

# Annex E



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**Test report annex authorized:**

p.o.

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Radio Communications & EMC

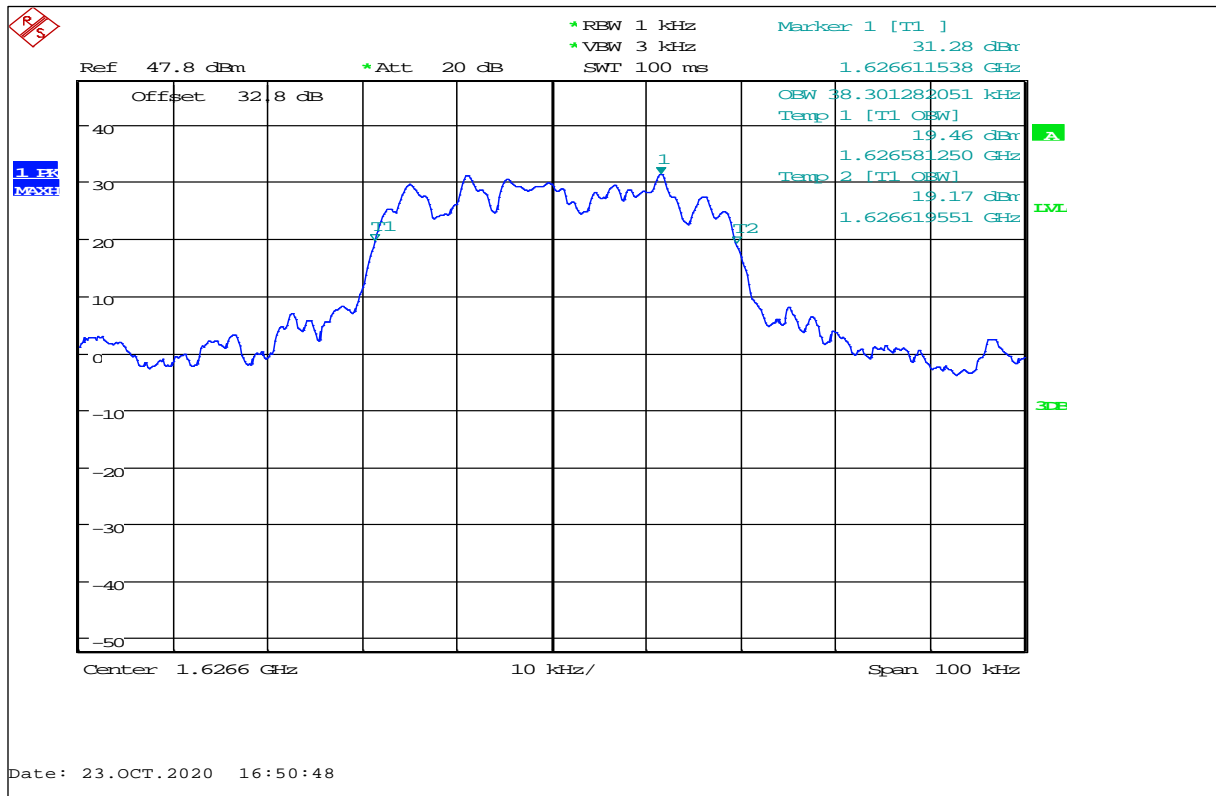
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## 2 Measurement results, FCC Part 87 and FCC Part 25

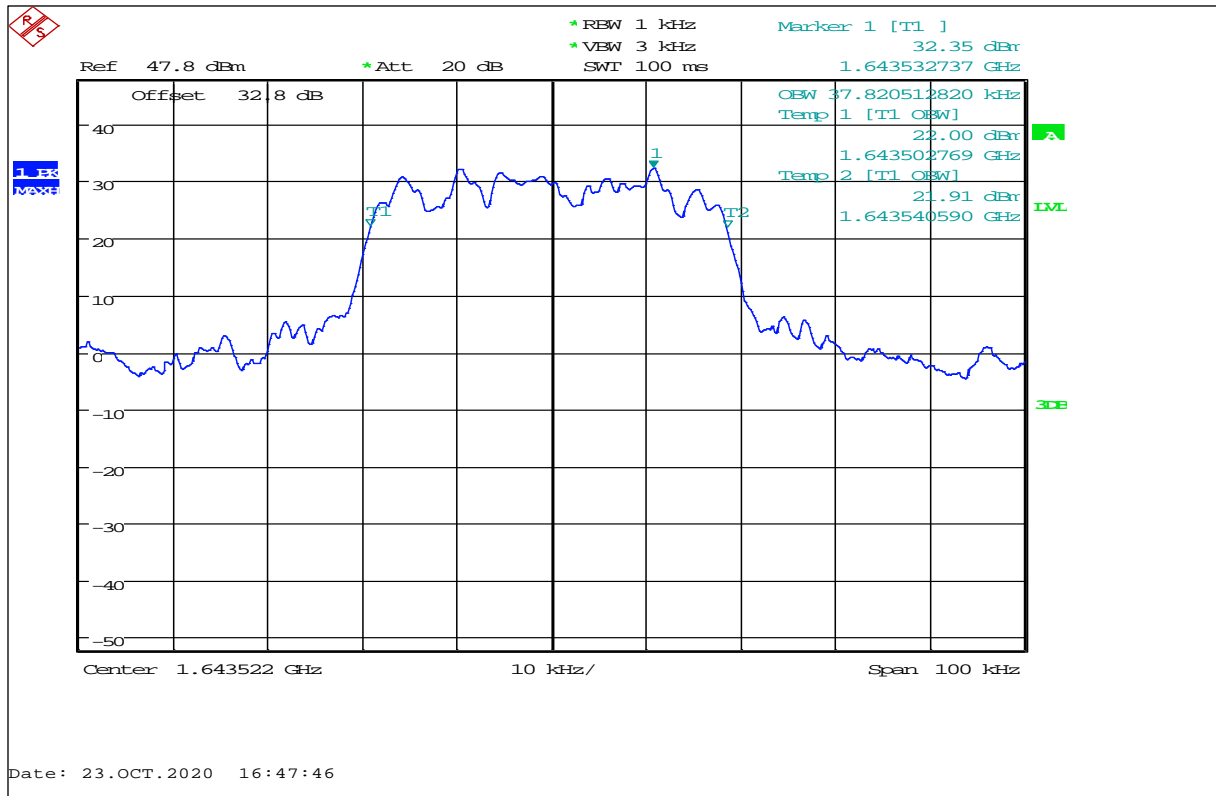
This chapter consists of 121 pages including this page.

