13   Summary of measurement results

☒	No deviations from the technical specifications were ascertained
☐	There were deviations from the technical specifications ascertained
☐	This test report is only a partial test report. The content and verdict of the performed test cases are listed below.

TC identifier	Description	verdict	date	Remark
RF-Testing	FCC: CFR Part 2 & Part 24 ISED: RSS-Gen, Issue 5 RSS 133, Issue 6 & SRSP-510, Issue 5	See table!	2022-04-14	-/-

13.1 Part 24/RSS-133: LTE band 2

Test Case	temperature conditions	power source voltages	C	NC	NA	NP	Remark
RF Output Power	Nominal	Nominal	☒	☐	☐	☐	-/-
Frequency Stability	Extreme	Extreme	☒	☐	☐	☐	-/-
Spurious Emissions Radiated	Nominal	Nominal	☒	☐	☐	☐	-/-
Spurious Emissions Conducted	Nominal	Nominal	☒	☐	☐	☐	-/-
Block Edge Compliance	Nominal	Nominal	☒	☐	☐	☐	-/-
Occupied Bandwidth	Nominal	Nominal	☒	☐	☐	☐	-/-

Notes:

C	Compliant	NC	Not compliant	NA	Not applicable	NP	Not performed

14   RF measurements

14.1 Description of test setup

For the spurious measurements we use the substitution method according TIA/EIA 603.

14.2 Results LTE band 2

The EUT was set to transmit the maximum power.

14.2.1 RF output power

Description:

This paragraph contains average power, peak output power and EIRP measurements for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1 Chap 7, and is no FCC requirement).

Measurement:

The mobile was set up for the maximum output power with pseudo random data modulation.

To determine the Peak-To-Average Power Ratio (PAPR) the measurement was performed with the Power Complementary Cumulative Distribution Function (CCDF).

Measurement parameters	
Detector:	Sample
AQT:	See plot
Resolution bandwidth:	1 MHz
Used equipment:	See chapter 7.2 setup C & 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure:	FCC: § 2.1046 ISED: RSS-Gen, 6.12

Limits:

FCC	ISED
$ 24.232(c)	RSS-133, 6.4 (referring to: SRSP-510, Issue 5)
(c) Mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications. (d) In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.	SRSP-510, 5.1: Mobile stations and hand-held portables are limited to 2 watts maximum e.i.r.p. RSS-133, 6.4: In addition, the transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.
Power: **33 dBm EIRP** PAPR: **13 dB**	

Results:

Sub-Carrier Spacing [kHz]	Modulation	Number of Tones	Average Output Power [dBm] Channel No / Frequency [MHz]			Peak to Average Ratio [dB] Channel No / Frequency [MHz]		
			18601 / 1850.1	18900 / 1880.0	19199 / 1909.9	18601 / 1850.1	18900 / 1880.0	19199 / 1909.9
3.75	BPSK	1T0	19.82	19.75	19.77	1.97	2.00	1.94
		1T47	19.79	19.60	19.74	1.94	0.32	8.20
	QPSK	1T0	19.85	19.69	19.83	1.68	0.32	0.29
		1T47	19.79	19.68	19.73	0.32	1.62	1.59
15	BPSK	1T0	19.81	19.72	19.60	1.71	1.65	1.62
		1T11	19.49	19.71	19.90	1.59	1.68	1.65
	QPSK	1T0	19.79	19.91	19.91	1.59	1.59	1.57
		1T11	19.72	19.60	19.76	0.52	0.46	0.49
		12T0	18.05	17.86	17.93	5.71	5.91	5.77

The radiated output power is measured in the mode with the highest conducted output power.

Output Power (EIRP)			
Sub-Carrier Spacing [kHz]	Frequency (MHz)	Average Output Power (dBm) BPSK	Average Output Power (dBm) QPSK
3.75	1850.1	20.32	20.35
	1880.0	20.95	20.89
	1909.9	22.77	22.83
15	1851.1	20.31	20.29
	1880.0	20.92	21.11
	1909.9	22.90	22.91

14.2.2 Frequency stability

Description:

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the mobile station in a "call mode". This is accomplished with the use of a R&S CMW500 DIGITAL RADIOCOMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the mobile station to overnight soak at -30 C.
3. With the mobile station, powered with V_{nom}, connected to the CMW500 and in a simulated call on channel 9400 (center channel), measure the carrier frequency. These measurements should be made within two minutes of powering up the mobile station, to prevent significant self warming.
4. Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with V_{nom}. Vary supply voltage from V_{min} to V_{max}, in 0.1 Volt steps re-measuring carrier frequency at each voltage. Pause at V_{nom} for 1.5 hours unpowered, to allow any self heating to stabilize, before continuing.
6. At all temperature levels hold the temperature to +/- 0.5°C during the measurement procedure.

Measurement:

Measurement parameters	
Detector:	
Sweep time:	
Video bandwidth:	Measured with CMW500
Resolution bandwidth:	
Span:	
Trace-Mode:	
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure:	FCC: § 2.1055 ISED: RSS-Gen, 6.11

Limits:

FCC	ISED
§ 24.235	RSS-133, 6.3
The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.	The carrier frequency shall not depart from the reference frequency, in excess of ±2.5 ppm for mobile stations and ±1.0 ppm for base stations.
± 2.5 ppm (ISED only)	

Results:

AFC FREQ ERROR versus VOLTAGE

Voltage (V)	Frequency Error (Hz)	Frequency Error (ppm)
3.2	-27	-0.0144
3.6	-27	-0.0144
4.0	-27	-0.0144

AFC FREQ ERROR versus TEMPERATURE

Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)
-30	25	0.0133
-20	30	0.0160
-10	33	0.0176
± 0	26	0.0138
10	-62	-0.0330
20	-27	-0.0144
30	-44	-0.0234
40	-57	-0.0303
50	-66	-0.0351

14.2.3 Spurious emissions radiated

Description:

The following steps outline the procedure used to measure the radiated emissions from the mobile station. The site is constructed in accordance with ANSI C63.4:2014 requirements and is recognized by the FCC to be in compliance for a 3 and a 10 meter site. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 24.238. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the LTE band II.

Measurement:

Measurement parameters	
Detector:	Peak
Sweep time:	2 sec.
Resolution bandwidth:	1 MHz
Video bandwidth:	3 MHz
Span:	100 MHz Steps
Trace mode:	Max Hold
Used equipment:	See chapter 7.1 setup A & 7.2 setup B
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1053 ISED: RSS-Gen, 6.13

Limits:

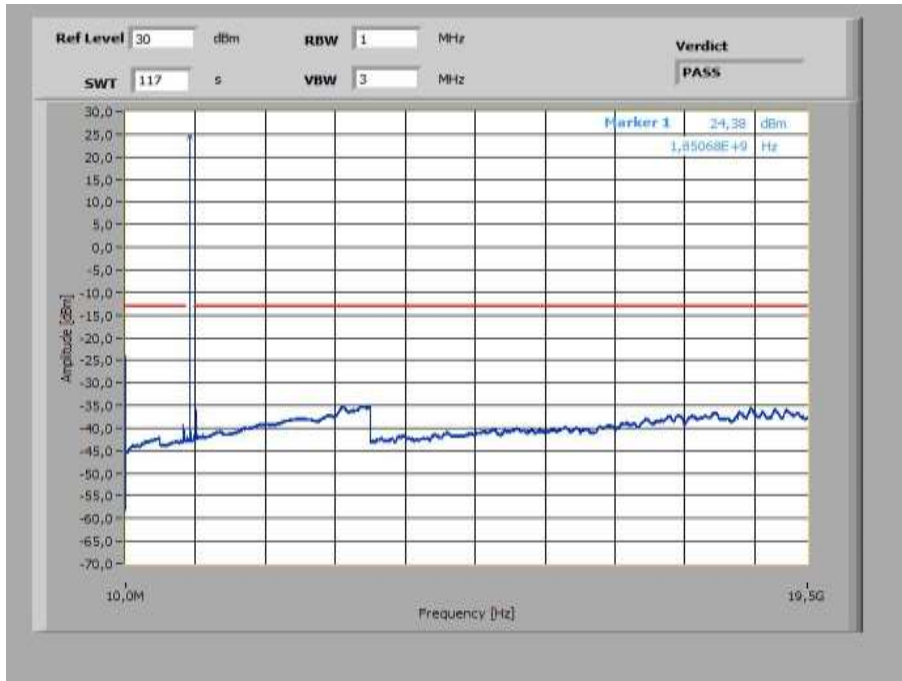| FCC	ISED
§ 24.238 (a) & (b)	RSS-133, 6.5
(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least **43 + 10 log(P) dB**. (b) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.
-13 dBm	

Results:

BPSK:

SPURIOUS EMISSION LEVEL					
LOWEST CHANNEL		MIDDLE CHANNEL		HIGHEST CHANNEL	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		All detected emissions are more than 20 dB below the limit.		-/-	
-/-	-/-	-/-	-/-	-/-	-/-
-/-	-/-	-/-	-/-	-/-	-/-

QPSK:

SPURIOUS EMISSION LEVEL					
LOWEST CHANNEL		MIDDLE CHANNEL		HIGHEST CHANNEL	
Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]	Spurious emissions	Level [dBm]
-/-		All detected emissions are more than 20 dB below the limit.		-/-	
-/-	-/-	-/-	-/-	-/-	-/-
-/-	-/-	-/-	-/-	-/-	-/-

BPSK

Plot 1: Mid channel (9 kHz - 30 MHz)
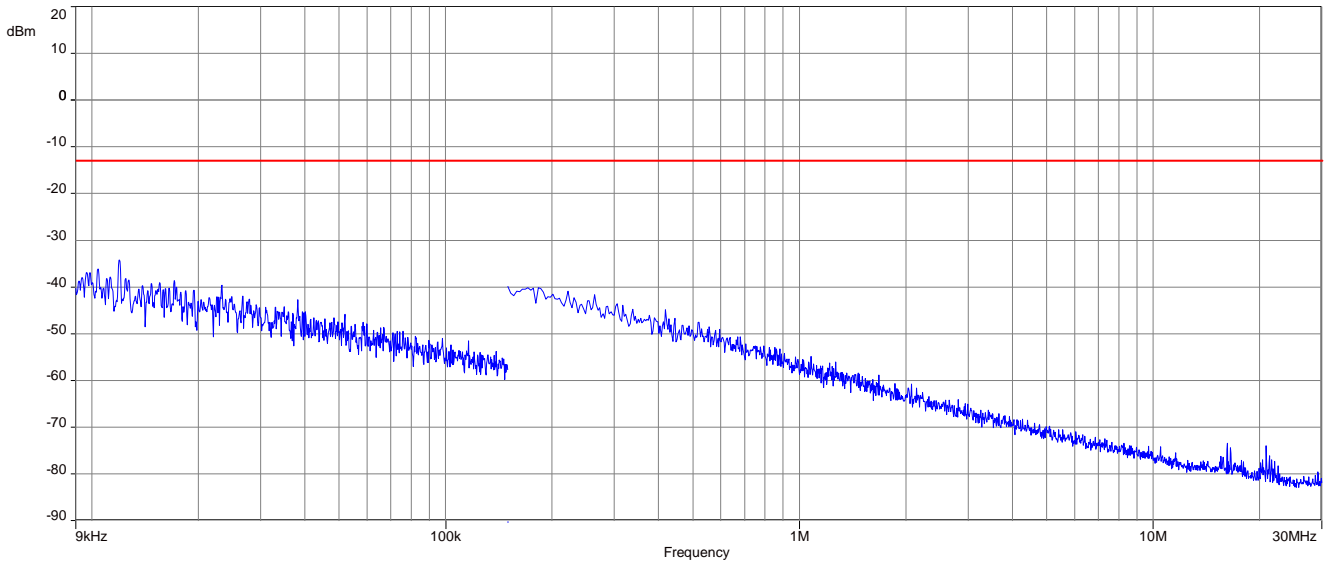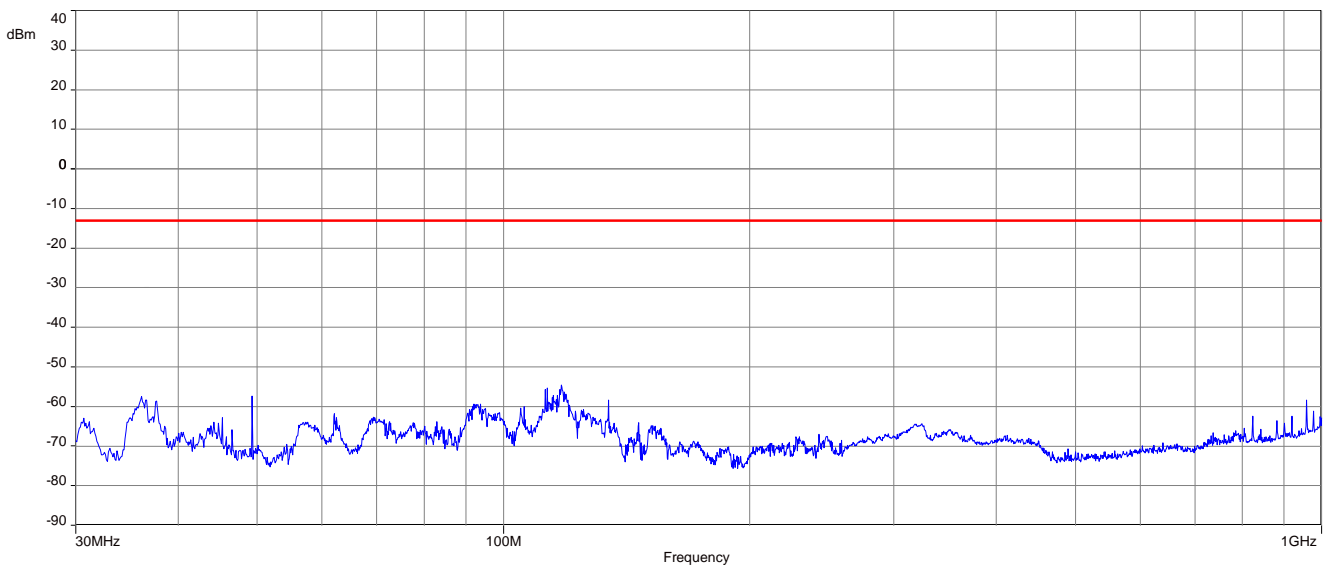
Plot 2: Mid channel (30 MHz – 1 GHz)

Plot 3: Mid channel (1 GHz – 18 GHz)
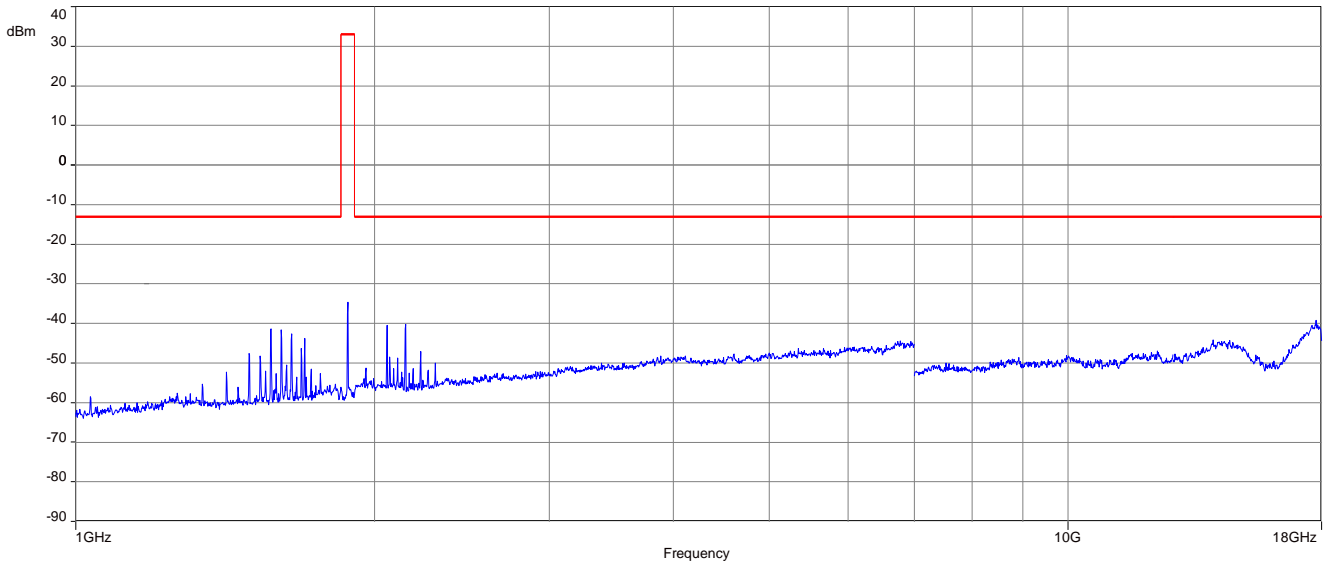
Carrier notched with 1.9 GHz rejection filter

Plot 4: Mid channel (18 GHz – 20 GHz)
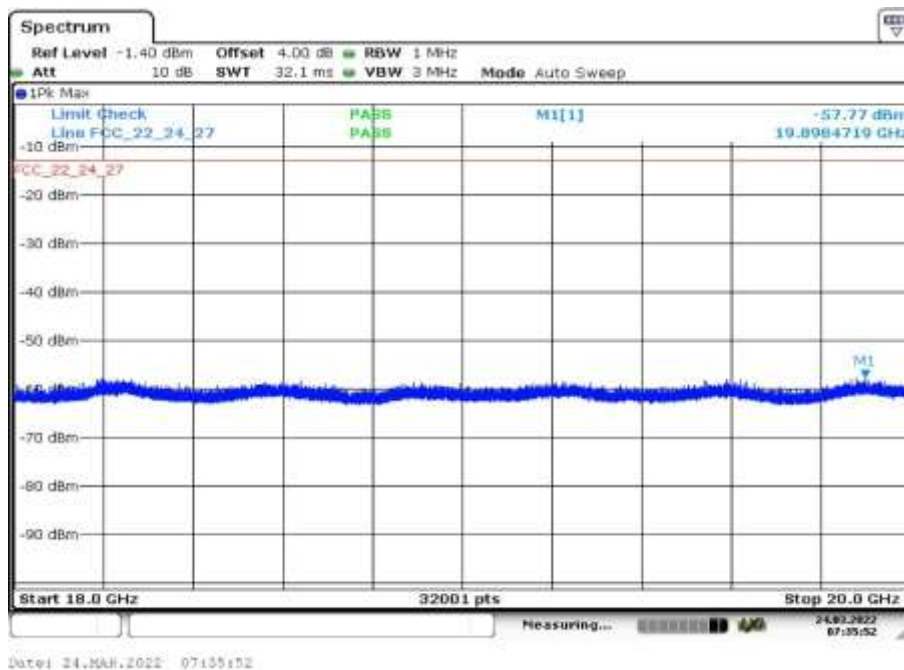
QPSK

Plot 1: Mid channel (9 kHz - 30 MHz)
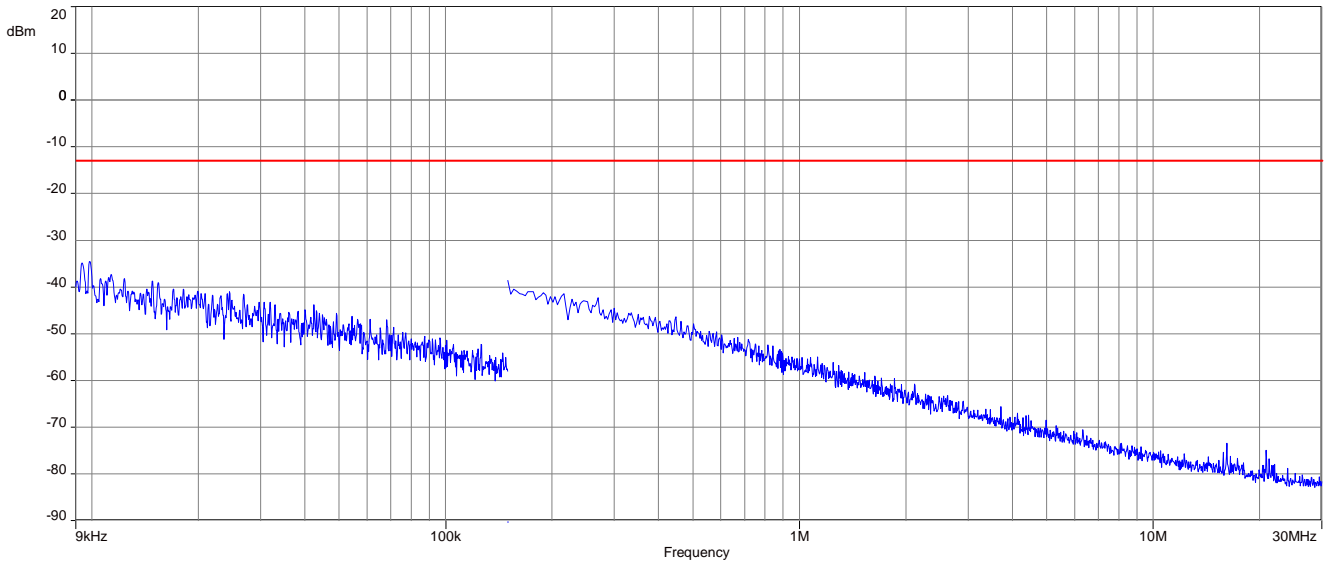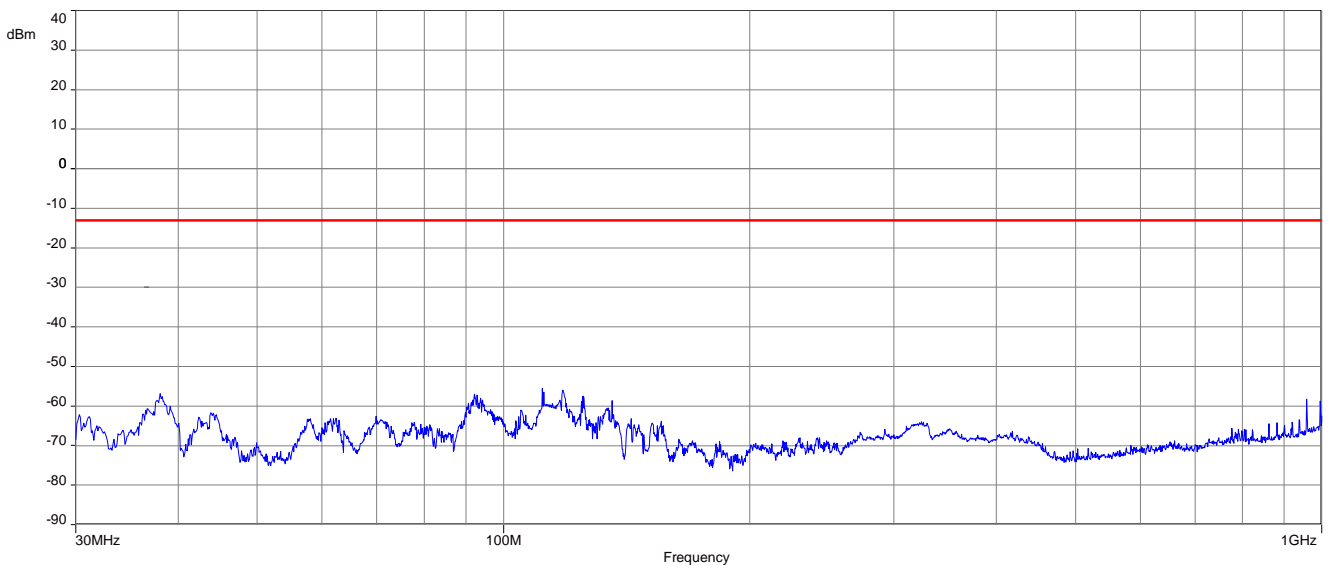
Plot 2: Mid channel (30 MHz – 1 GHz)

