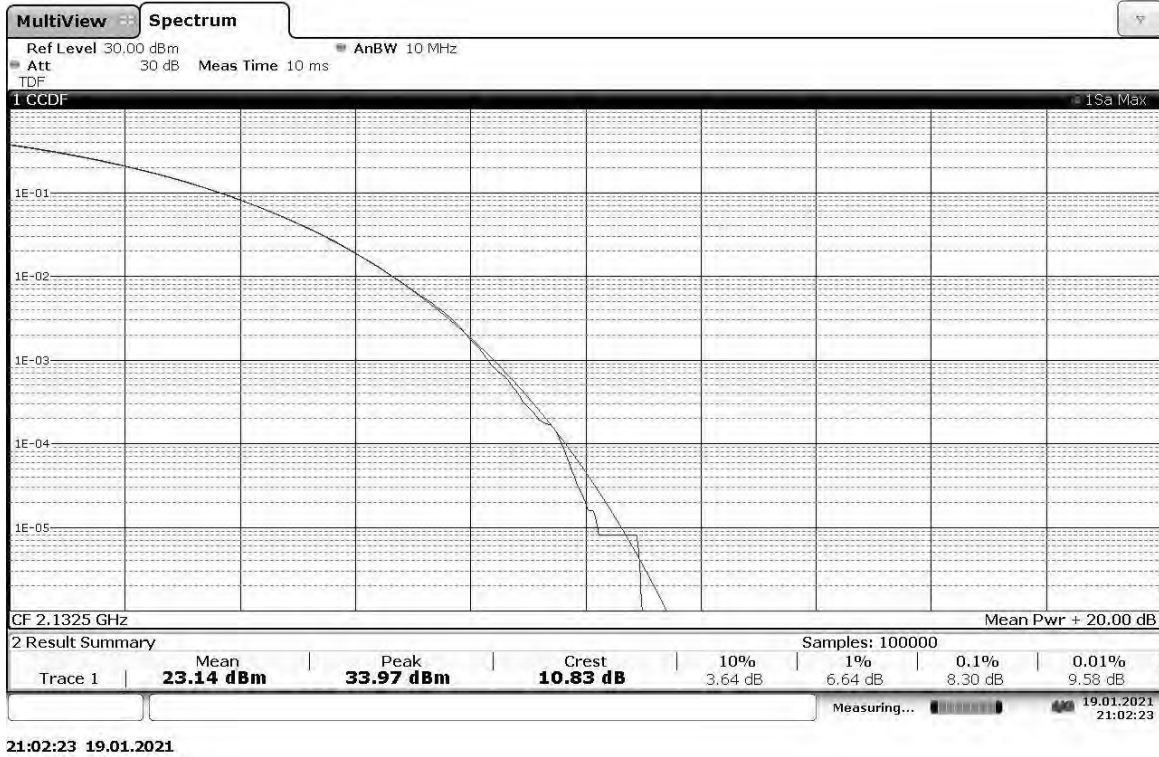
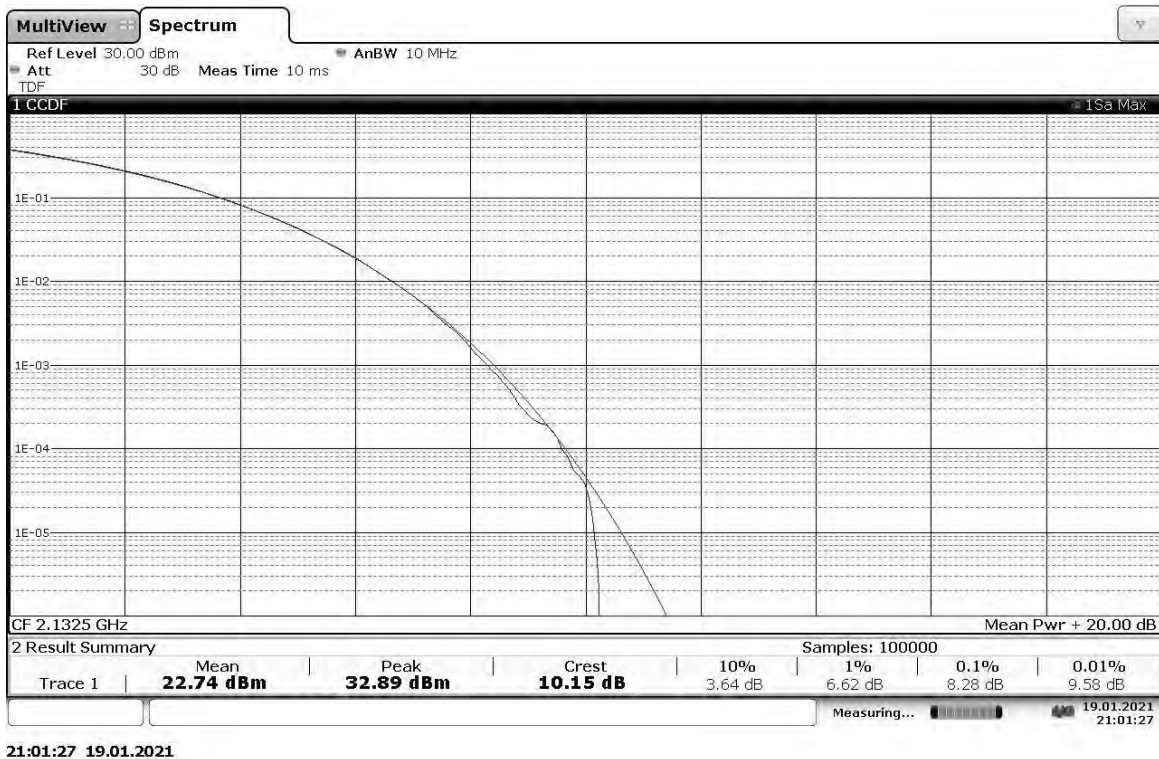


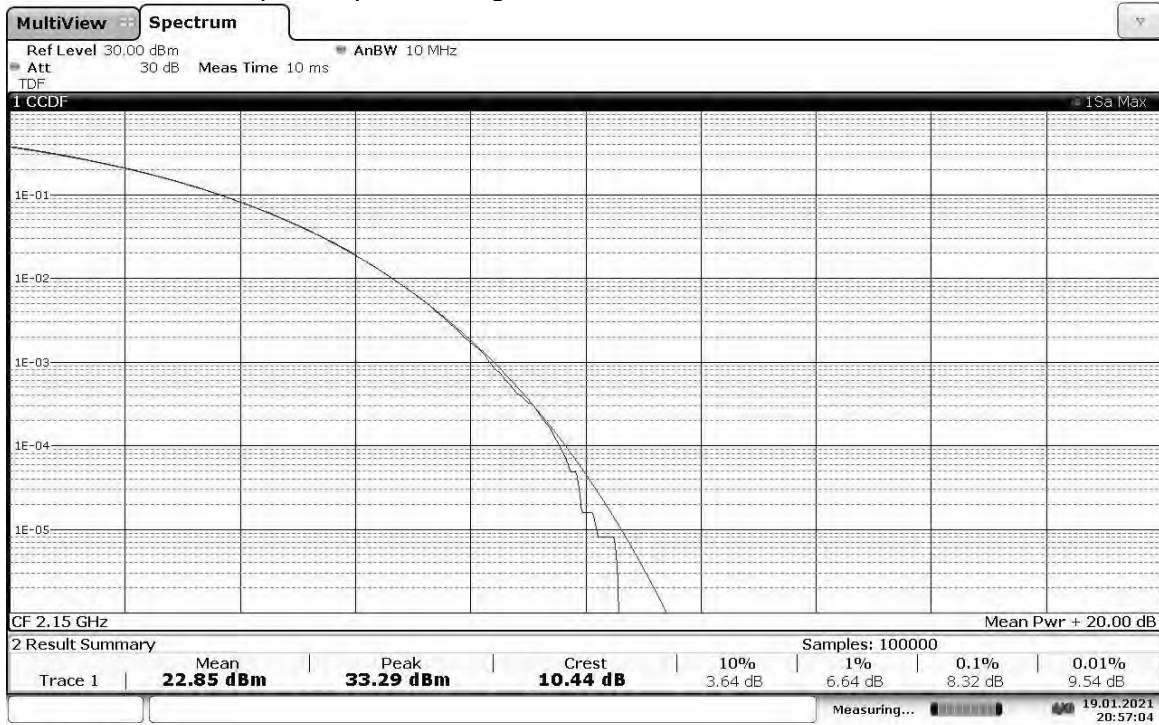
TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2115 MHz, PAPR = 10.83 dB



TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2115 MHz, PAPR = 10.15 dB

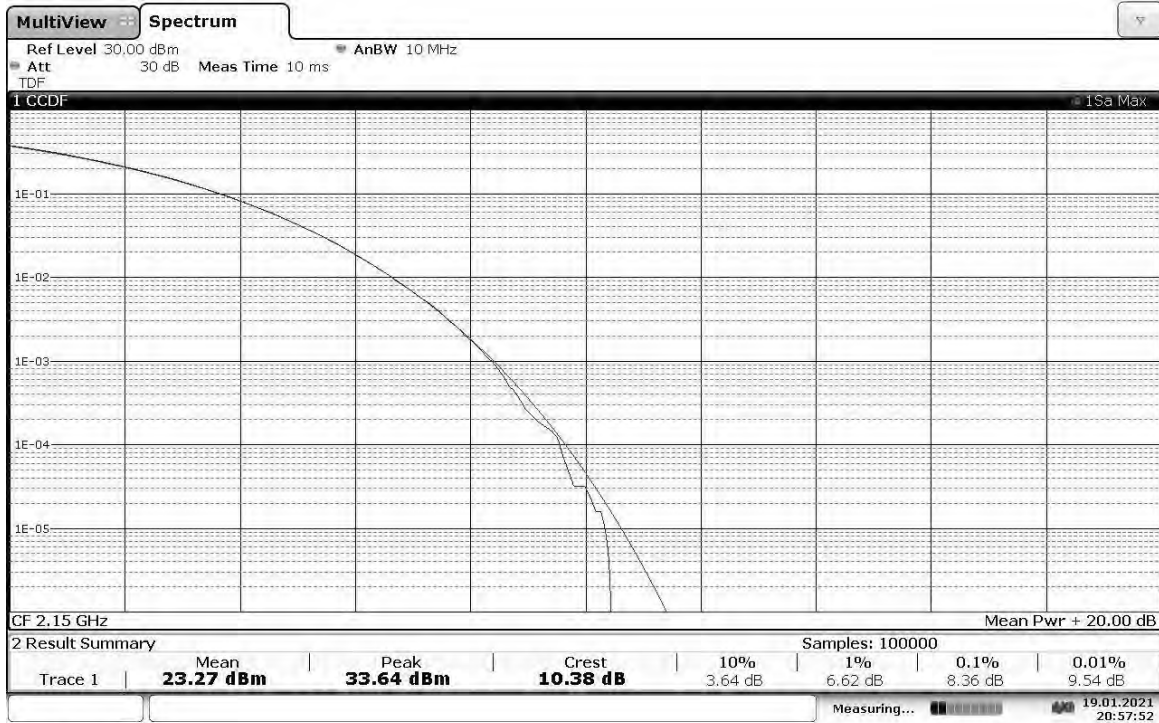


TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2150 MHz, PAPR = 10.44 dB



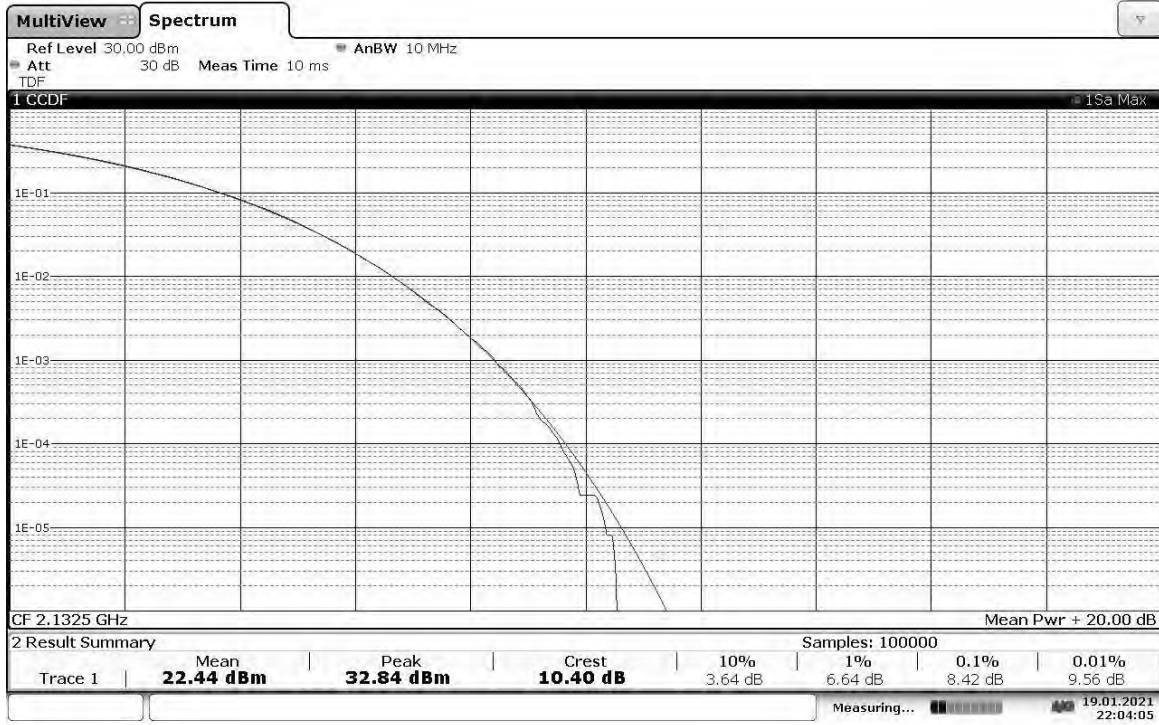
20:57:05 19.01.2021

TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2150 MHz, PAPR = 10.38 dB



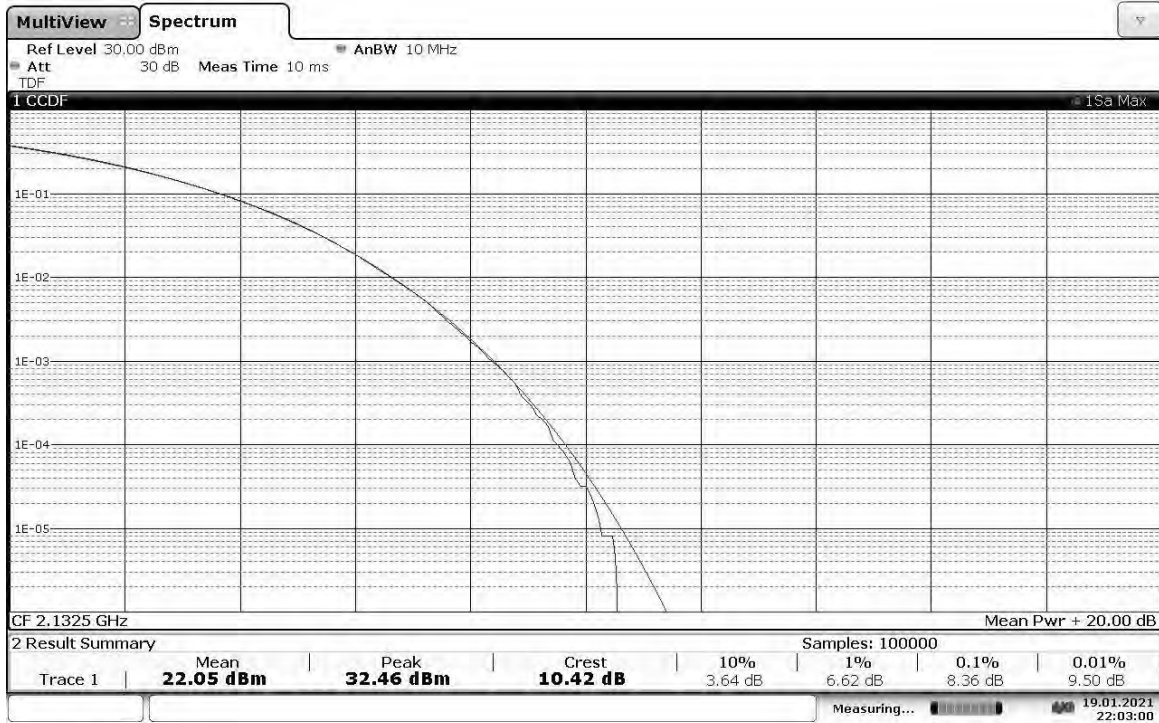
20:57:52 19.01.2021

TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.40 dB



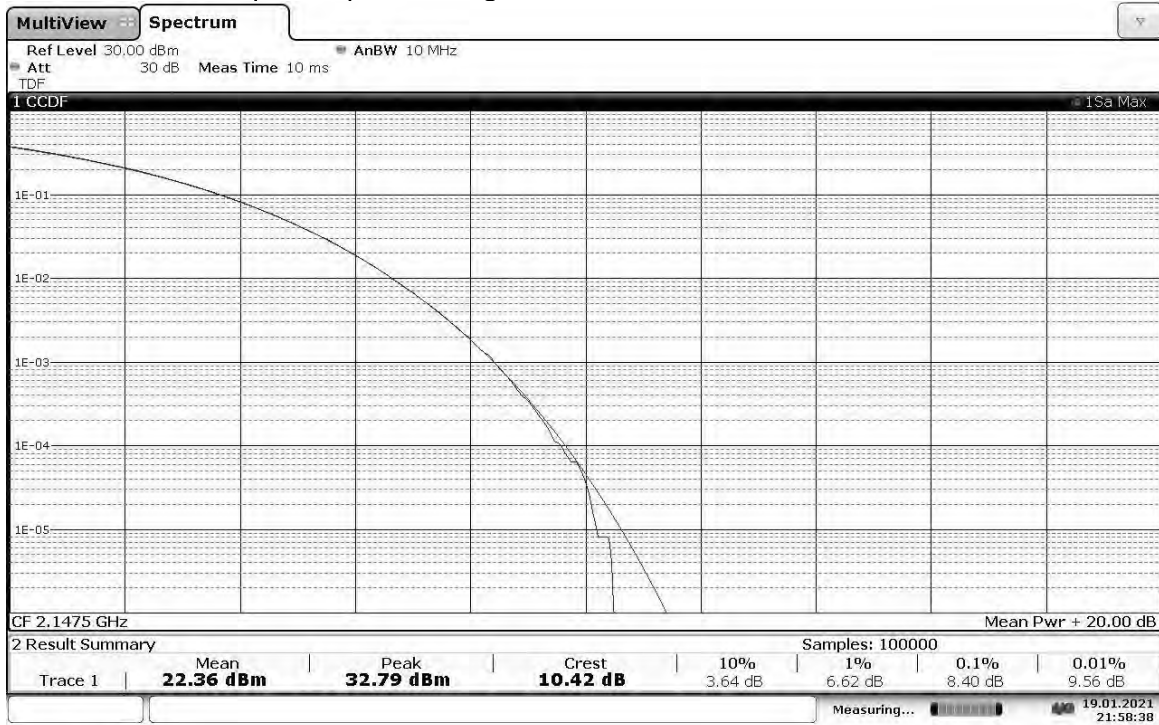
22:04:06 19.01.2021

TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.42 dB



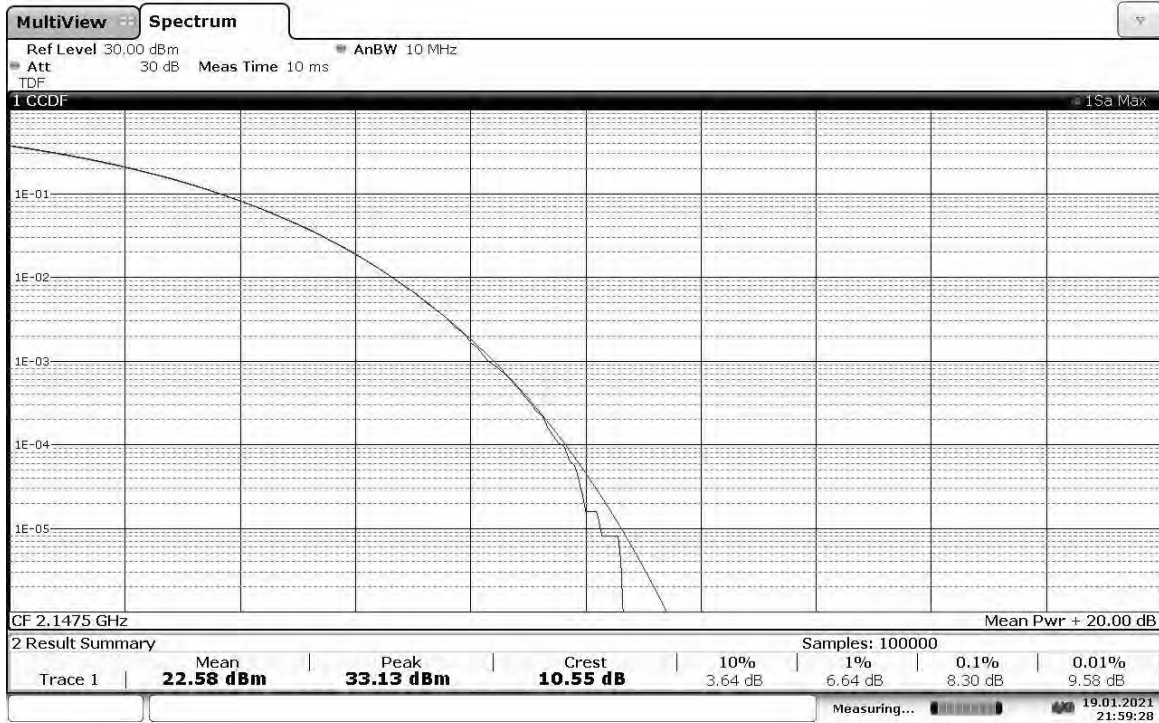
22:03:00 19.01.2021

TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2147.5MHz, PAPR = 10.42 dB



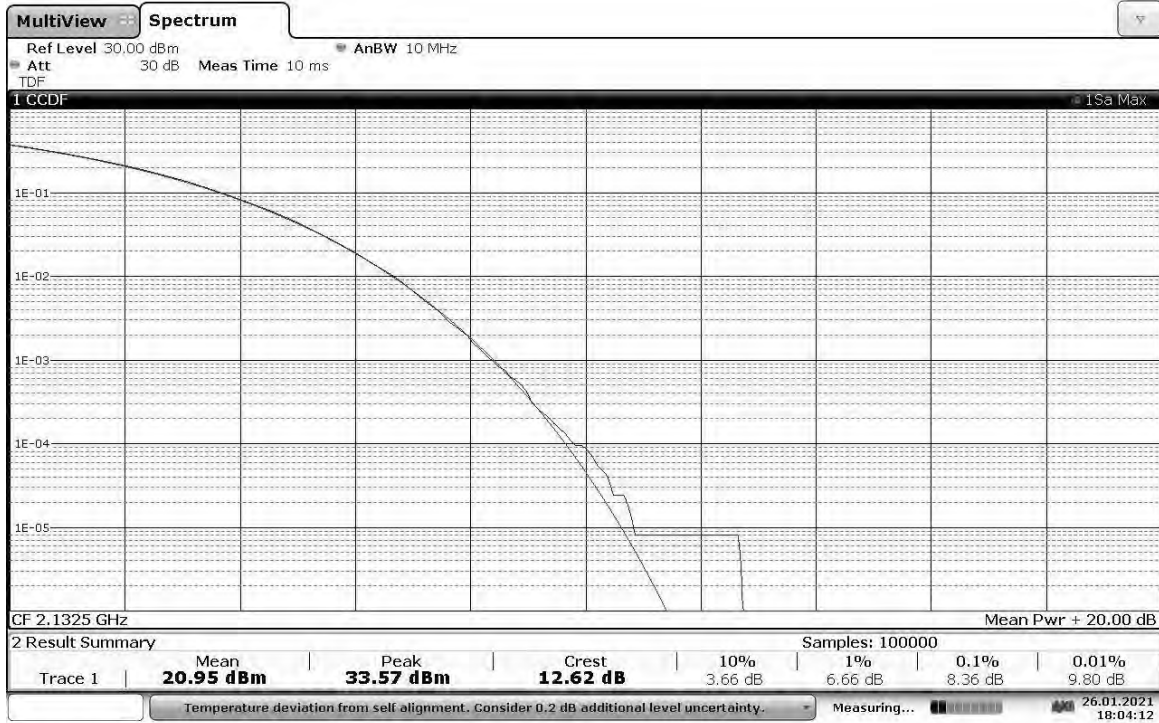
21:58:38 19.01.2021

TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2147.5 MHz, PAPR = 10.55 dB



