

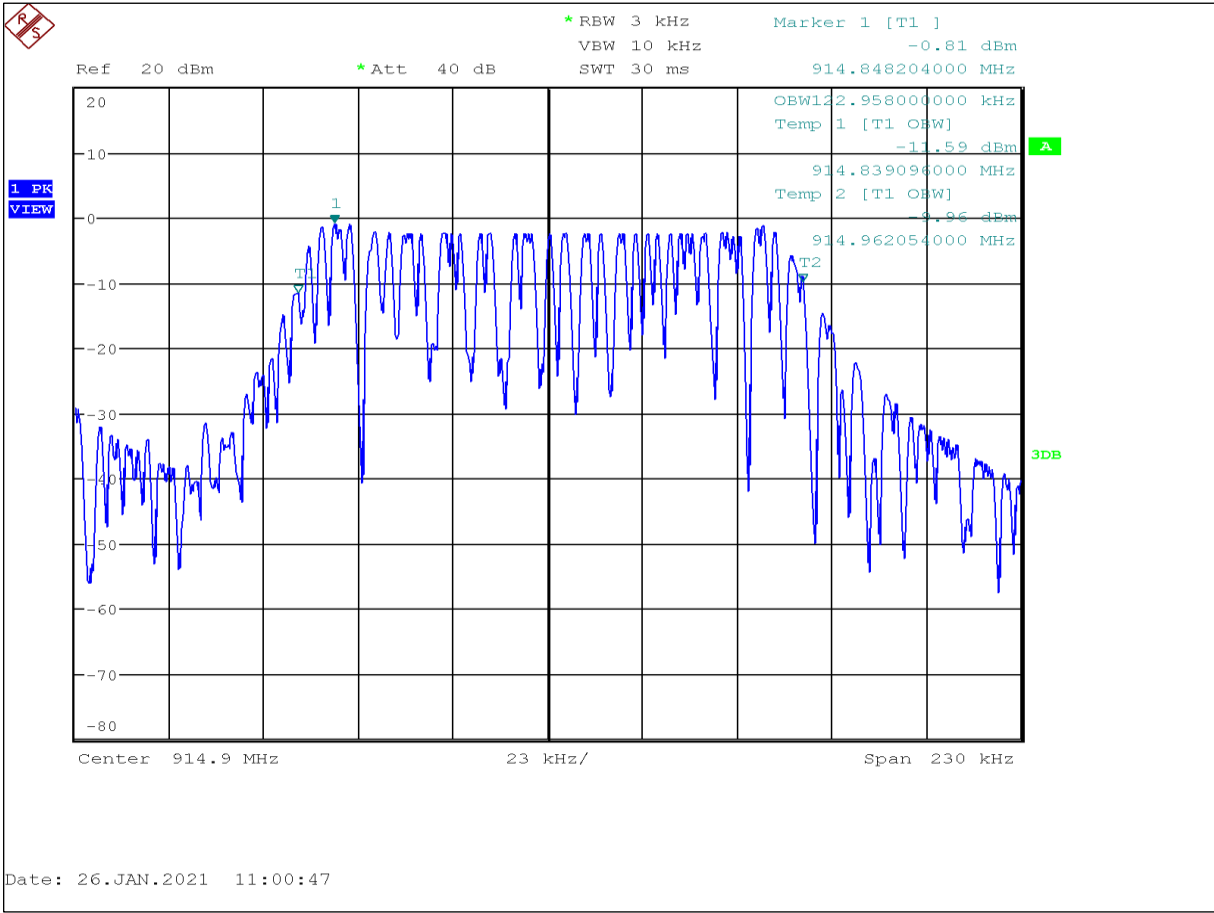
Annex 1: Measurement diagrams 20-1-0159401T01a-A1

Number of pages:	73	Date of Report:	2021-Mar-16
Testing company:	CETECOM GmbH Im Teelbruch 116 45219 Essen Germany Tel. + 49 (0) 20 54 / 95 19-0 Fax: + 49 (0) 20 54 / 95 19-150	Applicant:	Spotta Limited
Test Object / Tested Device(s):	Smart pest monitor Bed Pod		
FCC ID:	2AYCHPODB000-07-206	IC:	26742-PODB07206
Testing has been carried out in accordance with:	Title 47 CFR, Chapter I FCC Regulations, Subchapter A, Subpart C: §15.247 (FHSS) RSS-247 (FHSSs), Issue 2 (Feb 2017) Deviations, modifications or clarifications (if any) to above mentioned documents are written in each section under "Test method and limit".		

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1 Measurement diagrams

1.1 Magnetic field measurements (9kHz < f < 30MHz)

2.01a_RSE_TX_ChLow_EUT_standing

Common Information

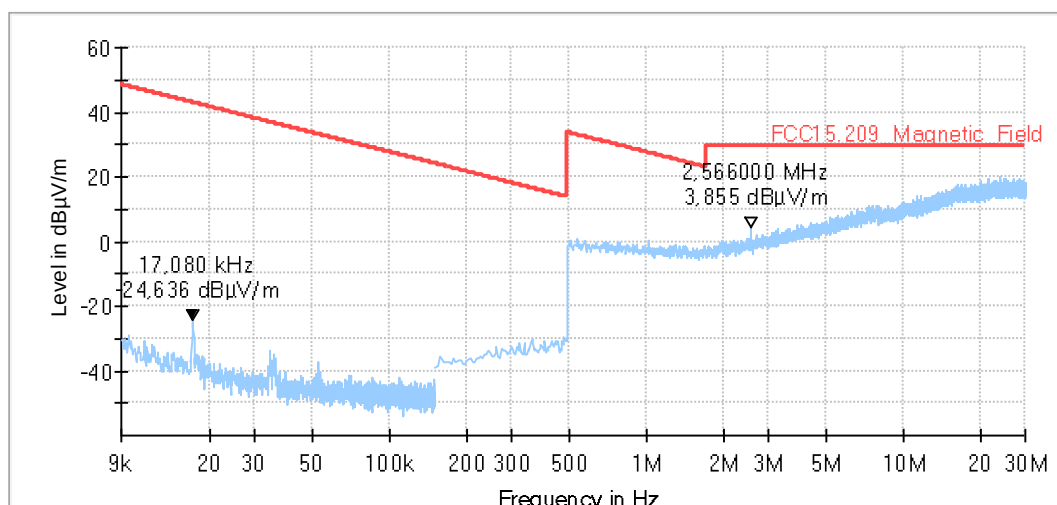
Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see 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 5

Operator:	Lor
Operating Mode:	TX, CW Mode, Ch low
Power during tests:	1.5V DC (fully battery)
Comment 1:	Channel low
Comment 2:	EUT standing position
Environmental Conditions:	Humidity : 35%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



2.01b_RSE_TX_ChLow_EUT_laying

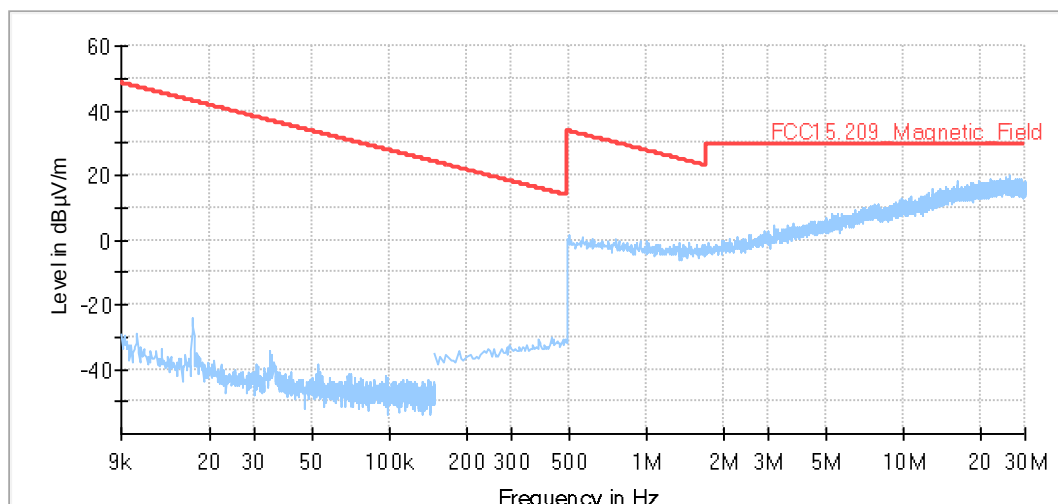
Common Information

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 5
Operator:	Lor
Operating Mode:	TX, CW Mode, Ch low
Power during tests:	1.5V DC (fully battery)
Comment 1:	Channel low
Comment 2:	EUT laying position
Environmental Conditions::	Humidity : 35%rH; Temperature: 21°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



2.02a_RSE_TX_ChMid_EUT_standing

Common Information

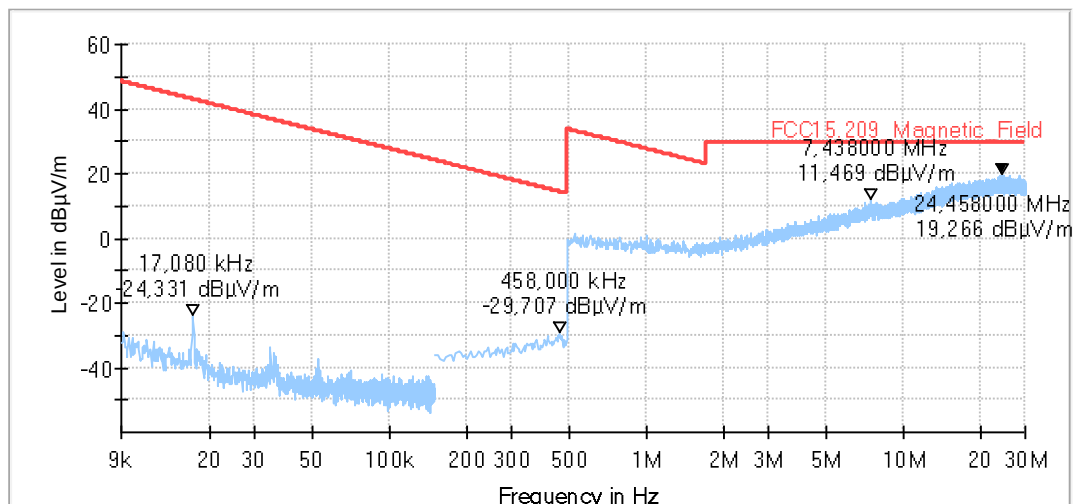
Test Description:	Magnetic Field Strength Measurement related to 30/300 m distance
Test Site Location:	Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
Version of Testsoftware:	EMC32 V10.50.0
Distance correction:	used accord. table, pls. see test report
Technical Data:	Please see 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 5

Operator:	Lor
Operating Mode:	TX, CW Mode, Ch Mid (908.5MHz)
Power during tests:	1.5V DC (fully battery)
Comment 1:	Channel Mid
Comment 2:	EUT standing position
Environmental Conditions::	Humidity : 35%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



2.02b_RSE_TX_ChMid_EUT_laying

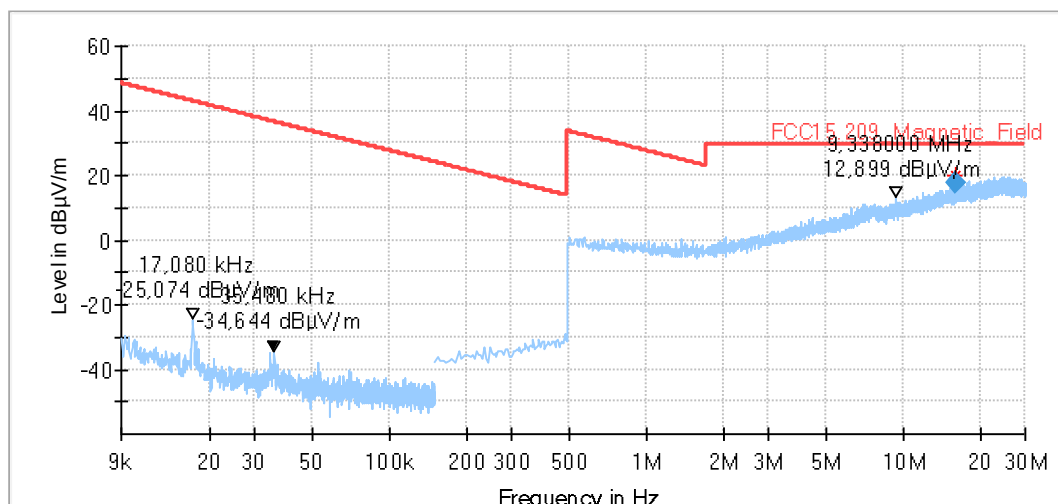
Common Information

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 5
Operator:	Lor
Operating Mode:	TX, CW Mode, Ch Mid (908.5MHZ)
Power during tests:	1.5V DC (fully battery)
Comment 1:	Channel Mid
Comment 2:	EUT laying position
Environmental Conditions:	Humidity : 35%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed:

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margi n	Meas. Time (ms)	Bandwidth h	Pol	Azimut h	Corr. (dB/m)	Comment
16.110000	17.83	29.54	11.71	1000.0	9.000	H	35.0	-0.1	09:10:00 - 13.01.2021

2.03a_RSE_TX_ChHigh_EUT_standing

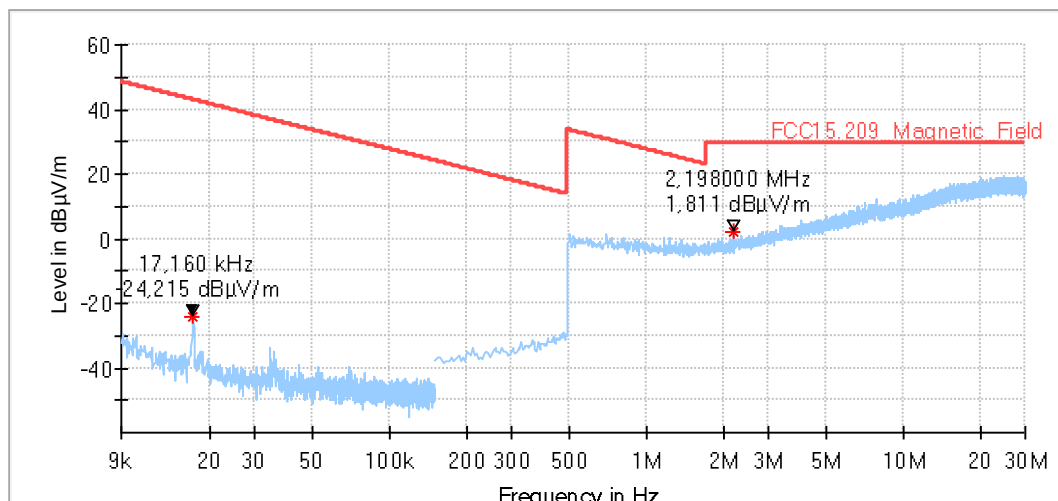
Common Information

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 5
Operator:	Lor
Operating Mode:	TX-on, CW, Ch high (914.9MHz)
Power during tests:	1.5V DC (fully battery)
Comment 1:	Channel High
Comment 2:	EUT standing position
Environmental Conditions::	Humidity : 35%rH; Temperature: 20°C
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



2.03b_RSE_TX_ChHigh_EUT_laying

Common Information

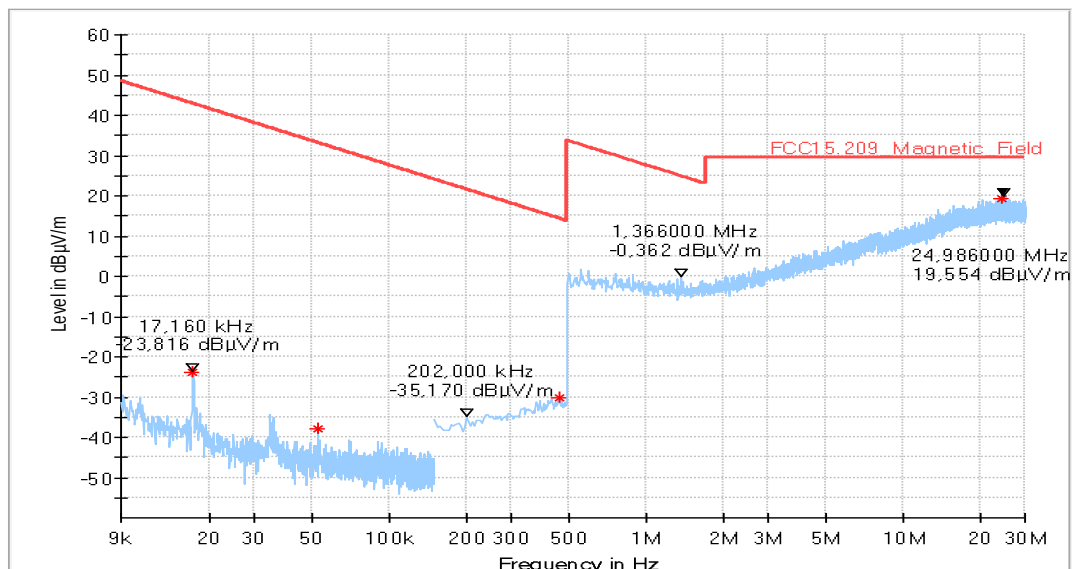
Test Description: Magnetic Field Strength Measurement related to 30/300 m distance
 Test Site Location: Ref.-Nr. 441 Semi Anechoic Chamber (SAC1) with 3 m measurement distance
 Version of Testsoftware: EMC32 V10.50.0
 Distance correction: used accord. table, pls. see test report
 Technical Data: Please 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 5

Operator: Lor
 Operating Mode: TX, CW Mode, Ch low
 Power during tests: 1.5V DC (fully battery)
 Comment 1: Channel High
 Comment 2: EUT standing position
 Environmental Conditions: Humidity : 35%rH; Temperature: 20°C
 EUT Setup: 1
 Verdict: Passed

EUT Information

PMT number: 20-1-01594S11_C01
 Manufacturer: Spotta Ltd.
 Serial number: S11_C01
 Connected Interfaces: --
 Power Supply: 1.5 V DC

Full Spectrum



Critical_Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth h	Pol	Azimuth	Corr. (dB/m)	Comment
0.017160	-23.82	42.91	66.72	---	---	V	305.0	-59.4	09:48:42 - 13.01.2021
0.052760	-37.74	33.15	70.89	---	---	V	125.0	-60.5	09:48:45 - 13.01.2021
0.458000	-30.04	14.39	44.43	---	---	V	35.0	-51.6	09:48:49 - 13.01.2021
24.394000	19.37	29.54	10.17	---	---	V	125.0	1.7	09:48:39 - 13.01.2021

1.2 Electrical field measurements

1.2.1 Electrical field measurements 30MHz < f < 1GHz

3.03a_RSE_EFeld_TX_ChHigh_EUT_standing

Common Information

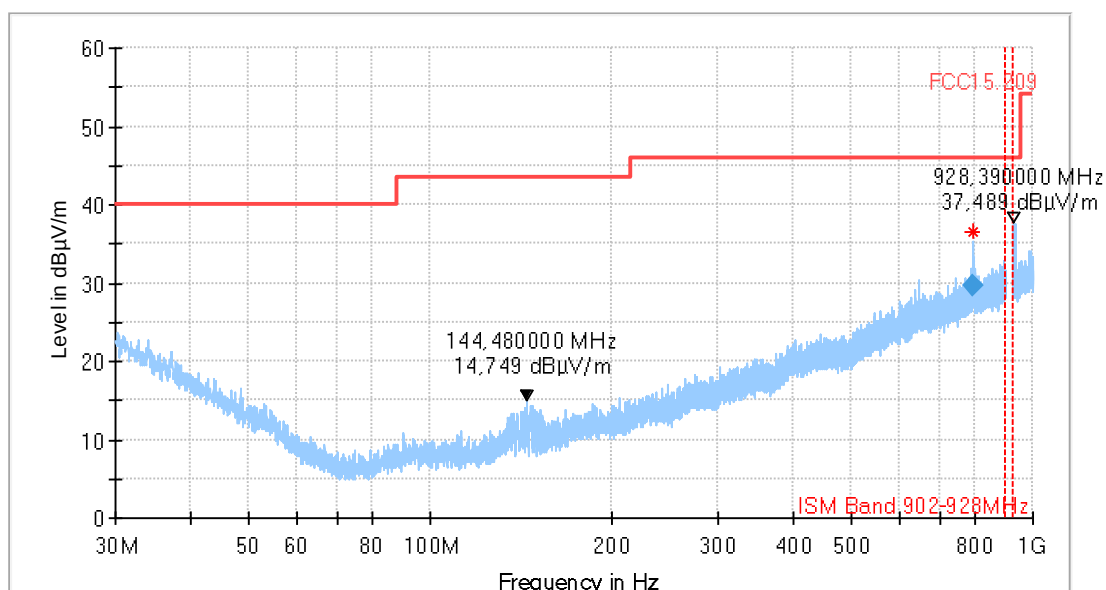
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high
Operating Mode:	TX, CW Mode
Environmental Conditions::	Humidity : 35%rH; Temperature: 20°C
Operator:	Lor
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamplifier (dB)	Trd Corr. (dB/m)
795.574000	29.58	46.00	16.42	120.000	312.0	V	238.0	25.2	0.0	3.1	22.1

(continuation of the "Final_Result" table from column 19 ...)

Frequency (MHz)	Raw Rec (dBμV)	Comment
795.574000	4.4	10:30:25 - 13.01.2021

3.03b_RSE_EFeld_TX_ChHigh_EUT_laying

Common Information

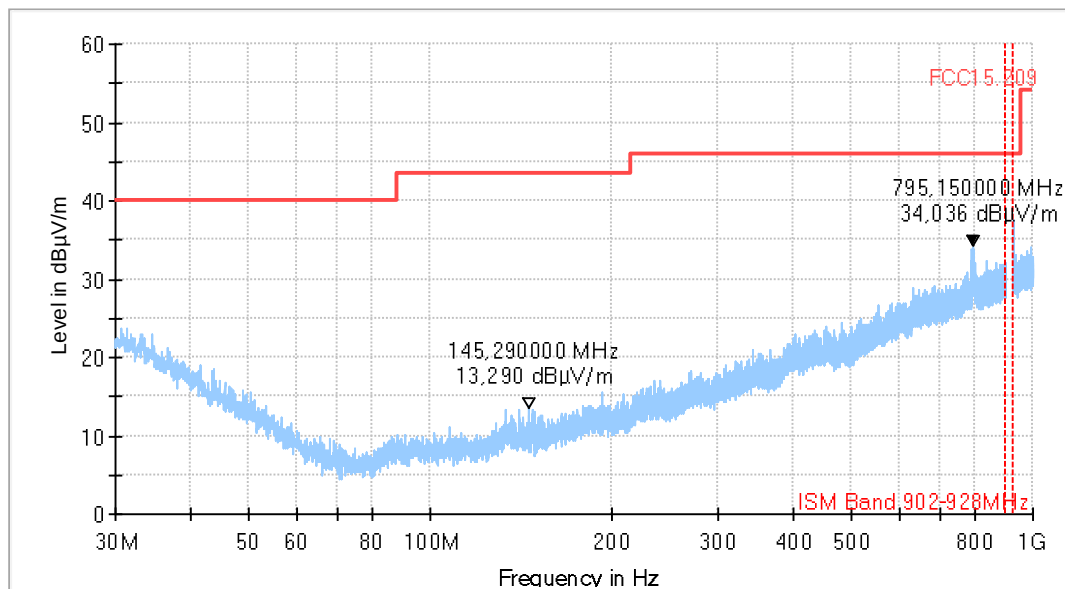
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high
Operating Mode:	TX, CW Mode, Ch high
Environmental Conditions::	Humidity : 35%rH; Temperature: 20°C
Operator:	Lor
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum

Full Spectrum



3.05a_RSE_TX_ChLow_EUT_standing

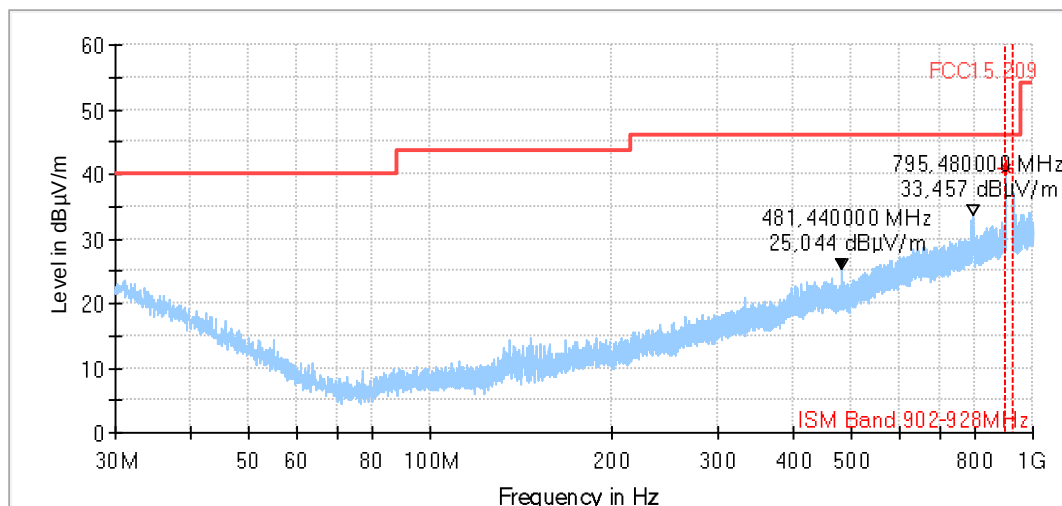
Common Information

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
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low
Operating Mode:	TX, CW Mode, Ch low
Environmental Conditions:	Humidity : 35%rH; Temperature: 20°C
Operator:	Lor
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



