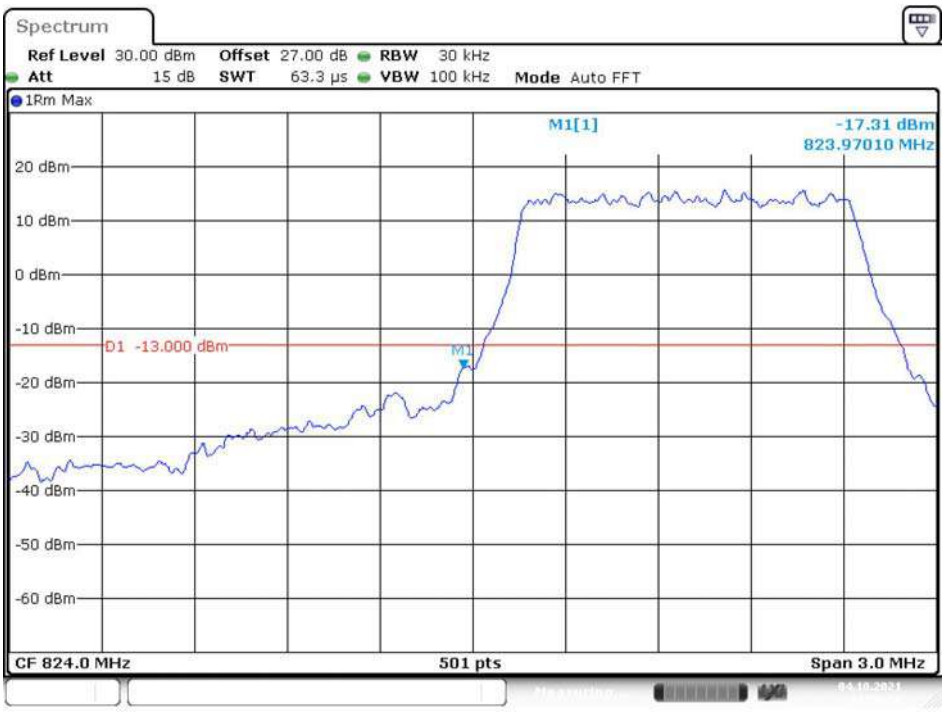
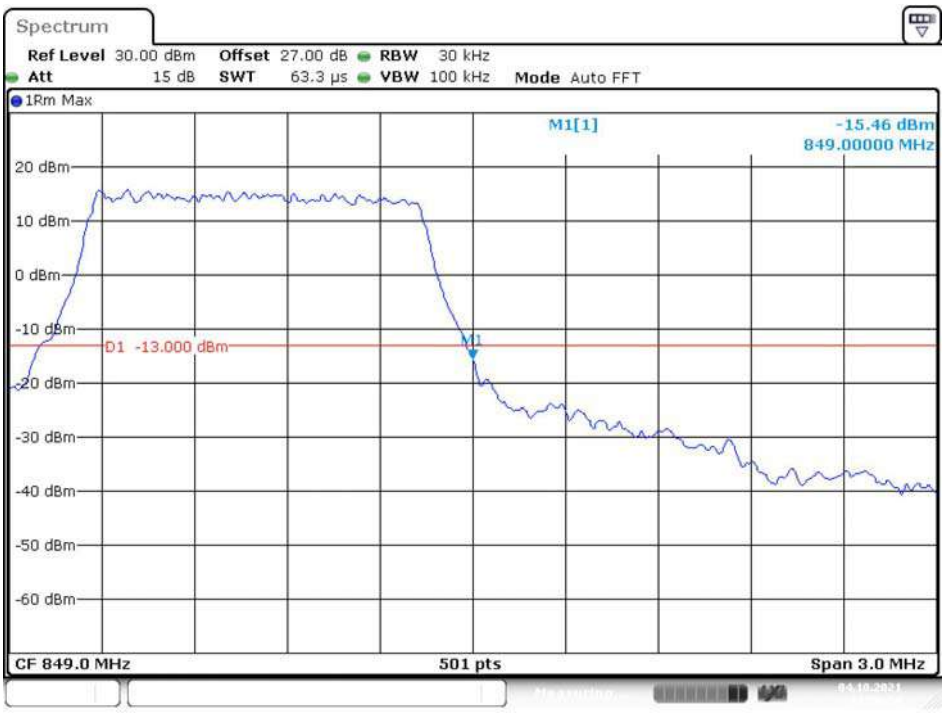
LTE Band 5

