Diagram 47. Small bandwidth is applied in this frequency range in order to show compliance. The peak M1 is investigated in the following measurement.
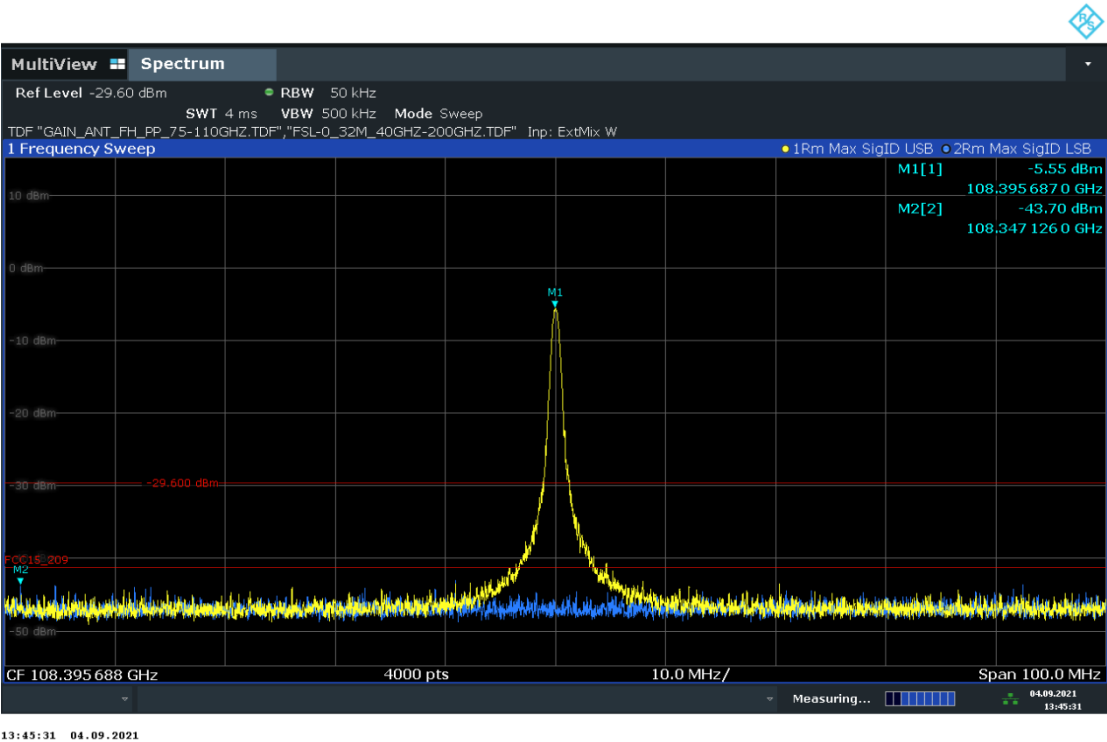

Diagram 48. The emission peak marked by M1 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.

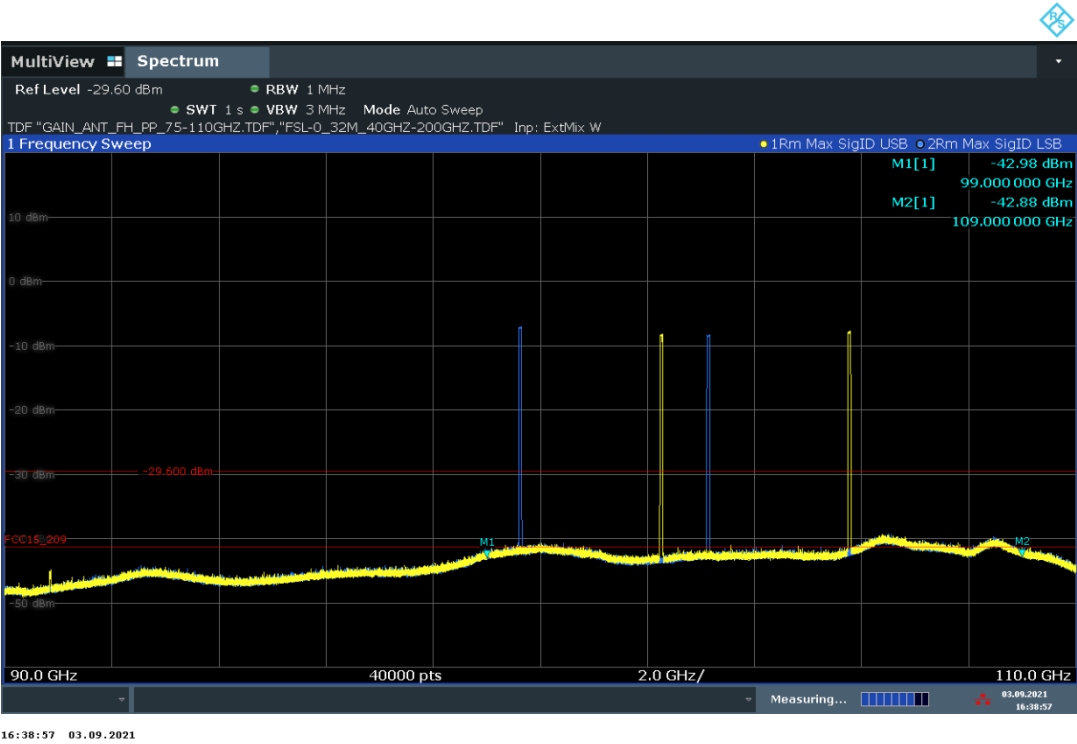## 1.4.15 Frequency range 90 GHz – 110 GHz. EUT in CW mode: f_low

Diagram 49. In frequency range marked from M1 to M2, it does not show required dynamic, thus small bandwidth is applied in the following measurements. These diagrams are divided into several due to limitation on the maximum number of measuring points.
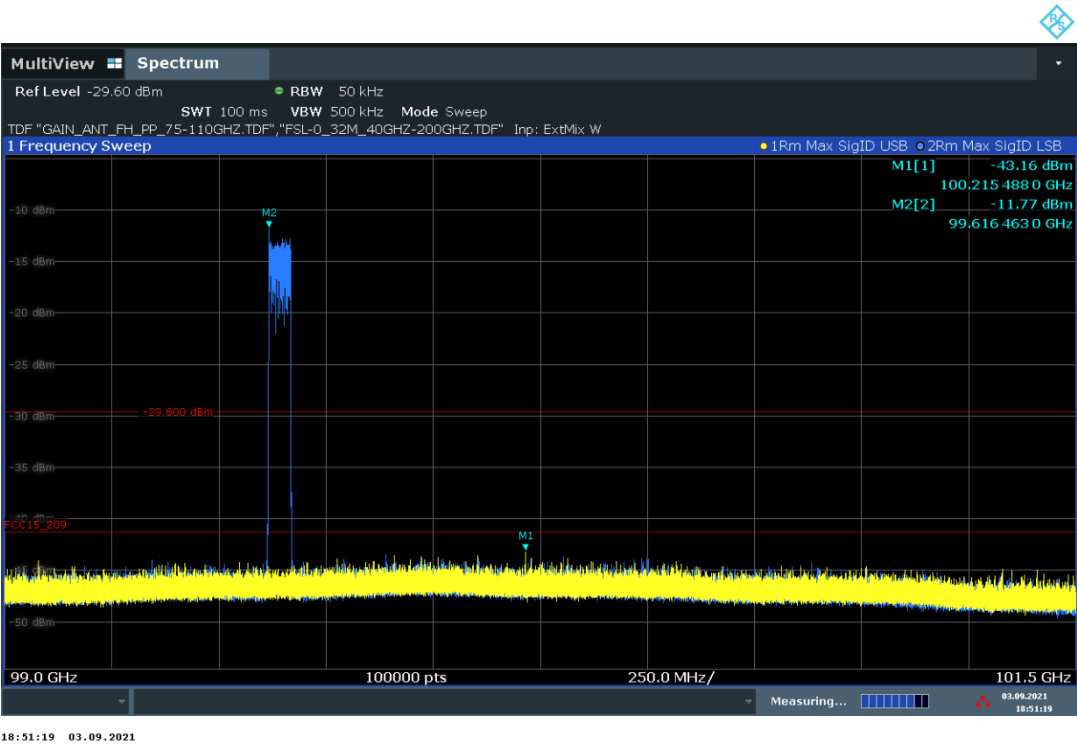

Diagram 50. Small bandwidth is applied in this frequency range in order to show compliance. The peak M2 is a mixing product, because the traces 1/2 do not overlap.
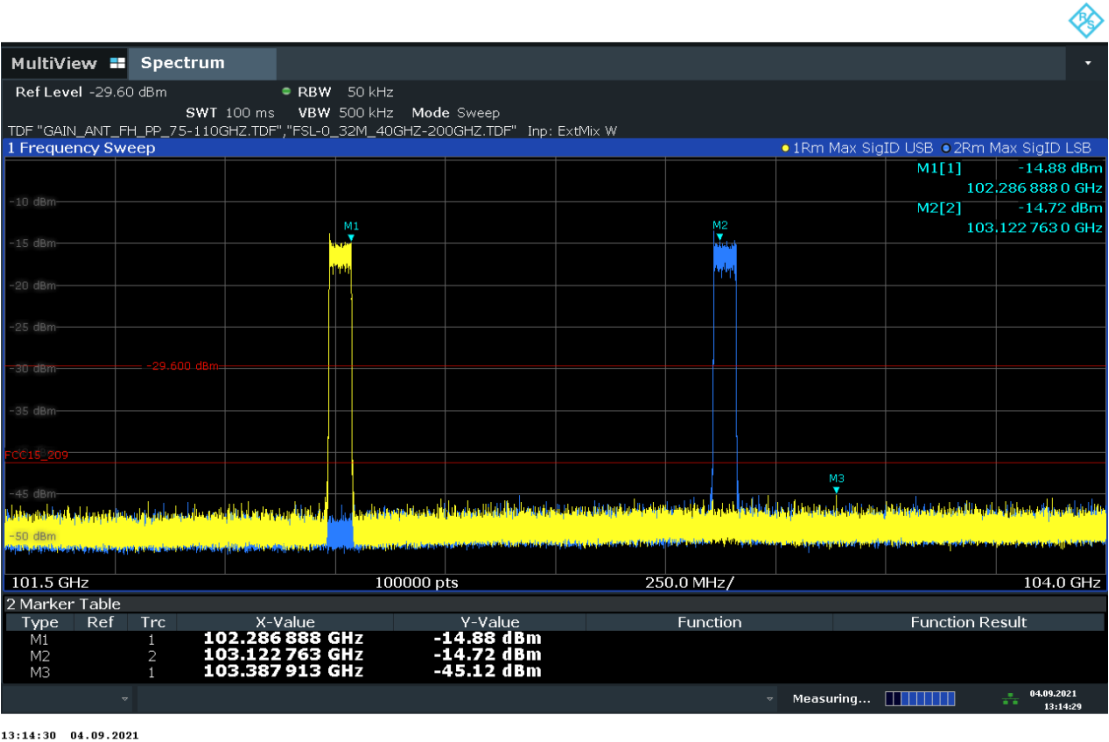
Diagram 51. Small bandwidth is applied in this frequency range in order to show compliance. The peaks M1/2 are mixing product, because the traces 1/2 do not overlap.
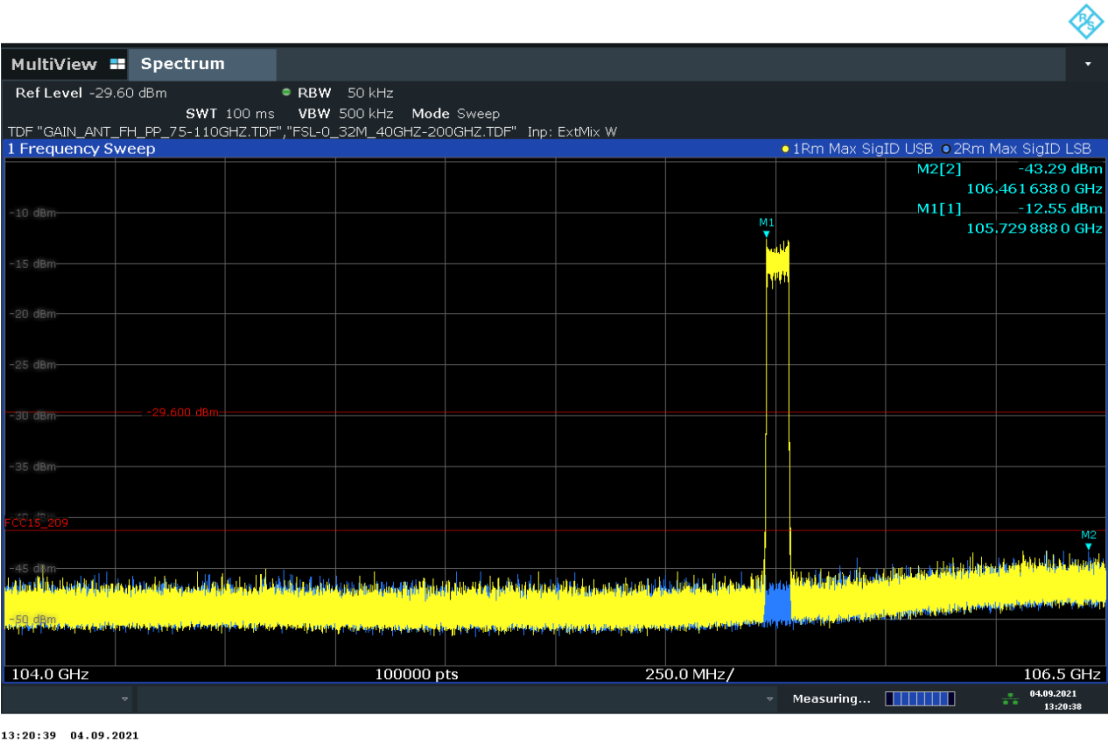

Diagram 52. Small bandwidth is applied in this frequency range in order to show compliance. The peak M1 is a mixing product, because the traces 1/2 do not overlap.
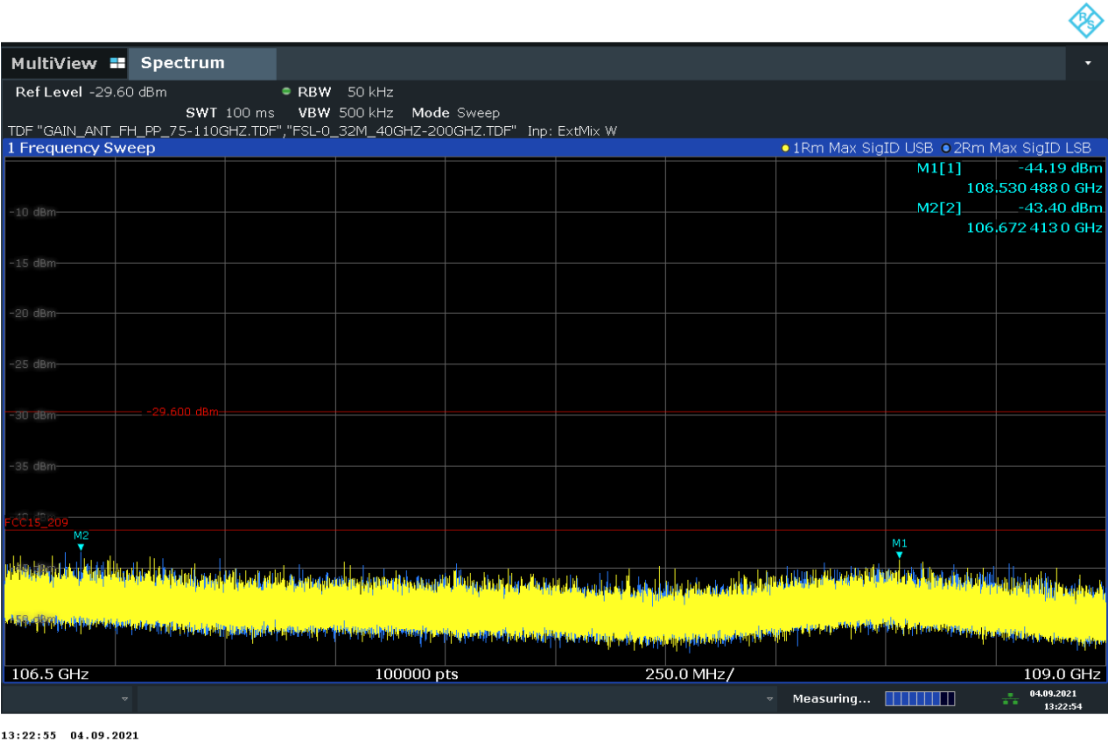
Diagram 53. Small bandwidth is applied in this frequency range in order to show compliance.

