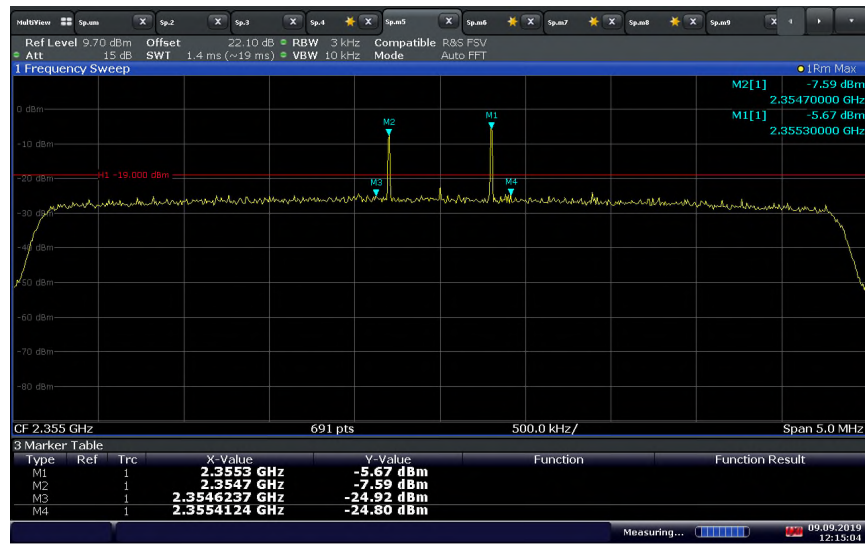
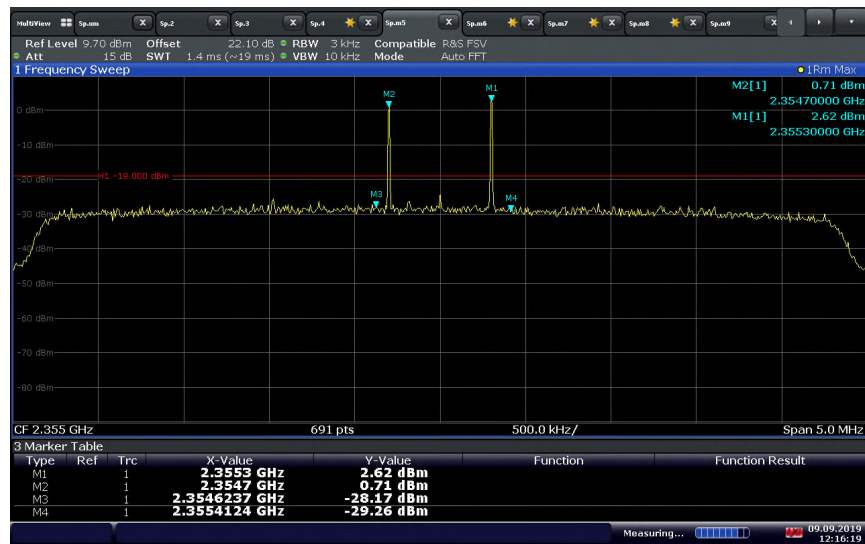


**LTE Band 30 Downlink (-86.9 dBm)**

12:15:04 09.09.2019

Note: The spurious above the limit are the injected CW signals, not inter-modulation products.

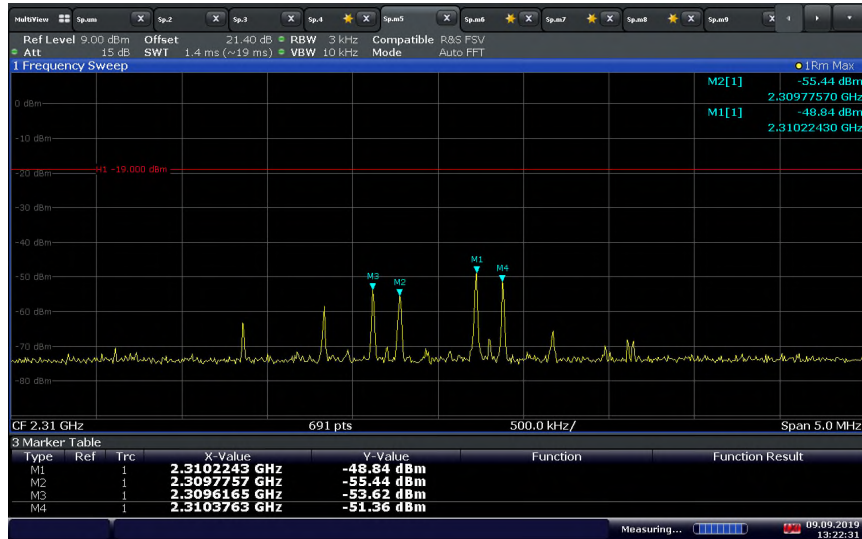
**LTE Band 30 Downlink (-76.9 dBm)**

12:16:19 09.09.2019

Note: The spurious above the limit are the injected CW signals, not inter-modulation products.

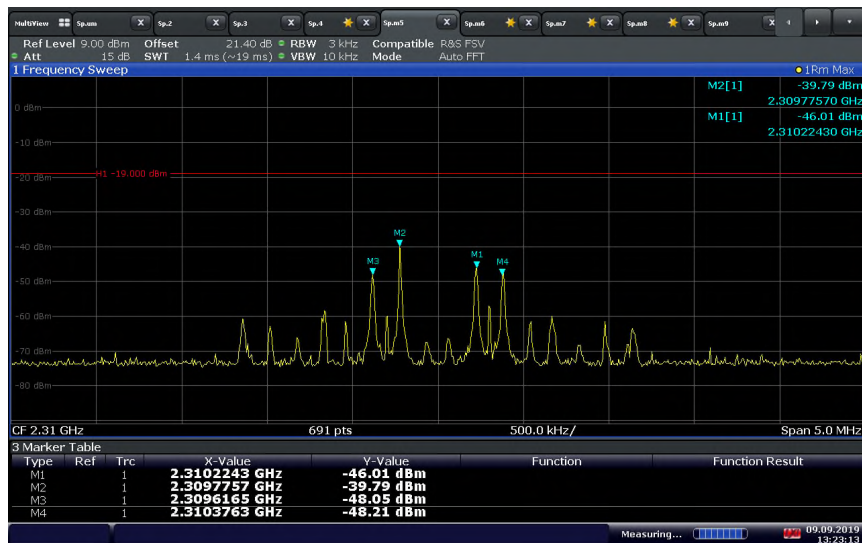


## LTE Band 30 Uplink (-77.5 dBm)



13:22:31 09.09.2019

## LTE Band 30 Uplink (-67.5 dBm)



13:23:13 09.09.2019

## **2.5 Out of Band Emissions**

### **2.5.1 Specification Reference**

FCC 47 CFR Part 20. Clause 20.21(e)(9)(i)(F)  
KDB935210 D04, Clause 7.5

### **2.5.2 Standard Applicable**

FCC 47 CFR Part 20. Clause 20.21(e)(9)(i)(F) Out of Band Emissions Limits:

Booster out of band emissions (OOBE) shall meet the FCC's mobile emission limits for the supported bands of operation. Compliance to OOBE limits will utilize high peak-to-average CMRS signal types.

### **2.5.3 Equipment Under Test and Modification State**

Serial No: 370920000139 (NU) and 371929000156 (CU) / Test Configuration A and B

### **2.5.4 Date of Test/Initial of test personnel who performed the test**

August 09, 13, 15 and October 15, 2019/XYZ

### **2.5.5 Test Equipment Used**

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

### **2.5.6 Environmental Conditions**

Test performed at TÜV SÜD America Inc. Mira Mesa facility.

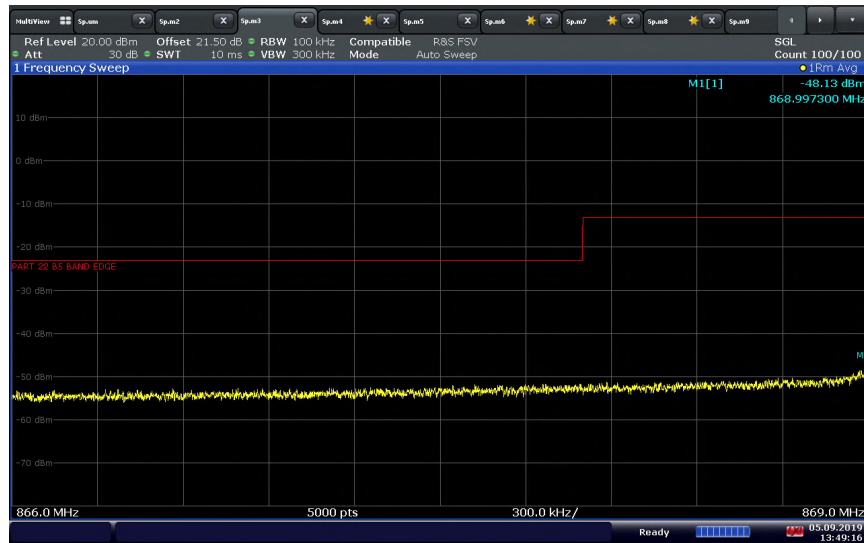
Ambient Temperature	25.8 - 26.0°C
Relative Humidity	51.1 - 53.3%
ATM Pressure	98.8 - 99.0kPa

### **2.5.7 Additional Observations**

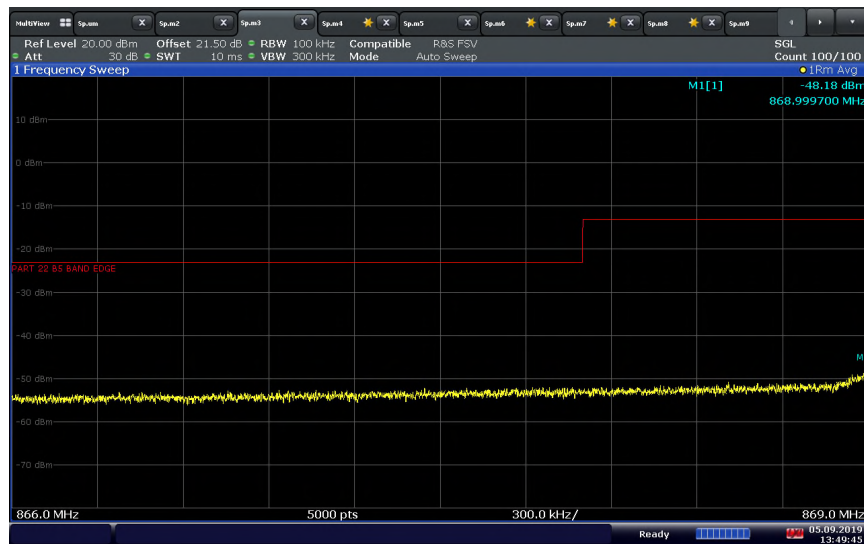
- This is conducted Test.
- Test procedure is per Section 7.5 of KDB935210 (D04 Provider Specific Booster Measurements v02r03). Appropriate offset (line losses) applied.
- The EUT operated in Test Mode, with the gain set to the maximum and a 5MHz bandwidth setting.
- The out of band emissions with Maximum Transmitter Input Level (-20dBm for Downlink and 0dBm for Uplink) injected was also verified.
- Evaluations are conducted at CU and NU antenna ports.
- Operational uplink and downlink bands for WCDMA Band 5 and LTE Band 4, 12, 25, 30 were tested.
- Signal: 5MHz WCDMA or LTE.

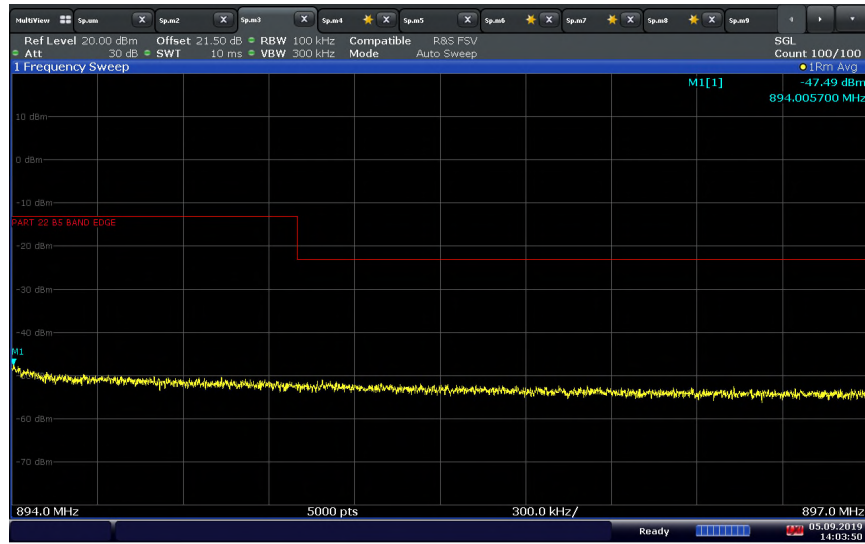
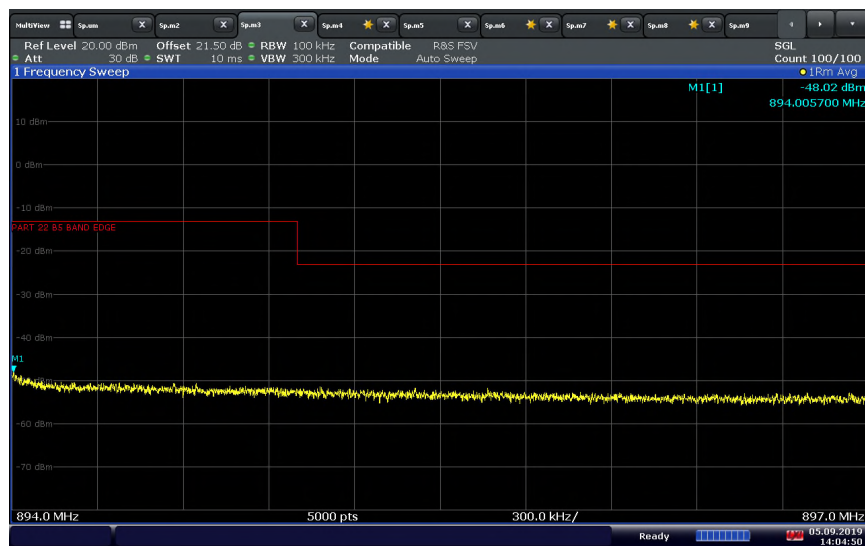
## 2.5.8 Test Results

