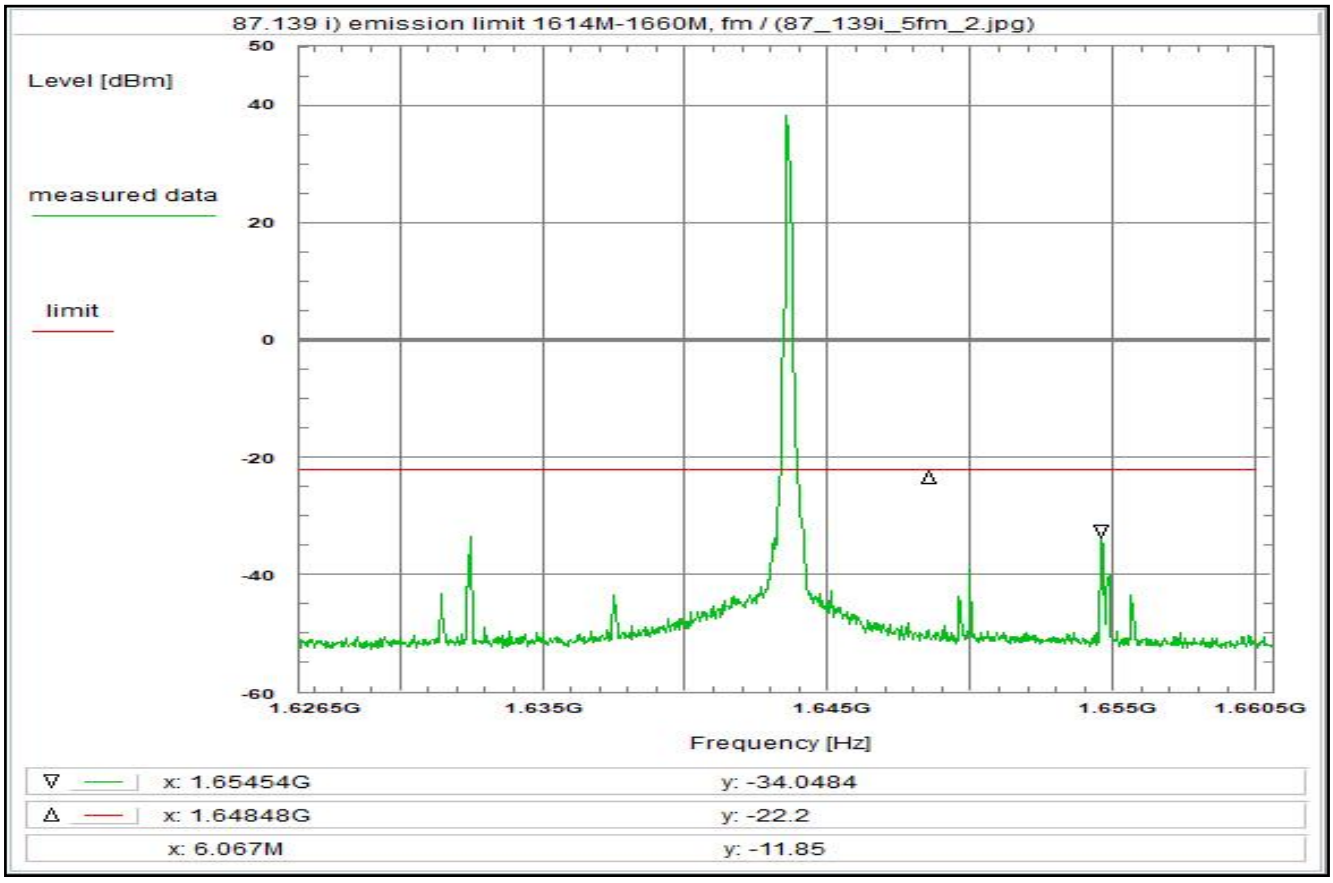
Plot No. 84



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 6.4
fm, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Fri 25/Aug/2023 19:15:00	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	Pos Peak	

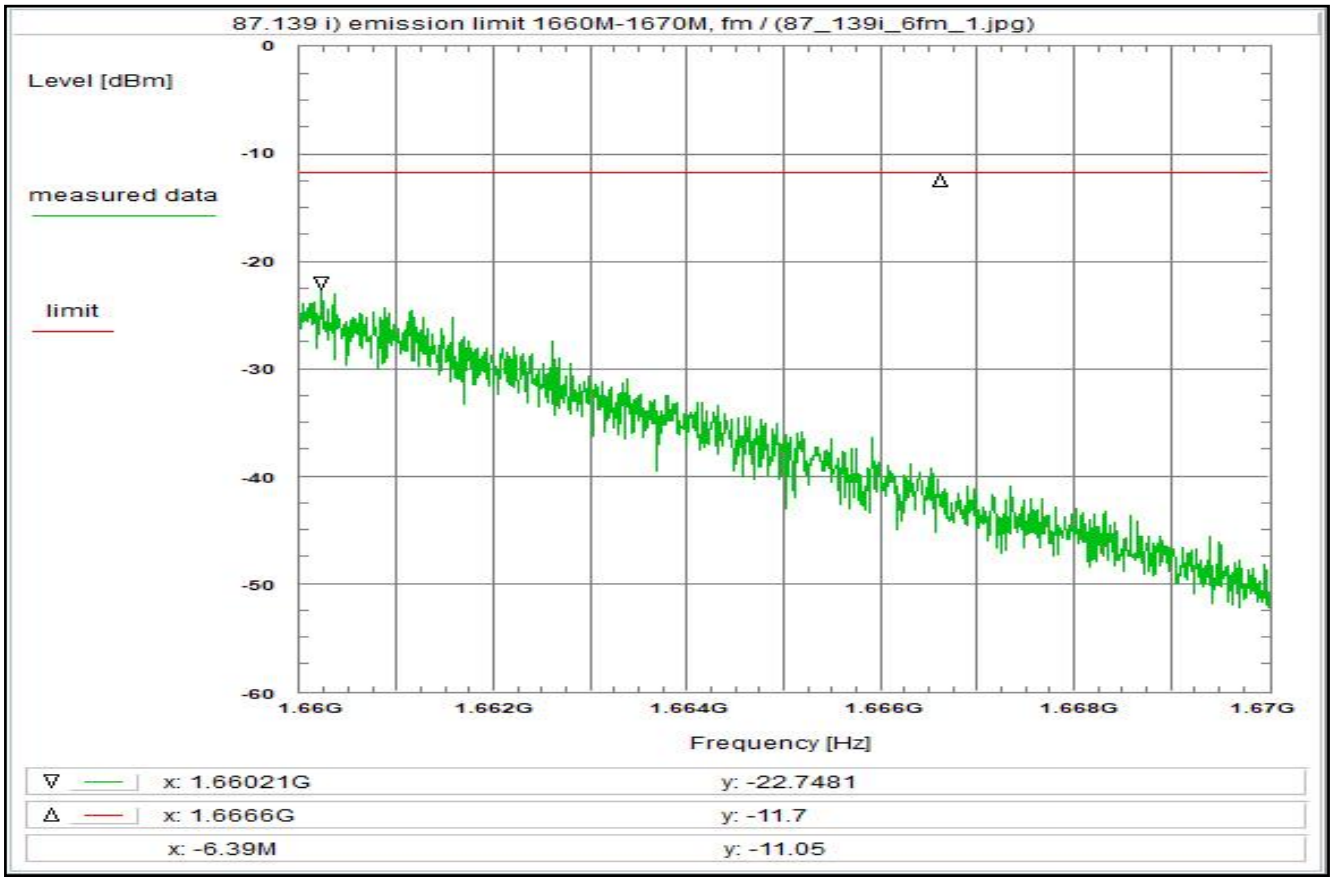
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -30.2 dBm

Plot No. 85



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 6.4
fm, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U331

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 15:17:14	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

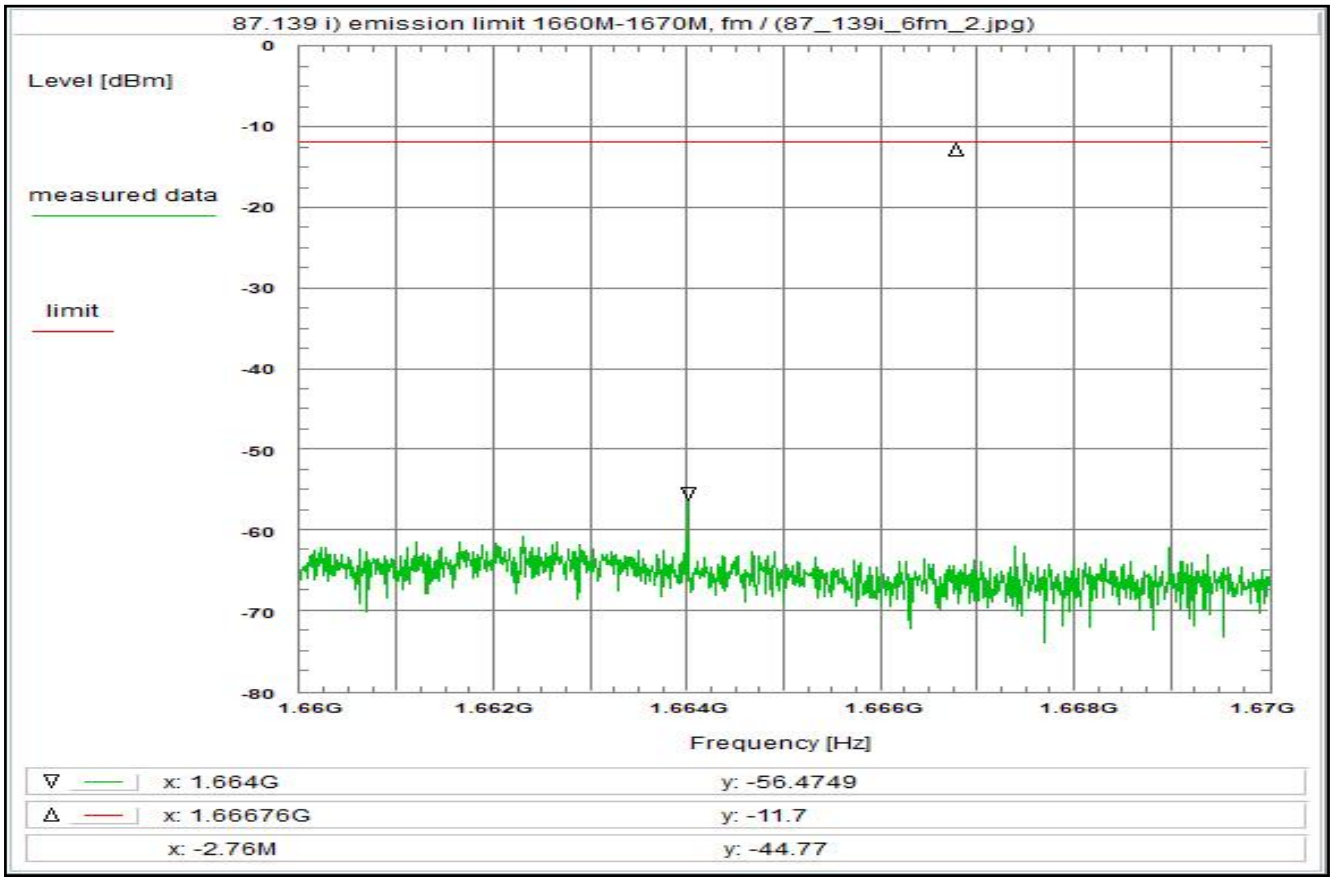
Correction:

(W_RE)	-	4.5	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 20k)	+	8.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U331)	+	72.8	dB
TOTAL CORRECTION:	+	78.8	dB

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

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -18.9 dBm

Plot No. 86



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 6.4
fm, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 18:30:13	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

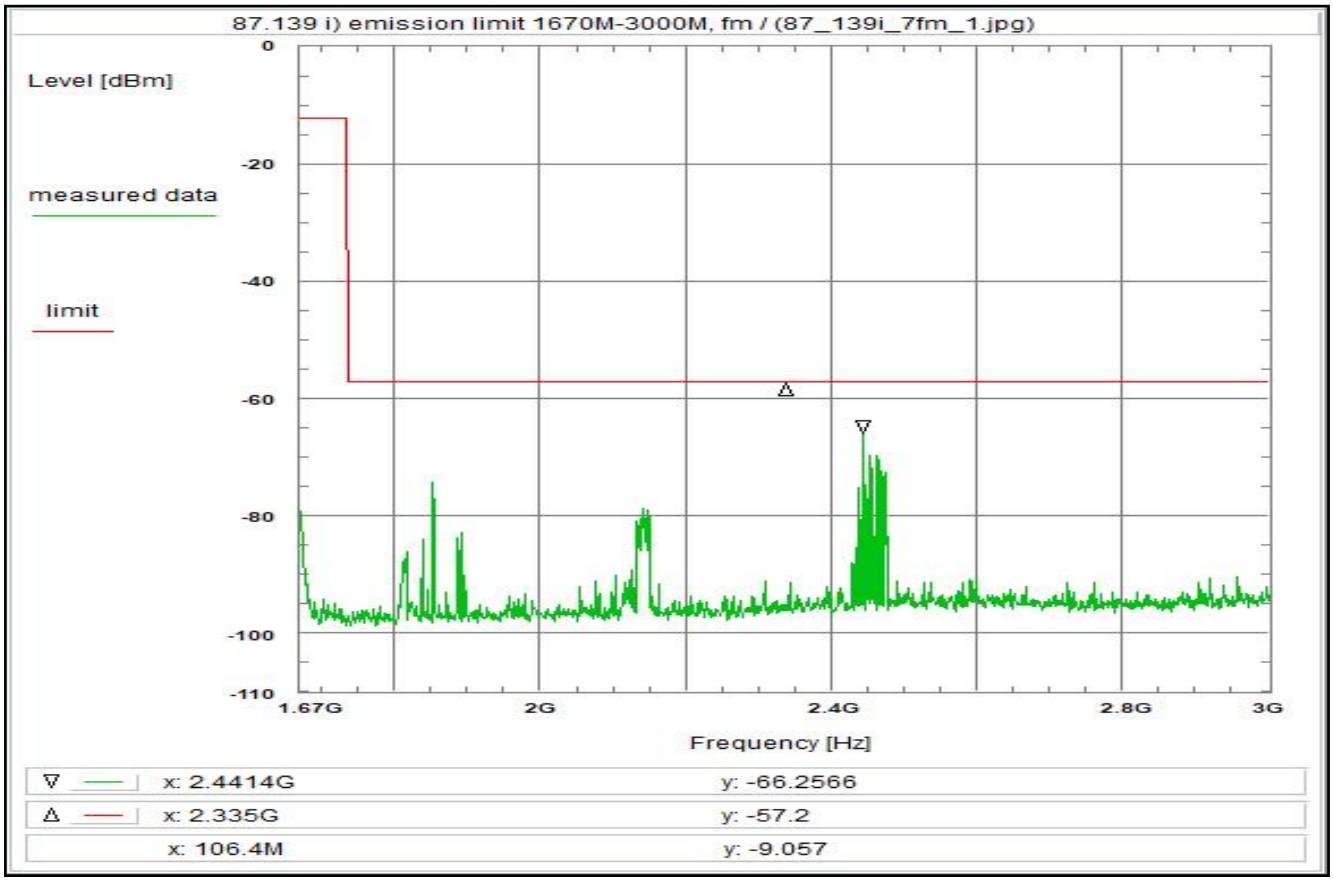
Correction:

(W_RE)	-	4.5	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 20k)	+	8.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	37.9	dB

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

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -52.6 dBm

Plot No. 87



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 6.4
fm, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U331

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Tue 22/Aug/2023 15:13:14	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.67	GHz
Stop frequency:	3	GHz
Center frequency:	2.335	GHz
Frequency span:	1.33	GHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

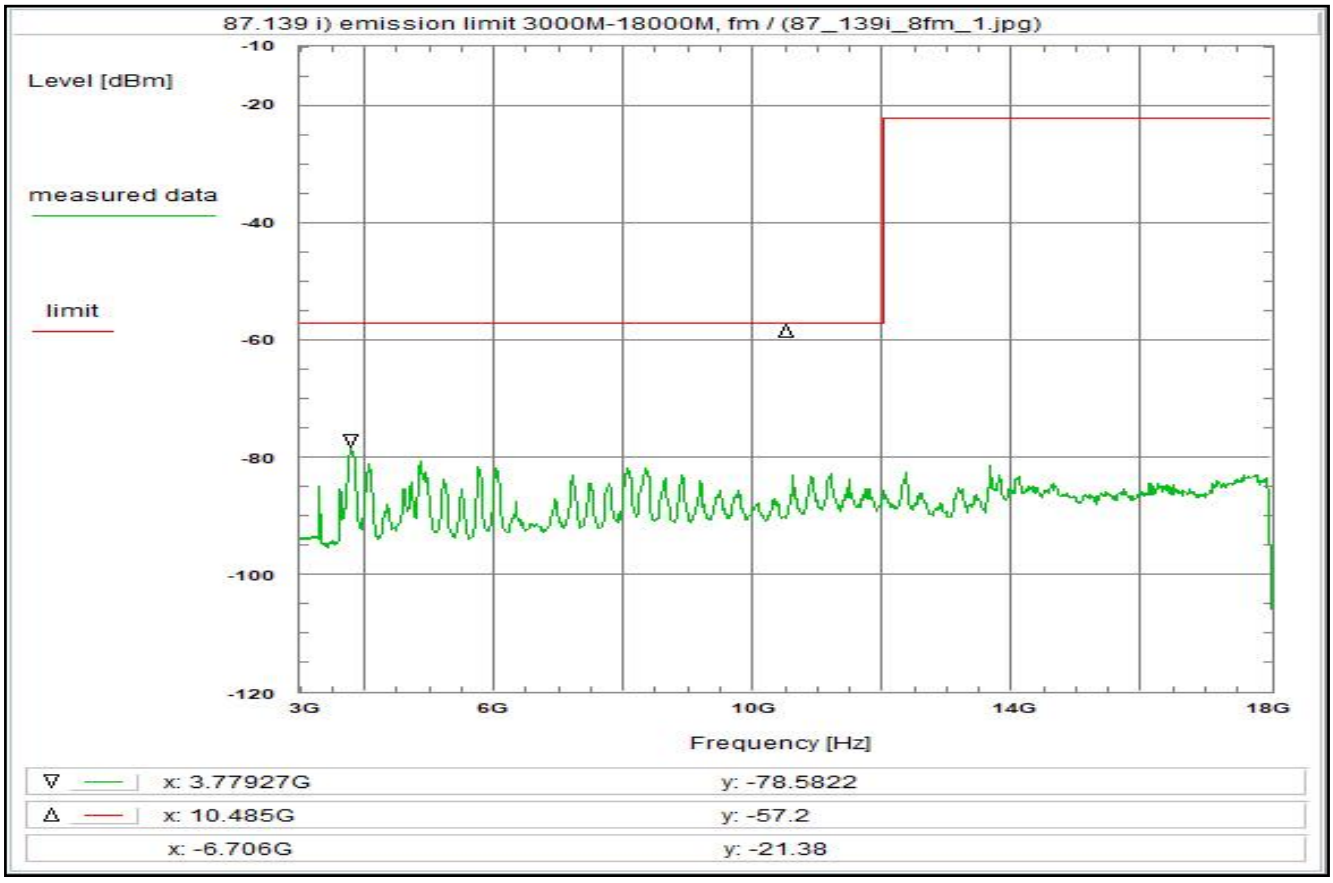
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	1.1	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U331)	+	32.5	dB
TOTAL CORRECTION:	+	36.2	dB

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

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -62.4 dBm

Plot No. 88



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 6.4
fm, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U332

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Tue 22/Aug/2023 15:53:19	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	30	kHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

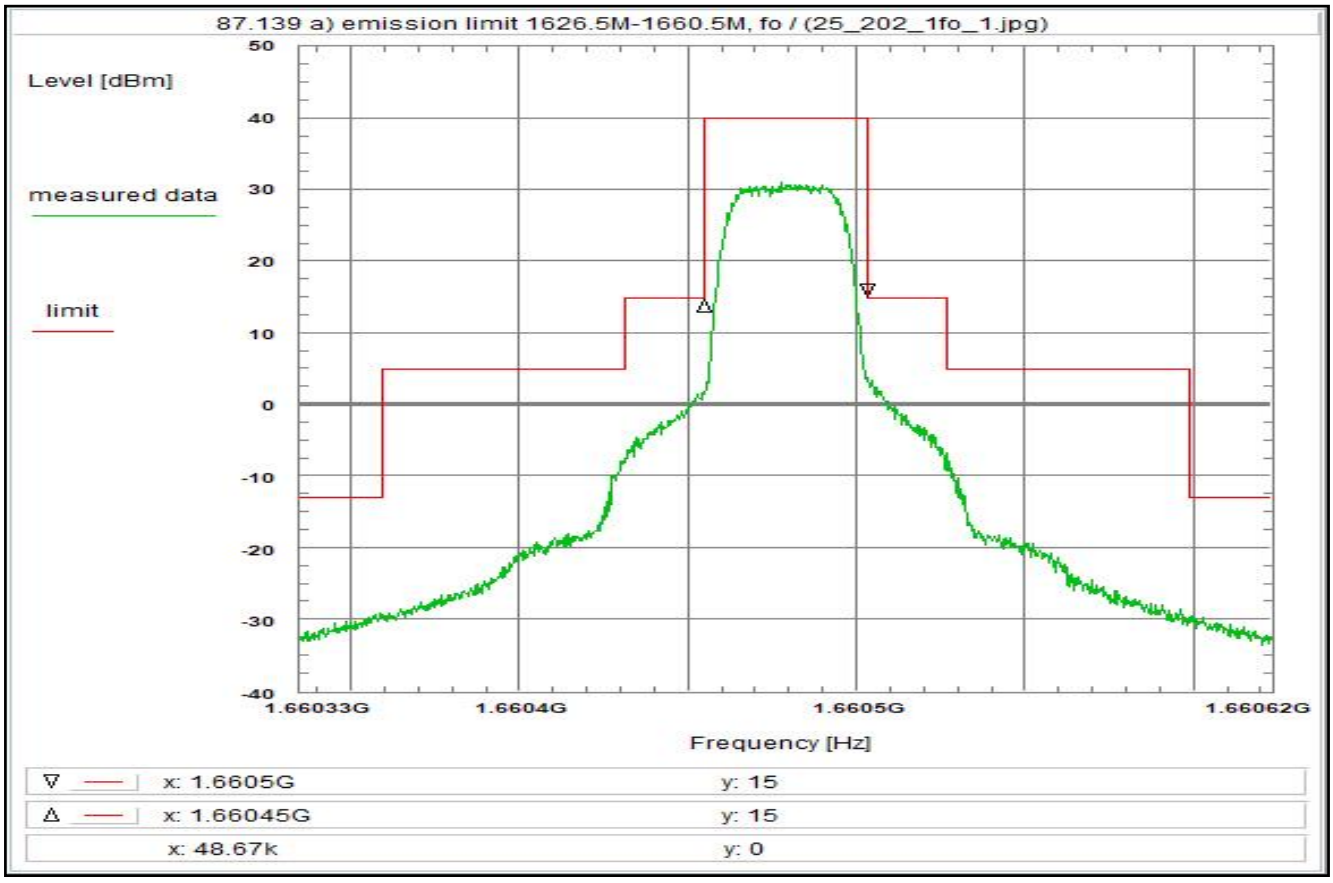
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	2.3	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U332)	+	34.0	dB
TOTAL CORRECTION:	+	33.7	dB

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

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -74.8 dBm

Plot No. 89



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 6.4
fh, R5T1XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:02:12	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.66033475	GHz
Stop frequency:	1.66062275	GHz
Center frequency:	1.66047875	GHz
Frequency span:	288	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

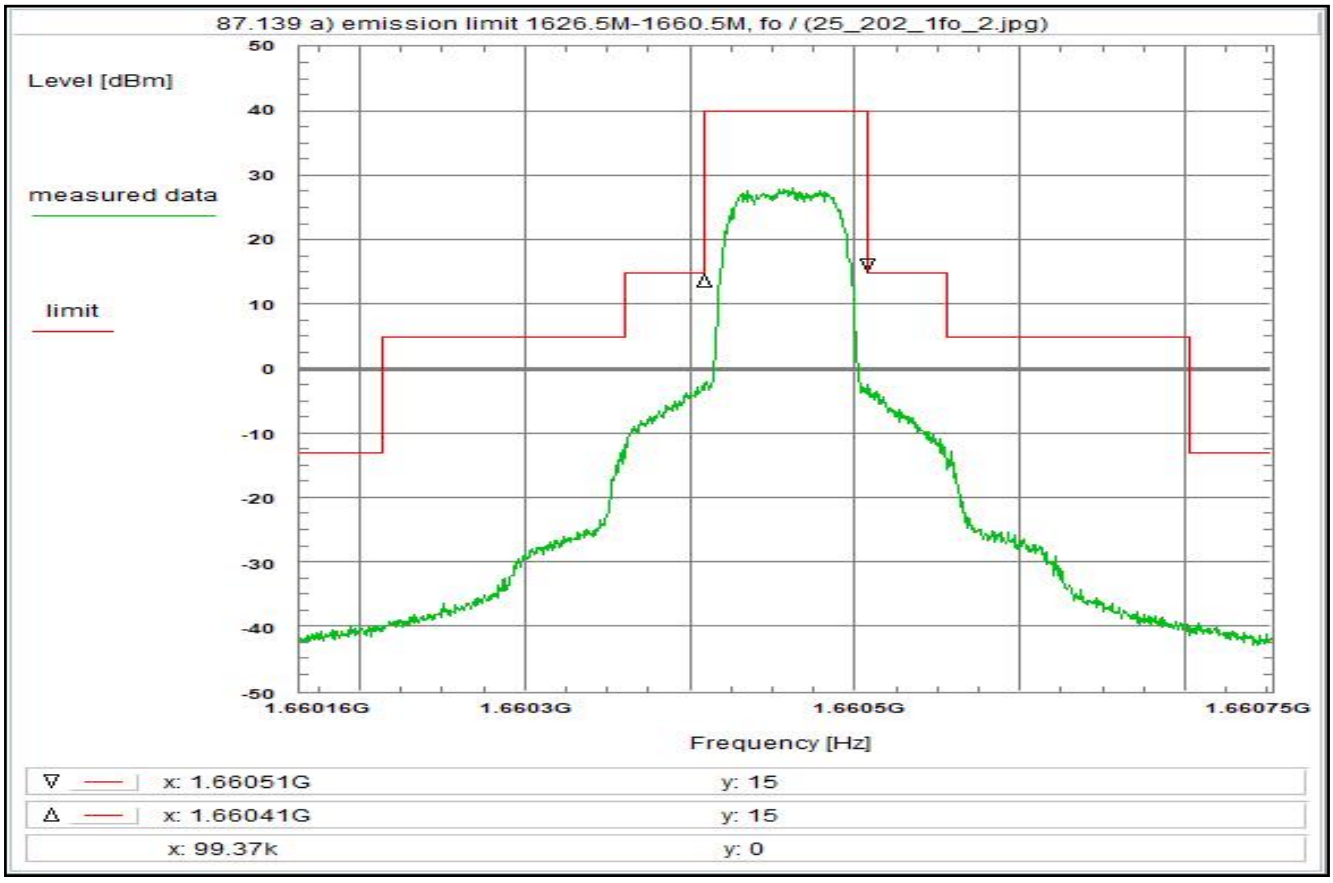
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 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 (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 6.4
fh, R5T2XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:05:16	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.6601635	GHz
Stop frequency:	1.6607515	GHz
Center frequency:	1.6604575	GHz
Frequency span:	588	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

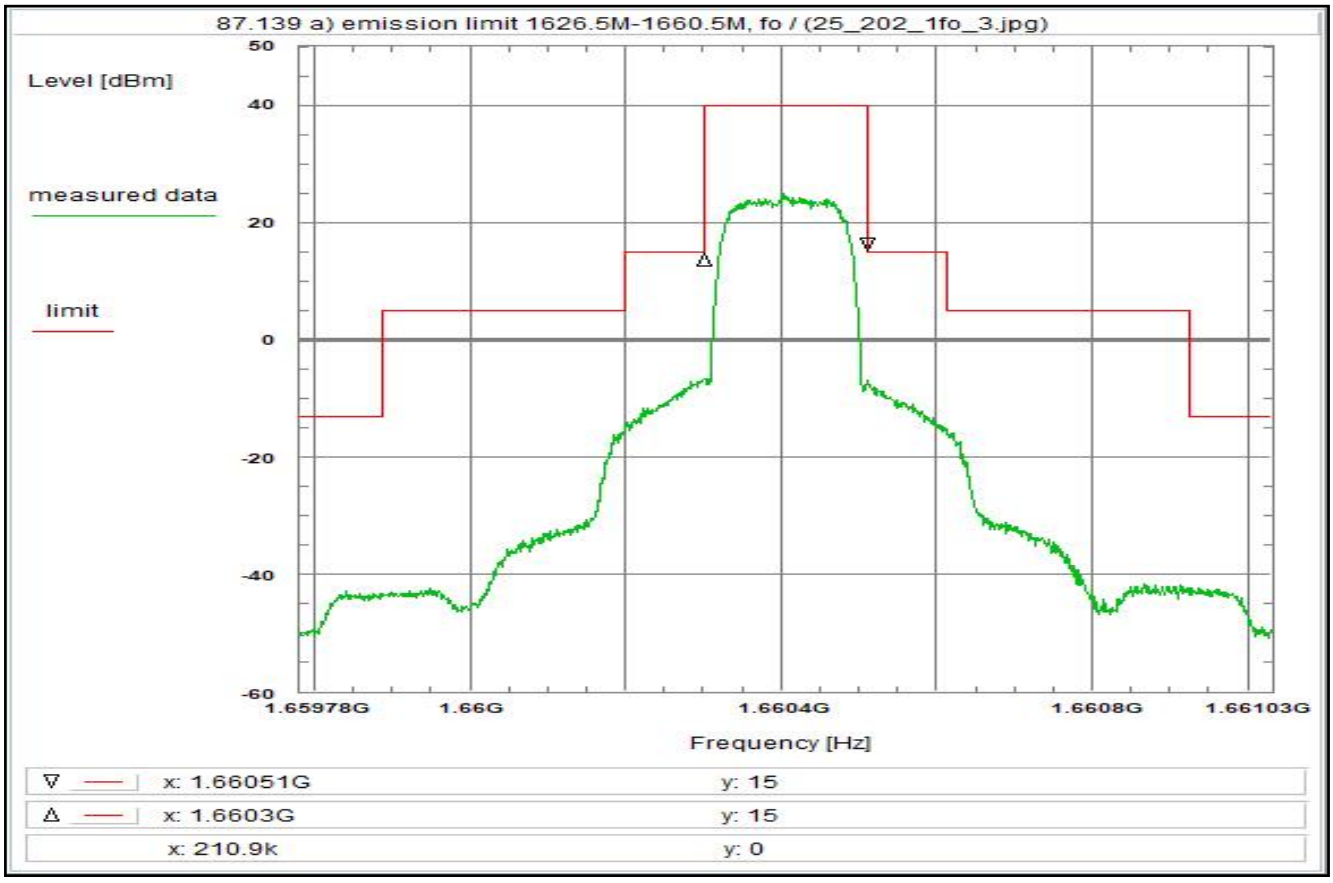
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 91



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 6.4
fh, R5T4.5XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:08:11	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.659781	GHz
Stop frequency:	1.661029	GHz
Center frequency:	1.660405	GHz
Frequency span:	1.248	MHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

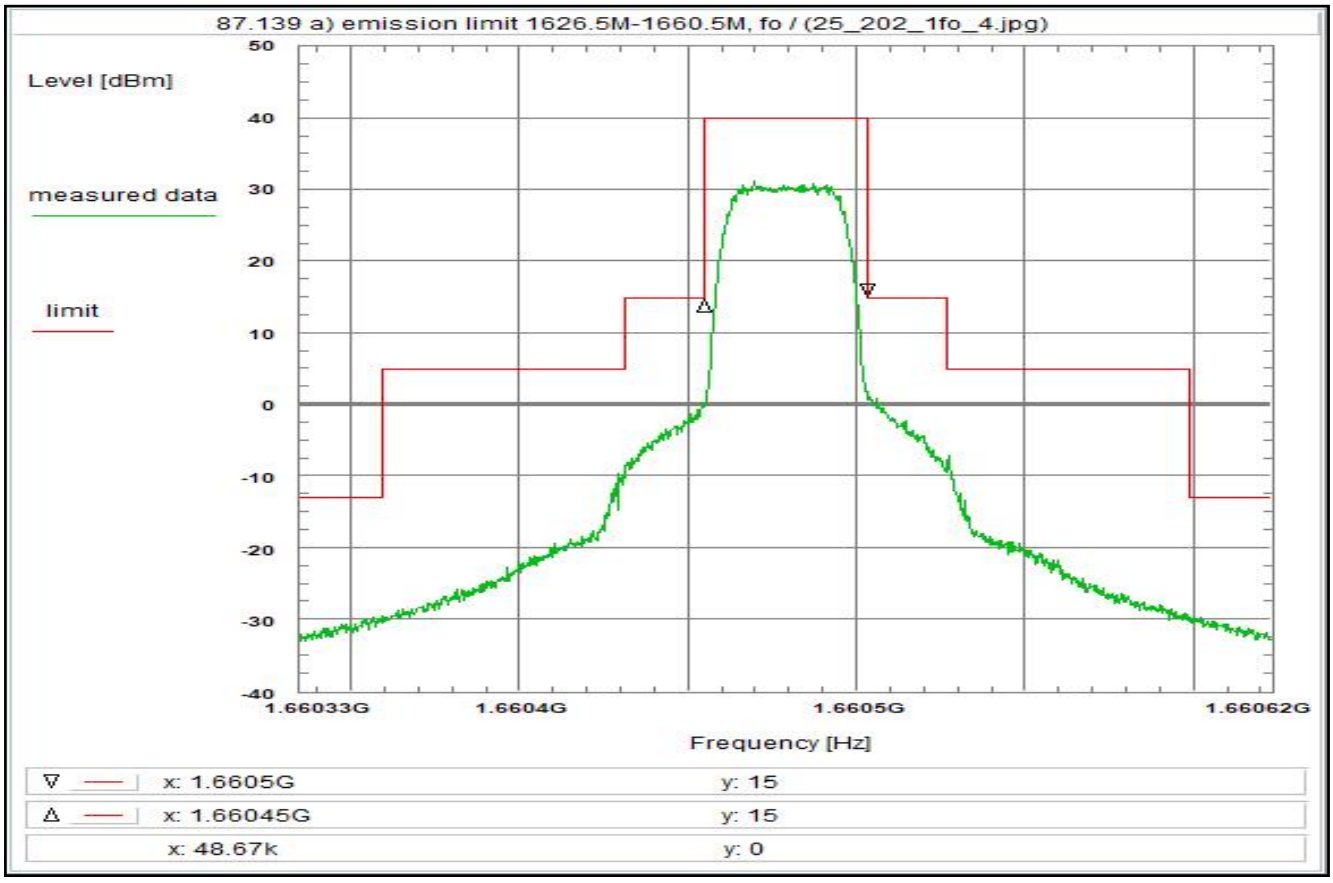
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 92



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 6.4
fh, R20T1XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:35:52	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.66033475	GHz
Stop frequency:	1.66062275	GHz
Center frequency:	1.66047875	GHz
Frequency span:	288	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

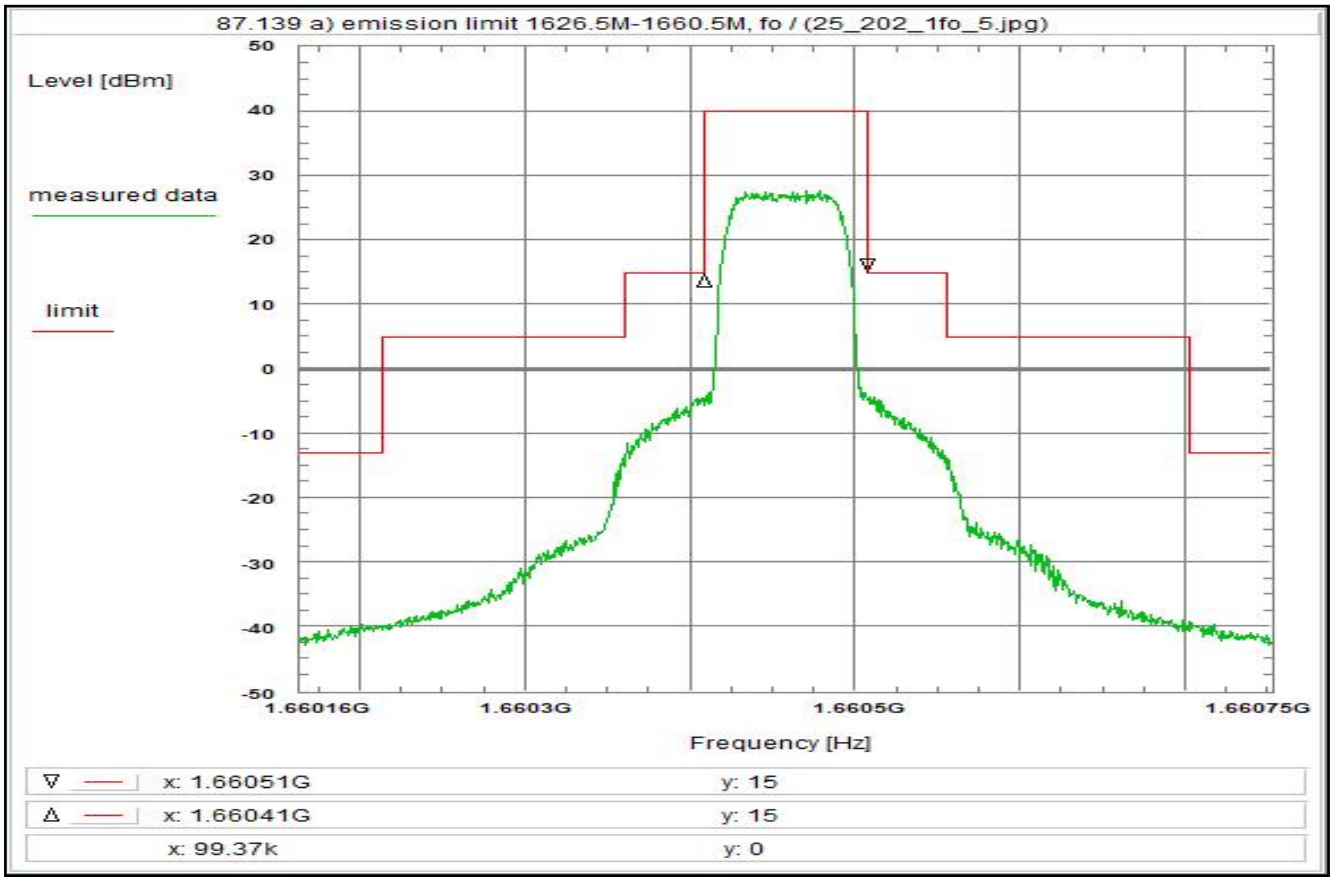
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 93



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 6.4
fh, R20T2XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:38:30	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.6601635	GHz
Stop frequency:	1.6607515	GHz
Center frequency:	1.6604575	GHz
Frequency span:	588	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

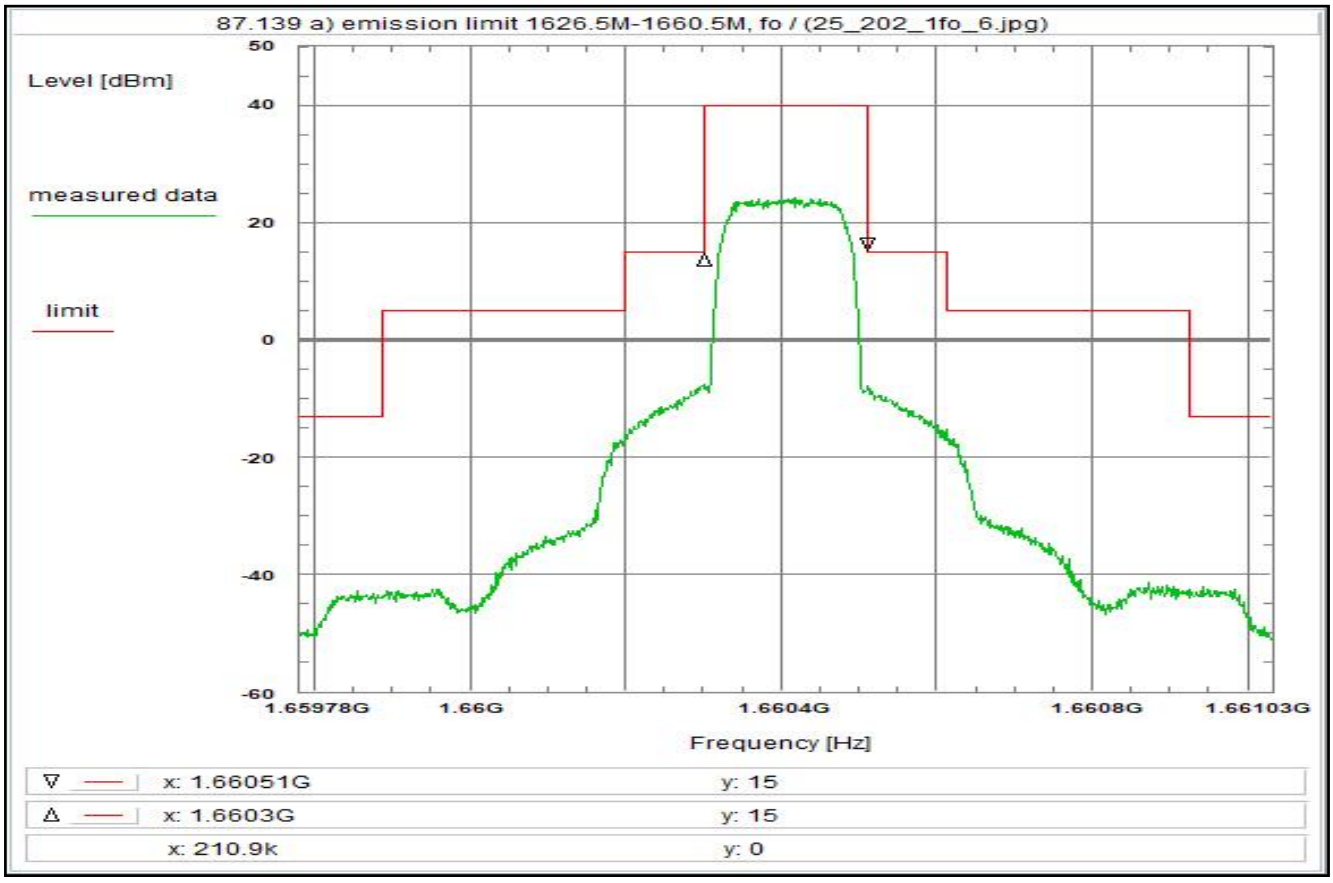
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 94



