

Annex 202: Measurement diagrams 23-1-0012601T016_TR1-A202-R01

Number of pages:	48	Date of Report:	2025-Jun-13
Testing company:	cetecom advanced GmbH Untertuerkheimer Str. 6-10 66117 Saarbruecken GERMANY	Applicant:	Rosenberger Hochfrequenztechnik GmbH & Co. KG
Product: Model:	RoProxCon Hybrid Receiver MI1C804-902-01		
FCC ID:	2BG4VRPCH	IC: PMN: HVIN:	33058-RPCH RoProxCon Hybrid MI1C804-902-01
Testing has been carried out in accordance with:	FCC - Title 47 CFR Part 15, Subpart C, §15.255 FCC - Title 47 of the Code of Federal Regulations; Chapter I; Part 15 - Radio frequency devices RSS - 210 Issue 11 Annex J Spectrum Management and Telecommunications Radio Standards Specification - Licence-Exempt Radio Apparatus: Category I Equipment		

1	Measurement diagrams.....	3
1.1	Radiated spurious emissions (30MHz < f < 1GHz)	3
1.2	Radiated spurious emissions (1GHz < f < 12.4GHz)	5
1.3	Radiated spurious emissions (12.4GHz < f < 18GHz)	11
1.4	Radiated spurious emissions (18GHz < f < 40GHz)	13
1.5	Radiated spurious emissions (40GHz < f < 50GHz)	18
1.6	Radiated spurious emissions (50GHz < f < 75GHz)	20
1.7	Radiated spurious emissions (75GHz < f < 90GHz)	26
1.8	Radiated spurious emissions (90GHz < f < 110GHz)	32
1.9	Radiated spurious emissions (110GHz < f < 130GHz)	34
1.10	Measurement: Peak EIRP	38
1.11	Measurement: 6dB emission bandwidth	42
1.12	Measurement of 20dB bandwidth	43
1.13	Measurement: 99% occupied bandwidth	44
1.14	Measurement: Average EIRP.....	45
1.15	Conducted emissions on AC-mains	47

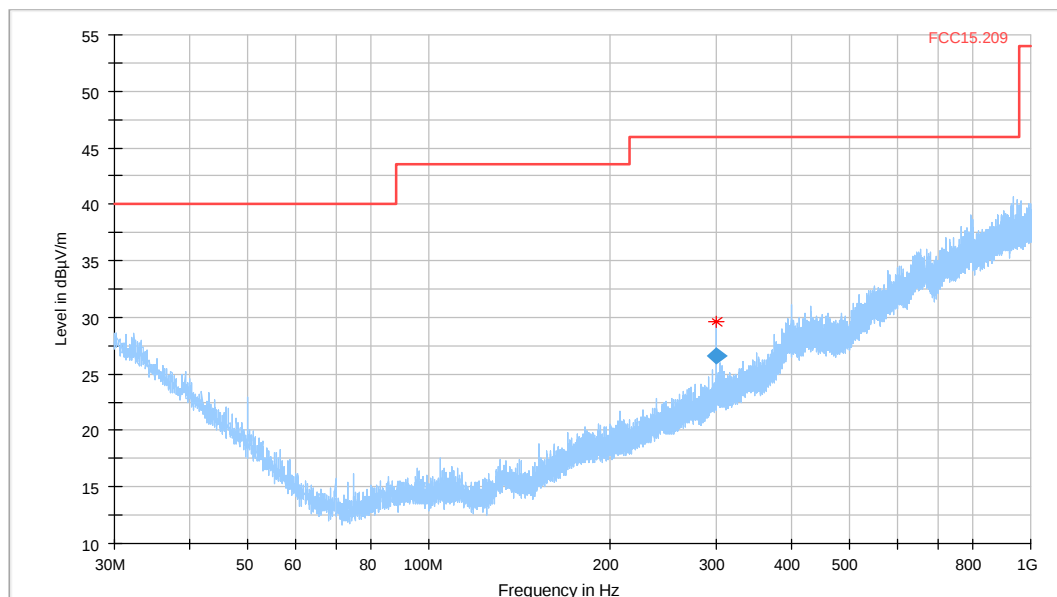
1 Measurement diagrams

1.1 Radiated spurious emissions (30MHz < f < 1GHz)

TID101a_23-1-0012601_RSE_30 M - 1GHz_EUT_front_rear_left_right

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	cetecom advanced GmbH Essen
Test Standard:	FCC 15.205&15.209 & RSS Gen. Issue 5
Antenna polarisation:	horizontal/vertical
EUT:	front, rear, right, left
Operator Name:	AHo
Operating Mode:	TX
Power supply:	24 V DC
EUT Sample No:	S08_C01
Verdict:	Passed



Final_Result

Frequency (MHz)	Quasi Peak (dBµV /m)	Limit (dBµV /m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)
299.998000	26.63	46.00	19.37	120.000	100.0	H	302.0	15.1	0.0

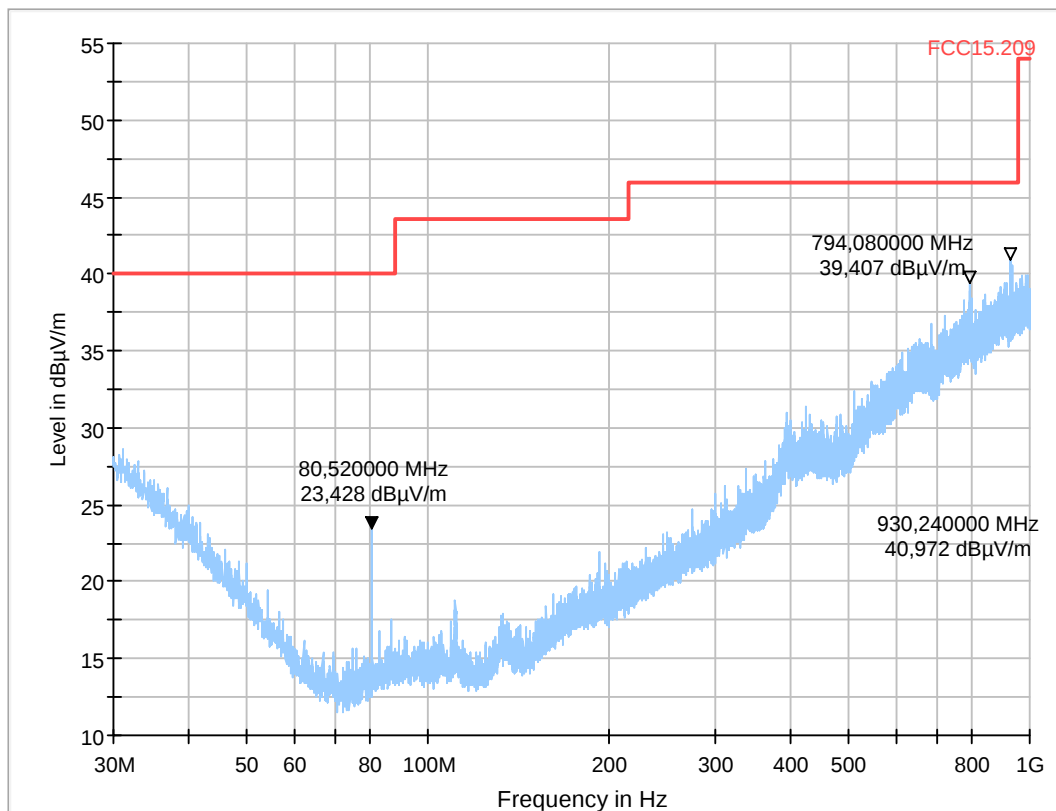
(continuation of the "Final_Result" table from column 17 ...)

Frequency (MHz)	Preamp (dB)	Trd Corr. (dB/m)	Raw Rec (dBµV)	Comment
299.998000	1.7	13.4	11.5	19:48:49 - 02.08.2024

TID101b_23-1-0012601_RSE_30 M - 1GHz_EUT_top_bottom_left_right

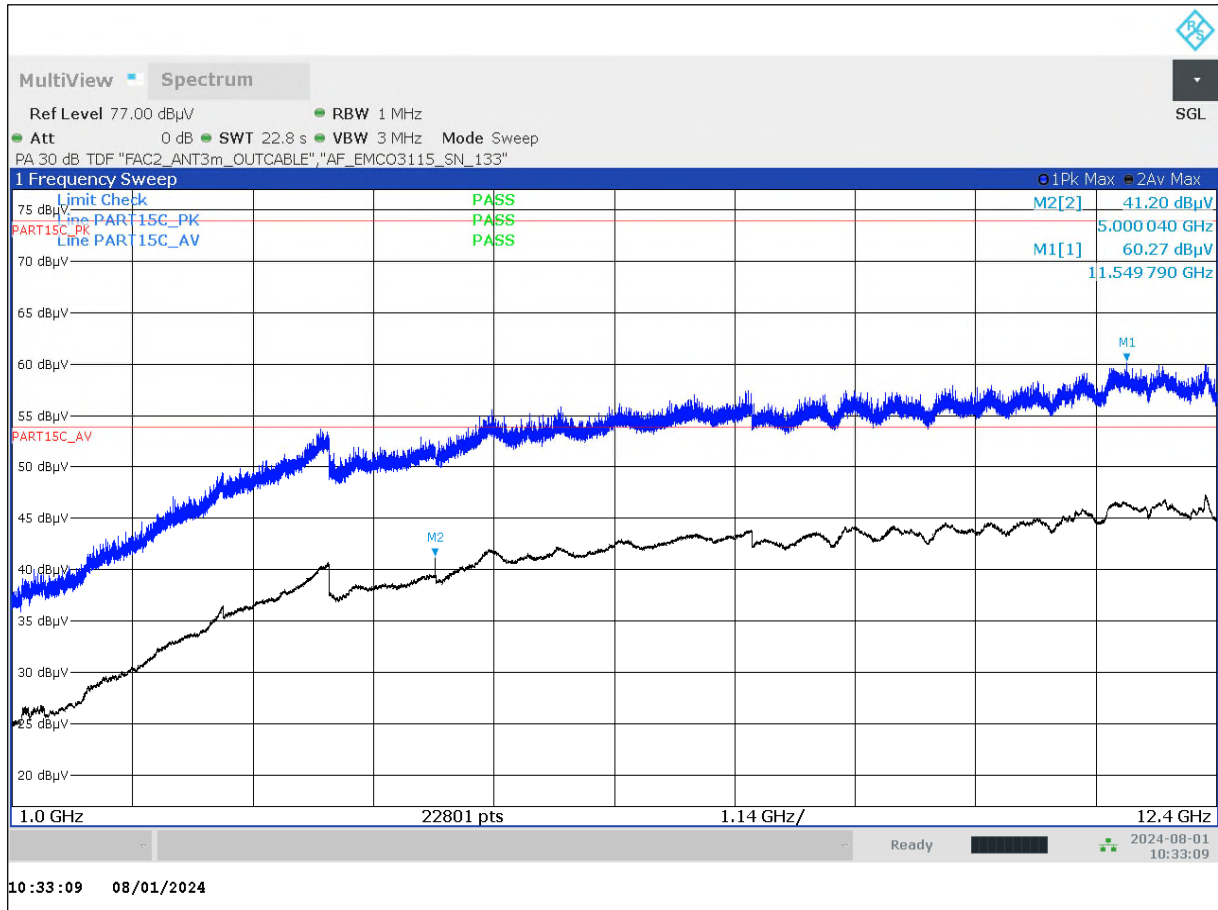
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	cetekom advanced GmbH Essen
Test Standard:	FCC 15.205&15.209 & RSS Gen. Issue 5
Antenna polarisation:	horizontal/vertical
EUT:	top, bottom, right, left
Operator Name:	AHo
Operating Mode:	TX
Power supply:	24 V DC
EUT Sample No:	S08_C01
Verdict:	Passed