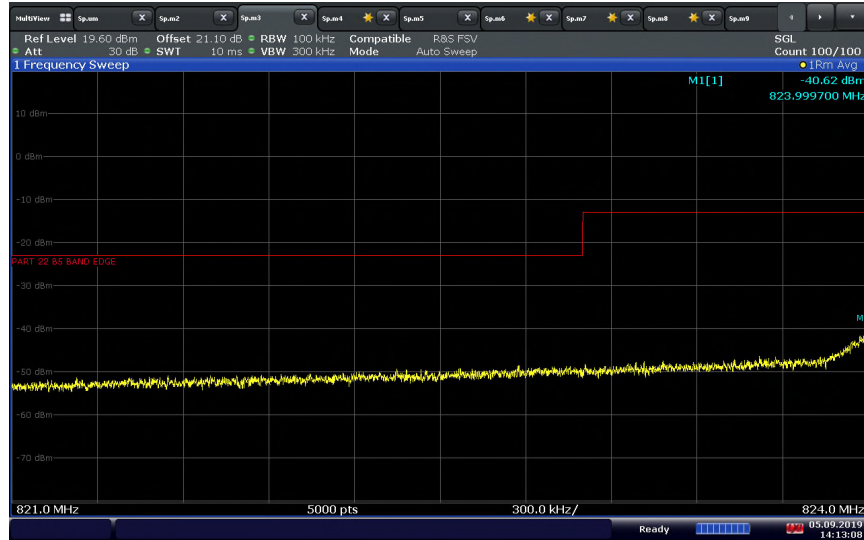
### WCDMA Band 5 Downlink 5MHz Bandwidth Low Channel (-82.9 dBm)



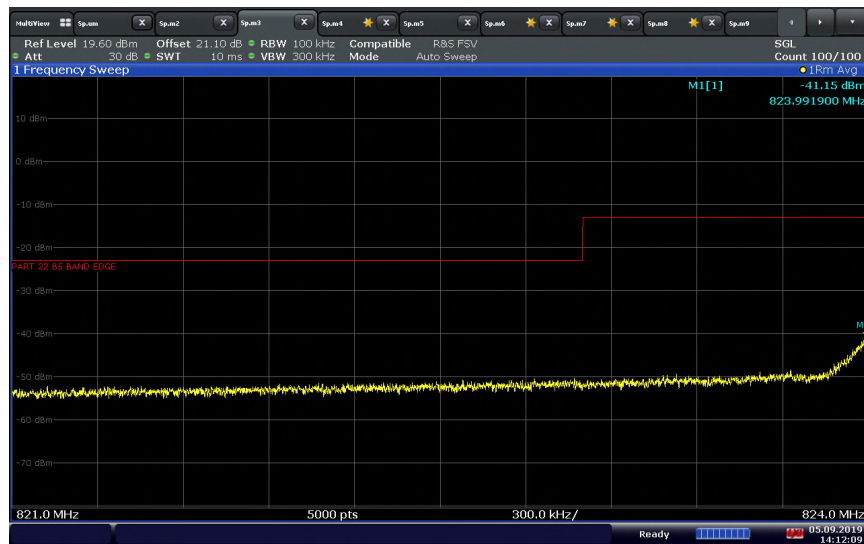
### WCDMA Band 5 Downlink 5MHz Bandwidth Low Channel (-20 dBm)



**WCDMA Band 5 Downlink 5MHz Bandwidth High Channel (-82.9 dBm)****WCDMA Band 5 Downlink 5MHz Bandwidth High Channel (-20 dBm)**

**WCDMA Band 5 Uplink 5MHz Bandwidth Low Channel (-73.6 dBm)**

14:13:08 05.09.2019

**WCDMA Band 5 Uplink 5MHz Bandwidth Low Channel (0 dBm)**

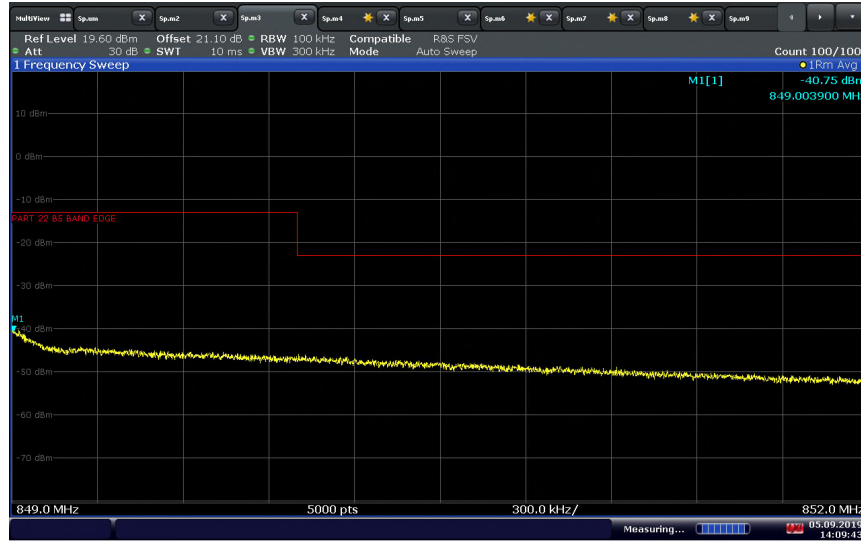
14:12:10 05.09.2019





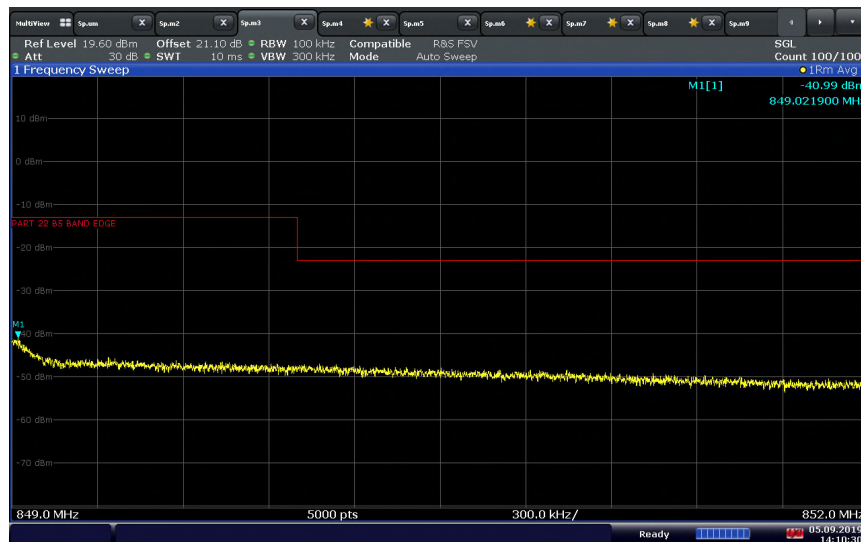
Product Service

### WCDMA Band 5 Uplink 5MHz Bandwidth High Channel (-73.6 dBm)

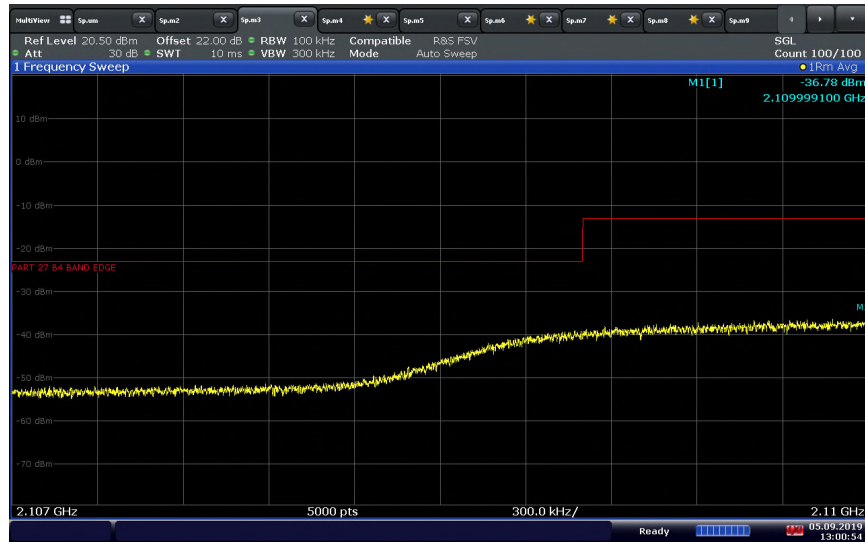
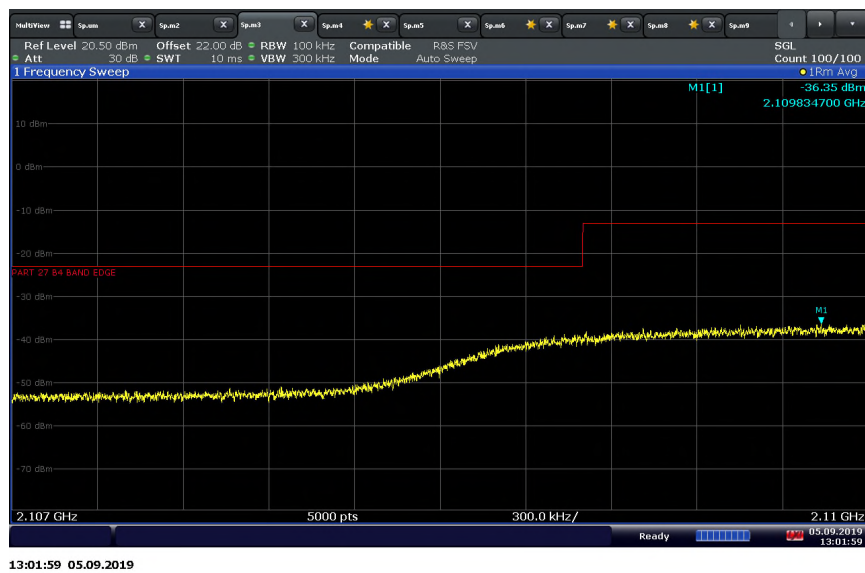


14:09:44 05.09.2019

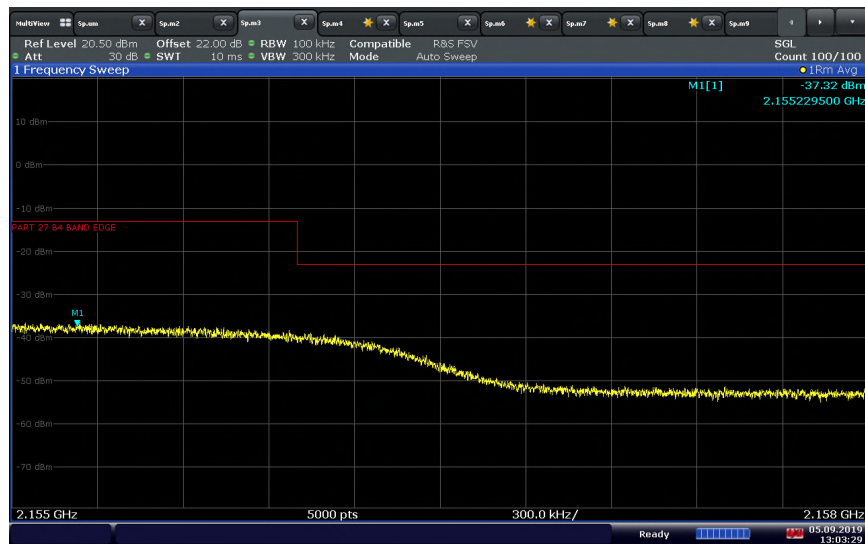
### WCDMA Band 5 Uplink 5MHz Bandwidth High Channel (0 dBm)

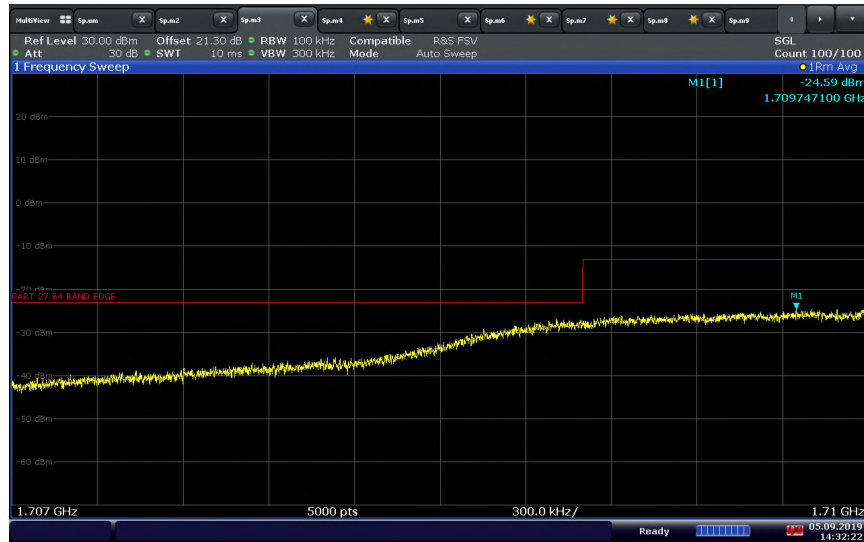


14:10:30 05.09.2019

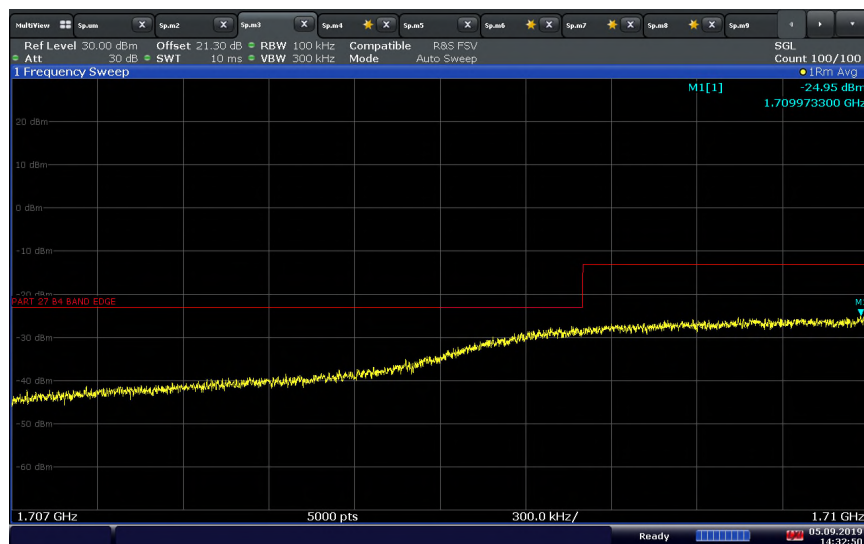
**LTE Band 4 Downlink 5MHz Bandwidth Low Channel (-87.7 dBm)****LTE Band 4 Downlink 5MHz Bandwidth Low Channel (-20 dBm)**