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 6.4
fh, R20T4.5XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:41:05	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.659781	GHz
Stop frequency:	1.661029	GHz
Center frequency:	1.660405	GHz
Frequency span:	1.248	MHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

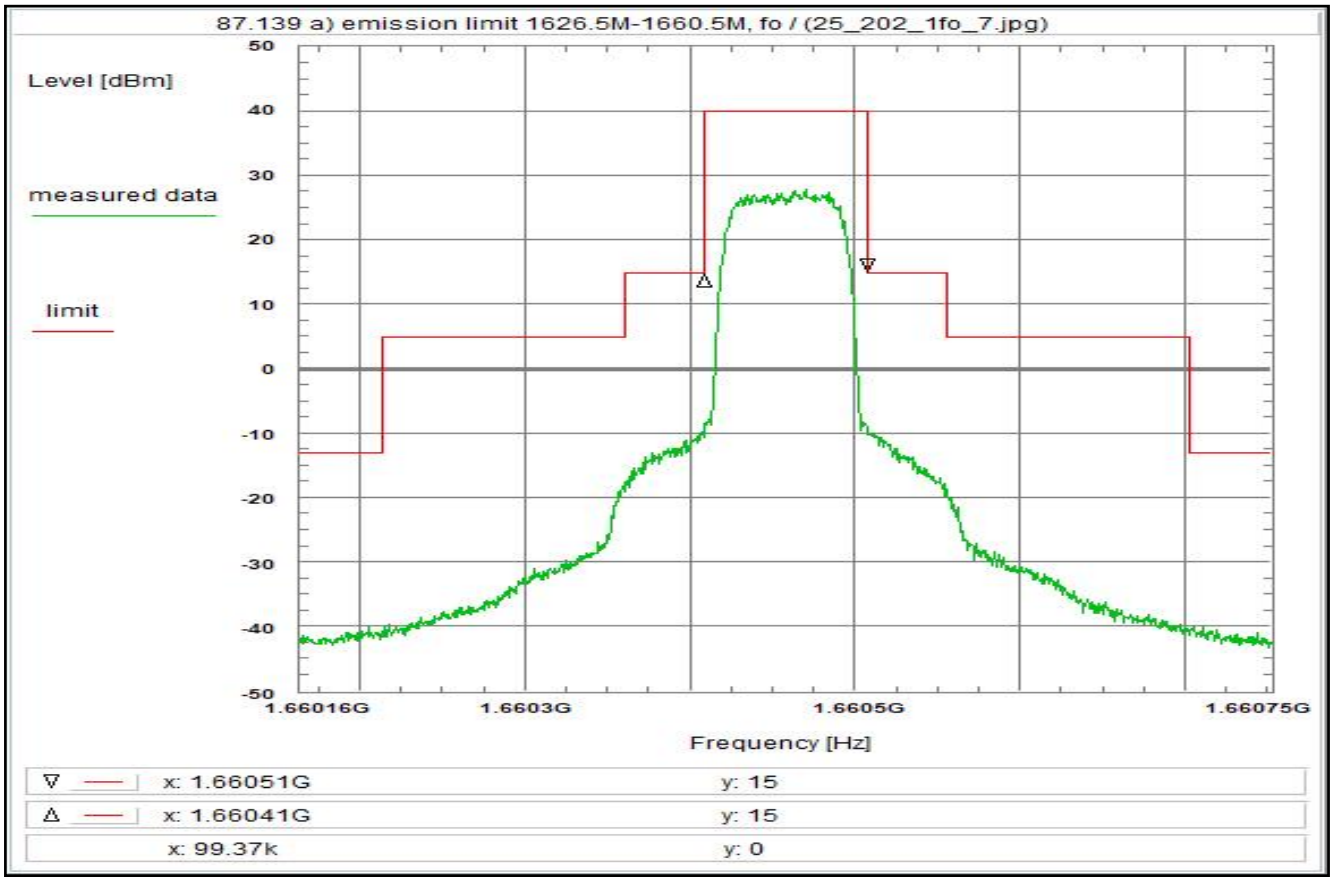
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 95



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 6.4
fh, R5T2QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:50:57	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.6601635	GHz
Stop frequency:	1.6607515	GHz
Center frequency:	1.6604575	GHz
Frequency span:	588	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

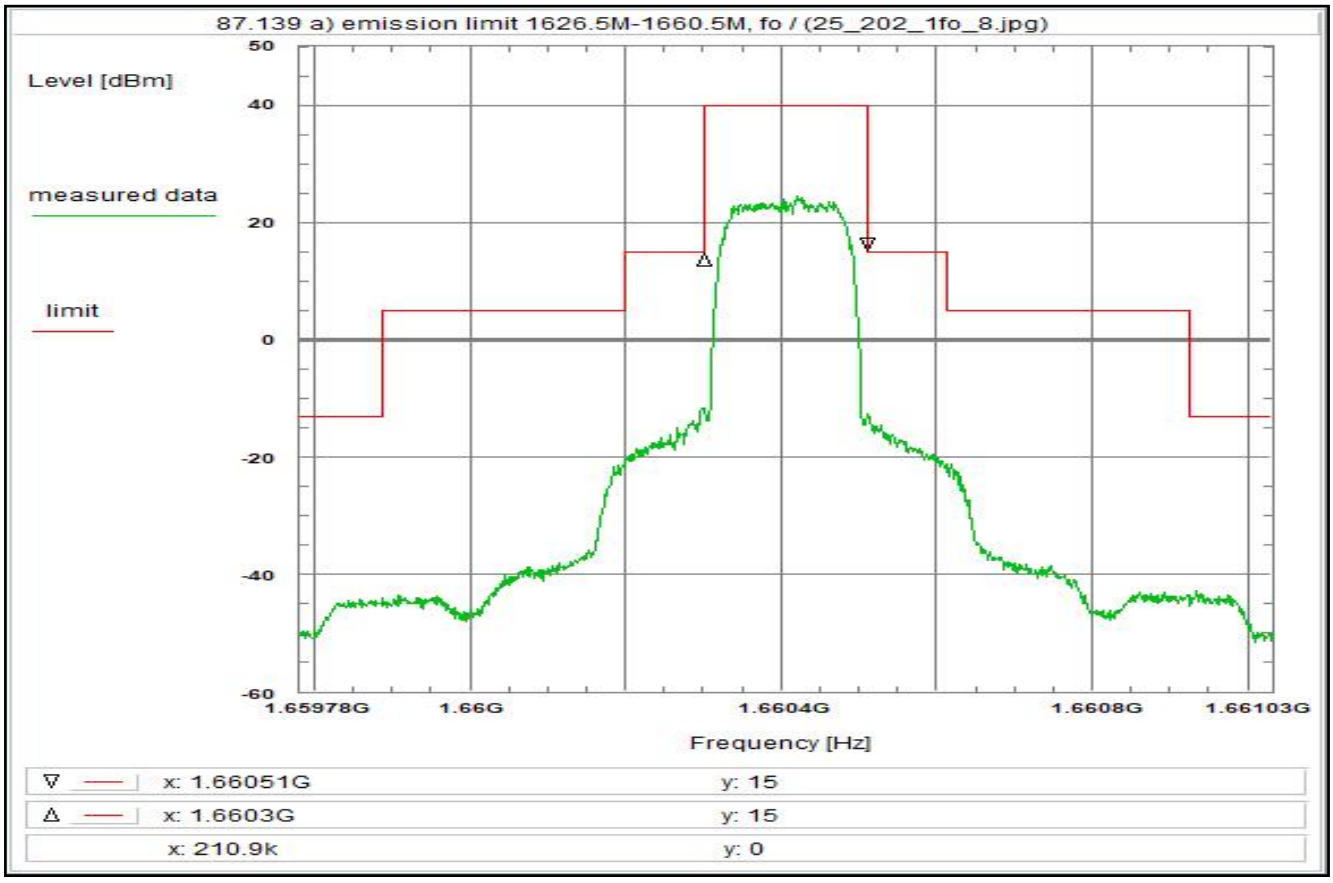
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 96



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 6.4
fh, R5T4.5QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:53:20	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.659781	GHz
Stop frequency:	1.661029	GHz
Center frequency:	1.660405	GHz
Frequency span:	1.248	MHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

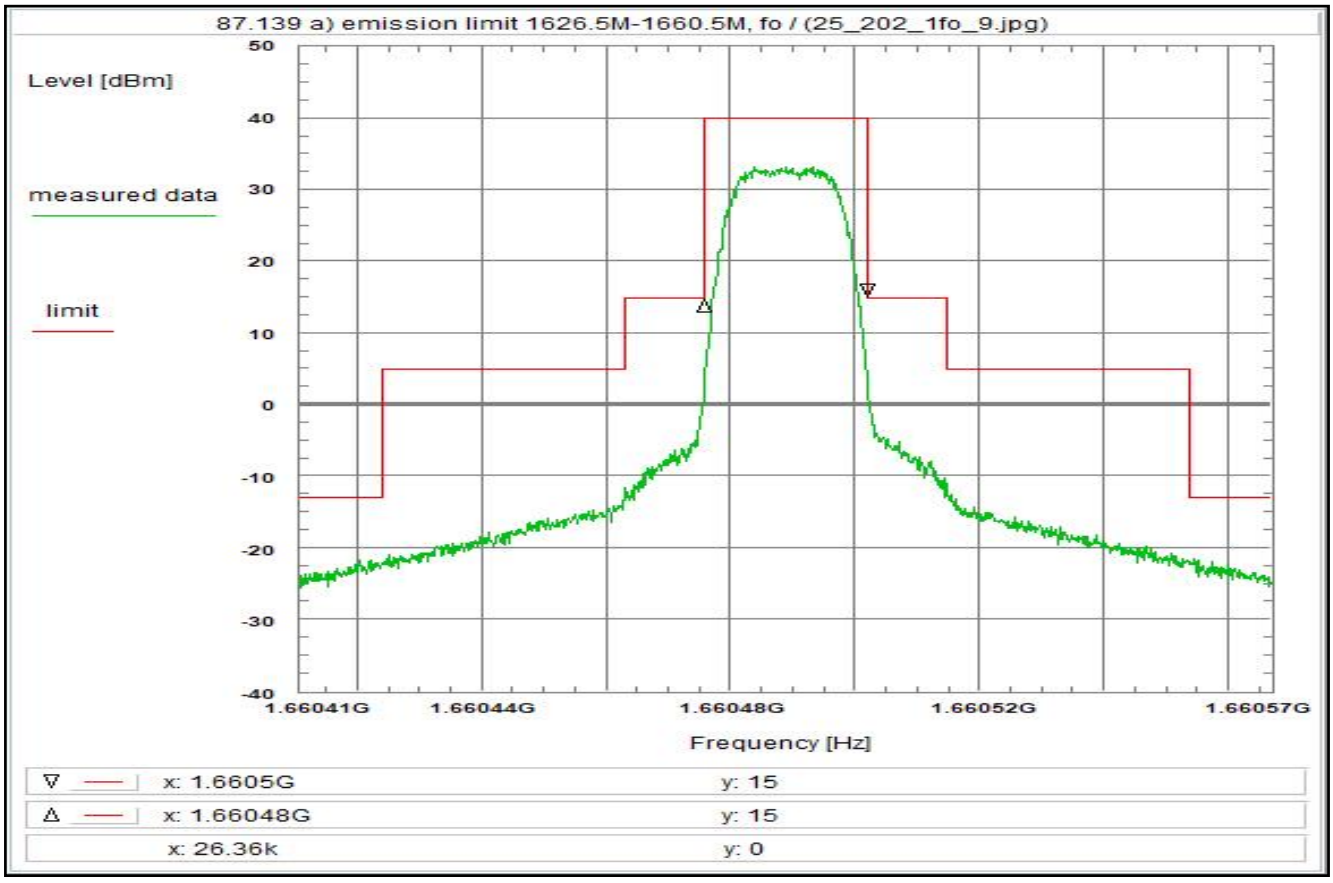
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 97



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 6.4
fh, R20T0.5QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 11:02:29	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.66041075	GHz
Stop frequency:	1.66056675	GHz
Center frequency:	1.66048875	GHz
Frequency span:	156	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Clear Write	
Detector-Mode:	AVG	

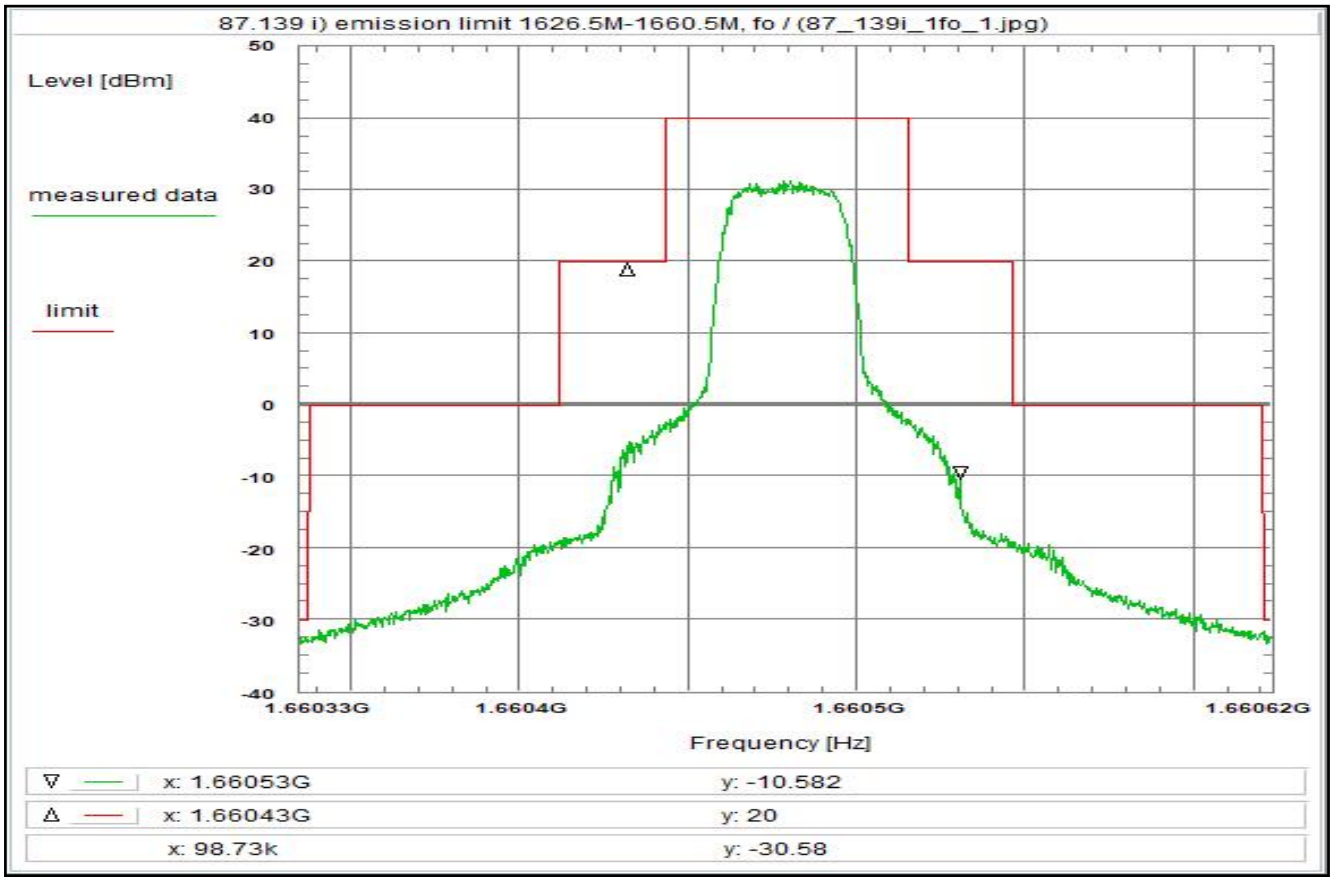
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

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

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 98



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 6.4
fh, R5T1XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:03:31	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.66033475	GHz
Stop frequency:	1.66062275	GHz
Center frequency:	1.66047875	GHz
Frequency span:	288	kHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Average	
Detector-Mode:	AVG	

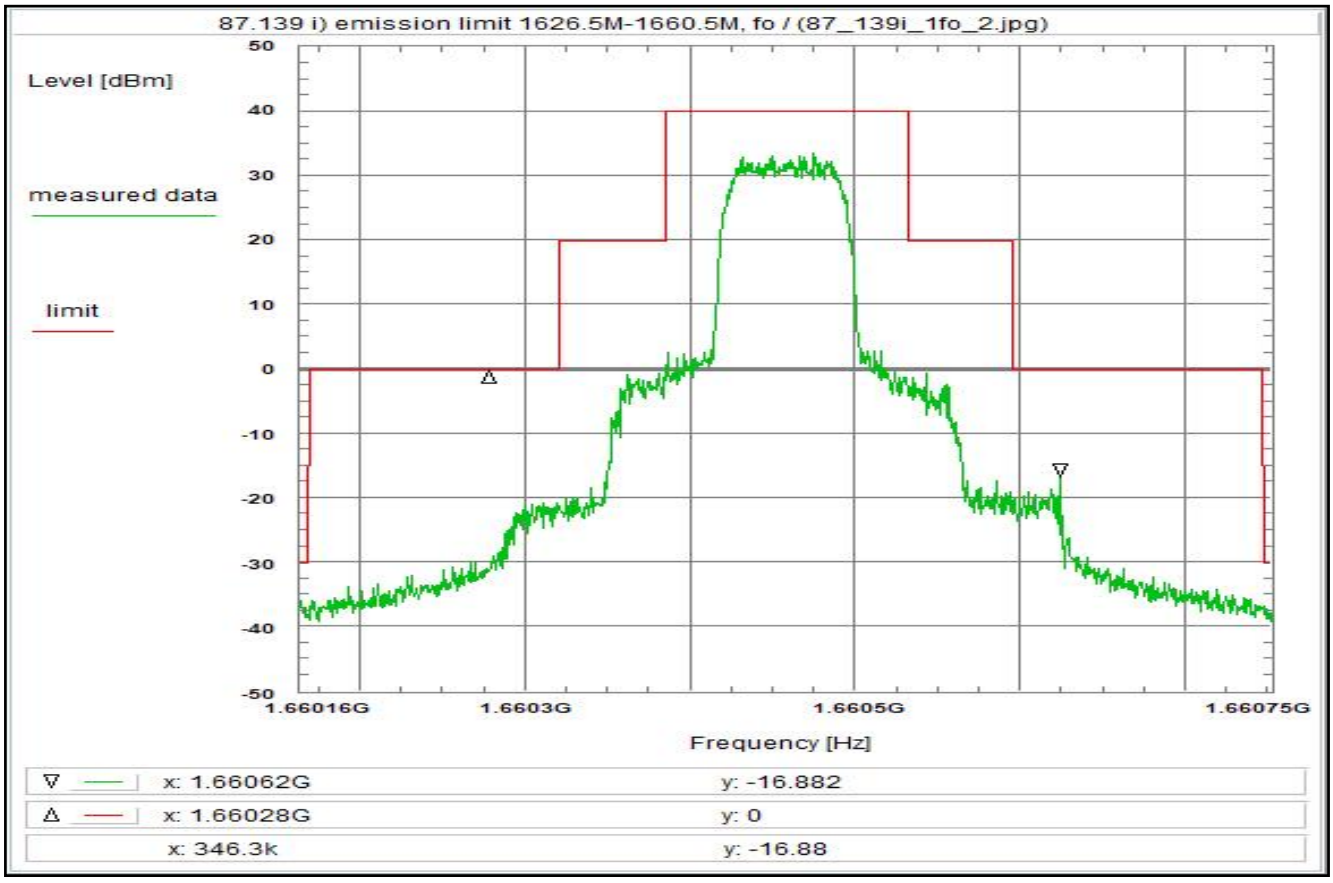
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 99



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 6.4
fh, R5T2XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:06:15	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.6601635	GHz
Stop frequency:	1.6607515	GHz
Center frequency:	1.6604575	GHz
Frequency span:	588	kHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

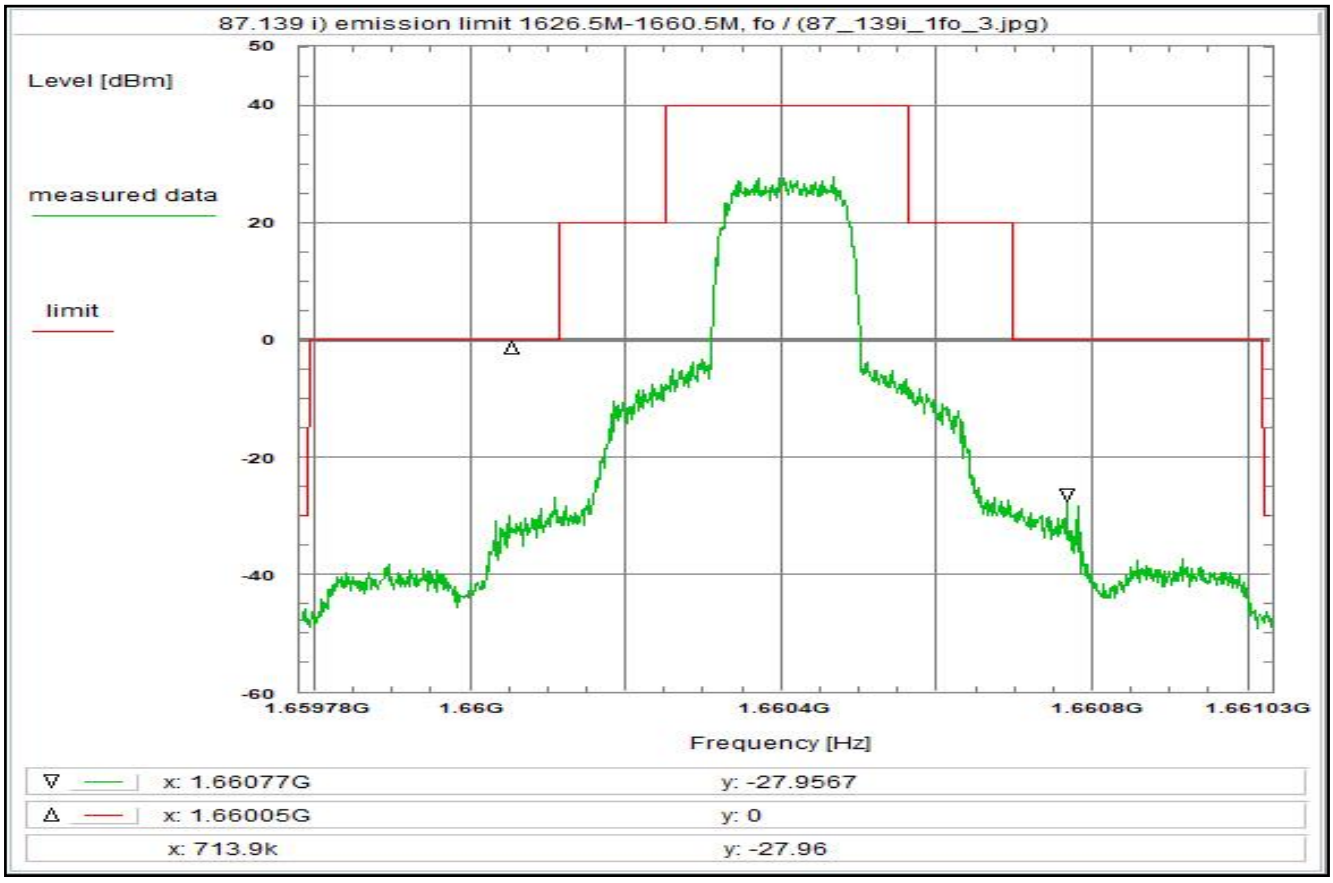
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 100



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 6.4
fh, R5T4.5XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:09:51	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.659781	GHz
Stop frequency:	1.661029	GHz
Center frequency:	1.660405	GHz
Frequency span:	1.248	MHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

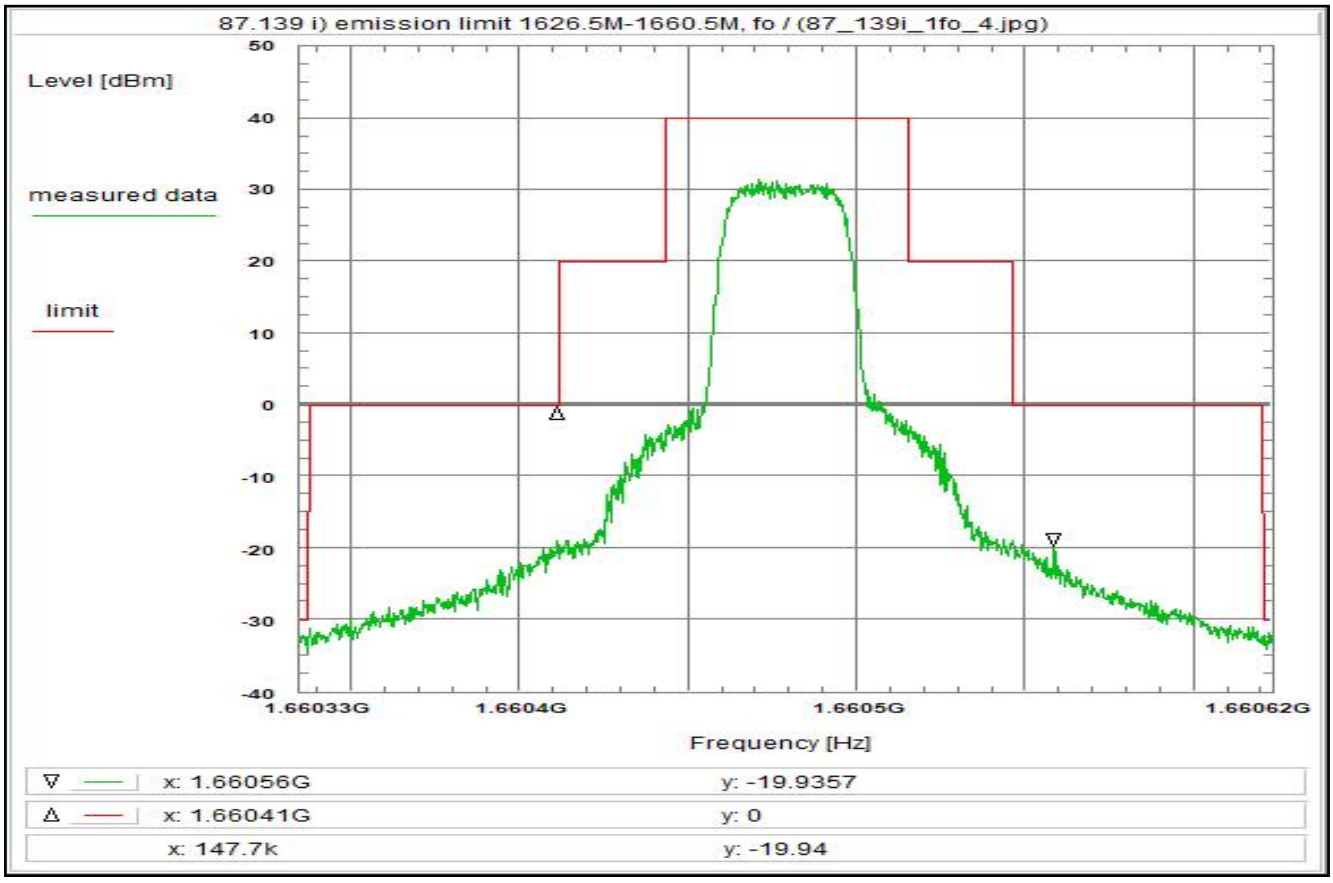
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 101



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 6.4
fh, R20T1XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:36:36	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.66033475	GHz
Stop frequency:	1.66062275	GHz
Center frequency:	1.66047875	GHz
Frequency span:	288	kHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Average	
Detector-Mode:	AVG	

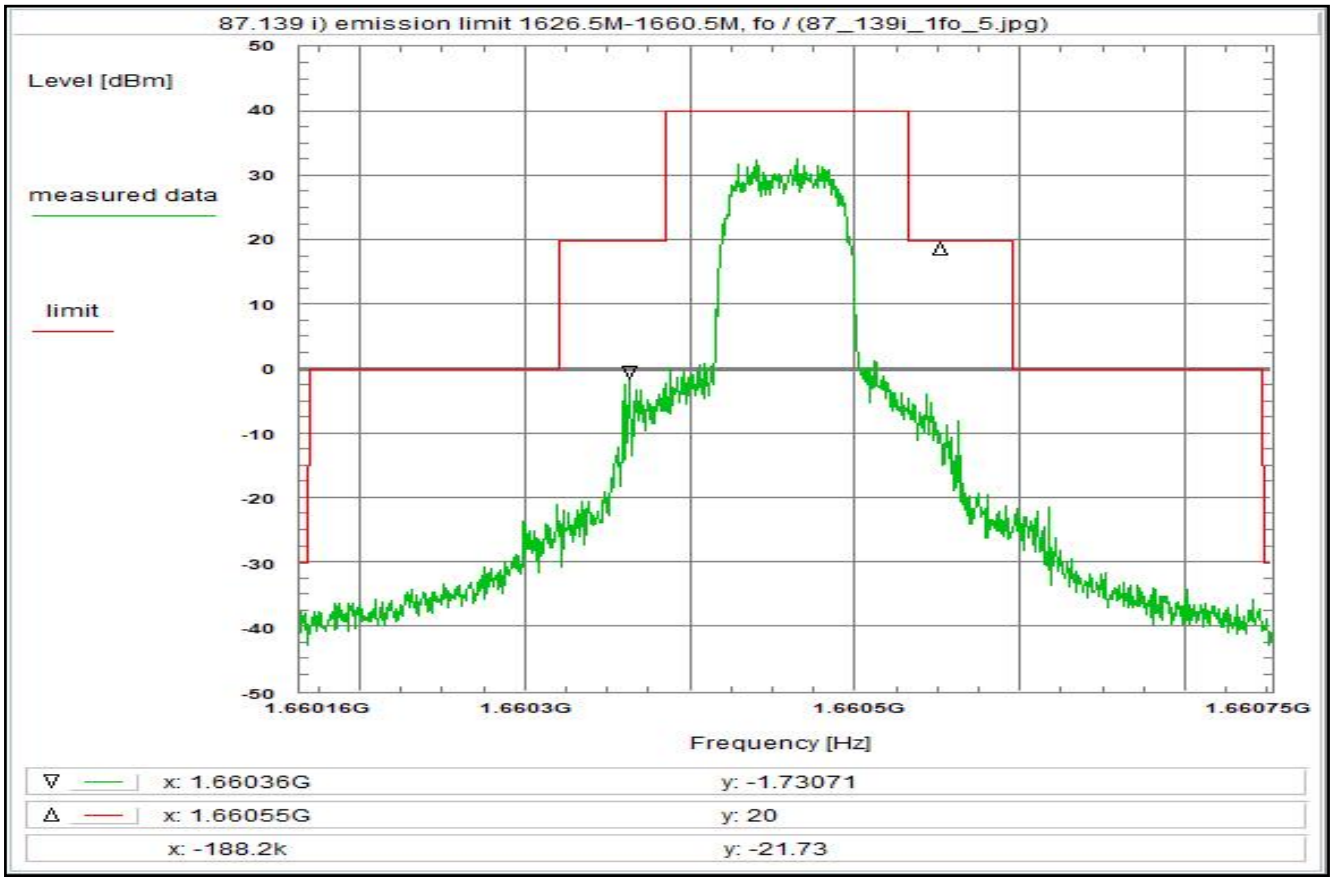
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 102



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 6.4
fh, R20T2XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:39:18	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.6601635	GHz
Stop frequency:	1.6607515	GHz
Center frequency:	1.6604575	GHz
Frequency span:	588	kHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

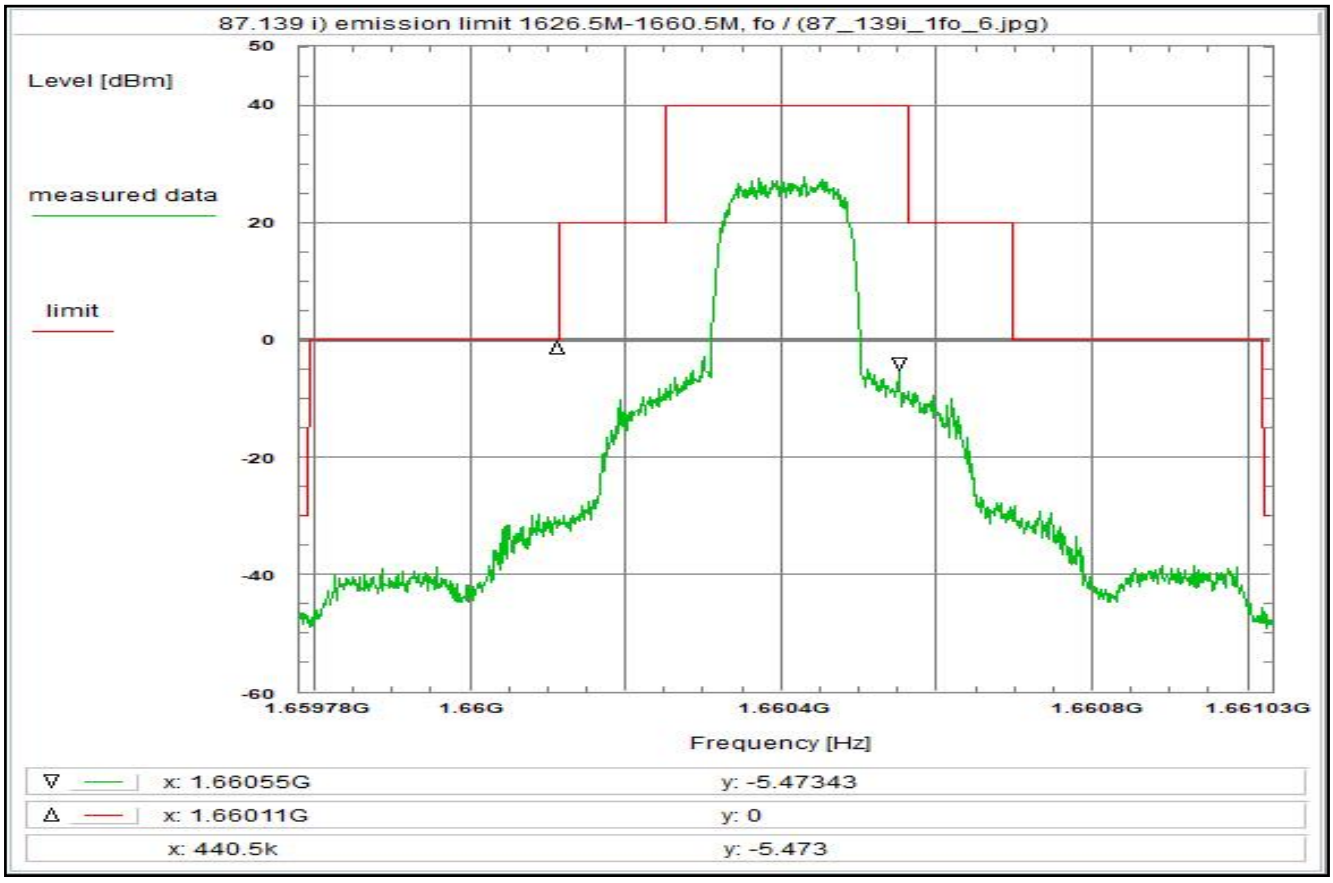
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 103



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 6.4
fh, R20T4.5XD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:41:55	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.659781	GHz
Stop frequency:	1.661029	GHz
Center frequency:	1.660405	GHz
Frequency span:	1.248	MHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

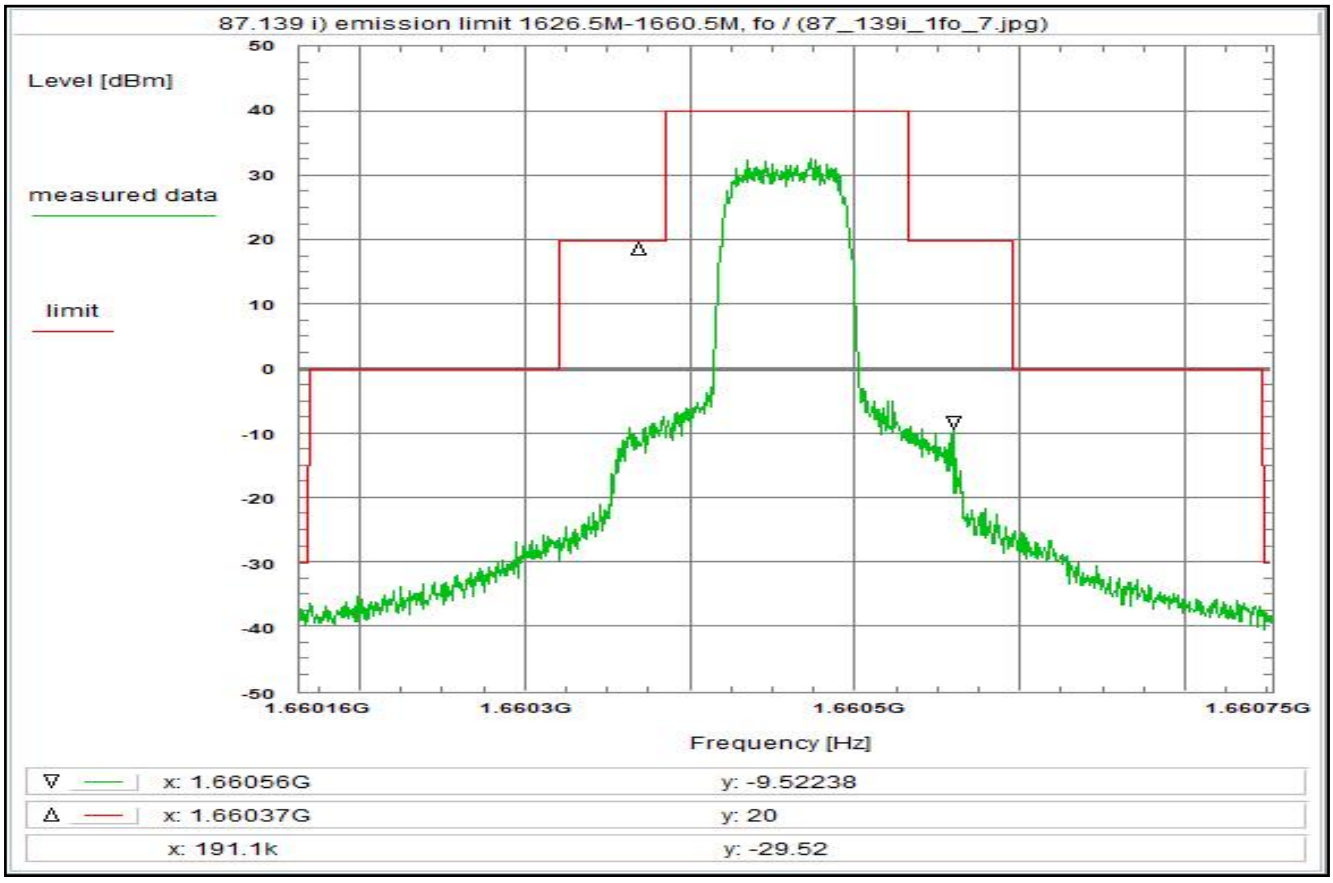
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 104



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 6.4
fh, R5T2QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: R001

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:51:44	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.6601635	GHz
Stop frequency:	1.6607515	GHz
Center frequency:	1.6604575	GHz
Frequency span:	588	kHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