3.05b_RSE_TX_ChLow_EUT_laying

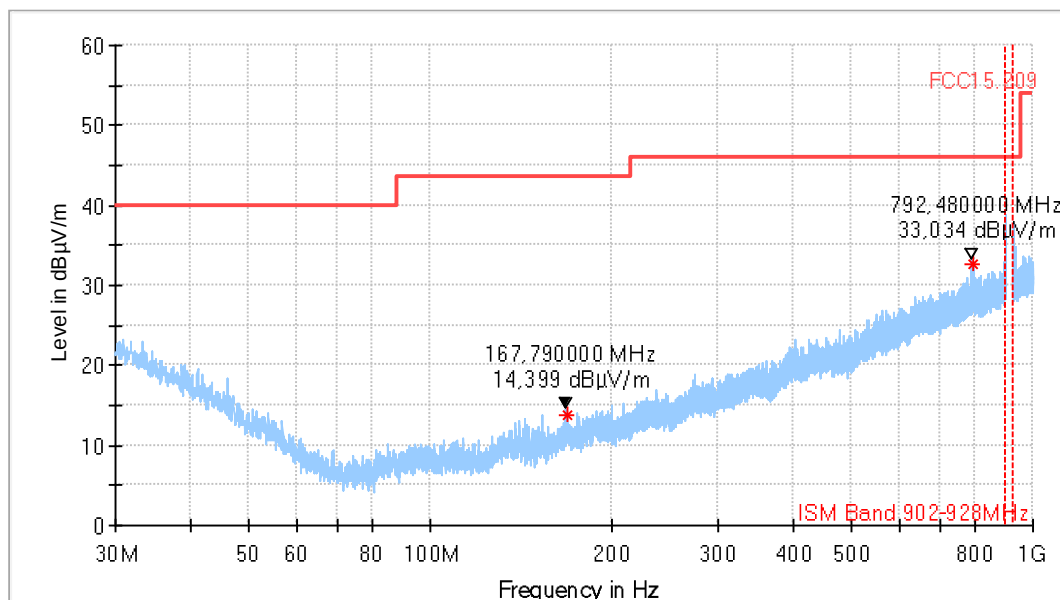
Common Information

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
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low
Operating Mode:	TX, CW Mode, Ch low
Environmental Conditions:	Humidity : 35%RH; Temperature: 20°C
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum



3.07a_RSE_TX_ChMiddle_EUT_standing

Common Information

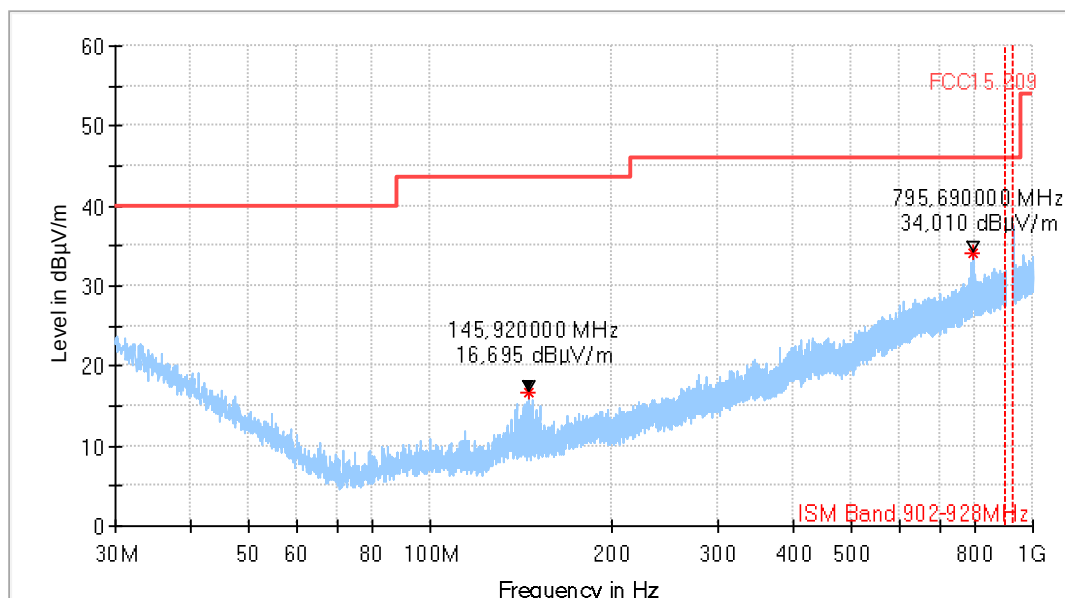
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. mid
Operating Mode:	TX, CW Mode
Environmental Conditions:	Humidity : 35%rH; Temperature: 20°C
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum

Full Spectrum



Critical_Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Corr. (dB/m)	Sig Path (dB)
145.920000	16.69	43.50	26.81	---	---	182.0	H	90.0	8.6	0.0
795.690000	34.01	46.00	11.99	---	---	105.0	V	90.0	25.2	0.0

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

Frequency (MHz)	Preamplifier	Trd Corr. (dB/m)	Raw Rec (dBμV)	Comment
145.920000	1.1	7.5	8.1	13:00:22 - 13.01.2021
795.690000	3.1	22.1	8.8	13:00:12 - 13.01.2021

3.07b_RSE_TX_ChMiddle_EUT_laying

Common Information

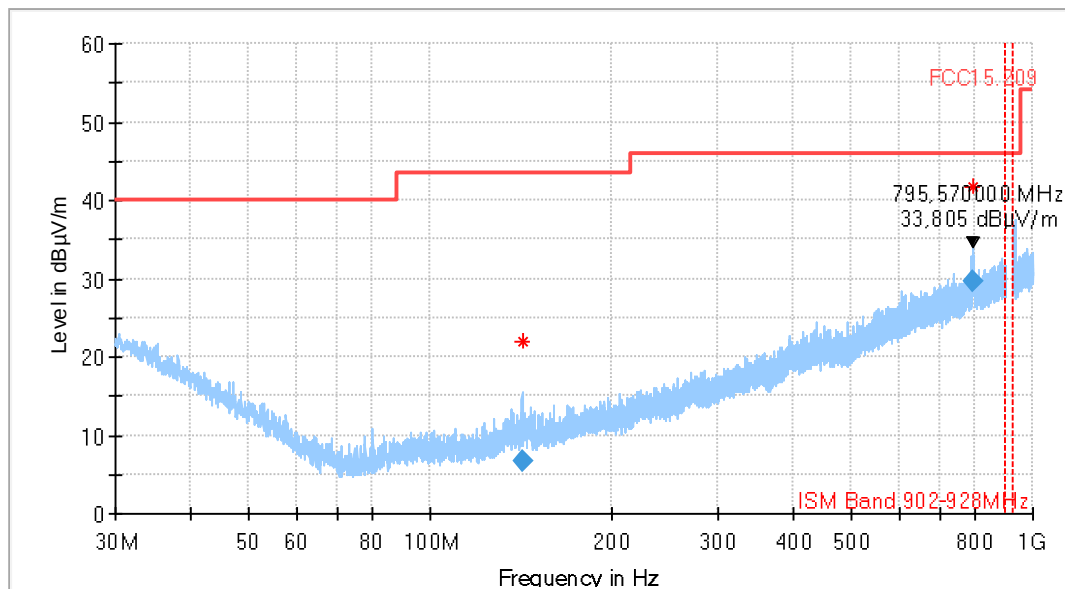
Test Description:	Radiated field strength emission in 3m distance
Test Site:	CETECOM GmbH Essen
Test Standard:	FCC 15.247&15.209 & RSS-247, Issue 2, RSS-Gen, Issue 5 (Intentional Radiator)
Antenna polarisation:	horizontal/vertical
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. mid
Operating Mode:	TX, CW Mode, Ch middle
Environmental Conditions:	Humidity : 35%rH; Temperature: 20°C
Operator:	Lor
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Serial number:	S11_C01
Connected Interfaces:	--
Power Supply:	1.5 V DC
Comments:	--

Full Spectrum

Full Spectrum



Final_Result

Frequency (MHz)	QuasiPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamplifier (dB)	Trd Corr. (dB/m)
141.926000	6.60	43.50	36.90	120.000	136.0	V	158.0	8.7	0.0	1.1	7.6
795.592000	29.57	46.00	16.43	120.000	199.0	H	356.0	25.2	0.0	3.1	22.1

(continuation of the "Final_Result" table from column 19 ...)

Frequency (MHz)	Raw Rec (dBμV)	Comment
141.926000	-2.1	13:28:26 - 13.01.2021
795.592000	4.4	13:22:54 - 13.01.2021

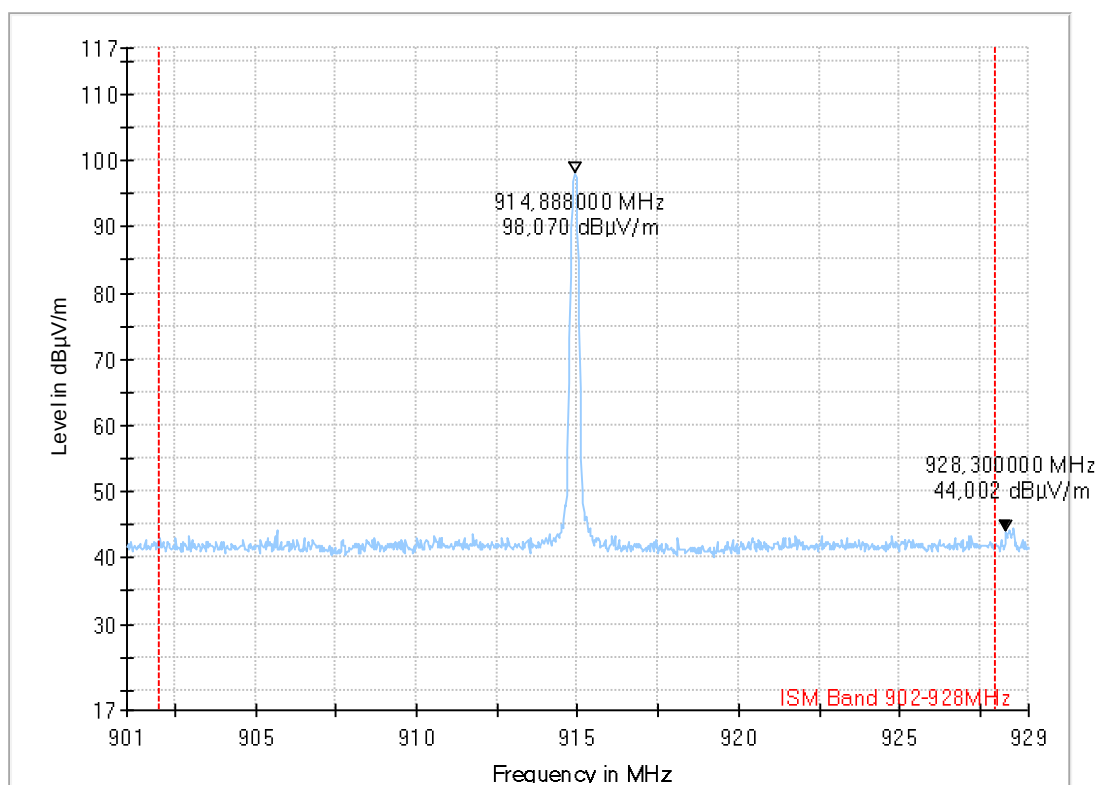
1.2.2 Band-Edge radiated

3.04a_BE_TX_ChHigh_EUT_standing

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
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high
Operating Mode:	TX CW
Environmental Conditions:	Humidity : 35%rH; Temperature: 20.7°C
Operator:	Lor
Verdict:	S11_C01 / Passed

Full Spectrum

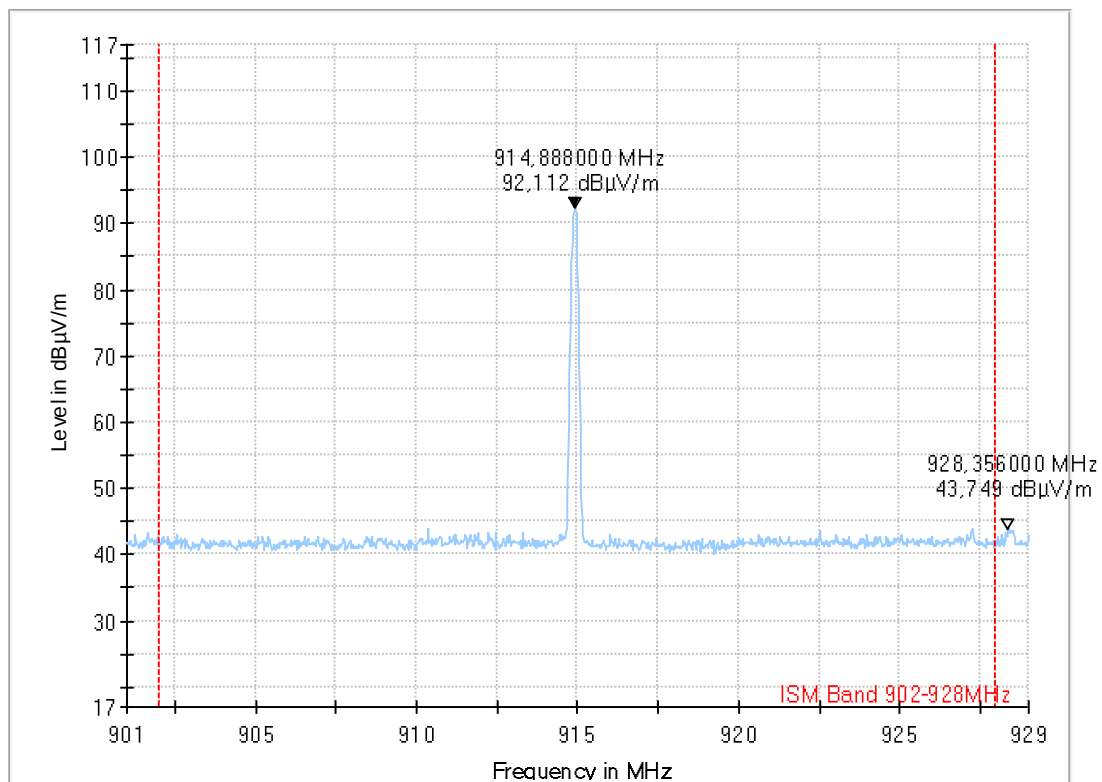


3.04b_BE_TX_ChHigh_EUT_laying

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
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. high
Operating Mode:	TX
Environmental Conditions:	Humidity : 35%rH; Temperature: 20.7°C
Operator:	Lor
Verdict:	Sample S11_C01/ Passed

Full Spectrum



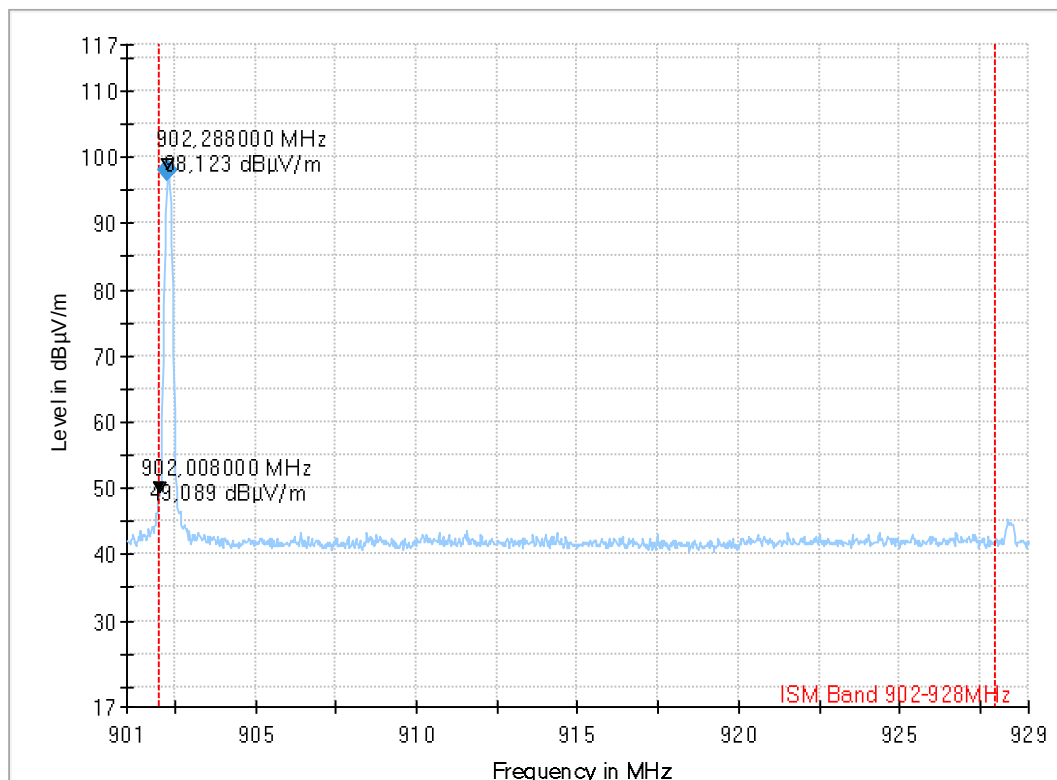
3.06a_BE_TX_ChLow_EUT_standing

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
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low
Operating Mode:	TX, CW Mode
Environmental Conditions:	Humidity : 35%rH; Temperature: 20.7°C
Operator:	Lor
Verdict:	Sample S11_C01/ Passed

Full Spectrum

Full Spectrum



Final Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamplifier (dB)	Trd Corr. (dB/m)
902.288000	97.88	46.00	-51.88	100.000	105.0	V	120.0	27.1	0.0	3.5	23.6

(continuation of the "Final Result" table from column 19 ...)

Frequency (MHz)	Raw Rec (dBµV)	Comment
902.288000	70.8	12:43:16 - 13.01.2021

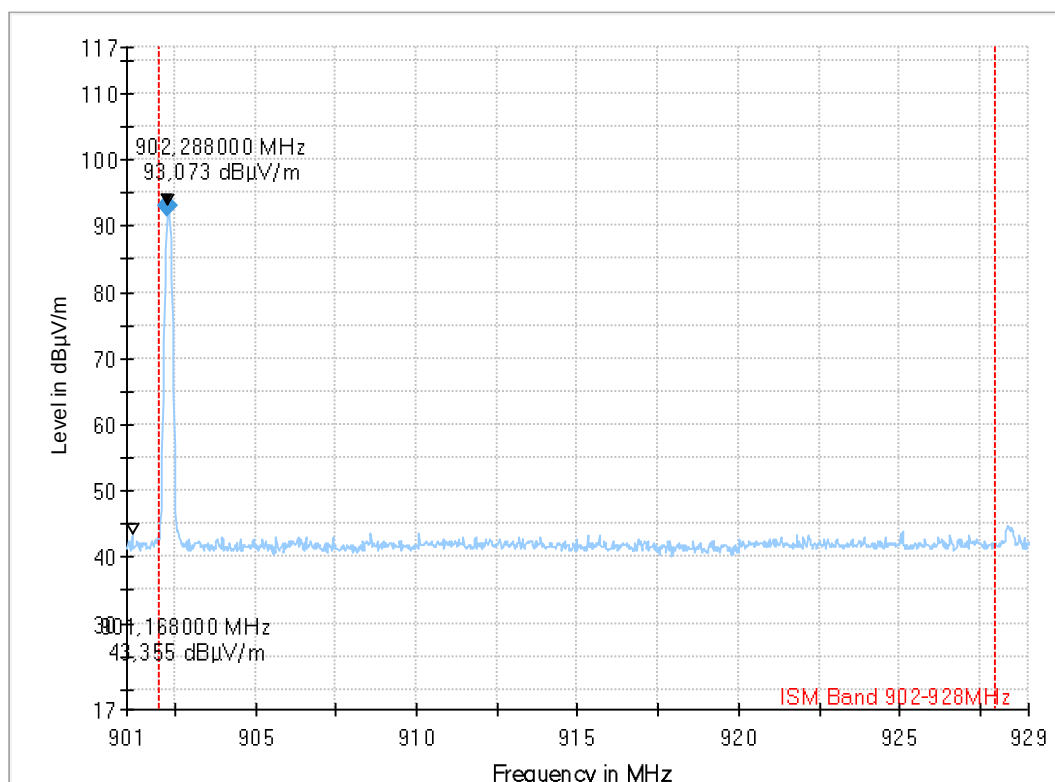
3.06b_BE_TX_ChLow_EUT_laying

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
Operation mode:	TX, continuous
Operator Name:	Lor
Comment:	Channel no. low
Environmental Conditions:	Humidity : 35%rH; Temperature: 20.7°C
Operator:	Lor
Verdict:	Sample S11_C01/ Passed

Full Spectrum

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamplifier (dB)	Trd Corr. (dB/m)
902.288000	92.94	46.00	-46.94	100.000	117.0	H	95.0	27.1	0.0	3.5	23.6

(continuation of the "Final_Result" table from column 19 ...)

Frequency (MHz)	Raw Rec (dBµV)	Comment
902.288000	65.8	12:26:10 - 13.01.2021

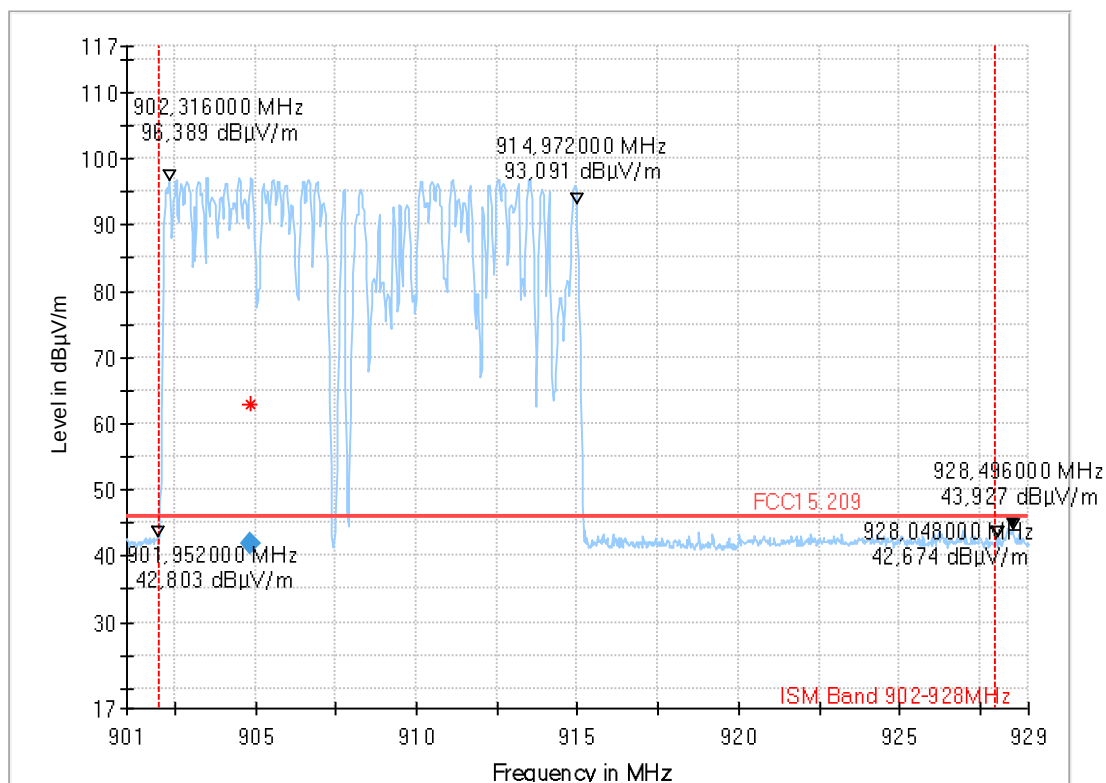
3.08a_BE_TX_Hopping_EUT_standing

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
Operation mode:	TX, continuous, hopping mode
Operator Name:	Lor
Comment:	Channel numbers: 64 (hopping mode)
EUT S/N:	S02 EMC(S11_C01)
Environmental Conditions:	Humidity: 39%rH; Temperature: 20.6°C
Verdict:	Sample S11_C01/ Passed

Full Spectrum

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB/m)	Sig Path (dB)	Preamplifier (dB)	Trd Corr. (dB/m)
904.864000	41.76	46.00	4.24	100.000	231.0	V	0.0	26.9	0.0	3.2	23.7

(continuation of the "Final_Result" table from column 19 ...)

