1.2.4 Time of occupancy, §15.247(a)(1)(i)

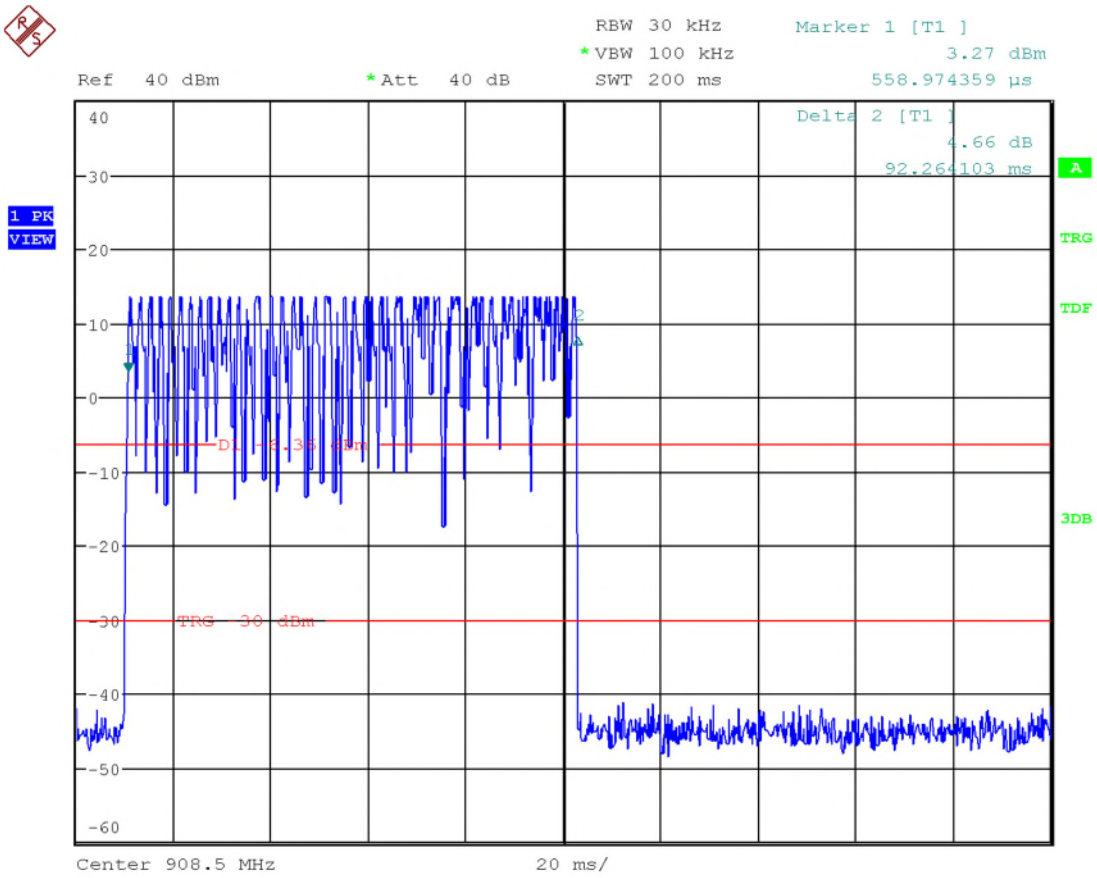


Figure 33: D11_01_dwellTime_single_FHSS

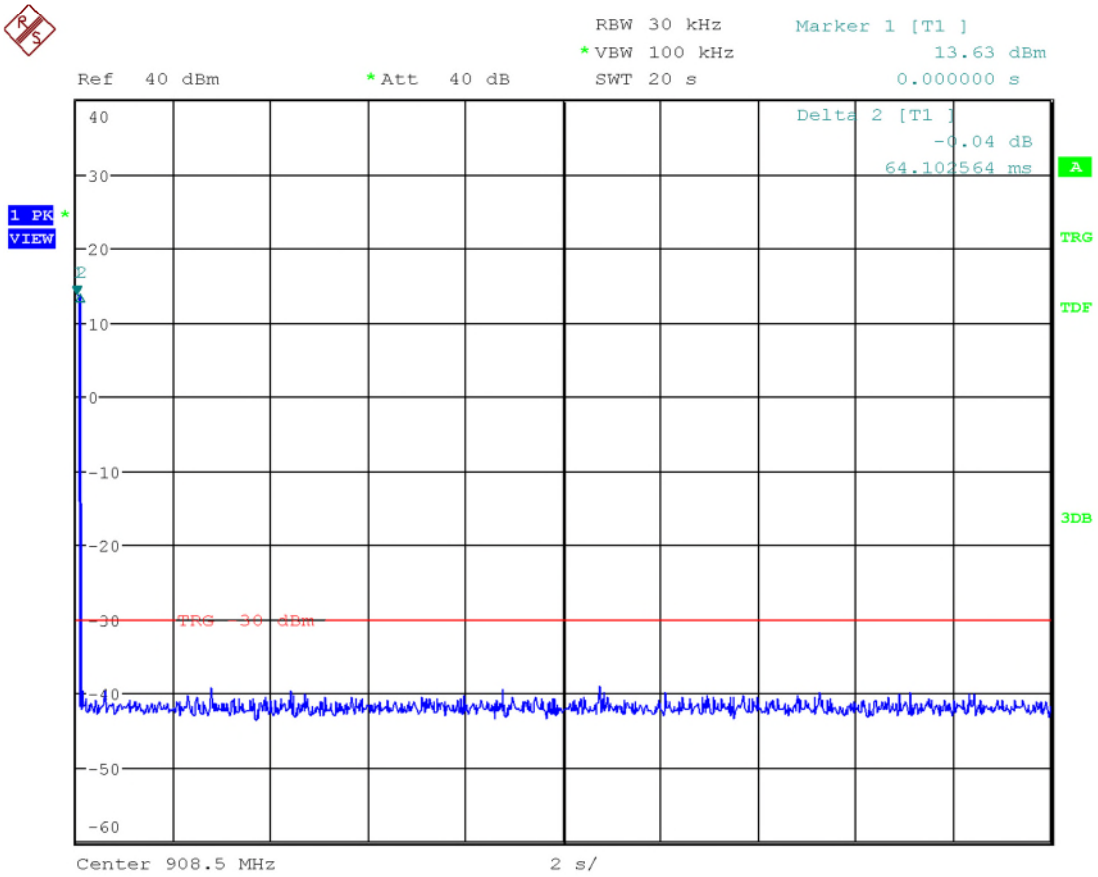
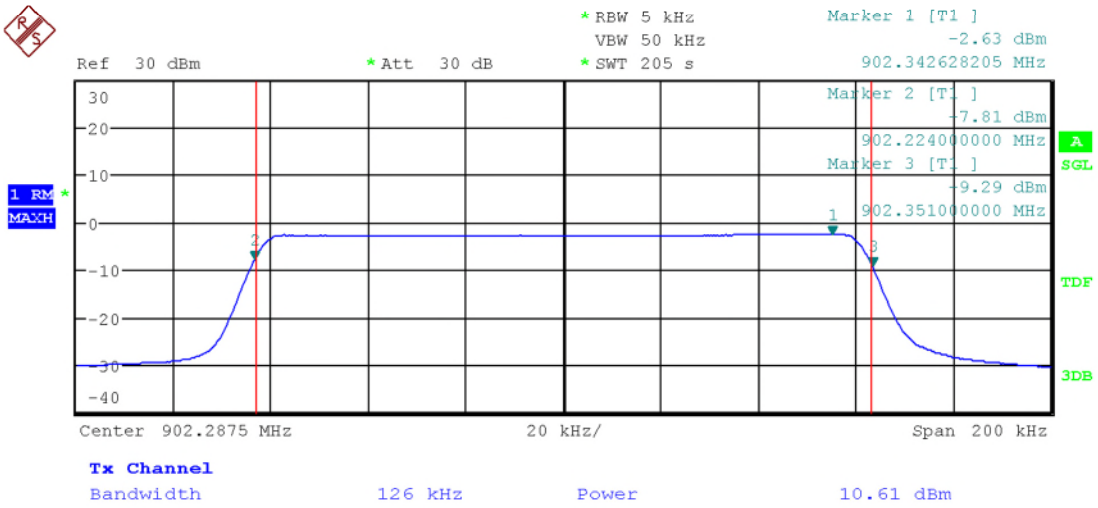


