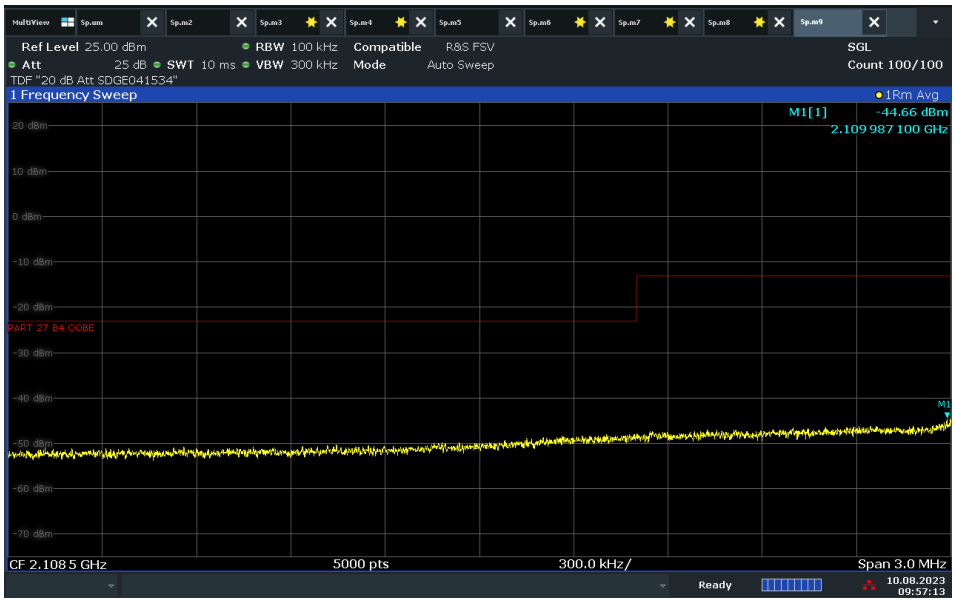
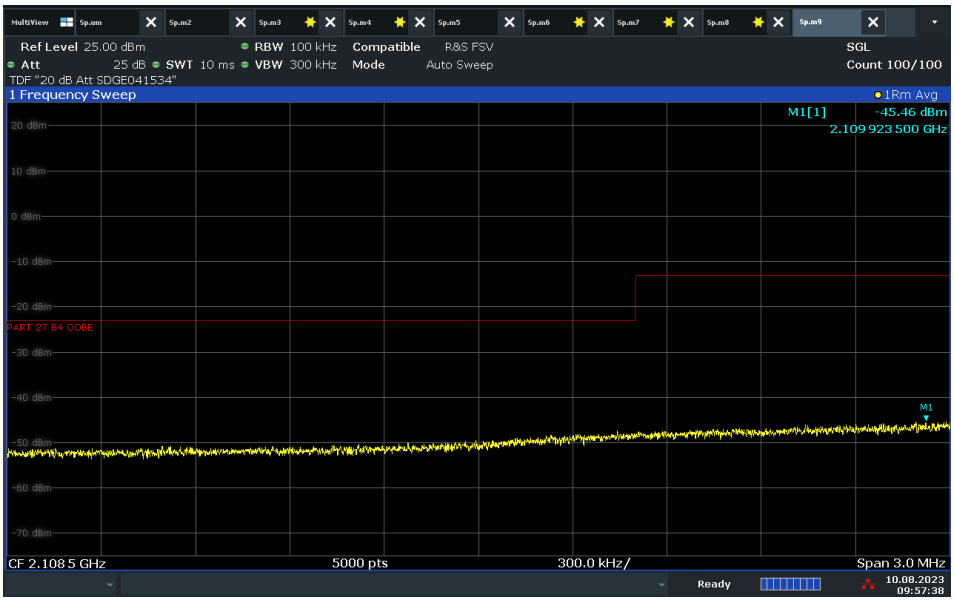
LTE Band 4 Downlink 5MHz Bandwidth Low Channel (-82.5 dBm)

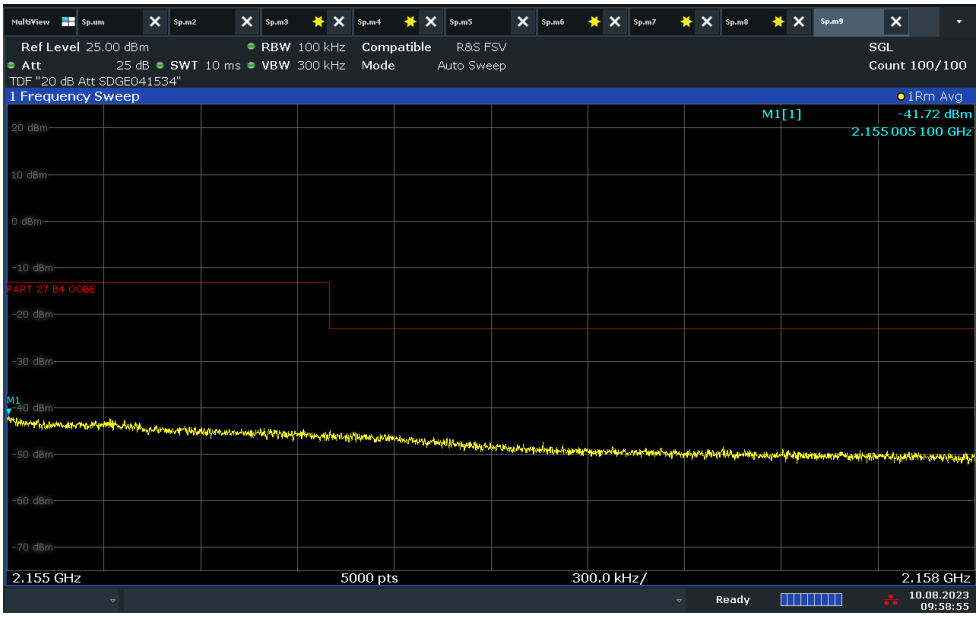


09:57:14 10.08.2023

LTE Band 4 Downlink 5MHz Bandwidth Low Channel 10 dB Above AGC



09:57:39 10.08.2023

LTE Band 4 Downlink 5MHz Bandwidth High Channel (-82.5 dBm)
 09:58:55 10.08.2023
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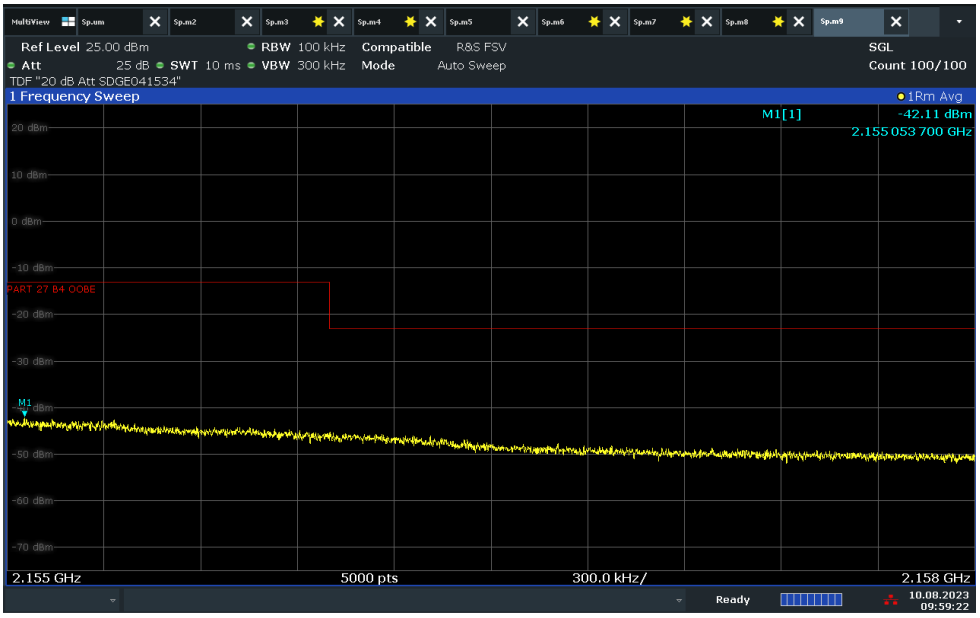
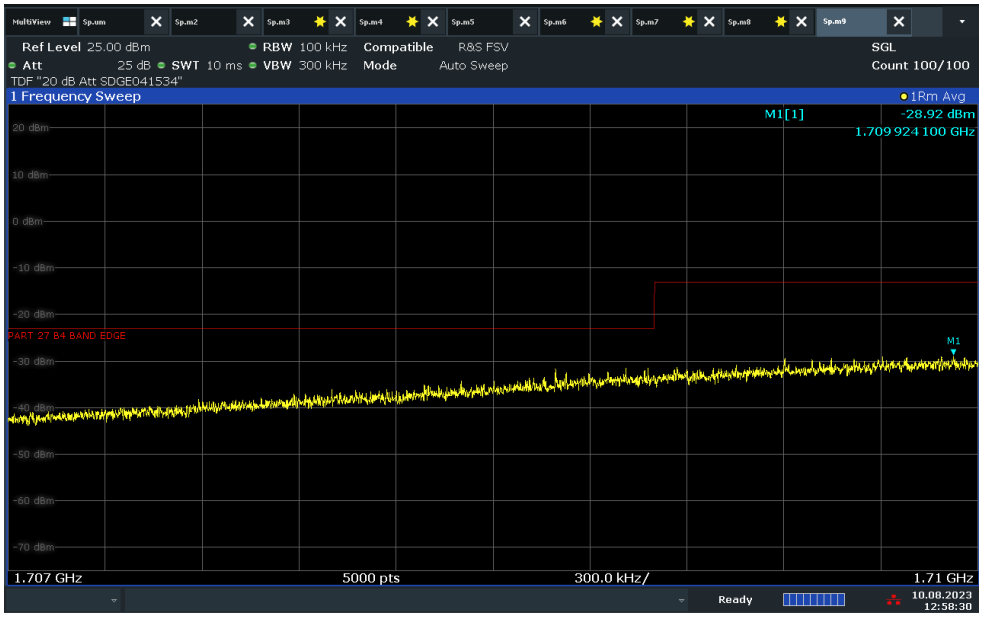
 09:59:23 10.08.2023

LTE Band 4 Uplink 5MHz Bandwidth Low Channel (-77.3 dBm)
 12:58:30 10.08.2023
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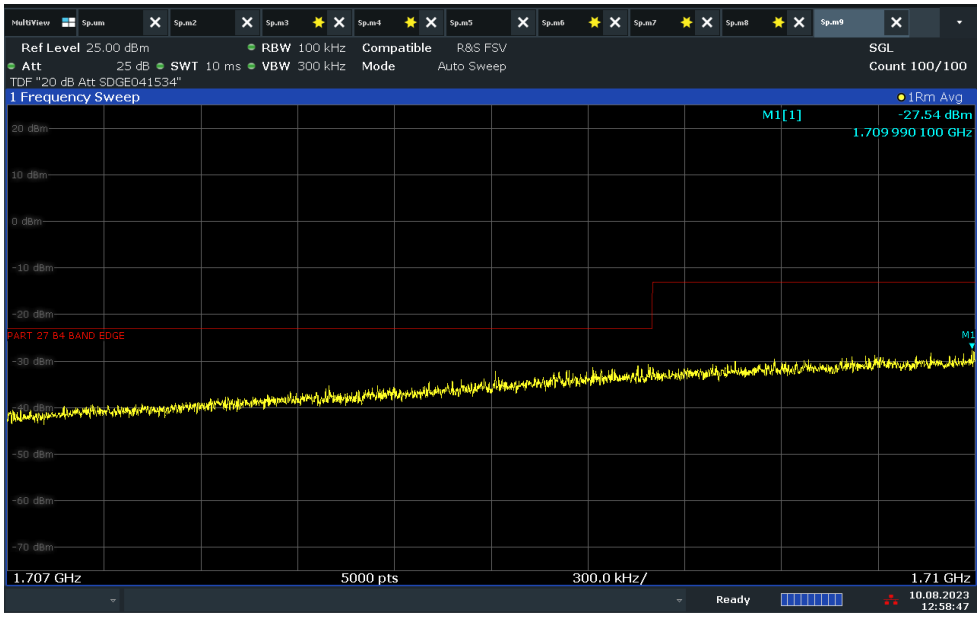 12:58:47 10.08.2023

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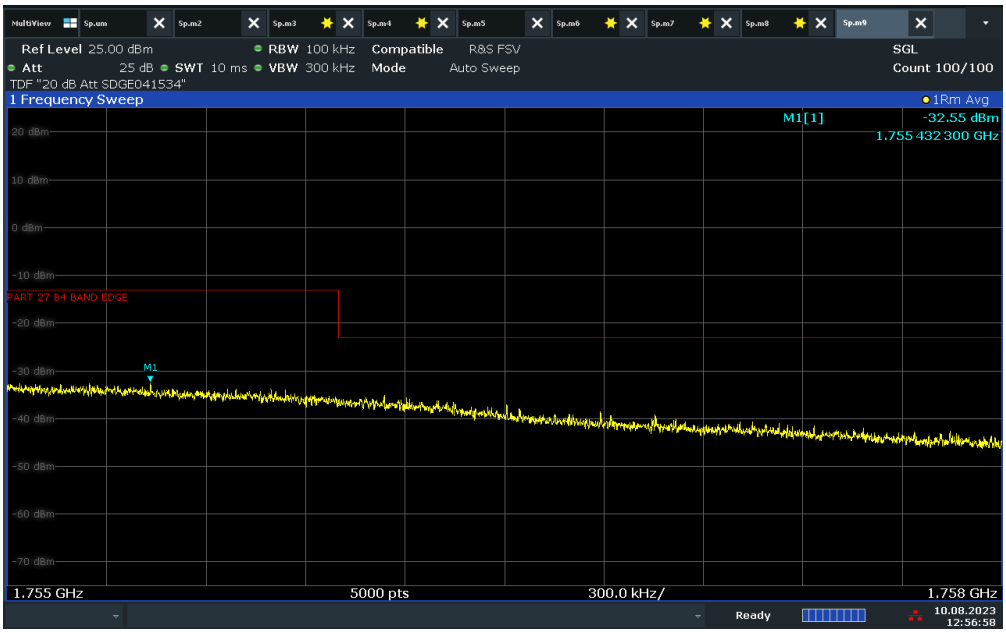 12:56:59 10.08.2023
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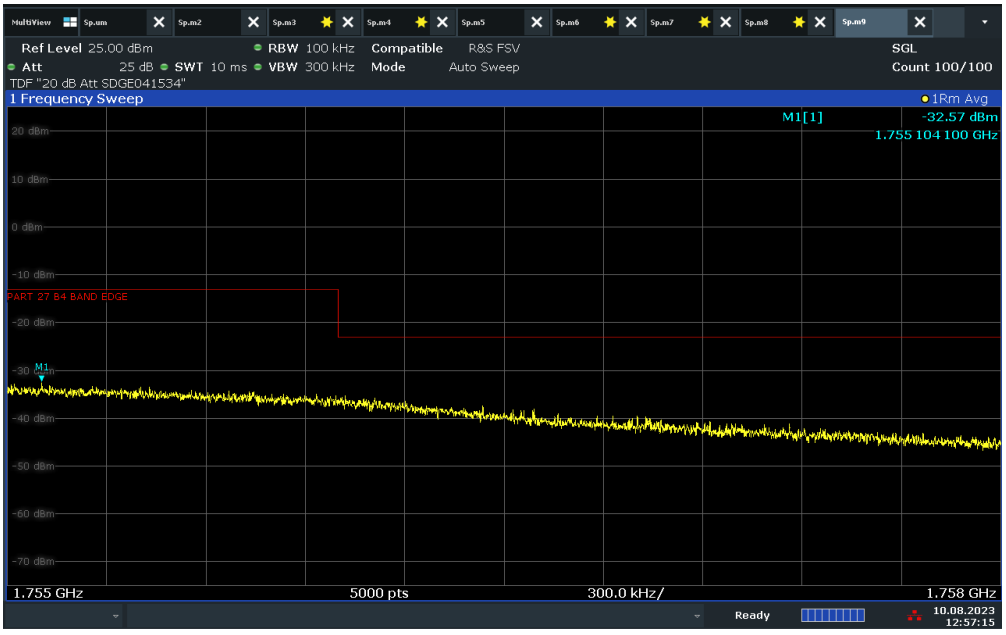 12:57:16 10.08.2023