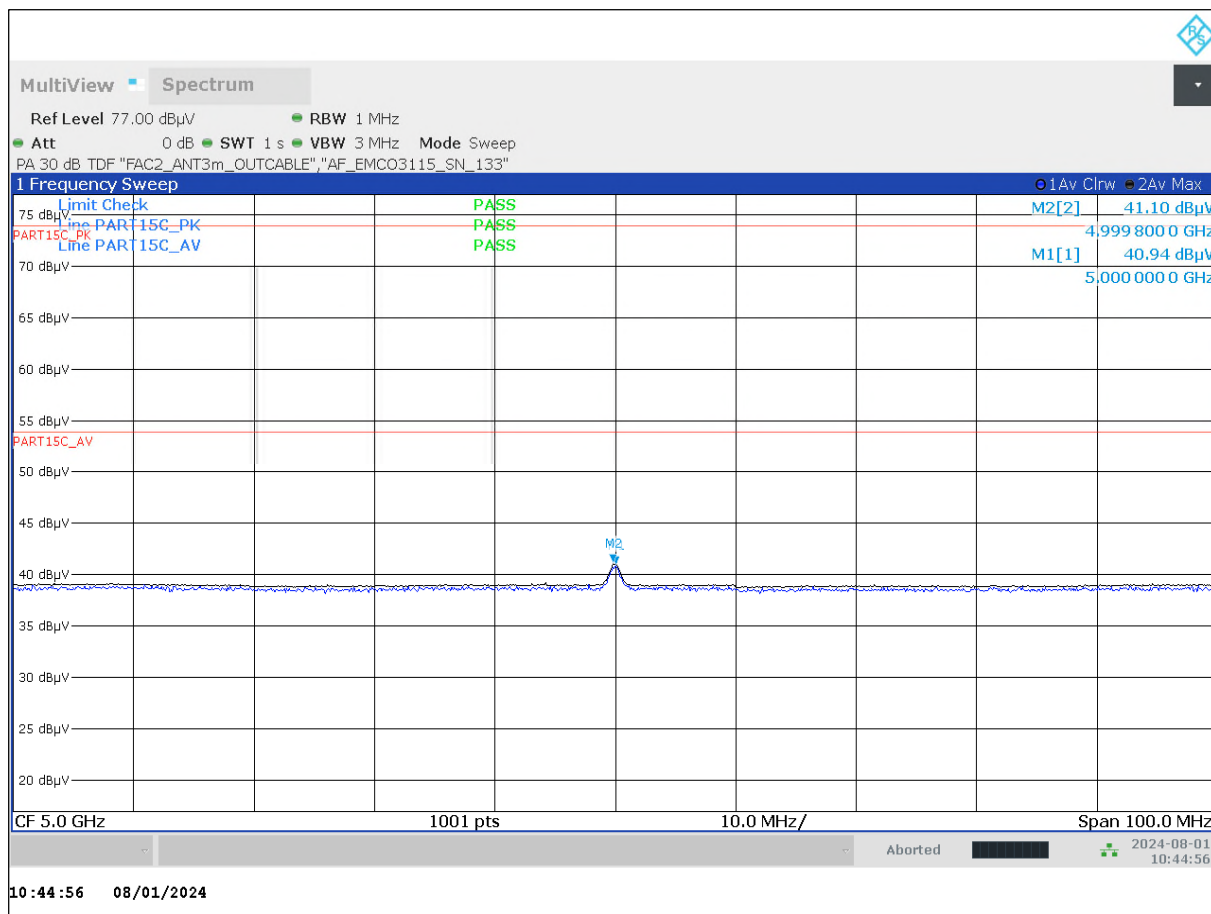


1.2 Radiated spurious emissions (1GHz < f < 12.4GHz)

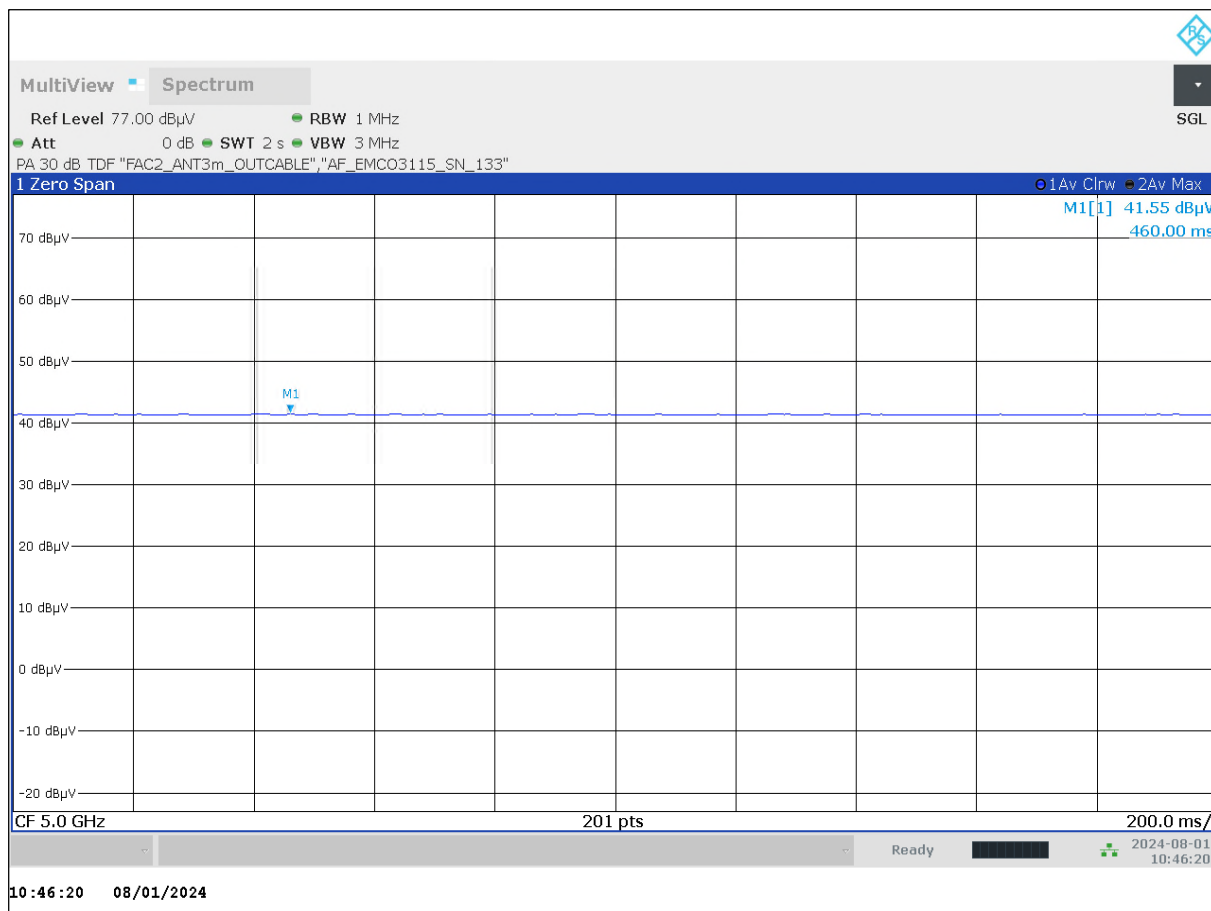
TID102a__RSE_ChNom_S08_1-12.4GHz__AntH



TID102a_01__f1critical_5GHz_A343_E113__AntH

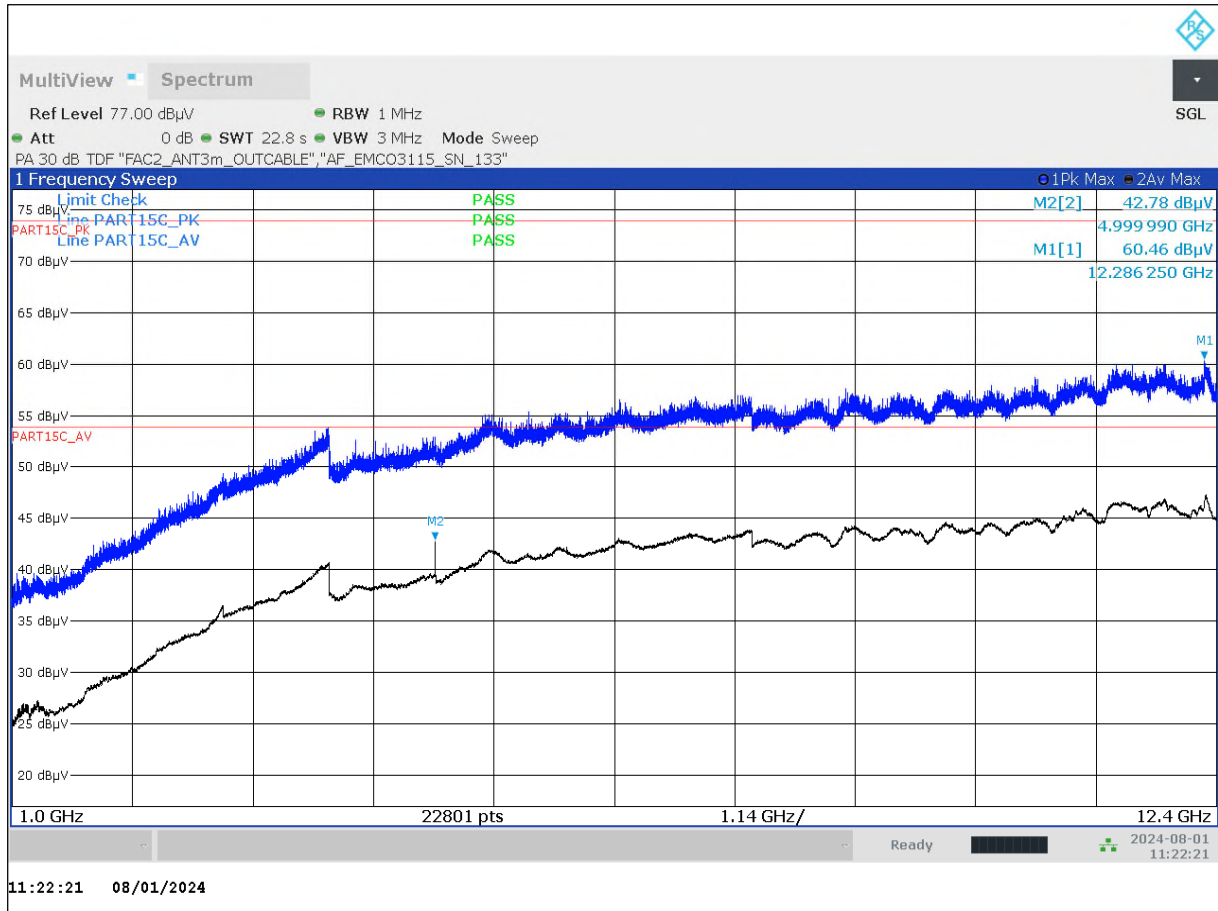


TID102a_01__f1critical_5GHz_ZeroSpan_A343_E113__AntH

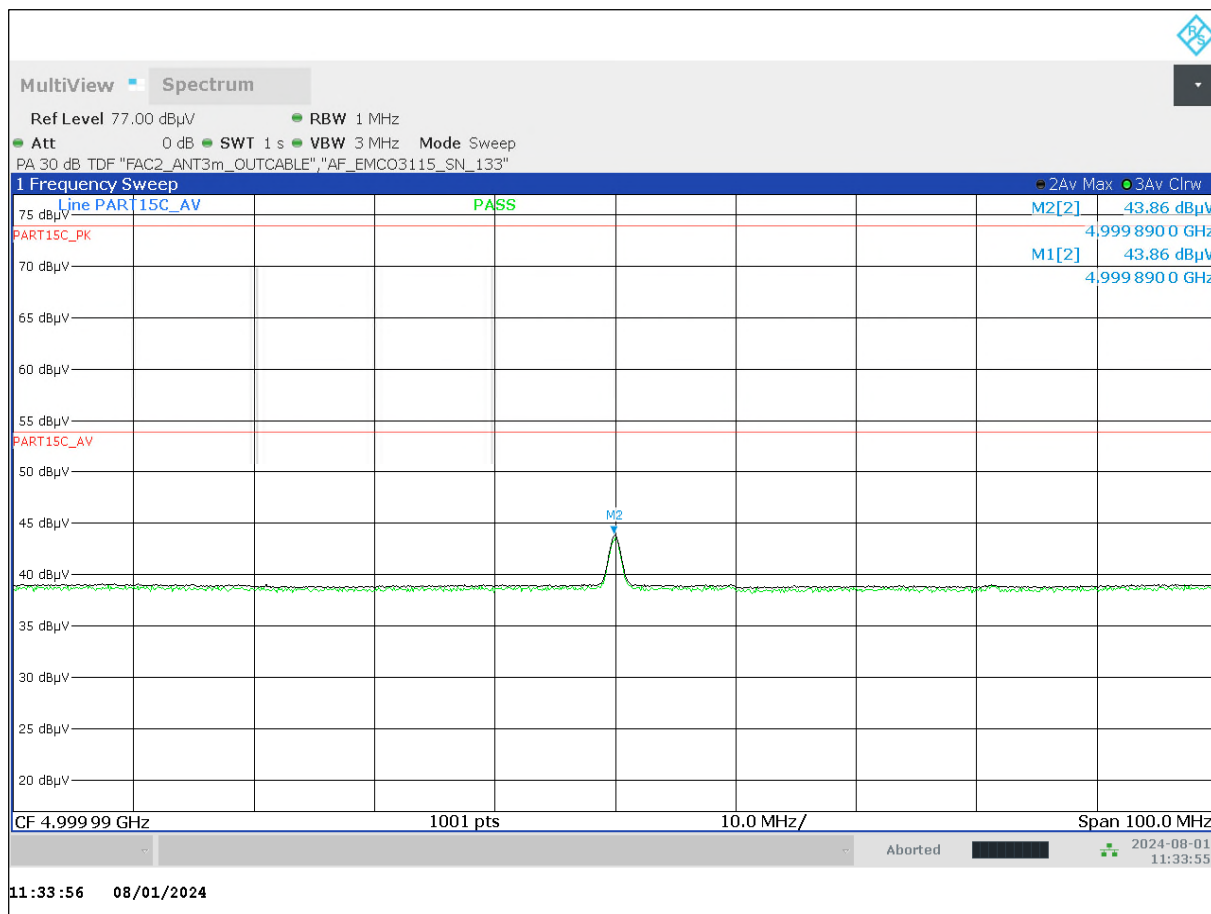


Max. Value: 41.55dBuV/m (100ms period)

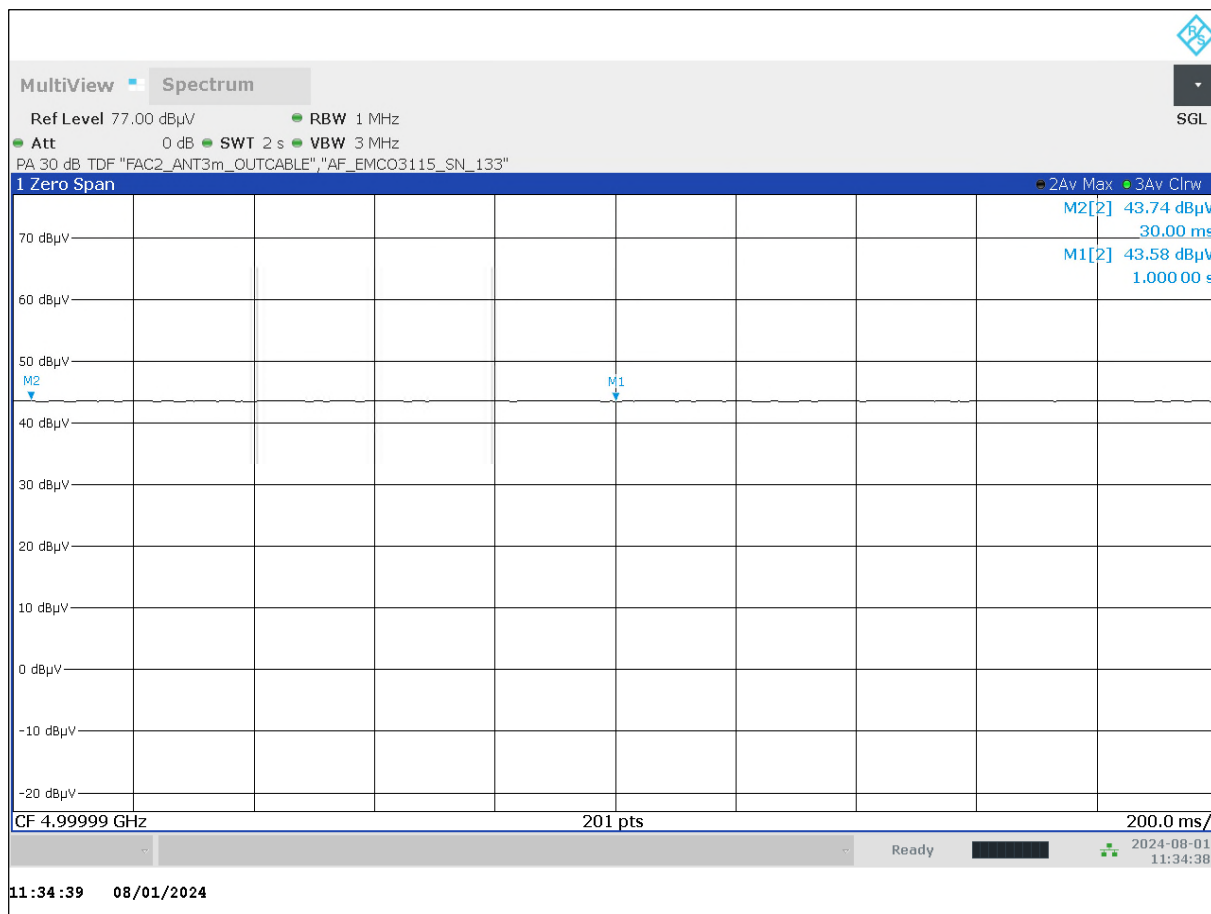
TID102b__RSE_ChNom_S08_1-12.4GHz__AntV



TID102b_01__f1critical_5GHz_A95_E93__AntV



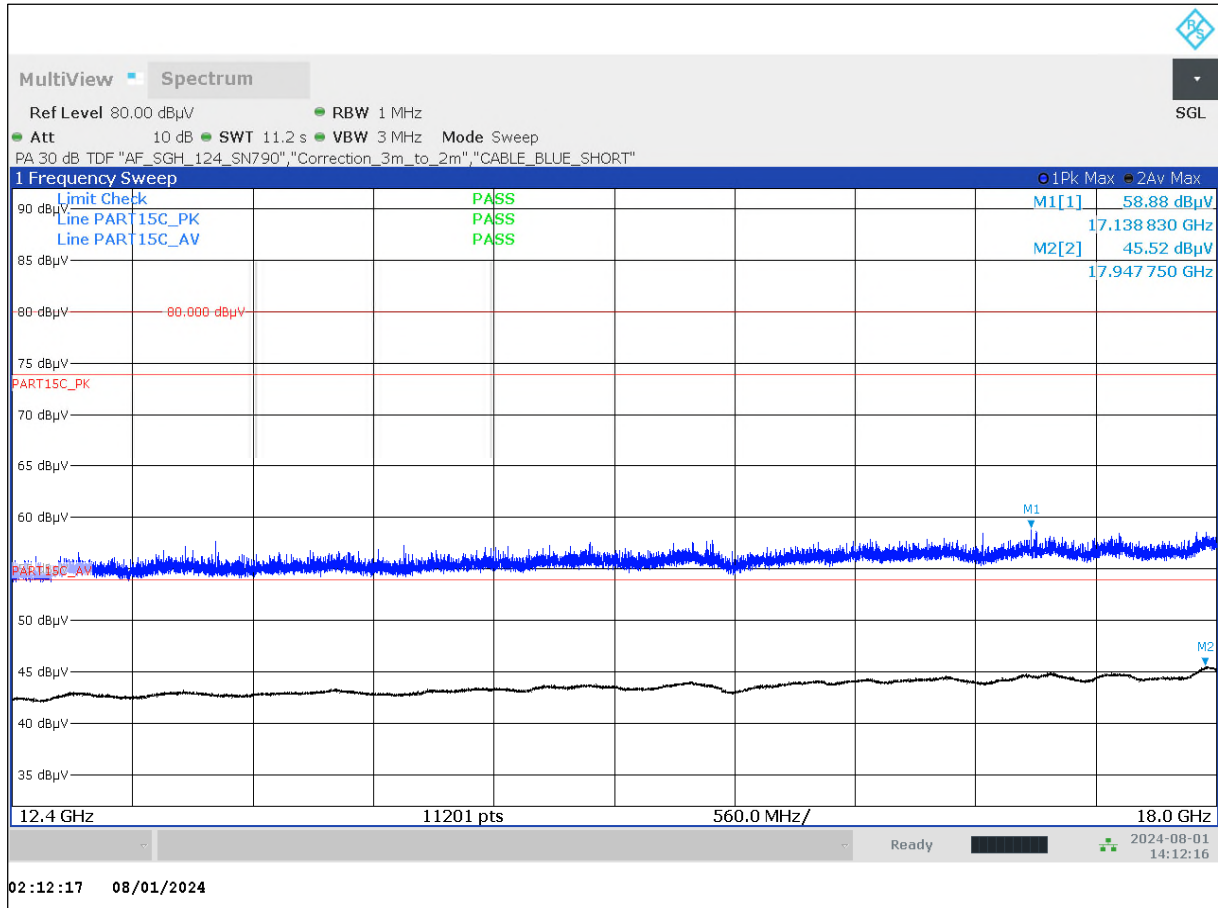
TID102b_01__f1critical_5GHz_ZeroSpan_A95_E93__AntV



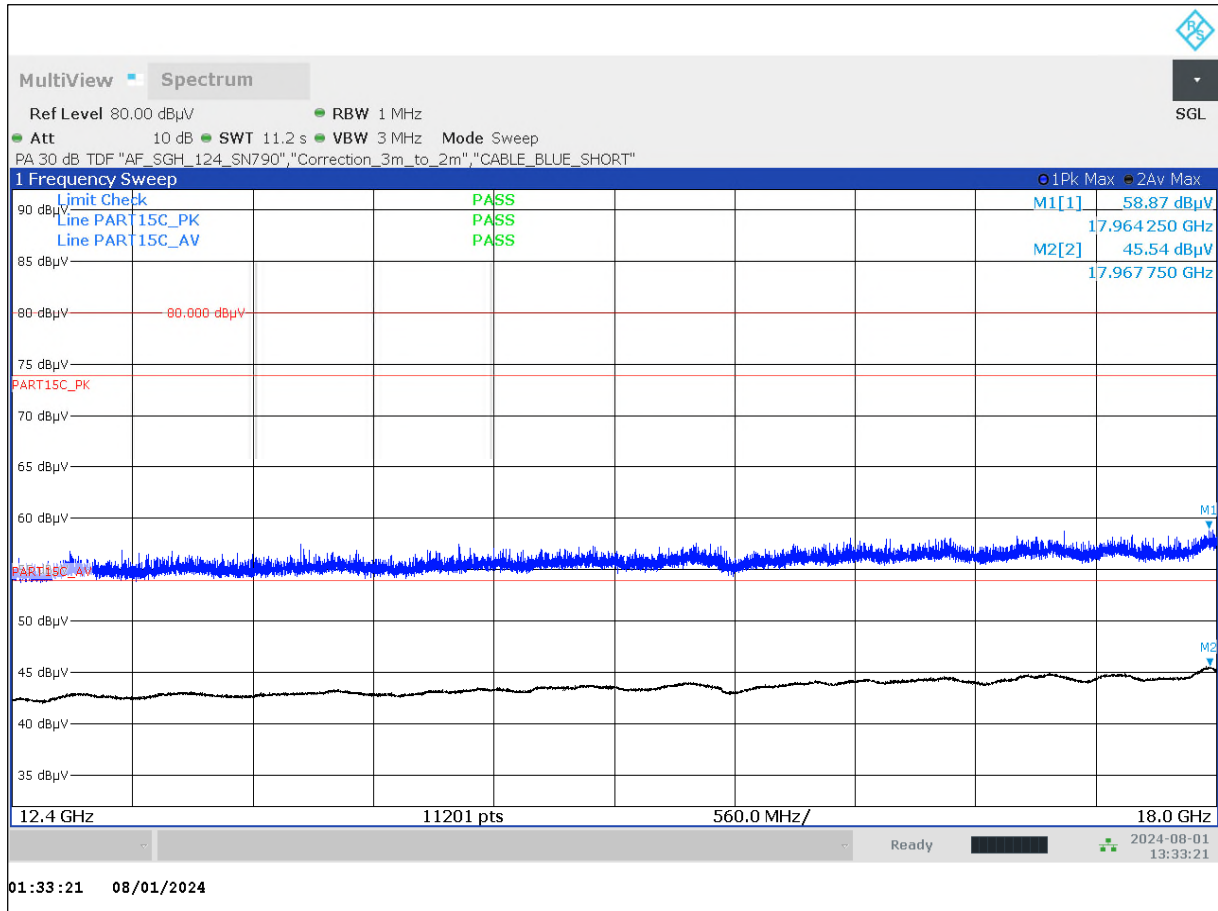
Max. Value: 43.74dBuV/m (100ms period)