1.4.16 Frequency range 110 GHz – 140 GHz. EUT in CW mode: f_high

Remark: The EUT operates under CW mode at fixed frequency. By applying small resolution bandwidth in certain frequency range, the required dynamic is achieved to show compliance. The same method is applied testing CW mode f_middle/low. See following section.
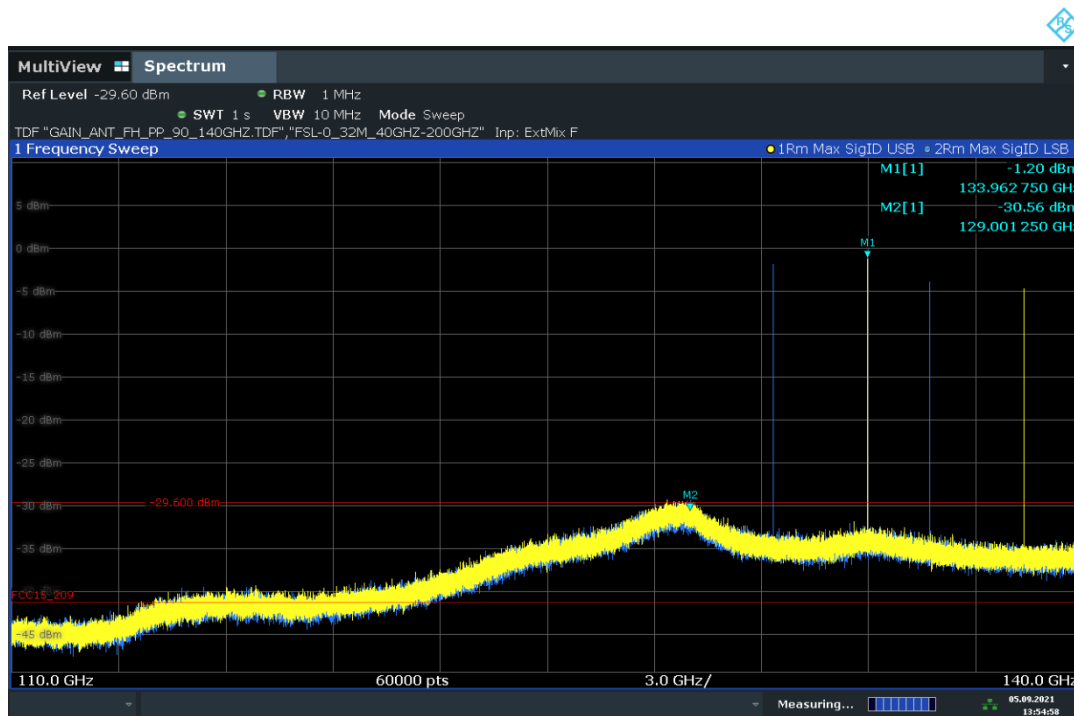

Diagram 54. Pre-scan for overview. It does not show required dynamic, thus small bandwidth is applied in the following measurements. These diagrams are divided into several due to limitation on the maximum number of measuring points.
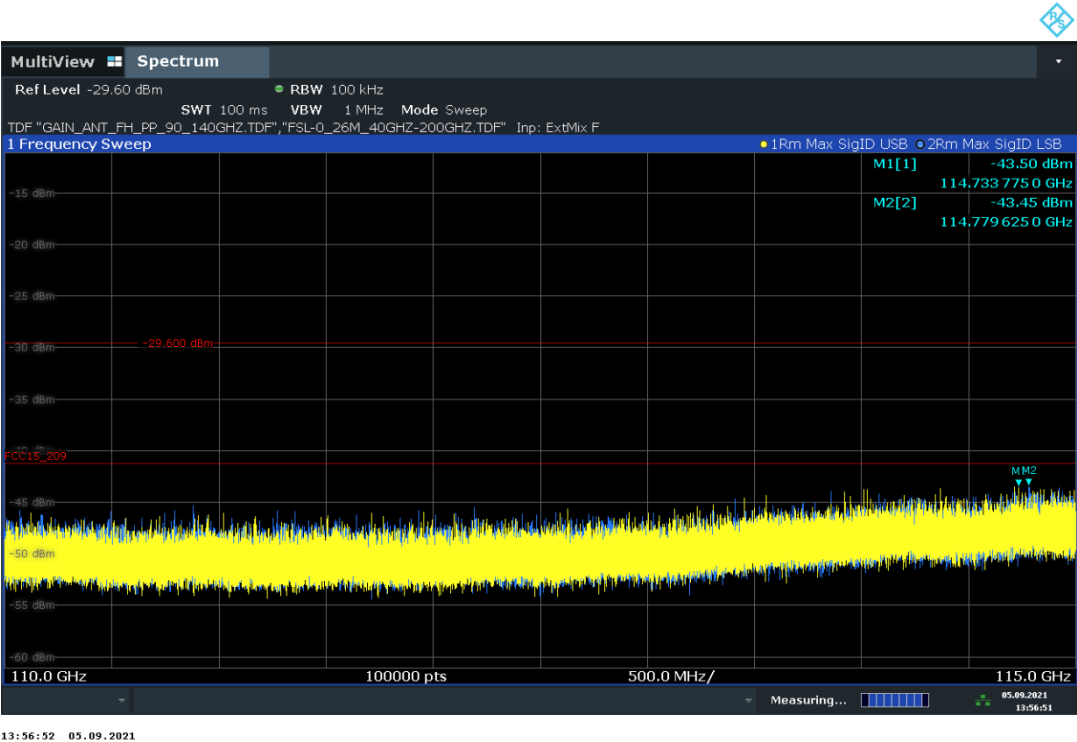
Diagram 55. Small bandwidth is applied in this frequency range in order to show compliance.
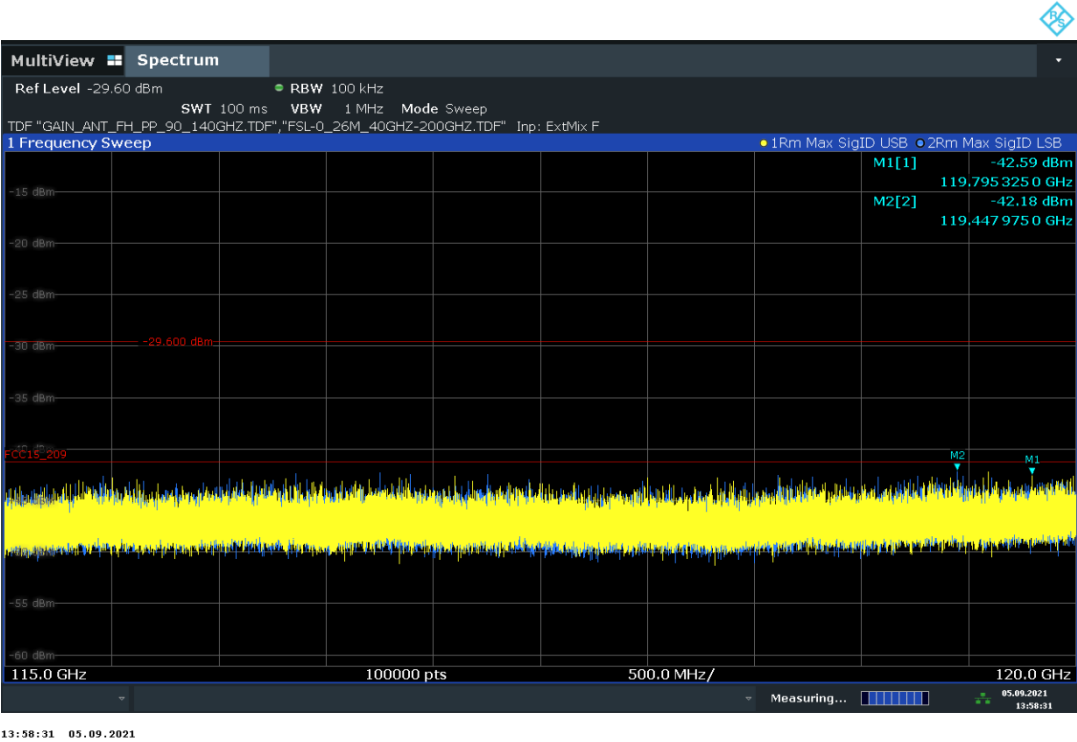

Diagram 56. Small bandwidth is applied in this frequency range in order to show compliance.
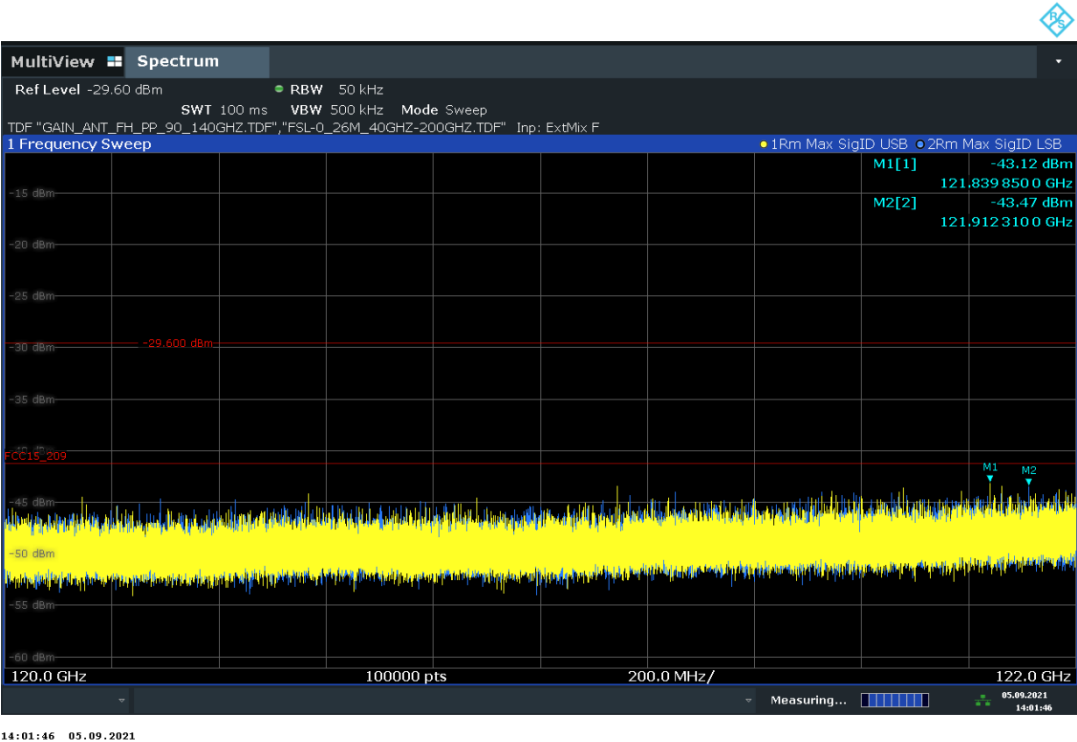
14:01:46 05.09.2021

Diagram 57. Small bandwidth is applied in this frequency range in order to show compliance.
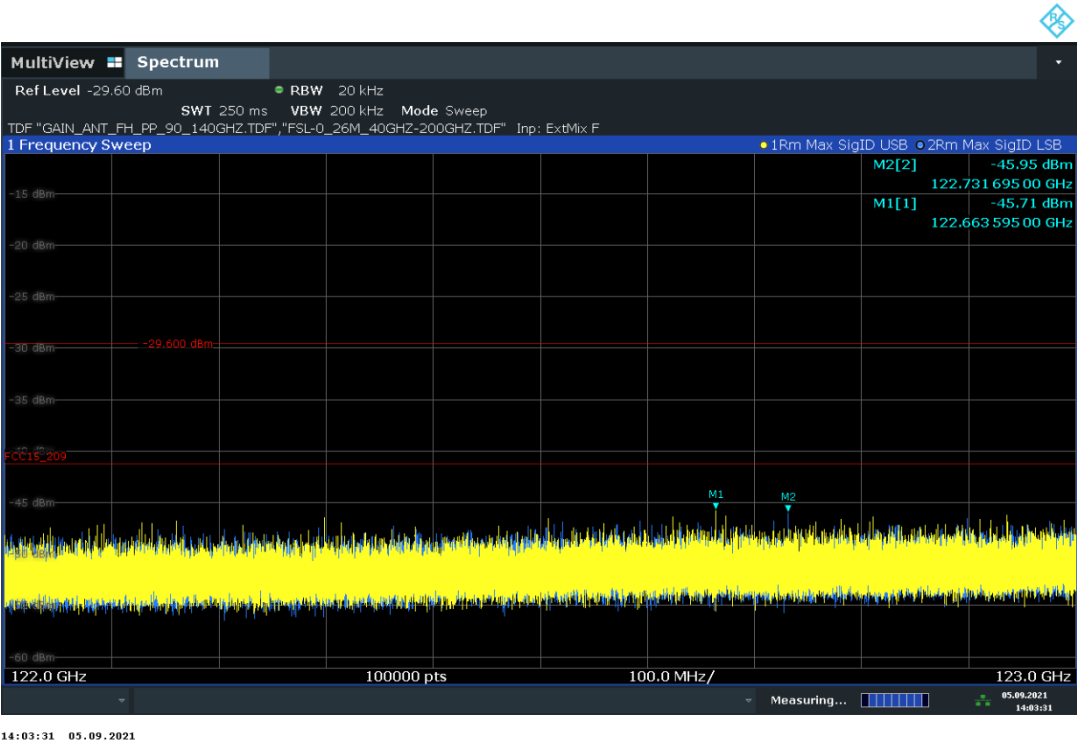