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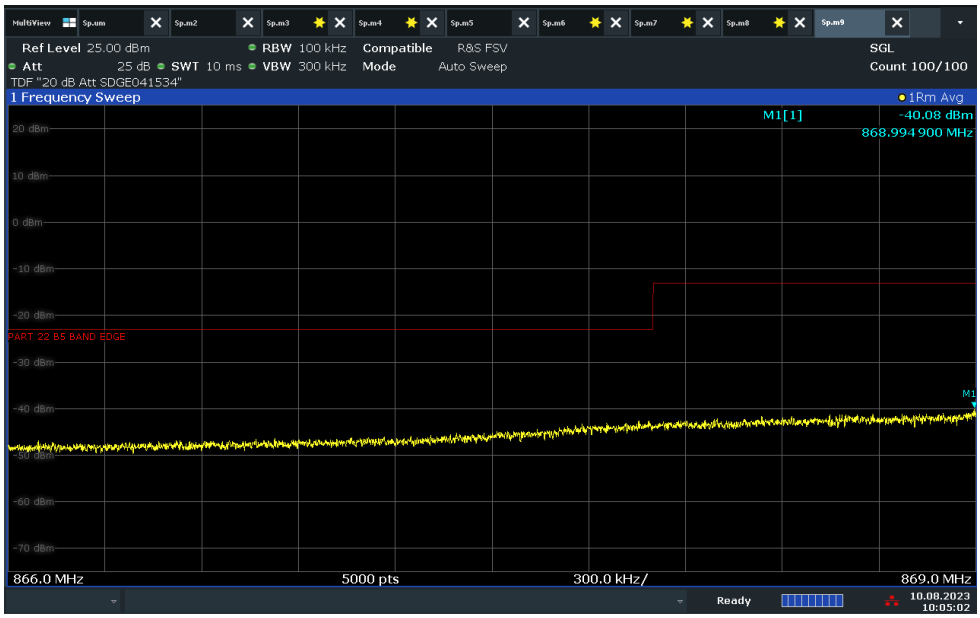 **10:05:02 10.08.2023**
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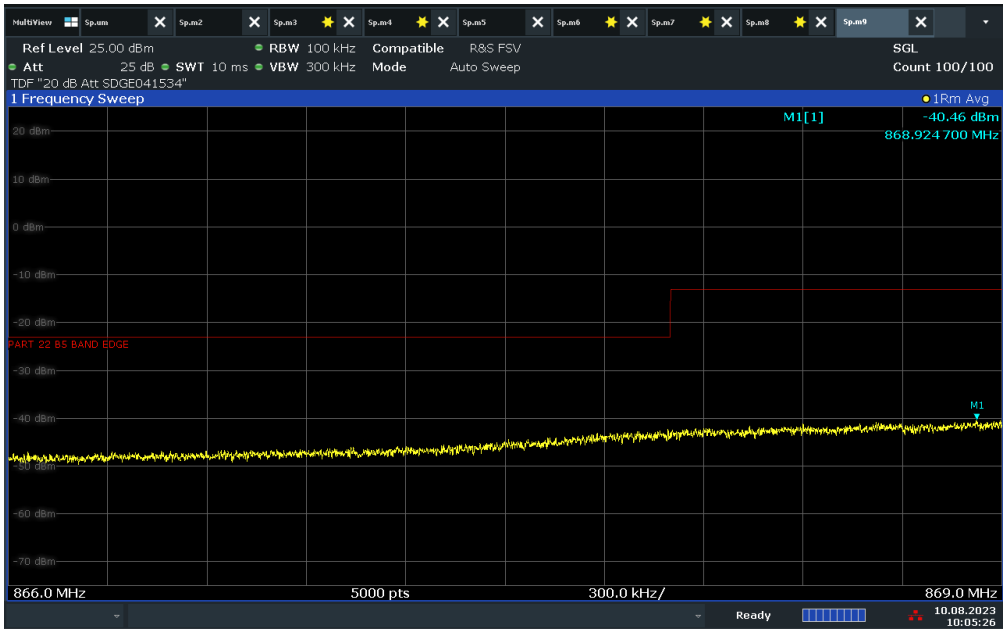 **10:05:27 10.08.2023**

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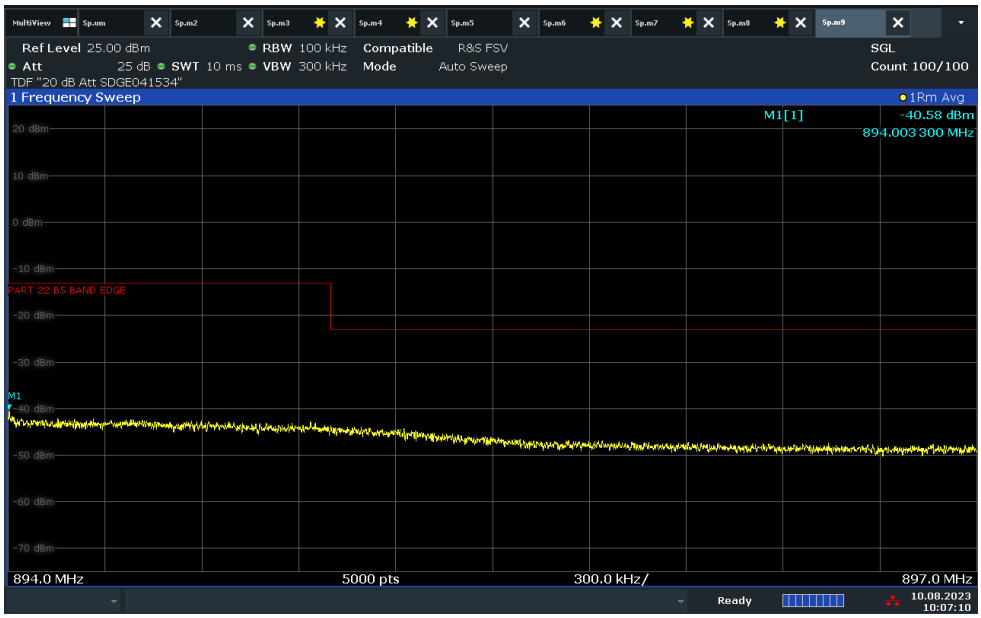 10:07:10 10.08.2023
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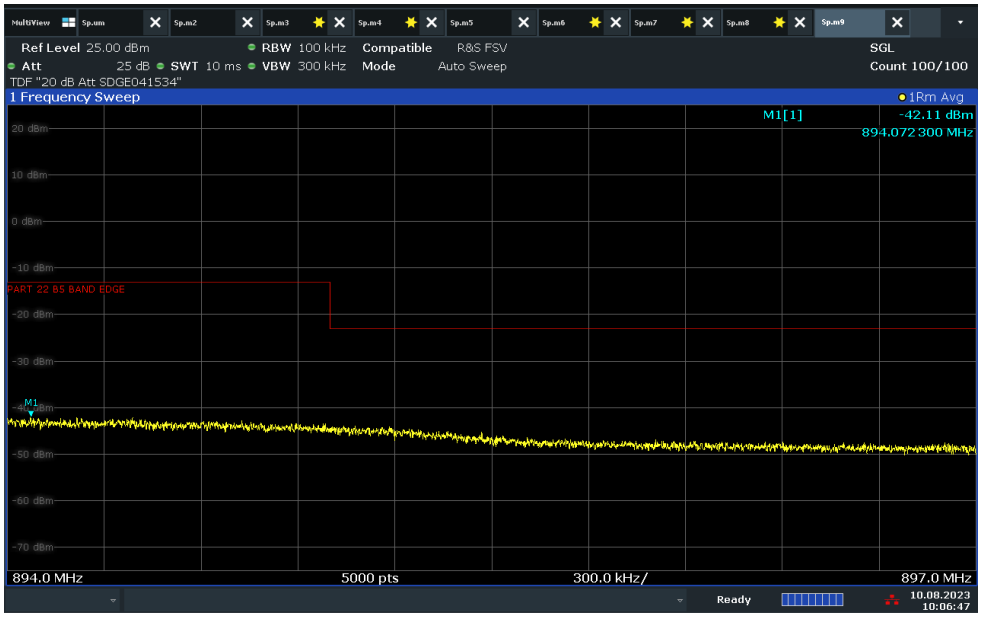
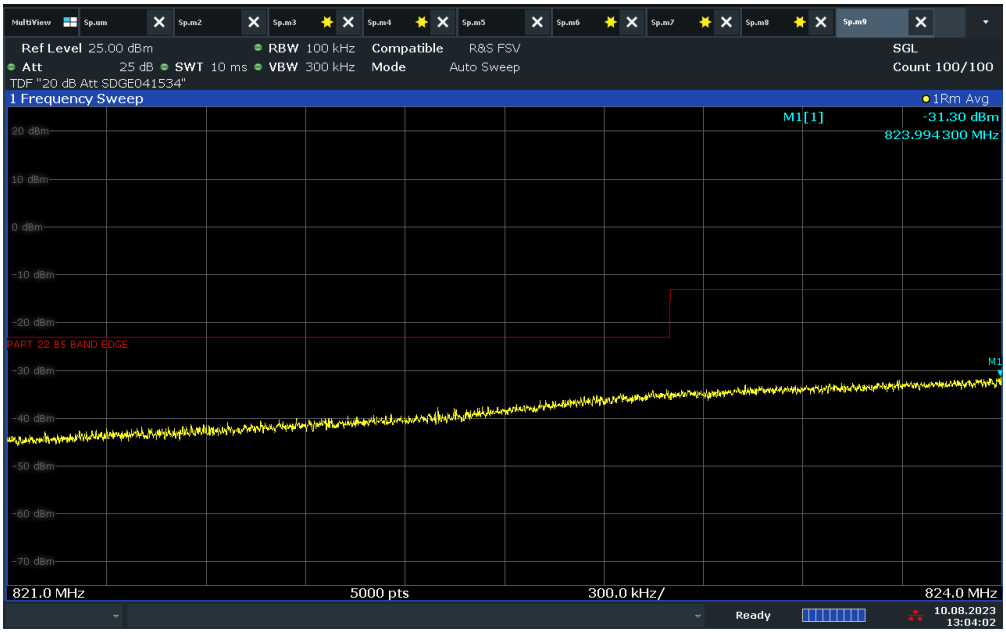
 10:06:48 10.08.2023

LTE Band 5 Uplink 5MHz Bandwidth Low Channel (-75.8 dBm)
 13:04:03 10.08.2023
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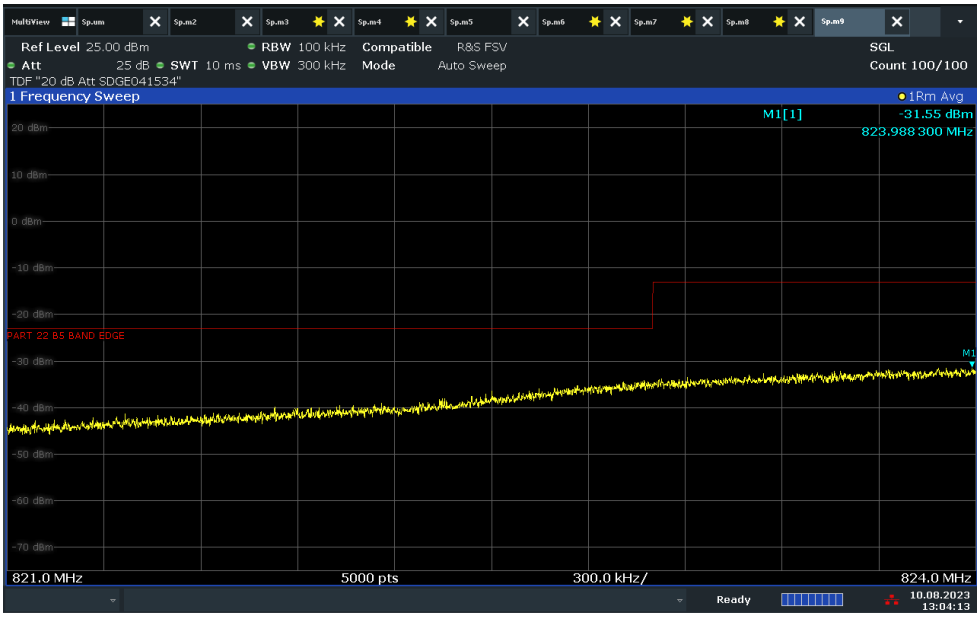
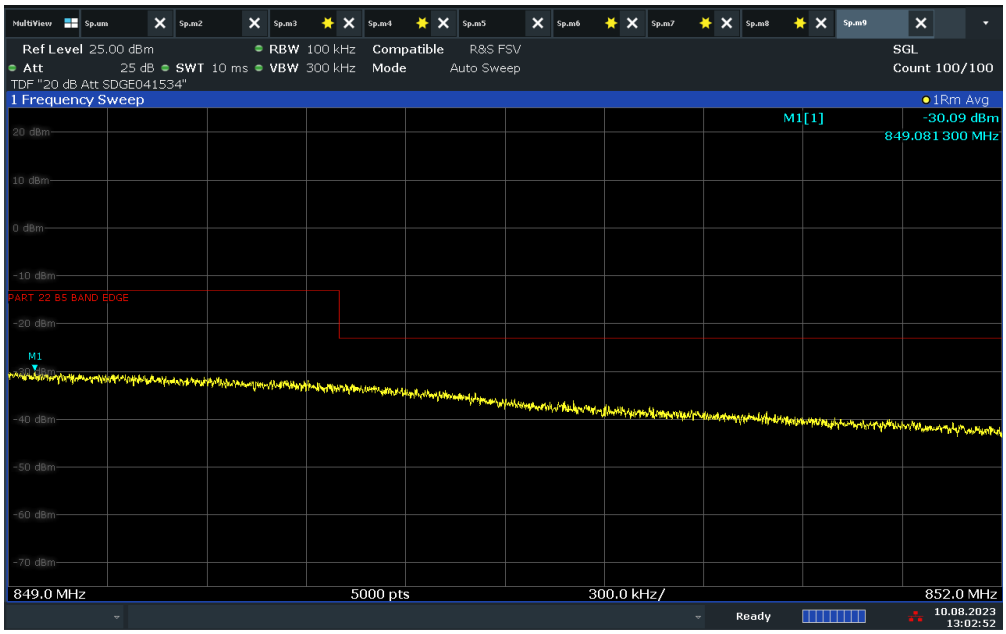
 13:04:14 10.08.2023