1.3 Radiated spurious emissions (12.4GHz < f < 18GHz)

TID105a__RSE_ChNom_S08_12.4-18GHz__AntH

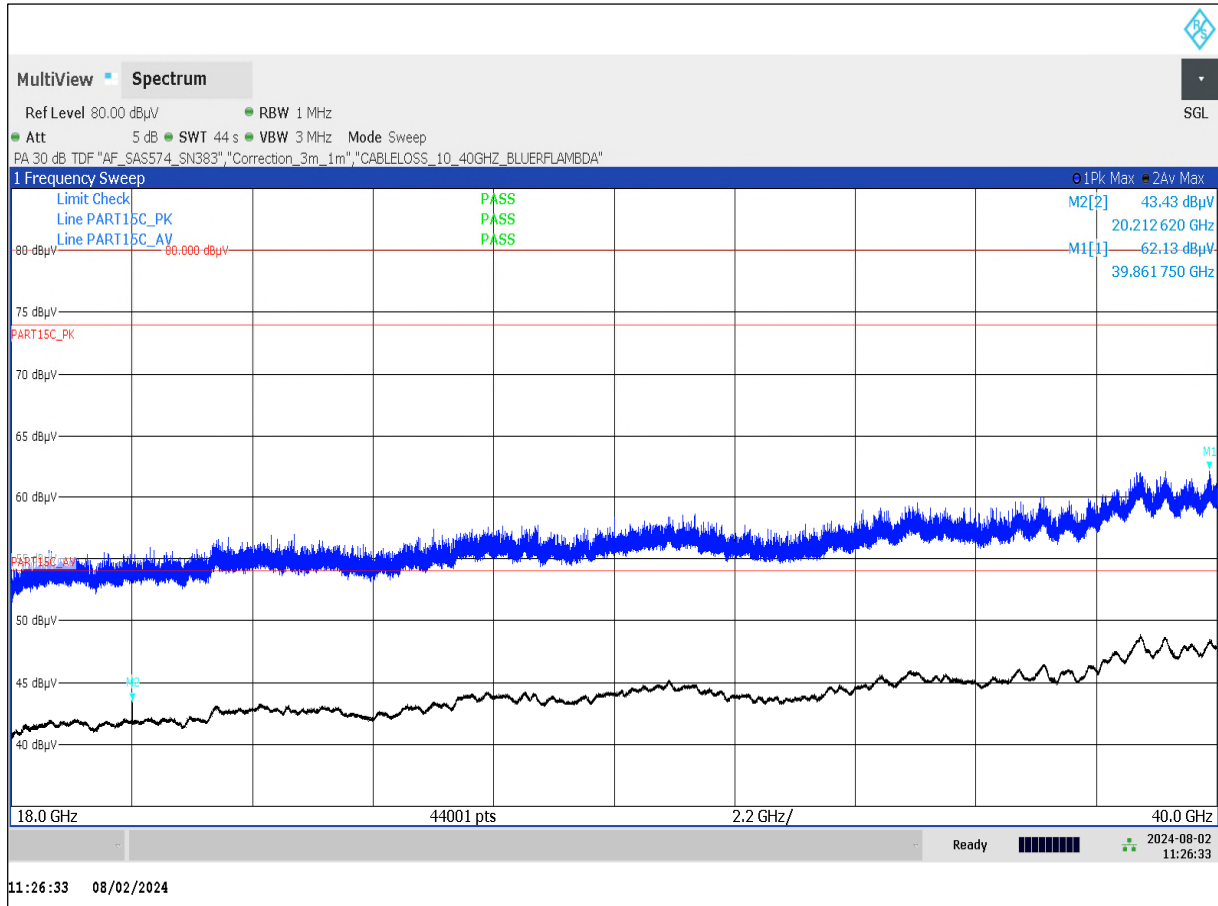


TID105b__RSE_ChNom_S08_12.4-18GHz__AntV



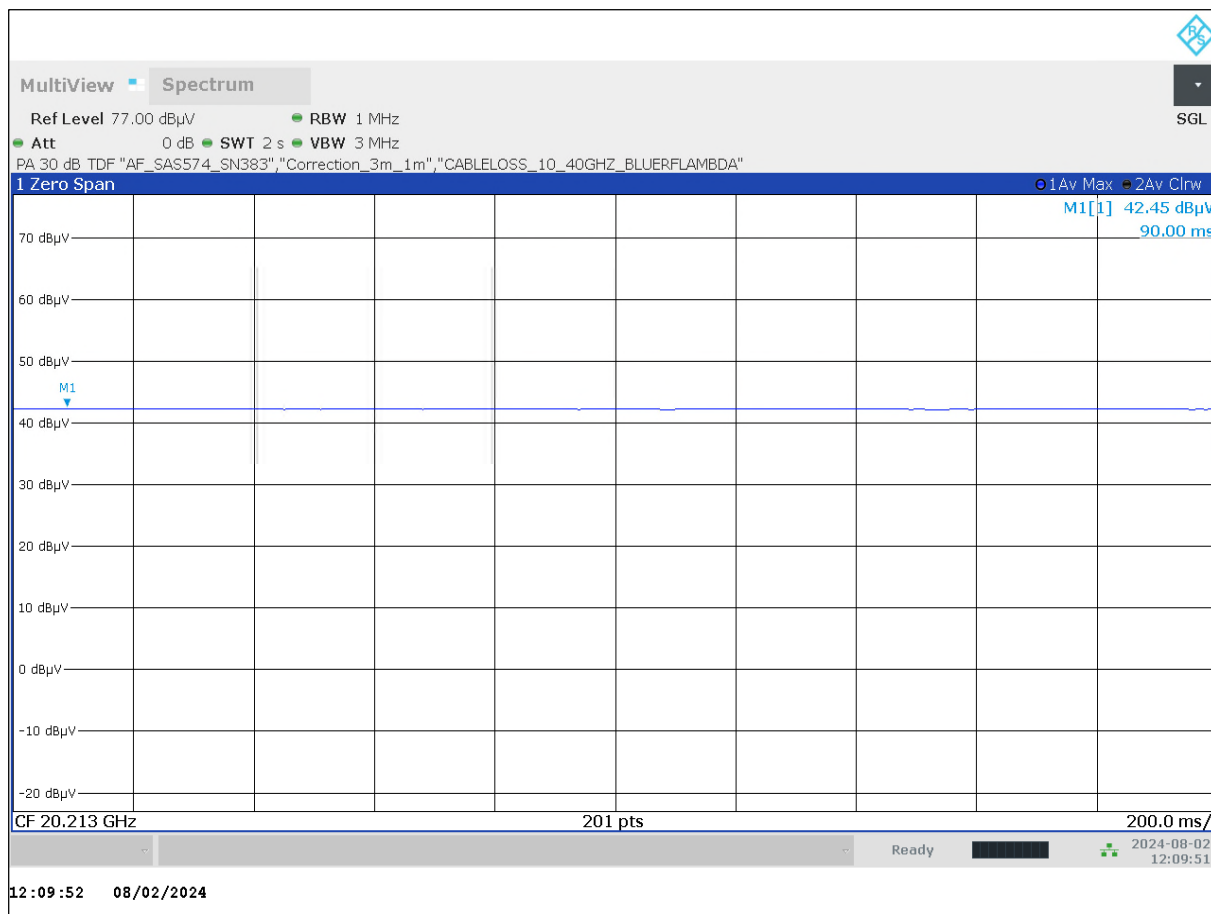
1.4 Radiated spurious emissions (18GHz < f < 40GHz)

TID106a__RSE_ChNom_S08_18-40GHz__AntH



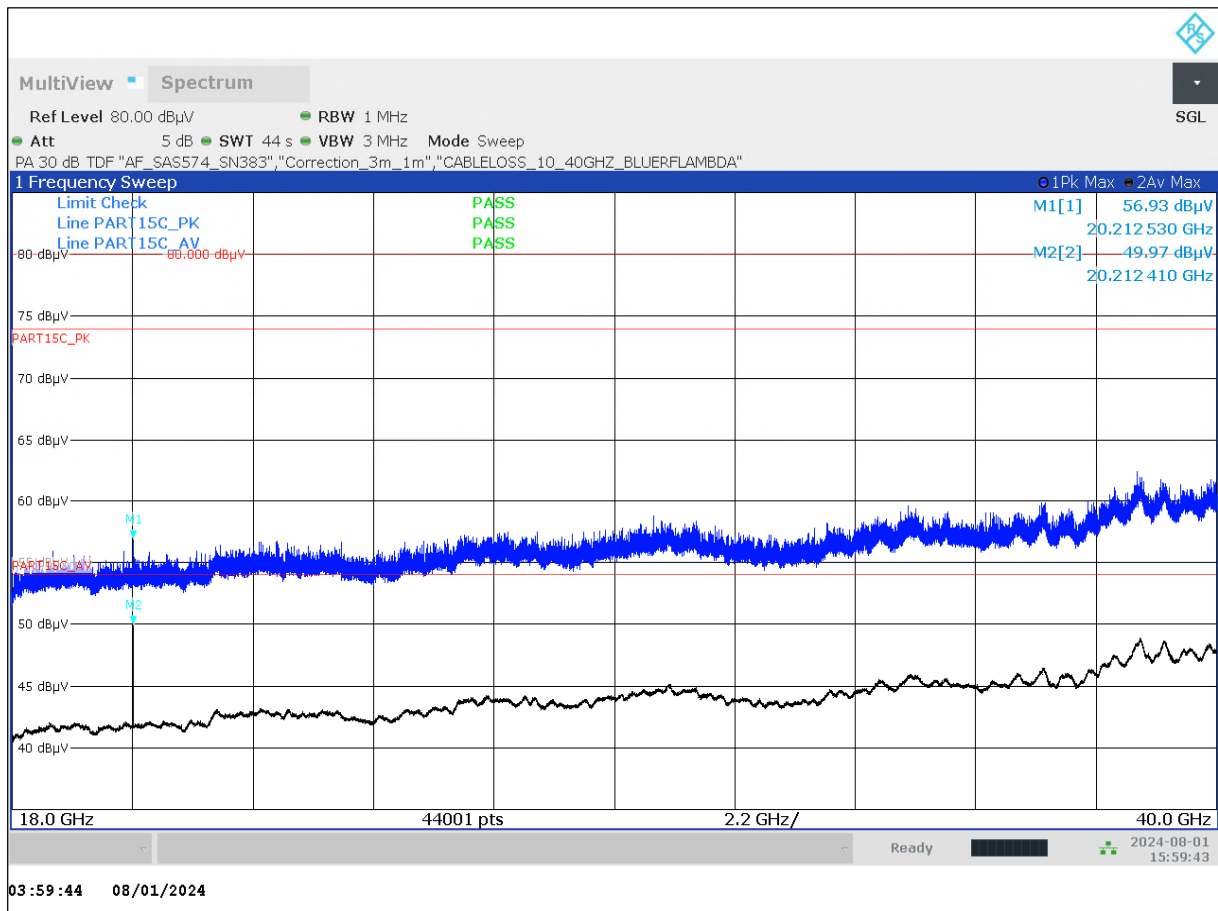
Overview

TID106a_02_f1critical_20.12GHZ_ZeroSpan_S08_A11deg_E132__Anth

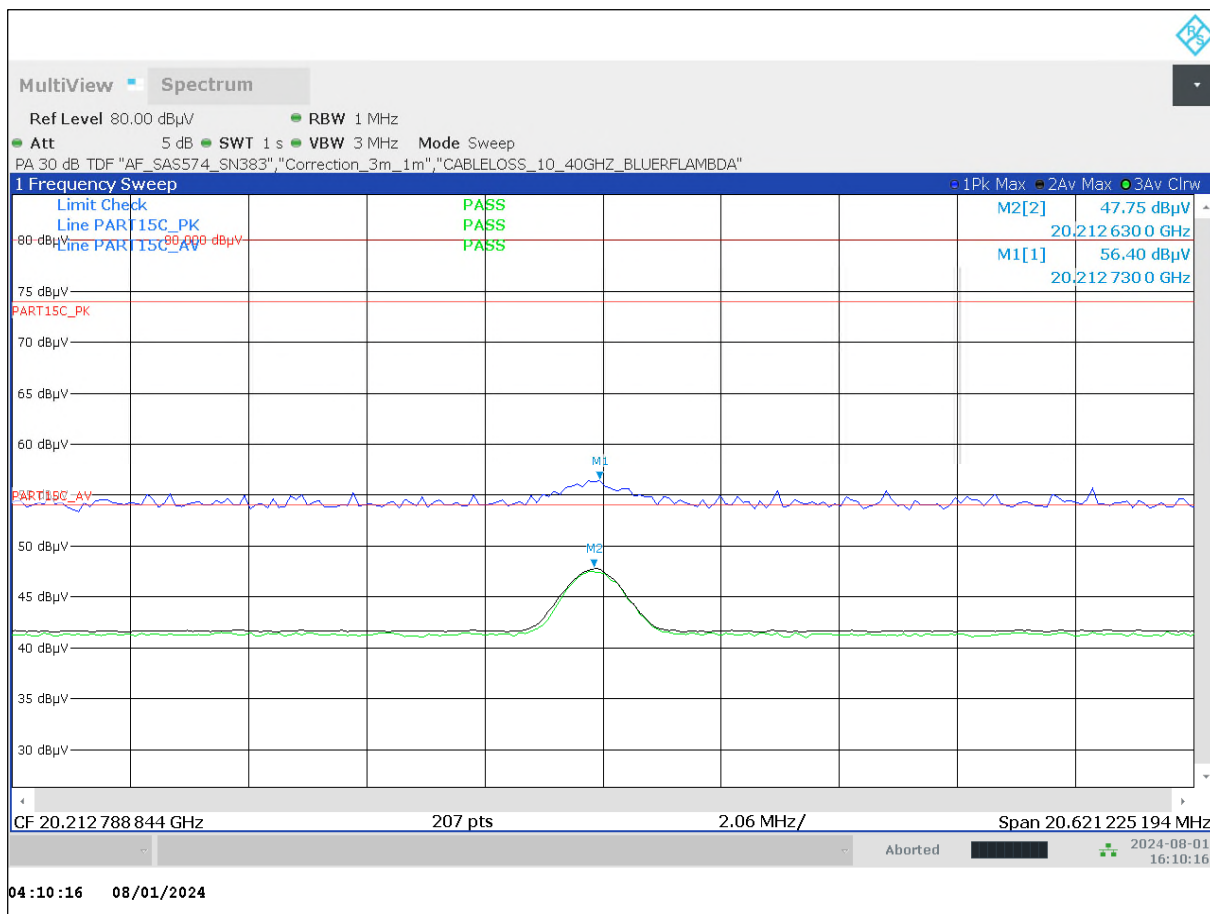


Final value AV: 42.45dBuV/m (100ms period)

TID106b__RSE_ChNom_S08_18-40GHz__AntV

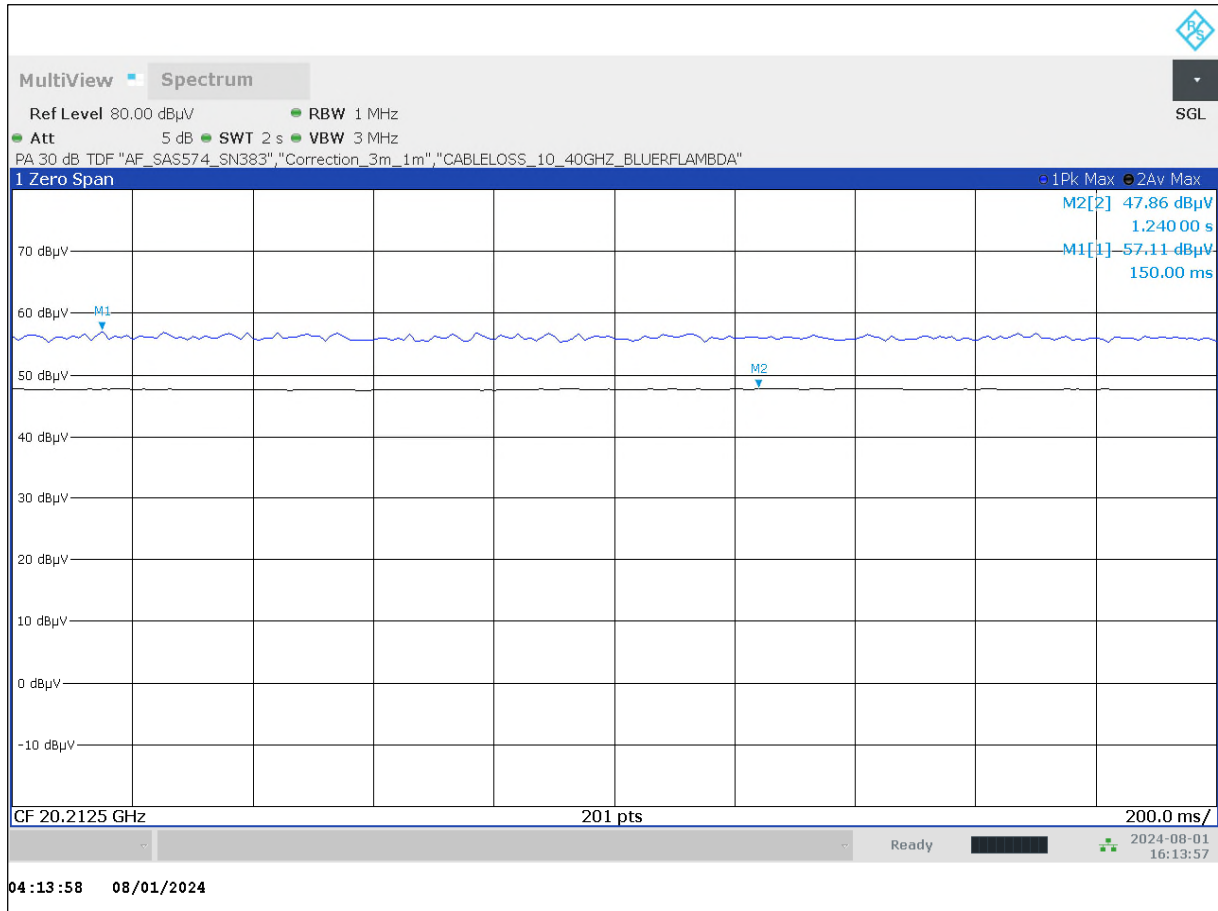


TID106b__01_fcritical_20.21GHz_A349deg_E123deg_AntV



Better resolution

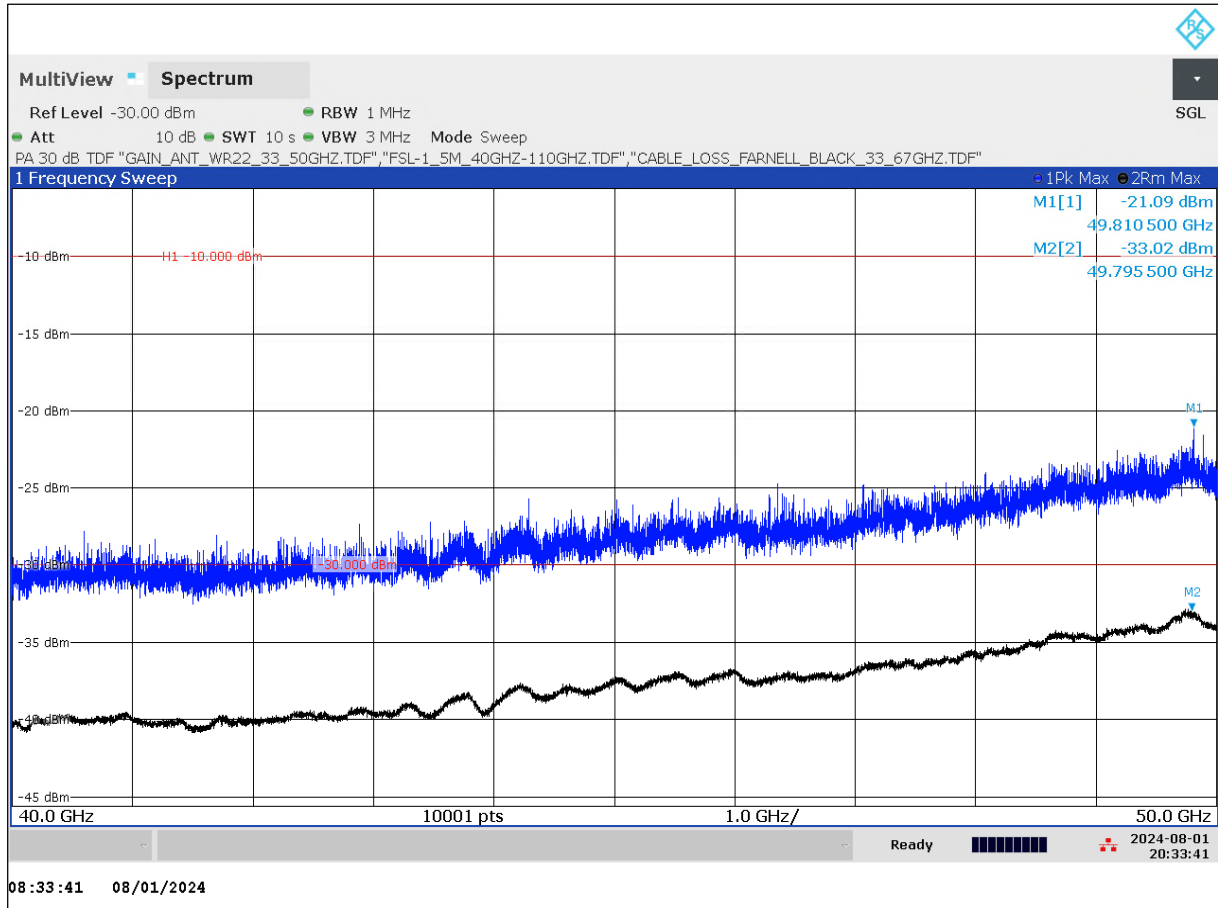
TID106b__02_fcritical_20.21GHz_ZeroSpan_PK_AV_A349deg_E123deg_AntV



