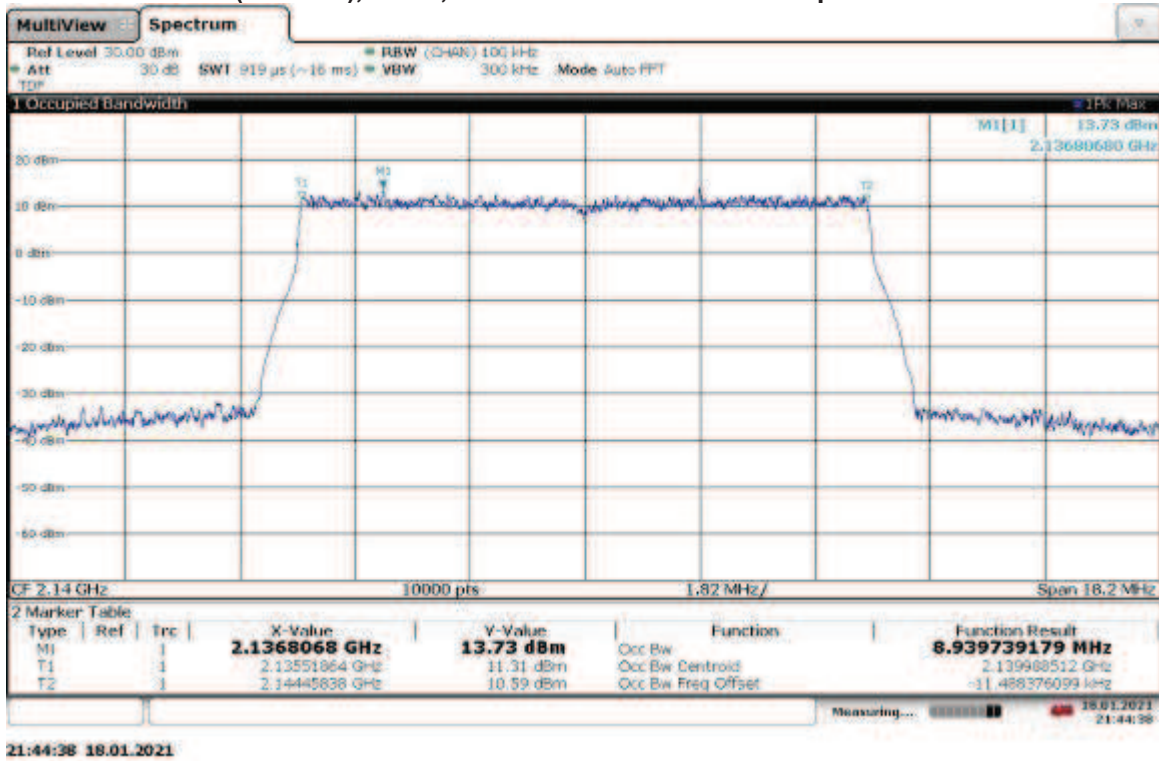
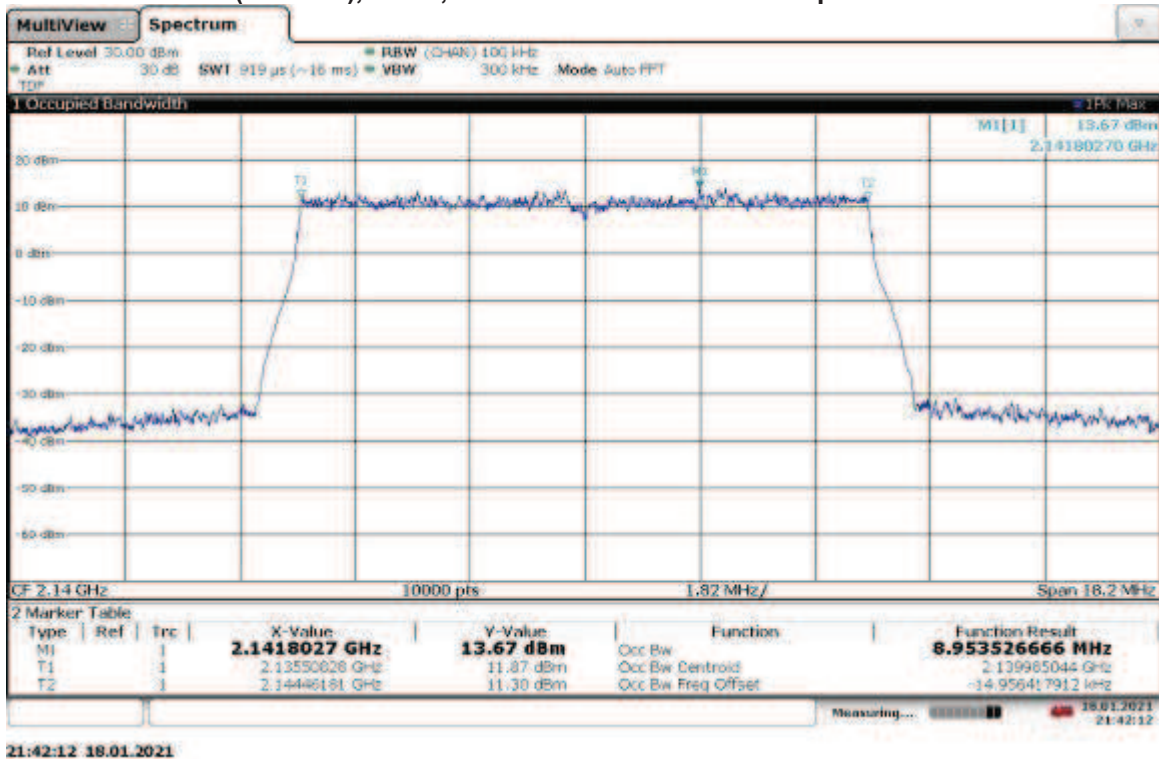


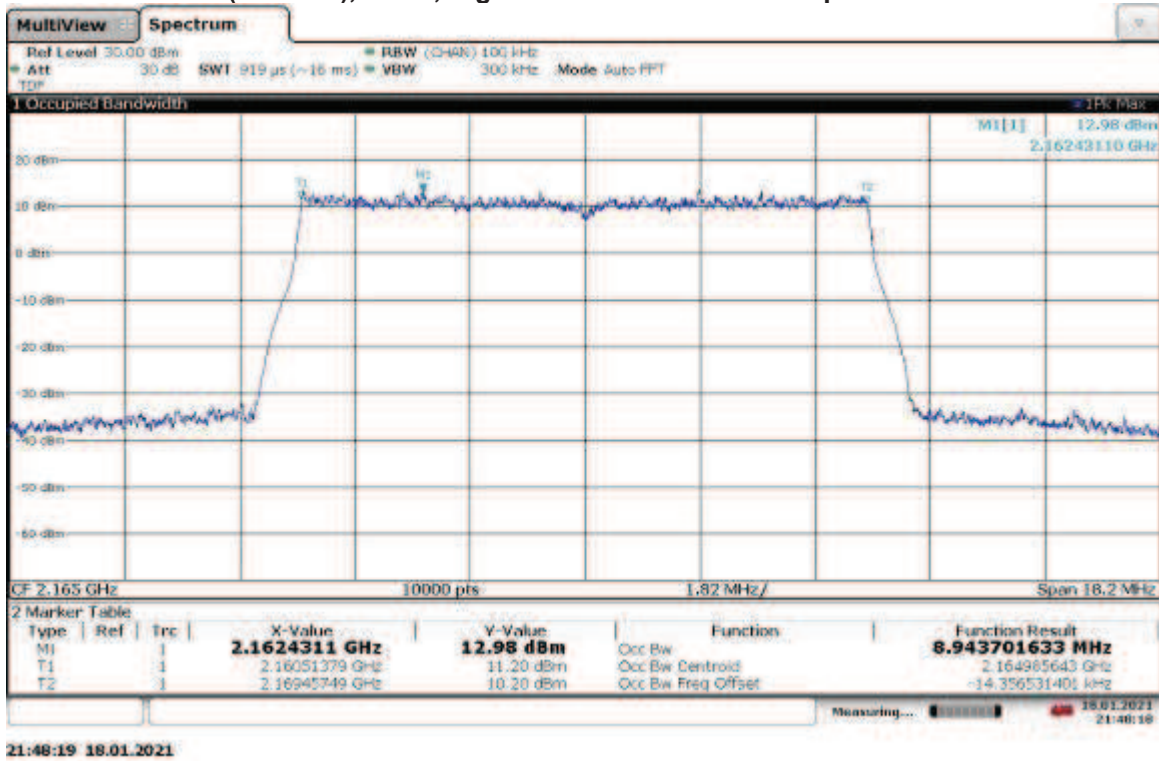
TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 2140 MHz Occupied Bandwidth



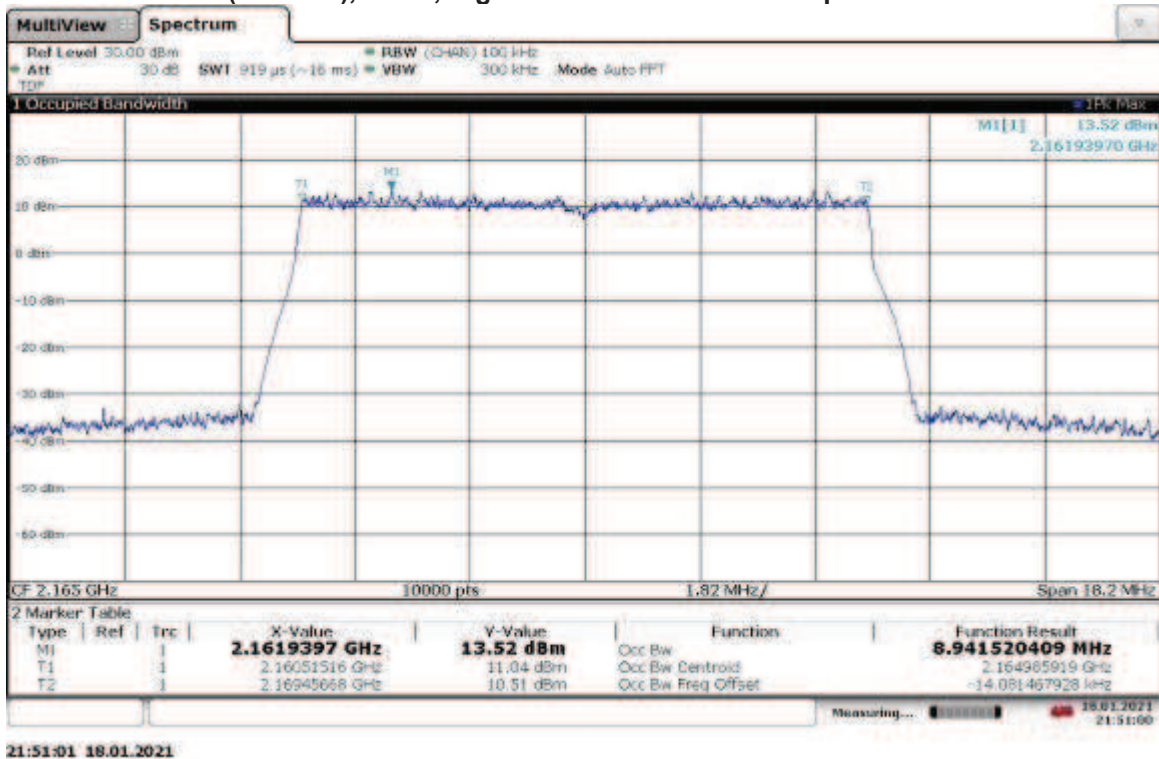
TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 2140 MHz Occupied Bandwidth



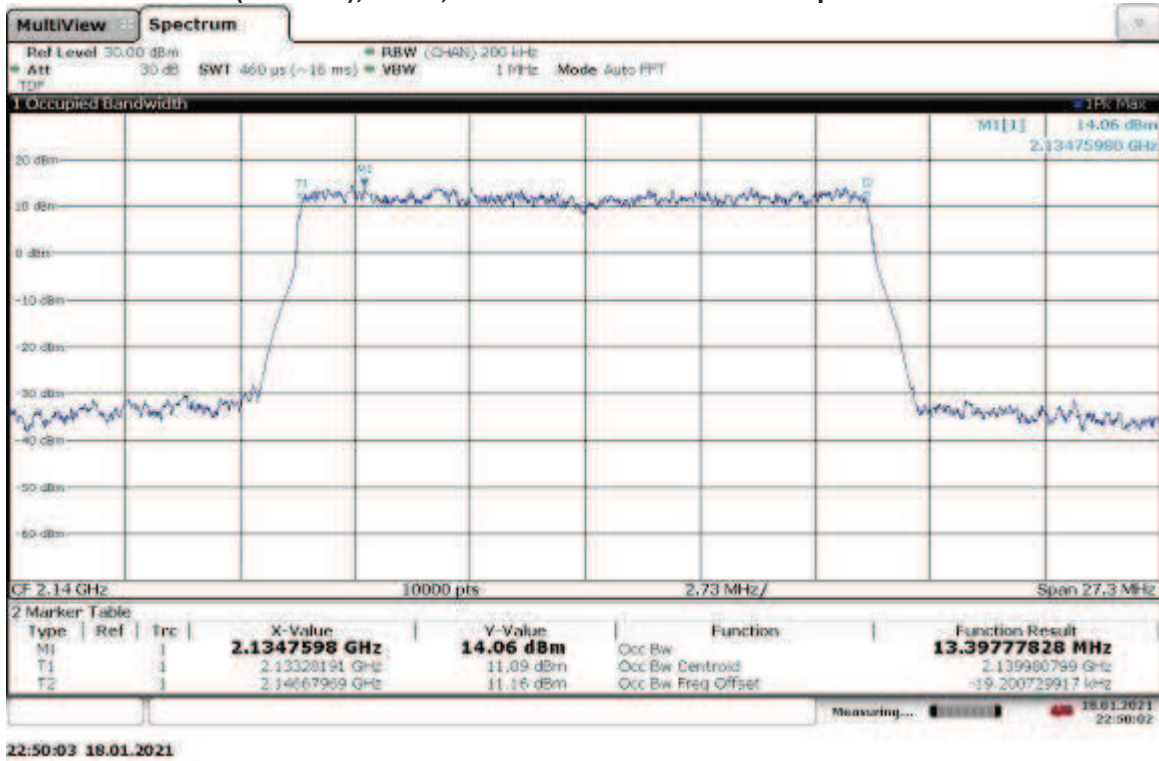
TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 2165 MHz Occupied Bandwidth



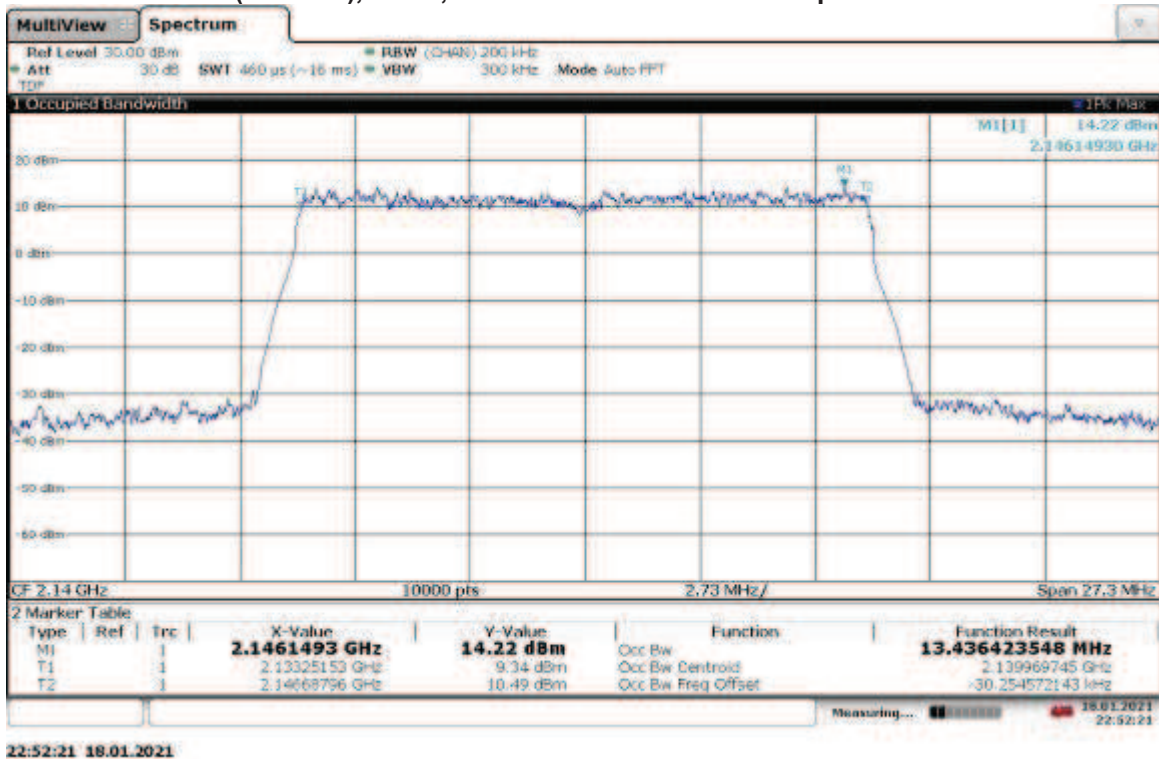
TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 2165 MHz Occupied Bandwidth



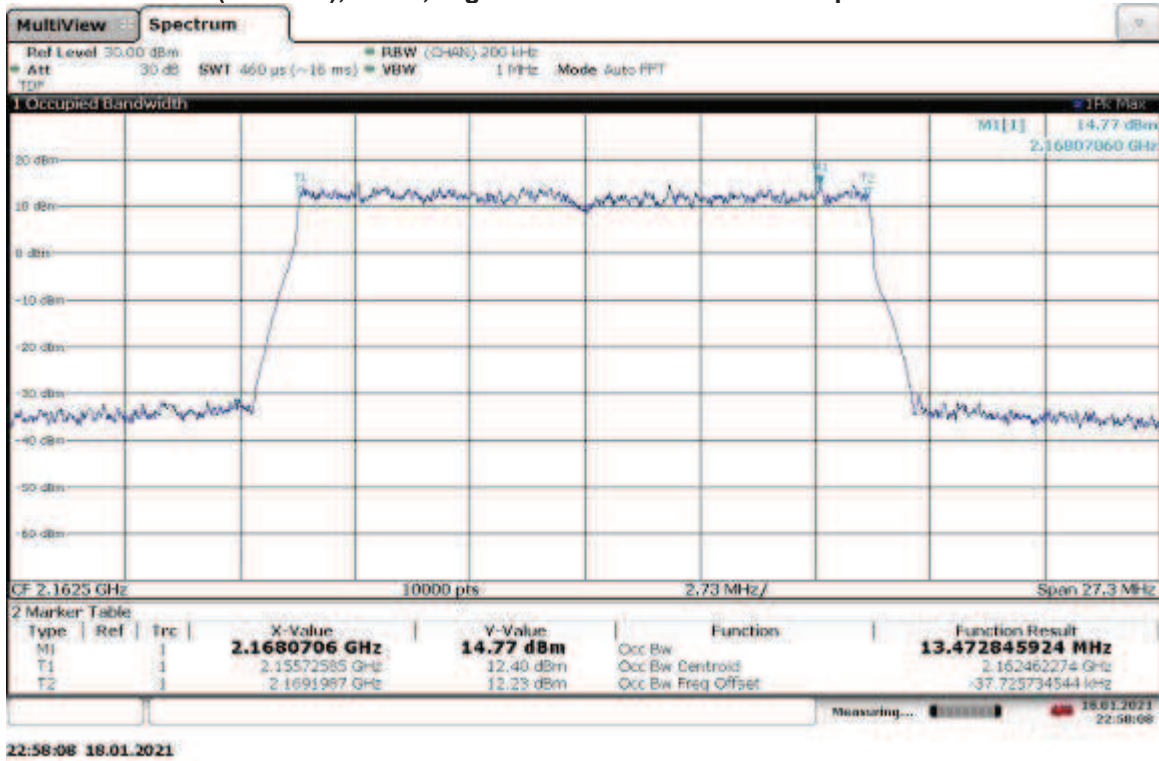
TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 2140 MHz Occupied Bandwidth



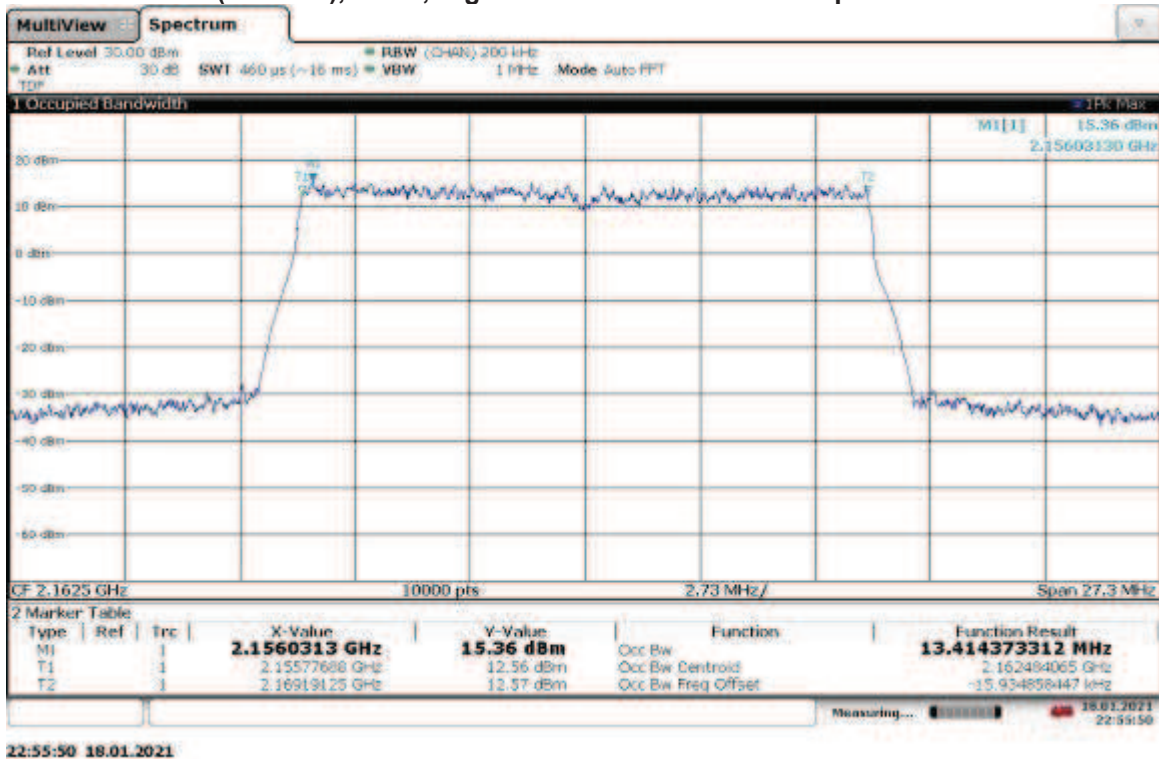
TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 2140 MHz Occupied Bandwidth



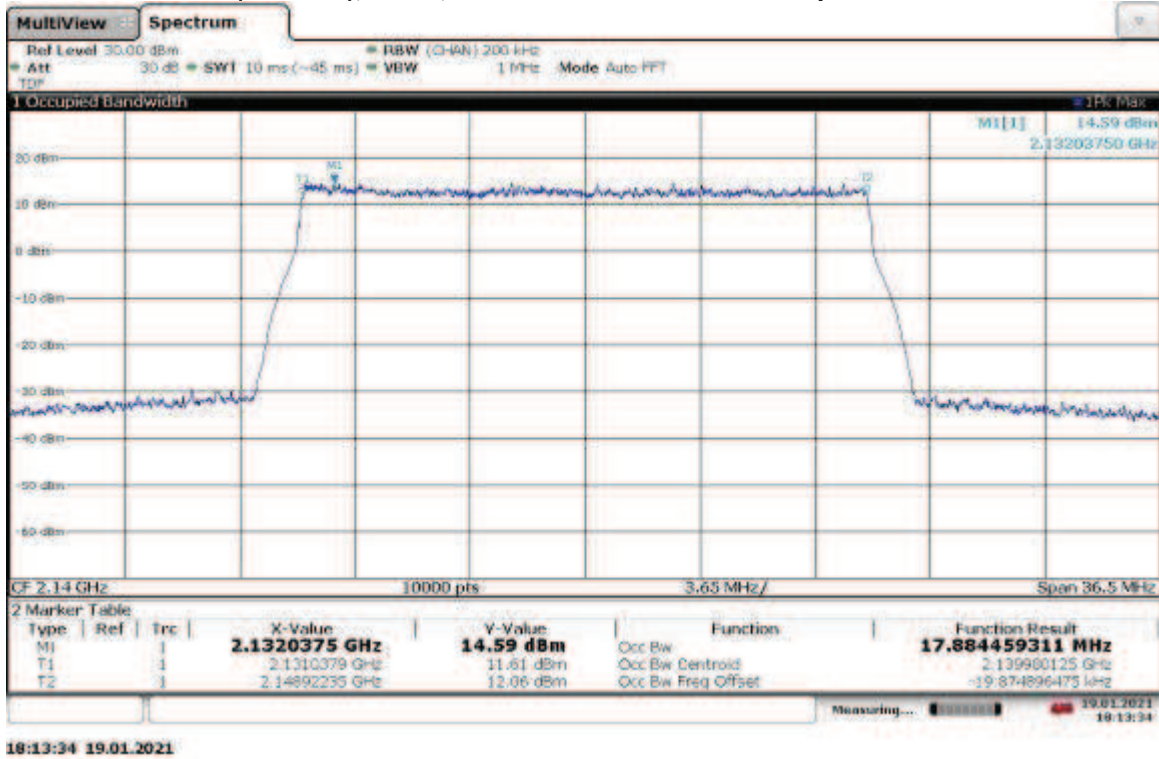
TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 2162.5 MHz Occupied Bandwidth



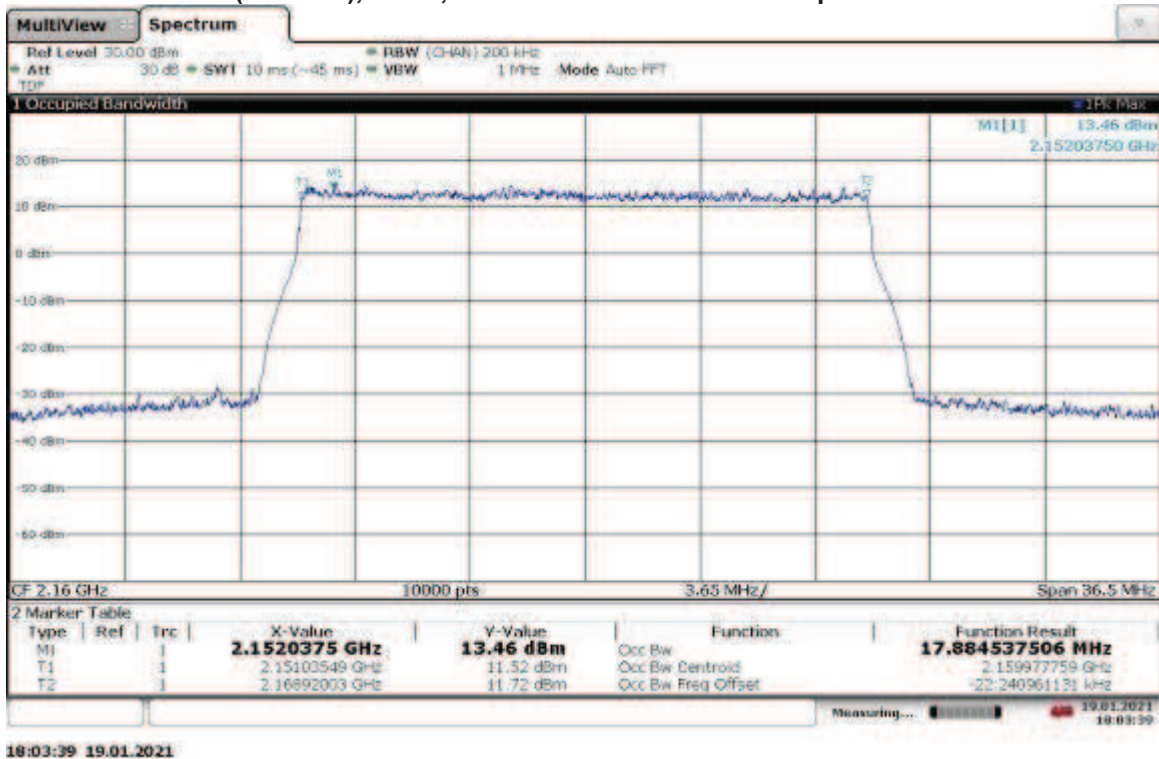
TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 2162.5 MHz Occupied Bandwidth