LTE Band 5 Uplink 5MHz Bandwidth High Channel (-75.8 dBm)
 13:02:53 10.08.2023
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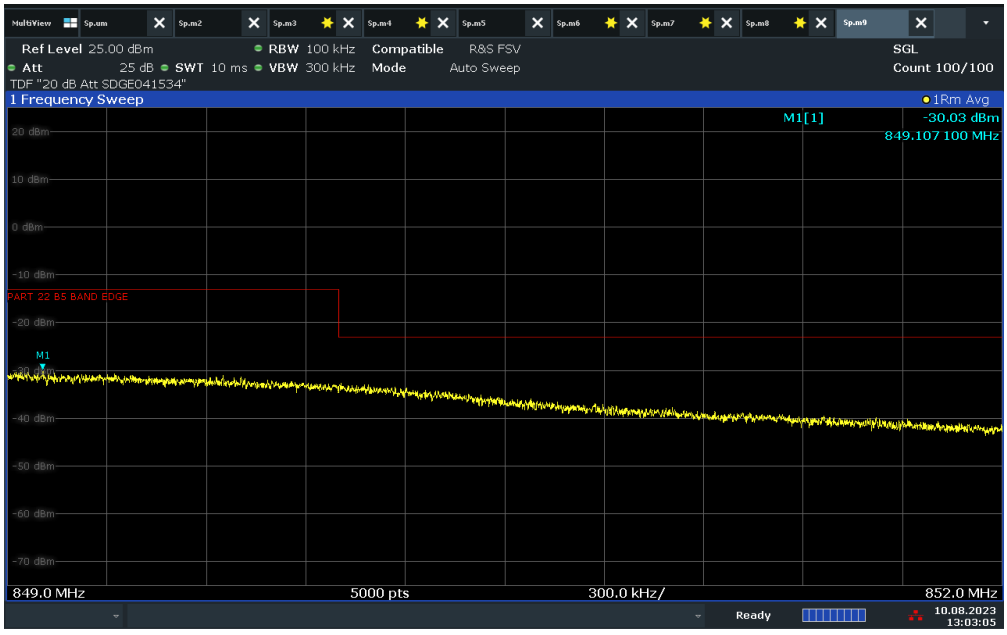
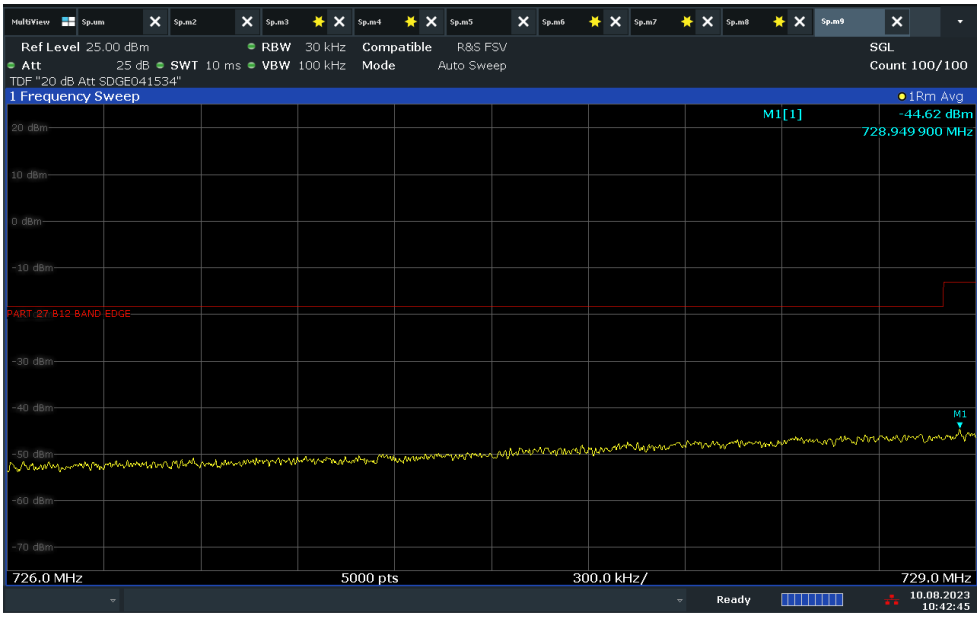
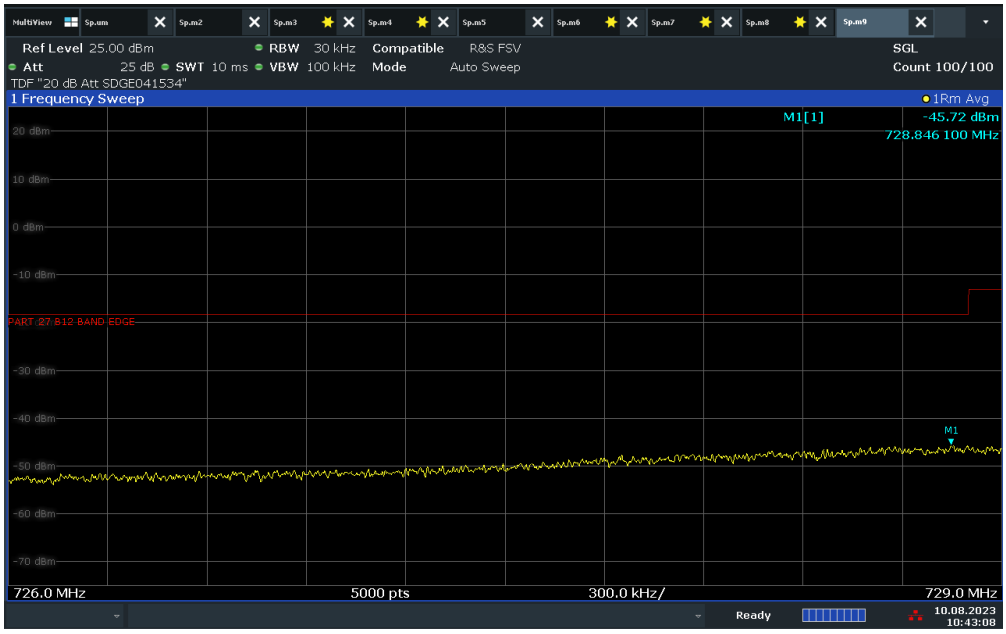
 13:03:05 10.08.2023

LTE Band 12 Downlink 5MHz Bandwidth Low Channel (-82.2 dBm)



10:42:45 10.08.2023

LTE Band 12 Downlink 5MHz Bandwidth Low Channel 10 dB Above AGC



10:43:08 10.08.2023

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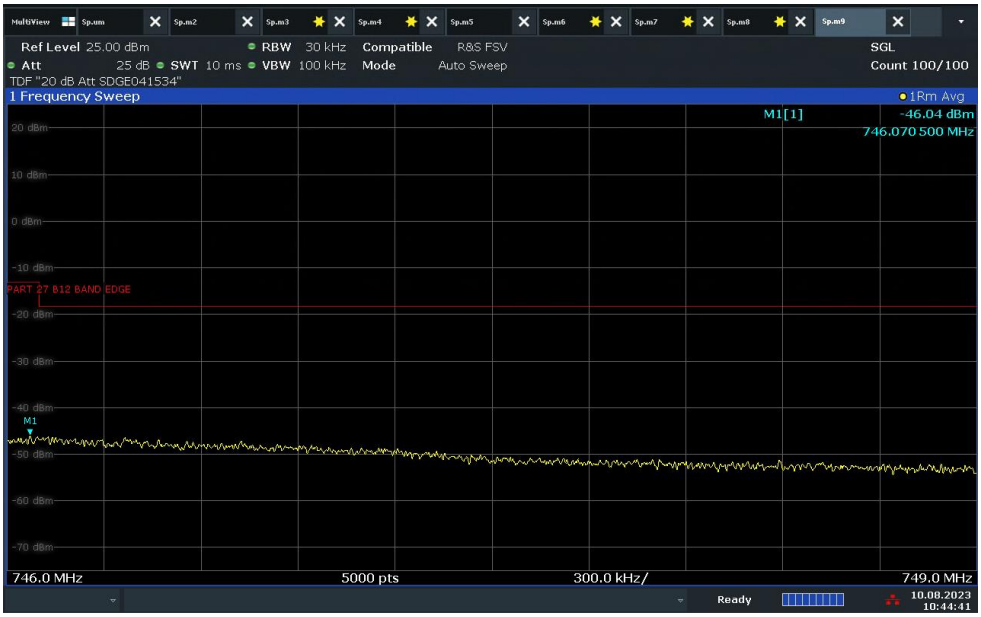 10:44:42 10.08.2023
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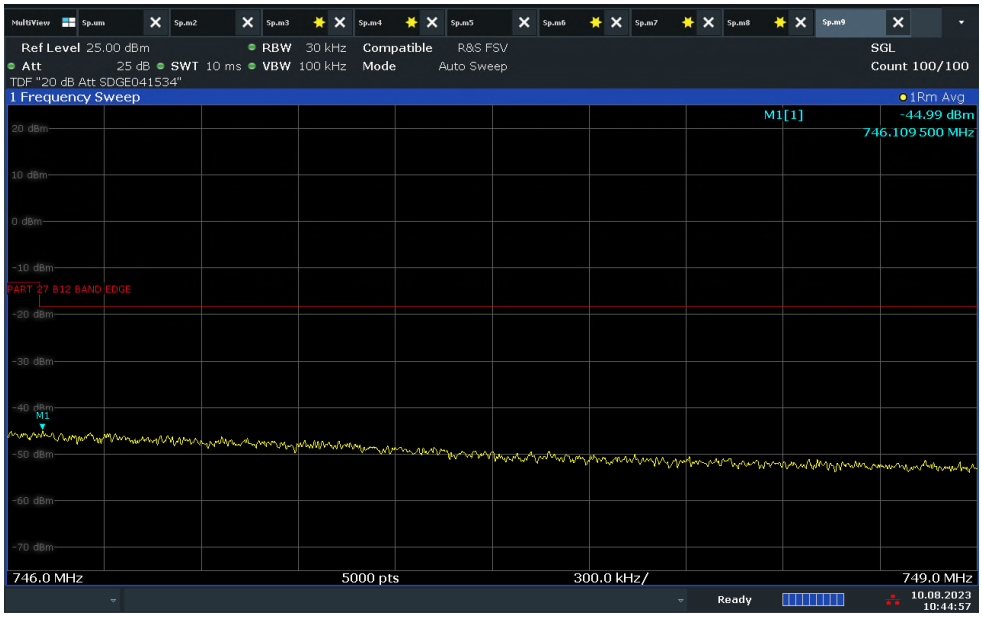
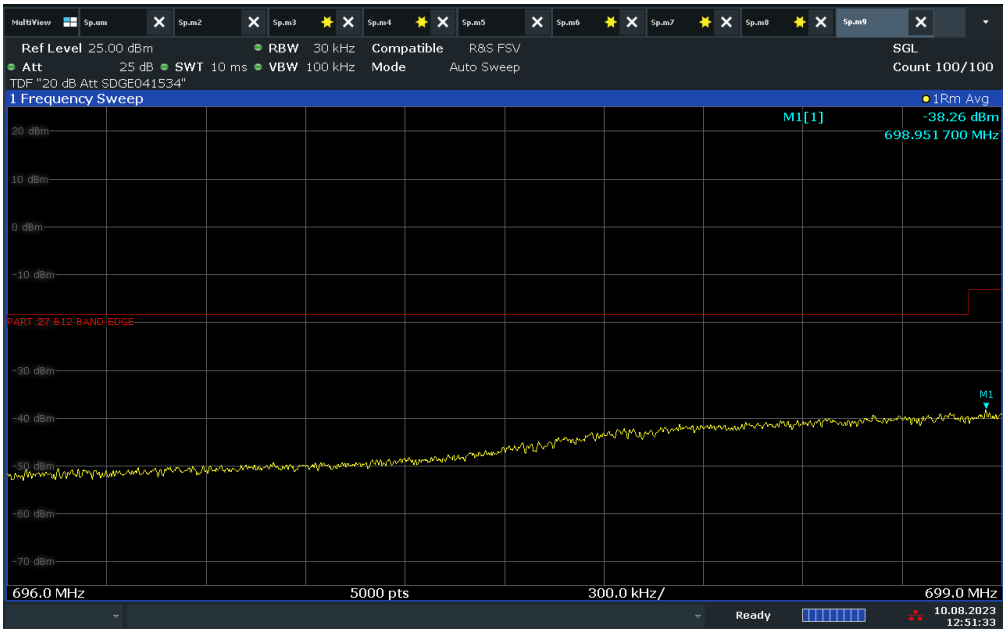
 10:44:58 10.08.2023