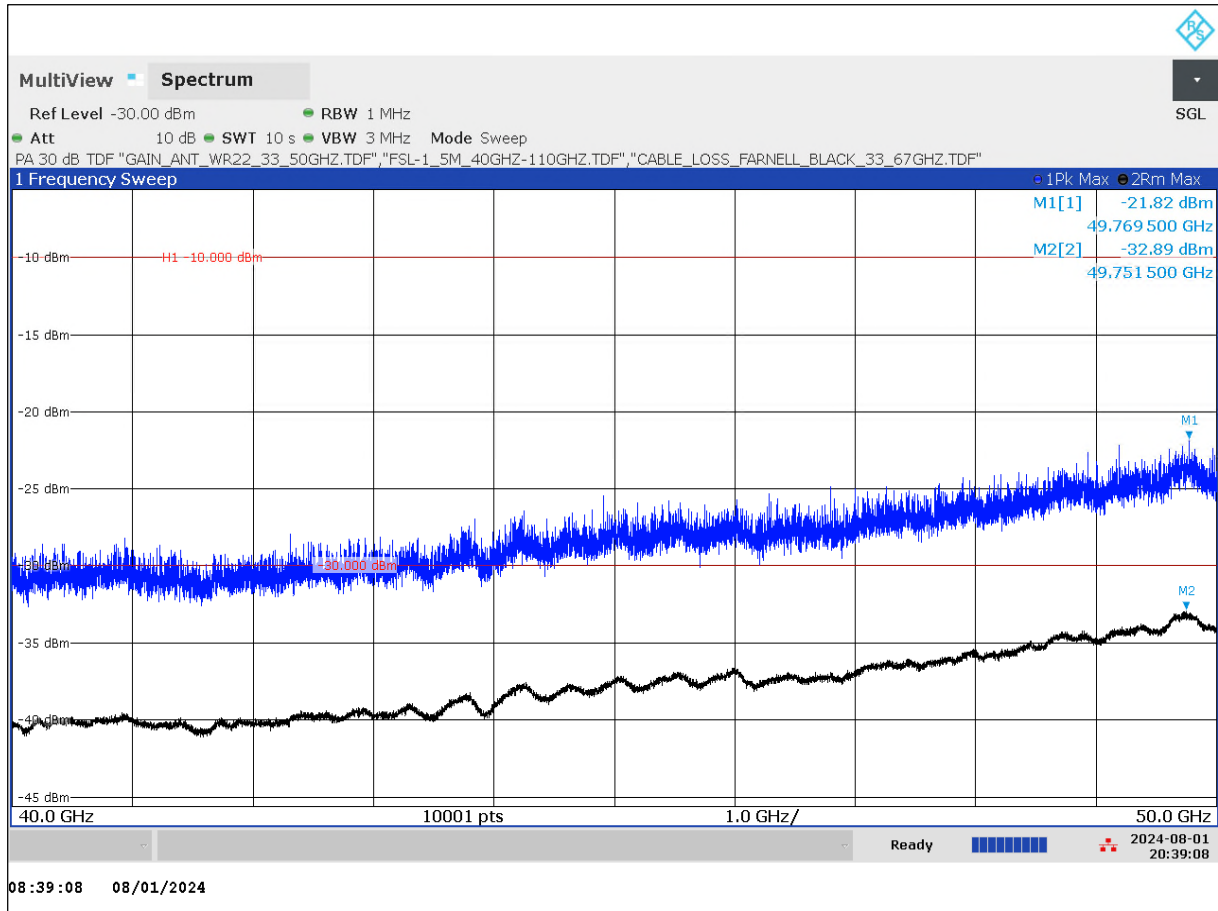
Final value: AV: 47.86dBuV/m (100ms period), PK: 57.11dBuV/m

1.5 Radiated spurious emissions (40GHz < f < 50GHz)

TID109a_23-1-0012601T16_RSE_40 G - 50 GHz_Ant_H_FCC15.255

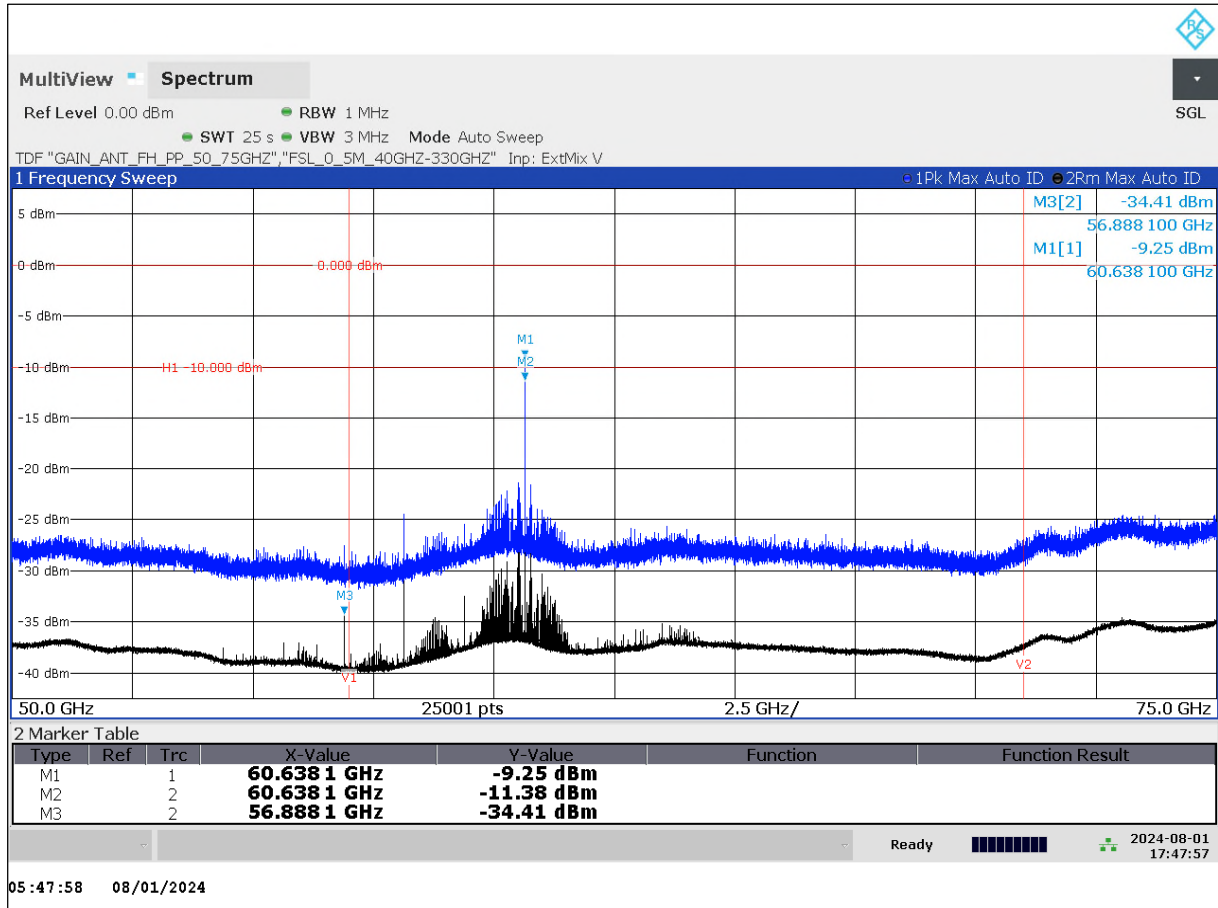


TID109b_23-1-0012601T16_RSE_40 G - 50 GHz_Ant_V_FCC15.255

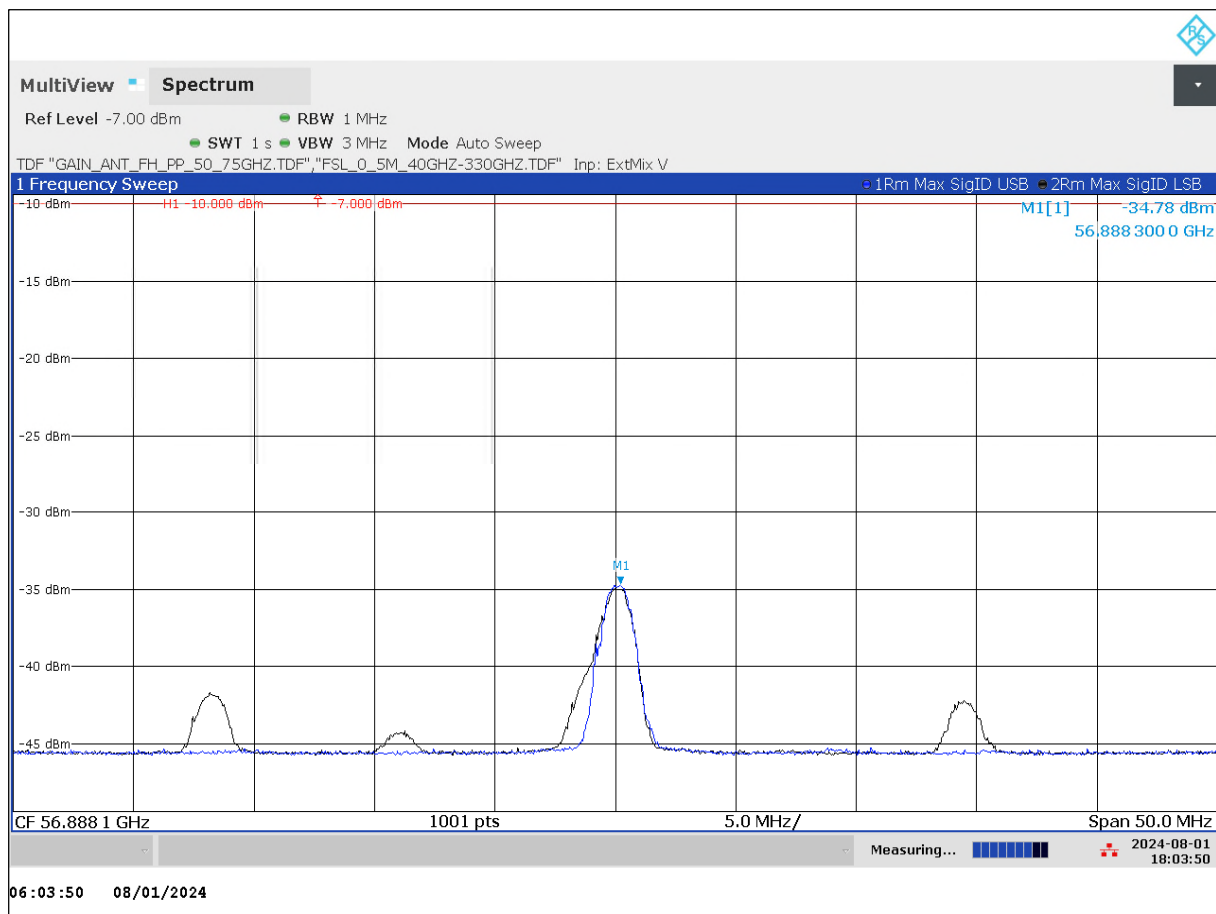


1.6 Radiated spurious emissions (50GHz < f < 75GHz)

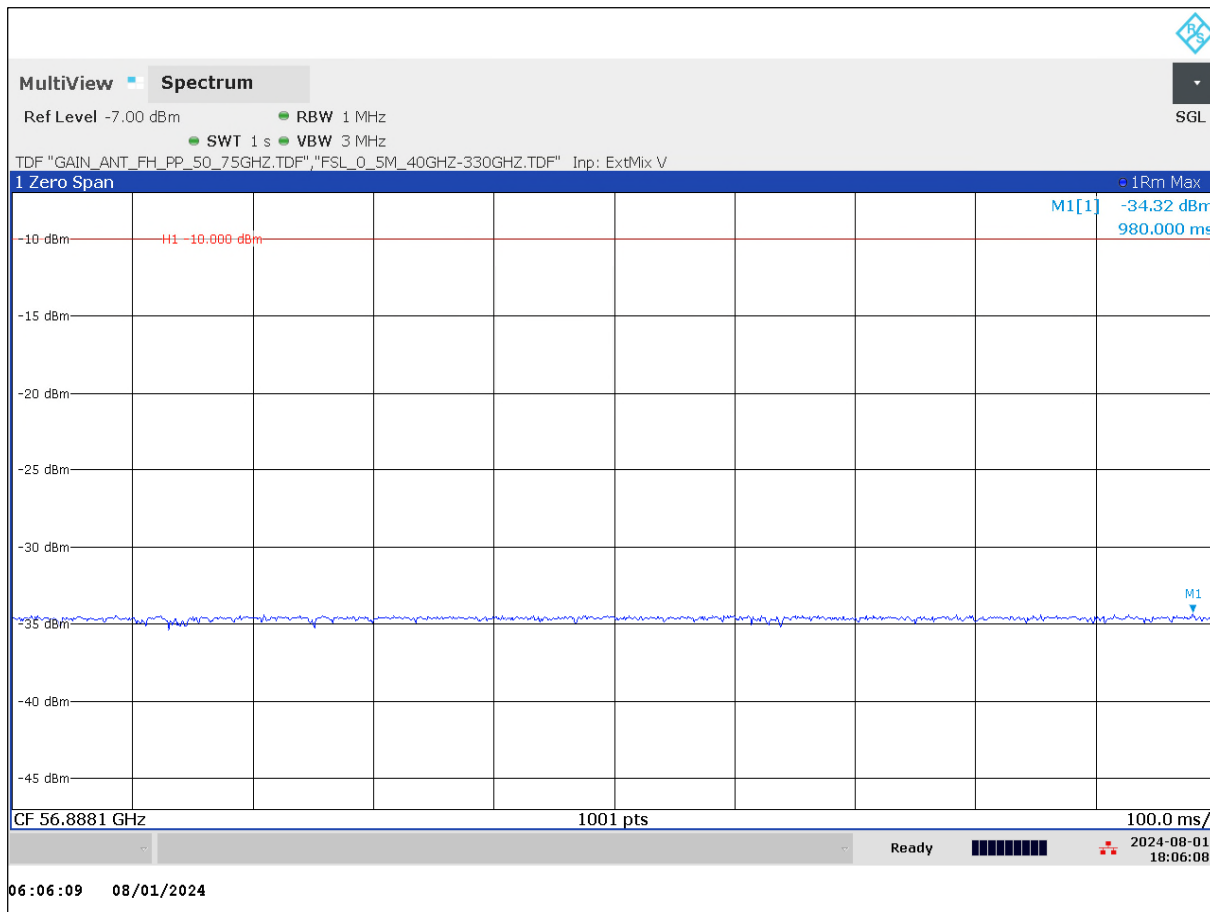
TID110a_23-1-0012601T16_RSE_50 G - 75 GHz_Ant_H_FCC15.255



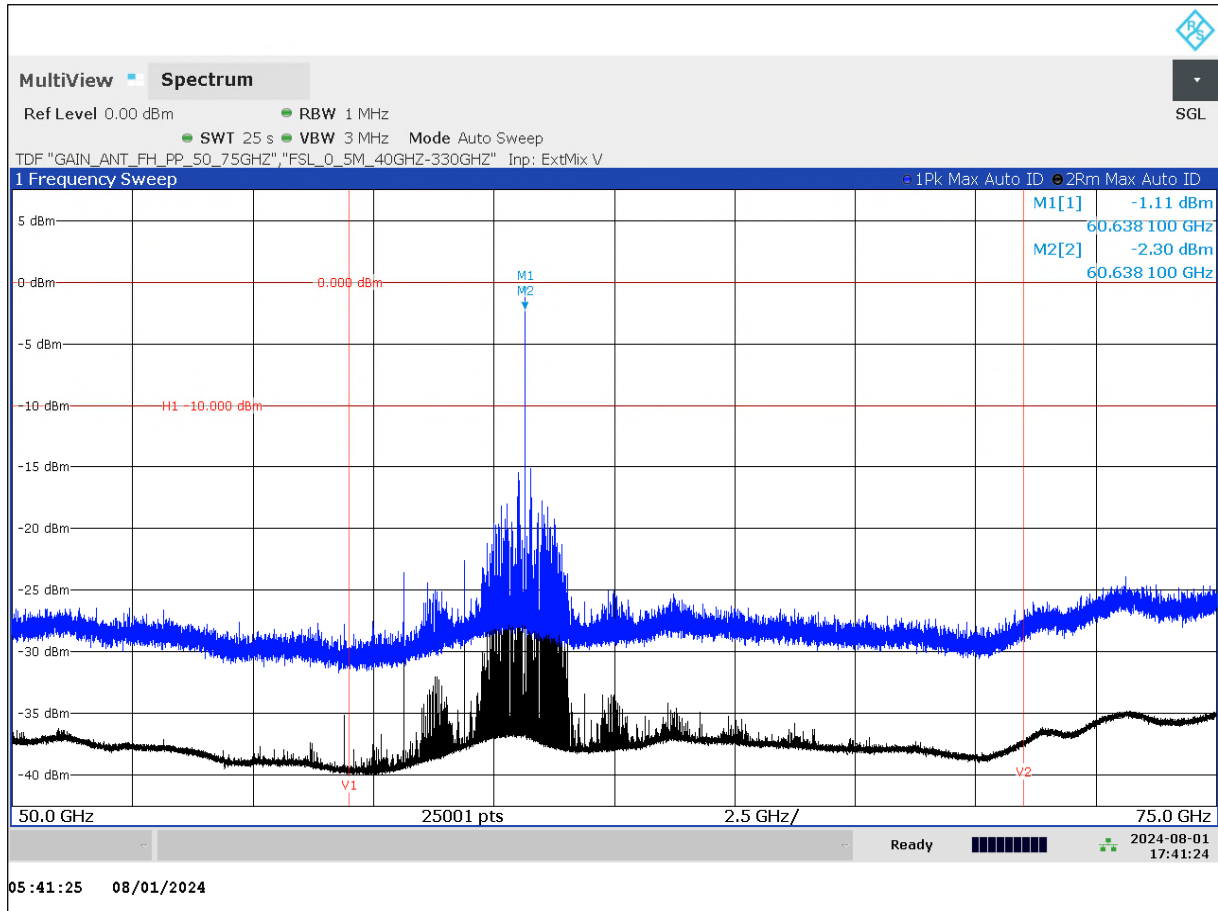
TID110a1_23-1-0012601T16_RSE_56.888 GHz_Ant_H_FCC15.255_real_signal



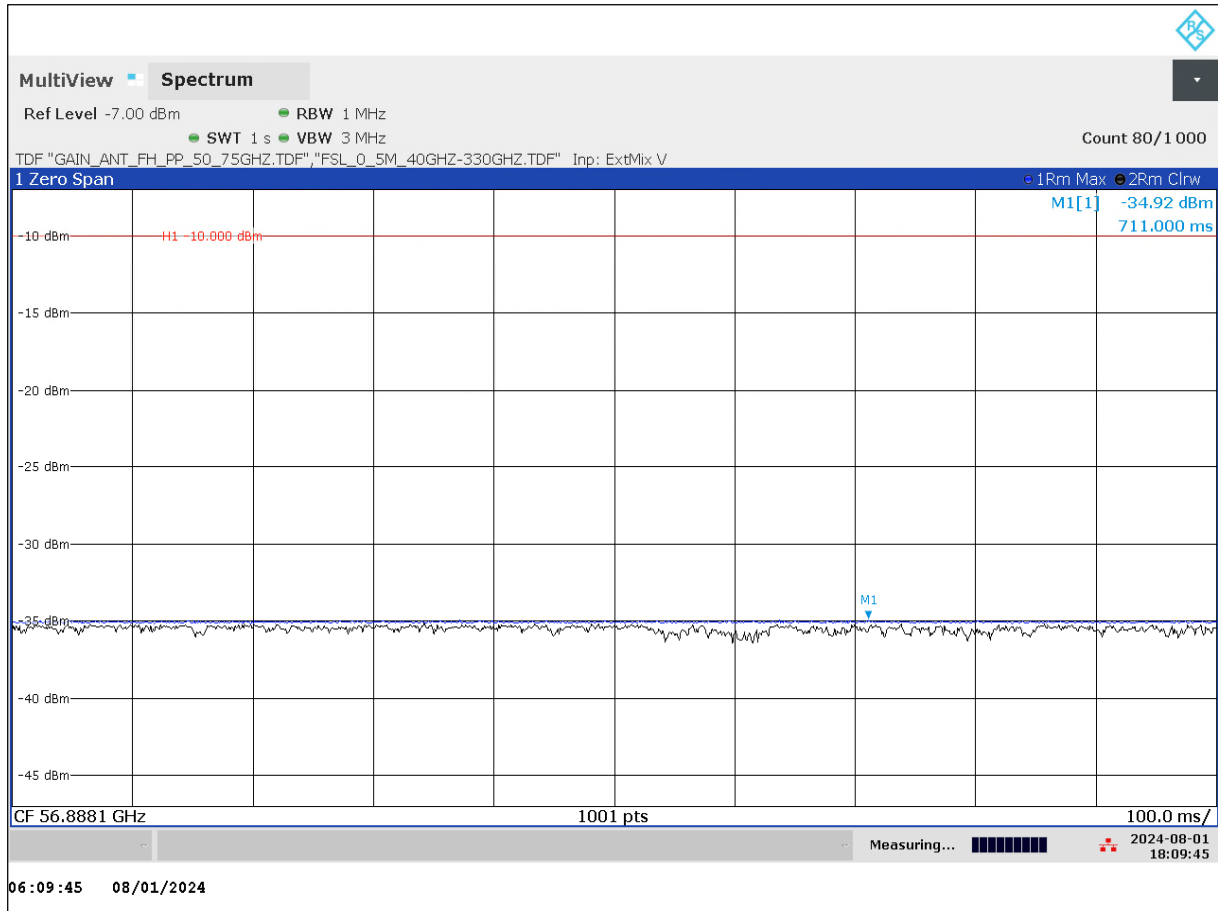
TID110a2_23-1-0012601T16_RSE_56.888 GHz_Ant_H_FCC15.255_final_zero_span



