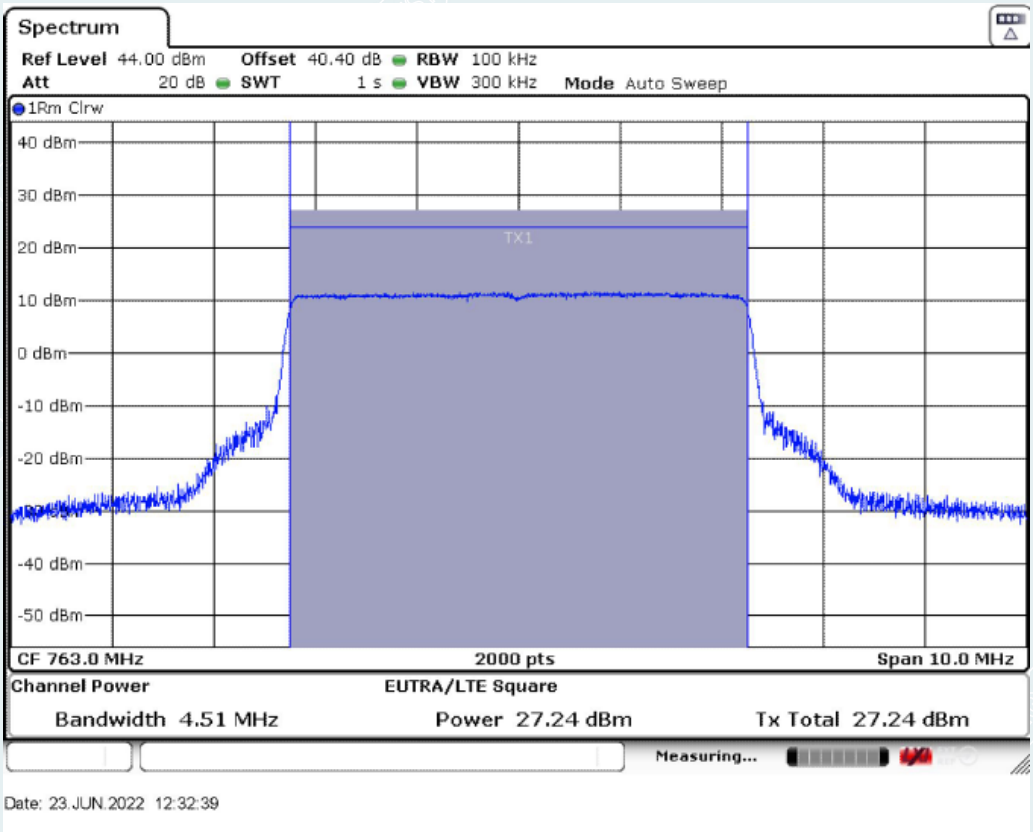
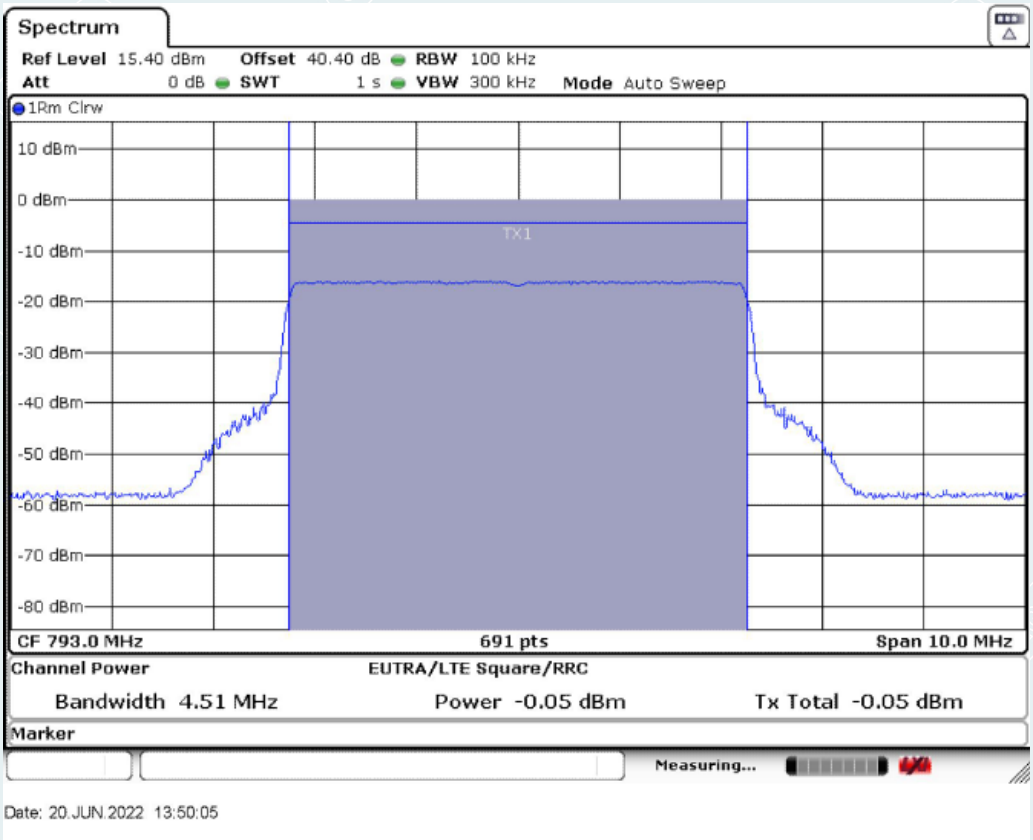
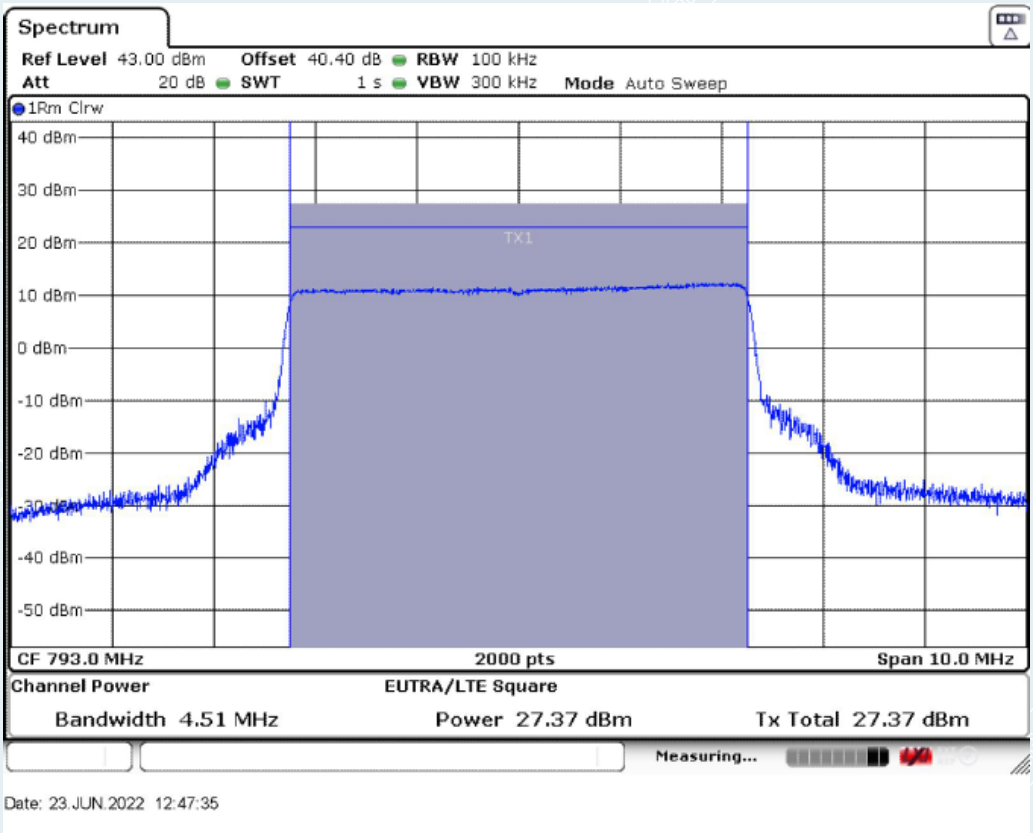


Middle Frequency: 763.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

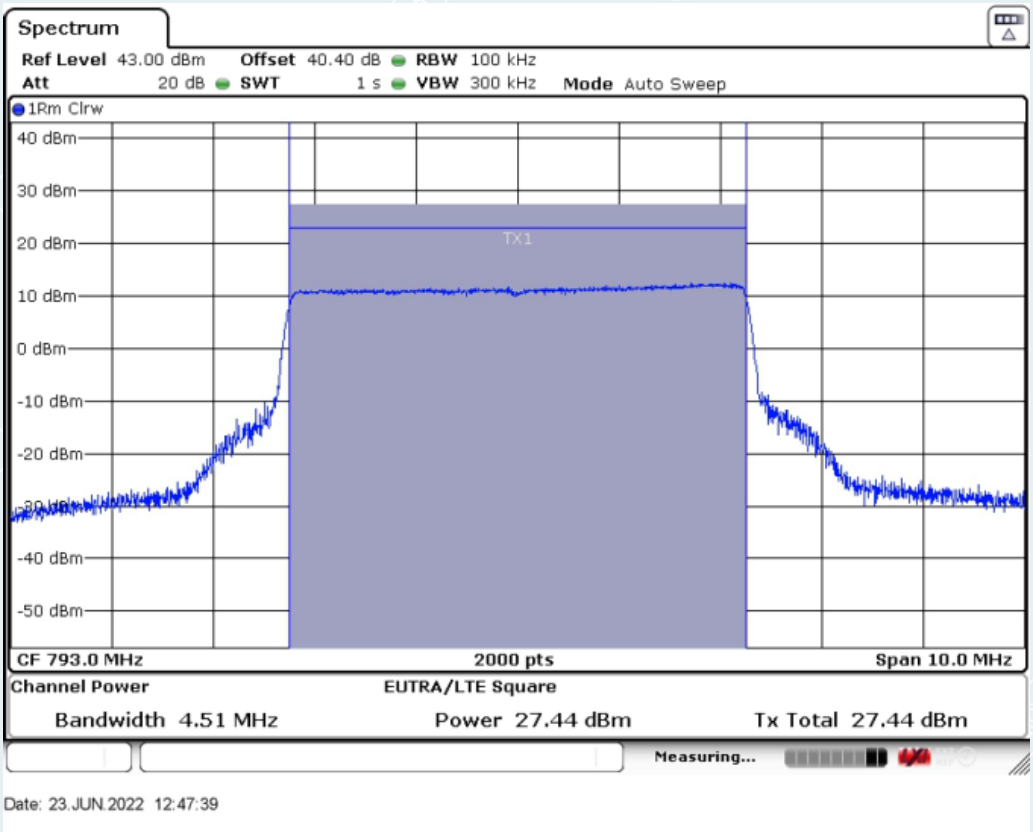
10.5.5.3.1.1.2. Uplink



Middle Frequency: 793.0MHz, Input occupied BW



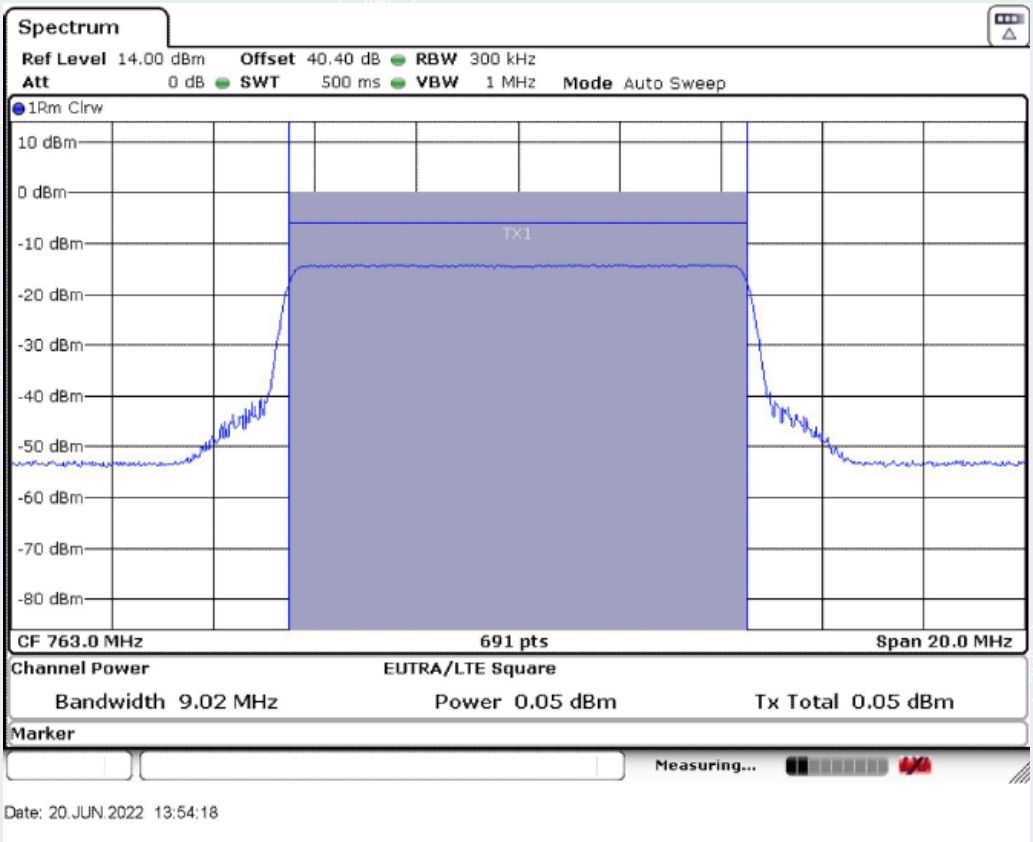
Middle Frequency: 793.0MHz, Output occupied BW(AGC)



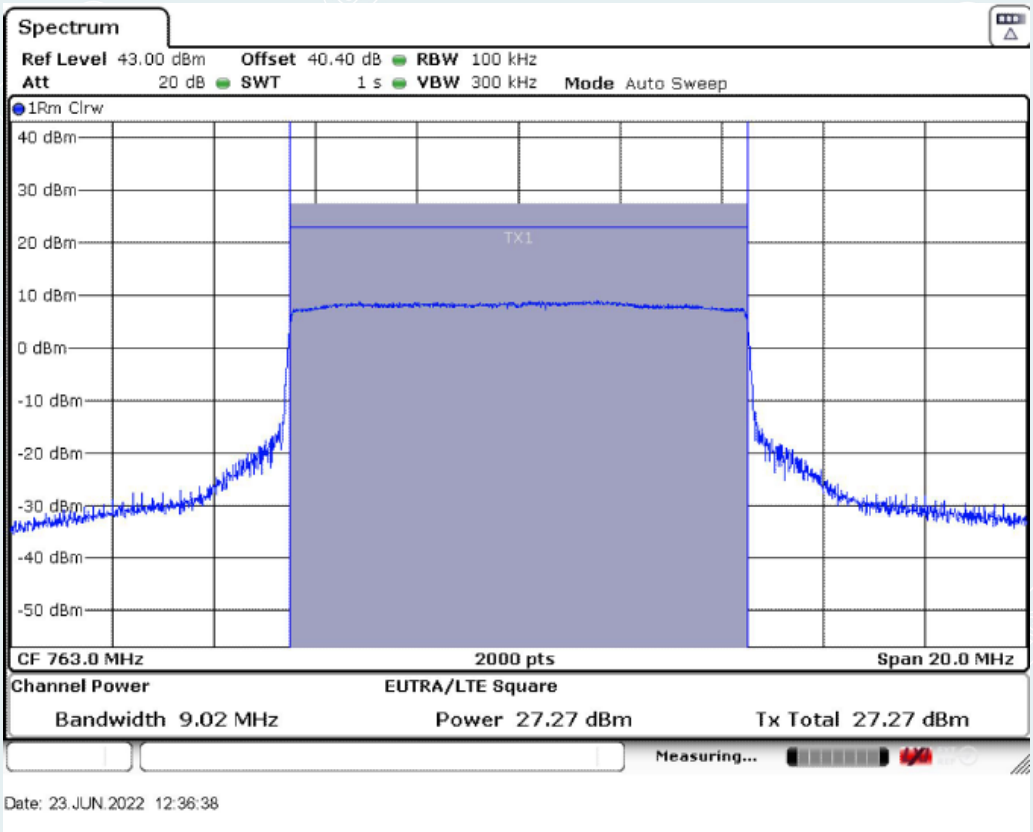
Middle Frequency: 793.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.1.2. LTE 10MHz

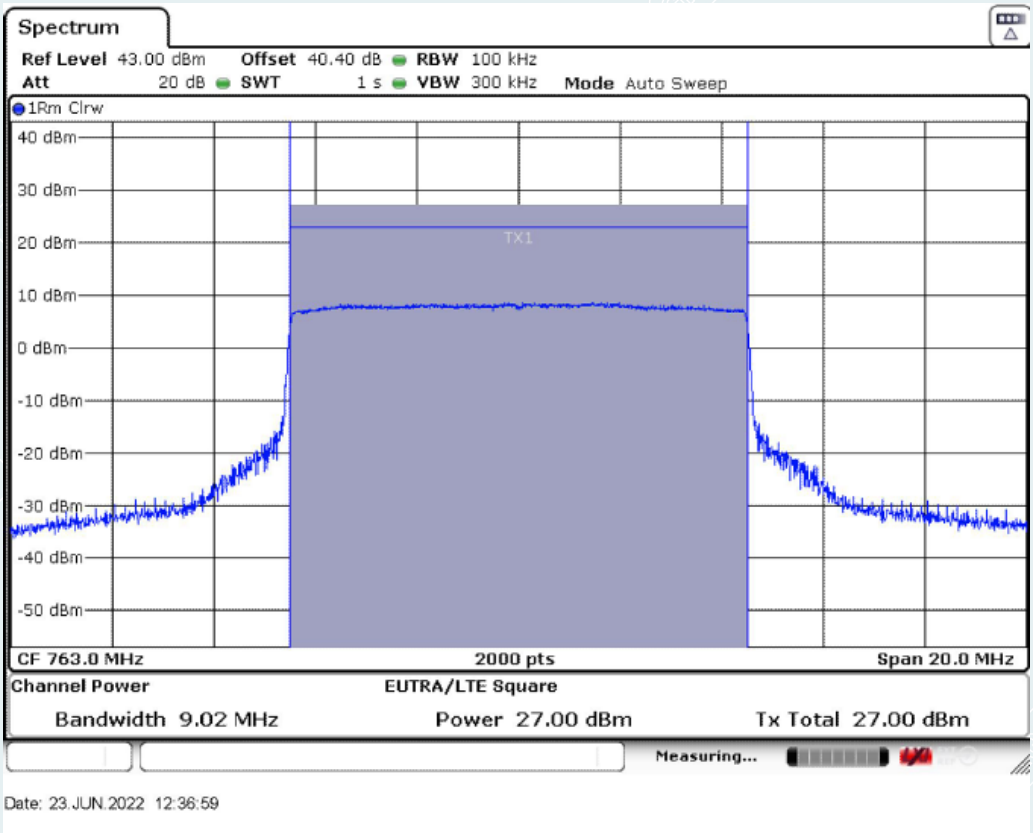
10.5.5.3.1.2.1. Downlink



Middle Frequency: 763.0MHz, Input occupied BW

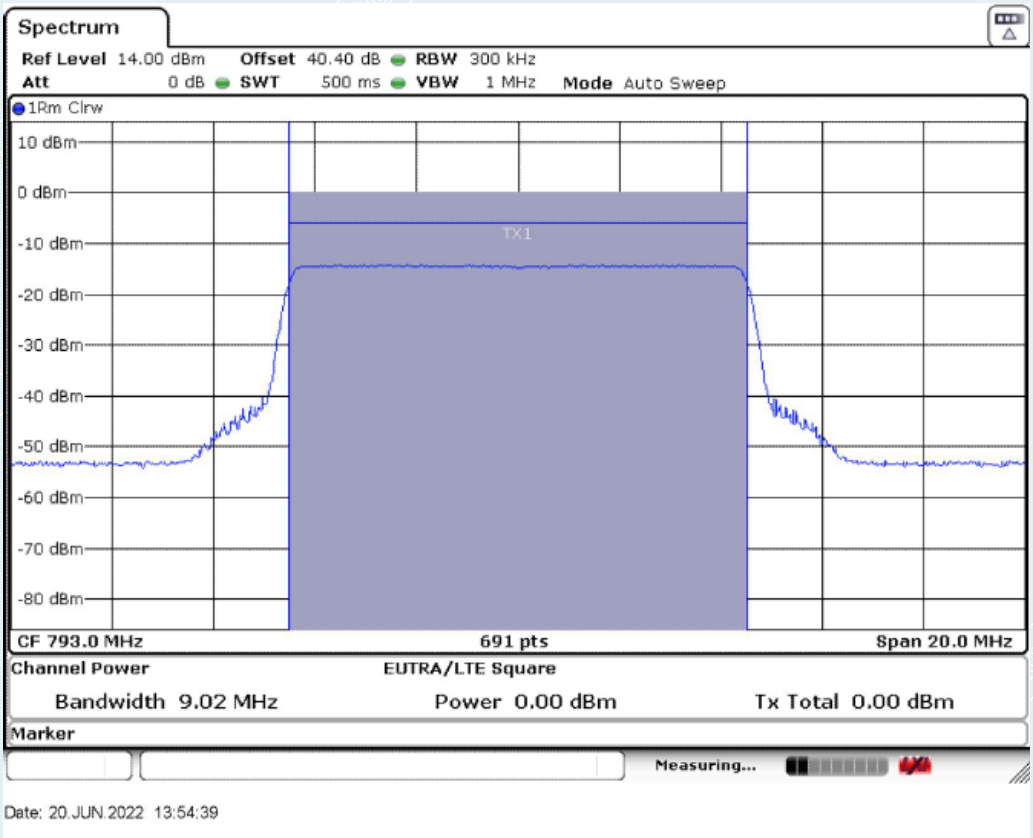


Middle Frequency: 763.0MHz, Output occupied BW(AGC)