Figure 34: D11_02_dwellTime_20s_FHSS

One burst within 20seconds period. Burst length of 92.26ms

1.2.5 Maximum output power conducted, §15.247(b)(2)



Date: 16.MAY.2022 13:35:15

Figure 35: D12_01_AVGPWR_ChLow_Fix_FHSS

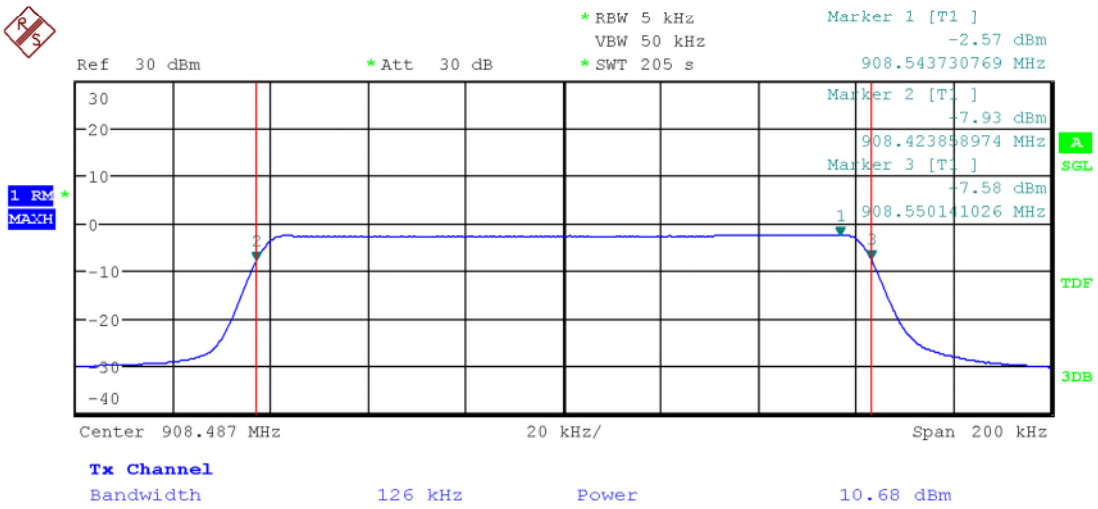


Figure 36: D12_02_AVGPWR_ChMid_Fix_FHSS

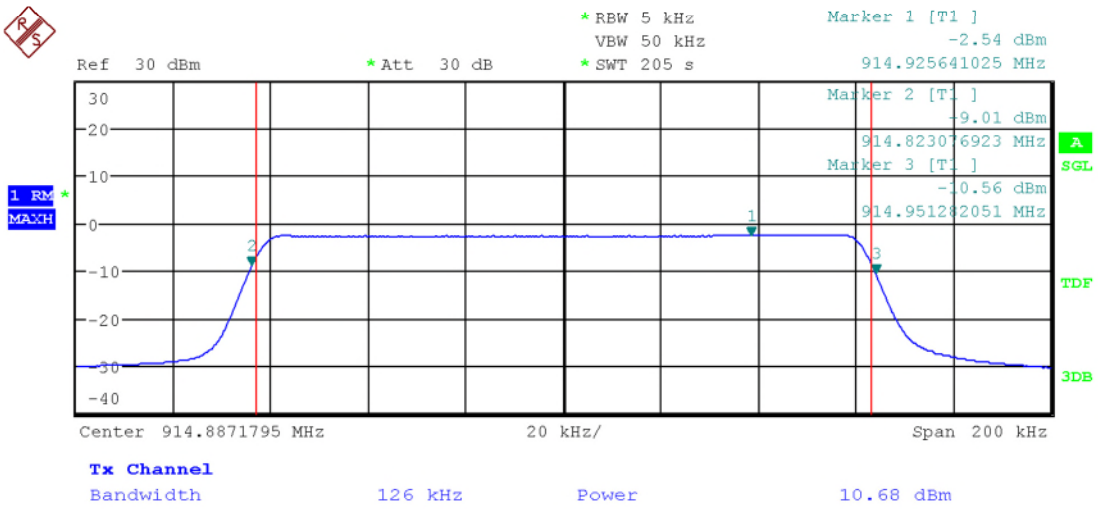


Figure 37: D12_03_AVGPWR_ChHigh_Fix_FHSS

1.2.6 Conducted spurious emissions, §15.247(d)

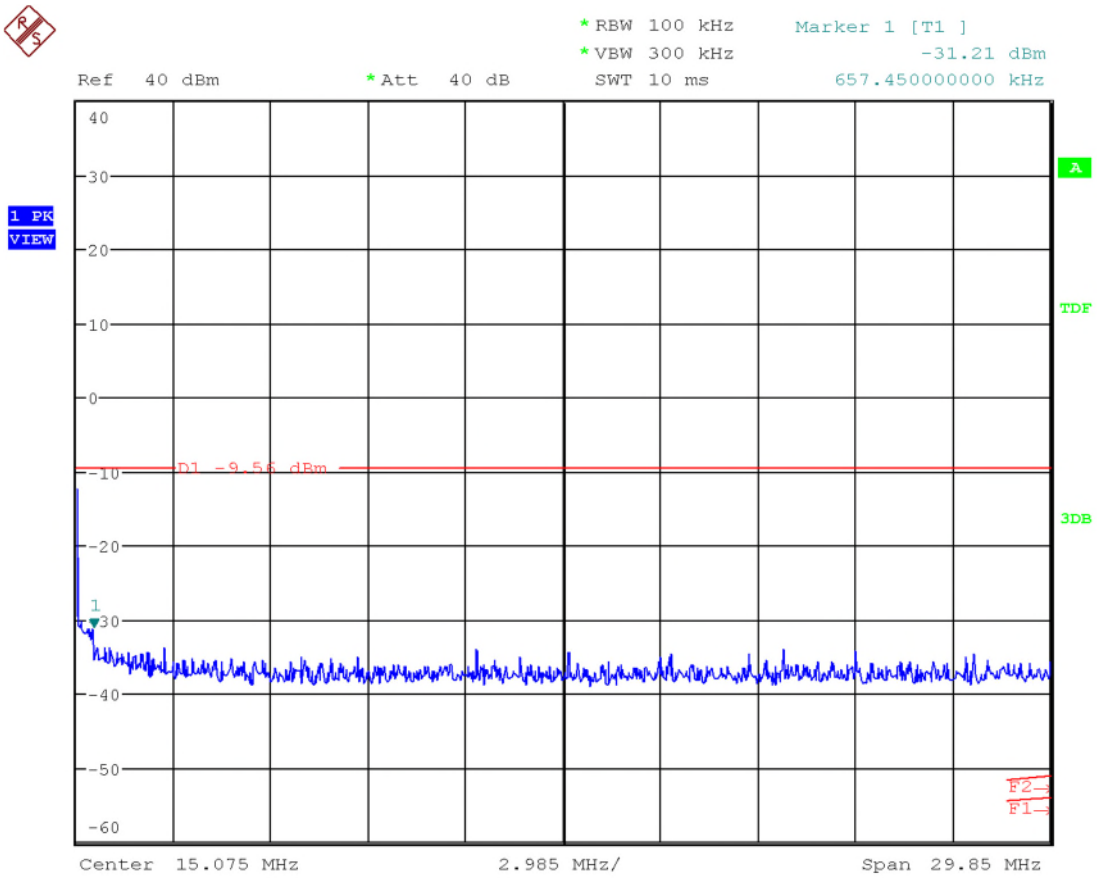


Figure 38: D13_01_CSE20dBc_Sweep1_ChLow_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

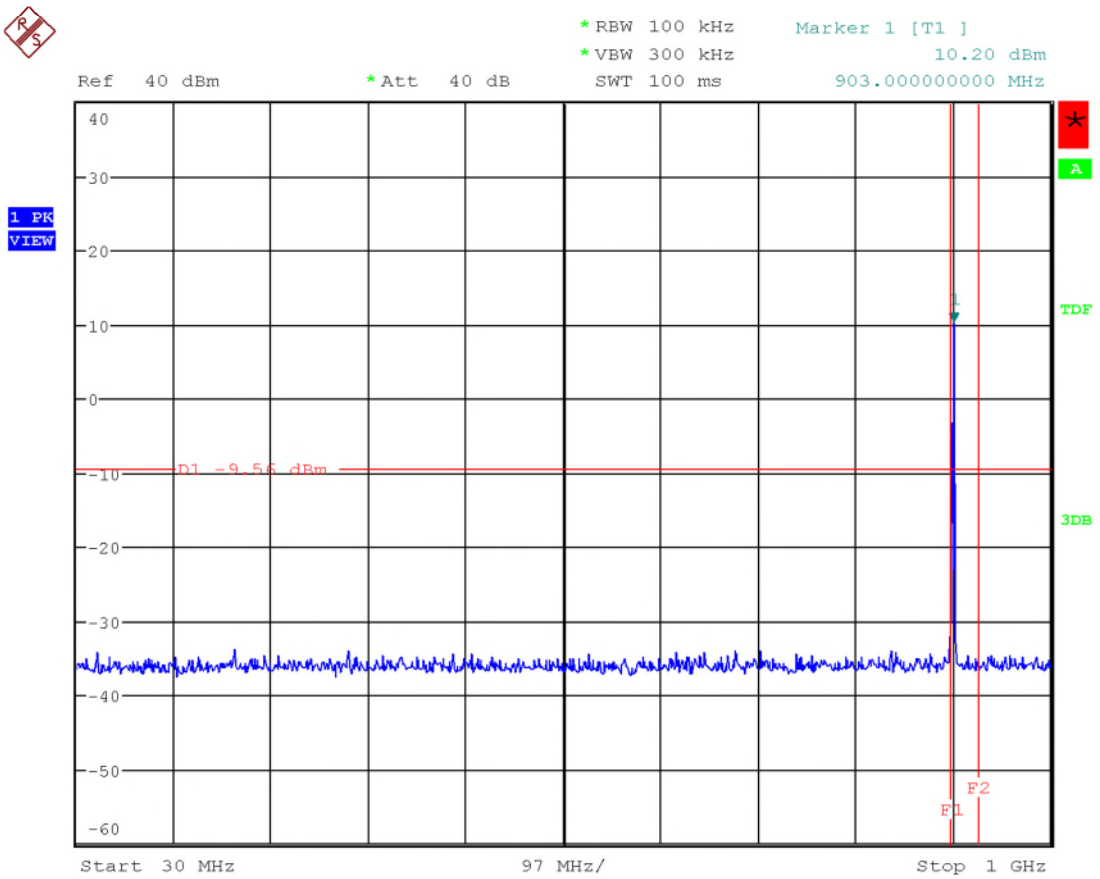


Figure 39: D13_02_CSE20dBc_Sweep2_ChLow_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

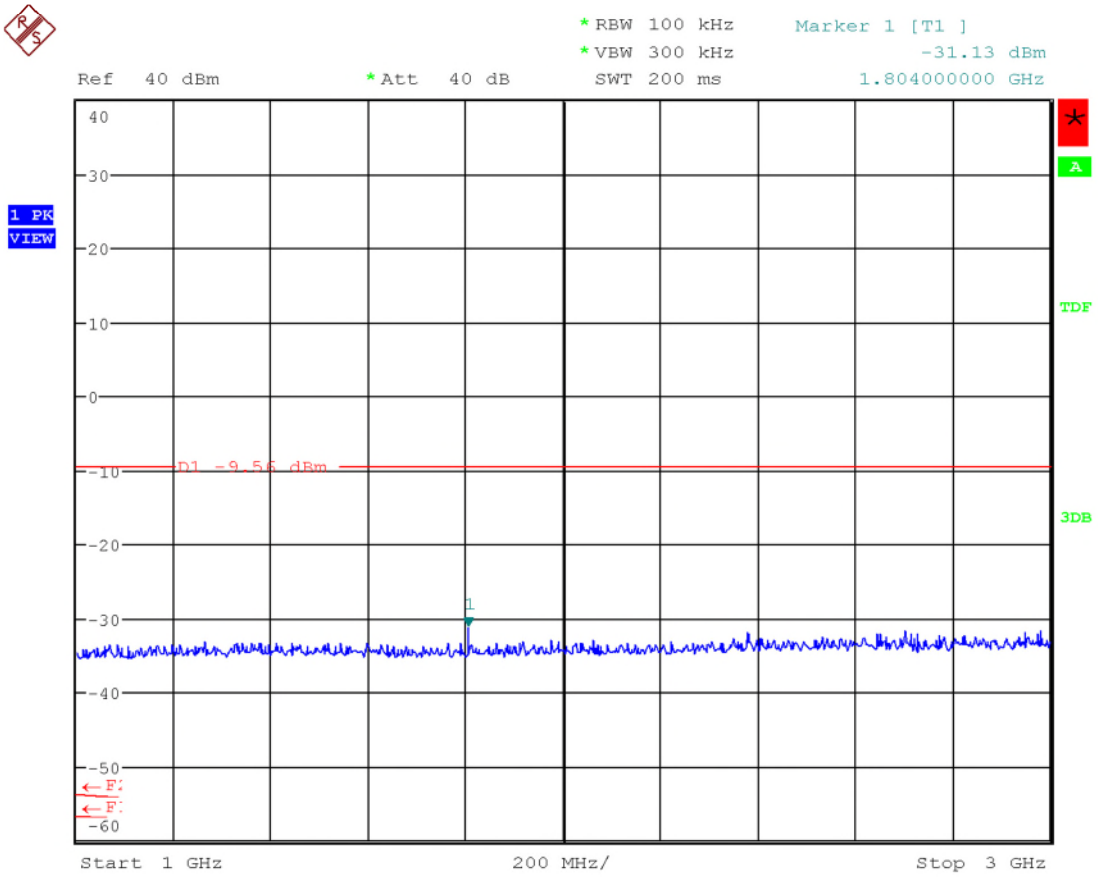


Figure 40: D13_03_CSE20dBc_Sweep3_ChLow_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

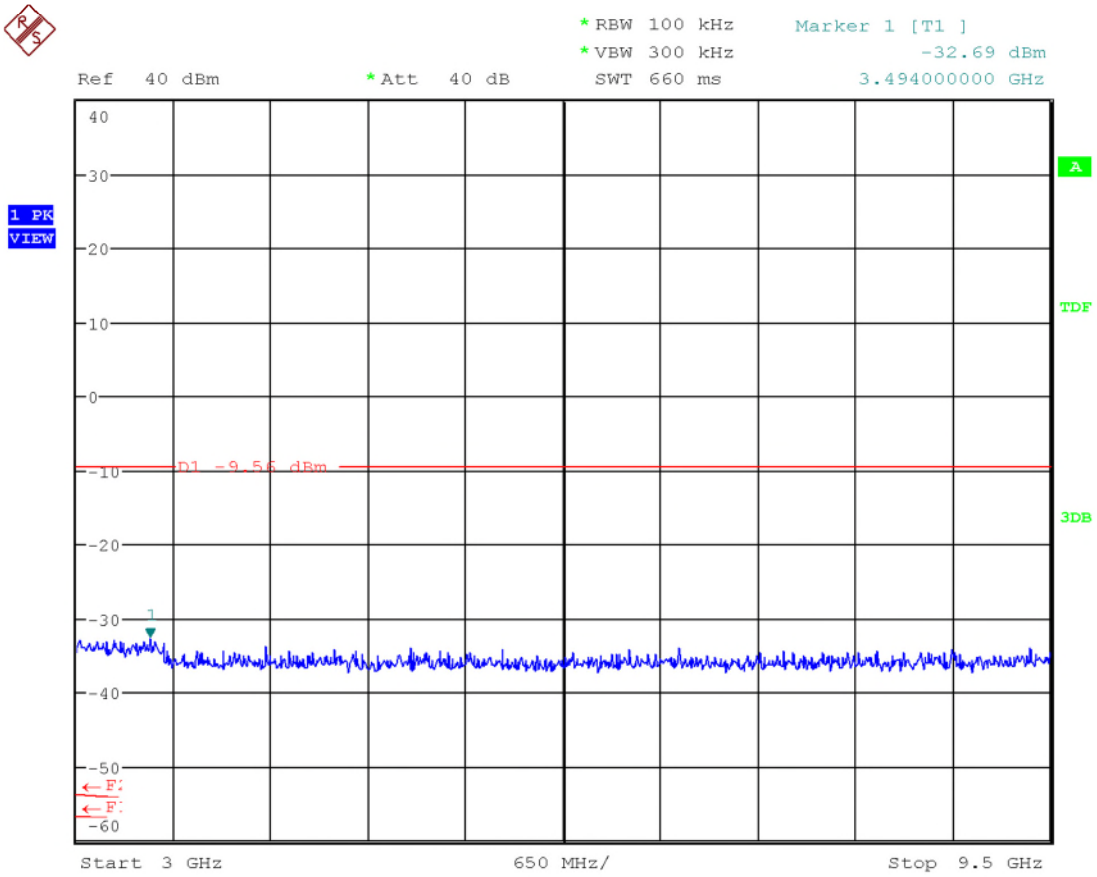


Figure 41: D13_04_CSE20dBc_Sweep4_ChLow_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