LTE Band 12 Uplink 5MHz Bandwidth Low Channel (-75.6 dBm)
 12:51:33 10.08.2023
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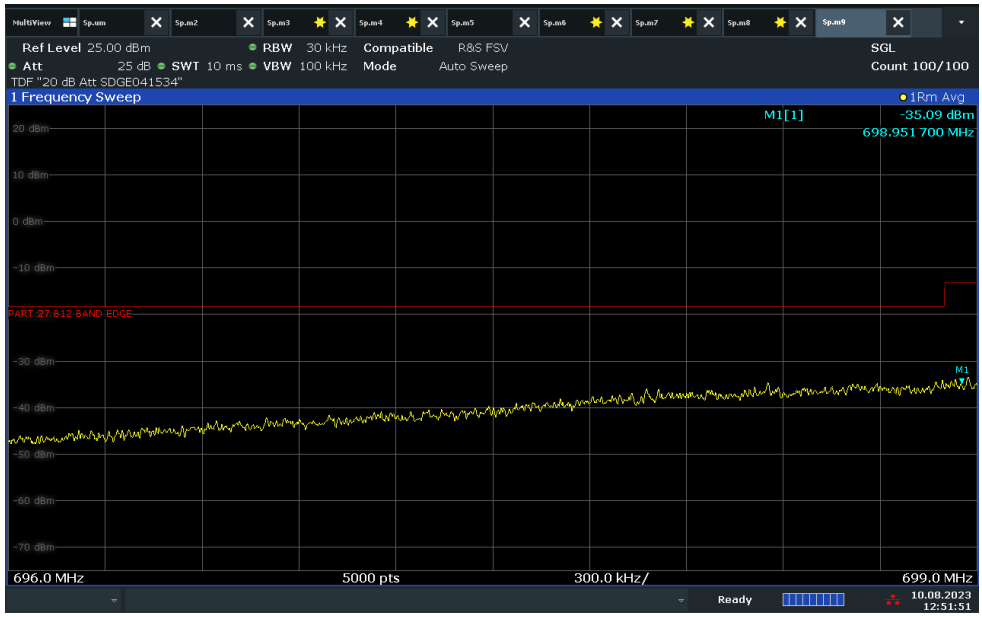
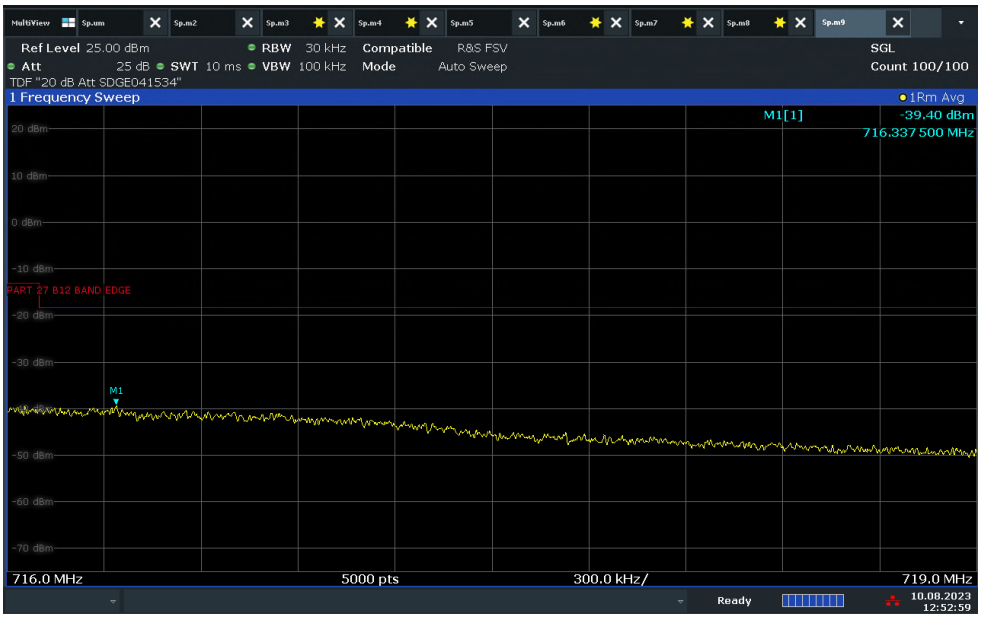
 12:51:52 10.08.2023

LTE Band 12 Uplink 5MHz Bandwidth High Channel (-75.6 dBm)
 **12:52:59 10.08.2023**
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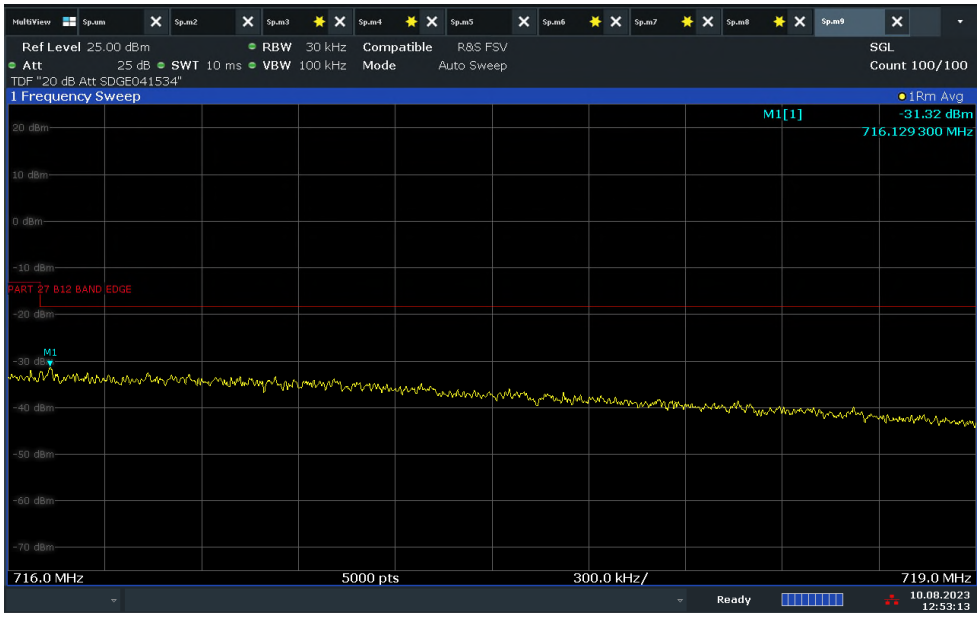
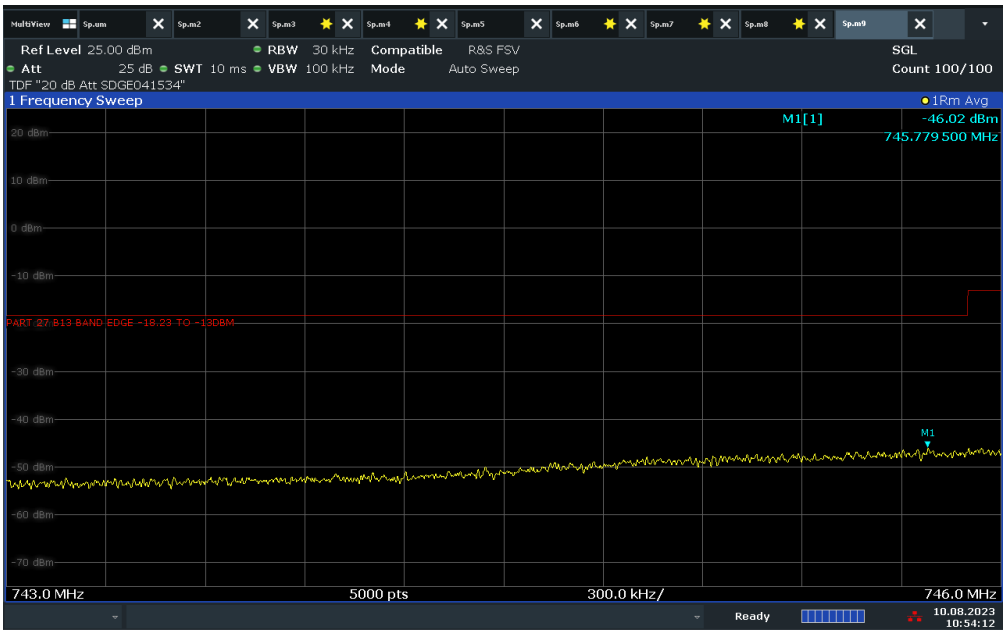
 **12:53:14 10.08.2023**

LTE Band 13 Downlink 5MHz Bandwidth Low Channel (-82.5 dBm)
 **10:54:12 10.08.2023**
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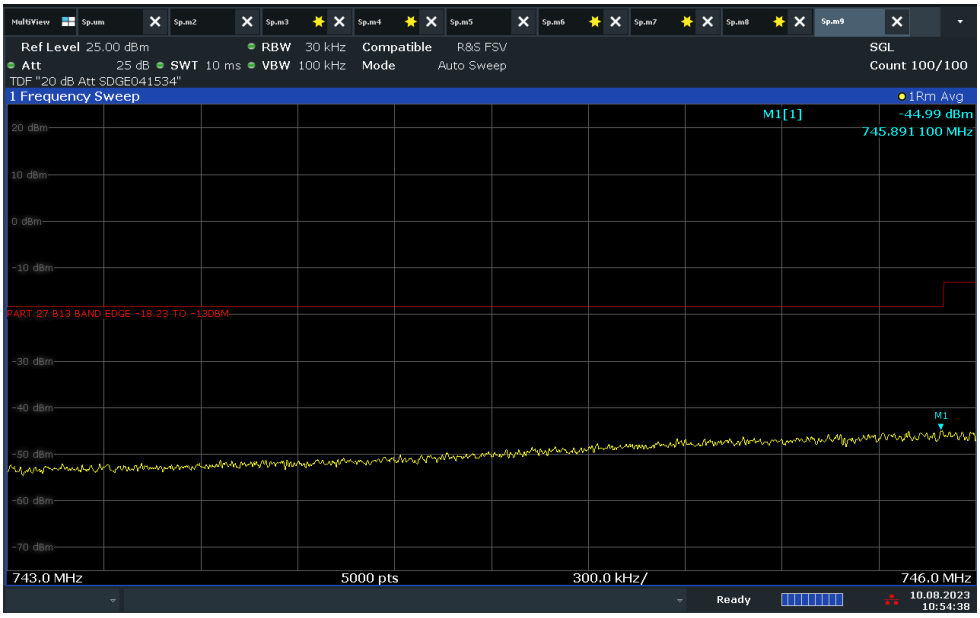
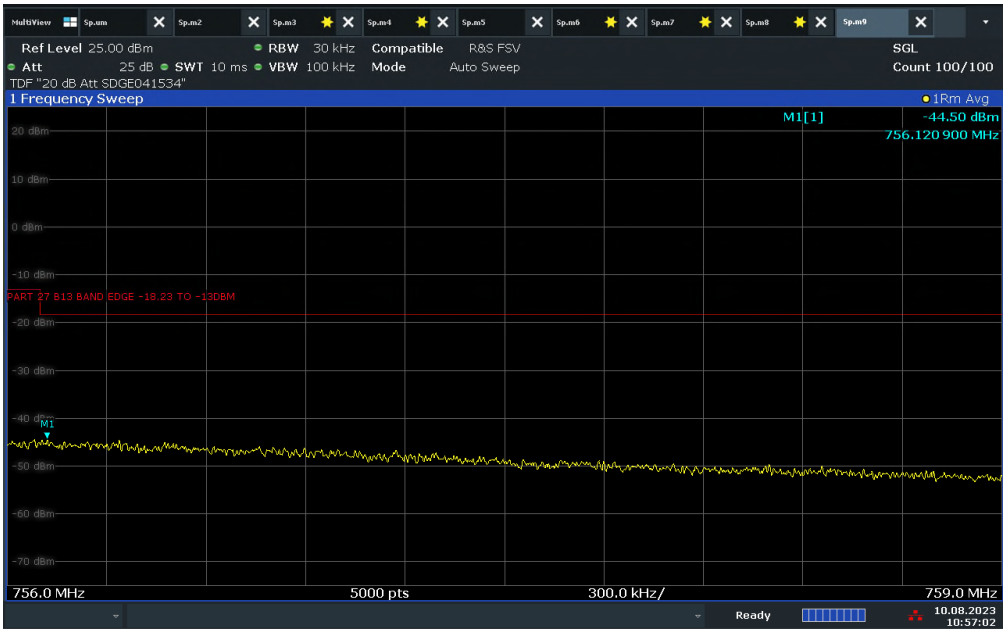
 **10:54:38 10.08.2023**

LTE Band 13 Downlink 5MHz Bandwidth High Channel (-82.5 dBm)
 10:57:03 10.08.2023
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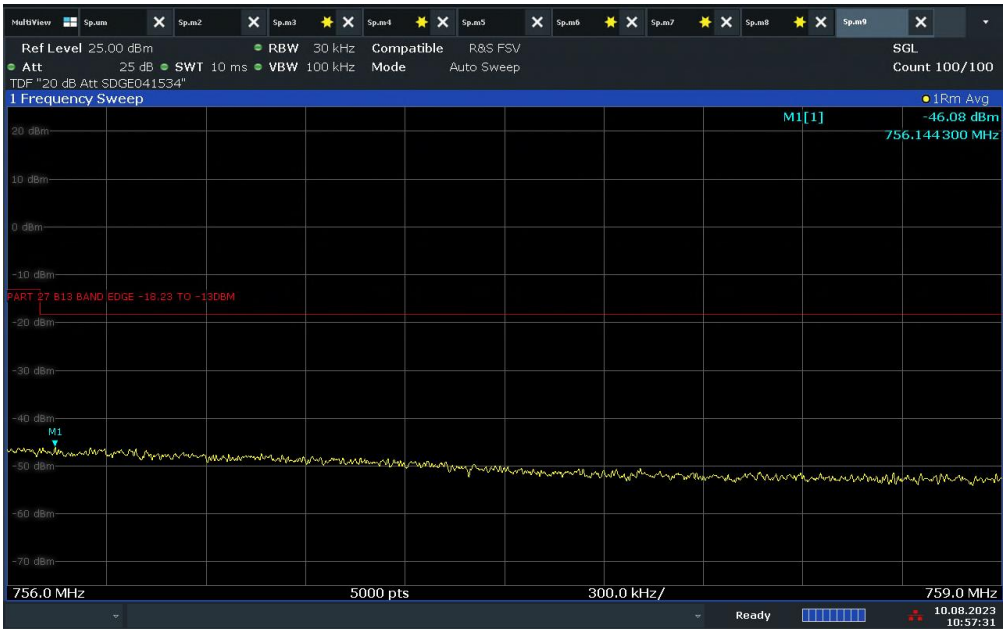
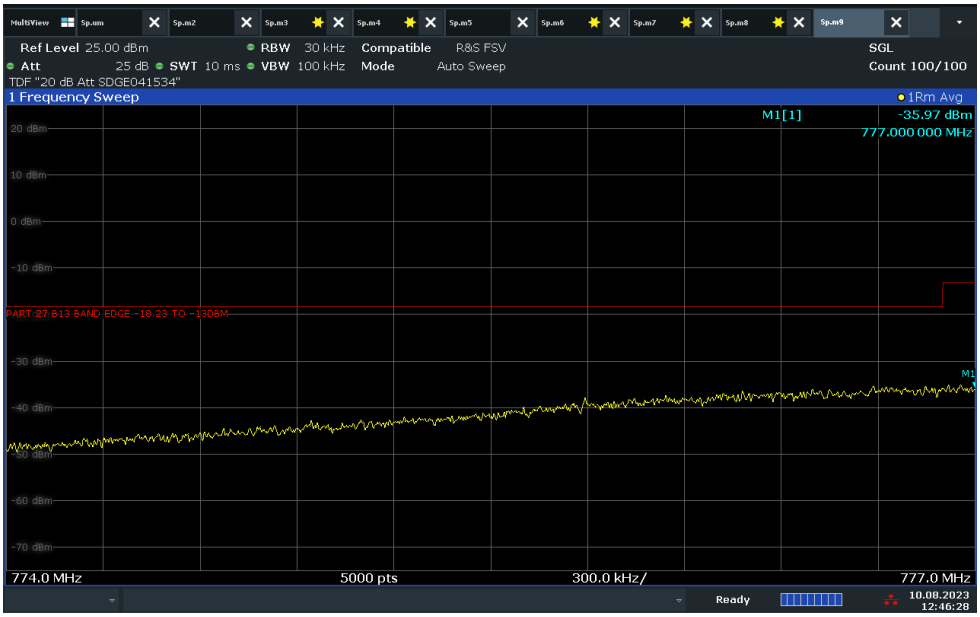
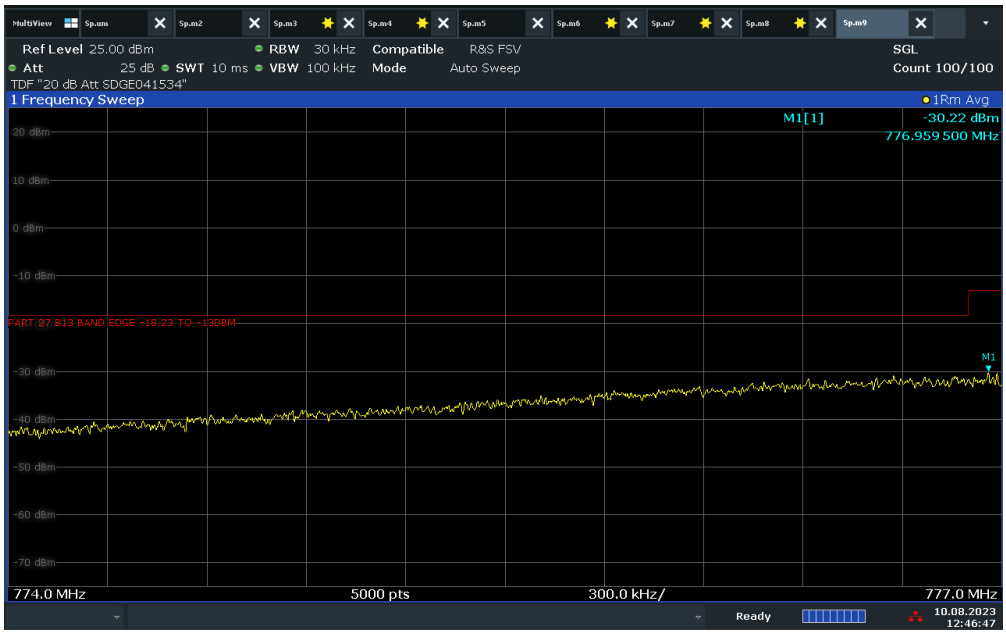
 10:57:32 10.08.2023