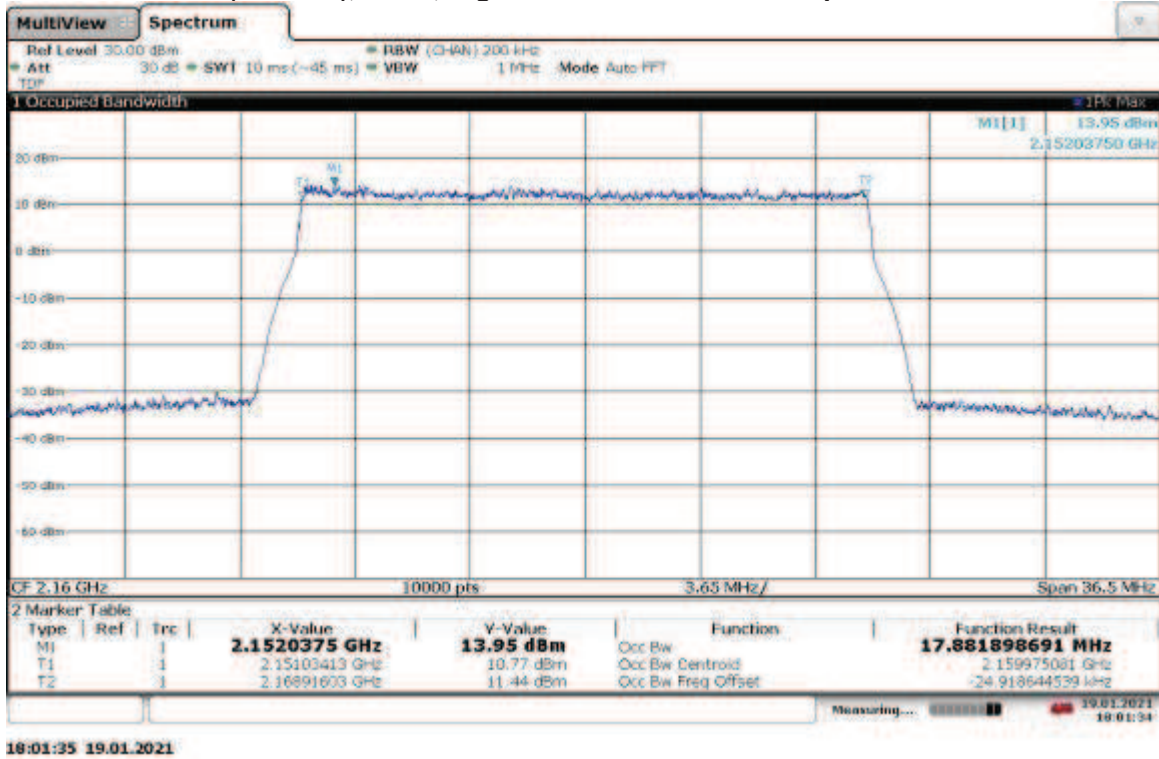
TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 2140 MHz Occupied Bandwidth



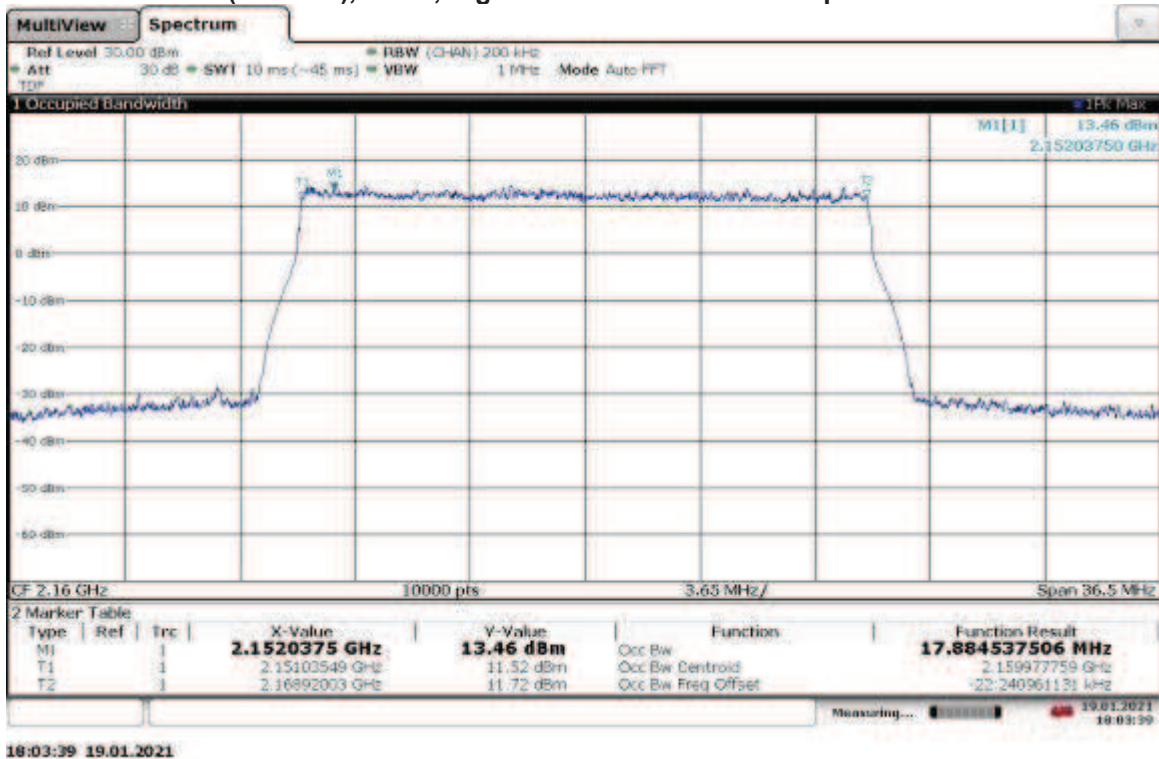
TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 2140 MHz Occupied Bandwidth



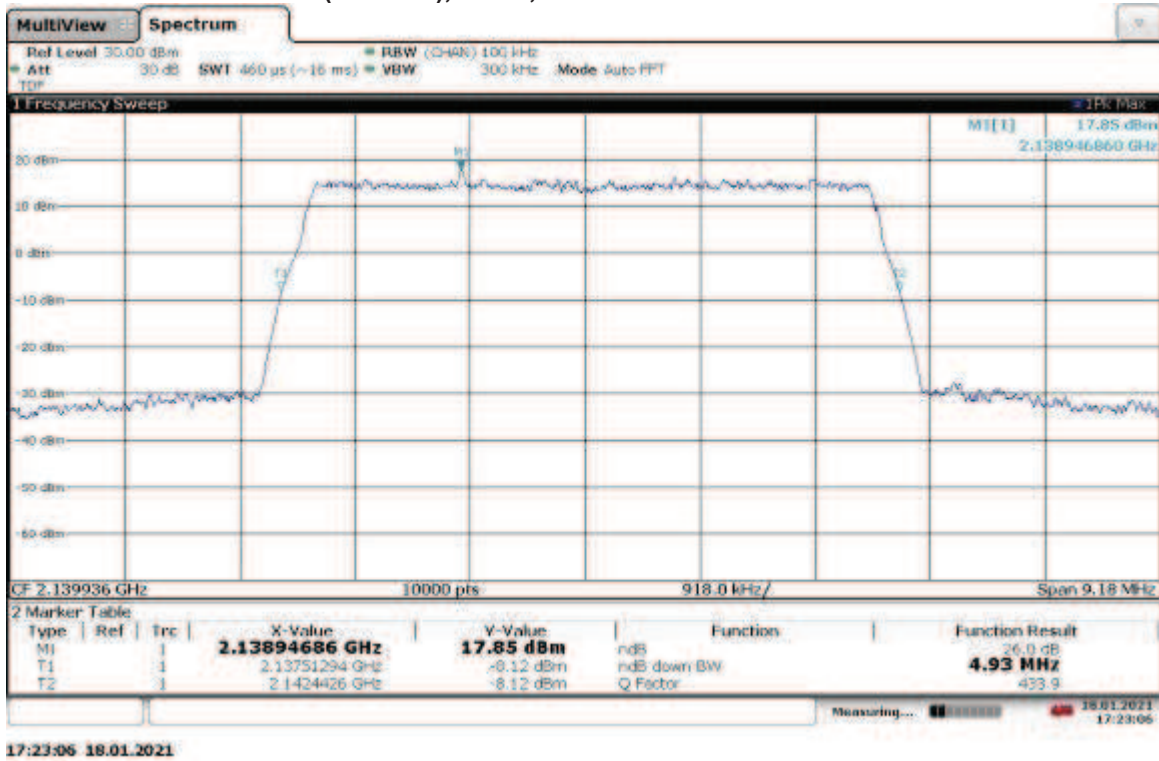
TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 2160 MHz Occupied Bandwidth



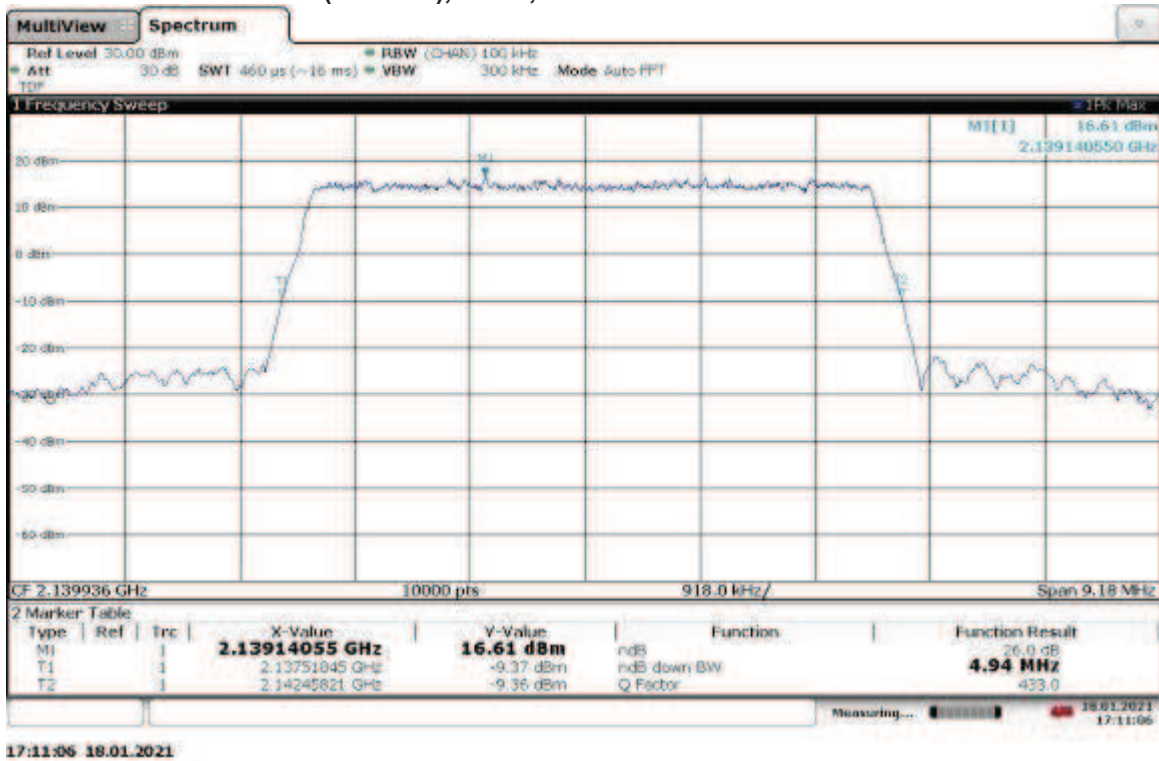
TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 2160 MHz Occupied Bandwidth



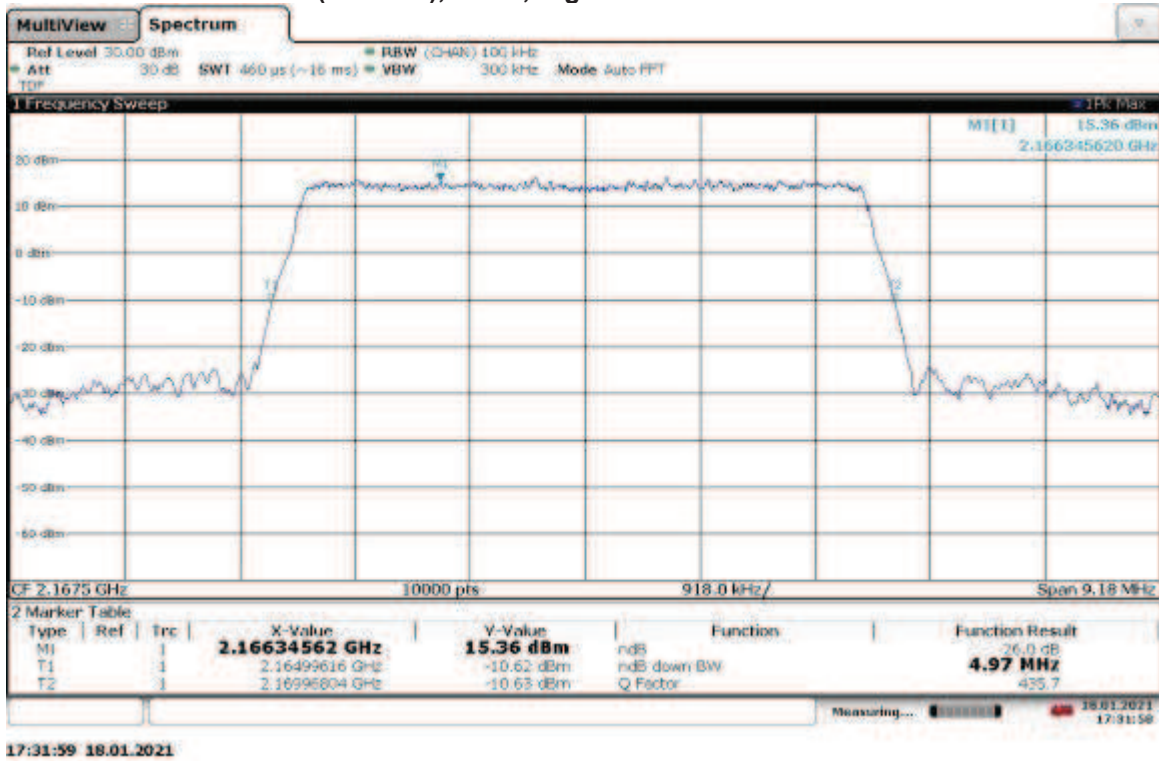
TM1.1-QPSK_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



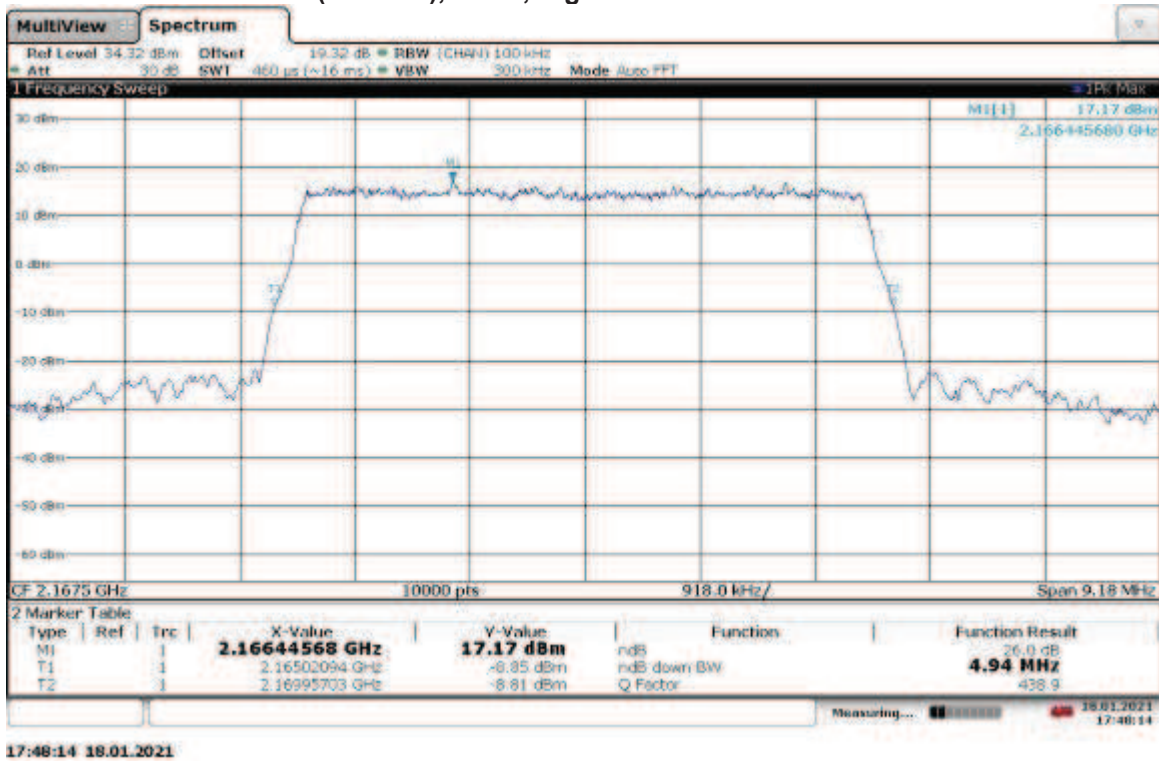
TM1.1-QPSK_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



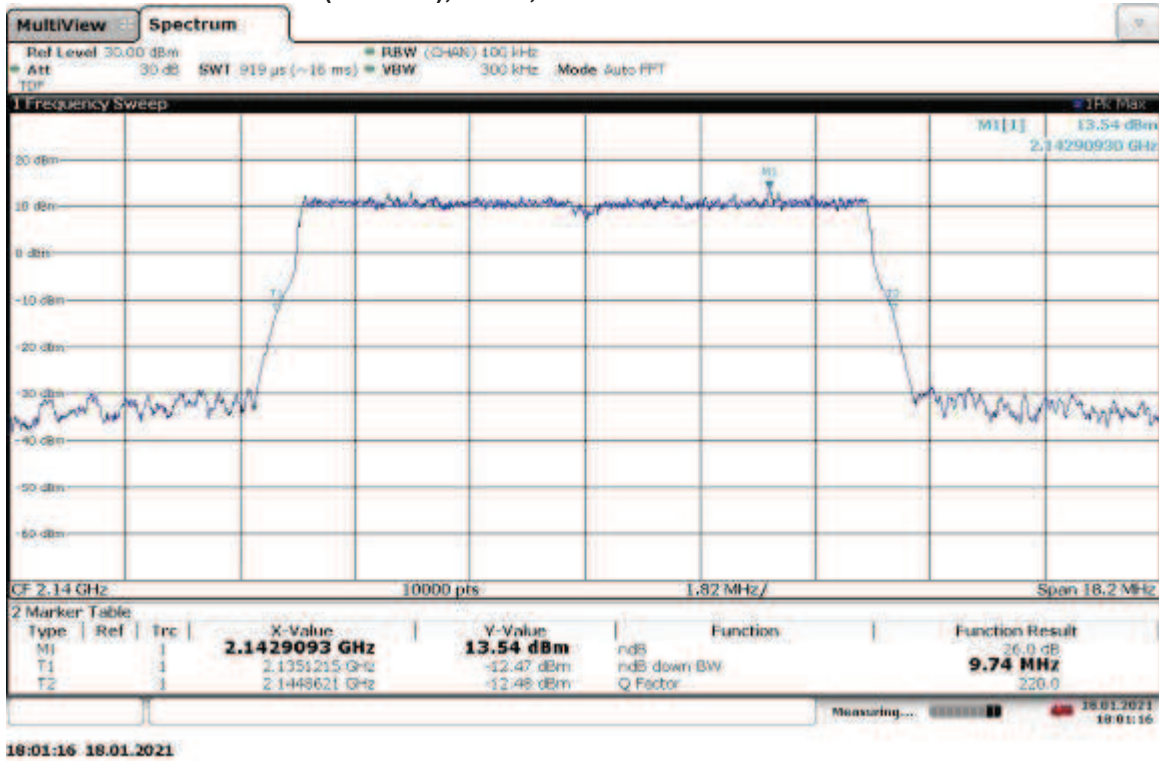
TM1.1-QPSK_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



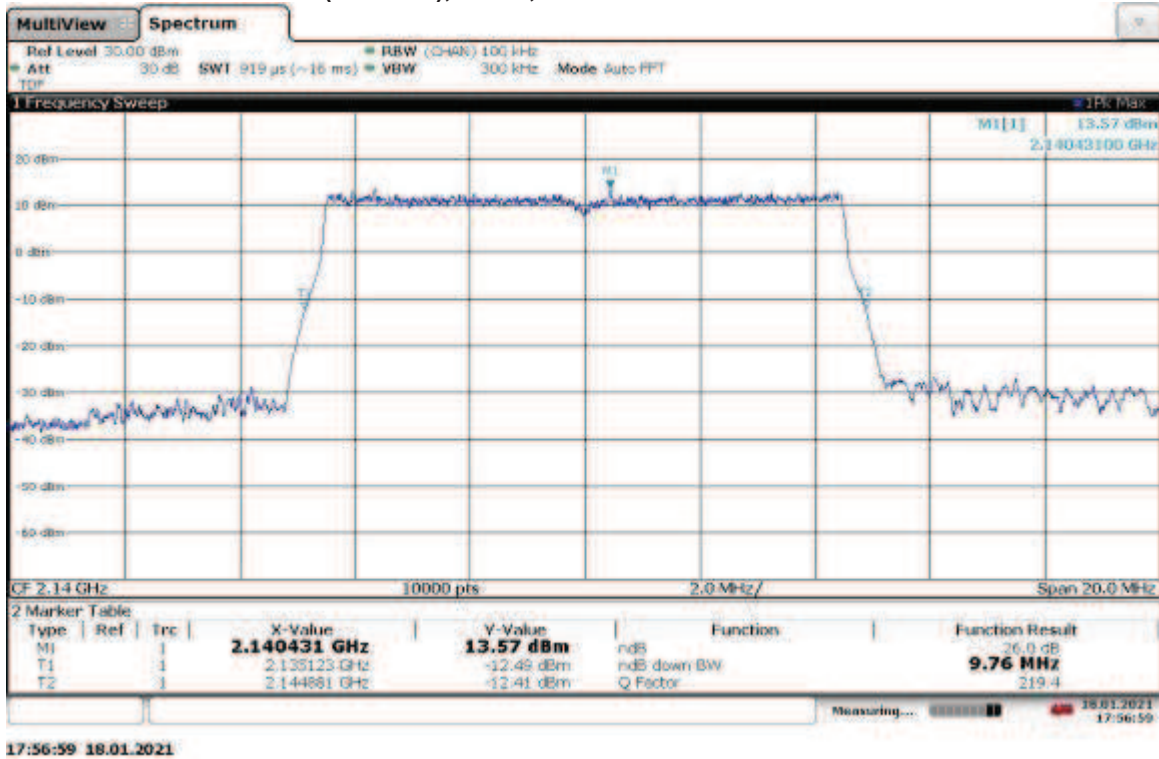
TM1.1-QPSK_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



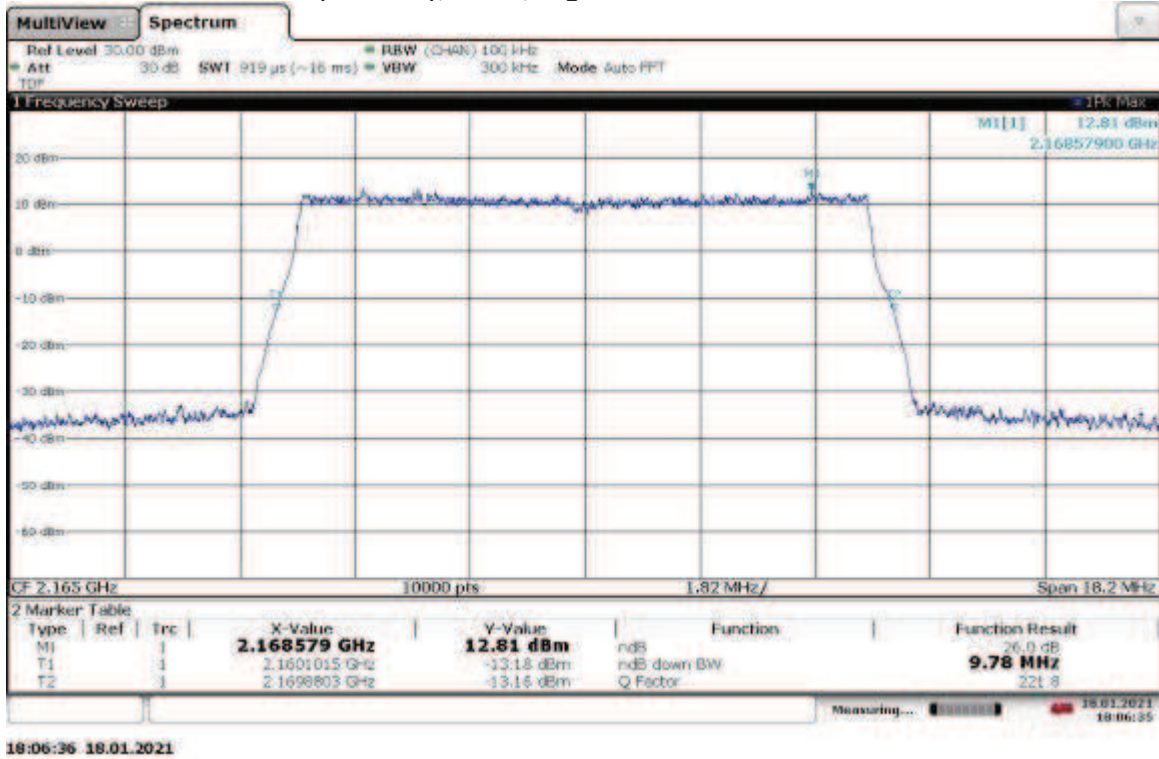
TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



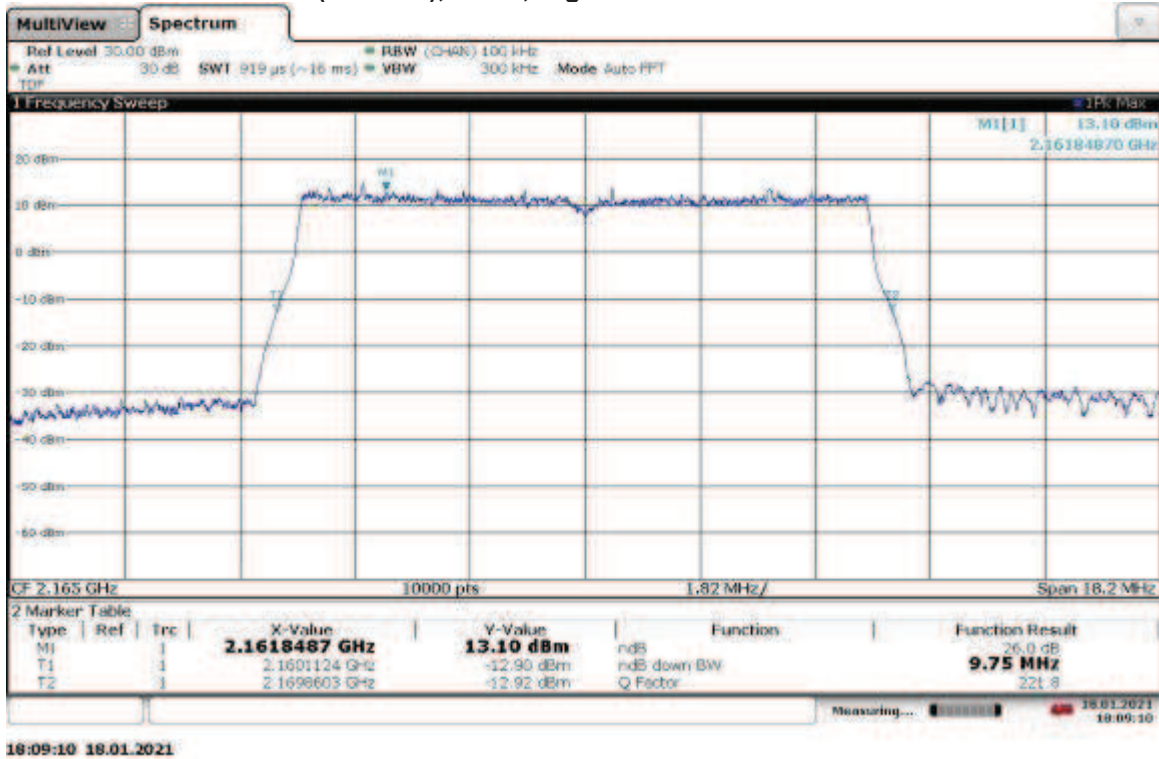
TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



