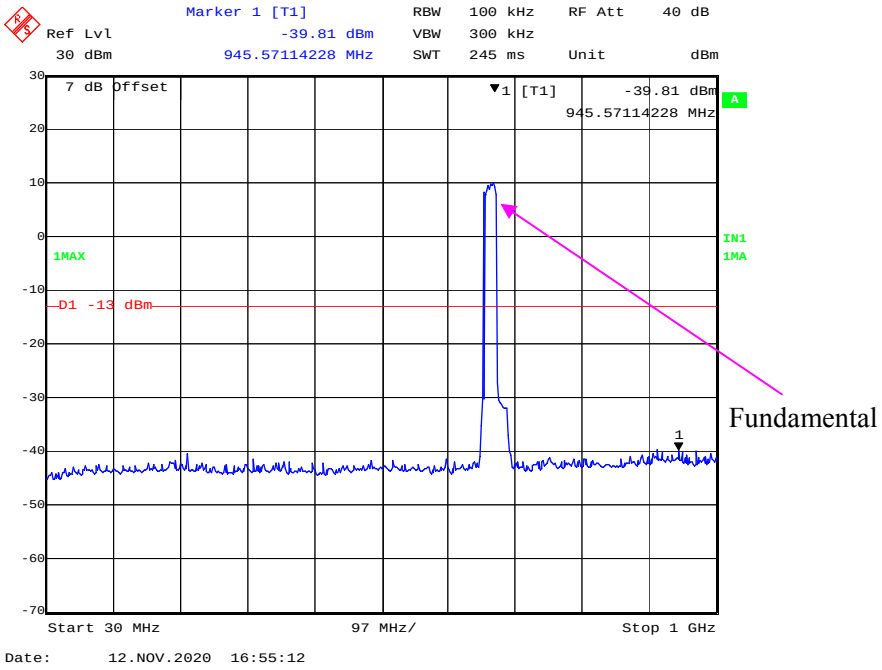
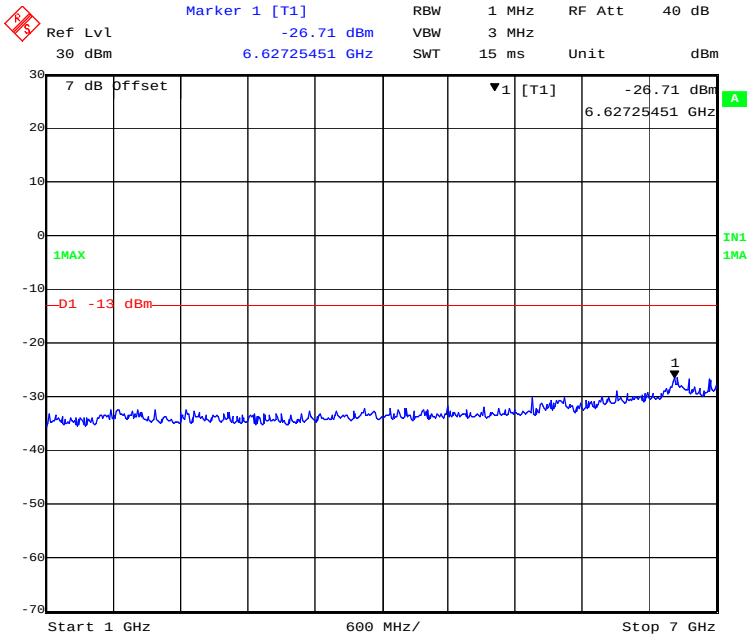
30 MHz - 1 GHz (20 MHz, QPSK, Middle Channel)



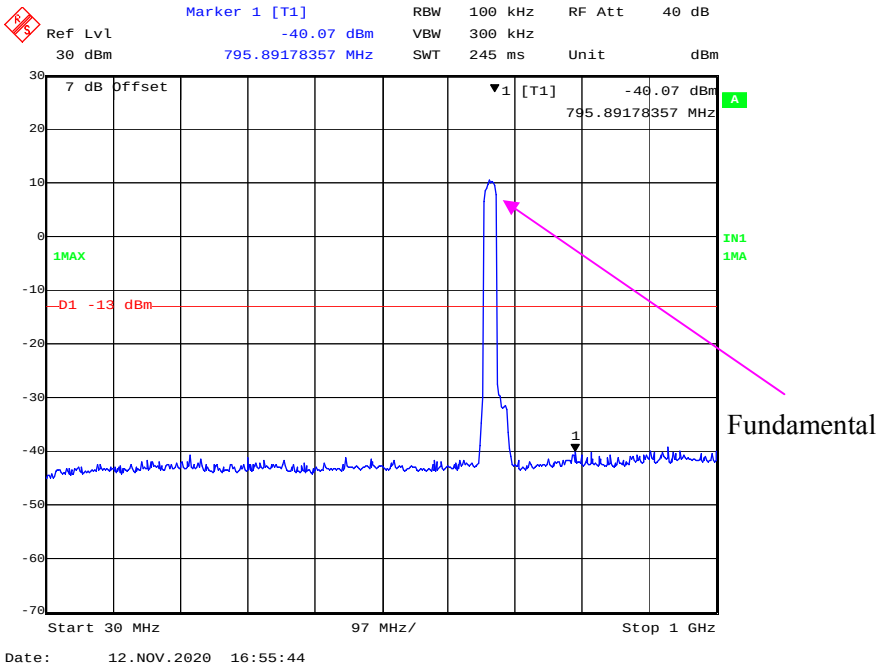
Date: 12.NOV.2020 16:55:12

1 GHz – 7 GHz (20MHz, QPSK, Middle Channel)



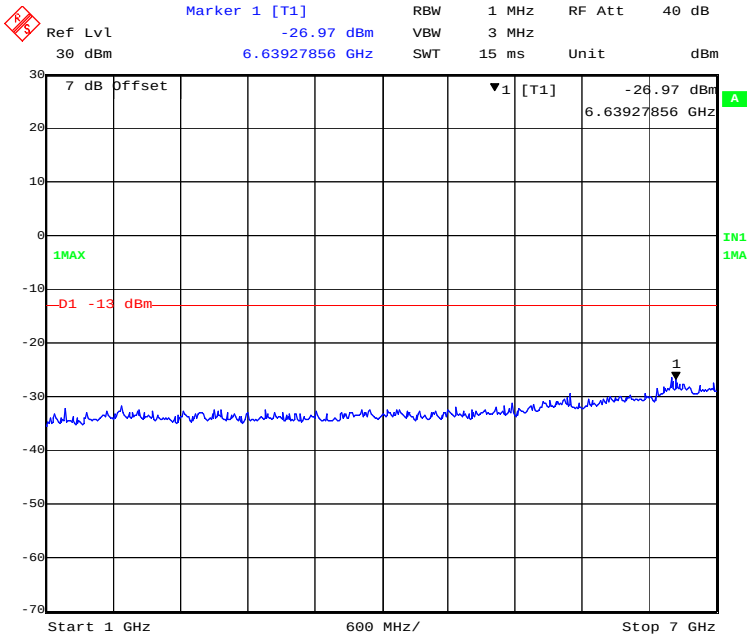
Date: 12.NOV.2020 16:52:09

30 MHz - 1 GHz (20 MHz, 16-QAM, Middle Channel)



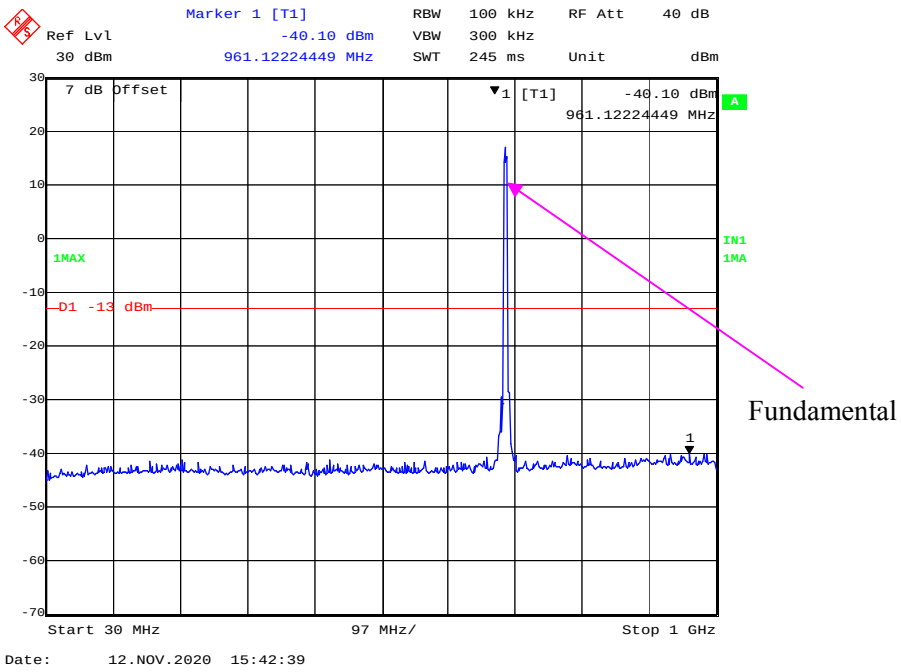
Date: 12.NOV.2020 16:55:44

1 GHz – 7 GHz (20 MHz, 16-QAM, Middle Channel)



Date: 12.NOV.2020 16:53:00

30 MHz - 1 GHz (5 MHz, QPSK, High Channel)



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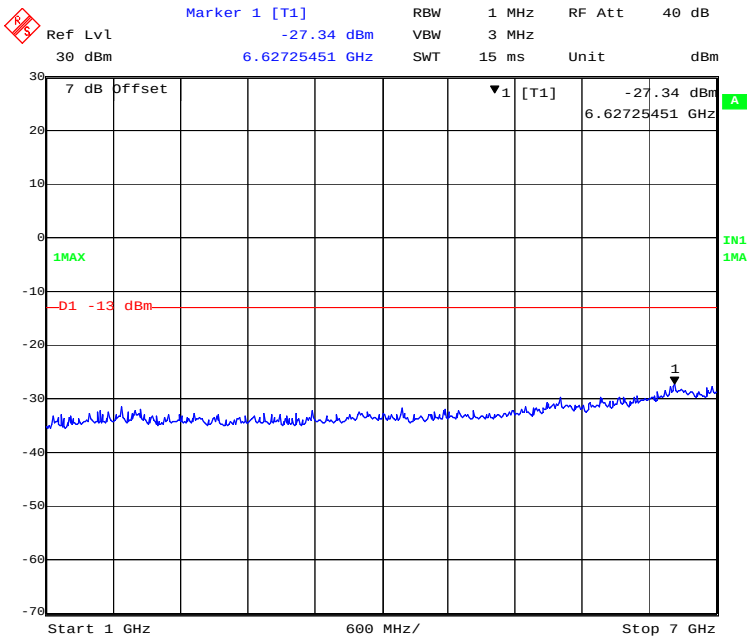
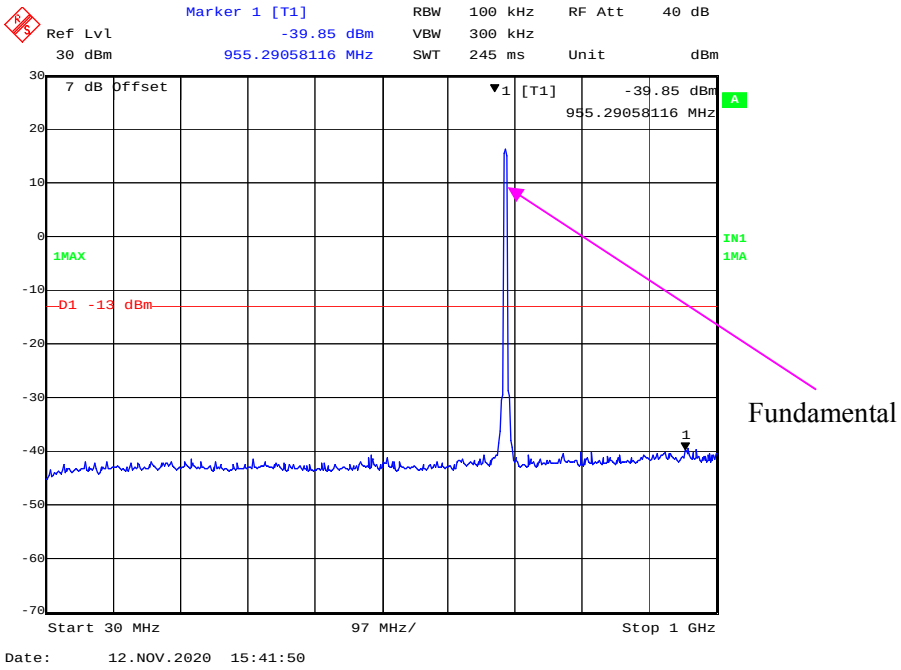
1 GHz – 7 GHz (5 MHz, QPSK, High Channel)

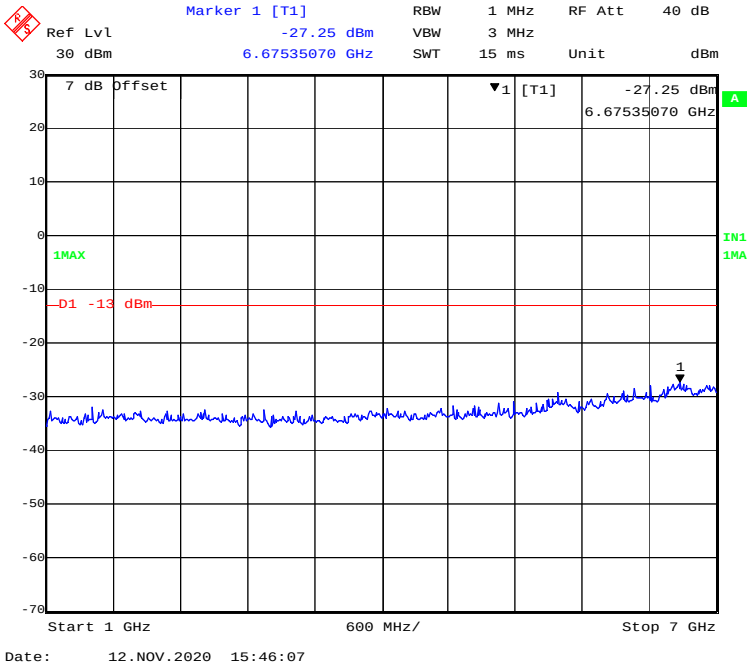


Date: 12.NOV.2020 15:47:12

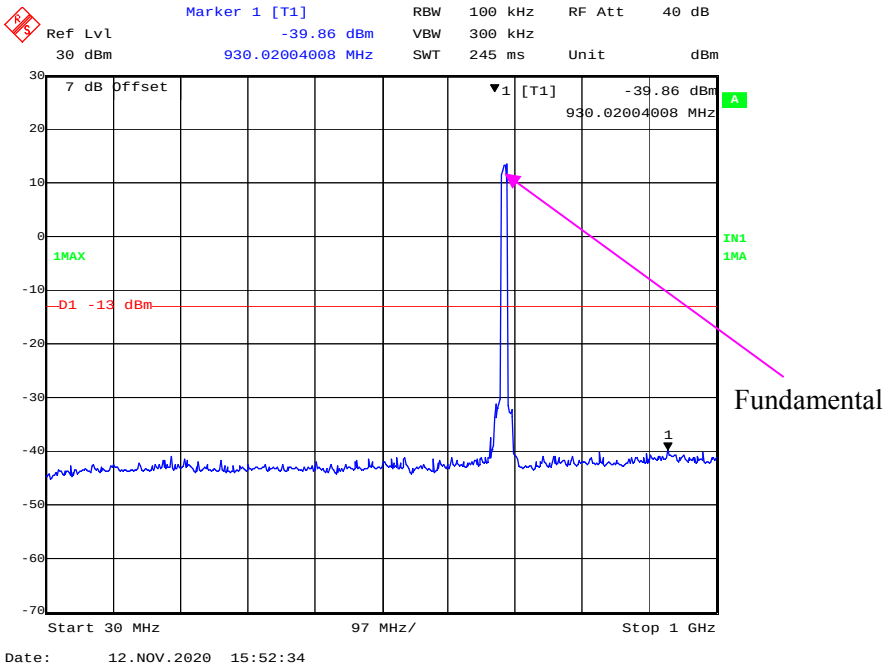
30 MHz - 1 GHz (5 MHz, 16-QAM, High Channel)



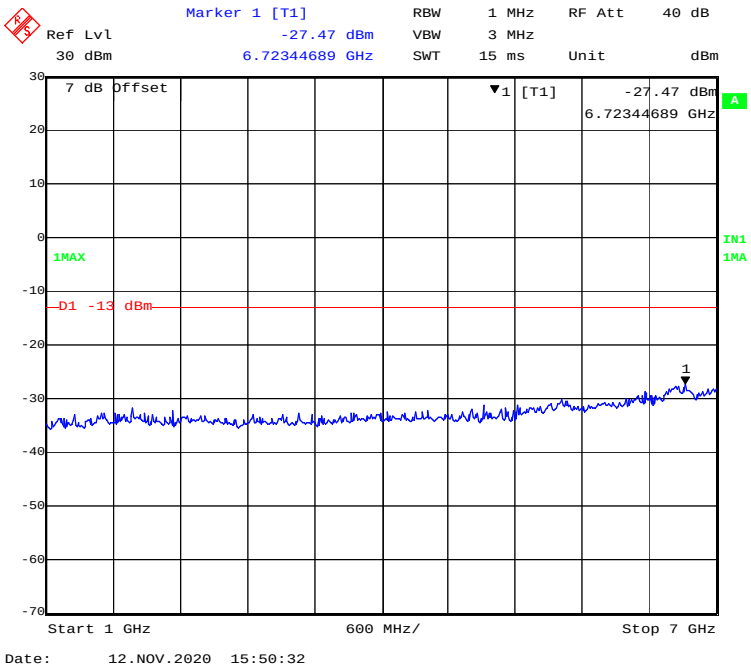
1 GHz – 7 GHz (5 MHz, 16-QAM, High Channel)



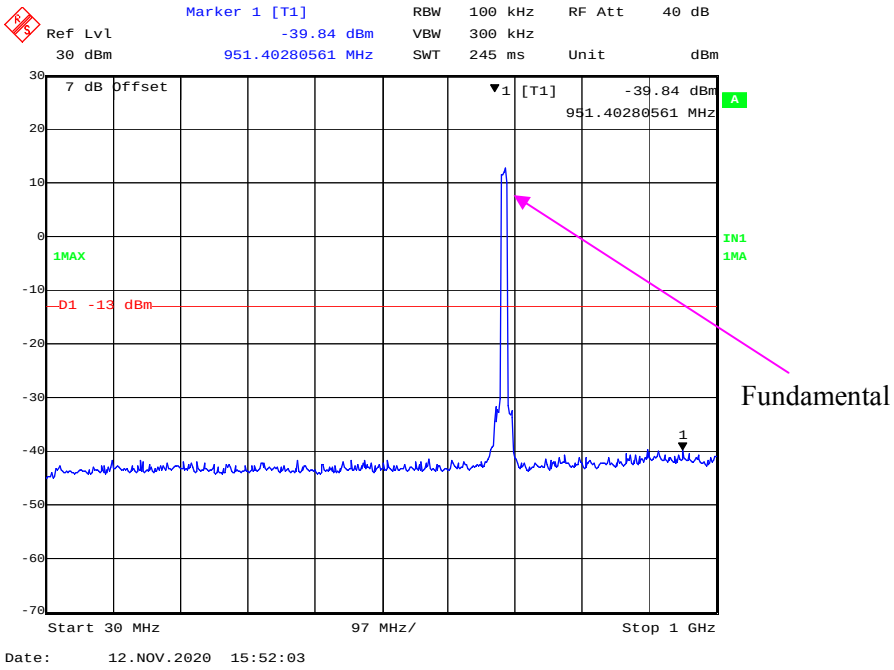
30 MHz - 1 GHz (10 MHz, QPSK, High Channel)



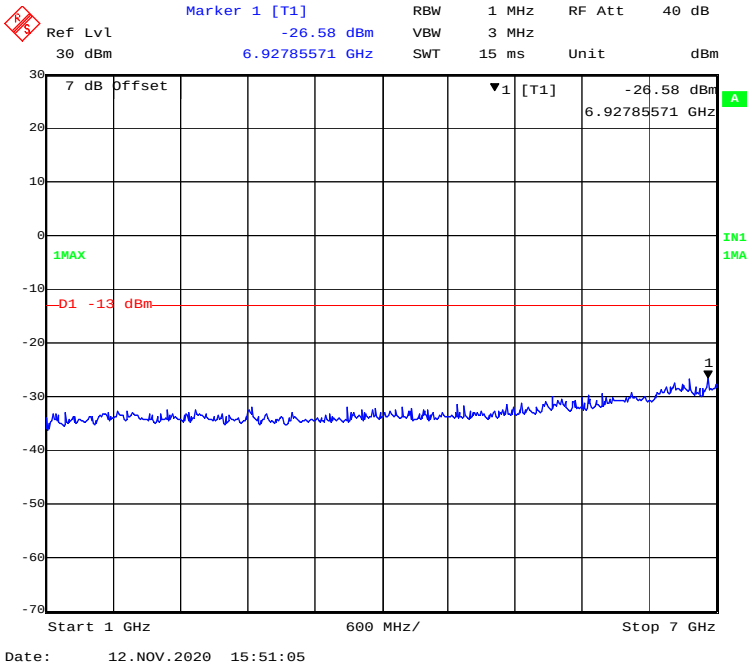
1 GHz – 7 GHz (10MHz, QPSK, High Channel)