Plot 3: Mid channel (1 GHz – 18 GHz)
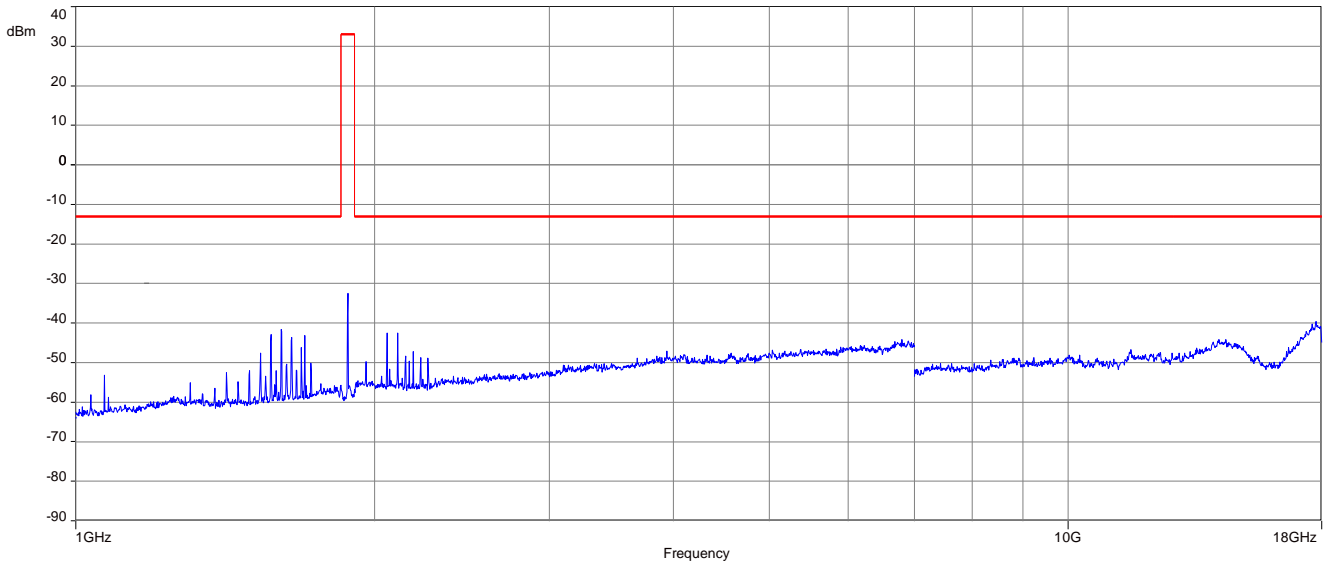
Carrier notched with 1.9 GHz rejection filter

Plot 4: Mid channel (18 GHz – 20 GHz)
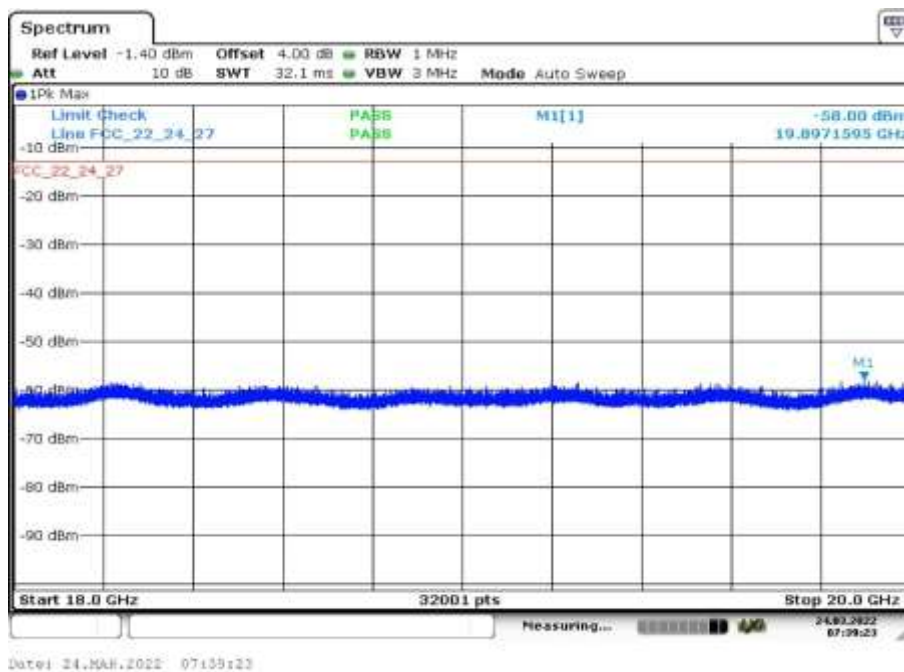
14.2.4 Spurious emissions conducted

Description:

The following steps outline the procedure used to measure the conducted emissions from the mobile station.
1. Determine frequency range for measurements: From § 2.1057 & RSS-Gen, 6.13.2 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency.
2. Determine mobile station transmits frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

Measurement:

Measurement parameters	
Detector:	Peak
Sweep time:	Auto
Video bandwidth:	300 kHz
Resolution bandwidth:	100 kHz
Span:	30 MHz − 19.5 GHz
Trace-Mode:	Max Hold
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	see chapter 9
Measurement procedure	FCC: § 2.1051 ISED: RSS-Gen, 6.13

Limits:

FCC	IC
§ 24.238 (a) & (b)	RSS-133, 6.5
(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least **43 + 10 log(P) dB**. (b) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.
-13 dBm	

Results:

BPSK:

SPURIOUS EMISSION LEVEL								
Harmonic	Lowest channel Freq. (MHz)	Level [dBm]	Harmonic	Middle channel Freq. (MHz)	Level [dBm]	Harmonic	Highest channel Freq. (MHz)	Level [dBm]
2	3700.2	-/-	2	3760.0	-/-	2	3819.8	-/-
3	5550.3	-/-	3	5640.0	-/-	3	5729.7	-/-
4	7400.4	-/-	4	7520.0	-/-	4	7639.6	-/-
5	9250.5	-/-	5	9400.0	-/-	5	9549.5	-/-
6	11100.6	-/-	6	11280.0	-/-	6	11459.4	-/-
7	12950.7	-/-	7	13160.0	-/-	7	13369.3	-/-
8	14800.8	-/-	8	15040.0	-/-	8	15279.2	-/-
9	16650.9	-/-	9	16920.0	-/-	9	17189.1	-/-
10	18501.0	-/-	10	18800.0	-/-	10	19099.0	-/-

QPSK:

SPURIOUS EMISSION LEVEL								
Harmonic	Lowest channel Freq. (MHz)	Level [dBm]	Harmonic	Middle channel Freq. (MHz)	Level [dBm]	Harmonic	Highest channel Freq. (MHz)	Level [dBm]
2	3700.2	-/-	2	3760.0	-/-	2	3819.8	-/-
3	5550.3	-/-	3	5640.0	-/-	3	5729.7	-/-
4	7400.4	-/-	4	7520.0	-/-	4	7639.6	-/-
5	9250.5	-/-	5	9400.0	-/-	5	9549.5	-/-
6	11100.6	-/-	6	11280.0	-/-	6	11459.4	-/-
7	12950.7	-/-	7	13160.0	-/-	7	13369.3	-/-
8	14800.8	-/-	8	15040.0	-/-	8	15279.2	-/-
9	16650.9	-/-	9	16920.0	-/-	9	17189.1	-/-
10	18501.0	-/-	10	18800.0	-/-	10	19099.0	-/-

Plots: BPSK

Plot 1: Lowest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@0 tones

Plot 2: Middle Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@0 tones

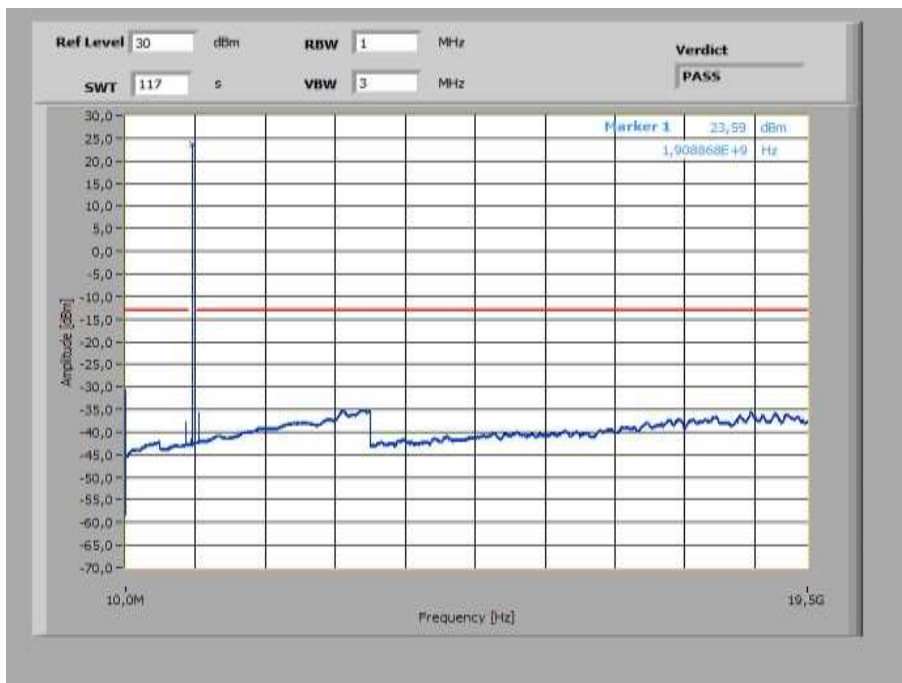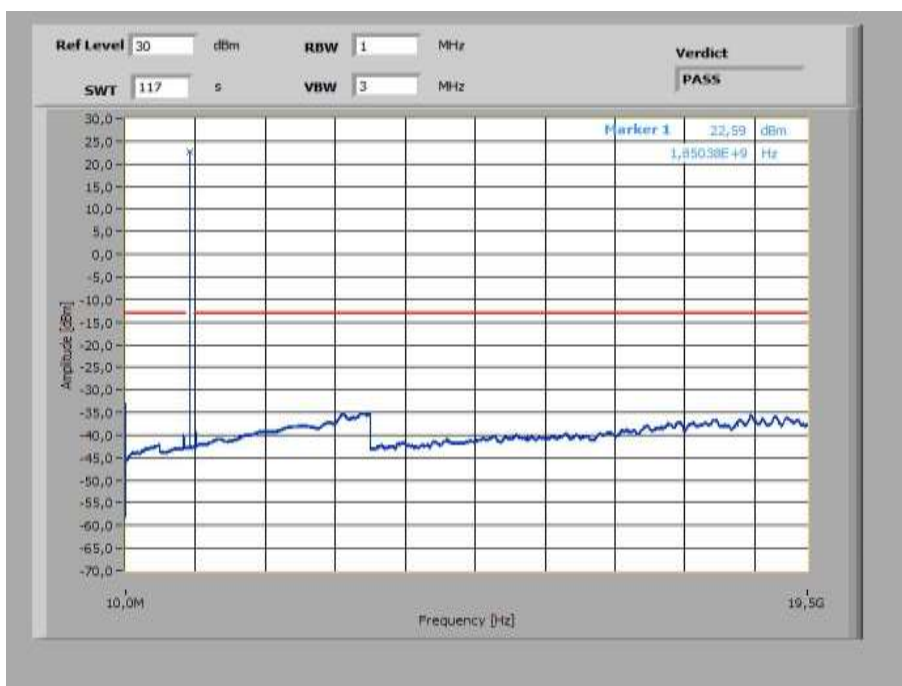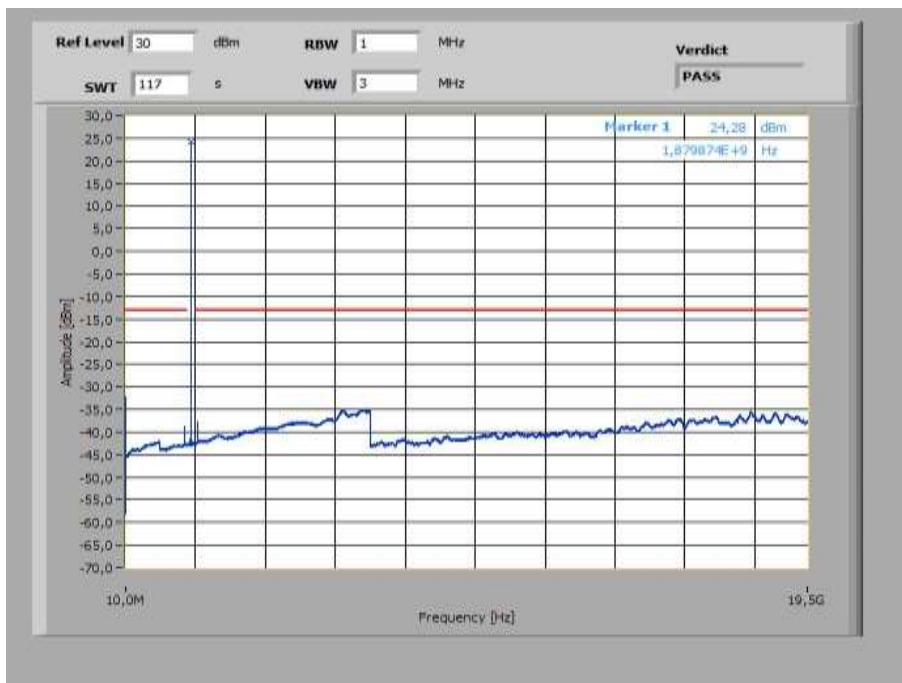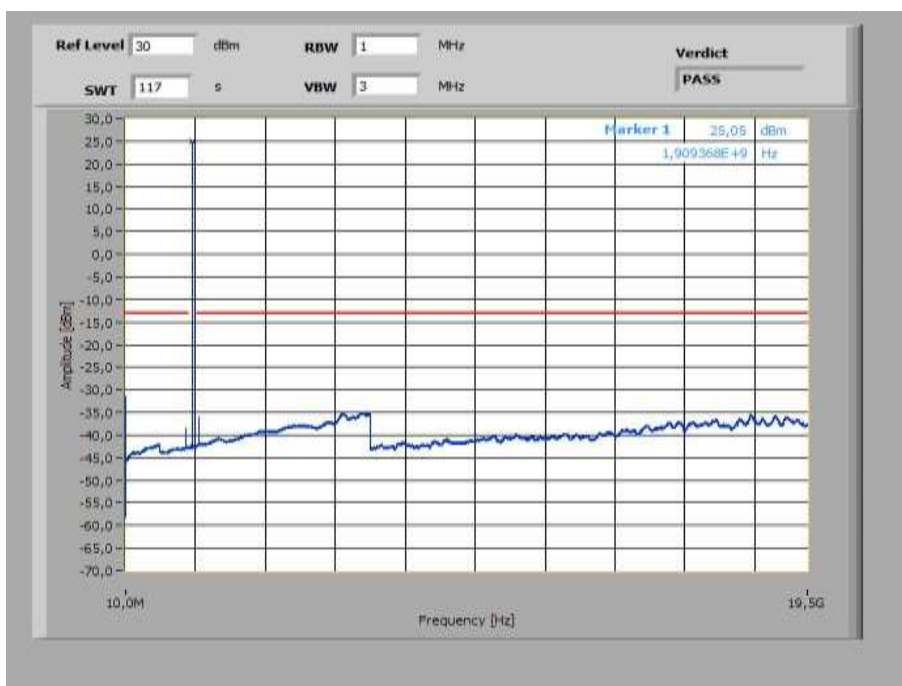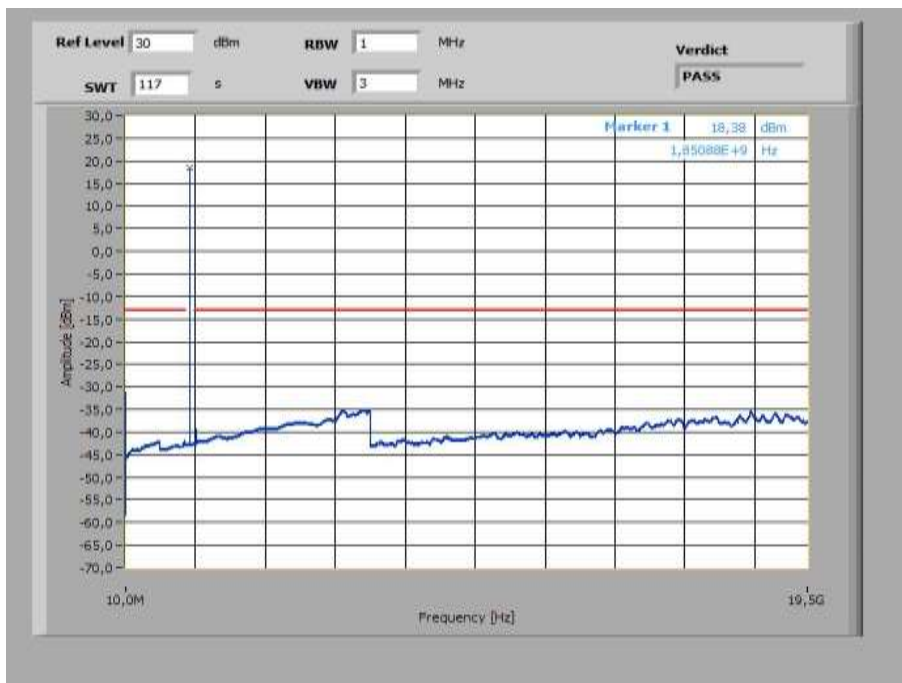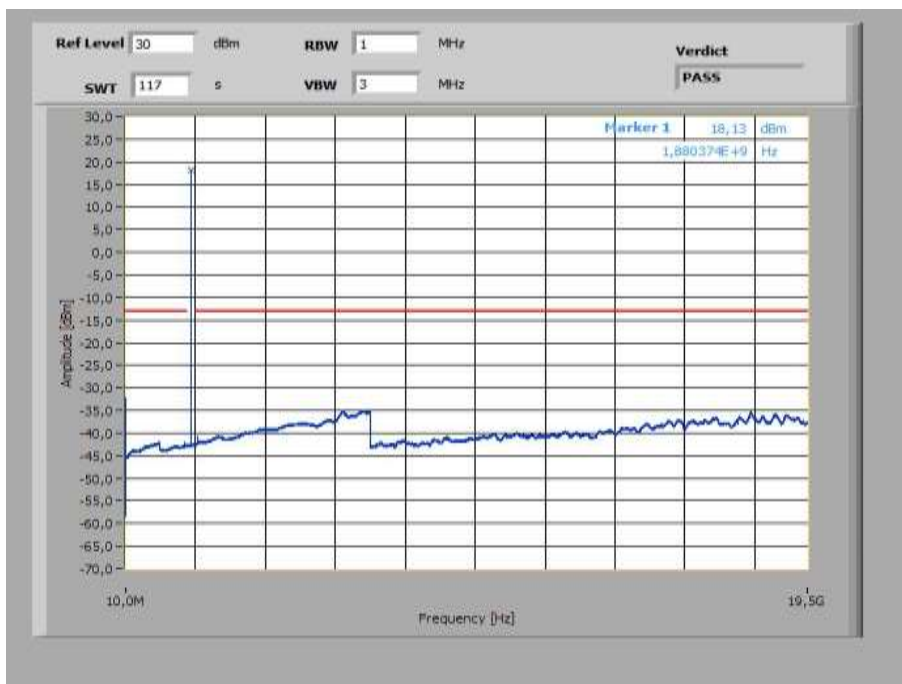**Plot 3:** Highest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@0 tones

Plot 4: Lowest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@47 tones

Plot 5: Middle Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@47 tones

Plot 6: Highest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@47 tones
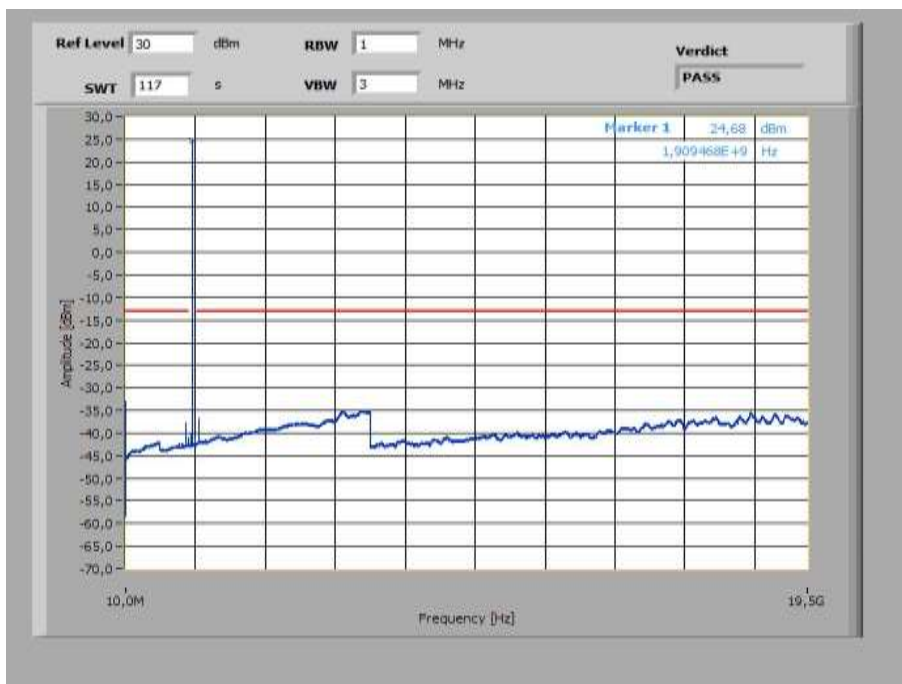
Plot 7: Lowest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@0 tones

Plot 8: Middle Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@0 tones

Plot 9: Highest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@0 tones

Plot 10: Lowest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@11 tones

Plot 11: Middle Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@11 tones

Plot 12: Highest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@11 tones

Plots: QPSK

Plot 1: Lowest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@0 tones

Plot 2: Middle Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@0 tones

Plot 3: Highest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@0 tones

Plot 4: Lowest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@47 tones

Plot 5: Middle Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@47 tones

Plot 6: Highest Channel (10 MHz – 19.5 GHz), spacing 3.75 kHz, 1@47 tones
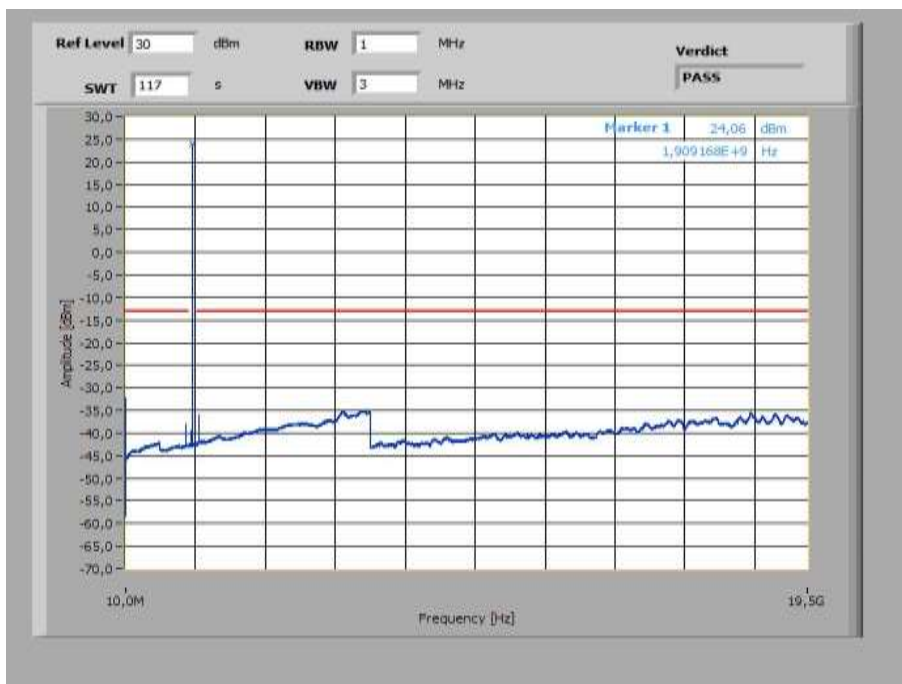
Plot 7: Lowest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@0 tones

Plot 8: Middle Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@0 tones

Plot 9: Highest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@0 tones

Plot 10: Lowest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@11 tones

Plot 11: Middle Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@11 tones

Plot 12: Highest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 1@11 tones

Plot 13: Lowest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 12@0 tones

Plot 14: Middle Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 12@0 tones

Plot 15: Highest Channel (10 MHz – 19.5 GHz), spacing 15 kHz, 12@0 tones
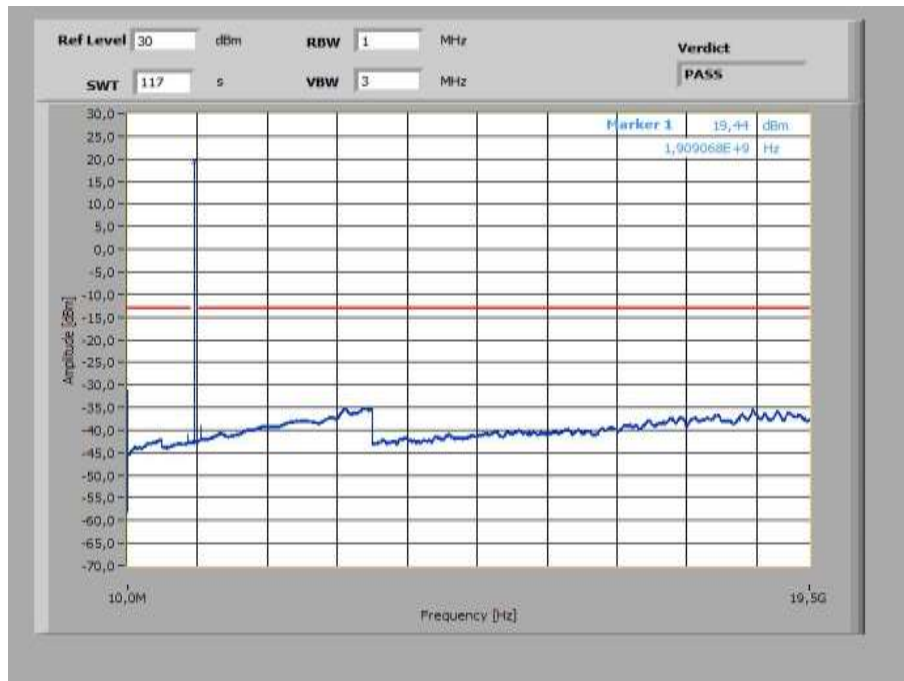
14.2.5 Block edge compliance

Description:

The spectrum at the band edges must comply with the spurious emissions limits.

