Annex 1: Measurement diagrams 20-1-0127501T01a-A1

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Product: **Model:** **Type:**	**LoRa device** **EMS** **-**		
FCC ID:	2ANX3-EMS01	**IC:**	26904-EMS01
Testing has been carried out in accordance with:	**Title 47 CFR, Chapter I** **FCC Regulations, Subchapter A** **Subpart C: §15.247 (DTS)** **RSS-247, Issue2 — Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and License-Exempt Local Area Network (LE-LAN) Devices** Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		

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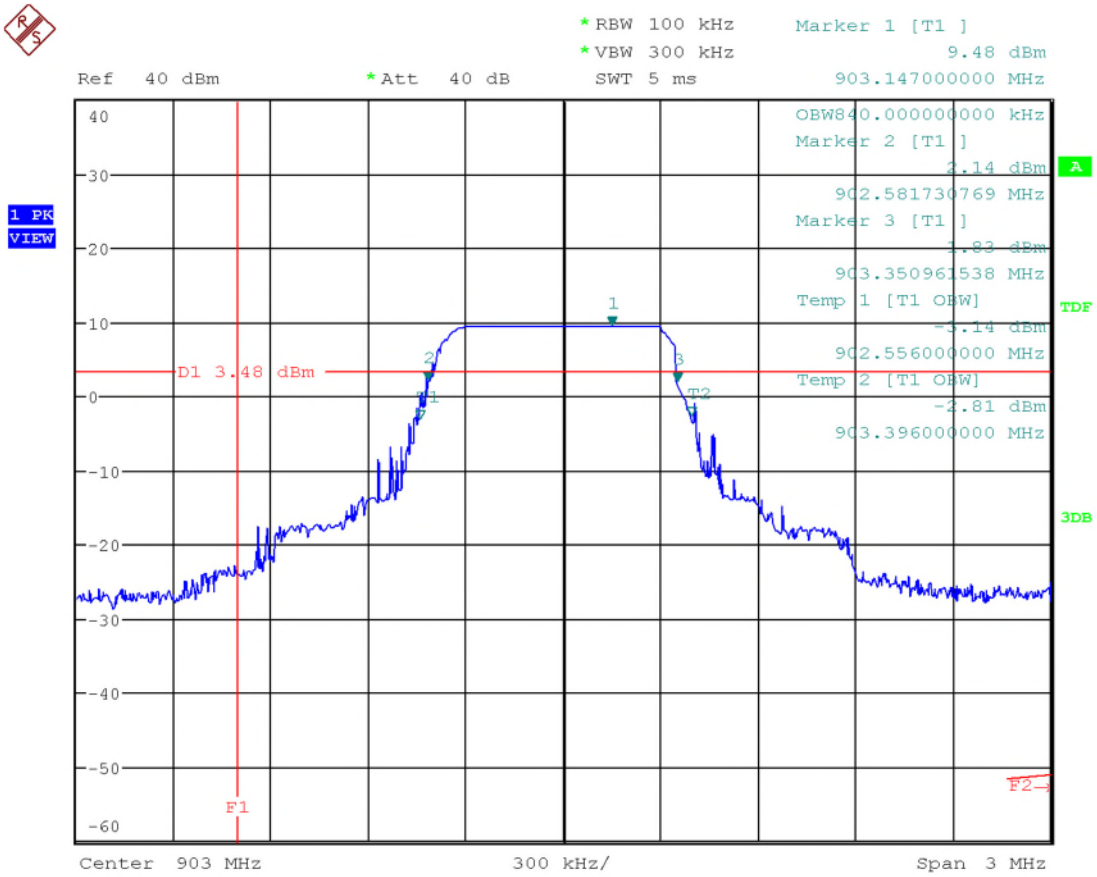