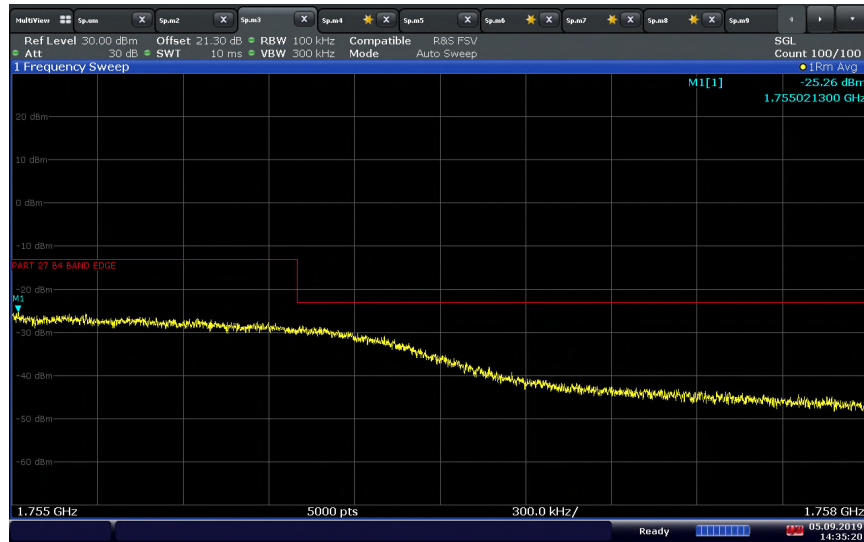
**LTE Band 4 Downlink 5MHz Bandwidth High Channel (-87.7 dBm)****LTE Band 4 Downlink 5MHz Bandwidth High Channel (-20 dBm)**

**LTE Band 4 Uplink 5MHz Bandwidth Low Channel (-73.3 dBm)**

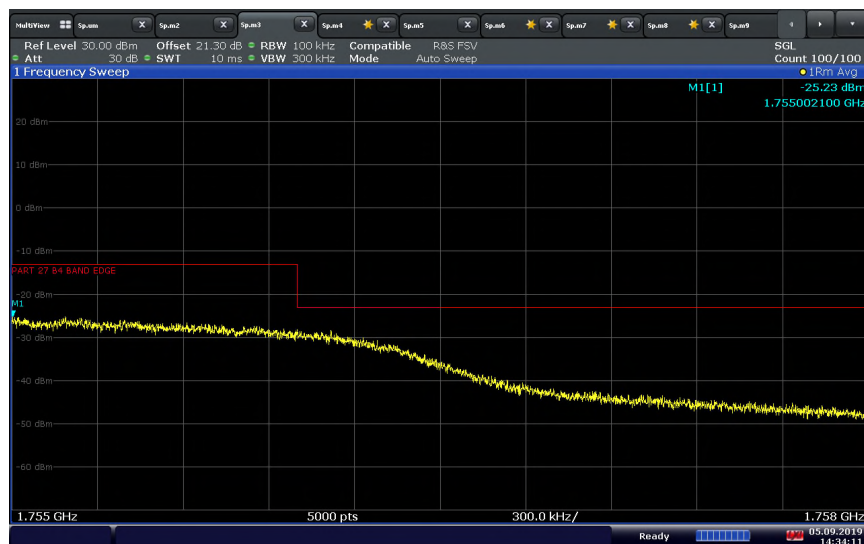
14:32:22 05.09.2019

**LTE Band 4 Uplink 5MHz Bandwidth Low Channel (0 dBm)**

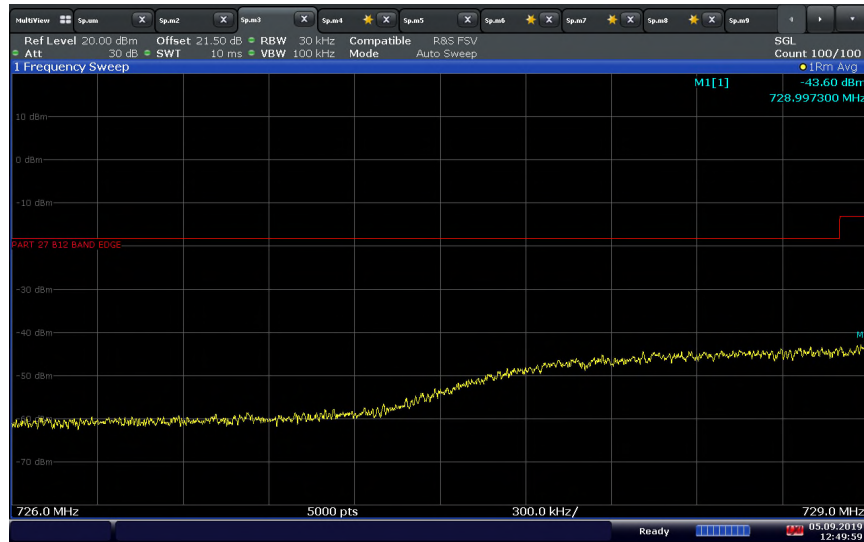
14:32:50 05.09.2019

**LTE Band 4 Uplink 5MHz Bandwidth High Channel (-73.3 dBm)**

14:35:21 05.09.2019

**LTE Band 4 Uplink 5MHz Bandwidth High Channel (0 dBm)**

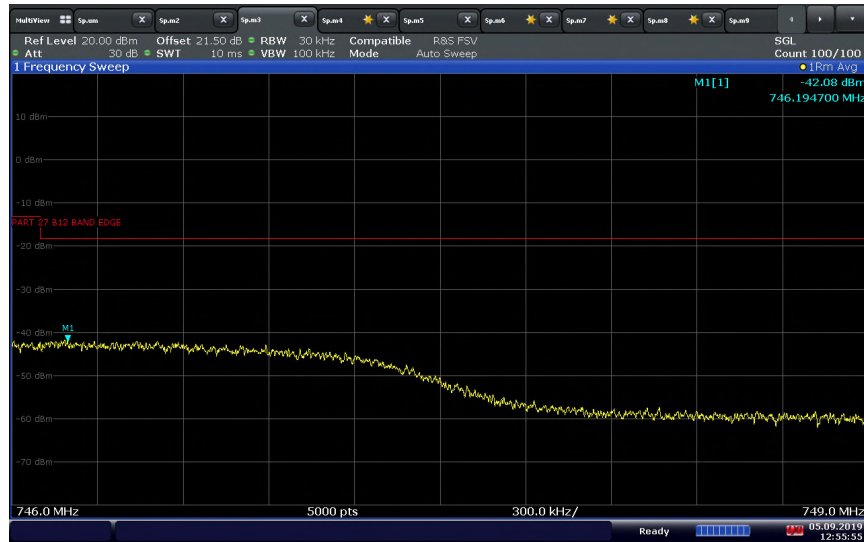
14:34:12 05.09.2019

**LTE Band 12 Downlink 5MHz Bandwidth Low Channel (-83.4 dBm)**

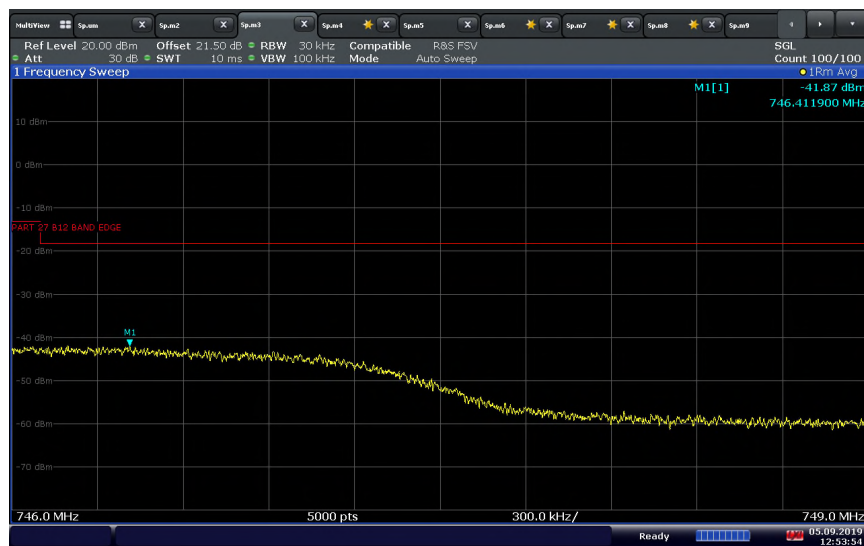
12:49:59 05.09.2019

**LTE Band 12 Downlink 5MHz Bandwidth Low Channel (-20 dBm)**

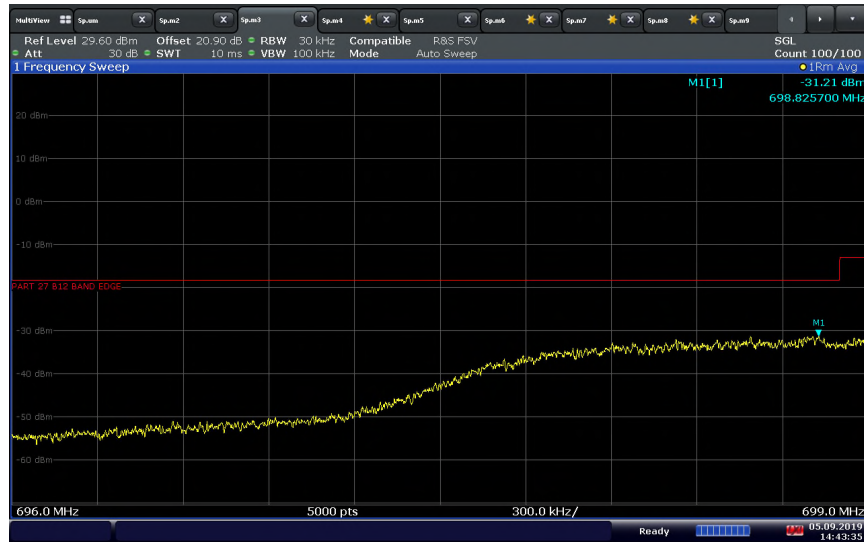
12:50:49 05.09.2019

**LTE Band 12 Downlink 5MHz Bandwidth High Channel (-83.4 dBm)**

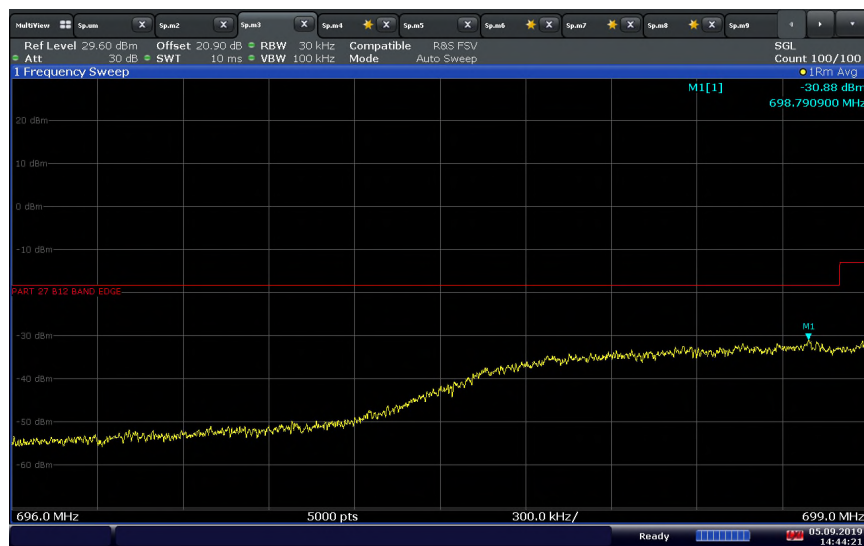
12:55:55 05.09.2019

**LTE Band 12 Downlink 5MHz Bandwidth High Channel (-20 dBm)**

12:53:55 05.09.2019

**LTE Band 12 Uplink 5MHz Bandwidth Low Channel (-71.0 dBm)**

14:43:36 05.09.2019

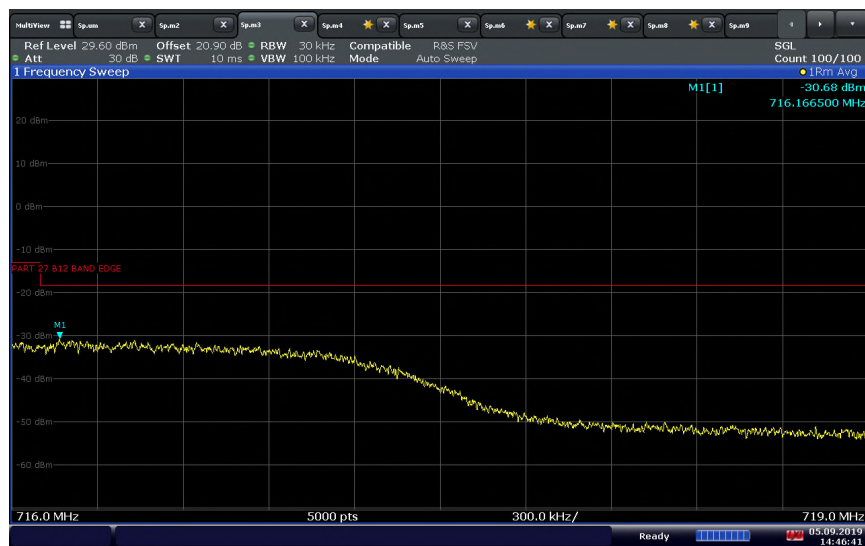
**LTE Band 12 Uplink 5MHz Bandwidth Low Channel (0 dBm)**