Measurement:

Measurement parameters	
Detector:	RMS
Sweep time:	180 sec.
Video bandwidth:	100 kHz
Resolution bandwidth:	20 kHz
Span:	1 MHz steps
Trace-Mode:	Max Hold
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1051 ISED: RSS-Gen, 6.13

Limits:

| FCC	ISED
§ 24.238 (a) & (b)	RSS-133, 6.5
(a) The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least **43 + 10 log(P) dB**. (b) Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.	In the 1.0 MHz bands immediately outside and adjacent to the equipment's operating frequency block, the emission power per any 1% of the emission bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). After the first 1.0 MHz, the emission power in any 1 MHz bandwidth shall be attenuated (in dB) below the transmitter output power P (dBW) by at least **43 + 10 log(P)** (watts). If the measurement is performed using 1% of the emission bandwidth, power integration over 1.0 MHz is required.
-13 dBm Correction factor according to KDB 890810 if RBW < 1 % emission bandwidth: ☒N/A here ☐10 log (RBW1/RBW2) = X dB; whereas: RBW1 = Y, RBW2 = Z	

Results: BPSK

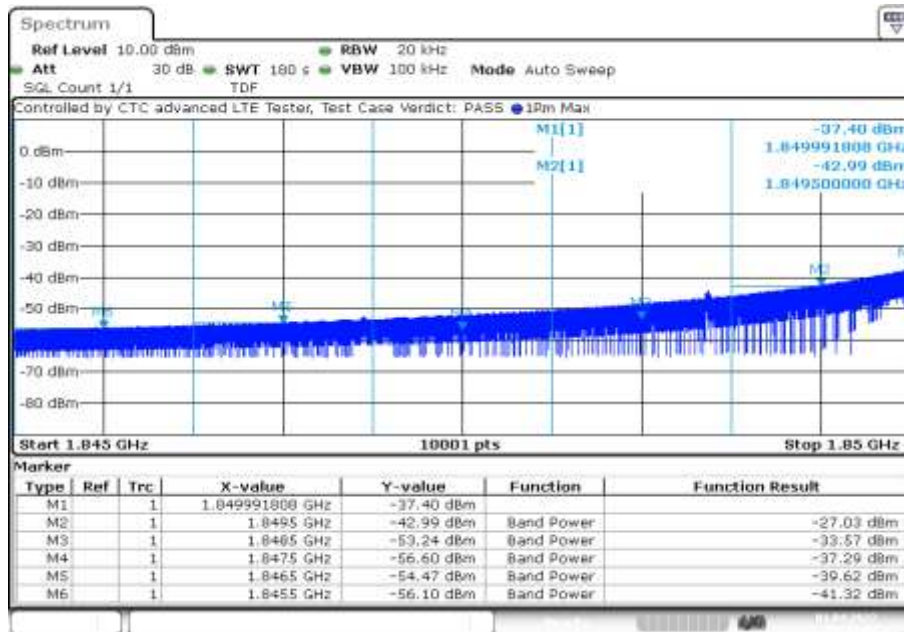**Plot 1:** Lowest channel, spacing 3.75 kHz, 1@0 tones

Date: 1.APR.2022 08:48:30

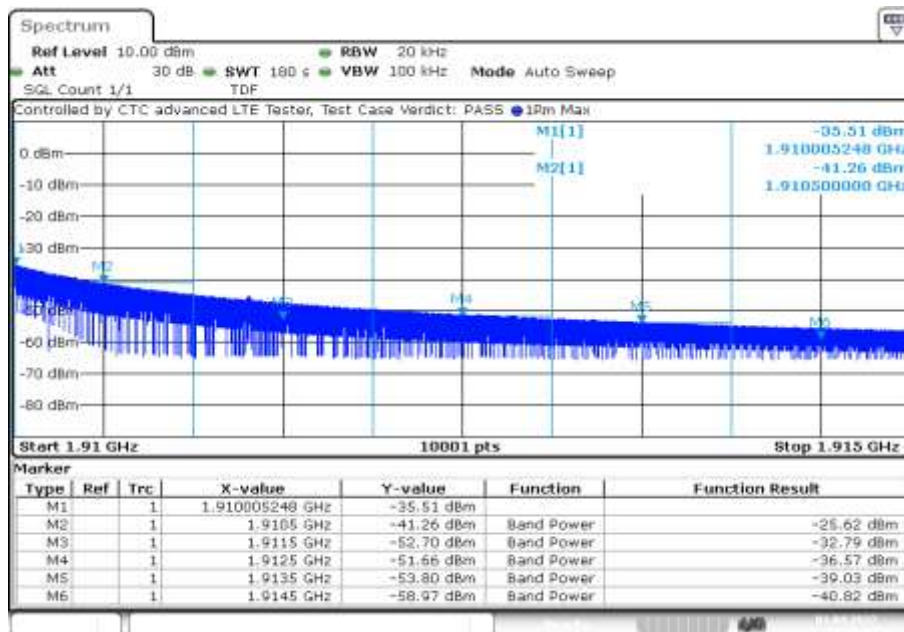**Plot 2:** Highest channel, spacing 3.75 kHz, 1@0 tones
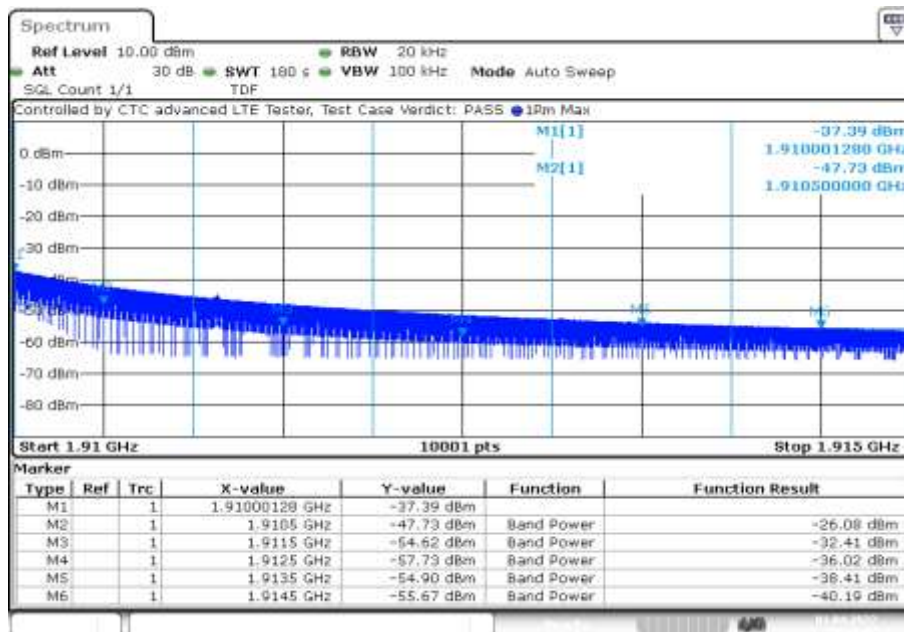
Date: 1.APR.2022 13:16:36

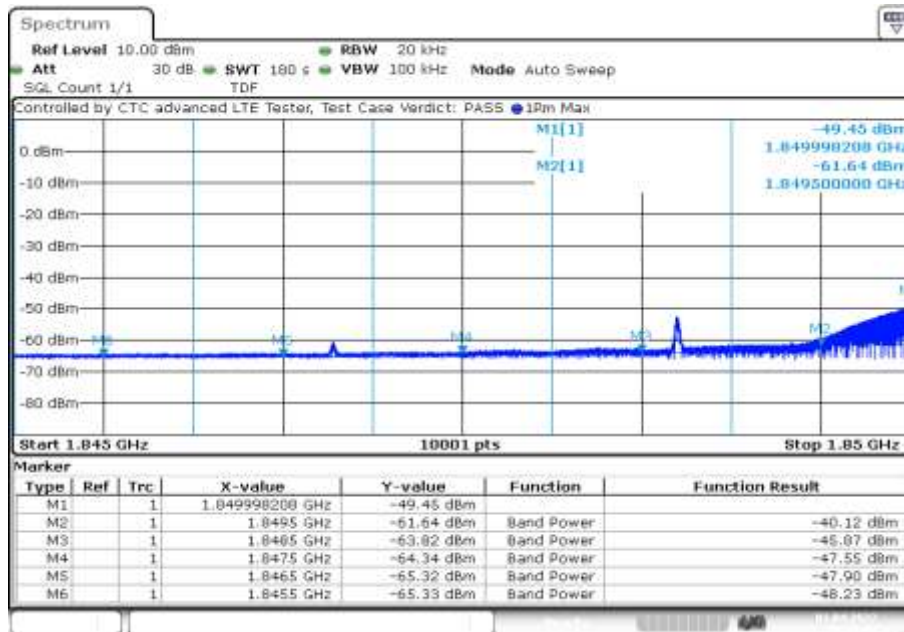**Plot 3:** Lowest channel, spacing 3.75 kHz, 1@47 tones
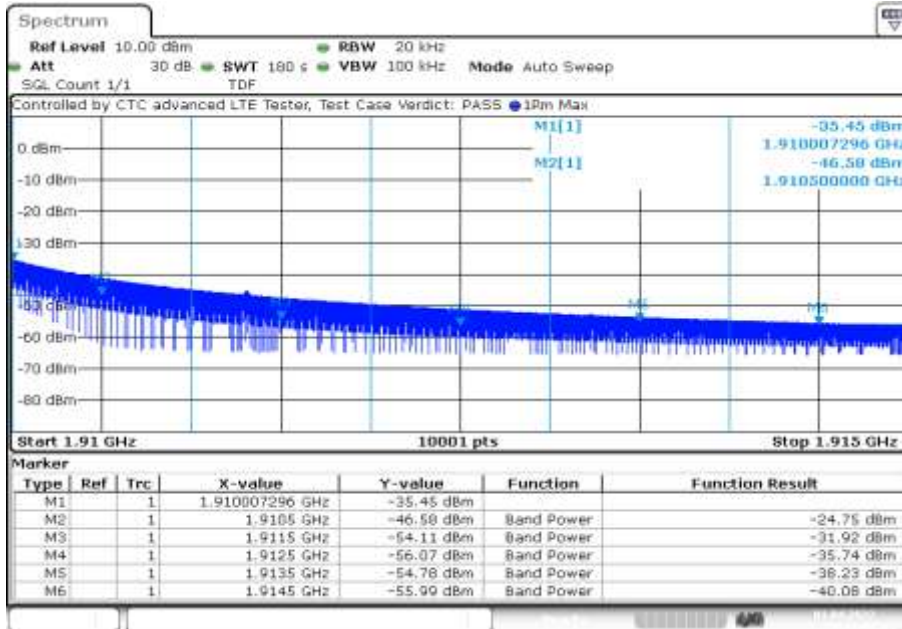
Date: 1.APR.2022 13:33:02

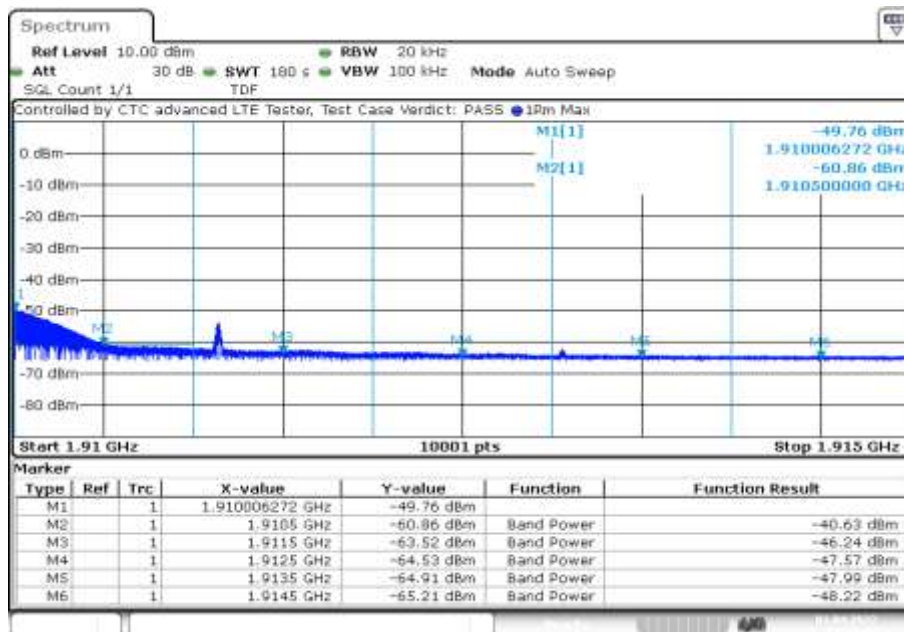**Plot 4:** Highest channel, spacing 3.75 kHz, 1@47 tones
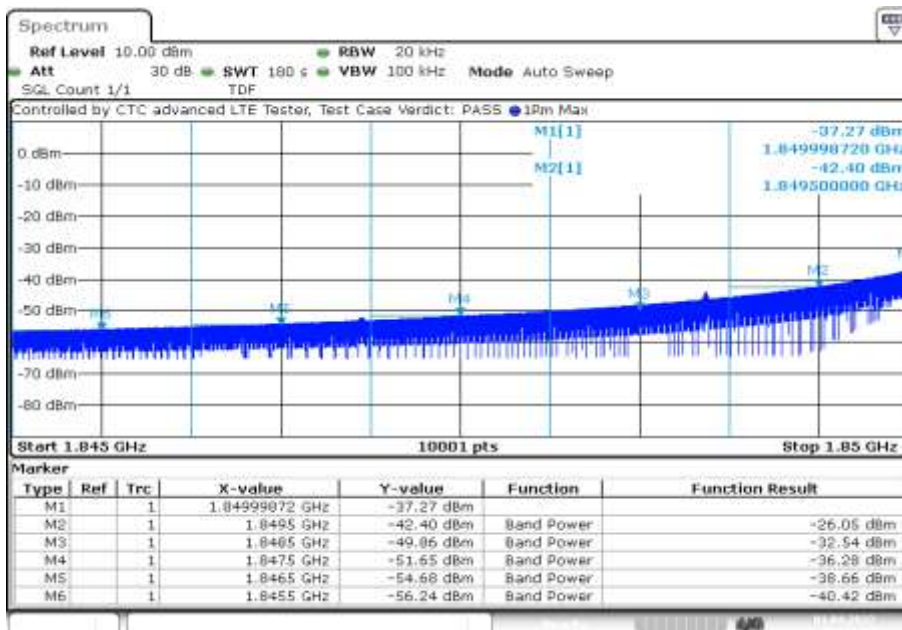
Date: 1.APR.2022 09:04:53
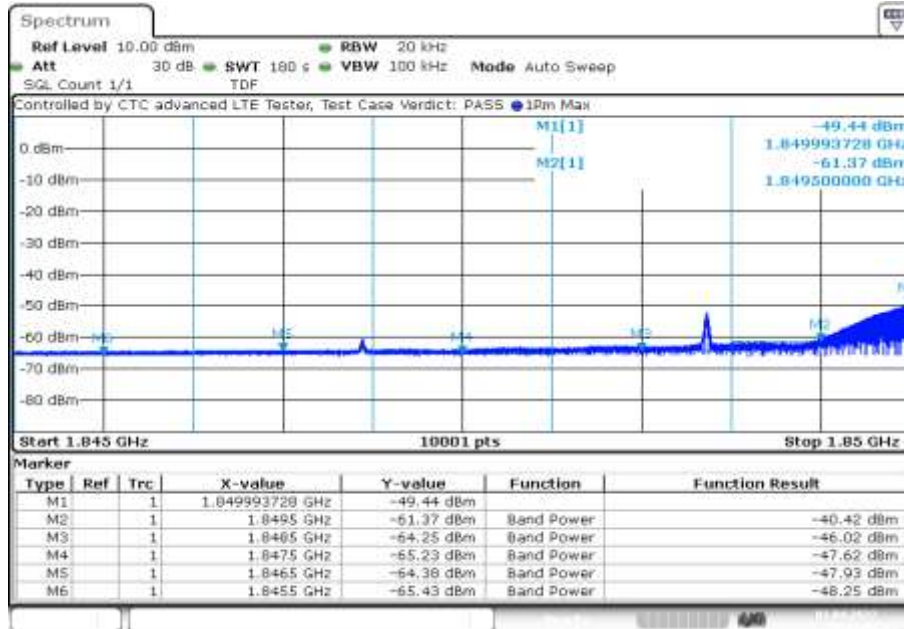
Plot 5: Lowest channel, spacing 15 kHz, 1@0 tones
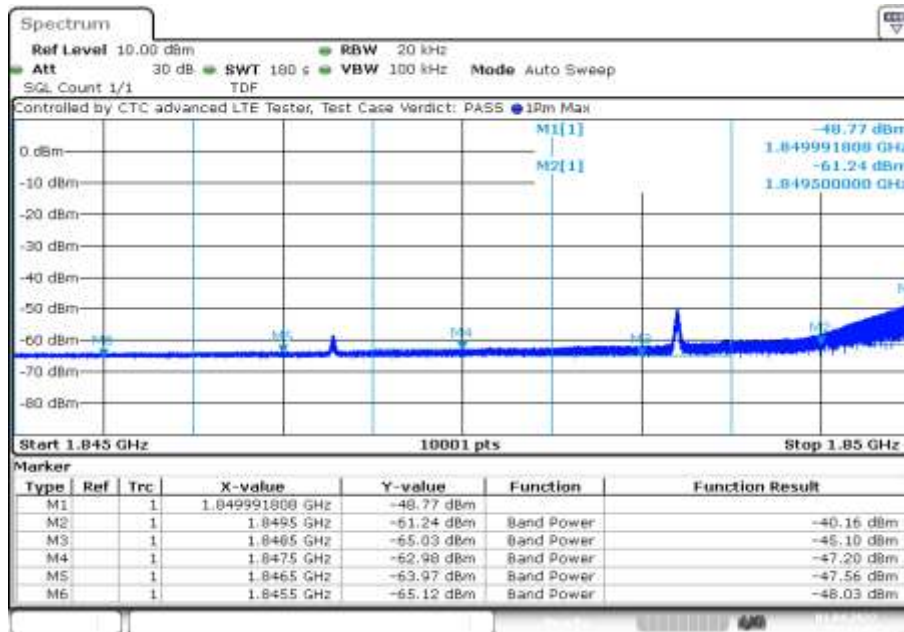
Date: 1.APR.2022 09:54:14

Plot 6: Highest channel, spacing 15 kHz, 1@0 tones
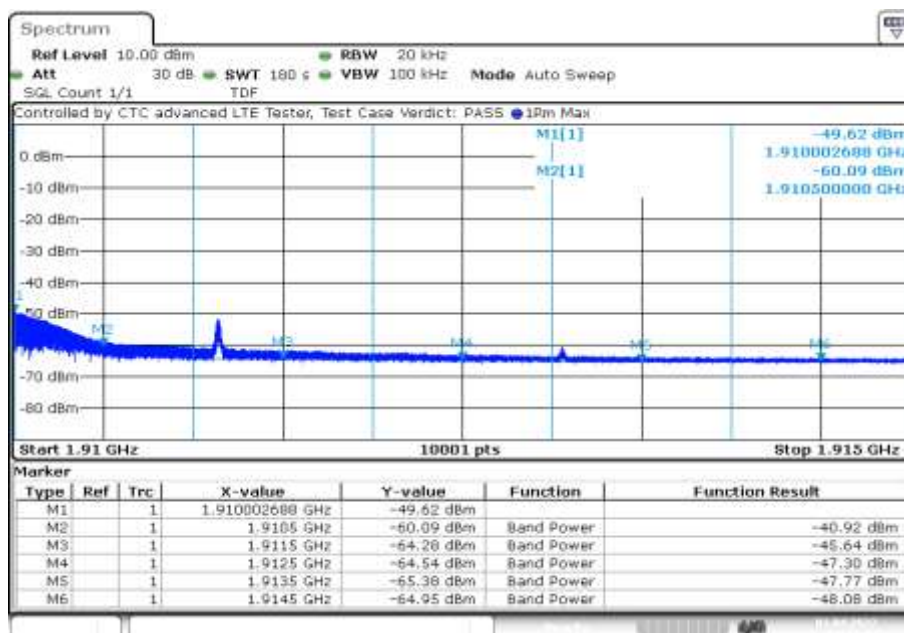
Date: 1.APR.2022 14:22:41

Plot 7: Lowest channel, spacing 15 kHz, 1@11 tones
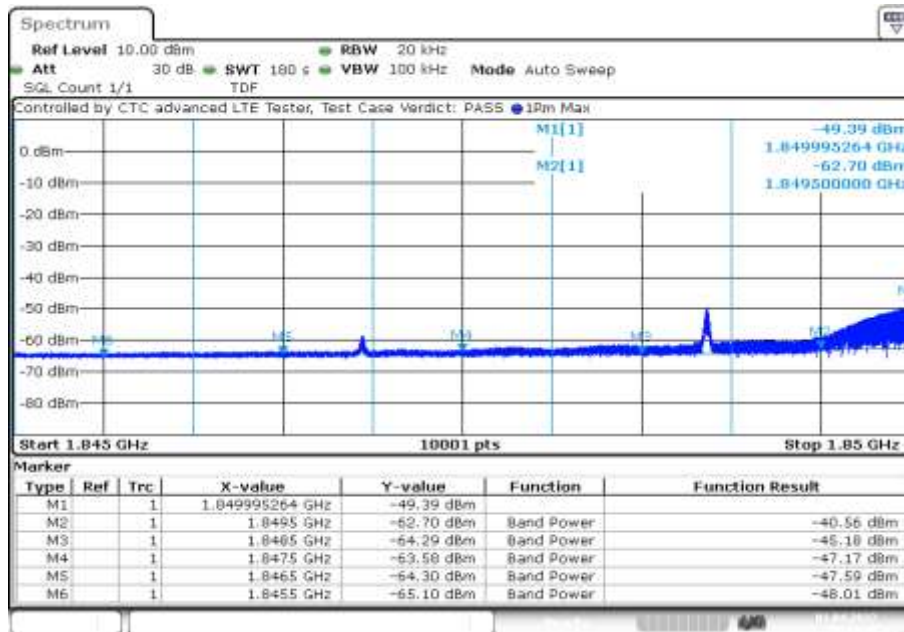
Date: 1.APR.2022 10:10:37