Figure 1: D01_01_DTSBW+99%OBW_ChLow_DTS

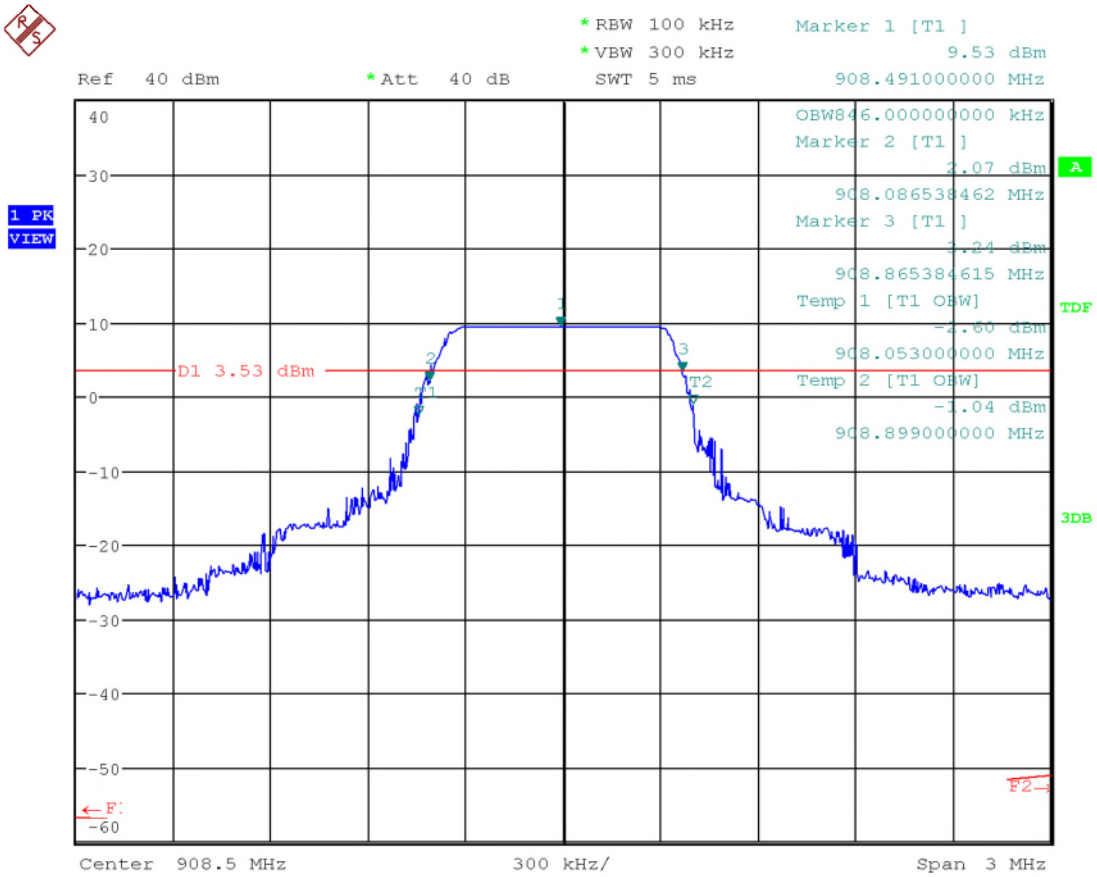

Figure 2: D01_02_DTSBW+99%OBW_ChMid_DTS

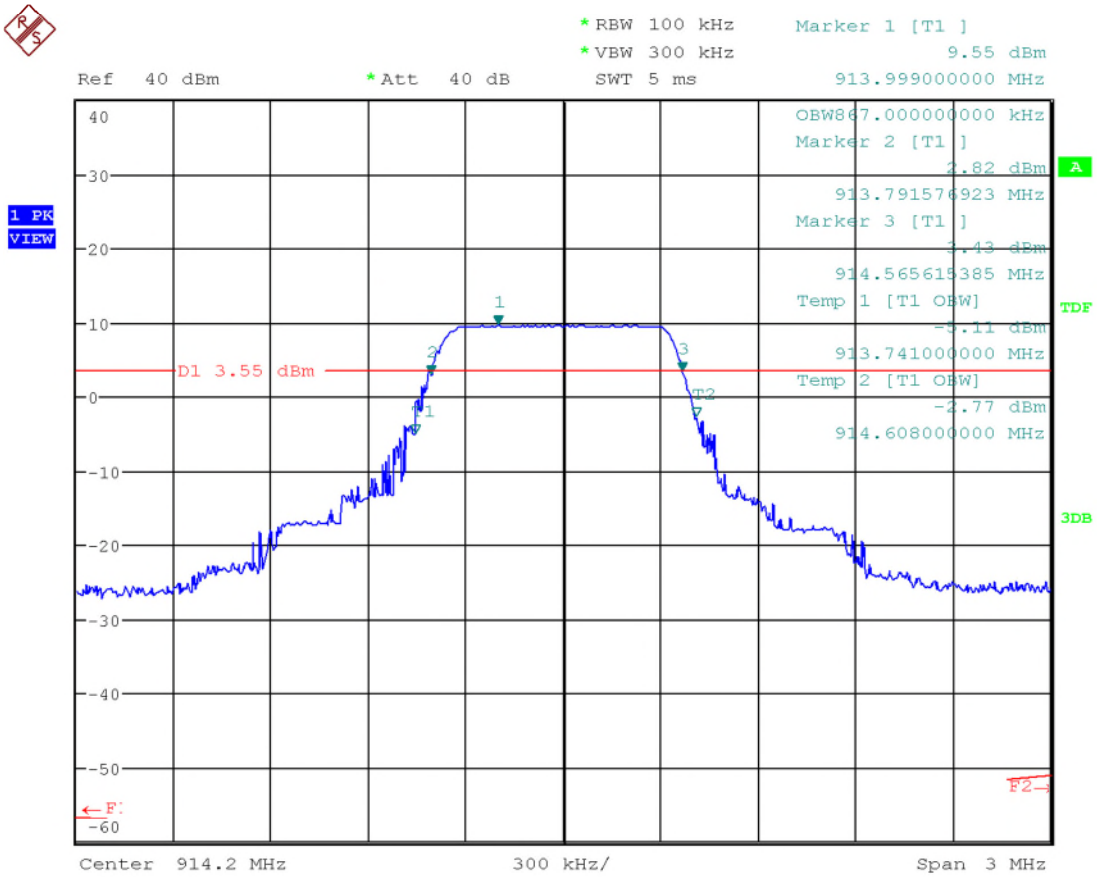

Figure 3: D01_03_DTSBW+99%OBW_ChHigh_DTS

1.1.2 Maximum output power conducted, §15.247(b)(3)

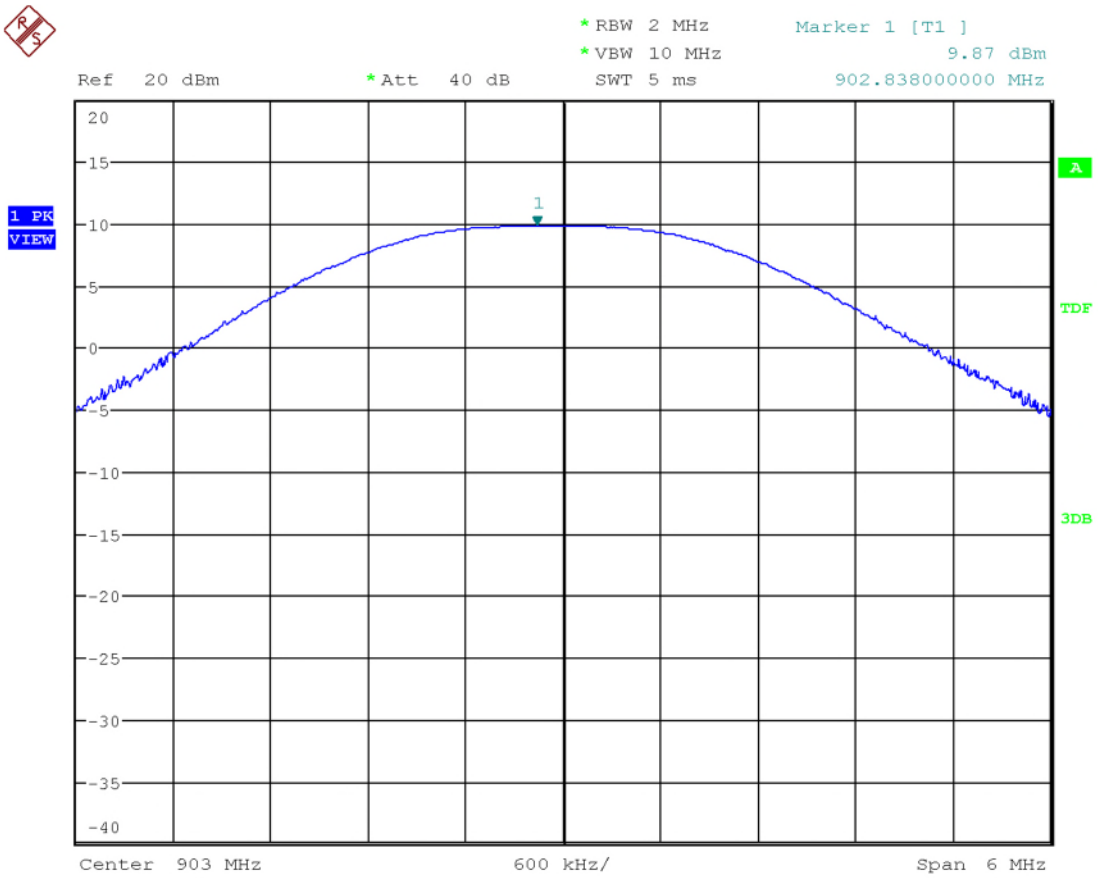

Figure 4: D02_01_PKPWR_ChLow_DTS

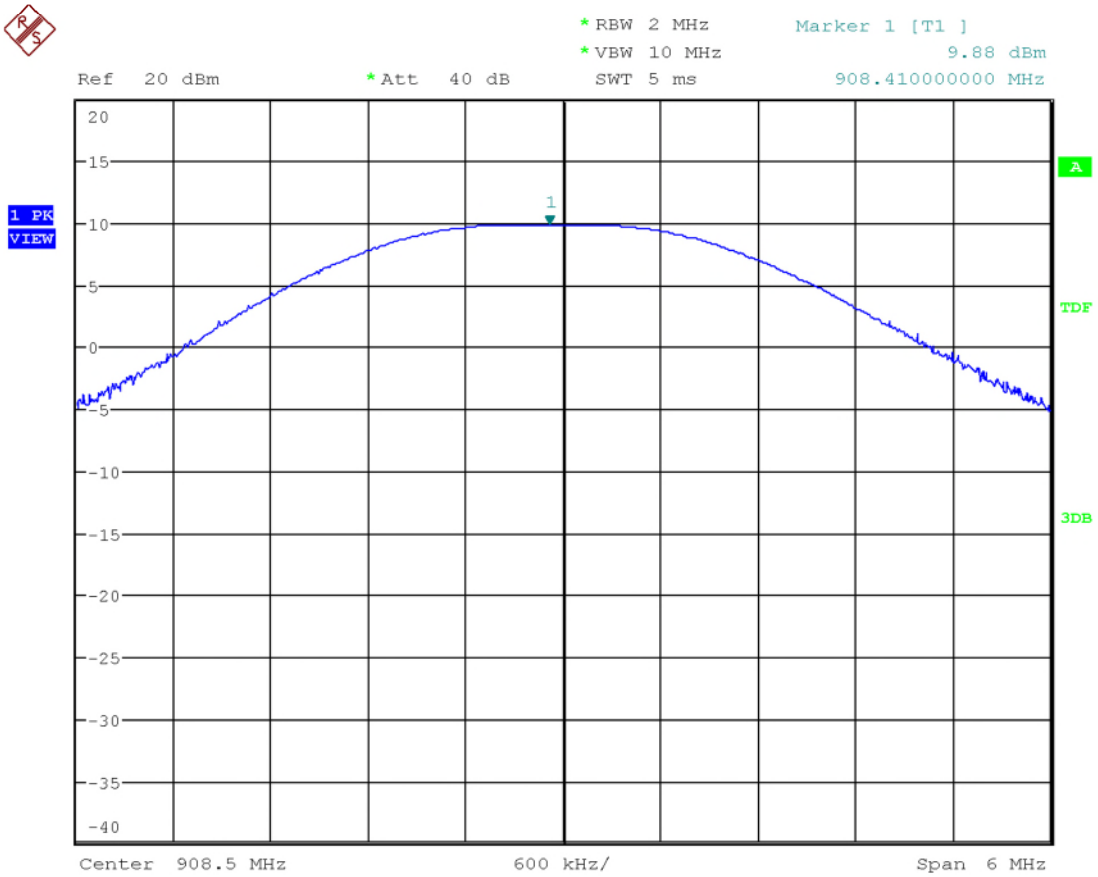

Figure 5: D02_02_PKPWR_ChMid_DTS

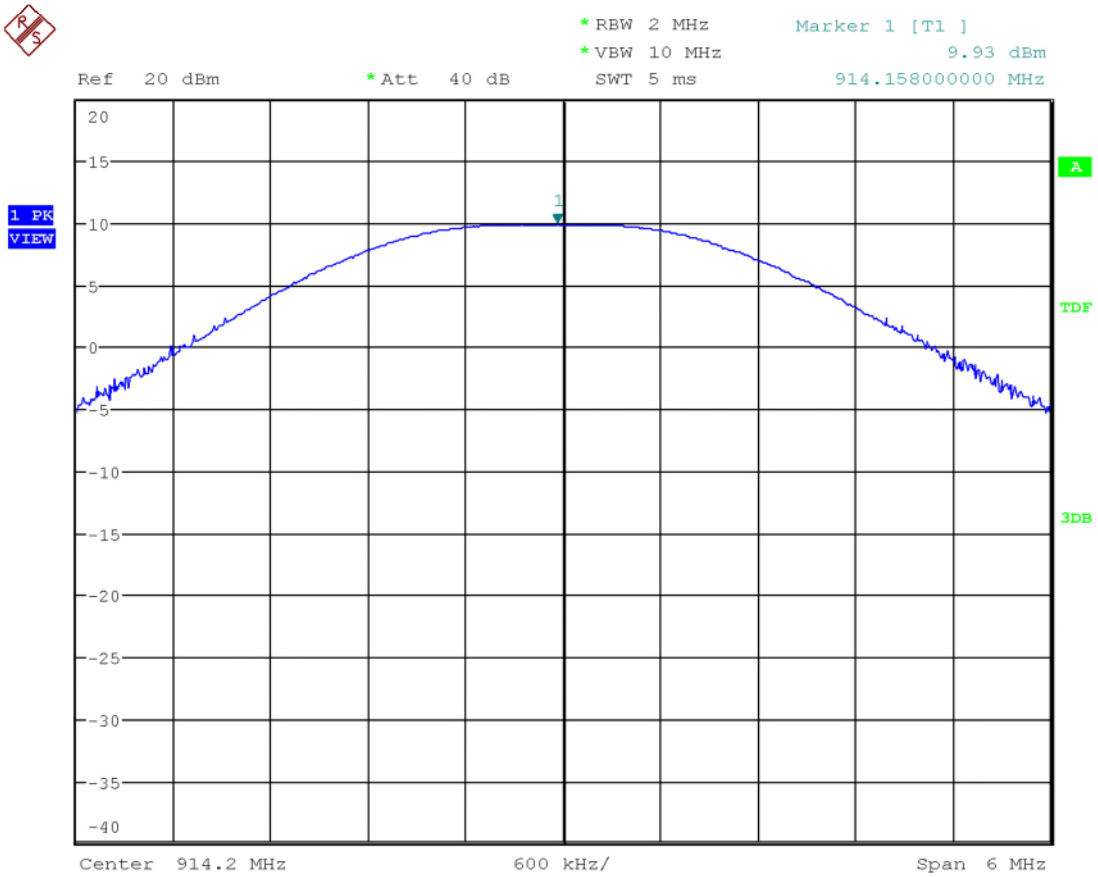

Figure 6: D02_03_PKPWR_ChHigh_DTS

