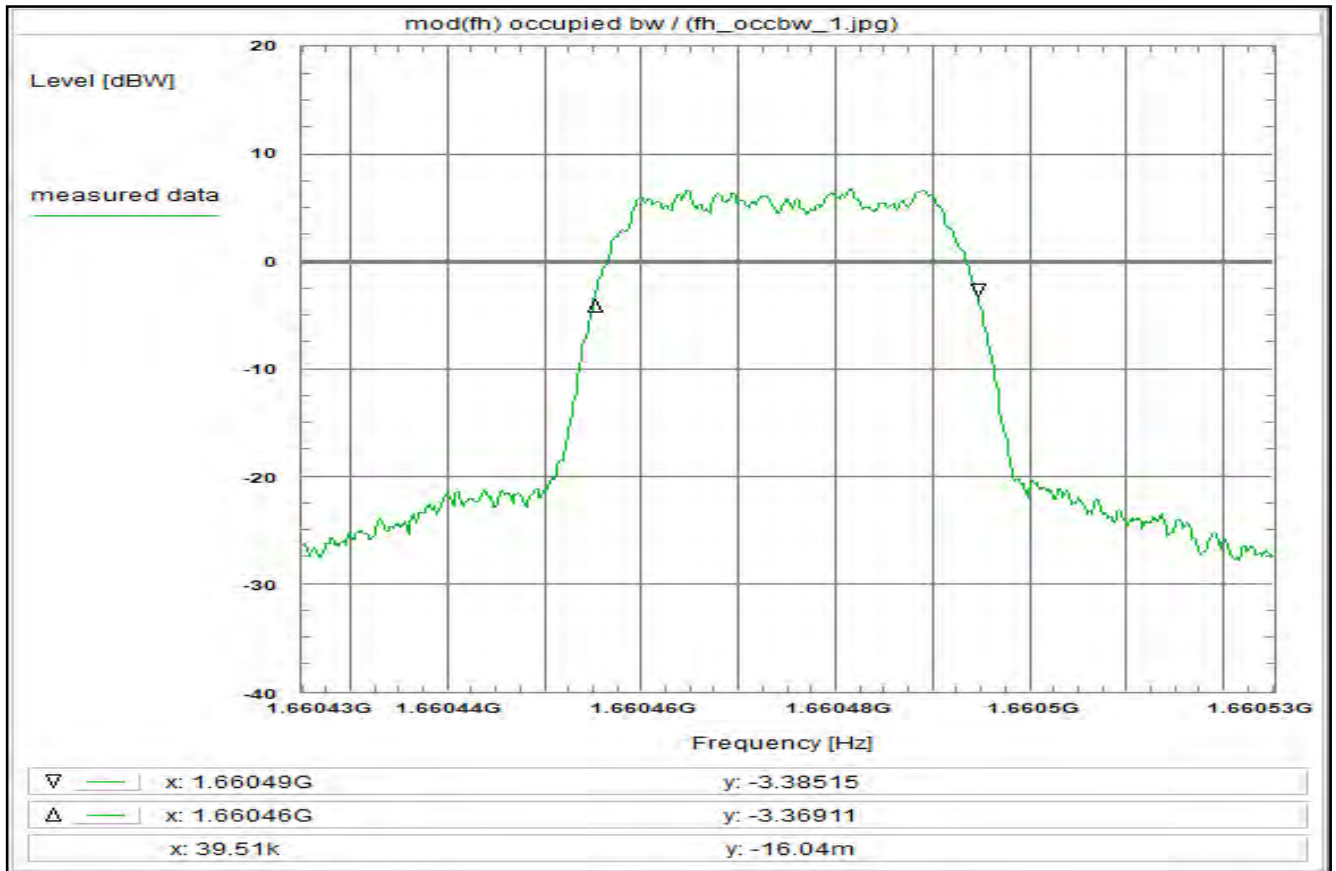
Environment condition:
Date & Time: Wed 20/May/2020 13:56:14
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R511XD

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

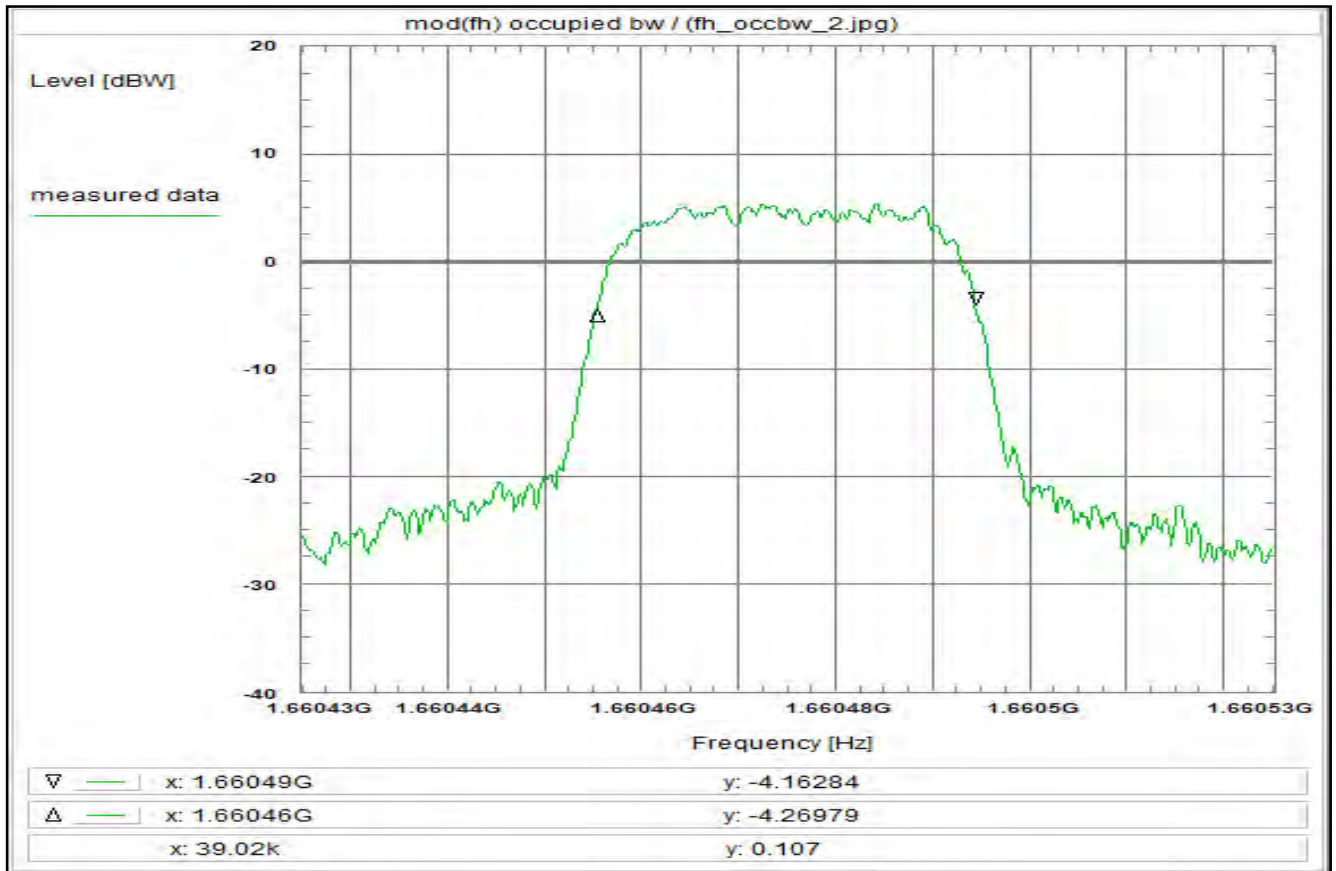
Environment condition:
Date & Time: Wed 20/May/2020 15:26:11
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

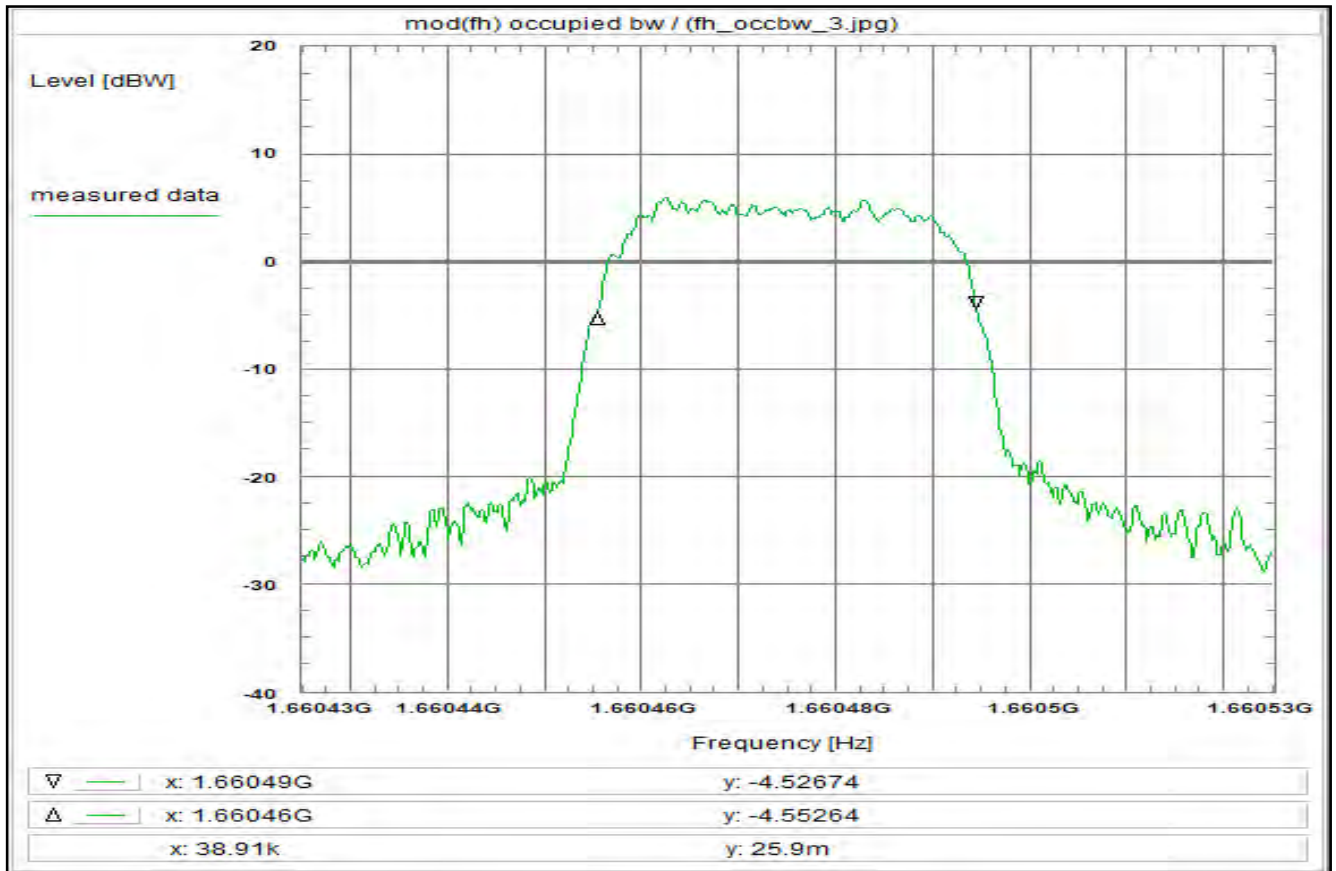
Environment condition:
Date & Time: Wed 20/May/2020 15:27:43
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

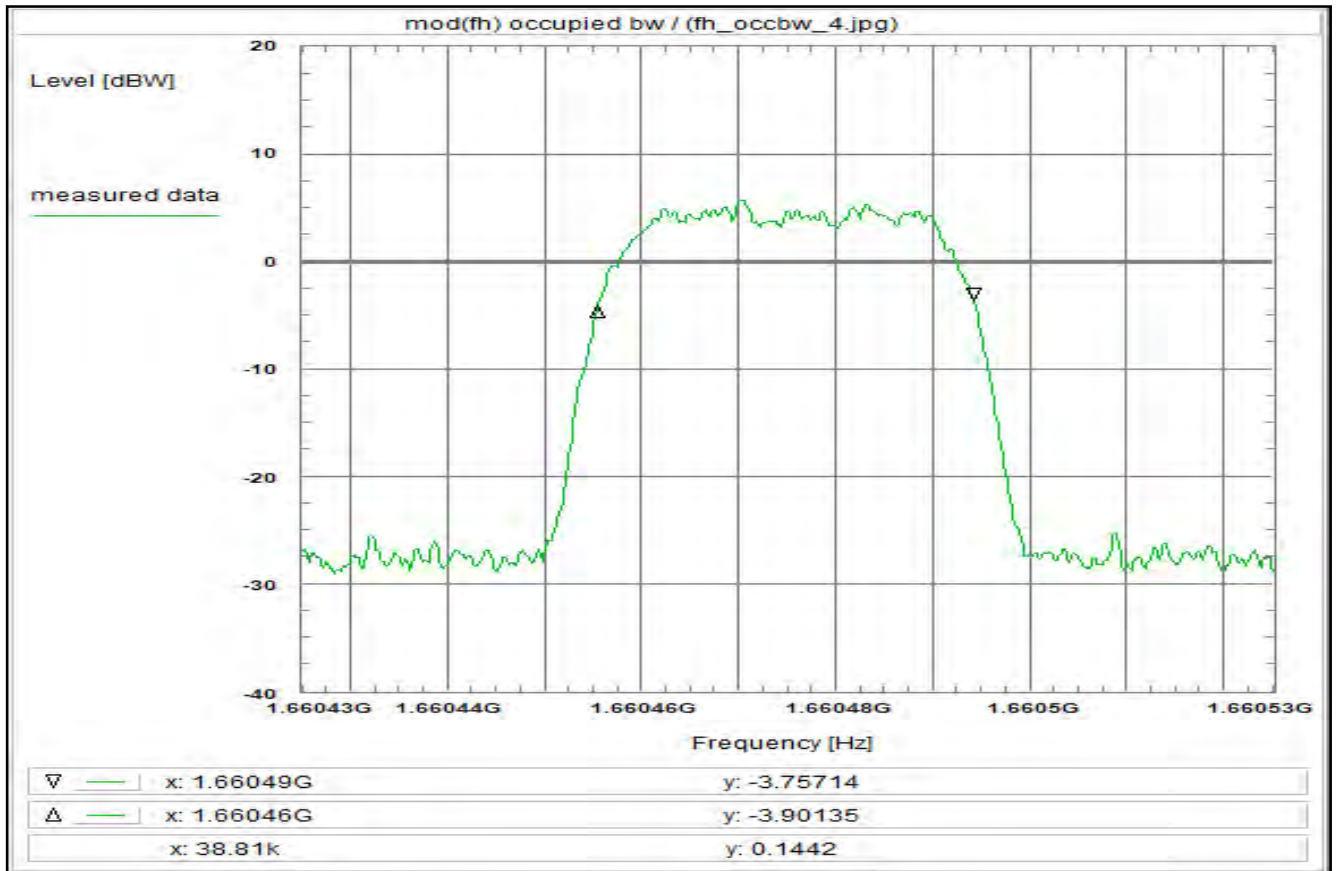
Environment condition:
Date & Time: Wed 20/May/2020 15:30:21
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

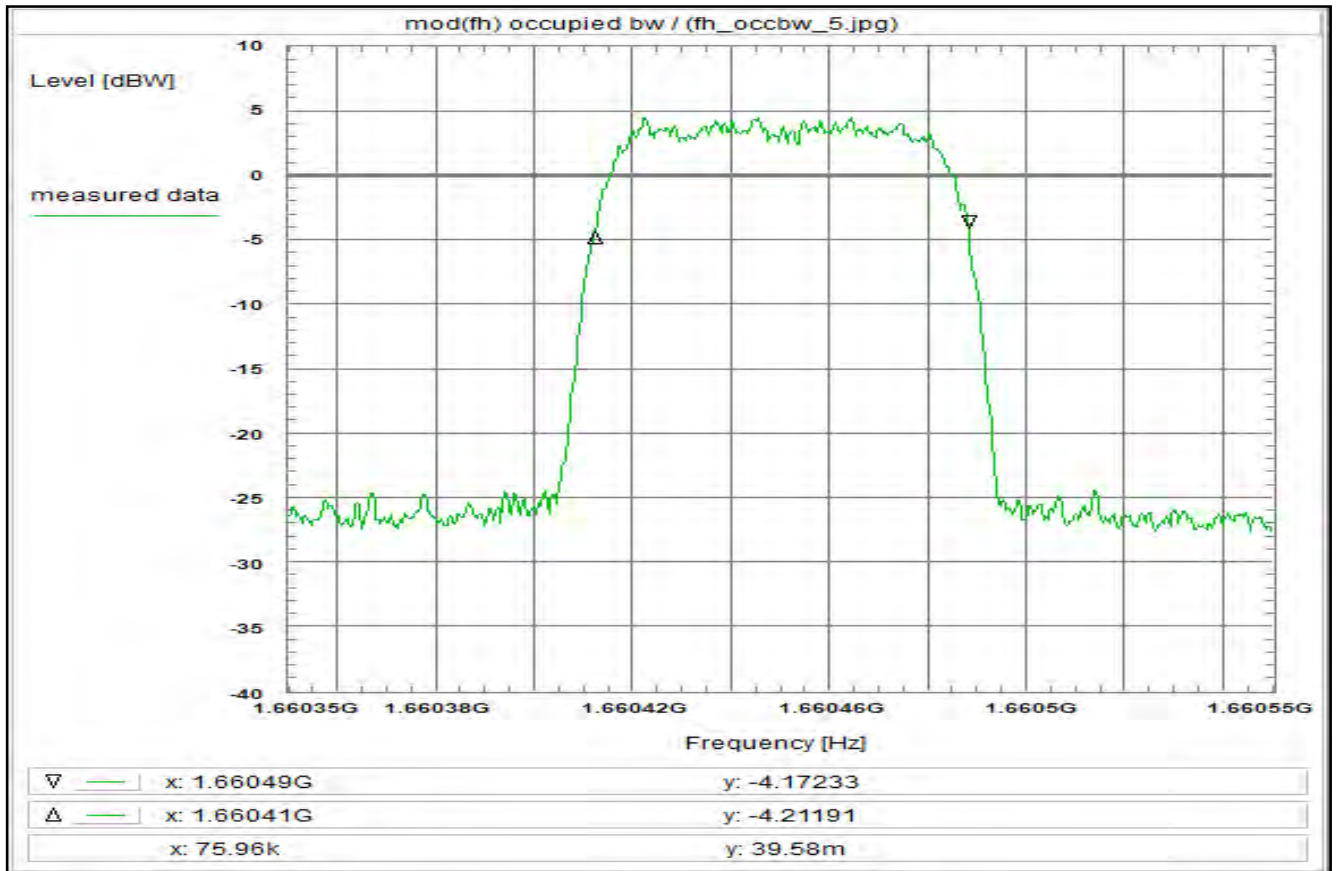
Environment condition:
Date & Time: Wed 20/May/2020 15:35:55
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R512XD

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

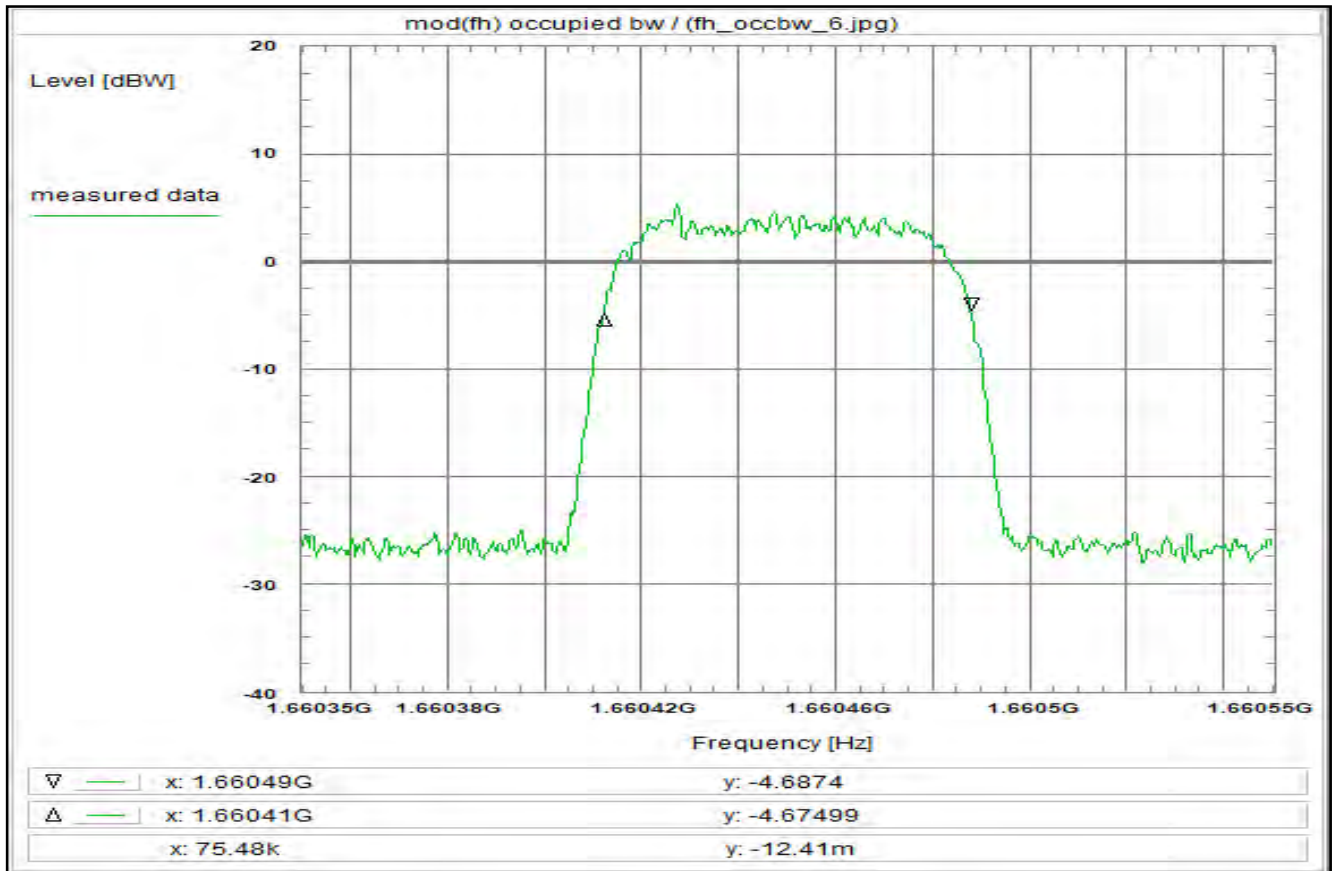
Environment condition:
Date & Time: Wed 20/May/2020 15:42:57
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

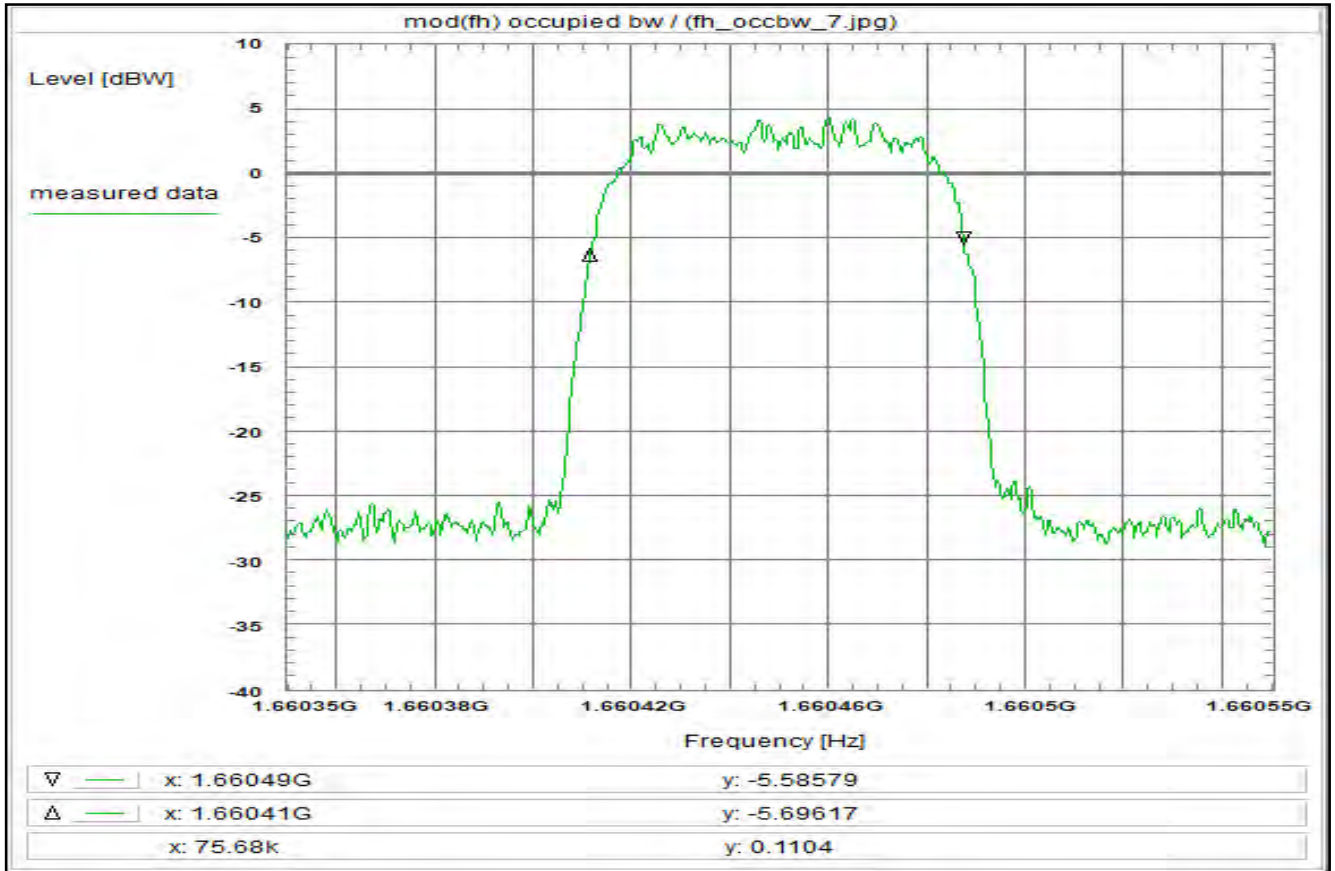
Environment condition:
Date & Time: Wed 20/May/2020 15:46:29
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R5120D

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

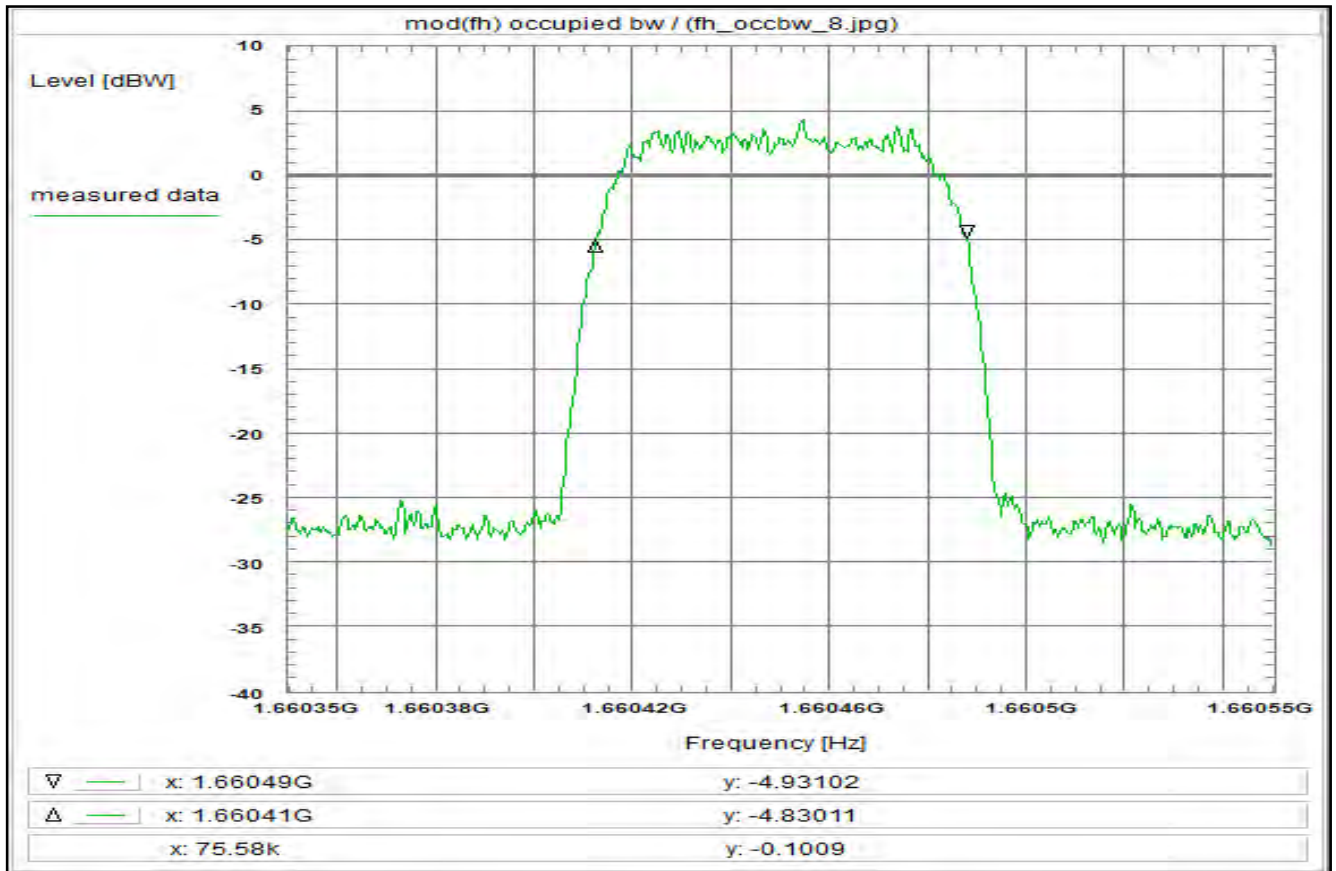
Environment condition:
Date & Time: Wed 20/May/2020 15:49:32
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R20T20D

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

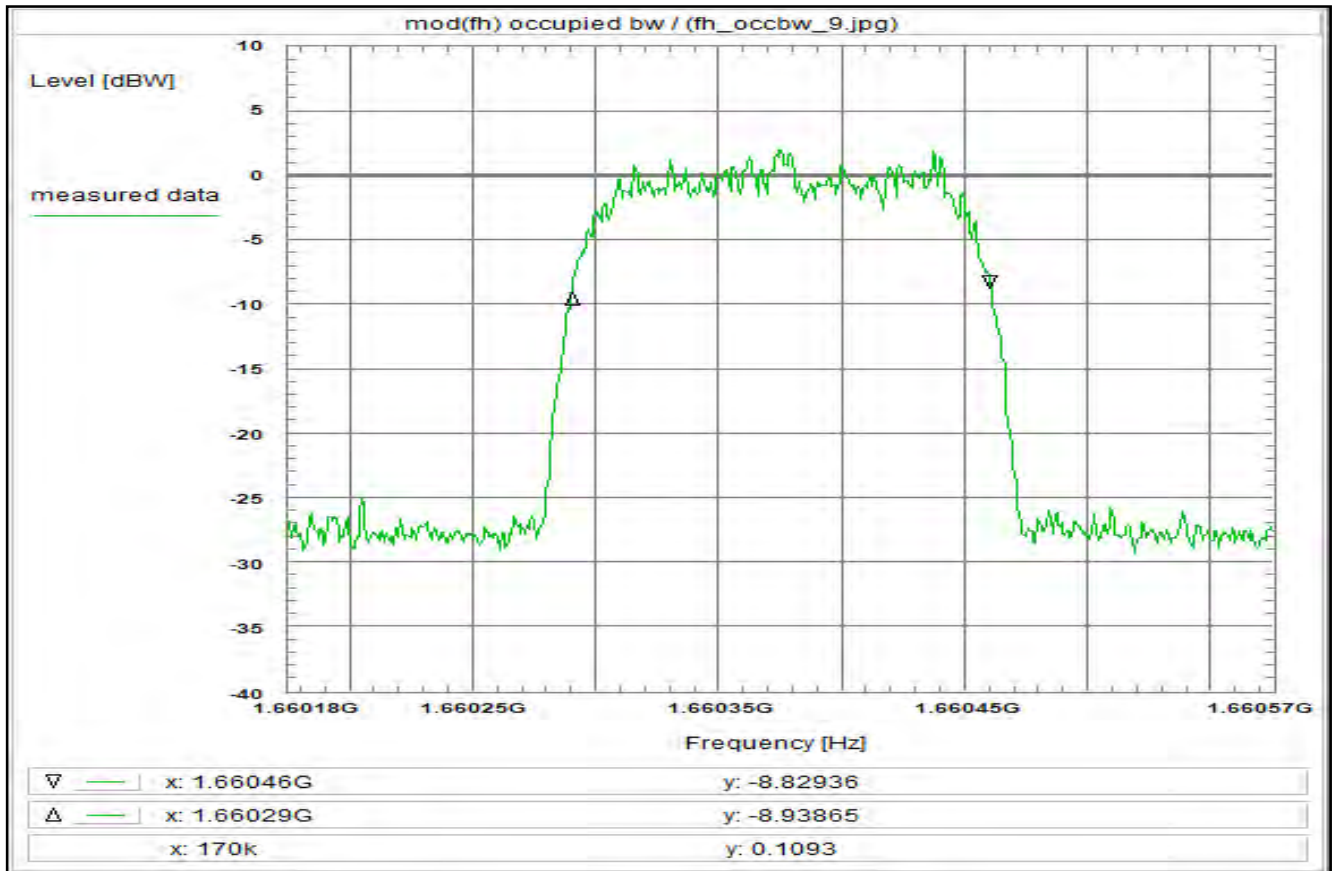
Environment condition:
Date & Time: Wed 20/May/2020 15:52:10
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R514.5XD

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

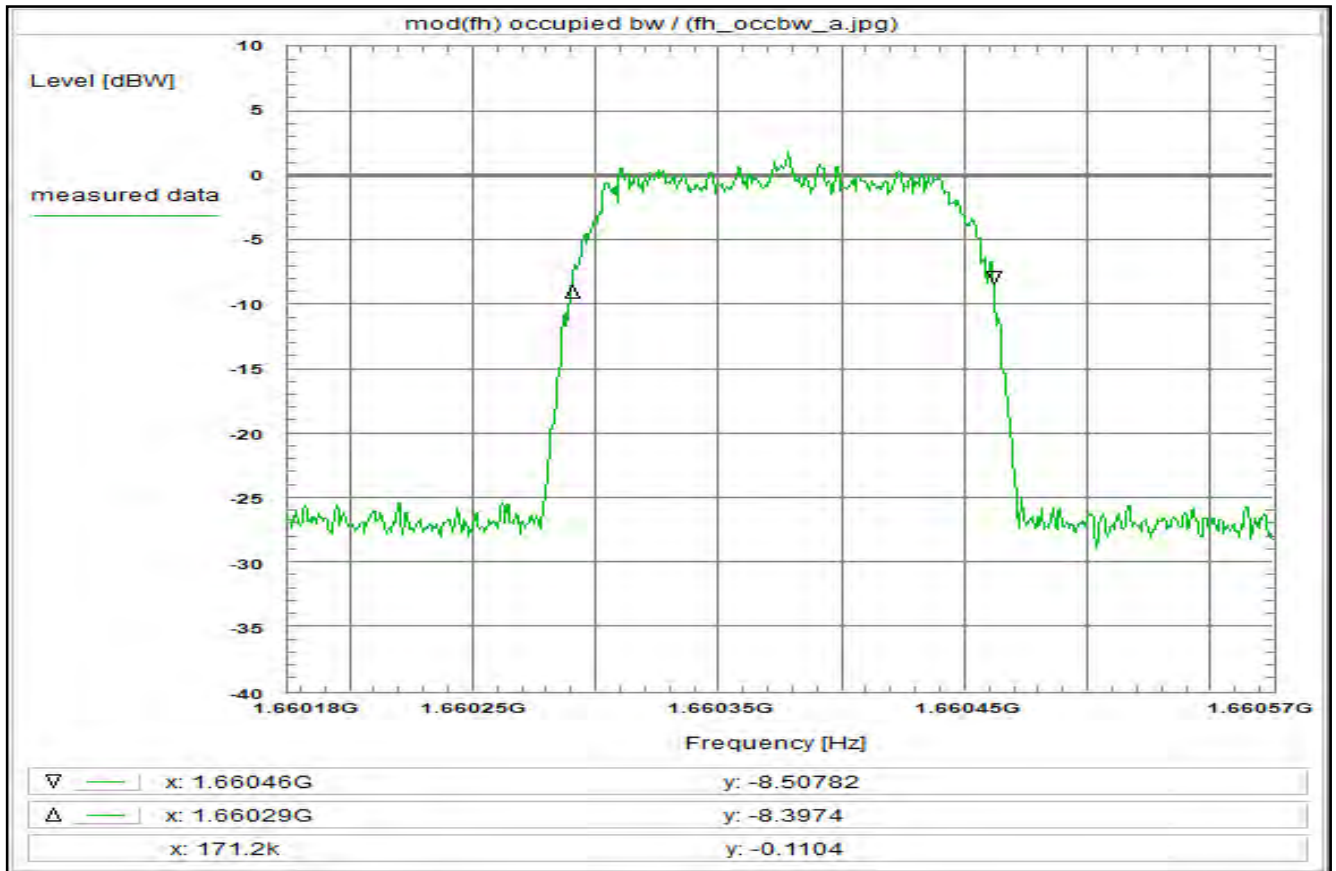
Environment condition:
Date & Time: Wed 20/May/2020 15:55:58
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

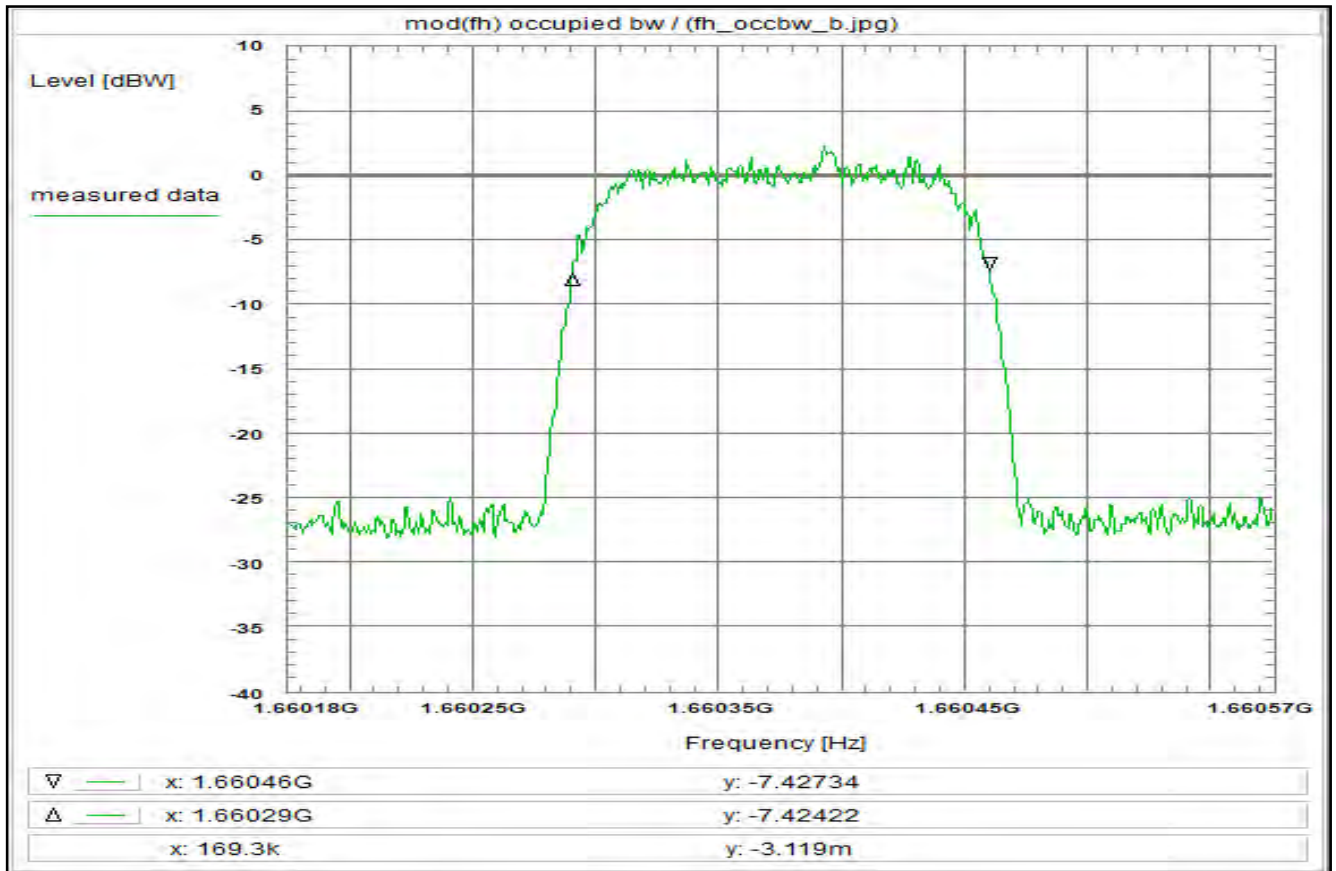
Environment condition:
Date & Time: Wed 20/May/2020 15:59:16
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R514.5QD

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

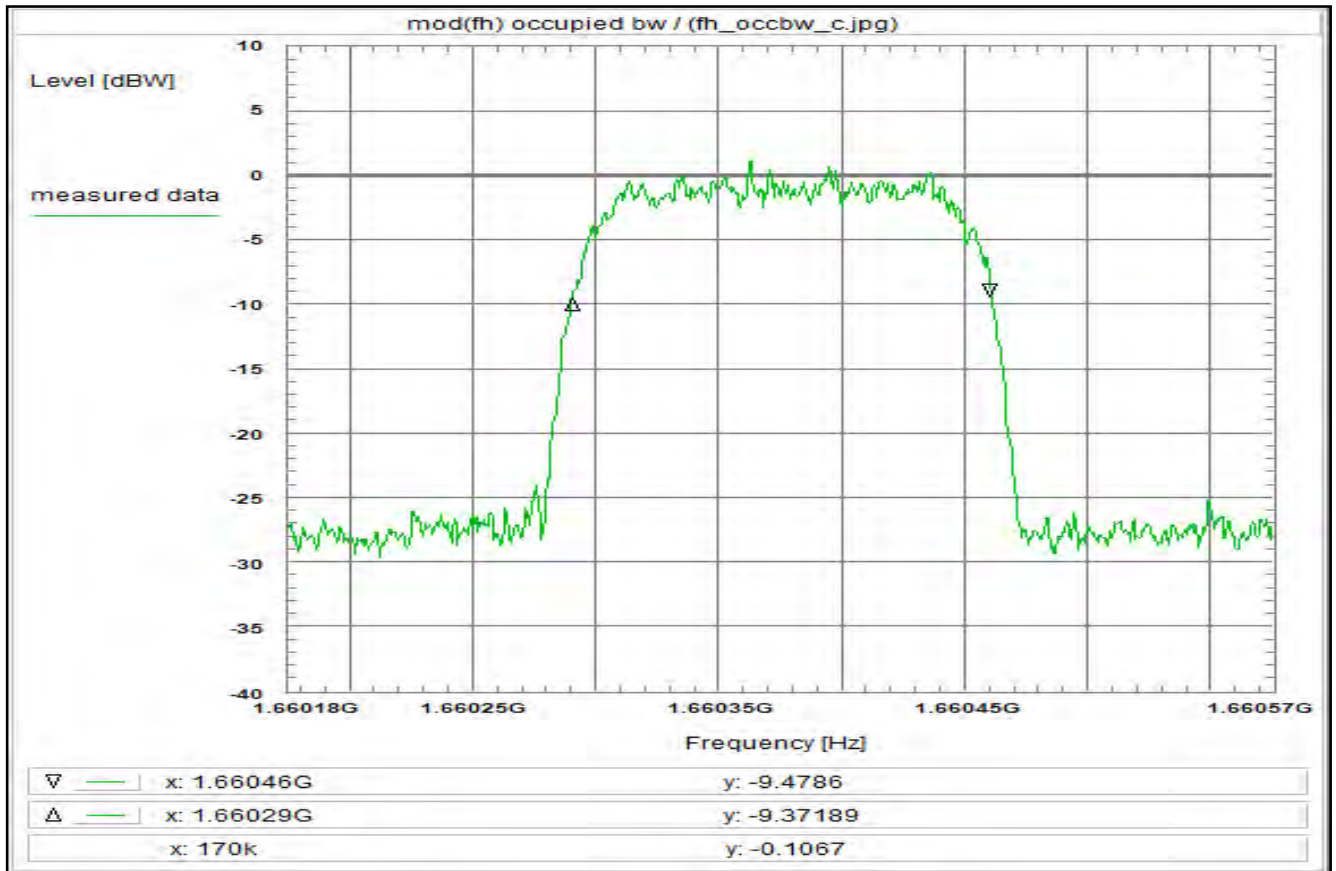
Environment condition:
Date & Time: Wed 20/May/2020 16:02:29
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R20T4.50D

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

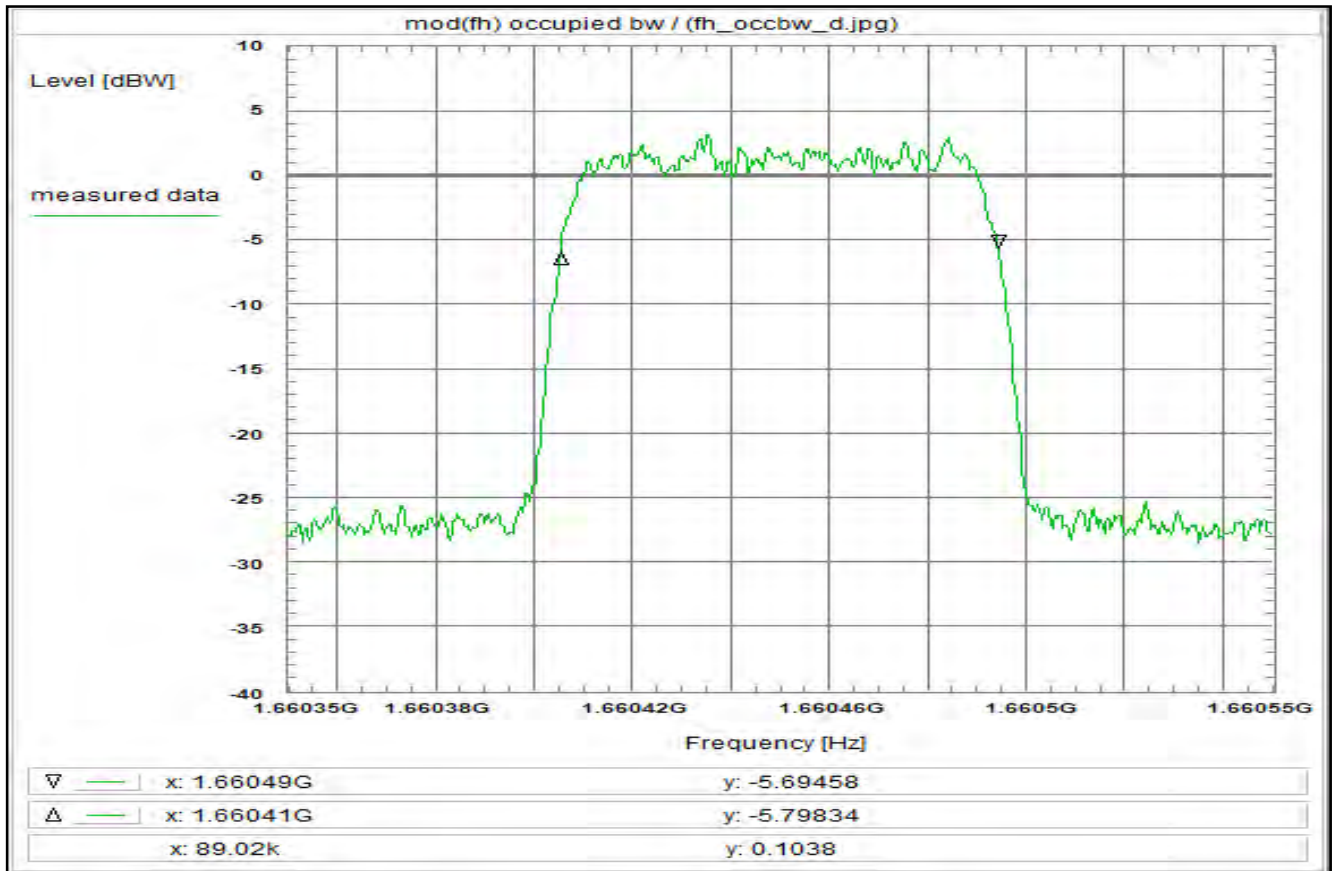
Environment condition:
Date & Time: Wed 20/May/2020 16:04:39
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