Plot 8: Highest channel, spacing 15 kHz, 1@11 tones
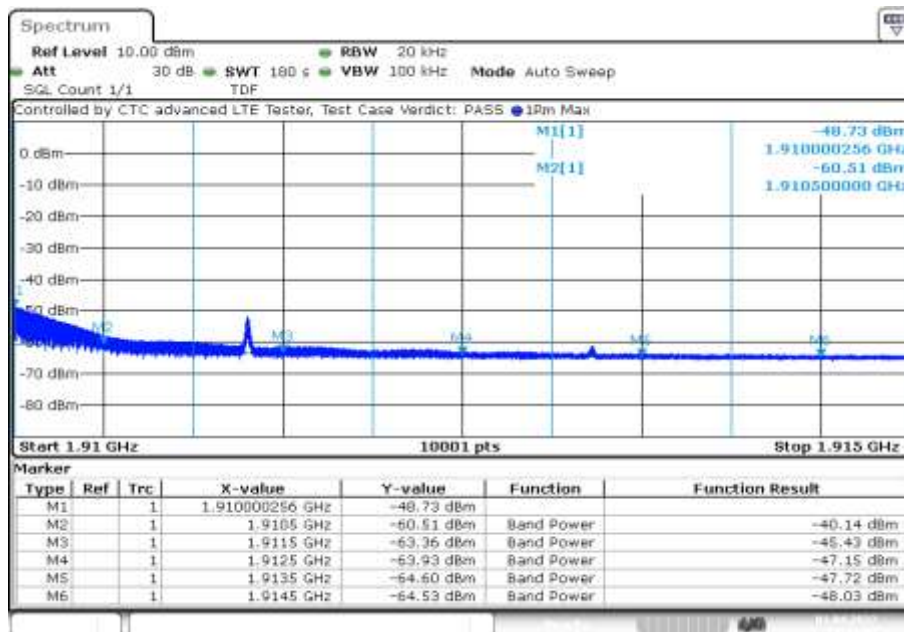
Date: 1.APR.2022 14:39:07

Results: QPSK

Plot 1: Lowest channel, spacing 3.75 kHz, 1@0 tones
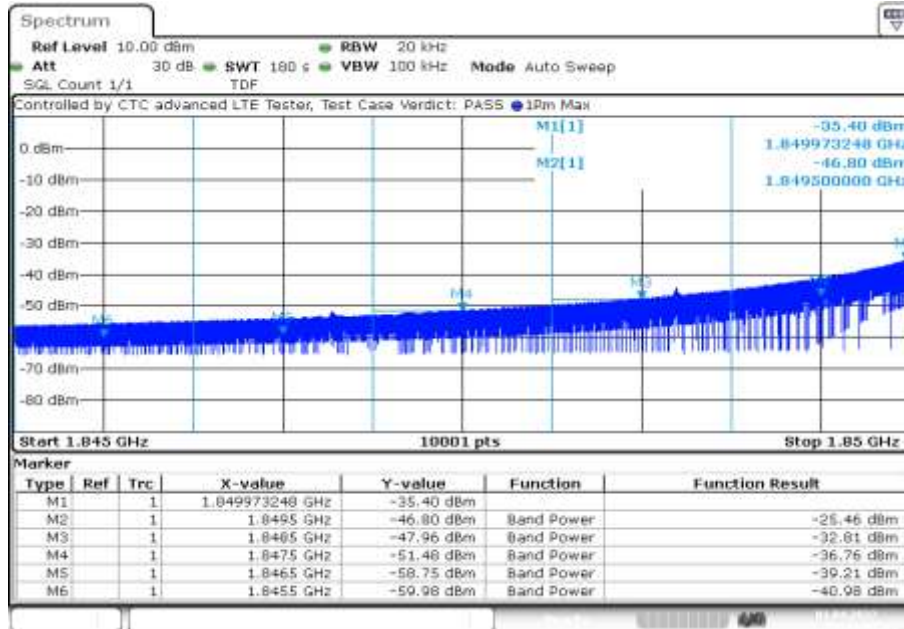
Date: 1.APR.2022 09:21:16

Plot 2: Highest channel, spacing 3.75 kHz, 1@0 tones
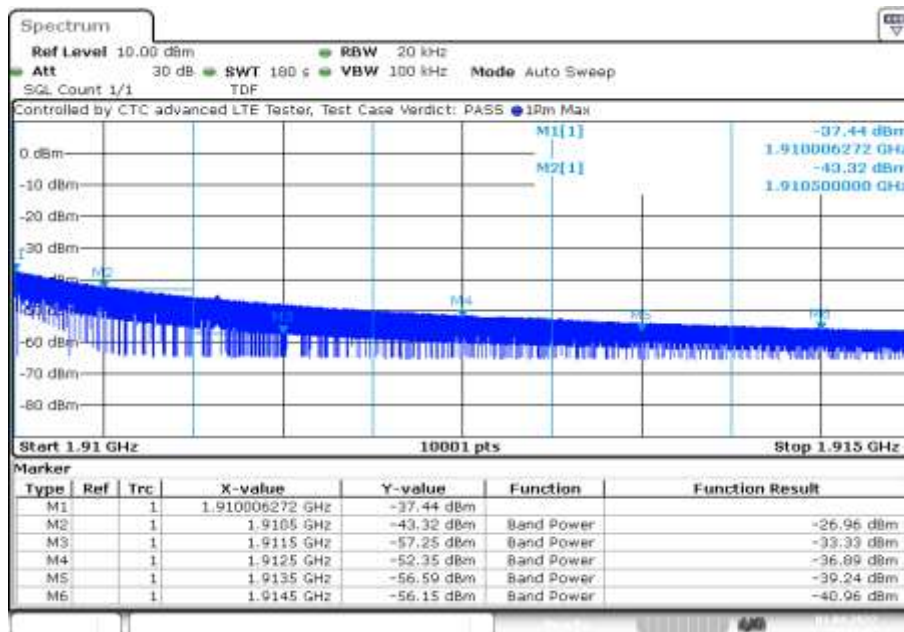
Date: 1.APR.2022 13:49:28

Plot 3: Lowest channel, spacing 3.75 kHz, 1@47 tones

Date: 1.APR.2022 09:37:39

Plot 4: Highest channel, spacing 3.75 kHz, 1@47 tones

Date: 1.APR.2022 14:05:54

Plot 5: Lowest channel, spacing 15 kHz, 1@0 tones

Date: 1.APR.2022 10:26:59

Plot 6: Highest channel, spacing 15 kHz, 1@0 tones

Date: 1.APR.2022 14:55:33

Plot 7: Lowest channel, spacing 15 kHz, 1@11 tones

Date: 1.APR.2022 10:43:22

Plot 8: Highest channel, spacing 15 kHz, 1@11 tones
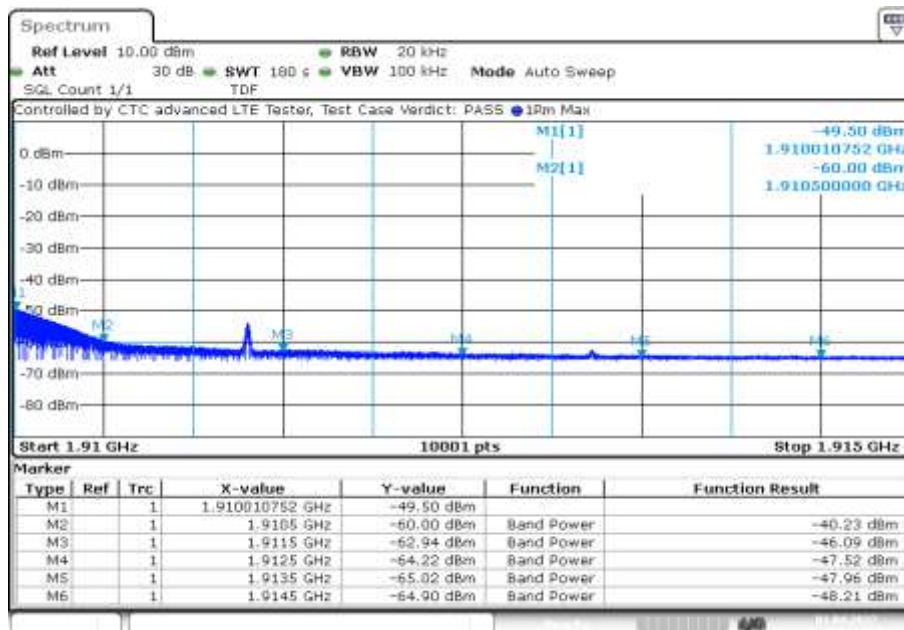
Date: 1.APR.2022 15:11:58

Plot 7: Lowest channel, spacing 15 kHz, 12@0 tones
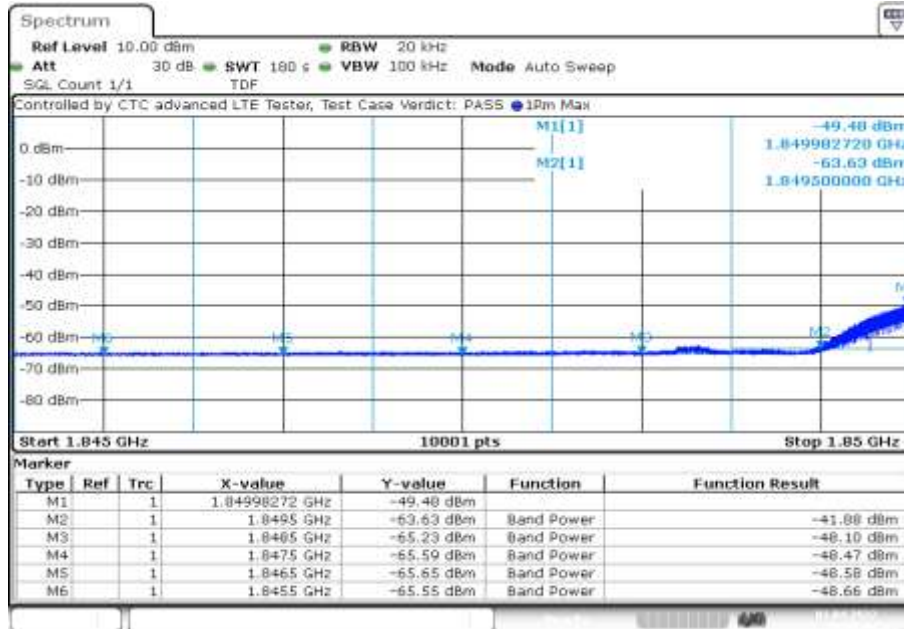
Date: 1.APR.2022 10:59:45

Plot 8: Highest channel, spacing 15 kHz, 12@0 tones
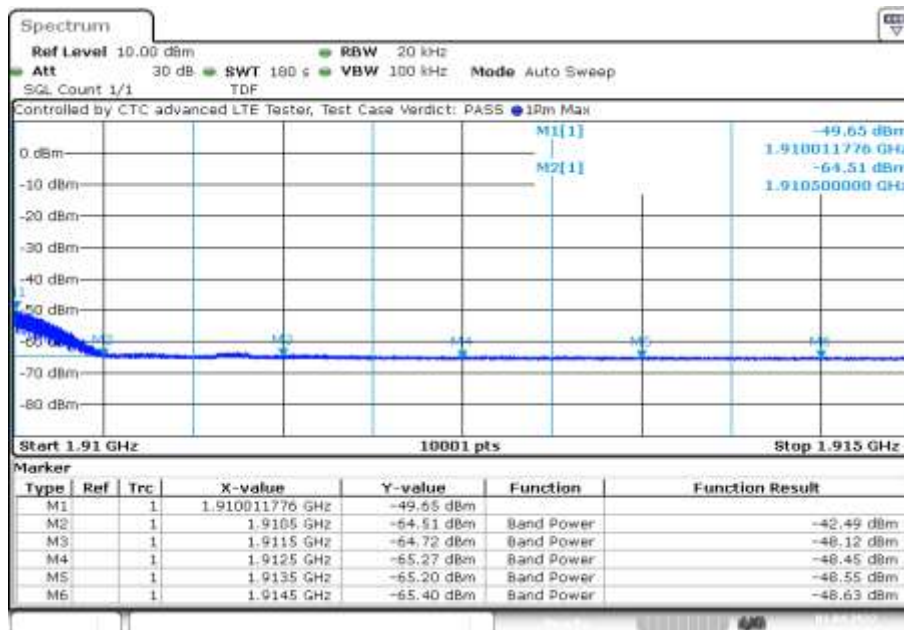
Date: 1.APR.2022 15:28:24

14.2.6 Occupied bandwidth

Description:

Measurement of the occupied bandwidth of the transmitted signal.

Measurement:

Similar to conducted emissions, occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the LTE band II frequency band. The table below lists the measured 99% power and -26dBc occupied bandwidths. Spectrum analyzer plots are included on the following pages.

Measurement parameters	
Detector:	Peak
Sweep time:	180s
Video bandwidth:	100 kHz
Resolution bandwidth:	30 kHz
Span:	2 x nominal bandwidth
Trace-Mode:	Max Hold
Used equipment:	See chapter 7.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1049 ISED: RSS-Gen, 6.7

Limits:

FCC	ISED
§ 2.1049	RSS-Gen, 6.7
Reporting only	

Results:

Occupied Bandwidth − BPSK		
Mode	**99% OBW (kHz)**	**-26 dBc BW (kHz)**
Low channel / spacing 3.75 kHz; 1@0 tones	62	40
Mid channel / spacing 3.75 kHz; 1@0 tones	54	40
High channel / spacing 3.75 kHz; 1@0 tones	65	38
Low channel / spacing 3.75 kHz; 1@47 tones	64	38
Mid channel / spacing 3.75 kHz; 1@47 tones	65	38
High channel / spacing 3.75 kHz; 1@47 tones	63	38
Low channel / spacing 15 kHz; 1@0 tones	117	118
Mid channel / spacing 15 kHz; 1@0 tones	119	103
High channel / spacing 15 kHz; 1@0 tones	120	102
Low channel / spacing 15 kHz; 1@11 tones	127	113
Mid channel / spacing 15 kHz; 1@11 tones	127	103
High channel / spacing 15 kHz; 1@11 tones	120	115

Occupied Bandwidth − QPSK		
Mode	**99% OBW (kHz)**	**-26 dBc BW (kHz)**
Low channel / spacing 3.75 kHz; 1@0 tones	68	39
Mid channel / spacing 3.75 kHz; 1@0 tones	68	41
High channel / spacing 3.75 kHz; 1@0 tones	69	42
Low channel / spacing 3.75 kHz; 1@47 tones	68	39
Mid channel / spacing 3.75 kHz; 1@47 tones	67	39
High channel / spacing 3.75 kHz; 1@47 tones	69	39
Low channel / spacing 15 kHz; 1@0 tones	118	113
Mid channel / spacing 15 kHz; 1@0 tones	119	115
High channel / spacing 15 kHz; 1@0 tones	119	130
Low channel / spacing 15 kHz; 1@11 tones	119	118
Mid channel / spacing 15 kHz; 1@11 tones	122	130
High channel / spacing 15 kHz; 1@11 tones	123	117
Low channel / spacing 15 kHz; 12@0 tones	191	239
Mid channel / spacing 15 kHz; 12@0 tones	186	256
High channel / spacing 15 kHz; 12@0 tones	184	248

Plots: BPSK

Plot 1: low channel (99% - OBW), spacing 3.75 kHz, 1@0 tones
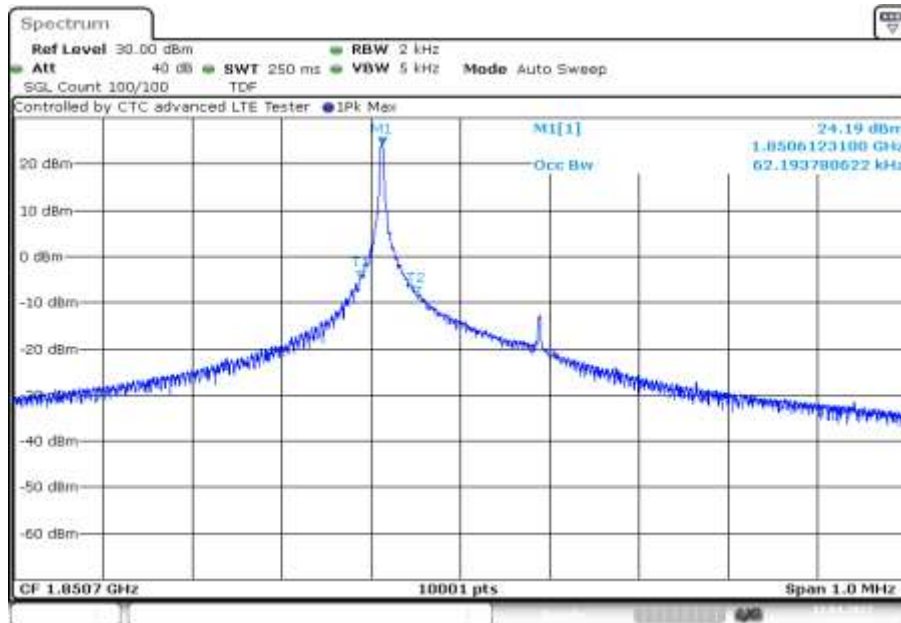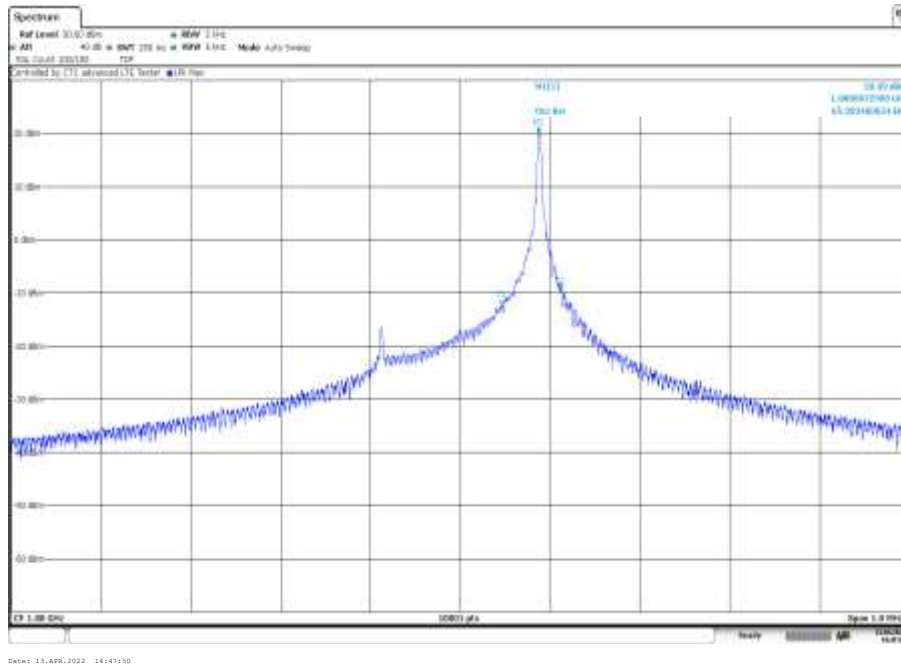

Date: 13.APR.2022 14:13:49

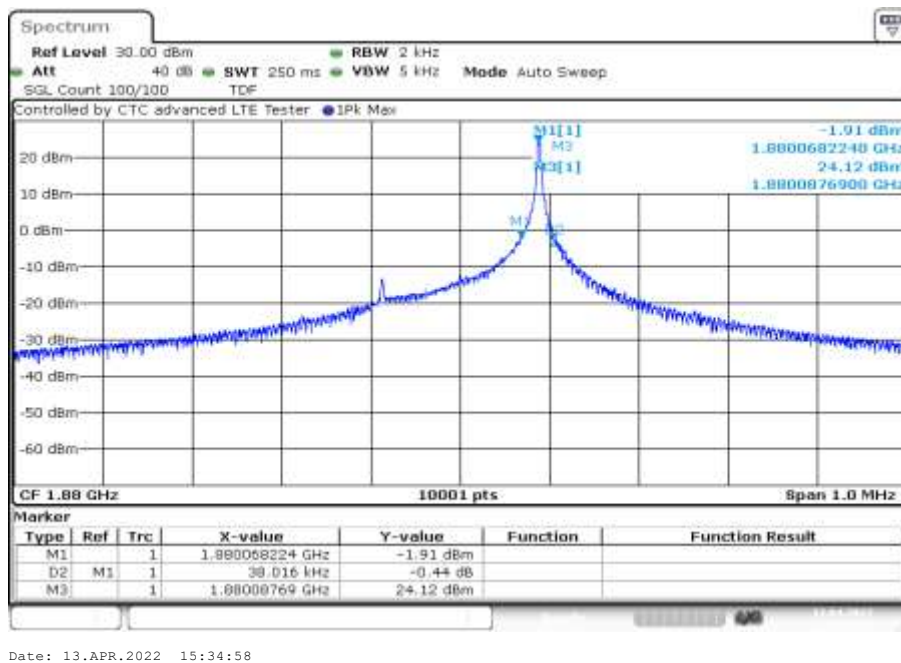**Plot 2:** low channel (-26 dBc BW), spacing 3.75 kHz, 1@0 tones
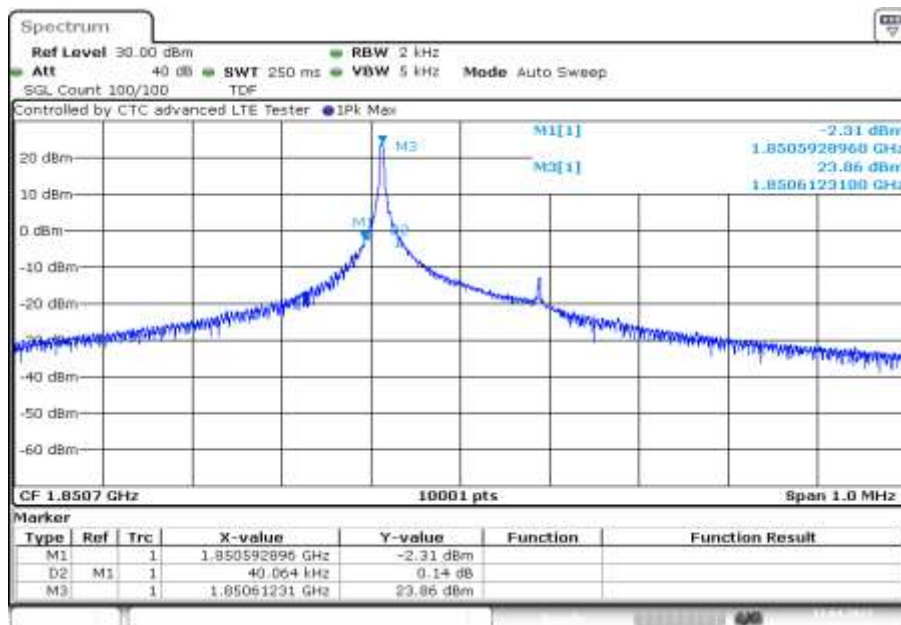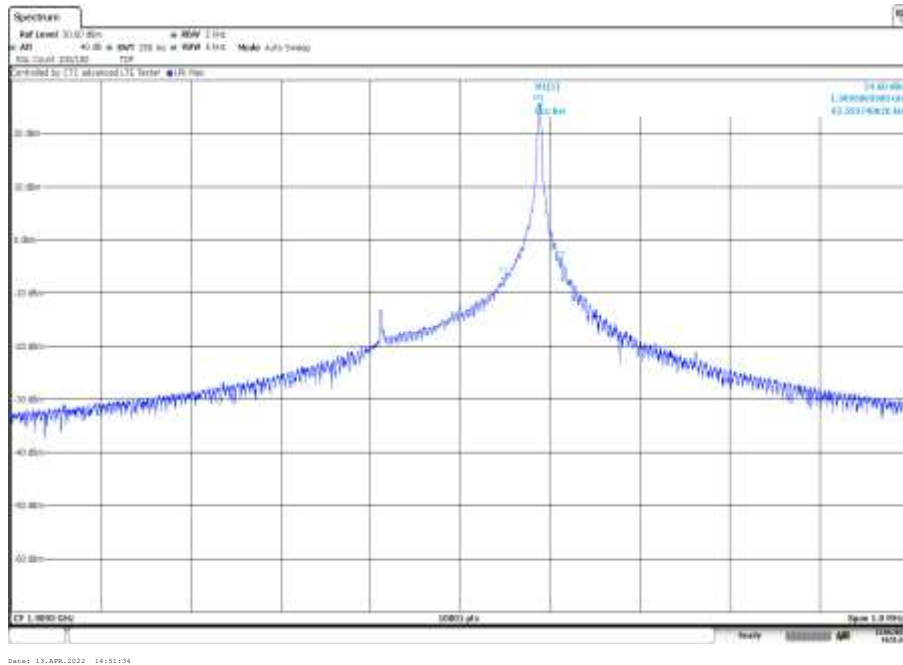