14:03:31 05.09.2021

Diagram 58. Small bandwidth is applied in this frequency range in order to show compliance.
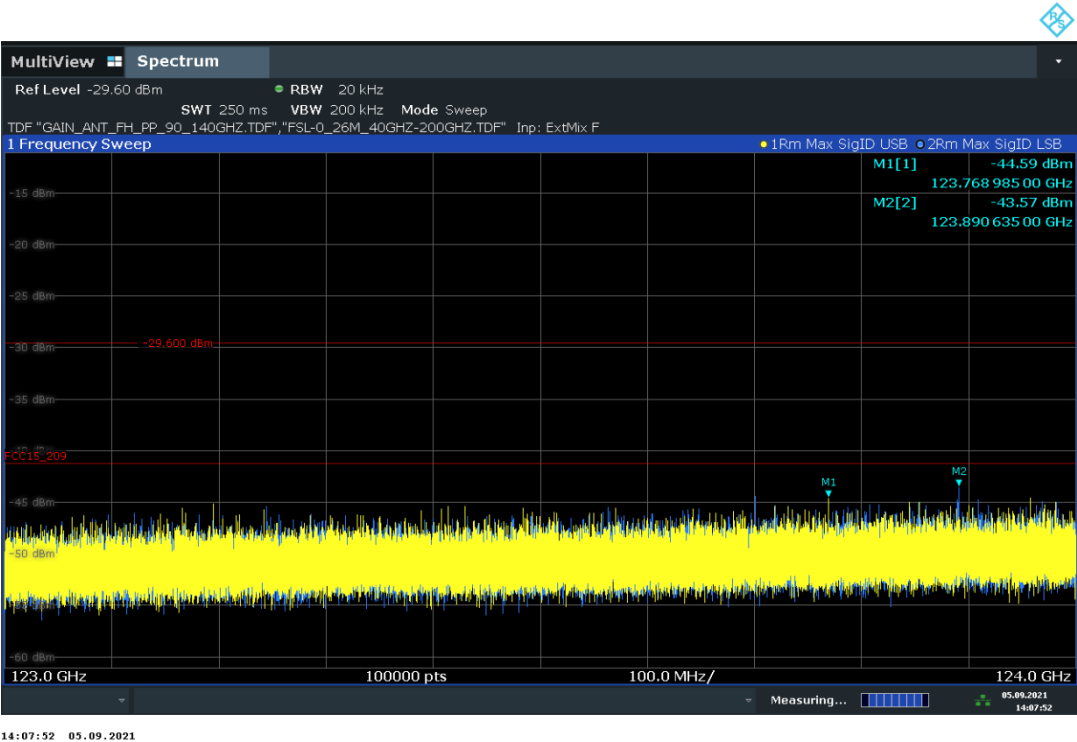
Diagram 59. Small bandwidth is applied in this frequency range in order to show compliance.
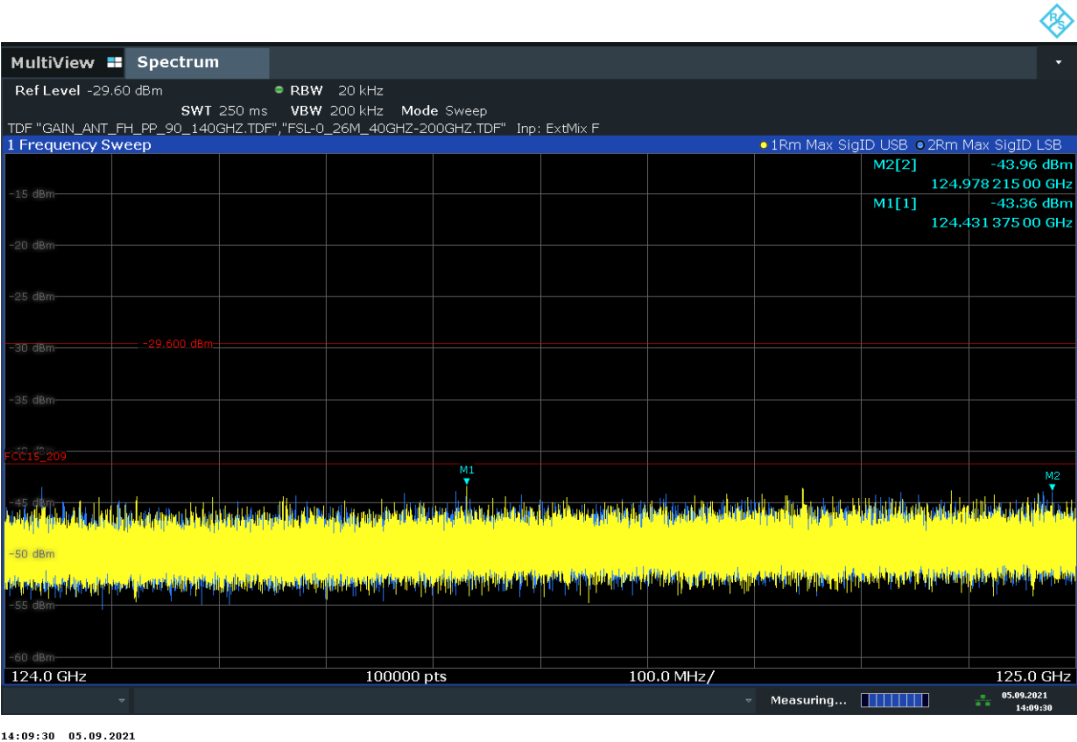

Diagram 60. Small bandwidth is applied in this frequency range in order to show compliance.
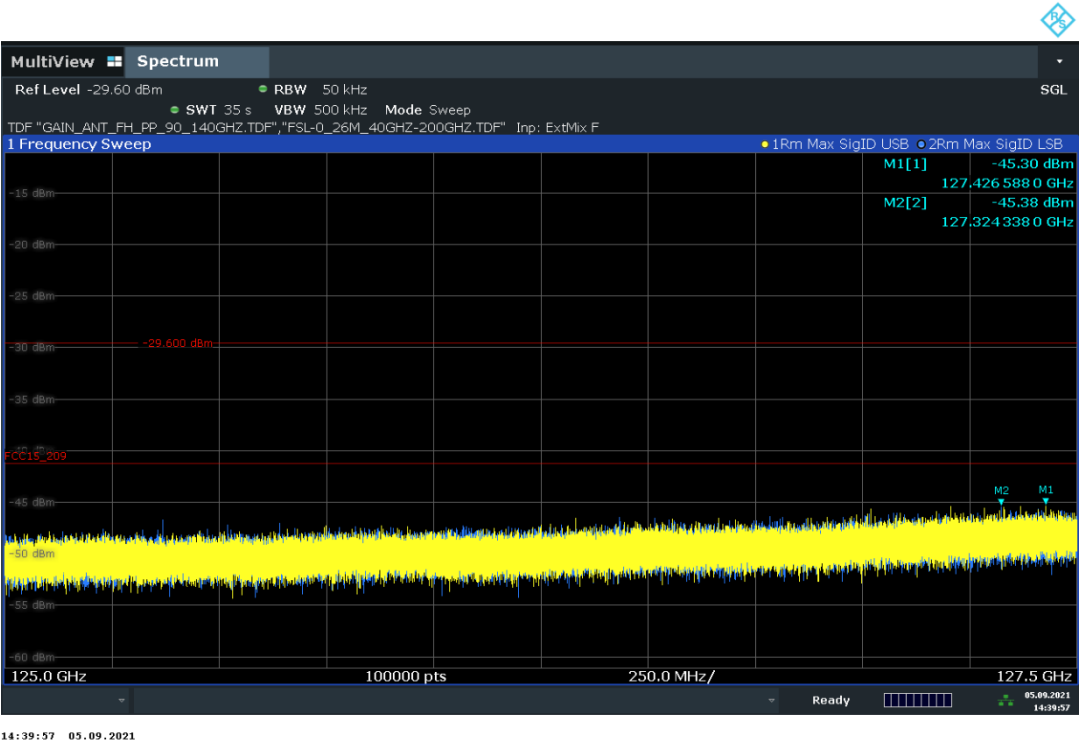
Diagram 61. Small bandwidth is applied in this frequency range in order to show compliance.
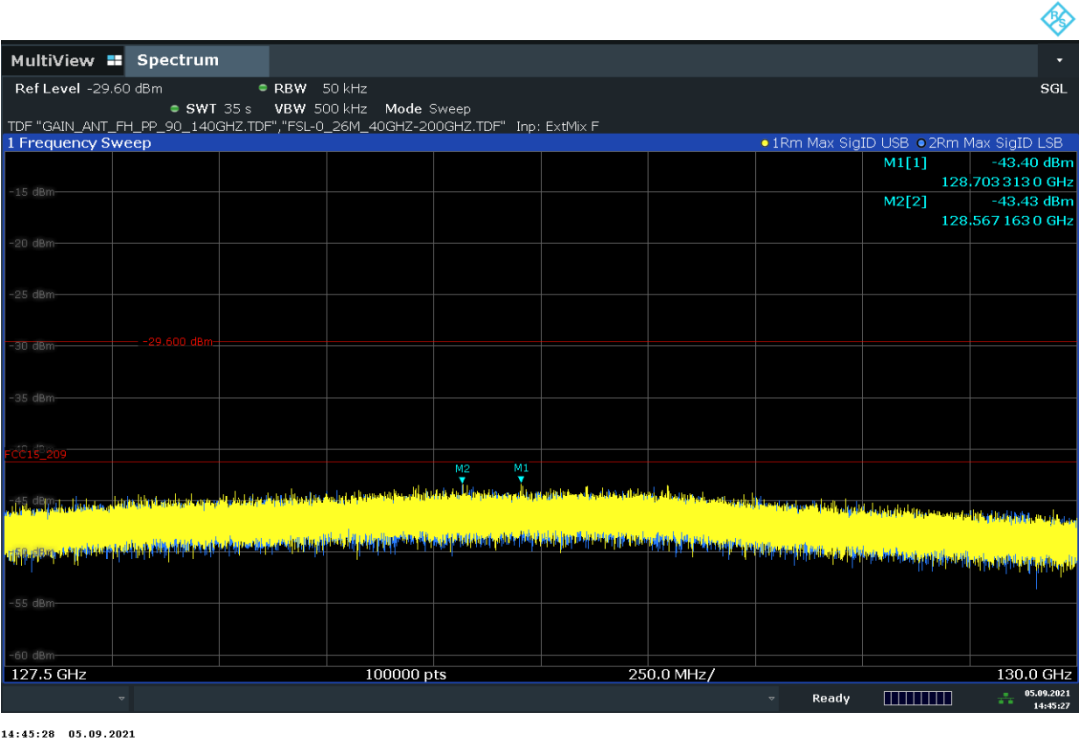

Diagram 62. Small bandwidth is applied in this frequency range in order to show compliance.
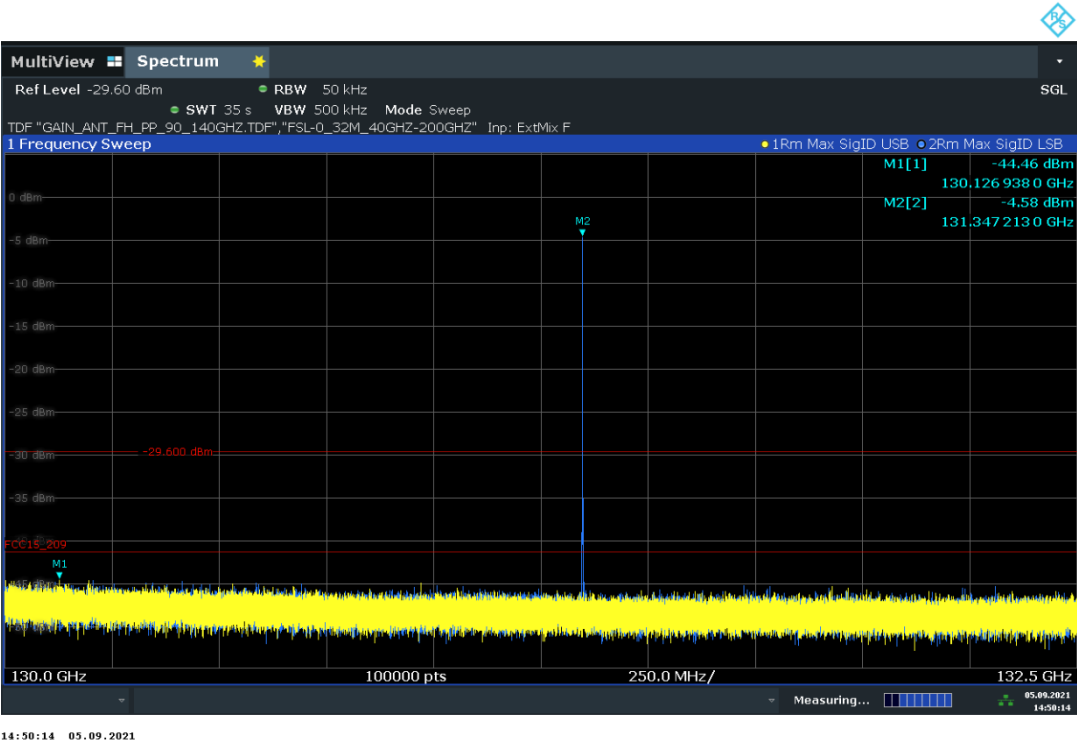
Diagram 63. Small bandwidth is applied in this frequency range in order to show compliance. The peak M2 is a mixing product, because the traces 1/2 do not overlap.
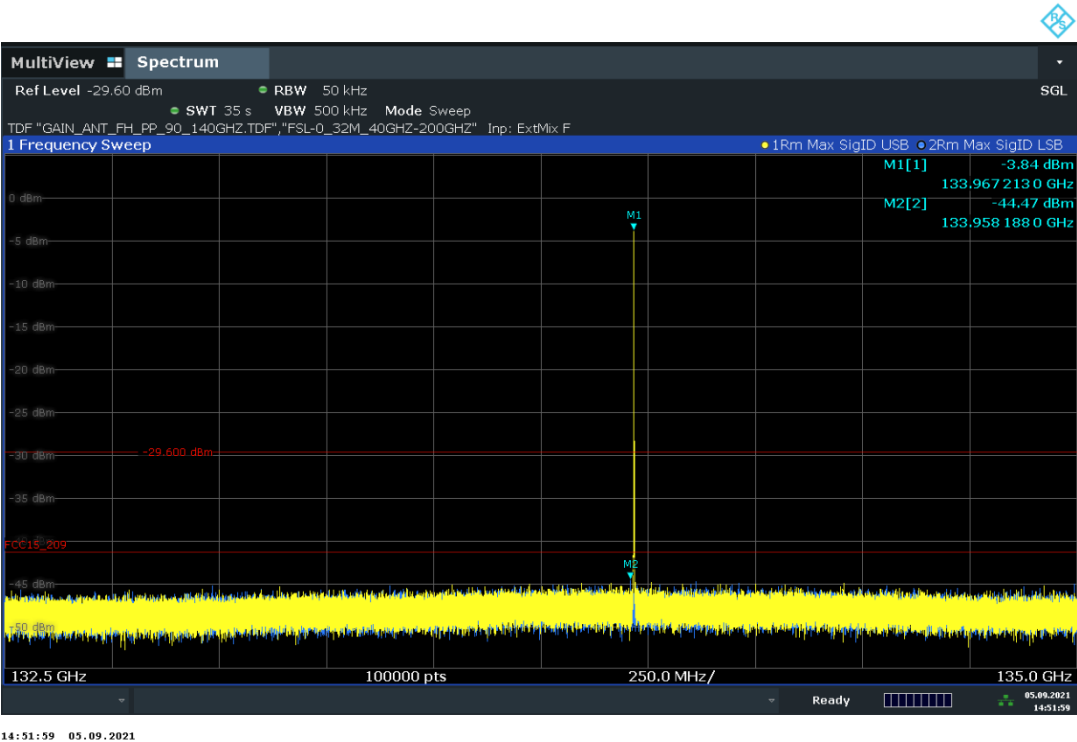