QPSK (1.4MHz, RB6) – Left Band Edge



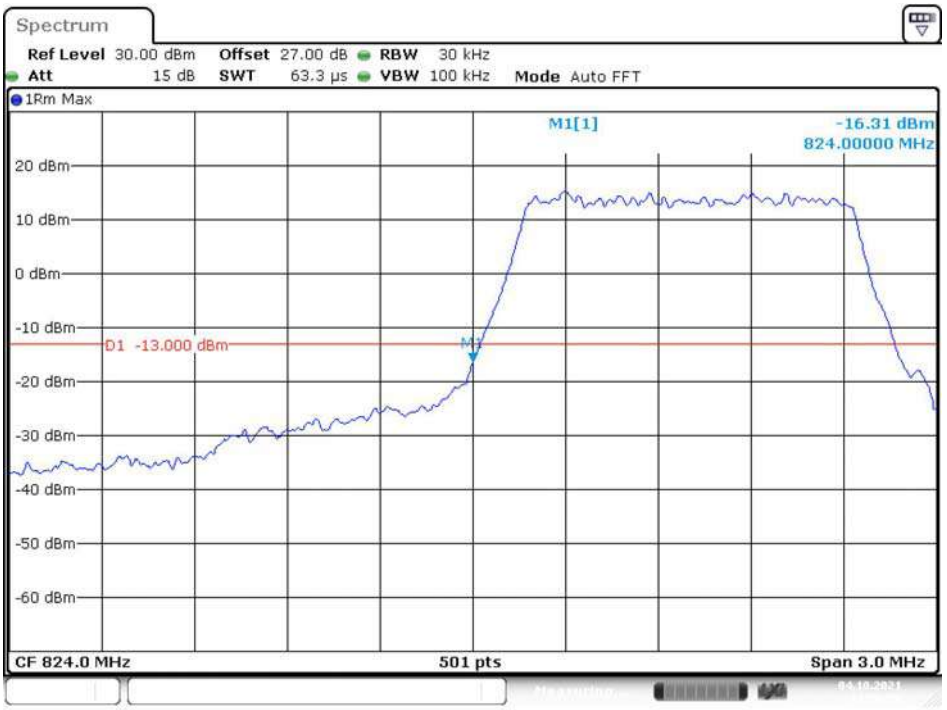
Date: 4.OCT.2021 11:26:28

QPSK (1.4MHz, RB6) – Right Band Edge



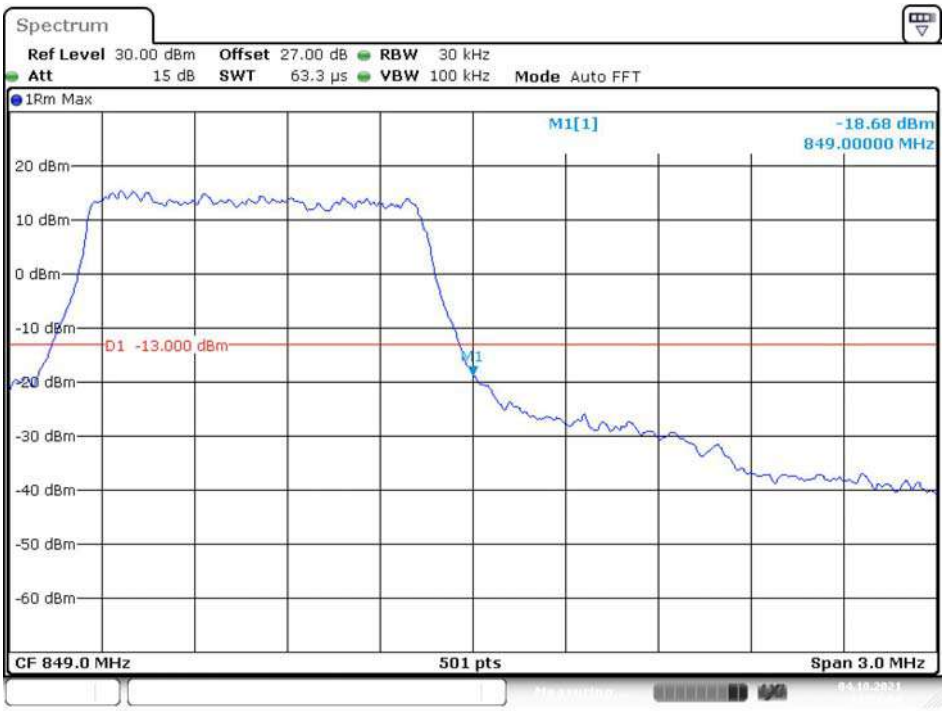
Date: 4.OCT.2021 11:26:54

16QAM (1.4MHz, RB6) – Left Band Edge



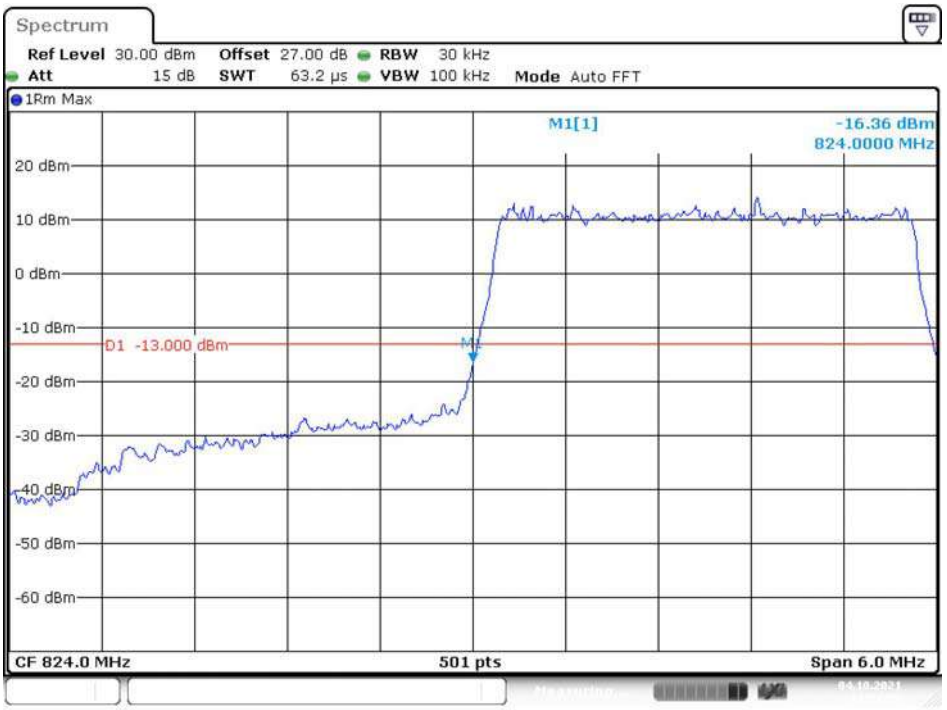
Date: 4.OCT.2021 11:26:39

16QAM (1.4MHz, RB6) – Right Band Edge



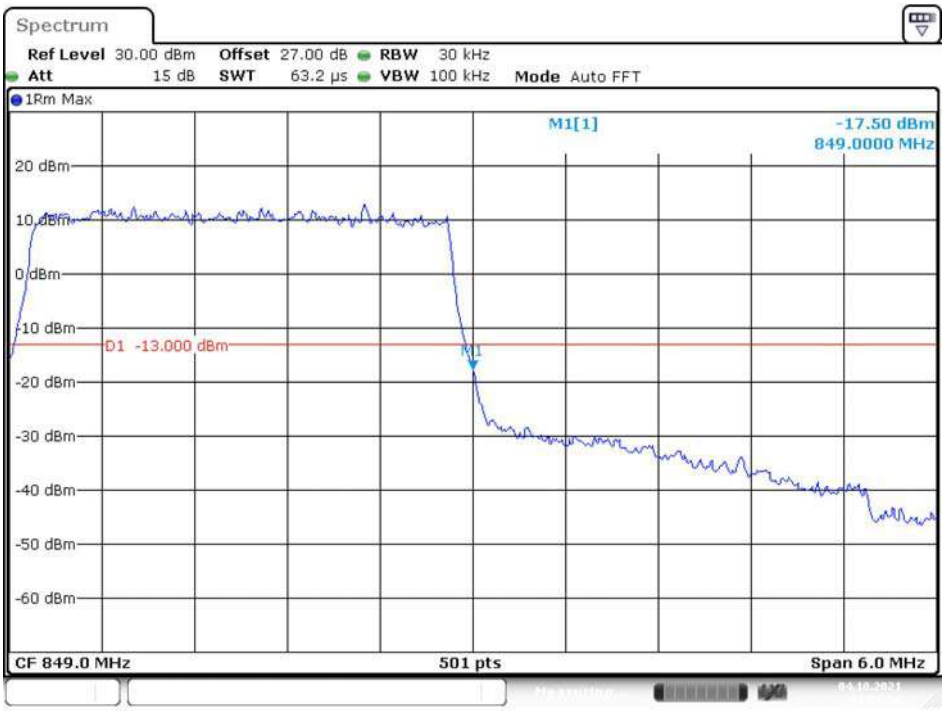
Date: 4.OCT.2021 11:27:04

QPSK (3MHz, RB15) – Left Band Edge



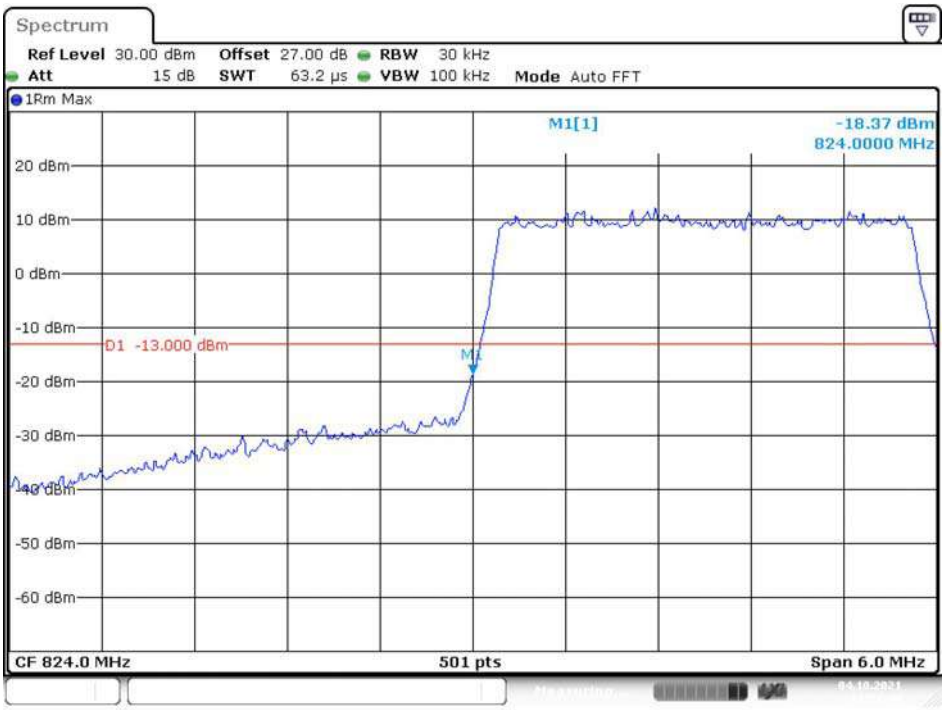
Date: 4.OCT.2021 11:27:27

QPSK (3MHz, RB15) – Right Band Edge



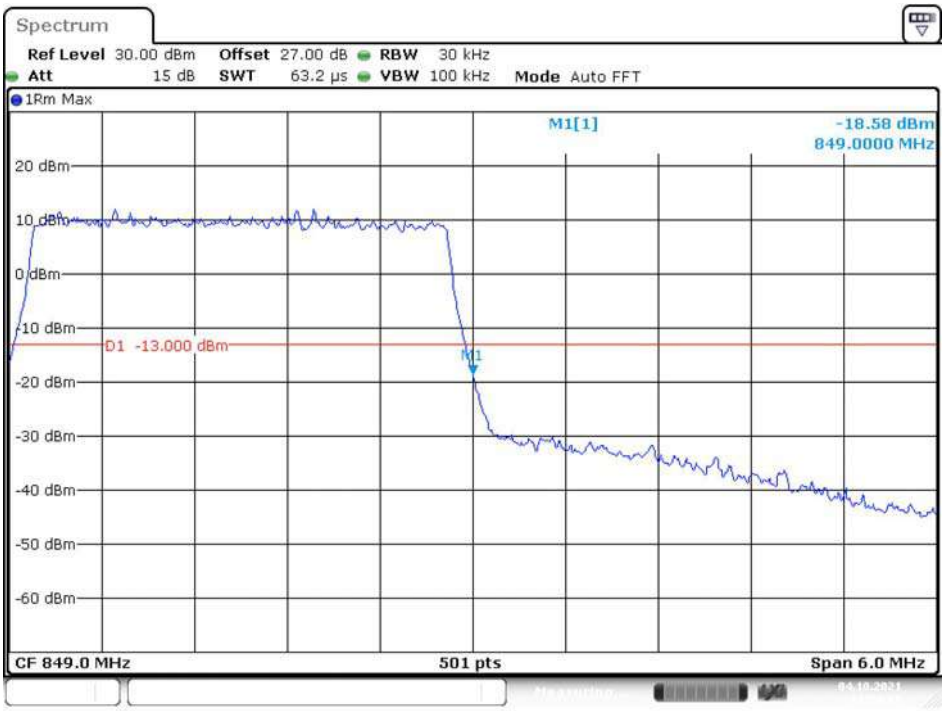
Date: 4.OCT.2021 11:27:59

16QAM (3MHz, RB15) – Left Band Edge



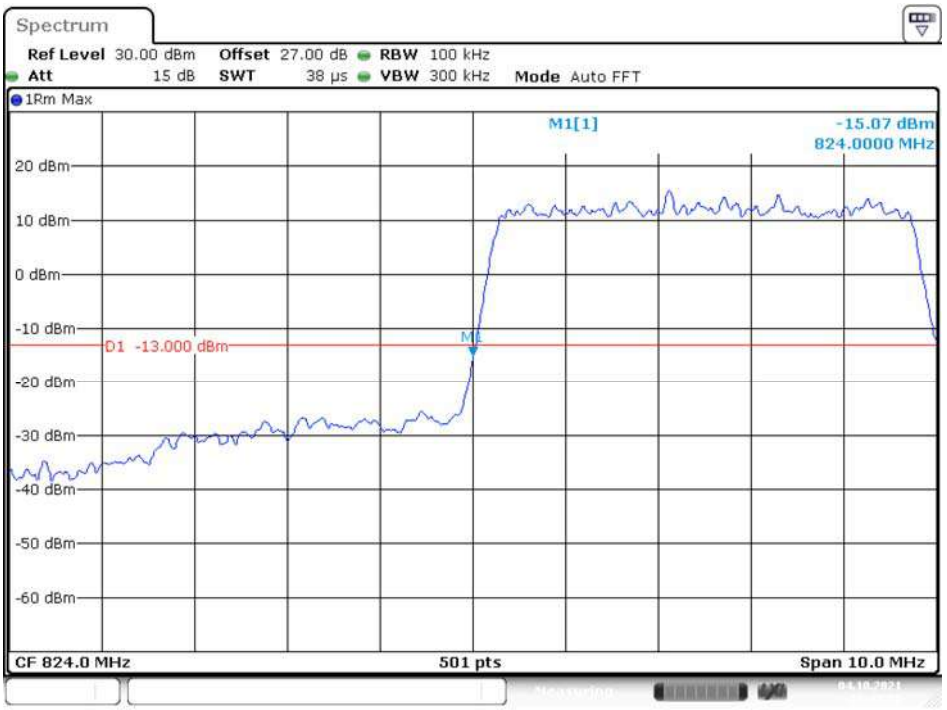
Date: 4.OCT.2021 11:27:44

16QAM (3MHz, RB15) – Right Band Edge



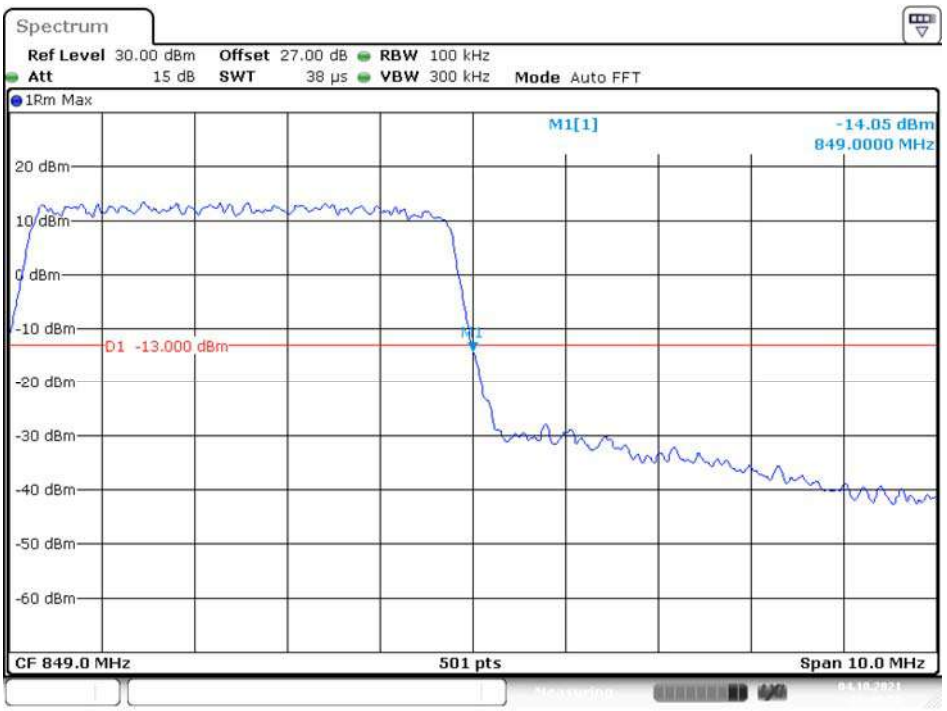
Date: 4.OCT.2021 11:28:19

QPSK (5MHz, RB25) – Left Band Edge



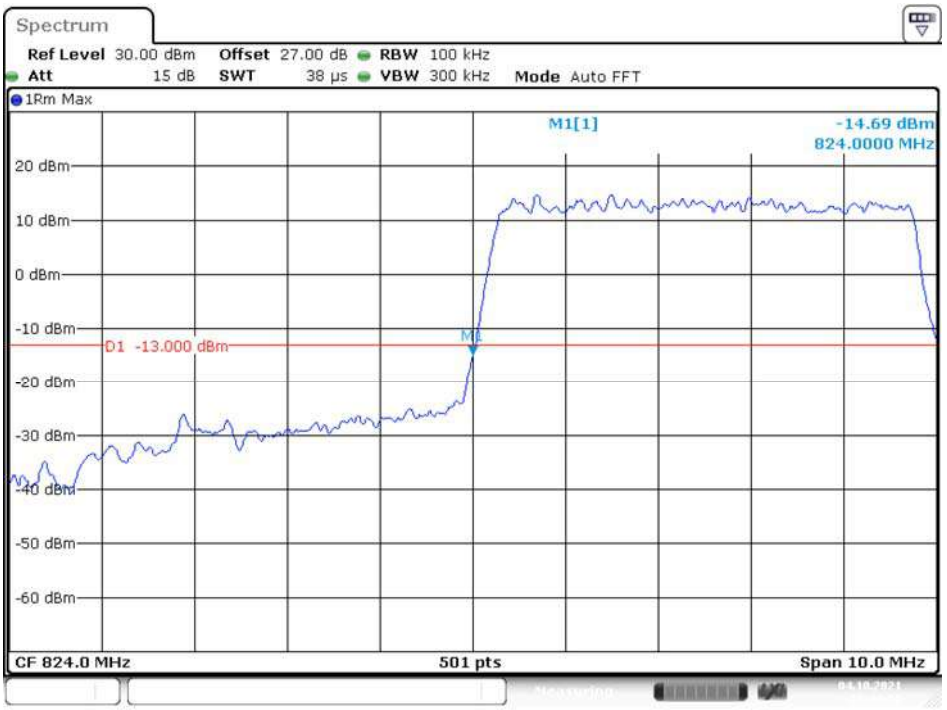
Date: 4.OCT.2021 18:43:29

QPSK (5MHz, RB25) – Right Band Edge



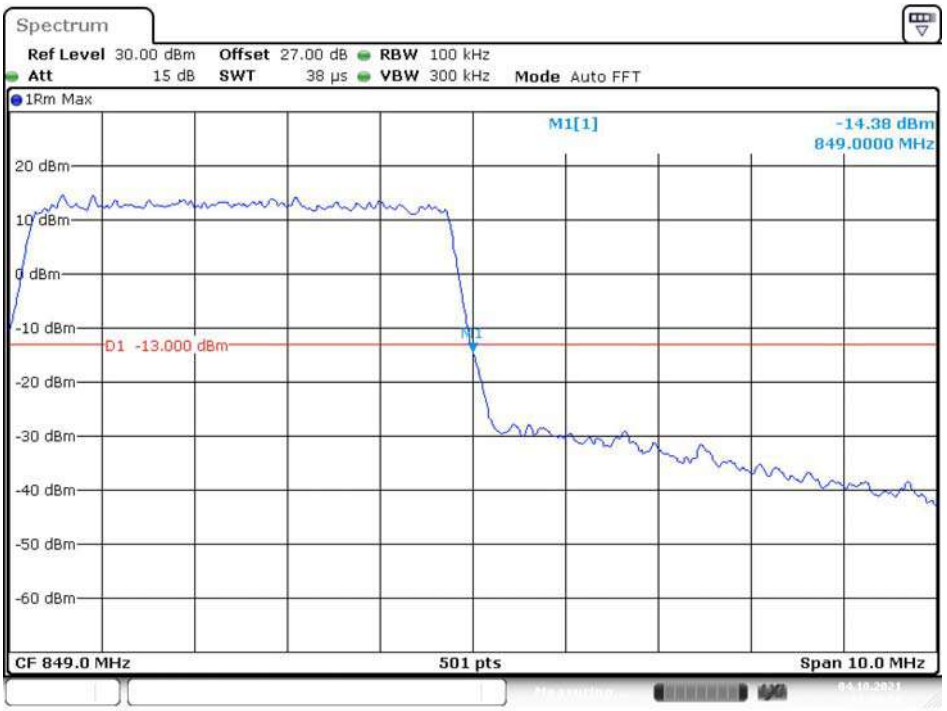
Date: 4.OCT.2021 18:40:59

16QAM (5MHz, RB25) – Left Band Edge



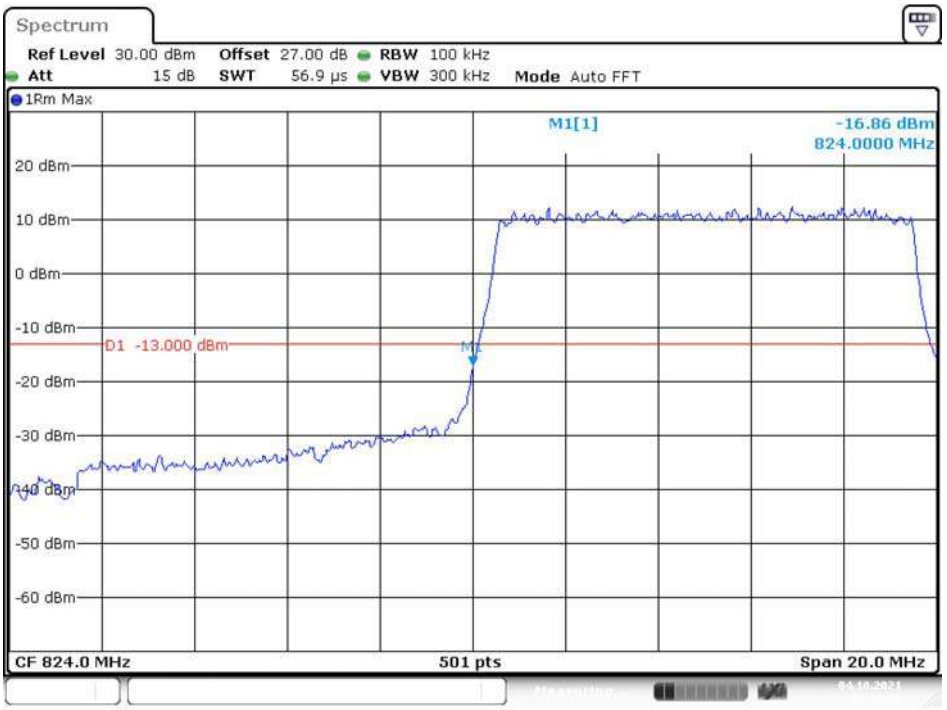
Date: 4.OCT.2021 18:44:02

16QAM (5MHz, RB25) – Right Band Edge



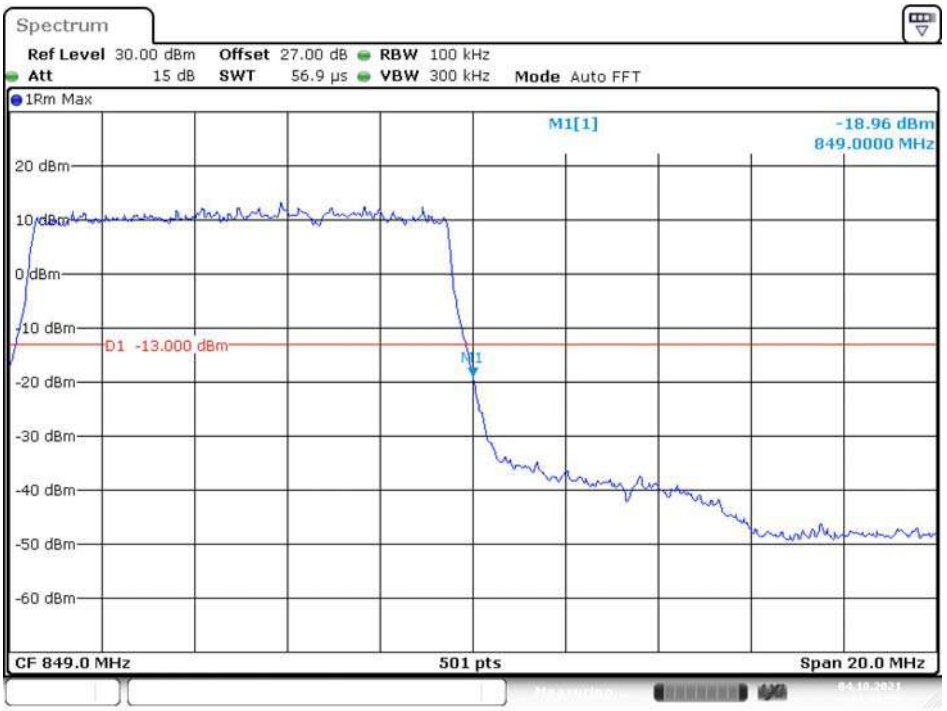
Date: 4.OCT.2021 11:30:02

QPSK (10MHz, RB50) – Left Band Edge



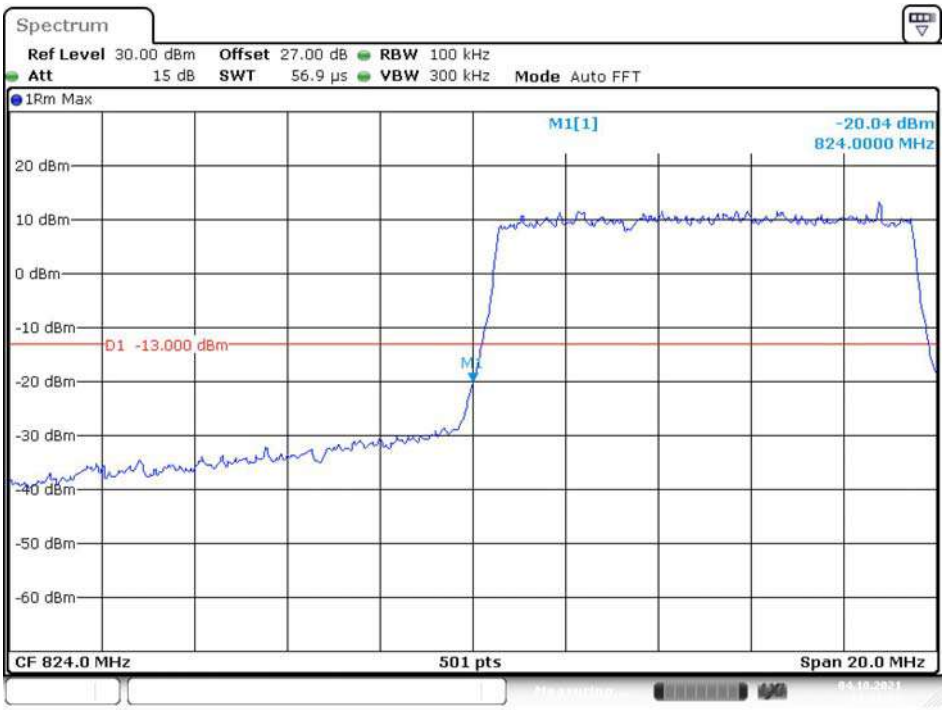
Date: 4.OCT.2021 11:30:32

QPSK (10MHz, RB50) – Right Band Edge



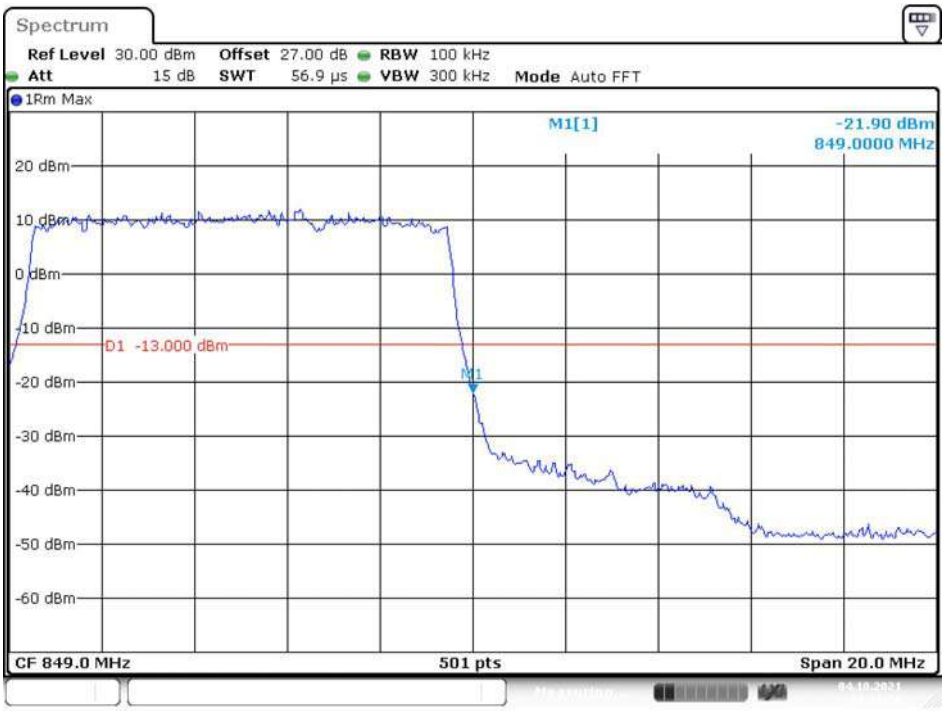
Date: 4.OCT.2021 11:31:31

16QAM (10MHz, RB50) – Left Band Edge



Date: 4.OCT.2021 11:31:03

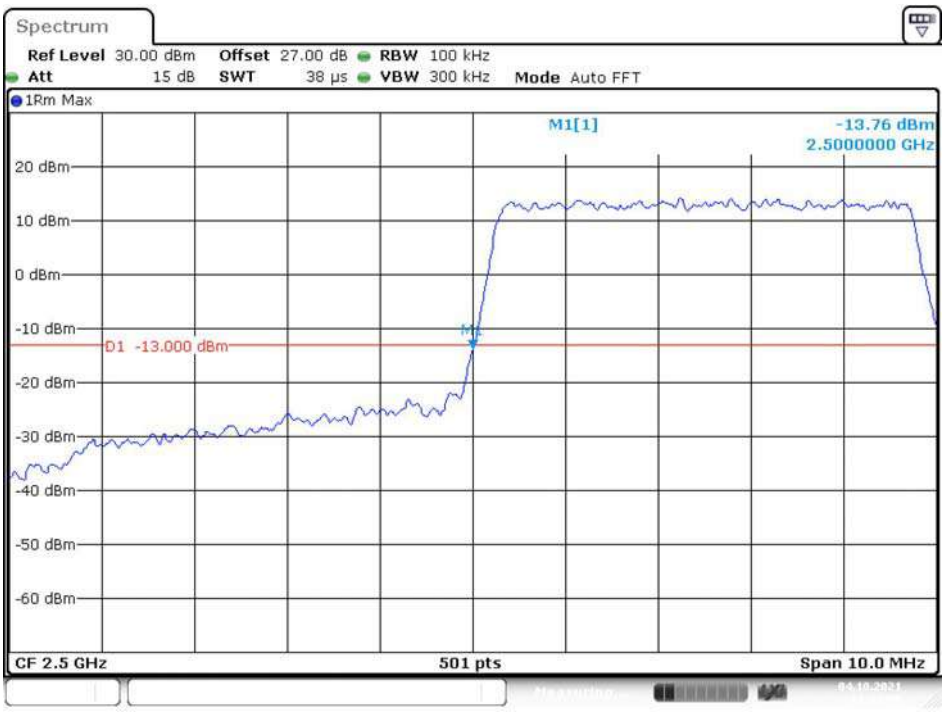
16QAM (10MHz, RB50) – Right Band Edge



Date: 4.OCT.2021 11:31:59

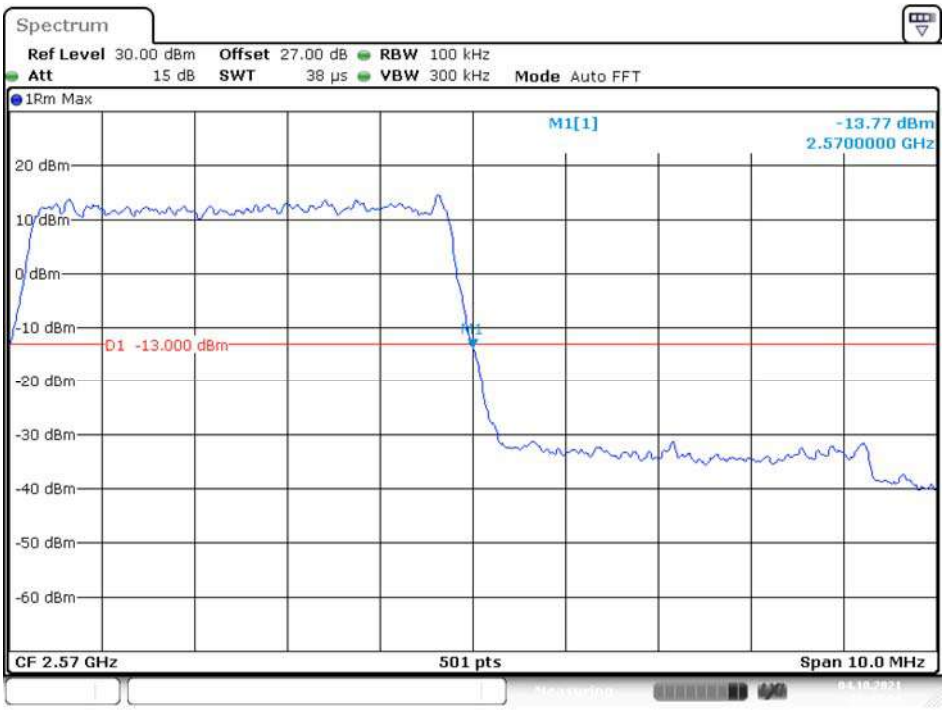
LTE Band 7

QPSK (5MHz, RB25) – Left Band Edge



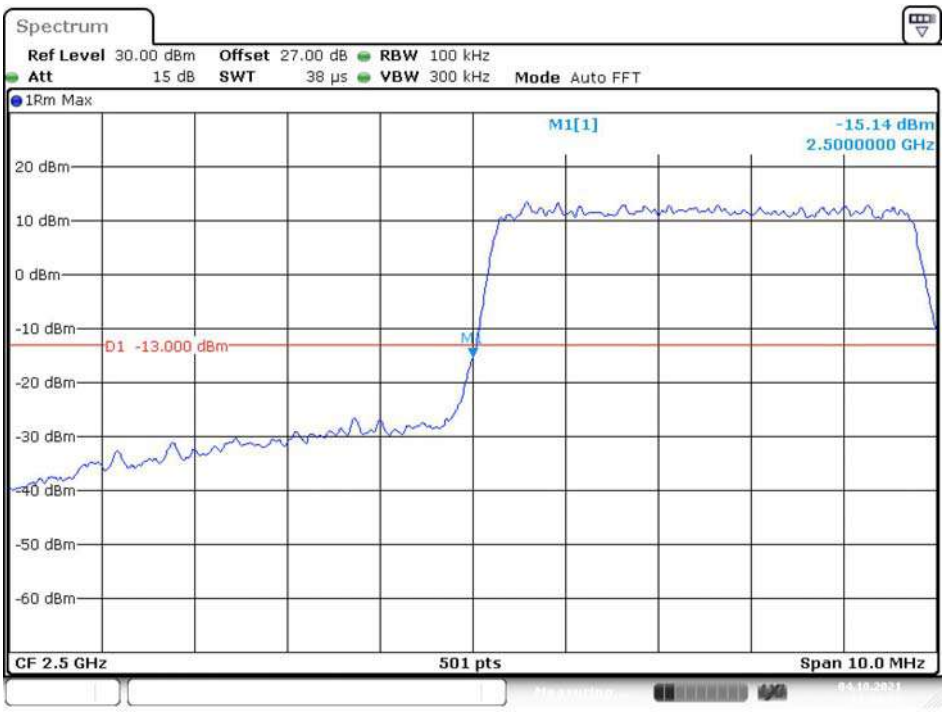
Date: 4.OCT.2021 11:33:50

QPSK (5MHz, RB25) – Right Band Edge



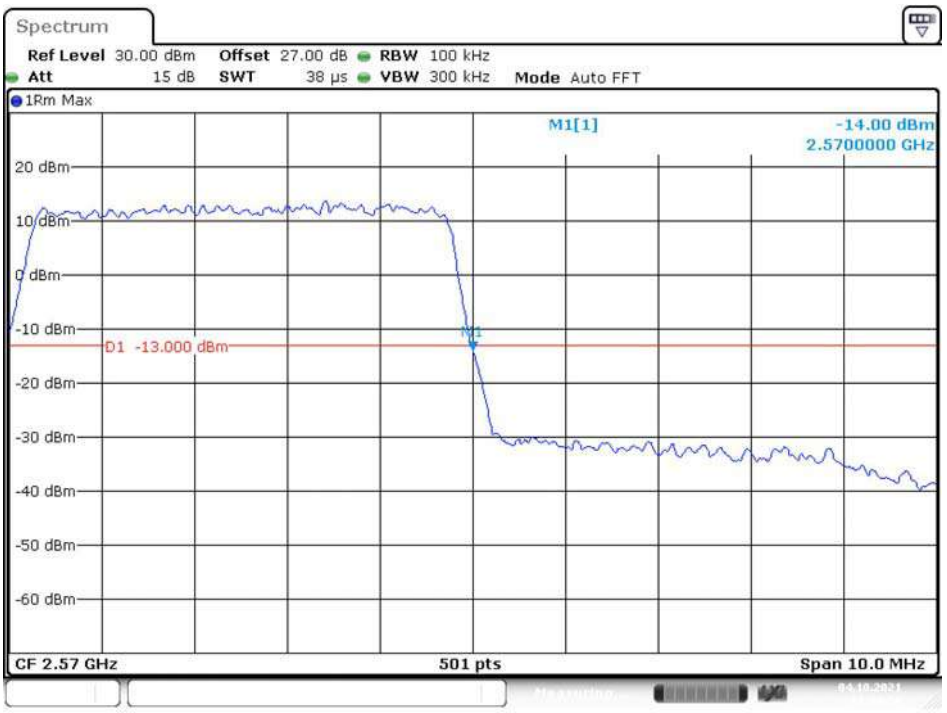
Date: 4.OCT.2021 18:45:45

16QAM (5MHz, RB25) – Left Band Edge



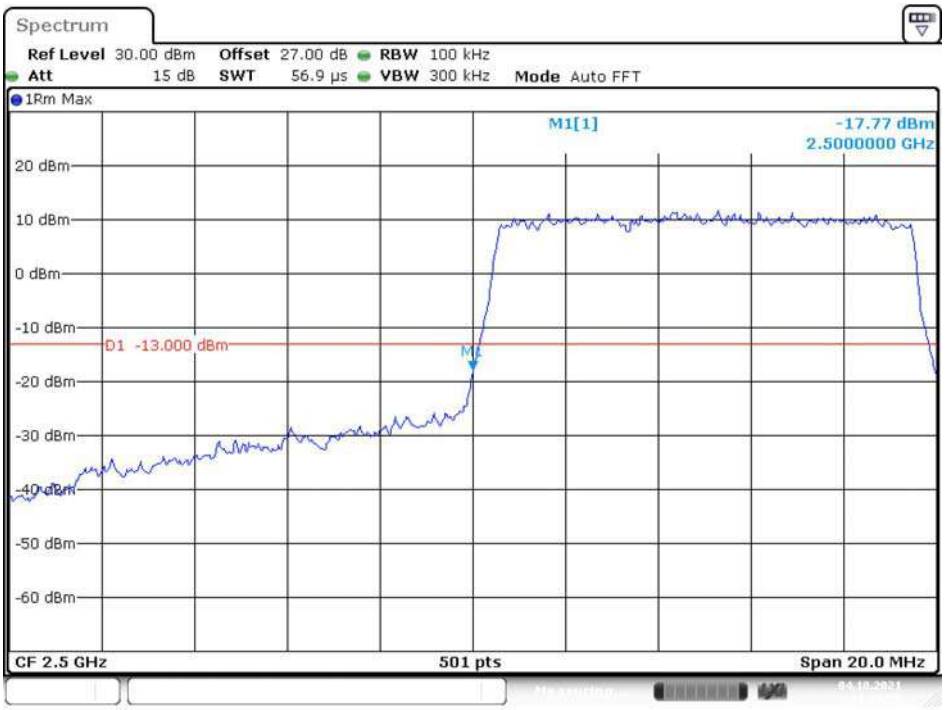
Date: 4.OCT.2021 11:34:07

16QAM (5MHz, RB25) – Right Band Edge



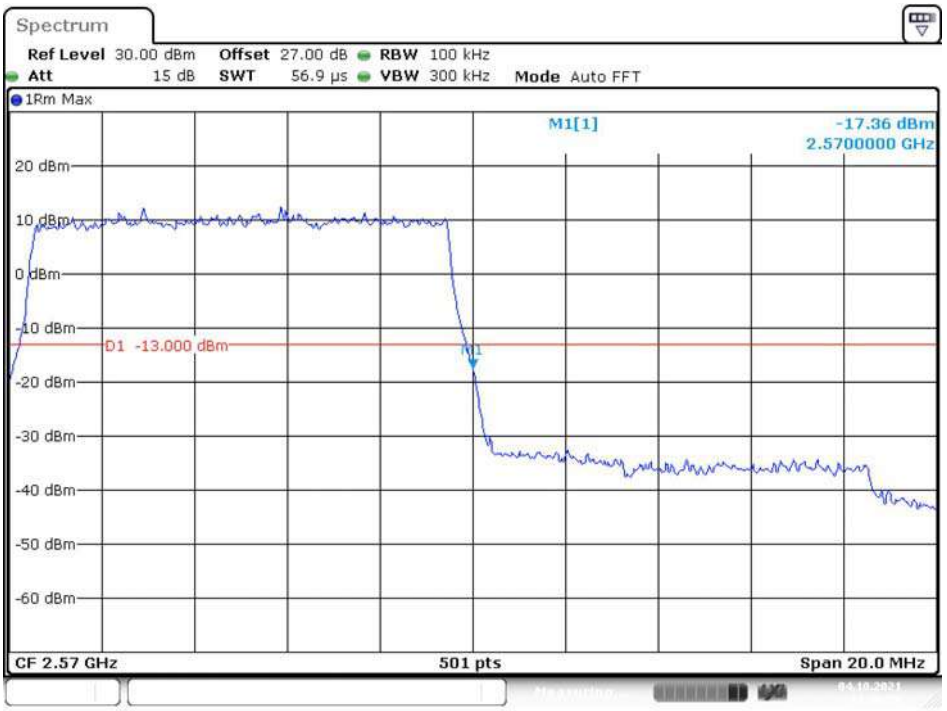
Date: 4.OCT.2021 11:34:57

QPSK (10MHz, RB50) – Left Band Edge



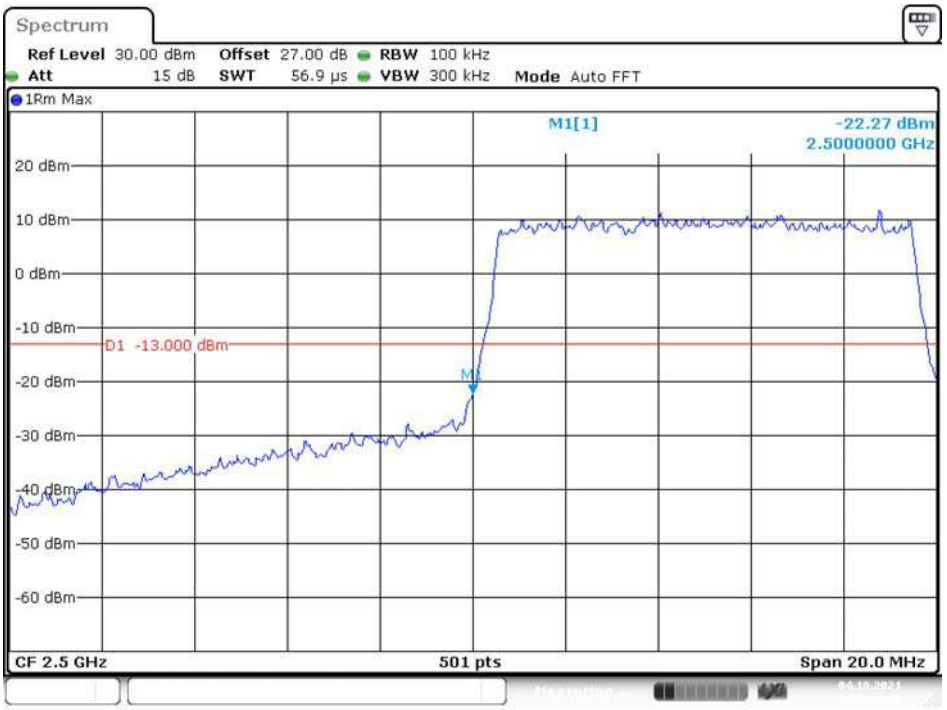
Date: 4.OCT.2021 11:35:25

QPSK (10MHz, RB50) – Right Band Edge



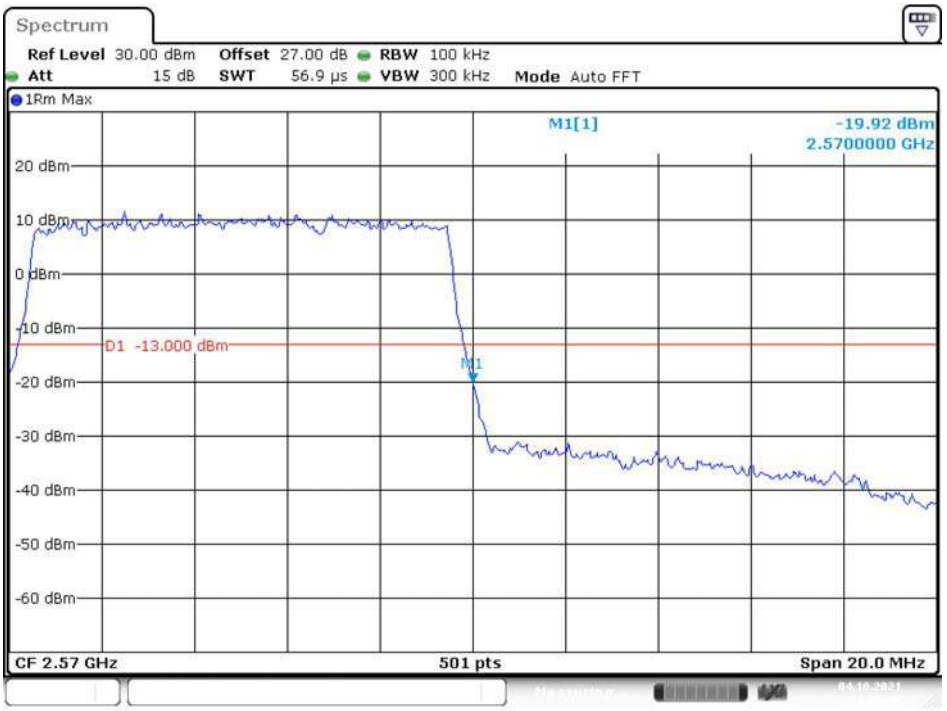
Date: 4.OCT.2021 11:36:14

16QAM (10MHz, RB50) – Left Band Edge



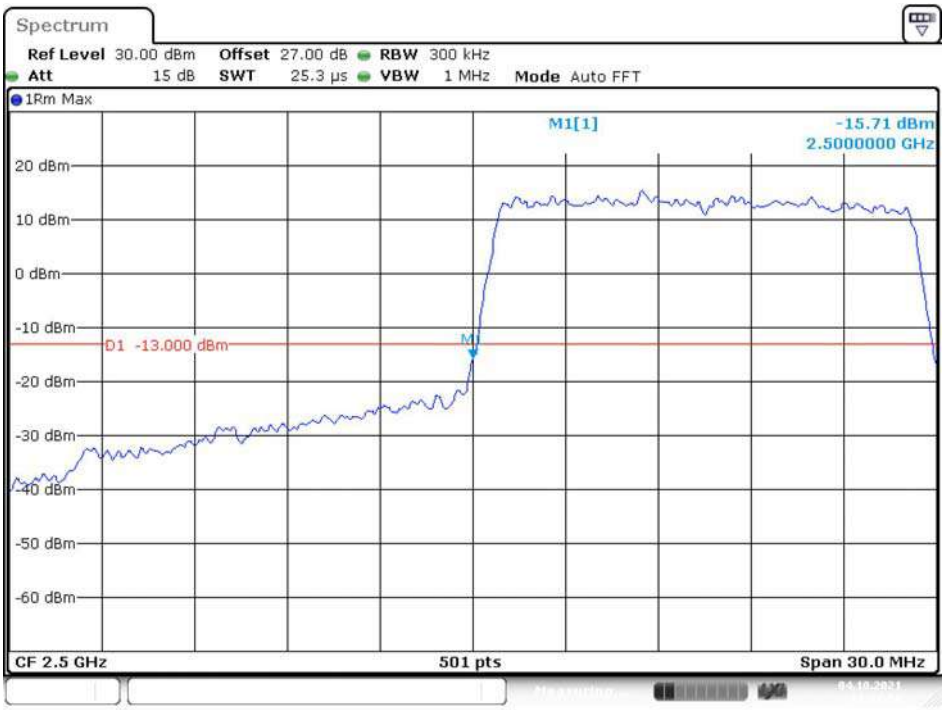
Date: 4.OCT.2021 11:35:46

16QAM (10MHz, RB50) – Right Band Edge



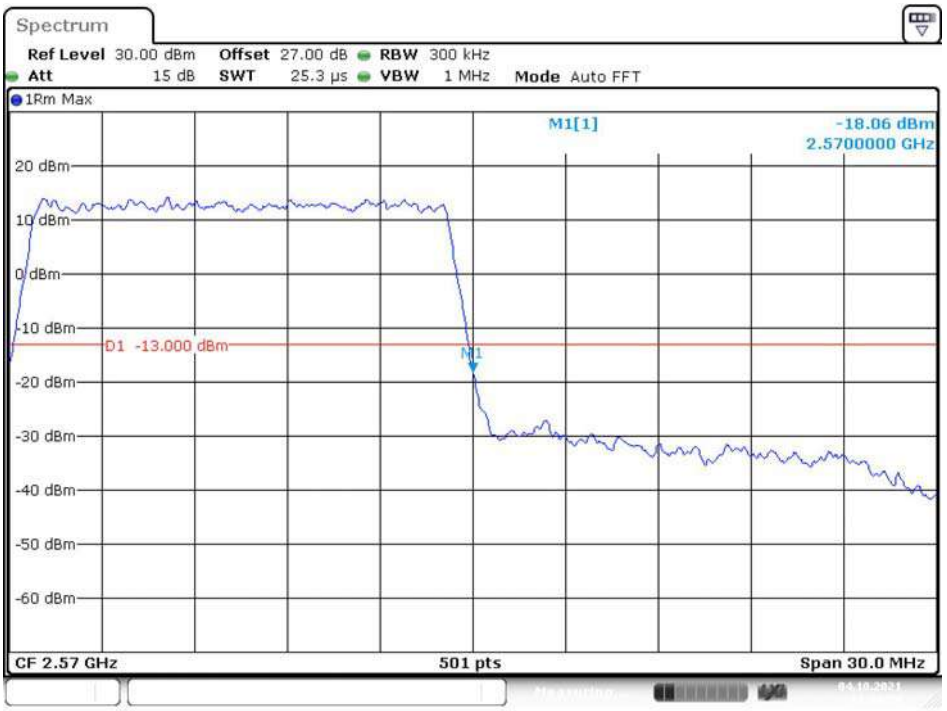
Date: 4.OCT.2021 11:36:48

QPSK (15MHz, RB75) – Left Band Edge



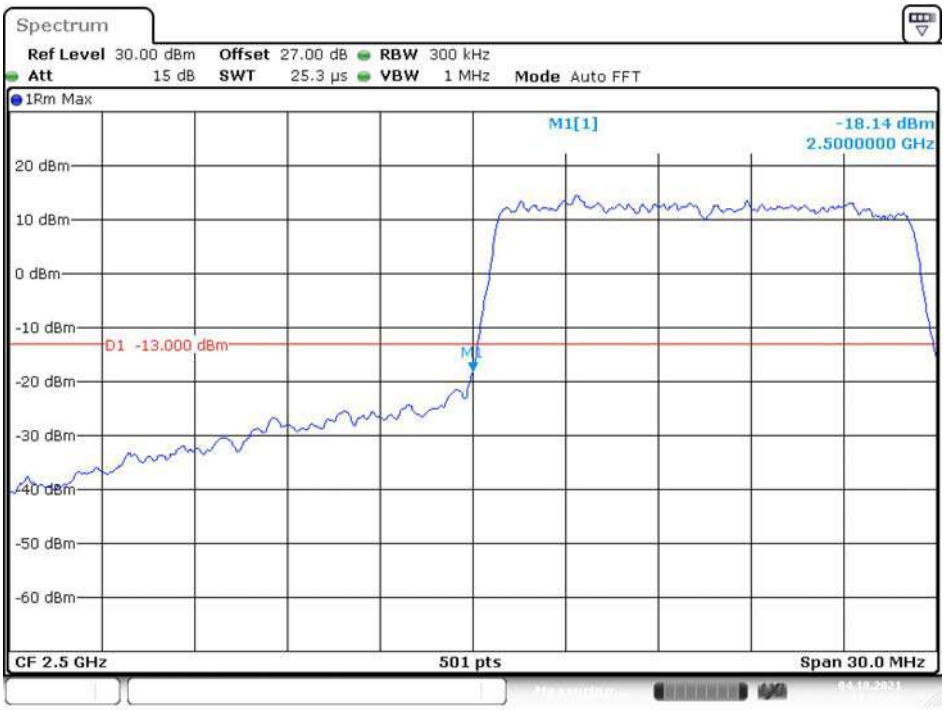
Date: 4.OCT.2021 11:37:22

QPSK (15MHz, RB75) – Right Band Edge



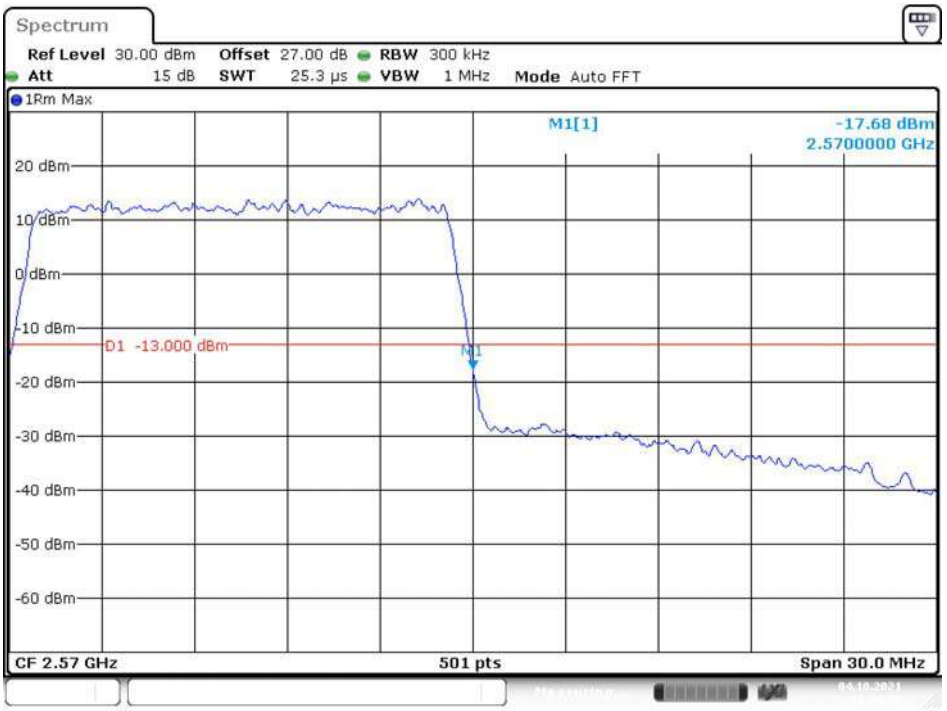
Date: 4.OCT.2021 11:38:34

16QAM (15MHz, RB75) – Left Band Edge



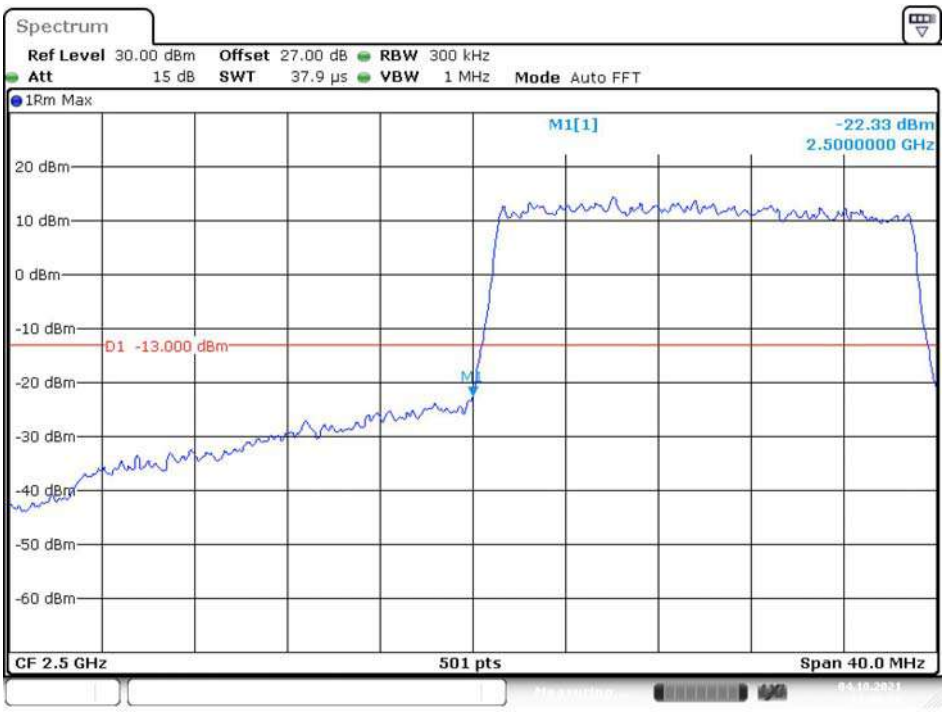
Date: 4.OCT.2021 11:37:58

16QAM (15MHz, RB75) – Right Band Edge



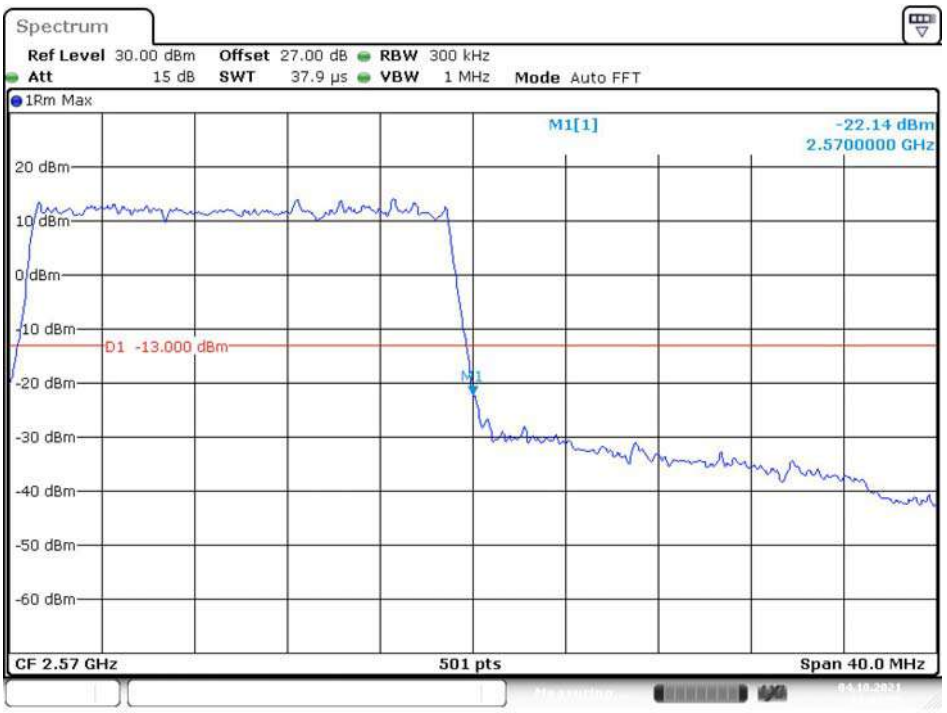
Date: 4.OCT.2021 11:39:07

QPSK (20MHz, RB100) – Left Band Edge



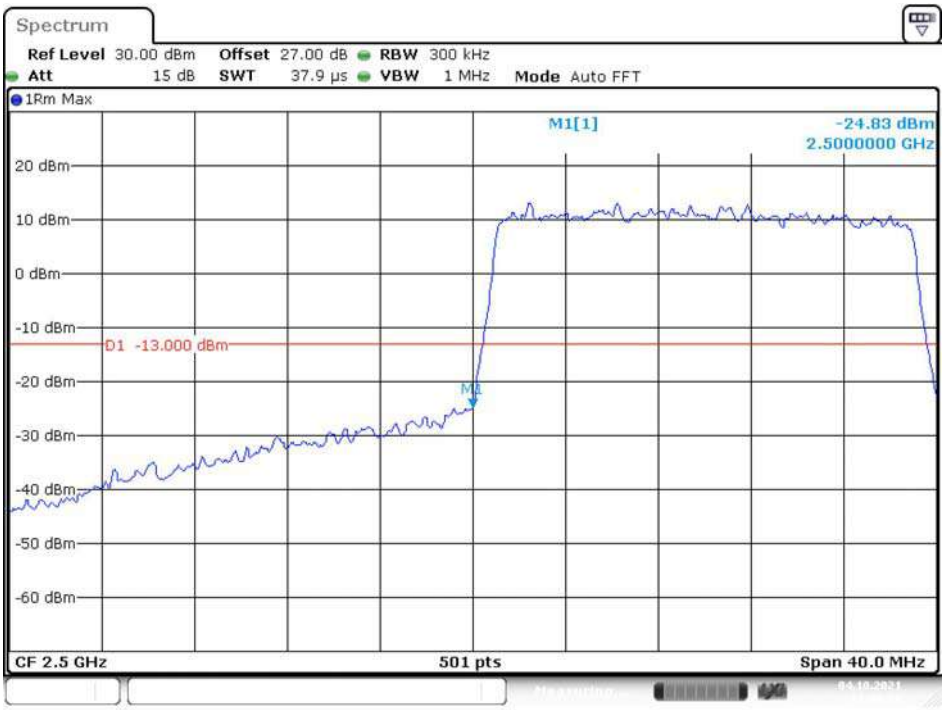
Date: 4.OCT.2021 11:40:03

QPSK (20MHz, RB100) – Right Band Edge



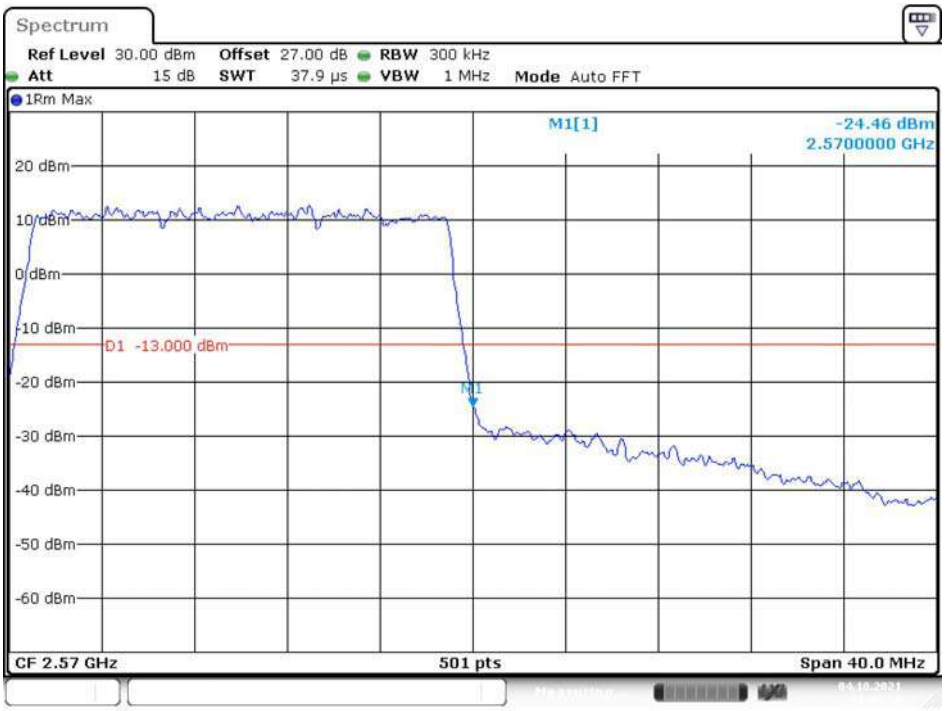
Date: 4.OCT.2021 11:41:25

16QAM (20MHz, RB100) – Left Band Edge



Date: 4.OCT.2021 11:40:32

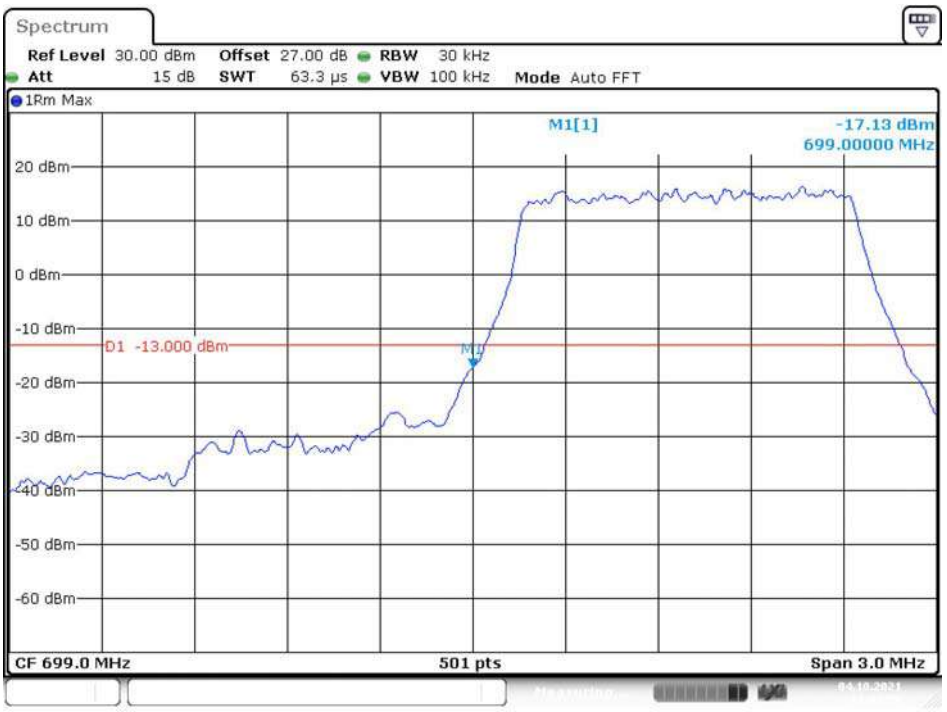
16QAM (20MHz, RB100) – Right Band Edge



Date: 4.OCT.2021 11:41:58

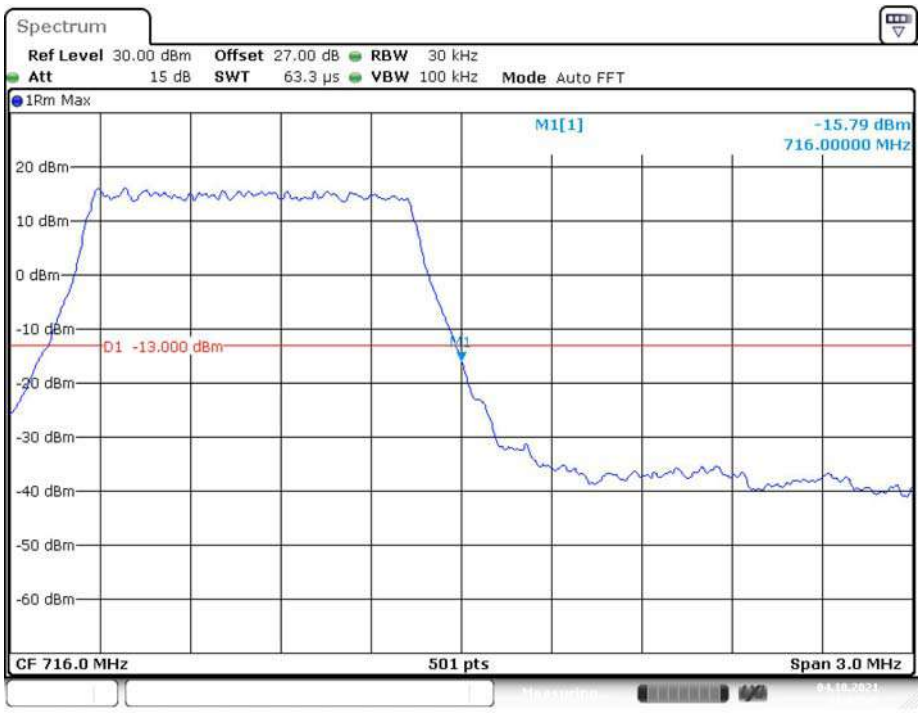
LTE Band 12

QPSK (1.4MHz, RB6) – Left Band Edge



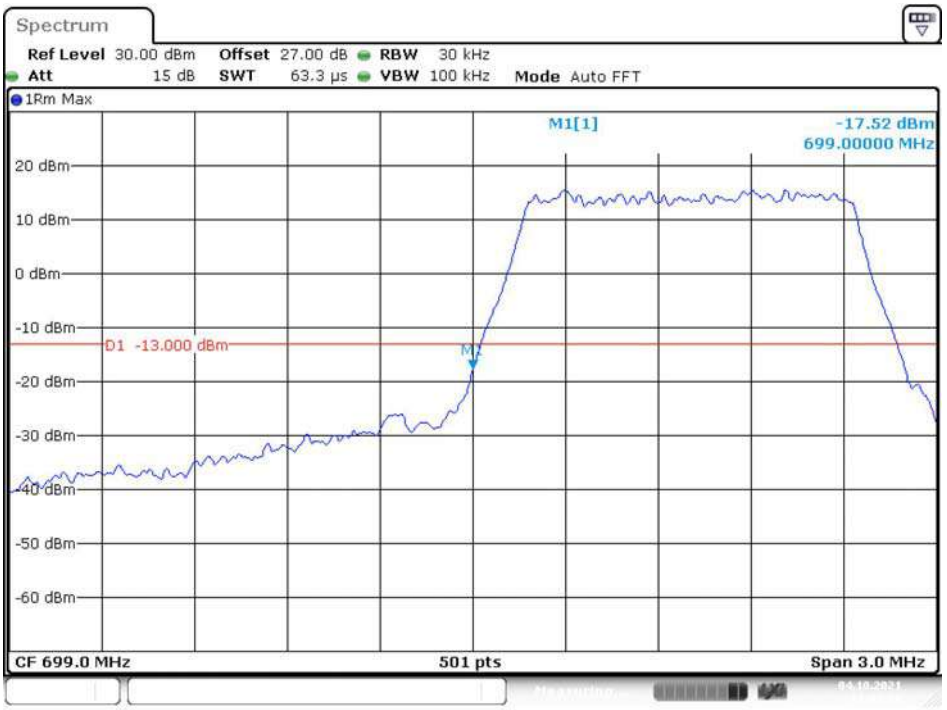
Date: 4.OCT.2021 11:42:17

QPSK (1.4MHz, RB6) – Right Band Edge



