12.2.5 Block edge compliance

Description:

The spectrum at the band edges must comply with the spurious emissions limits.

Measurement:

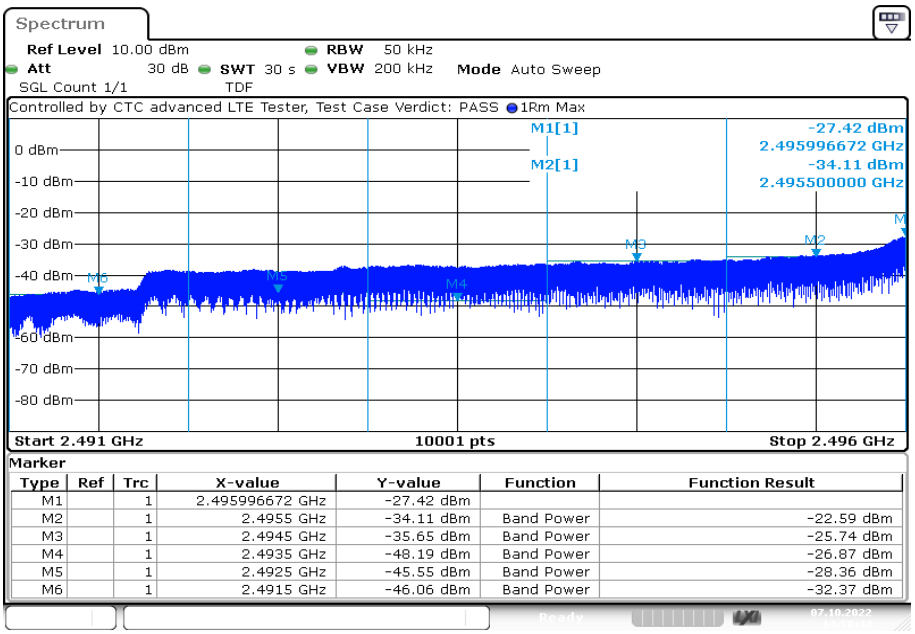
Measurement parameters	
Detector:	RMS
Sweep time:	See plots
Video bandwidth:	See plots
Resolution bandwidth:	See plots
Span:	1 MHz steps
Trace mode:	Max Hold
Used equipment:	See chapter 8.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1051

Limits:

FCC
§ 27.53 (m) (4)
For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.
-10 dBm / -13 dBm

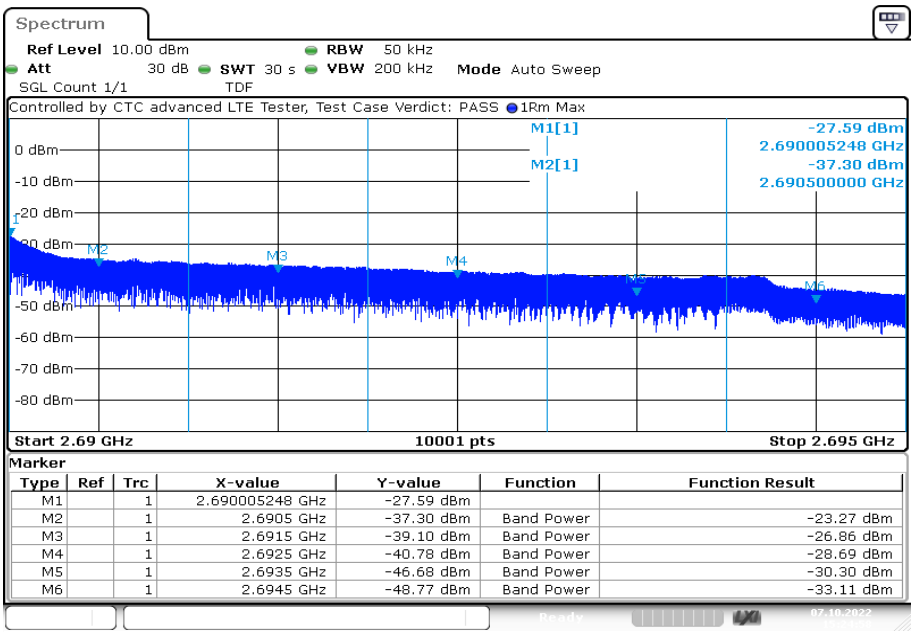
Results:

Plot 1: 5 MHz – QPSK - Lowest channel



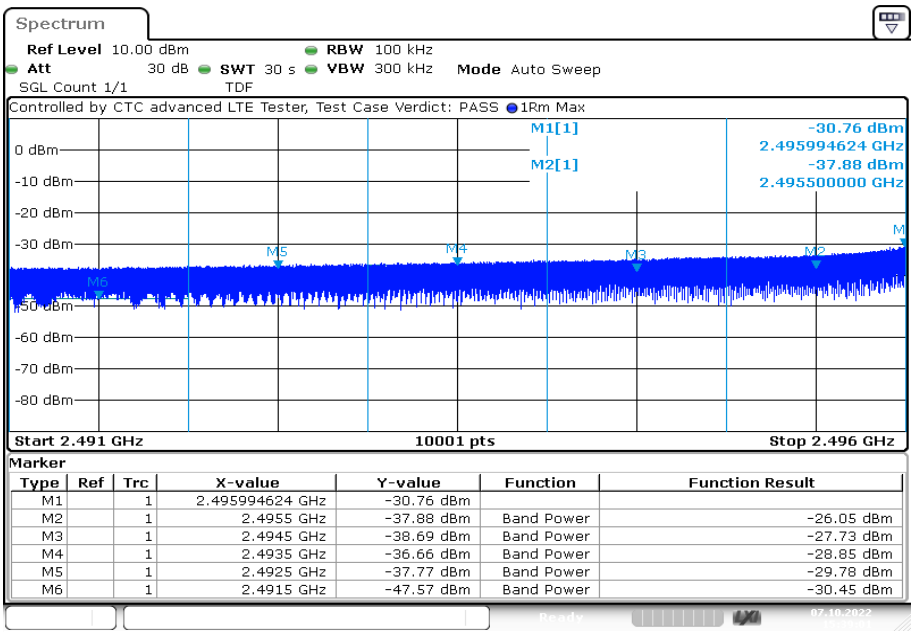
Date: 7.OCT.2022 14:58:44

Plot 2: 5 MHz – QPSK - Highest channel



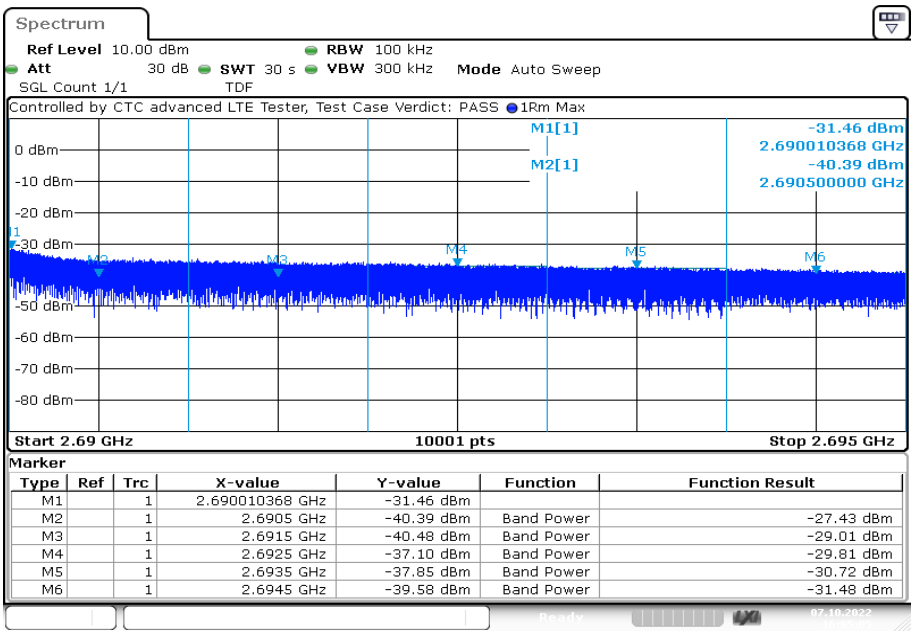
Date: 7.OCT.2022 15:24:58

Plot 3: 10 MHz – QPSK - Lowest channel



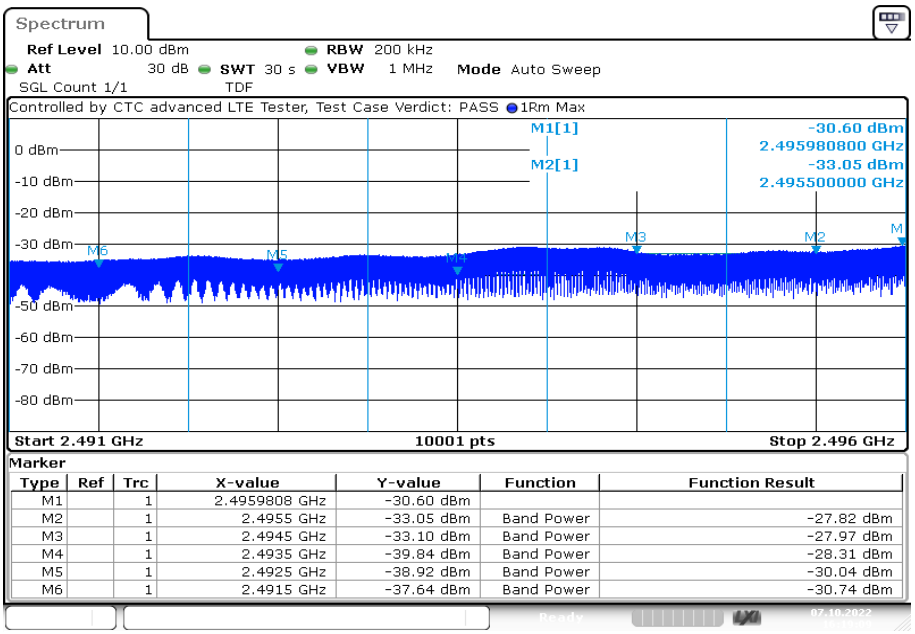
Date: 7.OCT.2022 15:39:02

Plot 4: 10 MHz – QPSK - Highest channel



Date: 7.OCT.2022 16:05:05

Plot 5: 15 MHz – QPSK - Lowest channel

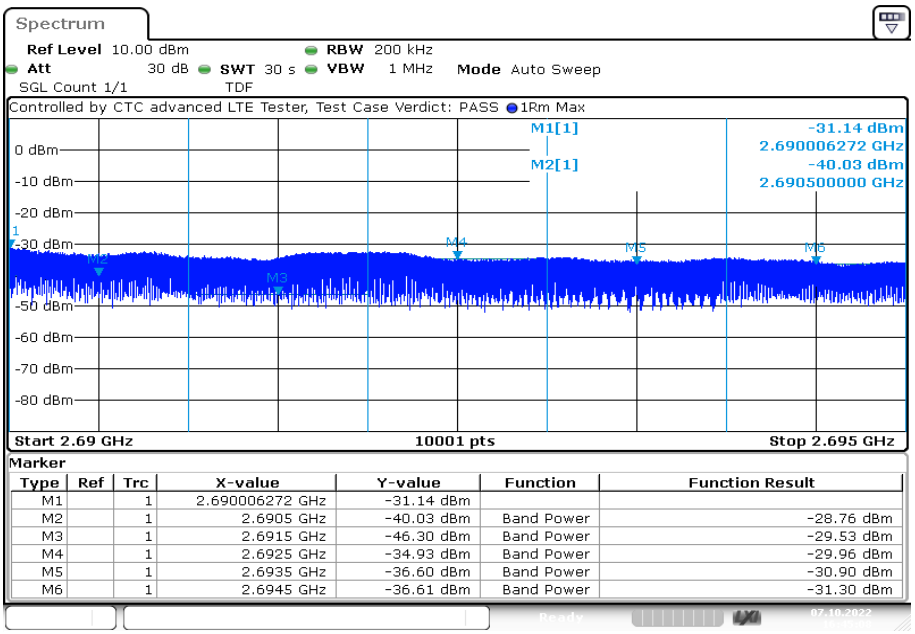


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4959808 GHz	-30.60 dBm		
M2		1	2.4955 GHz	-33.05 dBm	Band Power	-27.82 dBm
M3		1	2.4945 GHz	-33.10 dBm	Band Power	-27.97 dBm
M4		1	2.4935 GHz	-39.84 dBm	Band Power	-28.31 dBm
M5		1	2.4925 GHz	-38.92 dBm	Band Power	-30.04 dBm
M6		1	2.4915 GHz	-37.64 dBm	Band Power	-30.74 dBm

Date: 7.OCT.2022 16:19:09

Plot 6: 15 MHz – QPSK - Highest channel

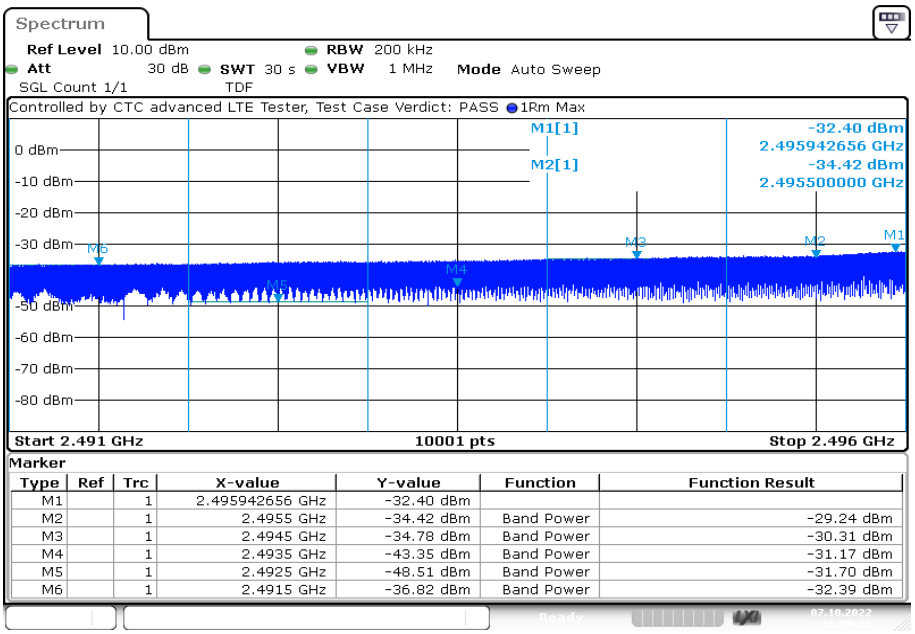


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.690006272 GHz	-31.14 dBm		
M2		1	2.6905 GHz	-40.03 dBm	Band Power	-28.76 dBm
M3		1	2.6915 GHz	-46.30 dBm	Band Power	-29.53 dBm
M4		1	2.6925 GHz	-34.93 dBm	Band Power	-29.96 dBm
M5		1	2.6935 GHz	-36.60 dBm	Band Power	-30.90 dBm
M6		1	2.6945 GHz	-36.61 dBm	Band Power	-31.30 dBm

Date: 7.OCT.2022 16:45:08

Plot 7: 20 MHz – QPSK - Lowest channel

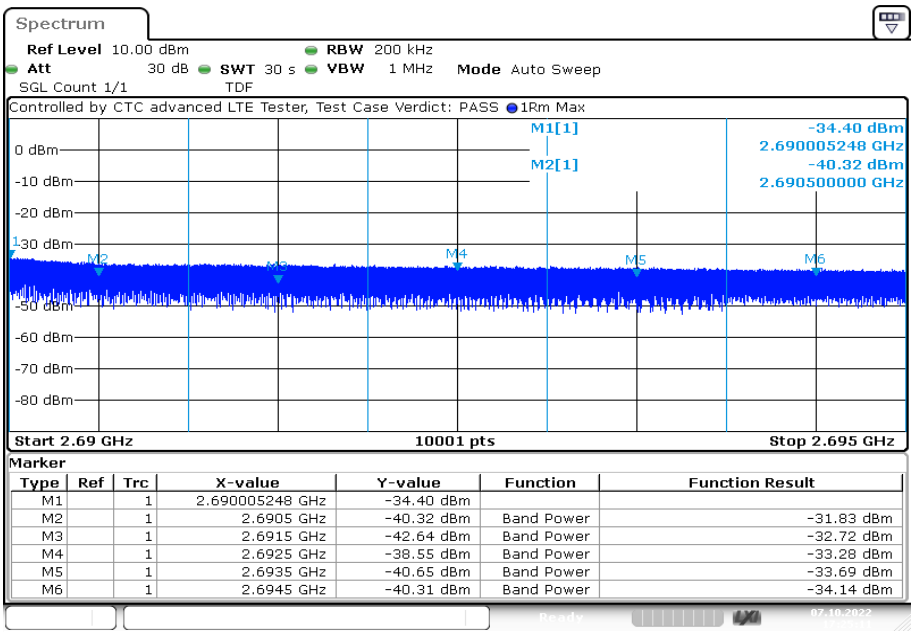


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.495942656 GHz	-32.40 dBm		
M2		1	2.4955 GHz	-34.42 dBm	Band Power	-29.24 dBm
M3		1	2.4945 GHz	-34.78 dBm	Band Power	-30.31 dBm
M4		1	2.4935 GHz	-43.35 dBm	Band Power	-31.17 dBm
M5		1	2.4925 GHz	-48.51 dBm	Band Power	-31.70 dBm
M6		1	2.4915 GHz	-36.82 dBm	Band Power	-32.39 dBm

Date: 7.OCT.2022 16:59:12

Plot 8: 20 MHz – QPSK - Highest channel

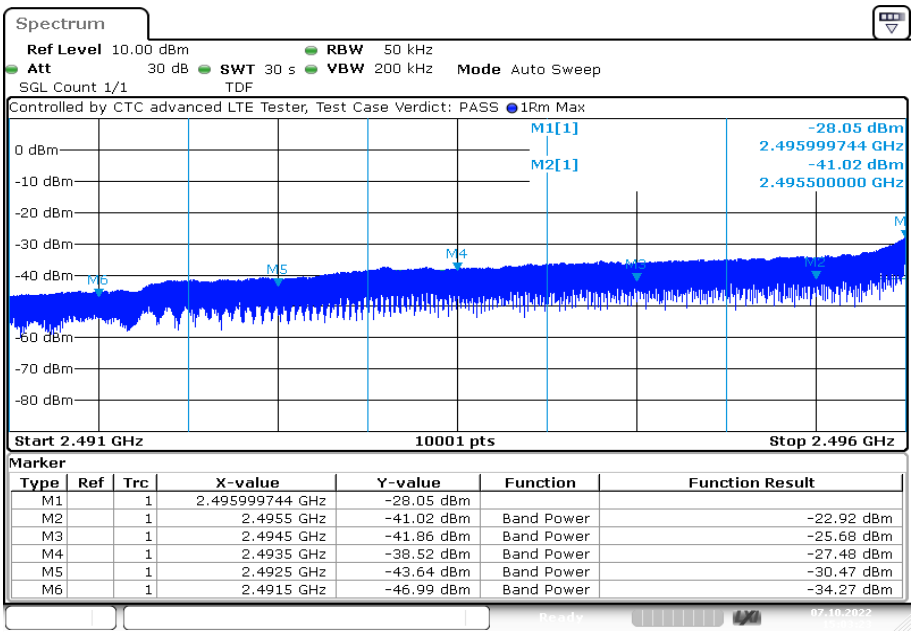


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.690005248 GHz	-34.40 dBm		
M2		1	2.6905 GHz	-40.32 dBm	Band Power	-31.83 dBm
M3		1	2.6915 GHz	-42.64 dBm	Band Power	-32.72 dBm
M4		1	2.6925 GHz	-38.55 dBm	Band Power	-33.28 dBm
M5		1	2.6935 GHz	-40.65 dBm	Band Power	-33.69 dBm
M6		1	2.6945 GHz	-40.31 dBm	Band Power	-34.14 dBm

Date: 7.OCT.2022 17:25:11

Plot 9: 5 MHz – 16-QAM - Lowest channel

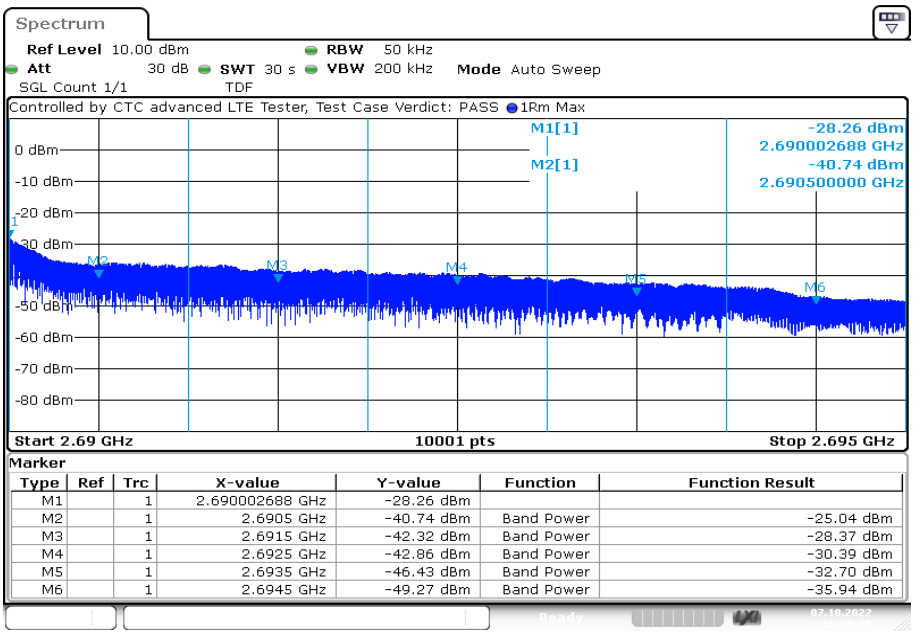


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.495999744 GHz	-28.05 dBm		
M2		1	2.4955 GHz	-41.02 dBm	Band Power	-22.92 dBm
M3		1	2.4945 GHz	-41.86 dBm	Band Power	-25.68 dBm
M4		1	2.4935 GHz	-38.52 dBm	Band Power	-27.48 dBm
M5		1	2.4925 GHz	-43.64 dBm	Band Power	-30.47 dBm
M6		1	2.4915 GHz	-46.99 dBm	Band Power	-34.27 dBm

Date: 7.OCT.2022 15:03:23

Plot 10: 5 MHz – 16-QAM - Highest channel

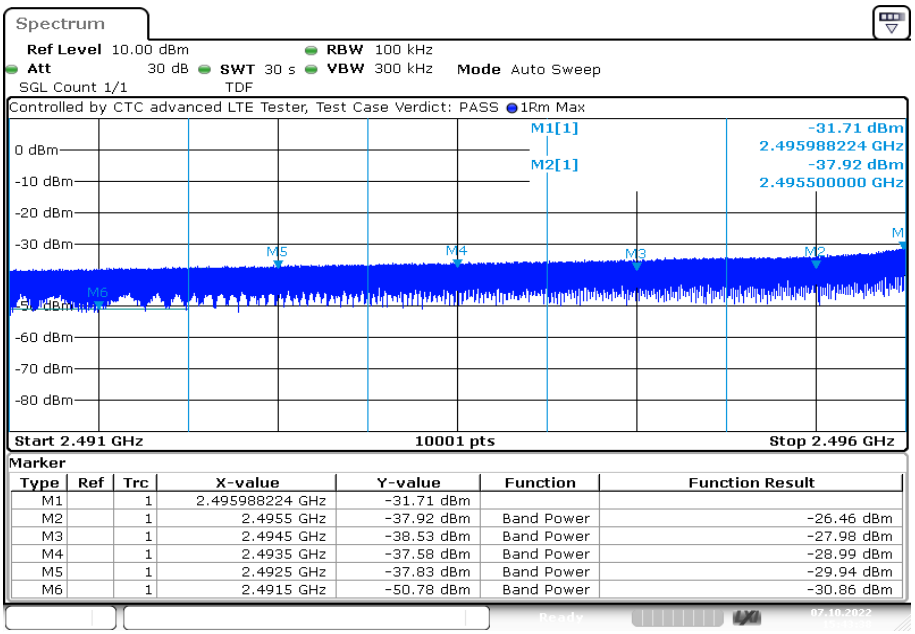


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.690002688 GHz	-28.26 dBm		
M2		1	2.6905 GHz	-40.74 dBm	Band Power	-25.04 dBm
M3		1	2.6915 GHz	-42.32 dBm	Band Power	-28.37 dBm
M4		1	2.6925 GHz	-42.86 dBm	Band Power	-30.39 dBm
M5		1	2.6935 GHz	-46.43 dBm	Band Power	-32.70 dBm
M6		1	2.6945 GHz	-49.27 dBm	Band Power	-35.94 dBm