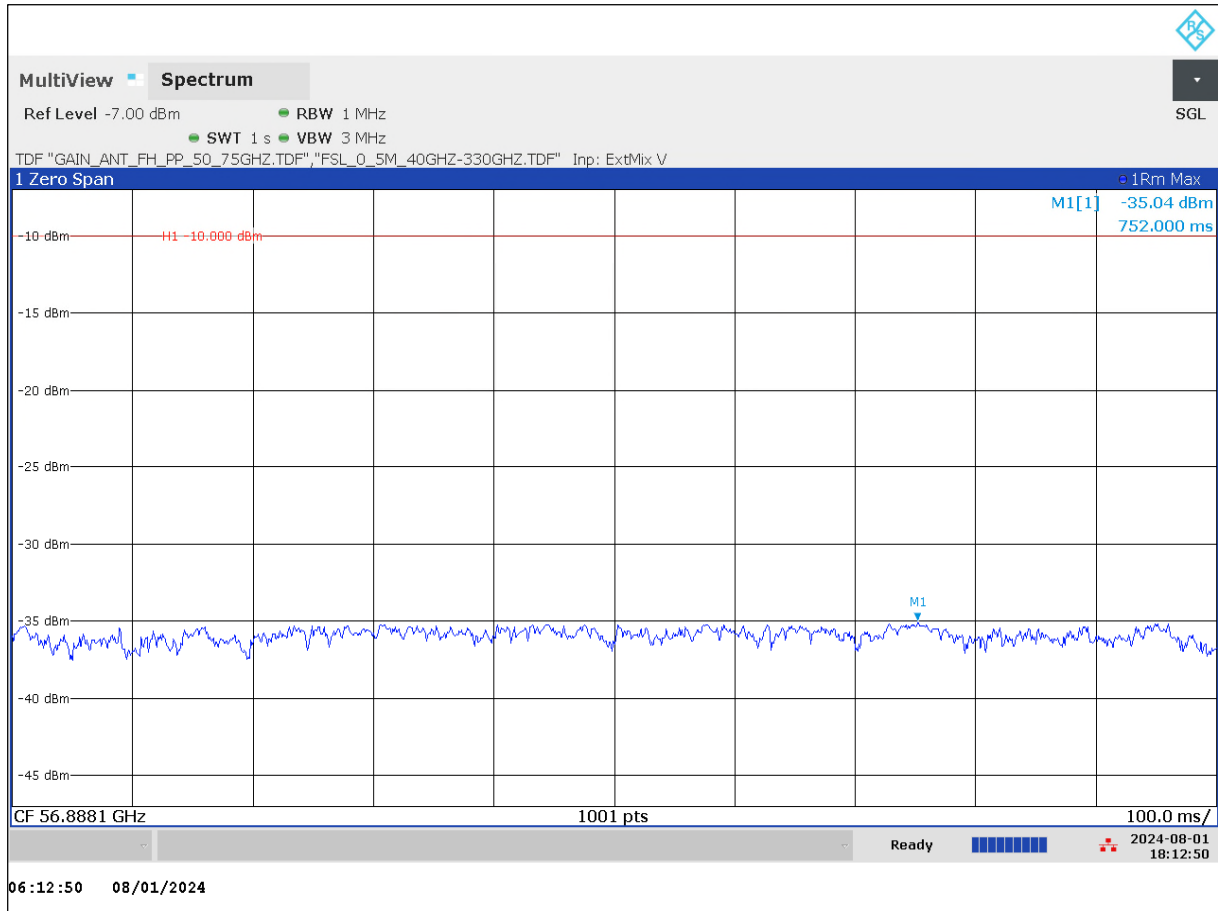
TID110b_23-1-0012601T16_RSE_50 G - 75 GHz_Ant_V_FCC15.255



TID110b1_23-1-0012601T16_RSE_56.888 GHz_Ant_V_FCC15.255_max_peak_search

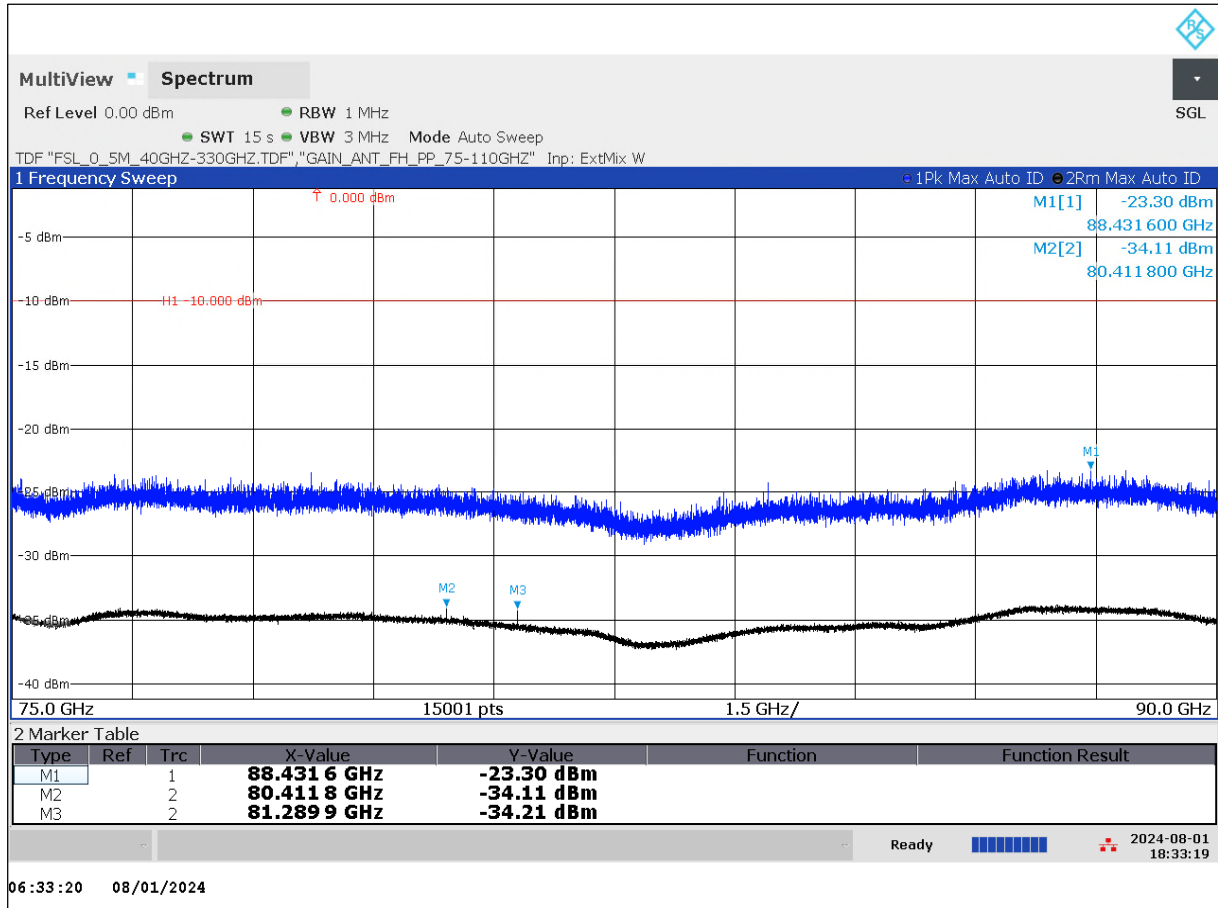


TID110b2_23-1-0012601T16_RSE_56.888 GHz_Ant_V_FCC15.255_final_zero_span



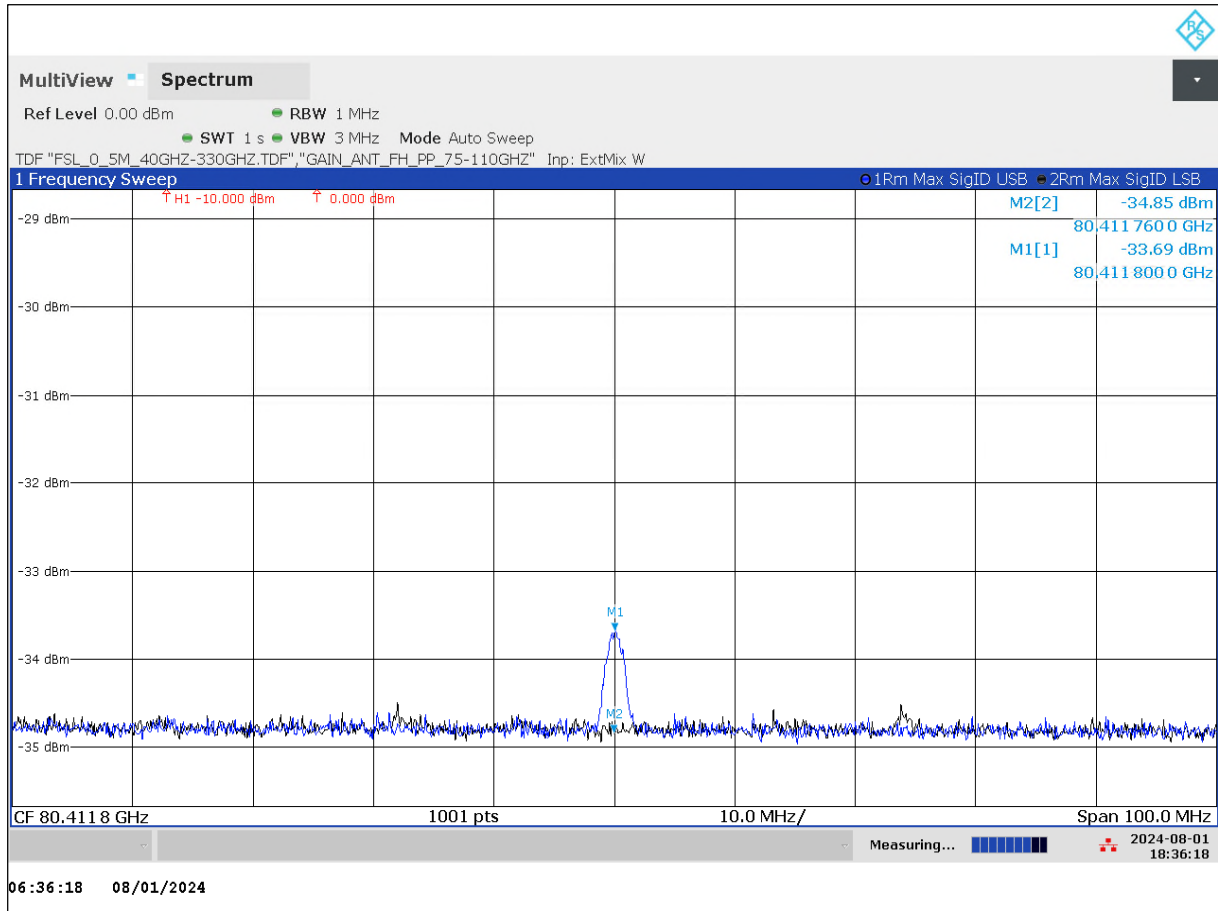
1.7 Radiated spurious emissions (75GHz < f < 90GHz)