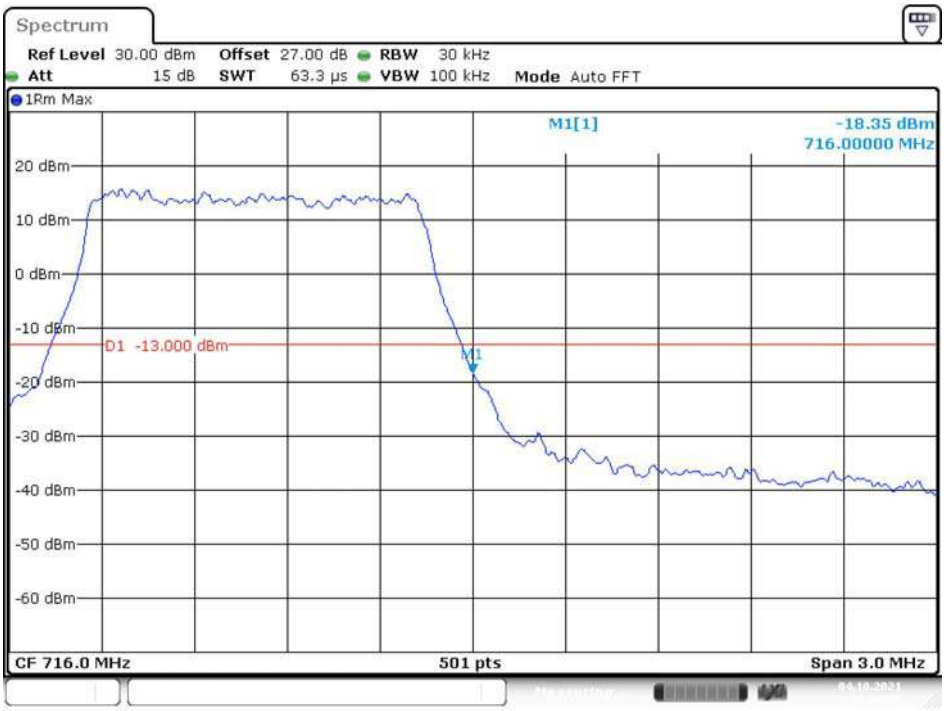
Date: 4.OCT.2021 11:42:45

16QAM (1.4MHz, RB5) – Left Band Edge



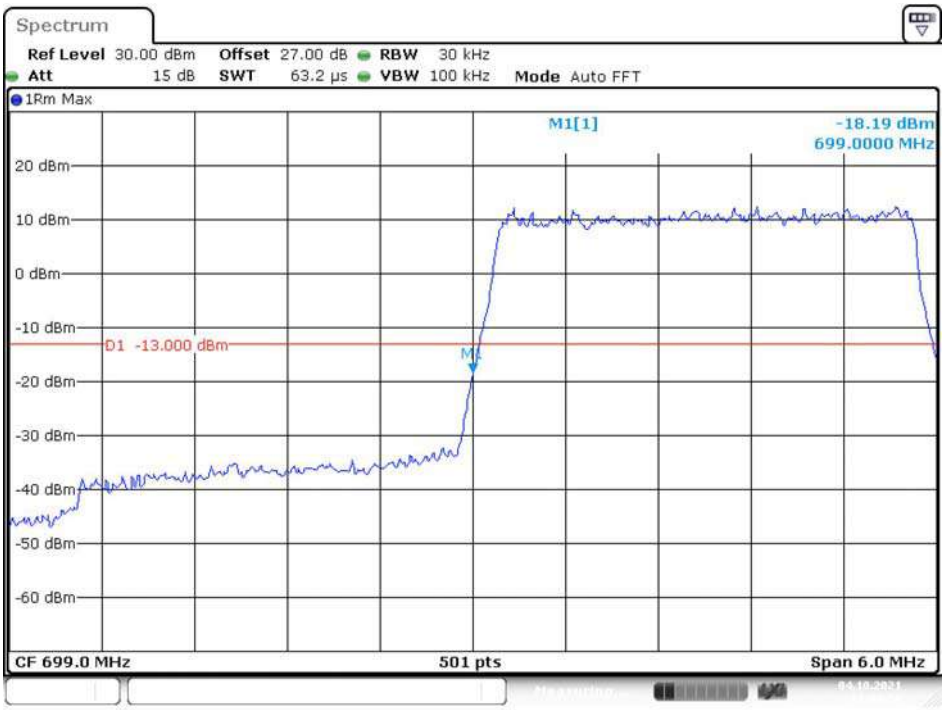
Date: 4.OCT.2021 11:42:31

16QAM (1.4MHz, RB5) – Right Band Edge



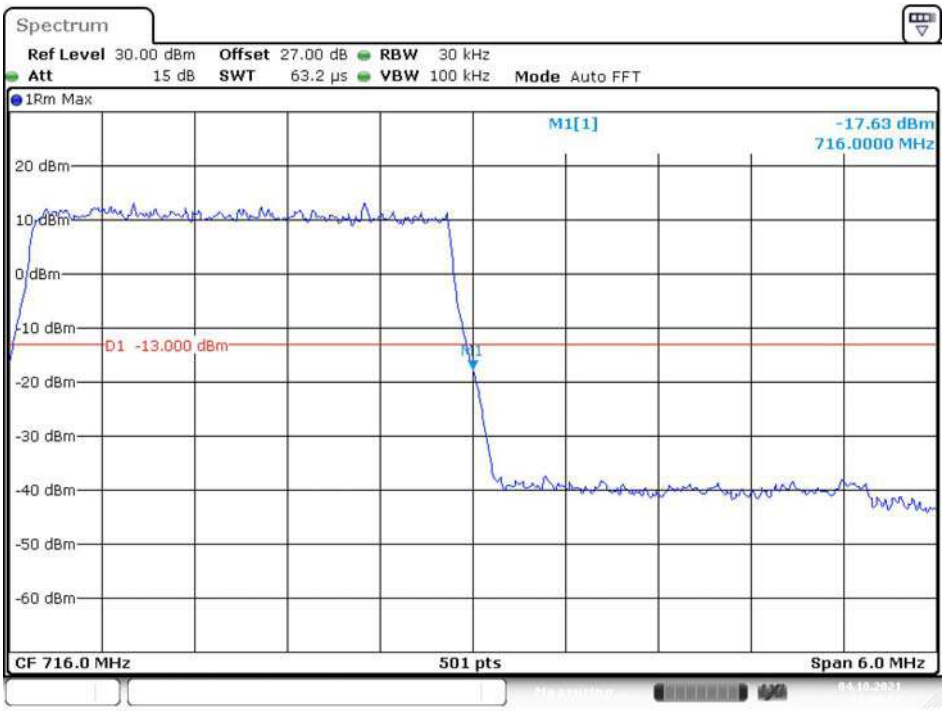
Date: 4.OCT.2021 11:43:05

QPSK (3MHz, RB15) – Left Band Edge



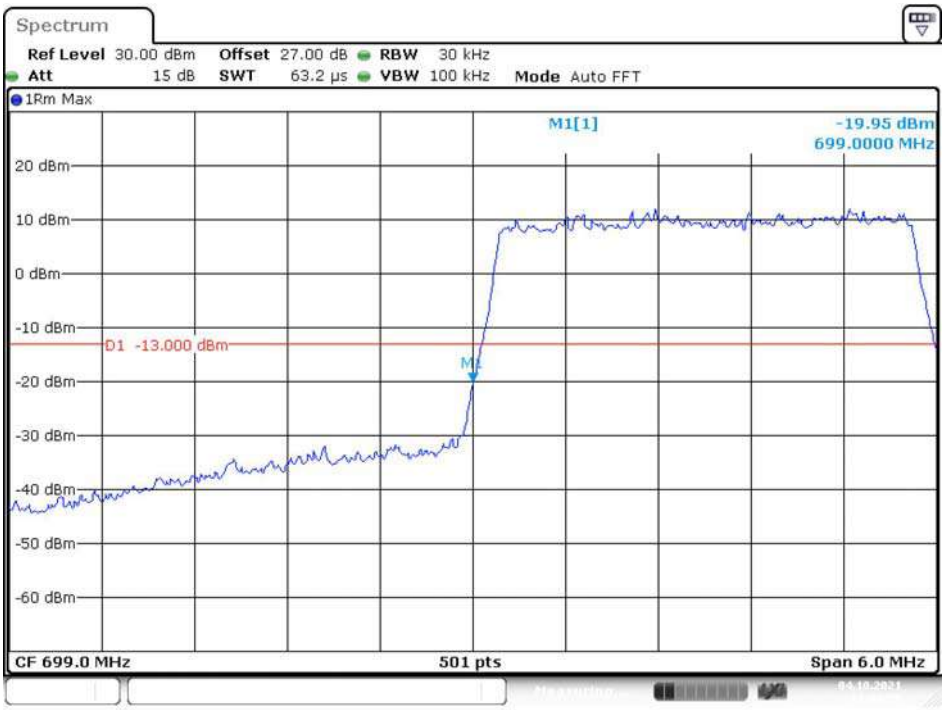
Date: 4.OCT.2021 11:43:26

QPSK (3MHz, RB15) – Right Band Edge



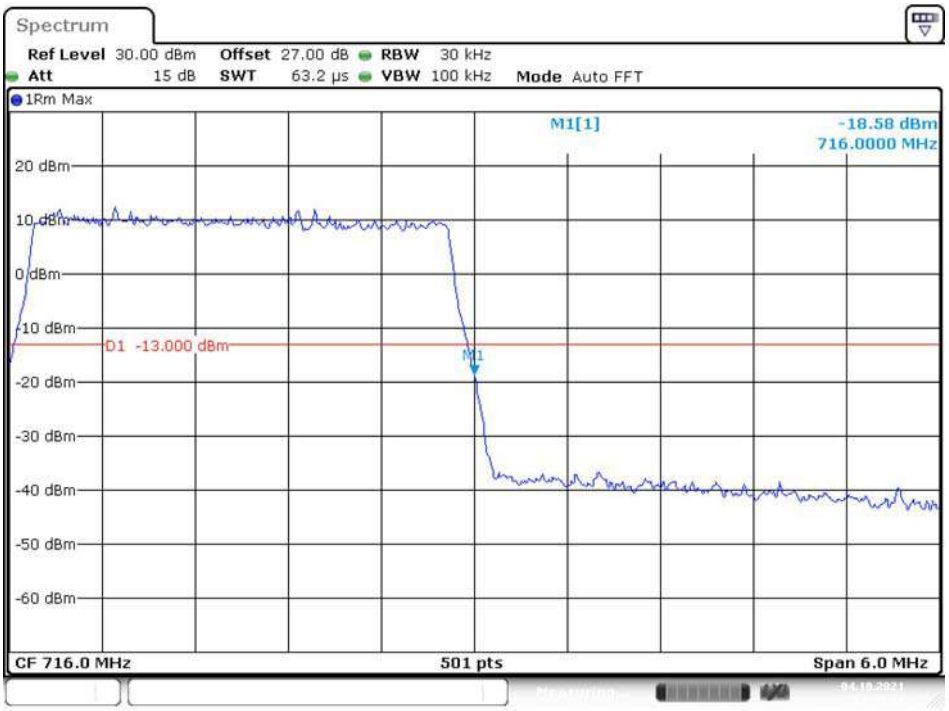
Date: 4.OCT.2021 11:44:01

16QAM (3MHz, RB15) – Left Band Edge



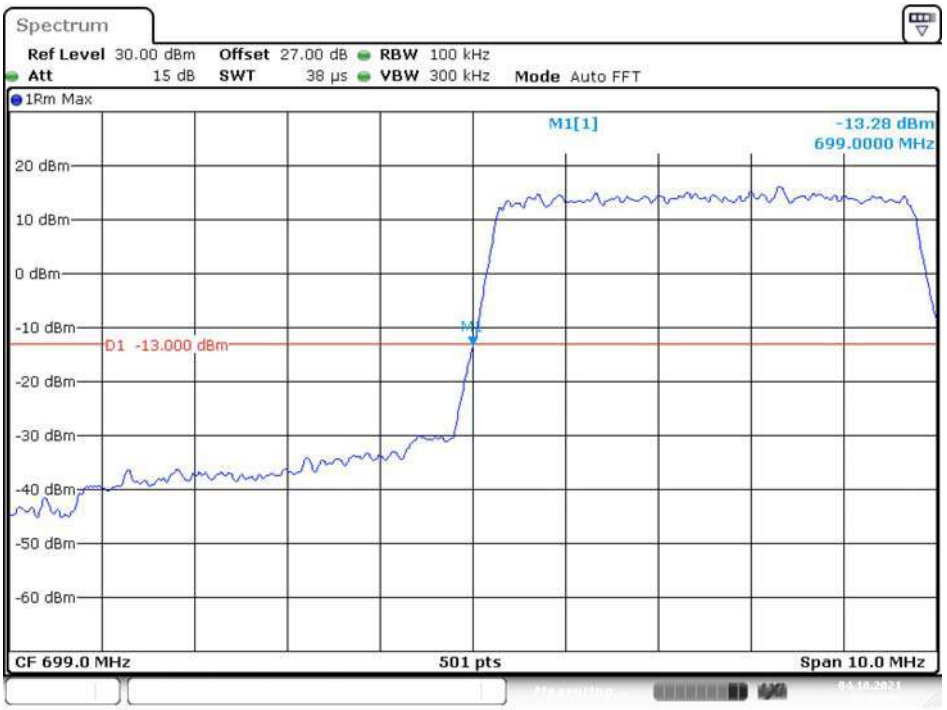
Date: 4.OCT.2021 11:43:40

16QAM (3MHz, RB5) – Right Band Edge



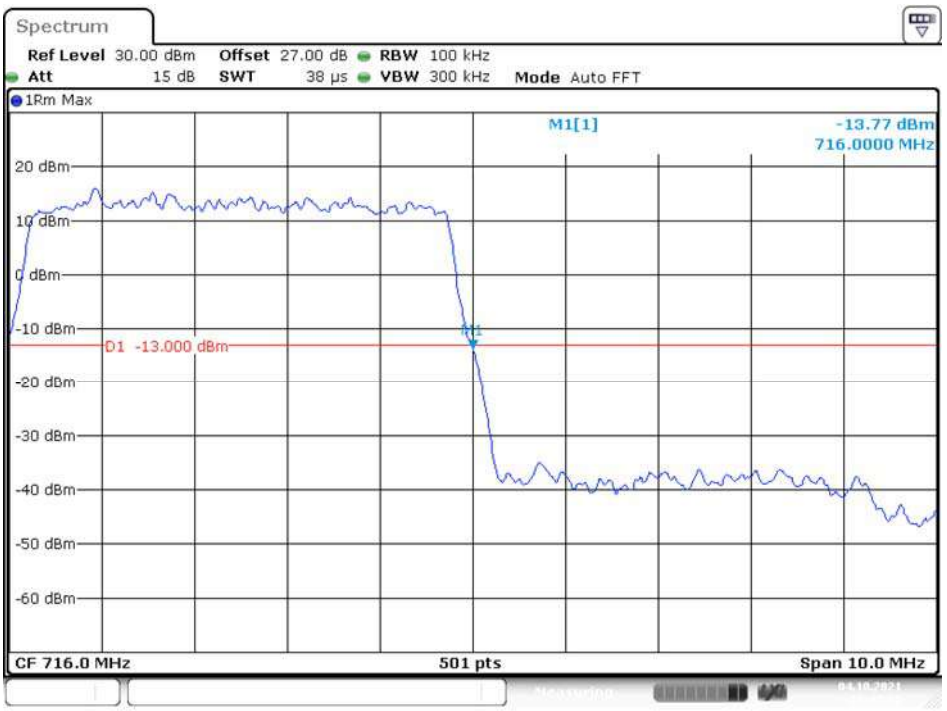
Date: 4.OCT.2021 11:44:18

QPSK (5MHz, RB25) – Left Band Edge



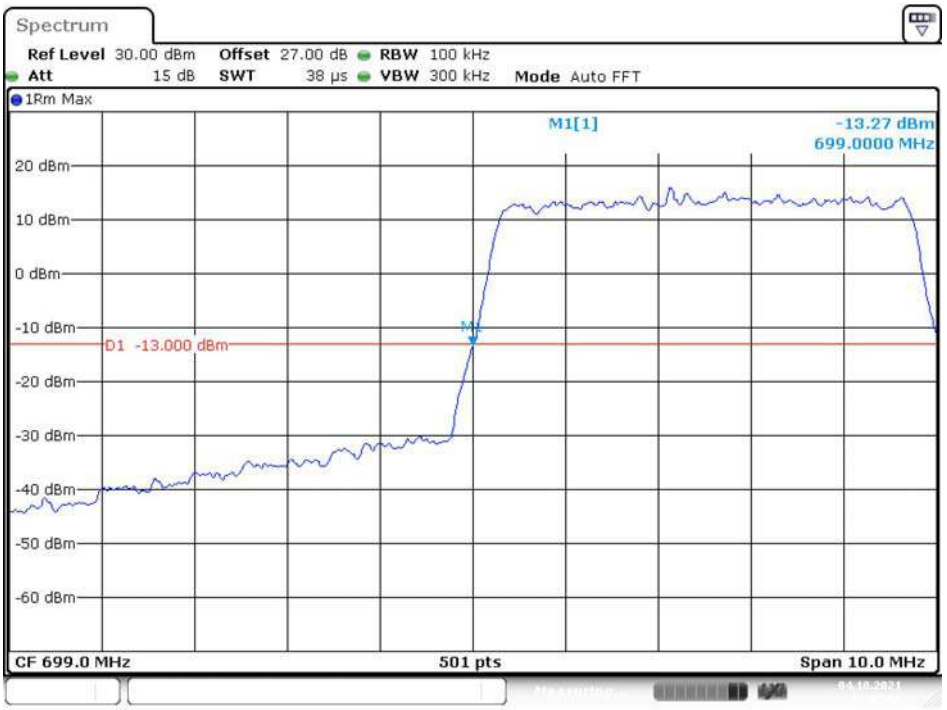
Date: 4.OCT.2021 11:44:48

QPSK (5MHz, RB25) – Right Band Edge



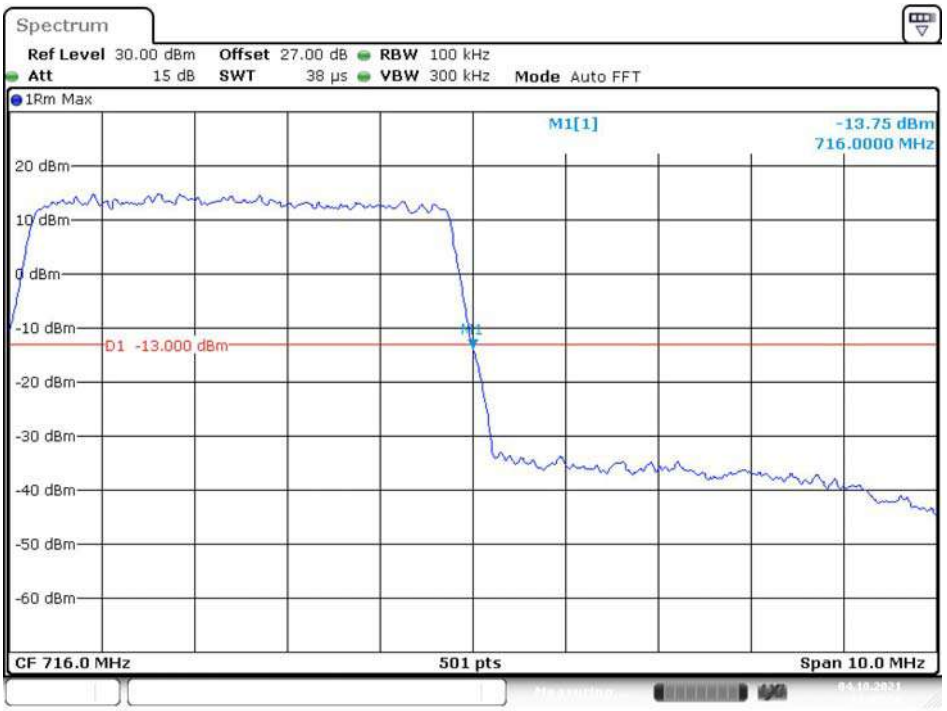
Date: 4.OCT.2021 18:47:26

16QAM (5MHz, RB25) – Left Band Edge



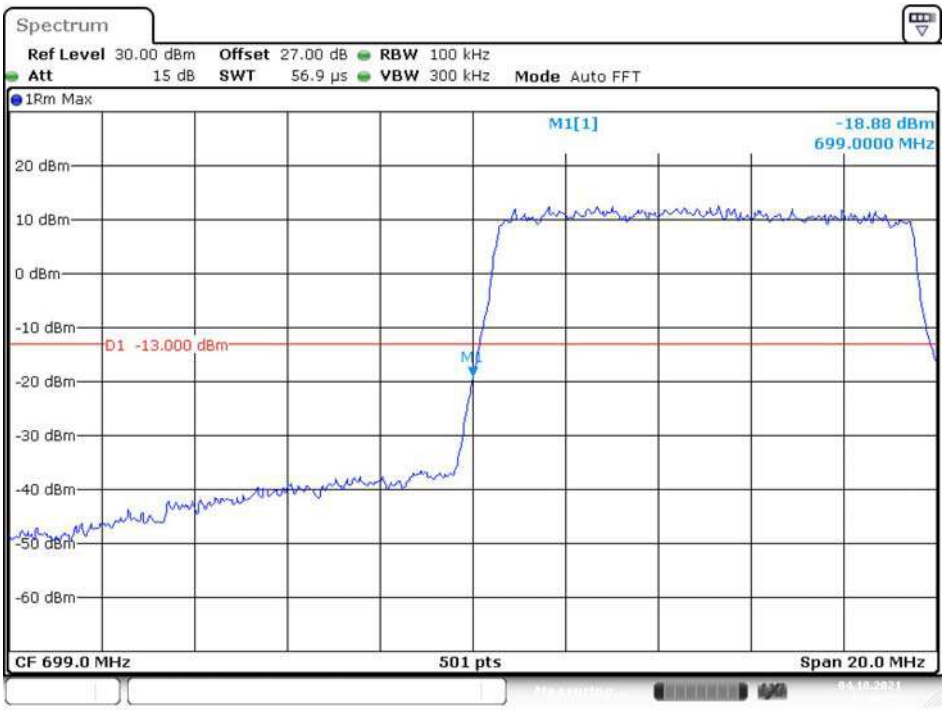
Date: 4.OCT.2021 11:45:08

16QAM (5MHz, RB25) – Right Band Edge



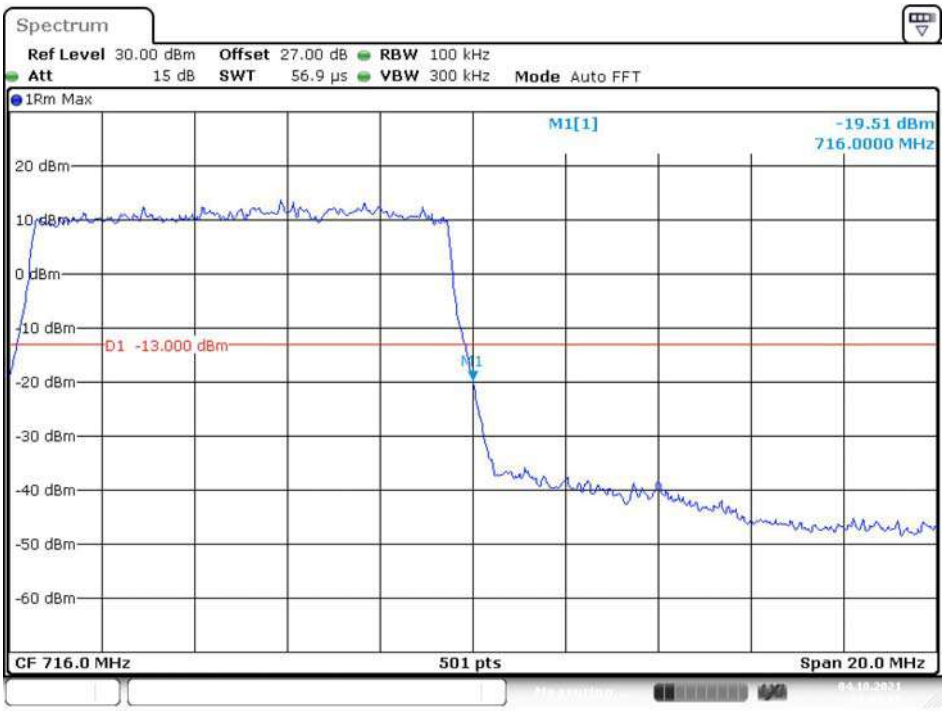
Date: 4.OCT.2021 11:45:53

QPSK (10MHz, RB50) – Left Band Edge



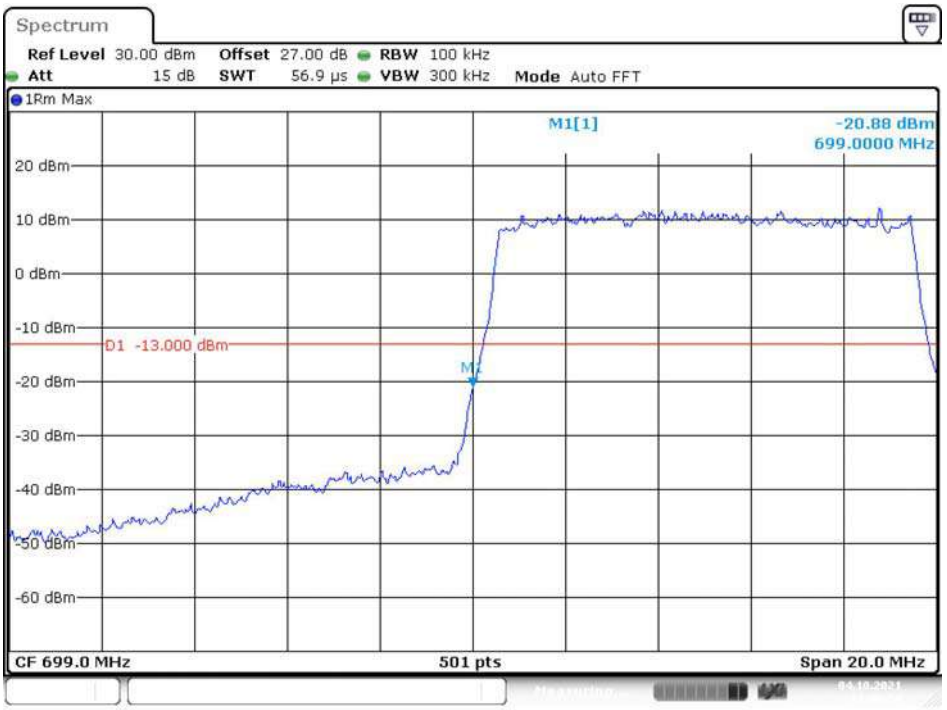
Date: 4.OCT.2021 11:46:27

QPSK (10MHz, RB50) – Right Band Edge



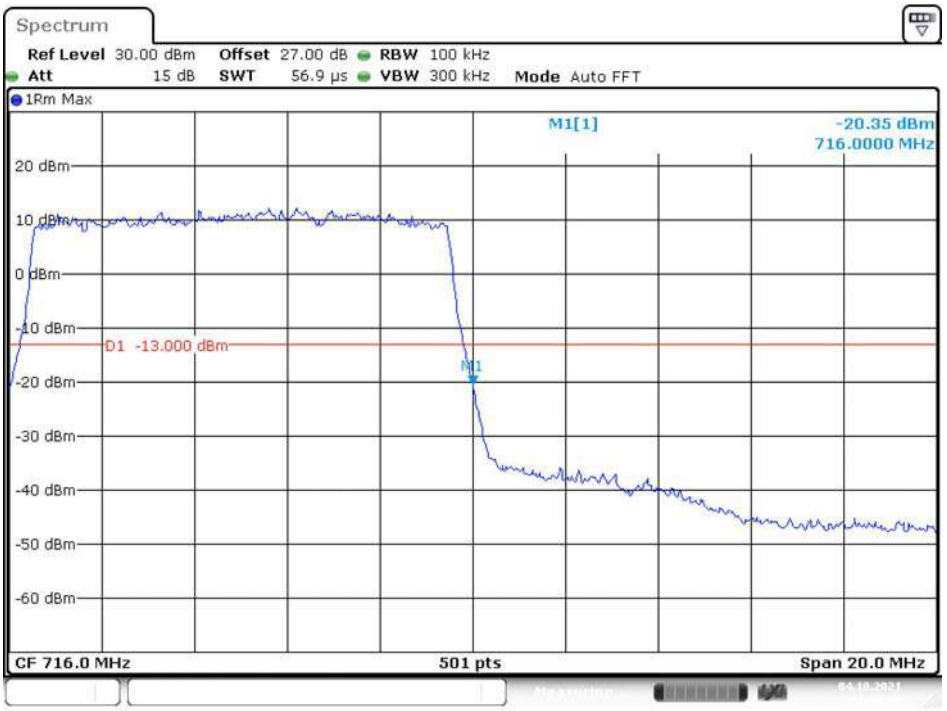
Date: 4.OCT.2021 11:47:19

16QAM (10MHz, RB50) – Left Band Edge



Date: 4.OCT.2021 11:46:54

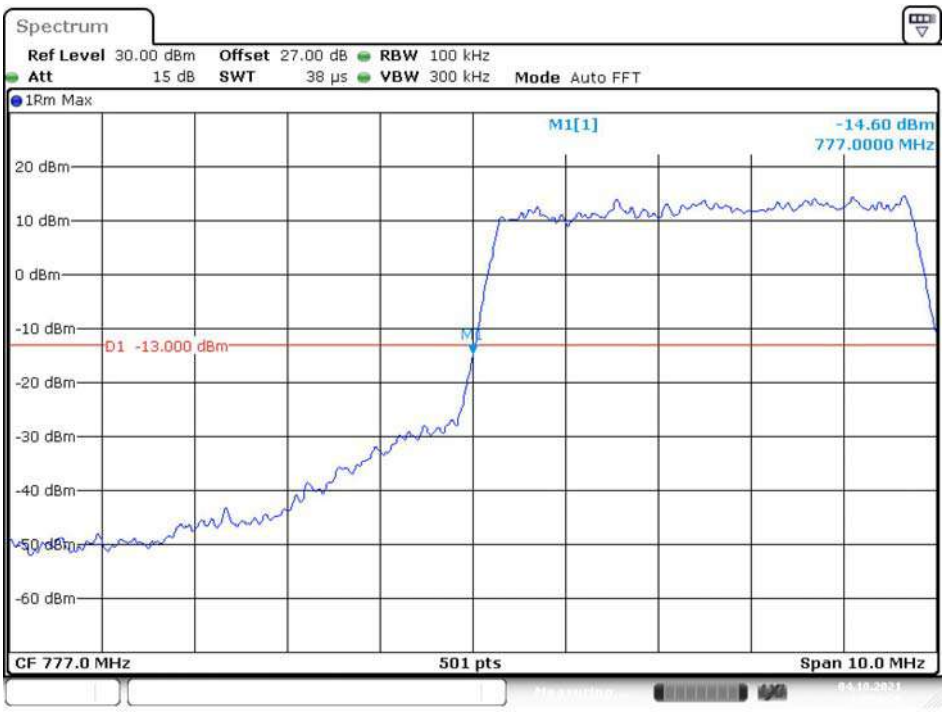
16QAM (10MHz, RB50) – Right Band Edge



Date: 4.OCT.2021 11:47:44

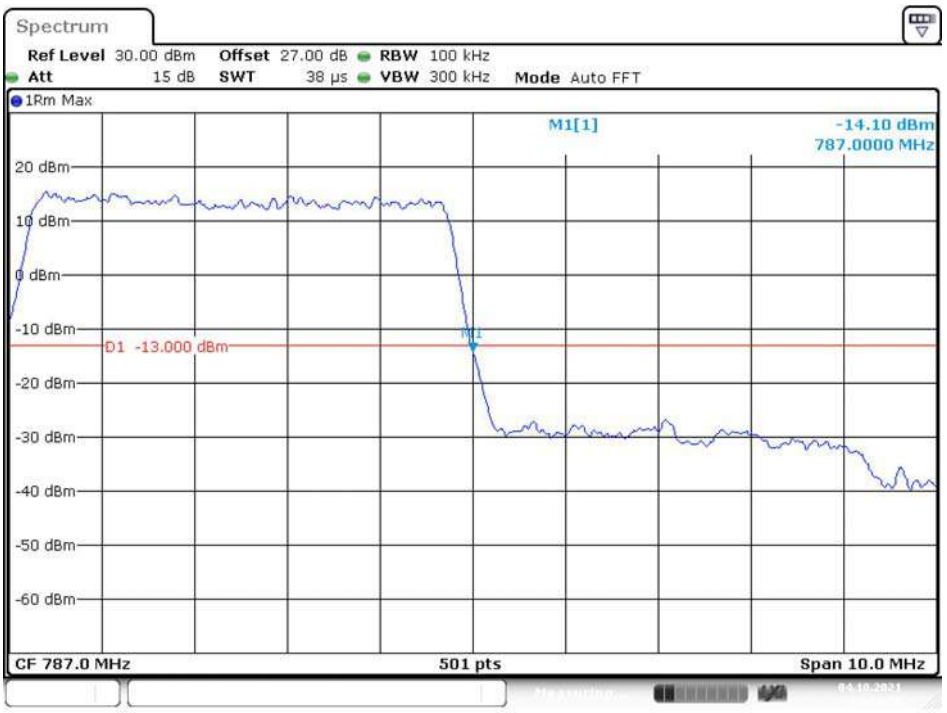
LTE Band 13

QPSK (5MHz, RB25) – Left Band Edge



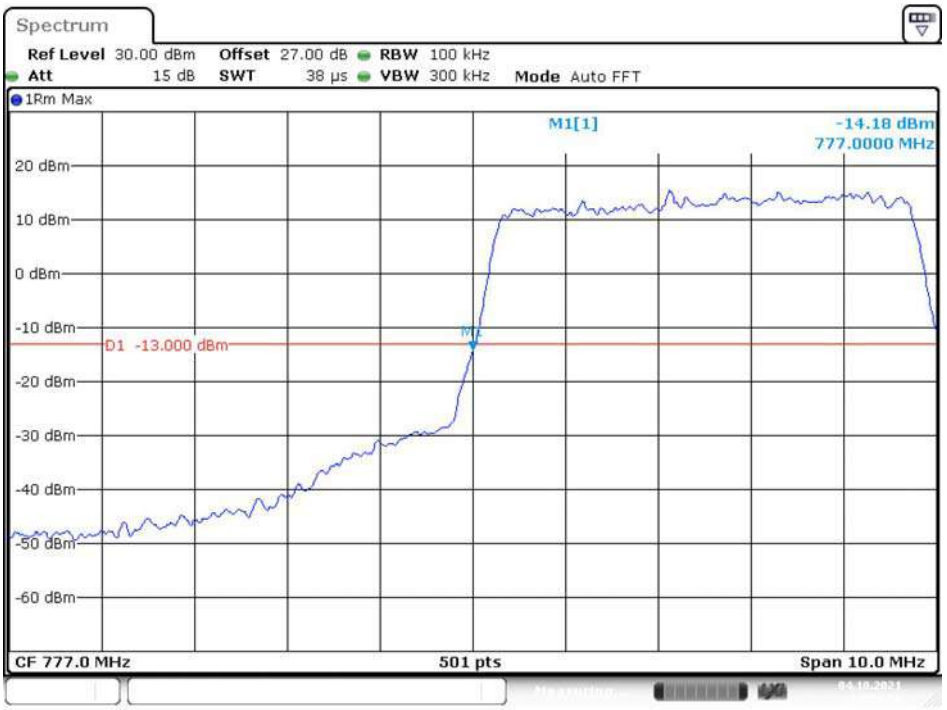
Date: 4.OCT.2021 14:19:29

QPSK (5MHz, RB25) – Right Band Edge



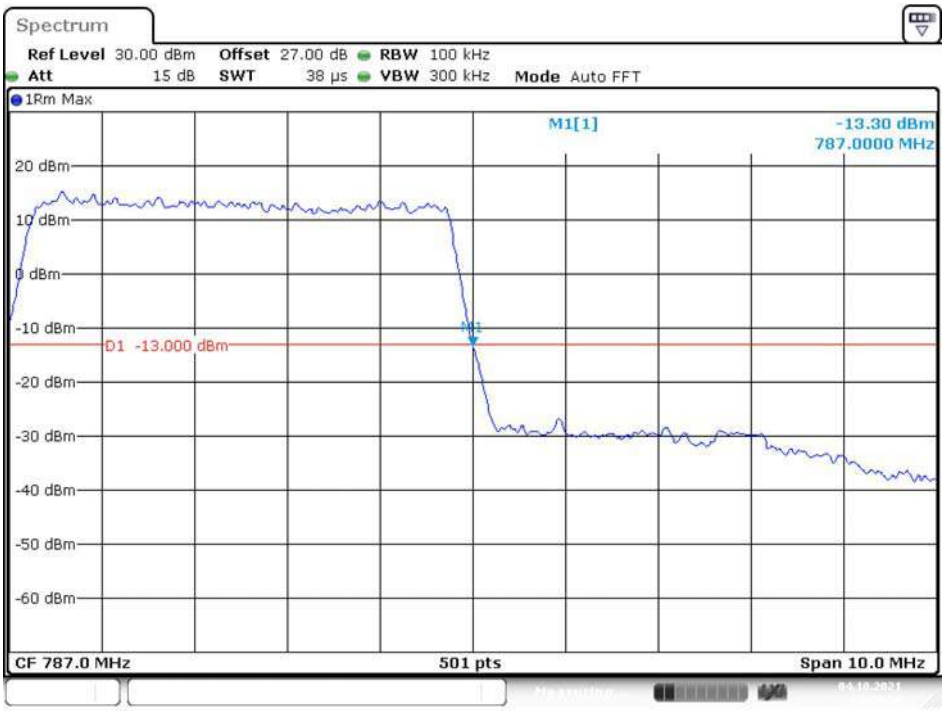
Date: 4.OCT.2021 14:20:29

16QAM (5MHz, RB25) – Left Band Edge



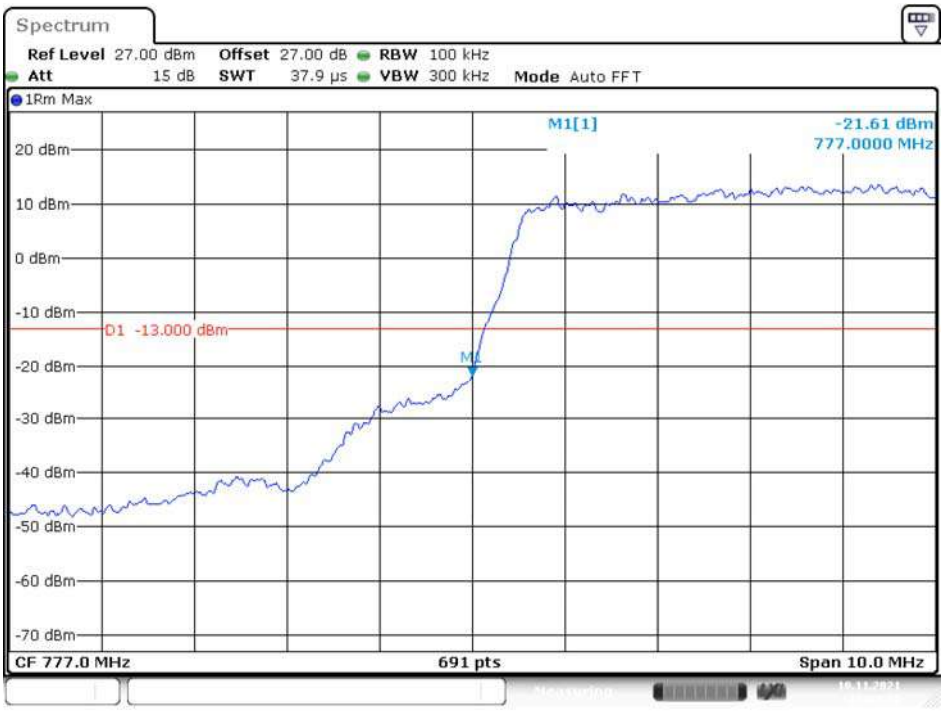
Date: 4.OCT.2021 14:19:58

16QAM (5MHz, RB25) – Right Band Edge

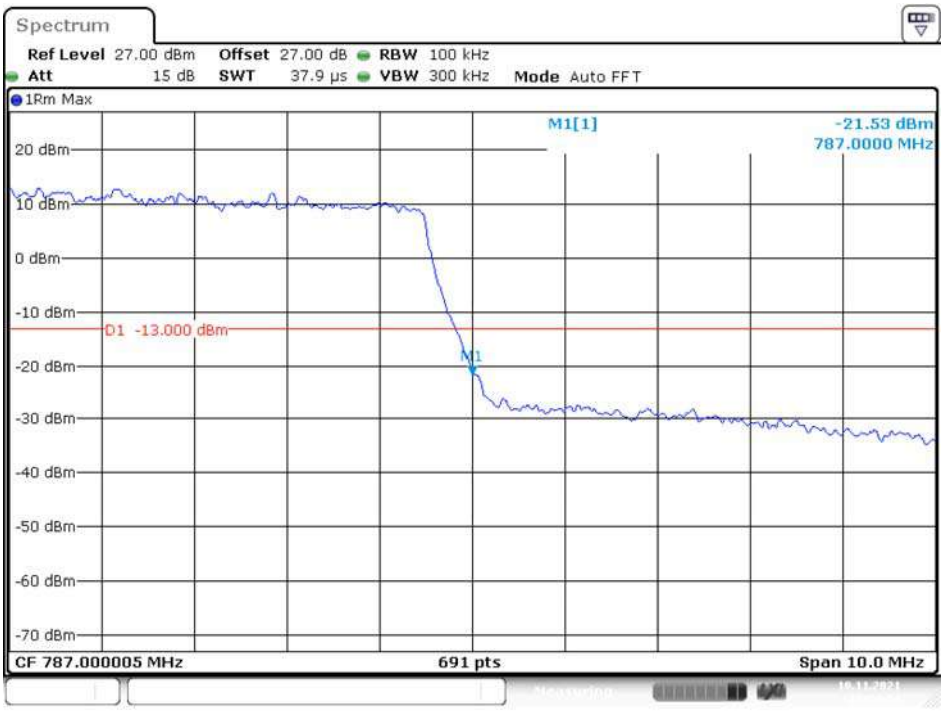


Date: 4.OCT.2021 14:20:56

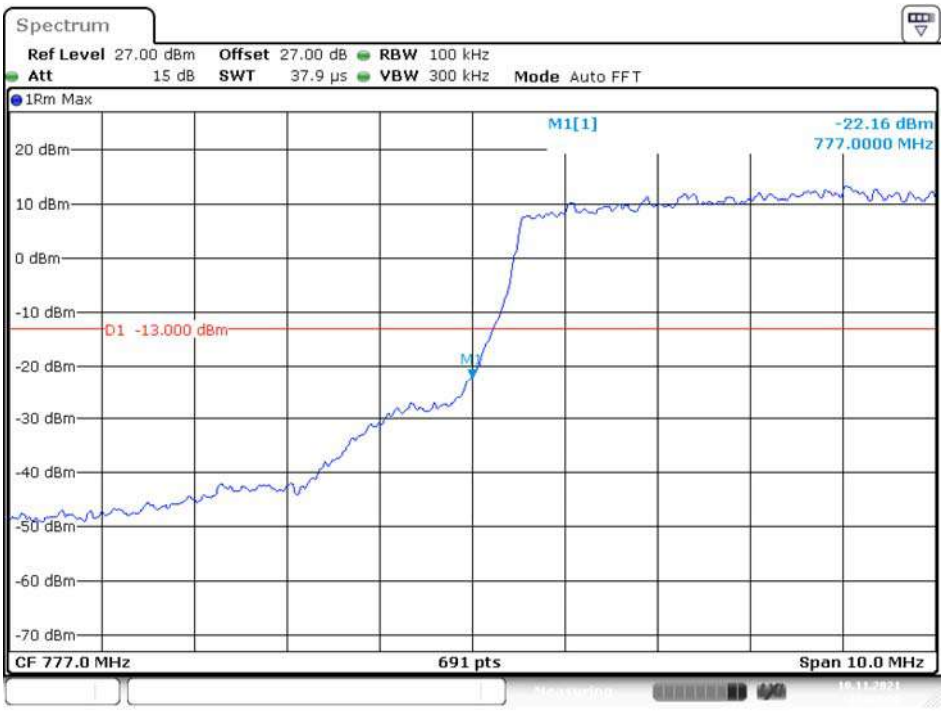
QPSK (10MHz, RB50) – Left Band Edge



QPSK (10MHz, RB50) – Right Band Edge

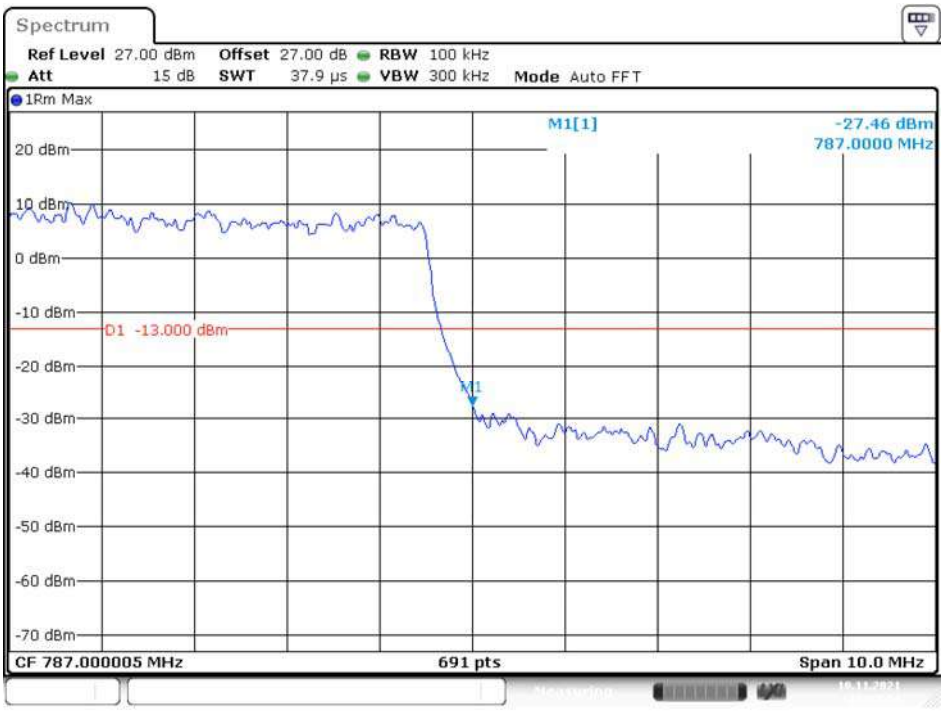


16QAM (10MHz, RB50) – Left Band Edge



Date: 10.NOV.2021 13:09:40

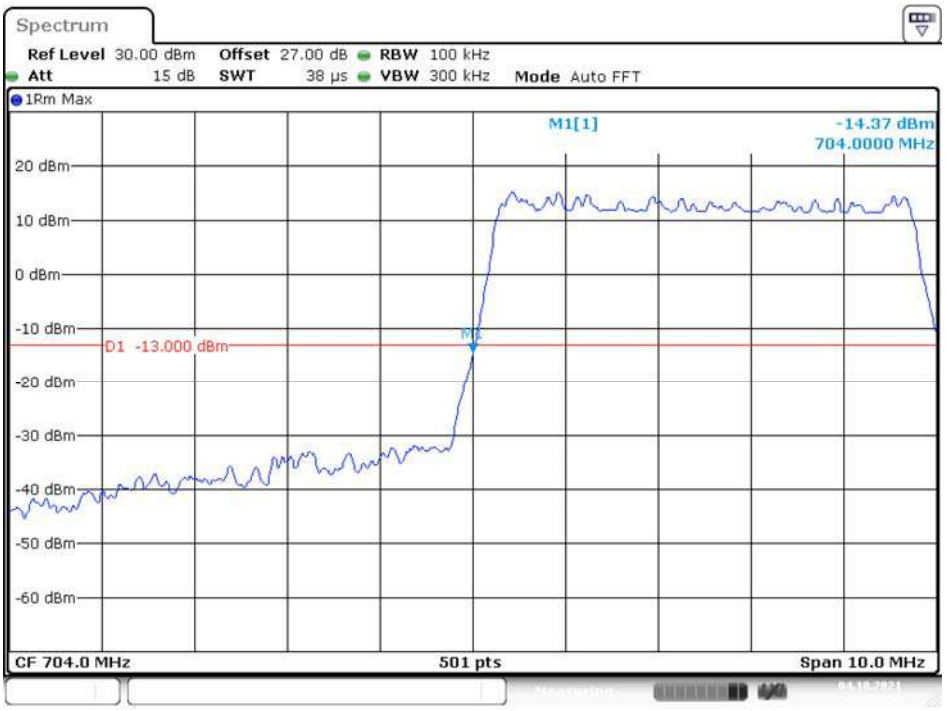
16QAM (10MHz, RB50) – Right Band Edge



Date: 10.NOV.2021 13:13:54

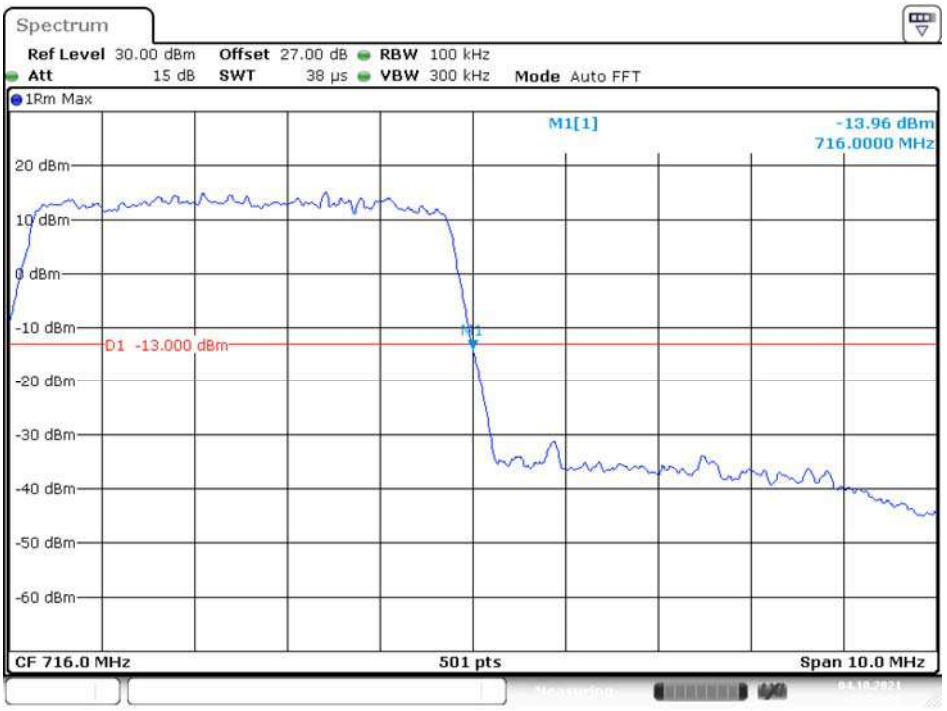
LTE Band 17

QPSK (5MHz, RB25) – Left Band Edge



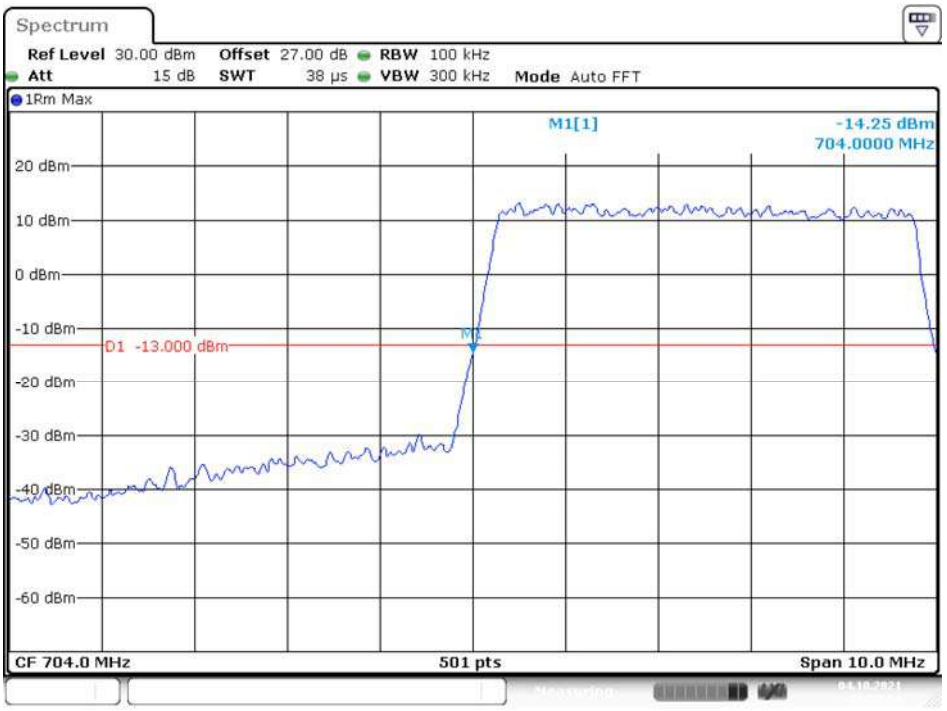
Date: 4.OCT.2021 18:53:31

QPSK (5MHz, RB25) – Right Band Edge



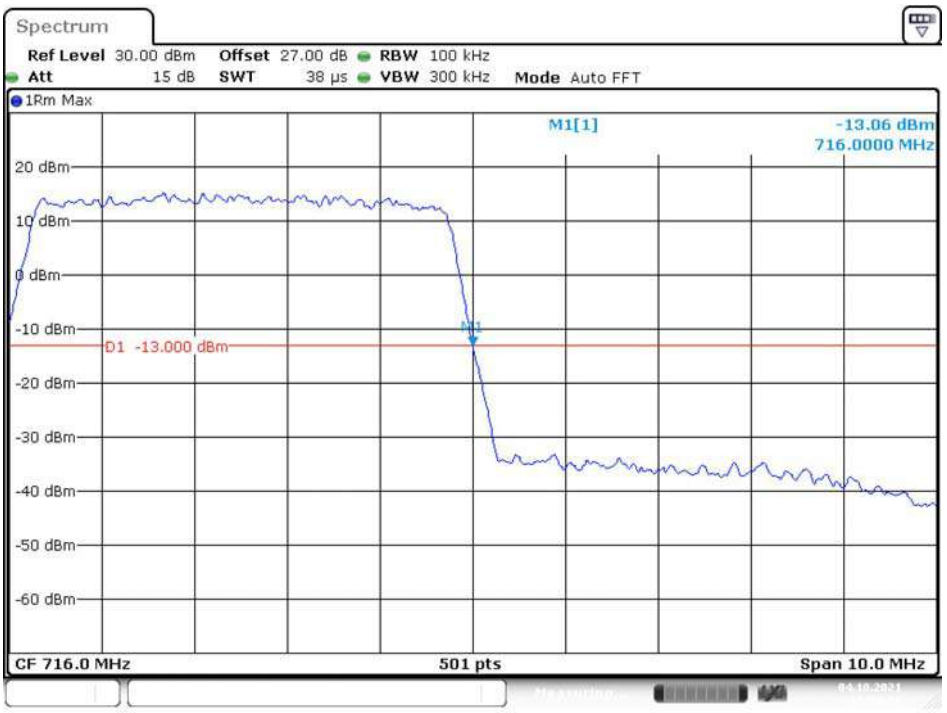
Date: 4.OCT.2021 18:54:41

16QAM (5MHz, RB25) – Left Band Edge



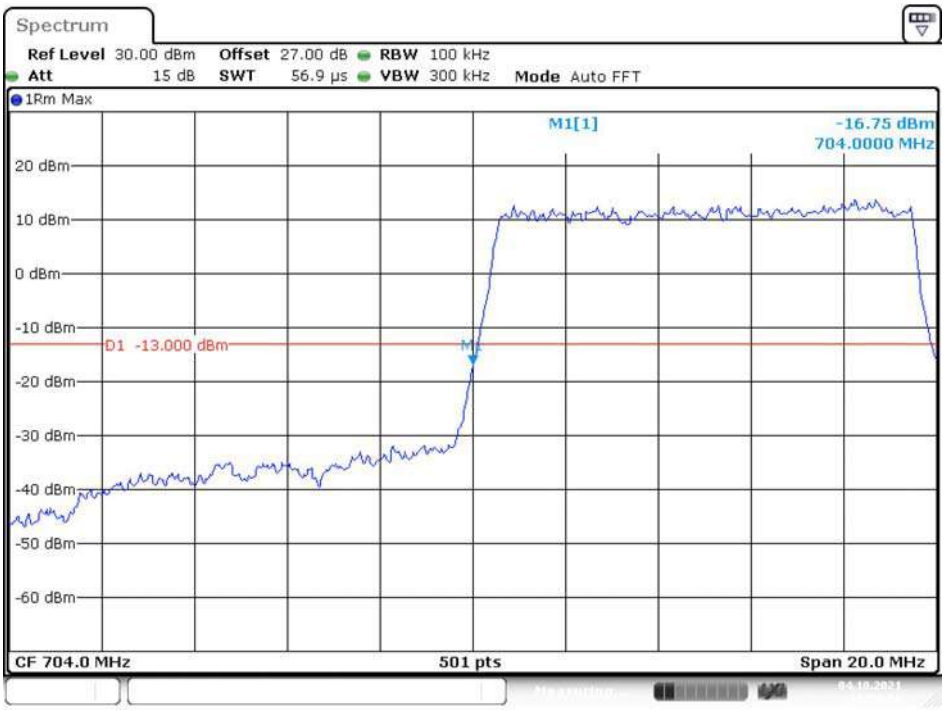
Date: 4.OCT.2021 18:53:54

16QAM (5MHz, RB25) – Right Band Edge



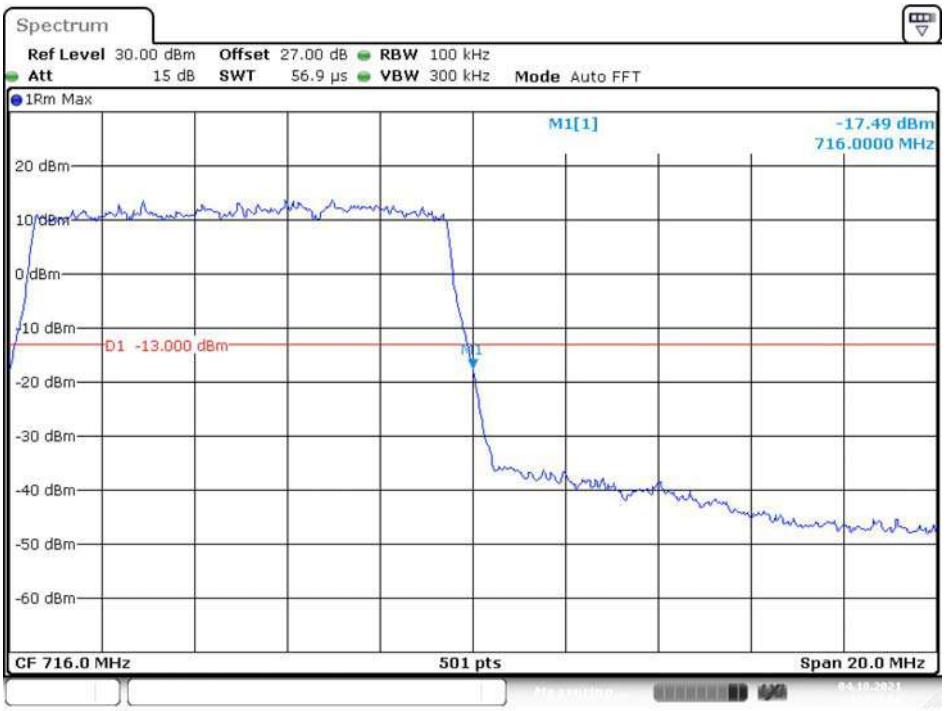
Date: 4.OCT.2021 15:10:14

QPSK (10MHz, RB50) – Left Band Edge



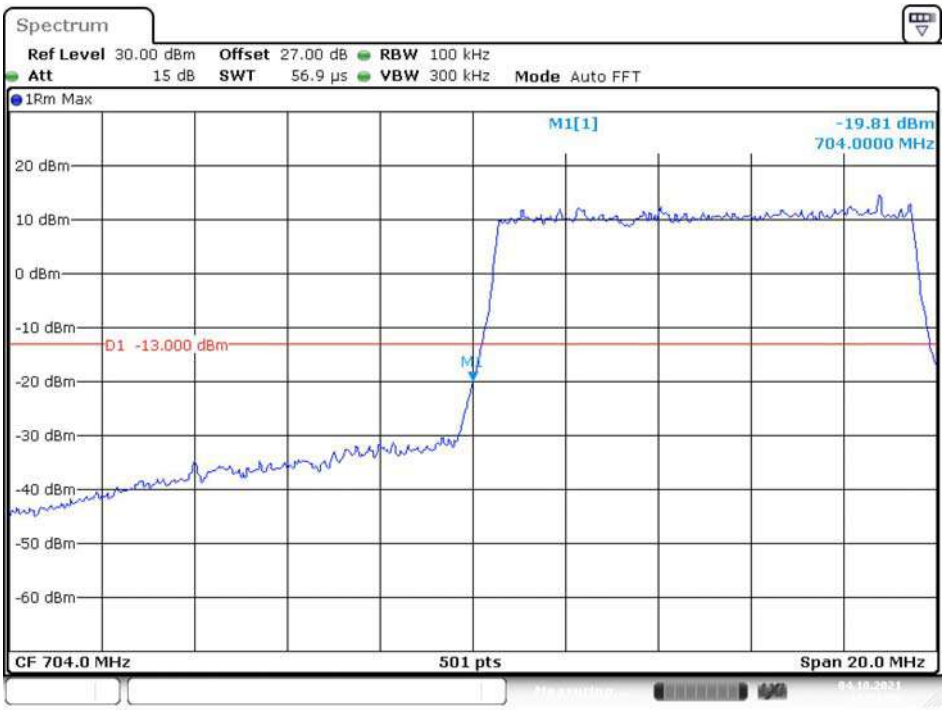
Date: 4.OCT.2021 15:10:51

QPSK (10MHz, RB50) – Right Band Edge



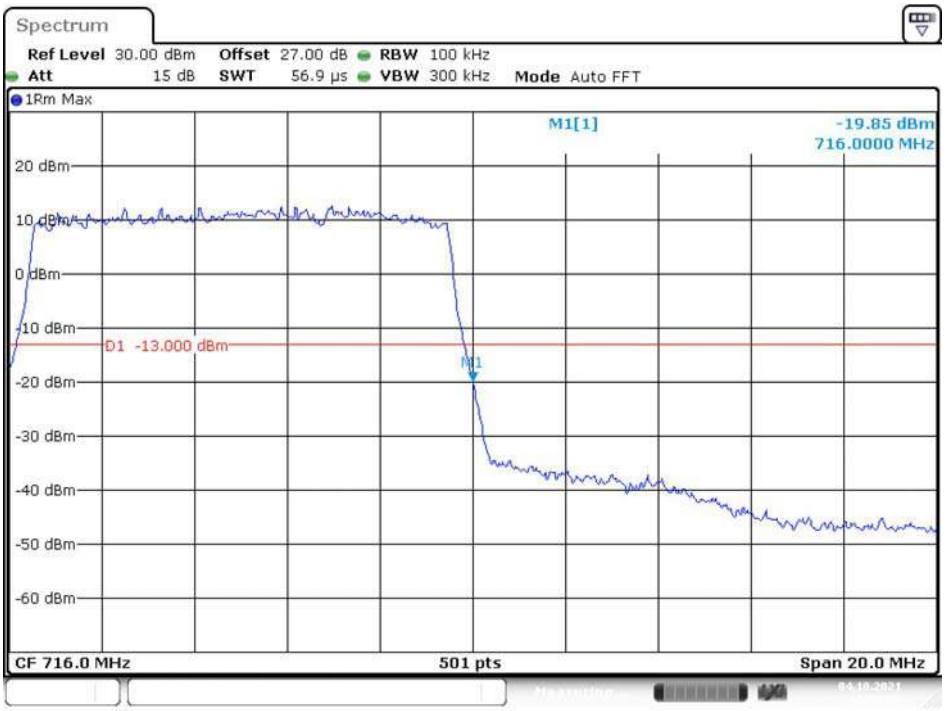
Date: 4.OCT.2021 15:12:09

16QAM (10MHz, RB50) – Left Band Edge



Date: 4.OCT.2021 15:11:22

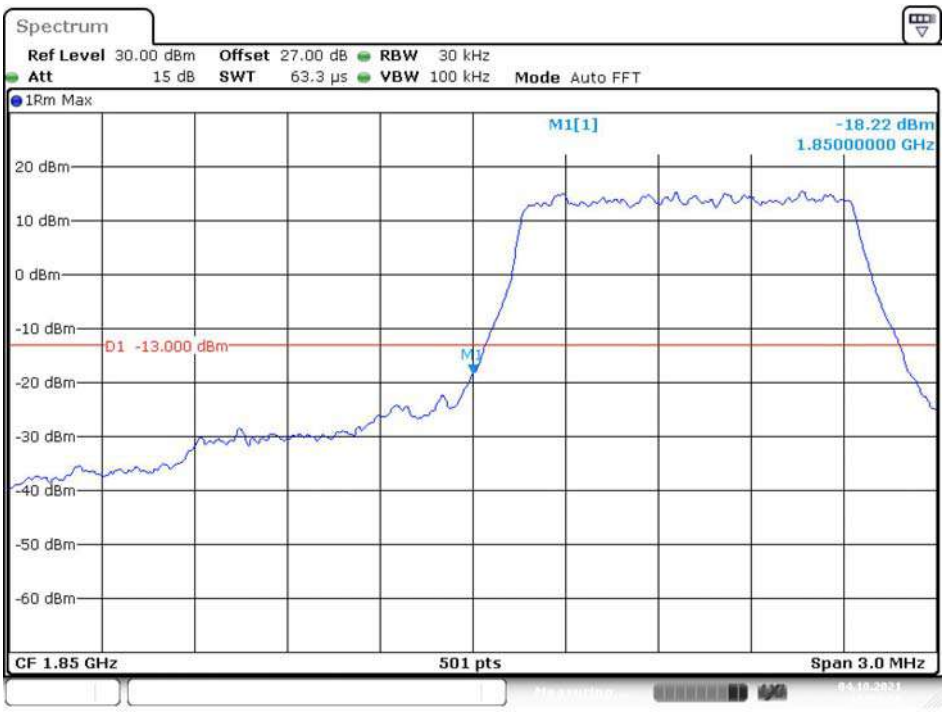
16QAM (10MHz, RB50) – Right Band Edge



Date: 4.OCT.2021 15:12:37

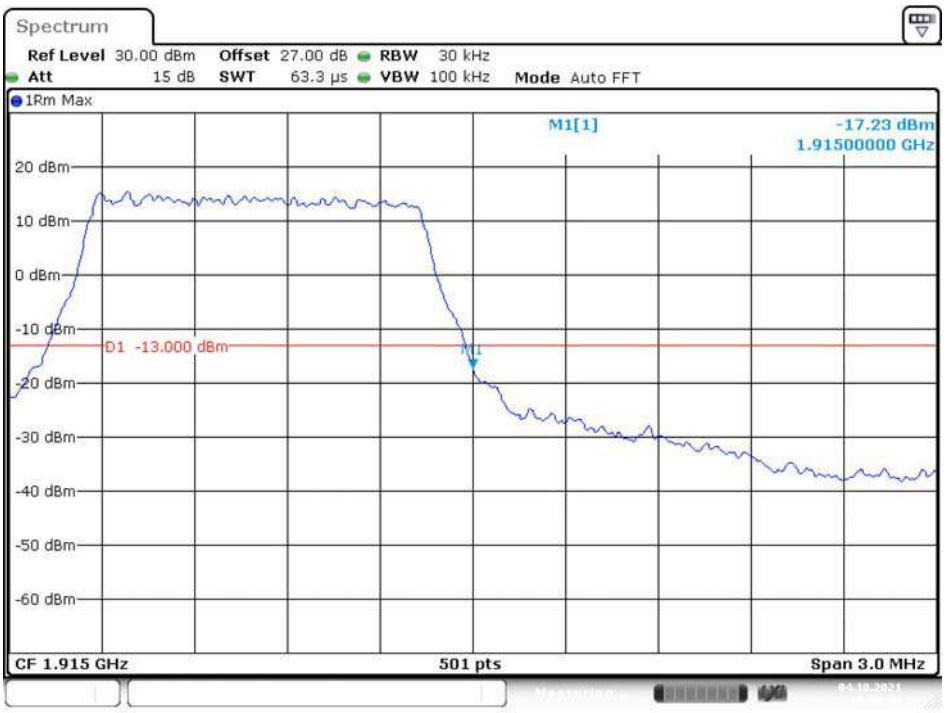
LTE Band 25

QPSK (1.4MHz, RB6) – Left Band Edge



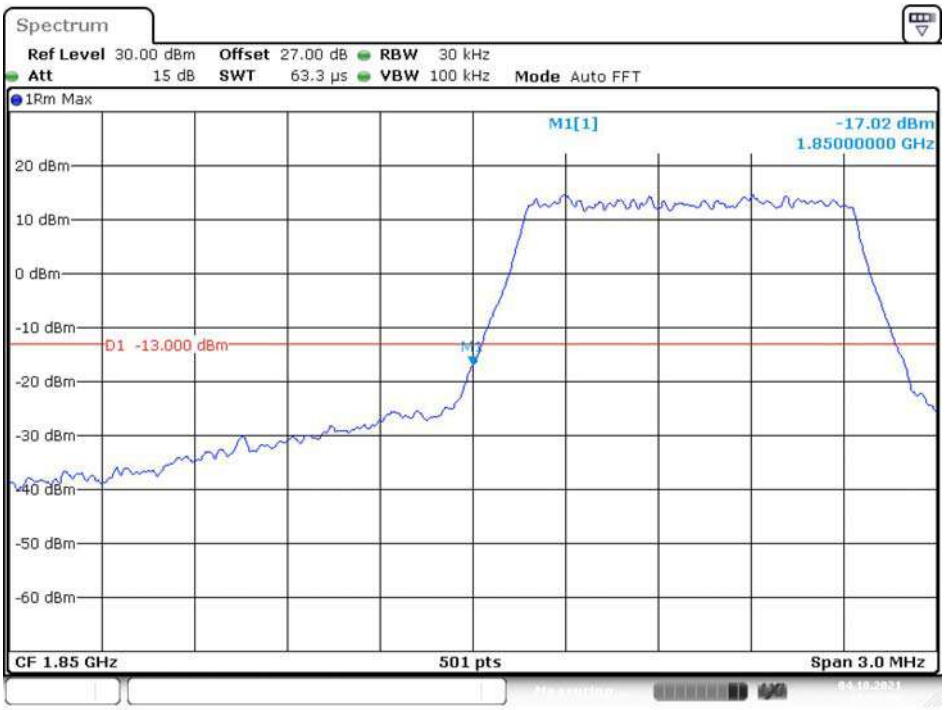
Date: 4.OCT.2021 15:12:59

QPSK (1.4MHz, RB6) – Right Band Edge



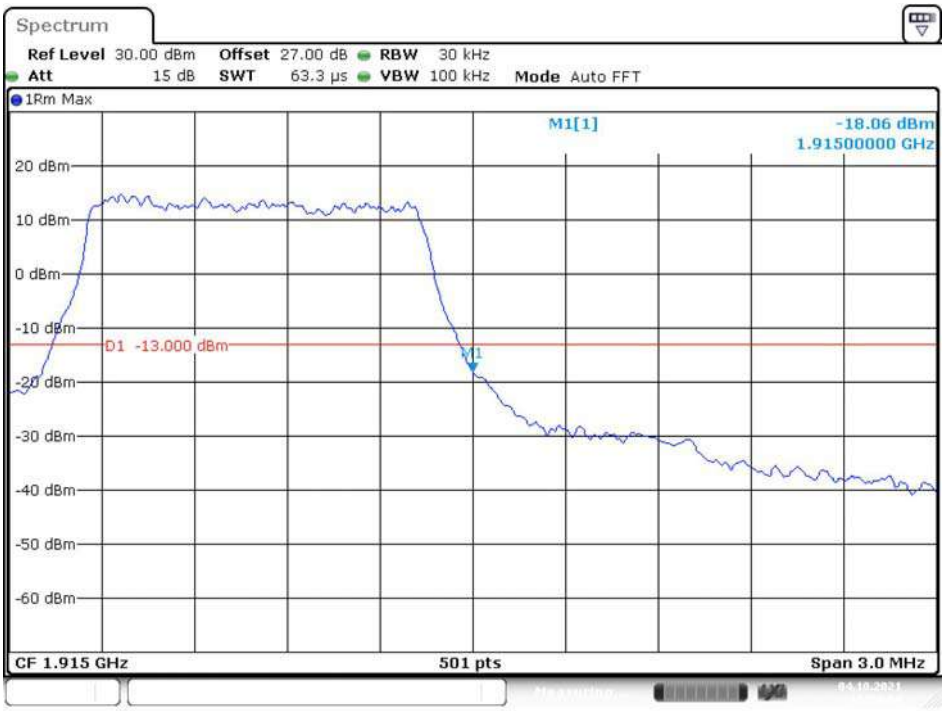
Date: 4.OCT.2021 15:13:44

16QAM (1.4MHz, RB6) – Left Band Edge



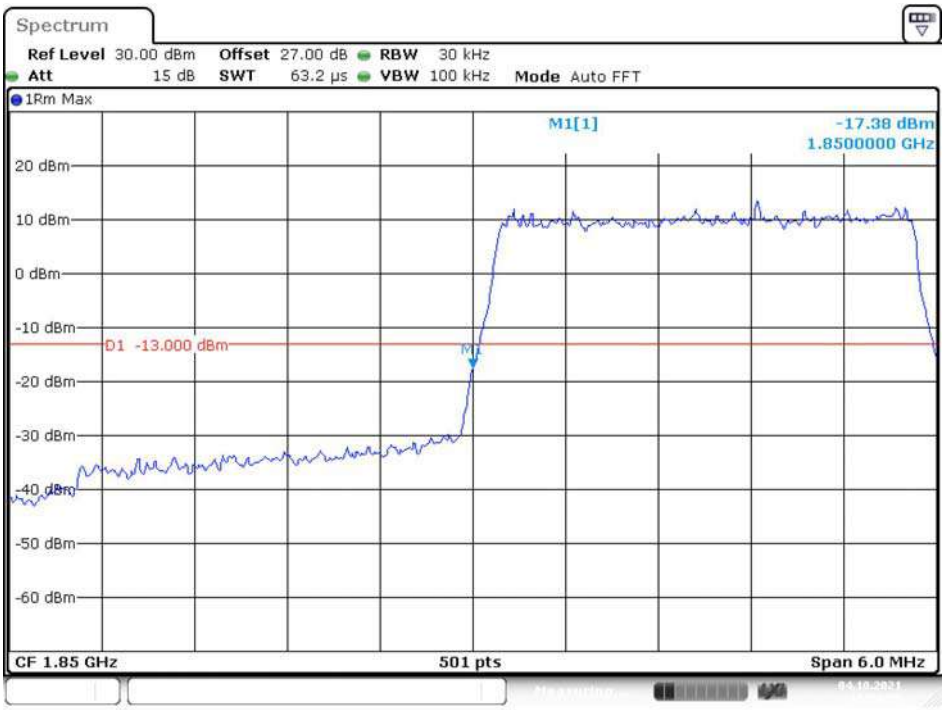
Date: 4.OCT.2021 15:13:16

16QAM (1.4MHz, RB6) – Right Band Edge