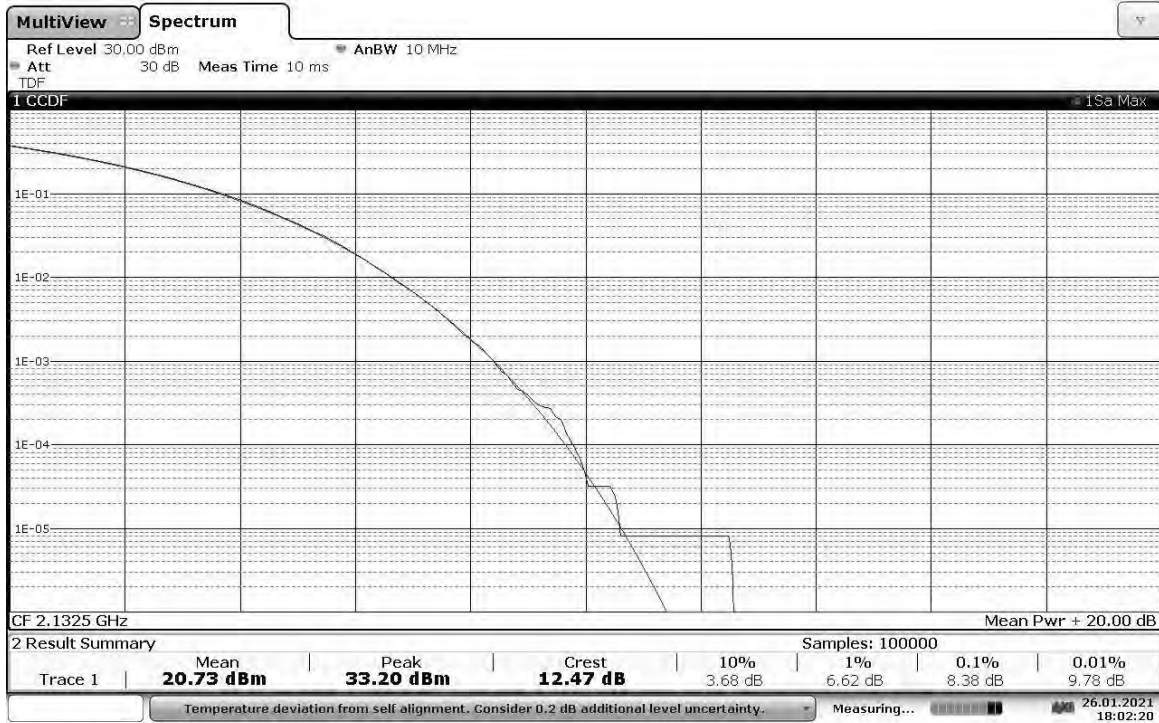
21:59:29 19.01.2021

TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 12.62 dB



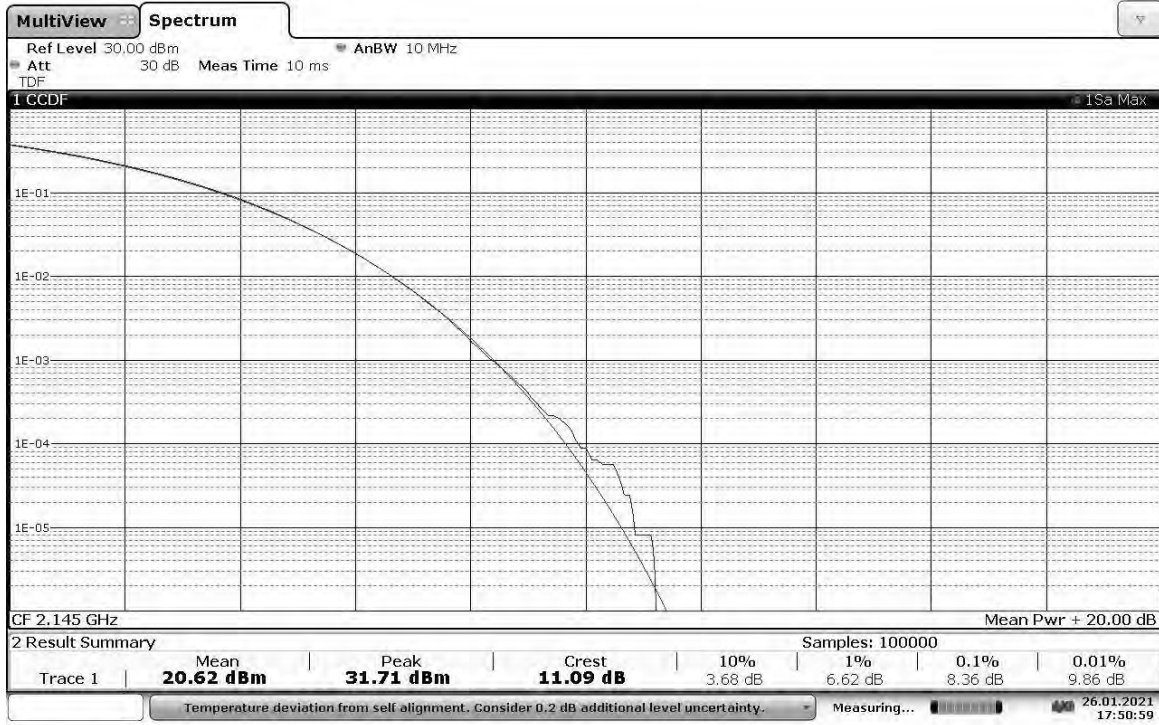
18:04:13 26.01.2021

TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 12.47 dB



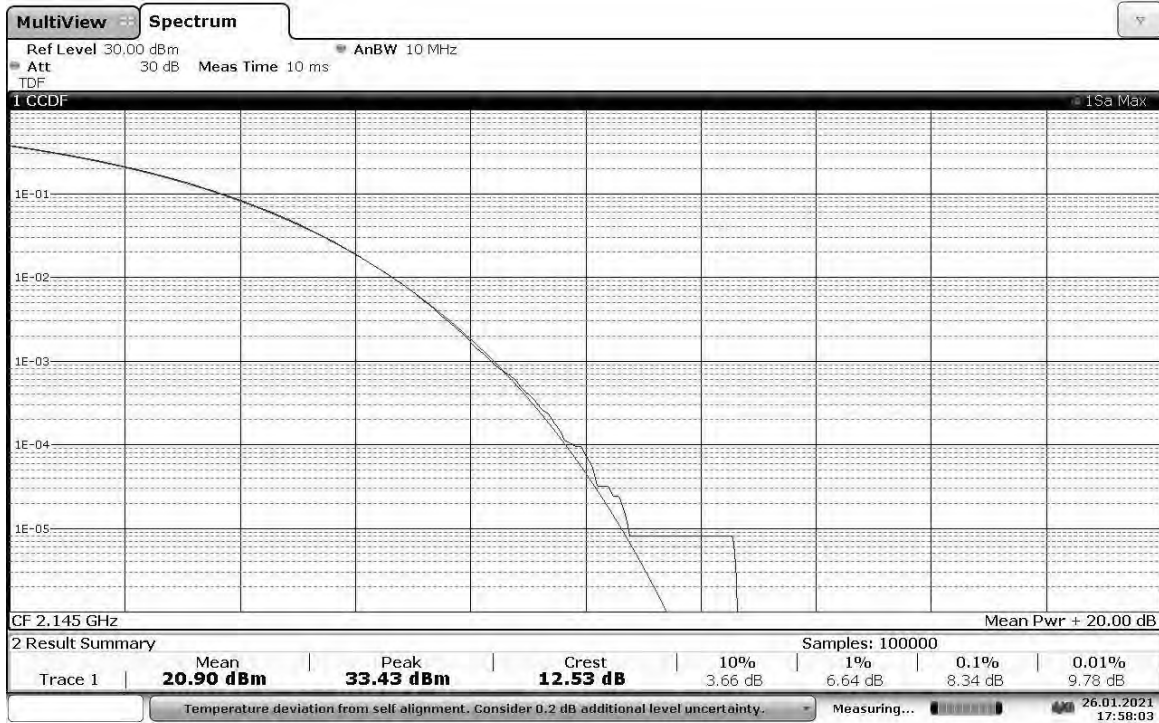
18:02:20 26.01.2021

TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2145 MHz, PAPR = 11.09 dB



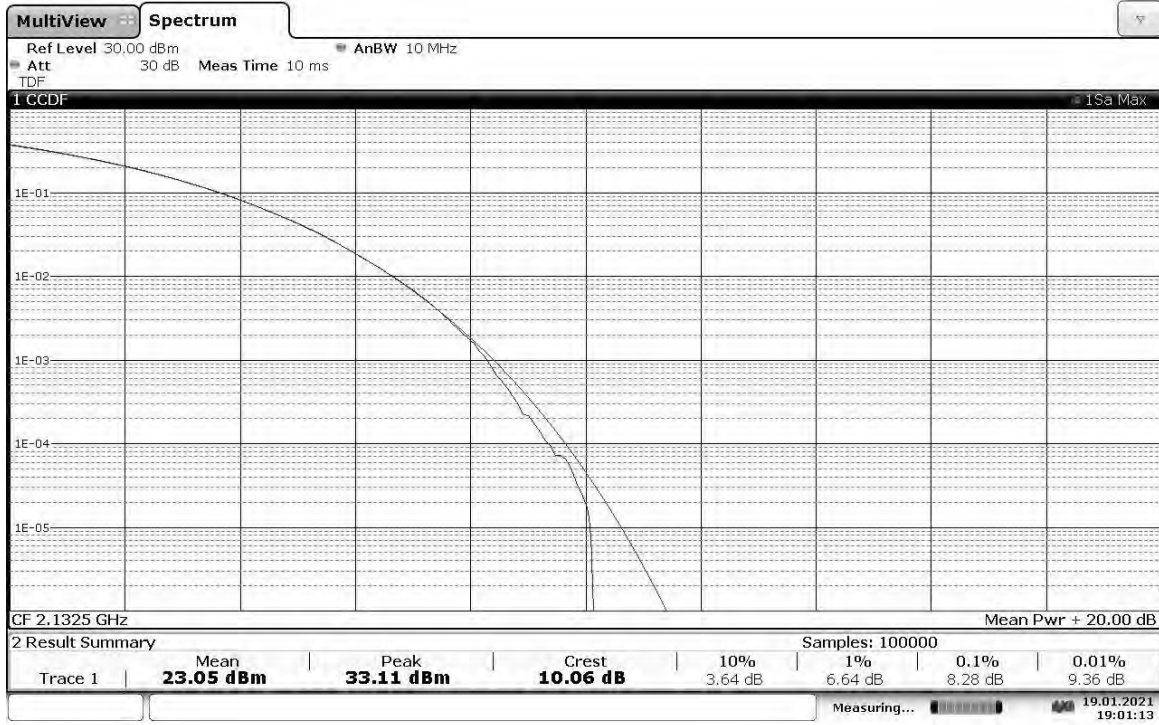
17:50:59 26.01.2021

TM3.2-16QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2145 MHz, PAPR = 12.53 dB



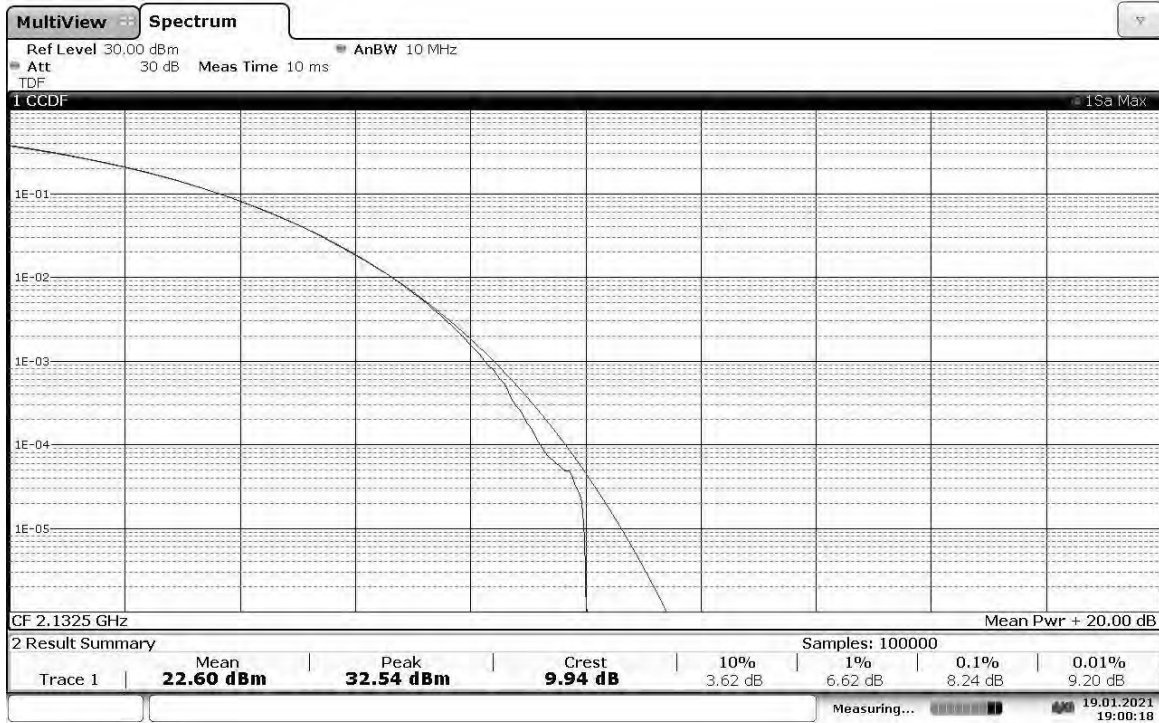
17:58:03 26.01.2021

TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5MHz, PAPR = 10.06 dB



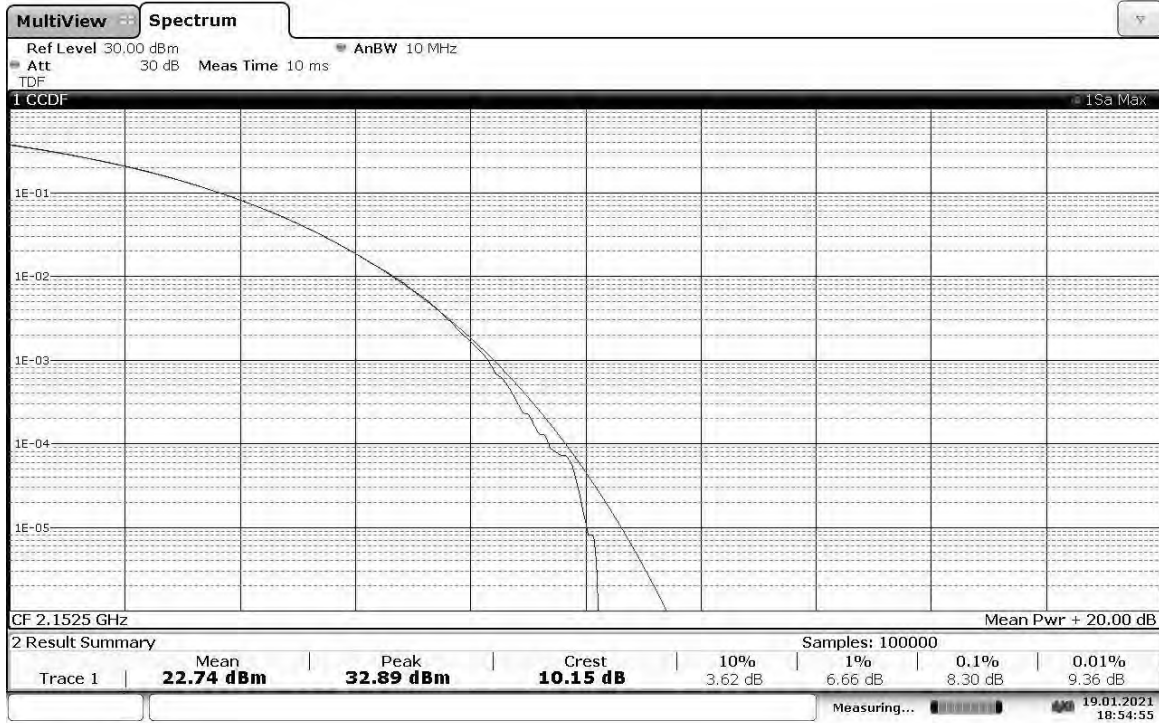
19:01:13 19.01.2021

TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 9.94 dB



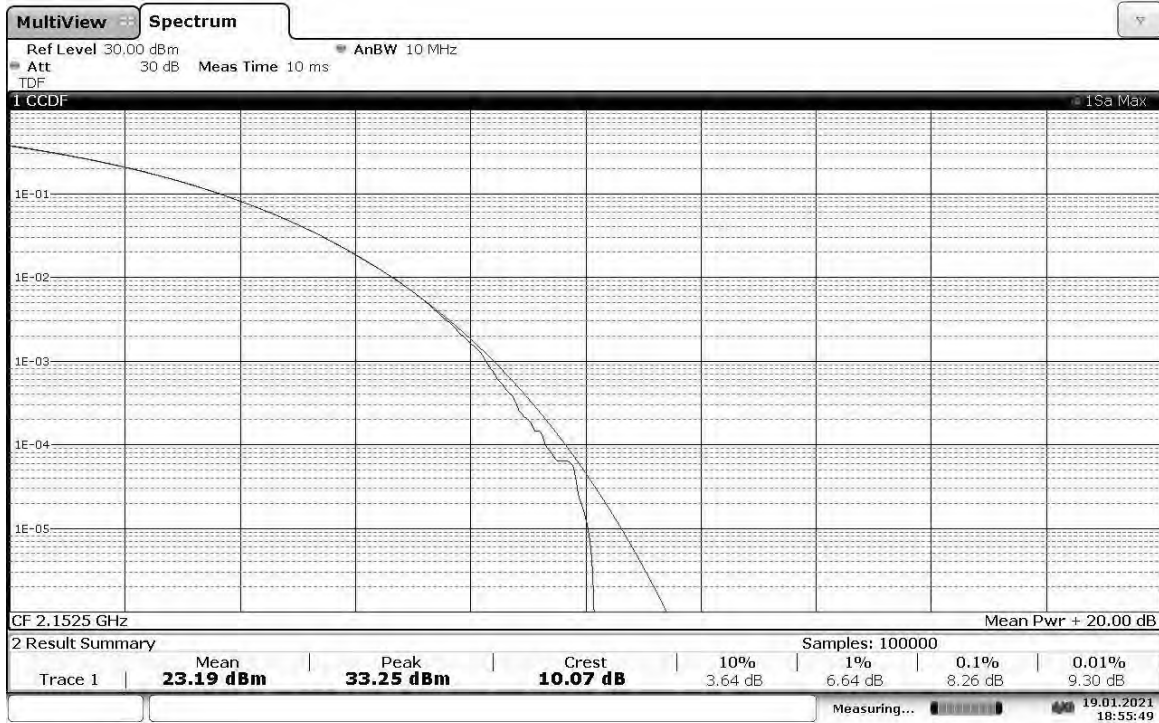
19:00:19 19.01.2021

TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2152.5 MHz, PAPR = 10.15 dB



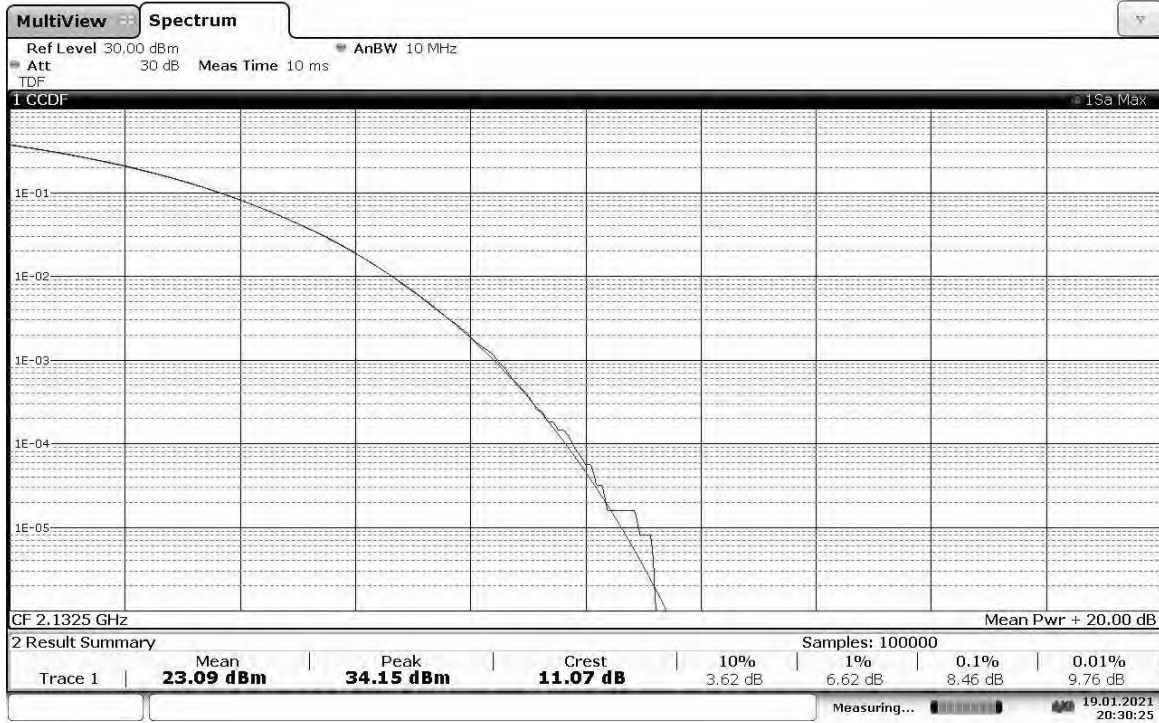
18:54:55 19.01.2021

TM3.1-64QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2152.5 MHz, PAPR = 10.07 dB