Plot No. 1



OBW, Low Channel, R5T1XD

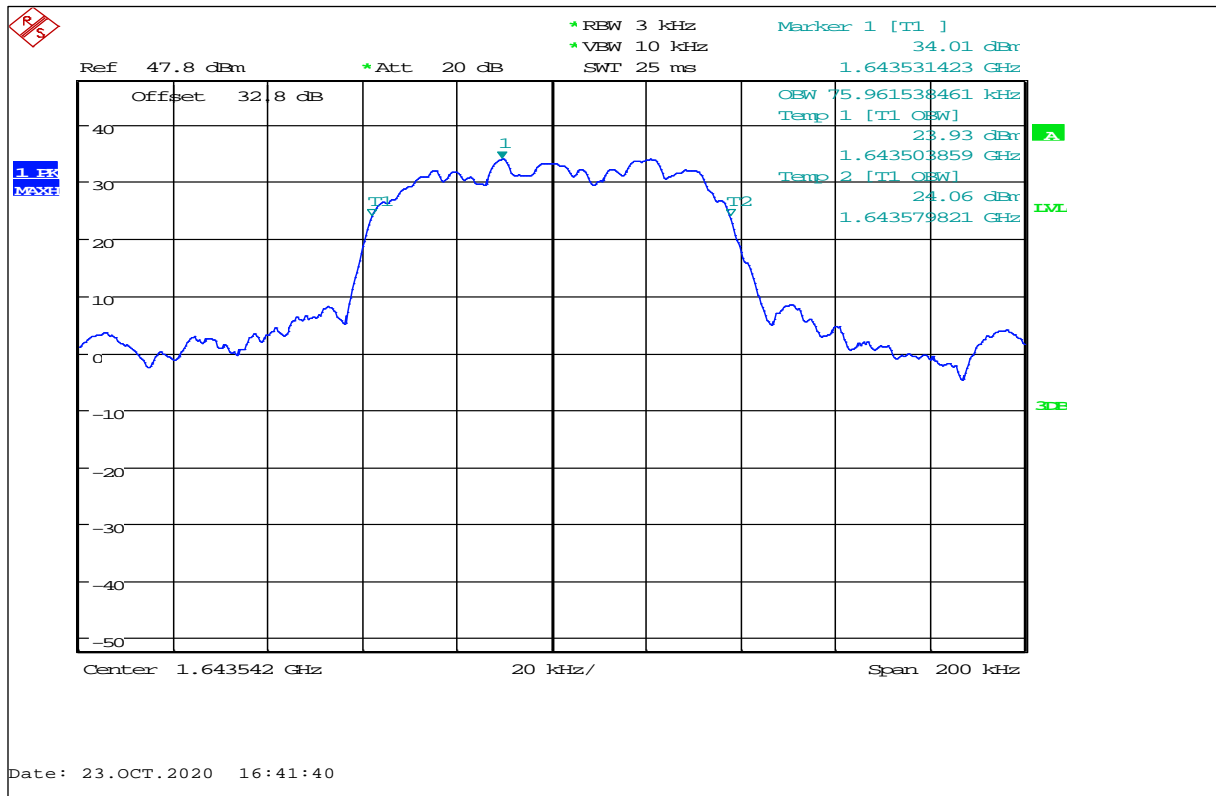
Plot No. 2



OBW, Middle Channel, R5T1XD

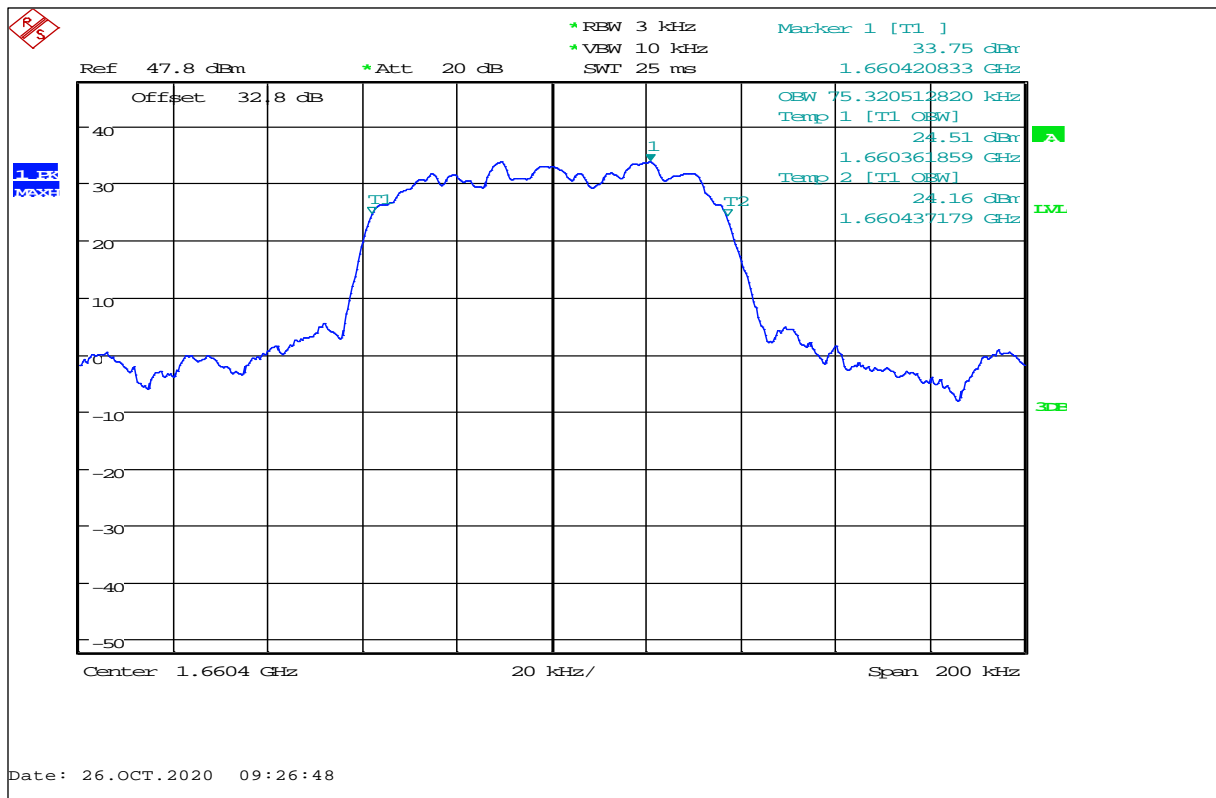


Plot No. 5



OBW, Middle Channel, R5T2XD

Plot No. 6



OBW, High Channel, R5T2XD



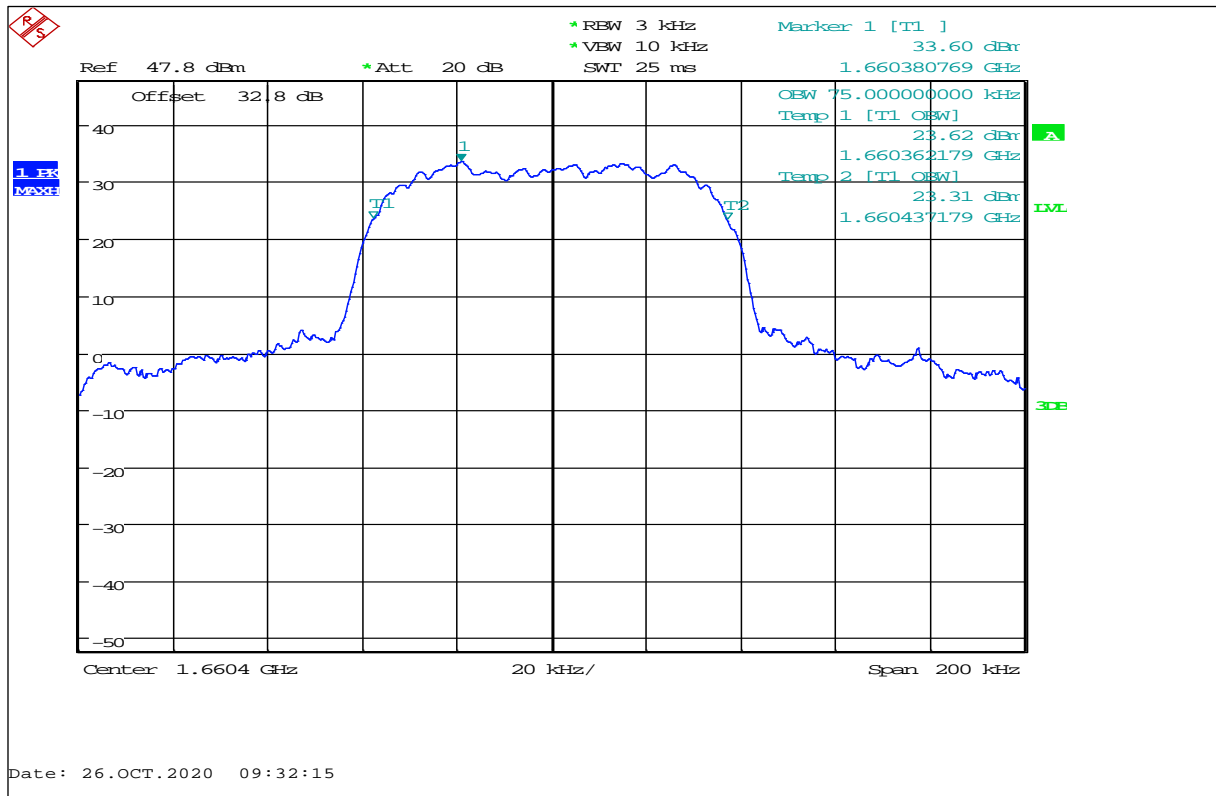






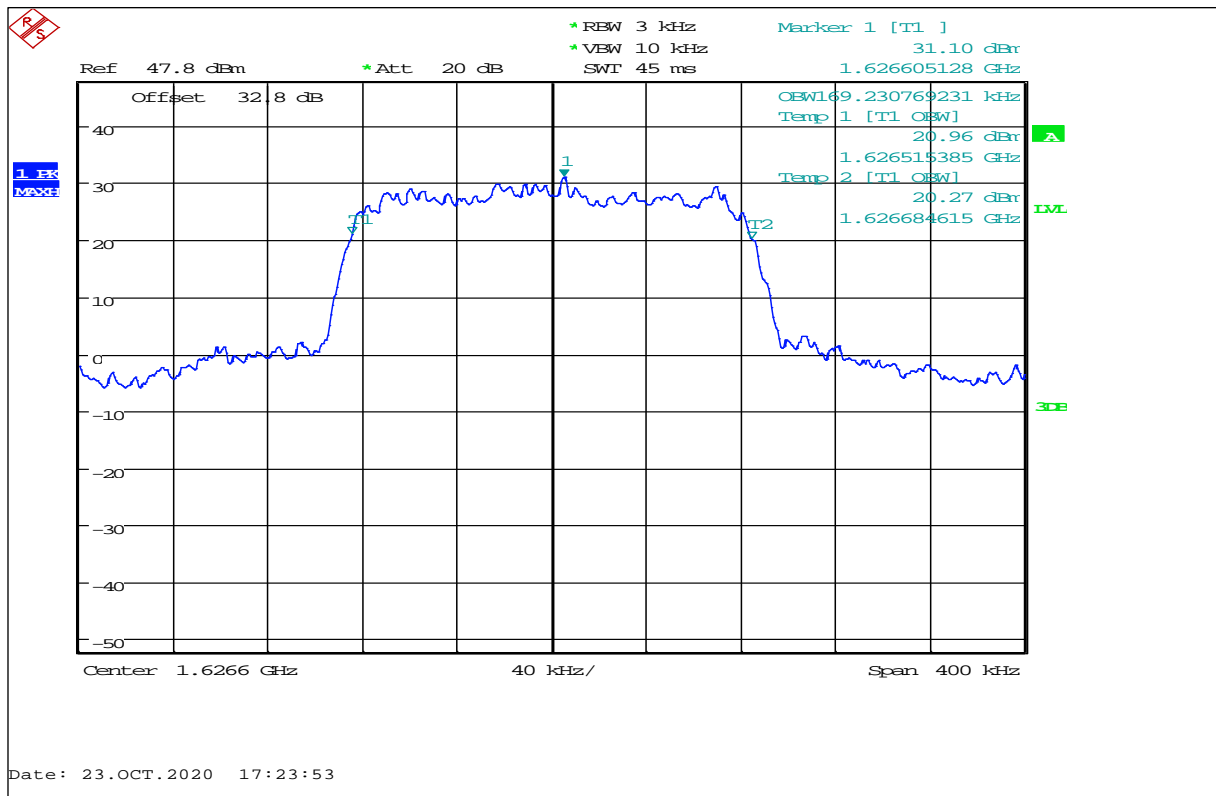


Plot No. 15



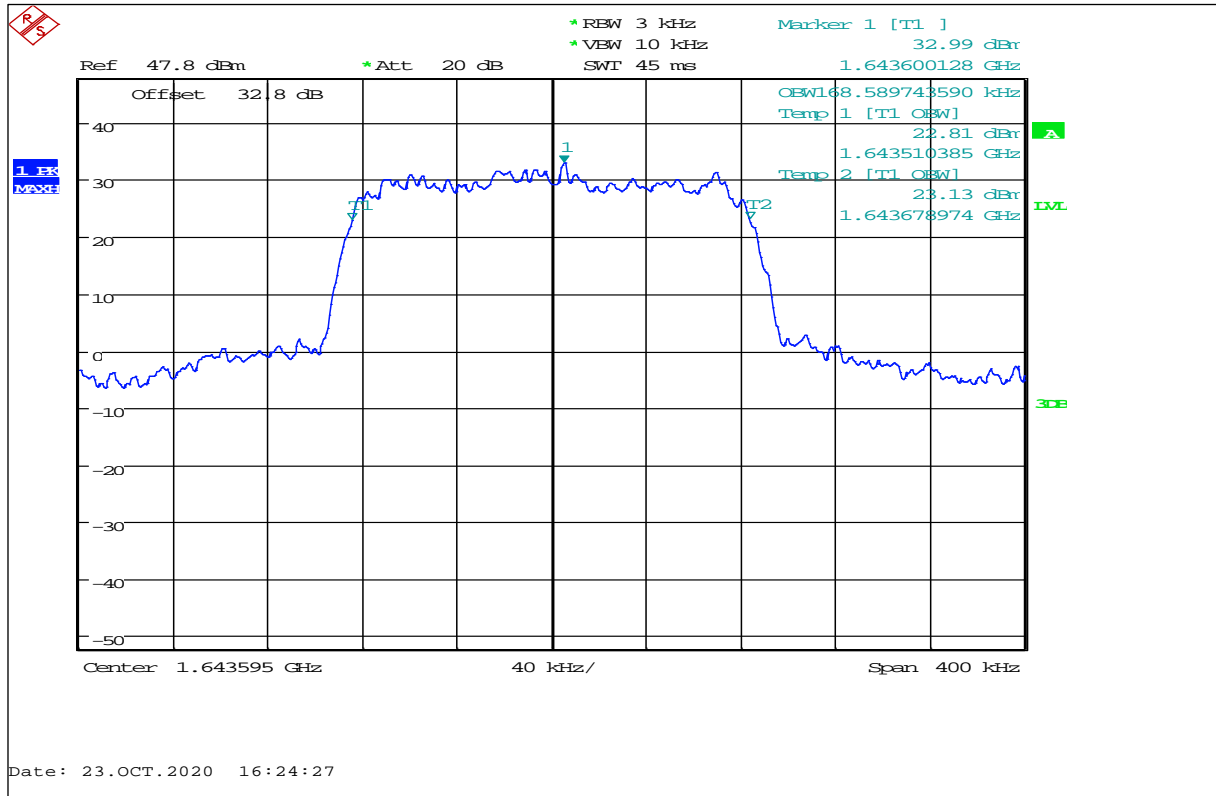
OBW, High Channel, R20T2XD

Plot No. 16



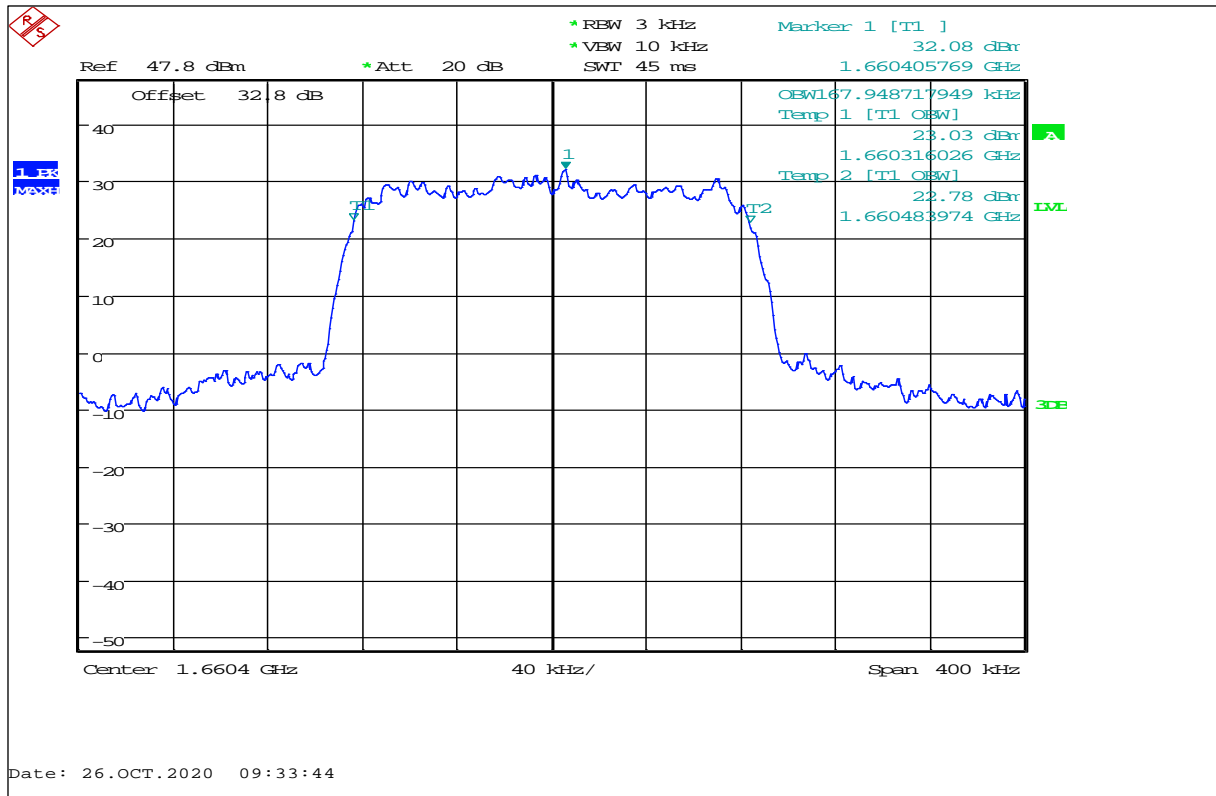
OBW, Low Channel, R20T4.5XD

Plot No. 17



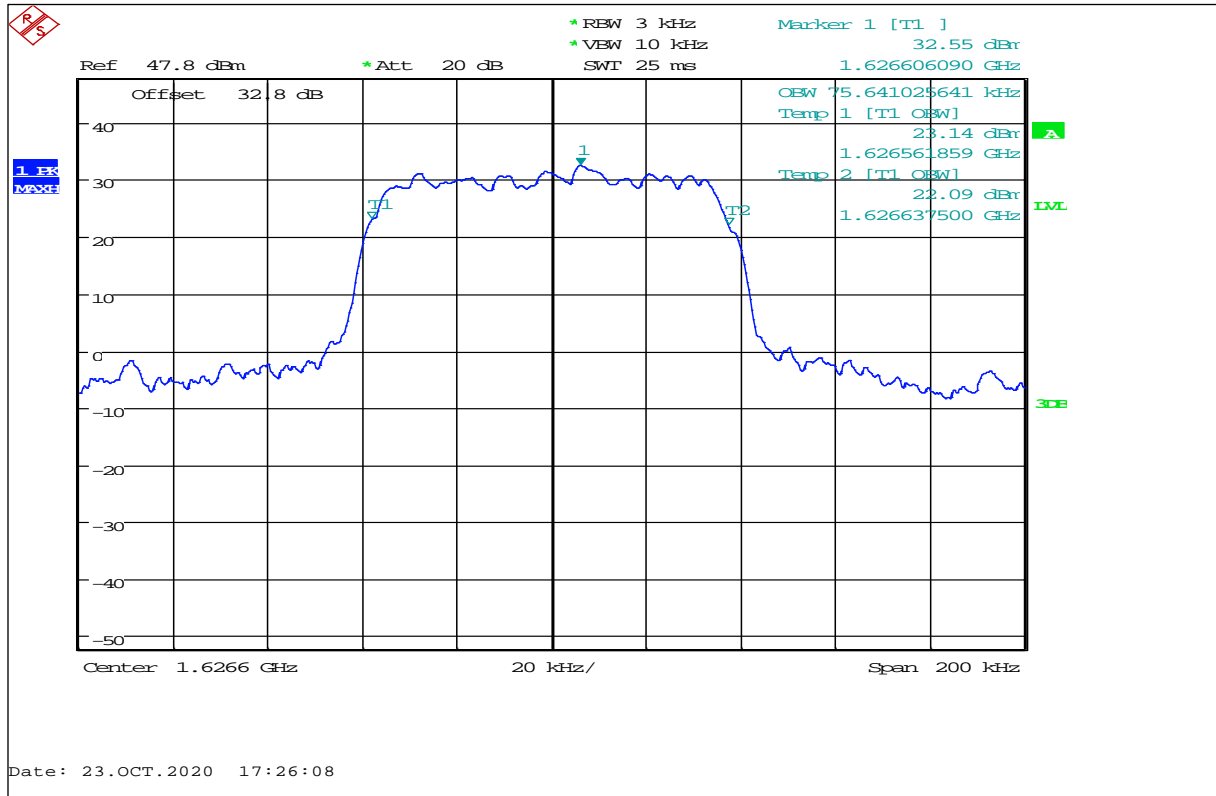
OBW, Middle Channel, R20T4.5XD

Plot No. 18



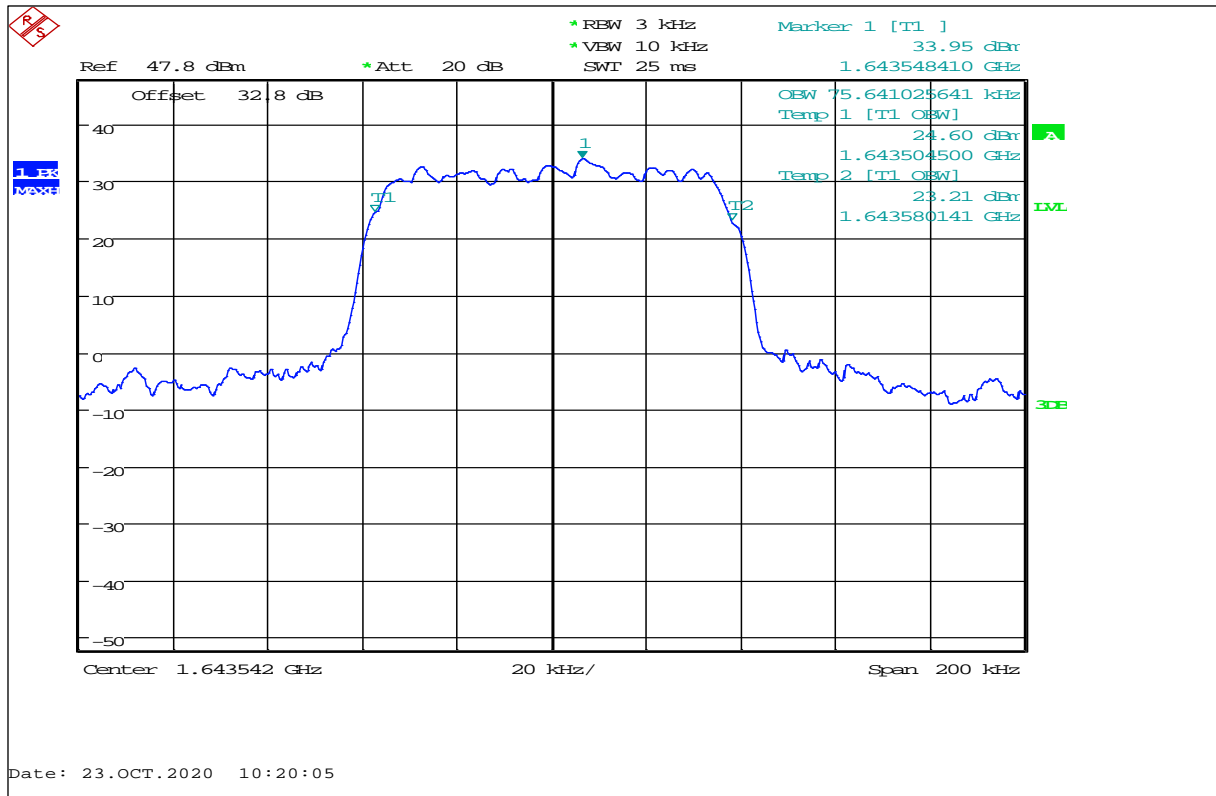
OBW, High Channel, R20T4.5XD

Plot No. 19



OBW, Low Channel, R5T2QD

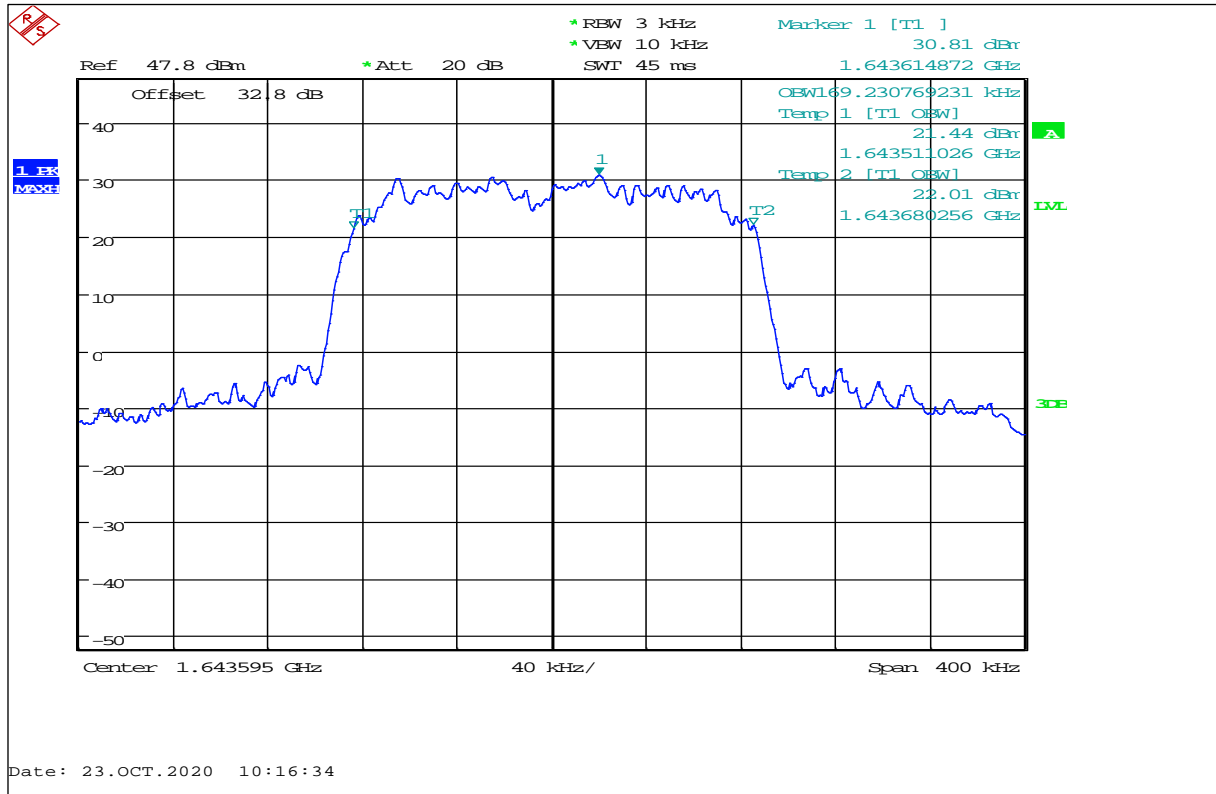
Plot No. 20



OBW, Middle Channel, R5T2QD

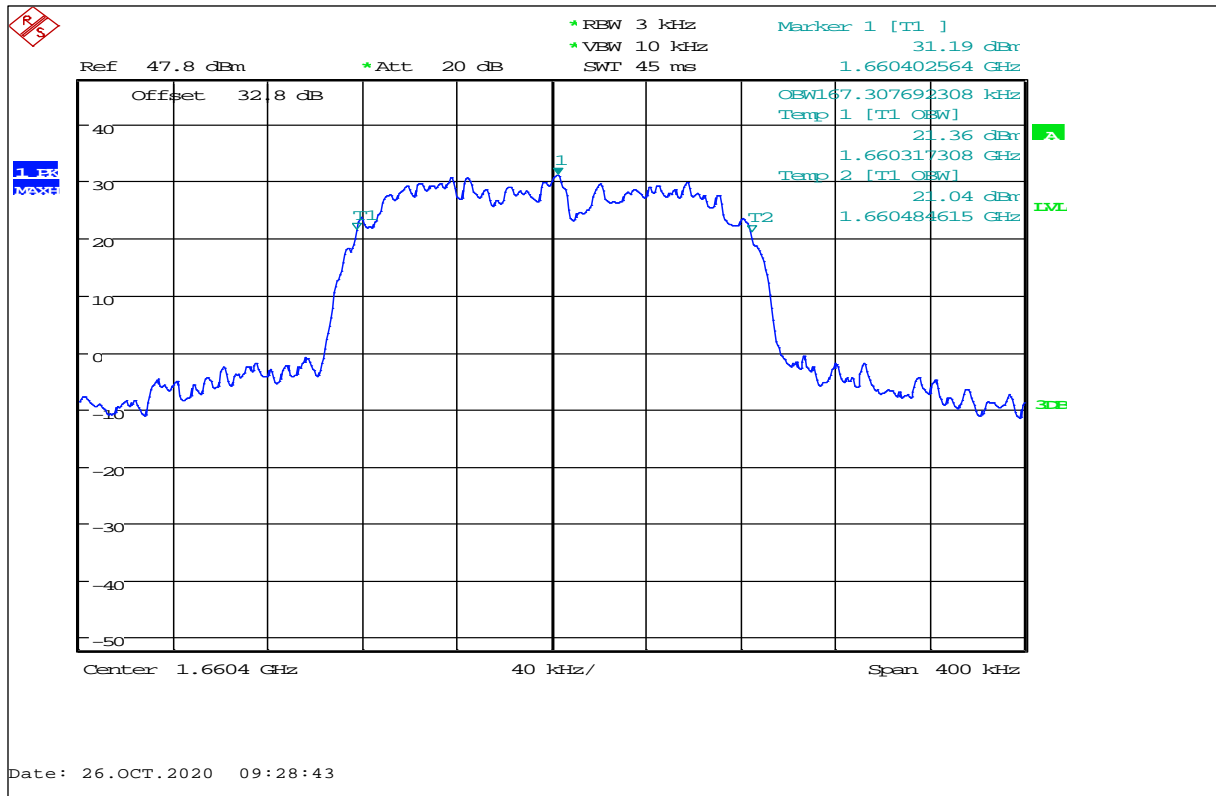


Plot No. 23



OBW, Middle Channel, R5T4.5QD

Plot No. 24

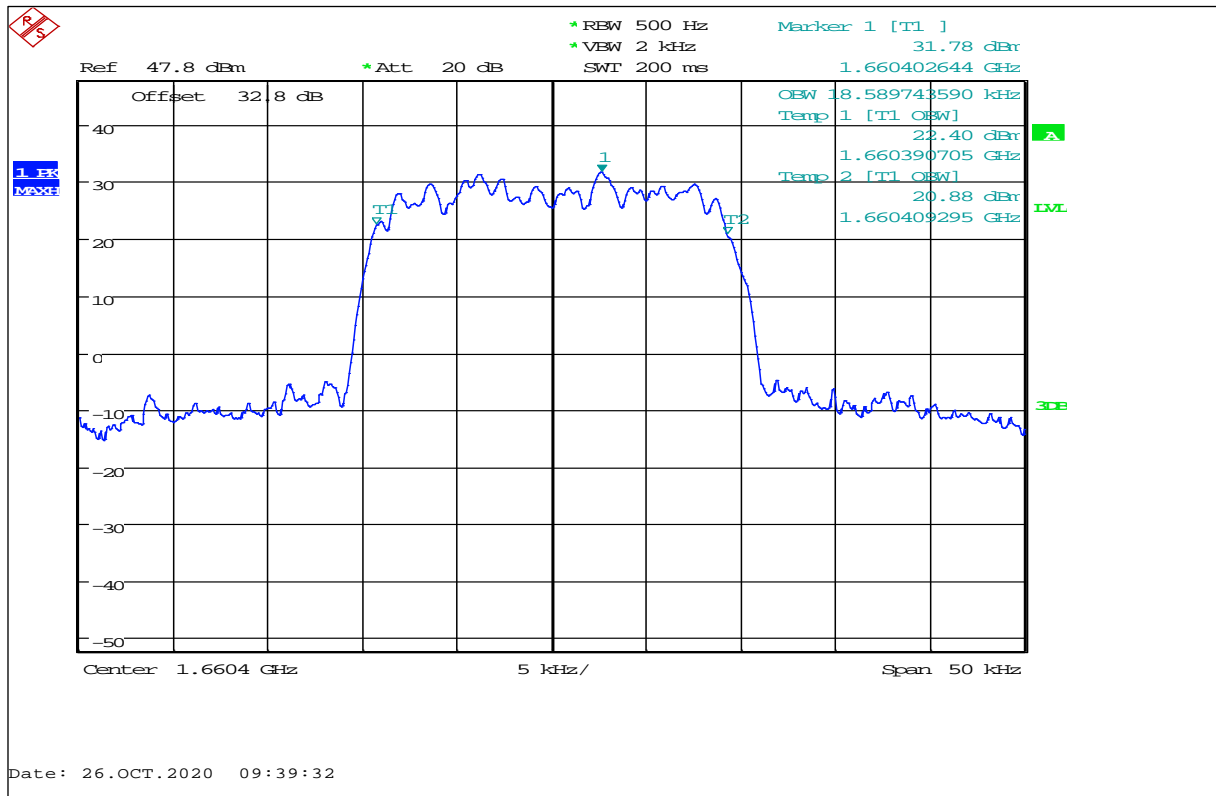


OBW, High Channel, R5T4.5QD



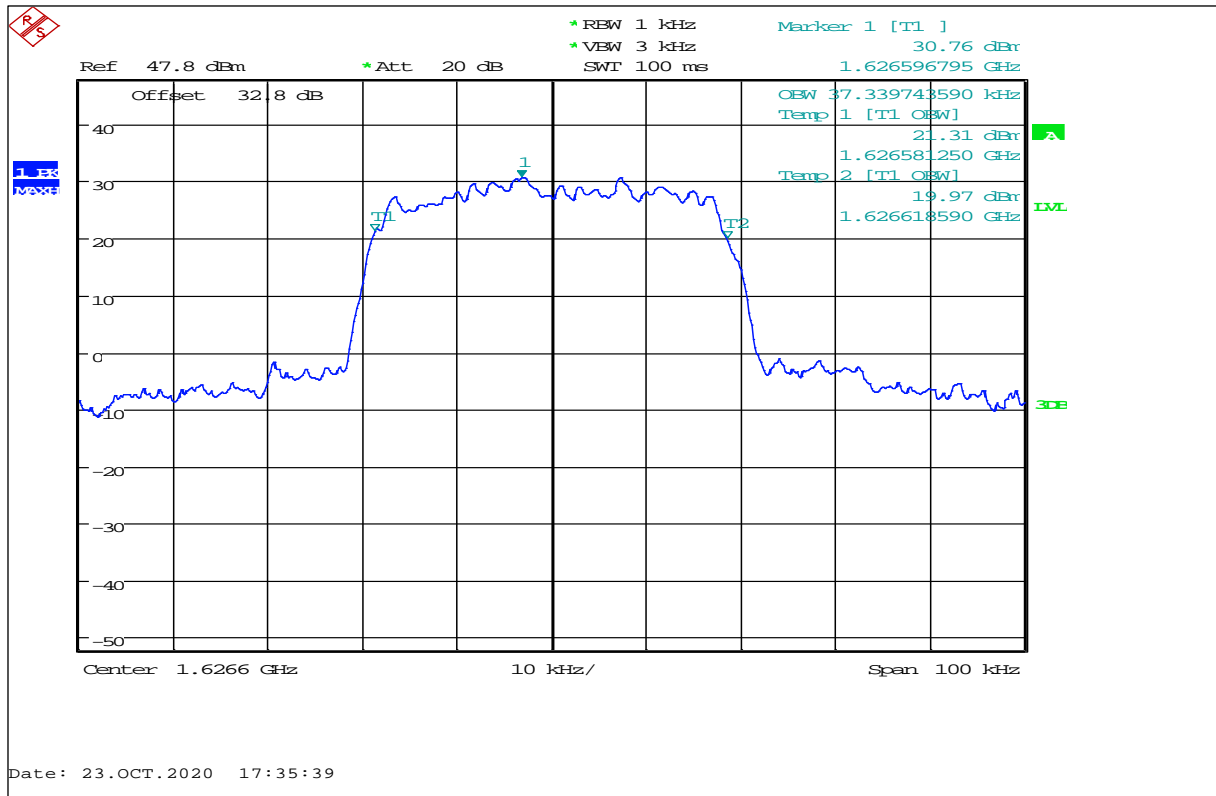


Plot No. 27



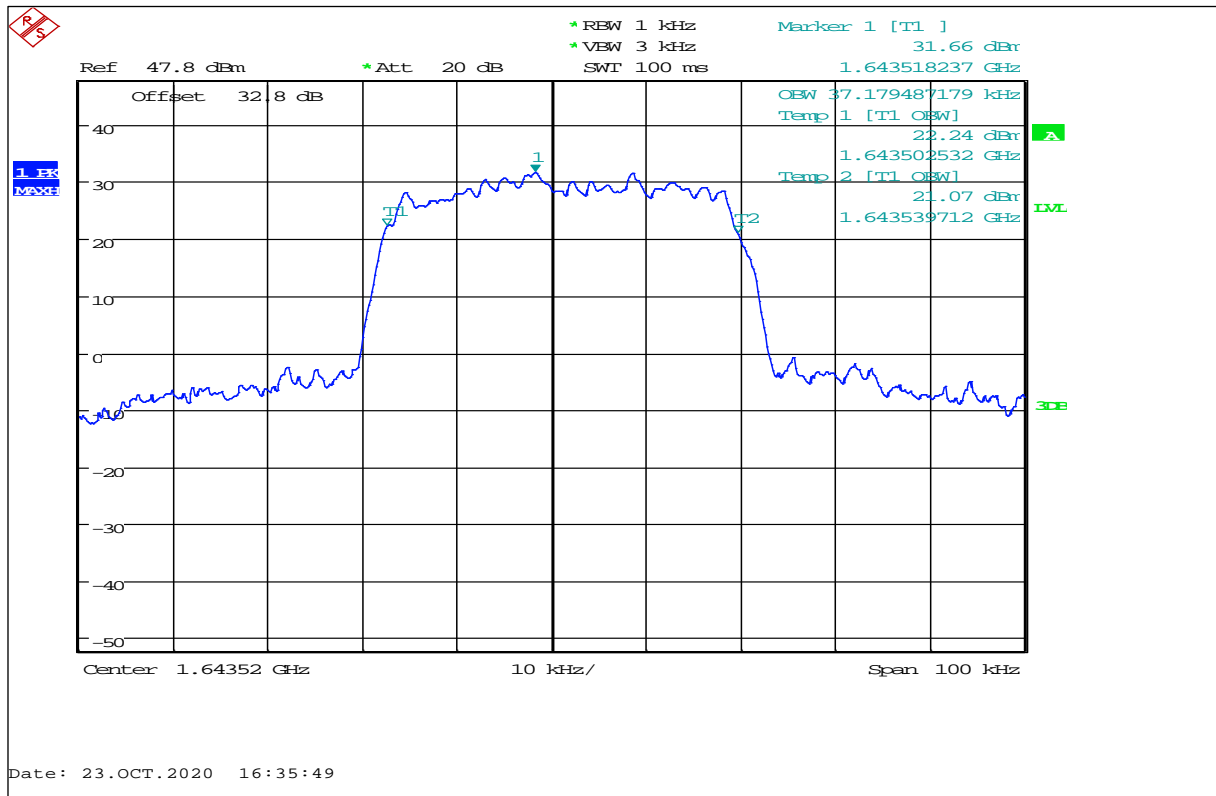
OBW, High Channel, R20T0.5QD

Plot No. 28



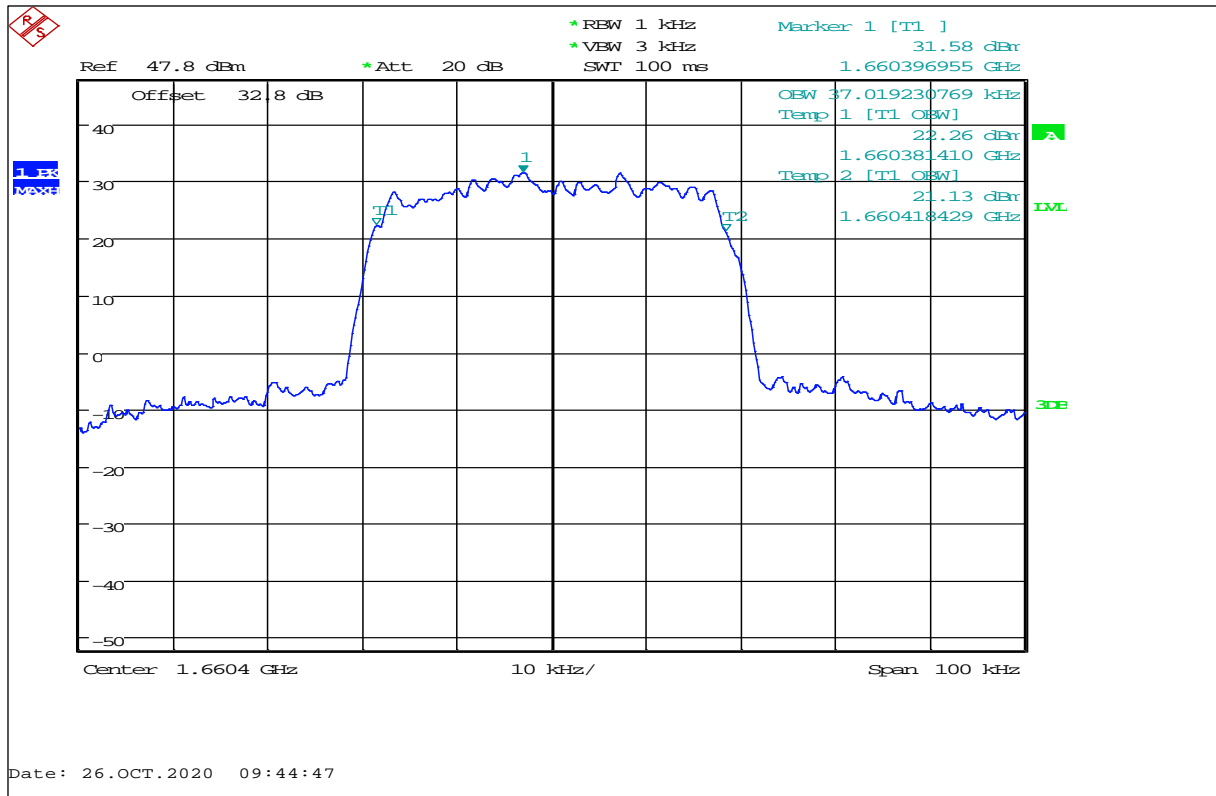
OBW, Low Channel, R20T1QD

Plot No. 29



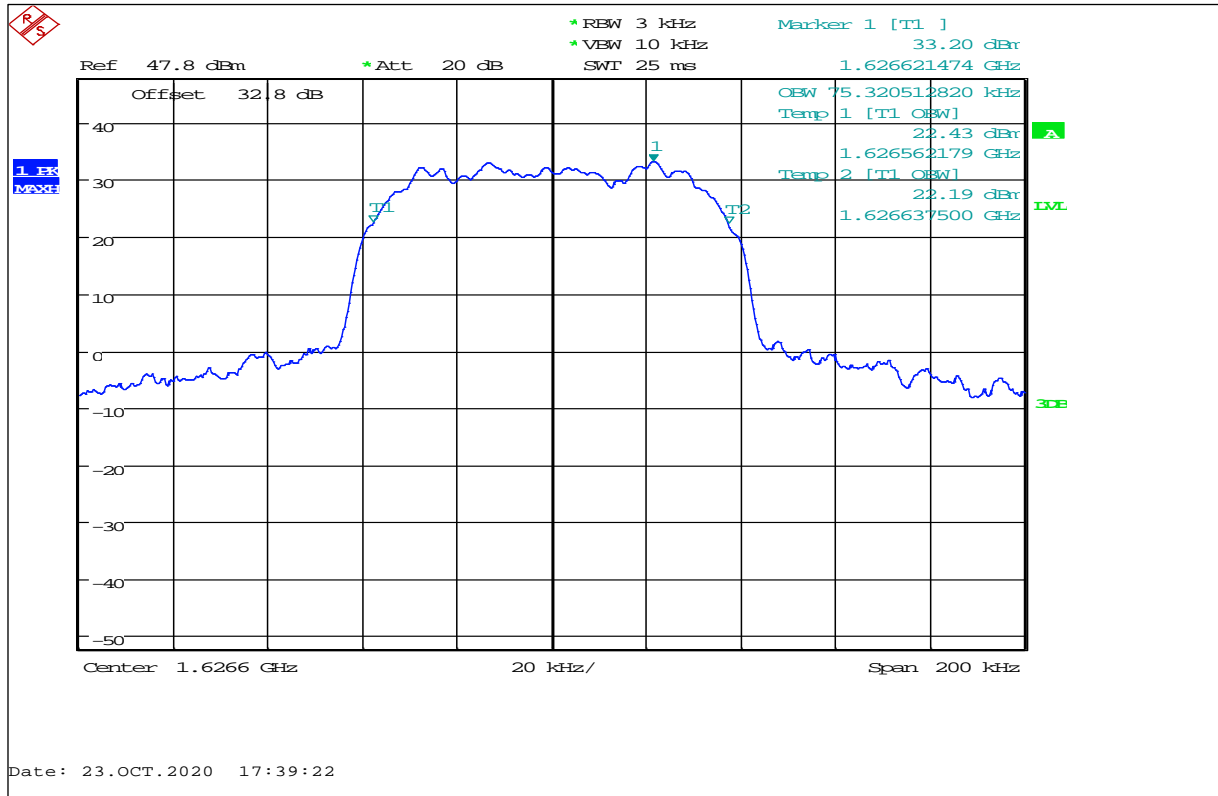
OBW, Middle Channel, R20T1QD

Plot No. 30



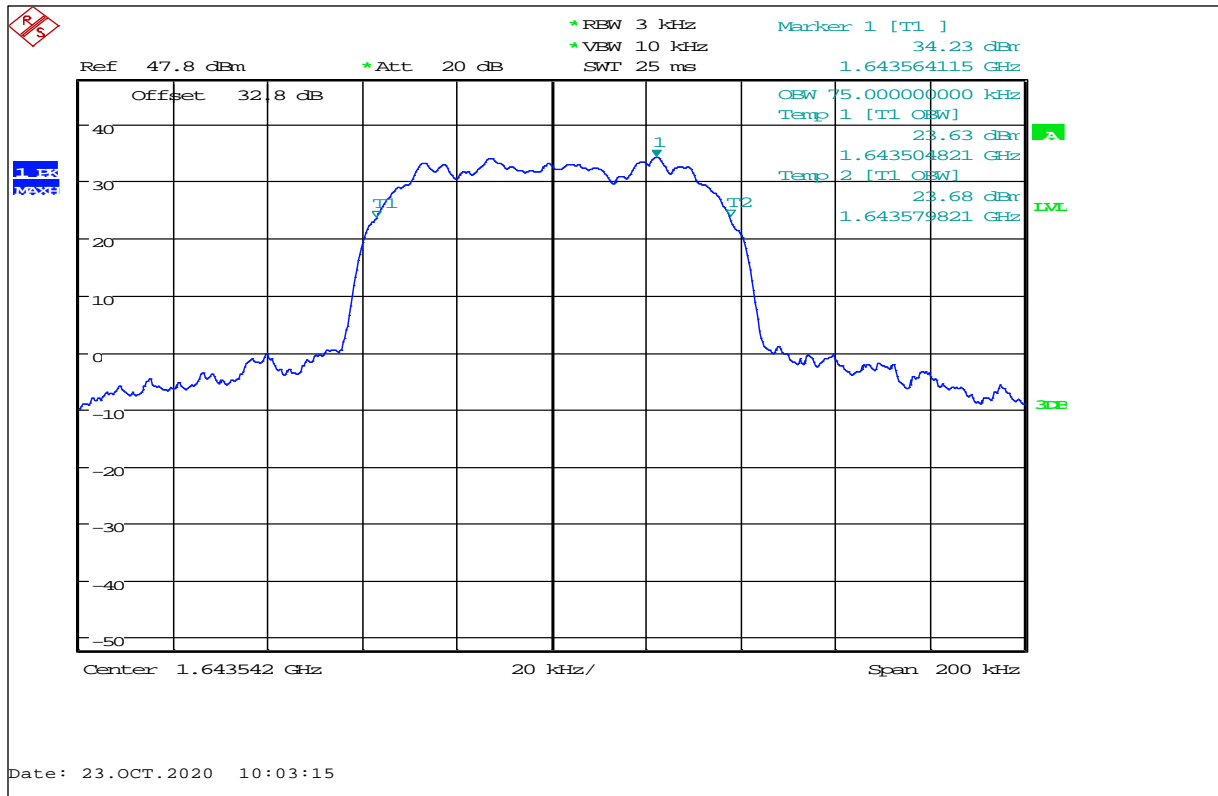
OBW, High Channel, R20T1QD

Plot No. 31