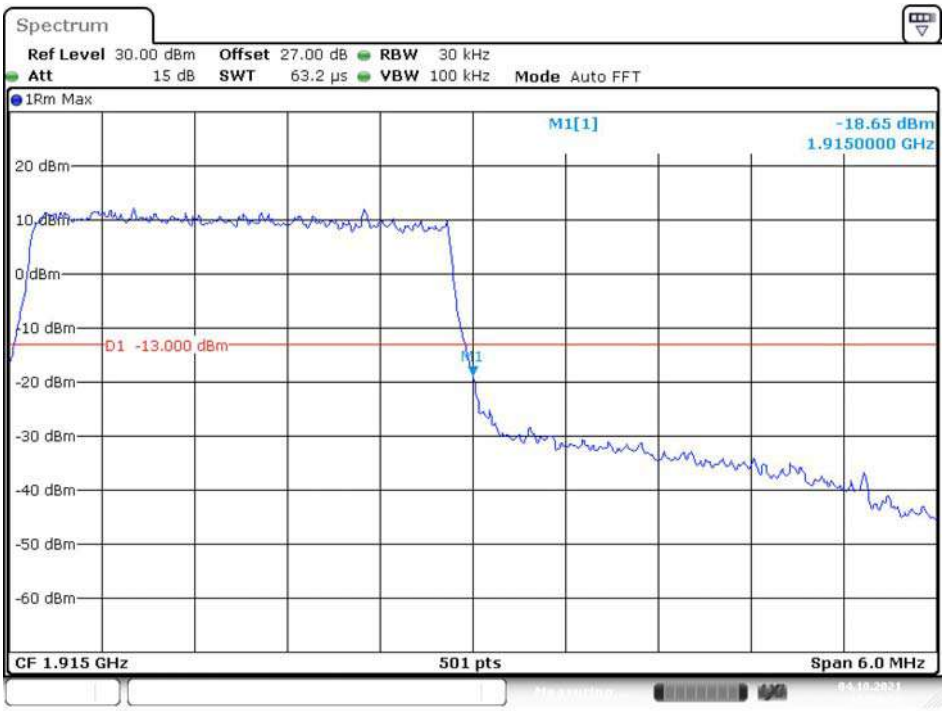
Date: 4.OCT.2021 15:14:04

QPSK (3MHz, RB15) – Left Band Edge



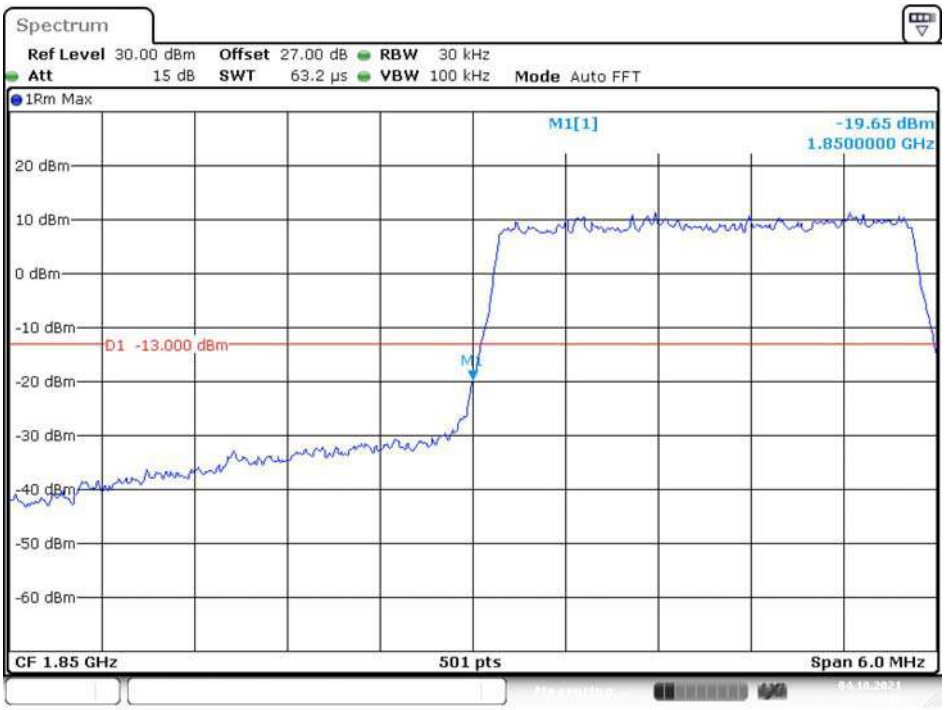
Date: 4.OCT.2021 15:14:25

QPSK (3MHz, RB15) – Right Band Edge



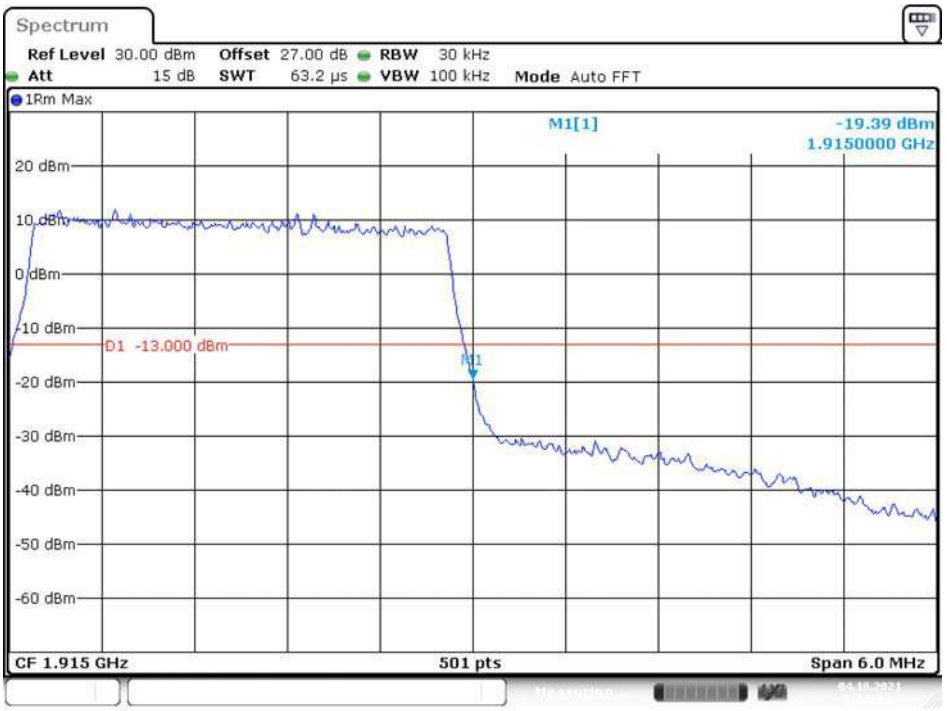
Date: 4.OCT.2021 15:14:57

16QAM (3MHz, RB15) – Left Band Edge



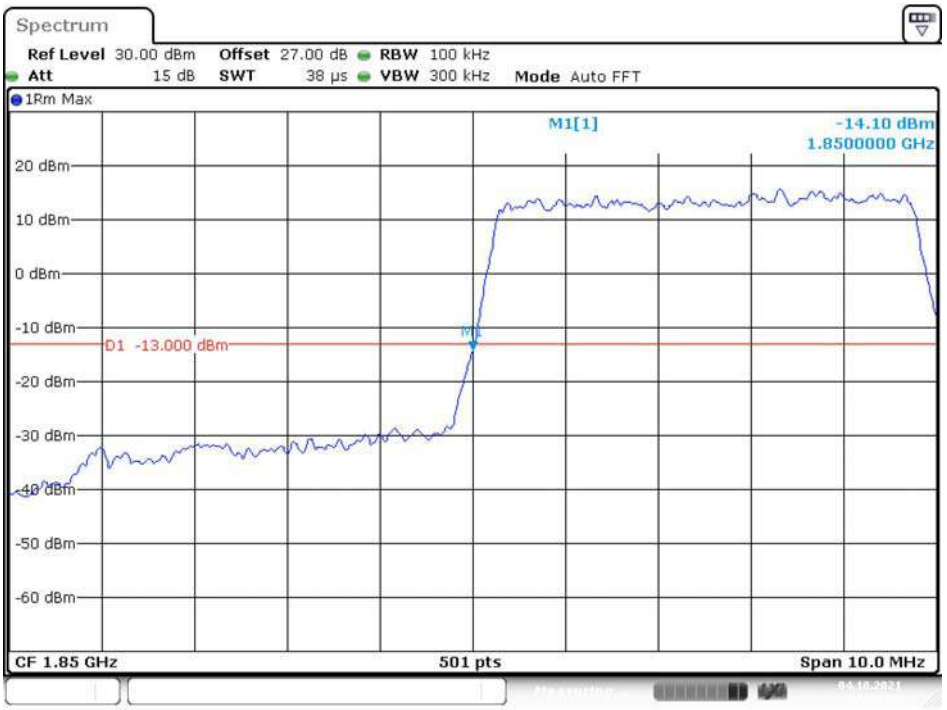
Date: 4.OCT.2021 15:14:42

16QAM (3MHz, RB15) – Right Band Edge



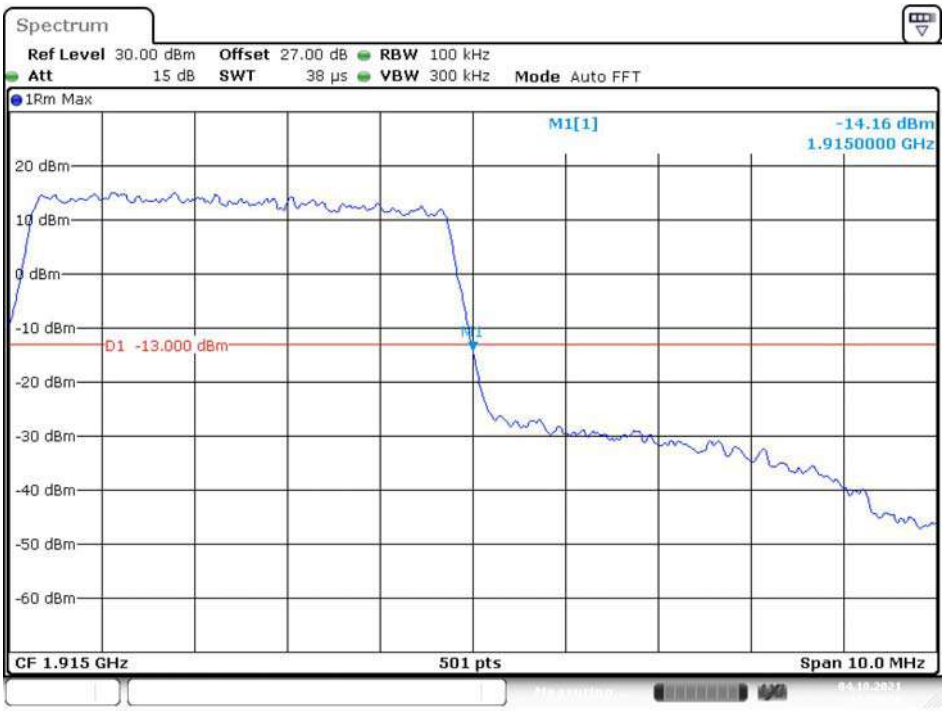
Date: 4.OCT.2021 15:15:17

QPSK (5MHz, RB25) – Left Band Edge



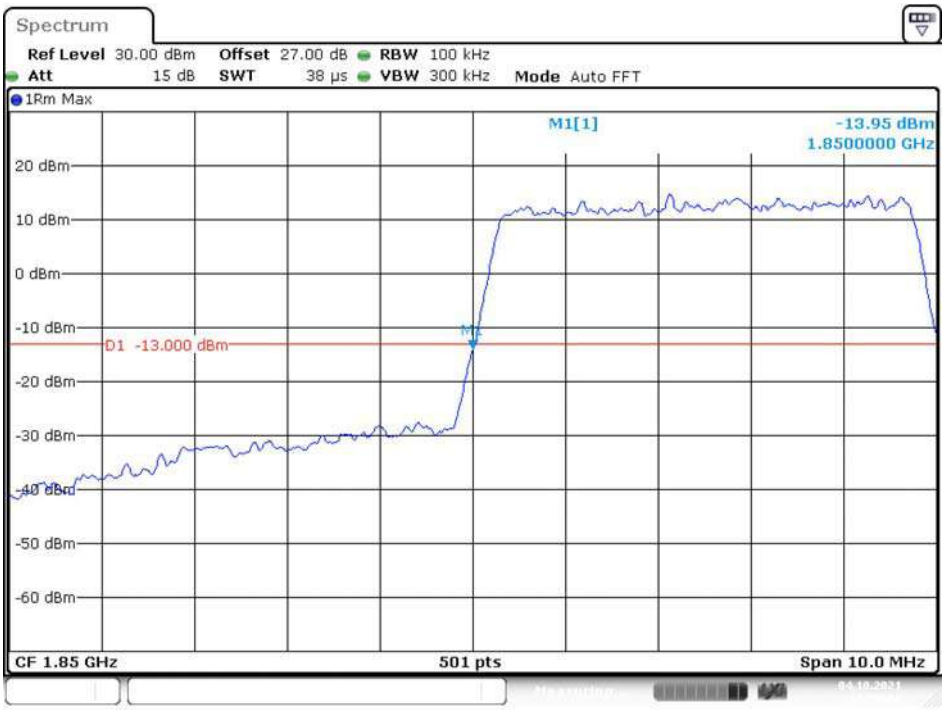
Date: 4.OCT.2021 15:15:48

QPSK (5MHz, RB25) – Right Band Edge



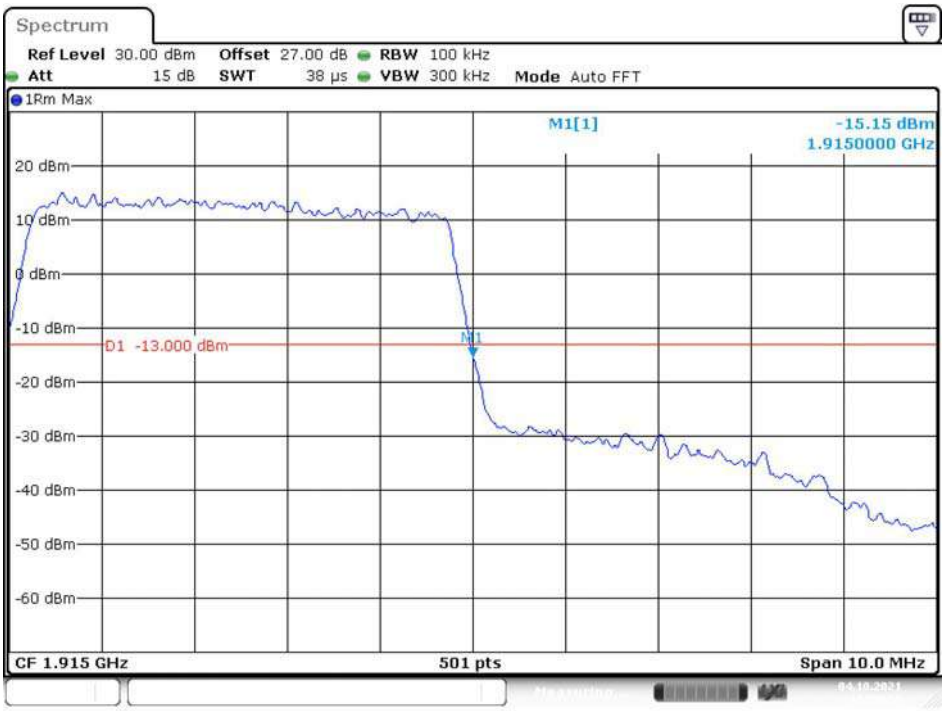
Date: 4.OCT.2021 15:16:29

16QAM (5MHz, RB25) – Left Band Edge



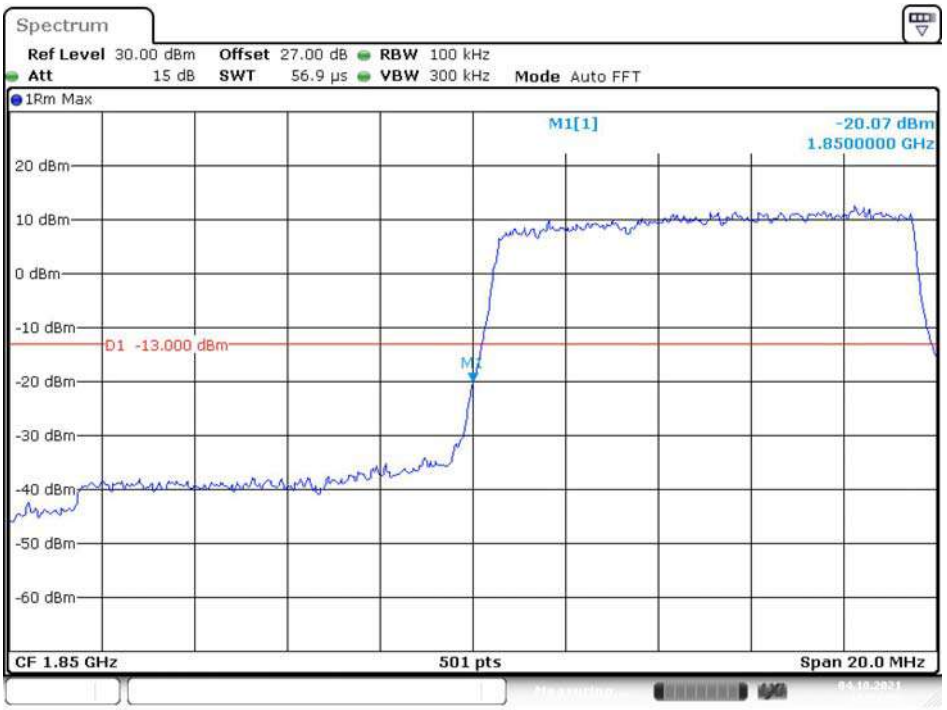
Date: 4.OCT.2021 15:16:08

16QAM (5MHz, RB25) – Right Band Edge



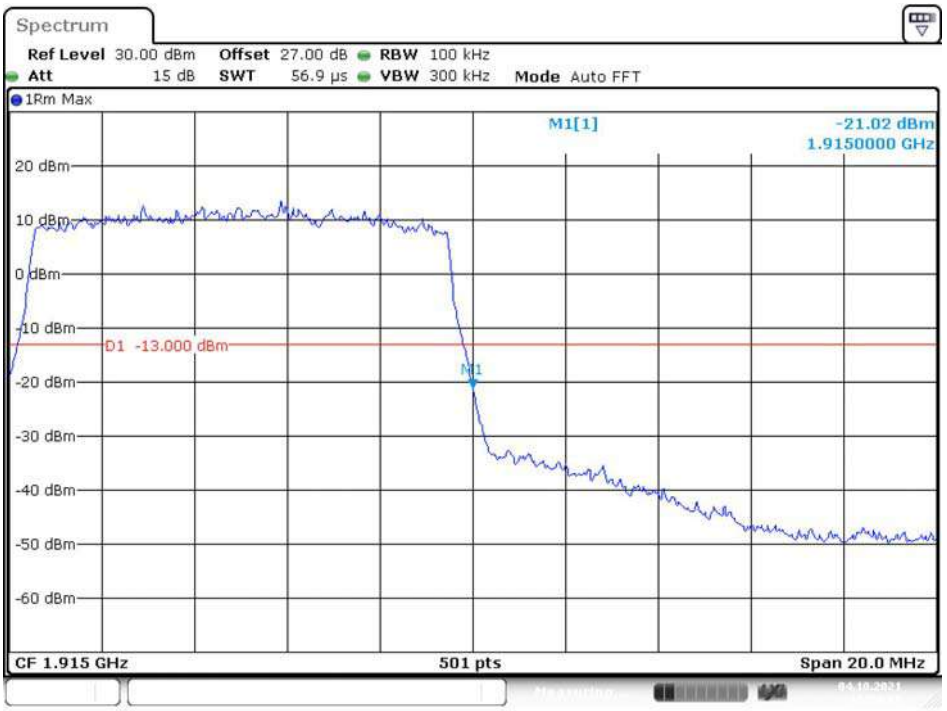
Date: 4.OCT.2021 15:16:55

QPSK (10MHz, RB50) – Left Band Edge



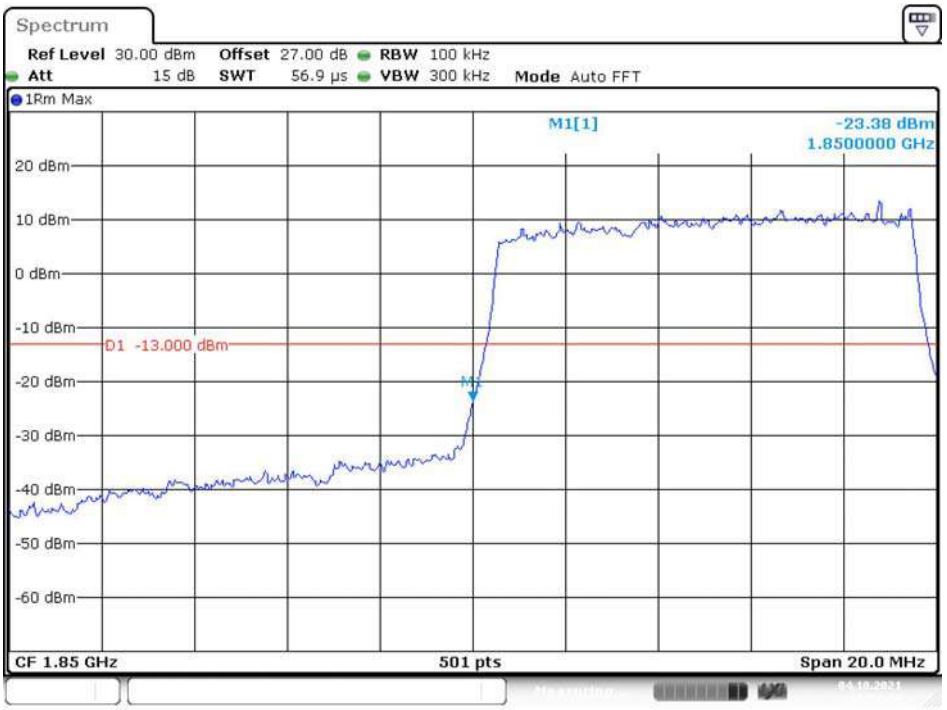
Date: 4.OCT.2021 15:17:27

QPSK (10MHz, RB50) – Right Band Edge



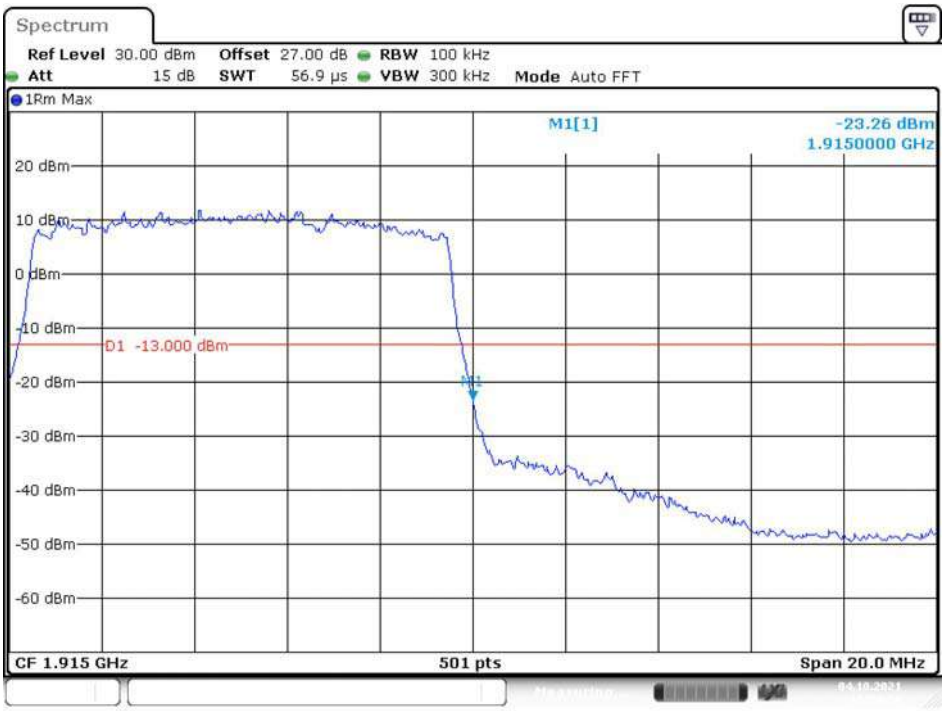
Date: 4.OCT.2021 15:18:19

16QAM (10MHz, RB50) – Left Band Edge



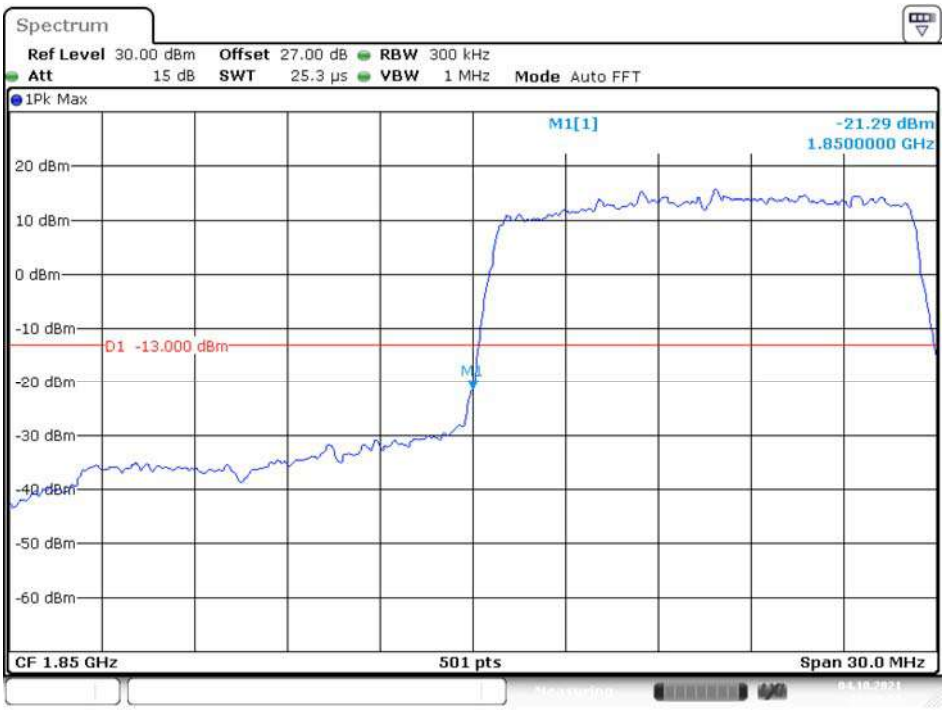
Date: 4.OCT.2021 15:17:54

16QAM (10MHz, RB50) – Right Band Edge



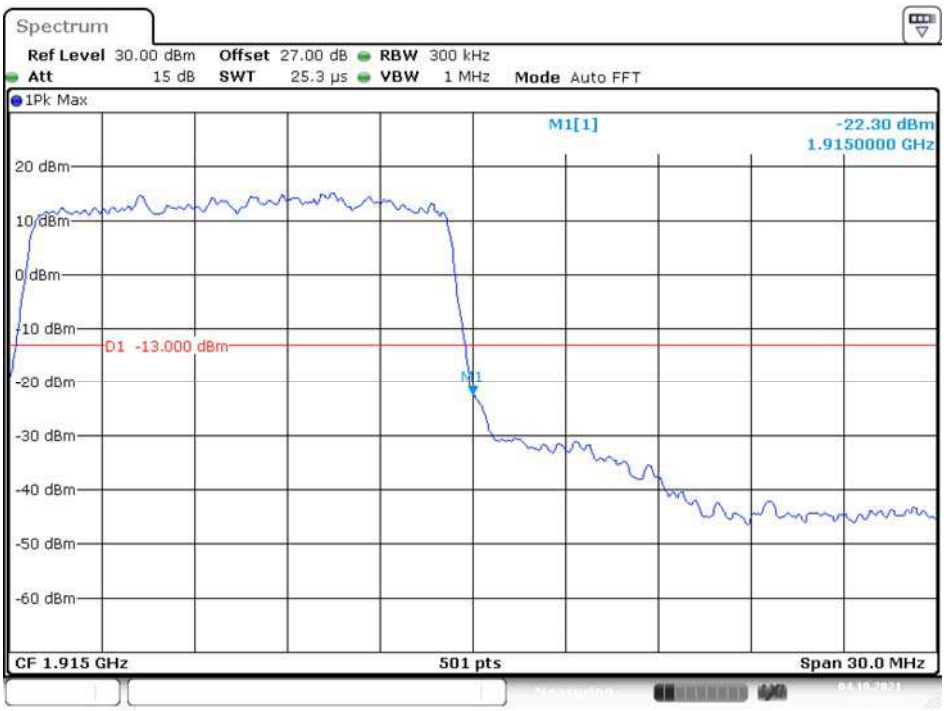
Date: 4.OCT.2021 15:18:50

QPSK (15MHz, RB75) – Left Band Edge



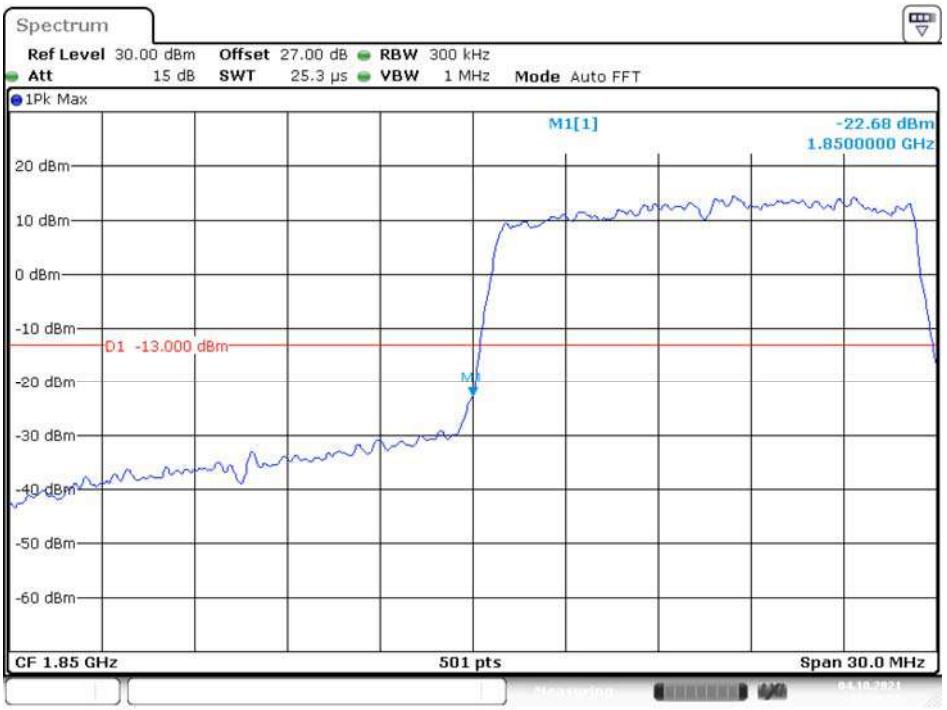
Date: 4.OCT.2021 17:16:21

QPSK (15MHz, RB75) – Right Band Edge



Date: 4.OCT.2021 17:24:45

16QAM (15MHz, RB75) – Left Band Edge

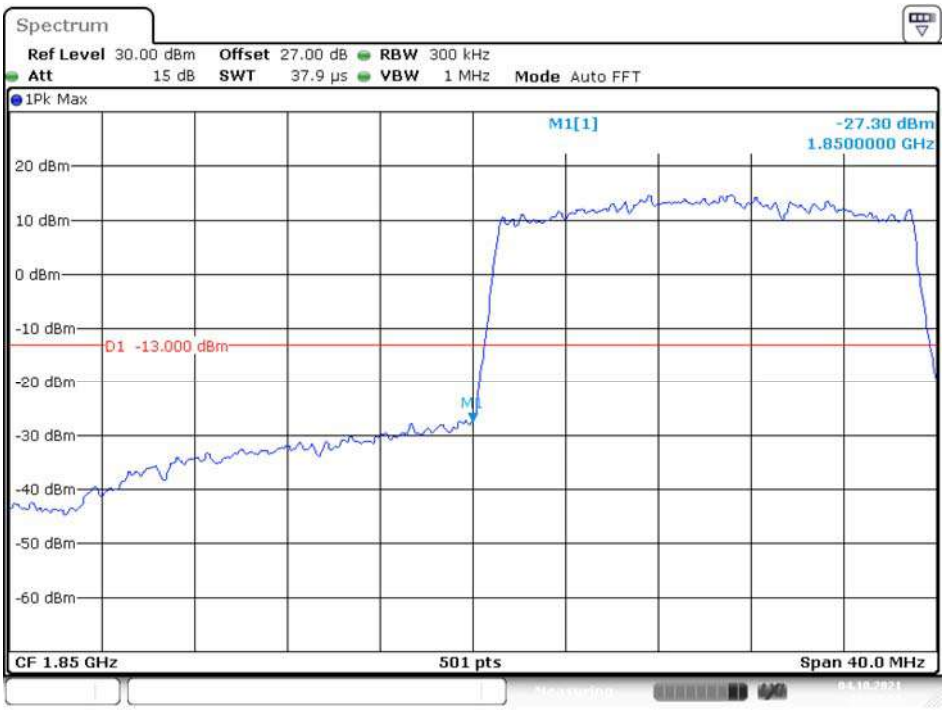


Date: 4.OCT.2021 17:16:53

16QAM (15MHz, RB75) – Right Band Edge

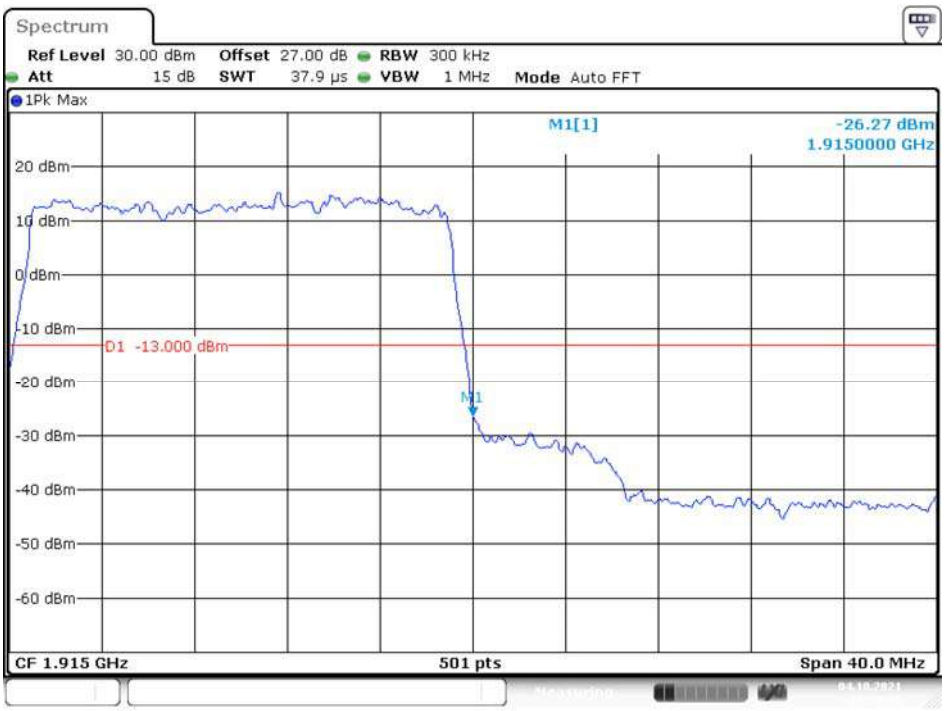
Date: 4.OCT.2021 17:24:23

QPSK (20MHz, RB100) – Left Band Edge



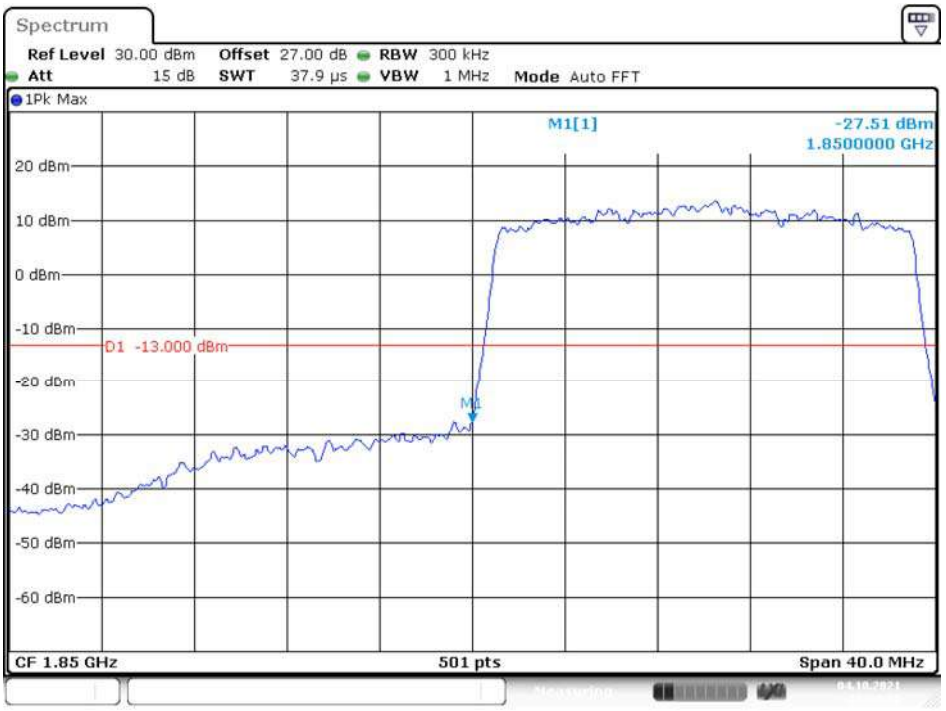
Date: 4.OCT.2021 17:31:21

QPSK (20MHz, RB100) – Right Band Edge



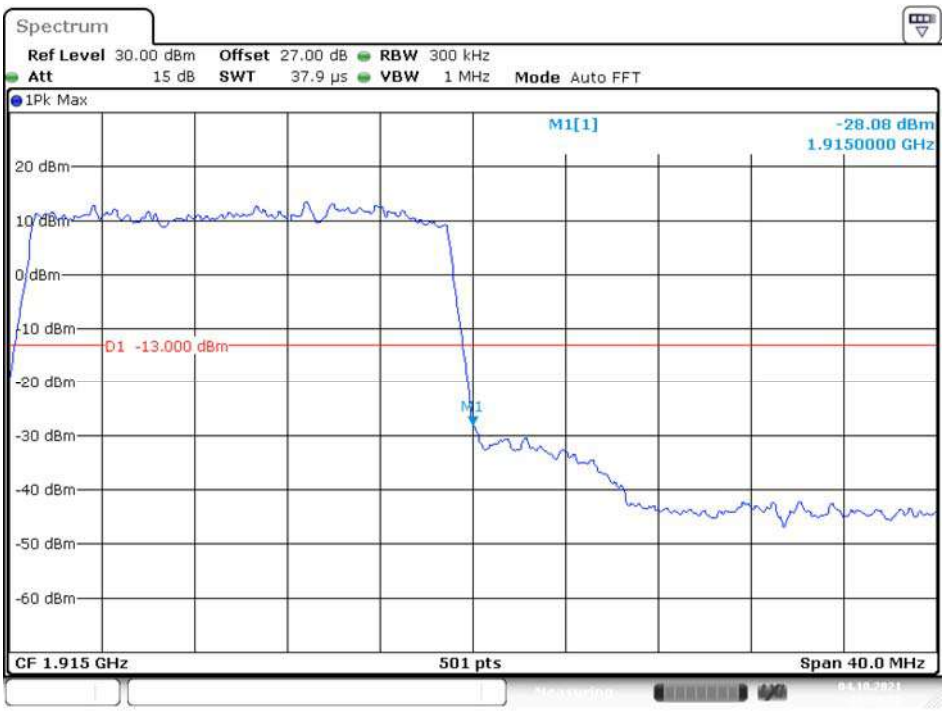
Date: 4.OCT.2021 17:28:40

16QAM (20MHz, RB100) – Left Band Edge



Date: 4.OCT.2021 17:30:27

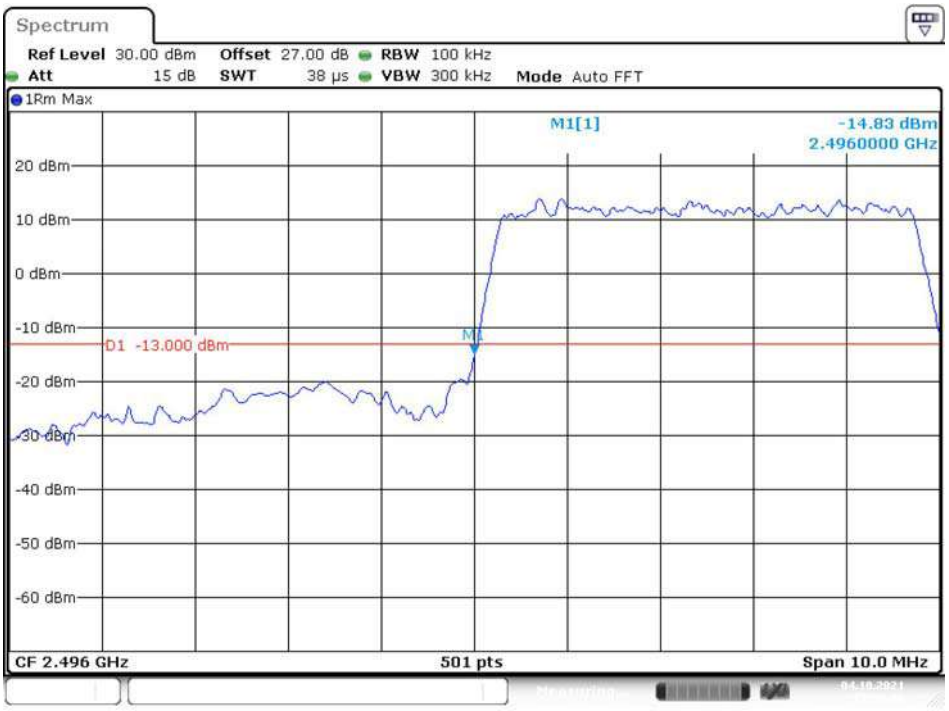
16QAM (20MHz, RB100) – Right Band Edge



Date: 4.OCT.2021 17:29:22

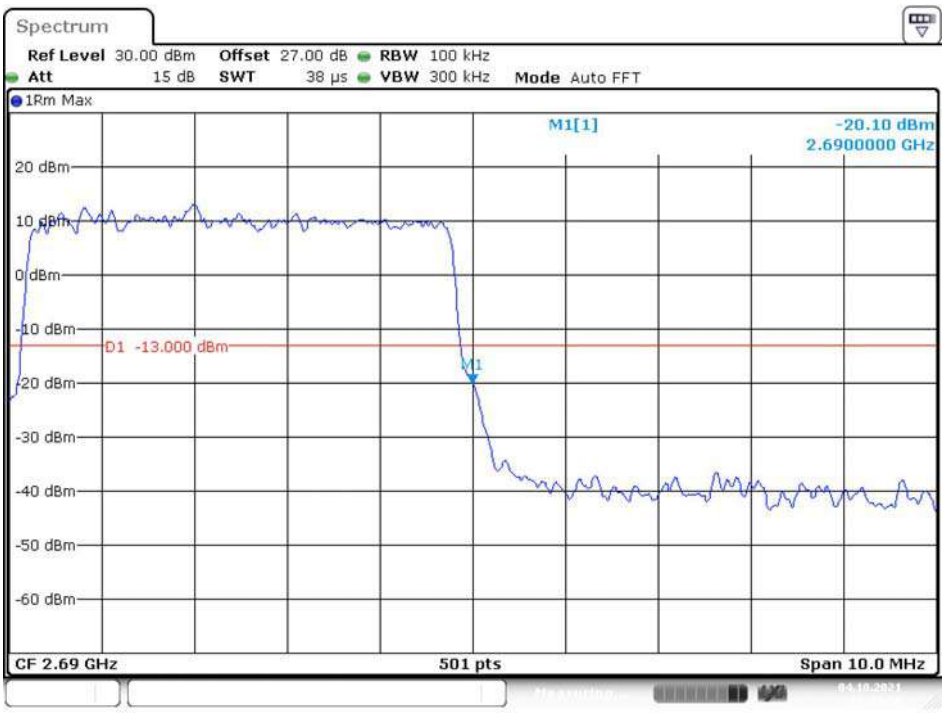
LTE Band 41

QPSK (5MHz, RB25) – Left Band Edge



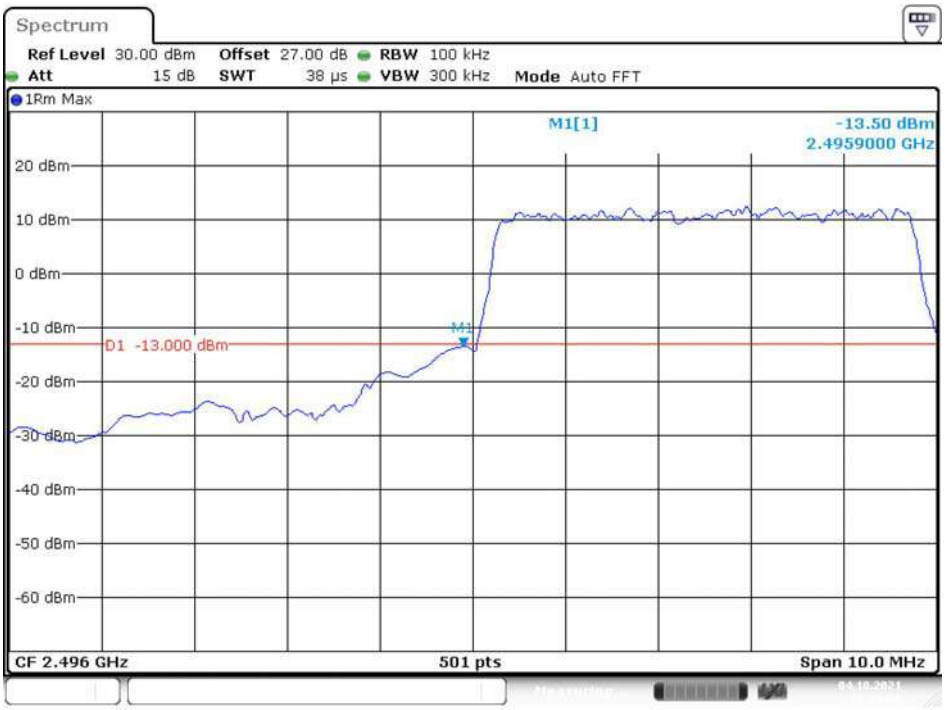
Date: 4.OCT.2021 17:34:49

QPSK (5MHz, RB25) – Right Band Edge



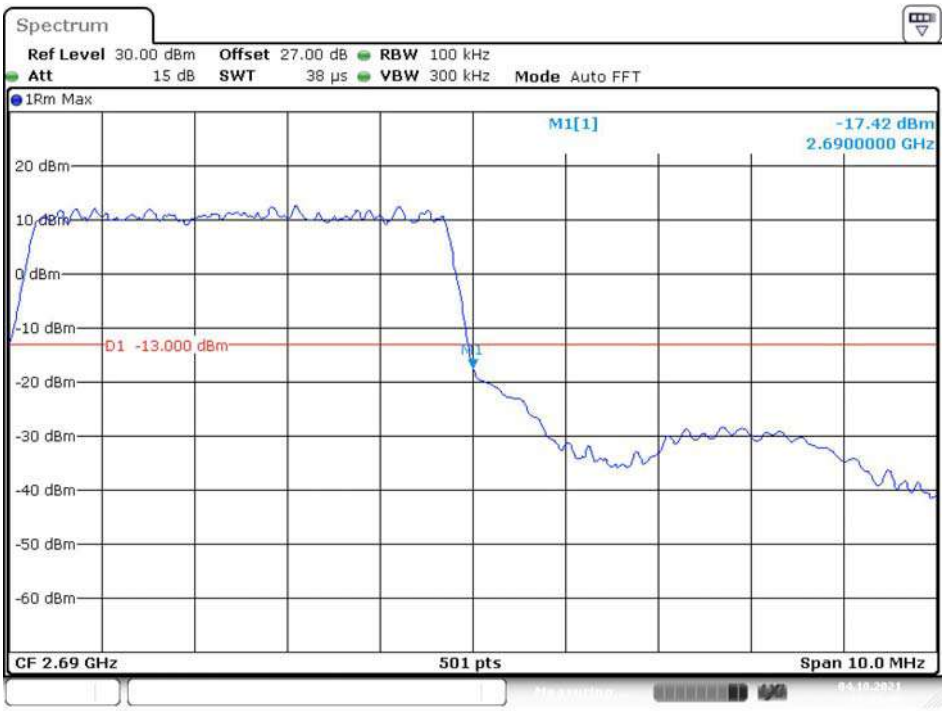
Date: 4.OCT.2021 17:35:27

16QAM (5MHz, RB25) – Left Band Edge



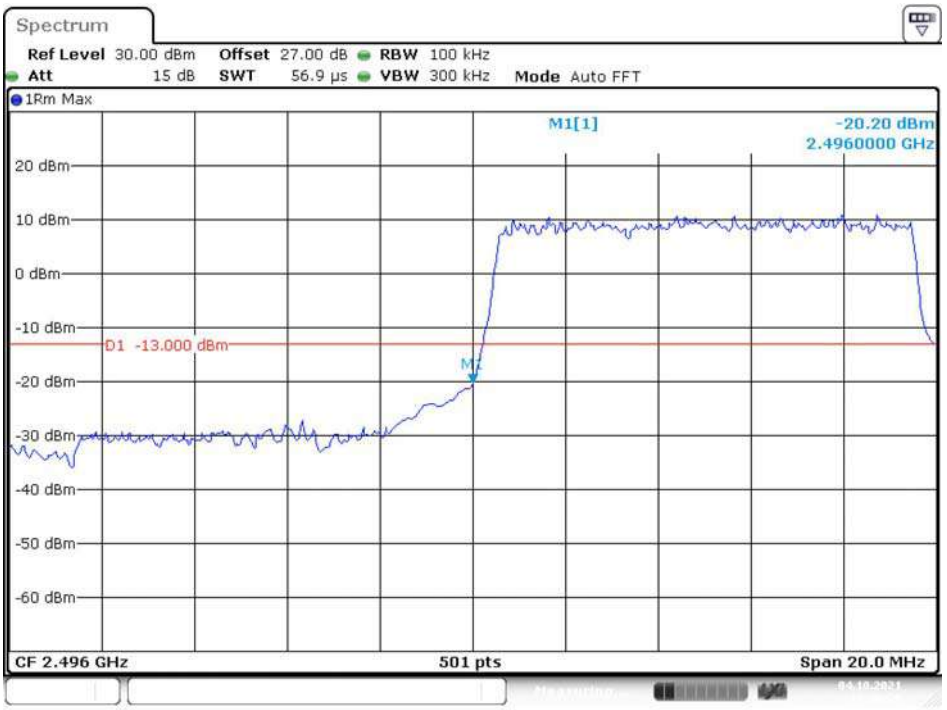
Date: 4.OCT.2021 17:35:09

16QAM (5MHz, RB25) – Right Band Edge



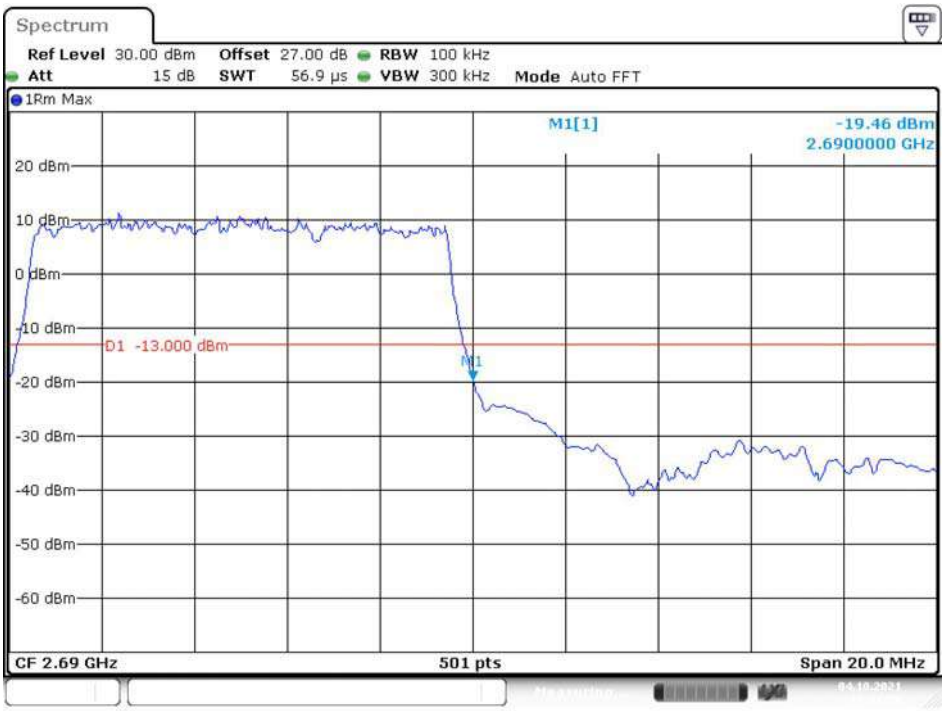
Date: 4.OCT.2021 17:35:44

QPSK (10MHz, RB50) – Left Band Edge



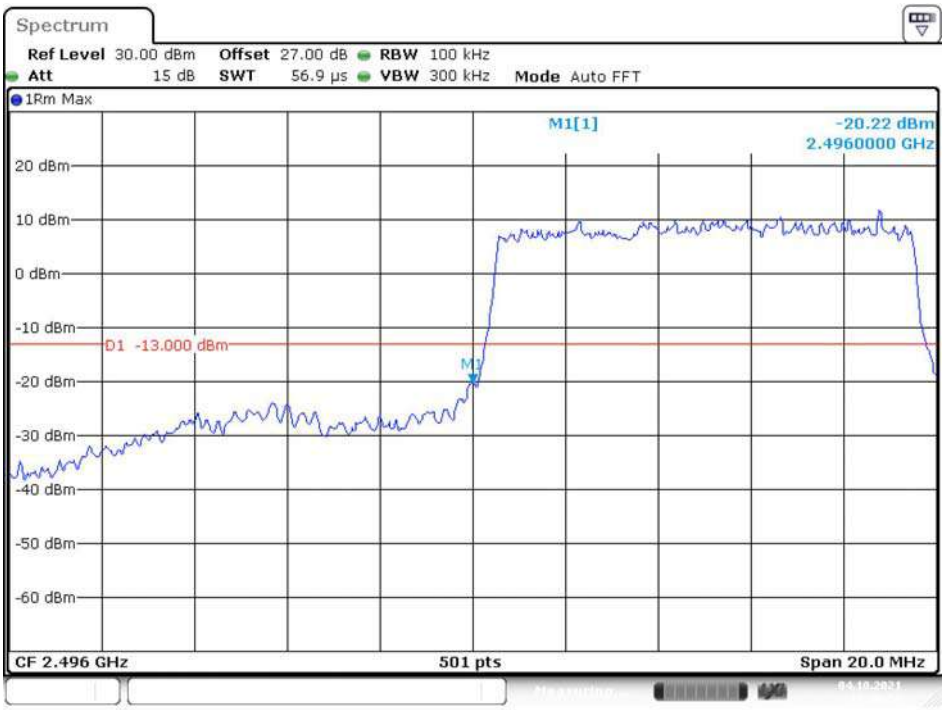
Date: 4.OCT.2021 17:36:29

QPSK (10MHz, RB50) – Right Band Edge



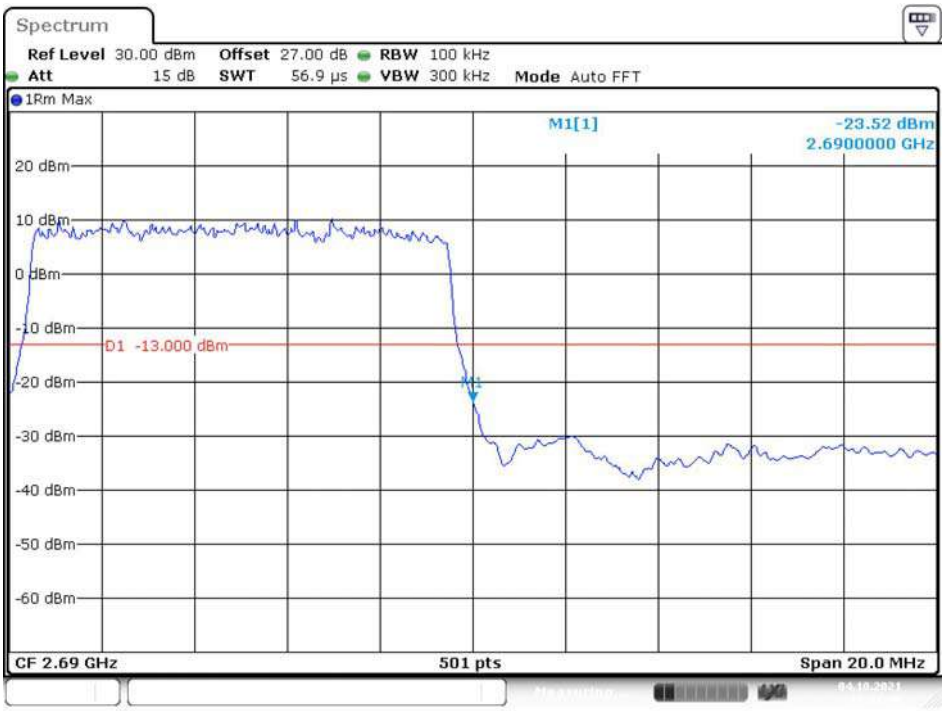
Date: 4.OCT.2021 17:37:22

16QAM (10MHz, RB50) – Left Band Edge



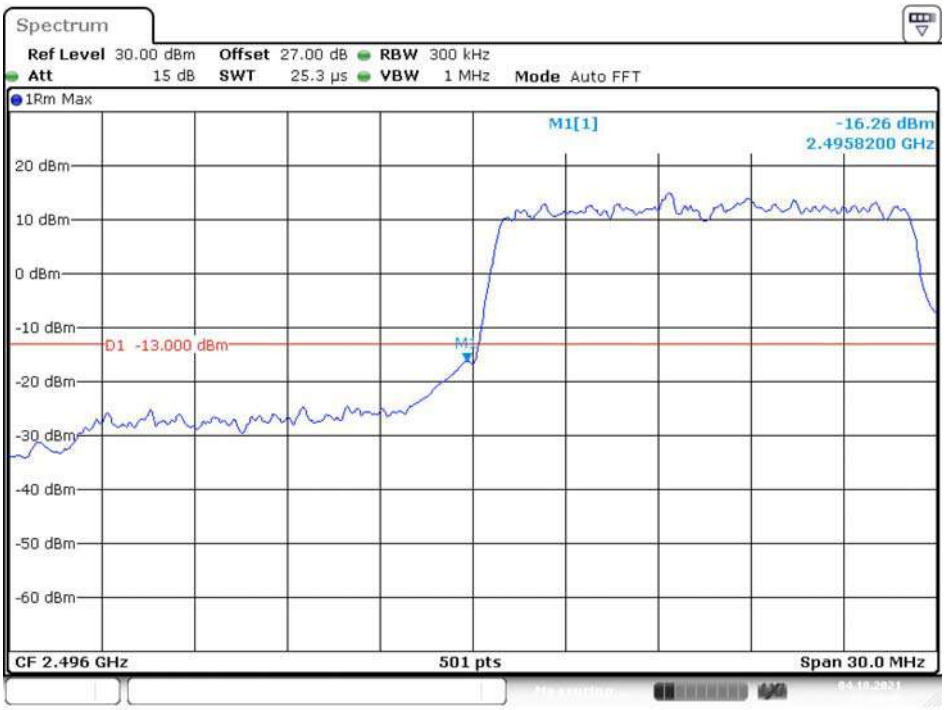
Date: 4.OCT.2021 17:36:53

16QAM (10MHz, RB50) – Right Band Edge



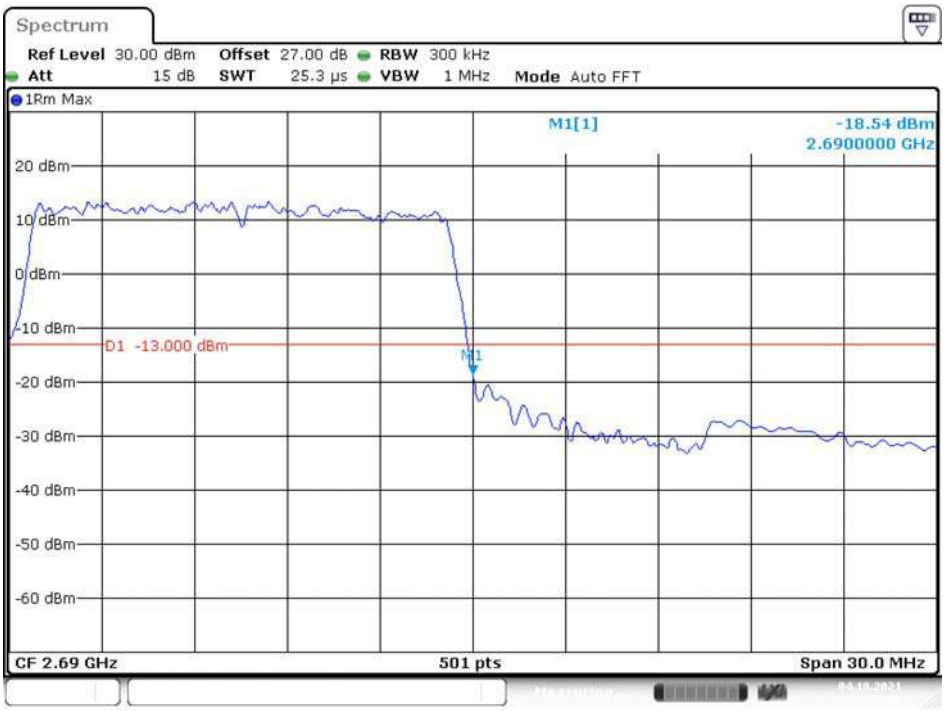
Date: 4.OCT.2021 17:37:46

QPSK (15MHz, RB75) – Left Band Edge



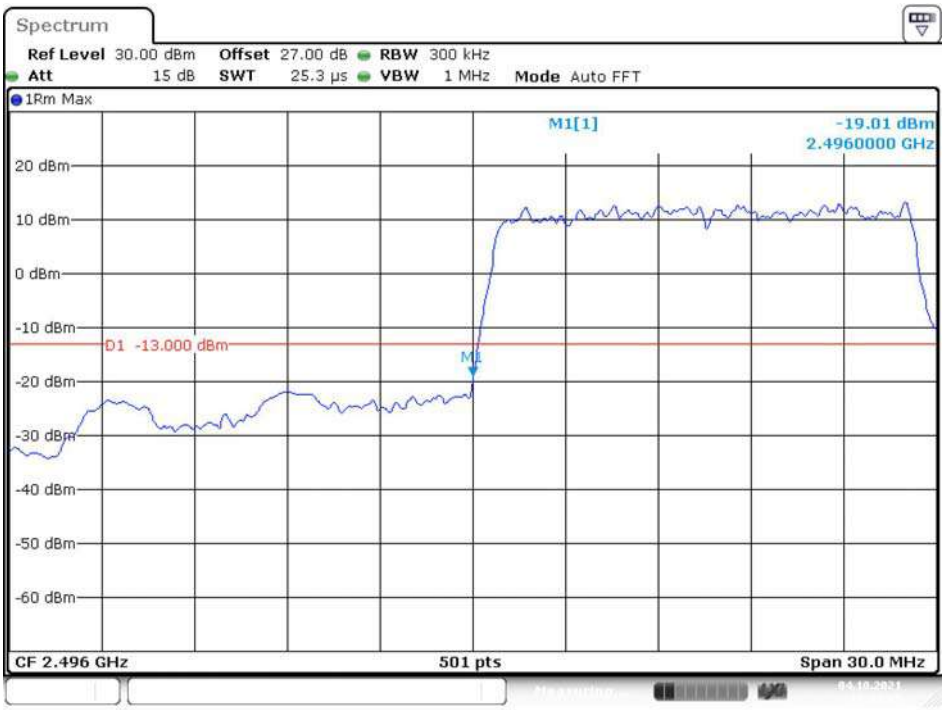
Date: 4.OCT.2021 17:38:45

QPSK (15MHz, RB75) – Right Band Edge



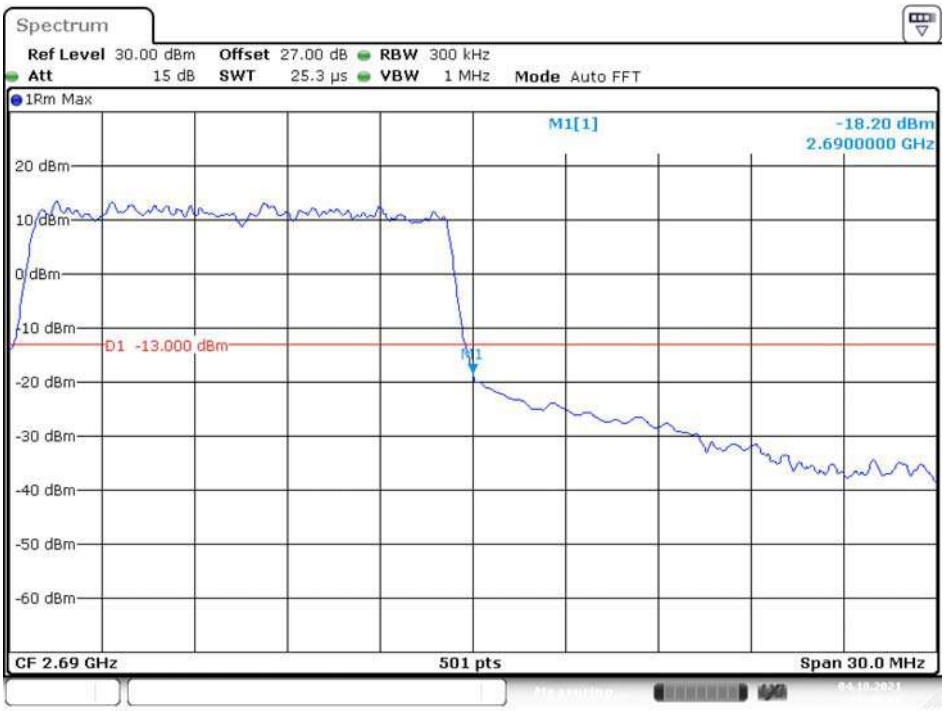
Date: 4.OCT.2021 17:39:46

16QAM (15MHz, RB75) – Left Band Edge



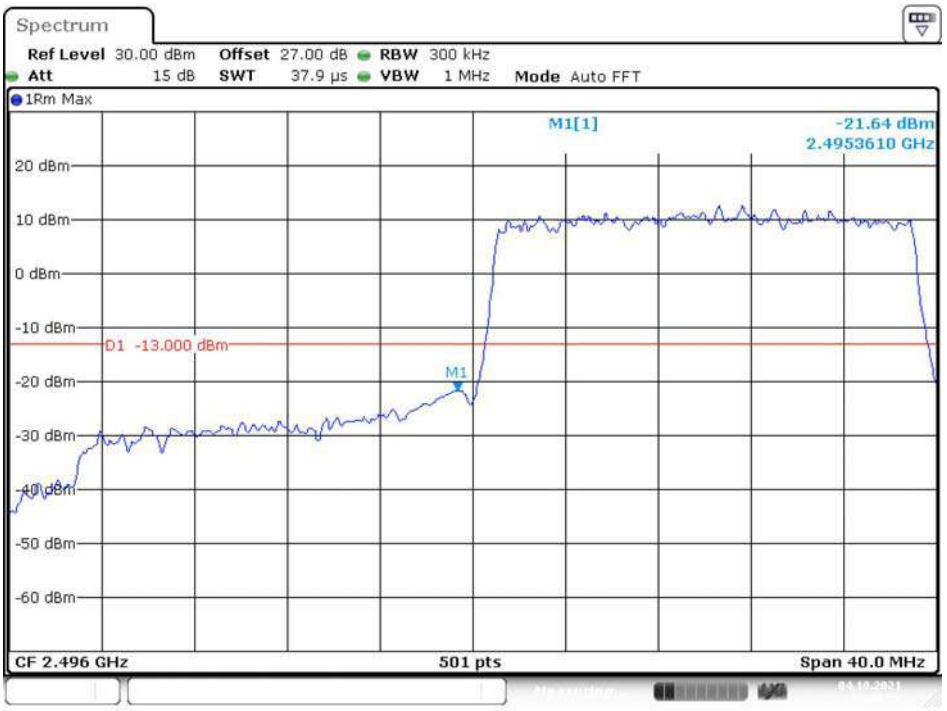
Date: 4.OCT.2021 17:39:15

16QAM (15MHz, RB75) – Right Band Edge



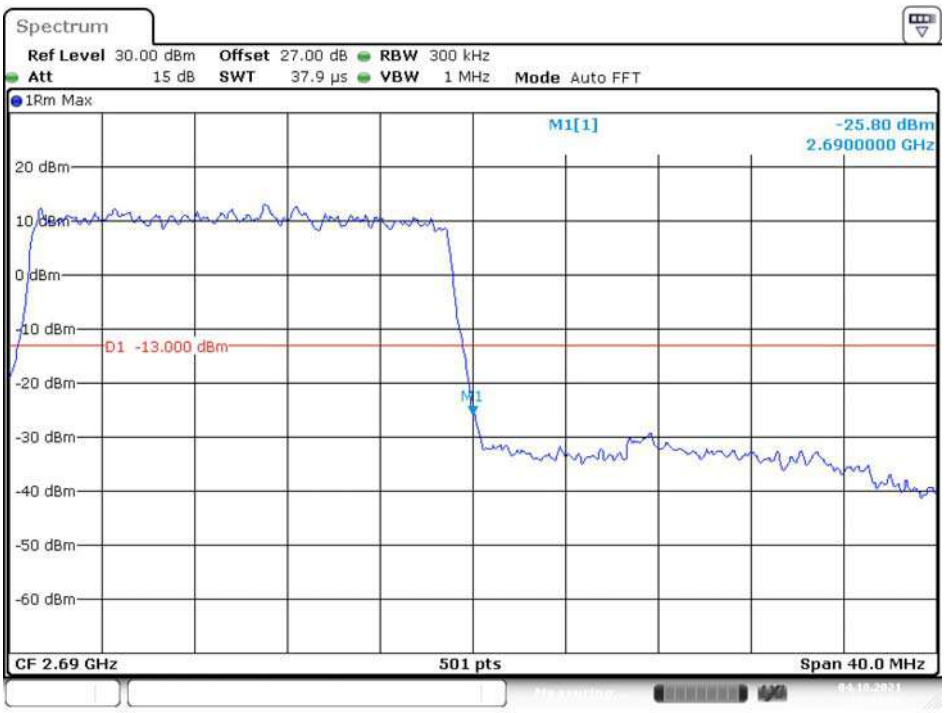
Date: 4.OCT.2021 17:40:13

QPSK (20MHz, RB100) – Left Band Edge



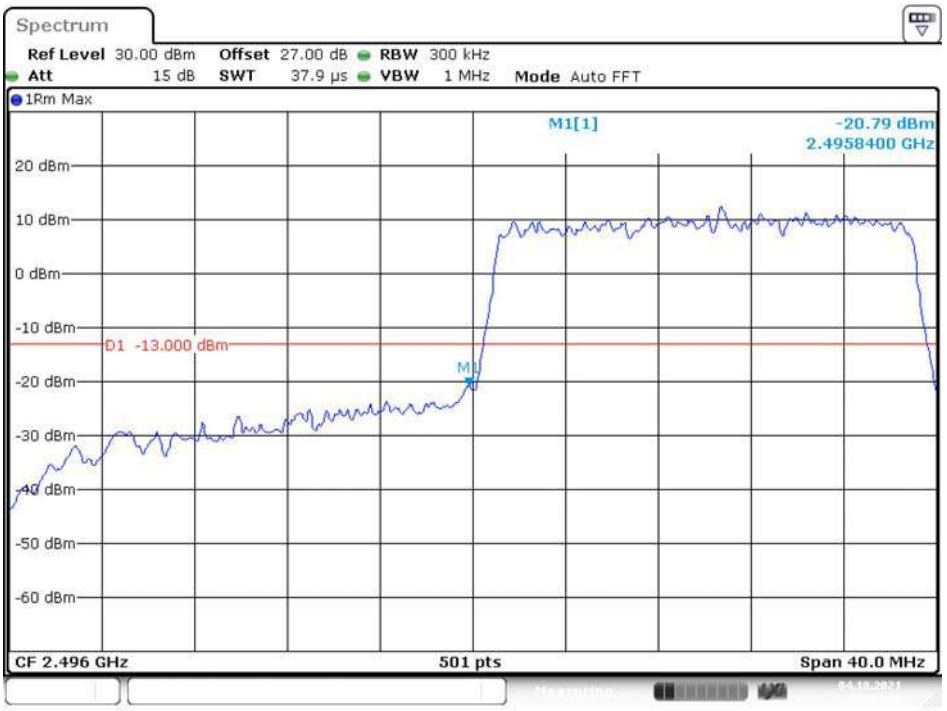
Date: 4.OCT.2021 17:40:39

QPSK (20MHz, RB100) – Right Band Edge