Date: 7.OCT.2022 15:29:35

Plot 11: 10 MHz – 16-QAM - Lowest channel

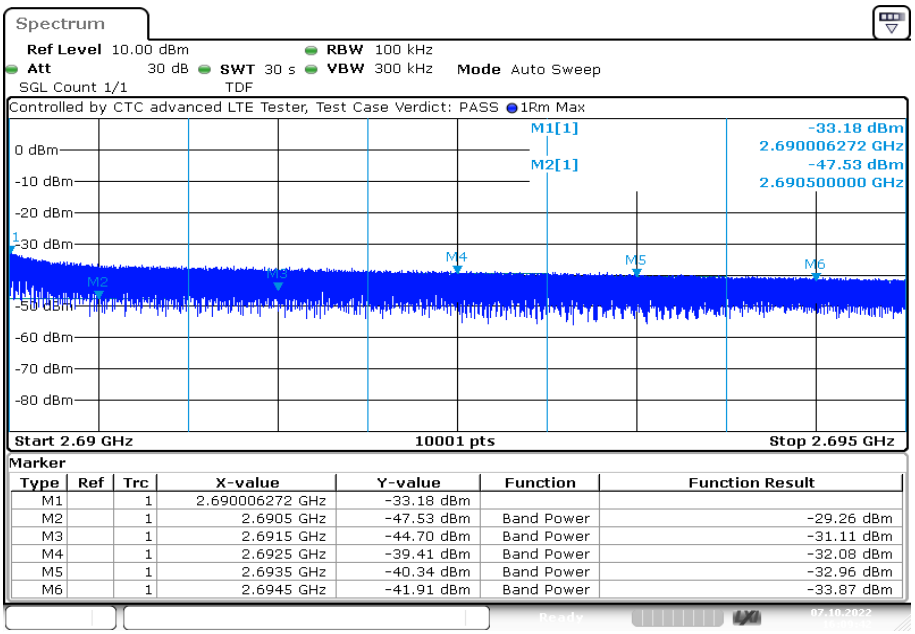


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.495988224 GHz	-31.71 dBm		
M2		1	2.4955 GHz	-37.92 dBm	Band Power	-26.46 dBm
M3		1	2.4945 GHz	-38.53 dBm	Band Power	-27.98 dBm
M4		1	2.4935 GHz	-37.58 dBm	Band Power	-28.99 dBm
M5		1	2.4925 GHz	-37.83 dBm	Band Power	-29.94 dBm
M6		1	2.4915 GHz	-50.78 dBm	Band Power	-30.86 dBm

Date: 7.OCT.2022 15:43:38

Plot 12: 10 MHz – 16-QAM - Highest channel

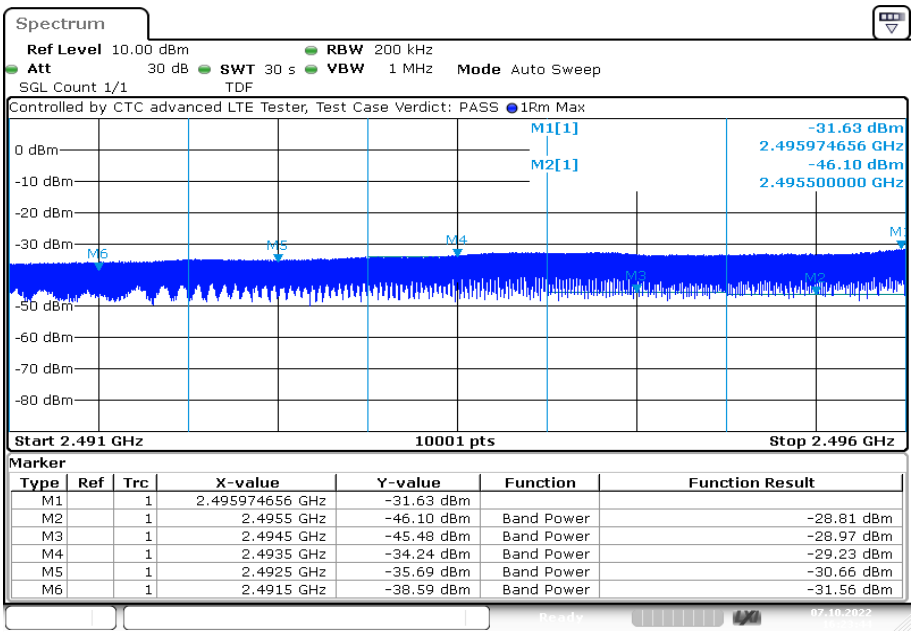


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.690006272 GHz	-33.18 dBm		
M2		1	2.6905 GHz	-47.53 dBm	Band Power	-29.26 dBm
M3		1	2.6915 GHz	-44.70 dBm	Band Power	-31.11 dBm
M4		1	2.6925 GHz	-39.41 dBm	Band Power	-32.08 dBm
M5		1	2.6935 GHz	-40.34 dBm	Band Power	-32.96 dBm
M6		1	2.6945 GHz	-41.91 dBm	Band Power	-33.87 dBm

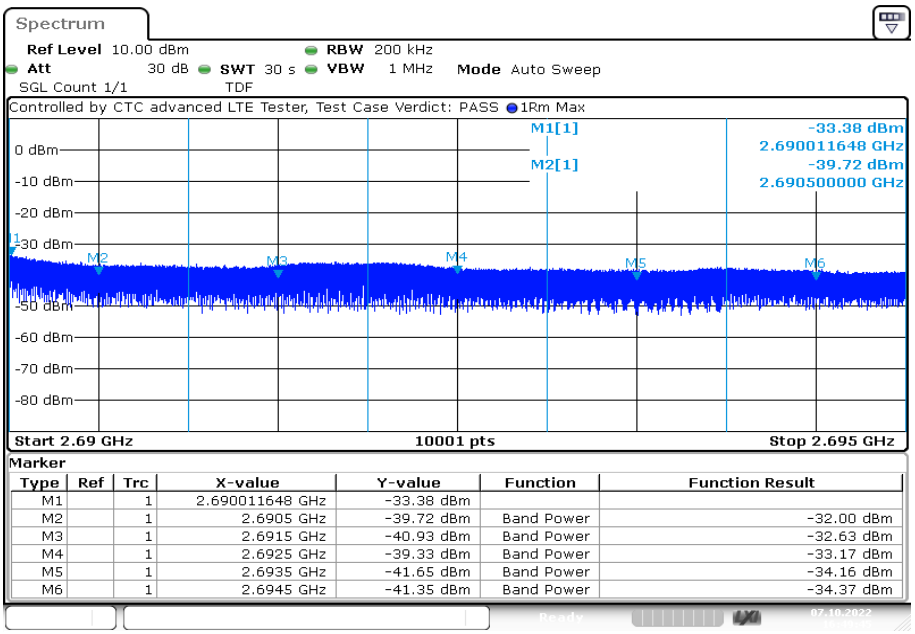
Date: 7.OCT.2022 16:09:42

Plot 13: 15 MHz – 16-QAM - Lowest channel



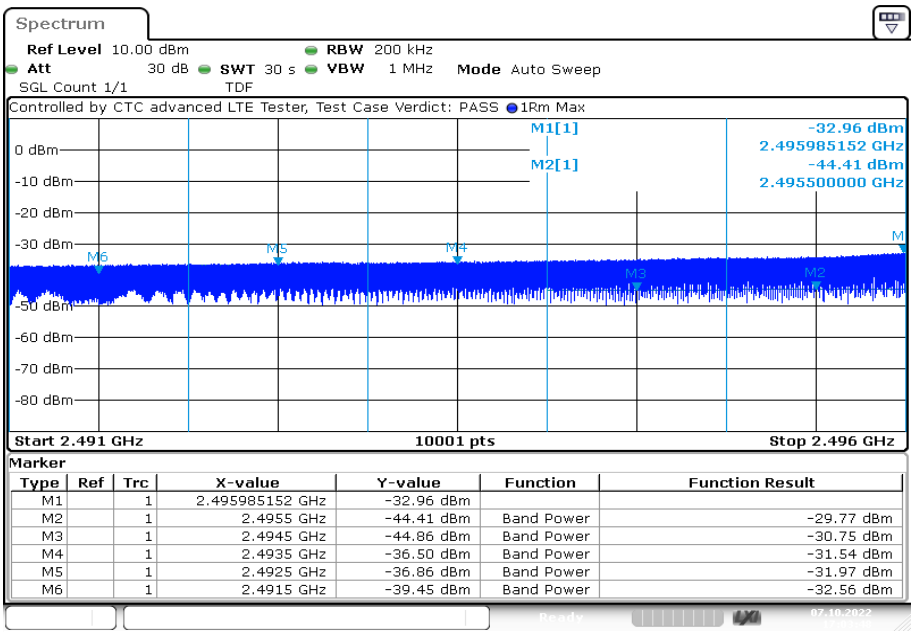
Date: 7.OCT.2022 16:23:44

Plot 14: 15 MHz – 16-QAM - Highest channel



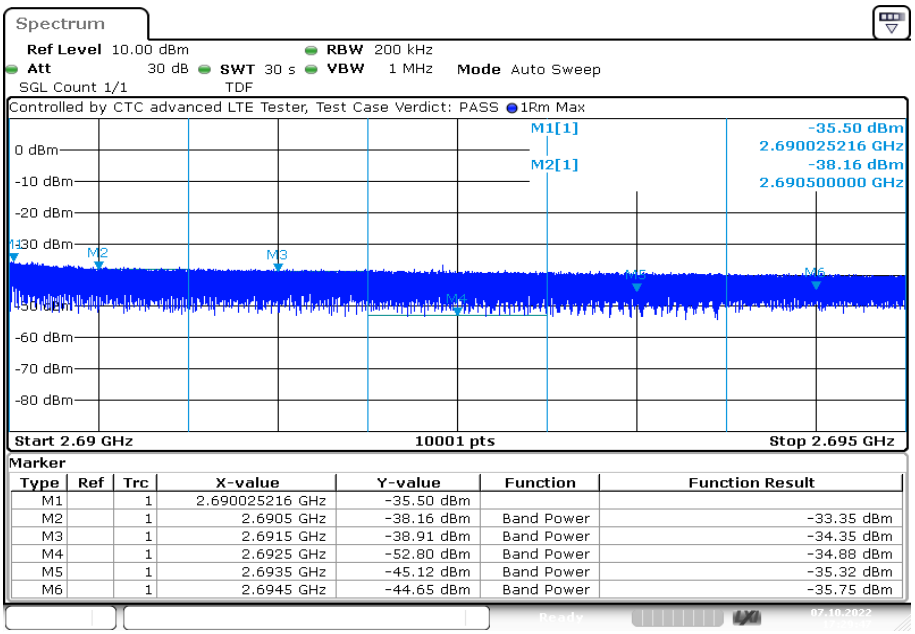
Date: 7.OCT.2022 16:49:45

Plot 15: 20 MHz – 16-QAM - Lowest channel



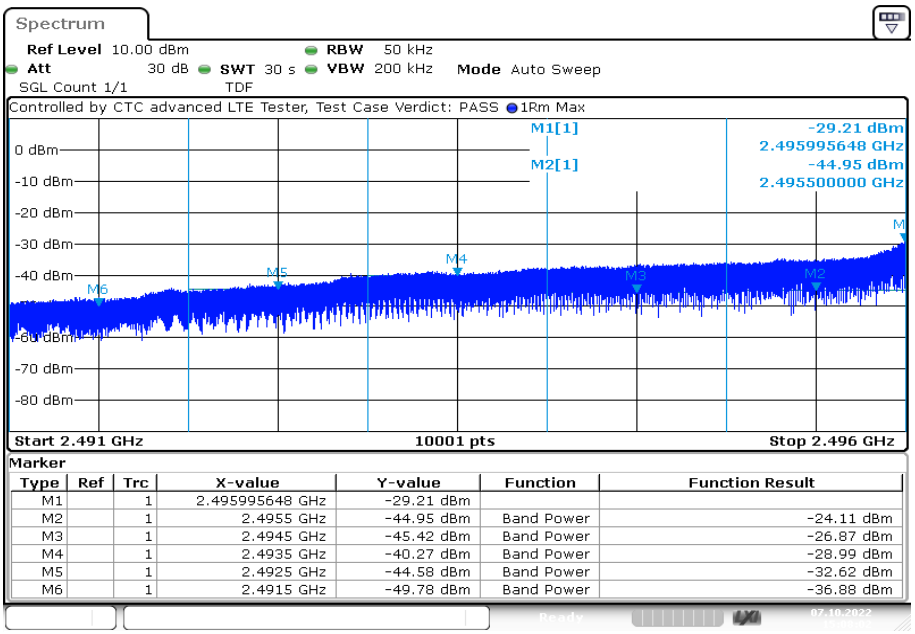
Date: 7.OCT.2022 17:03:48

Plot 16: 20 MHz – 16-QAM - Highest channel



Date: 7.OCT.2022 17:29:47

Plot 17: 5 MHz – 64-QAM - Lowest channel

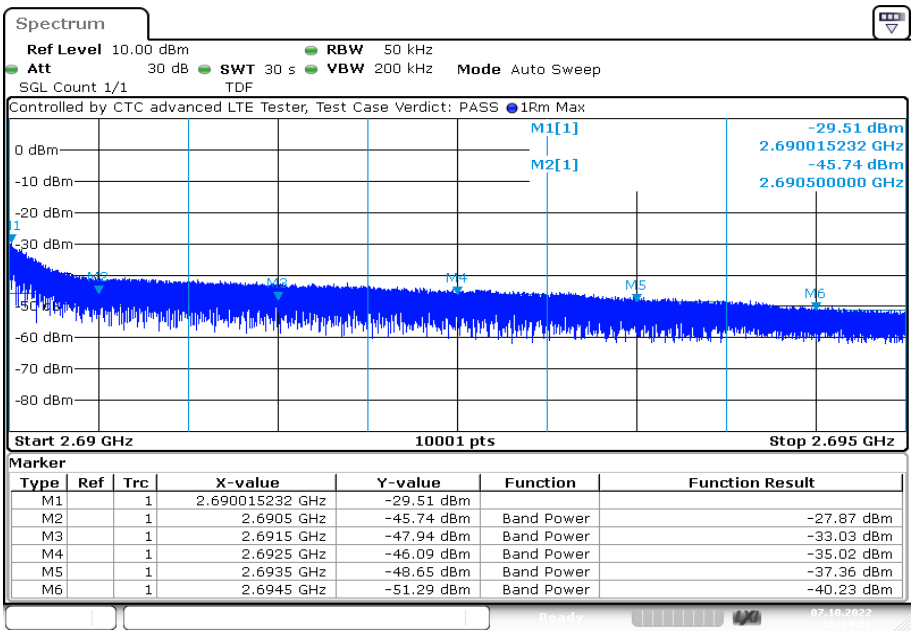


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.495995648 GHz	-29.21 dBm		
M2		1	2.4955 GHz	-44.95 dBm	Band Power	-24.11 dBm
M3		1	2.4945 GHz	-45.42 dBm	Band Power	-26.87 dBm
M4		1	2.4935 GHz	-40.27 dBm	Band Power	-28.99 dBm
M5		1	2.4925 GHz	-44.58 dBm	Band Power	-32.62 dBm
M6		1	2.4915 GHz	-49.78 dBm	Band Power	-36.88 dBm

Date: 7.OCT.2022 15:08:02

Plot 18: 5 MHz – 64-QAM - Highest channel

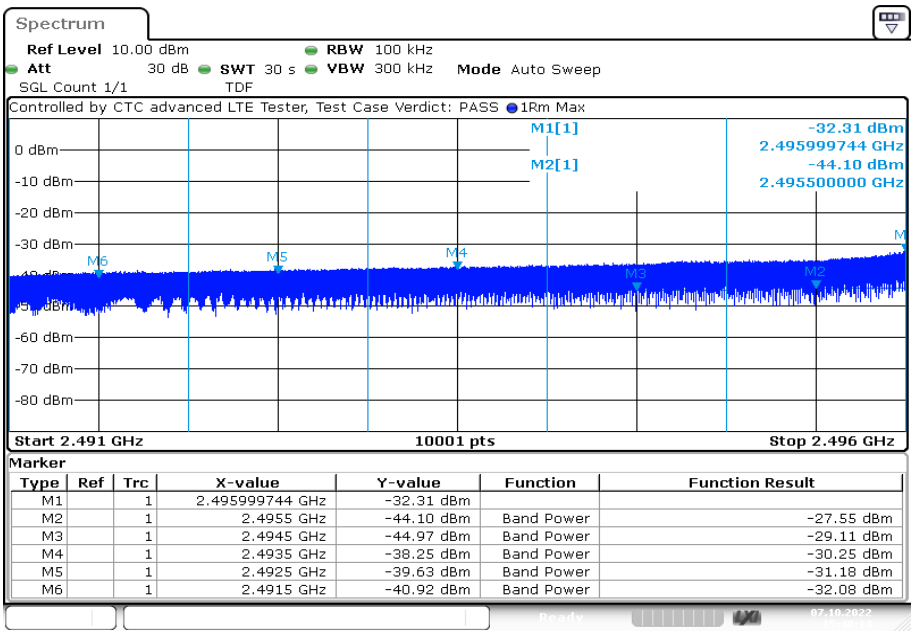


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.690015232 GHz	-29.51 dBm		
M2		1	2.6905 GHz	-45.74 dBm	Band Power	-27.87 dBm
M3		1	2.6915 GHz	-47.94 dBm	Band Power	-33.03 dBm
M4		1	2.6925 GHz	-46.09 dBm	Band Power	-35.02 dBm
M5		1	2.6935 GHz	-48.65 dBm	Band Power	-37.36 dBm
M6		1	2.6945 GHz	-51.29 dBm	Band Power	-40.23 dBm

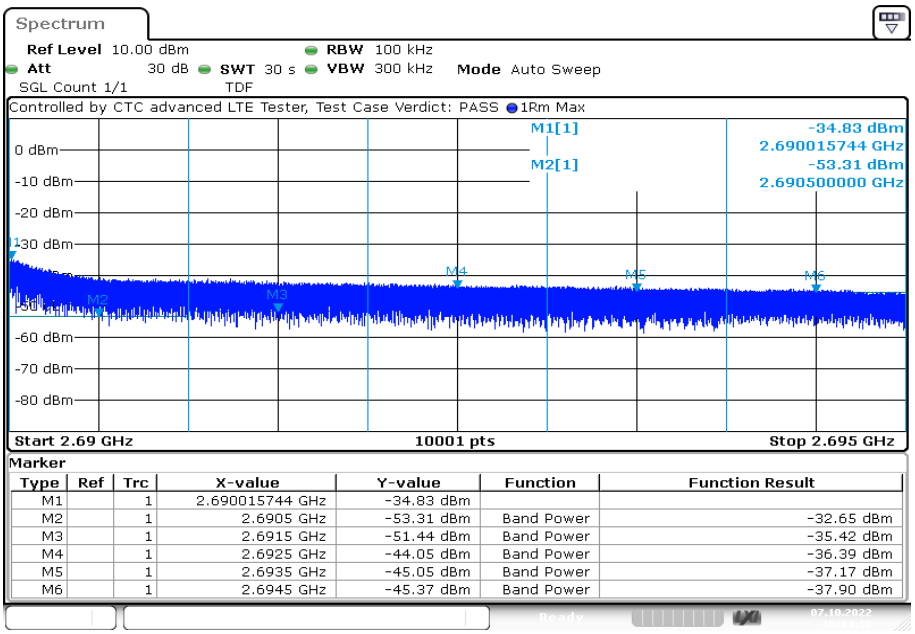
Date: 7.OCT.2022 15:34:11

Plot 19: 10 MHz – 64-QAM - Lowest channel



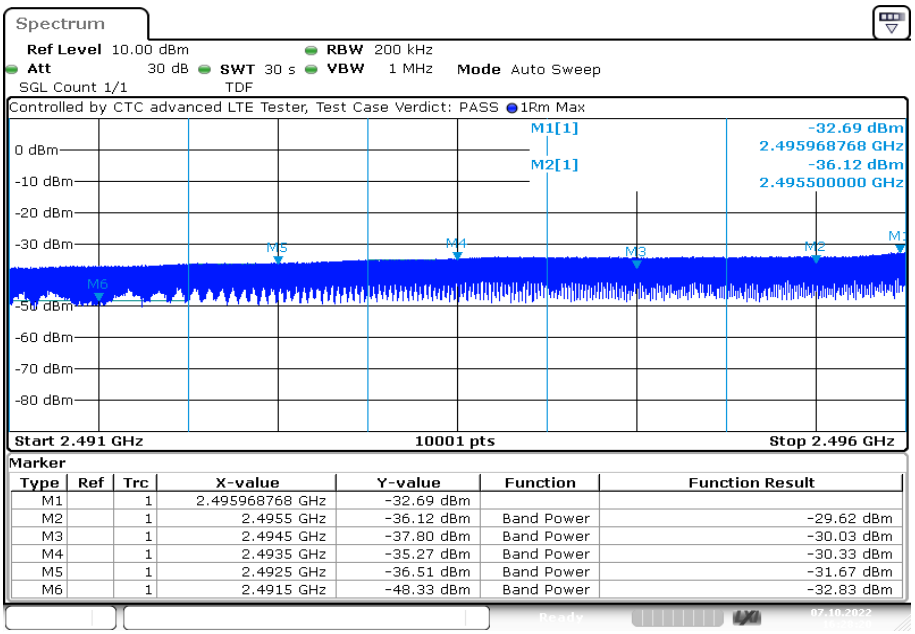
Date: 7.OCT.2022 15:48:14

Plot 20: 10 MHz – 64-QAM - Highest channel



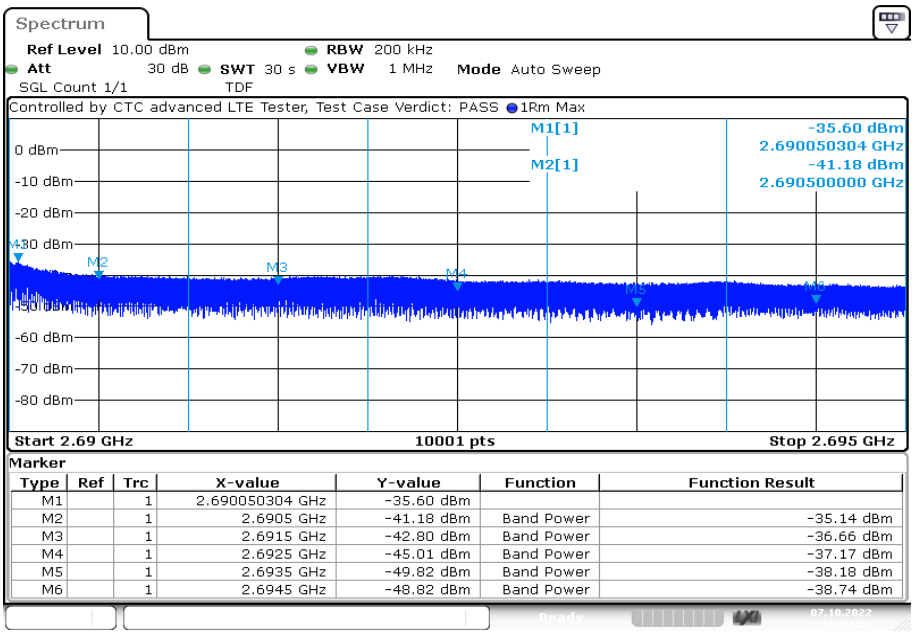
Date: 7.OCT.2022 16:14:19

Plot 21: 15 MHz – 64-QAM - Lowest channel



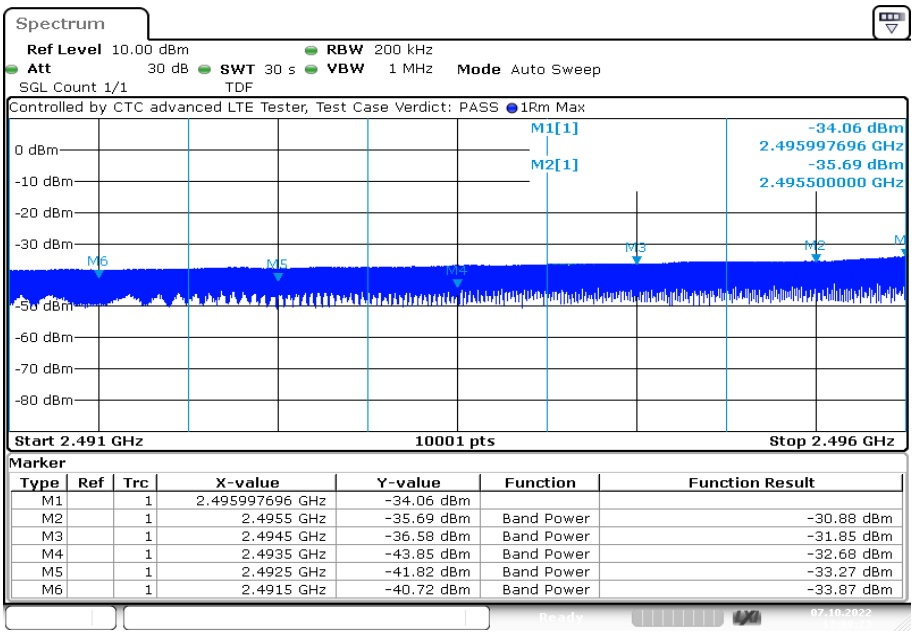
Date: 7.OCT.2022 16:28:20

Plot 22: 15 MHz – 64-QAM - Highest channel



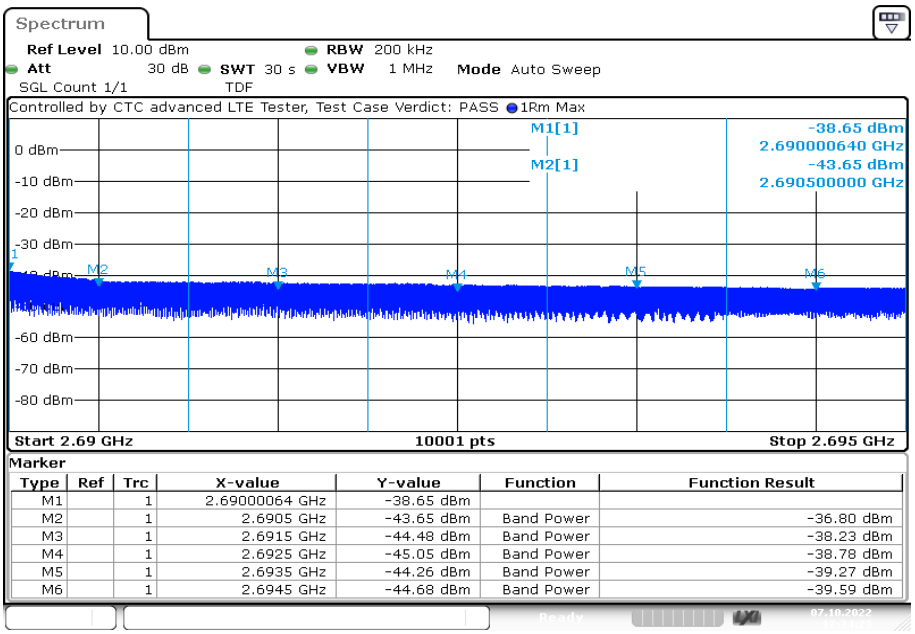
Date: 7.OCT.2022 16:54:22

Plot 23: 20 MHz – 64-QAM - Lowest channel



Date: 7.OCT.2022 17:08:23

Plot 24: 20 MHz – 64-QAM - Highest channel



Date: 7.OCT.2022 17:34:23

12.2.6 Occupied bandwidth

Description:

Measurement of the occupied bandwidth of the transmitted signal.