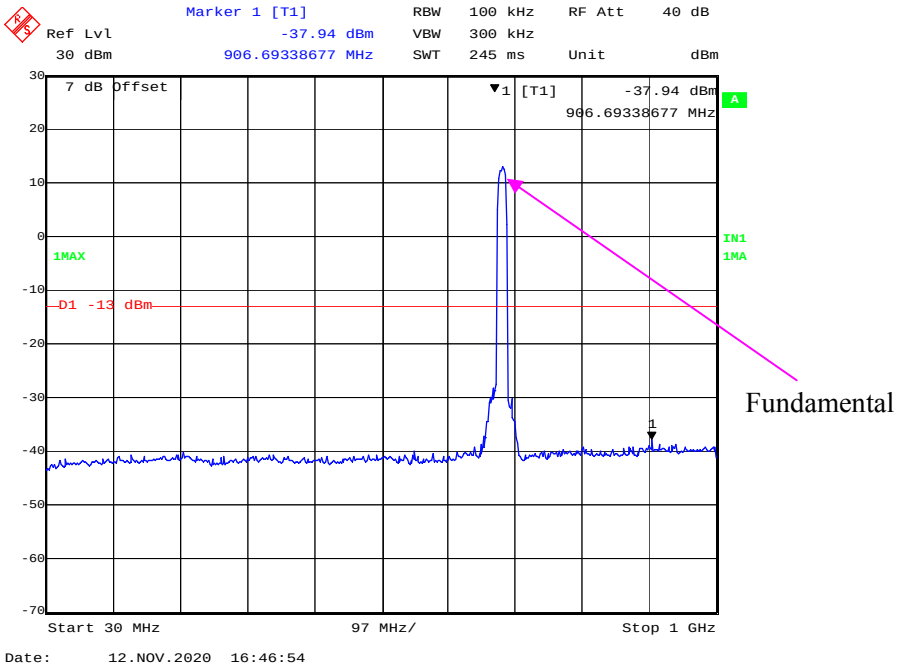
30 MHz - 1 GHz (10 MHz, 16-QAM, High Channel)



1 GHz – 7 GHz (10 MHz, 16-QAM, High Channel)

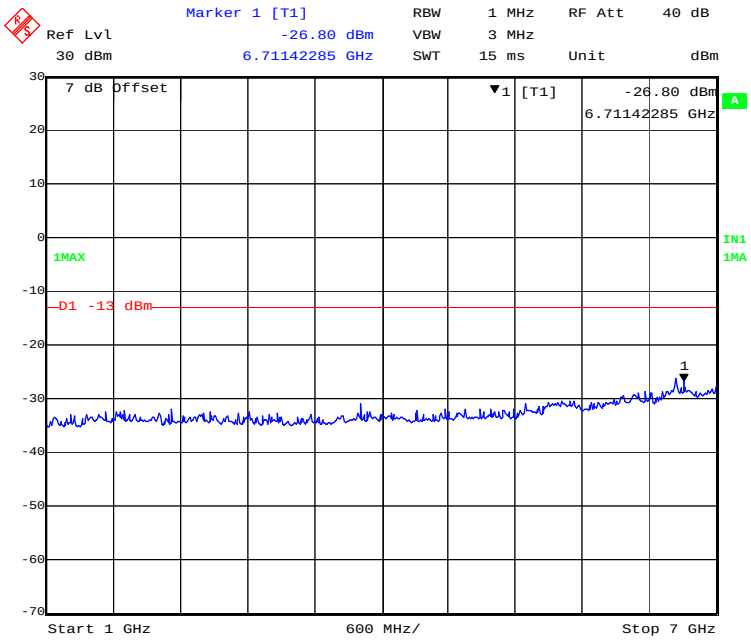


30 MHz - 1 GHz (15 MHz, QPSK, High Channel)



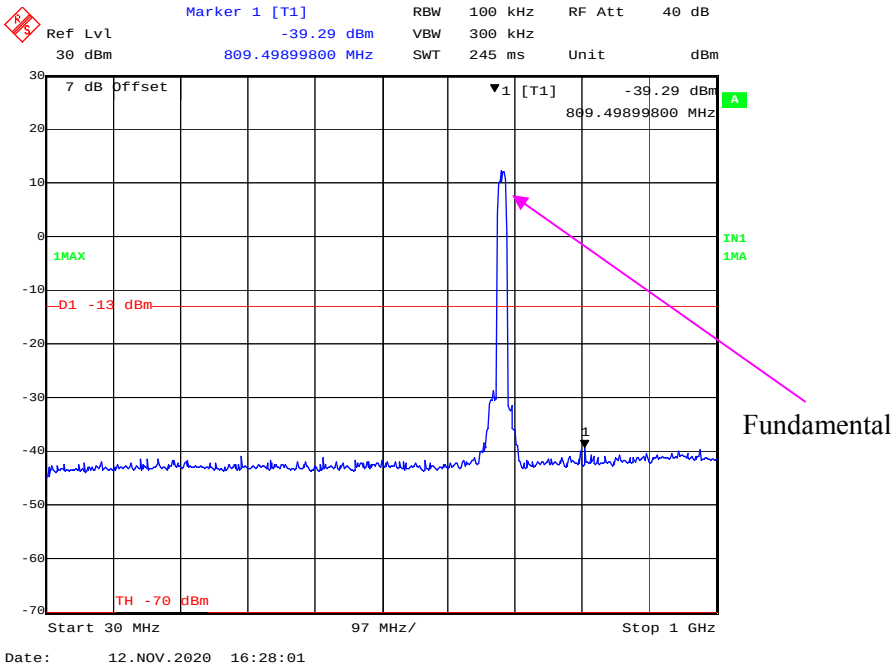
Date: 12.NOV.2020 16:46:54

1 GHz – 7 GHz (15MHz, QPSK, High Channel)



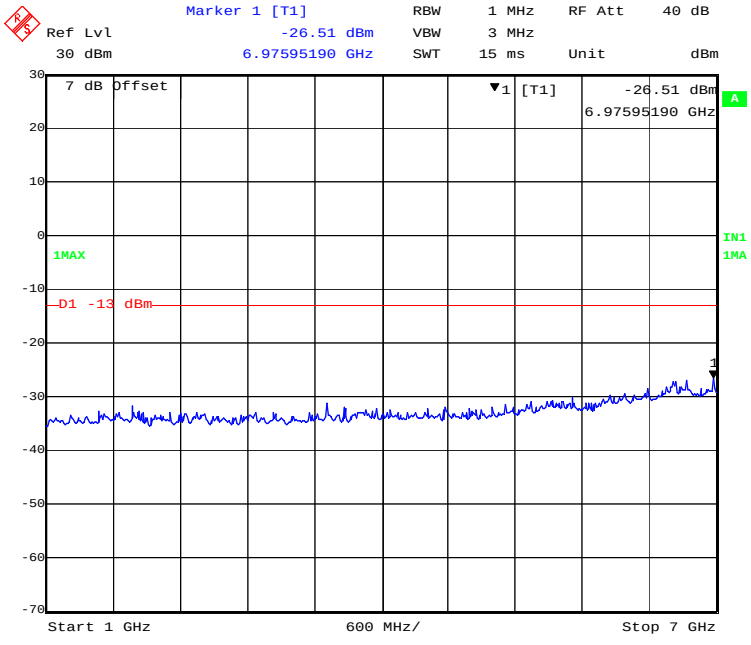
Date: 12.NOV.2020 16:51:11

30 MHz - 1 GHz (15 MHz, 16-QAM, High Channel)



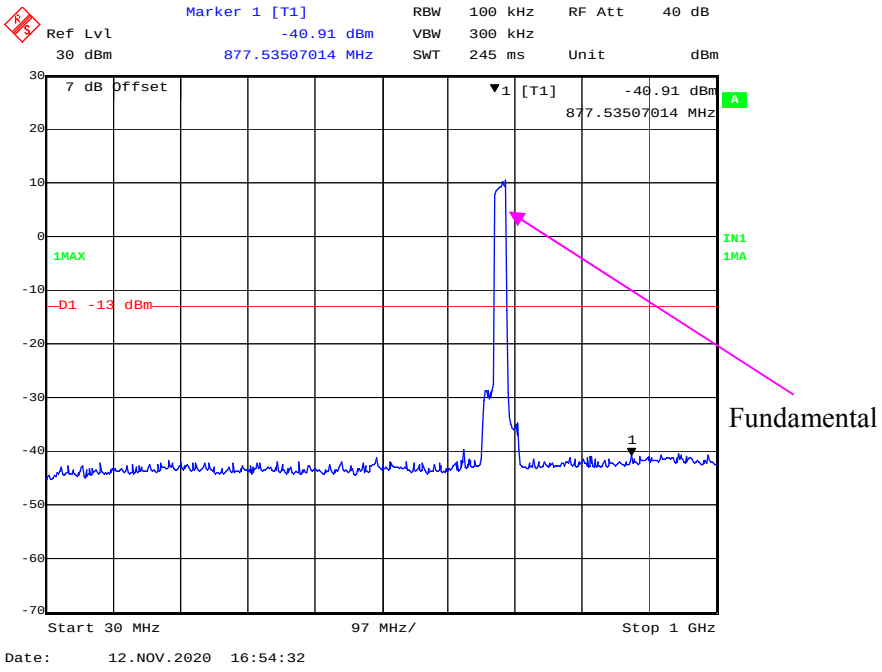
Date: 12.NOV.2020 16:28:01

1 GHz – 7 GHz (15 MHz, 16-QAM, High Channel)



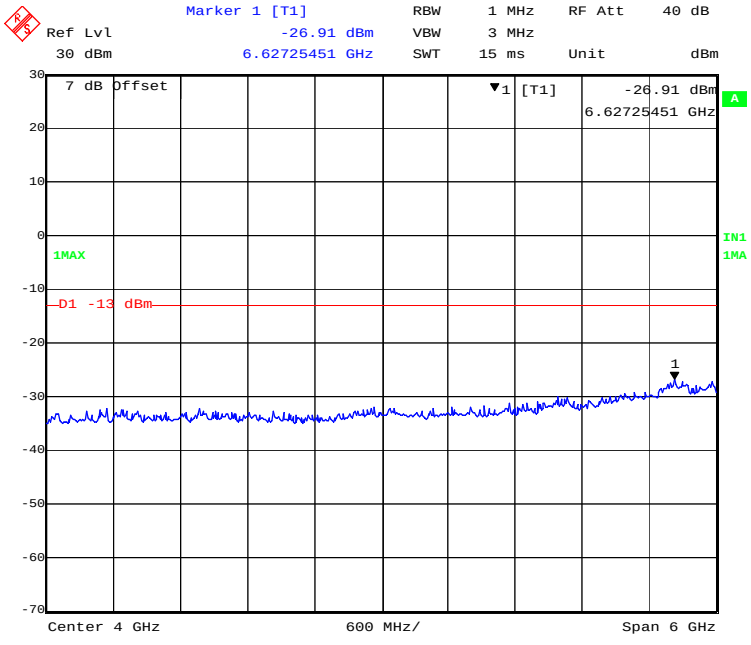
Date: 12.NOV.2020 16:50:35

30 MHz - 1 GHz (20 MHz, QPSK, High Channel)



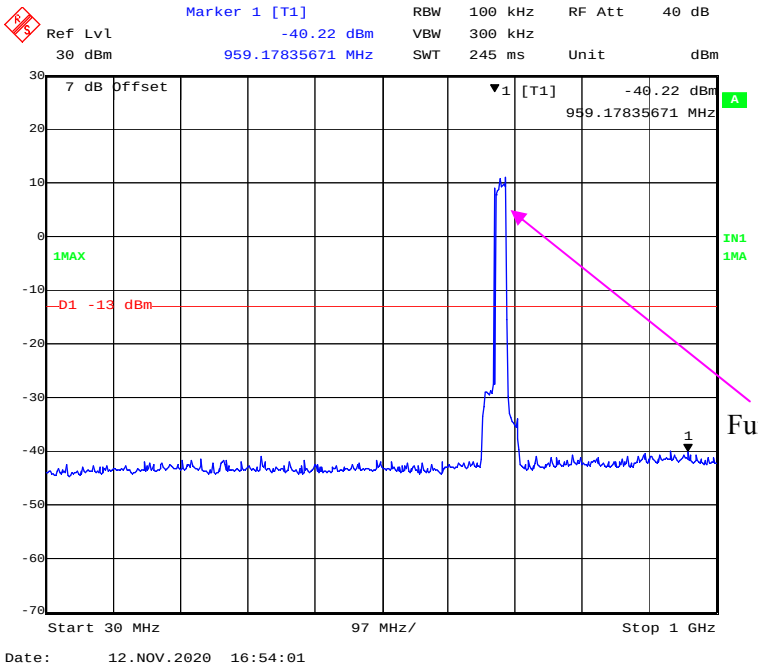
Date: 12.NOV.2020 16:54:32

1 GHz – 7 GHz (20MHz, QPSK, High Channel)



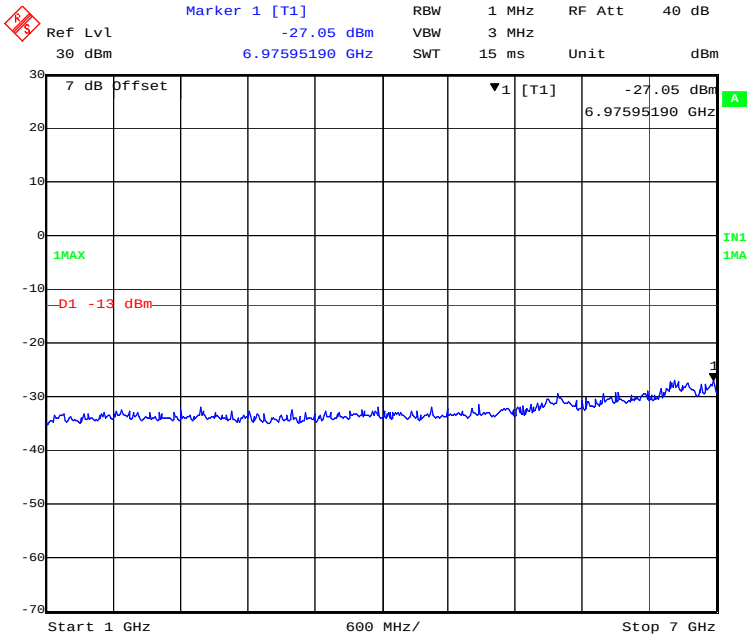
Date: 12.NOV.2020 16:51:46

30 MHz - 1 GHz (20 MHz, 16-QAM, High Channel)



Date: 12.NOV.2020 16:54:01

1 GHz – 7 GHz (20 MHz, 16-QAM, High Channel)



Date: 12.NOV.2020 16:52:27

FCC § 2.1053; § 22.917 (a); § 24.238 (a)& §27.53(c) (f) (g) (h) (m); § 90.691; § 90.543 - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917(a) and § 24.238(a), §90.691, § 90.543, and § 27.53(c) (f) (g) (h) (m)

22.917 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC 27.53 (c) (f) (g) (h) (m), (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

(m) For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

According to §90.543, for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

Rule Part 90.691 specifies that “The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Test Data

Environmental Conditions

Temperature:	22.5~23.6 ℃
Relative Humidity:	50~52 %
ATM Pressure:	100.7~101.5 kPa

The testing was performed by Stone Zhang from 2020-11-24 to 2020-11-28.

Test mode: Transmitting

30 MHz ~ 10 GHz:

WCDMA Band V

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Mode, Low channel										
692.18	48.25	124	150	H	-51.34	0.62	-1.66	-53.62	-13	40.62
692.18	46.37	341	150	V	-53.22	0.62	-1.66	-55.5	-13	42.50
1652.80	45.37	263	100	H	-67.95	0.84	8.44	-60.35	-13	47.35
1652.80	42.30	190	100	V	-71.02	0.84	8.44	-63.42	-13	50.42
WCDMA Mode, Middle channel										
692.18	45.72	316	150	H	-53.87	0.62	-1.66	-56.15	-13	43.15
692.18	43.68	163	150	V	-55.91	0.62	-1.66	-58.19	-13	45.19
1673.20	33.40	58	200	H	-69.99	0.84	8.48	-62.35	-13	49.35
1673.20	30.29	116	100	V	-73.10	0.84	8.48	-65.46	-13	52.46
WCDMA Mode, High channel										
692.18	46.35	277	150	H	-53.24	0.62	-1.66	-55.52	-13	42.52
692.18	44.92	44	150	V	-54.67	0.62	-1.66	-56.95	-13	43.95
1693.20	43.91	173	200	H	-69.12	0.84	8.51	-61.45	-13	48.45
1693.20	40.99	204	100	V	-72.04	0.84	8.51	-64.37	-13	51.37

30 MHz ~ 20 GHz:

WCDMA Band II

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Mode, Low channel										
693.49	47.89	209	150	H	-51.83	0.62	-1.68	-54.13	-13	41.13
693.49	46.11	133	200	V	-53.61	0.62	-1.68	-55.91	-13	42.91
3704.8	43.44	211	200	H	-63.52	0.95	9.78	-54.69	-13	41.69
3704.8	42.11	219	100	V	-64.85	0.95	9.78	-56.02	-13	43.02
WCDMA Mode, Middle channel										
693.49	46.78	153	150	H	-52.94	0.62	-1.68	-55.24	-13	42.24
693.49	44.21	344	200	V	-55.51	0.62	-1.68	-57.81	-13	44.81
3760.0	40.58	71	150	H	-66.20	0.95	9.74	-57.41	-13	44.41
3760.0	37.77	28	100	V	-69.01	0.95	9.74	-60.22	-13	47.22
WCDMA Mode, High channel										
693.49	45.38	177	100	H	-54.34	0.62	-1.68	-56.64	-13	43.64
693.49	43.19	334	150	V	-56.53	0.62	-1.68	-58.83	-13	45.83
3815.2	41.07	294	150	H	-65.53	0.96	9.71	-56.78	-13	43.78
3815.2	39.53	131	100	V	-67.07	0.96	9.71	-58.32	-13	45.32

30 MHz ~ 20 GHz:

WCDMA Band IV

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
WCDMA Mode, Low channel										
695.49	47.65	82	150	H	-52.27	0.62	-1.7	-54.59	-13	41.59
695.49	45.23	311	150	V	-54.69	0.62	-1.7	-57.01	-13	44.01
3430.0	42.76	236	200	H	-65.14	0.93	9.83	-56.24	-13	43.24
3430.0	40.36	38	100	V	-67.54	0.93	9.83	-58.64	-13	45.64
WCDMA Mode, Middle channel										
695.49	47.98	304	150	H	-51.94	0.62	-1.7	-54.26	-13	41.26
695.49	44.58	203	150	V	-55.34	0.62	-1.7	-57.66	-13	44.66
3465.2	43.68	262	200	H	-64.07	0.93	9.87	-55.13	-13	42.13
3465.2	41.49	167	100	V	-66.26	0.93	9.87	-57.32	-13	44.32
WCDMA Mode, High channel										
695.49	58.49	97	150	H	-41.43	0.62	-1.7	-43.75	-13	30.75
695.49	60.16	168	150	V	-39.76	0.62	-1.7	-42.08	-13	29.08
3500.0	41.29	291	200	H	-66.31	0.93	9.9	-57.34	-13	44.34
3500.0	39.70	73	100	V	-67.90	0.93	9.9	-58.93	-13	45.93

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

Test mode: Transmitting (Pre-scan with all the bandwidth, and worst case as below)

30 MHz ~ 20 GHz:

LTE Band 2:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
584.11	54.85	32	100	H	-48.42	0.59	-0.86	-46.97	-13	33.97
584.11	56.38	335	150	V	-46.89	0.59	-0.86	-45.44	-13	32.44
3701.40	45.76	67	150	H	-61.20	0.95	9.78	-52.37	-13	39.37
3701.40	43.59	285	100	V	-63.37	0.95	9.78	-54.54	-13	41.54
16-QAM 1.4MHz Bandwidth Low Channel										
584.11	53.48	298	150	H	-49.79	0.59	-0.86	-48.34	-13	35.34
584.11	55.16	279	150	V	-48.11	0.59	-0.86	-46.66	-13	33.66
3701.40	44.86	17	200	H	-62.10	0.95	9.78	-53.27	-13	40.27
3701.40	42.11	4	200	V	-64.85	0.95	9.78	-56.02	-13	43.02