Date: 4.OCT.2021 17:41:33

16QAM (20MHz, RB100) – Left Band Edge



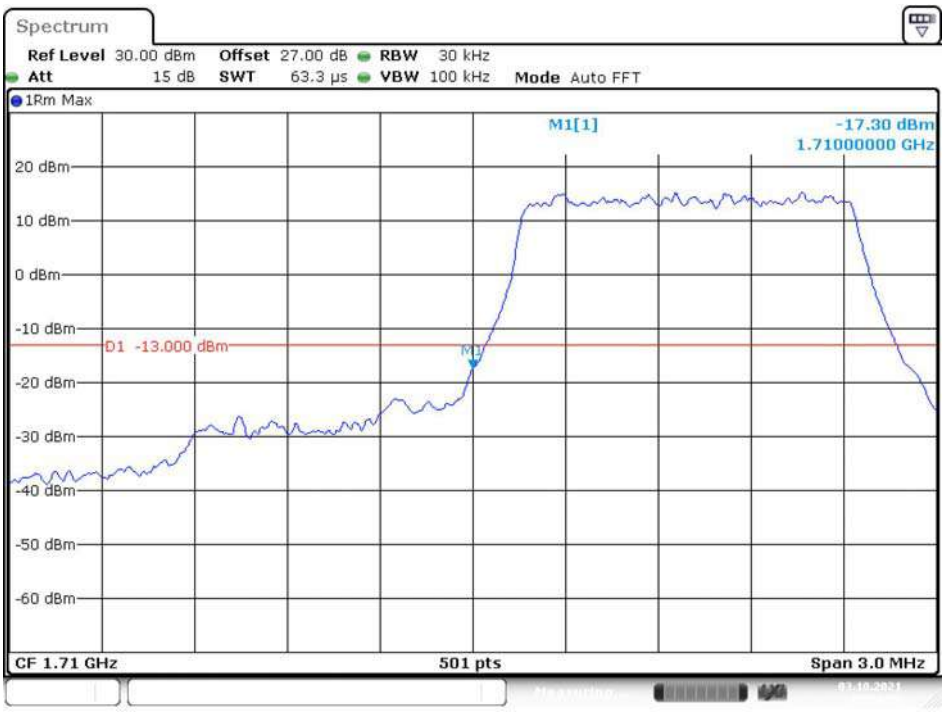
Date: 4.OCT.2021 17:41:02

16QAM (20MHz, RB100) – Right Band Edge

Date: 4.OCT.2021 17:42:12

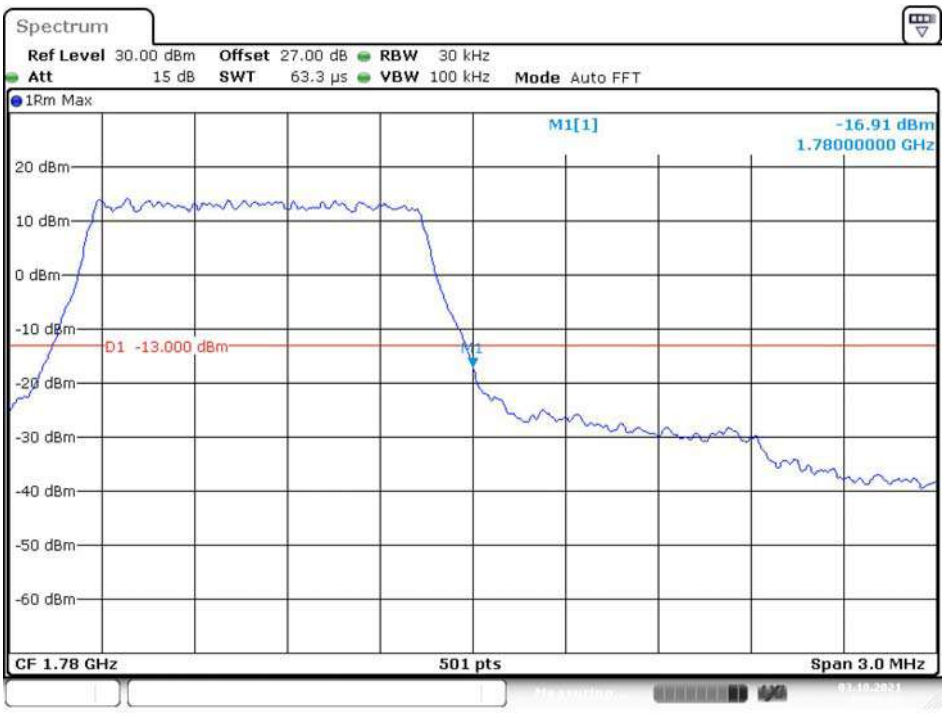
LTE Band 66

QPSK (1.4MHz, RB6) – Left Band Edge



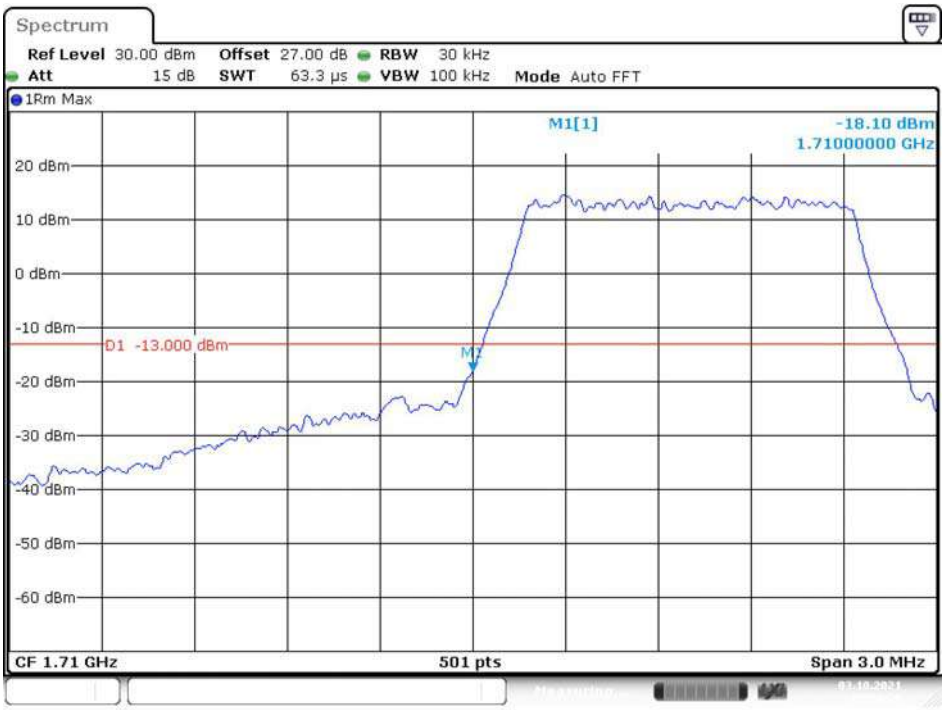
Date: 3.OCT.2021 13:14:23

QPSK (1.4MHz, RB6) – Right Band Edge



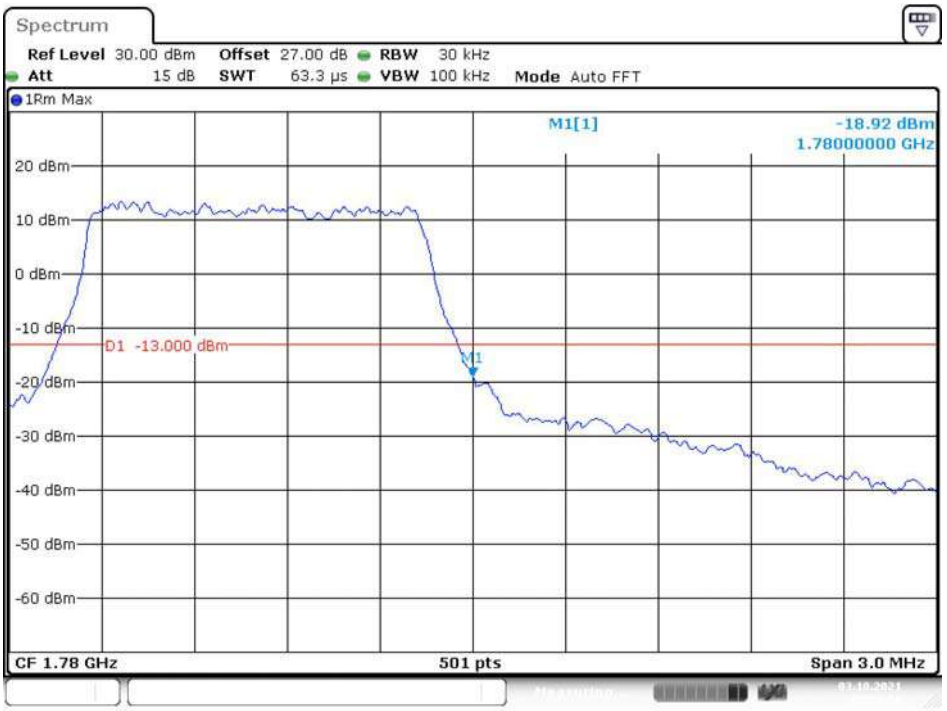
Date: 3.OCT.2021 13:15:07

16QAM (1.4MHz, RB6) – Left Band Edge



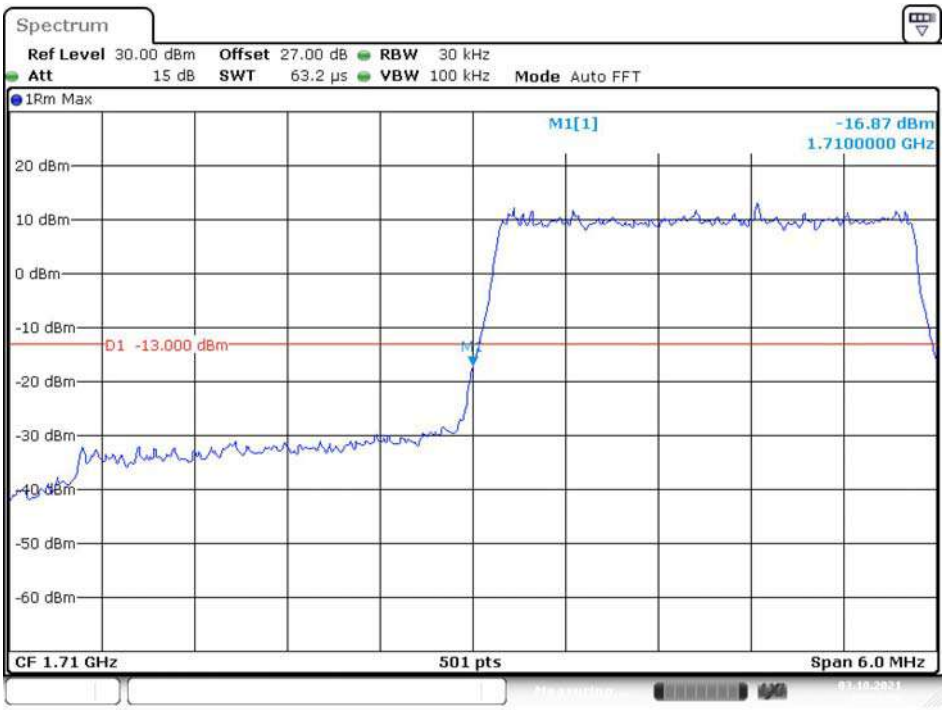
Date: 3.OCT.2021 13:14:40

16QAM (1.4MHz, RB6) – Right Band Edge



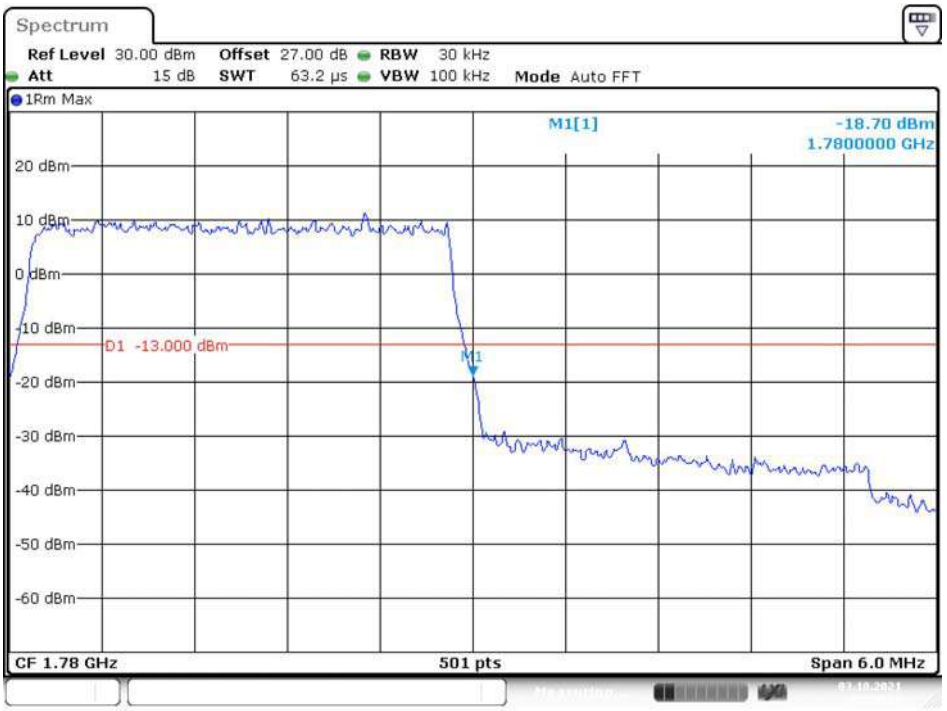
Date: 3.OCT.2021 13:15:21

QPSK (3MHz, RB15) – Left Band Edge



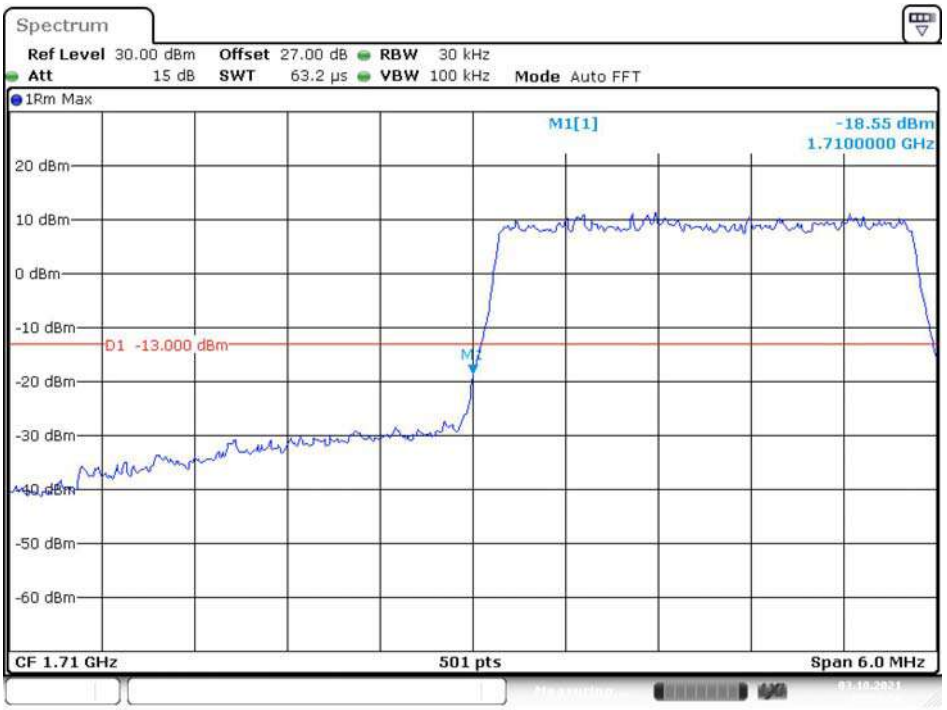
Date: 3.OCT.2021 13:15:39

QPSK (3MHz, RB15) – Right Band Edge



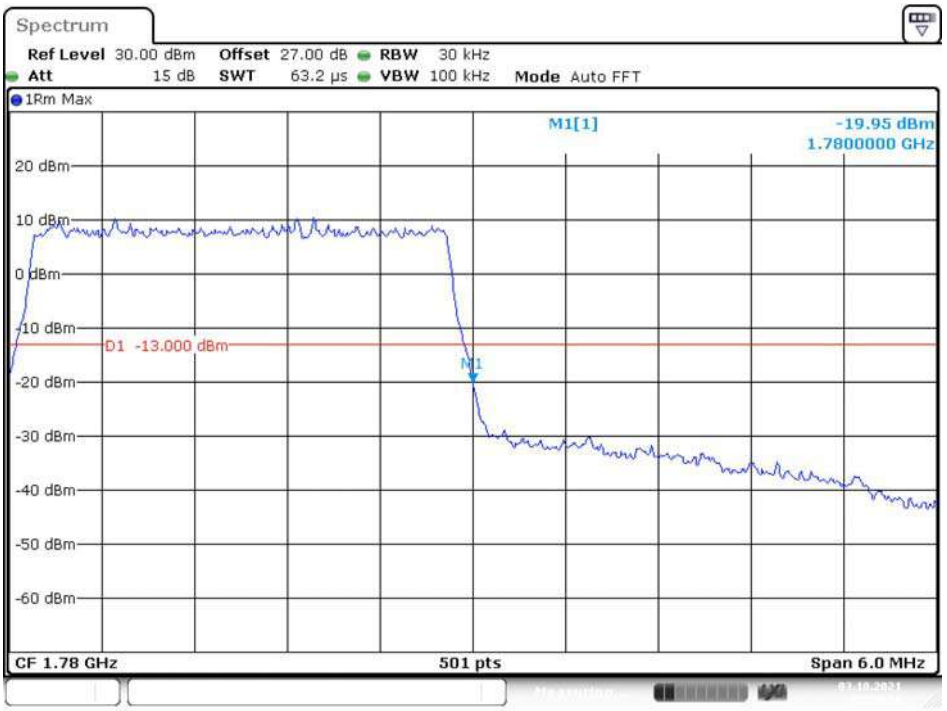
Date: 3.OCT.2021 13:16:07

16QAM (3MHz, RB15) – Left Band Edge



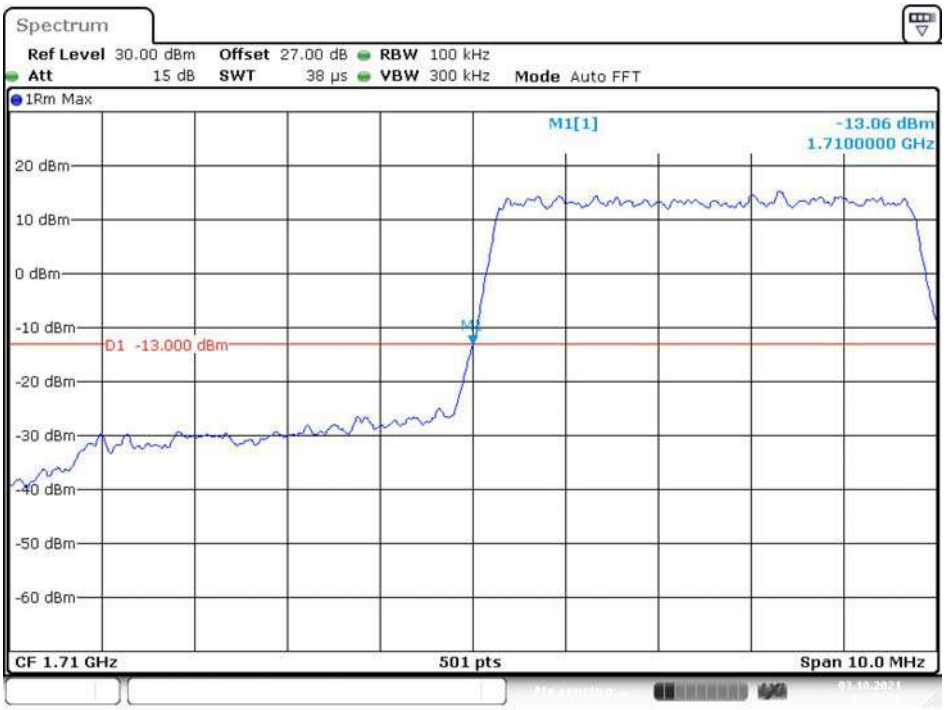
Date: 3.OCT.2021 13:15:53

16QAM (3MHz, RB15) – Right Band Edge



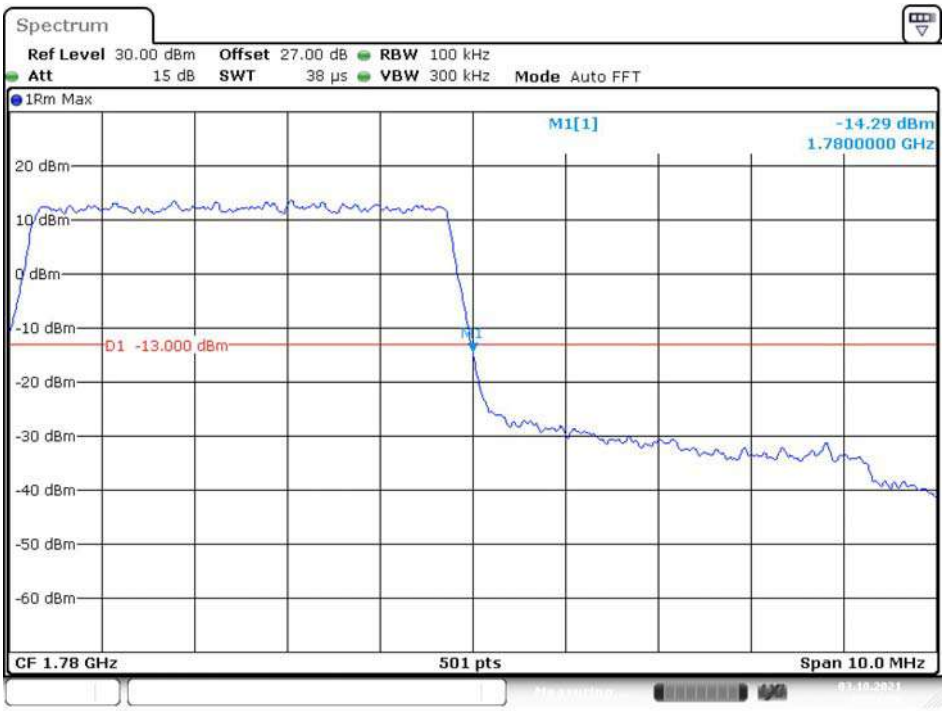
Date: 3.OCT.2021 13:16:21

QPSK (5MHz, RB25) – Left Band Edge



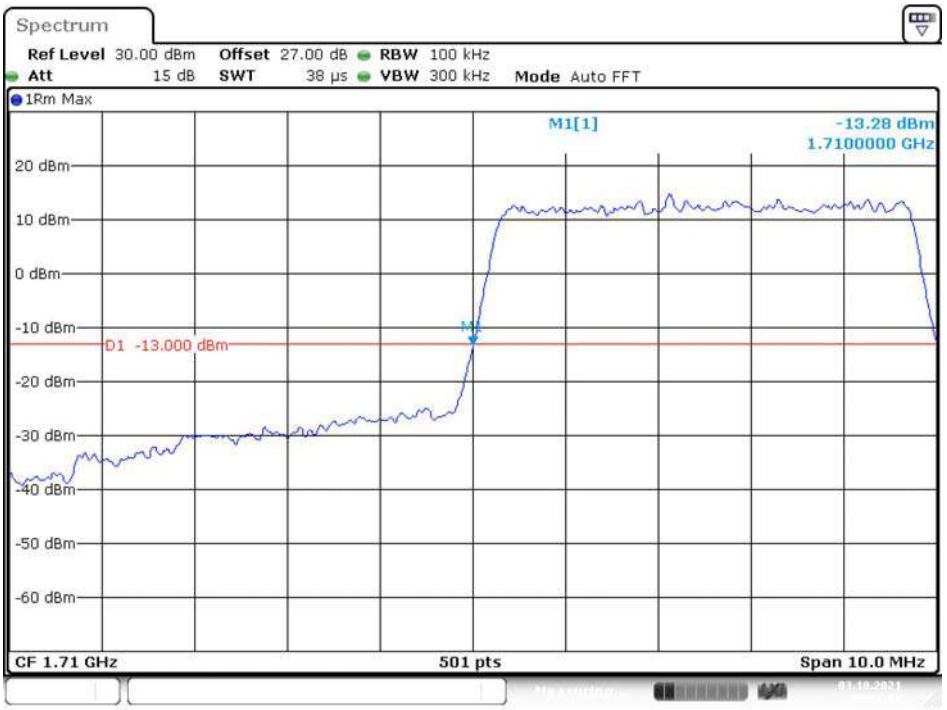
Date: 3.OCT.2021 13:16:51

QPSK (5MHz, RB25) – Right Band Edge



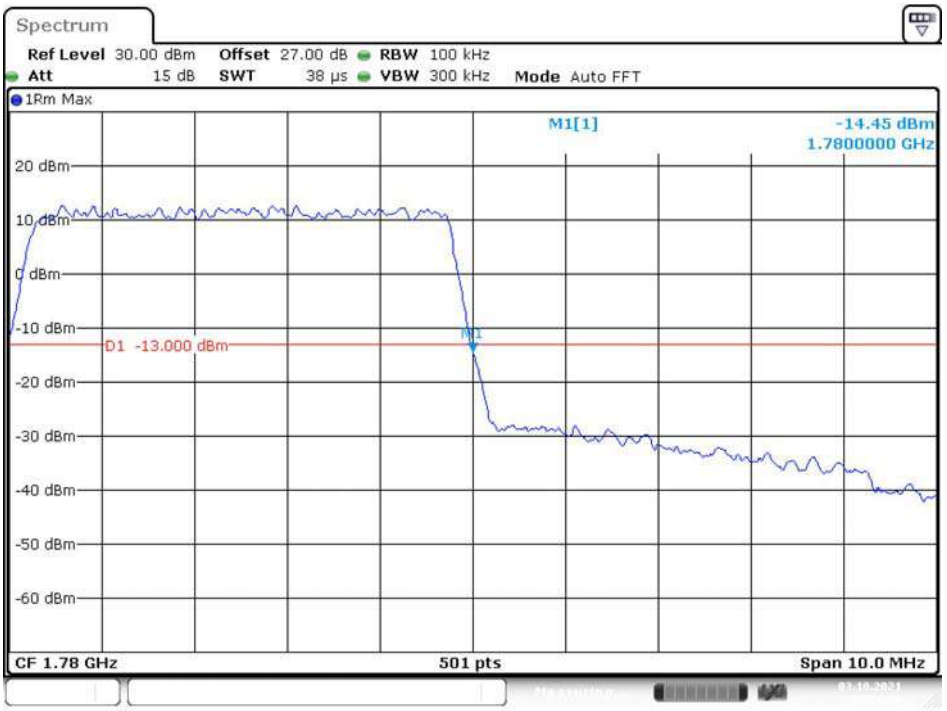
Date: 3.OCT.2021 13:17:38

16QAM (5MHz, RB25) – Left Band Edge



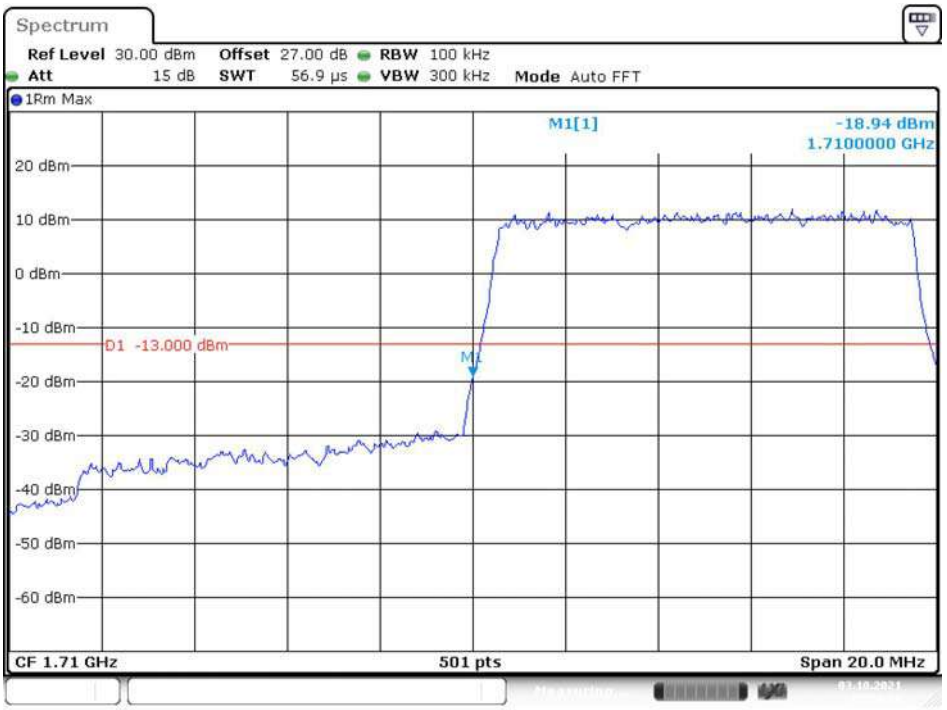
Date: 3.OCT.2021 13:17:11

16QAM (5MHz, RB25) – Right Band Edge



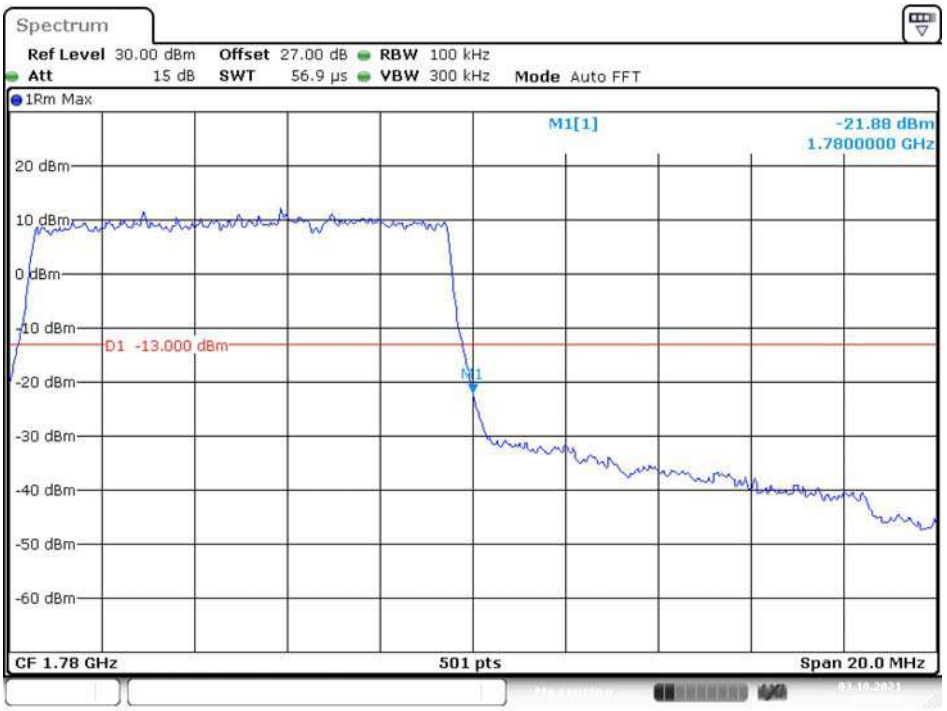
Date: 3.OCT.2021 13:17:58

QPSK (10MHz, RB50) – Left Band Edge



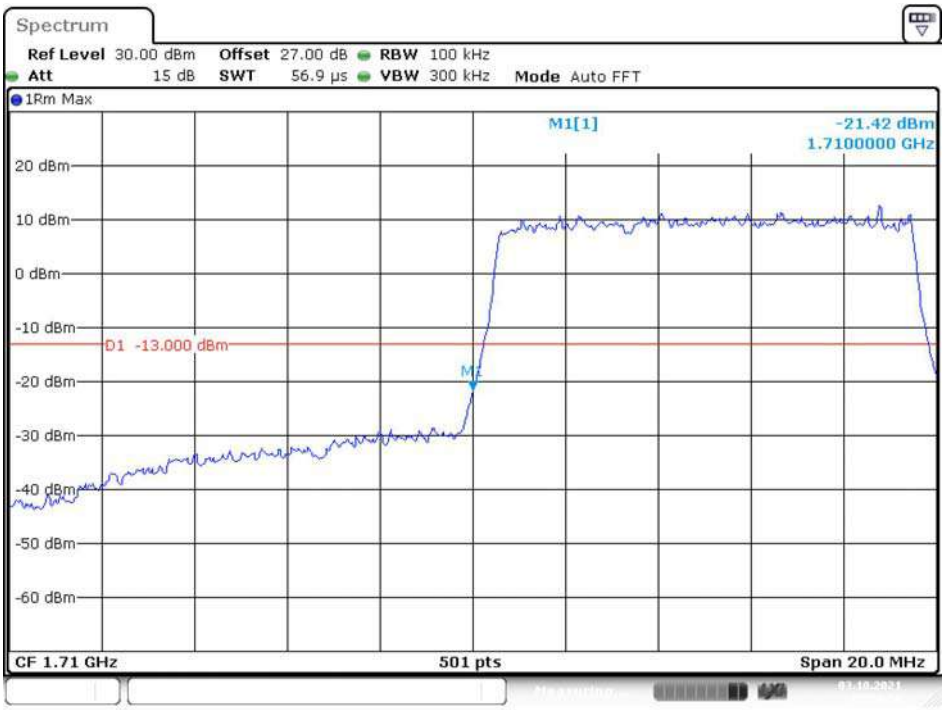
Date: 3.OCT.2021 13:18:31

QPSK (10MHz, RB50) – Right Band Edge



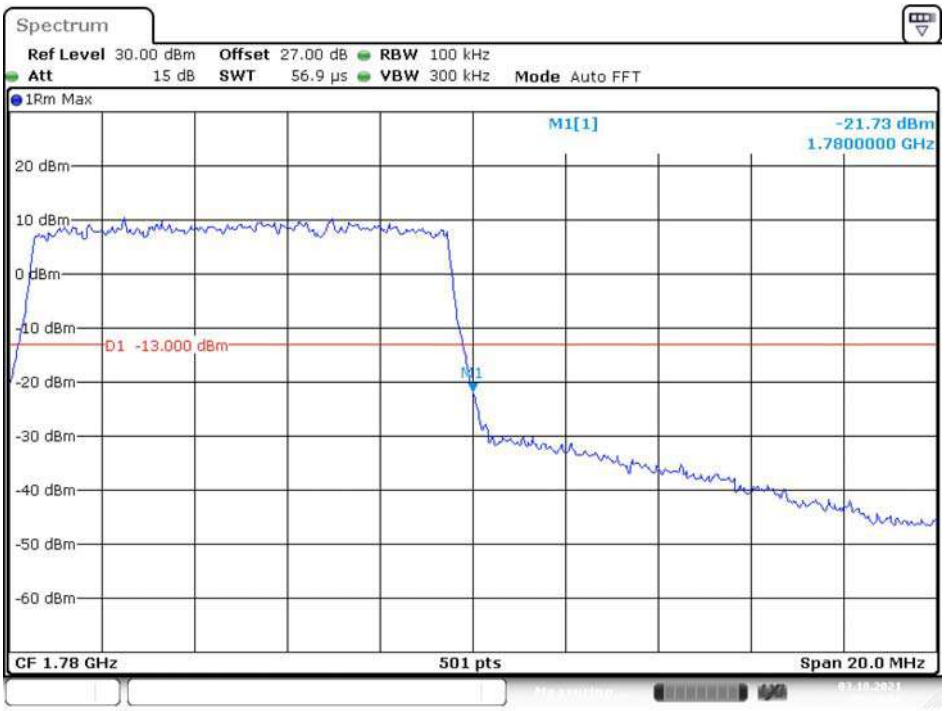
Date: 3.OCT.2021 13:19:33

16QAM (10MHz, RB50) – Left Band Edge



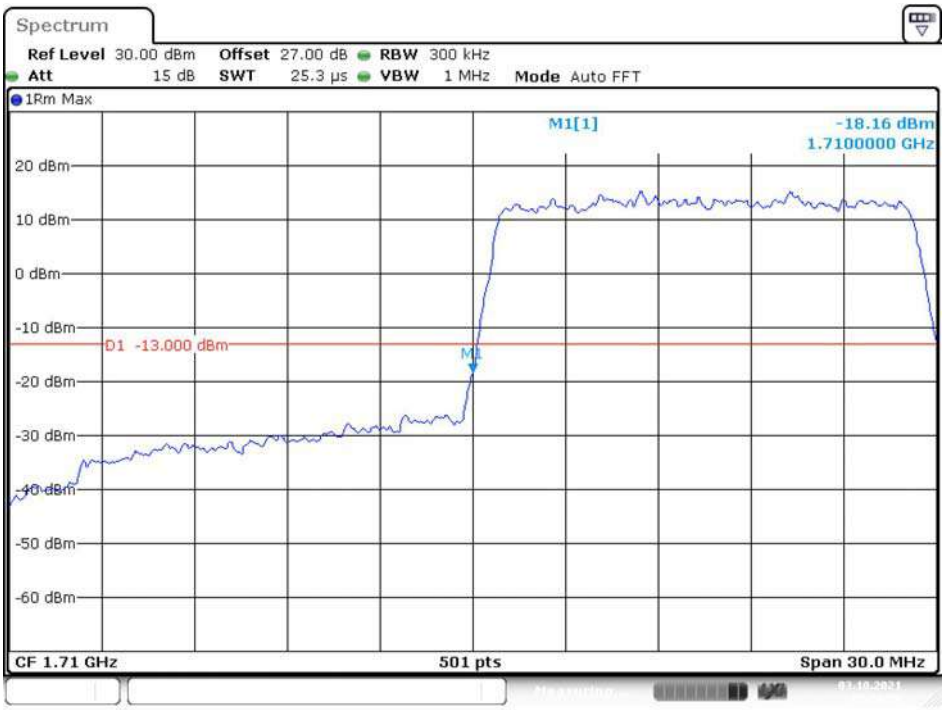
Date: 3.OCT.2021 13:18:58

16QAM (10MHz, RB50) – Right Band Edge



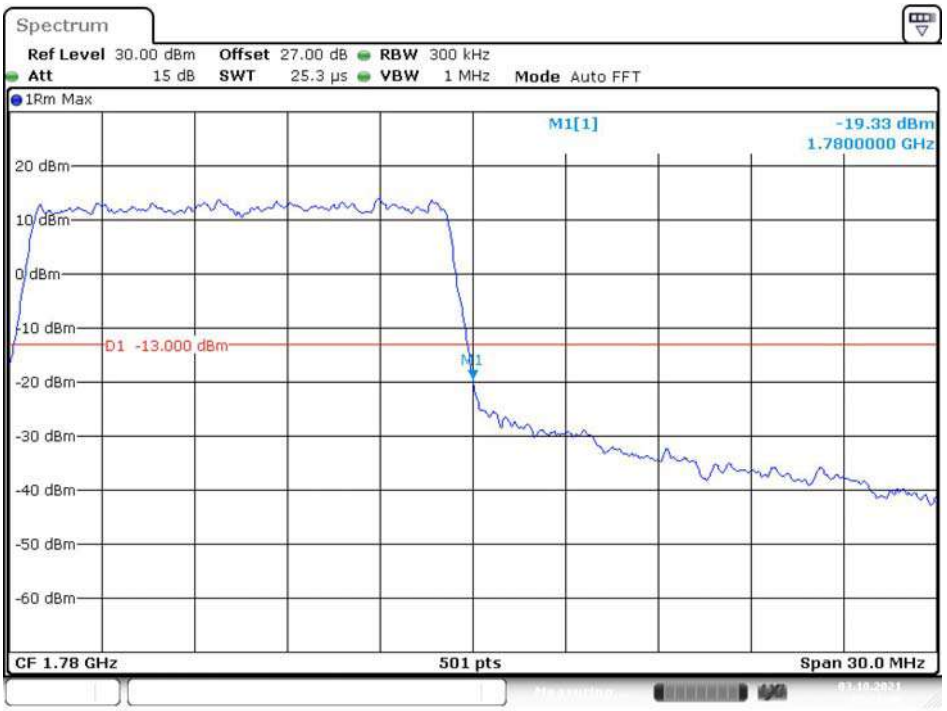
Date: 3.OCT.2021 13:20:00

QPSK (15MHz, RB75) – Left Band Edge



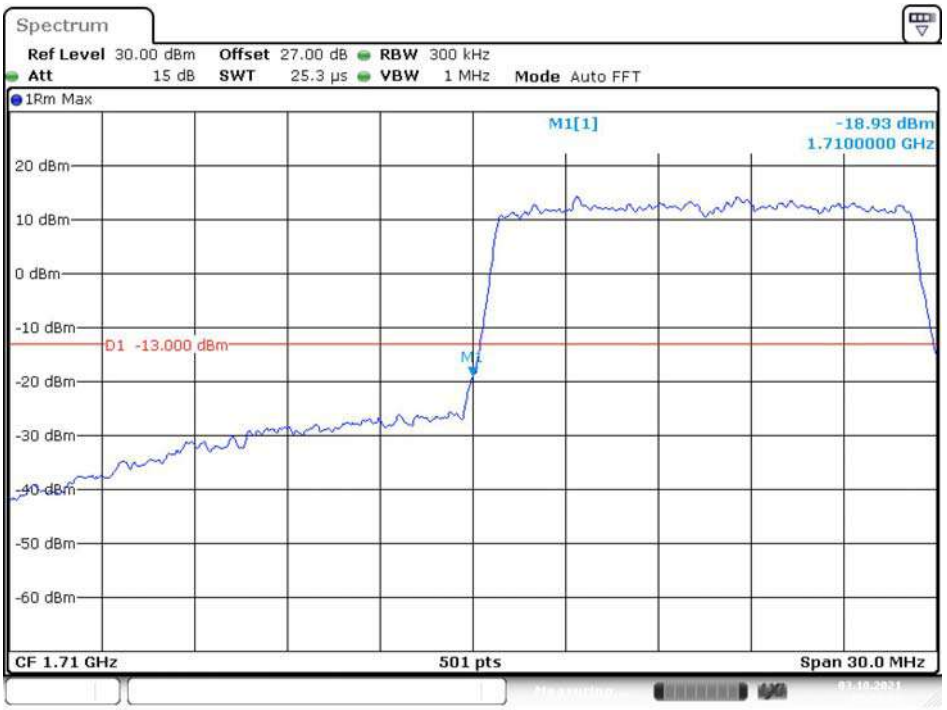
Date: 3.OCT.2021 13:20:31

QPSK (15MHz, RB75) – Right Band Edge



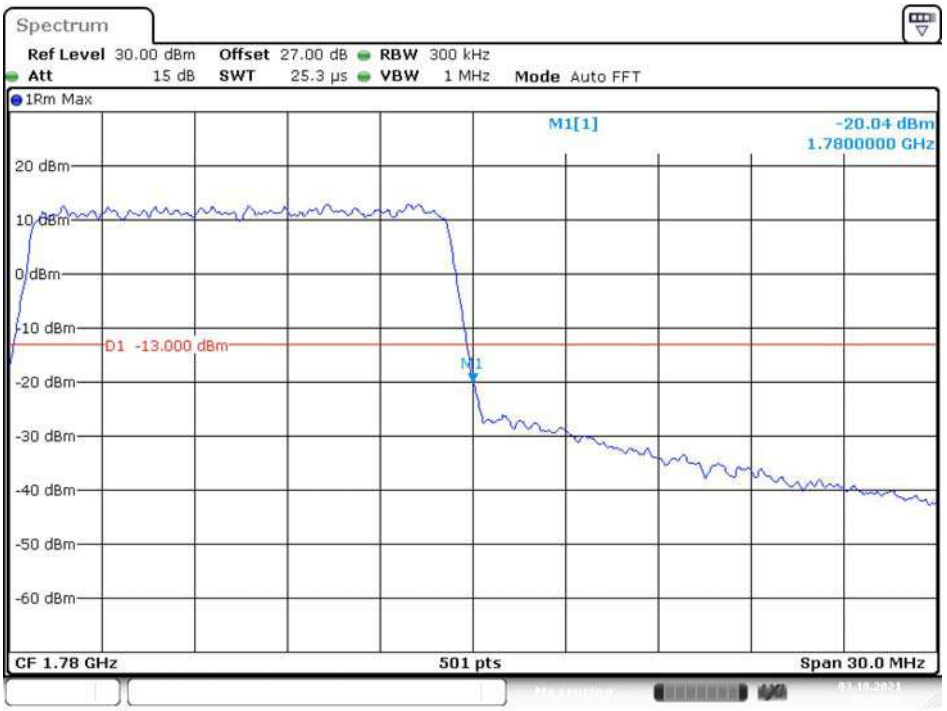
Date: 3.OCT.2021 13:21:47

16QAM (15MHz, RB75) – Left Band Edge



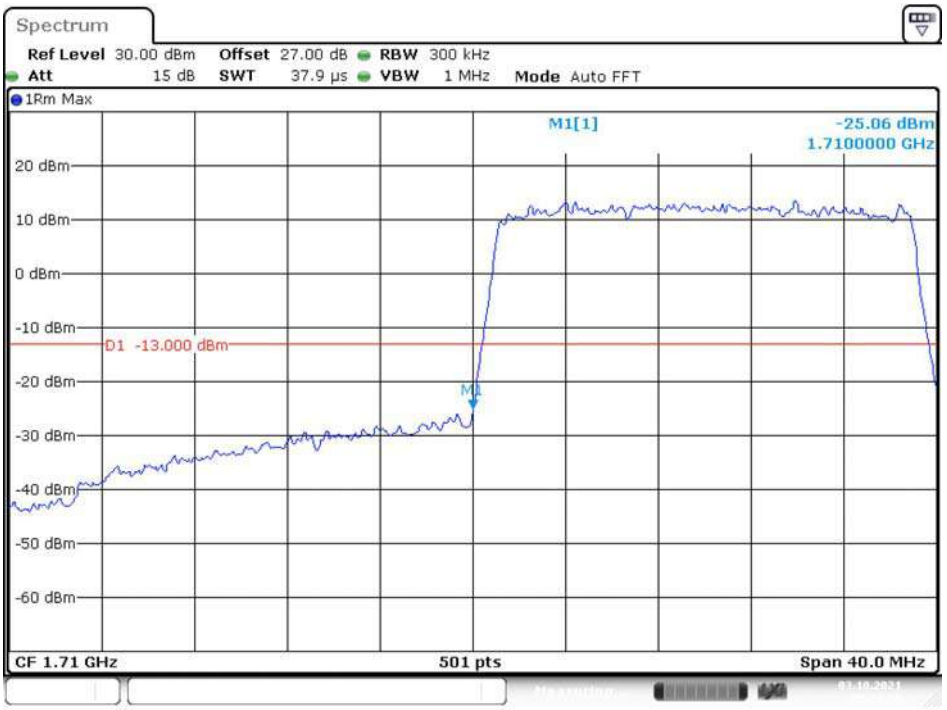
Date: 3.OCT.2021 13:21:04

16QAM (15MHz, RB75) – Right Band Edge



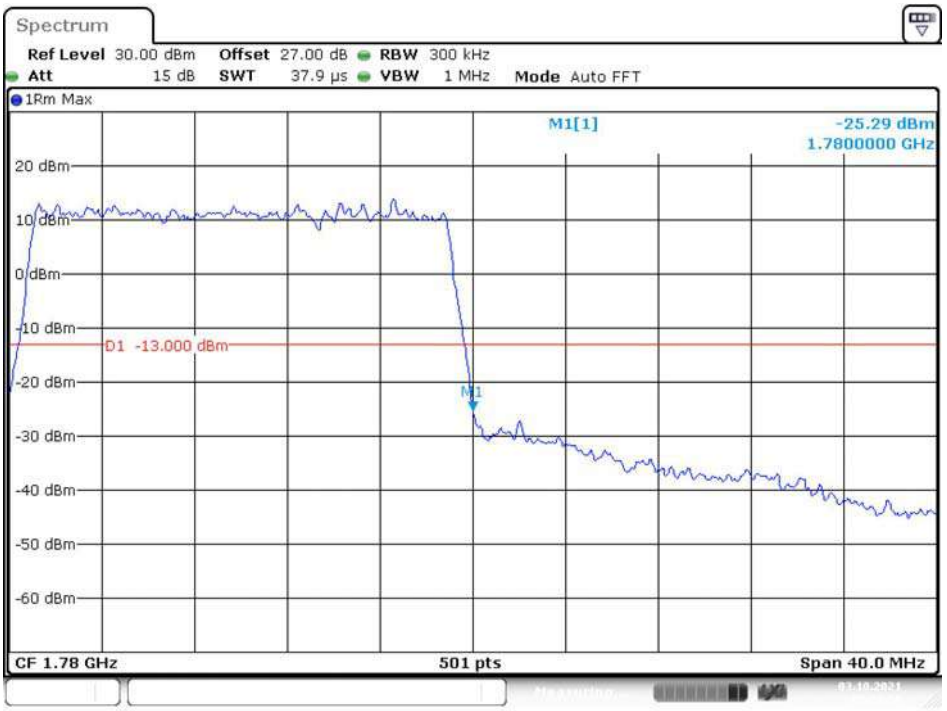
Date: 3.OCT.2021 13:22:16

QPSK (20MHz, RB100) – Left Band Edge



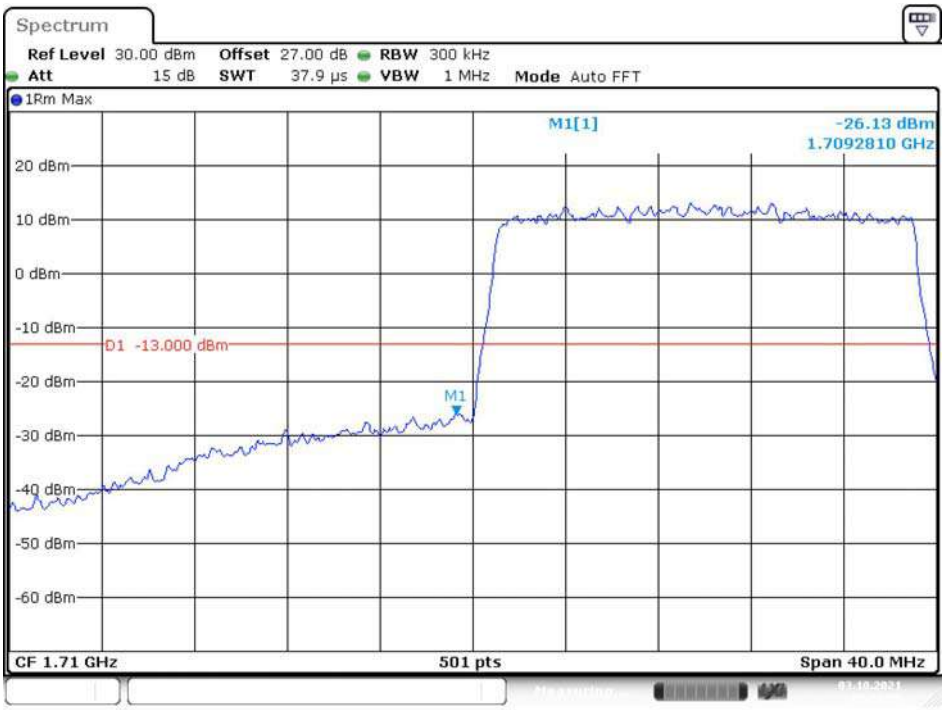
Date: 3.OCT.2021 13:22:56

QPSK (20MHz, RB100) – Right Band Edge



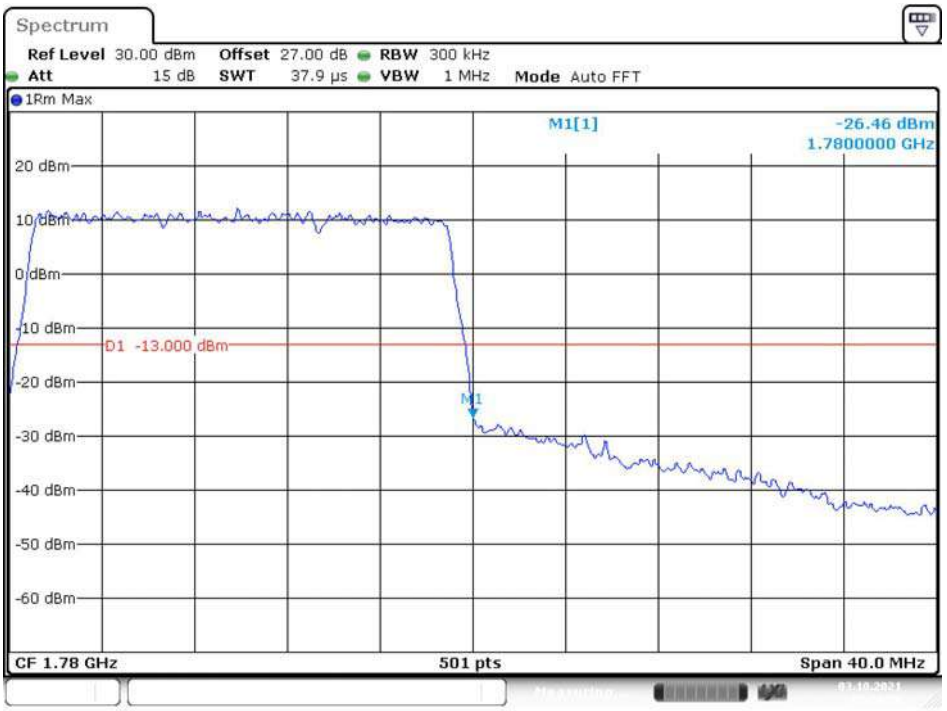
Date: 3.OCT.2021 13:23:59

16QAM (20MHz, RB100) – Left Band Edge



Date: 3.OCT.2021 13:23:25

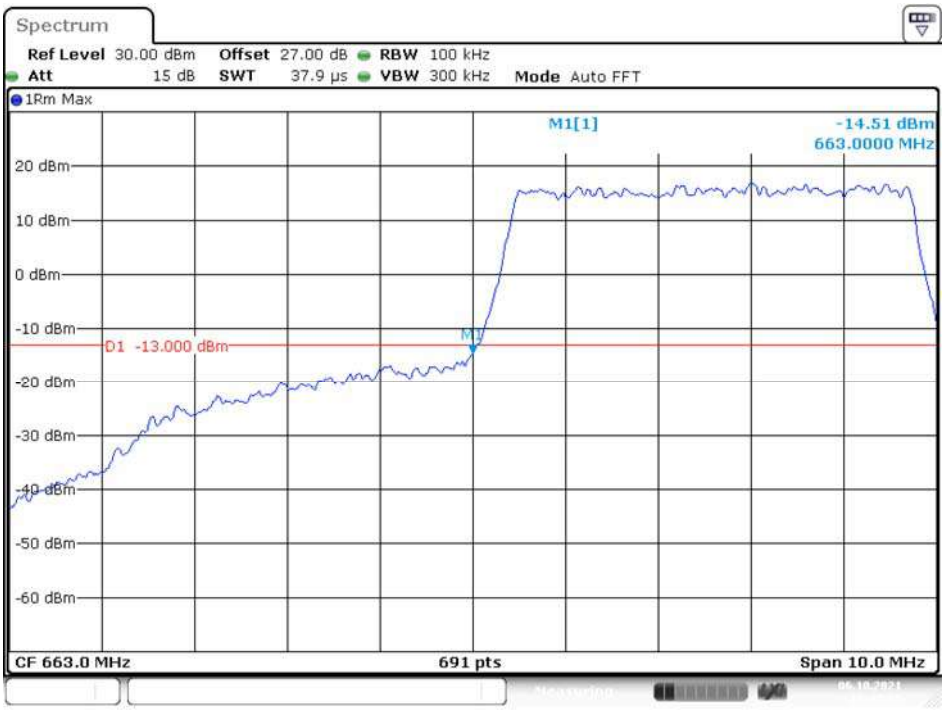
16QAM (20MHz, RB100) – Right Band Edge



Date: 3.OCT.2021 13:24:38

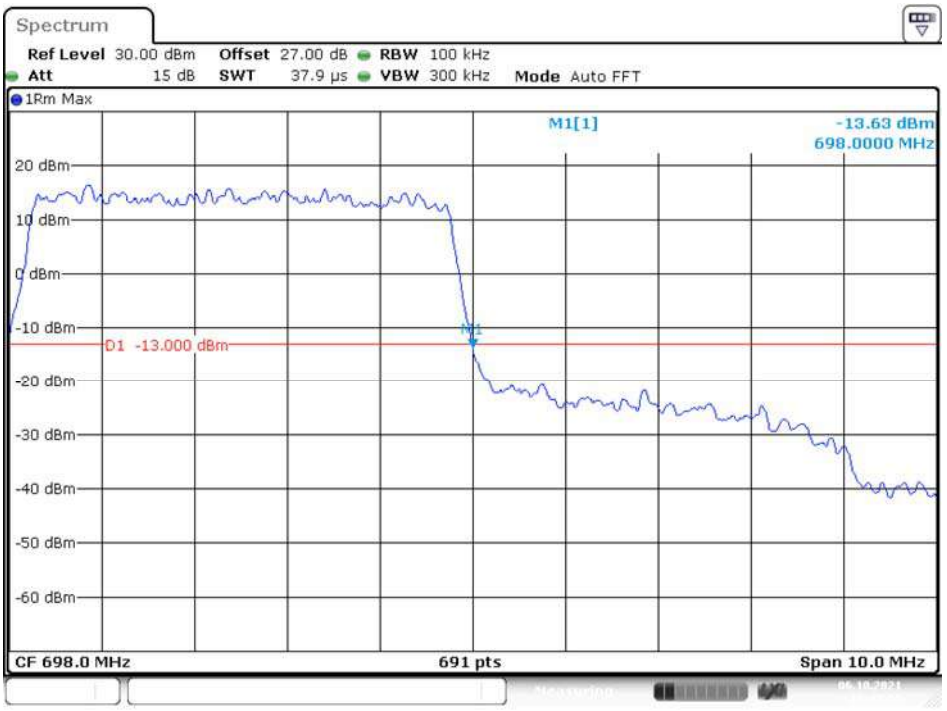
LTE Band 71

QPSK (5MHz, RB25) – Left Band Edge



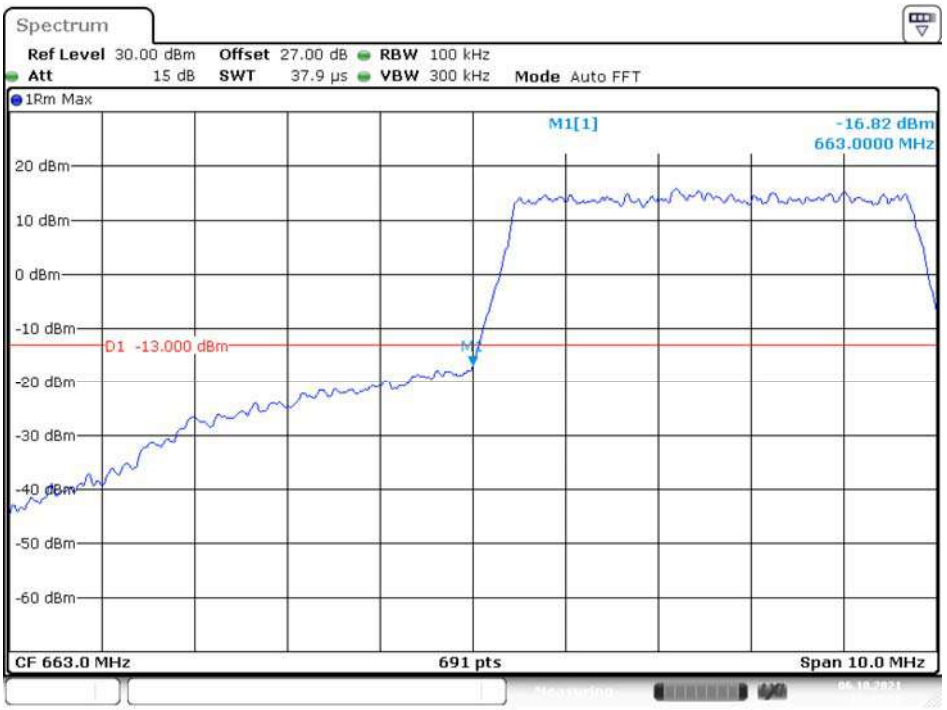
Date: 6.OCT.2021 10:42:38

QPSK (5MHz, RB25) – Right Band Edge



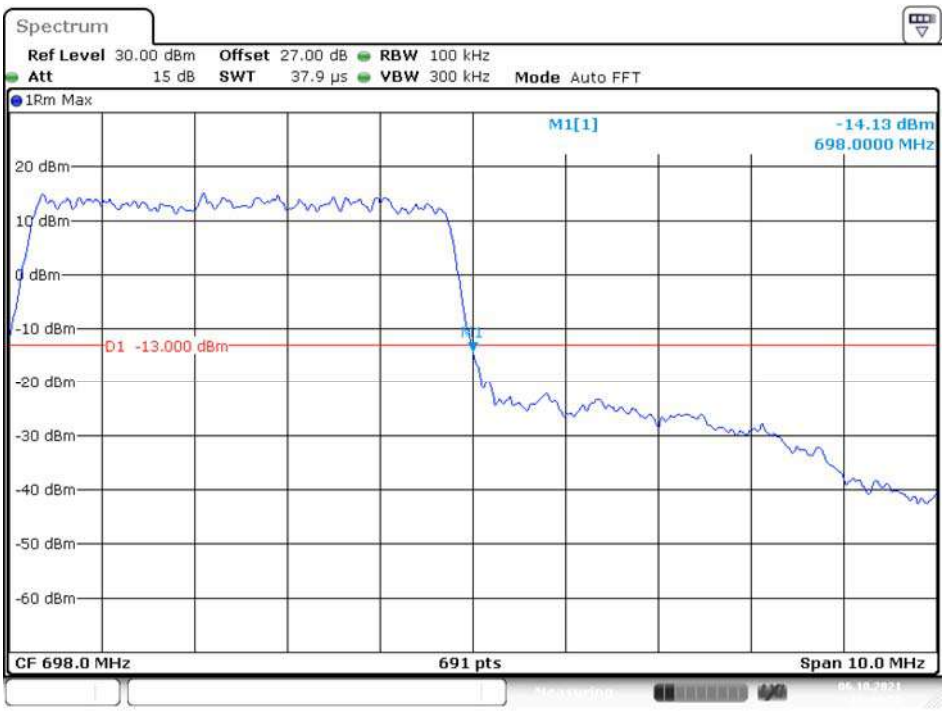
Date: 6.OCT.2021 10:45:47

16QAM (5MHz, RB25) – Left Band Edge



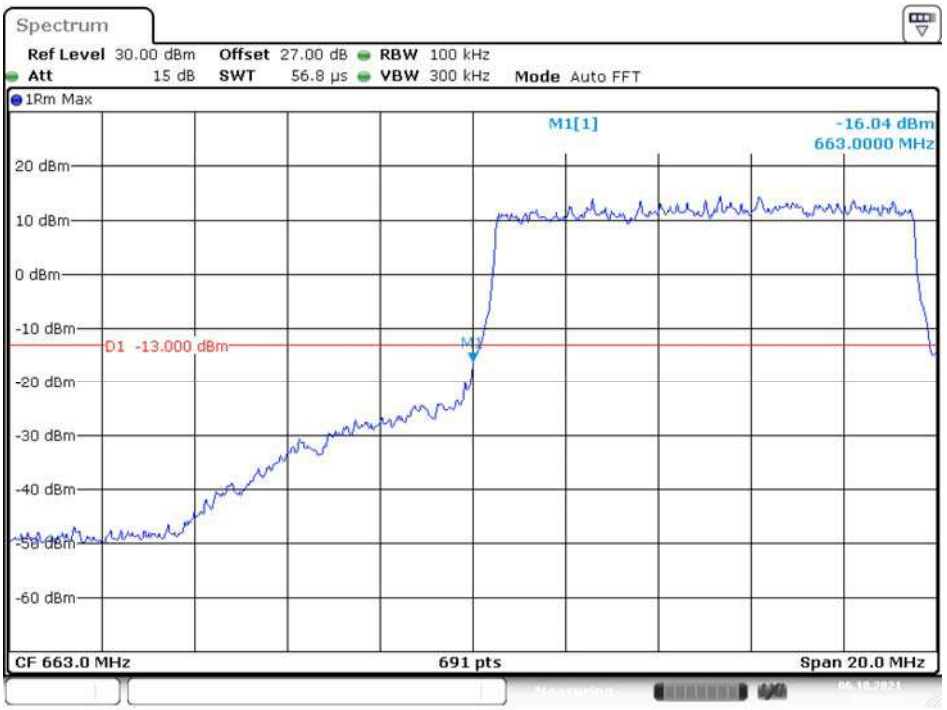
Date: 6.OCT.2021 10:43:18

16QAM (5MHz, RB25) – Right Band Edge



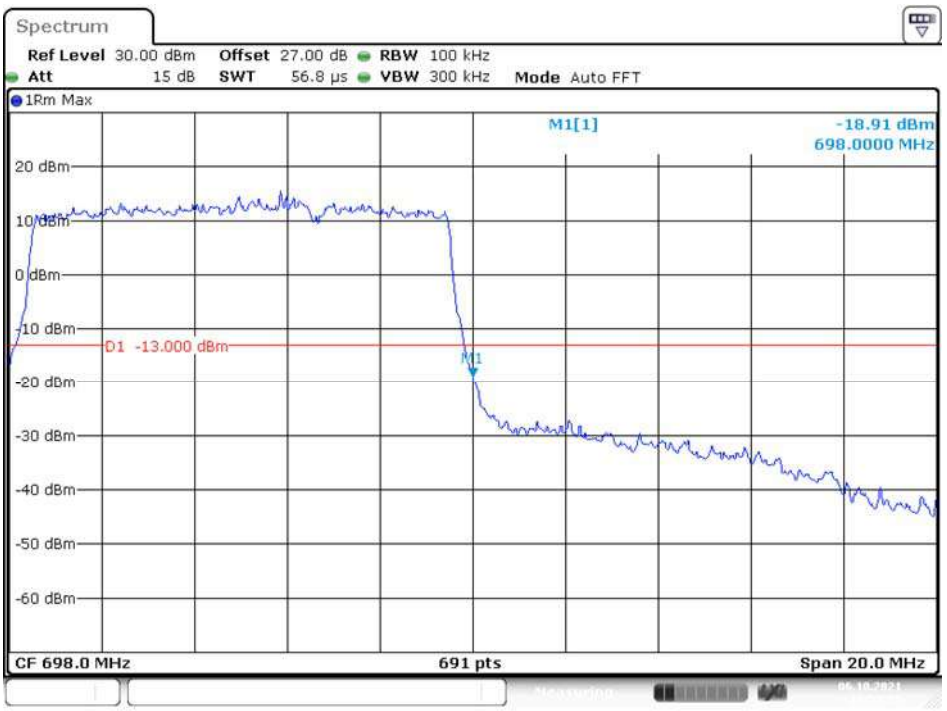
Date: 6.OCT.2021 10:45:00

QPSK (10MHz, RB50) – Left Band Edge



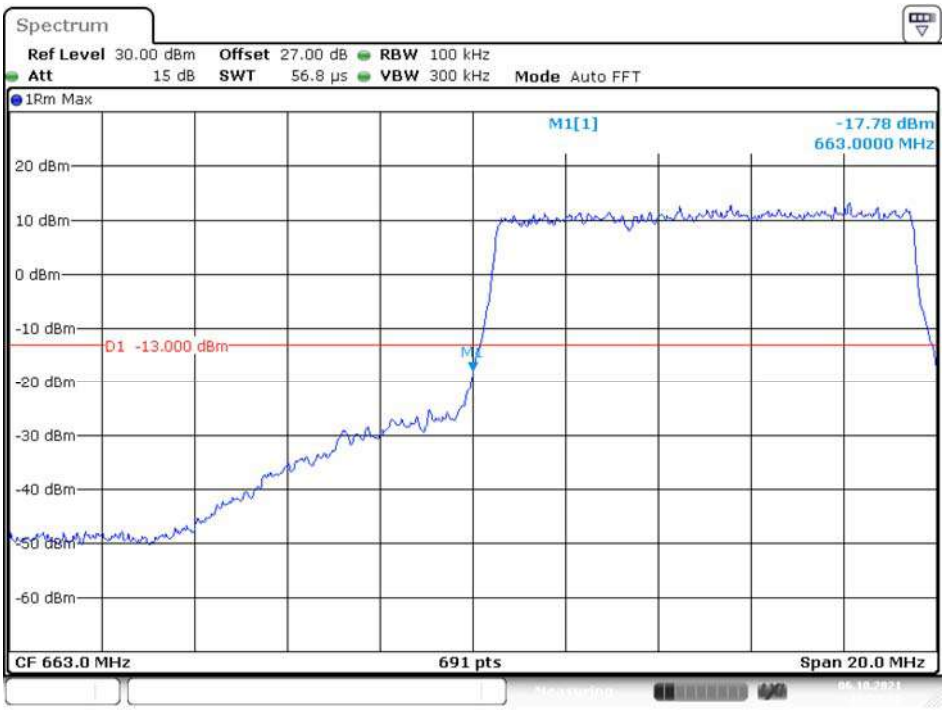
Date: 6.OCT.2021 10:54:03

QPSK (10MHz, RB50) – Right Band Edge



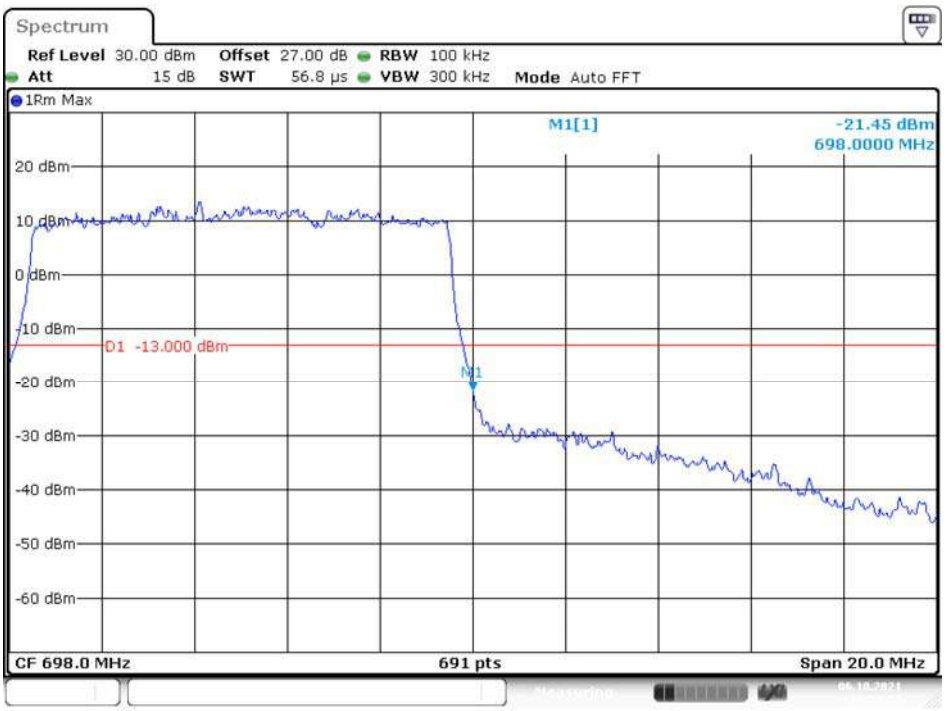
Date: 6.OCT.2021 10:52:27

16QAM (10MHz, RB50) – Left Band Edge



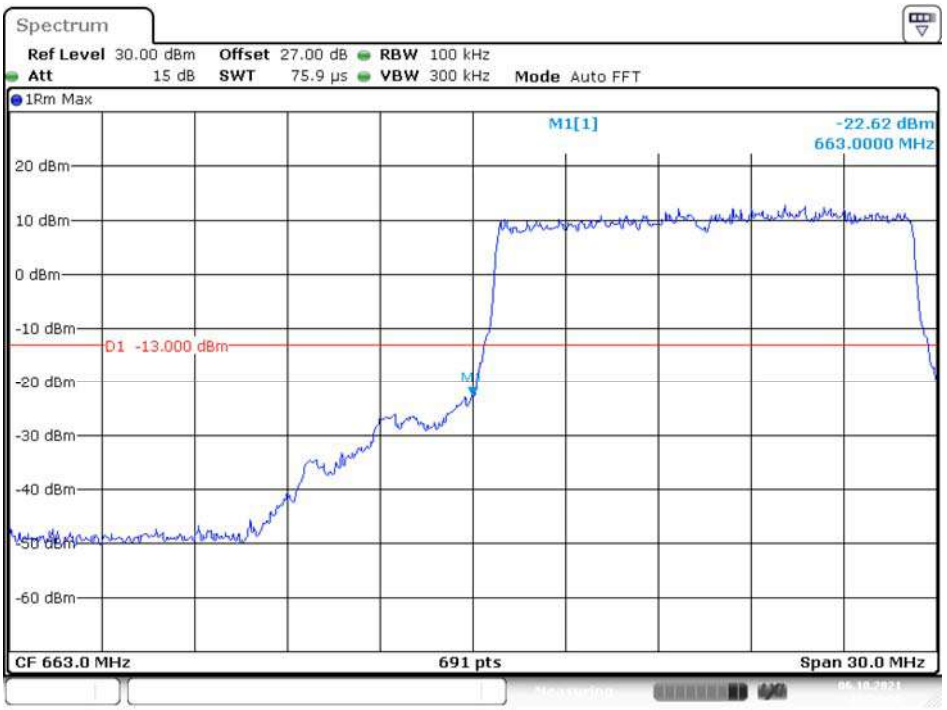
Date: 6.OCT.2021 10:53:37