Measurement:

Similar to conducted emissions, occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the LTE band 41 frequency band. The table below lists the measured 99% power and -26dBc occupied bandwidths. Spectrum analyzer plots are included on the following pages.

Measurement parameters	
Detector:	Peak
Sweep time:	See plots
Video bandwidth:	See plots
Resolution bandwidth:	See plots
Span:	2 x nominal bandwidth
Trace mode:	Max Hold
Used equipment:	See chapter 8.4 setup A
Measurement uncertainty:	See chapter 9
Measurement procedure	FCC: § 2.1049

Limits:

FCC
§ 2.1049
Reporting only

Results:

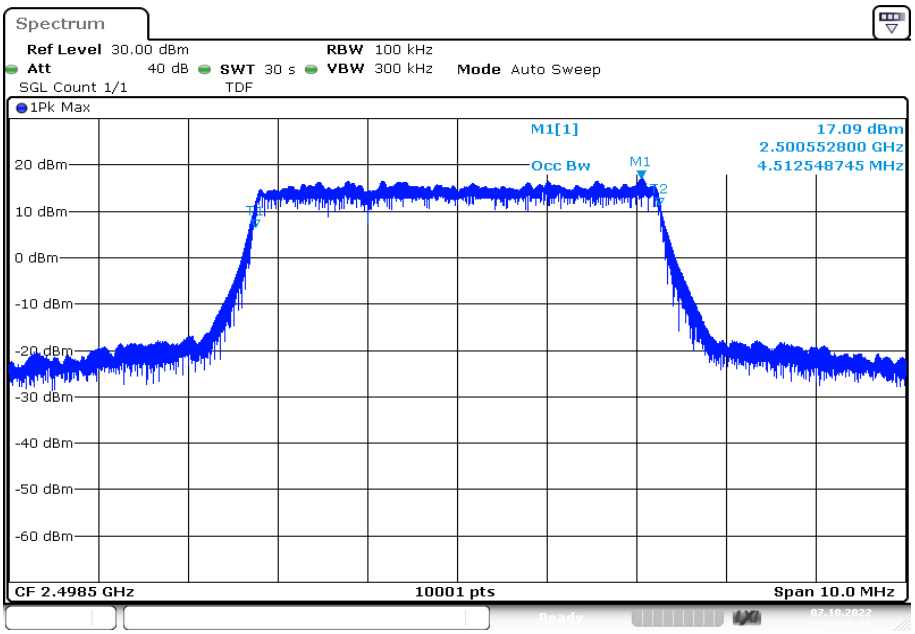
Occupied Bandwidth – QPSK			
Bandwidth	**Channel**	**99% OBW (kHz)**	**-26 dBc BW (kHz)**
5.0	low	4.5	5.3
	mid	4.5	5.2
	high	4.5	5.5
10.0	low	9.1	11.8
	mid	9.1	12.8
	high	9.1	13.0
15.0	low	13.5	16.6
	mid	13.5	16.8
	high	13.5	17.3
20.0	low	18.0	22.1
	mid	18.1	24.2
	high	18.1	24.0

Occupied Bandwidth – 16-QAM			
Bandwidth	**Channel**	**99% OBW (kHz)**	**-26 dBc BW (kHz)**
5.0	low	4.5	5.2
	mid	4.5	5.4
	high	4.5	5.3
10.0	low	9.1	11.9
	mid	9.1	12.1
	high	9.1	13.8
15.0	low	13.5	16.9
	mid	13.5	16.2
	high	13.5	17.1
20.0	low	18.0	23.0
	mid	18.1	23.3
	high	18.1	25.1

Occupied Bandwidth – 64-QAM			
Bandwidth	**Channel**	**99% OBW (kHz)**	**-26 dBc BW (kHz)**
5.0	low	4.5	5.6
	mid	4.5	5.8
	high	4.5	5.6
10.0	low	9.1	12.1
	mid	9.1	13.0
	high	9.1	12.2
15.0	low	13.5	14.1
	mid	13.5	16.5
	high	13.5	16.3
20.0	low	18.0	23.0
	mid	18.0	22.6
	high	18.1	22.8

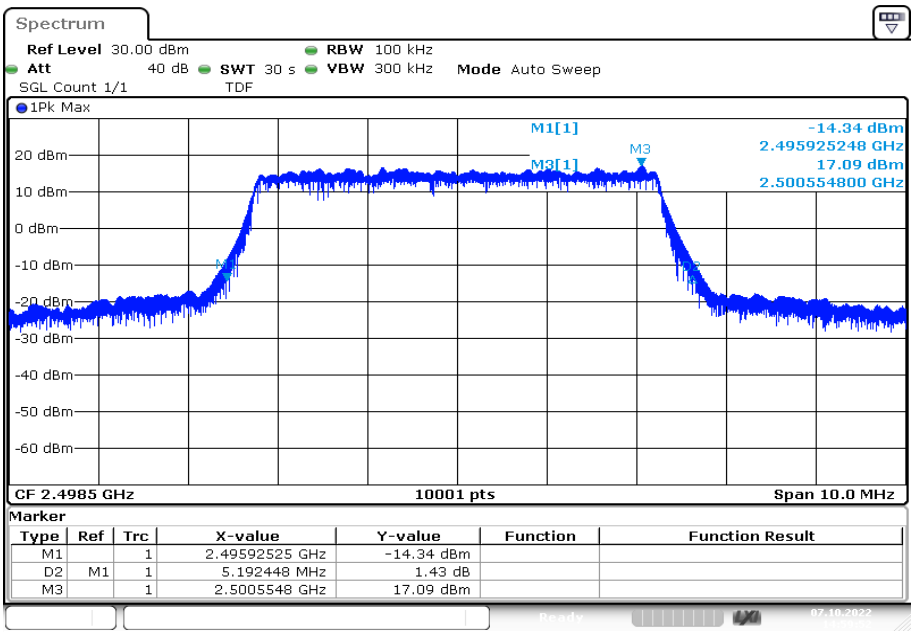
Plots:

Plot 1: 5 MHz – QPSK - lowest channel (99% - OBW)



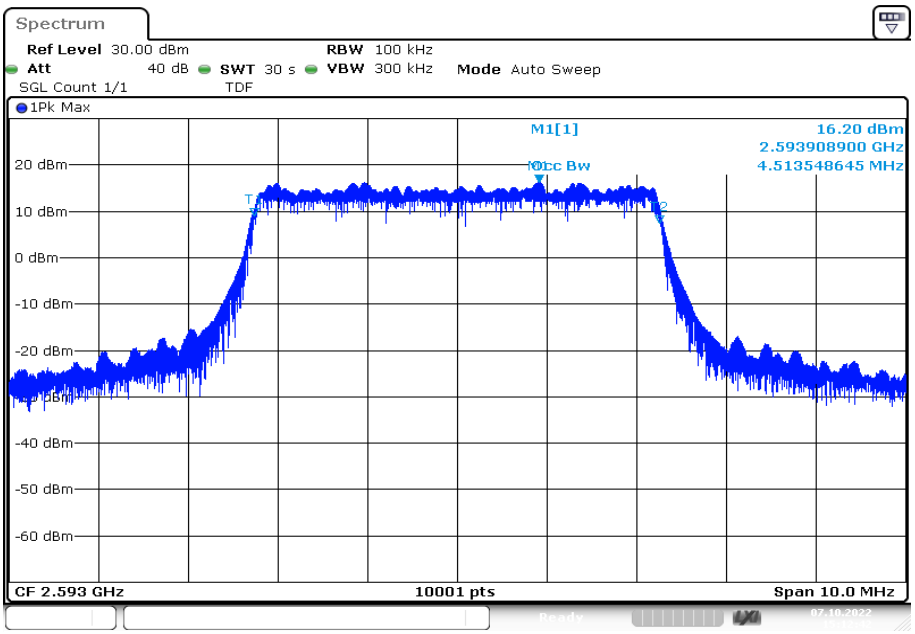
Date: 7.OCT.2022 14:59:18

Plot 2: 5 MHz – QPSK - lowest channel (-26 dBc BW)



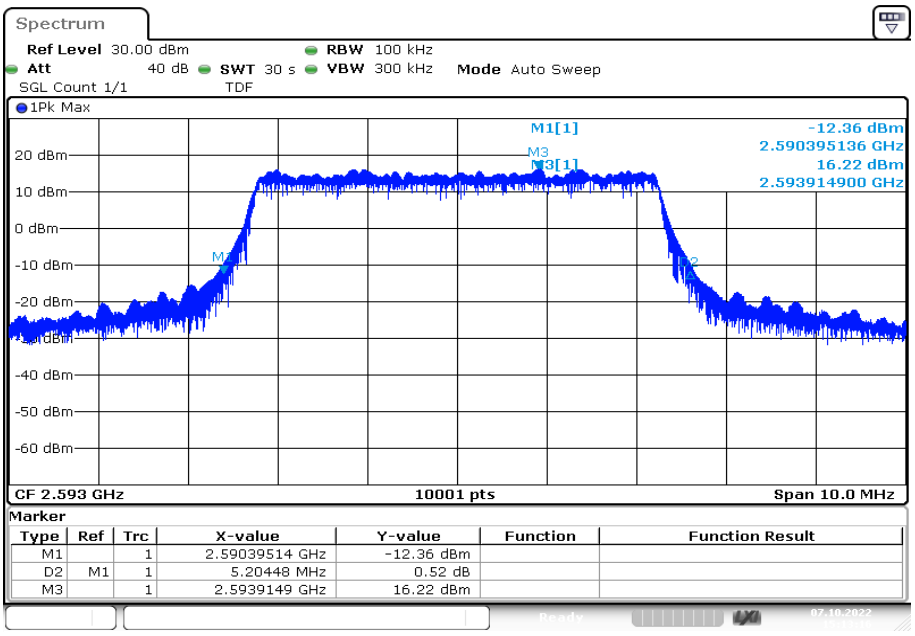
Date: 7.OCT.2022 14:59:52

Plot 3: 5 MHz – QPSK - middle channel (99% - OBW)



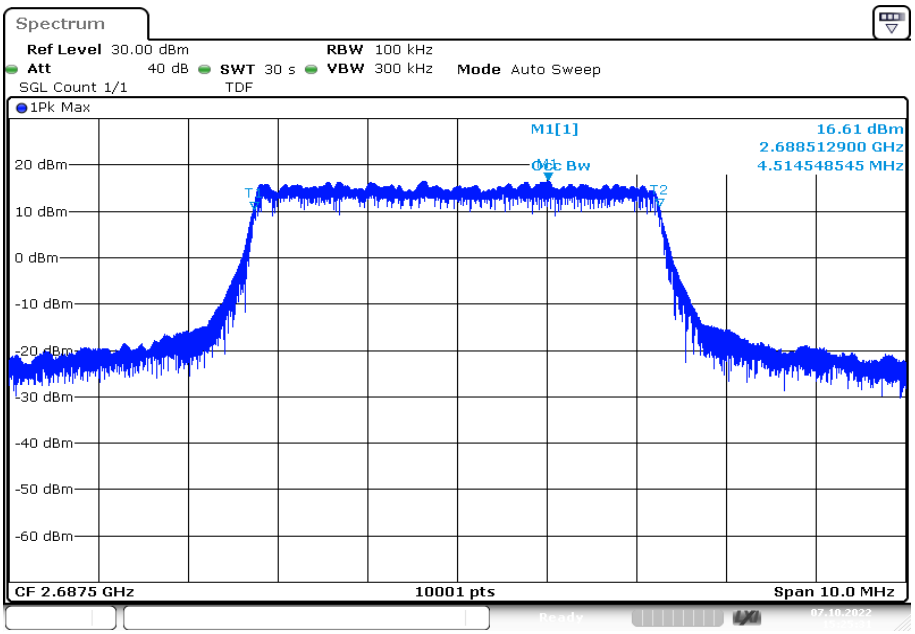
Date: 7.OCT.2022 15:12:42

Plot 4: 5 MHz – QPSK - middle channel (-26 dBc BW)



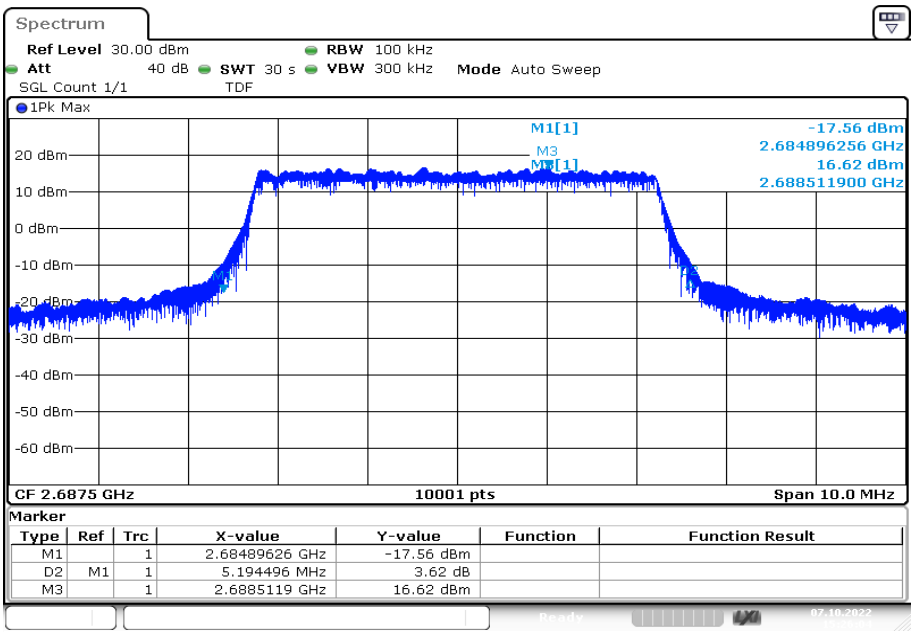
Date: 7.OCT.2022 15:13:16

Plot 5: 5 MHz – QPSK - highest channel (99% - OBW)



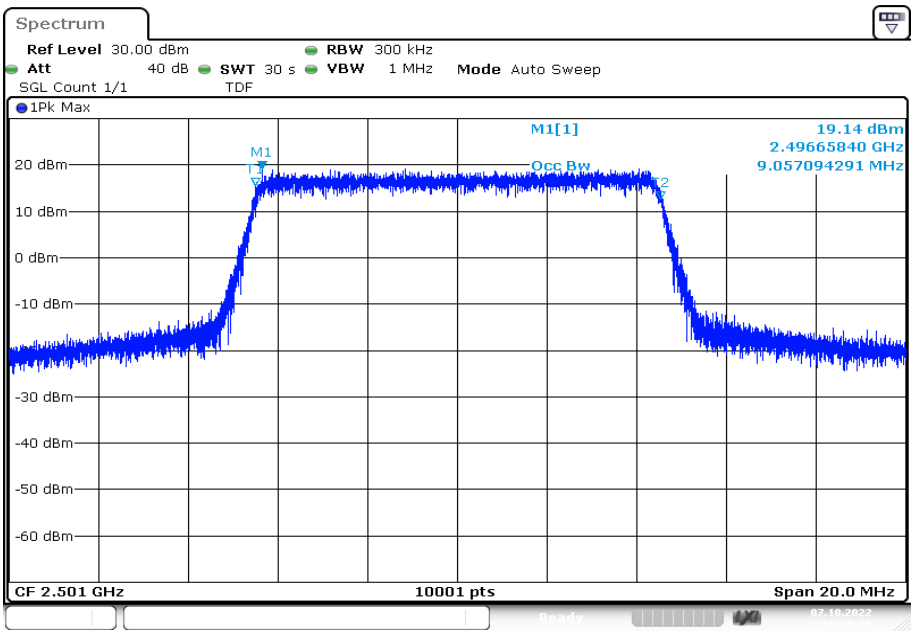
Date: 7.OCT.2022 15:25:31

Plot 6: 5 MHz – QPSK - highest channel (-26 dBc BW)

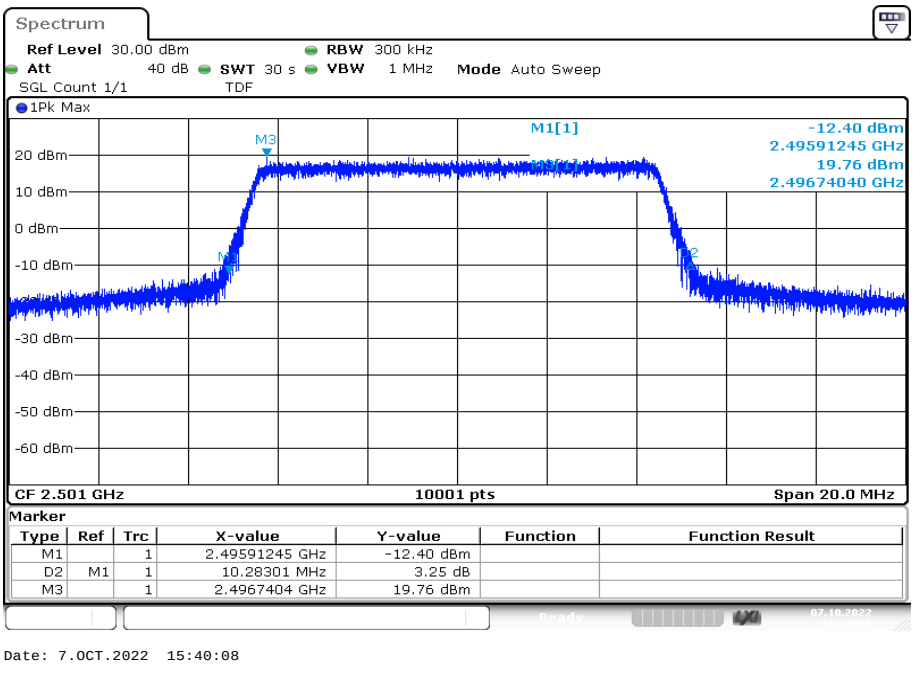


Date: 7.OCT.2022 15:26:04

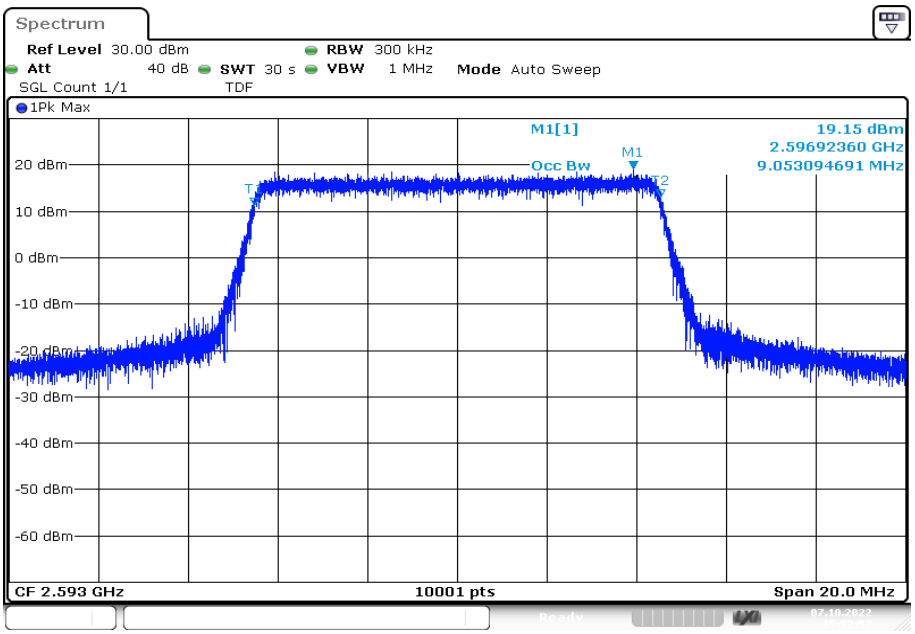
Plot 7: 10 MHz – QPSK - lowest channel (99% - OBW)



Plot 8: 10 MHz – QPSK - lowest channel (-26 dBc BW)

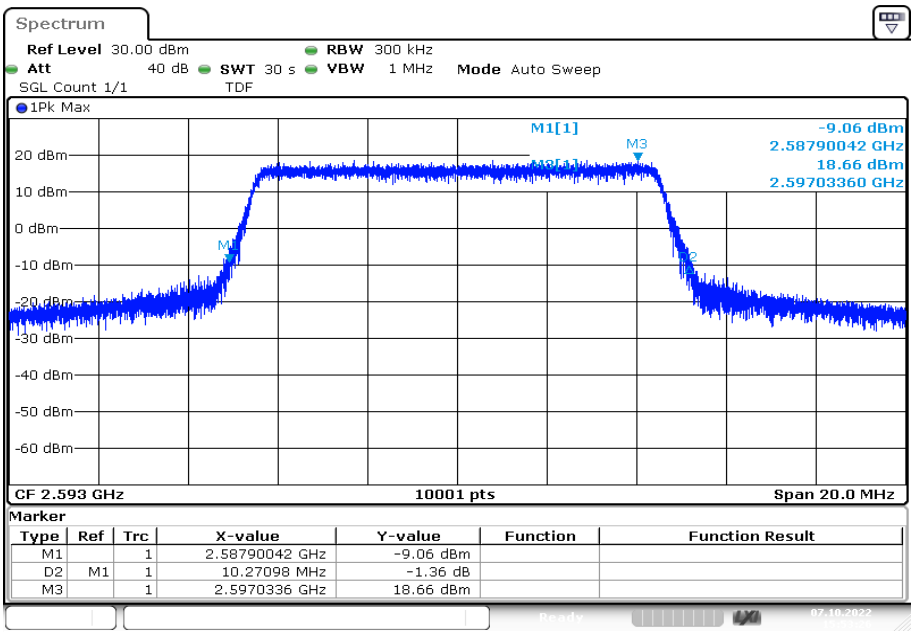


Plot 9: 10 MHz – QPSK - middle channel (99% - OBW)