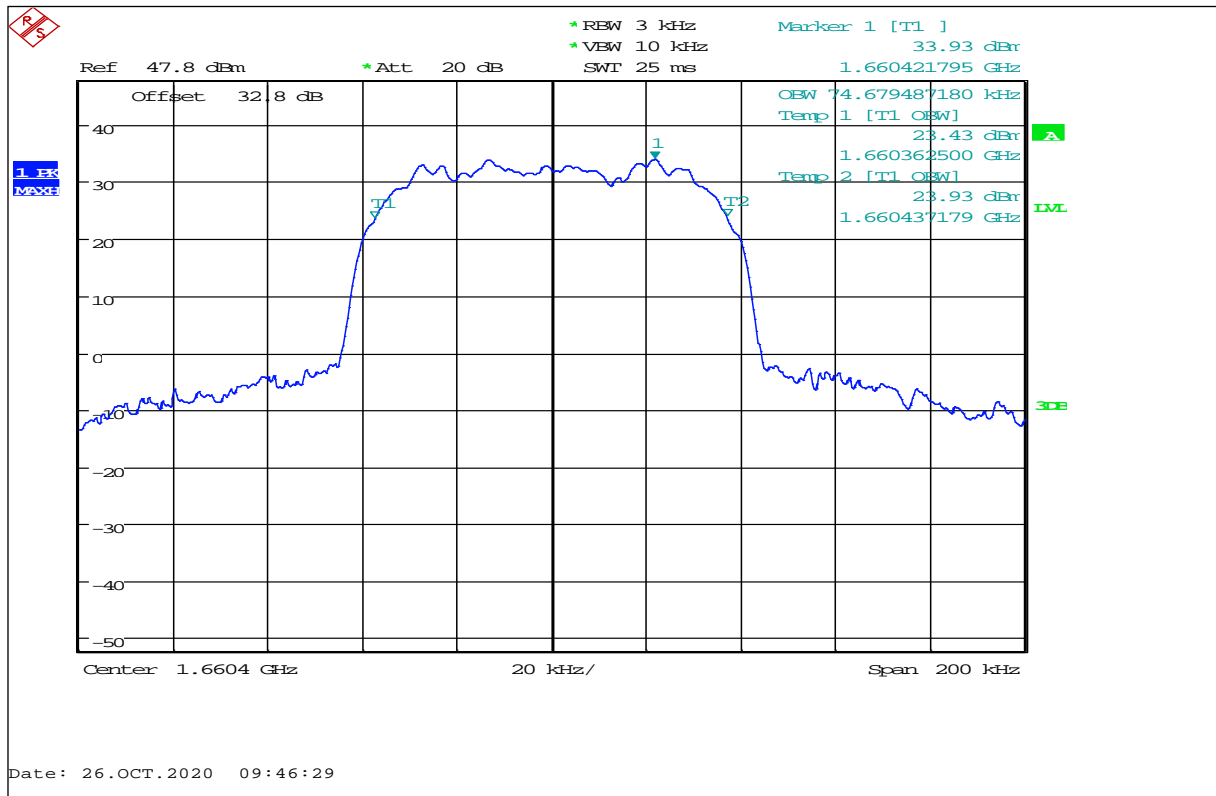
OBW, Low Channel, R20T2QD

Plot No. 32



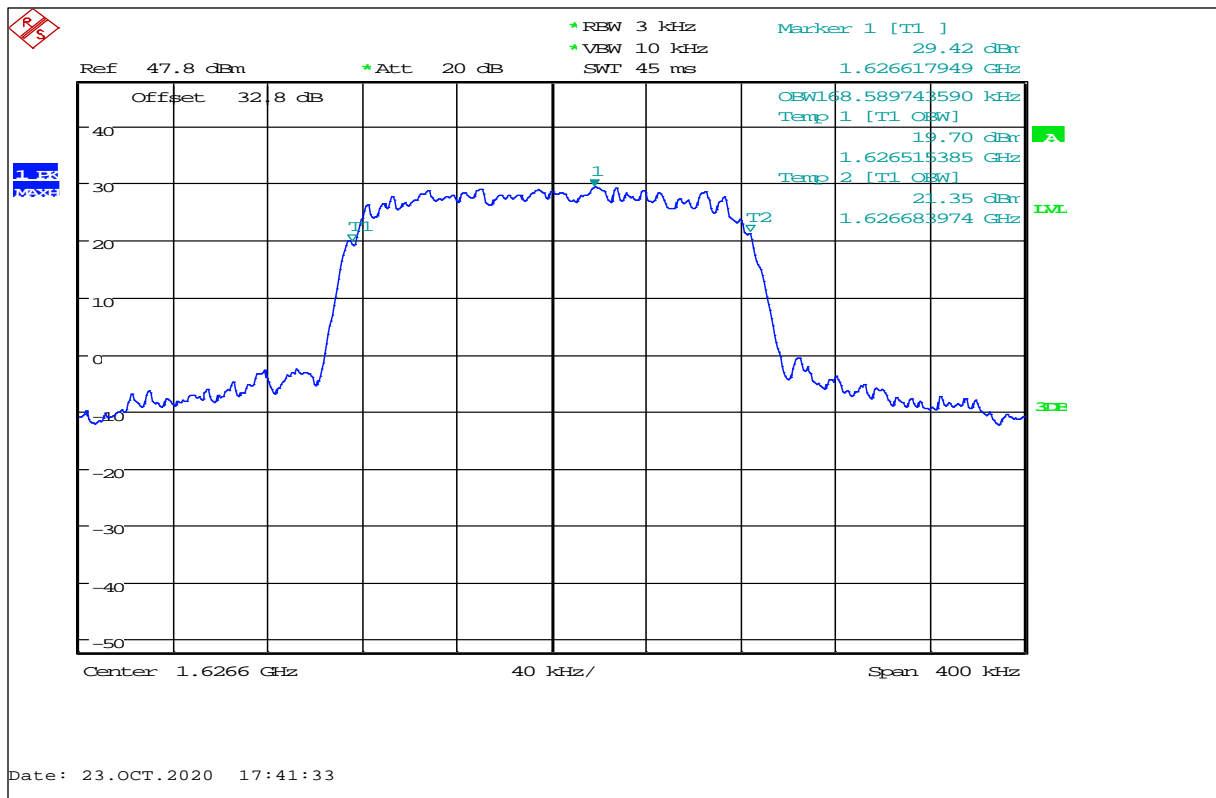
OBW, Middle Channel, R20T2QD

Plot No. 33



OBW, High Channel, R20T2QD

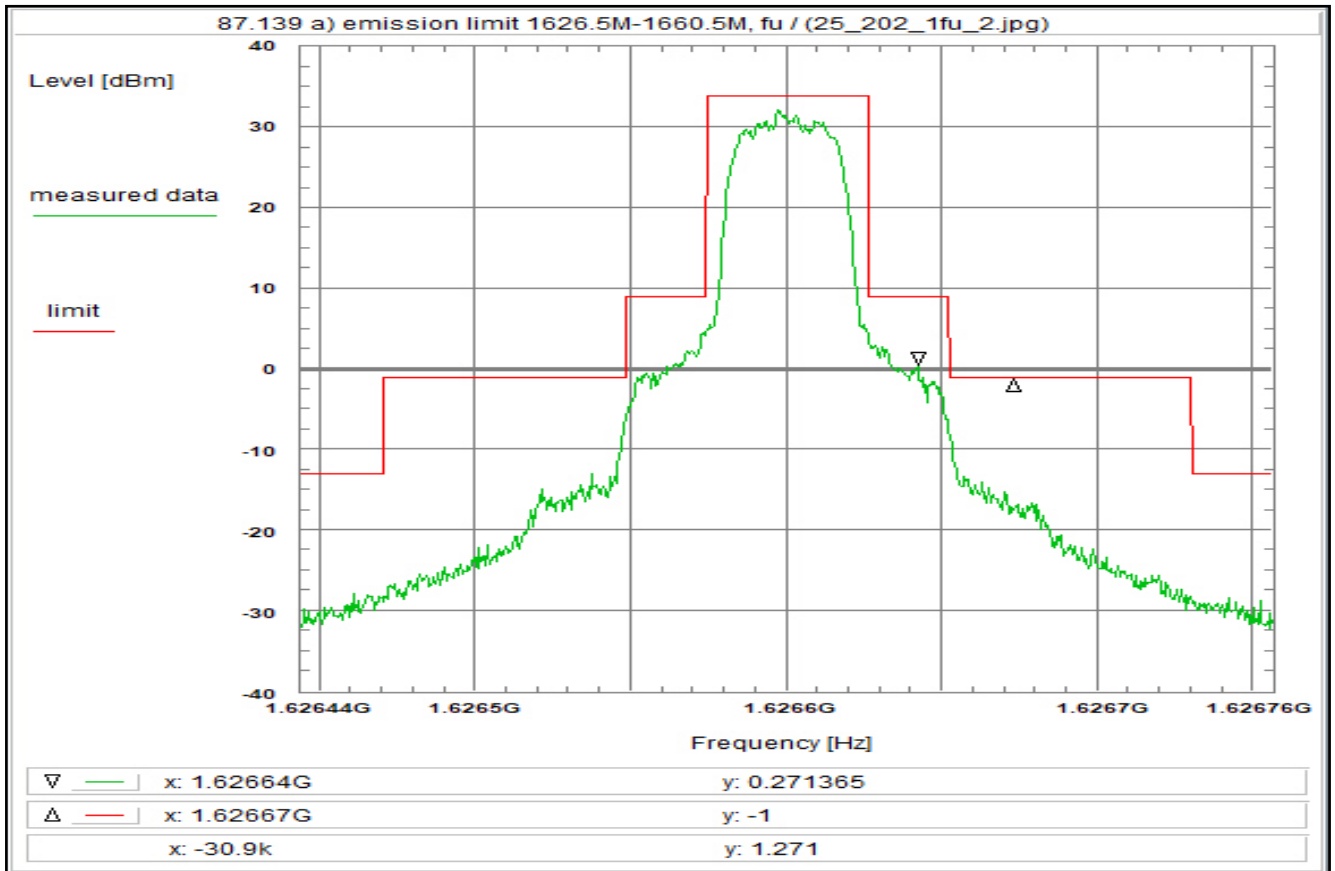
Plot No. 34



OBW, Low Channel, R20T4.5QD



Plot No. 37



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

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 6.4 fl, R20T1XD

Test setup:

see test report chapter 8.2

Test equipment:

see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:32:50

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626444 GHz

Stop frequency: 1.626756 GHz

Center frequency: 1.6266 GHz

Frequency span: 312 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 20 dB

Trace-Mode: Max-Hold

Detector-Mode: AVG

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

Atten. between HPA and feedhorn - 0.0 dB

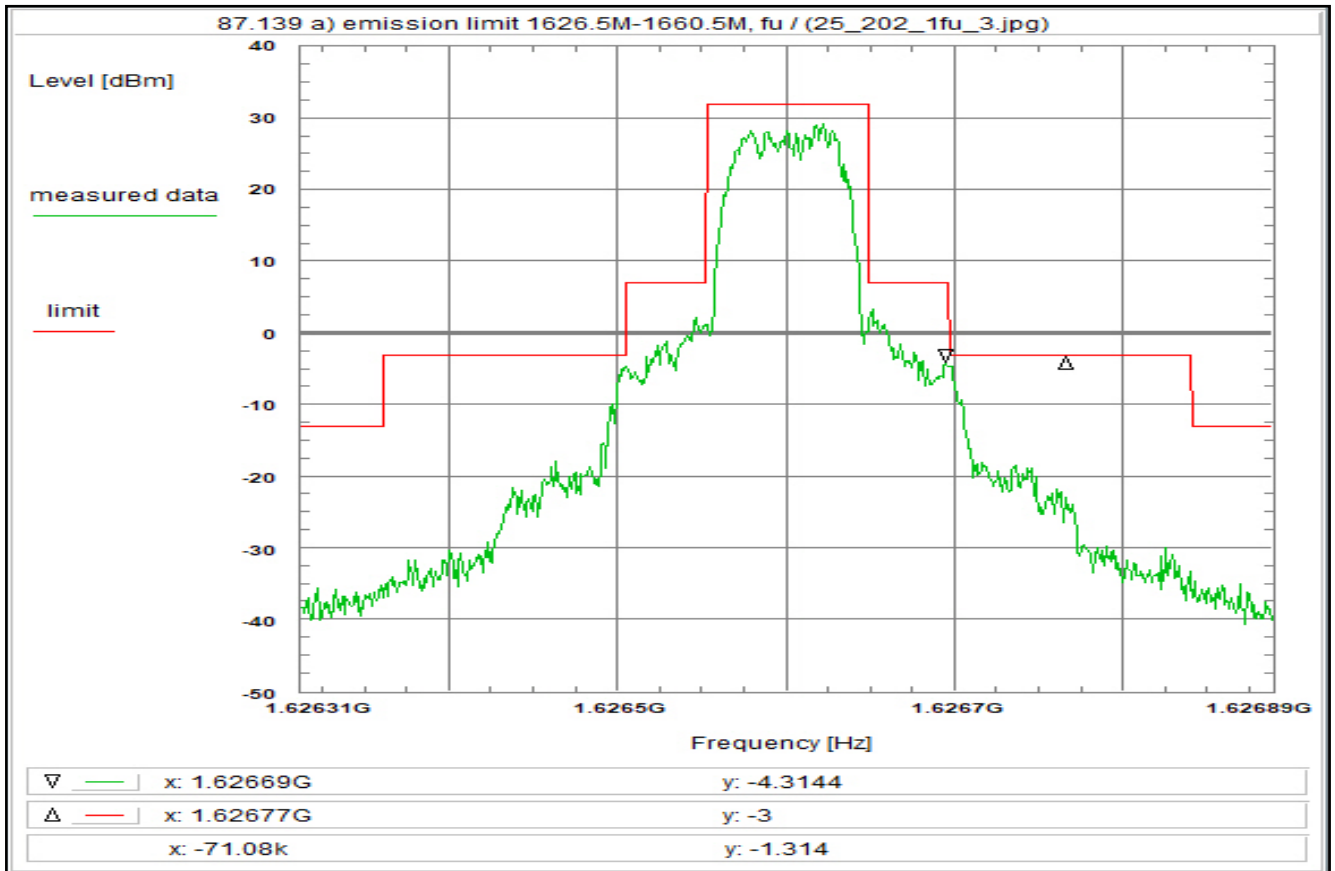
(U330) + 31.9 dB

TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 38



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

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 6.4 fl, R5T2XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:39:29  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626312 GHz  
Stop frequency: 1.626888 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 576 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