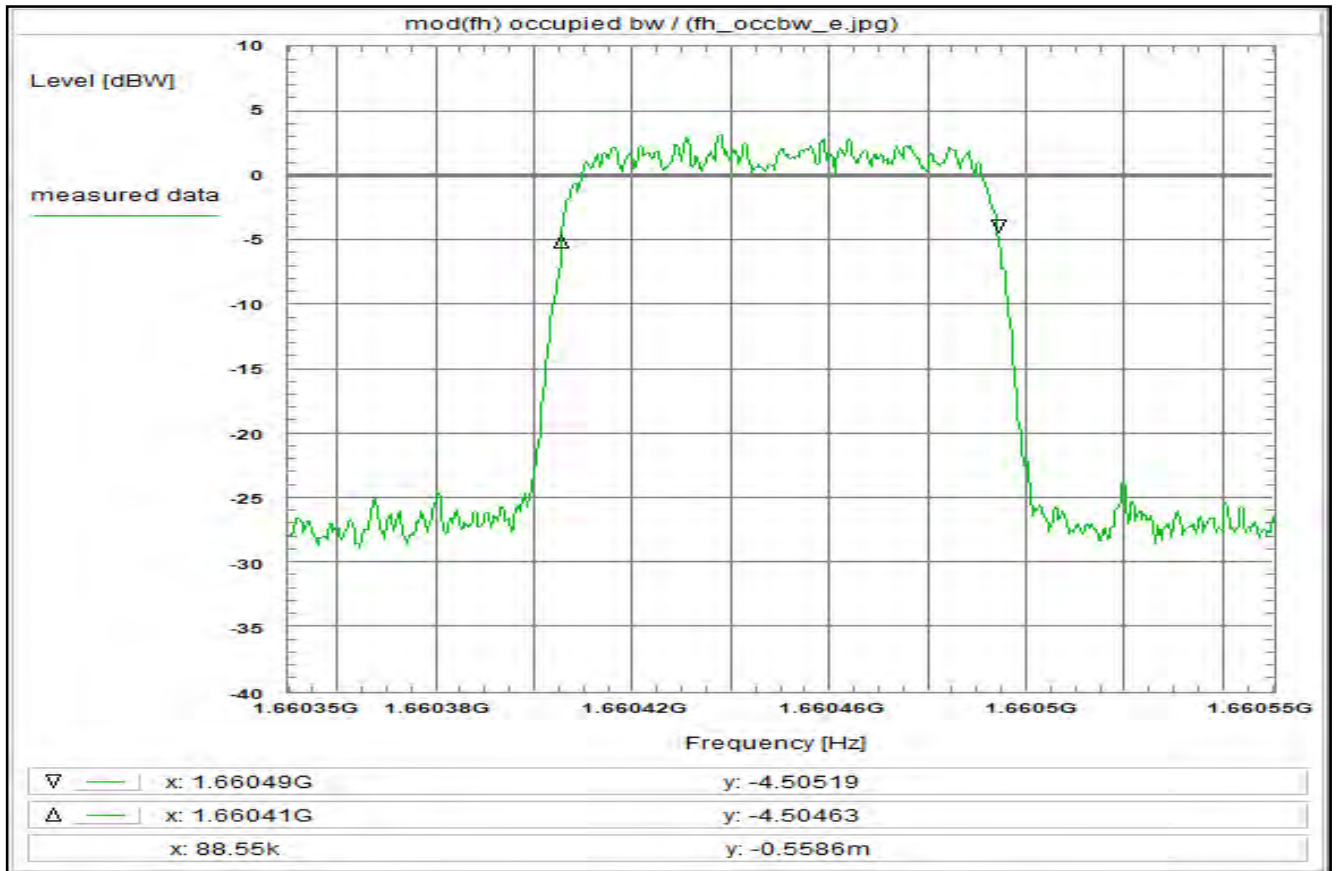
Environment condition:
Date & Time: Wed 20/May/2020 16:06:46
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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

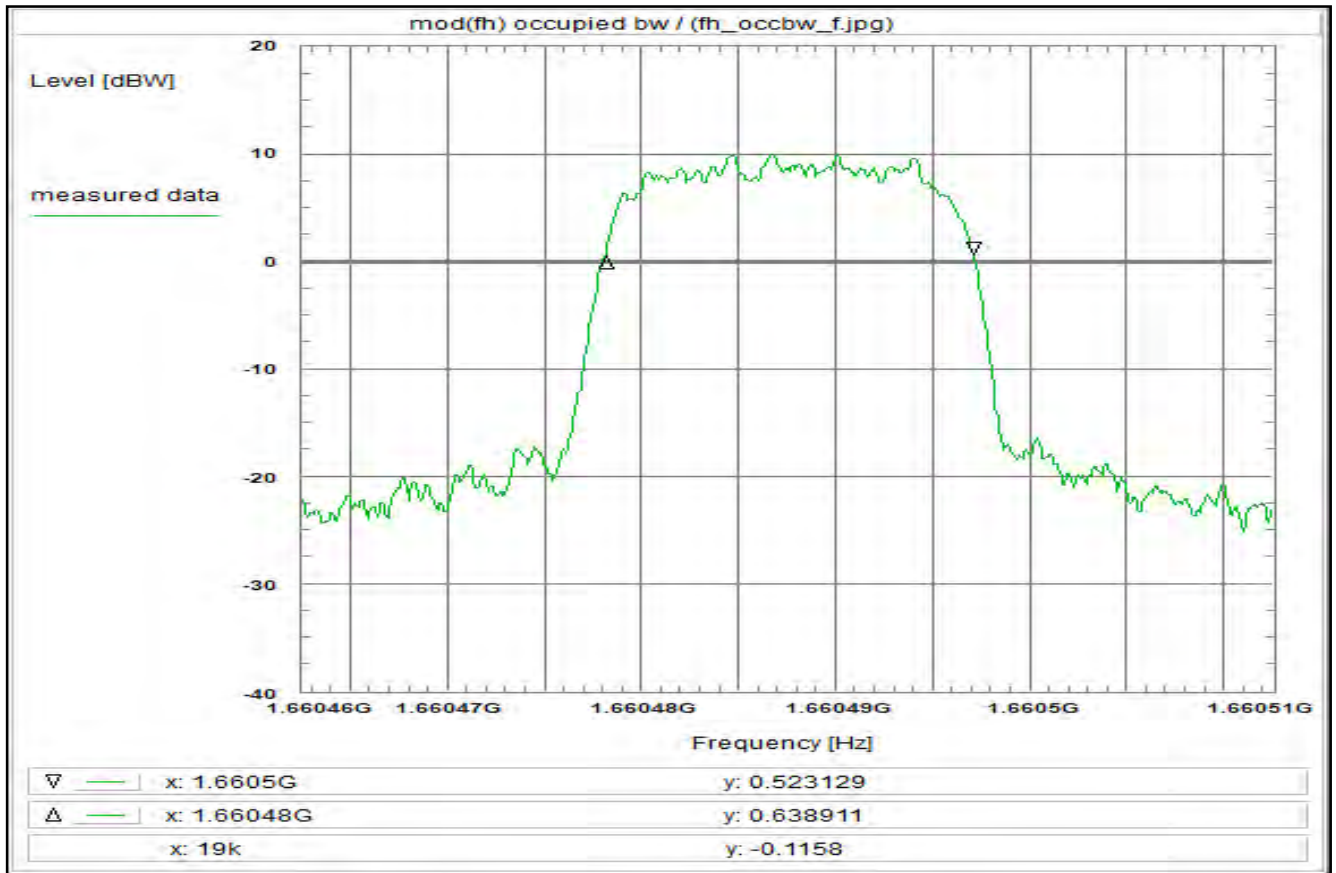
Environment condition:
Date & Time: Wed 20/May/2020 16:08:47
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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, R20T0.50D

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

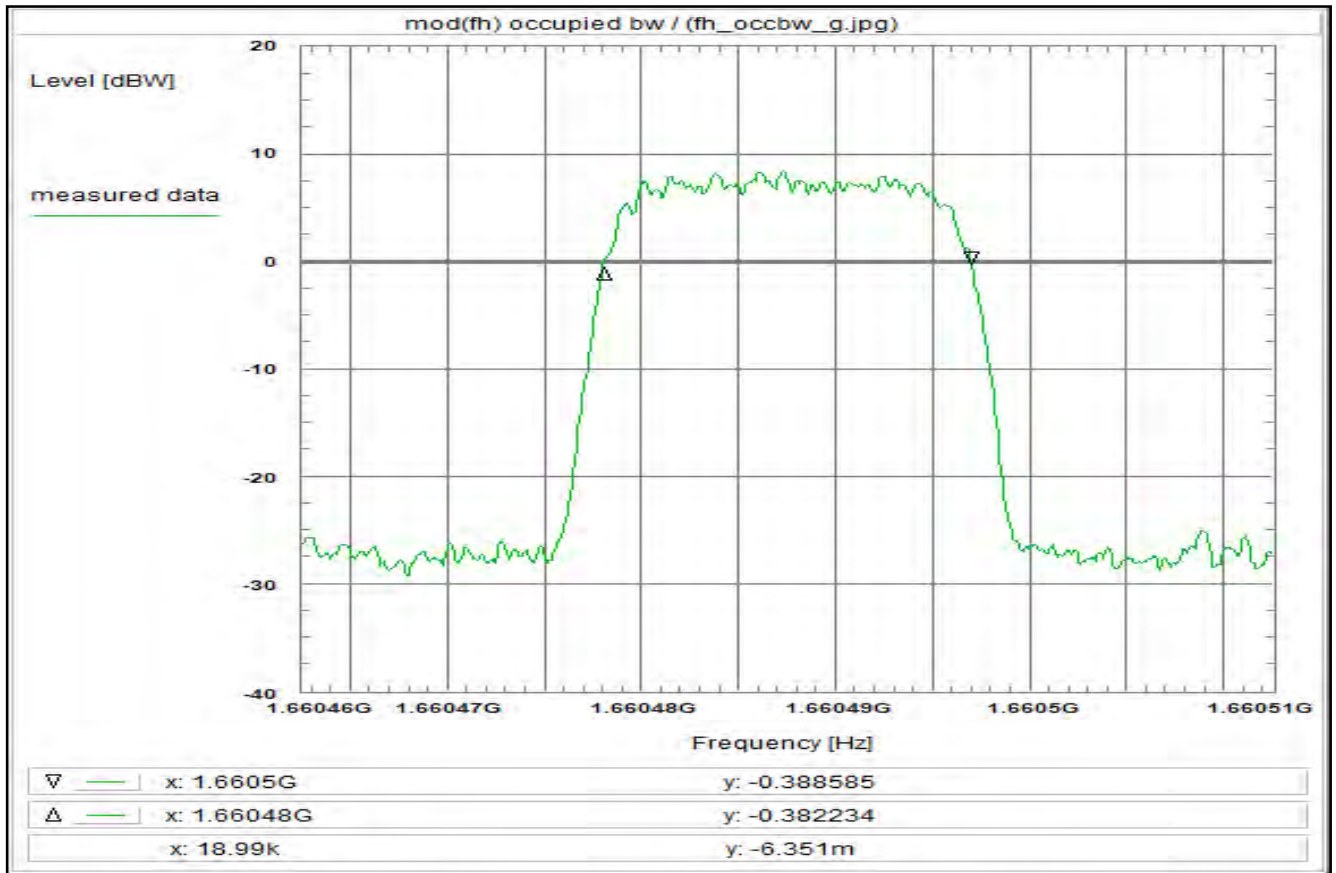
Environment condition:
Date & Time: Wed 20/May/2020 16:11:36
Location: CTC advanced GmbH, Laboratory RC-SYS
Temperature: 22 °C
Humidity: 55 %
Voltage: 115 Vac / 400 Hz

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 dB
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

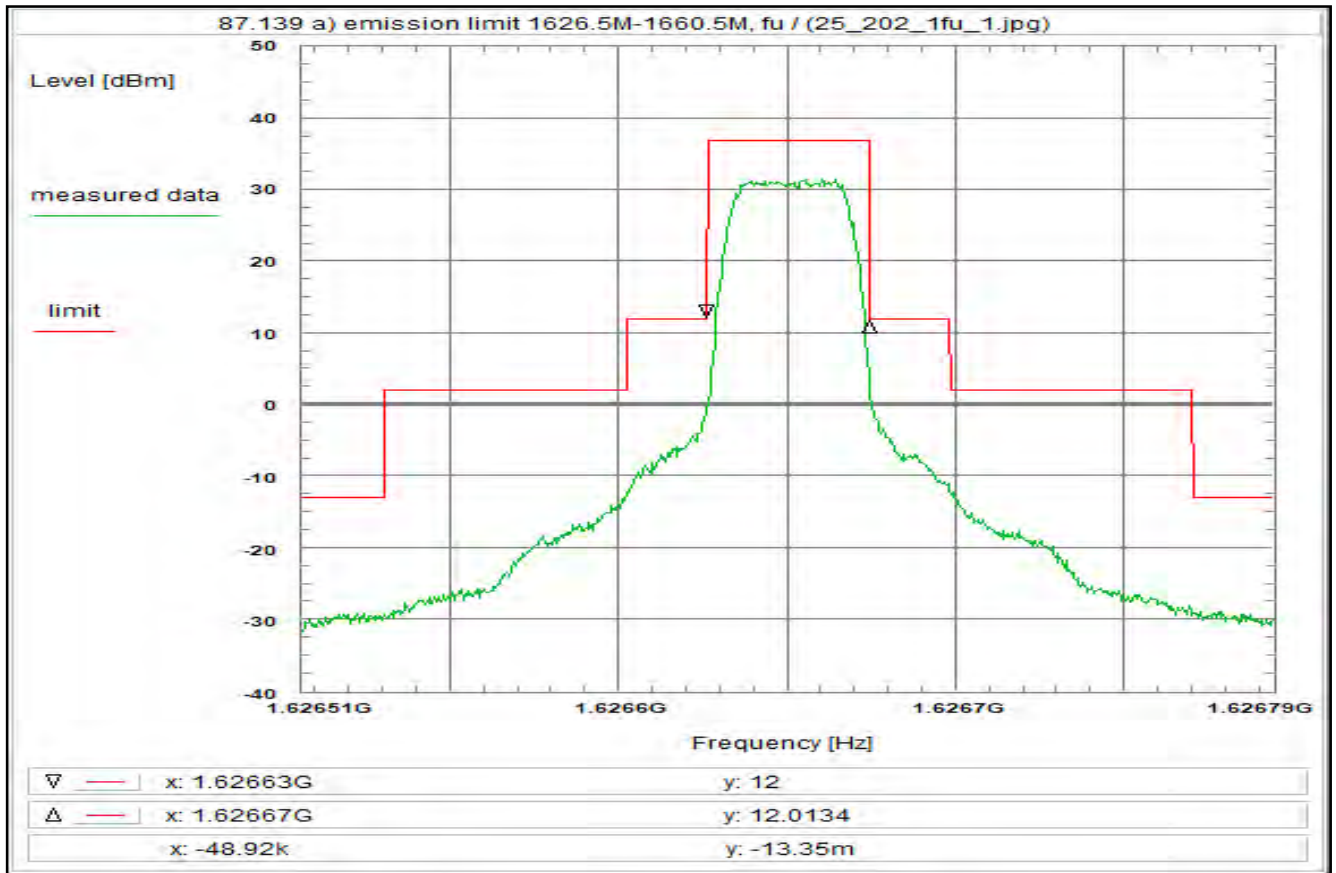
Environment condition:
 Date & Time: Wed 20/May/2020 16:13:11
 Location: CTC advanced GmbH, Laboratory RC-SYS
 Temperature: 22 °C
 Humidity: 55 %
 Voltage: 115 Vac / 400 Hz

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+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 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:

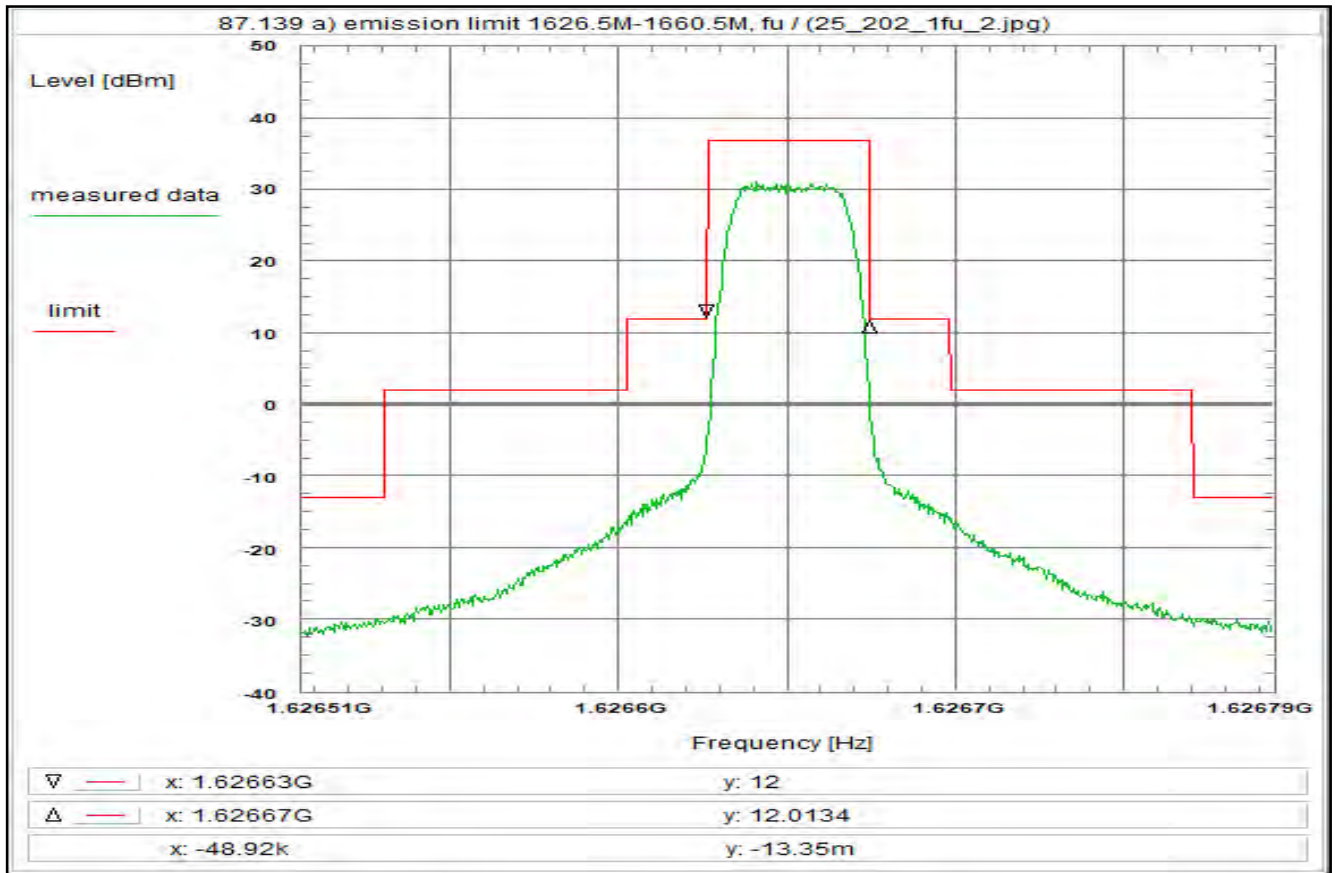
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

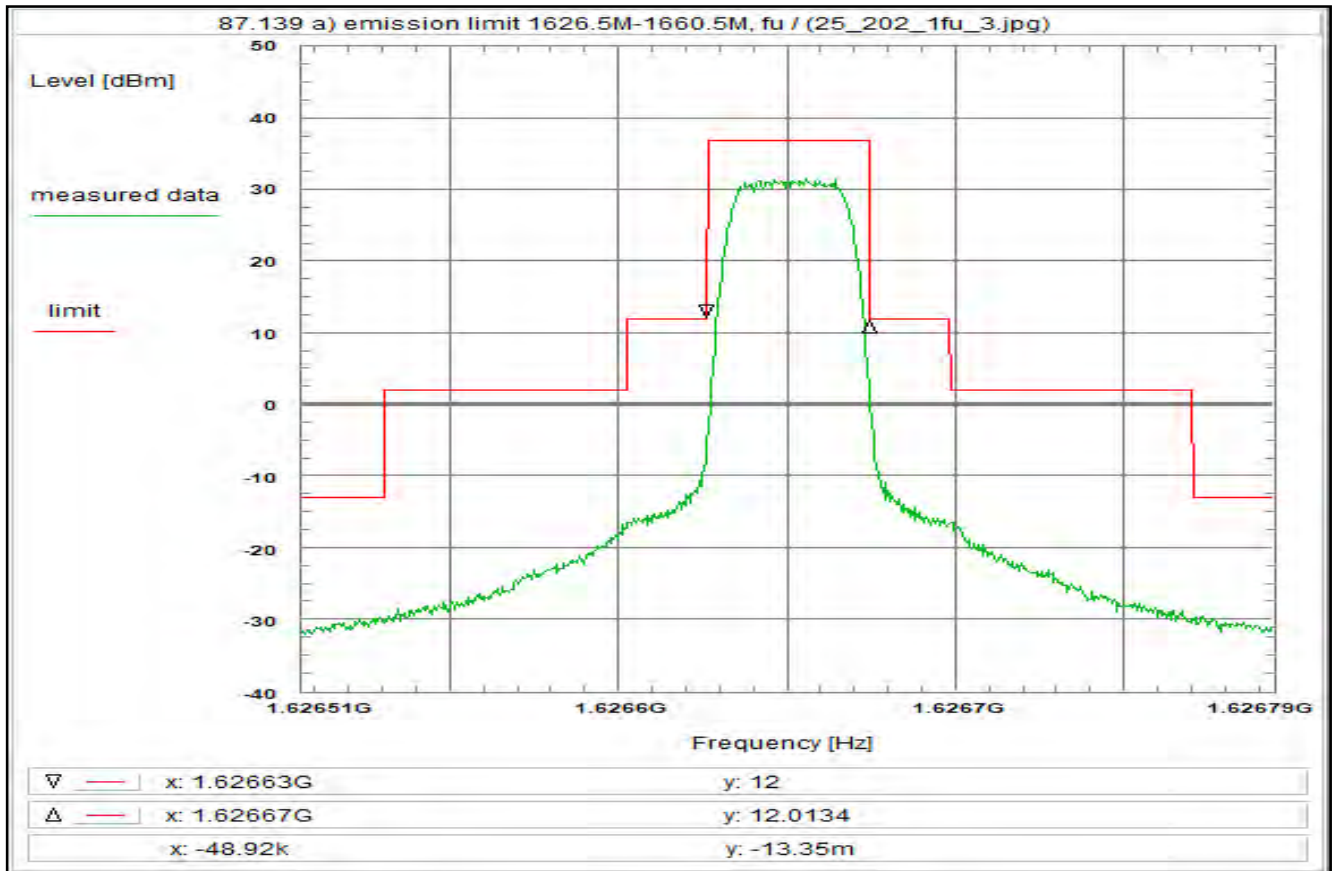
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

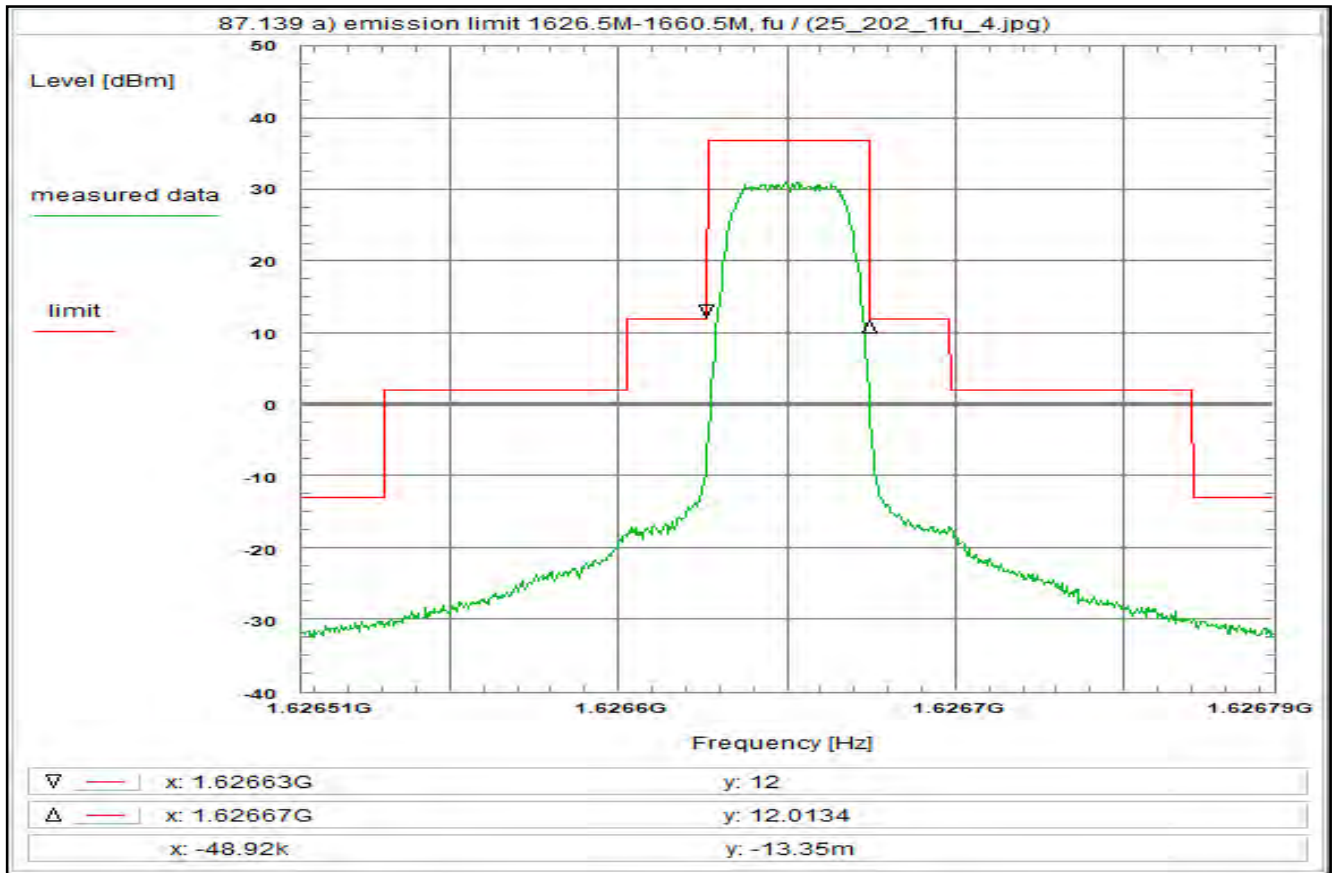
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment 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:

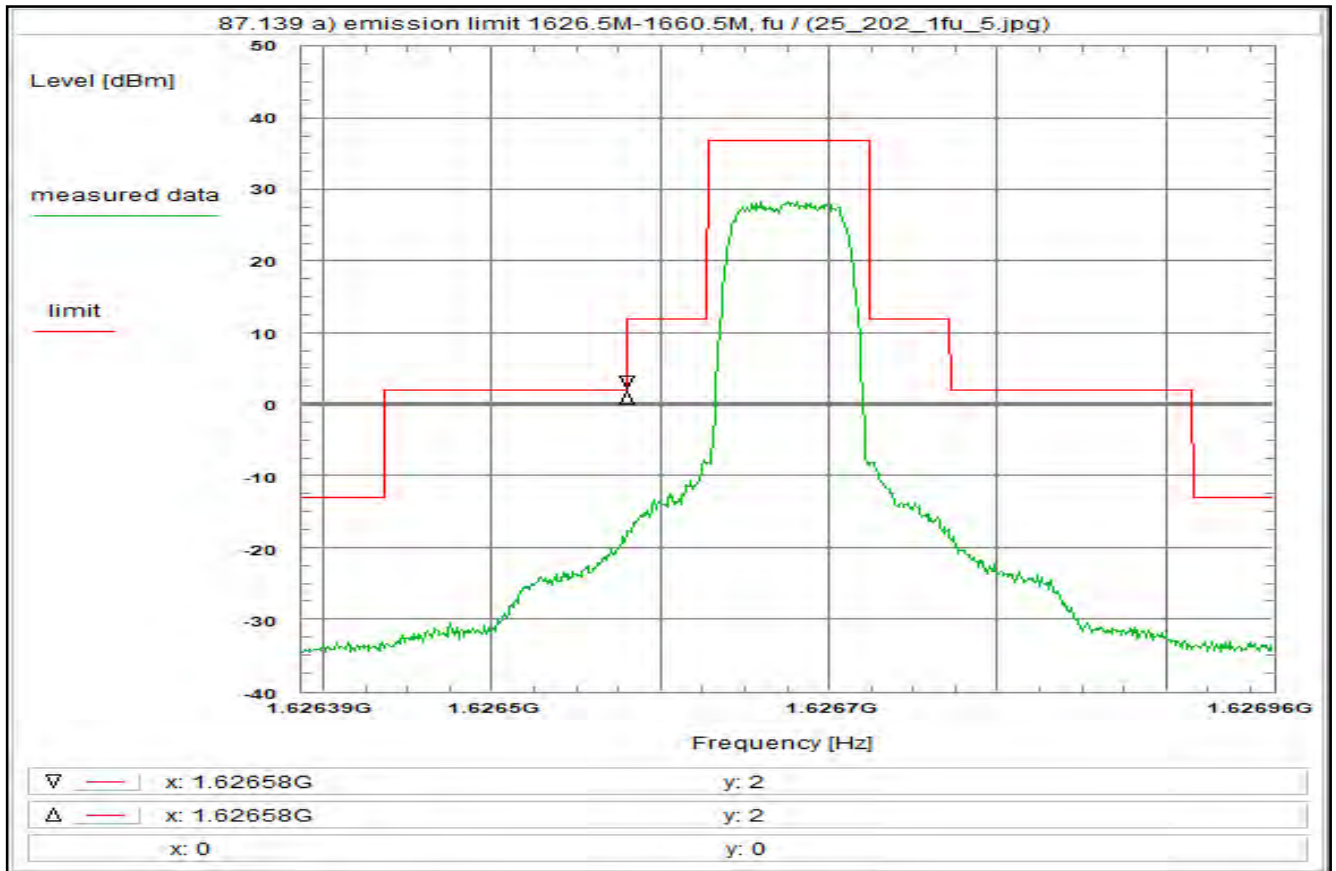
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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+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, U311, Power Splitter

Remark:

Test result: Test passed

Environment 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:

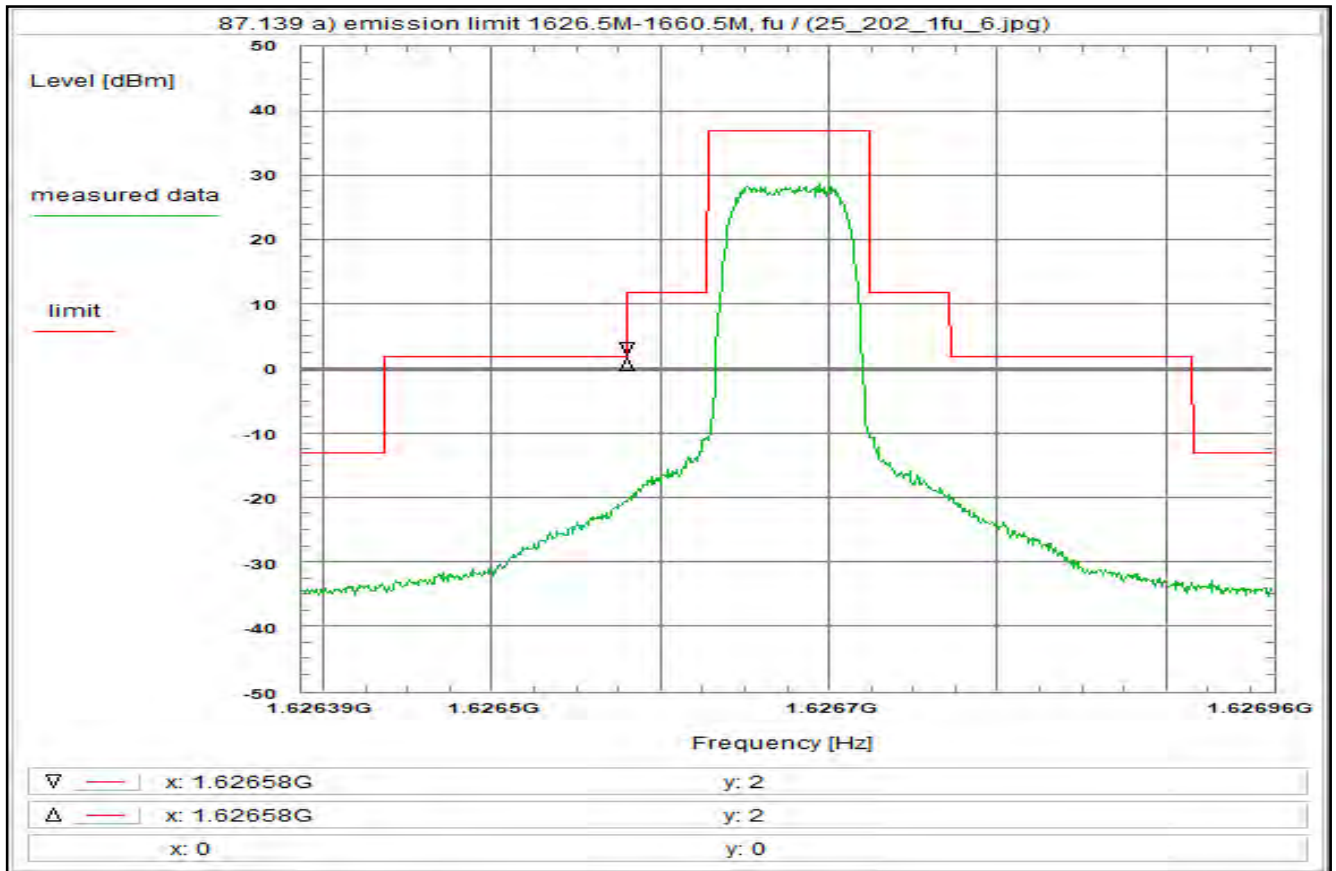
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

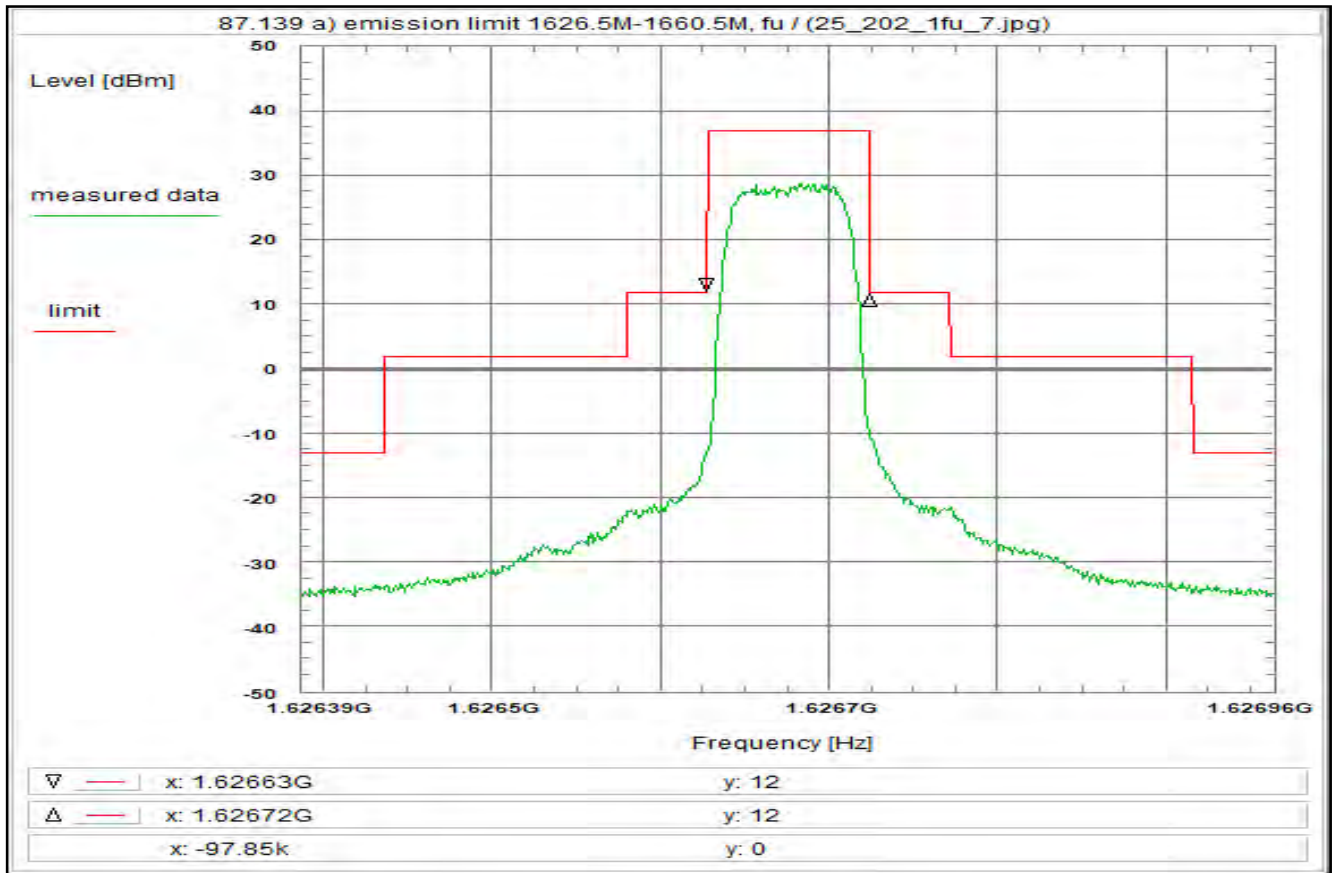
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

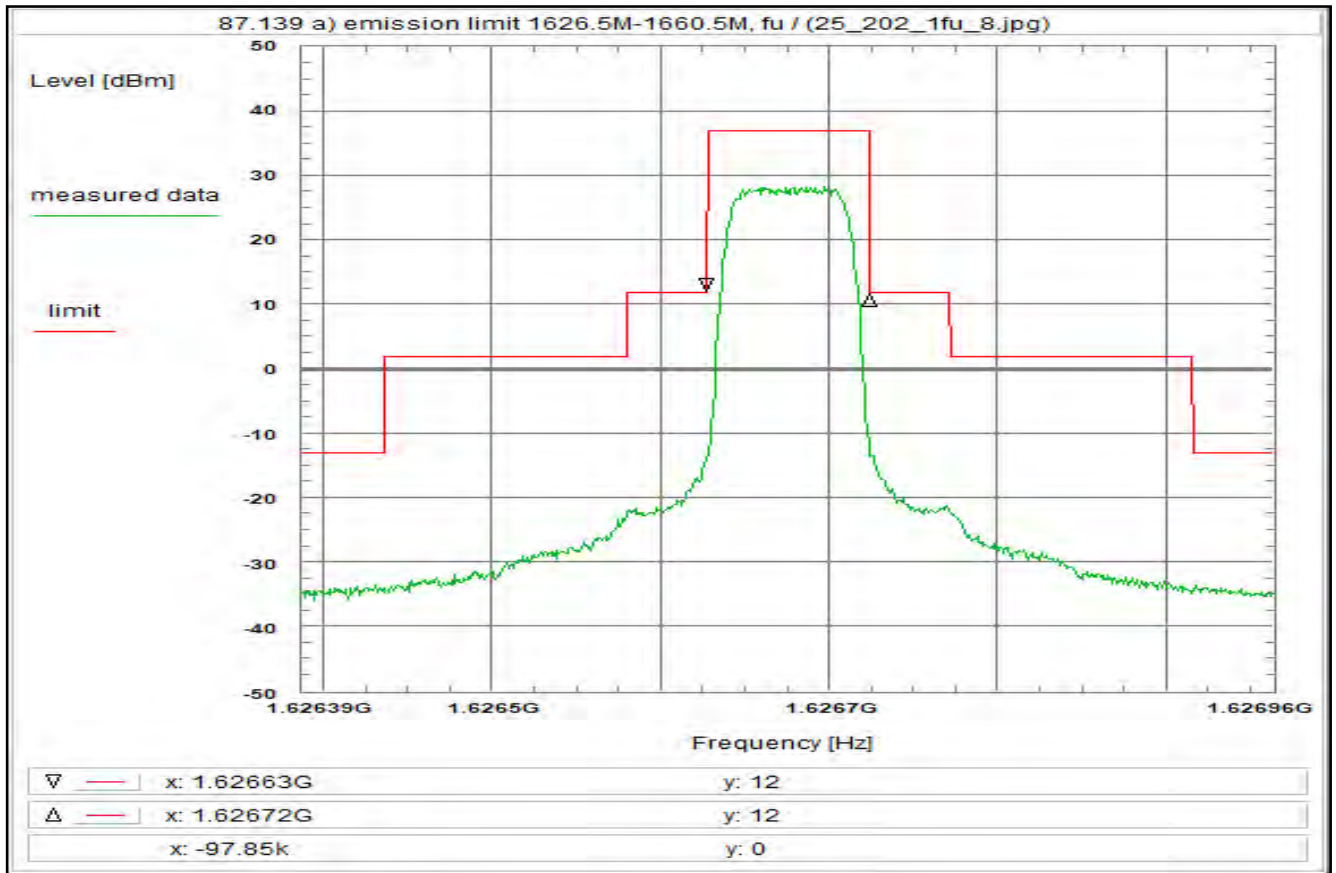
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

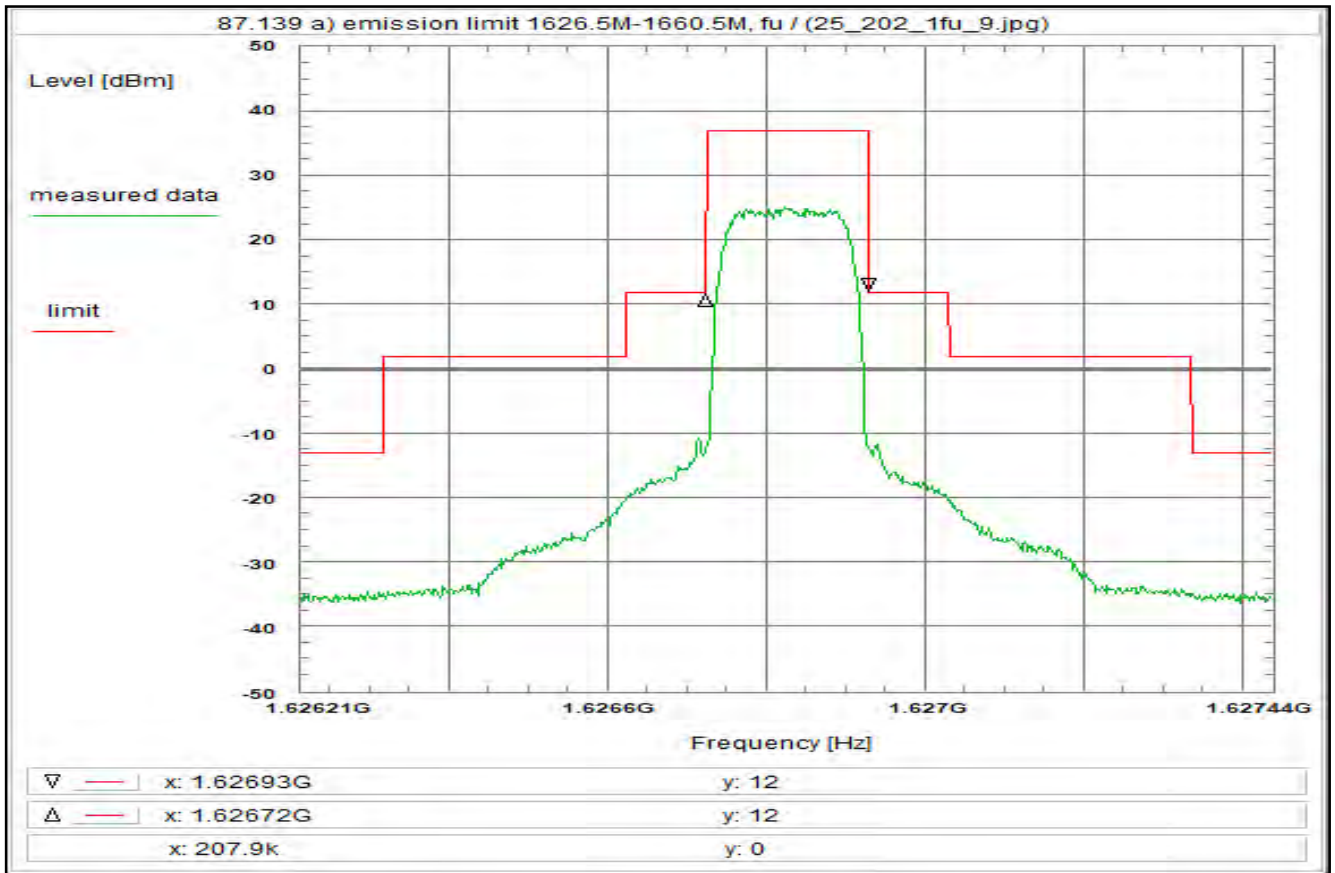
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

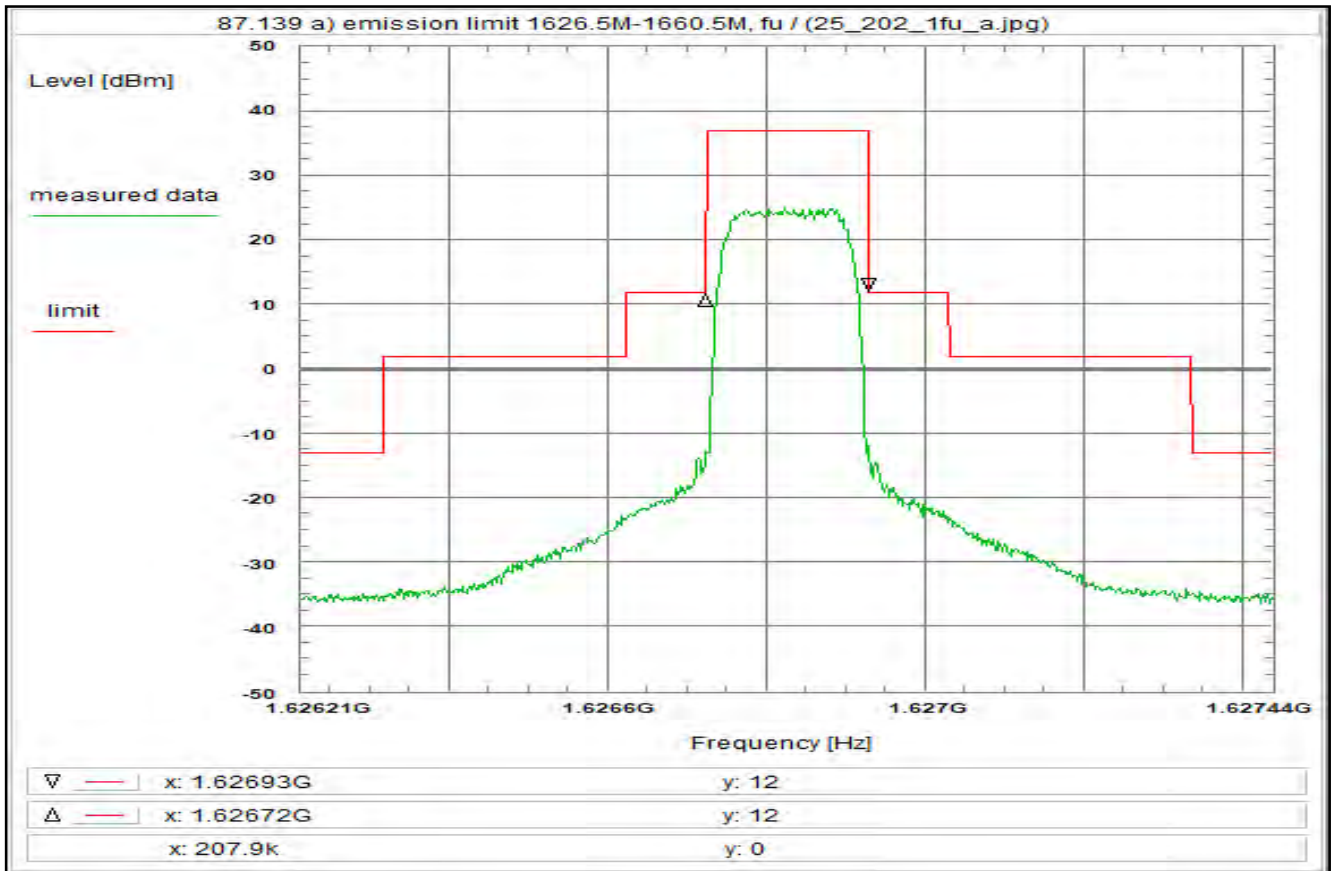
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

