CommScope Technologies, LLC

TEST REPORT

SCOPE OF WORK
FCC CLASS II PERMISSIVE CHANGE EMISSIONS TESTING – RPM-A5A11-B02

REPORT NUMBER
104194737BOX-001g

ISSUE DATE
December 22, 2020

[REVISED DATE]
Original Issue

DOCUMENT CONTROL NUMBER
Non-Specific Radio Report Shell Rev. August 2020

FCC CLASS II PERMISSIVE CHANGE TEST REPORT

(FULL COMPLIANCE)

Report Number: 104194737BOX-001g
Project Number: G104194737

Report Issue Date: December 22, 2020

Model(s) Tested: RPM-A5A11-B02
Model(s) Partially Tested: None
Model(s) Not Tested but declared equivalent by the client: None

Standards: CFR47 FCC Part 24 (10/2020)

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
CommScope Technologies LLC
900 Chelmsford St.
Lowell, MA 01851
USA

Report prepared by

Kouma Sinn / EMC Staff Engineer

Report reviewed by

Nicholas Abbondante / Chief Engineer

Table of Contents

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	--
4	Description of Equipment Under Test and Variant Models	--
5	System Setup and Method	--
6	Maximum Peak Output Power and Human RF exposure CFR47 FCC Parts 2.1046 and 24.232(a-b)	Pass
7	Peak-to-Average Power Ratio (PAPR) CFR47 FCC Part 24.232(d)	Pass
8	Band Edge Compliance CFR47 FCC Parts 2.1051, 2.1053, and 24.238(a-b)	Pass
9	Transmitter Spurious Emissions CFR47 FCC Parts 2.1051, 2.1053, 2.1057 and 24.238(a-b)	Pass
10	Revision History	--

Notes: Testing for FCC Class II permissive change due to change of amplifier chip with a pin-for-pin compatible chip, with no artwork changes required. This information has been provided by the client and has not been verified.

.

3 Client Information

This EUT was tested at the request of:

Client: CommScope Technologies LLC
900 Chelmsford St.
Lowell, MA 01851
USA

Contact: Mr. Kevin Craig
Telephone: +1-978-614-3182
Fax: None
Email: kevin.craig@commscope.com

4 Description of Equipment Under Test and Variant Models

Manufacturer: CommScope Telecommunications (China) Ltd.
68 Su Hong Xi Lu, Suzhou Industrial Park.
Suzhou, Jiangsu, 215021, China

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Band 2 Radio Module	CommScope Technologies LLC	RPM-A5A11-B02	1951300008

Receive Date:	10/14/2020
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)
The Radio Module is band specific using the Analog devices RF Agile Transceiver IC, AD936x. The device combines an RF front end with a flexible mixed-signal baseband section and integrated frequency synthesizers providing a configurable digital interface to the processor. The Radio Module also contains a band specific front end, band specific antenna and required power rails. All power rails required are derived from the 12 VDC bus supplied by the Baseband card. The reference frequency for the radio IC is 38.4 MHz is derived from the from an OCXO which is disciplined from a 1588 reference clock. It supports bandwidths of 5, 10, 15, and 20 MHz with four modulations; TM1.1-QPSK, TM3.2-16QAM, TM3.1-64QAM, and TM3.1a-256QAM. The radio is fixed.

Description of Radio Host (provided by client)
The OneCell® RP5100 family is factory configurable with 2 – 4 Radios Modules mounted to a Baseband card. The same PCB's will be used in both indoor and outdoor version of the radio point. The device is fixed. The baseband card is the host for the modular radios. It contains a two ethernet PHY's with one supporting 100M/1G/2.5G/5G/10G ethernet and the other supporting 100M/1G. The main processor is Zylinx Ultrascale+ MPSoC with 2 GB DDR3 and 4 GB Flash memory. The baseband PCBA converts POE power to +12 VDC bus voltage require as input to the radio modules.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
48 VDC	0.960 mA per pair max	DC	N/A

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	Pre-programmed to transmit at Low, Mid, and High channels at four different modulations, TM1.1-QPSK, TM3.2-16QAM, TM3.1-64QAM, and TM3.1a-256QAM.

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	RP5100 Diagnostics Ver 1009

Radio/Receiver Characteristics	
Frequency Band(s)	1930-1990 MHz
Modulation Type(s)	TM1.1-QPSK, TM3.2-16QAM, TM3.1-64 QAM, TM3.1a-256QAM
Maximum Output Power (conducted):	23.97Bm (Conducted)
Test Channels	Low, Middle, High Channels of 5 MHz, 10 MHz, 15 MHz, and 20 MHz Bandwidths, Single Channel operation only
Occupied Bandwidth	17.9 MHz (Worst-case)
MIMO Information (# of Transmit and Receive antenna ports)	2x2 MIMO using cross polarized antennas and uncorrelated data streams
Equipment Type	Module in a host
Antenna Type and Gain	Detachable Antenna: +4 dBi (as provided by the client. Intertek takes no responsibility for the accuracy of this information. Actual antenna gain will be determined at the time of licensing)

Variant Models:

The following variant models were not tested as part of this evaluation, but have been identified by the manufacturer as being electrically identical models, depopulated models, or with reasonable similarity to the model(s) tested. Intertek does not make any claims of compliance for samples or variants which were not tested.

None

5 System Setup and Method

Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
--	LAN (POE Power Cable)	2.58	Shielded	None	POE P/S
--	LAN (Communication)	9.00	Shielded	None	Laptop

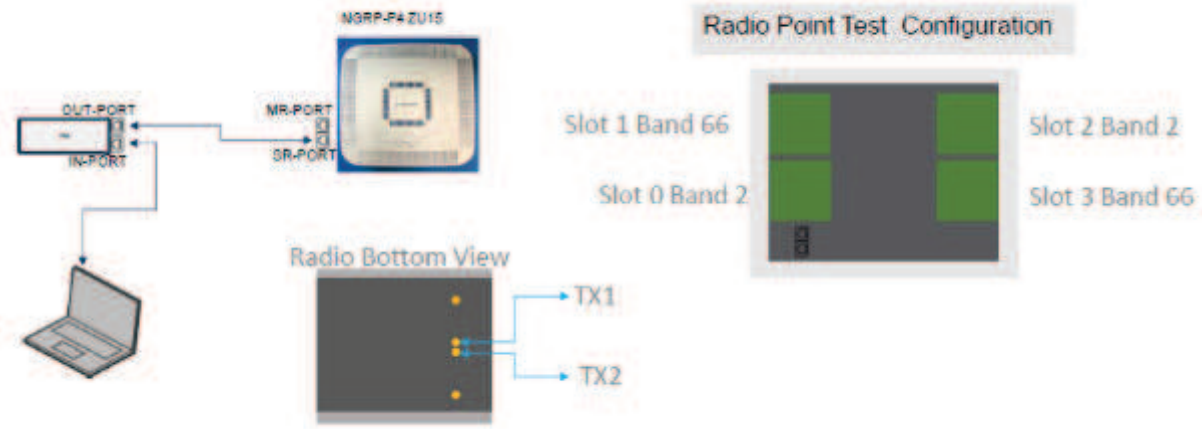
Support Equipment			
Description	Manufacturer	Model Number	Serial Number
Laptop	Dell	LATITUDE	None
Power Device Analzyer	Sifos Technologies	PDA-604A	604A0033
OneCell® RP5100*	CommScope Technologies LLC	BV SUPPORT BBC	None

*Radio host used for testing

5.1 Method:

Configuration as required by ANSI C63.26-2015, KDB 662911, and CFR47 FCC Part 24 (10/2020).

5.2 EUT Block Diagram:



6 Maximum Peak Output Power and Human RF exposure

6.1 Method

Tests are performed in accordance with CFR47 FCC Parts 2.1046 and 24, KDB662911, and ANSI C63.26 Section 5.2.4.4.

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.

6.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
CEN001'	DC-40GHz attenuator 20dB	Centric RF	C411-20	CEN001	01/22/2020	01/22/2021
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 & Schwarz	FSW43	100646	10/27/2020	10/27/2021
DAV005'	Weather Station	Davis	6250	MS191218083	02/05/2020	02/05/2021

Software Utilized:

Name	Manufacturer	Version
None	--	--

6.3 Results:

The maximum conducted output power was measured to be 23.97 dBm, which is much less than the EIRP limit of 24.232(a-b). The sample tested was found to Comply. Antenna gain limitations will depend on geographical locations and Height Above Average Terrain (HAAT). Output power from the two antenna ports was not summed since the data streams are uncorrelated and the antennas are cross polarized.

§24.232(a-b):

(a)(1) Base stations with an emission bandwidth of 1 MHz or less are limited to 1640 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(2) Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below.

(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; *see*Tables 1 and 2 of this section.

(4) The service area boundary limit and microwave protection criteria specified in §§24.236 and 24.237 apply.

TABLE 1—REDUCED POWER FOR BASE STATION ANTENNA HEIGHTS OVER 300 METERS, WITH EMISSION BANDWIDTH OF 1 MHZ OR LESS

HAAT in meters	Maximum EIRP watts
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

TABLE 2—REDUCED POWER FOR BASE STATION ANTENNA HEIGHTS OVER 300 METERS, WITH EMISSION BANDWIDTH GREATER THAN 1 MHZ

HAAT in meters	Maximum EIRP watts/MHz
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

(b)(1) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, with an emission bandwidth of 1 MHz or less are limited to 3280 watts equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

(2) Base stations that are located in counties with population densities of 100 persons or fewer per square mile, based upon the most recently available population statistics from the Bureau of the Census, with an emission bandwidth greater than 1 MHz are limited to 3280 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT.

(3) Base station antenna heights may exceed 300 meters HAAT with a corresponding reduction in power; *see*Tables 3 and 4 of this section.

(4) The service area boundary limit and microwave protection criteria specified in §§24.236 and 24.237 apply.

(5) Operation under this paragraph (b) at power limits greater than permitted under paragraph (a) of this section must be coordinated in advance with all broadband PCS licensees authorized to operate on adjacent frequency blocks within 120 kilometers (75 miles) of the base station and is limited to base stations located more than 120 kilometers (75 miles) from the Canadian border and more than 75 kilometers (45 miles) from the Mexican border.

TABLE 3—REDUCED POWER FOR BASE STATION ANTENNA HEIGHTS OVER 300 METERS, WITH EMISSION BANDWIDTH OF 1 MHZ OR LESS

HAAT in meters	Maximum EIRP watts
≤300	3280
≤500	2140
≤1000	980
≤1500	540
≤2000	320

TABLE 4—REDUCED POWER FOR BASE STATION ANTENNA HEIGHTS OVER 300 METERS, WITH EMISSION BANDWIDTH GREATER THAN 1 MHZ

HAAT in meters	Maximum EIRP watts/MHz
≤300	3280
≤500	2140
≤1000	980
≤1500	540
≤2000	320

Band 2, Bandwidth: 5 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1932.50	ANT0	21.67
		ANT1	21.68
Mid	1960.00	ANT0	23.24
		ANT1	22.17
High	1987.50	ANT0	23.82
		ANT1	23.75

Band 2, Bandwidth: 10 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1935.00	ANT0	22.07
		ANT1	23.97
Mid	1960.00	ANT0	22.17
		ANT1	22.16
High	1985.00	ANT0	23.71
		ANT1	23.65

Band 2, Bandwidth: 15 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1937.50	ANT0	22.00
		ANT1	22.00
Mid	1960.00	ANT0	22.31
		ANT1	22.28
High	1982.50	ANT0	23.64
		ANT1	23.59

Band 2, Bandwidth: 20 MHz, Modulation: TM1.1-QPSK

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	190.00	ANT0	22.25
		ANT1	22.40
Mid	1960.00	ANT0	22.79
		ANT1	22.87
High	1980.00	ANT0	23.65
		ANT1	23.77

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

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1932.50	ANT0	21.40
		ANT1	21.35
Mid	1960.00	ANT0	23.14
		ANT1	23.19
High	1987.50	ANT0	23.81
		ANT1	23.71

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

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1935.00	ANT0	21.77
		ANT1	21.82
Mid	1960.00	ANT0	23.88
		ANT1	23.95
High	1985.00	ANT0	23.70
		ANT1	23.63

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

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1937.50	ANT0	22.04
		ANT1	21.84
Mid	1960.00	ANT0	21.56
		ANT1	21.65
High	1982.50	ANT0	23.74
		ANT1	23.83

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

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1940.00	ANT0	23.11
		ANT1	23.18
Mid	1960.00	ANT0	22.74
		ANT1	22.86
High	1980.00	ANT0	23.64
		ANT1	23.76

Band 2, Bandwidth: 5 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1932.50	ANT0	21.95
		ANT1	21.65
Mid	1960.00	ANT0	23.24
		ANT1	23.22
High	1987.50	ANT0	23.77
		ANT1	23.68

Band 2, Bandwidth: 10 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1935.00	ANT0	21.80
		ANT1	22.24
Mid	1960.00	ANT0	22.25
		ANT1	22.18
High	1985.00	ANT0	23.72
		ANT1	23.65

Band 2, Bandwidth: 15 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1937.50	ANT0	22.60
		ANT1	22.41
Mid	1960.00	ANT0	22.24
		ANT1	22.29
High	1982.50	ANT0	23.68
		ANT1	23.81

Band 2, Bandwidth: 20 MHz, Modulation: TM3.1-64QAM

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1940.00	ANT0	23.12
		ANT1	23.21
Mid	1960.00	ANT0	22.73
		ANT1	22.90
High	1980.00	ANT0	23.05
		ANT1	23.30

Band 2, Bandwidth: 5 MHz, Modulation: TM3.1a-256QAM_

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1932.50	ANT0	21.69
		ANT1	21.58
Mid	1960.00	ANT0	23.23
		ANT1	23.26
High	1987.50	ANT0	23.76
		ANT1	23.69

Band 2, Bandwidth: 10 MHz, Modulation: TM3.1a-256QAM_

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1935.00	ANT0	23.85
		ANT1	23.89
Mid	1960.00	ANT0	22.22
		ANT1	22.24
High	1985.00	ANT0	23.72
		ANT1	23.90

Band 2, Bandwidth: 15 MHz, Modulation: TM3.1a-256QAM

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1937.500	ANT0	22.58
		ANT1	22.47
Mid	1960.00	ANT0	22.02
		ANT1	22.70
High	1982.50	ANT0	23.69
		ANT1	23.80

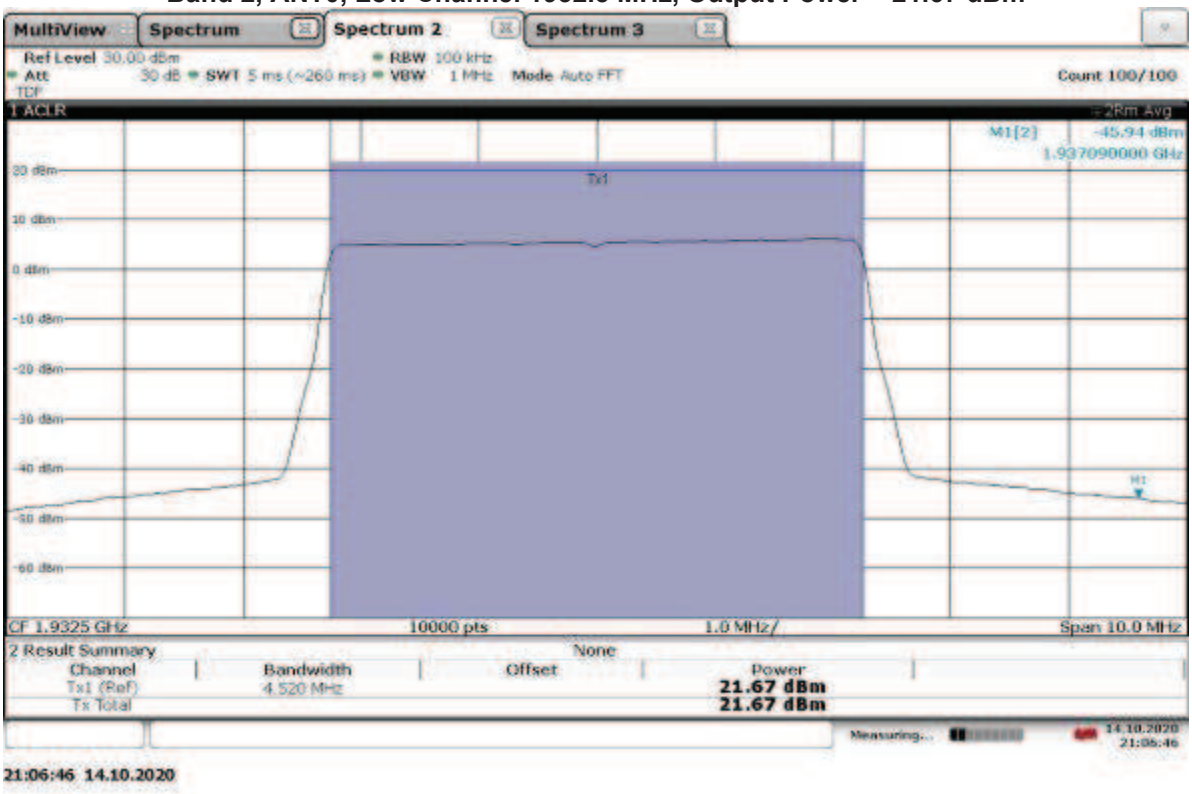
Band 2, Bandwidth: 20 MHz, Modulation: TM3.1a-256QAM

Channel	Frequency (MHz)	Antenna Port	Output Power (dBm)
Low	1940	ANT0	23.11
		ANT1	23.21
Mid	1960	ANT0	22.72
		ANT1	22.85
High	1980	ANT0	23.67
		ANT1	23.79

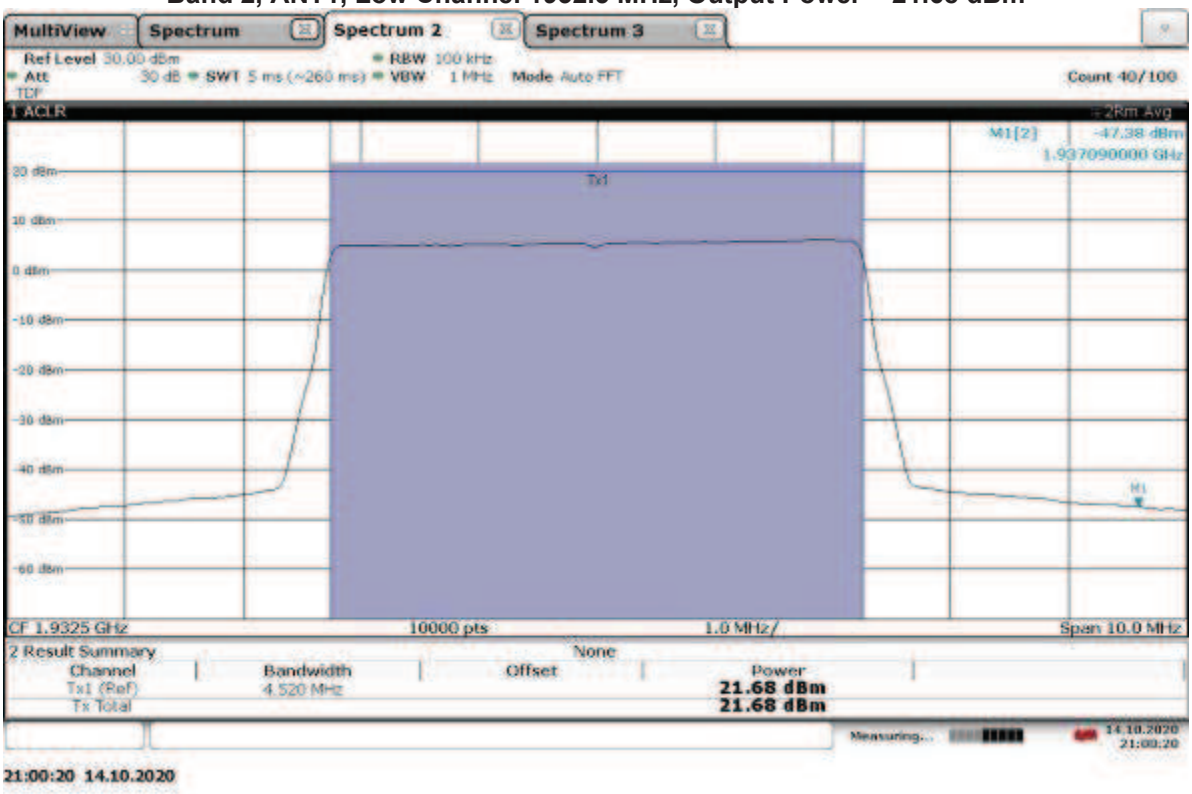
6.4 Setup Photograph:

6.5 Plots/Data:

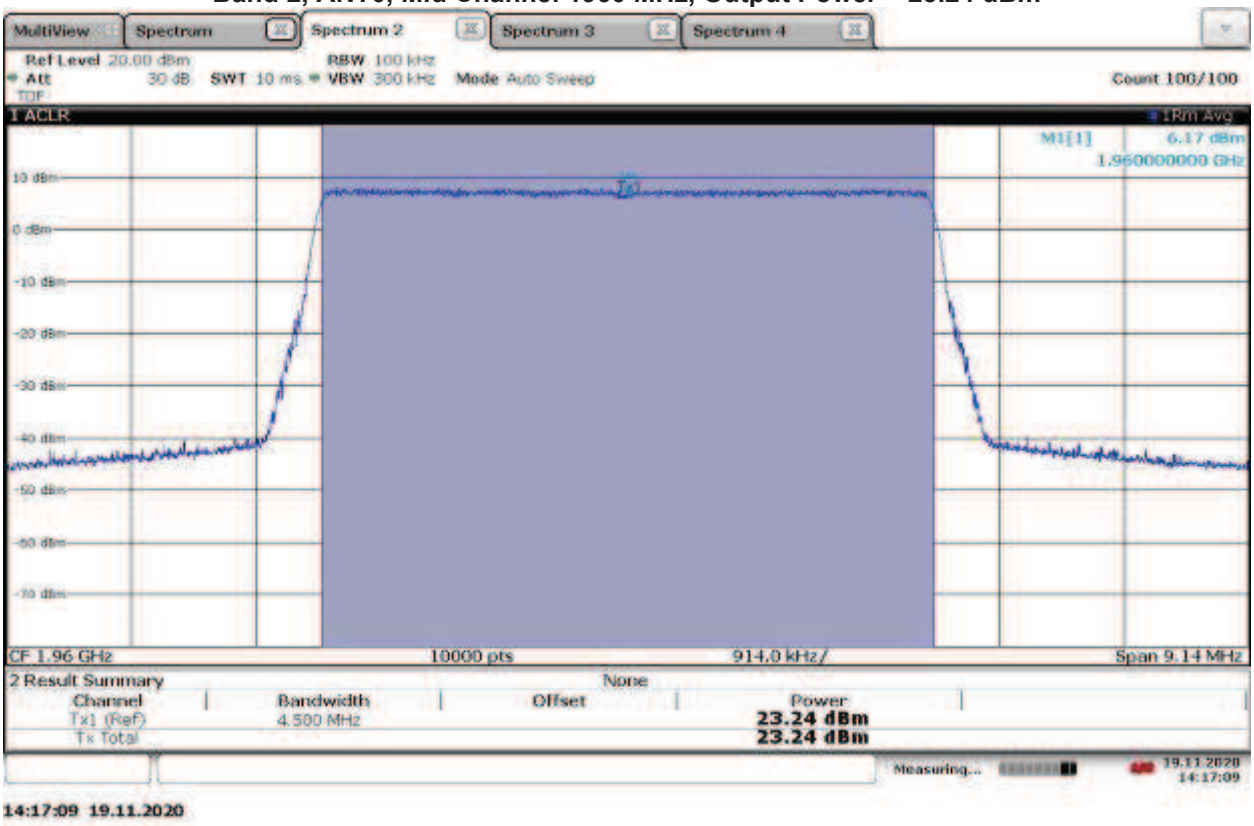
TM1.1-QPSK_5 MHz Bandwidth
Band 2, ANT0, Low Channel 1932.5 MHz, Output Power = 21.67 dBm



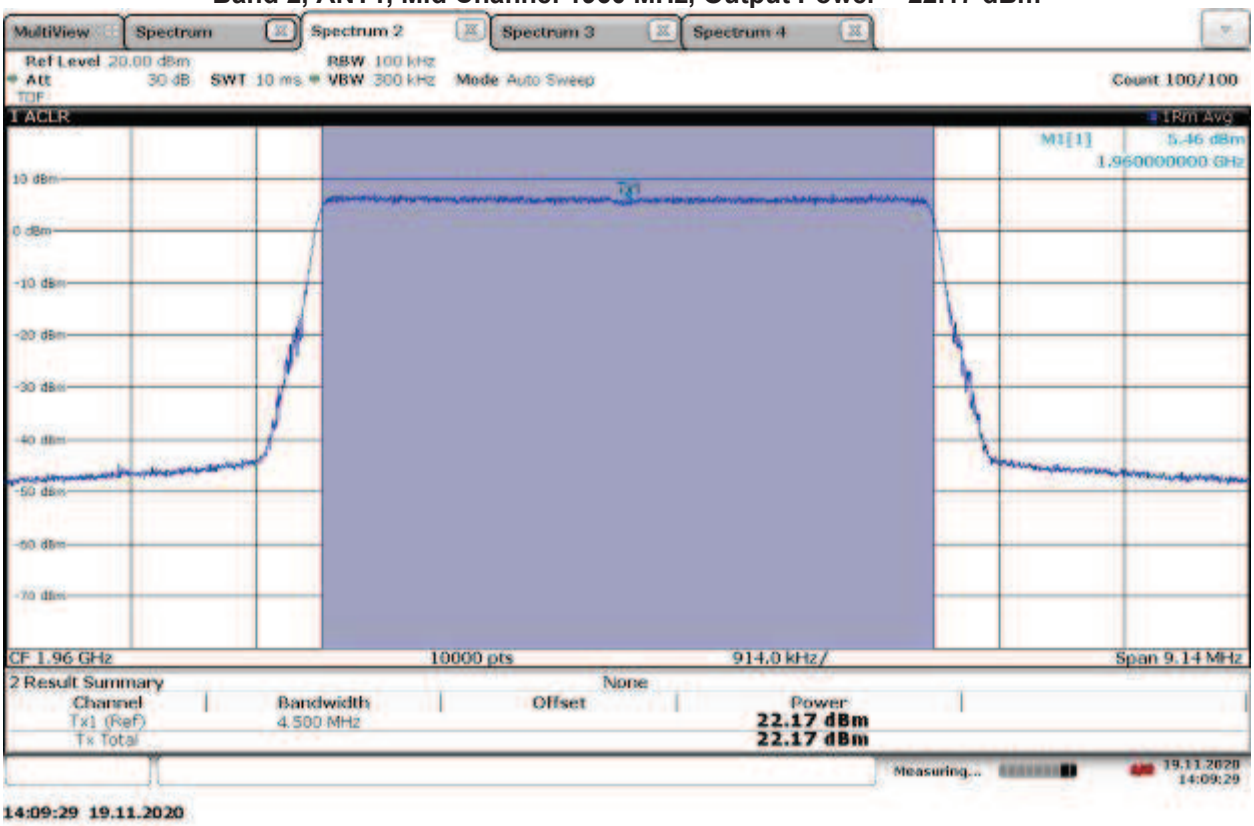
TM1.1-QPSK_5 MHz Bandwidth
Band 2, ANT1, Low Channel 1932.5 MHz, Output Power = 21.68 dBm



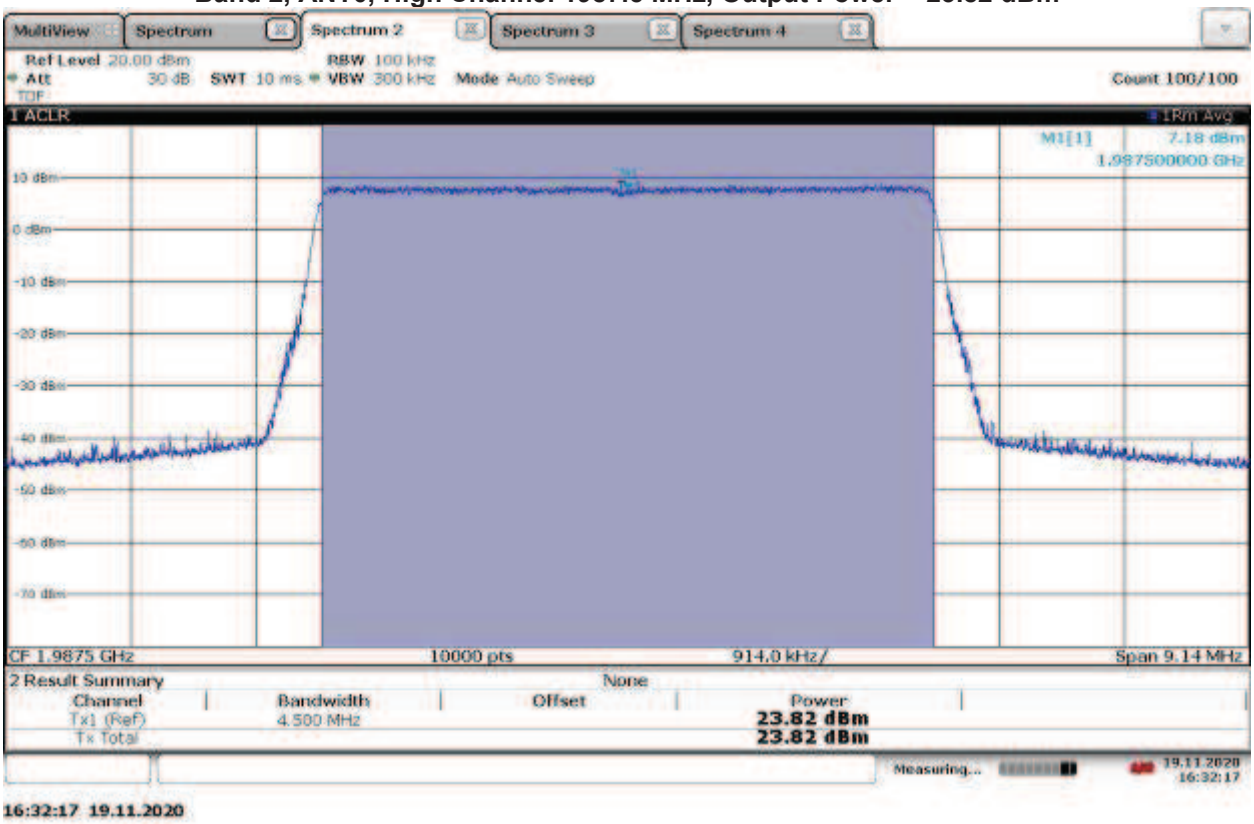
TM1.1-QPSK_5 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 23.24 dBm



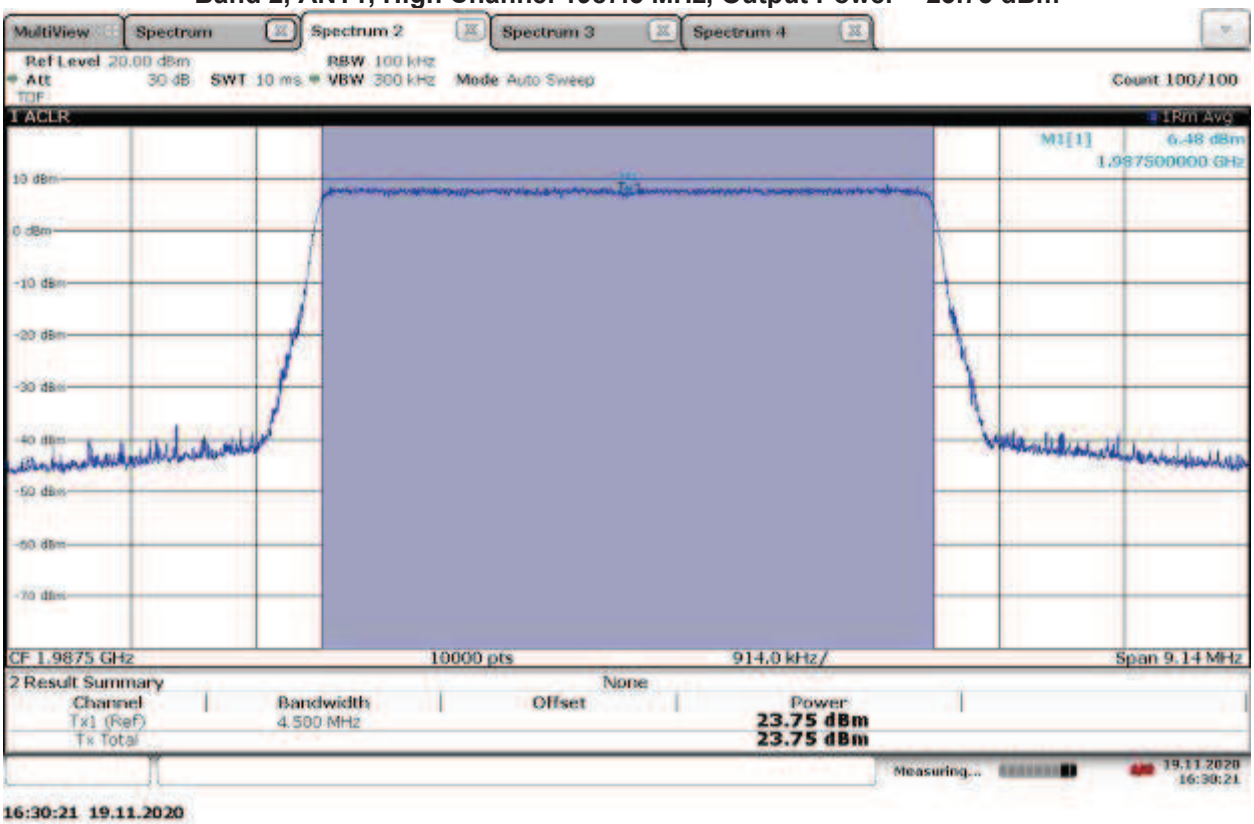
TM1.1-QPSK_5 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.17 dBm