Frequency (MHz)	Raw Rec (dBµV)	Comment
904.864000	14.9	09:53:16 - 21.01.2021

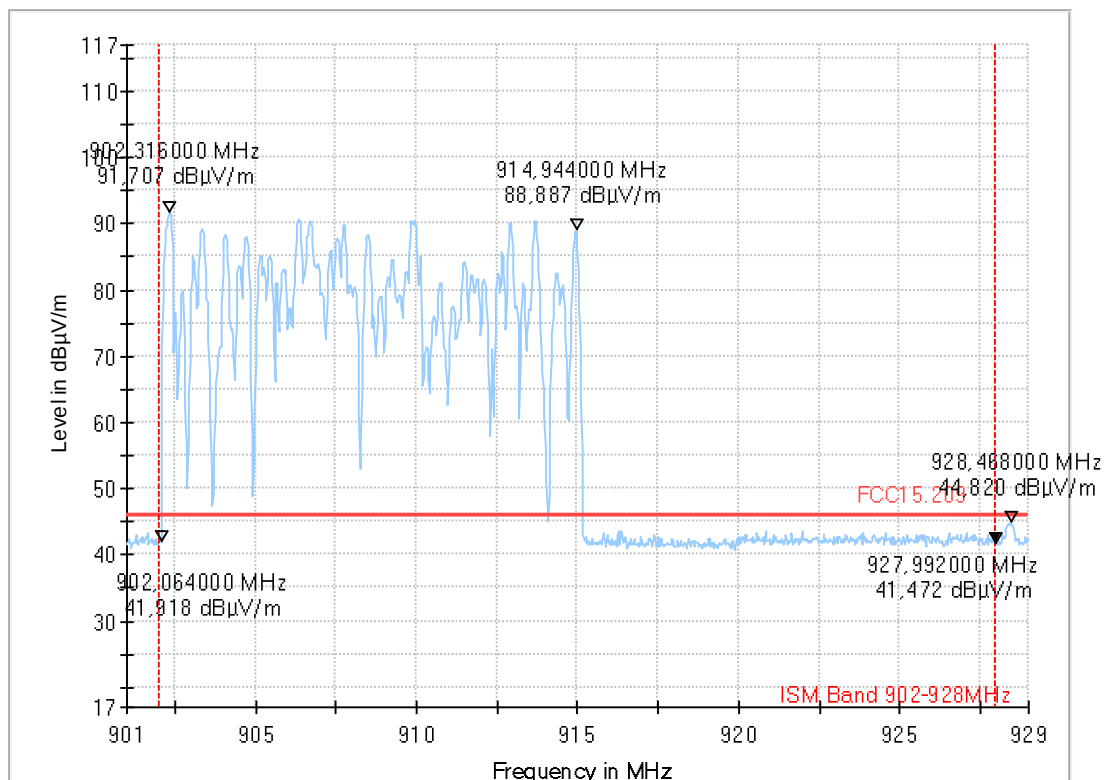
3.08b_BE_TX_Hopping_EUT_Laying

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
Operation mode:	TX, continuous, hopping mode
Operator Name:	Lor
Comment:	Channel numbers: 64 (hopping mode)
EUT S/N	S02 EMC (S11_C01)
Environmental Conditions:	Humidity: 39%rH; Temperature: 20.6°C
Verdict:	Sample S11_C01/ Passed

Full Spectrum

Full Spectrum



1.3 Radiated field strength above 1GHz

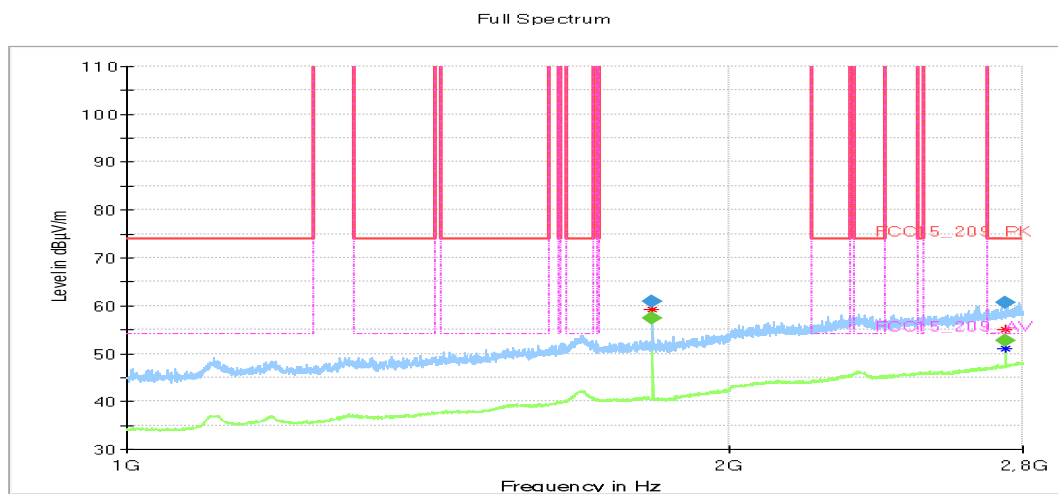
8.16a_RSE_TX_ChHigh_PWR_9dBm_S11

Common Information

Test Description: Radiated field strength emission in 3m distance
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
 Antenna polarisation: horizontal/vertical
 Operating Mode: TX, continuous, CW
 Operator: Lor
 Comment: Channel no. high
 Comment2: Humidity : 45%rH; Temperature: 20°C
 EUT Setup: 1
 Verdict: Passed

EUT Information

PMT number: 20-1-01594S11_C01
 Manufacturer: Spotta Ltd.
 Power Supply: Battery 1.5V DC
 Comments: --



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height	Pol	Azimuth	Elevation
1829.800000	---	57.40	--	--	100.0	1000.000	155.0	V	93.0	90.0
1829.800000	60.86	---	--	--	100.0	1000.000	155.0	V	91.0	90.0
2744.720000	60.59	---	74.00	13.41	100.0	1000.000	155.0	H	226.0	0.0
2744.720000	---	52.64	54.00	1.36	100.0	1000.000	155.0	V	87.0	0.0

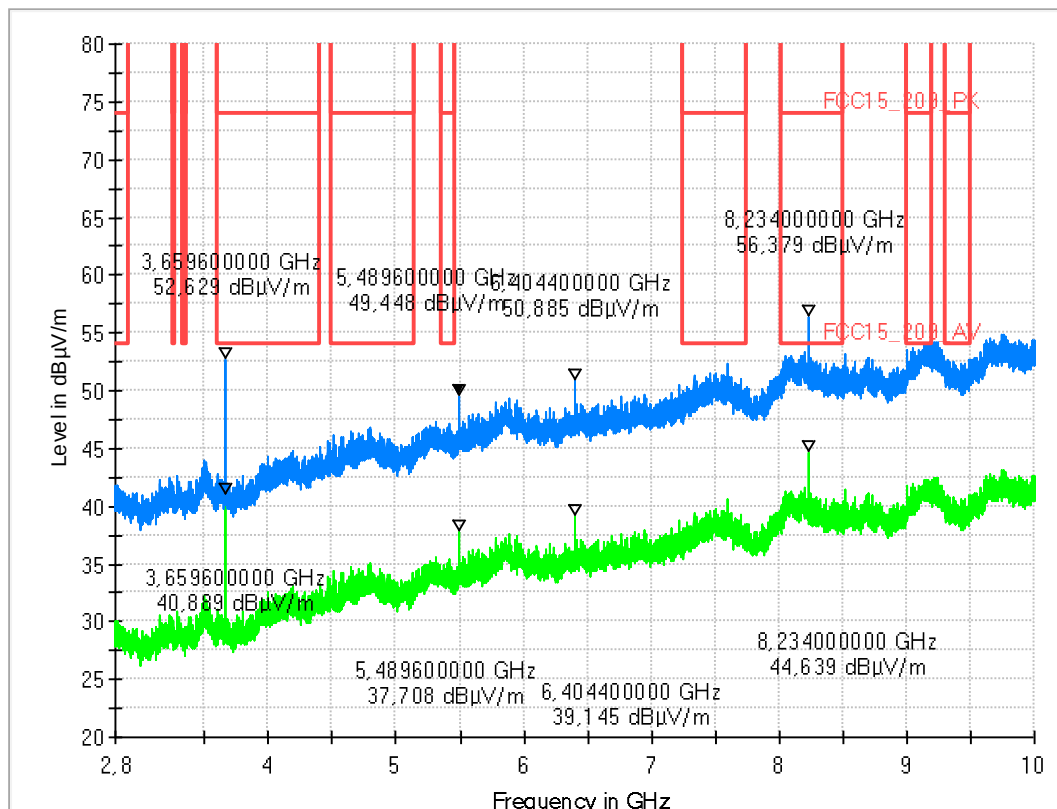
(continuation of the "Final_Result" table from column 16 ...)

Frequency (MHz)	Corr. (dB/m)	Sig Path (dB)	Pream p	Trd Corr. (dB/m)	Raw Rec (dBµV)	Comment
1829.800000	33	6	0	27	---	14:41:14 - 12.01.2021
1829.800000	33	6	0	27	---	14:37:02 - 12.01.2021
2744.720000	38	7	0	31	---	14:34:18 - 12.01.2021
2744.720000	38	7	0	31	---	14:39:09 - 12.01.2021

8.16b_RSE_TX_ChHigh_PWR_9dBm_S11

Common Information

Test Description:	Band-Edge: Radiated Field Strength Emissions Emissions in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	TX, CW Mode
Operator:	Lor
Comment:	Channel no. high=114.9MHz
Comment2:	S11 (PWR:9dBm nominal)
EUT Setup:	1
Verdict:	Passed



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Elevation
3659.600000	---	40.88	54.00	13.11	---	---	155.0	V	42.0	0.0
3659.600000	52.62	---	74.00	21.38	---	---	155.0	V	37.0	0.0
5489.600000	49.44	---	---	---	---	---	155.0	V	215.0	0.0
5489.600000	---	37.70	---	---	---	---	155.0	V	154.0	90.0
8234.000000	56.37	---	74.00	17.63	---	---	155.0	H	114.0	0.0

(continuation of the "Critical_Freqs" table from column 16 ...)

Corr. (dB/m)	Comment
1	10:52:30 - 12.01.2021
1	10:45:36 - 12.01.2021
7	10:47:37 - 12.01.2021
7	10:54:37 - 12.01.2021
14	10:49:54 - 12.01.2021

8.17a_RSE_TX_ChMid_PWR_9dBm_S11

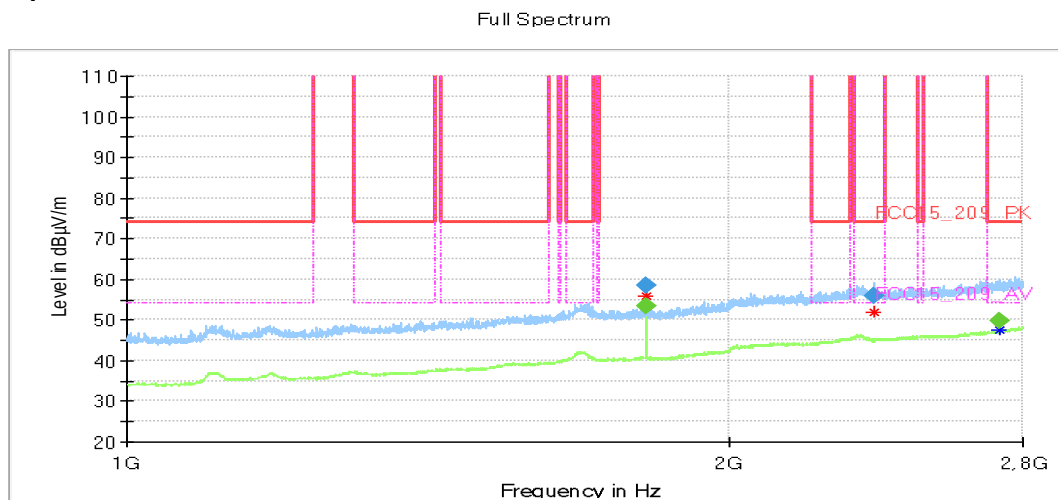
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247 (§15.249) & 15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	TX, continuous, CW
Operator:	Lor
Comment:	Channel no. mid
Comment2:	S11 (PWR:9dBm nominal)
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Power Supply:	Battery 1.5V DC
Comments:	--

Full Spectrum



Final_Result

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth (Hz)	Height	Pol	Azimuth	Elevation
1817.000000	---	53.26	---	---	100.0	1000.000	155.0	H	267.0	0.0
1817.000000	58.54	---	---	---	100.0	1000.000	155.0	H	265.0	0.0
2360.360000	56.07	---	74.00	17.93	100.0	1000.000	155.0	V	111.0	90.0
2725.520000	---	49.88	54.00	4.12	100.0	1000.000	155.0	V	273.0	0.0

(continuation of the "Final_Result" table from column 16 ...)

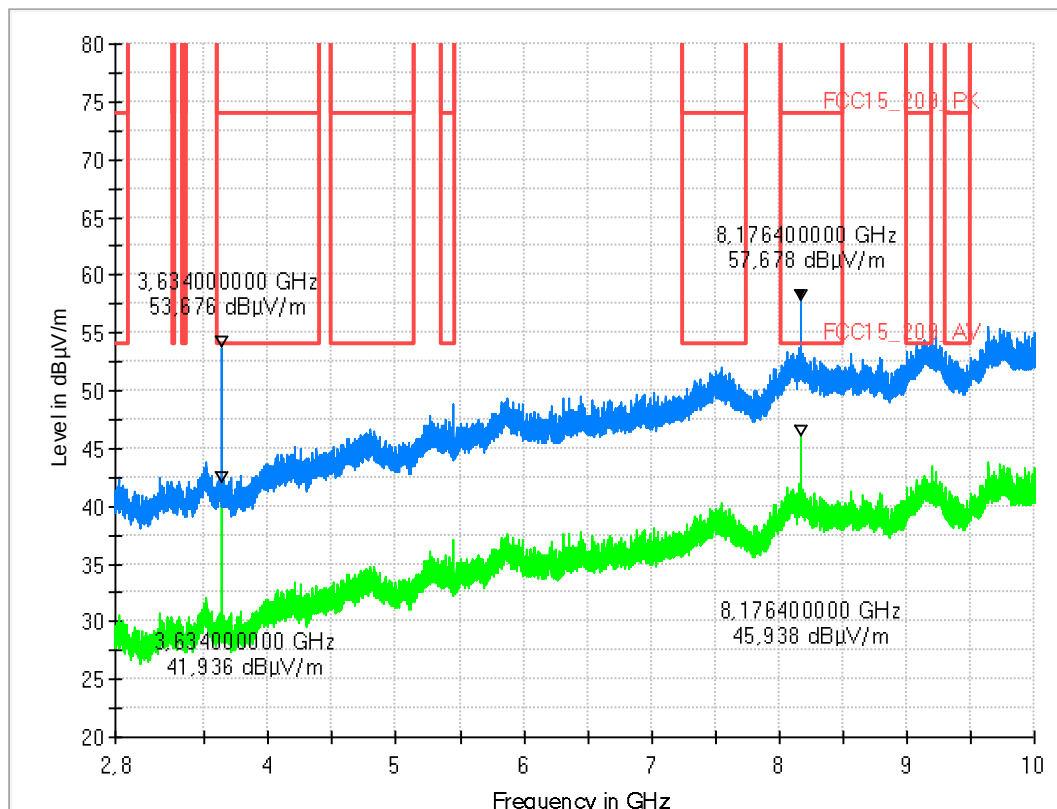
Frequency (MHz)	Corr. (dB/m)	Sig Path (dB)	Pream p	Trd Corr. (dB/m)	Raw Rec (dBµV)	Comment
1817.000000	33	6	0	27	---	14:00:40 - 12.01.2021
1817.000000	33	6	0	27	---	13:55:11 - 12.01.2021
2360.360000	36	6	0	30	---	13:57:55 - 12.01.2021
2725.520000	38	7	0	31	---	14:02:57 - 12.01.2021

8.17b_RSE_TX_ChMid_PWR_9dBm_S11

Common Information

Test Description: Radiated Field Strength Emissions Emissions in 3m distance
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: FCC 15.247&15.209 Intentional Radiator / RSS-Gen, Issue 5
 Antenna polarisation: horizontal/vertical

Operating Mode: TX CW Mode
 Operator: Lor
 Comment: Channel no. mid
 Comment2: S11 (PWR:9dBm nominal)
 EUT Setup: 1
 Verdict: Passed



Critical Freqs

Frequency (MHz)	MaxPeak (dBμV/m)	Average (dBμV/m)	Limit (dBμV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Elevation
3634.000000	---	41.93	54.00	12.07	---	---	155.0	H	132.0	90.0
3634.000000	53.67	---	74.00	20.32	---	---	155.0	H	131.0	90.0
8176.400000	---	45.93	54.00	8.07	---	---	155.0	H	117.0	0.0
8176.400000	57.67	---	74.00	16.32	---	---	155.0	H	117.0	0.0

(continuation of the "Critical_Freqs" table from column 16 ...)

Corr. (dB/m)	Sig Path (dB)	Pream p	Trd Corr. (dB/m)	Raw Rec (dBμV)	Comment
2	-31	0	33	51	11:43:21 - 12.01.2021
2	-31	0	33	52	11:36:43 - 12.01.2021
15	-25	0	40	39	11:41:22 - 12.01.2021
15	-25	0	40	43	11:34:45 - 12.01.2021

8.18a_RSE_TX_ChLow_PWR_9dBm_S11

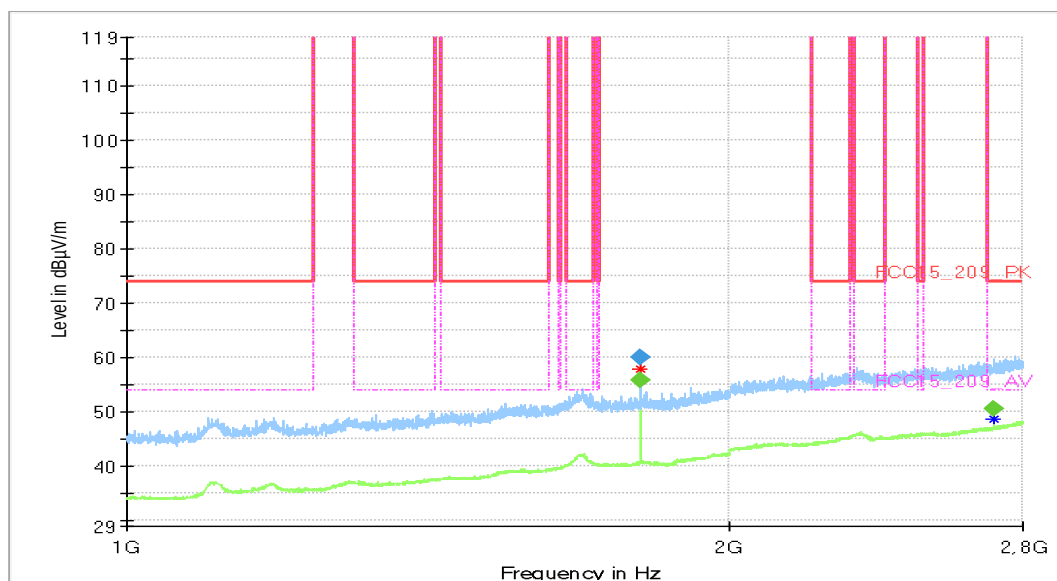
Common Information

Test Description:	Radiated field strength emission in 3m distance
Test Site:	Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
Test Standard:	FCC 15.247 & 15.209 Intentional Radiator / RSS-Gen, Issue 5
Antenna polarisation:	horizontal/vertical
Operating Mode:	CW Mode
Operator:	Lor
Comment:	Channel no. Low
Comment2:	S11 (PWR:9dBm nominal)
EUT Setup:	1
Verdict:	Passed

EUT Information

PMT number:	20-1-01594S11_C01
Manufacturer:	Spotta Ltd.
Power Supply:	Battery 1.5V DC
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
1804.600000	---	55.73	--	--	100.0	1000.000	155.0	H	268.0	0.0
1804.600000	60.09	---	--	--	100.0	1000.000	155.0	H	268.0	0.0
2706.920000	---	50.63	54.00	3.37	100.0	1000.000	155.0	V	273.0	0.0

(continuation of the "Final_Result" table from column 16 ...)

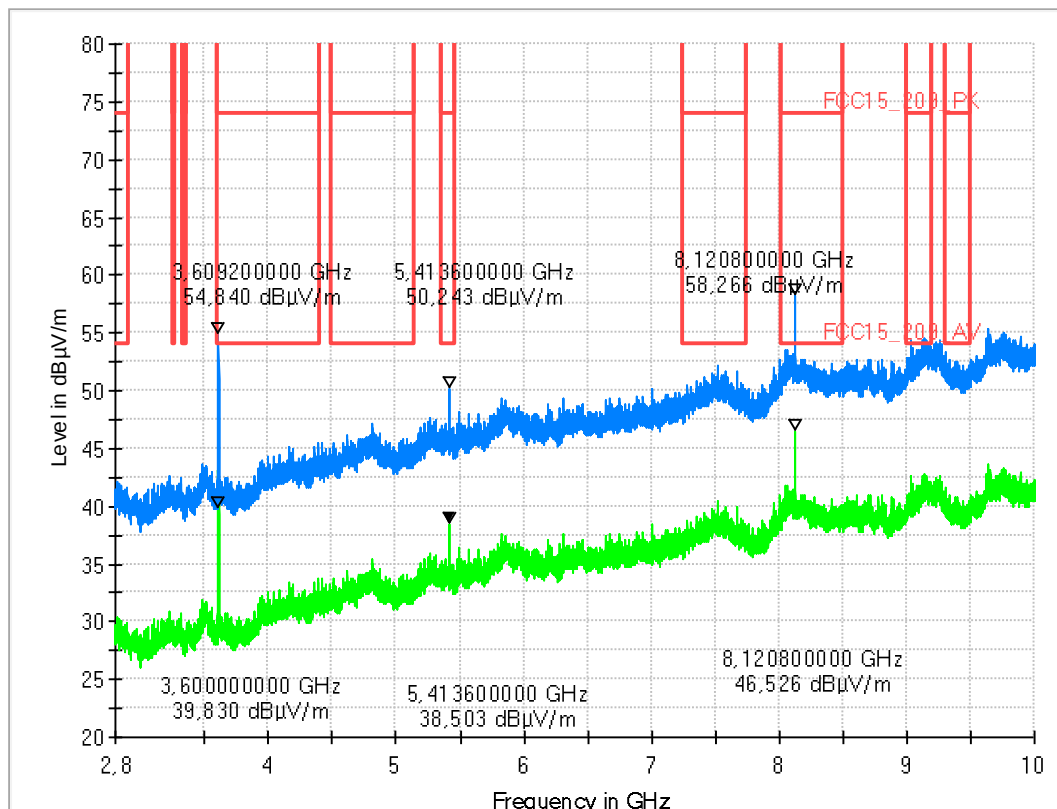
Frequency (MHz)	Corr. (dB/m)	Sig Path (dB)	Preamplifier	Trd Corr. (dB/m)	Raw Rec (dBµV)	Comment
1804.600000	33	6	0	27	---	13:20:29 - 12.01.2021
1804.600000	33	6	0	27	---	13:18:33 - 12.01.2021
2706.920000	38	7	0	31	---	13:22:44 - 12.01.2021

8.18b_RSE_TX_ChLow_PWR_6dBm_S11

Common Information

Test Description: Radiated Field Strength Emissions Emissions in 3m distance
 Test Site: Fully Anechoic Chamber (FAC1) - EMC32 V10.50.0
 Test Standard: FCC 15.247 & 15.209 Intentional Radiator / RSS-Gen, Issue 5
 Antenna polarisation: horizontal/vertical

Operating Mode: TX, CW Mode
 Operator: Lor
 Comment: Channel no. low
 Comment2: S11 (PWR:9dBm nominal)
 EUT Setup: 1
 Verdict: Passed



Critical Freqs

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Limit (dBµV/m)	Margin	Meas. Time (ms)	Bandwidth	Height	Pol	Azimuth	Elevation
3609.200000	---	39.83	54.00	14.17	---	---	155.0	V	212.0	0.0
3609.200000	54.84	---	74.00	19.16	---	---	155.0	V	213.0	0.0
5413.600000	---	38.50	54.00	15.50	---	---	155.0	V	164.0	90.0
5413.600000	50.24	---	74.00	23.75	---	---	155.0	V	164.0	90.0
8120.800000	58.26	---	74.00	15.73	---	---	155.0	H	119.0	0.0
8120.800000	---	46.52	54.00	7.47	---	---	155.0	H	119.0	0.0

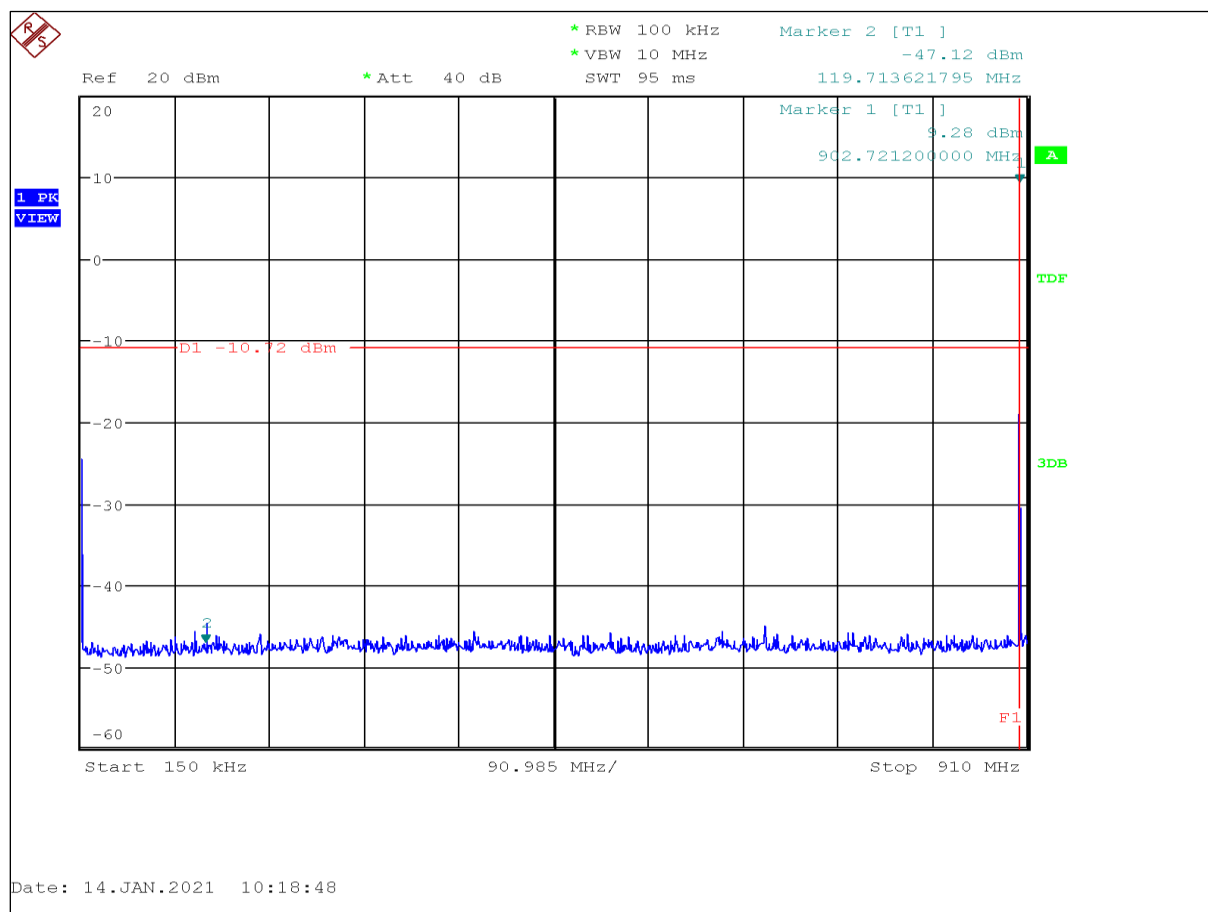
(continuation of the "Critical_Freqs" table from column 16 ...)