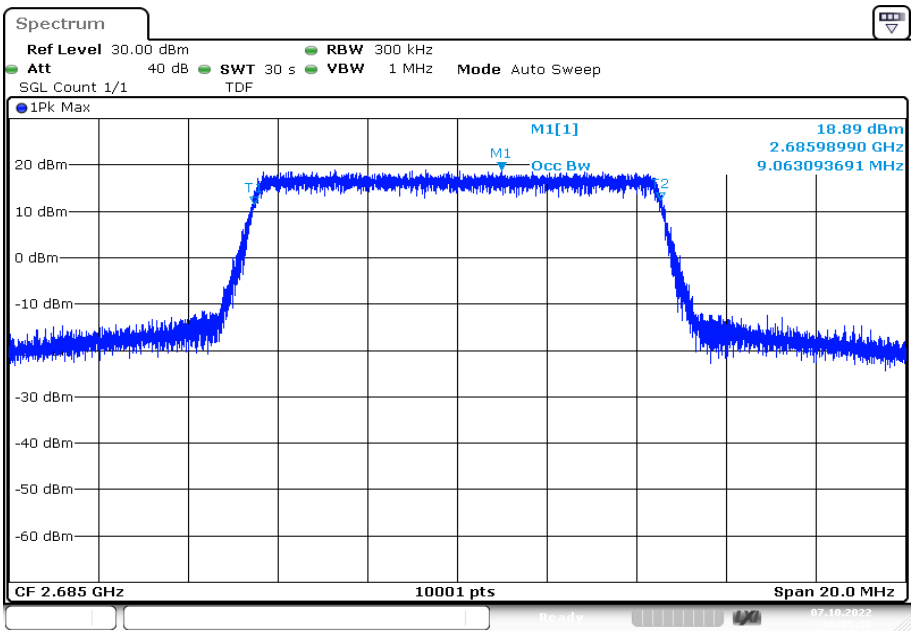
Date: 7.OCT.2022 15:52:53

Plot 10: 10 MHz – QPSK - middle channel (-26 dBc BW)

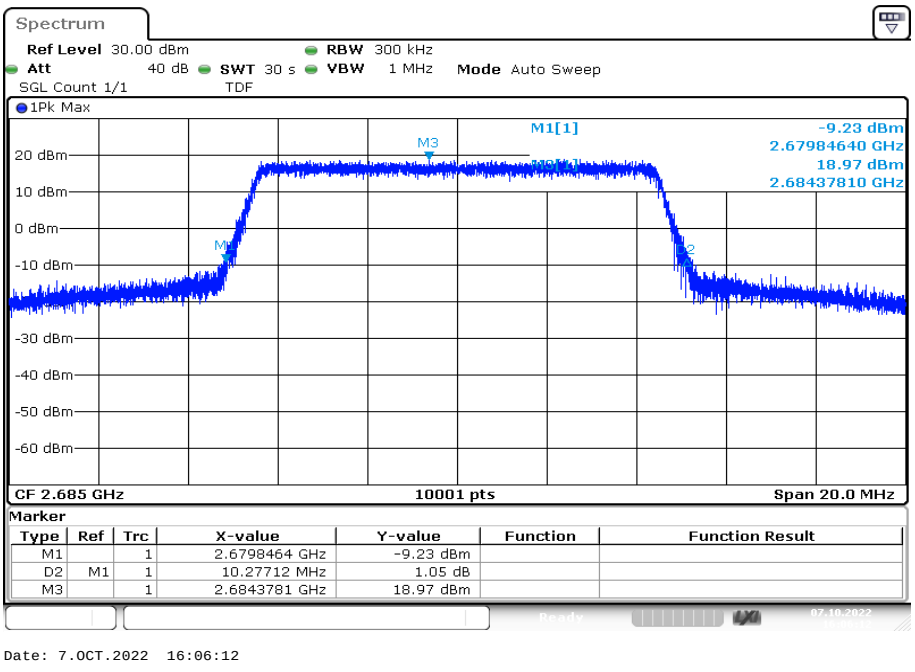


Date: 7.OCT.2022 15:53:26

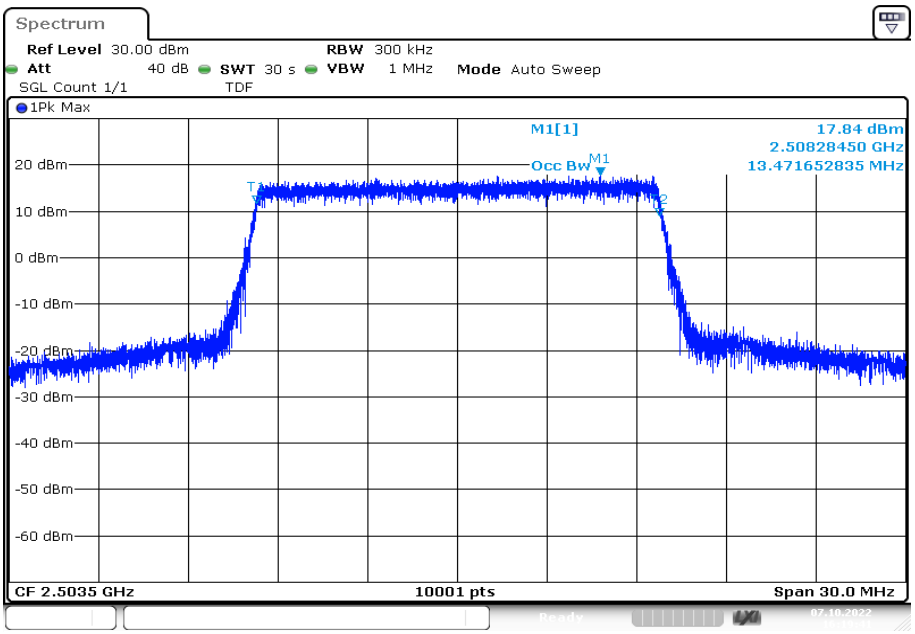
Plot 11: 10 MHz – QPSK - highest channel (99% - OBW)



Plot 12: 10 MHz – QPSK - highest channel (-26 dBc BW)

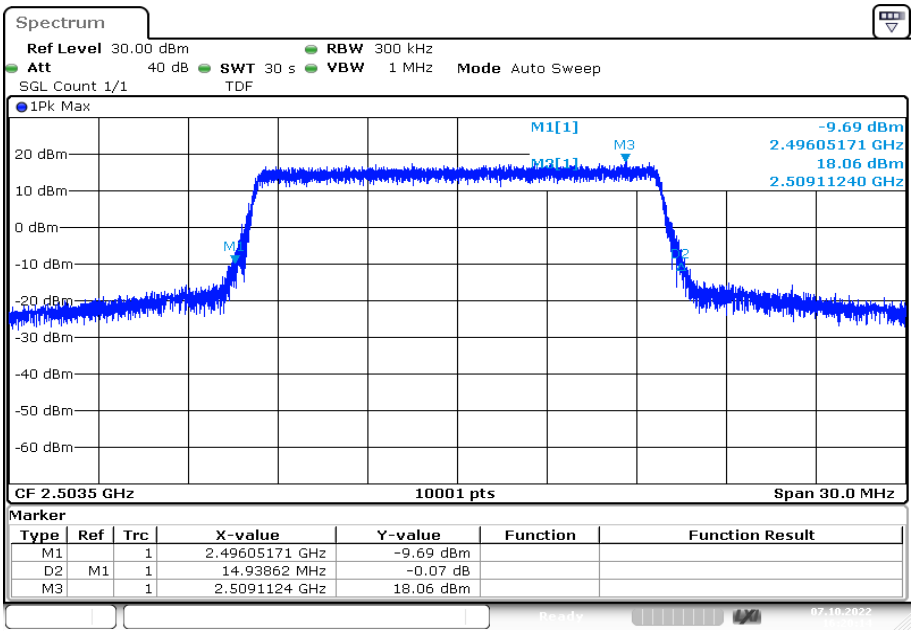


Plot 13: 15 MHz – QPSK - lowest channel (99% - OBW)



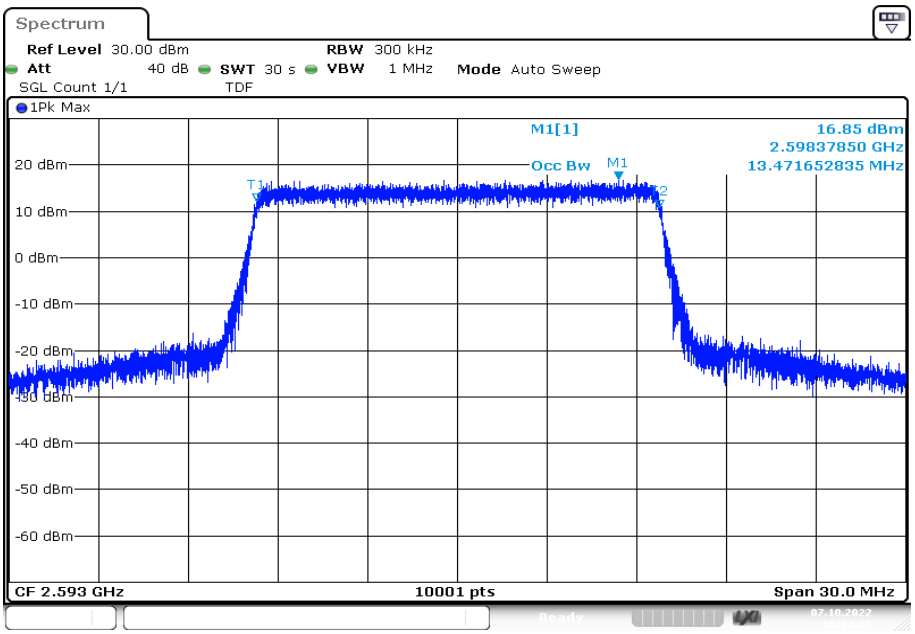
Date: 7.OCT.2022 16:19:41

Plot 14: 15 MHz – QPSK - lowest channel (-26 dBc BW)



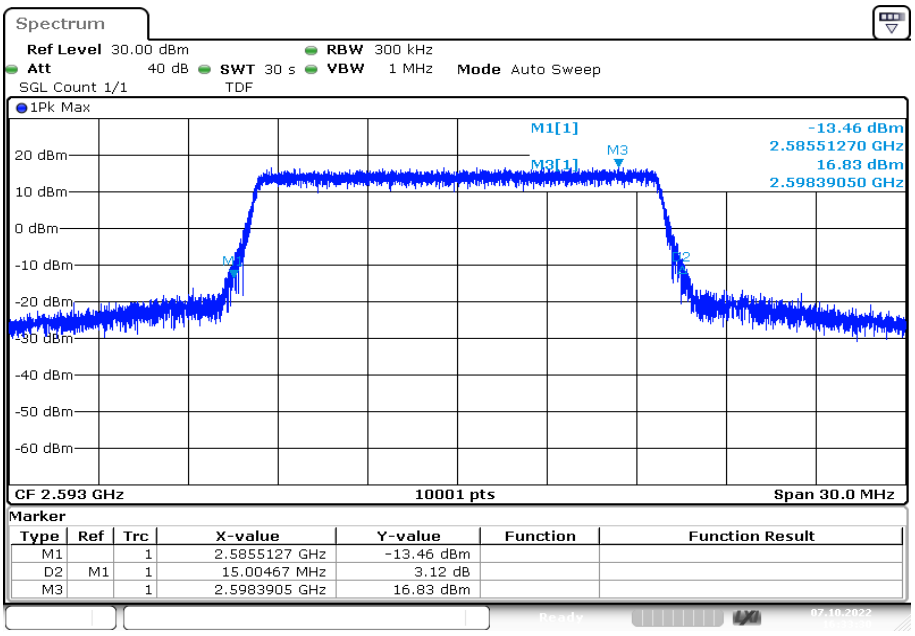
Date: 7.OCT.2022 16:20:14

Plot 15: 15 MHz – QPSK - middle channel (99% - OBW)



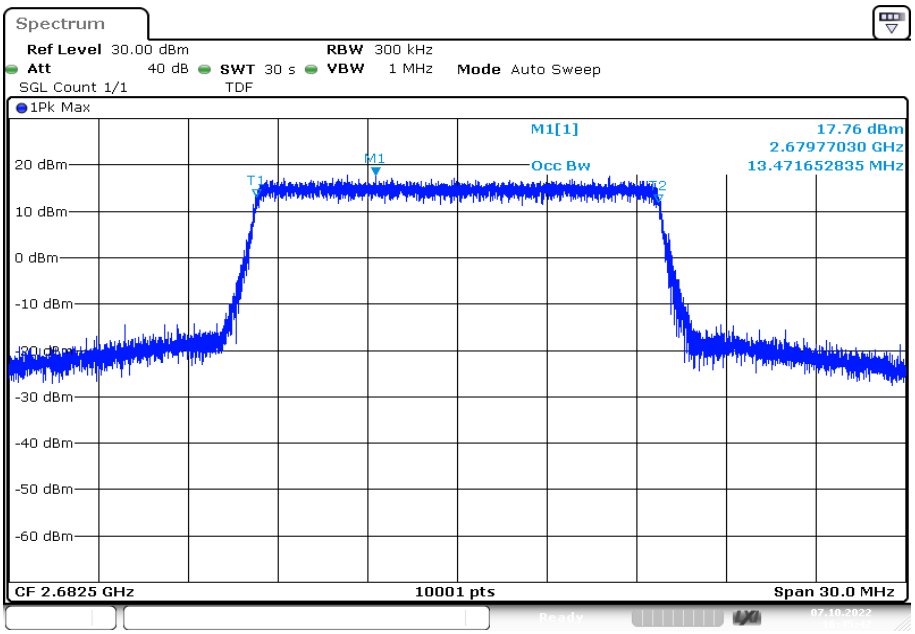
Date: 7.OCT.2022 16:32:57

Plot 16: 15 MHz – QPSK - middle channel (-26 dBc BW)



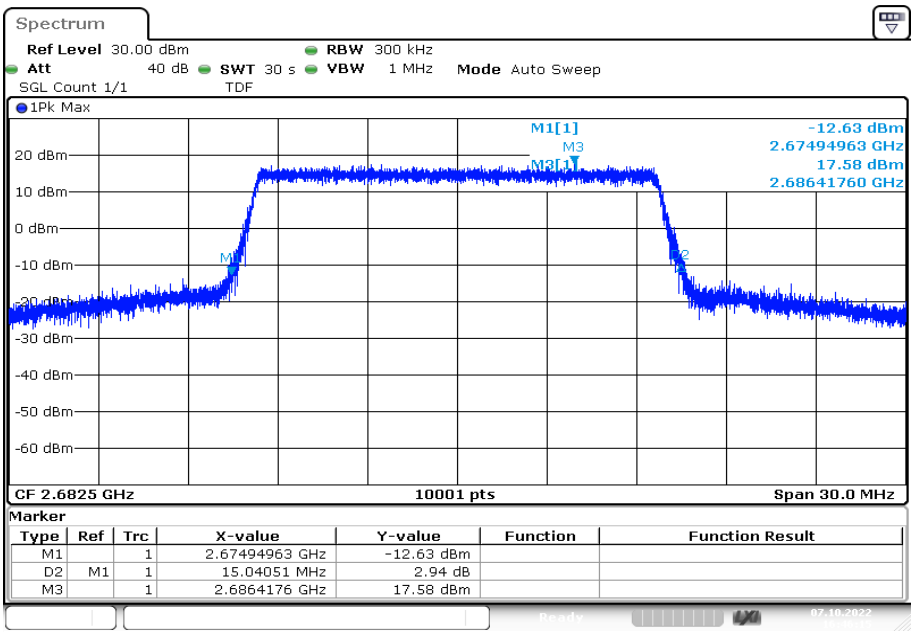
Date: 7.OCT.2022 16:33:30

Plot 17: 15 MHz – QPSK - highest channel (99% - OBW)



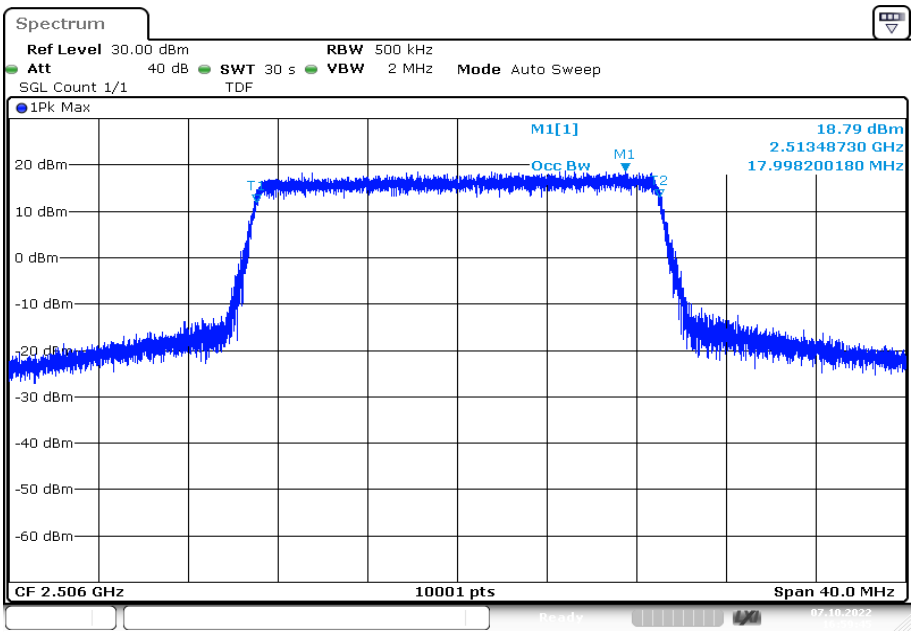
Date: 7.OCT.2022 16:45:42

Plot 18: 15 MHz – QPSK - highest channel (-26 dBc BW)



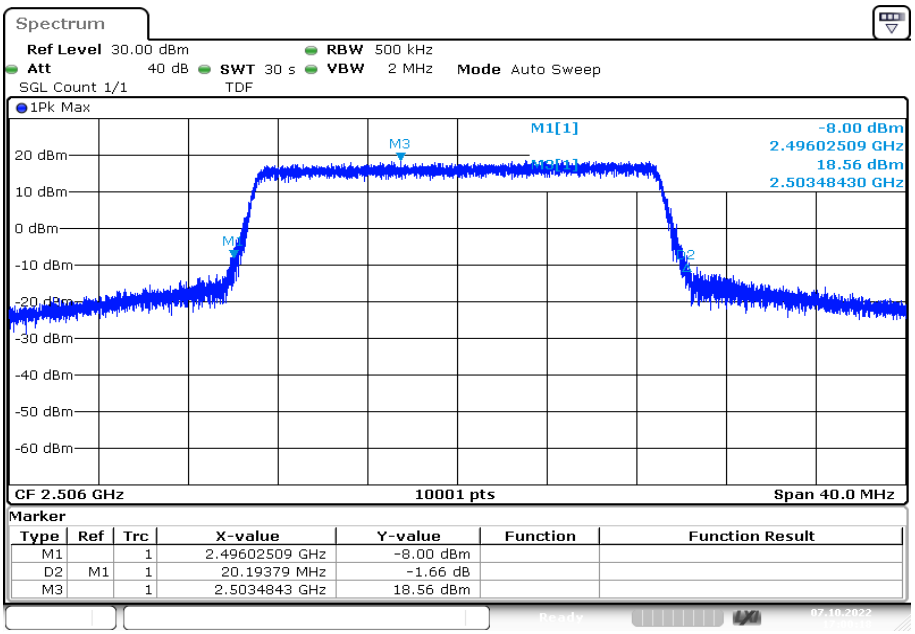
Date: 7.OCT.2022 16:46:15

Plot 19: 20 MHz – QPSK - lowest channel (99% - OBW)



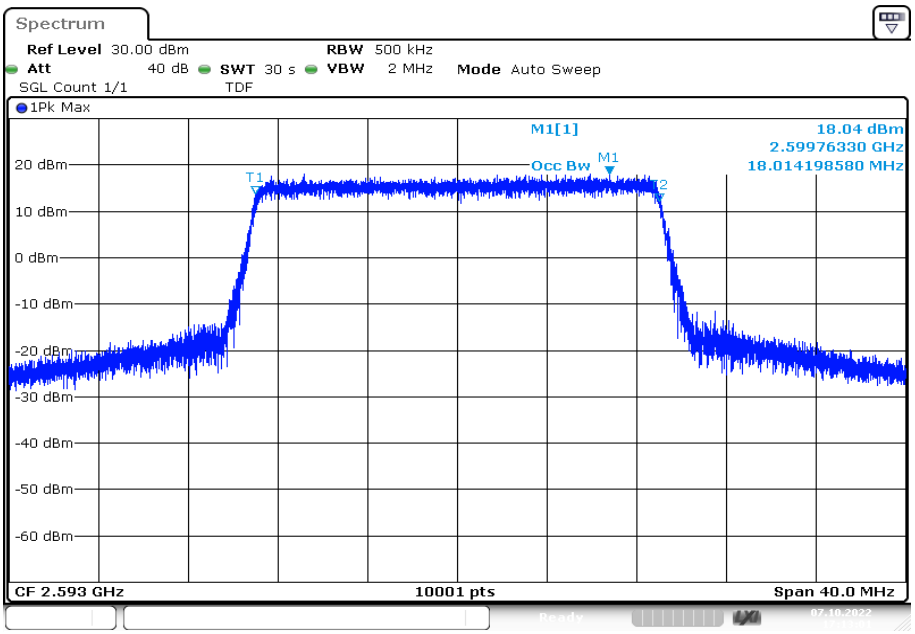
Date: 7.OCT.2022 16:59:45

Plot 20: 20 MHz – QPSK - lowest channel (-26 dBc BW)

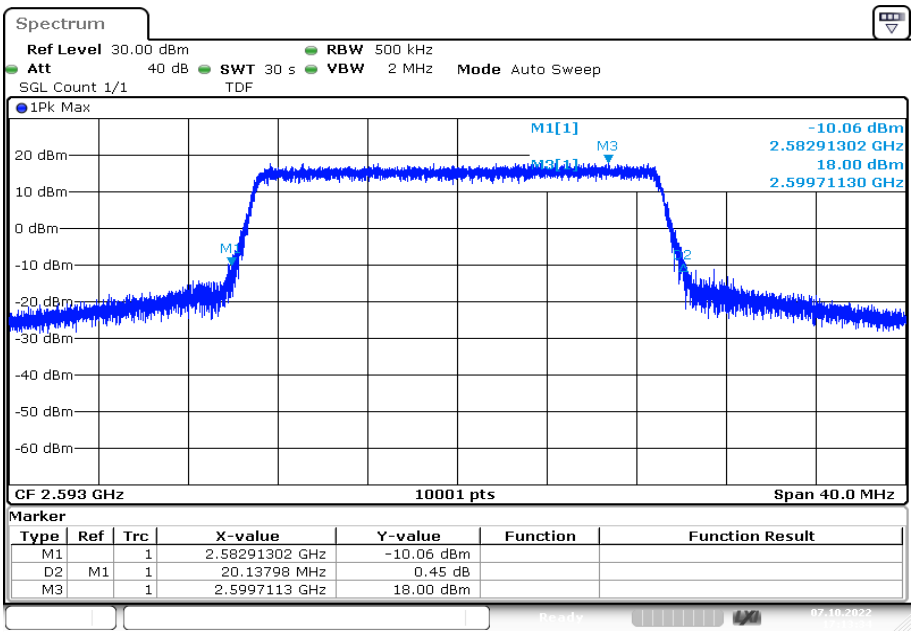


Date: 7.OCT.2022 17:00:18

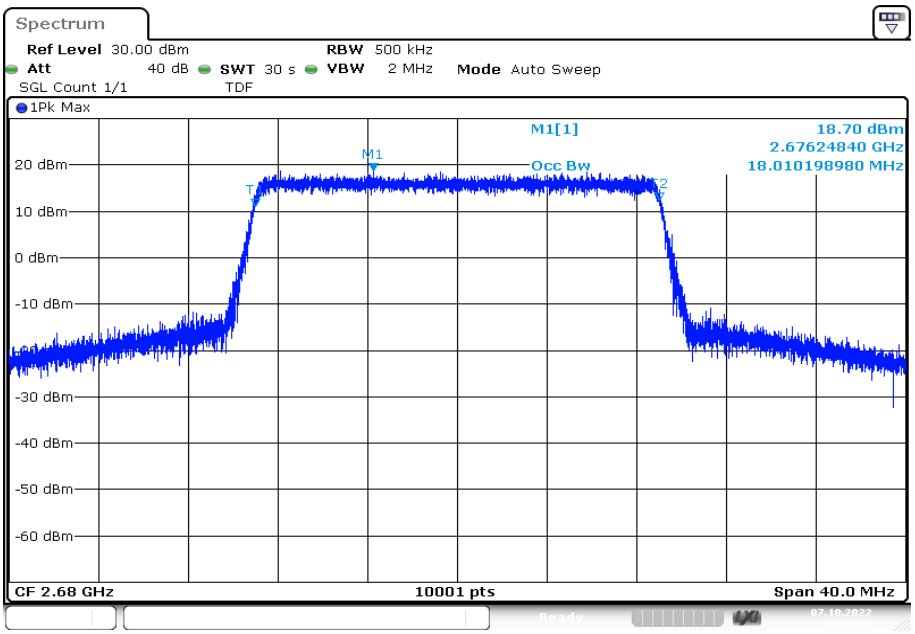
Plot 21: 20 MHz – QPSK - middle channel (99% - OBW)