Diagram 64. Small bandwidth is applied in this frequency range in order to show compliance. The peak M1 is investigated in the following measurement.
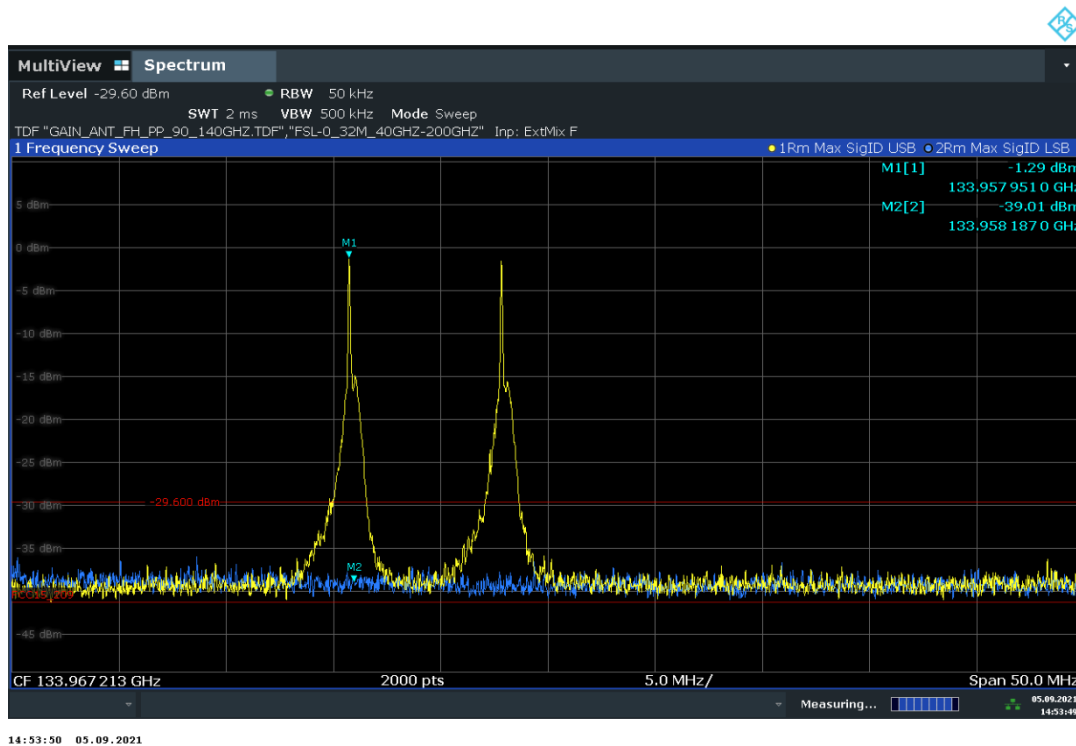
Diagram 65. The emission peak marked by M1 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.
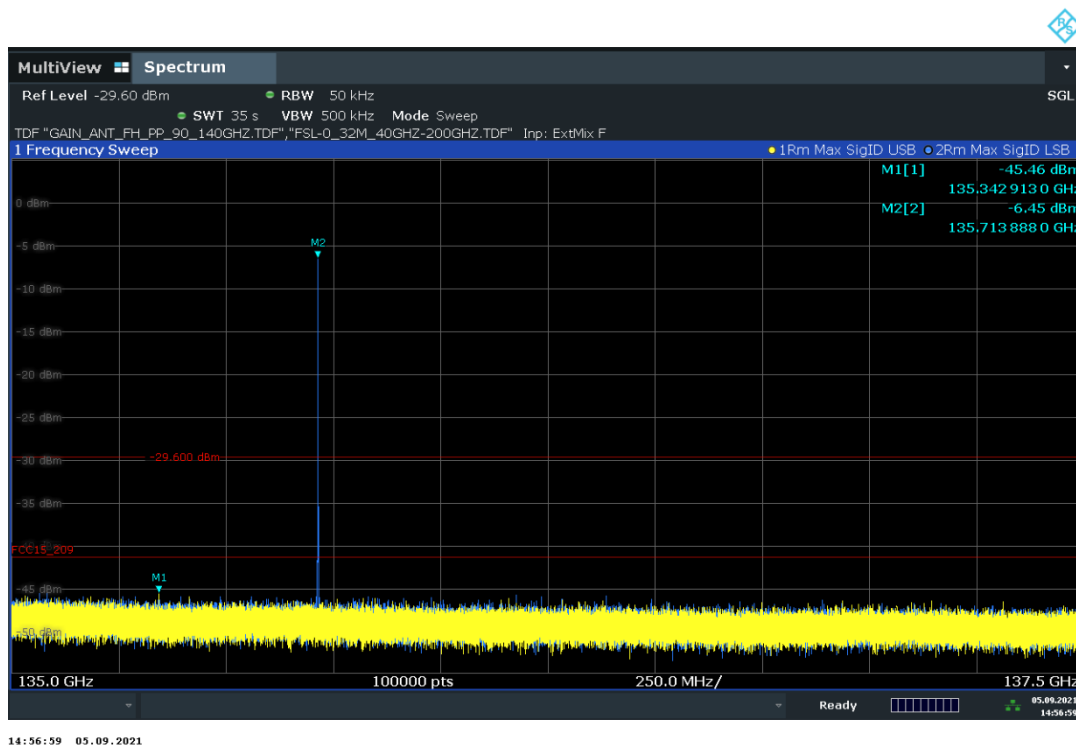

Diagram 66. Small bandwidth is applied in this frequency range in order to show compliance. The peak M2 is a mixing product, because the traces 1/2 do not overlap.
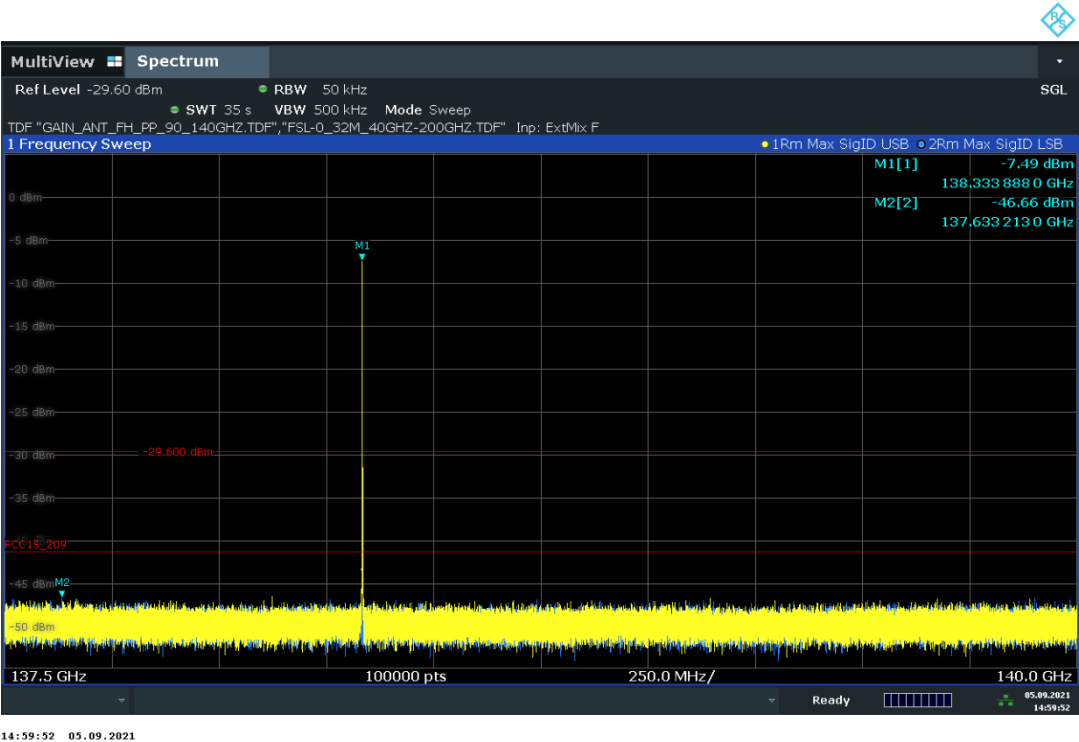
14:59:52 05.09.2021

Diagram 67. Small bandwidth is applied in this frequency range in order to show compliance. The peak M1 is investigated in the following measurement.
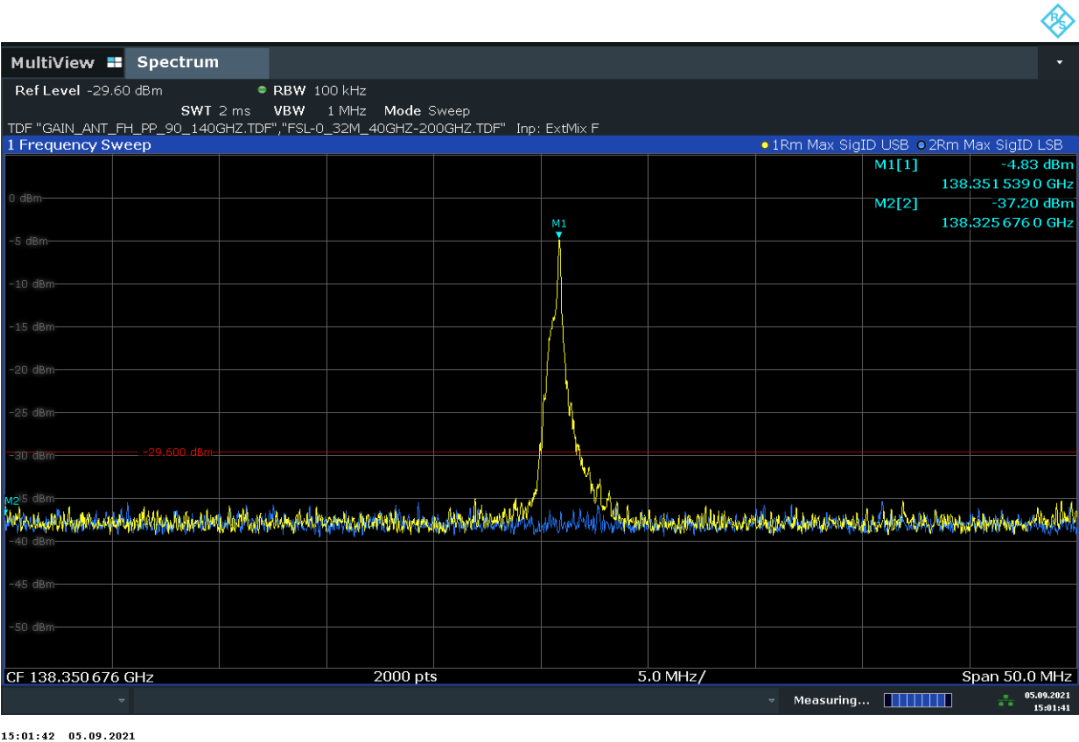

15:01:42 05.09.2021

Diagram 68. The emission peak marked by M1 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.

1.4.17 Frequency range 110 GHz – 140 GHz. EUT in CW mode: f_middle

Remark: The same method is applied testing CW mode f_middle. This section shows only the overview pre-scan and the investigation on the mixing products M1/2.