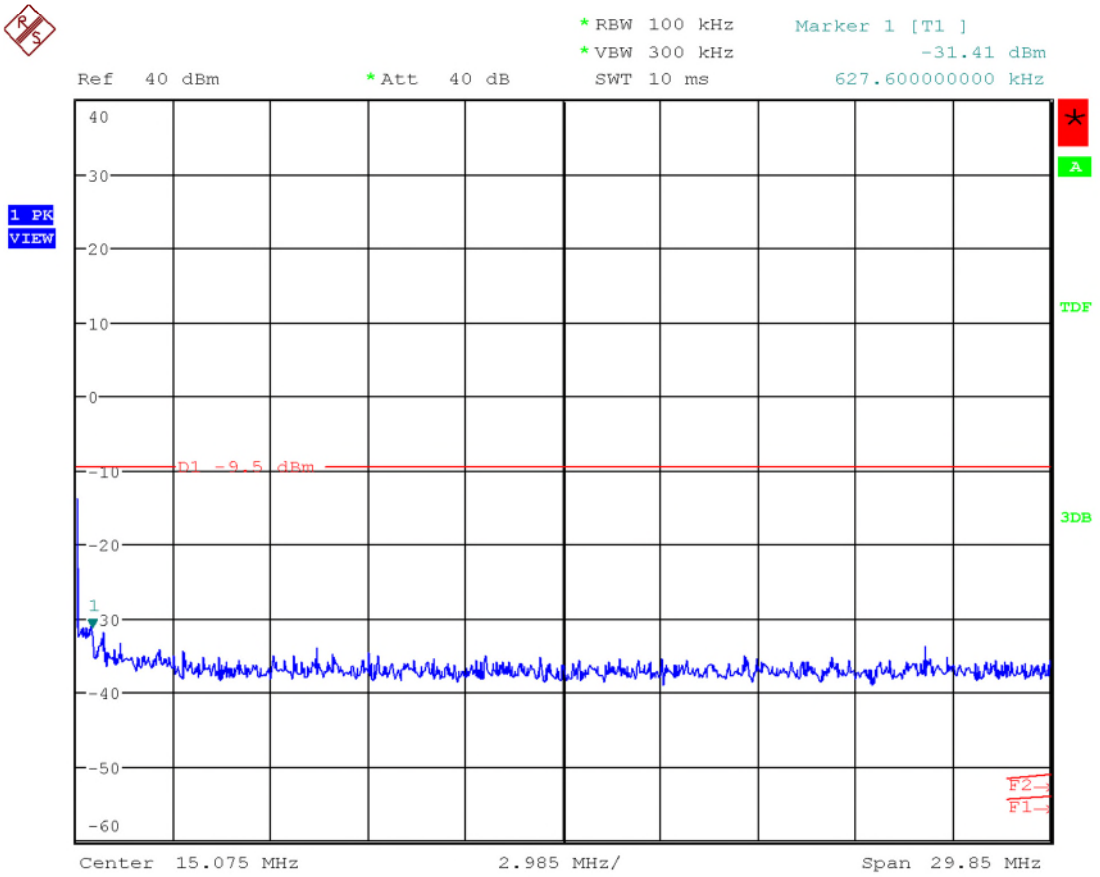


Figure 42: D14_01_CSE20dBc_Sweep1_ChMid_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

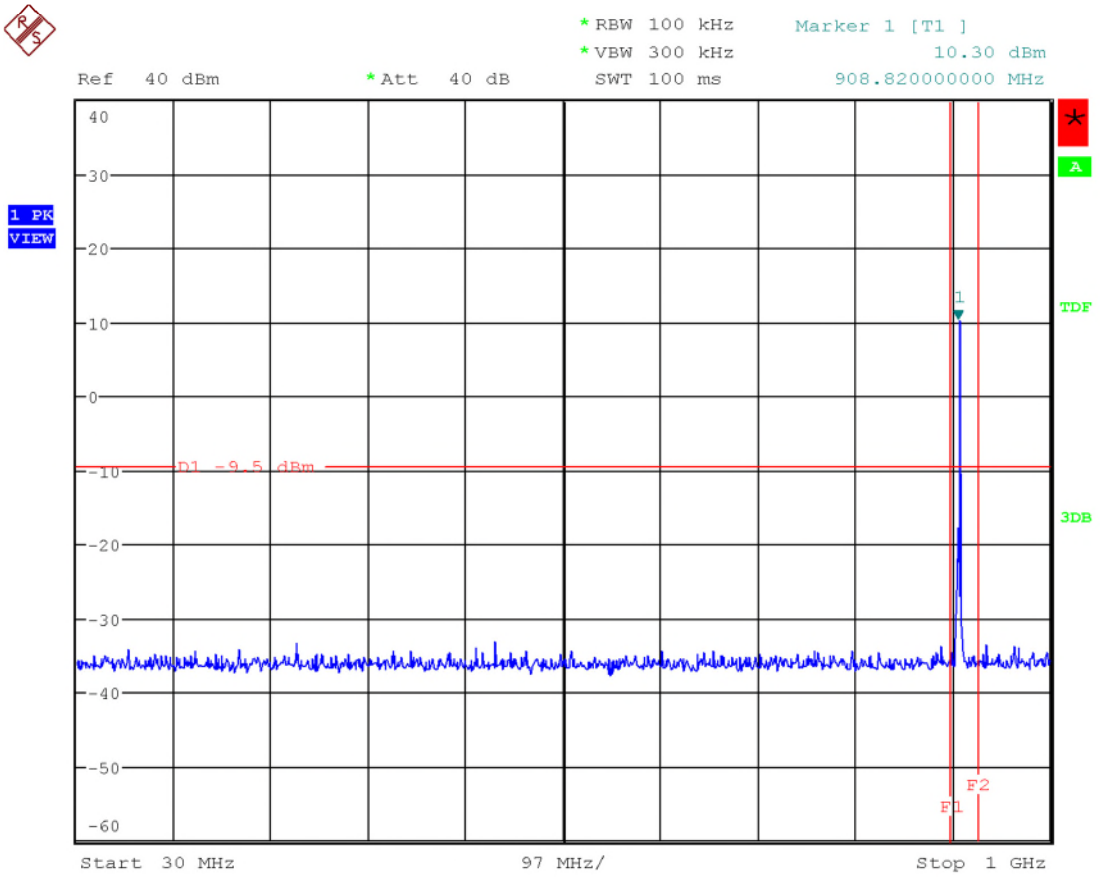


Figure 43: D14_02_CSE20dBc_Sweep2_ChMid_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

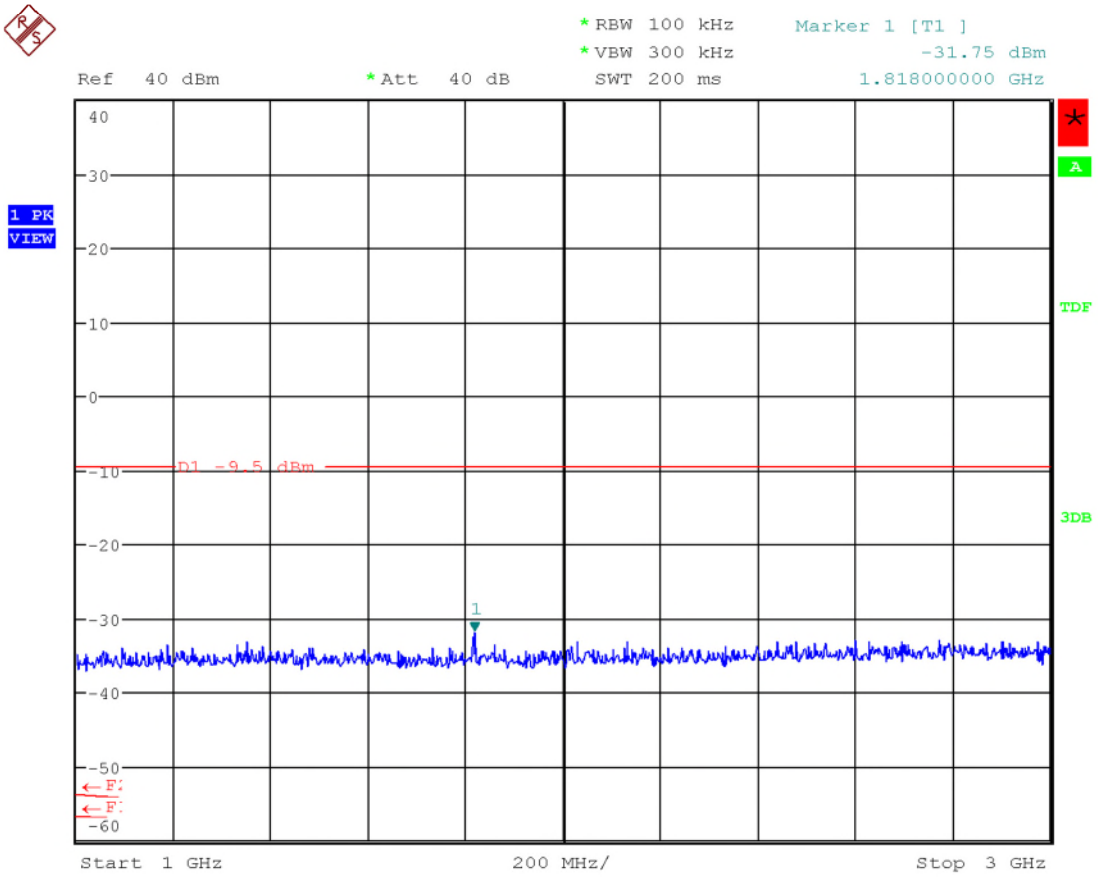


Figure 44: D14_03_CSE20dBc_Sweep3_ChMid_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

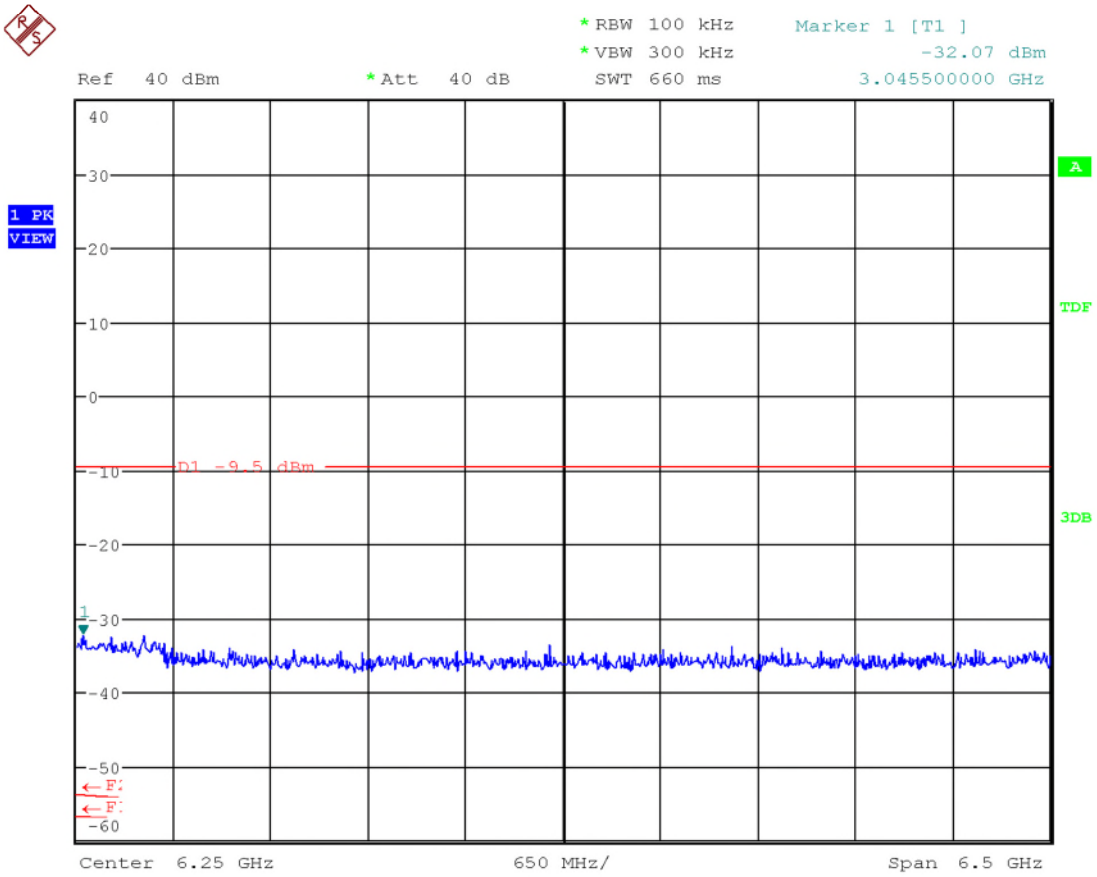


Figure 45: D14_04_CSE20dBc_Sweep4_ChMid_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