Plot 22: 20 MHz – QPSK - middle channel (-26 dBc BW)

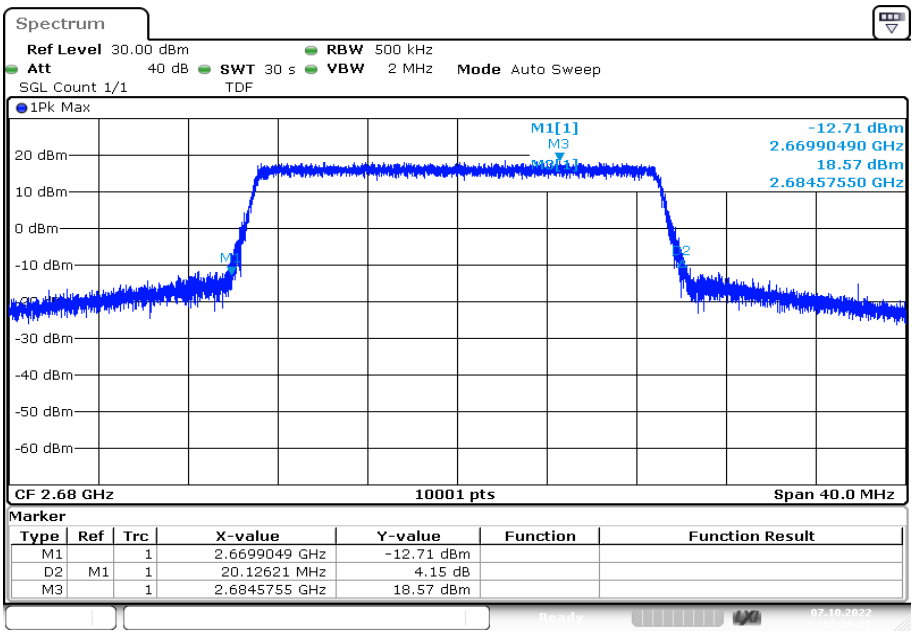


Plot 23: 20 MHz – QPSK - highest channel (99% - OBW)



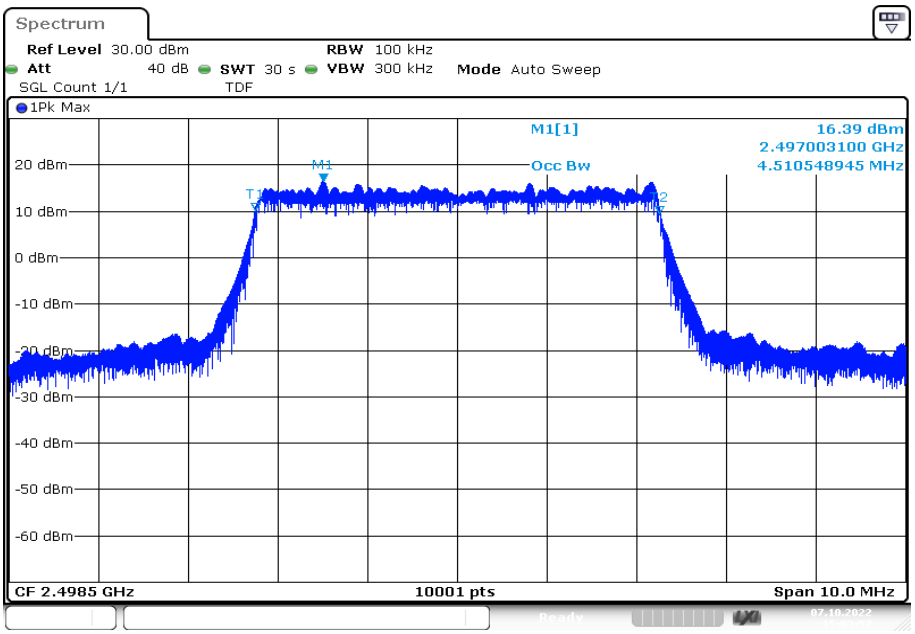
Date: 7.OCT.2022 17:25:44

Plot 24: 20 MHz – QPSK - highest channel (-26 dBc BW)



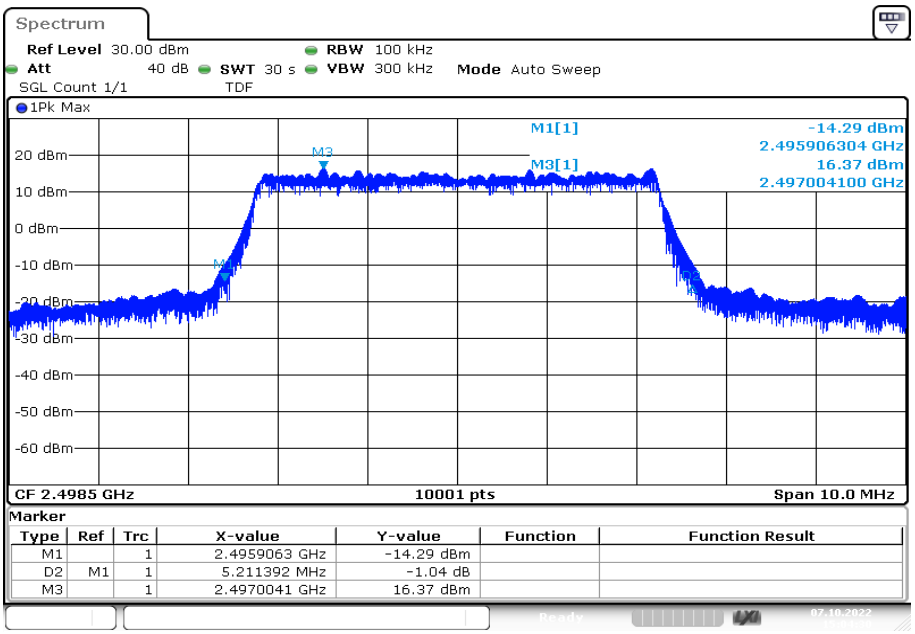
Date: 7.OCT.2022 17:26:18

Plot 25: 5 MHz – 16-QAM - lowest channel (99% - OBW)



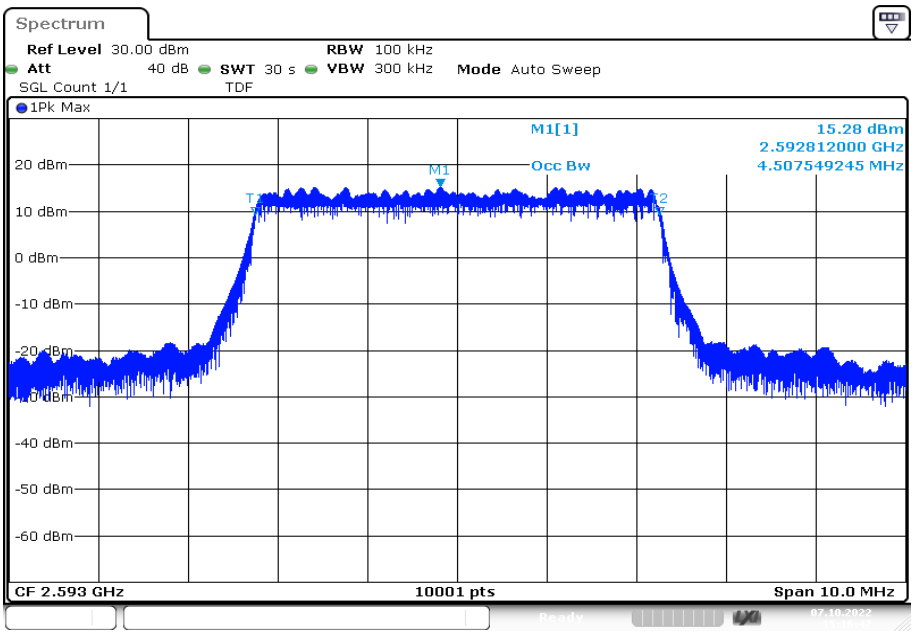
Date: 7.OCT.2022 15:03:57

Plot 26: 5 MHz – 16-QAM - lowest channel (-26 dBc BW)



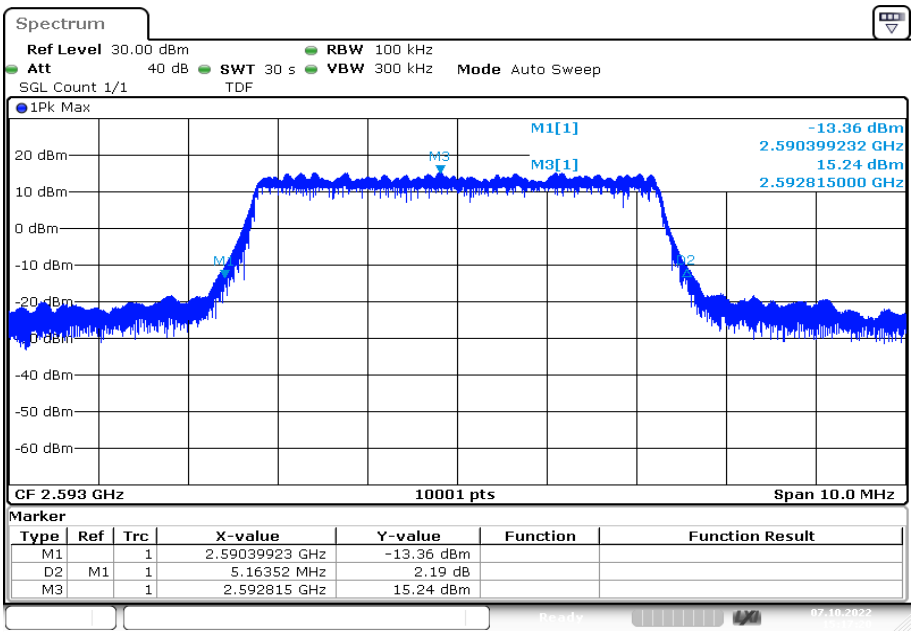
Date: 7.OCT.2022 15:04:31

Plot 27: 5 MHz – 16-QAM - middle channel (99% - OBW)



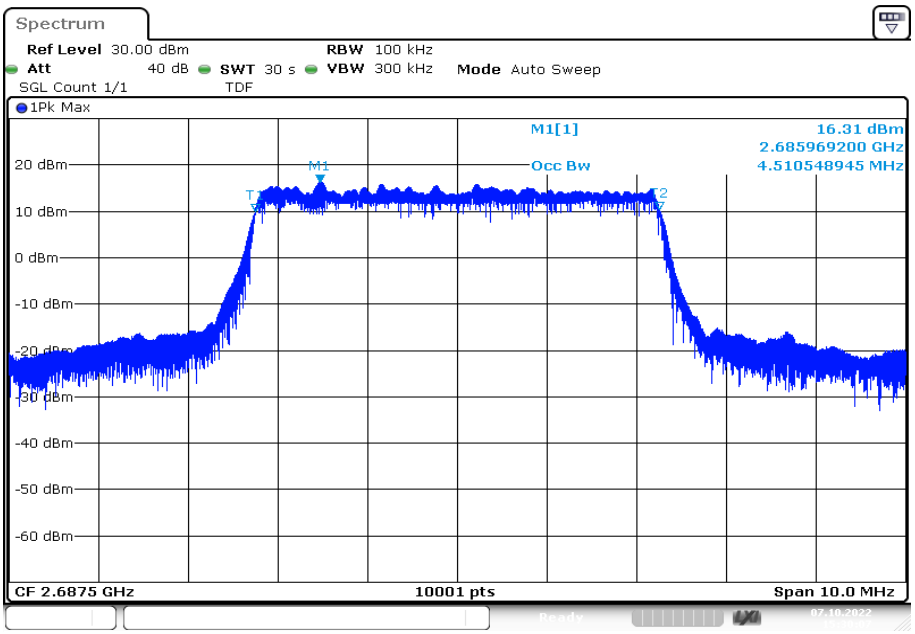
Date: 7.OCT.2022 15:16:47

Plot 28: 5 MHz – 16-QAM - middle channel (-26 dBc BW)

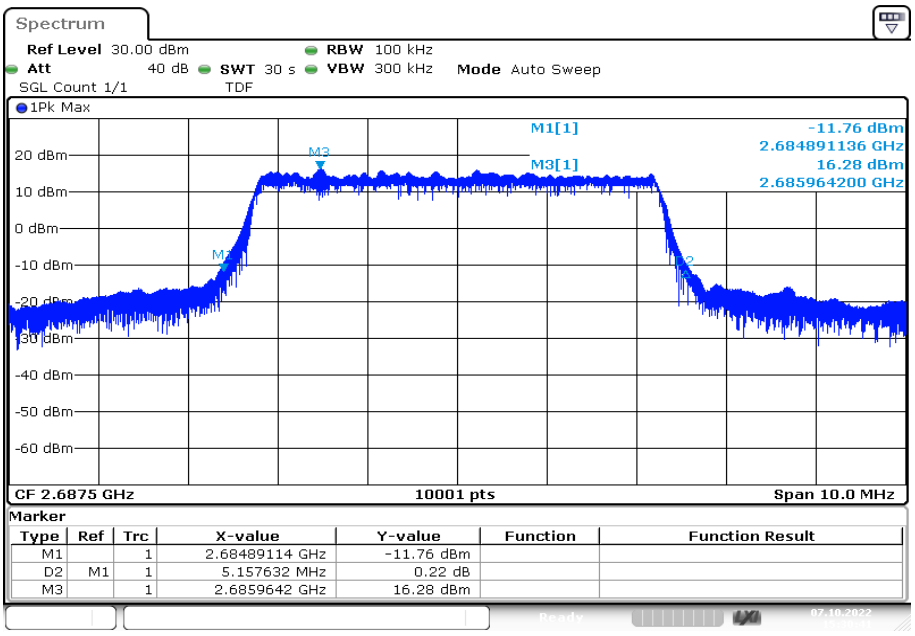


Date: 7.OCT.2022 15:17:20

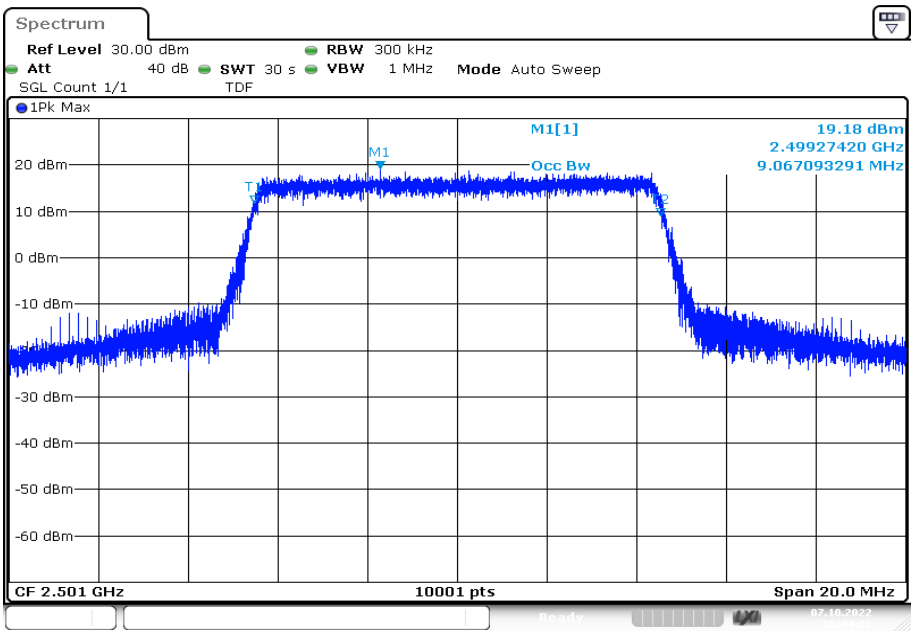
Plot 29: 5 MHz – 16-QAM - highest channel (99% - OBW)



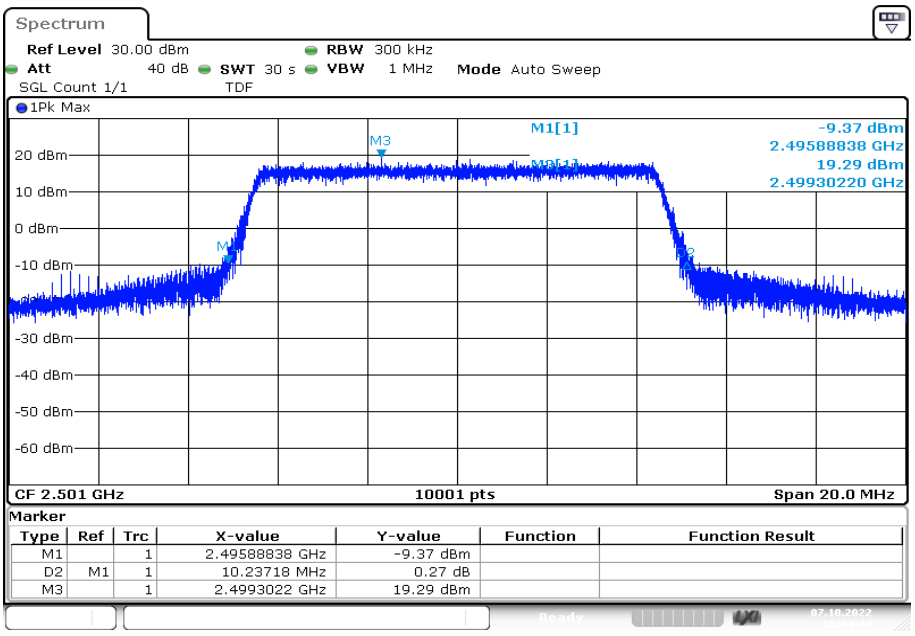
Plot 30: 5 MHz – 16-QAM - highest channel (-26 dBc BW)



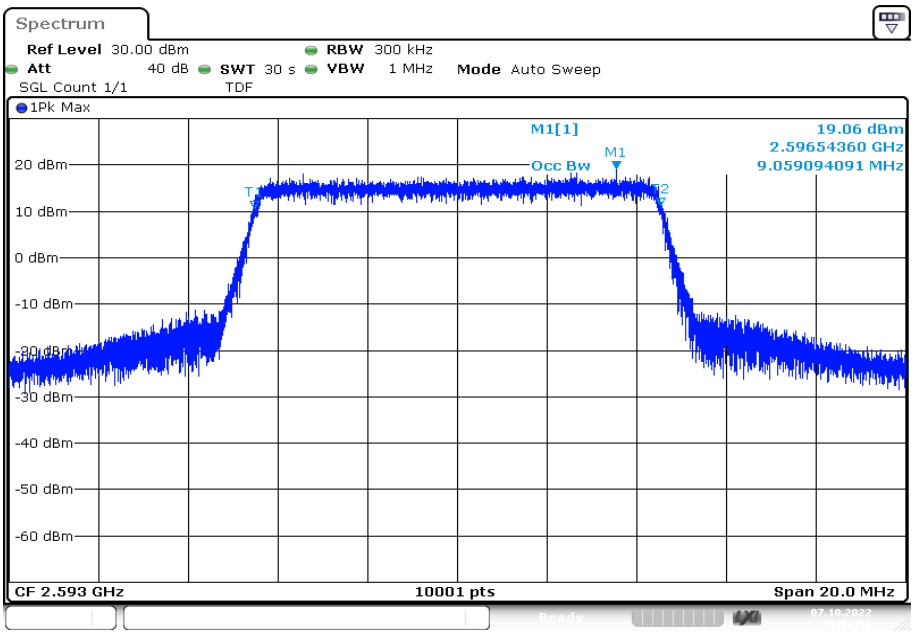
Plot 31: 10 MHz – 16-QAM - lowest channel (99% - OBW)



Plot 32: 10 MHz – 16-QAM - lowest channel (-26 dBc BW)

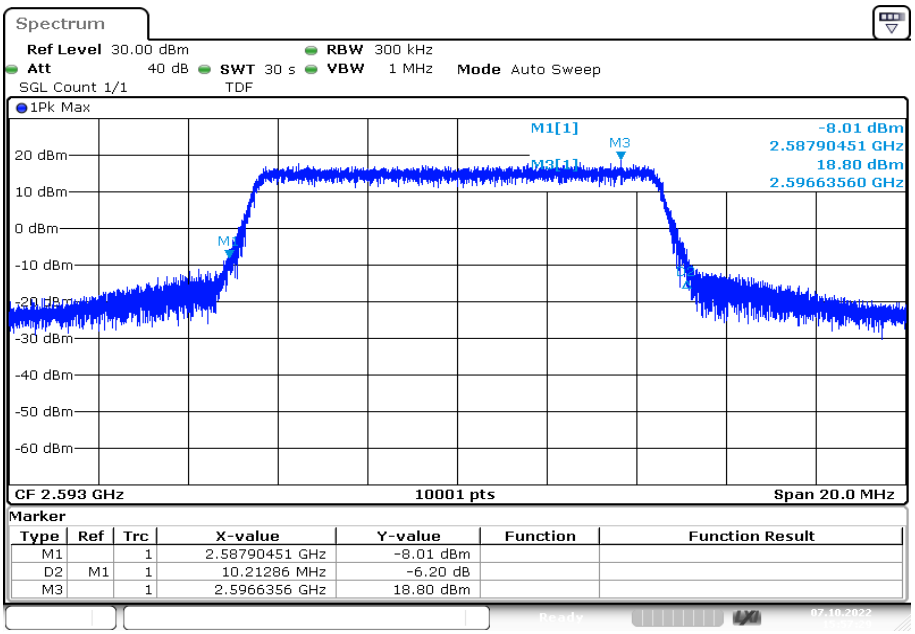


Plot 33: 10 MHz – 16-QAM - middle channel (99% - OBW)



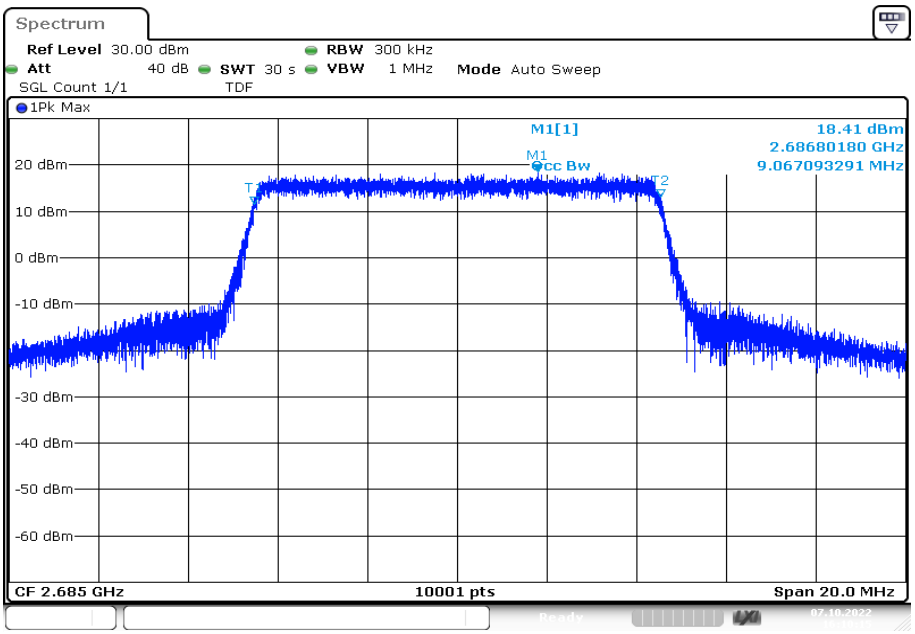
Date: 7.OCT.2022 15:56:56

Plot 34: 10 MHz – 16-QAM - middle channel (-26 dBc BW)