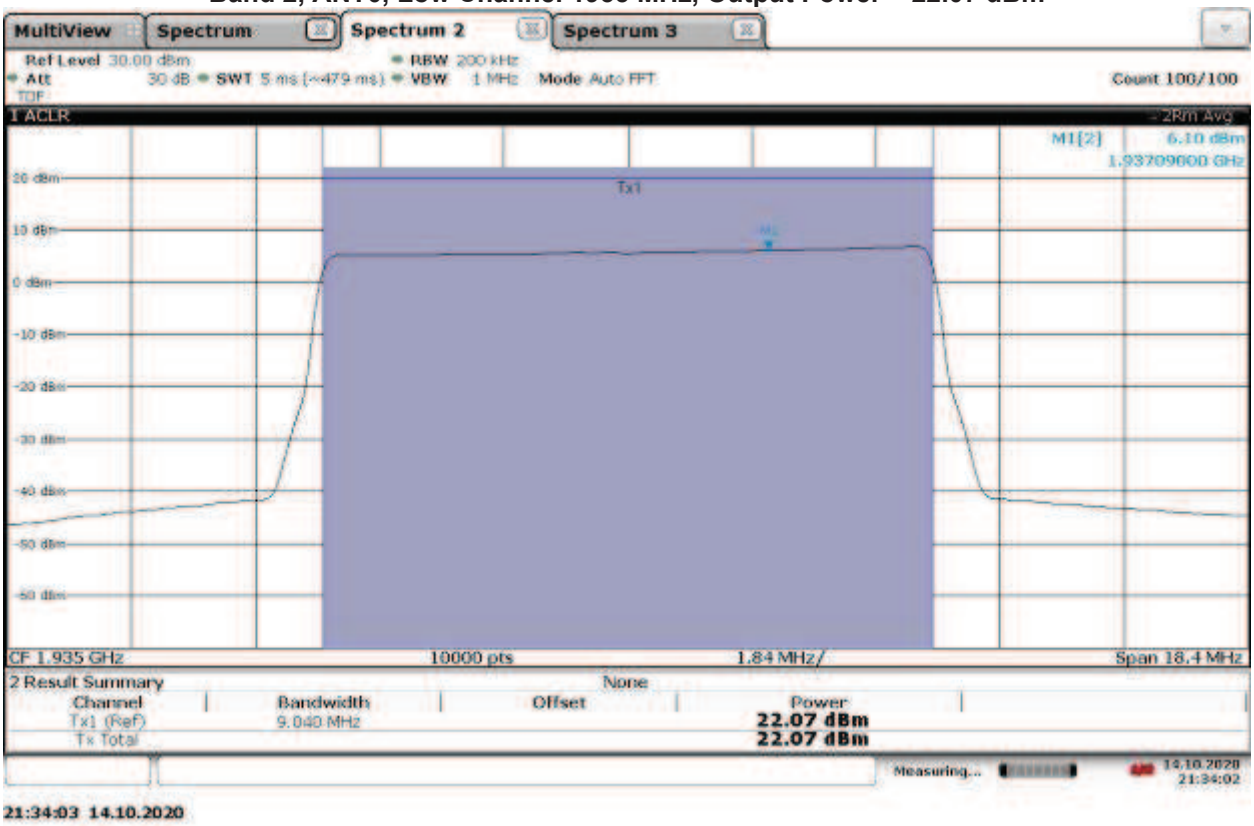
TM1.1-QPSK_5 MHz Bandwidth
Band 2, ANT0, High Channel 1987.5 MHz, Output Power = 23.82 dBm



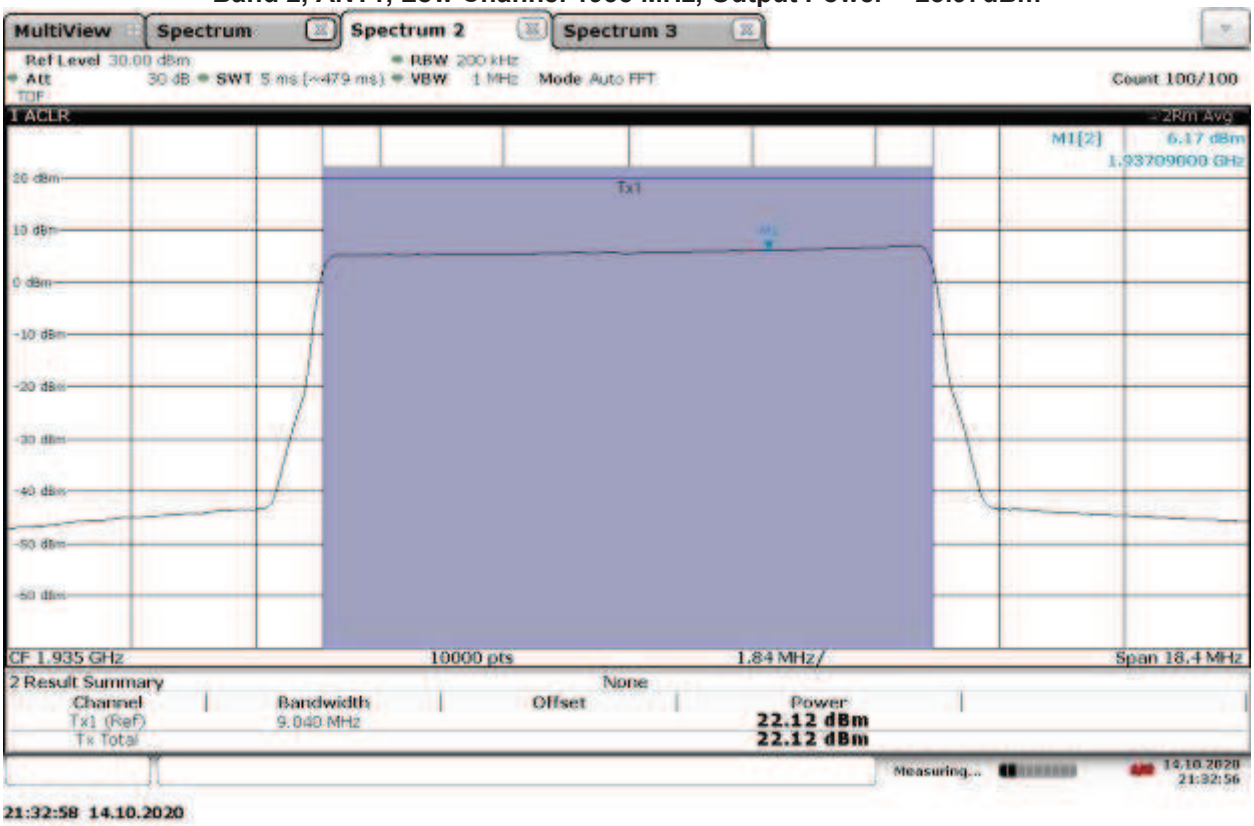
TM1.1-QPSK_5 MHz Bandwidth
Band 2, ANT1, High Channel 1987.5 MHz, Output Power = 23.75 dBm



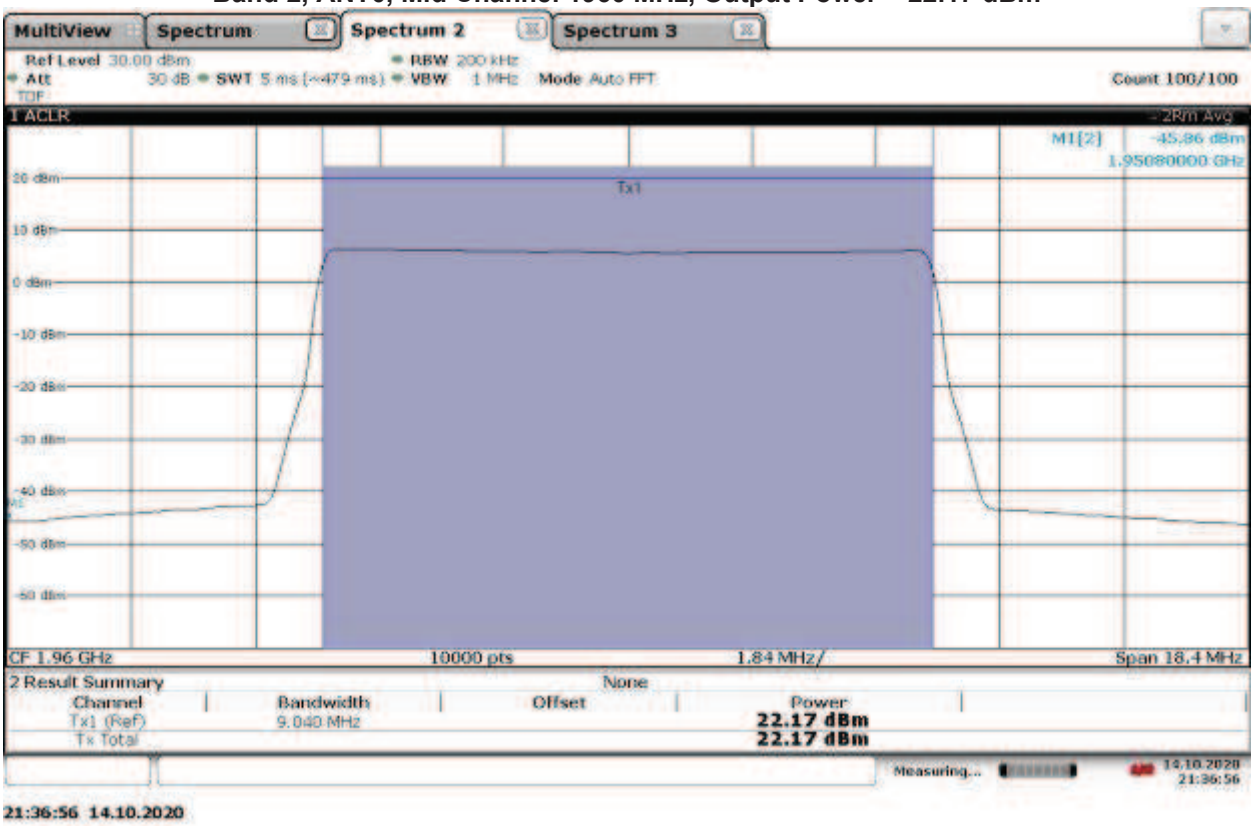
TM1.1-QPSK_10 MHz Bandwidth
Band 2, ANT0, Low Channel 1935 MHz, Output Power = 22.07 dBm



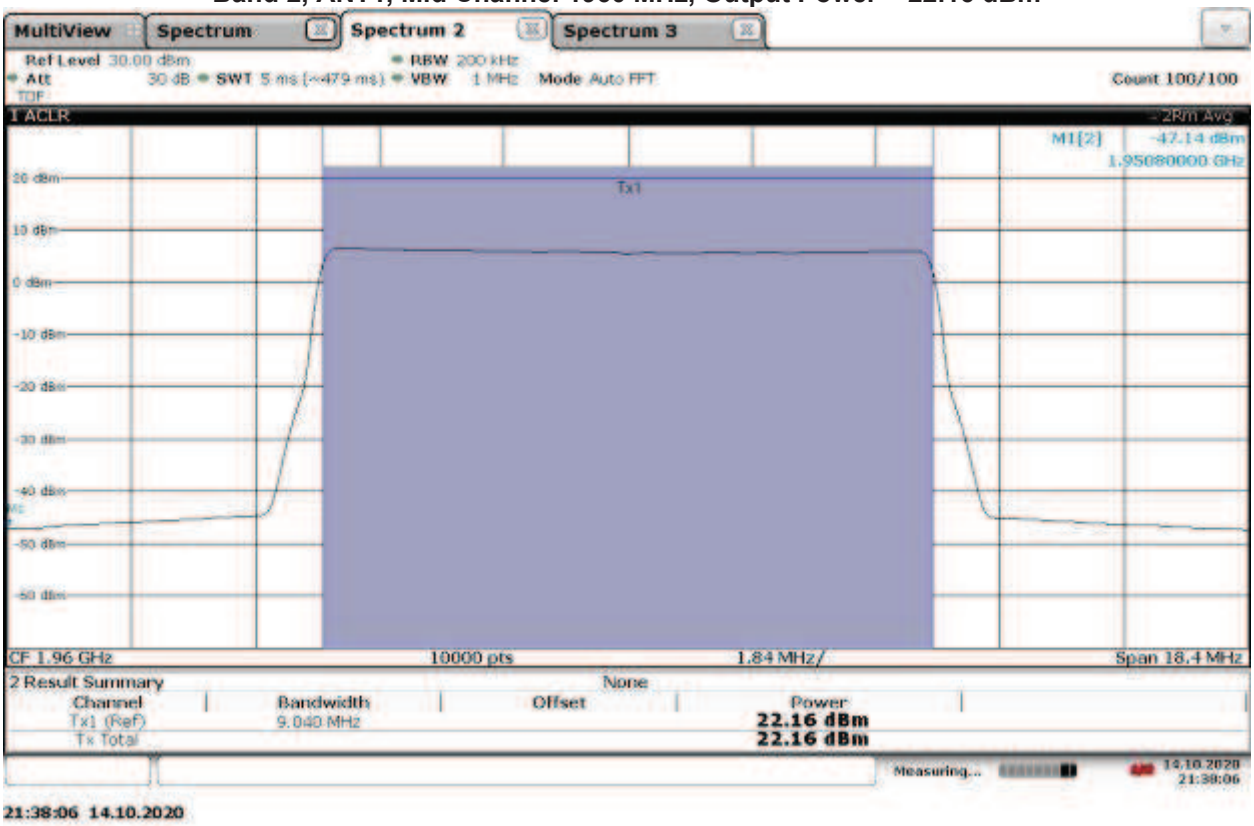
TM1.1-QPSK_10 MHz Bandwidth
Band 2, ANT1, Low Channel 1935 MHz, Output Power = 23.97dBm



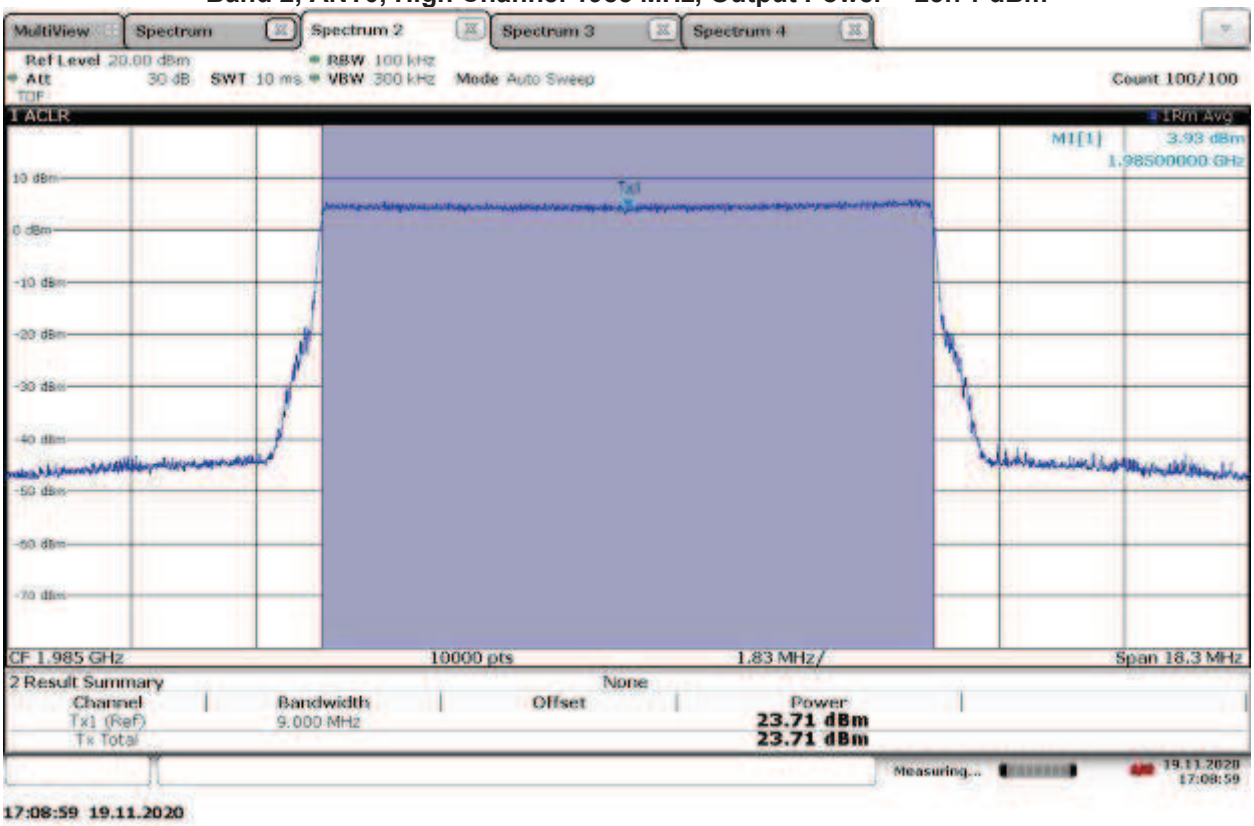
TM1.1-QPSK_10 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.17 dBm



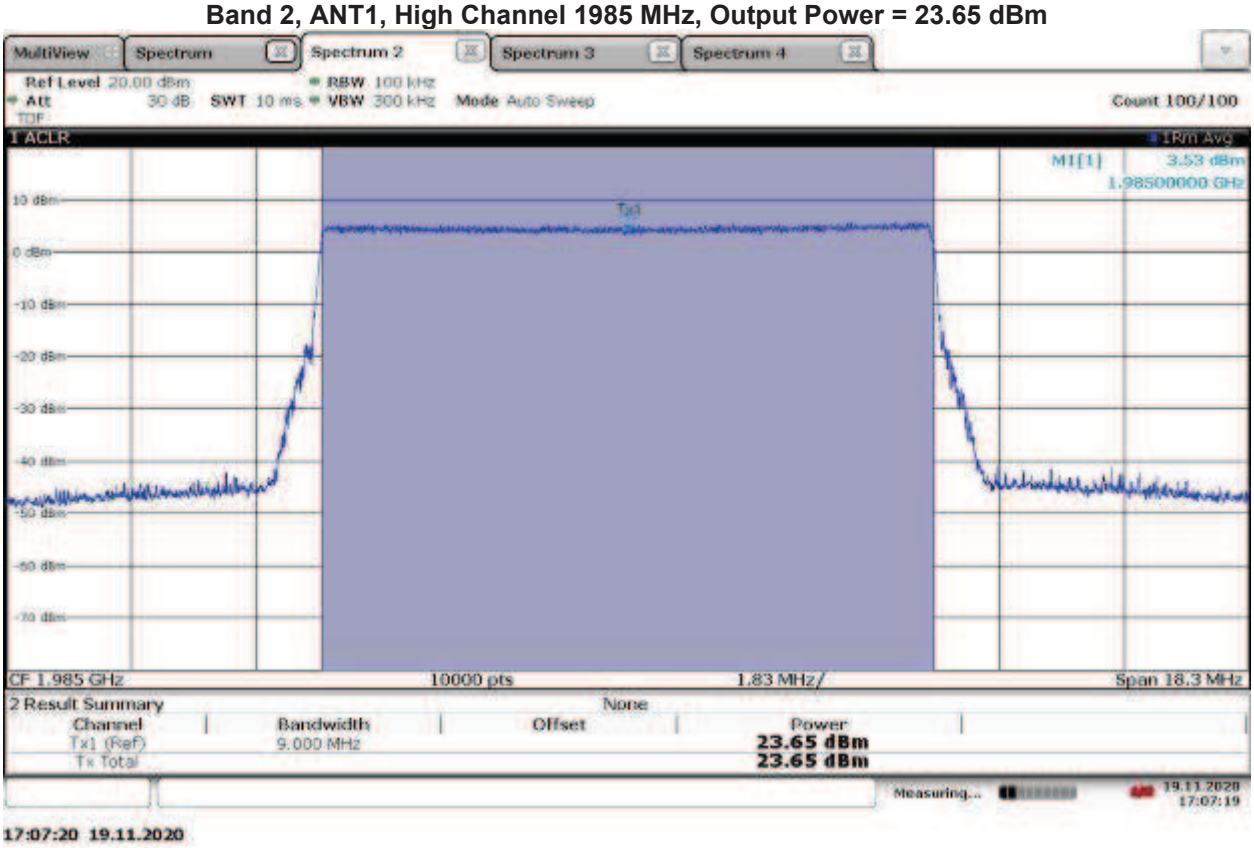
TM1.1-QPSK_10 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.16 dBm



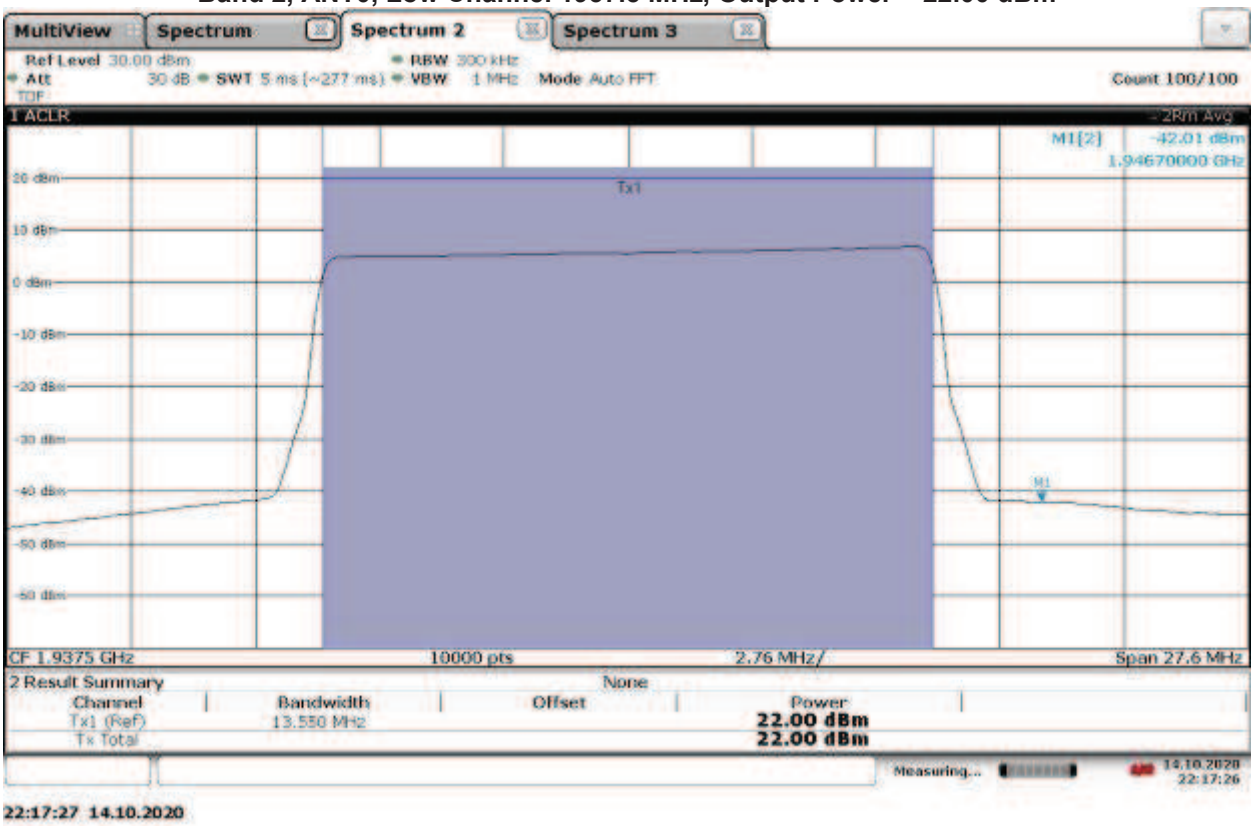
TM1.1-QPSK_10 MHz Bandwidth
Band 2, ANT0, High Channel 1985 MHz, Output Power = 23.71 dBm



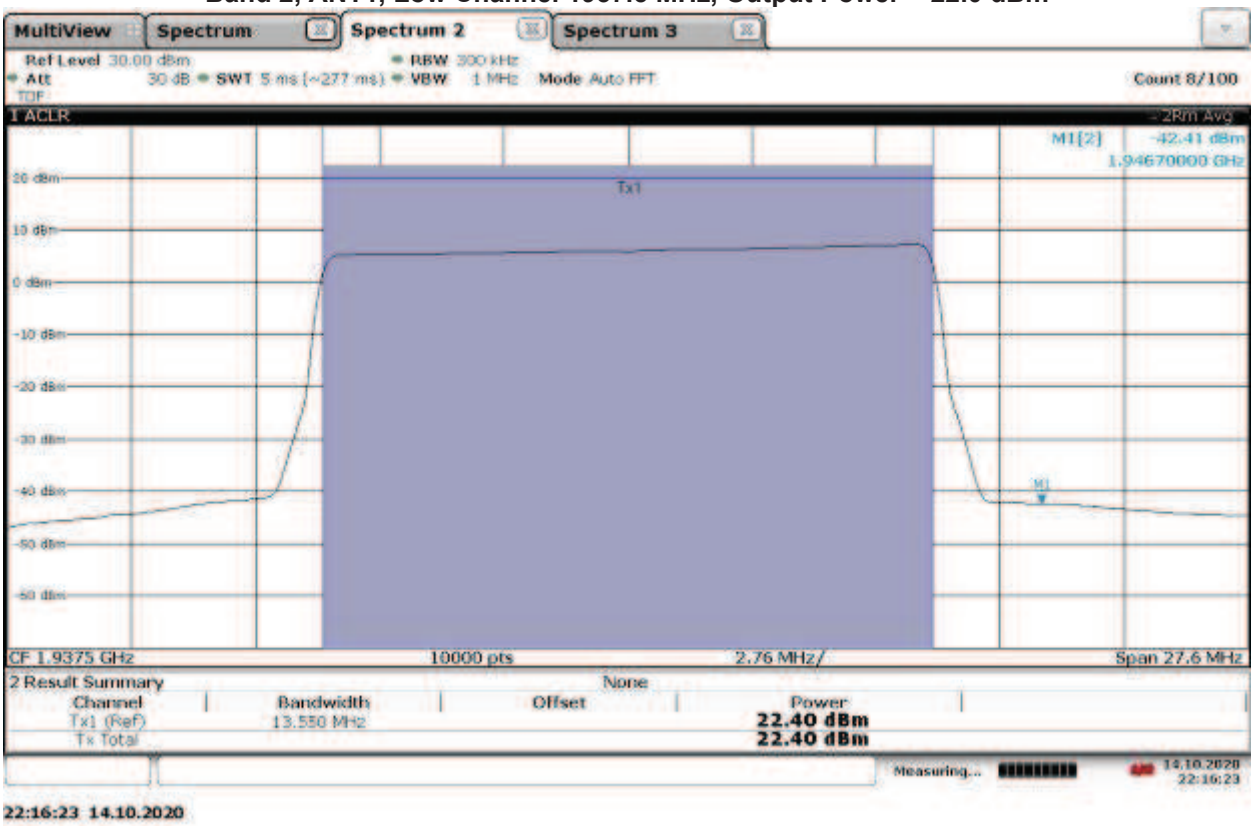
TM1.1-QPSK_10 MHz Bandwidth
Band 2, ANT1, High Channel 1985 MHz, Output Power = 23.65 dBm



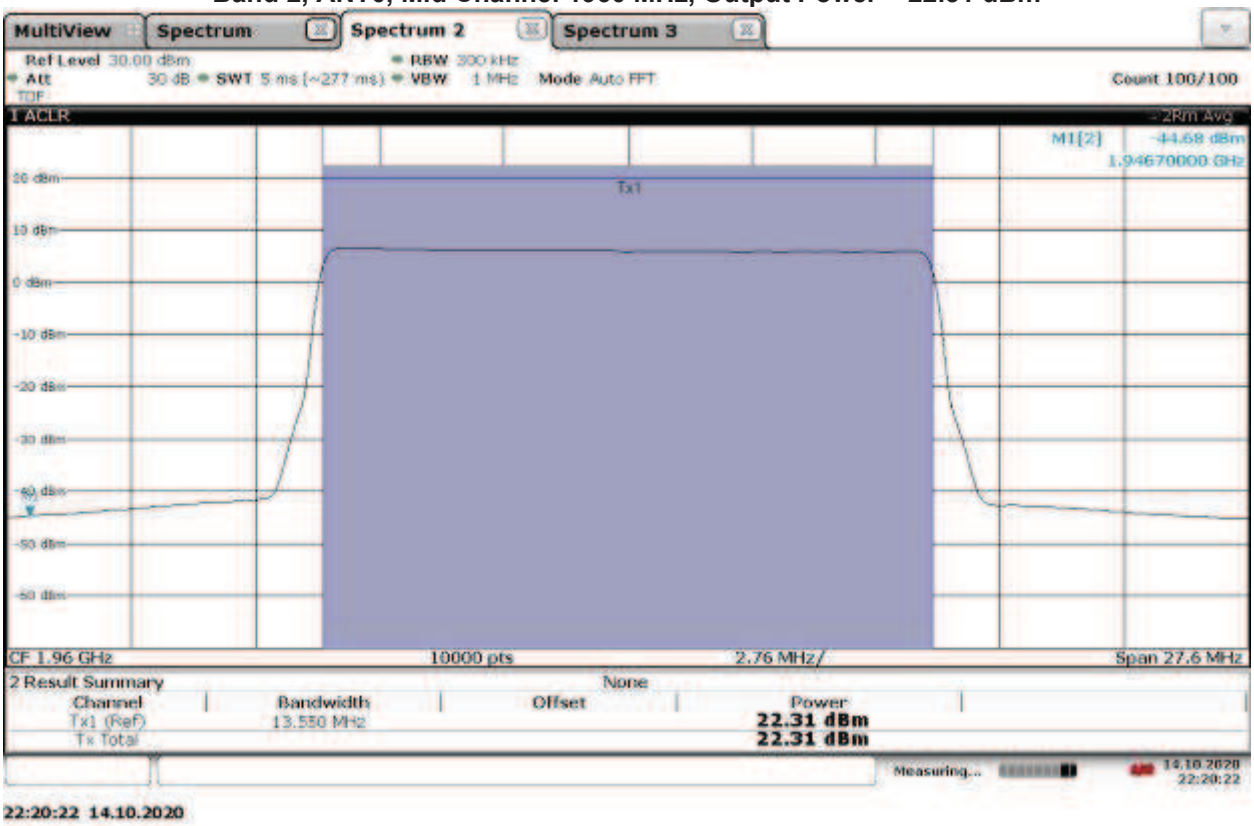
TM1.1-QPSK_15 MHz Bandwidth
Band 2, ANT0, Low Channel 1937.5 MHz, Output Power = 22.00 dBm



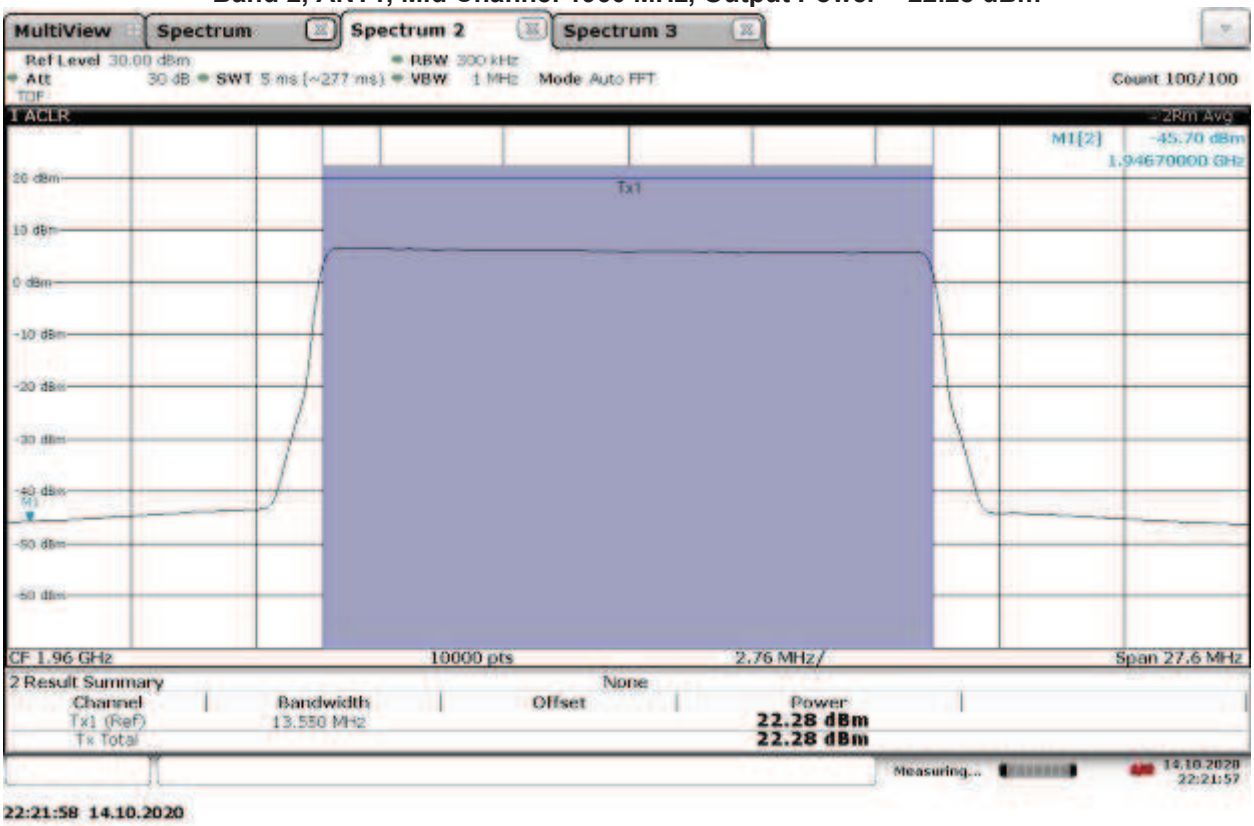
TM1.1-QPSK_15 MHz Bandwidth
Band 2, ANT1, Low Channel 1937.5 MHz, Output Power = 22.0 dBm