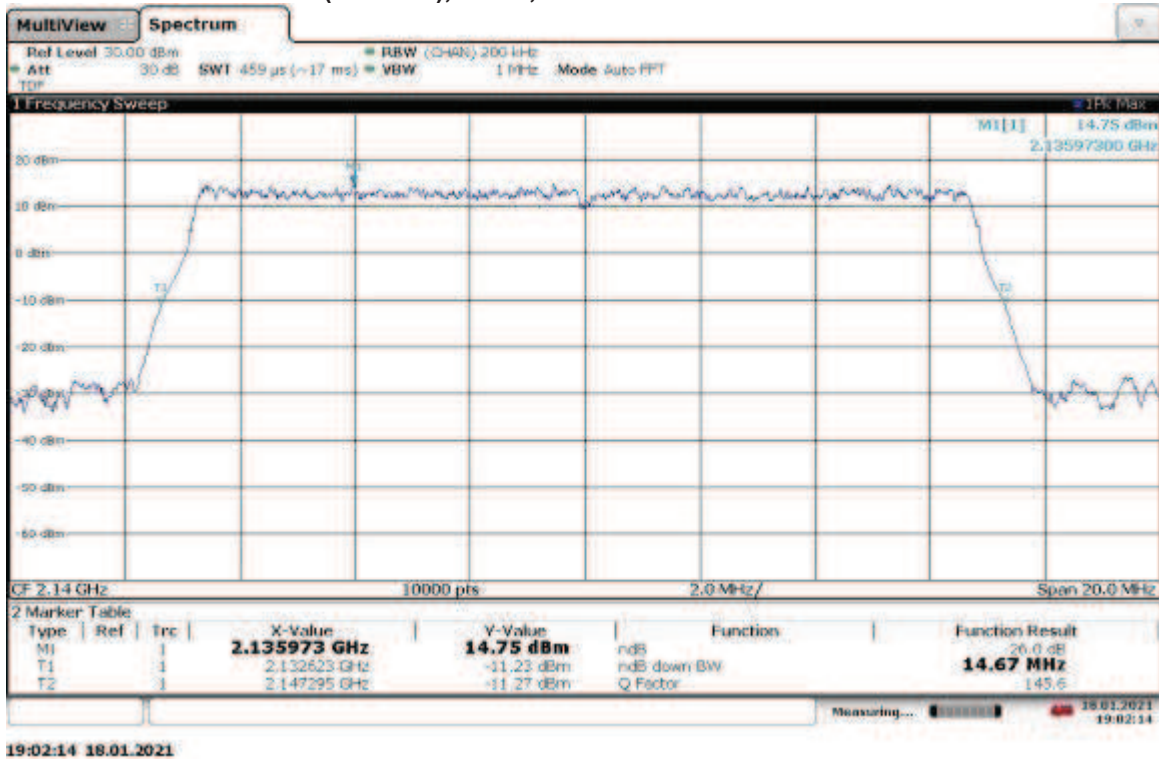
TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



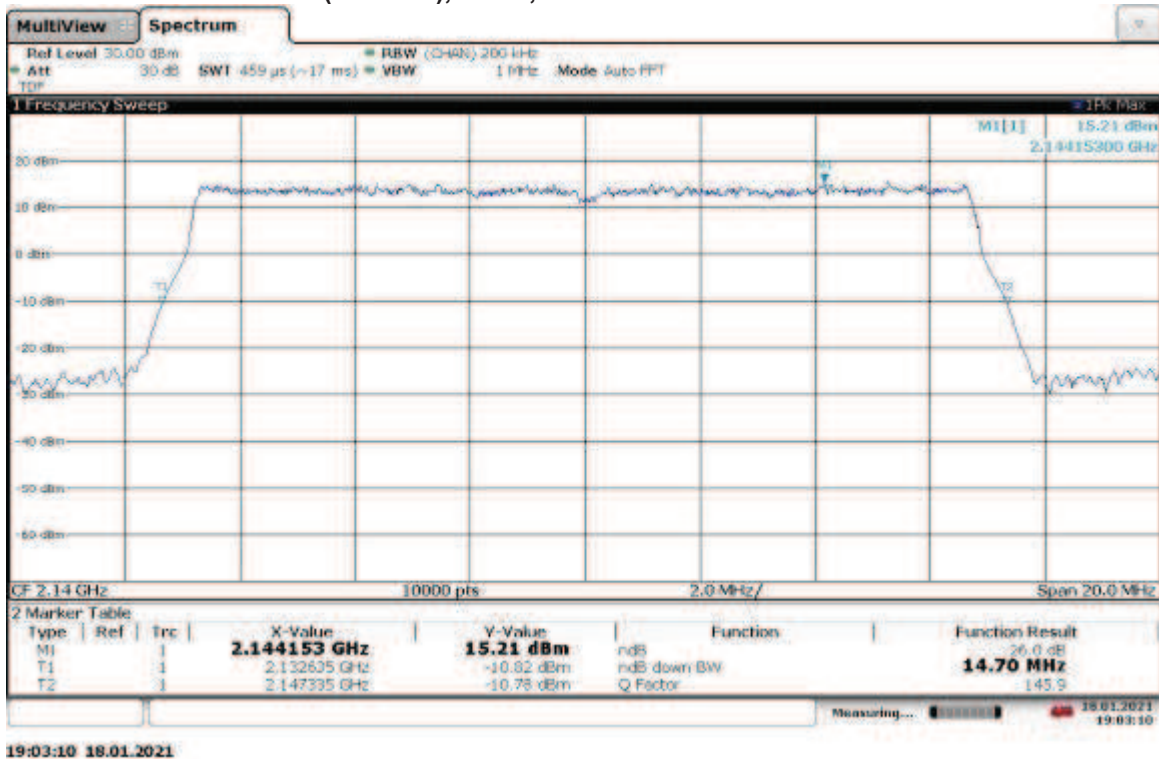
TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



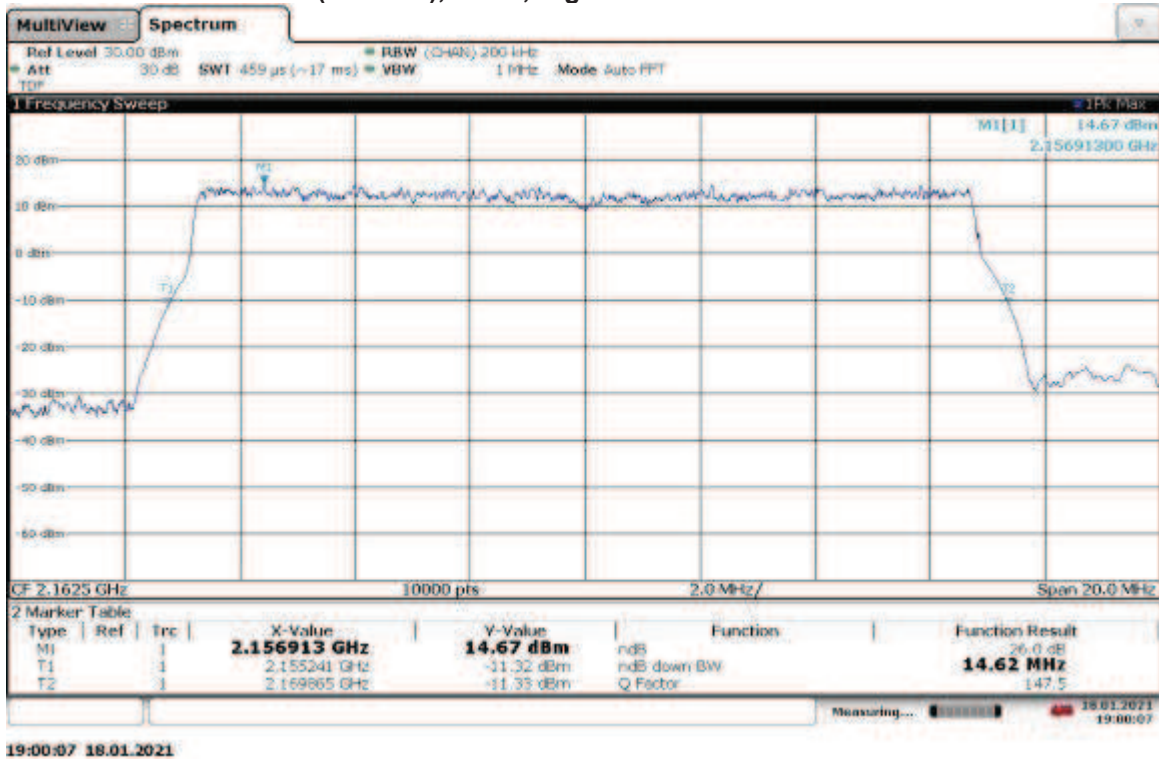
TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



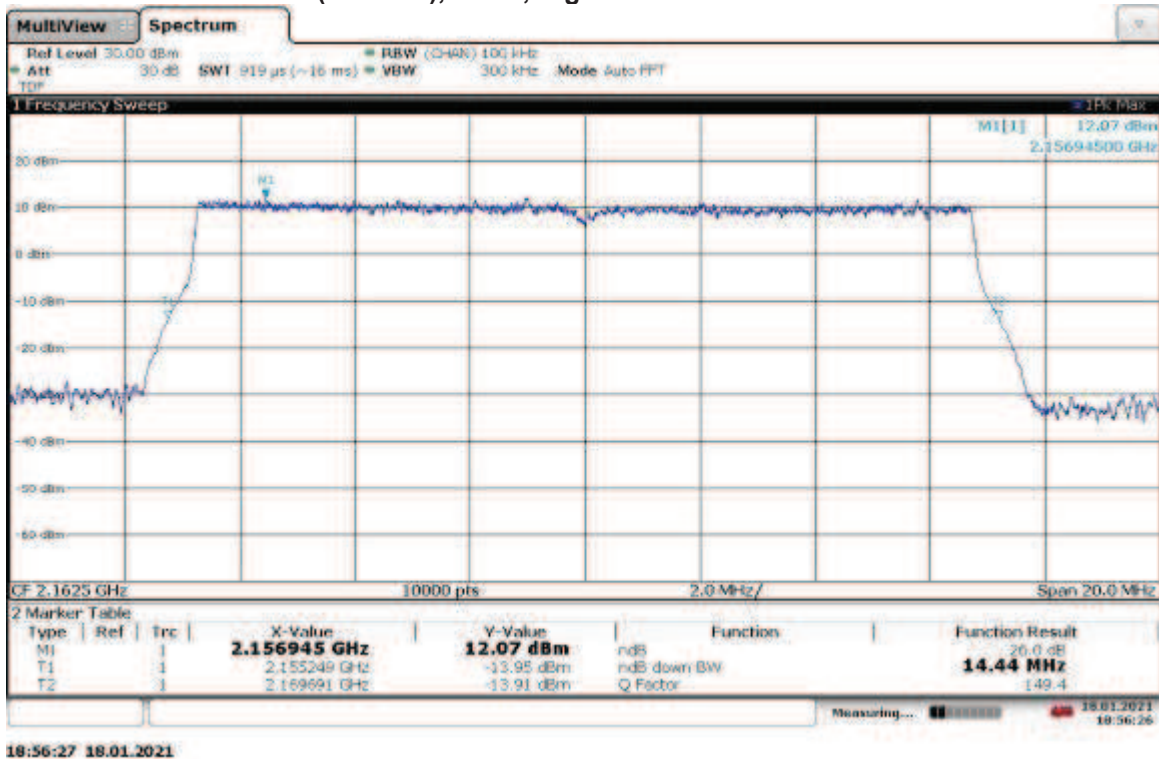
TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



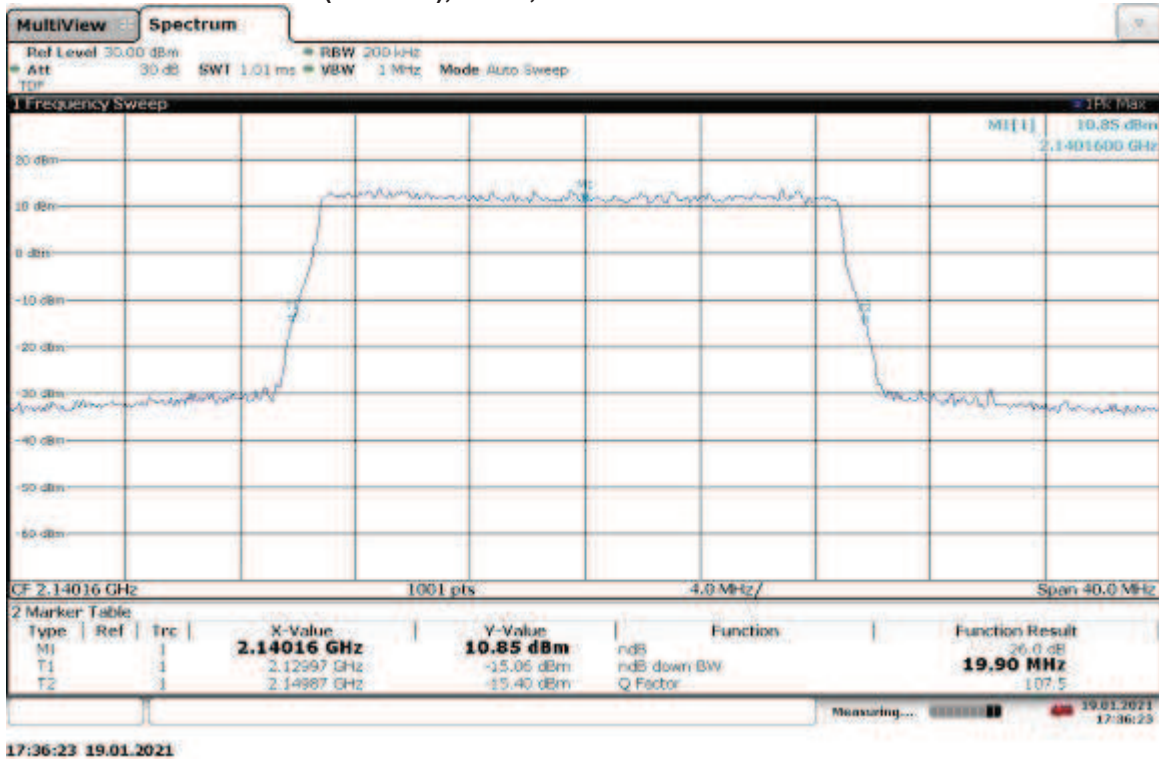
TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



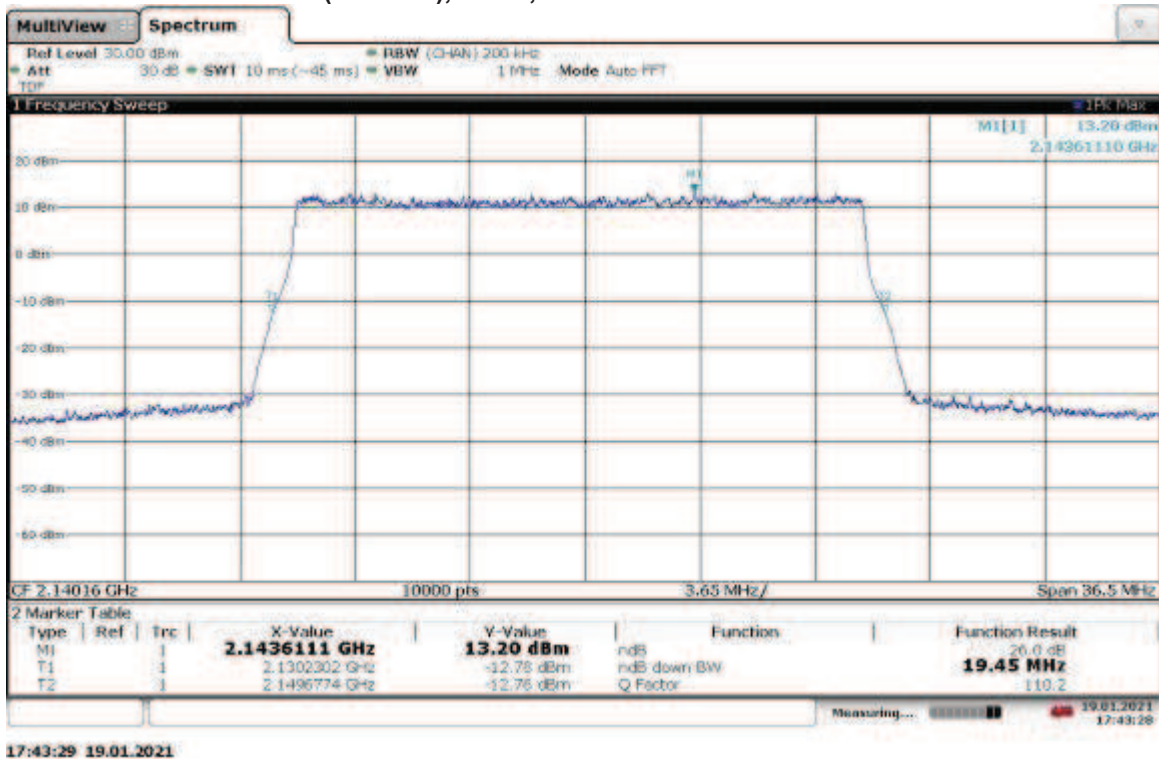
TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



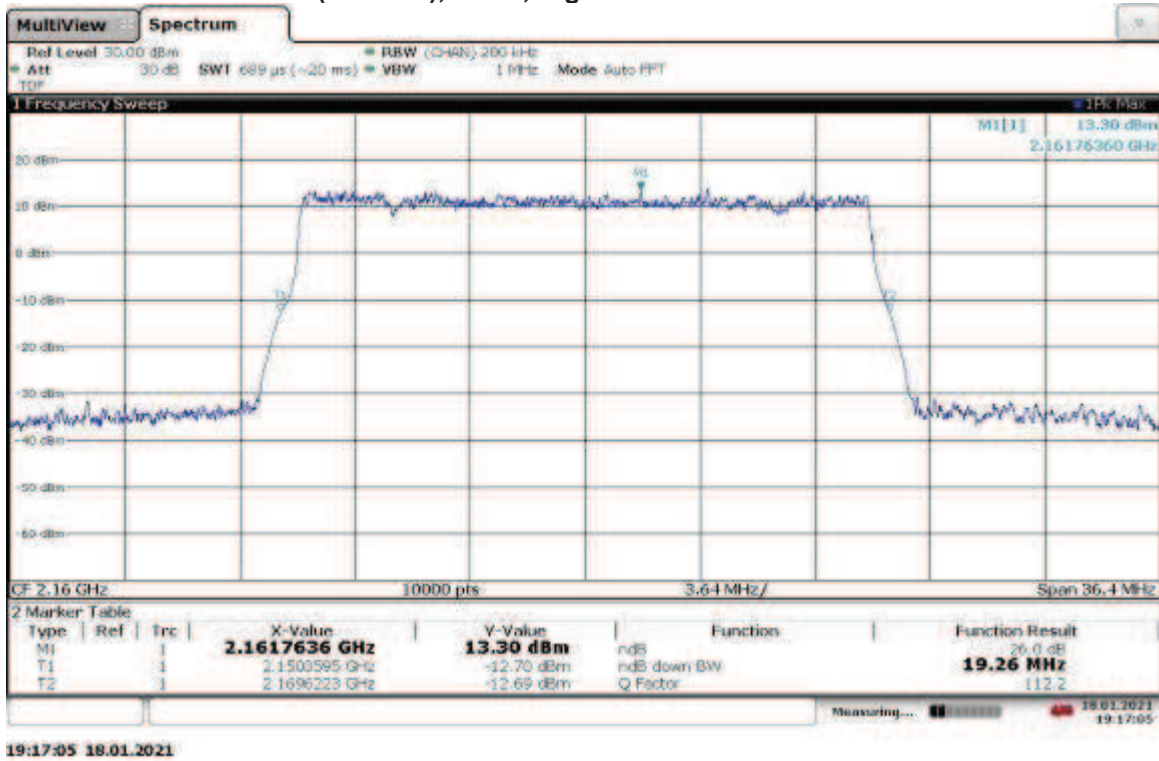
TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



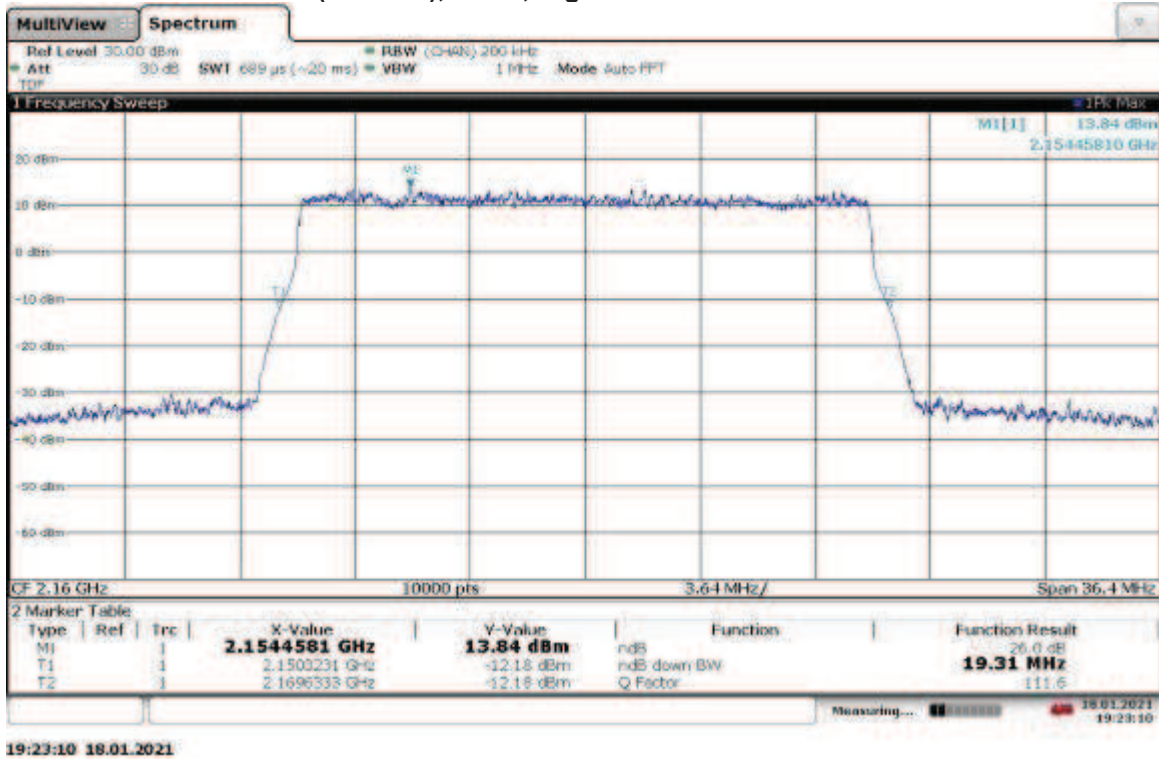
TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



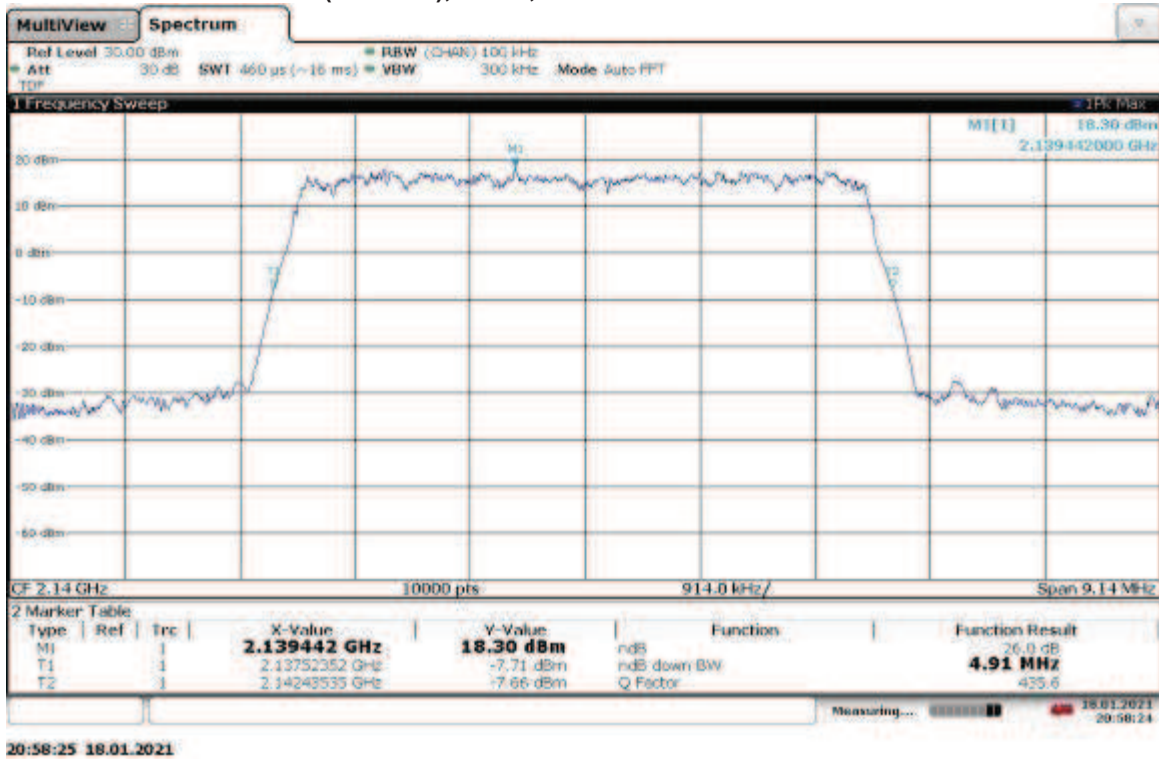
TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



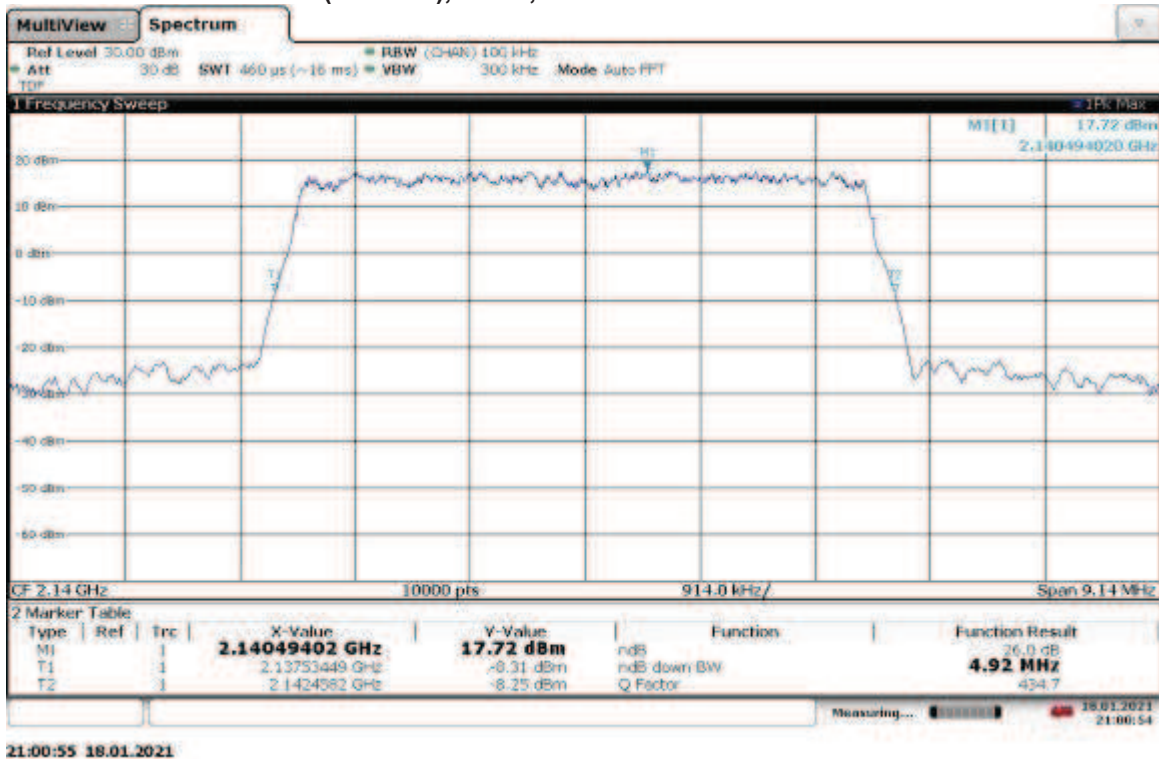
TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