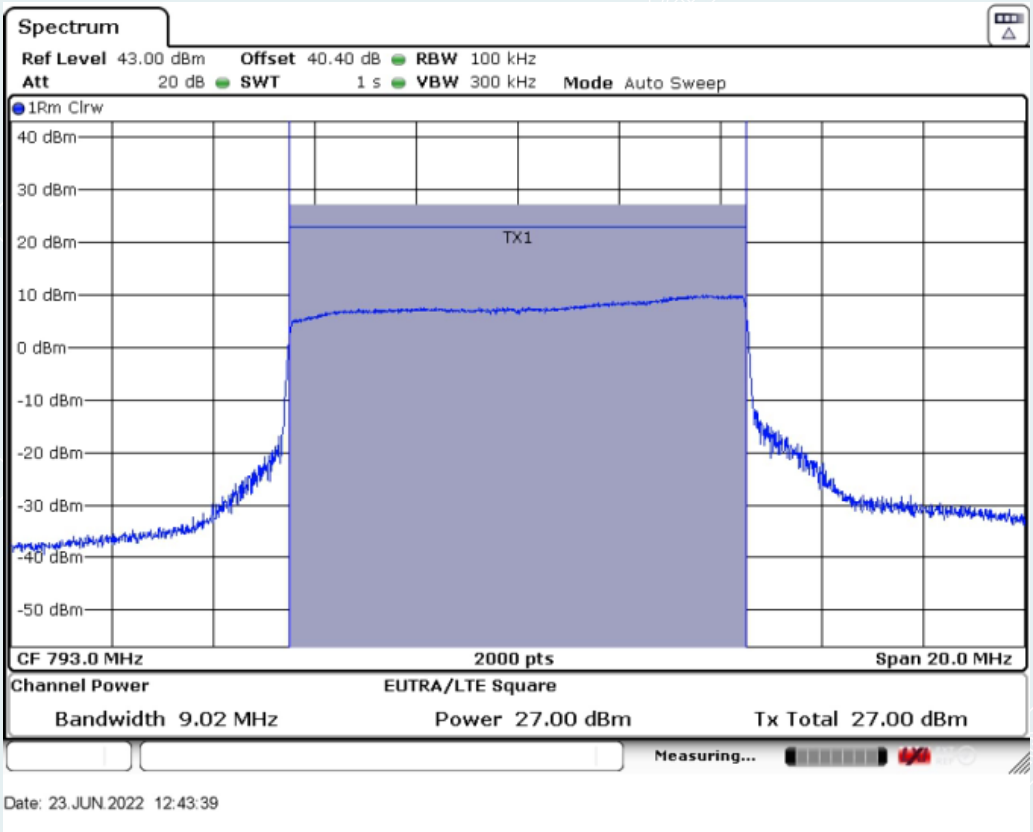


Middle Frequency: 763.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

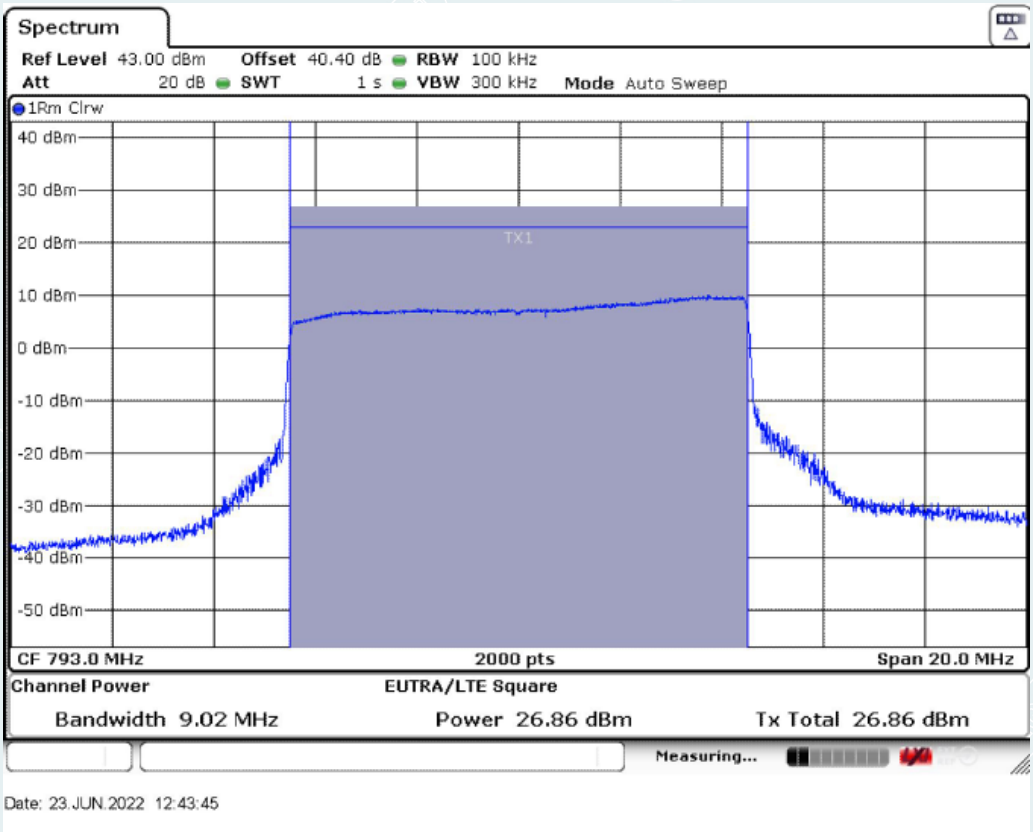
10.5.5.3.1.2.2. Uplink



Middle Frequency: 793.0MHz, Input occupied BW



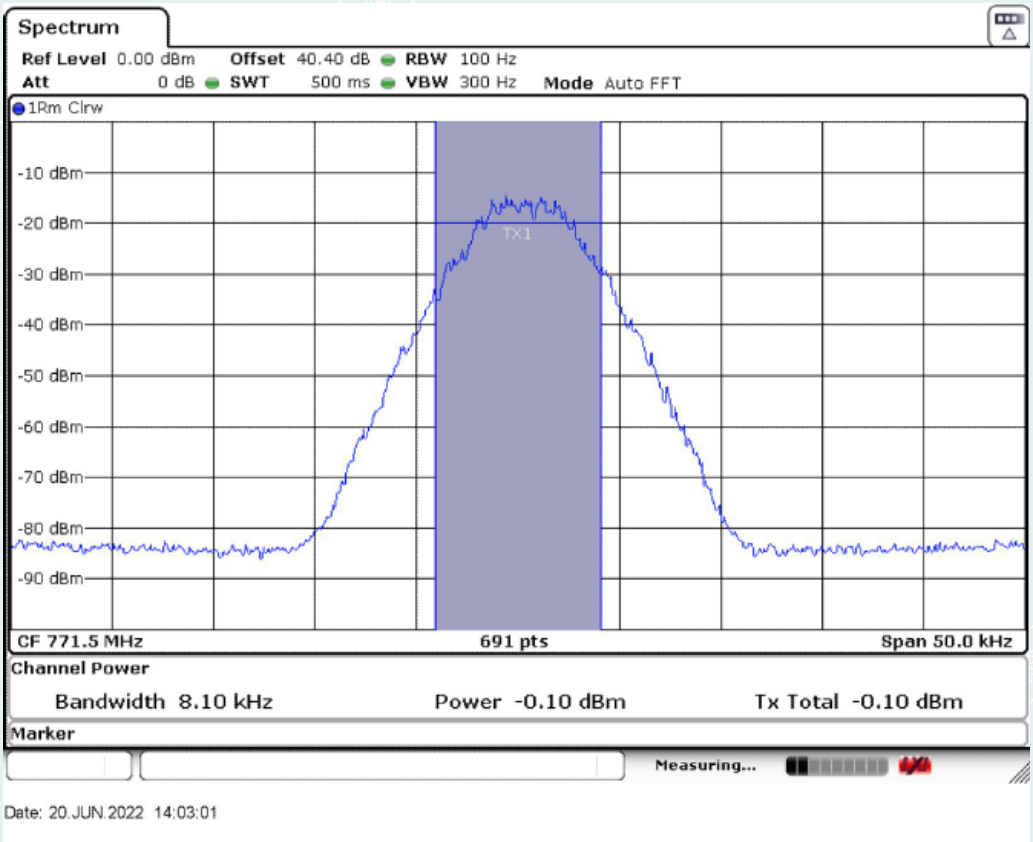
Middle Frequency: 793.0MHz, Output occupied BW(AGC)



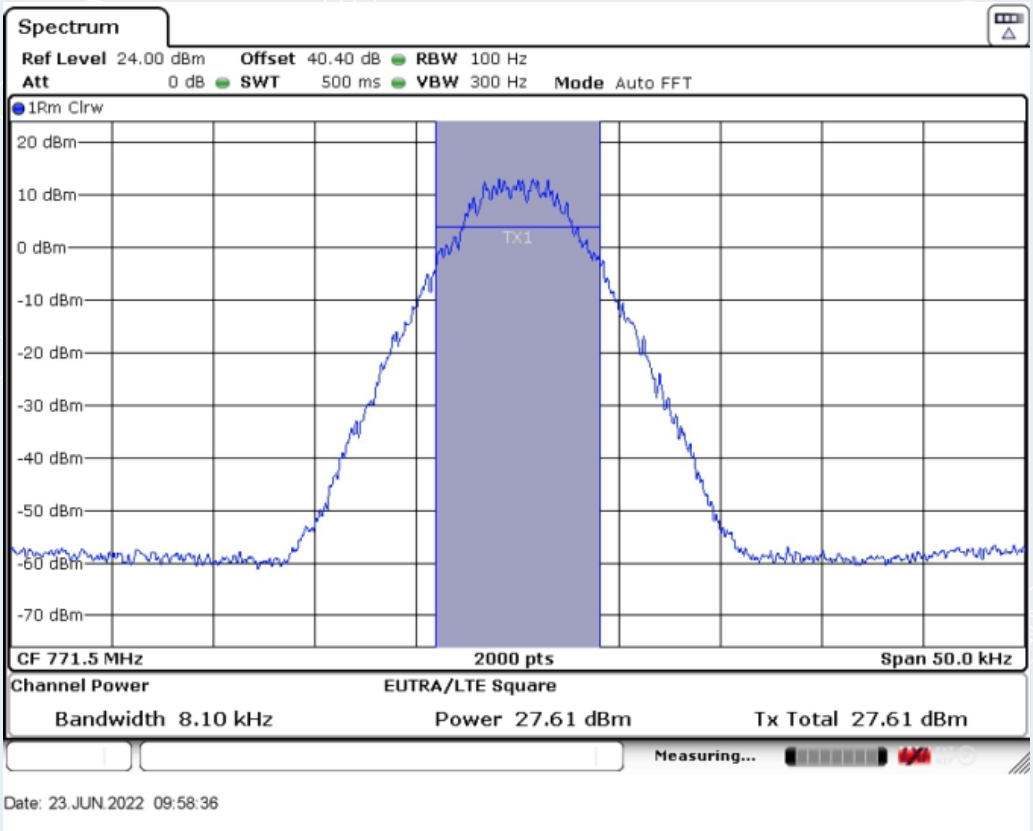
Middle Frequency: 793.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.1.3. P25 Phase I(C4FM)

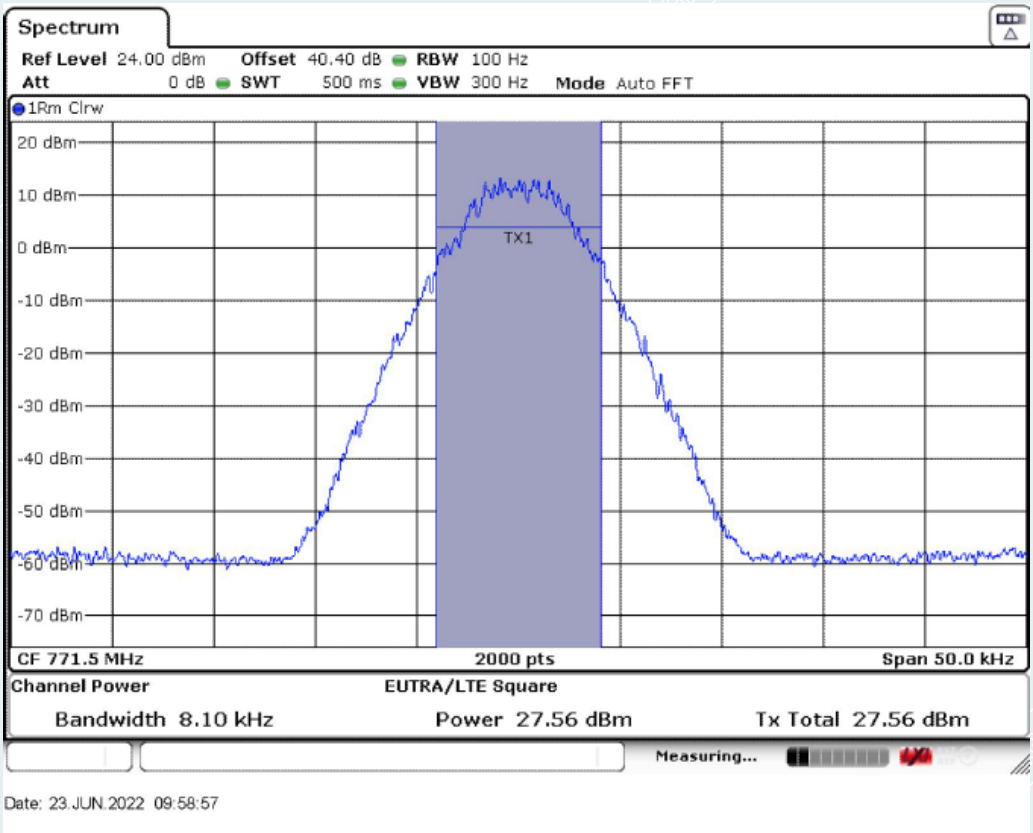
10.5.5.3.1.3.1. Downlink



Middle Frequency: 771.5MHz, Input occupied BW

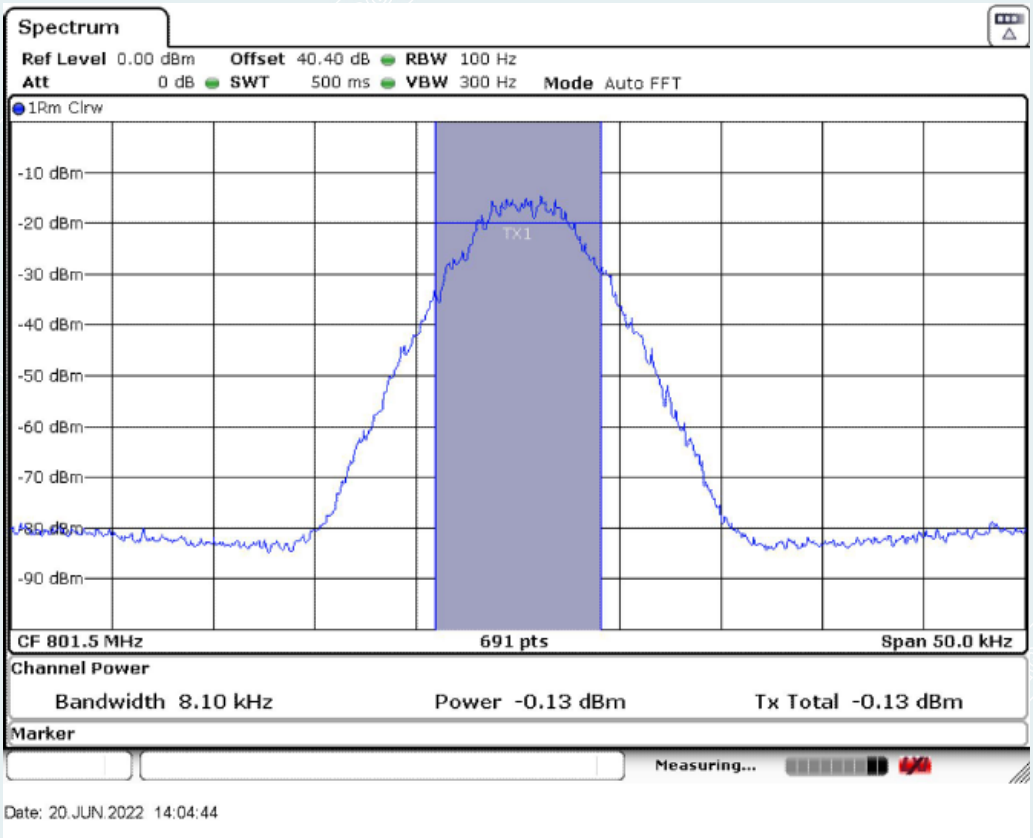


Middle Frequency: 771.5MHz, Output occupied BW(AGC)