Date: 13.APR.2022 15:22:32

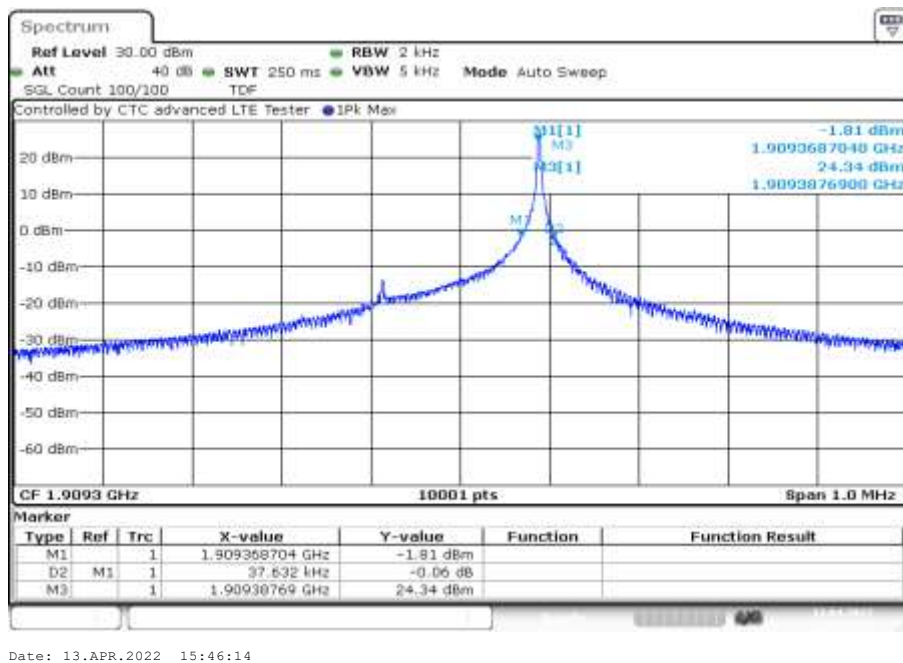**Plot 3:** mid channel (99% - OBW), spacing 3.75 kHz, 1@0 tones
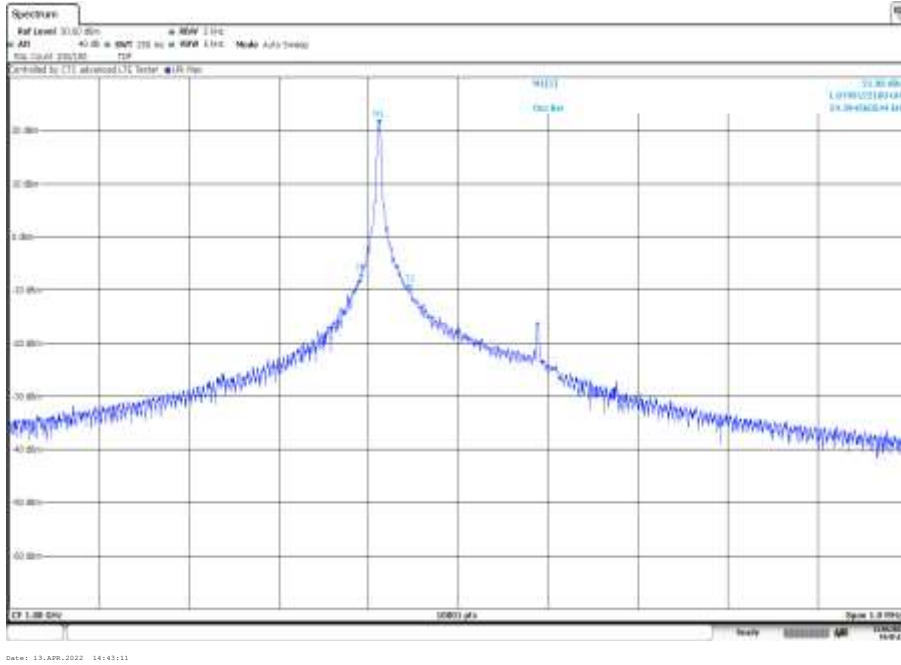
Date: 13.APR.2022 14:43:11

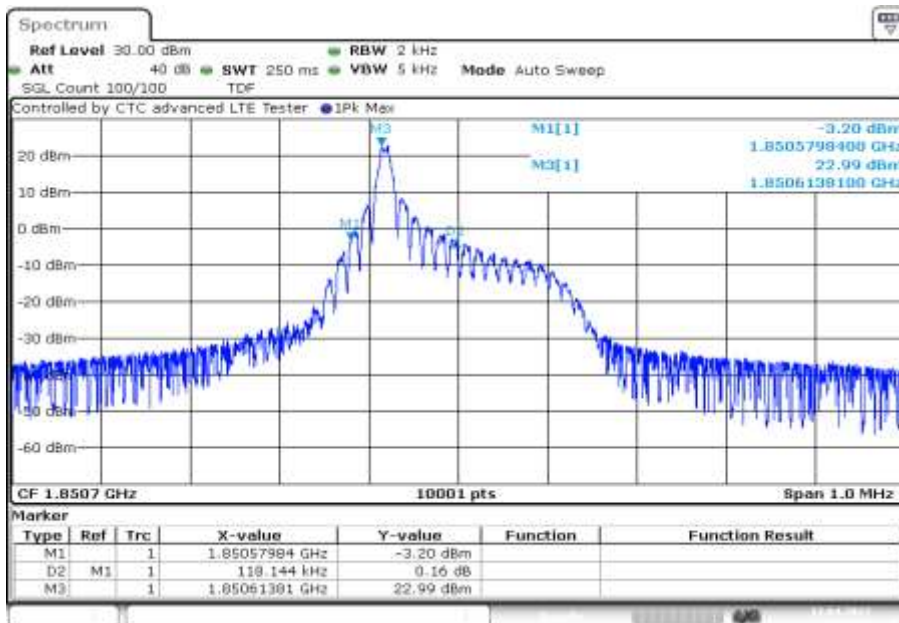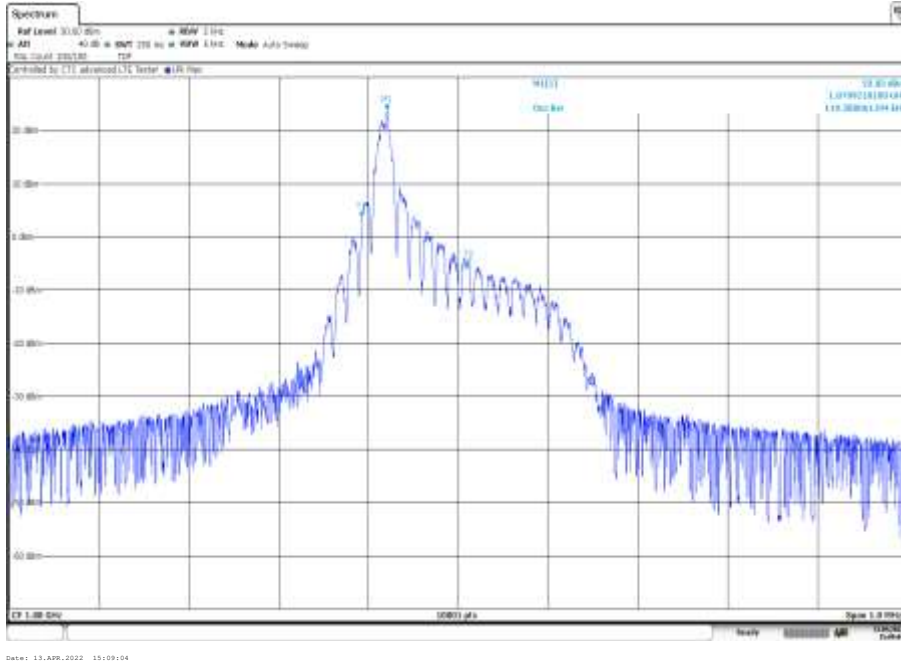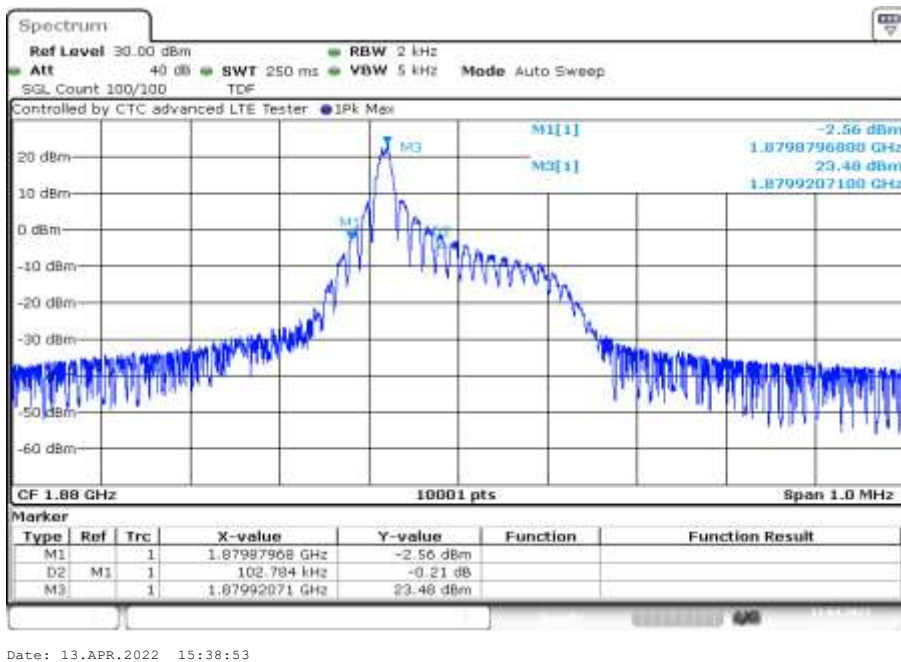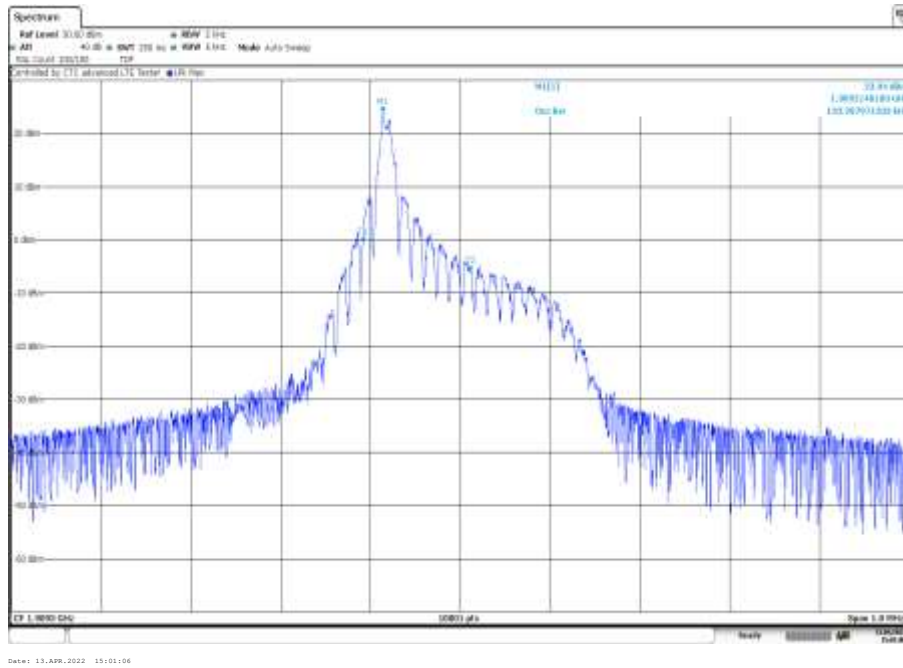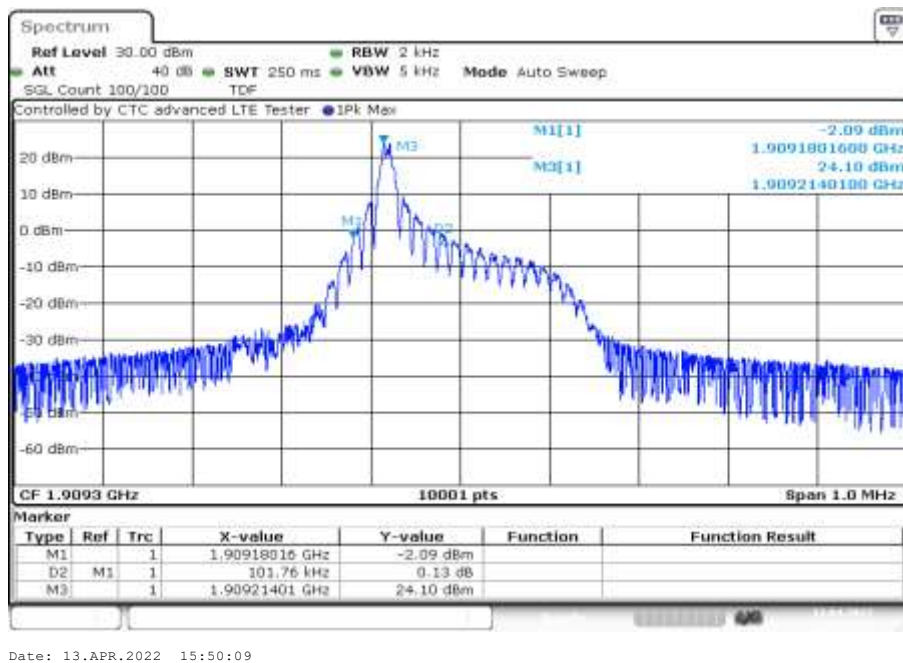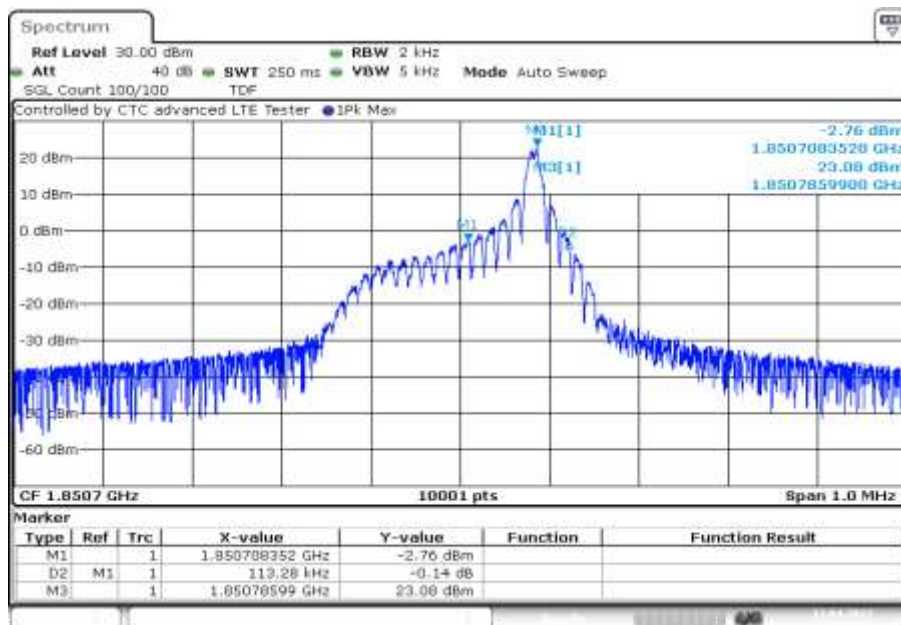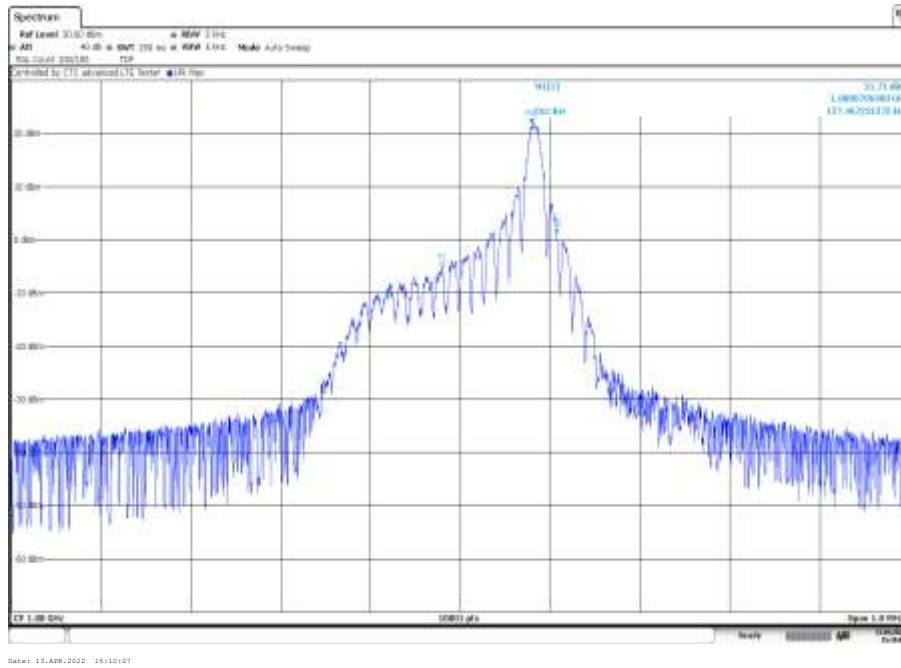**Plot 4:** mid channel (-26 dBc BW), spacing 3.75 kHz, 1@0 tones

Date: 13.APR.2022 15:33:49

Plot 5: high channel (99% - OBW), spacing 3.75 kHz, 1@0 tones

Date: 13.APR.2022 14:52:30

Plot 6: high channel (-26 dBc BW), spacing 3.75 kHz, 1@0 tones

Marker						
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.9091936 GHz	-1.71 dBm		
D2	M1	1	37.76 kHz	0.11 dB		
M3		1	1.90921141 GHz	24.46 dBm		
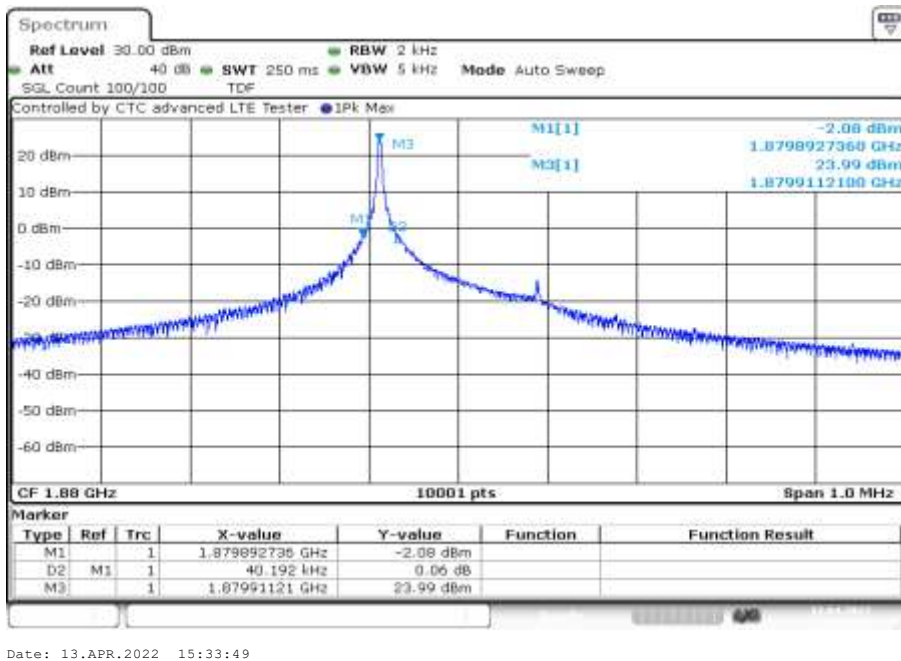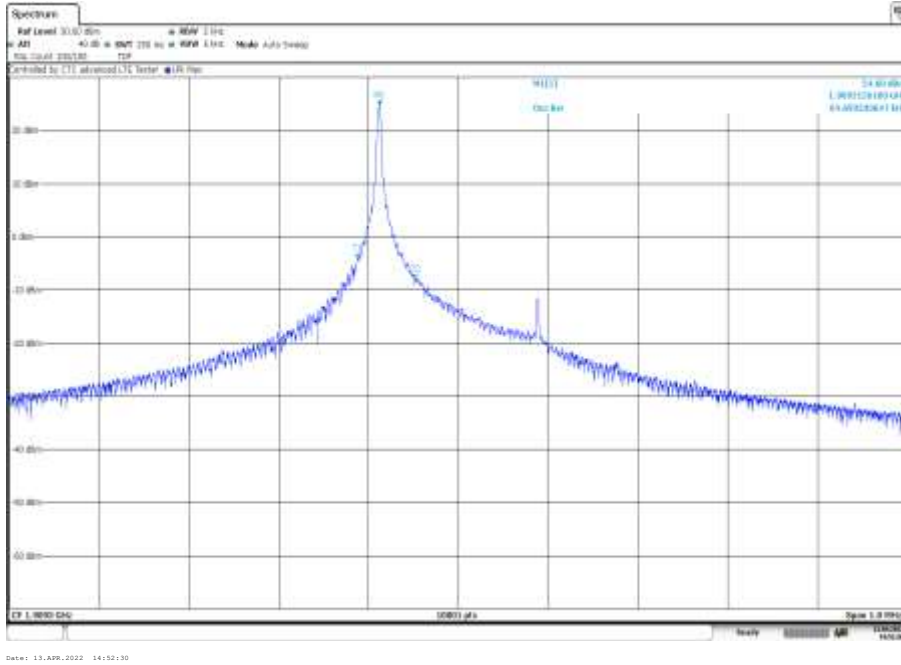
Date: 13.APR.2022 15:45:05
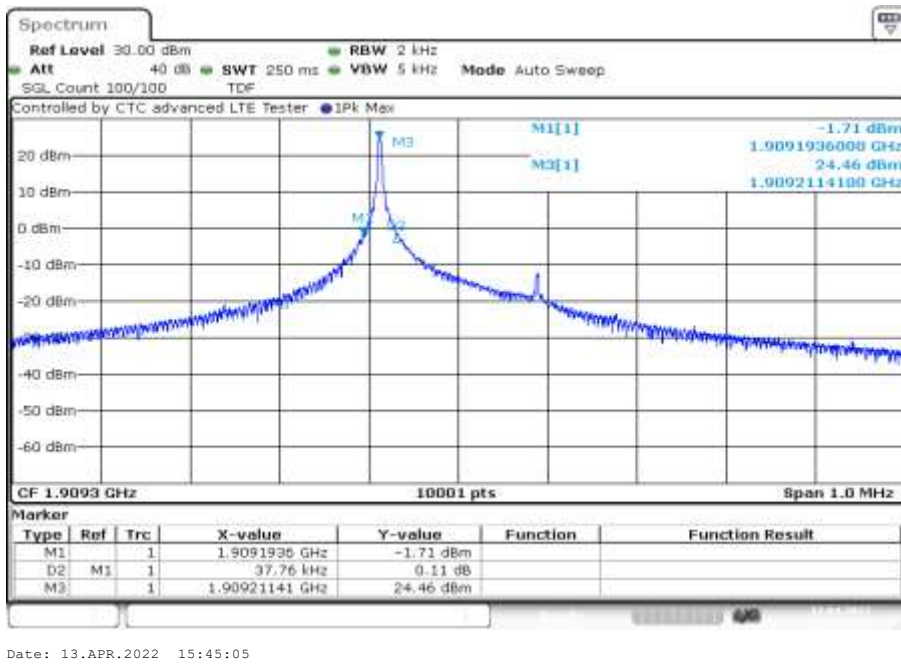
Plot 7: low channel (99% - OBW), spacing 3.75 kHz, 1@47 tones
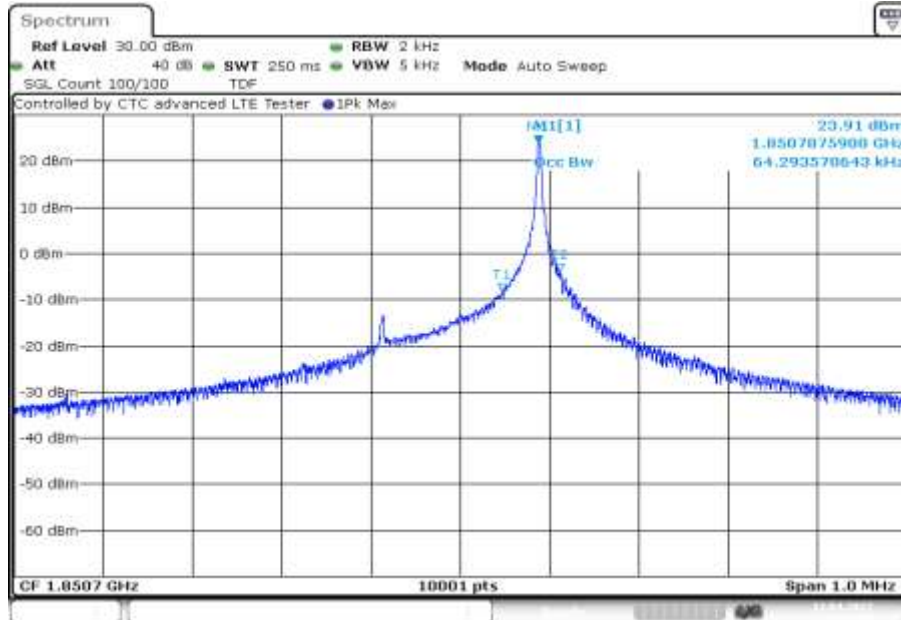
Date: 13.APR.2022 14:15:00