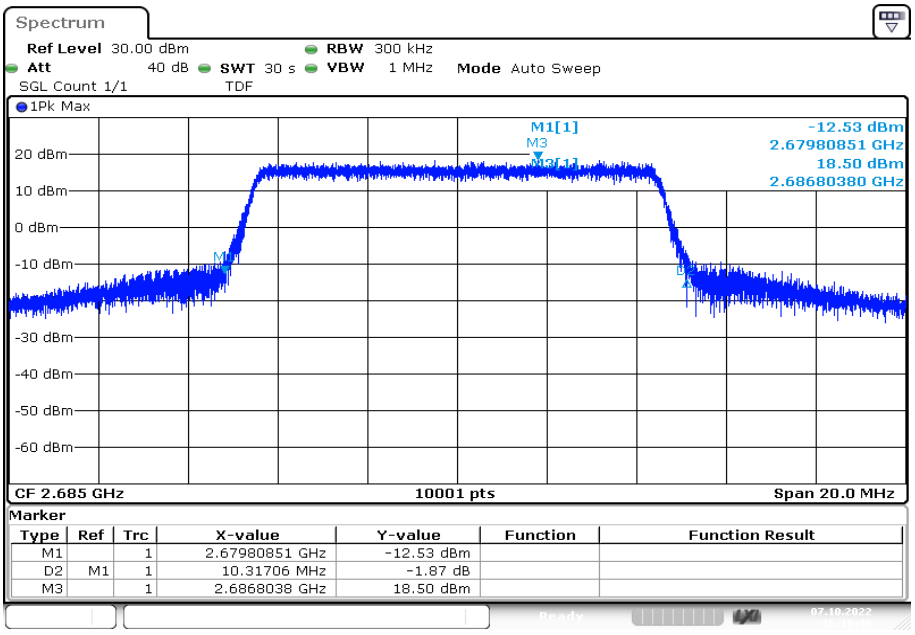


Date: 7.OCT.2022 15:57:29

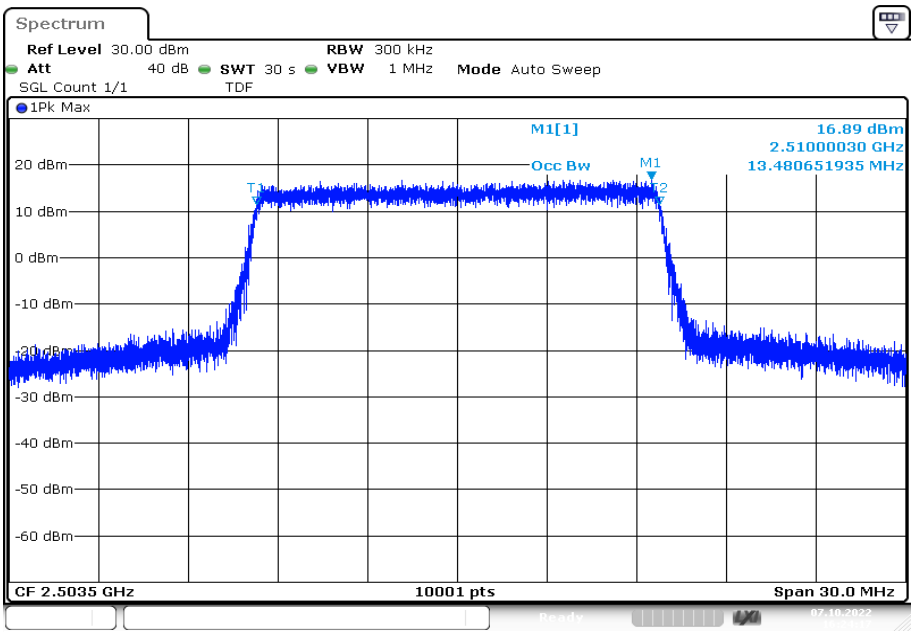
Plot 35: 10 MHz – 16-QAM - highest channel (99% - OBW)



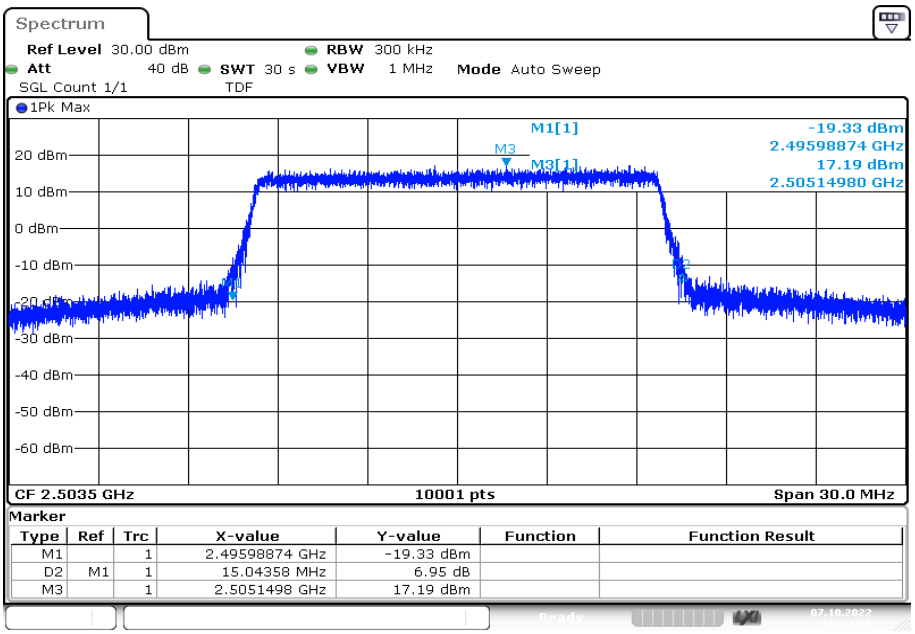
Plot 36: 10 MHz – 16-QAM - highest channel (-26 dBc BW)



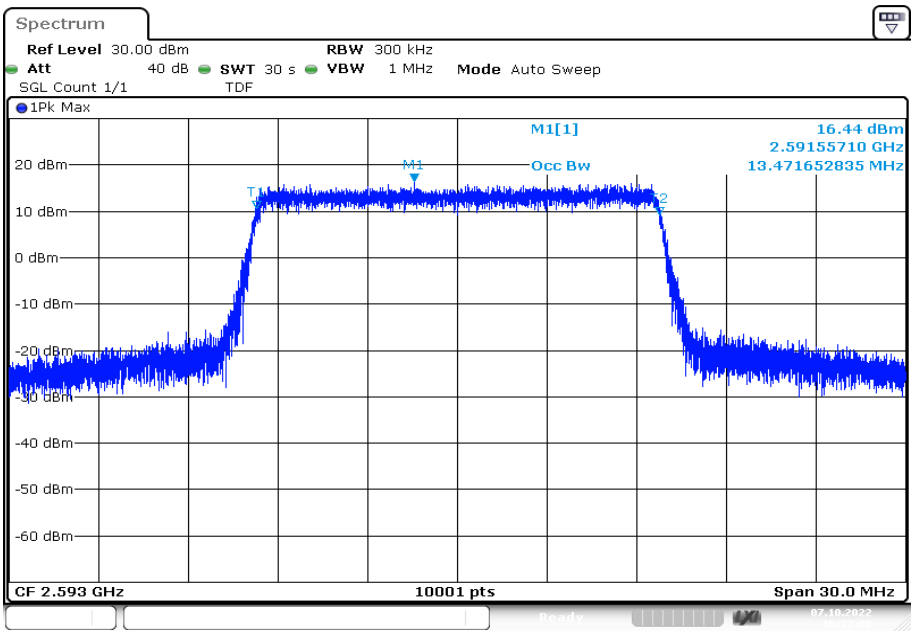
Plot 37: 15 MHz – 16-QAM - lowest channel (99% - OBW)



Plot 38: 15 MHz – 16-QAM - lowest channel (-26 dBc BW)

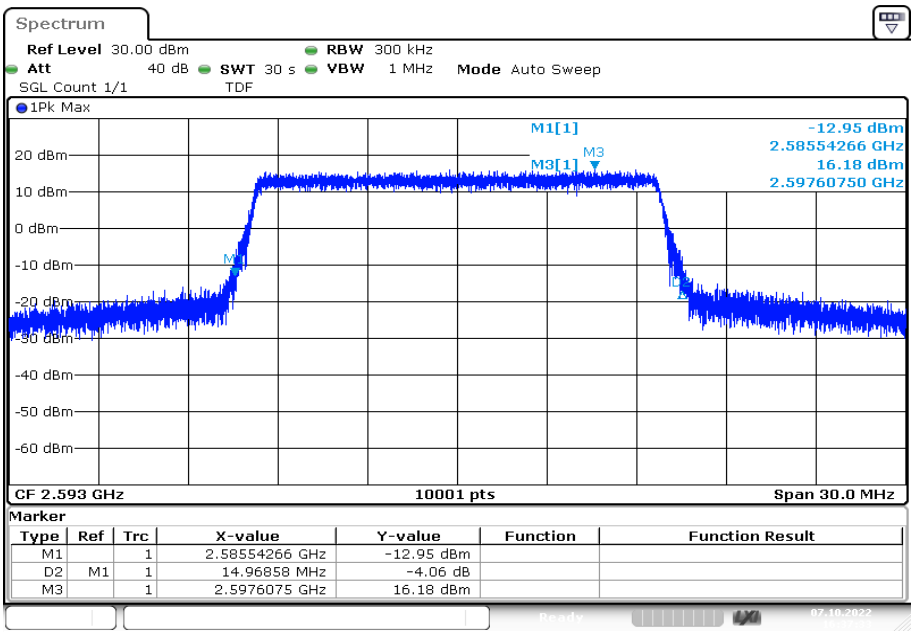


Plot 39: 15 MHz – 16-QAM - middle channel (99% - OBW)



Date: 7.OCT.2022 16:37:00

Plot 40: 15 MHz – 16-QAM - middle channel (-26 dBc BW)

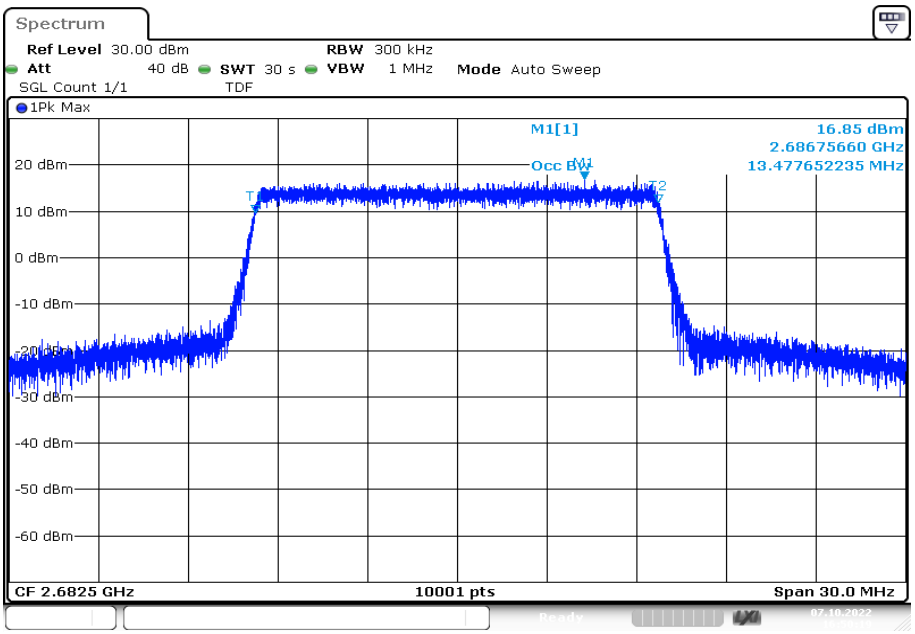


Marker

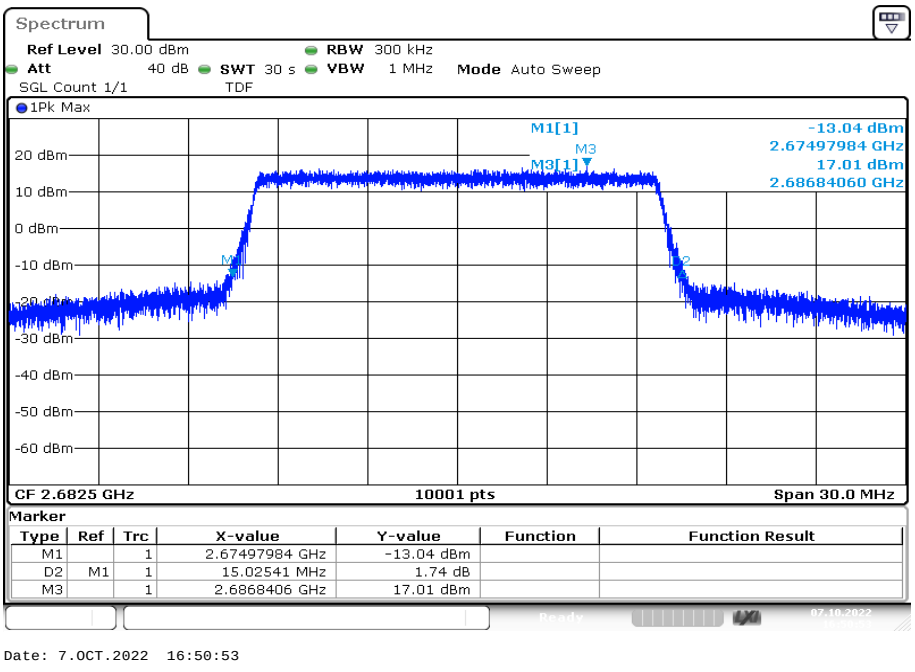
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.58554266 GHz	-12.95 dBm		
D2	M1	1	14.96858 MHz	-4.06 dB		
M3		1	2.5976075 GHz	16.18 dBm		

Date: 7.OCT.2022 16:37:33

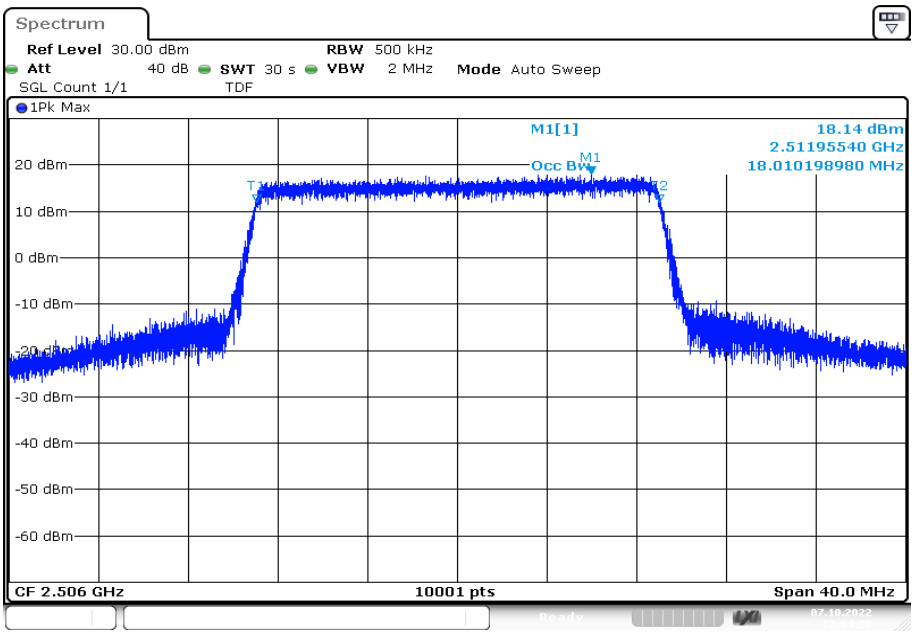
Plot 41: 15 MHz – 16-QAM - highest channel (99% - OBW)



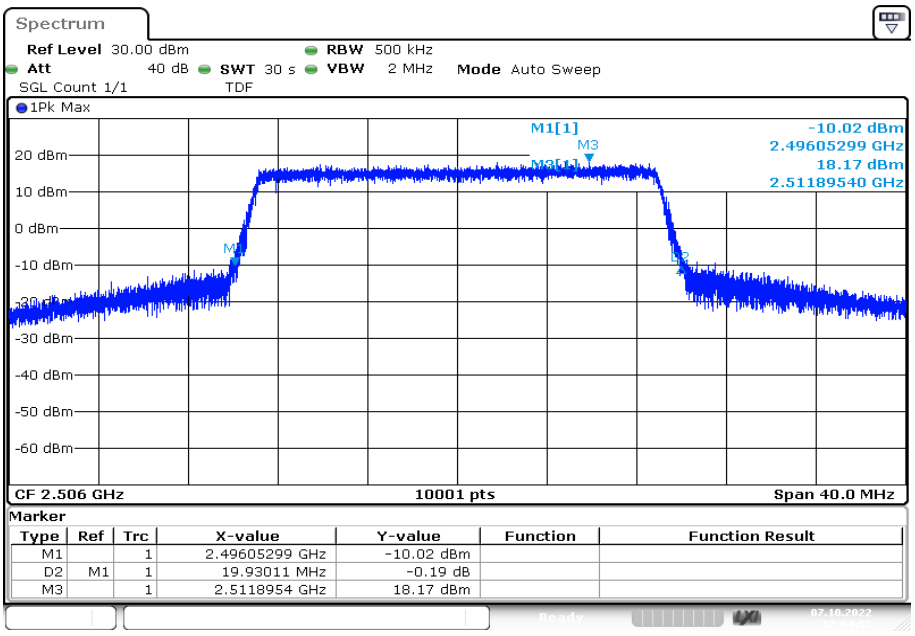
Plot 42: 15 MHz – 16-QAM - highest channel (-26 dBc BW)



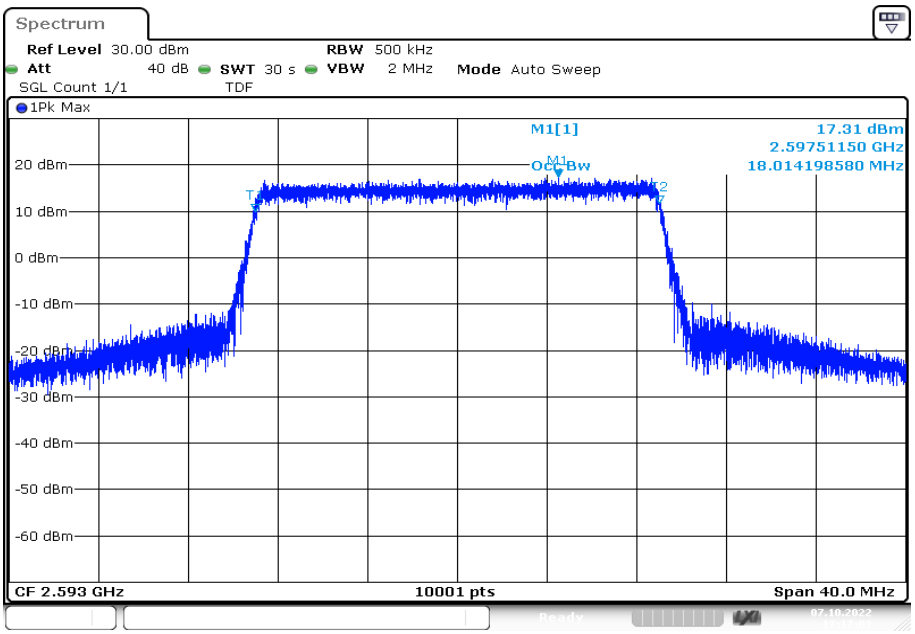
Plot 43: 20 MHz – 16-QAM - lowest channel (99% - OBW)



Plot 44: 20 MHz – 16-QAM - lowest channel (-26 dBc BW)

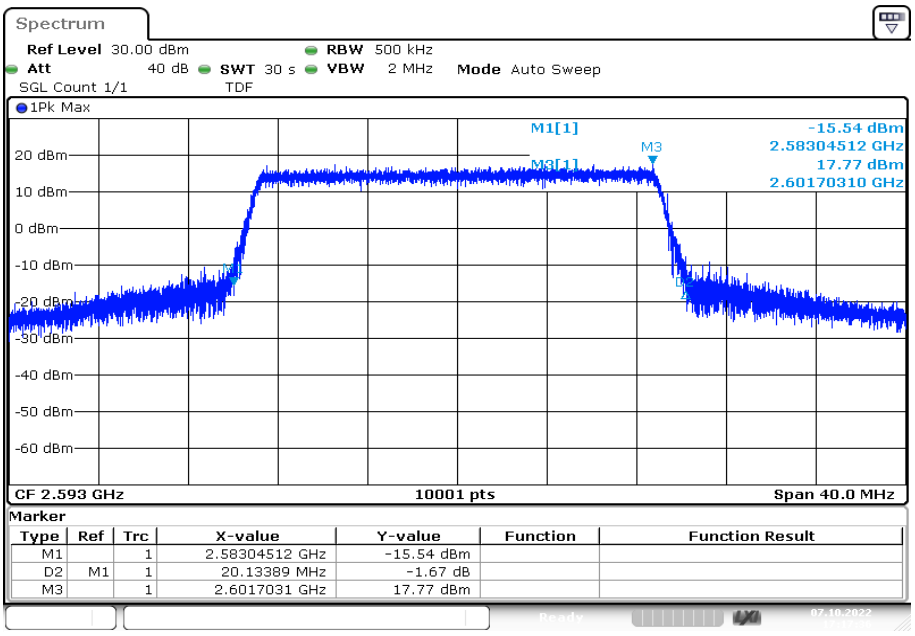


Plot 45: 20 MHz – 16-QAM - middle channel (99% - OBW)



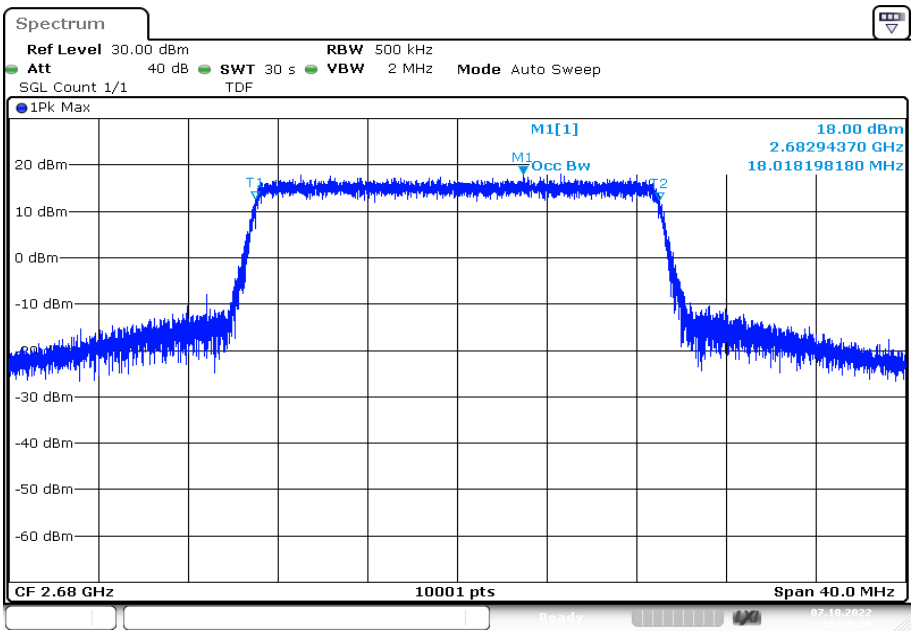
Date: 7.OCT.2022 17:17:04

Plot 46: 20 MHz – 16-QAM - middle channel (-26 dBc BW)



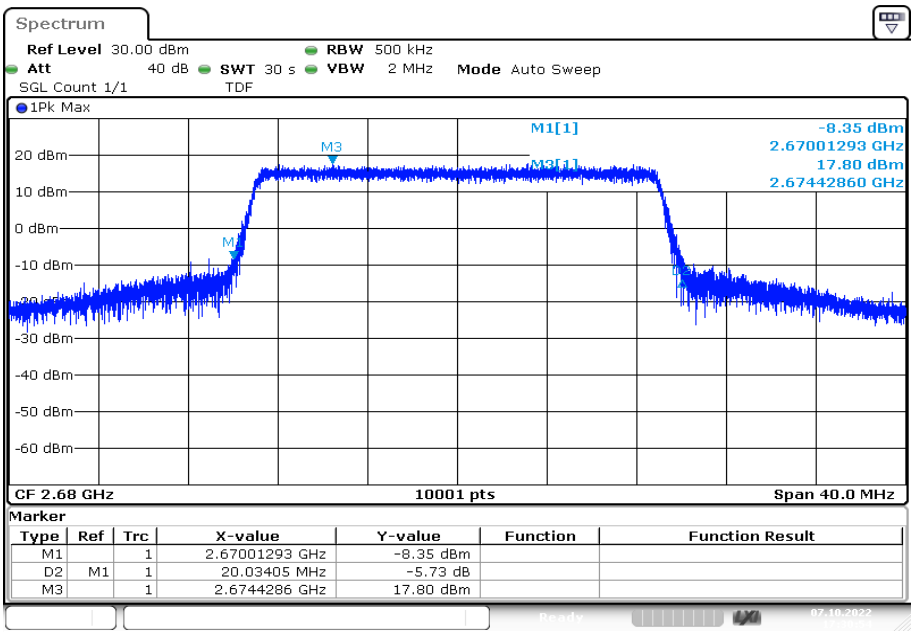
Date: 7.OCT.2022 17:17:36

Plot 47: 20 MHz – 16-QAM - highest channel (99% - OBW)