16QAM (10MHz, RB50) – Right Band Edge



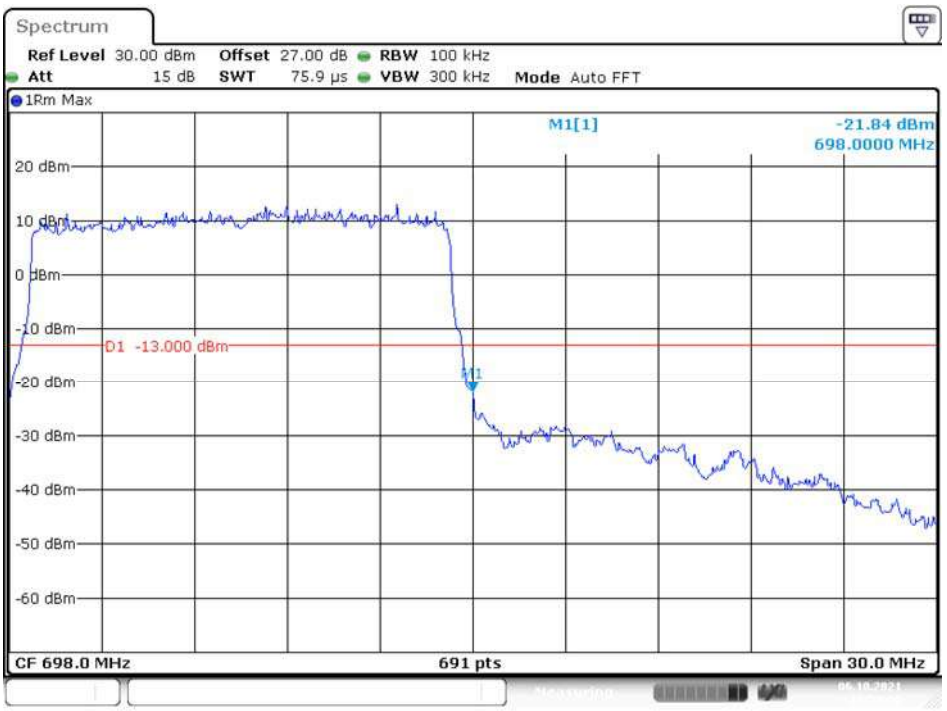
Date: 6.OCT.2021 10:52:51

QPSK (15MHz, RB75) – Left Band Edge



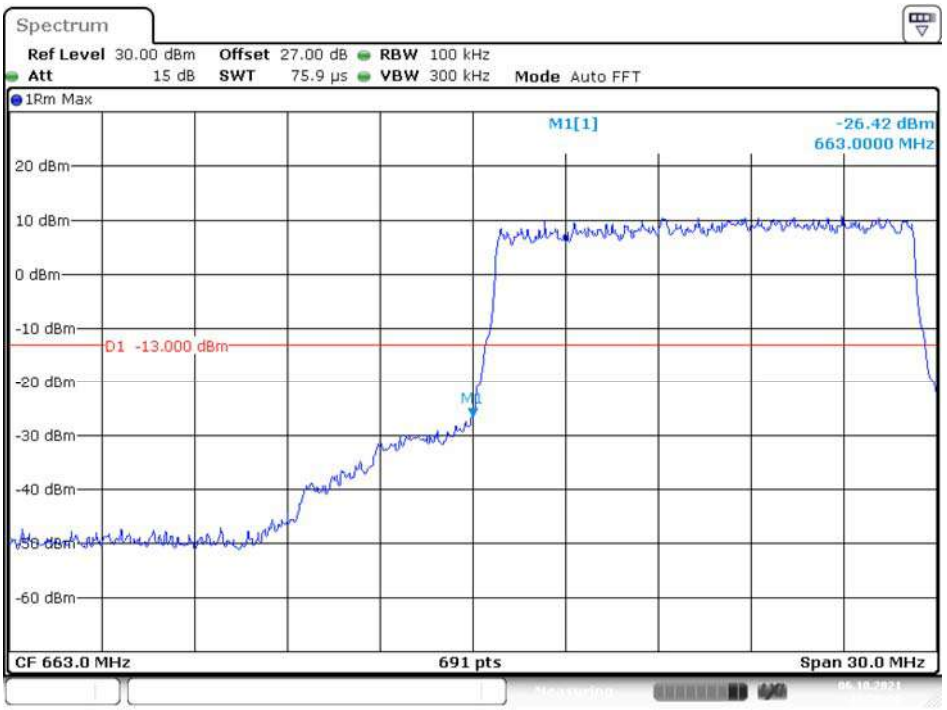
Date: 6.OCT.2021 10:54:49

QPSK (15MHz, RB75) – Right Band Edge



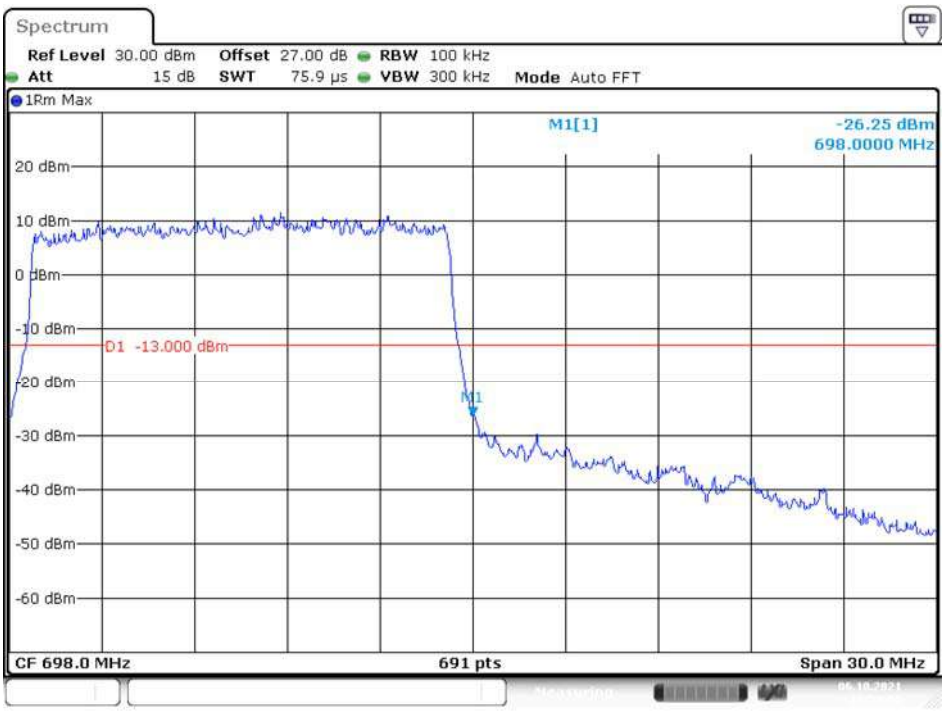
Date: 6.OCT.2021 10:58:46

16QAM (15MHz, RB75) – Left Band Edge



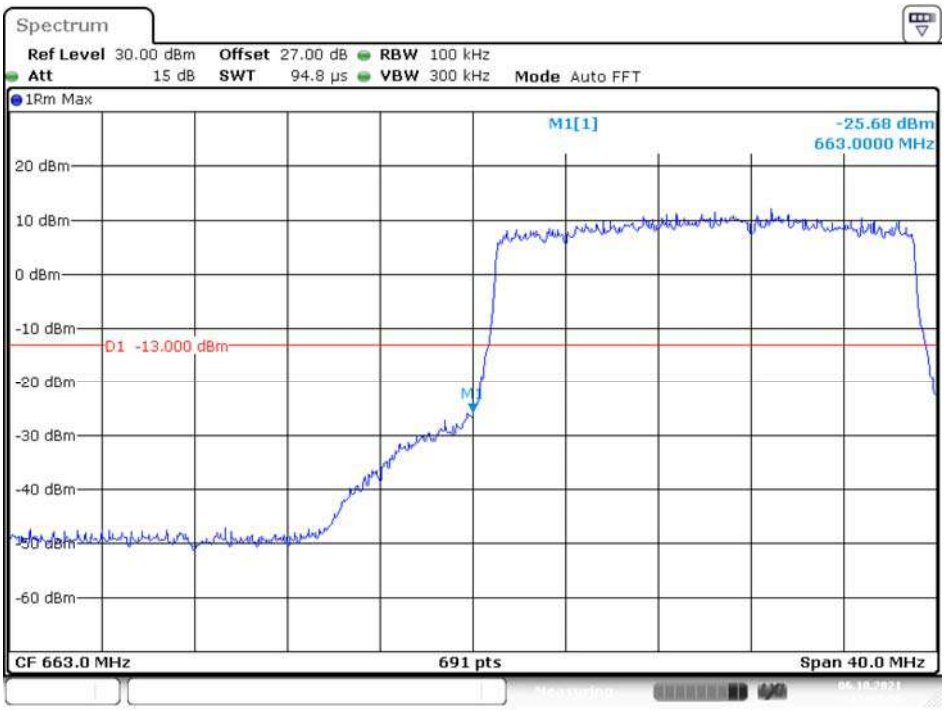
Date: 6.OCT.2021 10:56:46

16QAM (15MHz, RB75) – Right Band Edge



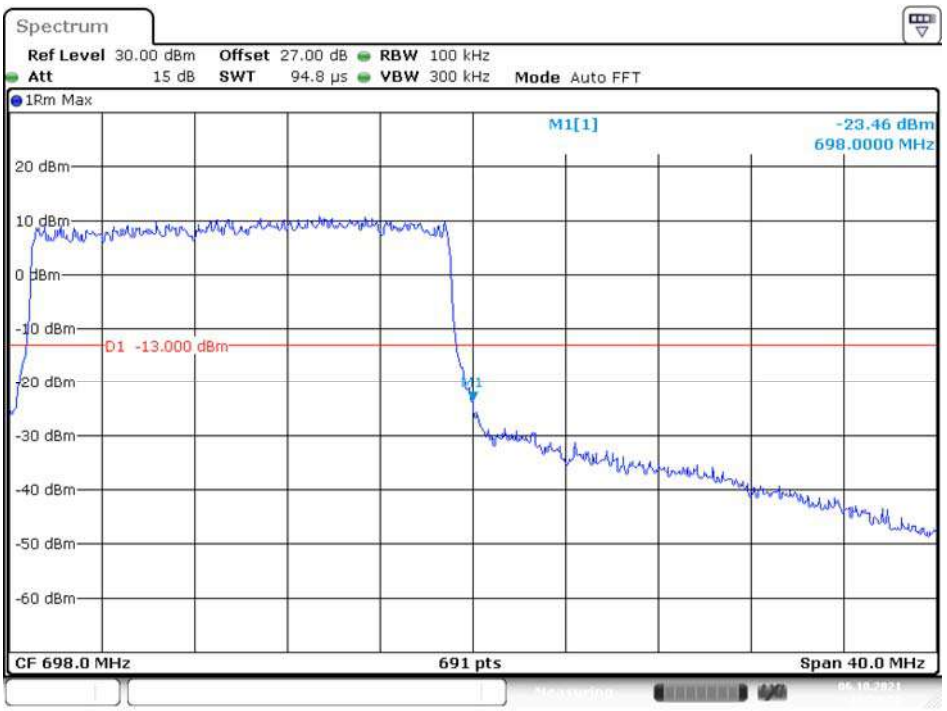
Date: 6.OCT.2021 10:58:09

QPSK (20MHz, RB100) – Left Band Edge



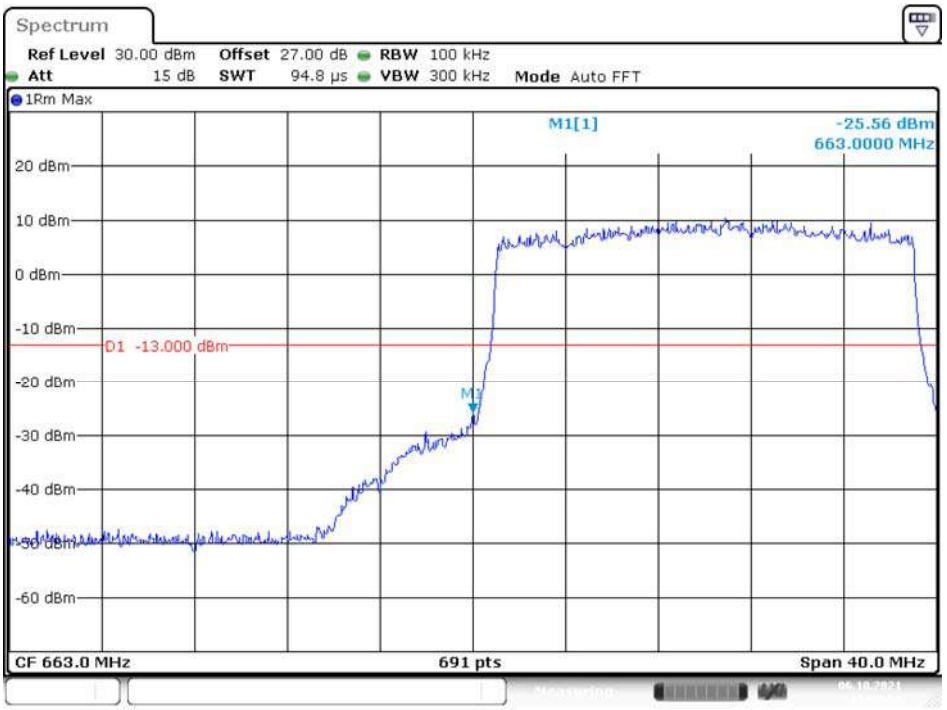
Date: 6.OCT.2021 11:01:50

QPSK (20MHz, RB100) – Right Band Edge



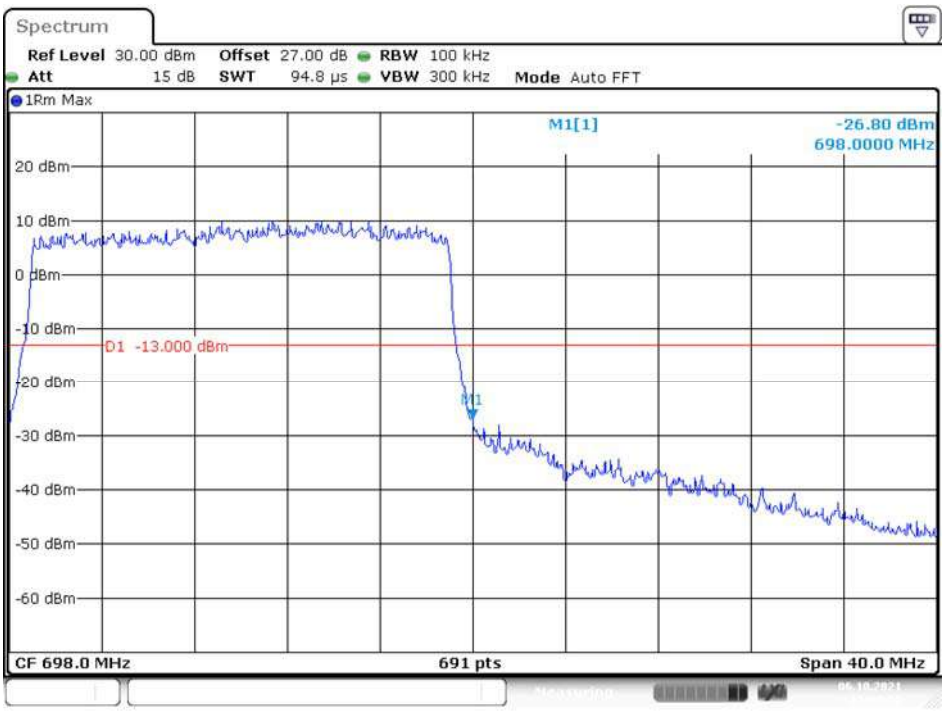
Date: 6.OCT.2021 10:59:50

16QAM (20MHz, RB100) – Left Band Edge



Date: 6.OCT.2021 11:00:54

16QAM (20MHz, RB100) – Right Band Edge



Date: 6.OCT.2021 11:00:12

FCC §2.1055, §22.355 & §24.235 & §27.54 – FREQUENCY STABILITY

Applicable Standard

FCC § 2.1055 (a)(d), §22.355, §24.235 · §27.54

According to FCC §2.1055, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

According to §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile > 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

According to §27.54, the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set from 85% to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.

Test Results

WCDMA Band II:

WCDMA Mode, Middle Channel, fo =1880.0 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	18	0.009574	pass
-20		16	0.008511	pass
-10		20	0.010638	pass
0		13	0.006915	pass
10		16	0.008511	pass
20		7	0.003723	pass
30		17	0.009043	pass
40		18	0.009574	pass
50		19	0.010106	pass
20	V min.= 6.84	20	0.010638	pass
20	V max.= 8.36	6	0.003191	pass

WCDMA Band V:

Middle Channel, fo =836.6 MHz				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	12	0.014340	pass
-20		17	0.020320	pass
-10		10	0.009563	pass
0		17	0.020320	pass
10		8	0.009563	pass
20		15	0.017930	pass
30		19	0.022711	pass
40		15	0.017930	pass
50		12	0.014344	pass
25	V min.= 6.84	15	0.017930	pass
25	V max.= 8.36	9	0.010758	pass

LTE Band 2

10.0 MHz Middle Channel, fo =1880 MHz_QPSK				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	-2.27	-0.0012	PASS
-20		7.27	0.0039	PASS
-10		-7.66	-0.0041	PASS
0		7.10	0.0038	PASS
10		-6.08	-0.0032	PASS
20		-8.59	-0.0046	PASS
30		5.77	0.0031	PASS
40		-8.60	-0.0046	PASS
50		5.94	0.0032	PASS
25	V min.= 6.84	5.22	0.0028	PASS
25	V max.= 8.36	8.90	0.0047	PASS

10.0 MHz Middle Channel, fo =1880 MHz_16QAM				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	-3.73	-0.002	PASS
-20		-5.38	-0.0029	PASS
-10		-6.65	-0.0035	PASS
0		-8.61	-0.0046	PASS
10		5.87	0.0031	PASS
20		5.86	0.0031	PASS
30		7.65	0.0041	PASS
40		-9.52	-0.0051	PASS
50		7.03	0.0037	PASS
25	V min.= 6.84	-6.77	-0.0036	PASS
25	V max.= 8.36	-6.45	-0.0034	PASS

LTE Band 4

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.72	1754.48	1710	1755
-20		1710.64	1754.52	1710	1755
-10		1710.68	1754.52	1710	1755
0		1710.68	1754.48	1710	1755
10		1710.64	1754.44	1710	1755
20		1710.64	1754.48	1710	1755
30		1710.72	1754.48	1710	1755
40		1710.64	1754.52	1710	1755
50		1710.72	1754.44	1710	1755
25	V min.= 6.84	1710.68	1754.44	1710	1755
25	V max.= 8.36	1710.68	1754.52	1710	1755

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.72	1754.44	1710	1755
-20		1710.64	1754.48	1710	1755
-10		1710.72	1754.52	1710	1755
0		1710.64	1754.48	1710	1755
10		1710.68	1754.52	1710	1755
20		1710.68	1754.48	1710	1755
30		1710.72	1754.44	1710	1755
40		1710.72	1754.48	1710	1755
50		1710.64	1754.48	1710	1755
25	V min.= 6.84	1710.68	1754.52	1710	1755