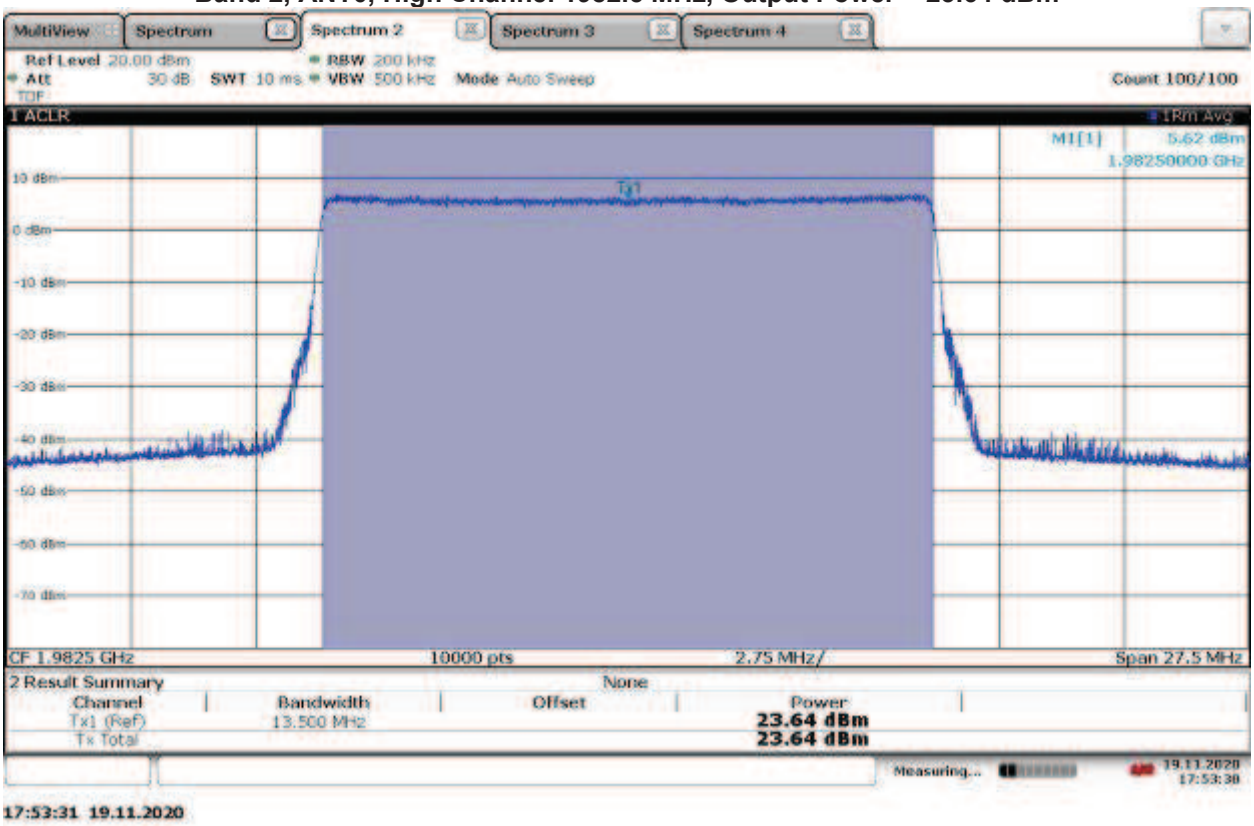
TM1.1-QPSK_15 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.31 dBm



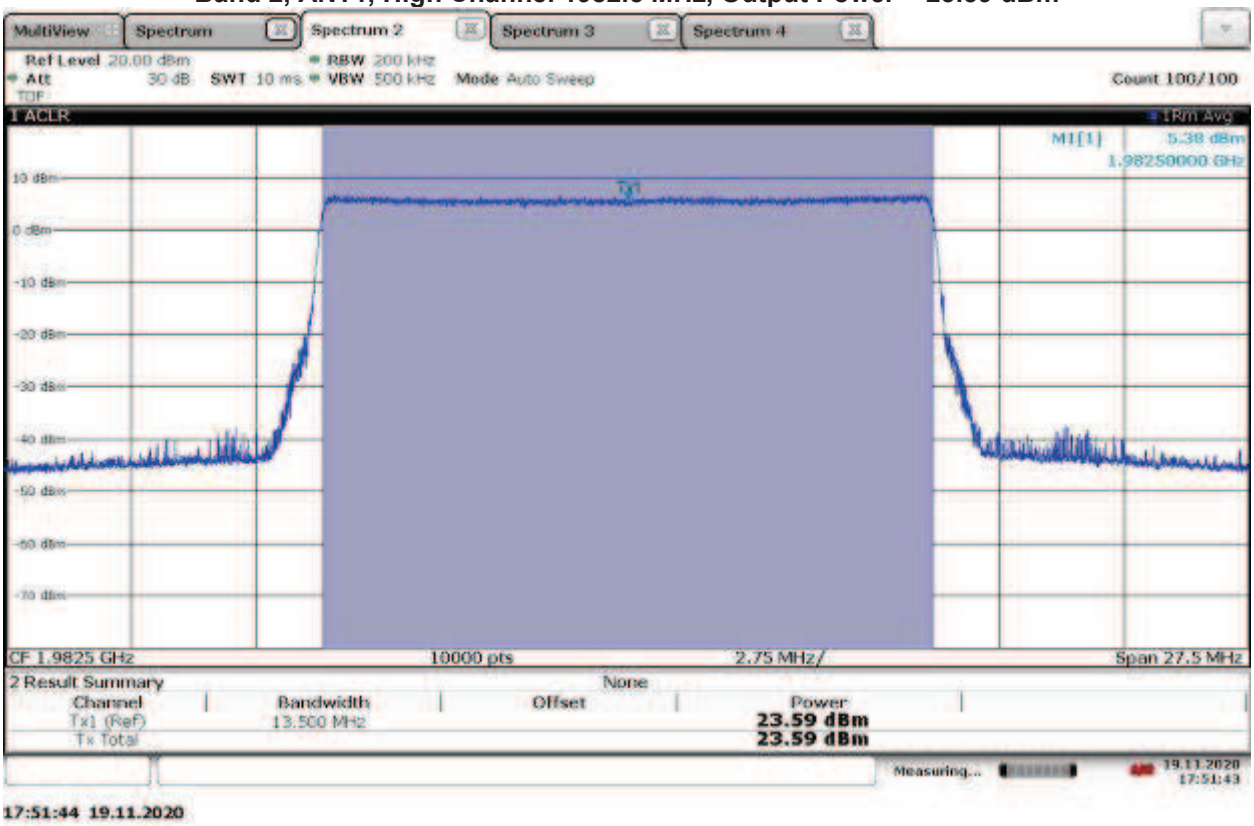
TM1.1-QPSK_15 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.28 dBm



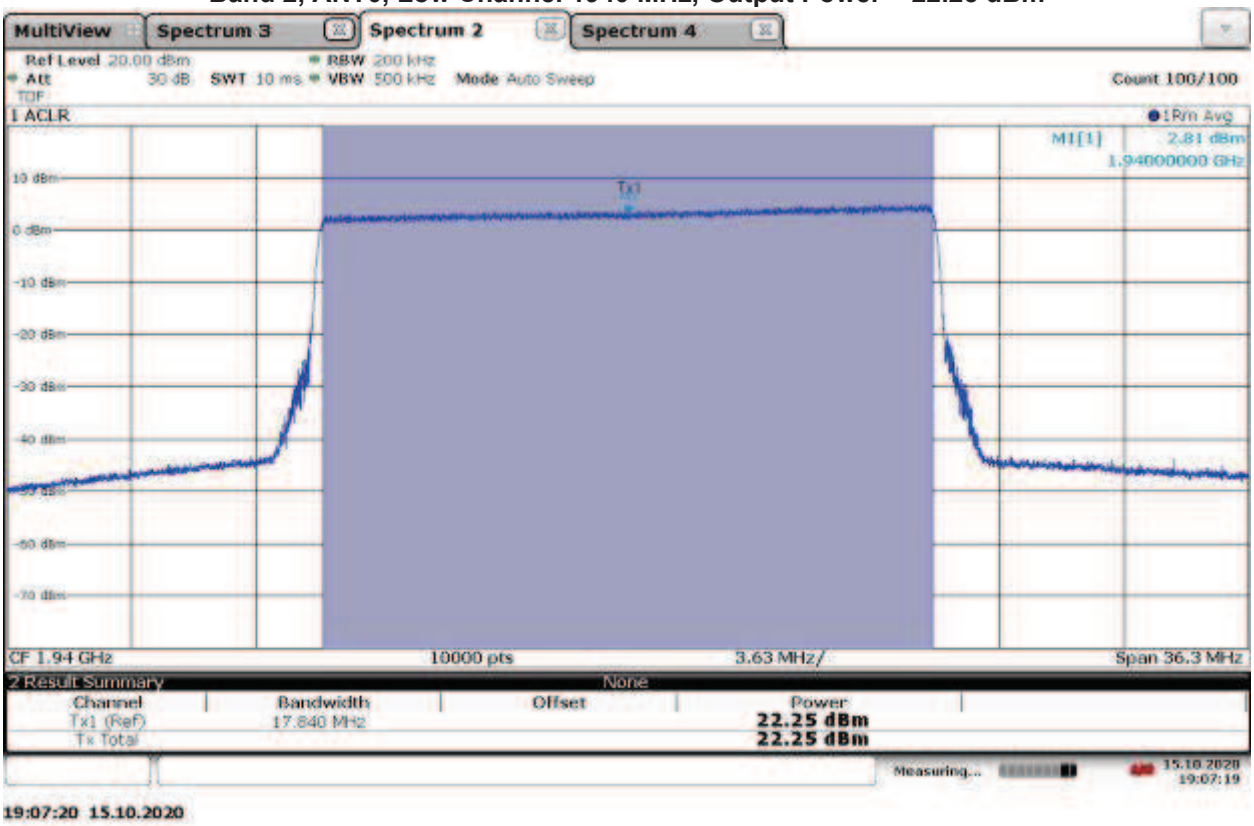
TM1.1-QPSK_15 MHz Bandwidth
Band 2, ANT0, High Channel 1982.5 MHz, Output Power = 23.64 dBm



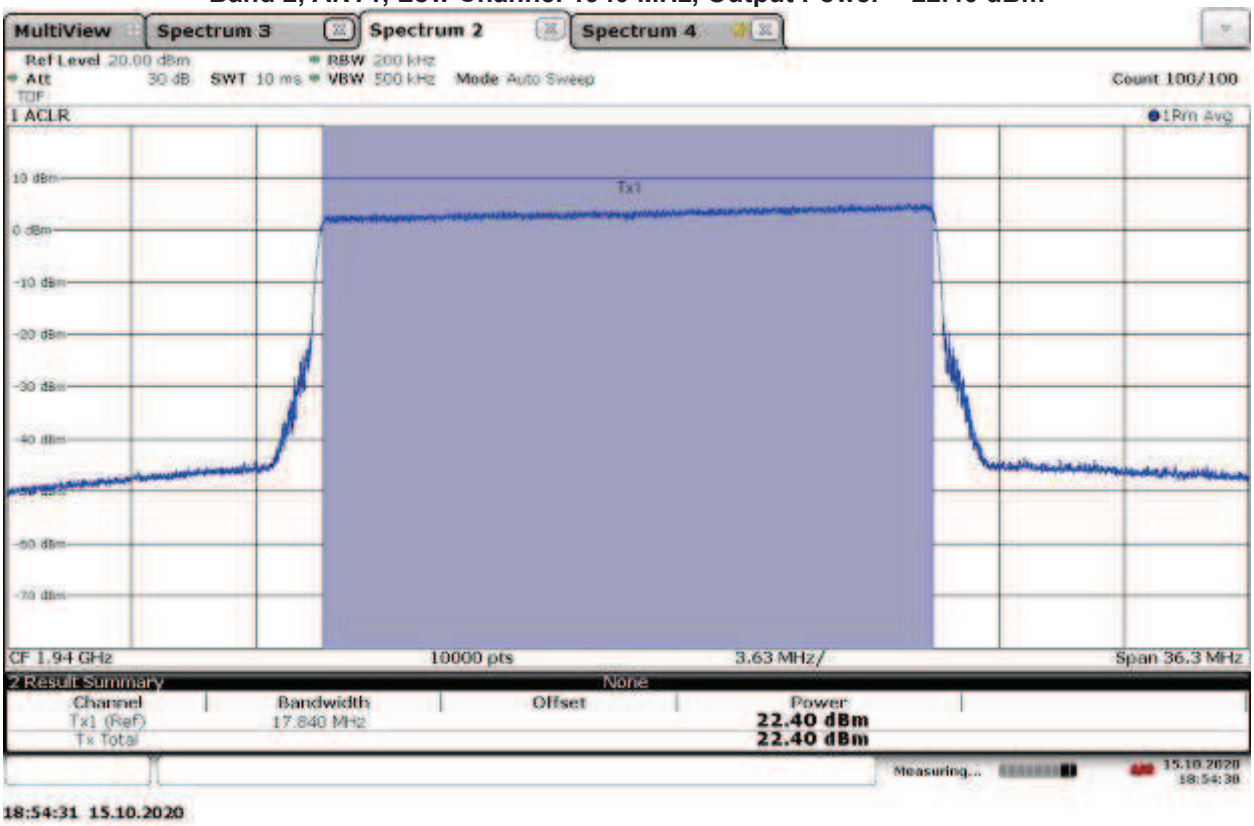
TM1.1-QPSK_15 MHz Bandwidth
Band 2, ANT1, High Channel 1982.5 MHz, Output Power = 23.59 dBm



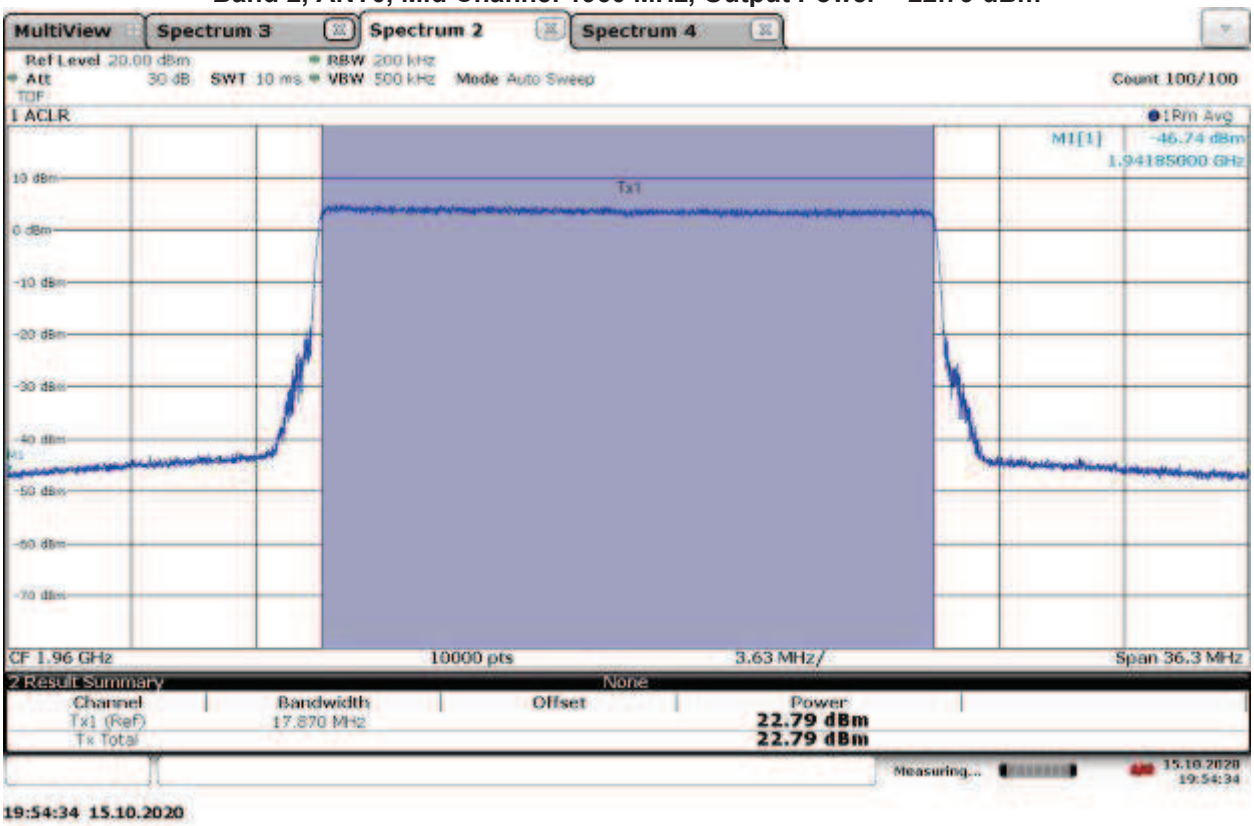
TM1.1-QPSK_20 MHz Bandwidth
Band 2, ANT0, Low Channel 1940 MHz, Output Power = 22.25 dBm



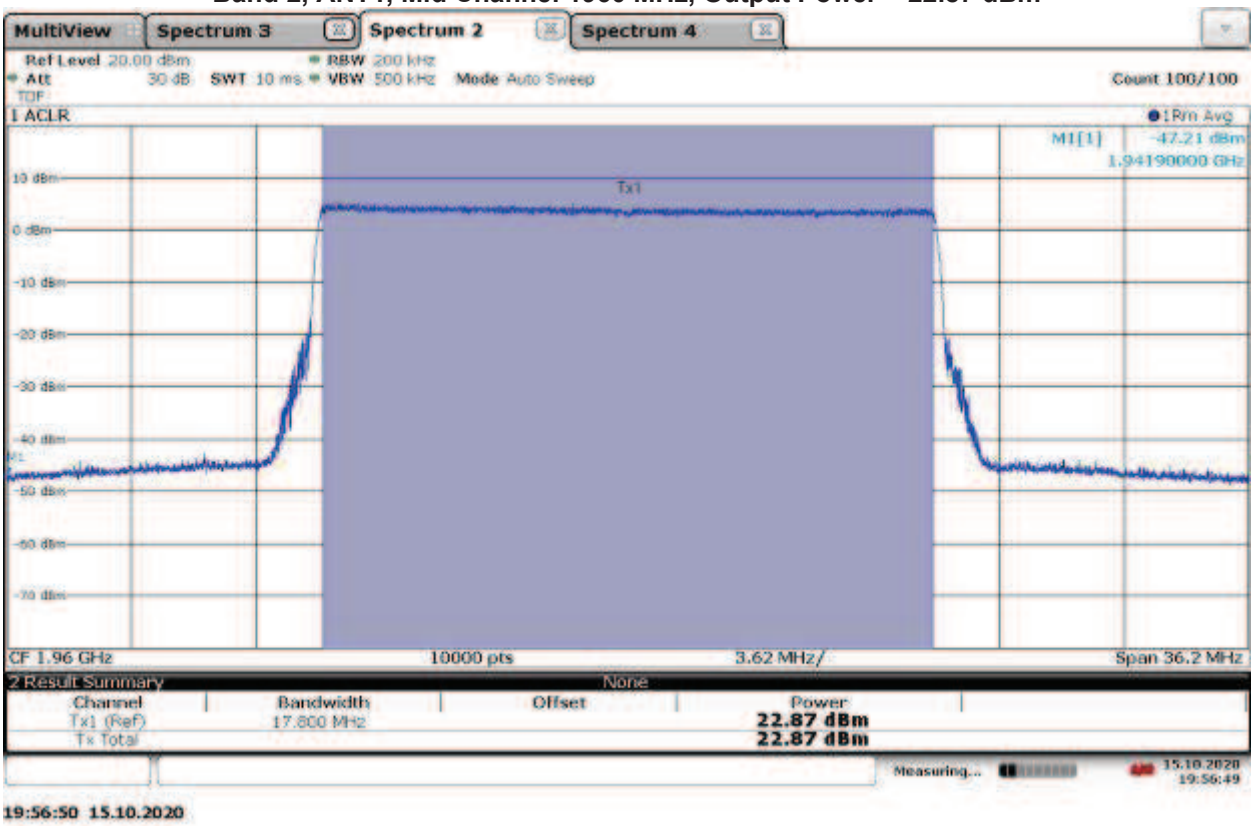
TM1.1-QPSK_20 MHz Bandwidth
Band 2, ANT1, Low Channel 1940 MHz, Output Power = 22.40 dBm



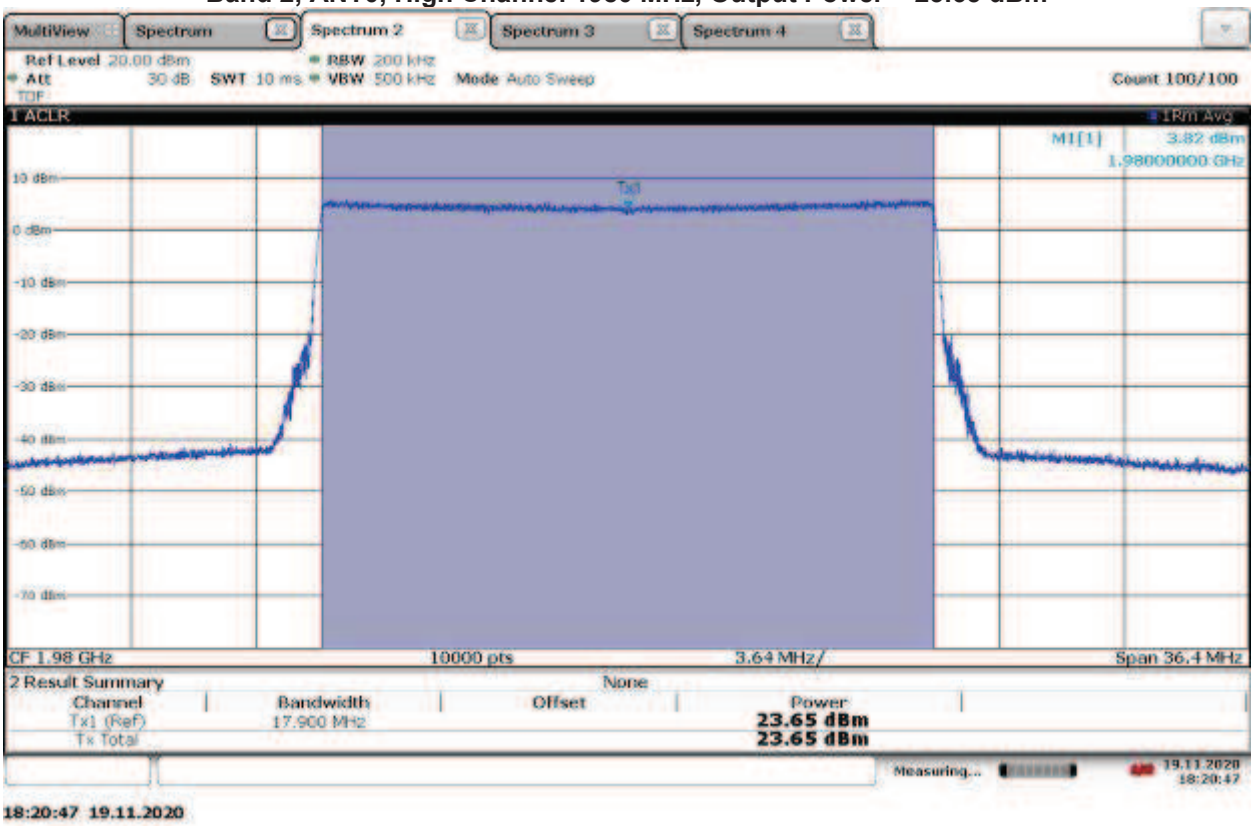
TM1.1-QPSK_20 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.79 dBm



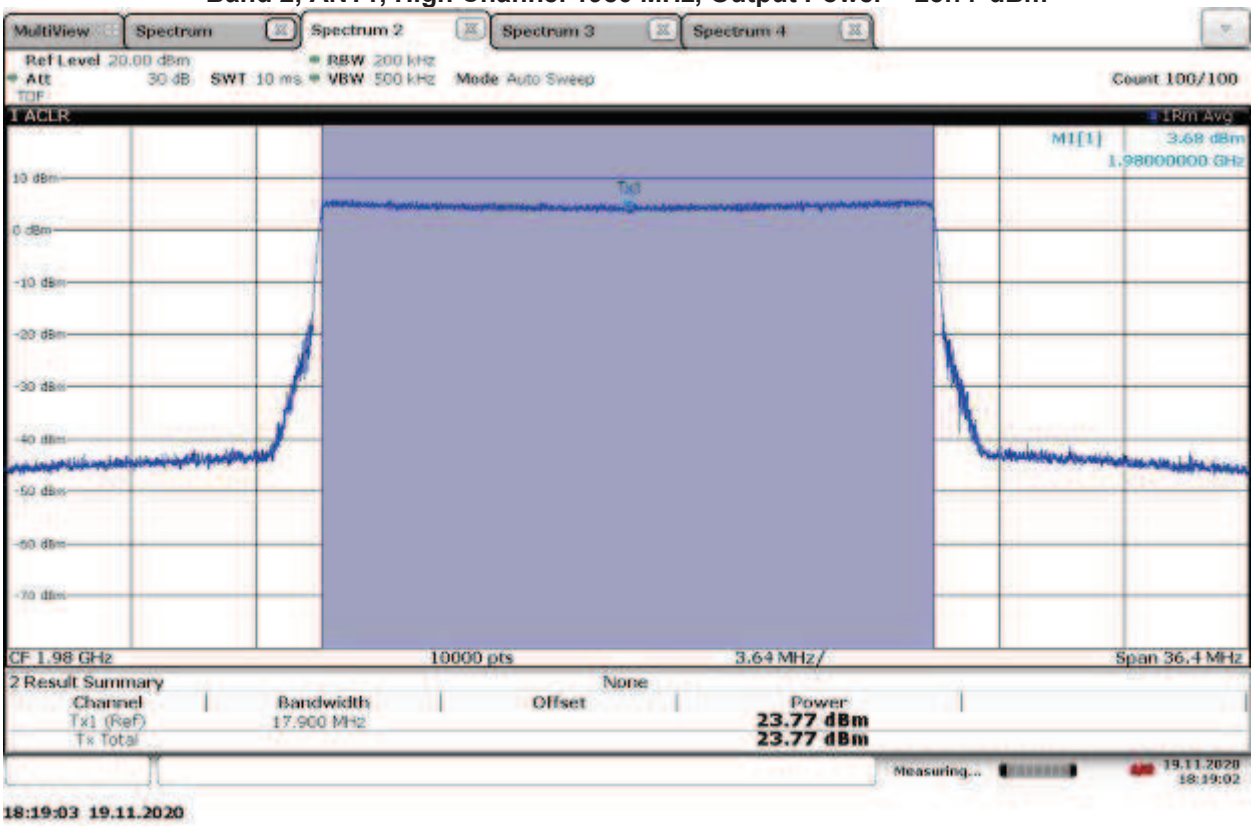
TM1.1-QPSK_20 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.87 dBm



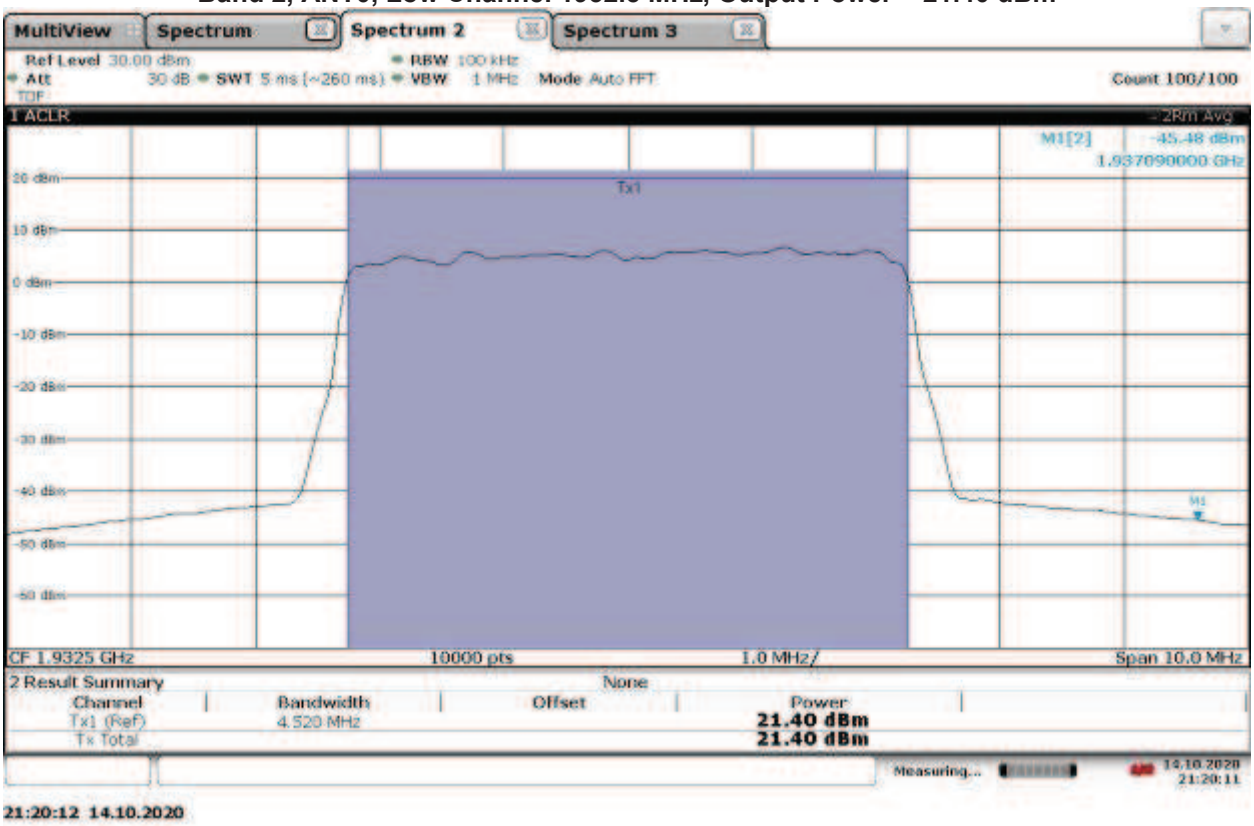
TM1.1-QPSK_20 MHz Bandwidth
Band 2, ANT0, High Channel 1980 MHz, Output Power = 23.65 dBm



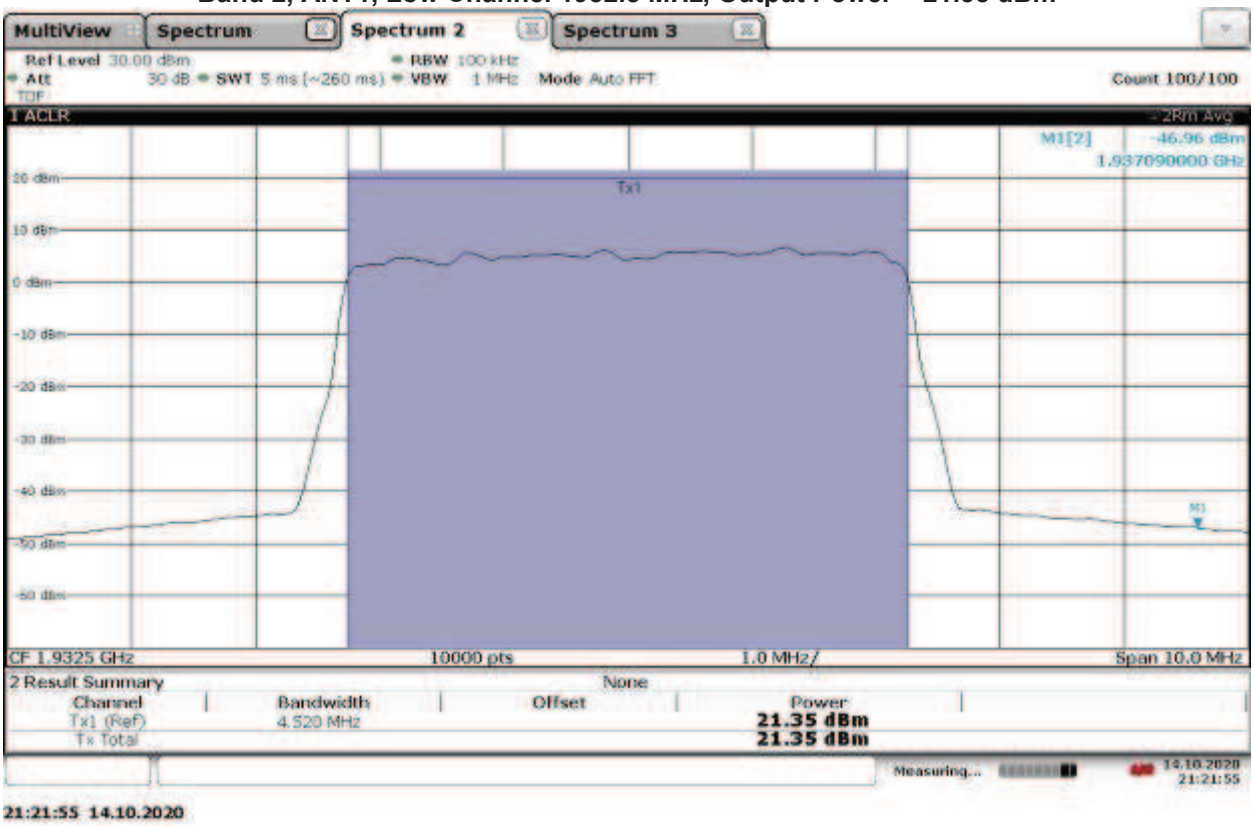
TM1.1-QPSK_20 MHz Bandwidth
Band 2, ANT1, High Channel 1980 MHz, Output Power = 23.77 dBm