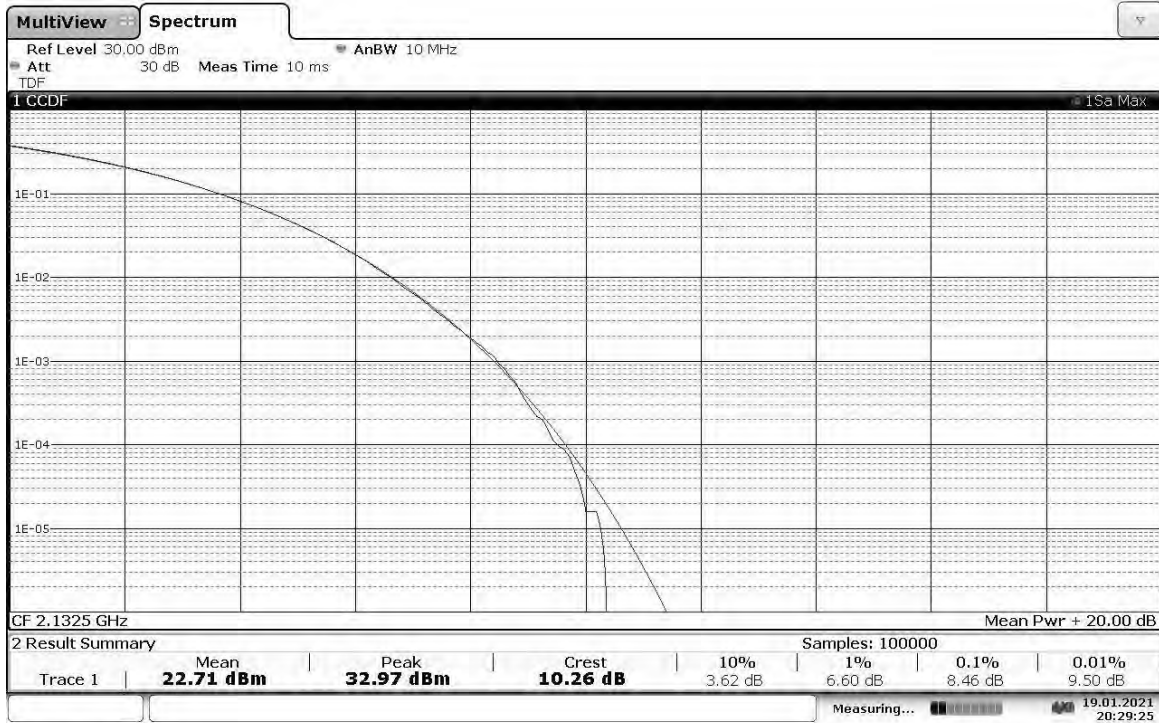
18:55:49 19.01.2021

TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 11.07 dB



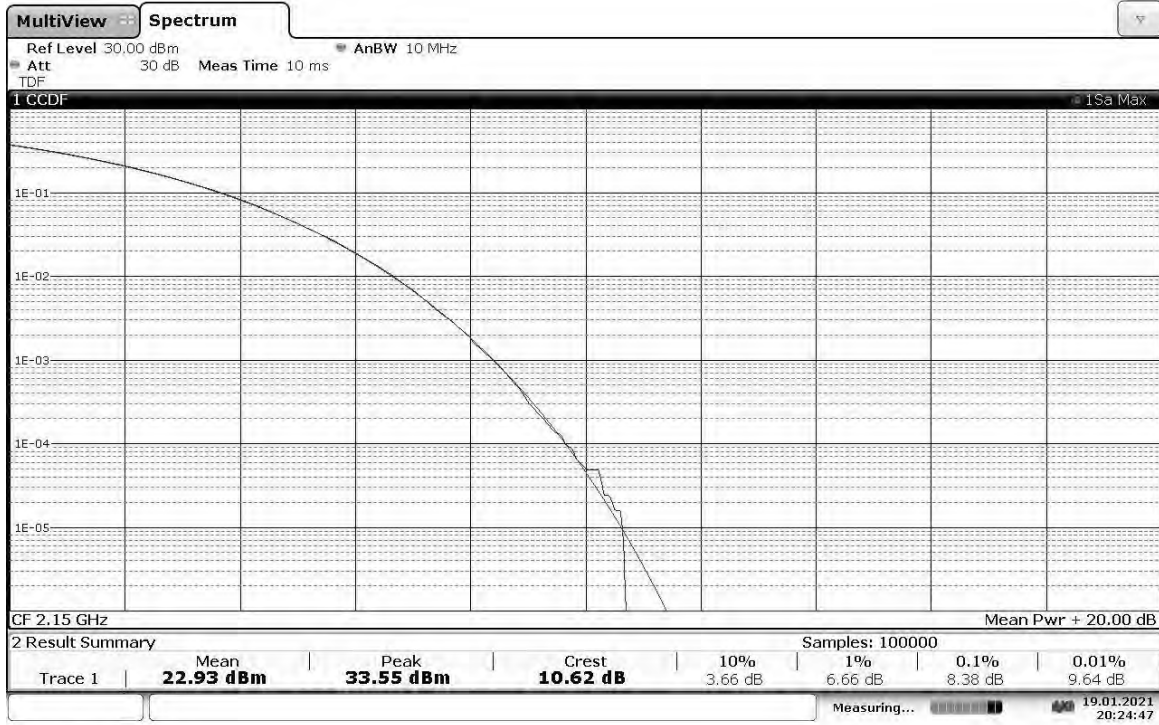
20:30:25 19.01.2021

TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.26 dB



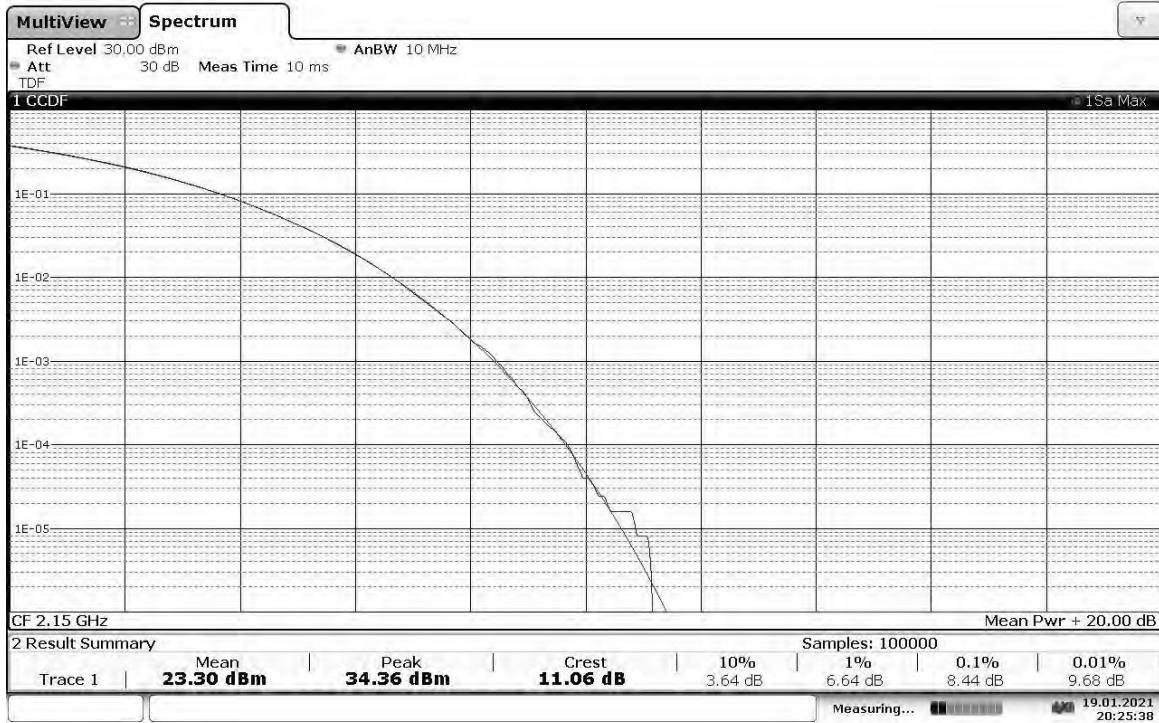
20:29:25 19.01.2021

TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2150 MHz, PAPR = 10.62 dB



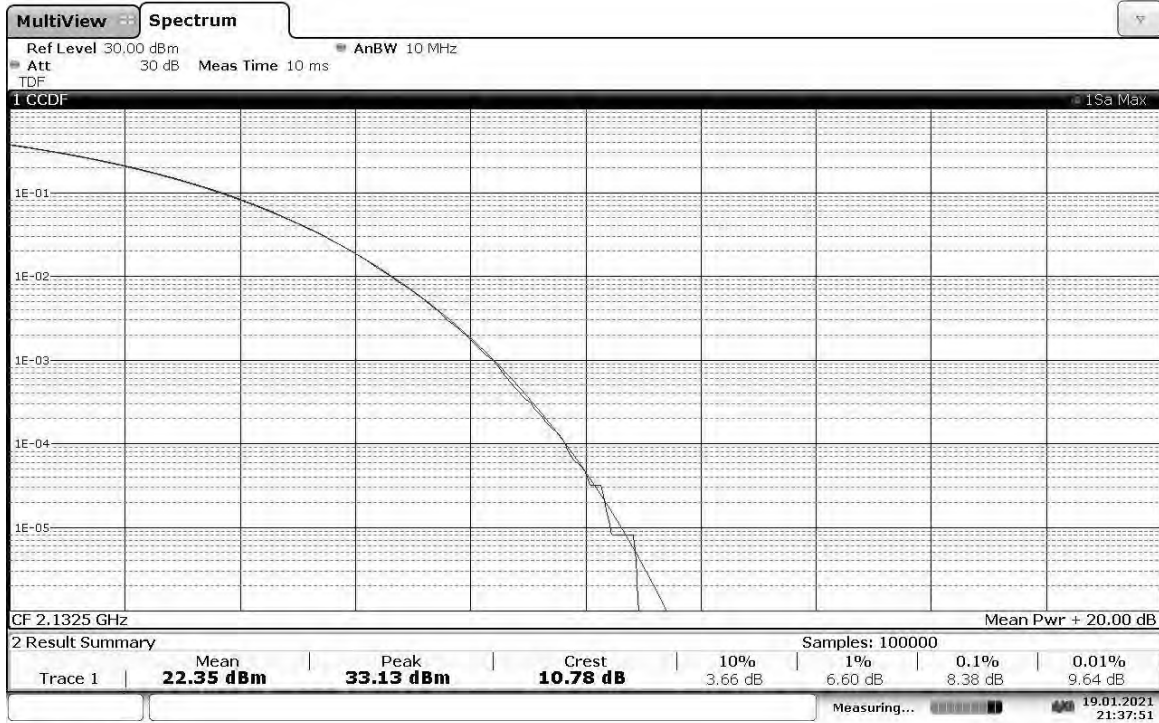
20:24:47 19.01.2021

TM3.1-64QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2150 MHz, PAPR = 11.06 dB



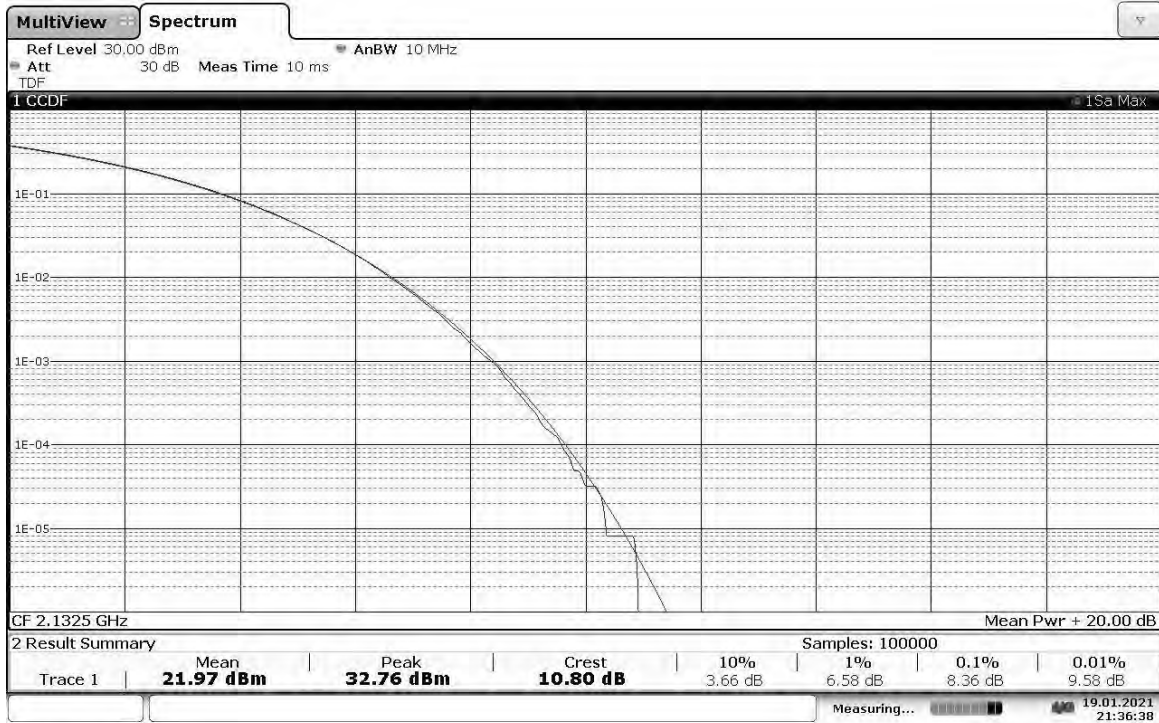
20:25:39 19.01.2021

TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.78 dB



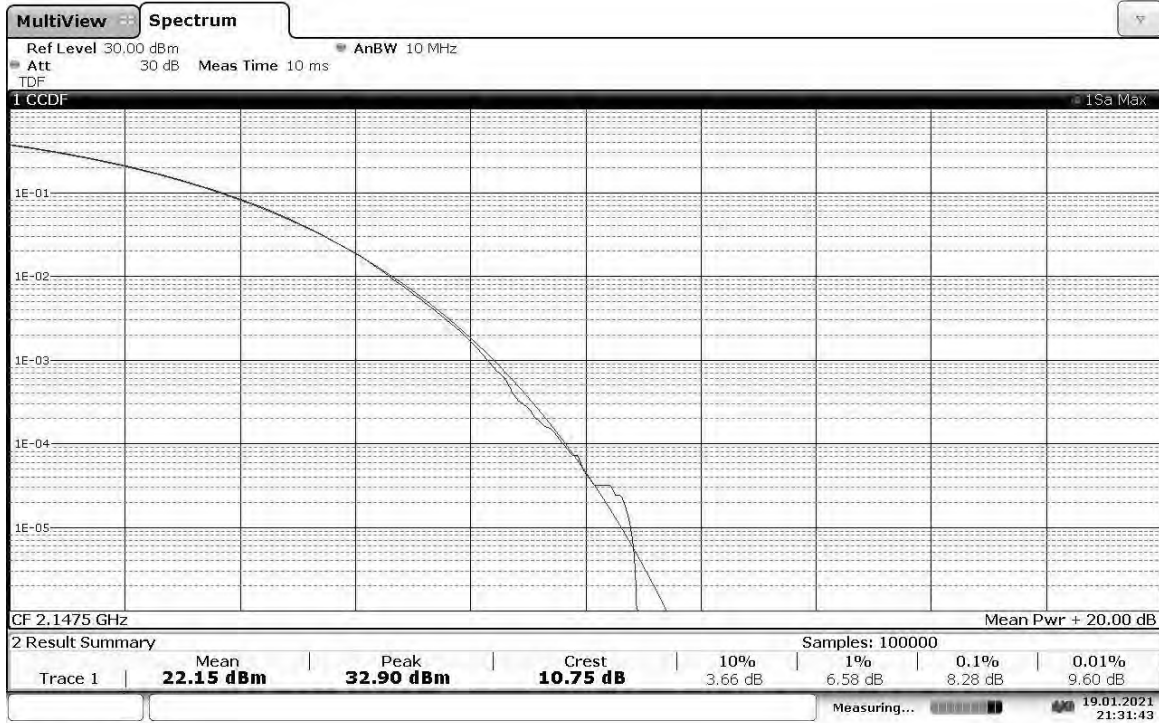
21:37:51 19.01.2021

TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.80 dB



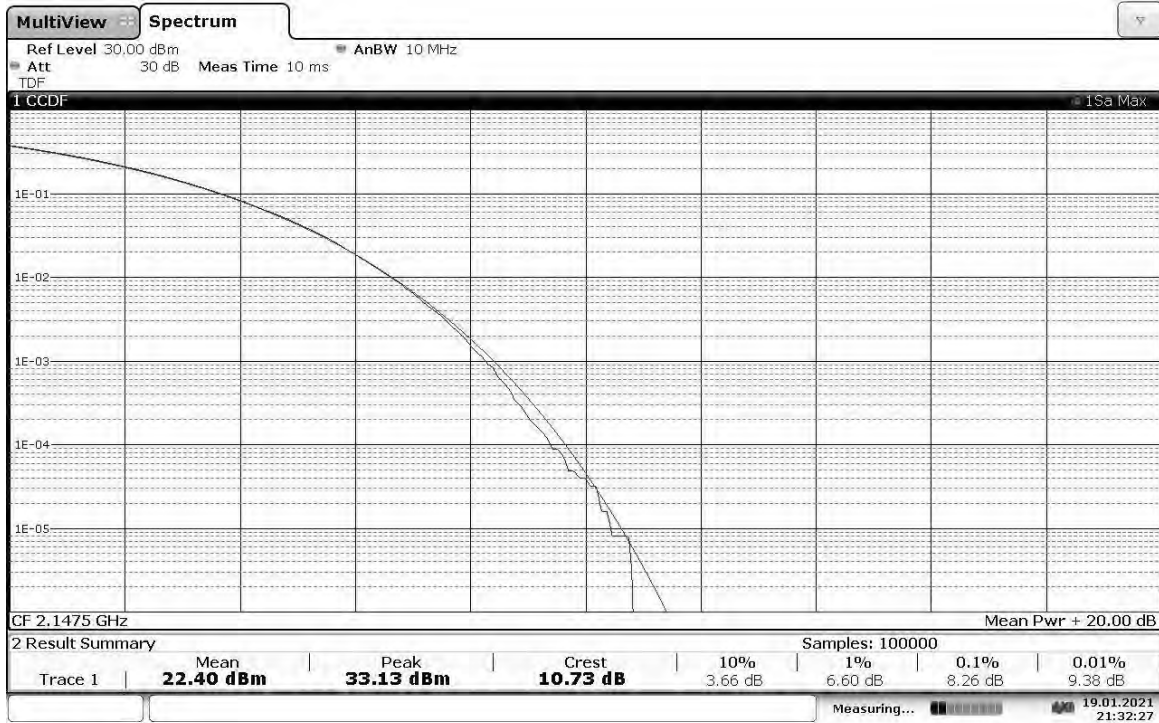
21:36:38 19.01.2021

TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2147.5 MHz, PAPR = 10.75 dB



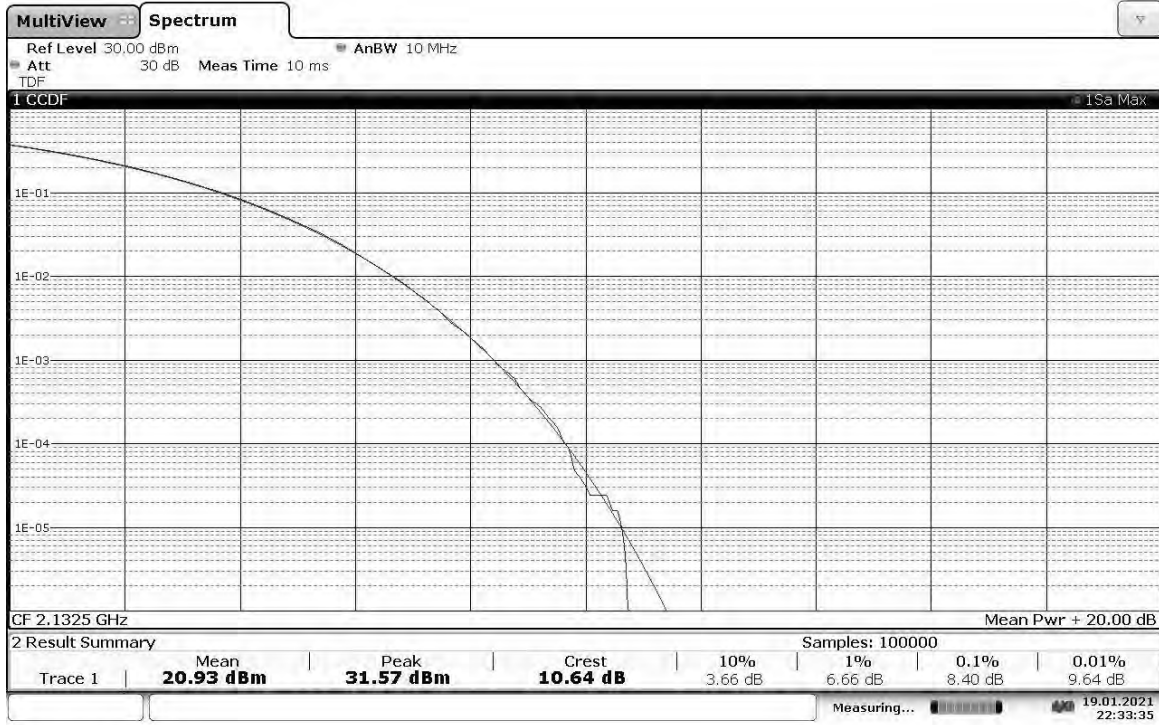
21:31:43 19.01.2021

TM3.1-64QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2147.5 MHz, PAPR = 10.73 dB