TID111a_23-1-0012601T16_RSE_75 G - 90 GHz_Ant_H_FCC15.255



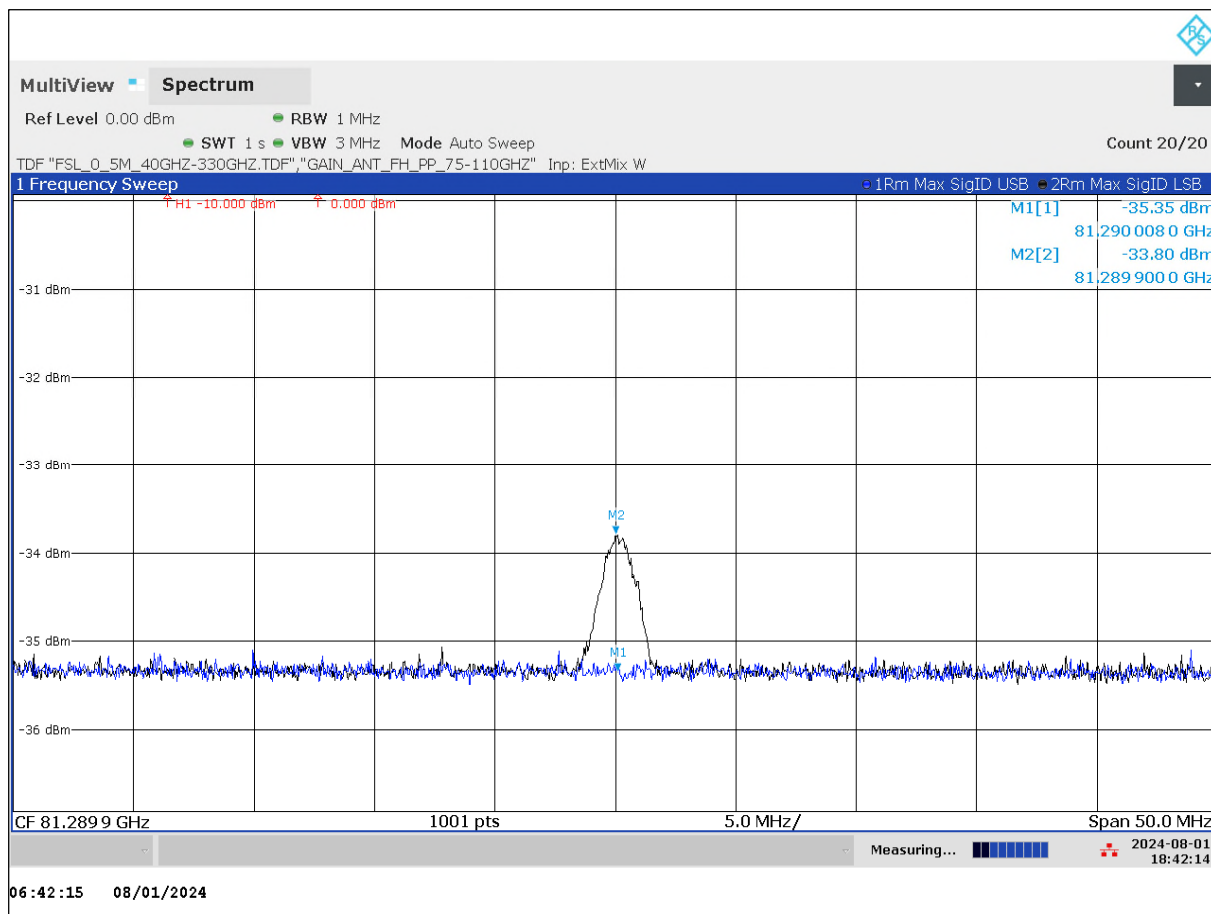
Overview

TID111a1_23-1-0012601T16_RSE_80.412 GHz_Ant_H_FCC15.255_ghost_signal_M2



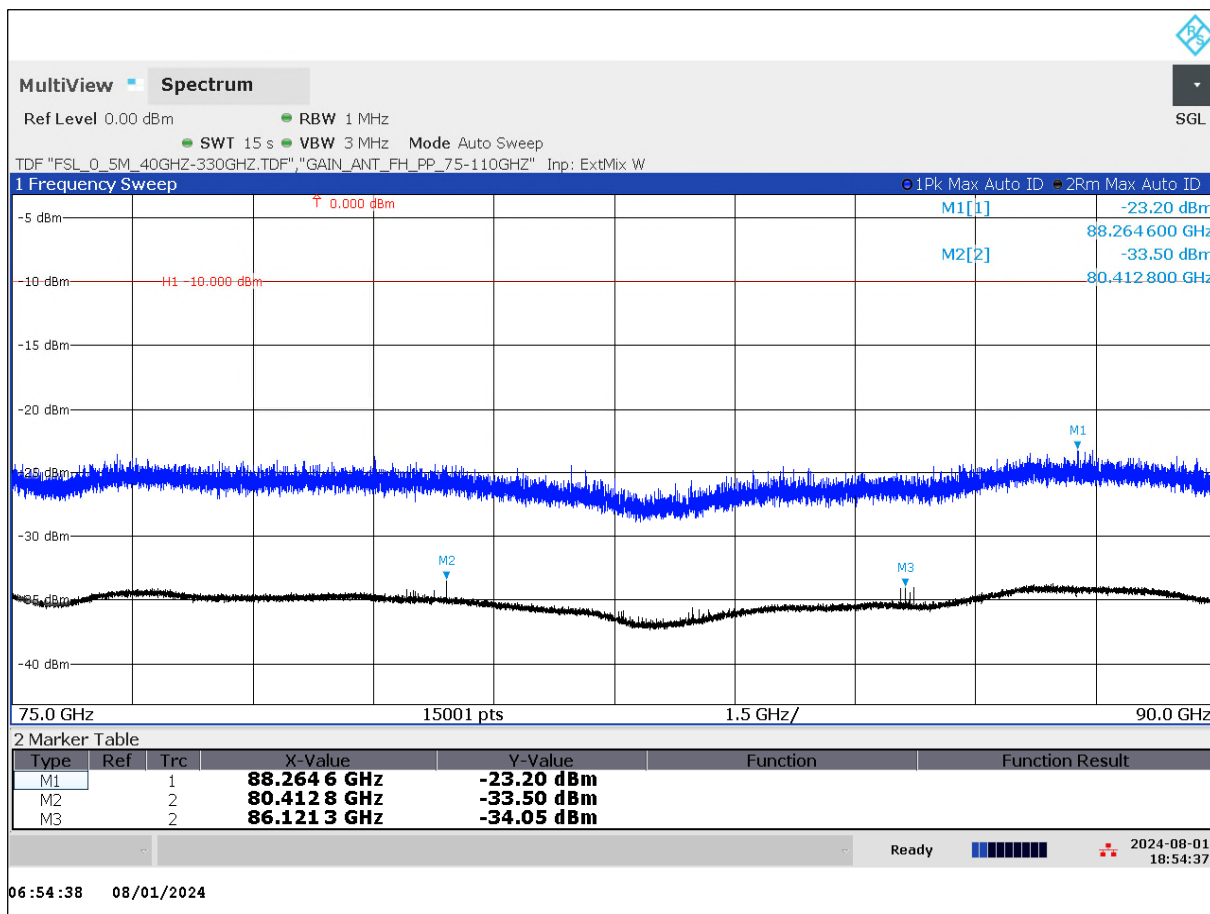
Ghost signal

TID111a2_23-1-0012601T16_RSE_81.290 GHz_Ant_H_FCC15.255_ghost_signal_M3



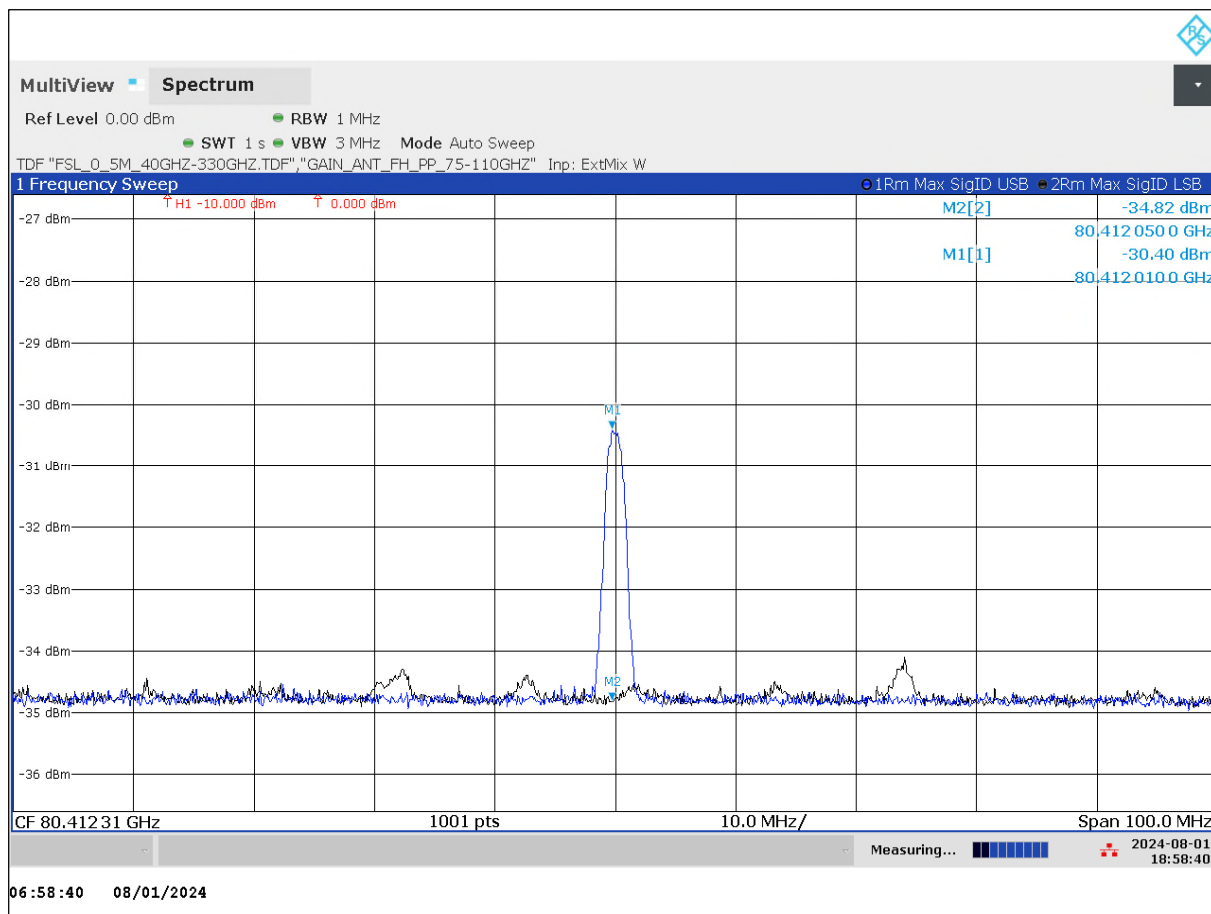
Ghost signal

TID111b_23-1-0012601T16_RSE_75 G - 90 GHz_Ant_V_FCC15.255



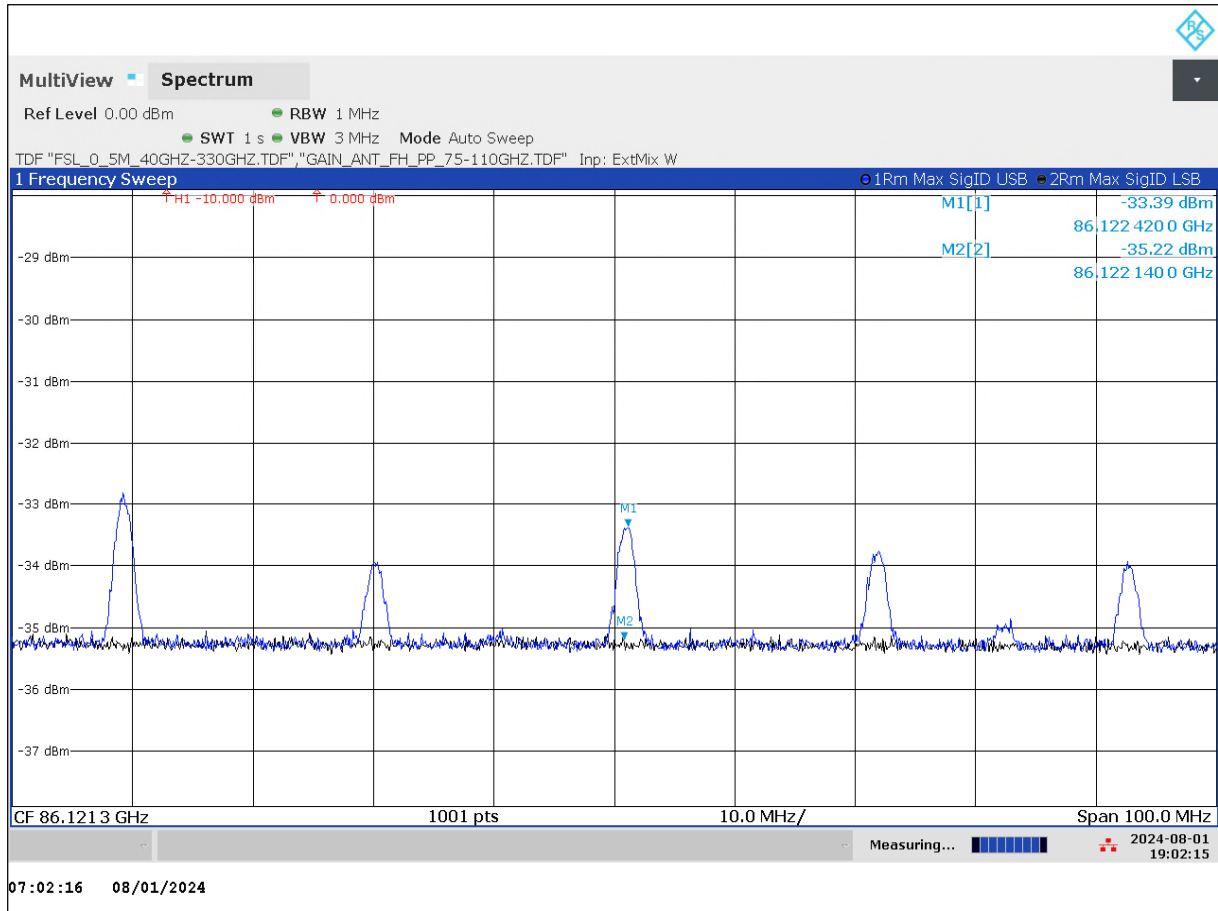
Overview

TID111b1_23-1-0012601T16_RSE_80.412 GHz_Ant_V_FCC15.255_ghost_signal_M2



Ghost signal

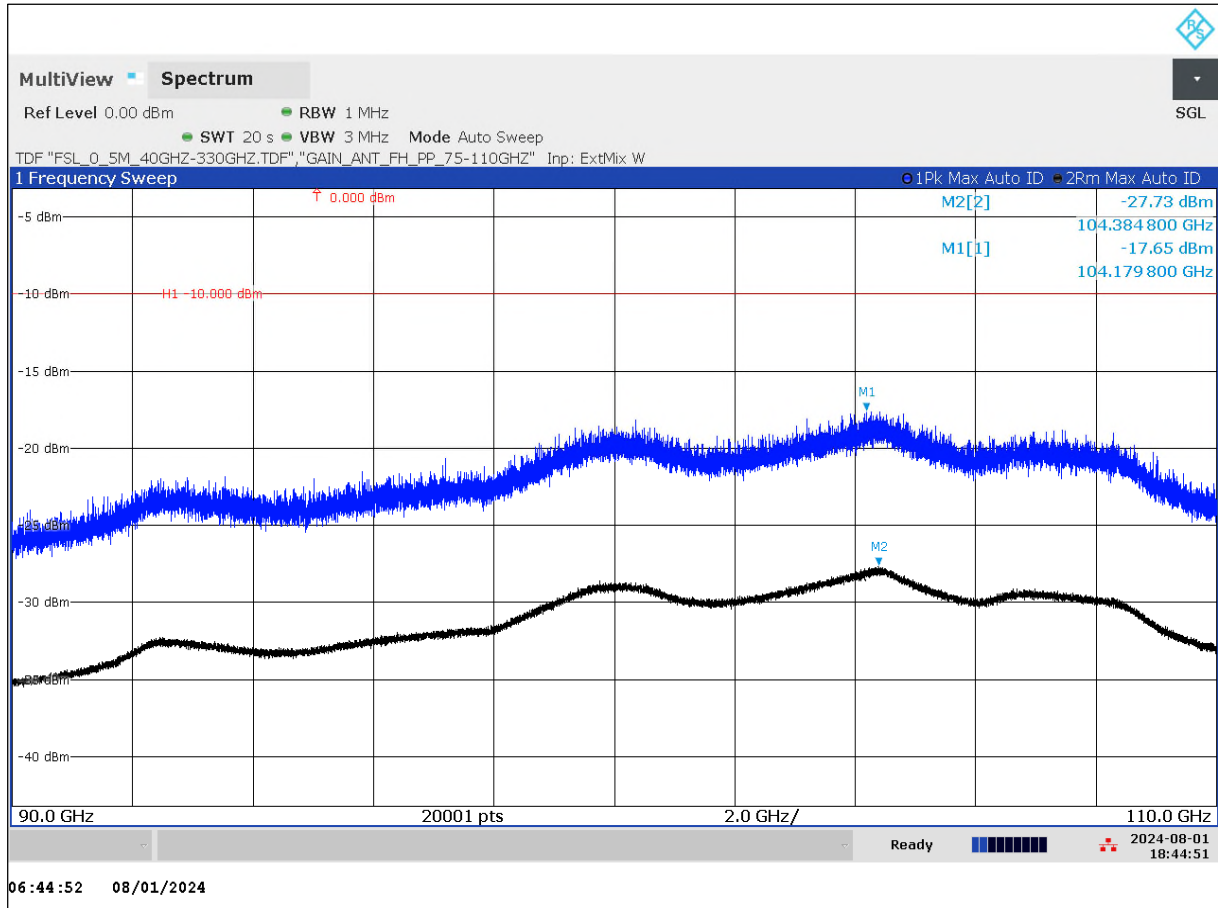
TID111b2_23-1-0012601T16_RSE_86.121 GHz_Ant_V_FCC15.255_ghost_signal_M3