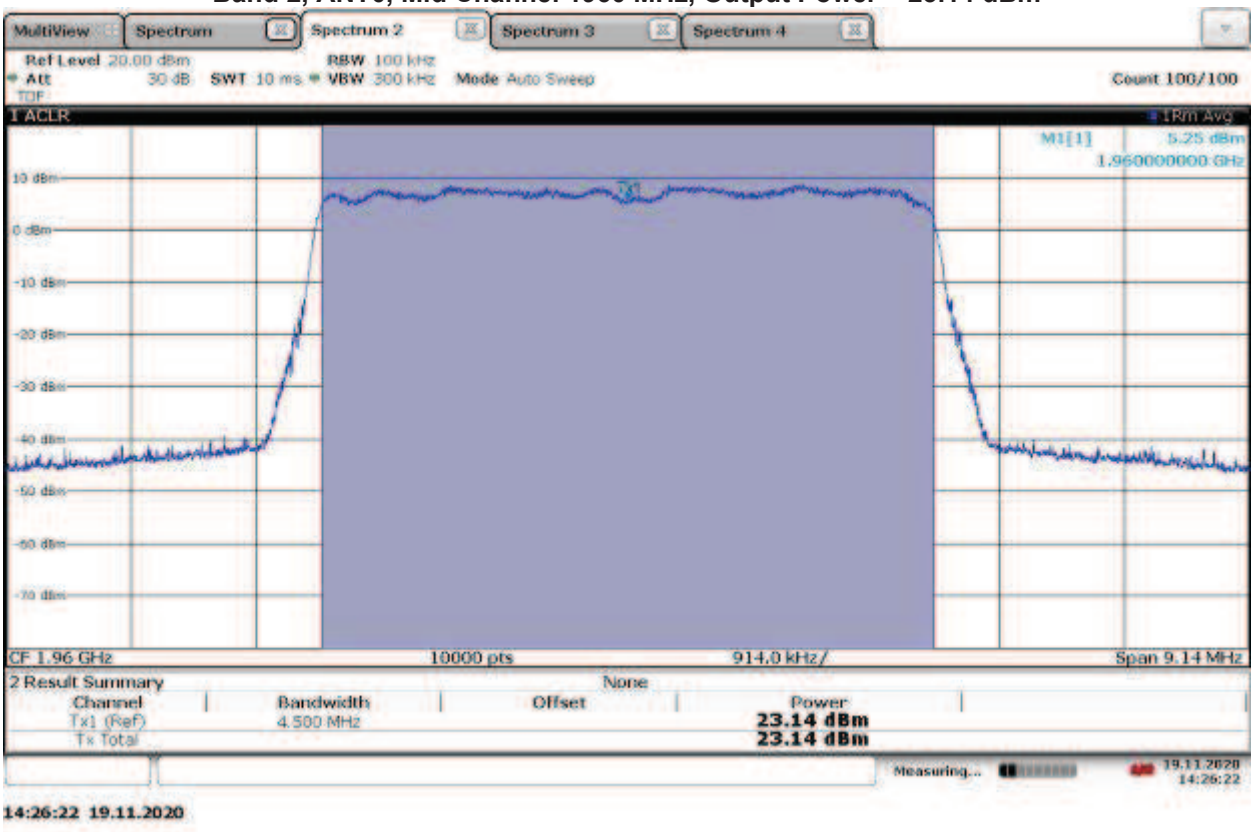
TM3.2-16QAM_5 MHz Bandwidth
Band 2, ANT0, Low Channel 1932.5 MHz, Output Power = 21.40 dBm



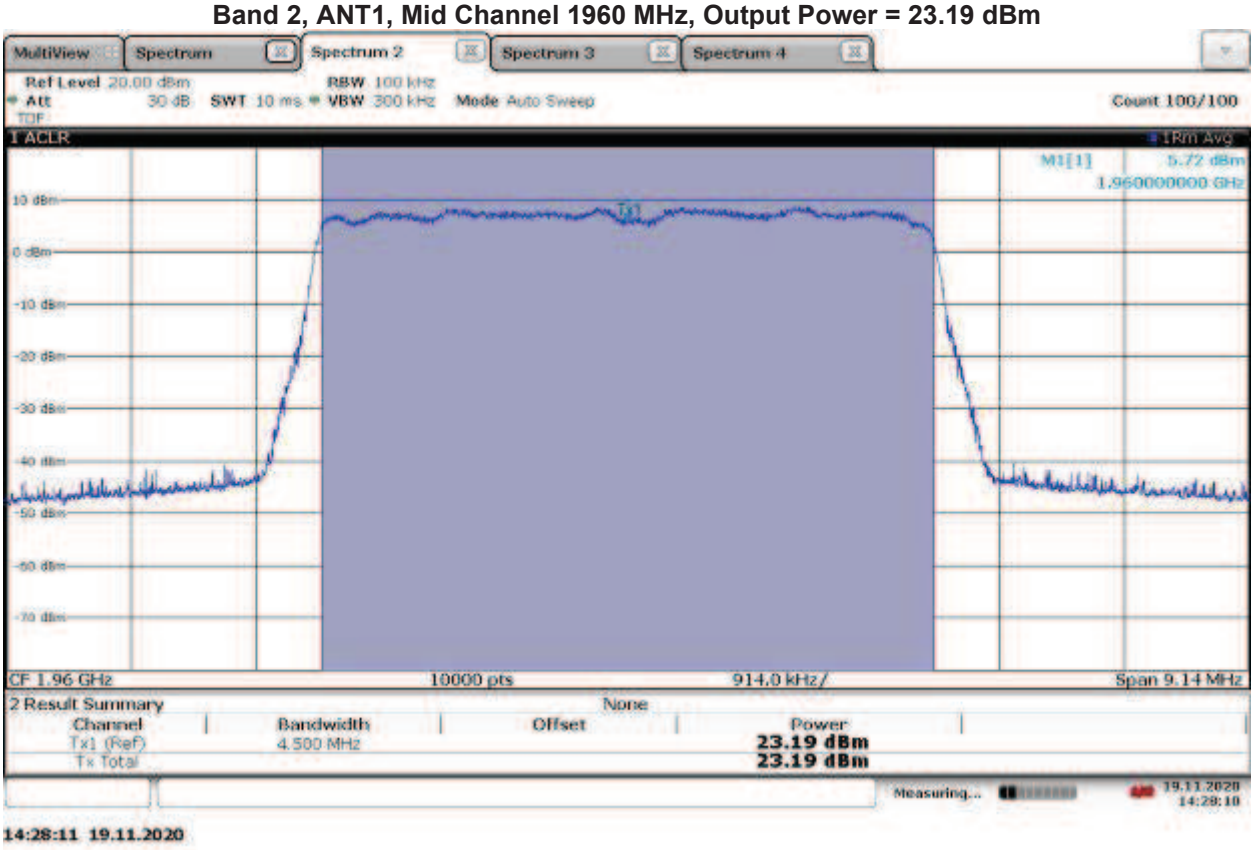
TM3.2-16QAM_5 MHz Bandwidth
Band 2, ANT1, Low Channel 1932.5 MHz, Output Power = 21.35 dBm



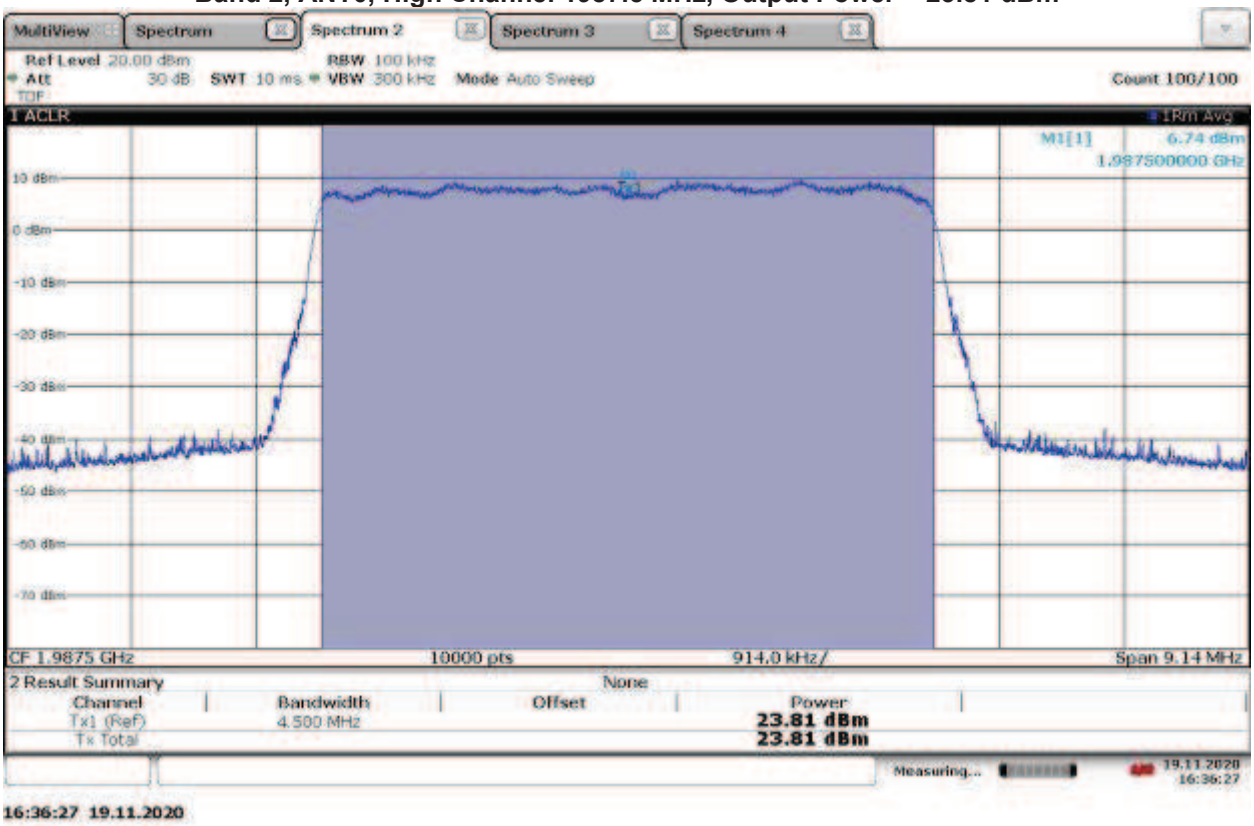
TM3.2-16QAM_5 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 23.14 dBm



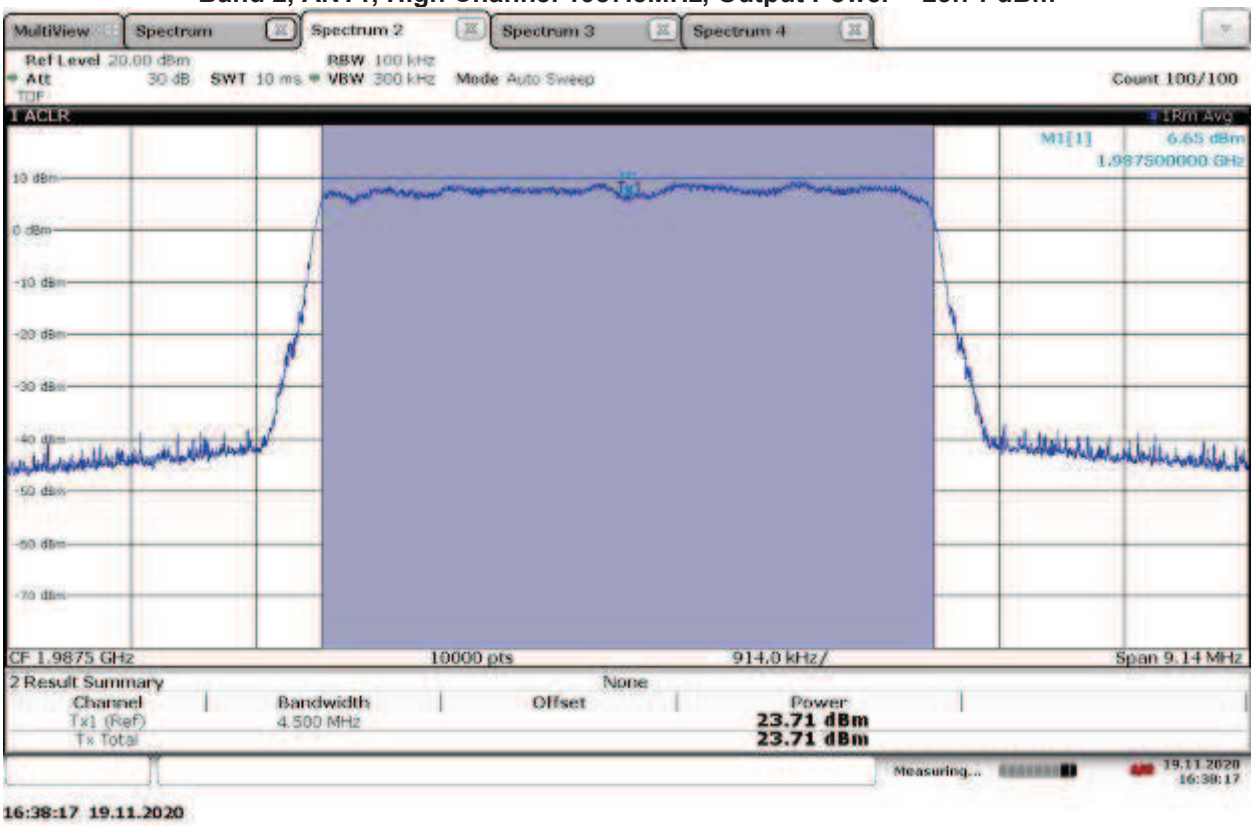
TM3.2-16QAM_5 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 23.19 dBm



TM3.2-16QAM_5 MHz Bandwidth
Band 2, ANT0, High Channel 1987.5 MHz, Output Power = 23.81 dBm



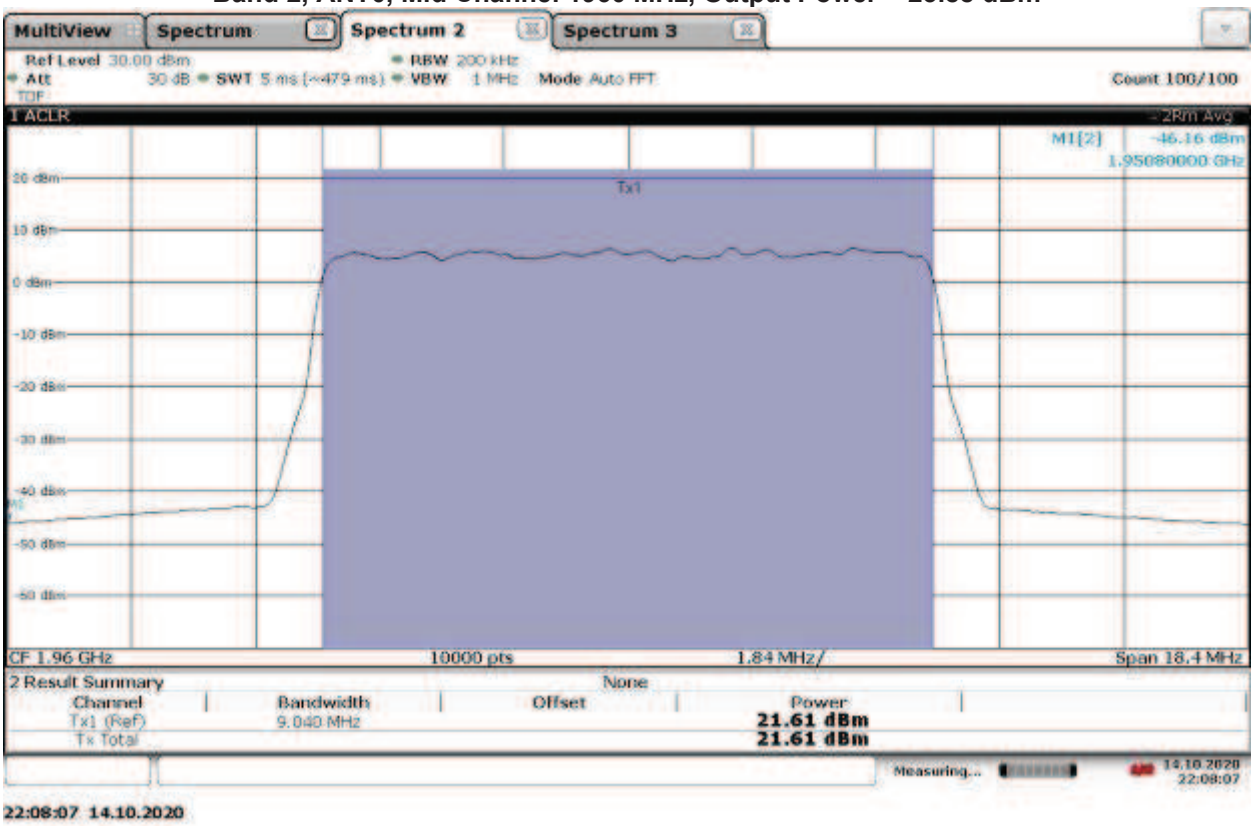
TM3.2-16QAM_5 MHz Bandwidth
Band 2, ANT1, High Channel 1987.5MHz, Output Power = 23.71 dBm



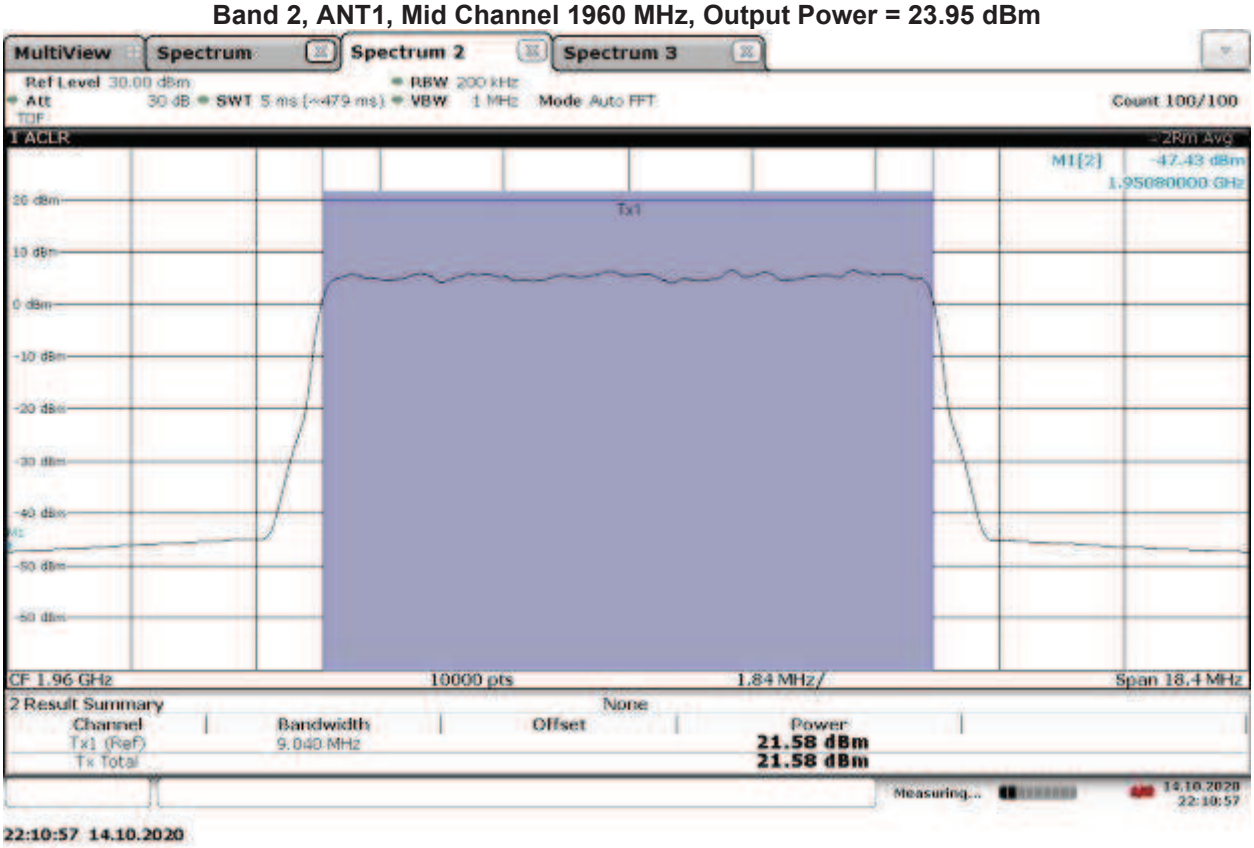
TM3.2-16QAM_10 MHz Bandwidth
Band 2, ANT0, Low Channel 1935 MHz, Output Power = 21.77 dBm

TM3.2-16QAM_10 MHz Bandwidth
Band 2, ANT1, Low Channel 1935 MHz, Output Power = 21.82 dBm

TM3.2-16QAM_10 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 23.88 dBm

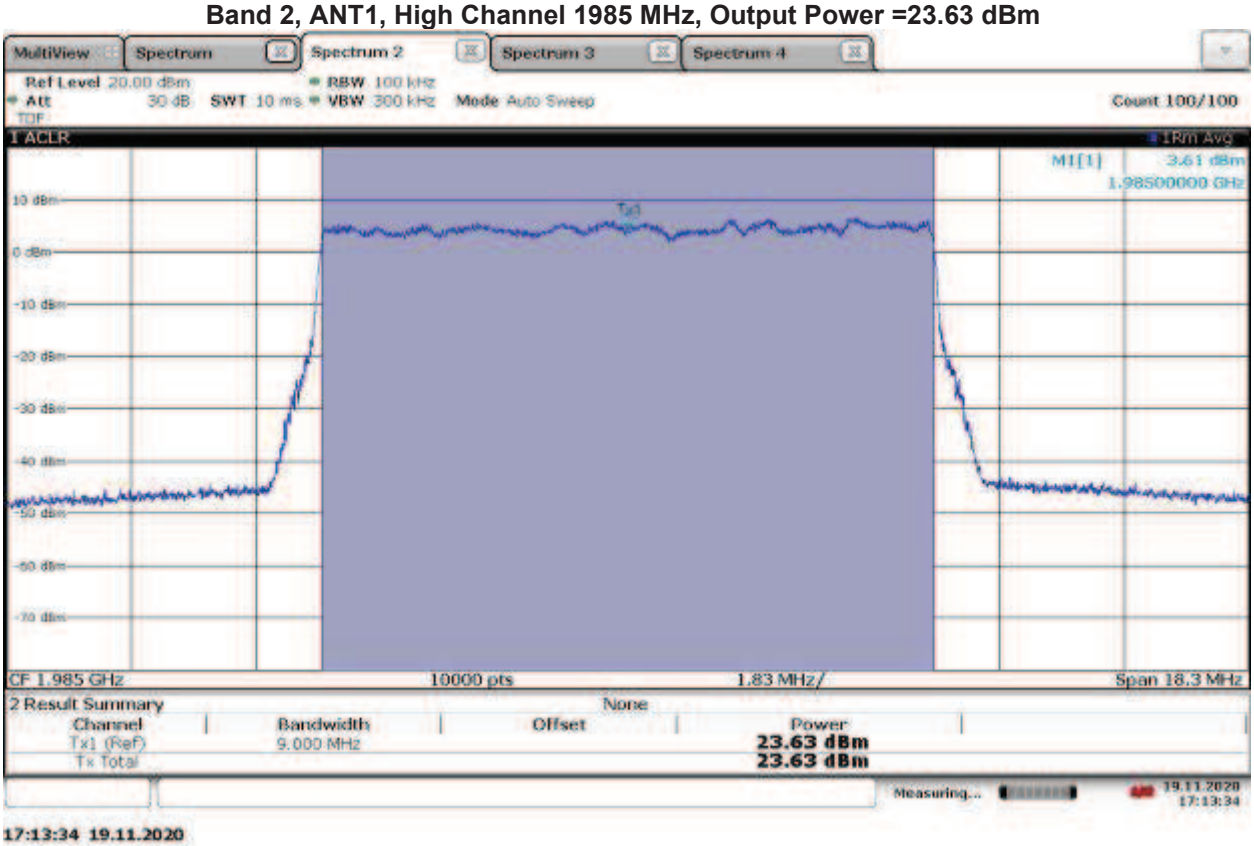


TM3.2-16QAM_10 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 23.95 dBm

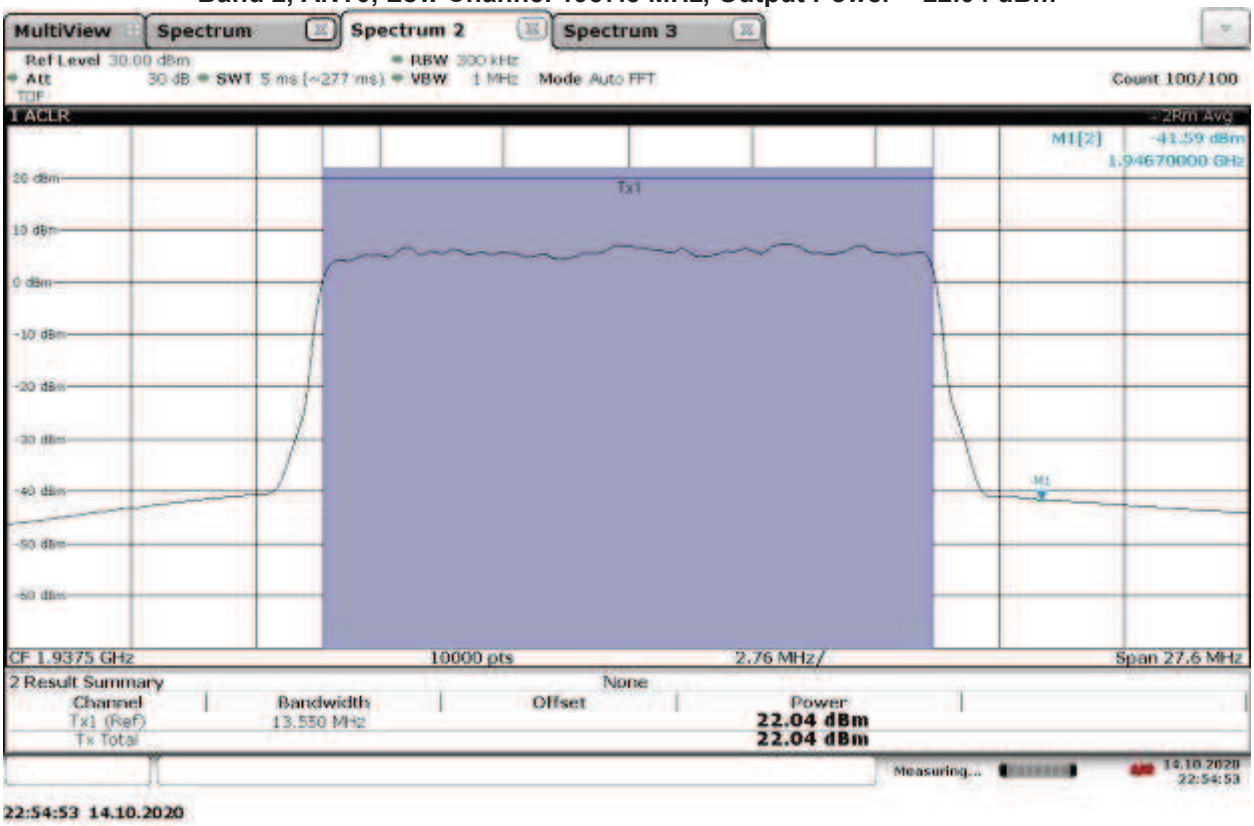


TM3.2-16QAM_10 MHz Bandwidth
Band 2, ANT0, High Channel 1985 MHz, Output Power = 23.70 dBm

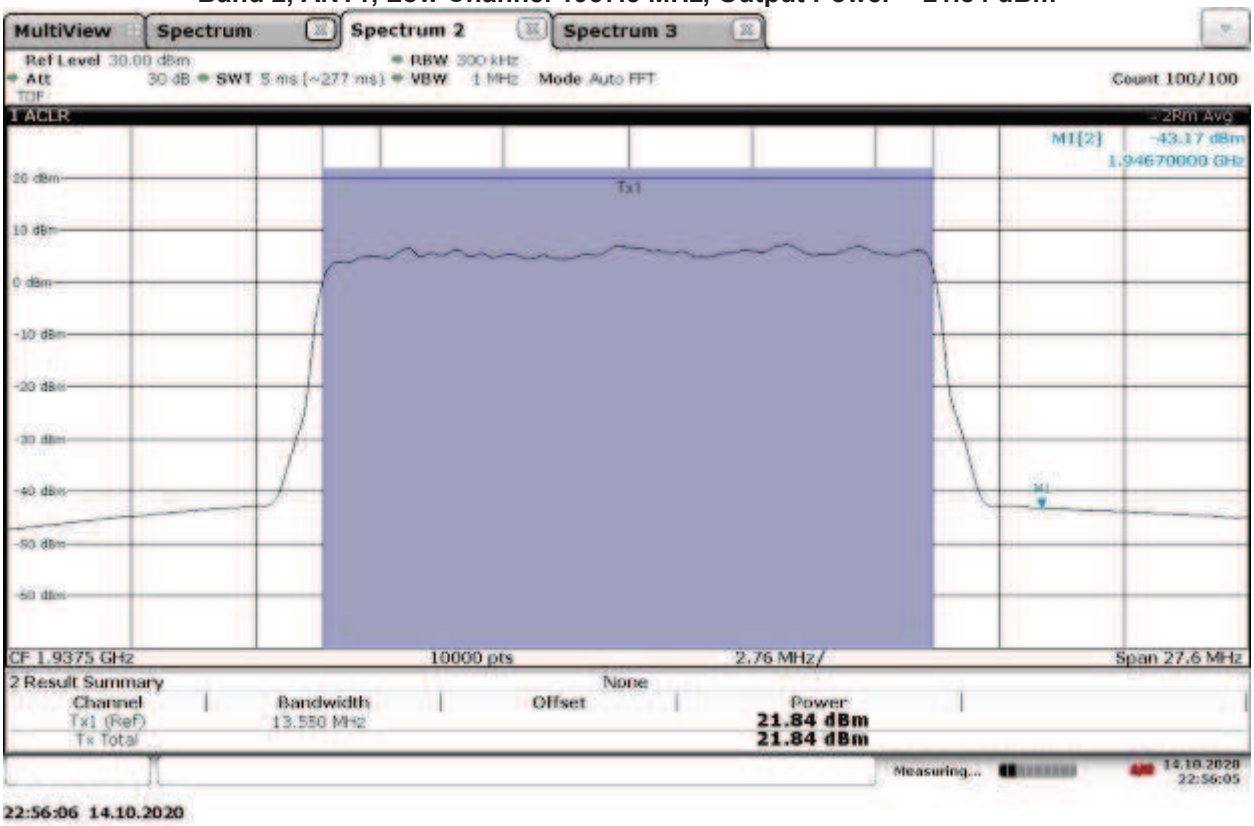
TM3.2-16QAM_10 MHz Bandwidth
Band 2, ANT1, High Channel 1985 MHz, Output Power =23.63 dBm



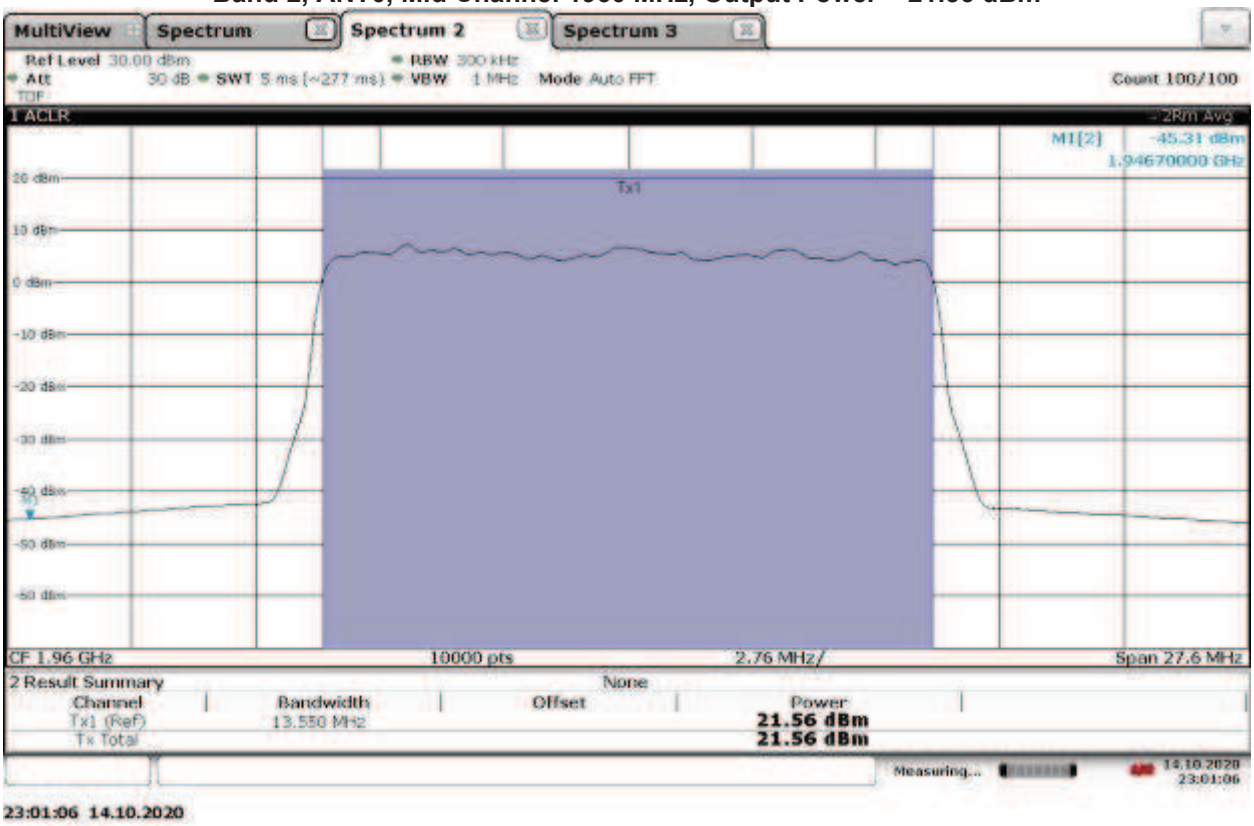
TM3.2-16QAM_15 MHz Bandwidth
Band 2, ANT0, Low Channel 1937.5 MHz, Output Power = 22.04 dBm