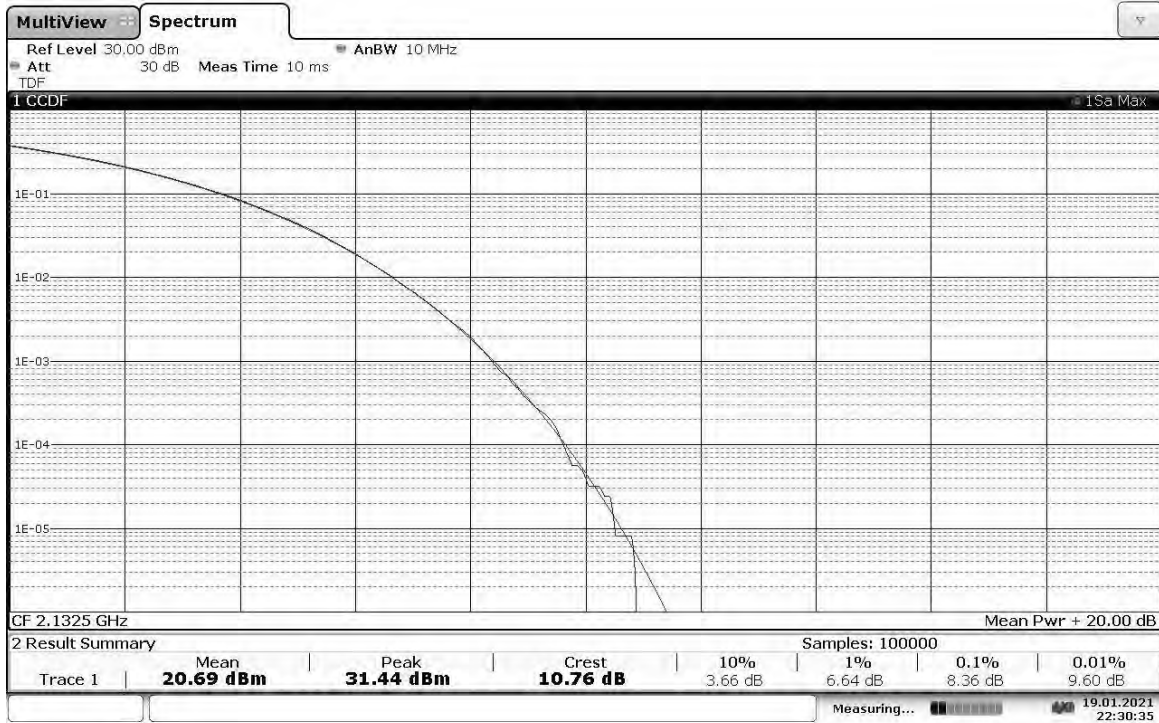
21:32:28 19.01.2021

TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.64 dB



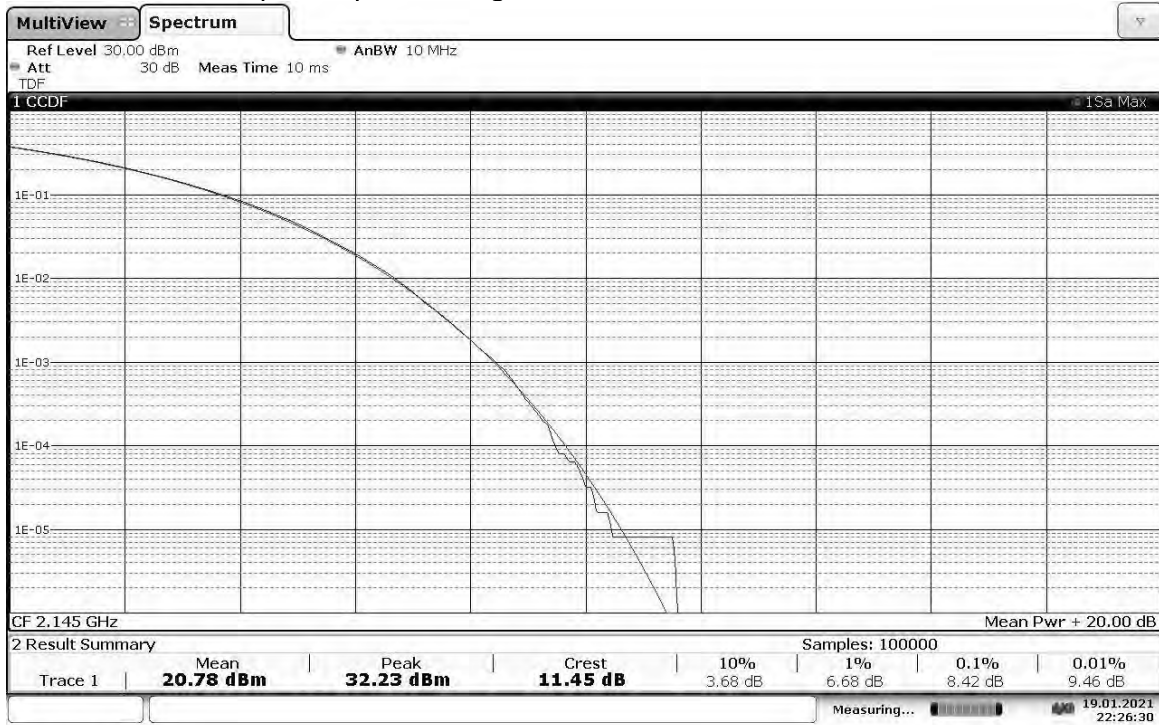
22:33:36 19.01.2021

TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.76 dB



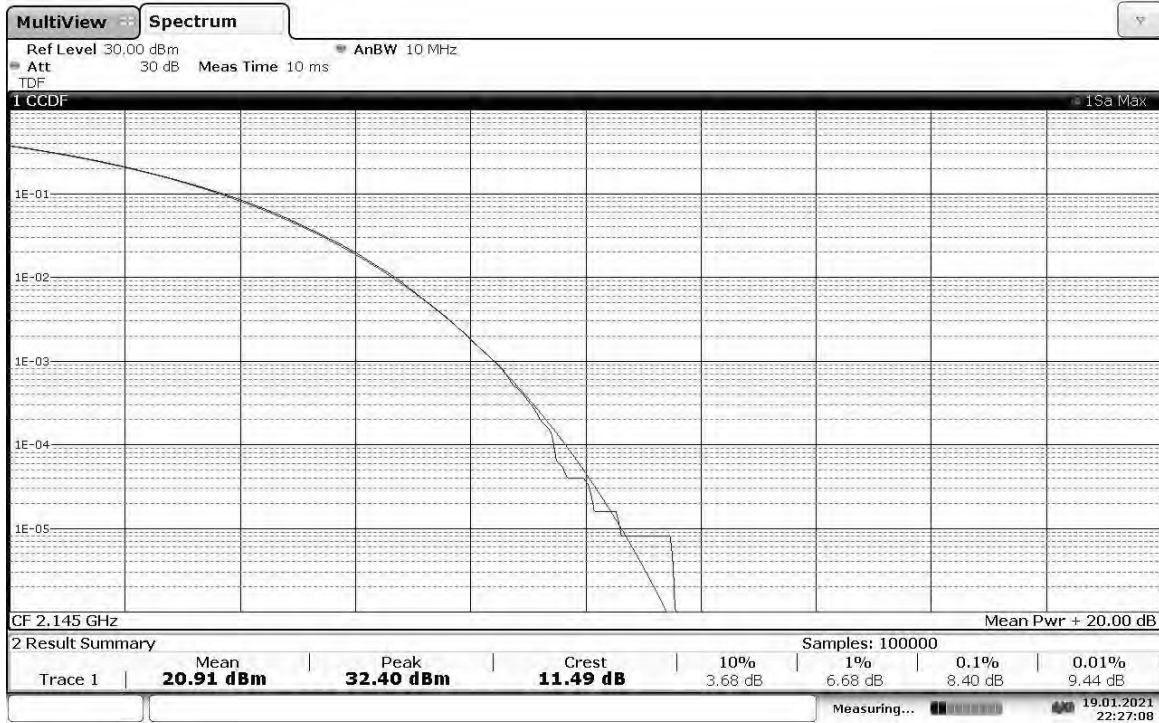
22:30:35 19.01.2021

TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2145 MHz, PAPR = 11.45 dB



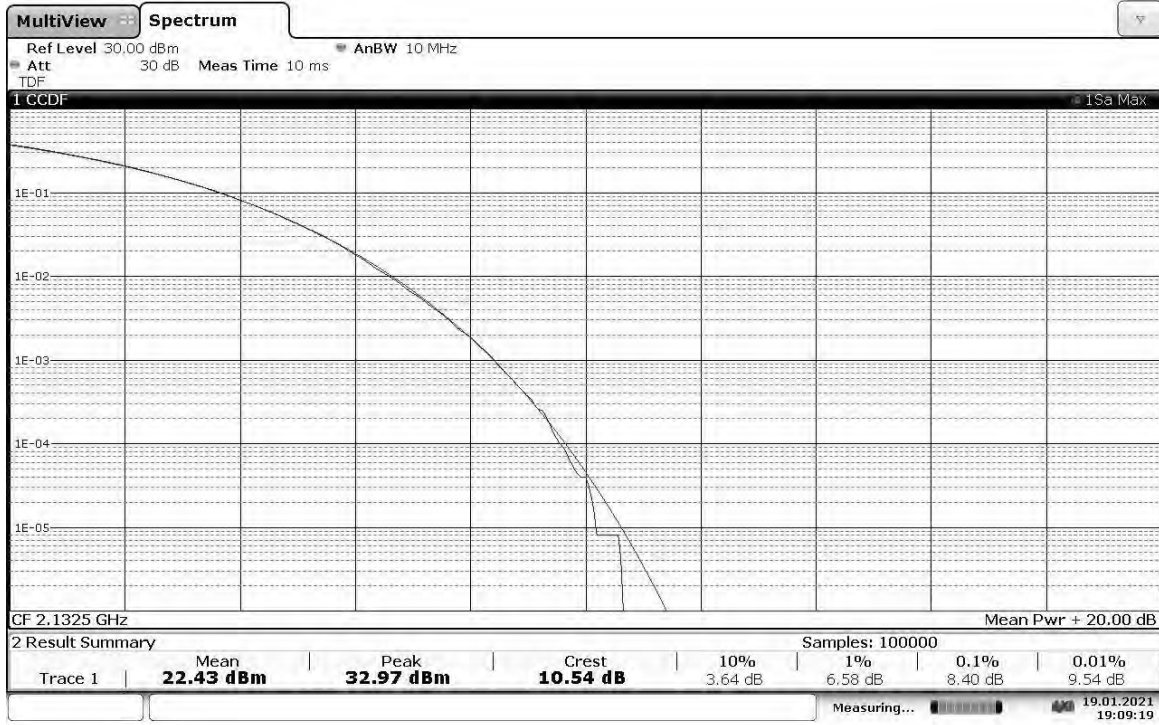
22:26:31 19.01.2021

TM3.1-64QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2145 MHz, PAPR = 11.49 dB



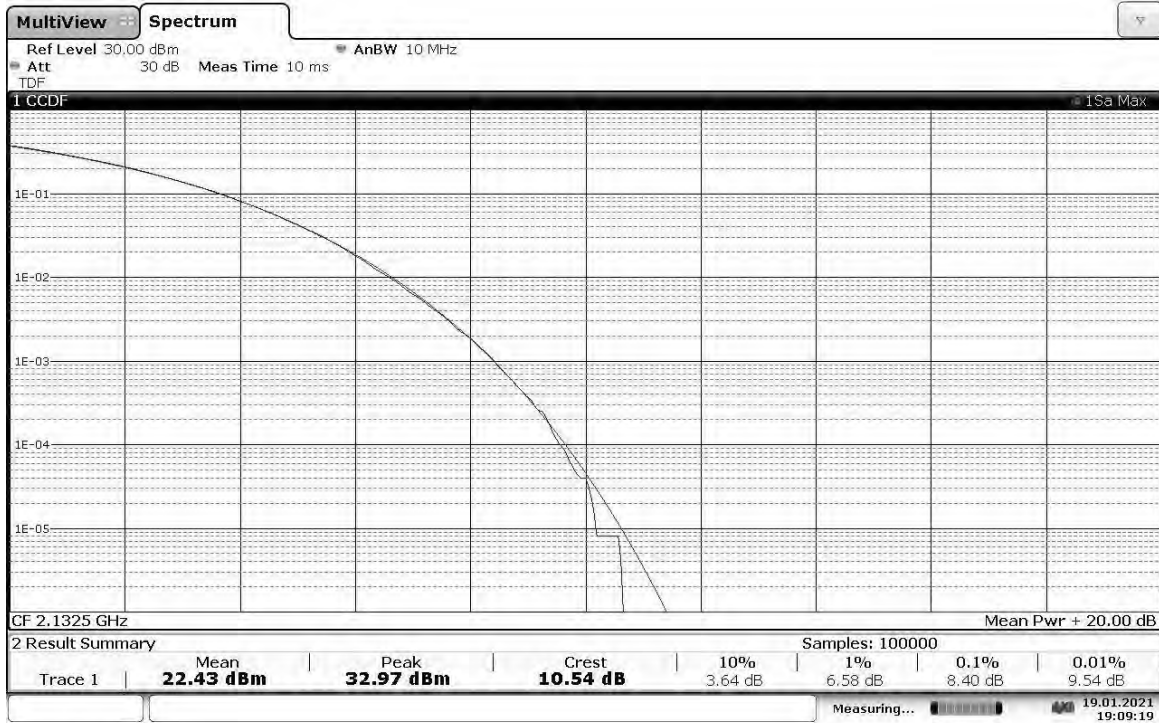
22:27:08 19.01.2021

TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.54 dB



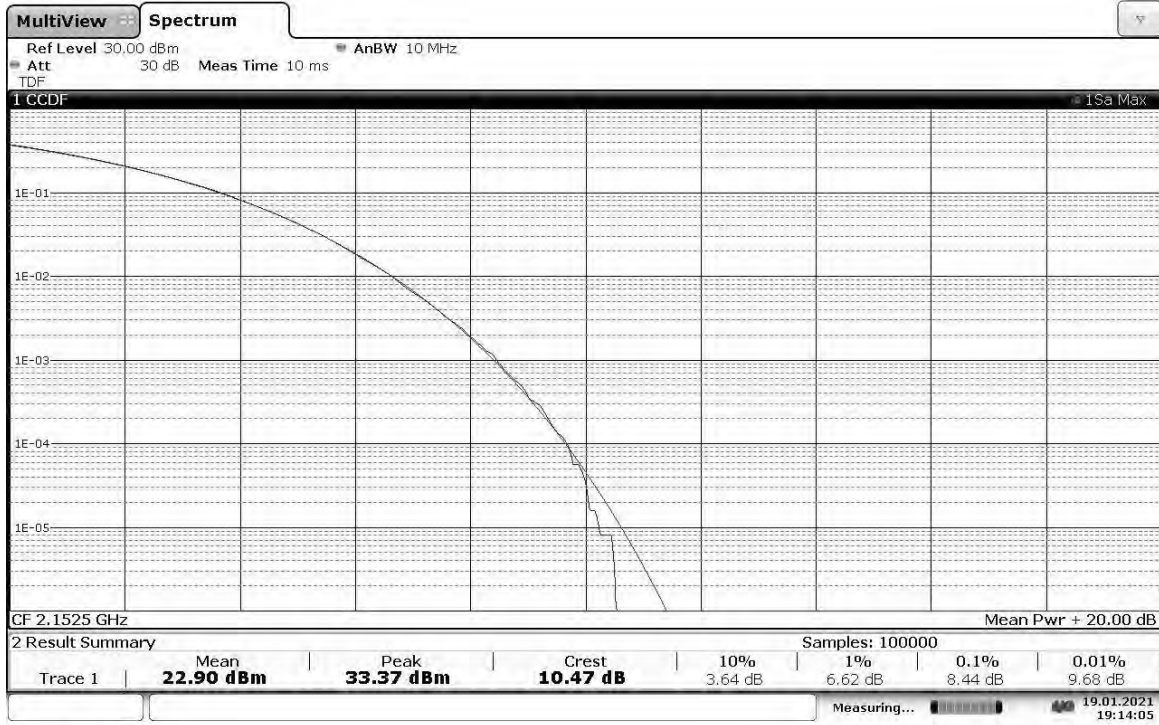
19:09:19 19.01.2021

TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.54 dB



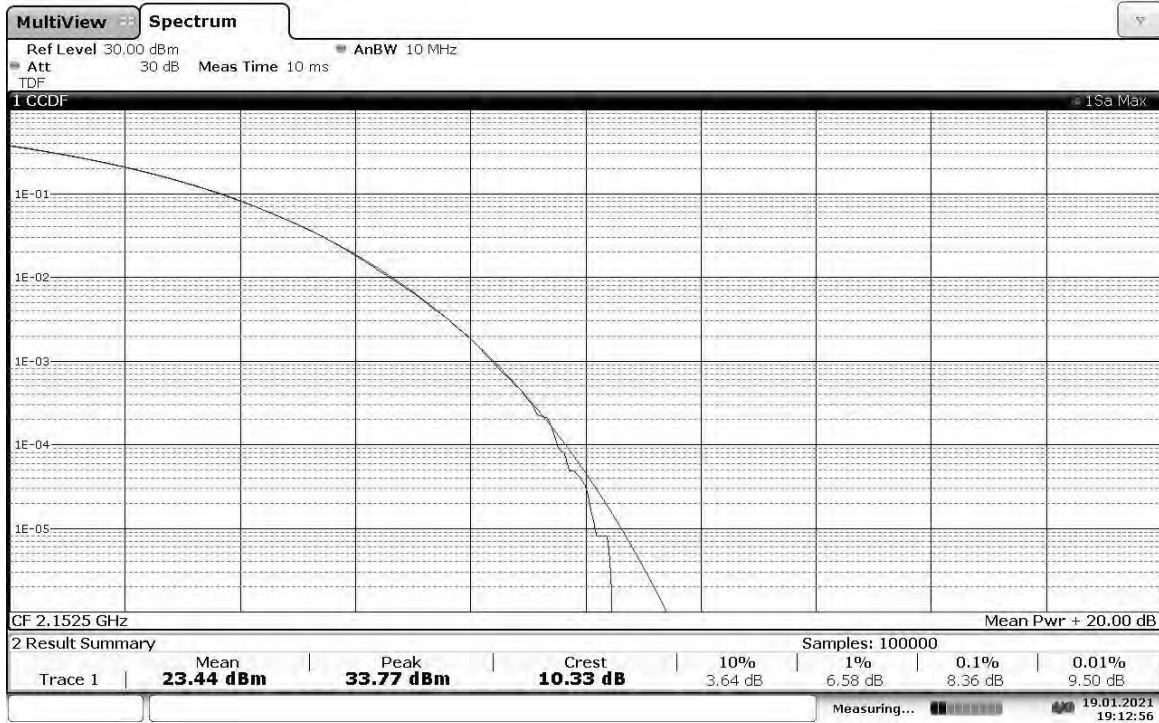
19:09:19 19.01.2021

TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2152.5 MHz, PAPR = 10.47 dB



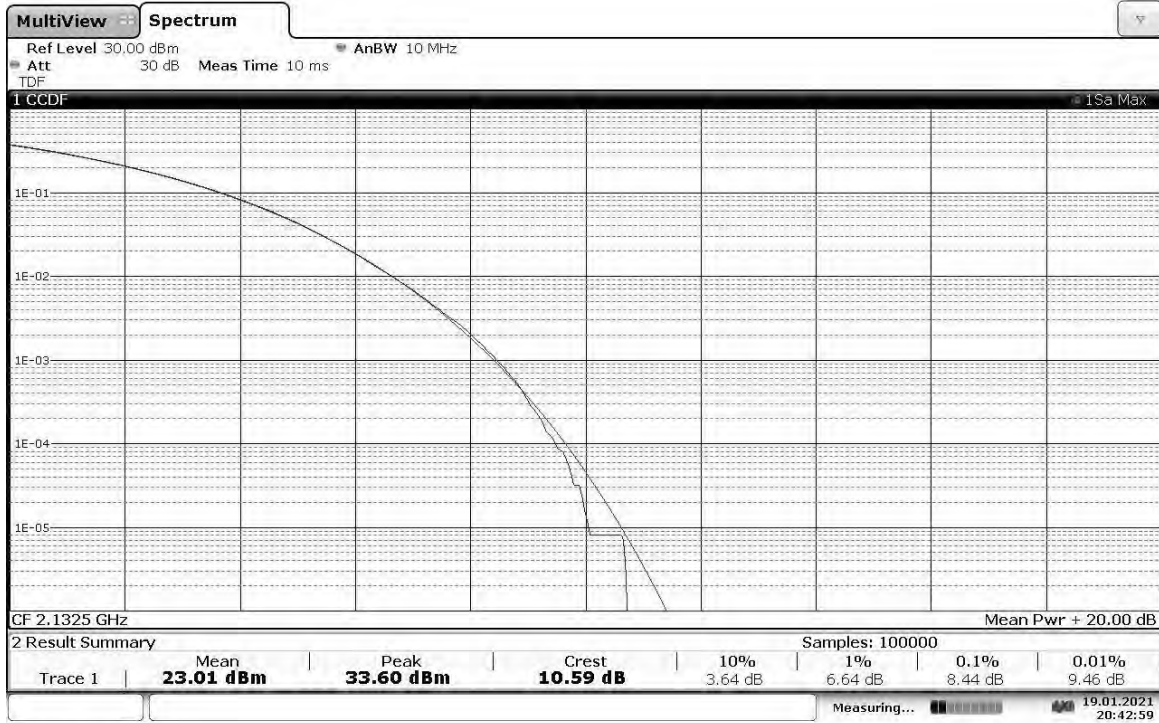
19:14:05 19.01.2021

TM3.1a-256QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2152.5 MHz, PAPR = 10.33 dB



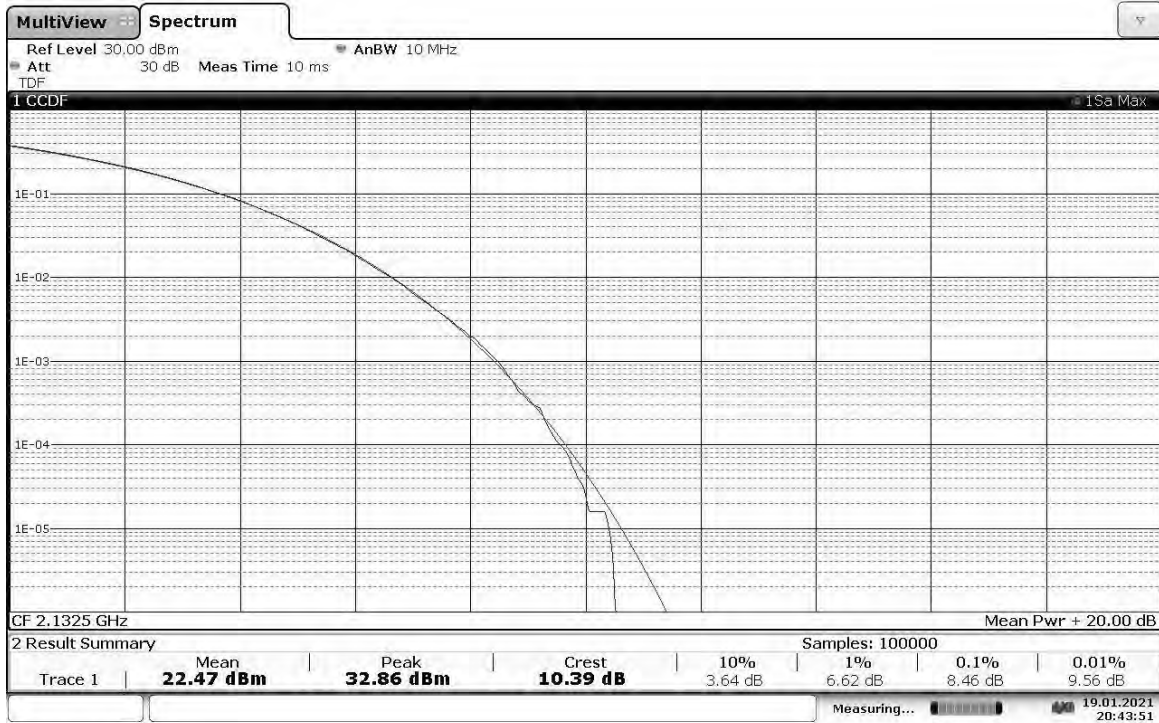
19:12:56 19.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.59 dB



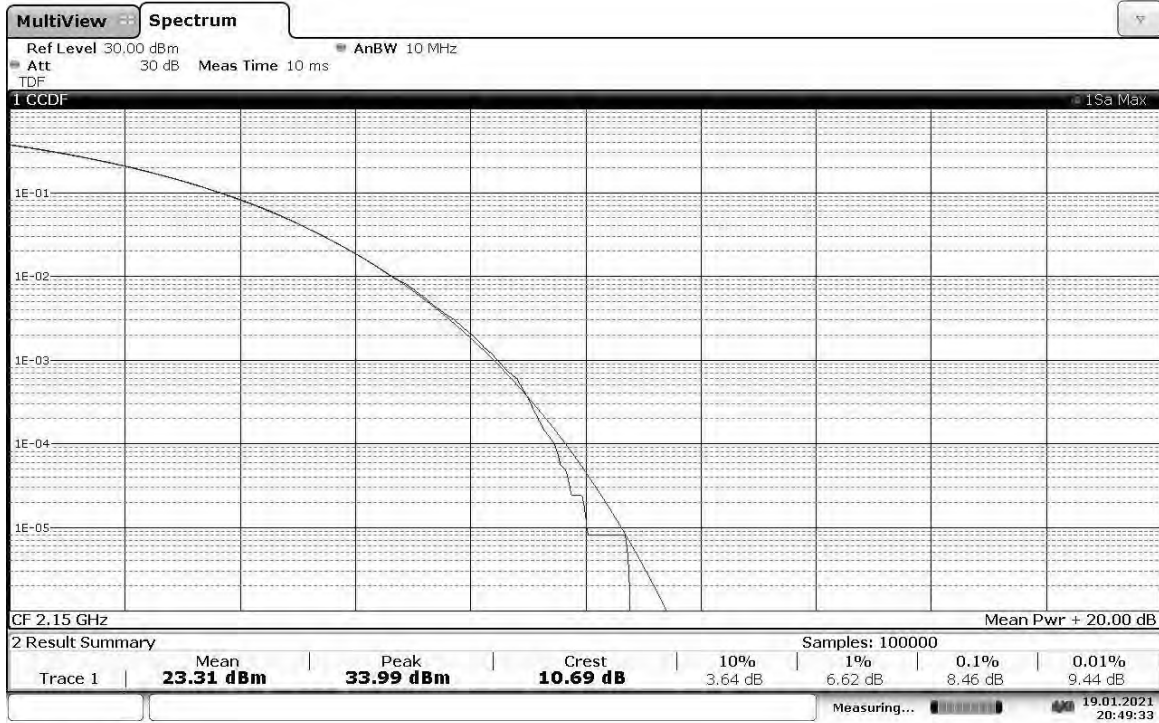
20:43:00 19.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.39 dB



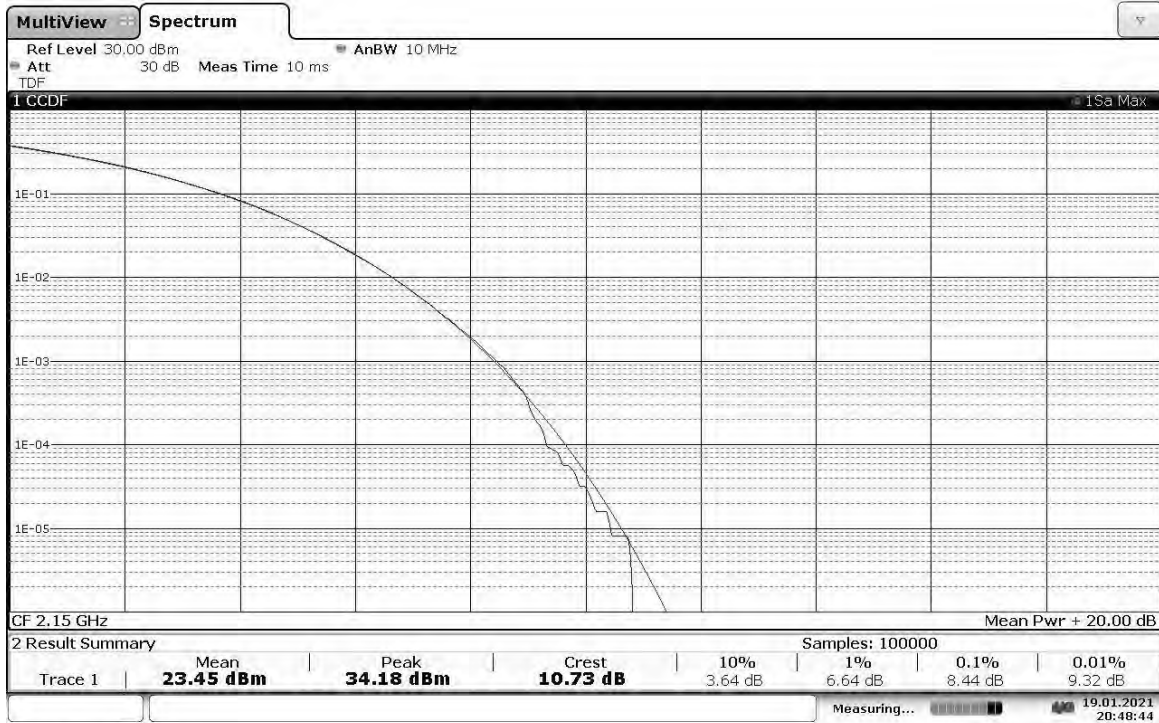
20:43:51 19.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2150 MHz, PAPR = 10.69 dB