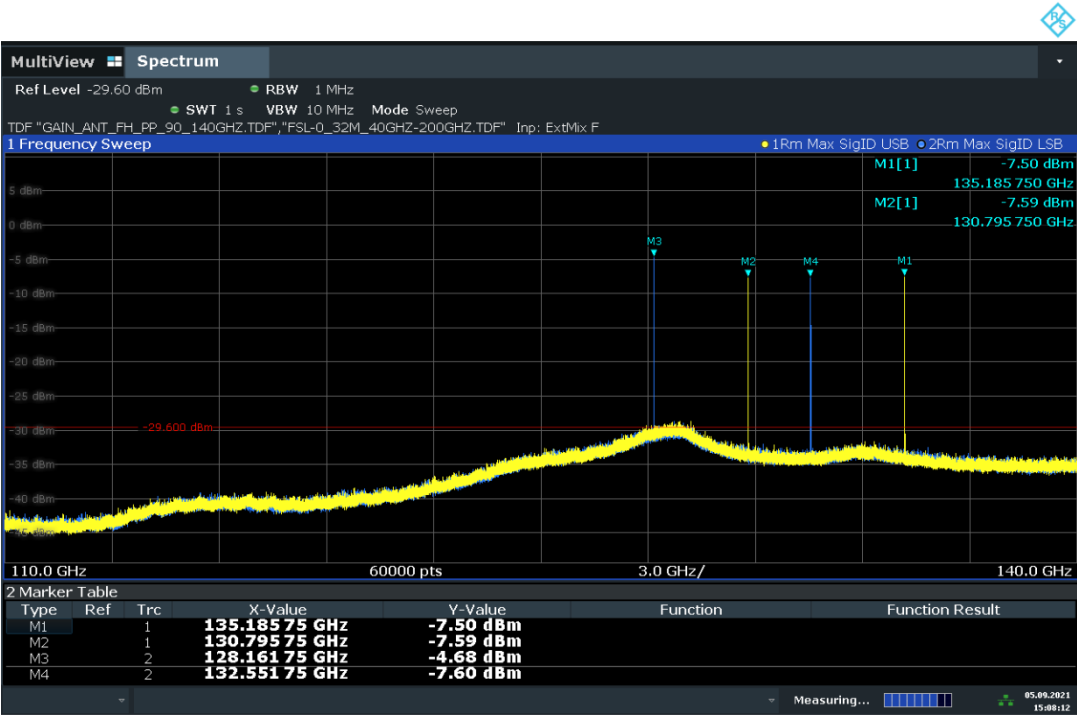
Diagram 69. Pre-scan for overview, which shows the same spectrum as in last section testing the f_high. The peaks M3/4 are mixing products, because the traces 1/2 do not overlap. The peaks M1/2 are investigated in the following measurement.
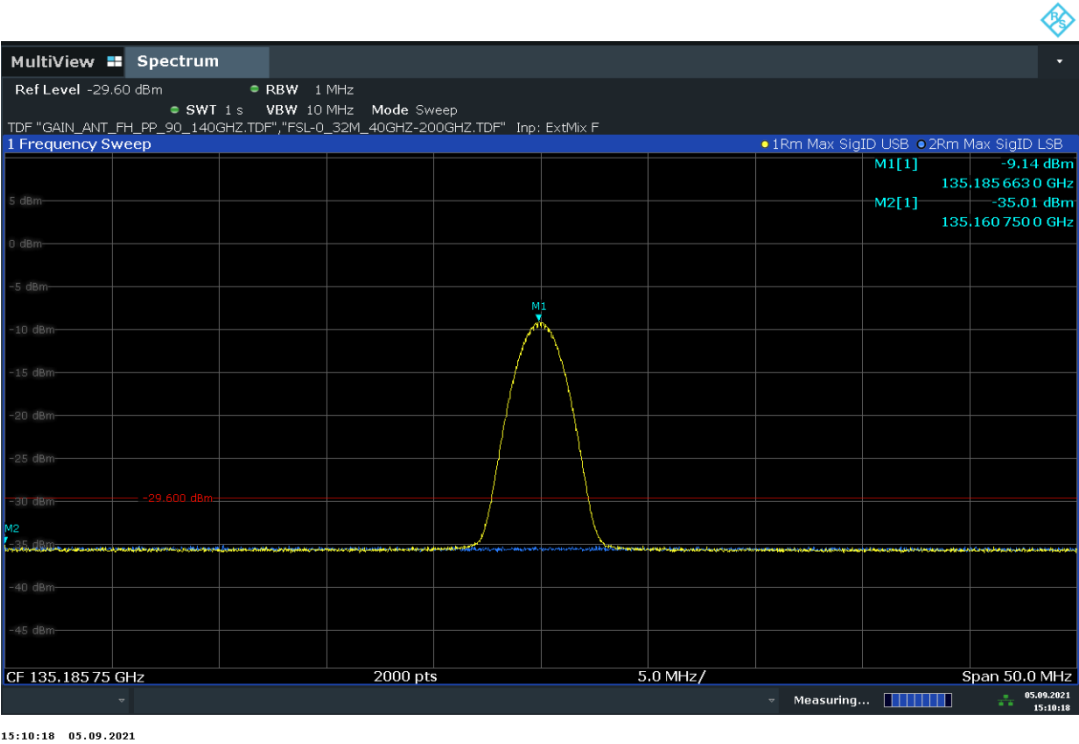
Diagram 70. The emission peak marked by M1 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.
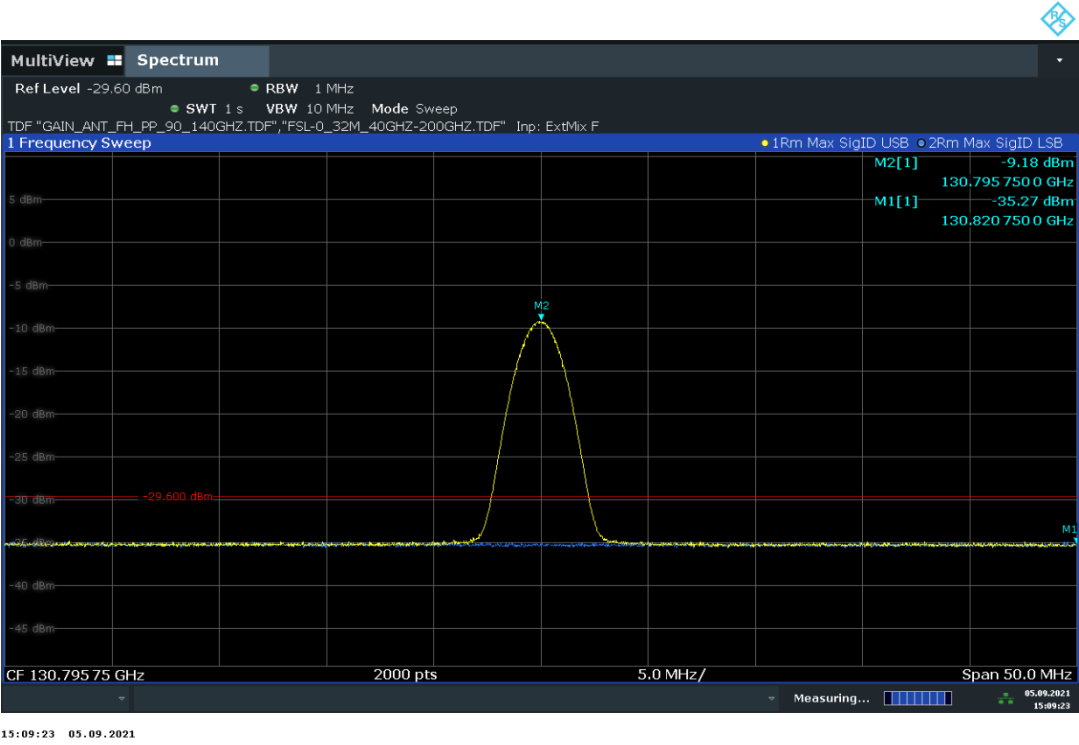

Diagram 71. The emission peak marked by M2 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.

1.4.18 Frequency range 110 GHz – 140 GHz. EUT in CW mode: f_low

Remark: The same method is applied testing CW mode f_low. This section shows only the overview pre-scan and the investigation on the mixing products M1/2.
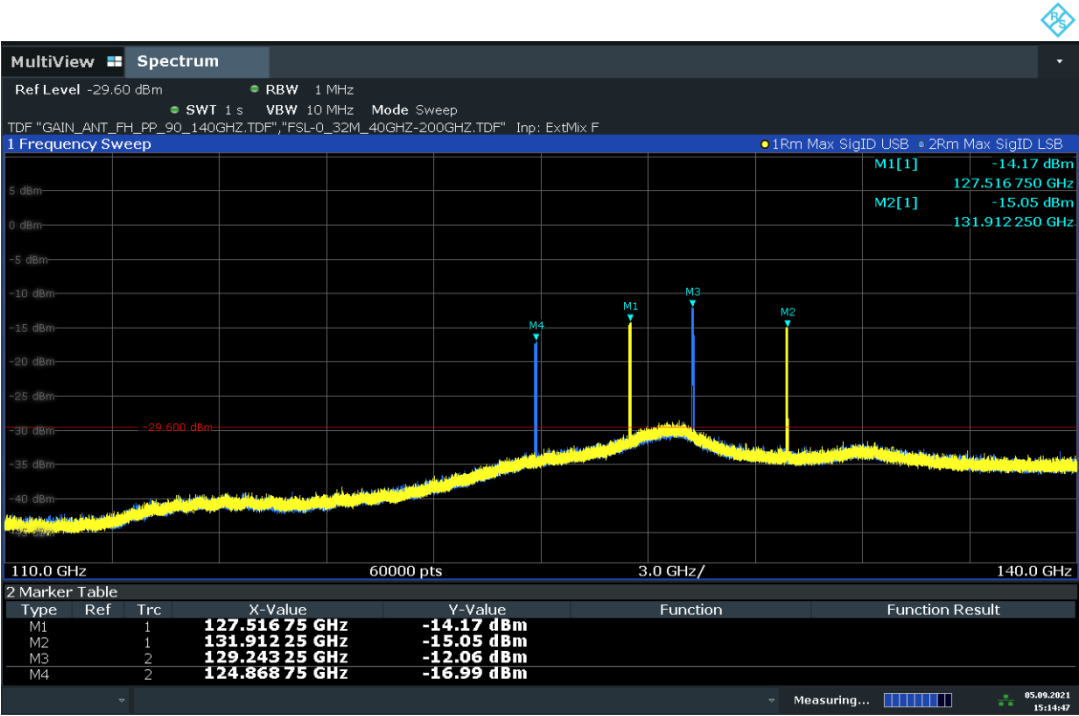

Diagram 72. Pre-scan for overview, which shows the same spectrum as in last section testing the f_high. The peaks M3/4 are mixing products, because the traces 1/2 do not overlap. The peaks M1/2 are investigated in the following measurement.
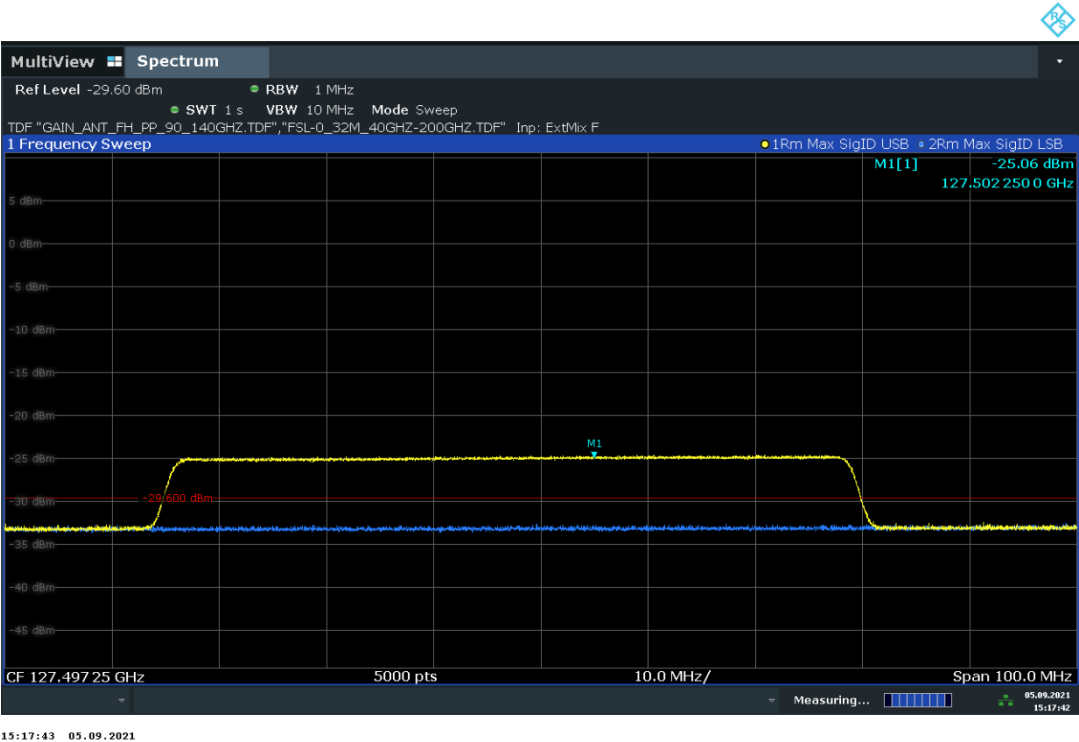
Diagram 73. The emission peak marked by M1 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.
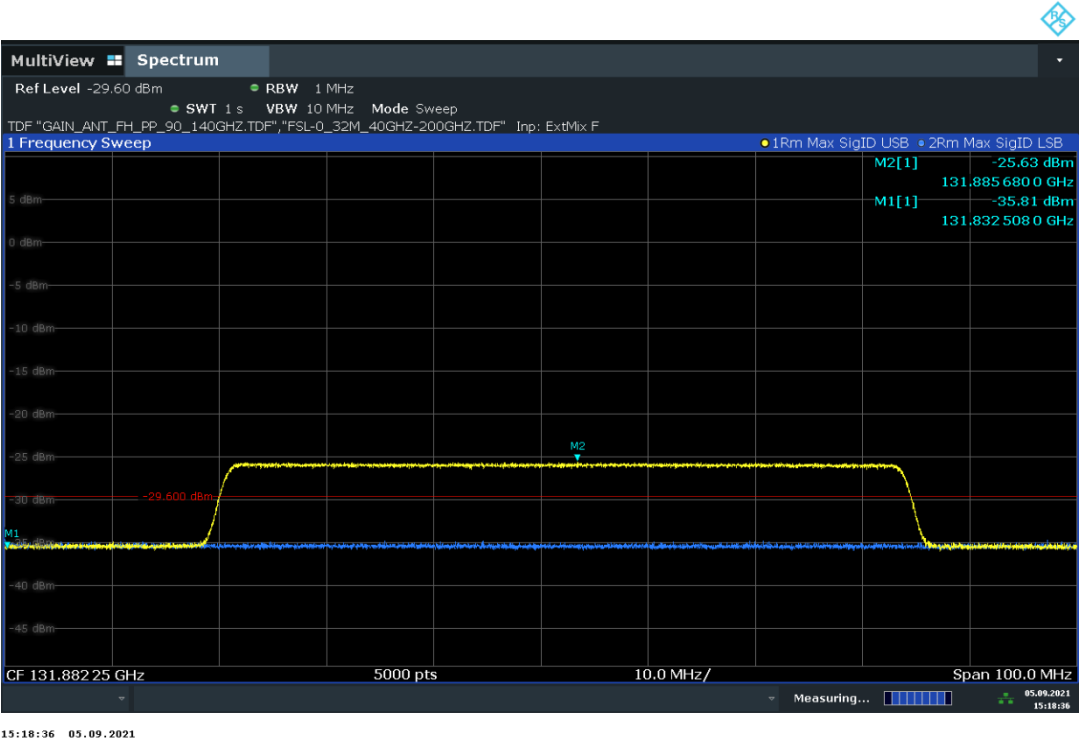

Diagram 74. The emission peak marked by M2 is investigated in narrow span. Trace 1/2 do not overlap. Thus mixing product.