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
584.11	55.48	256	100	H	-47.79	0.59	-0.86	-46.34	-13	33.34
584.11	56.29	41	150	V	-46.98	0.59	-0.86	-45.53	-13	32.53
3760.0	45.32	73	150	H	-61.46	0.95	9.74	-52.67	-13	39.67
3760.0	43.40	5	150	V	-63.38	0.95	9.74	-54.59	-13	41.59
16-QAM 1.4MHz Bandwidth Middle Channel										
584.11	54.77	211	150	H	-48.5	0.59	-0.86	-47.05	-13	34.05
584.11	56.49	125	150	V	-46.78	0.59	-0.86	-45.33	-13	32.33
3760.0	44.50	113	200	H	-62.28	0.95	9.74	-53.49	-13	40.49
3760.0	42.21	57	200	V	-64.57	0.95	9.74	-55.78	-13	42.78

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
584.11	54.78	231	150	H	-48.49	0.59	-0.86	-47.04	-13	34.04
584.11	56.19	268	200	V	-47.08	0.59	-0.86	-45.63	-13	32.63
3818.60	45.18	182	100	H	-61.42	0.96	9.71	-52.67	-13	39.67
3818.60	44.08	292	100	V	-62.52	0.96	9.71	-53.77	-13	40.77
16-QAM 1.4MHz Bandwidth High Channel										
584.11	55.87	205	150	H	-47.40	0.59	-0.86	-45.95	-13	32.95
584.11	58.16	143	150	V	-45.11	0.59	-0.86	-43.66	-13	30.66
3818.60	45.18	210	200	H	-61.42	0.96	9.71	-52.67	-13	39.67
3818.60	43.27	101	200	V	-63.33	0.96	9.71	-54.58	-13	41.58

LTE Band 4:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
736.16	52.37	170	100	H	-48.62	0.62	-1.57	-46.43	-13	33.43
736.16	54.34	289	200	V	-46.65	0.62	-1.57	-44.46	-13	31.46
3421.40	46.88	342	150	H	-61.06	0.93	9.82	-52.17	-13	39.17
3421.40	44.73	93	100	V	-63.21	0.93	9.82	-54.32	-13	41.32
16-QAM 1.4MHz Bandwidth Low Channel										
736.16	55.78	175	150	H	-45.21	0.62	-1.57	-43.02	-13	30.02
736.16	57.92	101	150	V	-43.07	0.62	-1.57	-40.88	-13	27.88
3421.40	44.38	182	200	H	-63.56	0.93	9.82	-54.67	-13	41.67
3421.40	42.23	41	200	V	-65.71	0.93	9.82	-56.82	-13	43.82

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
736.16	54.67	170	100	H	-46.32	0.62	-1.57	-44.13	-13	31.13
736.16	56.93	7	200	V	-44.06	0.62	-1.57	-41.87	-13	28.87
3465.0	47.49	345	150	H	-60.26	0.93	9.87	-51.32	-13	38.32
3465.0	45.14	360	100	V	-62.61	0.93	9.87	-53.67	-13	40.67
16-QAM 1.4MHz Bandwidth Middle Channel										
736.16	52.93	259	150	H	-48.06	0.62	-1.57	-45.87	-13	32.87
736.16	54.16	239	150	V	-46.83	0.62	-1.57	-44.64	-13	31.64
3465.0	46.75	124	200	H	-61.00	0.93	9.87	-52.06	-13	39.06
3465.0	44.60	292	200	V	-63.15	0.93	9.87	-54.21	-13	41.21

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
736.16	53.67	179	100	H	-47.32	0.62	-1.57	-45.13	-13	32.13
736.16	56.22	351	200	V	-44.77	0.62	-1.57	-42.58	-13	29.58
3508.60	45.93	90	150	H	-61.64	0.93	9.90	-52.67	-13	39.67
3508.60	42.86	268	100	V	-64.71	0.93	9.90	-55.74	-13	42.74
16-QAM 1.4MHz Bandwidth High Channel										
736.16	51.37	257	150	H	-49.62	0.62	-1.57	-47.43	-13	34.43
736.16	53.47	212	150	V	-47.52	0.62	-1.57	-45.33	-13	32.33
3508.60	42.54	102	200	H	-65.03	0.93	9.90	-56.06	-13	43.06
3508.60	39.93	154	200	V	-67.64	0.93	9.90	-58.67	-13	45.67

30MHz~26.5GHz:

LTE Band 7:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
459.93	52.06	162	100	H	-47.33	0.55	-1.71	-45.07	-25	20.07
459.93	52.45	311	200	V	-46.94	0.55	-1.71	-44.68	-25	19.68
5005.0	40.20	149	100	H	-65.79	1.08	10.30	-56.57	-25	31.57
5005.0	40.27	282	150	V	-65.72	1.08	10.30	-56.5	-25	31.50
16-QAM 5MHz Bandwidth Low Channel										
459.91	49.87	281	100	H	-49.52	0.55	-1.71	-47.26	-25	22.26
459.91	52.13	347	200	V	-47.26	0.55	-1.71	-45	-25	20.00
5005.0	42.58	209	150	H	-63.41	1.08	10.30	-54.19	-25	29.19
5005.0	40.39	73	200	V	-65.60	1.08	10.30	-56.38	-25	31.38

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
459.7	49.32	351	100	H	-50.07	0.55	-1.71	-47.81	-25	22.81
459.7	52.34	179	200	V	-47.05	0.55	-1.71	-44.79	-25	19.79
5070.0	31.58	58	100	H	-63.70	1.09	10.30	-54.49	-25	29.49
5070.0	29.17	251	150	V	-66.11	1.09	10.30	-56.9	-25	31.90
16-QAM 5MHz Bandwidth Middle Channel										
459.88	49.36	308	100	H	-50.03	0.55	-1.71	-47.77	-25	22.77
459.88	52.38	33	200	V	-47.01	0.55	-1.71	-44.75	-25	19.75
5070.0	31.35	178	150	H	-63.93	1.09	10.30	-54.72	-25	29.72
5070.0	29.84	124	200	V	-65.44	1.09	10.30	-56.23	-25	31.23

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
459.98	49.32	282	100	H	-50.07	0.55	-1.71	-47.81	-25	22.81
459.98	52.68	344	200	V	-46.71	0.55	-1.71	-44.45	-25	19.45
5135.0	43.58	99	100	H	-61.69	1.1	10.30	-52.49	-25	27.49
5135.0	40.95	213	150	V	-64.32	1.1	10.30	-55.12	-25	30.12
16-QAM 5MHz Bandwidth High Channel										
459.64	52.40	173	100	H	-46.99	0.55	-1.71	-44.73	-25	19.73
459.64	54.86	259	200	V	-44.53	0.55	-1.71	-42.27	-25	17.27
5135.0	42.58	101	150	H	-62.69	1.1	10.30	-53.49	-25	28.49
5135.0	39.21	192	200	V	-66.06	1.1	10.30	-56.86	-25	31.86

30MHz~10GHz:

LTE Band 12:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
342.82	49.52	83	100	H	-58.74	0.49	-1.81	-56.44	-13	43.44
342.82	52.38	105	200	V	-55.88	0.49	-1.81	-53.58	-13	40.58
1399.4	50.29	82	150	H	-63.88	0.82	7.92	-56.78	-13	43.78
1399.4	47.73	274	100	V	-66.44	0.82	7.92	-59.34	-13	46.34
16-QAM 1.4MHz Bandwidth Low Channel										
342.82	47.34	302	150	H	-60.92	0.49	-1.91	-58.52	-13	45.52
342.82	49.68	354	150	V	-58.58	0.49	-1.91	-56.18	-13	43.18
1399.4	52.48	359	200	H	-61.69	0.82	7.92	-54.59	-13	41.59
1399.4	49.75	84	200	V	-64.42	0.82	7.92	-57.32	-13	44.32

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
342.82	49.25	174	100	H	-59.01	0.49	-1.81	-56.71	-13	43.71
342.82	52.34	89	200	V	-55.92	0.49	-1.81	-53.62	-13	40.62
1415.0	51.39	50	150	H	-62.81	0.82	7.96	-55.67	-13	42.67
1415.0	49.03	142	100	V	-65.17	0.82	7.96	-58.03	-13	45.03
16-QAM 1.4MHz Bandwidth Middle Channel										
342.82	46.89	226	150	H	-61.37	0.49	-1.91	-58.97	-13	45.97
342.82	50.23	65	150	V	-58.03	0.49	-1.91	-55.63	-13	42.63
1415.0	50.31	149	200	H	-63.89	0.82	7.96	-56.75	-13	43.75
1415.0	47.74	102	200	V	-66.46	0.82	7.96	-59.32	-13	46.32

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
342.82	46.37	66	100	H	-61.89	0.49	-1.81	-59.59	-13	46.59
342.82	48.93	85	200	V	-59.33	0.49	-1.81	-57.03	-13	44.03
1430.6	52.27	188	150	H	-61.96	0.82	8	-54.78	-13	41.78
1430.6	50.78	115	100	V	-63.45	0.82	8	-56.27	-13	43.27
16-QAM 1.4MHz Bandwidth High Channel										
342.82	47.32	34	150	H	-60.94	0.49	-1.91	-58.54	-13	45.54
342.82	50.24	14	150	V	-58.02	0.49	-1.91	-55.62	-13	42.62
1430.6	51.68	290	200	H	-62.55	0.82	8	-55.37	-13	42.37
1430.6	49.76	49	200	V	-64.47	0.82	8	-57.29	-13	44.29

30 MHz ~ 10 GHz:
LTE Band 13:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
749.01	49.52	59	200	H	-51.67	0.62	-1.50	-49.55	-13	36.55
749.01	51.34	80	200	V	-49.85	0.62	-1.50	-47.73	-13	34.73
1559.0	51.71	345	100	H	-62.25	0.83	8.29	-54.79	-13	41.79
1559.0	50.28	278	150	V	-63.68	0.83	8.29	-56.22	-13	43.22
16-QAM 5MHz Bandwidth Low Channel										
749.01	54.67	4	100	H	-46.52	0.62	-1.50	-44.4	-13	31.40
749.01	58.34	300	150	V	-42.85	0.62	-1.50	-40.73	-13	27.73
1559.0	55.13	346	150	H	-58.83	0.83	8.29	-51.37	-13	38.37
1559.0	52.11	11	200	V	-61.85	0.83	8.29	-54.39	-13	41.39

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
749.01	54.19	147	200	H	-47.00	0.62	-1.50	-44.88	-13	31.88
749.01	56.81	81	200	V	-44.38	0.62	-1.50	-42.26	-13	29.26
1564.0	50.79	351	100	H	-63.14	0.83	8.30	-55.67	-13	42.67
1564.0	49.37	35	150	V	-64.56	0.83	8.30	-57.09	-13	44.09
16-QAM 5MHz Bandwidth Middle Channel										
749.01	54.36	205	100	H	-46.83	0.62	-1.50	-44.71	-13	31.71
749.01	56.49	122	150	V	-44.70	0.62	-1.50	-42.58	-13	29.58
1564.0	50.45	145	150	H	-63.48	0.83	8.30	-56.01	-13	43.01
1564.0	48.44	93	200	V	-65.49	0.83	8.30	-58.02	-13	45.02

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
749.01	52.16	76	200	H	-49.03	0.62	-1.50	-46.91	-13	33.91
749.01	54.77	336	200	V	-46.42	0.62	-1.50	-44.3	-13	31.30
1569.0	51.74	159	100	H	-62.15	0.83	8.31	-54.67	-13	41.67
1569.0	49.16	73	150	V	-64.73	0.83	8.31	-57.25	-13	44.25
16-QAM 5MHz Bandwidth High Channel										
749.01	51.38	190	100	H	-49.81	0.62	-1.50	-47.69	-13	34.69
749.01	54.88	316	150	V	-46.31	0.62	-1.50	-44.19	-13	31.19
1569.0	54.92	271	150	H	-58.97	0.83	8.31	-51.49	-13	38.49
1569.0	51.74	249	200	V	-62.15	0.83	8.31	-54.67	-13	41.67

30 MHz ~ 10 GHz:
LTE Band 14:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
760.16	54.68	208	100	H	-45.92	0.62	-1.65	-43.65	-13	30.65
760.16	56.23	218	200	V	-44.37	0.62	-1.65	-42.10	-13	29.10
1581.0	51.45	160	100	H	-62.36	0.83	8.33	-54.86	-40	14.86
1581.0	48.12	321	150	V	-65.69	0.83	8.33	-58.19	-40	18.19
16-QAM 5MHz Bandwidth Low Channel										
760.16	53.27	114	100	H	-47.33	0.62	-1.65	-45.06	-13	32.06
760.16	55.49	256	150	V	-45.11	0.62	-1.65	-42.84	-13	29.84
1581.0	52.44	338	100	H	-61.37	0.83	8.33	-53.87	-40	13.87
1581.0	49.35	46	200	V	-64.46	0.83	8.33	-56.96	-40	16.96

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
760.16	50.49	201	100	H	-50.11	0.62	-1.65	-47.84	-13	34.84
760.16	53.97	330	200	V	-46.63	0.62	-1.65	-44.36	-13	31.36
1586.0	52.91	93	100	H	-60.86	0.83	8.34	-53.35	-40	13.35
1586.0	49.48	347	150	V	-64.29	0.83	8.34	-56.78	-40	16.78
16-QAM 5MHz Bandwidth Middle Channel										
760.16	49.25	170	100	H	-51.35	0.62	-1.65	-49.08	-13	36.08
760.16	53.82	252	150	V	-46.78	0.62	-1.65	-44.51	-13	31.51
1586.0	53.59	67	100	H	-60.18	0.83	8.34	-52.67	-40	12.67
1586.0	51.04	332	200	V	-62.73	0.83	8.34	-55.22	-40	15.22

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
760.16	49.67	76	100	H	-50.93	0.62	-1.65	-48.66	-13	35.66
760.16	52.18	42	200	V	-48.42	0.62	-1.65	-46.15	-13	33.15
1591.0	51.84	69	100	H	-61.90	0.83	8.35	-54.38	-40	14.38
1591.0	48.13	175	150	V	-65.61	0.83	8.35	-58.09	-40	18.09
16-QAM 5MHz Bandwidth High Channel										
760.16	49.99	88	100	H	-50.61	0.62	-1.65	-48.34	-13	35.34
760.16	54.06	128	150	V	-46.54	0.62	-1.65	-44.27	-13	31.27
1591.0	51.50	248	100	H	-62.24	0.83	8.35	-54.72	-40	14.72
1591.0	48.76	125	200	V	-64.98	0.83	8.35	-57.46	-40	17.46

LTE Band 17:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
459.71	49.67	96	100	H	-49.72	0.55	-1.71	-47.46	-13	34.46
459.71	52.57	86	200	V	-46.82	0.55	-1.71	-44.56	-13	31.56
1413.0	59.17	21	150	H	-55.80	0.83	8.06	-48.57	-13	35.57
1413.0	55.75	248	100	V	-59.22	0.83	8.06	-51.99	-13	38.99
16-QAM 5MHz Bandwidth Low Channel										
459.62	52.79	291	100	H	-46.60	0.55	-1.71	-44.34	-13	31.34
459.62	54.89	350	200	V	-44.50	0.55	-1.71	-42.24	-13	29.24
1413.0	55.56	136	200	H	-59.41	0.83	8.06	-52.18	-13	39.18
1413.0	52.67	313	200	V	-62.30	0.83	8.06	-55.07	-13	42.07

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
459.72	50.02	93	100	H	-49.37	0.55	-1.71	-47.11	-13	34.11
459.72	52.08	308	200	V	-47.31	0.55	-1.71	-45.05	-13	32.05
1420.0	57.80	38	150	H	-57.12	0.83	8.07	-49.88	-13	36.88
1420.0	56.38	123	100	V	-58.54	0.83	8.07	-51.3	-13	38.30
16-QAM 5MHz Bandwidth Middle Channel										
459.65	49.98	315	100	H	-49.41	0.55	-1.71	-47.15	-13	34.15
459.65	52.05	232	200	V	-47.34	0.55	-1.71	-45.08	-13	32.08
1420.0	54.91	68	200	H	-60.01	0.83	8.07	-52.77	-13	39.77
1420.0	54.19	198	200	V	-60.73	0.83	8.07	-53.49	-13	40.49

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
459.83	49.88	159	100	H	-49.51	0.55	-1.71	-47.25	-13	34.25
459.83	52.85	55	200	V	-46.54	0.55	-1.71	-44.28	-13	31.28
1427.0	57.15	268	150	H	-57.73	0.83	8.08	-50.48	-13	37.48
1427.0	54.39	47	100	V	-60.49	0.83	8.08	-53.24	-13	40.24
16-QAM 5MHz Bandwidth High Channel										
459.8	49.65	244	100	H	-49.74	0.55	-1.71	-47.48	-13	34.48
459.8	52.56	285	200	V	-46.83	0.55	-1.71	-44.57	-13	31.57
1427.0	58.66	334	200	H	-56.22	0.83	8.08	-48.97	-13	35.97
1427.0	55.69	202	200	V	-59.19	0.83	8.08	-51.94	-13	38.94

30 MHz ~ 20 GHz:

LTE Band 25:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
459.68	49.97	328	100	H	-49.42	0.55	-1.71	-47.16	-13	34.16
459.68	52.76	94	200	V	-46.63	0.55	-1.71	-44.37	-13	31.37
3611.4	41.61	360	150	H	-65.64	0.94	9.83	-56.75	-13	43.75
3611.4	40.13	119	100	V	-67.12	0.94	9.83	-58.23	-13	45.23
16-QAM 1.4MHz Bandwidth Low Channel										
459.76	49.68	332	100	H	-49.71	0.55	-1.71	-47.45	-13	34.45
459.76	52.73	15	200	V	-46.66	0.55	-1.71	-44.4	-13	31.40
3611.4	42.87	234	200	H	-64.38	0.94	9.83	-55.49	-13	42.49
3611.4	41.00	202	200	V	-66.25	0.94	9.83	-57.36	-13	44.36

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
459.86	52.30	285	100	H	-47.09	0.55	-1.71	-44.83	-13	31.83
459.86	54.06	62	200	V	-45.33	0.55	-1.71	-43.07	-13	30.07
3765.0	42.30	113	150	H	-64.46	0.95	9.74	-55.67	-13	42.67
3765.0	39.84	285	100	V	-66.92	0.95	9.74	-58.13	-13	45.13
16-QAM 1.4MHz Bandwidth Middle Channel										
459.6	49.99	235	100	H	-49.40	0.55	-1.71	-47.14	-13	34.14
459.6	52.53	259	200	V	-46.86	0.55	-1.71	-44.6	-13	31.60
3765.0	38.08	108	200	H	-68.68	0.95	9.74	-59.89	-13	46.89
3765.0	35.03	224	200	V	-71.73	0.95	9.74	-62.94	-13	49.94

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
459.89	49.87	199	100	H	-49.52	0.55	-1.71	-47.26	-13	34.26
459.89	52.01	120	200	V	-47.38	0.55	-1.71	-45.12	-13	32.12
3828.6	42.18	31	150	H	-64.38	0.96	9.7	-55.64	-13	42.64
3828.6	39.47	292	100	V	-67.09	0.96	9.7	-58.35	-13	45.35
16-QAM 1.4MHz Bandwidth High Channel										
459.95	49.56	178	100	H	-49.83	0.55	-1.71	-47.57	-13	34.57
459.95	52.43	107	200	V	-46.96	0.55	-1.71	-44.7	-13	31.70
3828.6	41.08	79	200	H	-65.48	0.96	9.7	-56.74	-13	43.74
3828.6	38.48	126	200	V	-68.08	0.96	9.7	-59.34	-13	46.34

30 MHz ~ 10 GHz:

LTE Band 26:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
459.64	49.96	249	100	H	-49.43	0.55	-1.71	-47.17	-13	34.17
459.64	52.77	63	200	V	-46.62	0.55	-1.71	-44.36	-13	31.36
1629.4	50.73	104	100	H	-62.74	0.84	8.41	-55.17	-13	42.17
1629.4	48.83	180	150	V	-64.64	0.84	8.41	-57.07	-13	44.07
16-QAM 1.4MHz Bandwidth Low Channel										
459.64	55.74	321	100	H	-45.45	0.62	-1.50	-43.33	-13	30.33
459.64	58.77	59	150	V	-42.42	0.62	-1.50	-40.30	-13	27.30
1629.4	51.01	142	150	H	-62.46	0.84	8.41	-54.89	-13	41.89
1629.4	48.41	133	200	V	-65.06	0.84	8.41	-57.49	-13	44.49

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
459.78	49.78	272	100	H	-49.61	0.55	-1.71	-47.35	-13	34.35
459.78	52.12	257	200	V	-47.27	0.55	-1.71	-45.01	-13	32.01
1663.0	50.39	186	100	H	-62.85	0.84	8.46	-55.23	-13	42.23
1663.0	48.05	69	150	V	-65.19	0.84	8.46	-57.57	-13	44.57
16-QAM 1.4MHz Bandwidth Middle Channel										
459.63	49.85	133	100	H	-49.54	0.55	-1.71	-47.28	-13	34.28
459.63	52.58	80	200	V	-46.81	0.55	-1.71	-44.55	-13	31.55
1663.0	50.95	155	150	H	-62.29	0.84	8.46	-54.67	-13	41.67
1663.0	48.52	118	200	V	-64.72	0.84	8.46	-57.1	-13	44.10