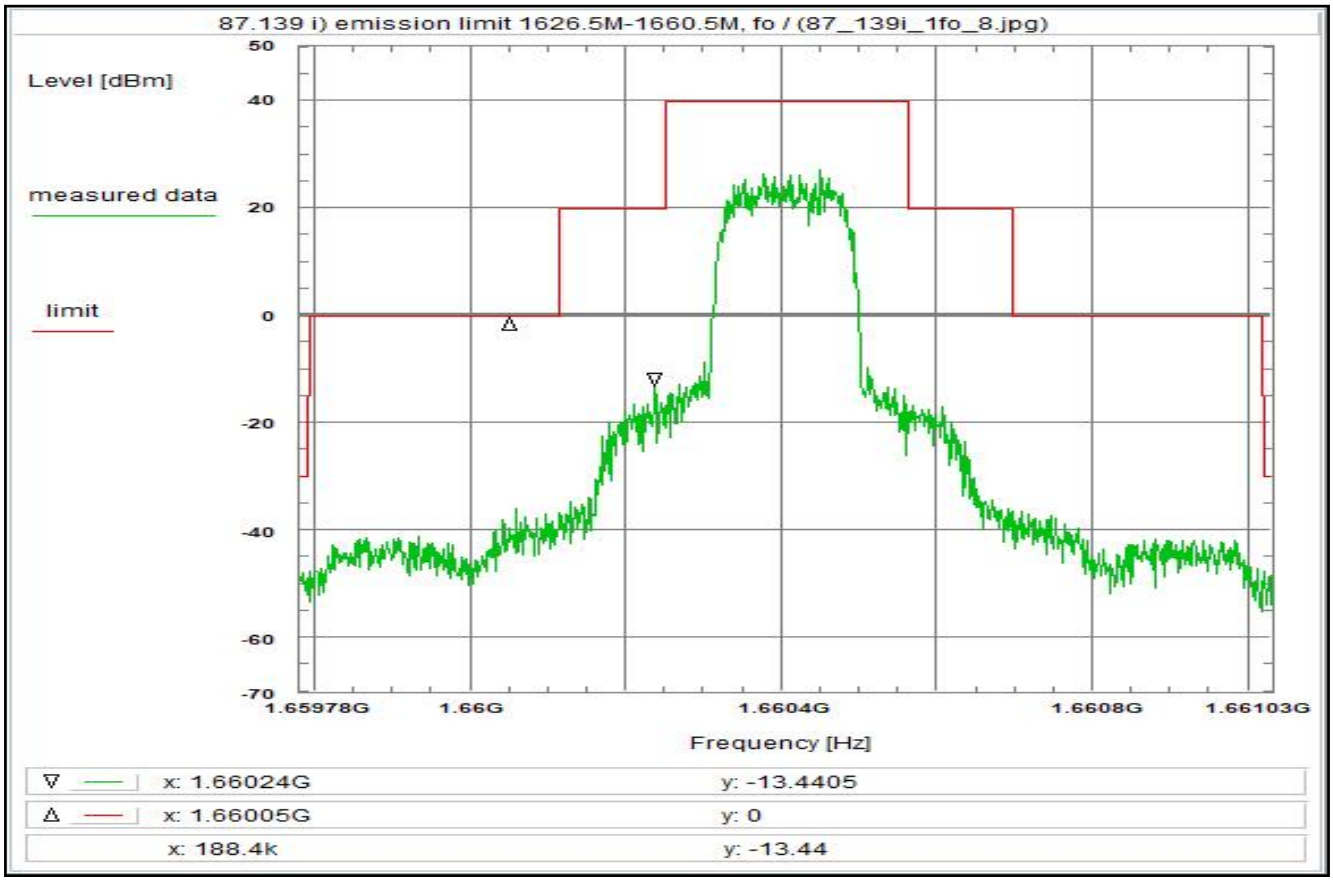
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 105



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 6.4
fh, R5T4.5QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: R001

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:54:15	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.659781	GHz
Stop frequency:	1.661029	GHz
Center frequency:	1.660405	GHz
Frequency span:	1.248	MHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

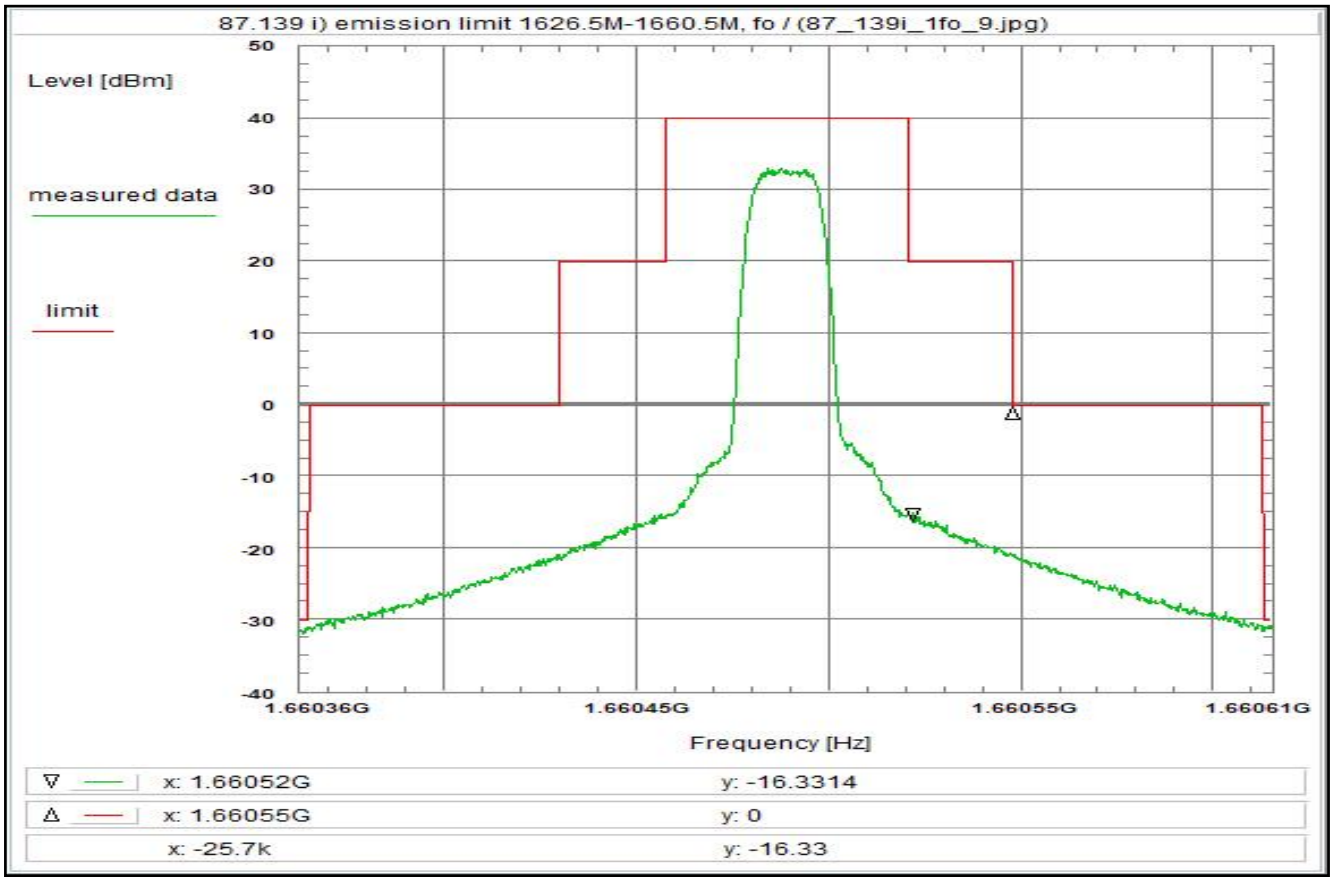
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 106



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 6.4
fh, R20T0.5QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Mon 21/Aug/2023 10:57:23	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.66036275	GHz
Stop frequency:	1.66061475	GHz
Center frequency:	1.66048875	GHz
Frequency span:	252	kHz
Resolution-BW:	3	kHz
Video-BW:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Average	
Detector-Mode:	AVG	

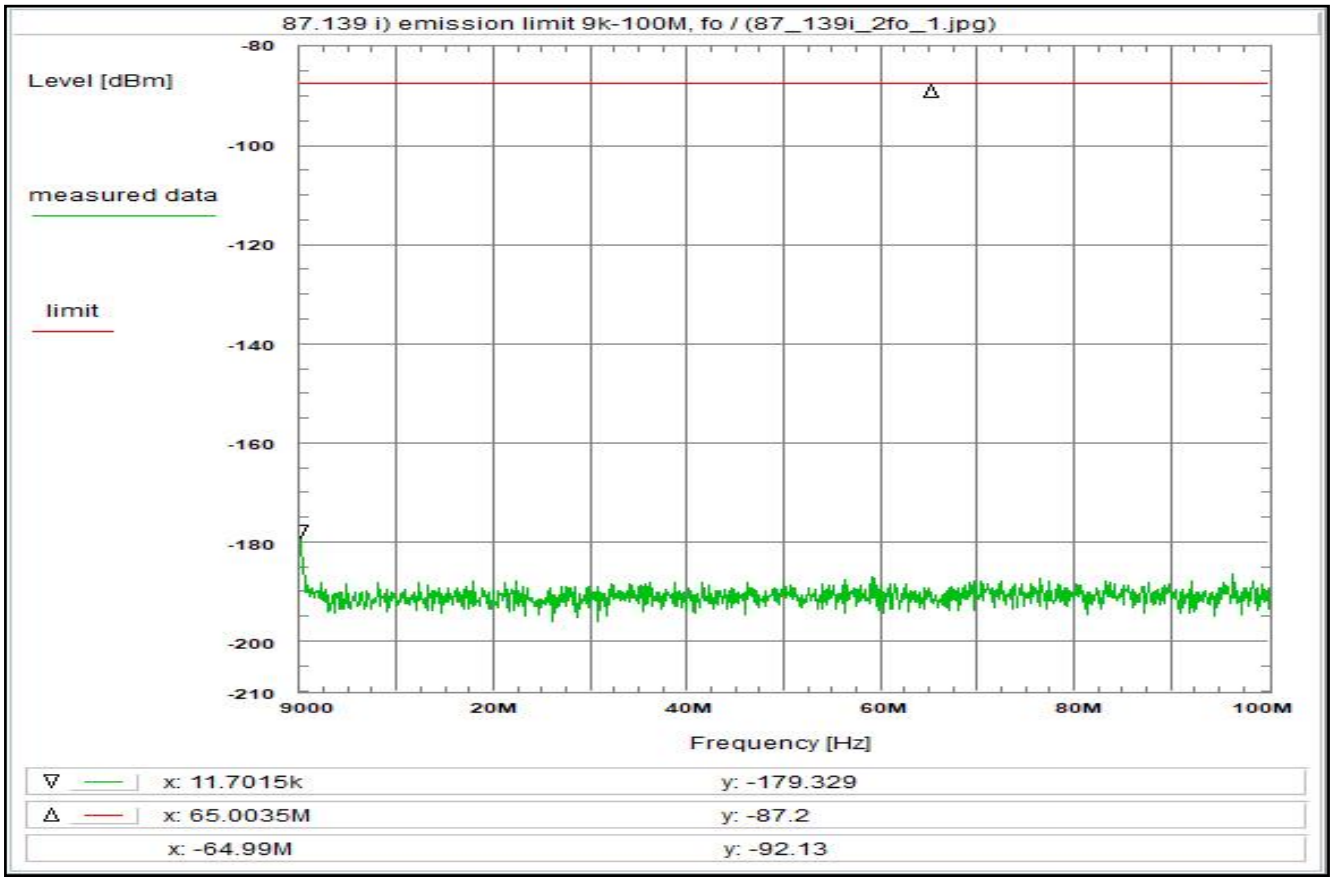
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Reference of limit = 40 dBm
Spectrum mask referenced to necessary bandwidth

Plot No. 107



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 19:11:18	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

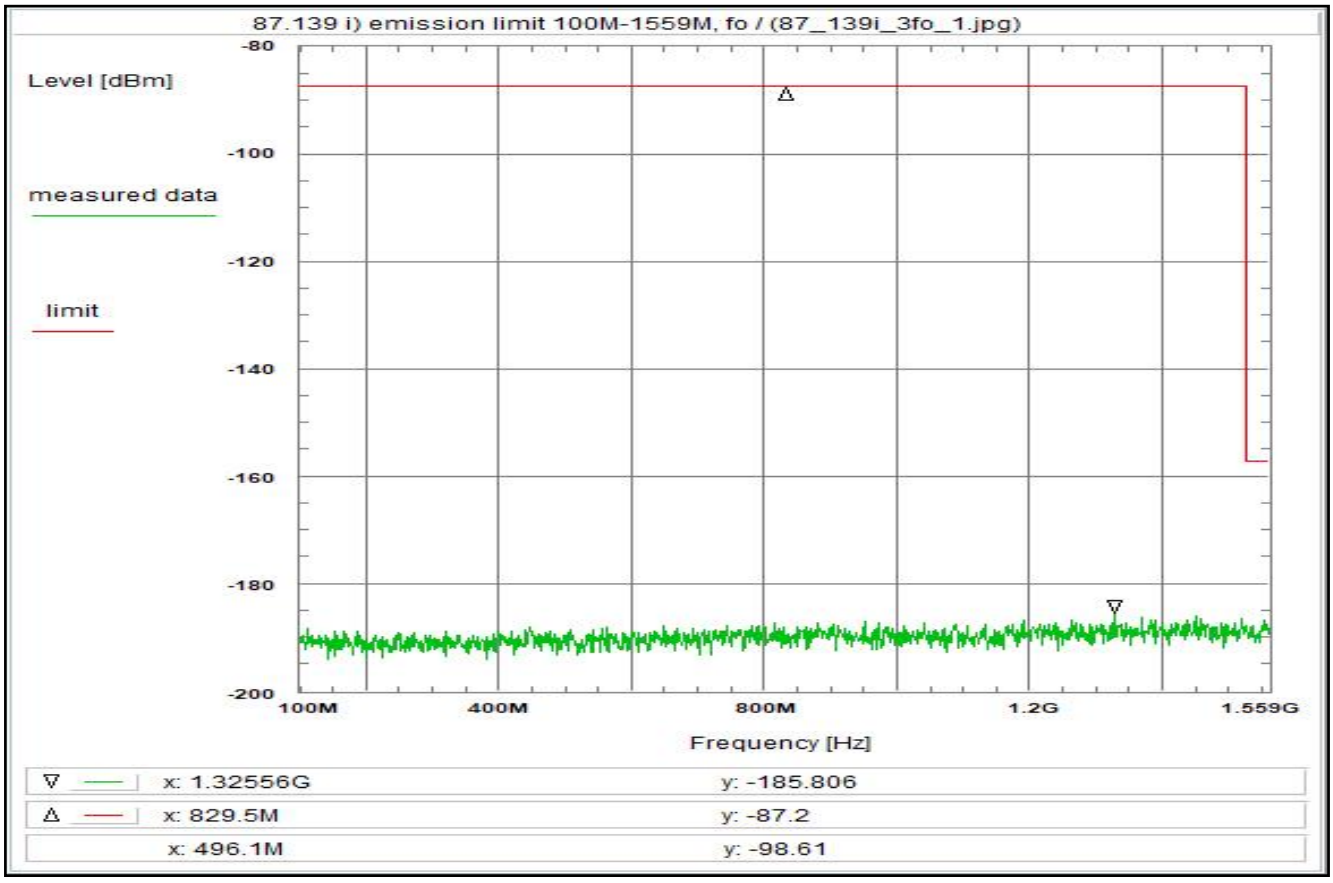
Correction:

(W_RE)	-	120.0	dB
Coaxial cable (C220)	+	0.2	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.3	dB
TOTAL CORRECTION:	-	-85.9	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -175.5 dBm

Plot No. 108



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 09:56:23	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

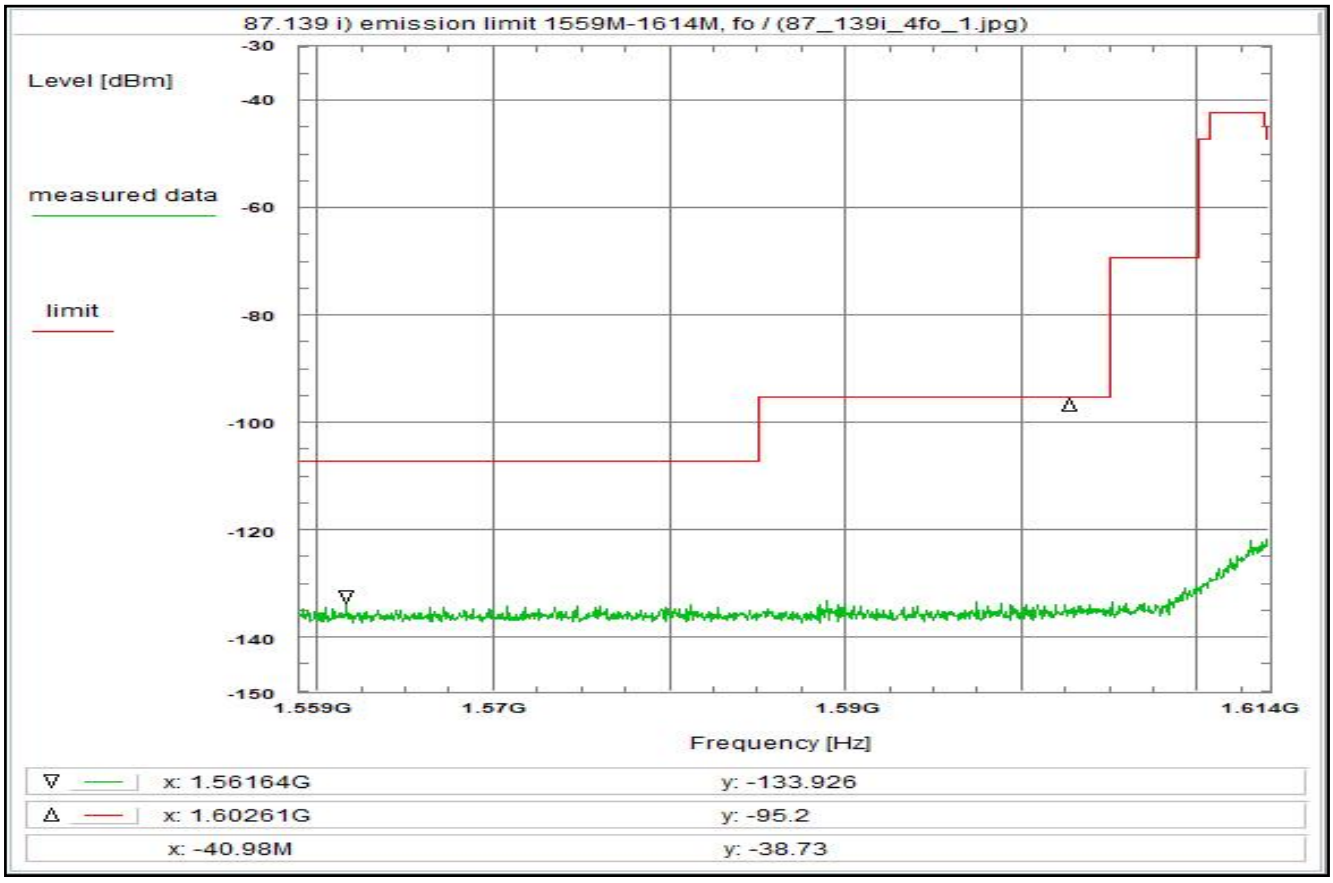
Correction:

(W_RE)	-	115.7	dB
Coaxial cable	+	0.6	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.7	dB
TOTAL CORRECTION:	-	-80.8	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -182 dBm

Plot No. 109



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U331

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 11:35:25	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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	MHz
Video-BW:	3	MHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

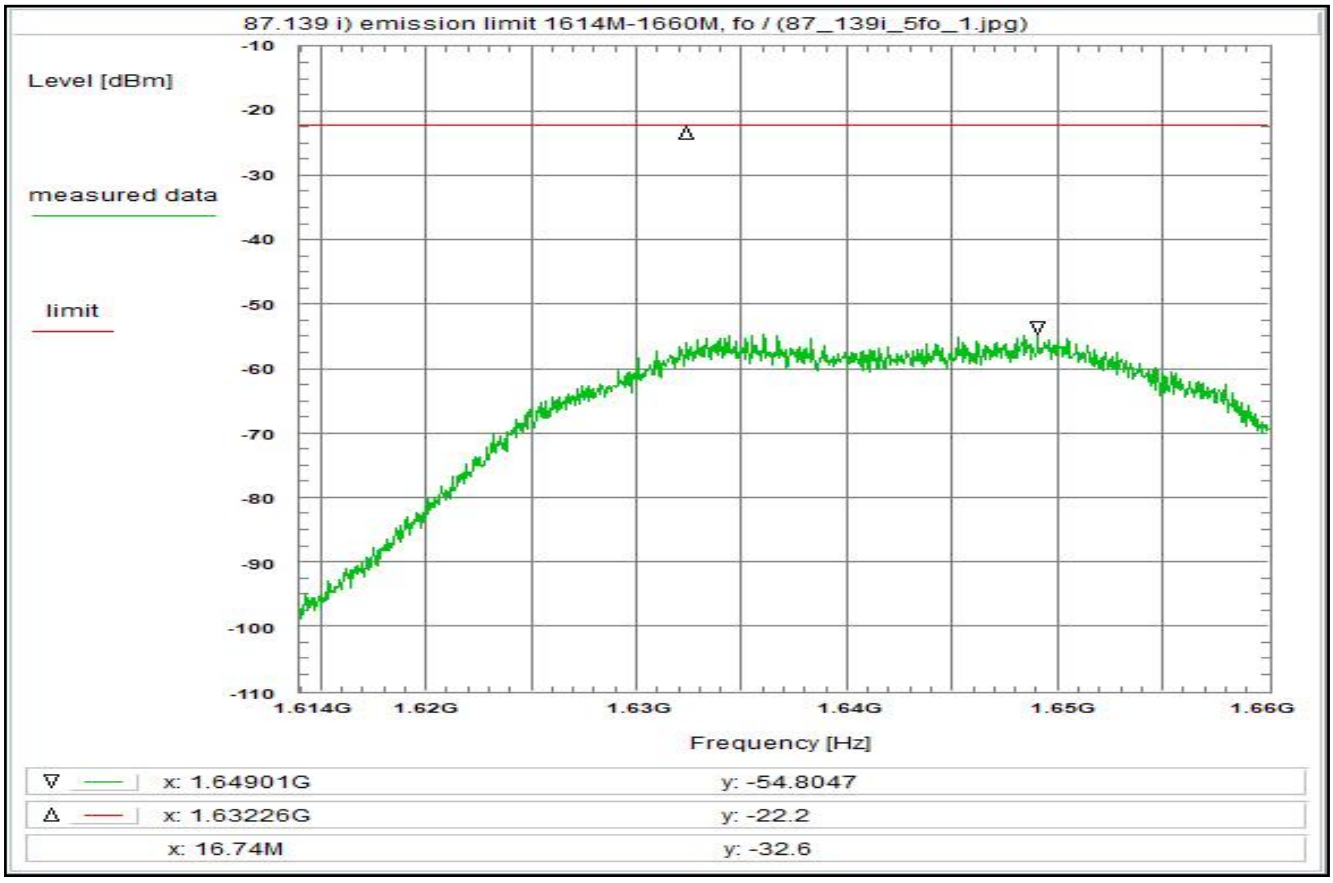
Correction:

(W_RE)	-	104.1	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U331)	+	32.6	dB
TOTAL CORRECTION:	-	-69.2	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is –130 dBm

Plot No. 110



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U331

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 14:51:11	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.614	GHz
Stop frequency:	1.66	GHz
Center frequency:	1.637	GHz
Frequency span:	46	MHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

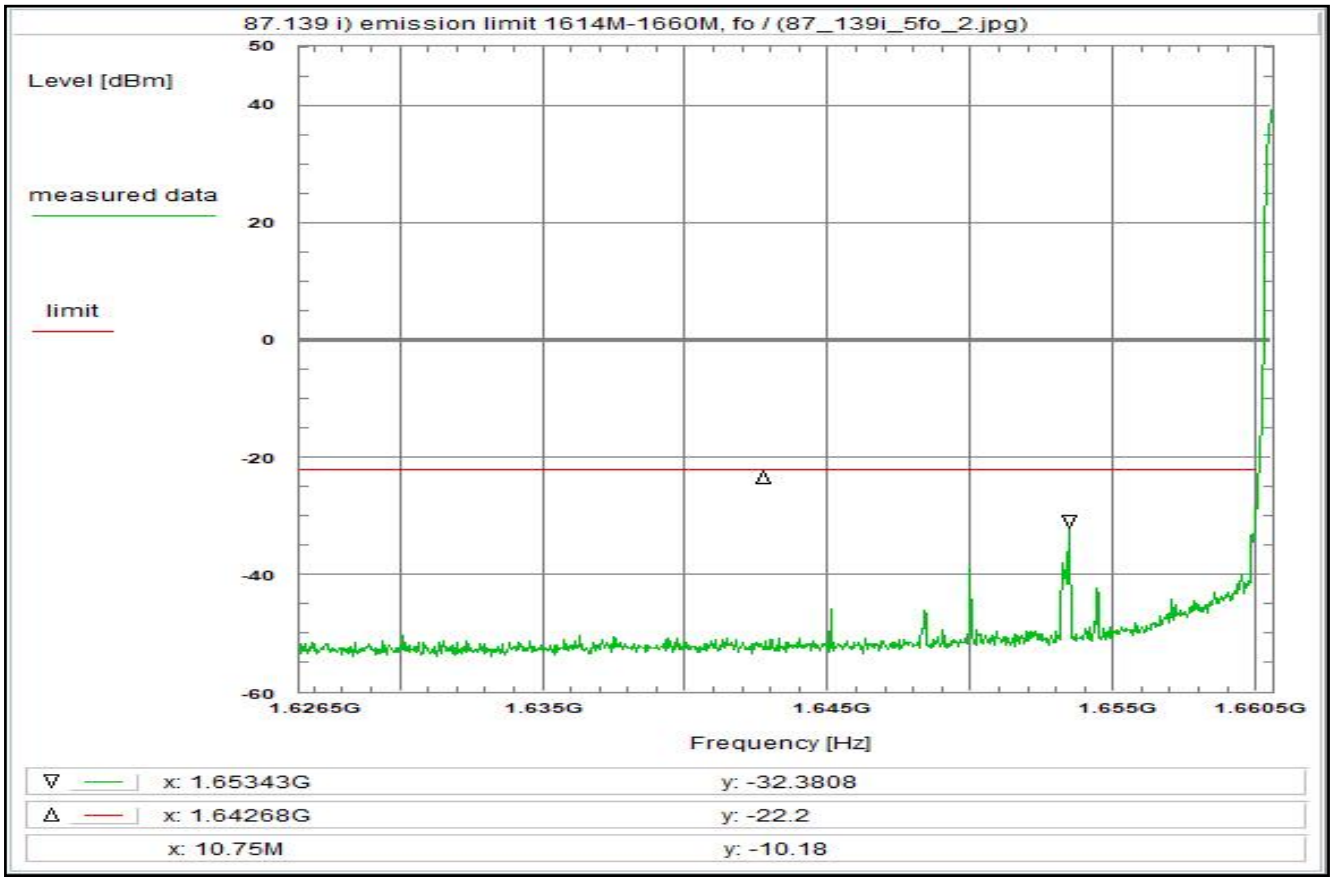
Correction:

(W_RE)	-	47.8	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U331)	+	74.2	dB
TOTAL CORRECTION:	+	29.9	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -51 dBm

Plot No. 111



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Fri 25/Aug/2023 19:20:39	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	Pos Peak	

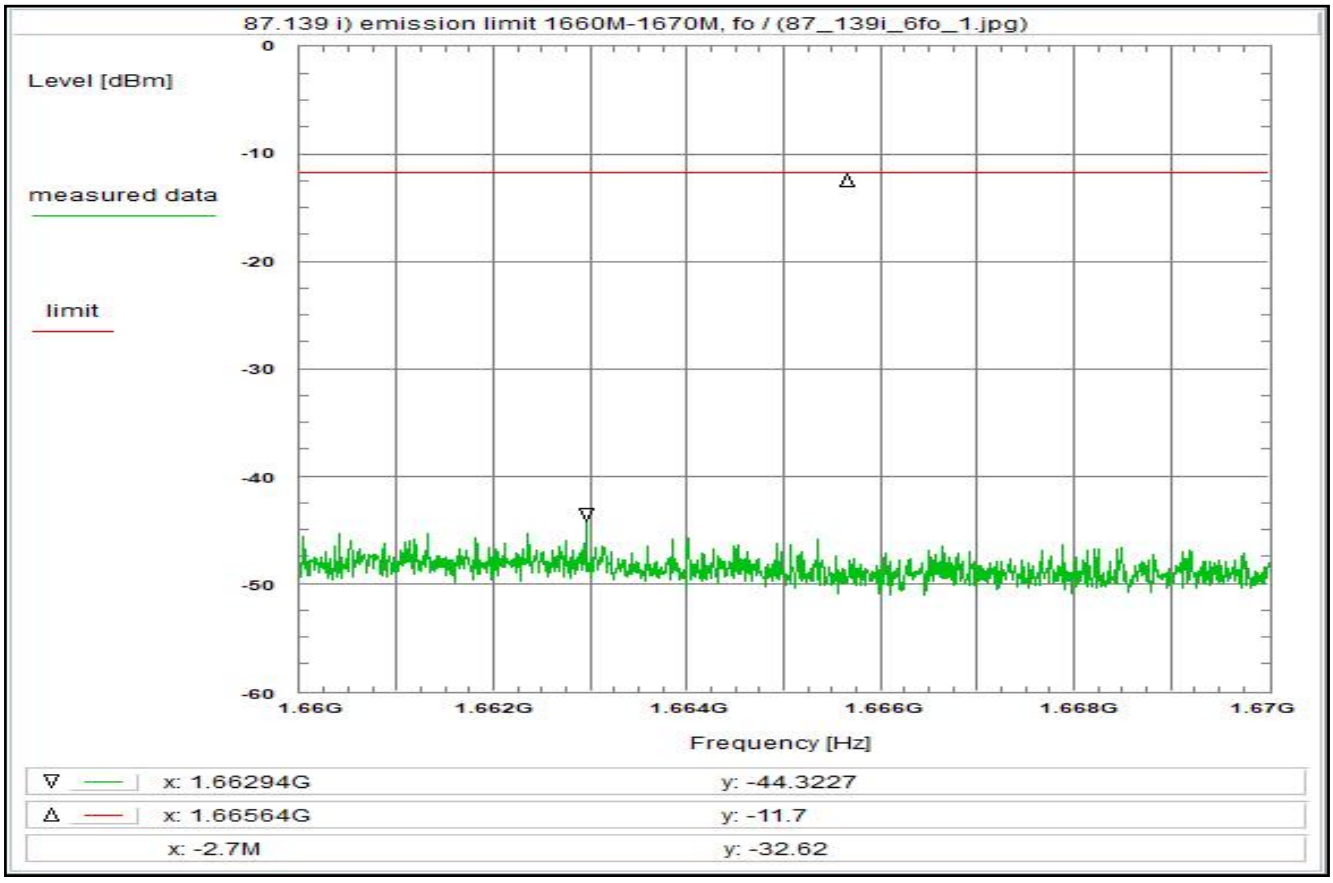
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	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:	+	35.4	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -28.6 dBm

Plot No. 112



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 6.4
fl, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Tue 22/Aug/2023 16:07:43	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	10	kHz
Video-BW:	30	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

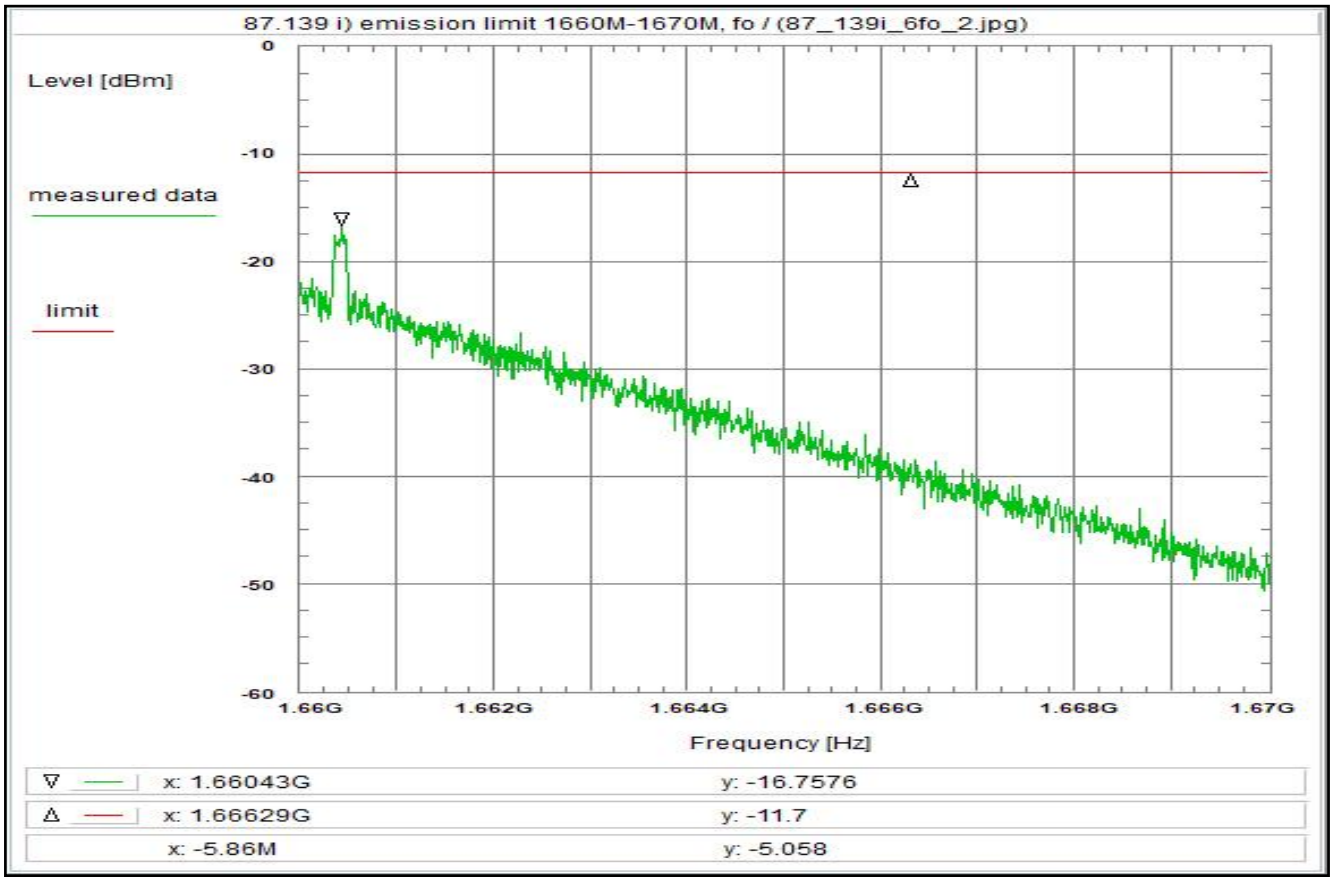
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 20k)	+	3.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	37.2	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -40.5 dBm

Plot No. 113



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U331

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 23/Aug/2023 19:00:48	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	300	Hz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

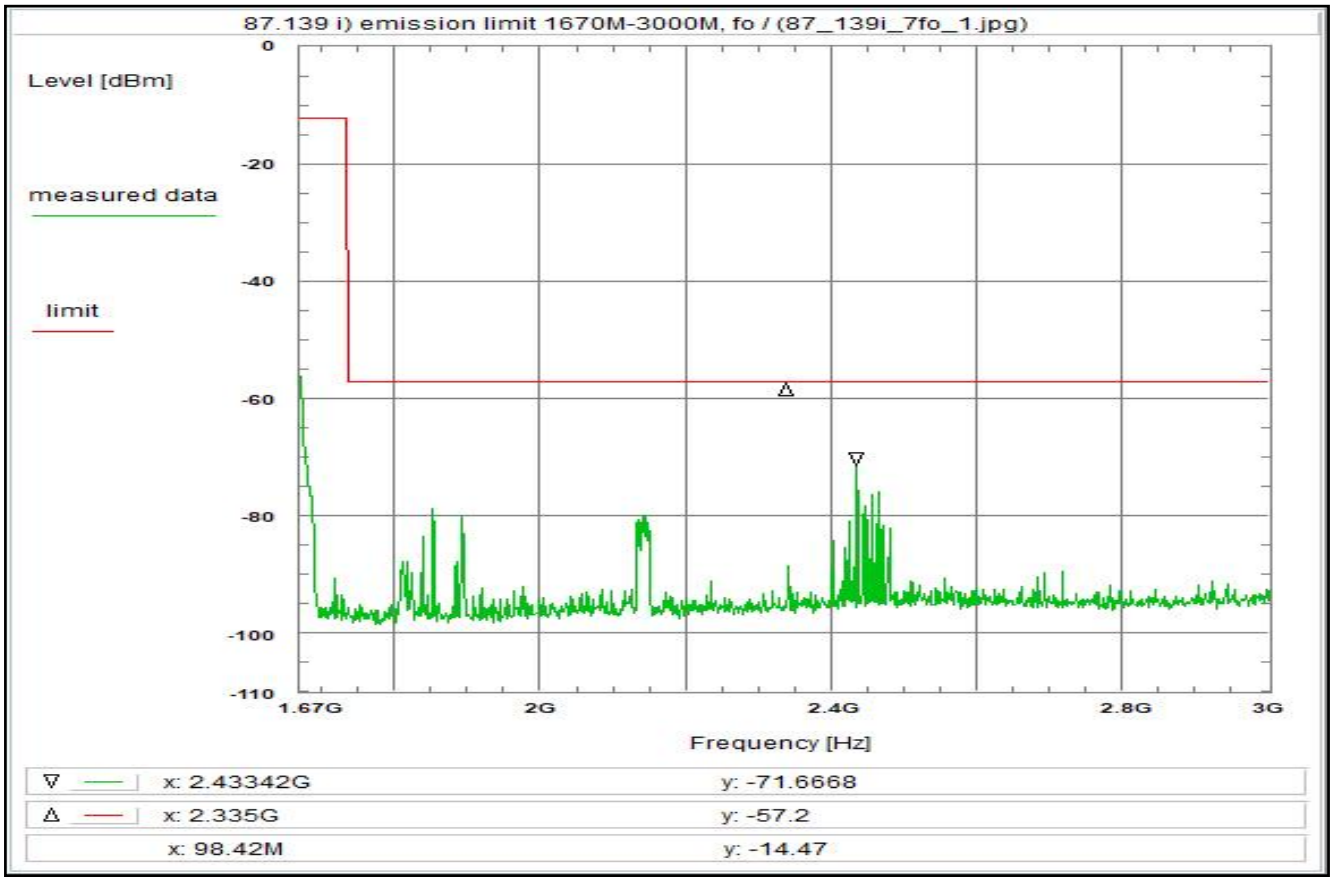
Correction:

(W_RE)	-	4.5	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 20k)	+	8.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U331)	+	72.8	dB
TOTAL CORRECTION:	+	78.8	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -12.9 dBm

Plot No. 114



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U331

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Tue 22/Aug/2023 15:33:24	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.67	GHz
Stop frequency:	3	GHz
Center frequency:	2.335	GHz
Frequency span:	1.33	GHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

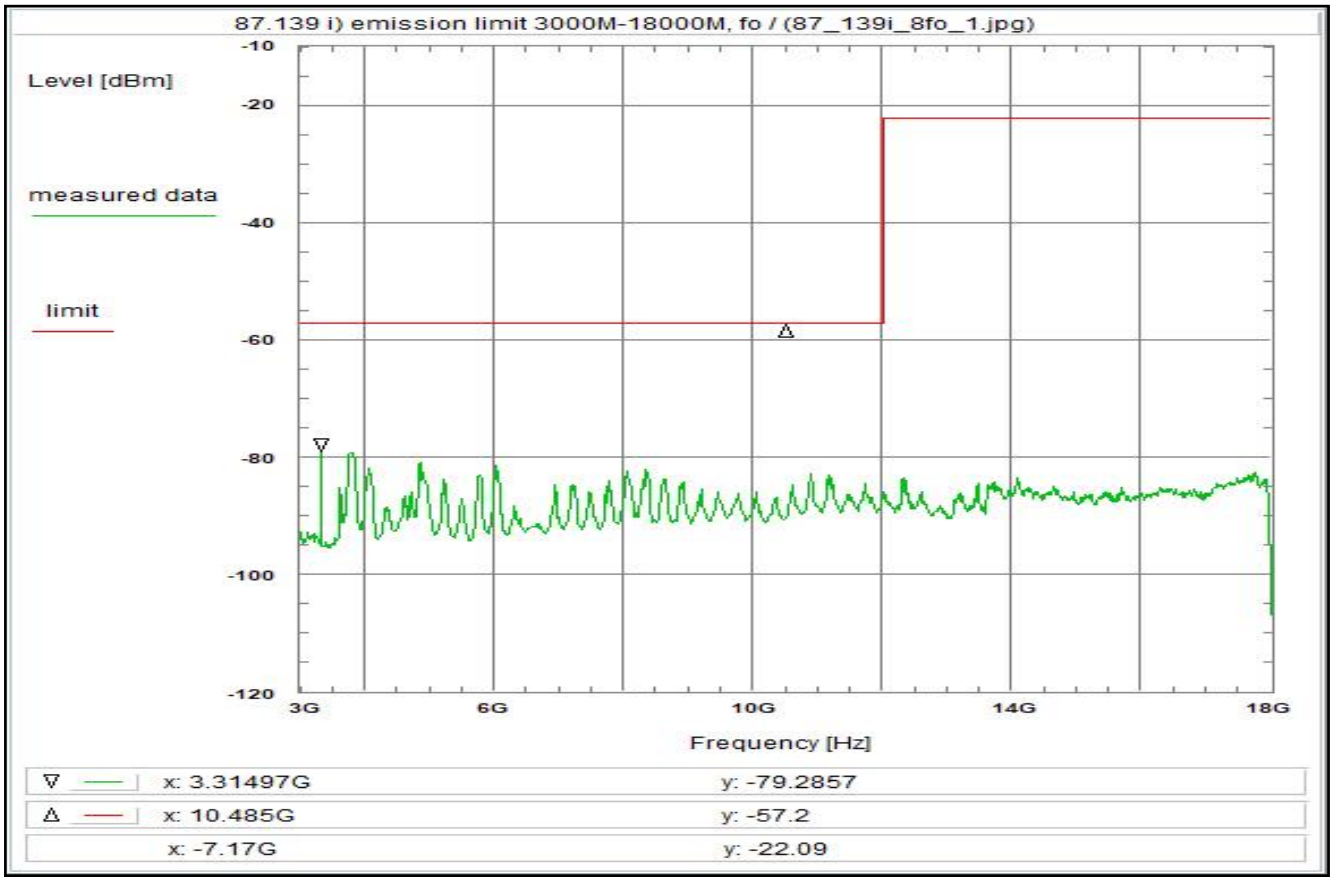
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	1.1	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (3k -> 4k)	+	1.2	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U331)	+	32.5	dB
TOTAL CORRECTION:	+	36.2	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -67.8 dBm