LTE Band 13 Uplink 5MHz Bandwidth Low Channel (-75.5 dBm)

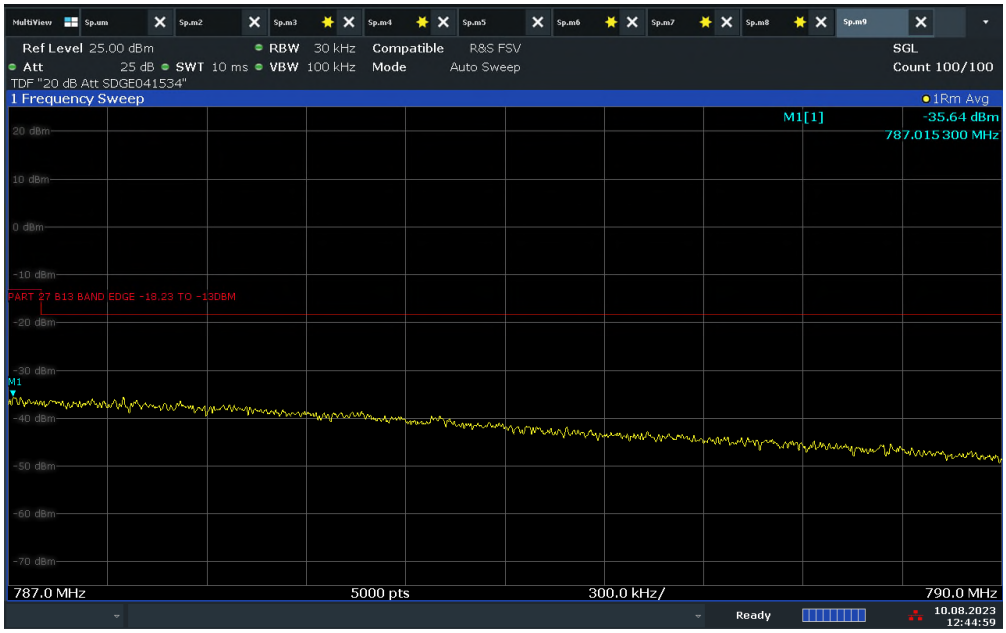


12:46:29 10.08.2023

LTE Band 13 Uplink 5MHz Bandwidth Low Channel 10 d Above AGC



12:46:48 10.08.2023

LTE Band 13 Uplink 5MHz Bandwidth High Channel (-75.5 dBm)
 12:44:59 10.08.2023
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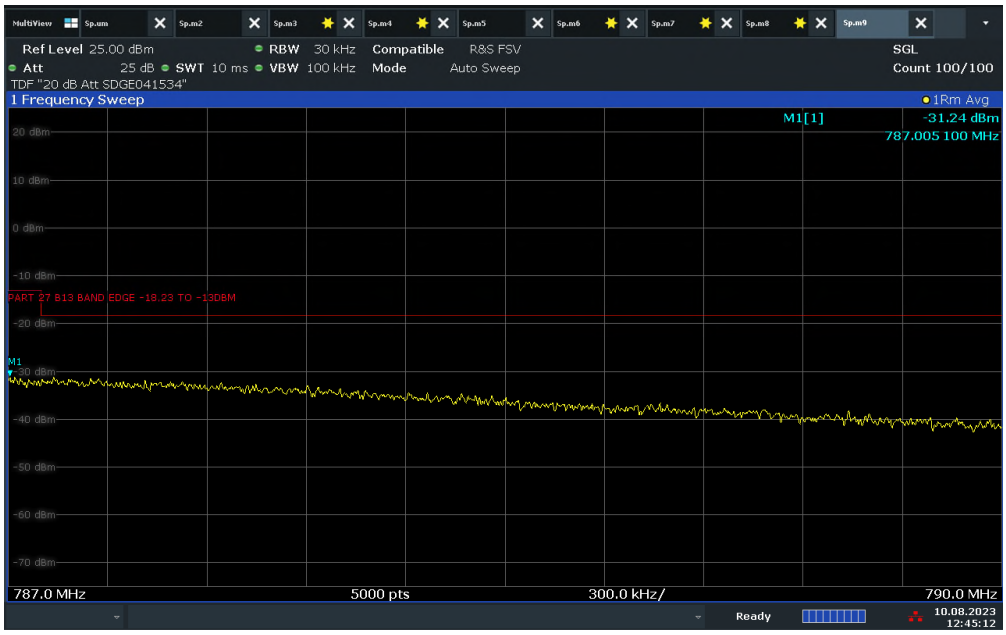
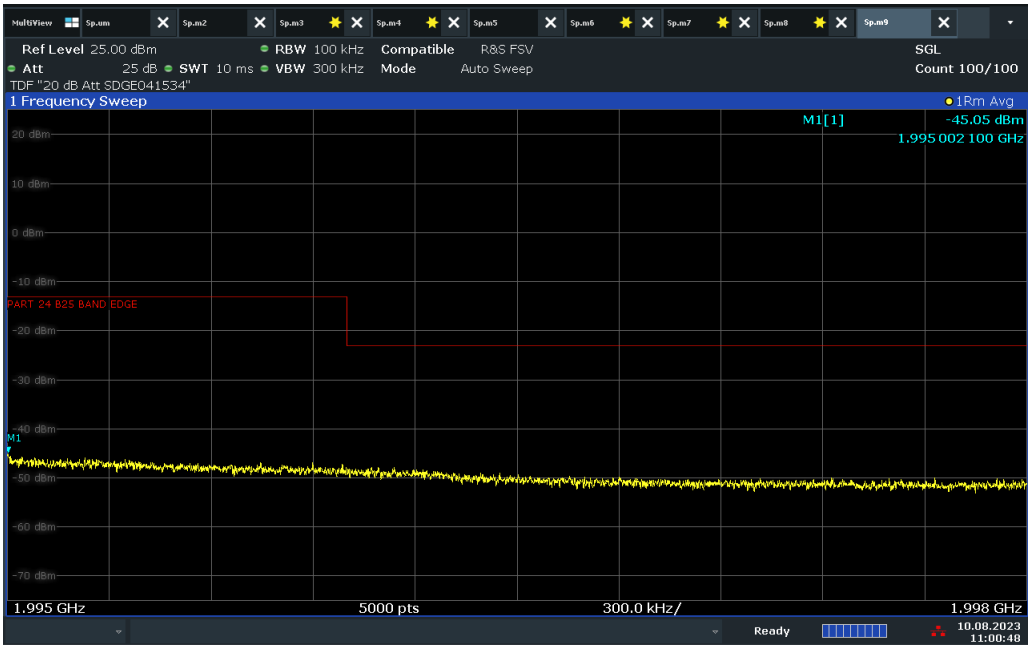
 12:45:12 10.08.2023

LTE Band 25 Downlink 5MHz Bandwidth High Channel (-82.5 dBm)
 11:00:49 10.08.2023
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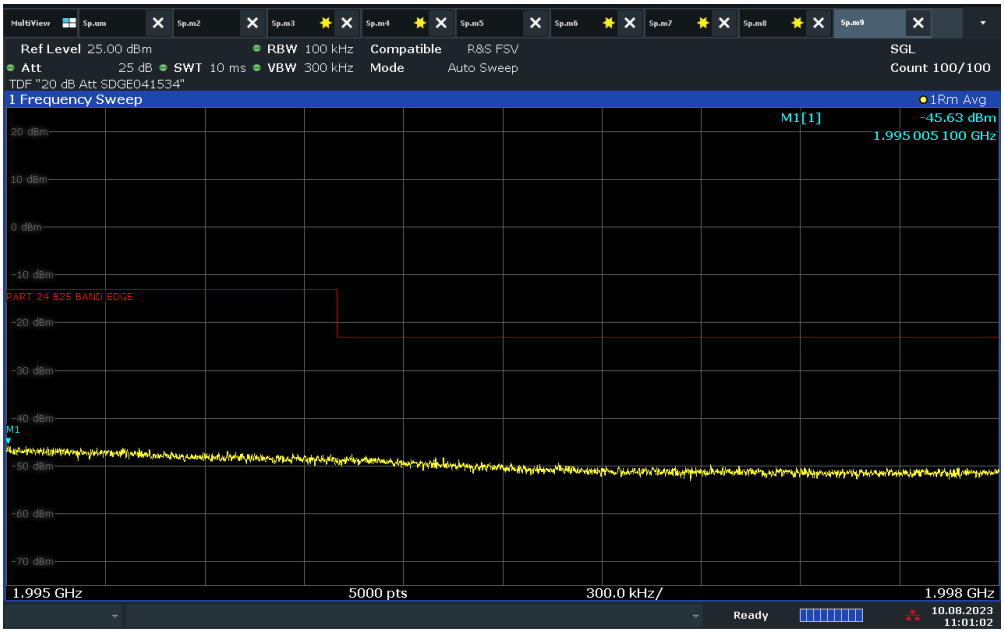
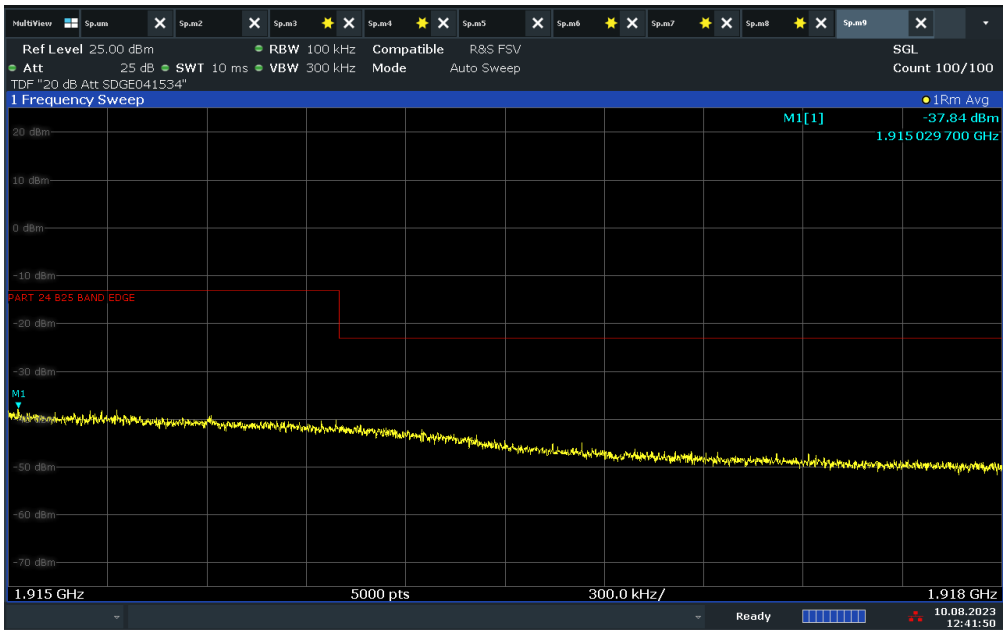
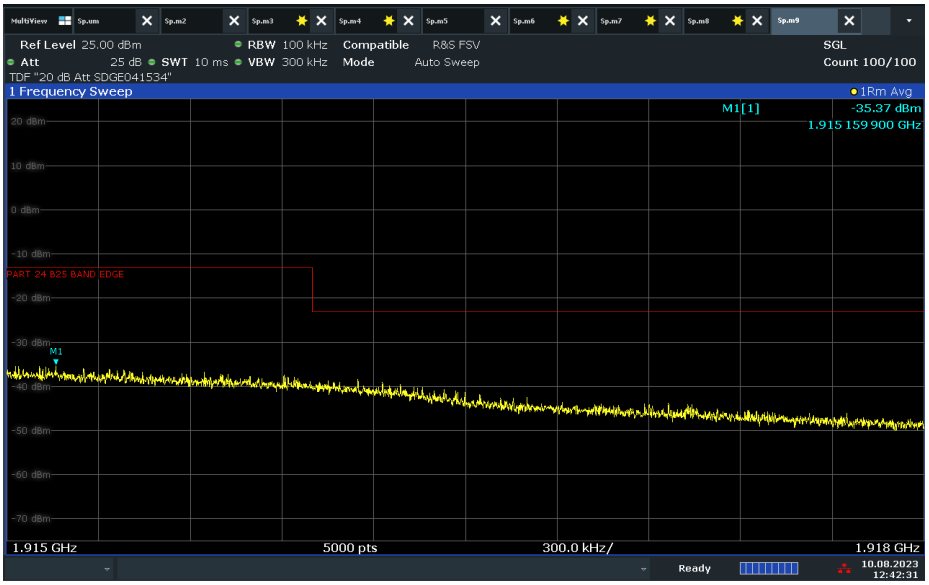
 11:01:03 10.08.2023

LTE Band 25 Uplink 5MHz Bandwidth High Channel (-77.5 dBm)



12:41:50 10.08.2023

LTE Band 25 Uplink 5MHz Bandwidth High Channel 10 dB Above AGC



12:42:32 10.08.2023

2.6 Conducted Spurious Emissions

2.6.1 Specification Reference

FCC 47 CFR Part 20. Clause 20.21(e)(9)(i)(F)
RSS 131 8.5

2.6.2 Standard Applicable

FCC 47 CFR Part 24, Clause 24.238(a)
Out of band emissions. 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.