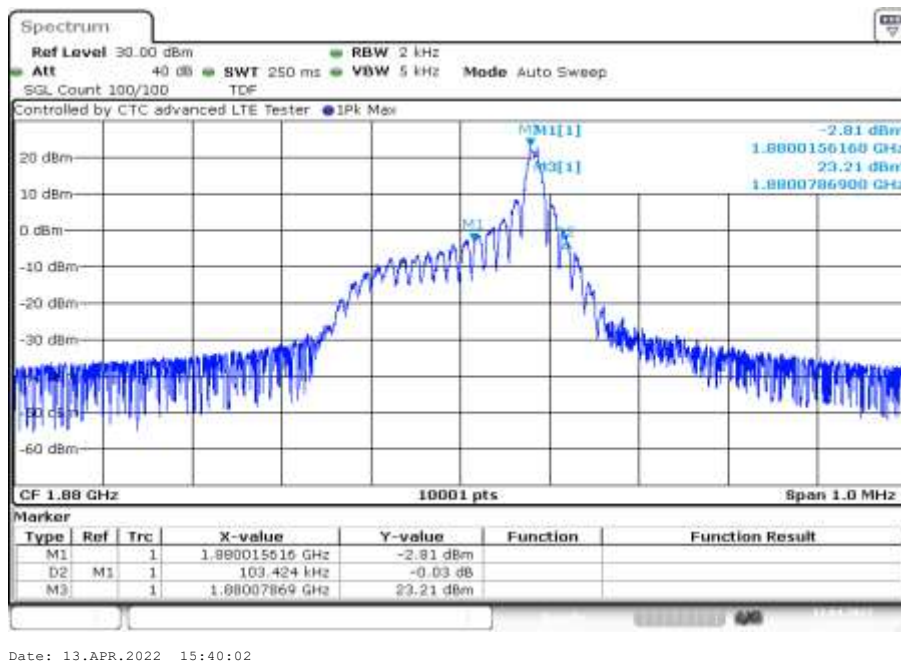**Plot 8:** low channel (-26 dBc BW), spacing 3.75 kHz, 1@47 tones
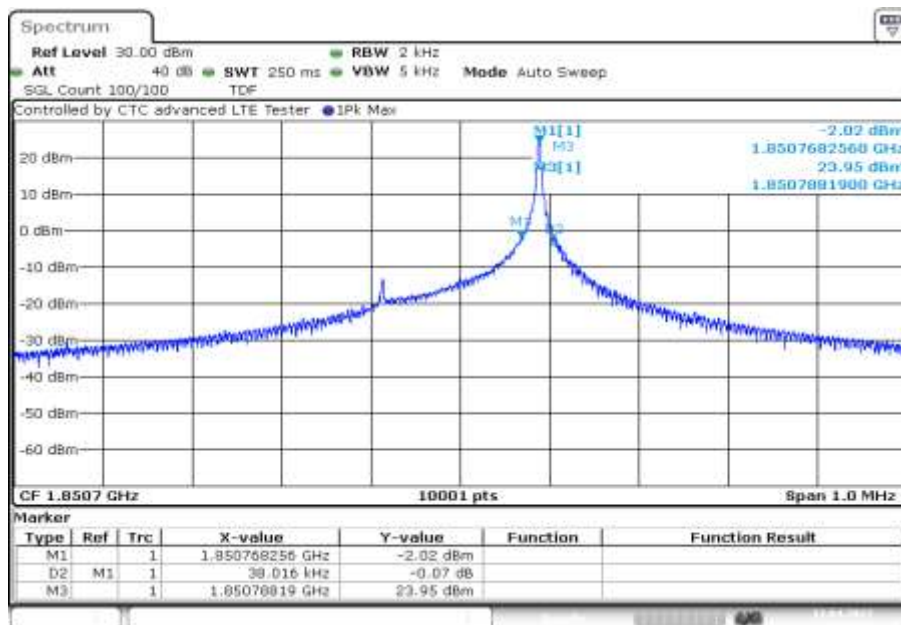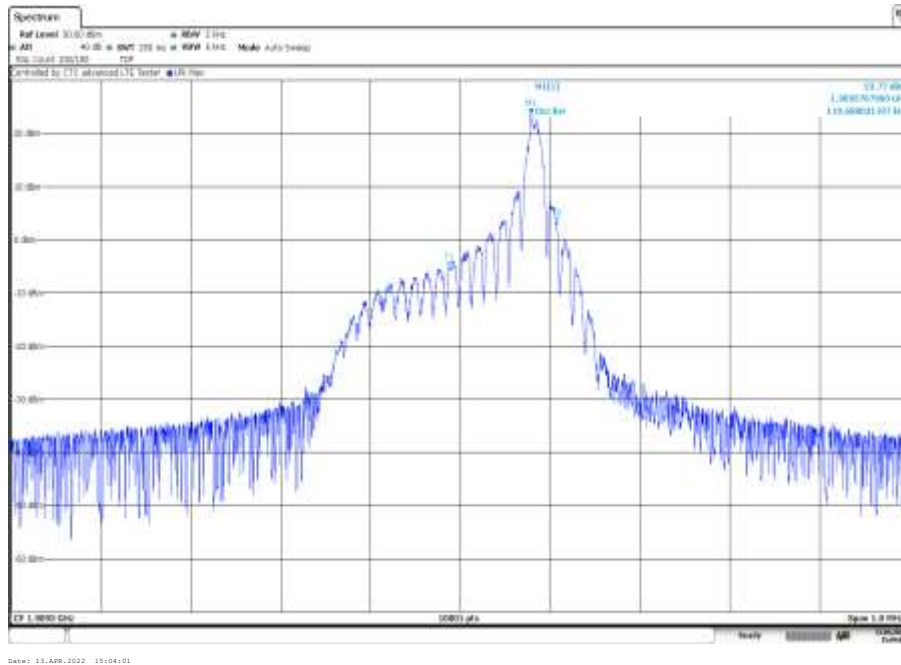

Date: 13.APR.2022 15:23:41

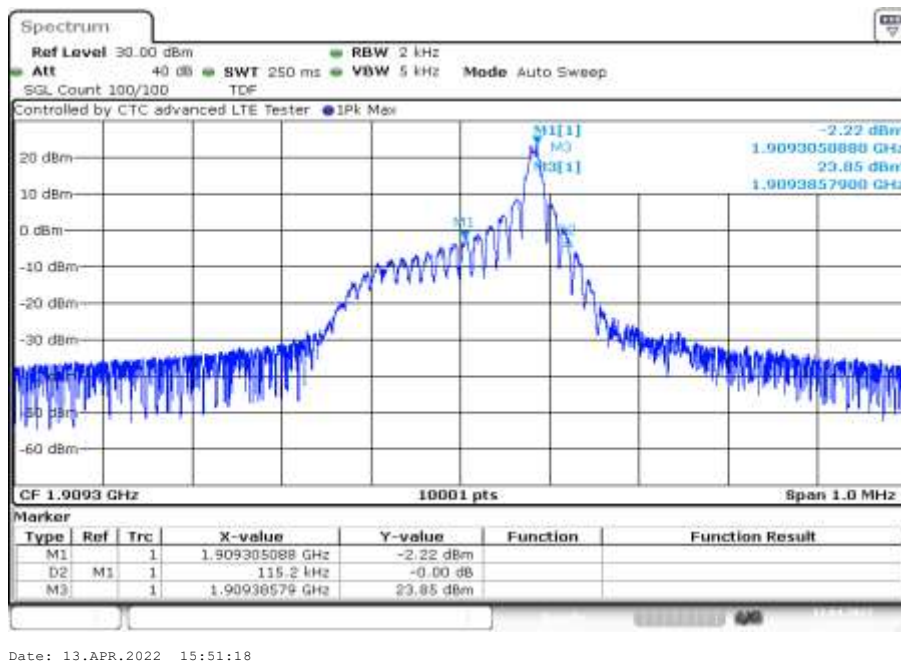**Plot 9:** mid channel (99% - OBW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 14:47:50

Plot 10: mid channel (-26 dBc BW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 15:34:58

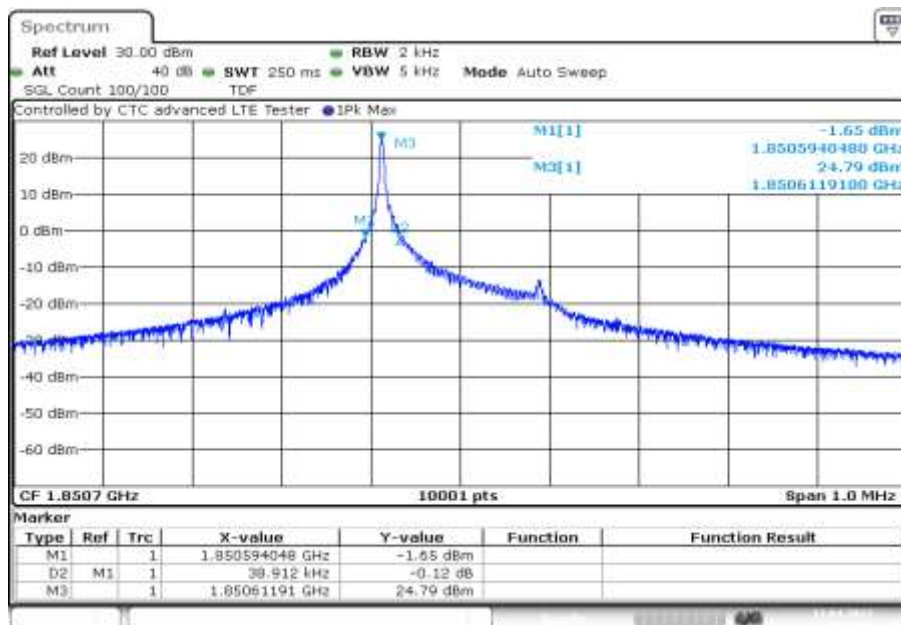**Plot 11:** high channel (99% - OBW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 14:51:34

Plot 12: high channel (-26 dBc BW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 15:46:14

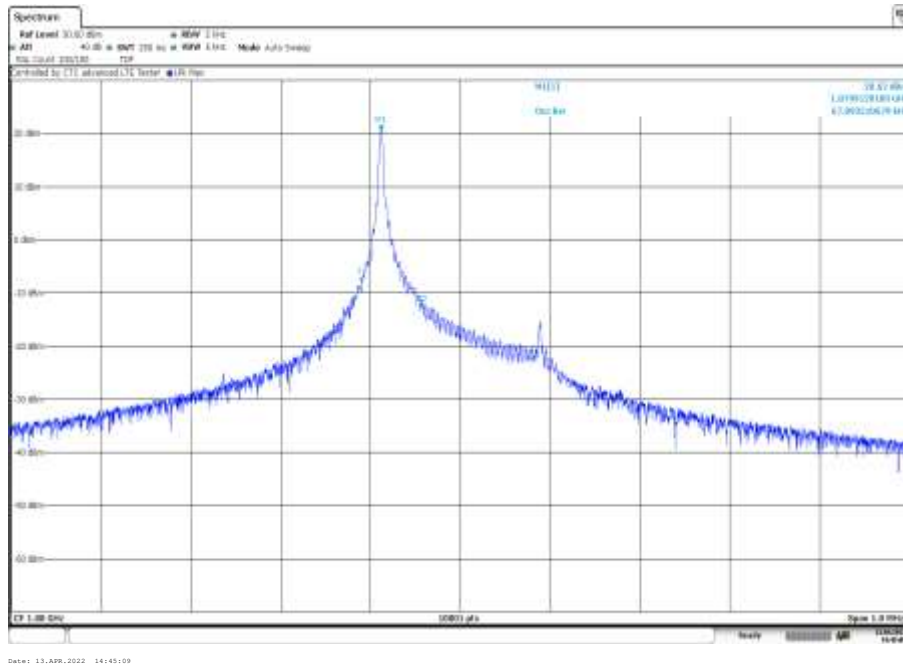**Plot 13:** low channel (99% - OBW), spacing 15 kHz, 1@0 tones
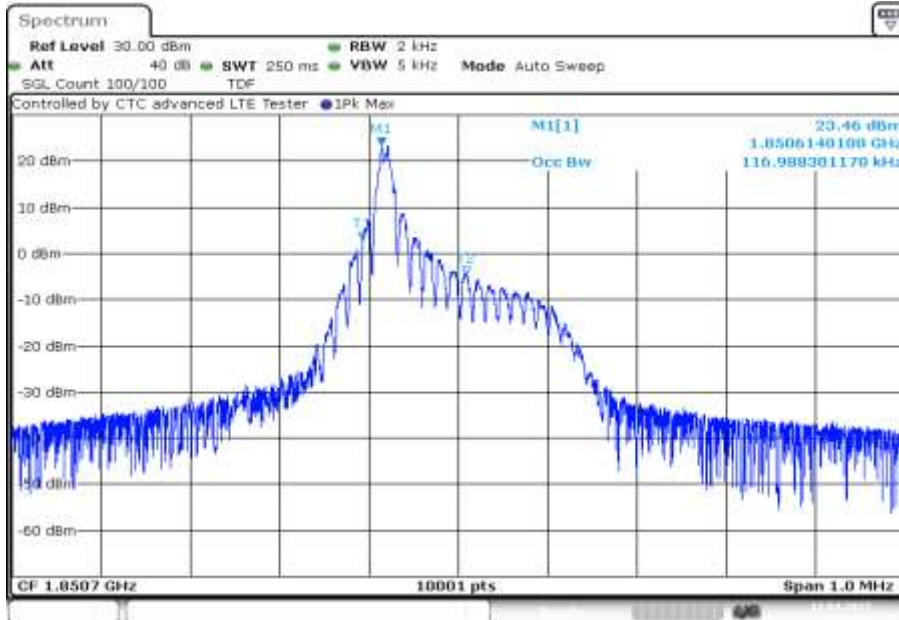
Date: 13.APR.2022 13:29:54

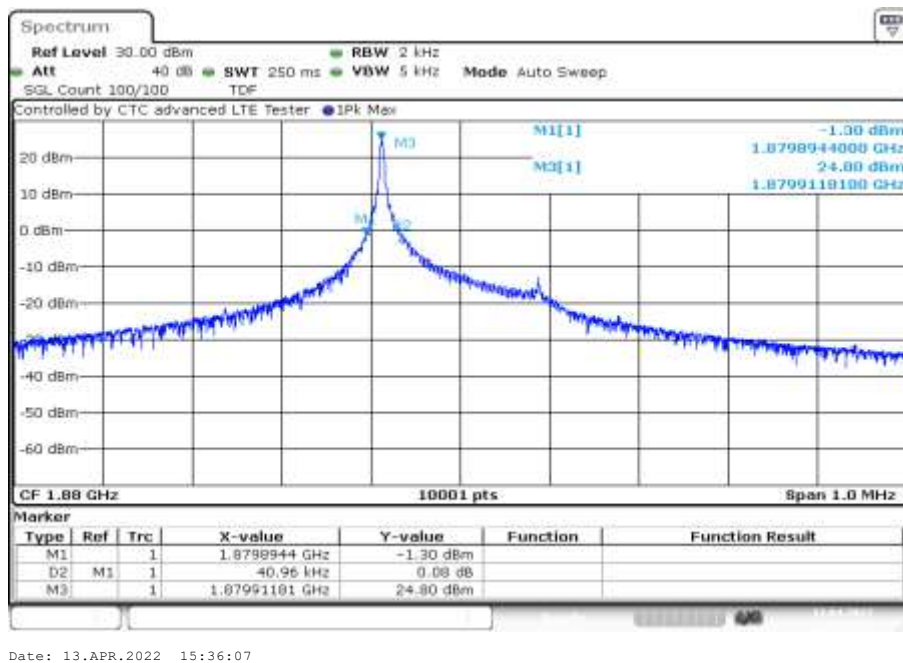**Plot 14:** low channel (-26 dBc BW), spacing 15 kHz, 1@0 tones
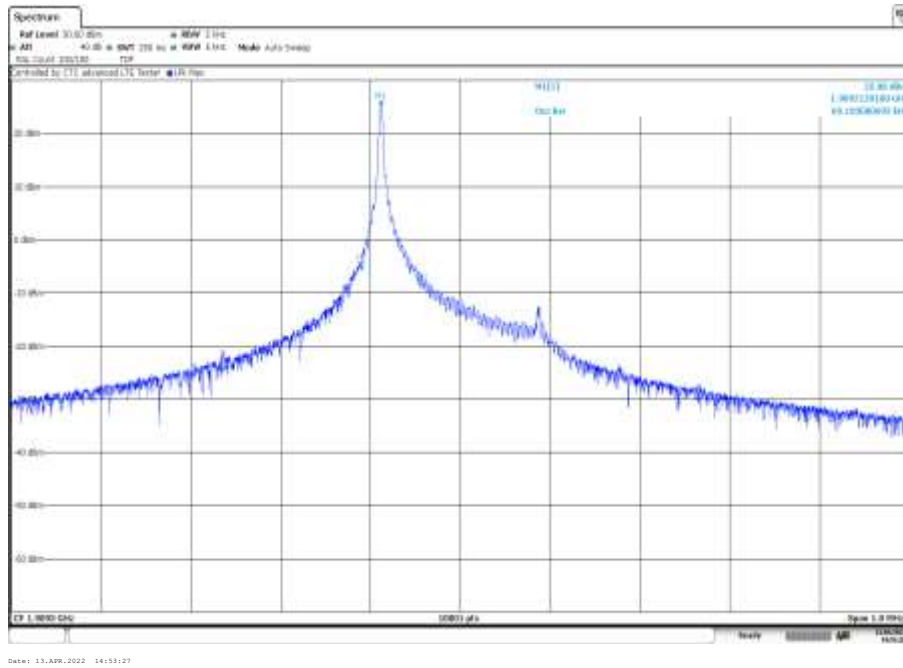

Date: 13.APR.2022 15:27:36

Plot 15: mid channel (99% - OBW), spacing 15 kHz, 1@0 tones

Date: 13.APR.2022 15:09:04

Plot 16: mid channel (-26 dBc BW), spacing 15 kHz, 1@0 tones

Date: 13.APR.2022 15:38:53

Plot 17: high channel (99% - OBW), spacing 15 kHz, 1@0 tones

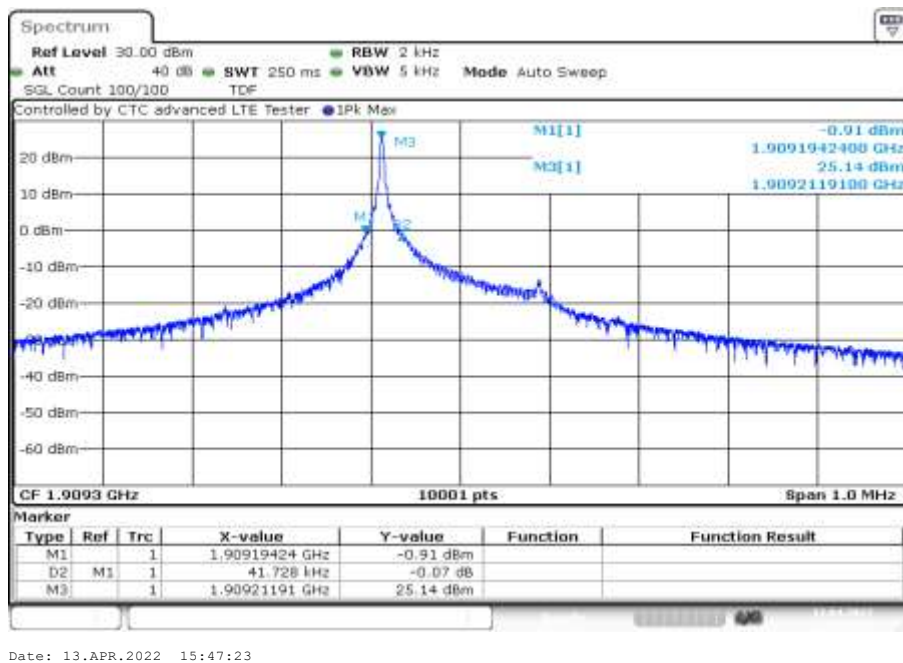Date: 13.APR.2022 15:01:06

Plot 18: high channel (-26 dBc BW), spacing 15 kHz, 1@0 tones
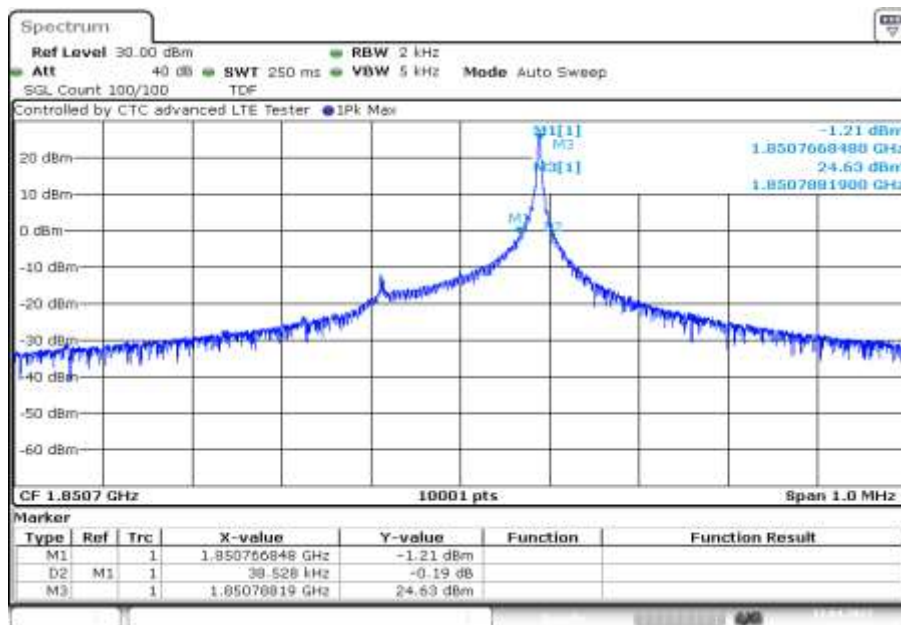