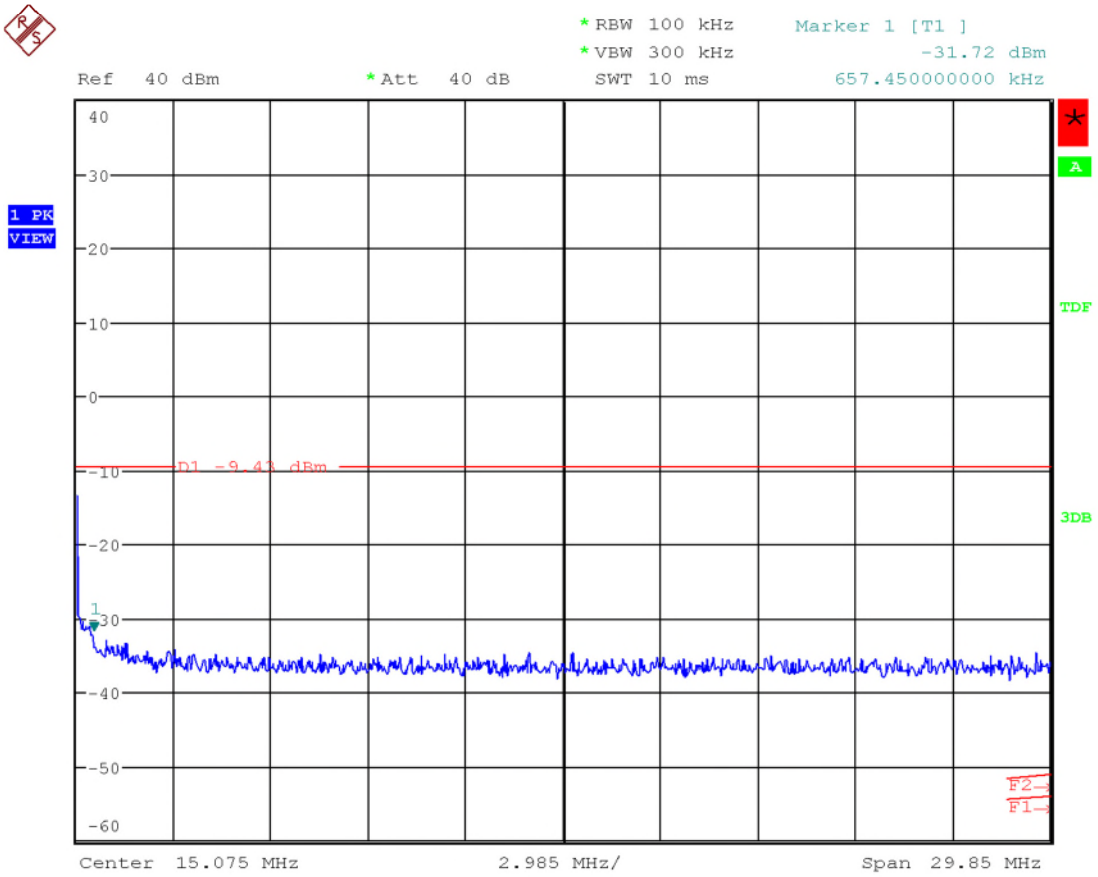


Figure 46: D15_01_CSE20dBc_Sweep1_ChHigh_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

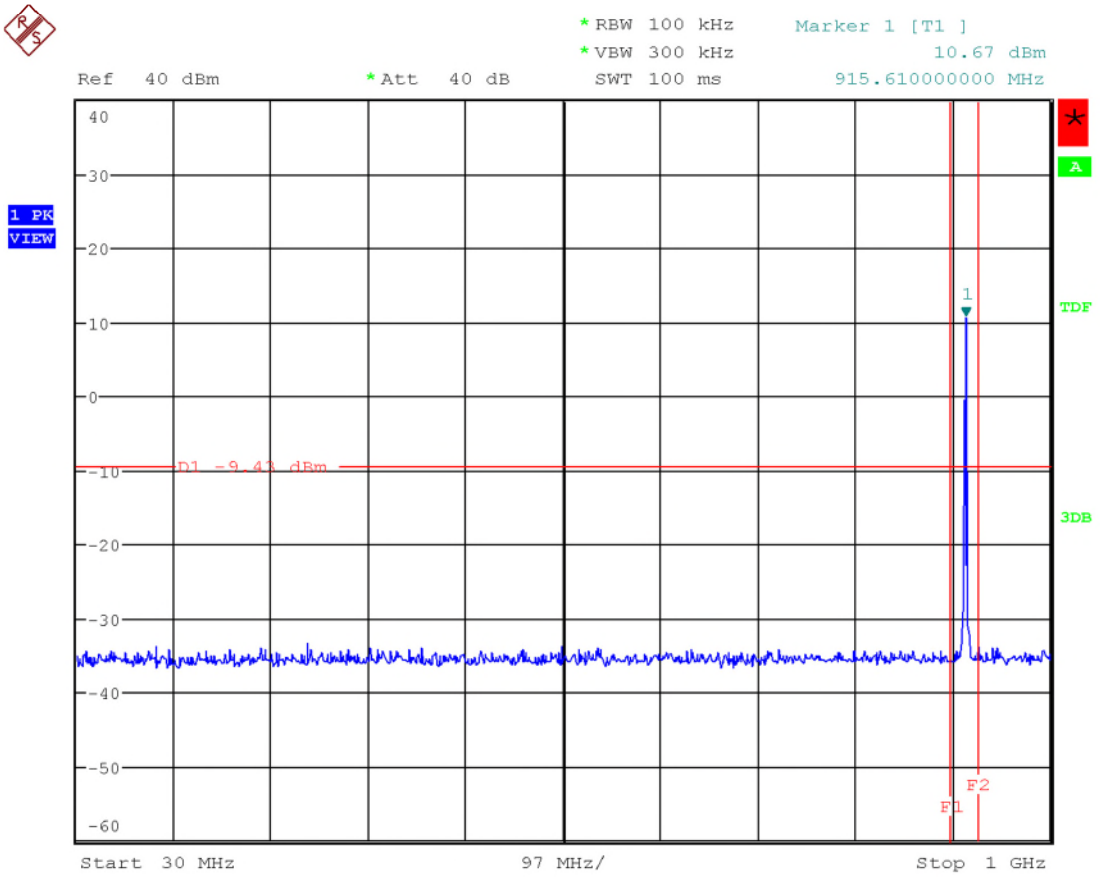


Figure 47: D15_02_CSE20dBc_Sweep2_ChHigh_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

Figure 48: D01_037_2_CSE20dBc_Sweep2_ChHigh_FHSS

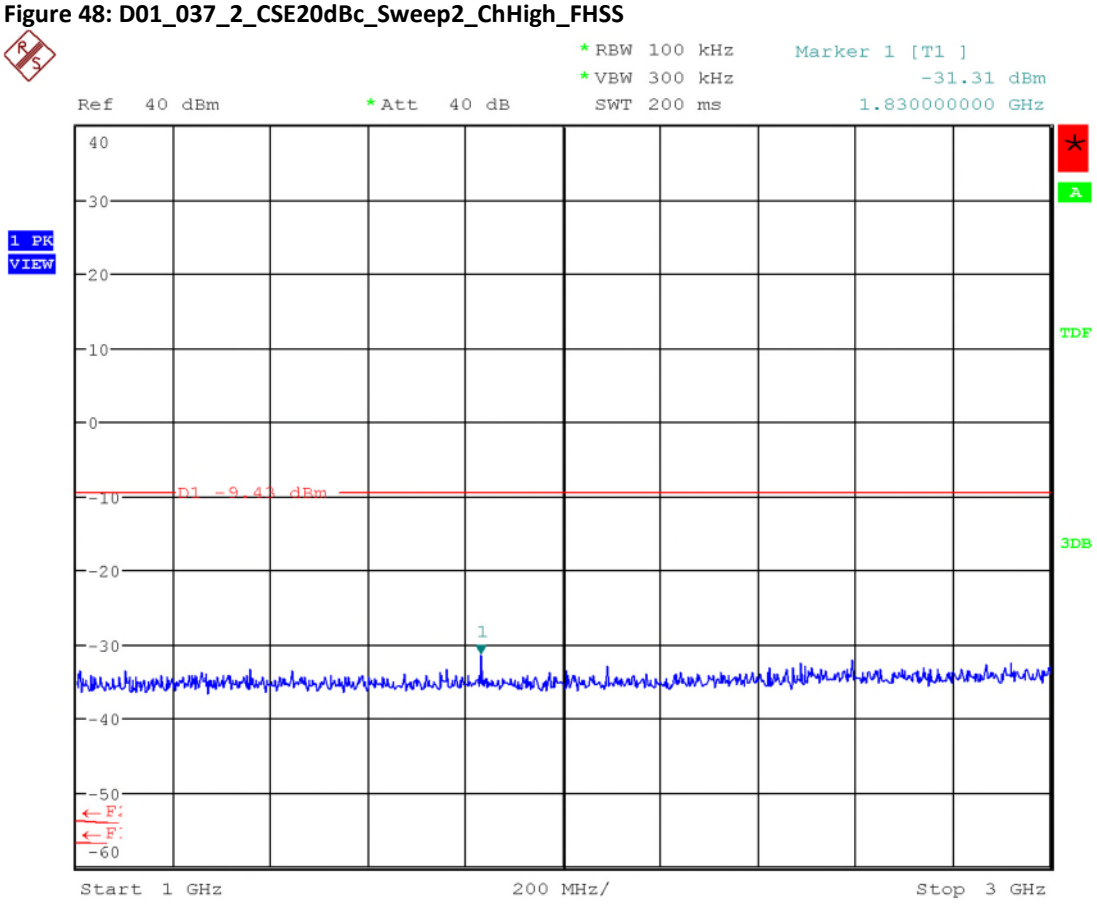


Figure 49: D15_03_CSE20dBc_Sweep3_ChHigh_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

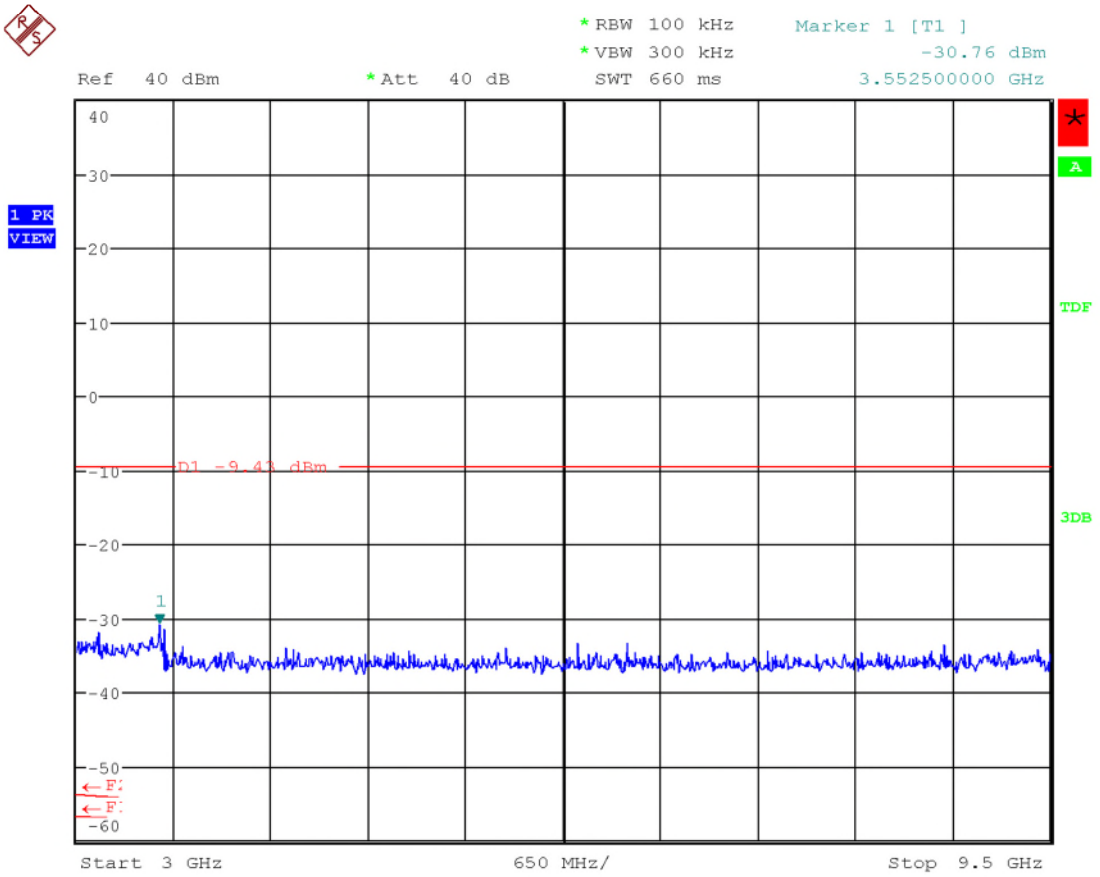


Figure 50: D15_04_CSE20dBc_Sweep4_ChHigh_FHSS

Remark: limit line at -19.56 dBm since output power complies based on the use of a RMS detector