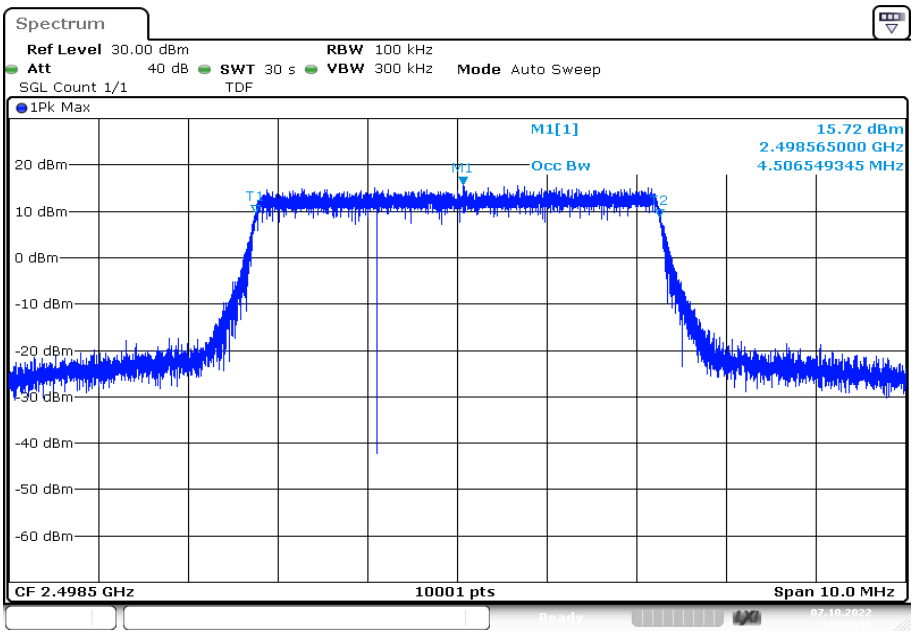
Date: 7.OCT.2022 17:30:21

Plot 48: 20 MHz – 16-QAM - highest channel (-26 dBc BW)



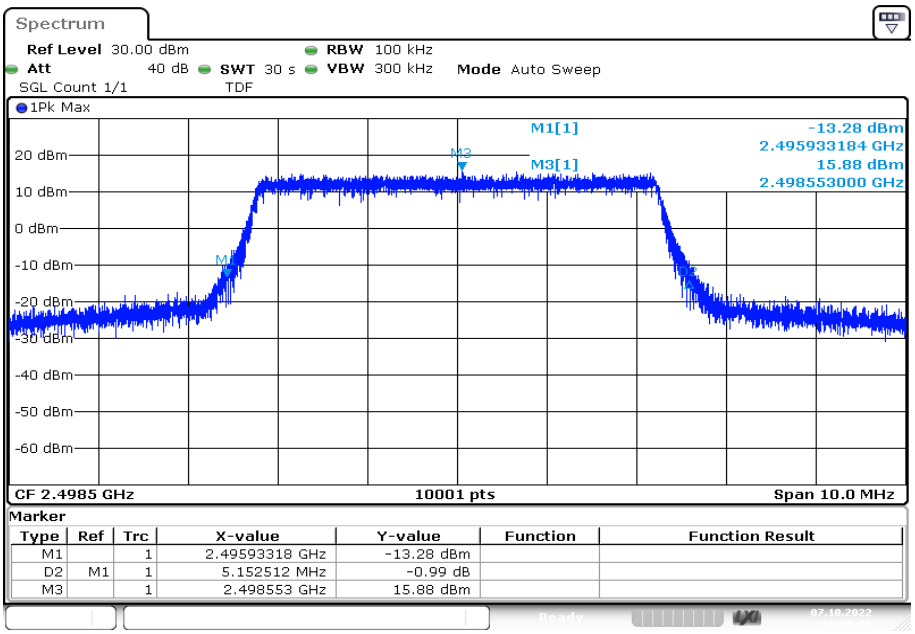
Date: 7.OCT.2022 17:30:54

Plot 49: 5 MHz – 64-QAM - lowest channel (99% - OBW)



Date: 7.OCT.2022 15:08:35

Plot 50: 5 MHz – 64-QAM - lowest channel (-26 dBc BW)

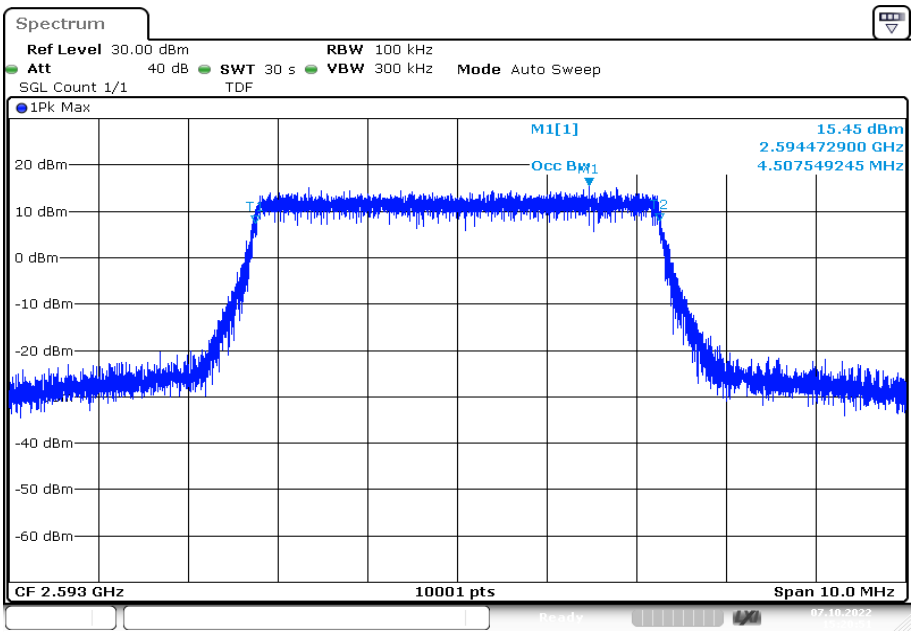


Marker

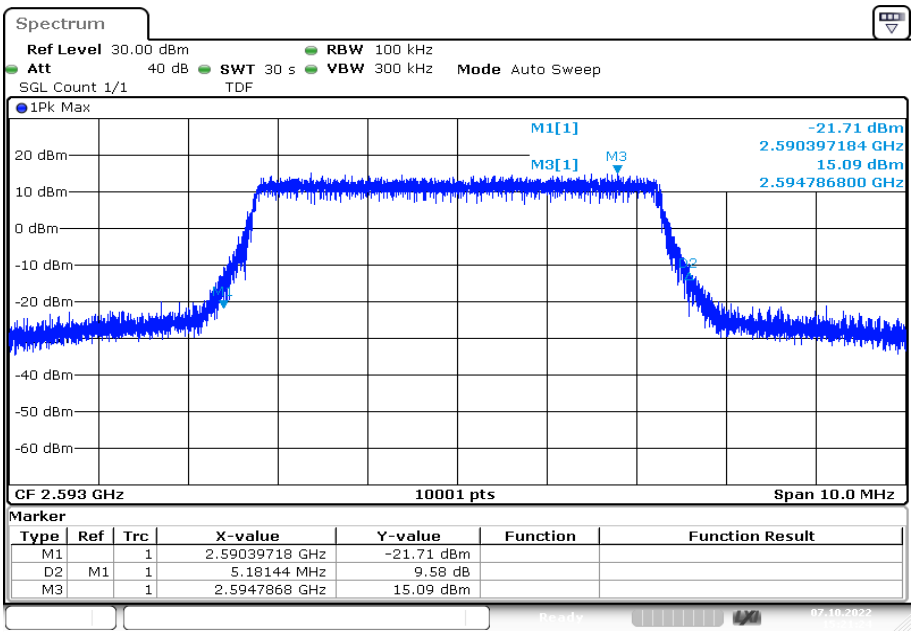
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.49593318 GHz	-13.28 dBm		
D2	M1	1	5.152512 MHz	-0.99 dB		
M3		1	2.498553 GHz	15.88 dBm		

Date: 7.OCT.2022 15:09:09

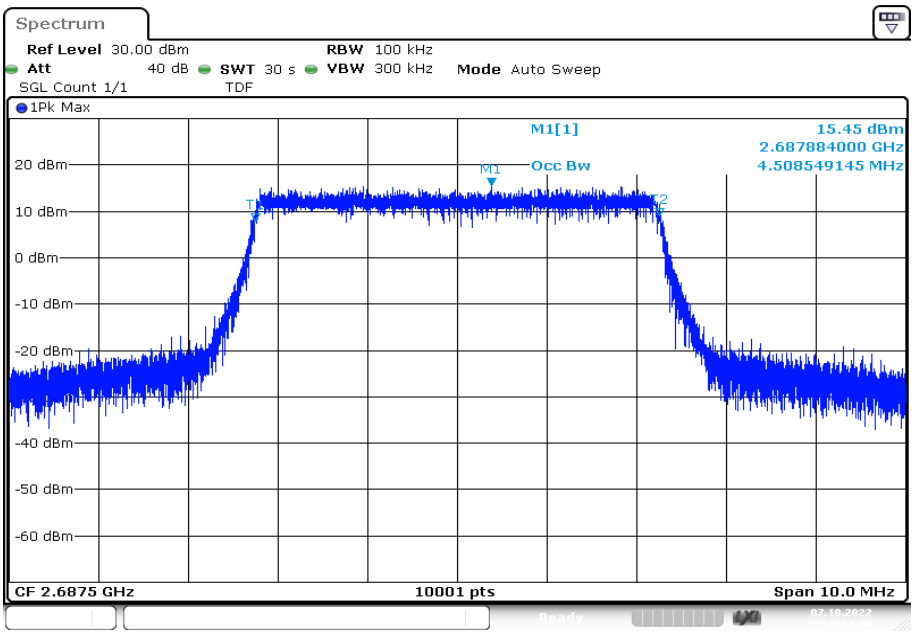
Plot 51: 5 MHz – 64-QAM - middle channel (99% - OBW)



Plot 52: 5 MHz – 64-QAM - middle channel (-26 dBc BW)

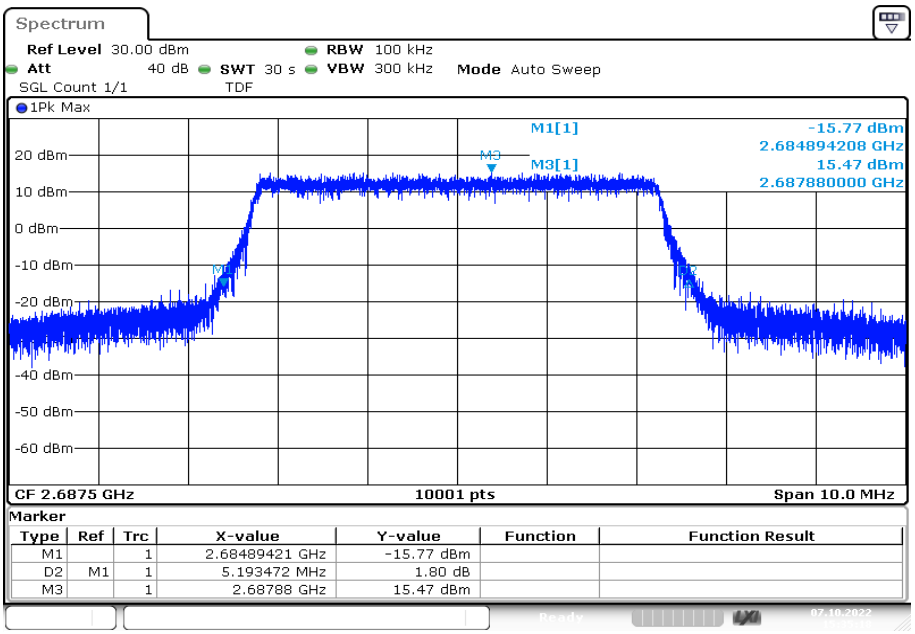


Plot 53: 5 MHz – 64-QAM - highest channel (99% - OBW)



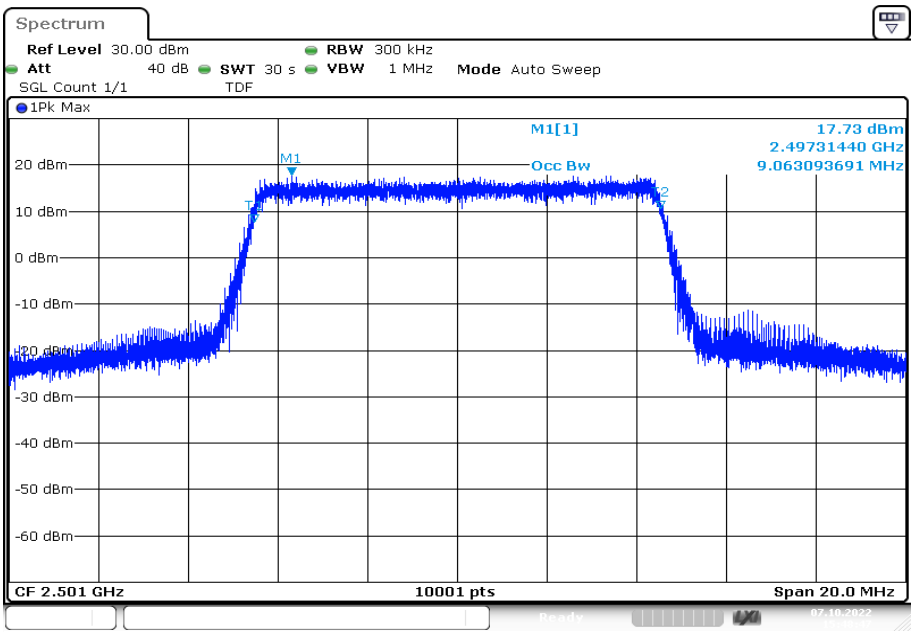
Date: 7.OCT.2022 15:34:45

Plot 54: 5 MHz – 64-QAM - highest channel (-26 dBc BW)



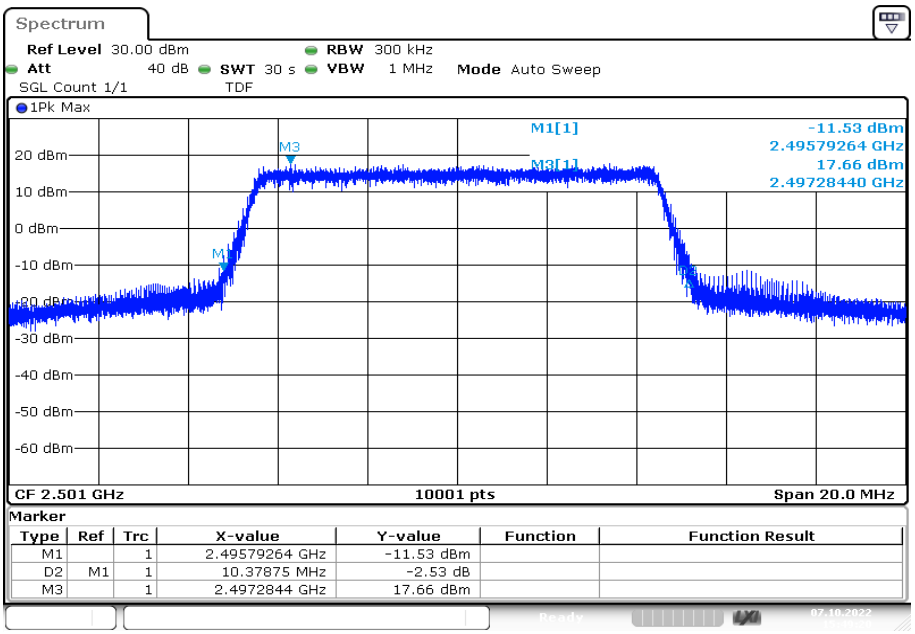
Date: 7.OCT.2022 15:35:18

Plot 55: 10 MHz – 64-QAM - lowest channel (99% - OBW)



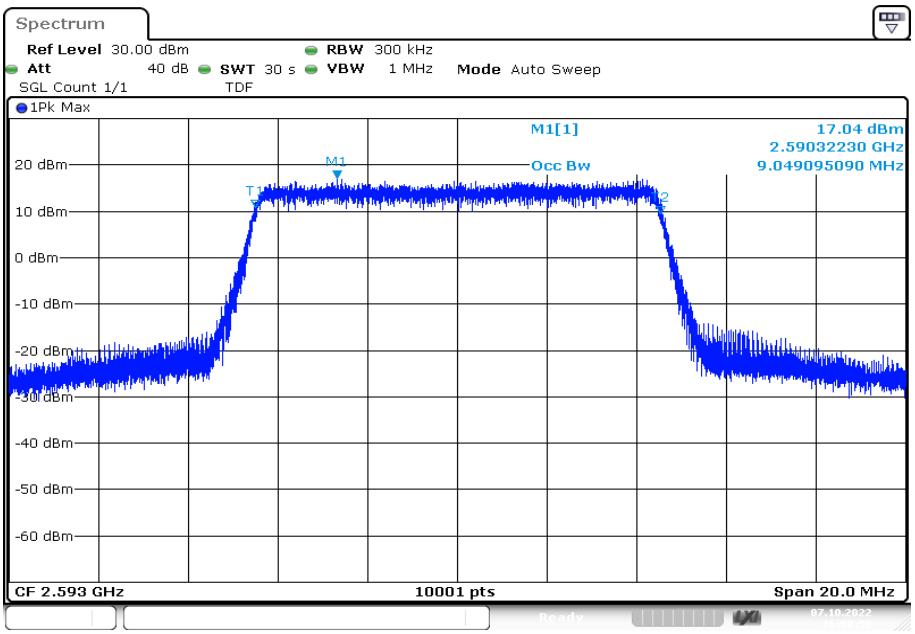
Date: 7.OCT.2022 15:48:47

Plot 56: 10 MHz – 64-QAM - lowest channel (-26 dBc BW)



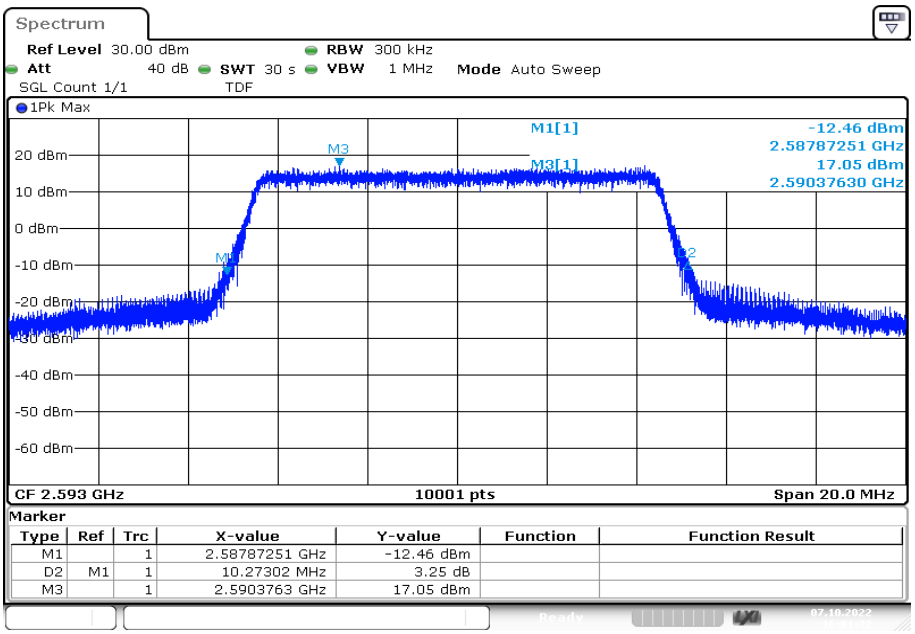
Date: 7.OCT.2022 15:49:20

Plot 57: 10 MHz – 64-QAM - middle channel (99% - OBW)



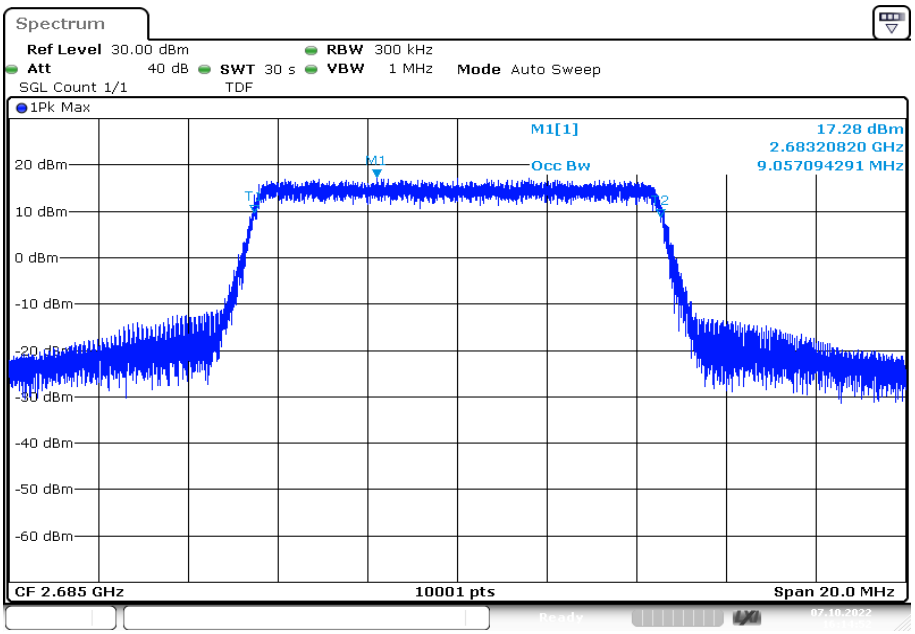
Date: 7.OCT.2022 16:00:59

Plot 58: 10 MHz – 64-QAM - middle channel (-26 dBc BW)



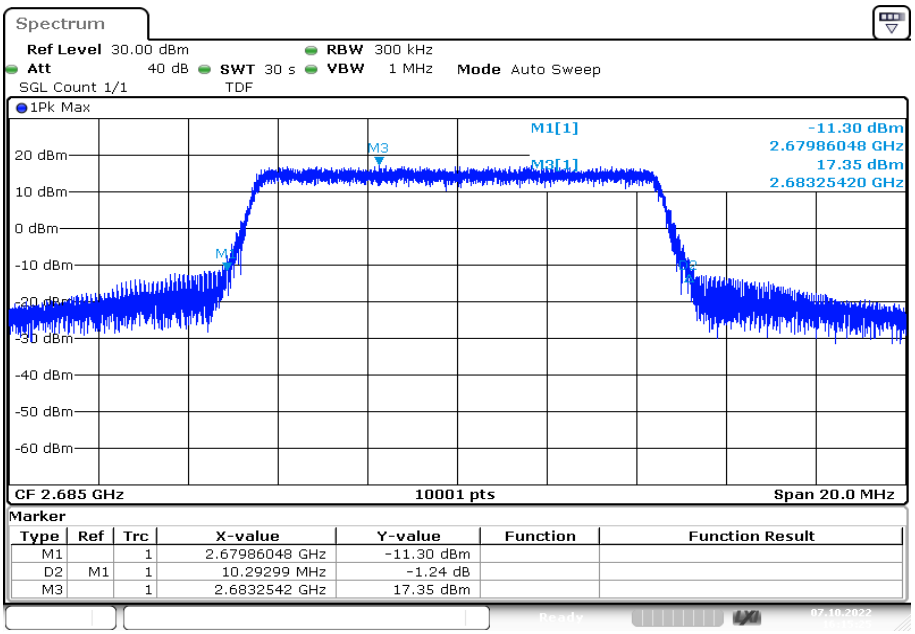
Date: 7.OCT.2022 16:01:32

Plot 59: 10 MHz – 64-QAM - highest channel (99% - OBW)



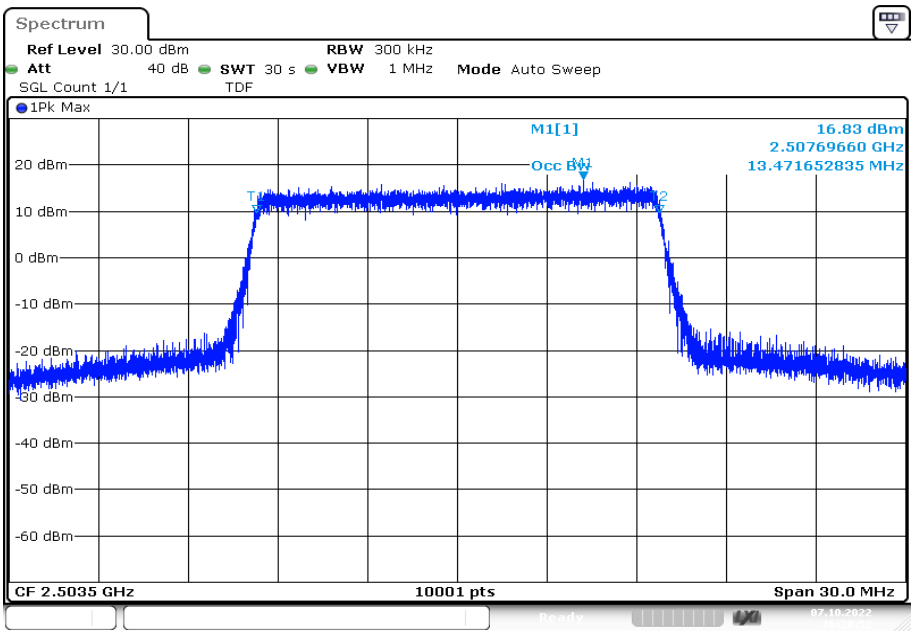
Date: 7.OCT.2022 16:14:52

Plot 60: 10 MHz – 64-QAM - highest channel (-26 dBc BW)