Frequency (MHz)	Corr. (dB/m)	Sig Path (dB)	Pream p	Trd Corr. (dB/m)	Raw Rec (dB μ V)	Comment
3609.200000	2	-31	0	33	51	12:33:33 - 12.01.2021
3609.200000	2	-31	0	33	53	12:26:49 - 12.01.2021
5413.800000	7	-29	0	36	38	12:35:39 - 12.01.2021
5413.800000	7	-29	0	36	43	12:28:52 - 12.01.2021
8120.680000	15	-25	0	40	43	12:24:32 - 12.01.2021
8120.680000	15	-25	0	40	39	12:31:17 - 12.01.2021

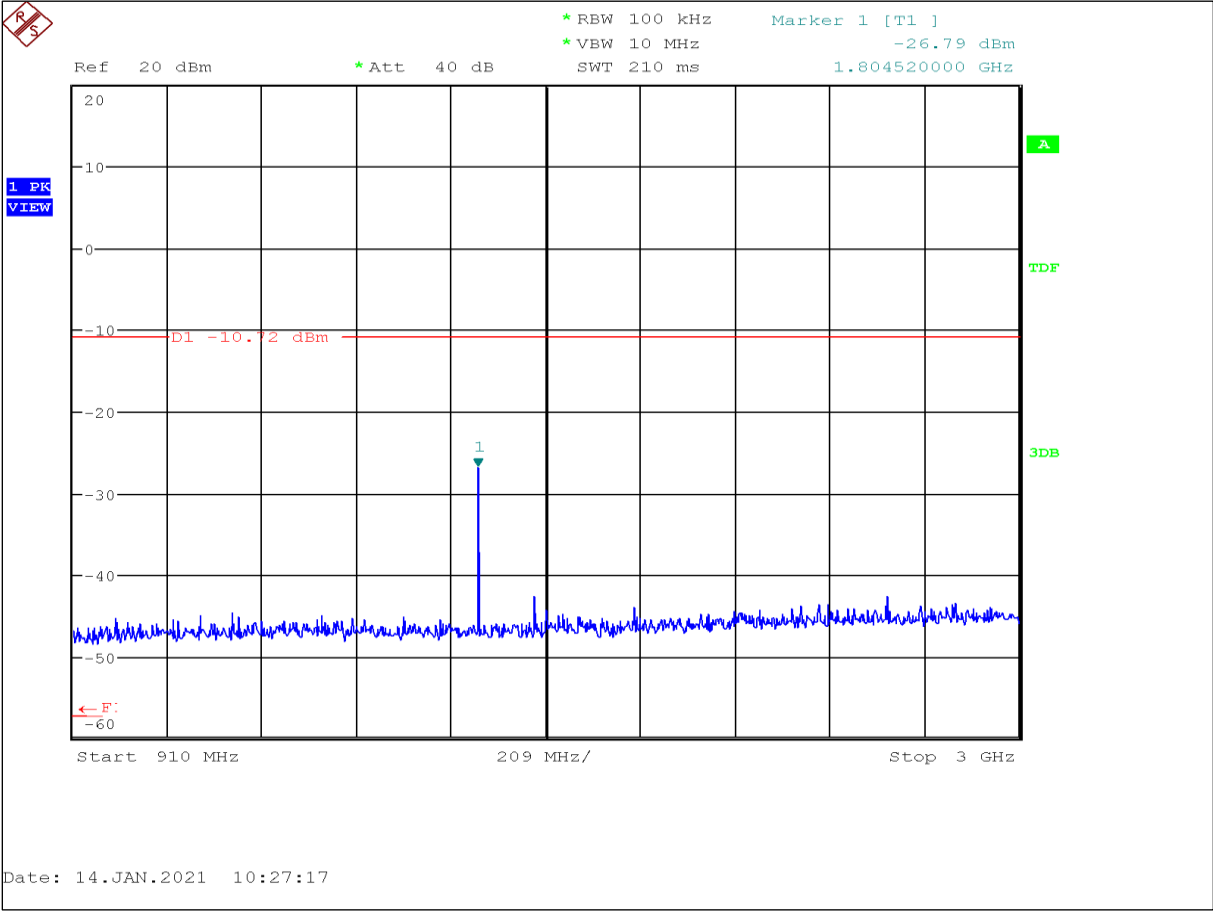
1.4 Spurious emission conducted (20/30dBc)