14:44:22 05.09.2019

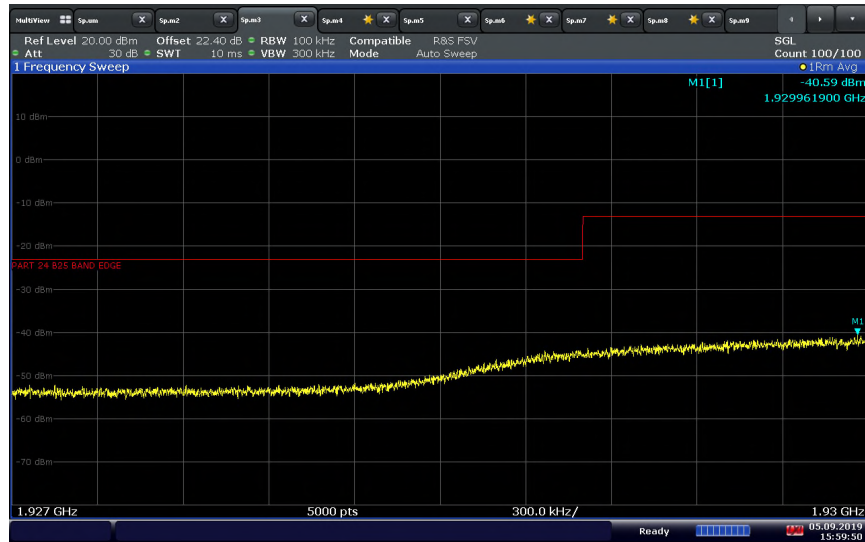


**LTE Band 12 Uplink 5MHz Bandwidth High Channel (-71.0 dBm)**

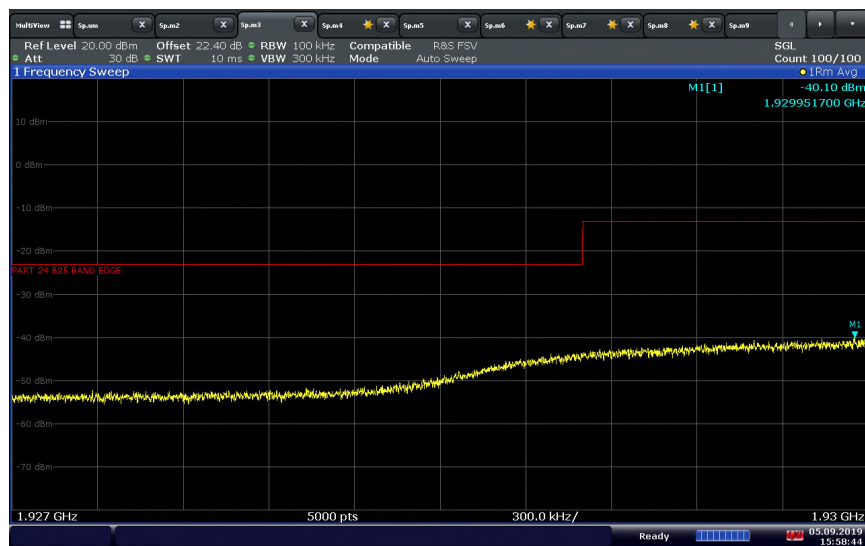
14:47:29 05.09.2019

**LTE Band 12 Uplink 5MHz Bandwidth High Channel (0 dBm)**

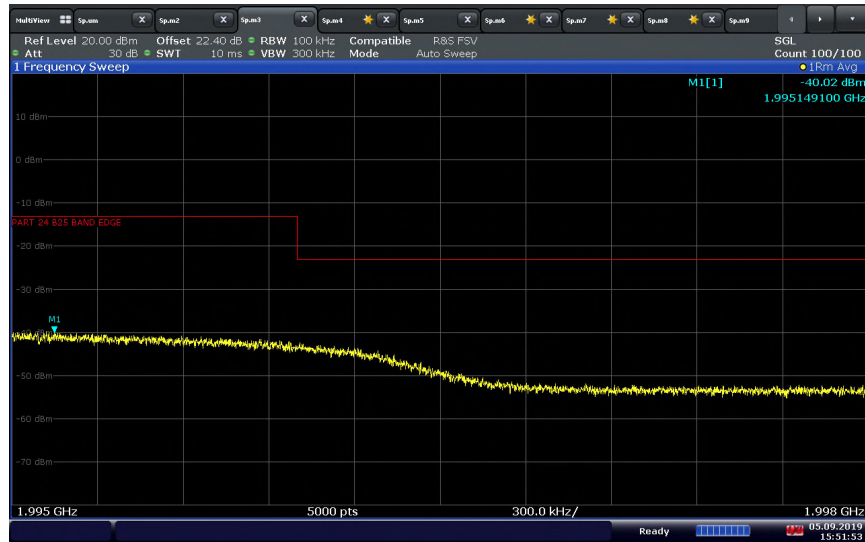
14:46:41 05.09.2019

**LTE Band 25 Downlink 5MHz Bandwidth Low Channel (-86.9 dBm)**

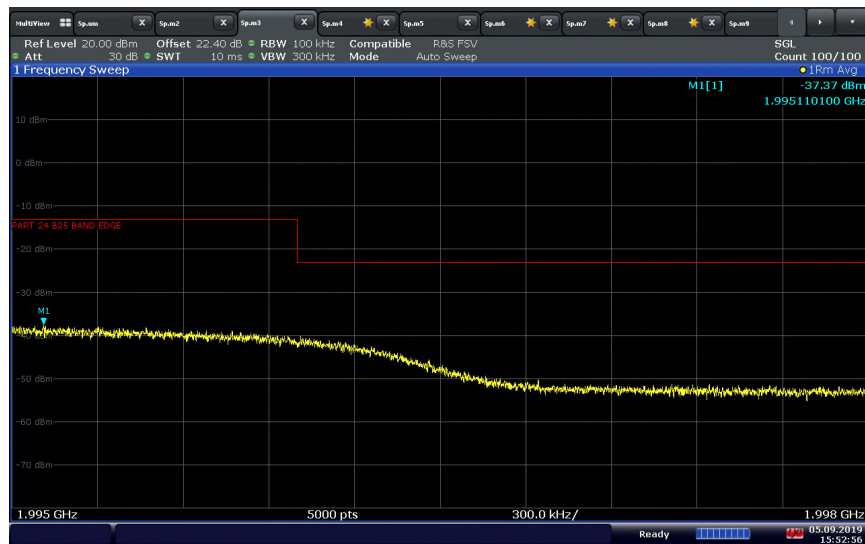
15:59:51 05.09.2019

**LTE Band 25 Downlink 5MHz Bandwidth Low Channel (-20 dBm)**

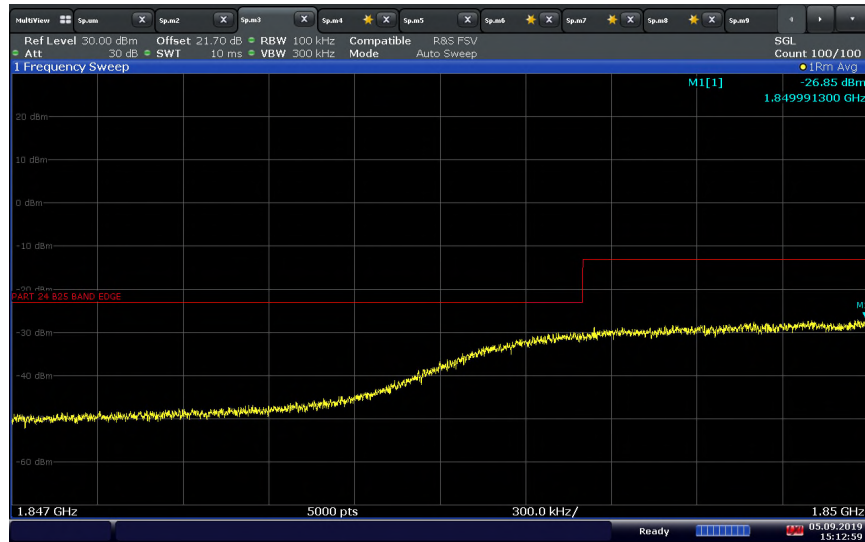
15:58:45 05.09.2019

**LTE Band 25 Downlink 5MHz Bandwidth High Channel (-86.9 dBm)**

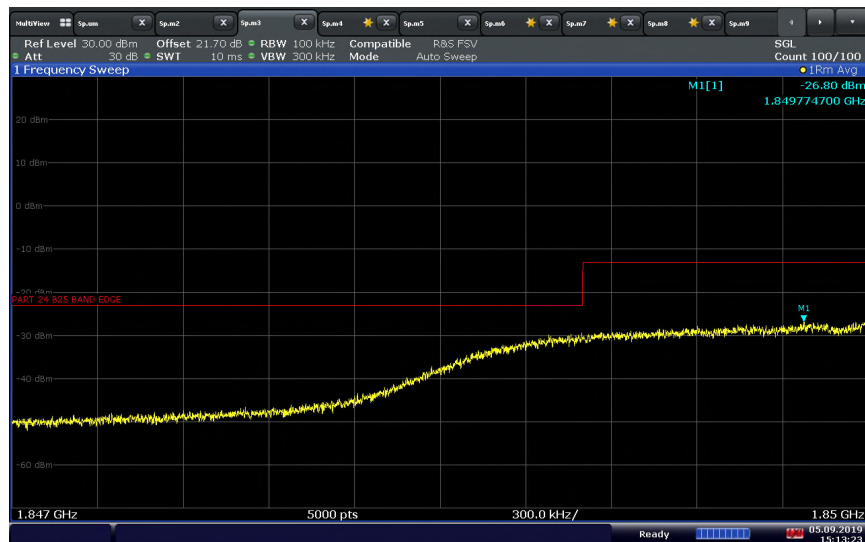
15:51:53 05.09.2019

**LTE Band 25 Downlink 5MHz Bandwidth High Channel (-20 dBm)**

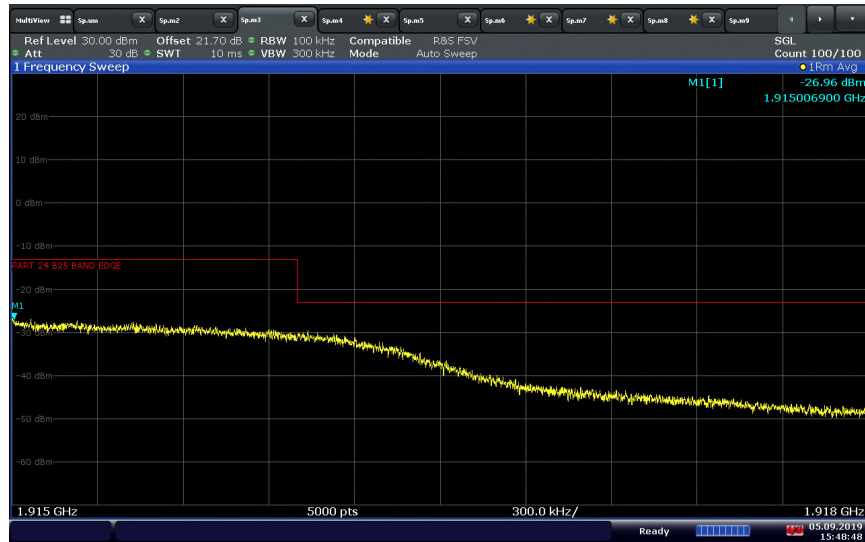
15:52:57 05.09.2019

**LTE Band 25 Uplink 5MHz Bandwidth Low Channel (-74.9 dBm)**

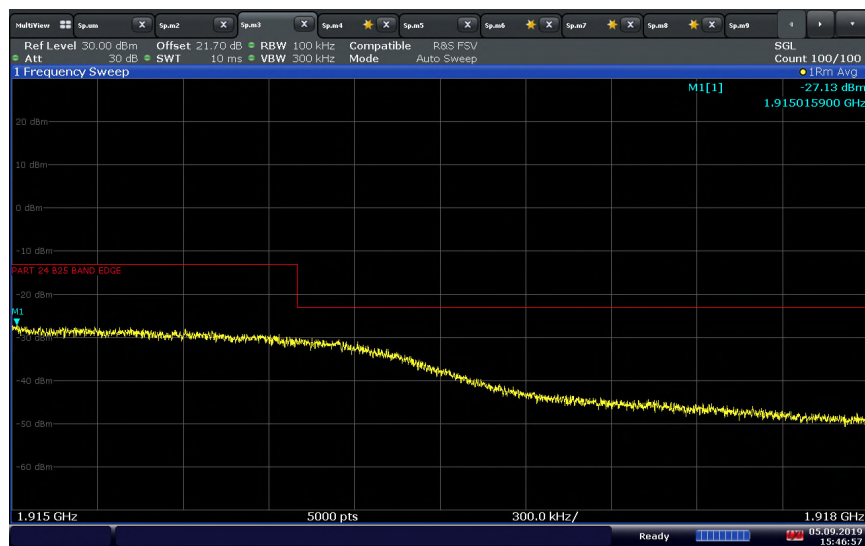
15:13:00 05.09.2019

**LTE Band 25 Uplink 5MHz Bandwidth Low Channel (0 dBm)**

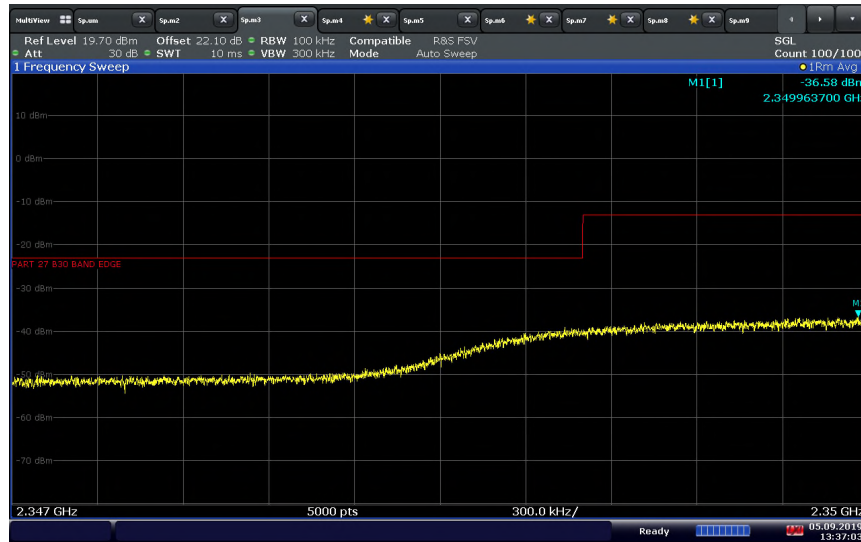
15:13:23 05.09.2019

**LTE Band 25 Uplink 5MHz Bandwidth High Channel (-74.9 dBm)**

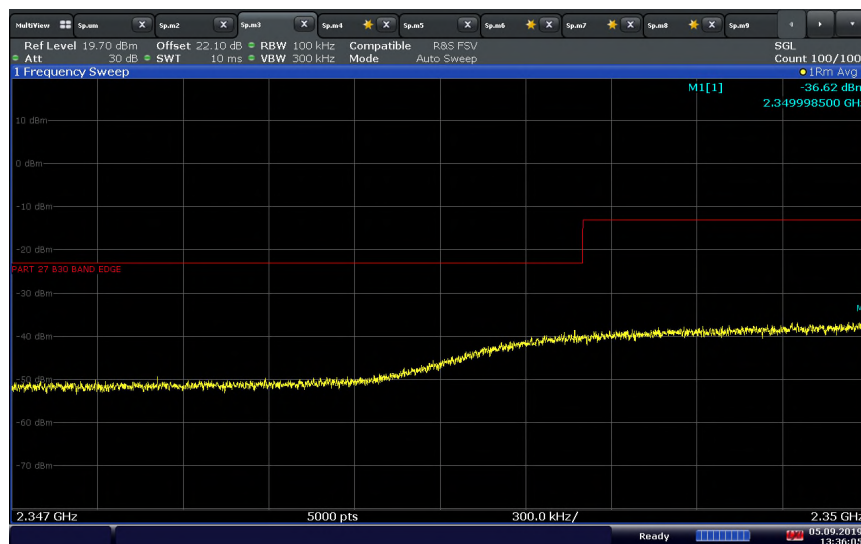
15:48:48 05.09.2019

**LTE Band 25 Uplink 5MHz Bandwidth High Channel (0 dBm)**

15:46:57 05.09.2019

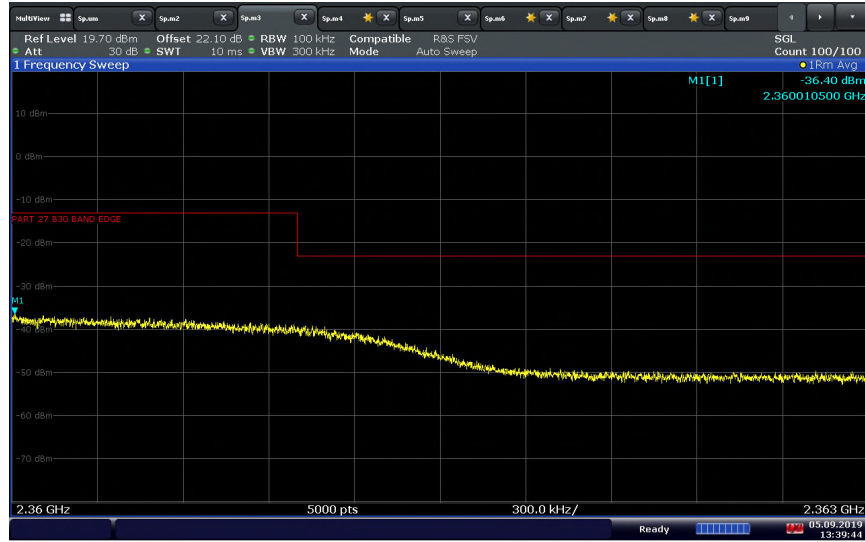
**LTE Band 30 Downlink 5MHz Bandwidth Low Channel (-86.9 dBm)**

13:37:04 05.09.2019

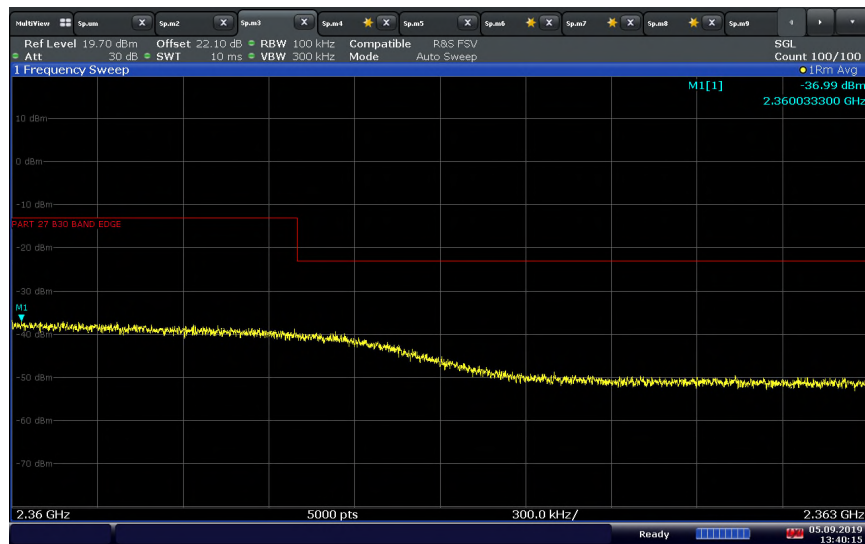
**LTE Band 30 Downlink 5MHz Bandwidth Low Channel (-20 dBm)**

13:36:06 05.09.2019

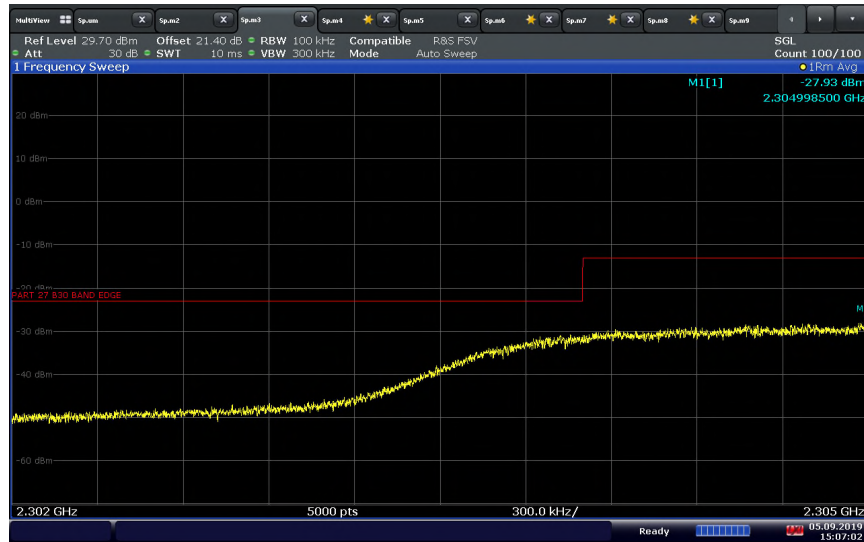