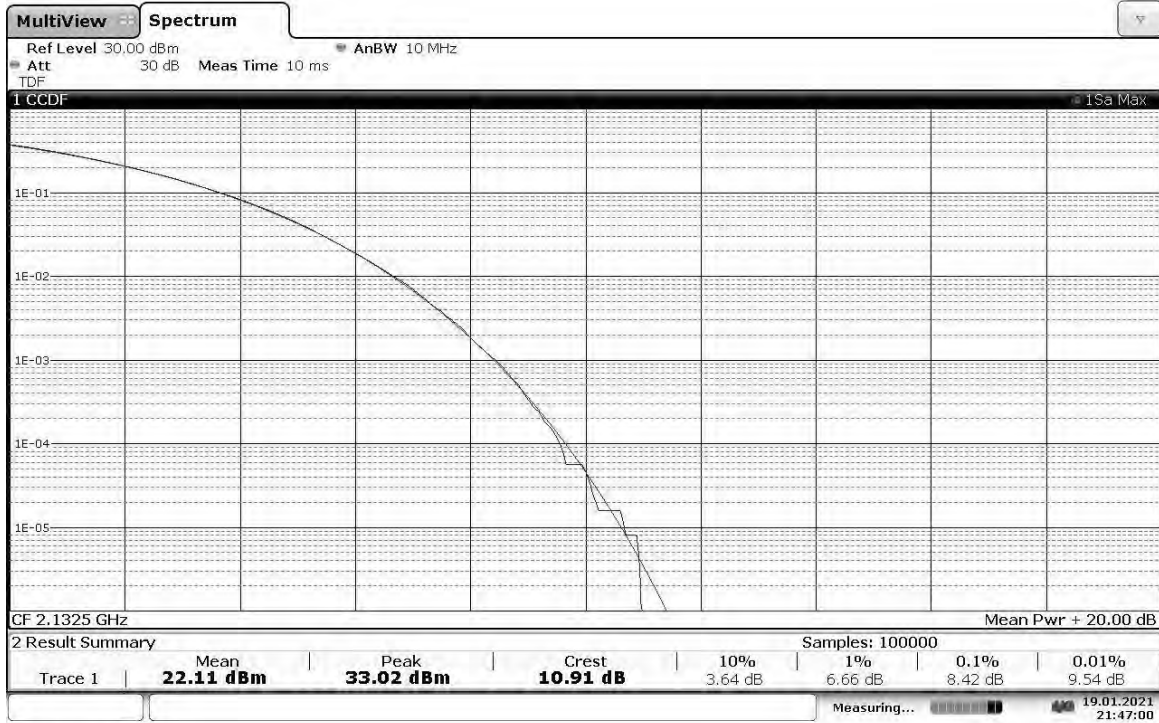
20:49:33 19.01.2021

TM3.1a-256QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2150 MHz, PAPR = 10.73 dB



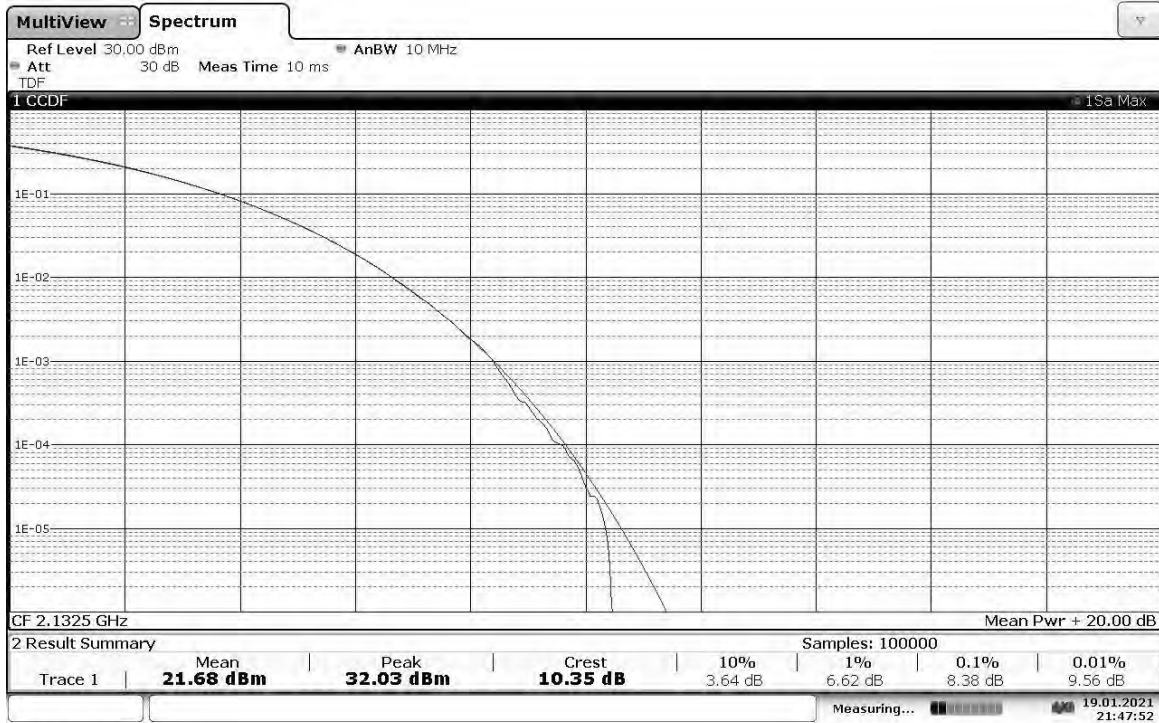
20:48:45 19.01.2021

TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.91 dB



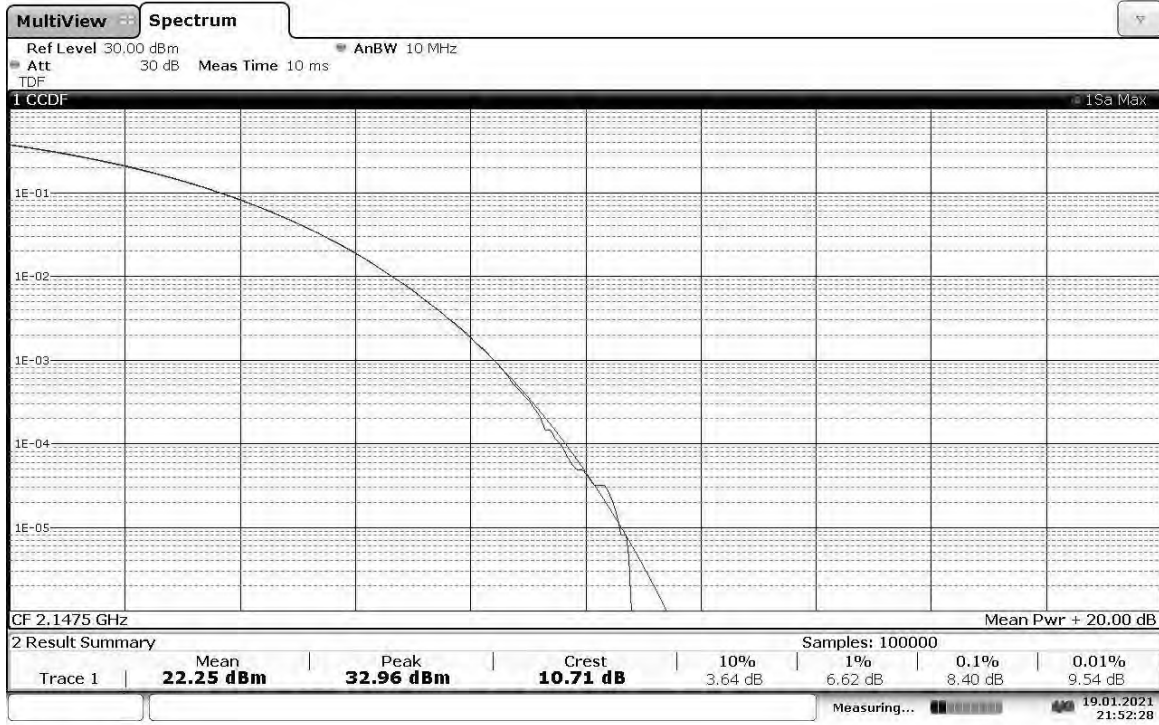
21:47:01 19.01.2021

TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.35dB



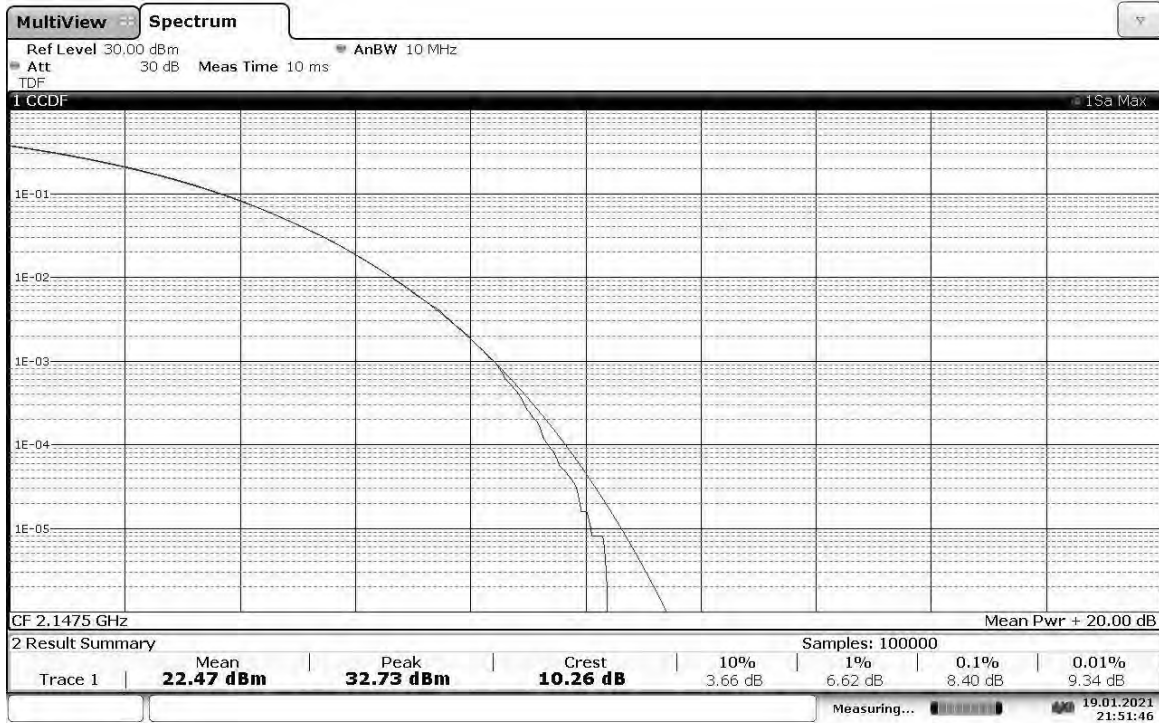
21:47:52 19.01.2021

TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2147.5 MHz, PAPR = 10.71 dB



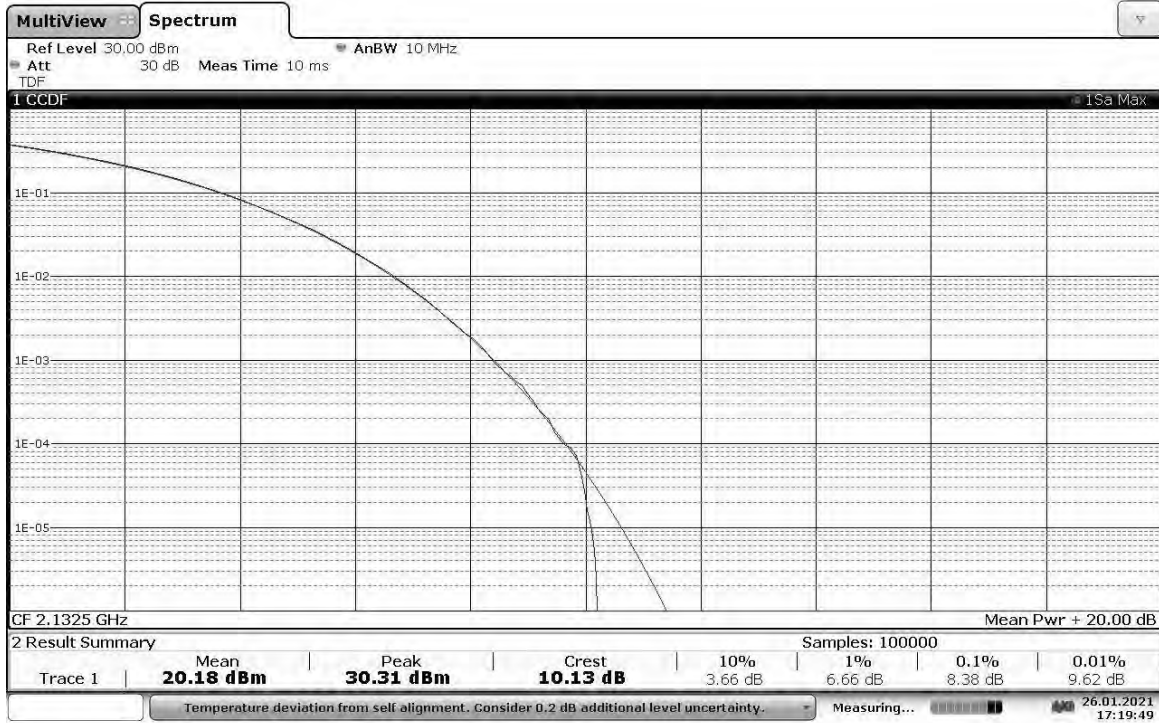
21:52:28 19.01.2021

TM3.1a-256QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2147.5 MHz, PAPR = 10.26 dB



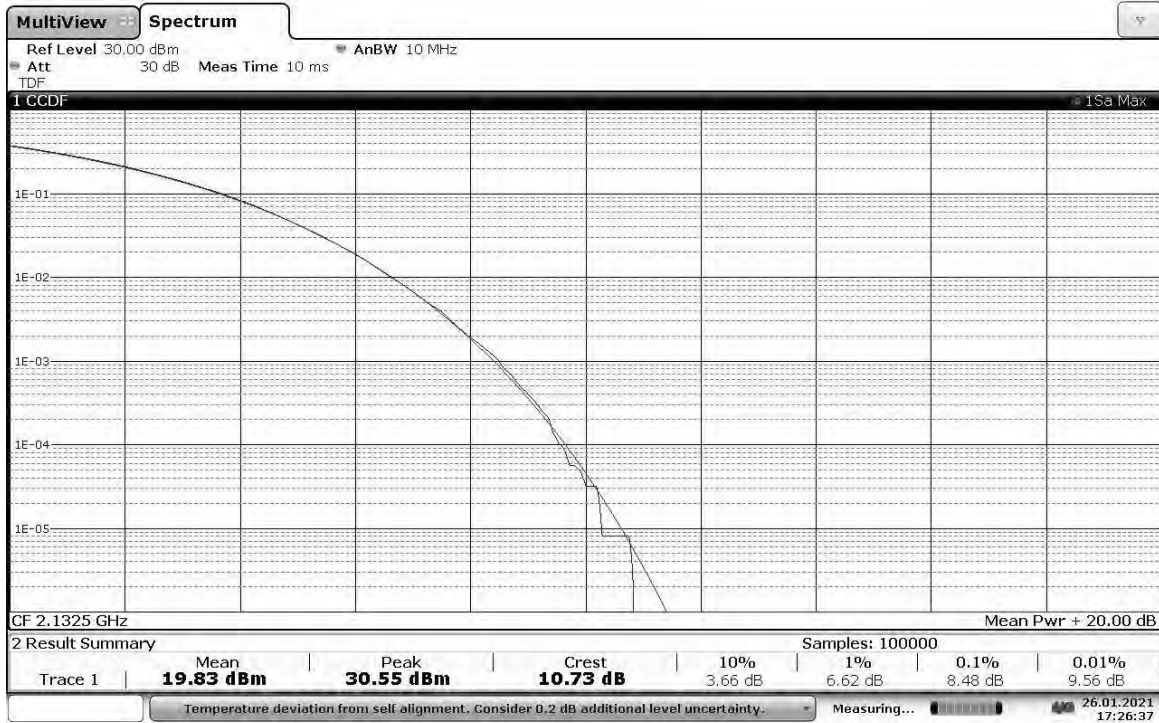
21:51:46 19.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel 2132.5 MHz, PAPR = 10.13 dB



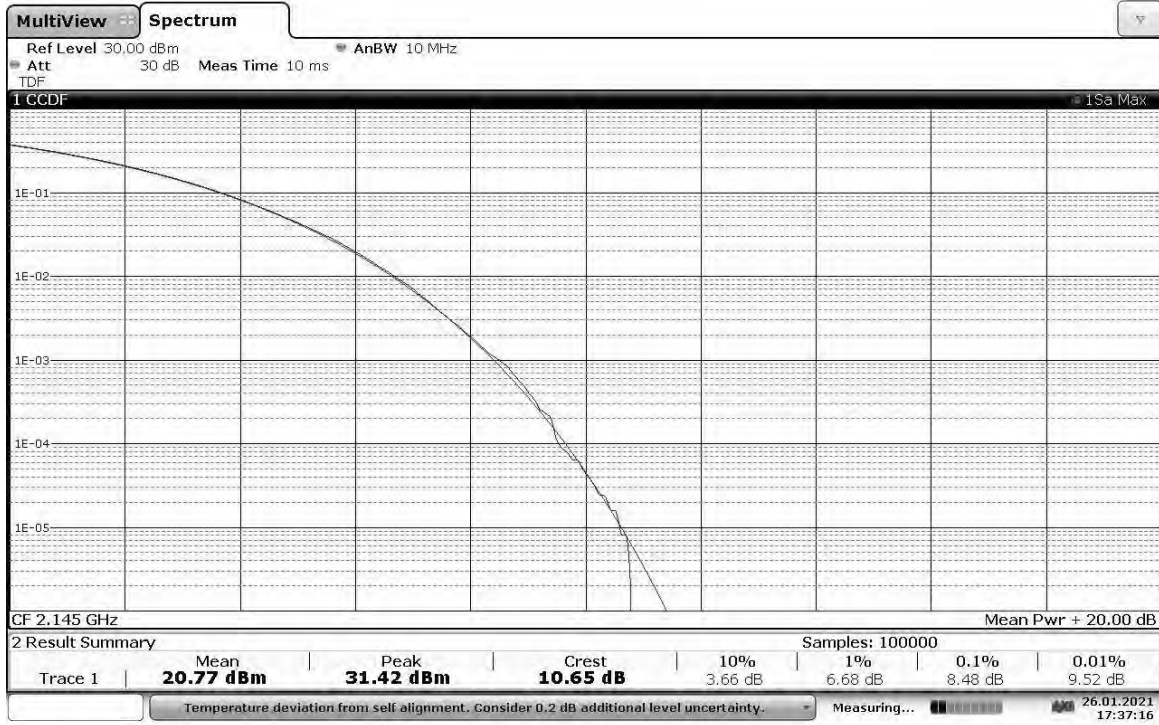
17:19:49 26.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel 2132.5 MHz, PAPR = 10.73 dB



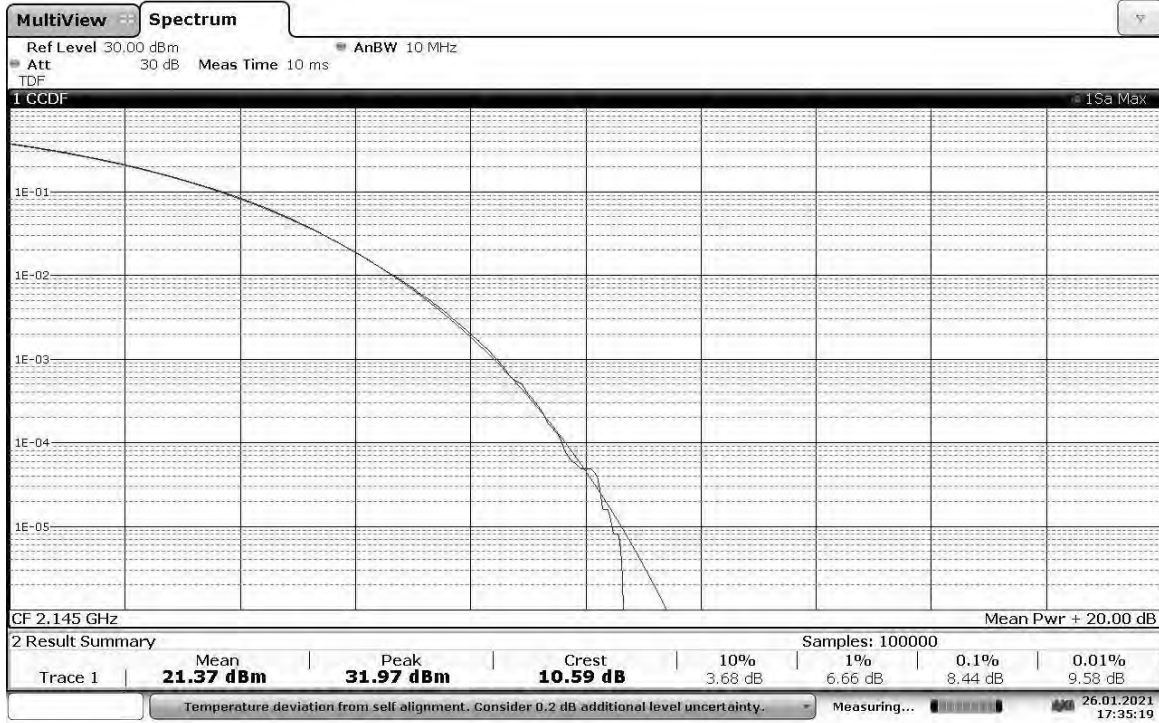
17:26:38 26.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel 2145 MHz, PAPR = 10.65 dB



17:37:16 26.01.2021

TM3.1a-256QAM_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel 2145 MHz, PAPR = 10.59 dB



17:35:19 26.01.2021

Test Personnel: <u>Vathana Ven <i>VSV</i></u>	Test Date: <u>01/19/2021</u>
Supervising/Reviewing Engineer: <u>N/A</u>	<u>01/26/2021</u>
Product Standard: <u>FCC Part 27</u>	Limit Applied: <u>See report section 7.3</u>
Input Voltage: <u>48 VDC (POE)</u>	
Pretest Verification w/ Ambient Signals or BB Source: <u>N/A</u>	Ambient Temperature: <u>22, 23°C</u>
	Relative Humidity: <u>21, 15%</u>
	Atmospheric Pressure: <u>1004, 1013mbars</u>

Deviations, Additions, or Exclusions: None

8 26 dB Bandwidth and Occupied Bandwidth

8.1 Method

Tests are performed in accordance with ANSI C63.26 and CFR47 FCC Parts 2.1049 and 27.

TEST SITE: EMC Lab

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.

8.2 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 Schwartz	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	--	--

8.3 Results:

The sample tested was found to Comply.