1.4.1 Channel Low

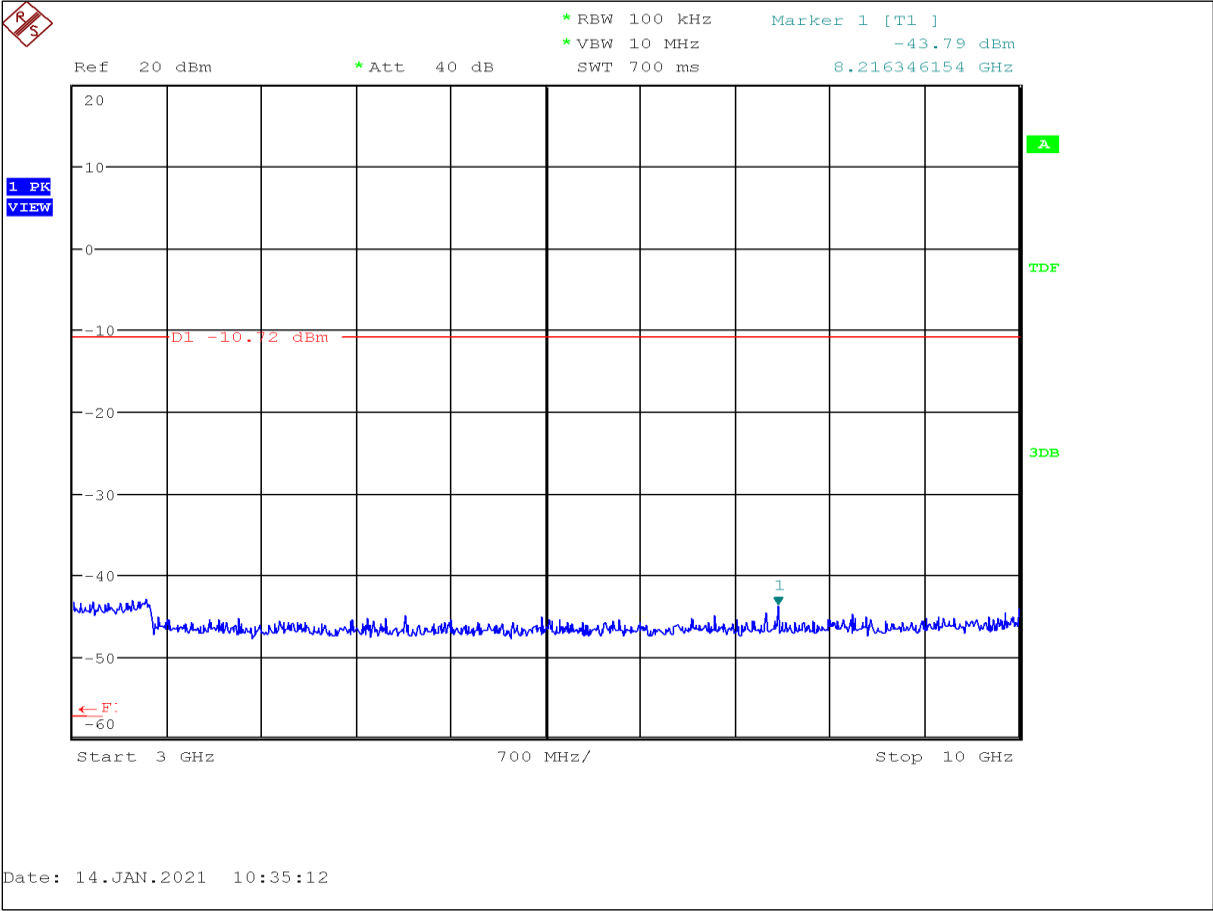
D10_20dBc_TX_ChLow_902_3MHz



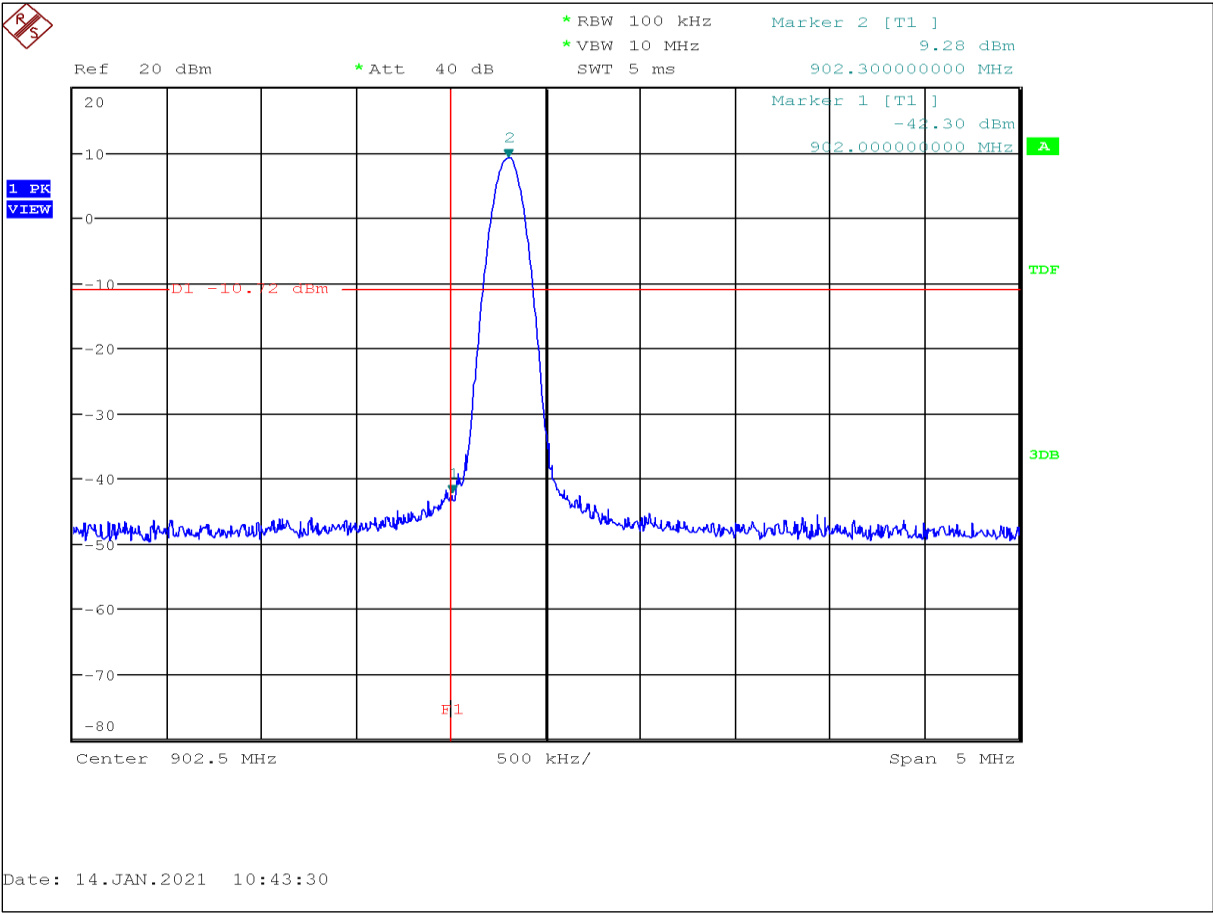
D11_20dBc_Ch1_902_3MHz



D12_20dBc_Ch1_902_3MHz



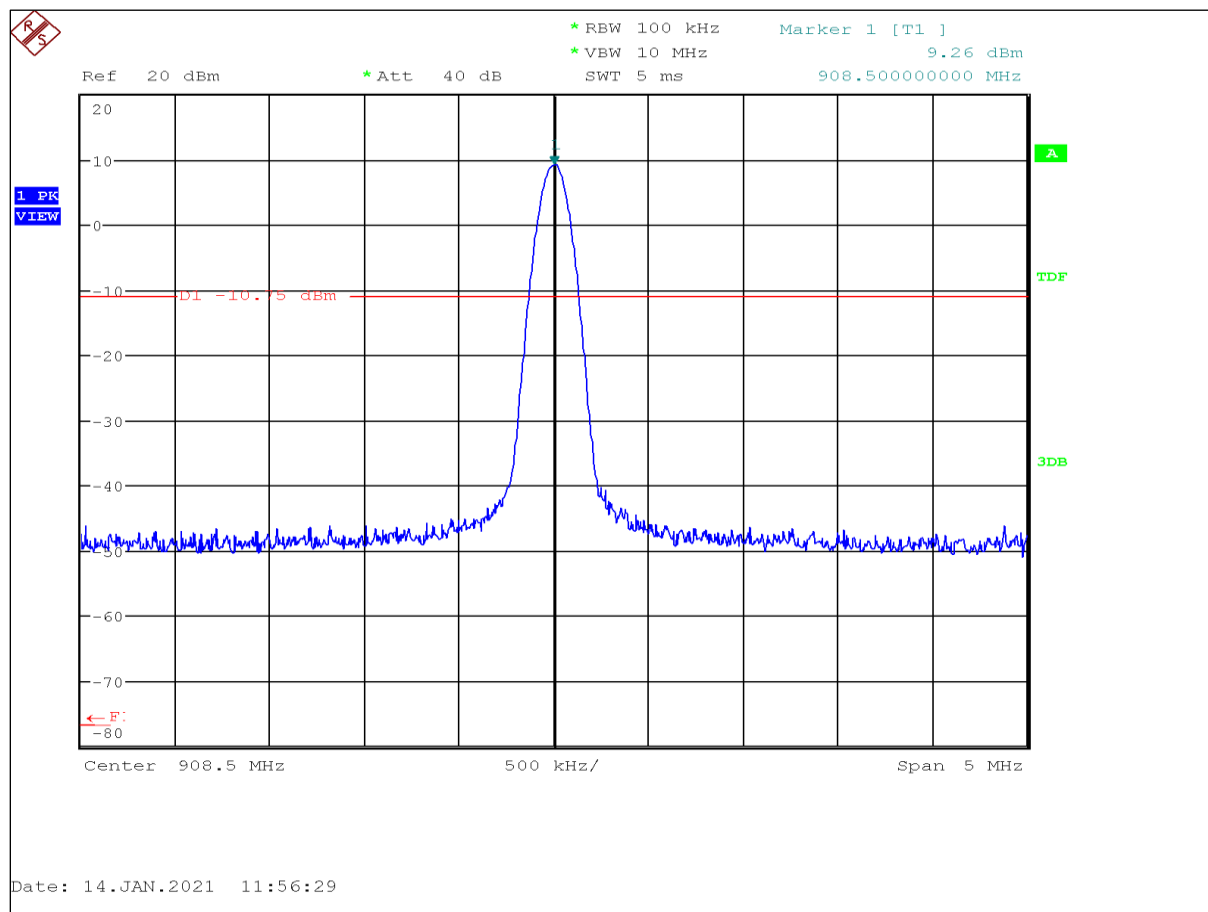
D13_20dBc_BW_CW_Ch1_902_3MHz



Band-Edge conducted at low channel

1.4.2 Channel Middle

D15_20dBc_BW_CW_ChMiddle_908_5MHz



Reference carrier measurement

Ref 20 dBm *Att 40 dB SWT 95 ms 260.238787821 MHz

*RBW 100 kHz Marker 2 [T1] -47.25 dBm

*VBW 10 MHz

Marker 1 [T1] 9.31 dBm

90.985 MHz

DI -10.75 dBm

TDF

3DB

F1

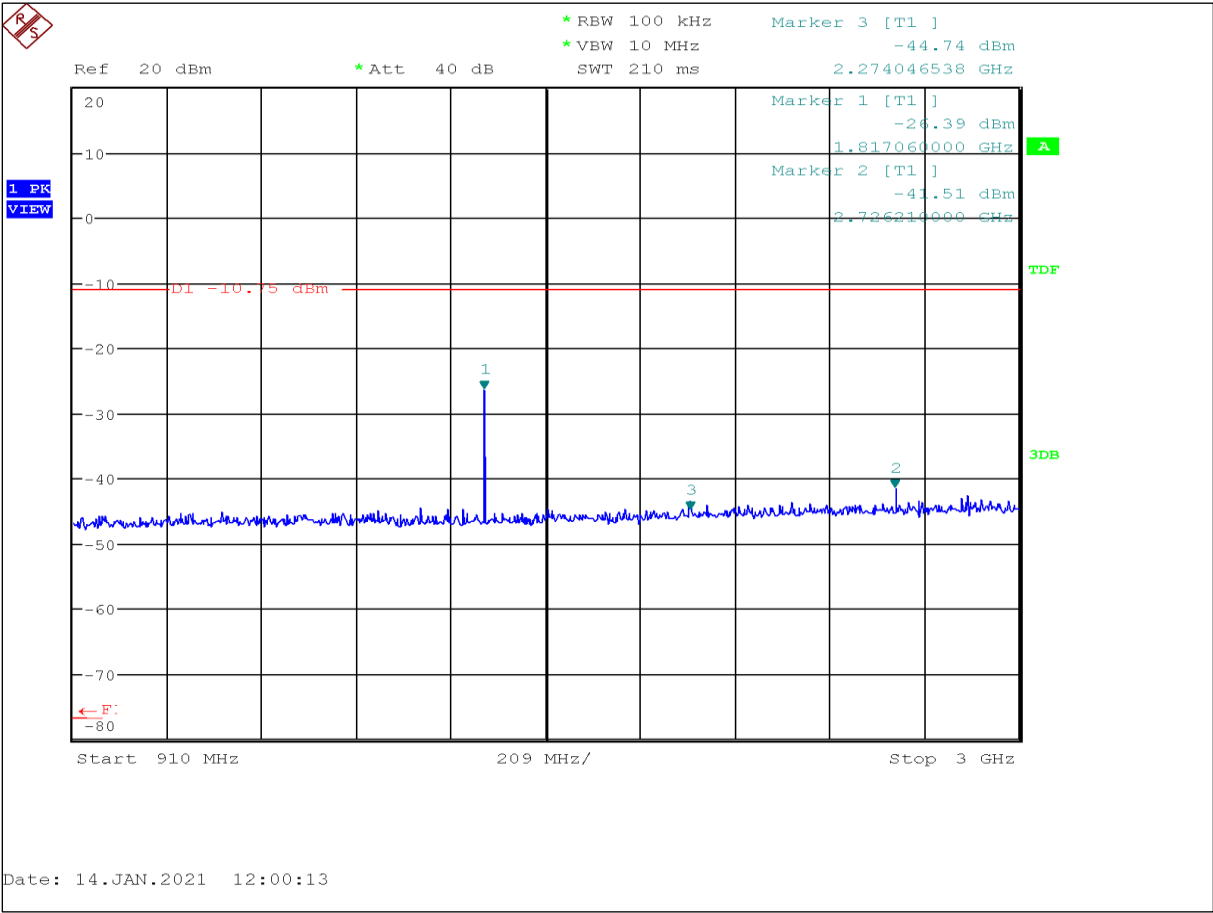
Start 150 kHz 90.985 MHz/ Stop 910 MHz

1 PK VIEW

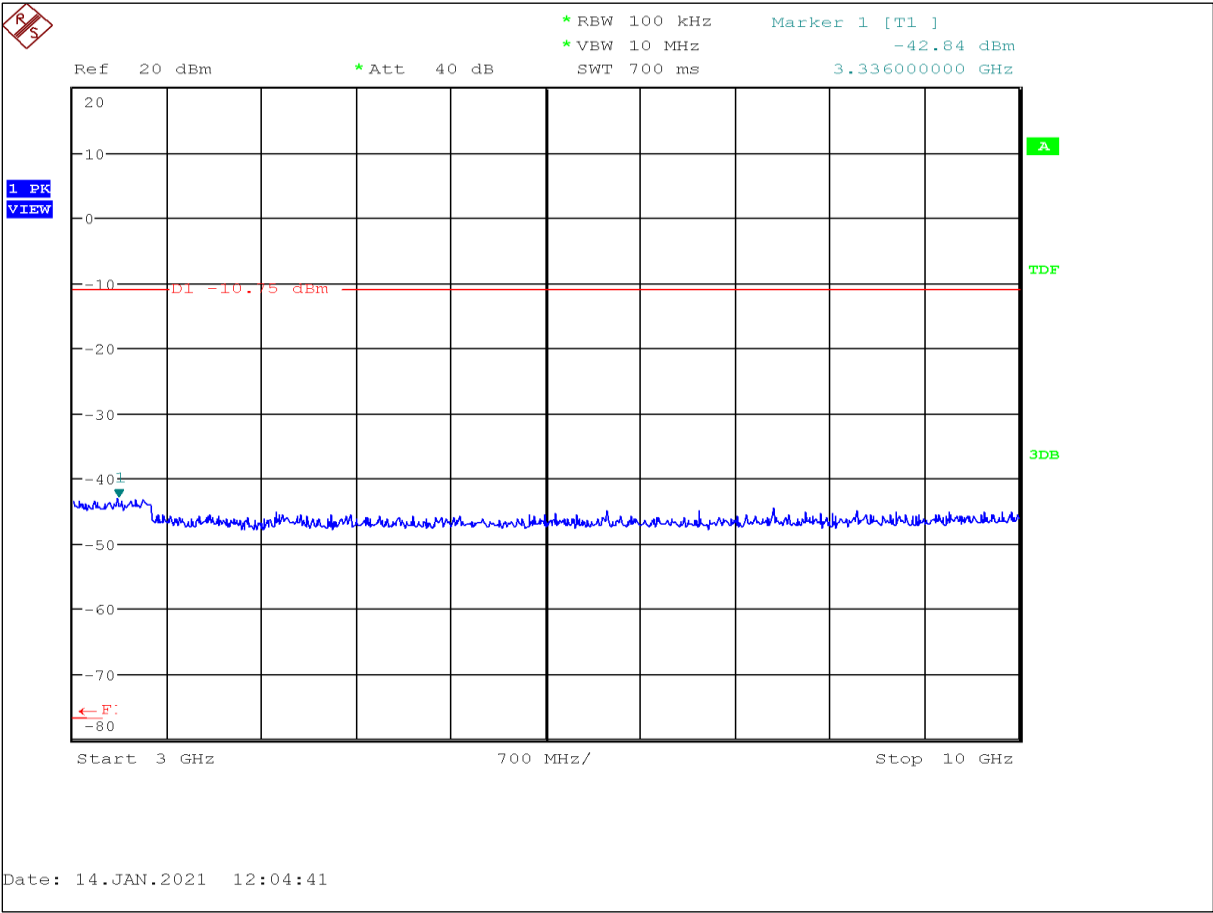
Date: 14.JAN.2021 11:53:03



D17_20dBc_BW_CW_ChMiddle_908_5MHz

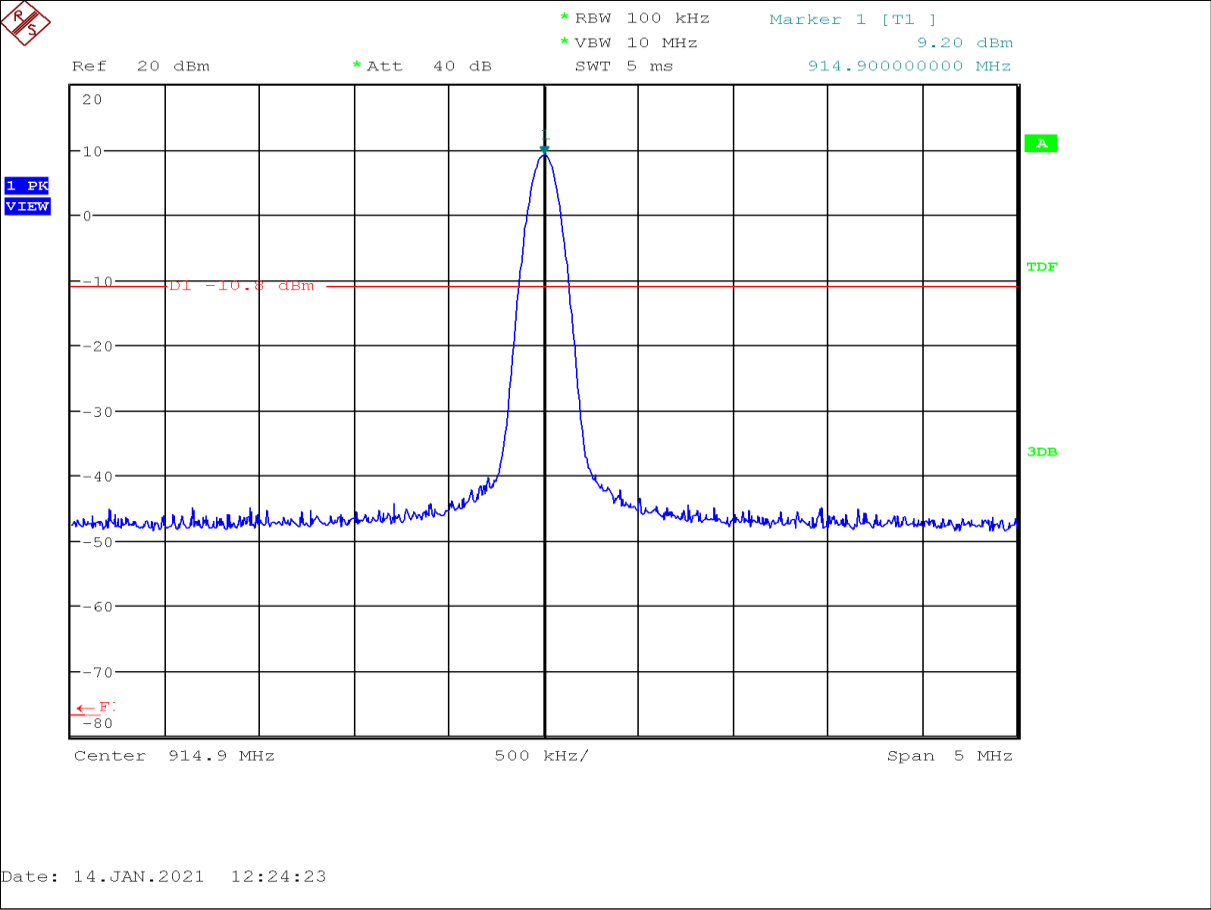


D18_20dBc_BW_CW_ChMiddle_908_5MHz



1.4.3 Channel High

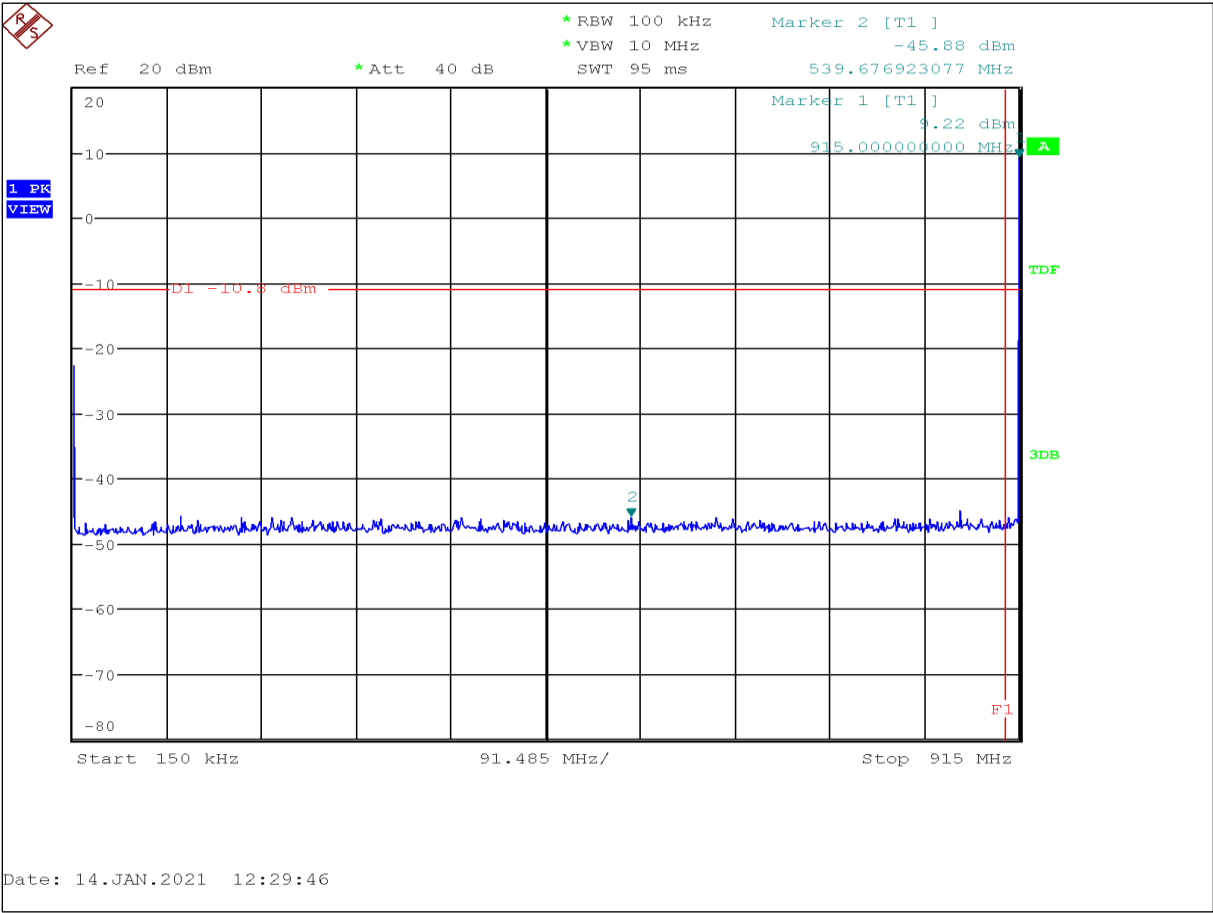
D19_20dBc_ChHigh_914_9MHz



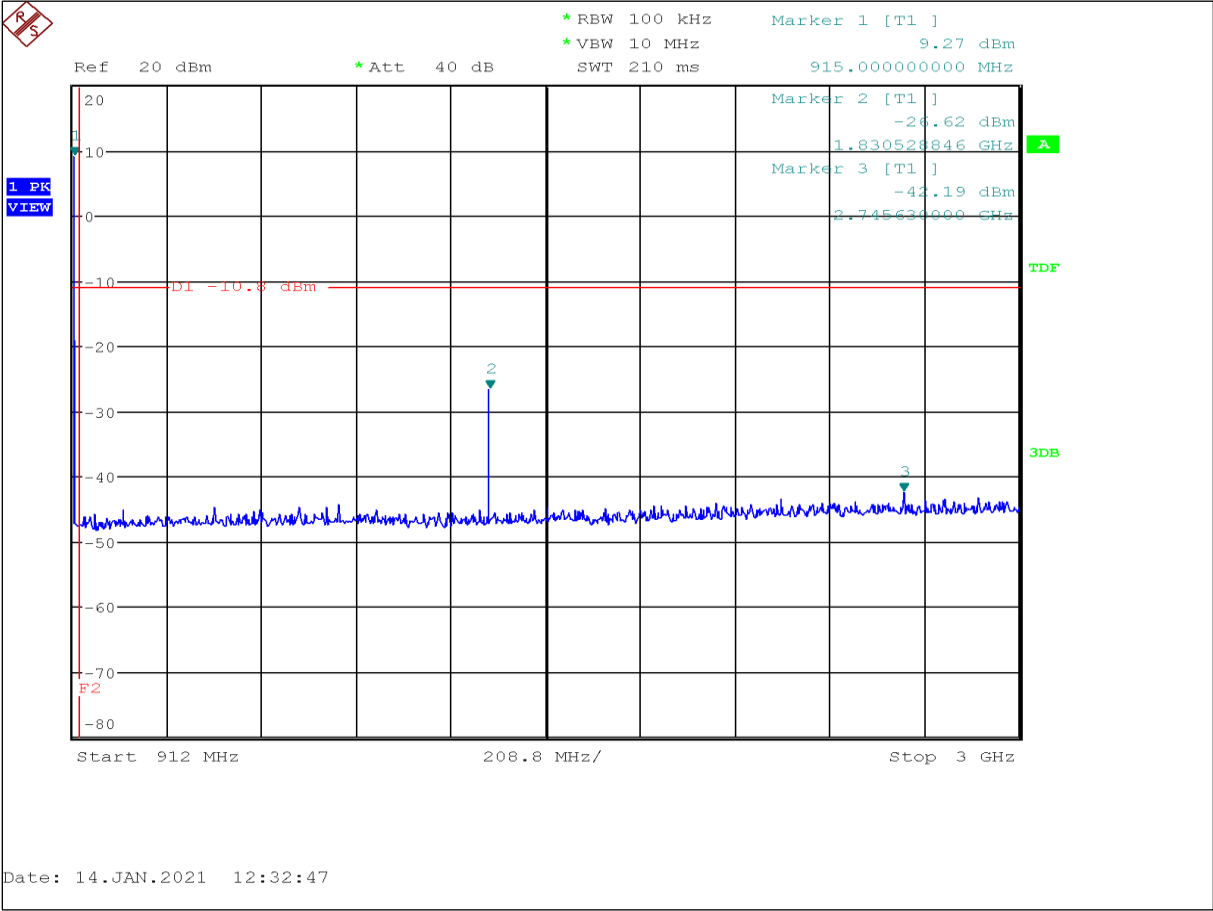
Reference carrier measurement



D20_20dBc_ChHigh_914_9MHz



D21_20dBc_ChHigh_914_9MHz



Ref 20 dBm *Att 40 dB SWT 700 ms 3.378000000 GHz

*RBW 100 kHz Marker 1 [T1] -42.21 dBm

*VBW 10 MHz -42.21 dBm

Marker 2 [T1] -44.34 dBm

Marker 3 [T1] -43.86 dBm

1 PK VIEW

DI -10.8 dBm

1 2 3

TDF

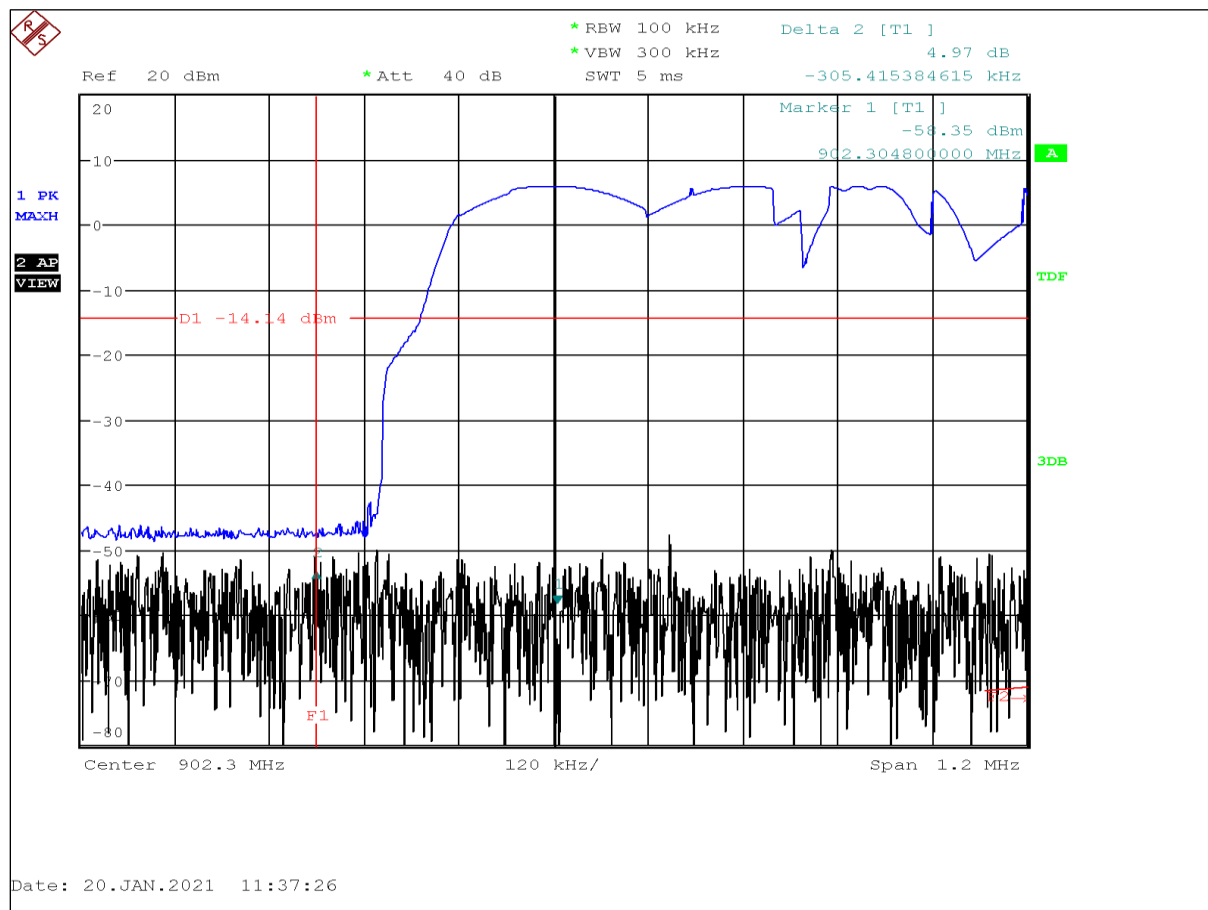
3DB

Start 3 GHz 700 MHz/ Stop 10 GHz

← F: -80

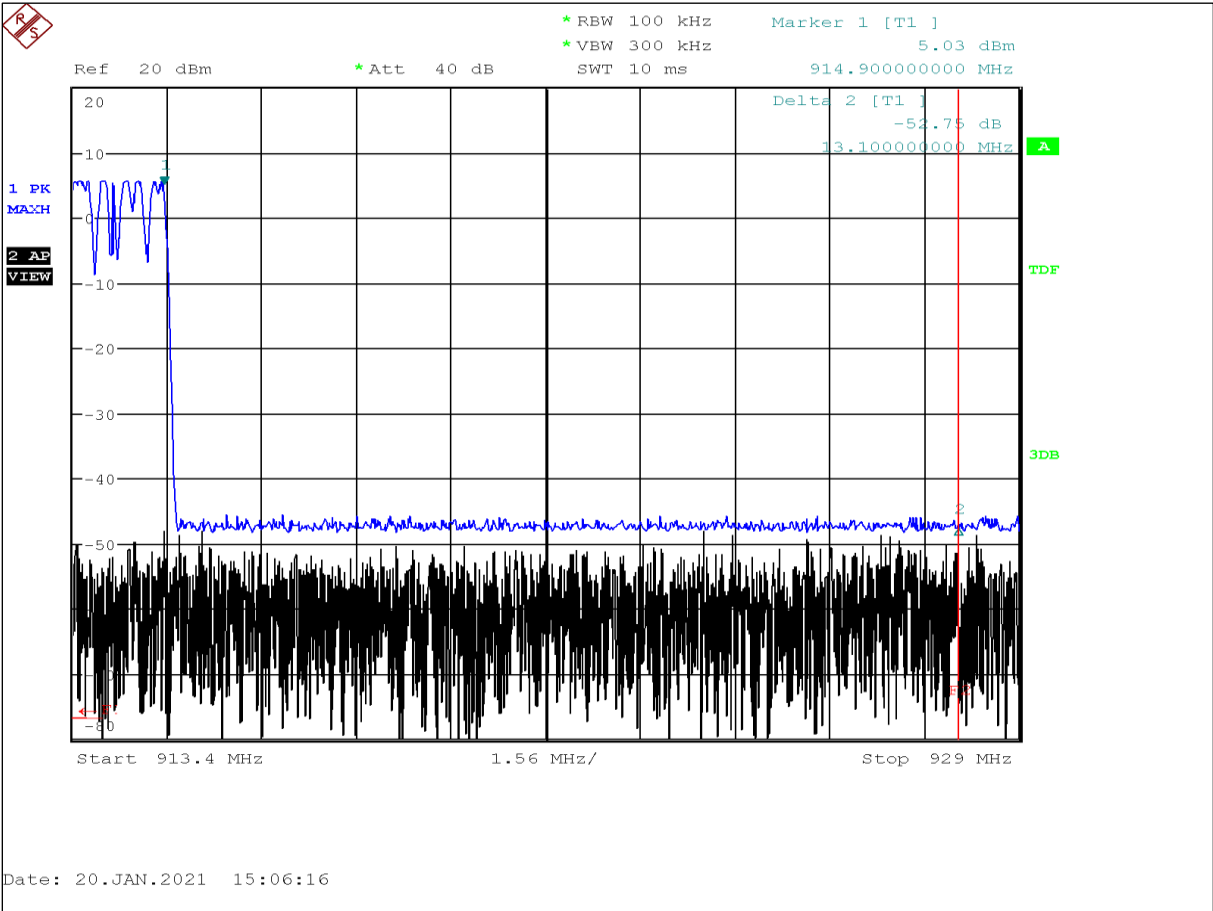
1.4.4 Hopping mode emissions at band edge