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
459.75	48.52	235	100	H	-50.87	0.55	-1.71	-48.61	-13	35.61
459.75	51.36	31	200	V	-48.03	0.55	-1.71	-45.77	-13	32.77
1696.6	50.67	24	100	H	-62.34	0.84	8.51	-54.67	-13	41.67
1696.6	49.11	58	150	V	-63.90	0.84	8.51	-56.23	-13	43.23
16-QAM 1.4MHz Bandwidth High Channel										
459.86	48.65	266	100	H	-50.74	0.55	-1.71	-48.48	-13	35.48
459.86	51.29	351	200	V	-48.10	0.55	-1.71	-45.84	-13	32.84
1696.6	50.00	48	150	H	-63.01	0.84	8.51	-55.34	-13	42.34
1696.6	47.59	199	200	V	-65.42	0.84	8.51	-57.75	-13	44.75

LTE Band 41:

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
459.85	49.87	60	150	H	-49.48	0.55	-1.71	-47.22	-25	22.22
459.85	52.98	278	200	V	-46.37	0.55	-1.71	-44.11	-25	19.11
5115.0	43.01	135	100	H	-62.37	1.09	10.3	-53.16	-25	28.16
5115.0	39.69	13	100	V	-65.69	1.09	10.3	-56.48	-25	31.48
16-QAM 5MHz Bandwidth Low Channel										
459.64	49.88	331	200	H	-49.47	0.55	-1.71	-47.21	-25	22.21
459.64	52.78	132	150	V	-46.57	0.55	-1.71	-44.31	-25	19.31
5115.0	42.15	231	150	H	-63.23	1.09	10.3	-54.02	-25	29.02
5115.0	40.12	359	100	V	-65.26	1.09	10.3	-56.05	-25	31.05

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
459.67	48.86	346	150	H	-50.49	0.55	-1.71	-48.23	-25	23.23
459.67	51.64	3	200	V	-47.71	0.55	-1.71	-45.45	-25	20.45
5210.0	31.15	223	100	H	-63.68	1.11	10.3	-54.49	-25	29.49
5210.0	28.95	299	100	V	-65.88	1.11	10.3	-56.69	-25	31.69
16-QAM 5MHz Bandwidth Middle Channel										
459.63	48.56	284	200	H	-50.79	0.55	-1.71	-48.53	-25	23.53
459.63	51.04	64	150	V	-48.31	0.55	-1.71	-46.05	-25	21.05
5210.0	31.27	254	150	H	-63.56	1.11	10.3	-54.37	-25	29.37
5210.0	29.38	5	100	V	-65.45	1.11	10.3	-56.26	-25	31.26

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
459.84	49.85	24	150	H	-49.50	0.55	-1.71	-47.24	-25	22.24
459.84	51.89	260	200	V	-47.46	0.55	-1.71	-45.2	-25	20.20
5305.0	42.66	346	100	H	-61.66	1.12	10.3	-52.48	-25	27.48
5305.0	40.51	35	100	V	-63.81	1.12	10.3	-54.63	-25	29.63
16-QAM 5MHz Bandwidth High Channel										
459.64	48.65	278	200	H	-50.70	0.55	-1.71	-48.44	-25	23.44
459.64	51.48	129	150	V	-47.87	0.55	-1.71	-45.61	-25	20.61
5305.0	40.78	274	150	H	-63.54	1.12	10.3	-54.36	-25	29.36
5305.0	39.07	86	100	V	-65.25	1.12	10.3	-56.07	-25	31.07

30 MHz ~ 20 GHz:

LTE Band 66:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Low Channel										
346.94	39.67	175	150	H	-68.7	0.49	-1.77	-66.44	-13	53.44
346.94	42.69	77	200	V	-65.68	0.49	-1.77	-63.42	-13	50.42
3421.4	59.47	116	100	H	-48.47	0.93	9.82	-39.58	-13	26.58
3421.4	57.38	100	100	V	-50.56	0.93	9.82	-41.67	-13	28.67
6842.8	54.49	184	150	H	-47.50	1.6	10.31	-38.79	-13	25.79
6842.8	52.89	92	200	V	-49.10	1.6	10.31	-40.39	-13	27.39
16-QAM 1.4MHz Bandwidth Low Channel										
346.94	38.54	79	200	H	-69.83	0.49	-1.77	-67.57	-13	54.57
346.94	40.89	74	150	V	-67.48	0.49	-1.77	-65.22	-13	52.22
3421.4	60.6	155	150	H	-47.34	0.93	9.82	-38.45	-13	25.45
3421.4	58.19	243	100	V	-49.75	0.93	9.82	-40.86	-13	27.86
6842.8	53.64	72	100	H	-48.35	1.6	10.31	-39.64	-13	26.64
6842.8	51.10	128	200	V	-50.89	1.6	10.31	-42.18	-13	29.18

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth Middle Channel										
346.94	38.56	34	150	H	-69.81	0.49	-1.77	-67.55	-13	54.55
346.94	40.55	301	200	V	-67.82	0.49	-1.77	-65.56	-13	52.56
3490.0	60.01	330	100	H	-47.63	0.93	9.89	-38.67	-13	25.67
3490.0	57.19	310	100	V	-50.45	0.93	9.89	-41.49	-13	28.49
6980.0	55.33	120	150	H	-46.49	1.67	10.21	-37.95	-13	24.95
6980.0	52.7	158	200	V	-49.12	1.67	10.21	-40.58	-13	27.58
16-QAM 1.4MHz Bandwidth Middle Channel										
346.94	37.68	92	200	H	-70.69	0.49	-1.77	-68.43	-13	55.43
346.94	39.49	135	150	V	-68.88	0.49	-1.77	-66.62	-13	53.62
3490.0	60.01	202	150	H	-47.63	0.93	9.89	-38.67	-13	25.67
3490.0	57.10	48	100	V	-50.54	0.93	9.89	-41.58	-13	28.58
6980.0	53.61	177	100	H	-48.21	1.67	10.21	-39.67	-13	26.67
6980.0	51.13	200	200	V	-50.69	1.67	10.21	-42.15	-13	29.15

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 1.4MHz Bandwidth High Channel										
346.94	38.46	296	150	H	-69.91	0.49	-1.77	-67.65	-13	54.65
346.94	41.67	220	200	V	-66.70	0.49	-1.77	-64.44	-13	51.44
3558.6	59.81	250	100	H	-47.61	0.93	9.87	-38.67	-13	25.67
3558.6	57.26	139	100	V	-50.16	0.93	9.87	-41.22	-13	28.22
7117.2	52.93	38	150	H	-48.54	1.7	10.18	-40.06	-13	27.06
7117.2	50.41	228	200	V	-51.06	1.7	10.18	-42.58	-13	29.58
16-QAM 1.4MHz Bandwidth High Channel										
346.94	39.67	15	200	H	-68.70	0.49	-1.77	-66.44	-13	53.44
346.94	41.69	263	150	V	-66.68	0.49	-1.77	-64.42	-13	51.42
3558.6	58.62	254	150	H	-48.80	0.93	9.87	-39.86	-13	26.86
3558.6	57.25	108	100	V	-50.17	0.93	9.87	-41.23	-13	28.23
7117.2	53.21	223	100	H	-48.26	1.7	10.18	-39.78	-13	26.78
7117.2	51.01	194	200	V	-50.46	1.7	10.18	-41.98	-13	28.98

30 MHz ~ 10 GHz:

LTE Band 71:

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Low Channel										
516.69	45.87	106	150	H	-57.88	0.58	-1.73	-55.57	-13	42.57
516.69	48.32	46	200	V	-55.43	0.58	-1.73	-53.12	-13	40.12
1331.0	50.81	179	100	H	-63.22	0.81	7.71	-56.32	-13	43.32
1331.0	48.64	293	100	V	-65.39	0.81	7.71	-58.49	-13	45.49
16-QAM 5MHz Bandwidth Low Channel										
516.69	45.67	211	200	H	-58.08	0.58	-1.73	-55.77	-13	42.77
516.69	47.59	342	150	V	-56.16	0.58	-1.73	-53.85	-13	40.85
1331.0	49.51	182	150	H	-64.52	0.81	7.71	-57.62	-13	44.62
1331.0	47.81	110	100	V	-66.22	0.81	7.71	-59.32	-13	46.32

Frequency (MHz)	Receiver Reading (dBµV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth Middle Channel										
516.69	45.67	331	150	H	-58.08	0.58	-1.73	-55.77	-13	42.77
516.69	48.59	307	200	V	-55.16	0.58	-1.73	-52.85	-13	39.85
1361.0	49.22	260	100	H	-64.87	0.62	7.81	-57.68	-13	44.68
1361.0	47.44	311	100	V	-66.65	0.62	7.81	-59.46	-13	46.46
16-QAM 5MHz Bandwidth Middle Channel										
516.69	46.89	123	200	H	-56.86	0.58	-1.73	-54.55	-13	41.55
516.69	49.32	91	150	V	-54.43	0.58	-1.73	-52.12	-13	39.12
1361.0	51.23	38	150	H	-62.86	0.62	7.81	-55.67	-13	42.67
1361.0	48.67	40	100	V	-65.42	0.62	7.81	-58.23	-13	45.23

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Height (cm)	Polar (H/V)	Submitted Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
QPSK 5MHz Bandwidth High Channel										
516.69	47.69	206	150	H	-56.06	0.58	-1.73	-53.75	-13	40.75
516.69	49.48	333	200	V	-54.27	0.58	-1.73	-51.96	-13	38.96
1391.0	51.60	320	100	H	-62.55	0.82	7.89	-55.48	-13	42.48
1391.0	49.39	311	100	V	-64.76	0.82	7.89	-57.69	-13	44.69
16-QAM 5MHz Bandwidth High Channel										
516.69	46.75	335	200	H	-57.00	0.58	-1.73	-54.69	-13	41.69
516.69	48.68	329	150	V	-55.07	0.58	-1.73	-52.76	-13	39.76
1391.0	50.80	146	150	H	-63.35	0.82	7.89	-56.28	-13	43.28
1391.0	48.11	277	100	V	-66.04	0.82	7.89	-58.97	-13	45.97

Note:
1) Absolute Level (dBm) = Submitted Level (dBm) - Cable loss (dB) + Antenna Gain (dBd/dBi)
2) Margin (dB) = Limit (dBm) - Absolute Level (dBm)

FCC § 22.917 (a); § 24.238 (a); §27.53 (c) (f) (g) (h) (m); § 90.691; § 90.543 - BAND EDGES

Applicable Standards

According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC 27.53 (c) (f) (g) (h) (m), (c) For operations in the 746-758 MHz band and the 776-788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On any frequency outside the 746-758 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(2) On any frequency outside the 776-788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(3) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations;

(4) On all frequencies between 763-775 MHz and 793-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations;

(5) Compliance with the provisions of paragraphs (c)(1) and (c)(2) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

(6) Compliance with the provisions of paragraphs (c)(3) and (c)(4) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

(g) For operations in the 600 MHz band and the 698-746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kilohertz or greater. However, in the 100 kilohertz bands immediately outside and adjacent to a licensee's frequency block, a resolution bandwidth of at least 30 kHz may be employed.

(h) AWS emission limits—(1) General protection levels. Except as otherwise specified below, for operations in the 1695-1710 MHz, 1710-1755 MHz, 1755-1780 MHz, 1915-1920 MHz, 1995-2000 MHz, 2000-2020 MHz, 2110-2155 MHz, 2155-2180 MHz, and 2180-2200 bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) in watts by at least 43 + 10 log10 (P) dB.

(m) For BRS and EBS stations, the power of any emissions outside the licensee's frequency bands of operation shall be attenuated below the transmitter power (P) measured in watts in accordance with the standards below. If a licensee has multiple contiguous channels, out-of-band emissions shall be measured from the upper and lower edges of the contiguous channels.

According to §90.543, for operations in the 758-768 MHz and the 788-798 MHz bands, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(1) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 76 + 10 log (P) dB in a 6.25 kHz band segment, for base and fixed stations.

(2) On all frequencies between 769-775 MHz and 799-805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

(3) On any frequency between 775-788 MHz, above 805 MHz, and below 758 MHz, by at least 43 + 10 log (P) dB.

(4) Compliance with the provisions of paragraphs (e)(1) and (2) of this section is based on the use of measurement instrumentation such that the reading taken with any resolution bandwidth setting should be adjusted to indicate spectral energy in a 6.25 kHz segment.

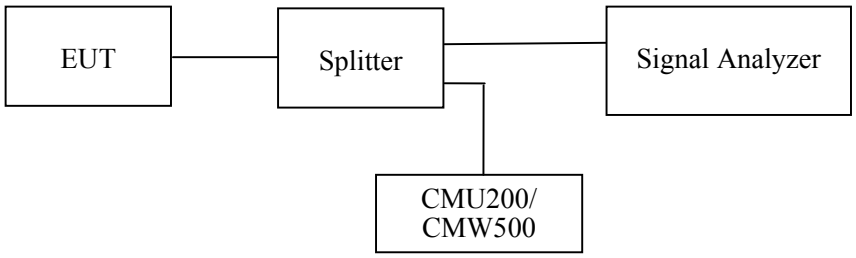
(5) Compliance with the provisions of paragraph (e)(3) of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of 30 kHz may be employed.

FCC §2.1051 and §90.691(a).The power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB. Compliance with this provision is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or less, but at least one percent of the emission bandwidth of the fundamental emission of the transmitter, provided the measured energy is integrated over a 1 MHz bandwidth.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency.



Test Data

Environmental Conditions

Temperature:	22.9~23.3 ℃
Relative Humidity:	49~50 %
ATM Pressure:	100.7~102.5 kPa

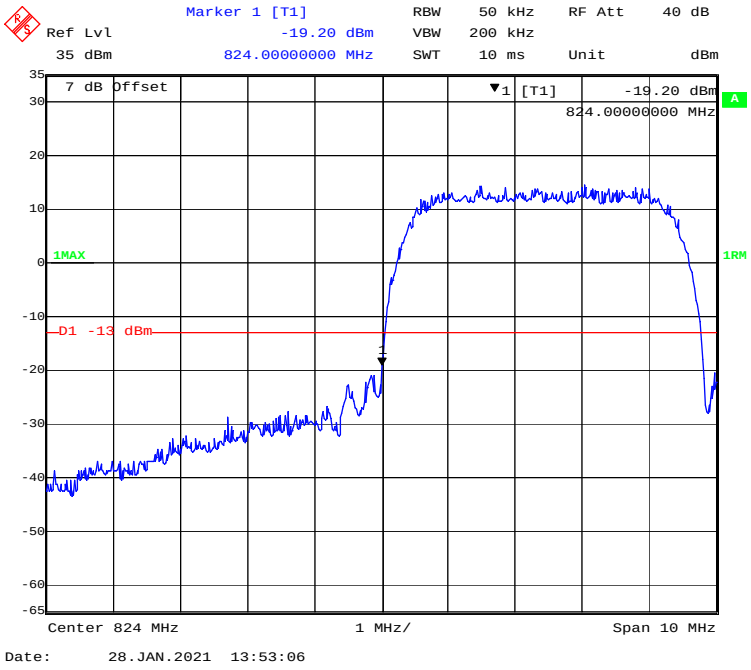
The testing was performed by Stone Zhang from 2020-08-23 to 2021-05-06.

EUT operation mode: Transmitting

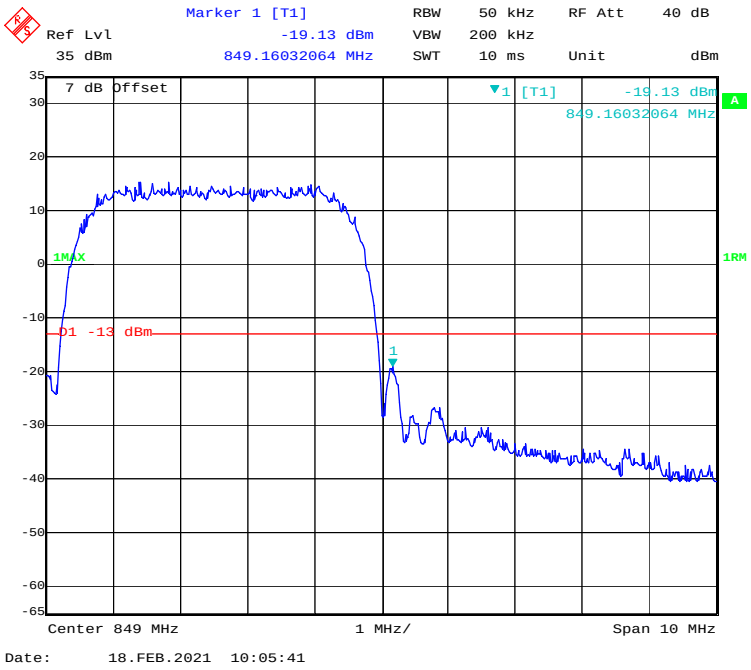
Test Result: Compliant.