1.1.3 Power spectral density conducted, §15.247(e)

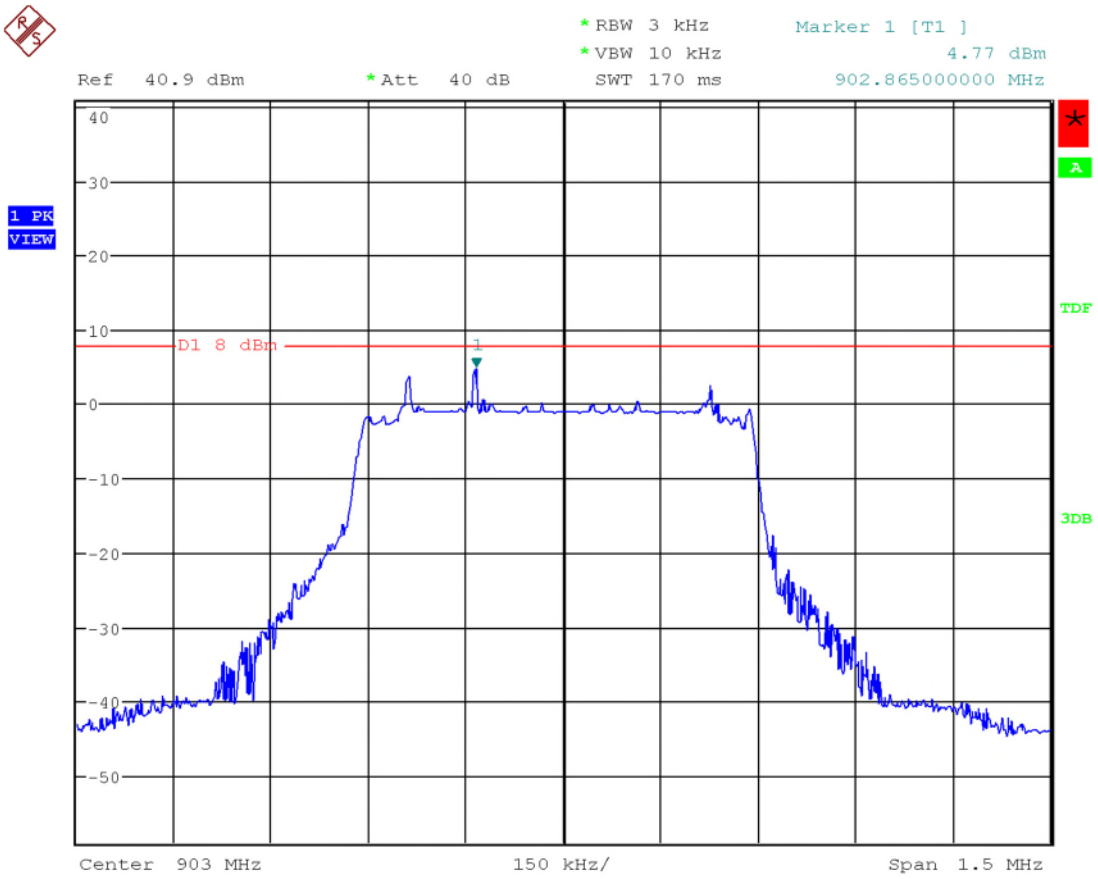

Figure 7: D03_01_PKPSD_ChLow_DTS

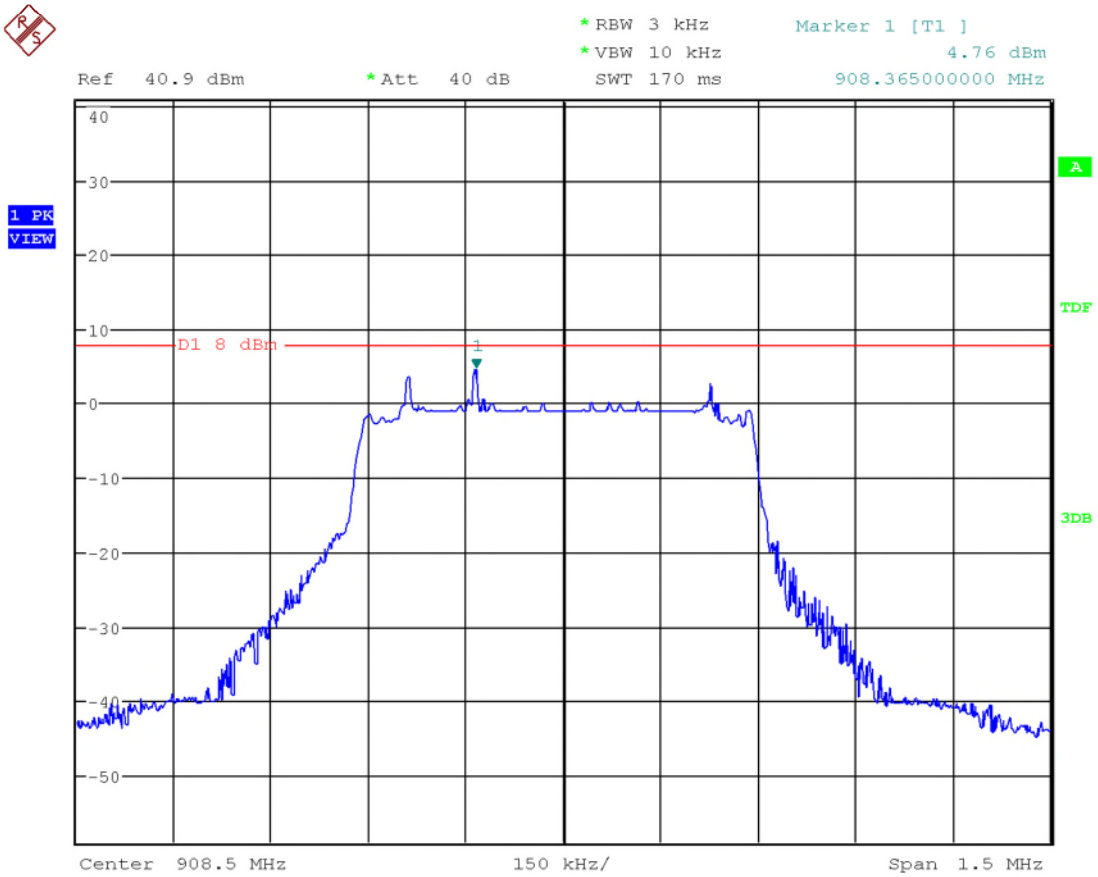

Figure 8: D03_02_PKPSD_ChMid_DTS

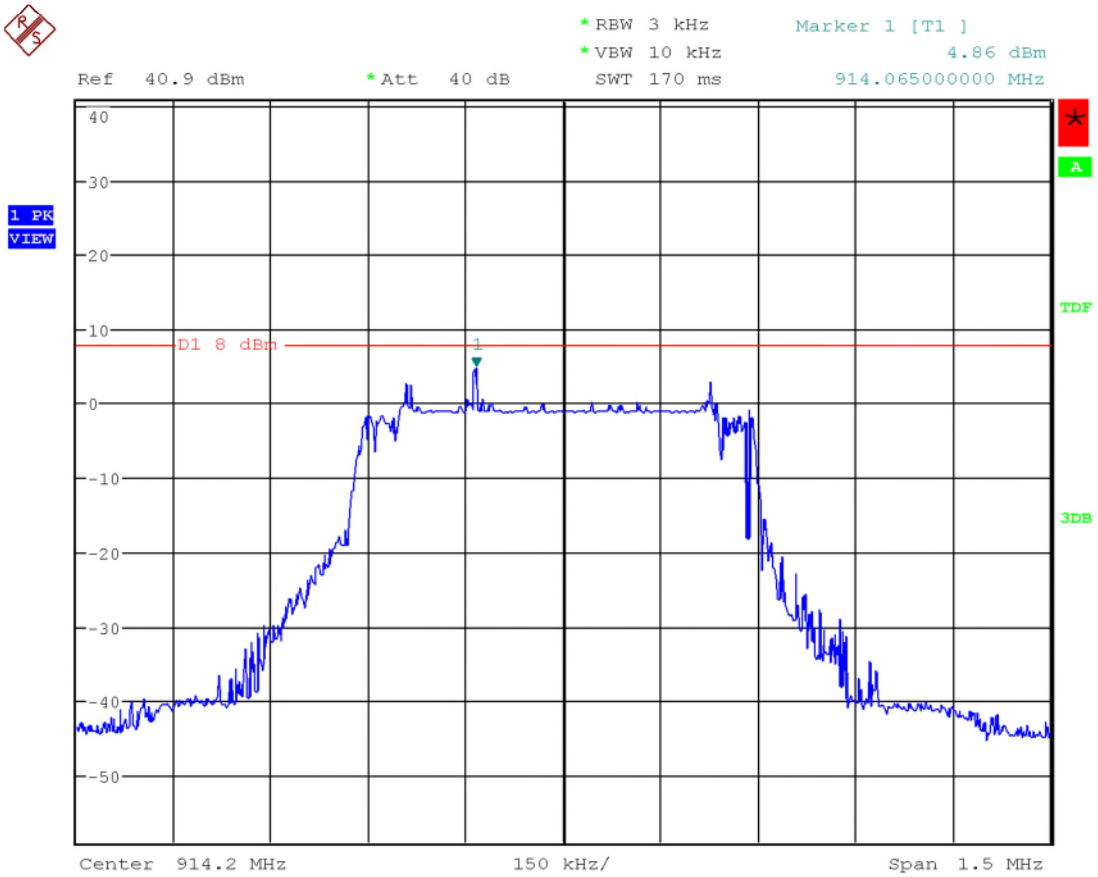

Figure 9: D03_03_PKPSD_ChHigh_DTS

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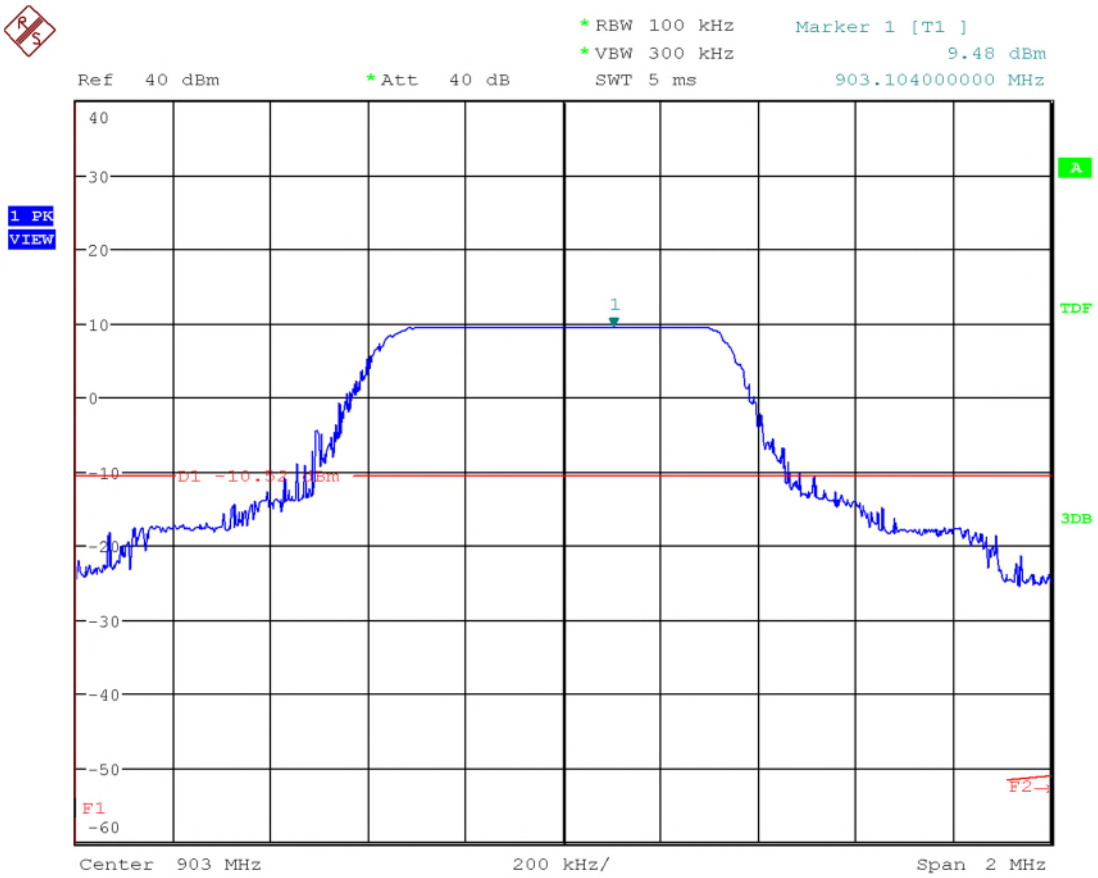

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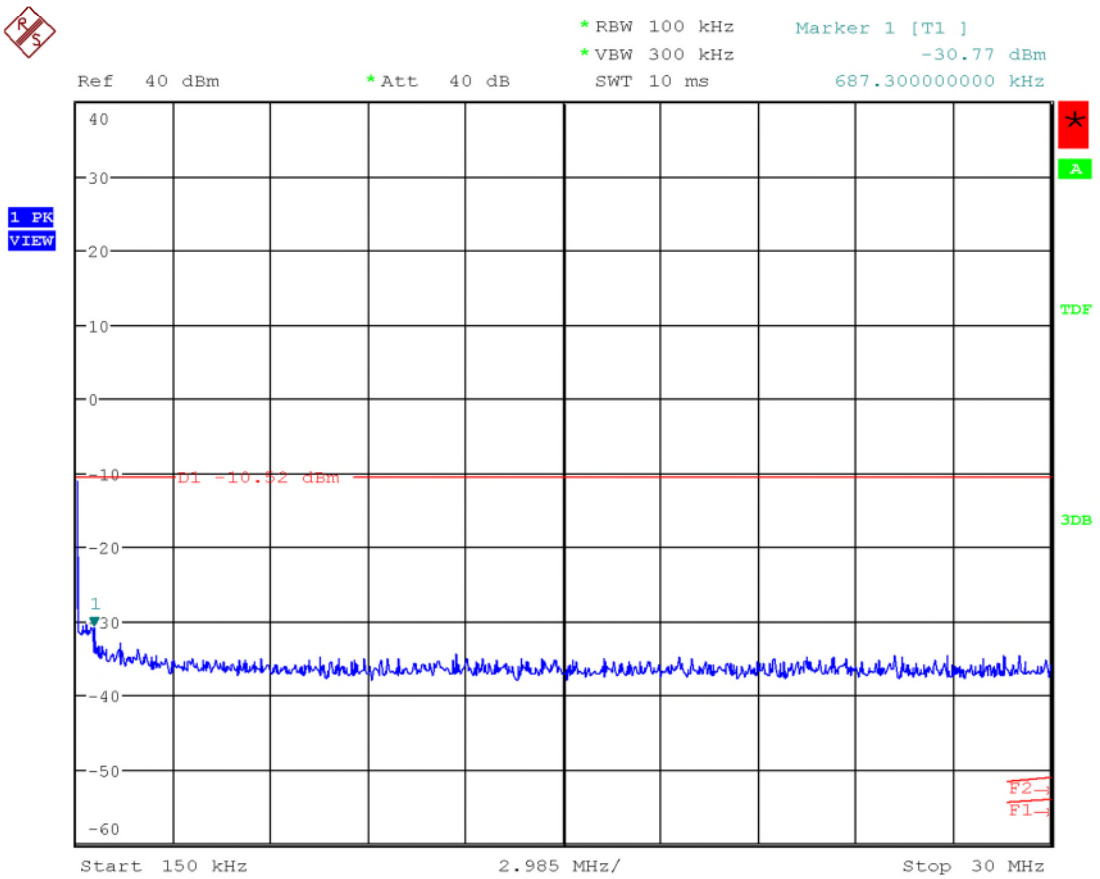