§27.53(h)(3): The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

§2.1049: The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Band 4, Bandwidth: 5 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	4.492	4.490
		ANT1	4.492	4.95
High	2152.50	ANT0	4.493	4.94
		ANT1	4.493	4.95

Band 4, Bandwidth: 10 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	8.948	9.77
		ANT1	8.943	9.77
High	2150.00	ANT0	8.947	9.78
		ANT1	8.943	9.79

Band 4, Bandwidth: 15 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	13.400	14.690
		ANT1	13.433	14.710
High	2147.50	ANT0	13.436	14.73
		ANT1	13.434	14.72

Band 4, Bandwidth: 20 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	17.872	19.53
		ANT1	17.878	19.52
High	2145.00	ANT0	17.874	19.540
		ANT1	17.869	19.470

Band 4, Bandwidth: 5 MHz, Modulation: TM3.2-16QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	4.486	4.930
		ANT1	4.483	4.930
High	2152.50	ANT0	4.486	4.930
		ANT1	4.486	4.93

Band 4, Bandwidth: 10 MHz, Modulation: TM3.2-16QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	8.957	9.740
		ANT1	8.956	9.760
High	2150.00	ANT0	8.955	9.750
		ANT1	8.955	9.740

Band 4, Bandwidth: 15 MHz, Modulation: TM3.2-16QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	13.423	14.600
		ANT1	13.434	14.620
High	2147.50	ANT0	13.419	14.590
		ANT1	13.425	14.590

Band 4, Bandwidth: 20 MHz, Modulation: TM3.2-16QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	17.888	19.470
		ANT1	17.891	19.490
High	2145.00	ANT0	17.890	19.440
		ANT1	17.882	19.480

Band 4, Bandwidth: 5 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	4.513	4.980
		ANT1	4.514	4.970
High	2152.50	ANT0	4.516	4.980
		ANT1	4.515	4.980

Band 4, Bandwidth: 10 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	8.954	9.800
		ANT1	8.958	9.800
High	2150.00	ANT0	8.956	9.800
		ANT1	8.957	9.800

Band 4, Bandwidth: 15 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	13.434	14.690
		ANT1	13.435	14.710
High	2147.50	ANT0	13.436	14.710
		ANT1	13.432	14.720

Band 4, Bandwidth: 20 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	17.892	19.440
		ANT1	17.893	19.460
High	2145.00	ANT0	17.881	19.430
		ANT1	17.885	19.450

Band 4, Bandwidth: 5 MHz, Modulation: TM3.1a-256QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	4.499	4.960
		ANT1	4.499	4.960
High	2152.50	ANT0	4.499	4.970
		ANT1	4.499	4.970

Band 4, Bandwidth: 10 MHz, Modulation: TM3.1a-256QAM

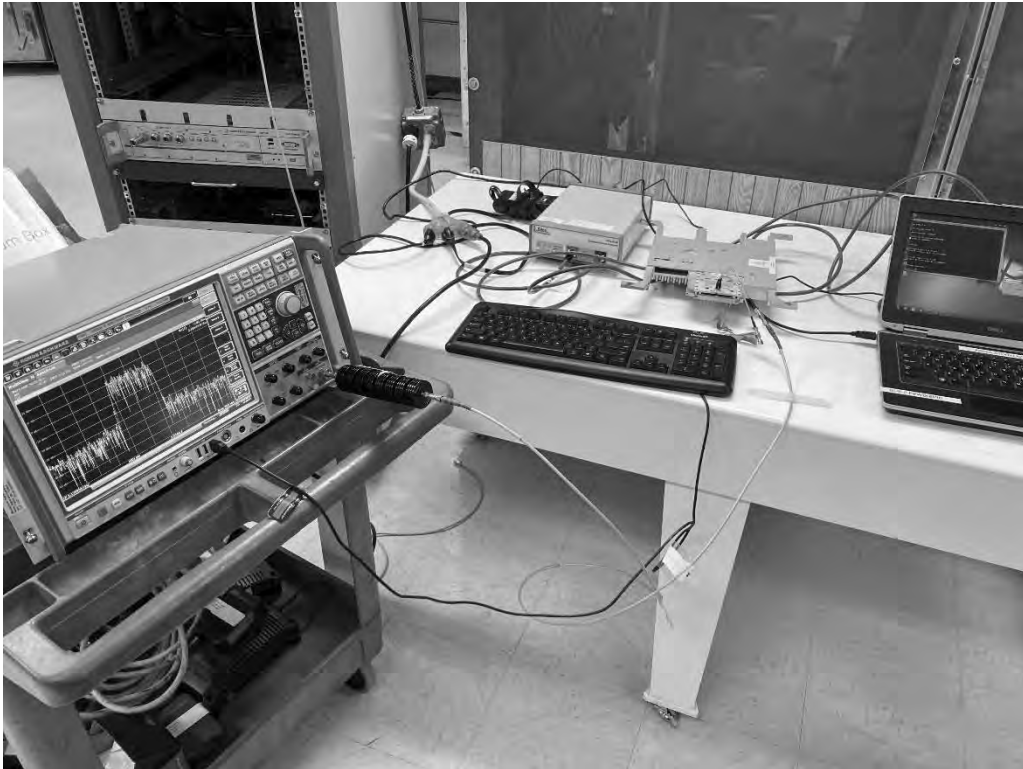
Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	8.948	9.720
		ANT1	8.950	9.710
High	2150.00	ANT0	8.946	9.700
		ANT1	8.946	9.700

Band 4, Bandwidth: 15 MHz, Modulation: TM3.1a-256QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	13.428	14.720
		ANT1	13.430	14.710
High	2147.50	ANT0	13.433	14.740
		ANT1	13.430	14.700

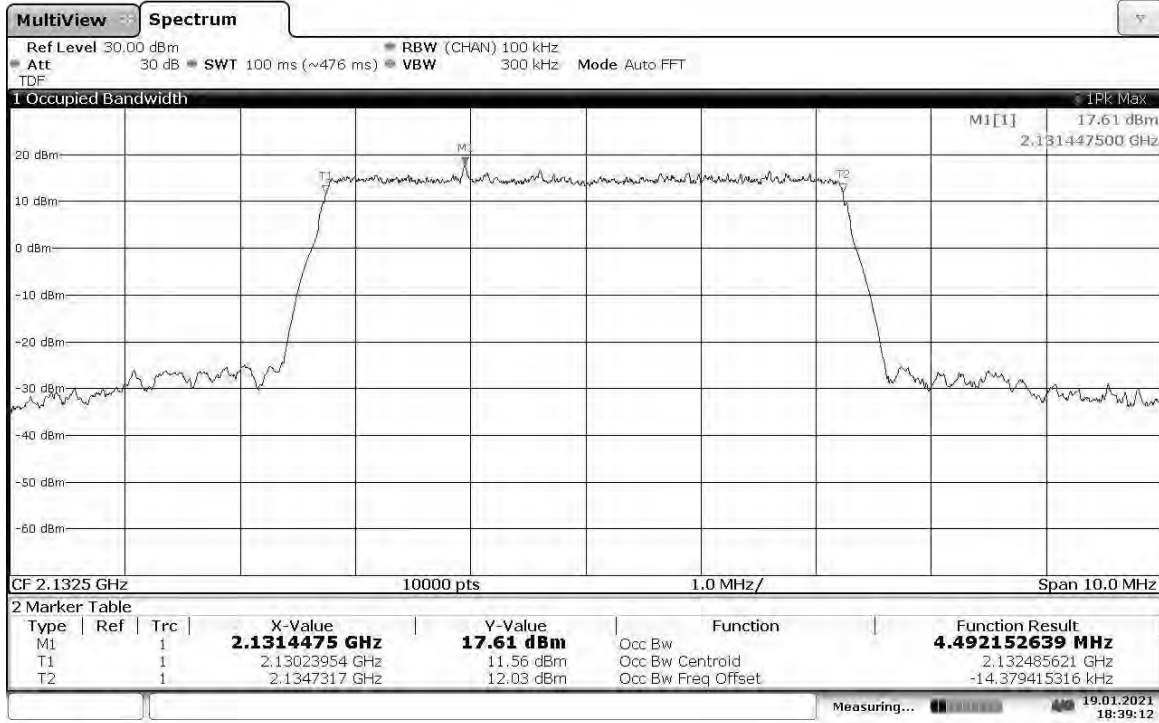
Band 4, Bandwidth: 20 MHz, Modulation: TM3.1a-256QAM

Channel	Frequency (MHz)	Antenna Port	Occupied BW (MHz)	26 dB BW (MHz)
Mid	2132.50	ANT0	17.915	19.760
		ANT1	17.882	19.570
High	2145.00	ANT0	17.880	19.560
		ANT1	17.873	19.570

8.4 Setup Photograph:

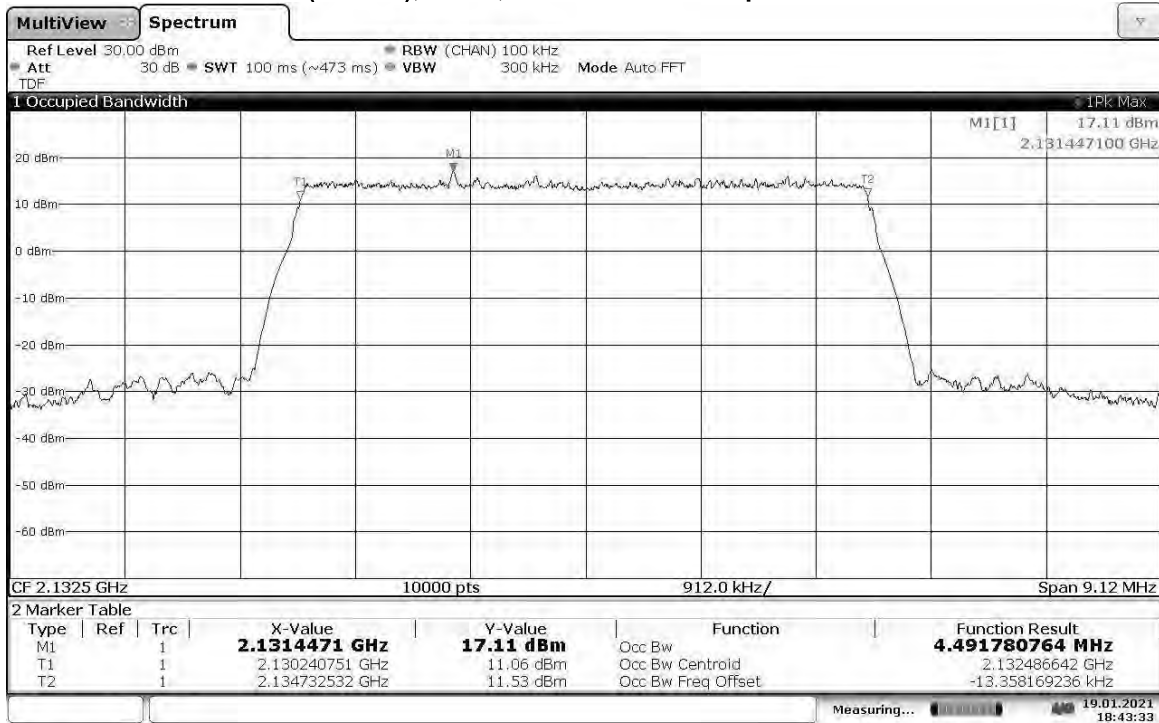
8.5 Plots/Data:

TM1.1-QPSK_5 MHz Bandwidth Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth



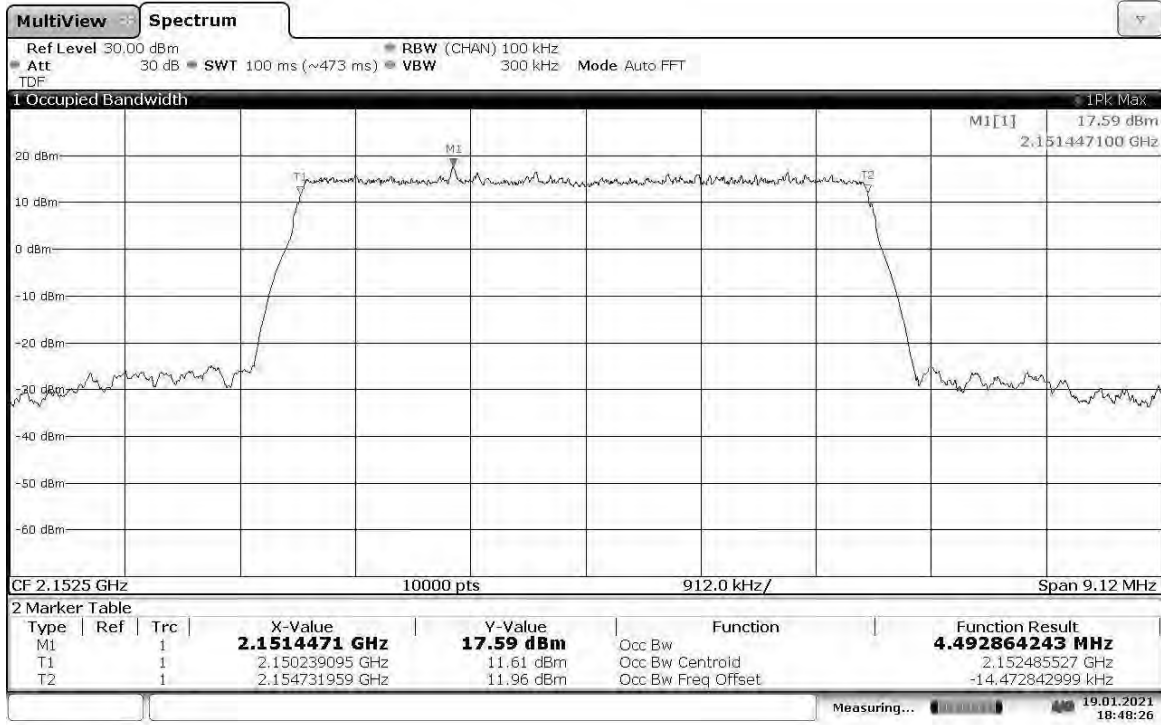
18:39:12 19.01.2021

TM1.1-QPSK_5 MHz Bandwidth Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth



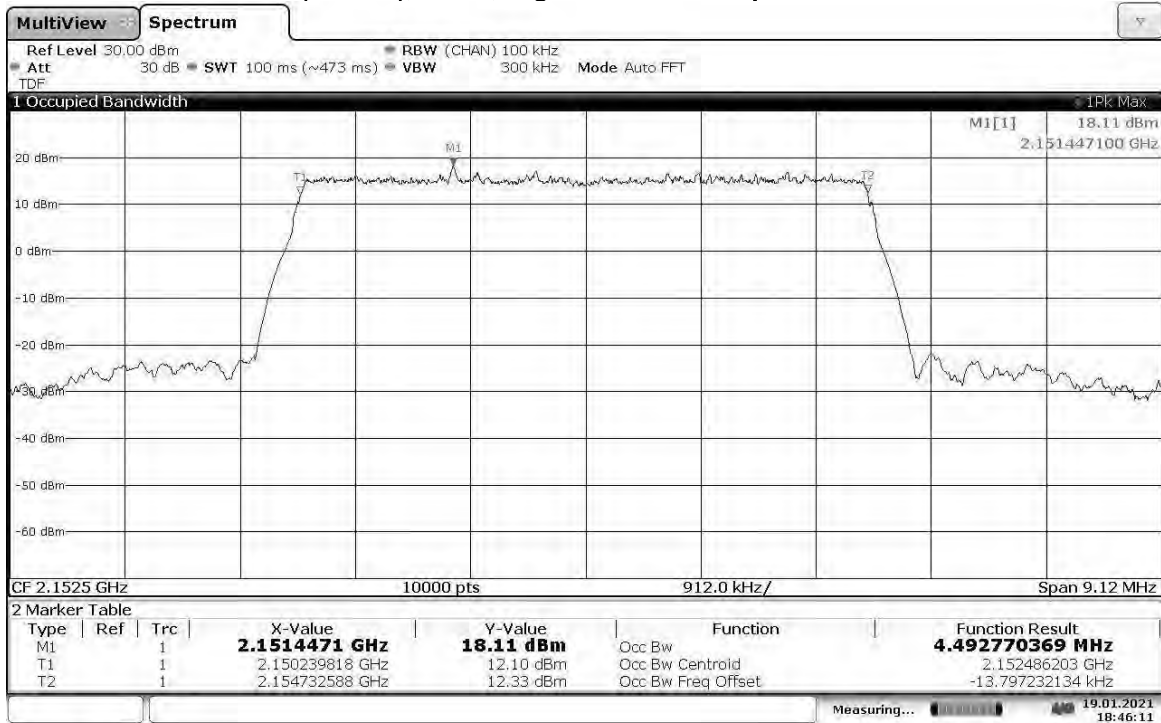
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TM1.1-QPSK_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel Occupied Bandwidth



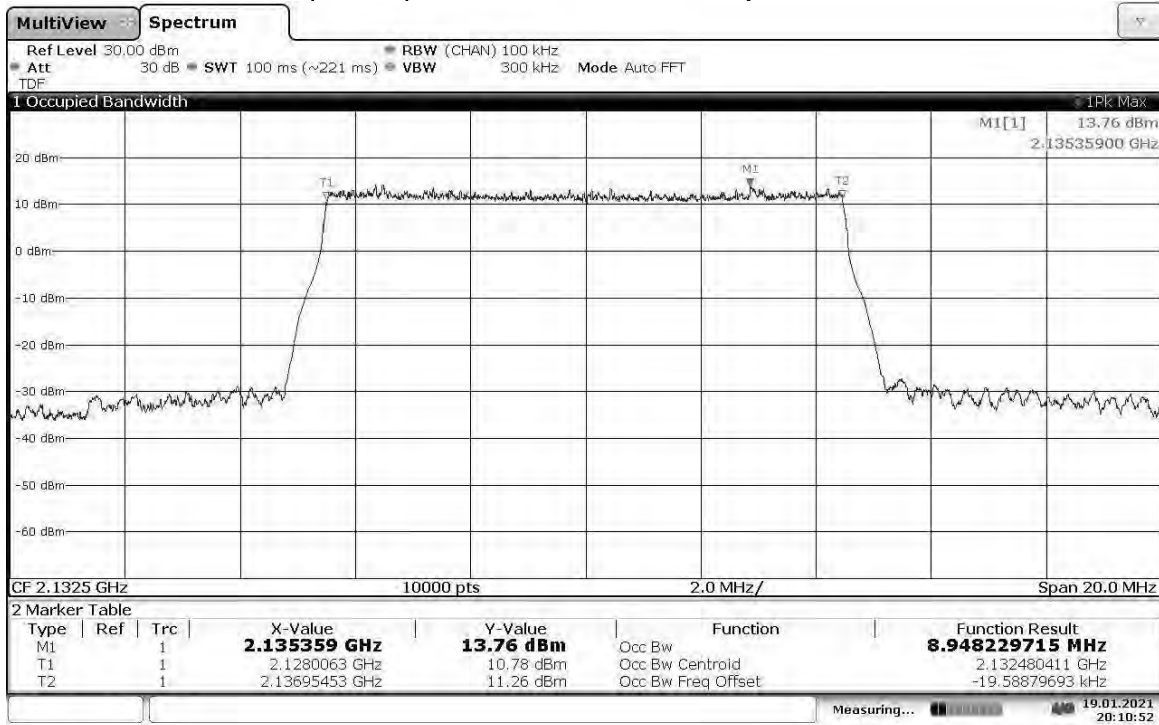
18:48:26 19.01.2021

TM1.1-QPSK_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel Occupied Bandwidth



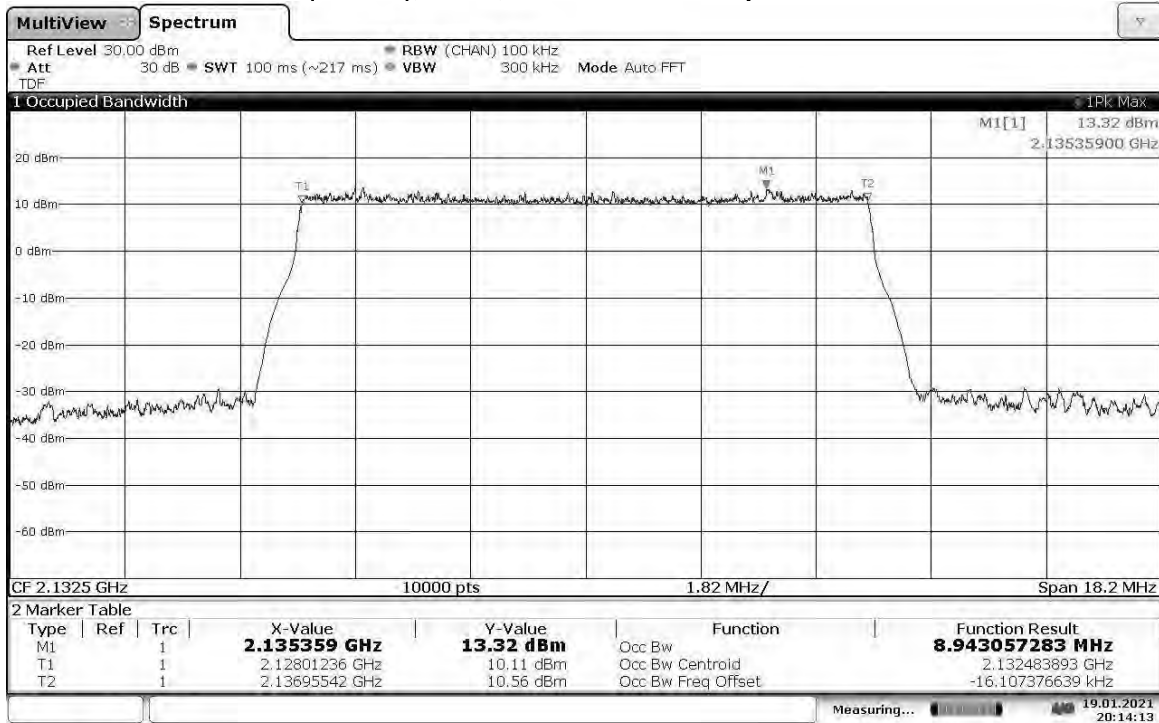
18:46:12 19.01.2021

**TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth**



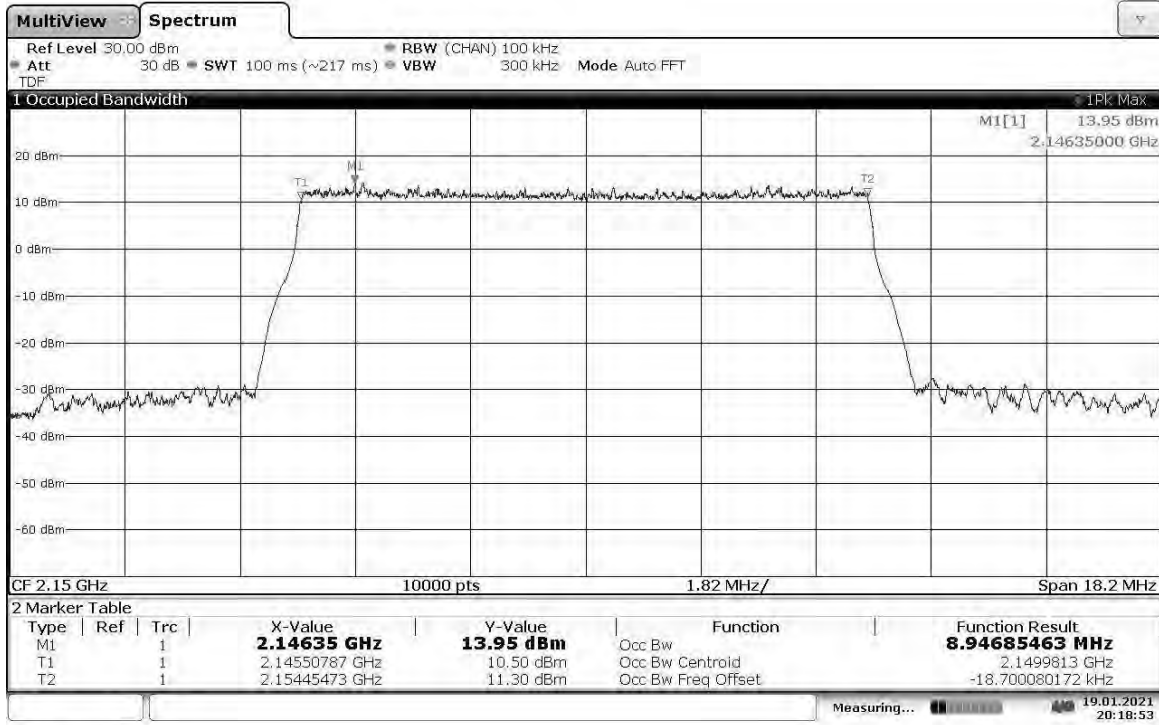
20:10:52 19.01.2021

**TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth**



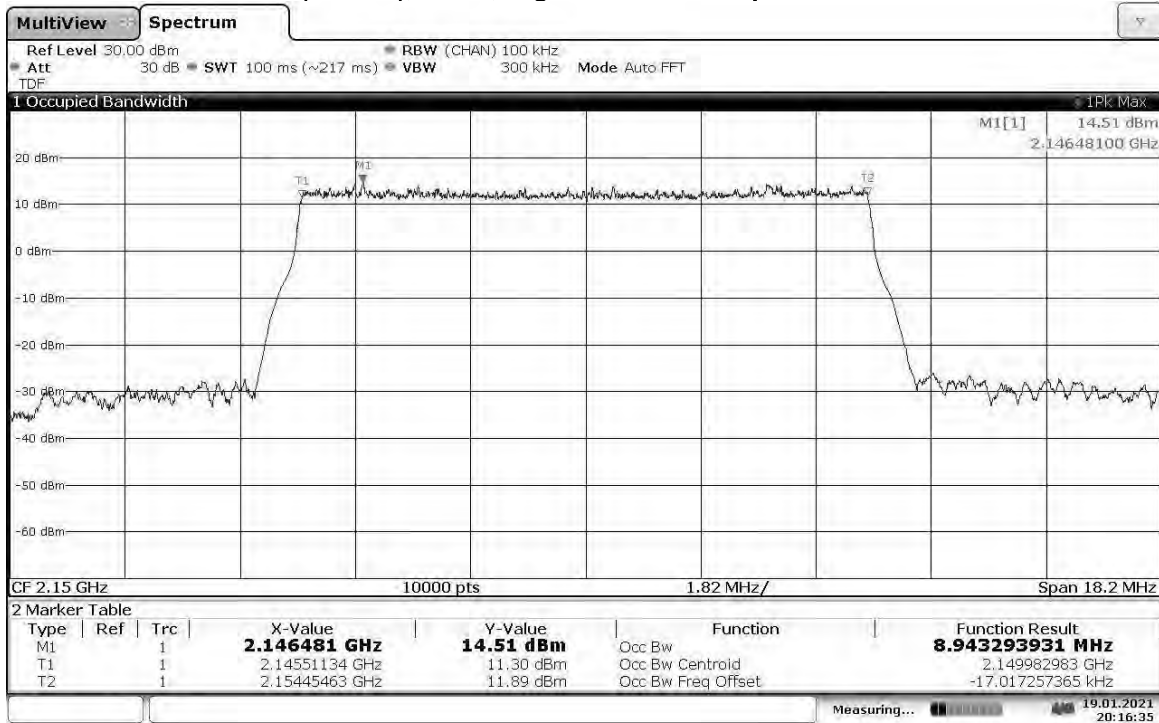
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TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel Occupied Bandwidth