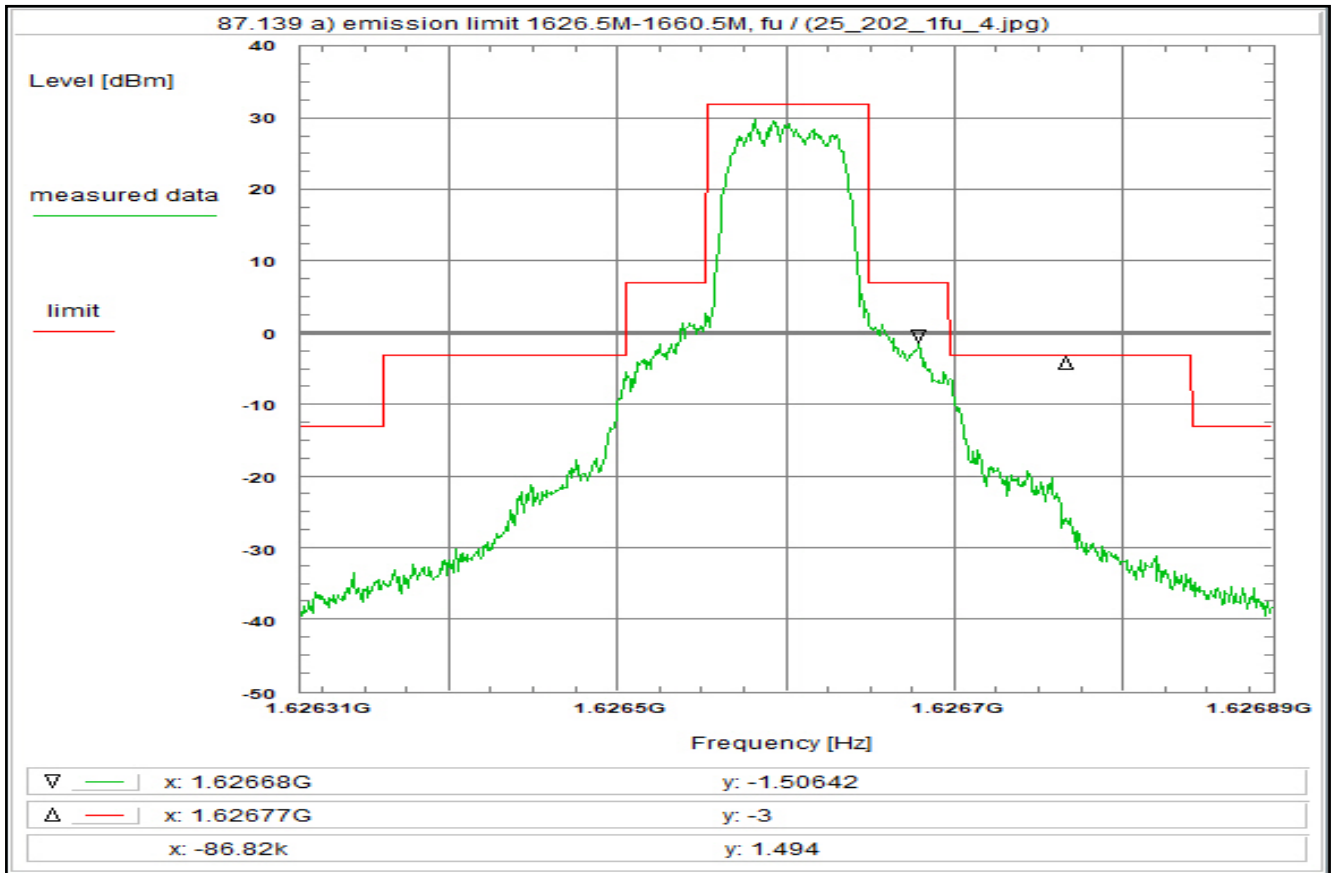
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
+ 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 39



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

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 6.4 fl, R20T2XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:40:33  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626312 GHz  
Stop frequency: 1.626888 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 576 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

Correction:

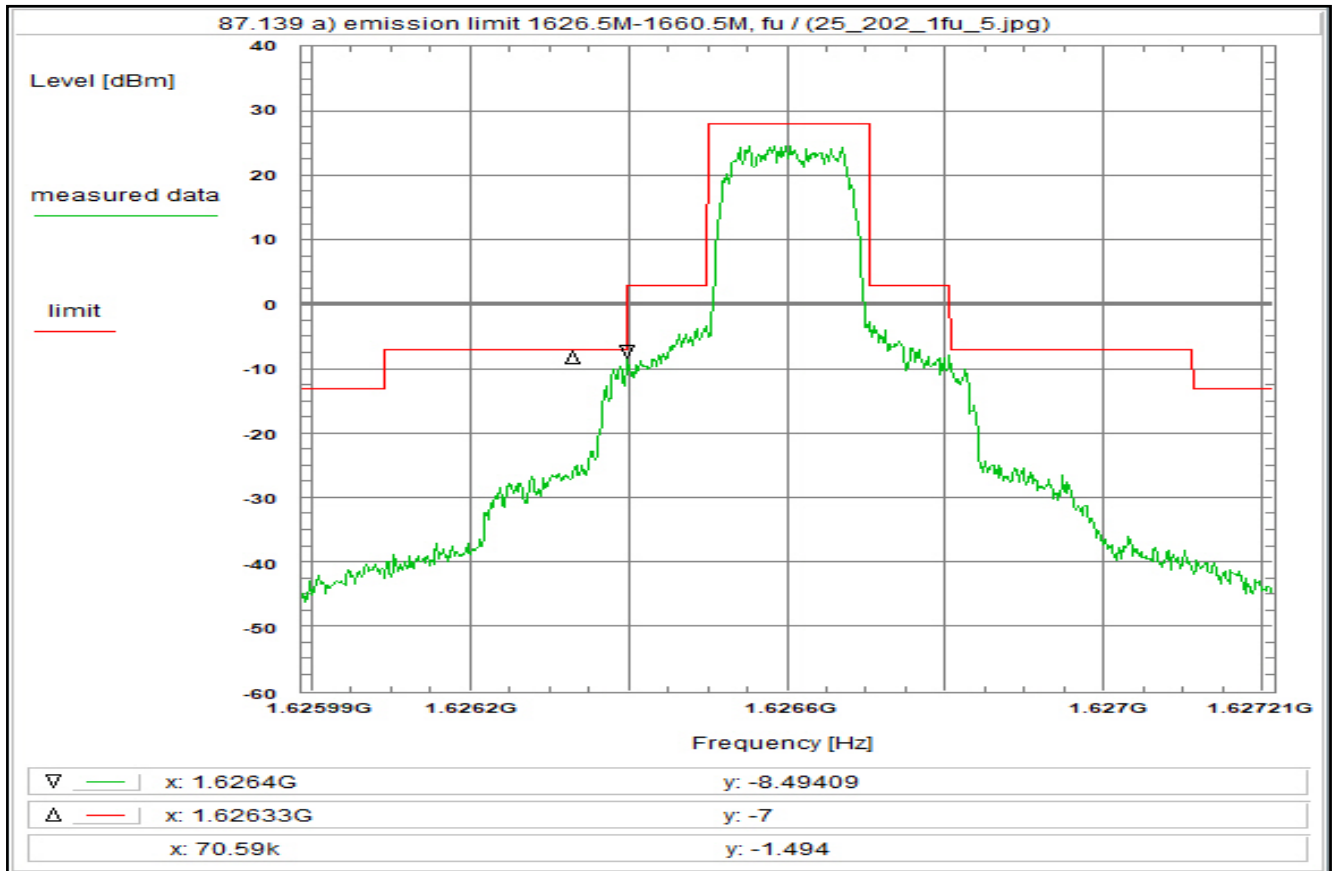
Directional coupler + 0.0 dB  
Coaxial cable (C220) + 0.9 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn - 0.0 dB  
(U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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



Plot No. 40



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

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 6.4 fl, R20T45XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:47:19  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.625988 GHz  
Stop frequency: 1.627212 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 1.224 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

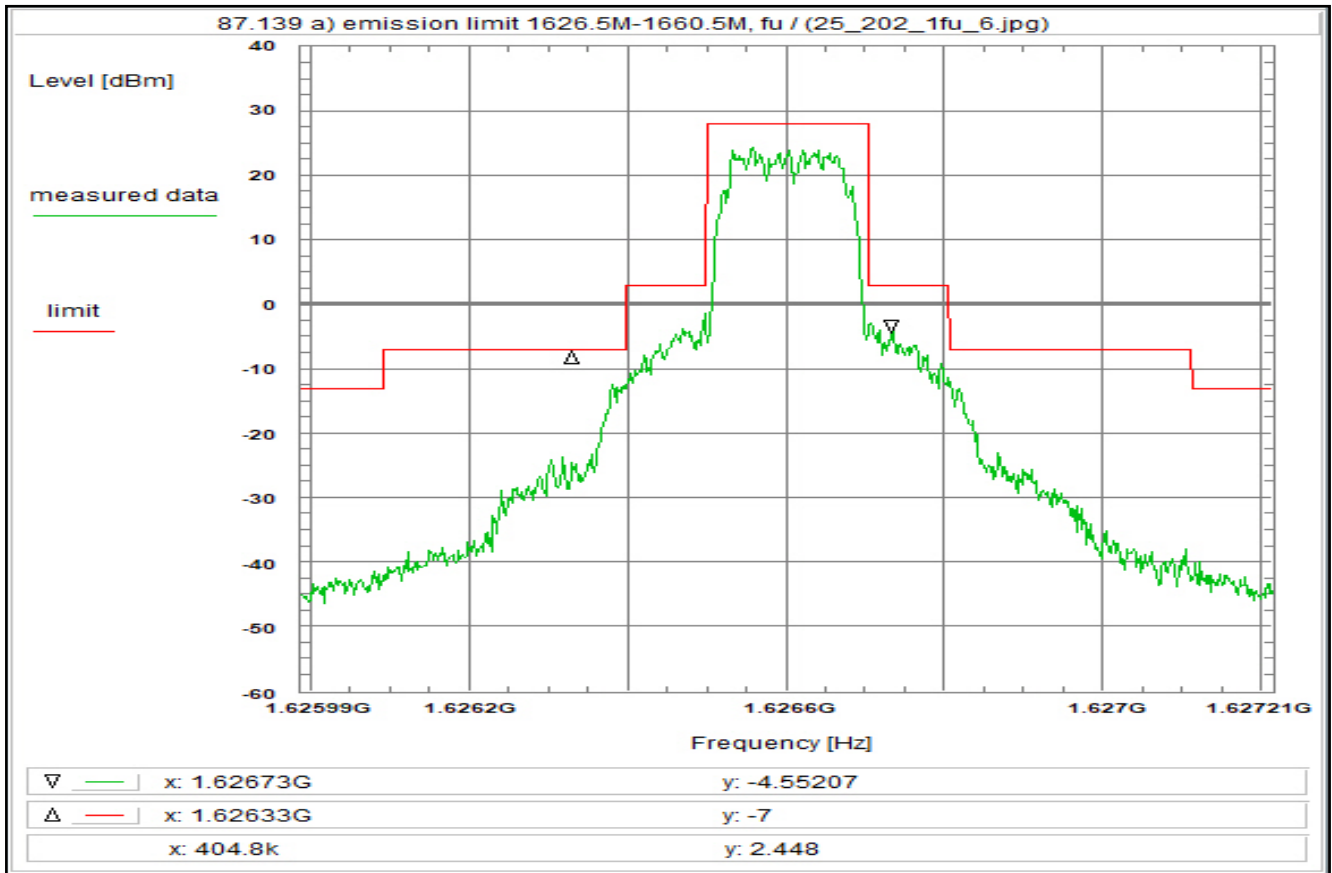
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
TOTAL CORRECTION: + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 41



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

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 6.4 fl, R5T45XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:49:07  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.625988 GHz  
Stop frequency: 1.627212 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 1.224 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

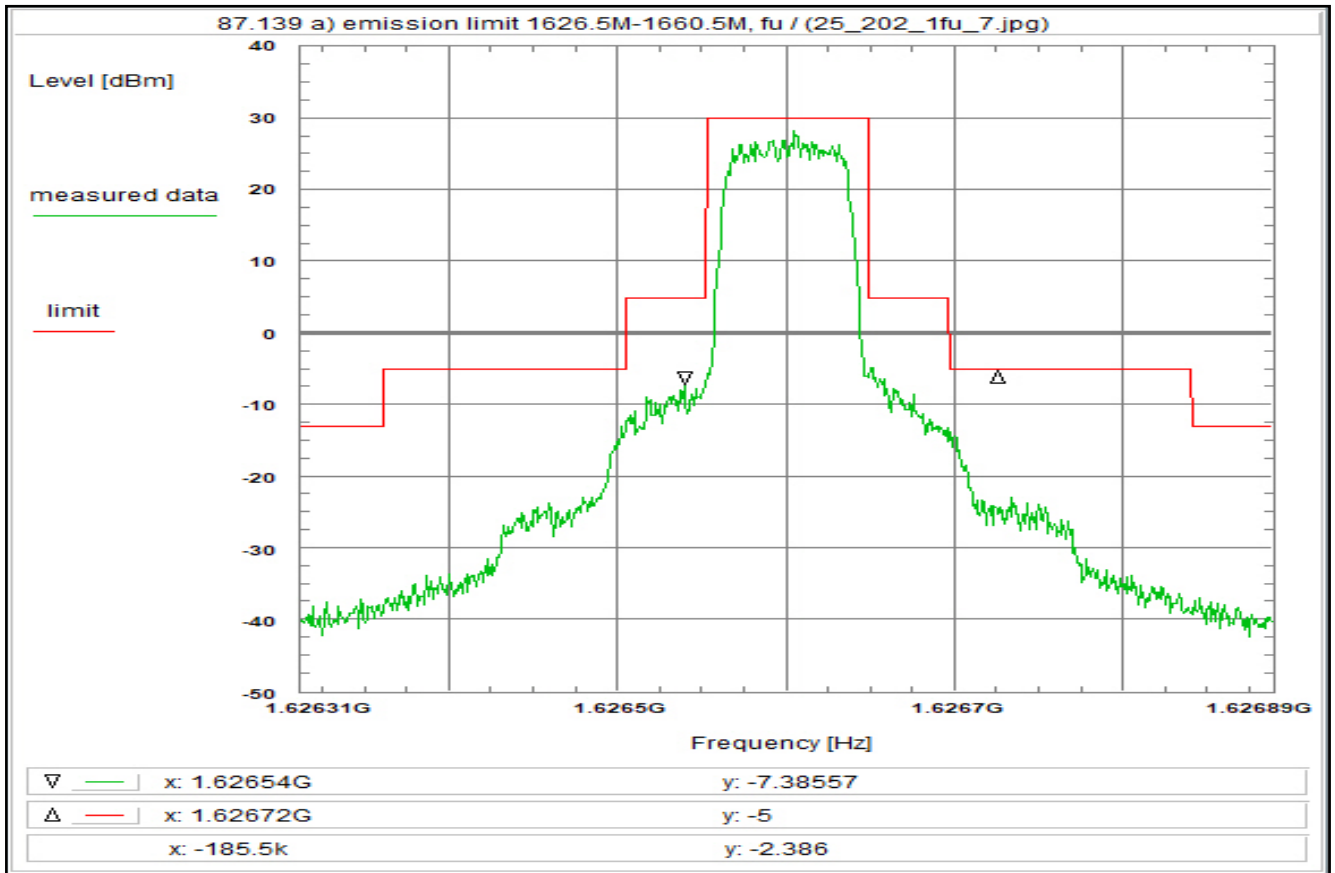
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
+ 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 42



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

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 6.4 fl, R5T2QD

Test setup:

see test report chapter 8.2

Test equipment:

see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:53:43

Location: CTC advanced GmbH, Laboratory RC-SYS

Temperature: 22 °C

Humidity: 55 %

Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626312 GHz

Stop frequency: 1.626888 GHz

Center frequency: 1.6266 GHz

Frequency span: 576 kHz

Resolution-BW: 3 kHz

Video-BW: 10 kHz

Input attenuation: 20 dB

Trace-Mode: Max-Hold

Detector-Mode: AVG

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

Atten. between HPA and feedhorn - 0.0 dB

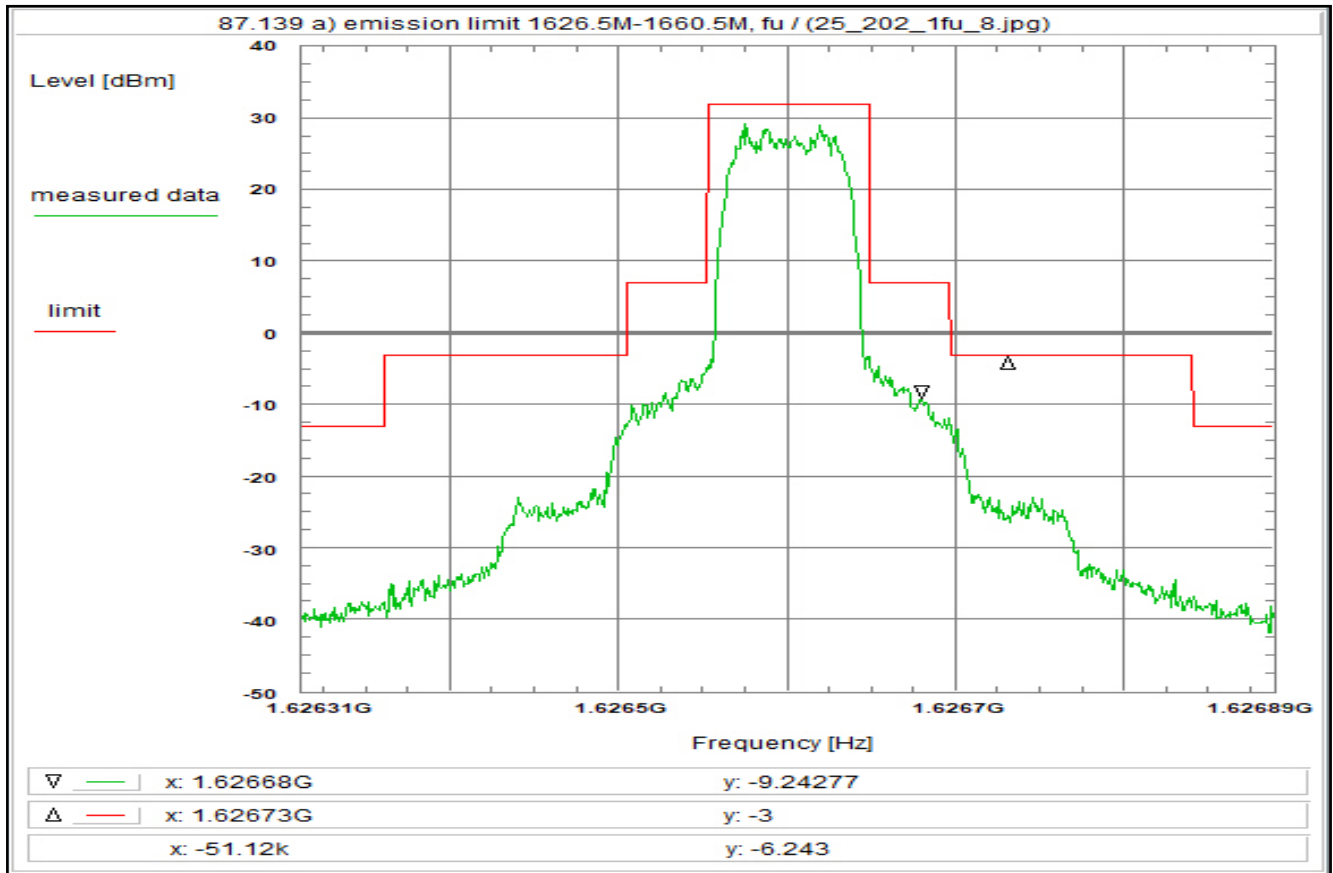
(U330) + 31.9 dB

TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 43



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

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 6.4 fl, R20T2QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: R001

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:56:14  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626312 GHz  
Stop frequency: 1.626888 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 576 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

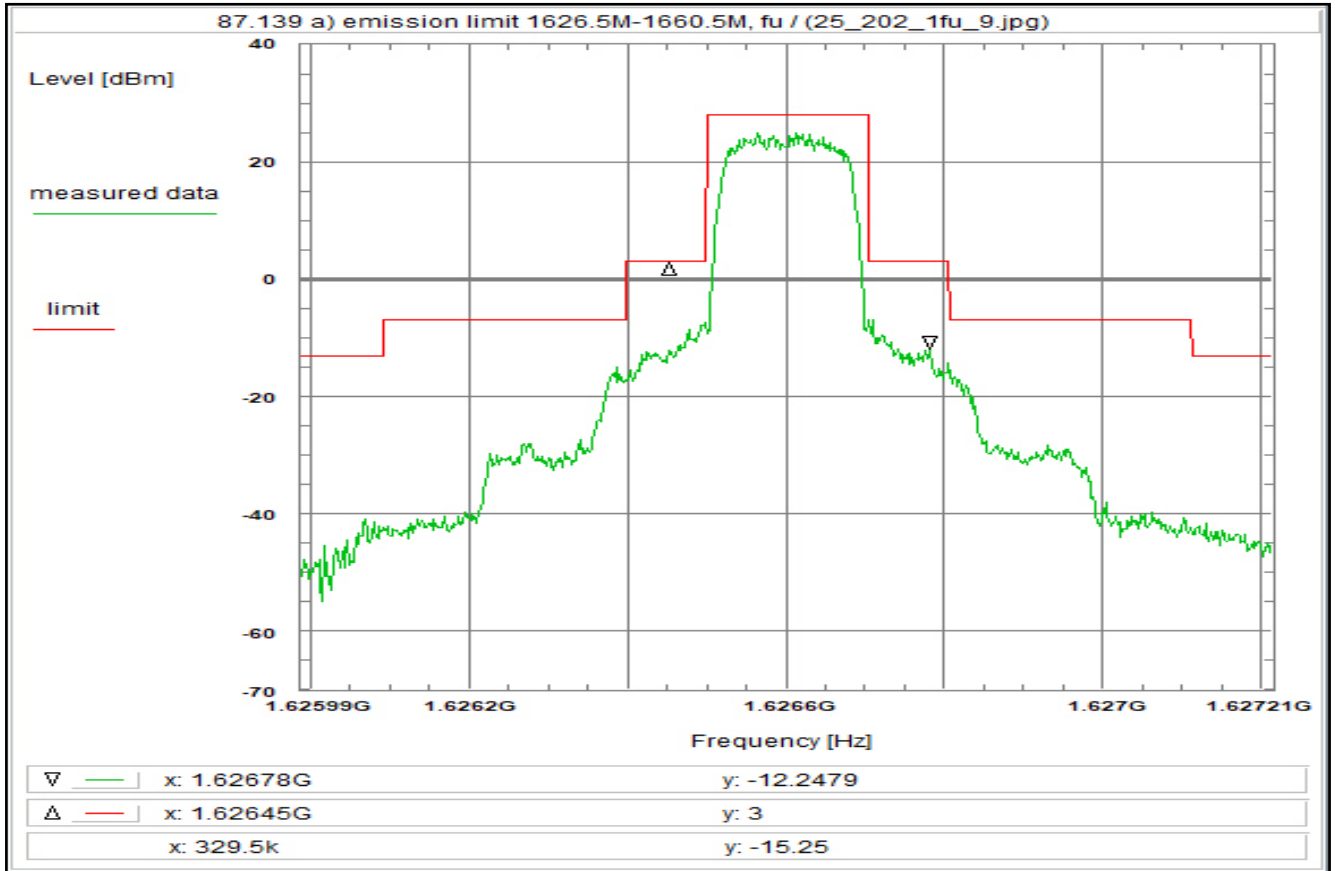
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
(U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 44