Plot No. 115



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 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U332

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Tue 22/Aug/2023 15:59:10	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

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:	30	kHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

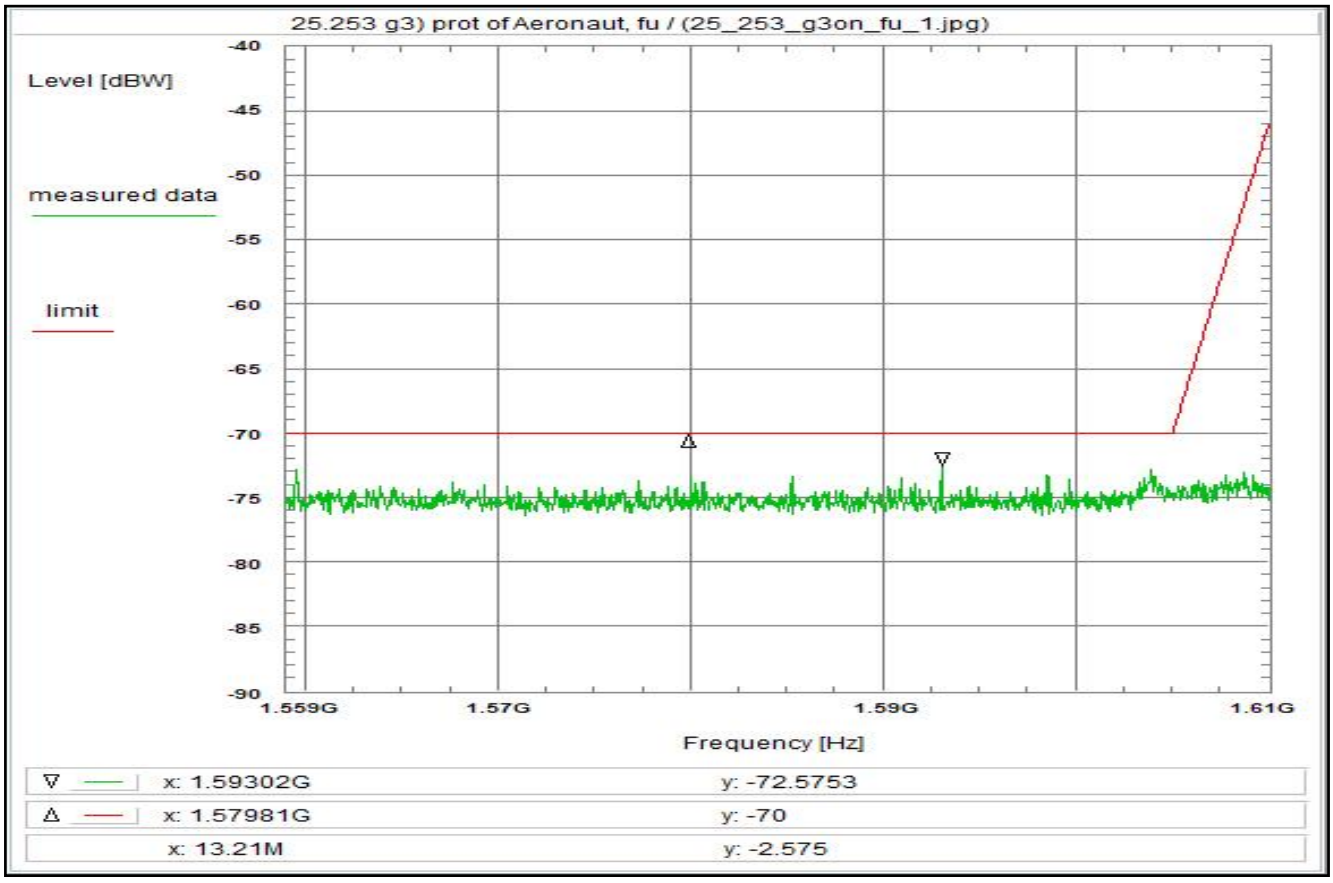
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	2.3	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor (10k -> 4k)	-	4.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U332)	+	34.0	dB
TOTAL CORRECTION:	+	33.7	dB

Remarks:
Carrier-on state / Carrier at the upper edge of the band (fo)
For EIRP calculation:
´worst-case´ = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -75.5 dBm

Plot No. 116



Subclause: 25.253 g)3) Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz / 1525-1559 MHz bands
Carrier-on state, modulated carrier at the lower edge of the band (fu)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.253 g)3):
1559.0 - 1605.0MHz: -70dBW/1MHz
1605.0 - 1610MHz: -70 to -46dBW/1MHz)linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

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

Operating condition of DUT:
operating condition 1, see test report chapter 6.4
fl, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Fri 25/Aug/2023 18:31:25	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Resolution-BW:	1	MHz
Video-BW:	50	MHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	Pos Peak	

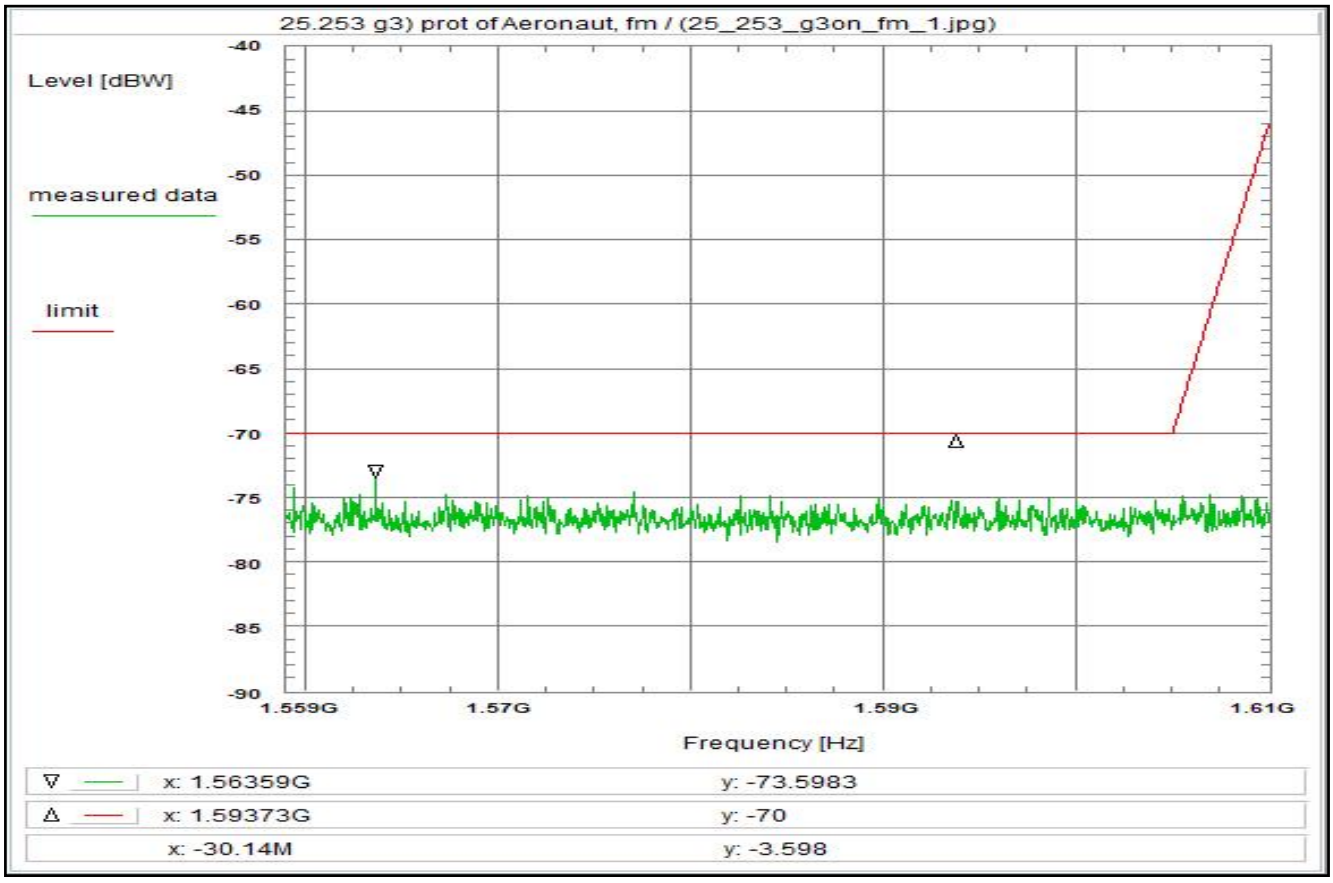
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	34.2	dB

Remarks:
Carrier-on state / Carrier at the lower edge of the band (fu)
Measurement with 1 MHz resolution/video filter and noise averaging.
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the noise floor with the Max-Hold Positive Peak detector as the worst-case scenario. The average value is therefore compliant.

Plot No. 117



Subclause: 25.253 g)3) Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz / 1525-1559 MHz bands
Carrier-on state, modulated carrier in the middle of the band (fm)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.253 g)3):
1559.0 - 1605.0MHz: -70dBW/1MHz
1605.0 - 1610MHz: -70 to -46dBW/1MHz)linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

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

Operating condition of DUT:
operating condition 1, see test report chapter 6.4
fm, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Fri 25/Aug/2023 18:33:20	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Resolution-BW:	1	MHz
Video-BW:	50	MHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	Pos Peak	

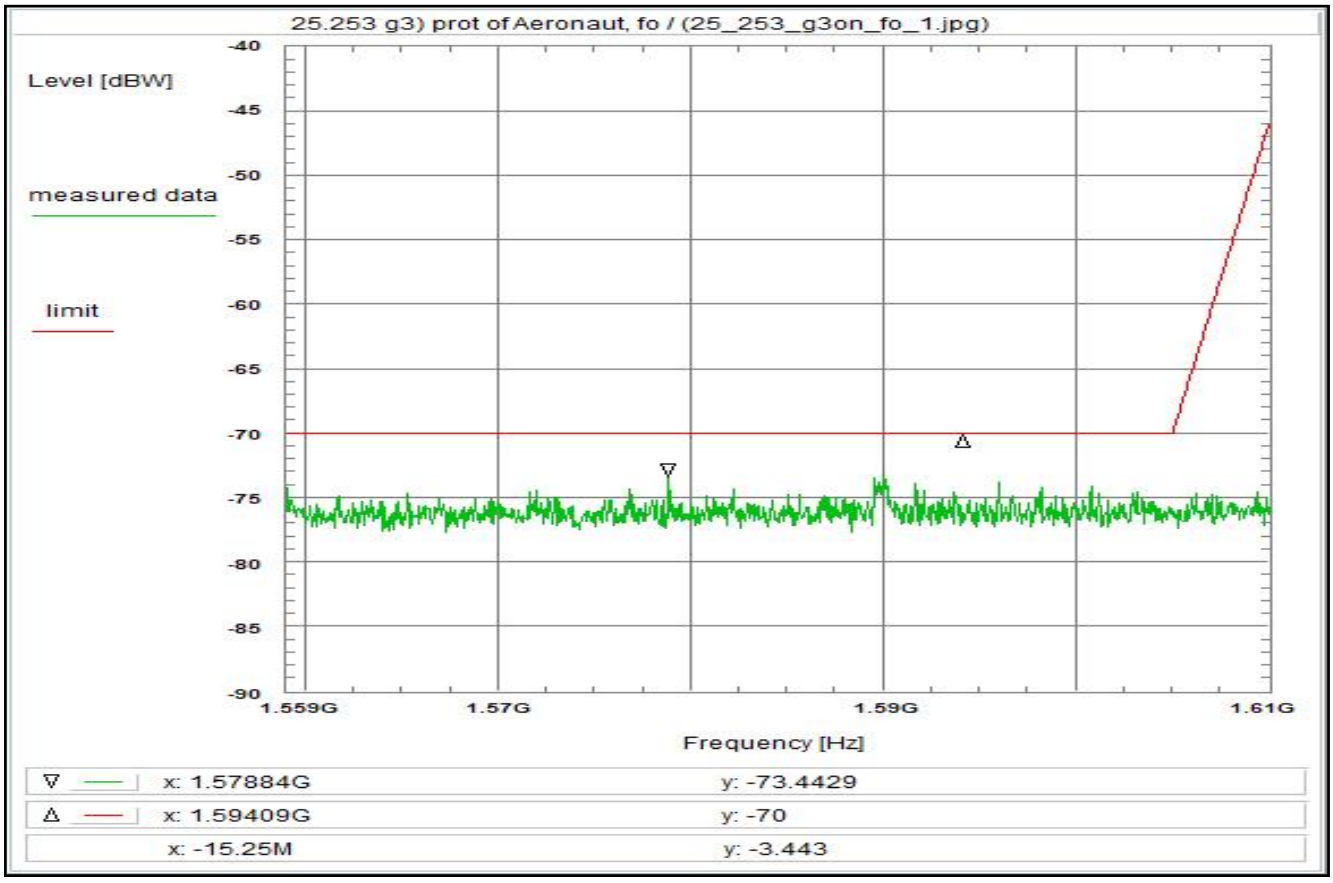
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	34.2	dB

Remarks:
Carrier-on state / Carrier in the middle of the band (fm)
Measurement with 1 MHz resolution/video filter and noise averaging.
For EIRP calculation:
´worst-case´ = maximum antenna gain

The plot shows the noise floor with the Max-Hold Positive Peak detector as the worst-case scenario. The average value is therefore compliant.

Plot No. 118



Subclause: 25.253 g)3) Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz / 1525-1559 MHz bands
Carrier-on state, modulated carrier at the upper edge of the band (fo)
Conducted measurement at the antenna-connector

Limit:
Limit according to 25.253 g)3):
1559.0 - 1605.0MHz: -70dBW/1MHz
1605.0 - 1610MHz: -70 to -46dBW/1MHz)linear interpolated)
The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-on state shall not exceed the limits above.

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

Operating condition of DUT:
operating condition 1, see test report chapter 6.4
fh, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C220, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Fri 25/Aug/2023 18:35:03	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Resolution-BW:	1	MHz
Video-BW:	50	MHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	Pos Peak	

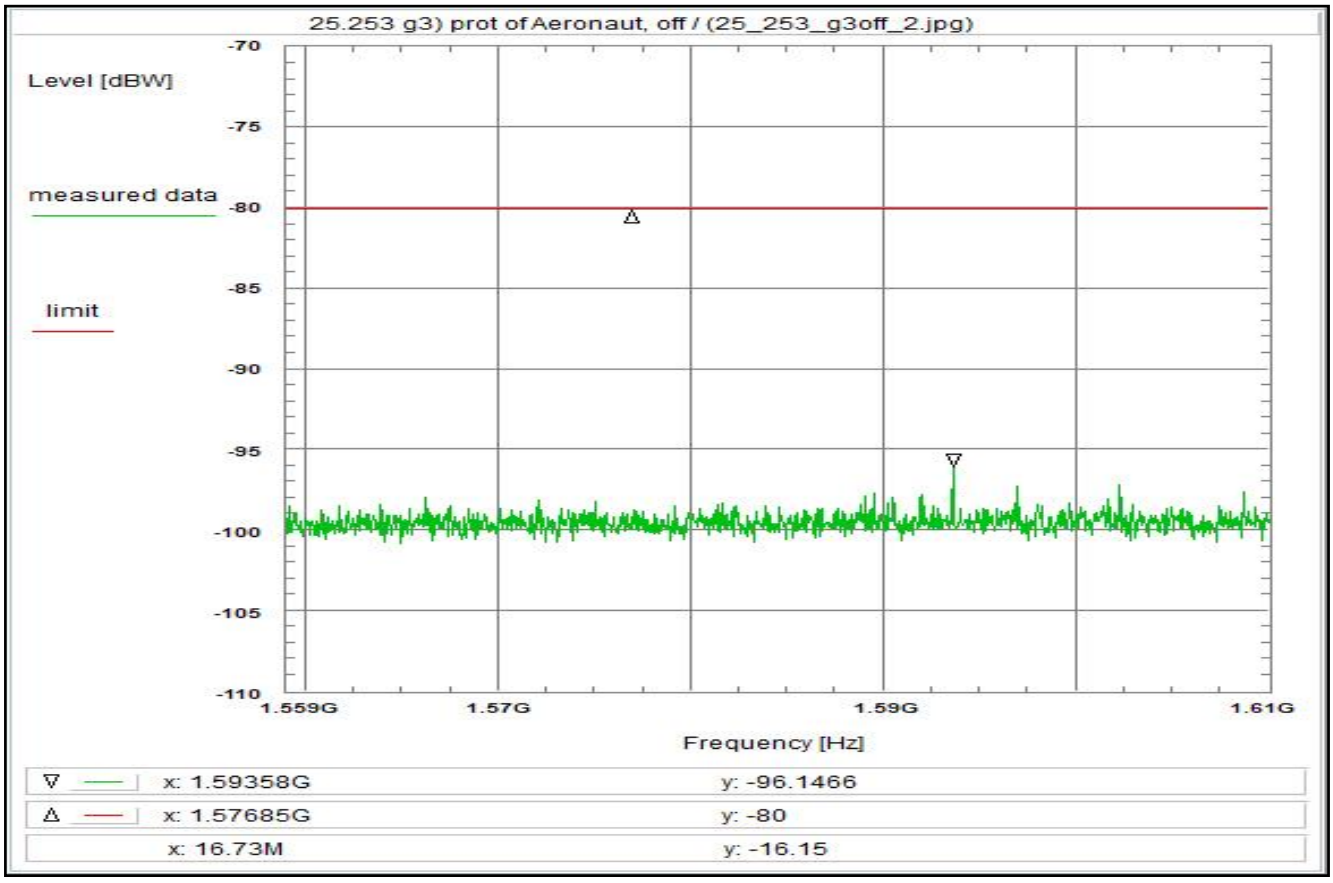
Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.2	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	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 upper edge of the band (fo)
Measurement with 1 MHz resolution/video filter and noise averaging.
For EIRP calculation:
'worst-case' = maximum antenna gain

The plot shows the noise floor with the Max-Hold Positive Peak detector as the worst-case scenario. The average value is therefore compliant.

Plot No. 119



Subclause: 25.253 g)3) Special requirements for ancillary terrestrial components operating in the 1626.5-1660.5 MHz / 1525-1559 MHz bands
Carrier-off state, conducted measurement at the antenna-connector

Limit:
Limit according to 25.253 g)3): -80dBW/1MHz

The EIRP, averaged over any two-millisecond active transmission interval from the MESs in the carrier-off state shall not exceed the limit above.

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

Operating condition of DUT:
operating condition 2, see test report chapter 6.4
TX-Off

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: R001

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Fri 25/Aug/2023 18:29:17	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.559	GHz
Stop frequency:	1.61	GHz
Center frequency:	1.5845	GHz
Frequency span:	51	MHz
Resolution-BW:	1	MHz
Video-BW:	1	MHz
Input attenuation:	0	dB
Trace-Mode:	Average	
Detector-Mode:	Sample	

Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C220)	+	0.9	dB
DUT-Antenna (on-axis)	+	1.4	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	34.2	dB

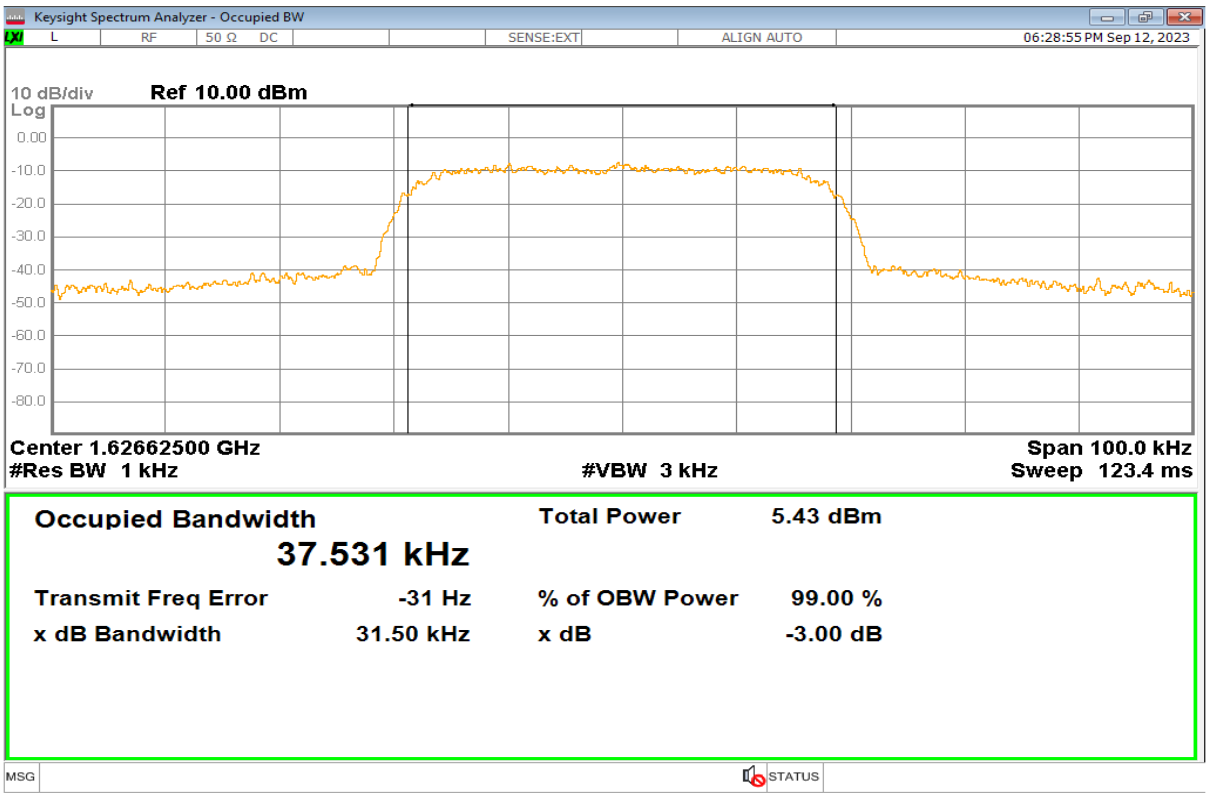
Remarks:
Carrier-off state.
Measurement with 1 MHz resolution filter and noise averaging.
For EIRP calculation:
'worst-case' = maximum antenna gain

Since the measurement was updated with the maximum antenna gain, which is 5.23 dBic, the corrected value of the marker is -92.3 dBm

3. Measurement results for CLASS 7, FCC Part 87

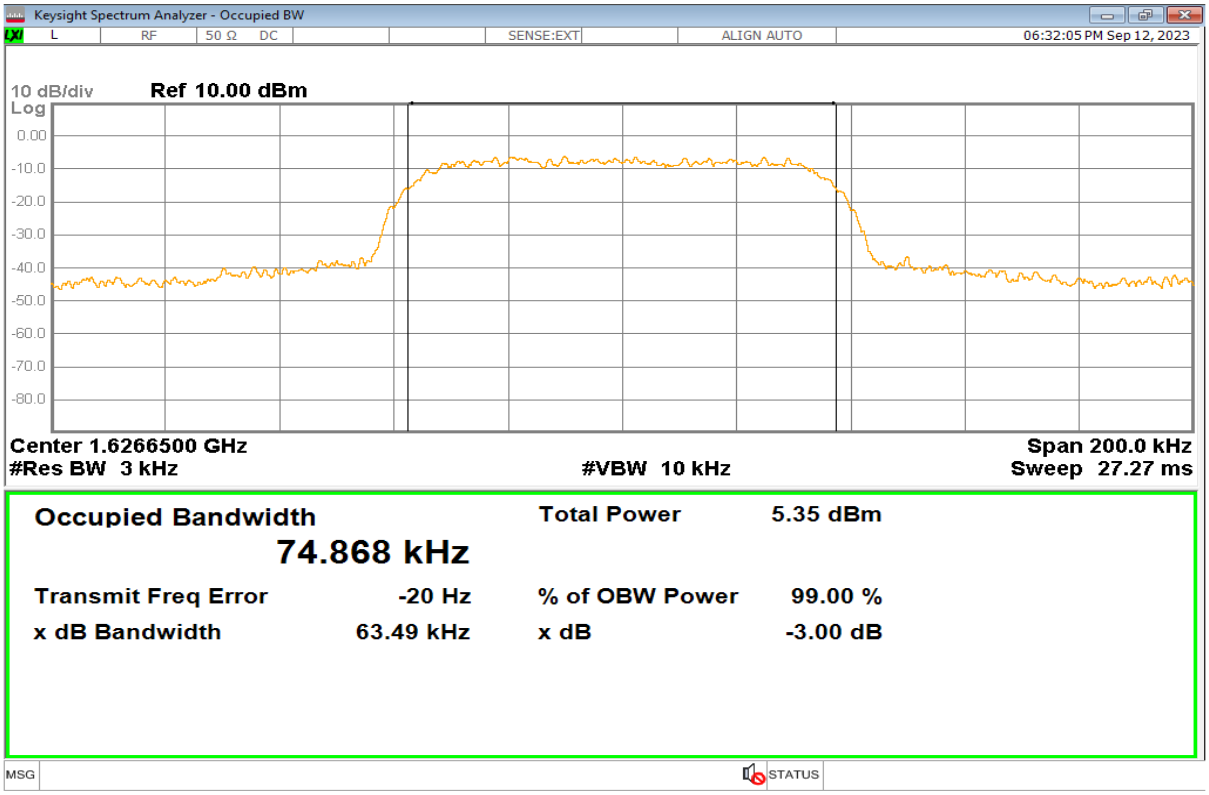
This chapter consists of 92 pages including this page.

Plot No. 120



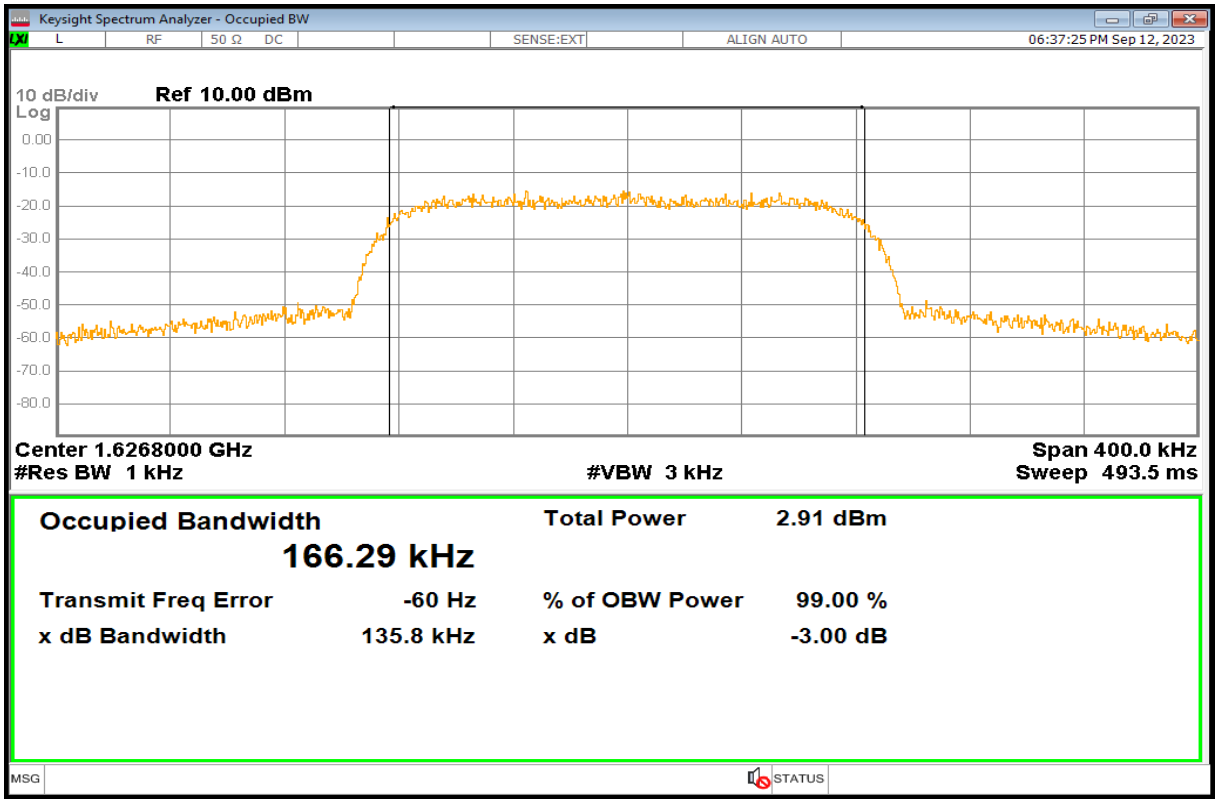
B3dB, Sub-Band 1, Low Channel, R5T1XD

Plot No. 121



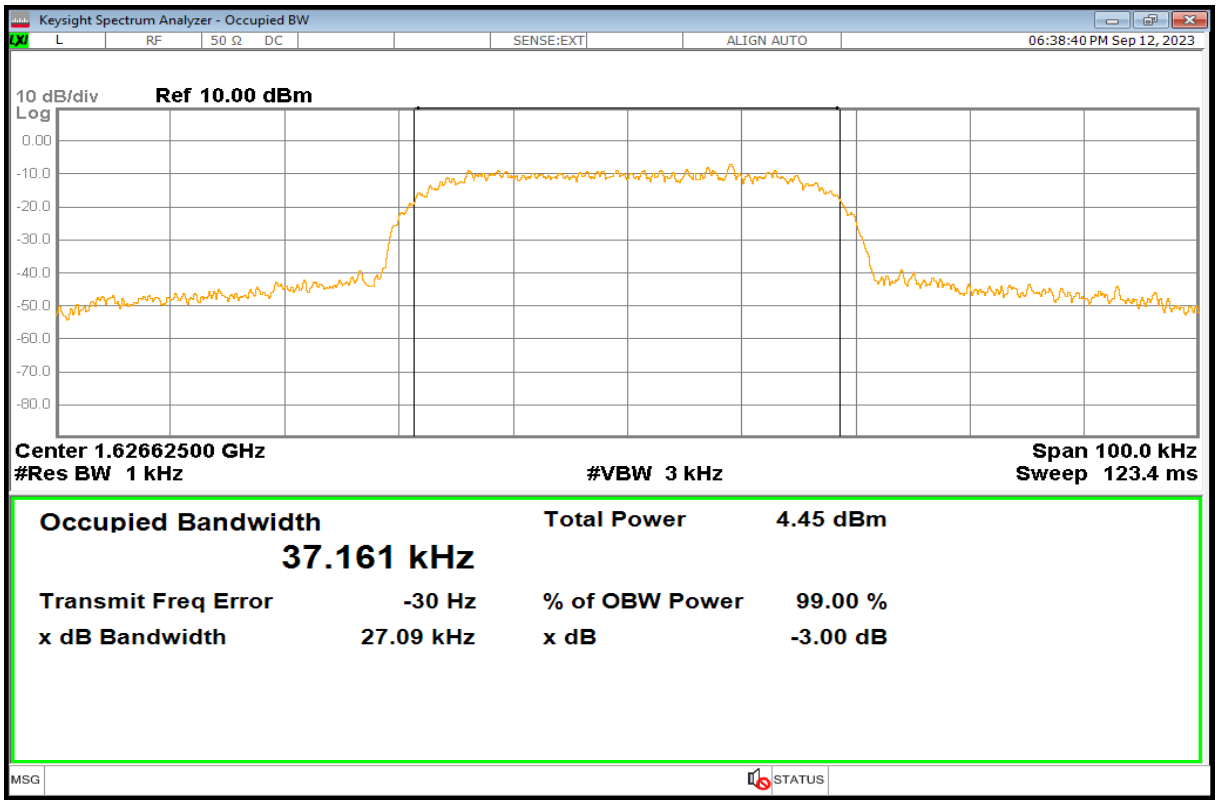
B3dB, Sub-Band 1, Low Channel, R5T2XD

Plot No. 122



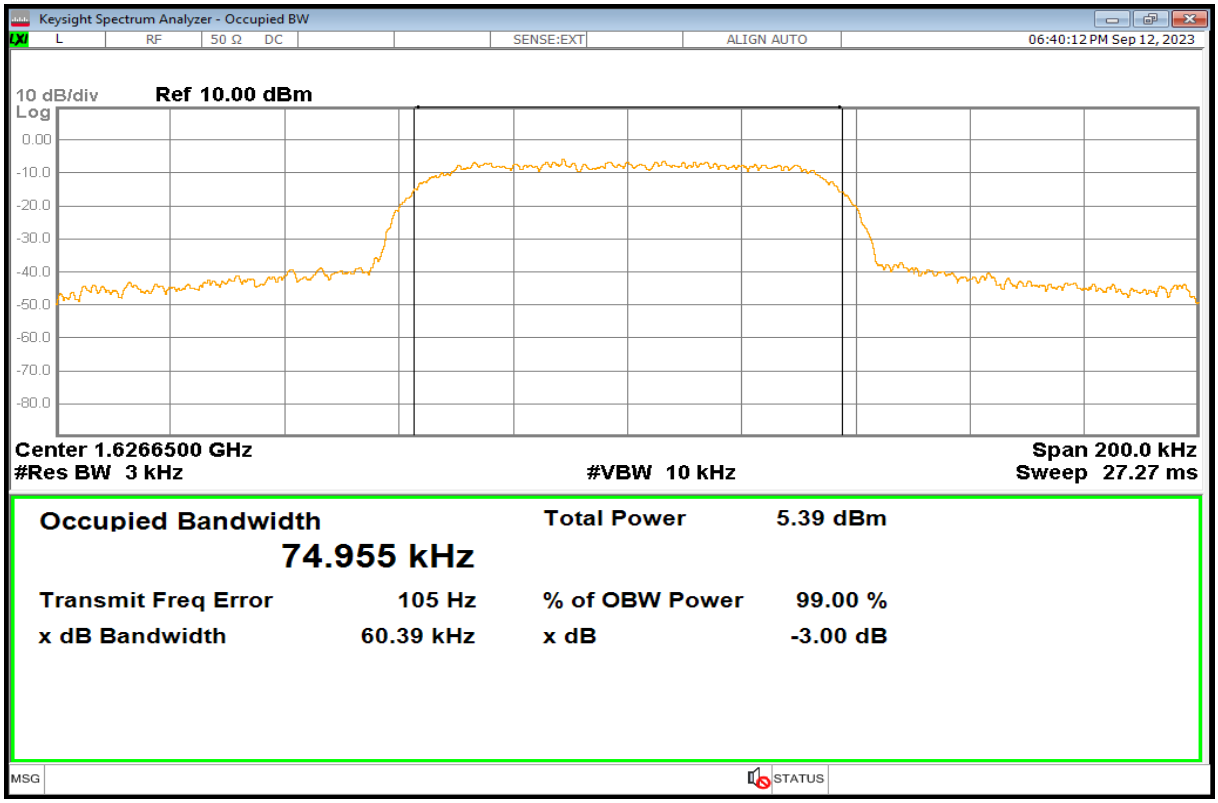
B3dB, Sub-Band 1, Low Channel, R5T4.5XD

Plot No. 123



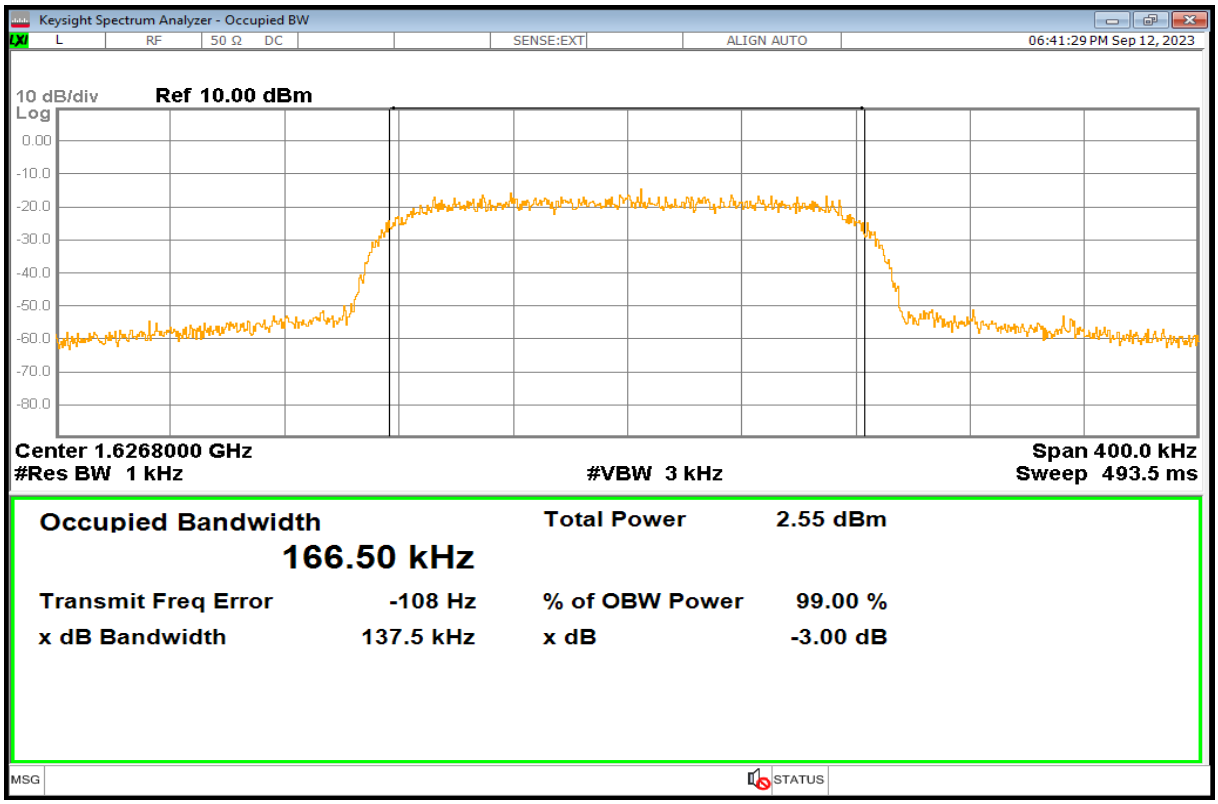
B3dB, Sub-Band 1, Low Channel, R20T1XD

Plot No. 124



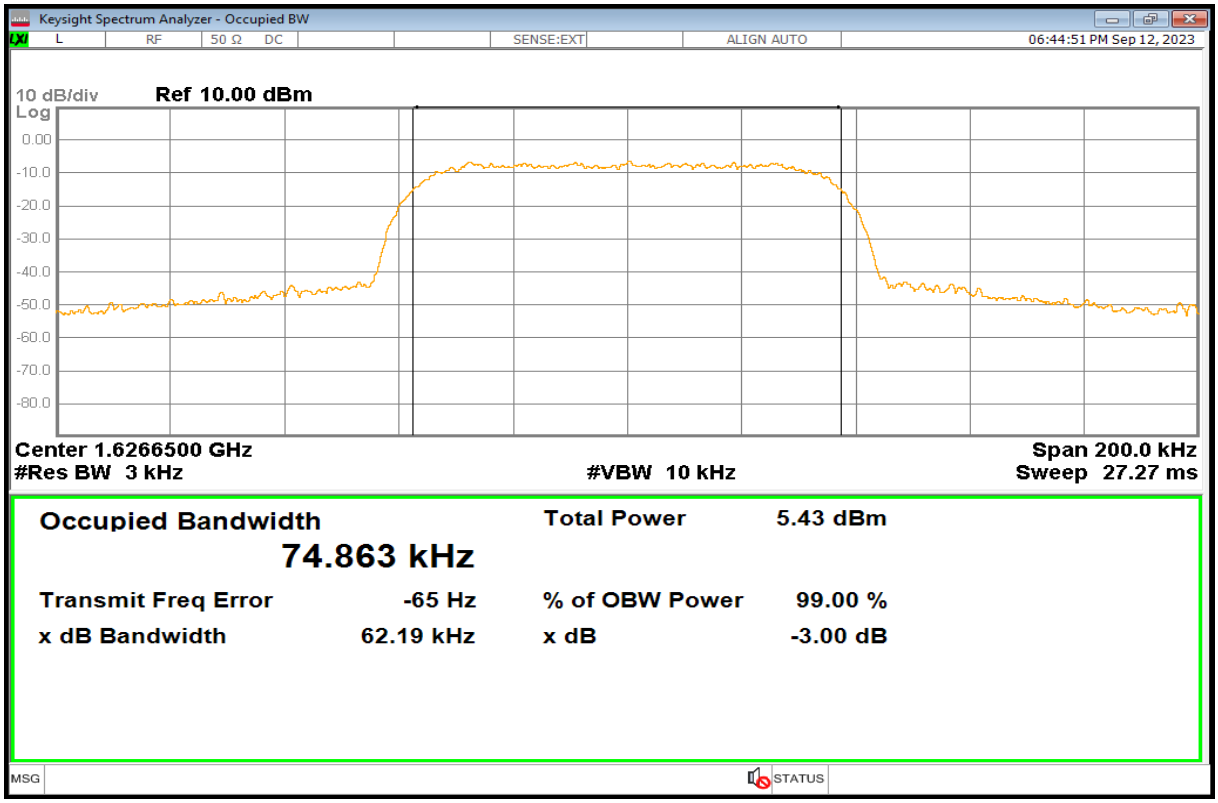
B3dB, Sub-Band 1, Low Channel, R20T2XD

Plot No. 125



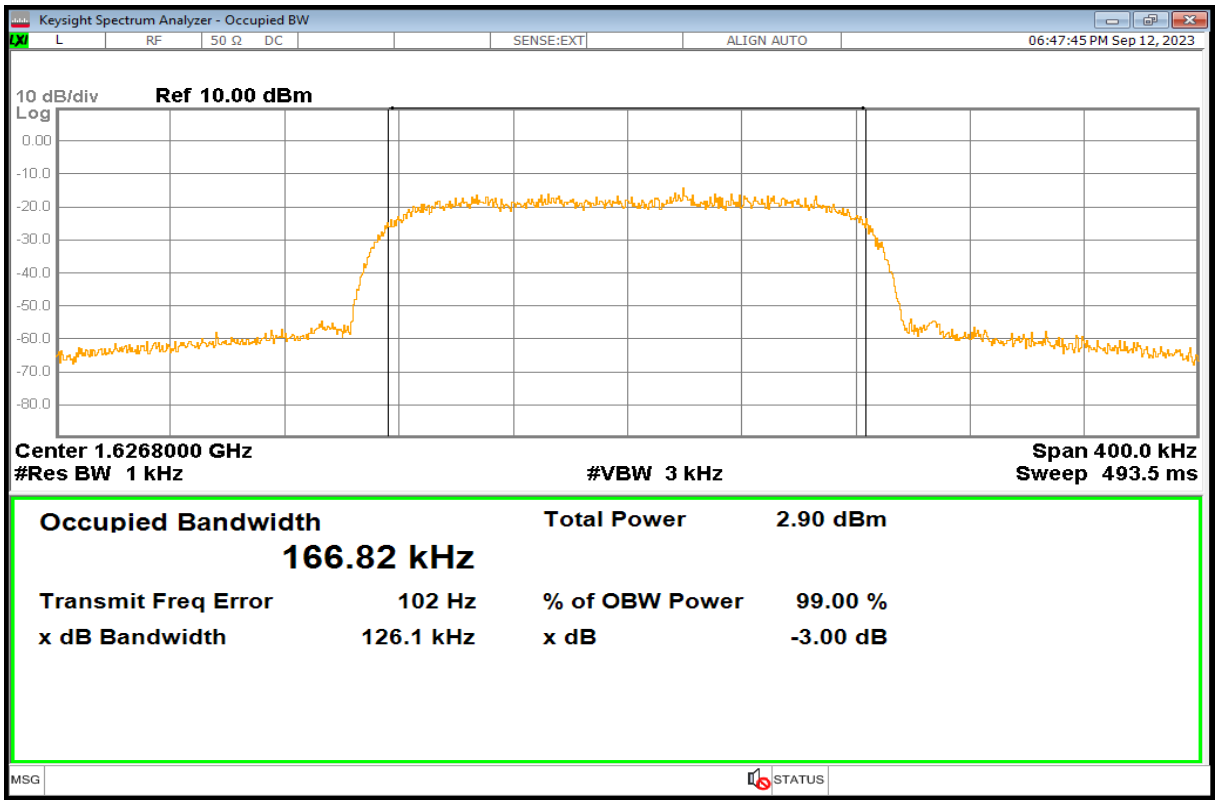
B3dB, Sub-Band 1, Low Channel, R20T4.5XD