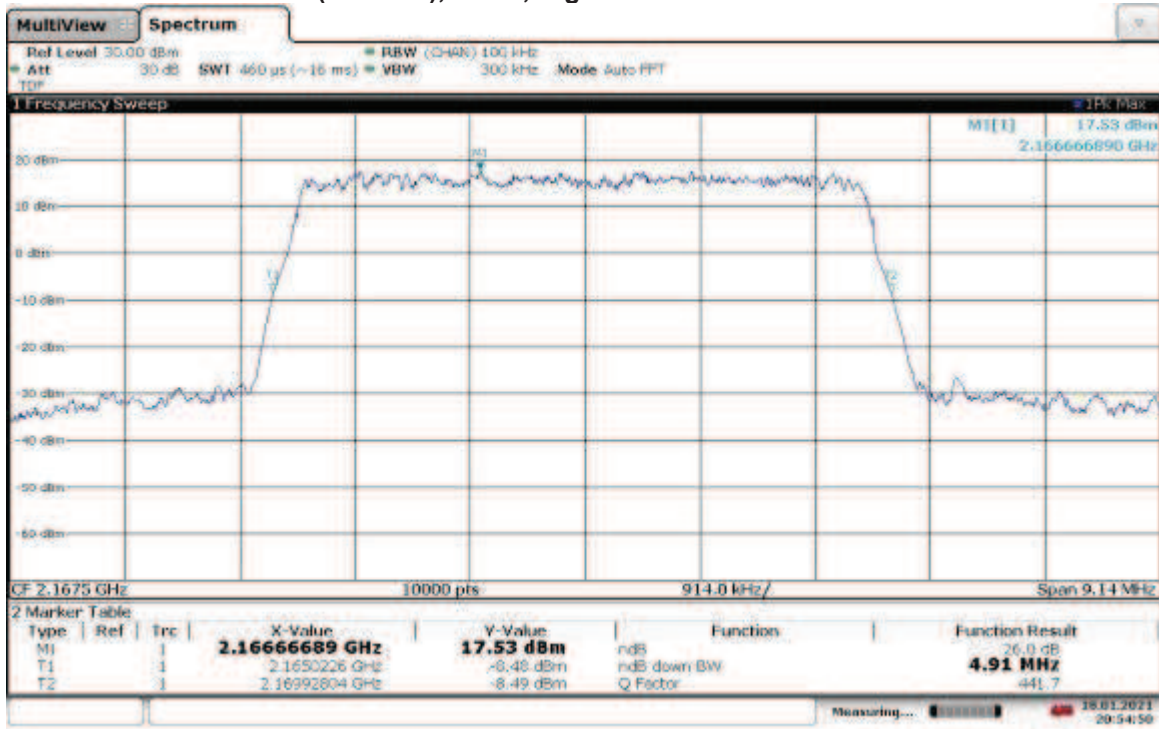
TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth

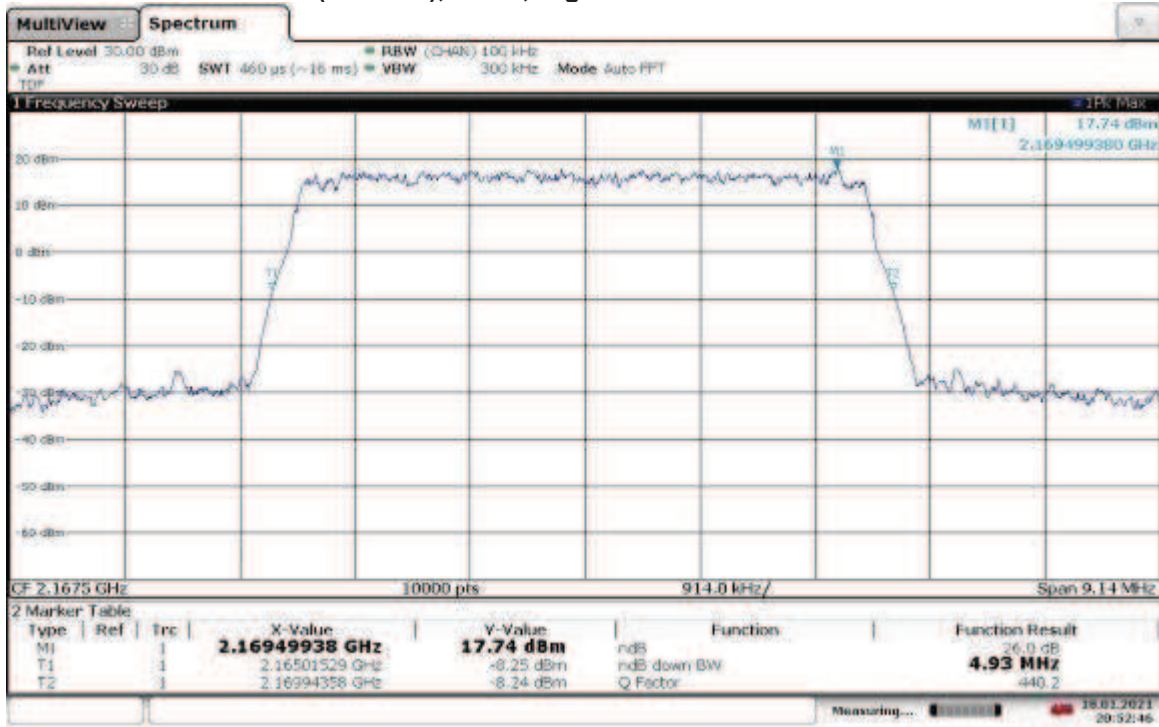


TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



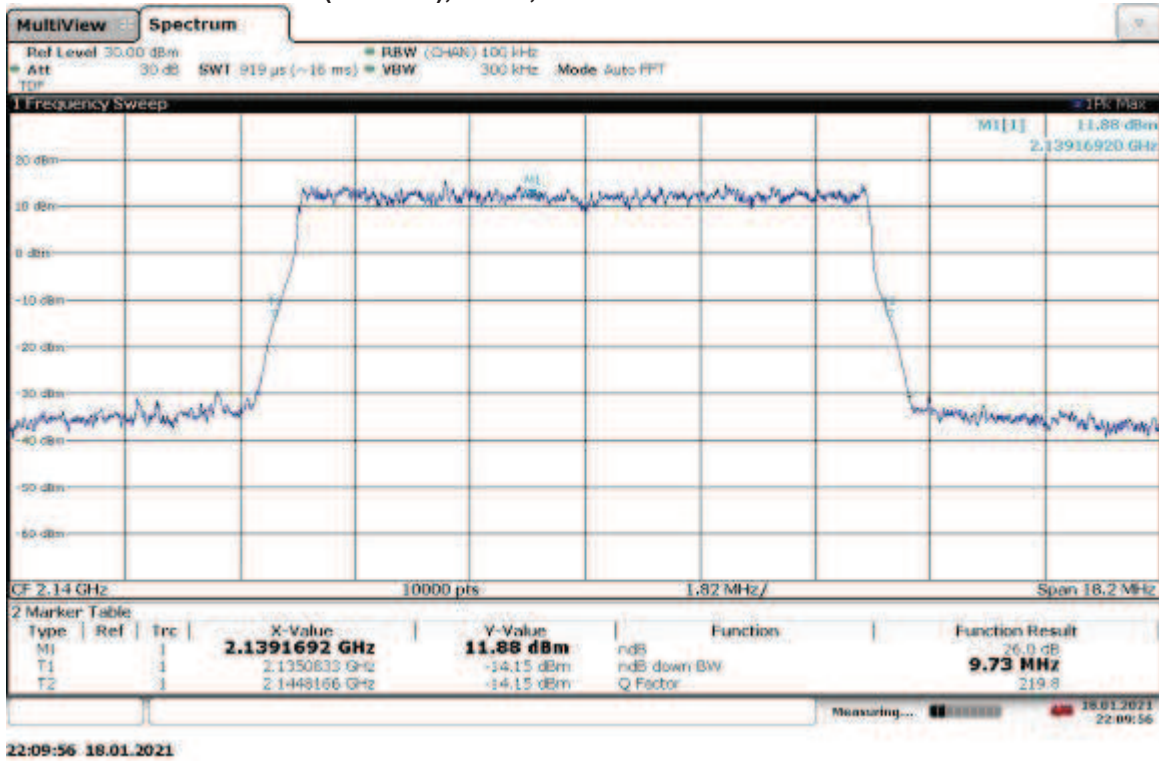
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TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth

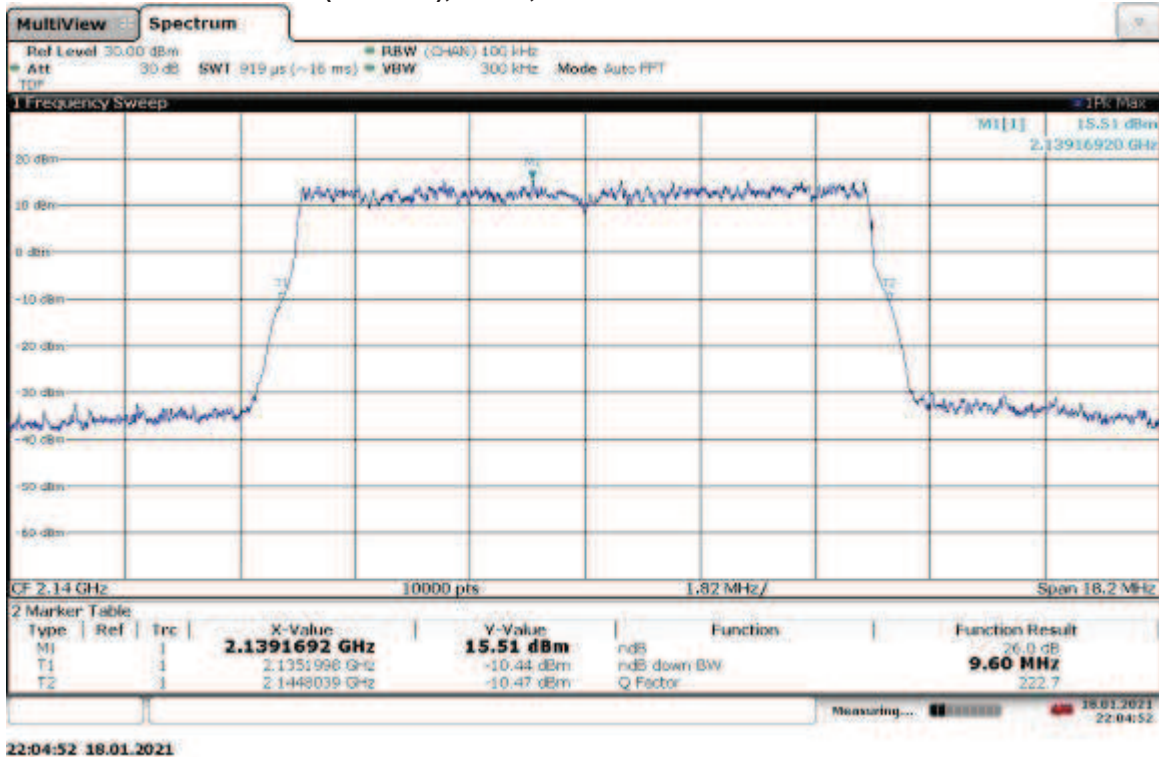


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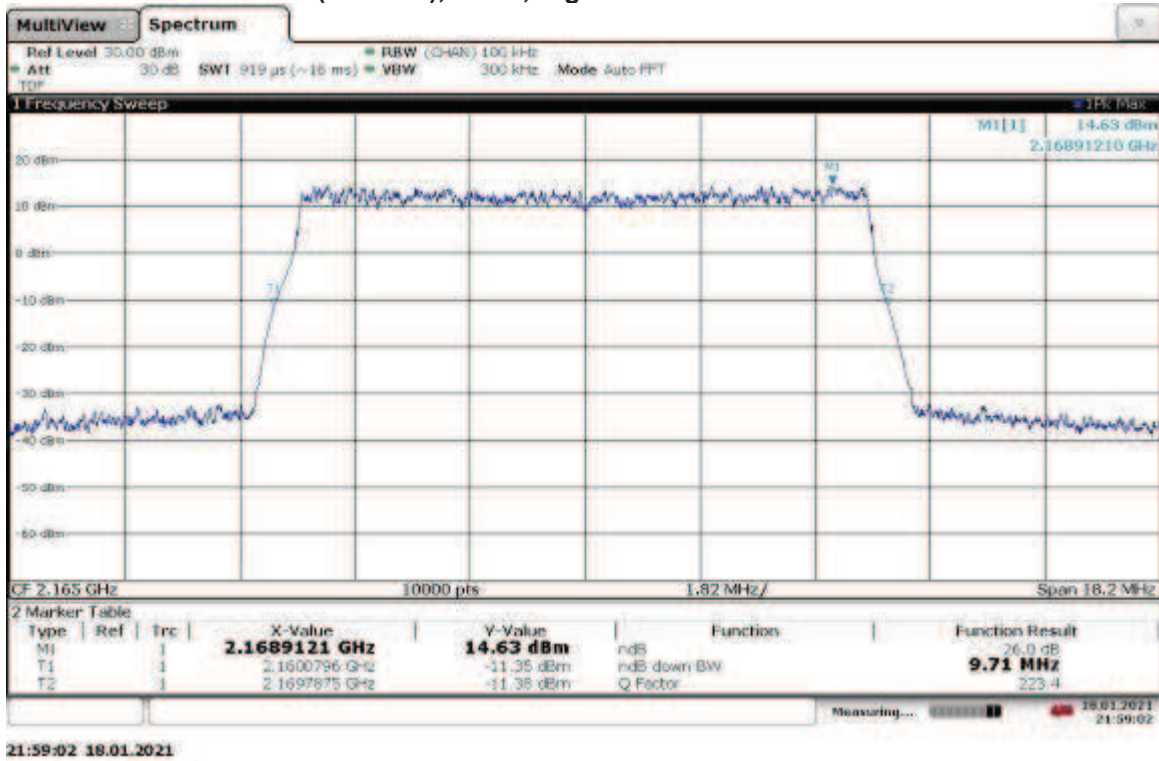
TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



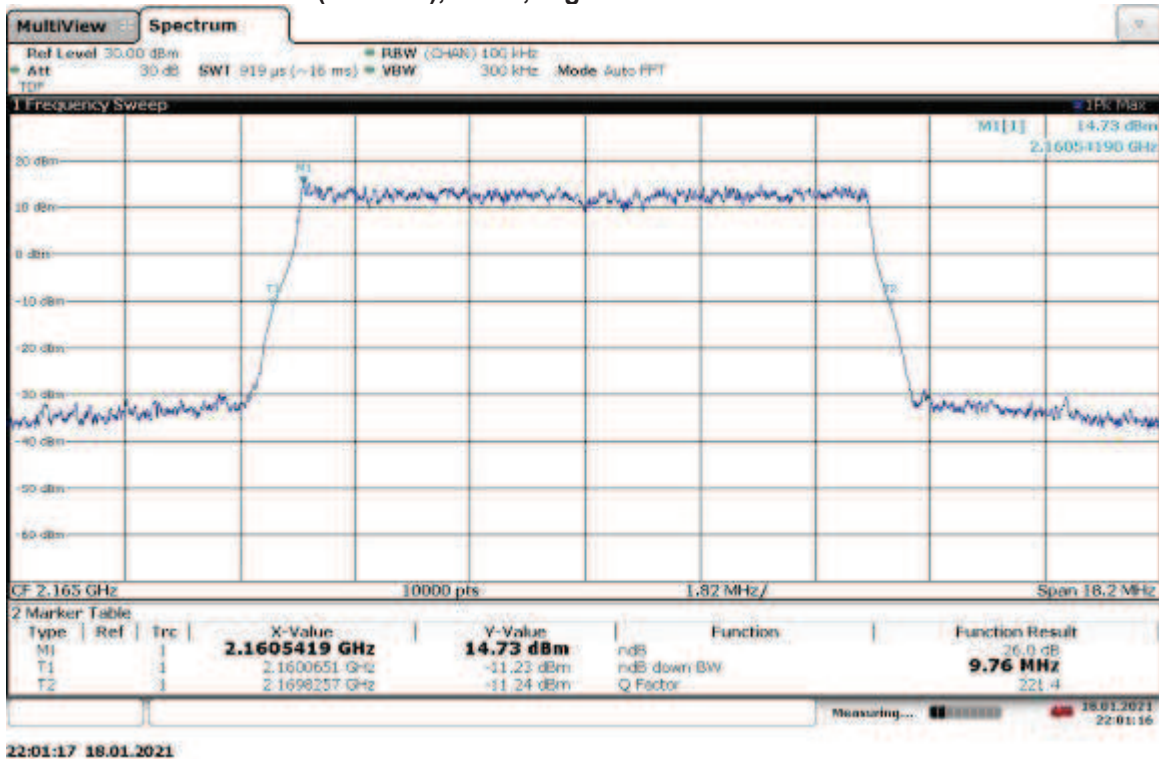
TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



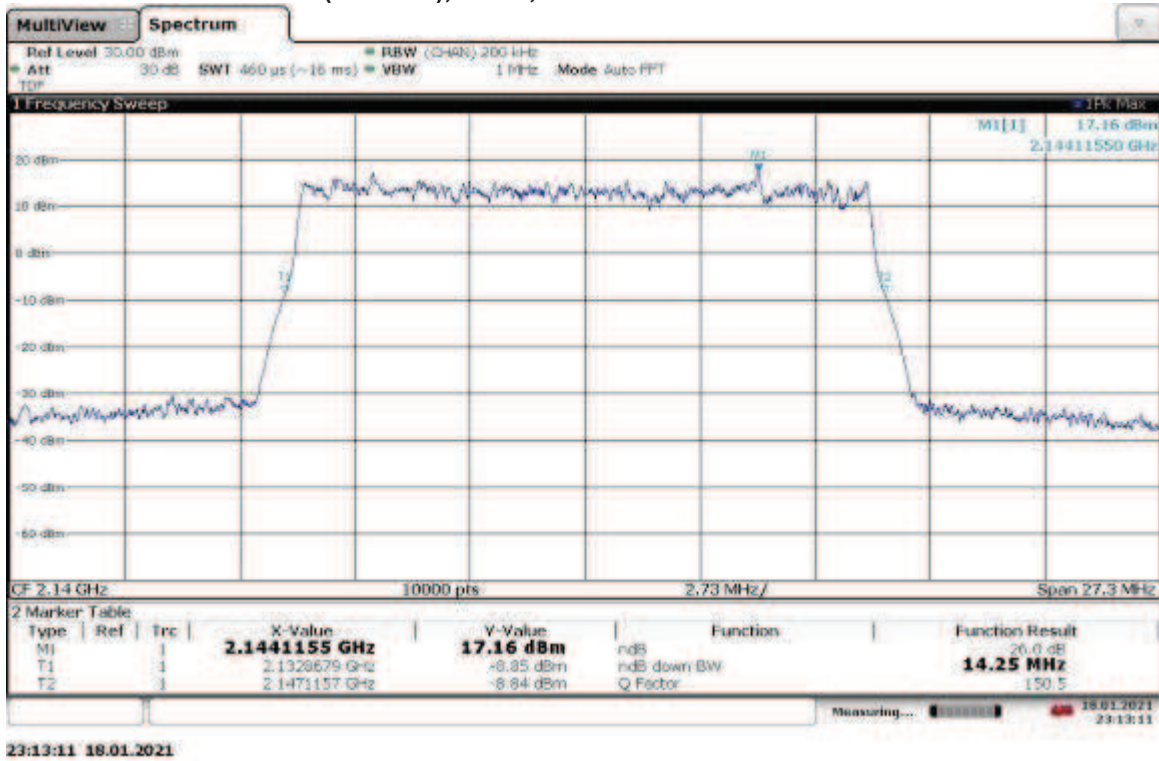
TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



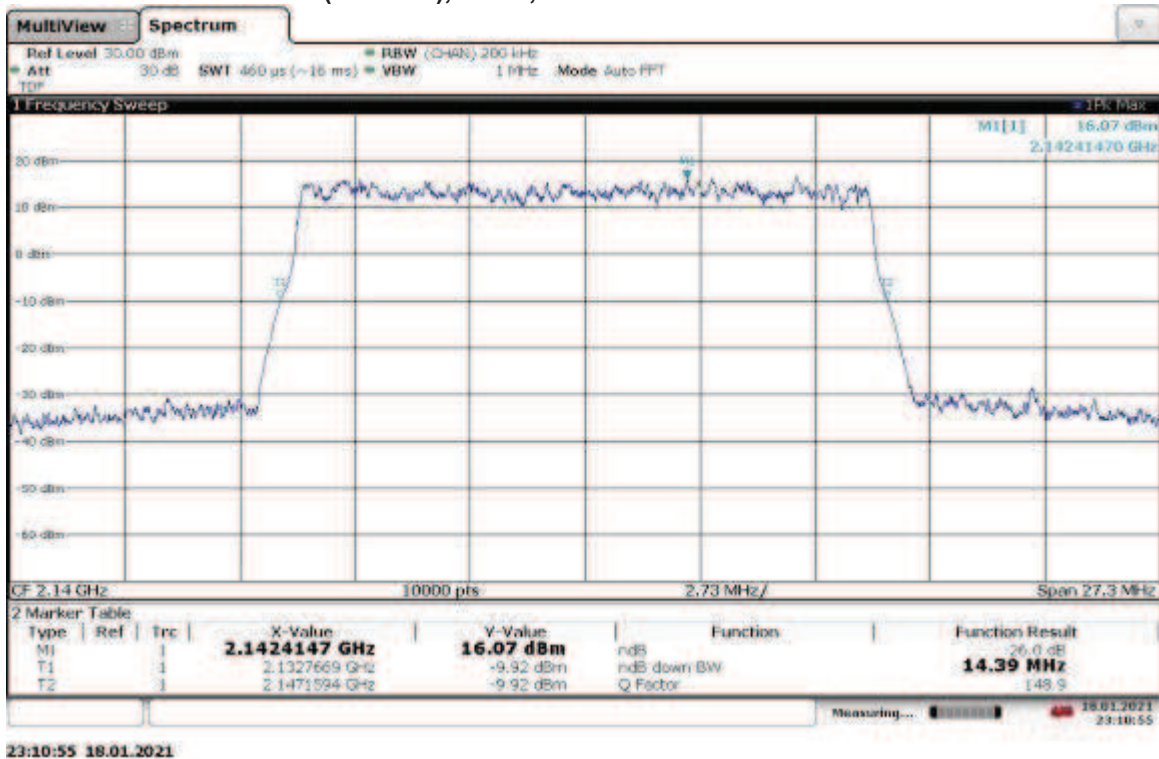
TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



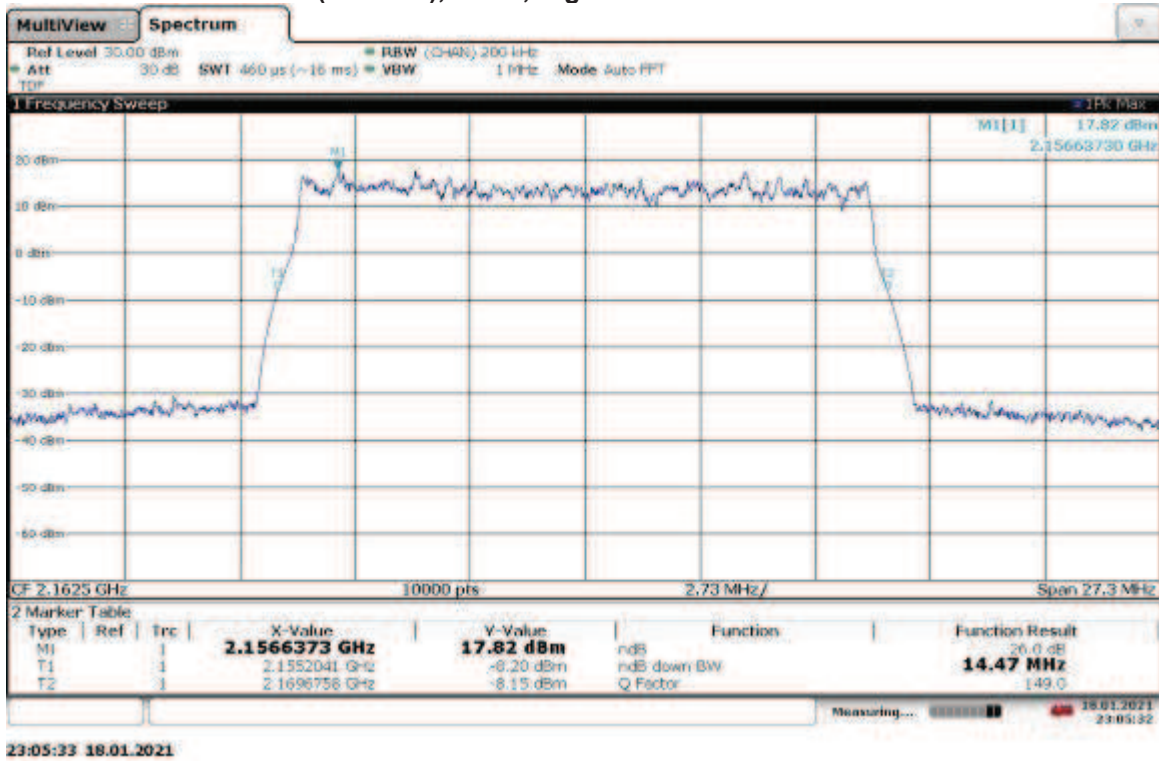
TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



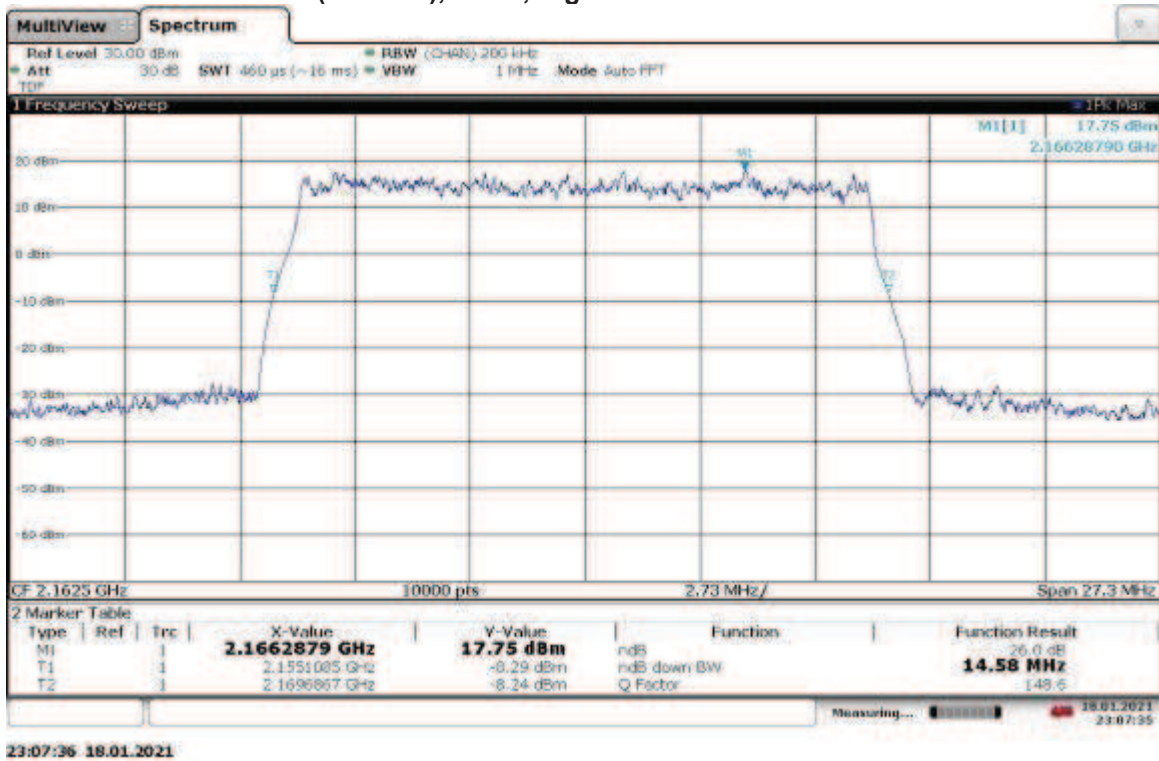
TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