WCDMA Band V

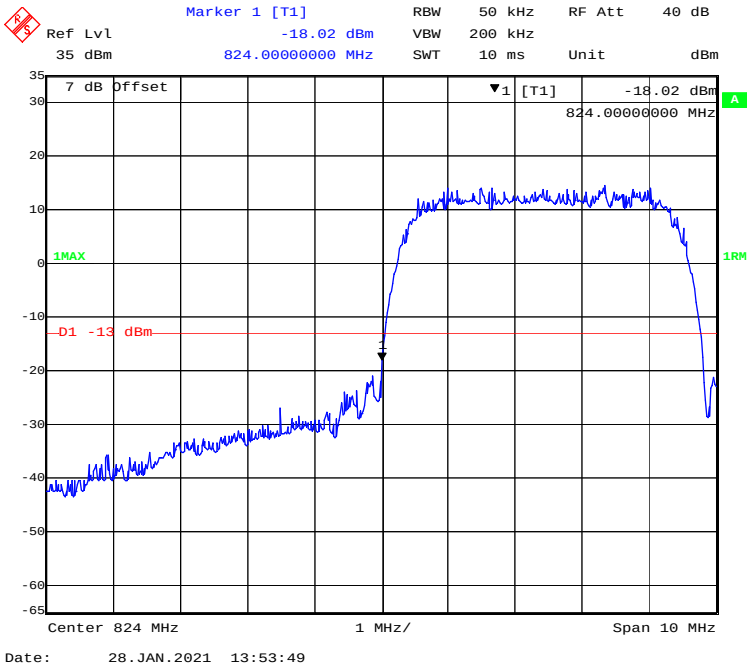
WCDMA (Rel 99) Mode, Left Band Edge



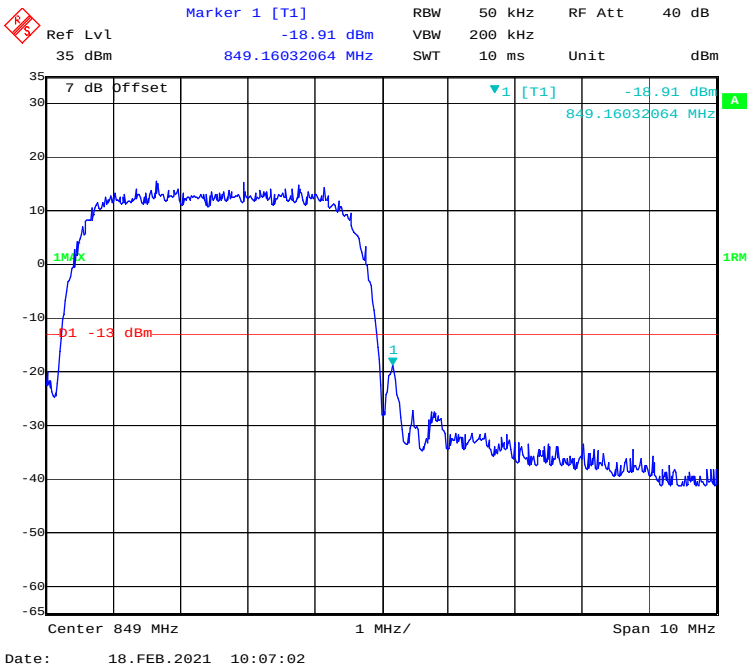
WCDMA (Rel 99) Mode, Right Band Edge



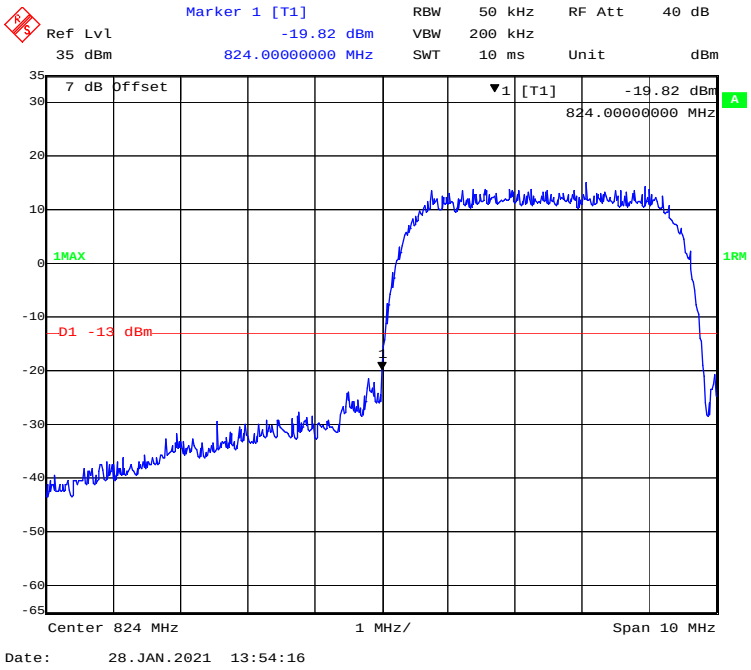
WCDMA (HSDPA) Mode, Left Band Edge



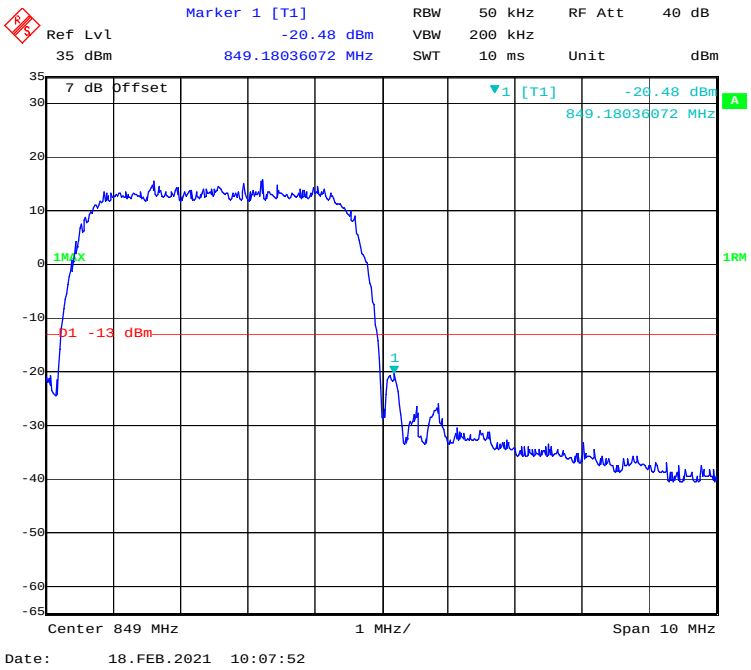
WCDMA (HSDPA) Mode, Right Band Edge



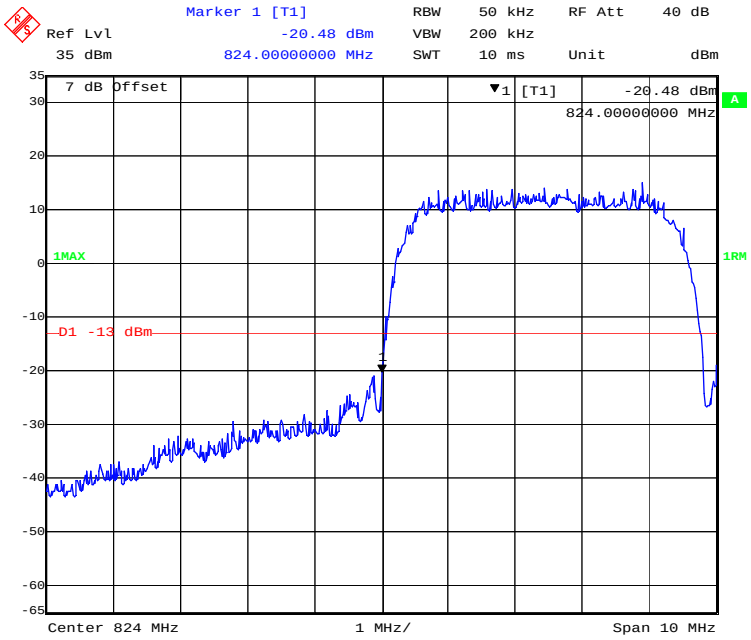
WCDMA (HSUPA) Mode, Left Band Edge



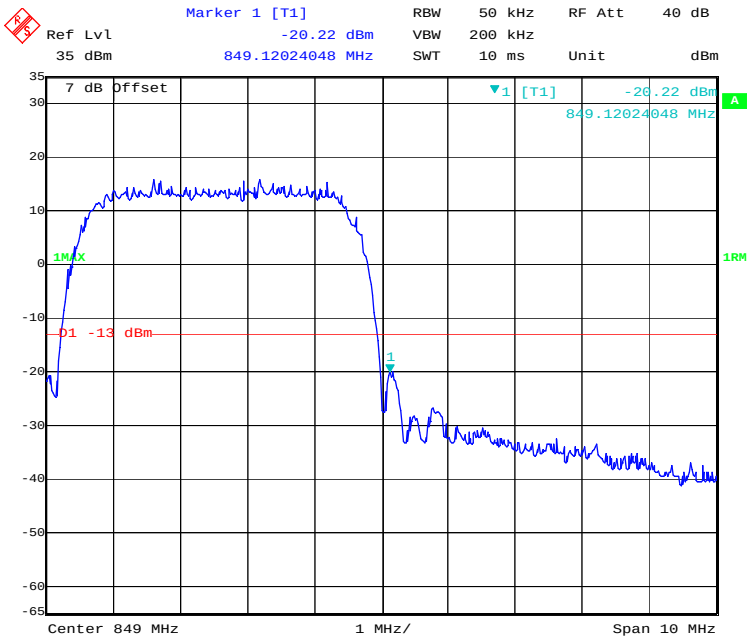
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

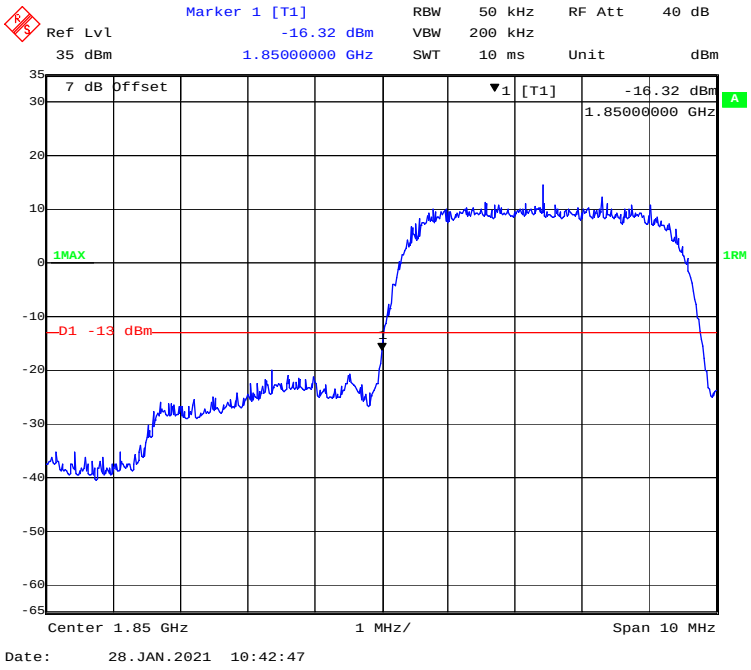


WCDMA (HSPA+) Mode, Right Band Edge

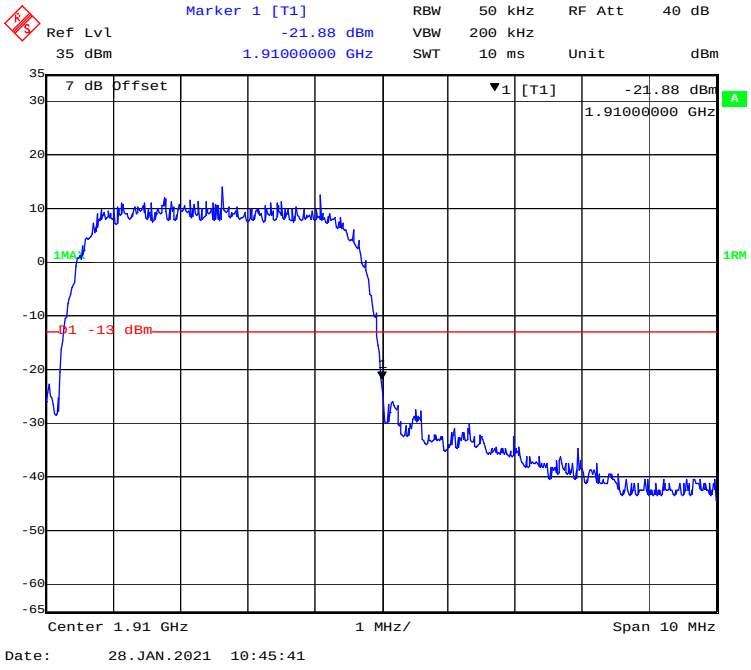


WCDMA Band II

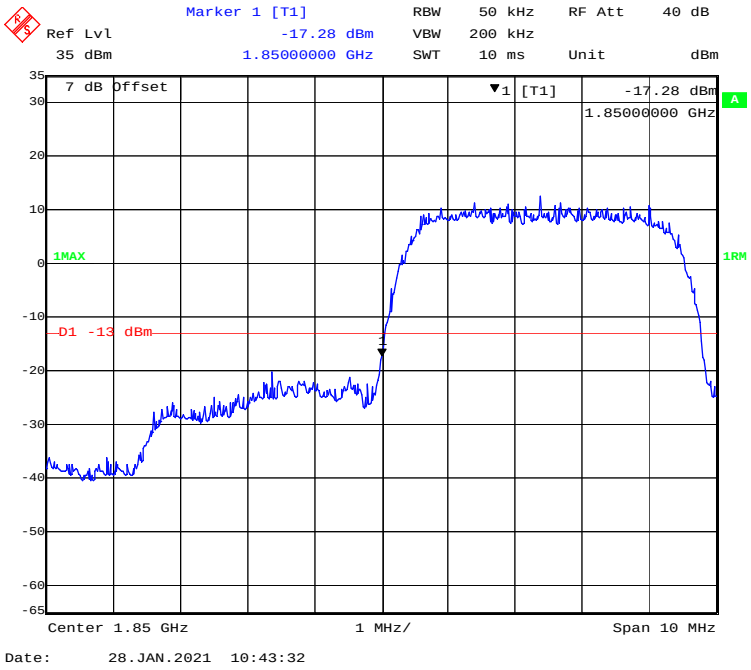
WCDMA (Rel 99) Mode, Left Band Edge



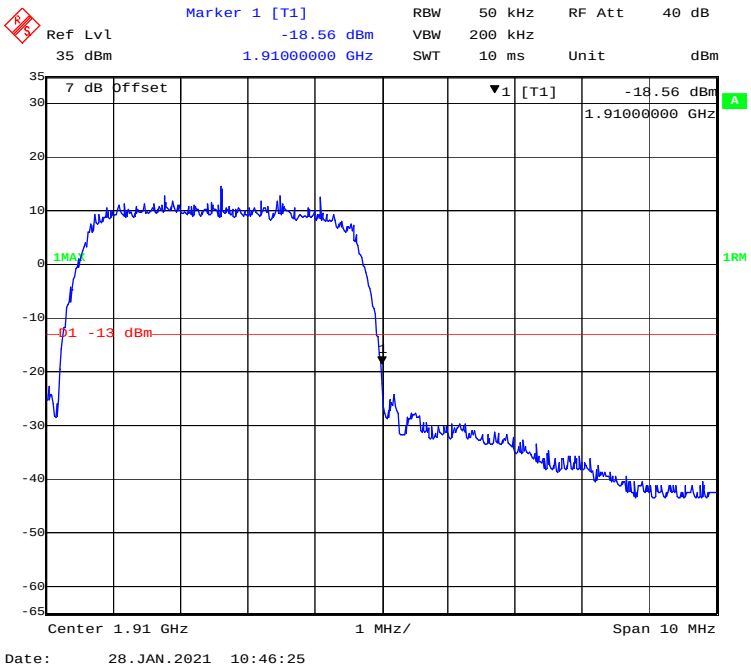
WCDMA (Rel 99) Mode, Right Band Edge



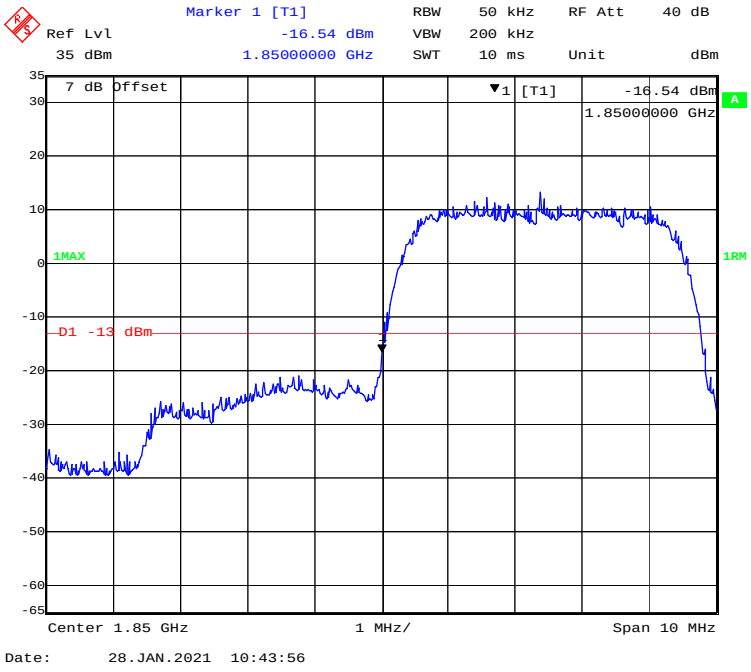
WCDMA (HSDPA) Mode, Left Band Edge



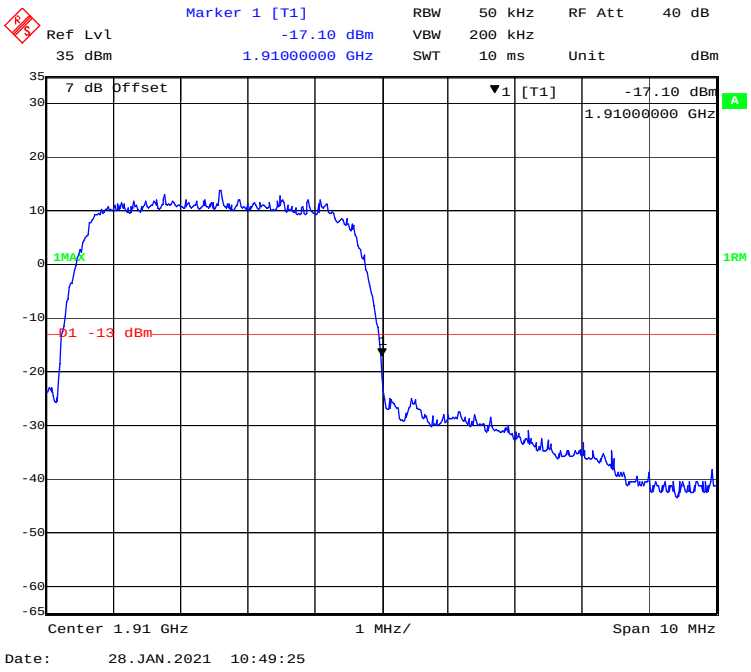
WCDMA (HSDPA) Mode, Right Band Edge



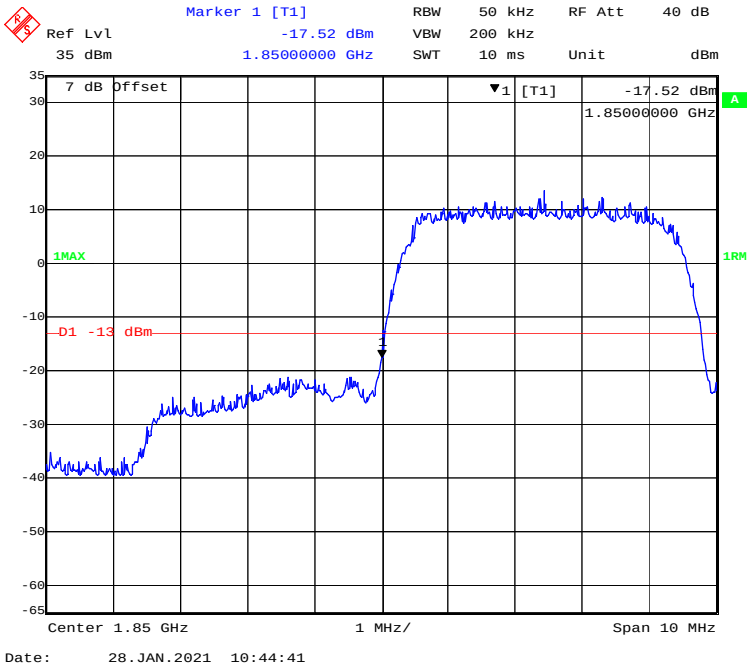
WCDMA (HSUPA) Mode, Left Band Edge



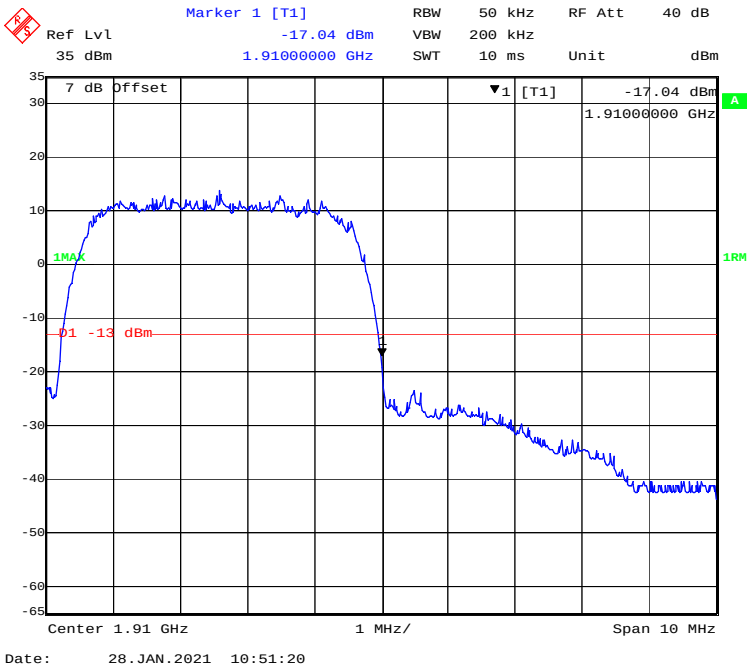
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