Figure 11: D04_02_CSE20dBc_Sweep1_ChLow_DTS

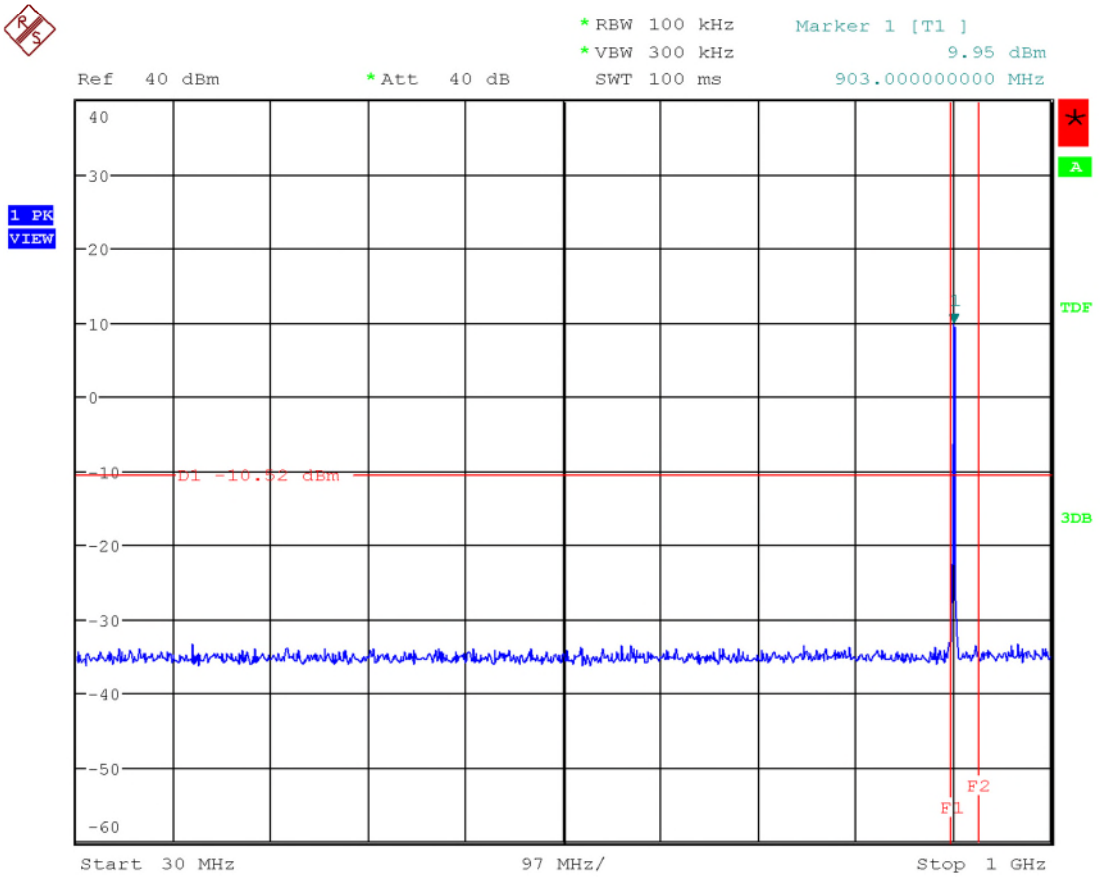

Figure 12: D04_03_CSE20dBc_Sweep2_ChLow_DTS

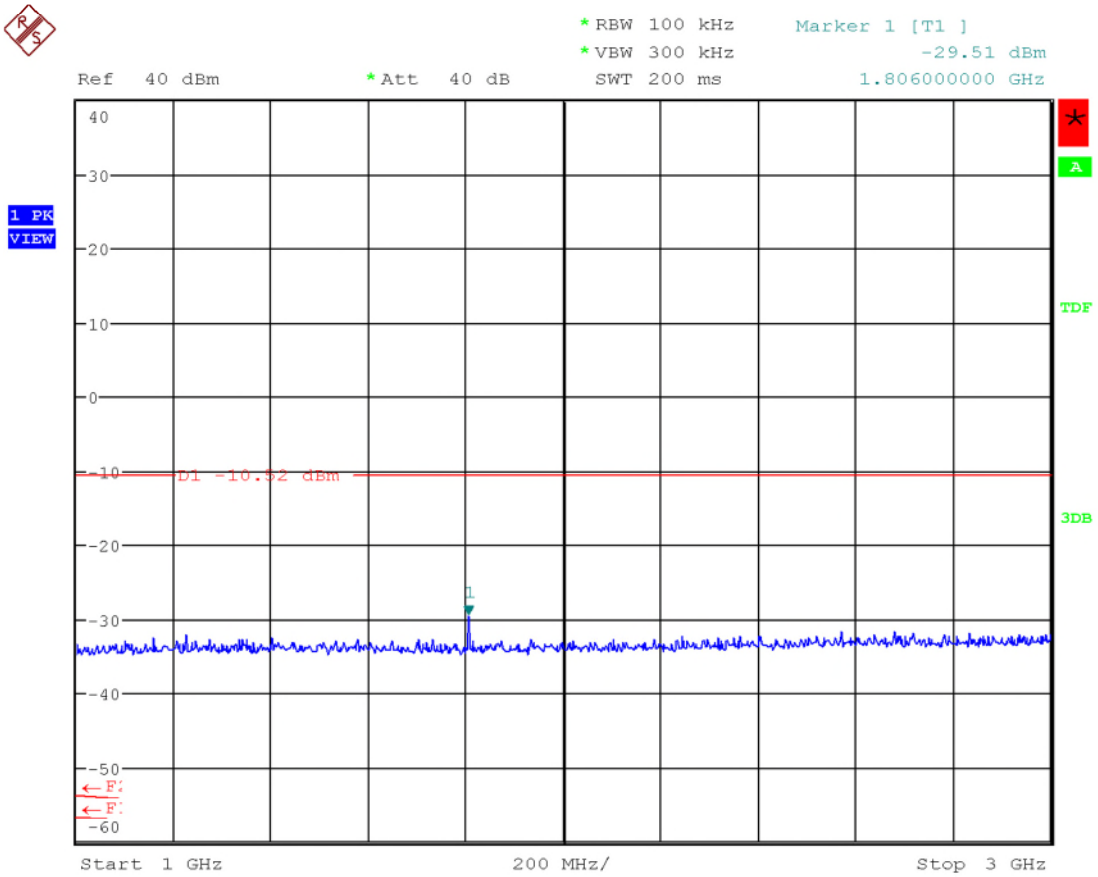

Figure 13: D04_04_CSE20dBc_Sweep3_ChLow_DTS

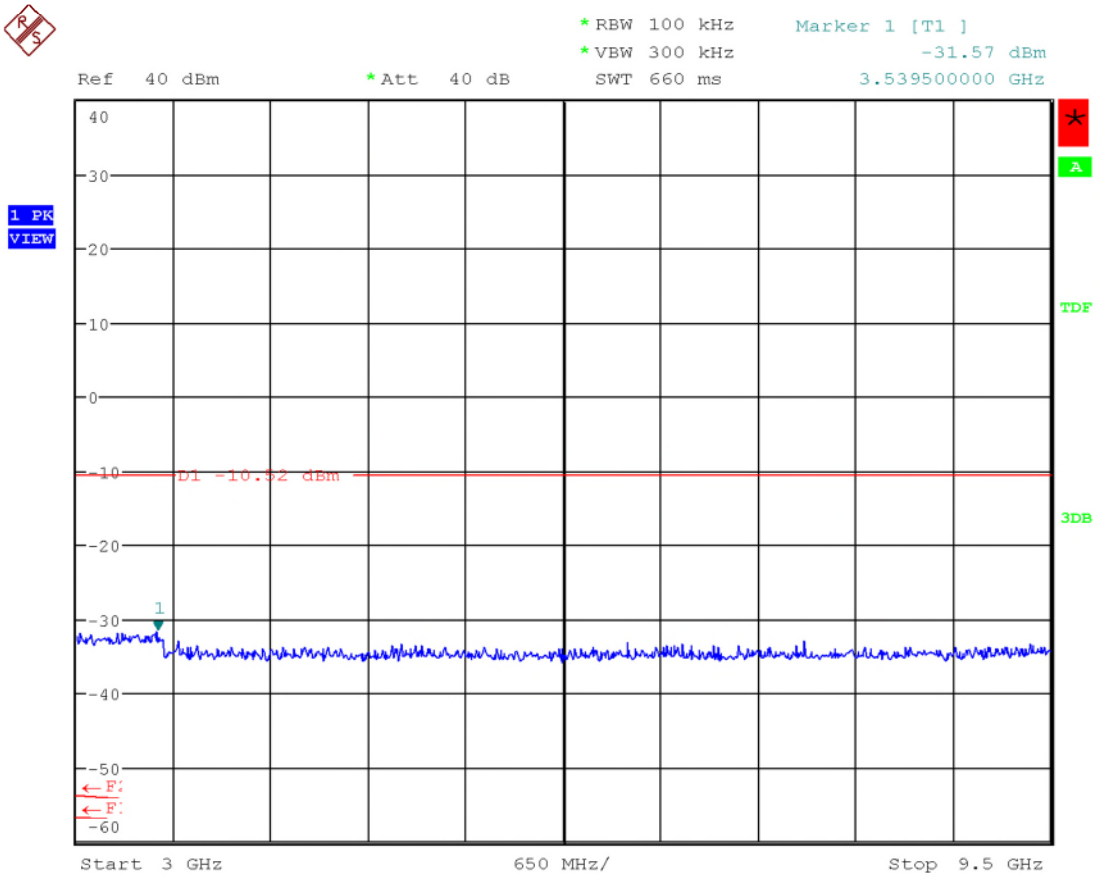

Figure 14: D04_05_CSE20dBc_Sweep4_ChLow_DTS

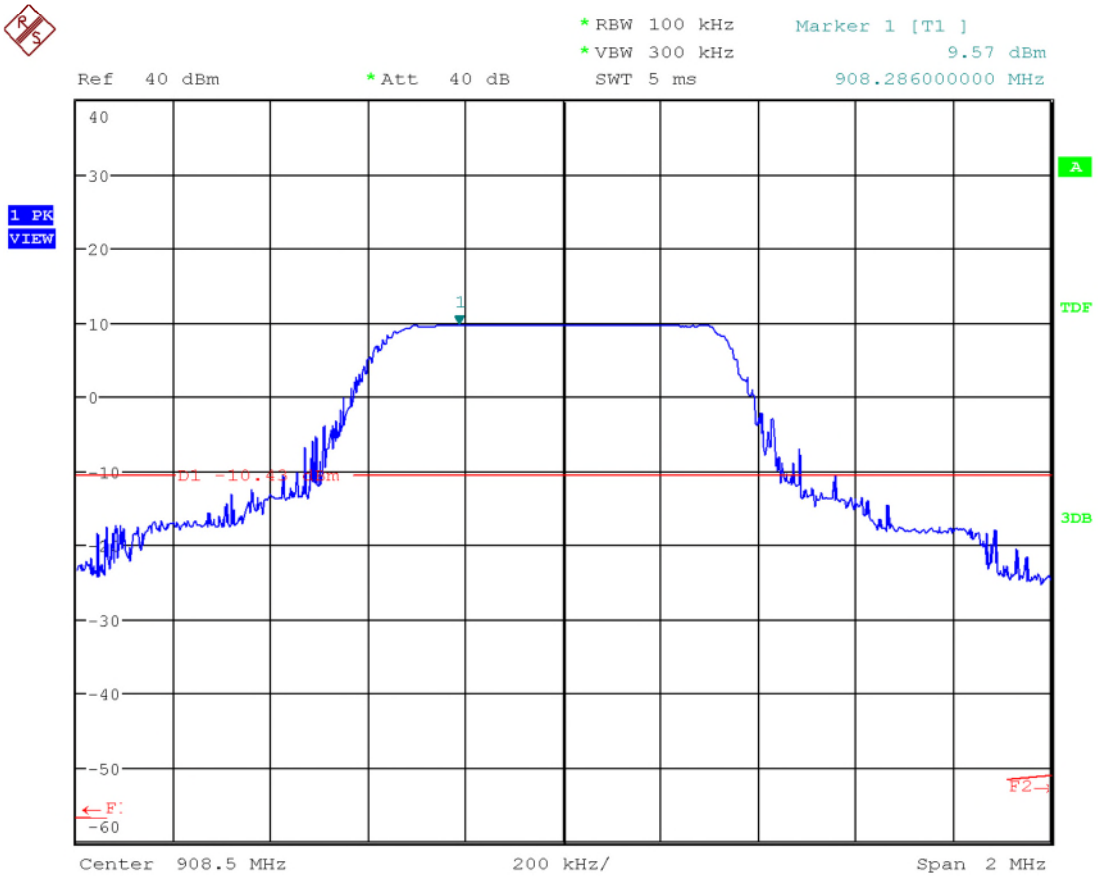

Figure 15: D05_01_CSE20dBc_Ref_ChMid_DTS

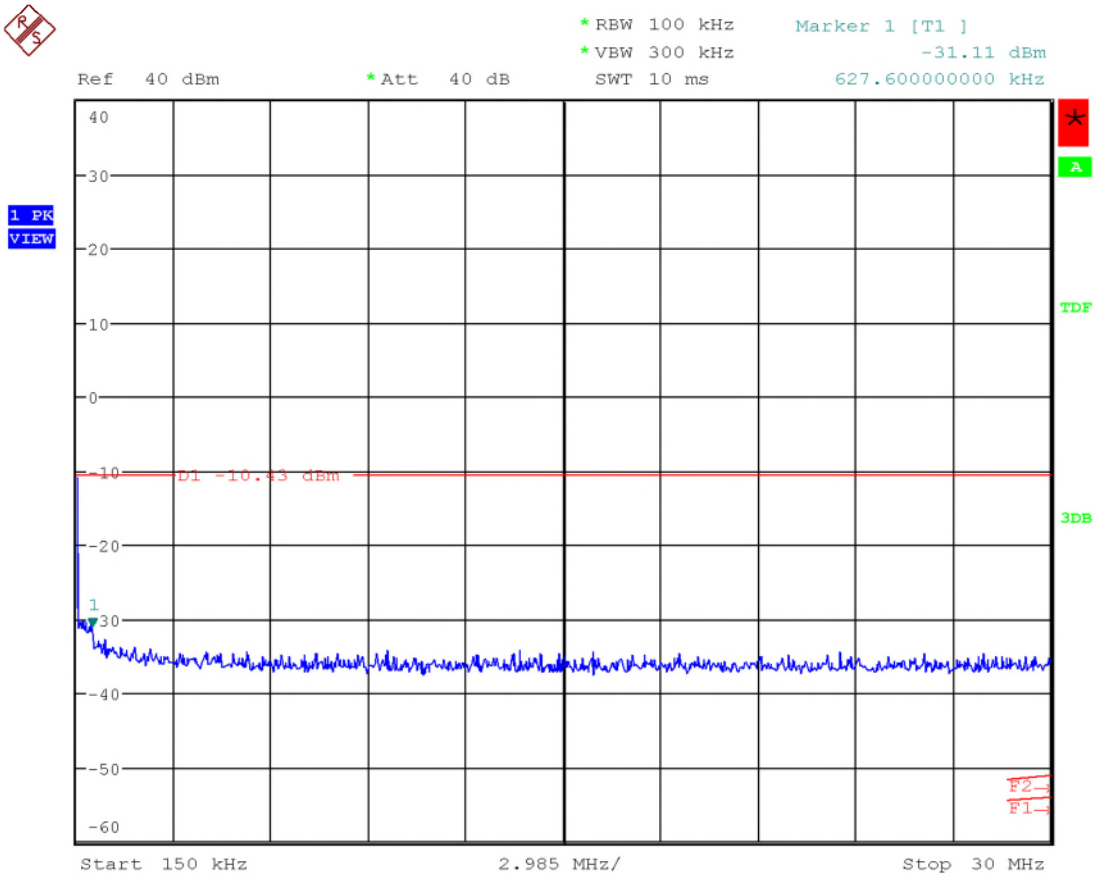

Figure 16: D05_02_CSE20dBc_Sweep1_ChMid_DTS

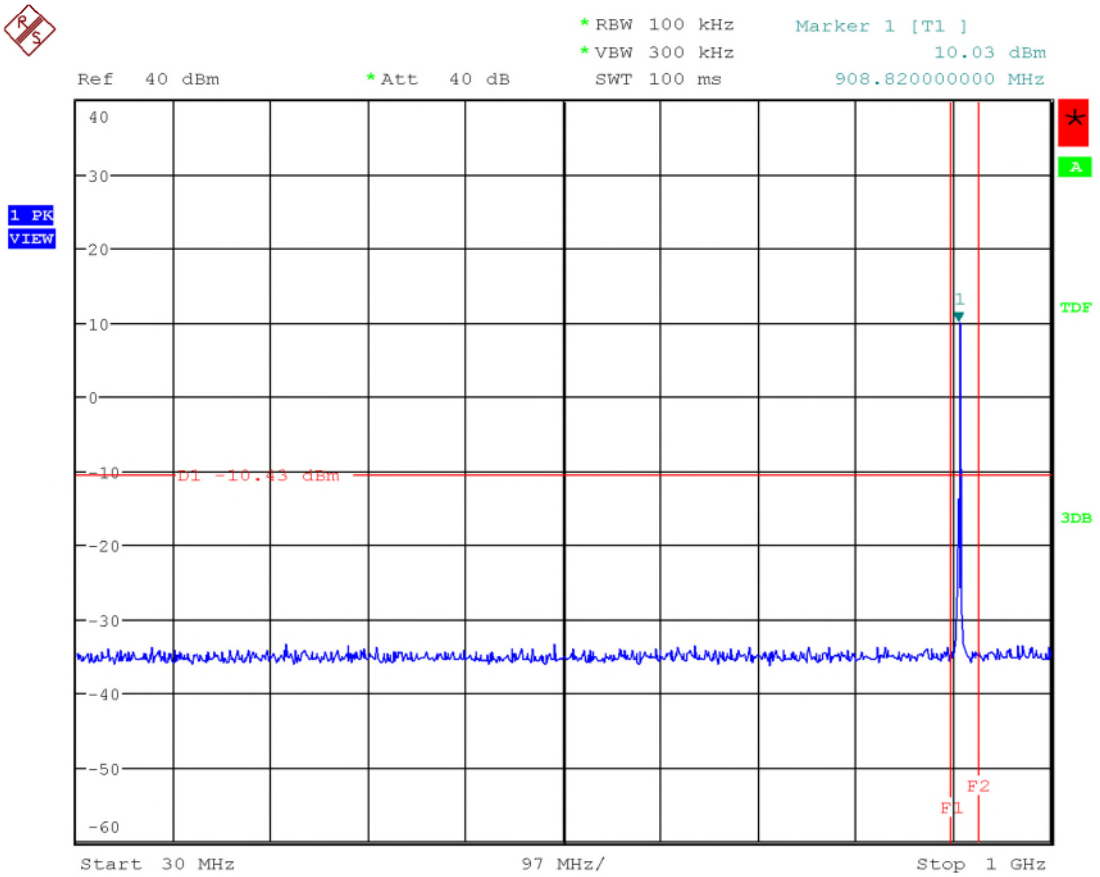