FCC 47 CFR Part 27, Clause 27.53:

(h) AWS emission limits – (1) General protection levels. Except as otherwise specified below, for operatios in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

(g) For operations in the 600 MHz band and the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(c) For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746–758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(f) For operations in the 746–758 MHz, 775–788 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to -70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and -80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

(a) For operations in the 2305–2320 MHz band and the 2345–2360 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power P (with averaging performed only during periods of transmission) within the licensed band(s) of operation, in watts, by the following amounts:

(1) For base and fixed stations' operations in the 2305–2320 MHz band and the 2345–2360 MHz band:

(i) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2305 and 2320 MHz and on all frequencies between 2345 and 2360 MHz that are outside the licensed band(s) of operation, and not less than 75 + 10 log (P) dB on all frequencies between 2320 and 2345 MHz;

(ii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2300 and 2305 MHz, 70 + 10 log (P) dB on all frequencies between 2287.5 and 2300 MHz, 72 + 10 log (P) dB on all frequencies between 2285 and 2287.5 MHz, and 75 + 10 log (P) dB below 2285 MHz;

(iii) By a factor of not less than 43 + 10 log (P) dB on all frequencies between 2360 and 2362.5 MHz, 55 + 10 log (P) dB on all frequencies between 2362.5 and 2365 MHz, 70 + 10 log (P) dB on all frequencies between 2365 and 2367.5 MHz, 72 + 10 log (P) dB on all frequencies between 2367.5 and 2370 MHz, and 75 + 10 log (P) dB above 2370 MHz.

RSS-139, Clause 6.6:

(i) In the first 1.0 MHz bands immediatel outside and adjacent to the equipment's smallest opreating frequency block, which can contain the equipment's occupied bandwidth, the emission power per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (dBW), by at least 43 + 10 $\log_{10}$ p (watts) dB.

RSS-130:
4.7.1 General unwanted emissions limits
The unwanted emissions in any 100 kHz bandwidth on any frequency outside the low frequency edge and the high frequency edge of each frequency block range(s), shall be attenuated below the transmitter power, P (dBW), by at least 43 + 10 log10 p (watts), dB. However, in the 100 kHz band immediately outside of the equipment's frequency block range, a resolution bandwidth of 30 kHz may be employed.

4.7.2 Additional unwanted emissions limits
In addition to the limit outlined in section 4.7.1 above, equipment operating in the frequency bands 746-756 MHz and 777-787 MHz shall also comply with the following restrictions:
a) The power of any unwanted emissions in any 6.25 kHz bandwidth for all frequencies between 763-775 MHz and 793-806 MHz shall be attenuated below the transmitter power, P (dBW), by at least:

(i) 76 + 10 log10 p (watts), dB, for base and fixed equipment, and
(ii) 65 + 10 log10 p (watts), dB, for mobile and portable equipment.

b) The e.i.r.p. in the band 1559-1610 MHz shall not exceed -70 dBW/MHz for wideband signal and -80 dBW for discrete emission with bandwidth less than 700 Hz.

RSS-195, Clause 5.6.1:
The power of any emission outside the frequency range(s) in which the equipment operates shall be attenuated below the transmitter power, P(dBW), by the amount indicated in Table 1 and graphically represented in Figure 1, where p is the transmitter output power measured in watts.

Table 1 – Unwanted Emissions for Base Stations, Fixed Station and High-Power Fixed Subscriber Equipment

Frequency (MHz)	Attenuation (dB)
<2200	$43 + 10 \log_{10} (p)$
2200 - 2285	$75 + 10 \log_{10} (p)$
2285 – 2287.5	$72 + 10 \log_{10} (p)$
2287.5 - 2300	$70 + 10 \log_{10} (p)$
2300 - 2305	$43 + 10 \log_{10} (p)$
2305 - 2320	$43 + 10 \log_{10} (p)$ Note
2320 -2345	$75 + 10 \log_{10} (p)$
2345 -2360	$43 + 10 \log_{10} (p)$ Note
2360 – 2362.5	$43 + 10 \log_{10} (p)$
2362.5 - 2365	$55 + 10 \log_{10} (p)$
2365 – 2367.5	$70 + 10 \log_{10} (p)$
2367.5 - 2370	$72 + 10 \log_{10} (p)$
2370 - 2395	$75 + 10 \log_{10} (p)$
>2395	$43 + 10 \log_{10} (p)$

Note: Measured at the edges of the highest and lowest frequency range(s) in which the equipment is designed to operate. See Section 5.2 for the permitted frequency ranges for the various equipment types.

2.6.3 Equipment Under Test and Modification State

Serial No: 560311000026 / Configuration A and B

2.6.4 Date of Test/Initial of test personnel who performed the test

July 17 and October 9, 2023 / MARG

2.6.5 Test Equipment Used

The major items of test equipment used for the above tests are identified in Section 3.1.

2.6.6 Environmental Conditions

Test performed at TÜV SÜD America Inc. Rancho Bernardo facility.

Ambient Temperature	22.7 – 26.7 °C
Relative Humidity	50.7 – 56.5%
ATM Pressure	101.1 - 98.8kPa

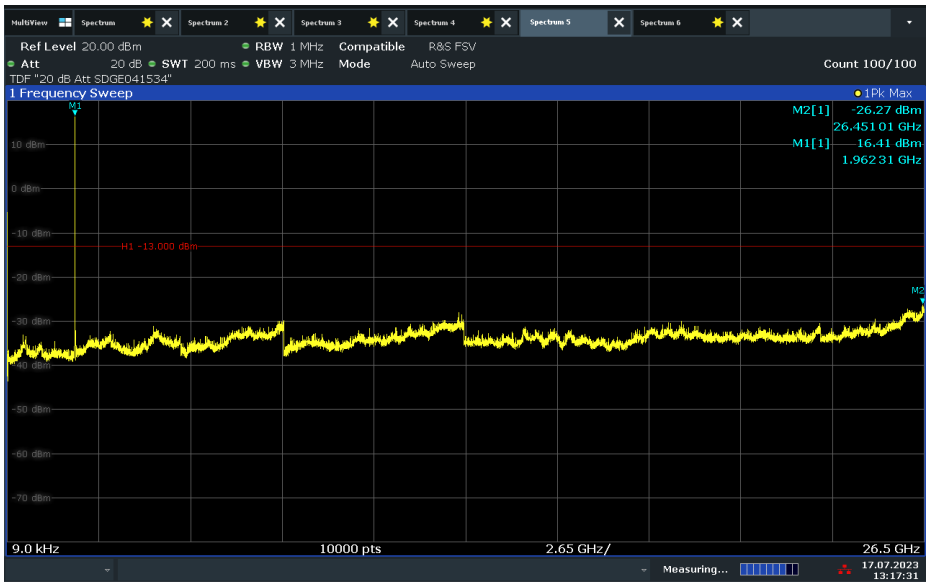
2.6.7 Additional Observations

- This is a conducted test. Test guidance is per Section 6.1 of KDB971168 (D01 Power Meas License Digital Systems v03r01).
- The transducer factor (TDF) used is from the external attenuators and cables used.
- The limit is set to -13dBm.
- Detector is peak and trace is set to max hold as the worst-case setting.
- All low, middle and high channels for all bandwidths were verified and only middle channel presented in this test report as representative configuration.
- Plots with 20dB attenuation (to prevent overloading the front end of the SA) were also verified with lesser attenuation to validate conformance with noise floor requirements.

2.6.8 Test Results

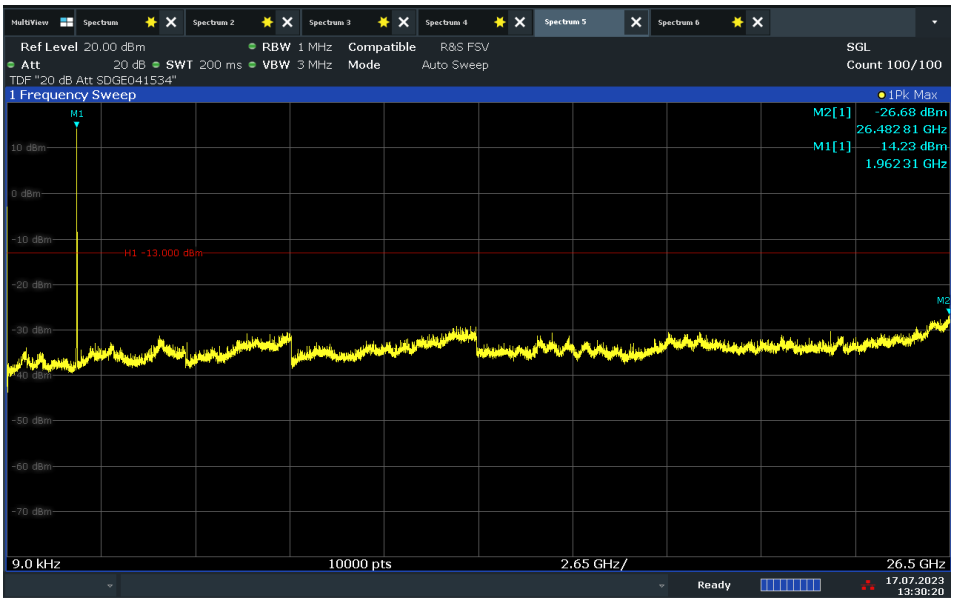
LTE Band 2 5MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions