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

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 6.4 fl, R20T45QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 14:59:53  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.625988 GHz  
Stop frequency: 1.627212 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 1.224 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

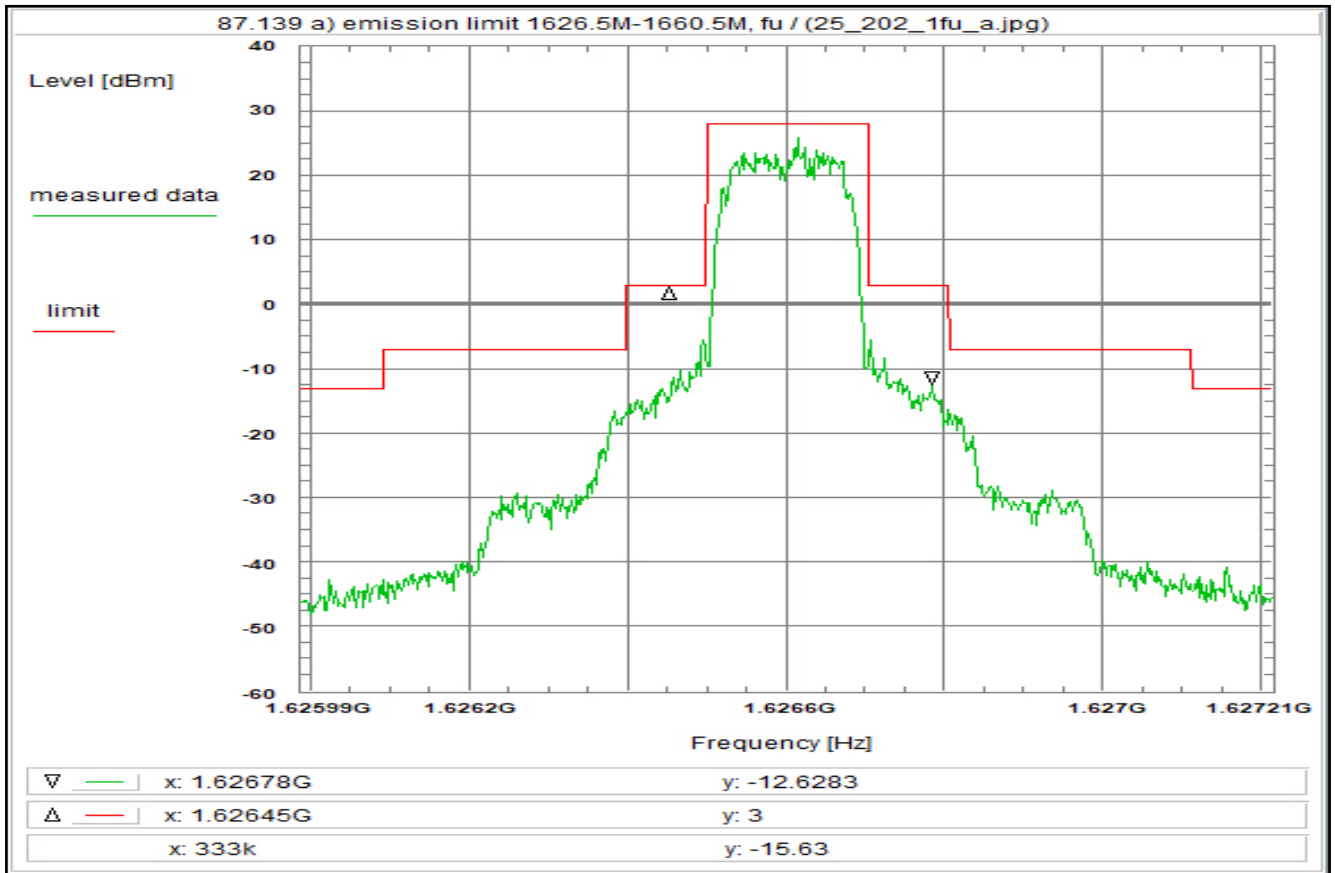
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
(U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 45



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

Limit:  
Limit according to 87.139 a):  
50-100% of assigned bw: -25dBc/4kHz  
100-250% of assigned bw: -35dBc/4kHz  
> 250% of assigned bw:  $-43+10\log(P_{max})$ dBc/4kHz = -43 dBW  
The mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the above schedule.

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

Operating condition of DUT:  
Operating condition 1, see test report chapter 6.4 fl, R5T45QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 15:01:59  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.625988 GHz  
Stop frequency: 1.627212 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 1.224 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

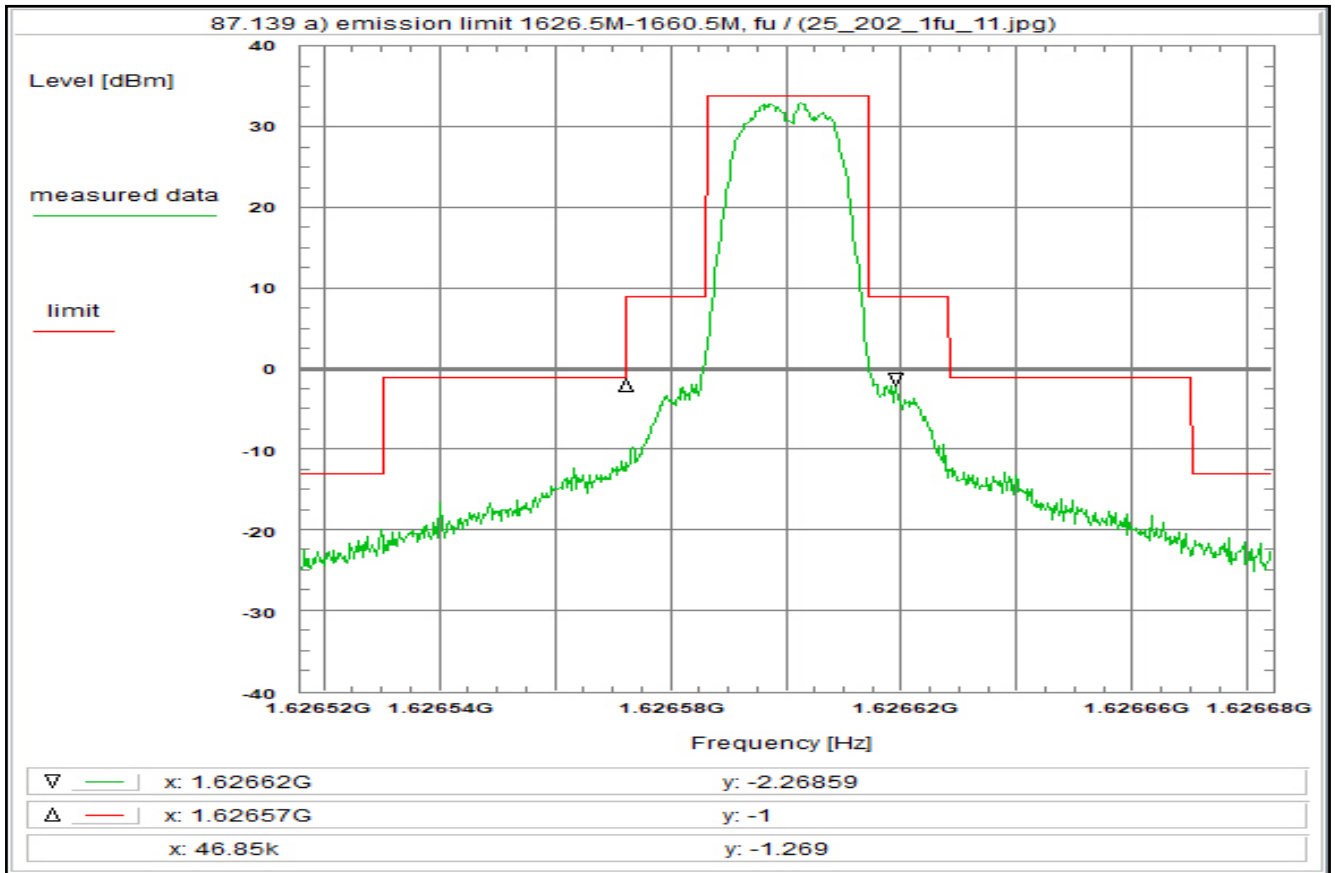
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
(U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 46



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

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 6.4 fl, R20T0.5OD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 15:08:56  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626516 GHz  
Stop frequency: 1.626684 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 168 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

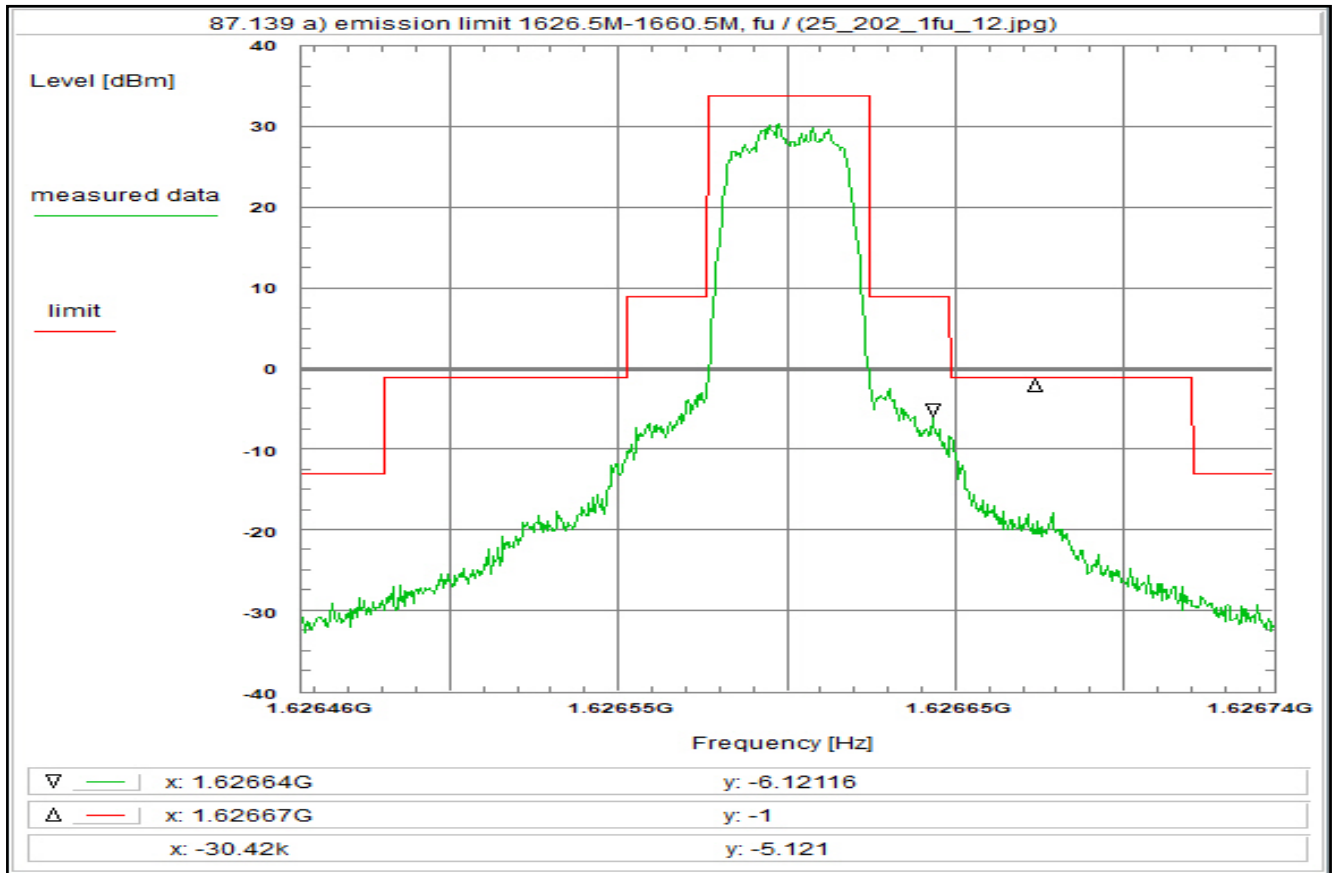
Correction:

Directional coupler + 0.0 dB  
Coaxial cable (C220) + 0.9 dB  
DUT-Antenna + 0.0 dB  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
+ 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 47



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

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 6.4 fl, R20T1QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 15:12:44  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626456 GHz  
Stop frequency: 1.626744 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 288 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

Correction:

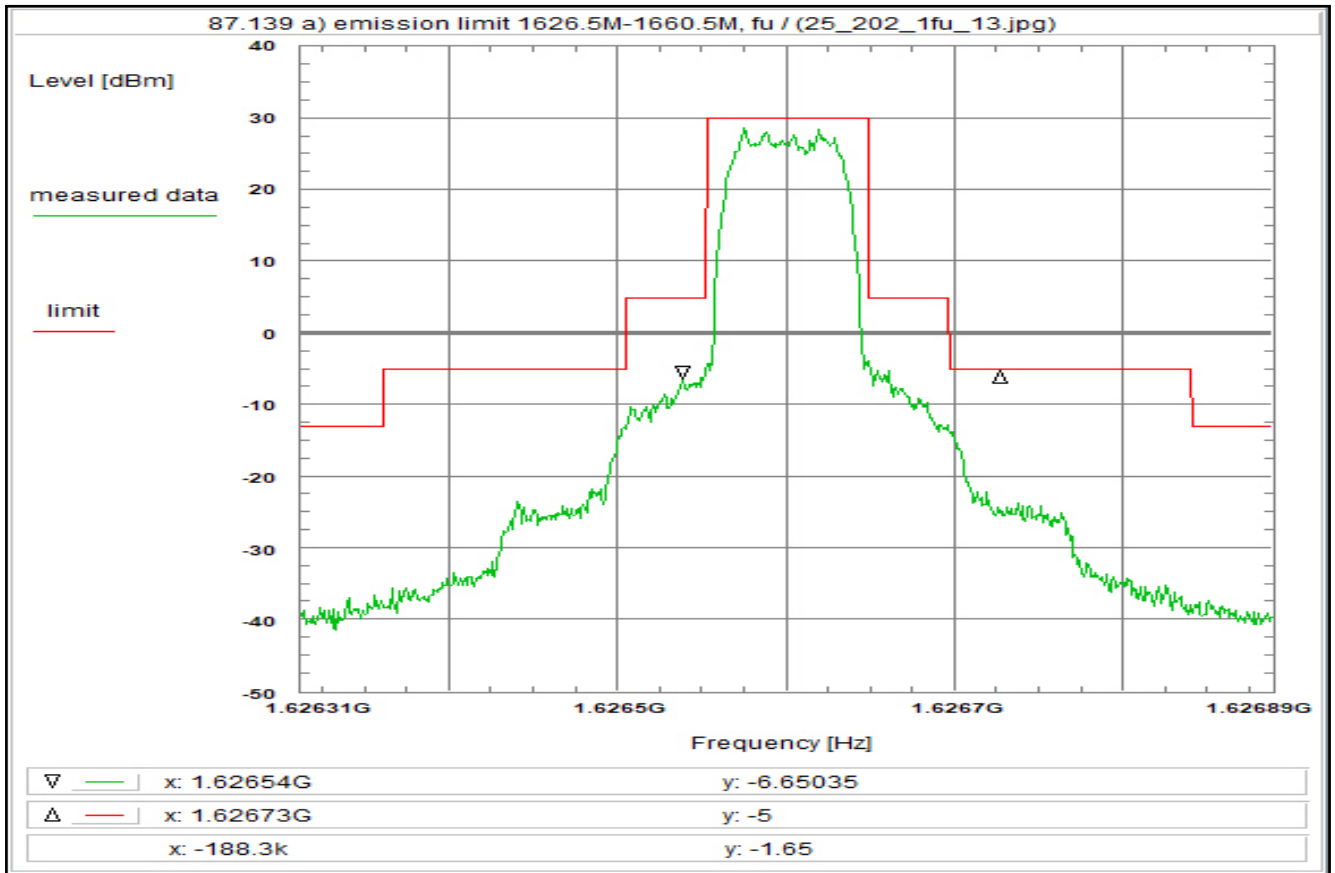
Directional coupler + 0.0 dB  
Coaxial cable (C220) + 0.9 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
+ 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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



Plot No. 48



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

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 6.4 fl, R20T2QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Tue 27/Oct/2020 15:15:48  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.626312 GHz  
Stop frequency: 1.626888 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 576 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 20 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

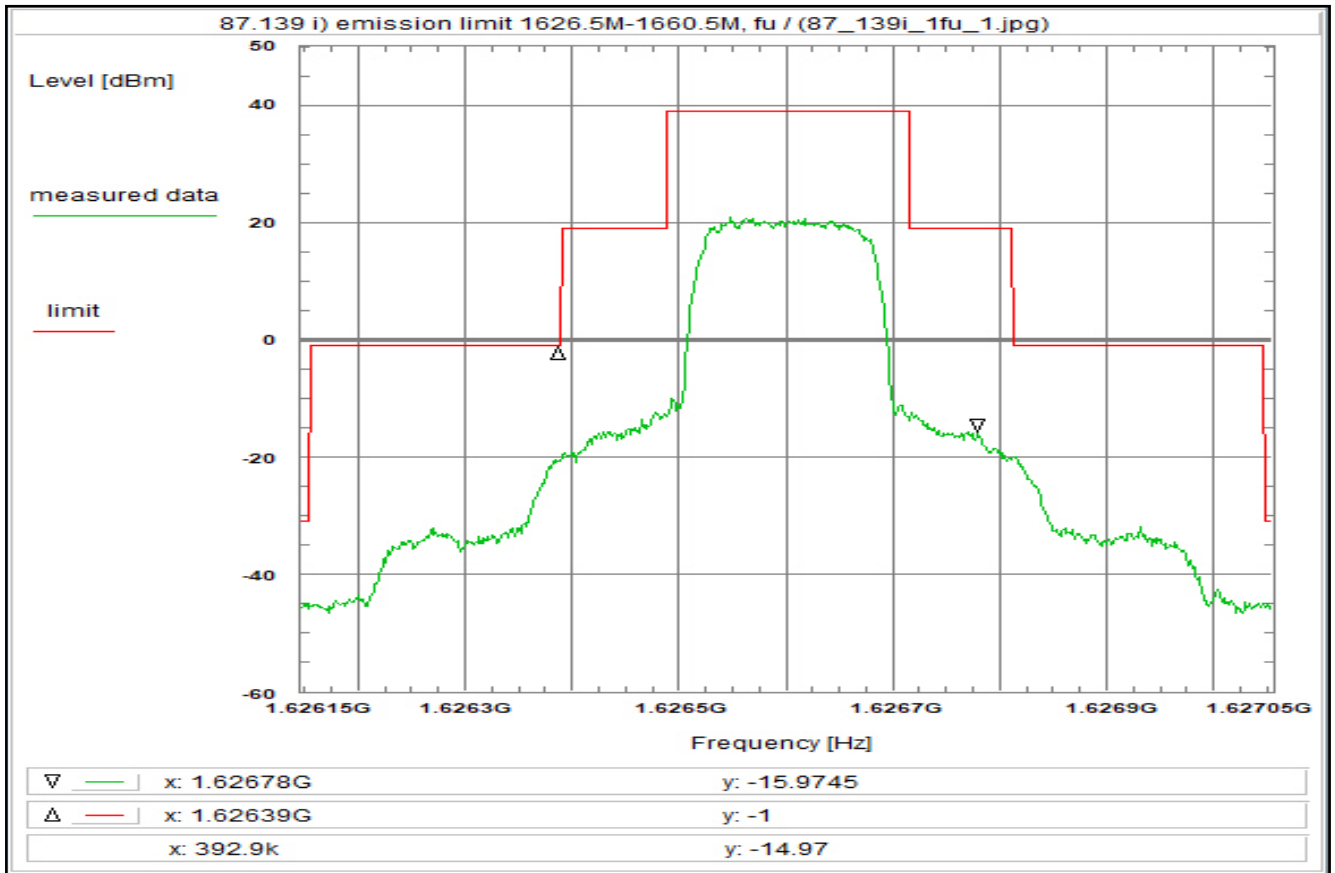
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
+ 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 49



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

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 6.4 fl, R20T45QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:08:15  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6261464 GHz  
Stop frequency: 1.6270536 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 907.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

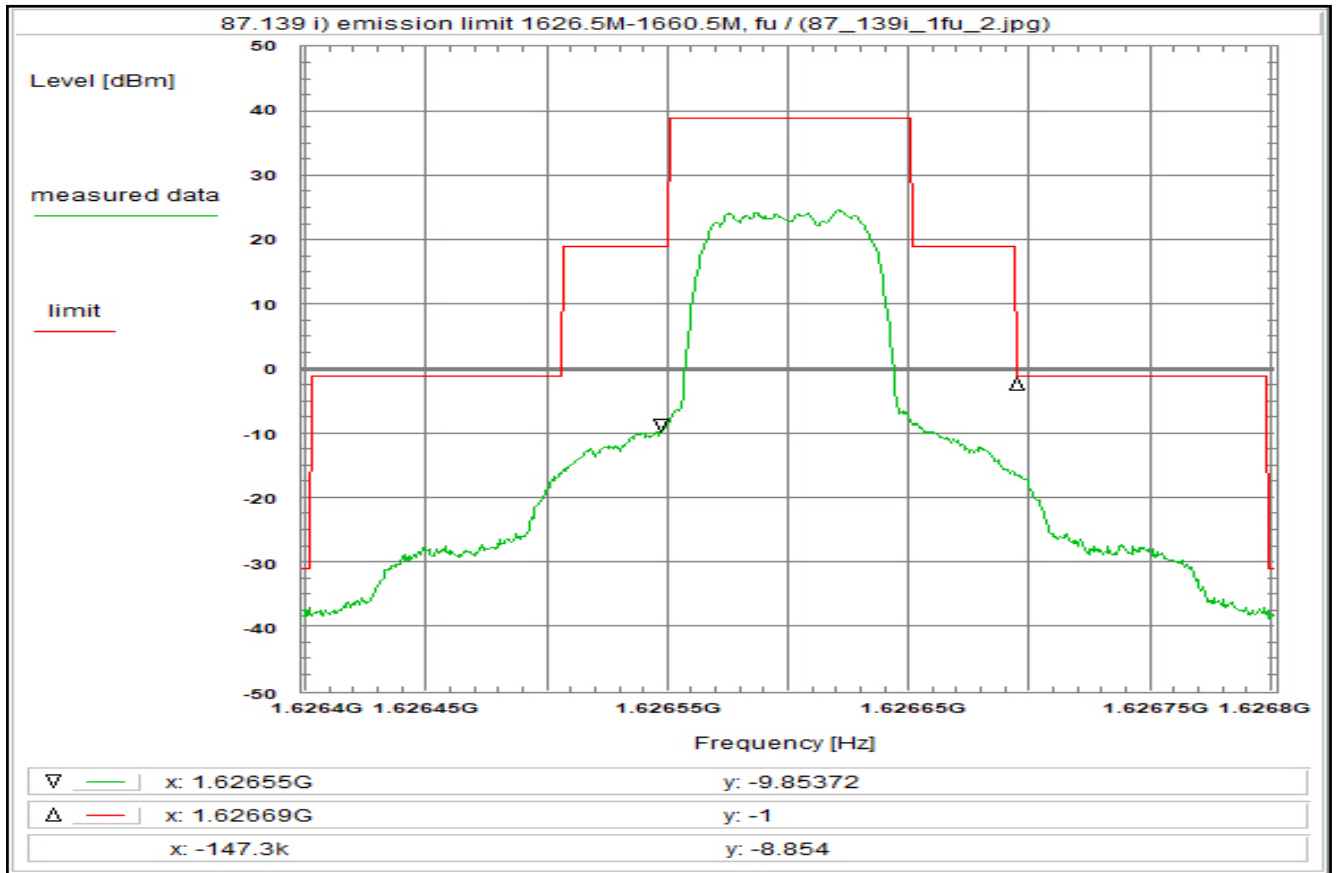
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 50