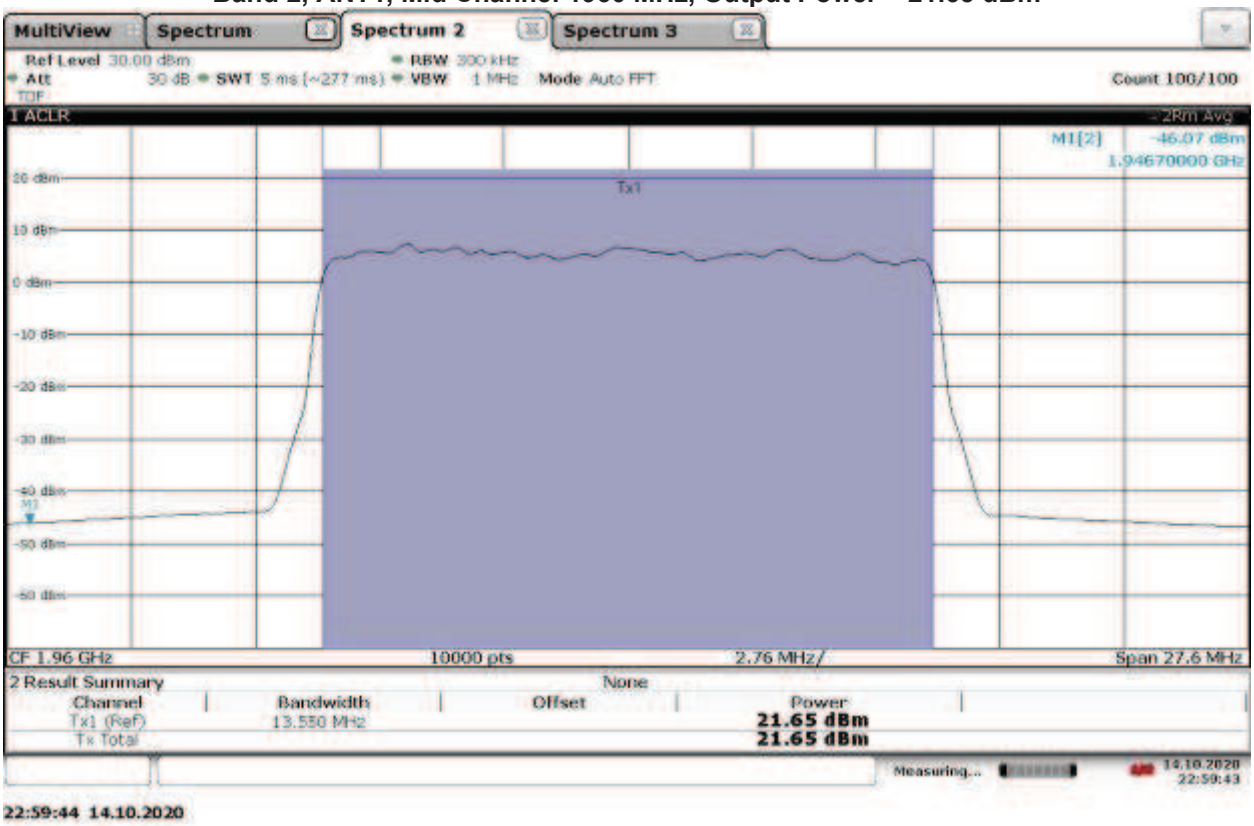
TM3.2-16QAM_15 MHz Bandwidth
Band 2, ANT1, Low Channel 1937.5 MHz, Output Power = 21.84 dBm



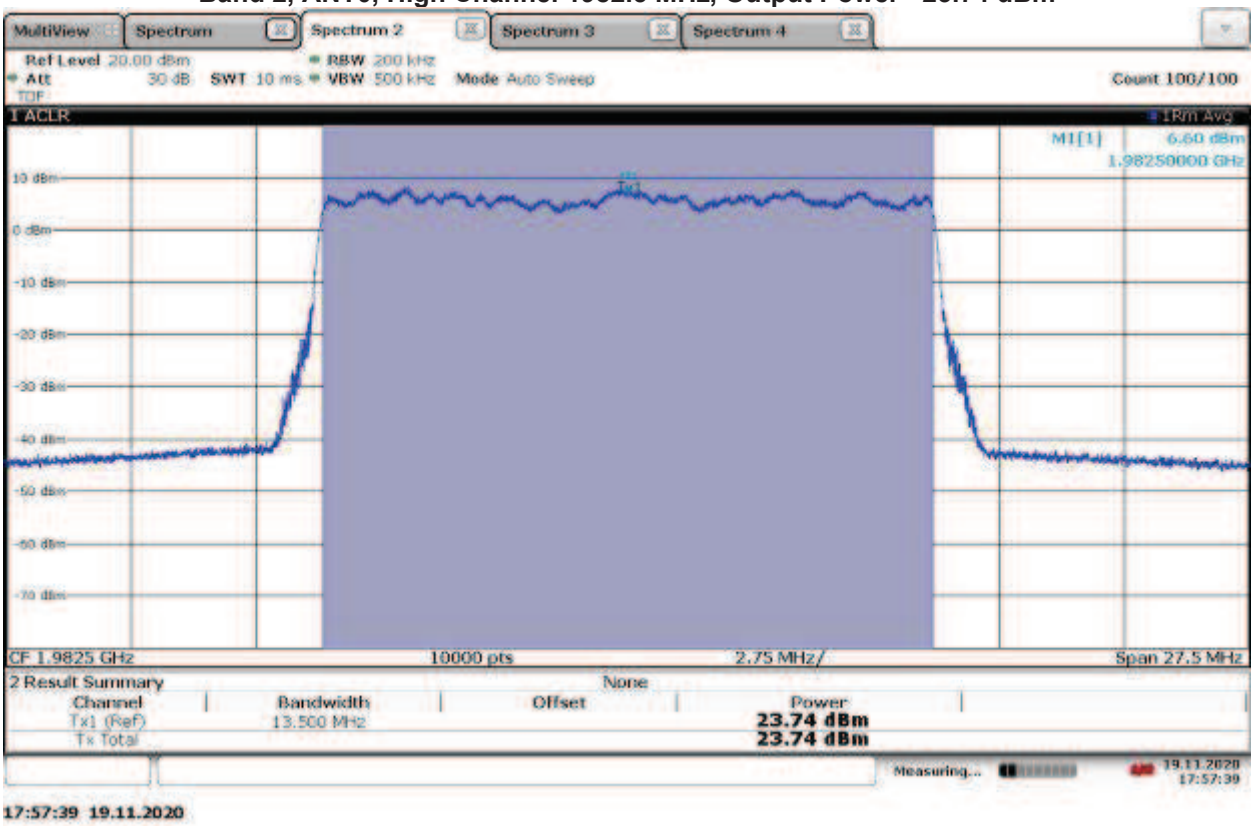
TM3.2-16QAM_15 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 21.56 dBm



TM3.2-16QAM_15 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 21.65 dBm

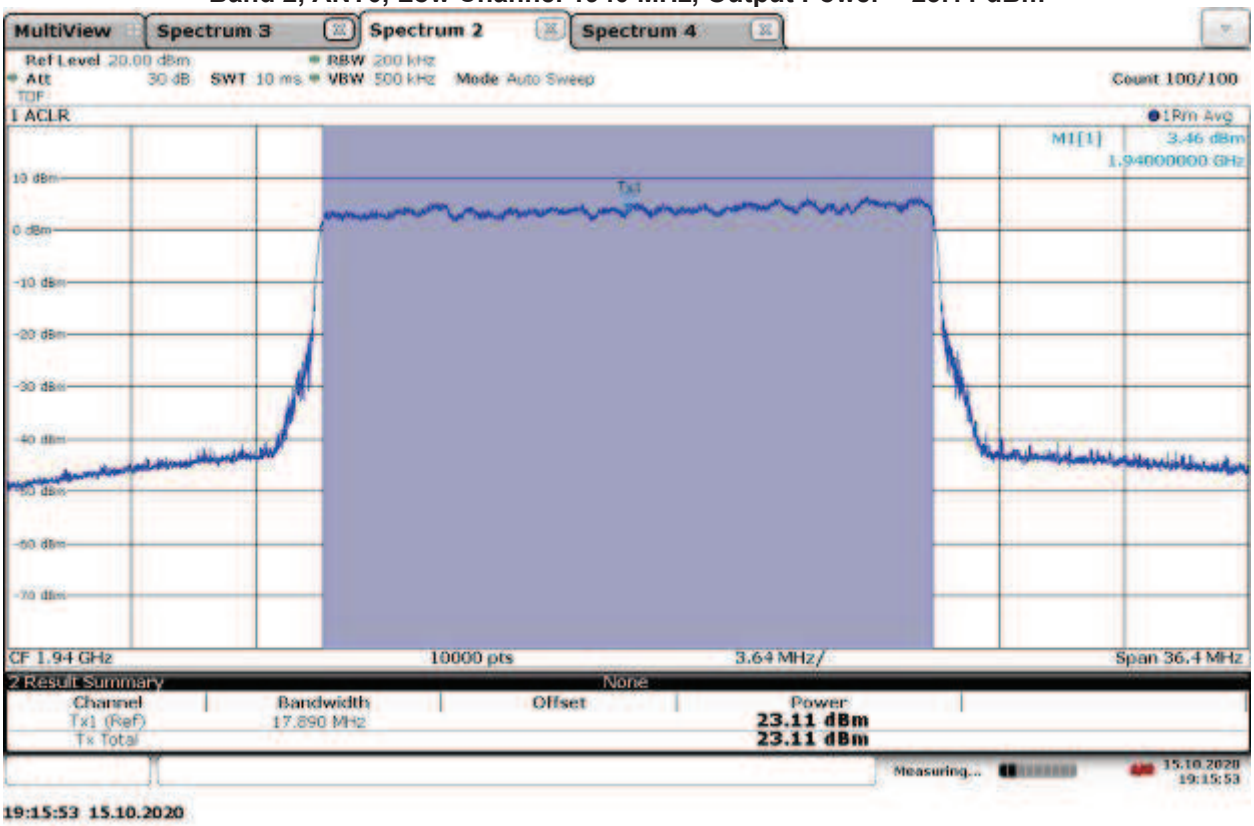


TM3.2-16QAM_15 MHz Bandwidth
Band 2, ANT0, High Channel 1982.5 MHz, Output Power =23.74 dBm

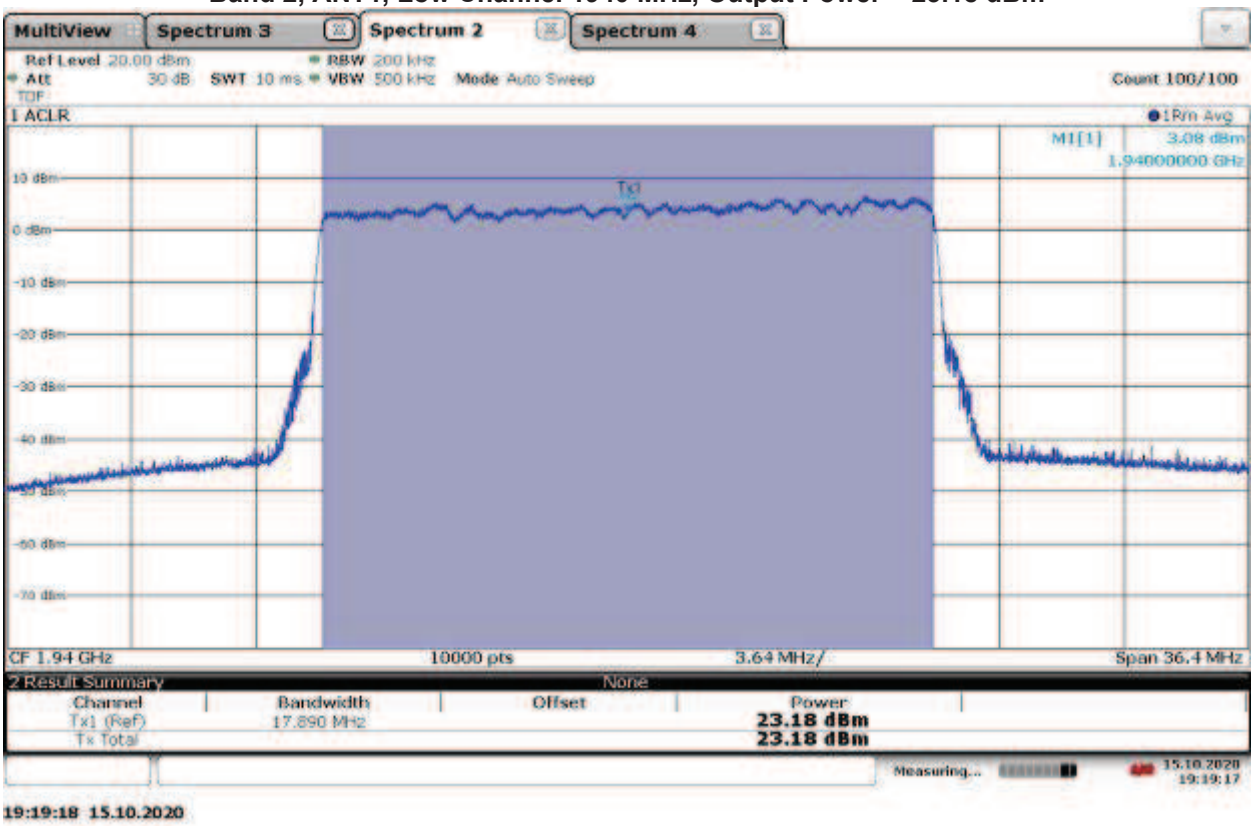


TM3.2-16QAM_15 MHz Bandwidth
Band 2, ANT1, High Channel 1982.5 MHz, Output Power = 23.83 dBm

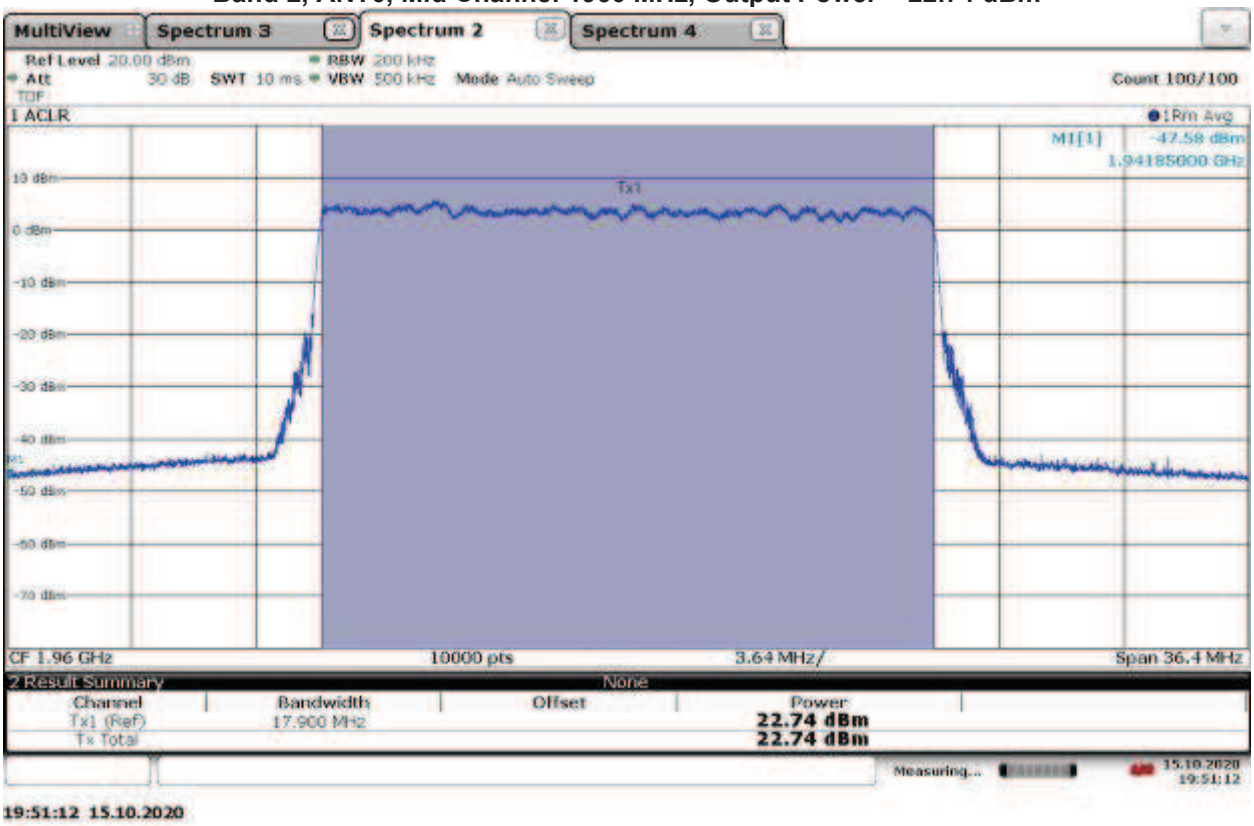
TM3.2-16QAM_20 MHz Bandwidth
Band 2, ANT0, Low Channel 1940 MHz, Output Power = 23.11 dBm



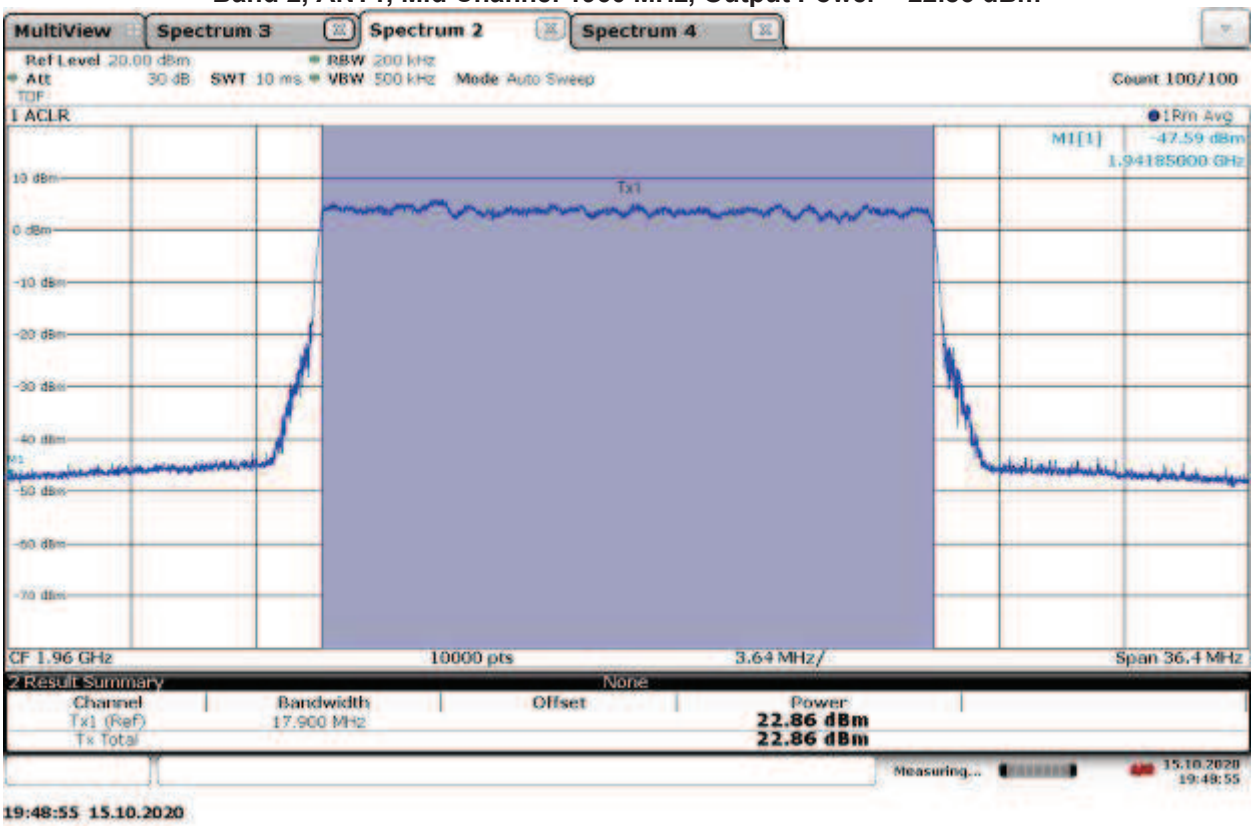
TM3.2-16QAM_20 MHz Bandwidth
Band 2, ANT1, Low Channel 1940 MHz, Output Power = 23.18 dBm



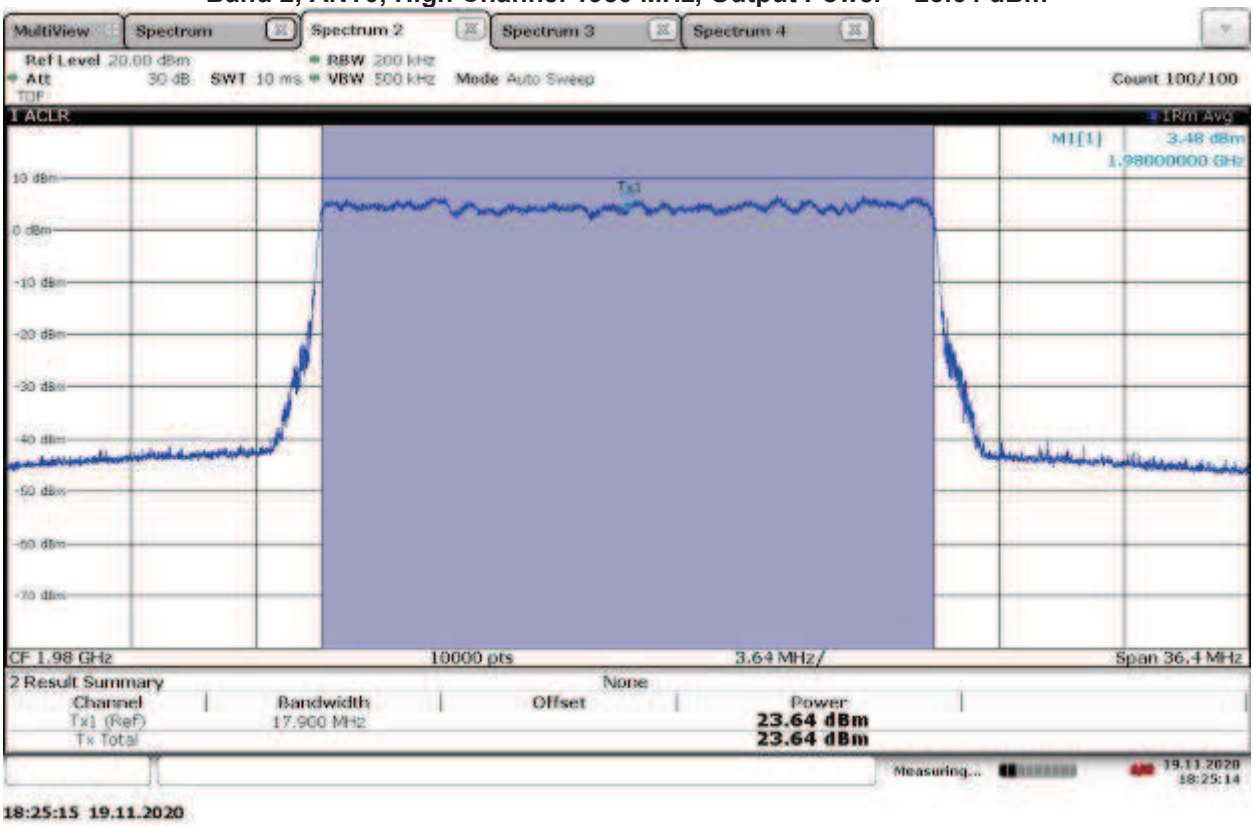
TM3.2-16QAM_20 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.74 dBm



TM3.2-16QAM_20 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.86 dBm

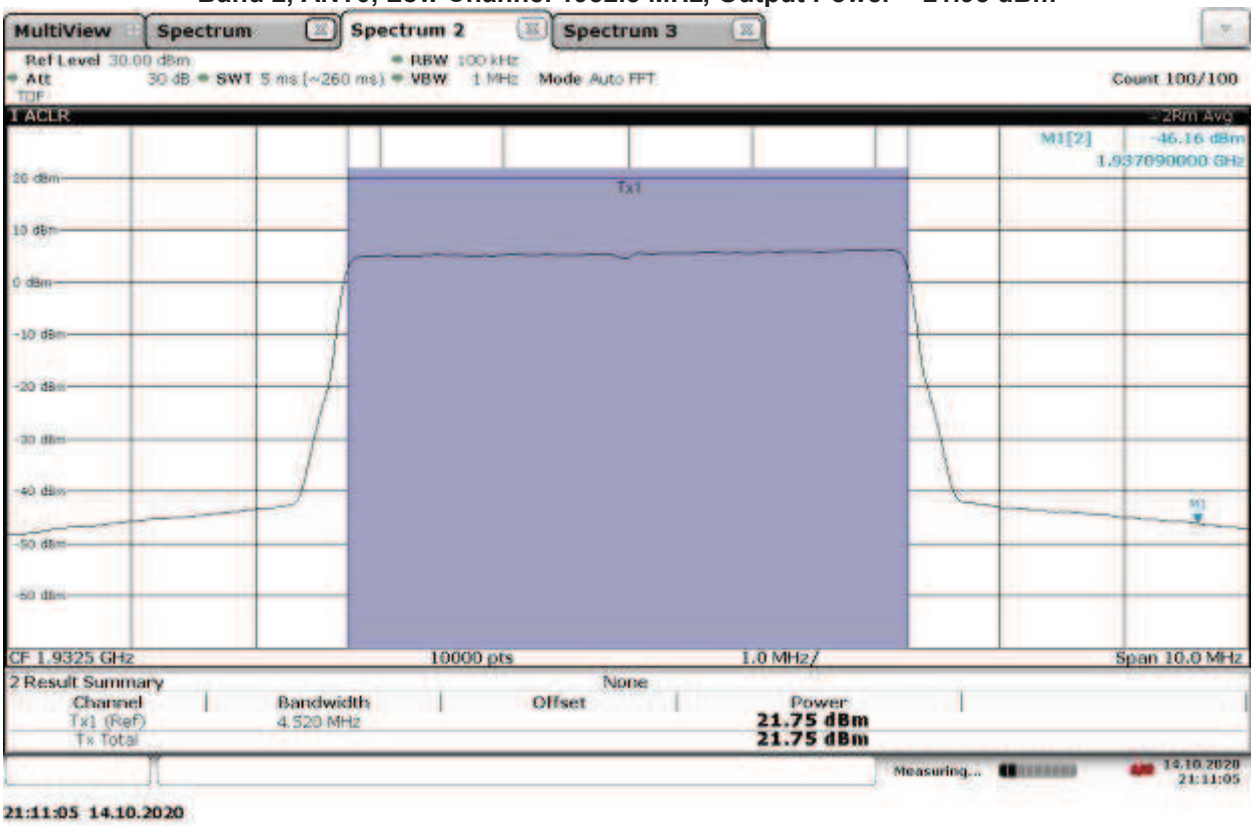


TM3.2-16QAM_20 MHz Bandwidth
Band 2, ANT0, High Channel 1980 MHz, Output Power = 23.64 dBm

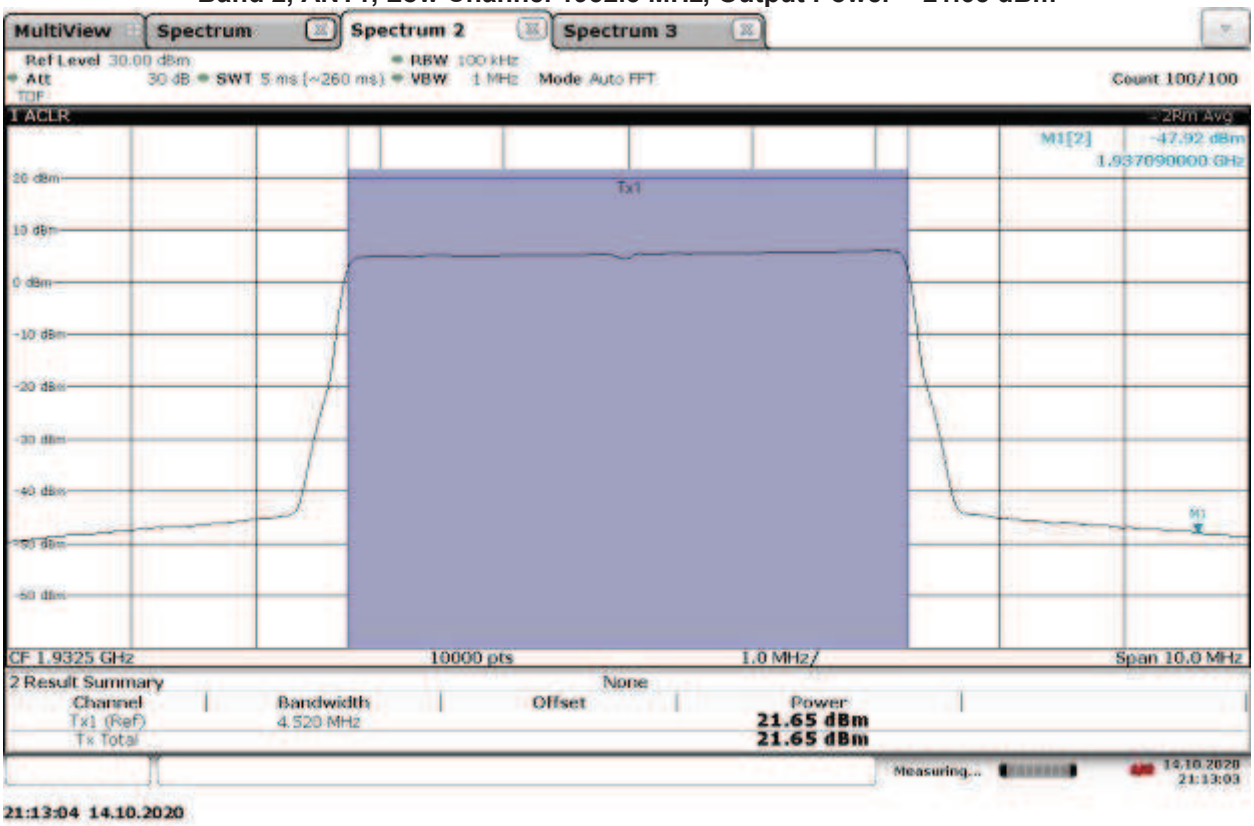


TM3.2-16QAM_20 MHz Bandwidth
Band 2, ANT1, High Channel 1980 MHz, Output Power = 23.76 dBm

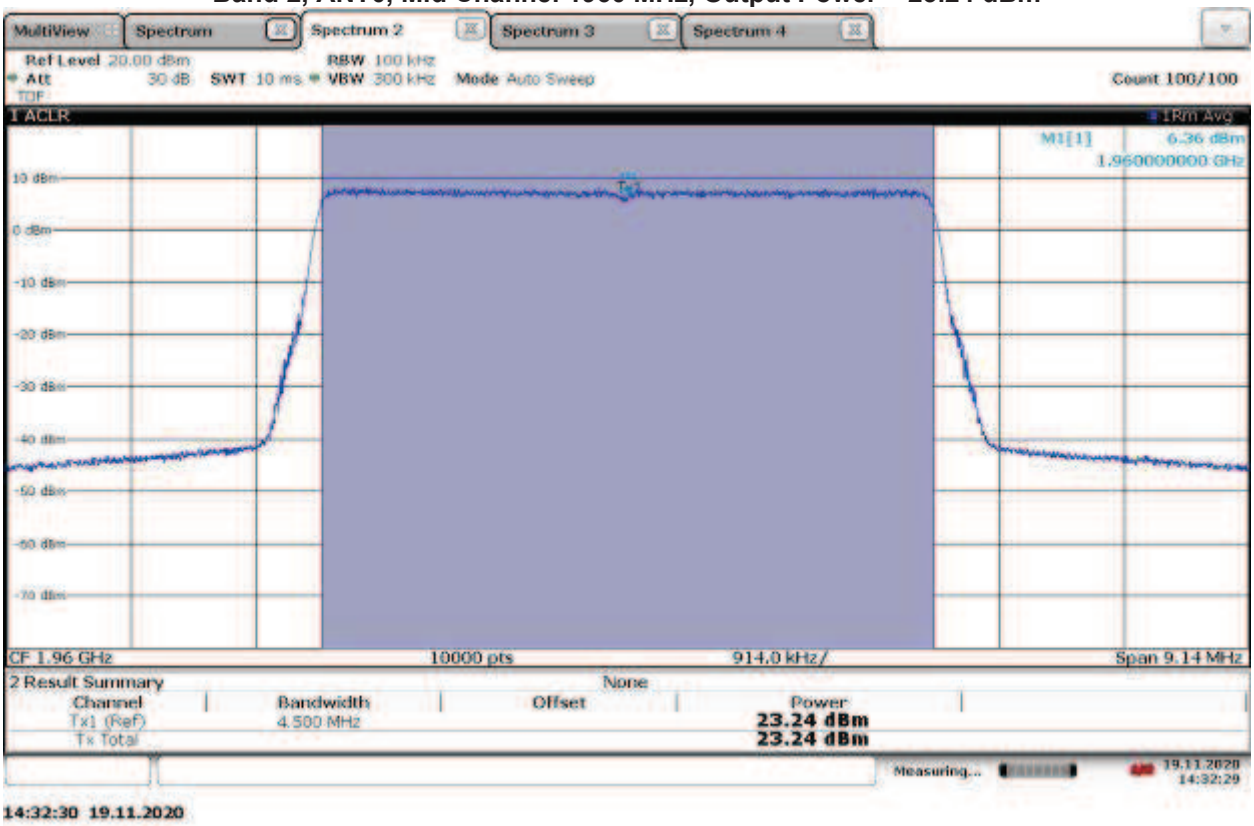
TM3.1-64QAM_5 MHz Bandwidth
Band 2, ANT0, Low Channel 1932.5 MHz, Output Power = 21.95 dBm