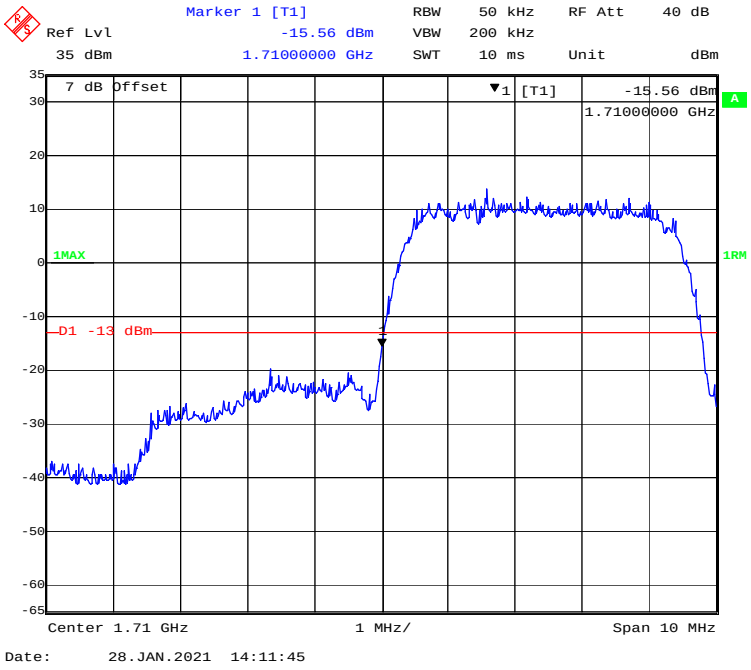


WCDMA (HSPA+) Mode, Right Band Edge



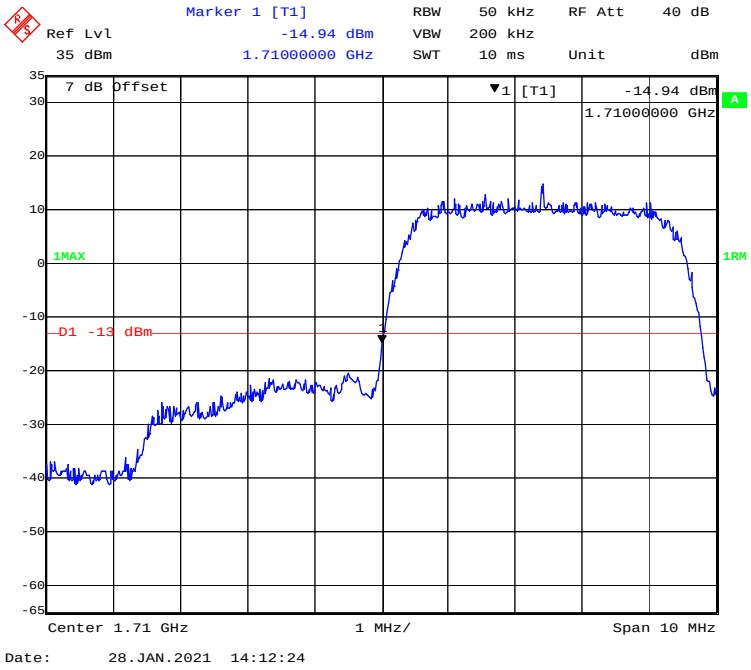
WCDMA Band IV

WCDMA (Rel 99) Mode, Left Band Edge

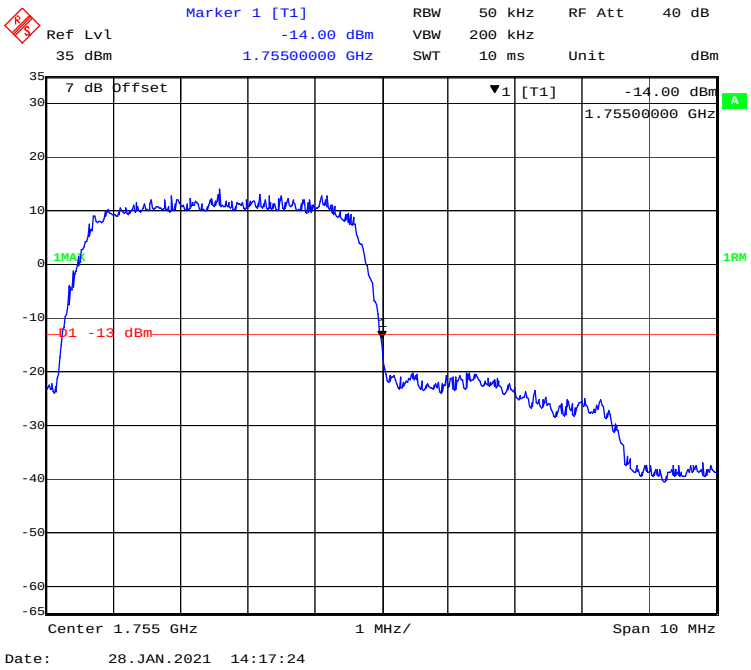


WCDMA (Rel 99) Mode, Right Band Edge

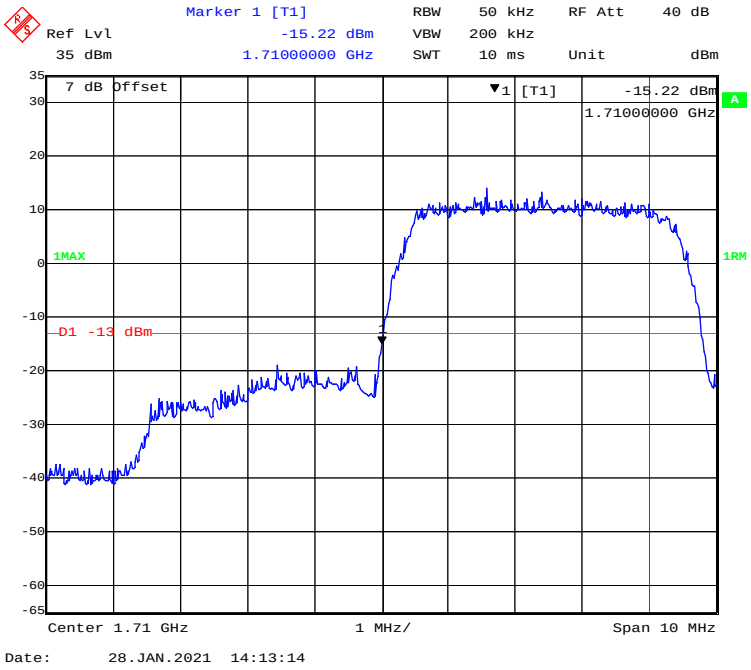
WCDMA (HSDPA) Mode, Left Band Edge



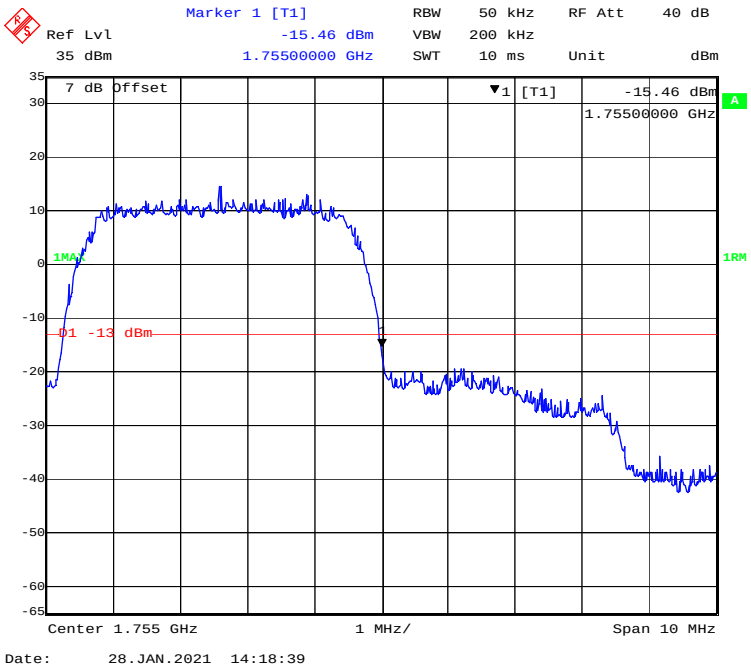
WCDMA (HSDPA) Mode, Right Band Edge



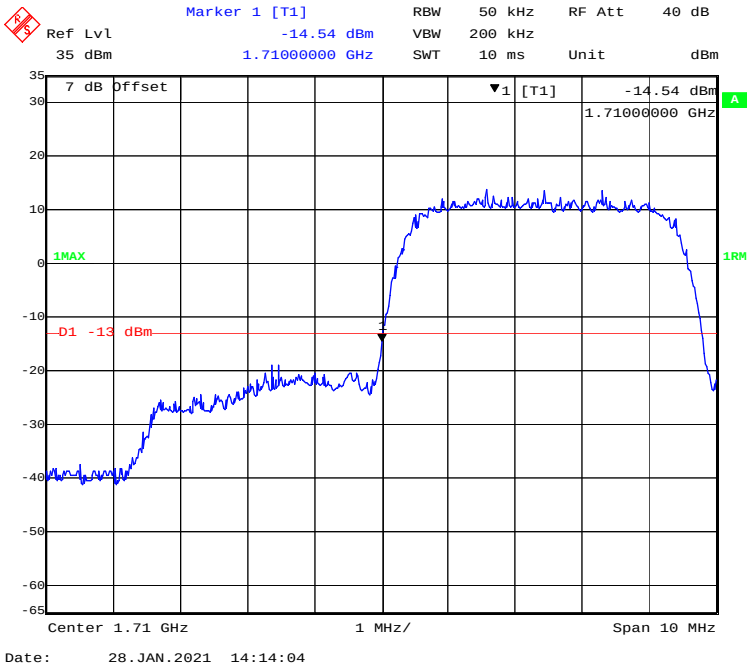
WCDMA (HSUPA) Mode, Left Band Edge



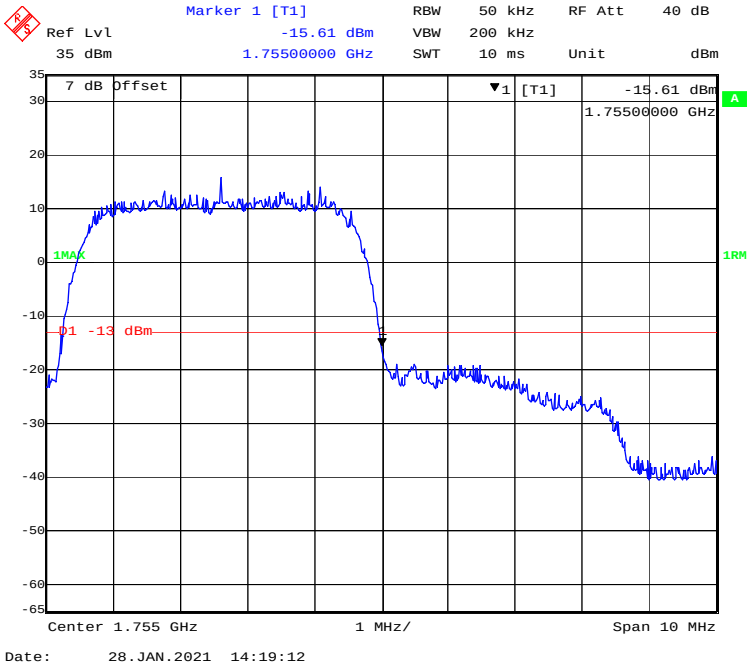
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

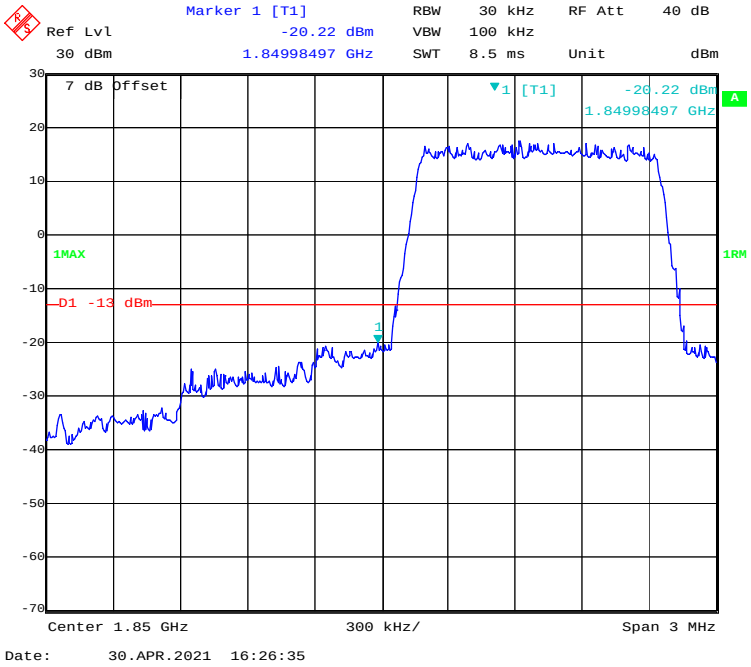


WCDMA (HSPA+) Mode, Right Band Edge

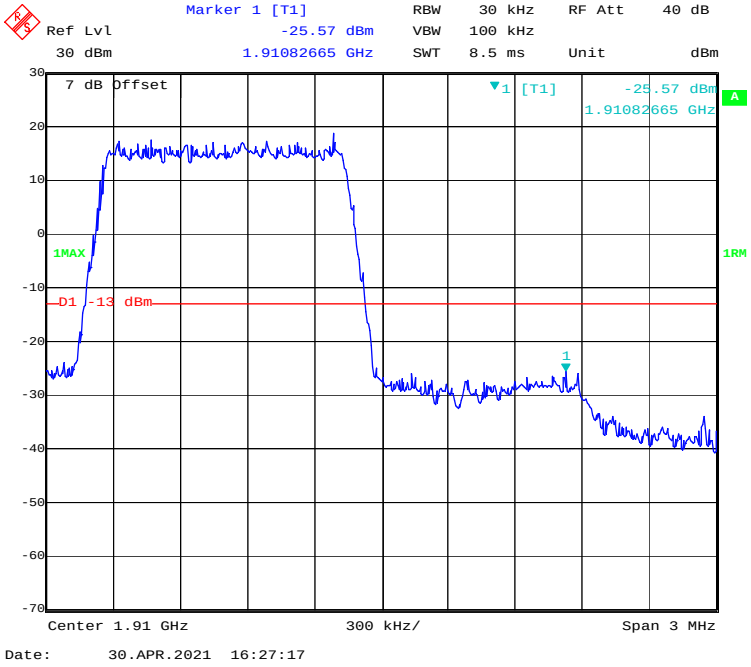


LTE Band 2:

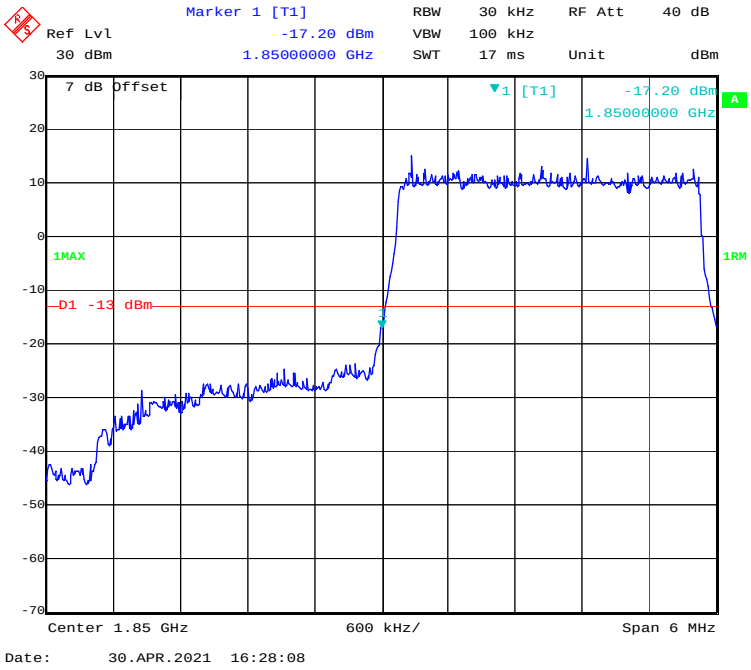
QPSK (1.4 MHz, FULL RB) - Left Band Edge



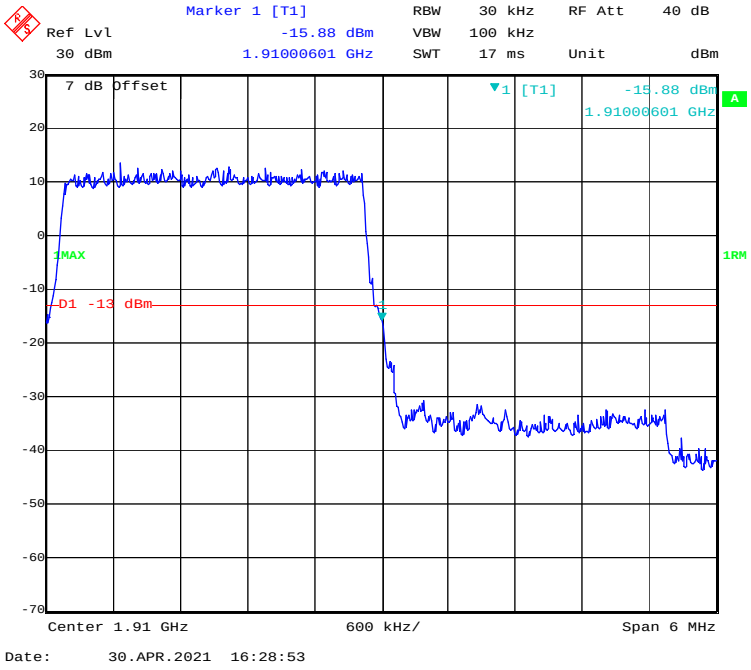
QPSK (1.4 MHz, FULL RB) - Right Band Edge