Figure 17: D05_03_CSE20dBc_Sweep2_ChMid_DTS

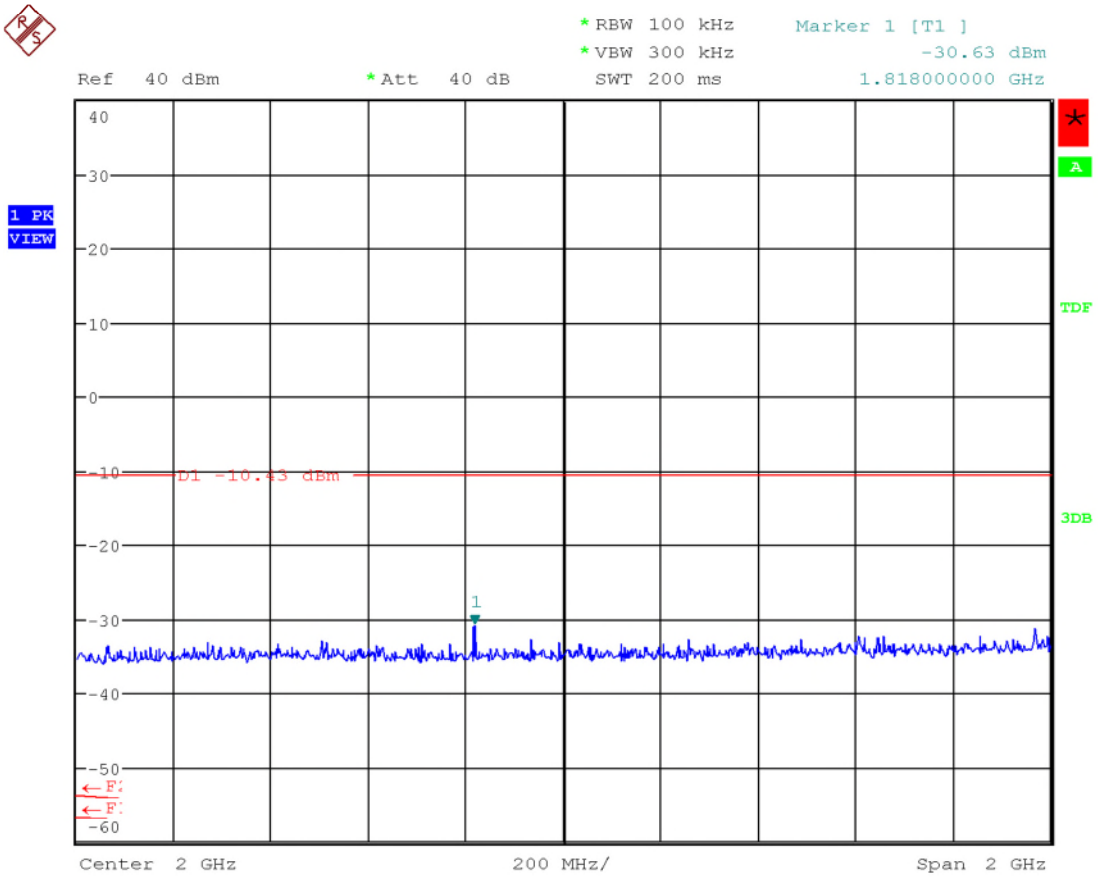

Figure 18: D05_04_CSE20dBc_Sweep3_ChMid_DTS

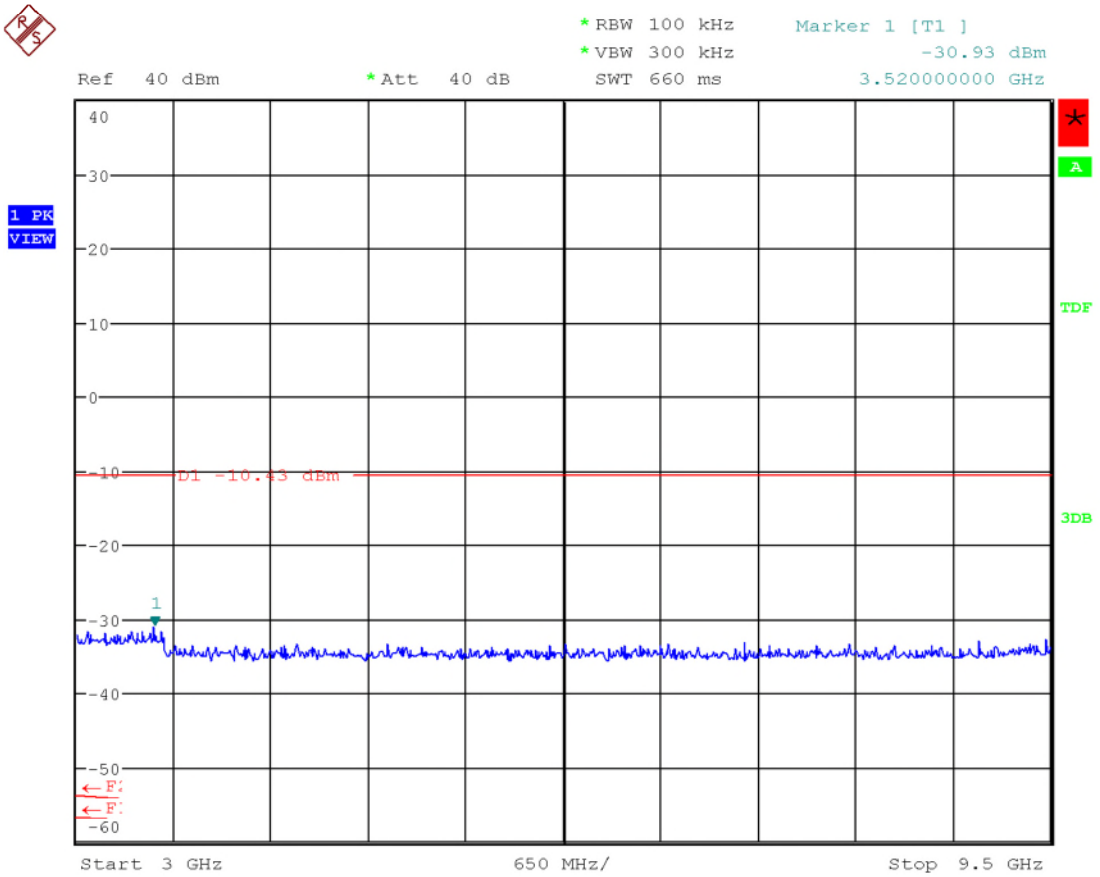

Figure 19: D05_05_CSE20dBc_Sweep4_ChMid_DTS

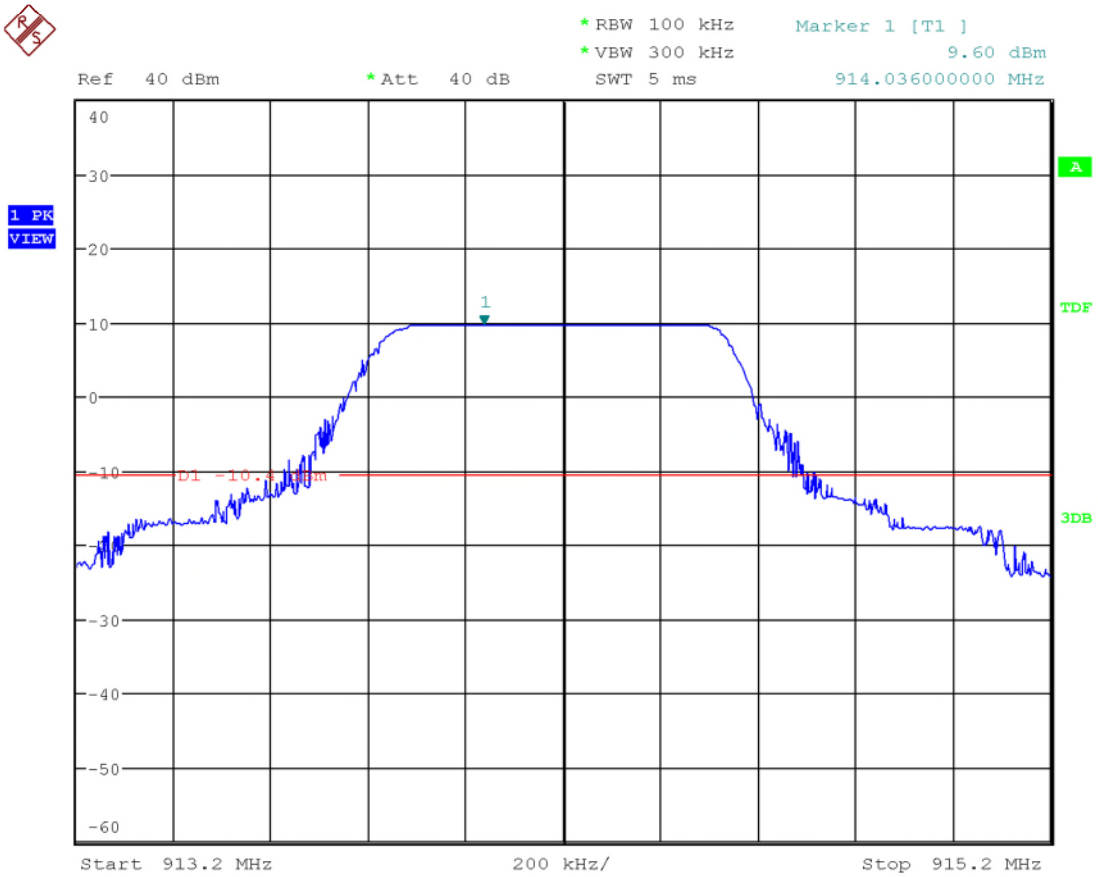

Figure 20: D06_01_CSE20dBc_Ref_ChHigh_DTS

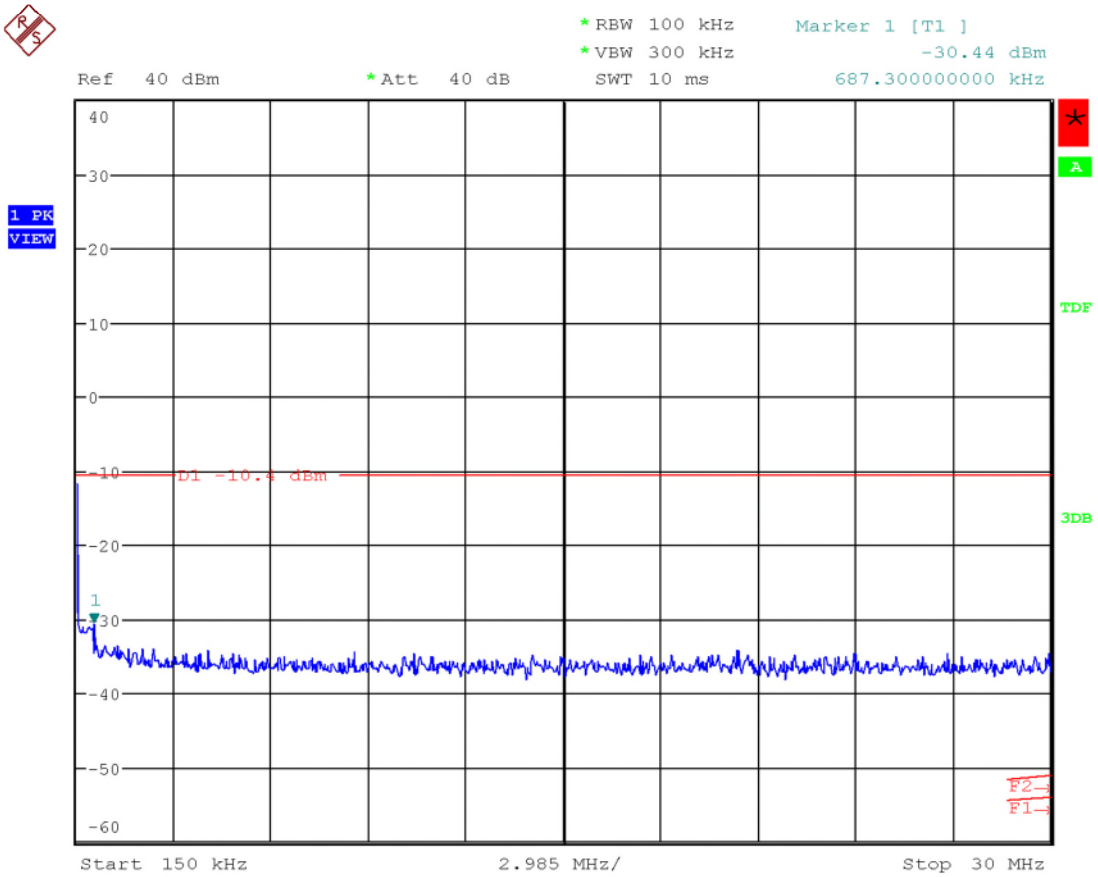

Figure 21: D06_02_CSE20dBc_Sweep1_ChHigh_DTS

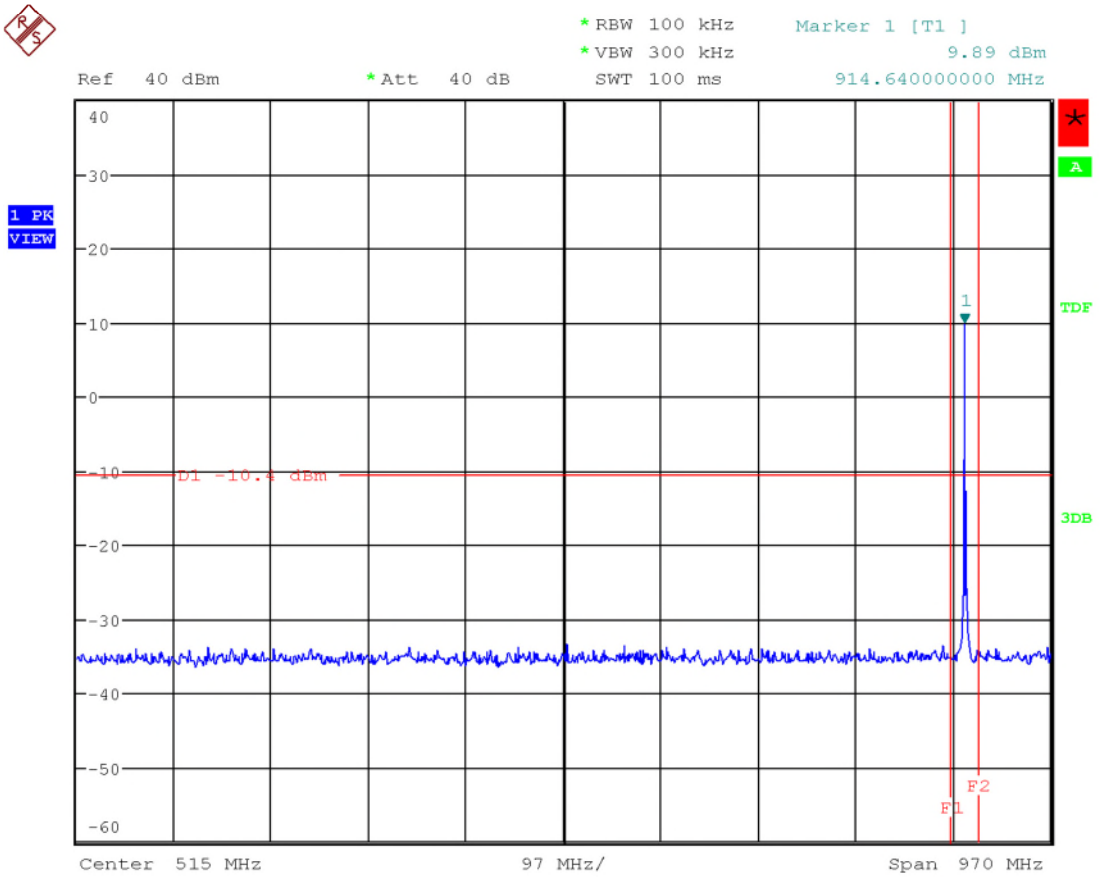

Figure 22: D06_03_CSE20dBc_Sweep2_ChHigh_DTS