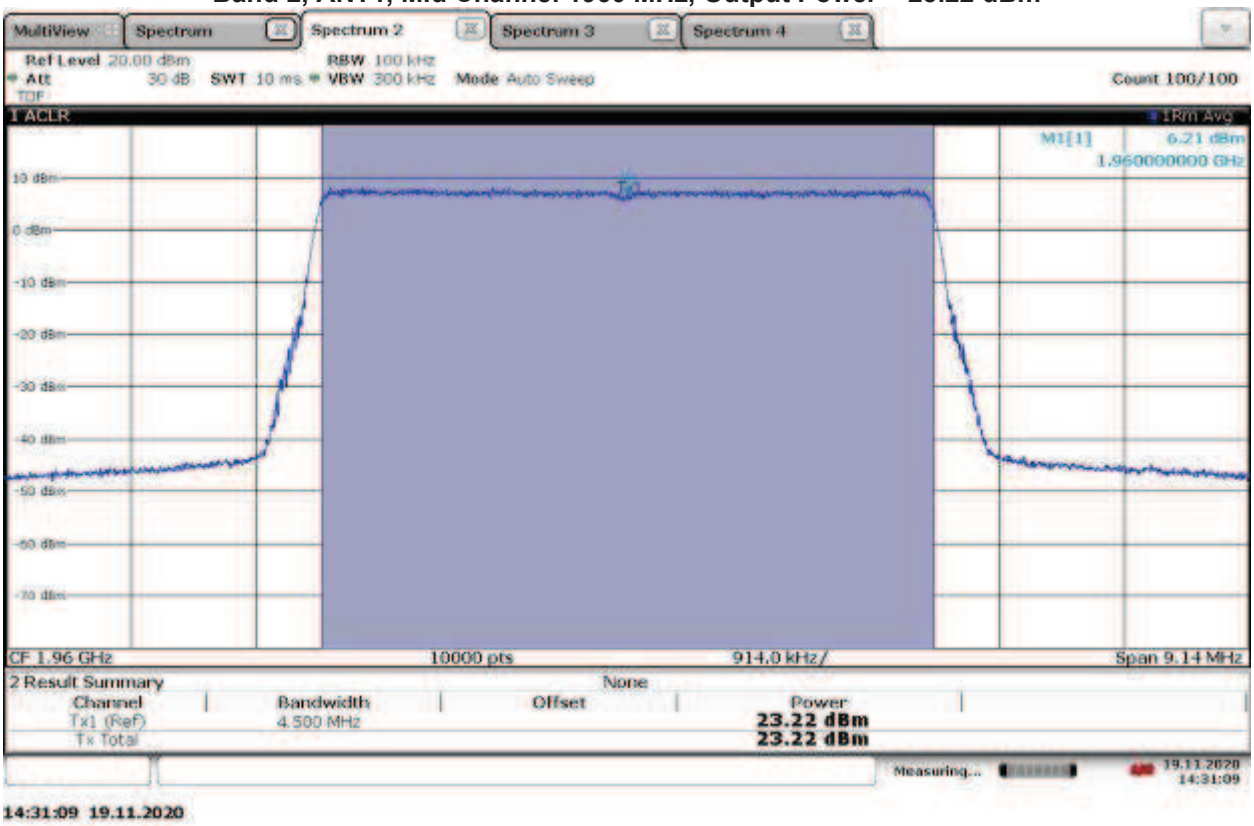
TM3.1-64QAM_5 MHz Bandwidth
Band 2, ANT1, Low Channel 1932.5 MHz, Output Power = 21.65 dBm



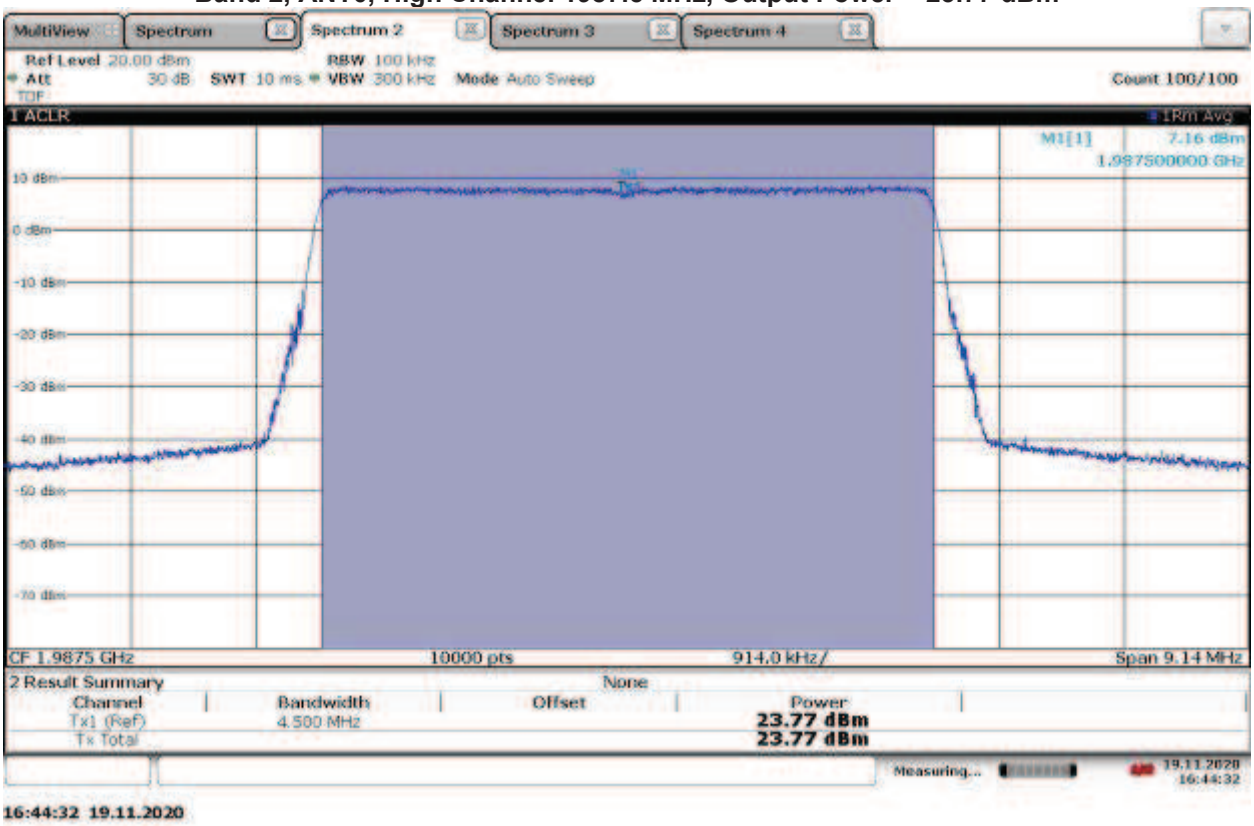
TM3.1-64QAM_5 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 23.24 dBm



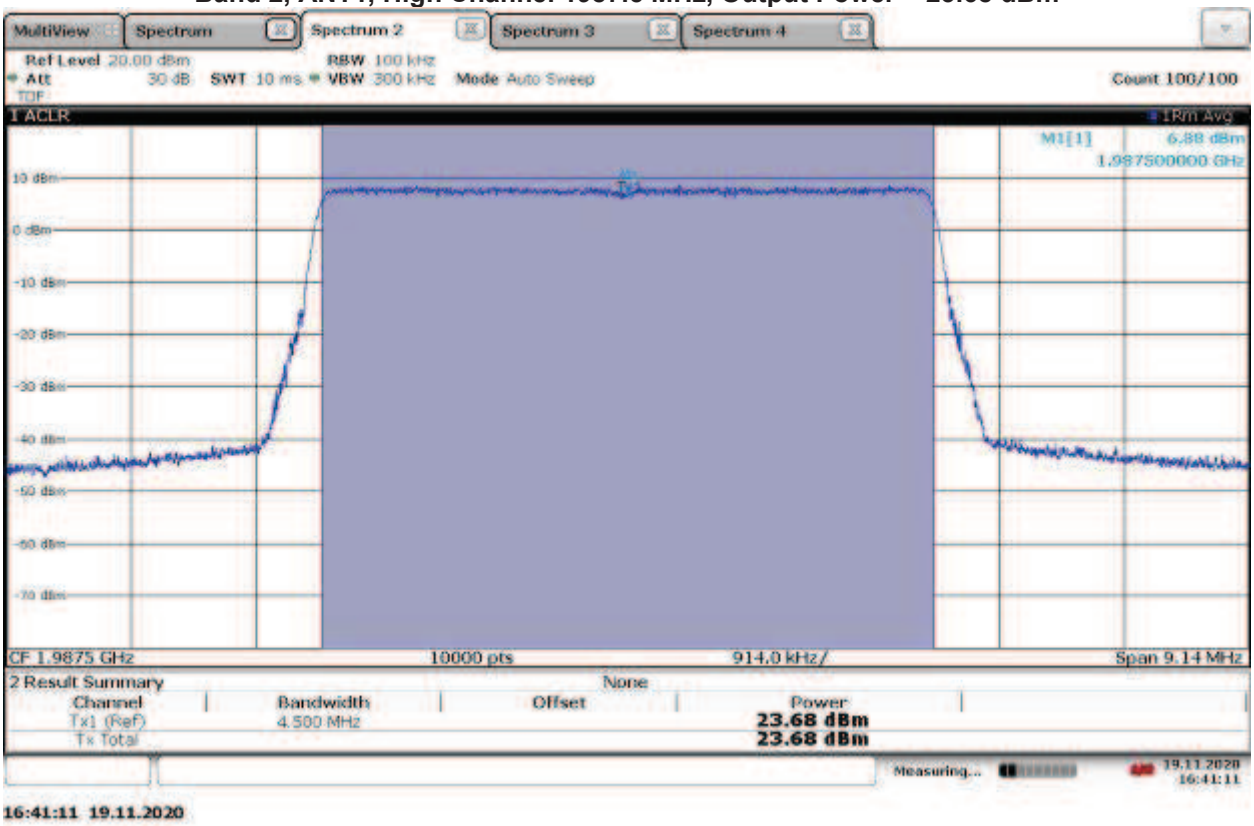
TM3.1-64QAM_5 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 23.22 dBm



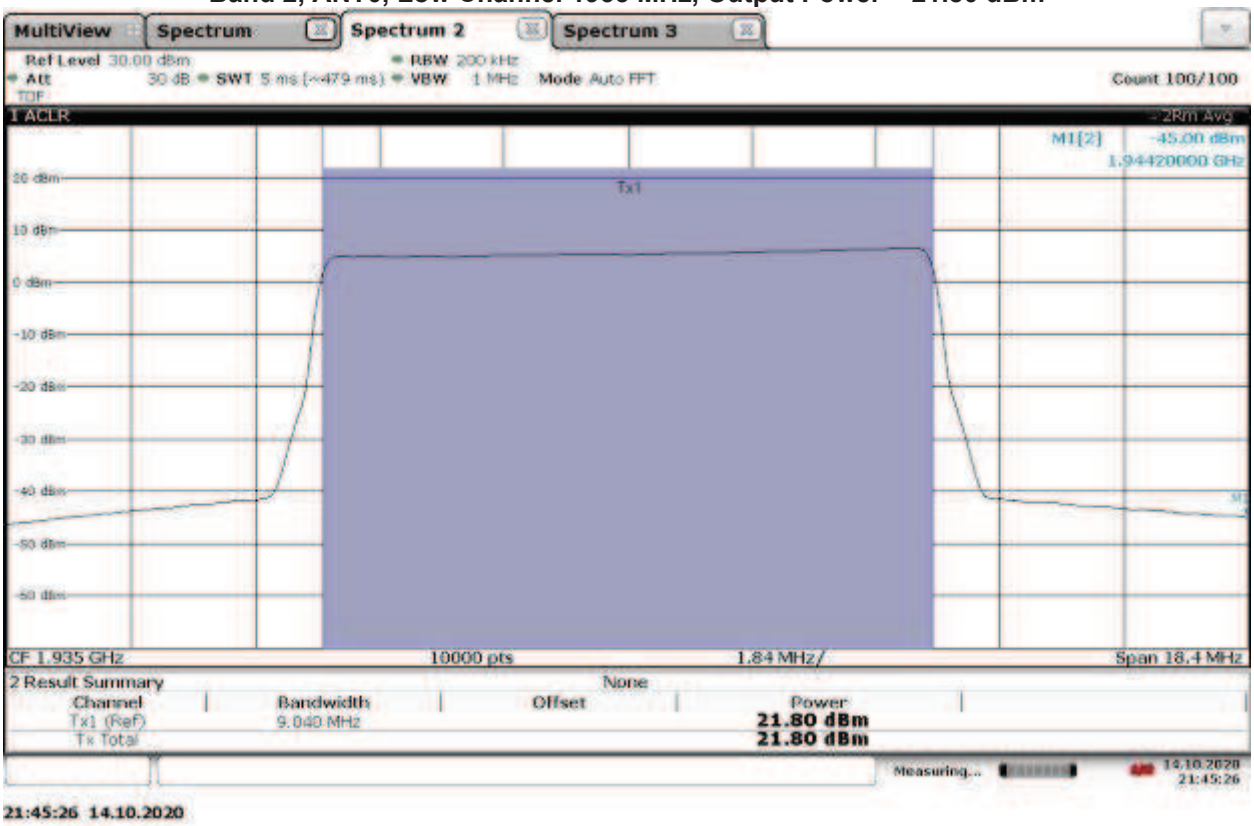
TM3.1-64QAM_5 MHz Bandwidth
Band 2, ANT0, High Channel 1987.5 MHz, Output Power = 23.77 dBm



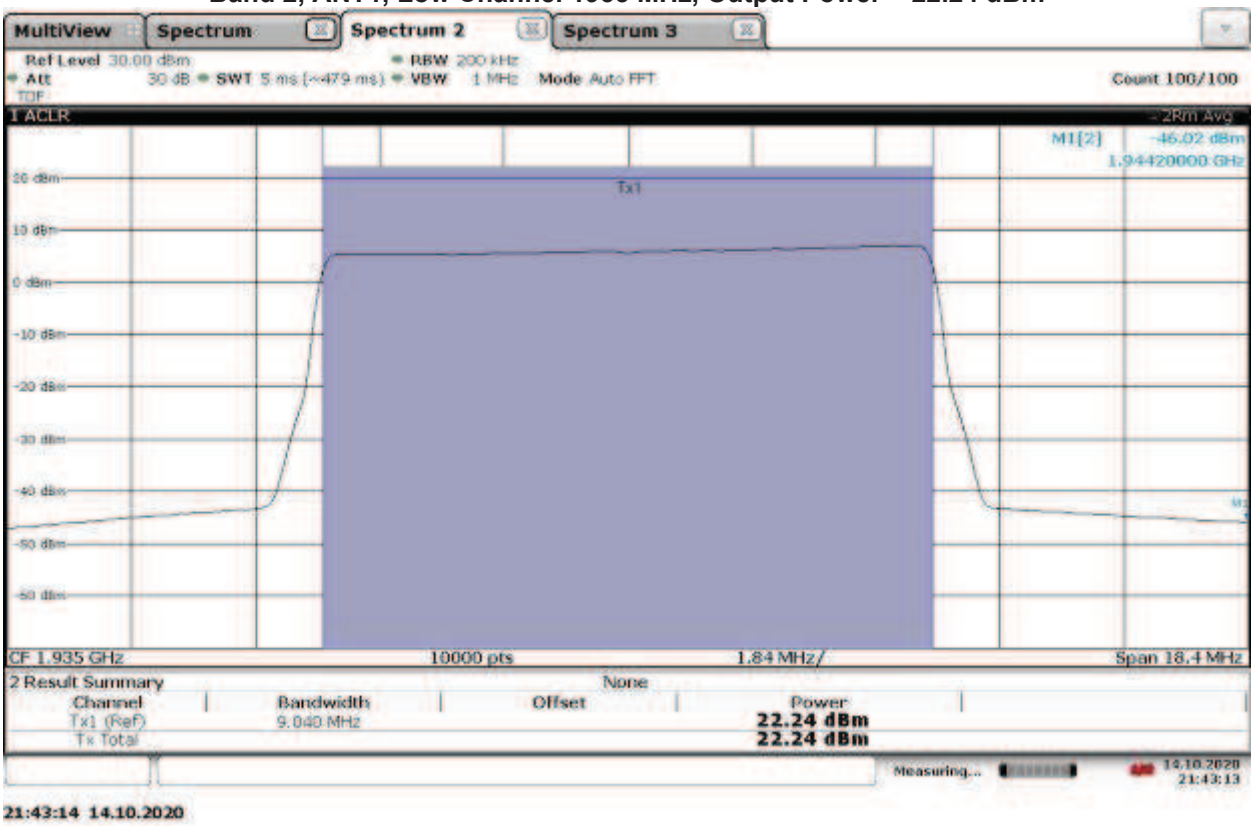
TM3.1-64QAM_5 MHz Bandwidth
Band 2, ANT1, High Channel 1987.5 MHz, Output Power = 23.68 dBm



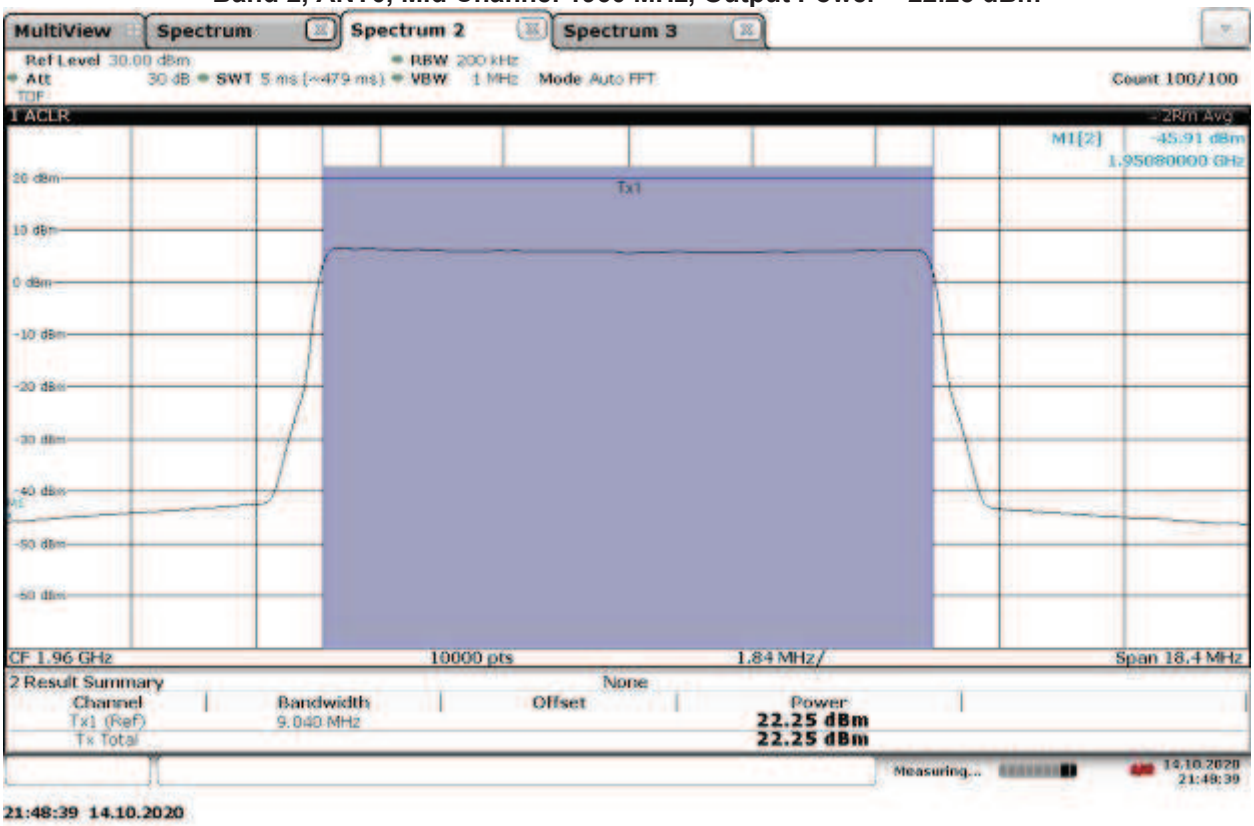
TM3.1-64QAM_10 MHz Bandwidth
Band 2, ANT0, Low Channel 1935 MHz, Output Power = 21.80 dBm



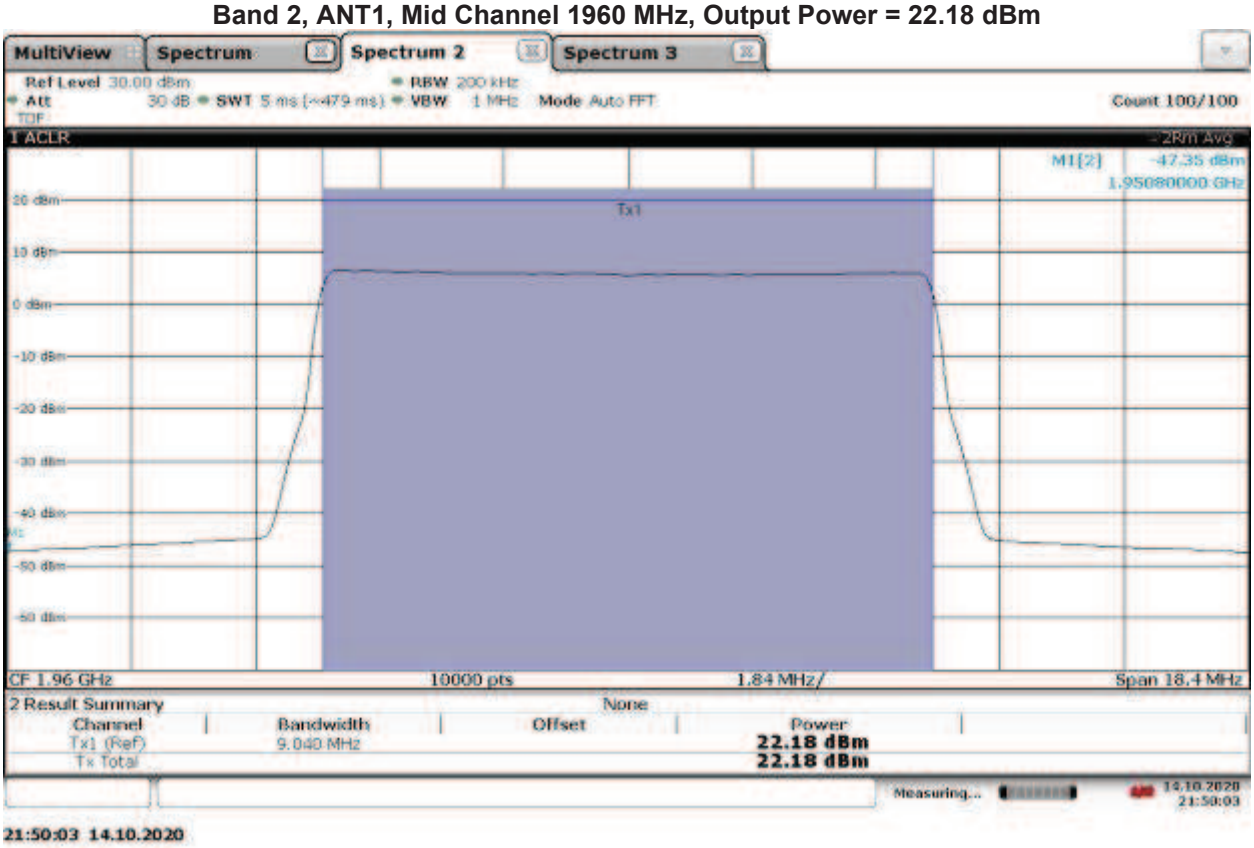
TM3.1-64QAM_10 MHz Bandwidth
Band 2, ANT1, Low Channel 1935 MHz, Output Power = 22.24 dBm



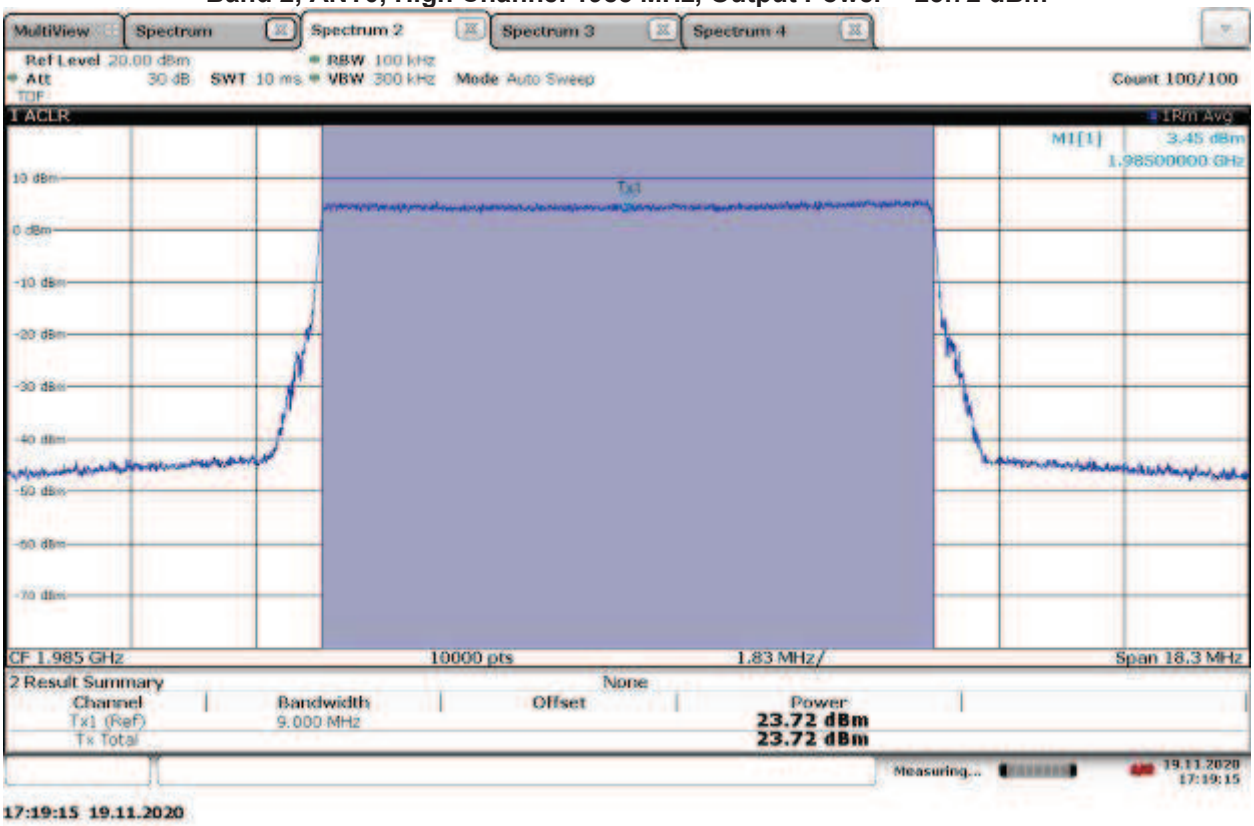
TM3.1-64QAM_10 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.25 dBm



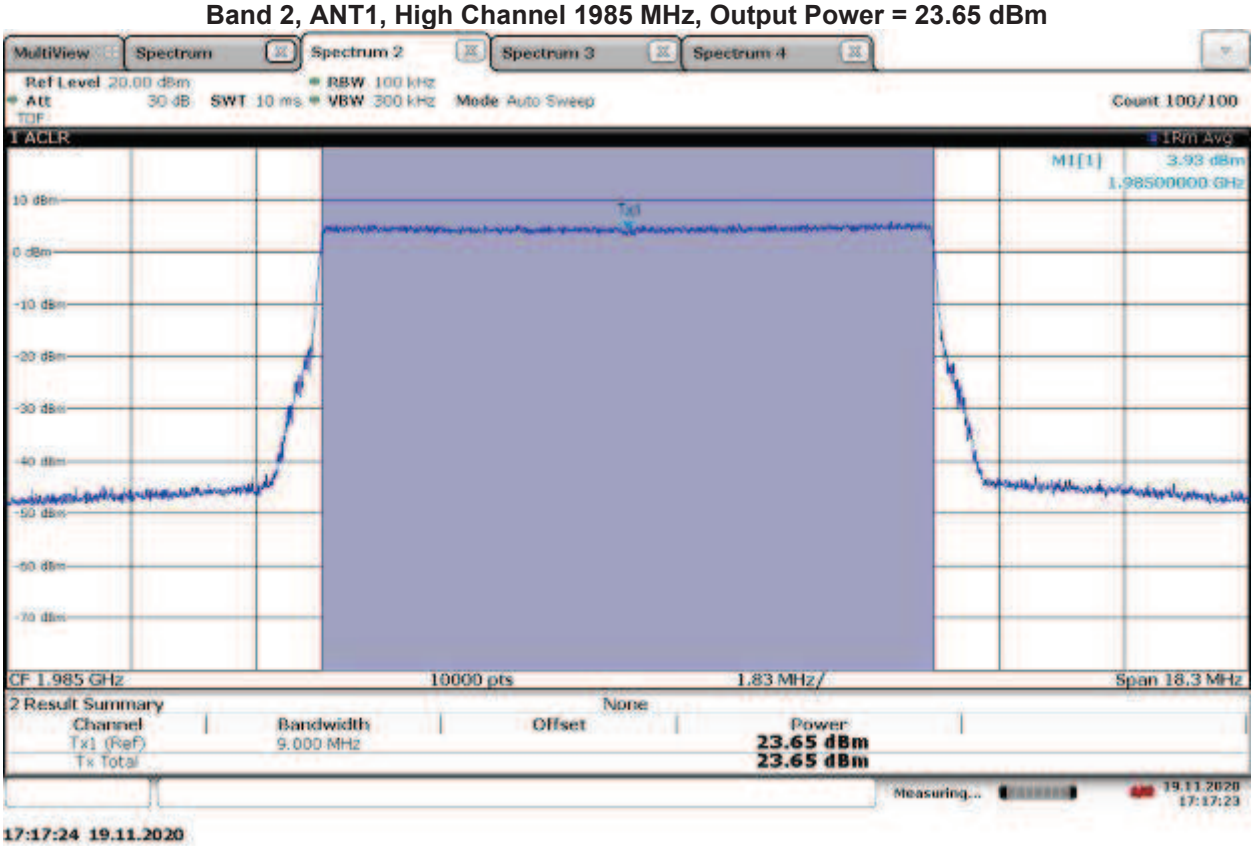
TM3.1-64QAM_10 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.18 dBm



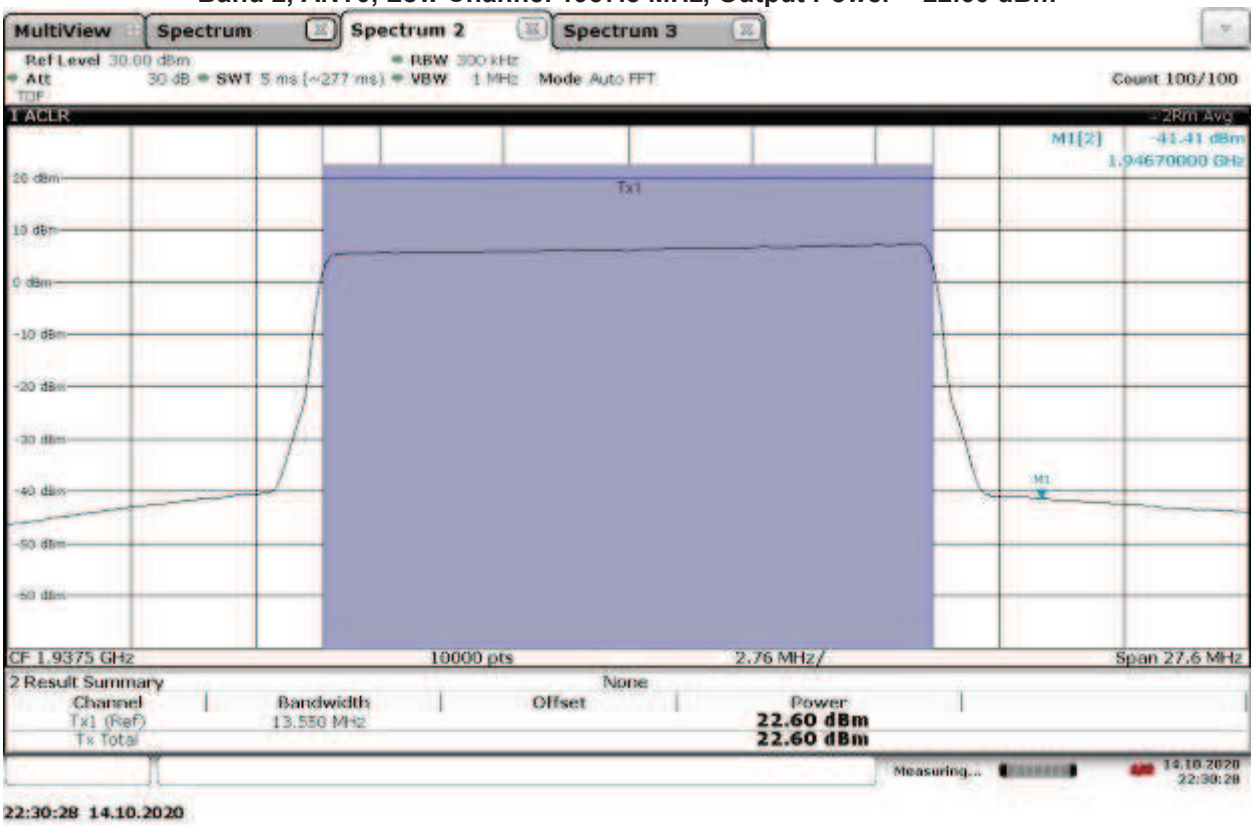
TM3.1-64QAM_10 MHz Bandwidth
Band 2, ANT0, High Channel 1985 MHz, Output Power = 23.72 dBm