Plot No. 126



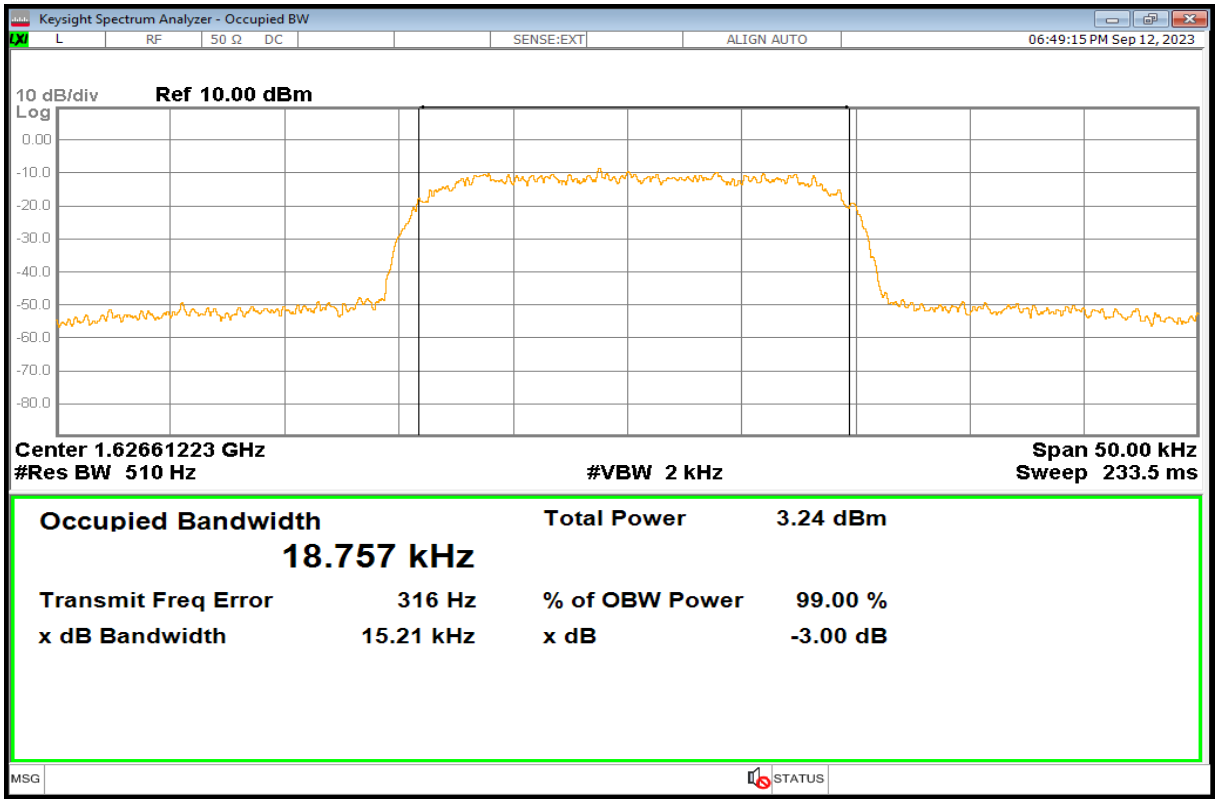
B3dB, Sub-Band 1, Low Channel, R5T2QD

Plot No. 127



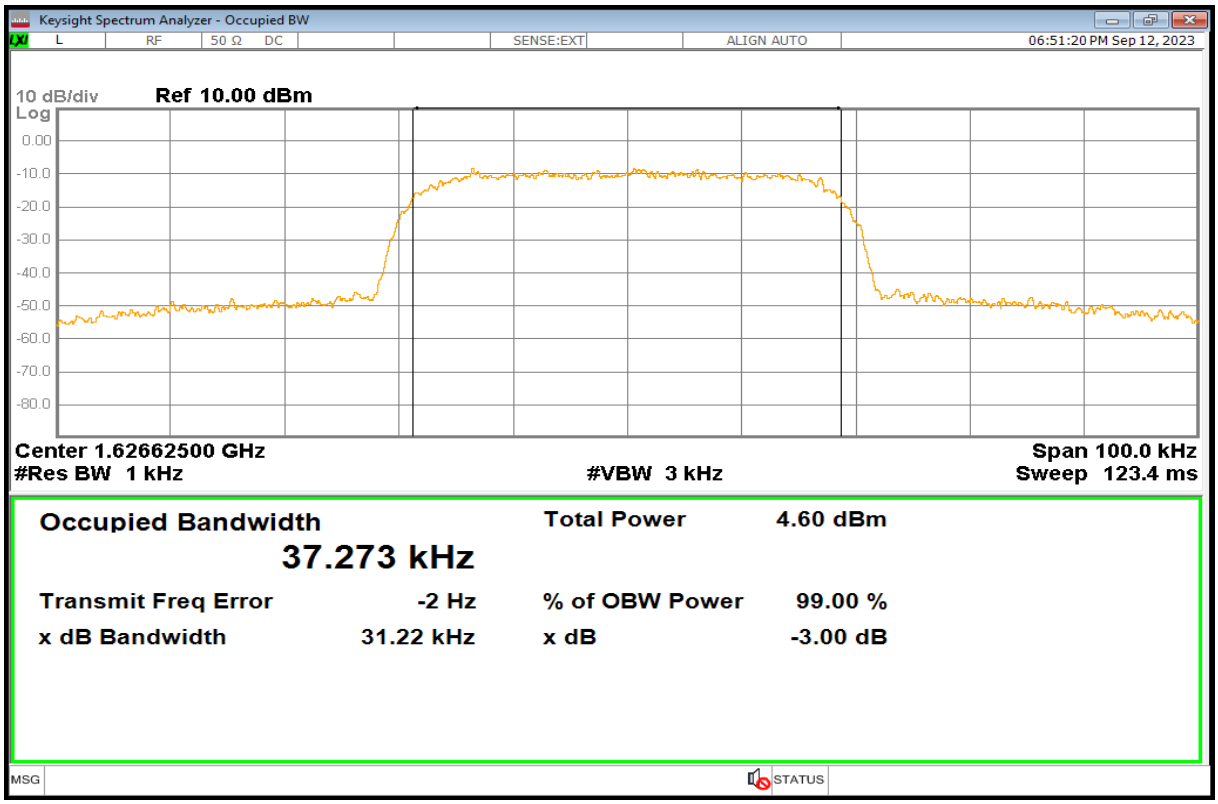
B3dB, Sub-Band 1, Low Channel, R5T4.5QD

Plot No. 128



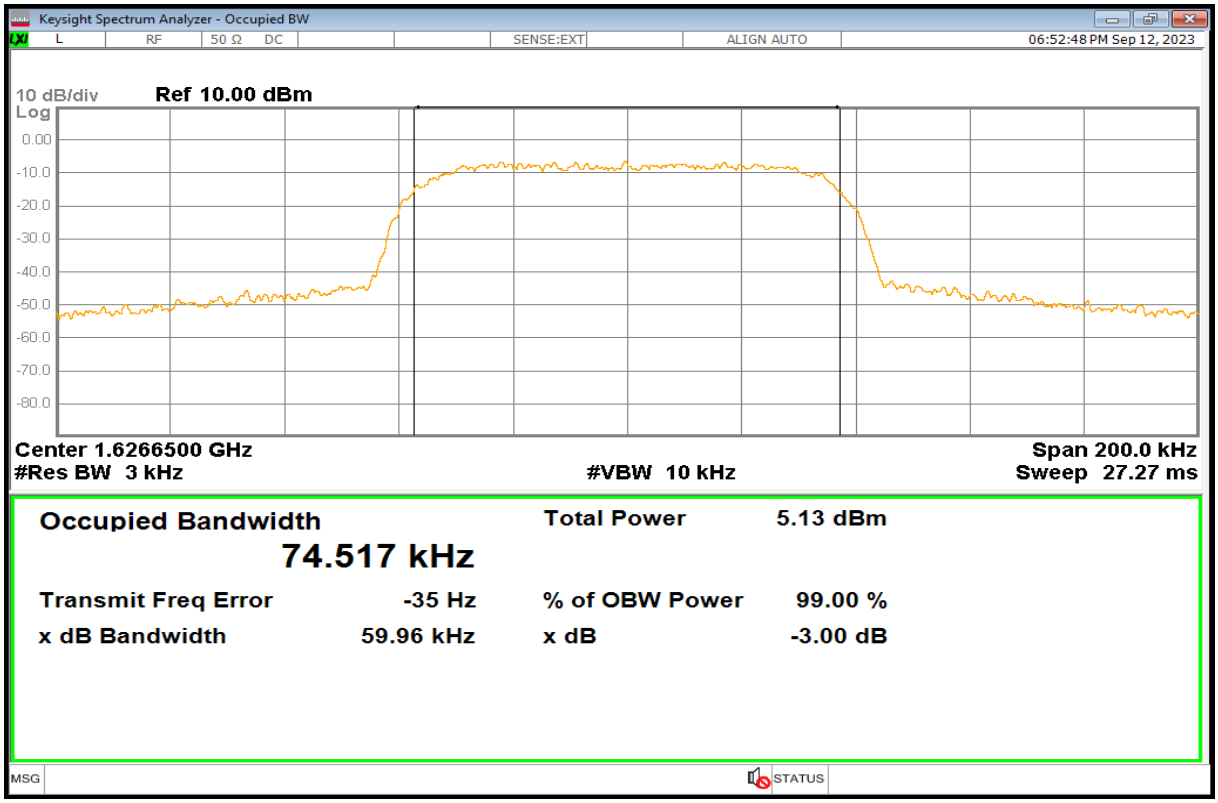
B3dB, Sub-Band 1, Low Channel, R20T0.5QD

Plot No. 129



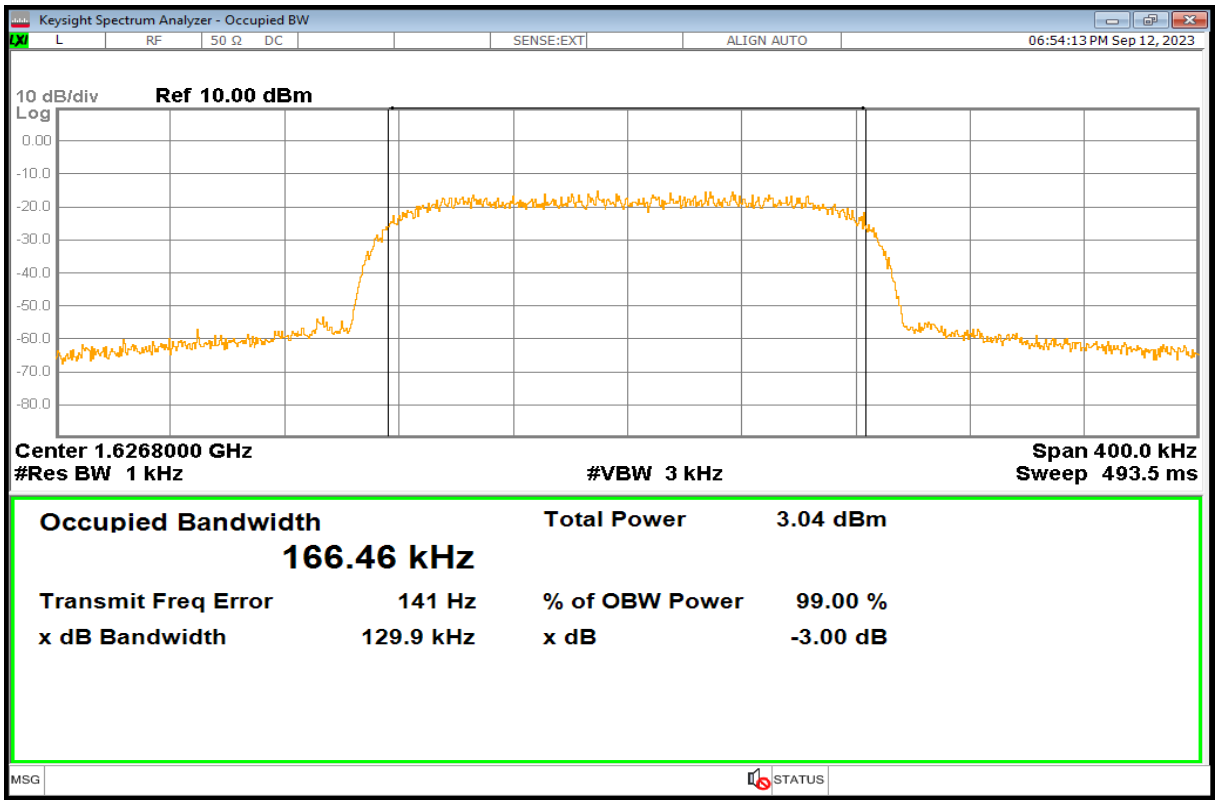
B3dB, Sub-Band 1, Low Channel, R20T1QD

Plot No. 130



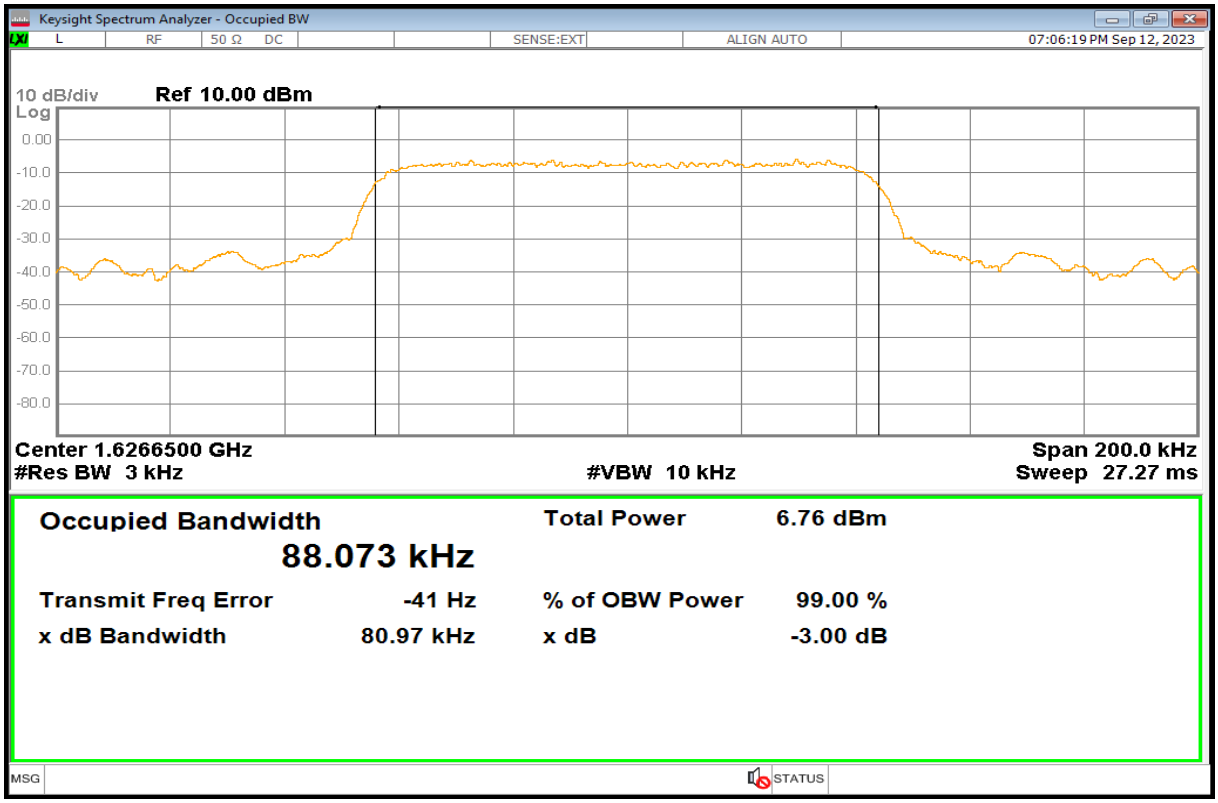
B3dB, Sub-Band 1, Low Channel, R20T2QD

Plot No. 131



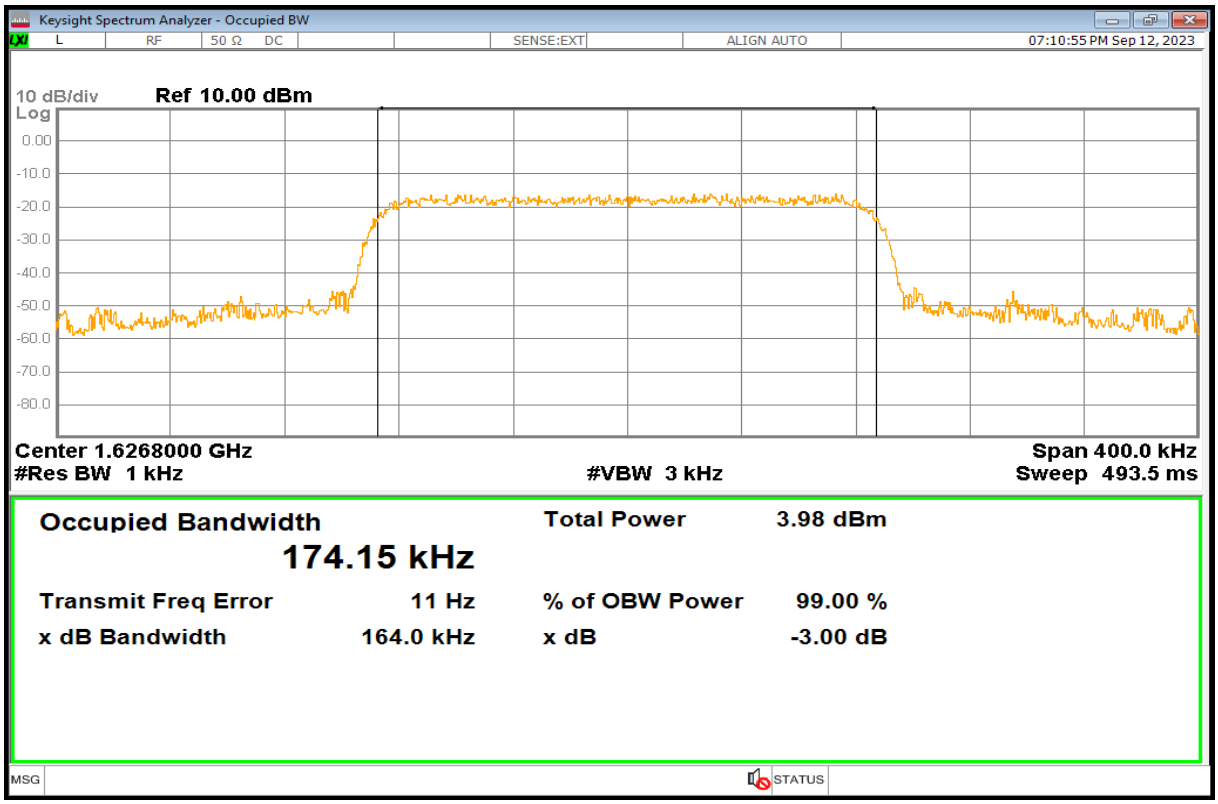
B3dB, Sub-Band 1, Low Channel, R20T4.5QD

Plot No. 132



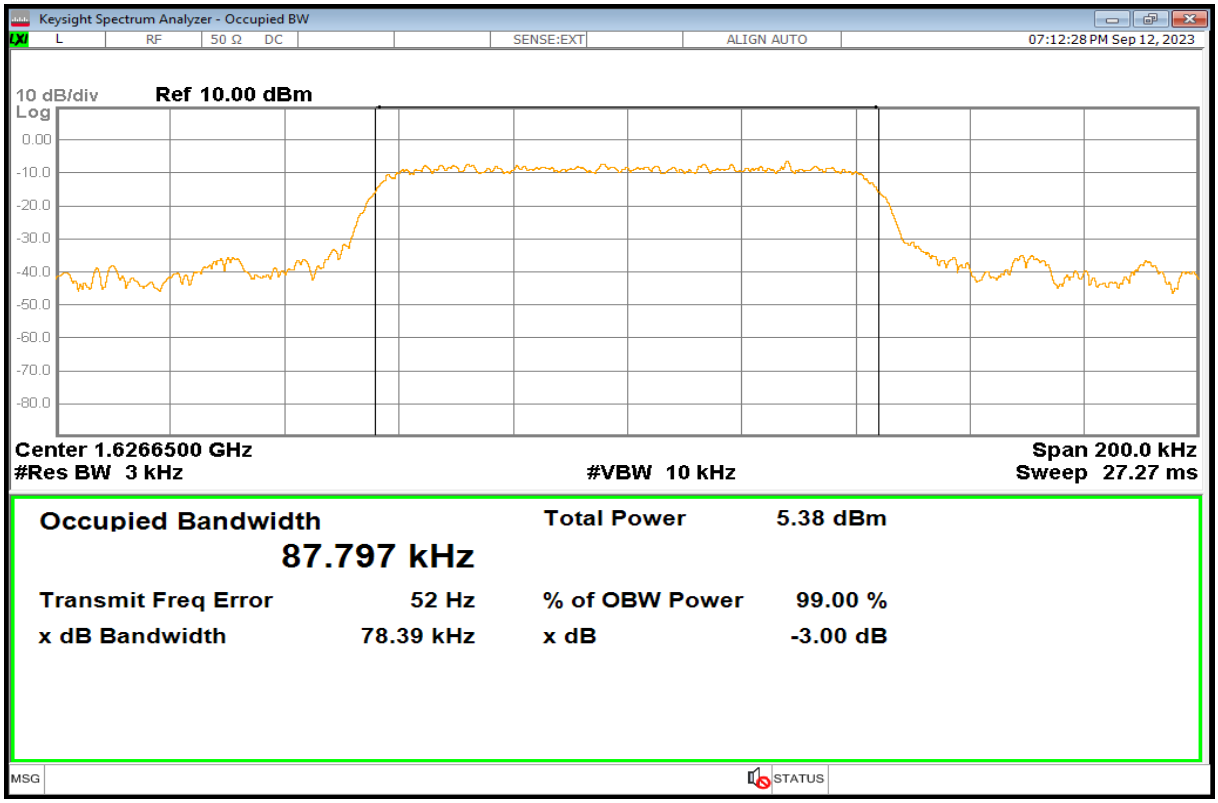
B3dB, Sub-Band 1, Low Channel, R80T2.5X16

Plot No. 133



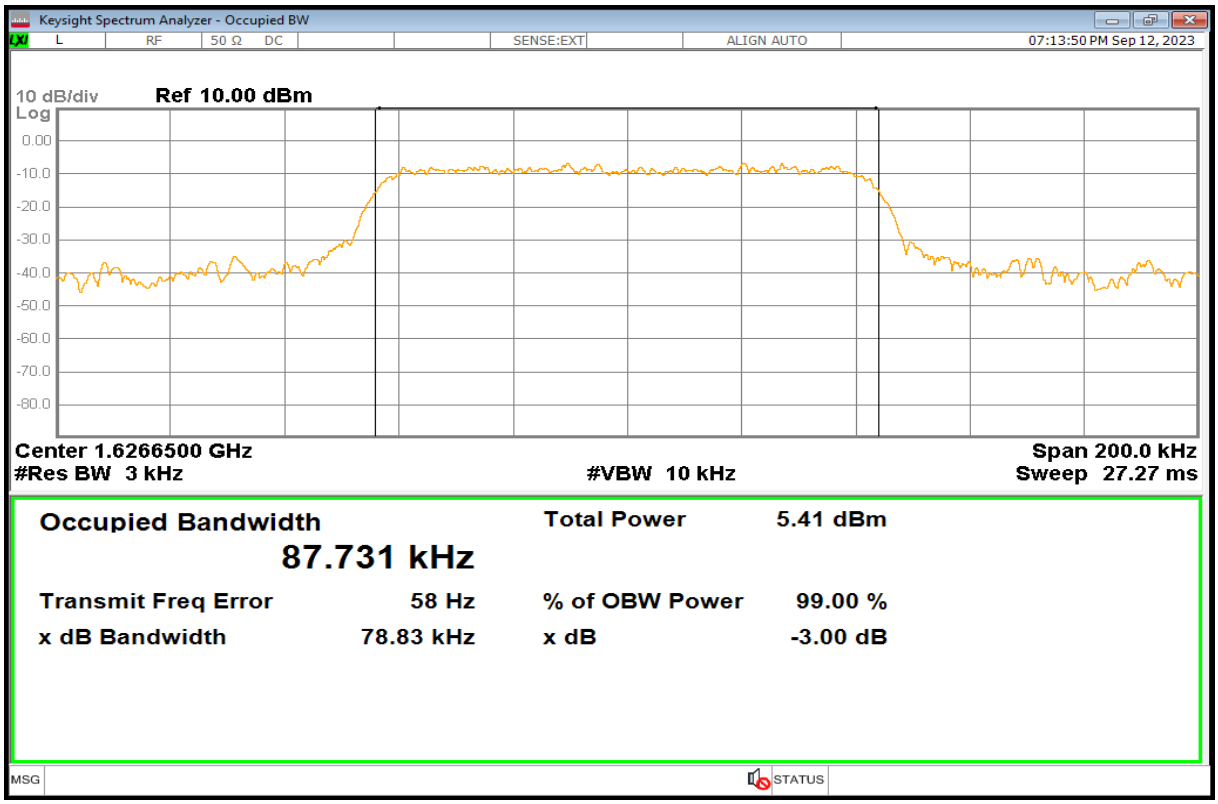
B3dB, Sub-Band 1, Low Channel, R80T5X16

Plot No. 134



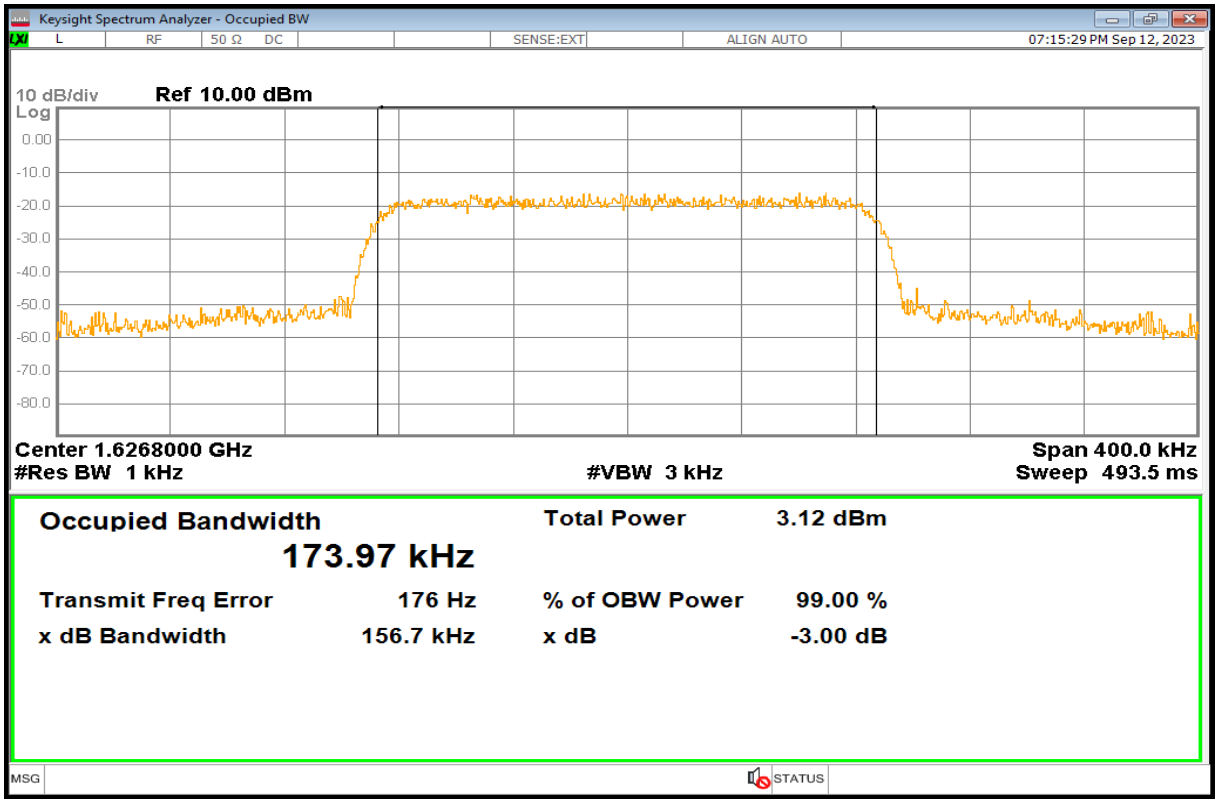
B3dB, Sub-Band 1, Low Channel, R80T2.5X32

Plot No. 135



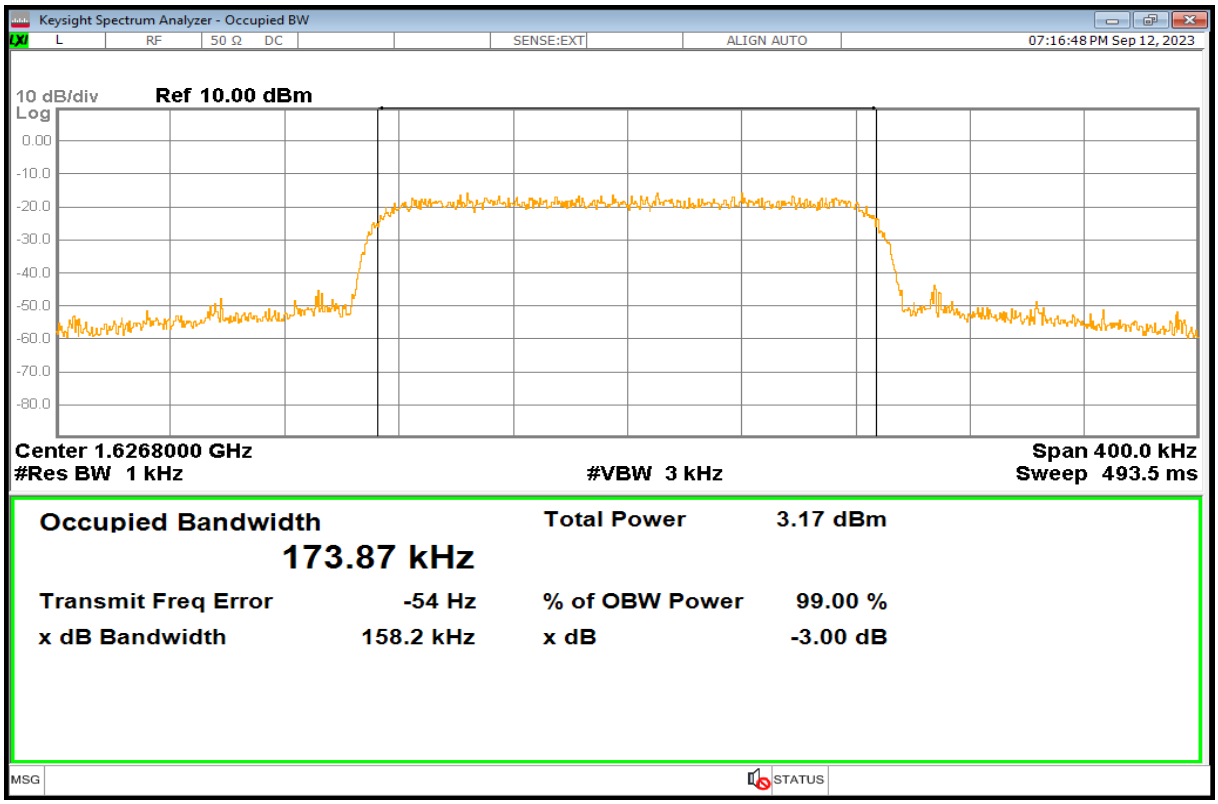
B3dB, Sub-Band 1, Low Channel, R80T2.5X64

Plot No. 136



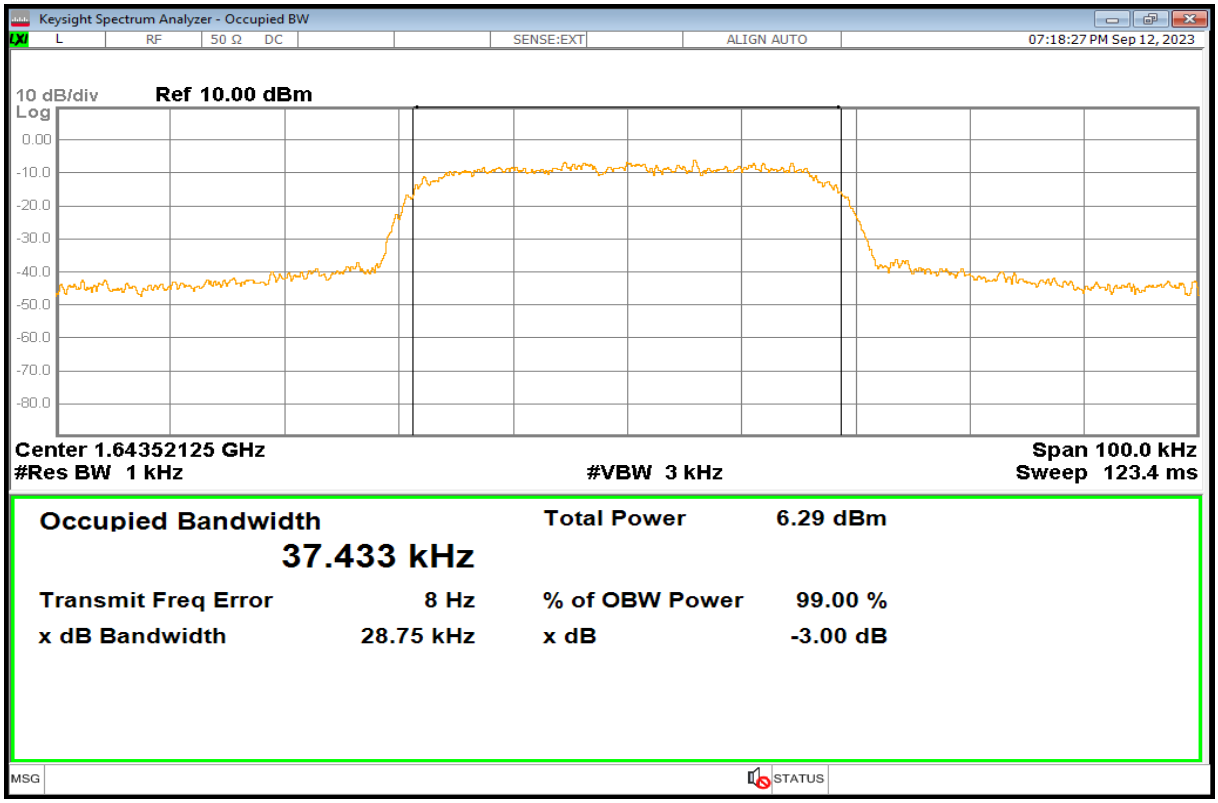
B3dB, Sub-Band 1, Low Channel, R80T5X32

Plot No. 137



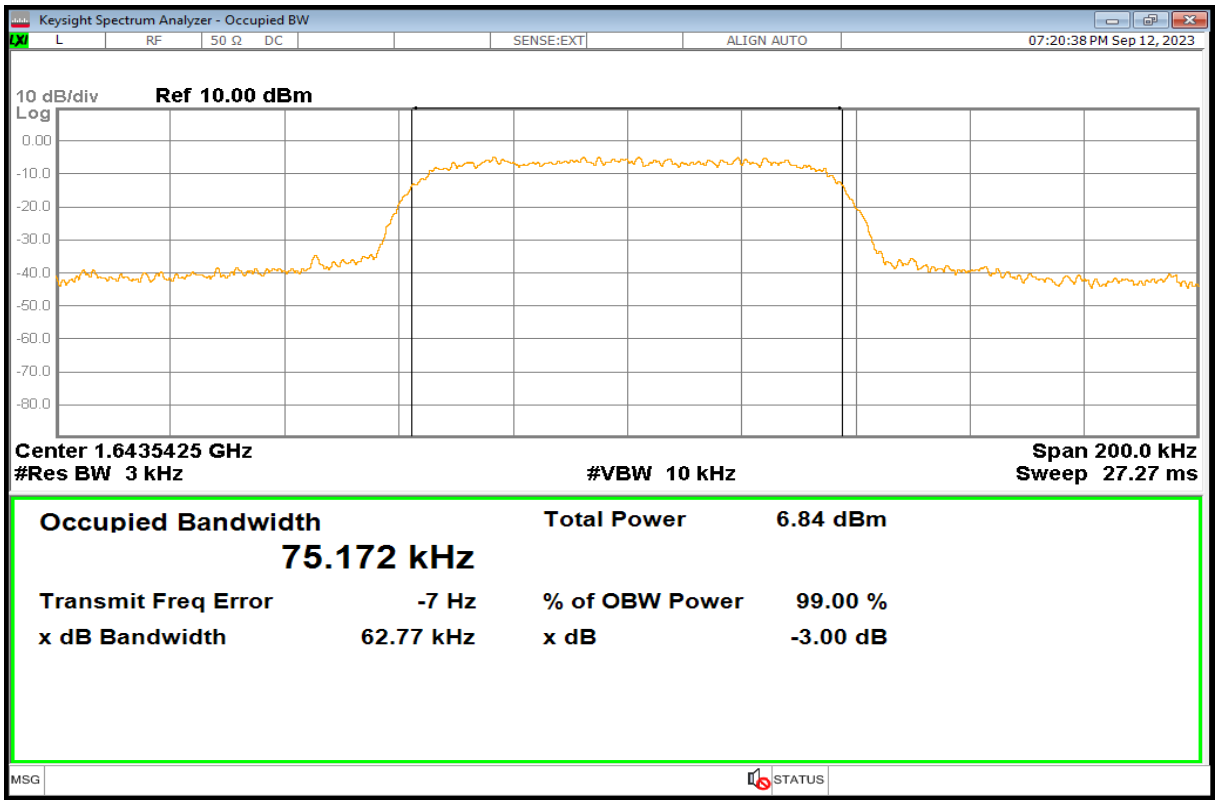
B3dB, Sub-Band 1, Low Channel, R80T5X64

Plot No. 138



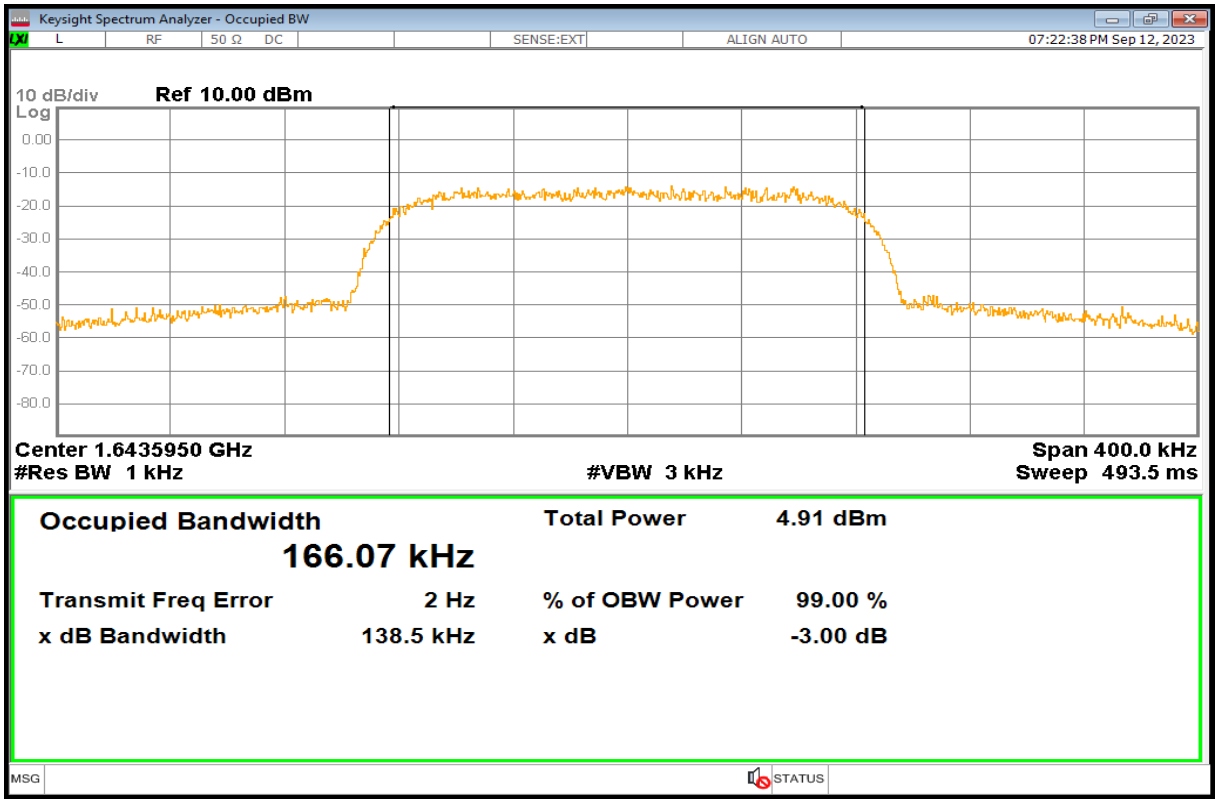
B3dB, Sub-Band 1, Middle Channel, R5T1XD