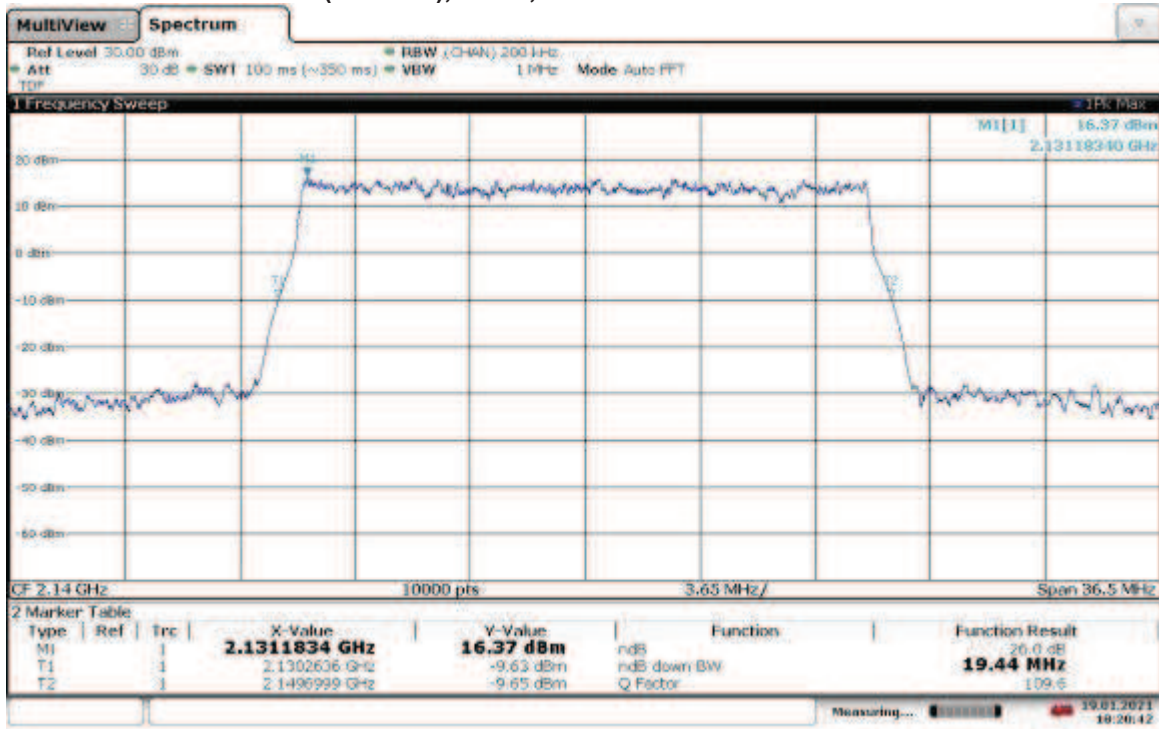
TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth

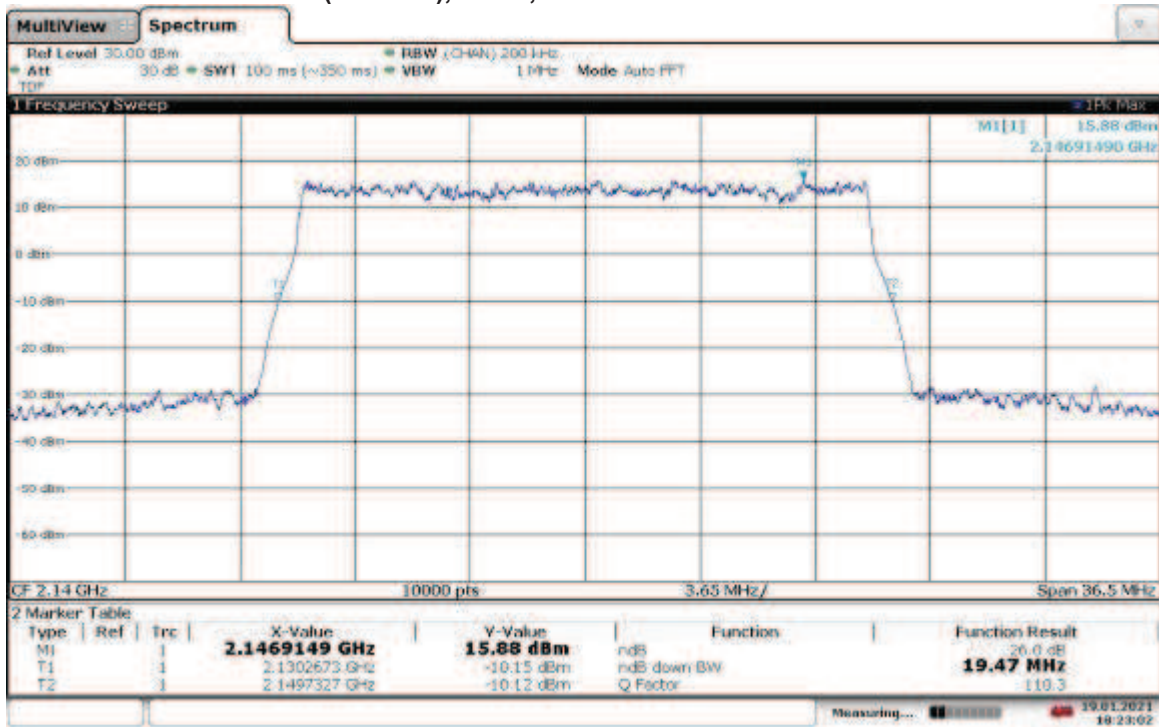


TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



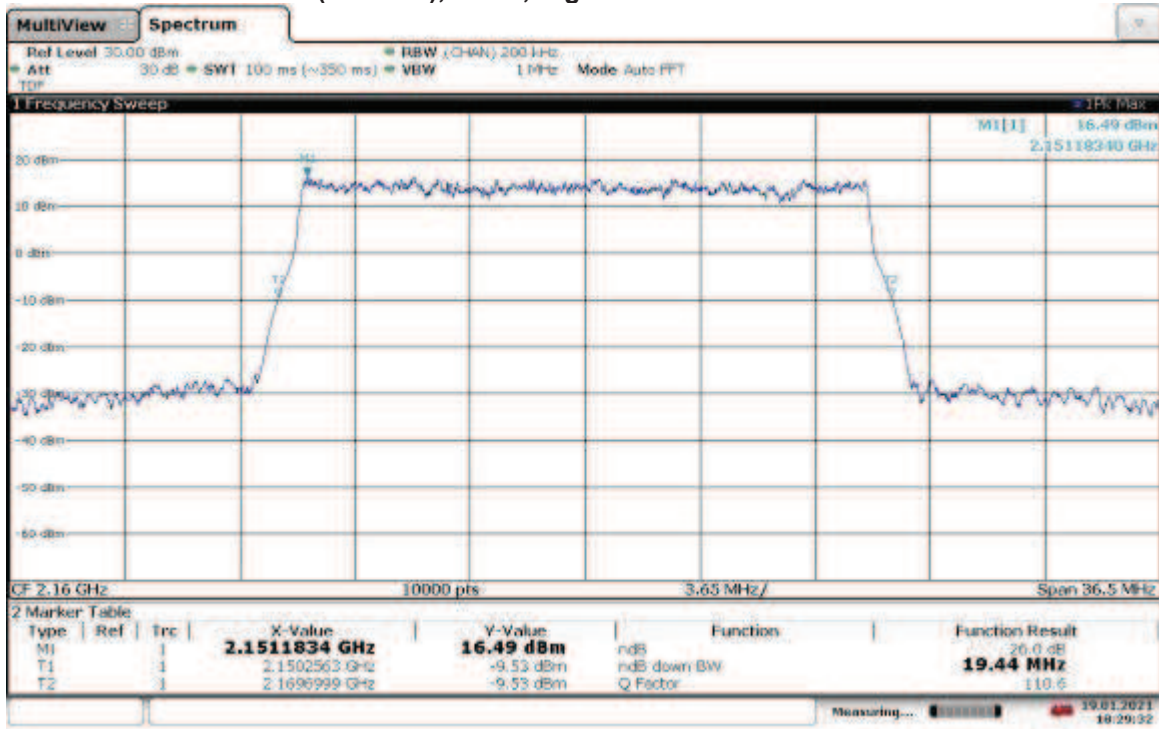
19:20:42 19.01.2021

TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



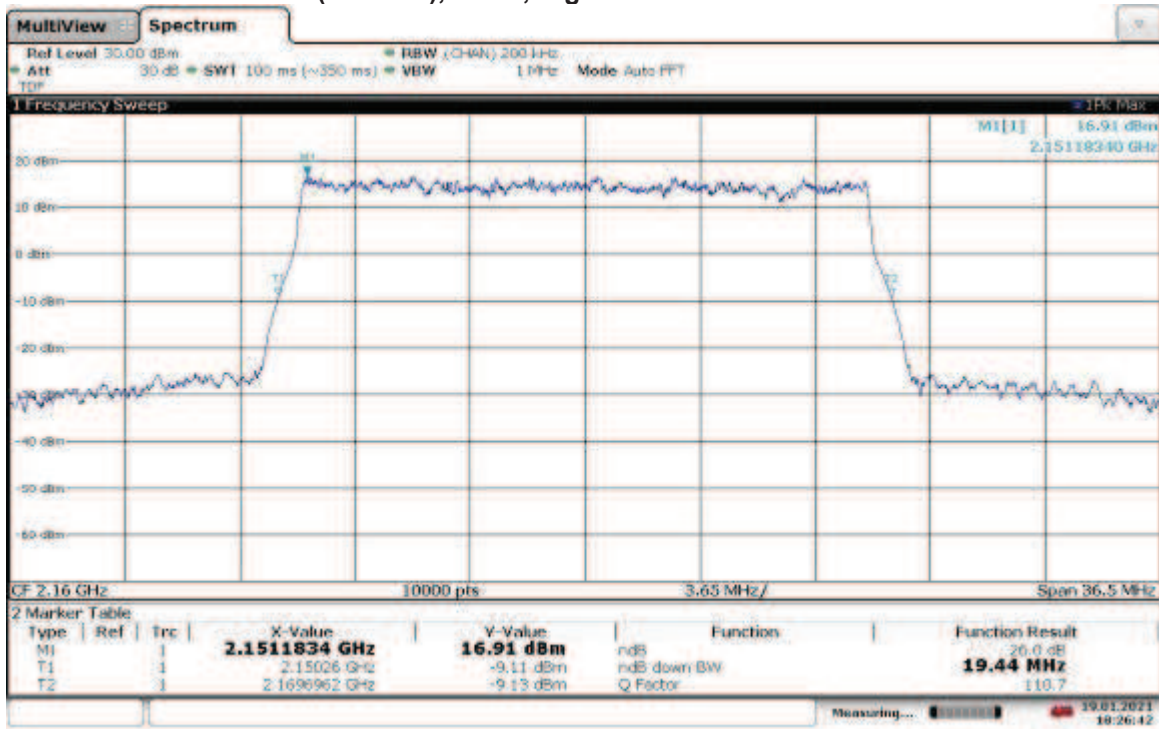
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TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



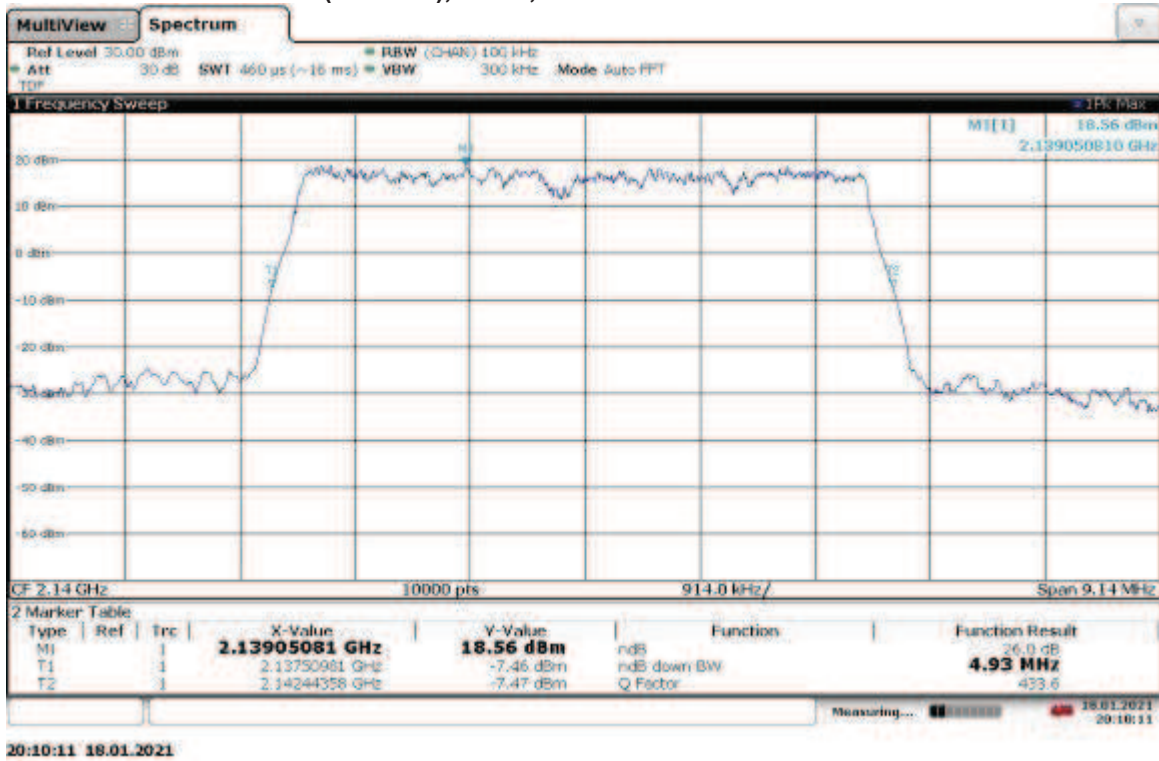
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TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth

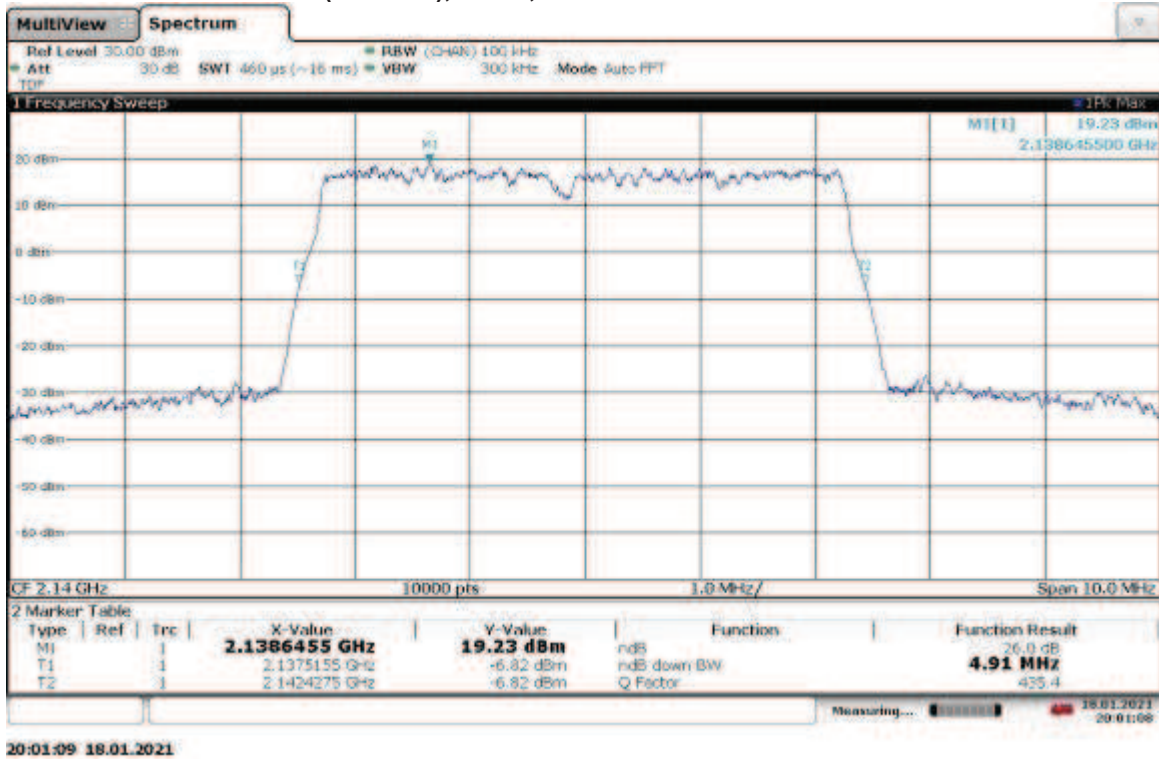


19:26:42 19.01.2021

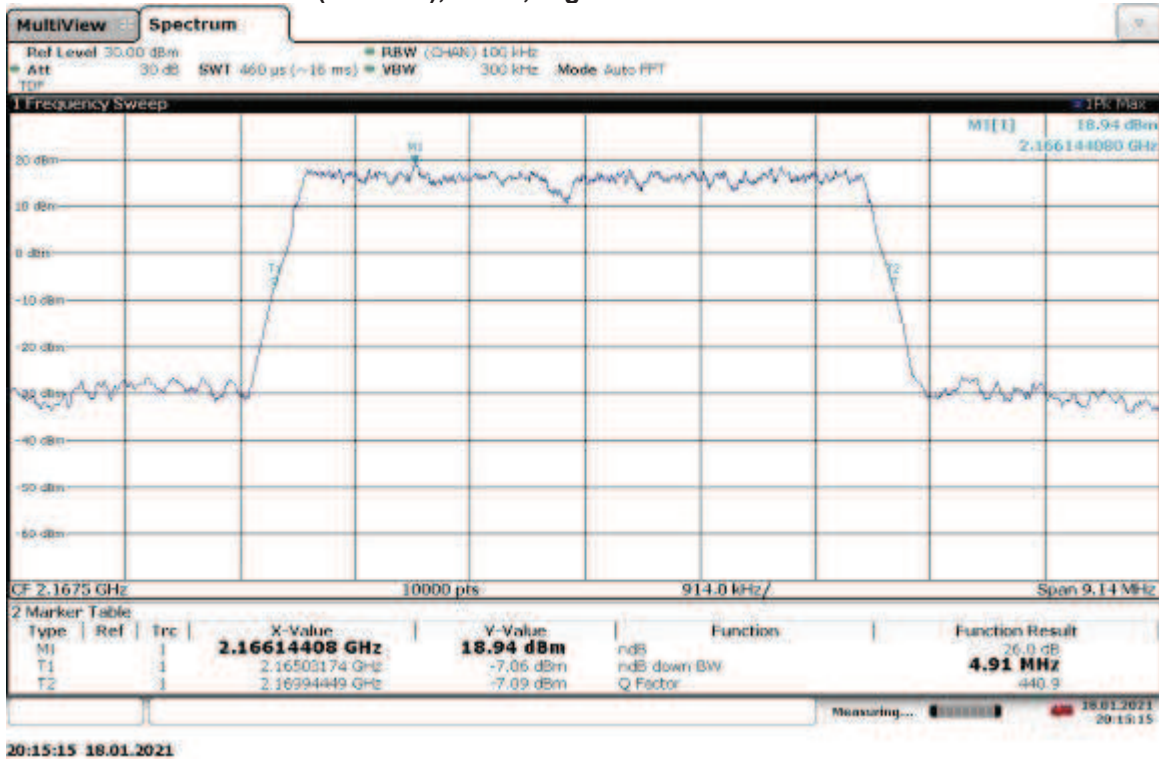
TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



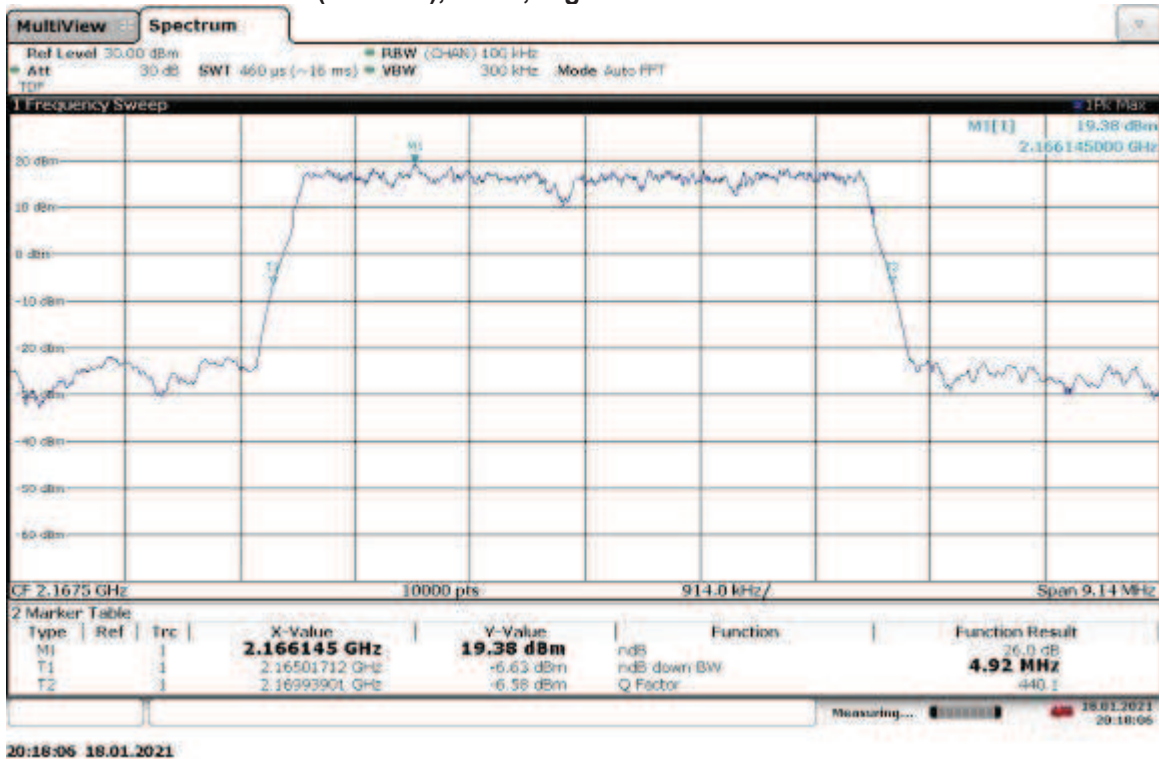
TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



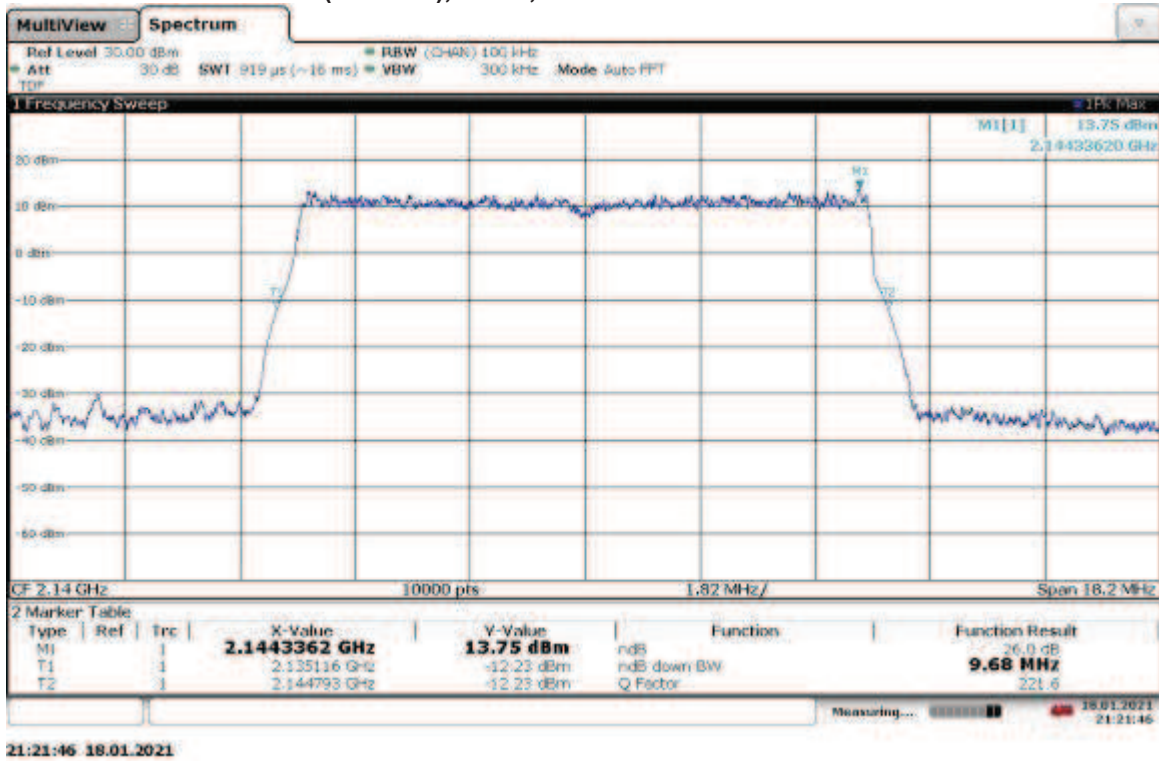
TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



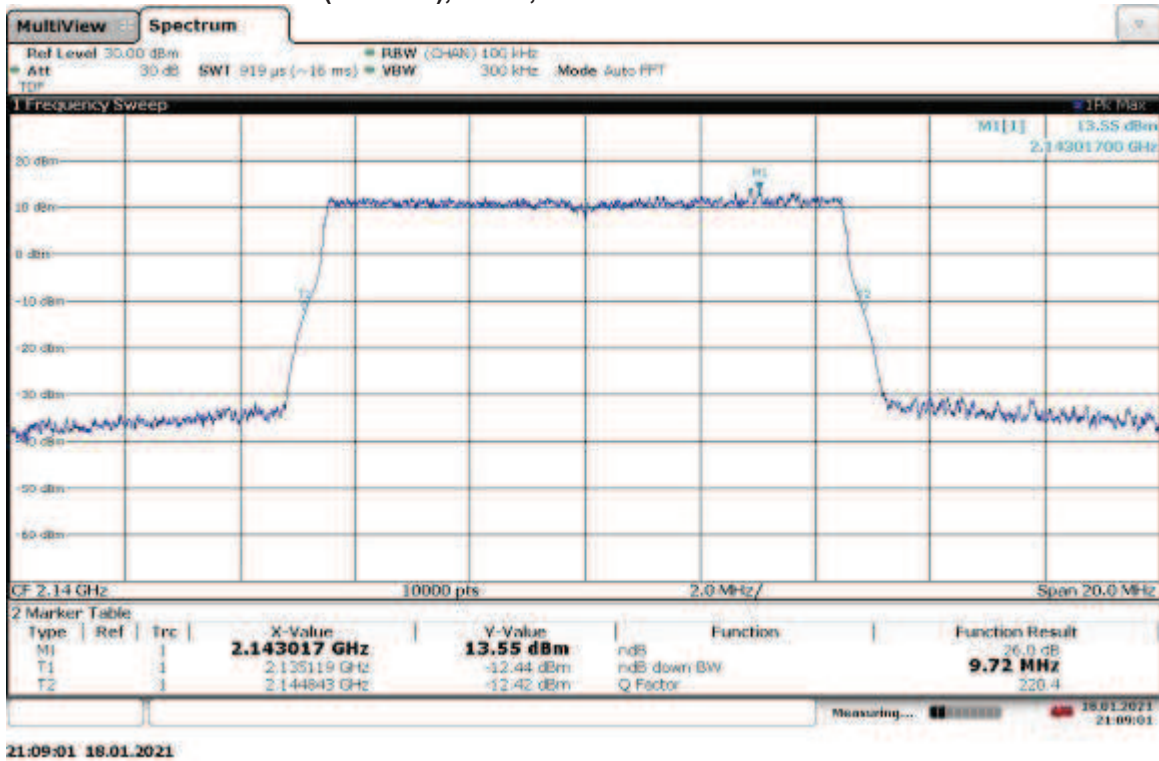
TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



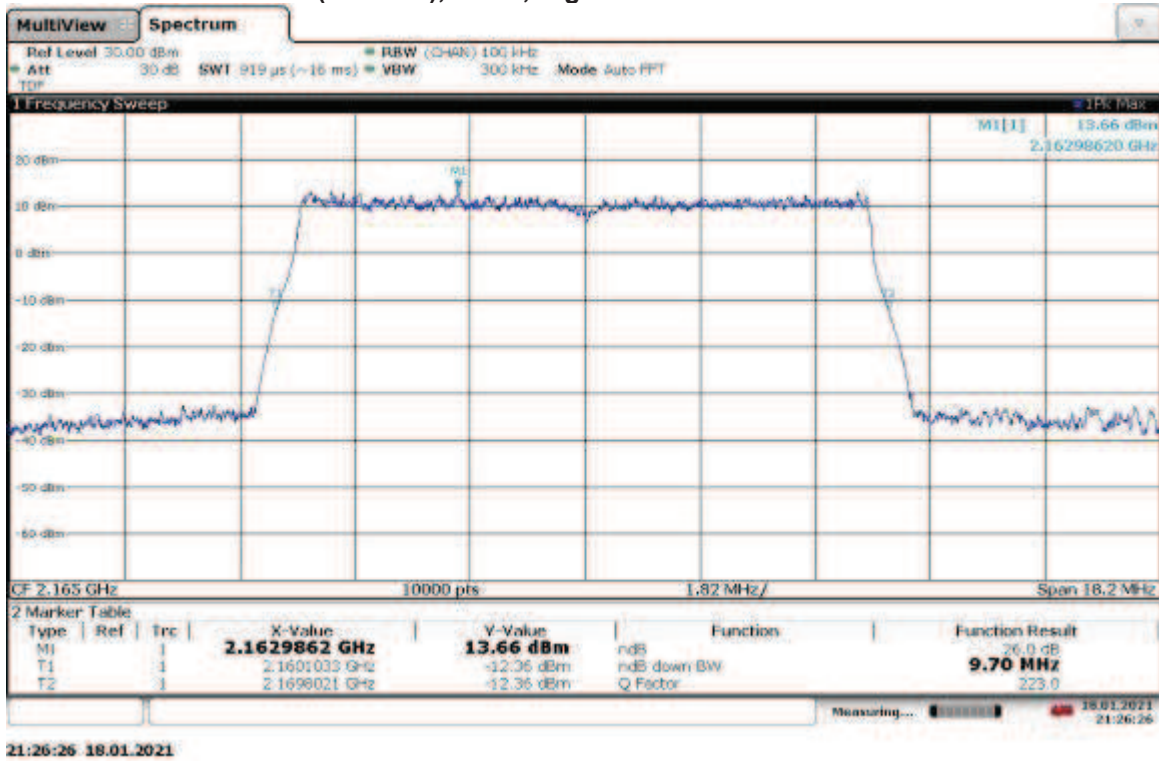
TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