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

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 6.4 fl, R20T2QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:19:54  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6263984 GHz  
Stop frequency: 1.6268016 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 403.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

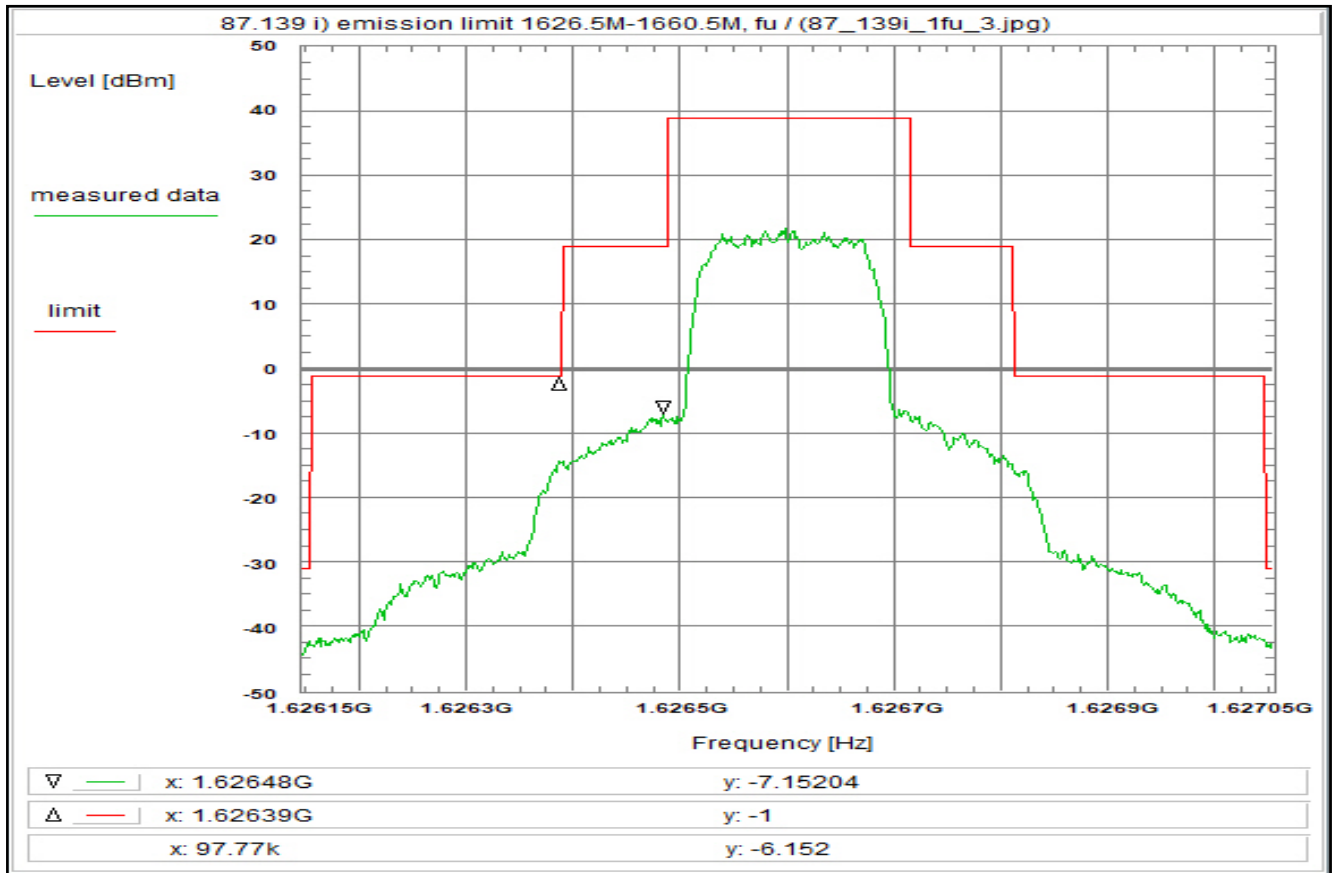
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 51



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

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 6.4 fl, R20T45XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:23:26  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6261464 GHz  
Stop frequency: 1.6270536 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 907.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

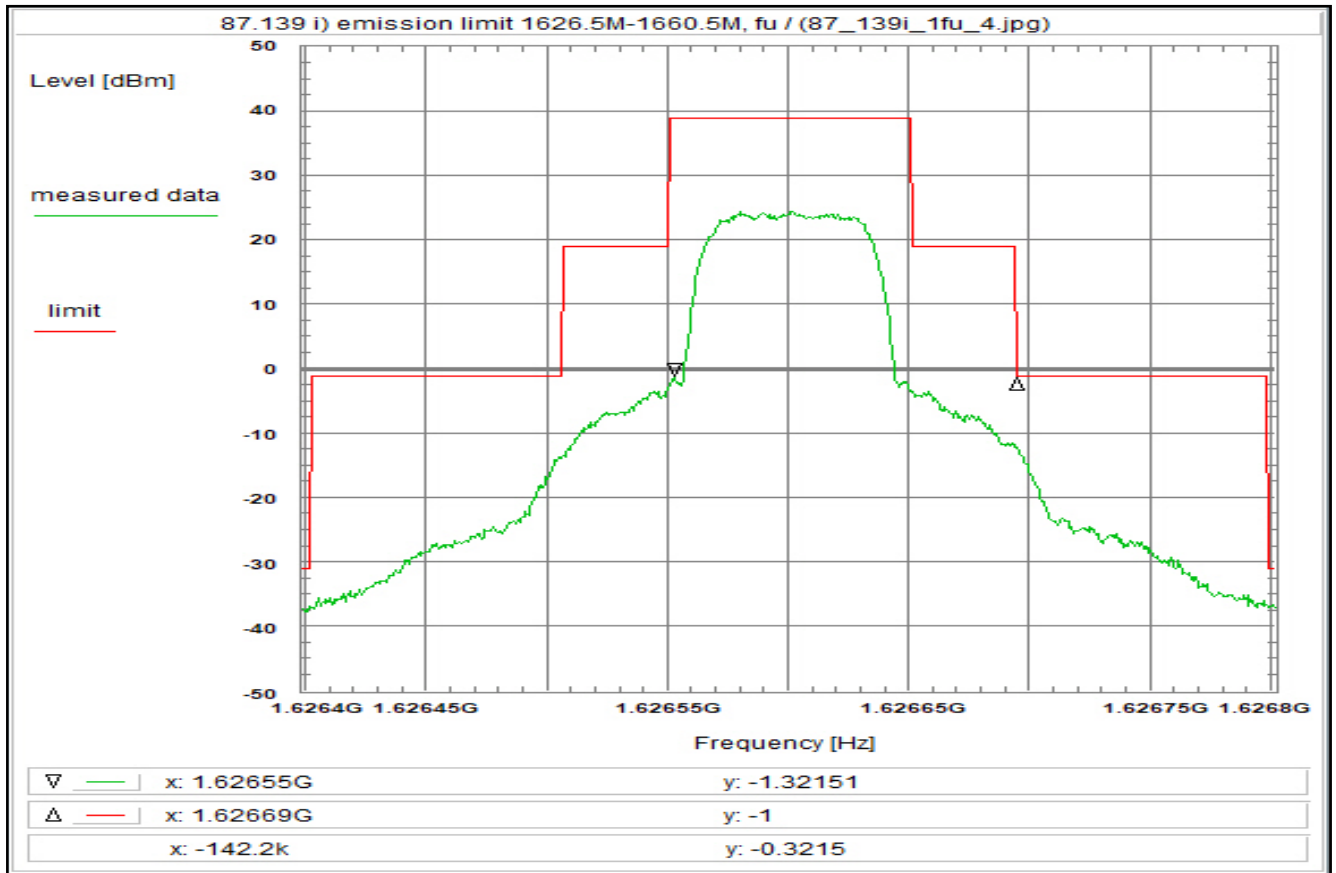
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 52



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

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 6.4 fl, R20T2XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:25:07  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6263984 GHz  
Stop frequency: 1.6268016 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 403.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

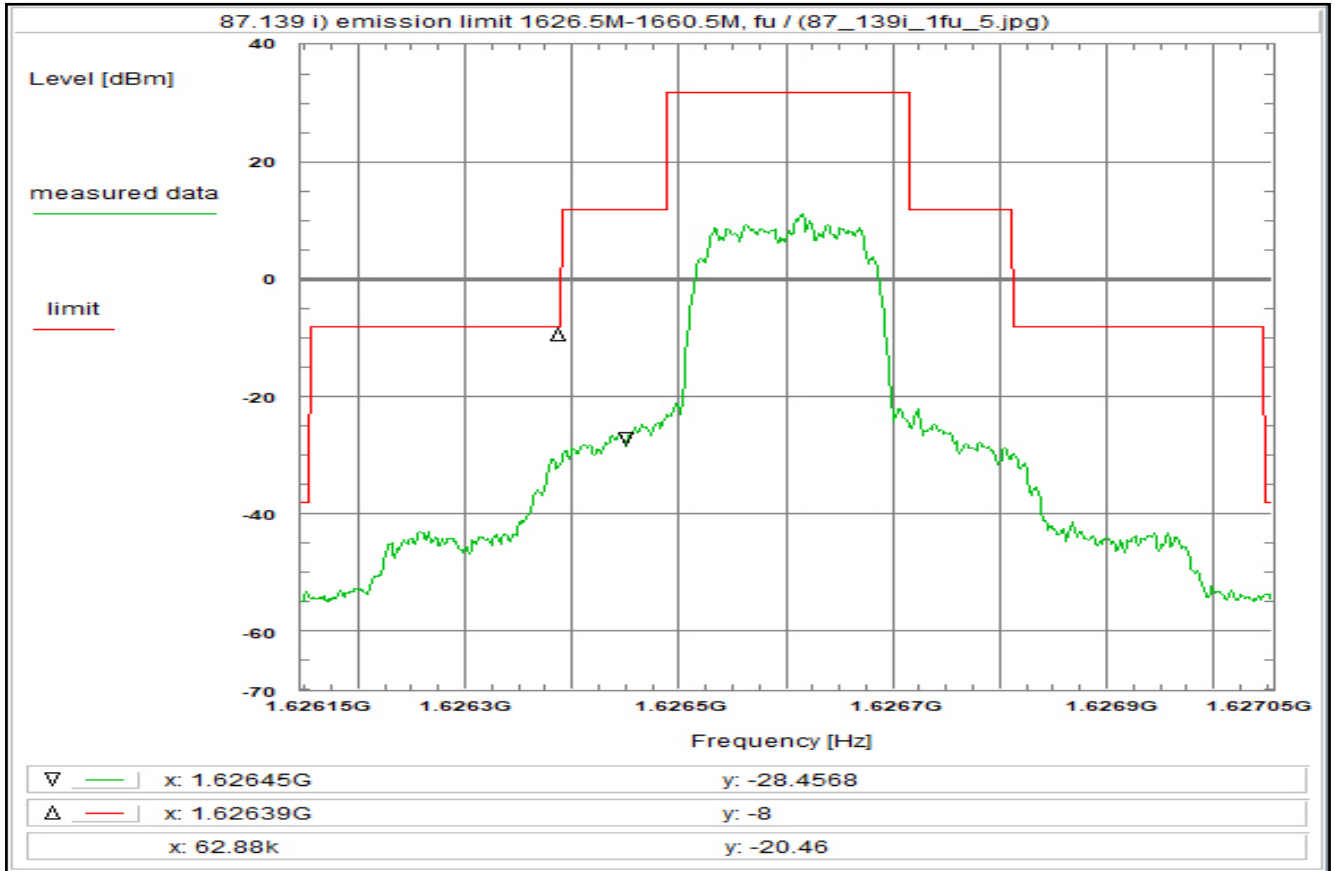
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 53



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

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 6.4 fl, R5T45QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:31:17  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6261464 GHz  
Stop frequency: 1.6270536 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 907.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

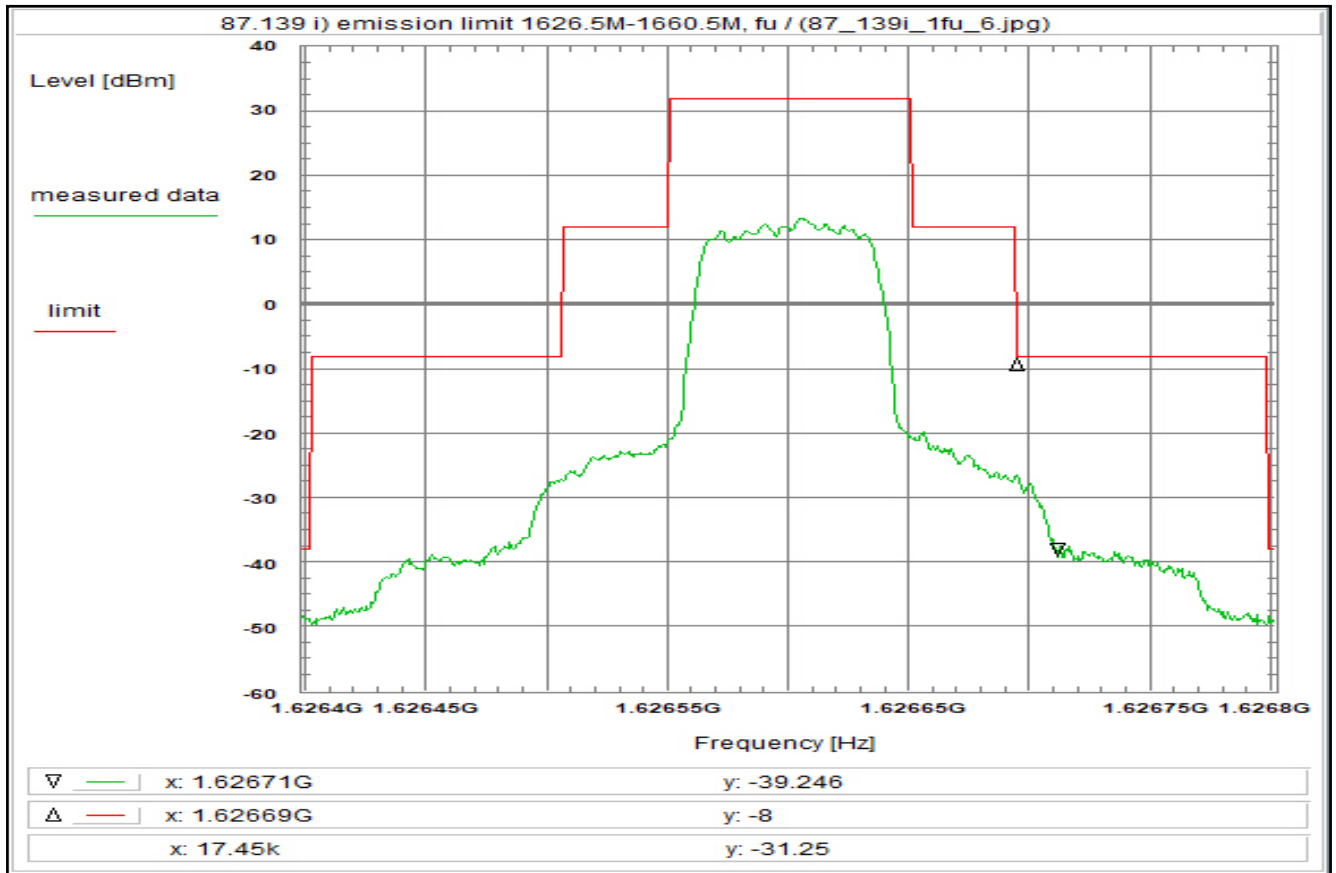
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 54



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

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 6.4 fl, R5T2QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:33:53  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6263984 GHz  
Stop frequency: 1.6268016 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 403.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

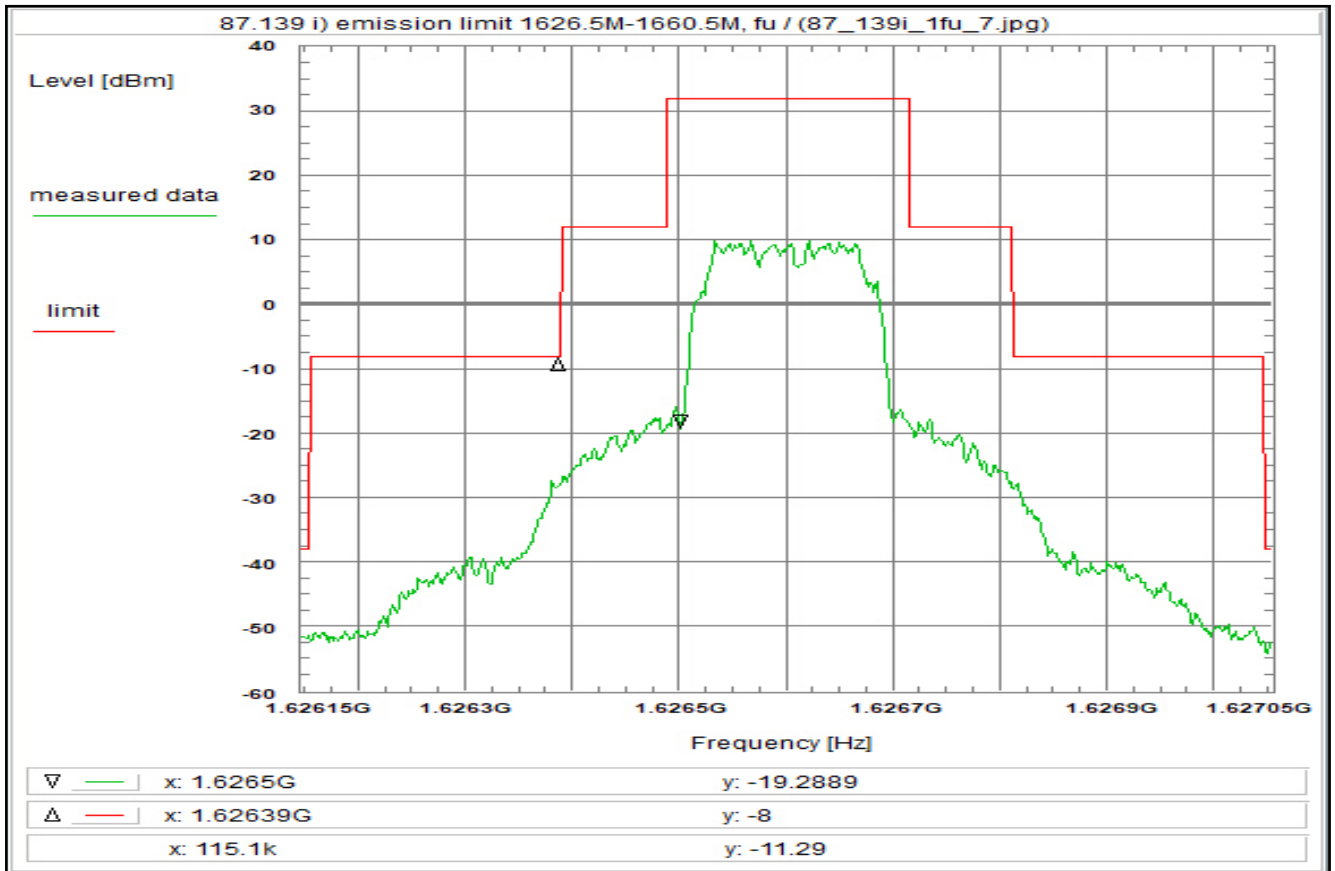
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 55



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

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 6.4 fl, R5T45XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:37:30  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6261464 GHz  
Stop frequency: 1.6270536 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 907.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

Correction:

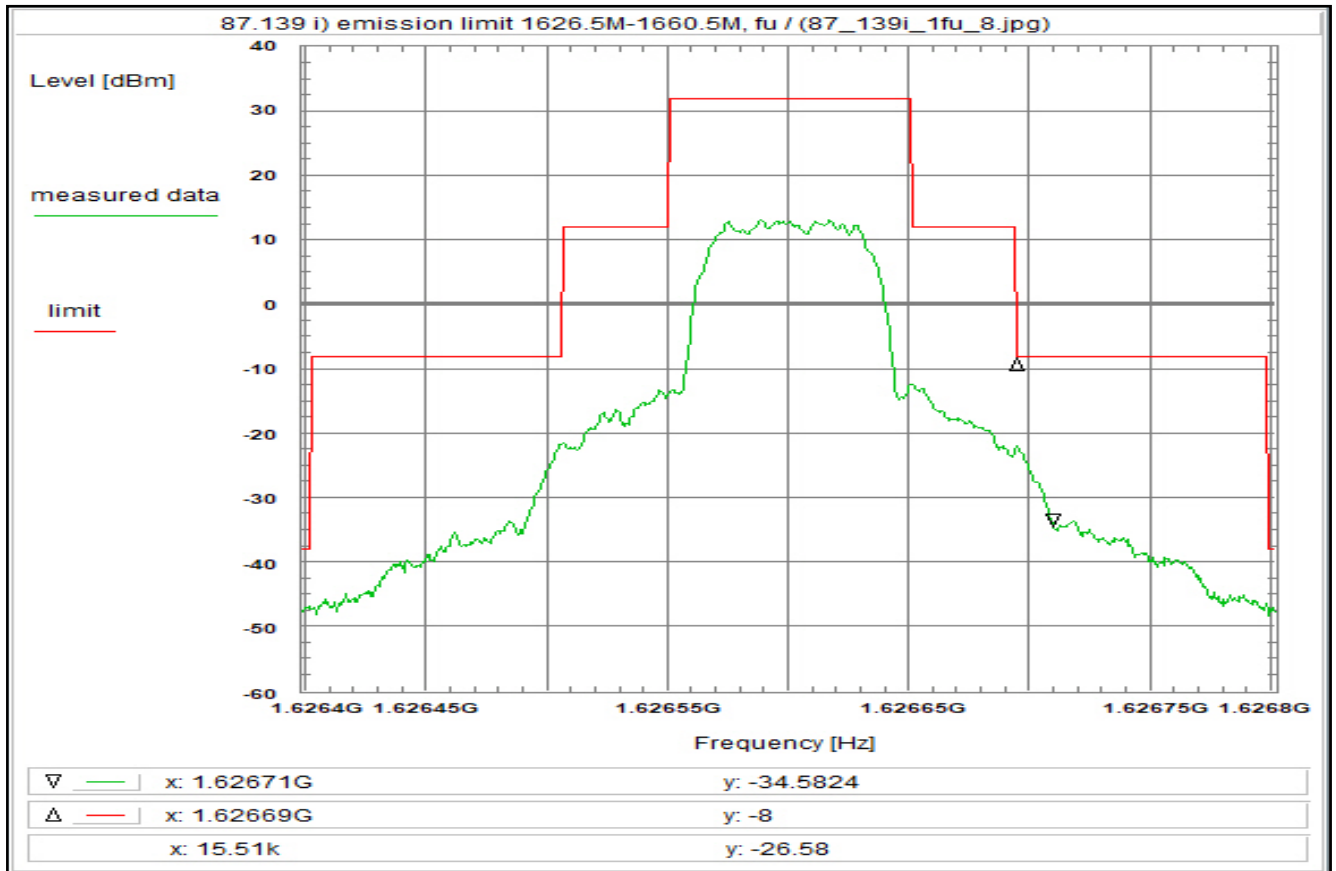
Directional coupler + 0.0 dB  
Coaxial cable (C220) + 0.9 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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