Plot No. 139



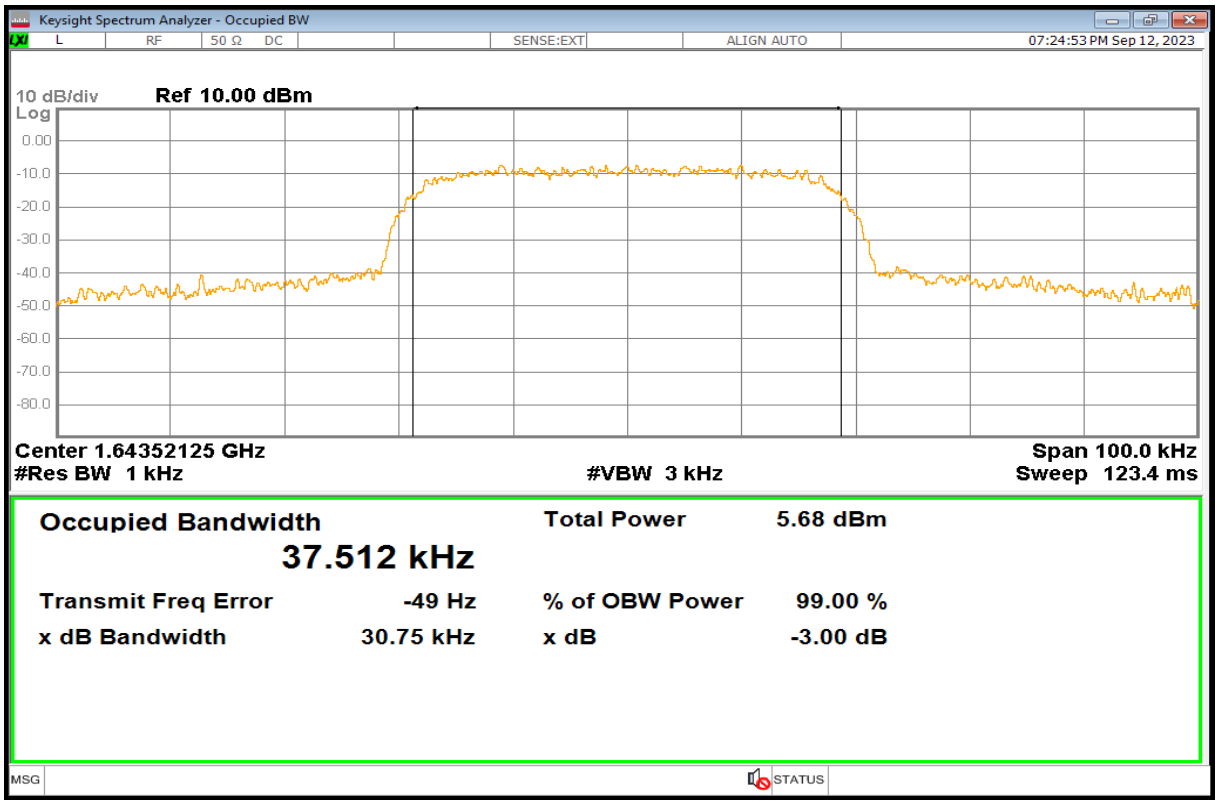
B3dB, Sub-Band 1, Middle Channel, R5T2XD

Plot No. 140



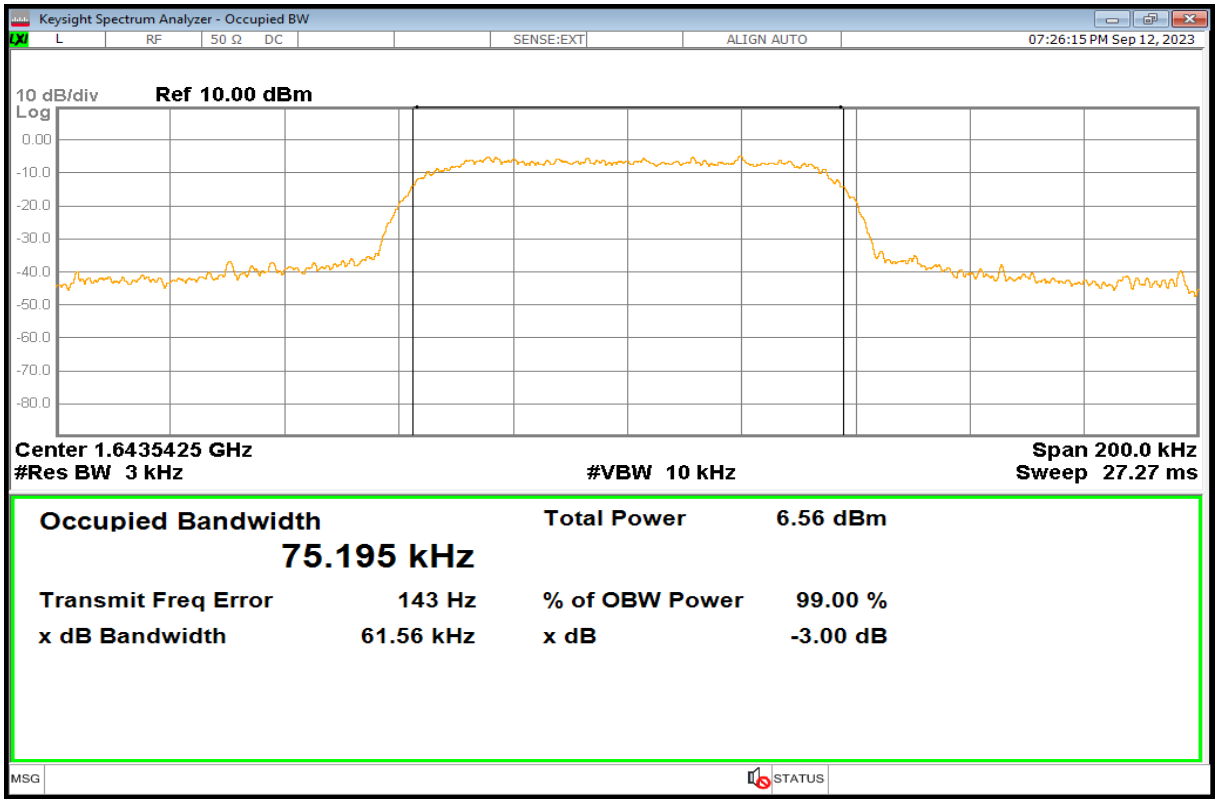
B3dB, Sub-Band 1, Middle Channel, R5T4.5XD

Plot No. 141



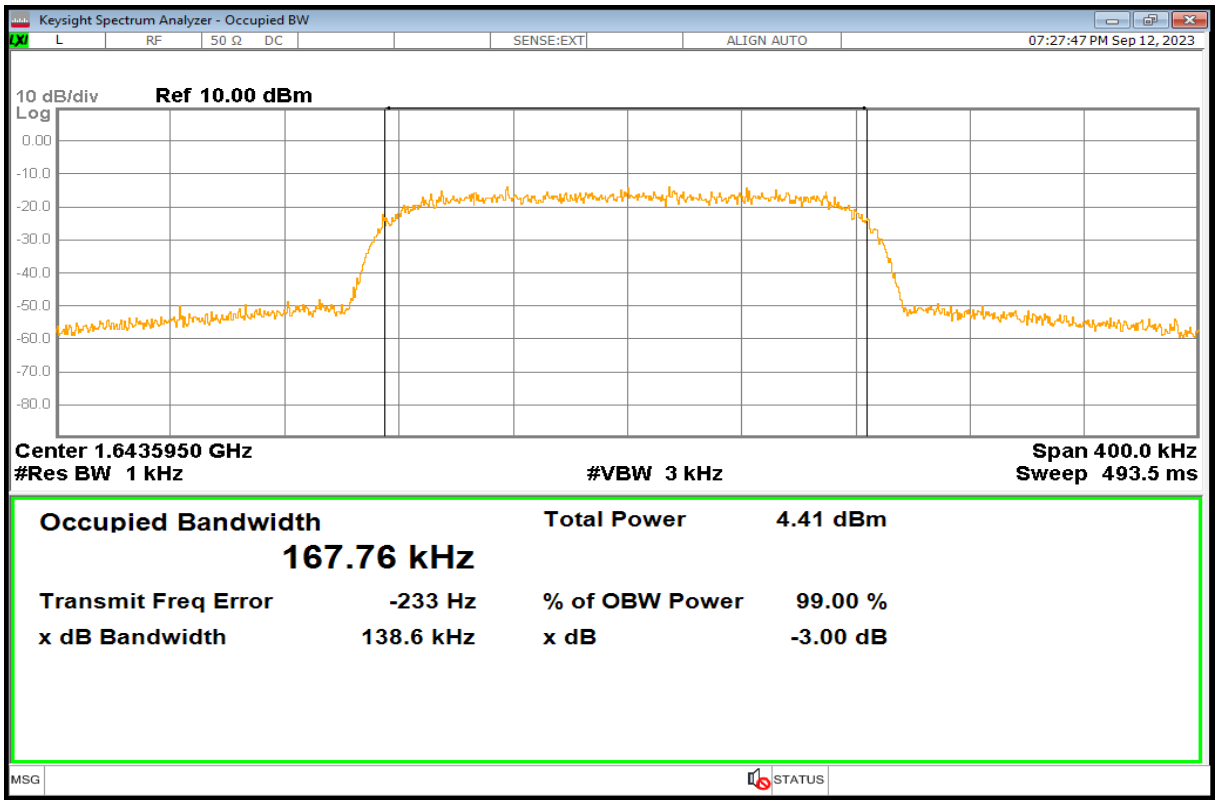
B3dB, Sub-Band 1, Middle Channel, R20T1XD

Plot No. 142



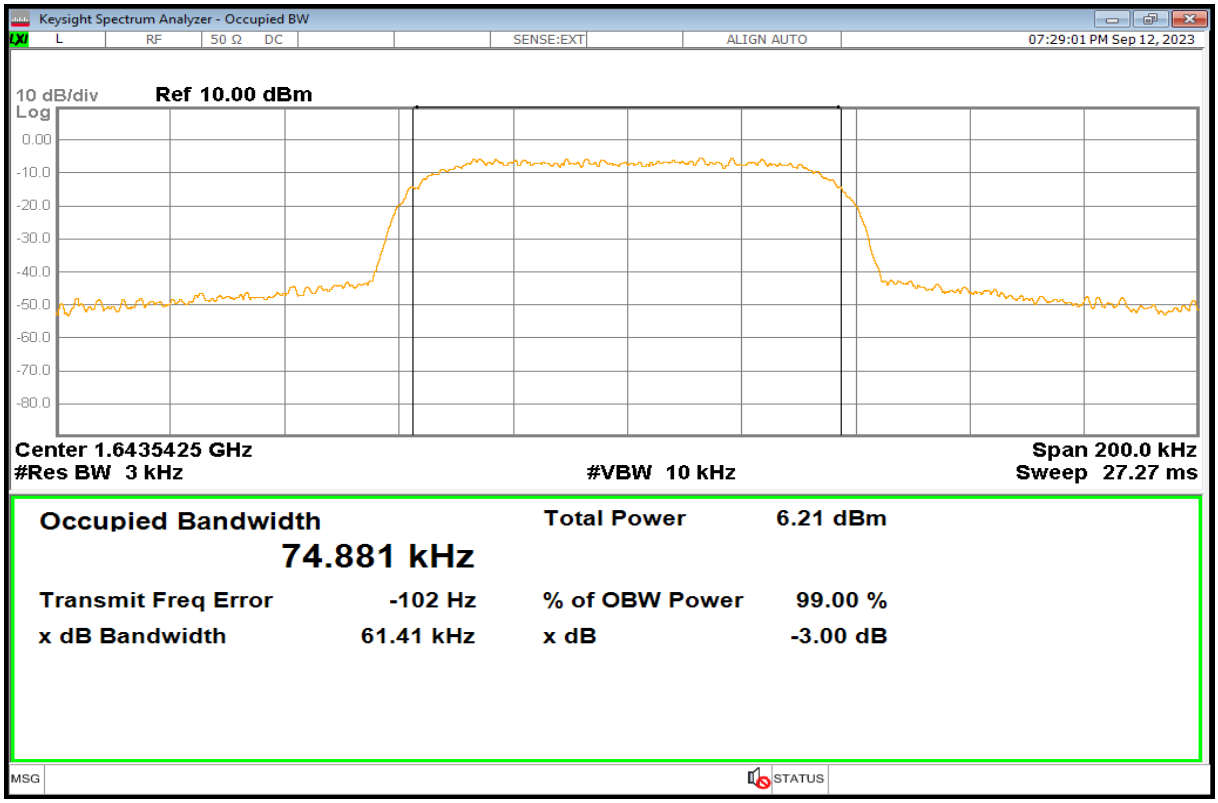
B3dB, Sub-Band 1, Middle Channel, R20T2XD

Plot No. 143



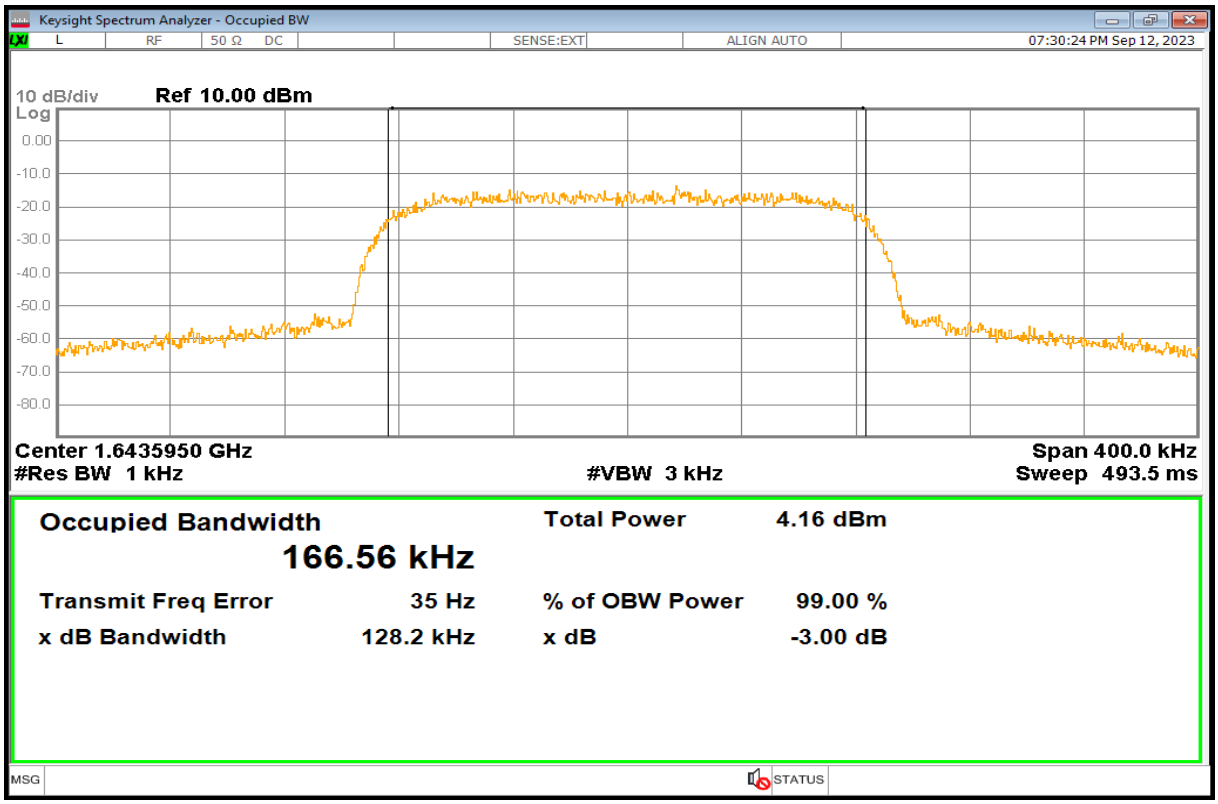
B3dB, Sub-Band 1, Middle Channel, R20T4.5XD

Plot No. 144



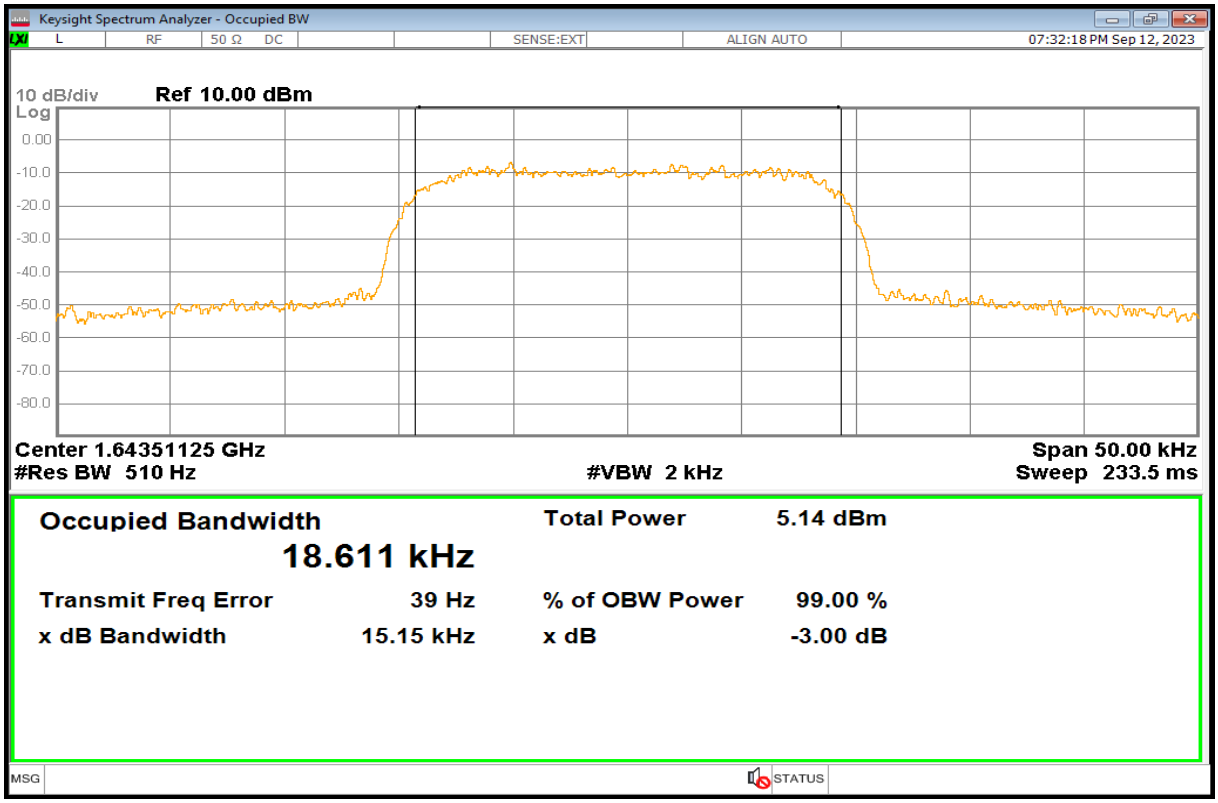
B3dB, Sub-Band 1, Middle Channel, R5T2QD

Plot No. 145



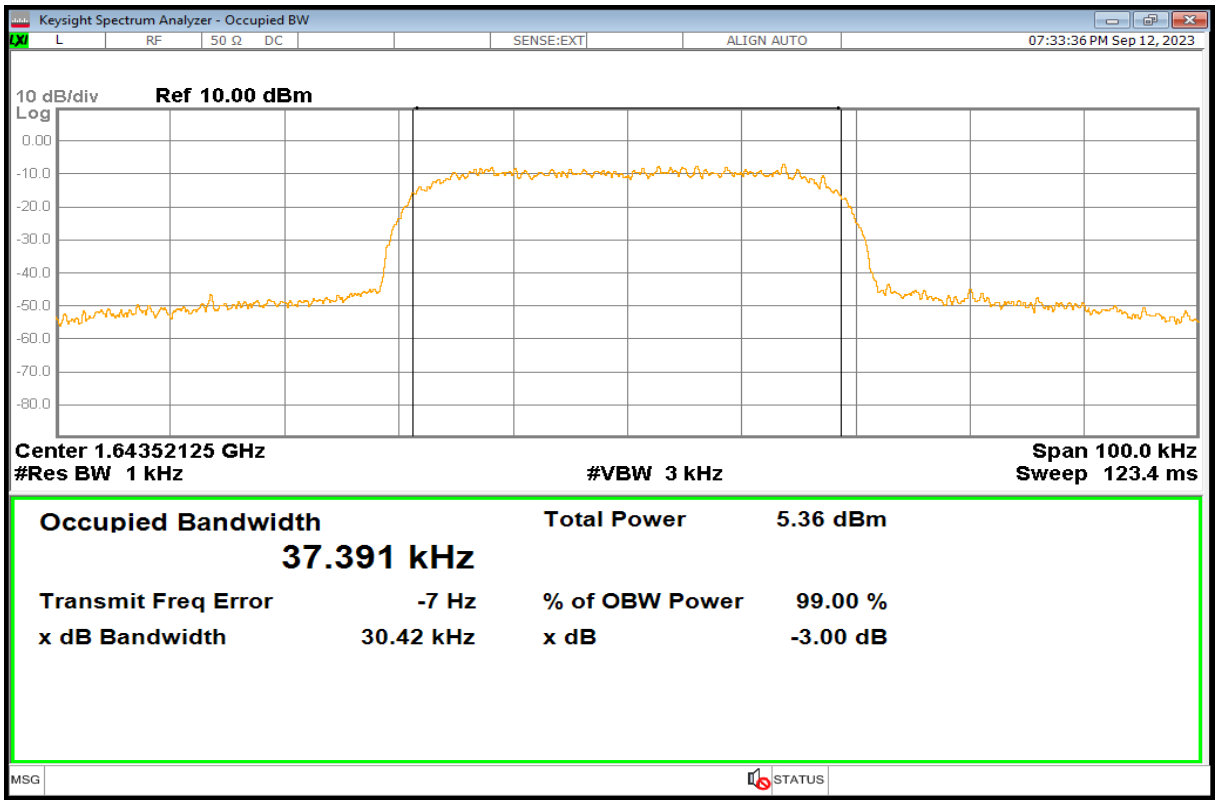
B3dB, Sub-Band 1, Middle Channel, R5T4.5QD

Plot No. 146



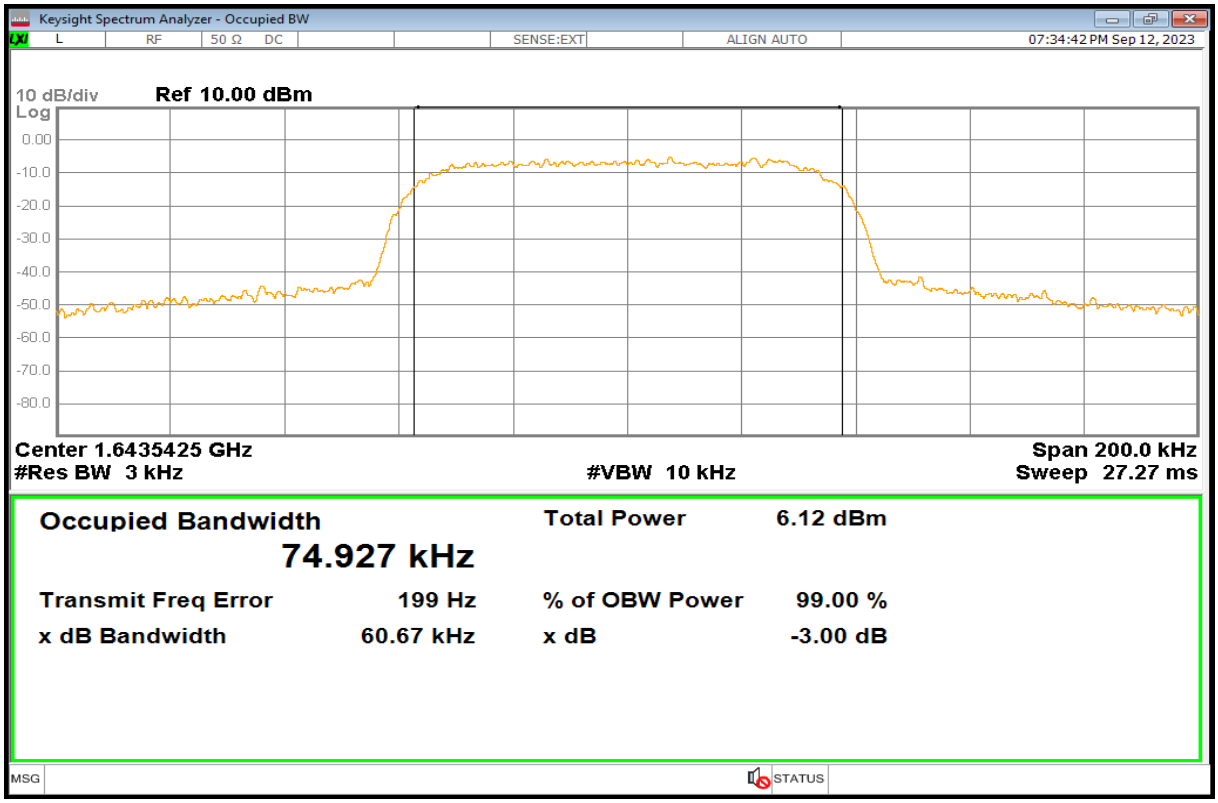
B3dB, Sub-Band 1, Middle Channel, R20T0.5QD

Plot No. 147



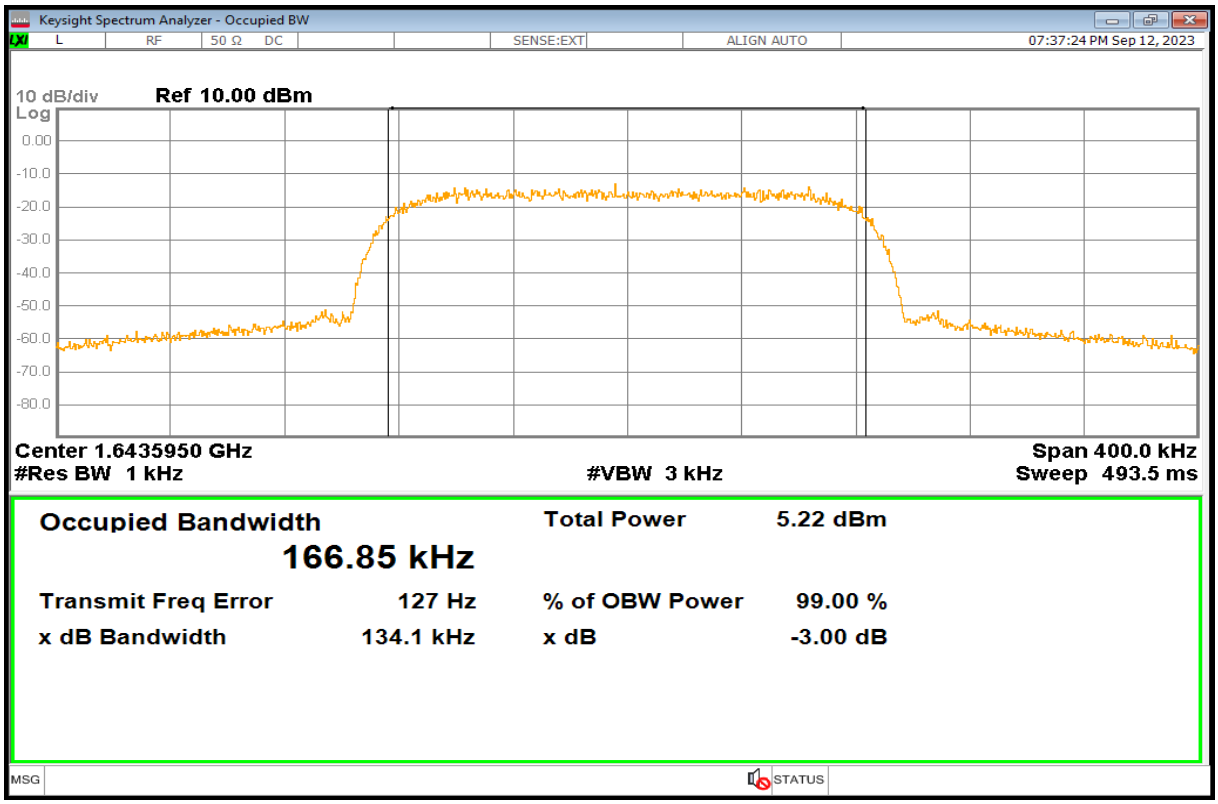
B3dB, Sub-Band 1, Middle Channel, R20T1QD

Plot No. 148



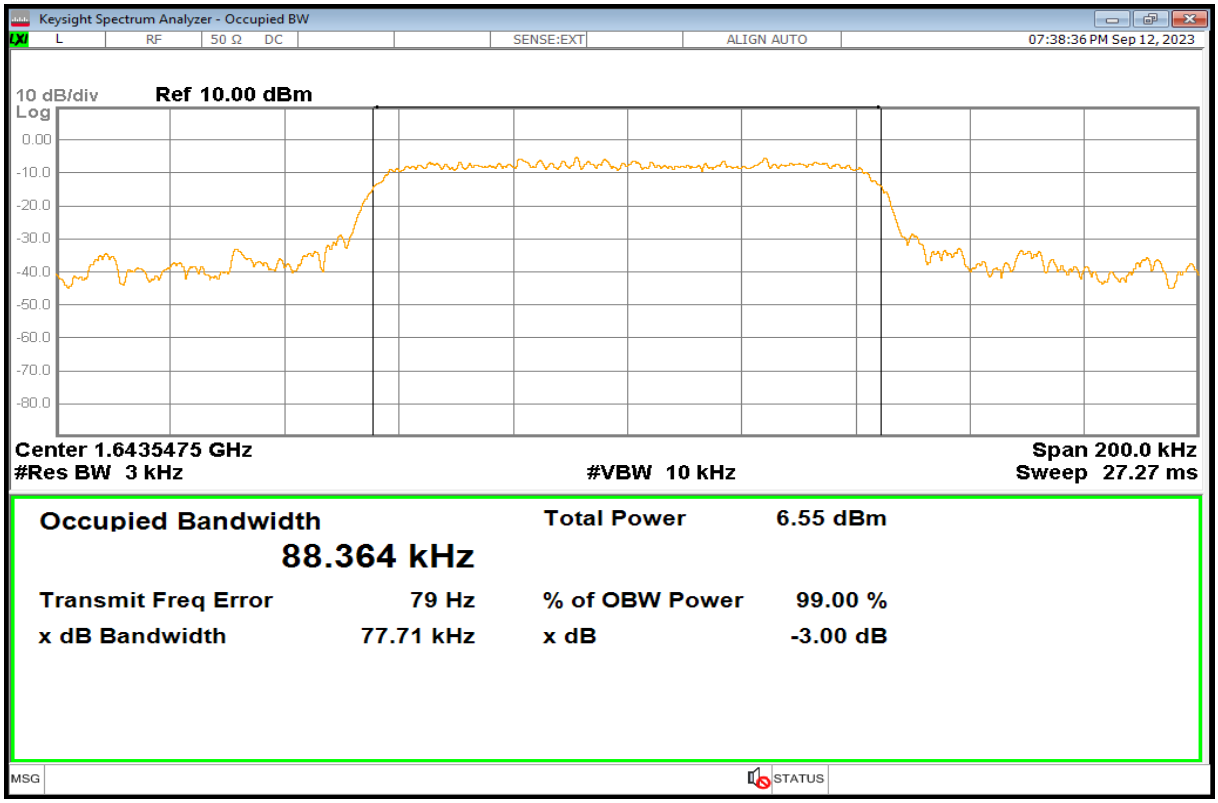
B3dB, Sub-Band 1, Middle Channel, R20T2QD

Plot No. 149



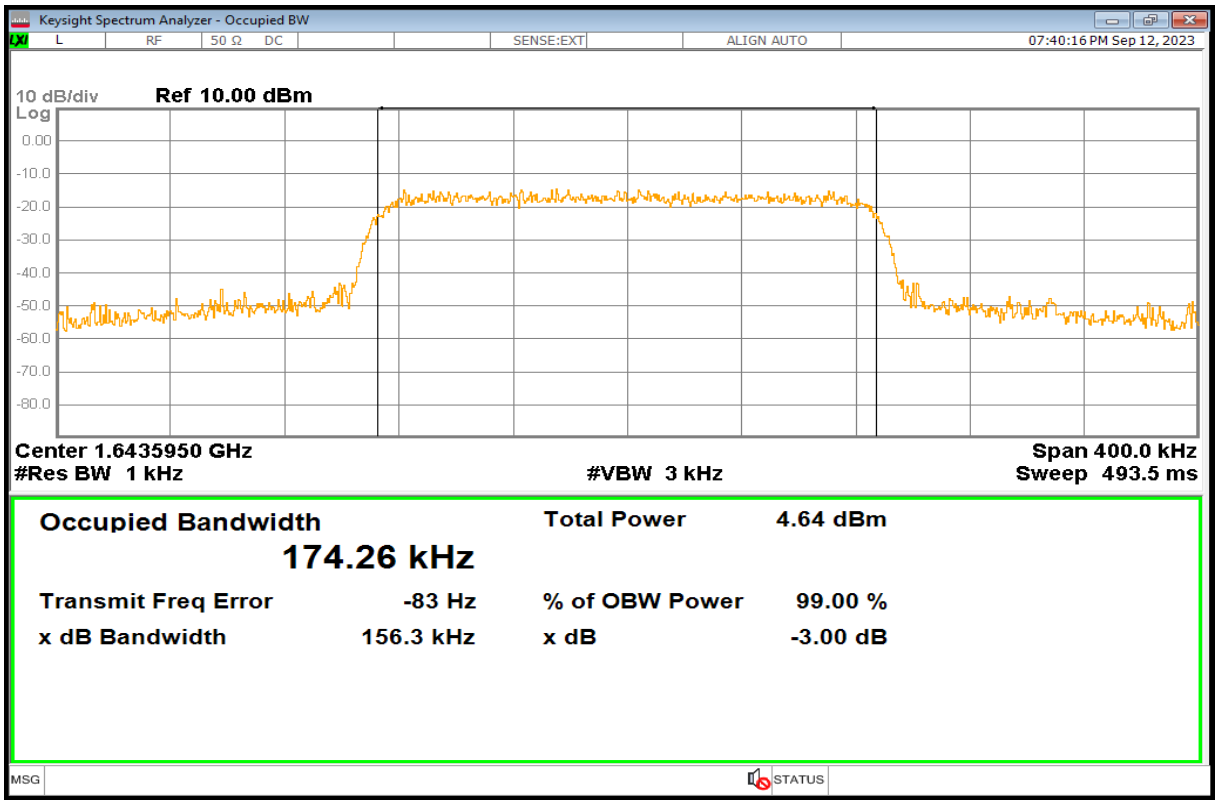
B3dB, Sub-Band 1, Middle Channel, R20T4.5QD

Plot No. 150



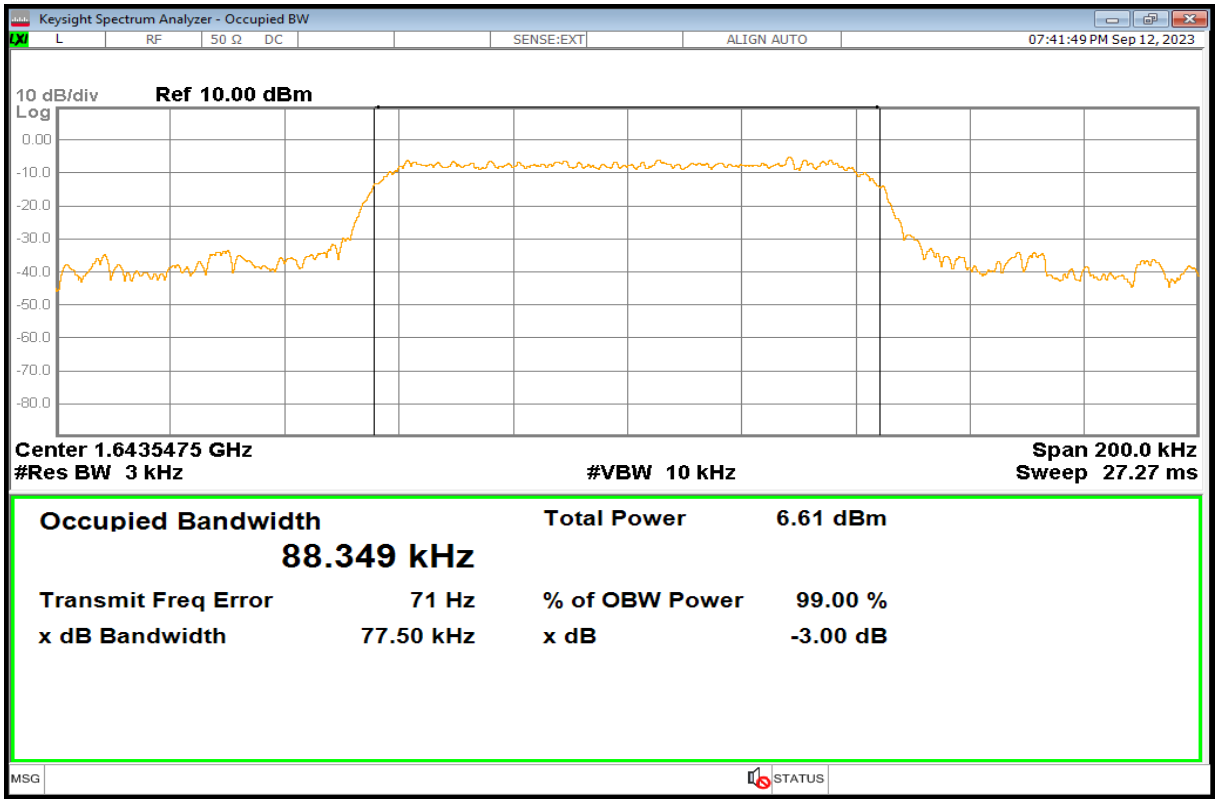
B3dB, Sub-Band 1, Middle Channel, R80T2.5X16

Plot No. 151



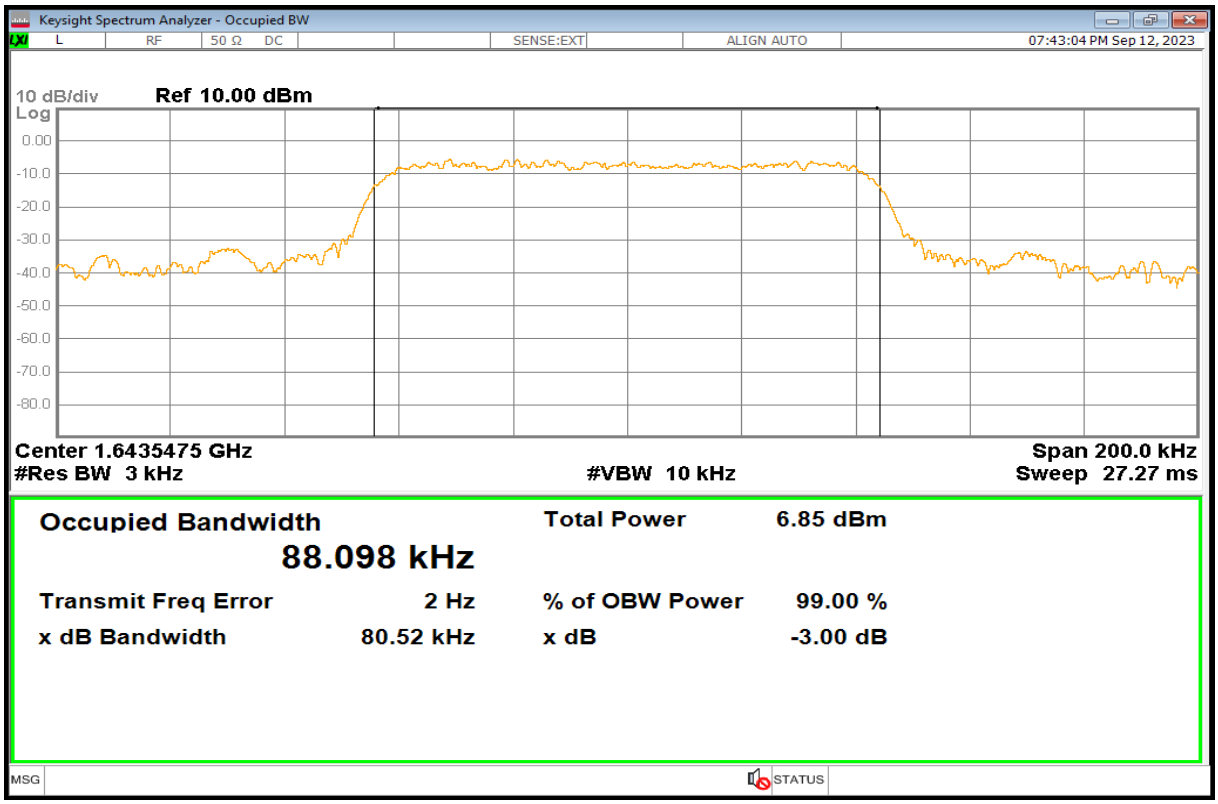
B3dB, Sub-Band 1, Middle Channel, R80T5X16