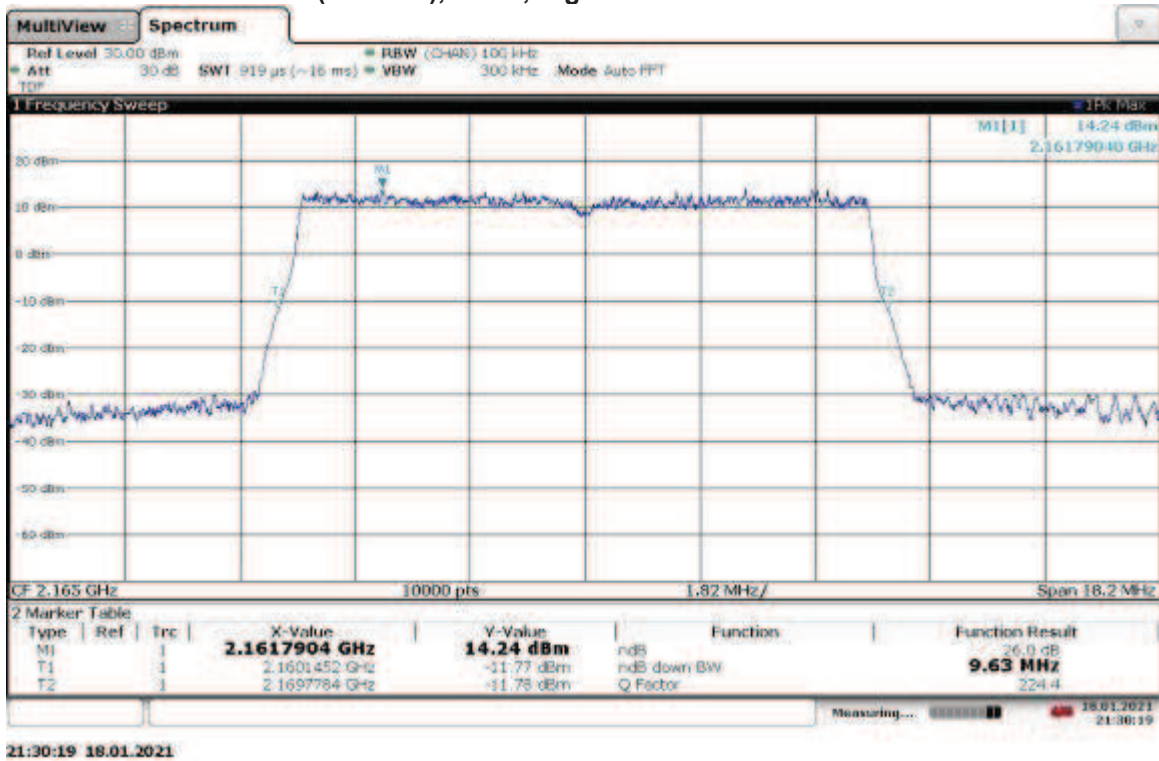
TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



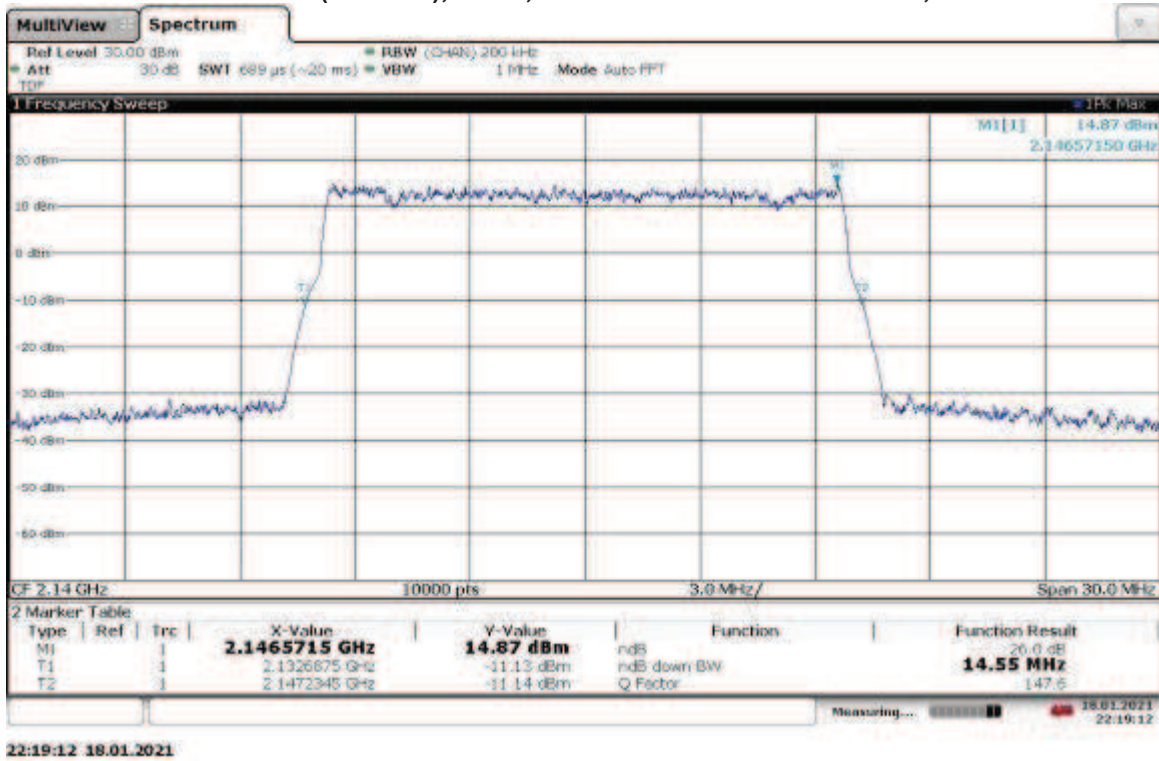
TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



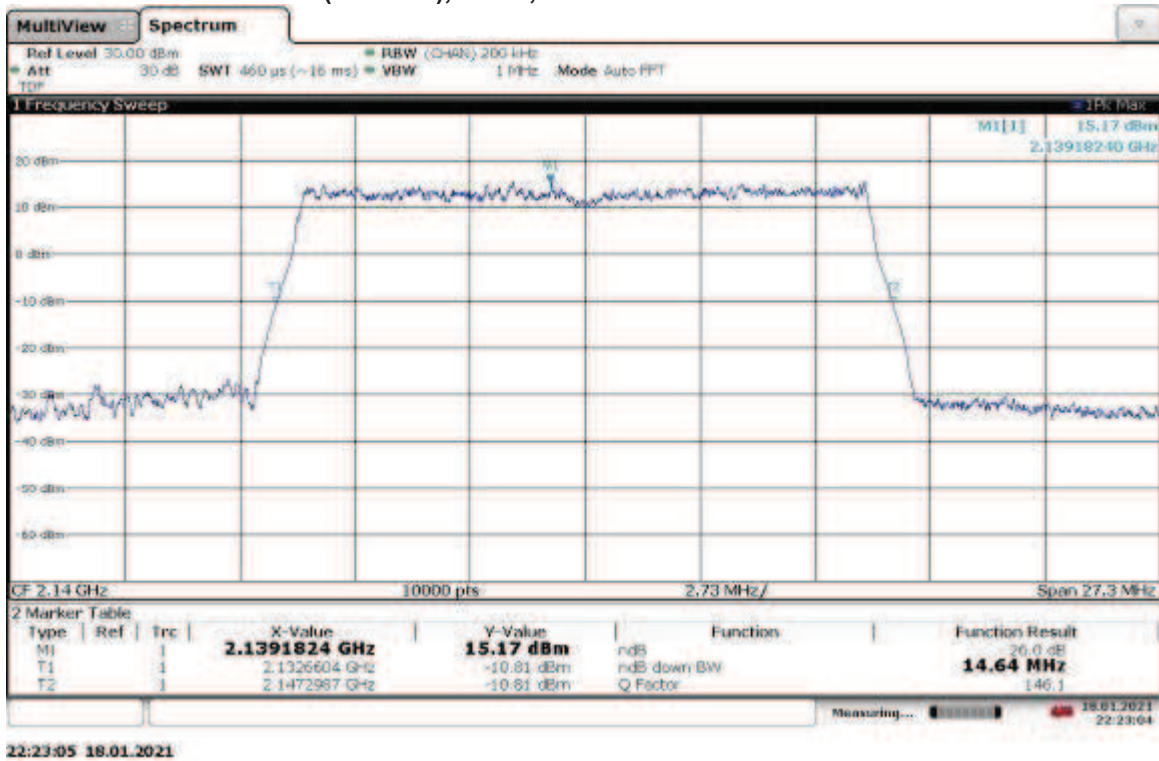
TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



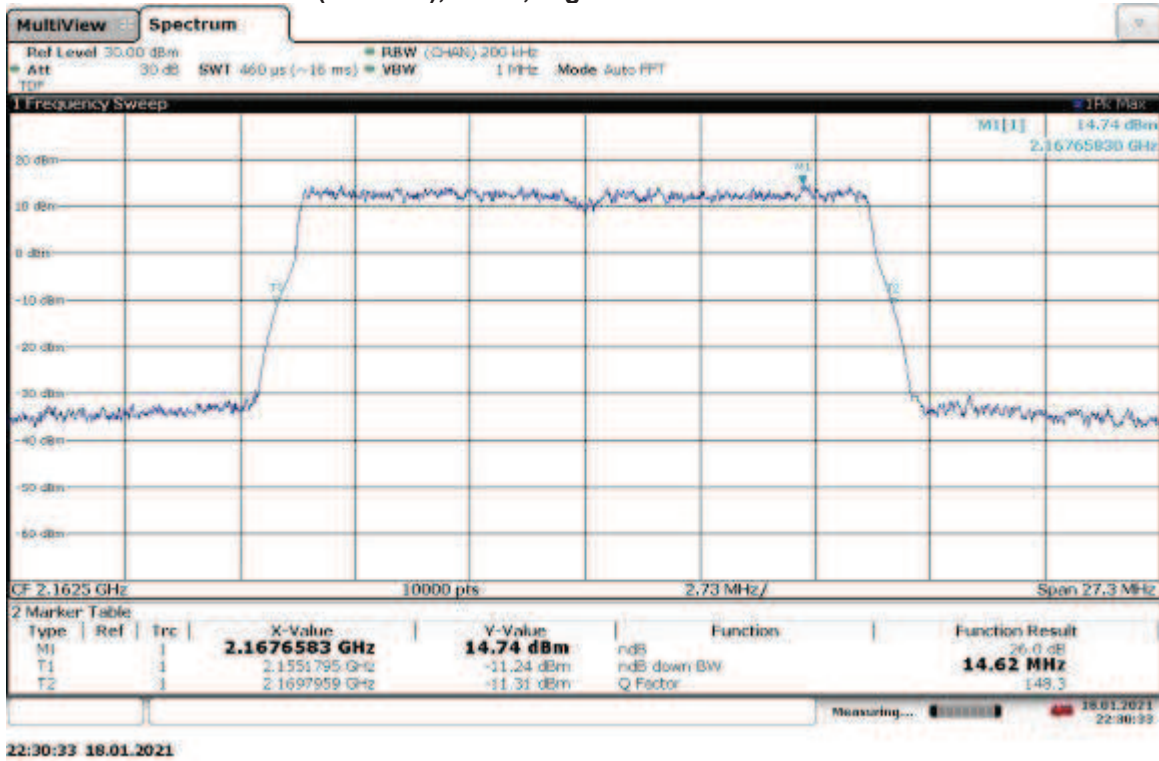
TM3.1-64QAM_15 MHz Bandwidth
Slot 1 (Band 10), ANT0, Mid Channel 26 dB Bandwidth,



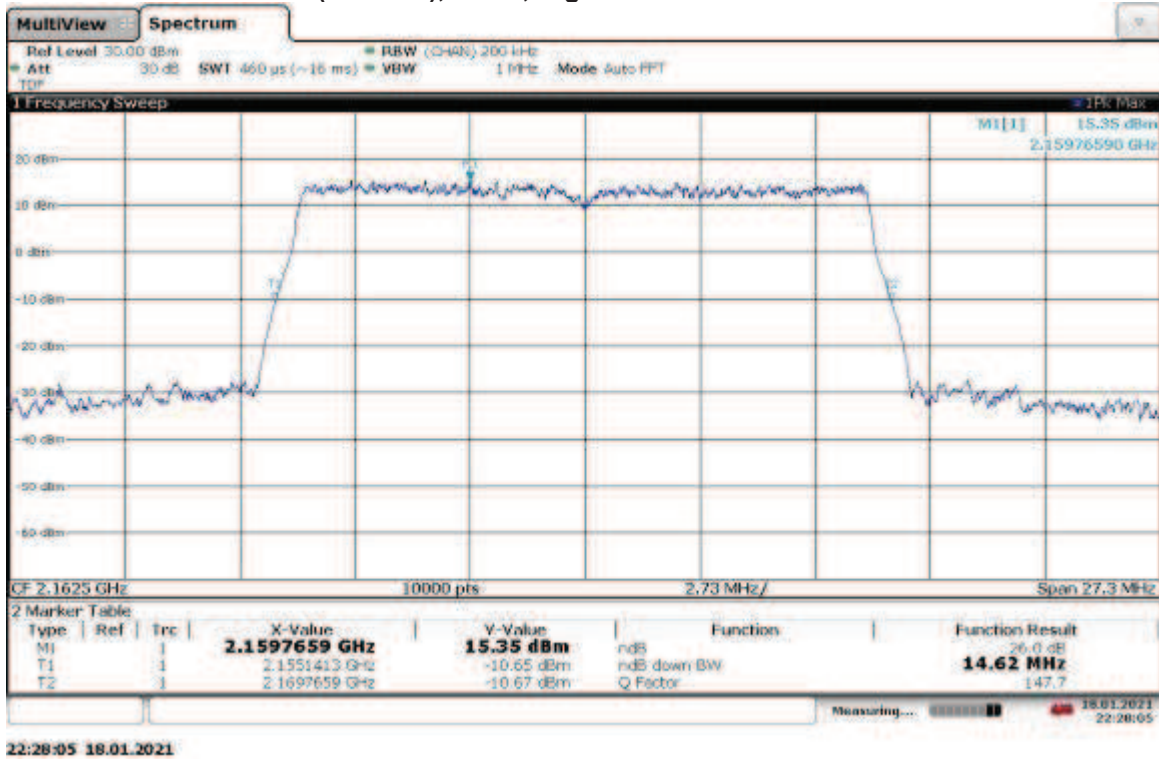
TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



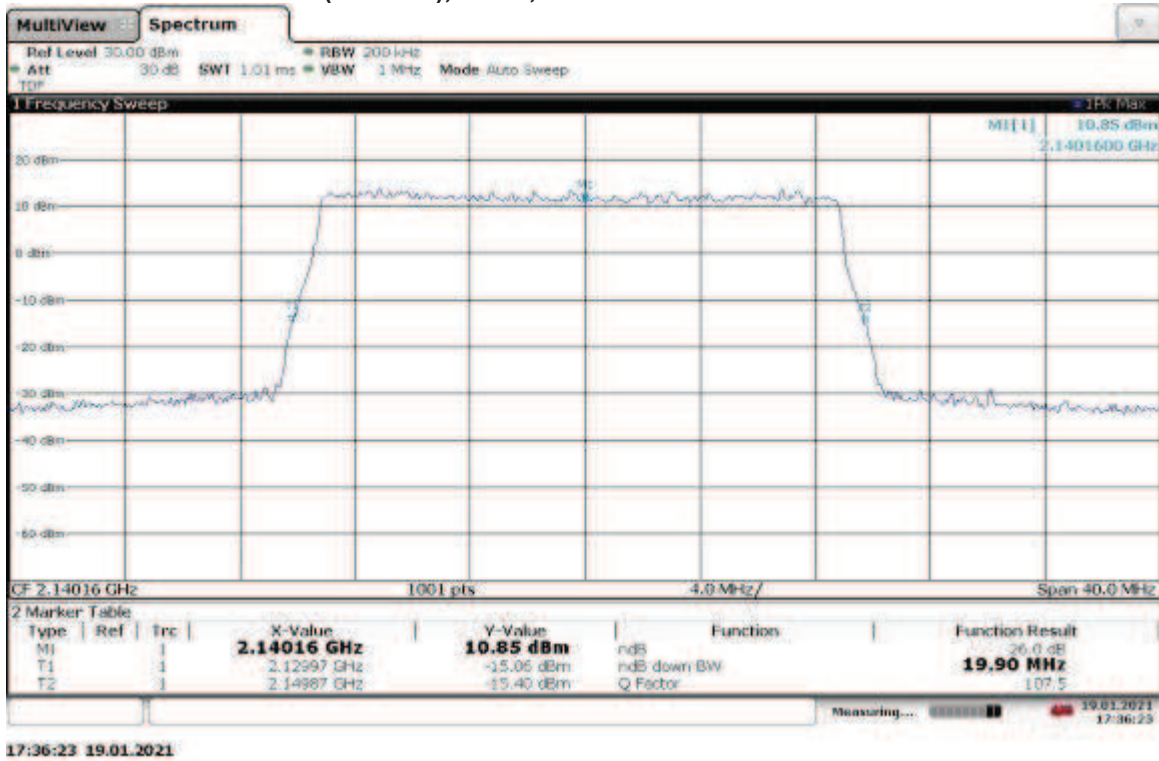
TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



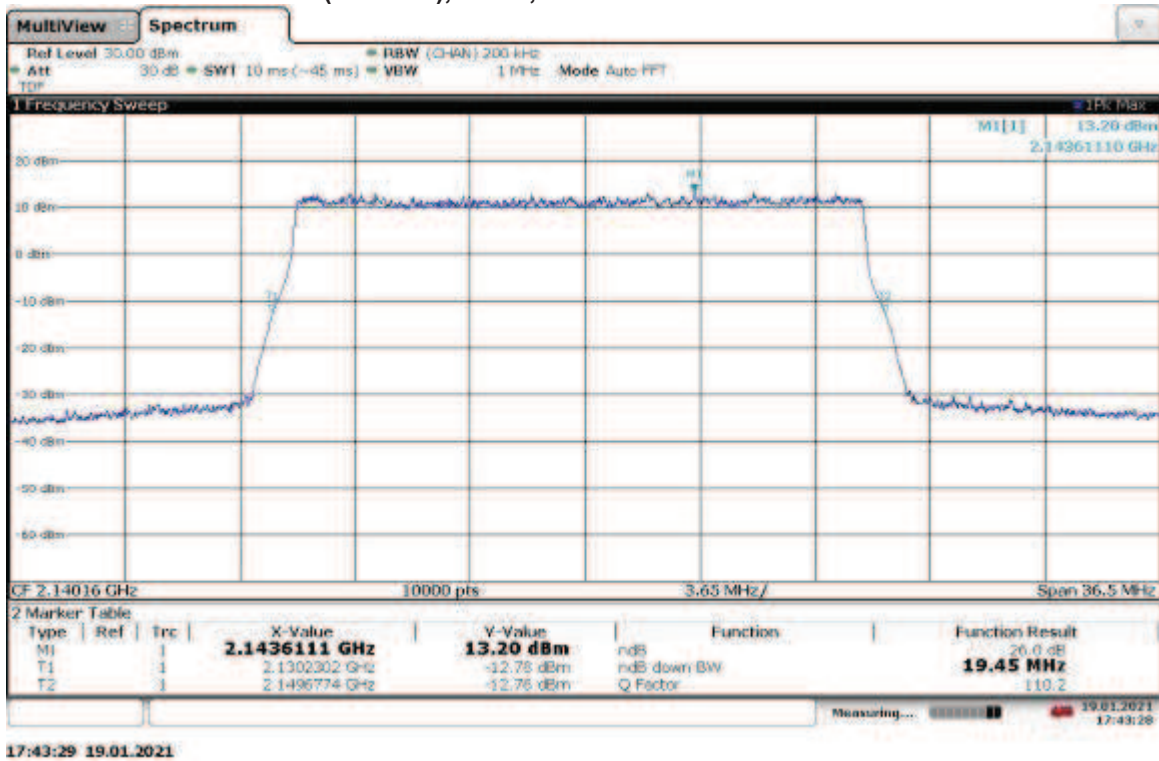
TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



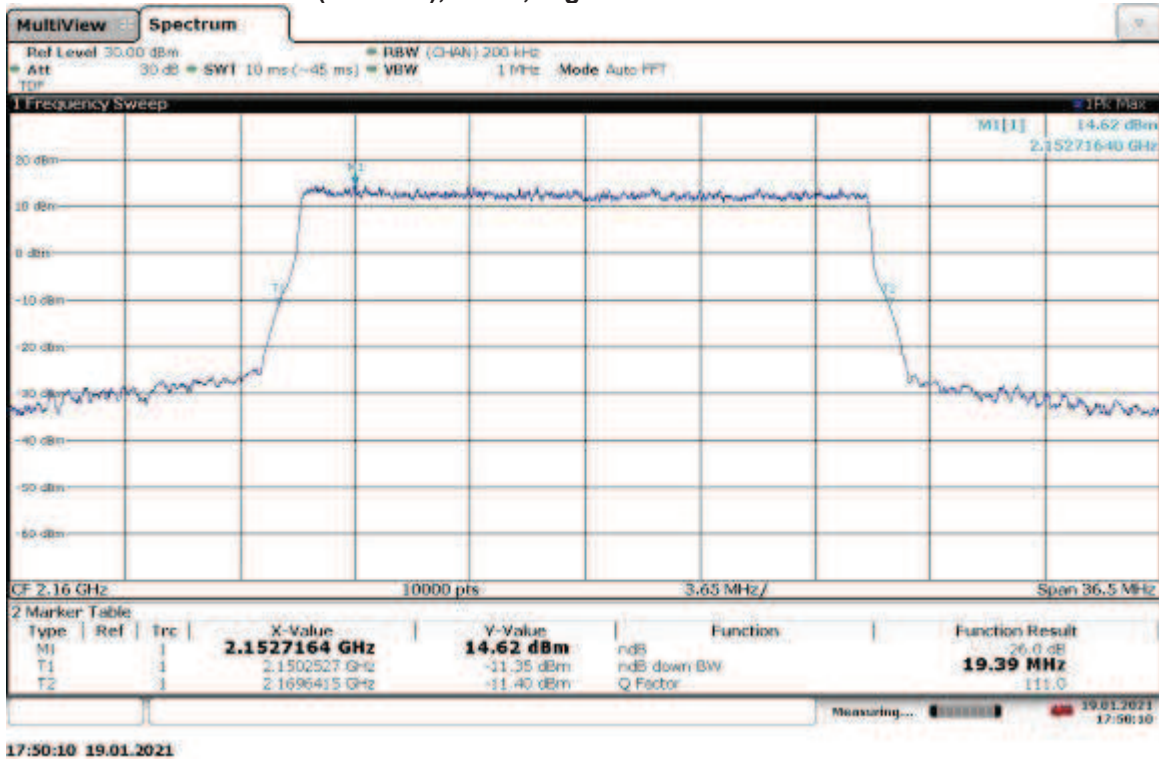
TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



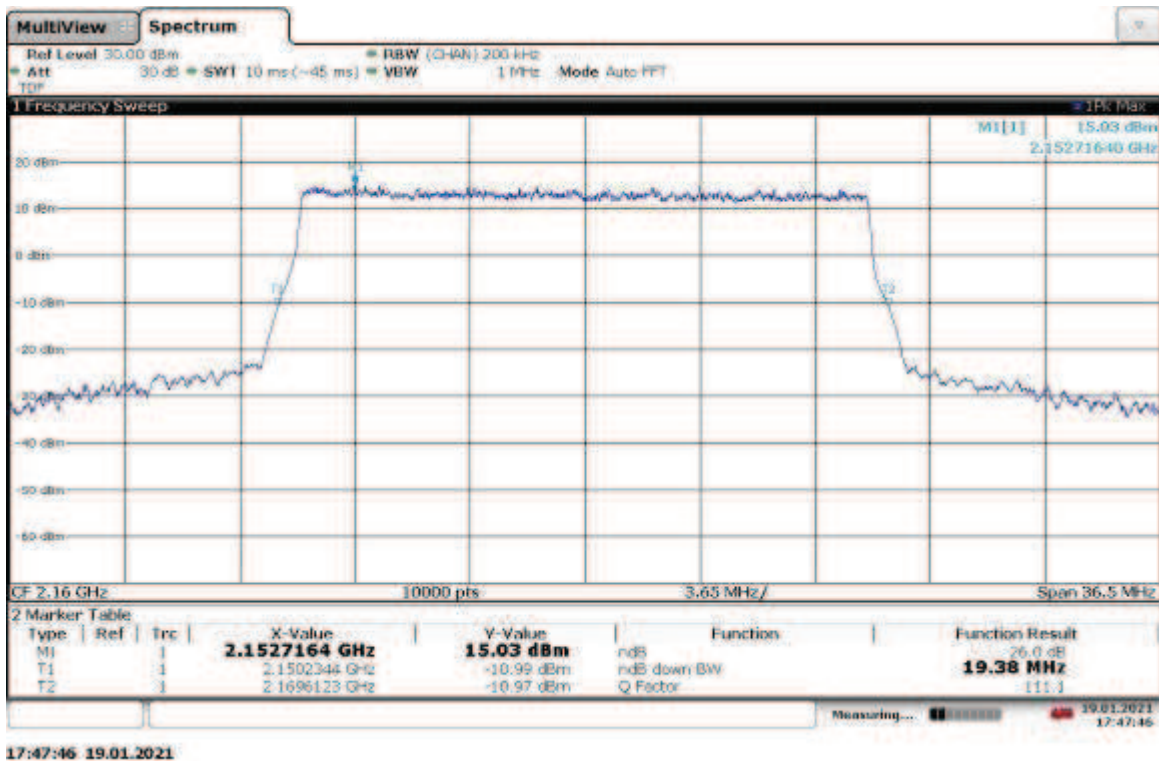
TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



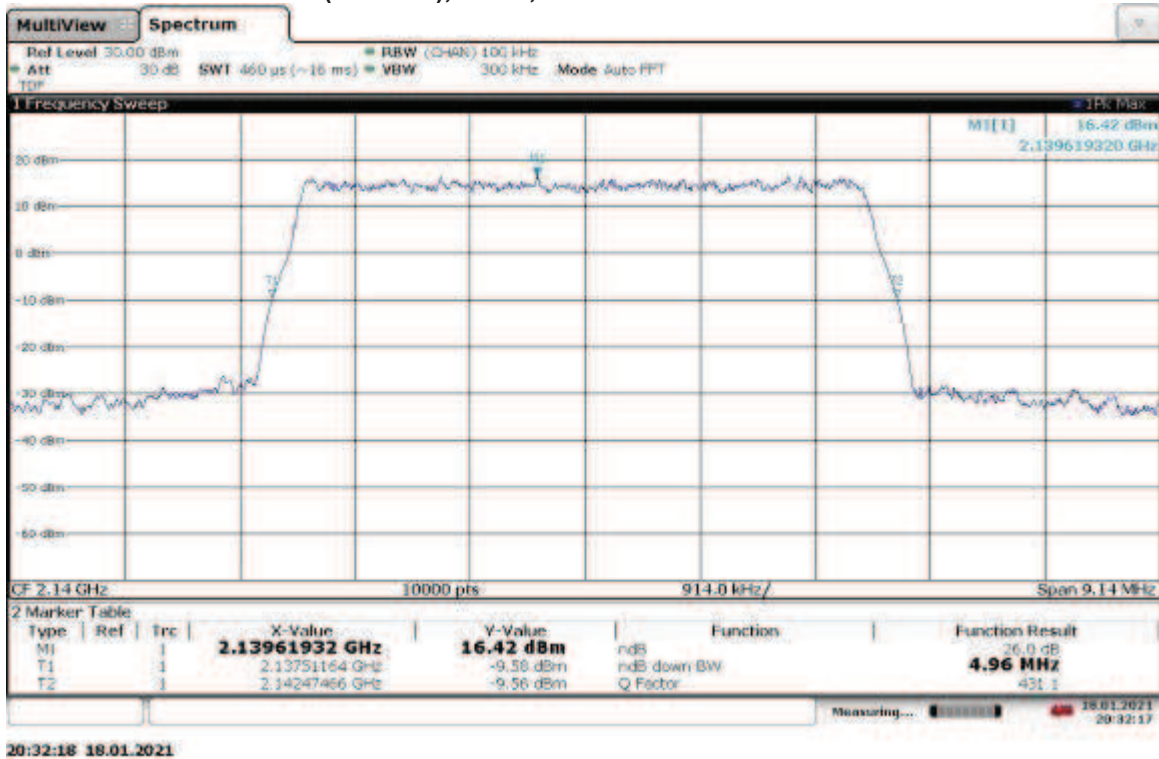
TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