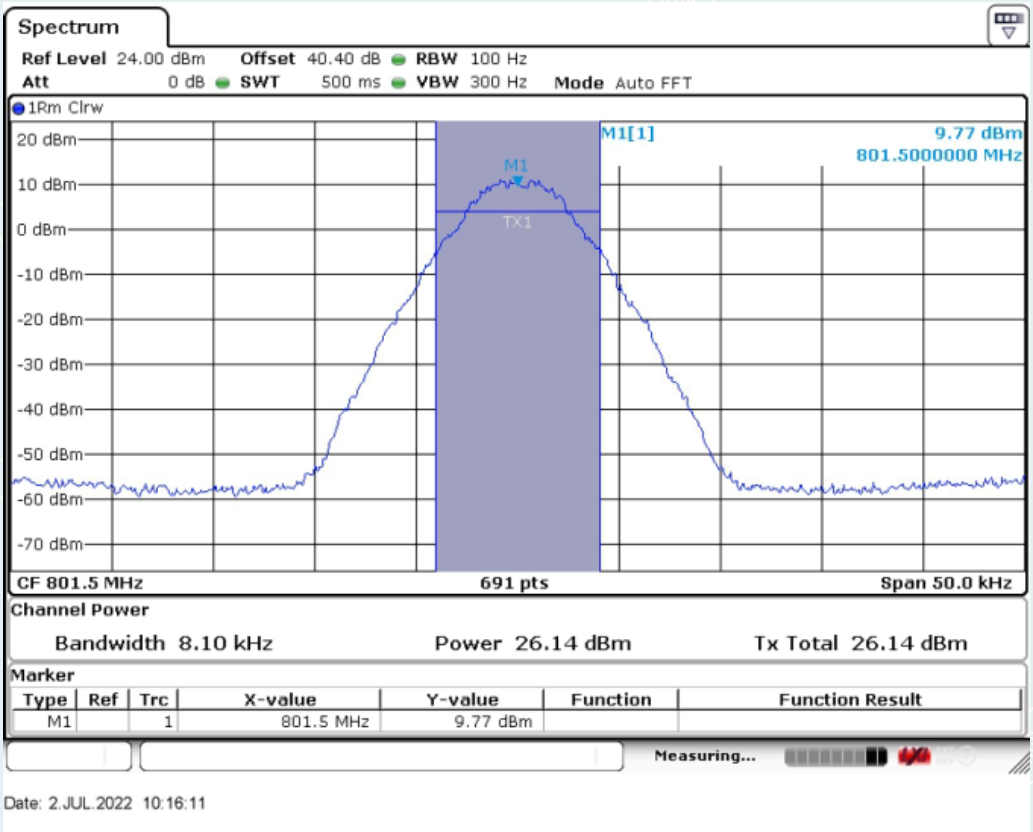


Middle Frequency: 771.5MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

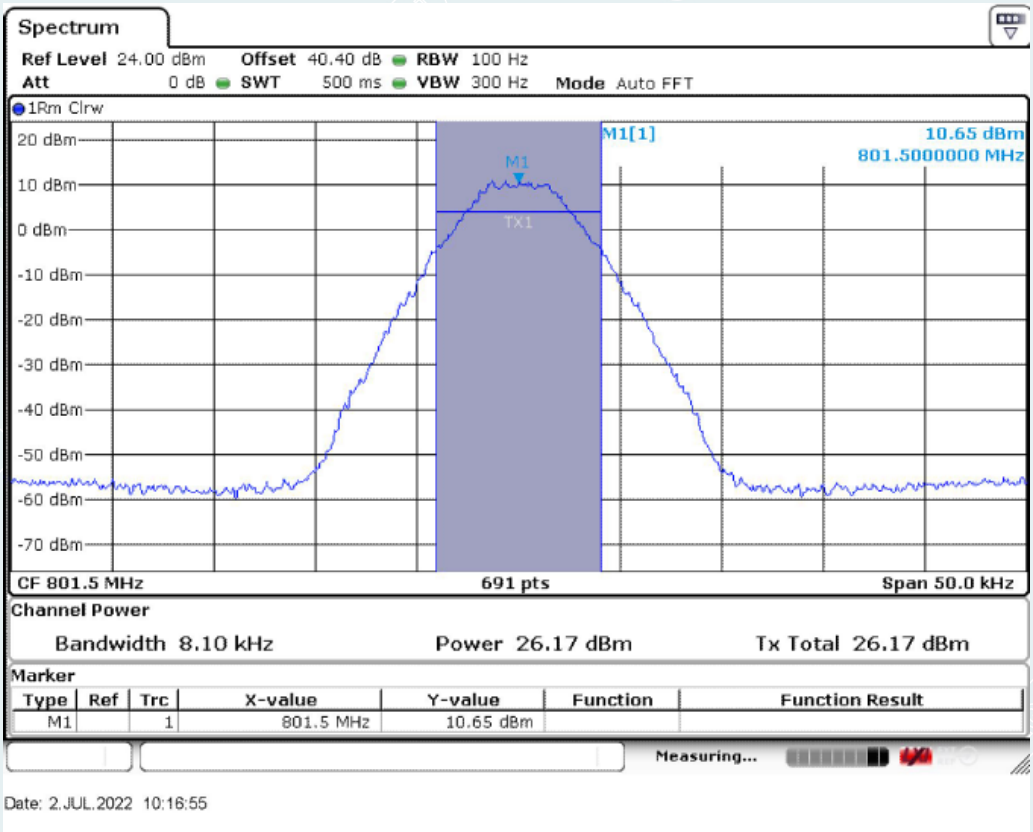
10.5.5.3.1.3.2. Uplink



Middle Frequency: 801.5MHz MHz, Input occupied BW



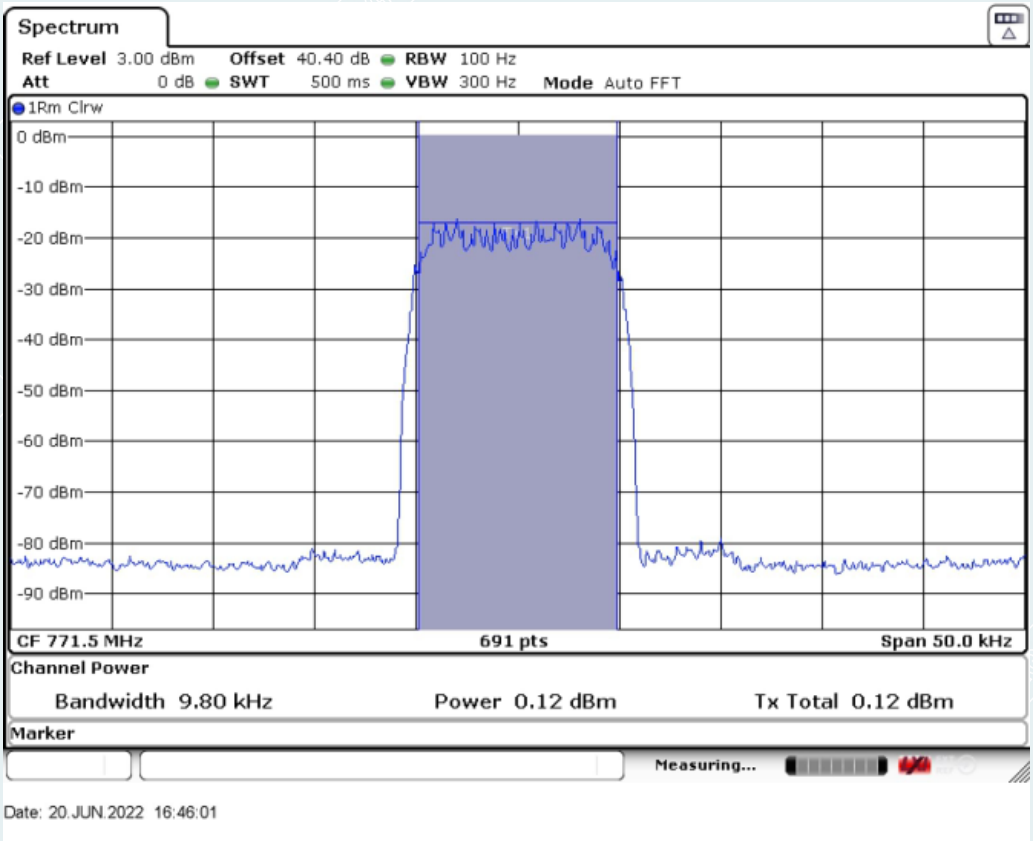
Middle Frequency: 801.5MHz, Output occupied BW(AGC)



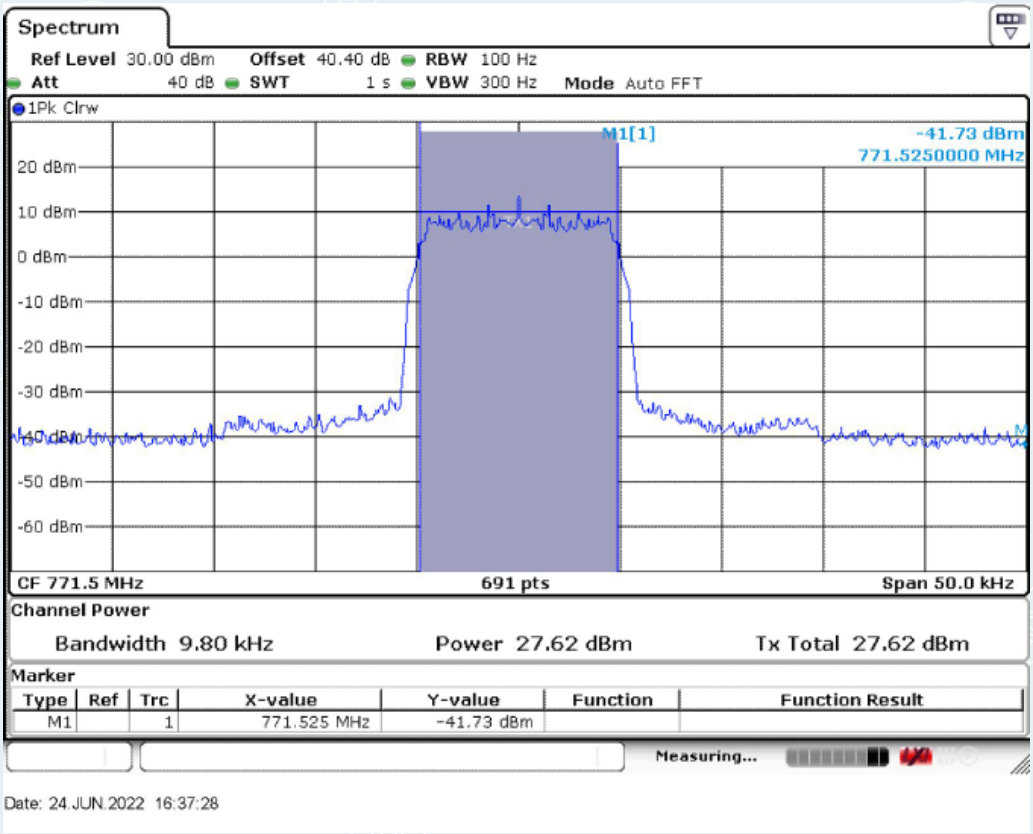
Middle Frequency: 801.5MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.1.4. P25 Phase II(H-DQPSK)

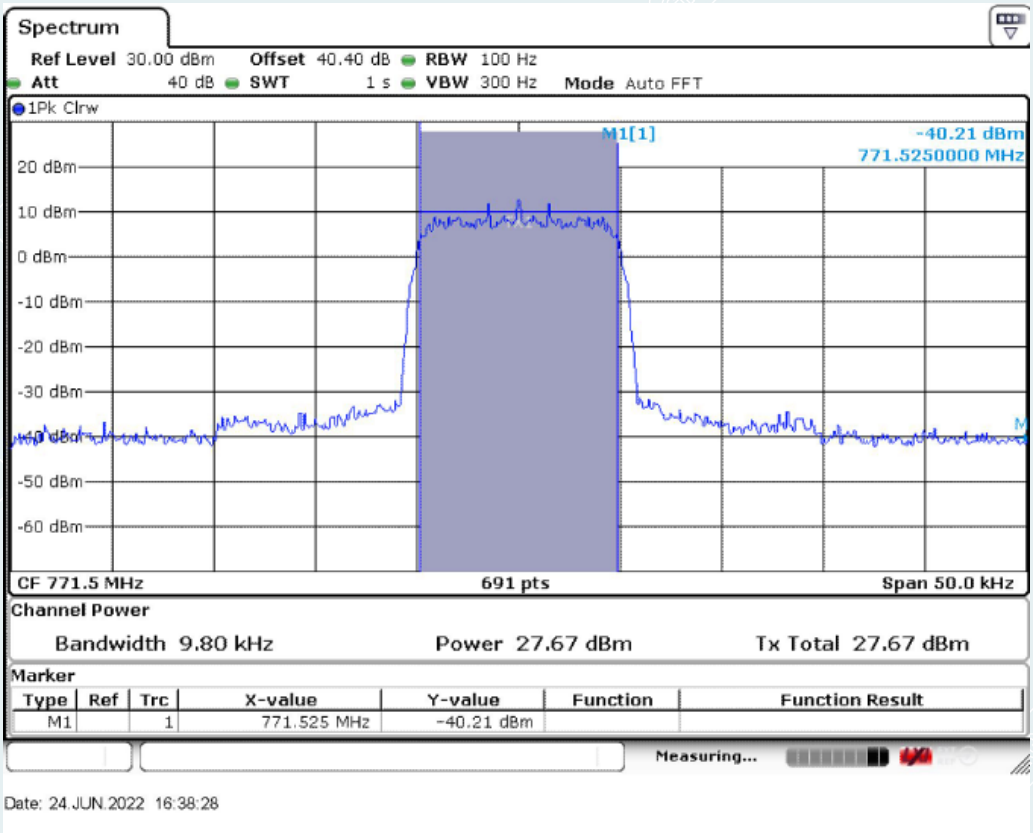
10.5.5.3.1.4.1. Downlink



Middle Frequency: 771.5MHz, Input occupied BW

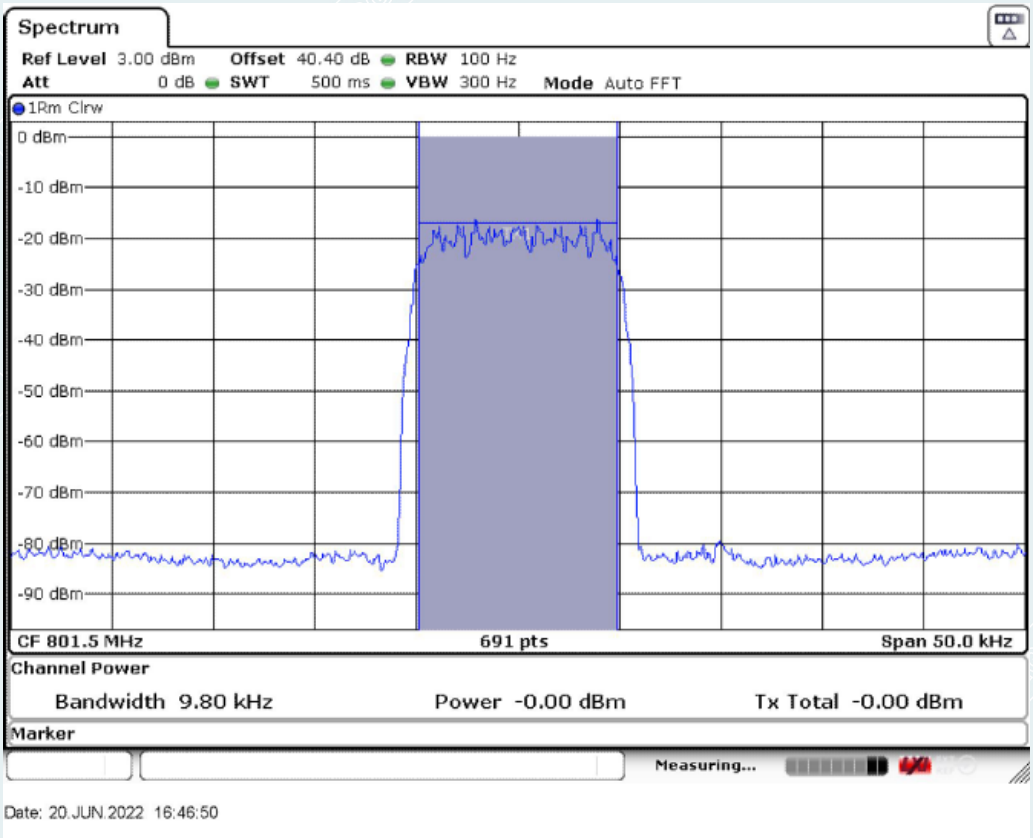


Middle Frequency: 771.5MHz, Output occupied BW(AGC)