**LTE Band 30 Downlink 5MHz Bandwidth High Channel (-86.9 dBm)**

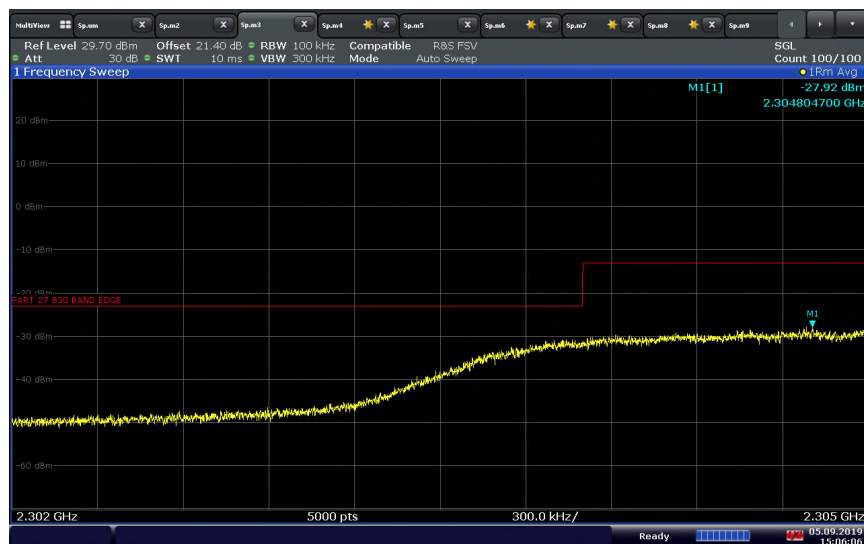
13:39:45 05.09.2019

**LTE Band 30 Downlink 5MHz Bandwidth High Channel (-20 dBm)**

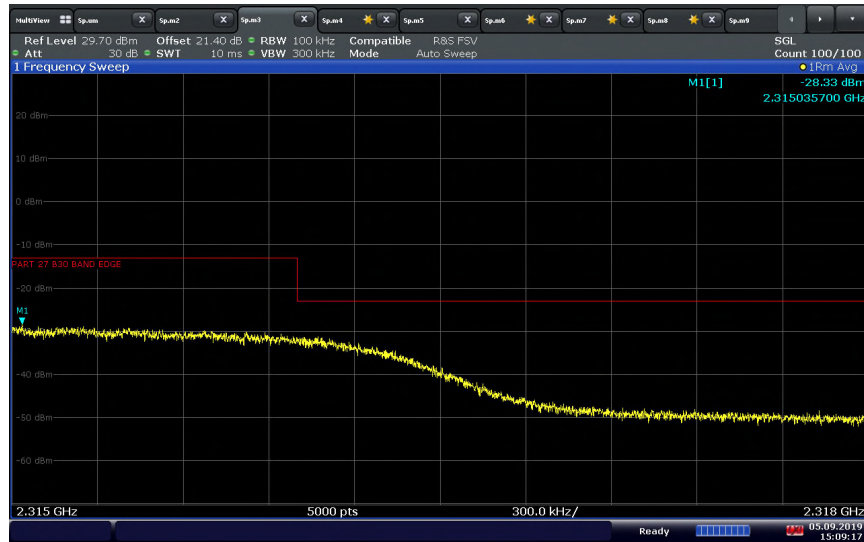
13:40:15 05.09.2019

**LTE Band 30 Uplink 5MHz Bandwidth Low Channel (-77.5 dBm)**

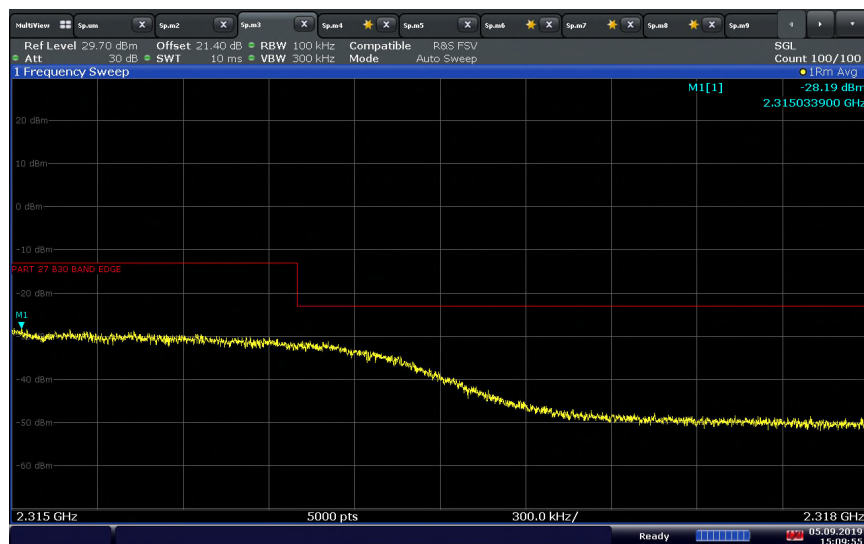
15:07:03 05.09.2019

**LTE Band 30 Uplink 5MHz Bandwidth Low Channel (0 dBm)**

15:06:06 05.09.2019

**LTE Band 30 Uplink 5MHz Bandwidth High Channel (-77.5 dBm)**

15:09:18 05.09.2019

**LTE Band 30 Uplink 5MHz Bandwidth High Channel (0 dBm)**

15:09:55 05.09.2019

## 2.6 Conducted Spurious Emissions

### 2.6.1 Specification Reference

FCC 47 CFR Part 20, Clause 20.21(e)(9)(i)(F)

### 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 operations 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  $43 + 10 \log_{10}(P)$  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.

### 2.6.3 Equipment Under Test and Modification State

Serial No: 110222000051 and 481222000175 / Test Configuration A and B

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

December 28, 2022 / MAR

### 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. Mira Mesa facility.

Ambient Temperature	22.7 °C
Relative Humidity	50.7 %
ATM Pressure	101.1kPa

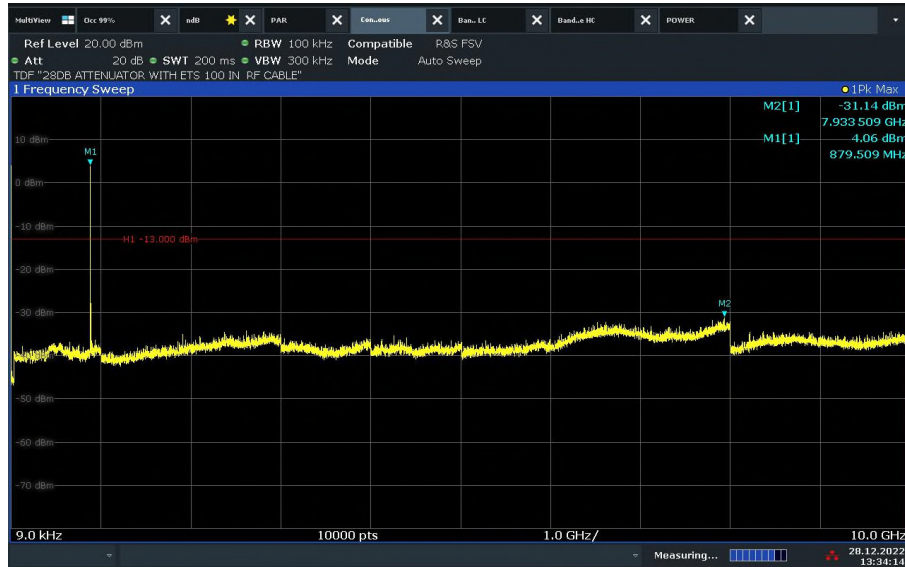
#### **2.6.7 Additional Observations**

- 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.
- A resolution bandwidth of 100 kHz was used for WCDMA Band 5 and 1MHz was used for LTE Band 25.
- 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.