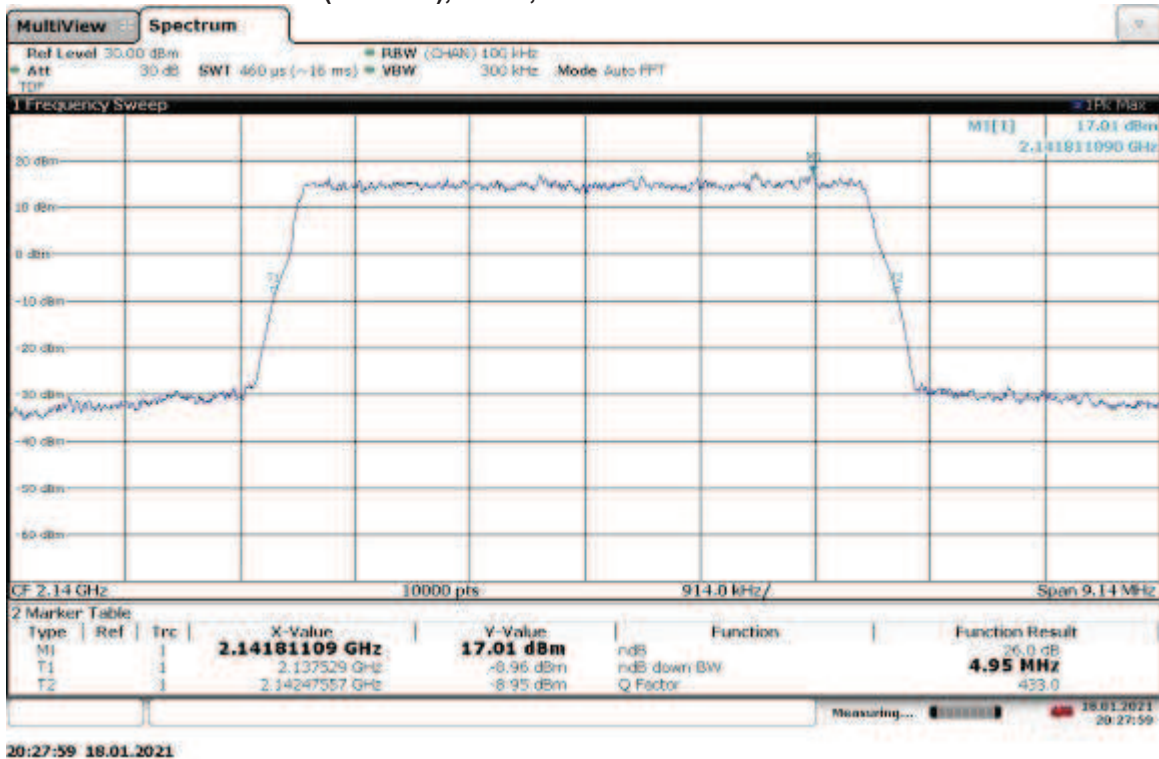
TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



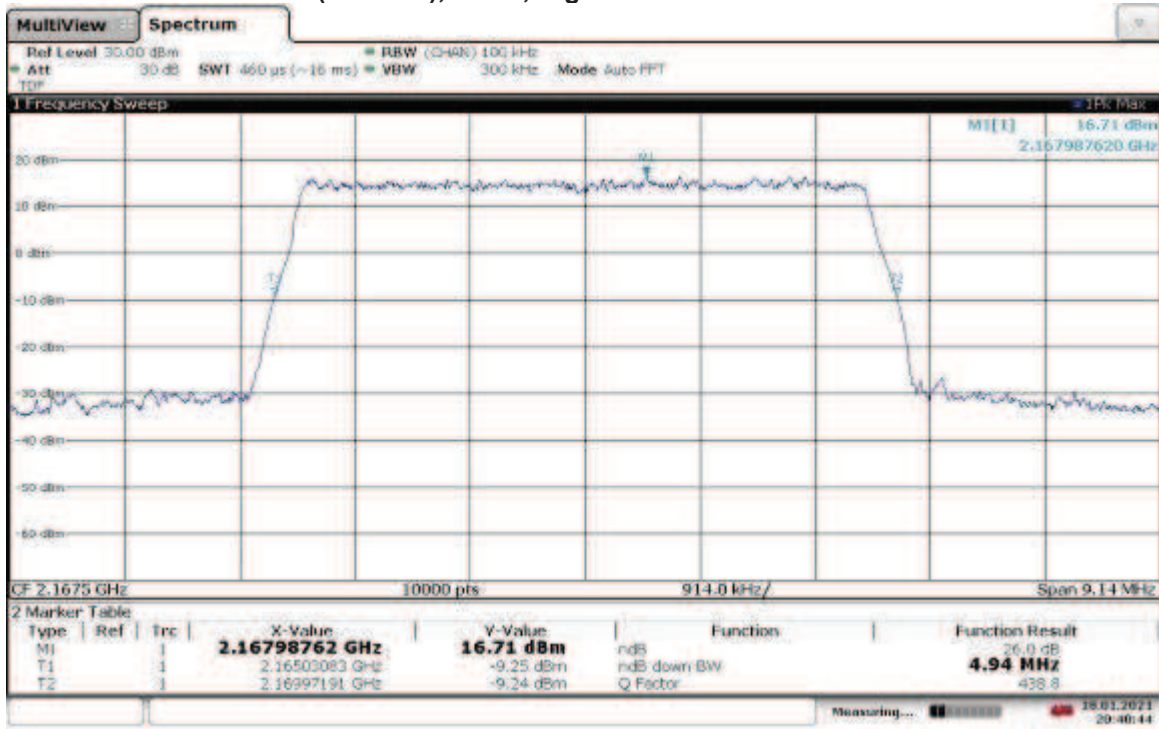
TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth

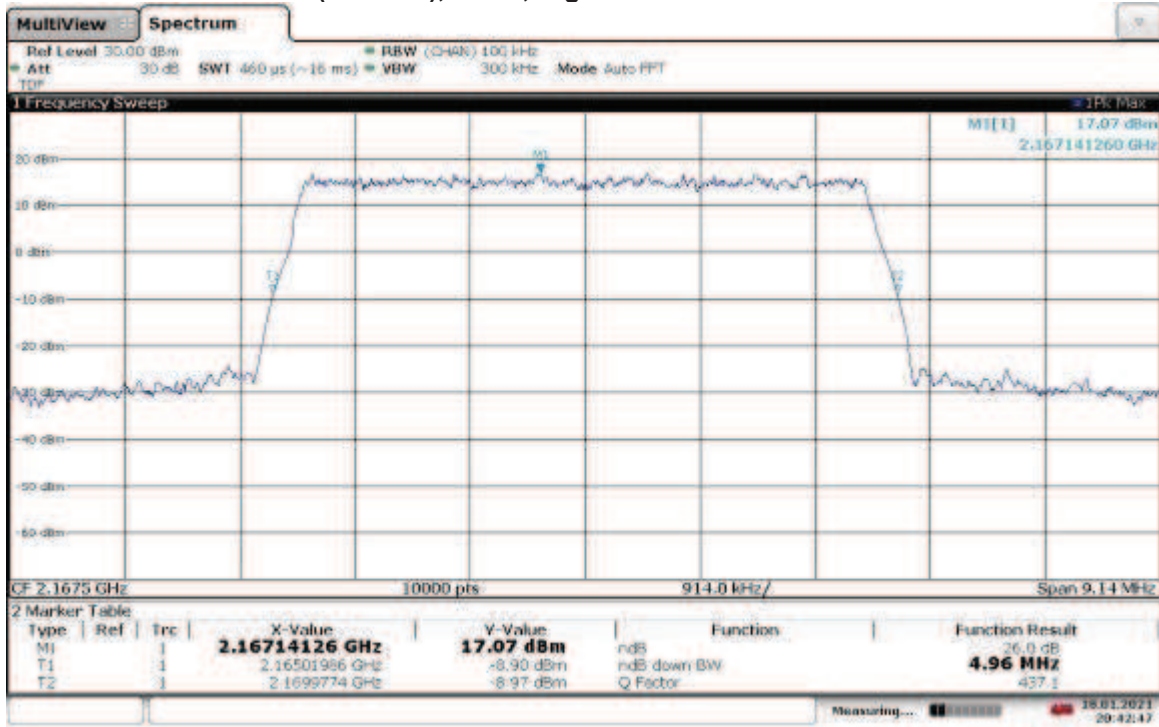


TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



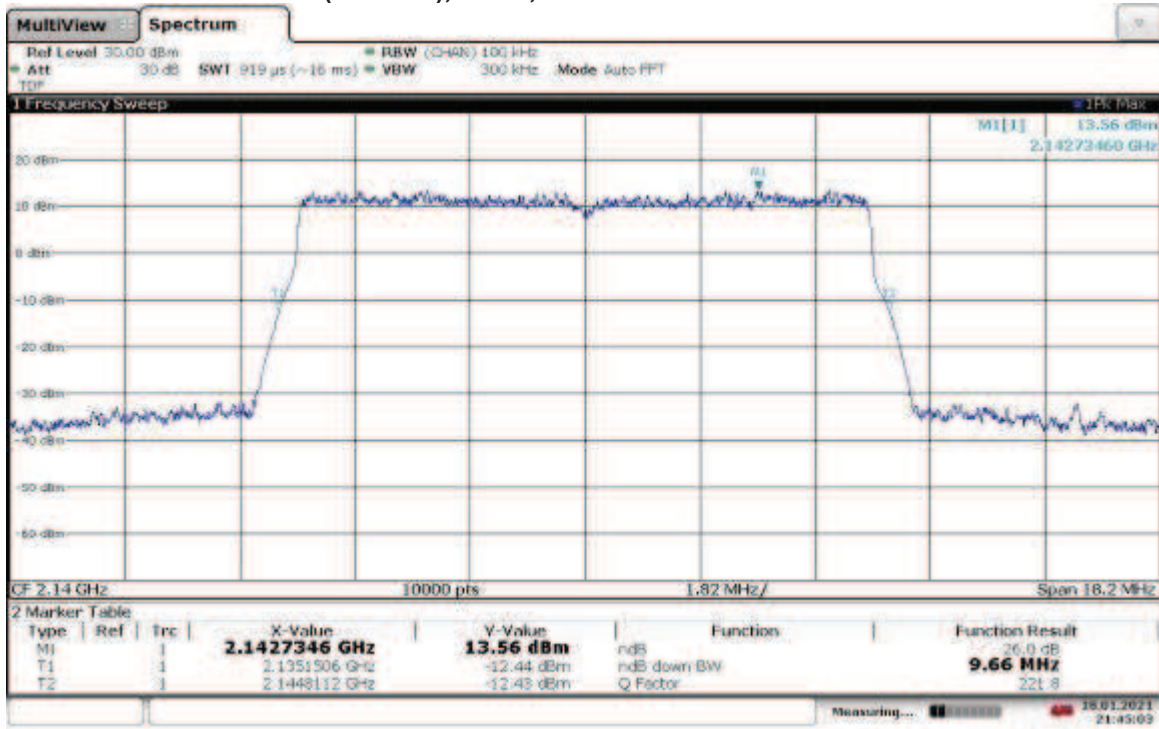
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TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



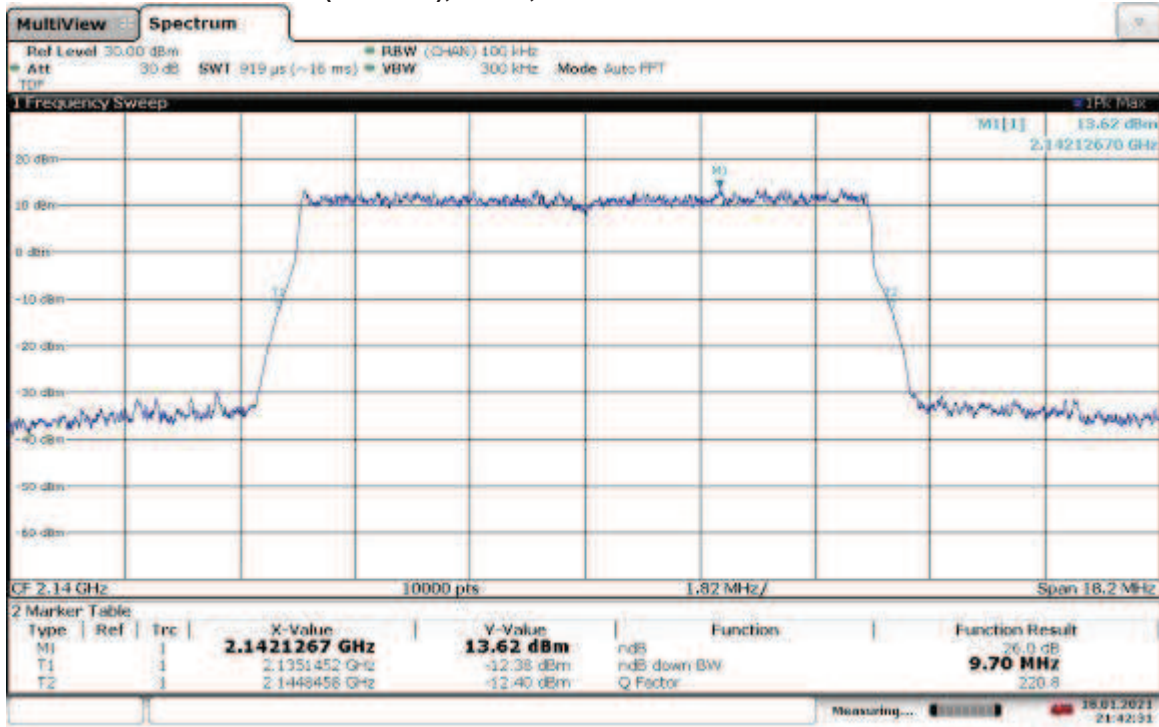
20:42:47 18.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



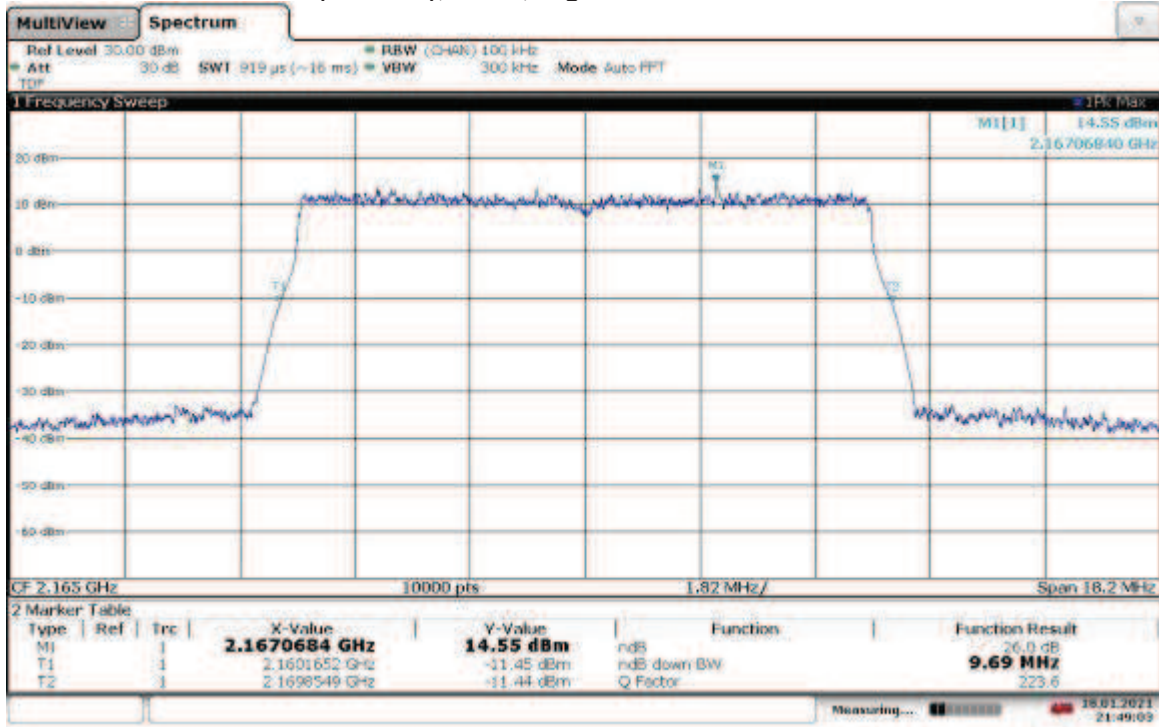
21:45:03 18.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth



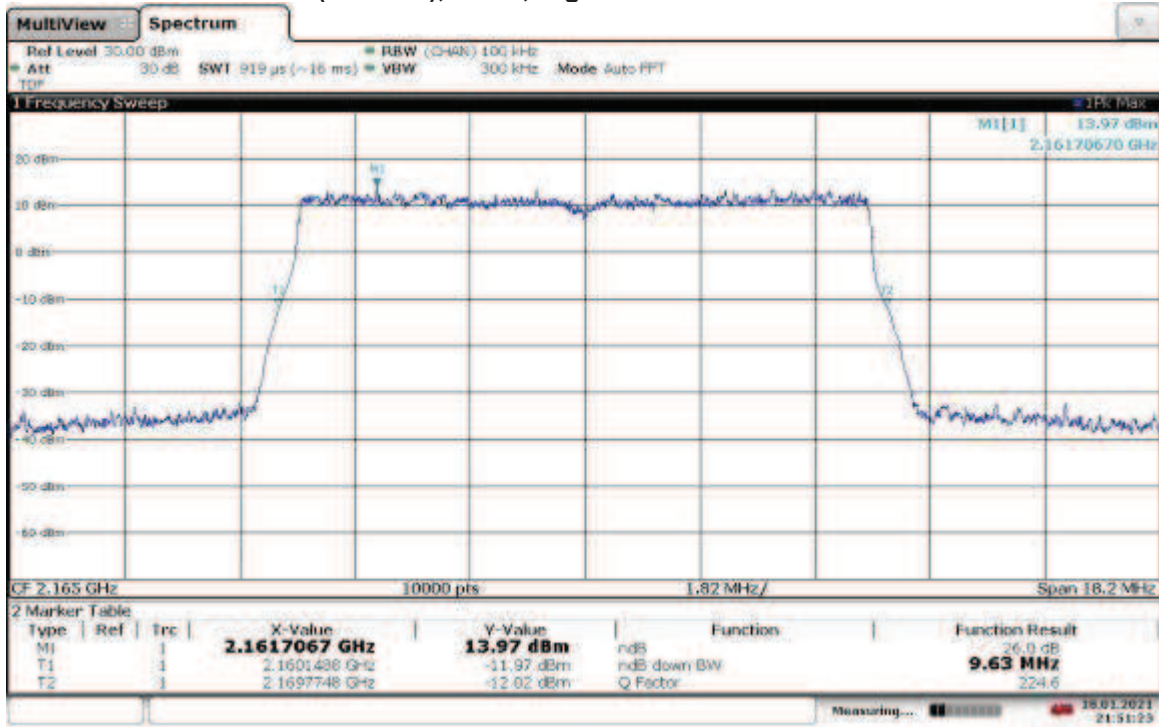
21:42:31 18.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



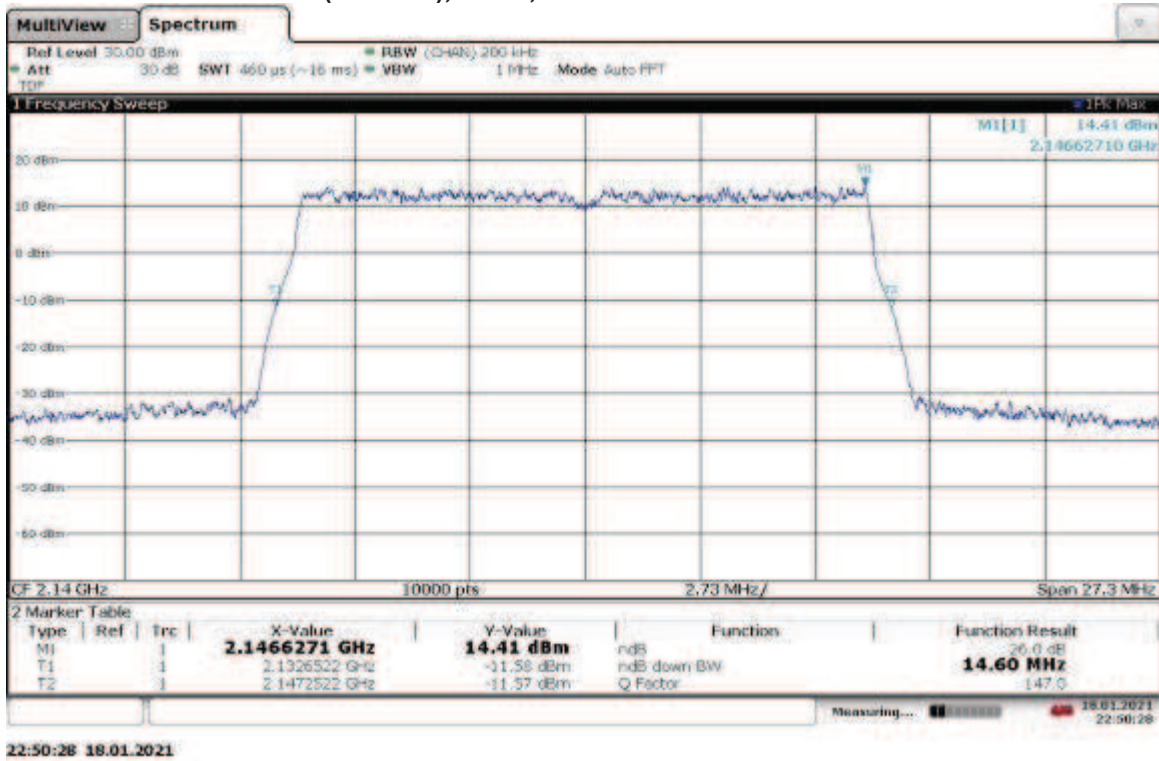
21:49:03 18.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth

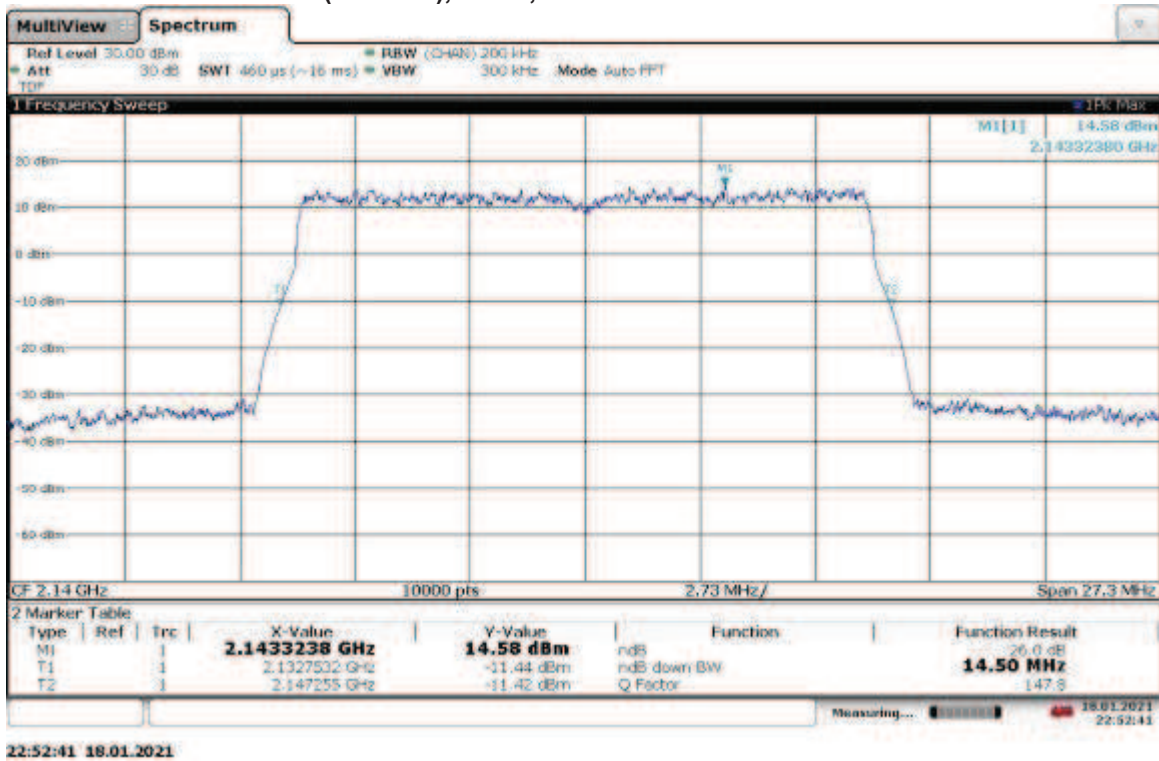


21:51:24 18.01.2021

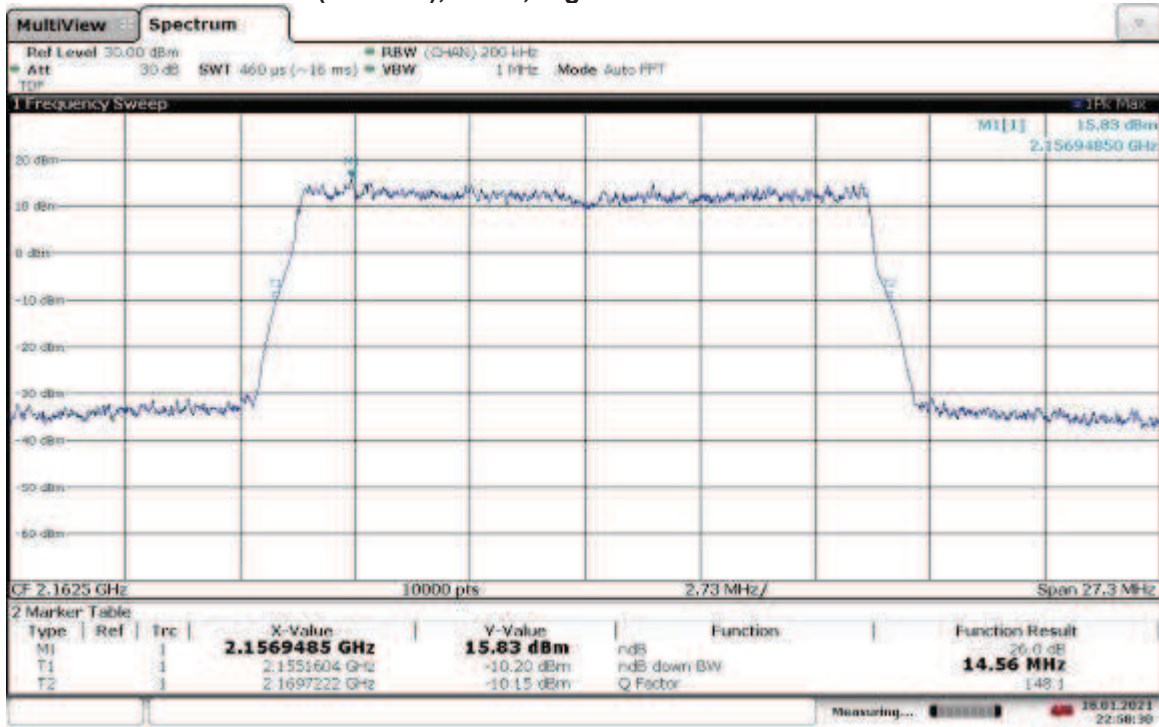
TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth