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

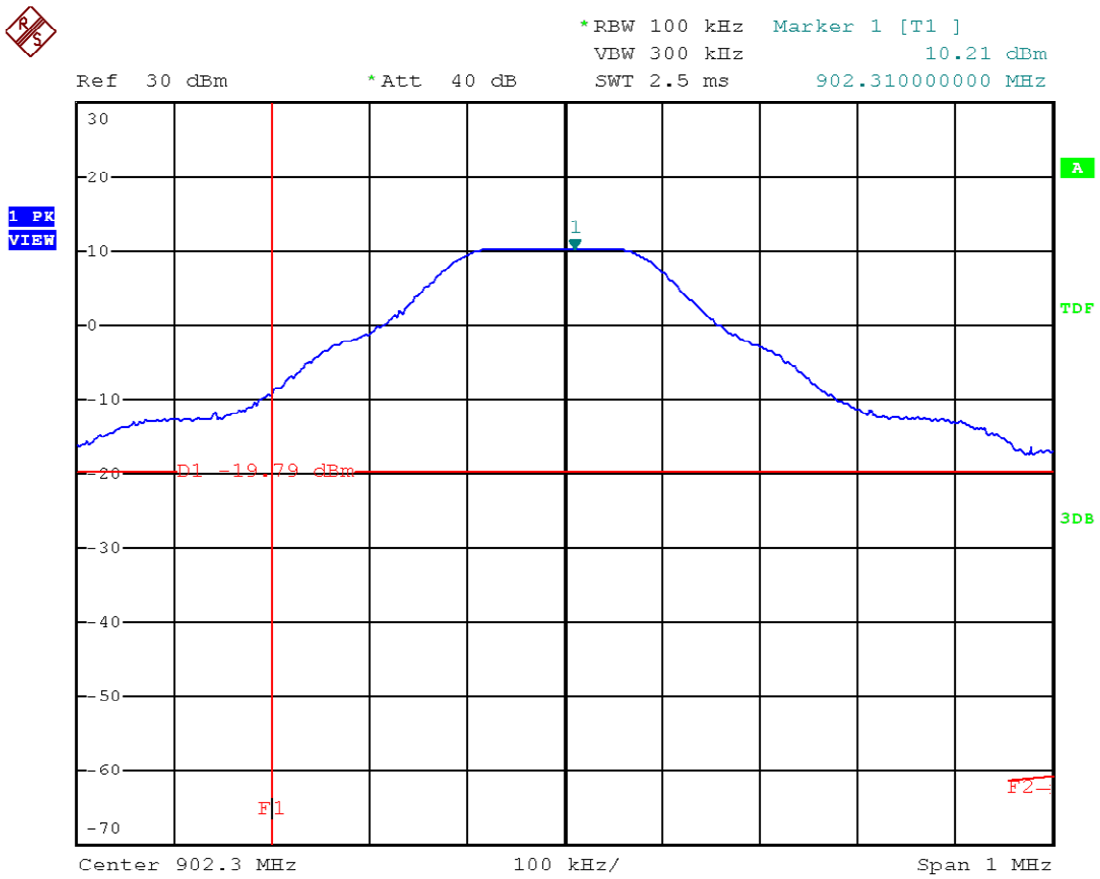
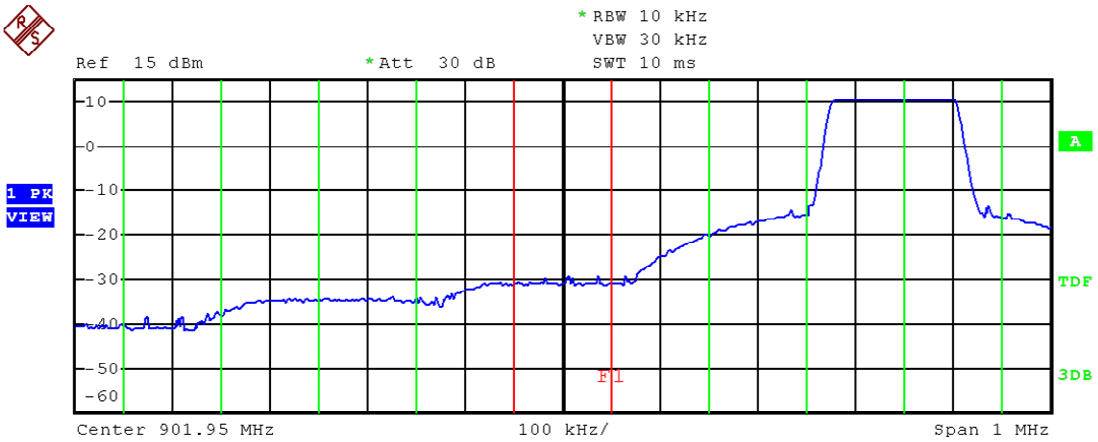


Figure 51: D16_1_BE_low_FHSS_fix_ref_100kHz

Remark: due to the close proximity from the carrier to the band edge a different measurement procedure was used (integration bandwidth method)



Channel	Bandwidth	Spacing	Lower	Upper
Tx Channel	100.000 kHz		-20.91 dBm	
Adjacent	100.000 kHz	100.000 kHz	-22.84 dB	-14.39 dB
Alternate	100.000 kHz	200.000 kHz	-24.98 dB	-7.20 dB
2nd Alt	100.000 kHz	300.000 kHz	-25.53 dB	18.88 dB
3rd Alt	100.000 kHz	400.000 kHz	-30.22 dB	17.41 dB

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Figure 52: D16_2_BE_low_FHSS_fix_integration-method