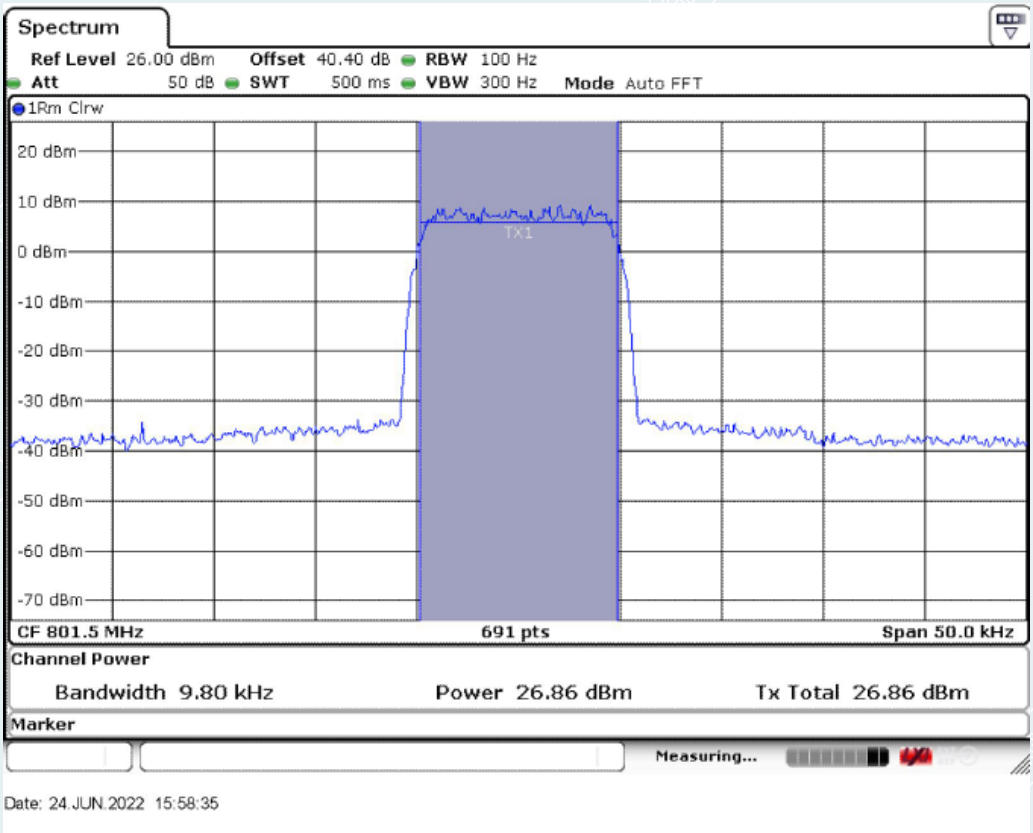


Middle Frequency: 771.5MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

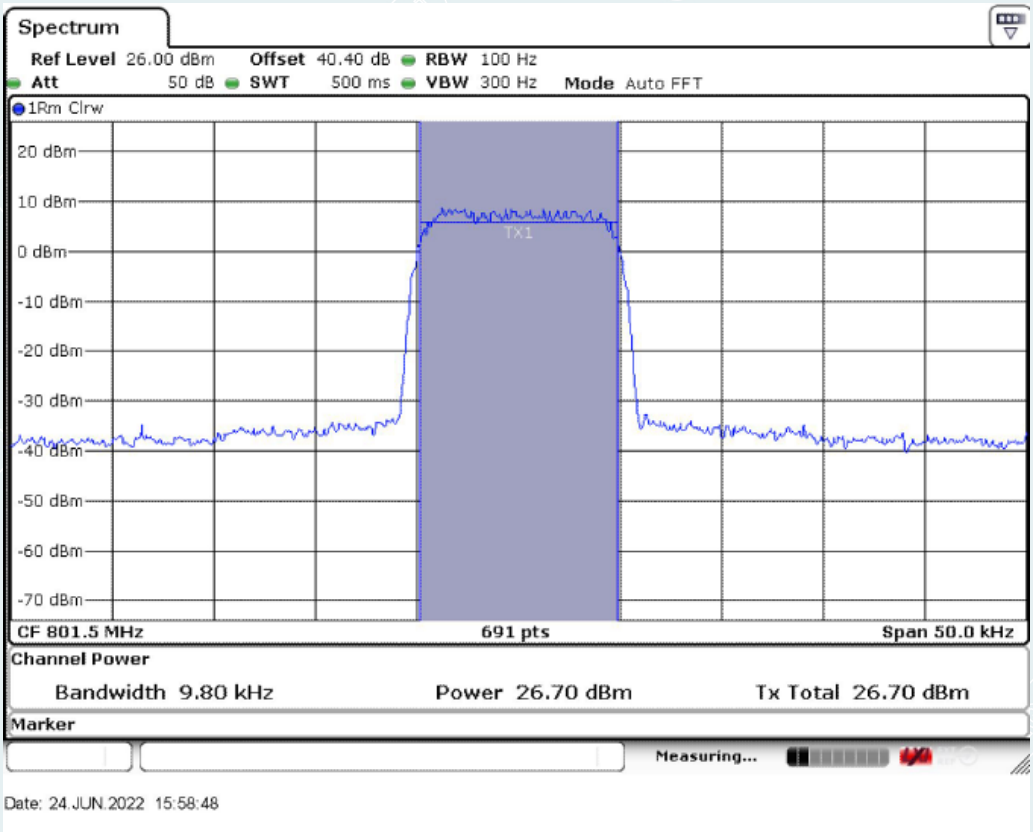
10.5.5.3.1.4.2. Uplink



Middle Frequency: 801.5MHz MHz, Input occupied BW



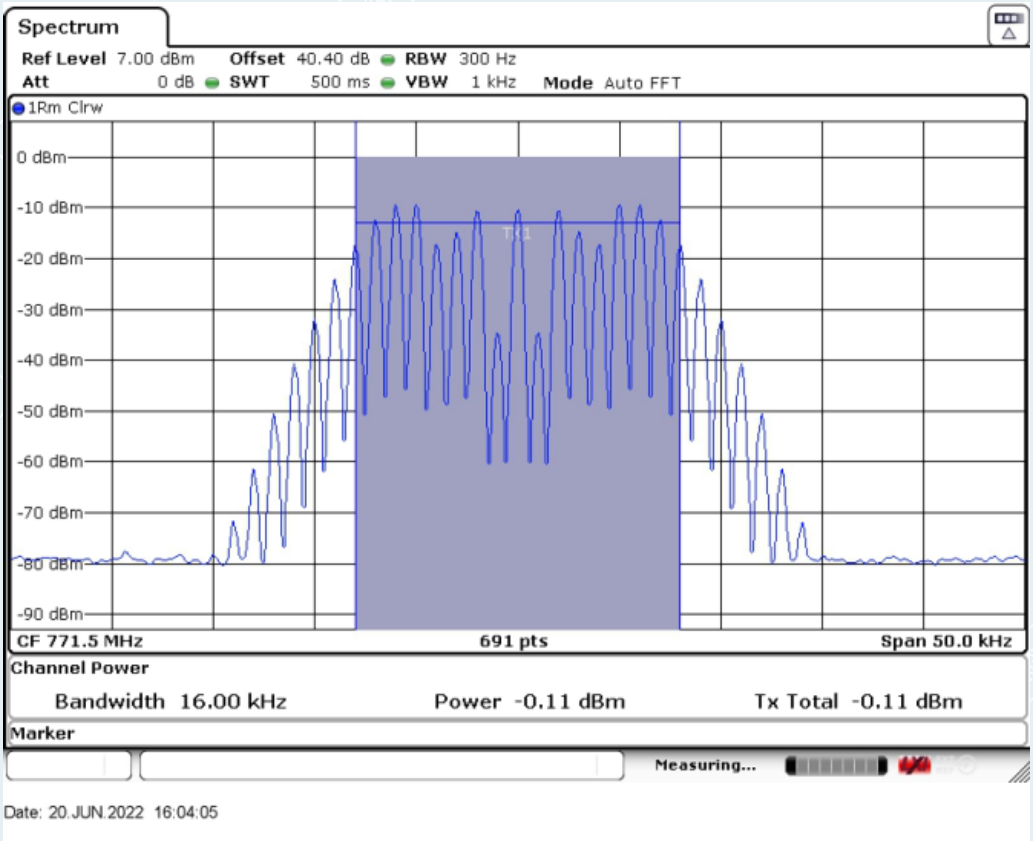
Middle Frequency: 801.5MHz, Output occupied BW(AGC)



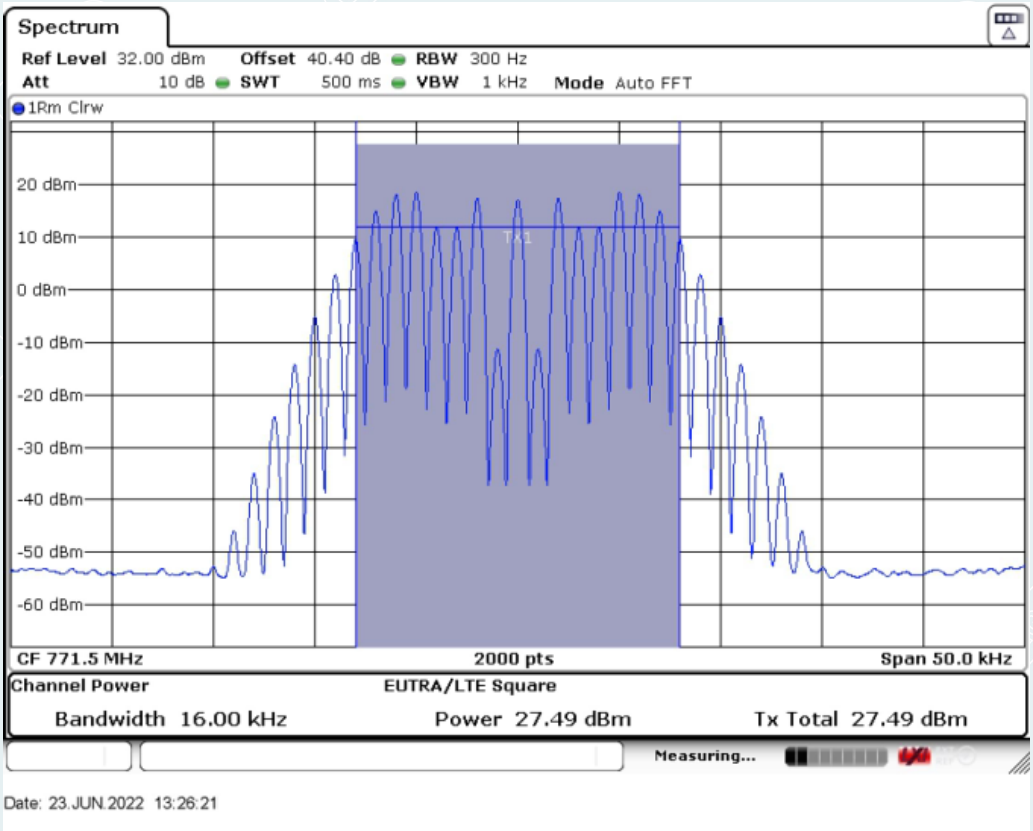
Middle Frequency: 801.5MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.1.5. Analog FM

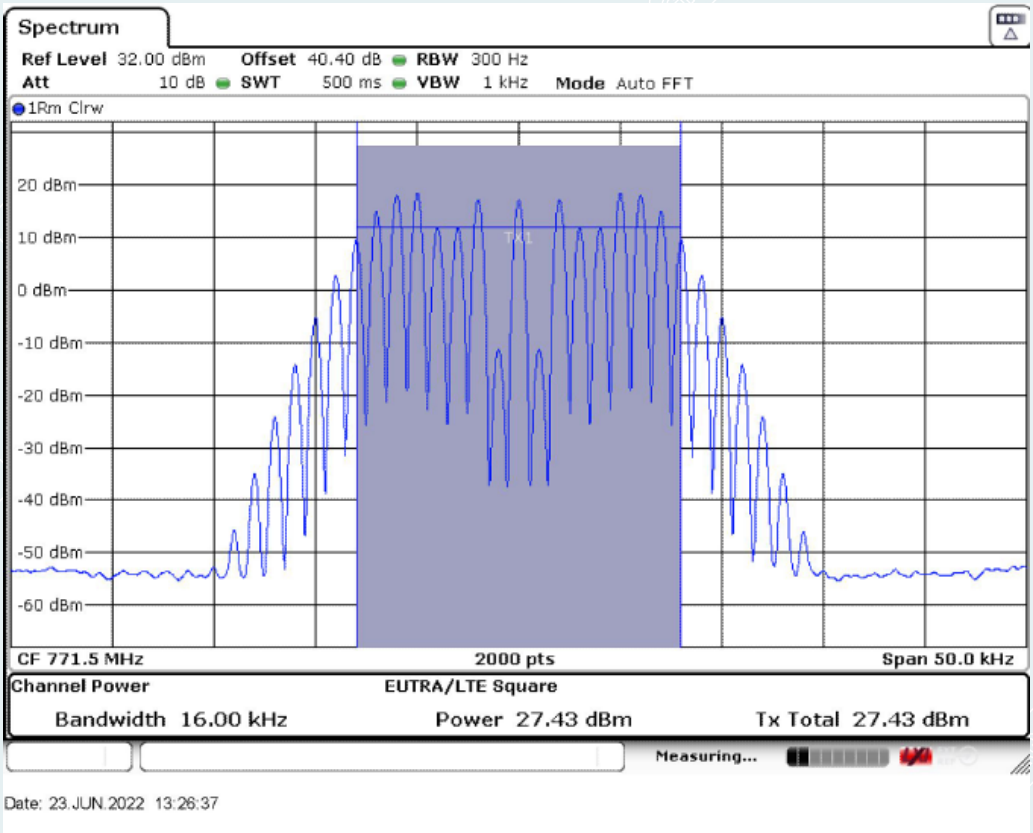
10.5.5.3.1.5.1. Downlink



Middle Frequency: 771.5MHz, Input occupied BW

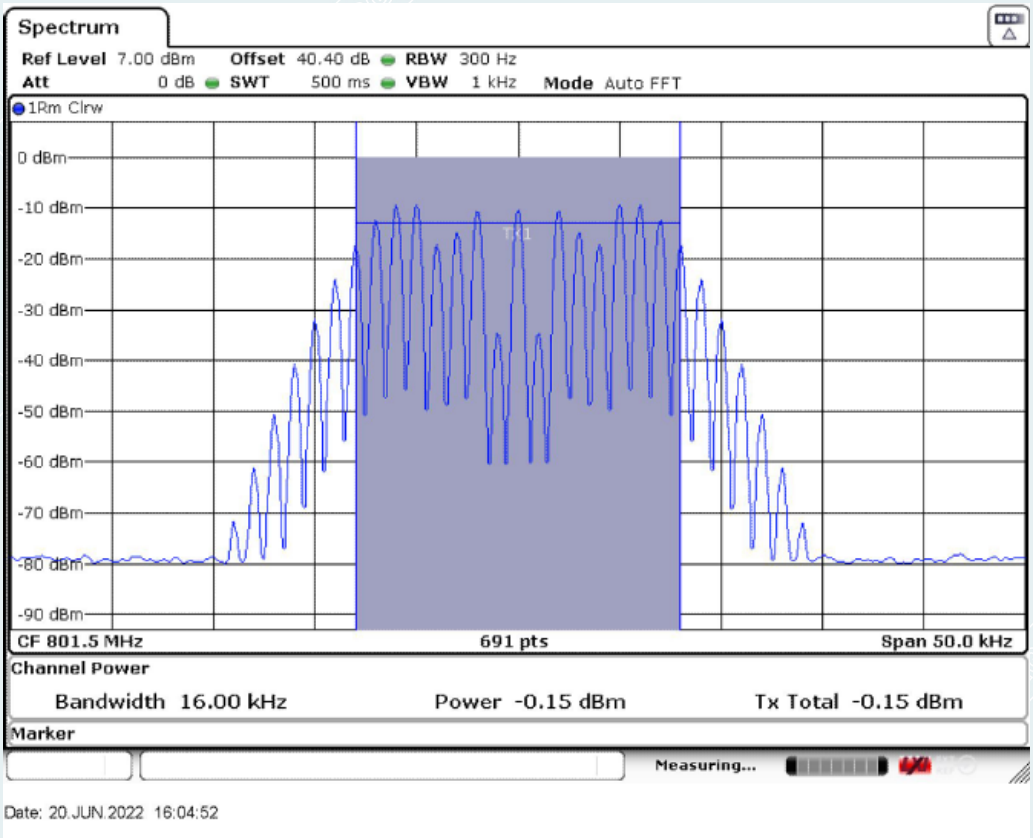


Middle Frequency: 771.5MHz, Output occupied BW(AGC)

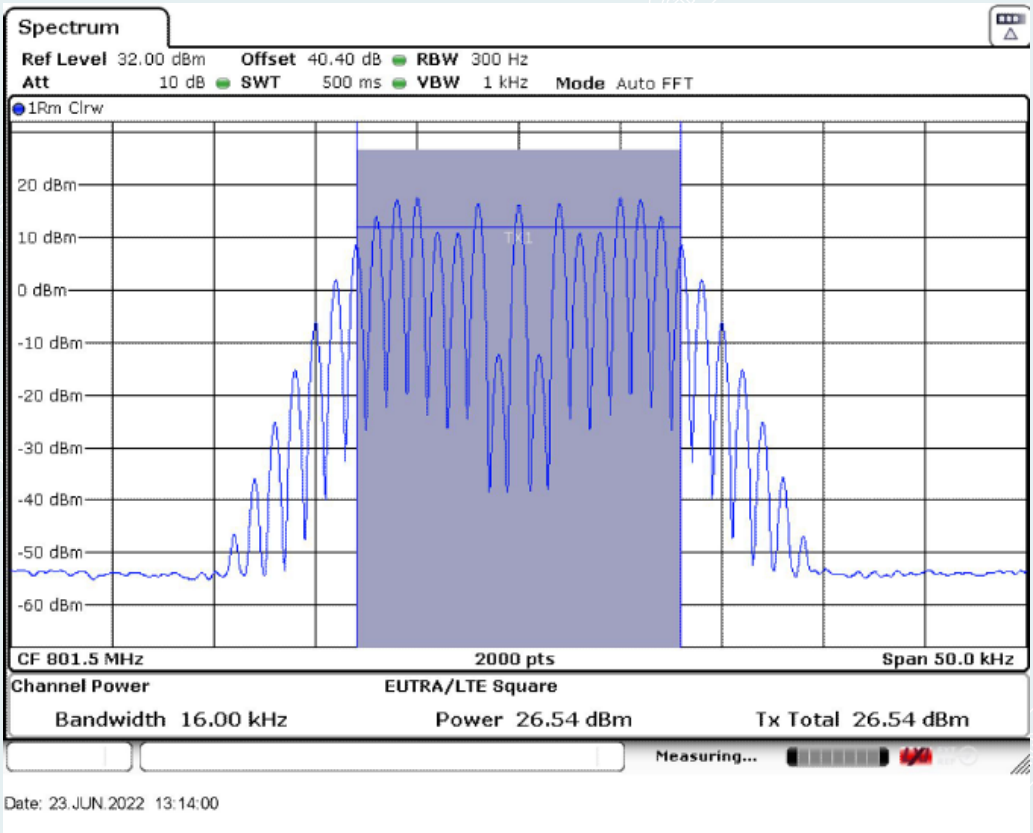


Middle Frequency: 771.5MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

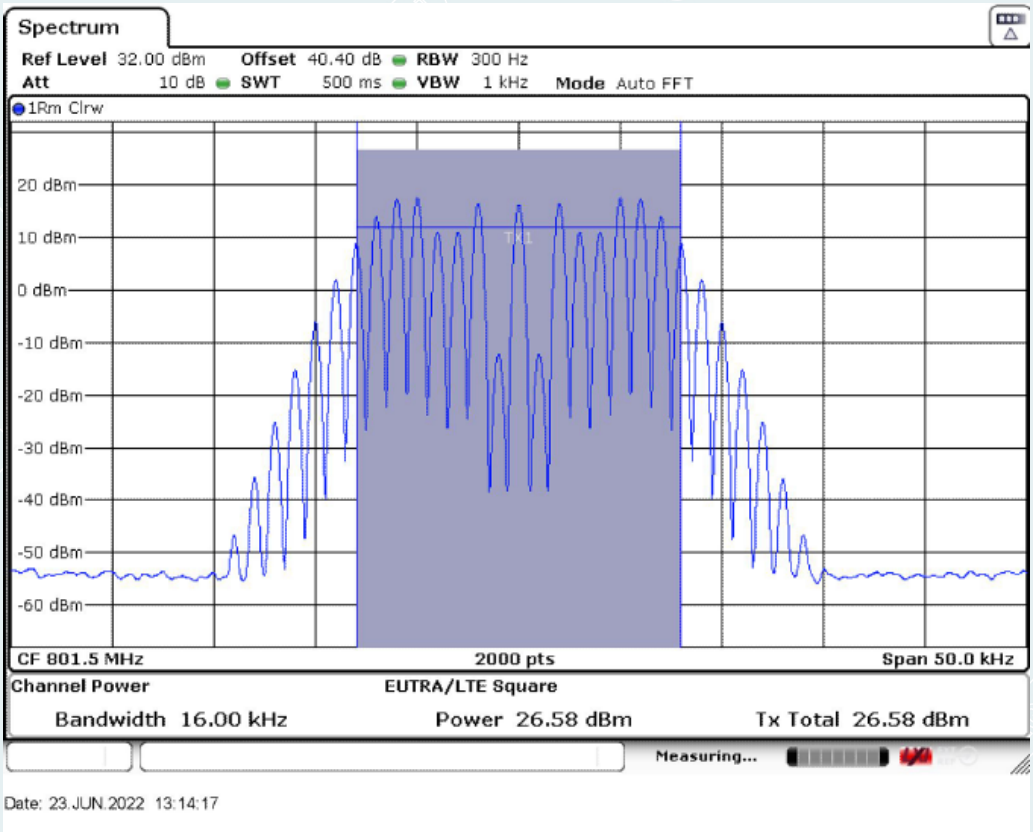
10.5.5.3.1.5.2. Uplink



Middle Frequency: 801.5MHz MHz, Input occupied BW



Middle Frequency: 801.5MHz, Output occupied BW(AGC)