D23_BE_low_hopping_Mode



Band-Edge at low channel

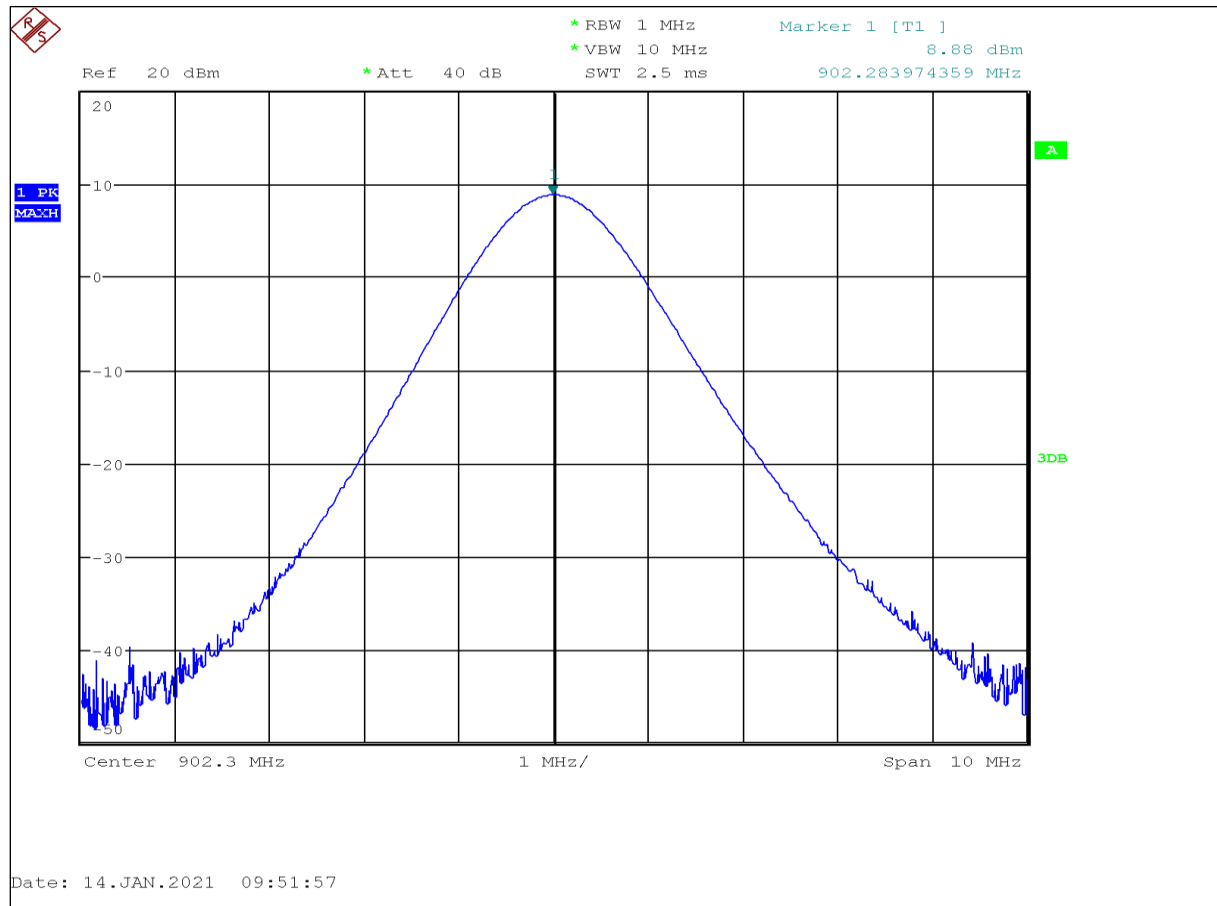
D24_BE_High_hopping_Mode



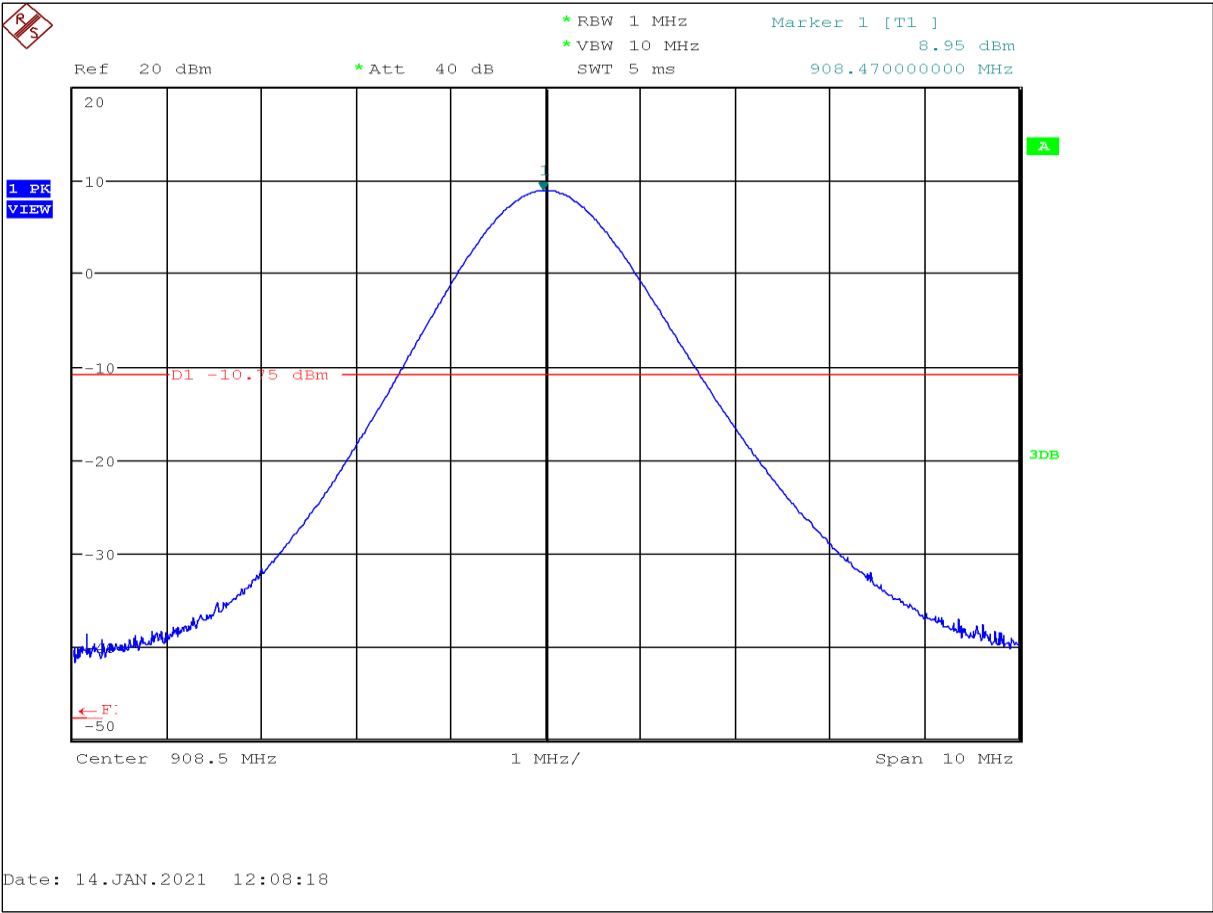
Band-Edge at High channel

1.5 Conducted RF-Power

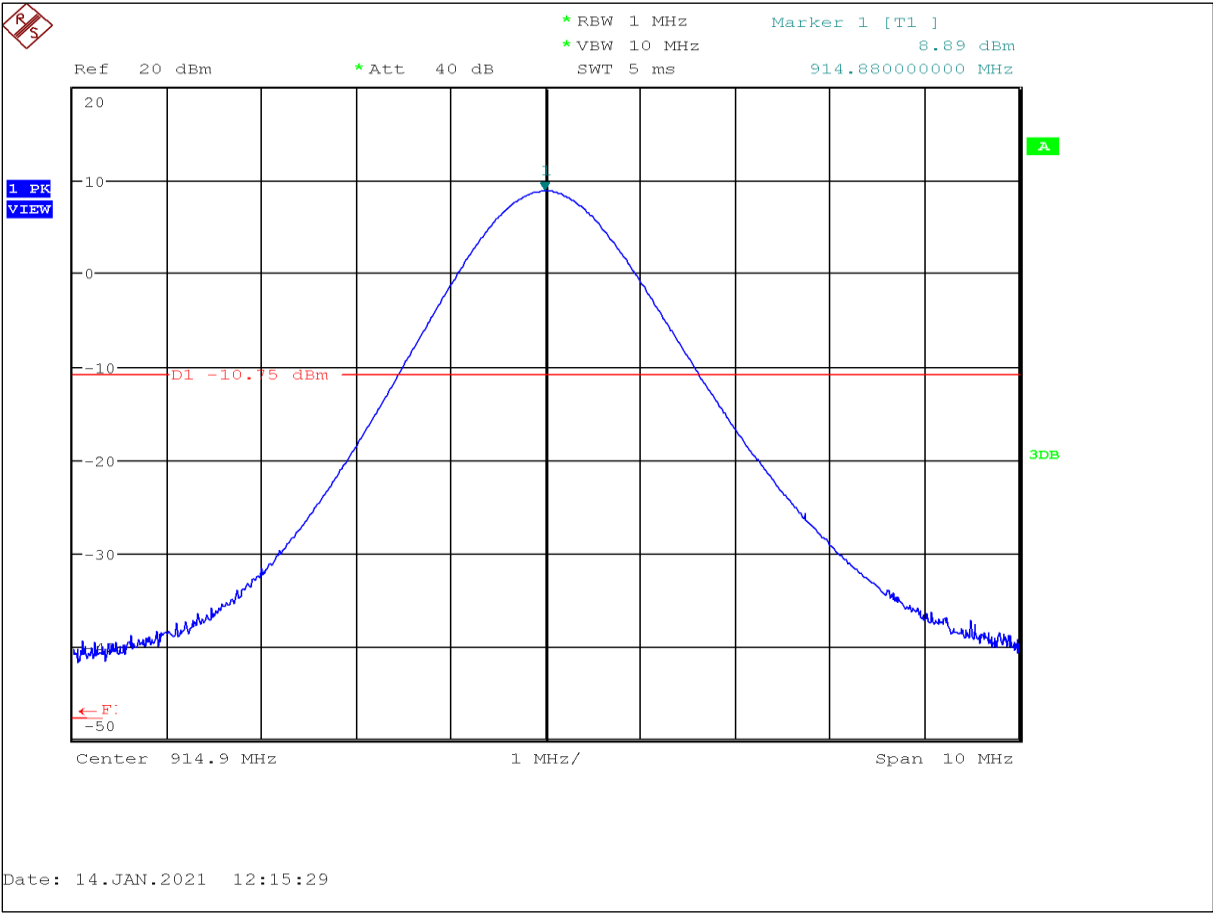
D01_PWRc_Ch1_902_3MHz



D02_PWRc_ChMid_908_5MHz

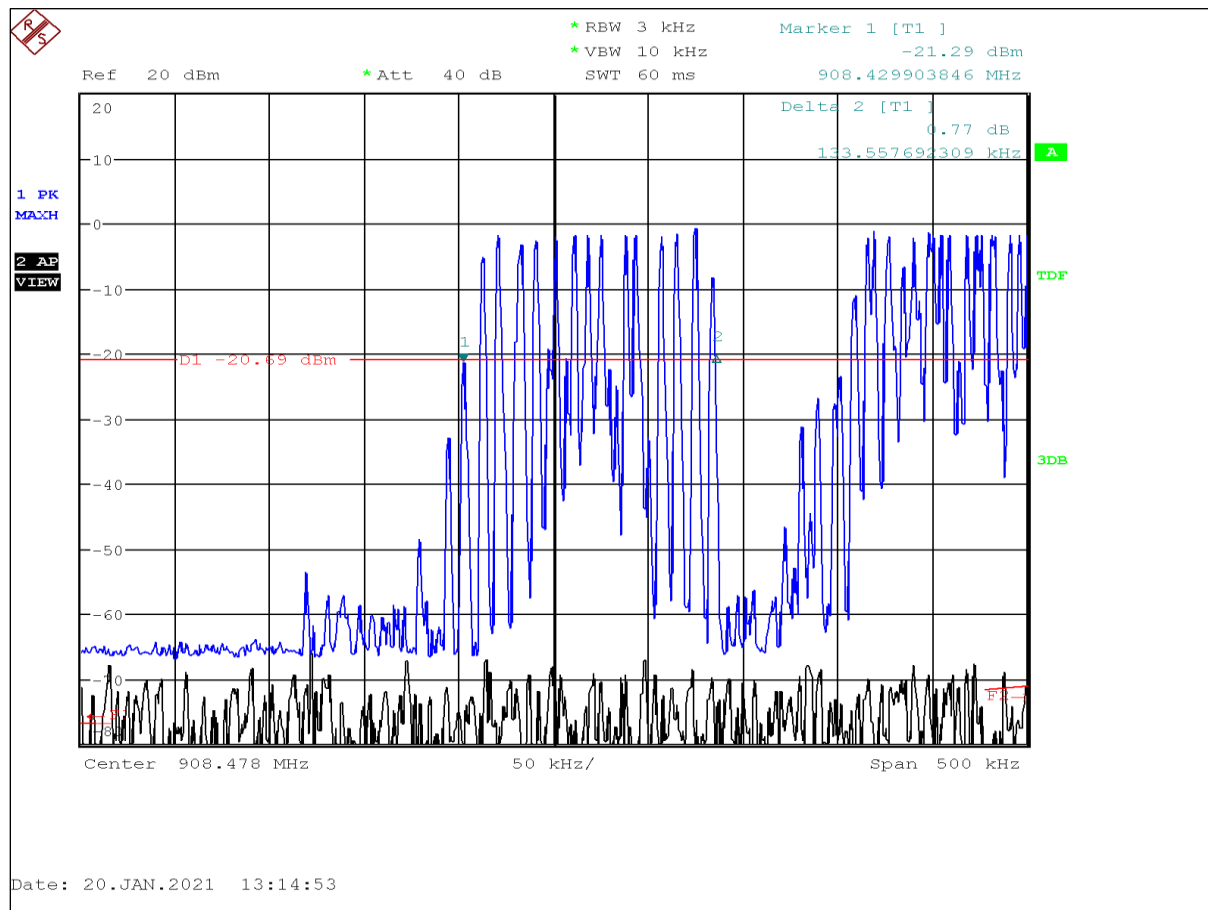


D03_PWRc_ChHigh_914_9MHz



1.6 20dB Bandwidth

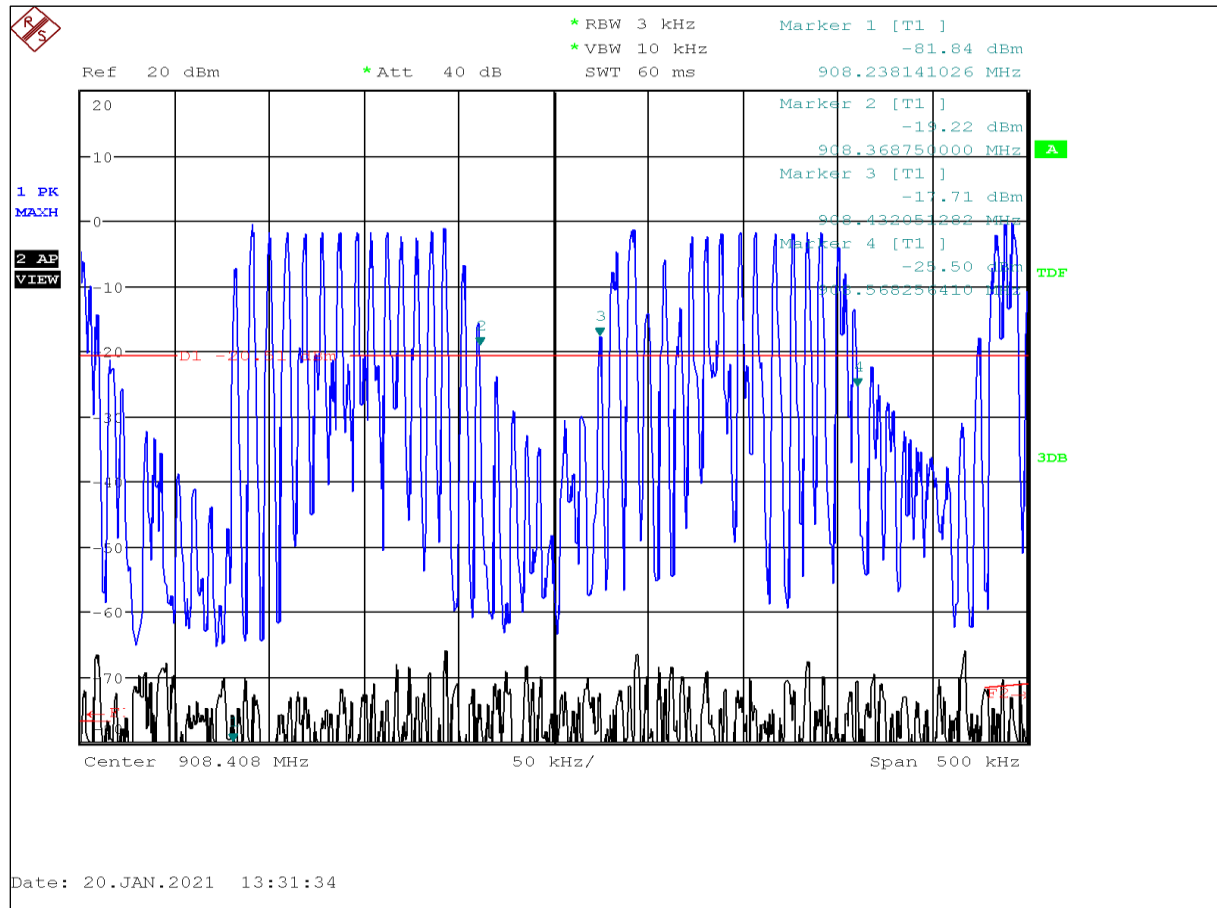
20dB_BW



Middle channel measurement: 20dB bandwidth

1.6.1 Carrier frequency separation

Hopping_Ch_Separation



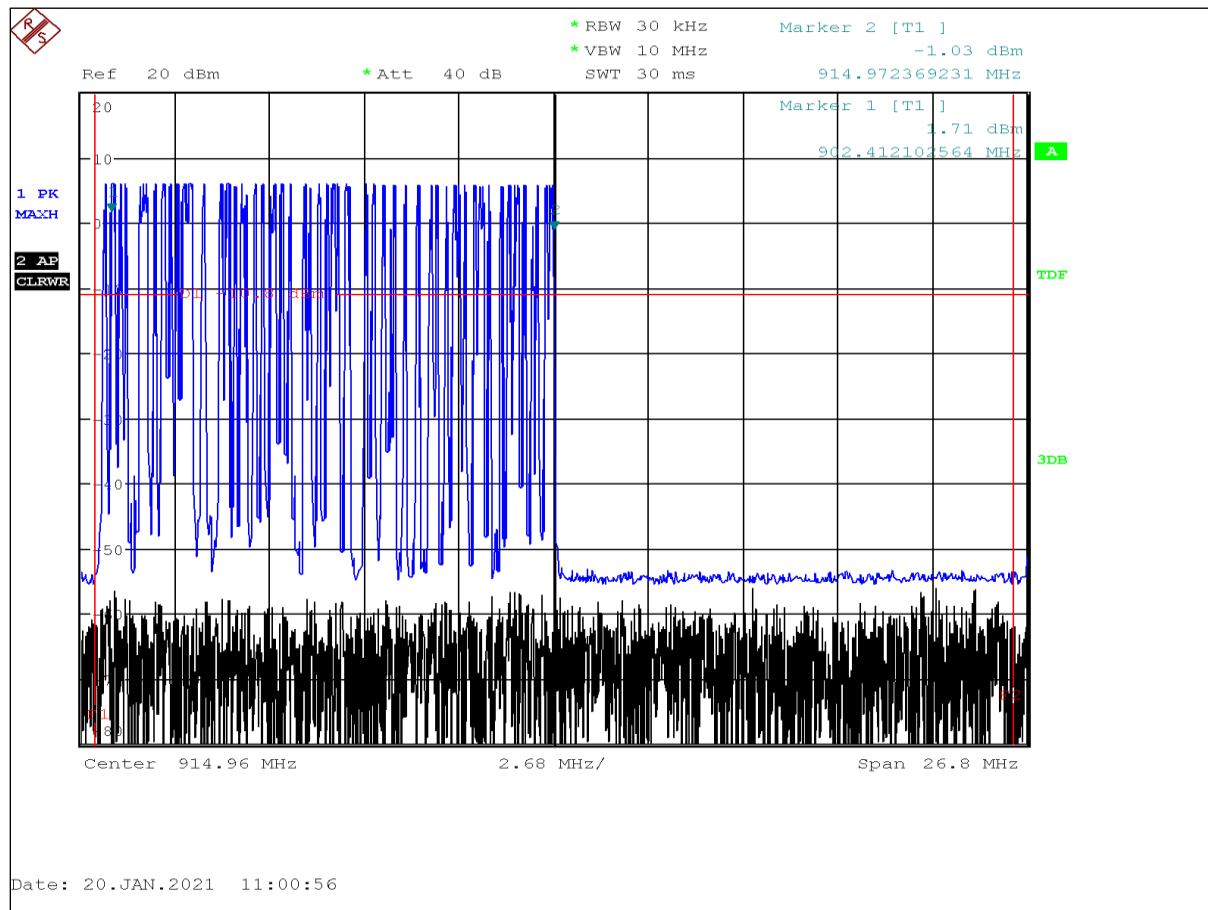
Reference points are suitable Marker2 placed on central hop channel and marker 4 on right placed hop channel.

Difference:199.5064 kHz

Nominal stated value: 200kHz

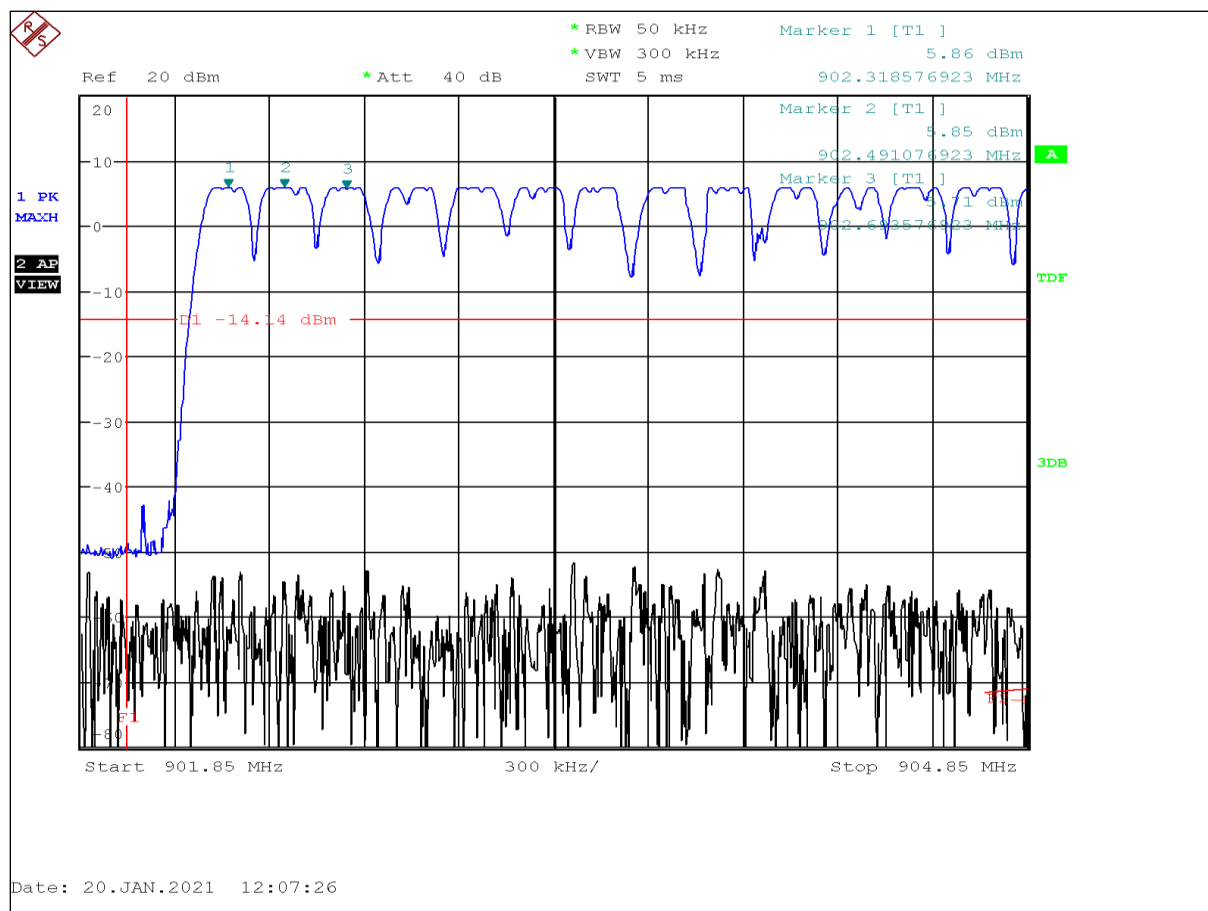
1.6.2 Hopping channel numbers

Hopping_channels_overview



Overview: channels situated between 902.3MHz and 914.9MHz

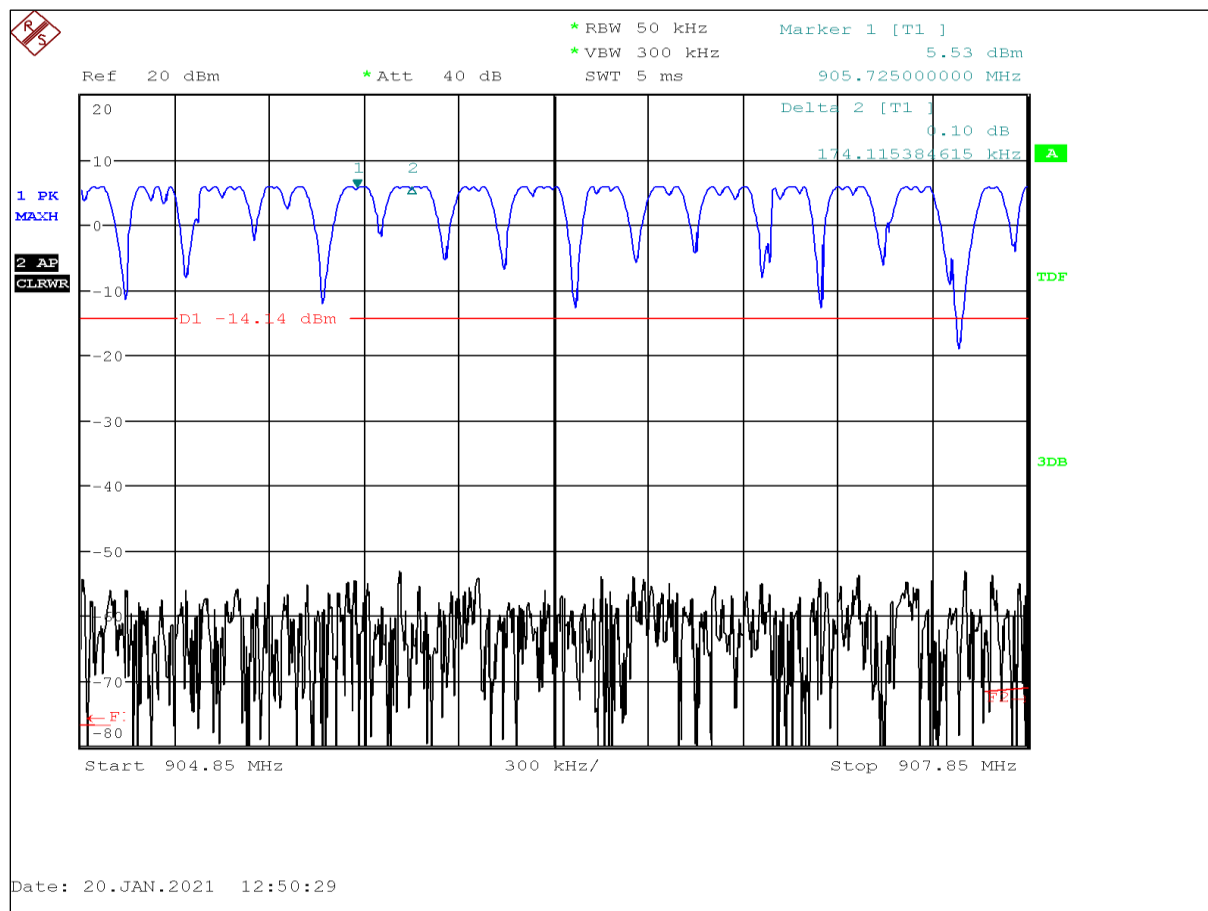
Hopping_Channel_no_split1



View1 of hopping channel: 13 Channels (except half visible last one)

Summation: 13 Channels

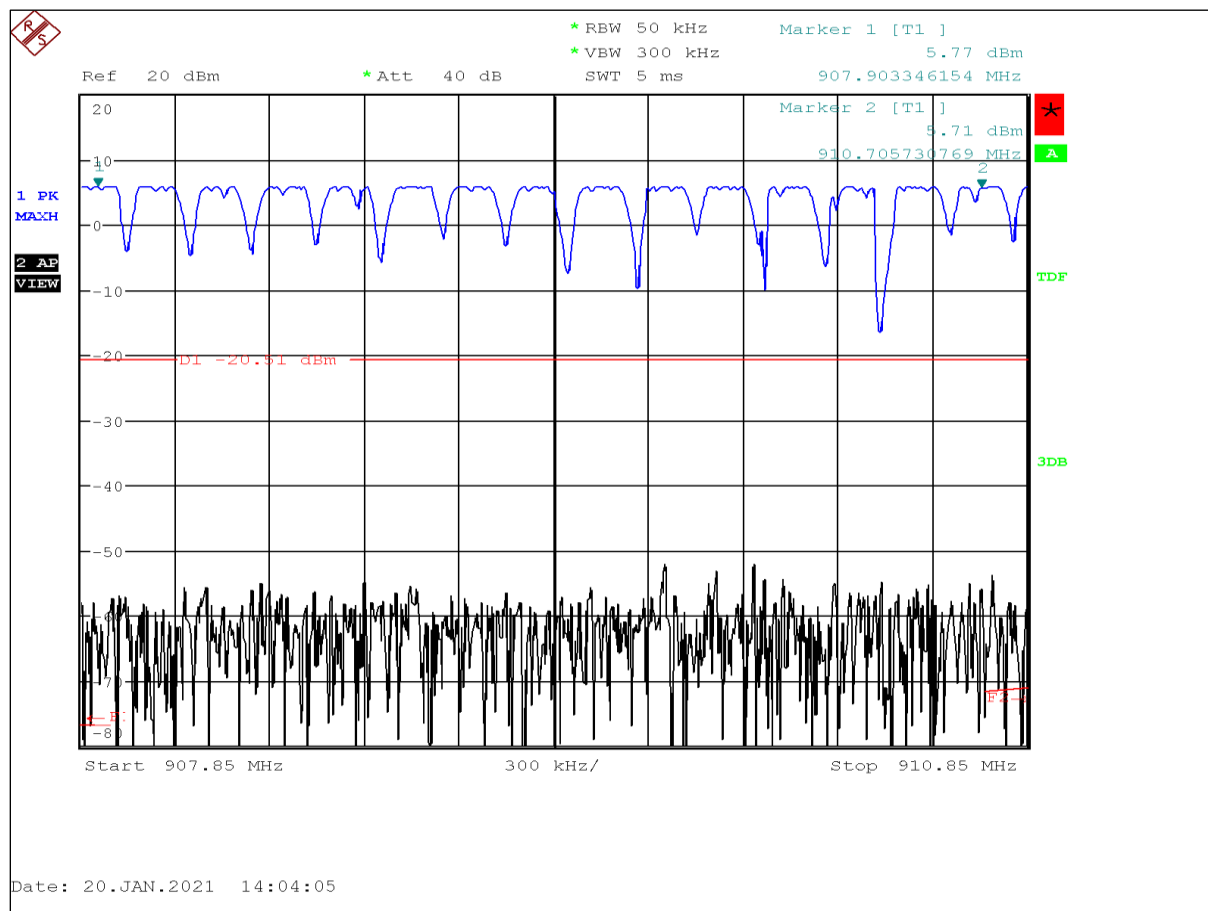
Hopping_Channel_no_split2



View2 of hopping channel: 15 Channels (including half visible one at beginning, except half visible last one)

Summation: 28 channels

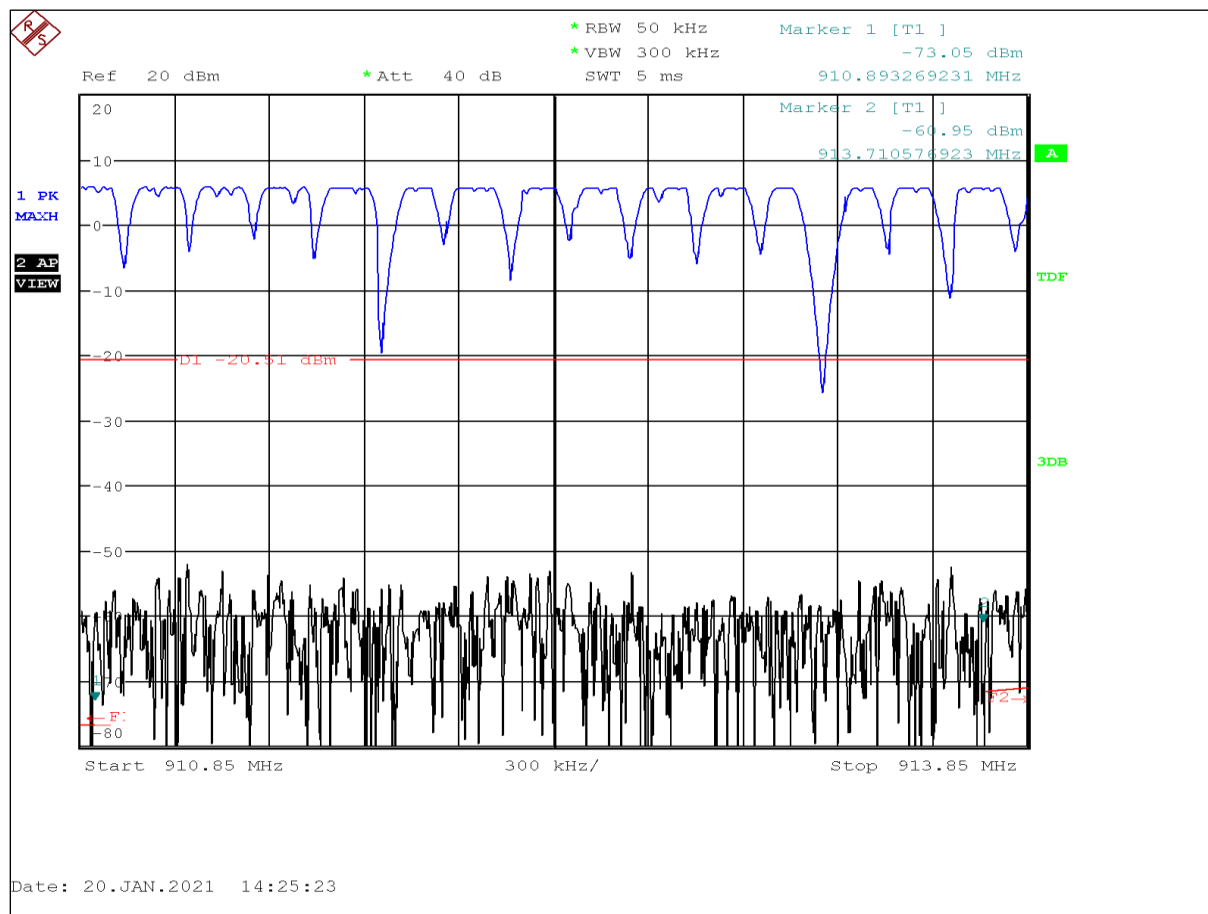
Hopping_Channel_no_split3



View3 of hopping channel: 15 Channels (including half visible one at beginning, except half visible last one)

Summation:43 Channels

Hopping_Channel_no_split4



View4 of hopping channel: 15 Channels (including half visible one at beginning, except half visible last one)

Summation:58 Channels

Ref 20 dBm *Att 40 dB SWT 5 ms

*RBW 50 kHz *VBW 300 kHz

Marker 1 [T1] -62.49 dBm 913.850000000 MHz

Marker 2 [T1] -62.49 dBm 913.850000000 MHz

1 PK MAXH

2 AF CLRWR

TDF

3DB

Start 913.85 MHz 300 kHz/ Stop 916.85 MHz

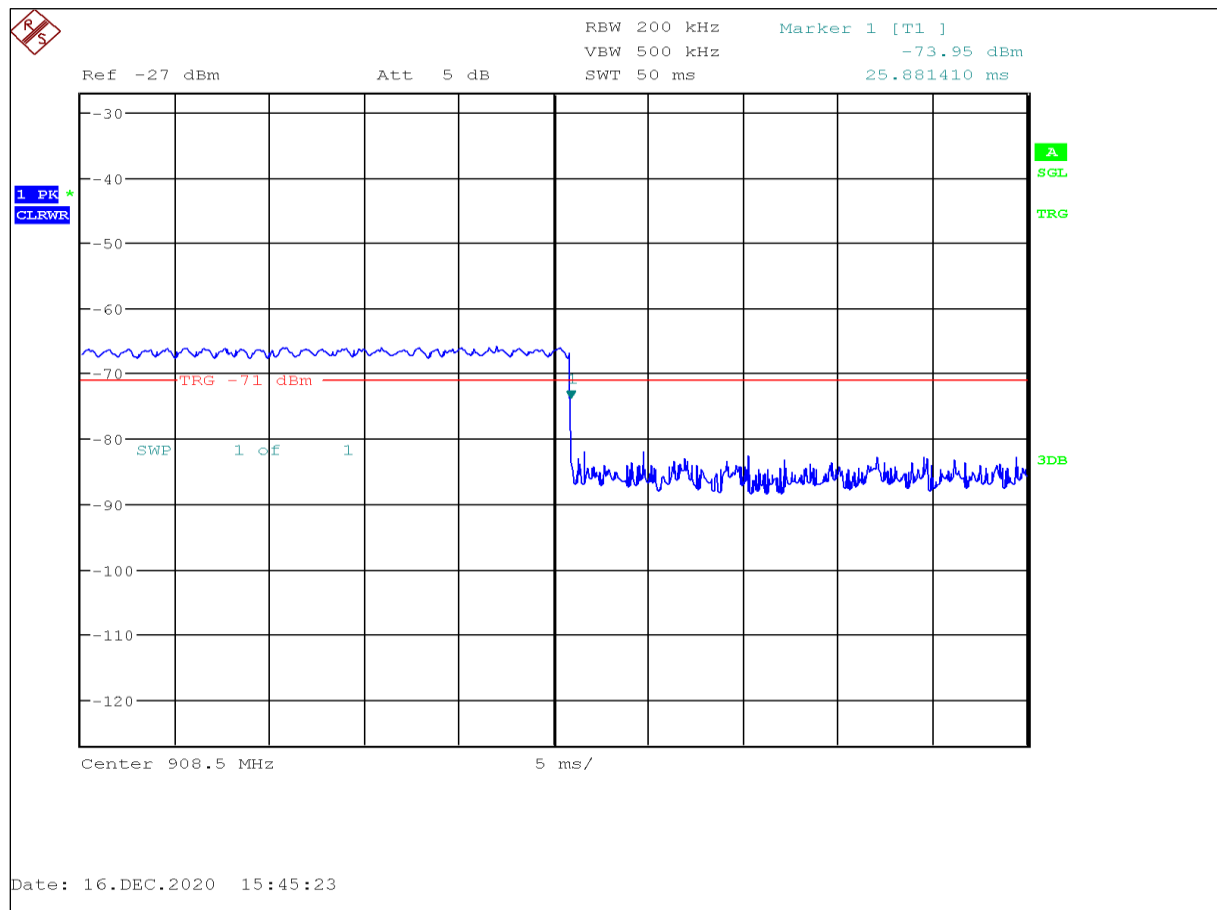
Date: 20.JAN.2021 14:49:06

Summation:64 Channels in total

1.7 Duty-Cycle

The EUT is sending TX-pulses, therefore a duty-cycle correction can be applied for average emission measurements, where applicable. (§15.35)