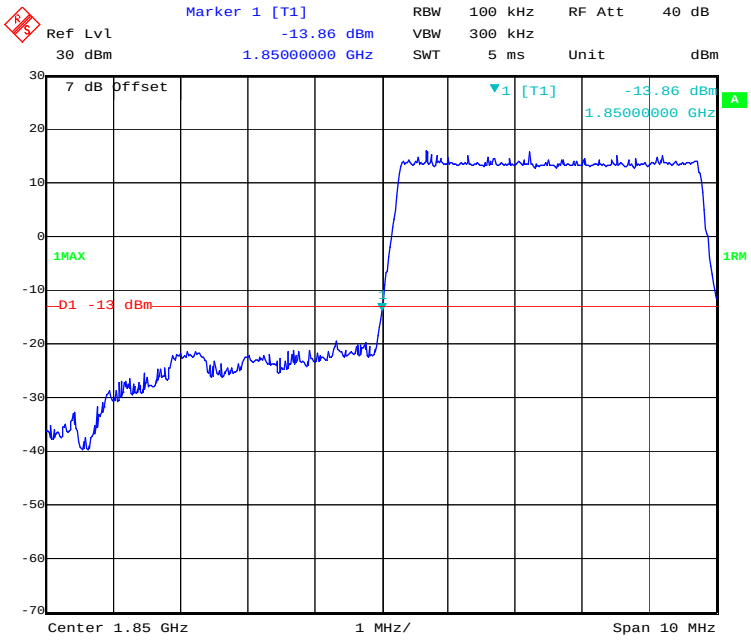
QPSK (3 MHz, FULL RB) - Left Band Edge



QPSK (3 MHz, FULL RB) - Right Band Edge

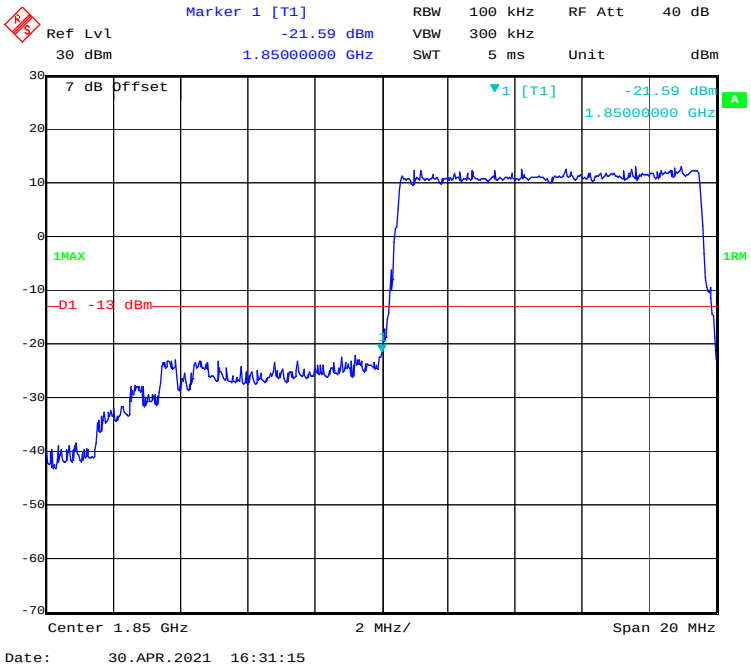


QPSK (5 MHz, FULL RB) - Left Band Edge

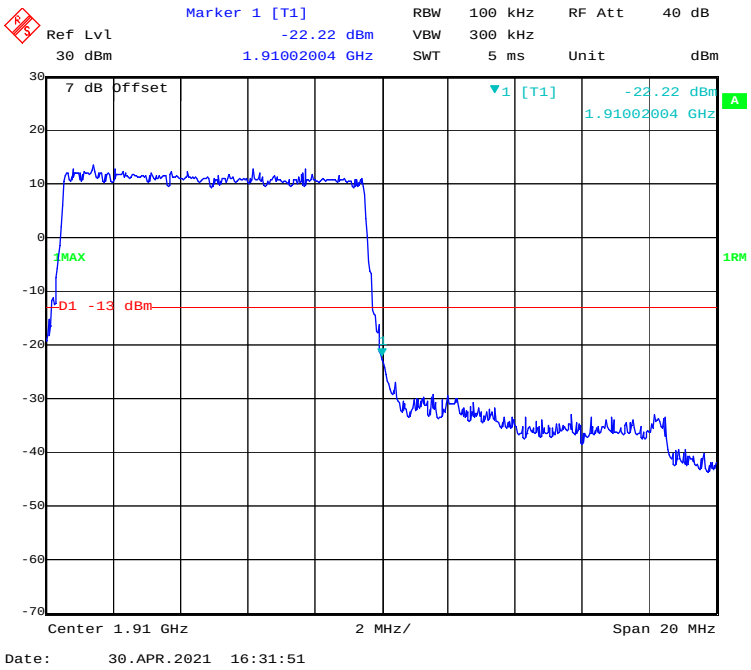


QPSK (5 MHz, FULL RB) - Right Band Edge

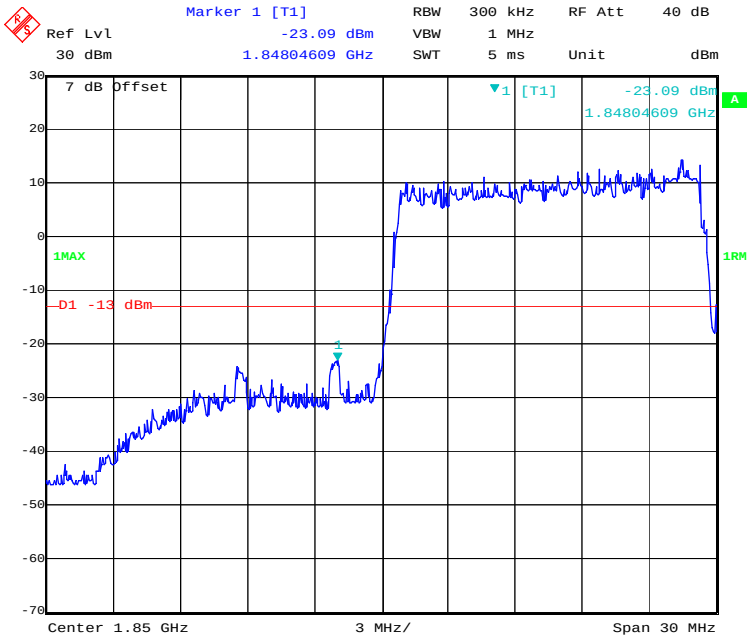
QPSK (10 MHz, FULL RB) - Left Band Edge



QPSK (10 MHz, FULL RB) - Right Band Edge

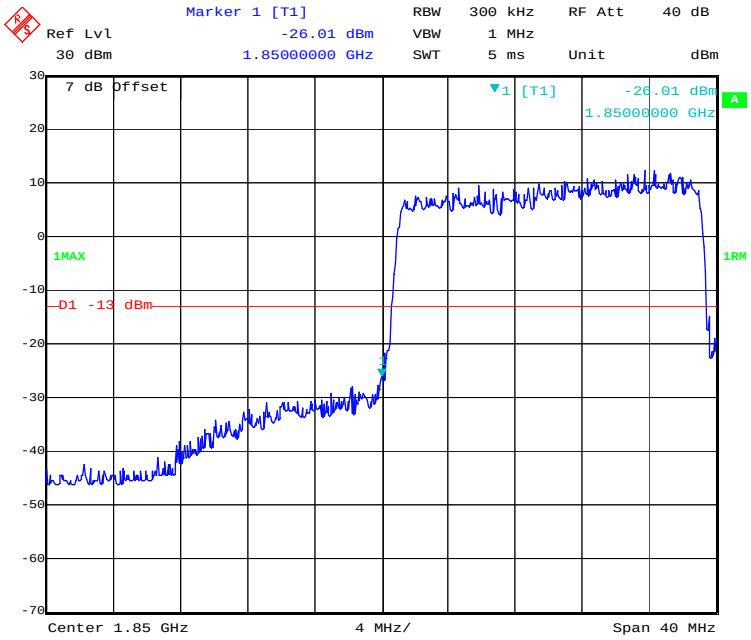


QPSK (15 MHz, FULL RB) - Left Band Edge

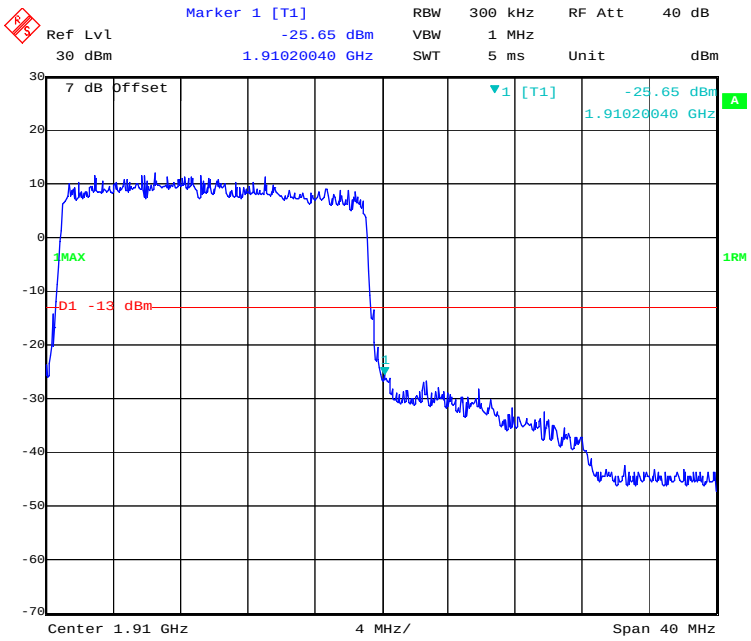


QPSK (15 MHz, FULL RB) - Right Band Edge

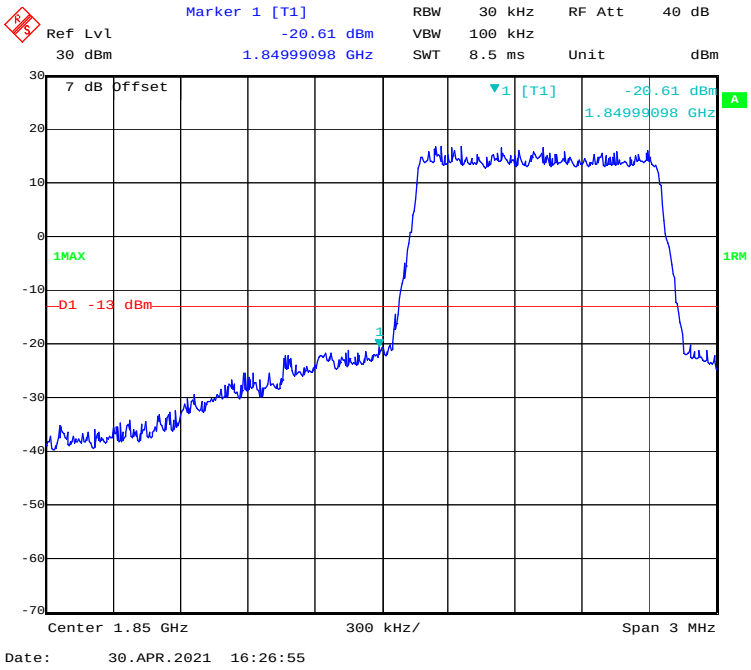
QPSK (20 MHz, FULL RB) - Left Band Edge



QPSK (20 MHz, FULL RB) - Right Band Edge

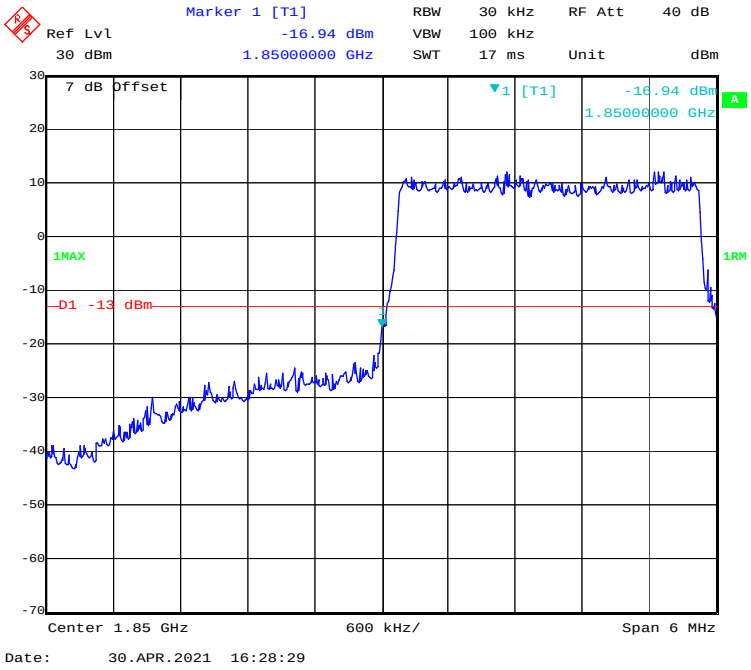


16-QAM (1.4 MHz, FULL RB) - Left Band Edge

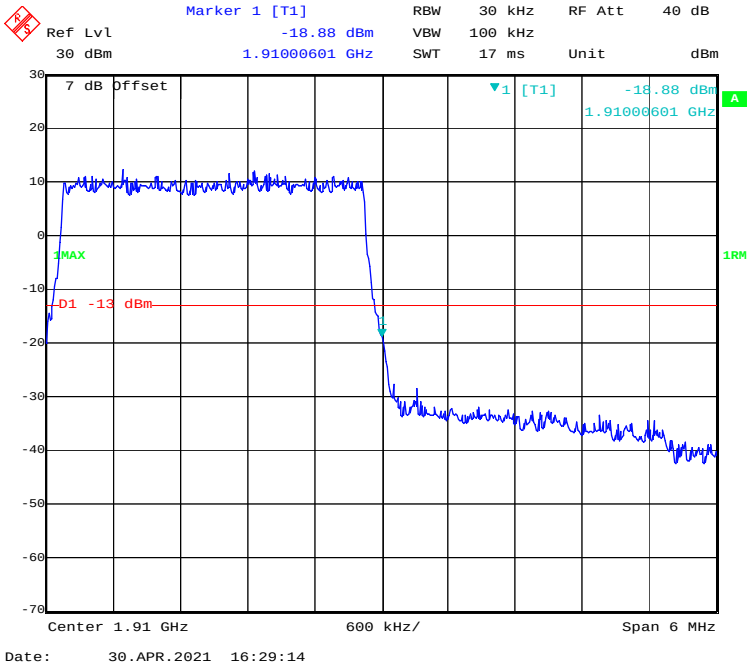


16-QAM (1.4 MHz, FULL RB) - Right Band Edge

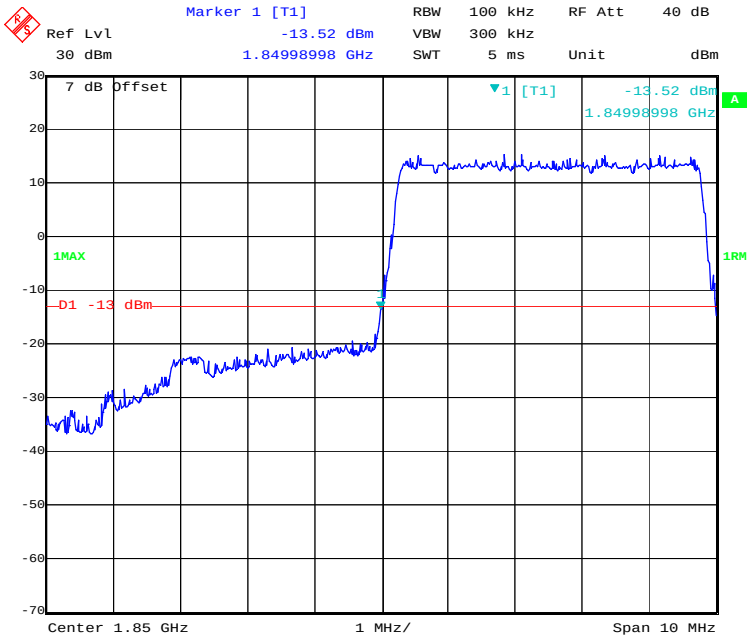
16-QAM (3 MHz, FULL RB) - Left Band Edge



16-QAM (3 MHz, FULL RB) - Right Band Edge

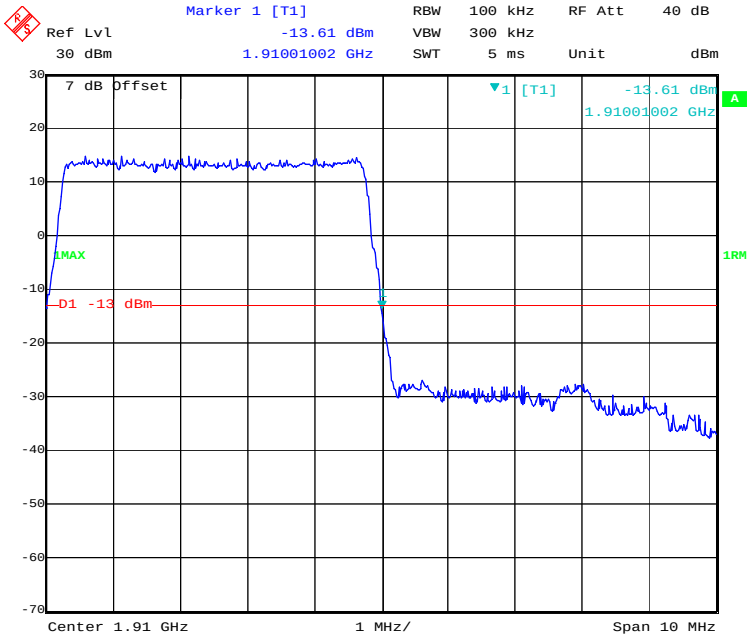


16-QAM (5 MHz, FULL RB) - Left Band Edge



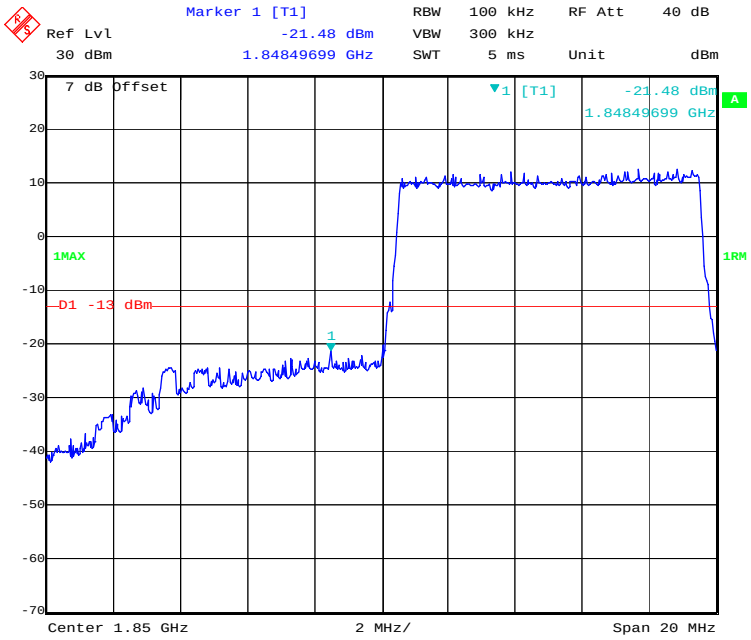
Date: 30.APR.2021 16:30:05

16-QAM (5 MHz, FULL RB) - Right Band Edge

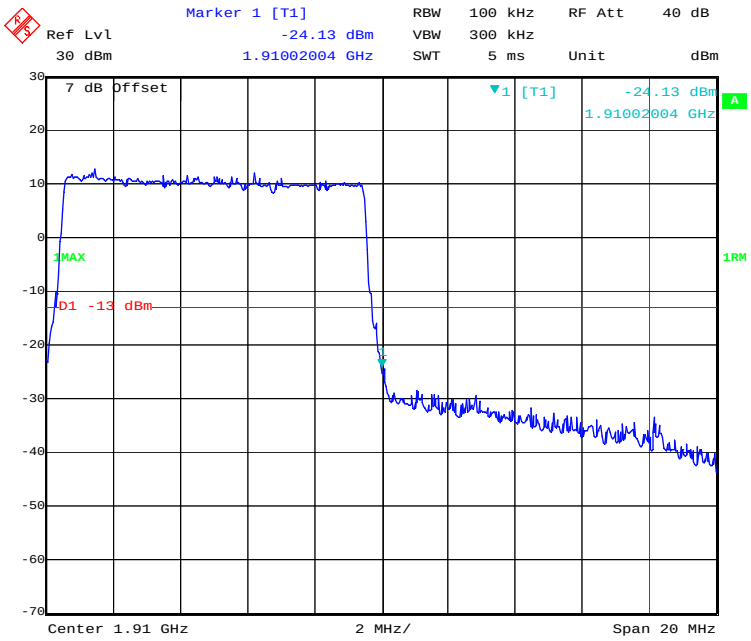


Date: 30.APR.2021 16:30:45

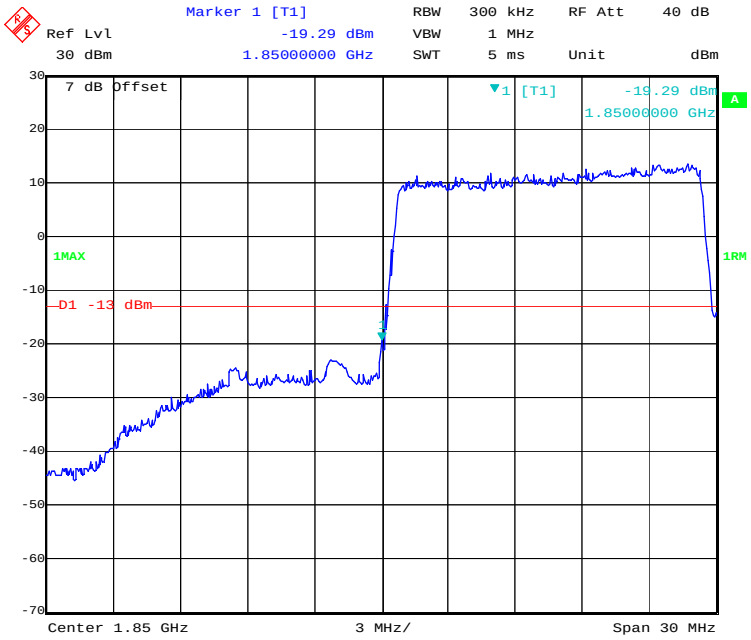
16-QAM (10 MHz, FULL RB) - Left Band Edge