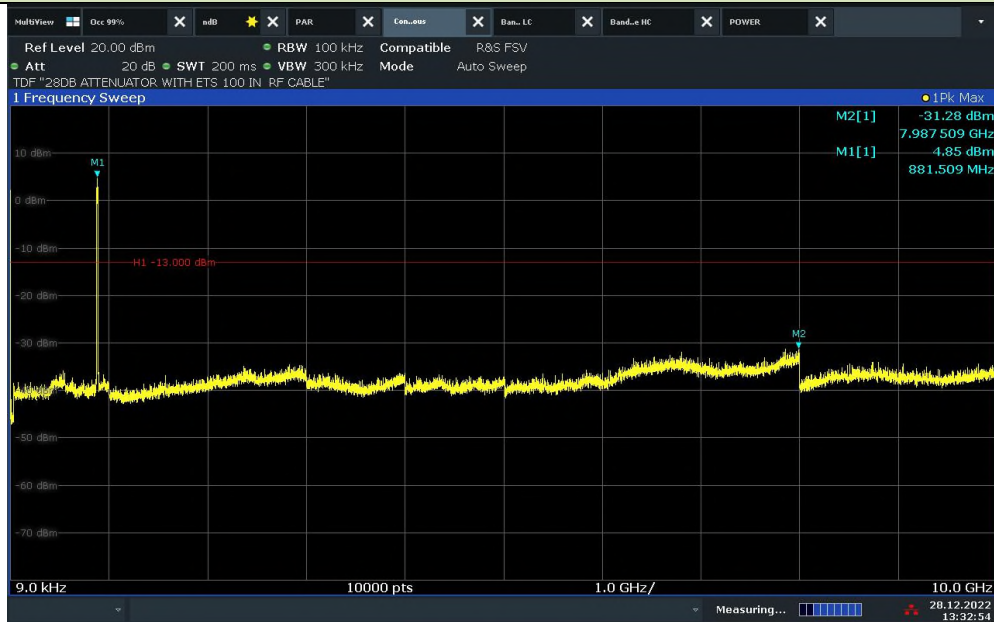
## 2.6.8 Test Results

### WCDMA Band 5\_5MHz Bandwidth\_Downlink Middle Channel Conducted Spurious Emissions

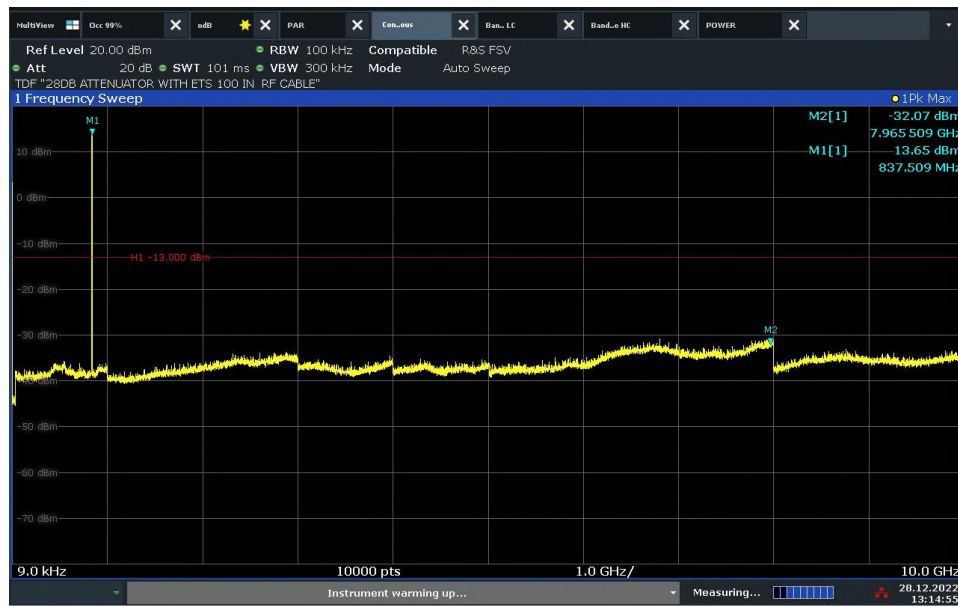


13:34:14 28.12.2022

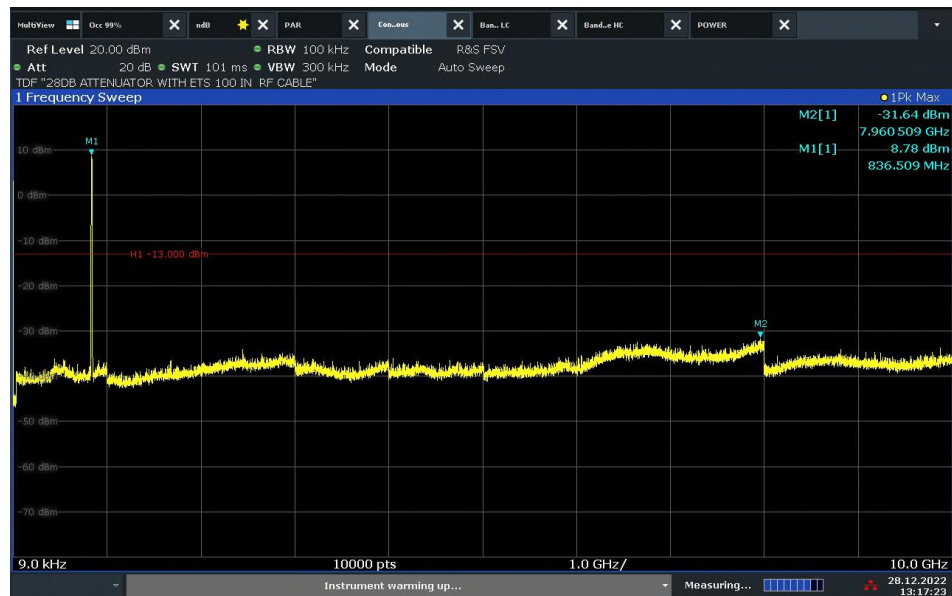
### WCDMA Band 5\_15MHz Bandwidth\_Downlink Middle Channel Conducted Spurious Emissions



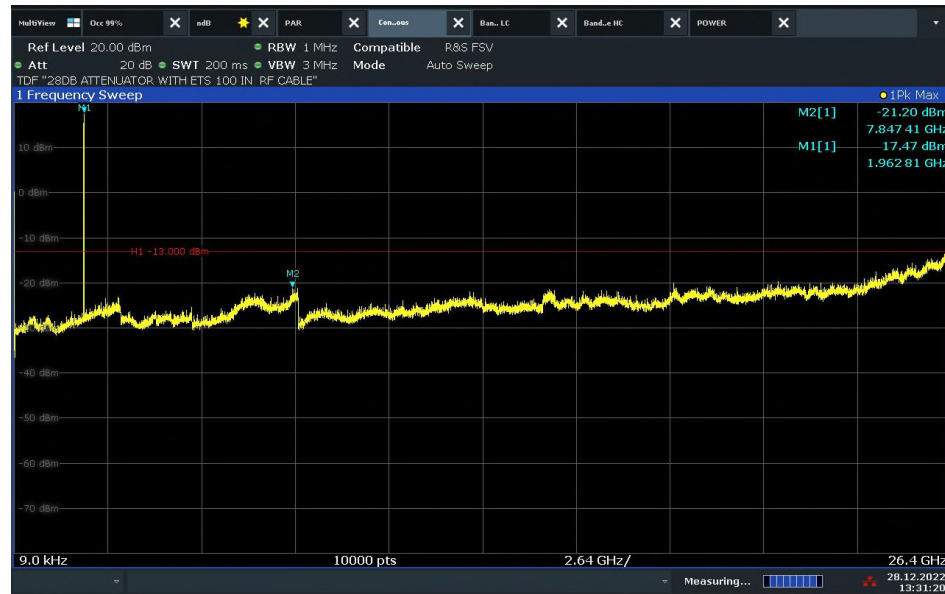
13:32:54 28.12.2022

**WCDMA Band 5\_5MHz Bandwidth\_Uplink Middle Channel Conducted Spurious Emissions**

13:14:55 28.12.2022

**WCDMA Band 5\_15MHz Bandwidth\_Uplink Middle Channel Conducted Spurious Emissions**

13:17:23 28.12.2022

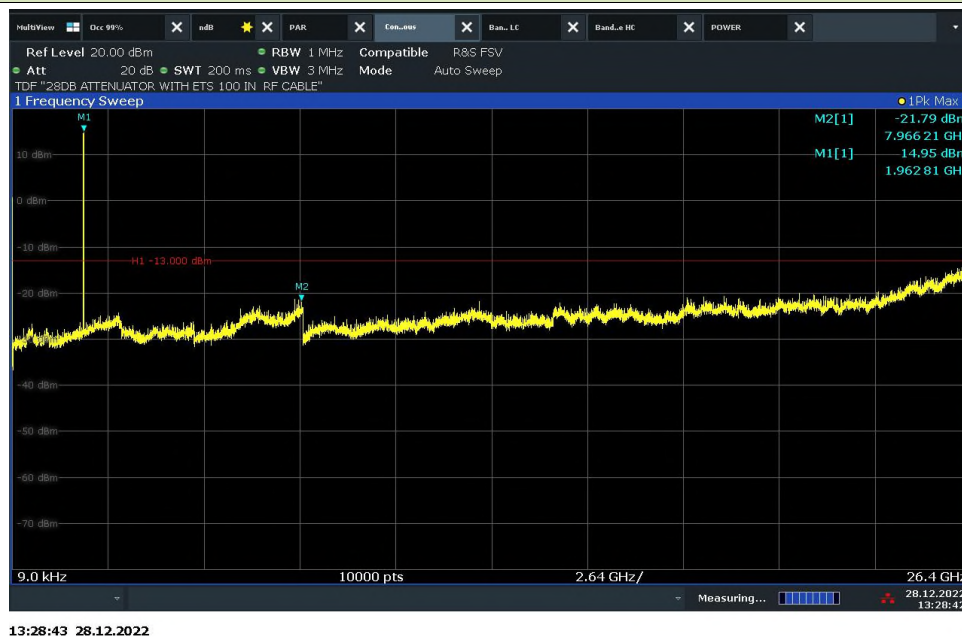
**LTE Band 25\_5MHz Bandwidth\_Downlink Middle Channel Conducted Spurious Emissions**

13:31:21 28.12.2022

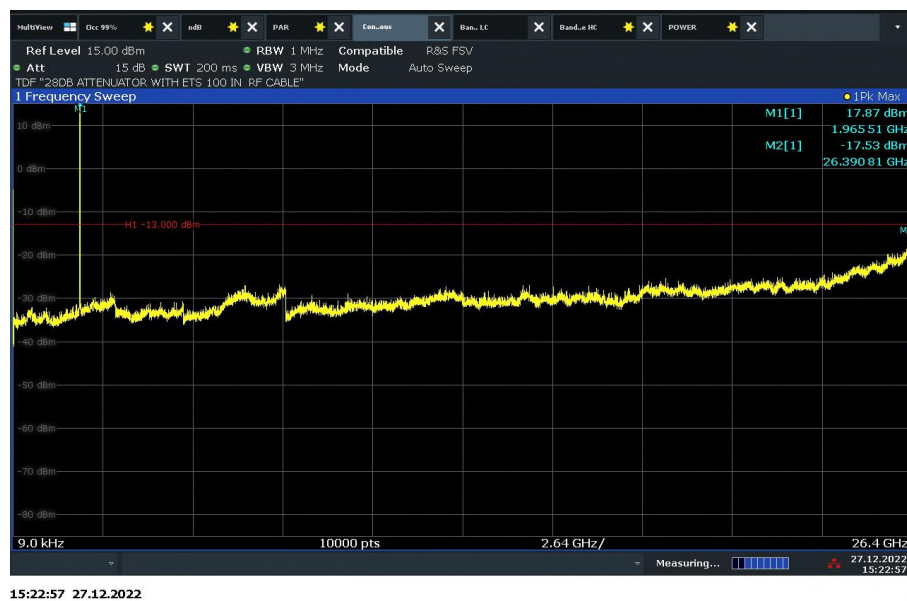
**LTE Band 25\_10MHz Bandwidth\_Downlink Middle Channel Conducted Spurious Emissions**