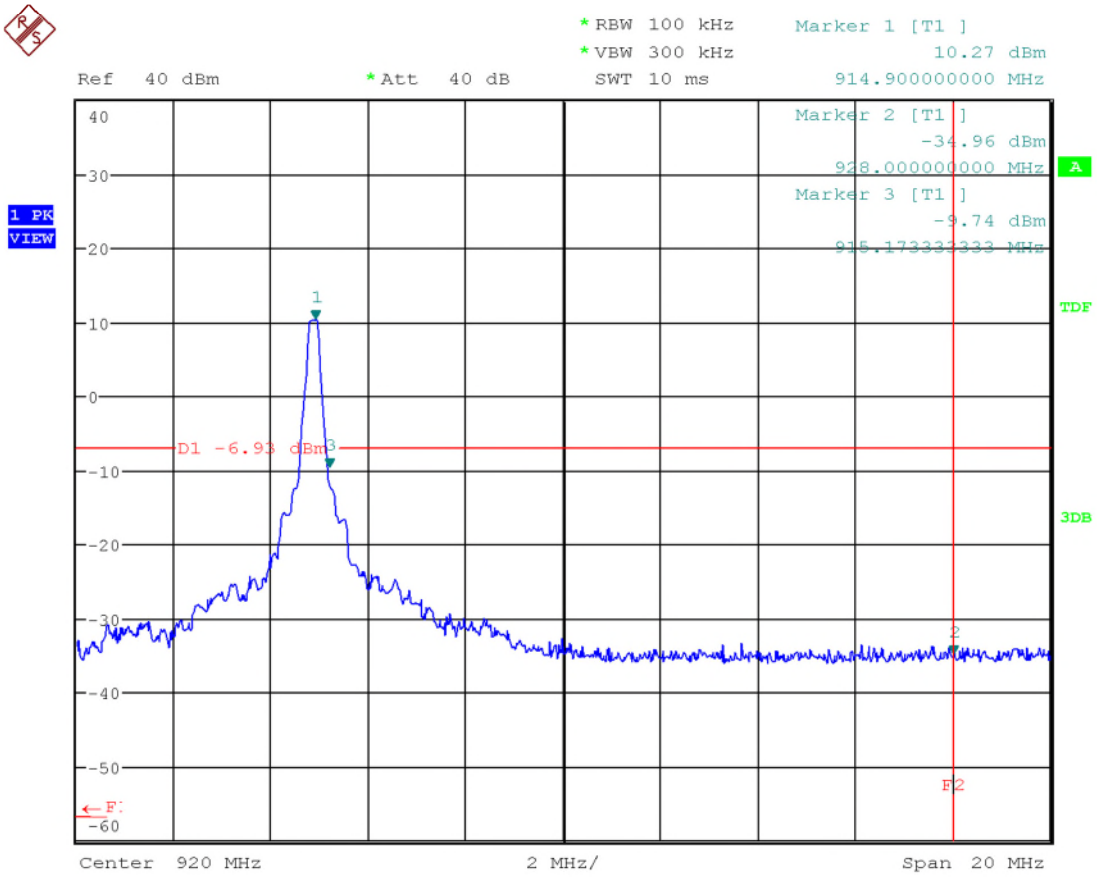


Figure 53: D17_1_BE_high_FHSS_fix_100kHz

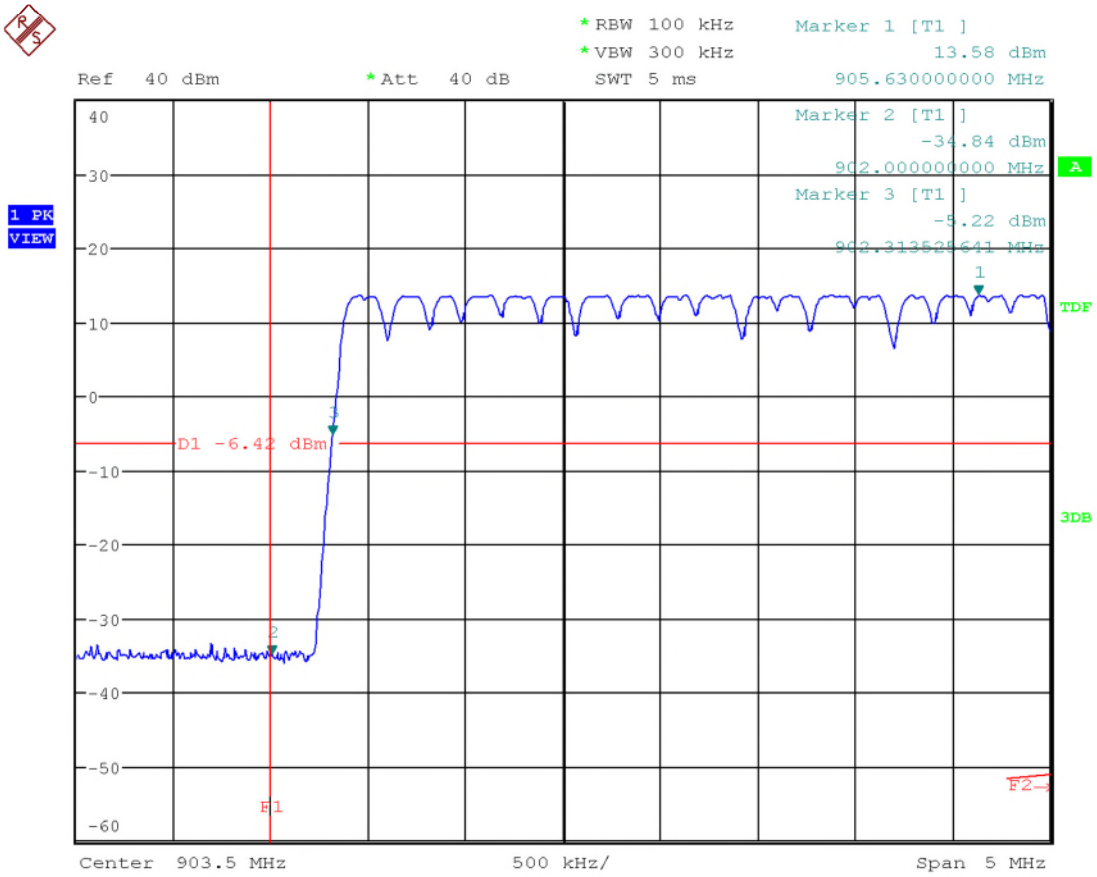


Figure 54: D18_1_BE_low_FHSS_hopping

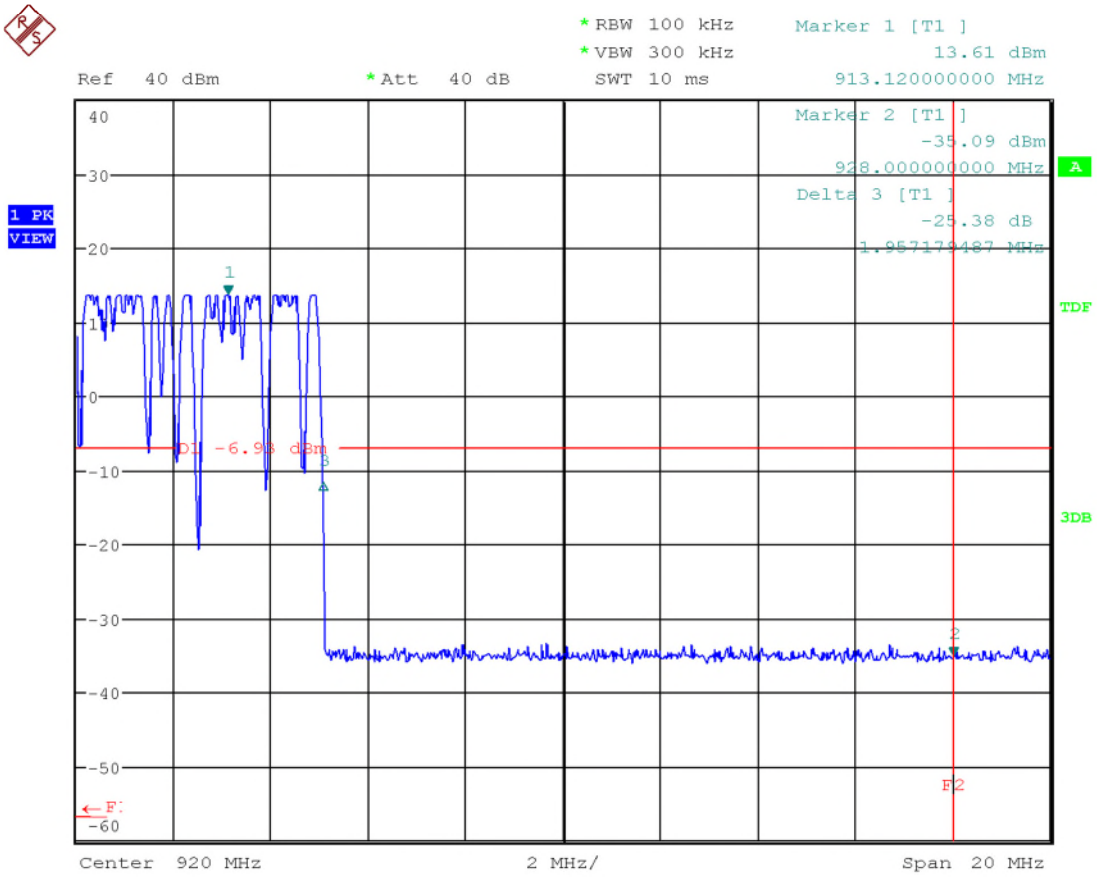


Figure 55: D18_2_BE_high_FHSS_hopping

1.2.8 Power spectral density conducted, §15.247(f)

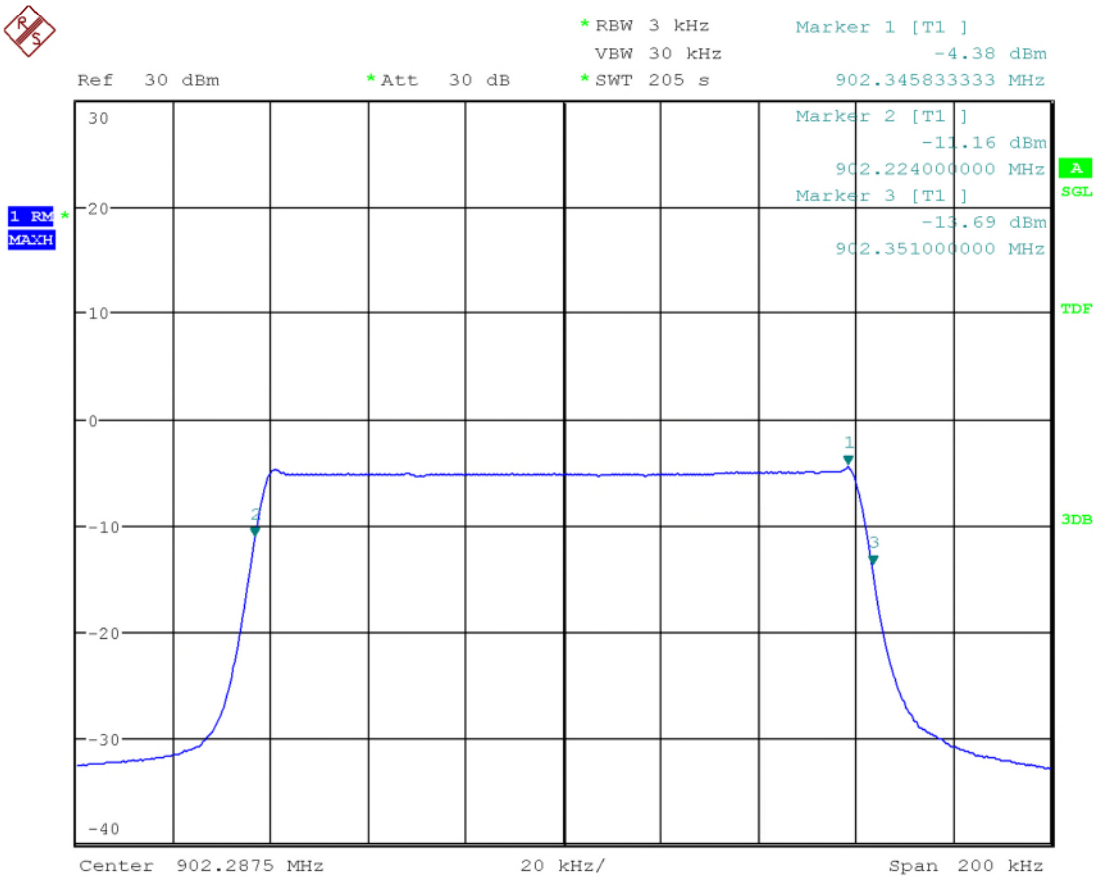


Figure 56: D19_01_AVGPSD_ChLow_FHSS

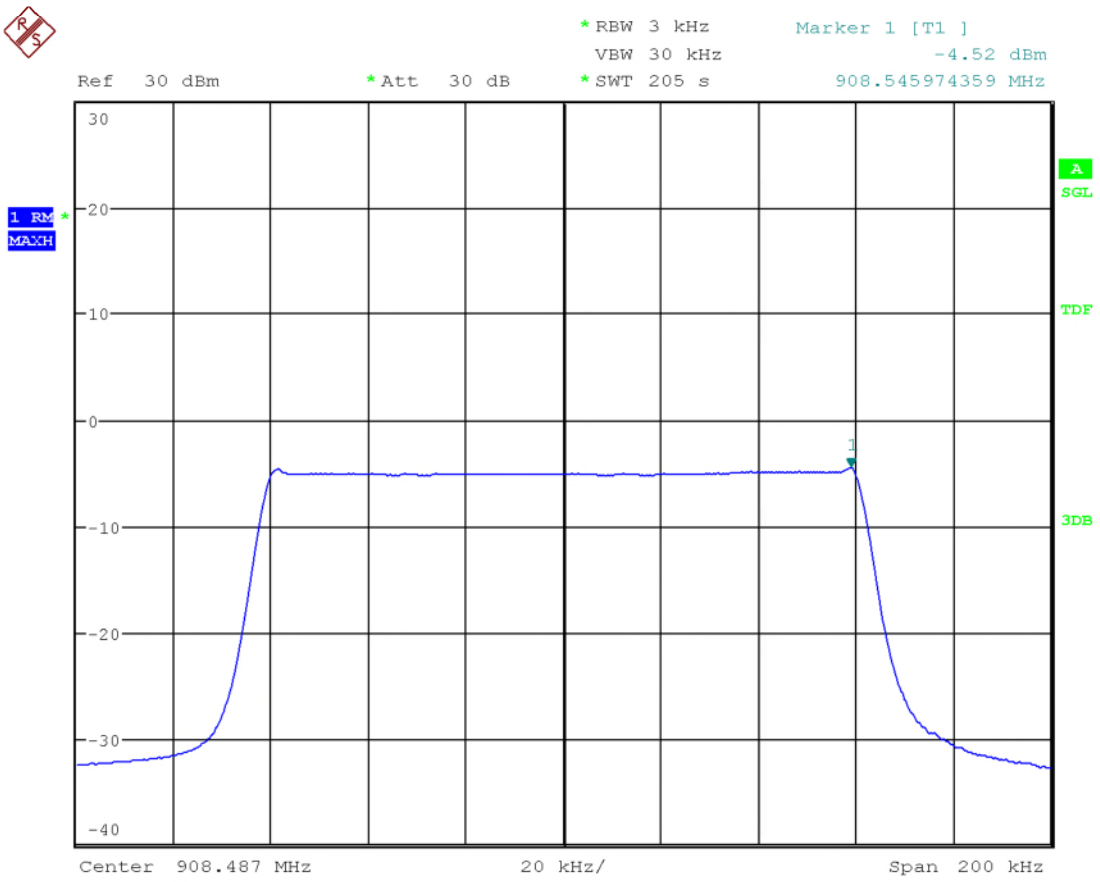


Figure 57: D19_02_AVGPSD_ChMid_FHSS

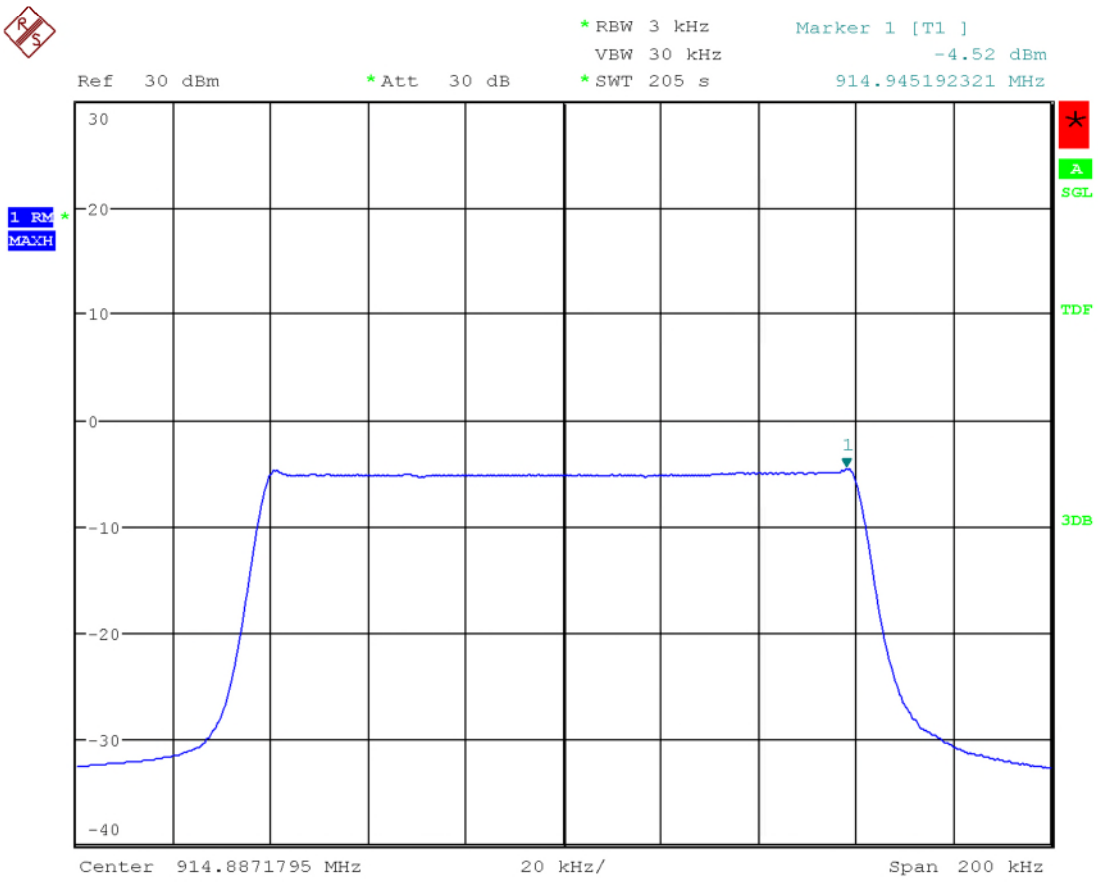


Figure 58: D19_03_AVGPSD_ChHigh_FHSS

1.2.9 Radiated spurious emissions, §15.209

1.2.9.1 Magnetic field strength, §15.209

2.01_Low

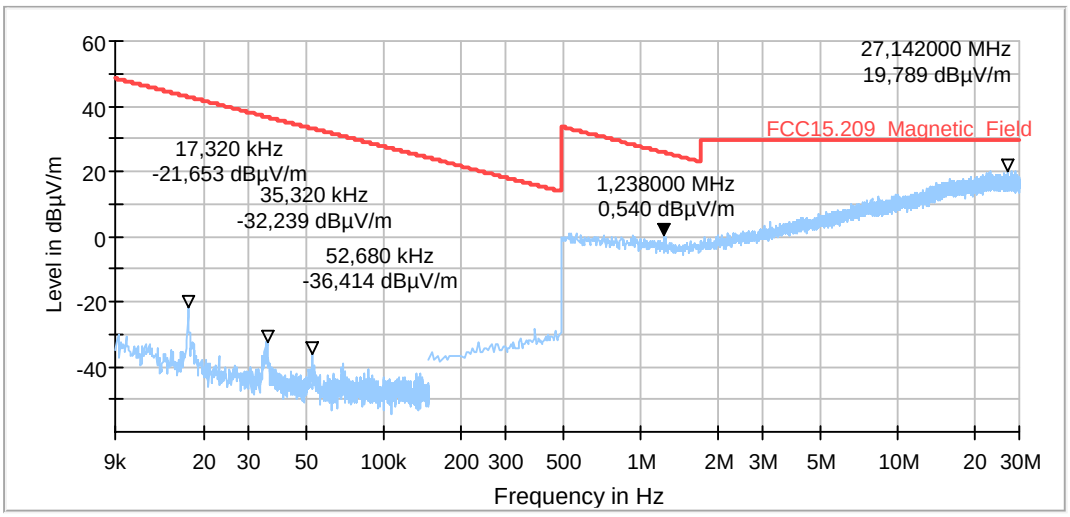
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	TFra
Operating Mode:	FHSS 125kHz Ch Low
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



Remark: emissions in the frequency range from ~17 kHz to ~52 kHz are caused by an electrical variable antenna mast inside the chamber and are not relevant to the measurement