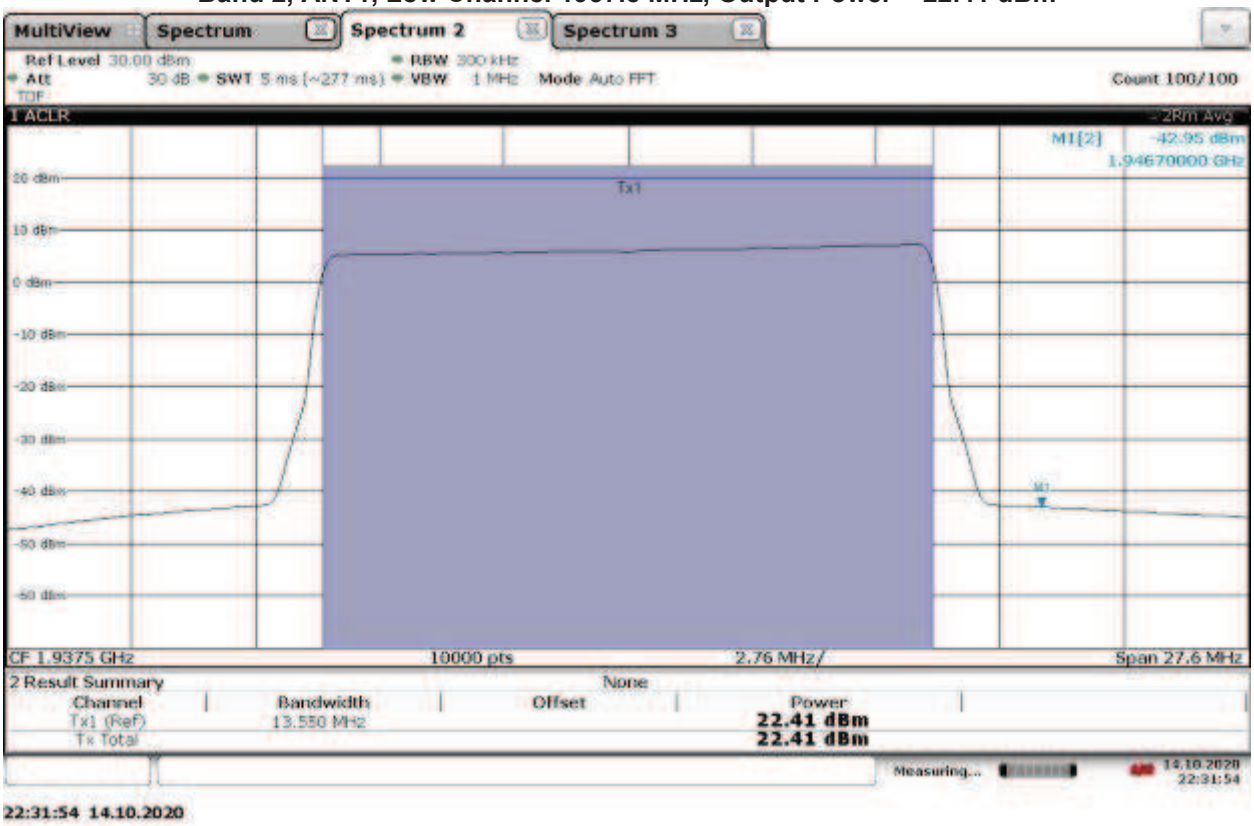
TM3.1-64QAM_10 MHz Bandwidth
Band 2, ANT1, High Channel 1985 MHz, Output Power = 23.65 dBm



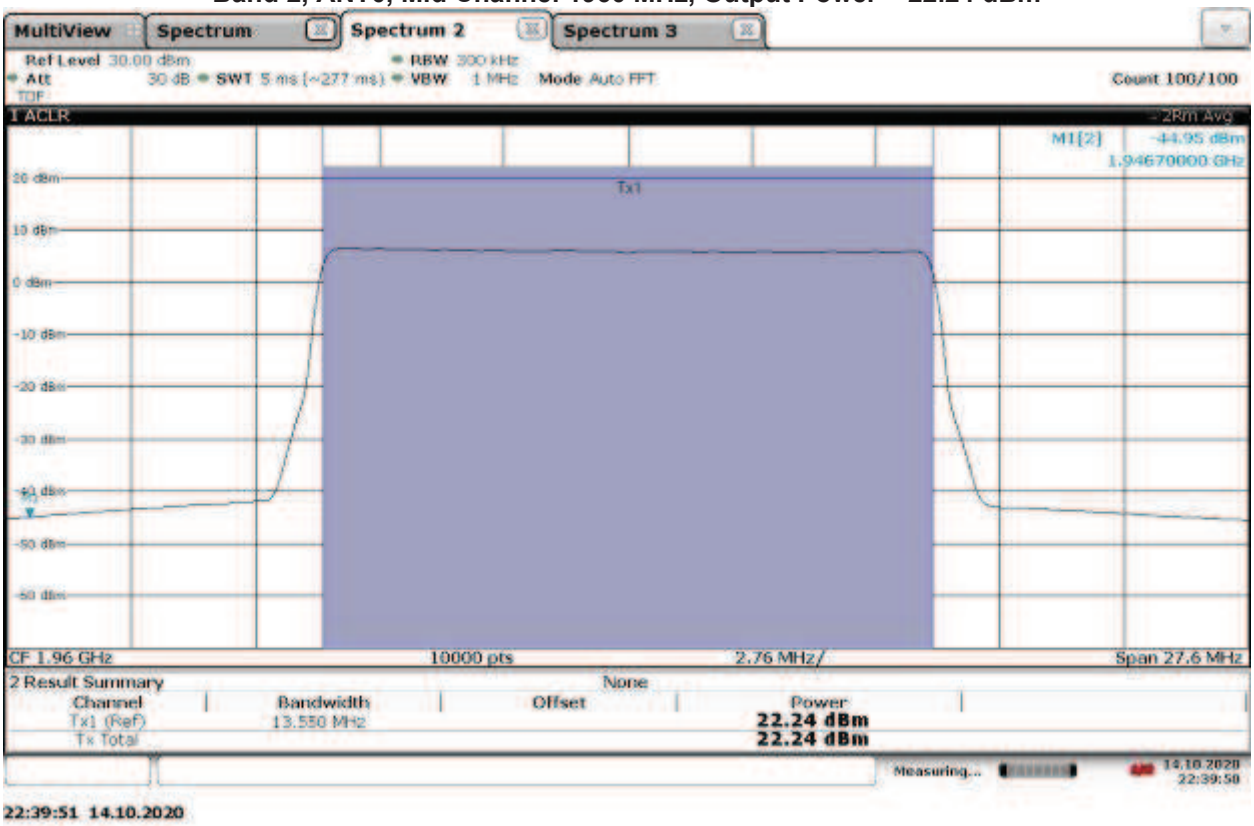
TM3.1-64QAM_15 MHz Bandwidth
Band 2, ANT0, Low Channel 1937.5 MHz, Output Power = 22.60 dBm



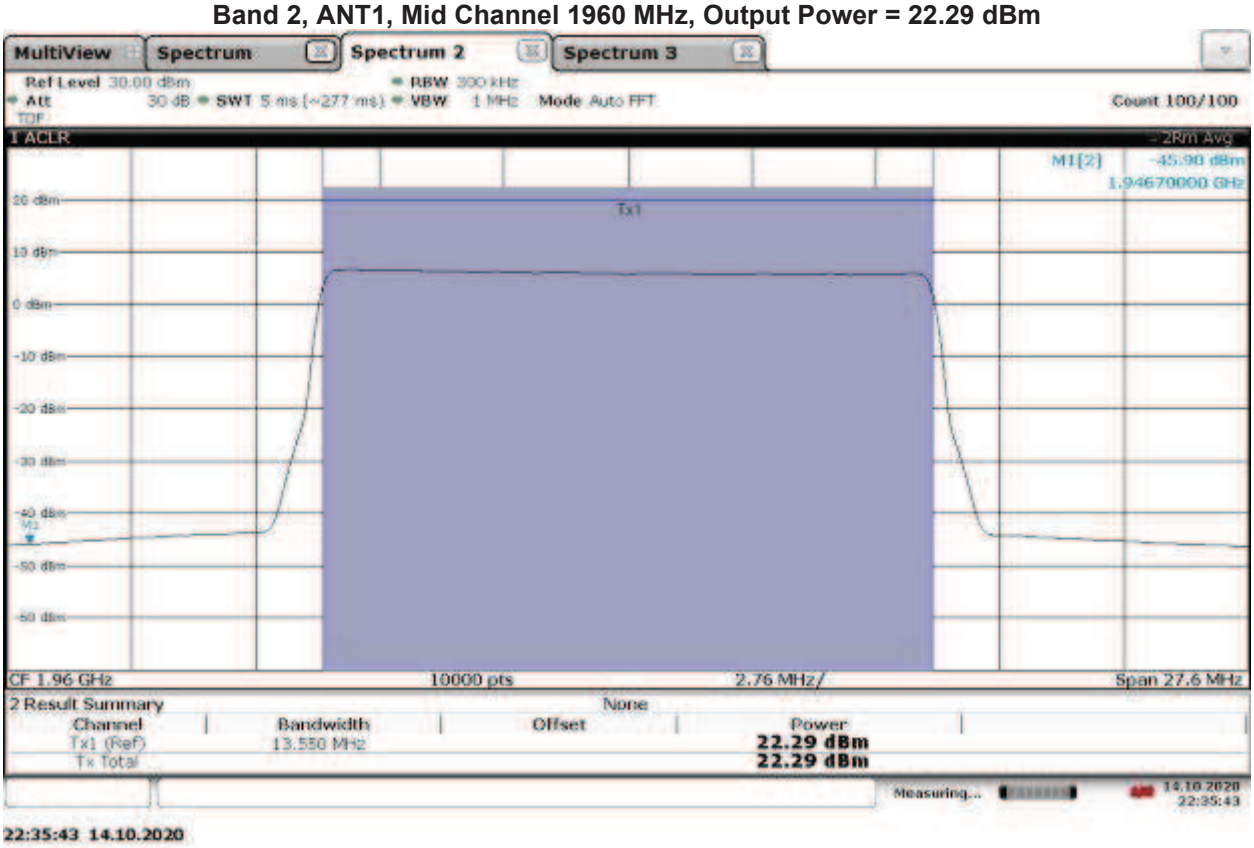
TM3.1-64QAM_15 MHz Bandwidth
Band 2, ANT1, Low Channel 1937.5 MHz, Output Power = 22.41 dBm



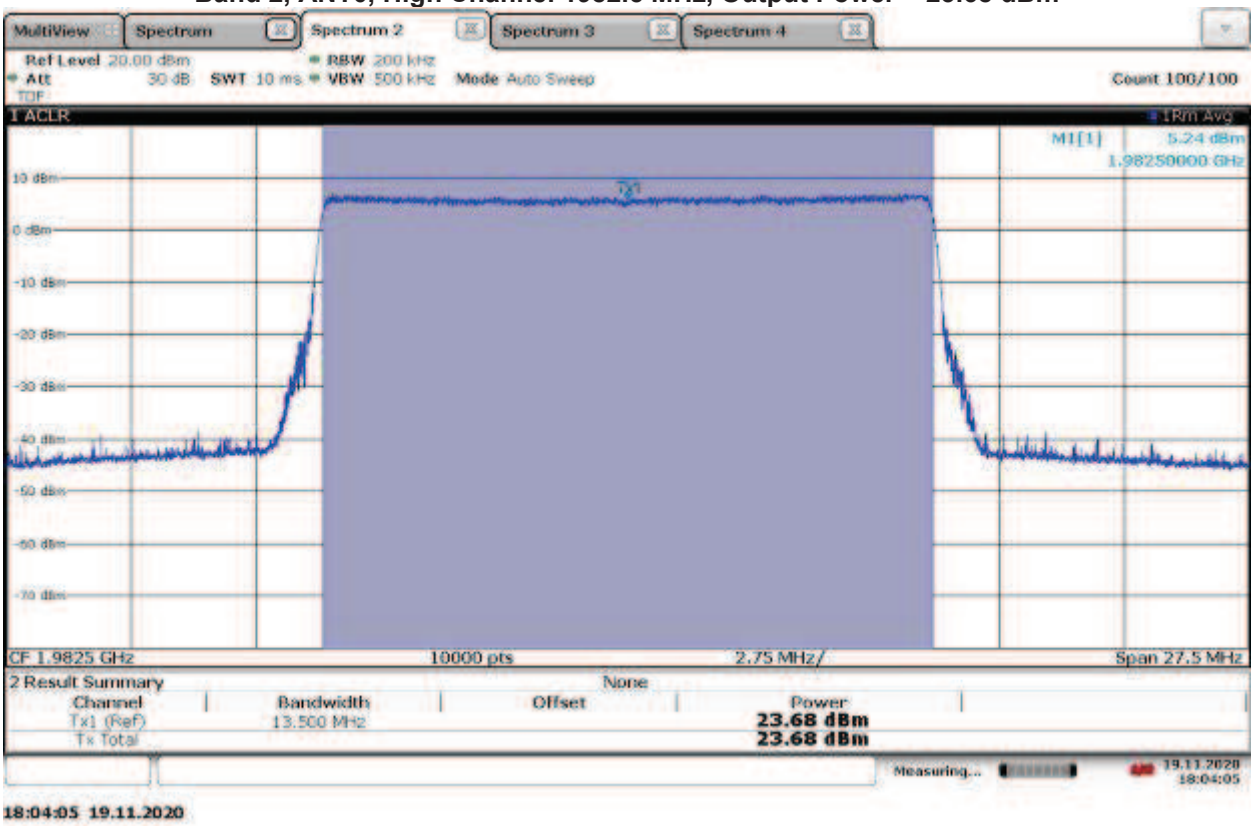
TM3.1-64QAM_15 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.24 dBm



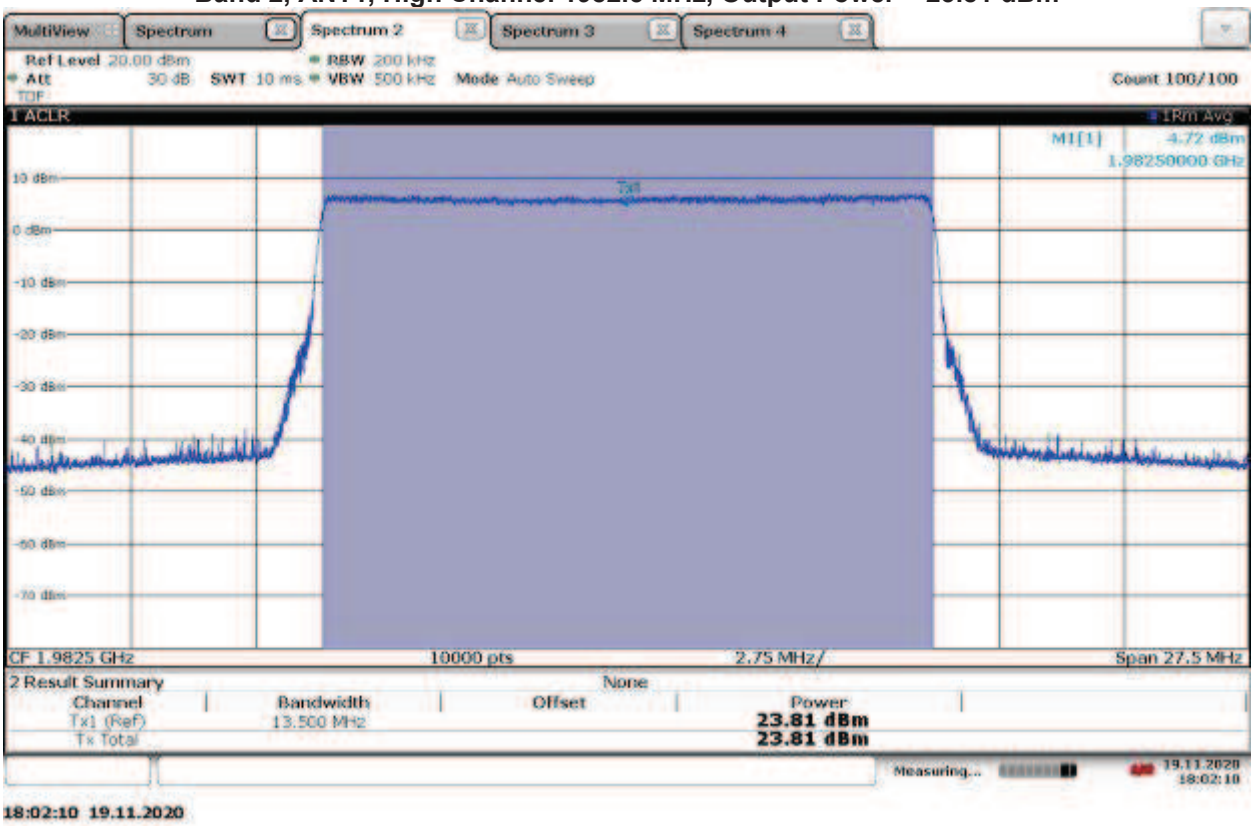
TM3.1-64QAM_15 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.29 dBm



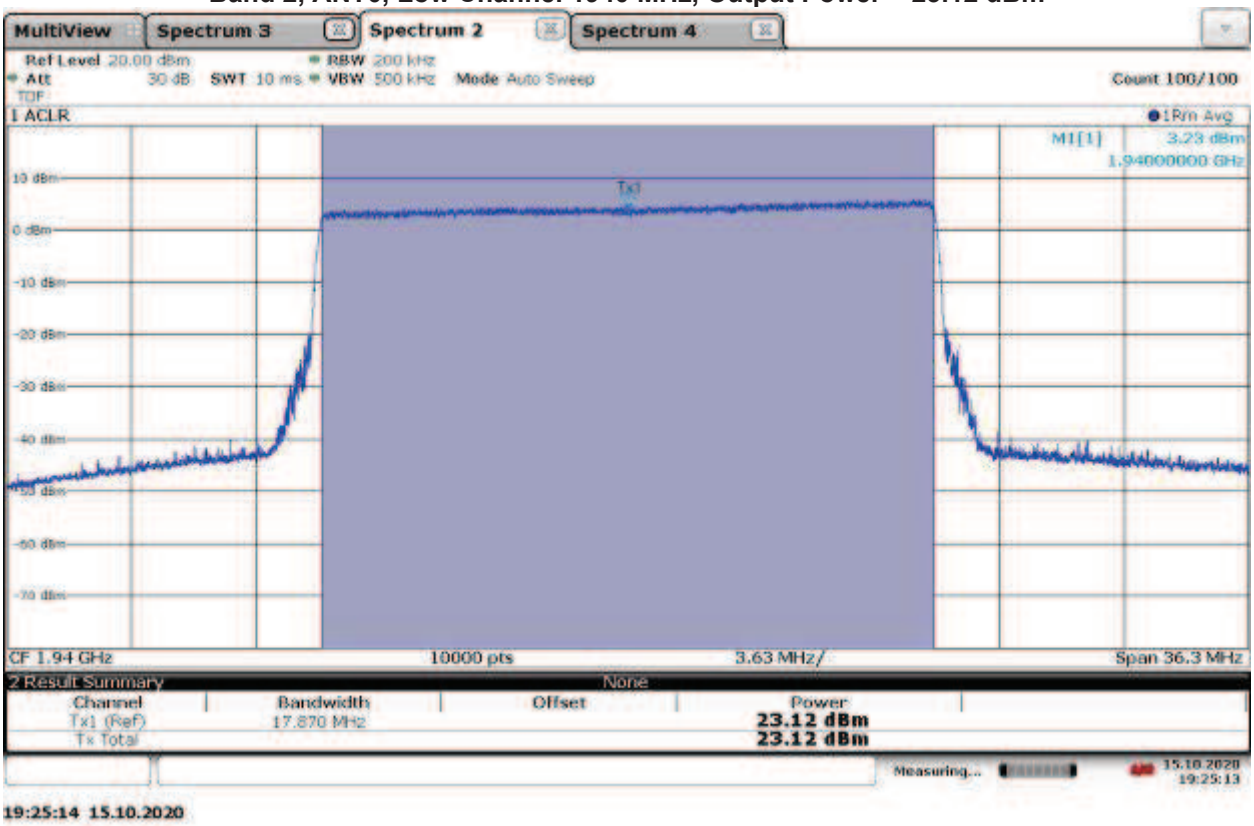
TM3.1-64QAM_15 MHz Bandwidth
Band 2, ANT0, High Channel 1982.5 MHz, Output Power = 23.68 dBm



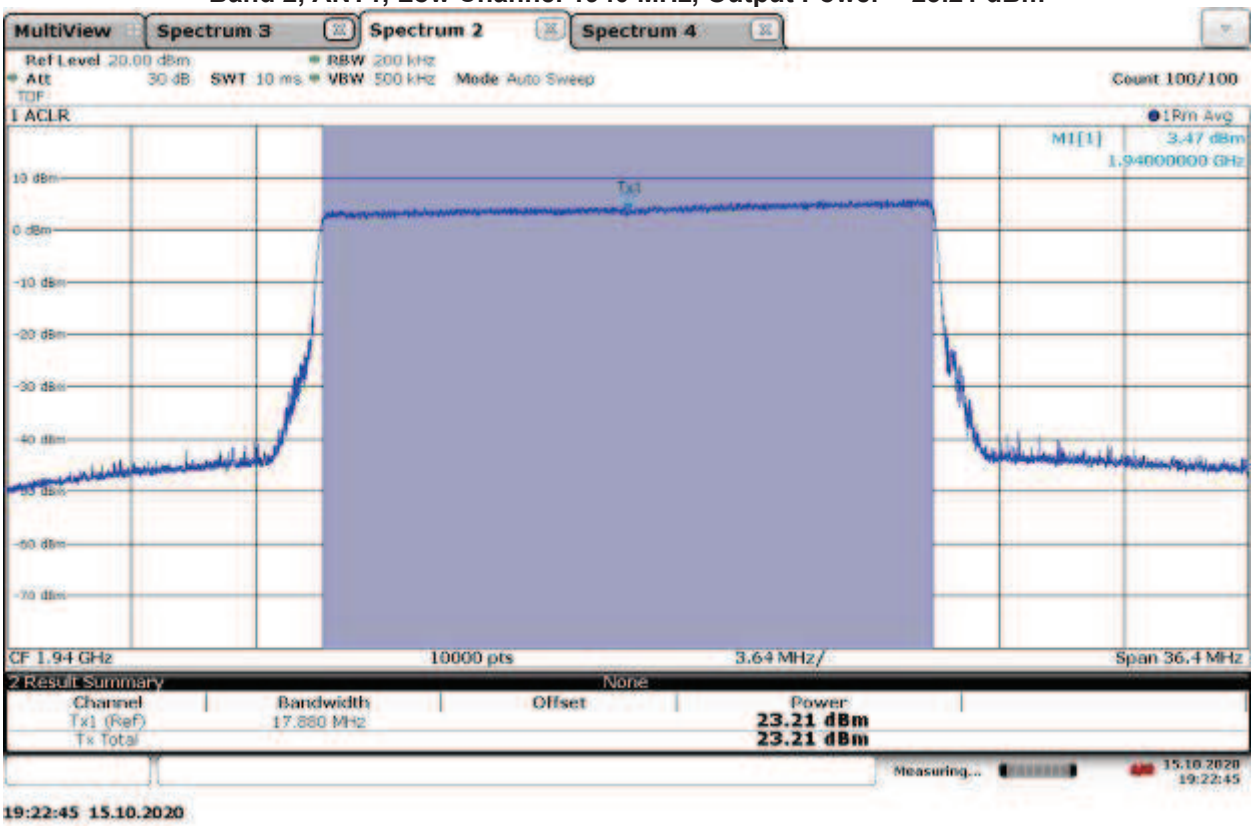
TM3.1-64QAM_15 MHz Bandwidth
Band 2, ANT1, High Channel 1982.5 MHz, Output Power = 23.81 dBm



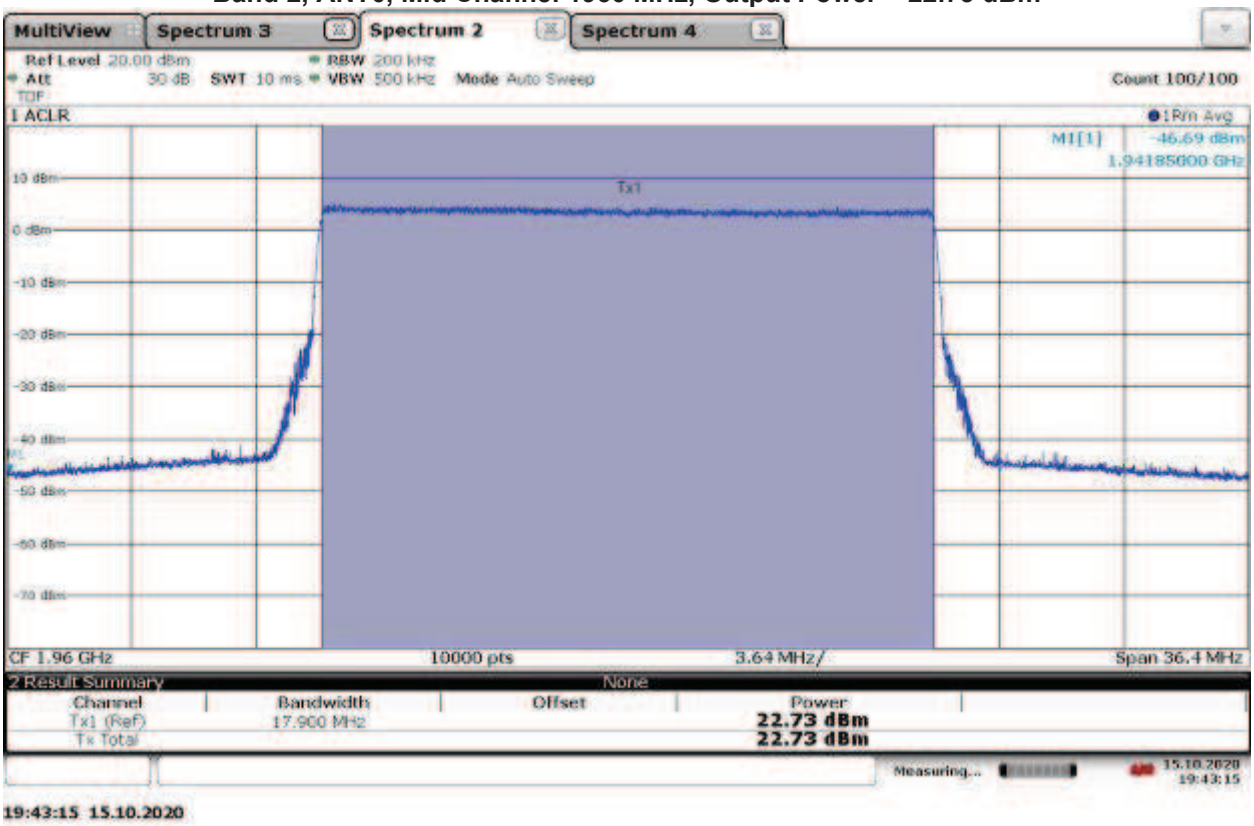
TM3.1-64QAM_20 MHz Bandwidth
Band 2, ANT0, Low Channel 1940 MHz, Output Power = 23.12 dBm



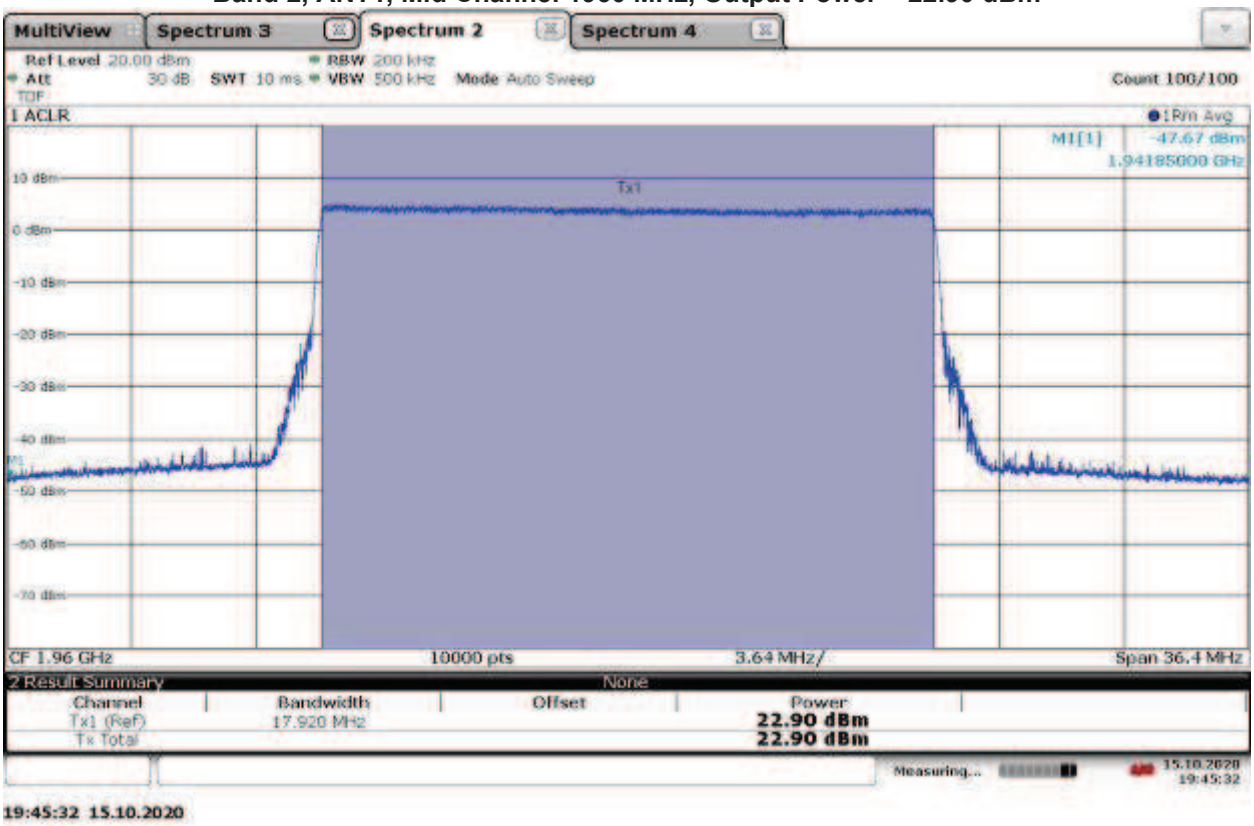
TM3.1-64QAM_20 MHz Bandwidth
Band 2, ANT1, Low Channel 1940 MHz, Output Power = 23.21 dBm



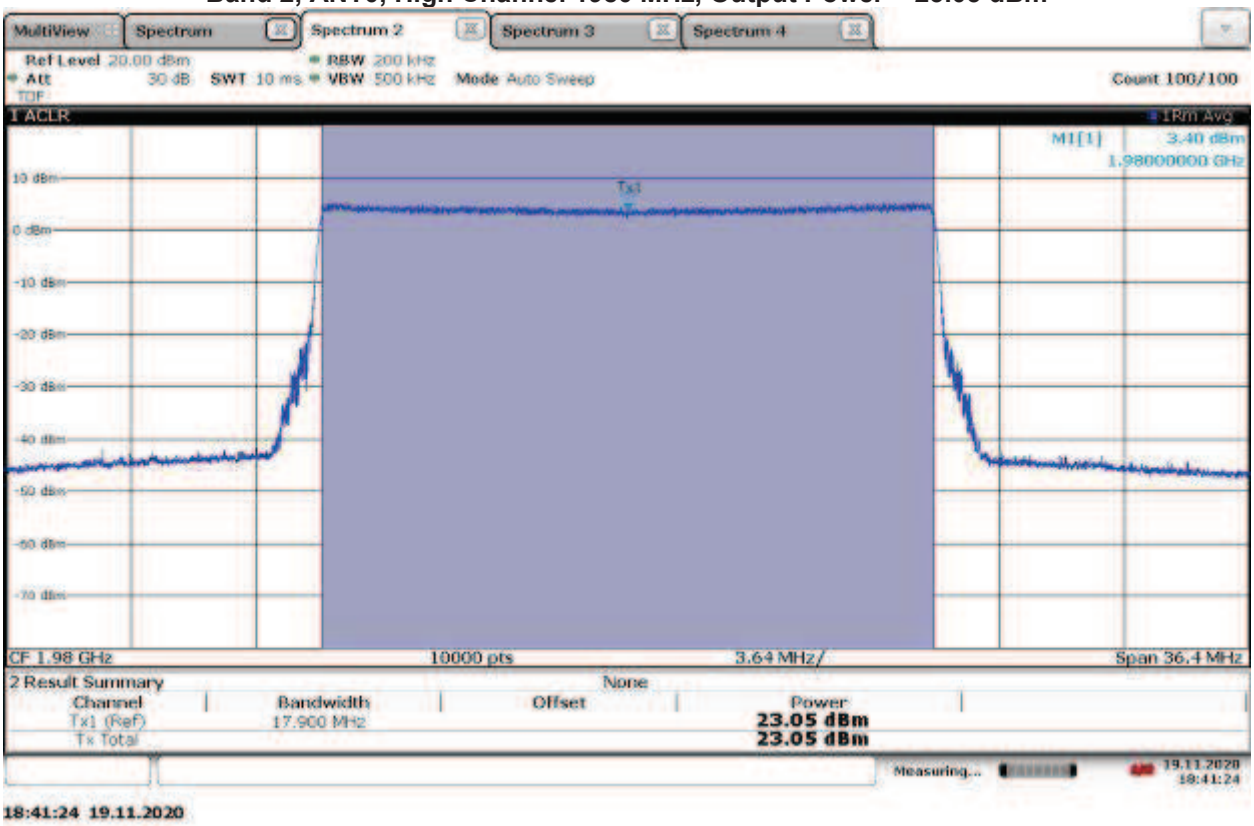
TM3.1-64QAM_20 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.73 dBm