1.4.19 Frequency range 140 GHz – 200 GHz. EUT in CW mode: f_high

Remark: The EUT operates under CW mode at fixed frequency. By applying small resolution bandwidth in certain frequency range, the required dynamic is achieved to show compliance. The same method is applied testing CW mode f_middle/low. See following section.
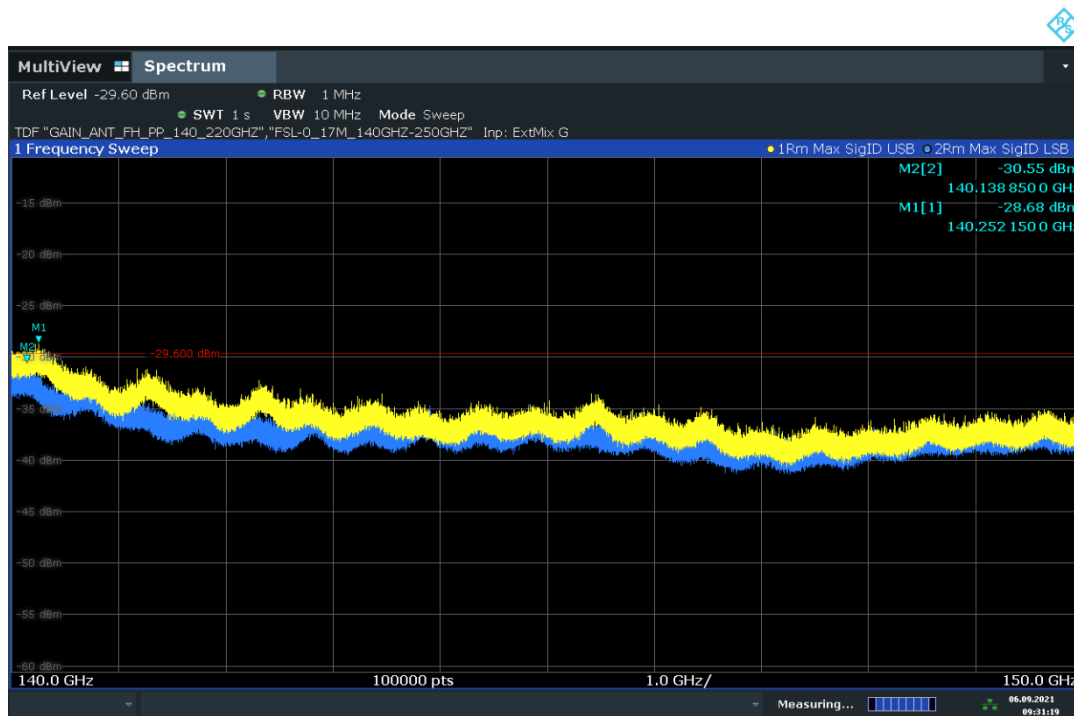

09:31:19 06.09.2021

Diagram 75. Pre-scan for overview 140 – 150 GHz. It does not show required dynamic, thus small bandwidth is applied in the following measurements. These diagrams are divided into several due to limitation on the maximum number of measuring points.
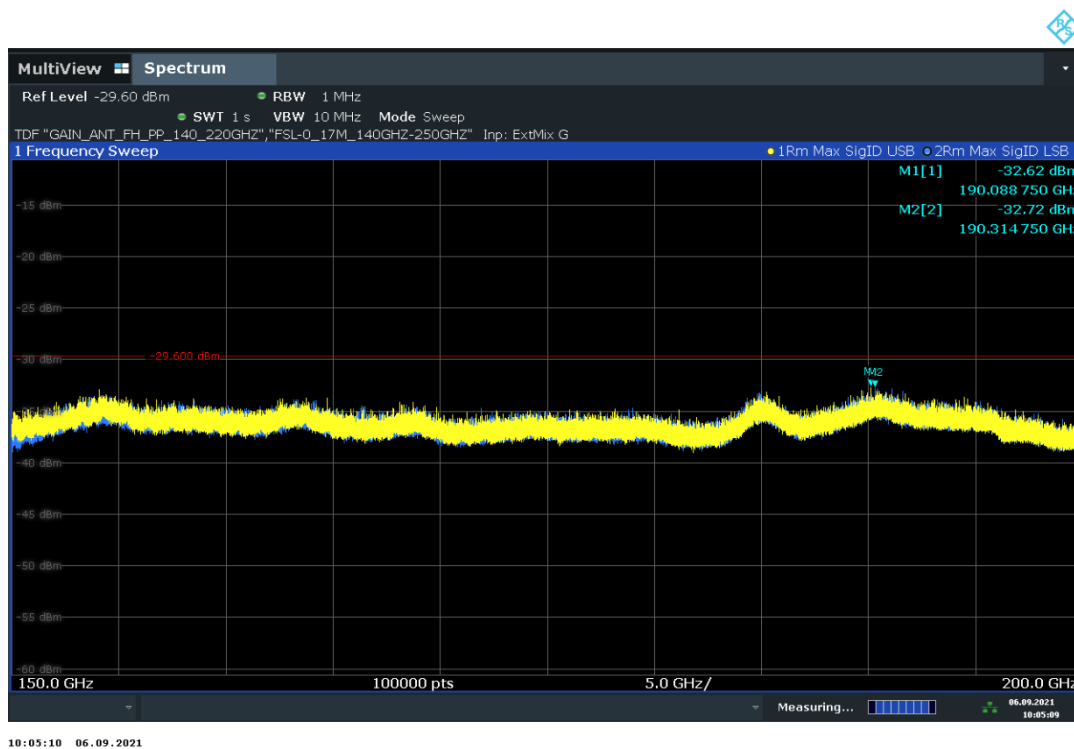
10:05:10 06.09.2021

Diagram 76. Pre-scan for overview 150 – 200 GHz. It does not show required dynamic, thus small bandwidth is applied in the following measurements. These diagrams are divided into several due to limitation on the maximum number of measuring points.
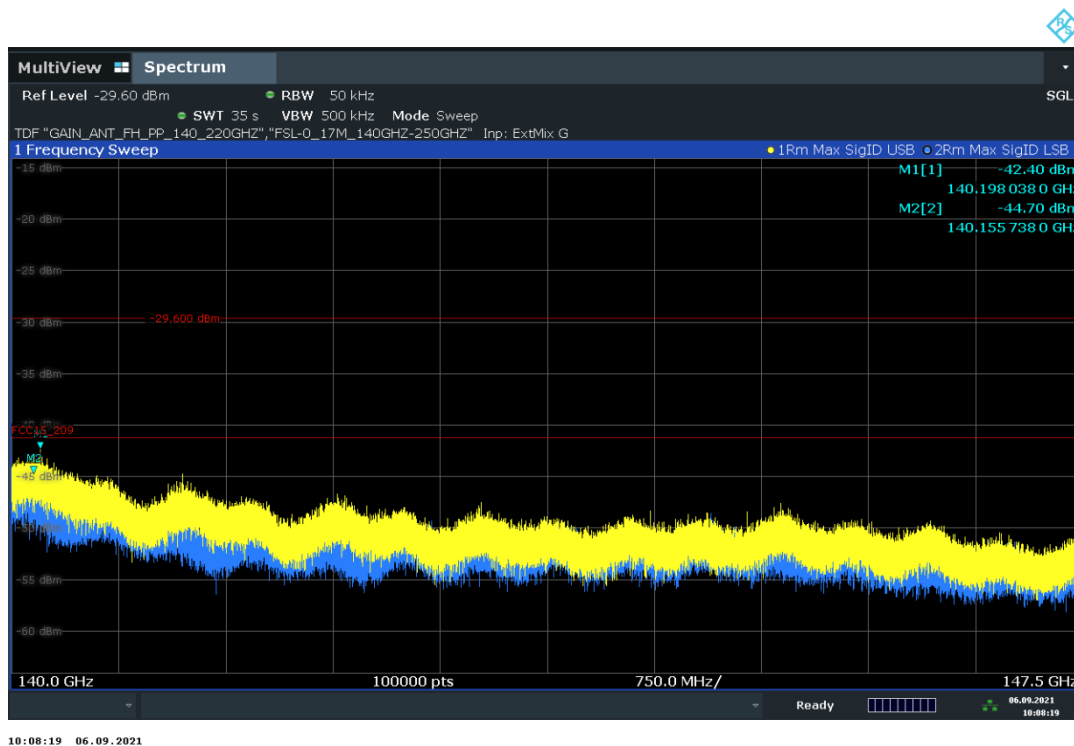

10:08:19 06.09.2021

Diagram 77. Small bandwidth is applied in this frequency range in order to show compliance.
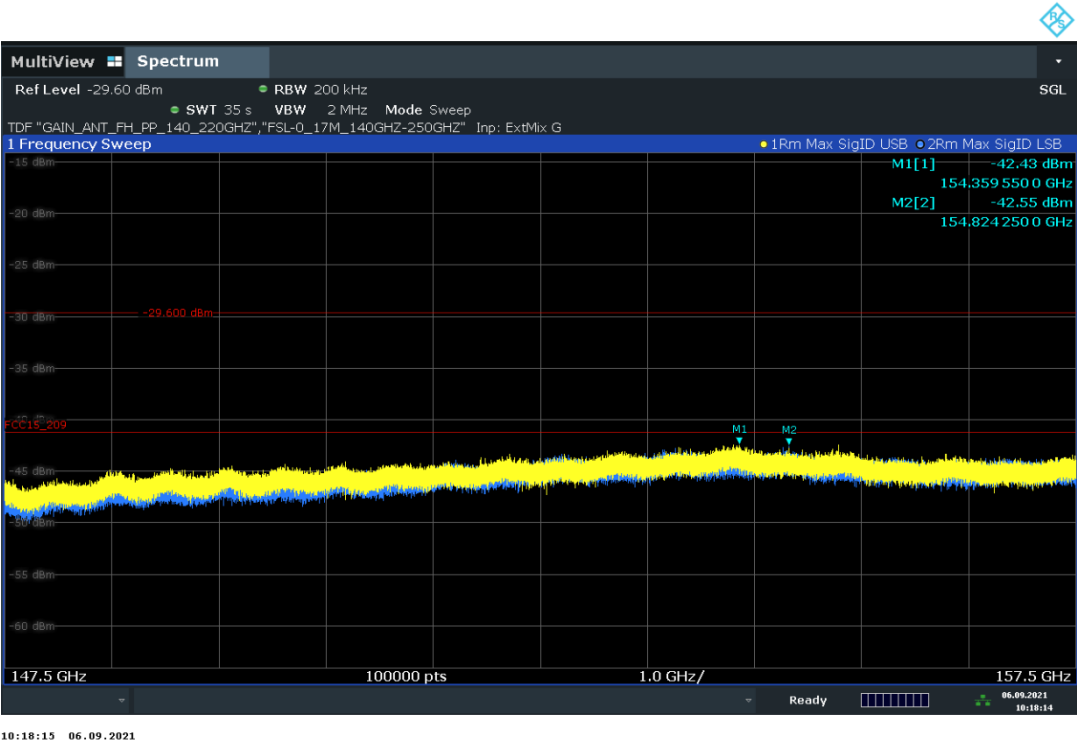
Diagram 78. Small bandwidth is applied in this frequency range in order to show compliance.
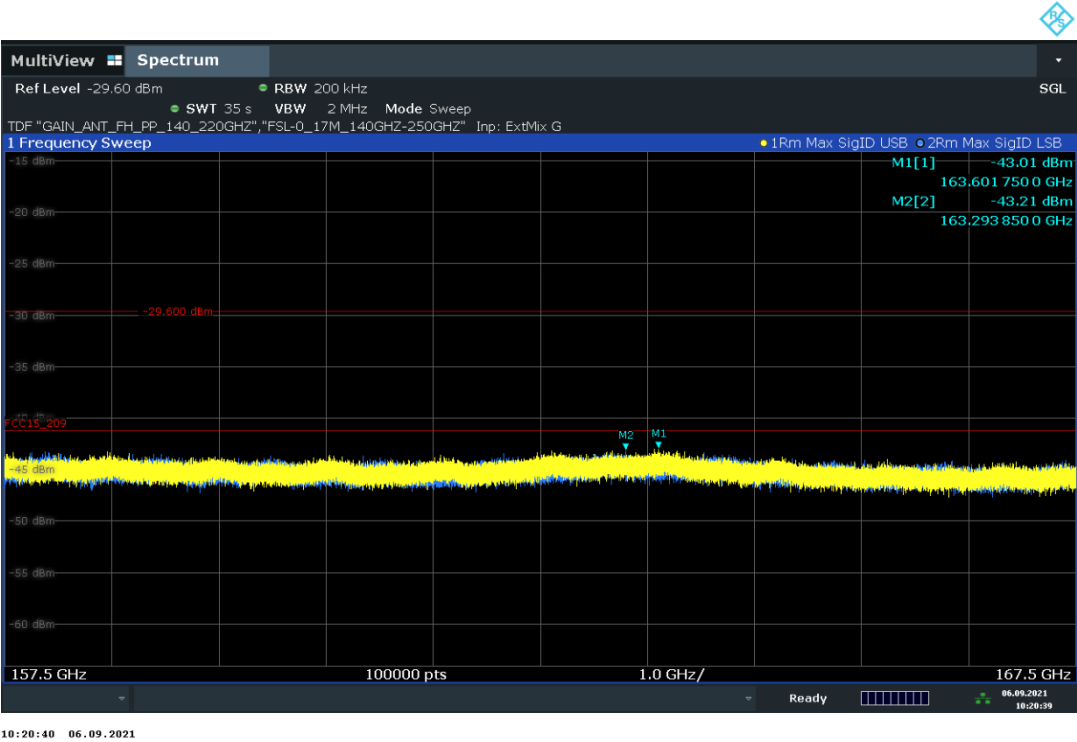