2.02_Mid

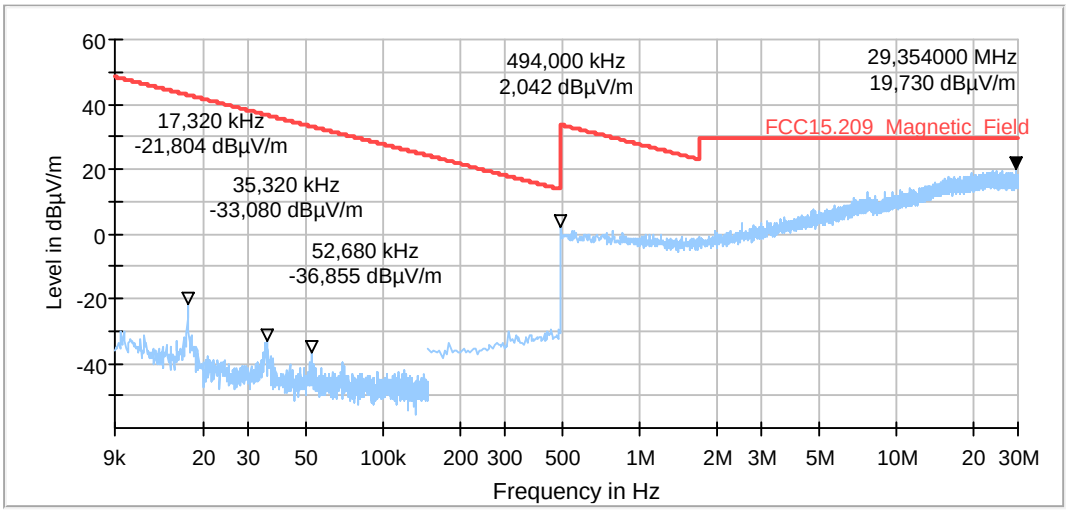
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	TFra
Operating Mode:	FHSS 125kHz Ch Mid
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



Remark: emissions in the frequency range from ~17 kHz to ~52 kHz are caused by an electrical variable antenna mast inside the chamber and are not relevant to the measurement

2.03_High

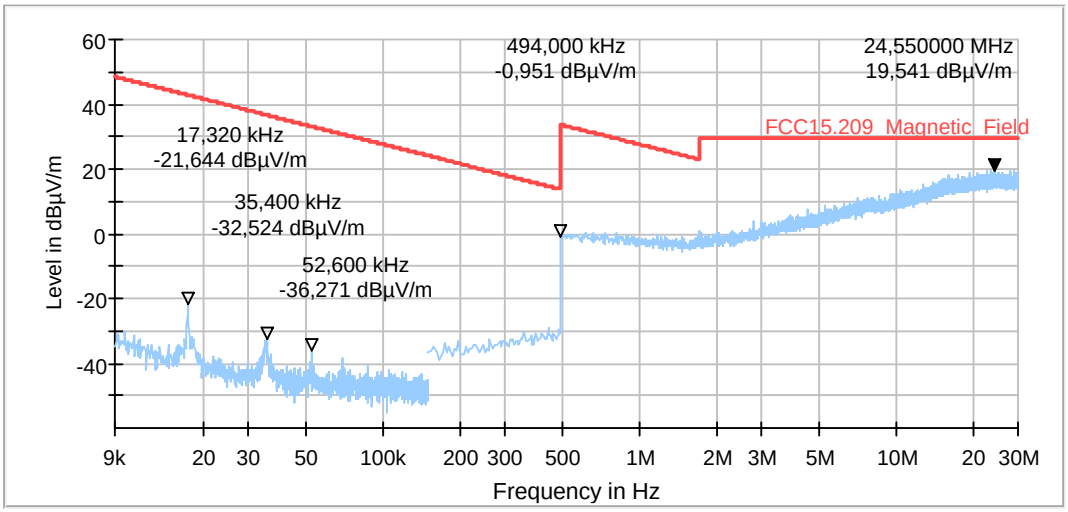
Common Information

Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see page 2 for detailed data of measurement setup
Rec. antenna (pre-scan):	height 1.00 m, parallel and 90° to EUT polarisation
Used Filter:	bypass
Test Standard:	FCC 15.205 § 15.209; RSS-Gen: Issue 4
Operator:	TFra
Operating Mode:	FHSS 125kHz Ch High
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



Remark: emissions in the frequency range from ~17 kHz to ~52 kHz are caused by an electrical variable antenna mast inside the chamber and are not relevant to the measurement

1.2.9.2 Electric field strength < 1 GHz, §15.209

3.01_Low

Common Information

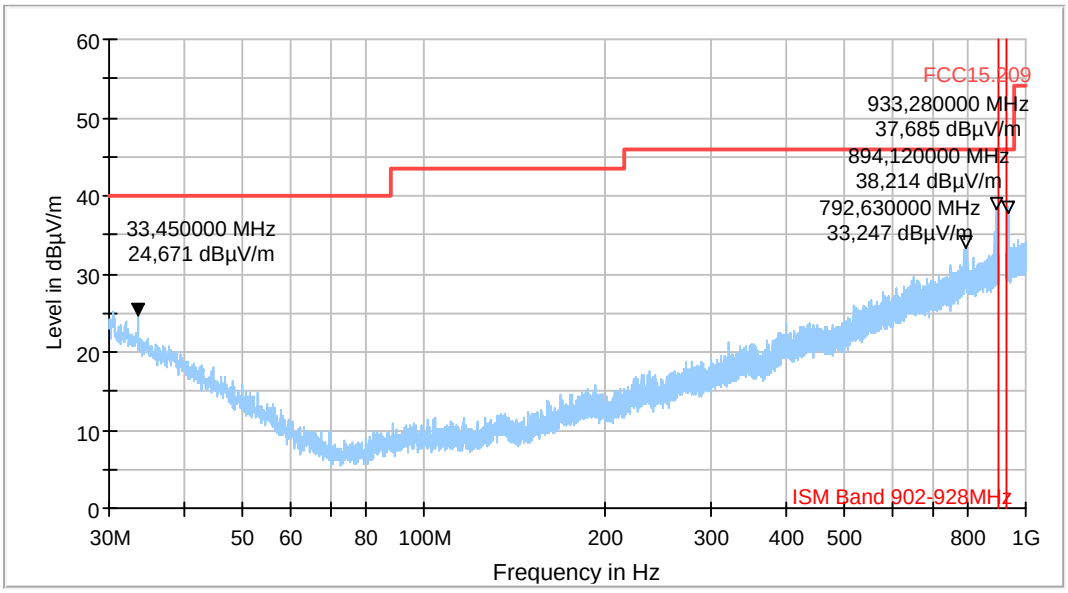
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch Low
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
Operator:	TFra
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum

Full Spectrum



Remark: measurement with a band stop filter with ~50 dB attenuation in the 902 MHz – 928 MHz ISM band to prevent overload
Remark: emissions at ~792 MHz, ~894 MHz, ~933 MHz are known external interferer and are not relevant to the measurement

3.02_Mid

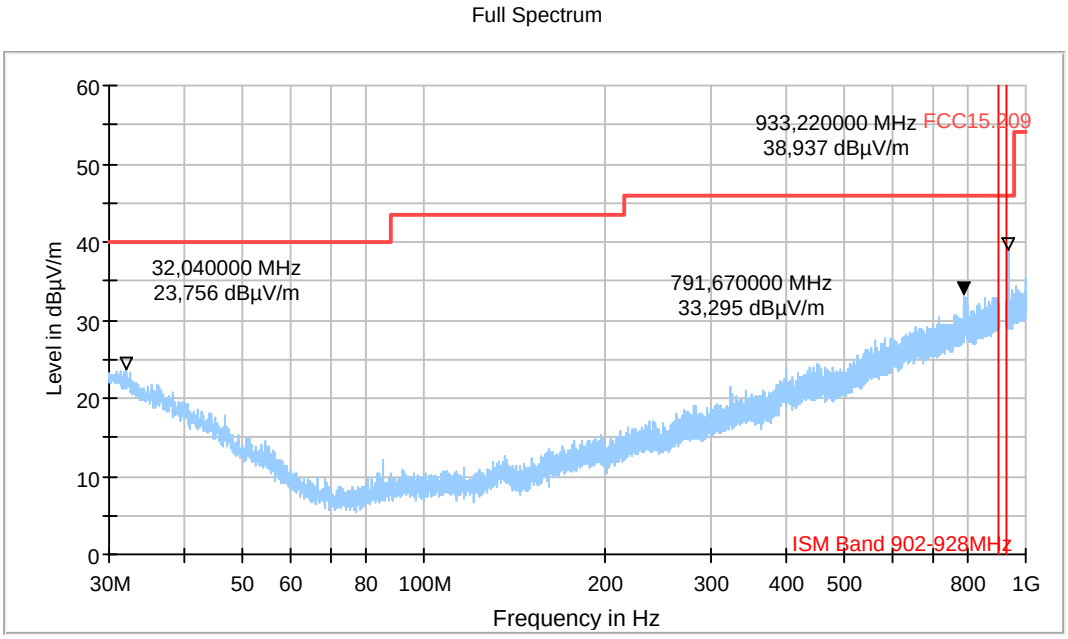
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch Mid
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
Operator:	TFra
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



Remark: measurement with a band stop filter with ~50 dB attenuation in the 902 MHz – 928 MHz ISM band to prevent overload
Remark: emissions at ~791 MHz, ~933 MHz are known external interferer and are not relevant to the measurement

3.03_High

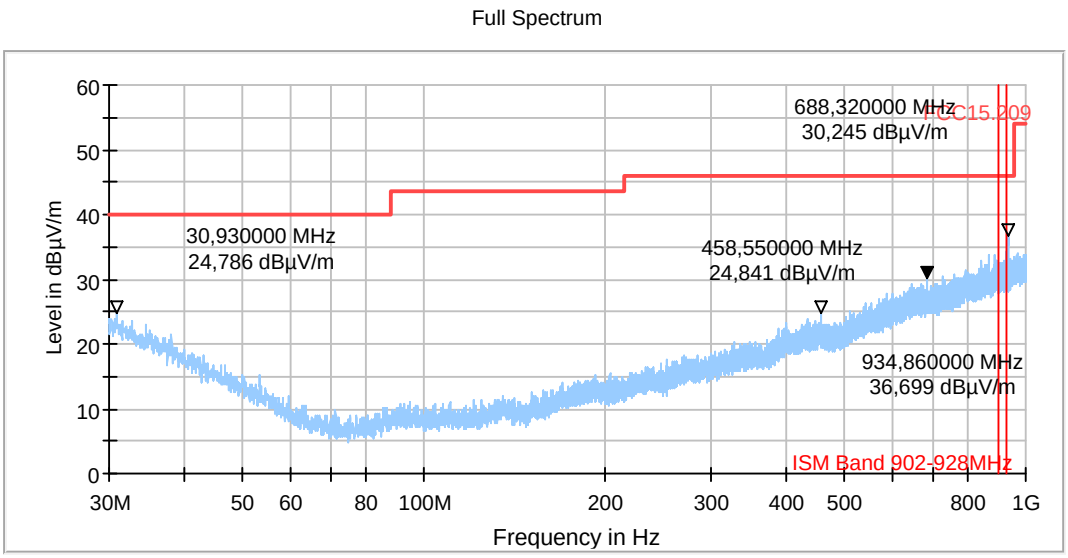
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch High
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
Operator:	TFra
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



Remark: measurement with a band stop filter with ~50 dB attenuation in the 902 MHz – 928 MHz ISM band to prevent overload
Remark: emissions at ~933 MHz are known external interferer and are not relevant to the measurement

1.2.9.3 Carrier field strength, §15.247(b)(3) and RSS-247,Issue 2, Chapter 5.4(a)

3.05_carrier_Low

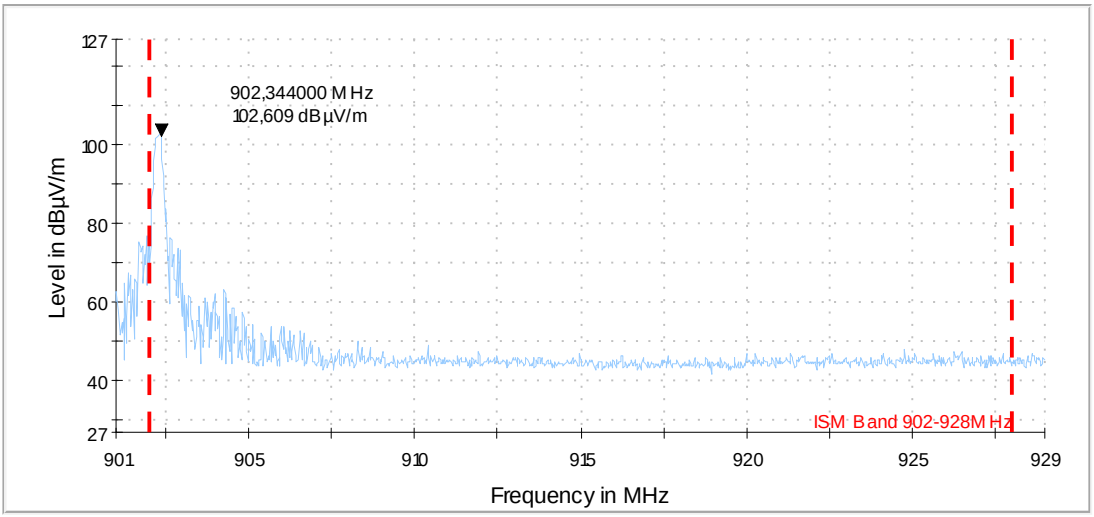
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch Low
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
Operator:	TFra
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



EIRP Value: 102.6dBuV/m-95.2dB(measurement distance=3m) = 7.39dBm EIRP
Limit: 36dBm (4Watt)
Verdict: Passed