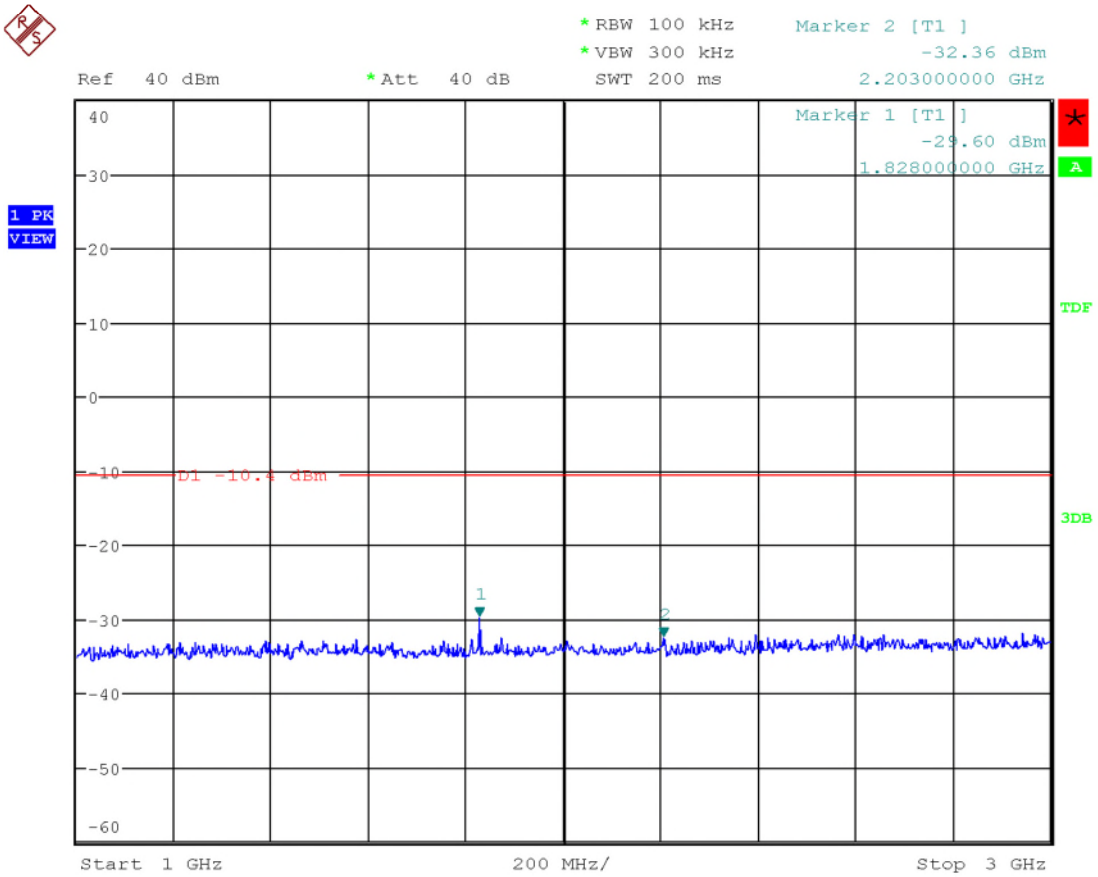

Figure 23: D06_04_CSE20dBc_Sweep3_ChHigh_DTS

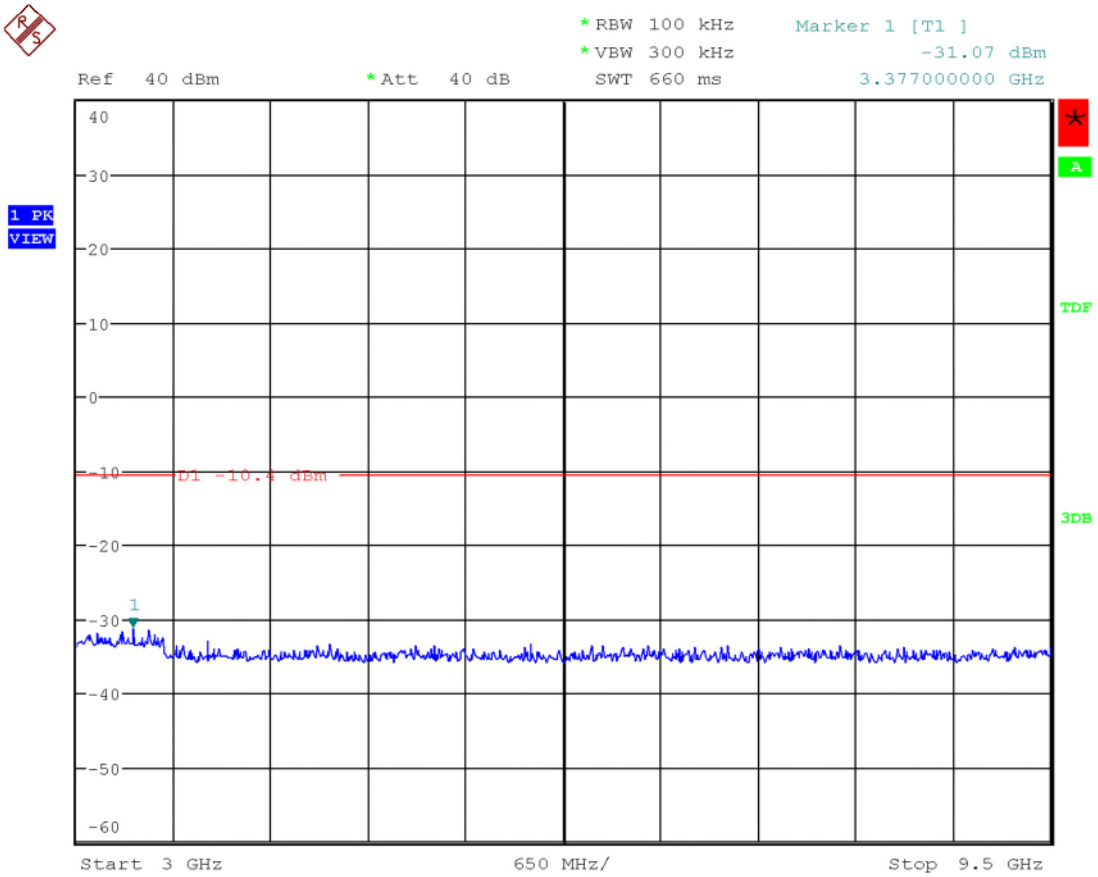

Figure 24: D06_05_CSE20dBc_Sweep4_ChHigh_DTS

1.1.5 Conducted Band-Edge emissions, §15.247(d)

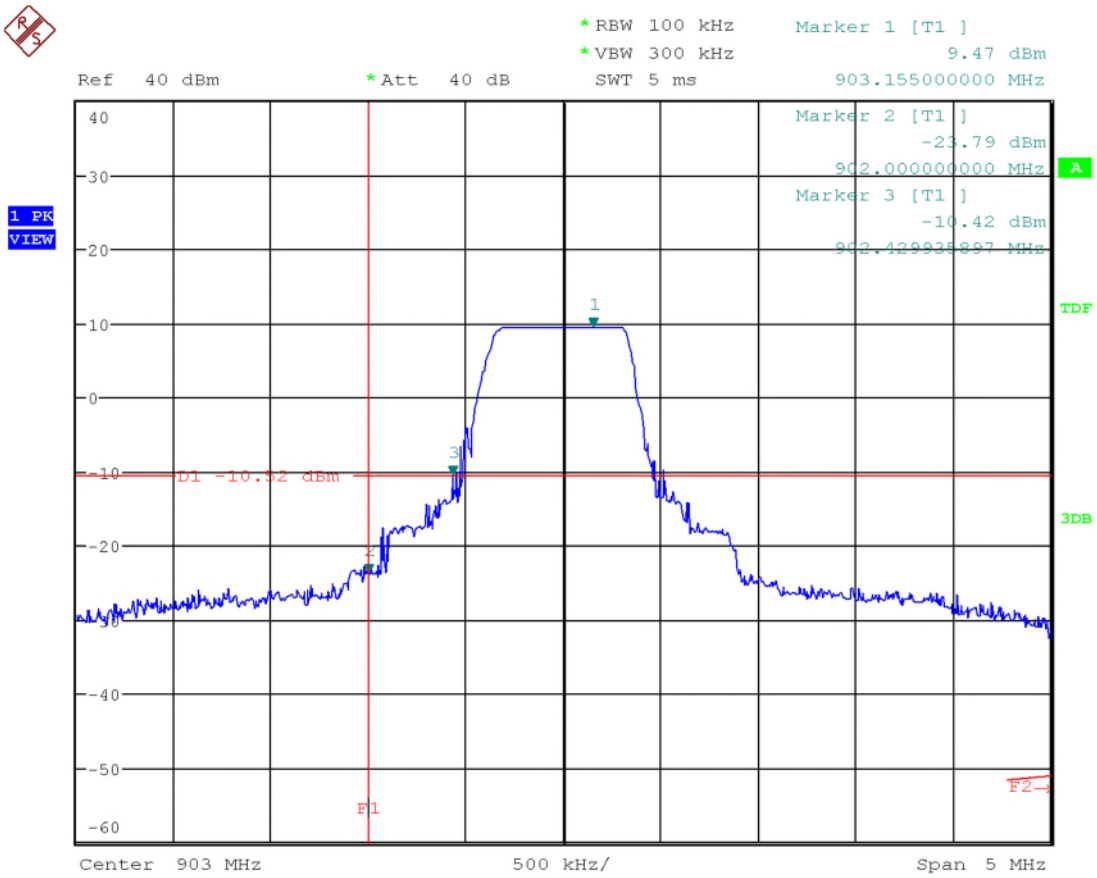

Figure 25: D07_1_BE_Low_DTS

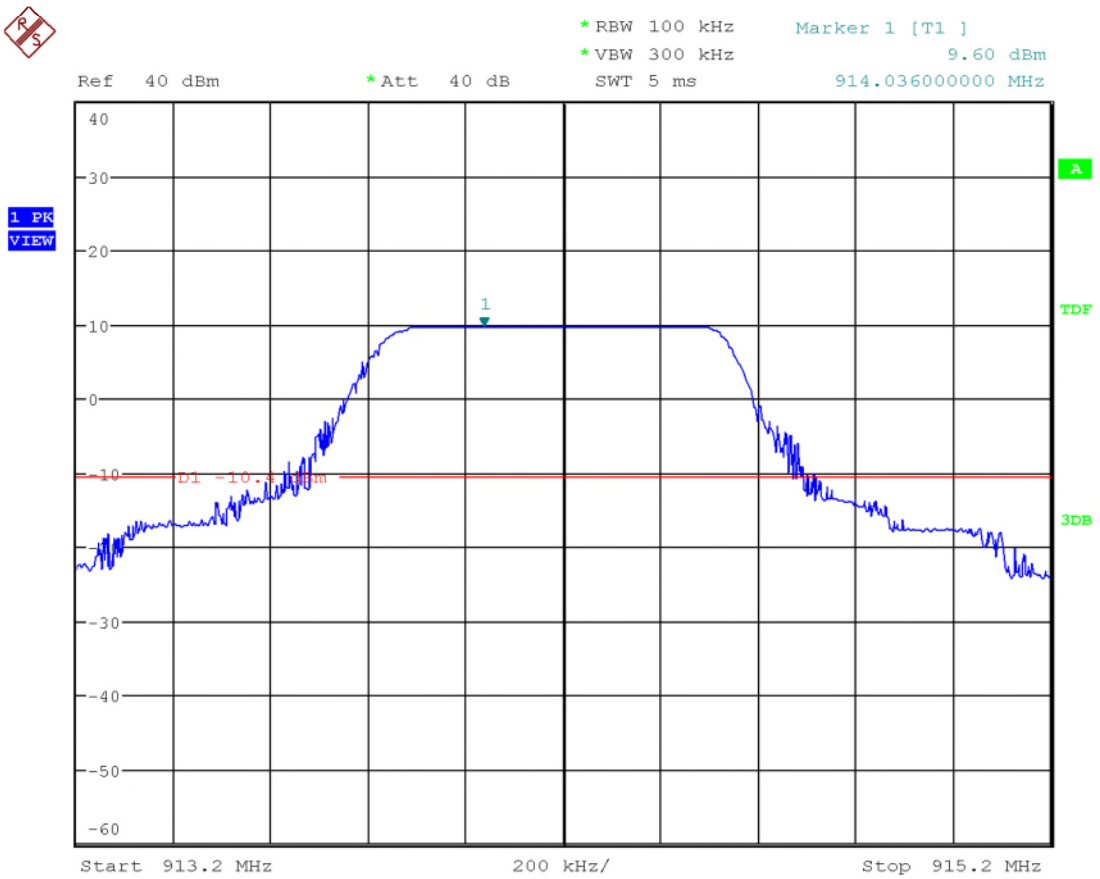

Figure 26: D07_2_BE_High_DTS

Remark: since the channel bandwidth of 500 kHz in respect to the margin of the band edge at 928 MHz is 14 MHz, the measurement is uncritical