Diagram 79. Small bandwidth is applied in this frequency range in order to show compliance.
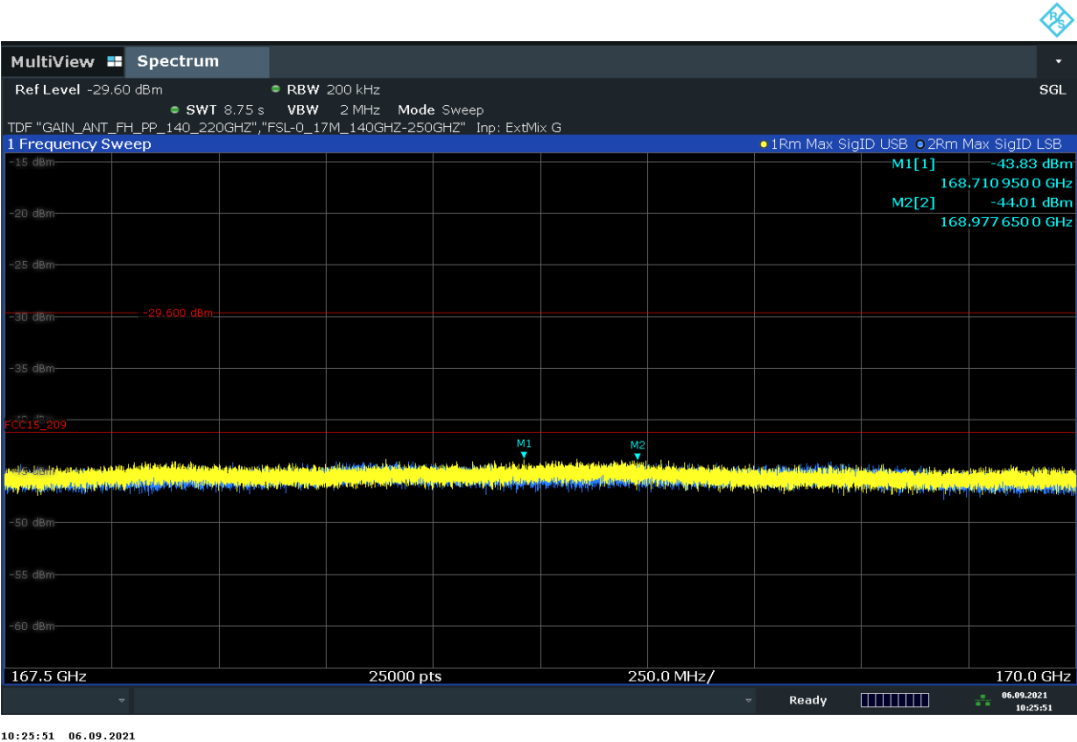
Diagram 80. Small bandwidth is applied in this frequency range in order to show compliance.
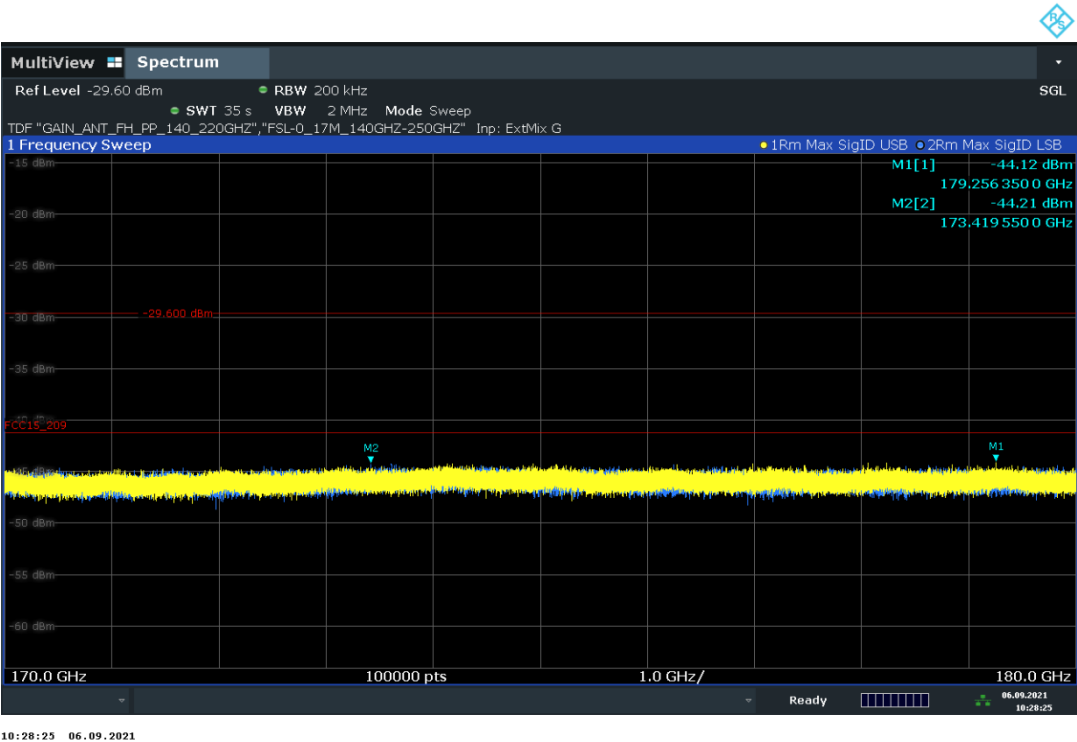

Diagram 81. Small bandwidth is applied in this frequency range in order to show compliance.
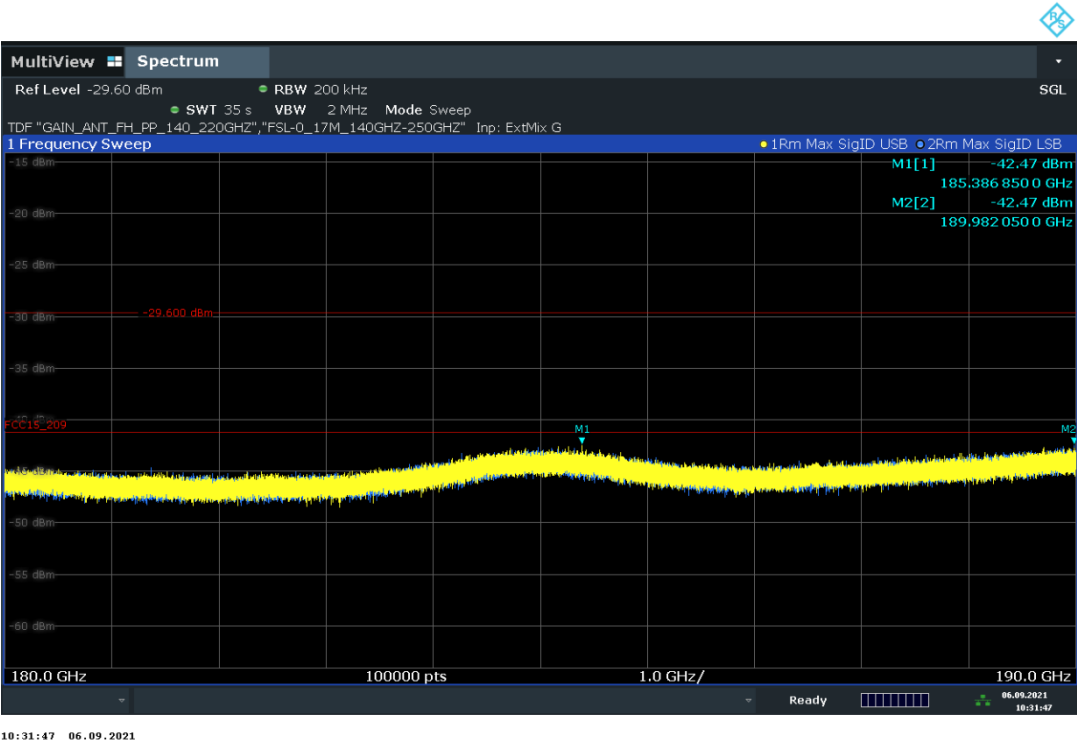
Diagram 82. Small bandwidth is applied in this frequency range in order to show compliance.
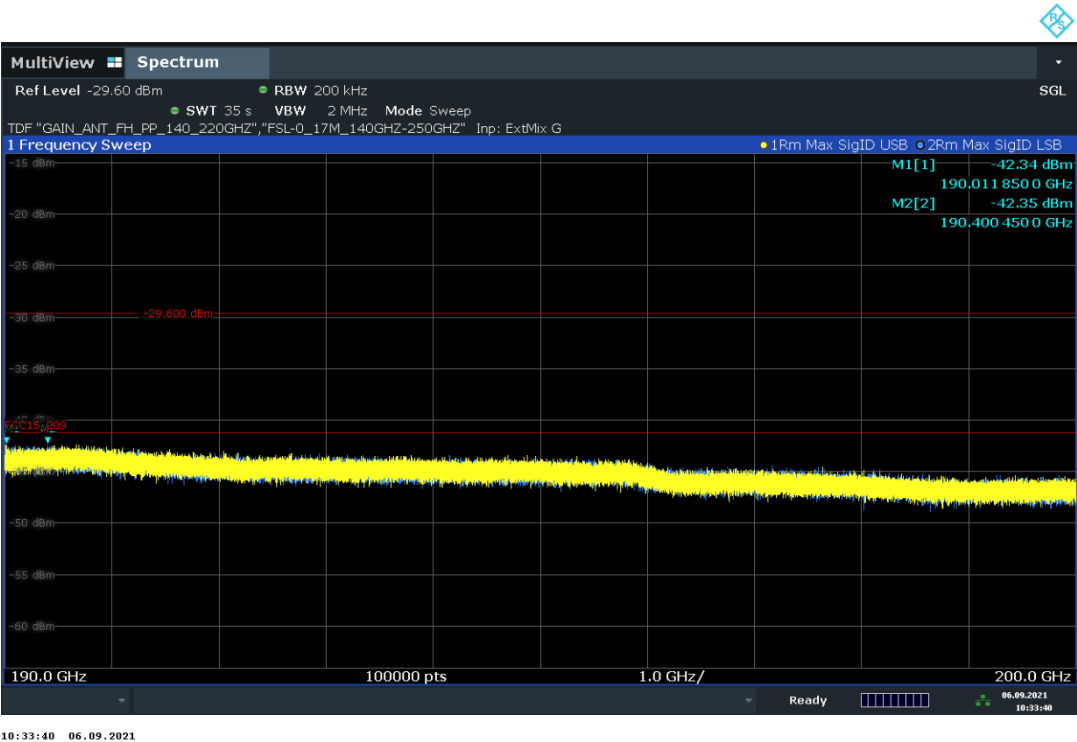

Diagram 83. Small bandwidth is applied in this frequency range in order to show compliance.

1.4.20 Frequency range 140 GHz – 200 GHz. EUT in CW mode: f_middle

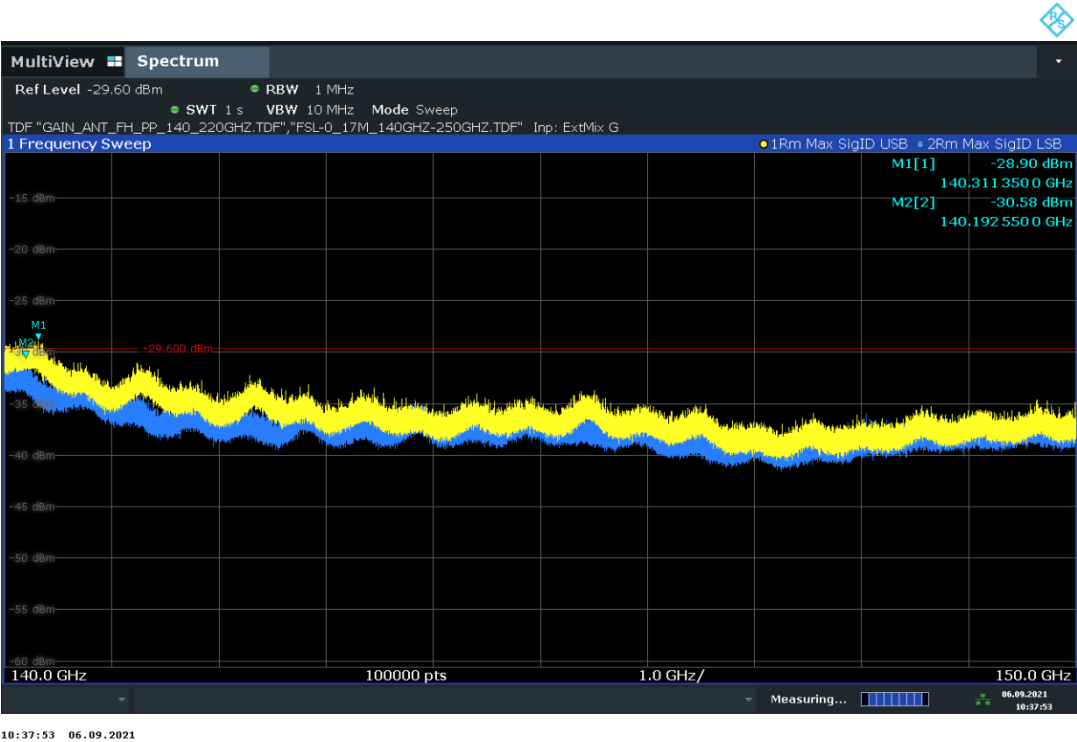Remark: The same method is applied testing CW mode f_middle. This section shows only the overview pre-scan

Diagram 84. Pre-scan for overview, which shows the same spectrum as in last section testing the f_high.

Diagram 85. Pre-scan for overview, which shows the same spectrum as in last section testing the f_high.

1.4.21 Frequency range 140 GHz – 200 GHz. EUT in CW mode: f_low

Remark: The same method is applied testing CW mode f_low. This section shows only the overview pre-scan