25	V max.= 8.36	1710.64	1754.52	1710	1755

LTE Band 5

10.0 MHz Middle Channel, fo =836.5 MHz_QPSK				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	0.56	0.0007	PASS
-20		-8.60	-0.0103	PASS
-10		9.89	0.0118	PASS
0		8.55	0.0102	PASS
10		-9.47	-0.0113	PASS
20		-5.15	-0.0062	PASS
30		9.32	0.0111	PASS
40		-7.99	-0.0096	PASS
50		5.32	0.0064	PASS
25	V min.= 6.84	-7.80	-0.0093	PASS
25	V max.= 8.36	8.23	0.0098	PASS

10.0 MHz Middle Channel, fo =836.5 MHz_16QAM				
Temperature (℃)	**Voltage Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	7.6	-1.00	-0.0012	PASS
-20		8.86	0.0106	PASS
-10		-5.36	-0.0064	PASS
0		8.27	0.0099	PASS
10		-5.82	-0.007	PASS
20		8.48	0.0101	PASS
30		-9.76	-0.0117	PASS
40		5.90	0.0071	PASS
50		-5.58	-0.0067	PASS
25	V min.= 6.84	-9.52	-0.0114	PASS
25	V max.= 8.36	-9.85	-0.0118	PASS

LTE Band 7

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	2500.64	2569.44	2500	2570
-20		2500.64	2569.48	2500	2570
-10		2500.68	2569.52	2500	2570
0		2500.68	2569.44	2500	2570
10		2500.72	2569.52	2500	2570
20		2500.68	2569.48	2500	2570
30		2500.72	2569.48	2500	2570
40		2500.72	2569.48	2500	2570
50		2500.64	2569.48	2500	2570
25	V min.= 6.84	2500.72	2569.44	2500	2570
25	V max.= 8.36	2500.64	2569.52	2500	2570

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	2500.68	2569.52	2500	2570
-20		2500.72	2569.44	2500	2570
-10		2500.64	2569.52	2500	2570
0		2500.72	2569.52	2500	2570
10		2500.64	2569.52	2500	2570
20		2500.72	2569.52	2500	2570
30		2500.64	2569.48	2500	2570
40		2500.68	2569.48	2500	2570
50		2500.64	2569.44	2500	2570
25	V min.= 6.84	2500.68	2569.48	2500	2570
25	V max.= 8.36	2500.68	2569.52	2500	2570

LTE Band 12

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	699.72	715.48	699	716
-20		699.72	715.52	699	716
-10		699.72	715.52	699	716
0		699.72	715.52	699	716
10		699.64	715.44	699	716
20		699.68	715.44	699	716
30		699.64	715.48	699	716
40		699.64	715.44	699	716
50		699.64	715.44	699	716
25	V min.= 6.84	699.72	715.52	699	716
25	V max.= 8.36	699.68	715.44	699	716

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	699.68	715.52	699	716
-20		699.72	715.48	699	716
-10		699.64	715.44	699	716
0		699.68	715.48	699	716
10		699.72	715.52	699	716
20		699.64	715.48	699	716
30		699.68	715.48	699	716
40		699.72	715.48	699	716
50		699.72	715.44	699	716
25	V min.= 6.84	699.64	715.52	699	716
25	V max.= 8.36	699.64	715.48	699	716

LTE Band 13

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	777.64	786.48	777	787
-20		777.64	786.44	777	787
-10		777.64	786.52	777	787
0		777.64	786.52	777	787
10		777.72	786.52	777	787
20		777.72	786.52	777	787
30		777.72	786.48	777	787
40		777.72	786.52	777	787
50		777.68	786.44	777	787
25	V min.= 6.84	777.68	786.48	777	787
25	V max.= 8.36	777.64	786.44	777	787

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	777.68	786.44	777	787
-20		777.64	786.48	777	787
-10		777.72	786.44	777	787
0		777.68	786.44	777	787
10		777.68	786.48	777	787
20		777.72	786.52	777	787
30		777.64	786.44	777	787
40		777.68	786.44	777	787
50		777.72	786.48	777	787
25	V min.= 6.84	777.72	786.52	777	787
25	V max.= 8.36	777.72	786.44	777	787

LTE Band 17

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	704.72	715.44	704	716
-20		704.64	715.52	704	716
-10		704.68	715.44	704	716
0		704.64	715.52	704	716
10		704.68	715.48	704	716
20		704.64	715.44	704	716
30		704.68	715.48	704	716
40		704.64	715.44	704	716
50		704.72	715.44	704	716
25	V min.= 6.84	704.72	715.44	704	716
25	V max.= 8.36	704.64	715.52	704	716

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	704.72	715.48	704	716
-20		704.64	715.44	704	716
-10		704.72	715.52	704	716