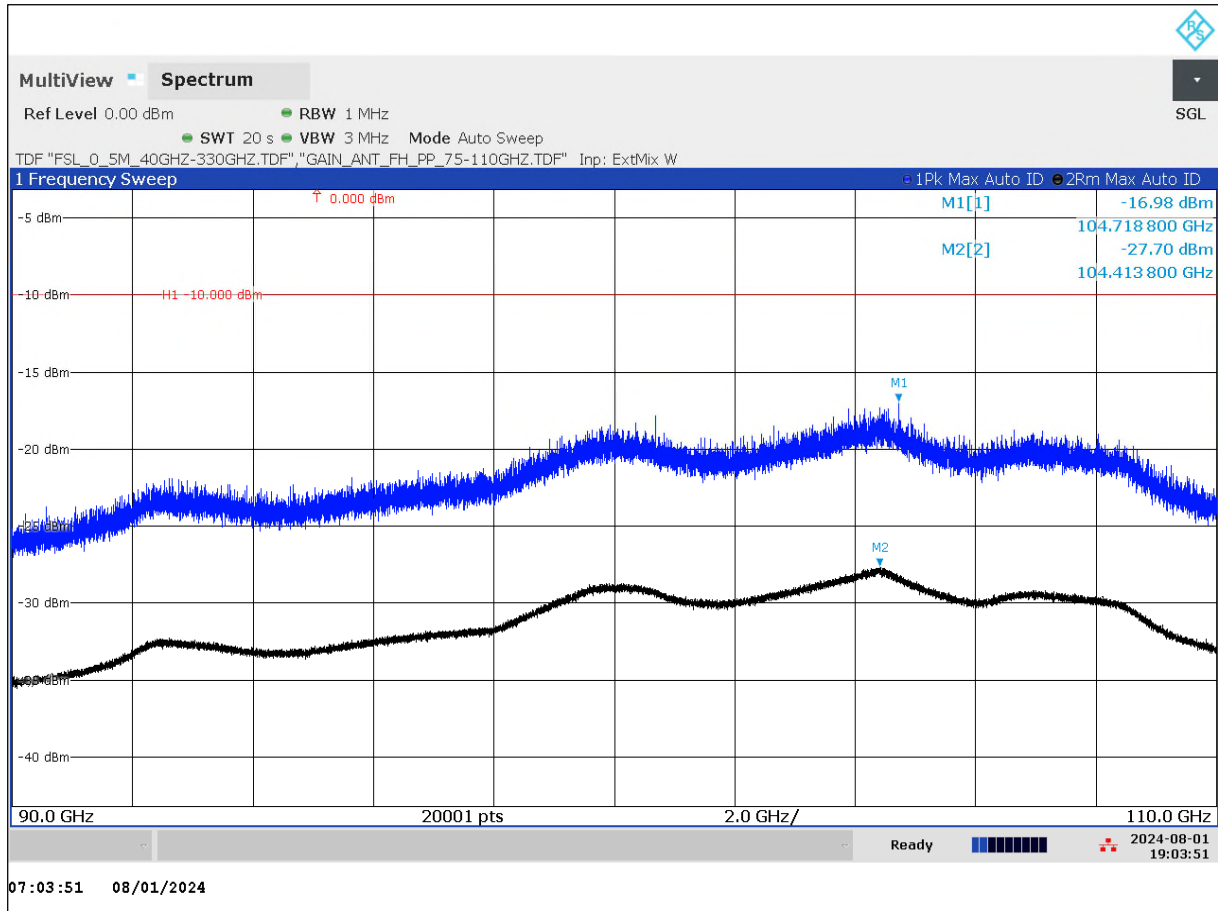
Ghost signal

1.8 Radiated spurious emissions (90GHz < f < 110GHz)

TID112a_23-1-0012601T16_RSE_90 G - 110 GHz_Ant_H_FCC15.255

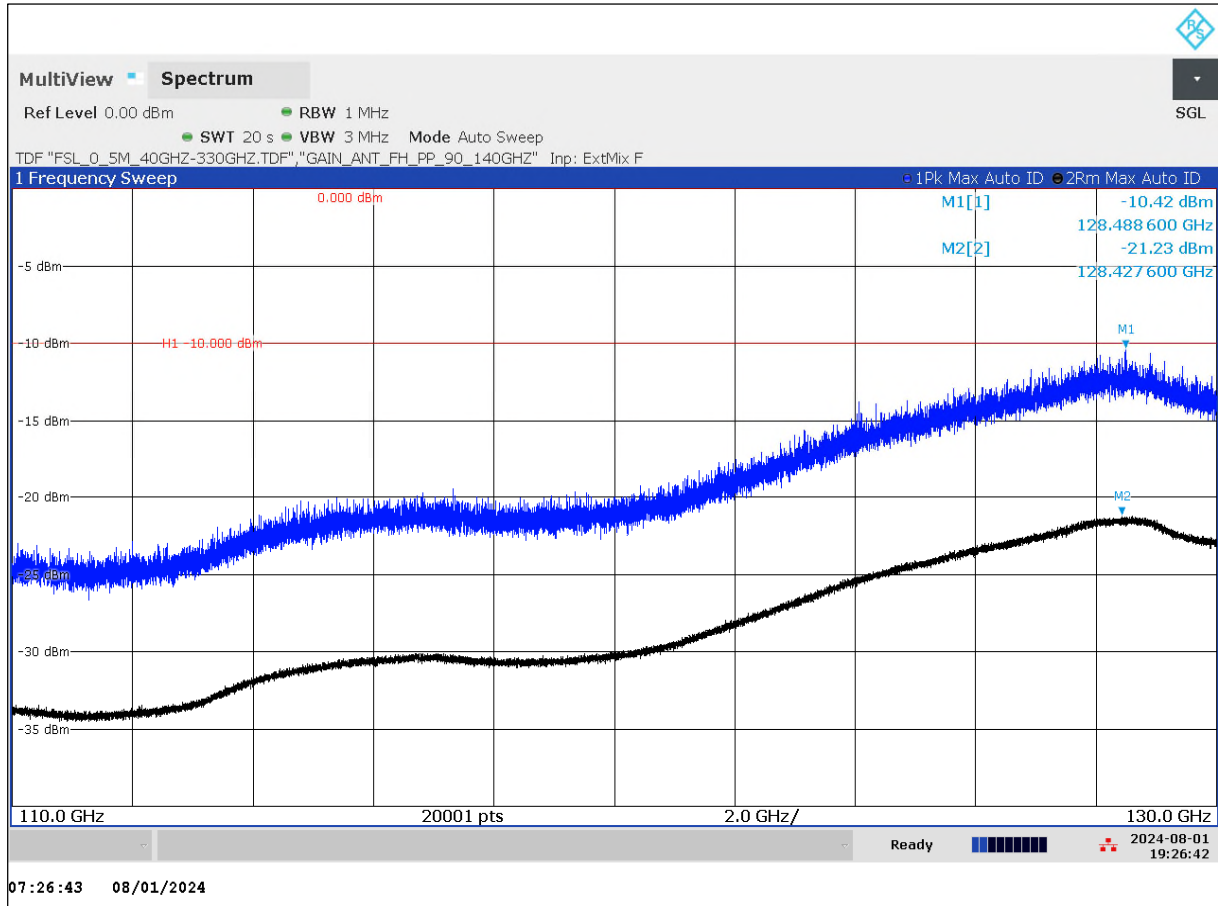


TID112b_23-1-0012601T16_RSE_90 G - 110 GHz_Ant_V_FCC15.255

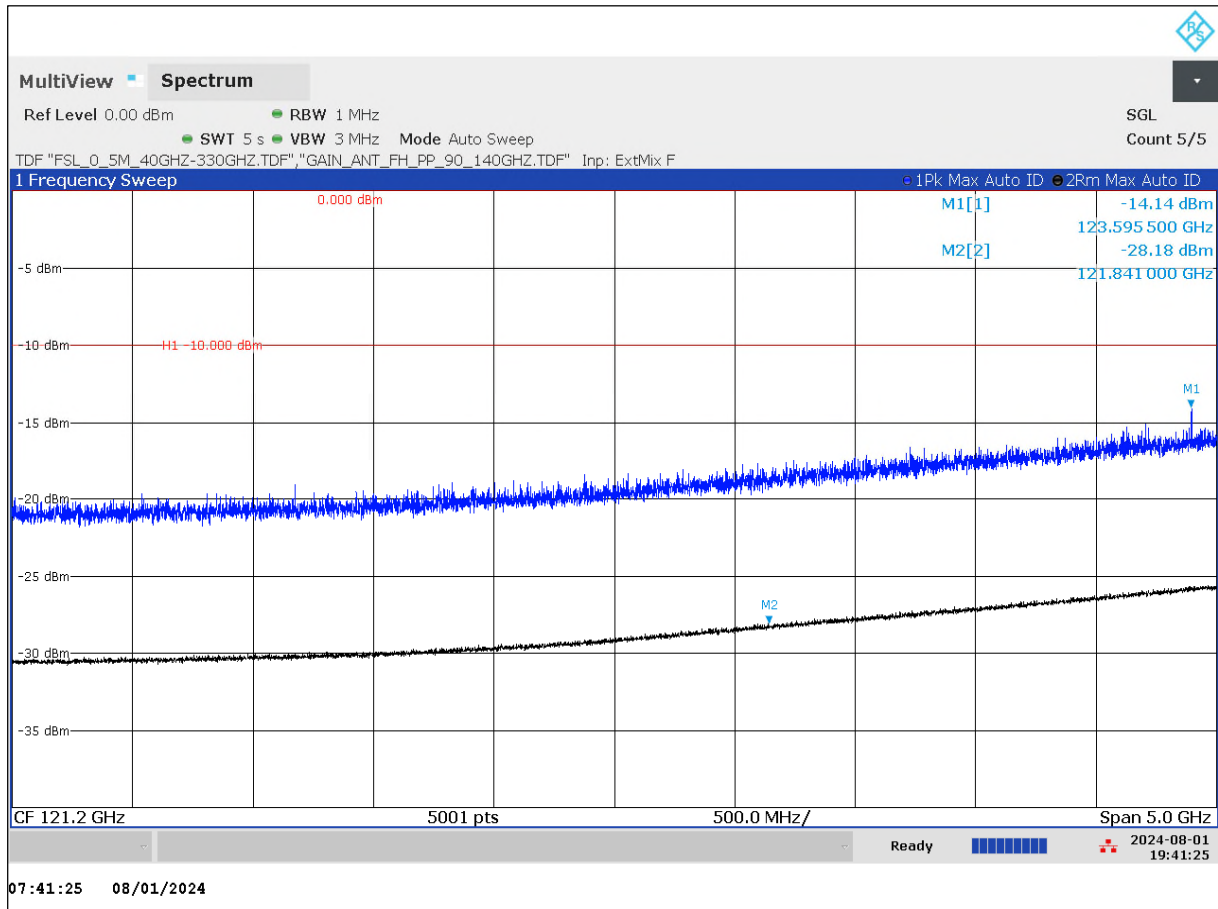


1.9 Radiated spurious emissions (110GHz < f < 130GHz)

TID113a_23-1-0012601T16_RSE_110 G - 130 GHz_Ant_H_FCC15.255

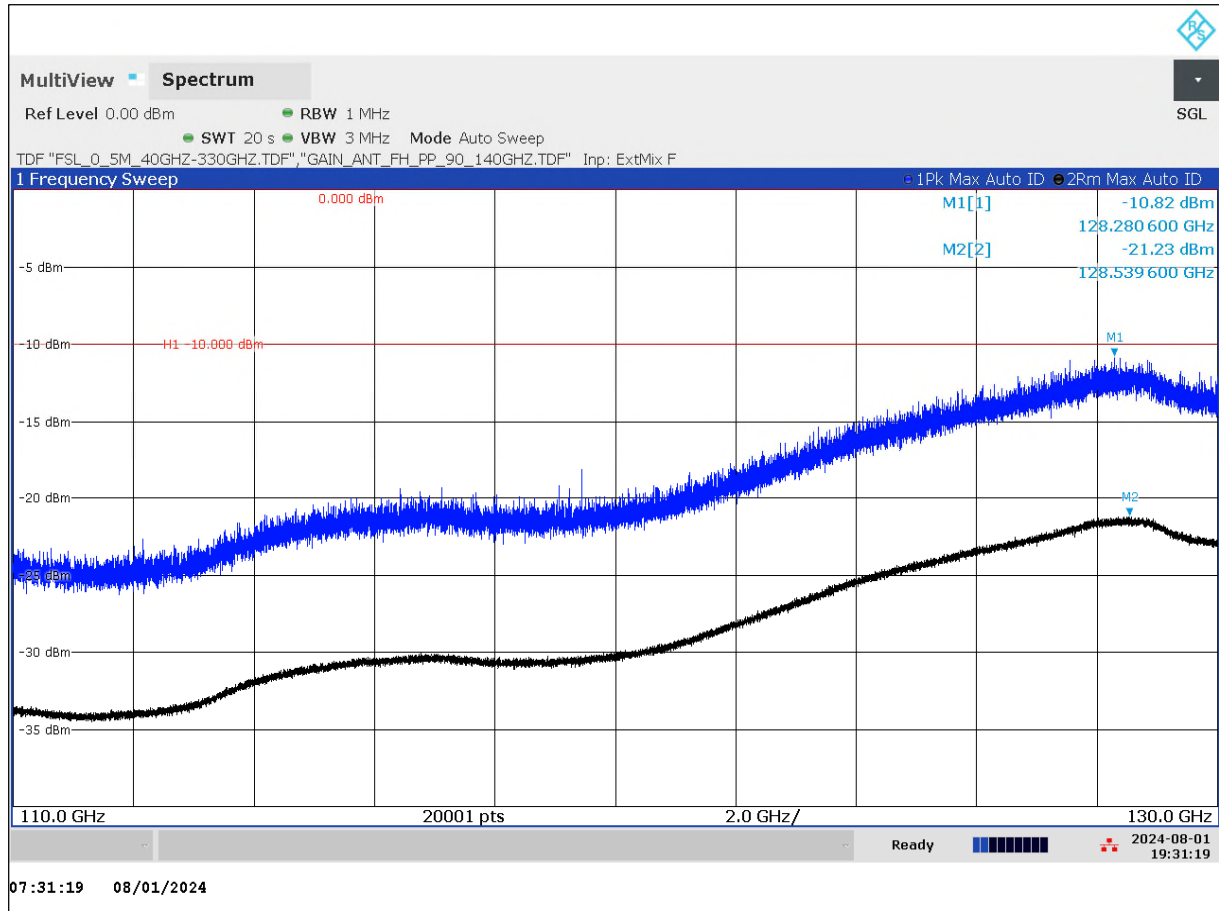


TID113a1_23-1-0012601T16_RSE_2nd_Harmonic_121.2
GHz_span_5GHz_Ant_H_FCC15.255_cont_sweep_info_only

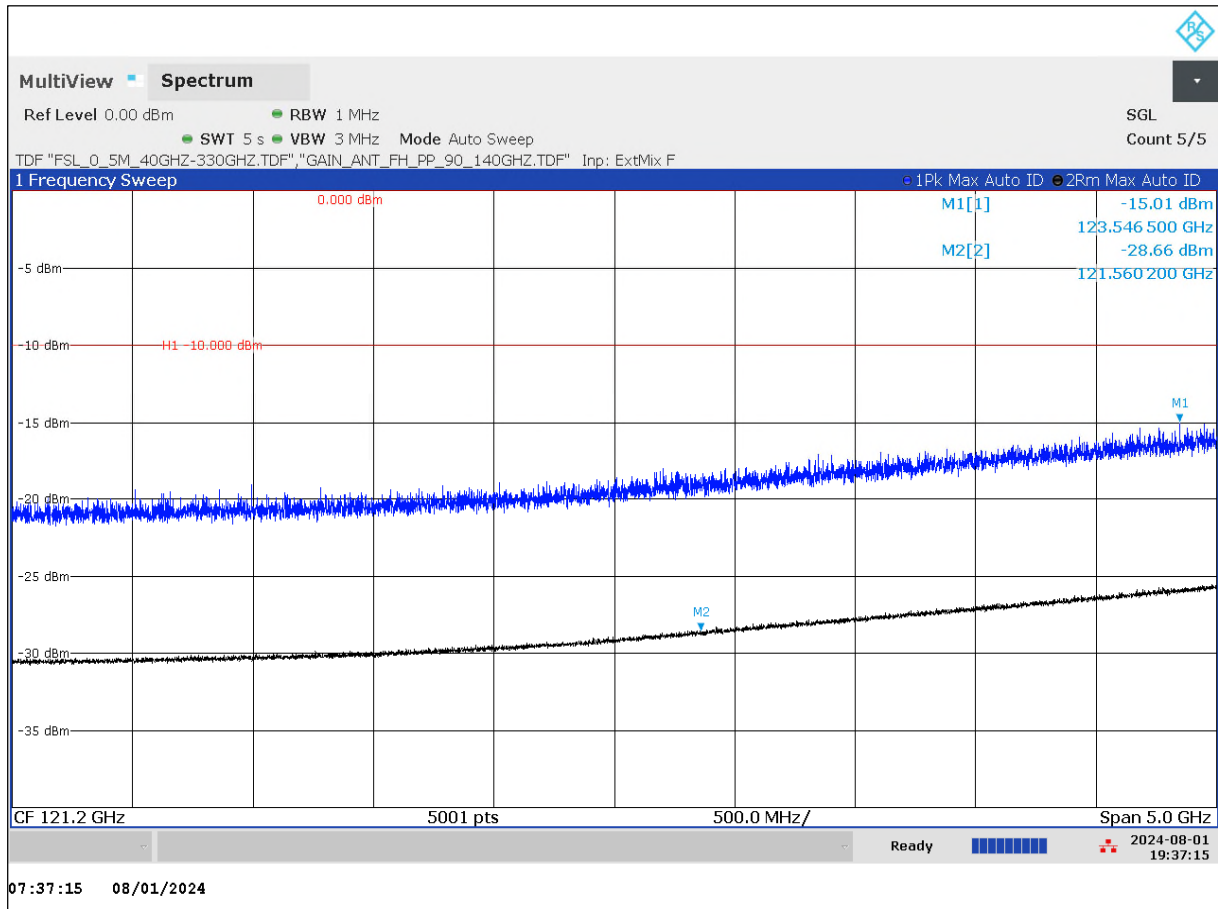


No harmonic can be detected

TID113b_23-1-0012601T16_RSE_110 G - 130 GHz_Ant_V_FCC15.255



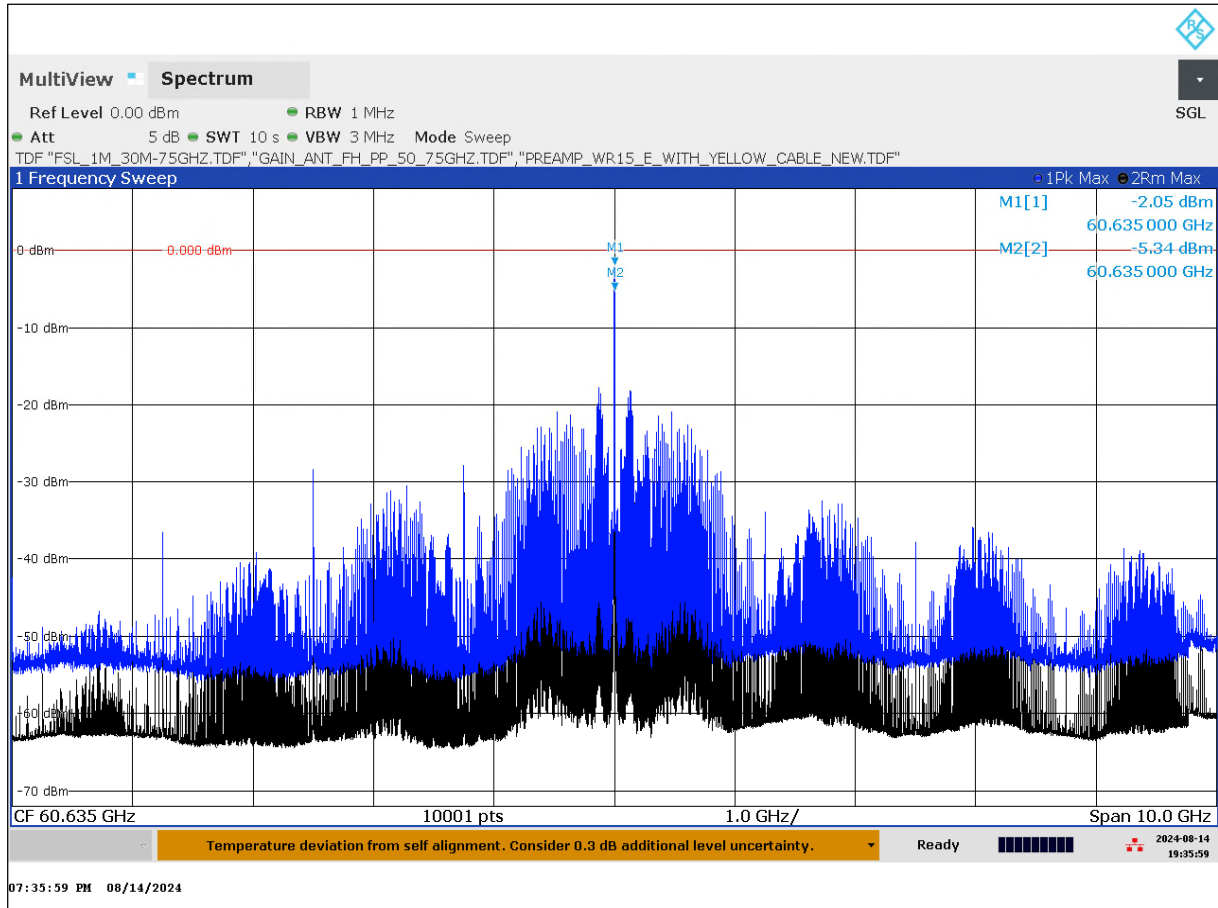
TID113b1_23-1-0012601T16_RSE_2nd_Harmonic_121.2
GHz_span_5GHz_Ant_V_FCC15.255_cont_sweep_info_only