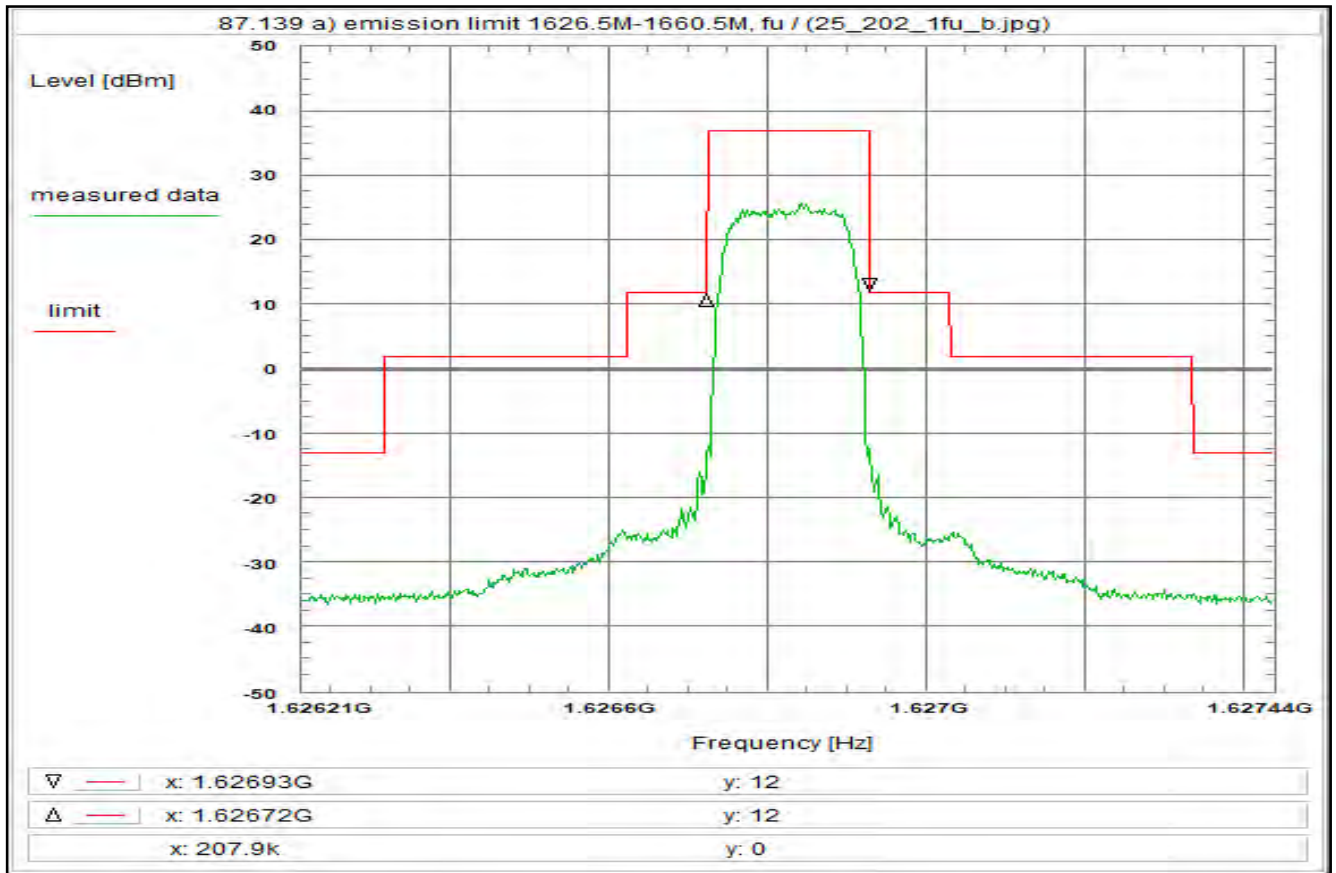
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

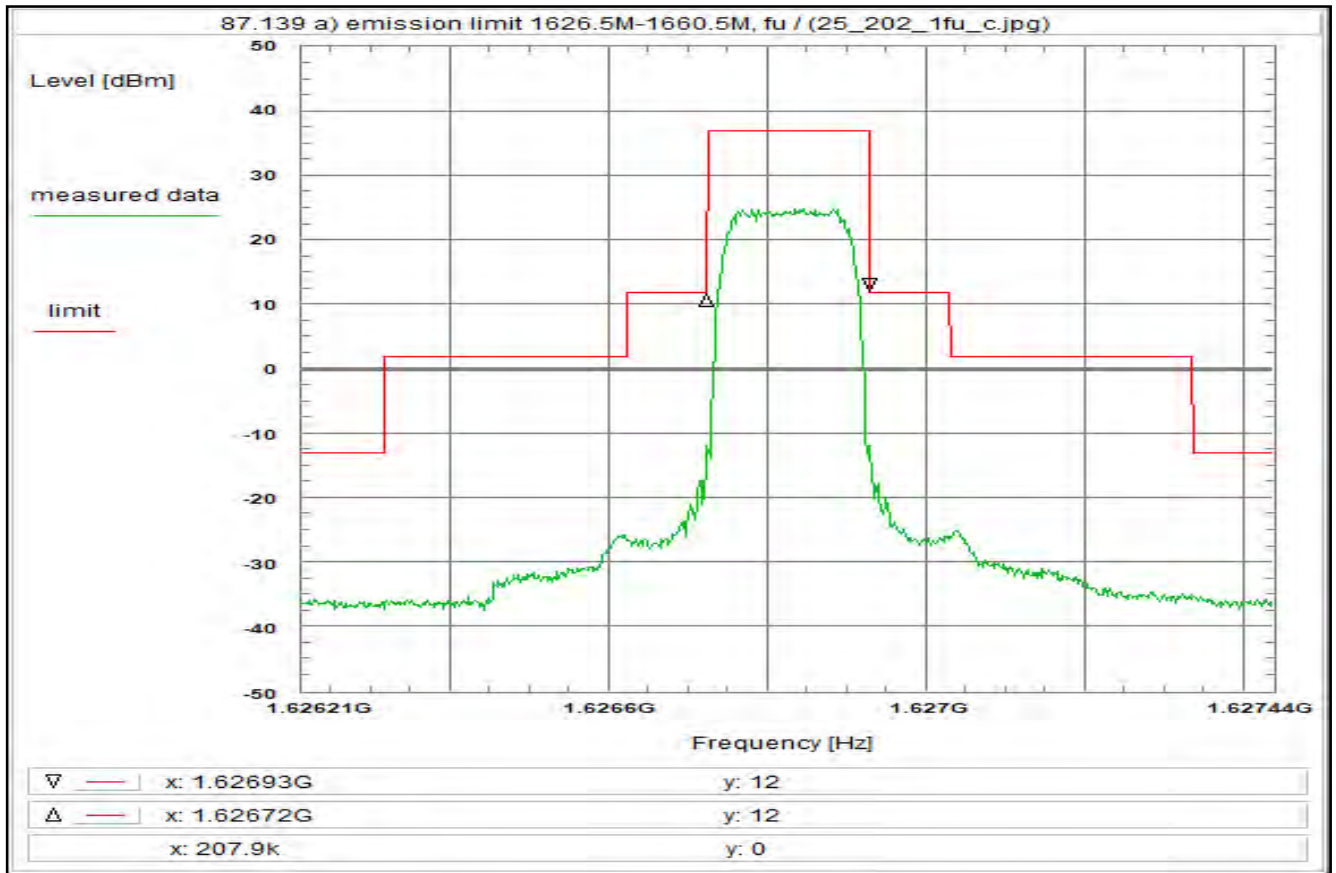
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

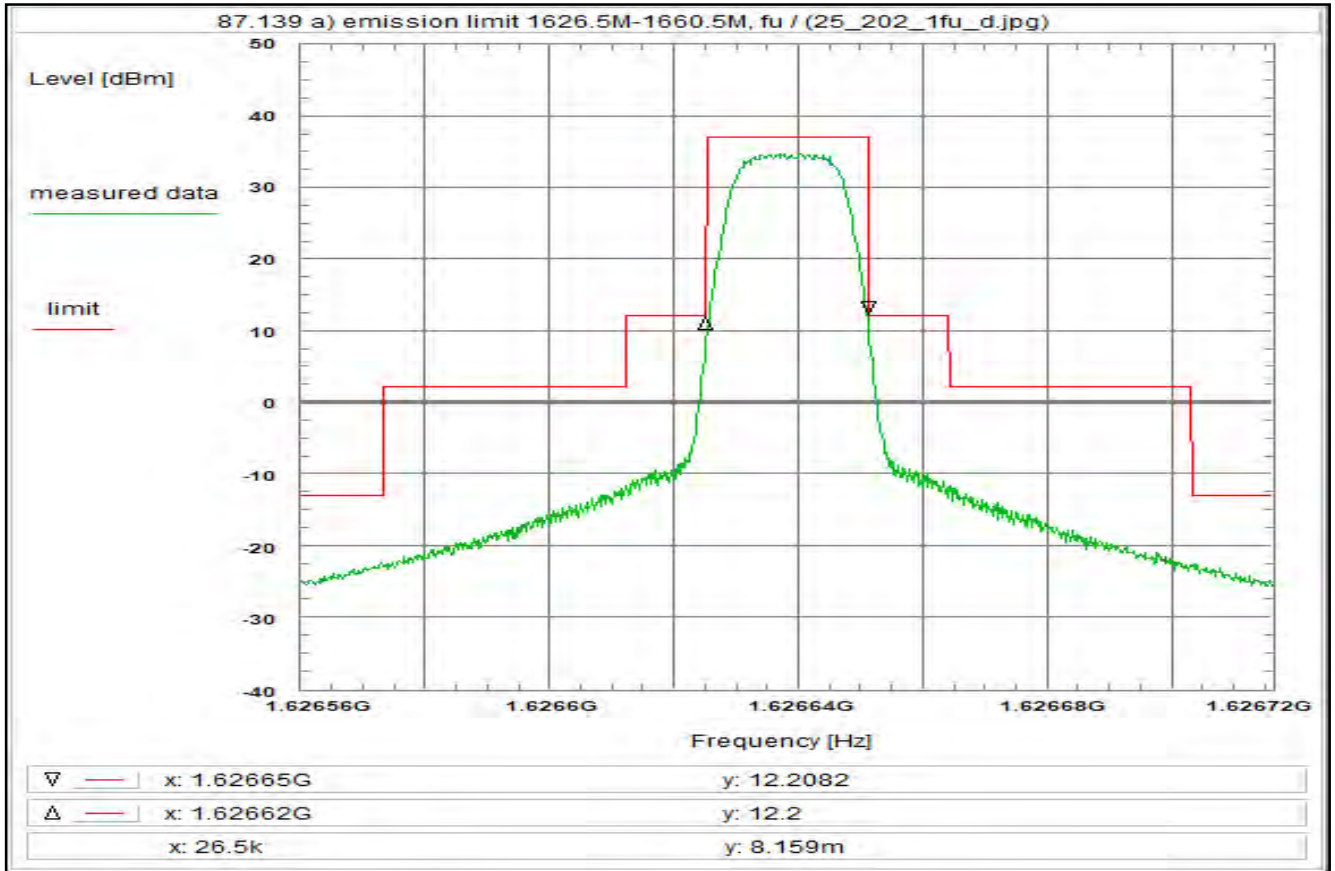
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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+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 passed

Environment 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:

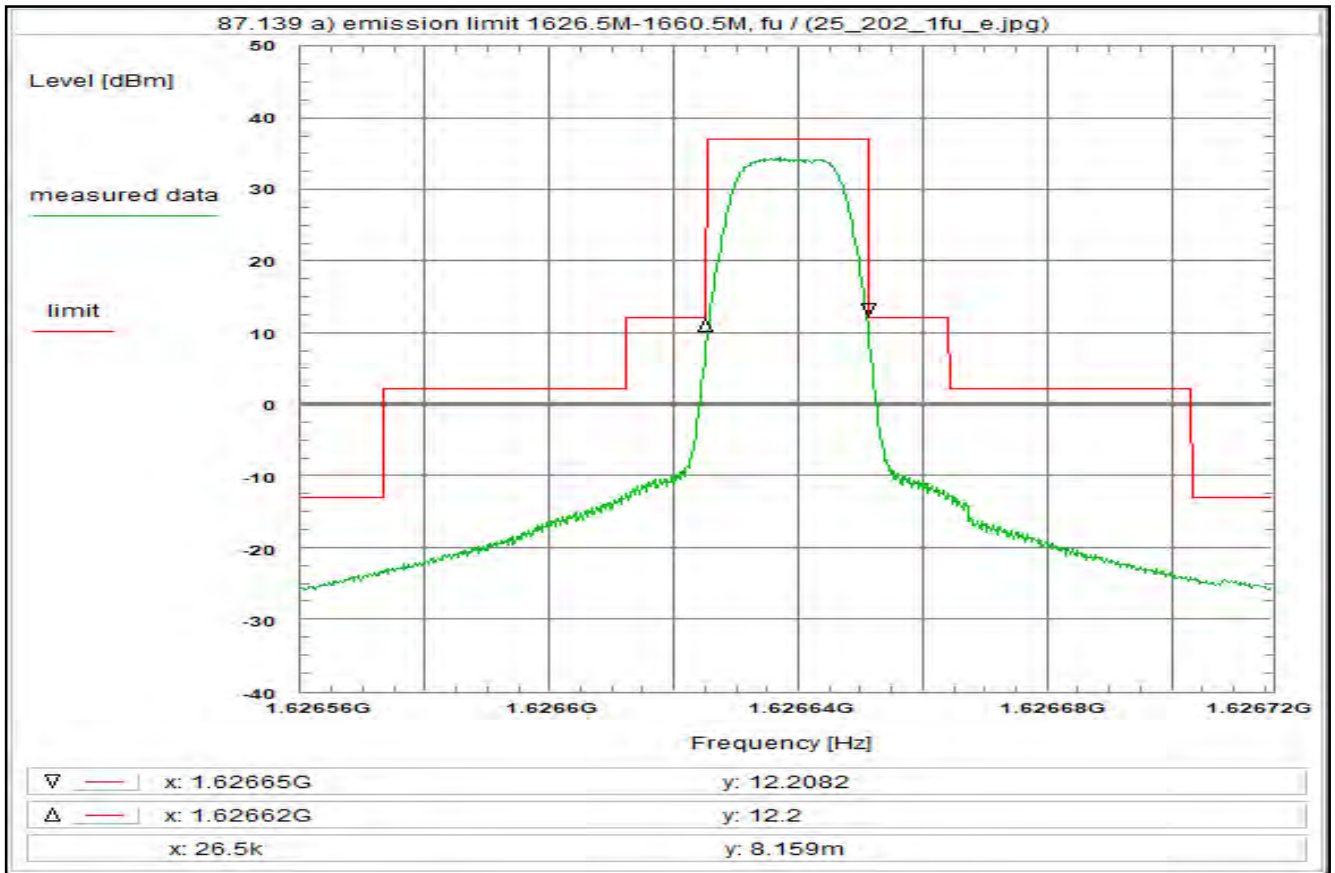
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

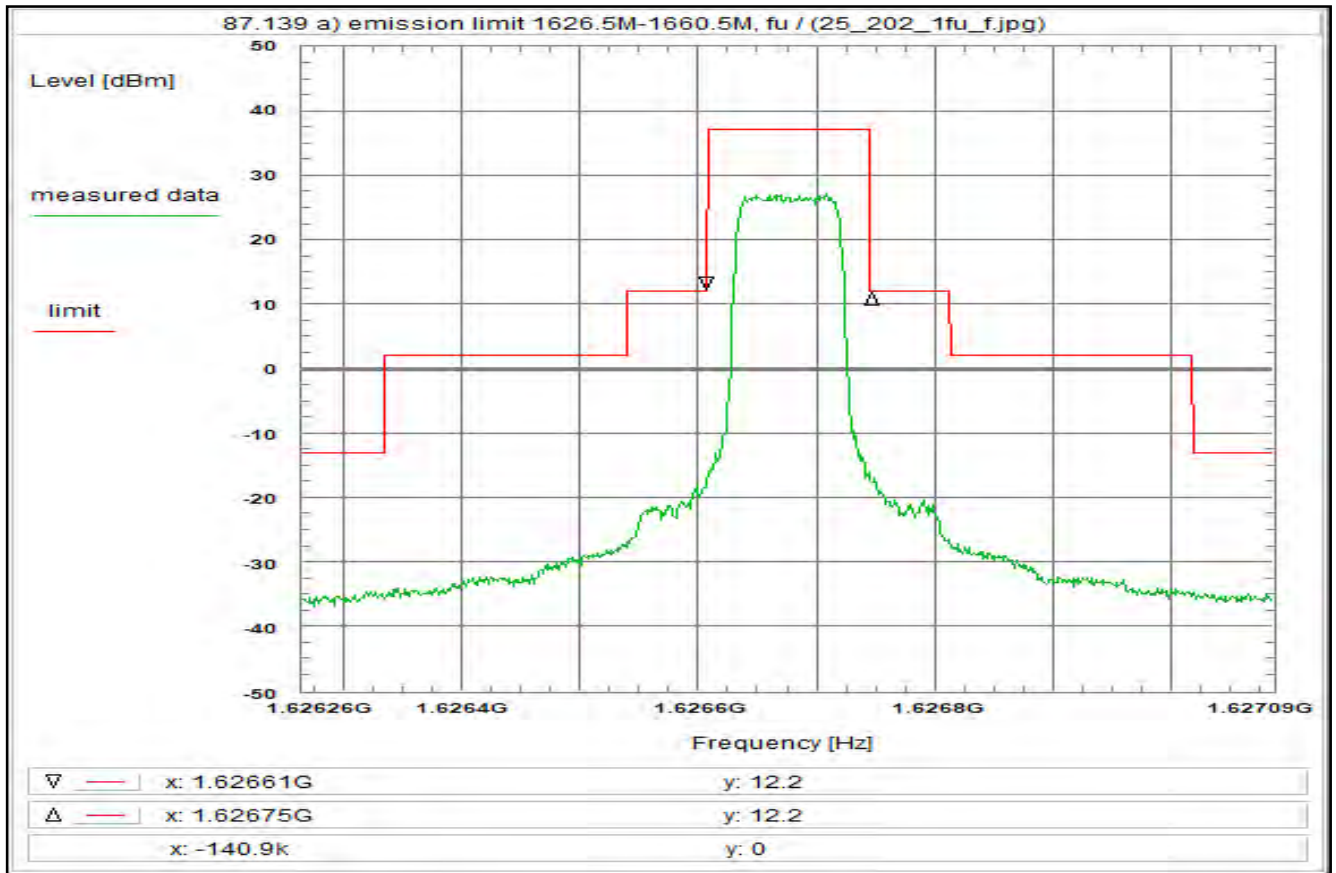
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

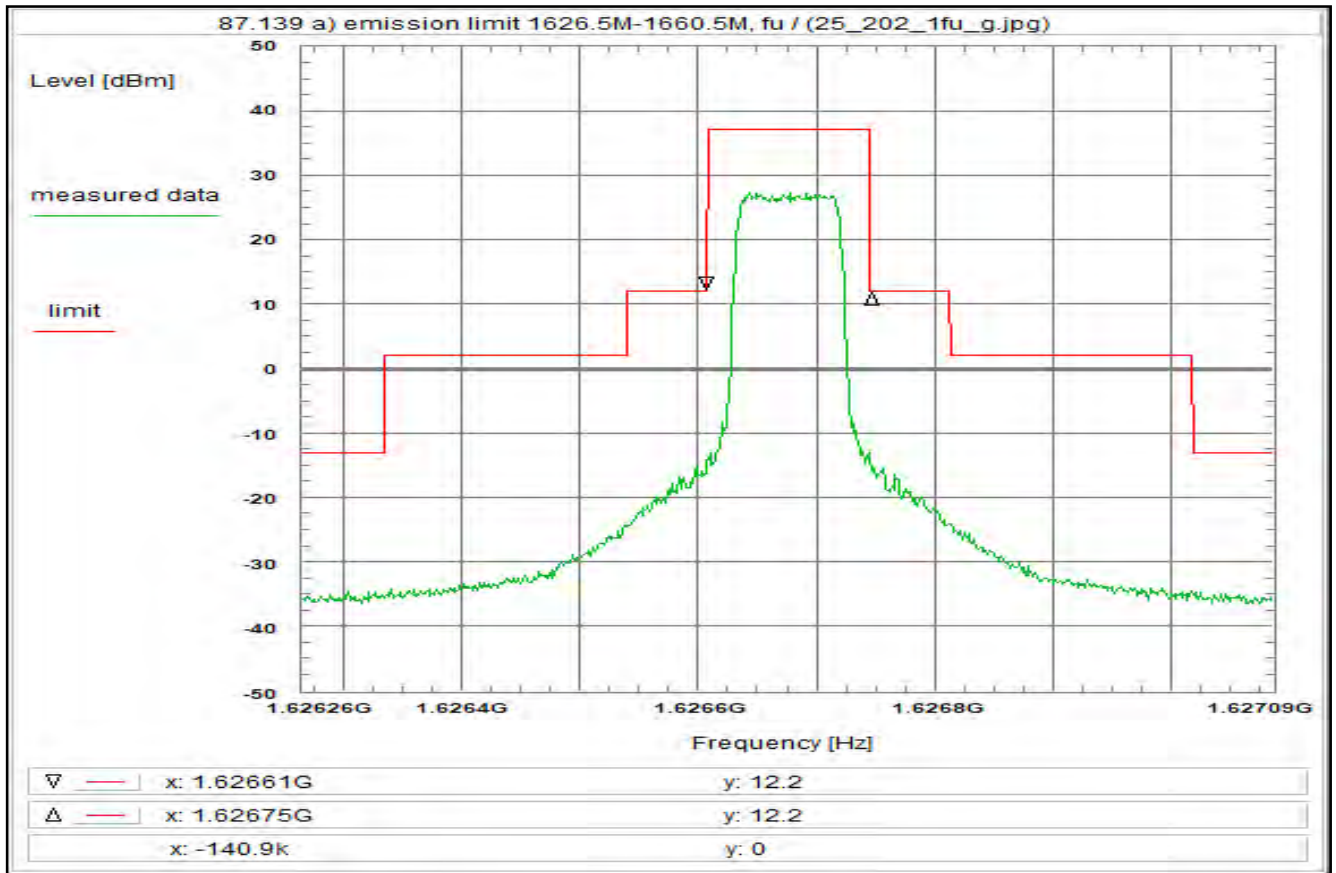
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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:

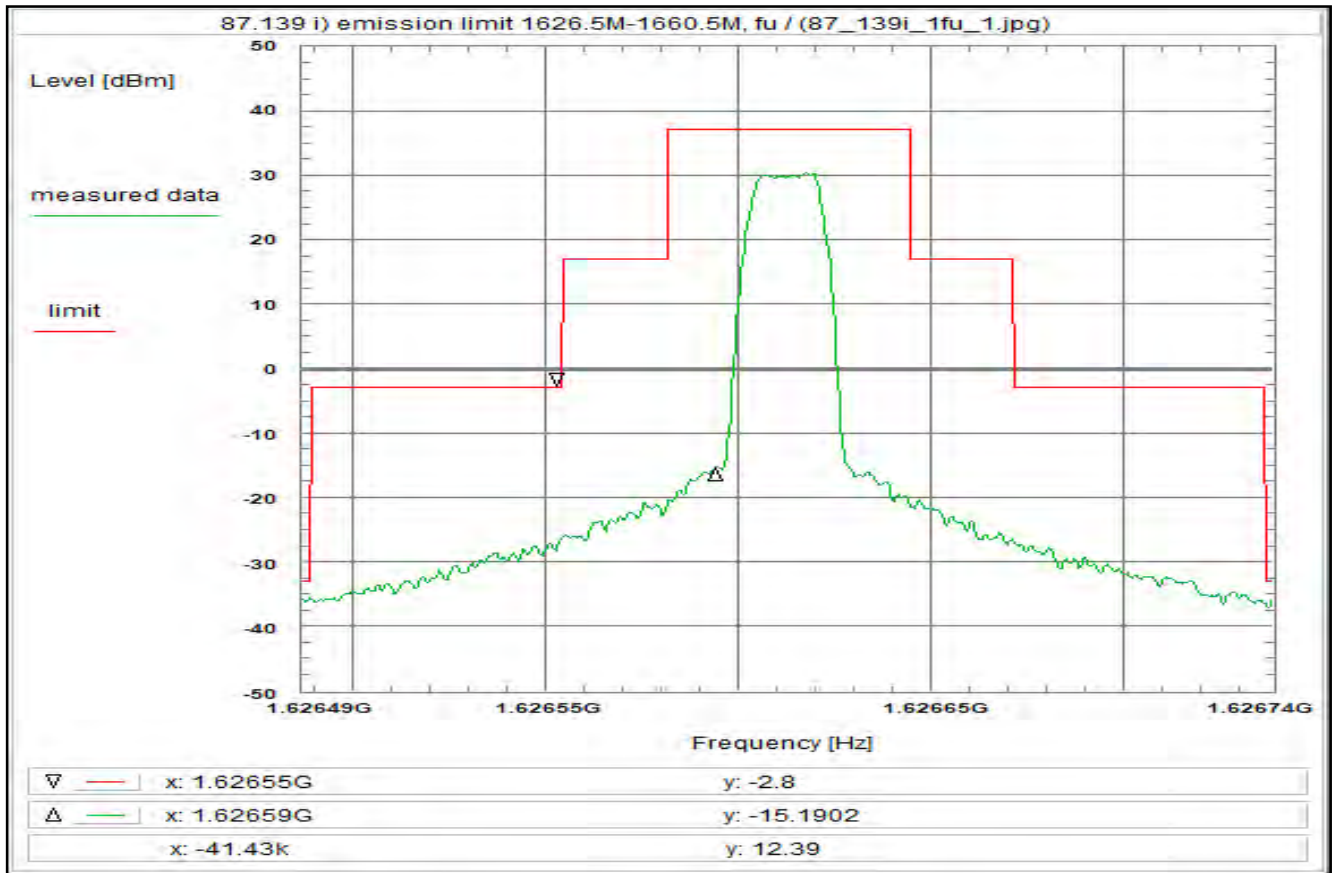
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 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 10:44:36
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

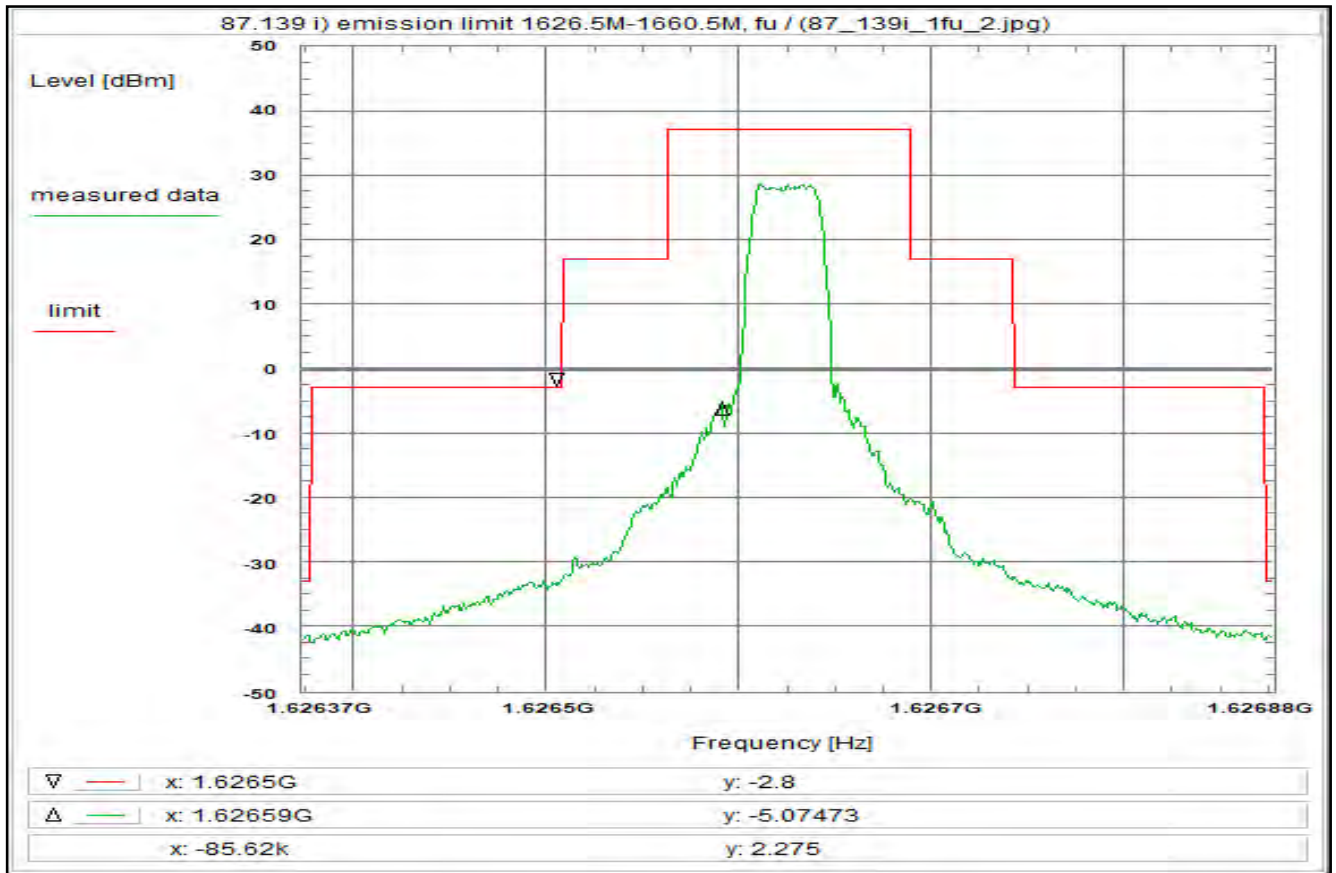
Remarks:

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 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 10:50:41
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

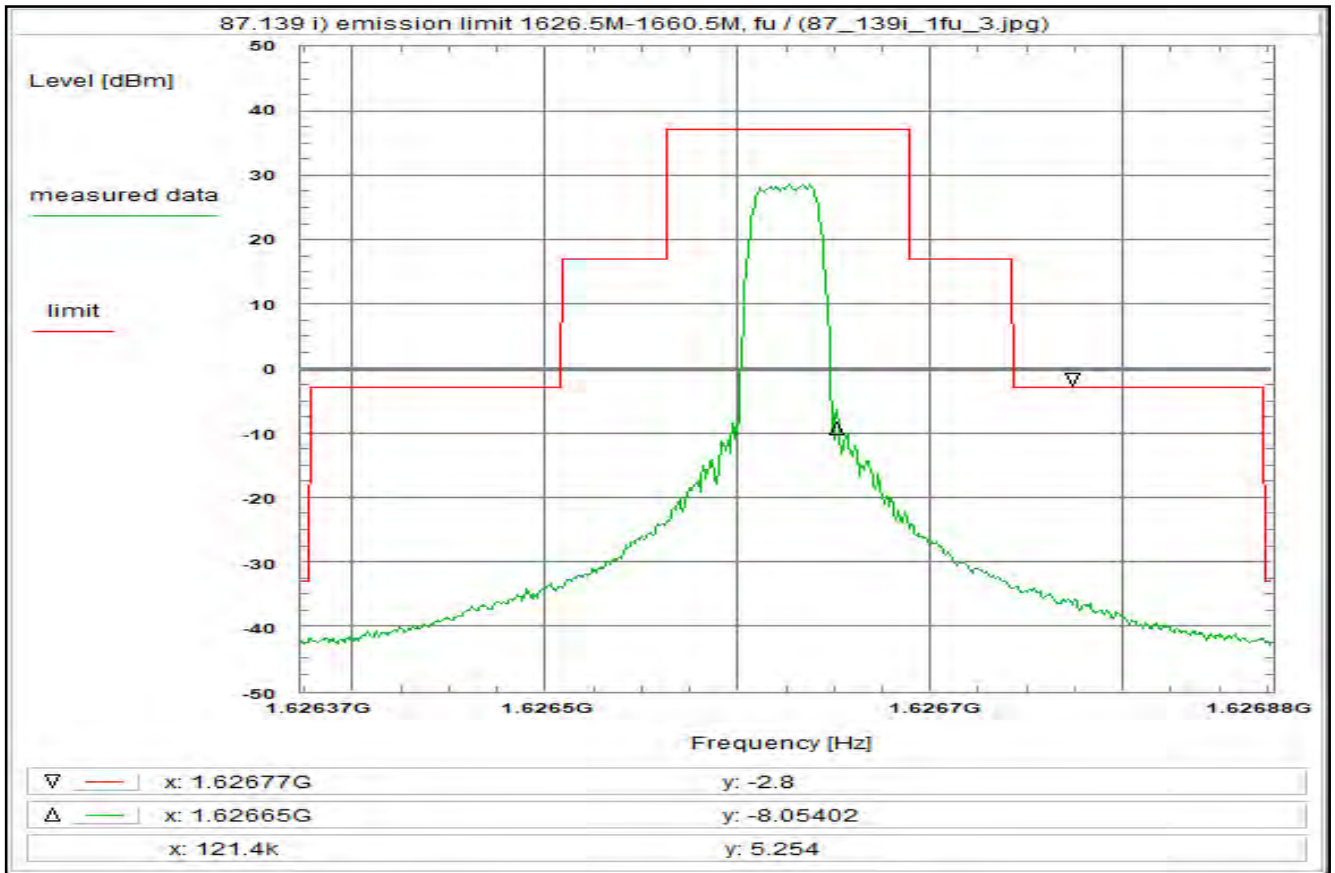
Remarks:

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 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 10:52:22
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

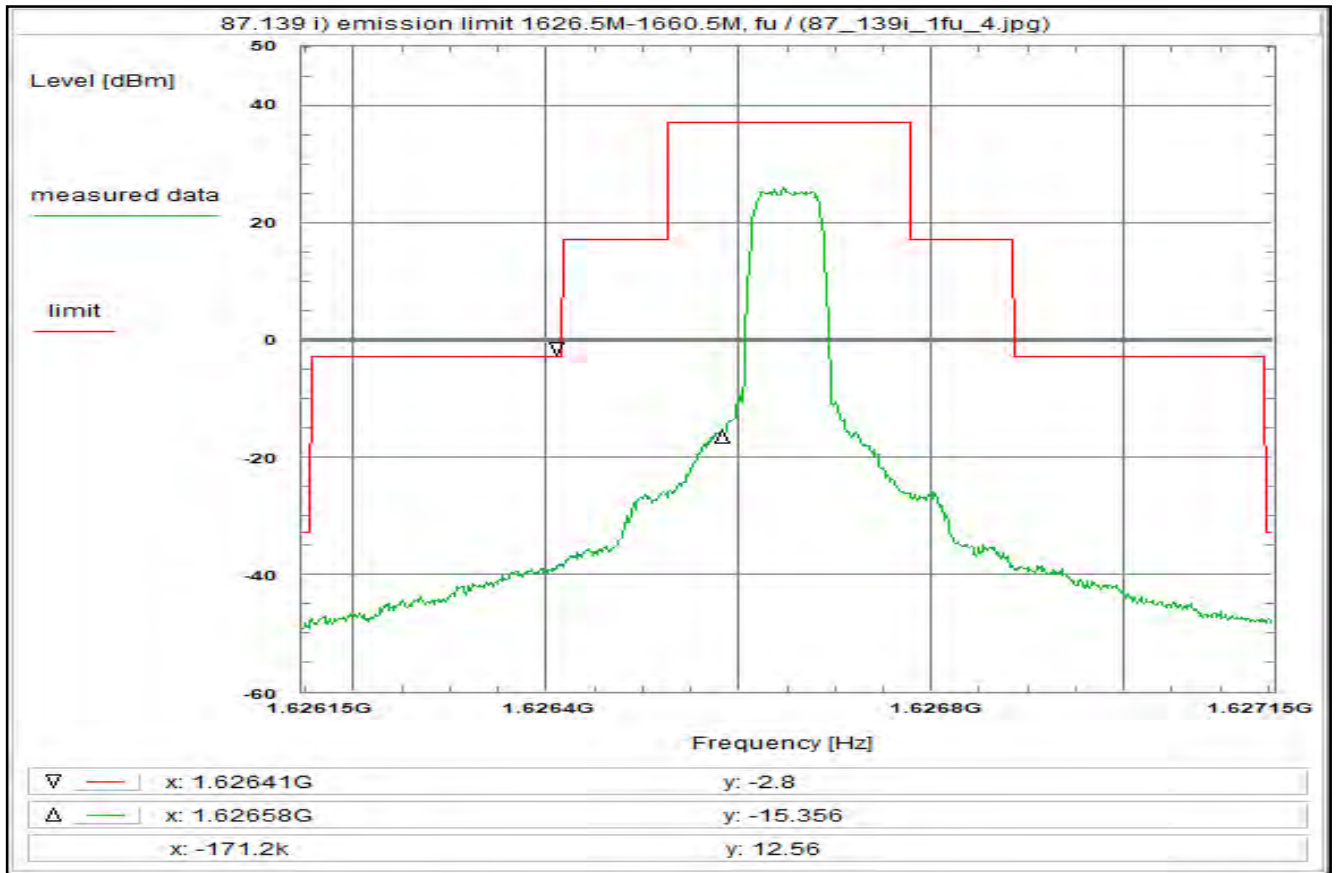
Remarks:

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

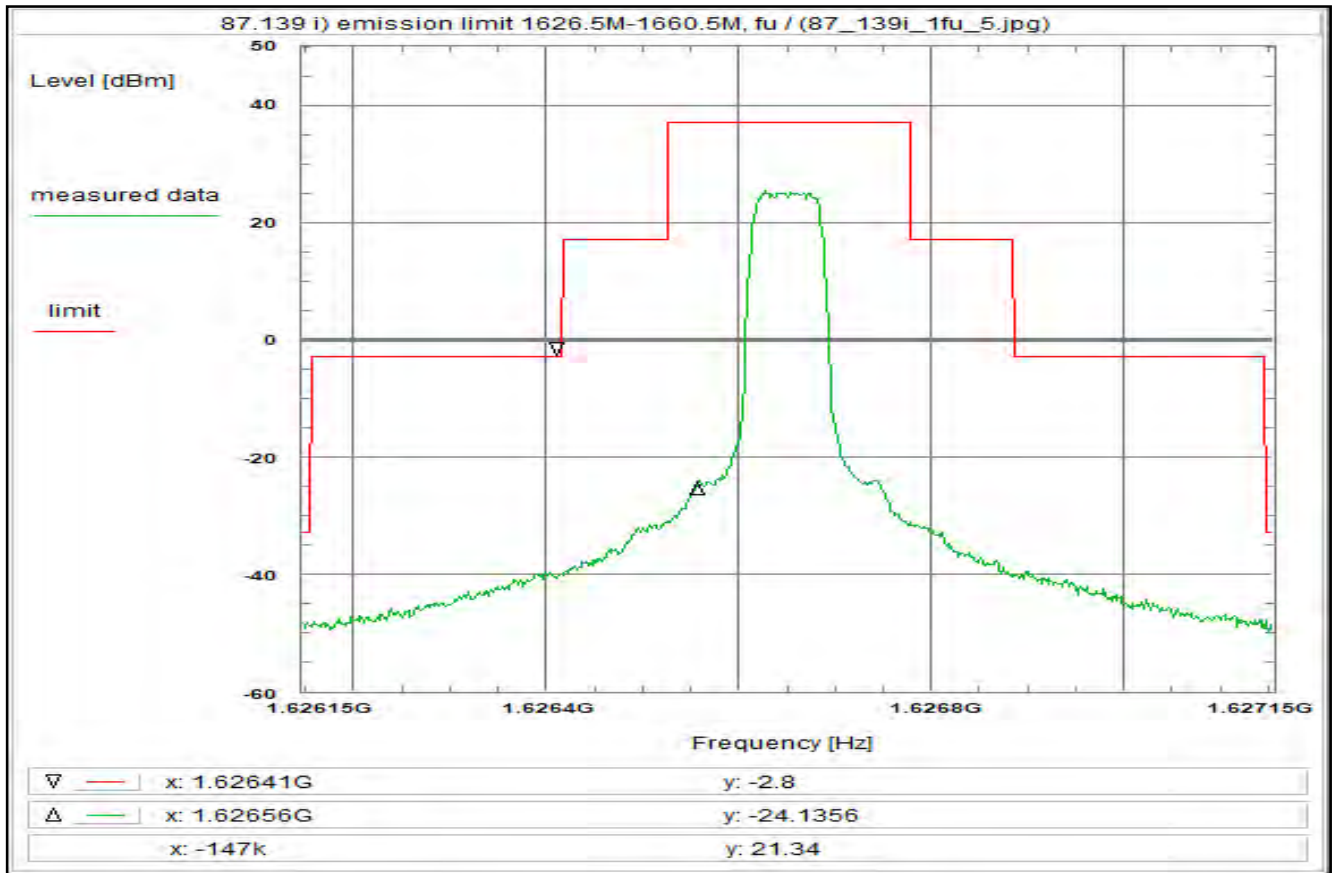
Remarks:

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 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 11:12:35
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

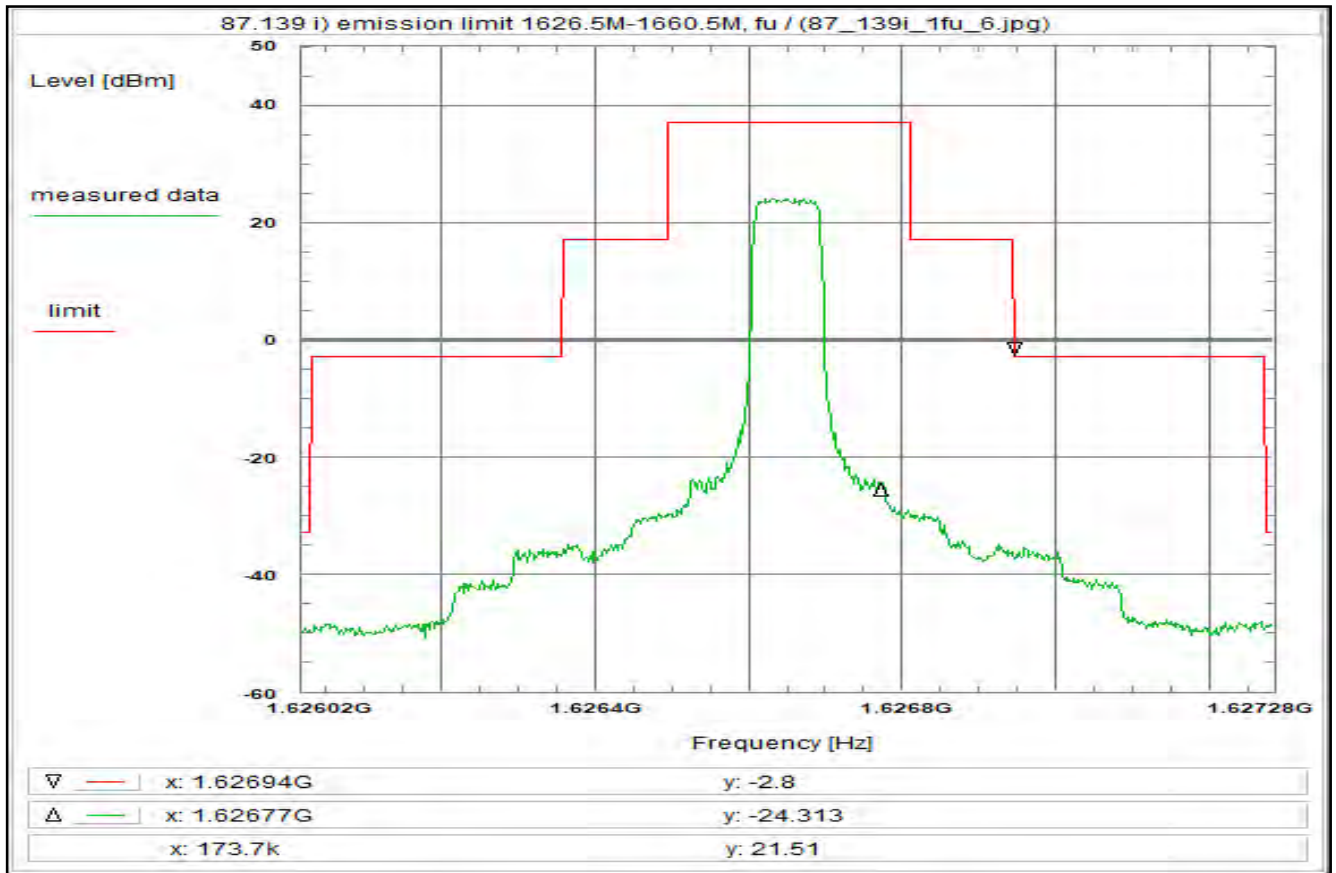
Remarks:

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

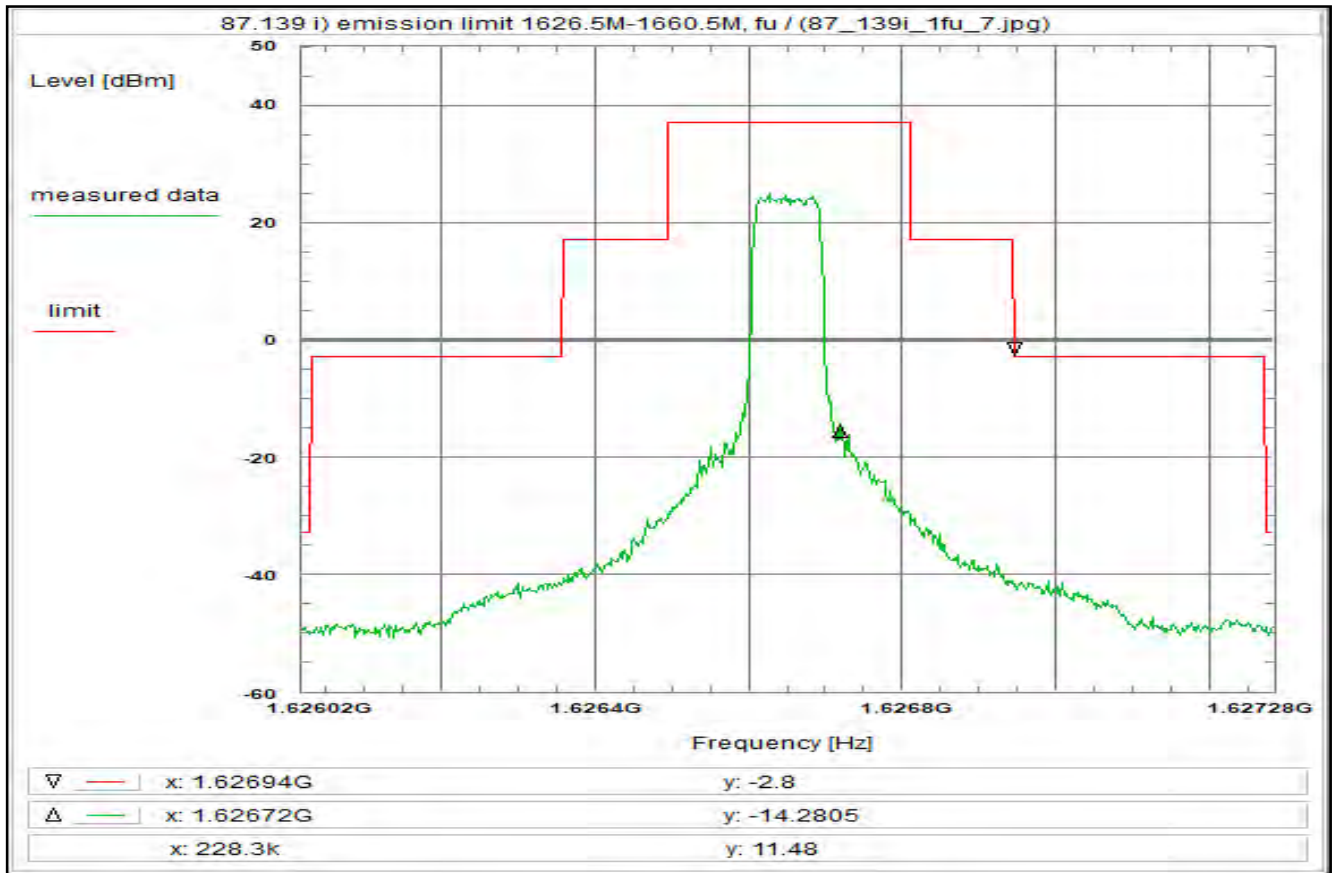
Remarks:

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

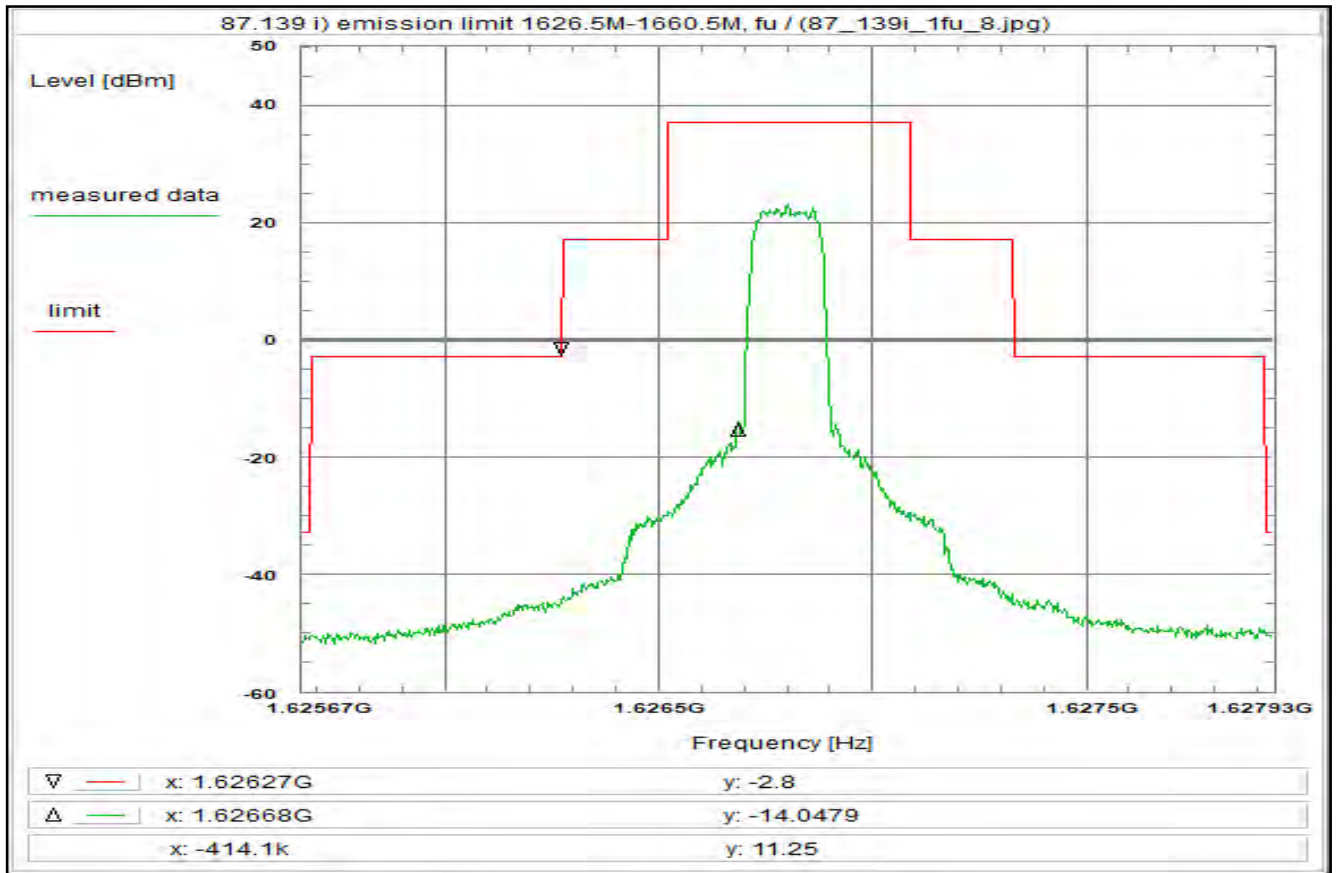
Remarks:

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 ksymb/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

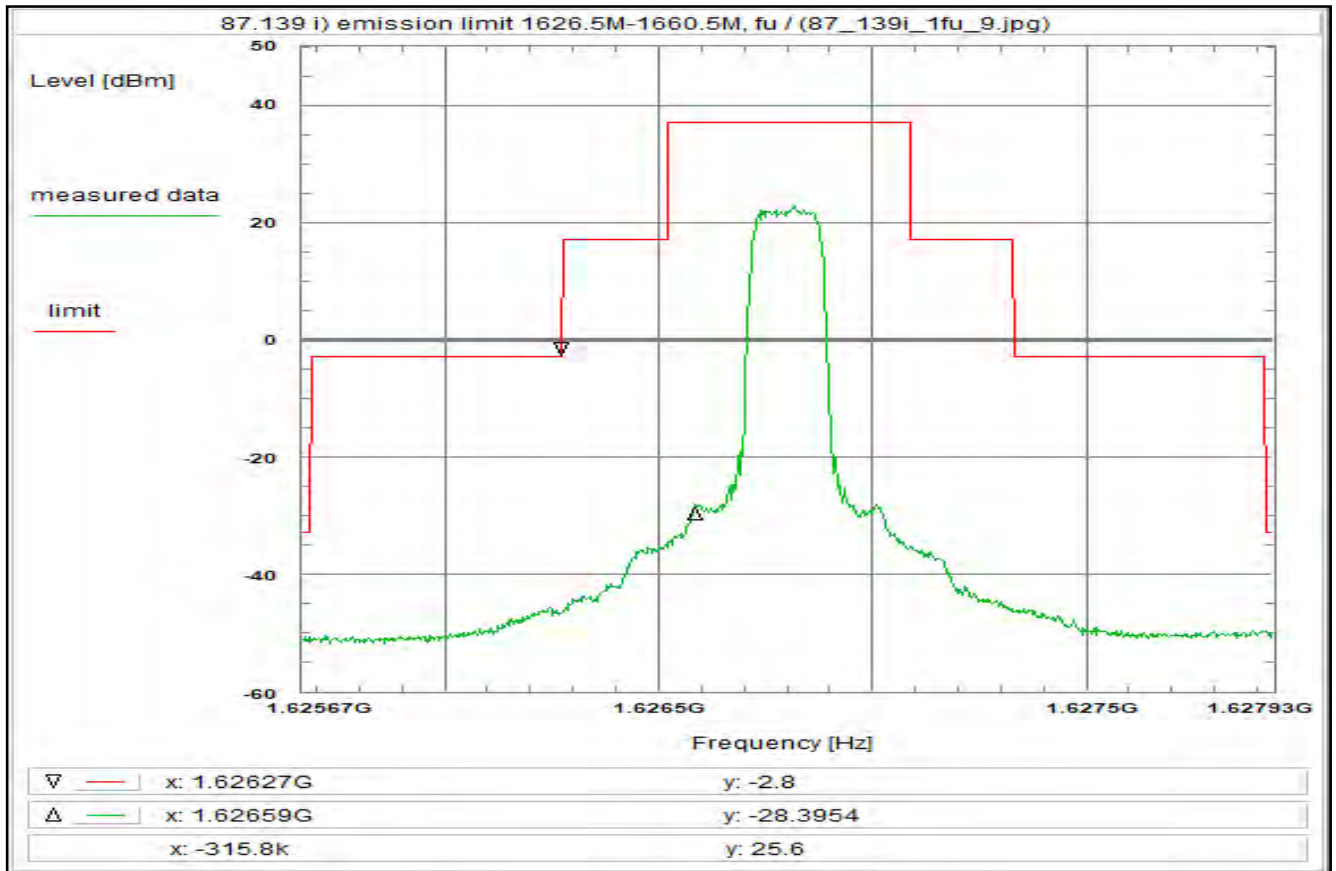
Remarks:

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

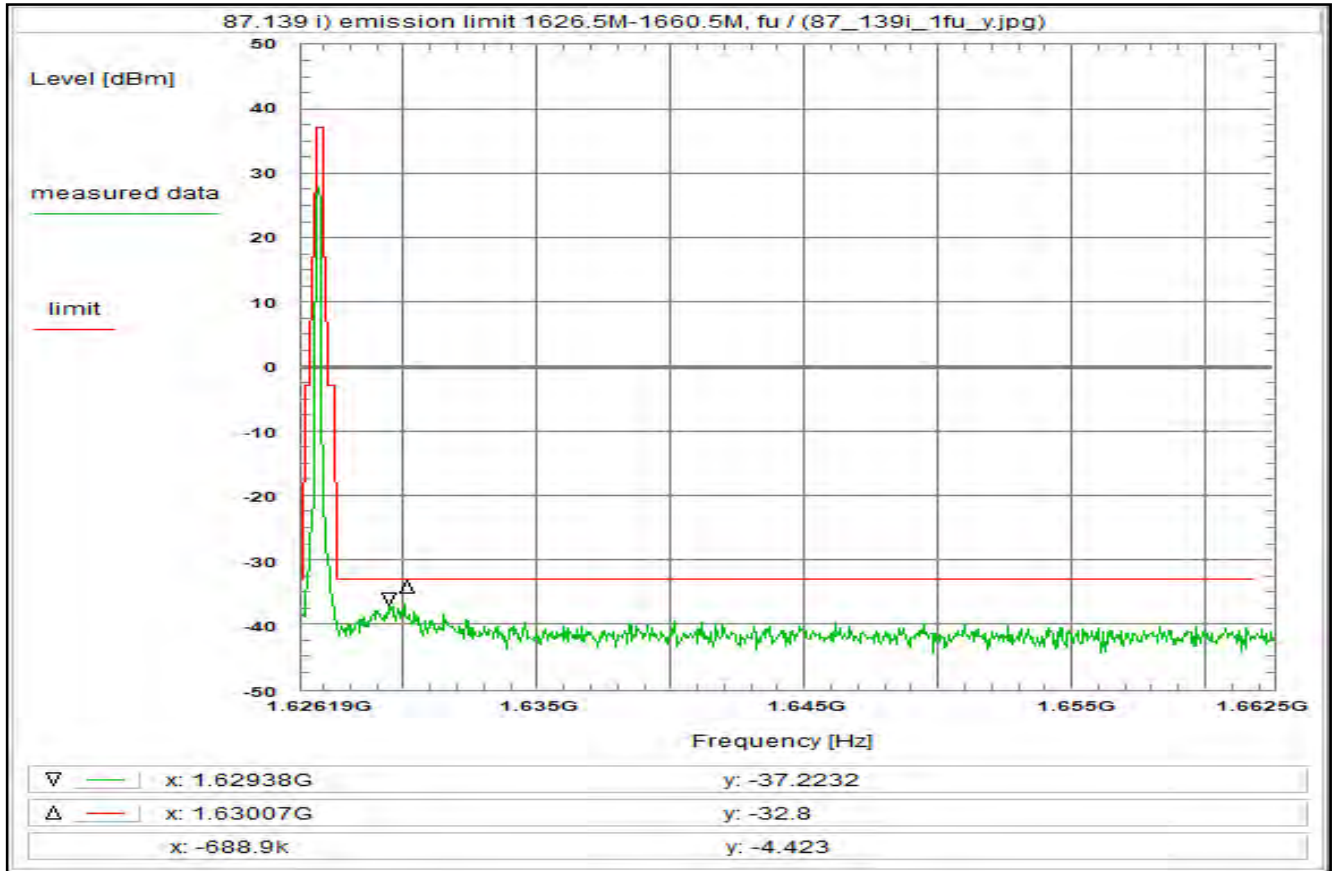
Remarks:

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

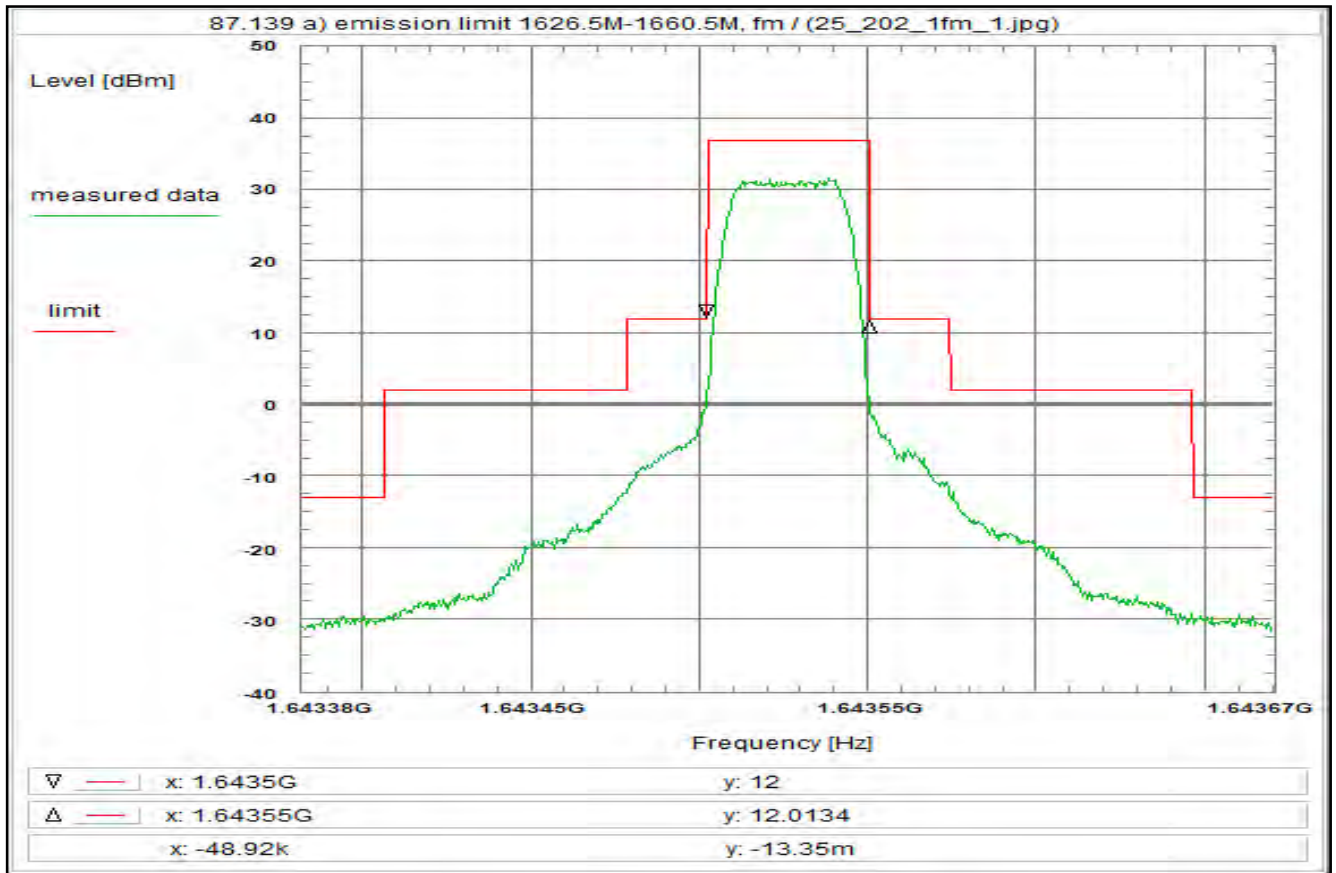
Remarks:

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: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment 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:

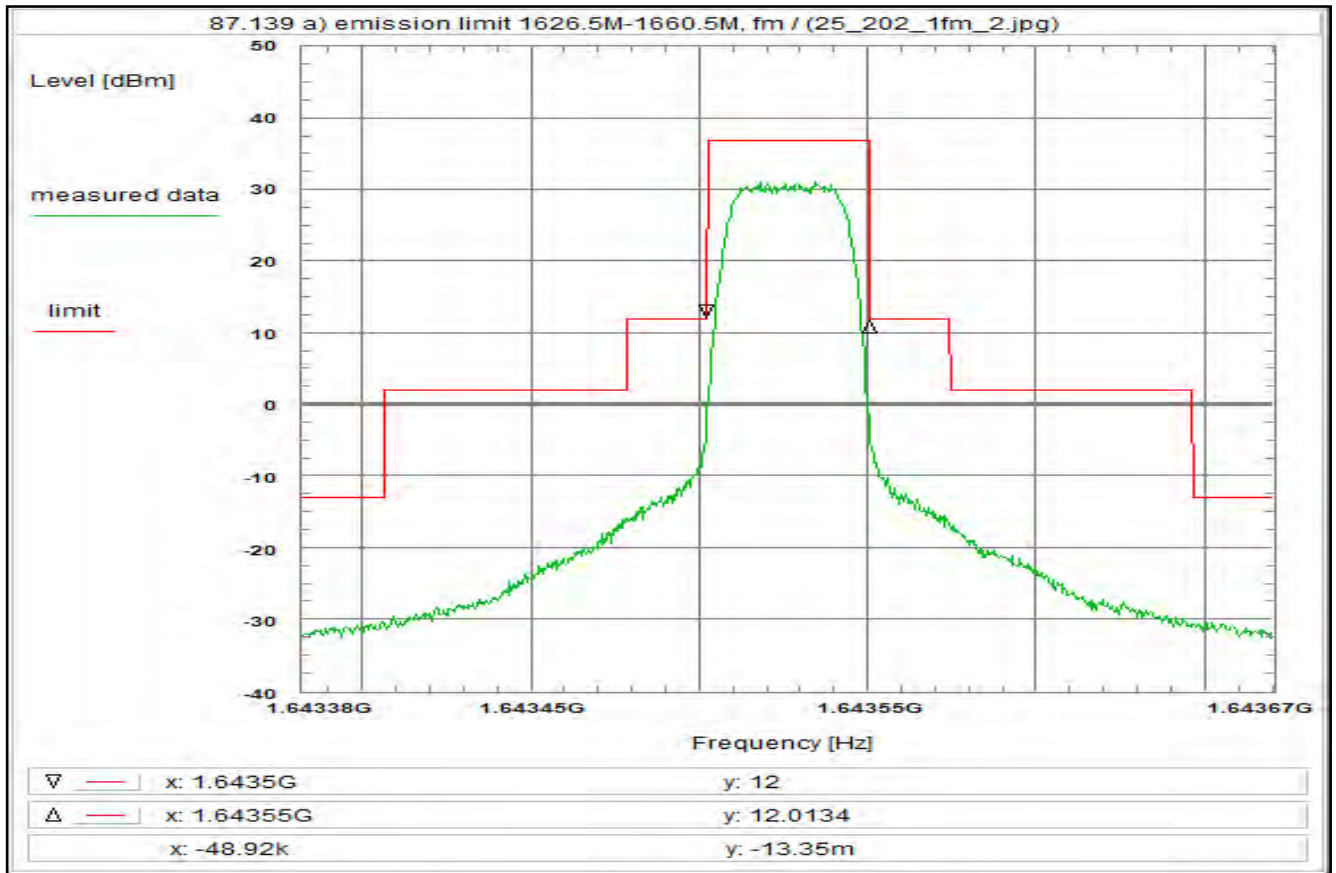
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

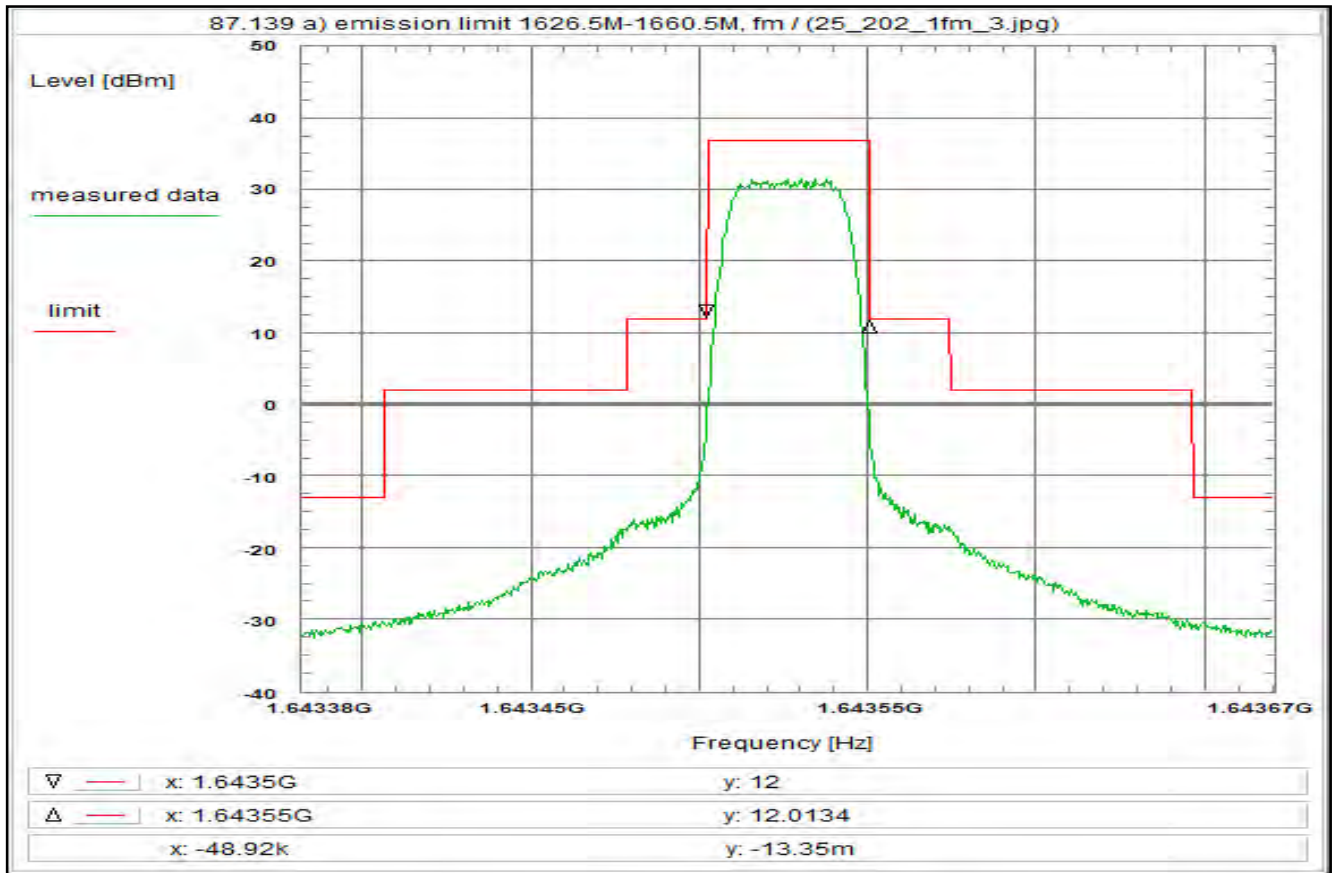
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 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:

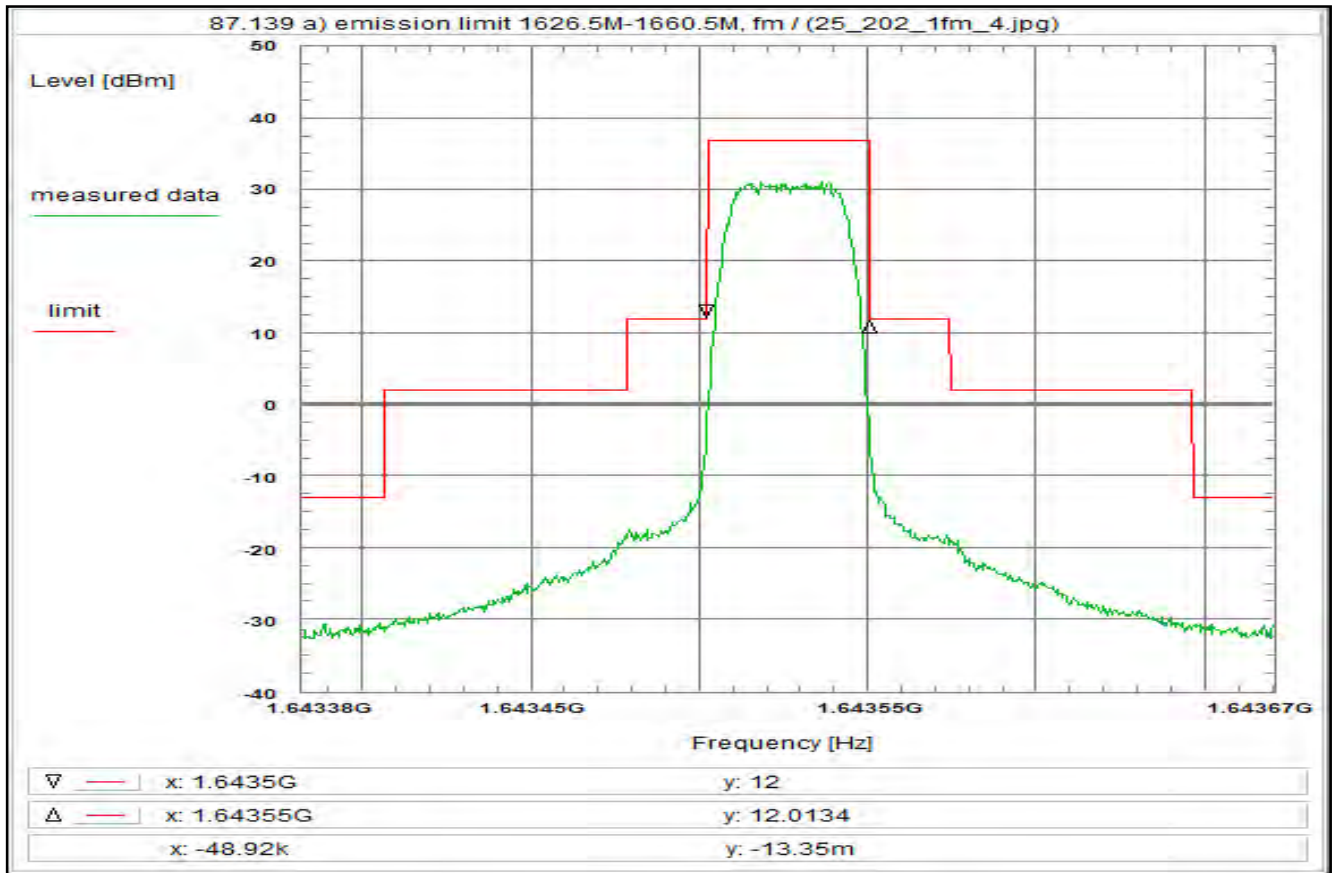
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

Remarks:

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

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

Plot No. 78



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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment condition:

Date & Time: Mon 29/Jun/2020 12:00:08
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:

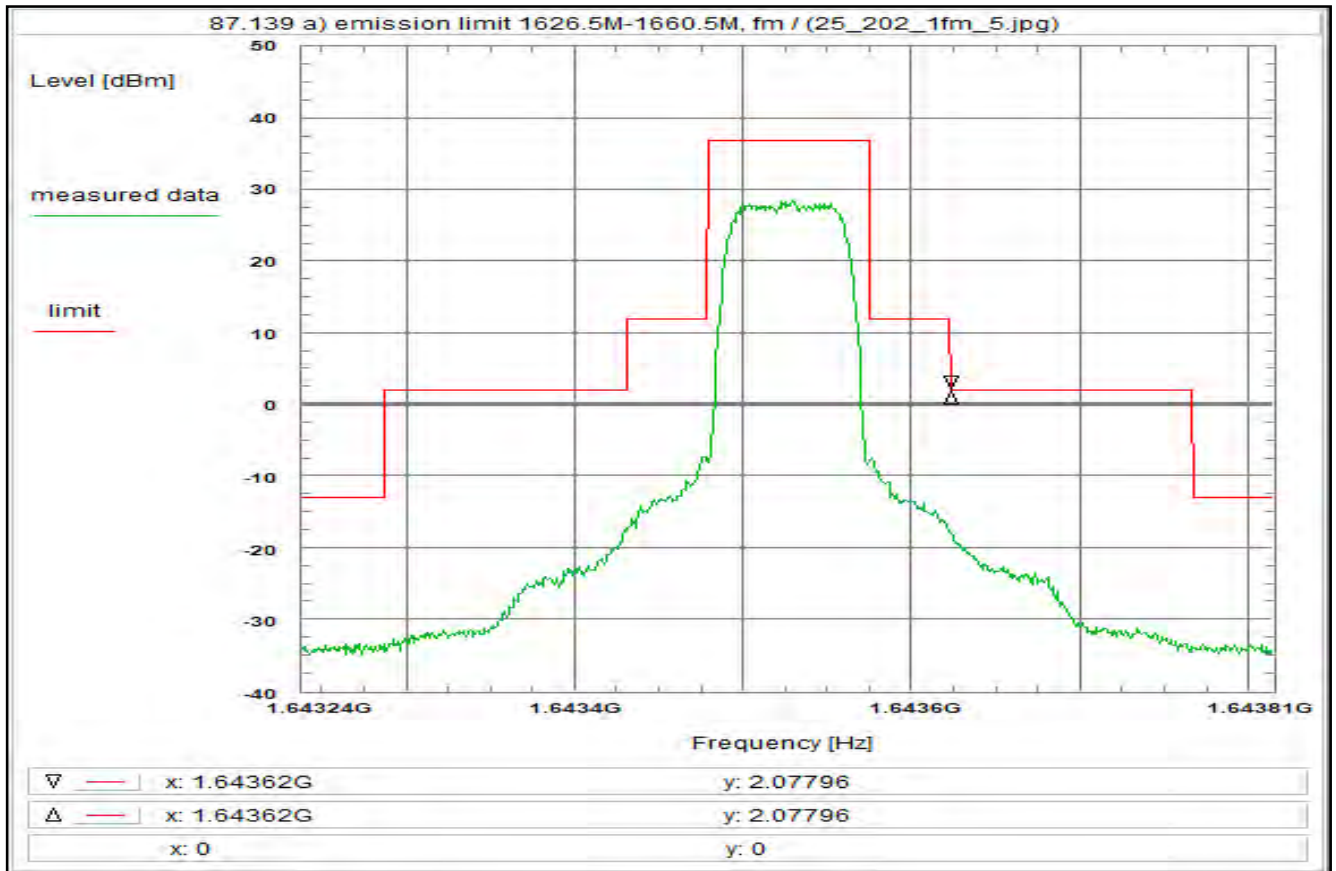
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

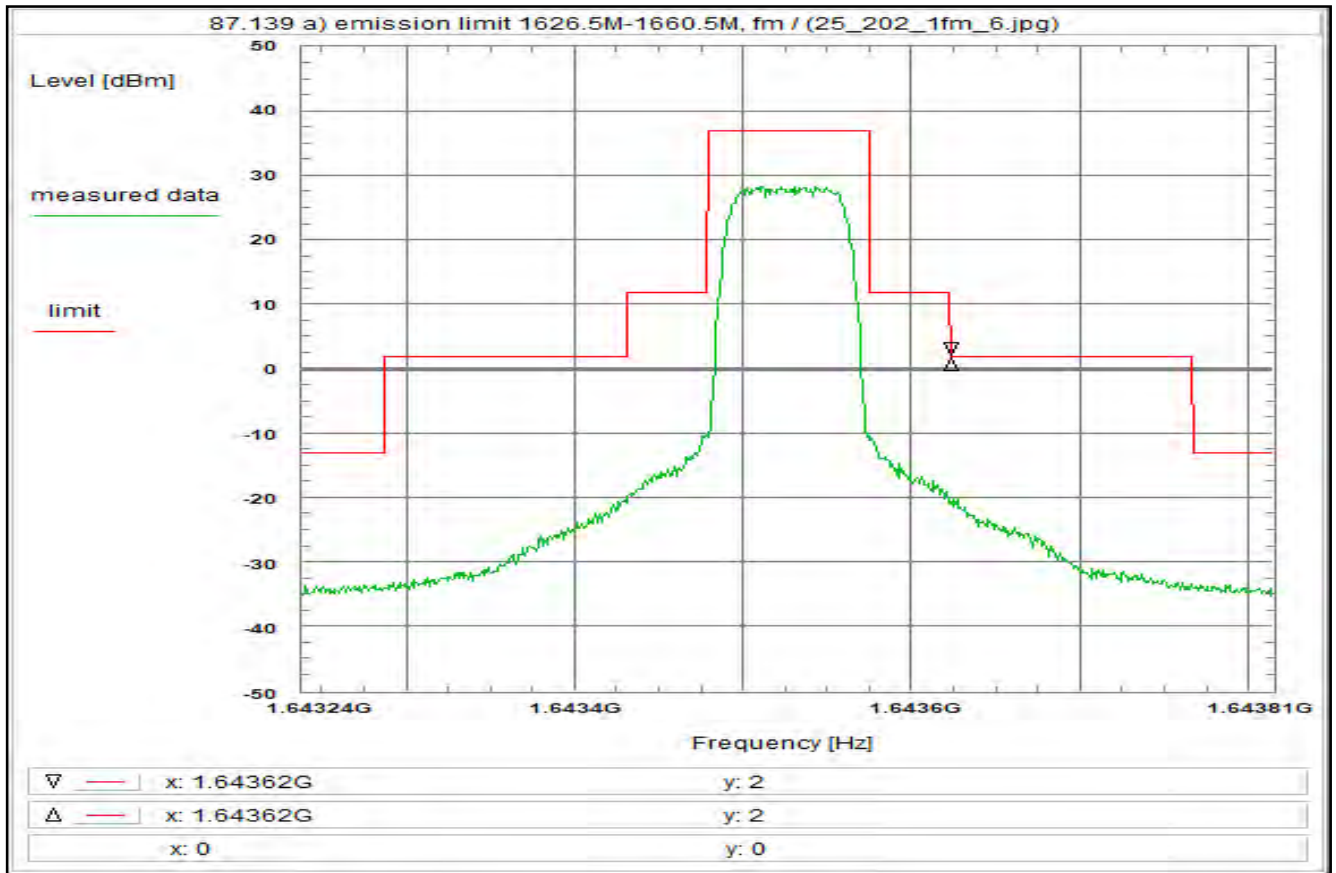
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

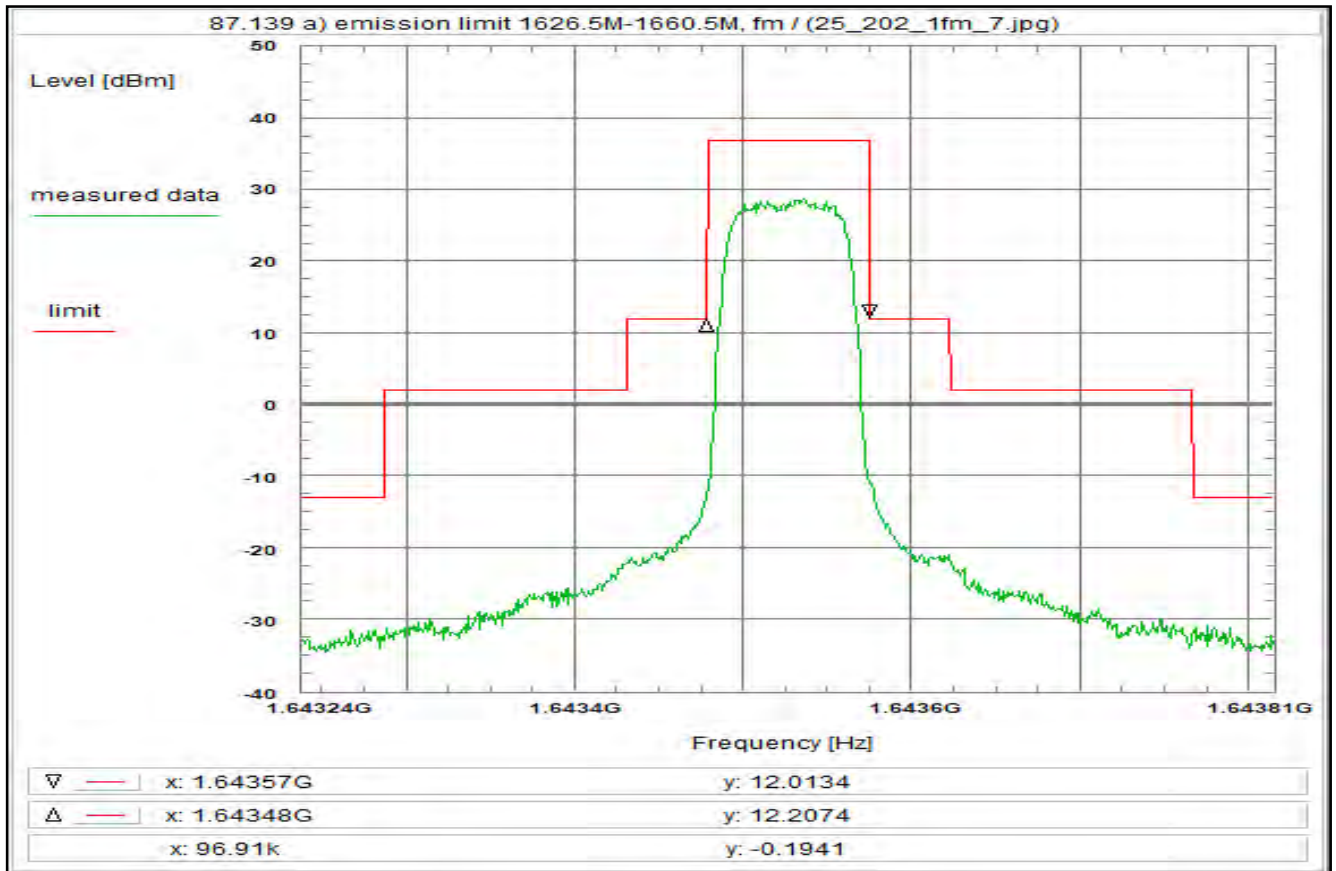
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

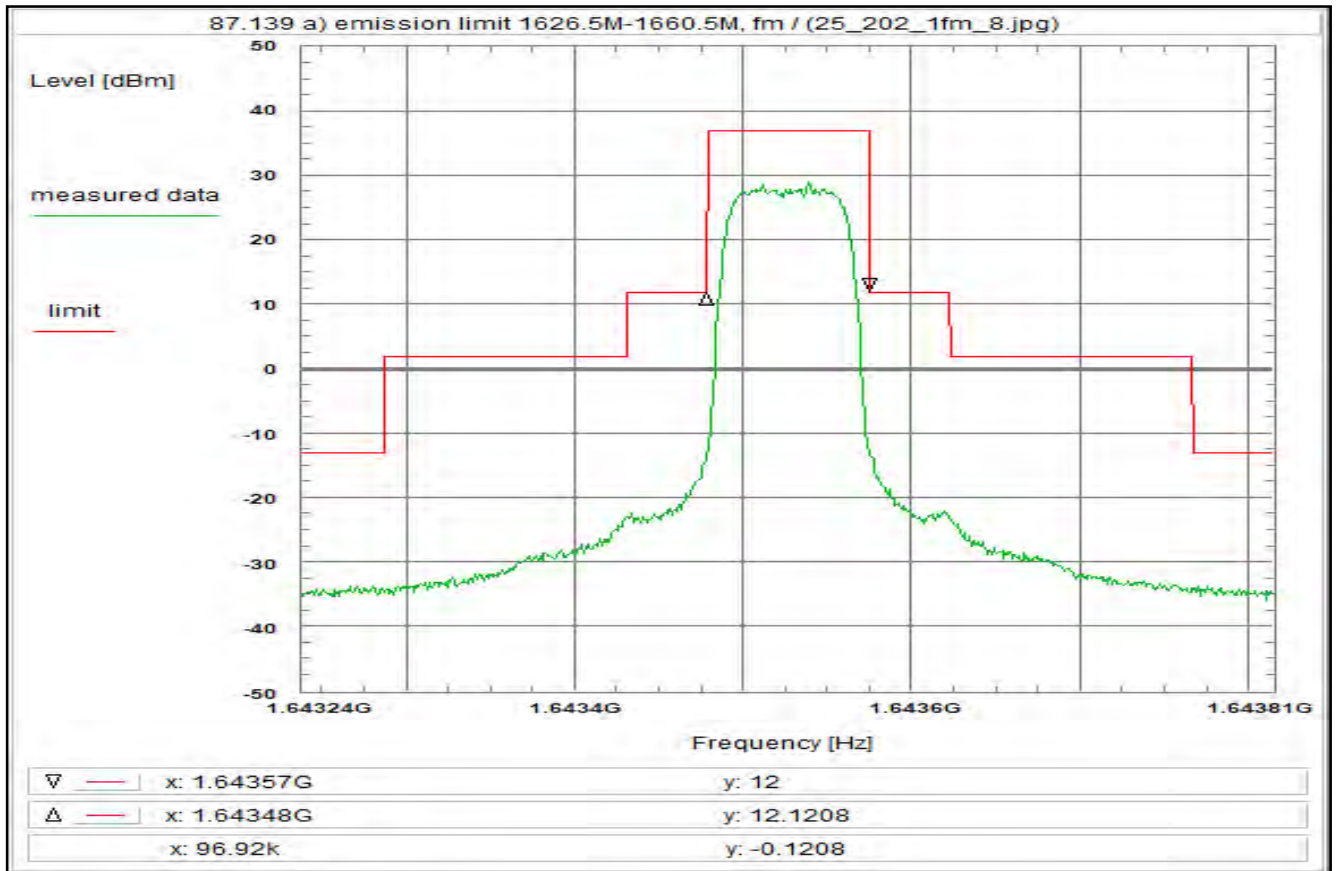
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

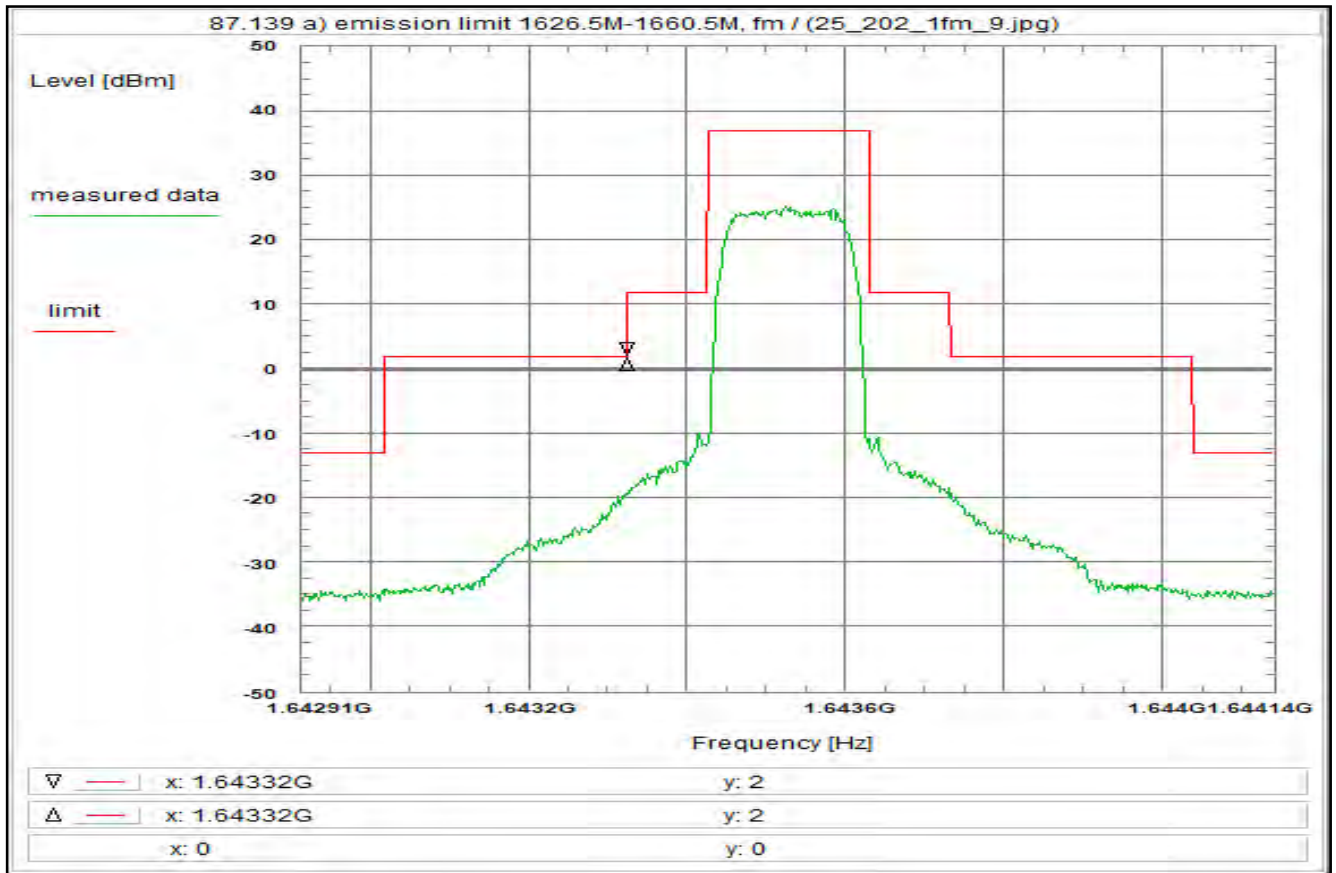
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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: $-43+10\log(P_{max})\text{dBc}/4\text{kHz} = -43\text{ dBW}$

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment 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:

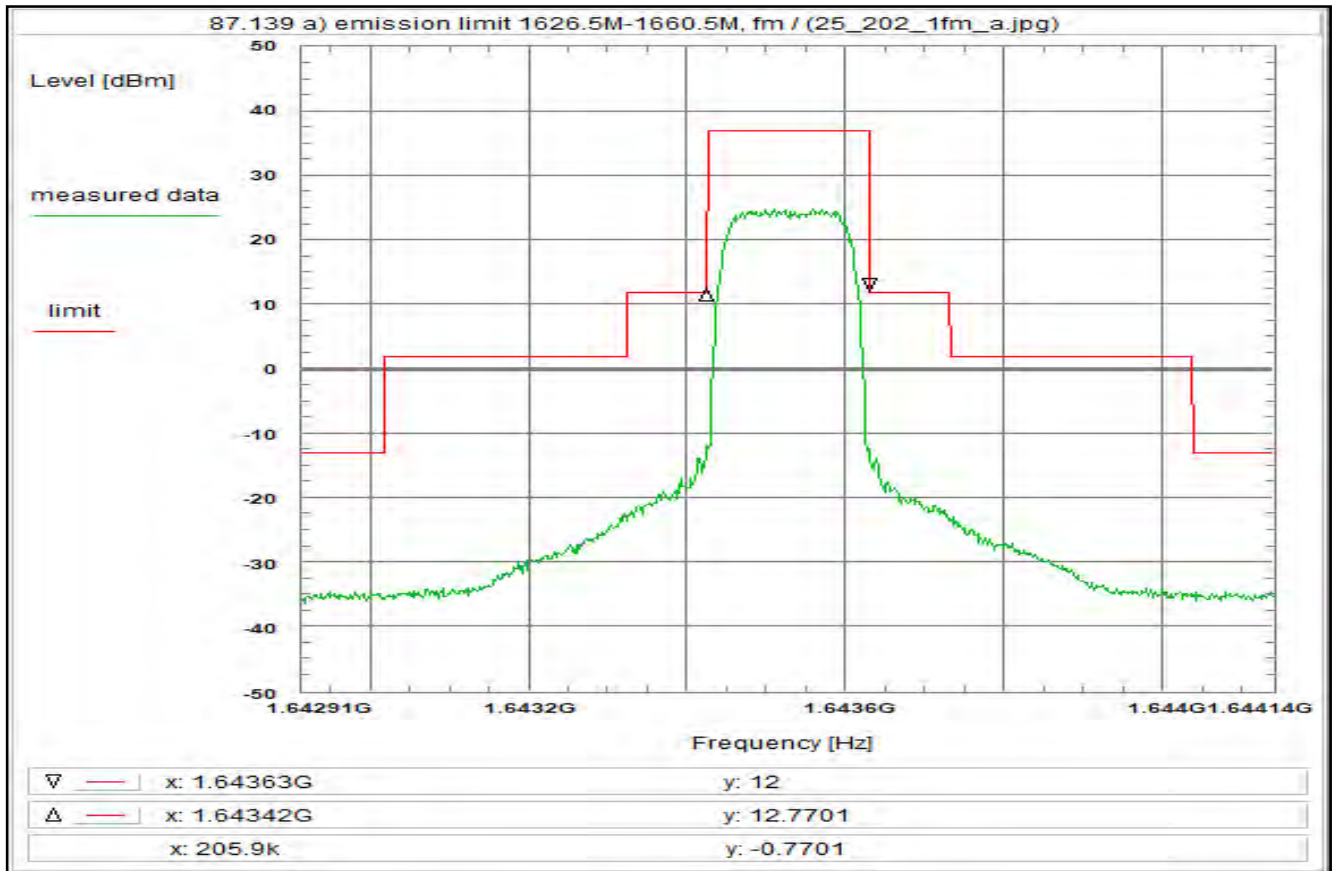
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment 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:

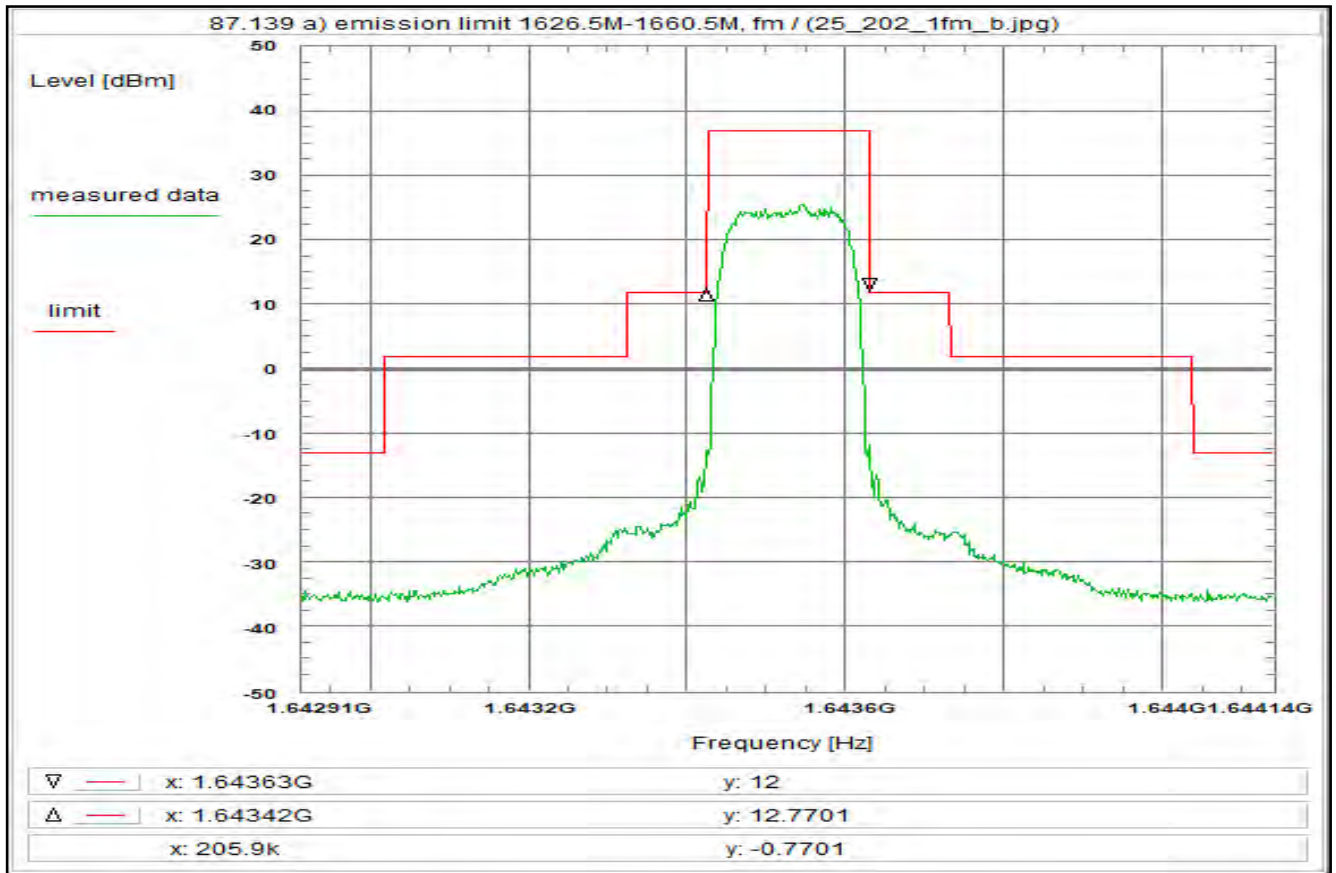
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

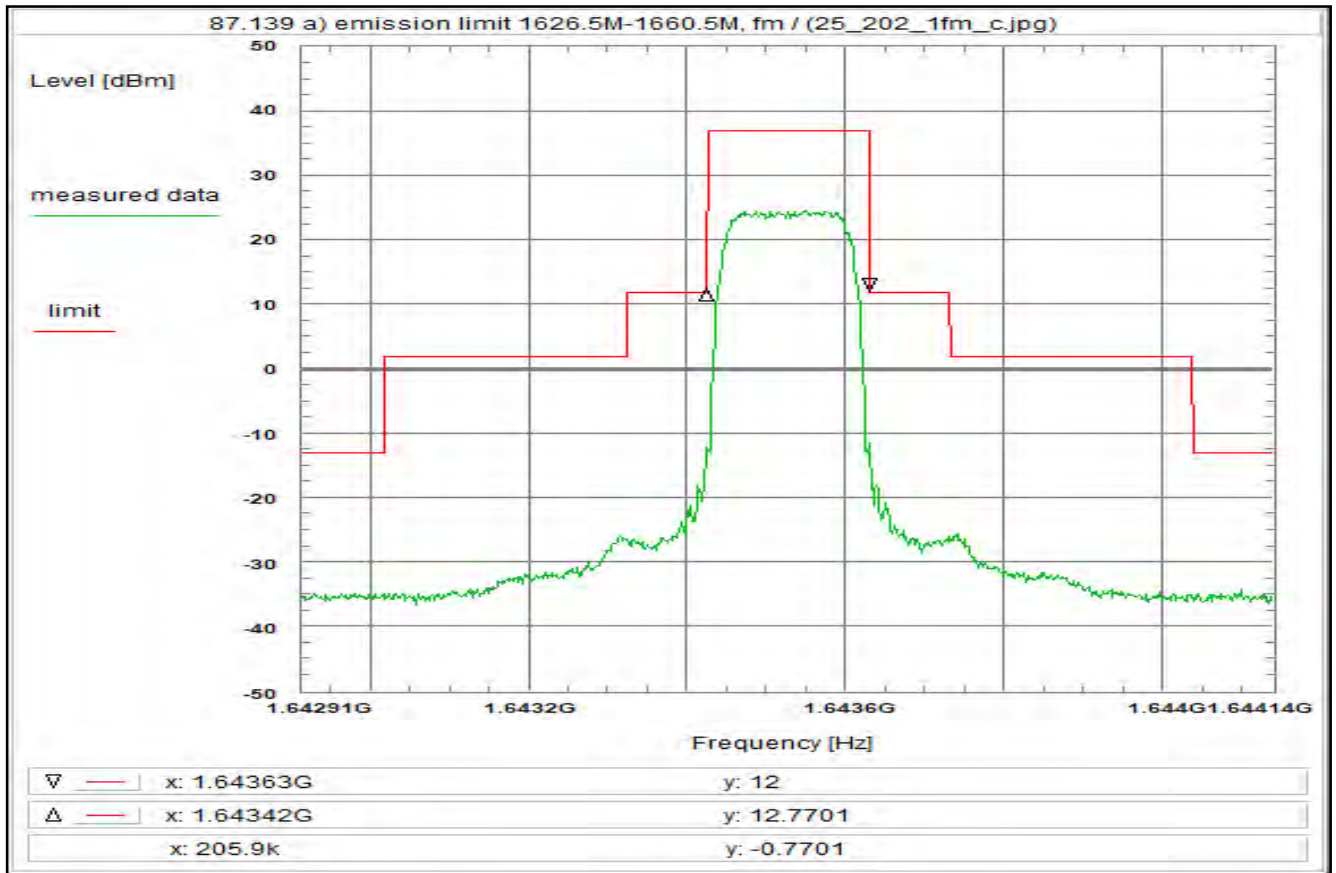
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

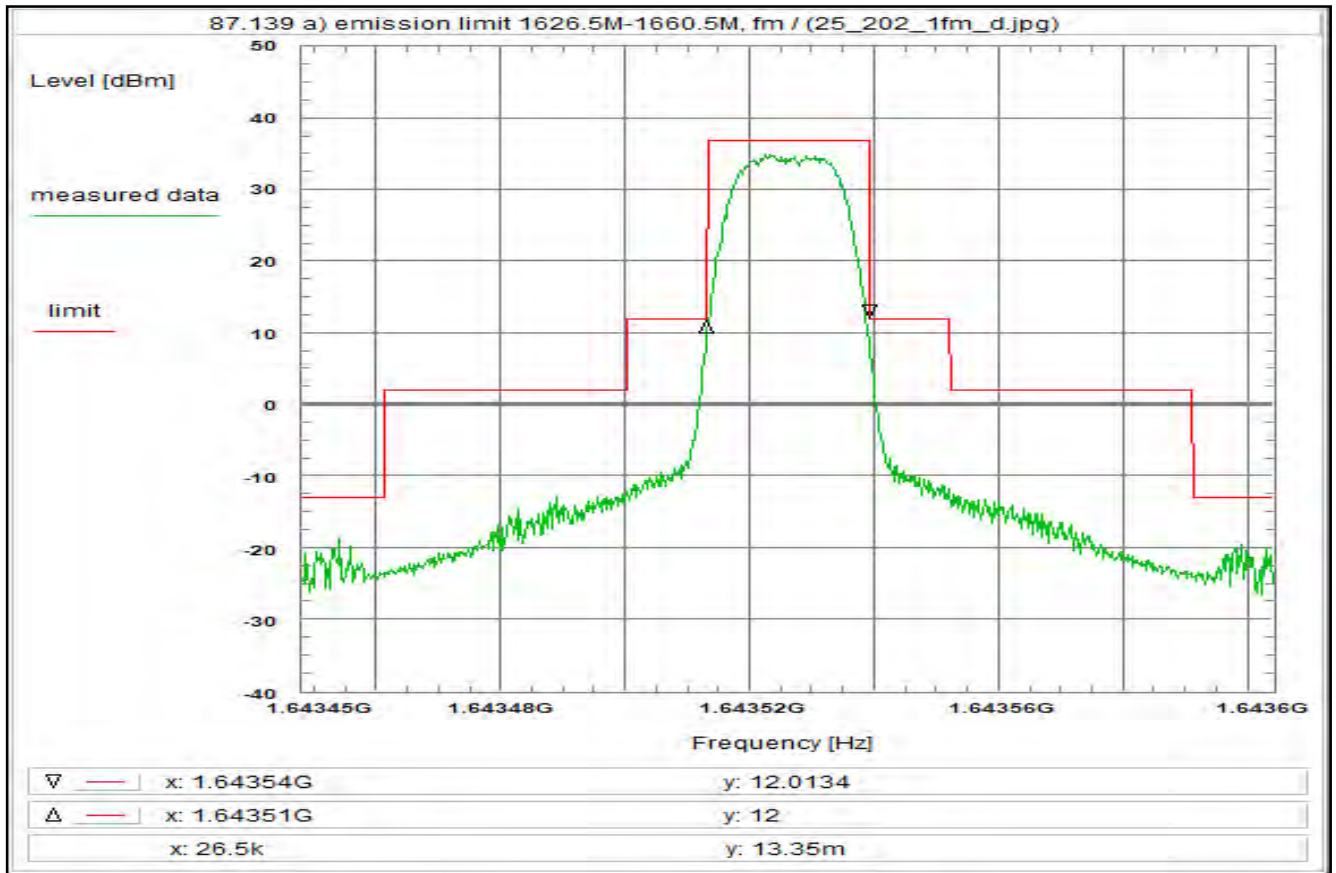
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment 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:

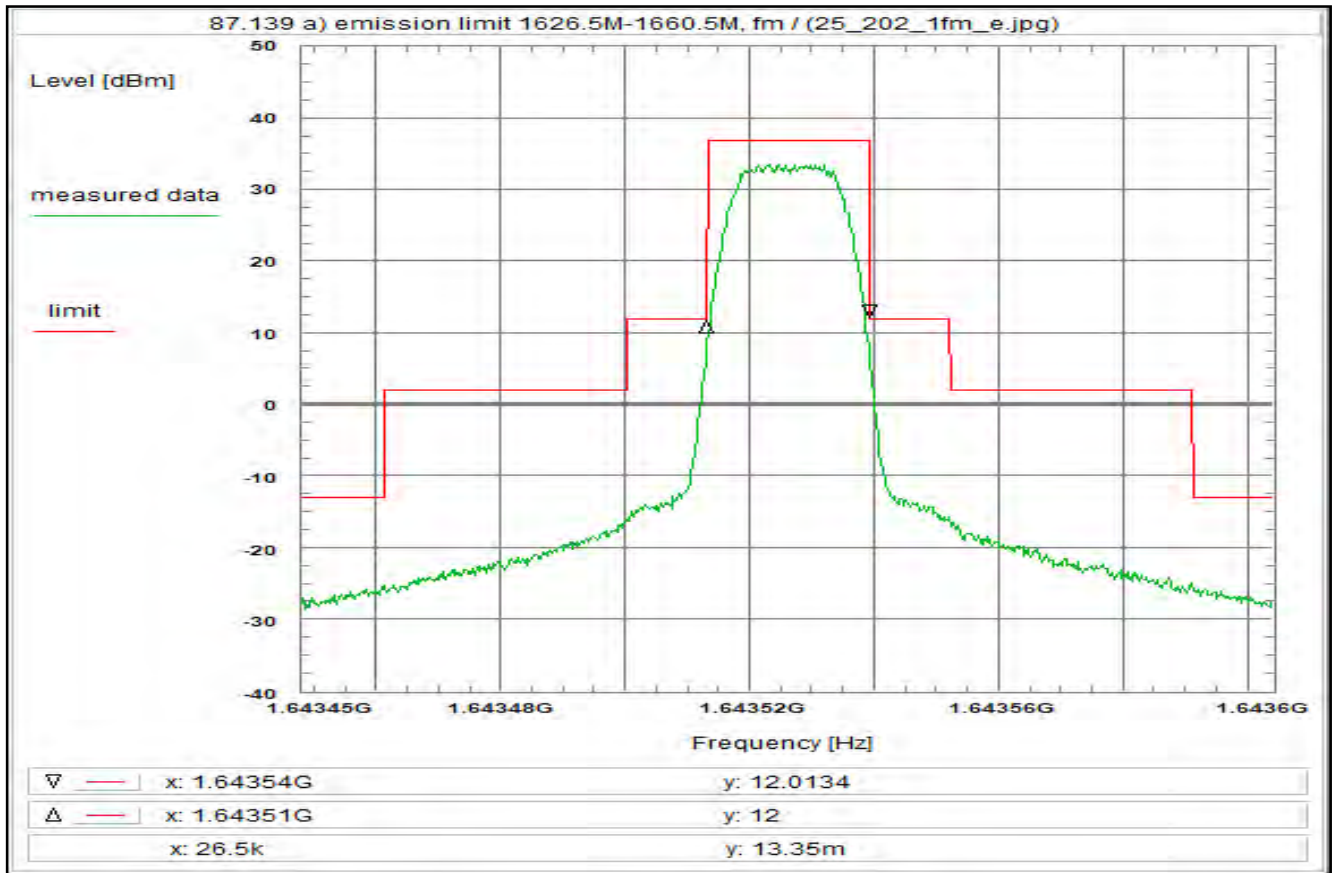
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

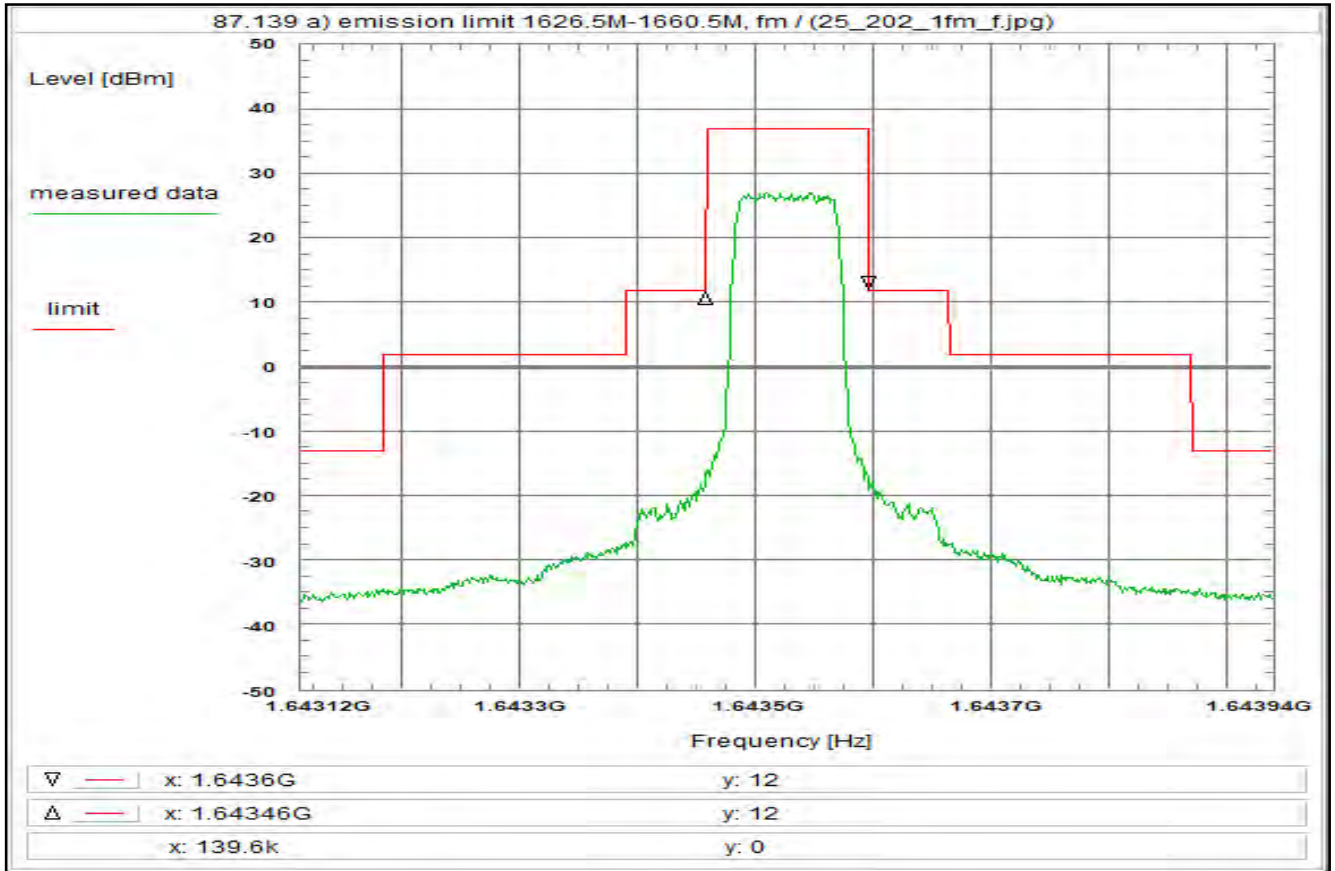
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

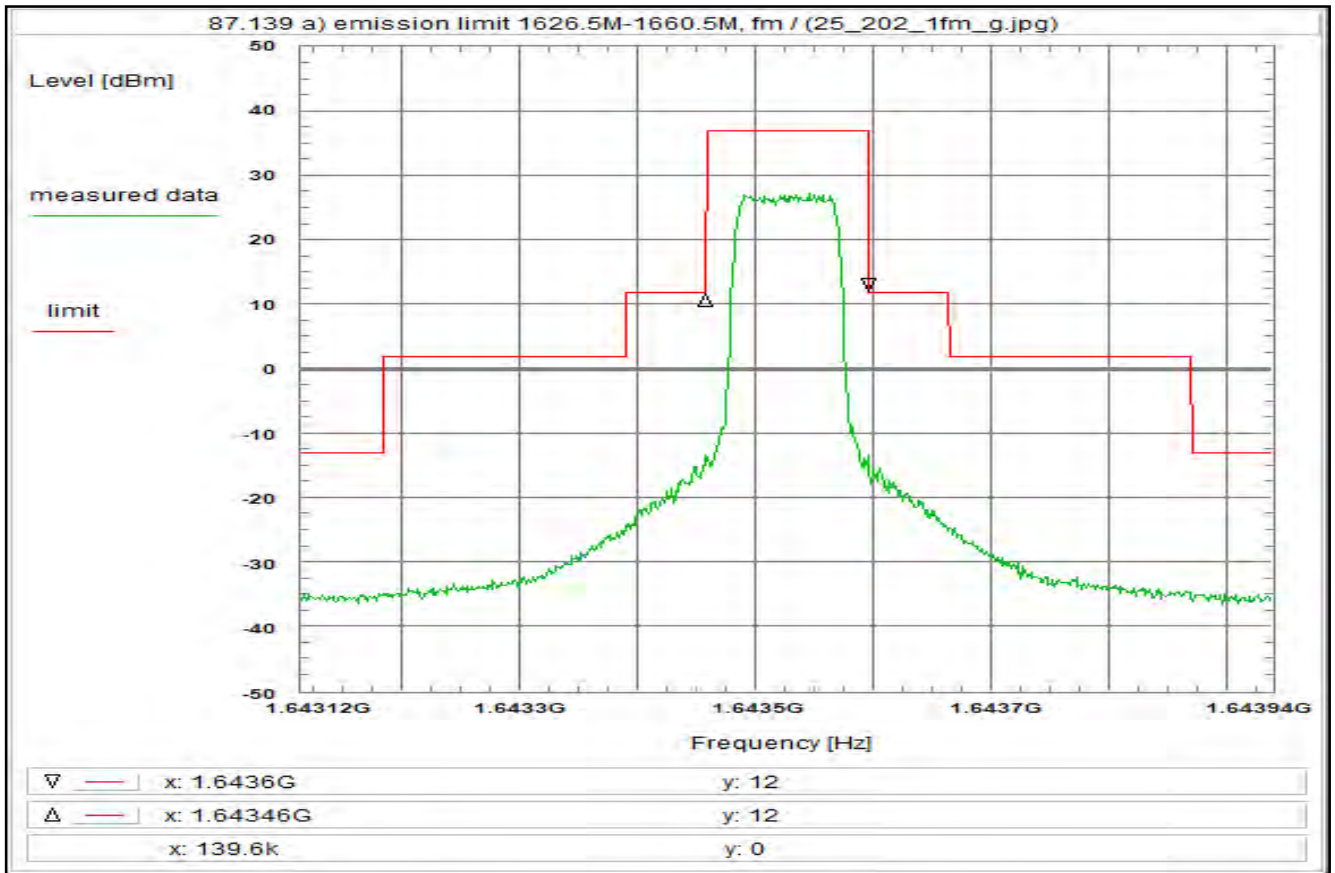
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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 passed

Environment 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:

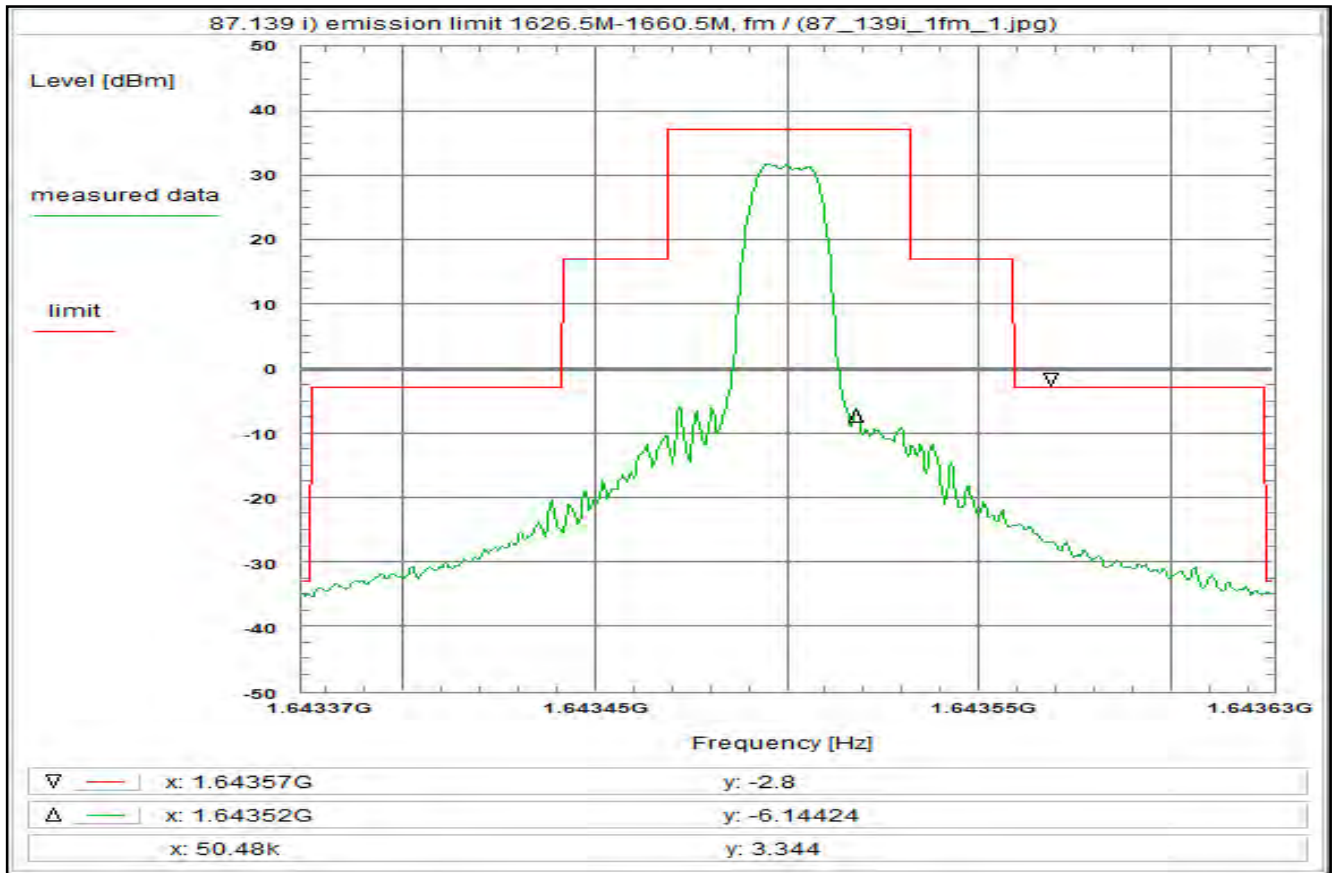
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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. 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

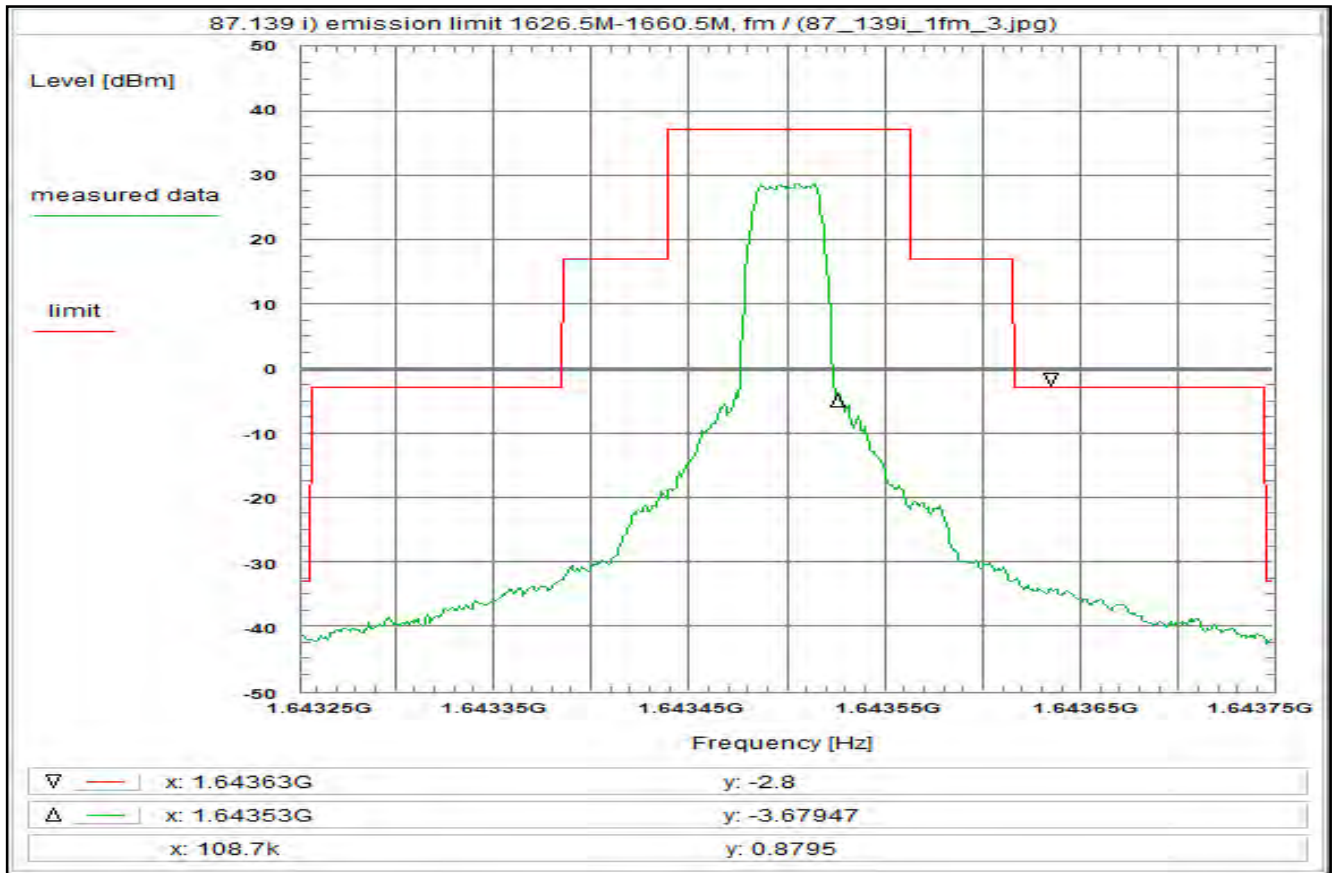
Remarks:

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

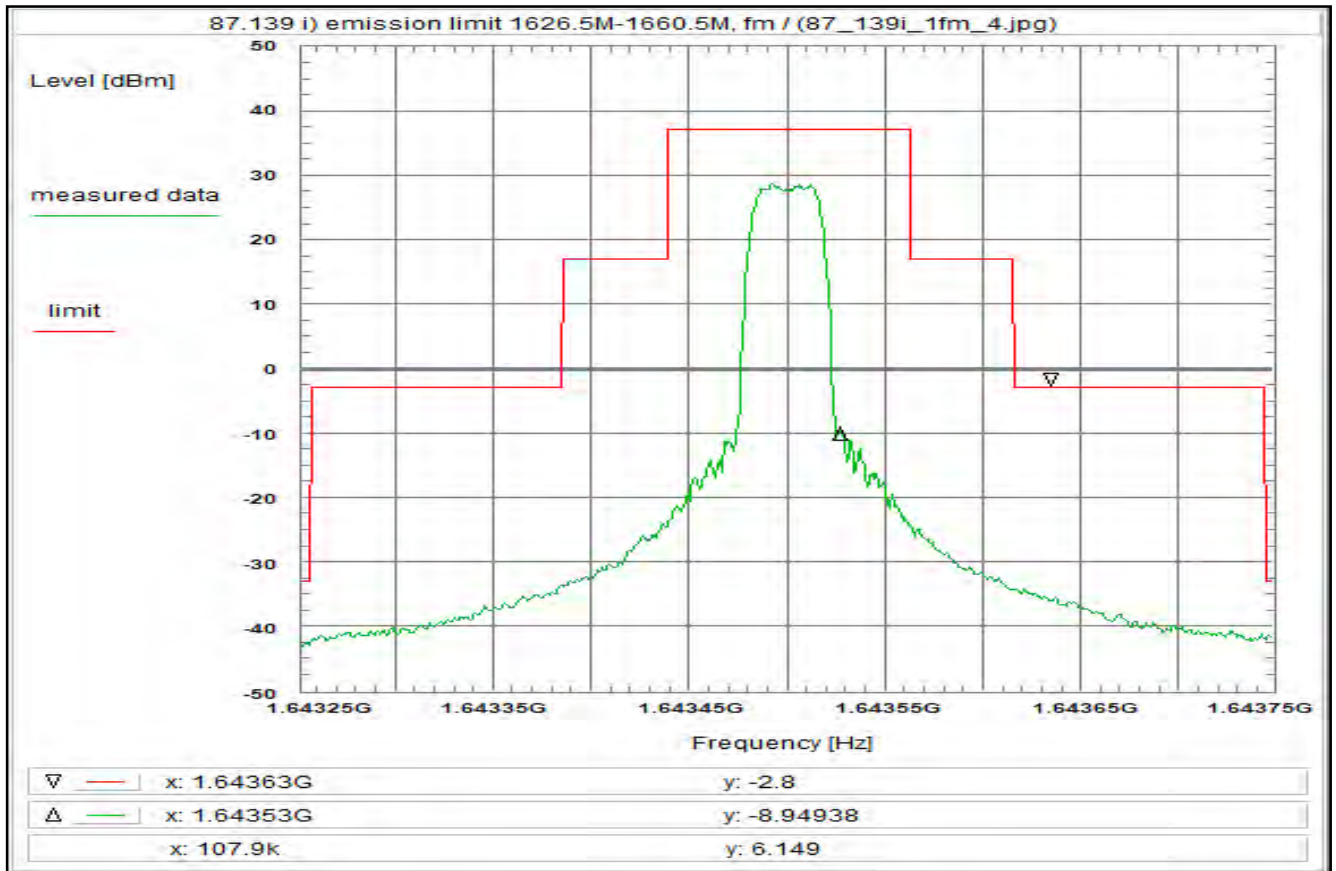
Remarks:

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

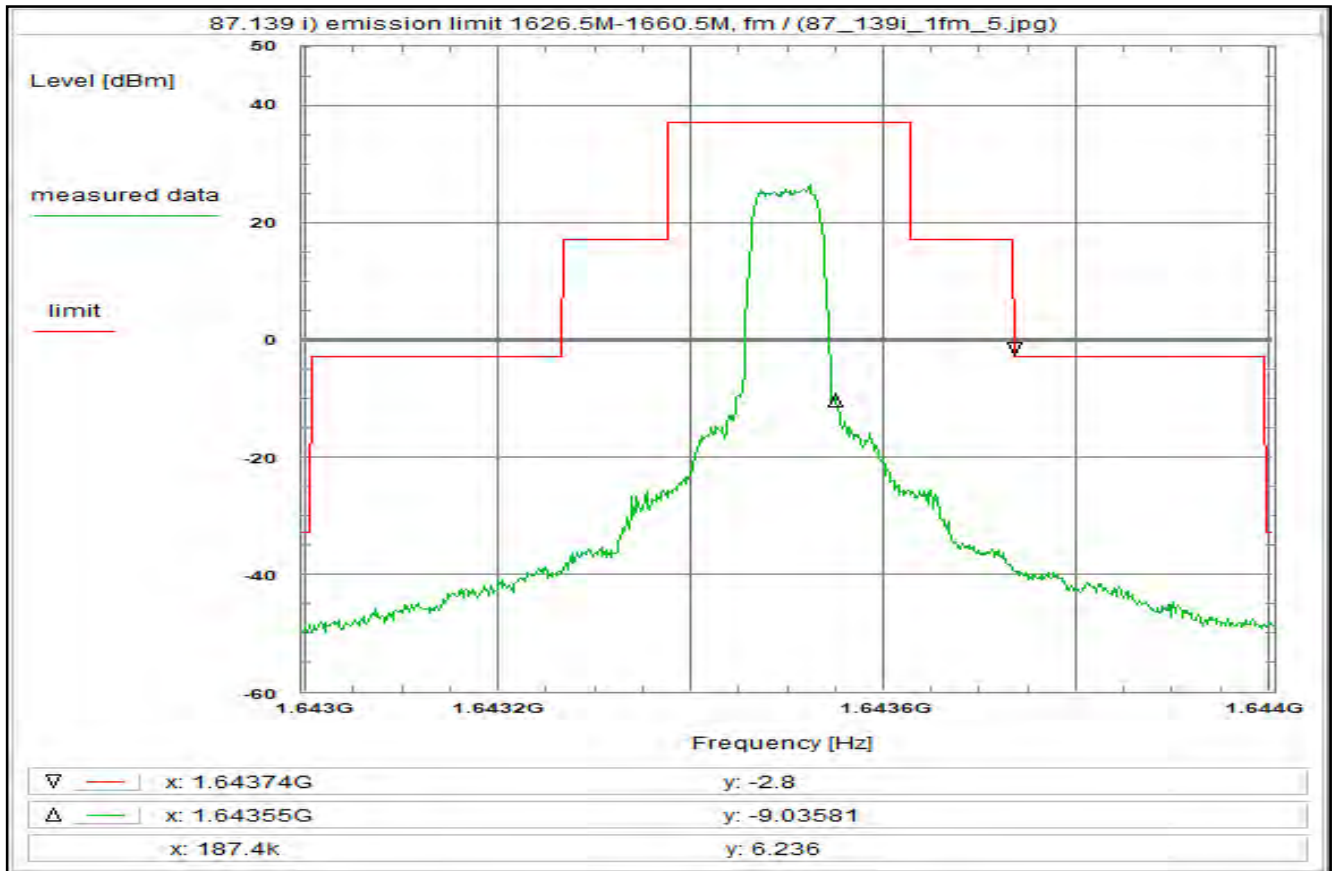
Remarks:

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

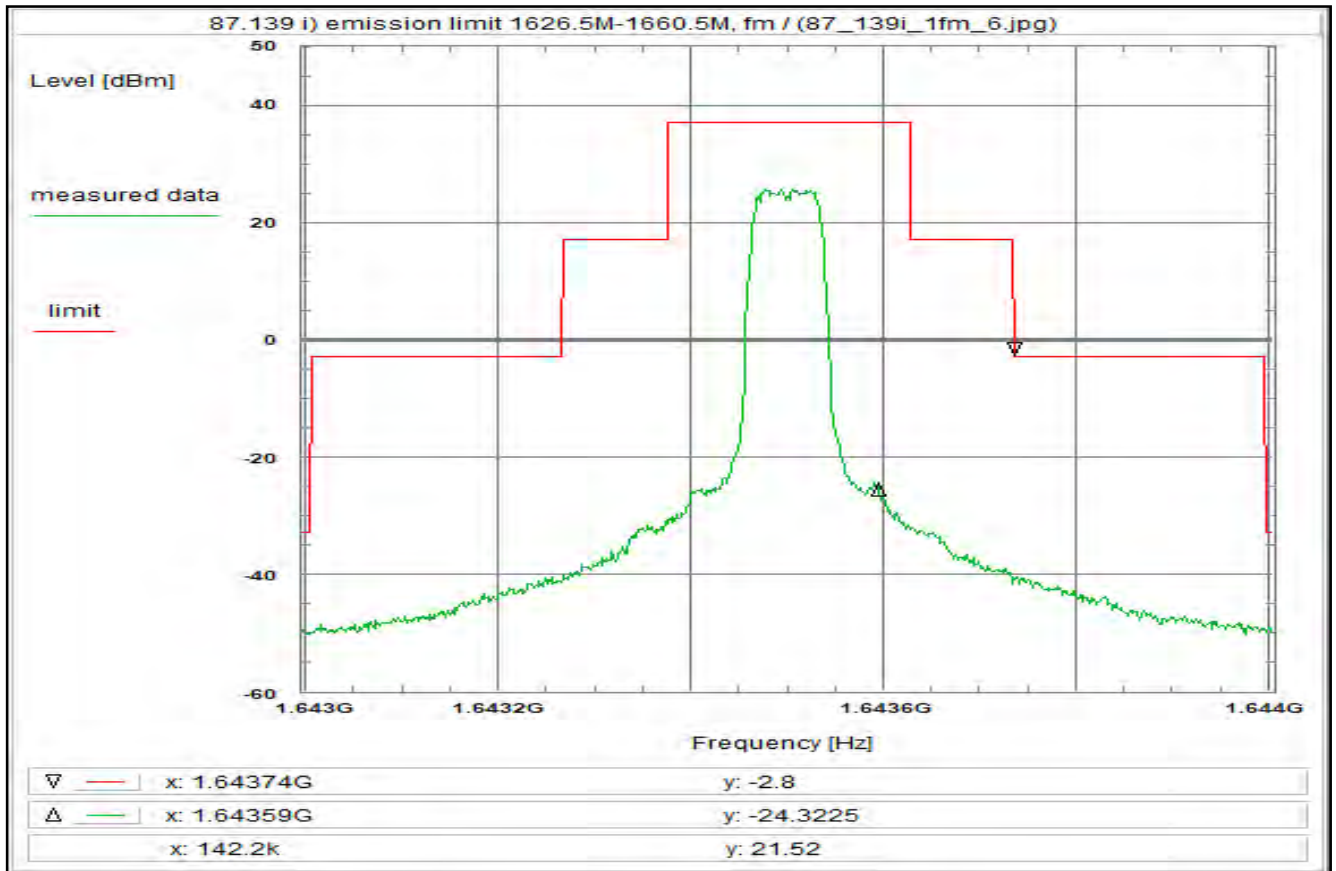
Remarks:

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 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 10:13:20
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

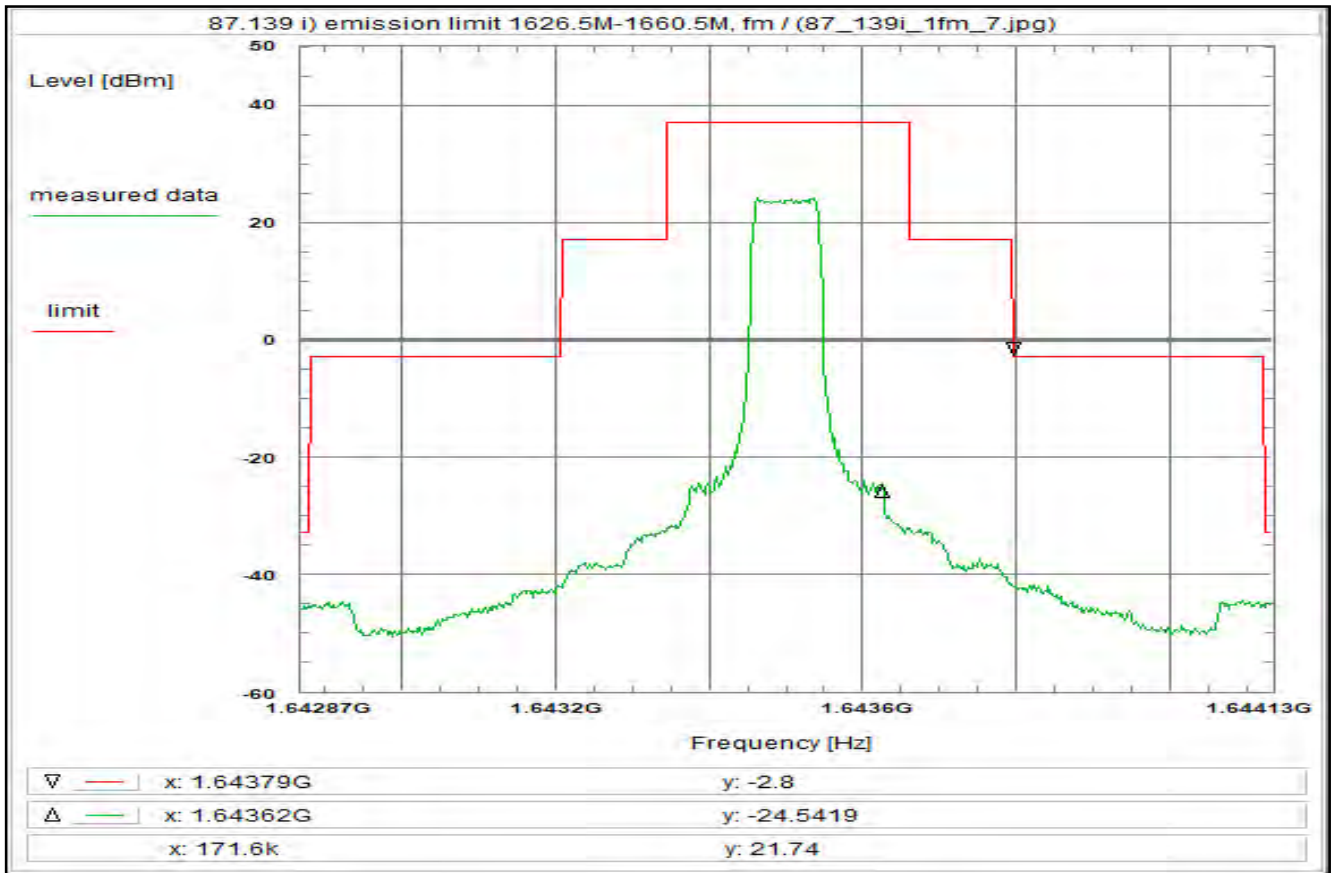
Remarks:

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

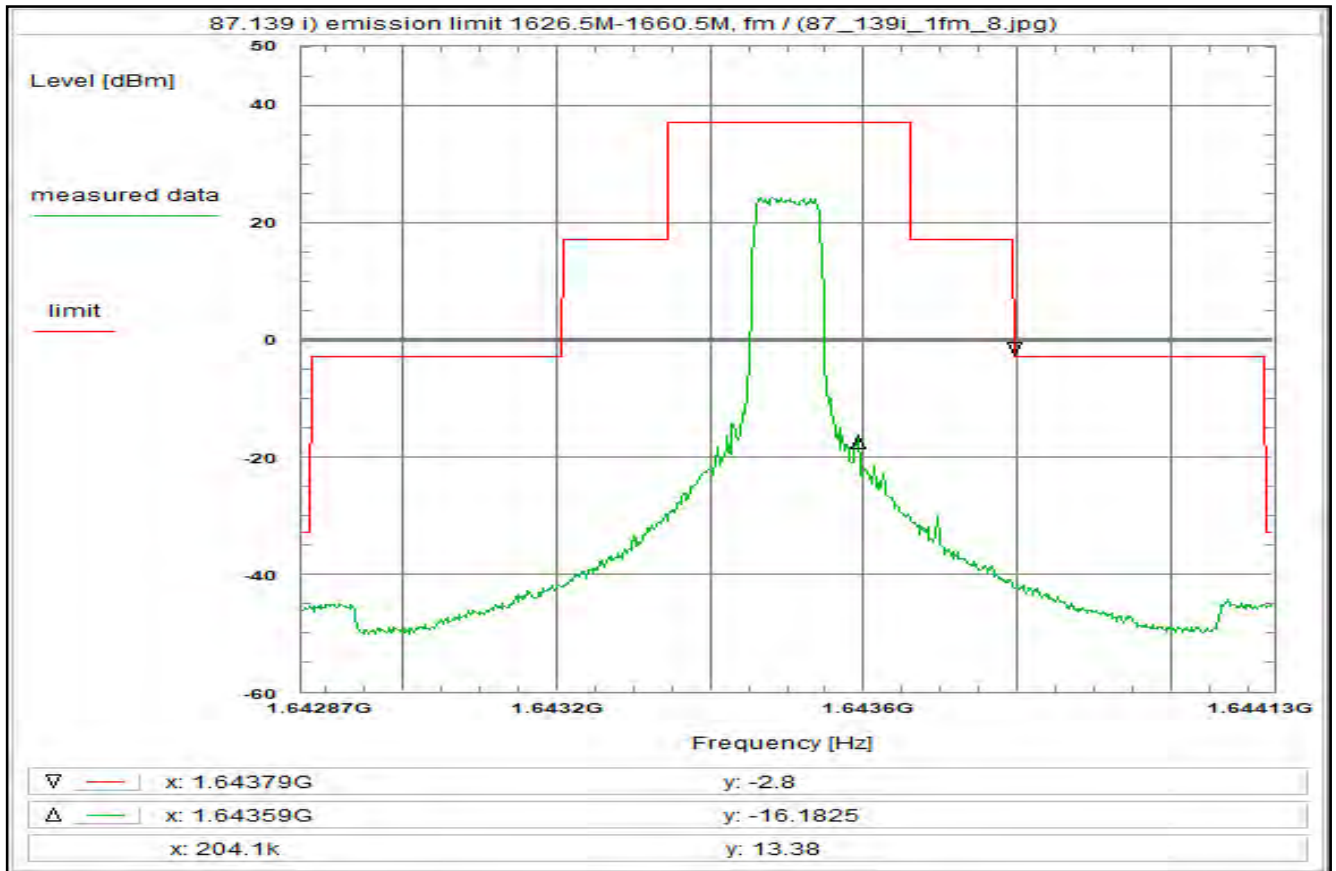
Remarks:

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

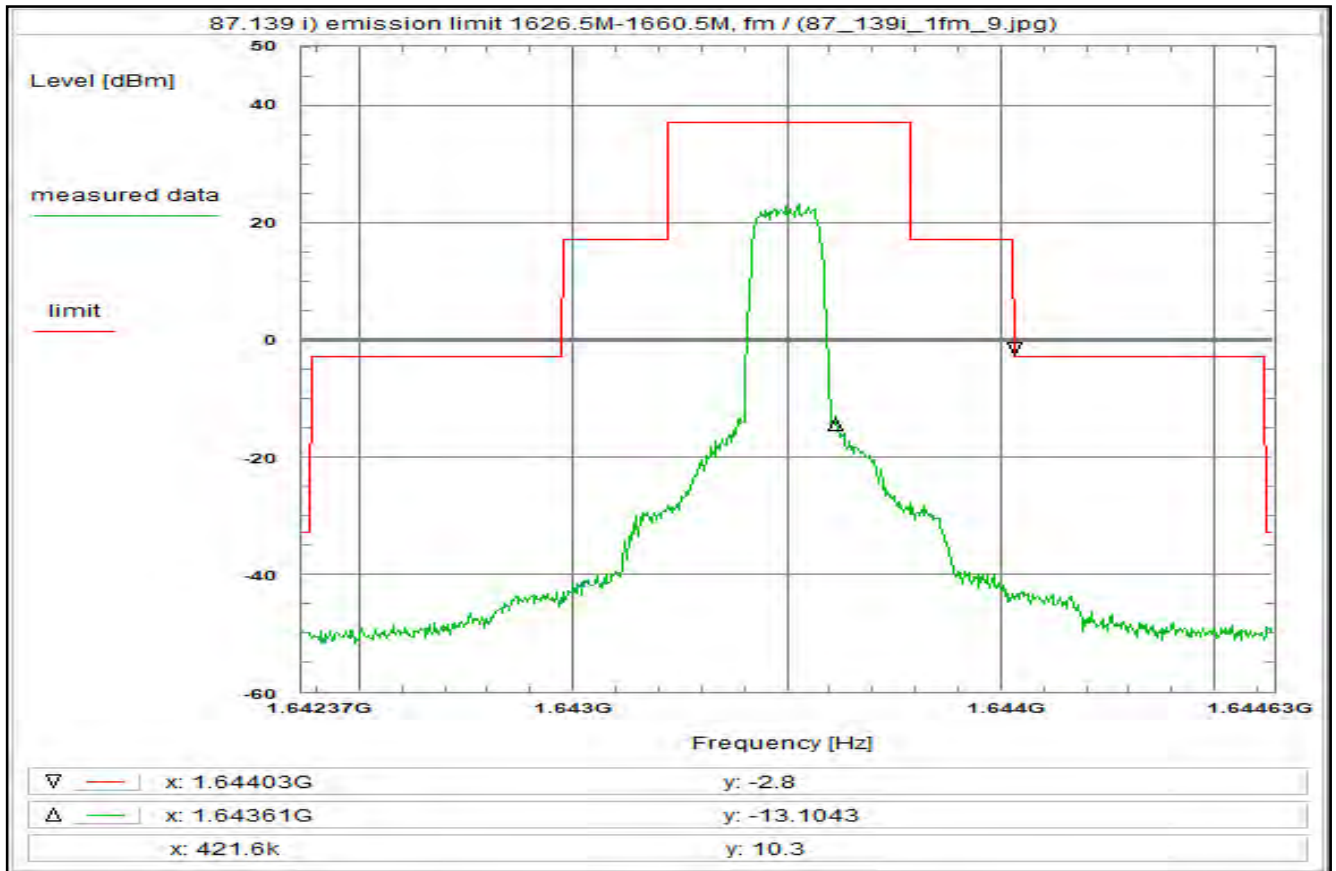
Remarks:

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 ksymb/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

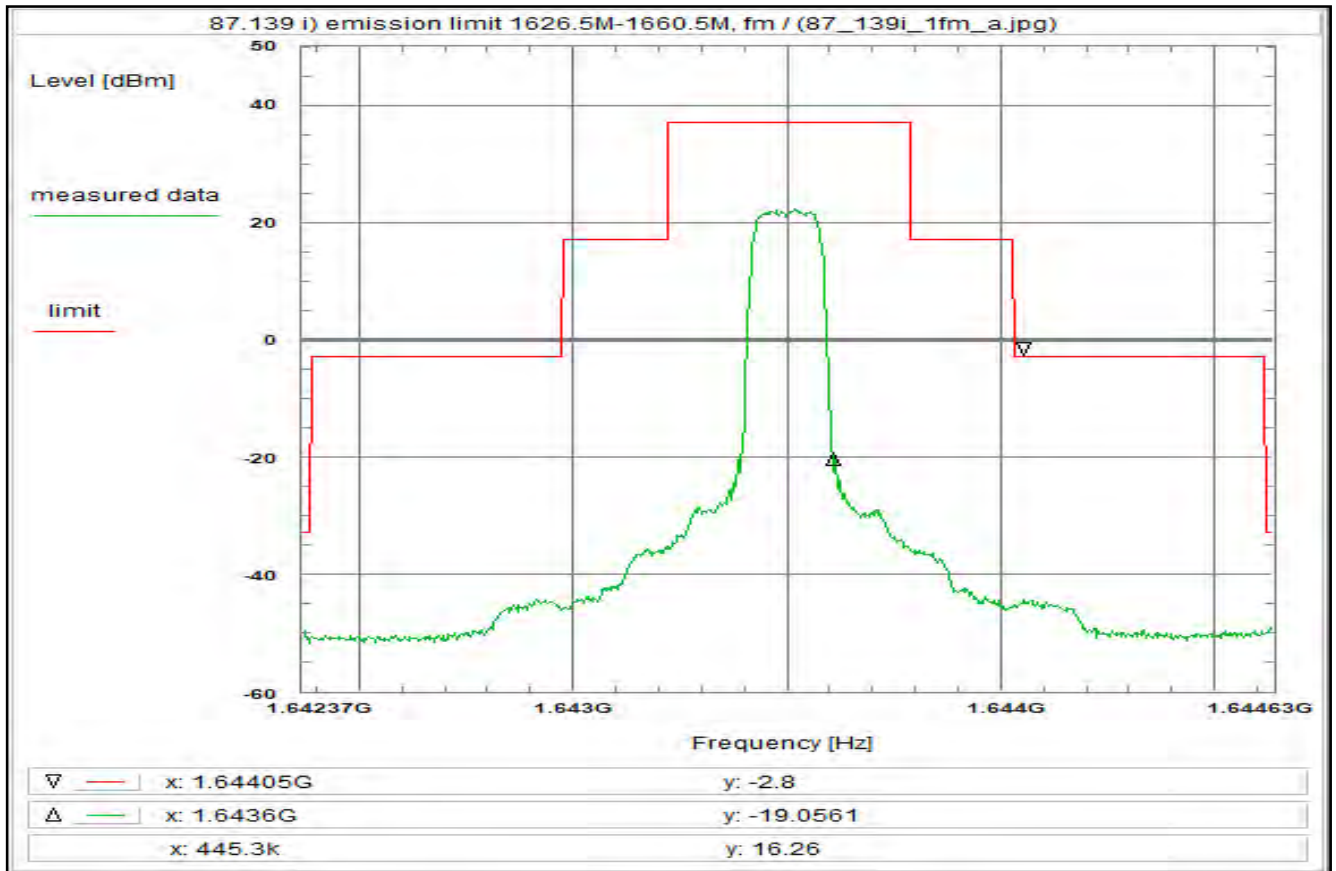
Remarks:

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

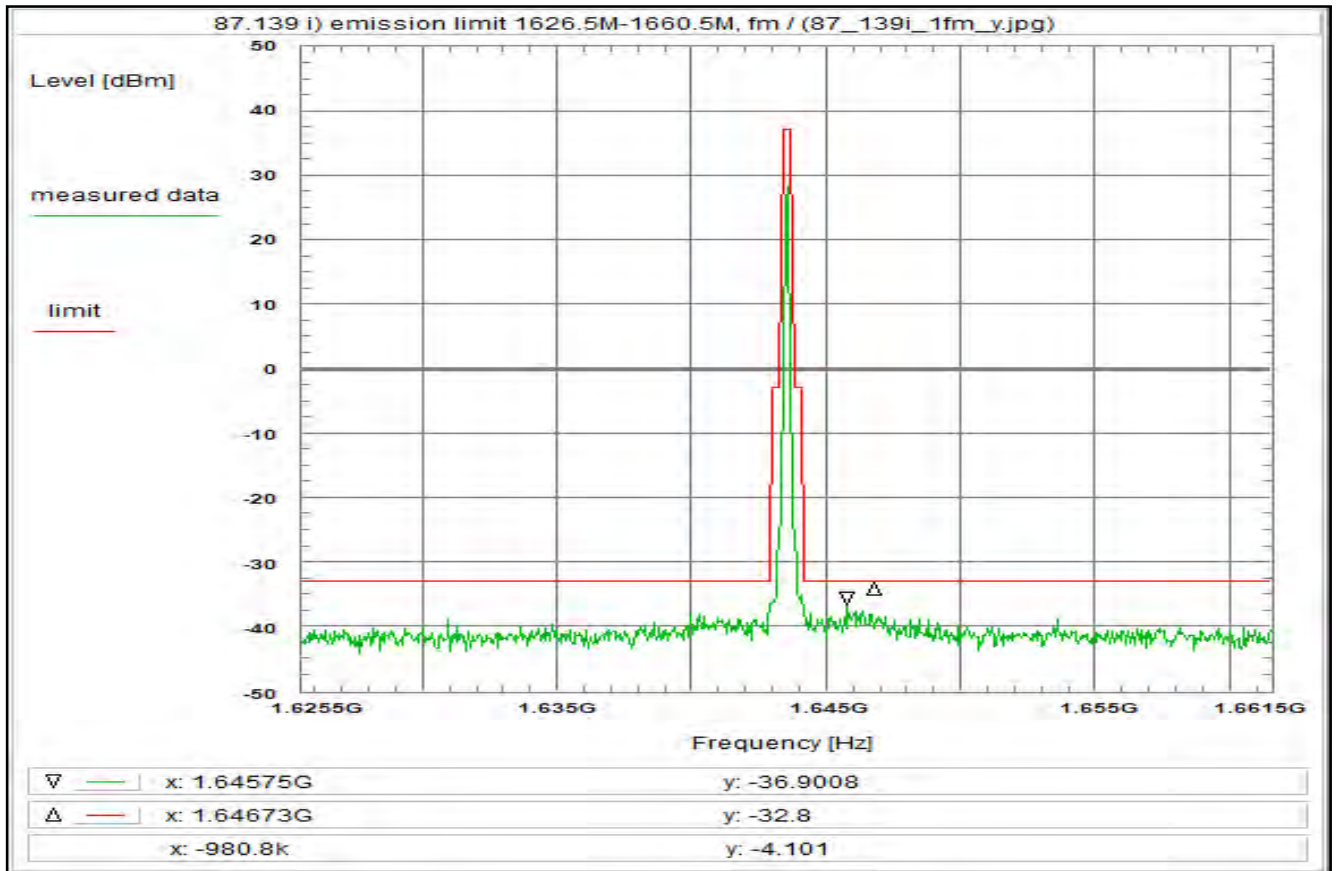
Remarks:

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

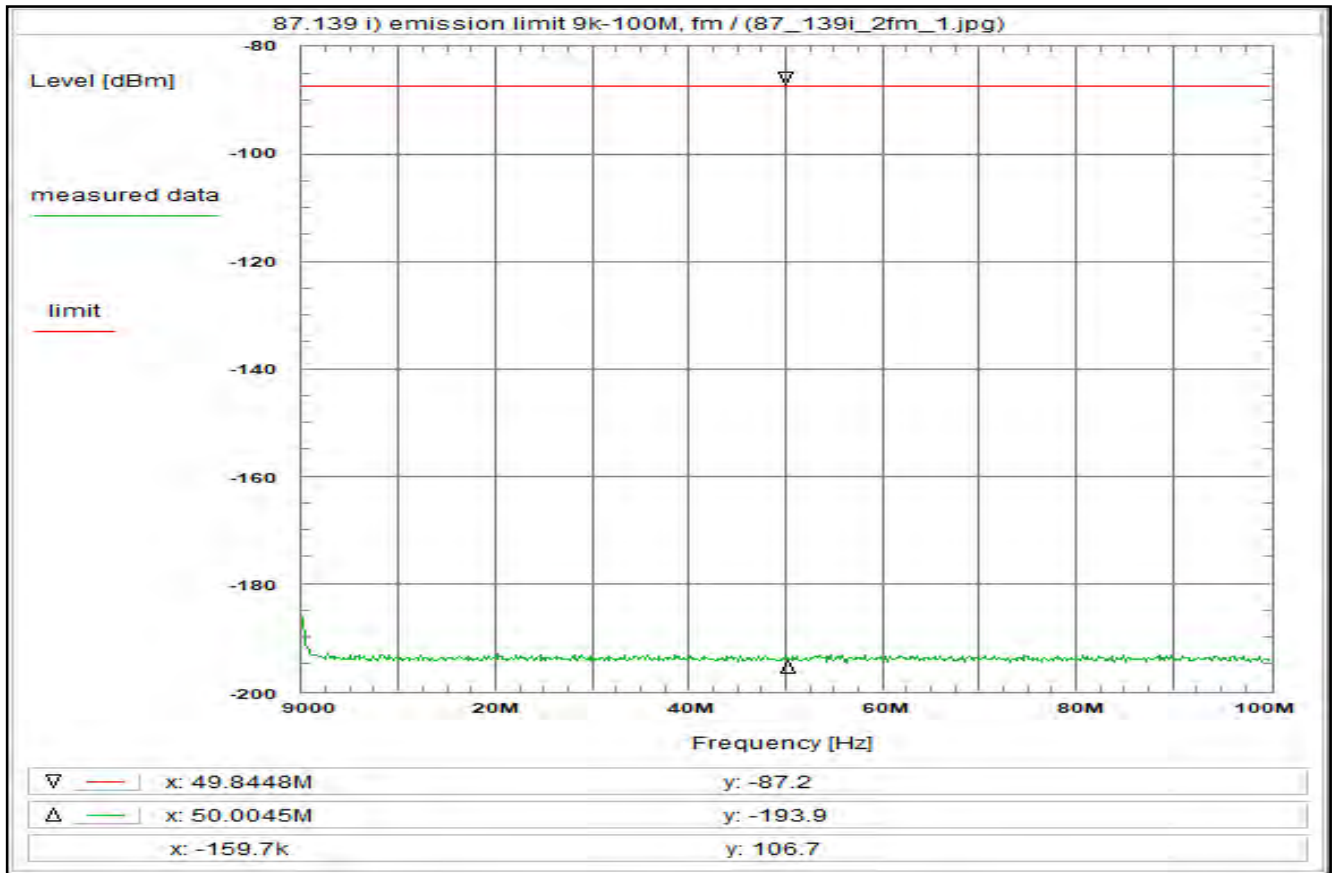
Remarks:

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, R2014.5XD

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

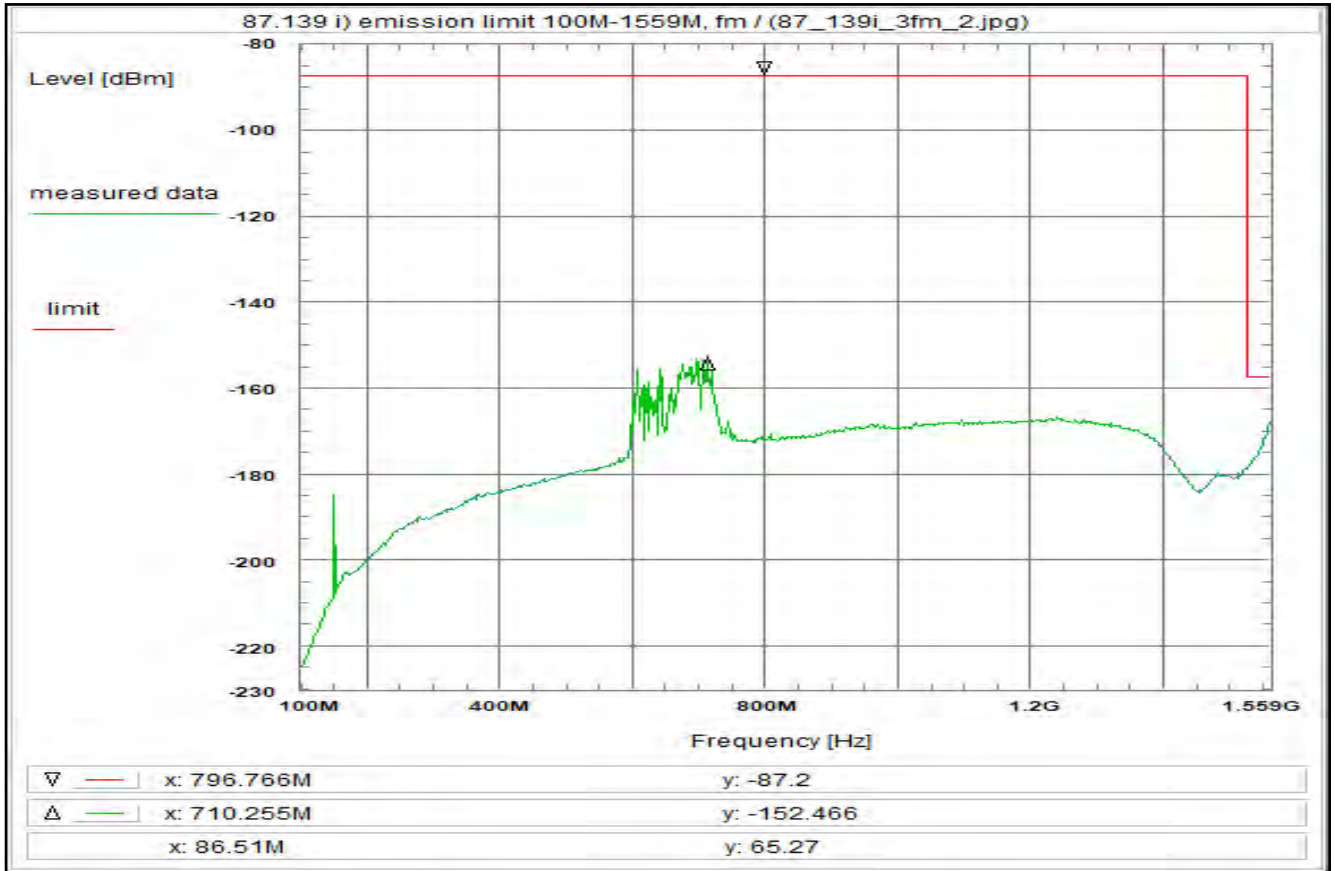
Remarks:

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

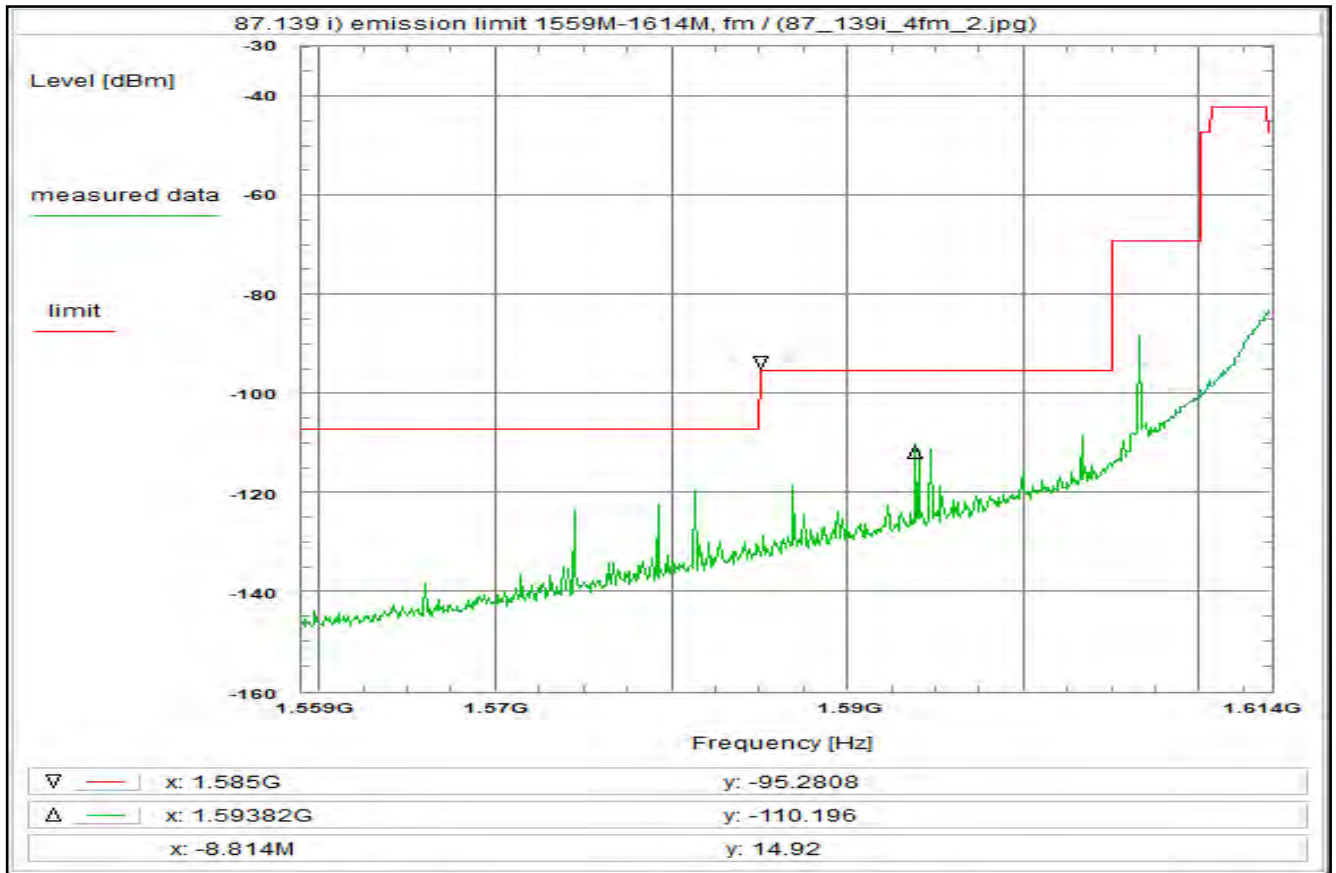
Remarks:

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

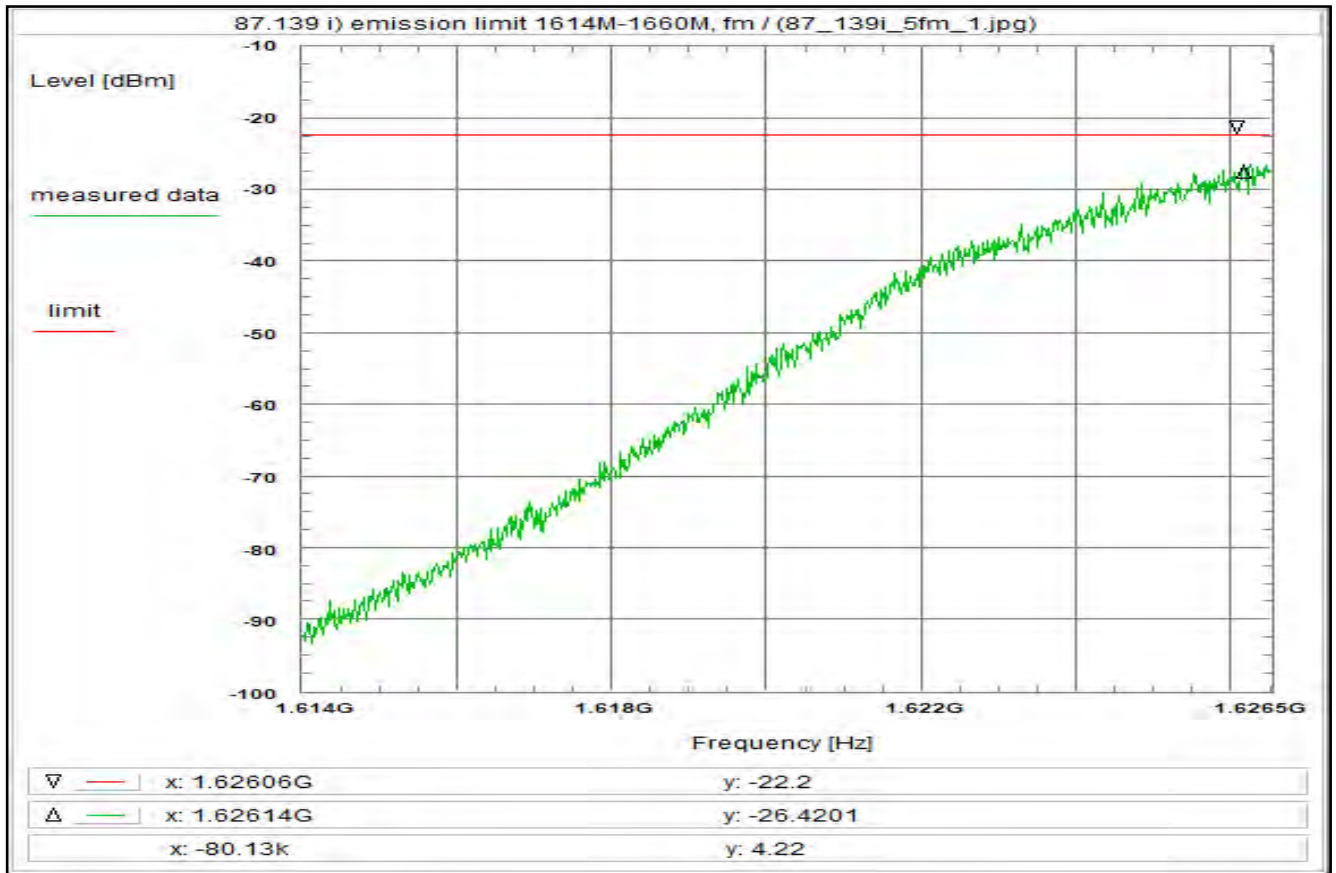
Remarks:

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

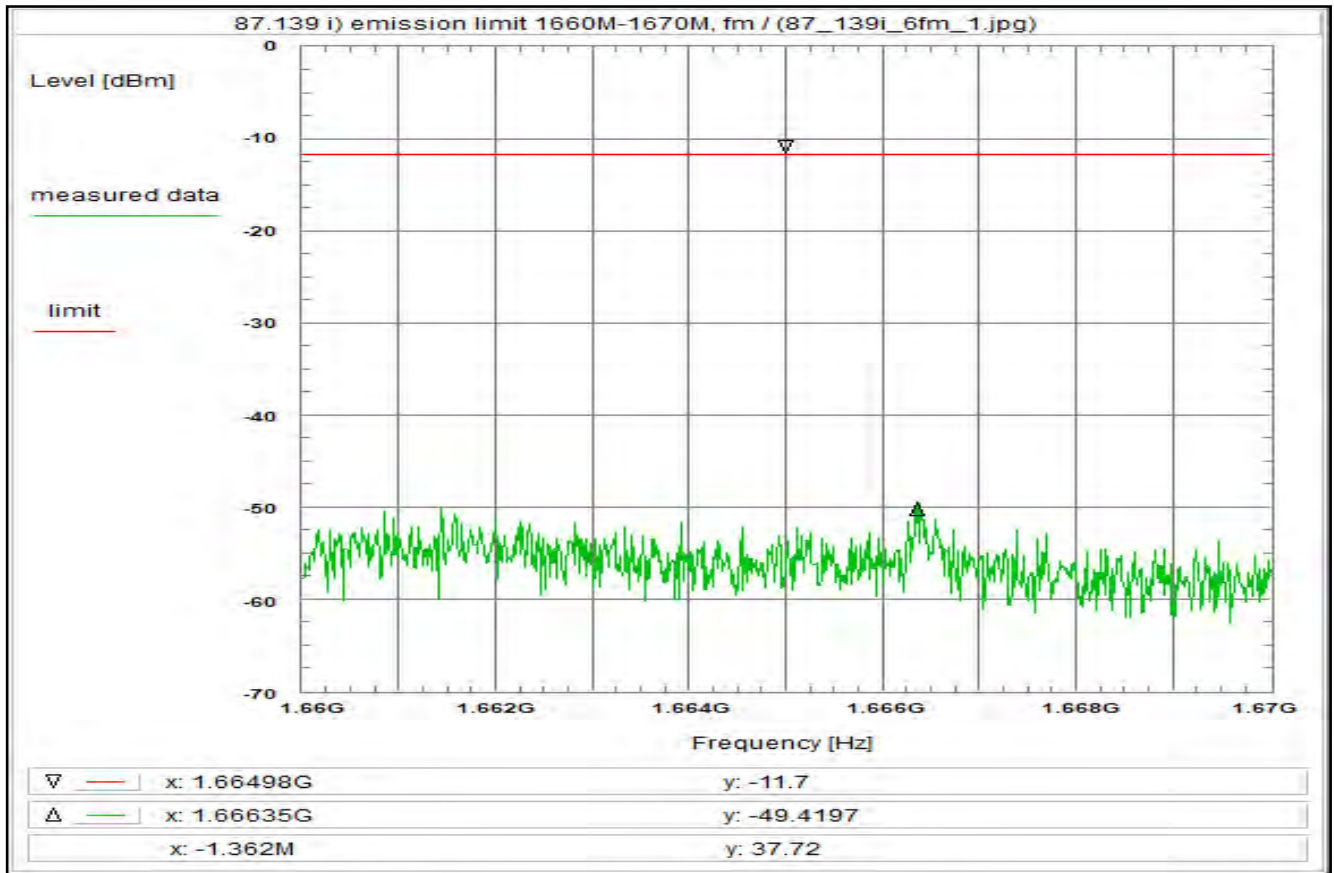
Remarks:

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

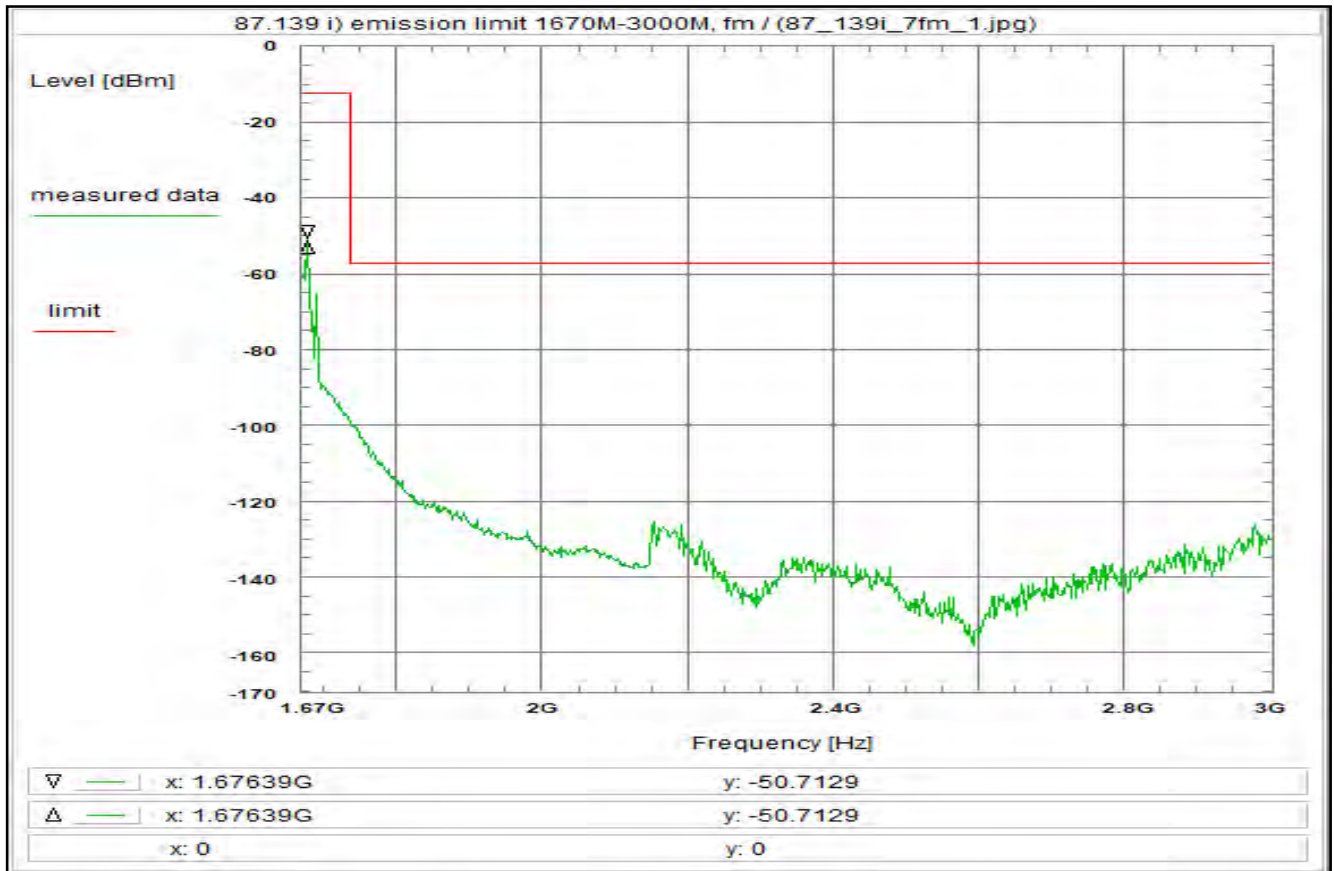
Remarks:

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

For EIRP calculation:

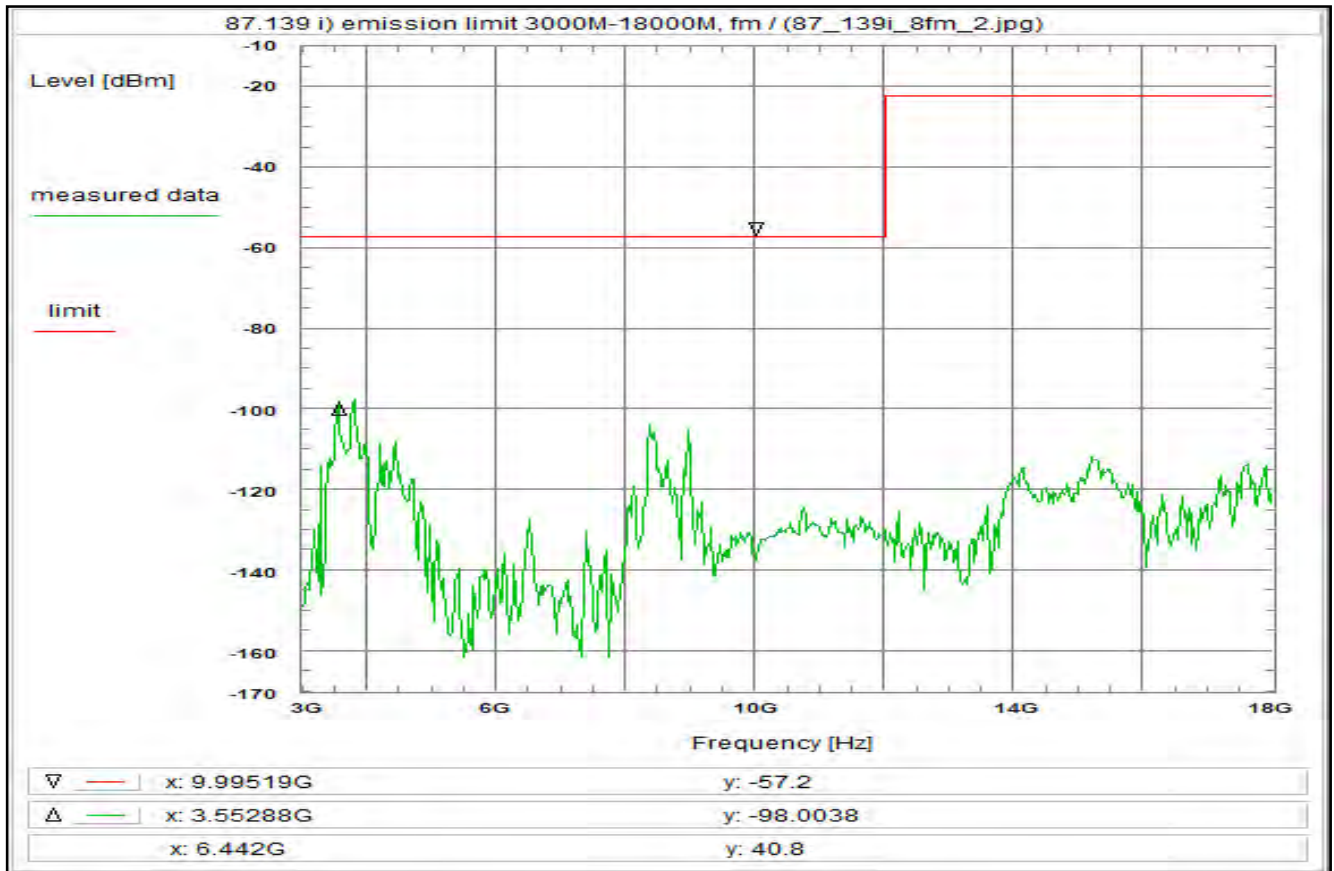
'worst-case' = maximum antenna gain

Plot No. 106



<p><u>Subclause:</u> 87.139 i) Frequencies, frequency tolerance and emission limitations Emission limitations Modulated rf-carrier in the middle of the band (fm)</p> <p><u>Limit:</u> 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).</p> <p><u>Test results:</u> see plot (an explicit table was not generated)</p> <p><u>Operating condition of DUT:</u> operating condition 1, see test report chapter 5.4 valid for all modulations and channels</p> <p><u>Test setup:</u> see test report chapter 7.2 setup 1.1hgij</p> <p><u>Test equipment:</u> see test report chapter 7.2: C220, HPF, R001, WDPL</p> <p><u>Remark:</u></p> <p>Test result: Test passed</p>	<p><u>Environment condition:</u> 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</p> <p><u>Setup of measurement equipment:</u> 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</p> <p><u>Correction:</u> 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</p> <p><u>Remarks:</u> Carrier-on state / Carrier in the middle of the band (fm) <u>For EIRP calculation:</u> 'worst-case' = maximum antenna gain</p>
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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

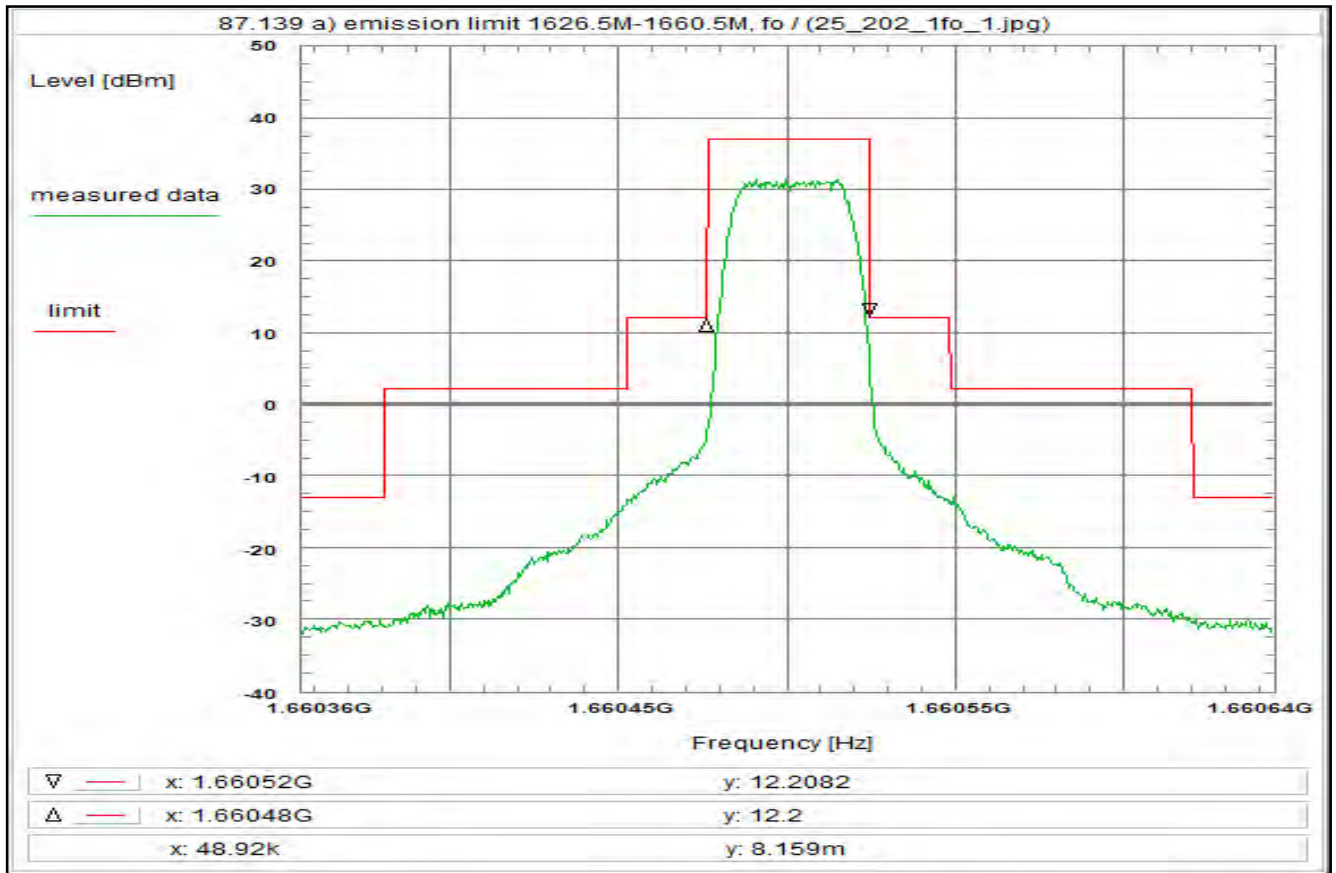
Correction:

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:

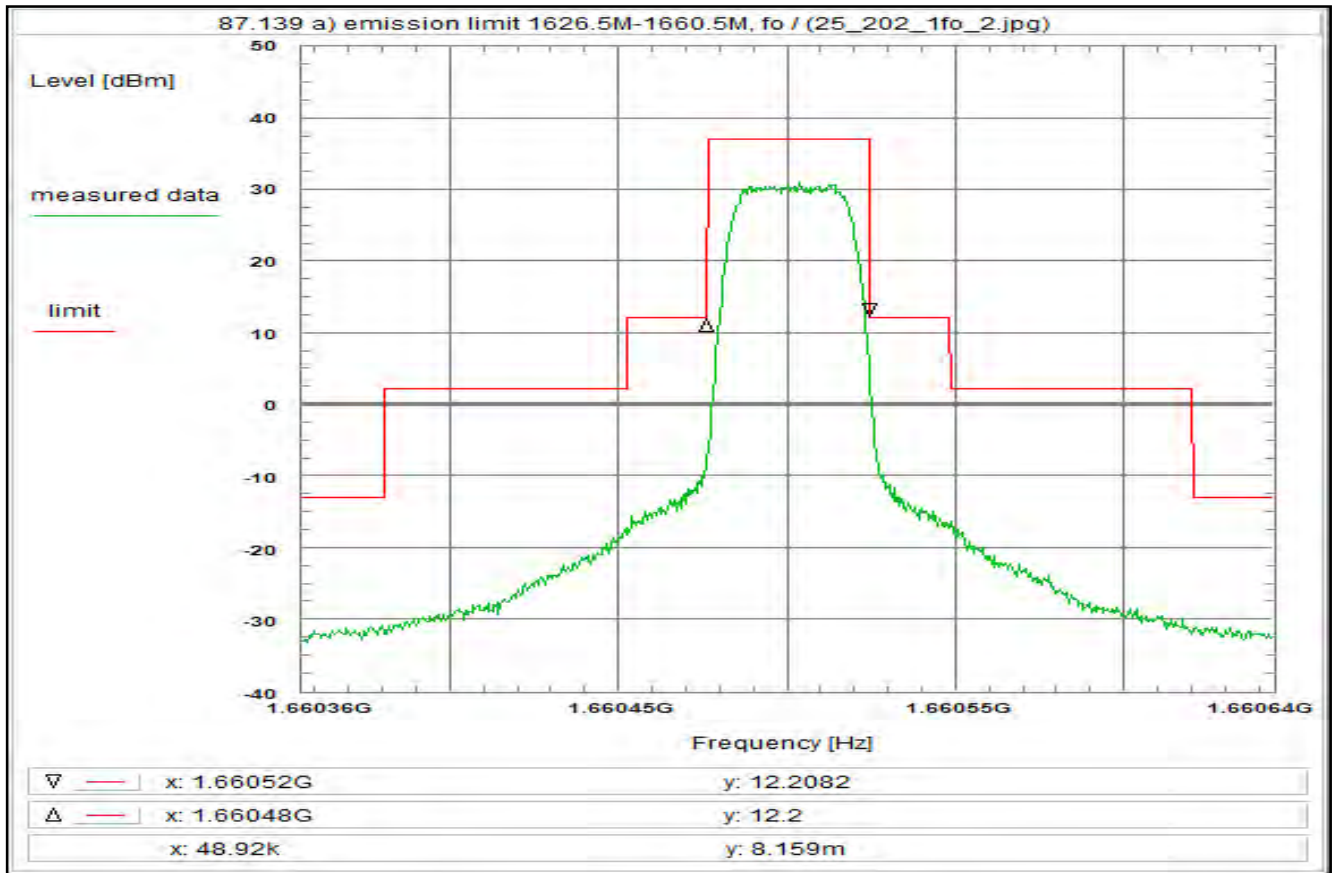
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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+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 passed

Environment 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:

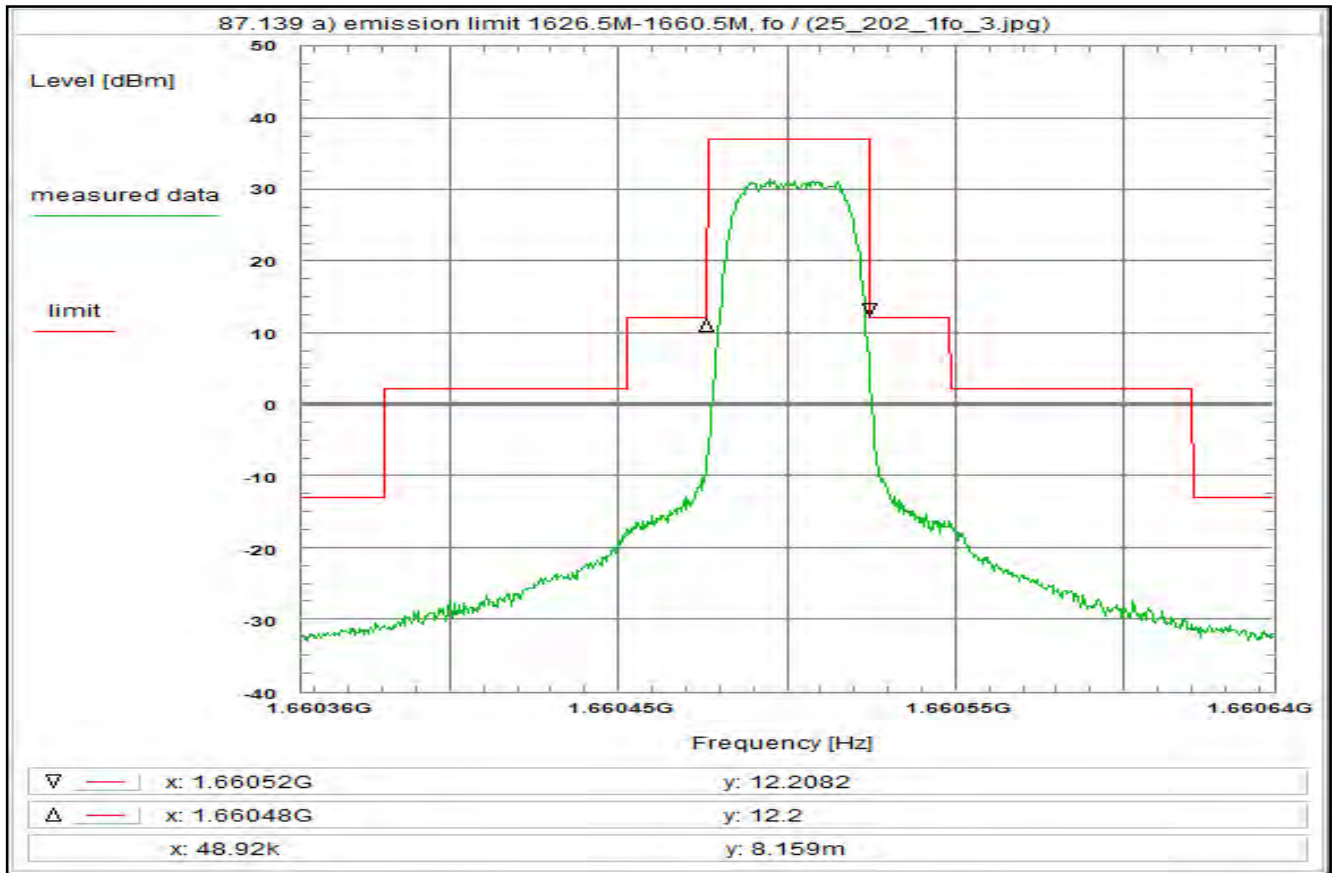
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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:

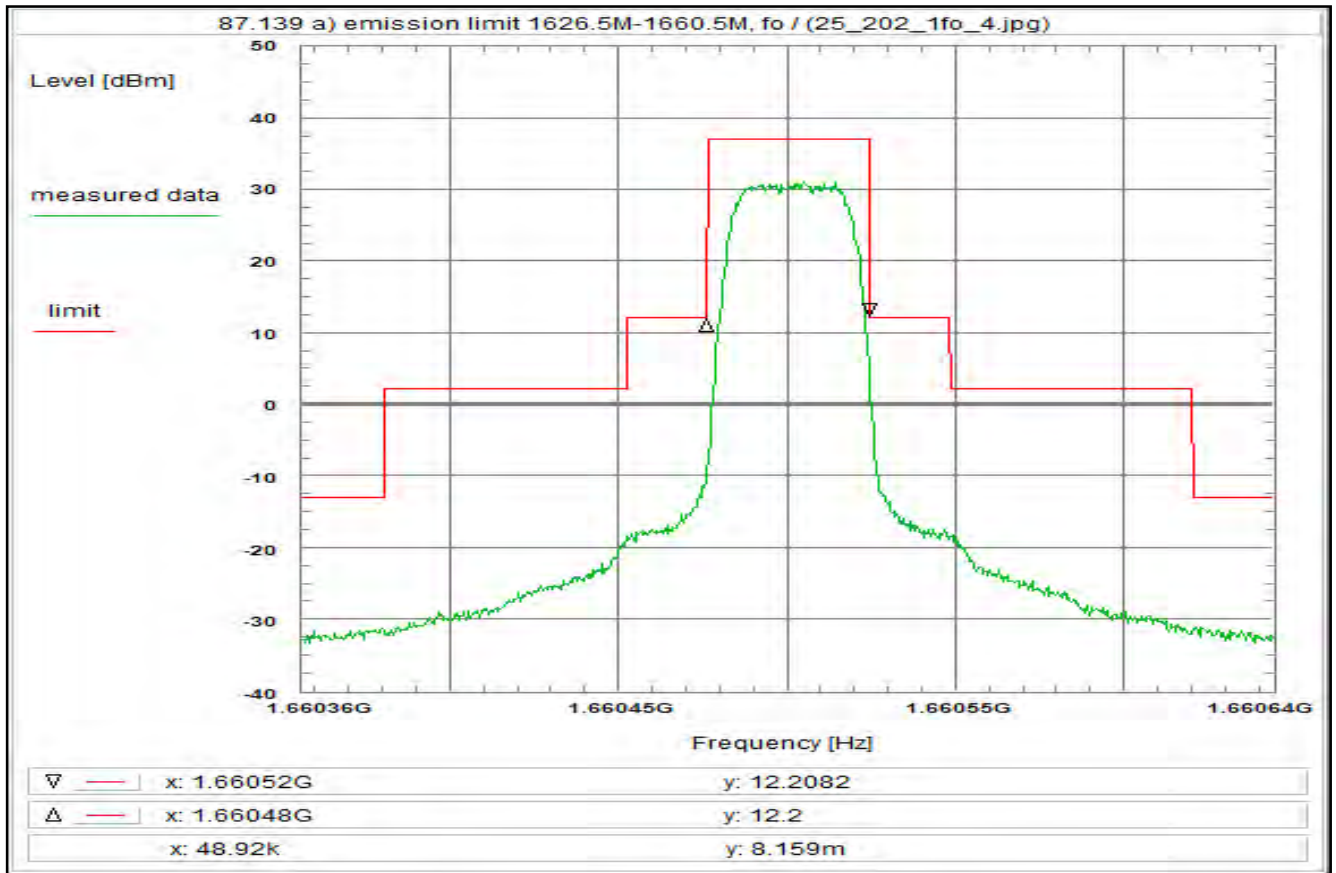
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

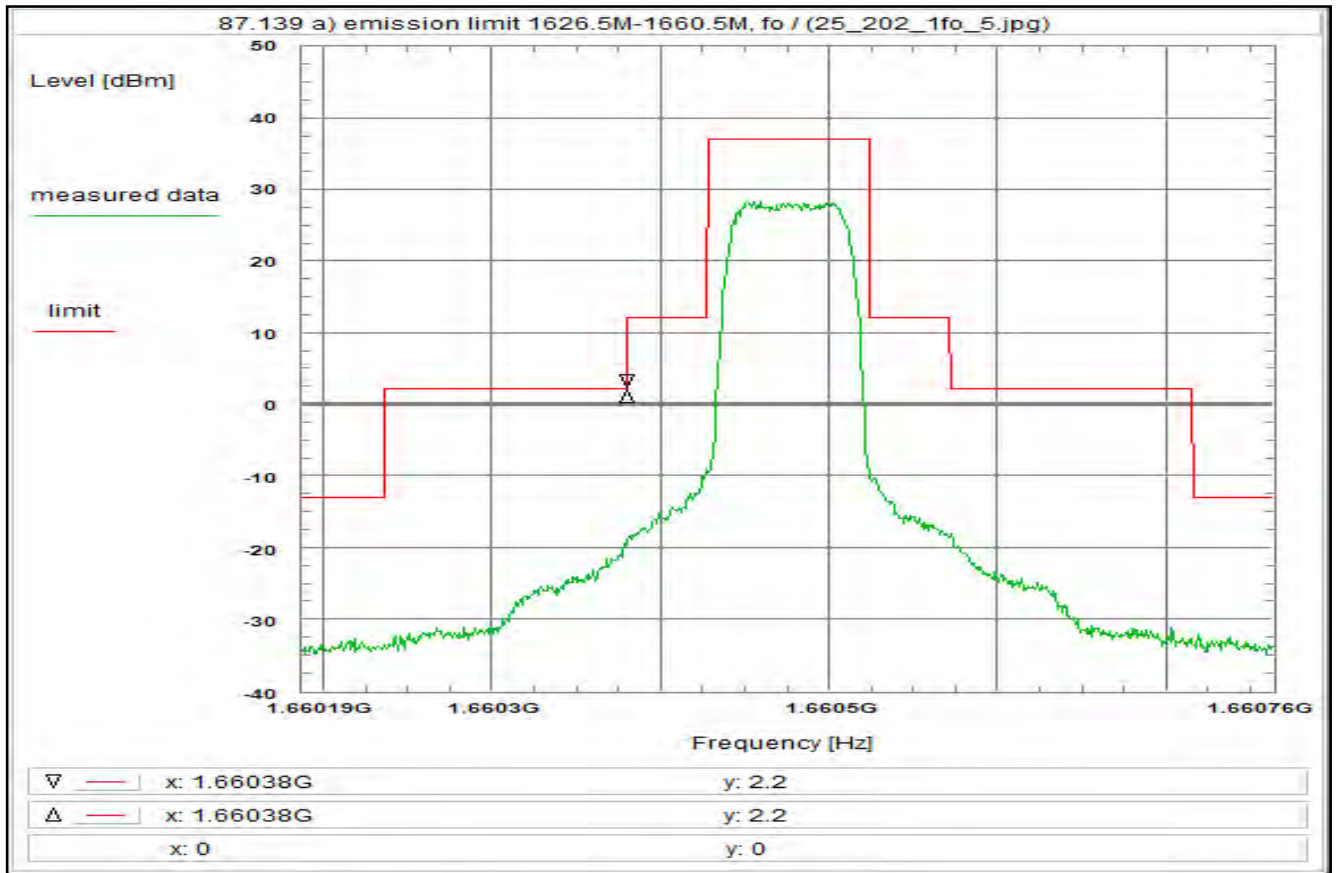
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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+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, 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:

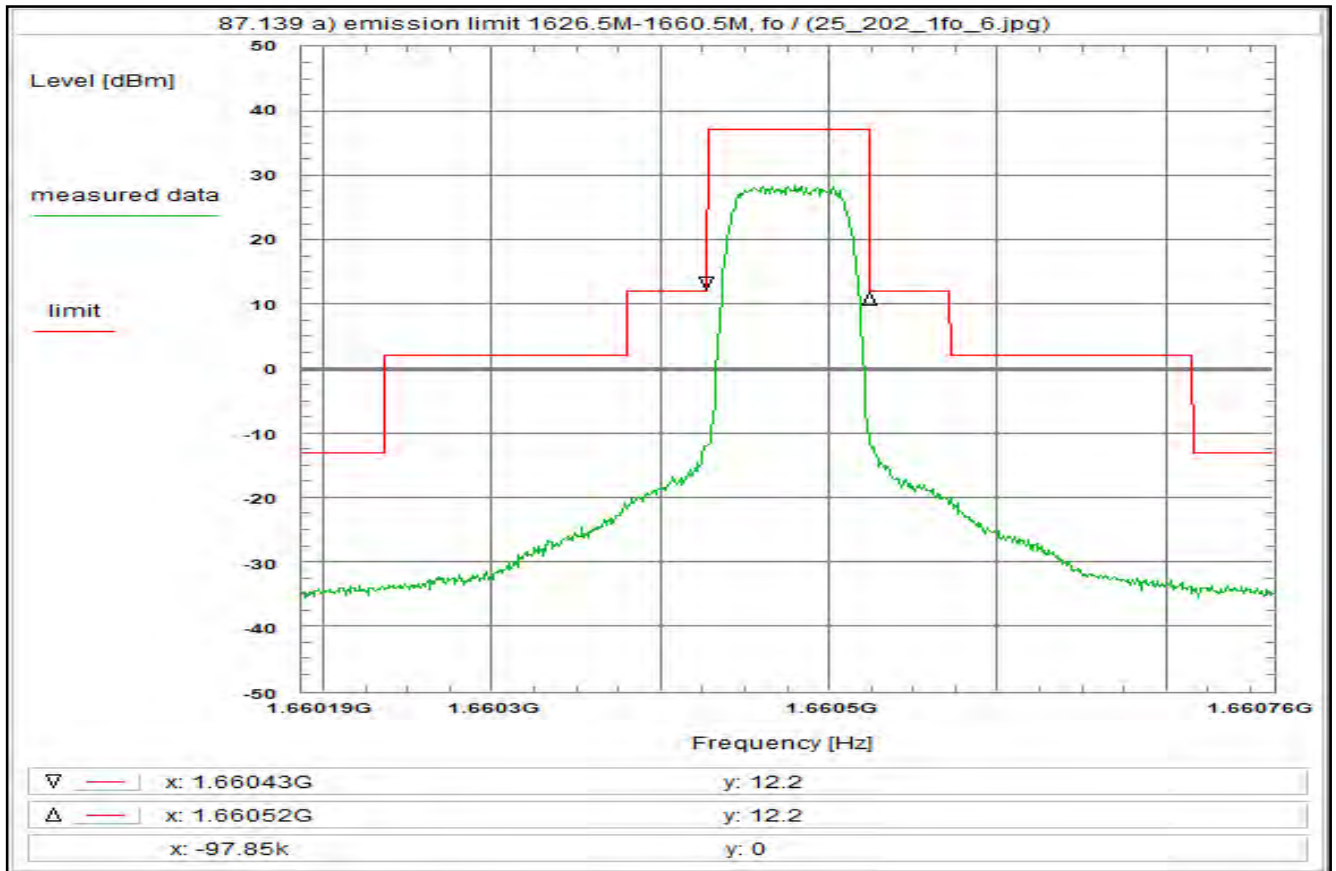
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

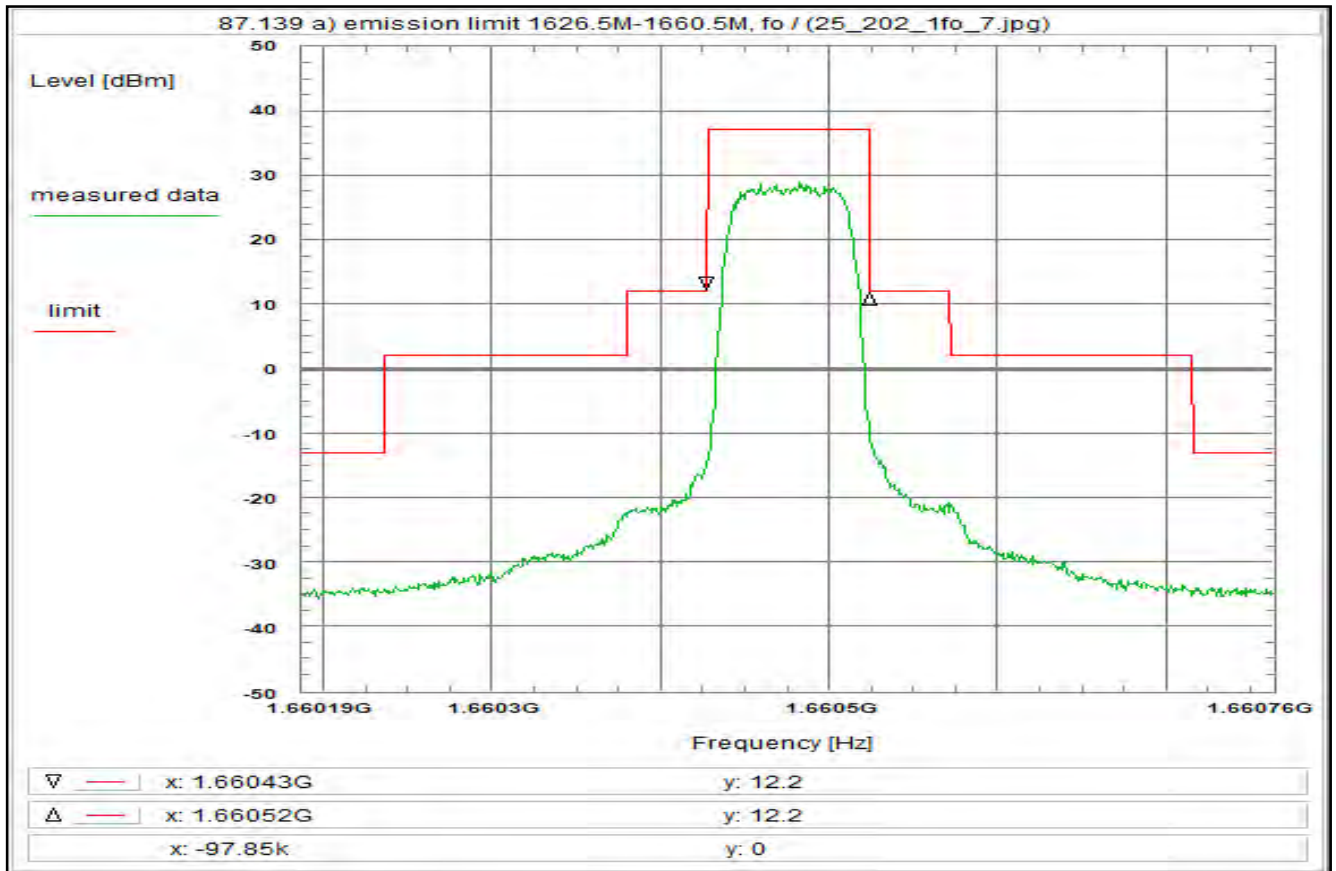
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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:

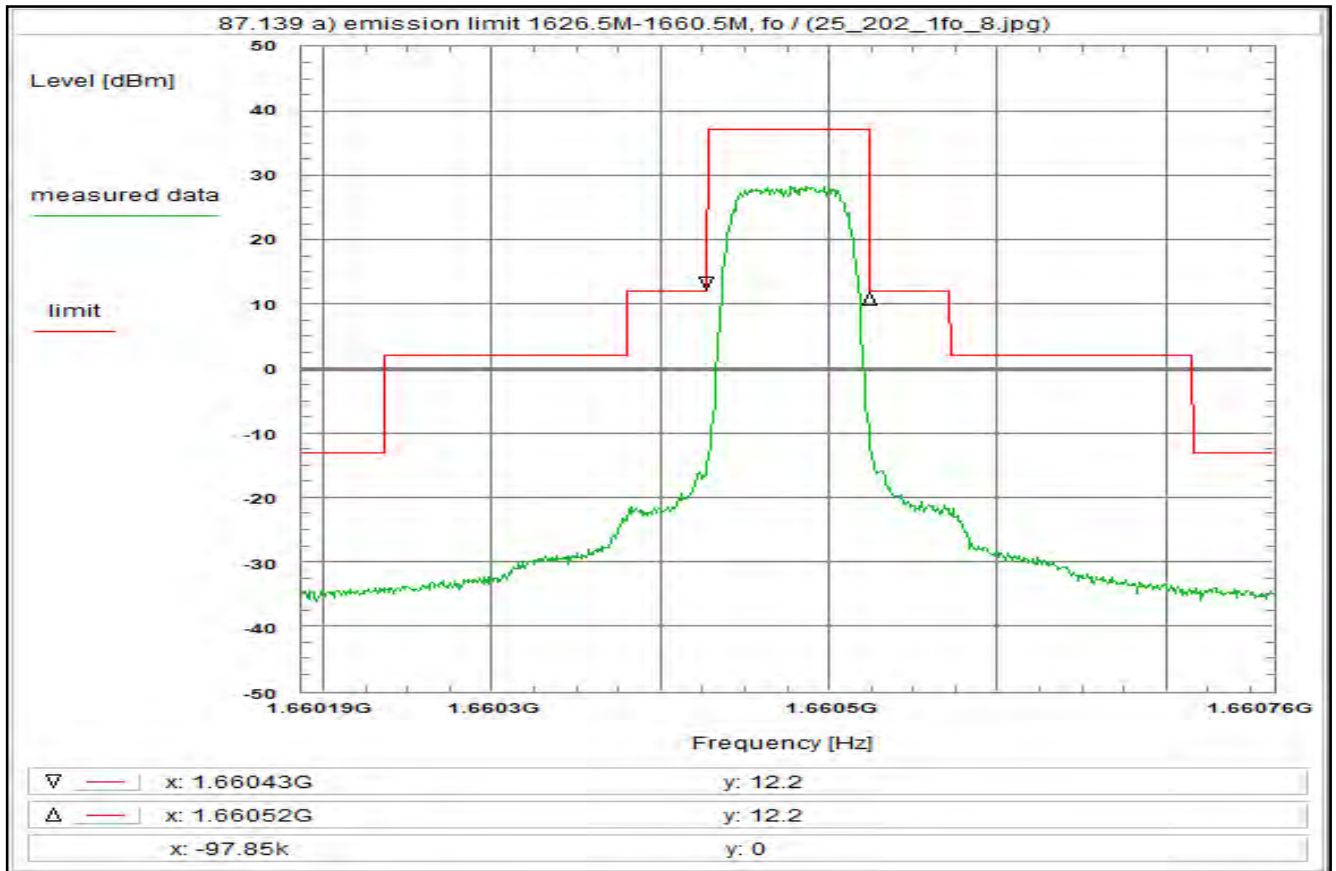
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

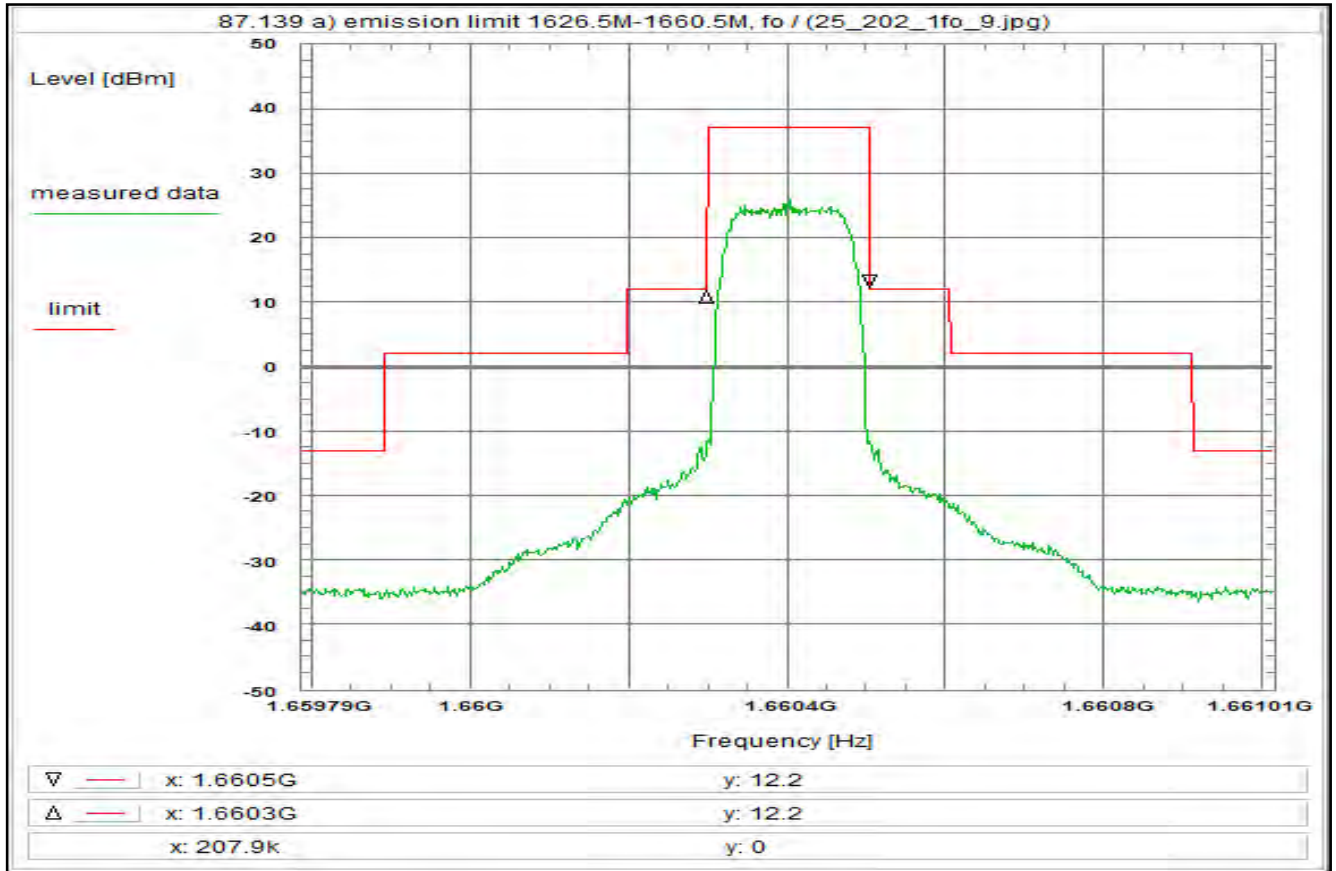
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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:

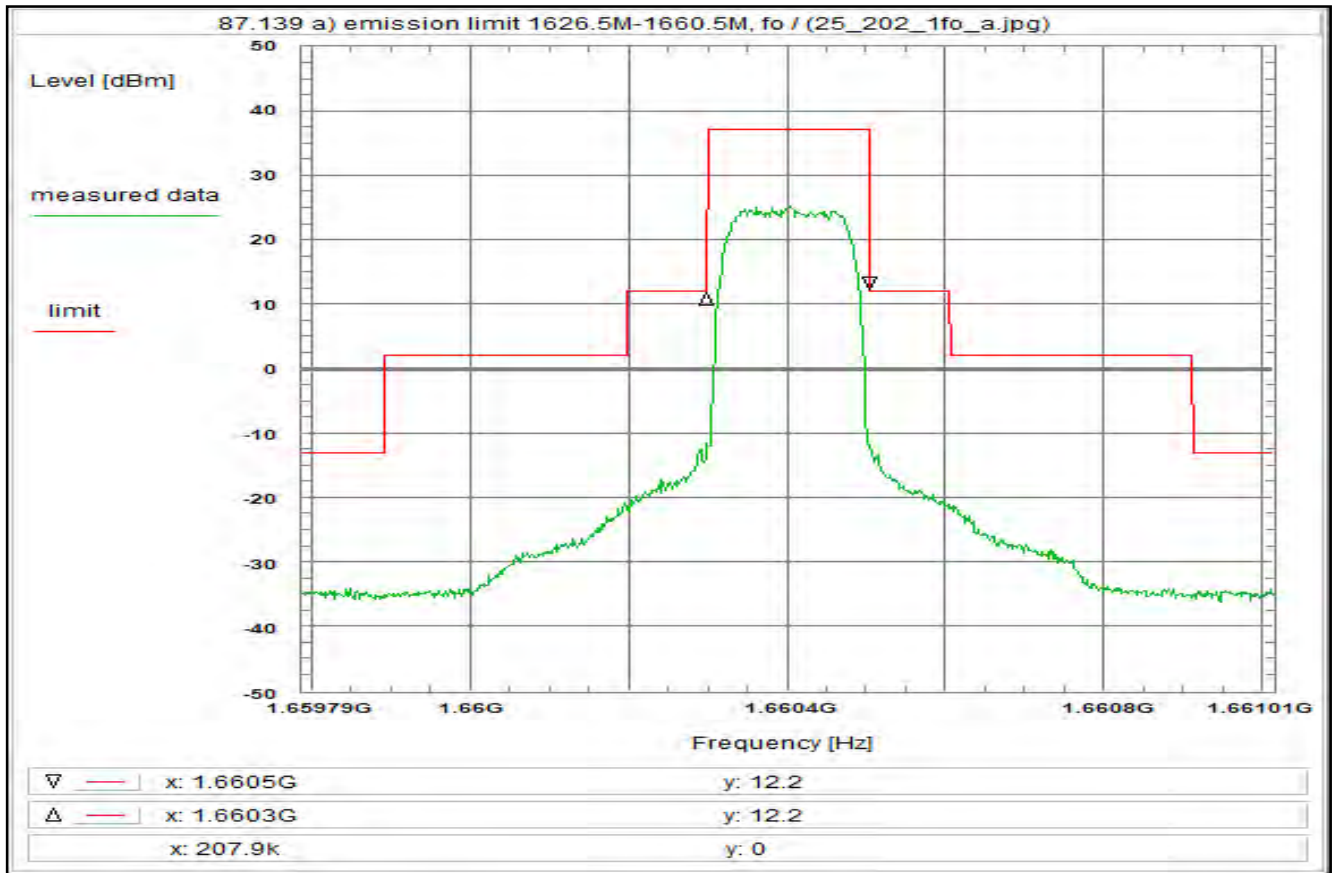
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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:

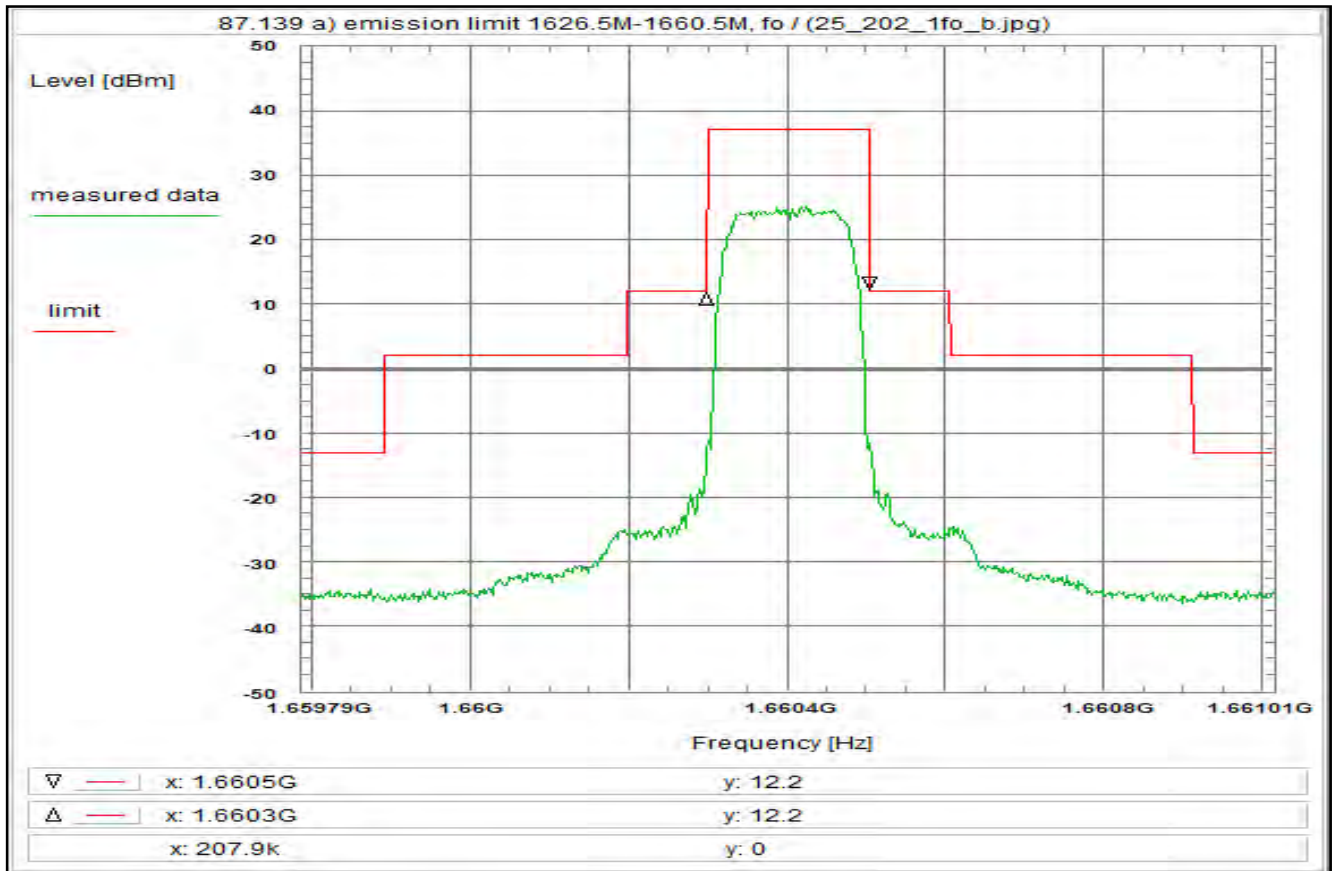
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

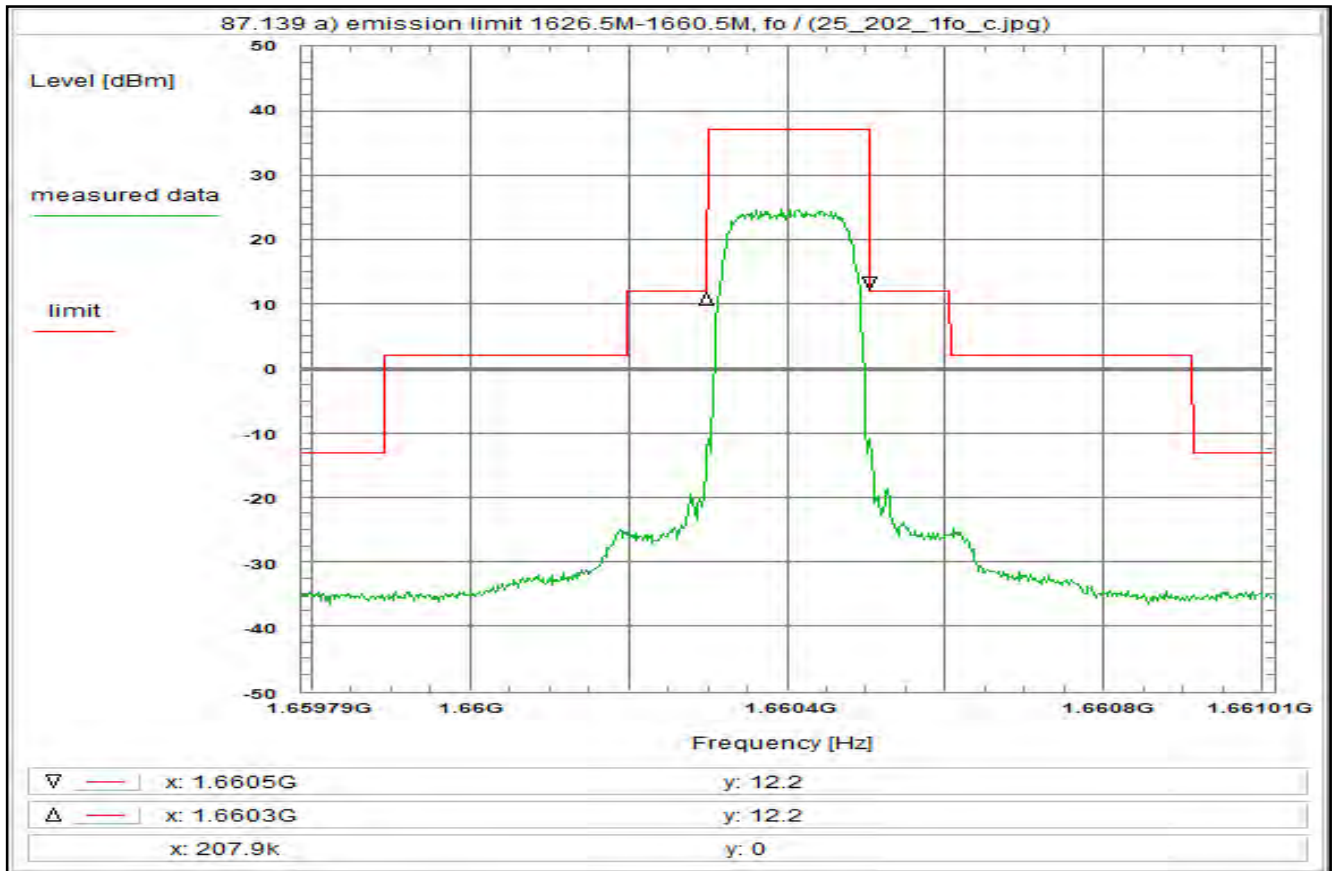
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

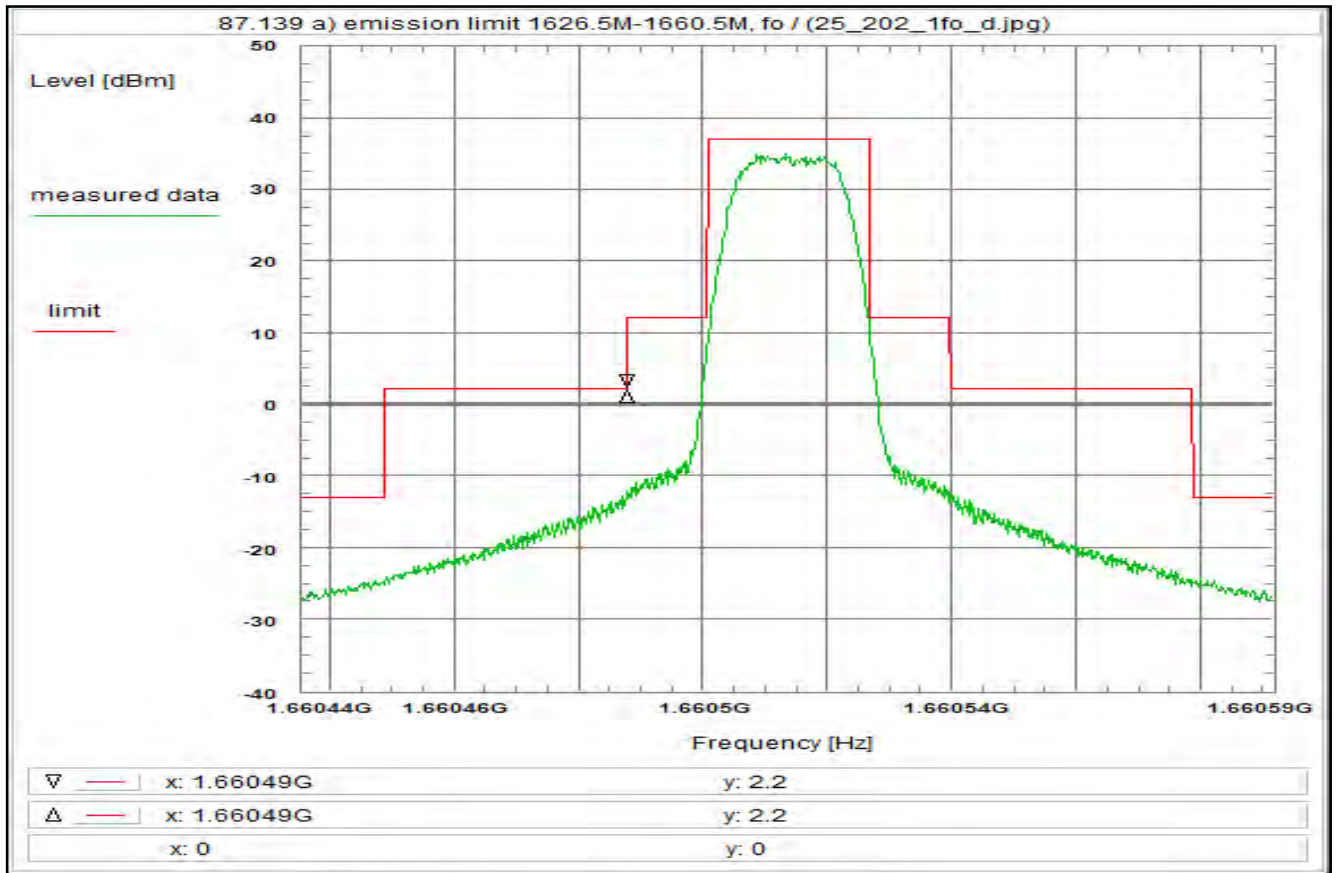
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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

Test results:

see plot (an explicit table was not generated)

Operating condition of DUT:

operating condition 1, 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 passed

Environment 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:

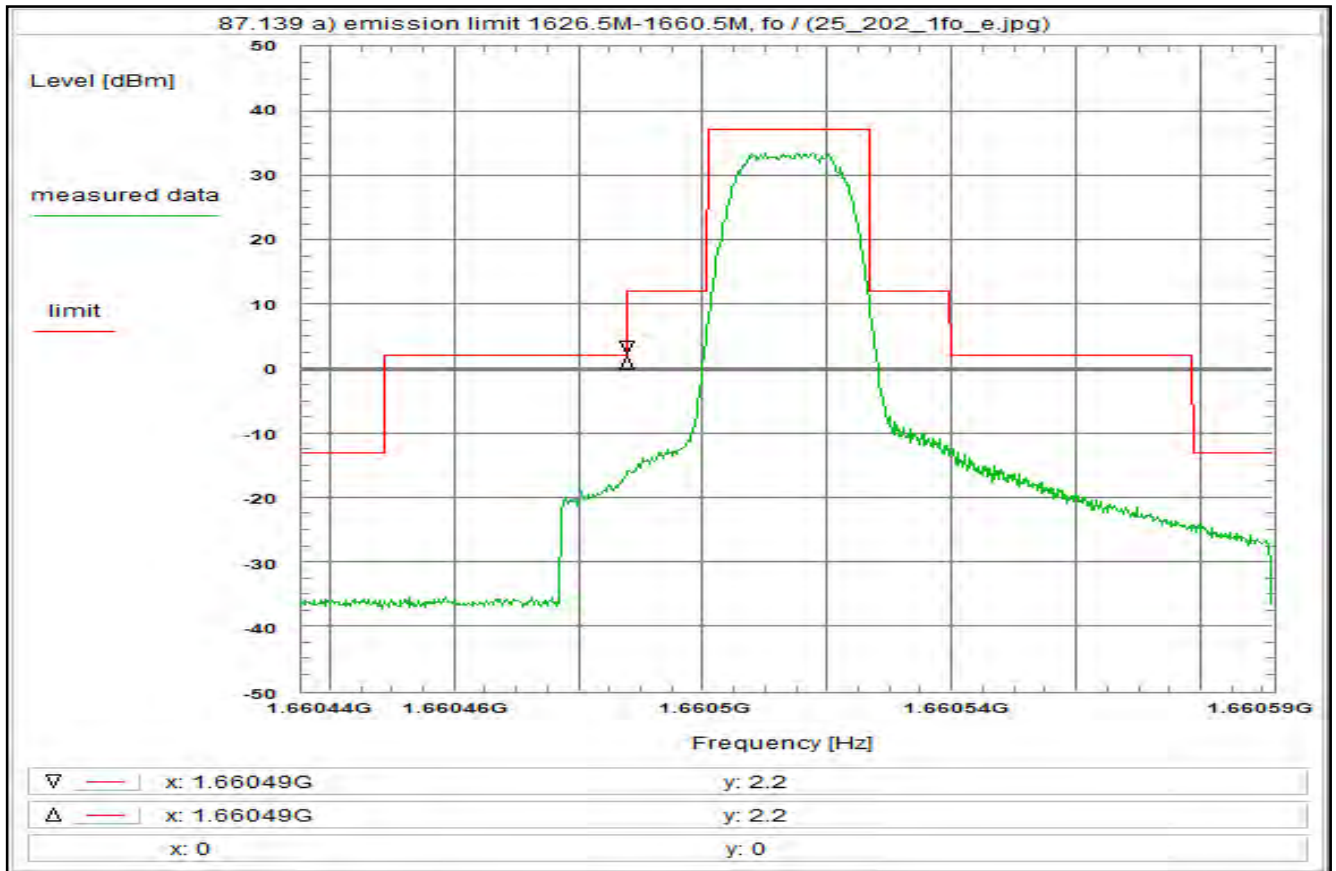
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

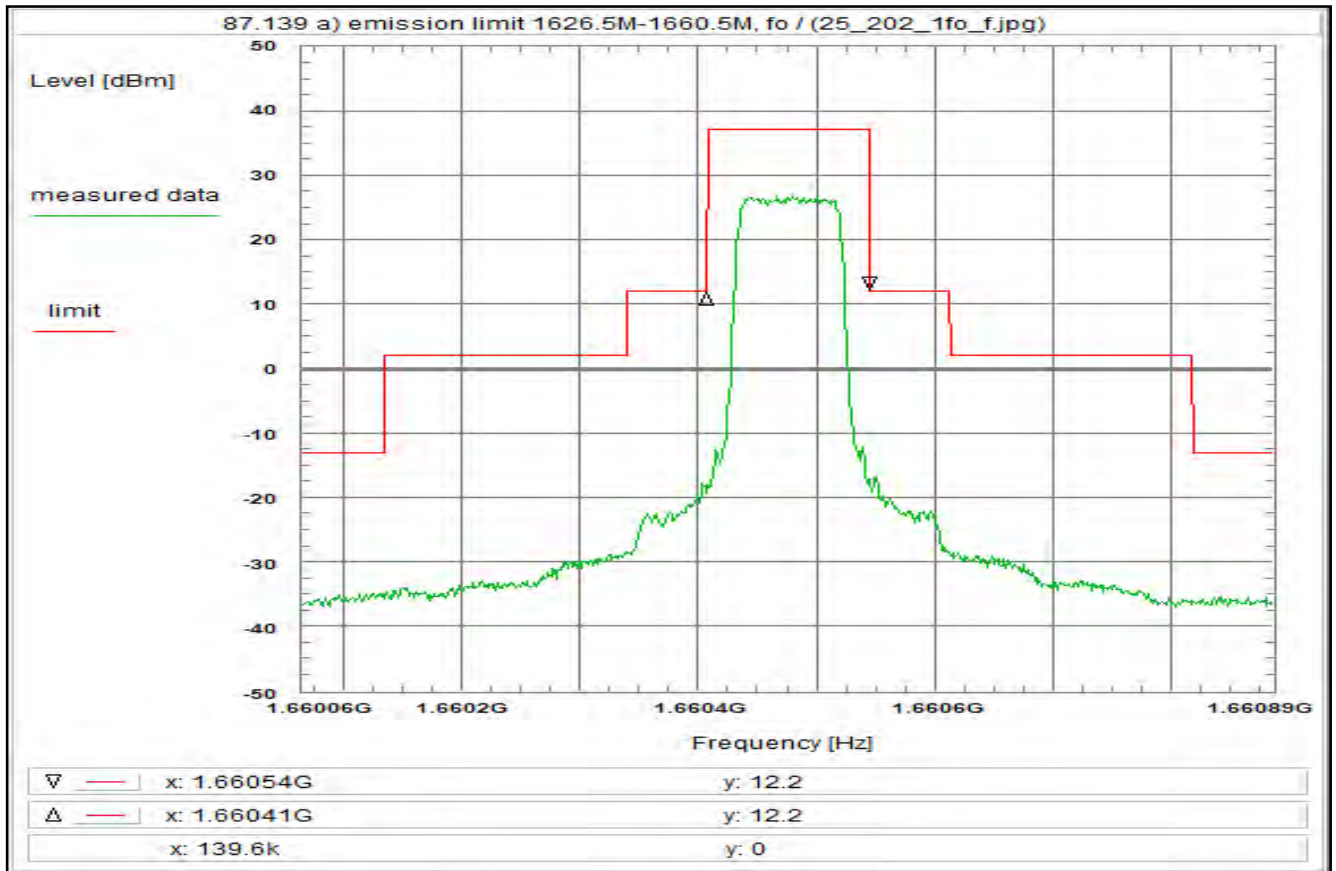
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

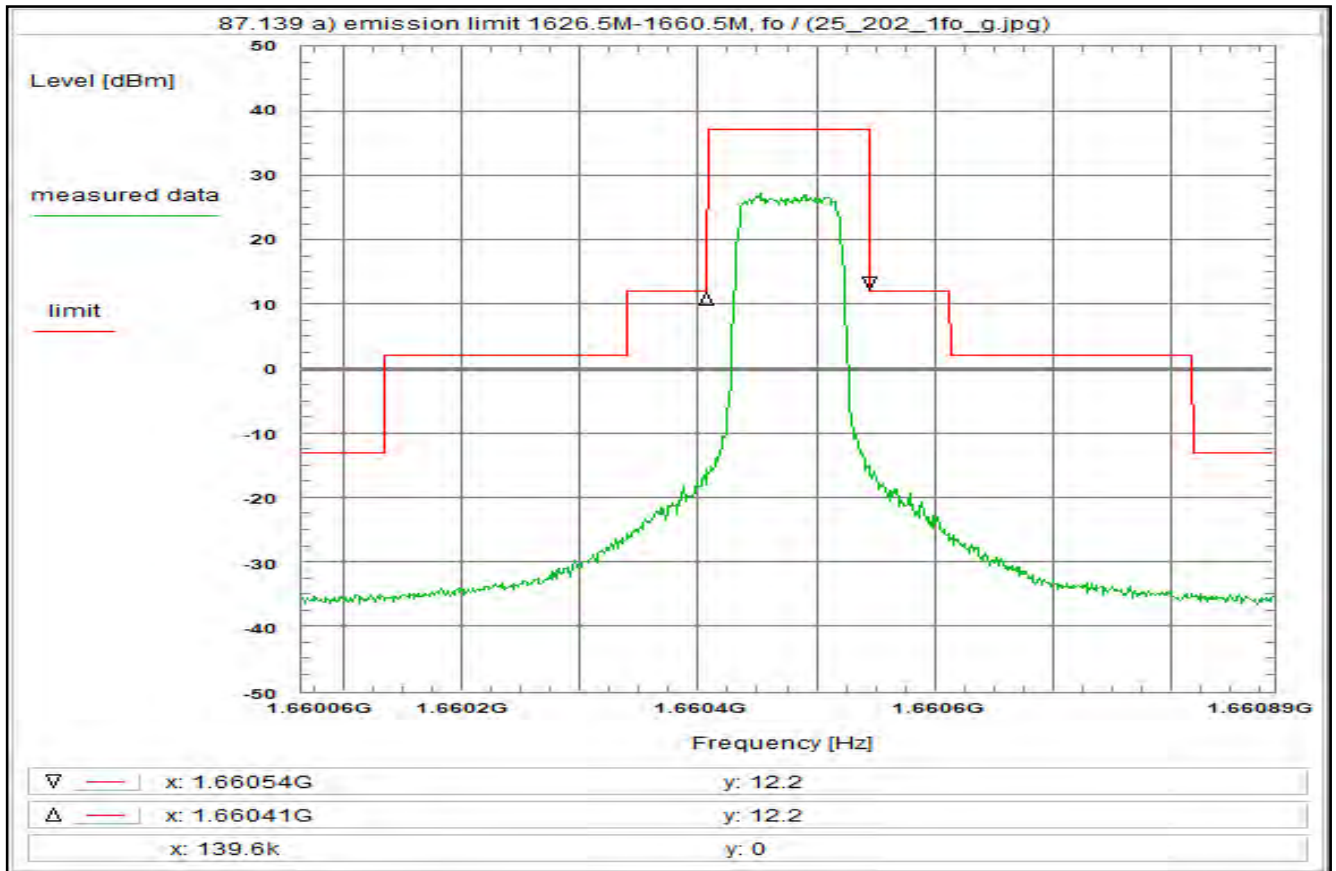
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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 passed