Plot No. 56



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

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 6.4 fl, R5T2XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Wed 28/Oct/2020 14:41:01  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6263984 GHz  
Stop frequency: 1.6268016 GHz  
Center frequency: 1.6266 GHz  
Frequency span: 403.2 kHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: AVG

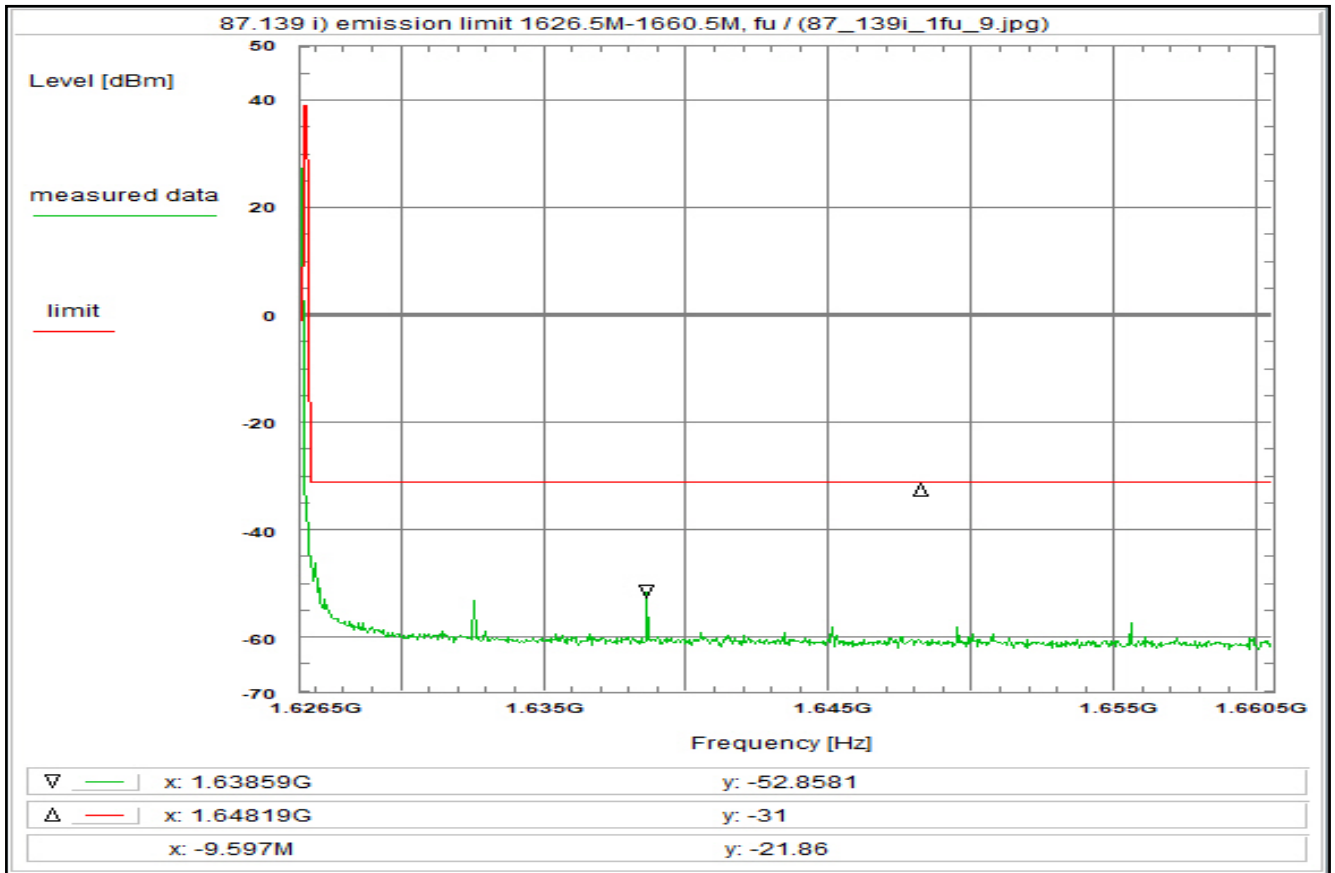
Correction:

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  
Atten. between HPA and feedhorn - 0.0 dB  
Freefield attenuation (U330) + 31.9 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 57



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

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 6.4 fl, R5T1X

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 05/Nov/2020 09:17:12  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6265 GHz  
Stop frequency: 1.6605 GHz  
Center frequency: 1.6435 GHz  
Frequency span: 34 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: RMS

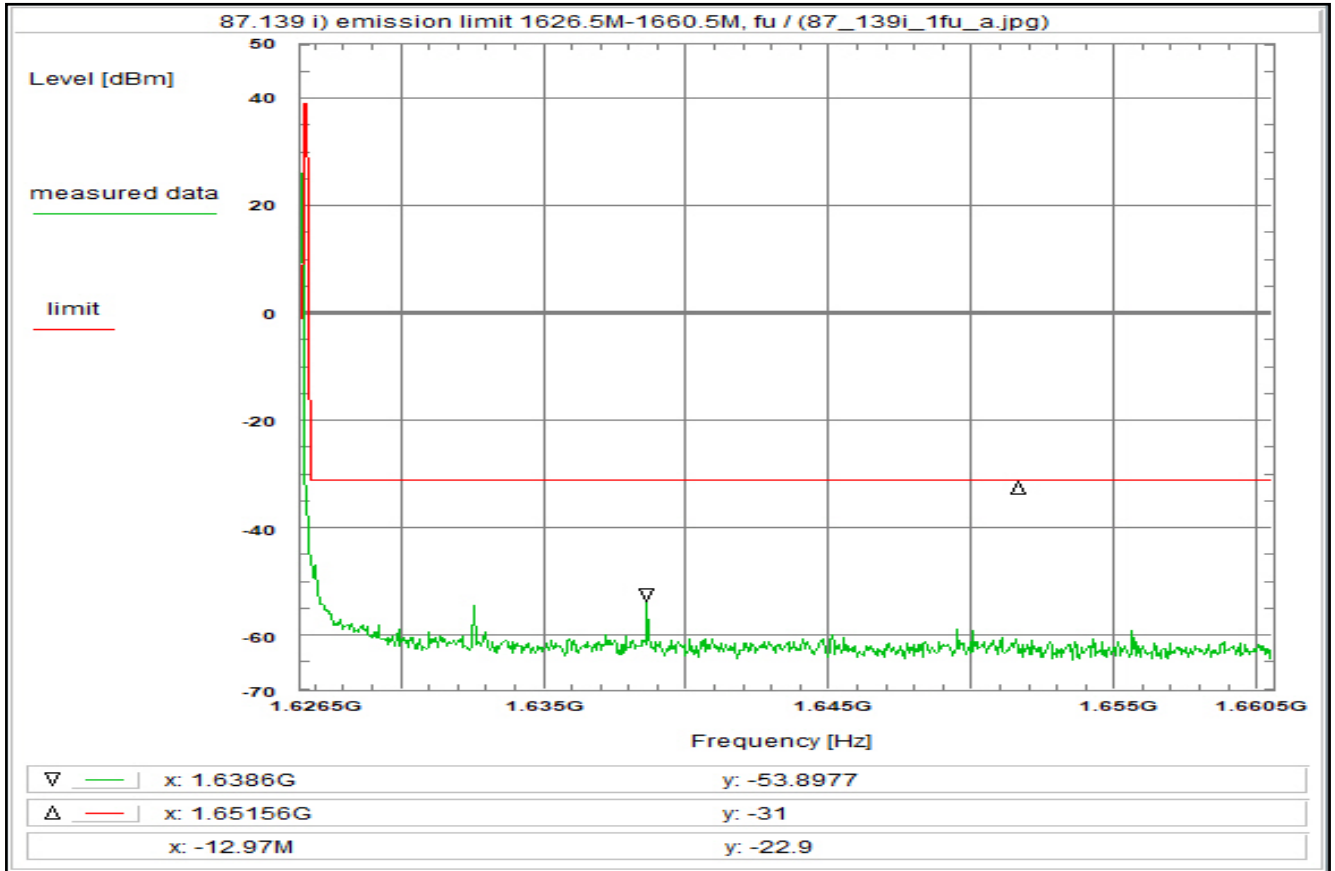
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 58



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

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 6.4 fi, R20T1XD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 05/Nov/2020 09:18:33  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6265 GHz  
Stop frequency: 1.6605 GHz  
Center frequency: 1.6435 GHz  
Frequency span: 34 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: RMS

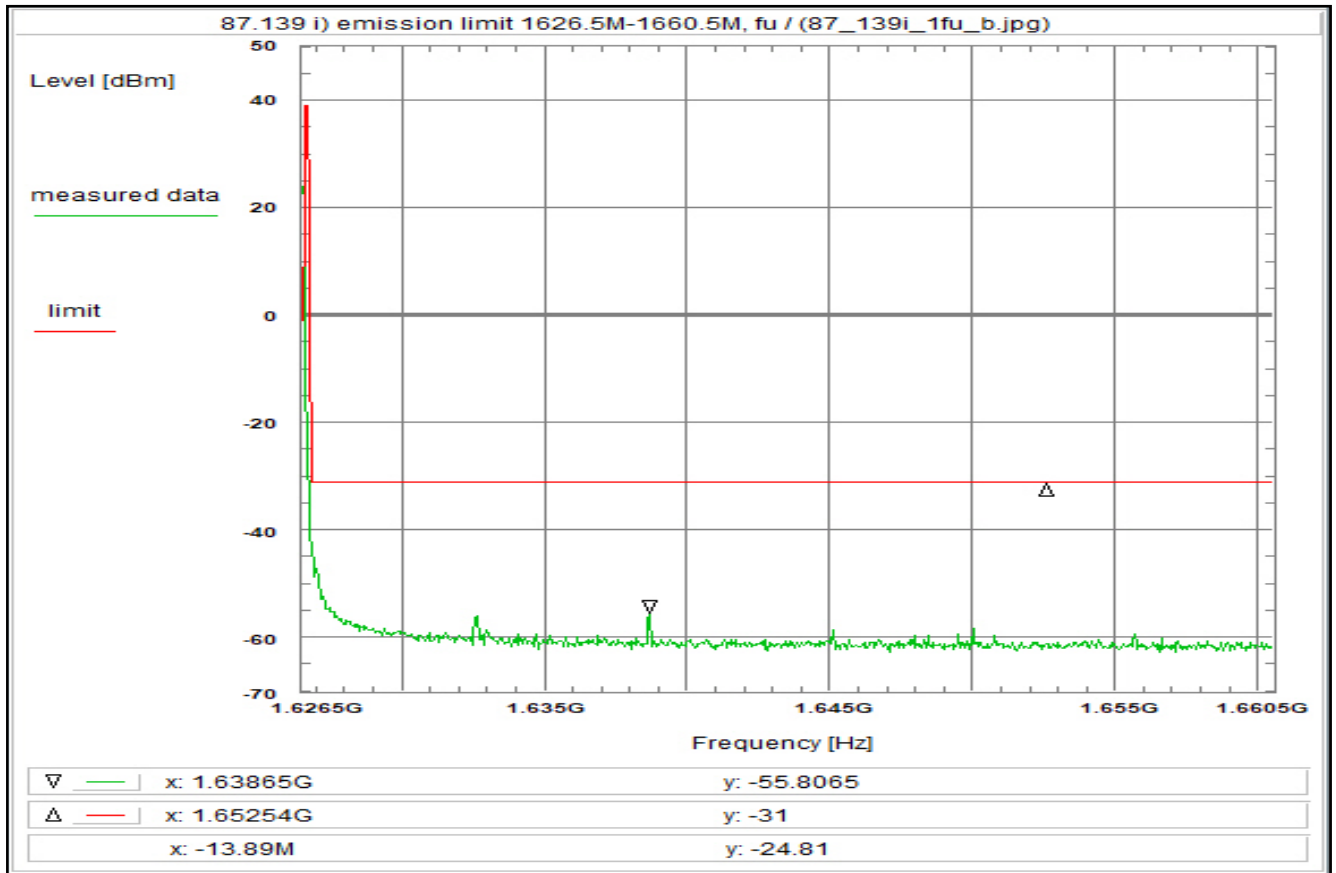
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 59



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

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 6.4 fl, R20T05QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U330

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 05/Nov/2020 09:20:25  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6265 GHz  
Stop frequency: 1.6605 GHz  
Center frequency: 1.6435 GHz  
Frequency span: 34 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: RMS

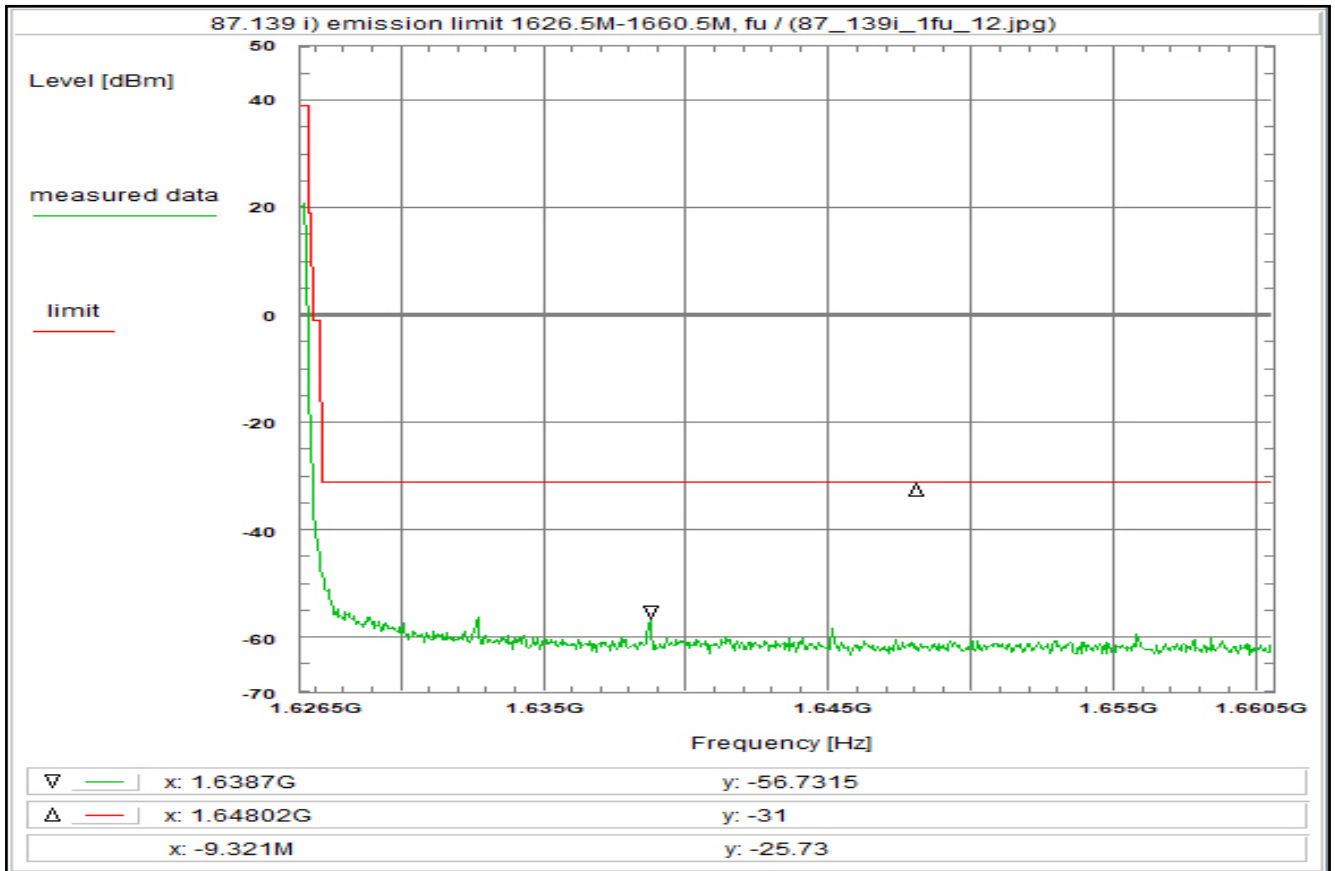
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 60



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

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 6.4 fl, R20T1QD

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: R001

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 05/Nov/2020 09:23:57  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.6265 GHz  
Stop frequency: 1.6605 GHz  
Center frequency: 1.6435 GHz  
Frequency span: 34 MHz  
Resolution-BW: 3 kHz  
Video-BW: 30 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: RMS

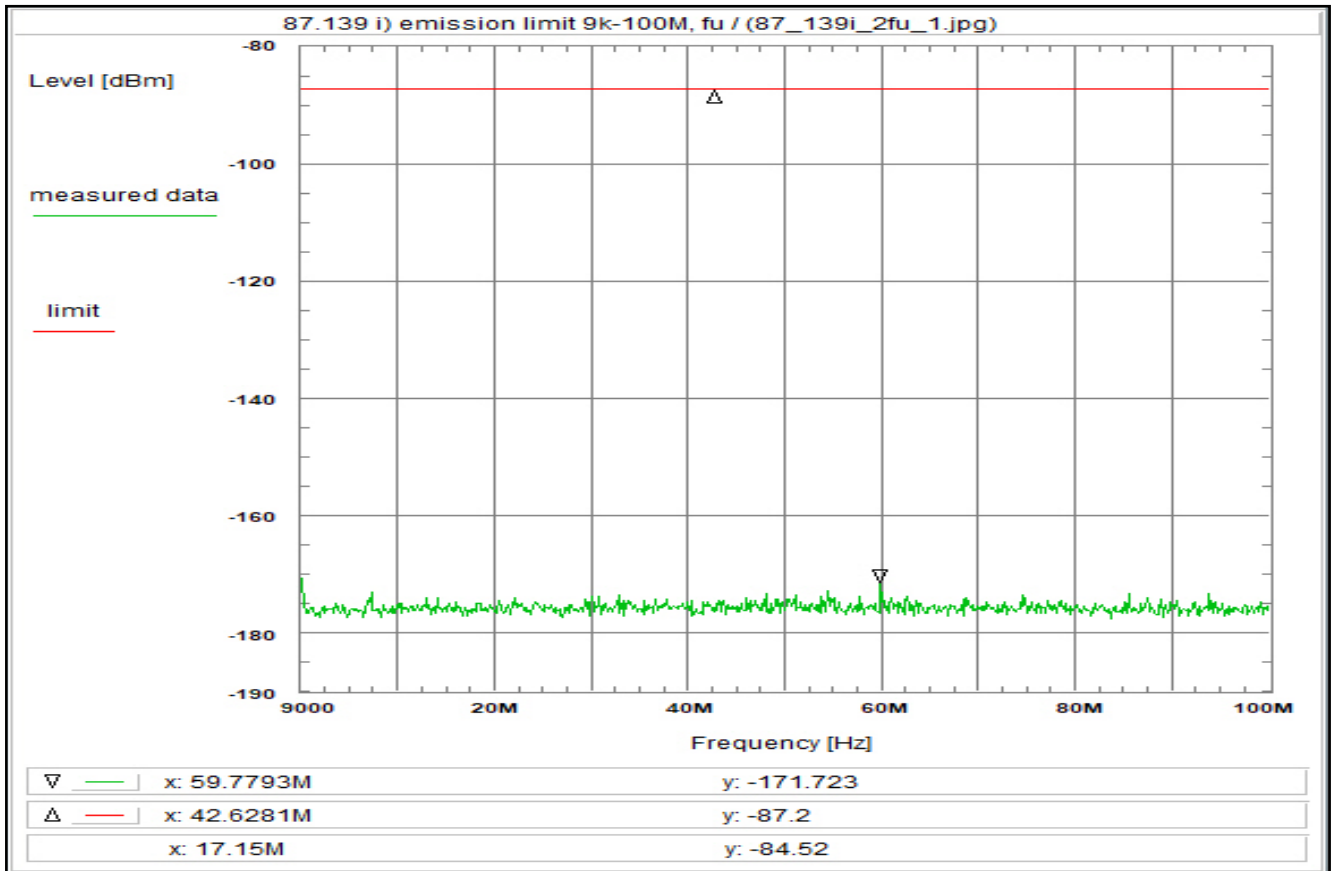
Correction:

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  
Atten. between HPA and feedhorn (U330) - 0.0 dB  
TOTAL CORRECTION: + 34.0 dB

Remarks:

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

Plot No. 61



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

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 13:32:55  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

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: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: Pos Peak