LTE Band 2 10MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



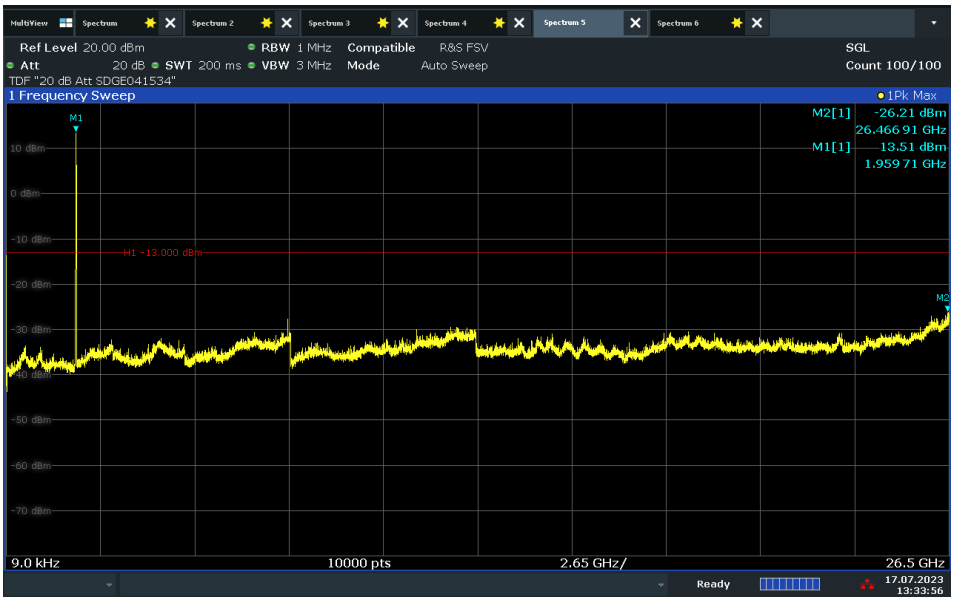
13:17:31 17.07.2023

LTE Band 2 15MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



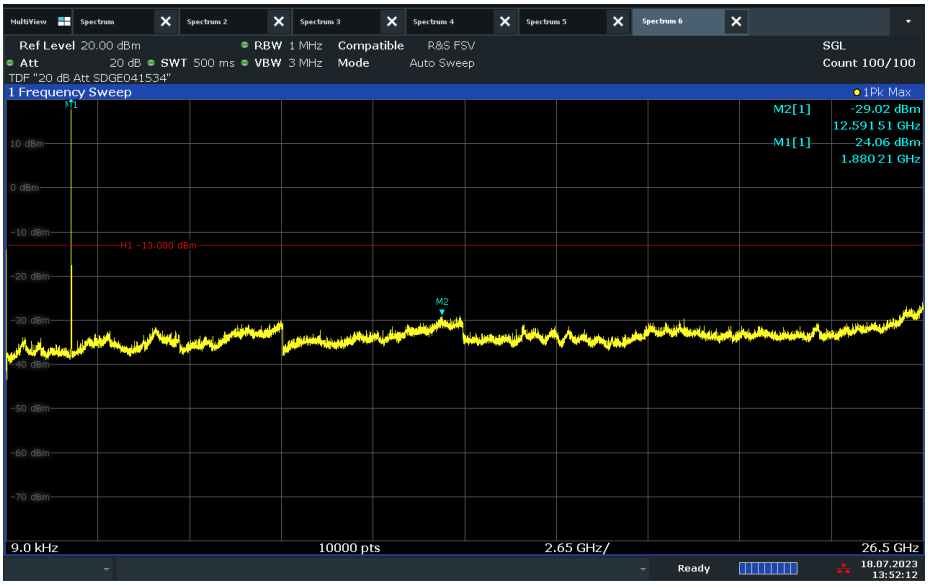
13:30:20 17.07.2023

LTE Band 2 20MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



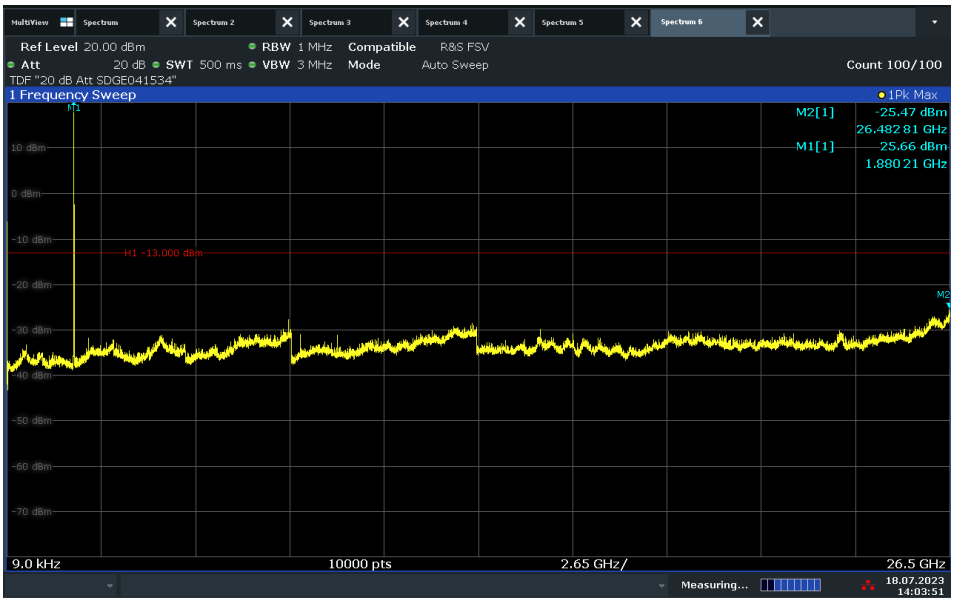
13:33:57 17.07.2023

LTE Band 2 5MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



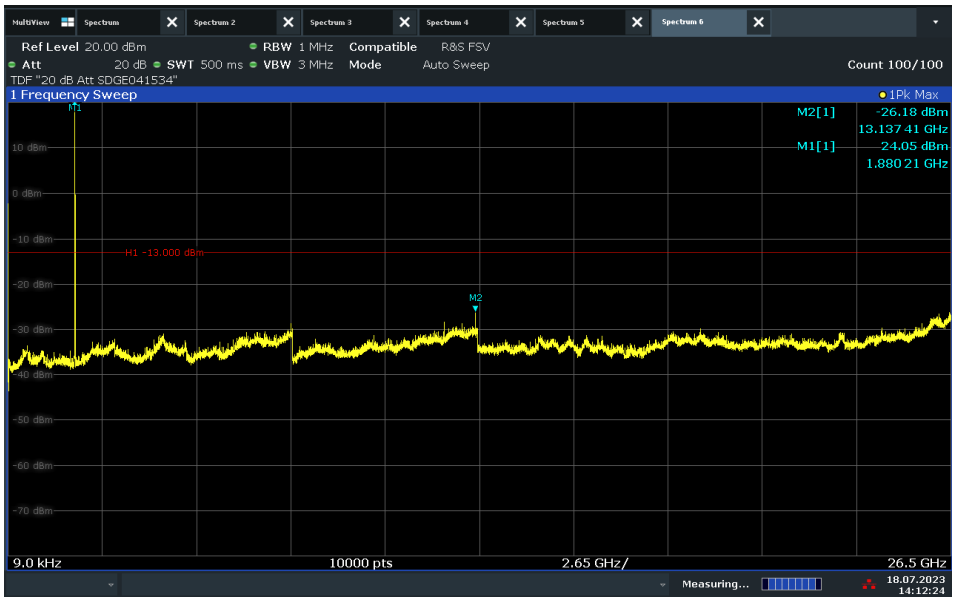
13:52:12 18.07.2023

LTE Band 2 10MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



14:03:52 18.07.2023

LTE Band 2 15MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



14:12:25 18.07.2023

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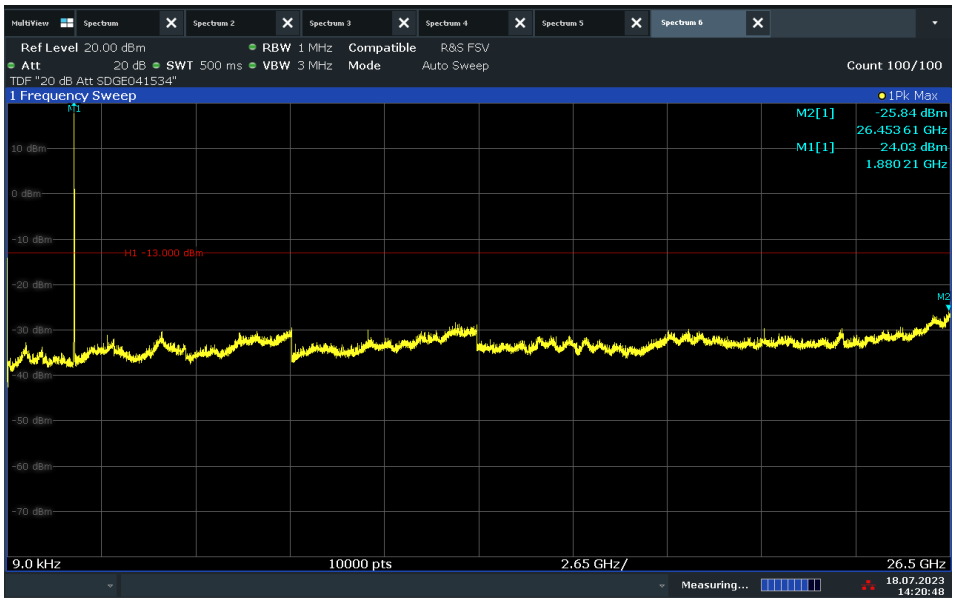
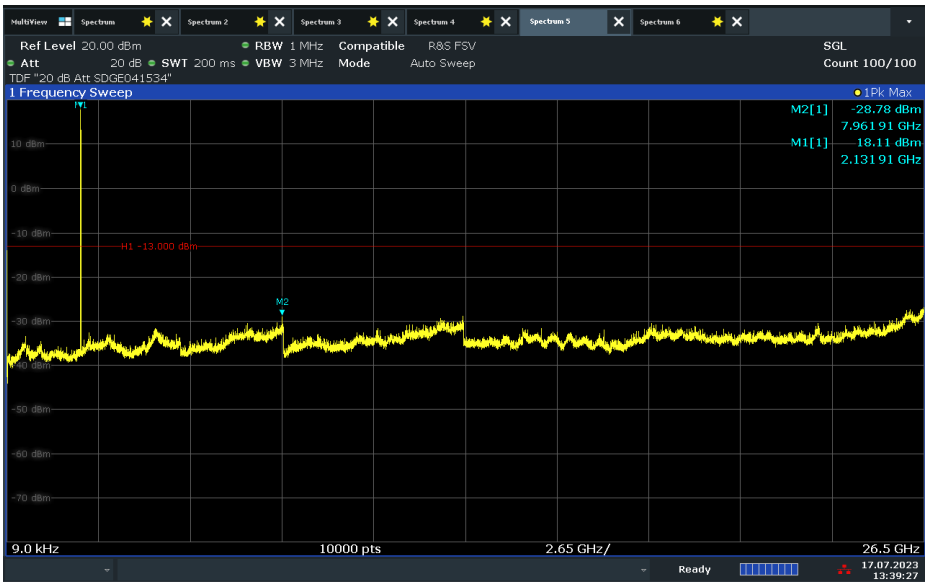
LTE Band 2 20MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



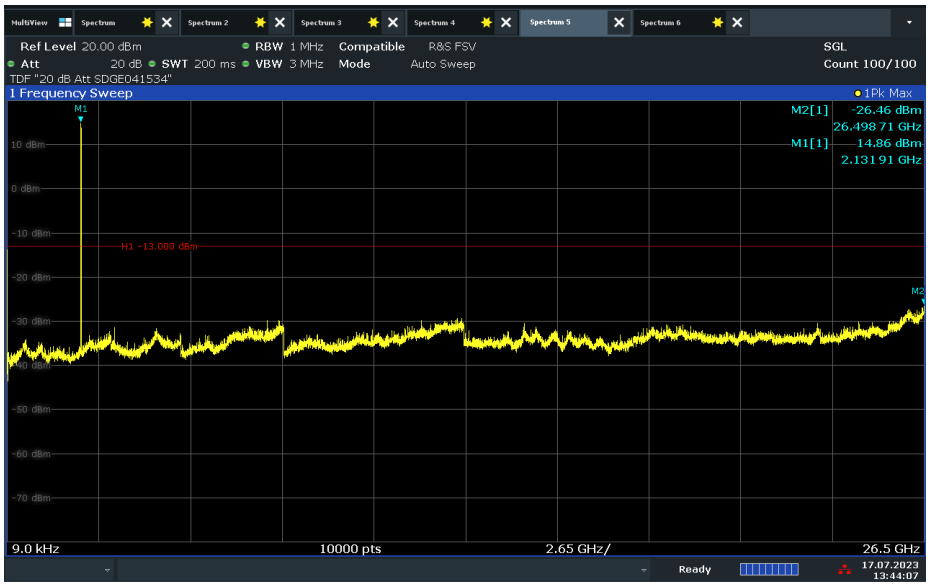
14:20:49 18.07.2023

LTE Band 4 5MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



13:39:28 17.07.2023

LTE Band 4 10MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions

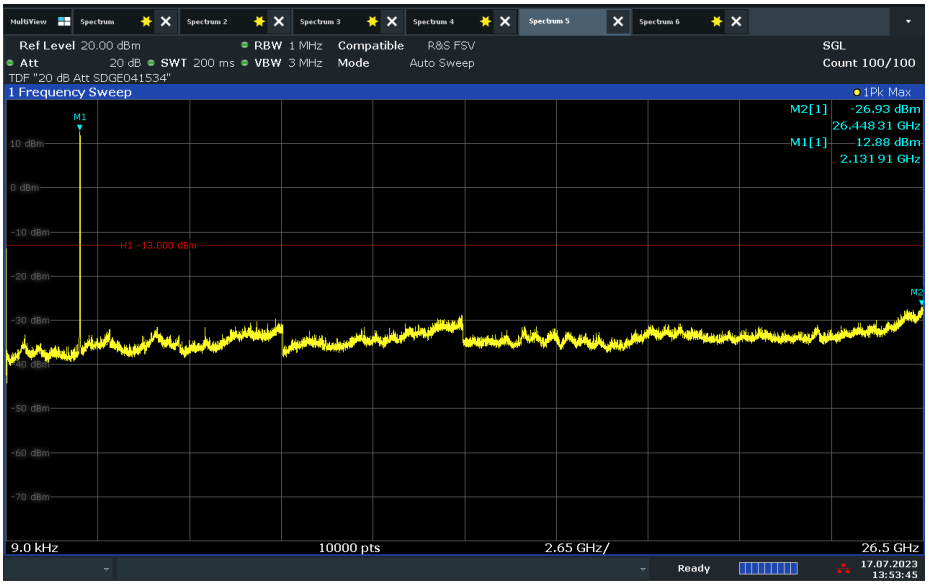


13:44:08 17.07.2023

LTE Band 4 15MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions

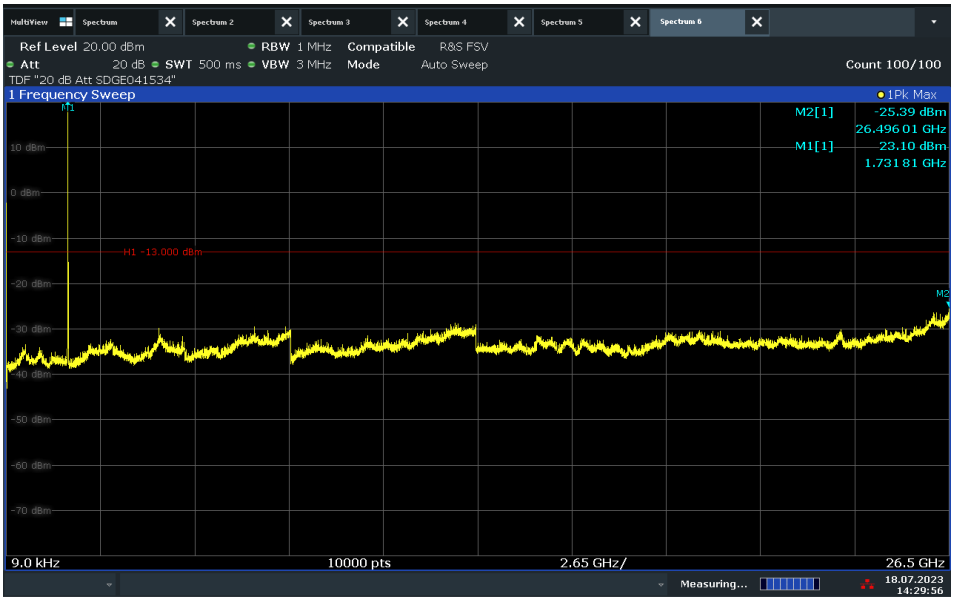
13:49:31 17.07.2023

LTE Band 4 20MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



13:53:46 17.07.2023

LTE Band 4 5MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



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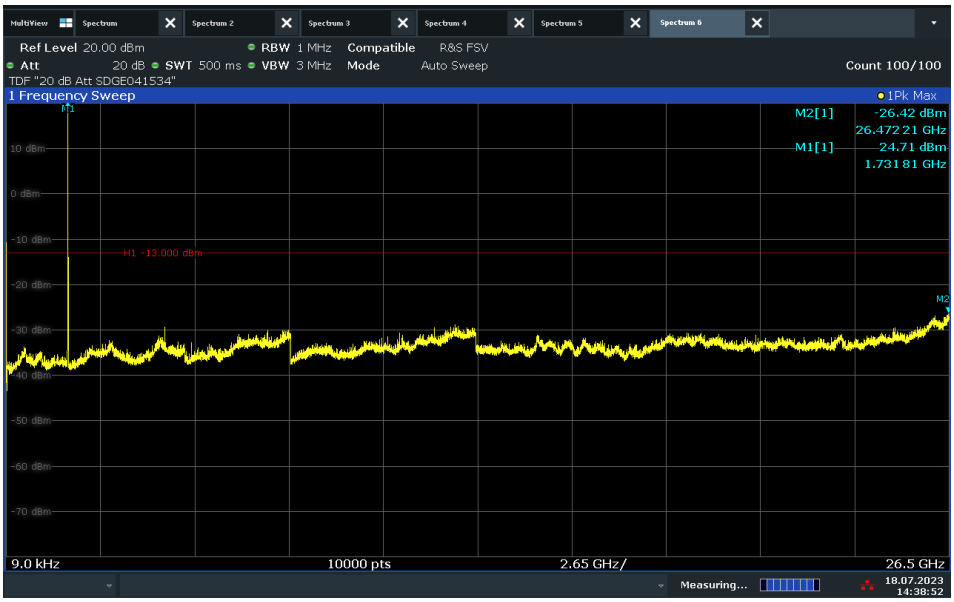
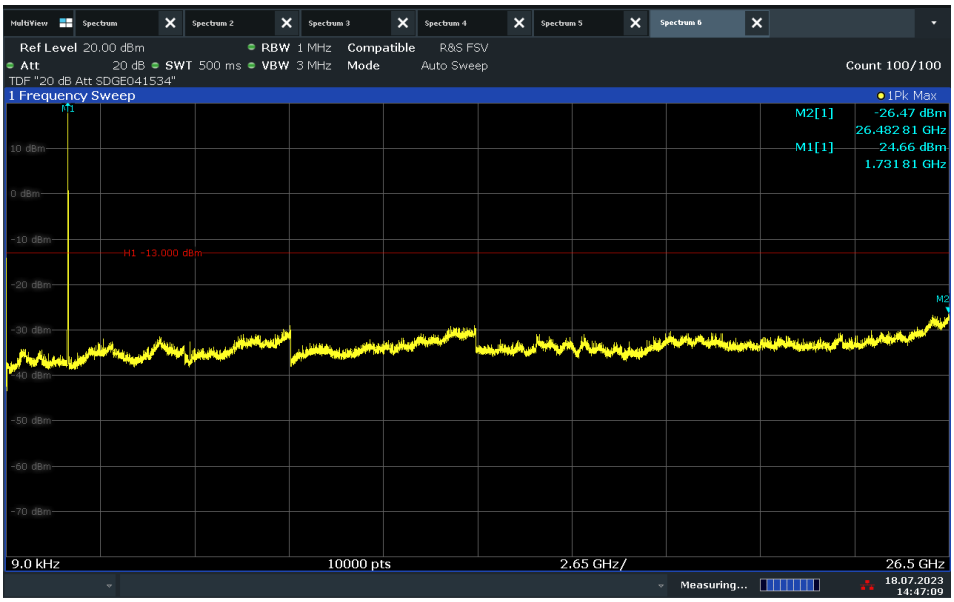
LTE Band 4 10MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