Date: 13.APR.2022 15:50:09

Plot 19: low channel (99% - OBW), spacing 15 kHz, 1@11 tones
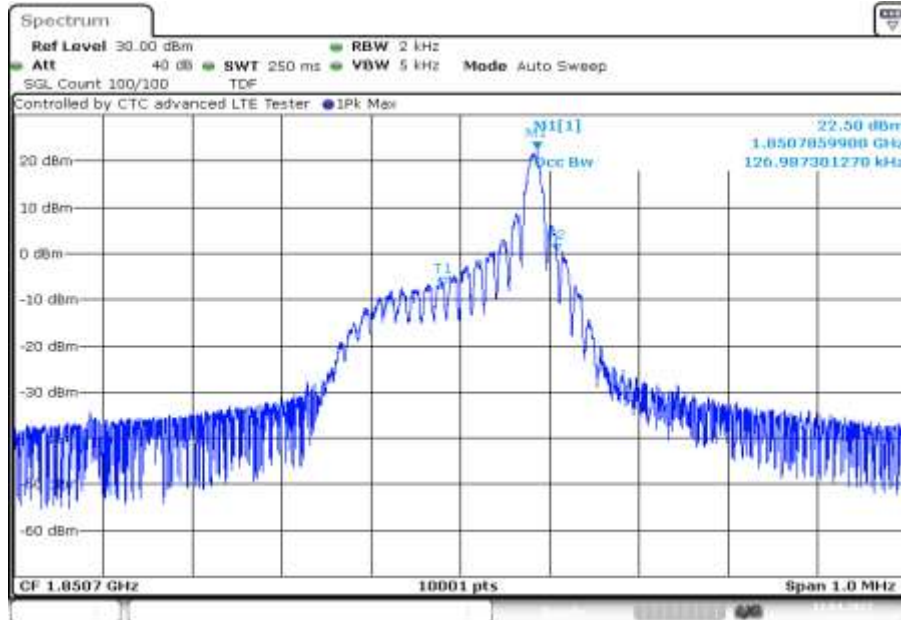
Date: 13.APR.2022 13:31:05

Plot 20: low channel (-26 dBc BW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:28:45

Plot 21: mid channel (99% - OBW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:10:07

Plot 22: mid channel (-26 dBc BW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:40:02

Plot 23: high channel (99% - OBW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:04:01

Plot 24: high channel (-26 dBc BW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:51:18

Plots: QPSK

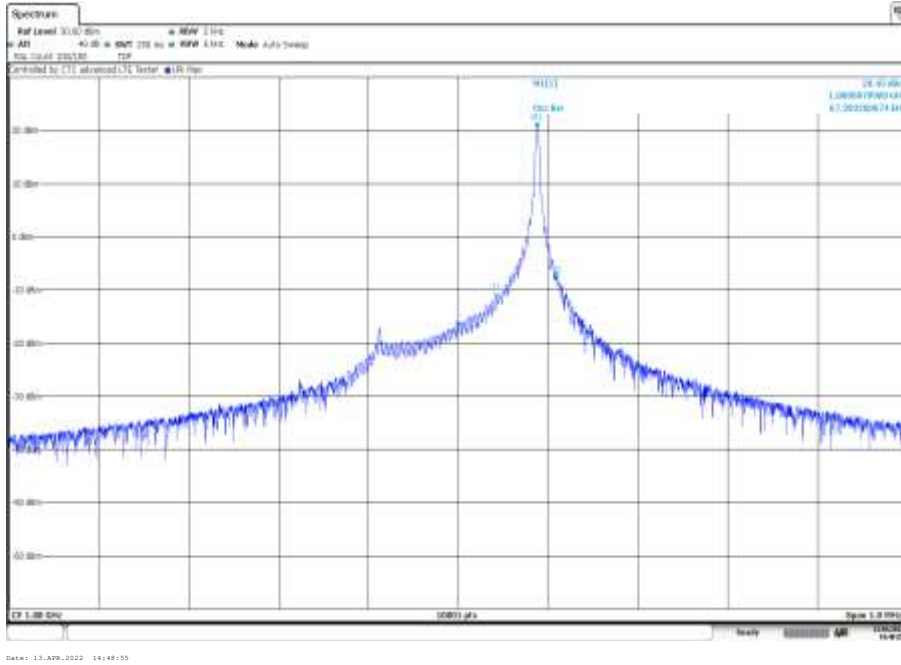**Plot 1:** low channel (99% - OBW), spacing 3.75 kHz, 1@0 tones
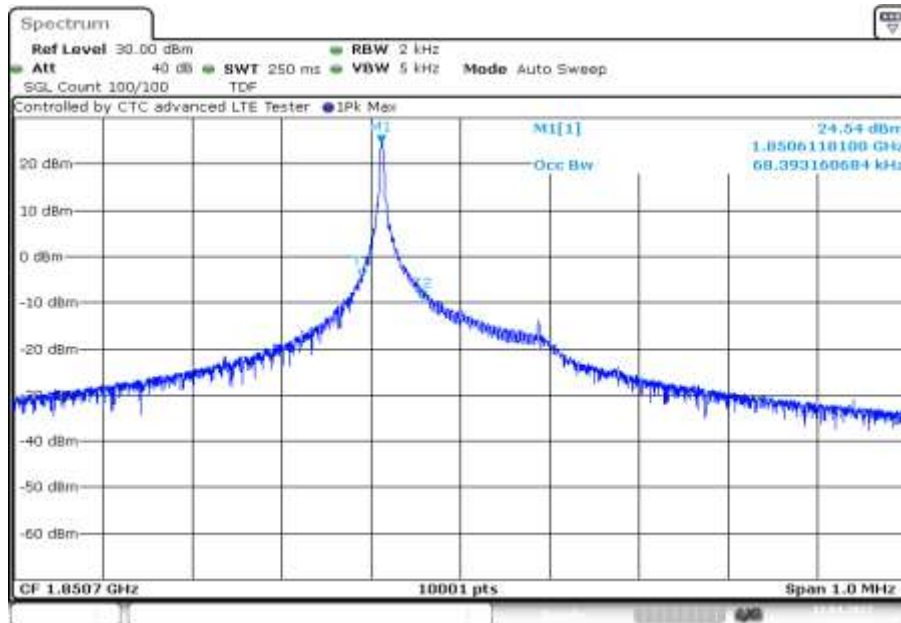
Date: 13.APR.2022 14:16:12

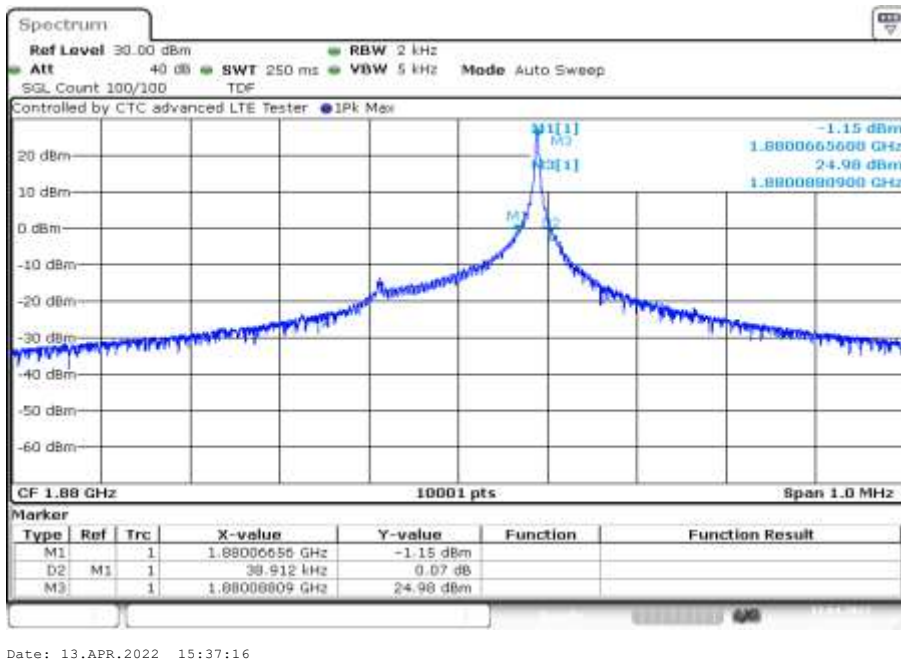**Plot 2:** low channel (-26 dBc BW), spacing 3.75 kHz, 1@0 tones
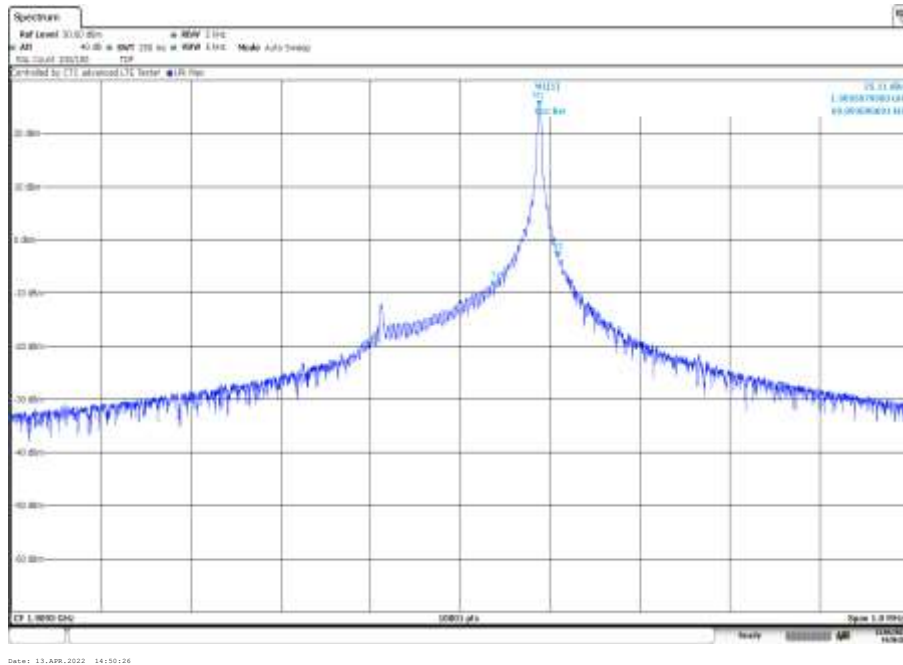

Date: 13.APR.2022 15:24:50

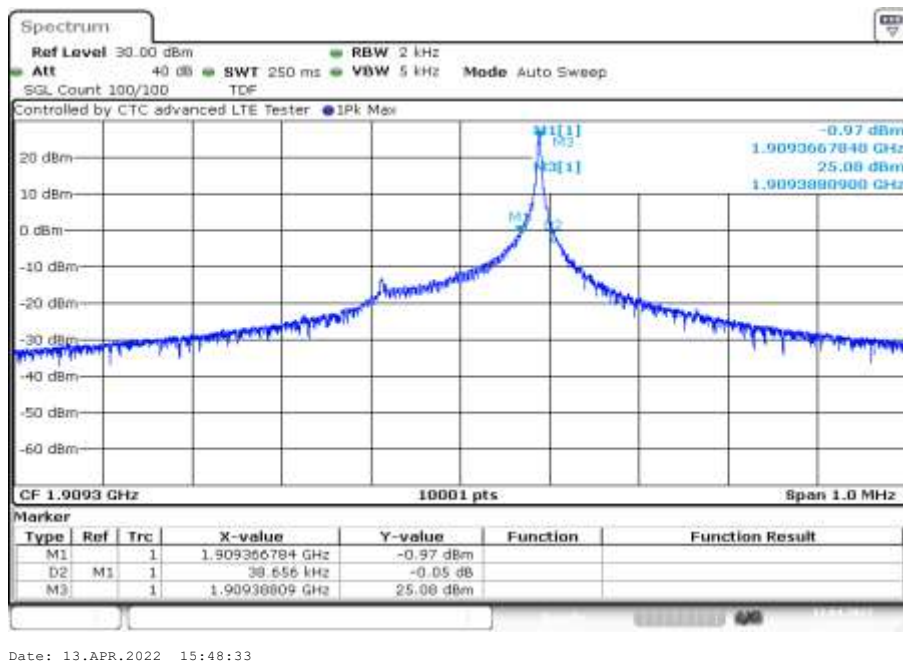**Plot 3:** mid channel (99% - OBW), spacing 3.75 kHz, 1@0 tones

Date: 13.APR.2022 14:45:09

Plot 4: mid channel (-26 dBc BW), spacing 3.75 kHz, 1@0 tones

Date: 13.APR.2022 15:36:07

Plot 5: high channel (99% - OBW), spacing 3.75 kHz, 1@0 tones

Date: 13.APR.2022 14:53:27

Plot 6: high channel (-26 dBc BW), spacing 3.75 kHz, 1@0 tones

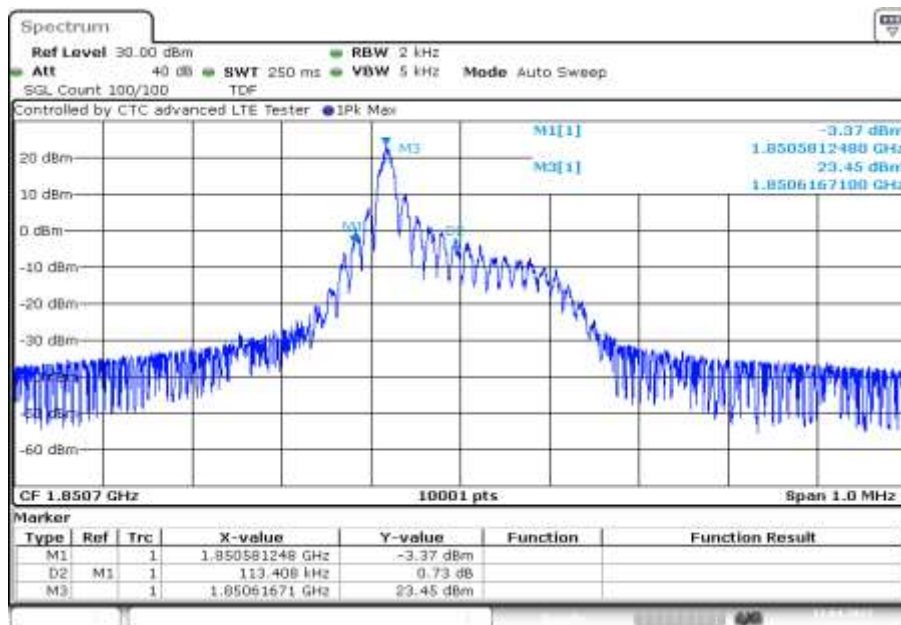Date: 13.APR.2022 15:47:23

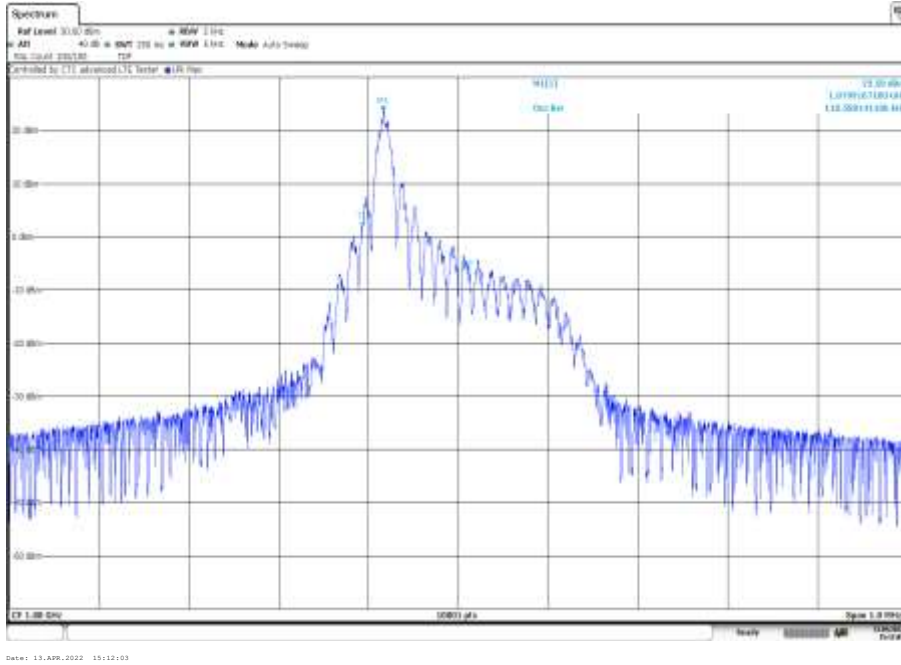**Plot 7:** low channel (99% - OBW), spacing 3.75 kHz, 1@47 tones
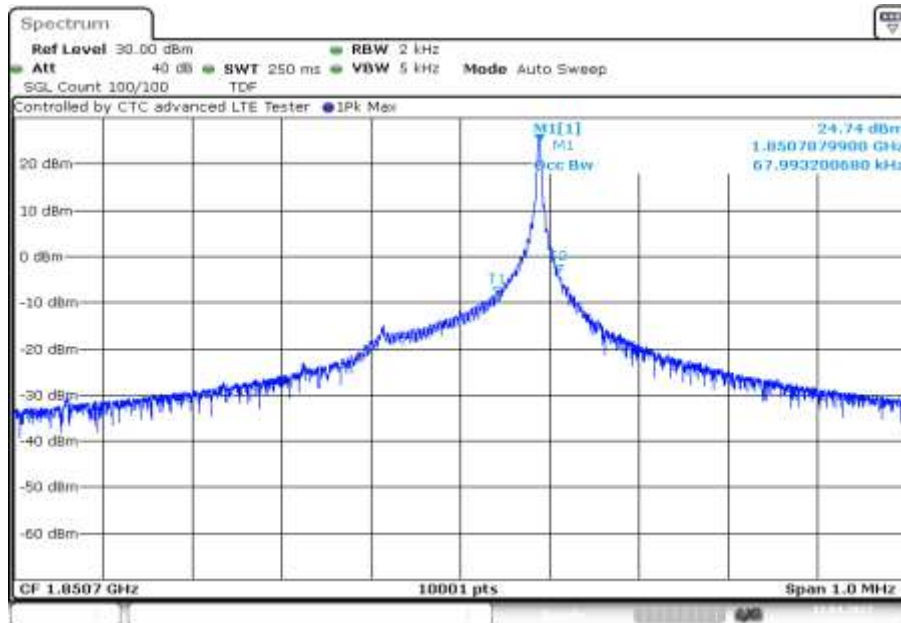
Date: 13.APR.2022 14:17:23

Plot 8: low channel (-26 dBc BW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 15:25:59

Plot 9: mid channel (99% - OBW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 14:48:55

Plot 10: mid channel (-26 dBc BW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 15:37:16

Plot 11: high channel (99% - OBW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 14:50:26

Plot 12: high channel (-26 dBc BW), spacing 3.75 kHz, 1@47 tones

Date: 13.APR.2022 15:48:33

Plot 13: low channel (99% - OBW), spacing 15 kHz, 1@0 tones
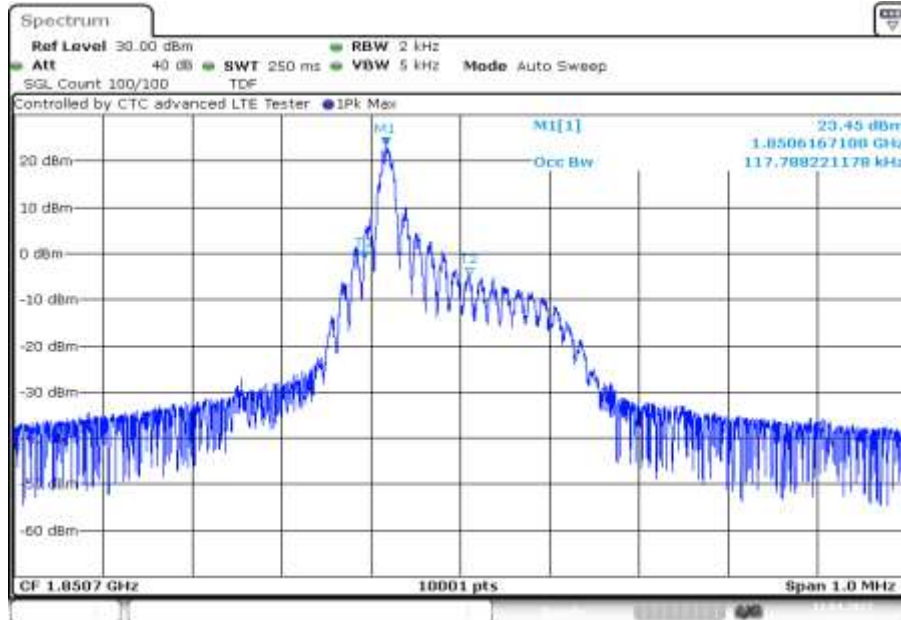
Date: 13.APR.2022 13:32:17

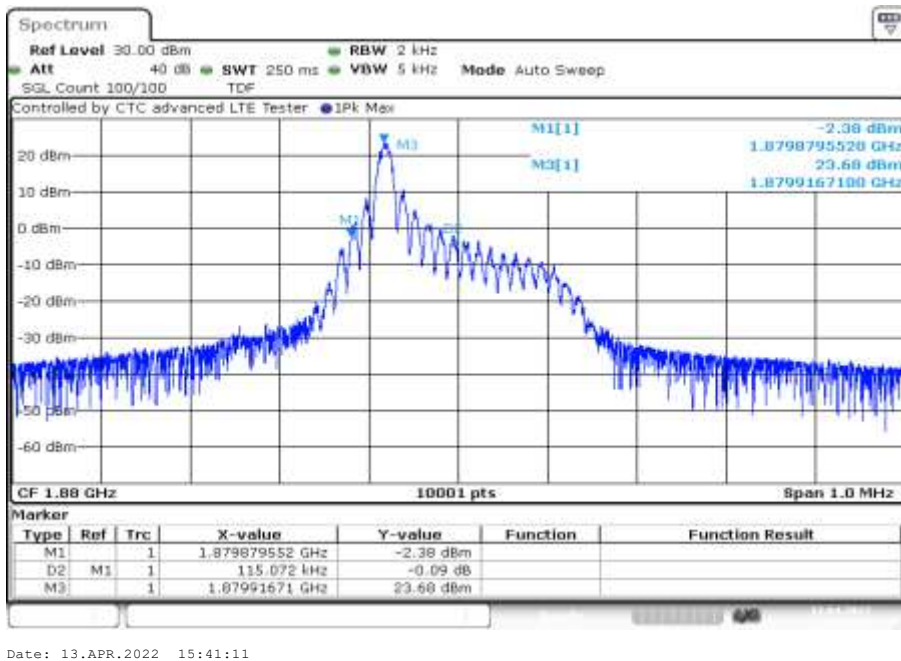**Plot 14:** low channel (-26 dBc BW), spacing 15 kHz, 1@0 tones
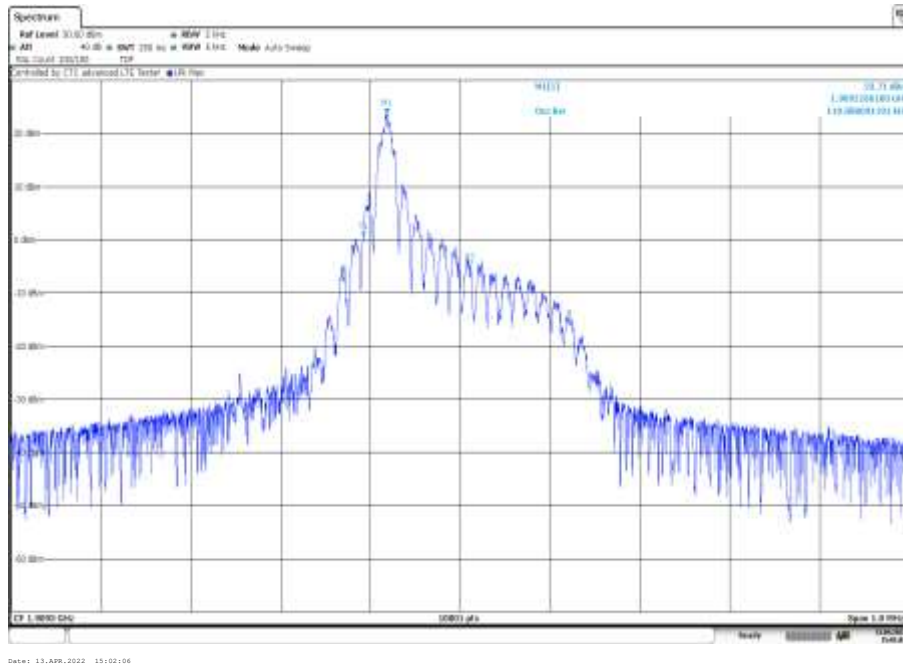