1.1.6 Radiated spurious emissions

FHSS mode is determined to be the worst case EUT mode, so radiated spurious emissions were only performed in that mode.
See chapter 1.2.9 for radiated plots.

1.2 FHSS mode

1.2.1 99% Occupied bandwidth + 20 dB bandwidth, §15.247(a)(1)

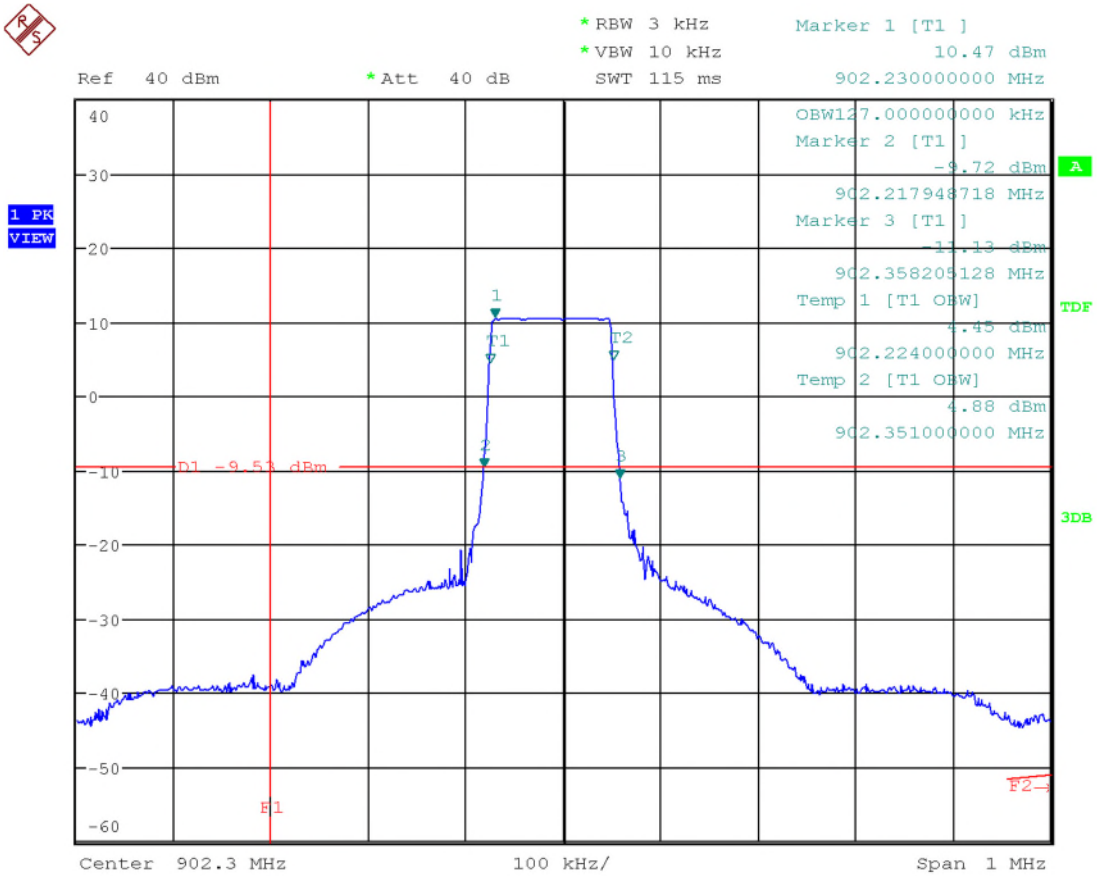

Figure 27: D08_01_FHSSBW+99%OBW_ChLow_FHSS

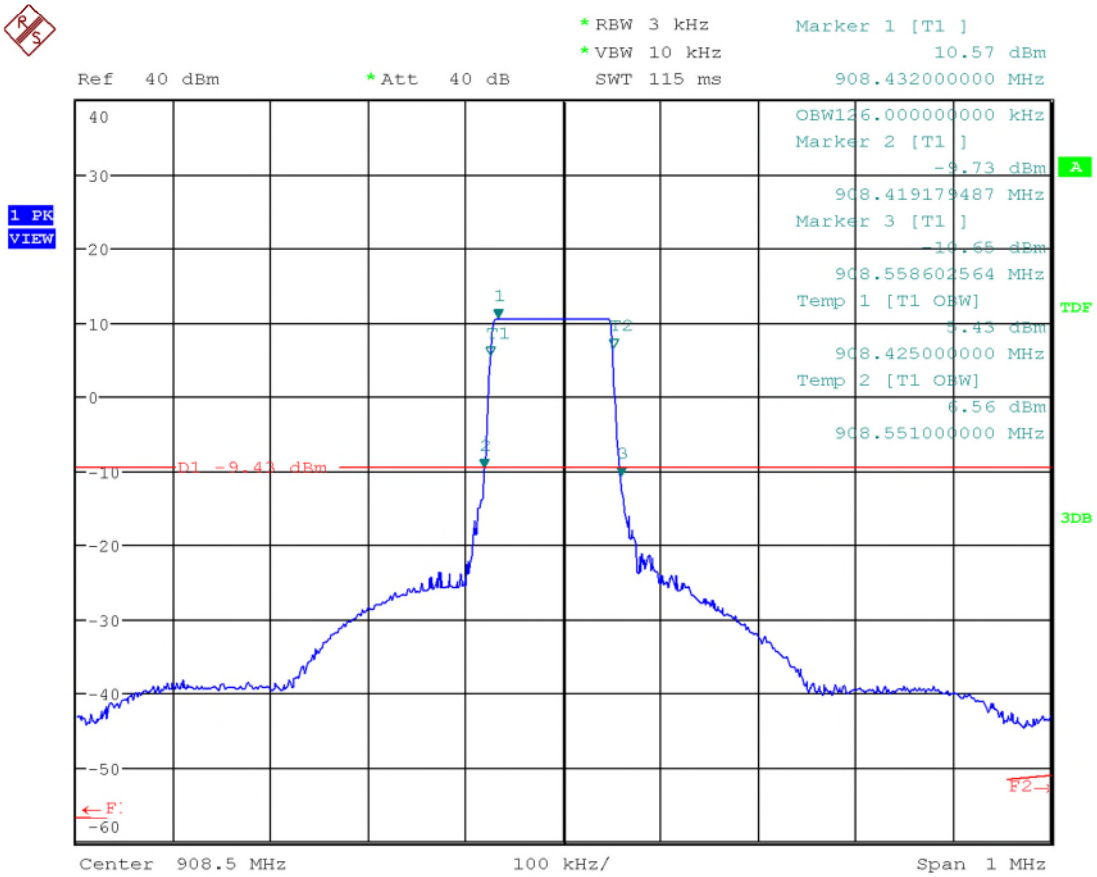

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Figure 28: D08_02_FHSSBW+99%OBW_ChMid_FHSS