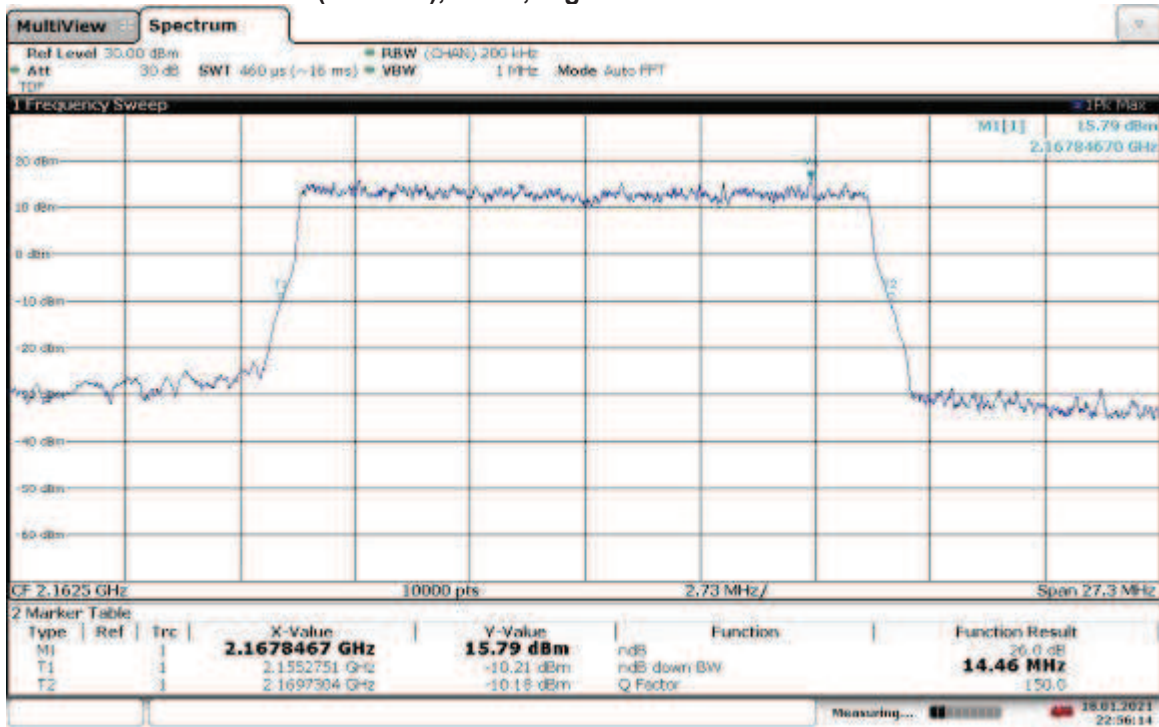


TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



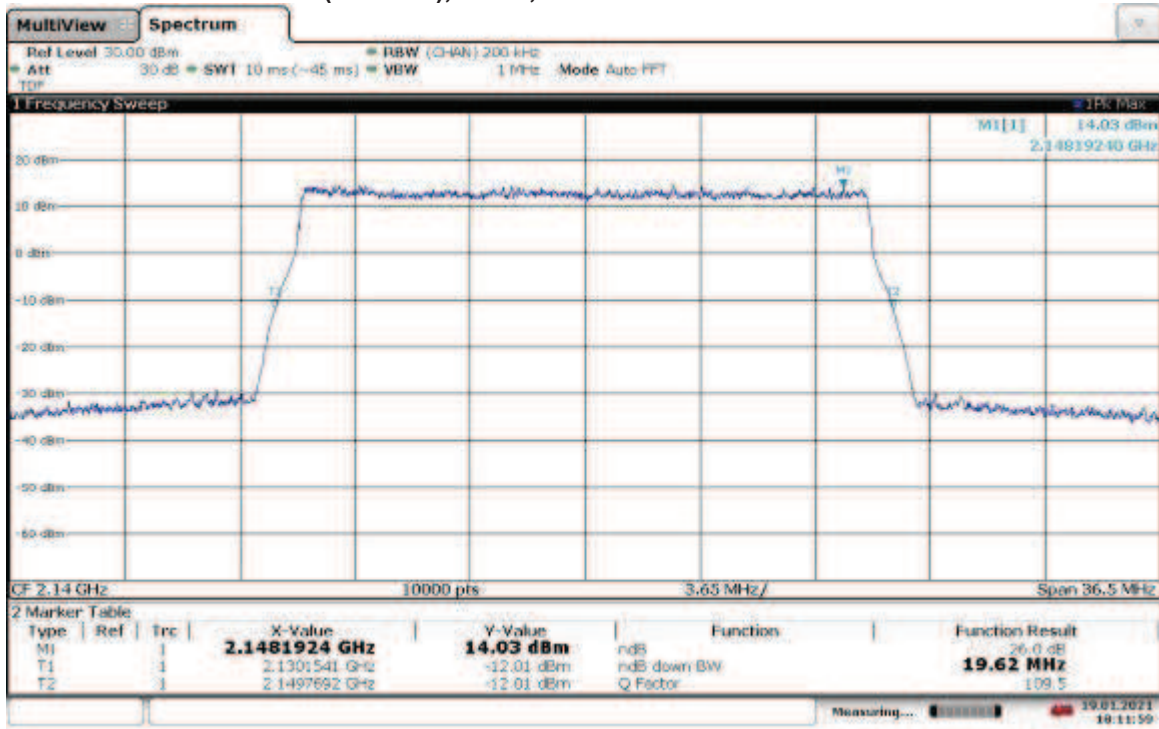
22:58:30 18.01.2021

TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



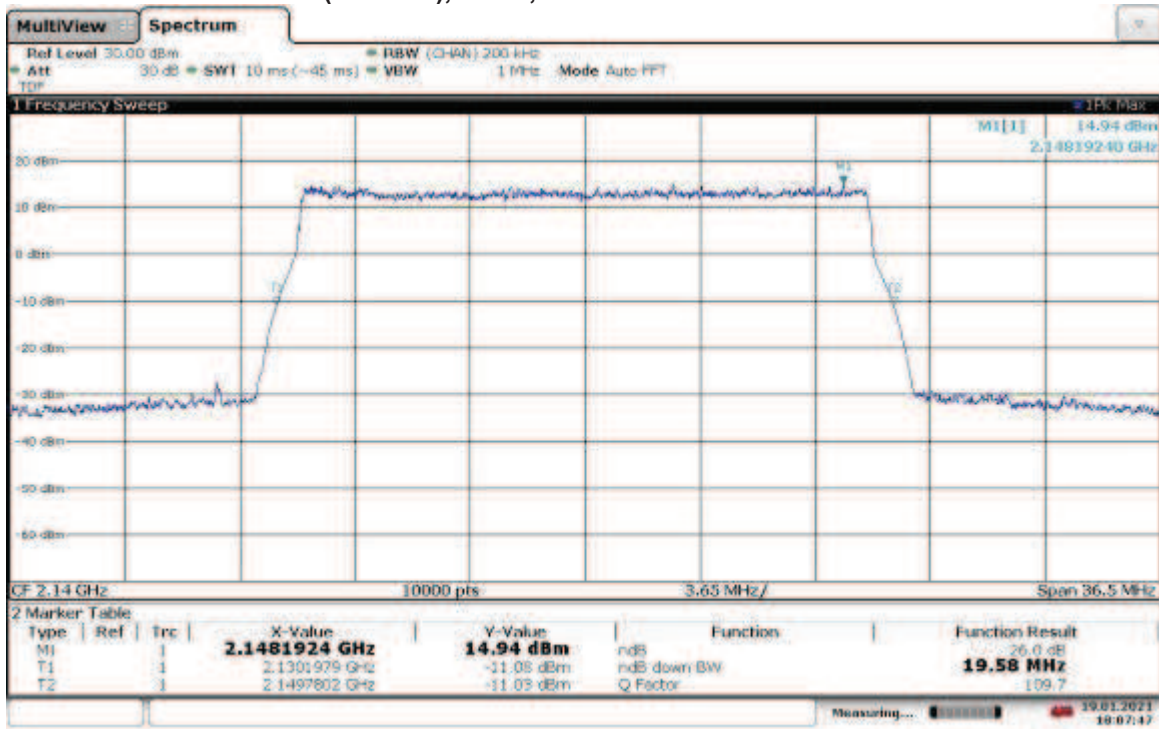
22:56:15 18.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, Mid Channel 26 dB Bandwidth



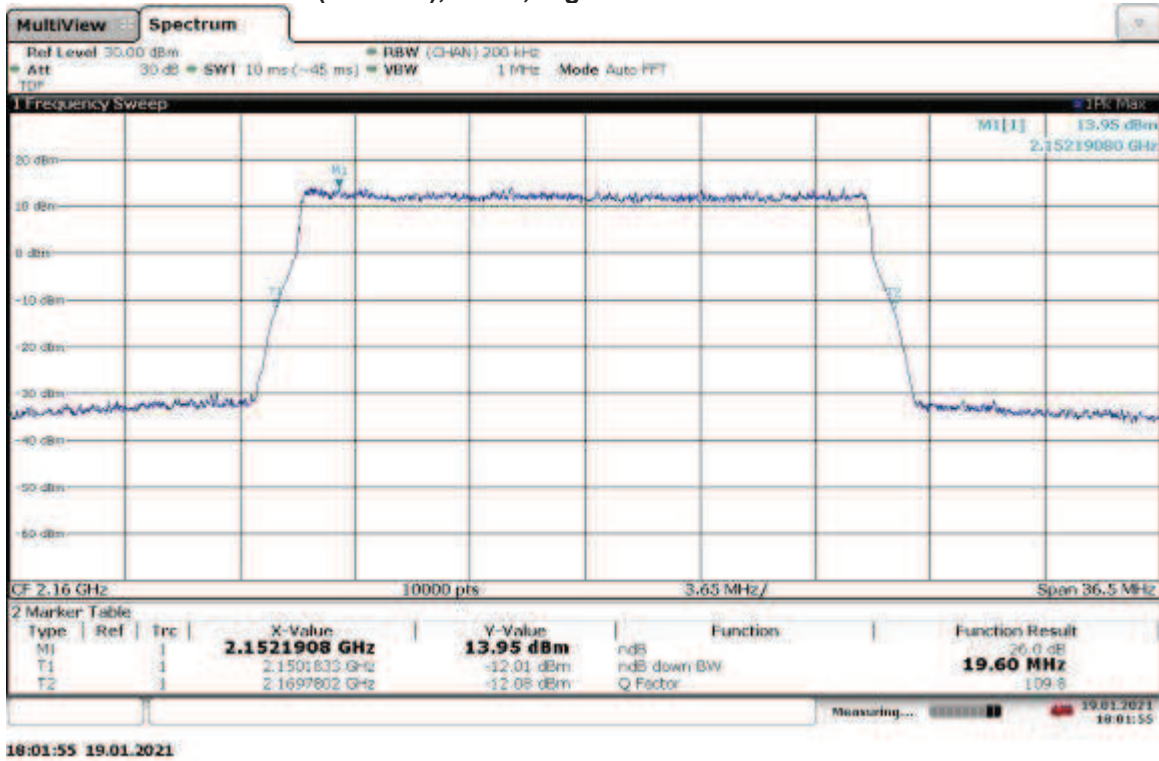
19:11:59 19.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, Mid Channel 26 dB Bandwidth

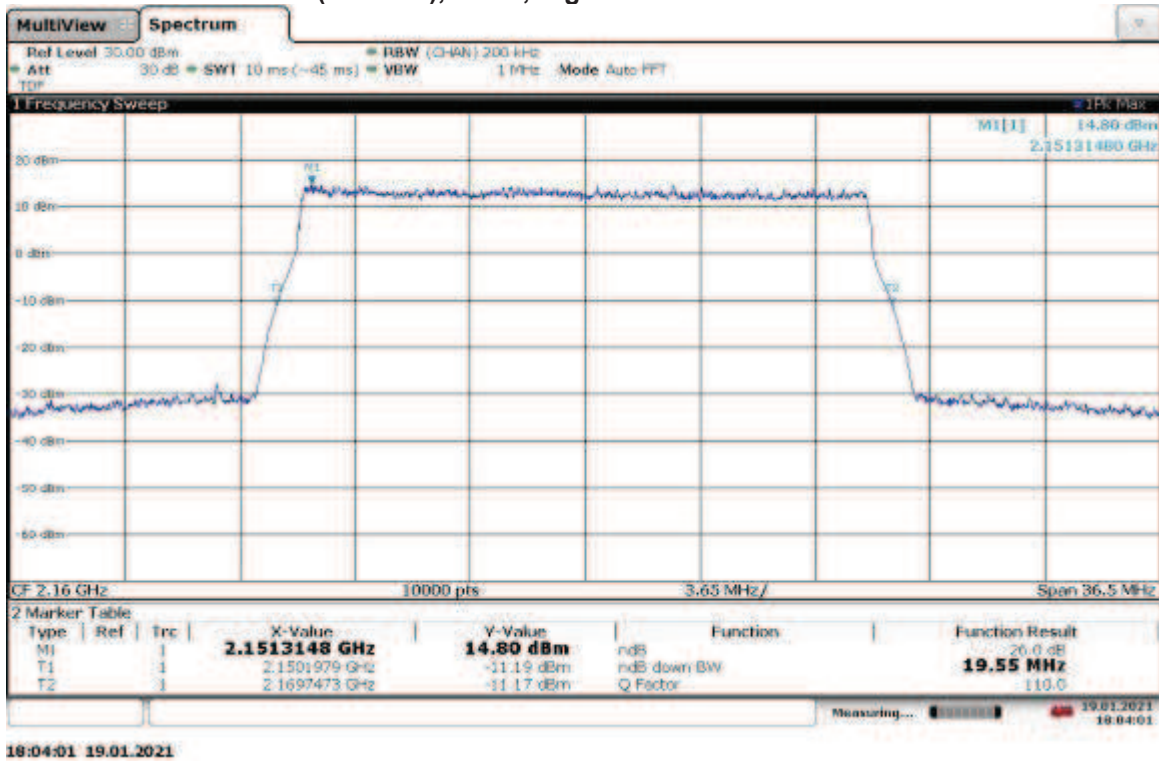


19:07:48 19.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT0, High Channel 26 dB Bandwidth



TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 10), ANT1, High Channel 26 dB Bandwidth



Test Personnel: Vathana Ven 
Supervising/Reviewing
Engineer:
(Where Applicable) N/A

Test Date: 01/19/2021
01/26/2021

Product Standard: FCC Part 27
Input Voltage: 48 VDC (POE)

Limit Applied: See report section 8.3

Pretest Verification w/
Ambient Signals or
BB Source: N/A

Ambient Temperature: 22, 23°C

Relative Humidity: 21, 15%

Atmospheric Pressure: 1004, 1013mbars

Deviations, Additions, or Exclusions: None

9 Upper Band Edge Compliance

9.1 Method

Tests are performed in accordance with ANSI C63.26 and CFR47 FCC Parts 2.1051, 2.1053, and 27.

TEST SITE: EMC Lab & 10m ALSE

The EMC Lab has one Semi-anechoic Chamber and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference ground-planes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

9.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2021	01/22/2022
CBLHF2012-2M-1'	2m 9kHz-40GHz Coaxial Cable - SET1	Huber & Suhner	SF102	252675001	02/17/2020	02/17/2021
ROS005-1'	Signal and Spectrum Analyzer	Rohde and Shwartz	FSW43	100646	10/27/2020	10/27/2021
DAV005'	Weather Station	Davis	6250	MS19121808 3	02/05/2020	02/05/2021

Software Utilized:

Name	Manufacturer	Version
None	--	--

9.3 Results:

The sample tested was found to Comply.

§ 27.53(h): 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.

Band 10, Bandwidth: 5 MHz, Modulation: TM1.1-QPSK

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2167.50	ANT0	-28.50
		ANT1	-29.84

Band 10, Bandwidth: 10 MHz, Modulation: TM1.1-QPSK

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2165.00	ANT0	-31.72
		ANT1	-30.60

Band 10, Bandwidth: 15 MHz, Modulation: TM1.1-QPSK

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2147.50	ANT0	-33.71
		ANT1	-32.56

Band 10, Bandwidth: 20 MHz, Modulation: TM1.1-QPSK

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2160.00	ANT0	-34.74
		ANT1	-36.60

Band 10, Bandwidth: 5 MHz, Modulation: TM3.2-16QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2167.50	ANT0	-29.46
		ANT1	-27.86

Band 10, Bandwidth: 10 MHz, Modulation: TM3.2-16QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2165.00	ANT0	-32.02
		ANT1	-30.28

Band 10, Bandwidth: 15 MHz, Modulation: TM3.2-16QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2162.50	ANT0	-33.80
		ANT1	-32.96

Band 10, Bandwidth: 20 MHz, Modulation: TM3.2-16QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2160.00	ANT0	-34.77
		ANT1	-33.57

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Issued: 02/07/2021

Band 10, Bandwidth: 5 MHz, Modulation: TM3.1-64QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2167.50	ANT0	-29.31
		ANT1	-28.34

Band 10, Bandwidth: 10 MHz, Modulation: TM3.1-64QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2165.00	ANT0	-32.36
		ANT1	-30.25

Band 10, Bandwidth: 15 MHz, Modulation: TM3.1-64QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2162.50	ANT0	-33.90
		ANT1	-32.44

Band 10, Bandwidth: 20 MHz, Modulation: TM3.1-64QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2160.00	ANT0	-34.73
		ANT1	-33.49

Band 10, Bandwidth: 5 MHz, Modulation: TM3.1a-256QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2167.50	ANT0	-29.65
		ANT1	-27.76

Band 10, Bandwidth: 10 MHz, Modulation: TM3.1a-256QAM

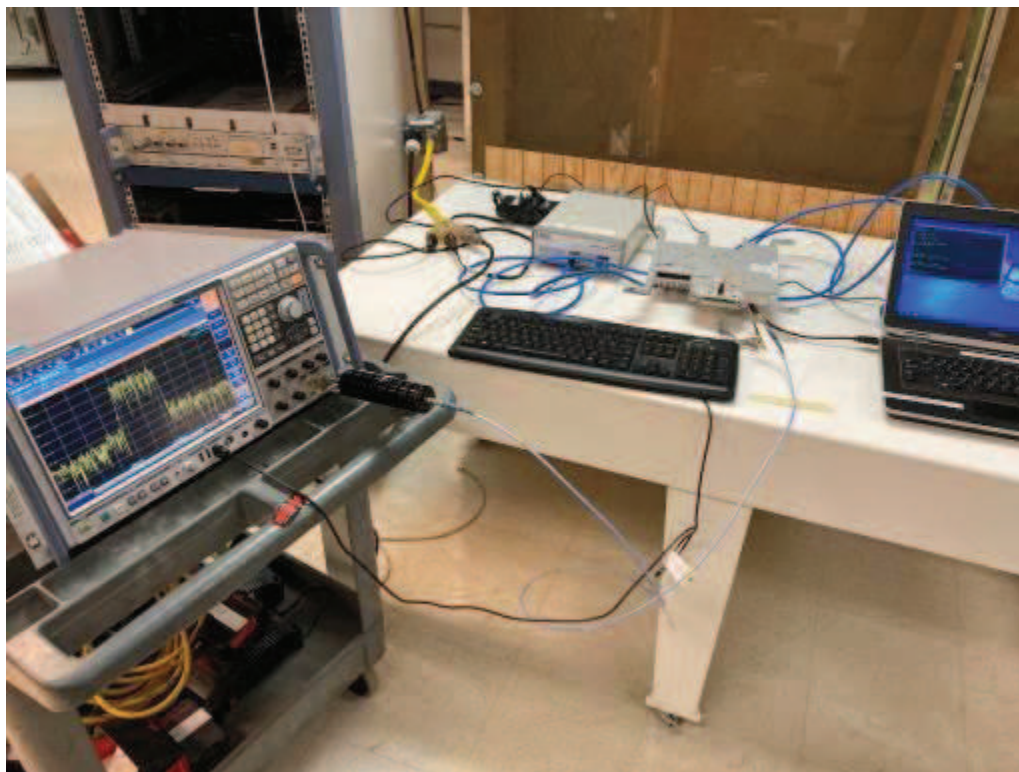
Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2165.00	ANT0	-31.90
		ANT1	-30.70

Band 10, Bandwidth: 15 MHz, Modulation: TM3.1a-256QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2162.50	ANT0	-33.78
		ANT1	-32.64

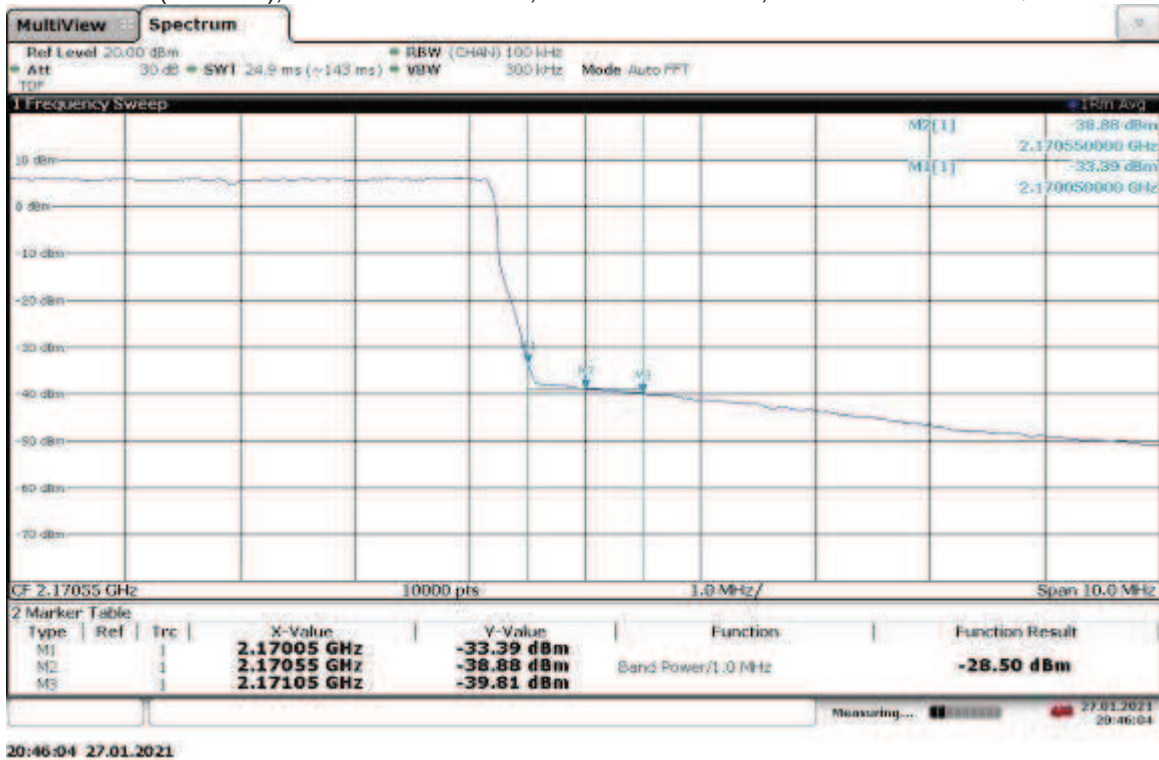
Band 10, Bandwidth: 20 MHz, Modulation: TM3.1a-256QAM

Band Edge	Frequency (MHz)	Antenna Port	Reading (dBm)
High	2160.00	ANT0	-34.69
		ANT1	-33.50

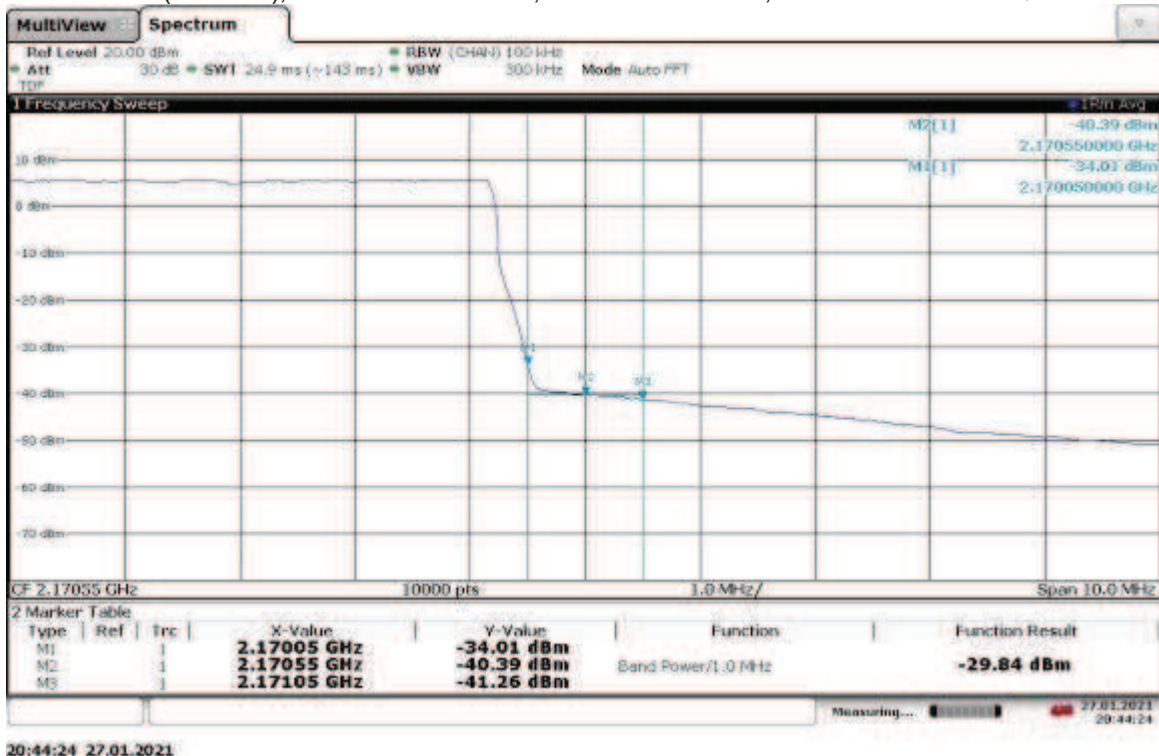
9.4 Setup Photograph:

9.5 Plots/Data:

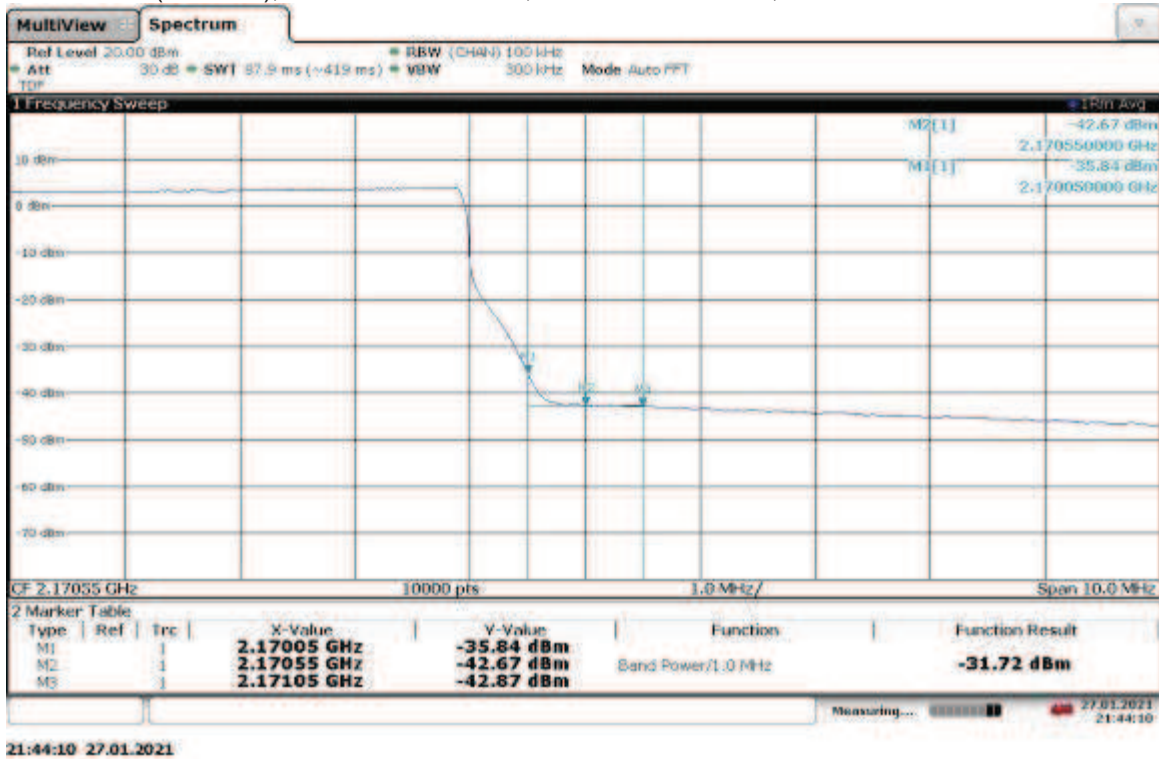
Band Edge Compliant, Upper Band Edge, 2167.5 MHz
Slot3 (Band 10), Antenna Port: ANT0, Bandwidth: 5 MHz, Modulation: TM1.1-QPSK



Band Edge Compliant, Upper Band Edge, 2167.5 MHz
Slot 3 (Band 10), Antenna Port: ANT1, Bandwidth: 5 MHz, Modulation: TM1.1-QPSK



Band Edge Compliant, Upper Band Edge, 2165 MHz
Slot 3 (Band 10), Antenna Port: ANT0, Bandwidth: 10 MHz, Modulation: TM1.1-QPSK



Band Edge Compliant, Upper Band Edge, 2165 MHz
Slot 3 (Band 10), Antenna Port: ANT1, Bandwidth: 10 MHz, Modulation: TM1.1-QPSK