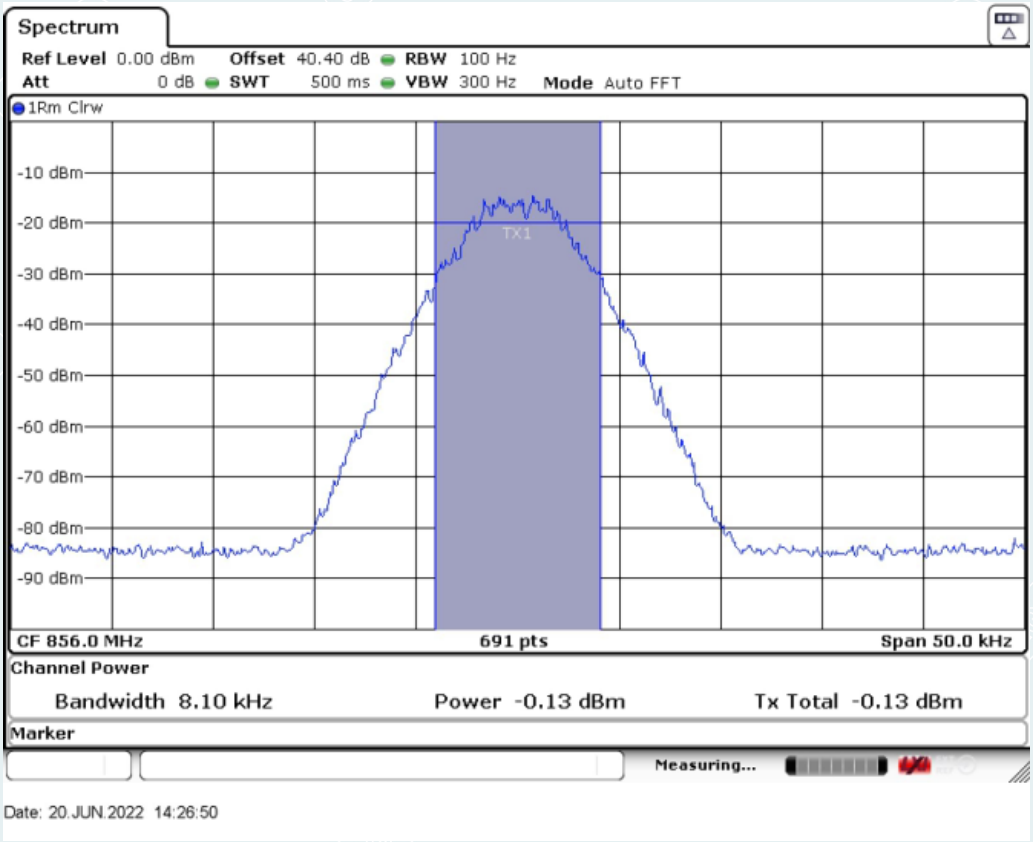


Middle Frequency: 801.5MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

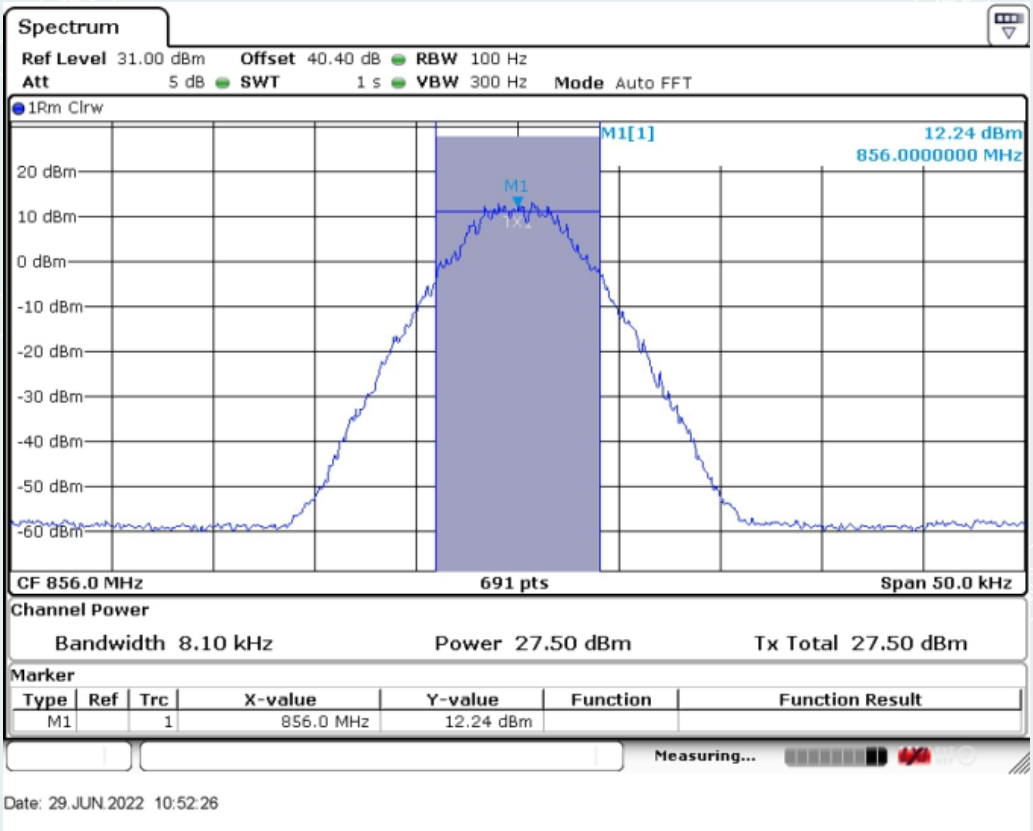
10.5.5.3.2. 800MHz Band

10.5.5.3.2.1. P25 Phase I(C4FM)

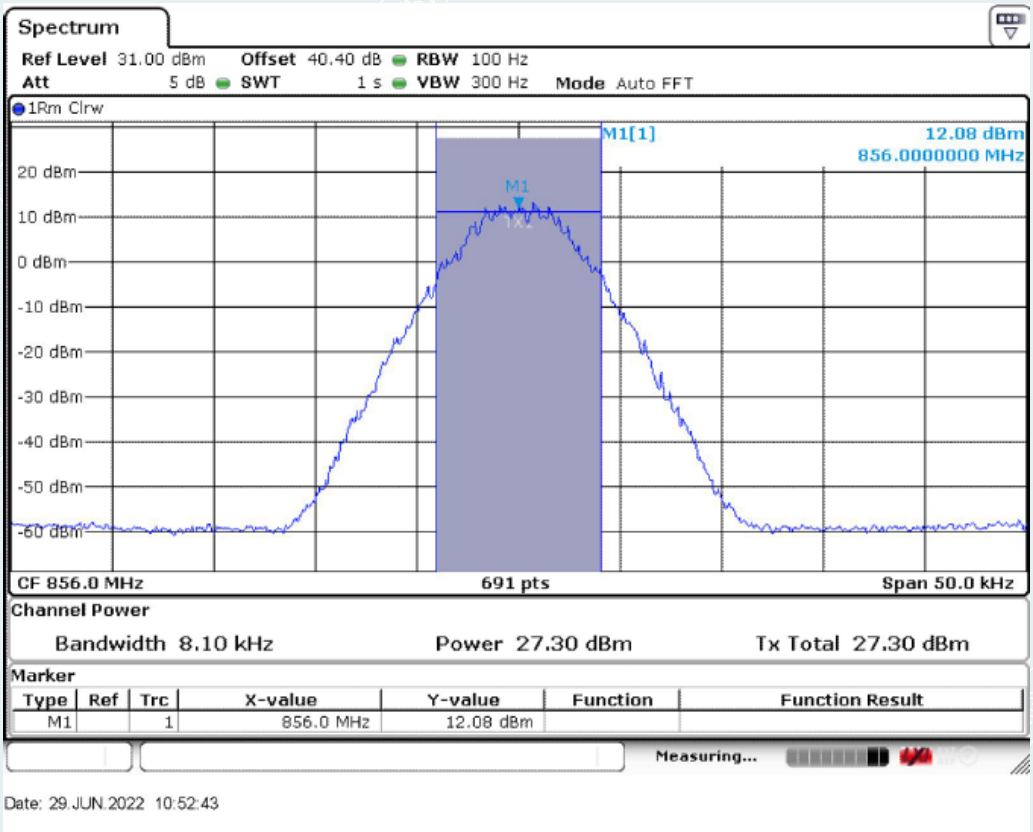
10.5.5.3.2.1.1. Downlink



Middle Frequency: 856.0MHz, Input occupied BW

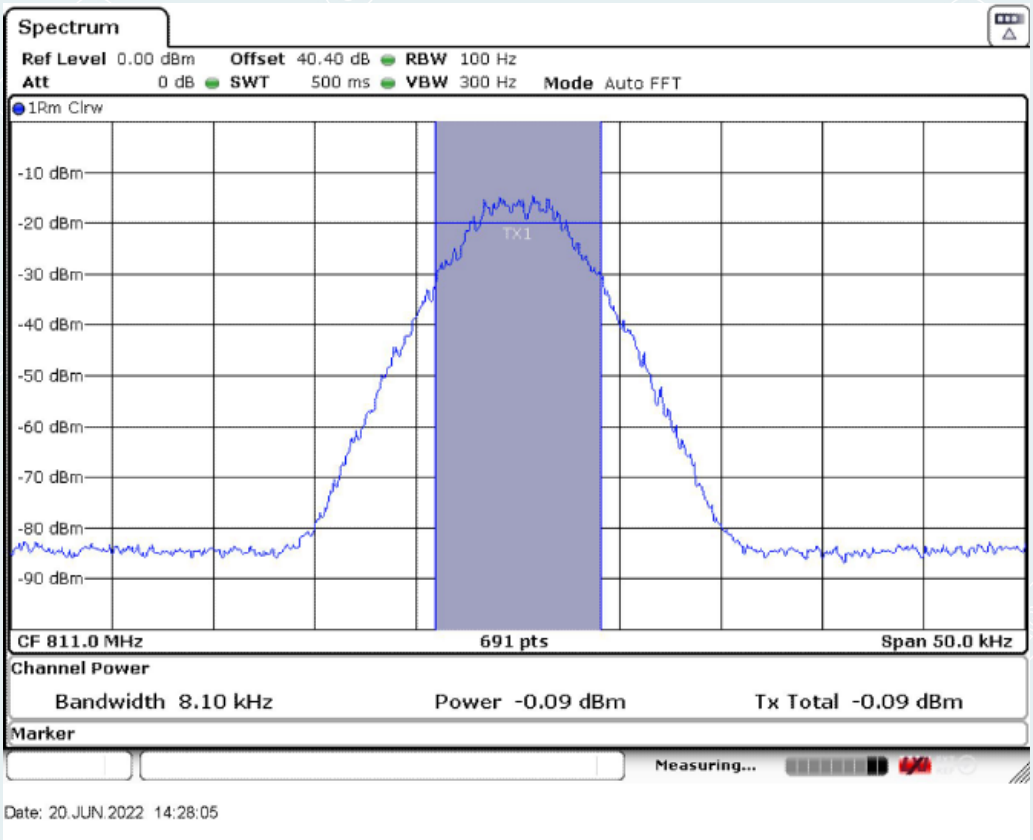


Middle Frequency: 856.0MHz, Output occupied BW(AGC)

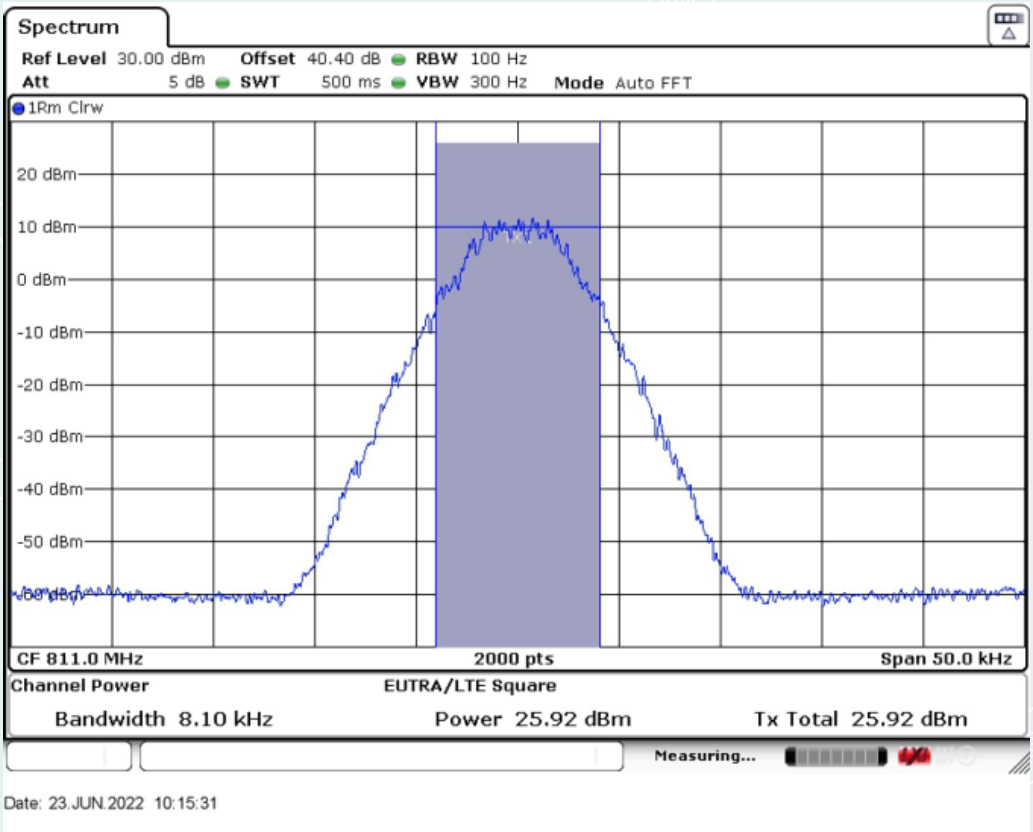


Middle Frequency: 856.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

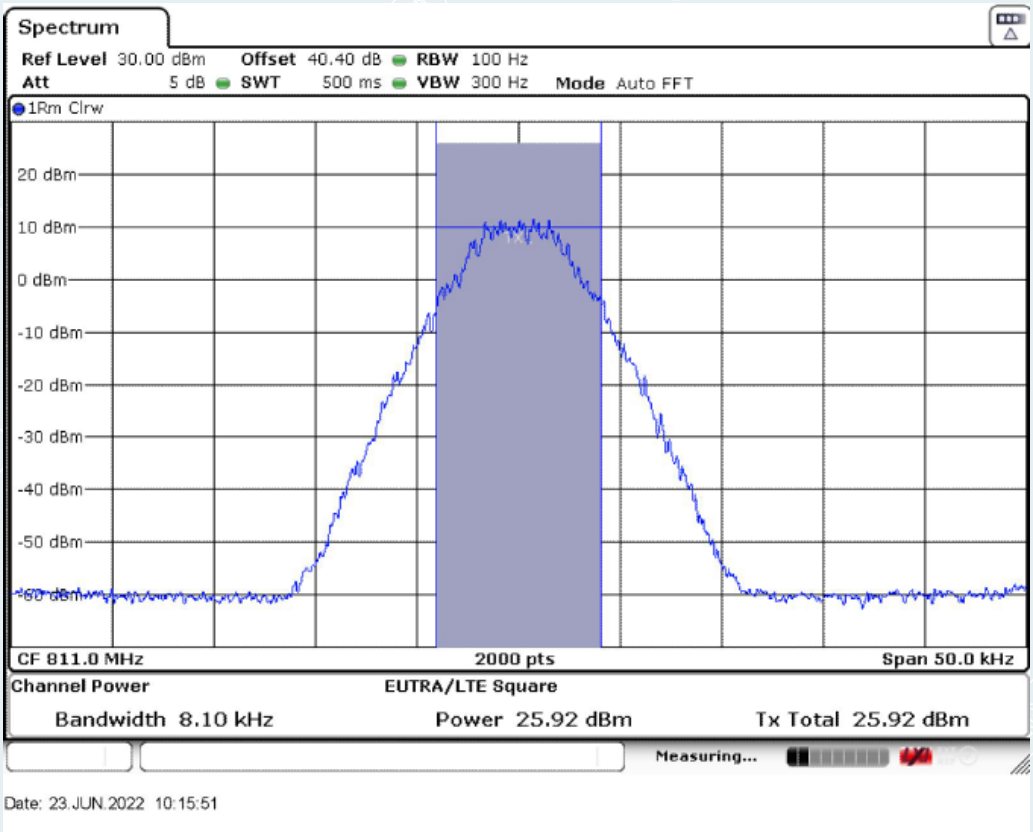
10.5.5.3.2.1.2. Uplink



Middle Frequency: 811.0MHz MHz, Input occupied BW



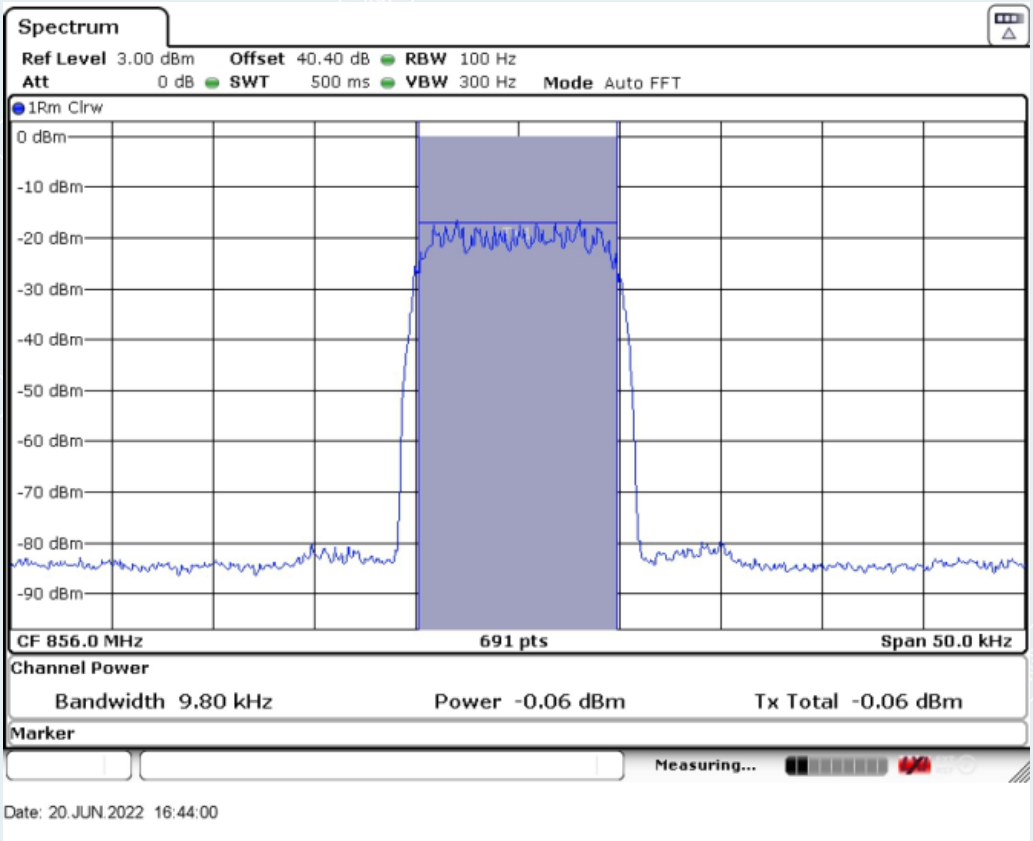
Middle Frequency: 811.0MHz, Output occupied BW(AGC)