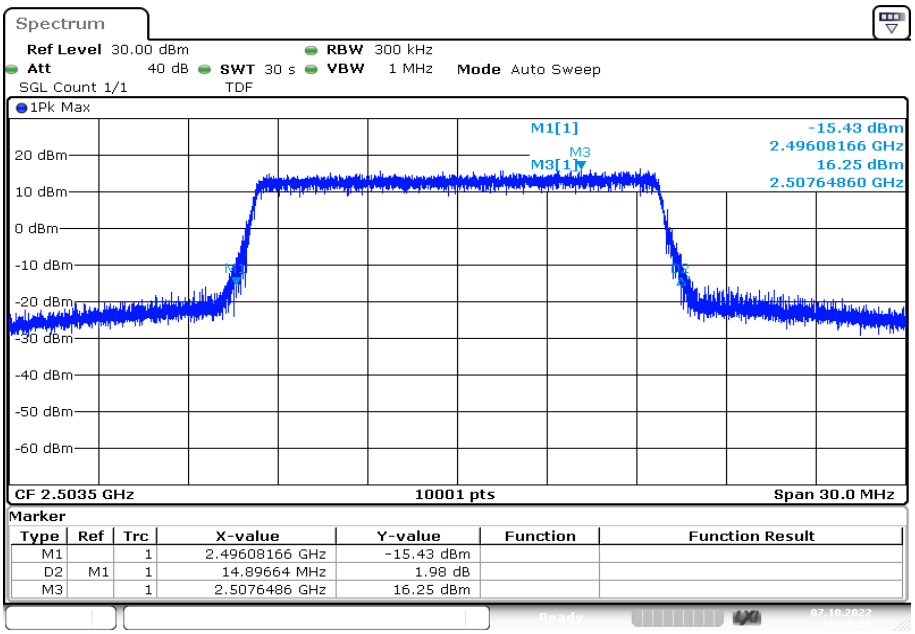
Date: 7.OCT.2022 16:15:26

Plot 61: 15 MHz – 16-QAM - lowest channel (99% - OBW)



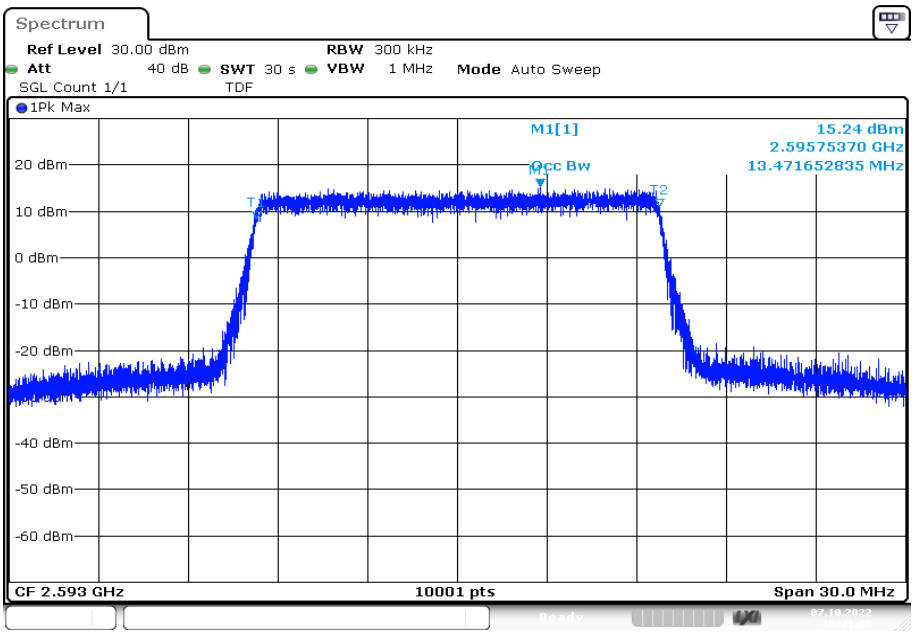
Date: 7.OCT.2022 16:28:52

Plot 62: 15 MHz – 16-QAM - lowest channel (-26 dBc BW)

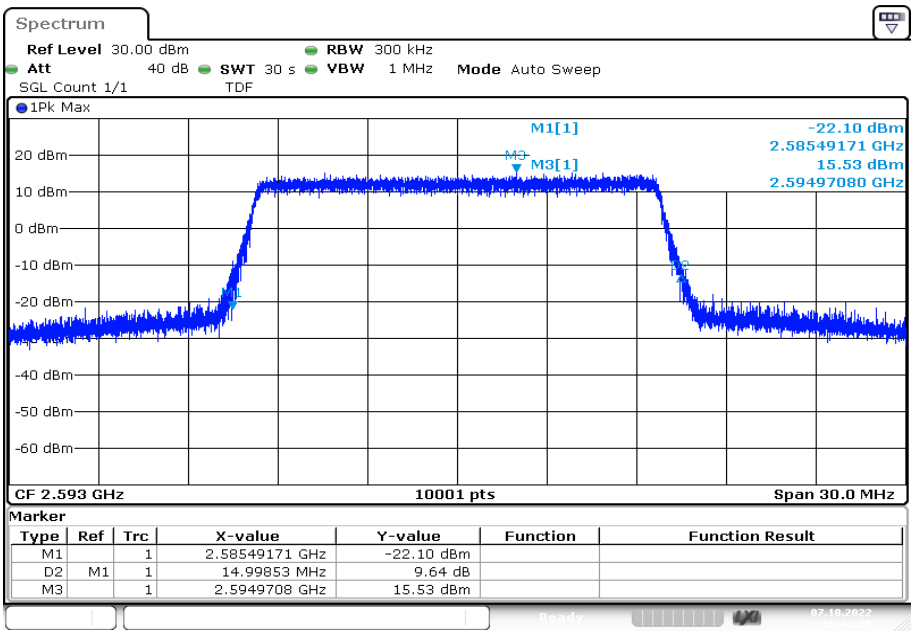


Date: 7.OCT.2022 16:29:25

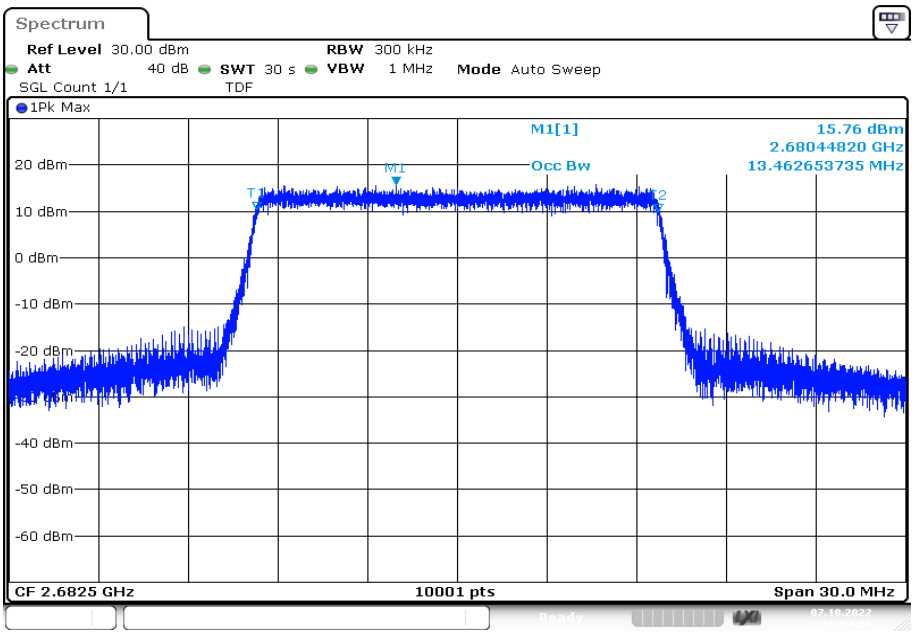
Plot 63: 15 MHz – 64-QAM - middle channel (99% - OBW)



Plot 64: 15 MHz – 64-QAM - middle channel (-26 dBc BW)

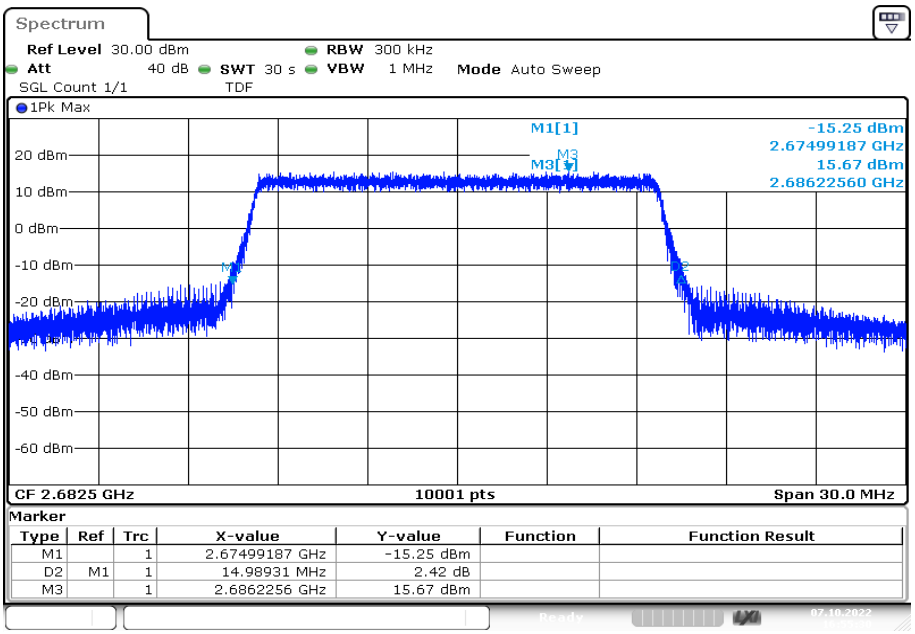


Plot 65: 15 MHz – 64-QAM - highest channel (99% - OBW)



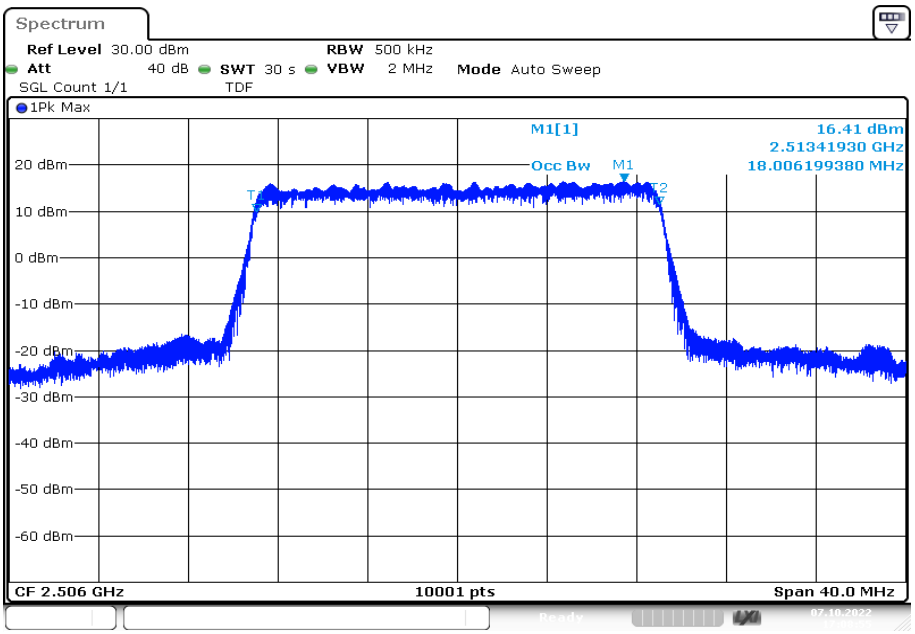
Date: 7.OCT.2022 16:54:56

Plot 66: 15 MHz – 64-QAM - highest channel (-26 dBc BW)



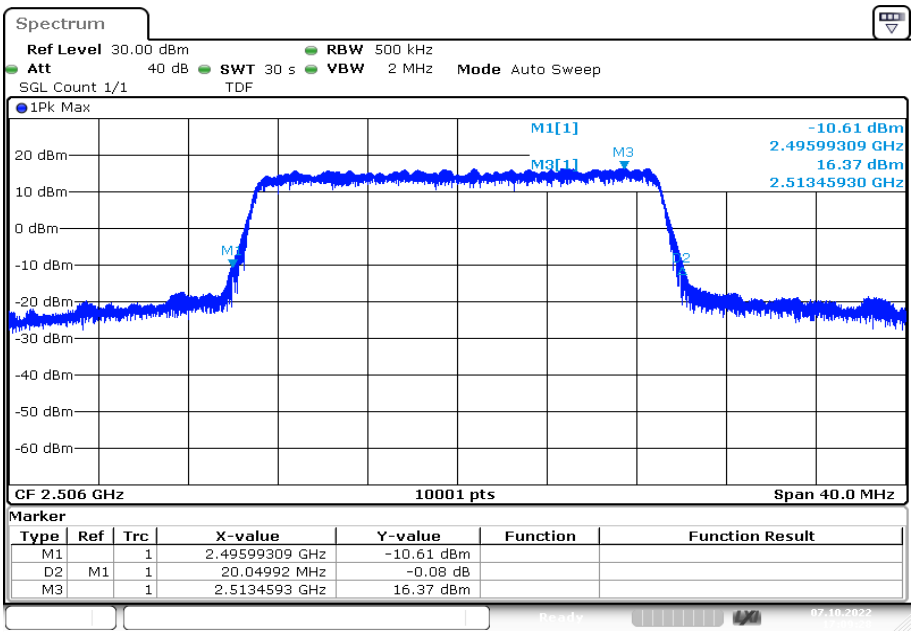
Date: 7.OCT.2022 16:55:30

Plot 67: 20 MHz – 64-QAM - lowest channel (99% - OBW)



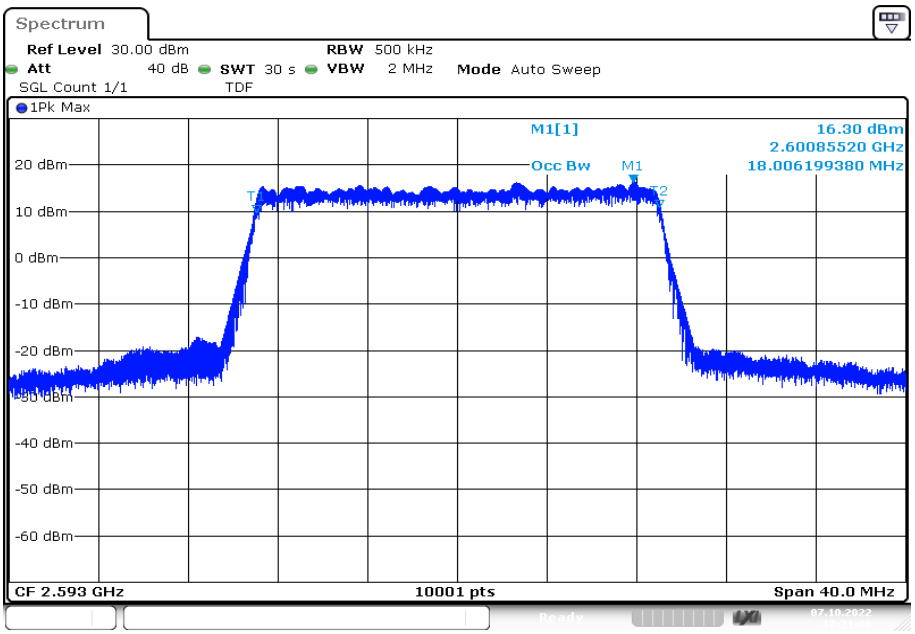
Date: 7.OCT.2022 17:08:55

Plot 68: 20 MHz – 64-QAM - lowest channel (-26 dBc BW)



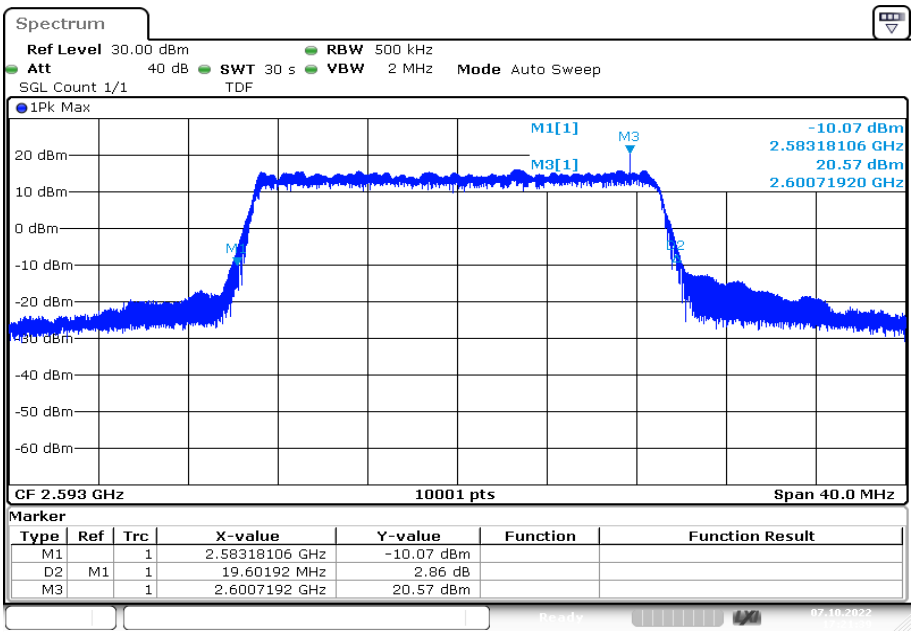
Date: 7.OCT.2022 17:09:28

Plot 69: 20 MHz – 64-QAM - middle channel (99% - OBW)



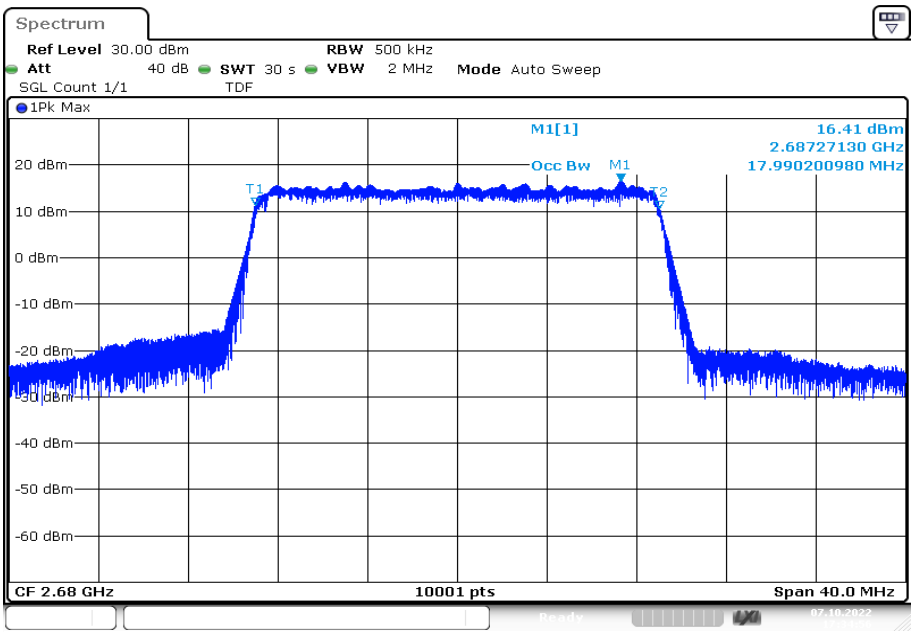
Date: 7.OCT.2022 17:21:06

Plot 70: 20 MHz – 64-QAM - middle channel (-26 dBc BW)



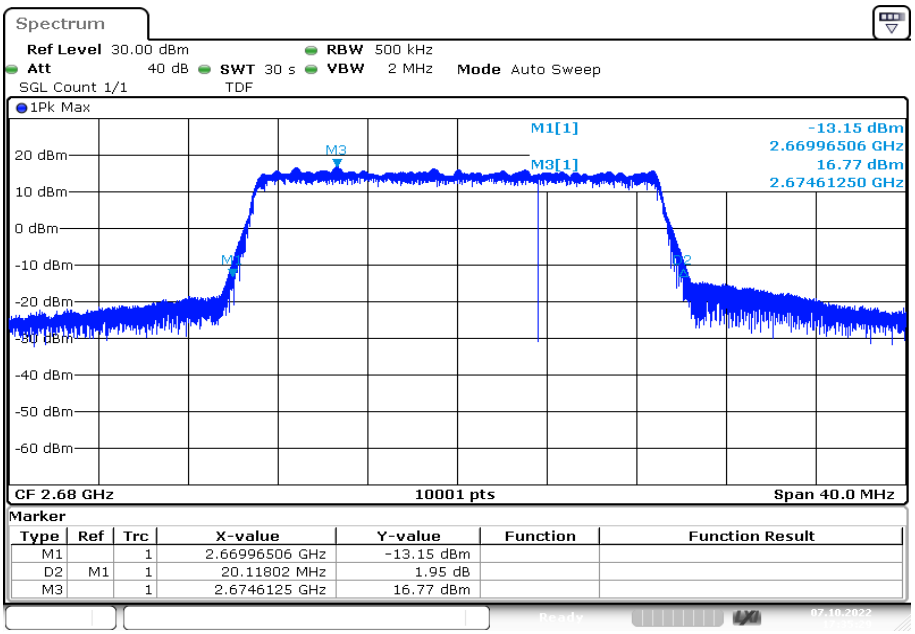
Date: 7.OCT.2022 17:21:39

Plot 71: 20 MHz – 64-QAM - highest channel (99% - OBW)



Date: 7.OCT.2022 17:34:56

Plot 72: 20 MHz – 64-QAM - highest channel (-26 dBc BW)



Date: 7.OCT.2022 17:35:29

13 Glossary

EUT	Equipment under test
DUT	Device under test
UUT	Unit under test
GUE	GNSS User Equipment
ETSI	European Telecommunications Standards Institute
EN	European Standard
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
IC	Industry Canada
PMN	Product marketing name
HMN	Host marketing name
HVIN	Hardware version identification number
FVIN	Firmware version identification number
EMC	Electromagnetic Compatibility
HW	Hardware
SW	Software
Inv. No.	Inventory number
S/N or SN	Serial number
C	Compliant
NC	Not compliant
NA	Not applicable
NP	Not performed
PP	Positive peak
QP	Quasi peak
AVG	Average
OC	Operating channel
OCW	Operating channel bandwidth
OBW	Occupied bandwidth
OOB	Out of band
DFS	Dynamic frequency selection
CAC	Channel availability check
OP	Occupancy period
NOP	Non occupancy period
DC	Duty cycle
PER	Packet error rate
CW	Clean wave
MC	Modulated carrier
WLAN	Wireless local area network
RLAN	Radio local area network
DSSS	Dynamic sequence spread spectrum
OFDM	Orthogonal frequency division multiplexing
FHSS	Frequency hopping spread spectrum
GNSS	Global Navigation Satellite System
C/N_0	Carrier to noise-density ratio, expressed in dB-Hz

14 Document history

Version	Applied changes	Date of release
-/-	Initial release	2023-01-17

15 Accreditation Certificate – D-PL-12076-01-05

first page

DAkkS Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV
Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition

Accreditation

The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory

CTC advanced GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

is competent under the terms of DIN EN ISO/IEC 17025:2018 to carry out tests in the following fields:

Telecommunication (FCC Requirements)

The accreditation certificate shall only apply in connection with the notice of accreditation of 09.06.2020 with the accreditation number D-PL-12076-01. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 05 pages.

Registration number of the certificate: **D-PL-12076-01-05**

Frankfurt am Main, 09.06.2020

by order Dipl.-Ing. (FH) Ralf Egner
Head of Division

The certificate together with its annex reflects the status at the time of the date of issue. The current status of the scope of accreditation can be found in the database of accredited bodies of Deutsche Akkreditierungsstelle GmbH.
https://www.dakks.de/en/content/accredited-bodies-dakks

See notes overleaf.

last page

Deutsche Akkreditierungsstelle GmbH

Office Berlin
Spittelmarkt 10
10117 Berlin

Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkkS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkkS.

The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

Note: The current certificate annex is published on the websites (link see below).

https://www.dakks.de/files/data/as/pdf/D-PL-12076-01-05e.pdf

or

https://ctcadvanced.com/app/uploads/2020/06/D-PL-12076-01-05_TCB_USA.pdf

################################ END OF TEST REPORT ################################