Plot No. 152



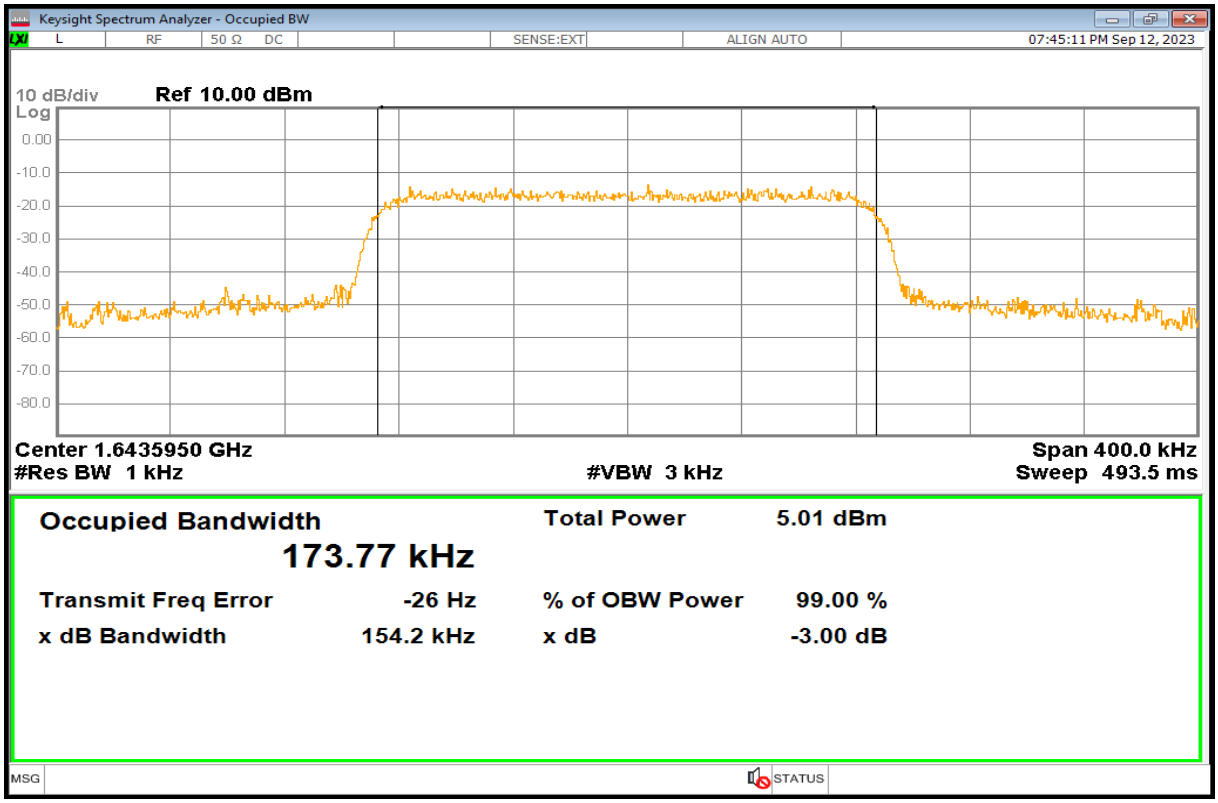
B3dB, Sub-Band 1, Middle Channel, R80T2.5X32

Plot No. 153



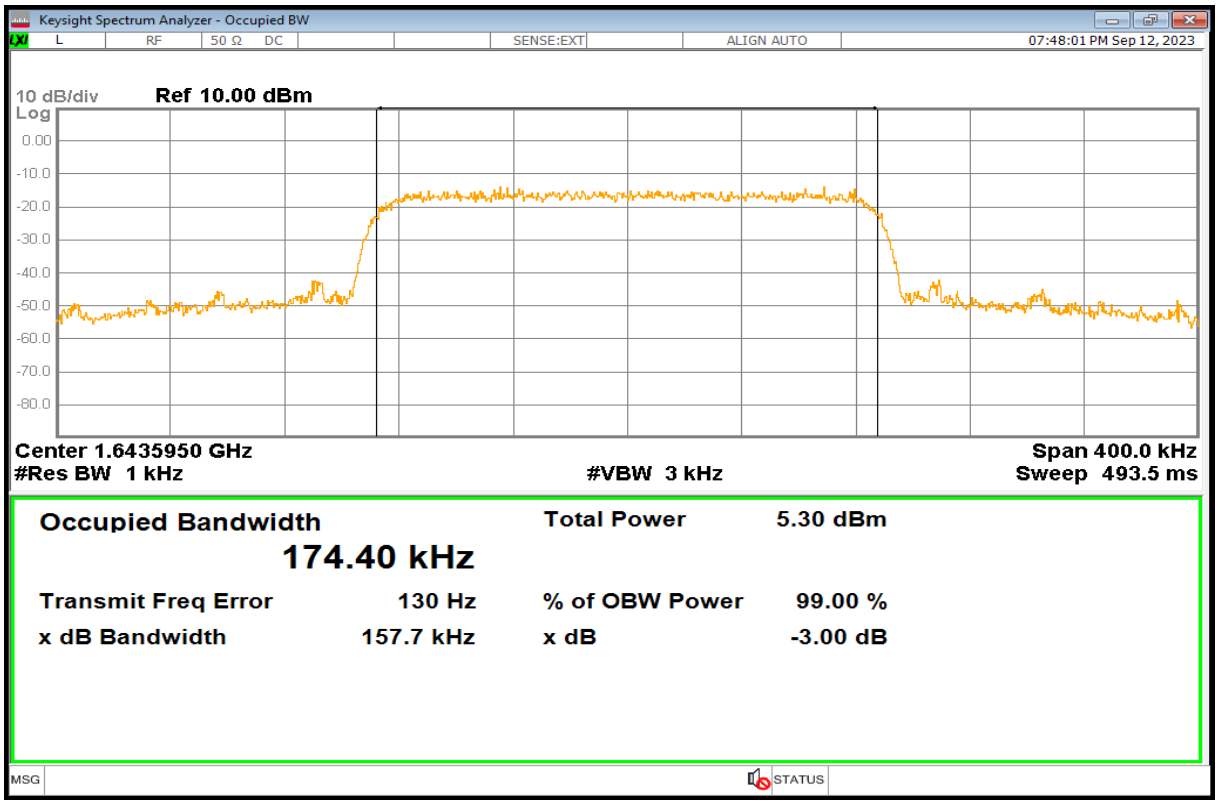
B3dB, Sub-Band 1, Middle Channel, R80T2.5X64

Plot No. 154



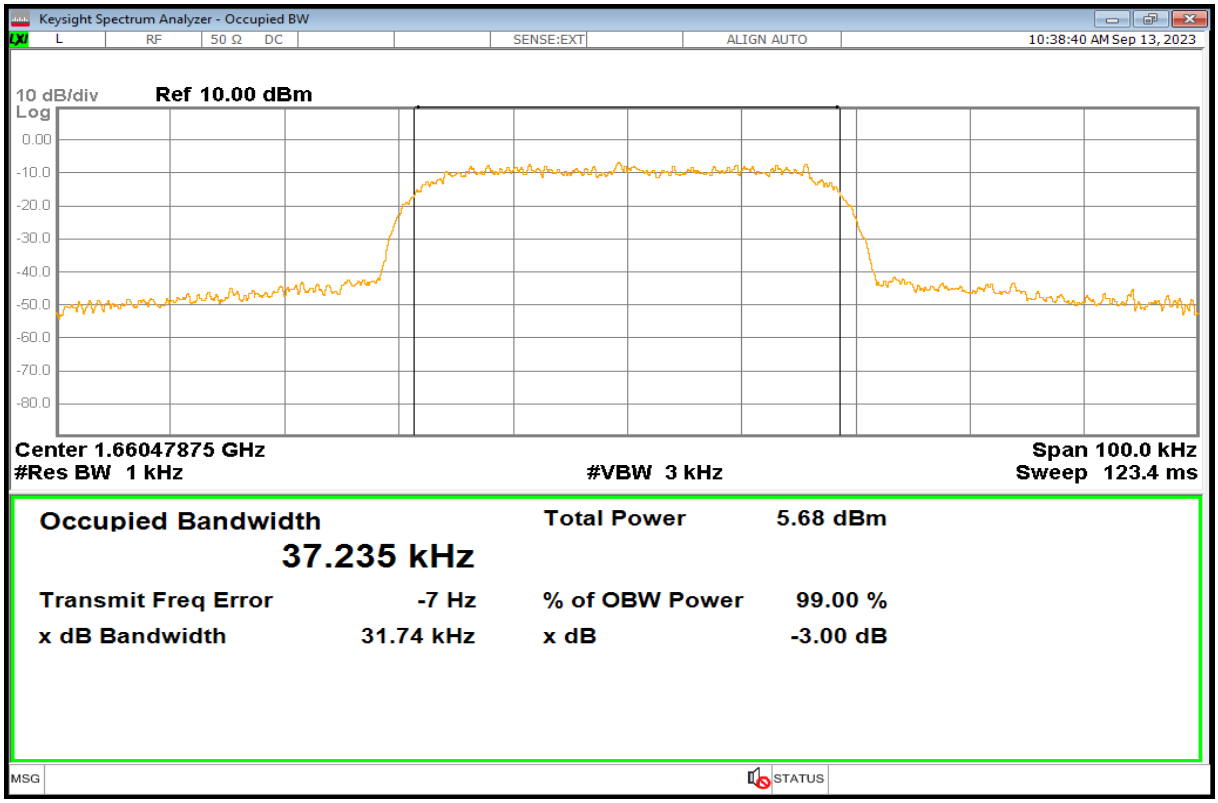
B3dB, Sub-Band 1, Middle Channel, R80T5X32

Plot No. 155



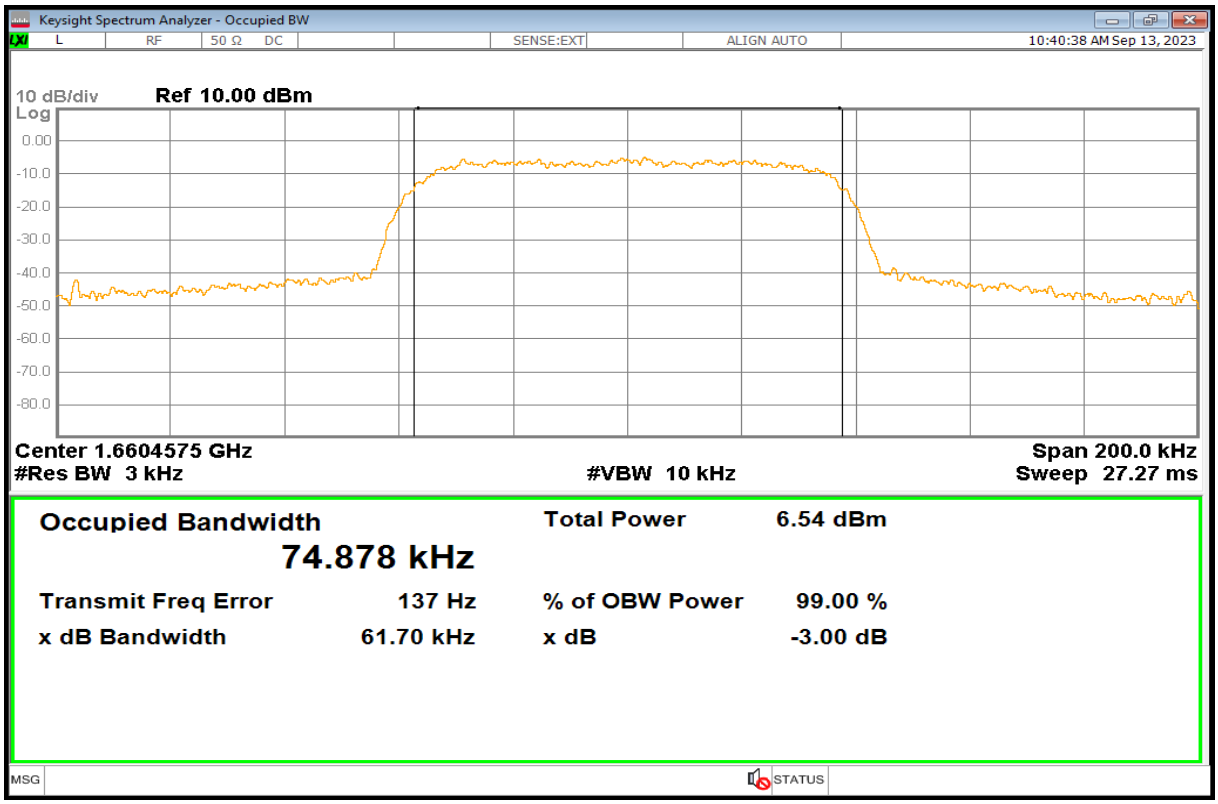
B3dB, Sub-Band 1, Middle Channel, R80T5X64

Plot No. 156



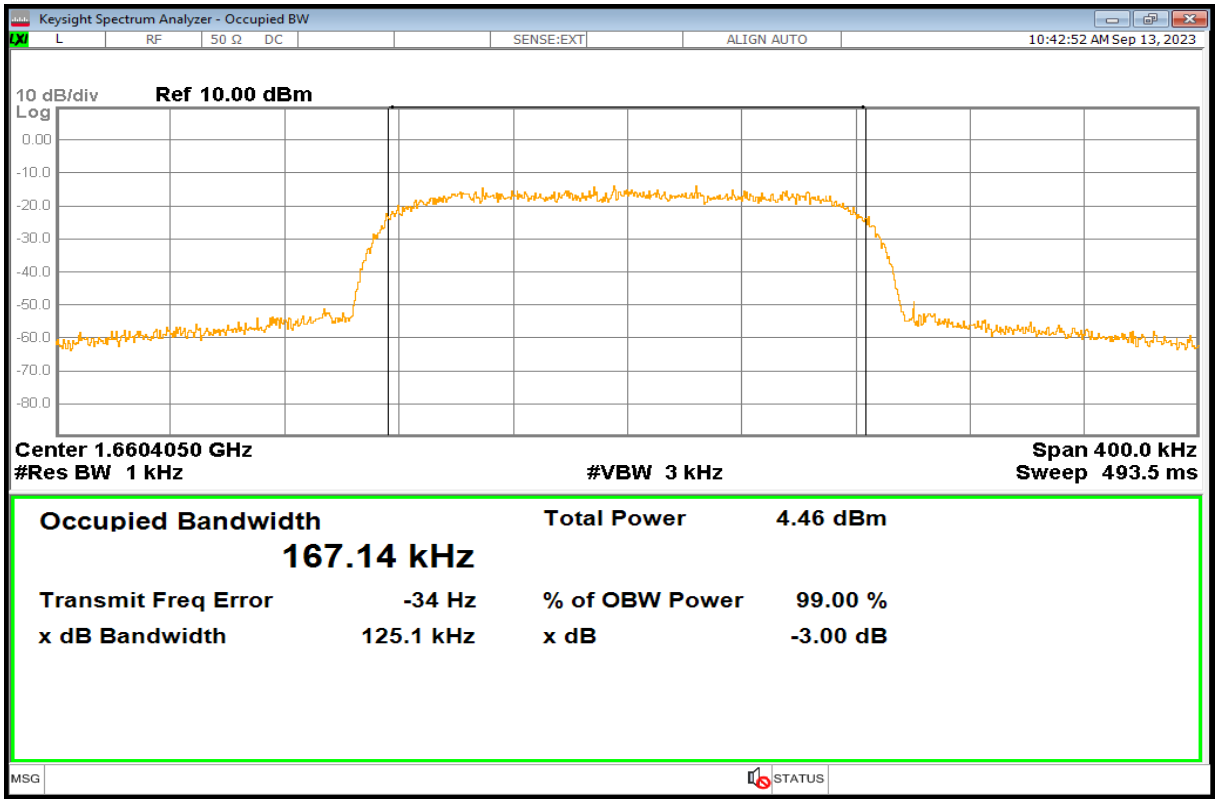
B3dB, Sub-Band 1, High Channel, R5T1XD

Plot No. 157



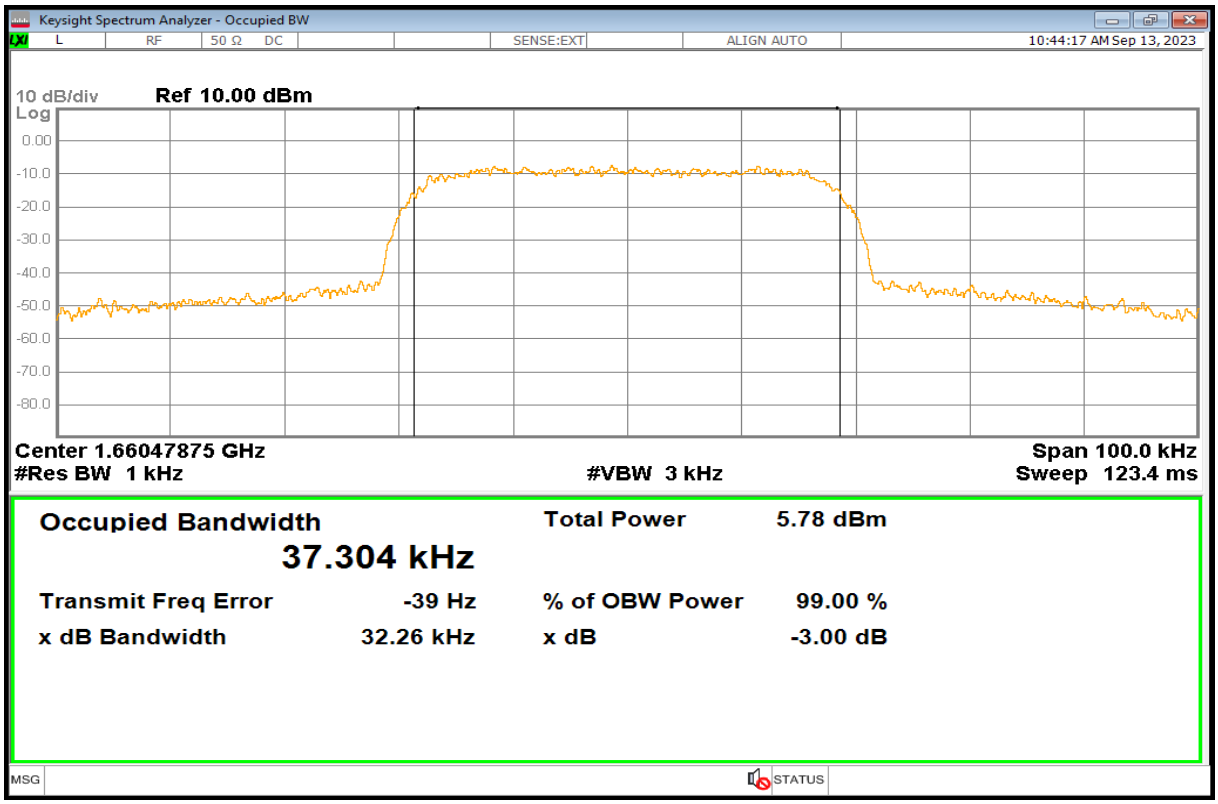
B3dB, Sub-Band 1, High Channel, R5T2XD

Plot No. 158



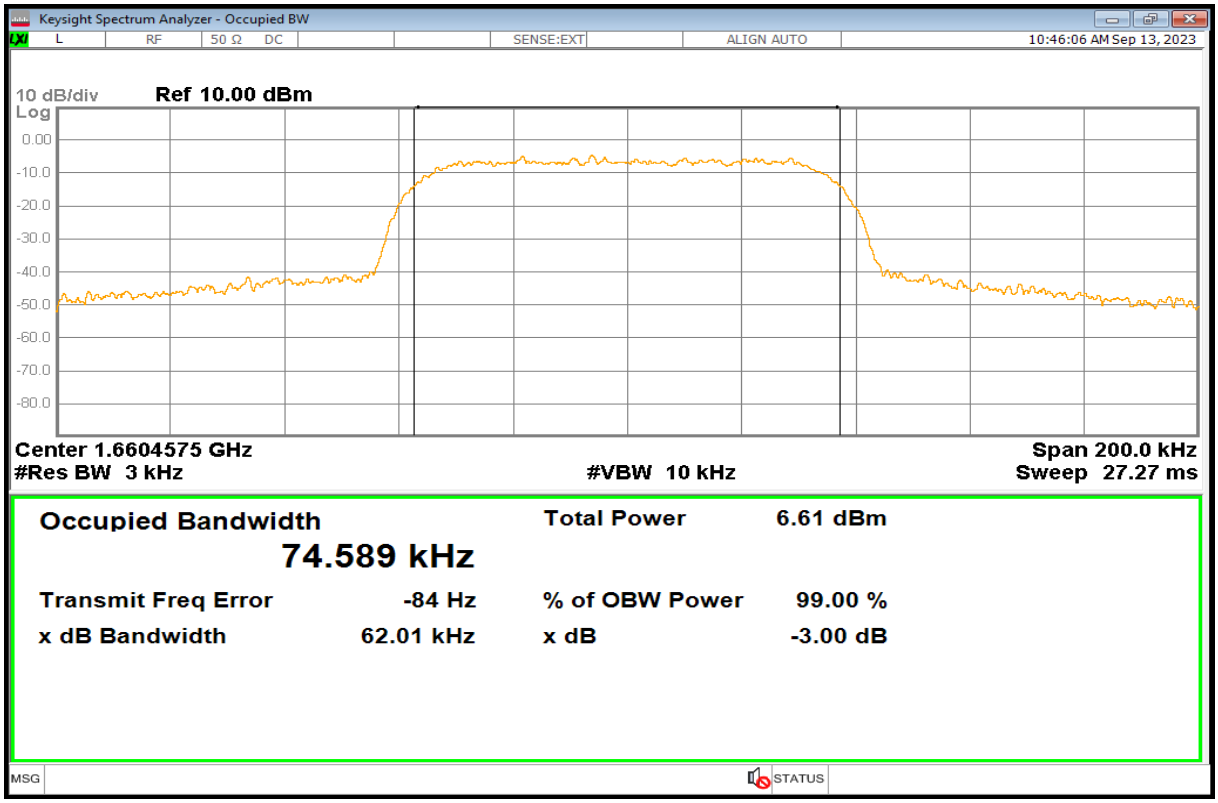
B3dB, Sub-Band 1, High Channel, R5T4.5XD

Plot No. 159



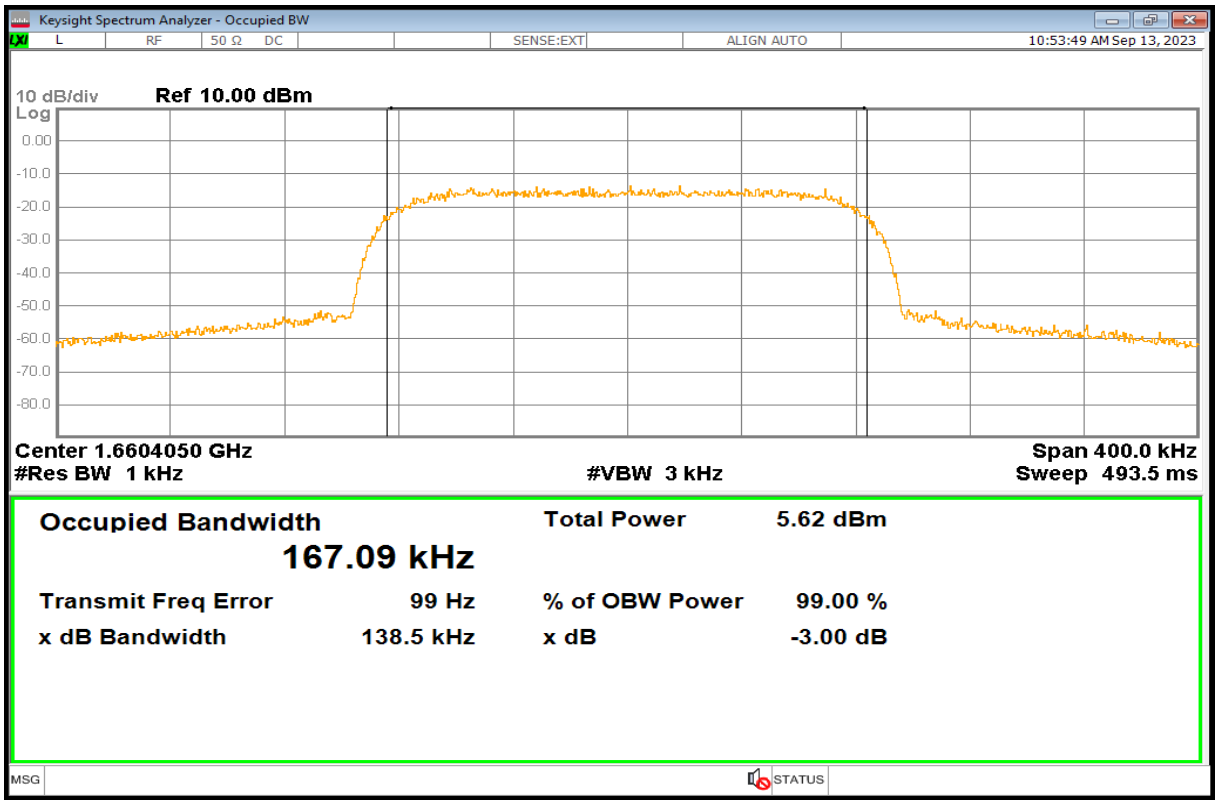
B3dB, Sub-Band 1, High Channel, R20T1XD

Plot No. 160



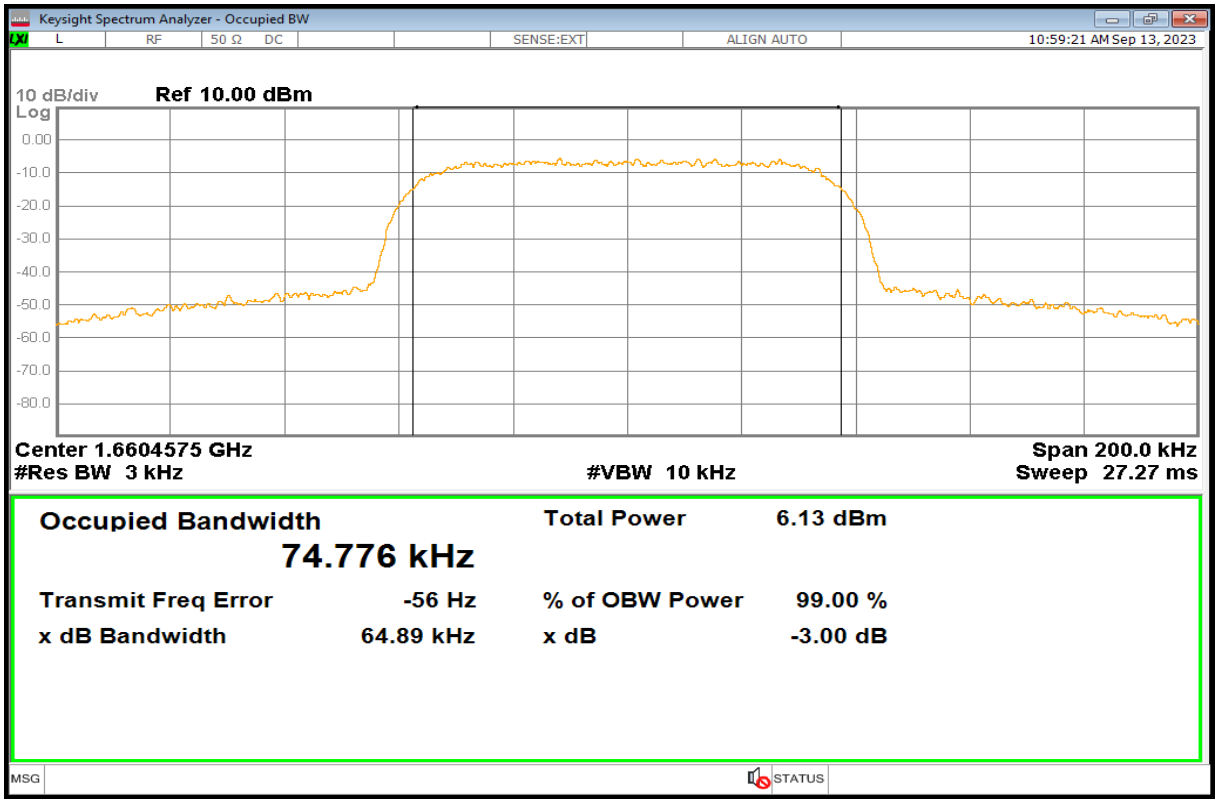
B3dB, Sub-Band 1, High Channel, R20T2XD

Plot No. 161



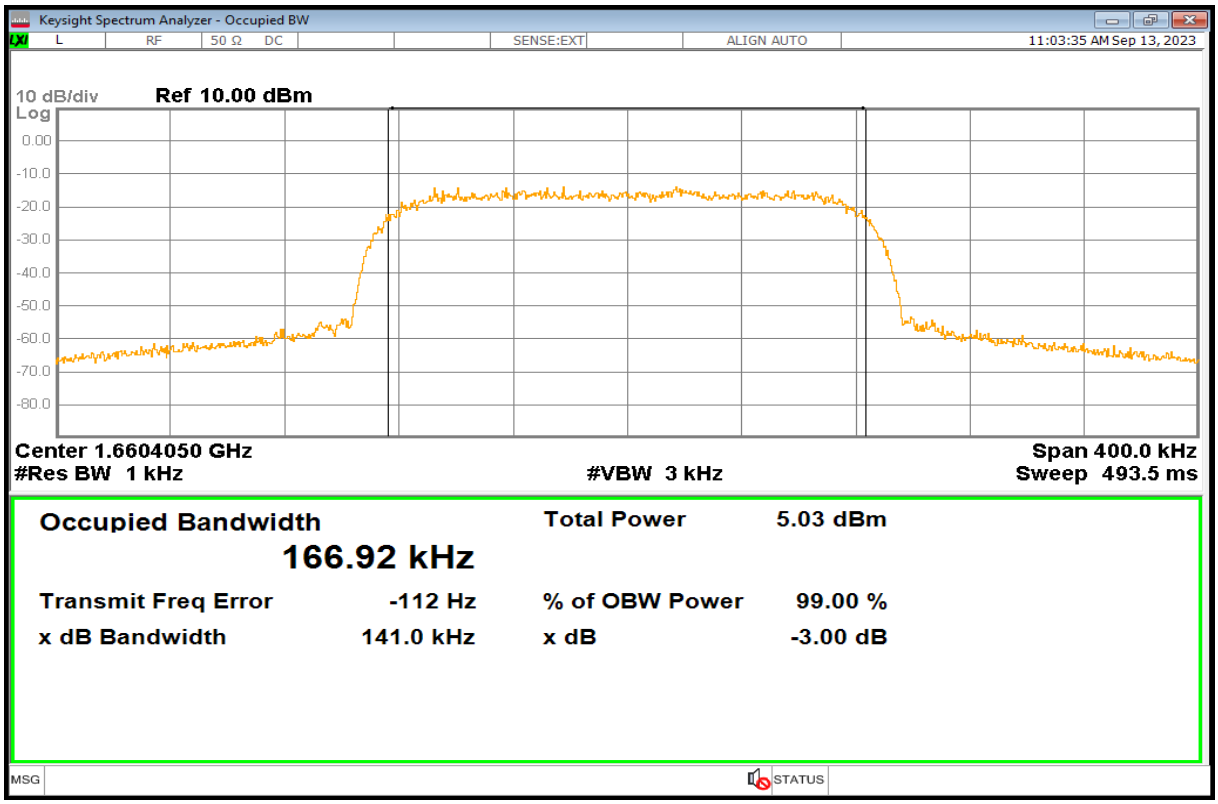
B3dB, Sub-Band 1, High Channel, R20T4.5XD

Plot No. 162



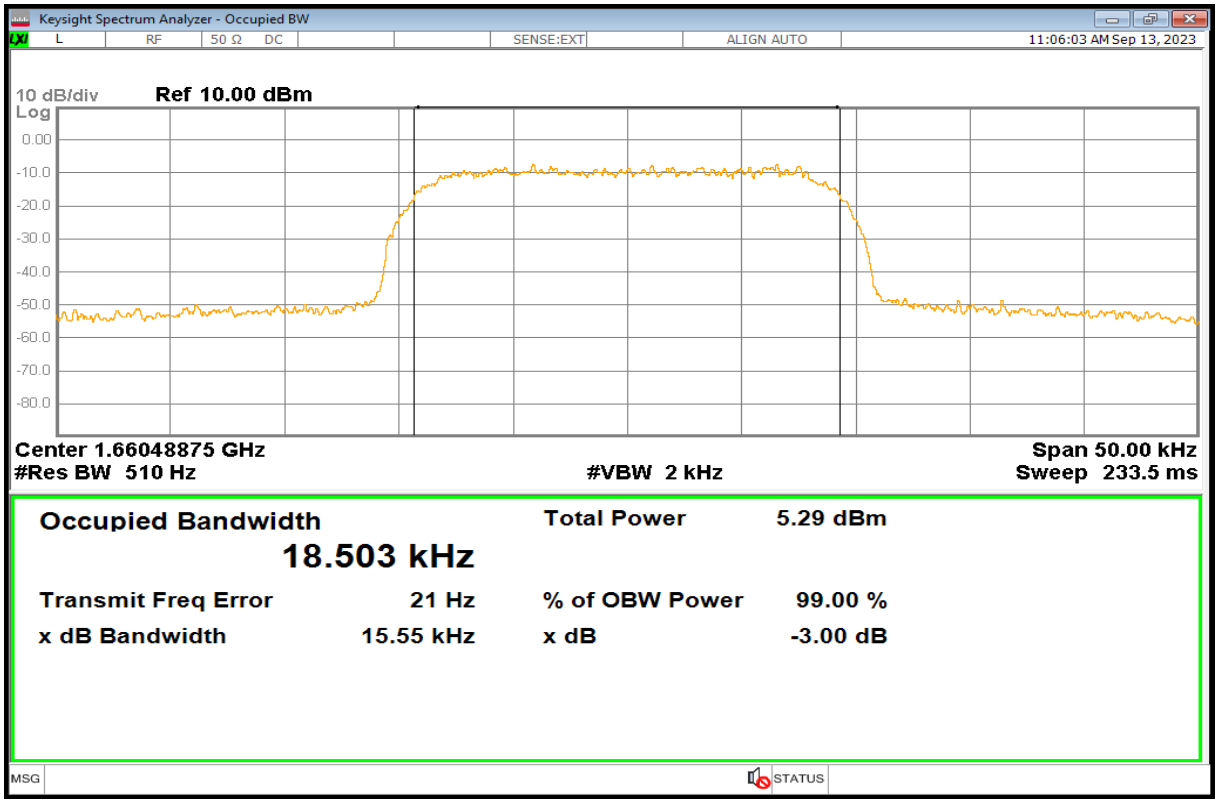
B3dB, Sub-Band 1, High Channel, R5T2QD

Plot No. 163



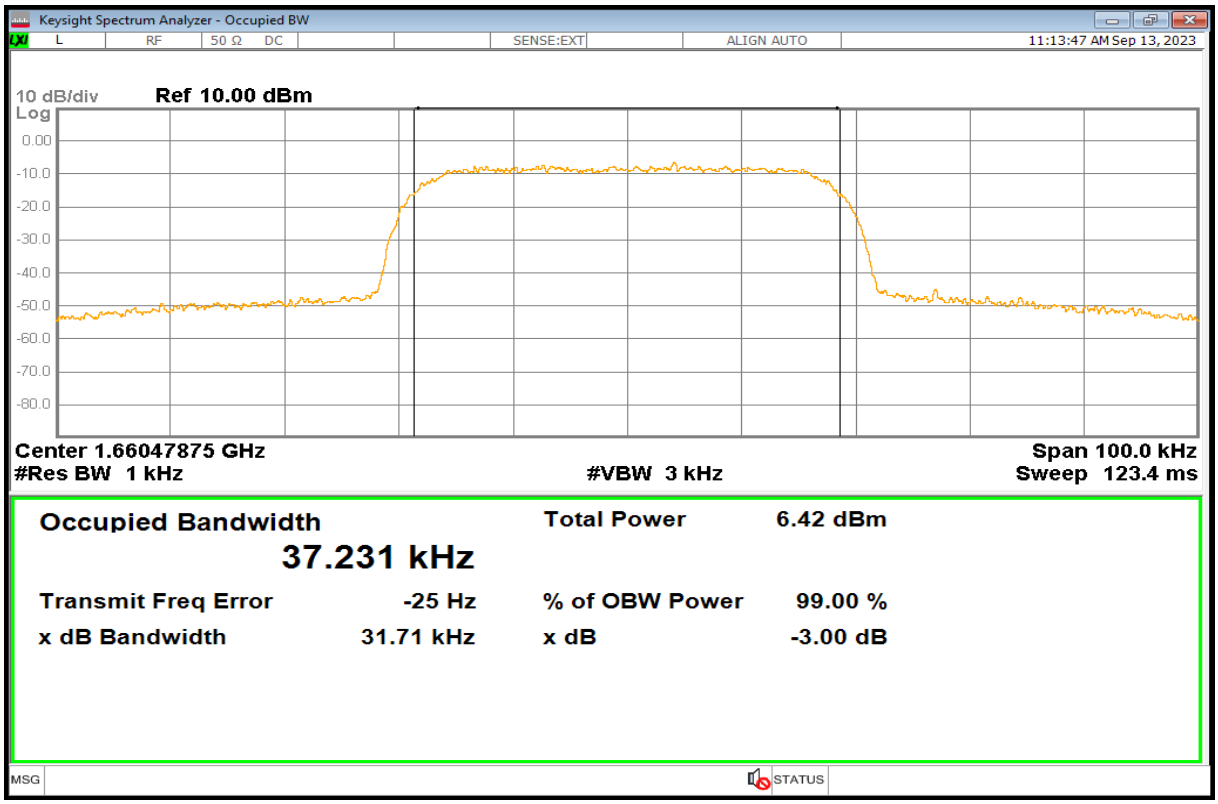
B3dB, Sub-Band 1, High Channel, R5T4.5QD

Plot No. 164



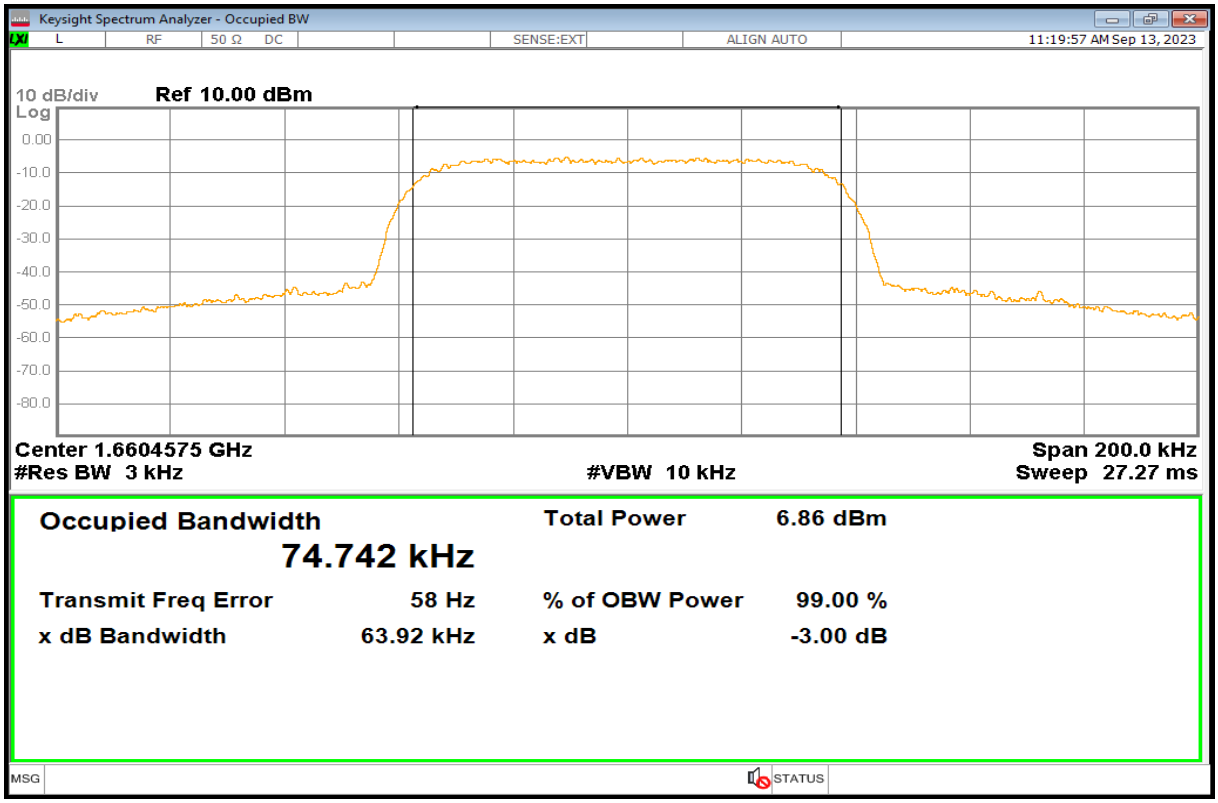
B3dB, Sub-Band 1, High Channel, R20T0.5QD