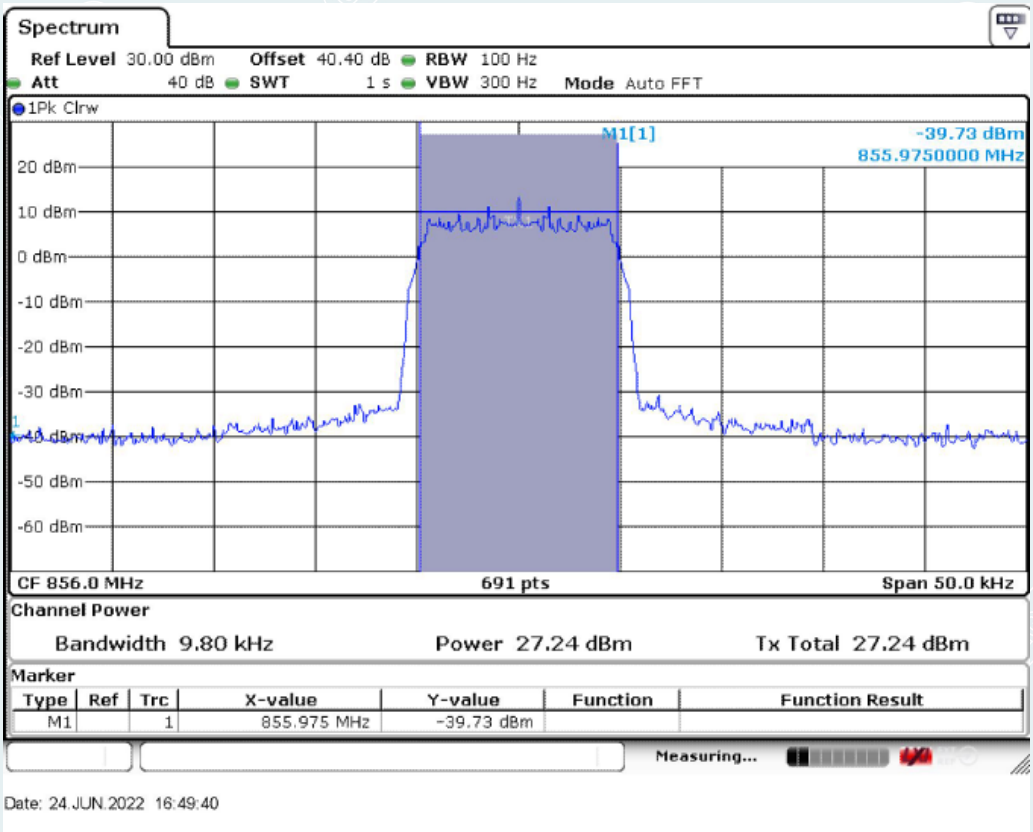
Middle Frequency: 811.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.2.2. P25 Phase II(H-DQPSK)

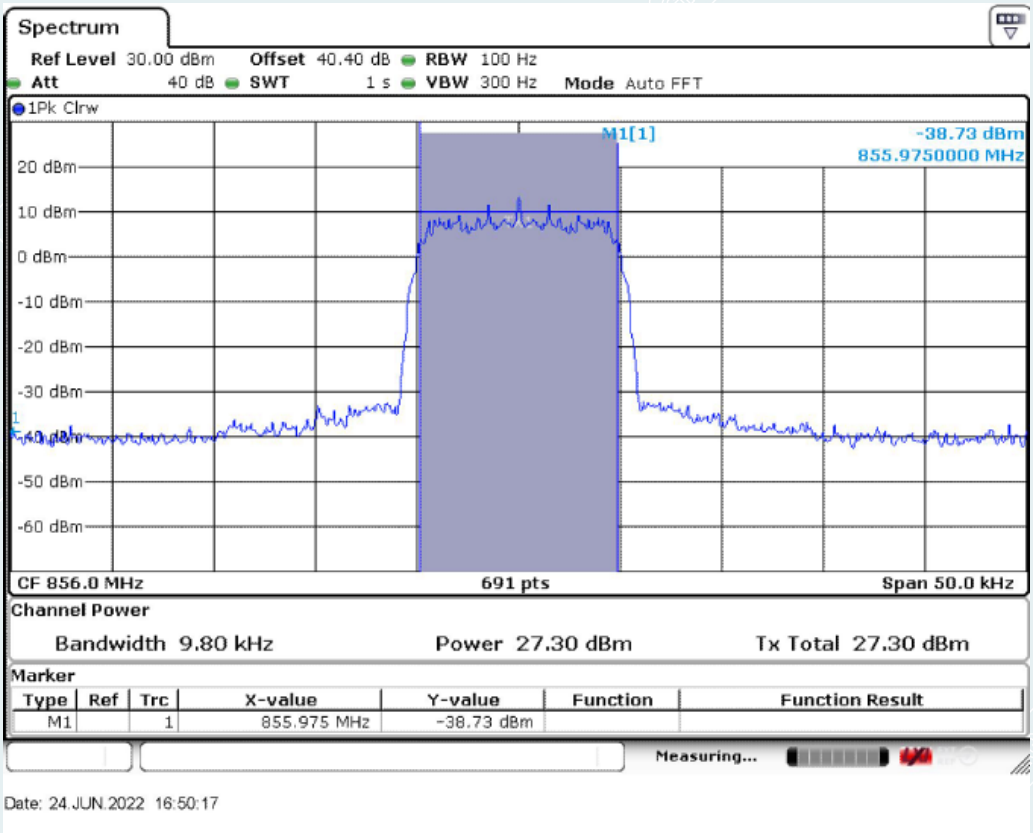
10.5.5.3.2.2.1. Downlink



Middle Frequency: 856.0MHz, Input occupied BW

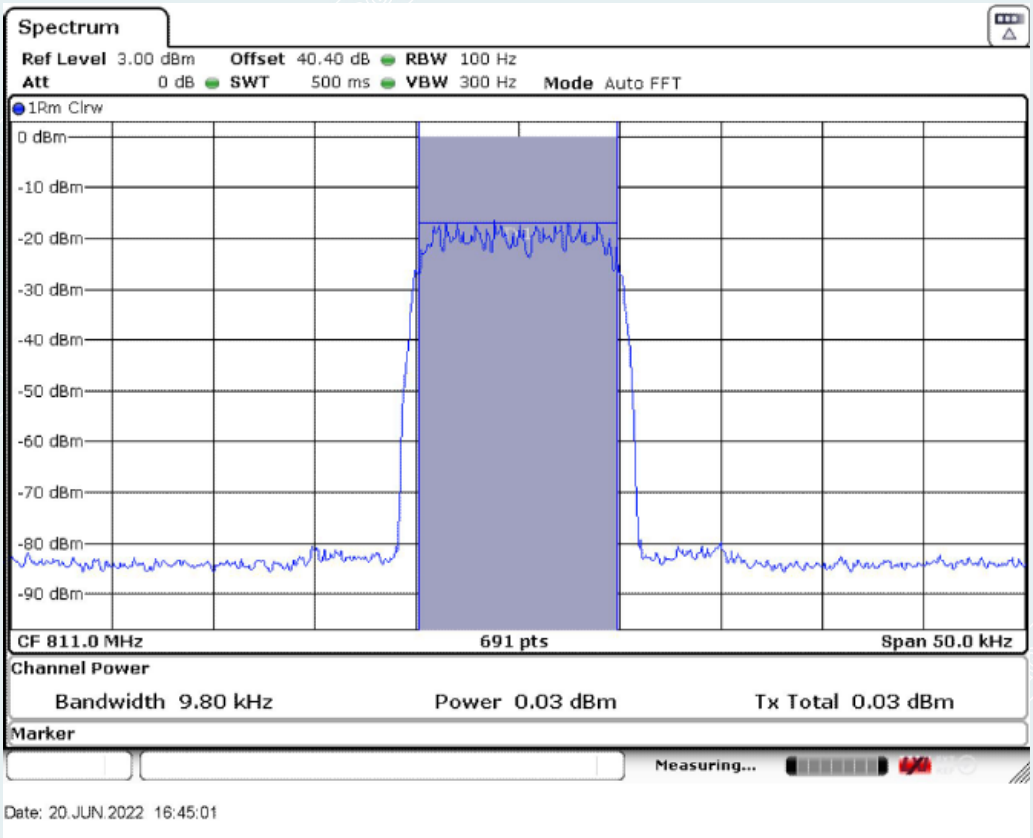


Middle Frequency: 856.0MHz, Output occupied BW(AGC)

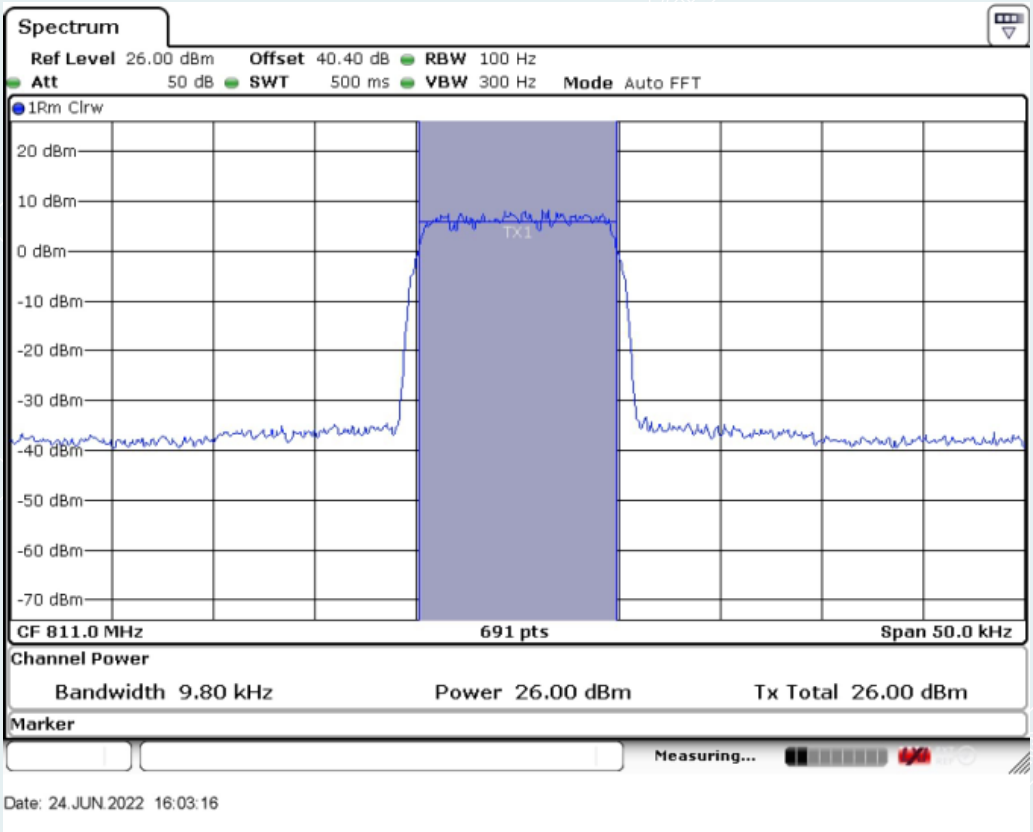


Middle Frequency: 856.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

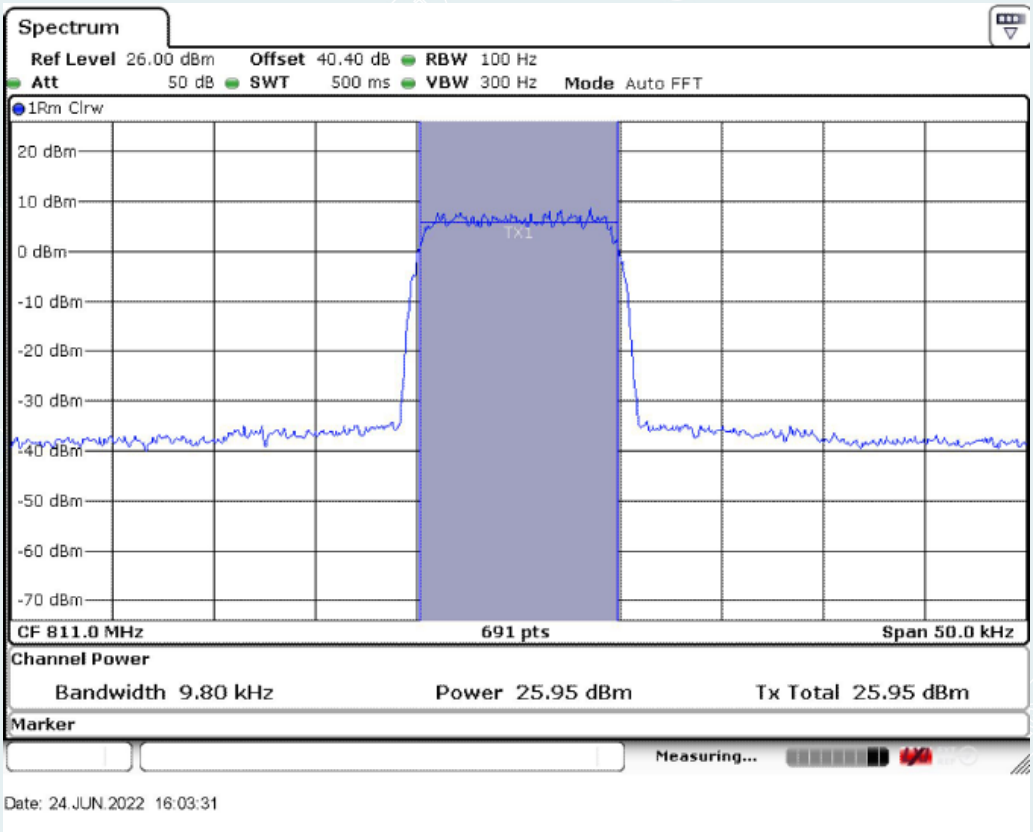
10.5.5.3.2.2.2. Uplink



Middle Frequency: 811.0MHz MHz, Input occupied BW



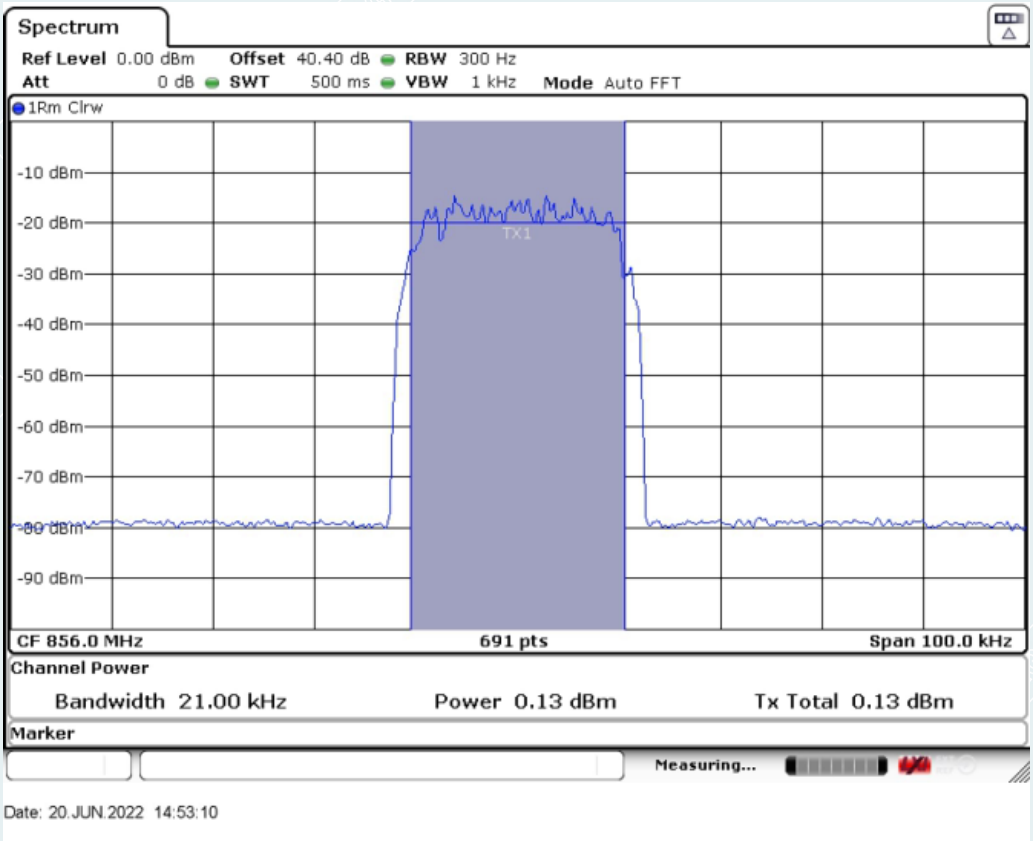
Middle Frequency: 811.0MHz, Output occupied BW(AGC)



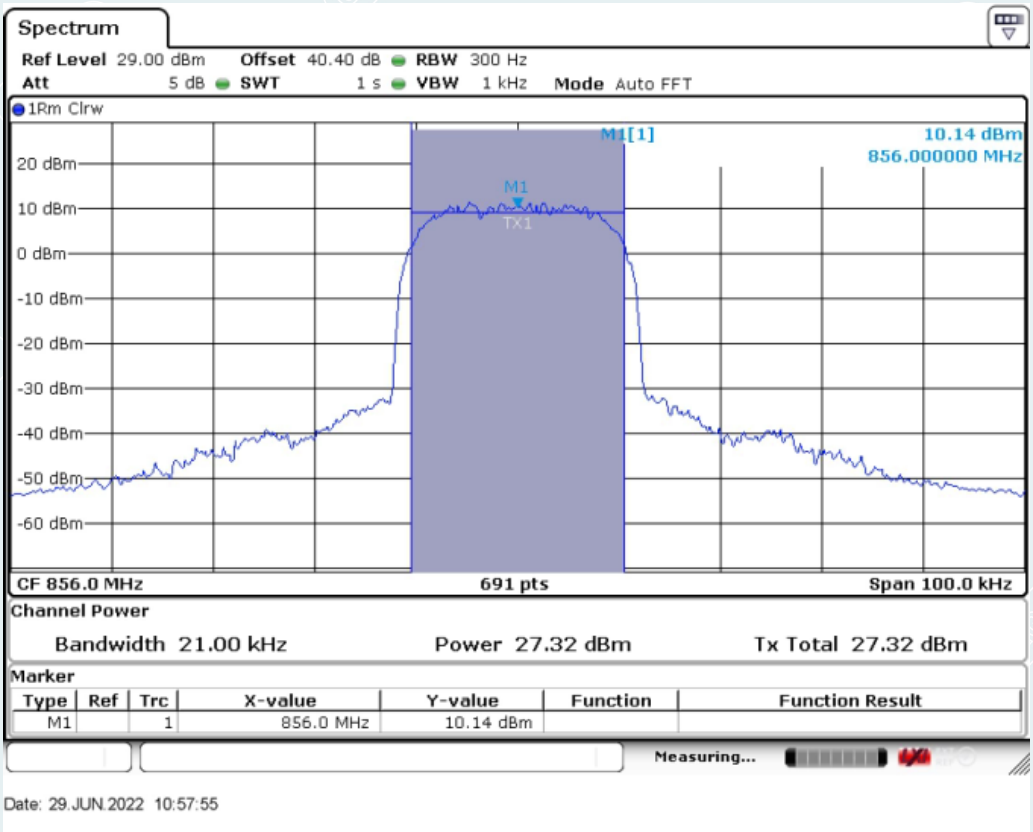
Middle Frequency: 811.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.2.3. TETRA