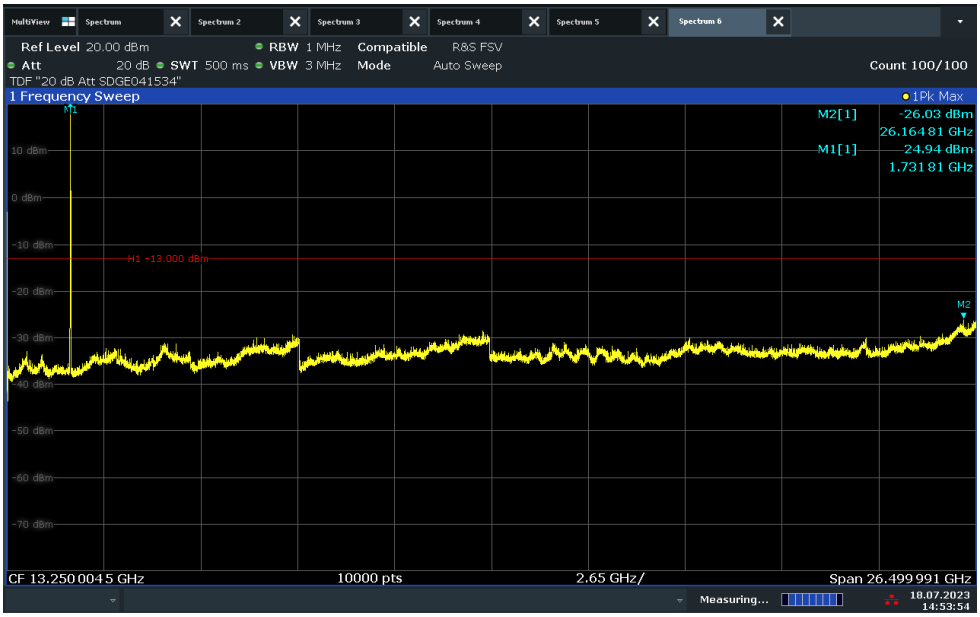
14:38:53 18.07.2023

LTE Band 4 15MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



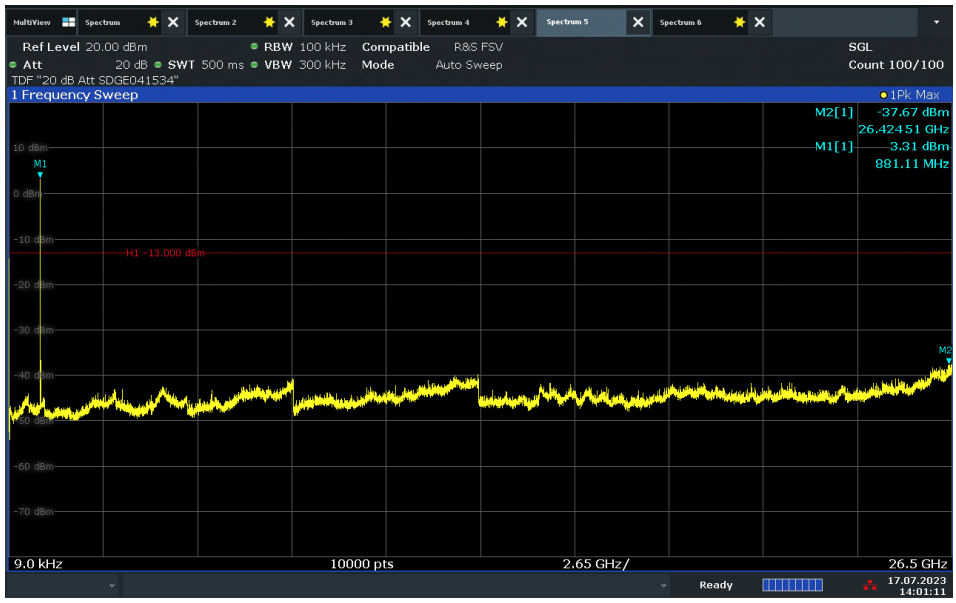
14:47:09 18.07.2023

LTE Band 4 20MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



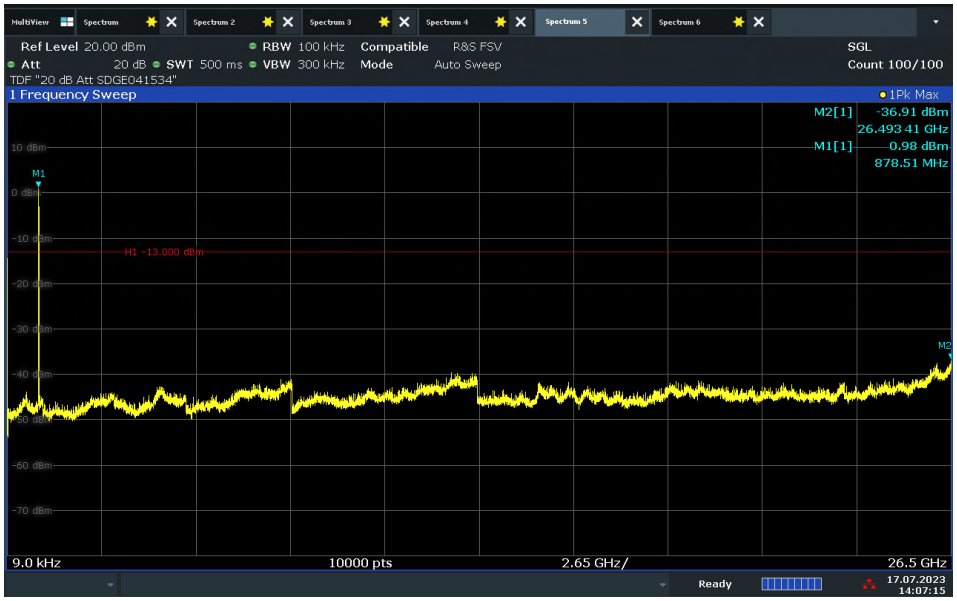
14:53:54 18.07.2023

LTE Band 5 5MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



14:01:12 17.07.2023

LTE Band 5 10MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



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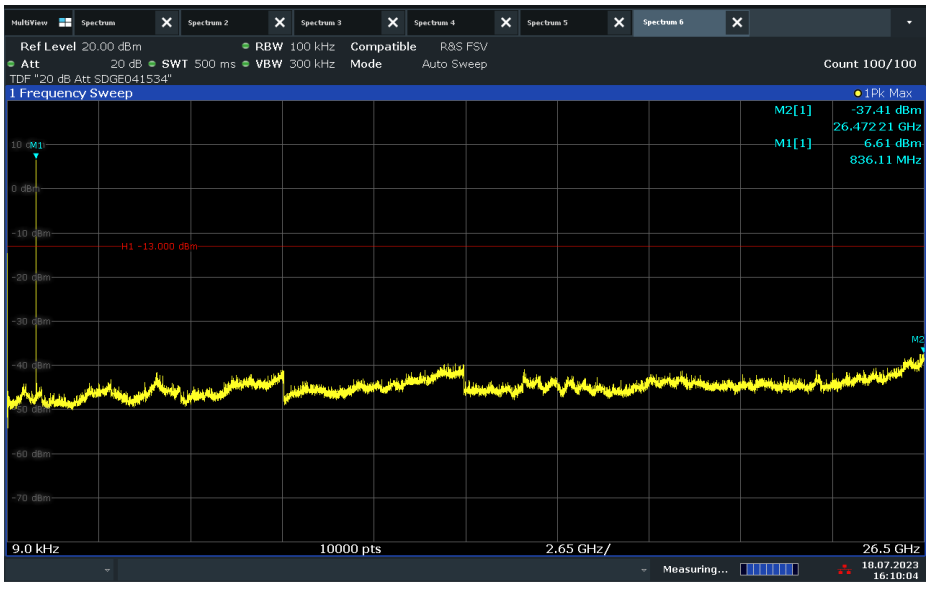
LTE Band 5 5MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



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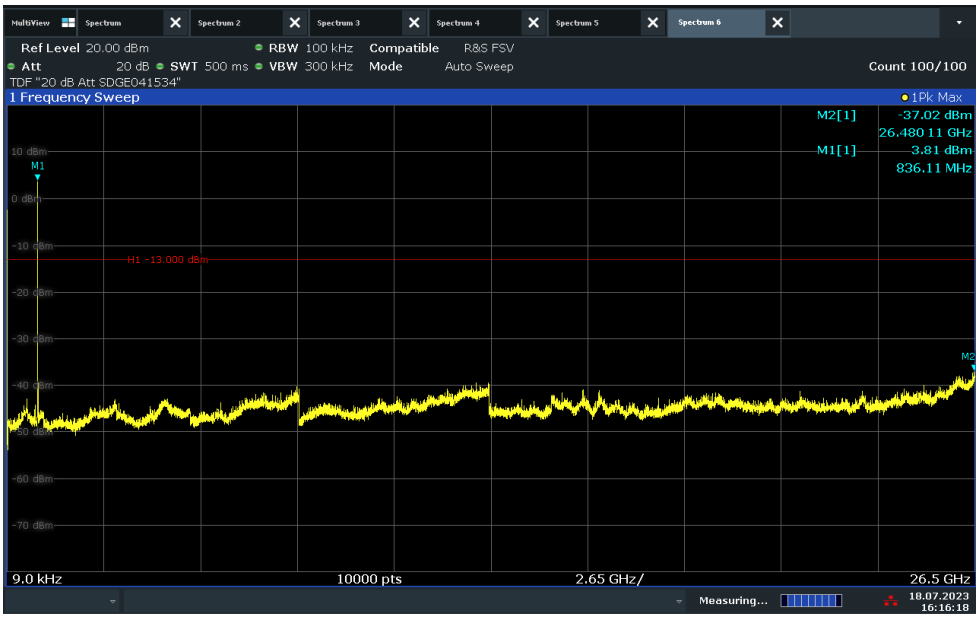
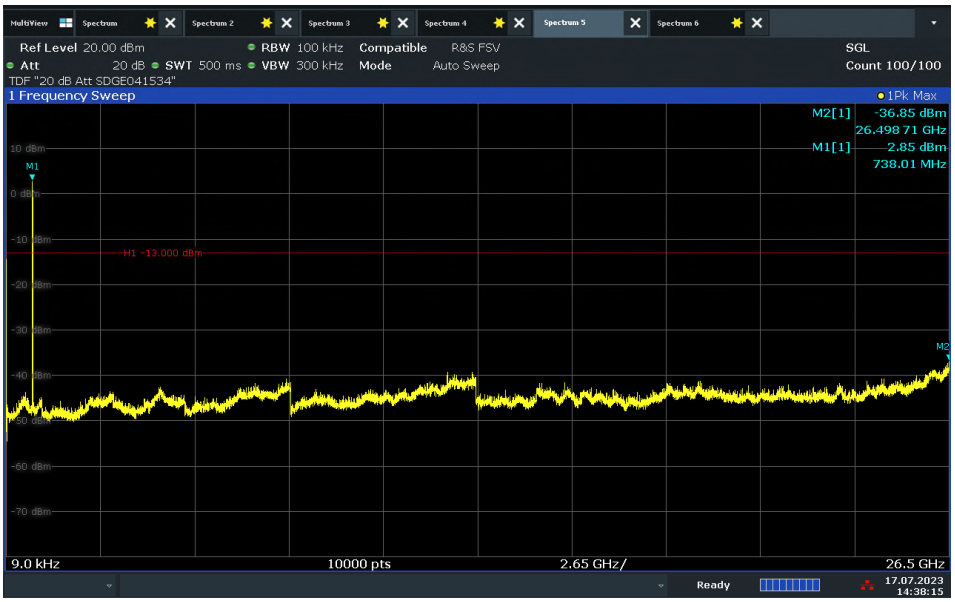
LTE Band 5 10MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



16:16:19 18.07.2023

LTE Band 12 5MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions



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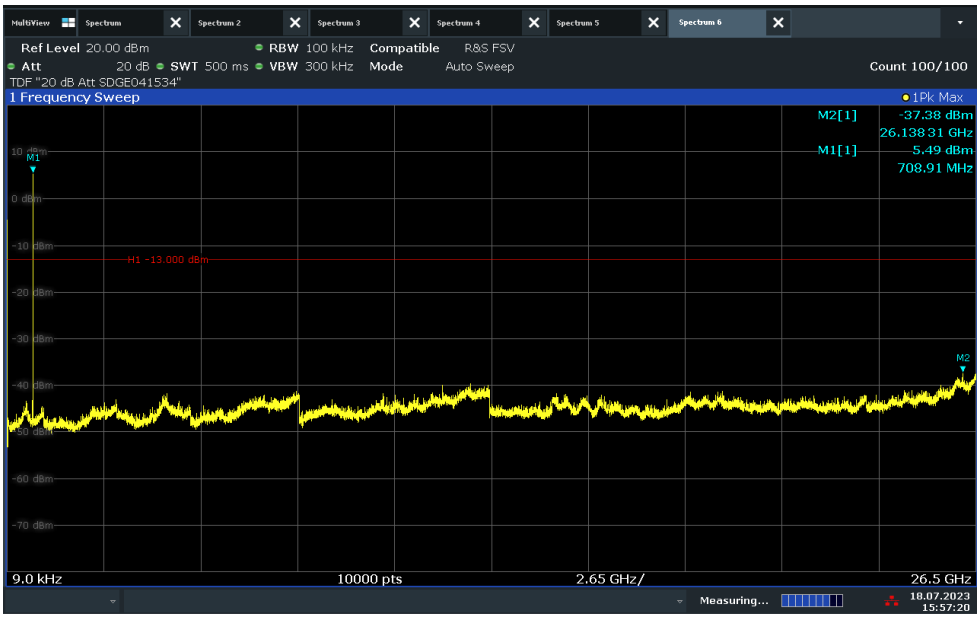
LTE Band 12 10MHz Bandwidth Downlink Middle Channel Conducted Spurious Emissions

14:52:06 17.07.2023

LTE Band 12 5MHz Bandwidth Uplink Middle Channel Conducted Spurious Emissions



15:57:21 18.07.2023