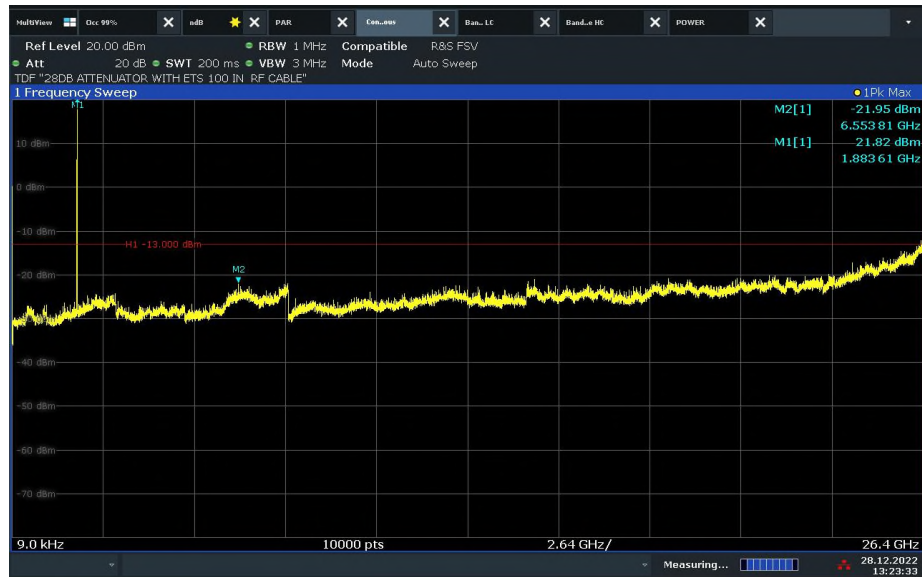
13:30:26 28.12.2022

## LTE Band 25\_15MHz Bandwidth\_Downlink Middle Channel Conducted Spurious Emissions



## LTE Band 25\_20MHz Bandwidth\_Downlink Middle Channel Conducted Spurious Emissions



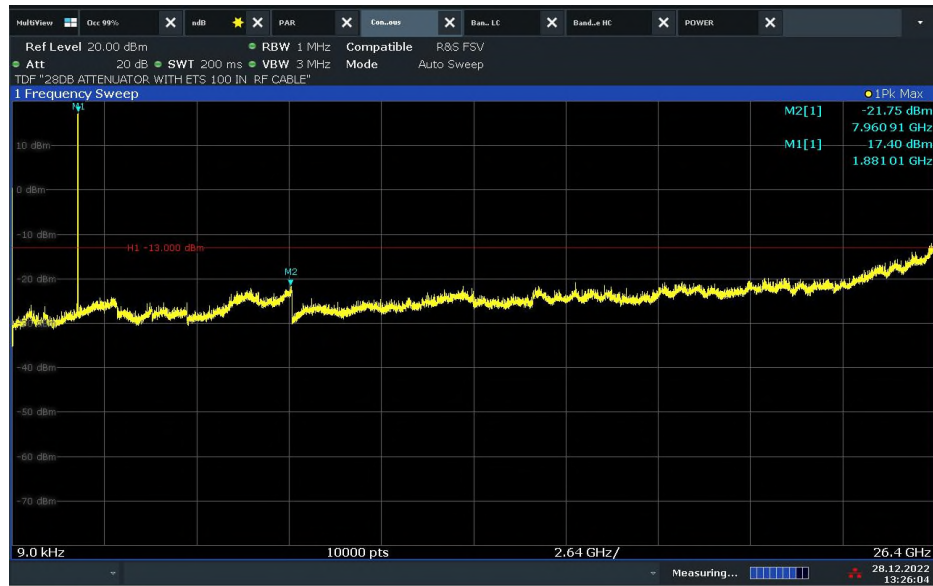
**LTE Band 25\_5MHz Bandwidth\_Uplink Middle Channel Conducted Spurious Emissions**

13:23:33 28.12.2022

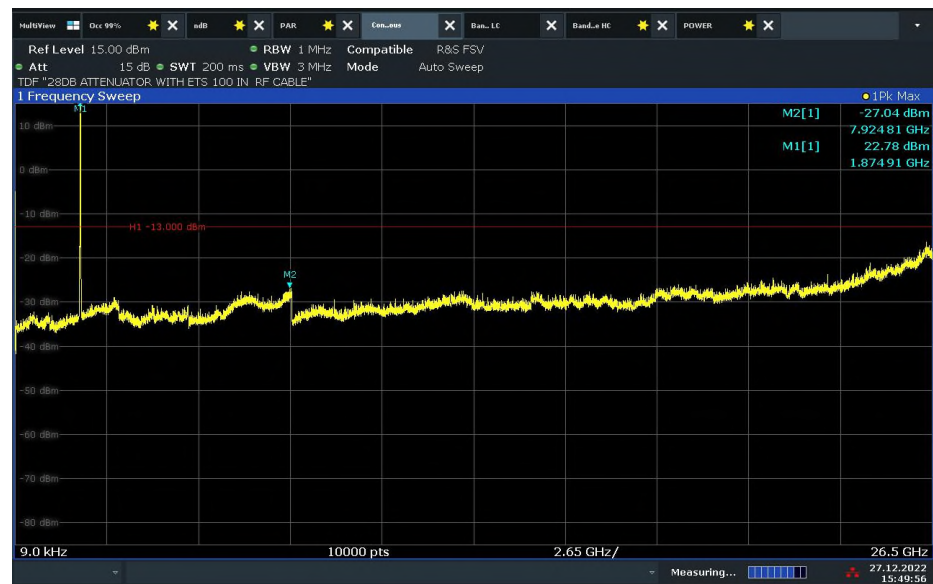
**LTE Band 25\_10MHz Bandwidth\_Uplink Middle Channel Conducted Spurious Emissions**

13:24:59 28.12.2022



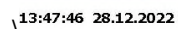
**LTE Band 25\_15MHz Bandwidth\_Uplink Middle Channel Conducted Spurious Emissions**

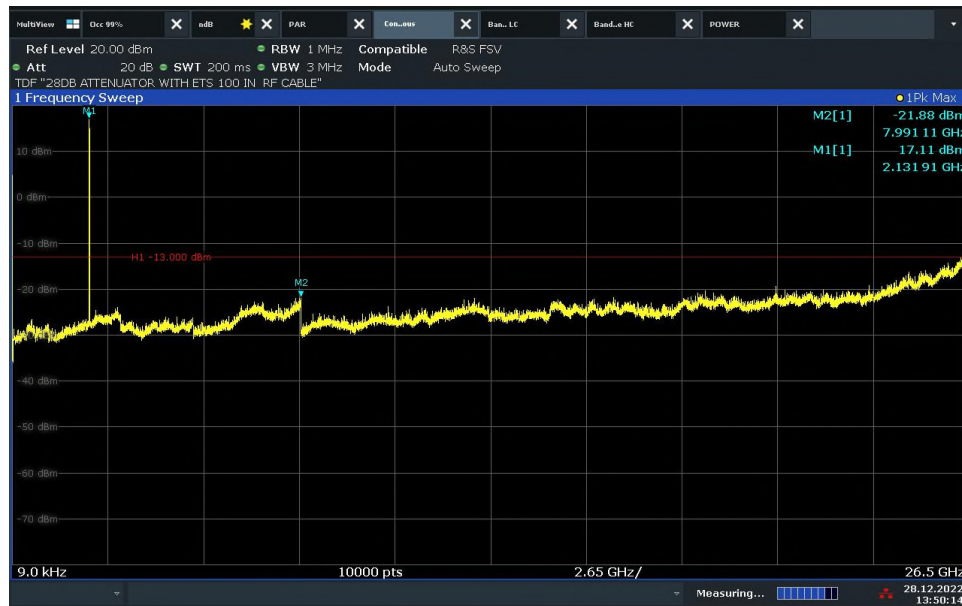
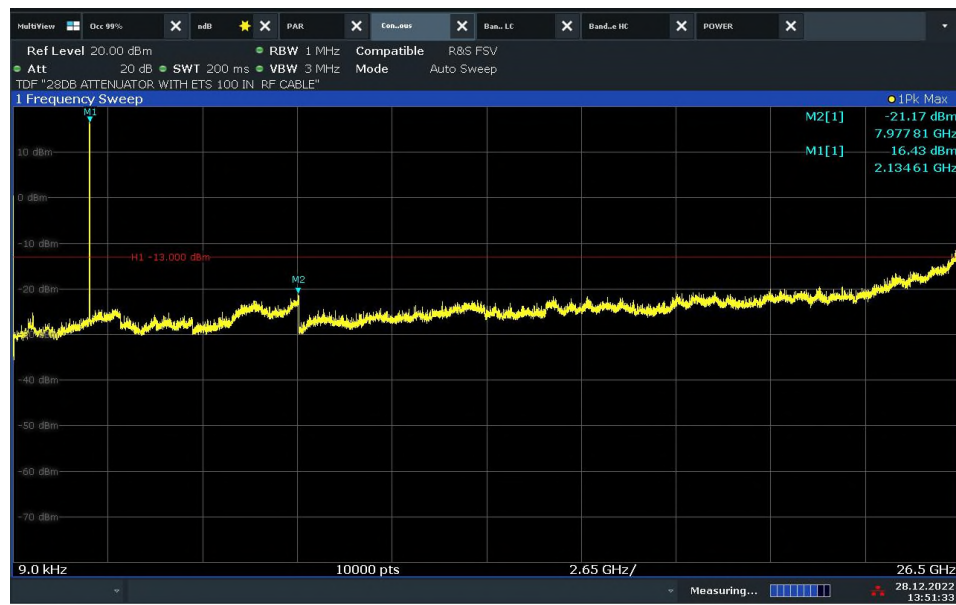
13:26:05 28.12.2022

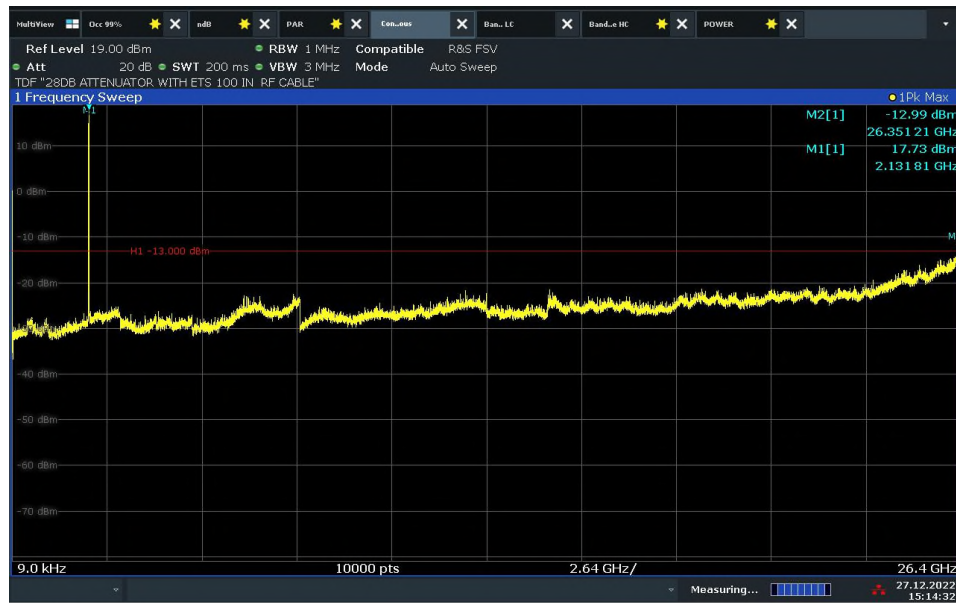
**LTE Band 25\_20MHz Bandwidth\_Uplink Middle Channel Conducted Spurious Emissions**

15:49:57 27.12.2022





**LTE Band 4 Downlink 10MHz Bandwidth Middle Channel Conducted Spurious Emissions****LTE Band 4 Downlink 15MHz Bandwidth Middle Channel Conducted Spurious Emissions**