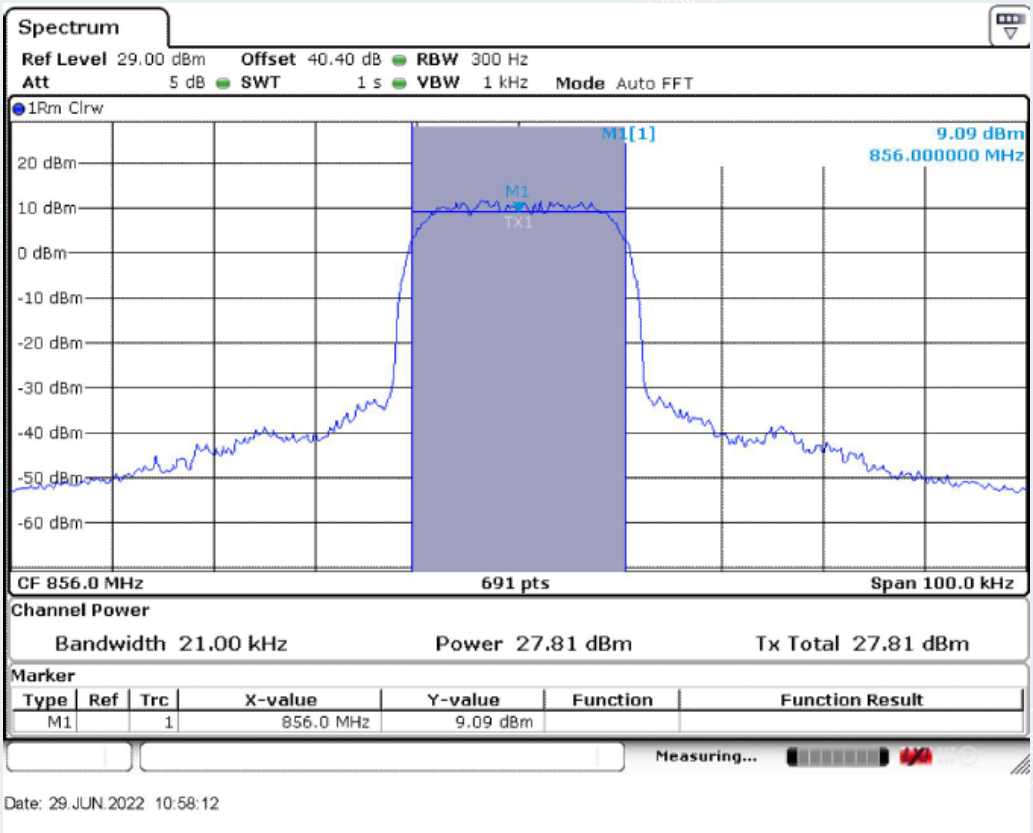
10.5.5.3.2.3.1. Downlink



Middle Frequency: 856.0MHz, Input occupied BW

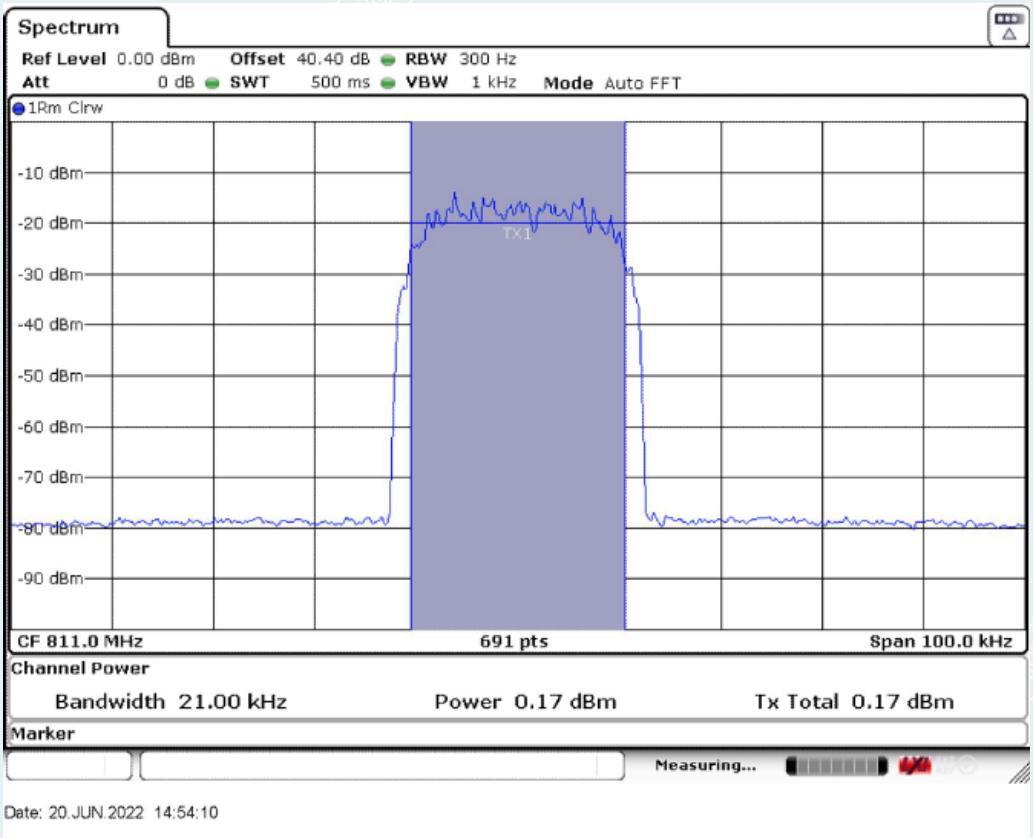


Middle Frequency: 856.0MHz, Output occupied BW(AGC)

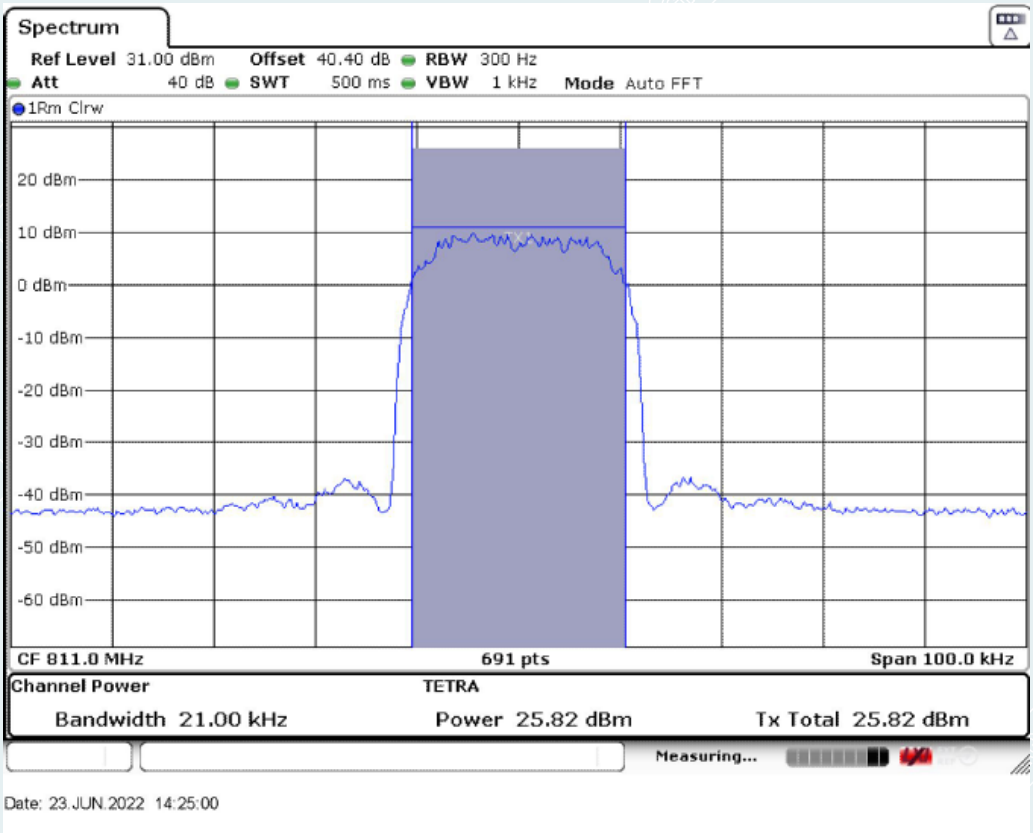


Middle Frequency: 856.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

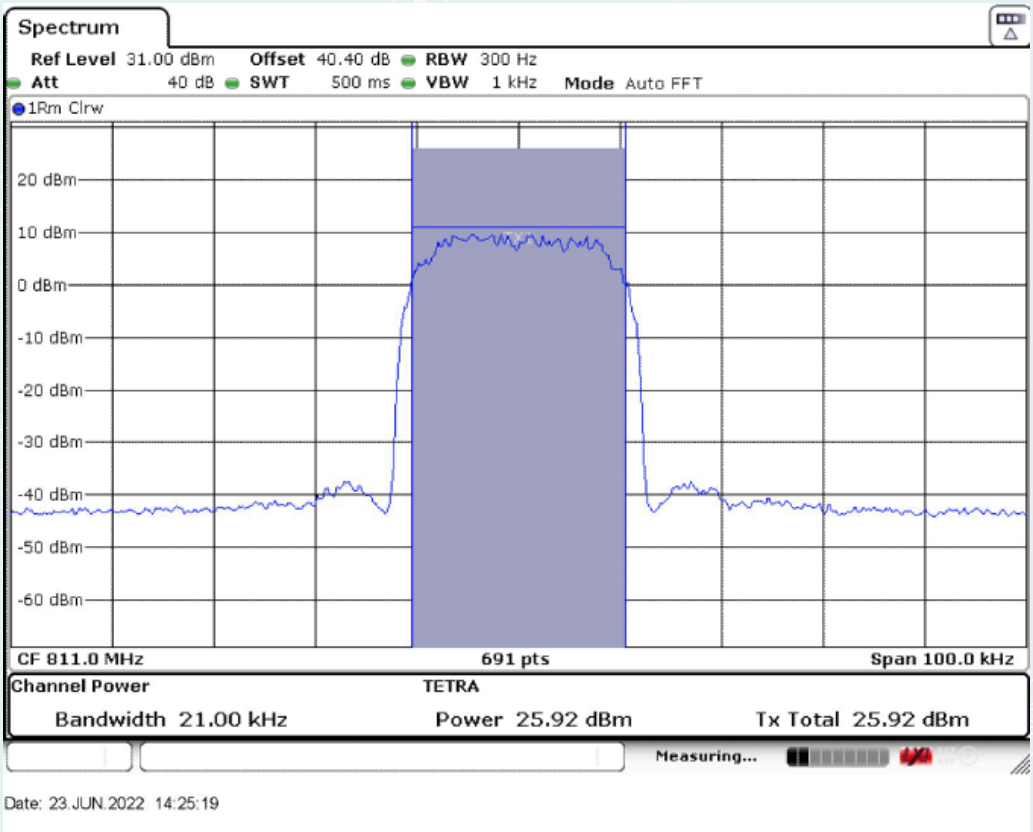
10.5.5.3.2.3.2. Uplink



Middle Frequency: 811.0MHz MHz, Input occupied BW



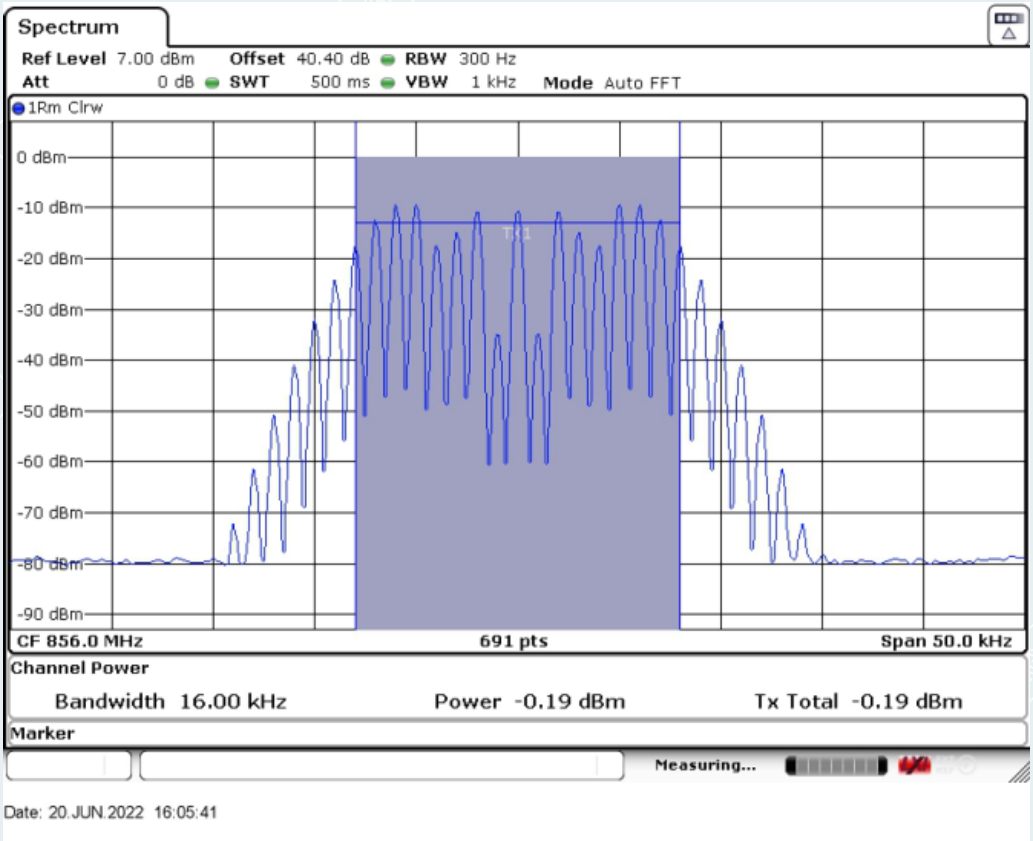
Middle Frequency: 811.0MHz, Output occupied BW(AGC)



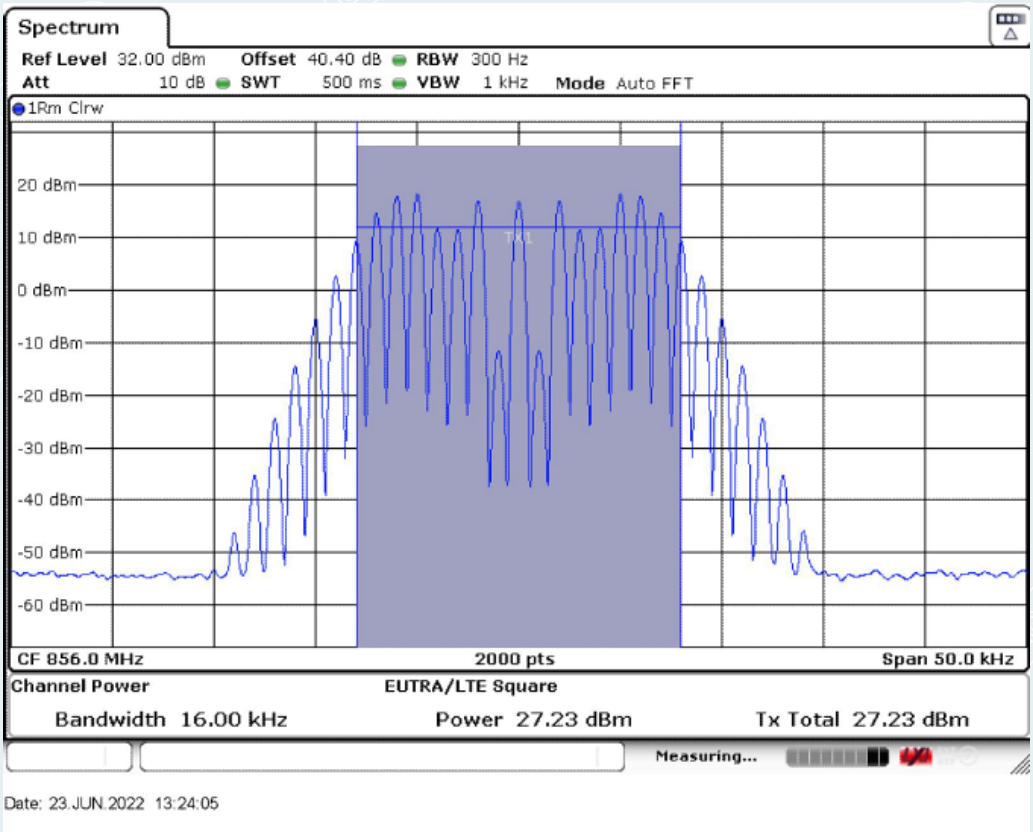
Middle Frequency: 811.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.5.5.3.2.4. Analog FM