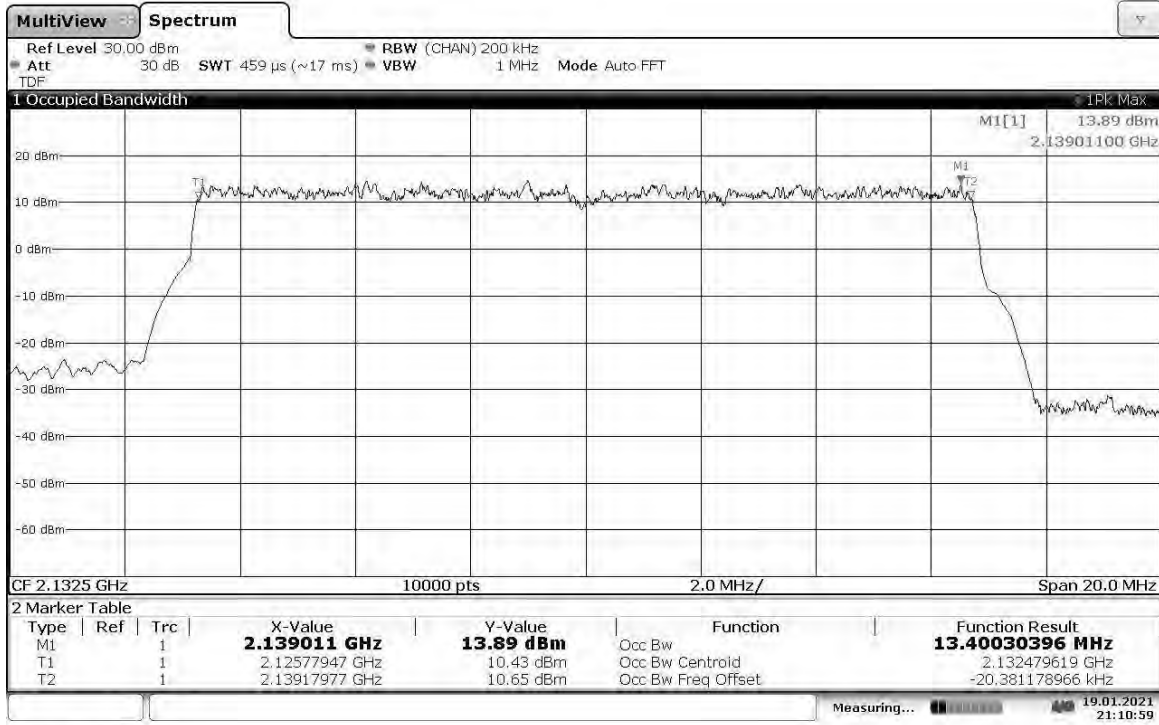
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TM1.1-QPSK_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel Occupied Bandwidth



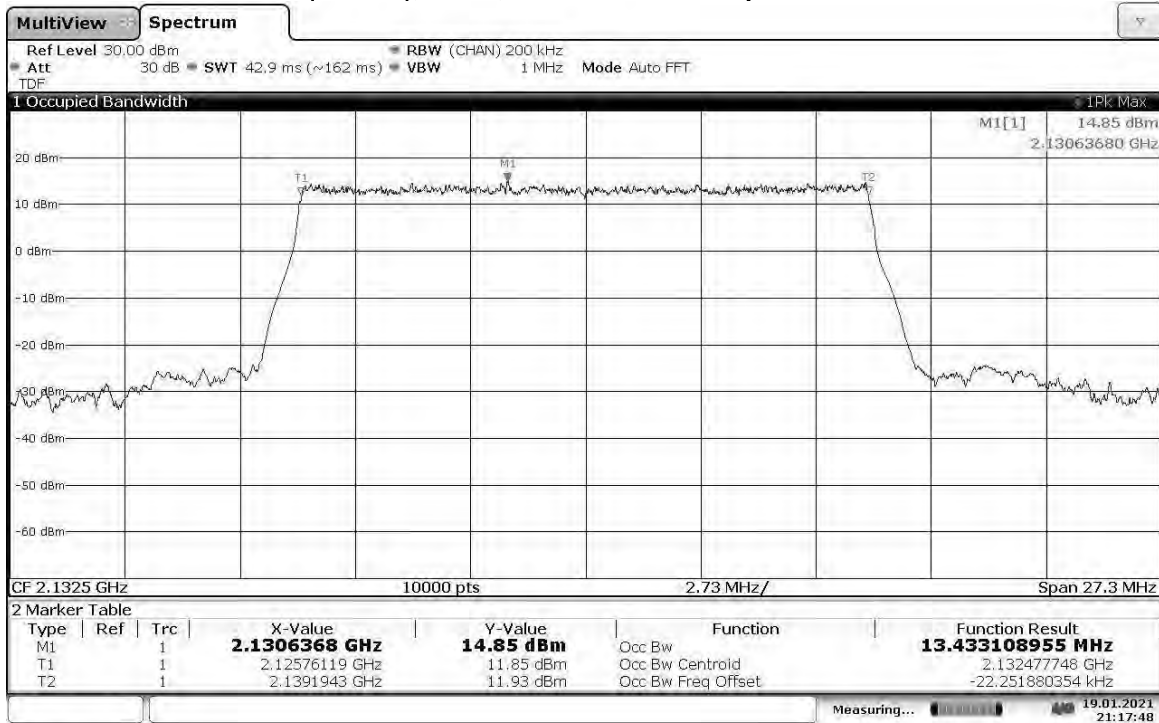
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TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth



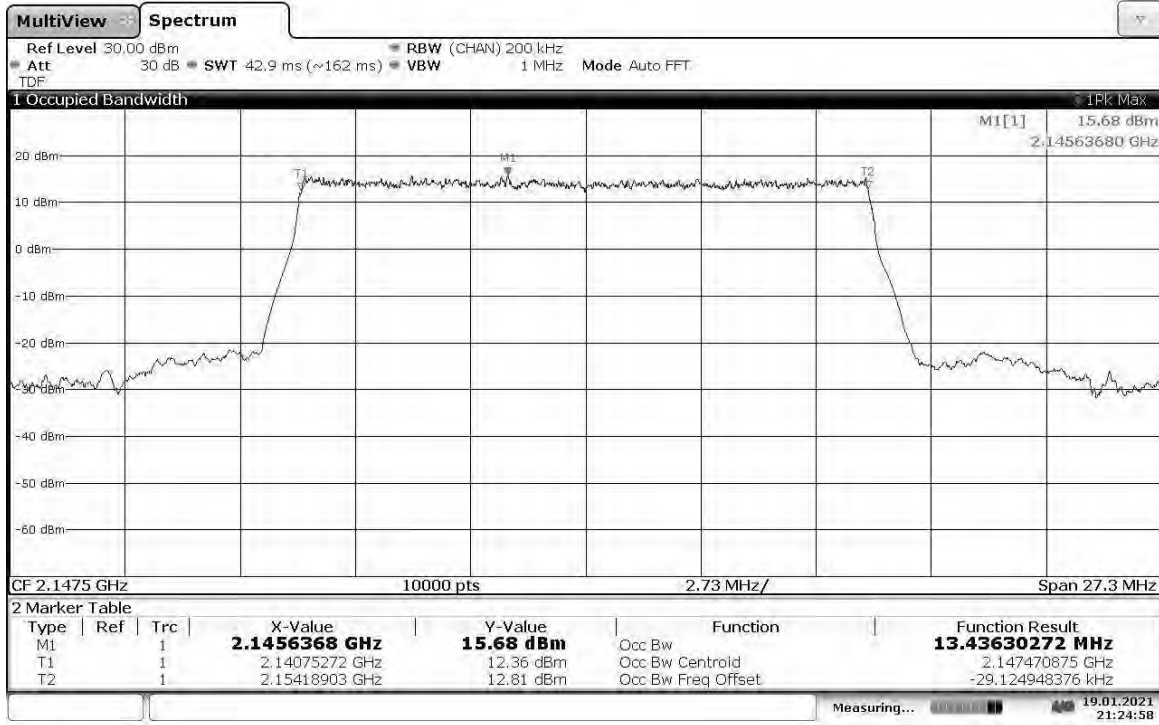
21:10:59 19.01.2021

TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth



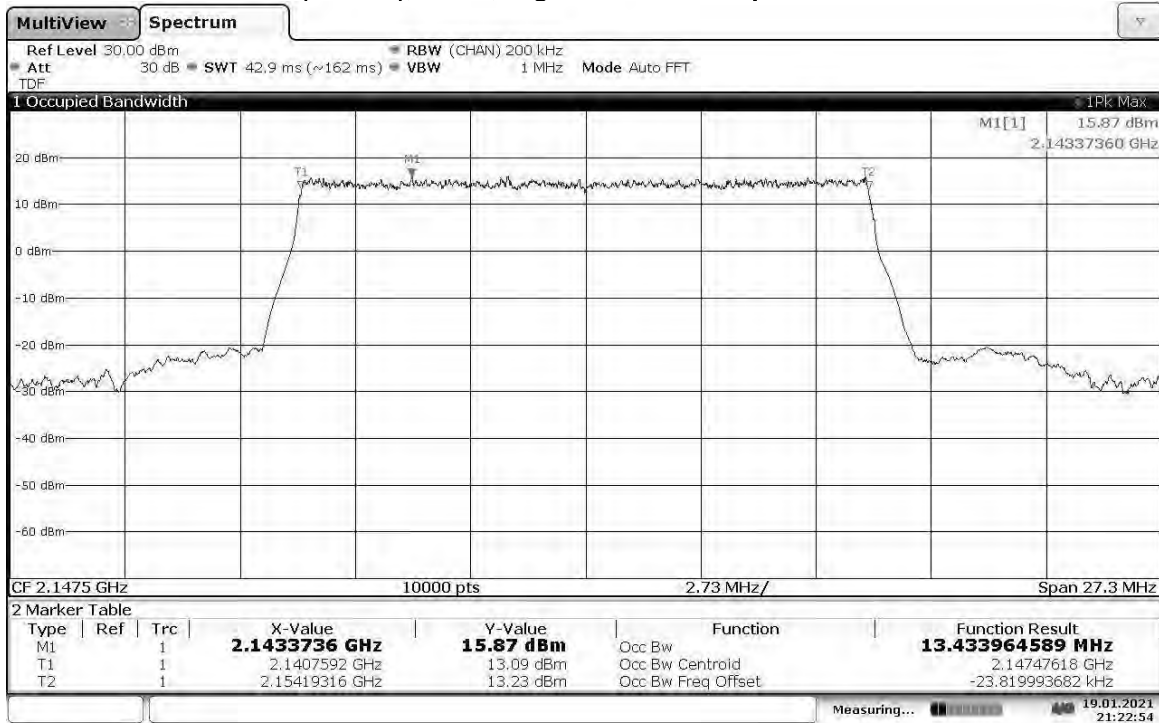
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TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel Occupied Bandwidth



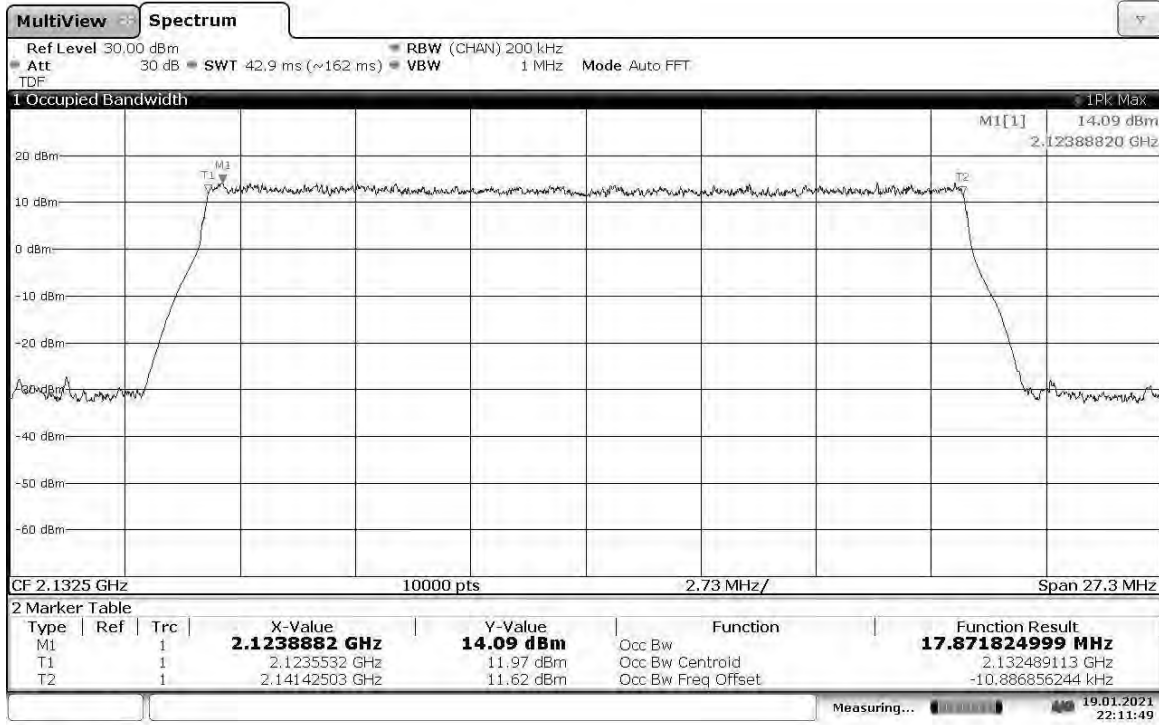
21:24:59 19.01.2021

TM1.1-QPSK_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel Occupied Bandwidth



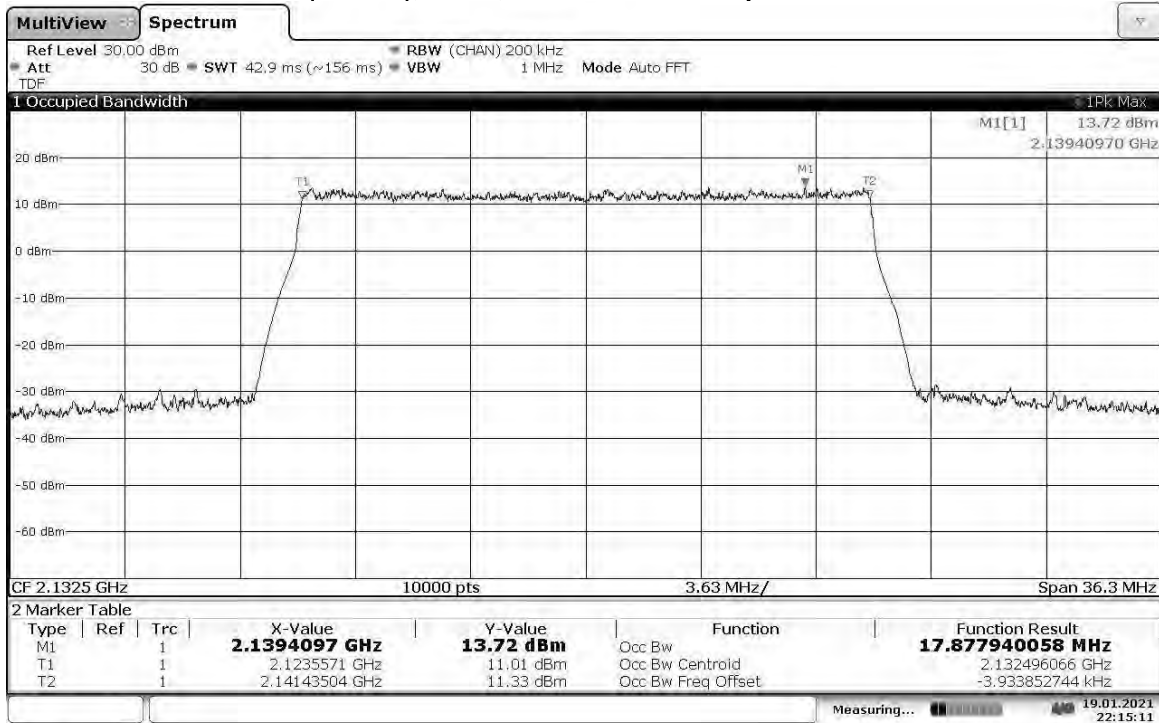
21:22:54 19.01.2021

TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth



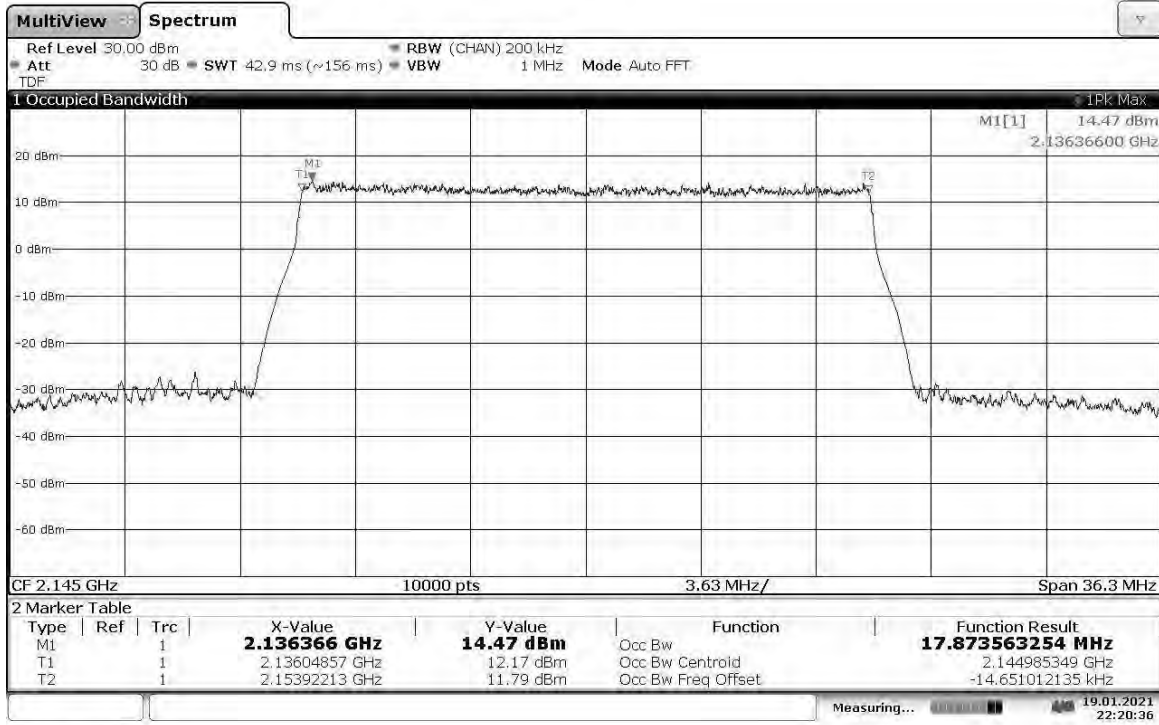
22:11:50 19.01.2021

TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth



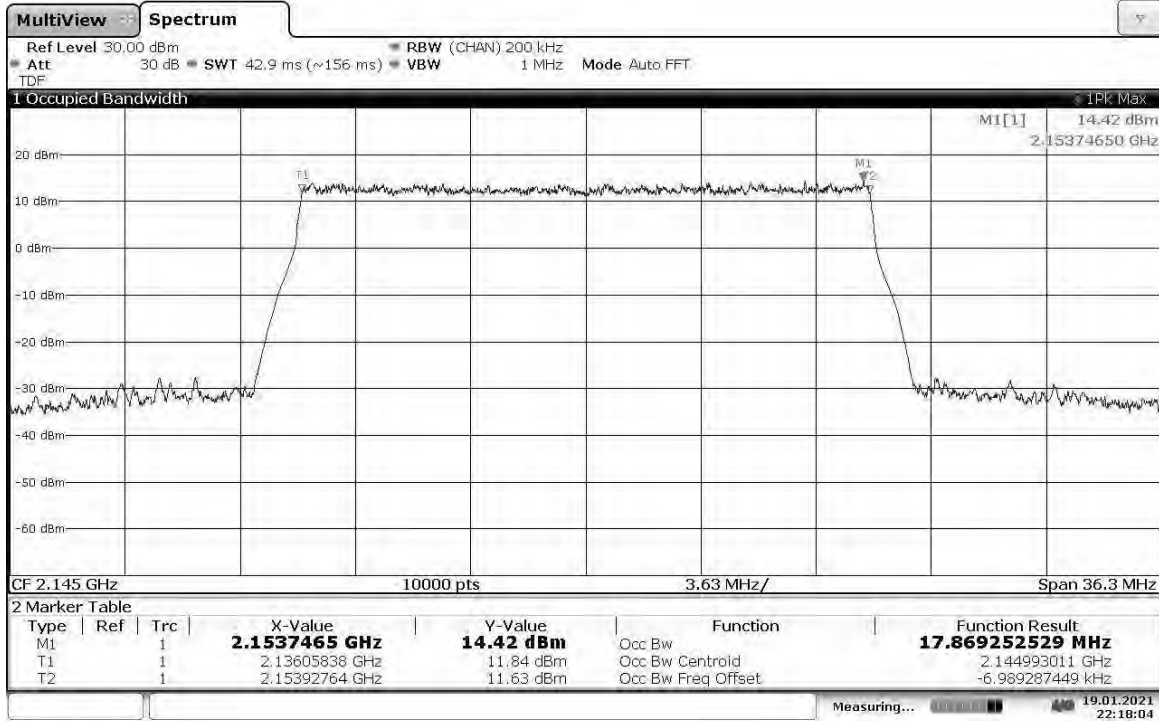
22:15:11 19.01.2021

TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel Occupied Bandwidth



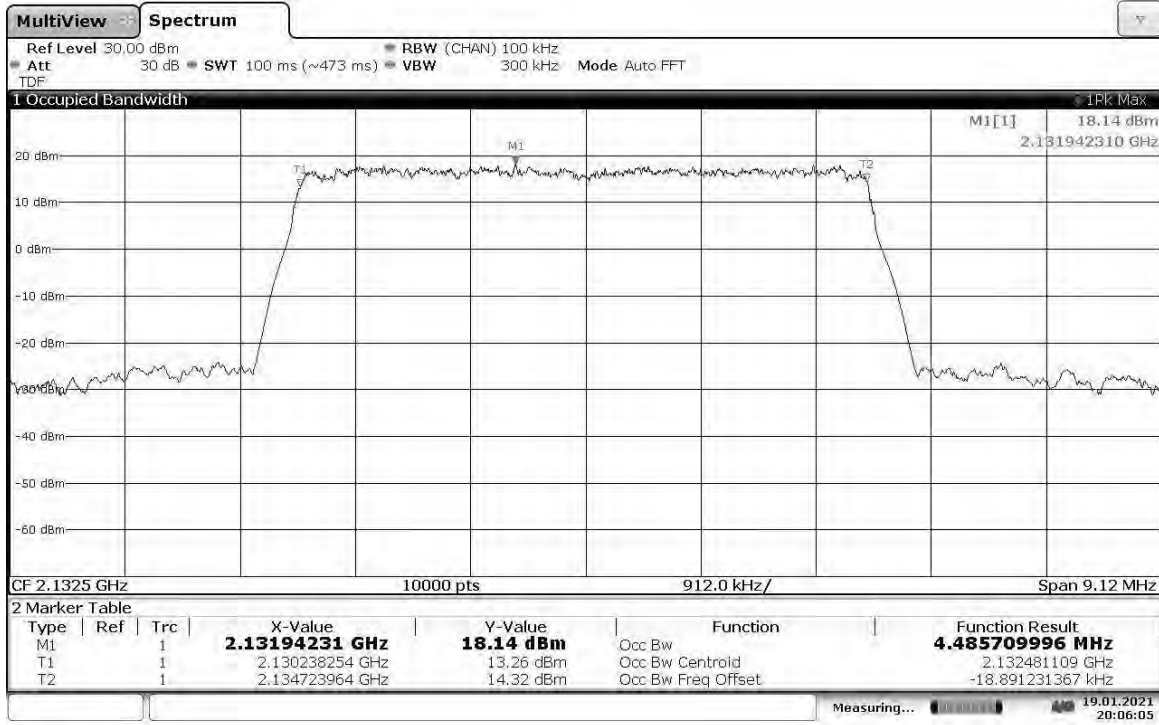
22:20:37 19.01.2021

TM1.1-QPSK_20 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel Occupied Bandwidth