Plot No. 165



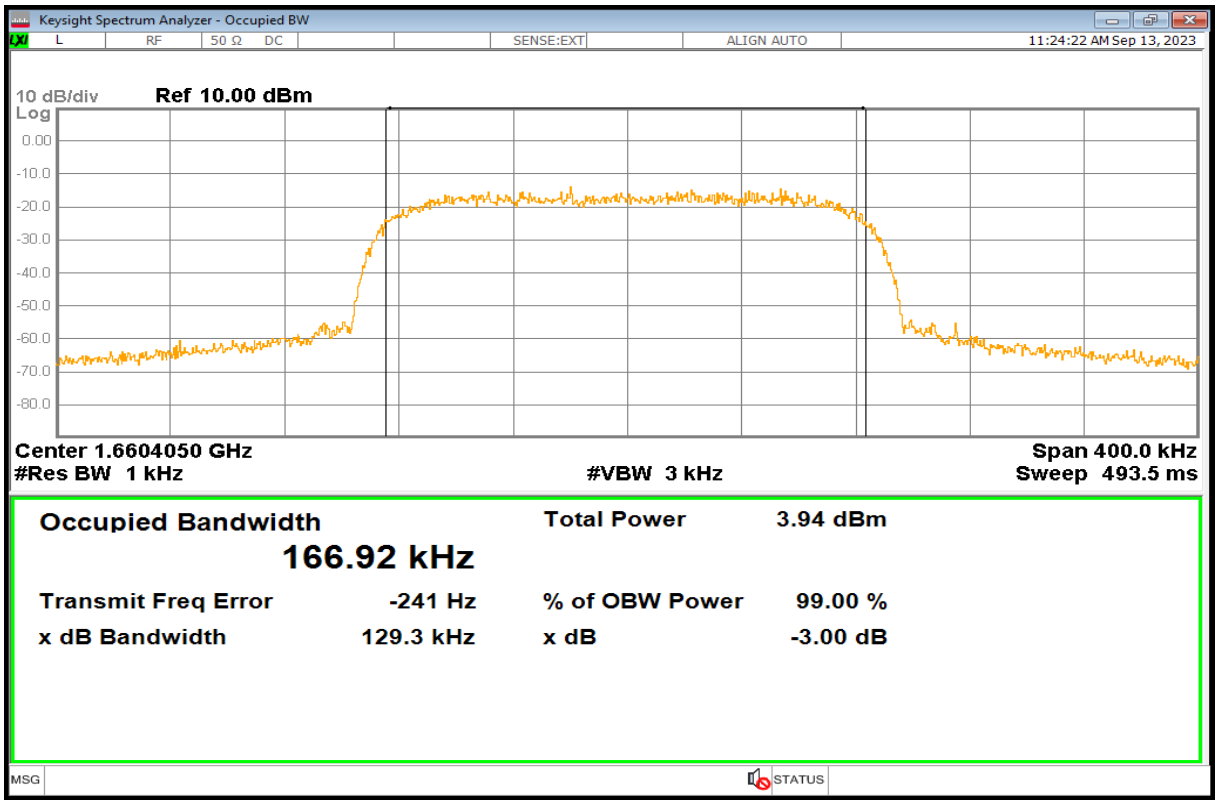
B3dB, Sub-Band 1, High Channel, R20T1QD

Plot No. 166



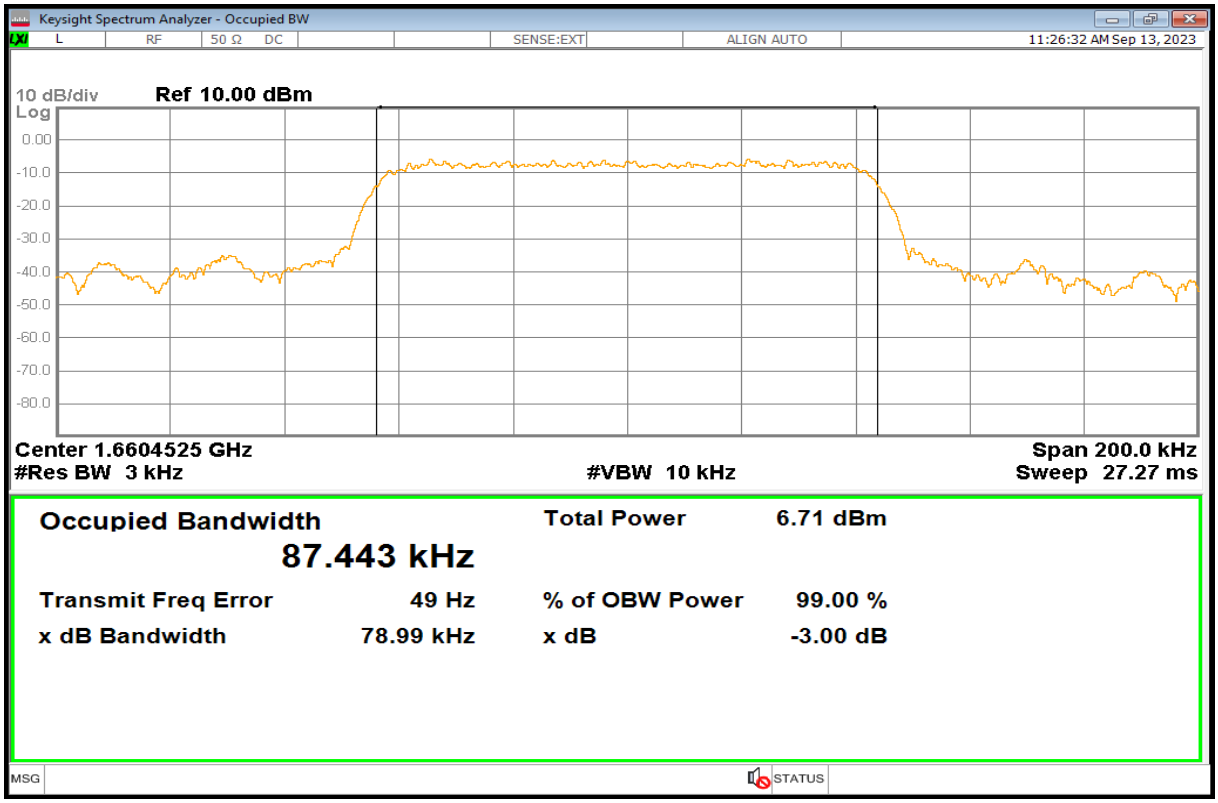
B3dB, Sub-Band 1, High Channel, R20T2QD

Plot No. 167



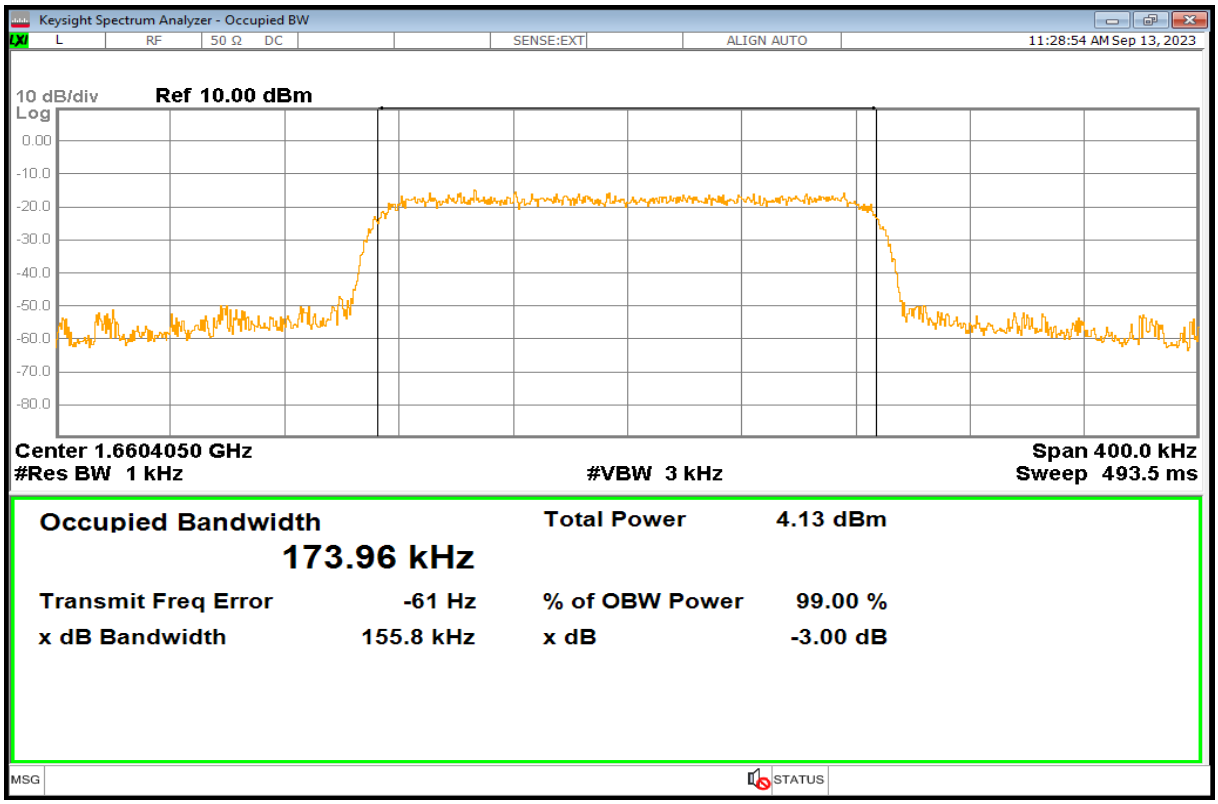
B3dB, Sub-Band 1, High Channel, R20T4.5QD

Plot No. 168



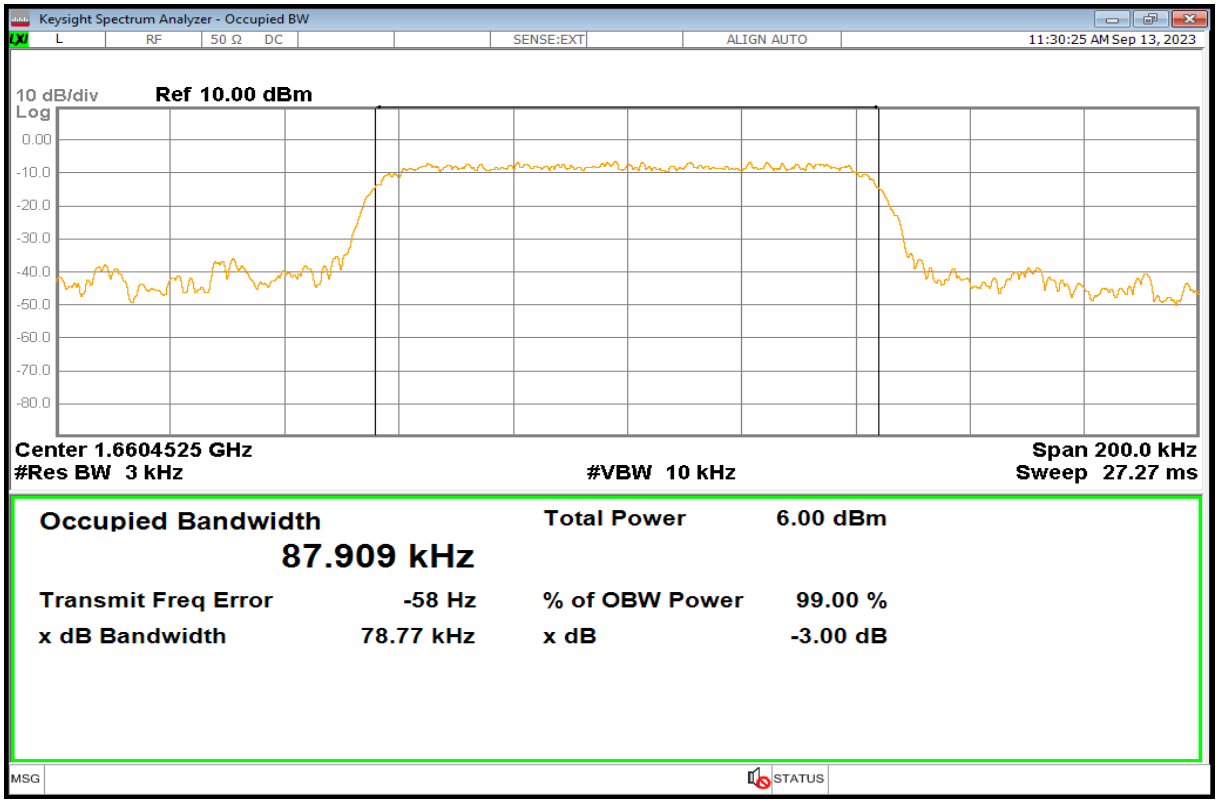
B3dB, Sub-Band 1, High Channel, R80T2.5X16

Plot No. 169



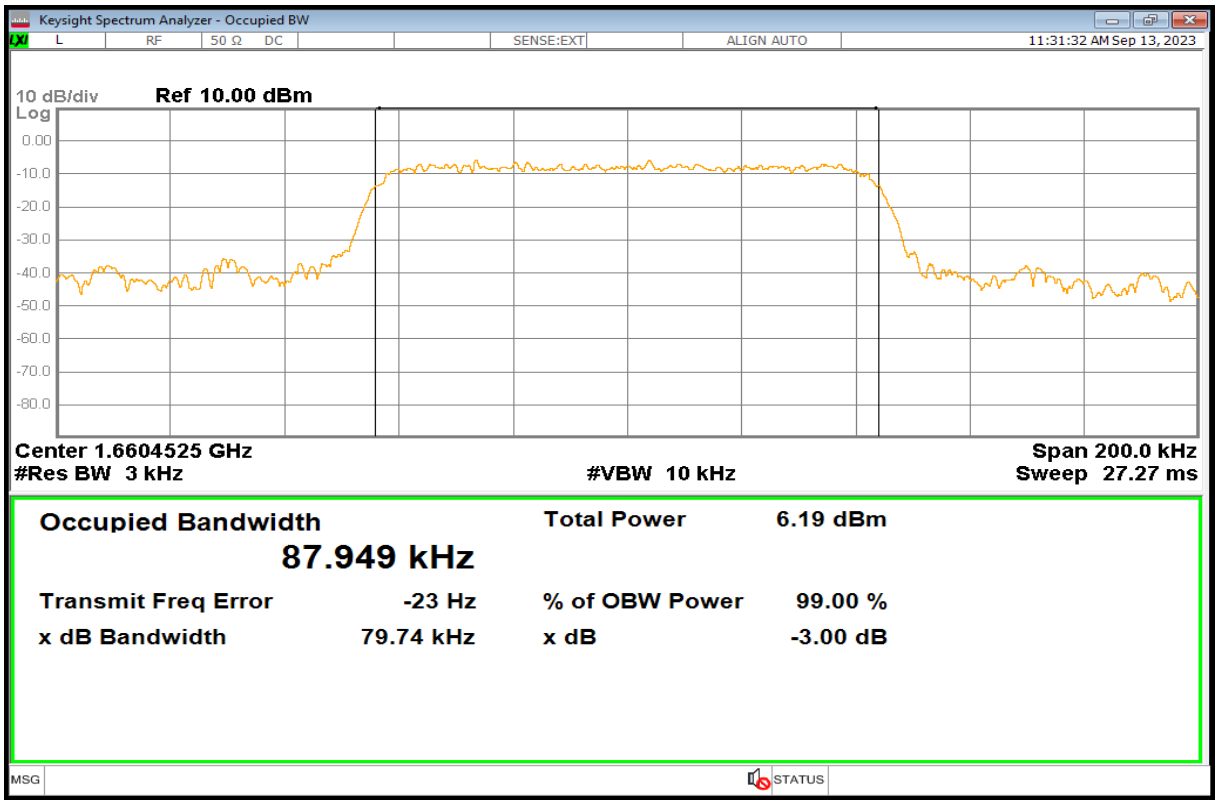
B3dB, Sub-Band 1, High Channel, R80T5X16

Plot No. 170



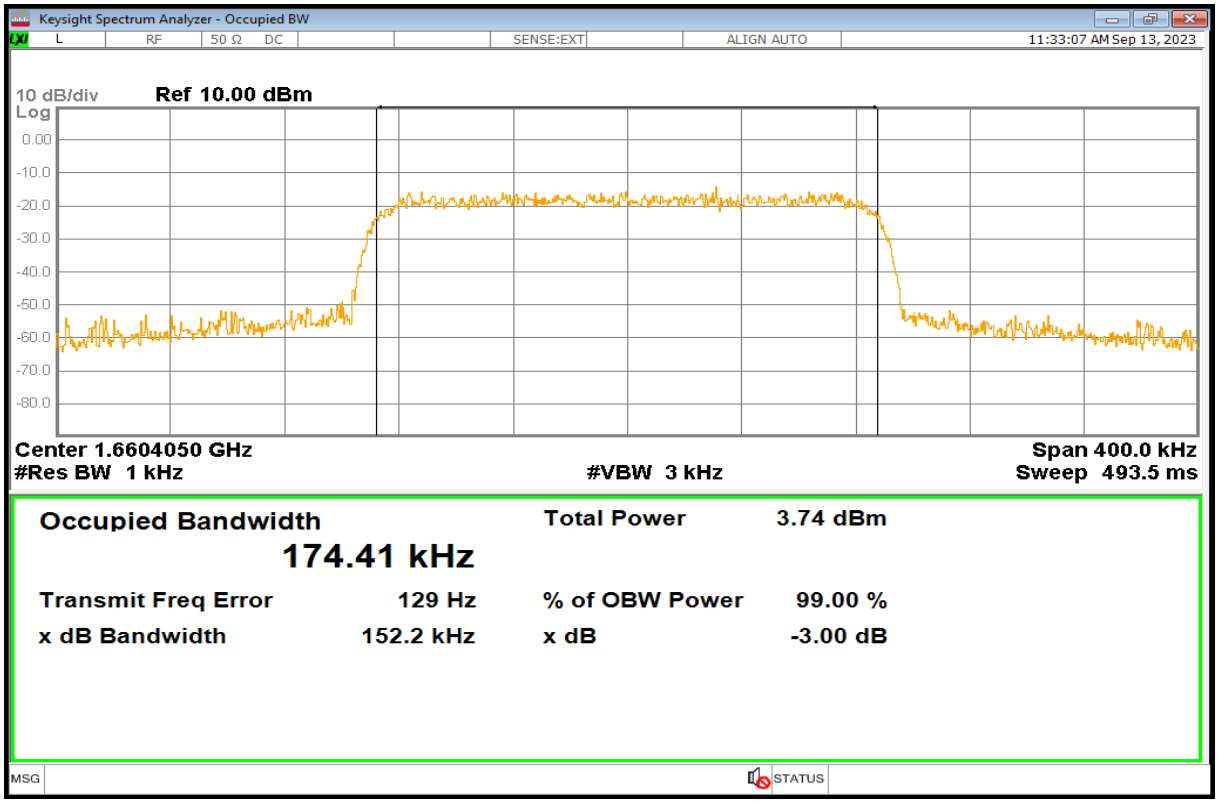
B3dB, Sub-Band 1, High Channel, R80T2.5X32

Plot No. 171



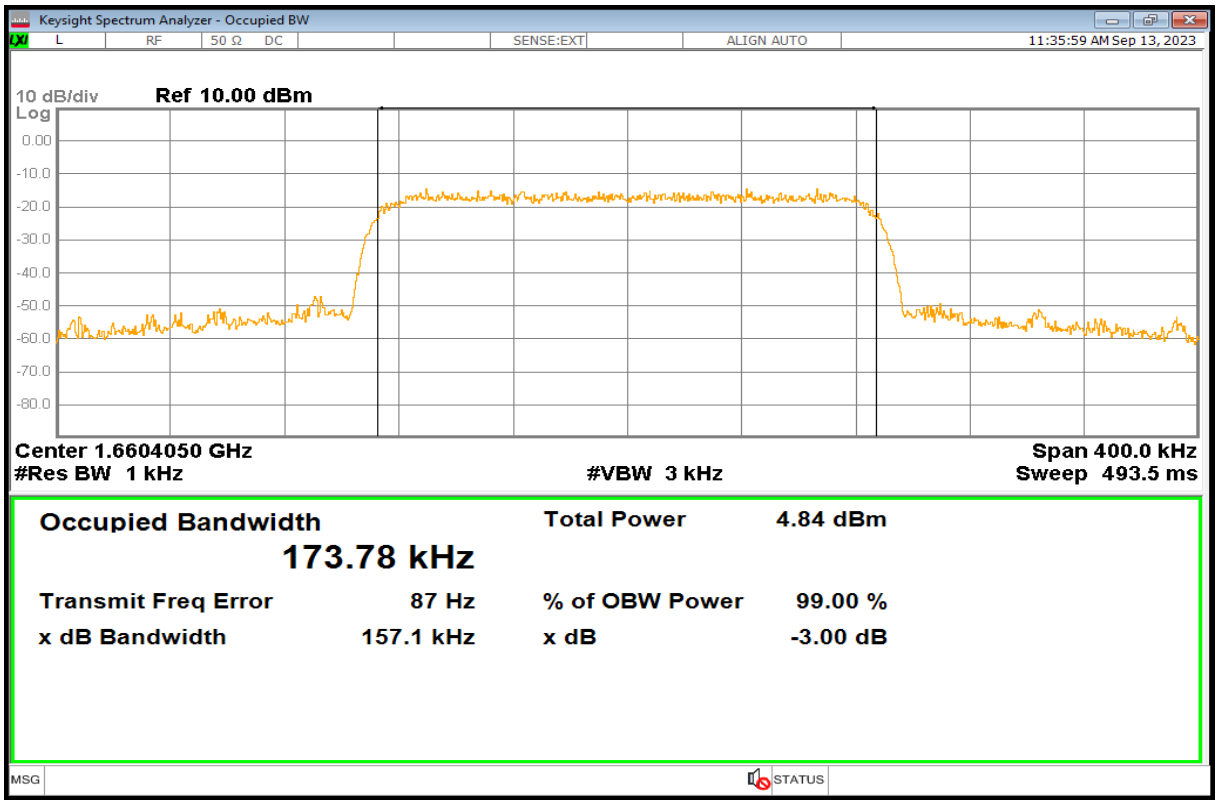
B3dB, Sub-Band 1, High Channel, R80T2.5X64

Plot No. 172



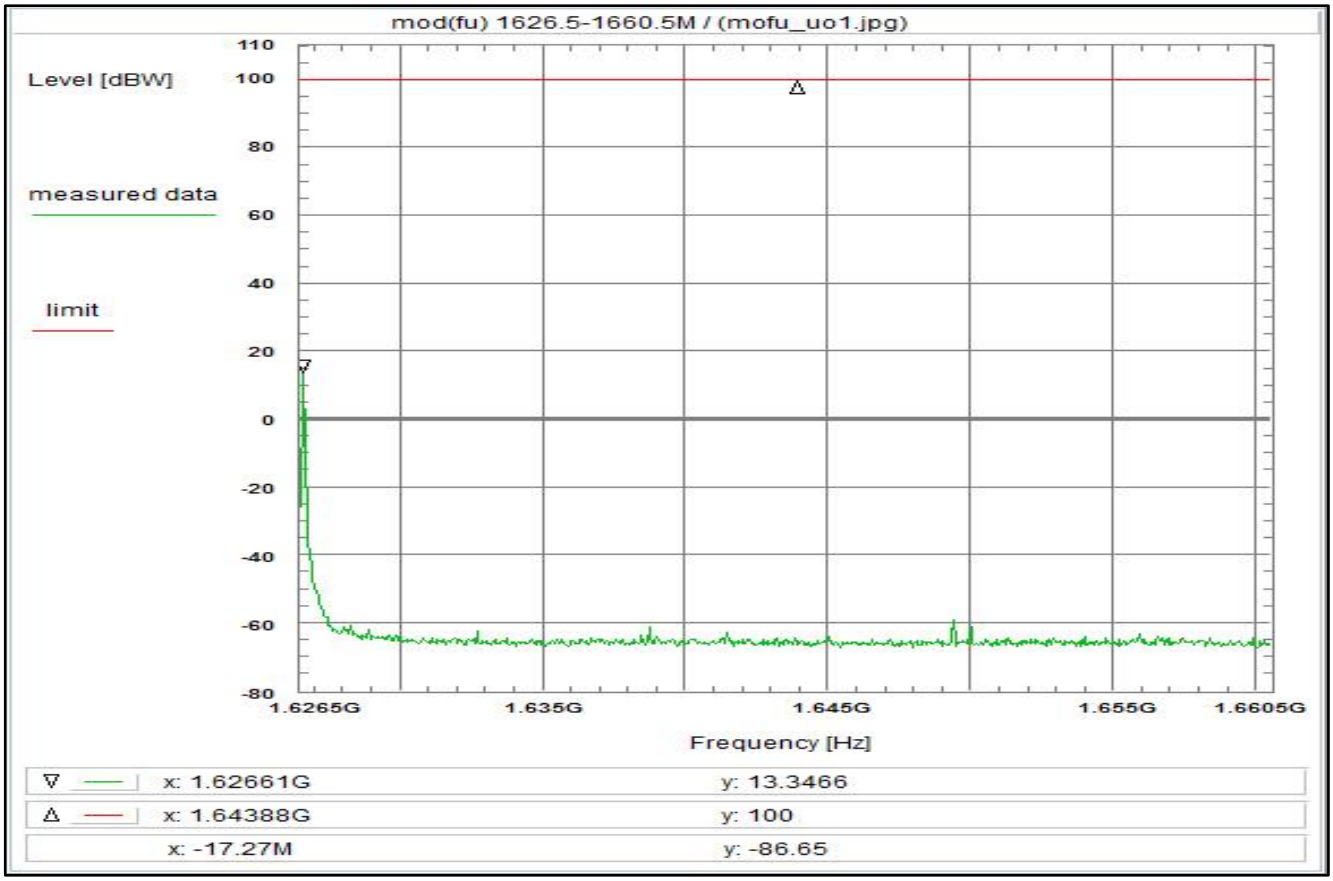
B3dB, Sub-Band 1, High Channel, R80T5X32

Plot No. 173



B3dB, Sub-Band 1, High Channel, R80T5X64

Plot No. 174



Subclause: -/- Function test
Modulated rf-carrier at the lower edge of the band (fu)
Measurement within the band

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the lower edge of the operating frequency band.

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

Operating condition of DUT:
operating condition 1, see test report chapter 6.4
fl, max hold, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C107, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Tue 26/Sep/2023 20:28:07	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

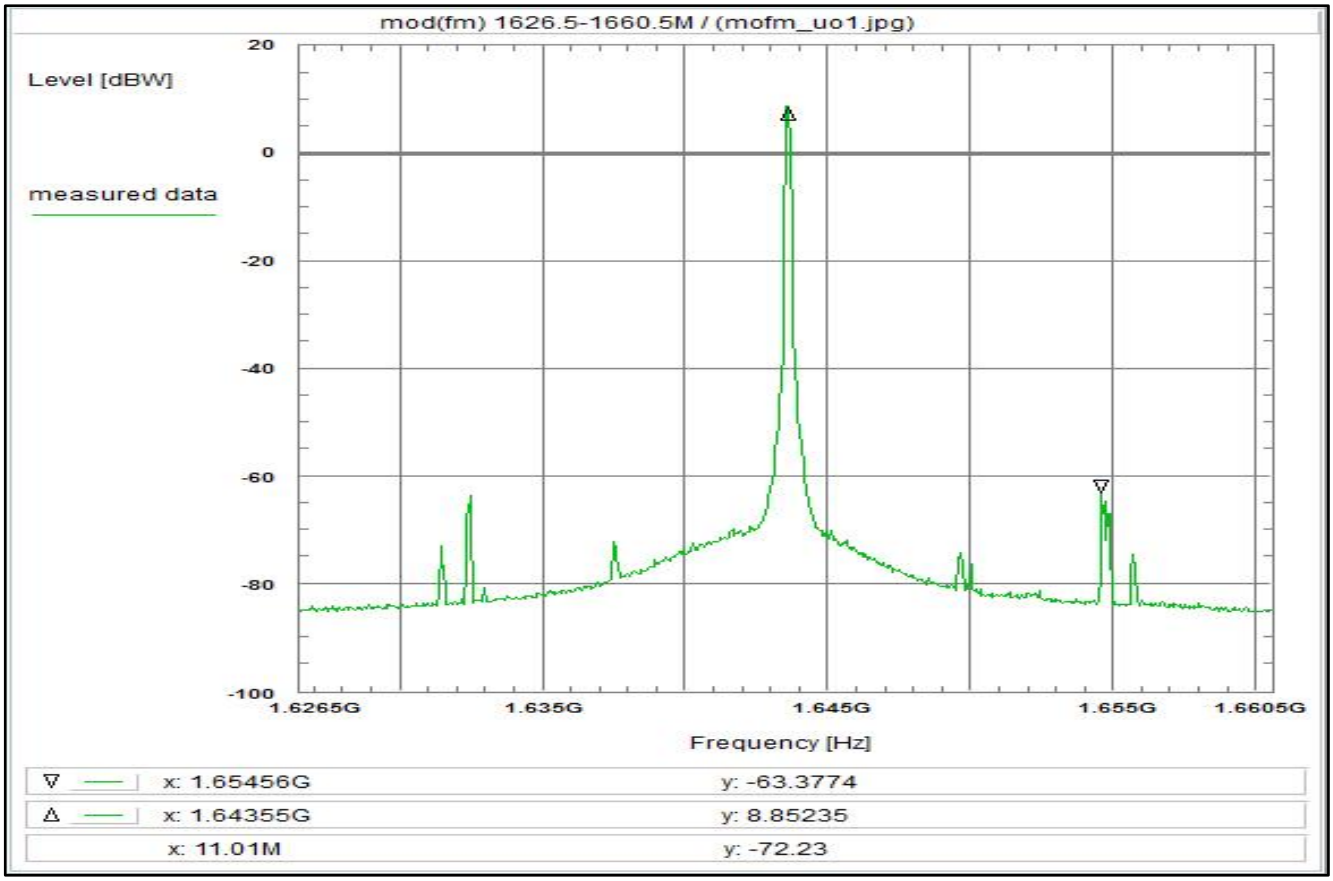
Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Resolution-BW:	30	kHz
Video-BW:	300	kHz
Input attenuation:	20	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	RMS	

Correction:

Directional coupler	+	0.0	dB
Coaxial cable (C107)	+	1.3	dB
DUT-Antenna (on-axis)	+	11.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	44.2	dB

Remarks:
Test of general function of the EUT and measurement for orientation.

Plot No. 175



Subclause: -/- Function test
Modulated rf-carrier in the middle of the band (fm)
Measurement within the band

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted in the middle of the band (EIRP).

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

Operating condition of DUT:
operating condition 1, see test report chapter 6.4
fm, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C107, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 27/Sep/2023 13:08:04	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

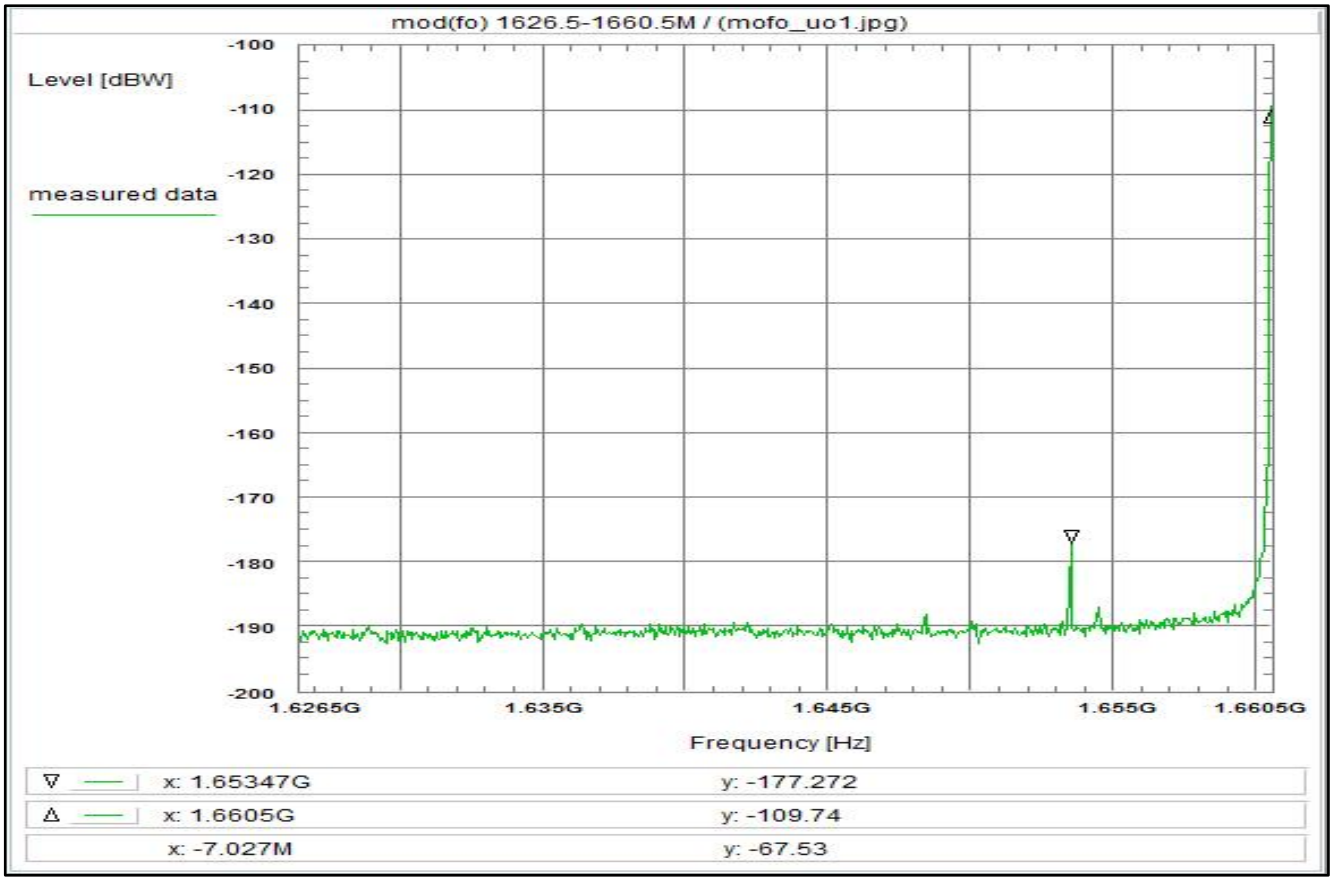
Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Resolution-BW:	30	kHz
Video-BW:	300	kHz
Input attenuation:	0	dB
Trace-Mode:	Max-Hold	
Detector-Mode:	AVG	

Correction:

Direction coupler	-	0.0	dB
Coaxial cable (C107)	+	1.3	dB
DUT-Antenna (on-axis)	+	11.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	-	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	+	44.2	dB

Remarks:
Test of general function of the EUT and measurement for orientation.

Plot No. 176



Subclause: -/- Function test
Modulated rf-carrier at the upper edge of the band (fo)
Measurement within the band

Limit:
no limits defined

This test serves to verify the general function of the EUT and for orientation regarding to the spurious emissions which are expected within the band, furthermore for comparison of the actual power with the rated value at modulated carrier adjusted as close to the upper edge of the operating frequency band.

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

Operating condition of DUT:
operating condition 1, see test report chapter 6.4
fh, valid for all modulations

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C107, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 27/Sep/2023 12:58:24
Location:	CTC advanced GmbH, Laboratory RC-SYS
Temperature:	22 °C
Humidity:	55 %
Voltage:	230 Vac

Setup of measurement equipment:

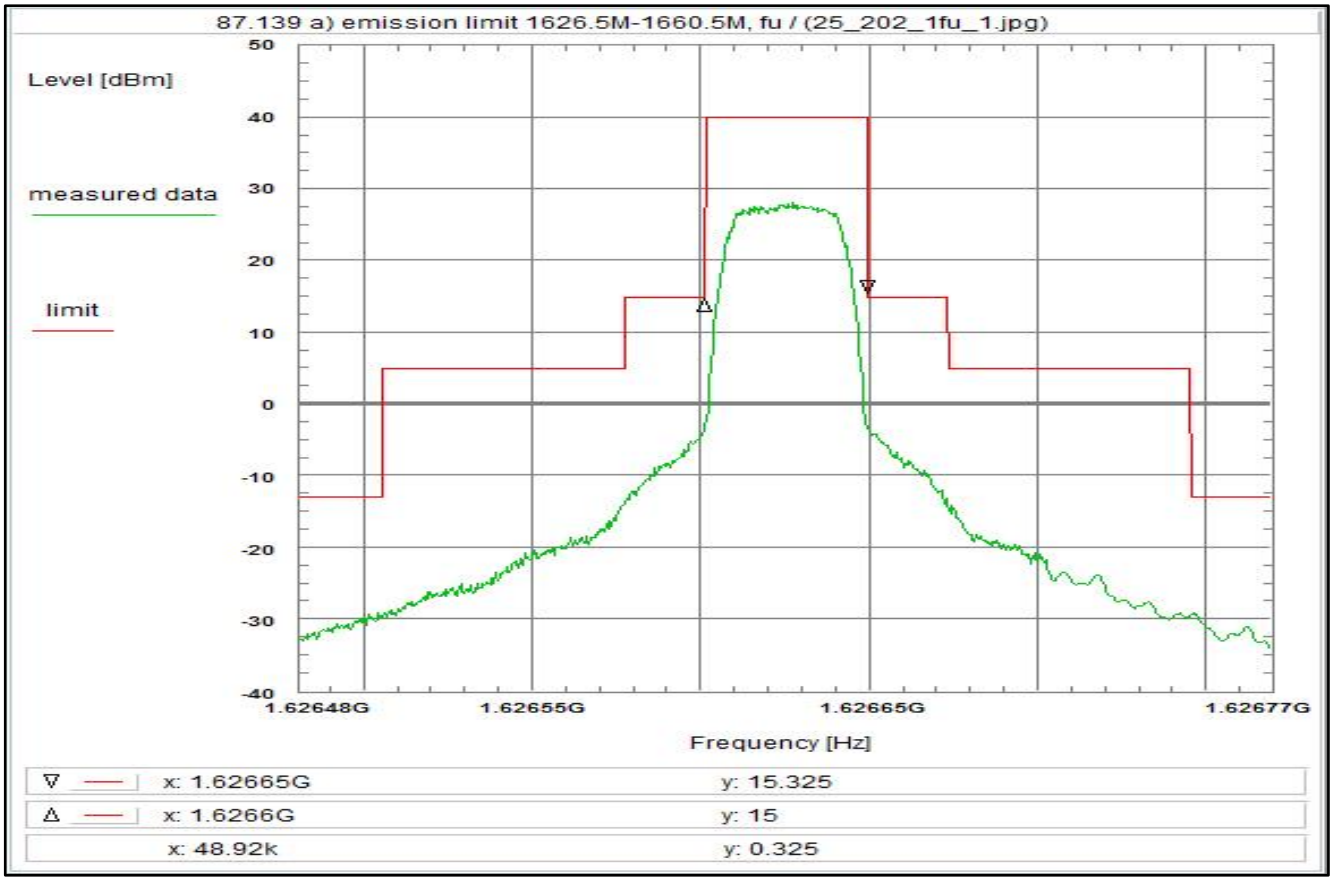
Start frequency:	1.6265	GHz
Stop frequency:	1.6605	GHz
Center frequency:	1.6435	GHz
Frequency span:	34	MHz
Resolution-BW:	30	kHz
Video-BW:	300	kHz
Input attenuation:	20	dB
Trace-Mode:	Clear Write	
Detector-Mode:	AVG	

Correction:

(W_RE)	-	115.7	dB
Coaxial cable (C107)	+	1.3	dB
DUT-Antenna (on-axis)	+	11.0	dBi
Test antenna	+	0.0	dB
BW correction factor	+	0.0	dB
Atten. between HPA and feedhorn	+	0.0	dB
(U330)	+	31.9	dB
TOTAL CORRECTION:	-	-71.5	dB

Remarks:
Test of general function of the EUT and measurement for orientation.

Plot No. 177



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 6.4
fl, max hold, valid for R5T1XD-R20T1XD-R20T1QD

Test setup:
see test report chapter 7.2:

Test equipment:
see test report chapter 7.1-7.2: C107, R001, U330

Remark:

Test result: **Test passed**

Environment condition:

Date & Time:	Wed 27/Sep/2023 13:54:50	
Location:	CTC advanced GmbH, Laboratory RC-SYS	
Temperature:	22	°C
Humidity:	55	%
Voltage:	230	Vac

Setup of measurement equipment:

Start frequency:	1.626481	GHz
Stop frequency:	1.626769	GHz
Center frequency:	1.626625	GHz
Frequency span:	288	kHz
Resolution-BW:	3	kHz
Video-BW:	10	kHz
Input attenuation:	10	dB
Trace-Mode:	Clear Write	
Detector-Mode:	AVG	

Correction:

(W_RE)	-	4.5	dB
Coaxial cable (C107)	+	1.3	dB
DUT-Antenna (on-axis)	+	11.0	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:	+	40.9	dB

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

Reference limit = 40 dBm / Spectrum mask referenced to necessary bandwidth