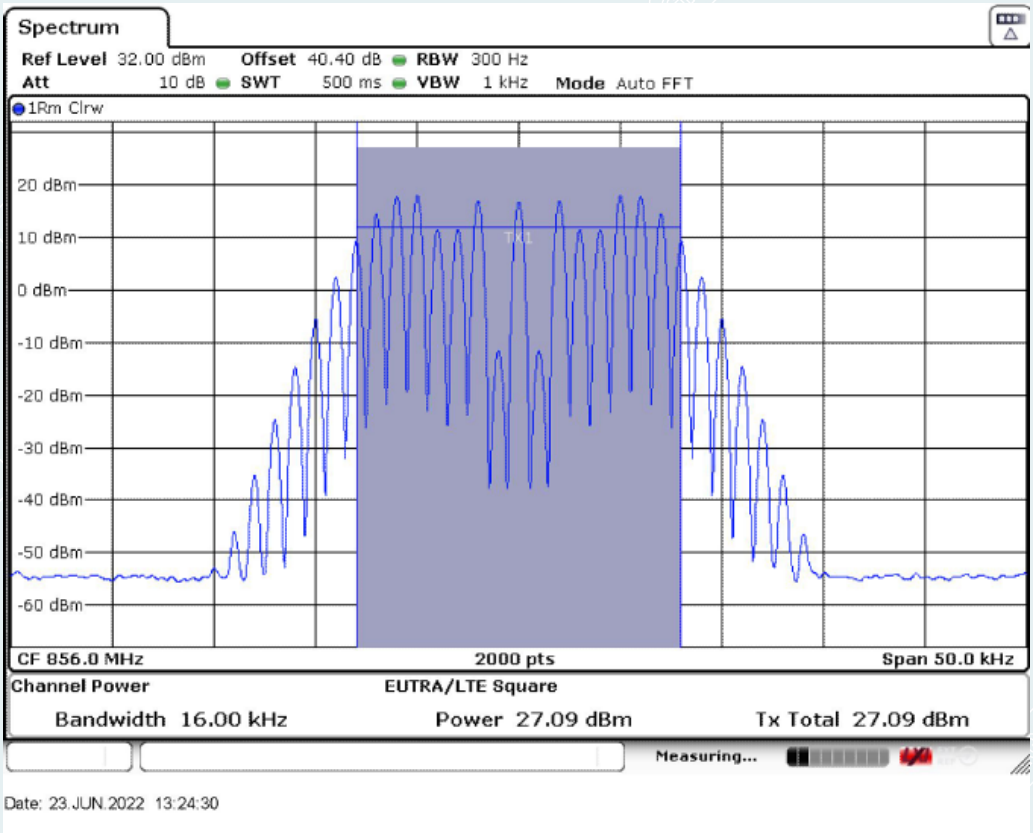
10.5.5.3.2.4.1. Downlink



Middle Frequency: 856.0MHz, Input occupied BW

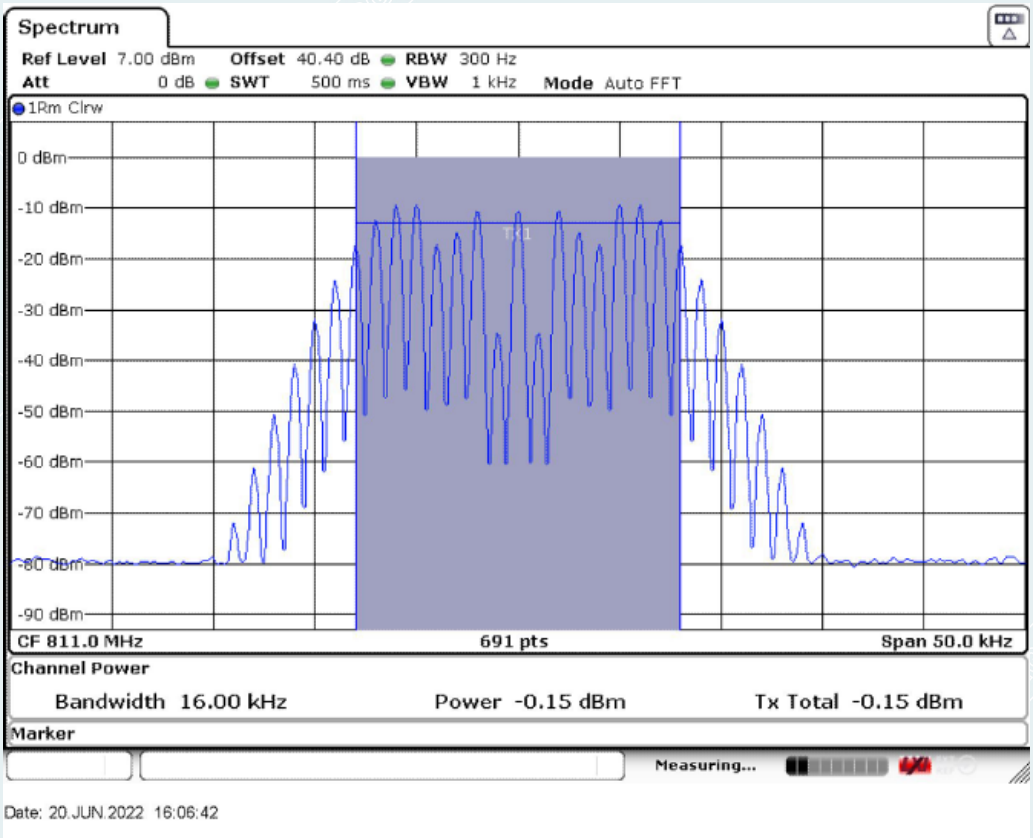


Middle Frequency: 856.0MHz, Output occupied BW(AGC)

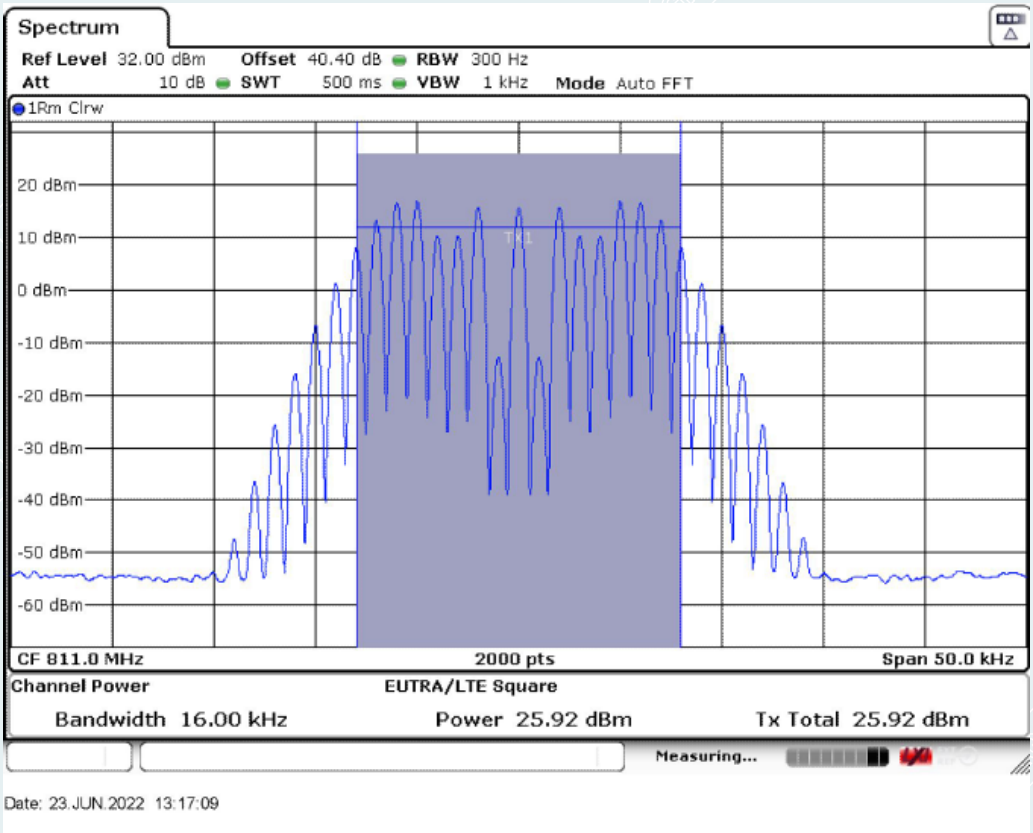


Middle Frequency: 856.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

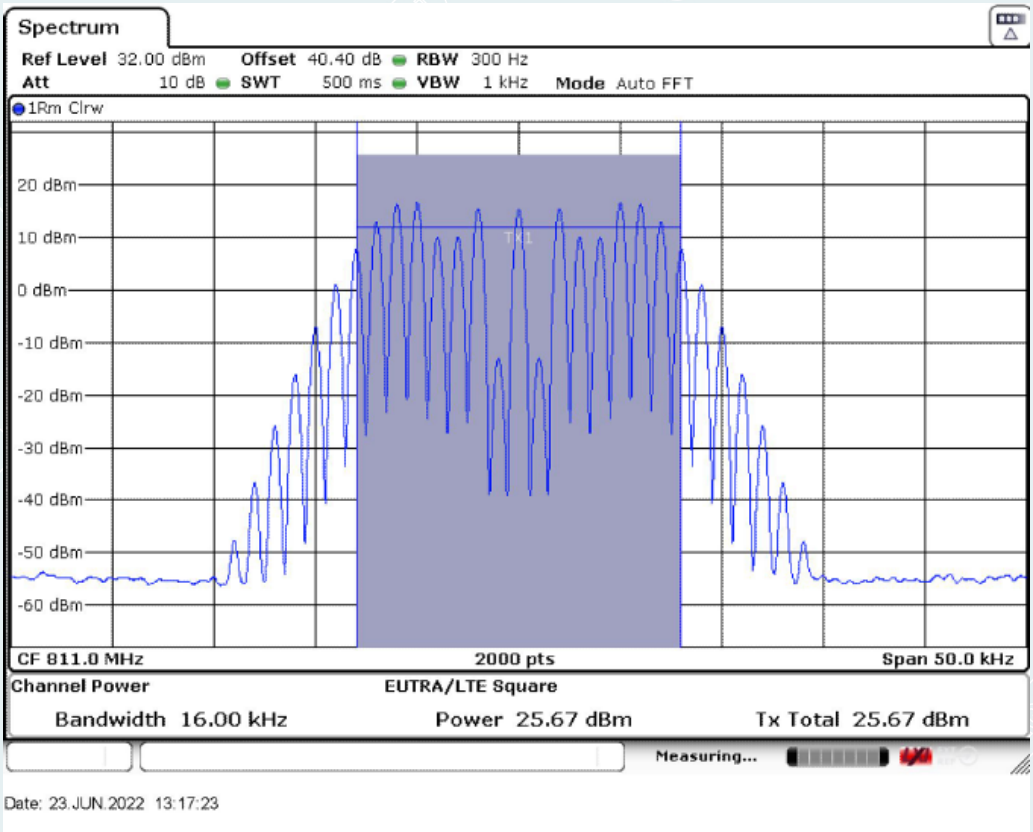
10.5.5.3.2.4.2. Uplink



Middle Frequency: 811.0MHz MHz, Input occupied BW



Middle Frequency: 811.0MHz, Output occupied BW(AGC)



Middle Frequency: 811.0MHz, Output occupied BW (with the input signal amplitude set 3 dB above the AGC threshold)

10.6. Mean power and amplifier/booster gain

Test requirement: KDB 935210 D05 clause 4.5
FCC PART 90.219 (e)(1)

Test Method: KDB 935210 D05 clause 4.5

10.6.1. Requirements

According to KDB 935210 D05 clause 4.5, the mean input and output power and the amplifier gain was measured by adjusting the internal gain control of the EUT to the maximum gain for which equipment certification is sought. Any EUT attenuation settings were set to their minimum value.

Input power levels (Downlink and Uplink) were set to maximum input ratings while confirming that the device is not capable of operating in saturation (Non-linear mode) at the rated input levels, including during the performance of the input/output power measurements.

ForFCC PART 90.219 (e)(1) requirement:

(e) *Device Specifications.* In addition to the general rules for equipment certification in §90.203(a)(2) and part 2, subpart J of this chapter, a signal booster must also meet the rules in this paragraph.

(1) The output power capability of a signal booster must be designed for deployments providing a radiated power not exceeding 5 Watts ERP for each retransmitted channel.

10.6.2. Test configuration

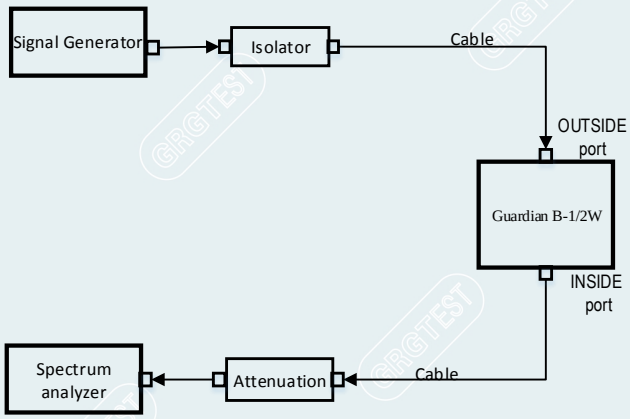


Figure 10.6-1 Downlink connection diagram

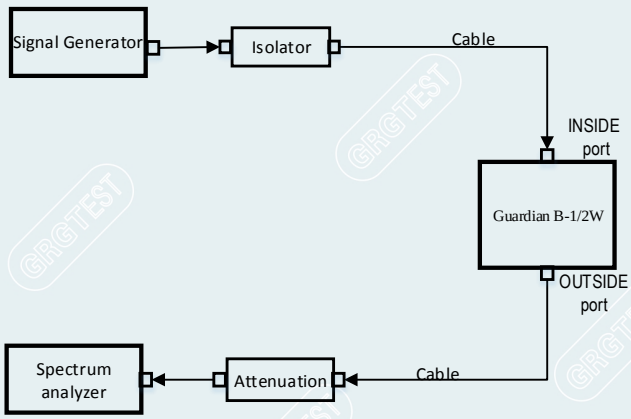


Figure 10.6-2 Uplink connection diagram

10.6.3. Test procedures

a) Connect a signal generator to the input of the EUT.
b) Configure to generate the AWGN (broadband) test signal.
c) The frequency of the signal generator shall be set to the frequency f_0 as determined from 3.3.
d) Connect a spectrum analyzer or power meter to the output of the EUT using appropriate attenuation as necessary.
e) Set the signal generator output power to a level that produces an EUT output level that is just below the AGC threshold (see 3.2), but not more than 0.5 dB below.
f) Measure and record the output power of the EUT; use 3.5.3 or 3.5.4 for power measurement.
g) Remove the EUT from the measurement setup. Using the same signal generator settings, repeat the power measurement at the signal generator port, which was used as the input signal to the EUT, and record as the input power. EUT gain may be calculated as described in 3.5.5.
h) Repeat steps f) and g) with input signal amplitude set to 3 dB above the AGC threshold level.
i) Repeat steps e) to h) with the narrowband test signal.
j) Repeat steps e) to i) for all frequency bands authorized for use by the EUT.

---------- The following blanks ----------

10.6.4. Test results

Test Date (yy-mm-dd): 2022-06-23

Normal condition: Temp: 24.2℃, Humid:38%, Atmospheric Pressure:101kpa

Supply Voltage: AC 110V, 50Hz

10.6.4.1. Mean power and gain

10.6.4.1.1. 700MHz Band

10.6.4.1.1.1. Downlink

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten +Output Cable Loss(dB)	Output power (dBm)	Output power (W)	Gain (dB)
1. LTE 5MHz								
Down(1)	760.5	-52.1	0.9	-13.0	40.4	27.4	0.550	80.4
Down(2)	760.5	-49.1	0.9	-13.1	40.4	27.3	0.537	77.3
Down(1)	763.0	-52.0	0.9	-13.2	40.4	27.2	0.525	80.1
Down(2)	763.0	-49.0	0.9	-13.2	40.4	27.2	0.525	77.1
Down(1)	765.5	-52.0	0.9	-13.2	40.4	27.2	0.525	80.1
Down(2)	765.5	-49.0	0.9	-13.2	40.4	27.2	0.525	77.1
2. LTE 10MHz								
Down(1)	763.0	-51.0	0.9	-13.1	40.4	27.3	0.537	79.2
Down(2)	763.0	-48.0	0.9	-13.4	40.4	27.0	0.501	75.9
3. P25 Phase I(C4FM)								
Down(1)	768.00625	-52.0	0.9	-13.1	40.4	27.3	0.537	80.2
Down(2)	768.00625	-49.0	0.9	-13.2	40.4	27.2	0.525	77.1
Down(1)	771.5	-52.0	0.9	-12.8	40.4	27.6	0.575	80.5
Down(2)	771.5	-49.0	0.9	-12.8	40.4	27.6	0.575	77.5
Down(1)	774.99375	-49.2	0.9	-13.5	40.4	26.9	0.490	77.0
Down(2)	774.99375	-46.2	0.9	-13.6	40.4	26.8	0.479	73.9
4. P25 Phase II(H-DQPSK)								
Down(1)	768.00625	-52.0	0.9	-13.5	40.4	27.0	0.490	79.8
Down(2)	768.00625	-49.0	0.9	-13.6	40.4	26.9	0.479	76.7
Down(1)	771.5	-52.0	0.9	-12.8	40.4	27.6	0.575	80.5
Down(2)	771.5	-49.0	0.9	-12.7	40.4	27.7	0.589	77.6
Down(1)	774.99375	-49.2	0.9	-13.7	40.4	26.7	0.468	76.8
Down(2)	774.99375	-46.2	0.9	-13.7	40.4	26.7	0.468	73.8

5. Analog FM mode								
Down(1)	768.0125	-52.0	0.9	-13.3	40.4	27.1	0.513	80.0
Down(2)	768.0125	-49.0	0.9	-13.4	40.4	27.0	0.501	76.9
Down(1)	771.5	-52.0	0.9	-12.9	40.4	27.5	0.562	80.4
Down(2)	771.5	-49.0	0.9	-13.0	40.4	27.4	0.550	77.3
Down(1)	774.9875	-49.2	0.9	-13.6	40.4	26.8	0.479	76.9
Down(2)	774.9875	-46.2	0.9	-13.6	40.4	26.8	0.479	73.9

NOTE: (1) Level is 0.5 dB below AGC threshold; (2) Level is 3dB above AGC threshold.

10.6.4.1.1.2. Uplink

Test link	Freq. (MHz)	Sig output power (dBm)	Input Cable Loss (dB)	Peak power (dBm)	Output Atten +Output Cable Loss(dB)	Output power (dBm)	Output power (W)	Gain (dB)
6. LTE 5MHz								
Up(1)	790.5	-50.8	0.9	-13.1	40.4	27.3	0.537	79.0
Up(2)	790.5	-47.8	0.9	-13.1	40.4	27.3	0.537	76.0
Up(1)	793.0	-51.1	0.9	-12.9	40.4	27.5	0.562	79.5
Up(2)	793.0	-48.1	0.9	-13.0	40.4	27.4	0.550	76.4
Up(1)	795.5	-51.1	0.9	-12.8	40.4	27.6	0.575	79.6
Up(2)	795.5	-48.1	0.9	-12.7	40.4	27.7	0.589	76.7
7. LTE 10MHz								
Up(1)	793.0	-51.1	0.9	-13.4	40.4	27.0	0.501	79.0
Up(2)	793.0	-48.1	0.9	-13.5	40.4	26.9	0.490	75.9
8. P25 Phase I(C4FM)								
Up(1)	798.00625	-54.1	0.9	-13.8	40.4	26.6	0.457	81.6
Up(2)	798.00625	-51.1	0.9	-13.8	40.4	26.6	0.457	78.6
Up(1)	801.5	-54.1	0.9	-14.3	40.4	26.1	0.407	81.1
Up(2)	801.5	-51.1	0.9	-14.2	40.4	26.2	0.417	78.2
Up(1)	804.99375	-54.1	0.9	-14.2	40.4	26.2	0.417	81.2
Up(2)	804.99375	-51.1	0.9	-14.2	40.4	26.2	0.417	78.2
9. P25 Phase II(H-DQPSK)								
Up(1)	798.00625	-54.1	0.9	-13.7	40.4	26.7	0.468	81.7
Up(2)	798.00625	-51.1	0.9	-13.6	40.4	26.8	0.479	78.8
Up(1)	801.5	-54.1	0.9	-13.5	40.4	26.9	0.490	81.9

Up(2)	801.5	-51.1	0.9	-13.7	40.4	26.7	0.468	78.7
Up(1)	804.99375	-54.1	0.9	-14.0	40.4	26.4	0.437	81.4
Up(2)	804.99375	-51.1	0.9	-14.0	40.4	26.4	0.437	78.4
10. Analog FM mode								
Up(1)	798.0125	-54.1	0.9	-13.9	40.4	26.5	0.447	81.5
Up(2)	798.0125	-51.1	0.9	-14.1	40.4	26.3	0.427	78.3
Up(1)	801.5	-54.1	0.9	-13.9	40.4	26.5	0.447	81.5
Up(2)	801.5	-51.1	0.9	-13.8	40.4	26.6	0.457	78.6
Up(1)	804.9875	-54.1	0.9	-14.2	40.4	26.2	0.417	81.2
Up(2)	804.9875	-51.1	0.9	-14.2	40.4	26.2	0.417	78.2

NOTE: (1) Level is 0.5 dB below AGC threshold; (2) Level is 3dB above AGC threshold.

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