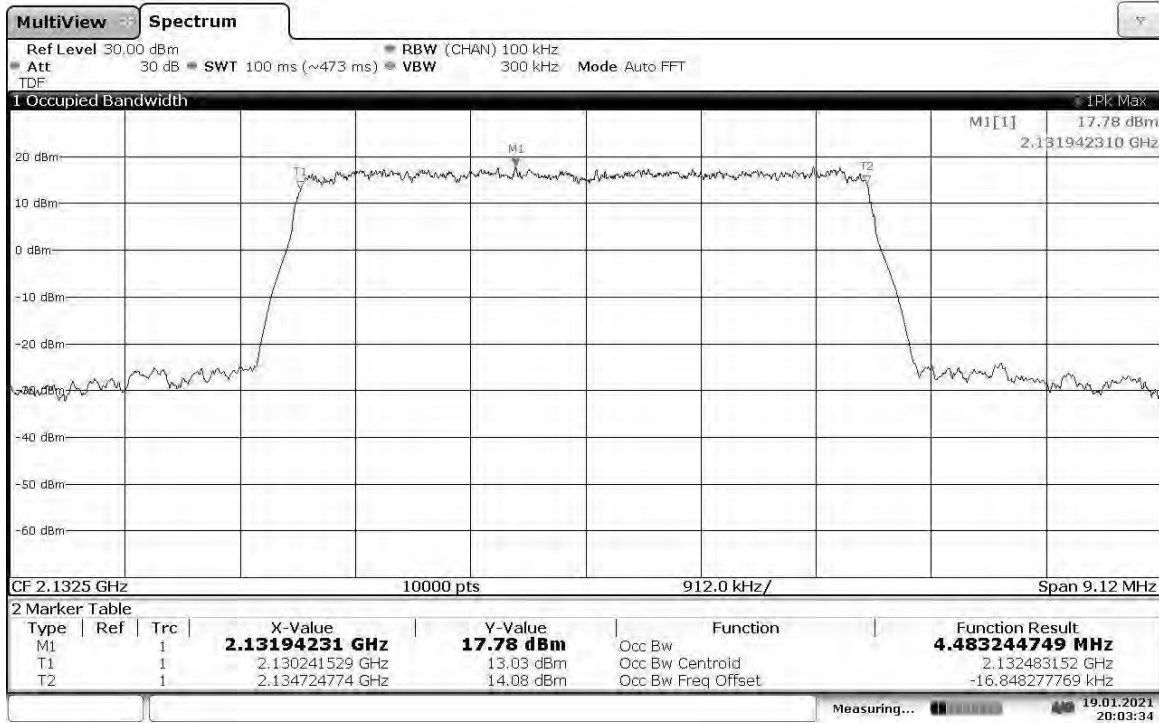
22:18:04 19.01.2021

TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth



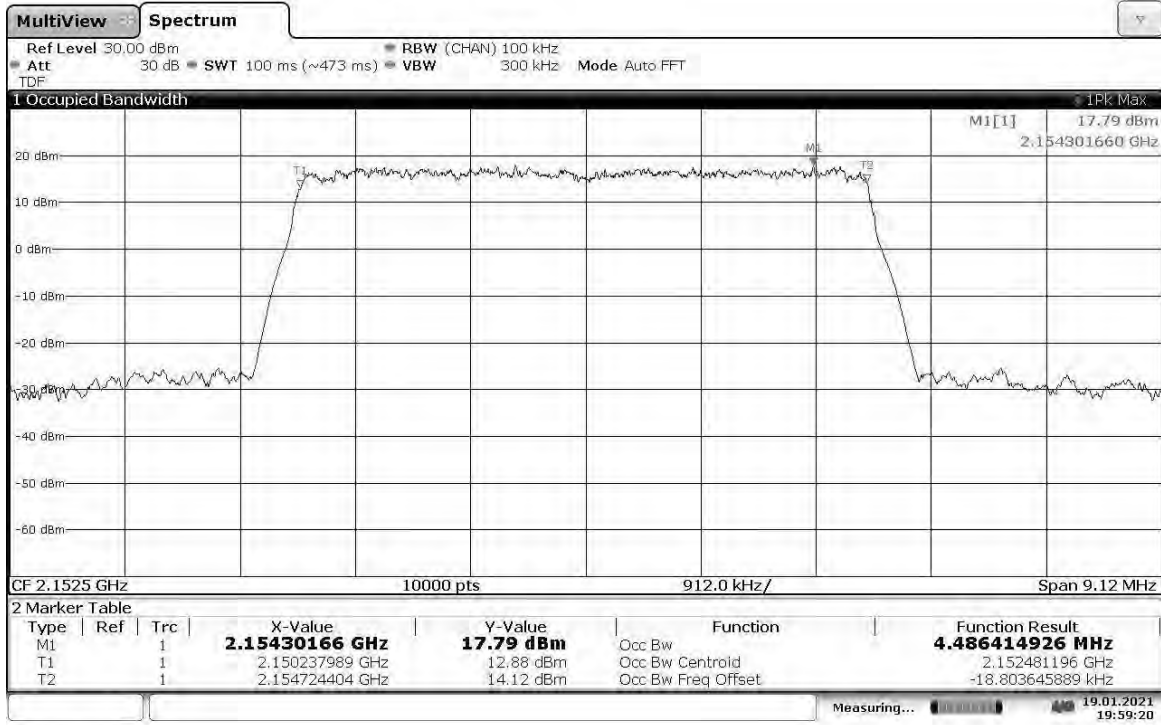
20:06:05 19.01.2021

TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth



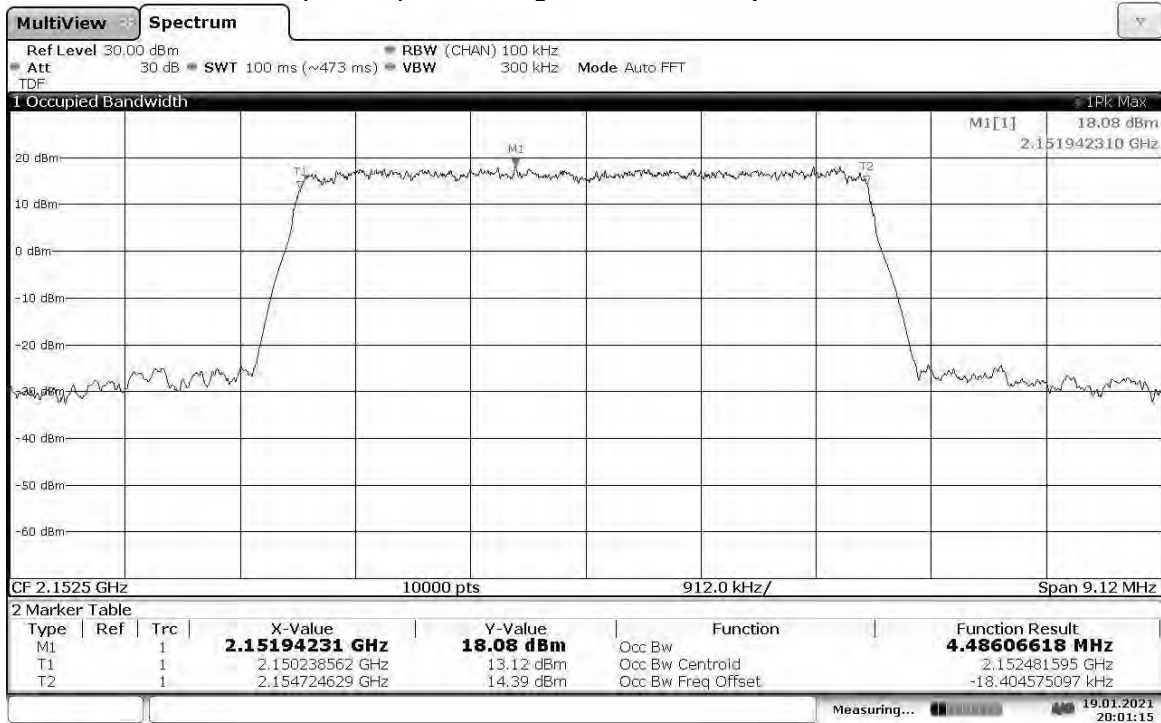
20:03:34 19.01.2021

TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel Occupied Bandwidth



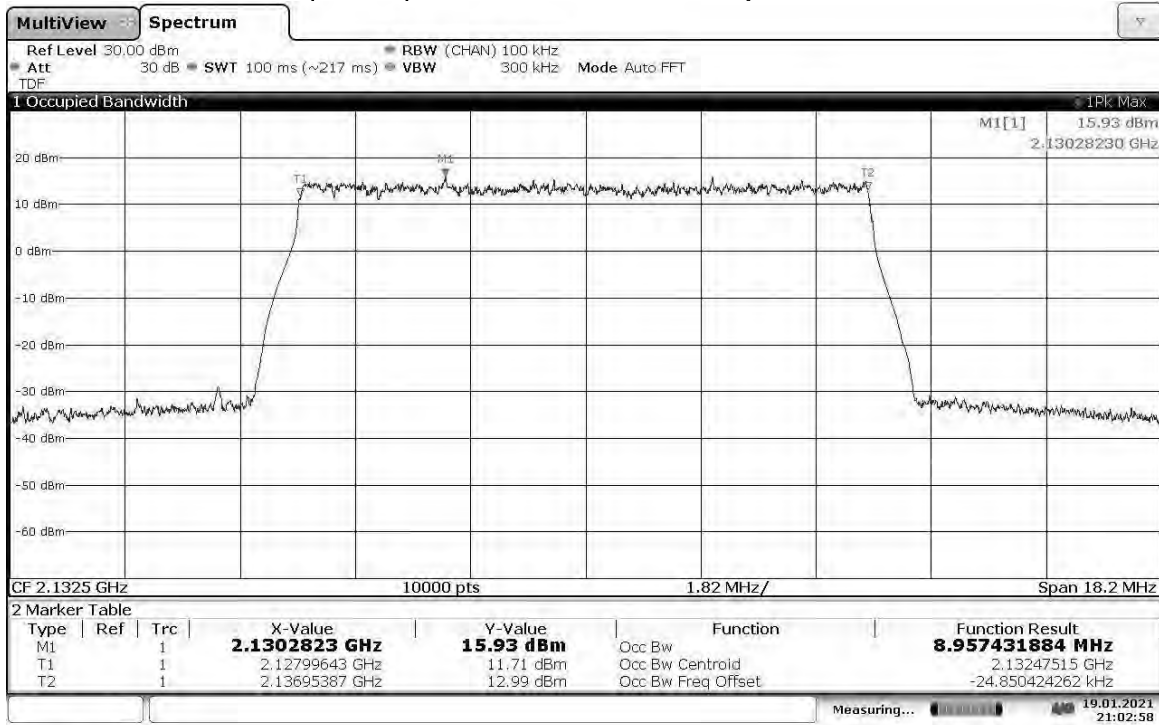
19:59:21 19.01.2021

TM3.2-16QAM_5 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel Occupied Bandwidth



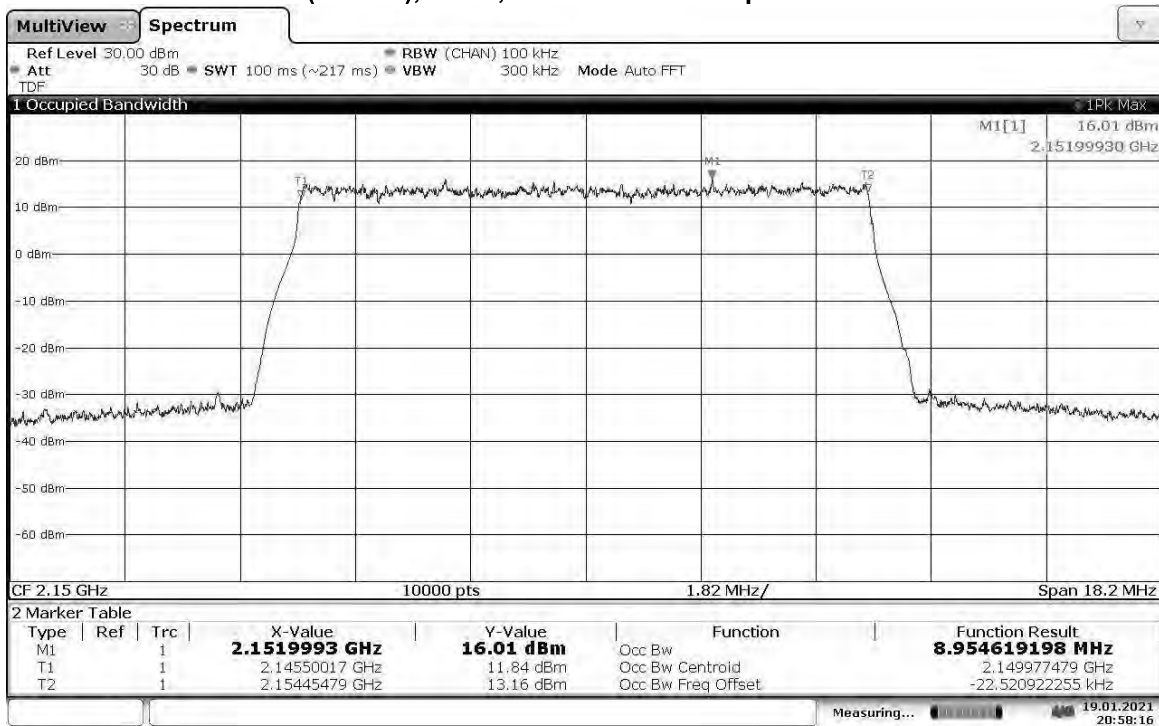
20:01:15 19.01.2021

**TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth**



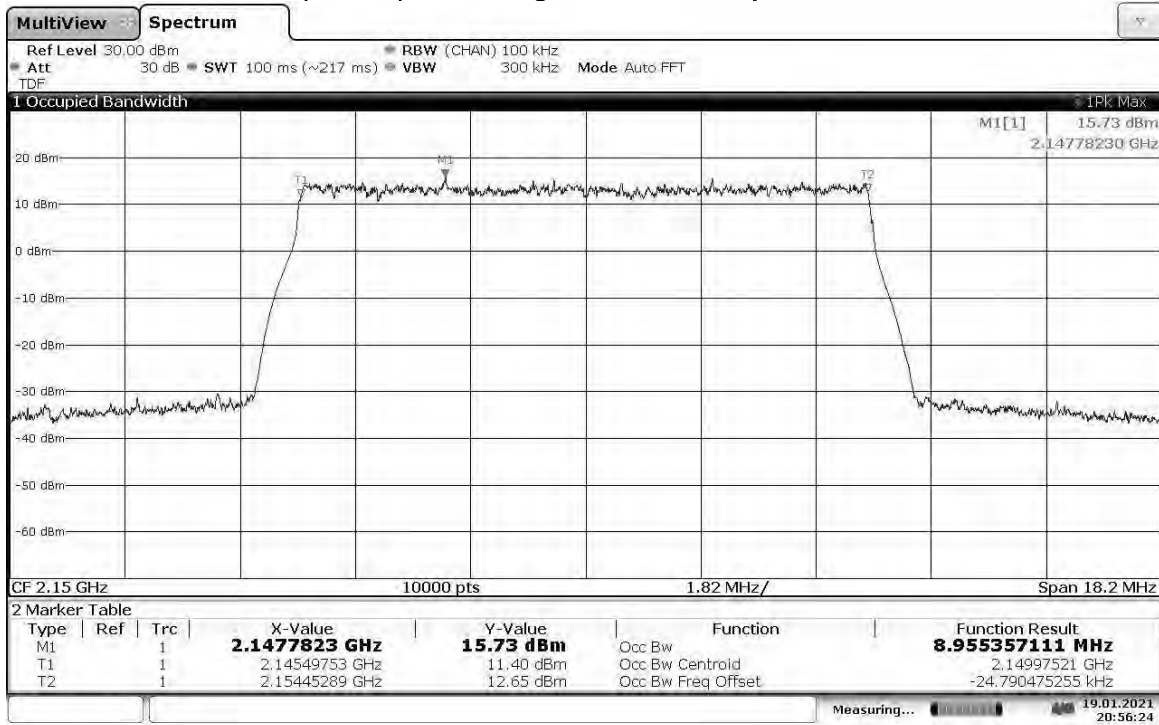
21:02:58 19.01.2021

**TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth**



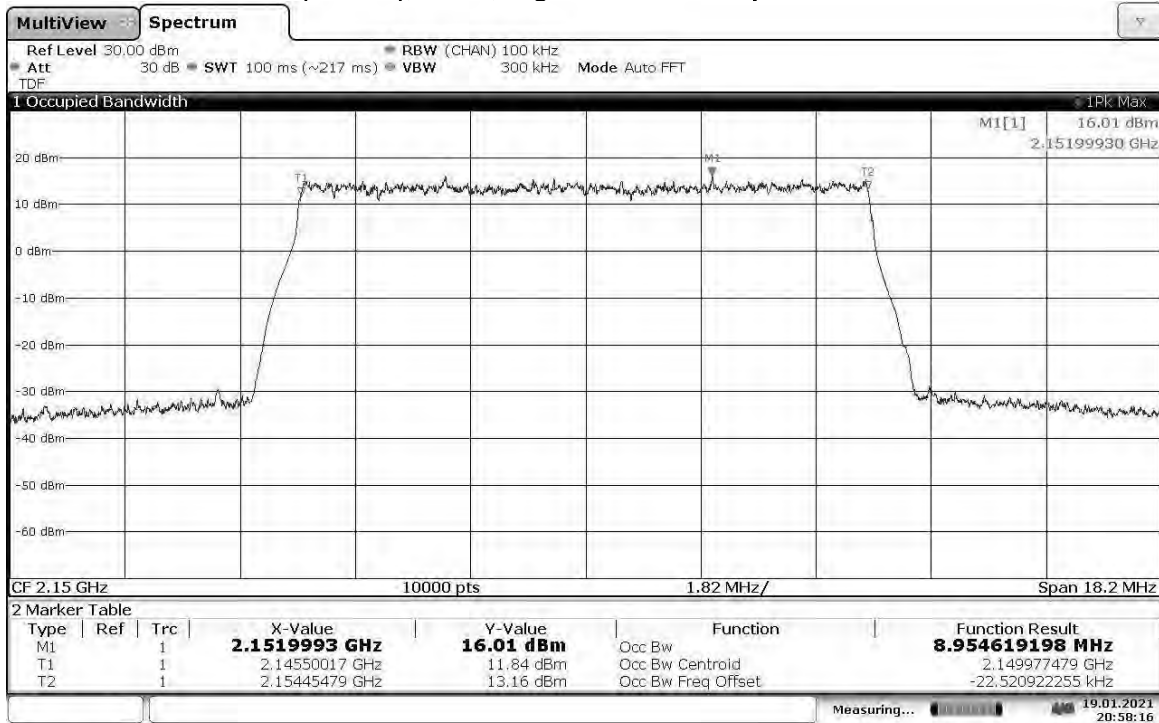
20:58:16 19.01.2021

**TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT0, High Channel Occupied Bandwidth**



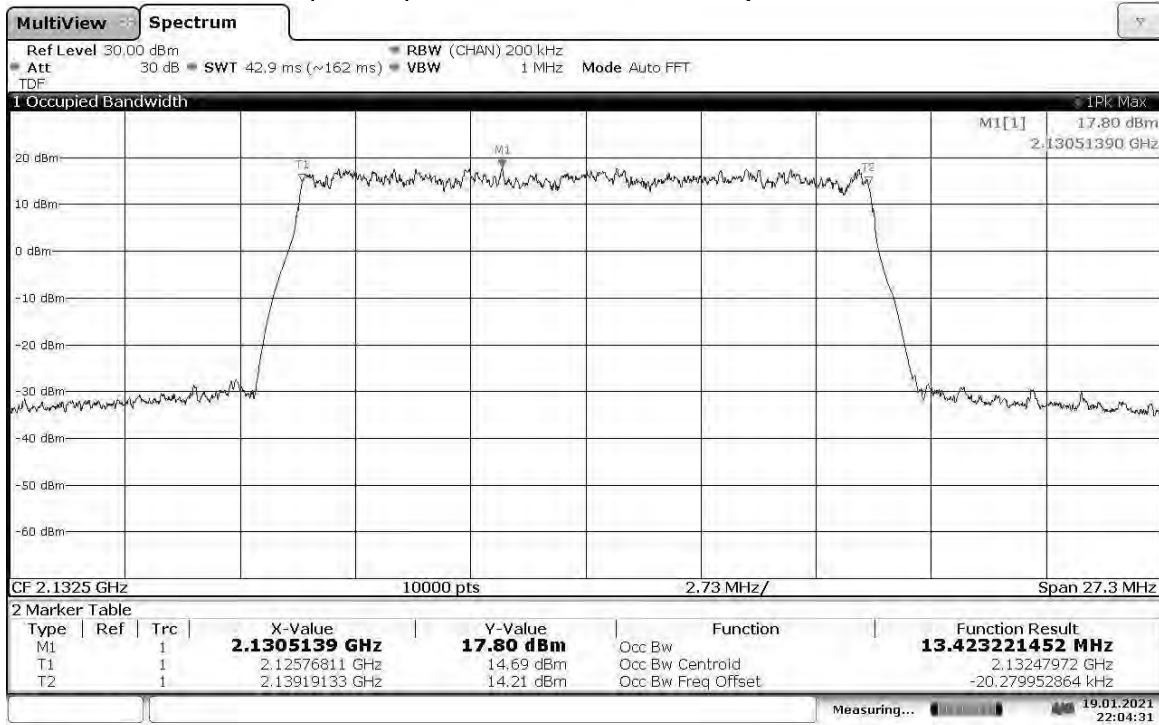
20:56:24 19.01.2021

**TM3.2-16QAM_10 MHz Bandwidth
Slot 3 (Band 4), ANT1, High Channel Occupied Bandwidth**



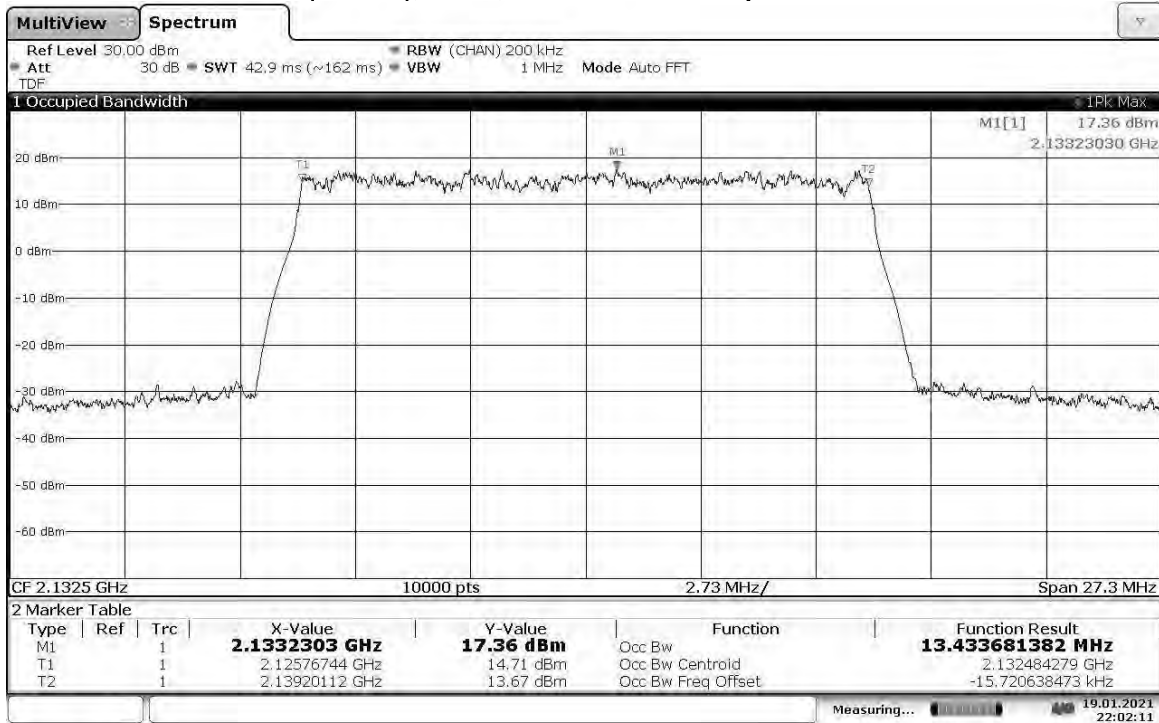
20:58:16 19.01.2021

TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT0, Mid Channel Occupied Bandwidth



22:04:31 19.01.2021

TM3.2-16QAM_15 MHz Bandwidth
Slot 3 (Band 4), ANT1, Mid Channel Occupied Bandwidth



22:02:12 19.01.2021