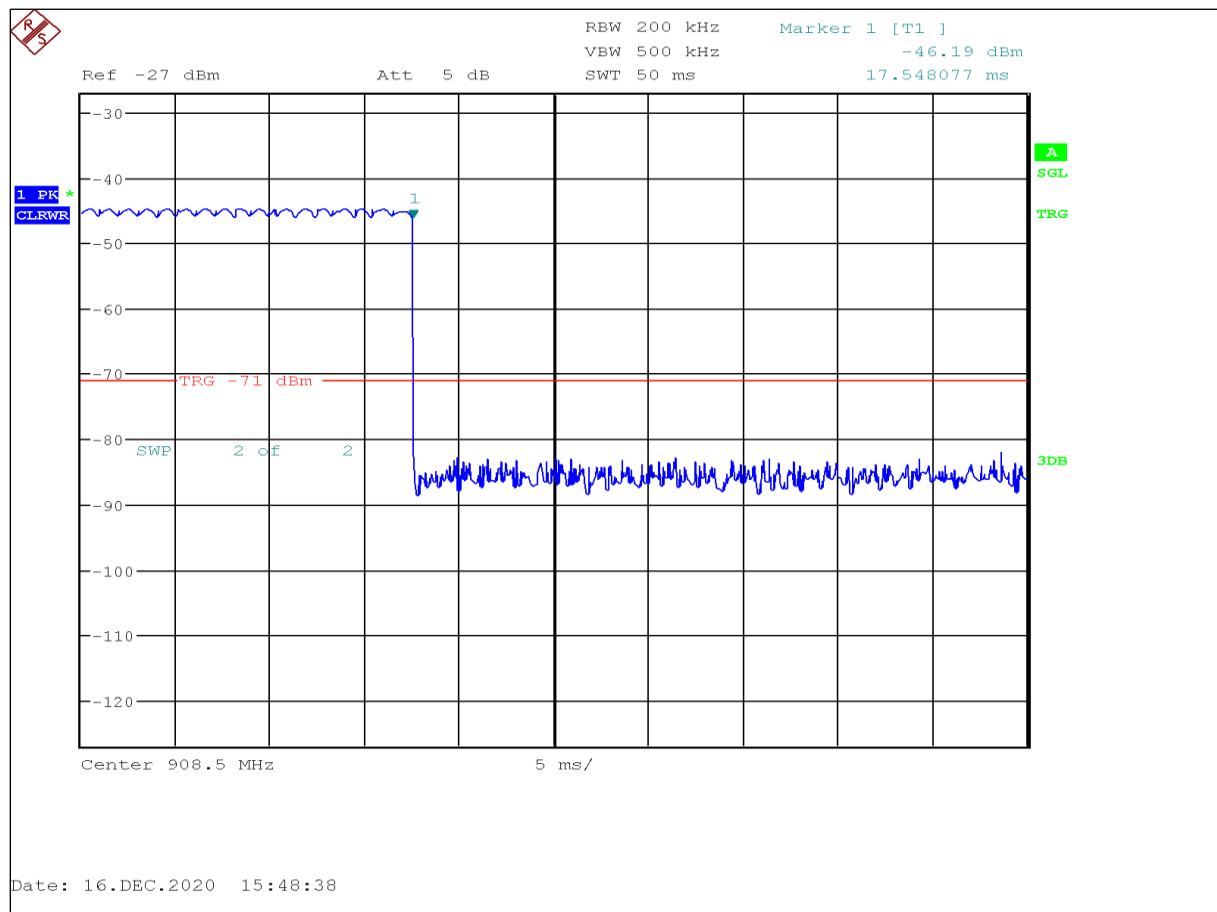
DC_Pulse1



Pulse type 1: One Pulse within 100ms period can be measured.

Correction Peak-Average regarding Field strength= $20 \cdot \log_{10}(25.88\text{ms}/100\text{ms}) = -11.74\text{dB}$

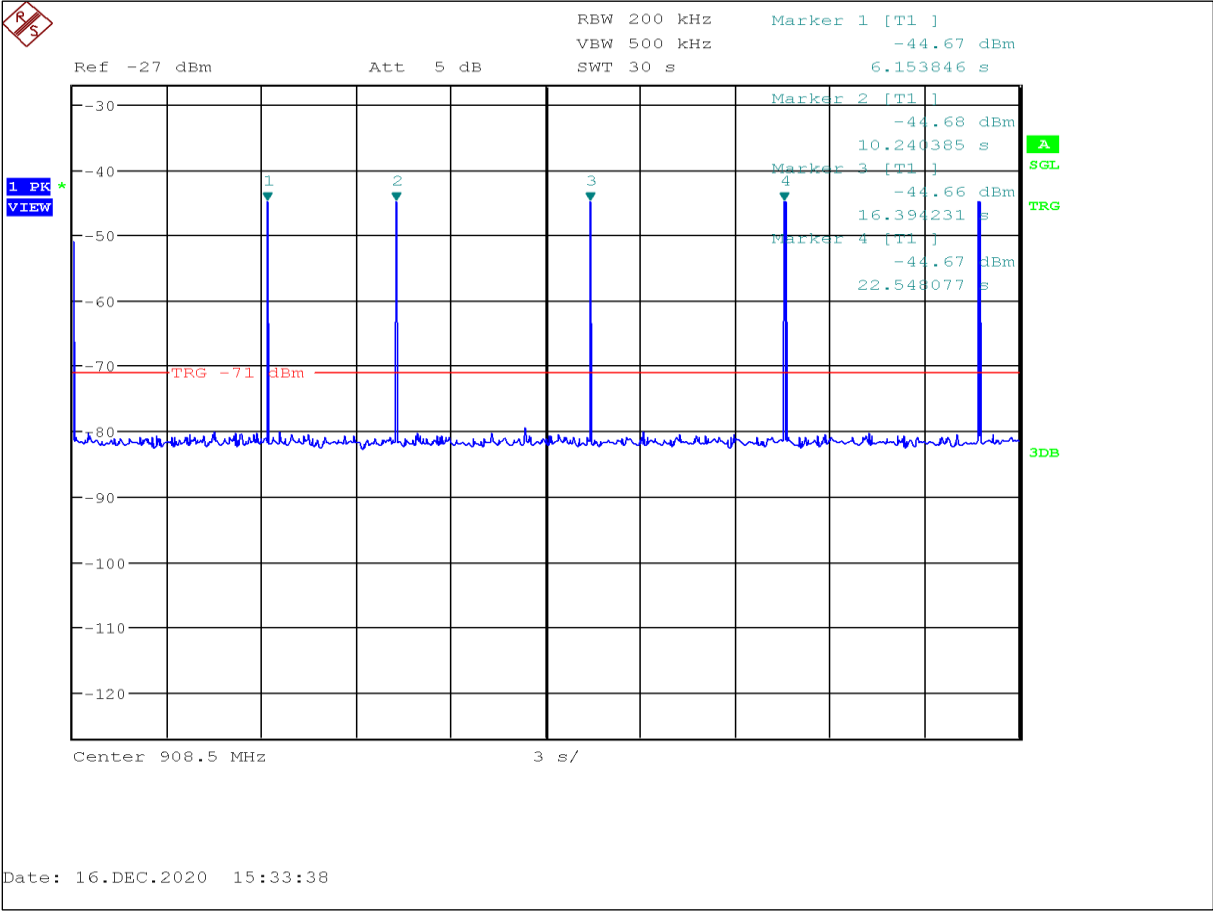
DC_Pulse2



Type Pulse2: One Pulse within 100ms period can be measured.

Correction Peak-Average regarding Field strength= $20 \cdot \log_{10}(17.54\text{ms}/100\text{ms}) = -15.12\text{dB}$
(not worst-case)