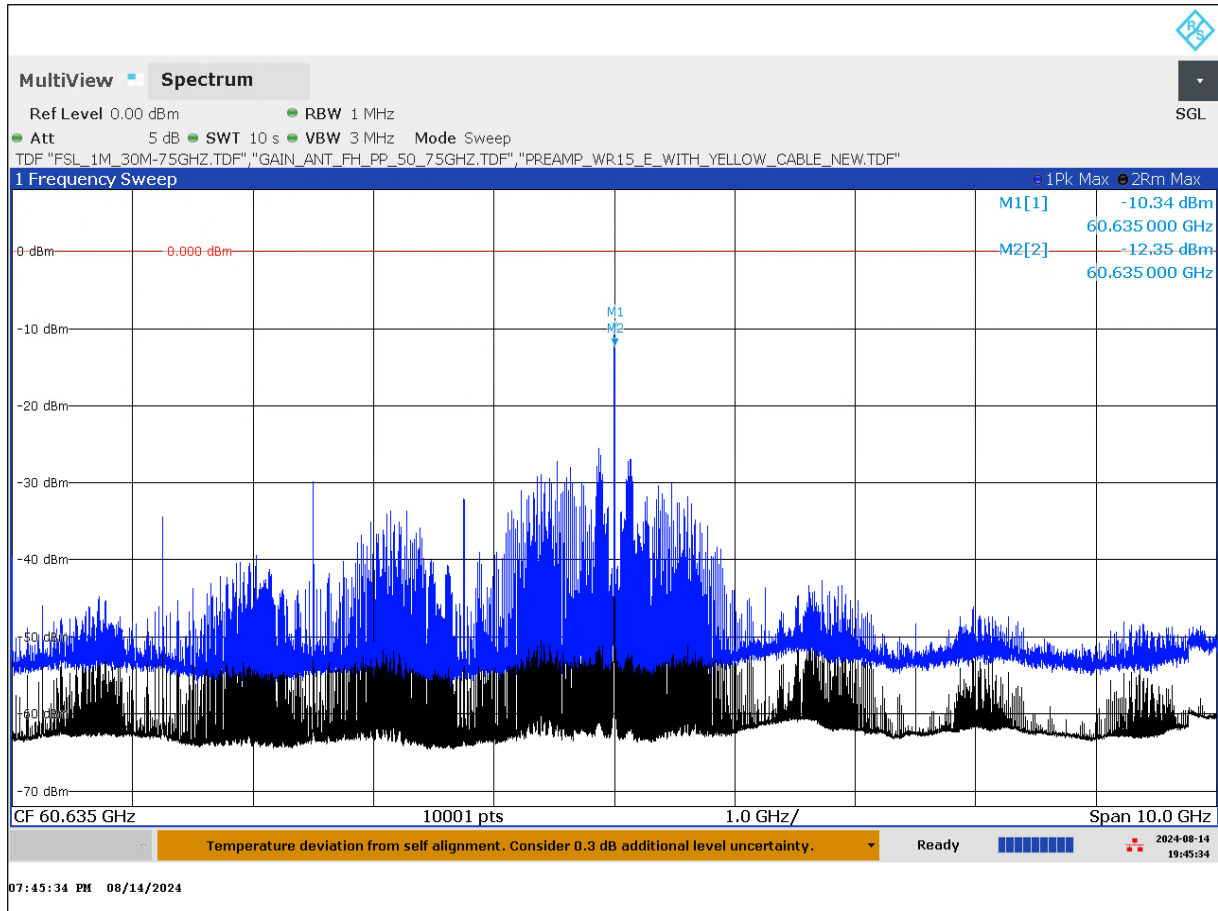
No harmonic can be detected

1.10 Measurement: Peak EIRP

TID010_23-1-0012601T016_PEAK_EIRP_Ant_V_RBW_1MHz

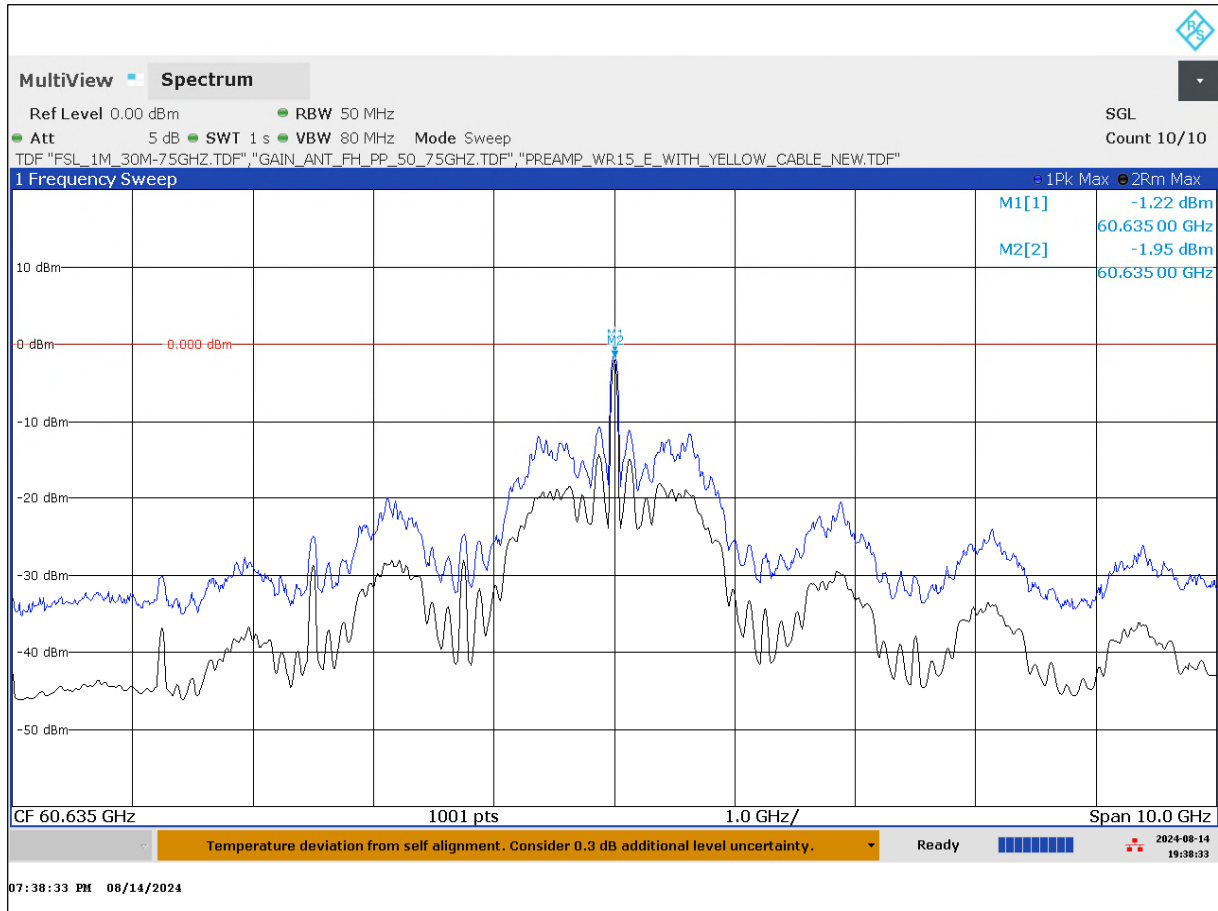


Peak EIRP with RBW=1MHz: -2.05dBm

TID011_23-1-0012601T016_PEAK_EIRP_Ant_H_RBW_1MHz


Peak EIRP with RBW=1MHz: -10.34dBm

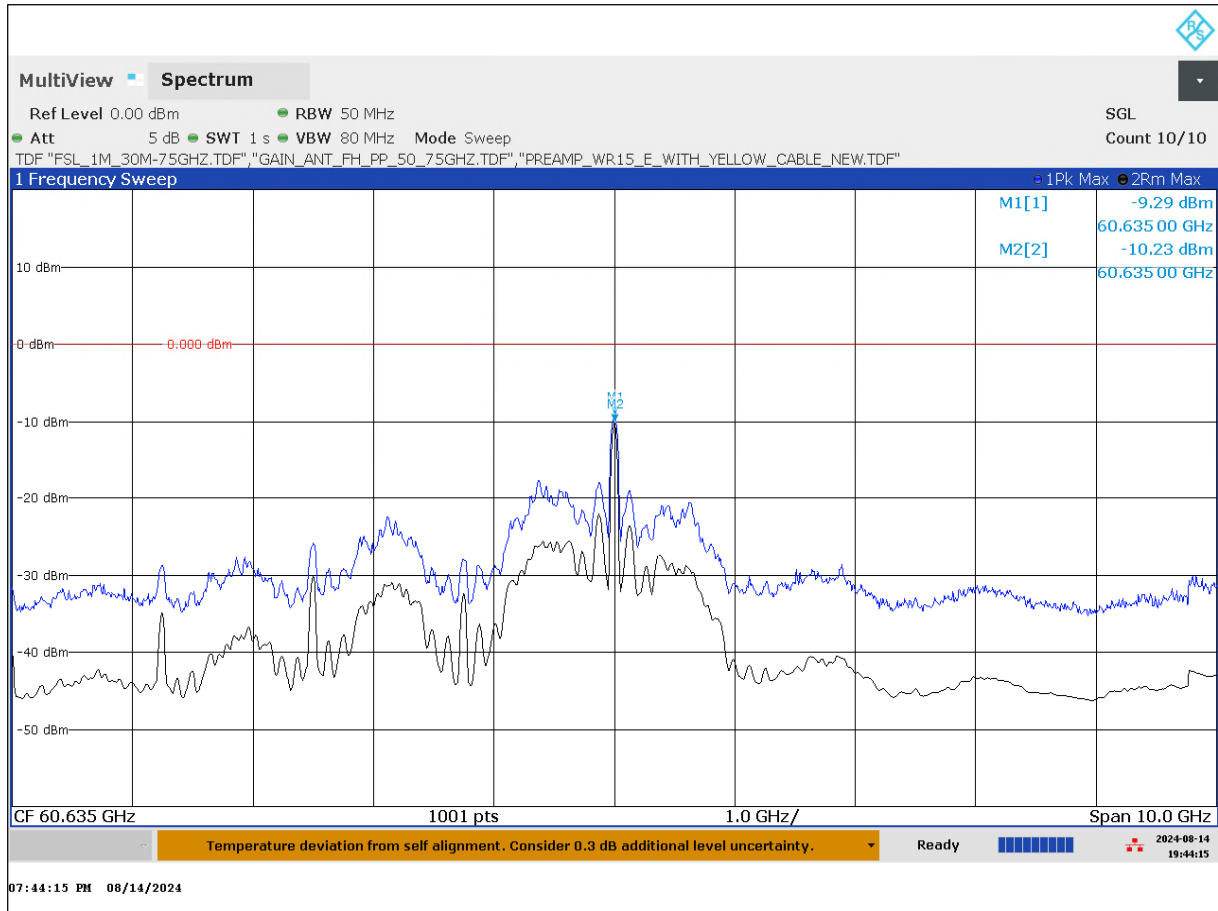
TID012_23-1-0012601T016_PEAK_EIRP_Ant_V_RBW_50MHz



Max. peak value with RBW=50MHz: -1.22dBm

Chosen measurement RBW (50MHz) bigger then 6dB EBW (1.182MHz) for main signal component.

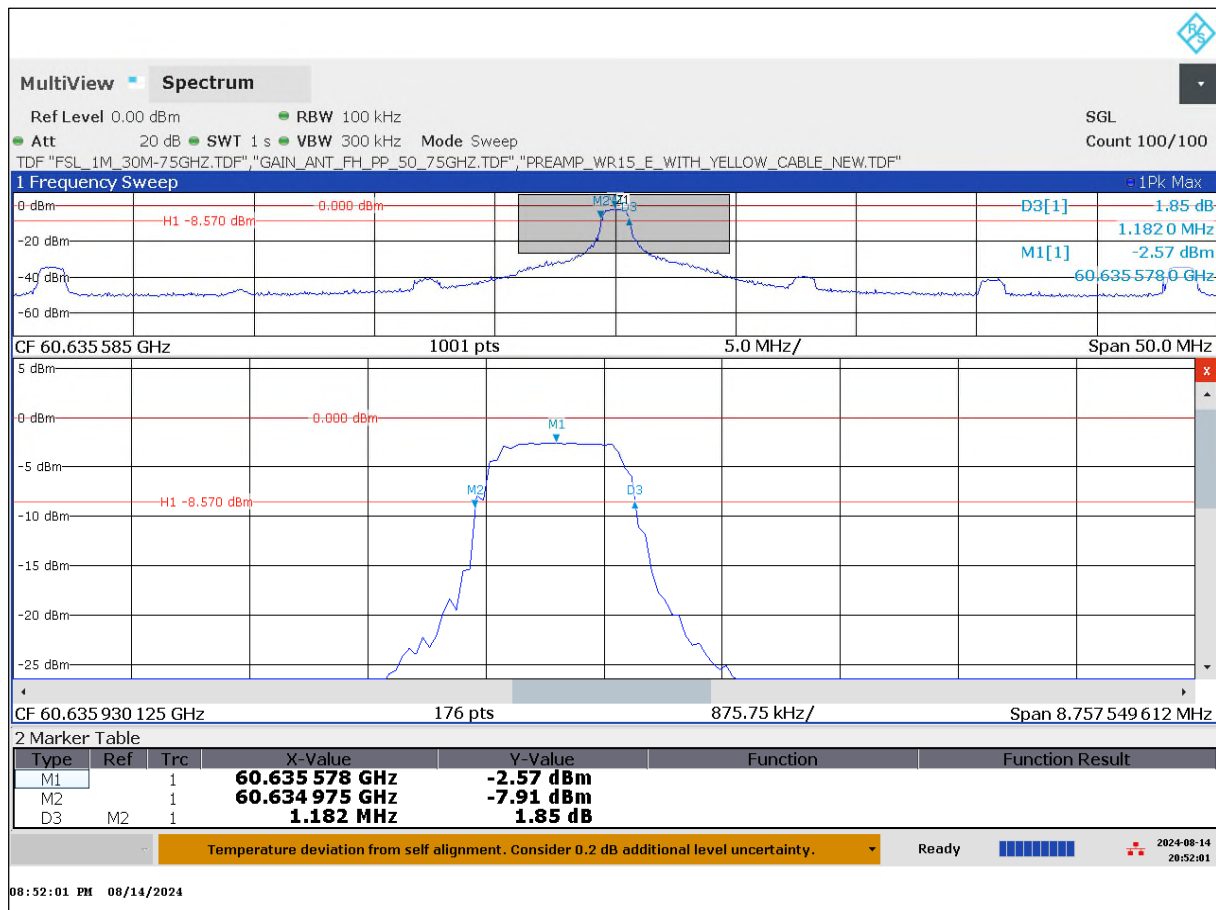
TID013_23-1-0012601T016_PEAK_EIRP_Ant_H_RBW_50MHz



Max. peak value with RBW=50MHz: -9.29dBm

1.11 Measurement: 6dB emission bandwidth

TID014_23-1-0012601T016_6dB_EBW_Ant_V_RBW_100kHz



6dB bandwidth: 1.182MHz

1.12 Measurement of 20dB bandwidth

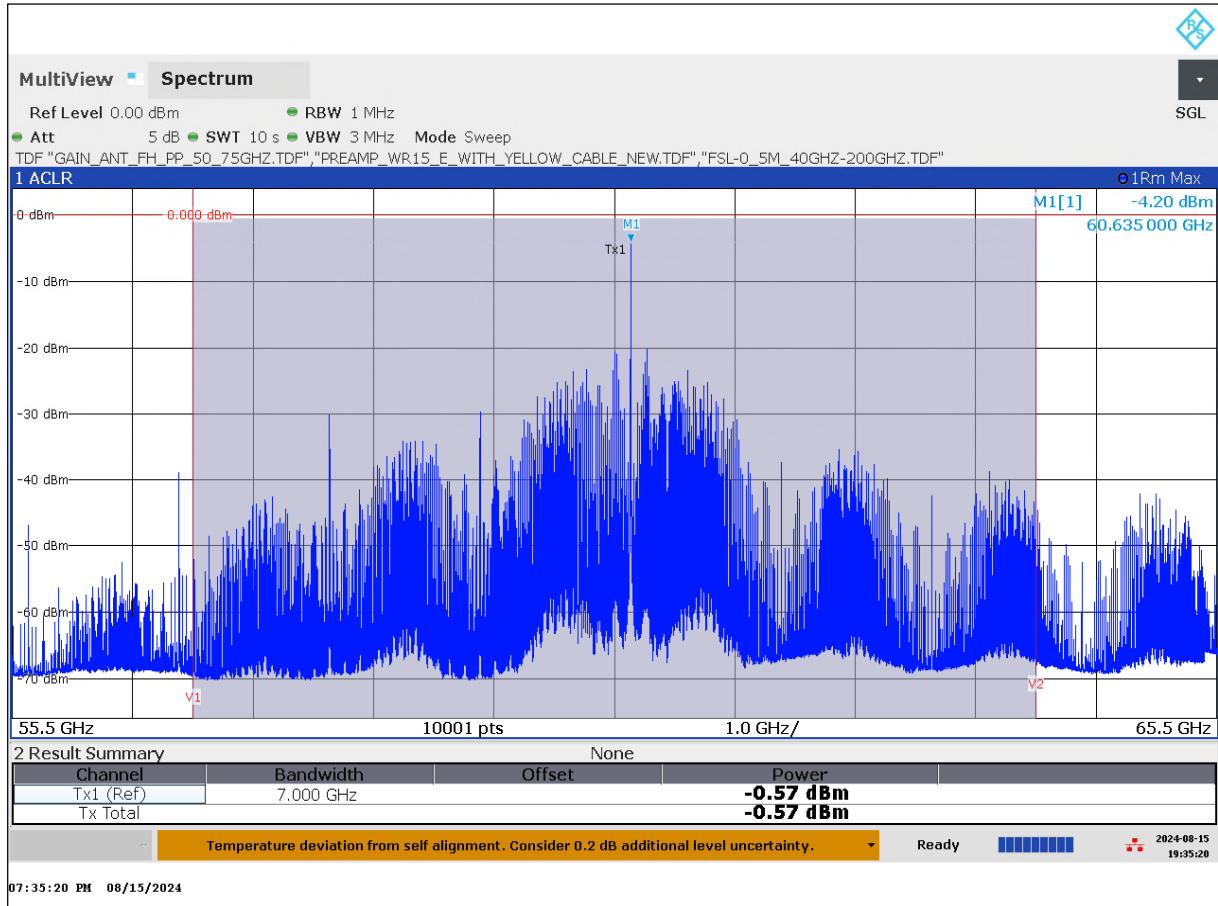
See annex A201 for results under normal and extreme test conditions.

1.13 Measurement: 99% occupied bandwidth

See annex A201 for results under normal and extreme test conditions.

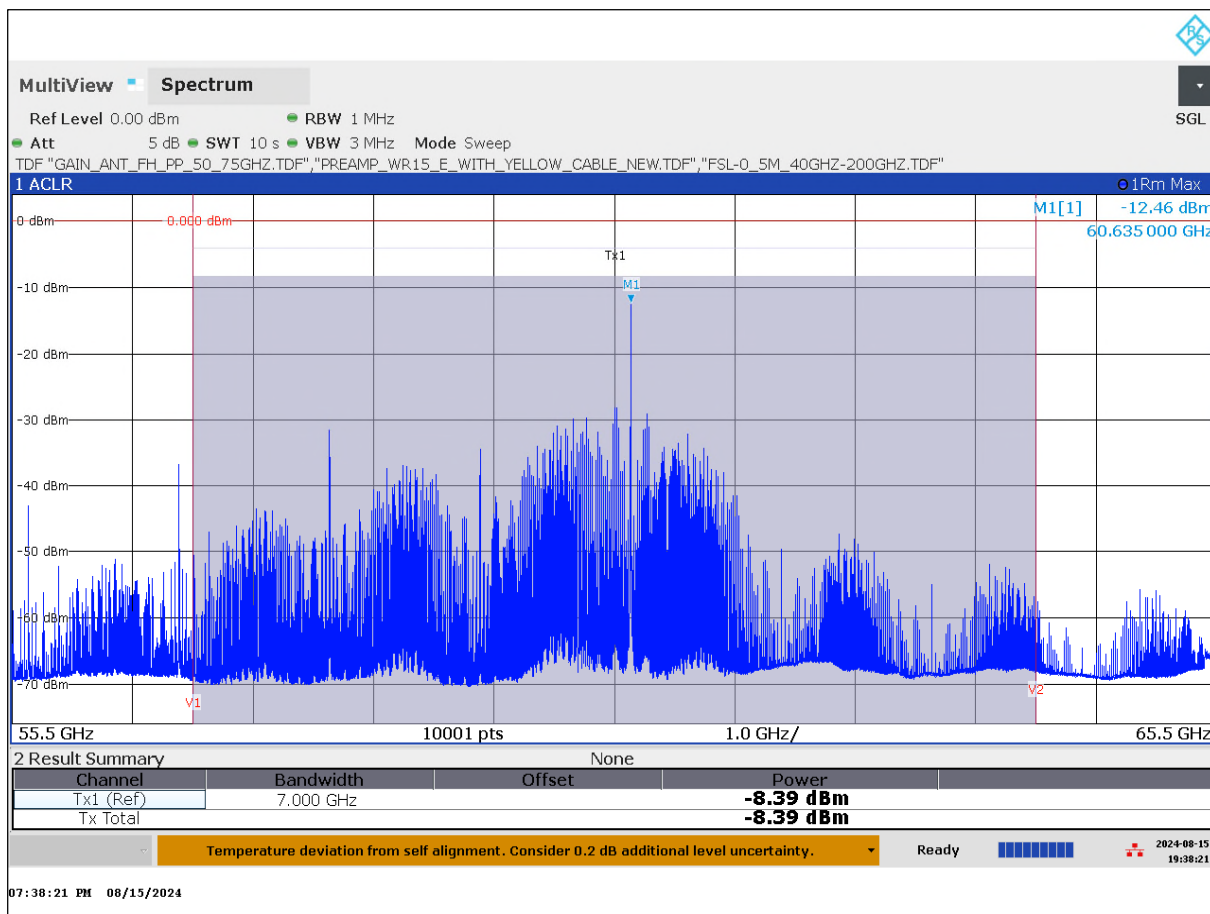
1.14 Measurement: Average EIRP

TID021_23-1-0012601T016_Channel_Power_Ant_V_Span_10GHz



Average EIRP power within band: -0.57 dBm

TID023_23-1-0012601T016_Channel_Power_Ant_H_Span_10GHz



1.15 Conducted emissions on AC-mains

Tests have been performed with DC-power supply (nominal voltage) and a standard LISN used for coupling.

Diagram 1.02

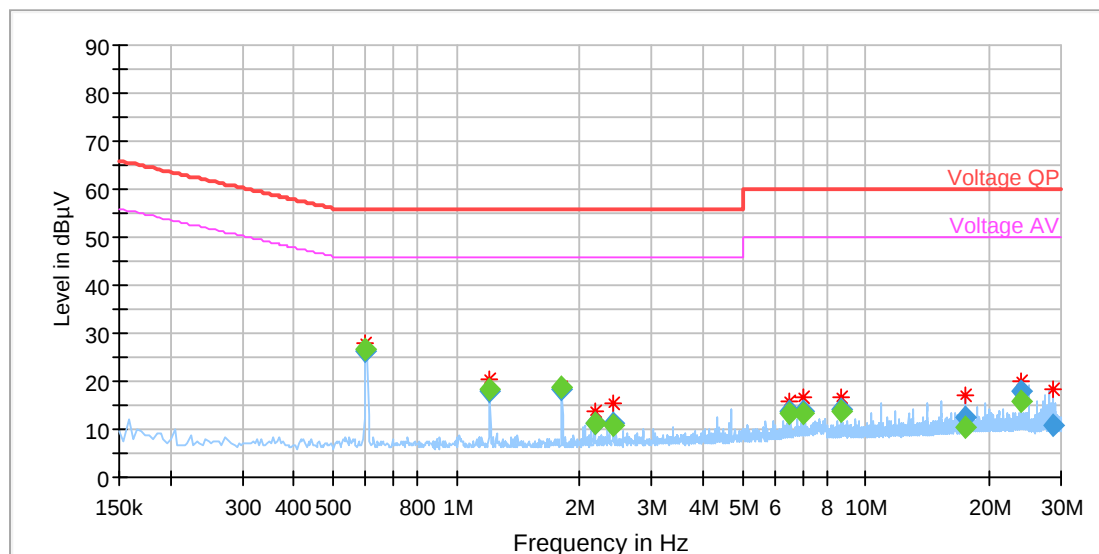
Common Information

Test Description:	Conducted Voltage Measurement
Test Site Location:	Conducted Emission, cetecom advanced GmbH Essen
Test Software:	R&S EMC32 v9.15
Test Standard:	FCC 15.207
Operating Mode:	Radar TX-on continuously
Measured on line:	N/L1
Diagram details:	Shows the peak values as a sum of measured ports in maxhold mode
Environmental Conditions:	Humidity: 62%rH; Temperature: 21.7°C
Operator:	Lor
Comments:	DC powered by laboratory power supply
EUT Setup:	1 (Sample 07)
Verdict:	Passed

EUT Information

PMT number:	23-1-00126S07_C01
Date received:	

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBµV)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Me as. Tim	Bandwidth (kHz)	Line	PE	Corr. (dB)
0.600625	---	26.81	46.00	19.19	100	9.000	N	GND	0.2
0.600625	26.20	---	56.00	29.80	100	9.000	N	GND	0.2
1.207188	---	18.24	46.00	27.76	100	9.000	N	GND	0.3
1.207188	18.04	---	56.00	37.96	100	9.000	N	GND	0.3
1.808750	18.40	---	56.00	37.60	100	9.000	L1	GND	0.2
1.808750	---	18.67	46.00	27.33	100	9.000	L1	GND	0.2
2.174844	---	11.05	46.00	34.95	100	9.000	N	GND	0.3
2.174844	11.34	---	56.00	44.66	100	9.000	N	GND	0.3
2.414219	11.18	---	56.00	44.82	100	9.000	N	GND	0.3
2.414219	---	10.79	46.00	35.21	100	9.000	N	GND	0.3
6.521406	13.60	---	60.00	46.40	100	9.000	N	GND	0.5
6.521406	---	13.23	50.00	36.77	100	9.000	N	GND	0.5

7.047031	13.81	---	60.00	46.19	100	9.000	L1	GND	0.4
7.047031	---	13.26	50.00	36.74	100	9.000	L1	GND	0.4
8.697188	---	13.85	50.00	36.15	100	9.000	N	GND	0.5
8.697188	14.21	---	60.00	45.79	100	9.000	N	GND	0.5
17.396406	12.32	---	60.00	47.68	100	9.000	L1	GND	1.0
17.396406	---	10.29	50.00	39.71	100	9.000	L1	GND	1.0
24.000156	---	15.67	50.00	34.33	100	9.000	N	GND	1.1
24.000156	18.06	---	60.00	41.94	100	9.000	N	GND	1.1
28.749688	10.80	---	60.00	49.20	100	9.000	L1	GND	0.9
28.749688	---	-0.17	50.00	50.17	100	9.000	L1	GND	0.9

End Of Annex 202