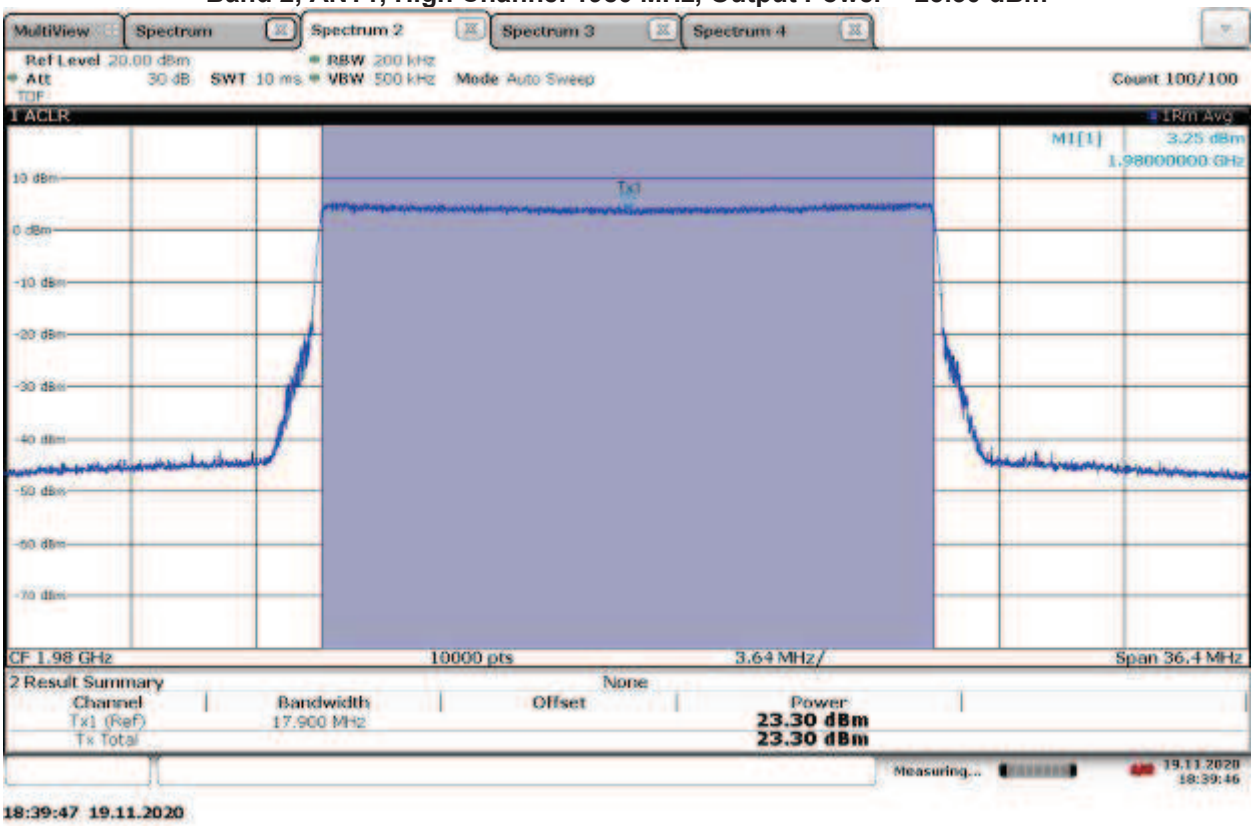
TM3.1-64QAM_20 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.90 dBm



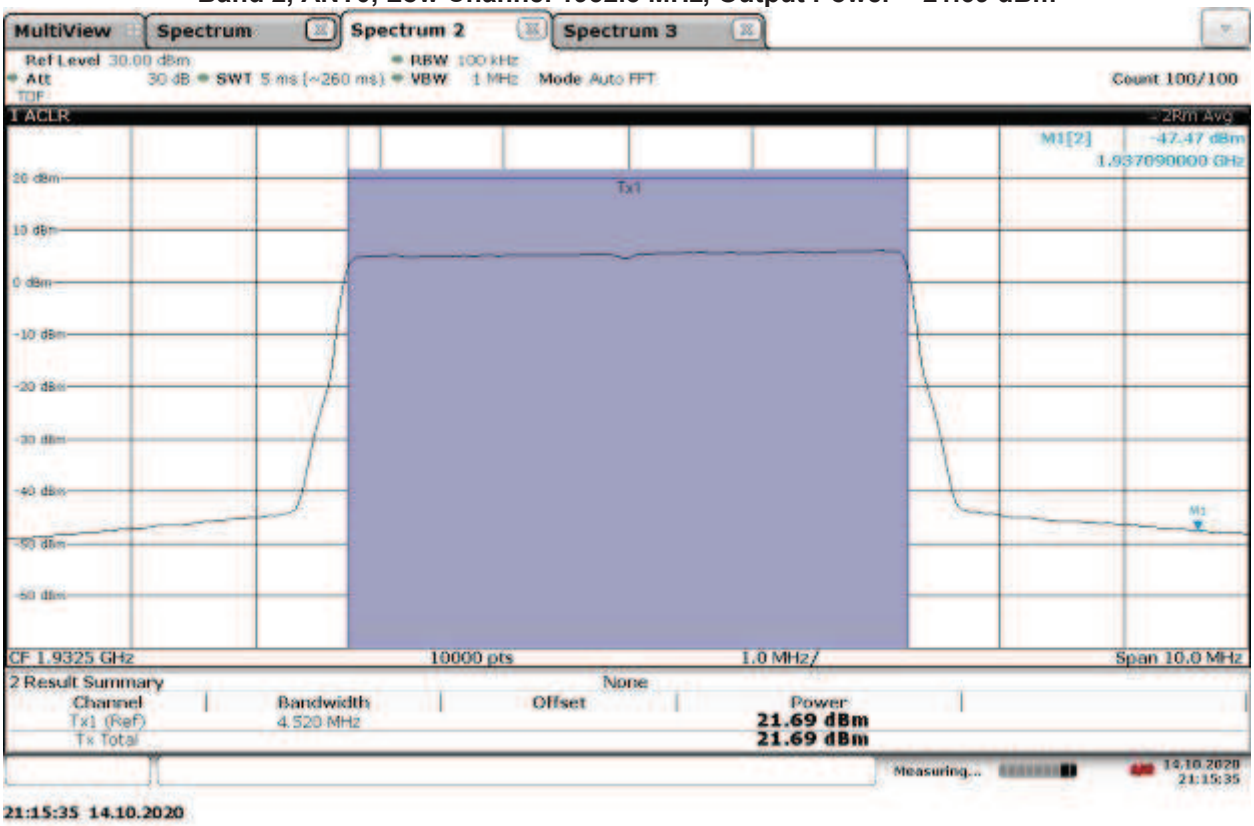
TM3.1-64QAM_20 MHz Bandwidth
Band 2, ANT0, High Channel 1980 MHz, Output Power = 23.05 dBm



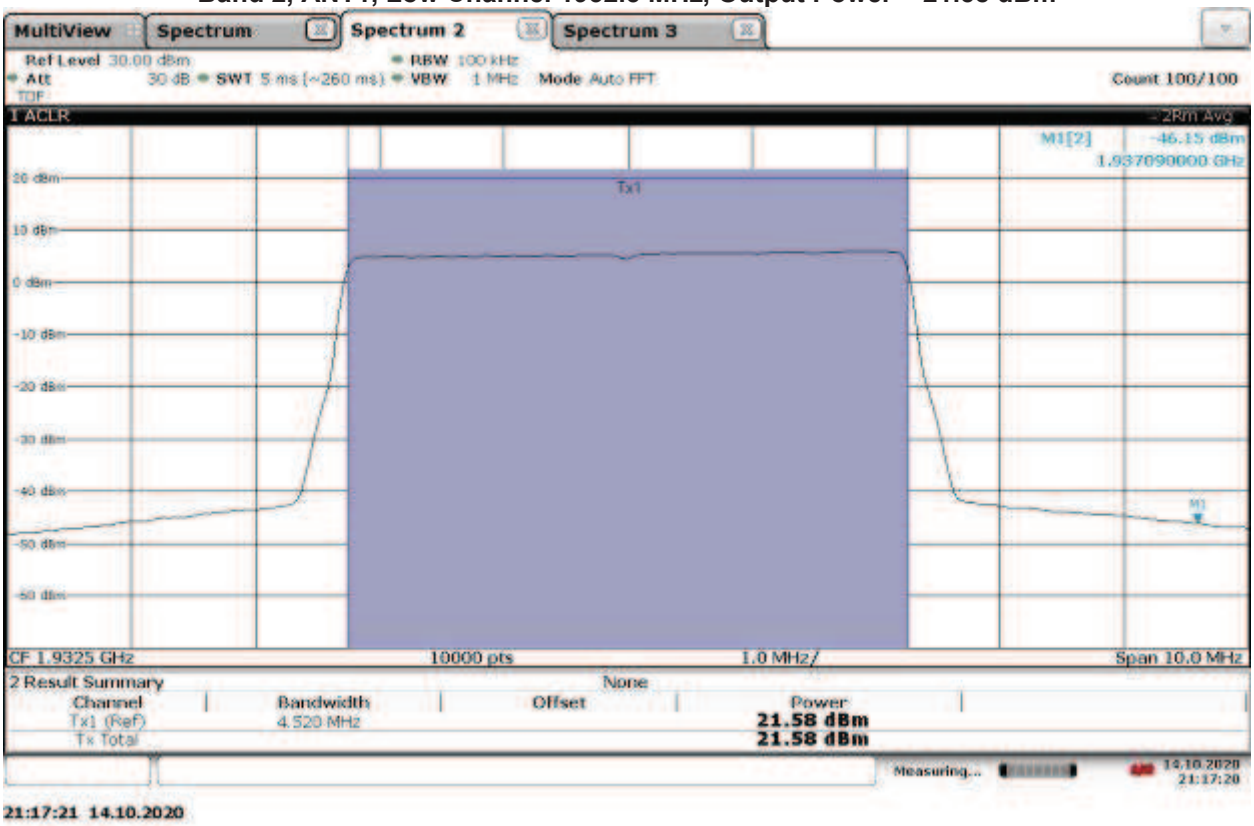
TM3.1-64QAM_20 MHz Bandwidth
Band 2, ANT1, High Channel 1980 MHz, Output Power = 23.30 dBm



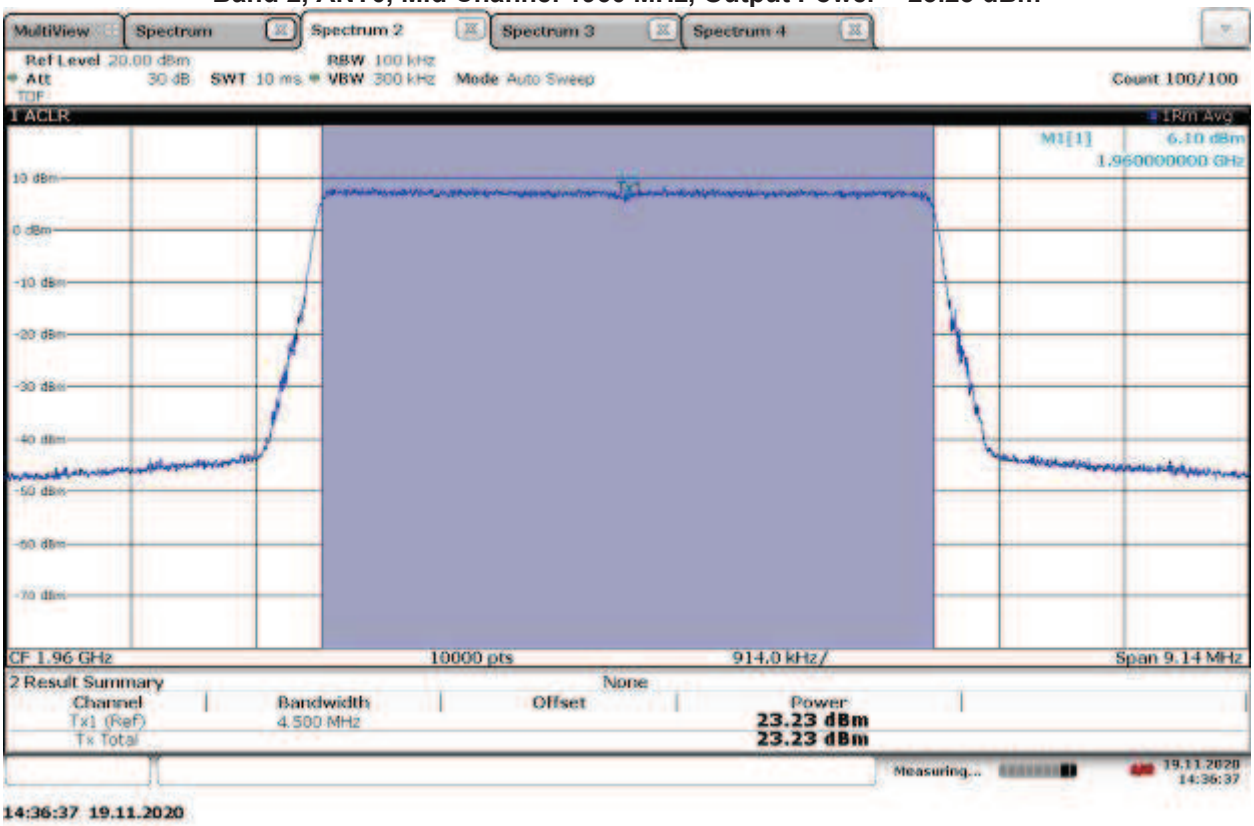
TM3.1a-256QAM _5 MHz Bandwidth
Band 2, ANT0, Low Channel 1932.5 MHz, Output Power = 21.69 dBm



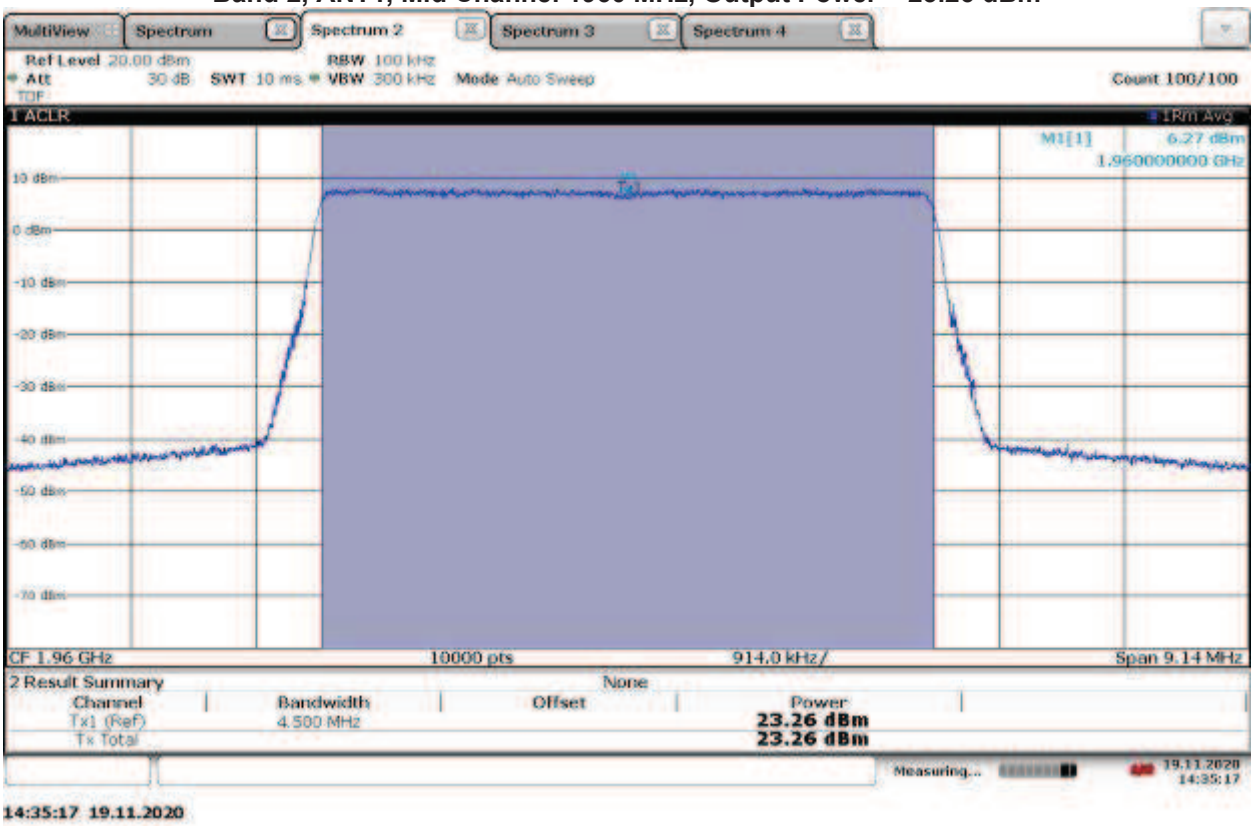
TM3.1a-256QAM _5 MHz Bandwidth
Band 2, ANT1, Low Channel 1932.5 MHz, Output Power = 21.58 dBm



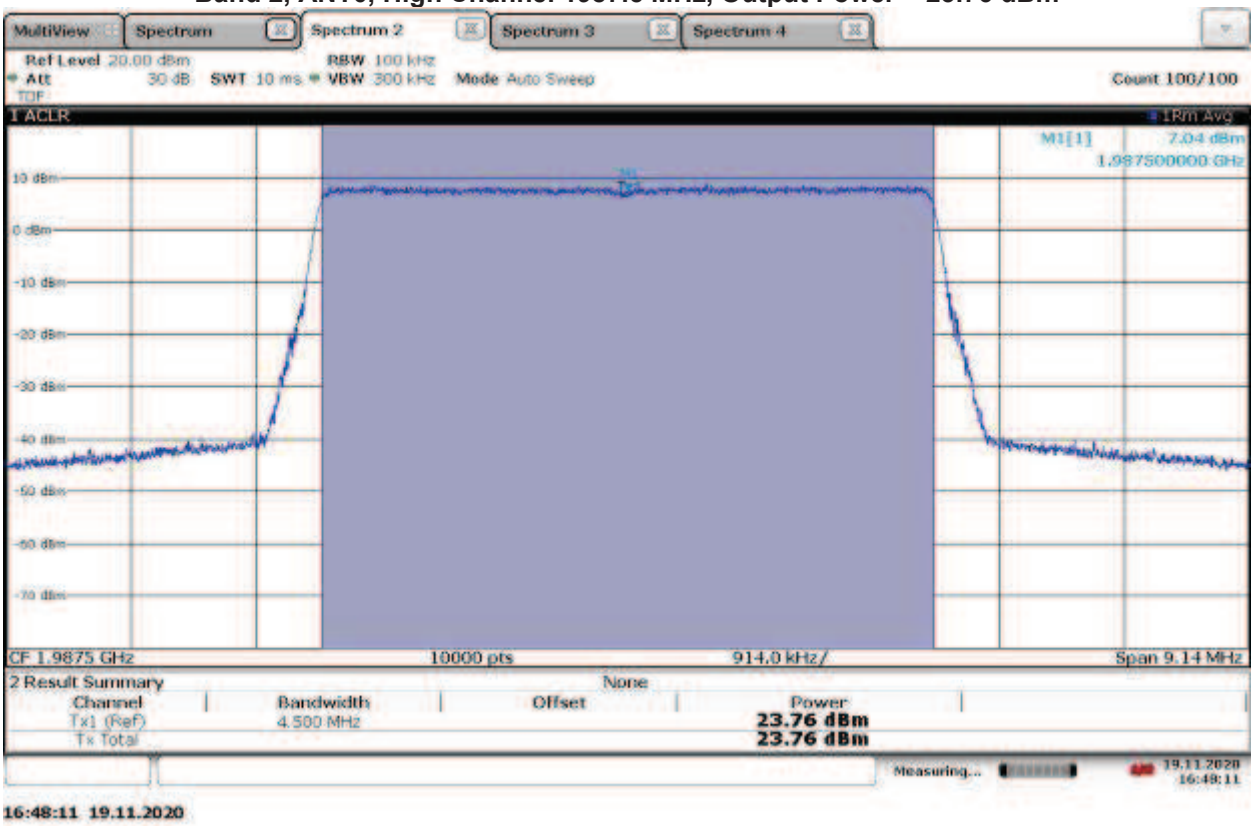
TM3.1a-256QAM _5 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 23.23 dBm



TM3.1a-256QAM _5 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 23.26 dBm

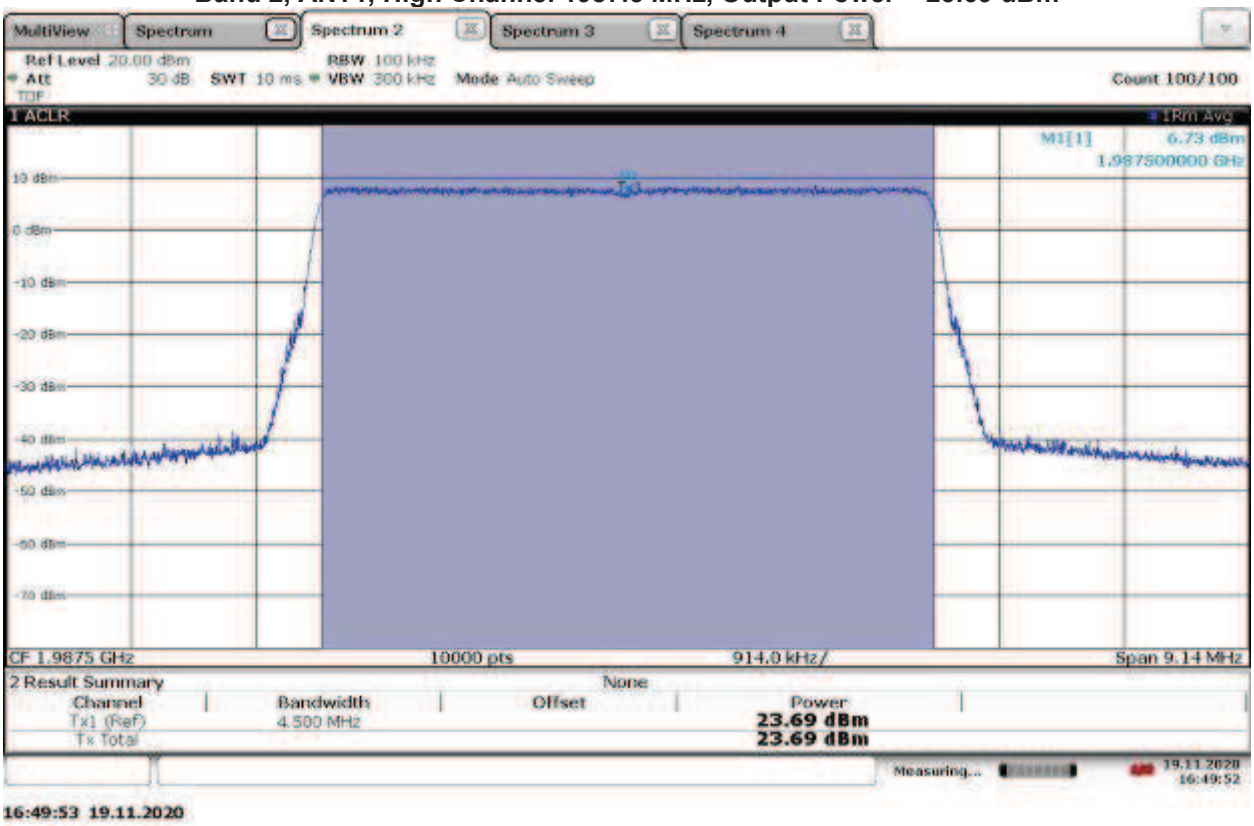


TM3.1a-256QAM _5 MHz Bandwidth
Band 2, ANT0, High Channel 1987.5 MHz, Output Power = 23.76 dBm



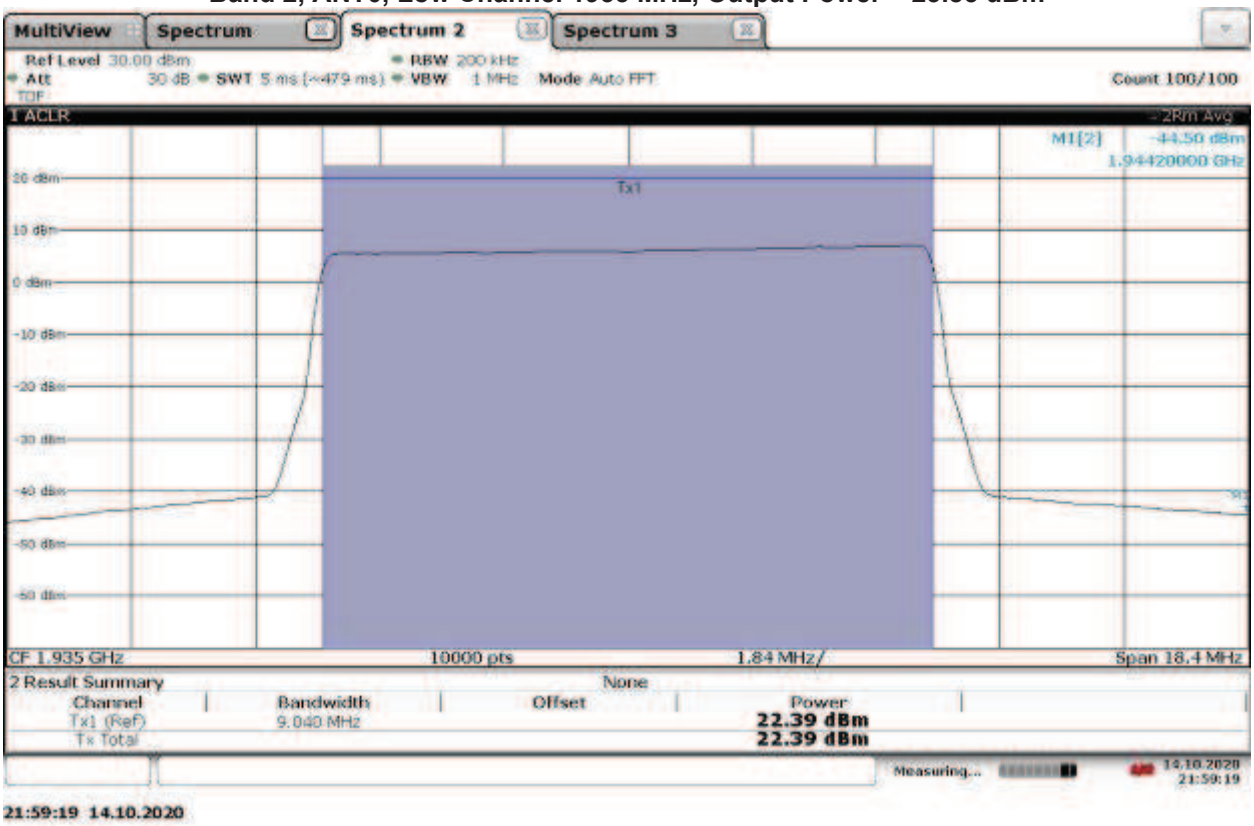
16:48:11 19.11.2020

TM3.1a-256QAM _5 MHz Bandwidth
Band 2, ANT1, High Channel 1987.5 MHz, Output Power = 23.69 dBm

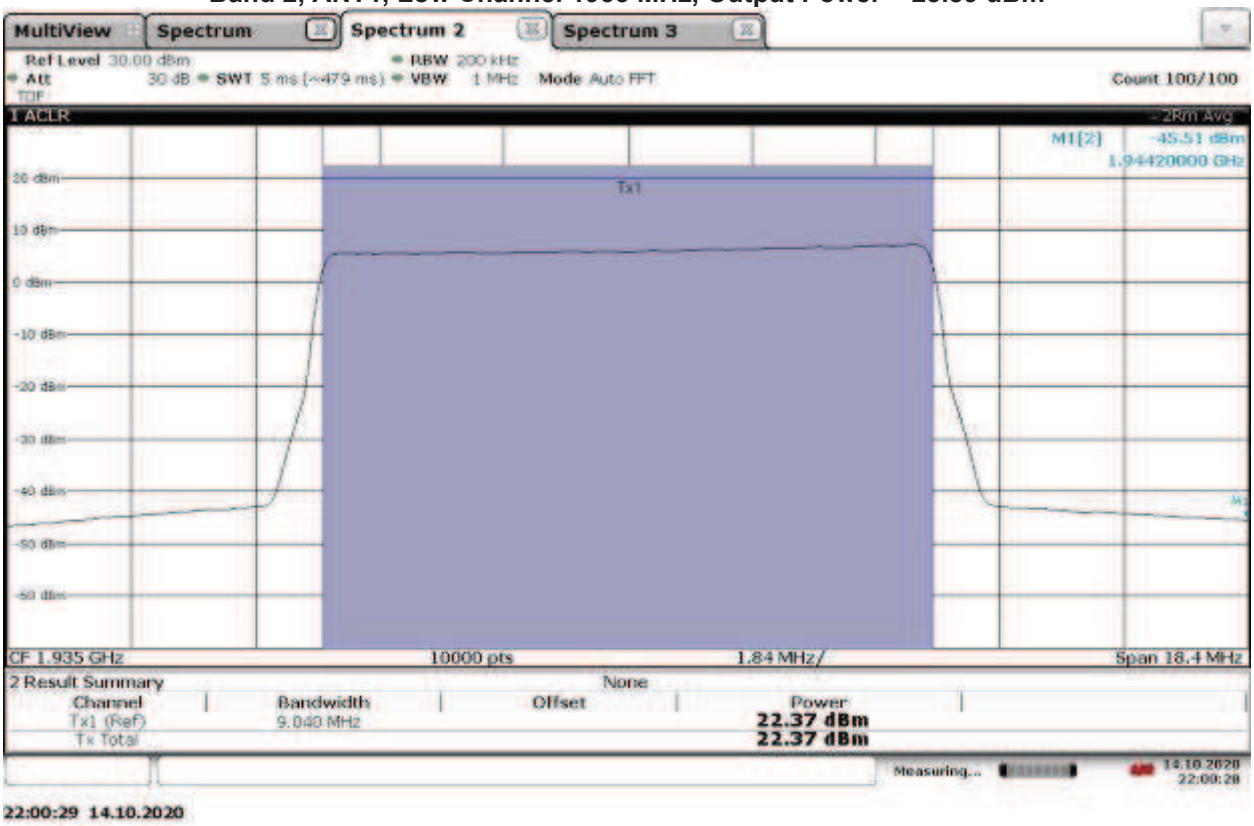


16:49:53 19.11.2020

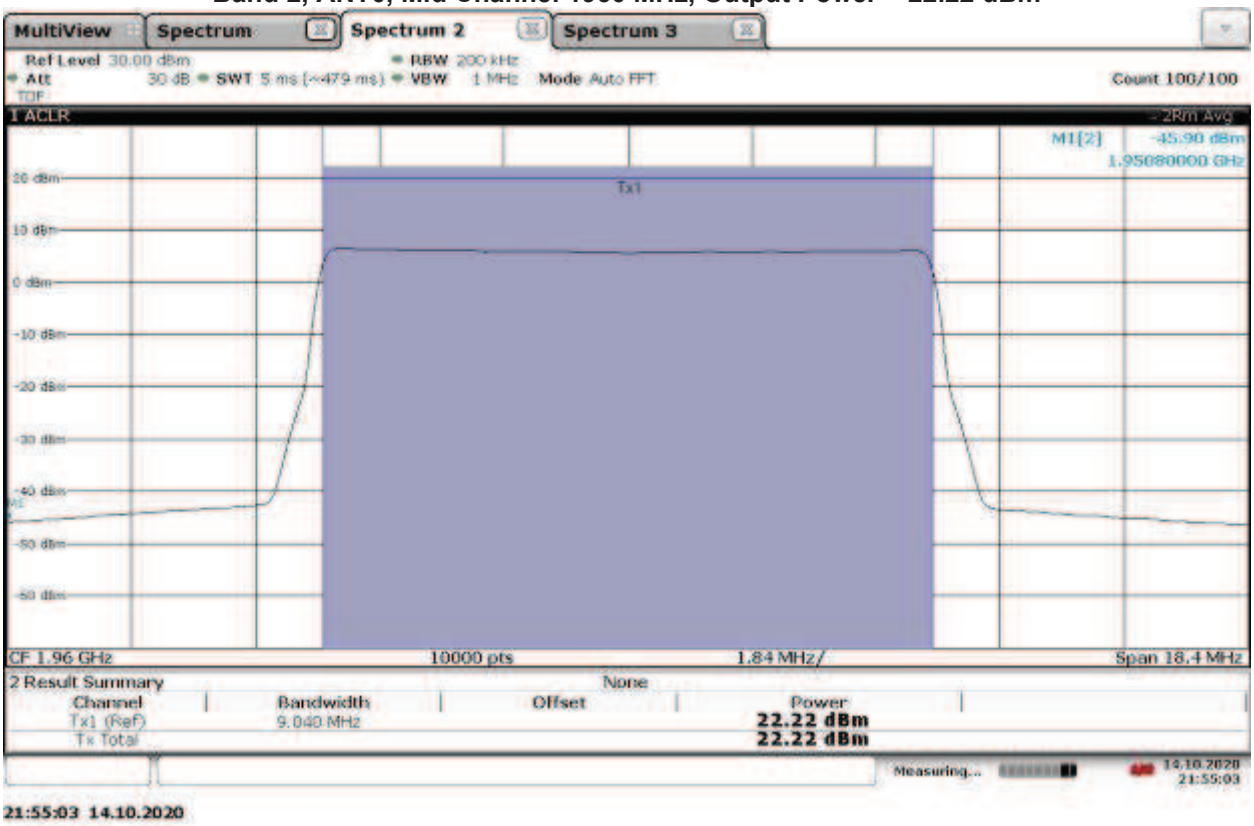
TM3.1a-256QAM _10 MHz Bandwidth
Band 2, ANT0, Low Channel 1935 MHz, Output Power = 23.85 dBm



TM3.1a-256QAM _10 MHz Bandwidth
Band 2, ANT1, Low Channel 1935 MHz, Output Power = 23.89 dBm



TM3.1a-256QAM _10 MHz Bandwidth
Band 2, ANT0, Mid Channel 1960 MHz, Output Power = 22.22 dBm



TM3.1a-256QAM _10 MHz Bandwidth
Band 2, ANT1, Mid Channel 1960 MHz, Output Power = 22.24 dBm