3.04_carrier_High

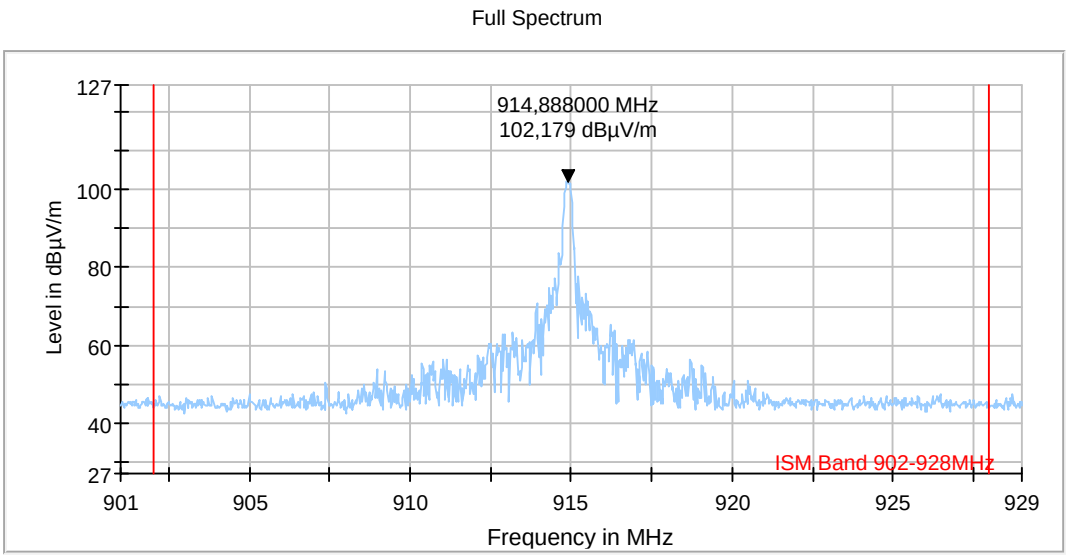
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch High
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
Operator:	TFra
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



EIRP Value: 102.17dBuV/m-95.2dB(measurement distance=3m) = 6.96dBm EIRP
Limit: 36dBm (4Watt)
Verdict: Passed

1.2.9.4 Electric field strength > 1 GHz, §15.209

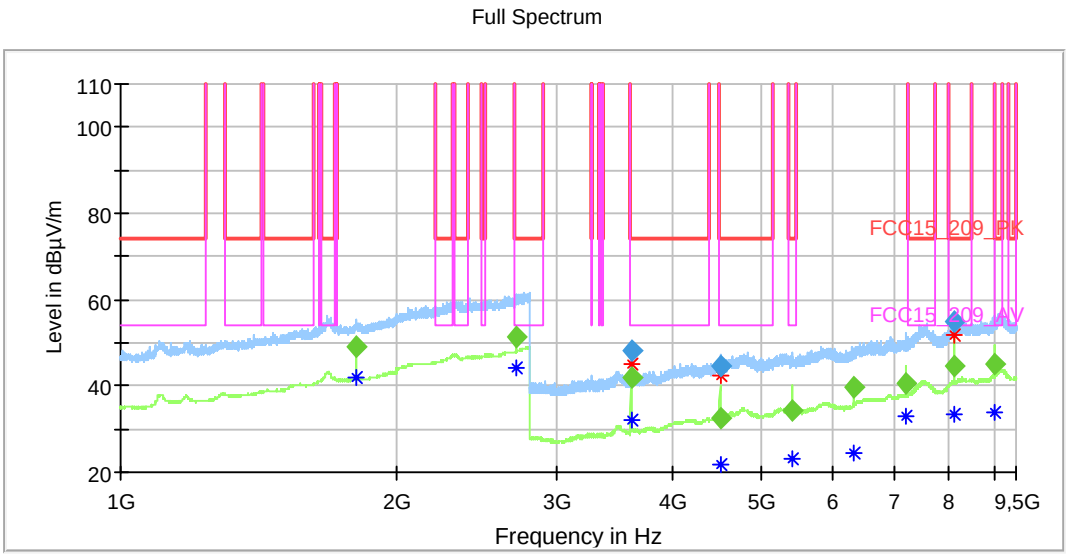
8.01_RSE_TX_F1

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch Low
Operator:	TFra
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Elevation	Corr. (dB/m)
1804.610000	---	48.99	150.00	101.01	100.0	1000.000	155.0	V	219.0	0.0	34
2706.850000	---	51.19	54.00	2.81	100.0	1000.000	155.0	V	191.0	0.0	39
3609.210000	48.02	---	74.00	25.98	100.0	1000.000	155.0	V	236.0	0.0	3
3609.330000	---	42.14	54.00	11.86	100.0	1000.000	155.0	H	303.0	90.0	3
4511.210000	44.49	---	74.00	29.51	100.0	1000.000	155.0	V	233.0	90.0	5
4511.290000	---	32.51	54.00	21.49	100.0	1000.000	155.0	H	269.0	0.0	5
5414.050000	---	34.39	54.00	19.61	100.0	1000.000	155.0	H	307.0	0.0	7
6316.130000	---	39.48	150.00	110.52	100.0	1000.000	155.0	H	304.0	90.0	10
7218.250000	---	40.49	150.00	109.51	100.0	1000.000	155.0	V	190.0	90.0	13
8120.210000	55.02	---	74.00	18.98	100.0	1000.000	155.0	V	137.0	0.0	15
8121.010000	---	44.66	54.00	9.34	100.0	1000.000	155.0	V	146.0	0.0	15
9023.450000	---	45.18	54.00	8.82	100.0	1000.000	155.0	H	306.0	90.0	17

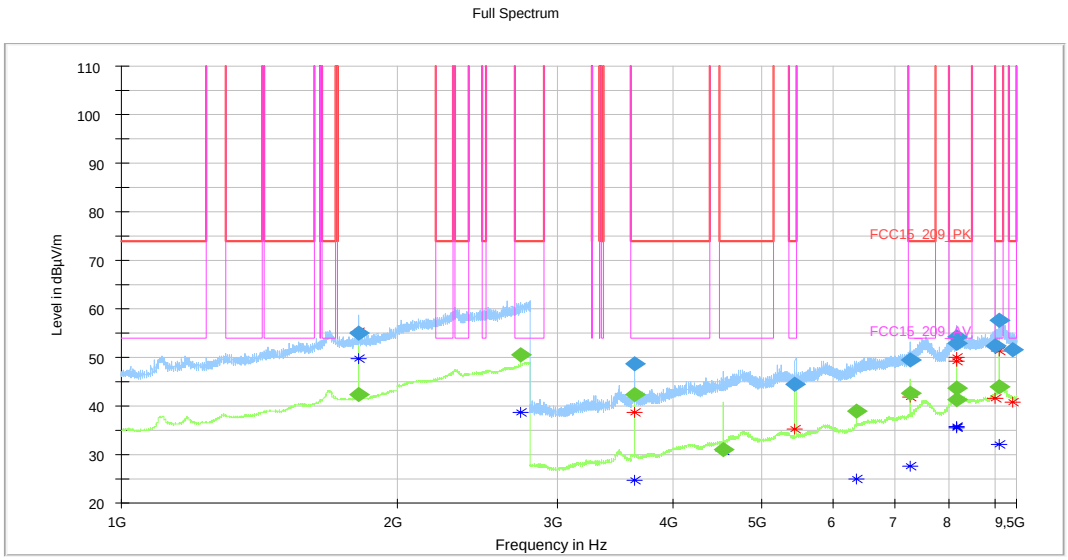
8.02_RSE_TX_F2

Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch Mid
Operator:	TFra
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Elevation	Corr. (dB)
1816.930000	55.00	---	150.00	95.00	100.0	1000.000	155.0	V	6.0	90.0	34.1
1817.050000	---	42.25	150.00	107.75	100.0	1000.000	155.0	V	-12.0	90.0	34.1
2725.610000	---	50.48	54.00	3.52	100.0	1000.000	155.0	H	276.0	90.0	39.3
3633.890000	---	42.31	54.00	11.69	100.0	1000.000	155.0	H	280.0	90.0	2.5
3634.130000	48.75	---	74.00	25.25	100.0	1000.000	155.0	H	272.0	90.0	2.5
4542.250000	---	31.07	54.00	22.93	100.0	1000.000	155.0	V	255.0	90.0	5.7
5450.010000	44.52	---	74.00	29.48	100.0	1000.000	155.0	V	157.0	0.0	7.2
6359.850000	---	39.05	150.00	110.95	100.0	1000.000	155.0	H	266.0	90.0	10.3
7267.690000	---	42.51	54.00	11.49	100.0	1000.000	155.0	H	69.0	90.0	13.3
7268.290000	49.52	---	74.00	24.48	100.0	1000.000	155.0	H	92.0	0.0	13.3
8175.930000	---	43.80	54.00	10.20	100.0	1000.000	155.0	V	137.0	0.0	15.5
8176.450000	54.12	---	74.00	19.88	100.0	1000.000	155.0	V	139.0	0.0	15.5
8176.650000	---	41.19	54.00	12.81	100.0	1000.000	155.0	V	139.0	90.0	15.5
8176.750000	52.88	---	74.00	21.12	100.0	1000.000	155.0	V	142.0	90.0	15.5
9000.130000	52.31	---	74.00	21.69	100.0	1000.000	155.0	H	102.0	90.0	17.2
9084.370000	57.63	---	74.00	16.37	100.0	1000.000	155.0	H	93.0	90.0	18.0
9084.450000	---	43.90	54.00	10.10	100.0	1000.000	155.0	H	79.0	90.0	18.0
9413.650000	51.53	---	74.00	22.47	100.0	1000.000	155.0	V	20.0	90.0	16.1

8.03_RSE_TX_F3

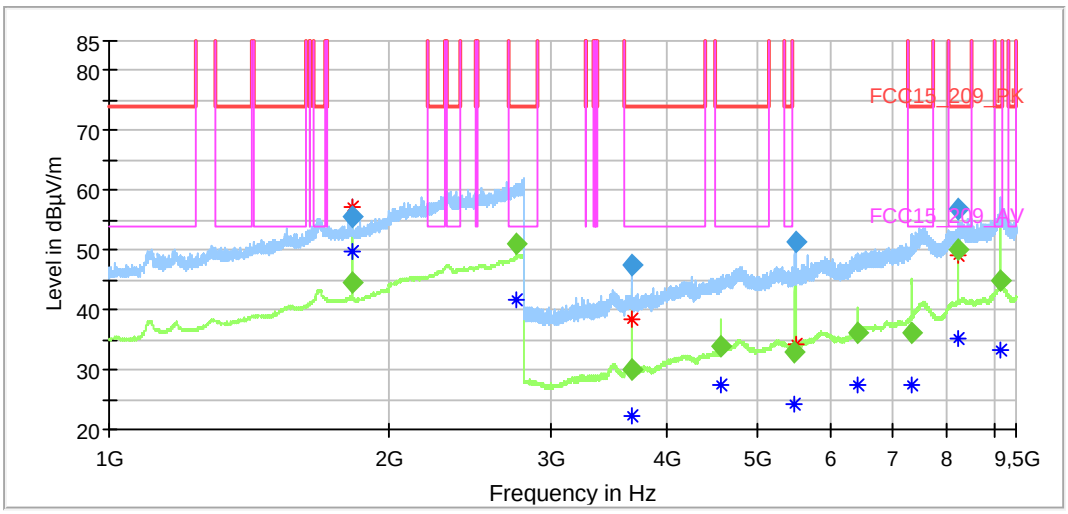
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.60.20
Test Standard:	FCC 15.247&15.209 Intentional Radiator
Antenna polarisation:	horizontal/vertical
Operating Mode:	FHSS 125kHz Ch High
Operator:	TFra
Environmental Conditions::	Humidity : 40%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01275S14_C01
Power Supply:	3.6 VDC Battery
Comments:	--

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Elevation	Corr. (dB/m)
1829.850000	---	44.58	150.00	105.42	100.0	1000.000	155.0	V	24.0	90.0	34
1829.890000	55.55	---	150.00	94.45	100.0	1000.000	155.0	V	22.0	90.0	34
2744.650000	---	51.07	54.00	2.93	100.0	1000.000	155.0	V	35.0	0.0	40
3659.490000	---	30.15	54.00	23.85	100.0	1000.000	155.0	H	75.0	0.0	2
3659.530000	47.48	---	74.00	26.52	100.0	1000.000	155.0	H	268.0	90.0	2
4574.530000	---	34.06	54.00	19.94	100.0	1000.000	155.0	V	26.0	90.0	6
5489.170000	---	33.03	150.00	116.97	100.0	1000.000	155.0	H	93.0	0.0	7
5489.530000	51.23	---	150.00	98.77	100.0	1000.000	155.0	H	91.0	90.0	7
6404.210000	---	36.27	150.00	113.73	100.0	1000.000	155.0	H	93.0	0.0	11
7319.530000	---	36.02	54.00	17.98	100.0	1000.000	155.0	H	131.0	0.0	14
8233.930000	56.98	---	74.00	17.02	100.0	1000.000	155.0	V	93.0	90.0	16
8234.010000	---	49.99	54.00	4.01	100.0	1000.000	155.0	V	94.0	90.0	16
9148.610000	---	44.77	54.00	9.23	100.0	1000.000	155.0	H	91.0	0.0	18

End of Annex 1