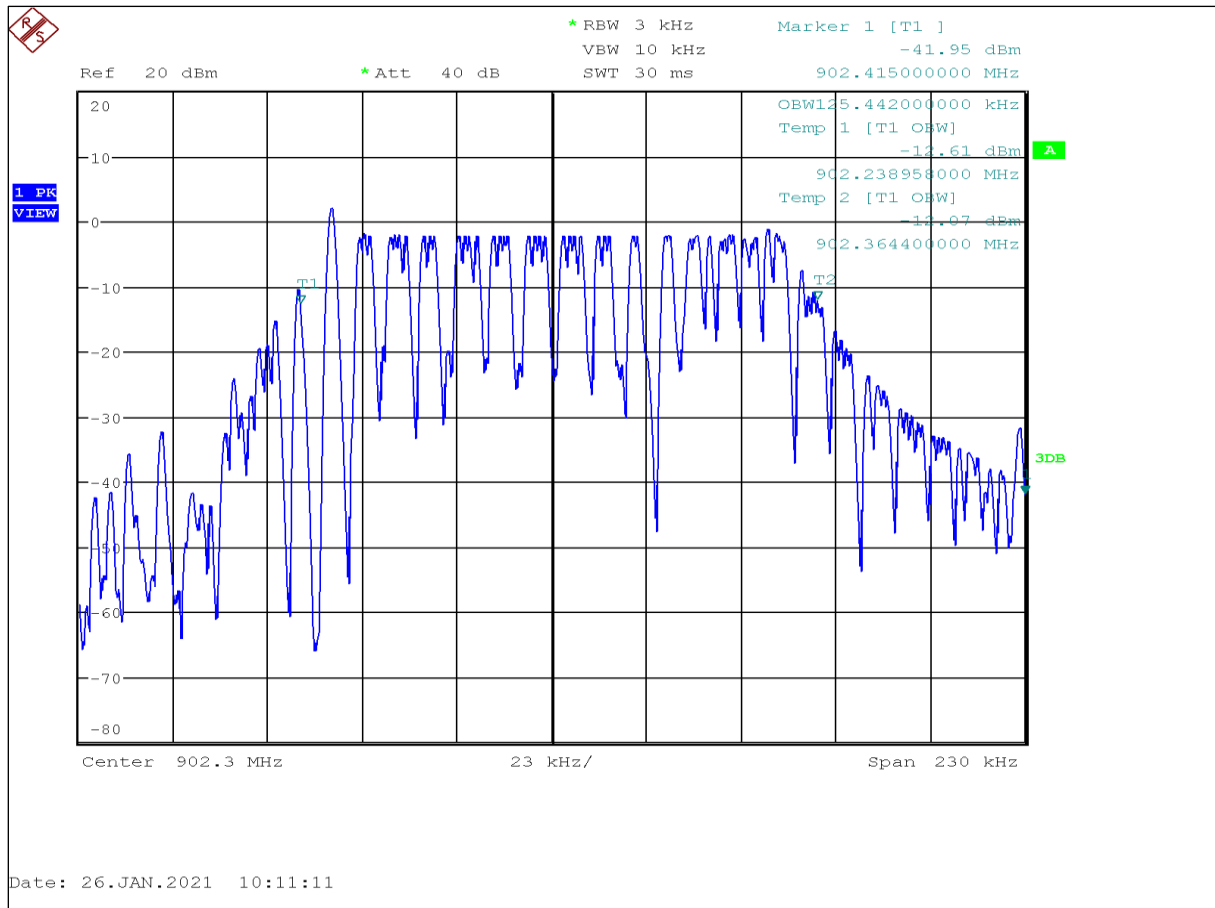
DC_30s_1



Repetitive pulses over time

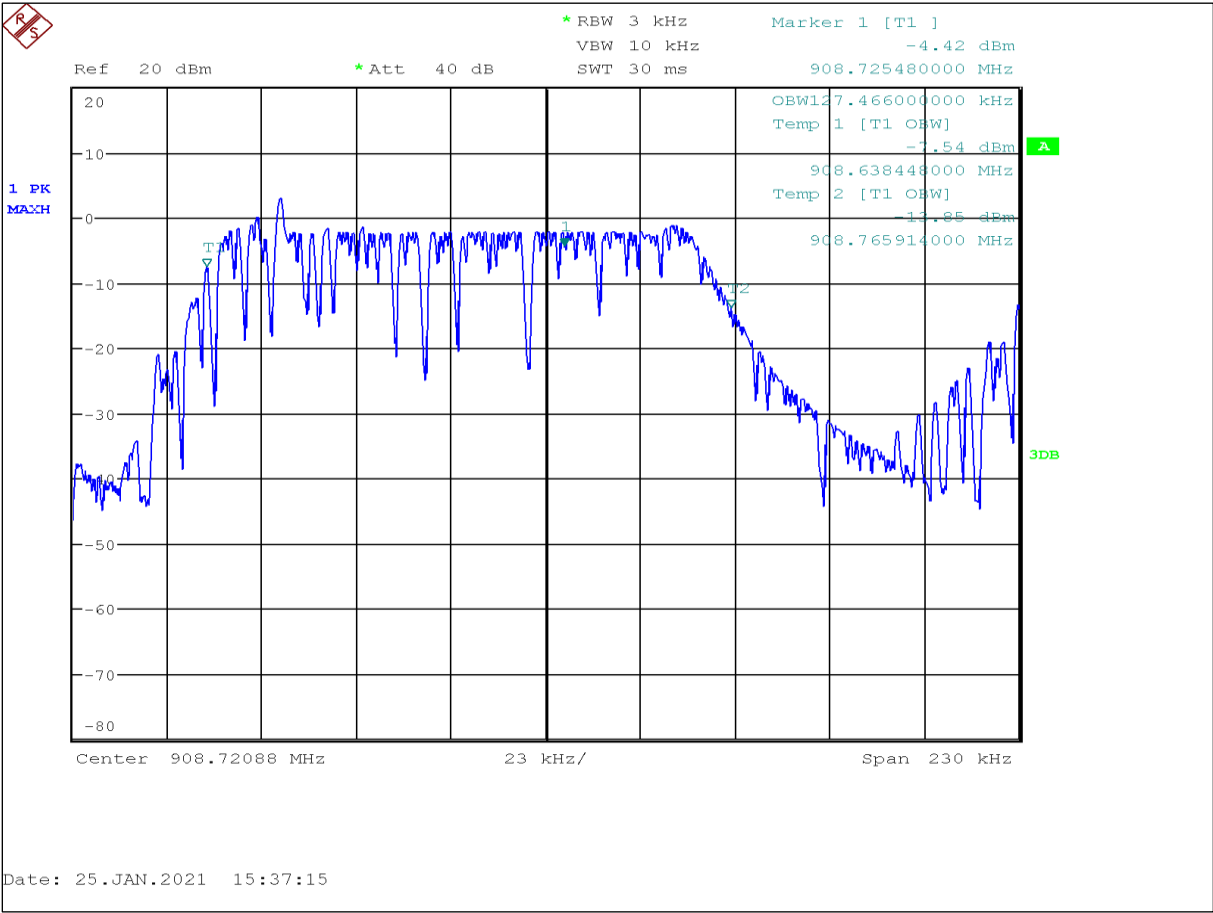
1.8 Occupied bandwidth

OBW_4_Ch_Low



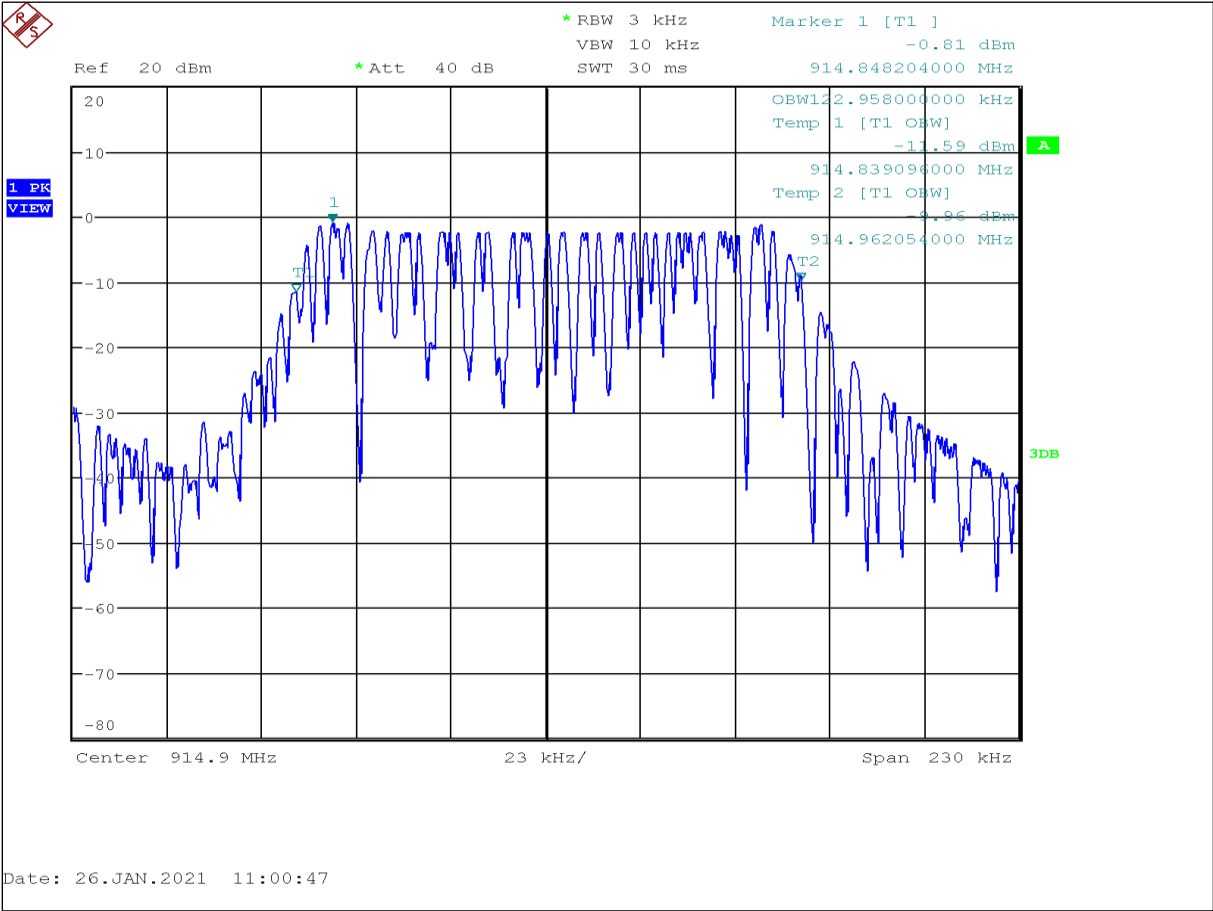


OBW_Ch_Middle



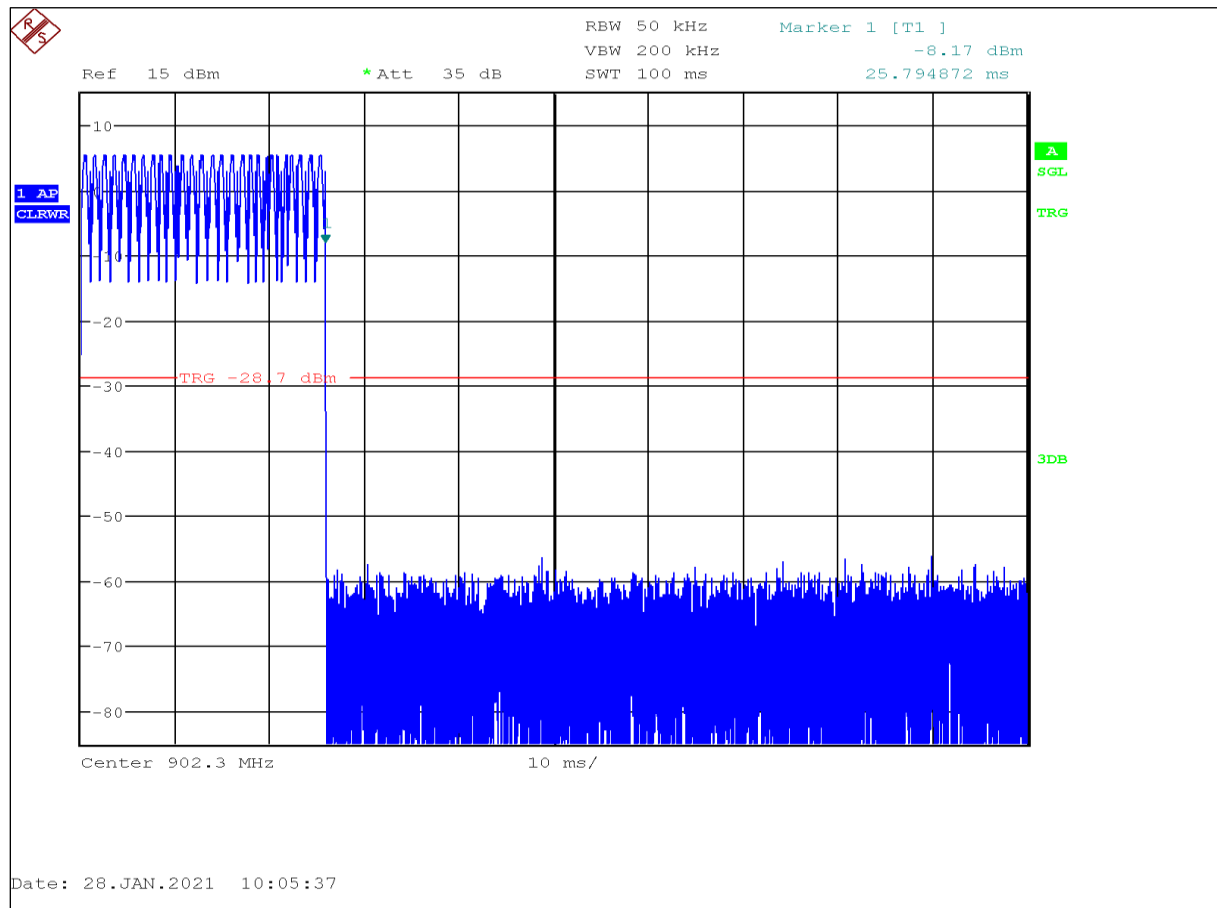


OBW_ChHigh



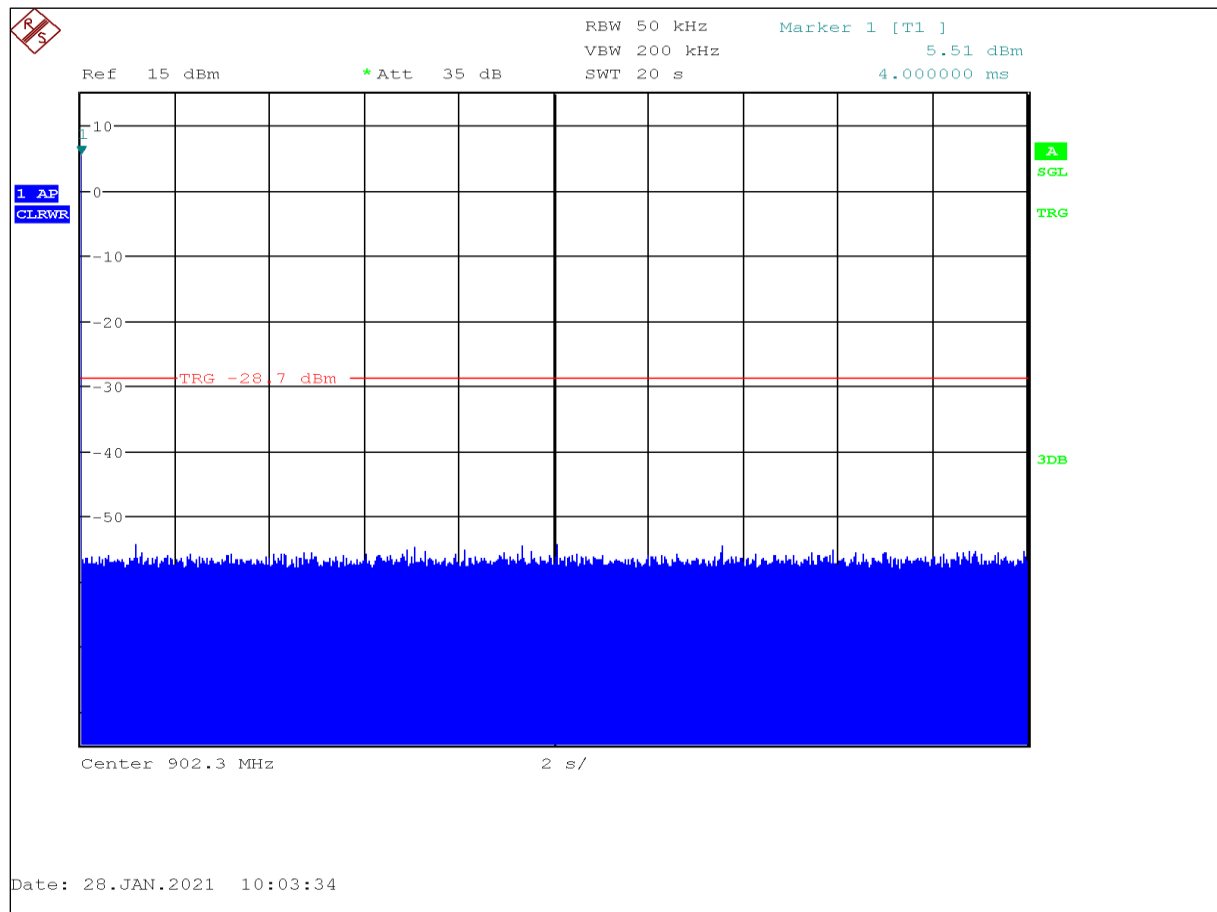
1.9 Timing of transmissions

ChLow_100msec



Burst transmission time: 25.79ms

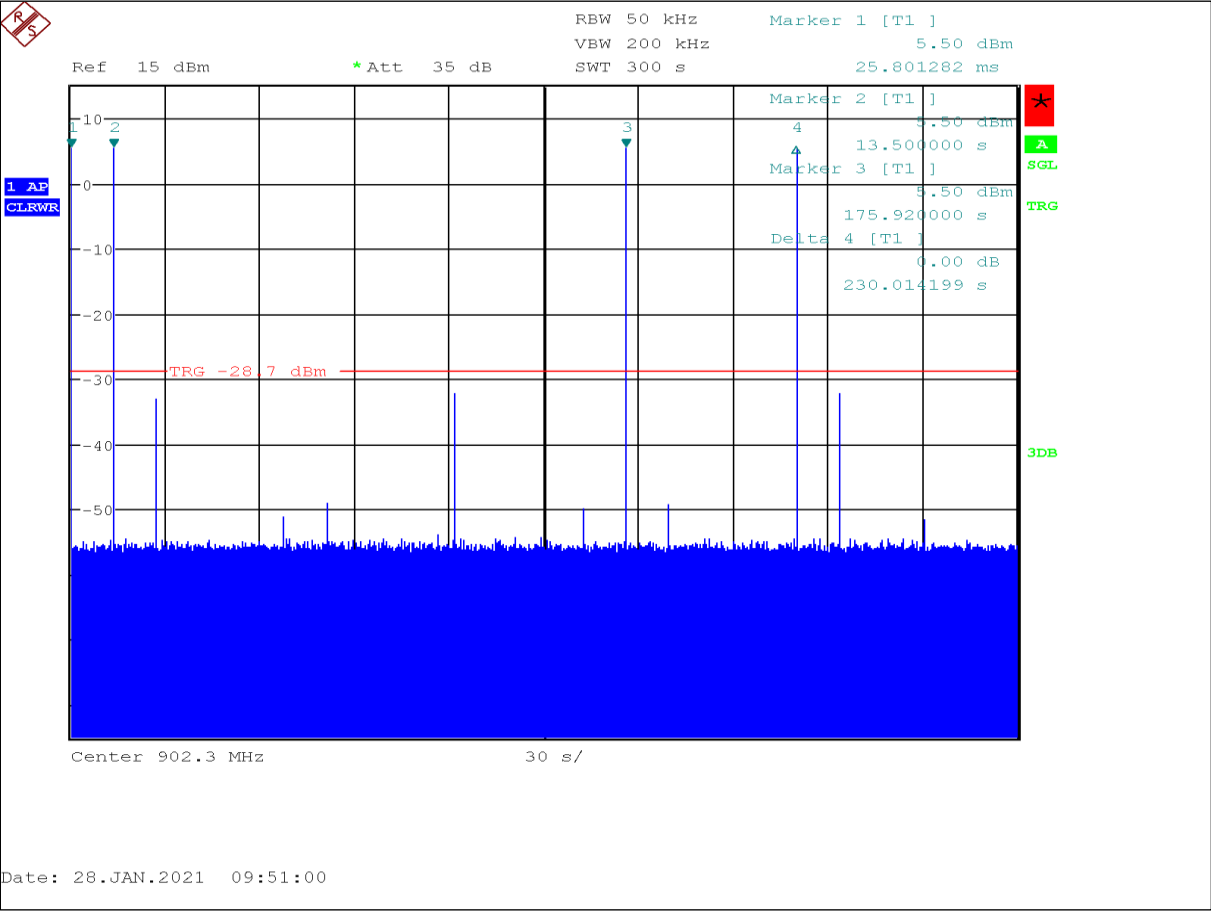
ChLow_20sec



Channel high: one burst within one 20seconds period: 25.79ms < 0.4 Sec -> Pass

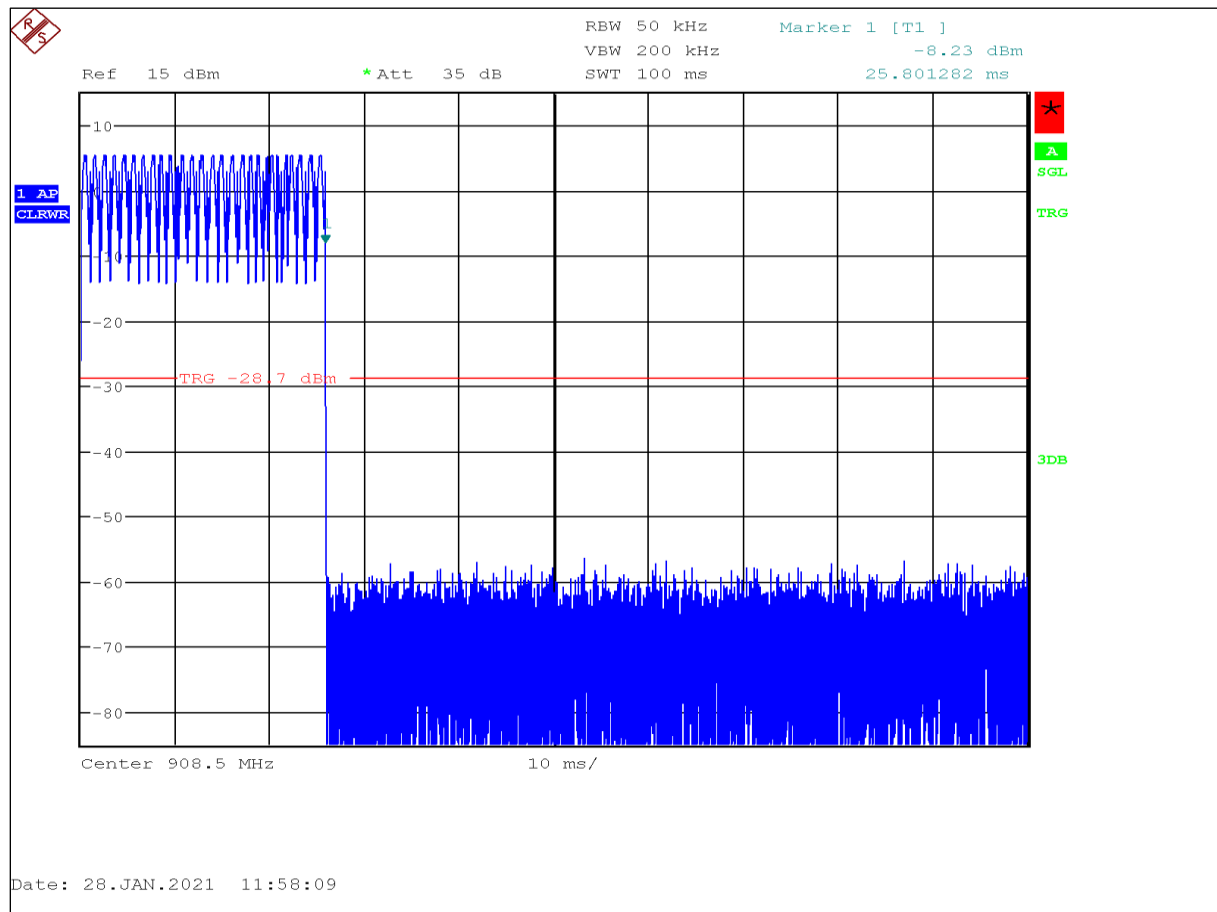


ChLow_300sec



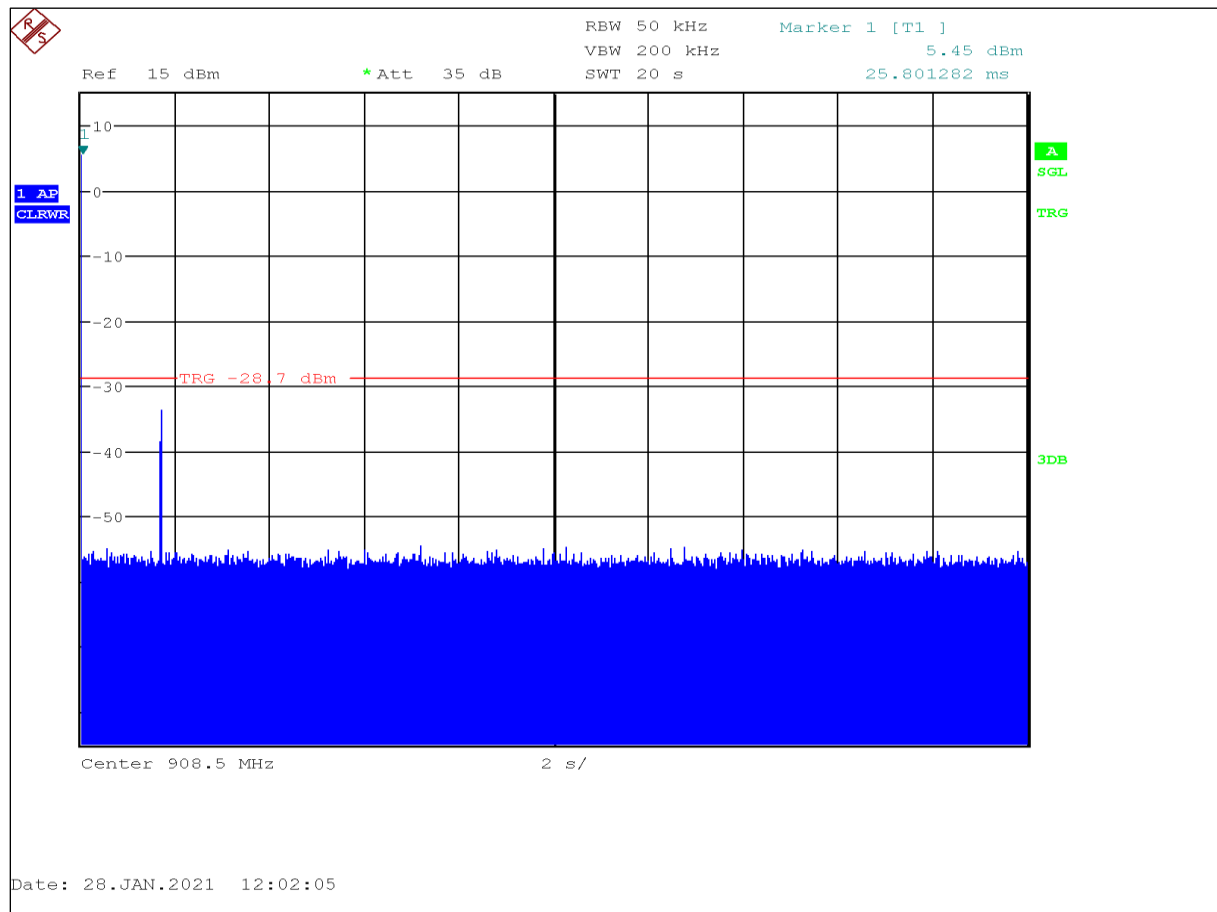
Burst timing over longer transmission period: very low duty-cycle

ChMiddle_100msec



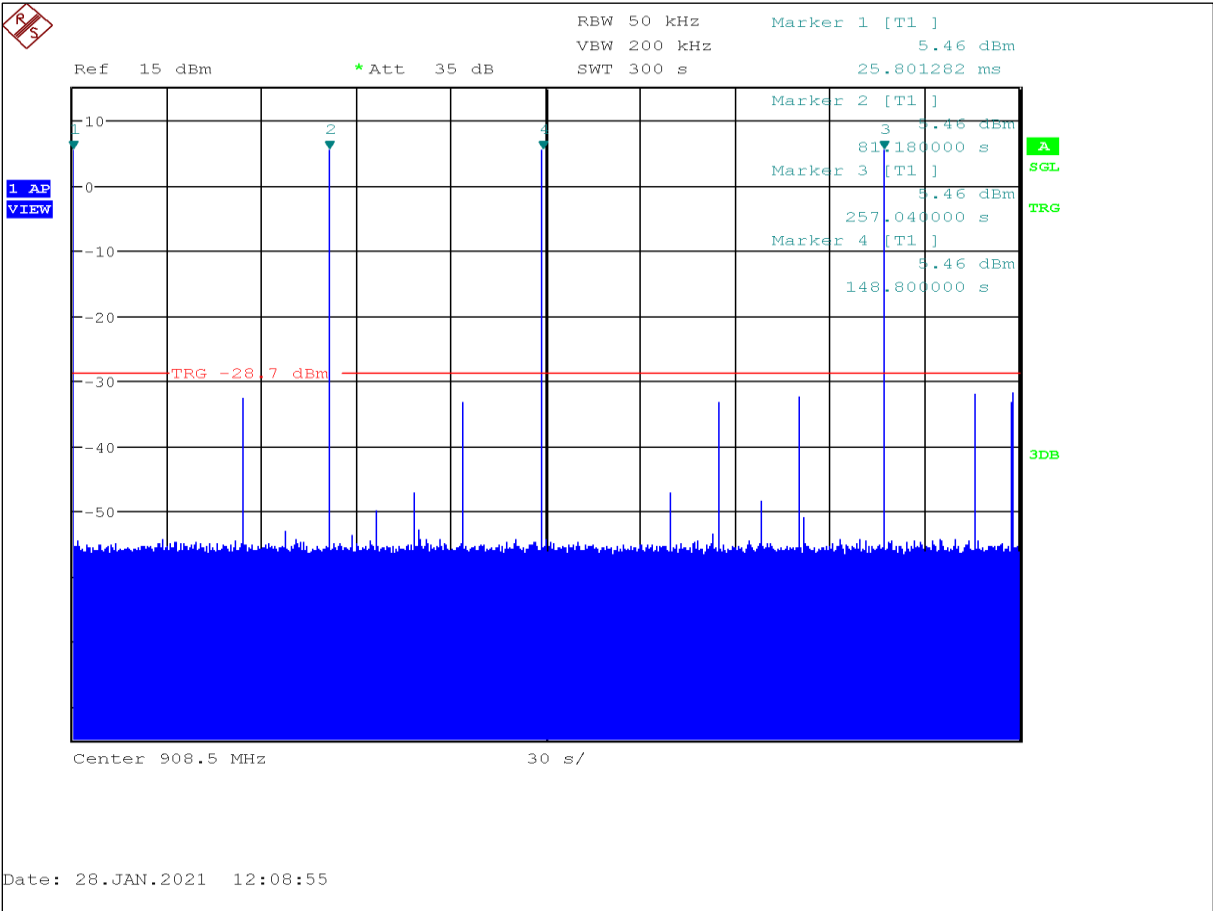
Burst transmission time: 25.80ms

ChMiddle_20sec



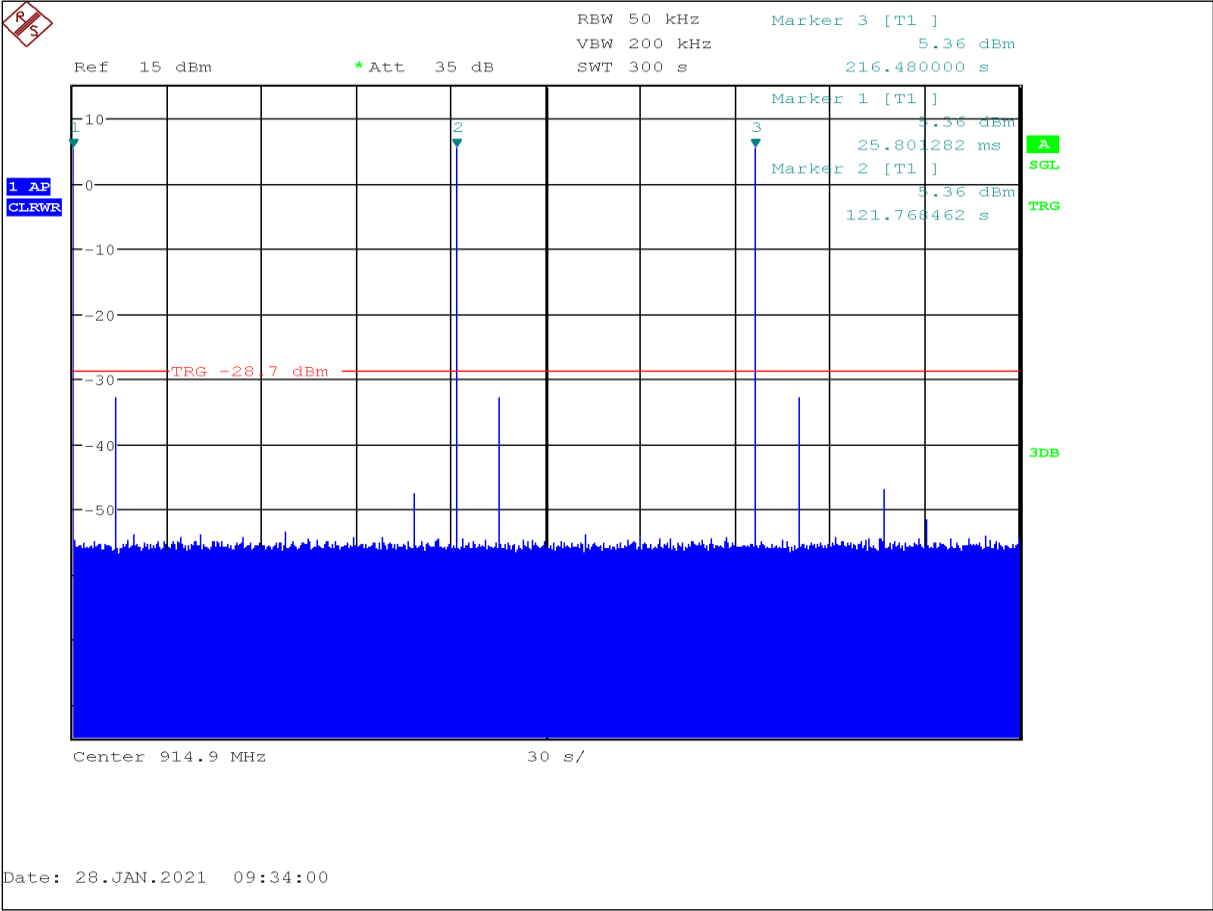
Channel middle: one burst within one 20seconds period: 25.80ms < 0.4 Sec -> Pass

ChMiddle_300sec



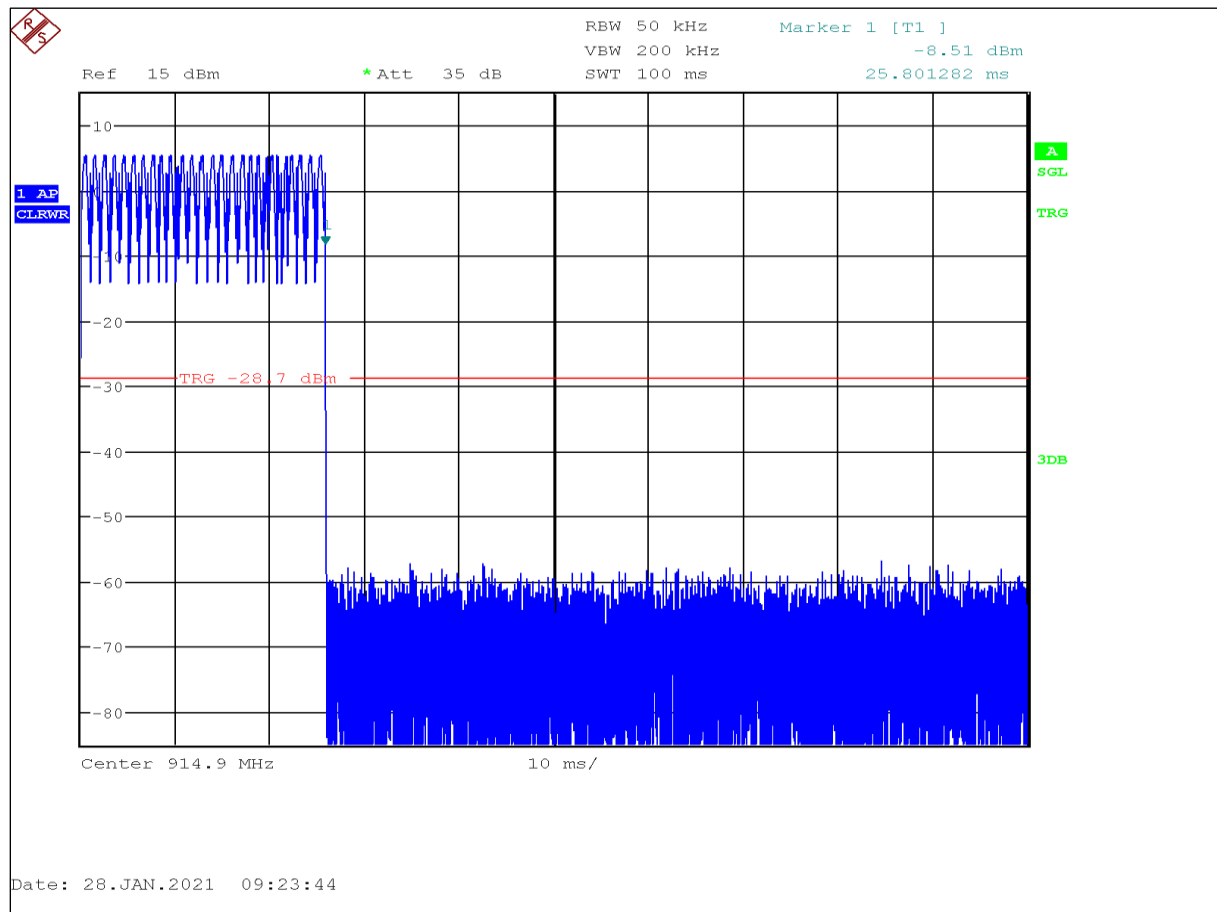
Burst timing over longer transmission period: very low duty-cycle

Bursts_ChHigh_300sec

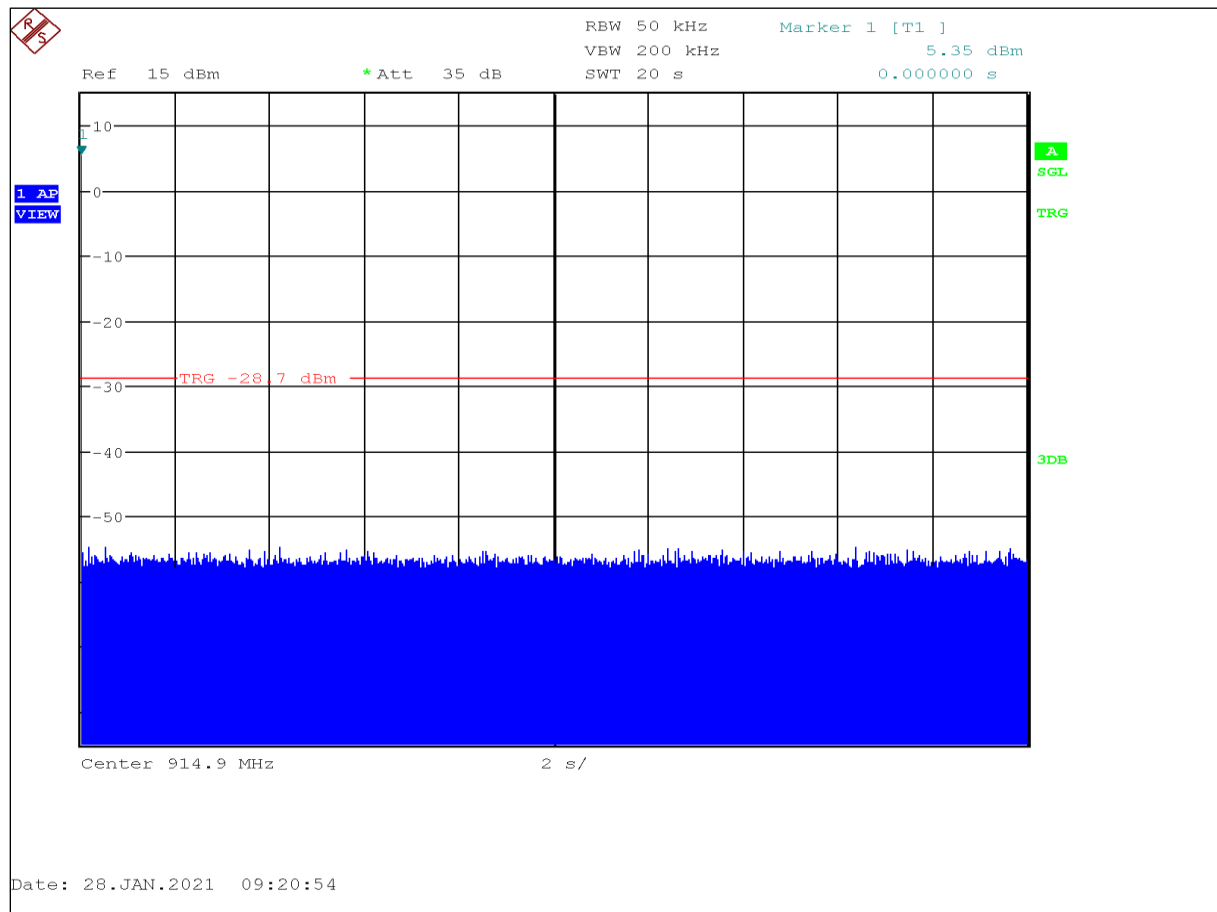


Burst timing over longer transmission period: very low duty-cycle

One_Burst_ChHigh_100msec



Burst transmission time: 25.80ms

One_Burst_ChHigh_20sec

Channel high: one burst within one 20seconds period: 25.80ms < 0.4 Sec -> Pass

End Of Annex 1