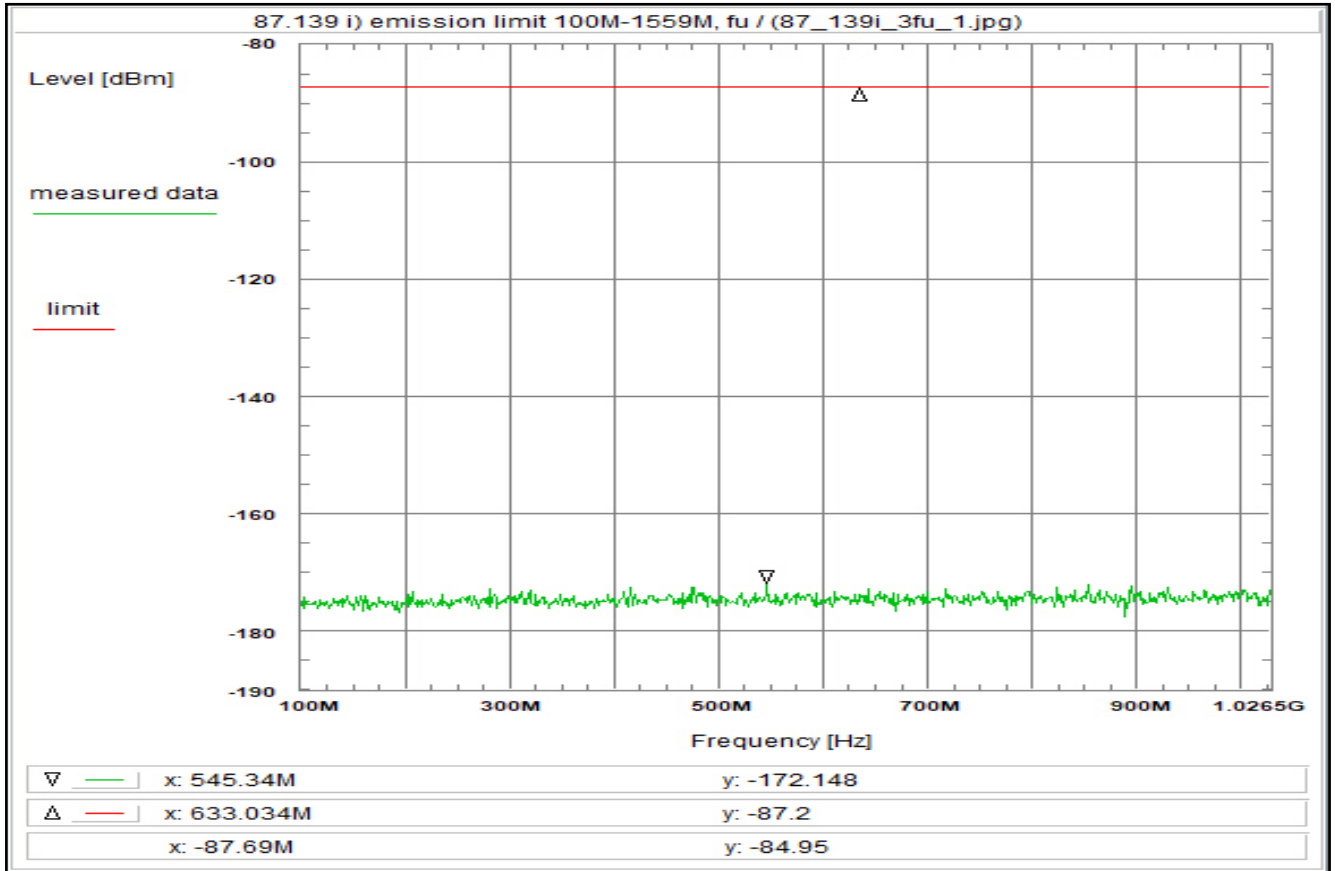
Correction:

W\_RE 120.0 dB  
Coaxial cable (C220) + 0.2 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
TOTAL CORRECTION: - 31.4 dB  
- -87.2 dB

Remarks:

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

Plot No. 62



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

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 13:48:31  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 100 MHz  
Stop frequency: 1.0265 GHz  
Center frequency: 563.25 MHz  
Frequency span: 926.5 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: Pos Peak

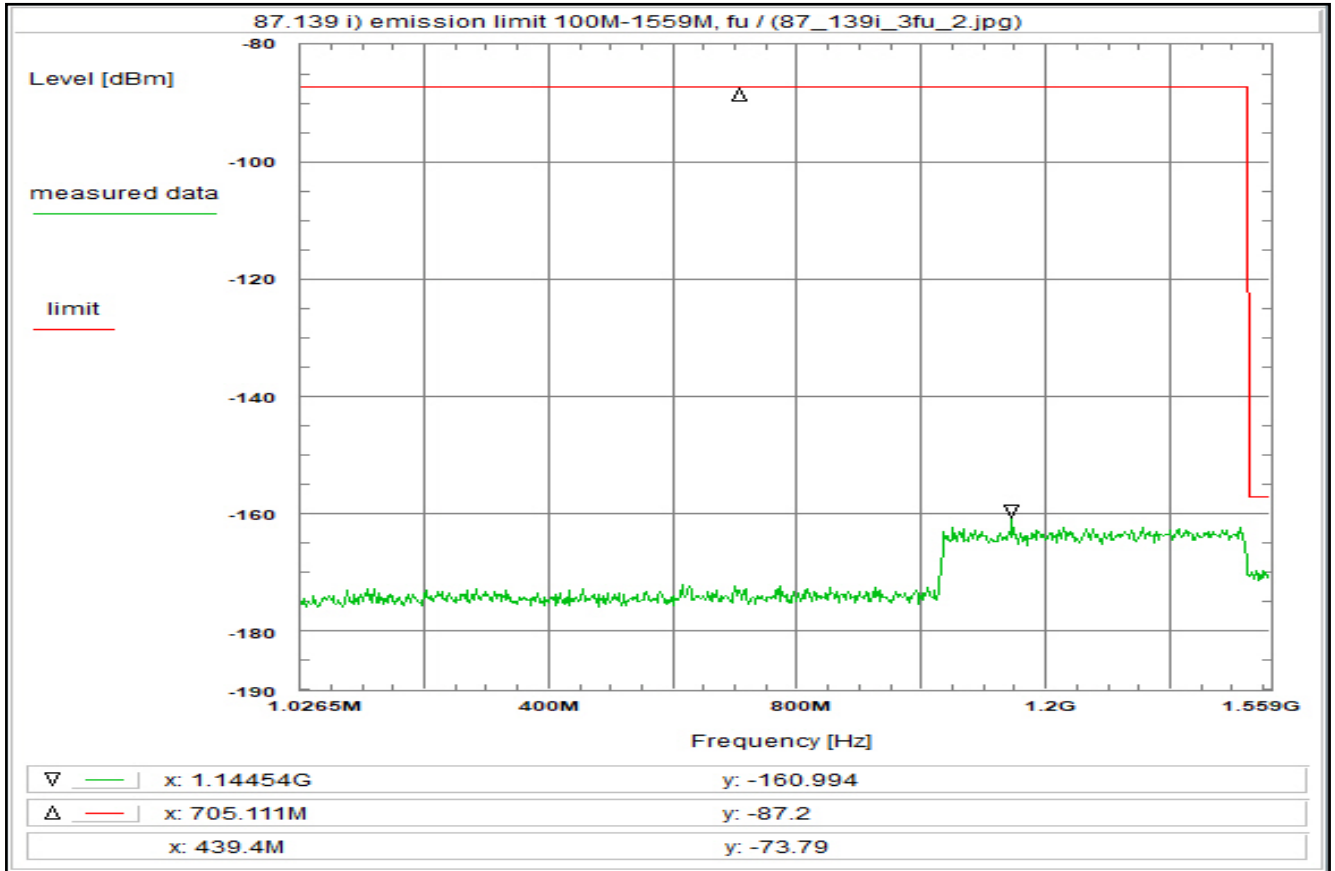
Correction:

W\_RE 116.7 dB  
Coaxial cable (C220) + 0.5 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
TOTAL CORRECTION: - 83.3 dB

Remarks:

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

Plot No. 63



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

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 13:58:07  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.0265 MHz  
Stop frequency: 1.559 GHz  
Center frequency: 780.01325 MHz  
Frequency span: 1.5579735 GHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: Pos Peak

Correction:

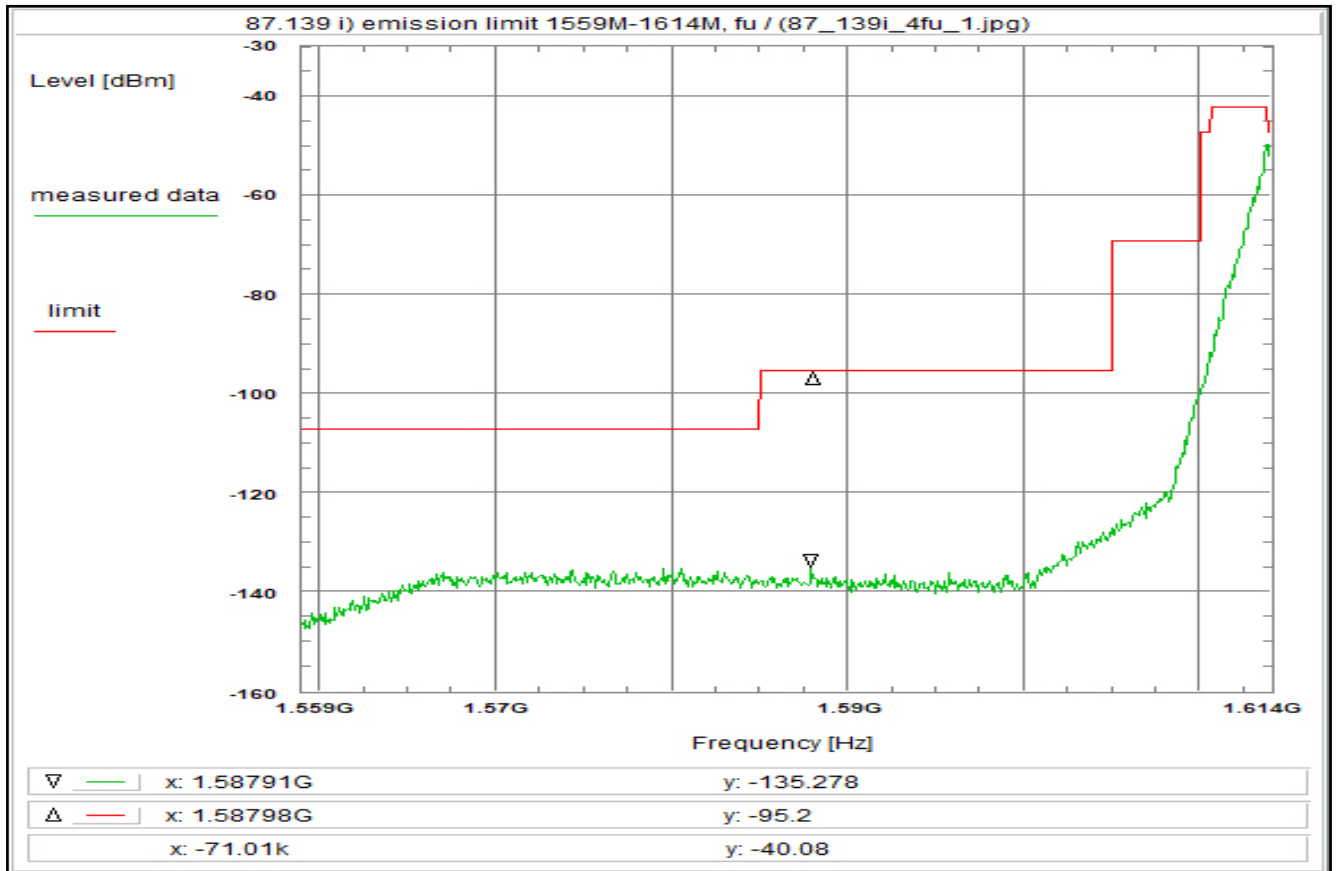
W\_RE 115.7 dB  
Coaxial cable (C220) + 0.6 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 4k) + 1.2 dB  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
+ 31.8 dB  
TOTAL CORRECTION: - 82.1 dB

Remarks:

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



Plot No. 64



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

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 13:59:51  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

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: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: Pos Peak

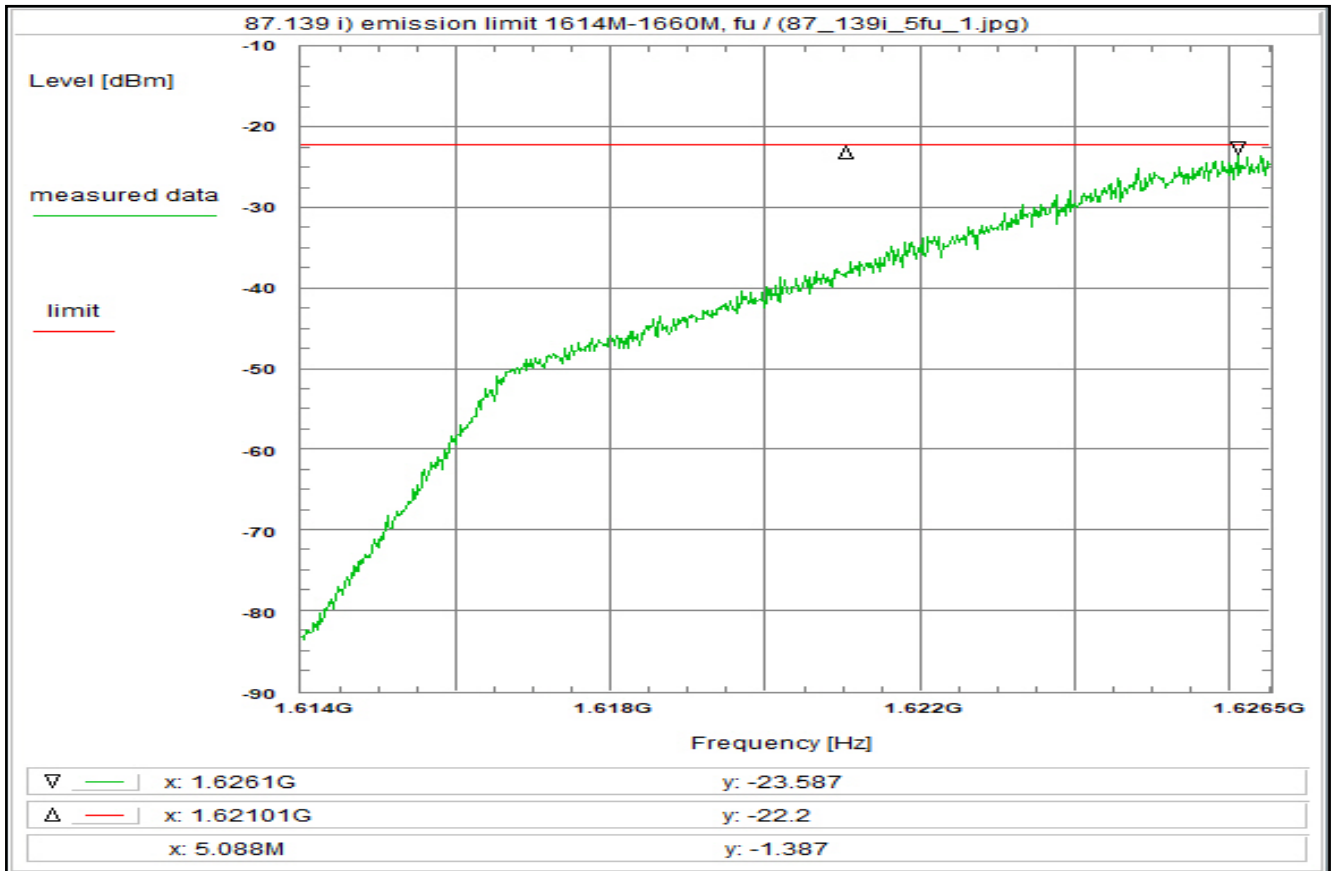
Correction:

W\_RE 104.1 dB  
Coaxial cable (C220) + 0.9 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (3k -> 1M) + 25.2 dB  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
+ 32.6 dB  
TOTAL CORRECTION: - 45.4 dB

Remarks:

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

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 (fl)

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 14:07:18  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

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: Max-Hold  
Detector-Mode: AVG

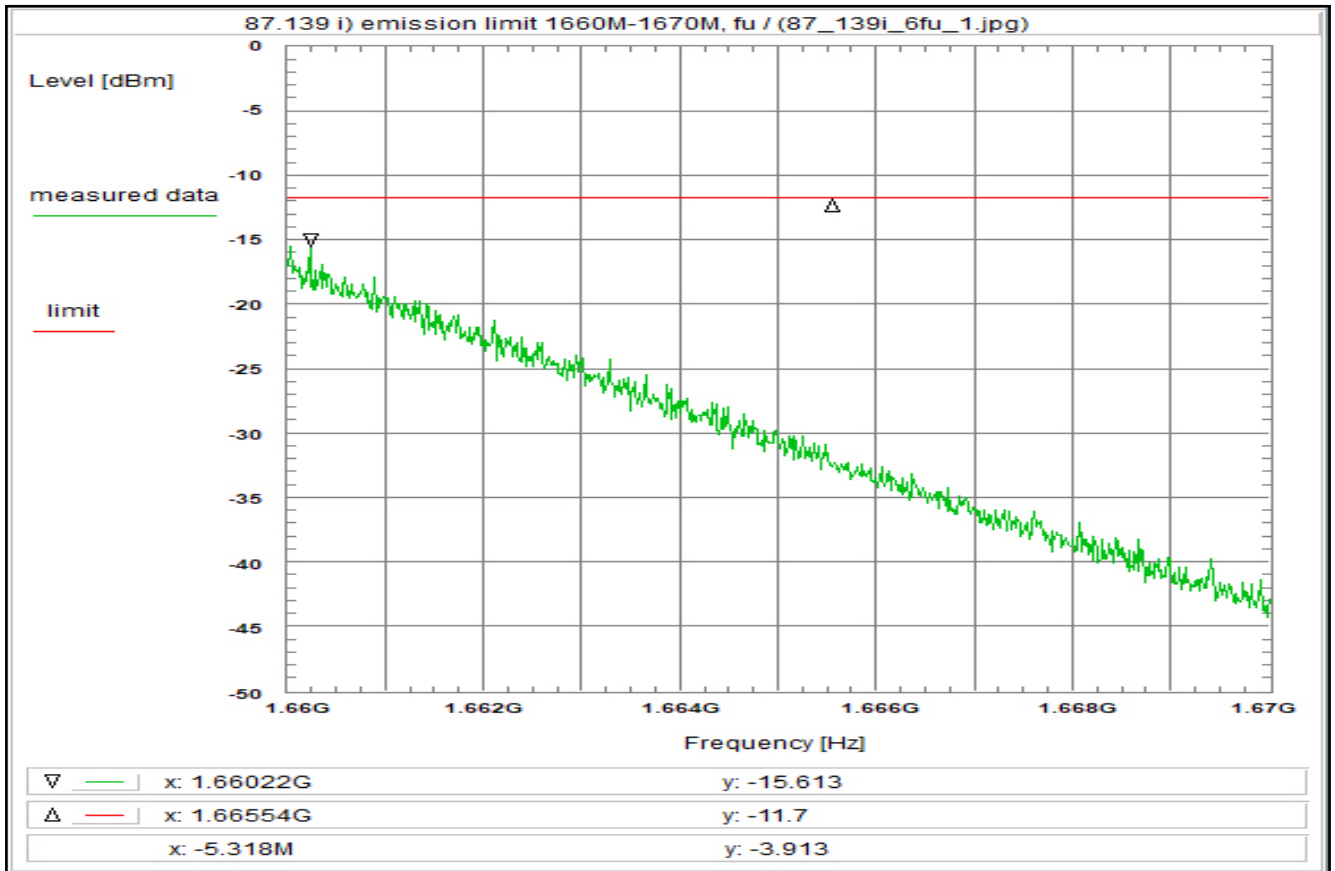
Correction:

W\_RE 47.8 dB  
Coaxial cable (C220) + 0.9 dB  
DUT-Antenna + 0.0 dBi  
Test antenna + 0.0 dB  
BW correction factor (500 -> 4k) + 9.0 dB  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
TOTAL CORRECTION: + 56.6 dB  
+ 18.7 dB

Remarks:

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

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 14:08:40  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

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: Max-Hold  
Detector-Mode: AVG

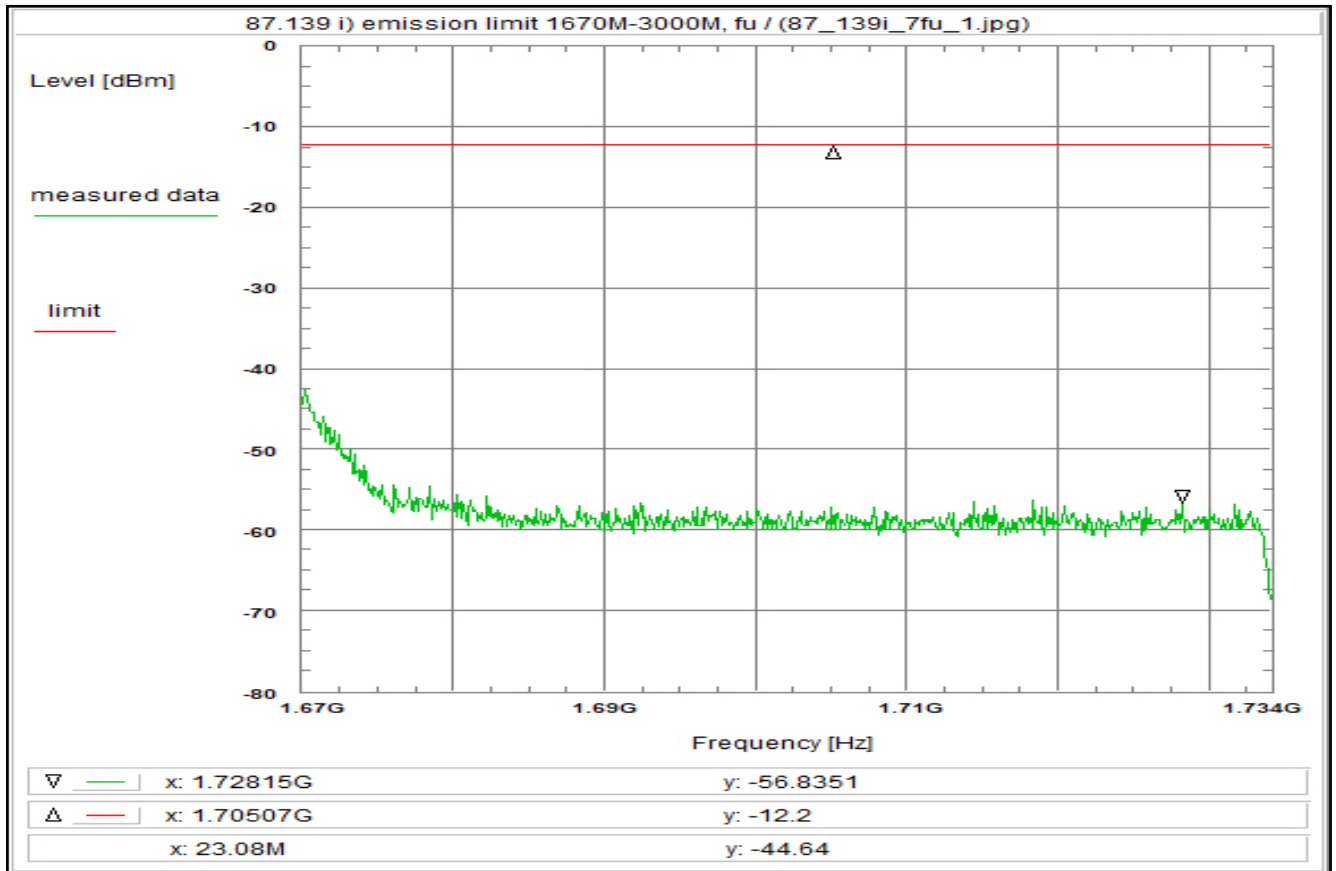
Correction:

W\_RE 4.5 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  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
+ 72.8 dB  
TOTAL CORRECTION: + 77.4 dB

Remarks:

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

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 6.4 fl, valid for all modulations

Test setup:  
see test report chapter 8.2

Test equipment:  
see test report chapter 8.1-8.2: C220, R001, U331, W\_RE

Remark:

Test result: Test passed

Environment condition:

Date & Time: Thu 29/Oct/2020 14:18:27  
Location: CTC advanced GmbH, Laboratory RC-SYS  
Temperature: 22 °C  
Humidity: 55 %  
Voltage: 28 V DC

Setup of measurement equipment:

Start frequency: 1.67 GHz  
Stop frequency: 1.734 GHz  
Center frequency: 1.702 GHz  
Frequency span: 64 MHz  
Resolution-BW: 3 kHz  
Video-BW: 10 kHz  
Input attenuation: 0 dB  
Trace-Mode: Max-Hold  
Detector-Mode: Pos Peak

Correction:

W\_RE 4.5 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  
Atten. between HPA and feedhorn (U331) - 0.0 dB  
+ 35.5 dB  
TOTAL CORRECTION: + 33.1 dB

Remarks:

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