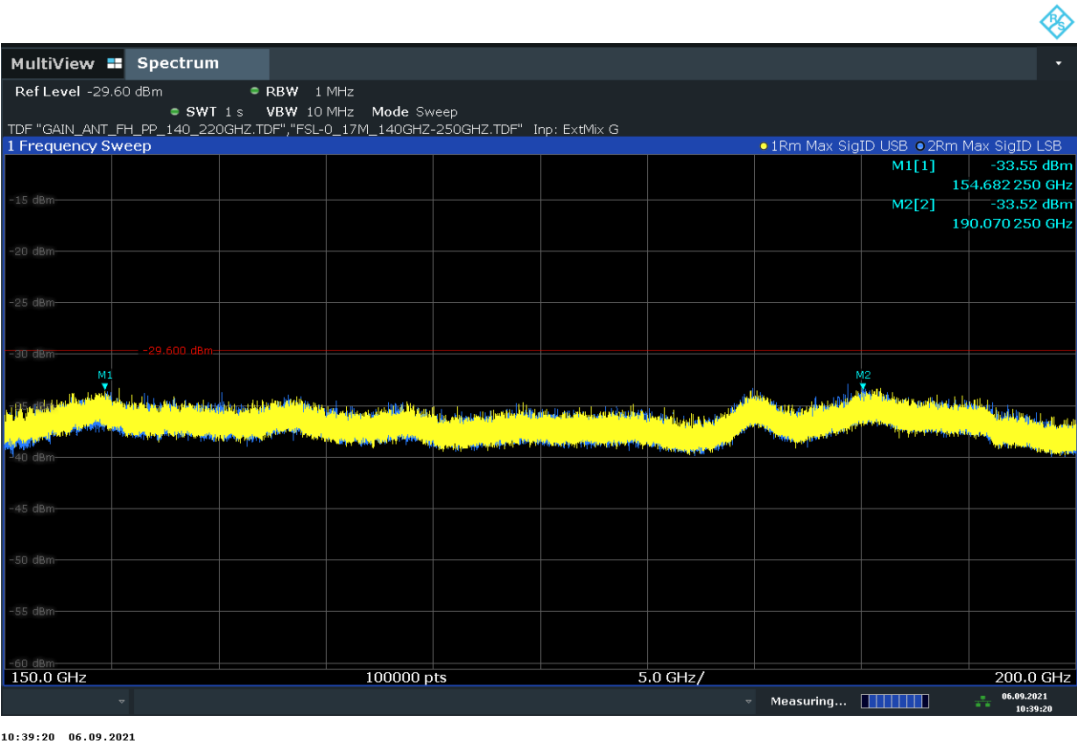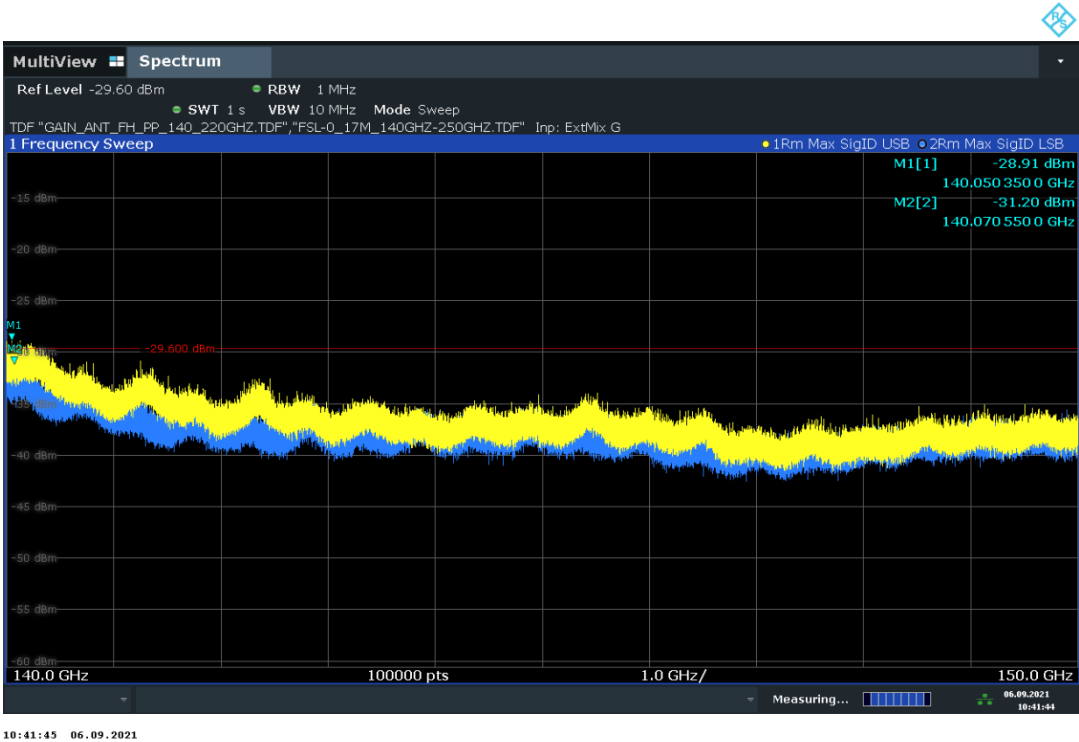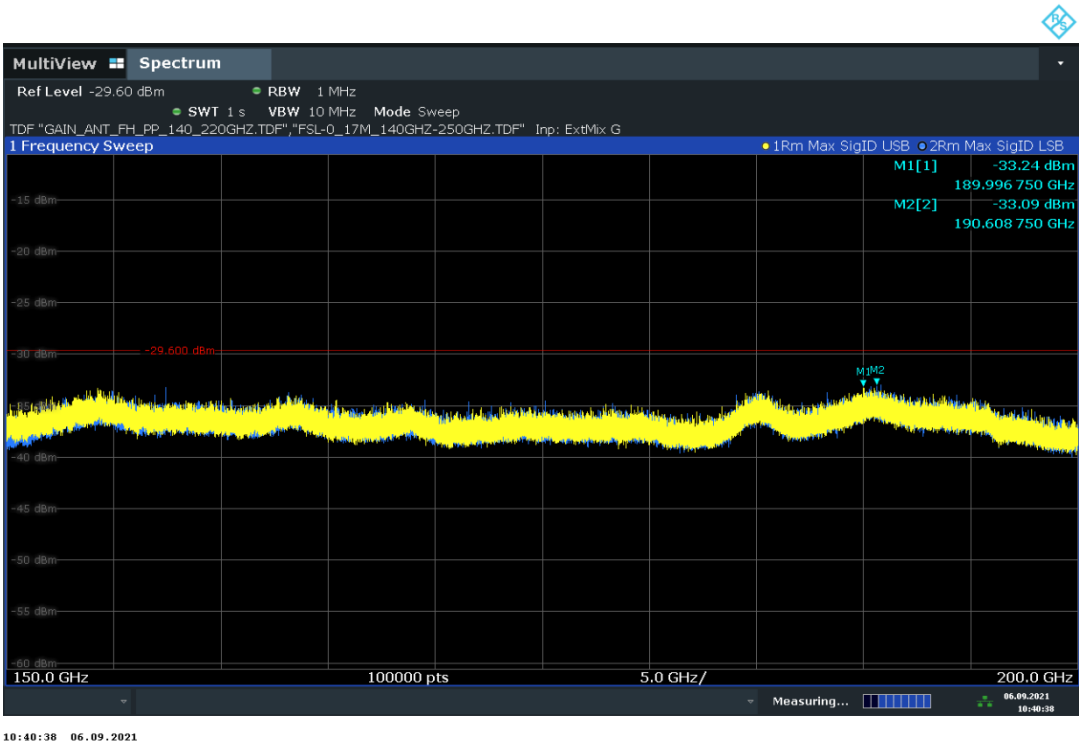Diagram 86. Pre-scan for overview, which shows the same spectrum as in last section testing the f_high.

Diagram 87. Pre-scan for overview, which shows the same spectrum as in last section testing the f_high.

1.5 Antenna beamwidth and side lobe gain

Remark: For the following measurement, the EUT is set to CW mode at 79 GHz. The maximization of the emission level is conducted manually by turning and tilting the EUT. The maximum level is determined to be 9.52 dBm.
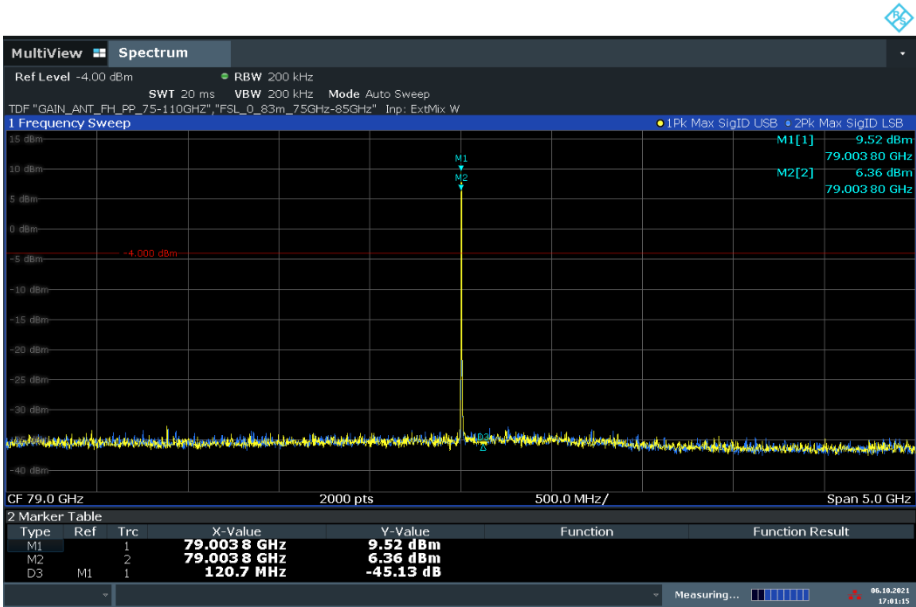

17:01:16 06.10.2021

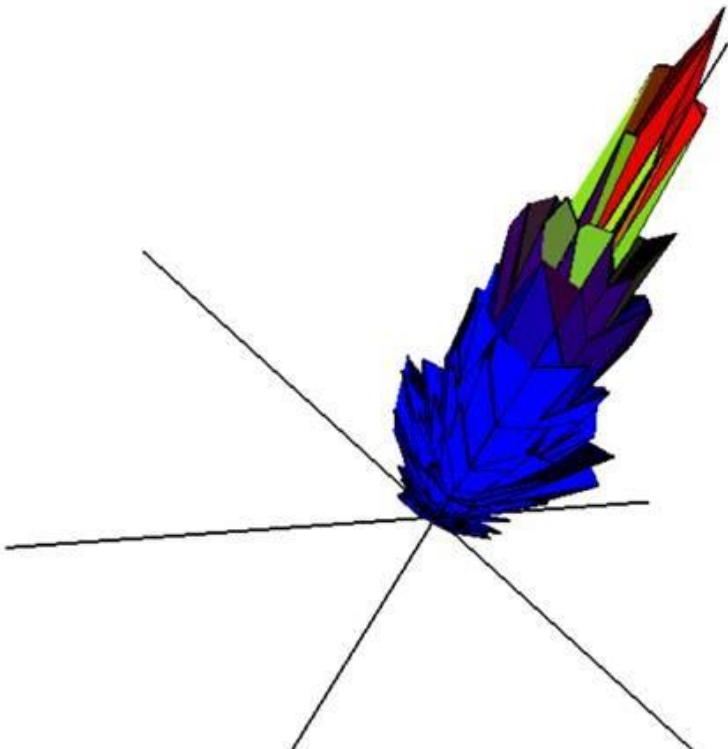Diagram 88. For information only. The manual maximization of the emission level shows a value of 9.52 dBm.

Diagram 89. For information only. Antenna pattern in 3D. At Polarization of the transmitting antenna Phi = 0° and 30°, the highest power is measured. See following diagrams.
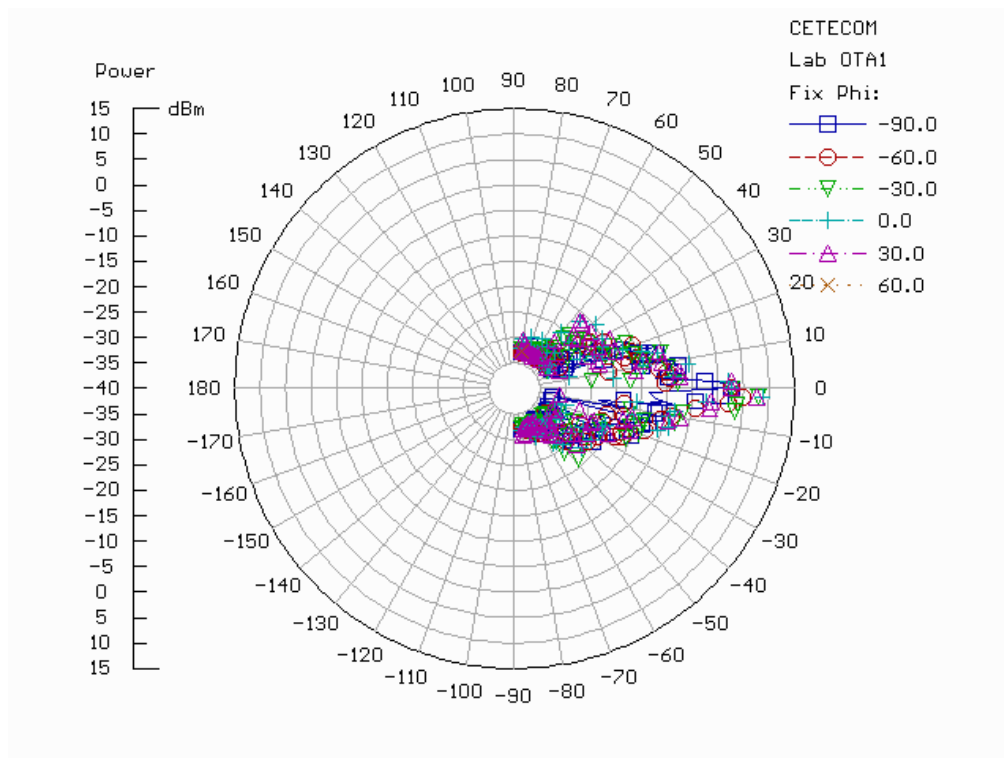
Diagram 90. Antenna pattern in azimuth at various elevation angle (Phi = -90° to 60°).
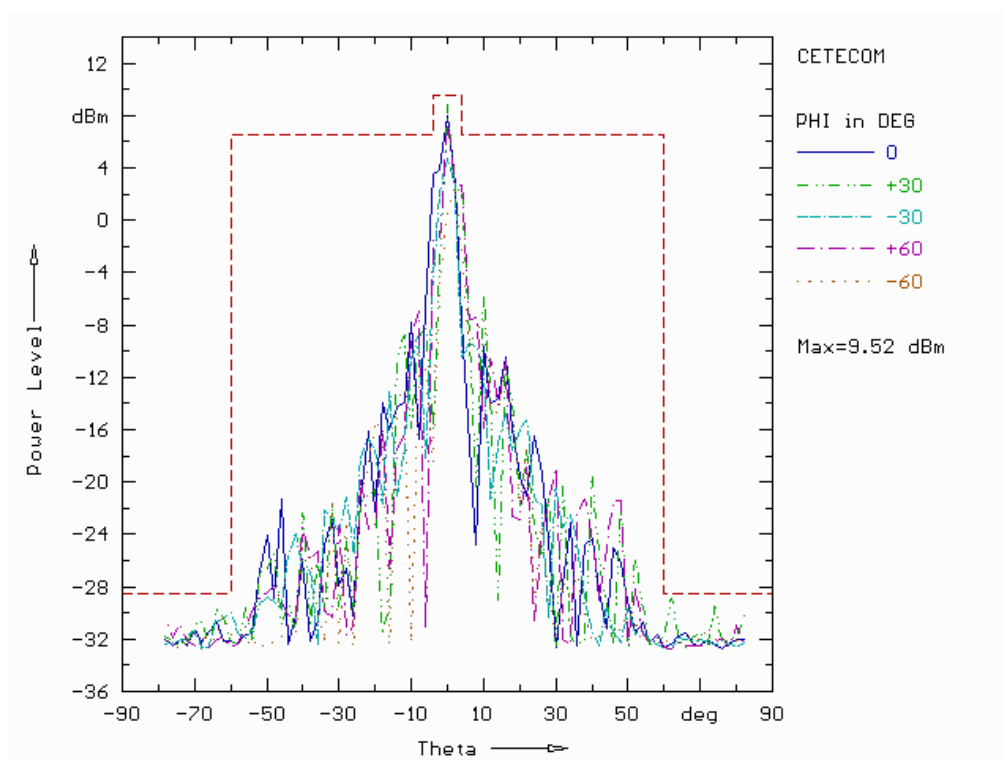

Diagram 91. Alternative view of the antenna pattern in azimuth at various elevation angle. The limit for the 3 dB beam width and the side lobe gain is added in this view.

Conclusion:
- ➢ -3 dB beamwidth is no greater than 8°
- ➢ The antenna side lobe gain relative to the main beam gain for off-axis angles from the main beam of greater than 60° is no greater than -38 dB

End of Annex 1