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

15:14:32 27.12.2022

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

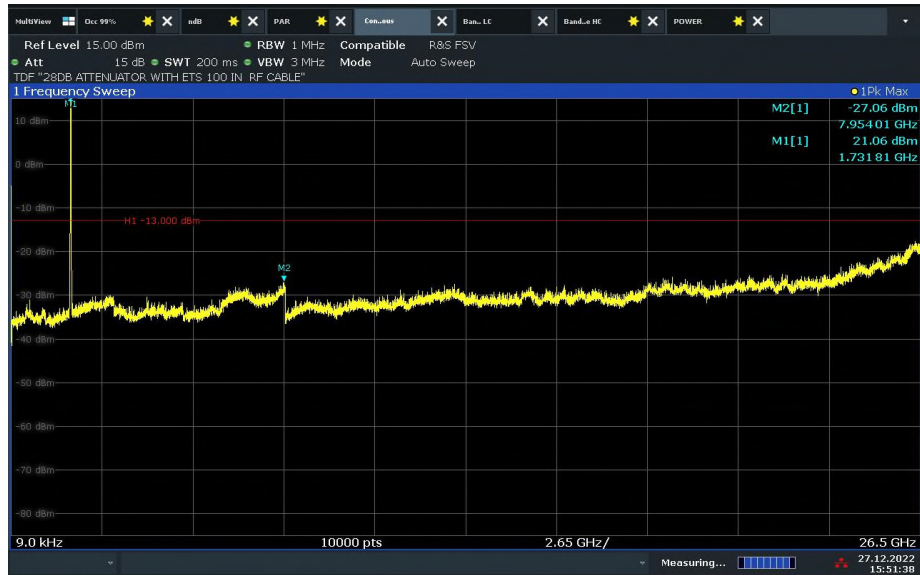
16:57:07 28.12.2022

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

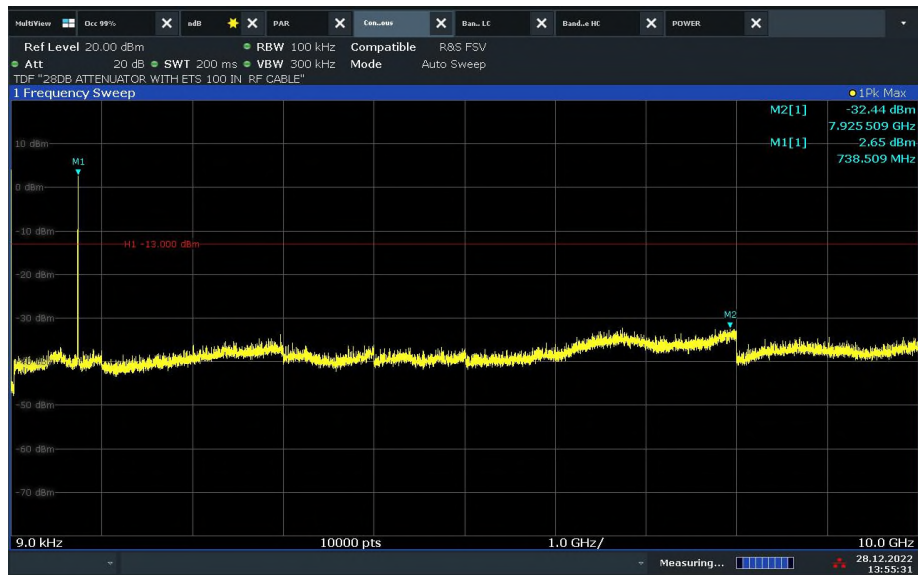
16:56:11 28.12.2022

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

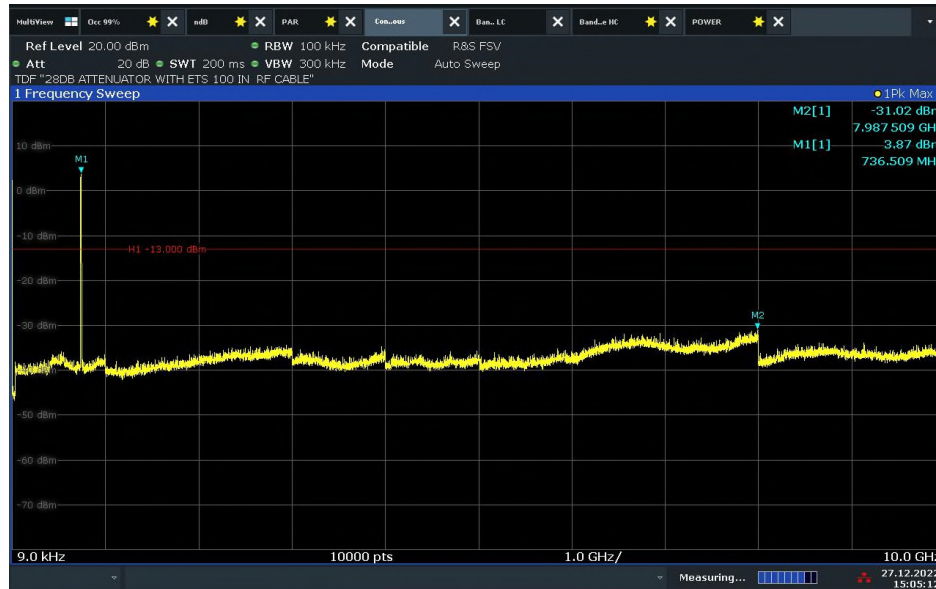
16:54:49 28.12.2022

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

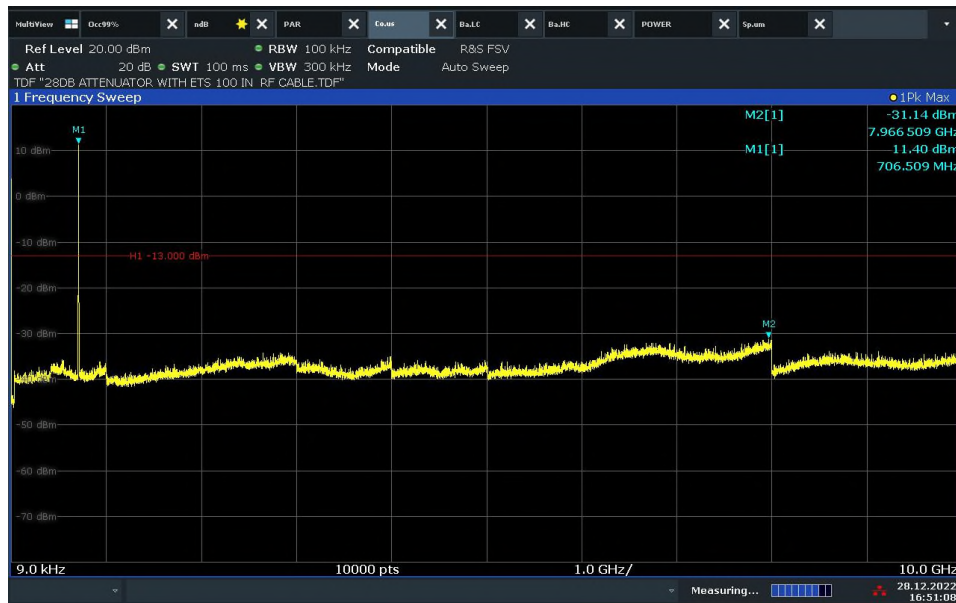
15:51:38 27.12.2022

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

13:55:32 28.12.2022

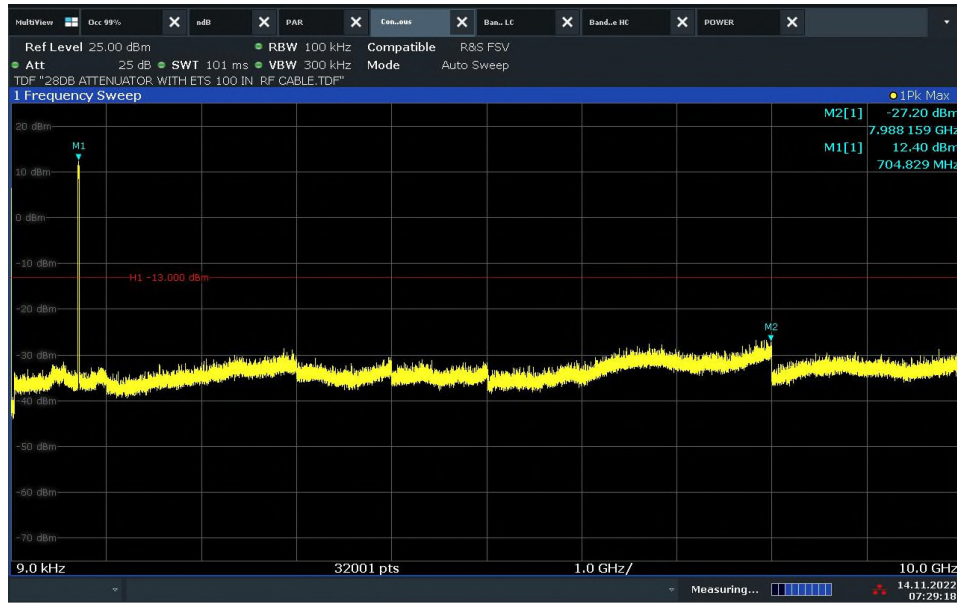
**LTE Band 12 Downlink 10MHz Bandwidth Middle Channel Conducted Spurious Emissions**

15:05:13 27.12.2022

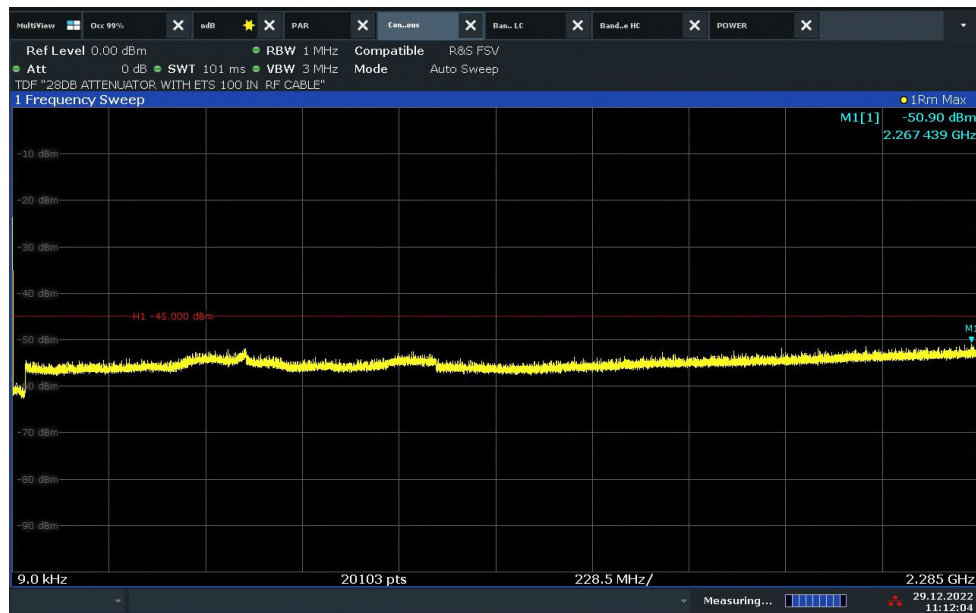
**LTE Band 12 Uplink 5MHz Bandwidth Middle Channel Conducted Spurious Emissions**

16:51:09 28.12.2022



**LTE Band 12 Uplink 10MHz Bandwidth Middle Channel Conducted Spurious Emissions**

07:29:18 14.11.2022

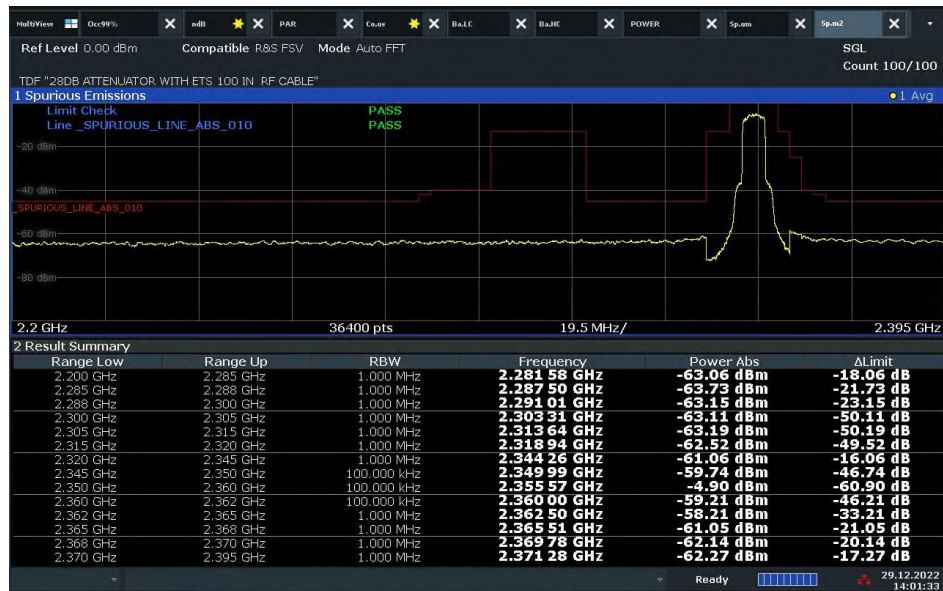
**LTE Band 30 Downlink 5MHz Bandwidth Middle Channel Conducted Spurious Emissions (9k - 2285 MHz)**

11:12:05 29.12.2022





### LTE Band 30 Downlink 5MHz Bandwidth Middle Channel Conducted Spurious Emissions (2200 - 2395 MHz)

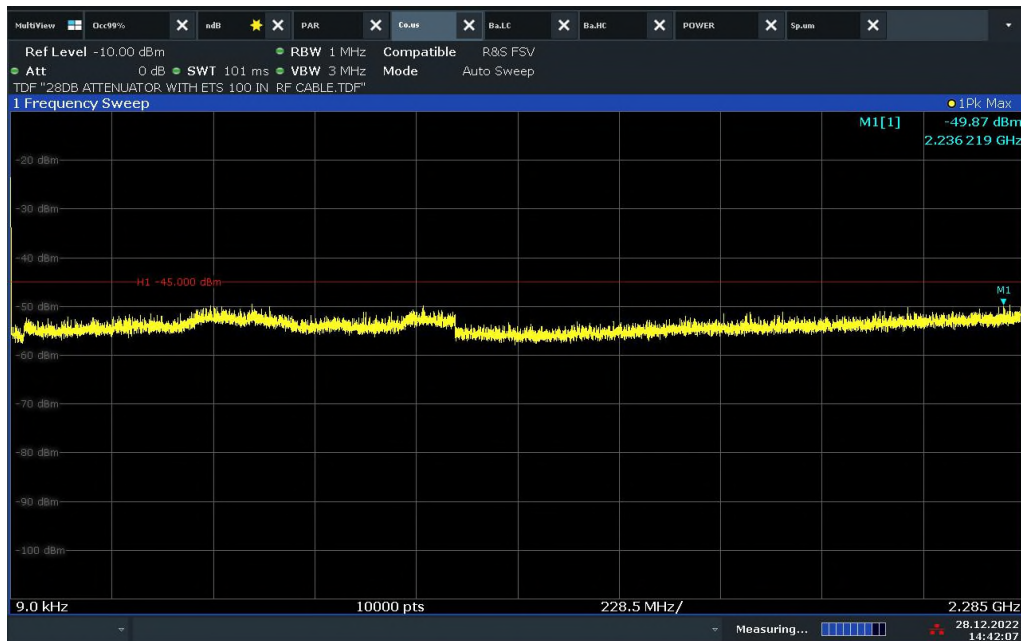
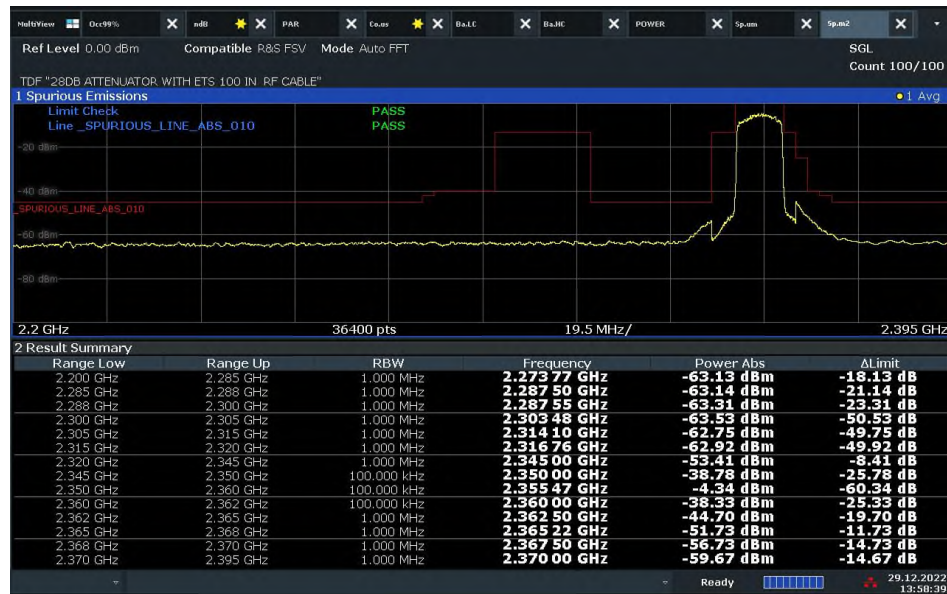


14:01:34 29.12.2022

### LTE Band 30 Downlink 5MHz Bandwidth Middle Channel Conducted Spurious Emissions (2370 - 24 GHz)



11:10:41 29.12.2022

**LTE Band 30 Downlink 10MHz Bandwidth Middle Channel Conducted Spurious Emissions (9k - 2285 MHz)****LTE Band 30 Downlink 10MHz Bandwidth Middle Channel Conducted Spurious Emissions (2200 - 2395 MHz)**

13:58:40 29.12.2022