Date: 13.APR.2022 15:29:54

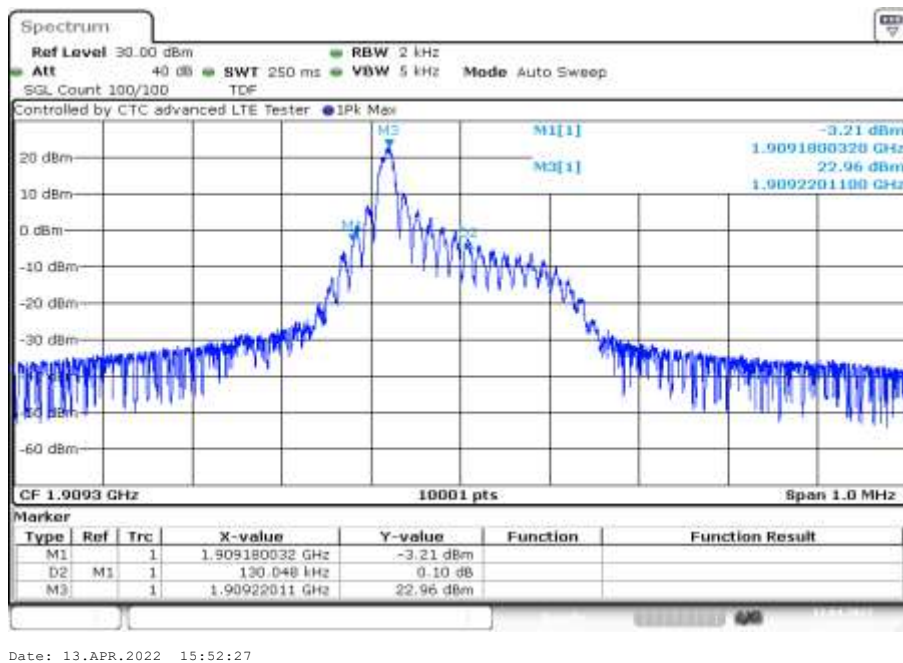**Plot 15:** mid channel (99% - OBW), spacing 15 kHz, 1@0 tones

Date: 13.APR.2022 15:12:03

Plot 16: mid channel (-26 dBc BW), spacing 15 kHz, 1@0 tones

Date: 13.APR.2022 15:41:11

Plot 17: high channel (99% - OBW), spacing 15 kHz, 1@0 tones

Date: 13.APR.2022 15:02:06

Plot 18: high channel (-26 dBc BW), spacing 15 kHz, 1@0 tones
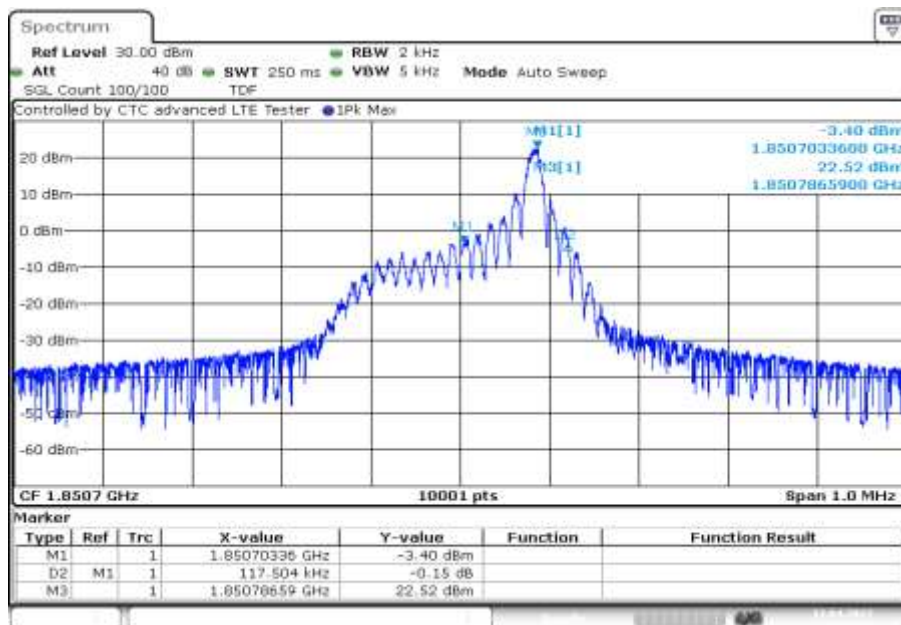

Date: 13.APR.2022 15:52:27

Plot 19: low channel (99% - OBW), spacing 15 kHz, 1@11 tones
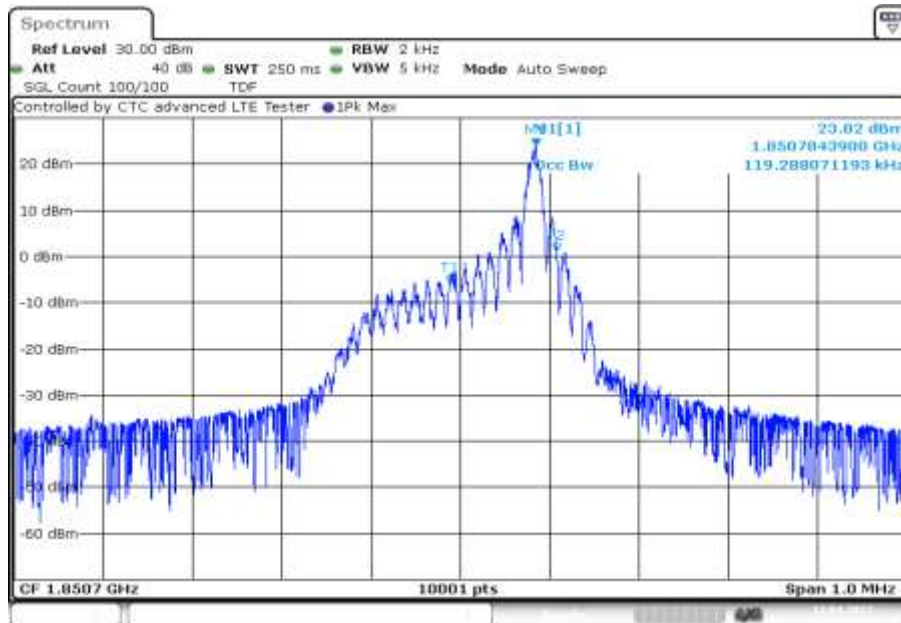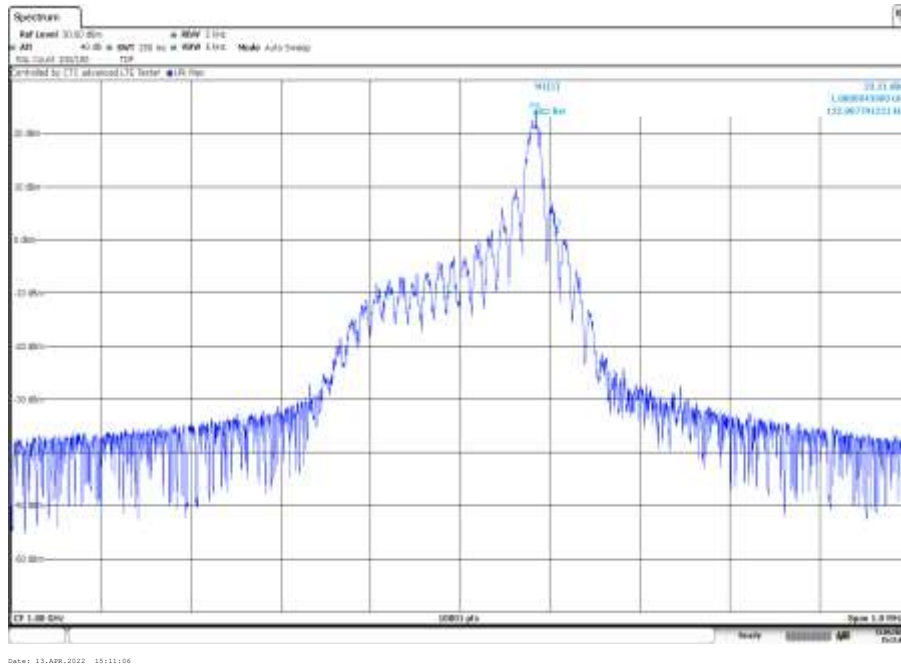

Date: 13.APR.2022 13:33:28

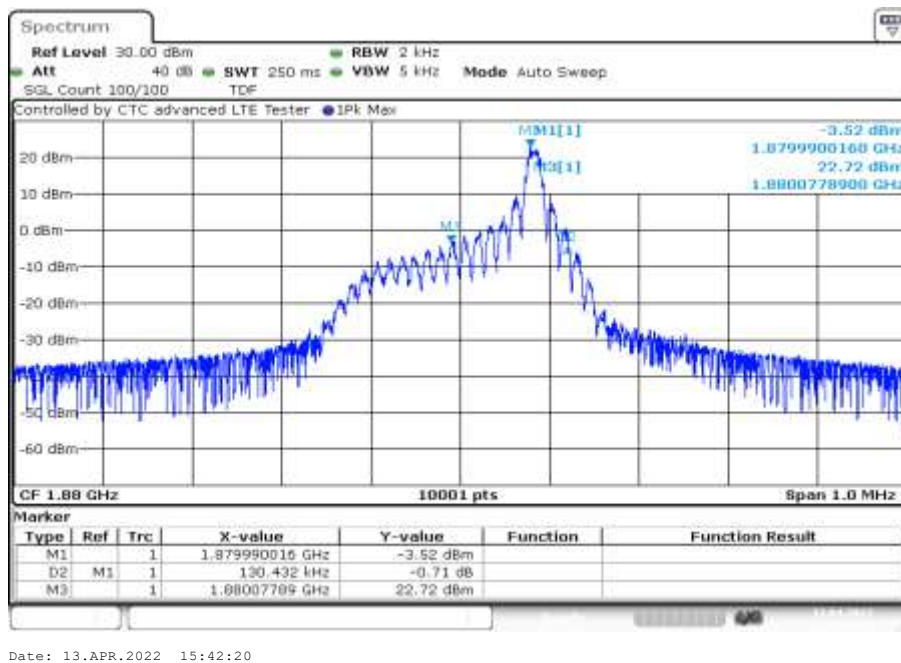**Plot 20:** low channel (-26 dBc BW), spacing 15 kHz, 1@11 tones
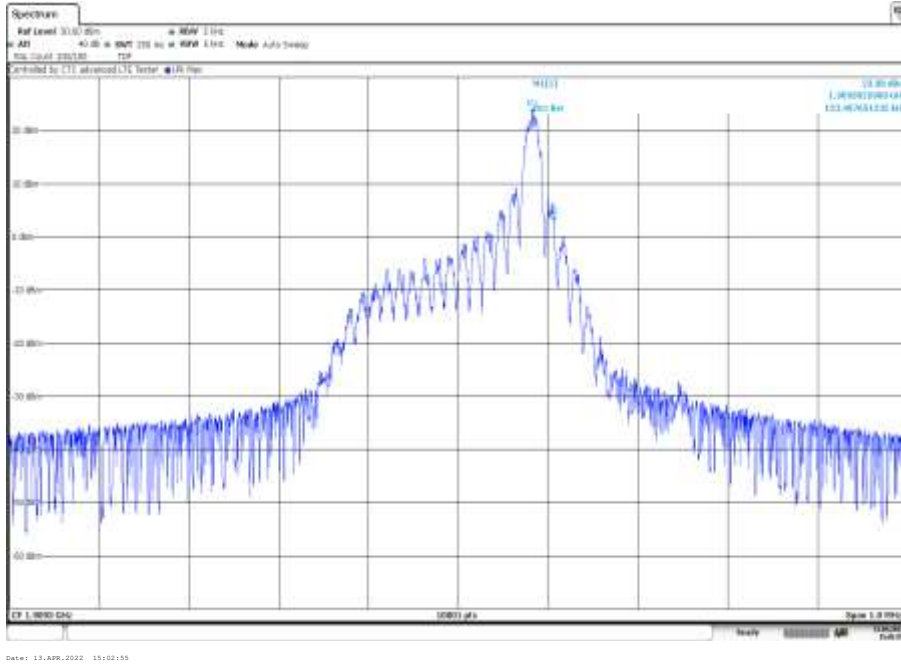

Date: 13.APR.2022 15:31:04

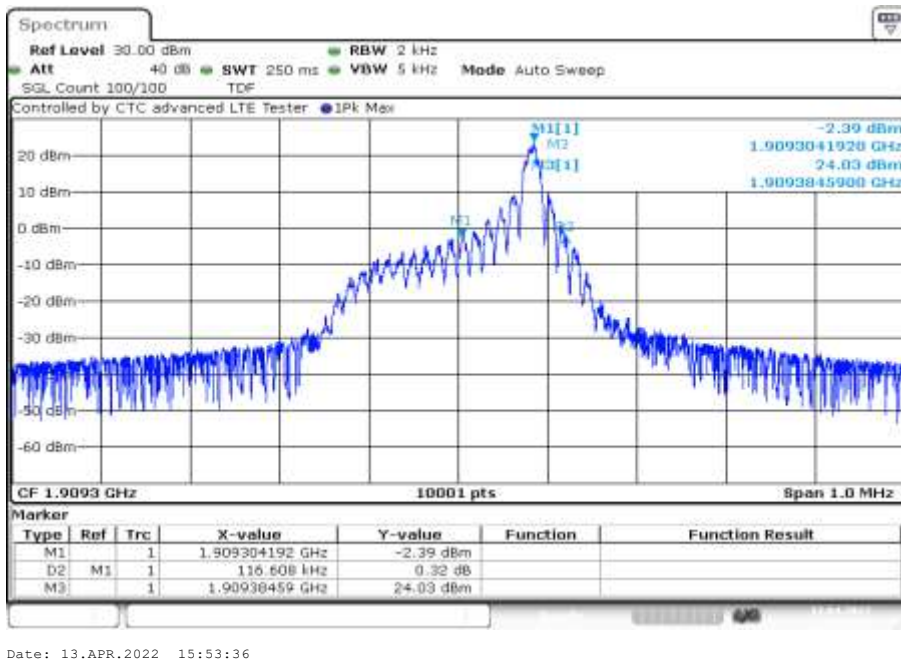**Plot 21:** mid channel (99% - OBW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:11:06

Plot 22: mid channel (-26 dBc BW), spacing 15 kHz, 1@11 tones

Marker						
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.879990016 GHz	-3.52 dBm		
D2	M1	1	130.432 kHz	-0.71 dB		
M3		1	1.88007709 GHz	22.72 dBm		

Date: 13.APR.2022 15:42:20

Plot 23: high channel (99% - OBW), spacing 15 kHz, 1@11 tones

Date: 13.APR.2022 15:02:55

Plot 24: high channel (-26 dBc BW), spacing 15 kHz, 1@11 tones

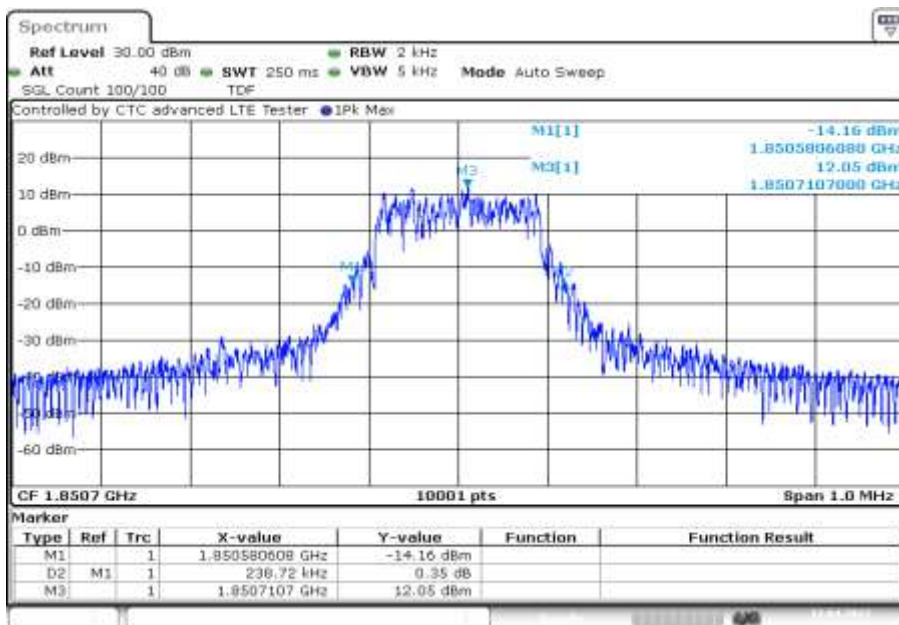Date: 13.APR.2022 15:53:36

Plot 25: low channel (99% - OBW), spacing 15 kHz, 12@0 tones
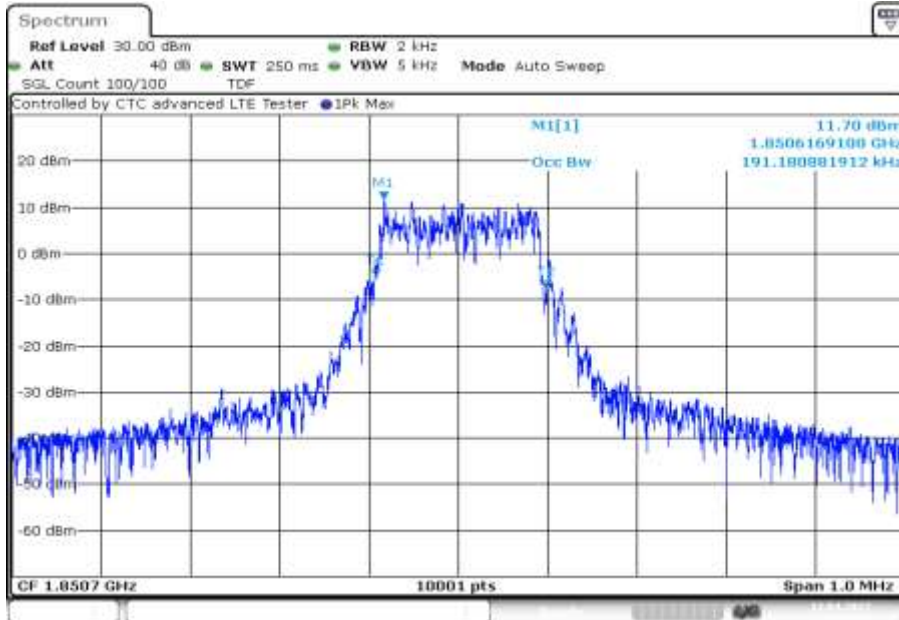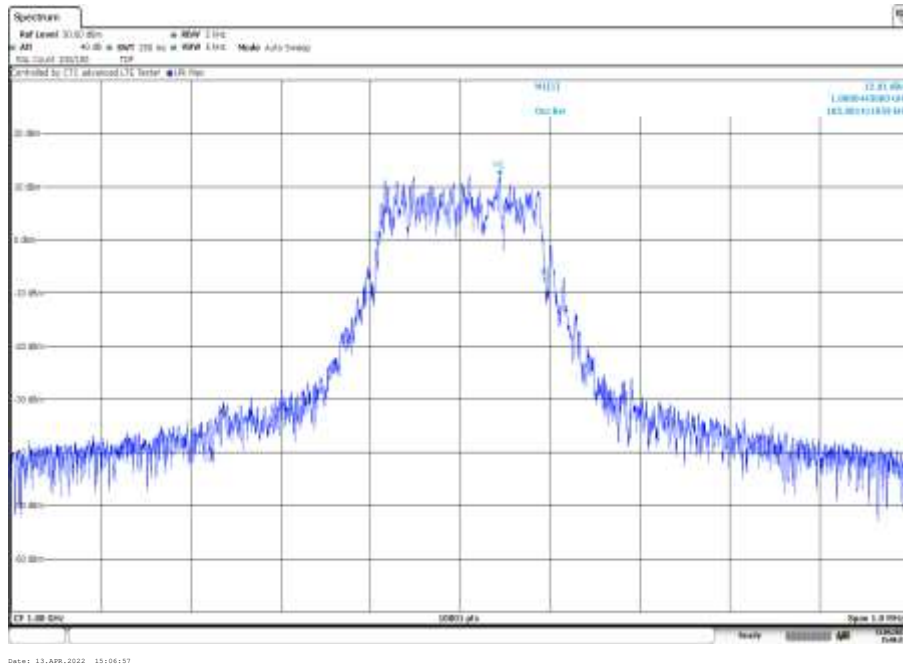

Date: 13.APR.2022 13:34:40

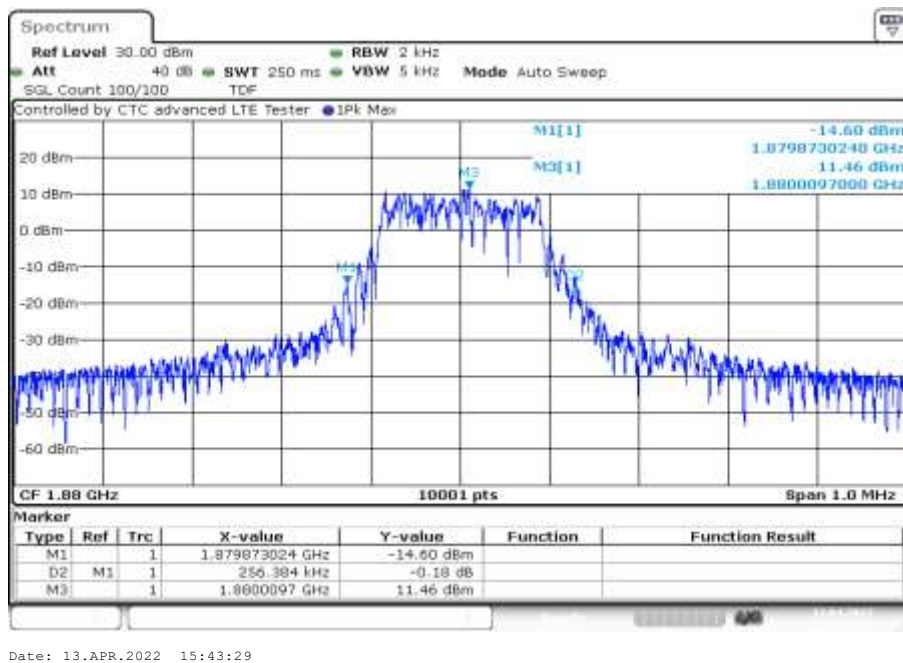**Plot 26:** low channel (-26 dBc BW), spacing 15 kHz, 12@0 tones
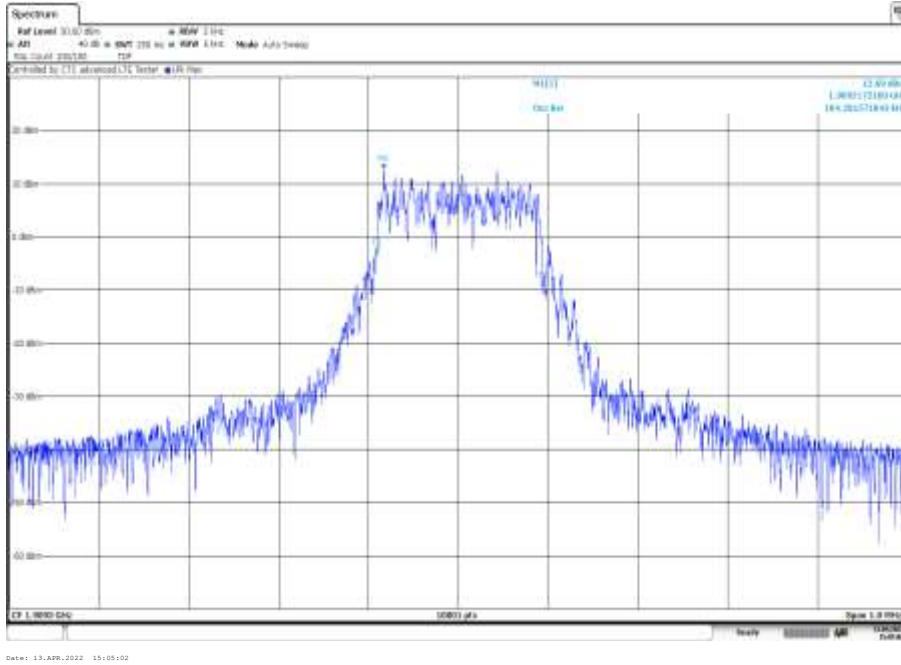

Date: 13.APR.2022 15:32:13

Plot 27: mid channel (99% - OBW), spacing 15 kHz, 12@0 tones

Date: 13.APR.2022 15:06:57

Plot 28: mid channel (-26 dBc BW), spacing 15 kHz, 12@0 tones

Date: 13.APR.2022 15:43:29

Plot 29: high channel (99% - OBW), spacing 15 kHz, 12@0 tones

Date: 13.APR.2022 15:05:02

Plot 30: high channel (-26 dBc BW), spacing 15 kHz, 12@0 tones

Date: 13.APR.2022 15:54:45