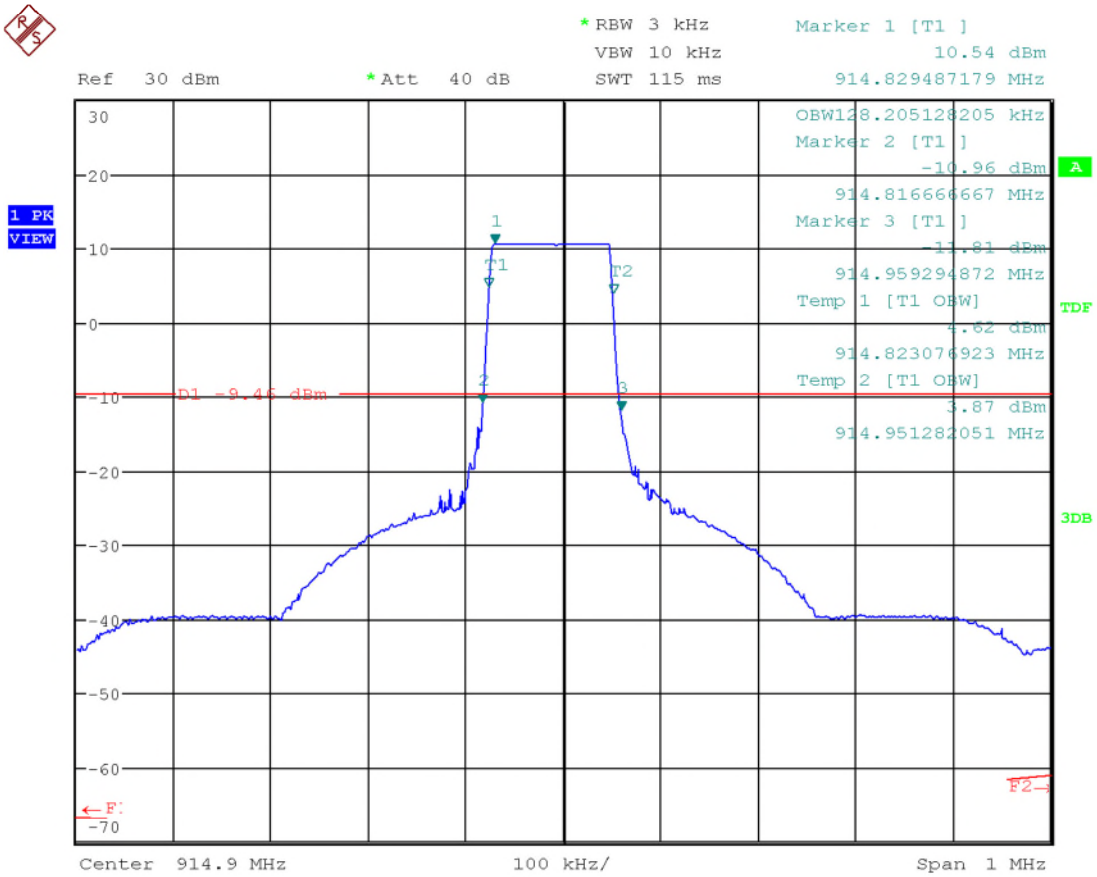

Figure 29: D08_03_FHSSBW+99%OBW_ChHigh_FHSS

1.2.2 Channel separation, §15.247(a)(1)

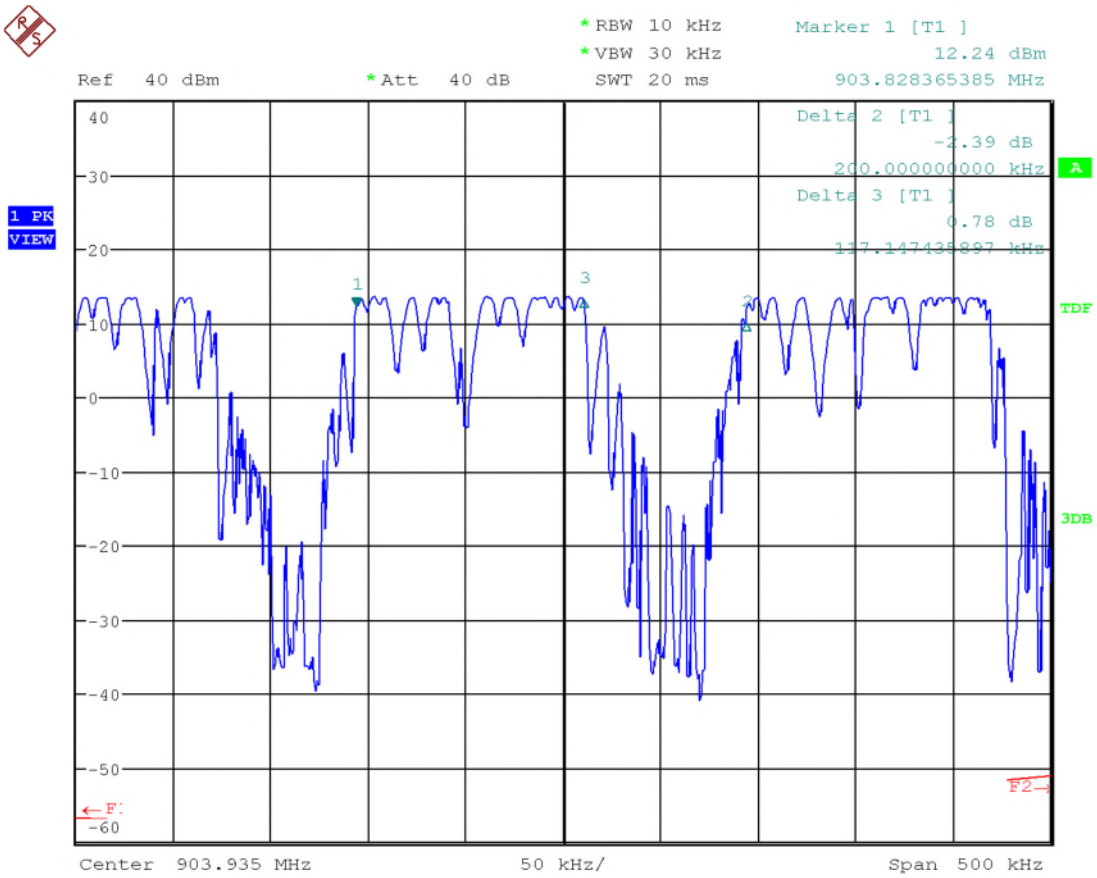

Figure 30: D09_01_FreqSep_FHSS

Channel distance: measured between Marker1 and Delta Marker2.

1.2.3 Number of hopping frequencies, 15.247(a)(1)(i)

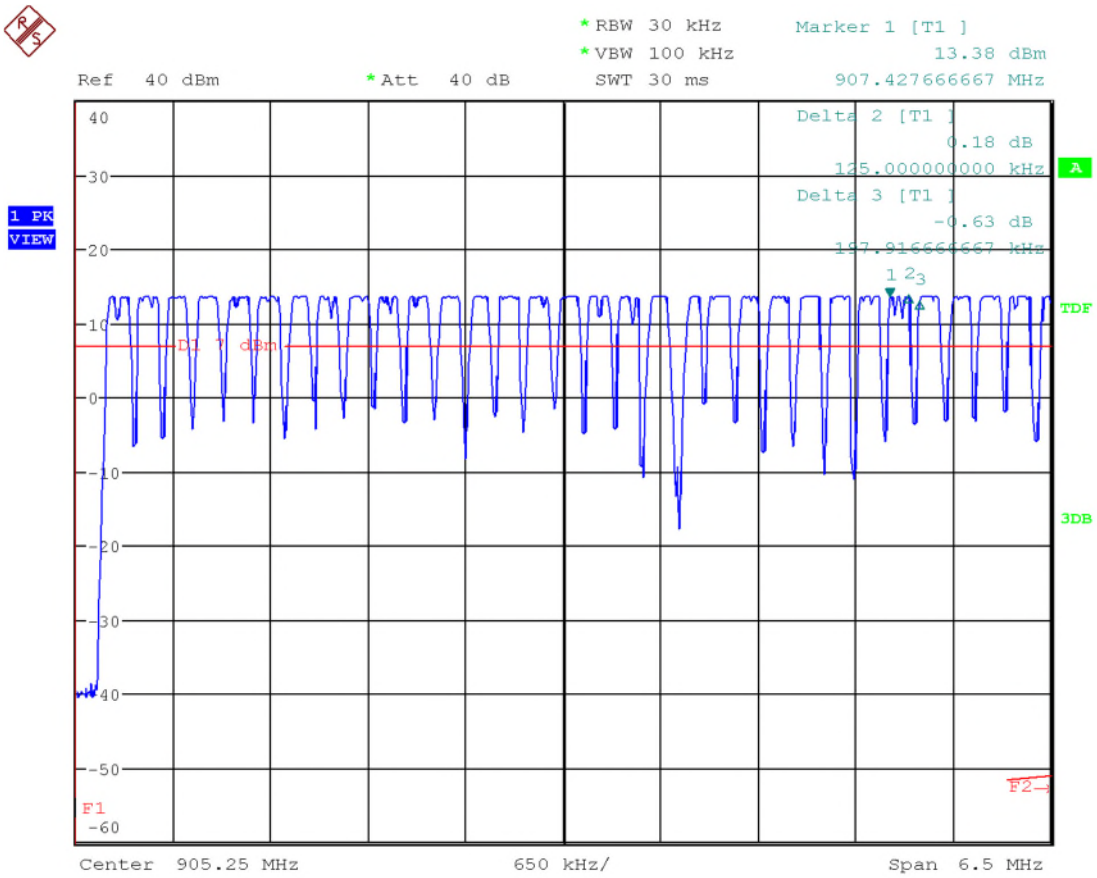

Figure 31: D10_01_#OfHopFreqs_FHSS_902M-908.5M

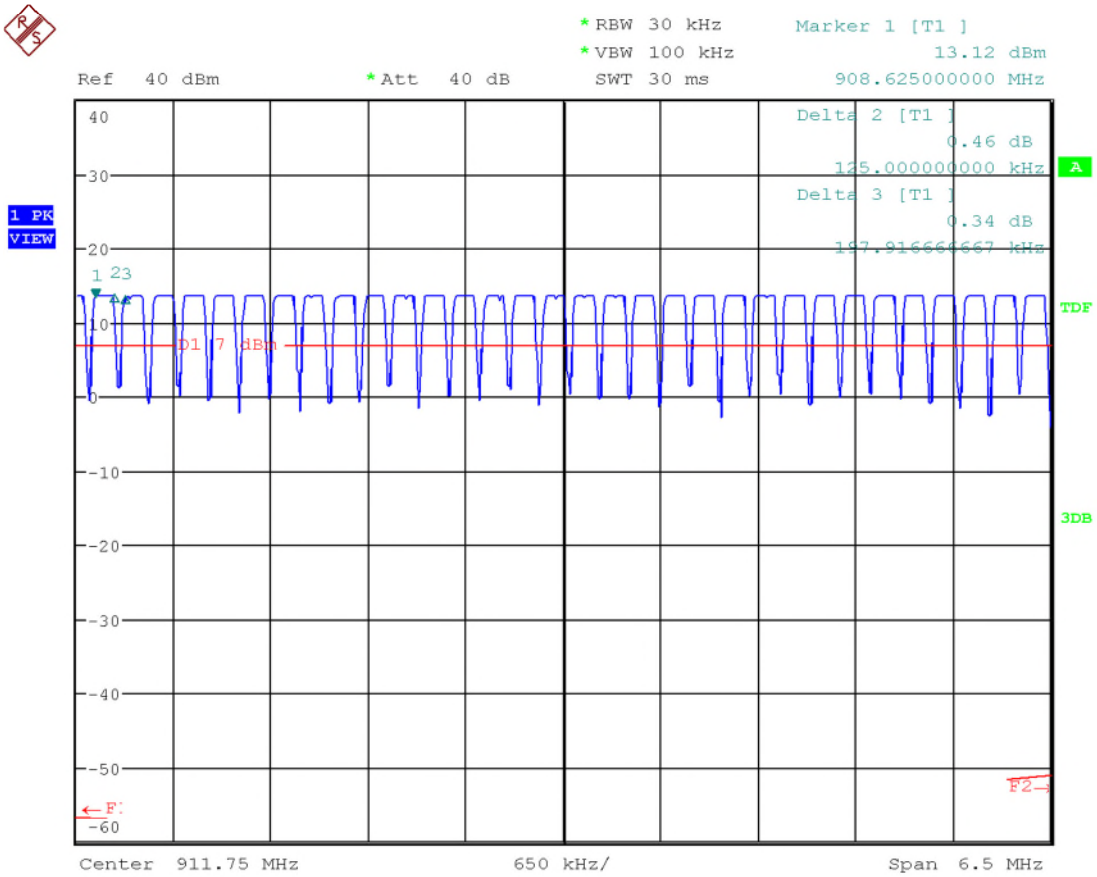

Figure 32: D10_02_#OfHopFreqs_FHSS_908.5M-915M