0		704.64	715.52	704	716
10		704.64	715.52	704	716
20		704.68	715.44	704	716
30		704.68	715.48	704	716
40		704.64	715.48	704	716
50		704.72	715.52	704	716
25	V min.= 6.84	704.68	715.52	704	716
25	V max.= 8.36	704.72	715.52	704	716

LTE Band 25

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1850.64	1914.48	1850	1915
-20		1850.68	1914.44	1850	1915
-10		1850.64	1914.44	1850	1915
0		1850.72	1914.48	1850	1915
10		1850.72	1914.52	1850	1915
20		1850.72	1914.52	1850	1915
30		1850.72	1914.48	1850	1915
40		1850.68	1914.44	1850	1915
50		1850.72	1914.44	1850	1915
25	V min.= 6.84	1850.72	1914.48	1850	1915
25	V max.= 8.36	1850.64	1914.52	1850	1915

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1850.64	1914.52	1850	1915
-20		1850.64	1914.48	1850	1915
-10		1850.72	1914.48	1850	1915
0		1850.72	1914.44	1850	1915
10		1850.72	1914.44	1850	1915
20		1850.68	1914.48	1850	1915
30		1850.72	1914.48	1850	1915
40		1850.72	1914.52	1850	1915
50		1850.72	1914.48	1850	1915
25	V min.= 6.84	1850.72	1914.52	1850	1915
25	V max.= 8.36	1850.68	1914.52	1850	1915

LTE Band 41

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	2496.68	2689.44	2496	2690
-20		2496.72	2689.48	2496	2690
-10		2496.72	2689.48	2496	2690
0		2496.64	2689.44	2496	2690
10		2496.72	2689.52	2496	2690
20		2496.68	2689.44	2496	2690
30		2496.64	2689.52	2496	2690
40		2496.72	2689.48	2496	2690
50		2496.64	2689.44	2496	2690
25	V min.= 6.84	2496.68	2689.48	2496	2690
25	V max.= 8.36	2496.72	2689.44	2496	2690

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	2496.68	2689.44	2496	2690
-20		2496.72	2689.48	2496	2690
-10		2496.64	2689.44	2496	2690
0		2496.72	2689.52	2496	2690
10		2496.72	2689.44	2496	2690
20		2496.68	2689.48	2496	2690
30		2496.72	2689.52	2496	2690
40		2496.72	2689.44	2496	2690
50		2496.72	2689.52	2496	2690
25	V min.= 6.84	2496.64	2689.44	2496	2690
25	V max.= 8.36	2496.64	2689.44	2496	2690

LTE Band 66

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.64	1779.52	1710	1780
-20		1710.68	1779.52	1710	1780
-10		1710.64	1779.44	1710	1780
0		1710.64	1779.48	1710	1780
10		1710.68	1779.48	1710	1780
20		1710.64	1779.48	1710	1780
30		1710.72	1779.48	1710	1780
40		1710.68	1779.44	1710	1780
50		1710.68	1779.52	1710	1780
25	V min.= 6.84	1710.64	1779.44	1710	1780
25	V max.= 8.36	1710.64	1779.44	1710	1780

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	1710.68	1779.48	1710	1780
-20		1710.72	1779.52	1710	1780
-10		1710.68	1779.44	1710	1780
0		1710.72	1779.48	1710	1780
10		1710.72	1779.52	1710	1780
20		1710.72	1779.52	1710	1780
30		1710.68	1779.52	1710	1780
40		1710.68	1779.44	1710	1780
50		1710.64	1779.48	1710	1780
25	V min.= 6.84	1710.68	1779.48	1710	1780
25	V max.= 8.36	1710.68	1779.48	1710	1780

LTE Band 71

Low Channel & High Channel (QPSK)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	663.68	697.44	663	698
-20		663.68	697.44	663	698
-10		663.64	697.44	663	698
0		663.68	697.52	663	698
10		663.72	697.48	663	698
20		663.68	697.52	663	698
30		663.72	697.48	663	698
40		663.64	697.52	663	698
50		663.68	697.52	663	698
25	V min.= 6.84	663.68	697.44	663	698
25	V max.= 8.36	663.64	697.52	663	698

Low Channel & High Channel (16-QAM)					
Temperature (℃)	**Voltage Supplied (V_{DC})**	**F_L (MHz)**	**F_H (MHz)**	**F_L Limit (MHz)**	**F_H Limit (MHz)**
-30	7.6	663.72	697.52	663	698
-20		663.72	697.52	663	698
-10		663.64	697.44	663	698
0		663.72	697.48	663	698
10		663.68	697.52	663	698
20		663.68	697.44	663	698
30		663.68	697.44	663	698
40		663.68	697.52	663	698
50		663.72	697.52	663	698
25	V min.= 6.84	663.68	697.52	663	698
25	V max.= 8.36	663.68	697.44	663	698

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