Environment 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:

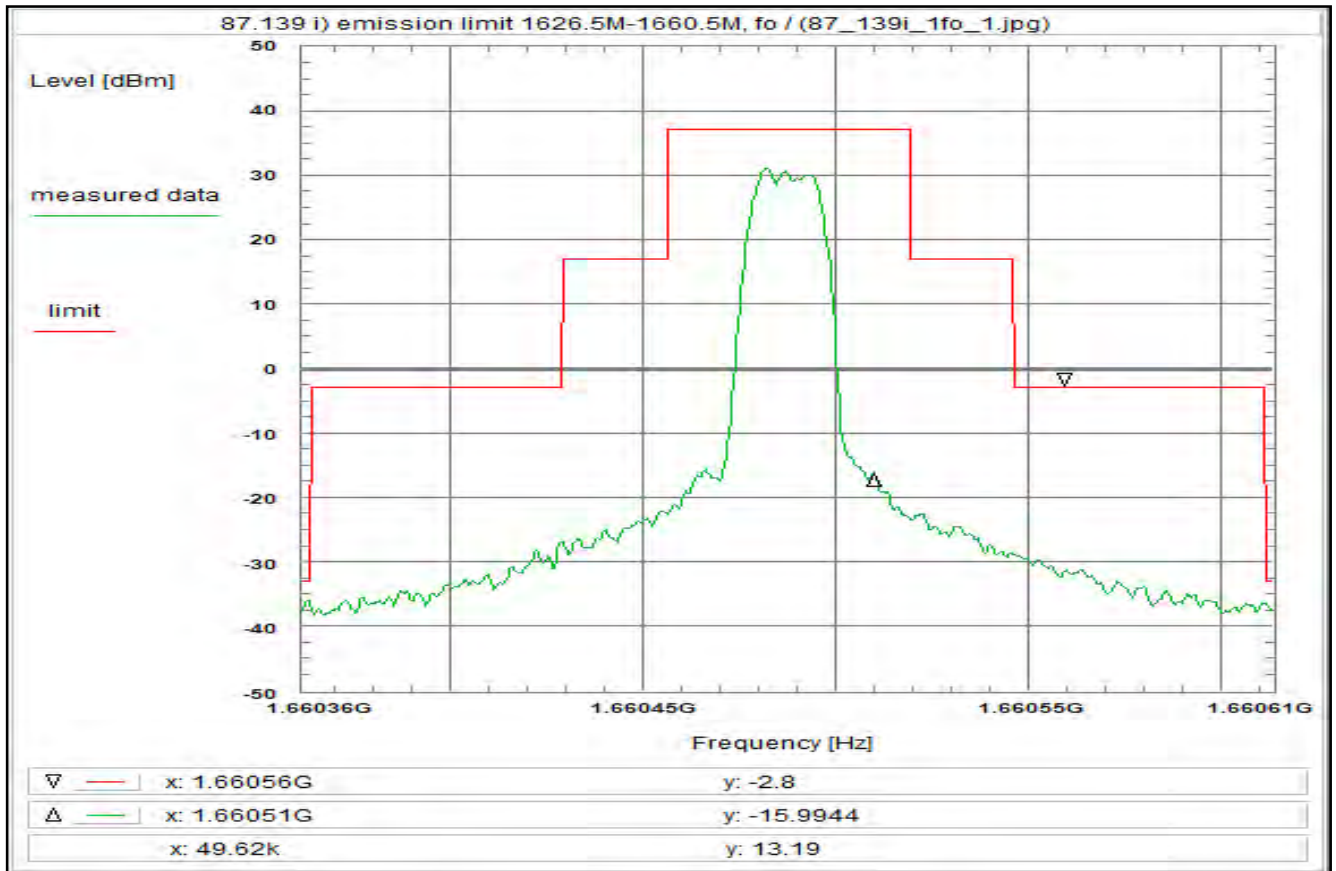
Directional coupler	+ 0.0 dB
Coaxial cable (C220)	+ 0.9 dB
DUT-Antenna	+ 3.8 dBi
Test antenna	+ 0.0 dB
BW correction factor (3k -> 4k)	+ 1.2 dB
Atten. between HPA and feedhorn	- 0.0 dB
Attenuation (U312)	+ 19.5 dB
Attenuation (U311)	+ 9.7 dB
Power Splitter	+ 6.7 dB
TOTAL CORRECTION:	+ 41.8 dB

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

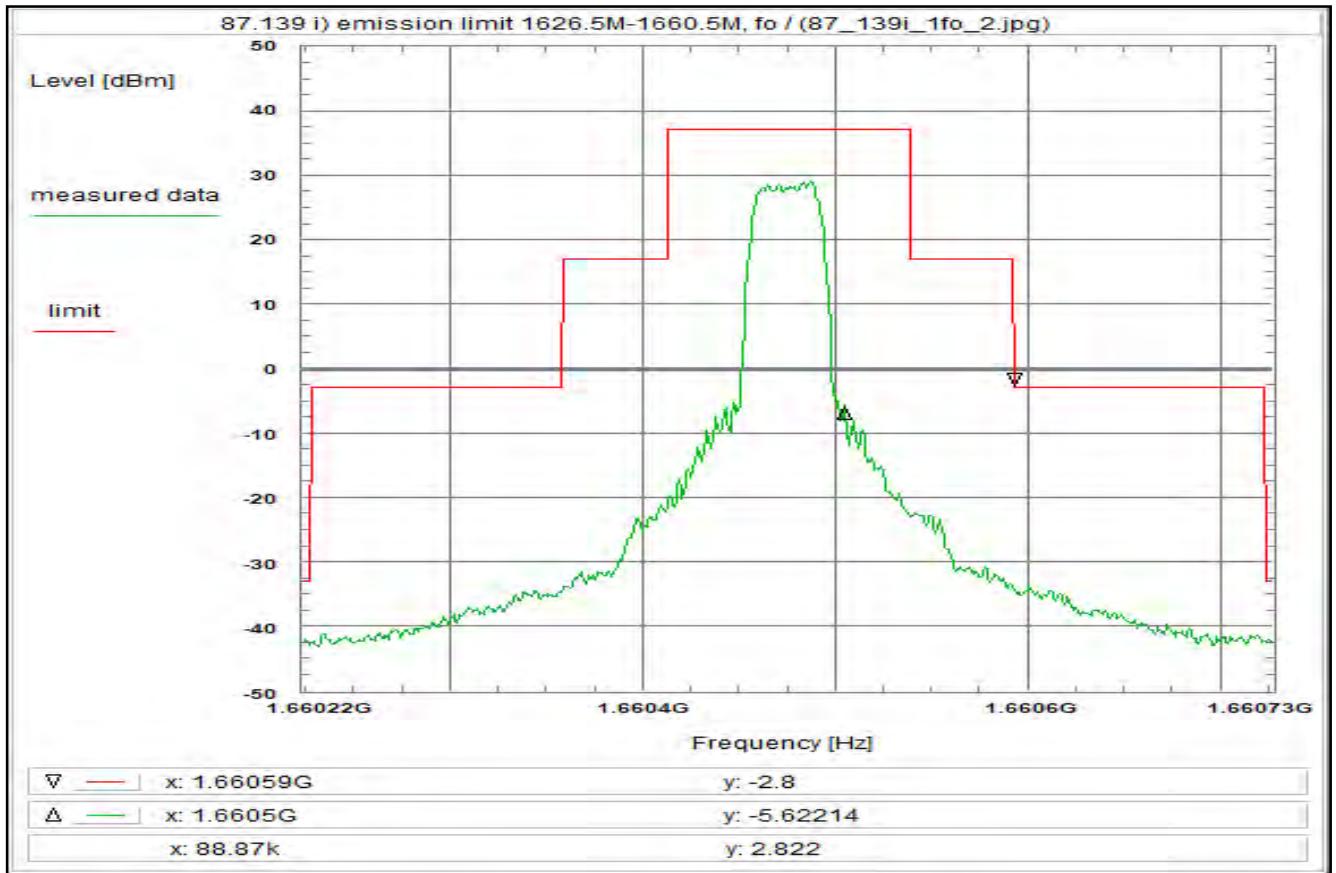
Remarks:

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 ksymbols/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

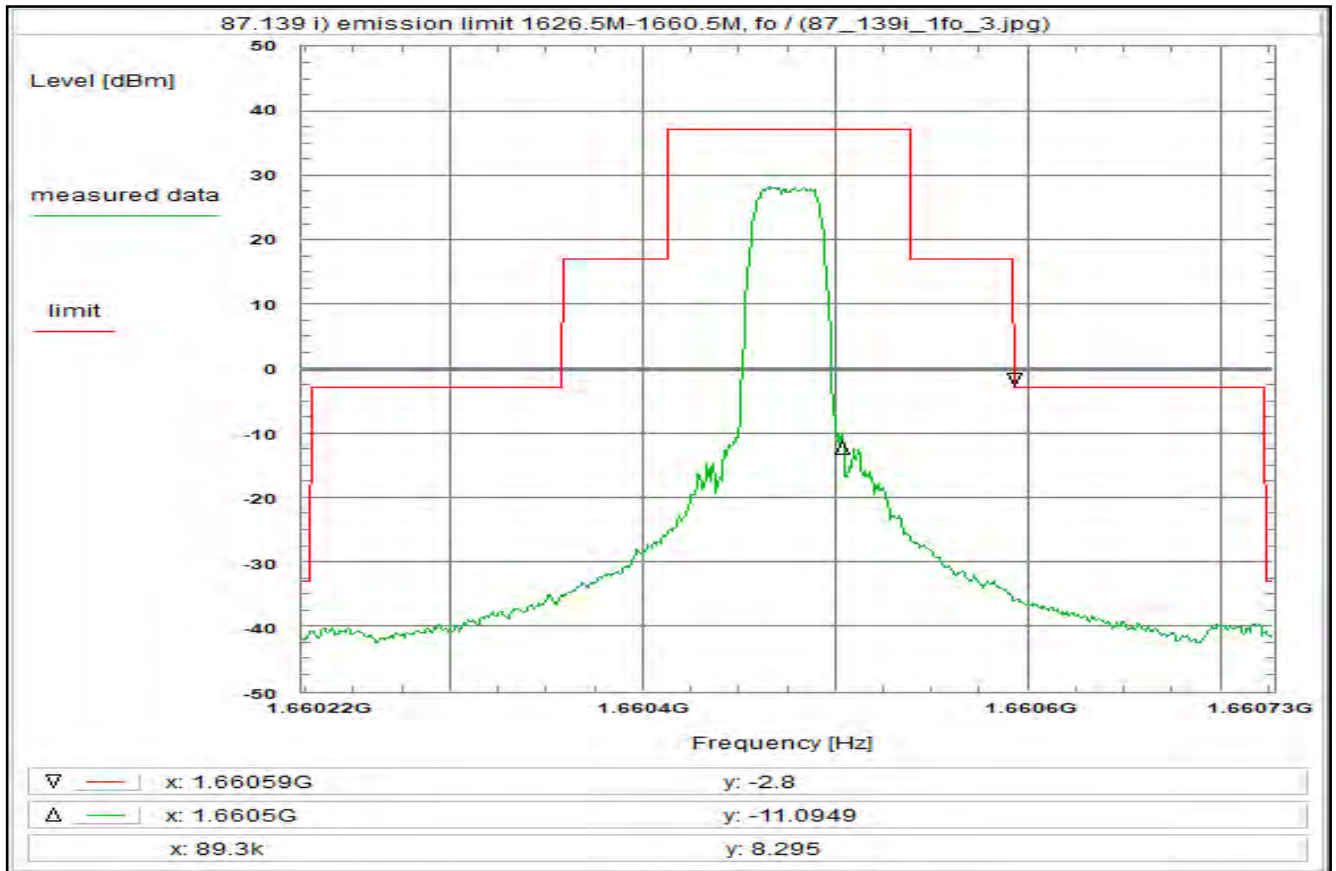
Remarks:

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

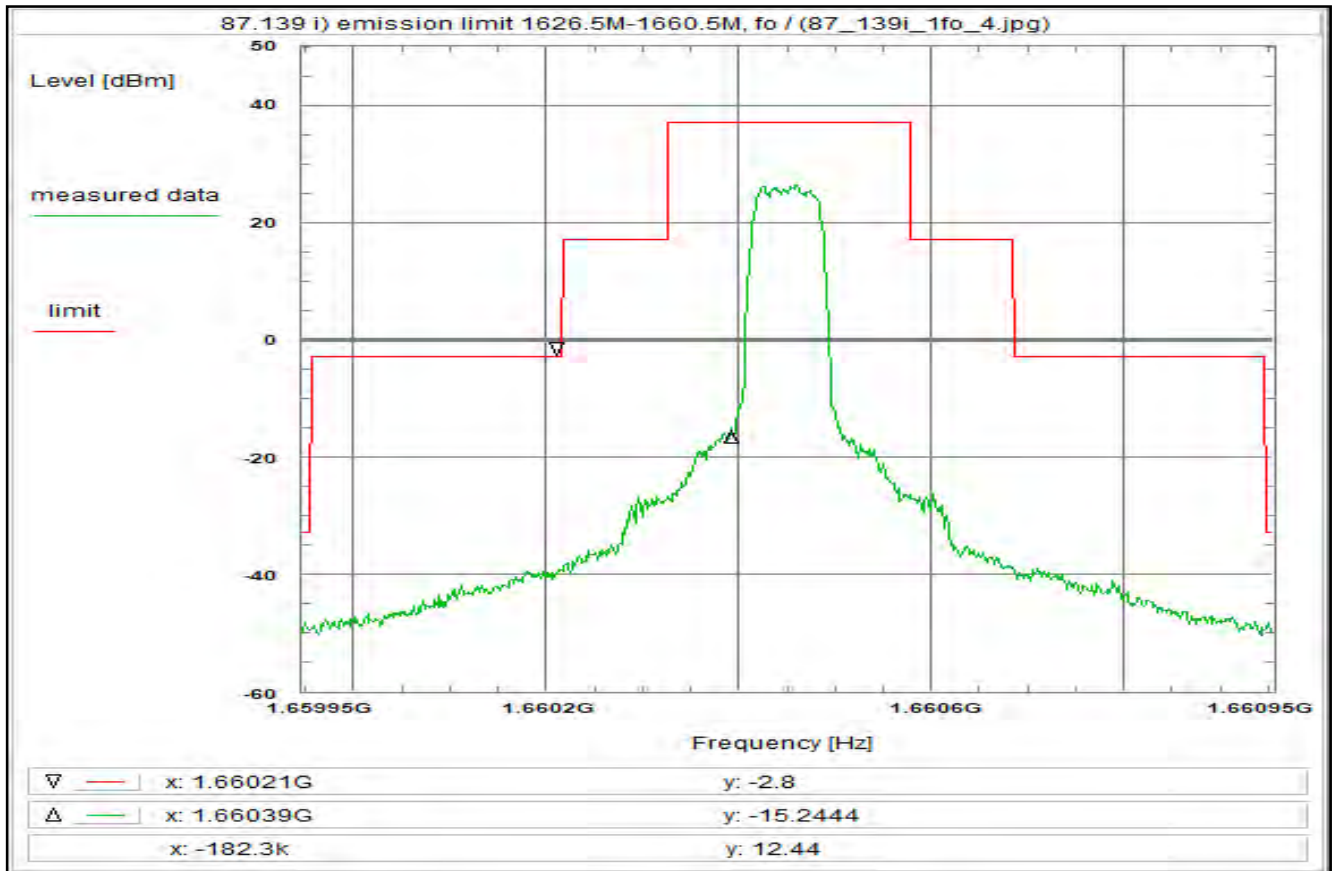
Remarks:

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 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 11:08:58
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

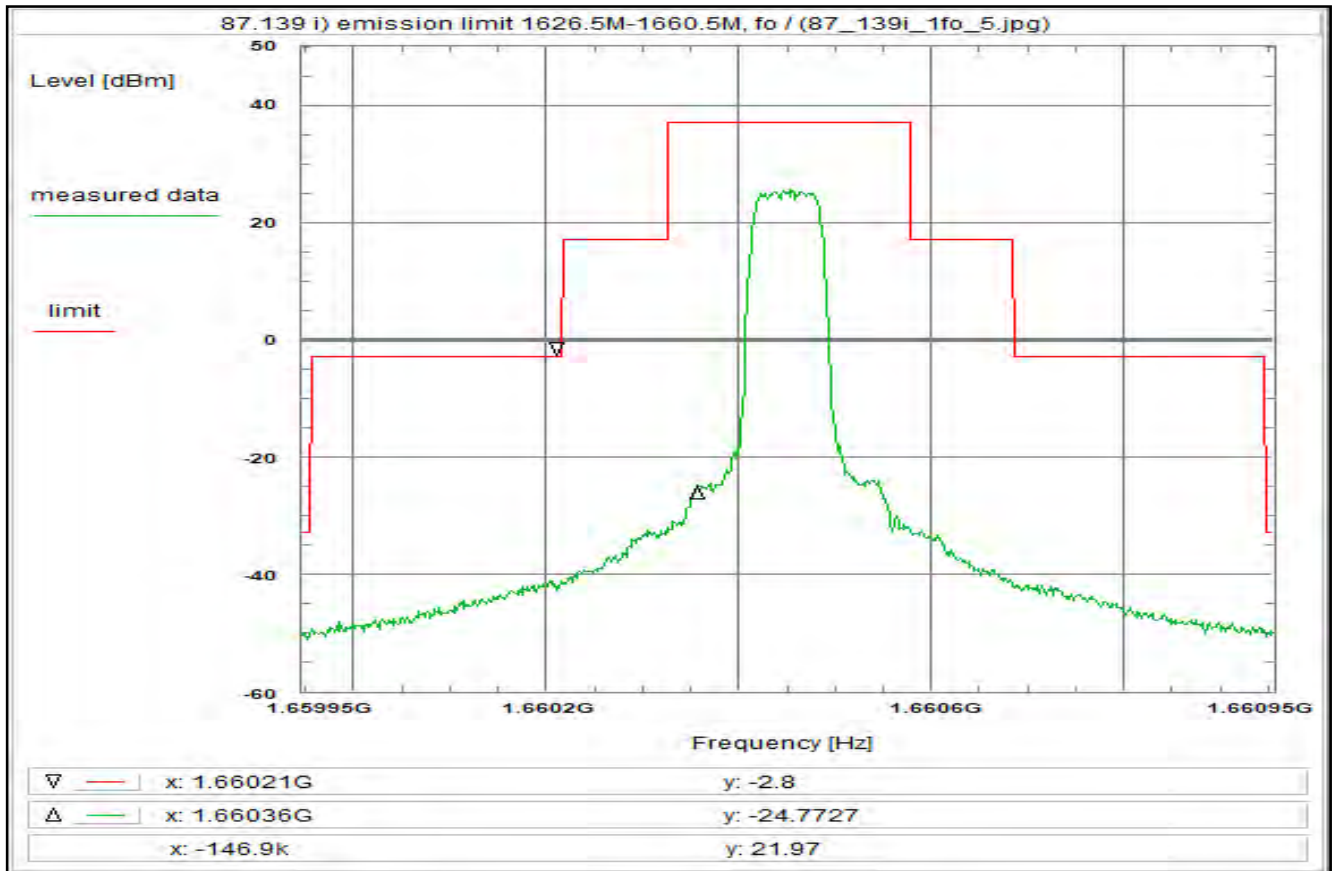
Remarks:

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 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 11:14:15
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

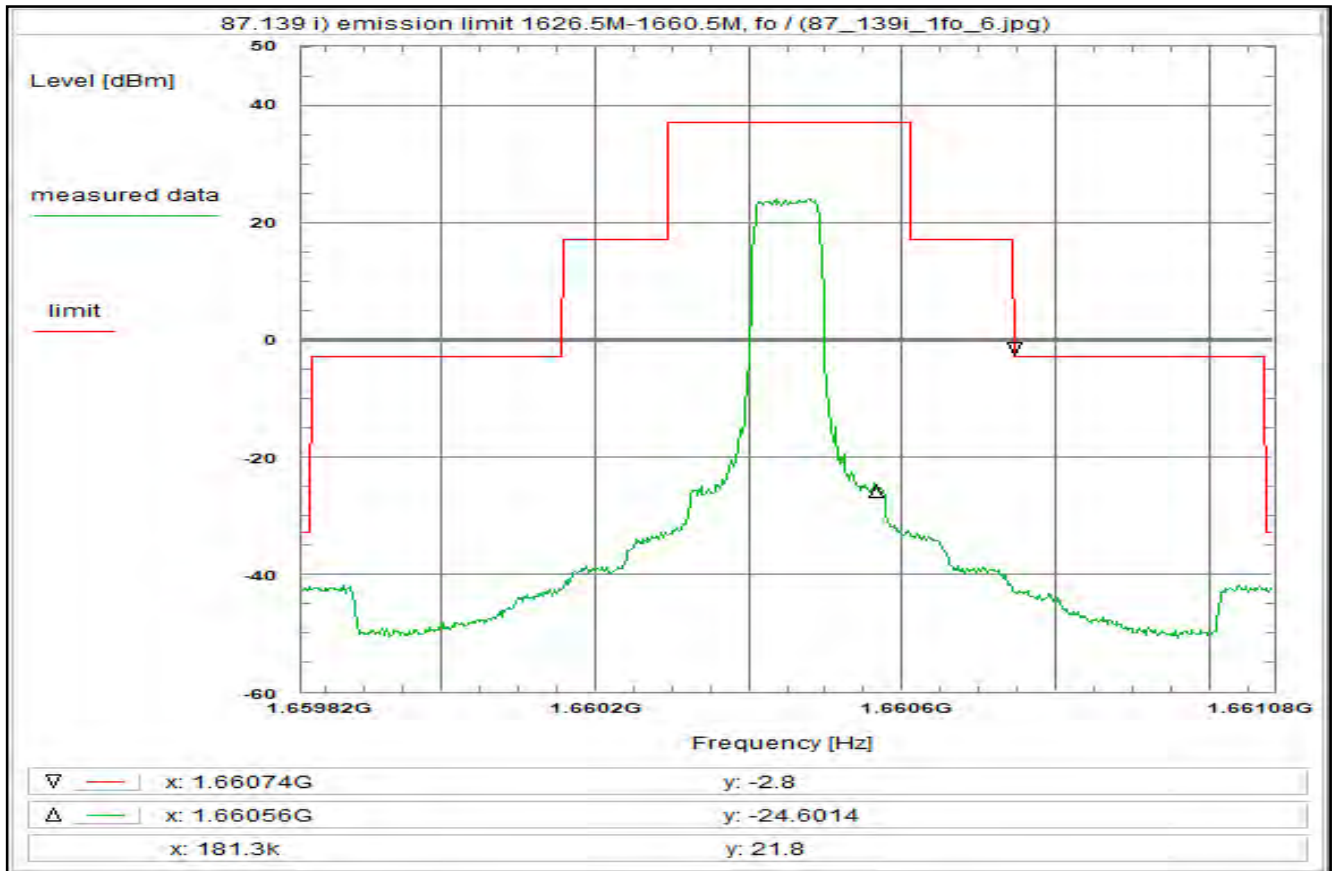
Remarks:

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

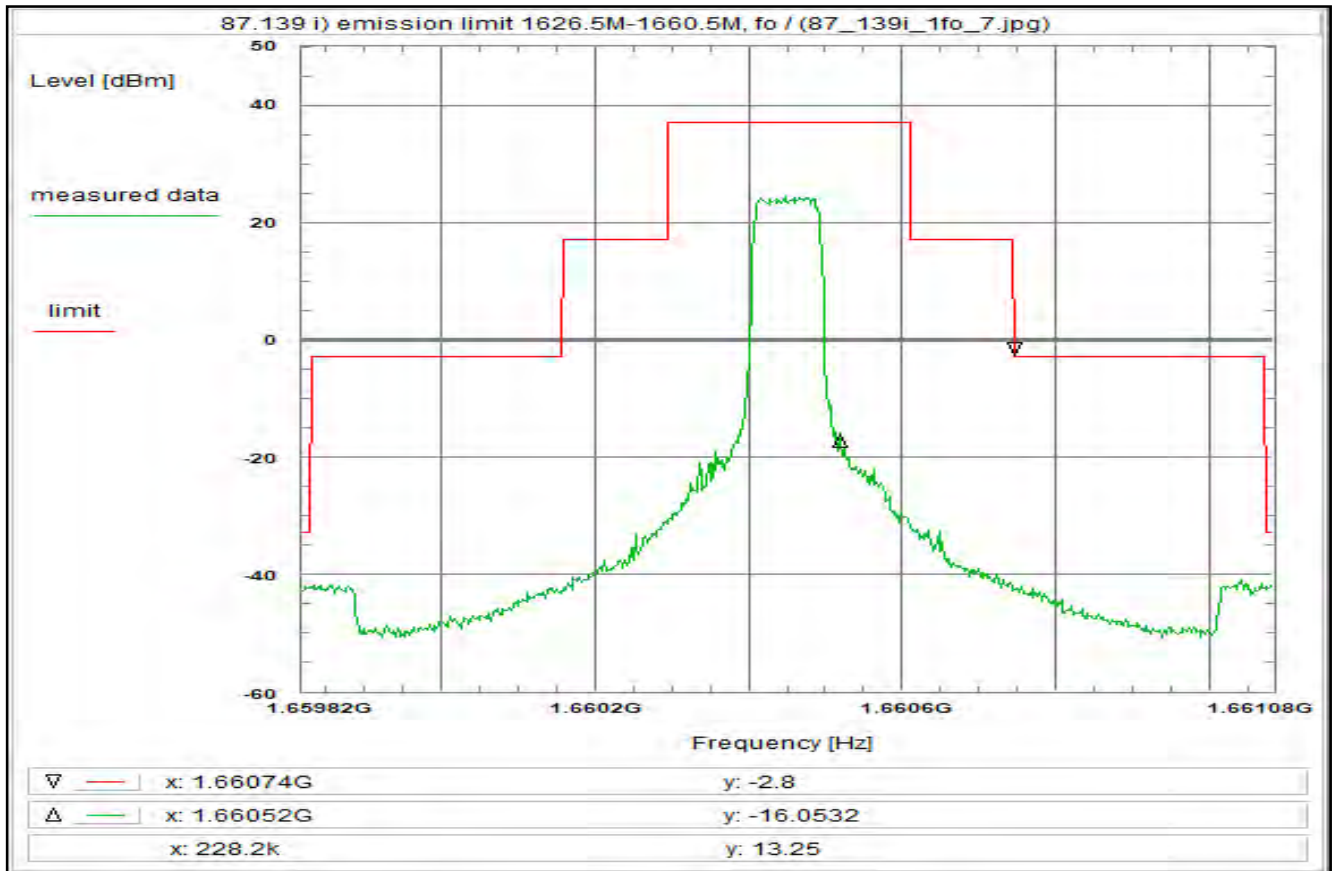
Remarks:

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

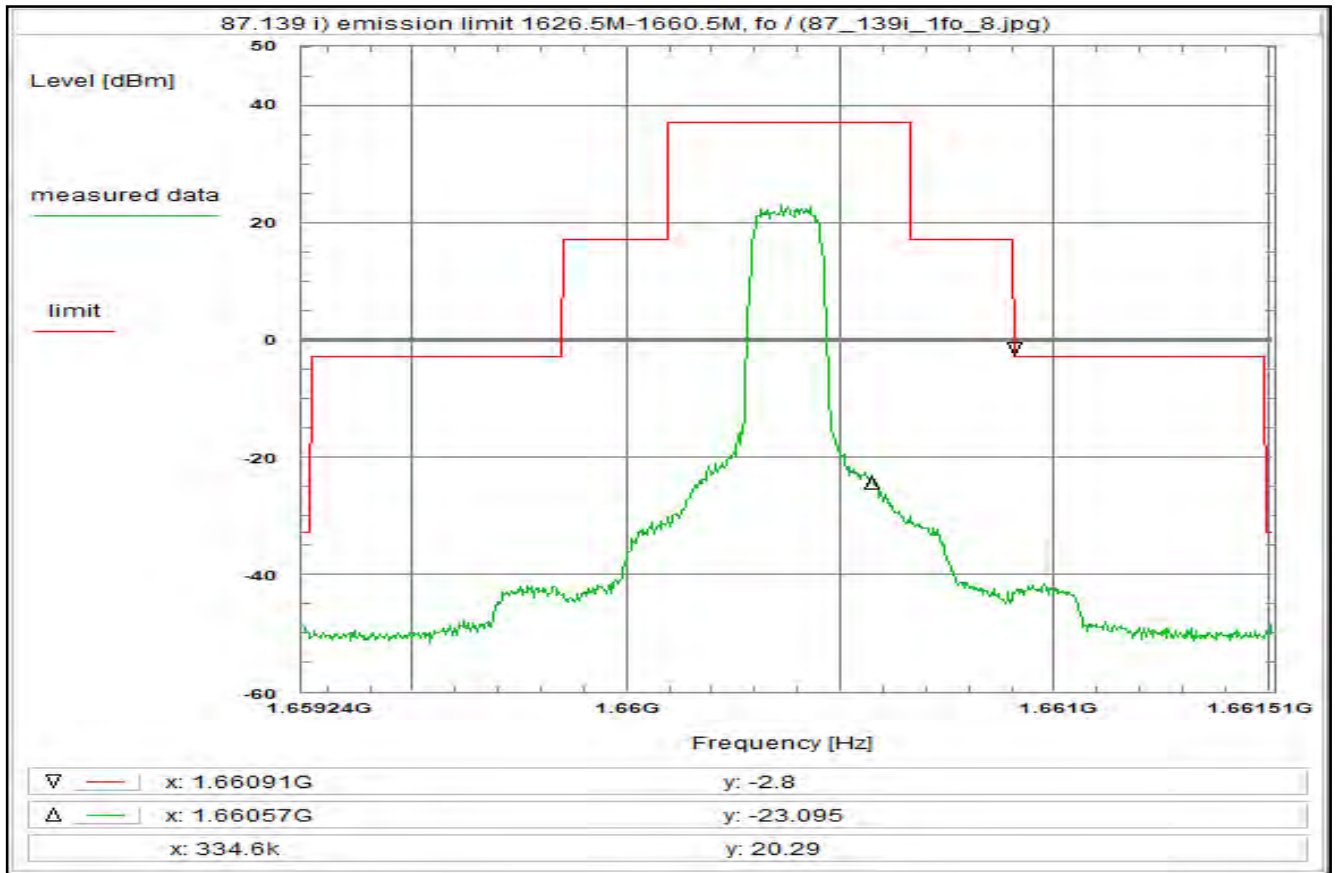
Remarks:

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

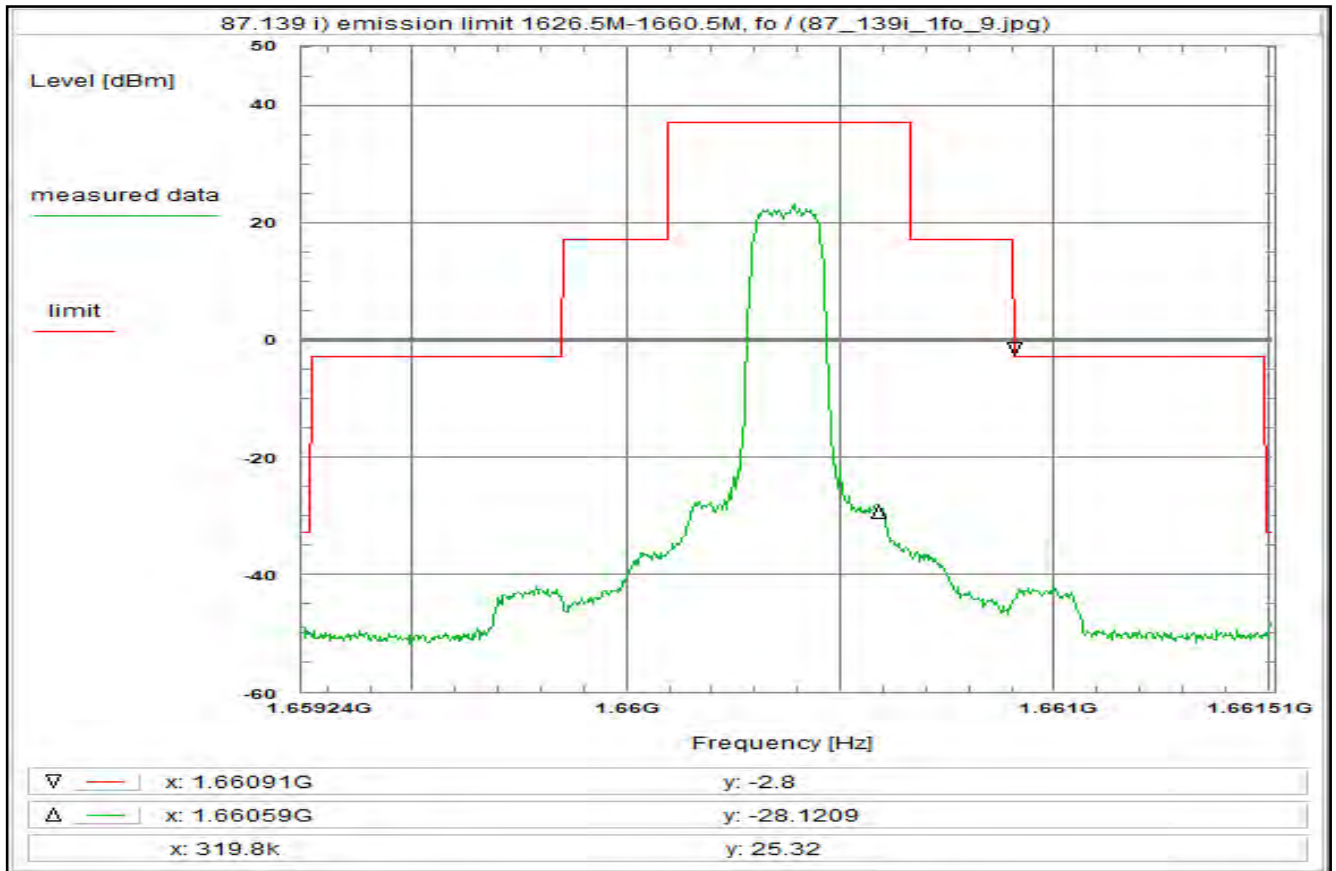
Remarks:

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

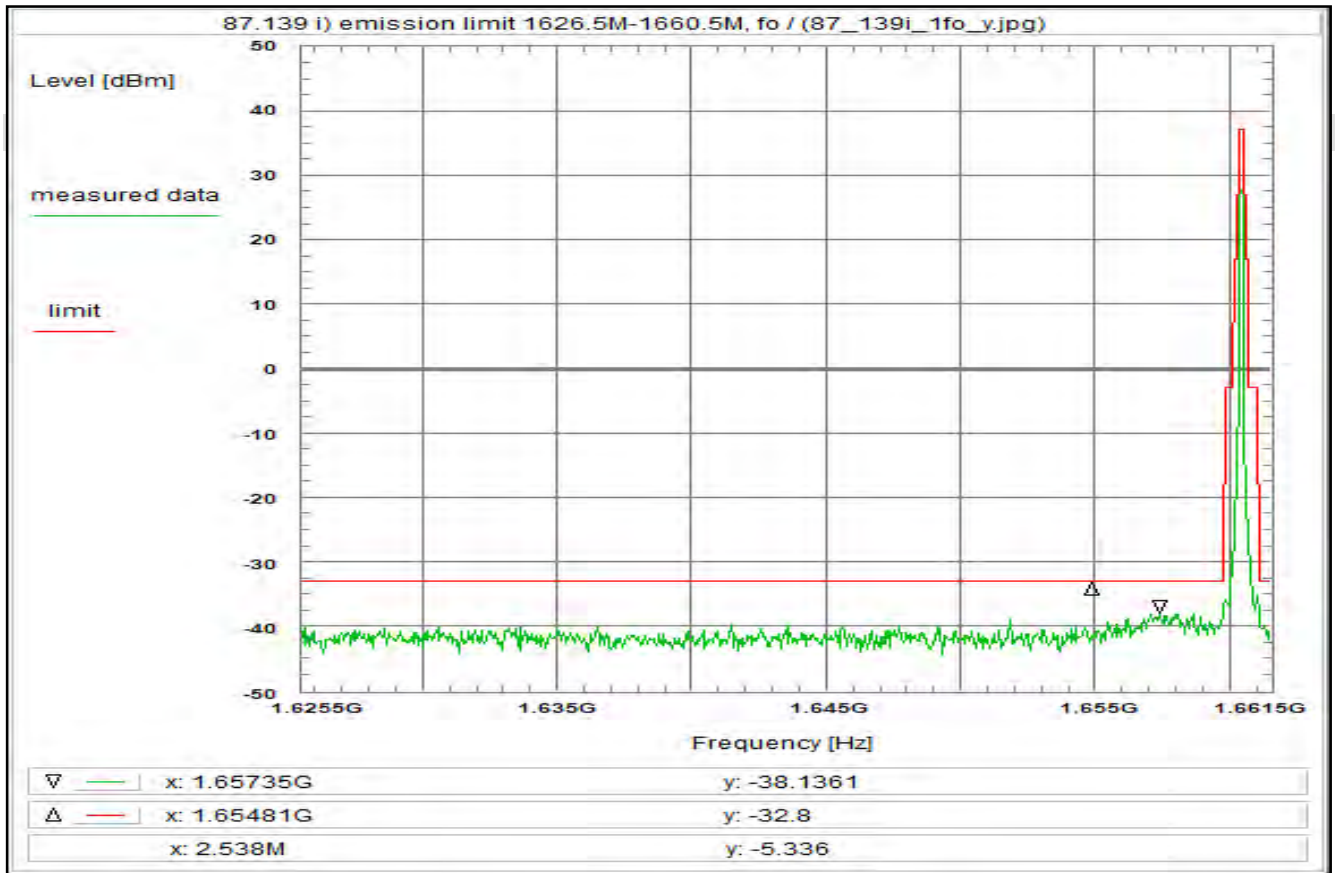
Remarks:

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)

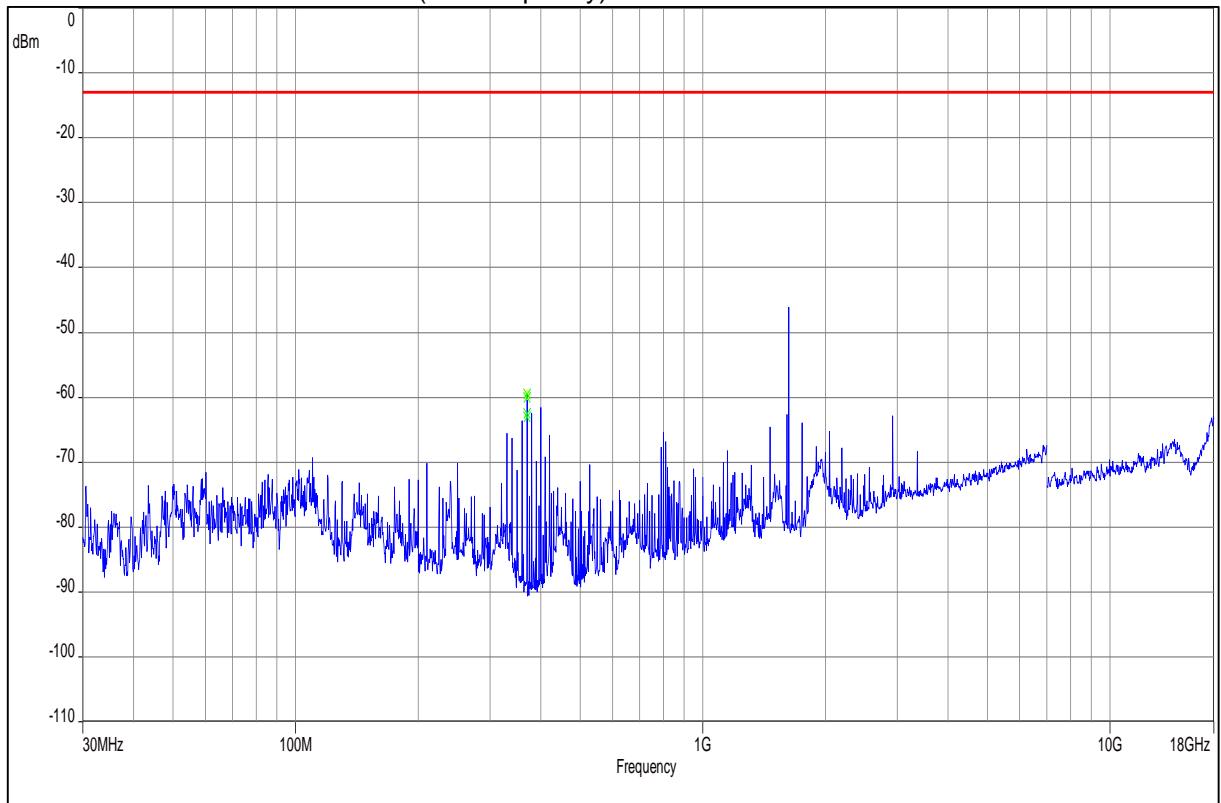
For EIRP calculation:

'worst-case' = maximum antenna gain

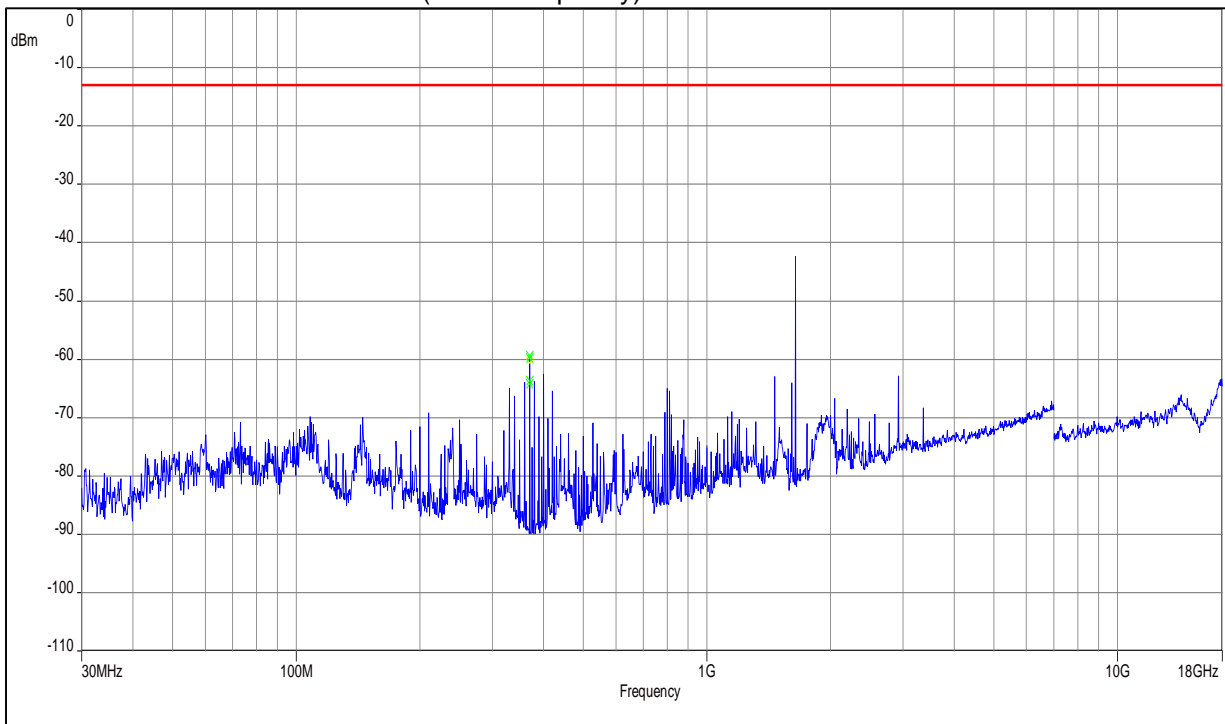
4 Measurement results, Spurious emissions 30MHz - 18 GHz

This Chapter 3 consists of 3 pages including this page.

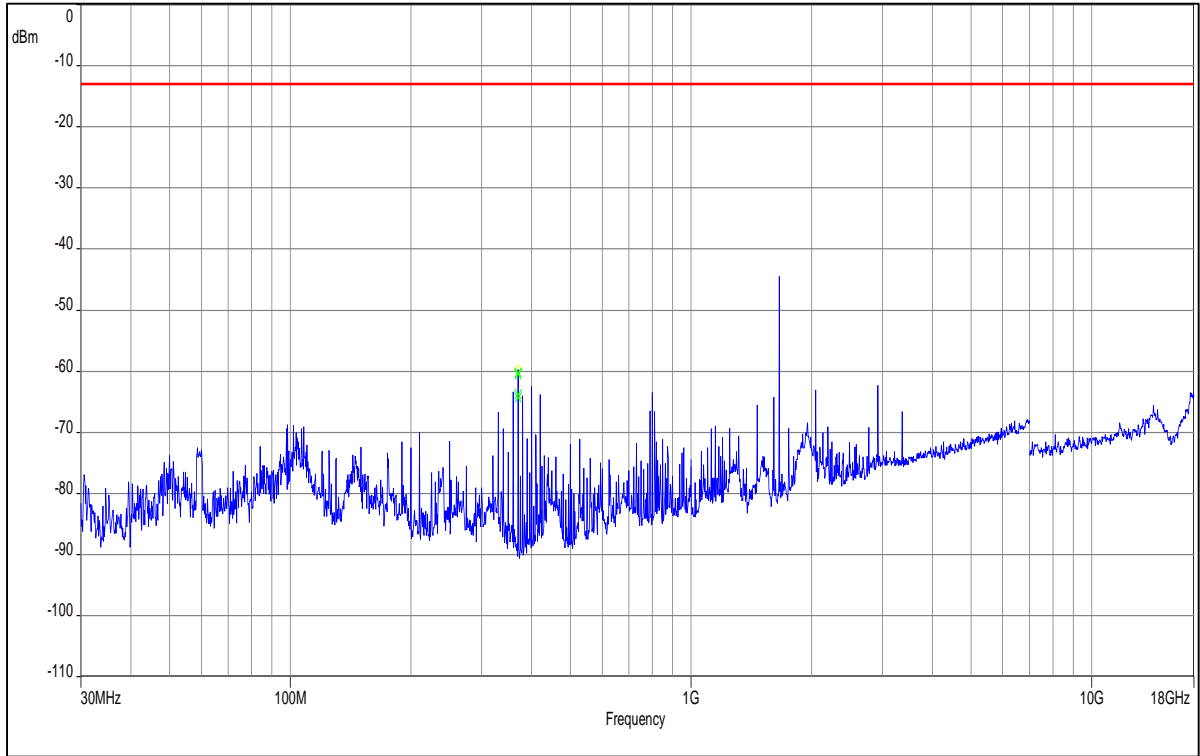
Plot No. 1: antenna vertical / horizontal (Low frequency)



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