16-QAM (10 MHz, FULL RB) - Right Band Edge

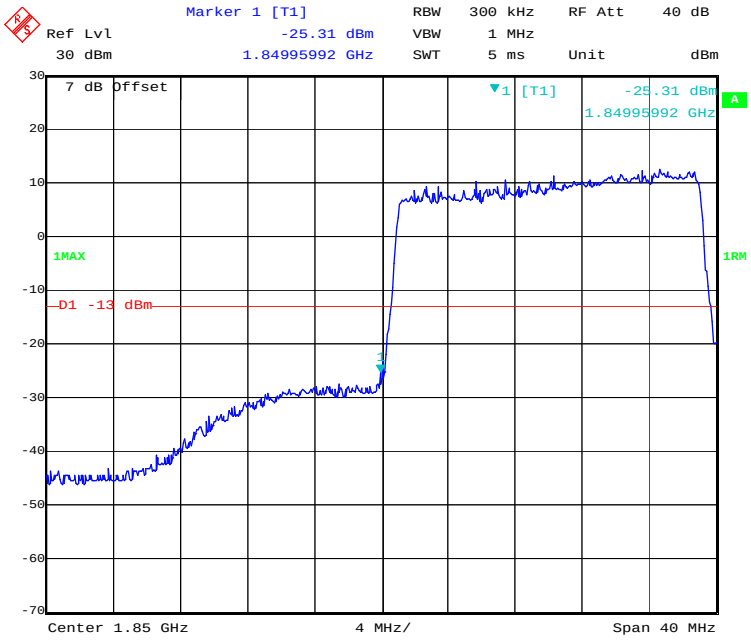


16-QAM (15 MHz, FULL RB) - Left Band Edge

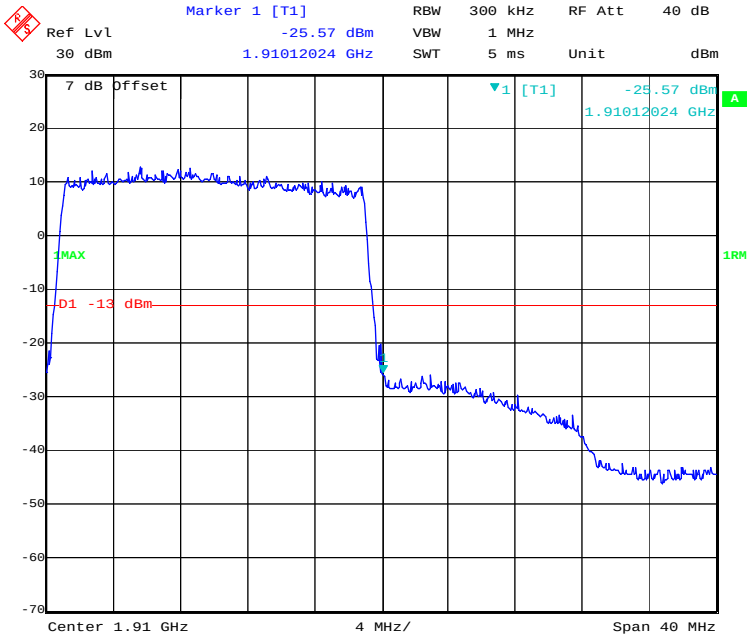


16-QAM (15 MHz, FULL RB) - Right Band Edge

16-QAM (20 MHz, FULL RB) - Left Band Edge

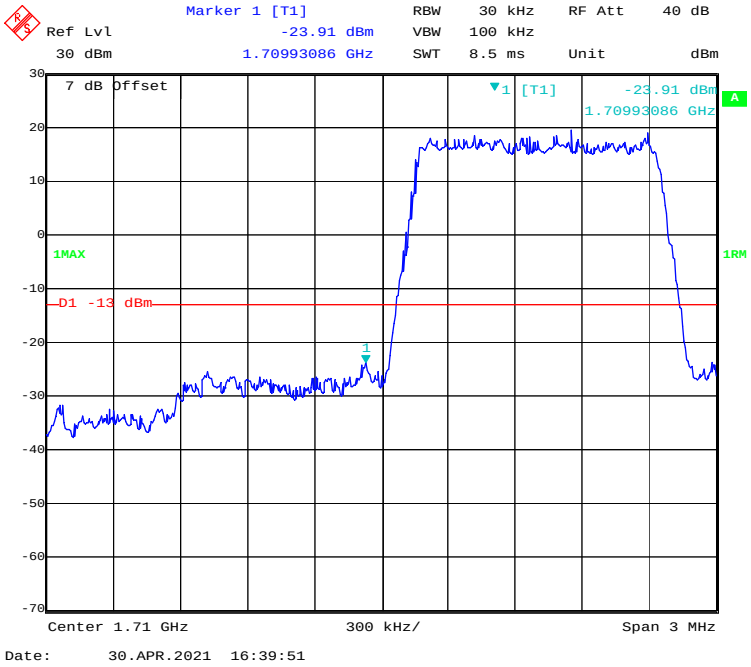


16-QAM (20 MHz, FULL RB) - Right Band Edge

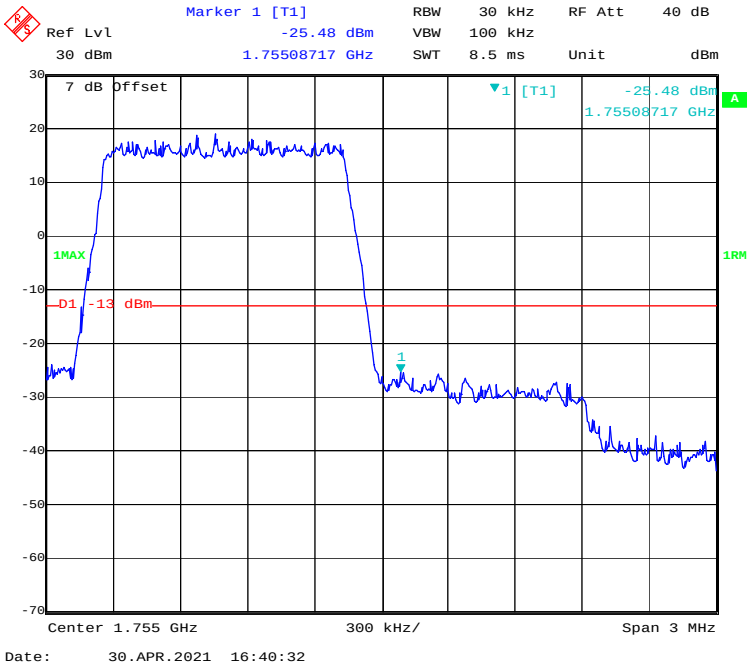


LTE Band 4:

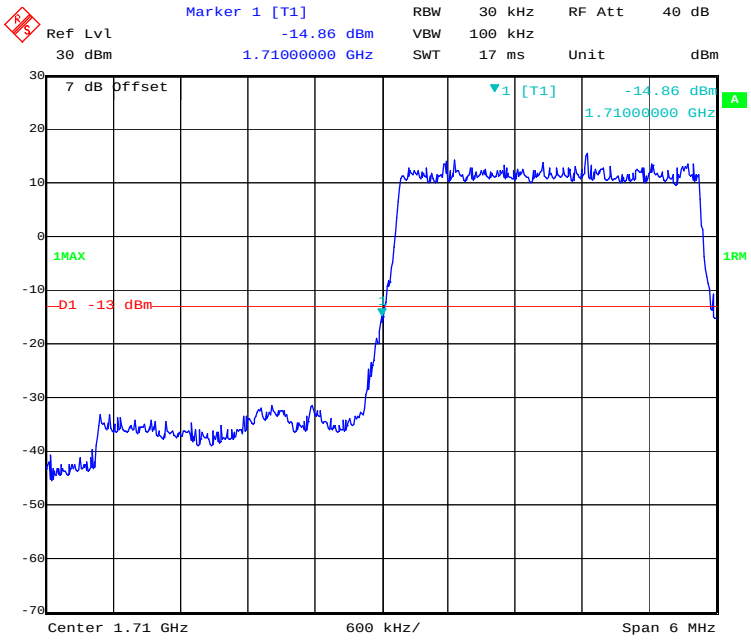
QPSK (1.4 MHz, FULL RB) - Left Band Edge



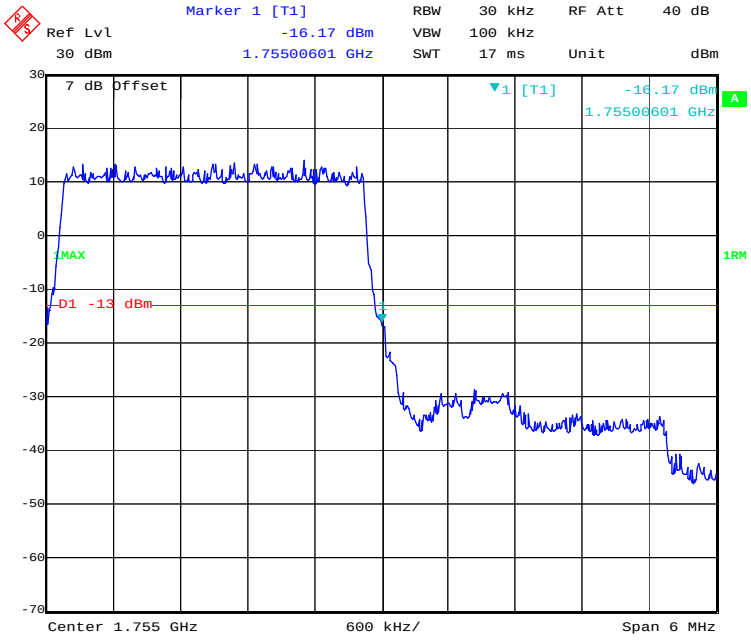
QPSK (1.4 MHz, FULL RB) - Right Band Edge



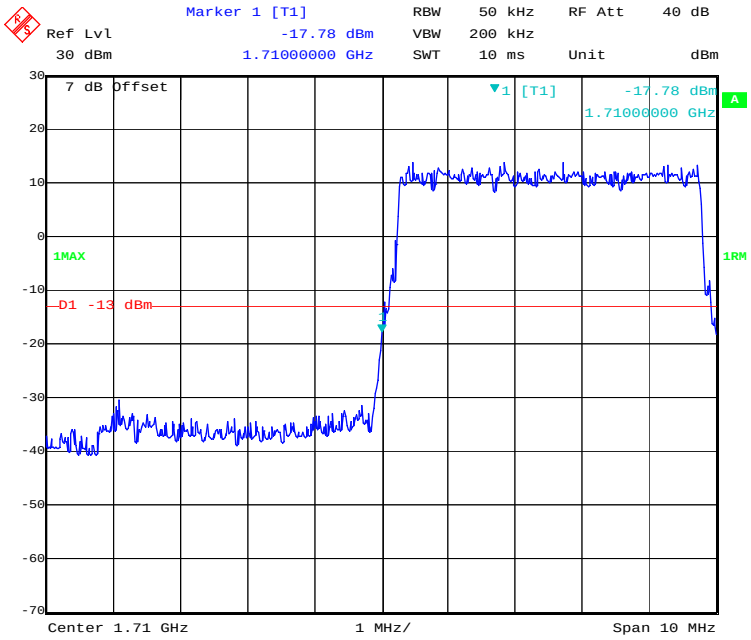
QPSK (3 MHz, FULL RB) - Left Band Edge



QPSK (3 MHz, FULL RB) - Right Band Edge

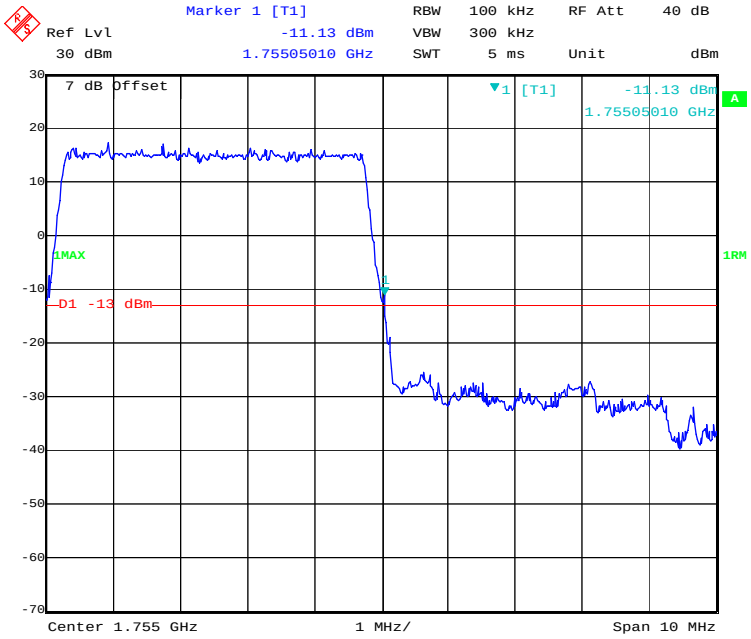


QPSK (5 MHz, FULL RB) - Left Band Edge



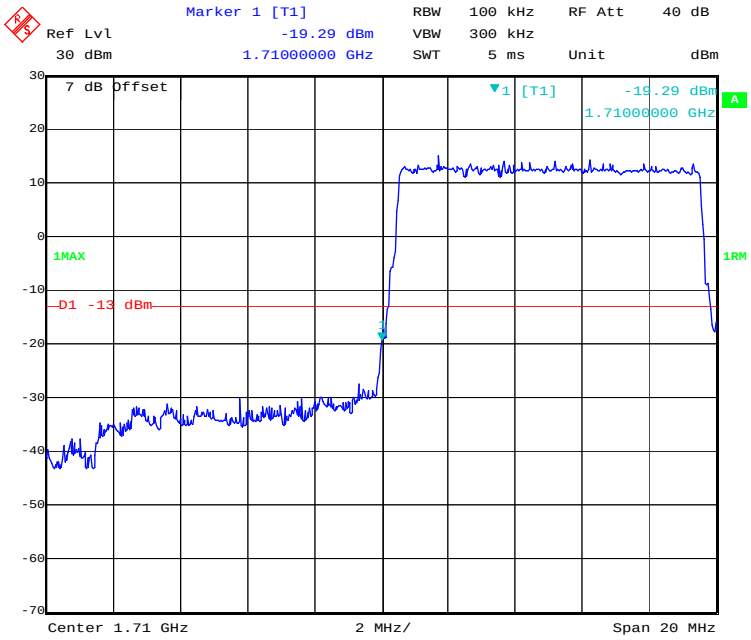
Date: 6.MAY.2021 16:27:11

QPSK (5 MHz, FULL RB) - Right Band Edge

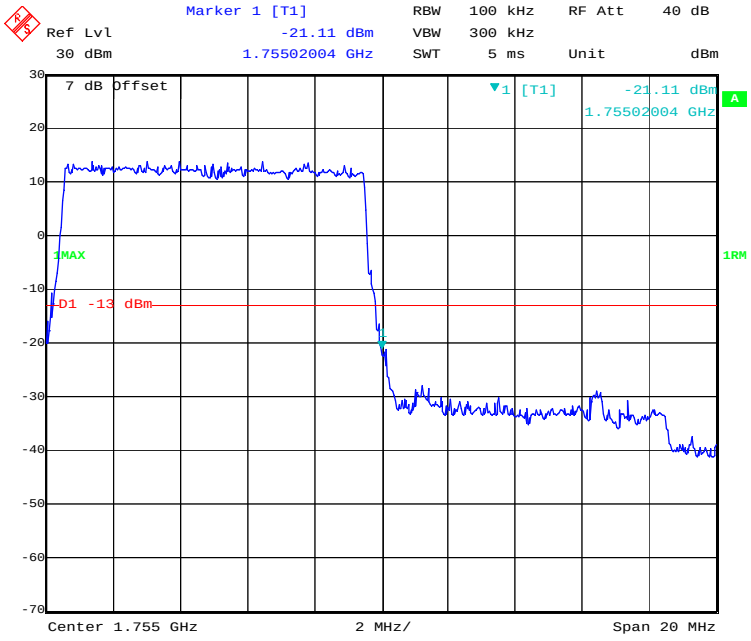


Date: 30.APR.2021 16:43:33

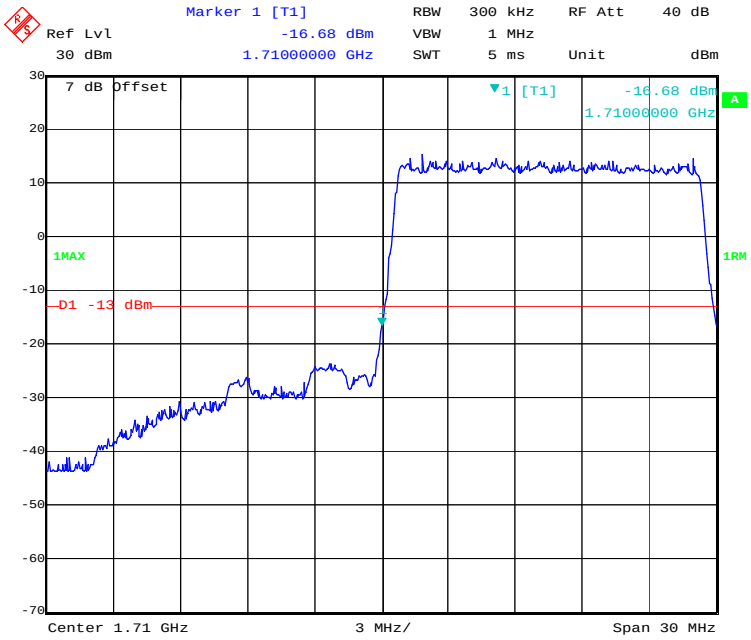
QPSK (10 MHz, FULL RB) - Left Band Edge



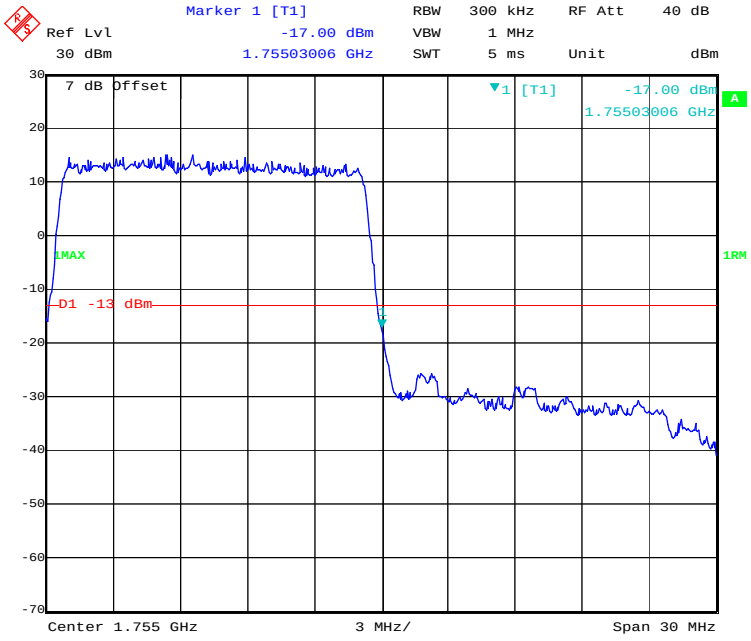
QPSK (10 MHz, FULL RB) - Right Band Edge



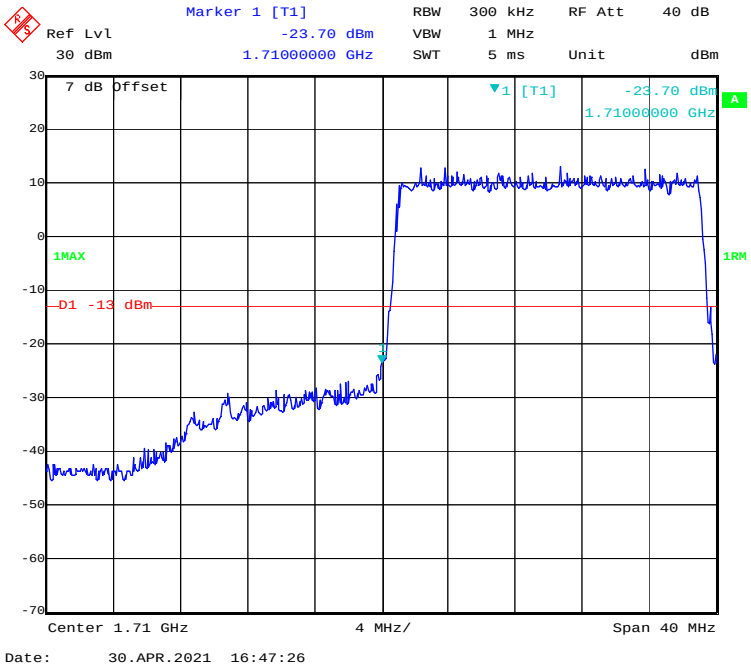
QPSK (15 MHz, FULL RB) - Left Band Edge



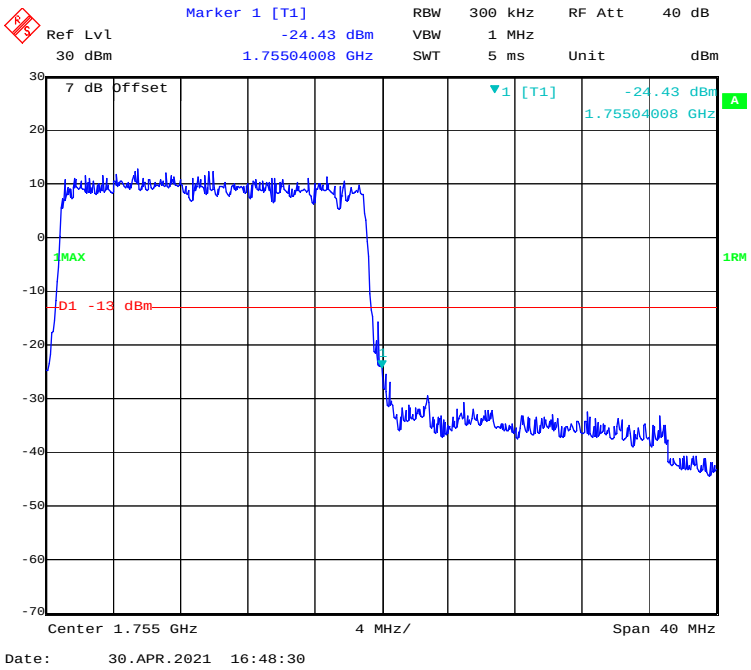
QPSK (15 MHz, FULL RB) - Right Band Edge



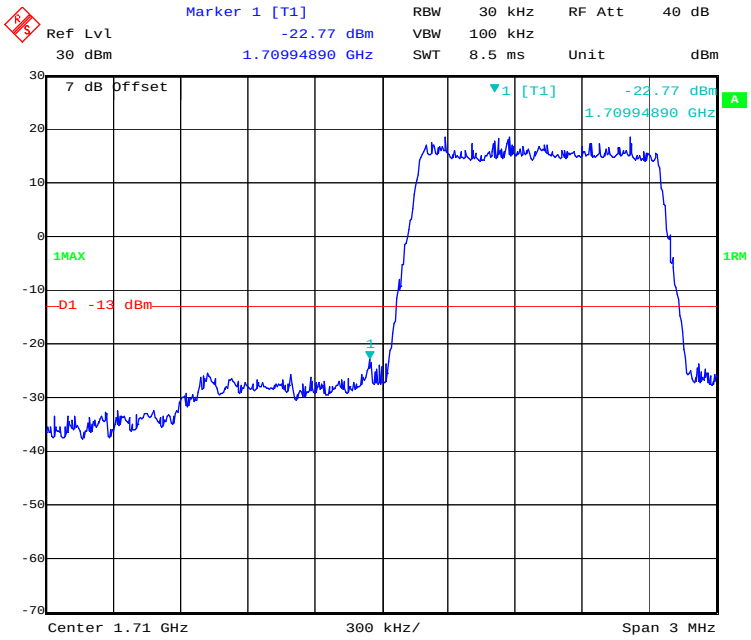
QPSK (20 MHz, FULL RB) - Left Band Edge



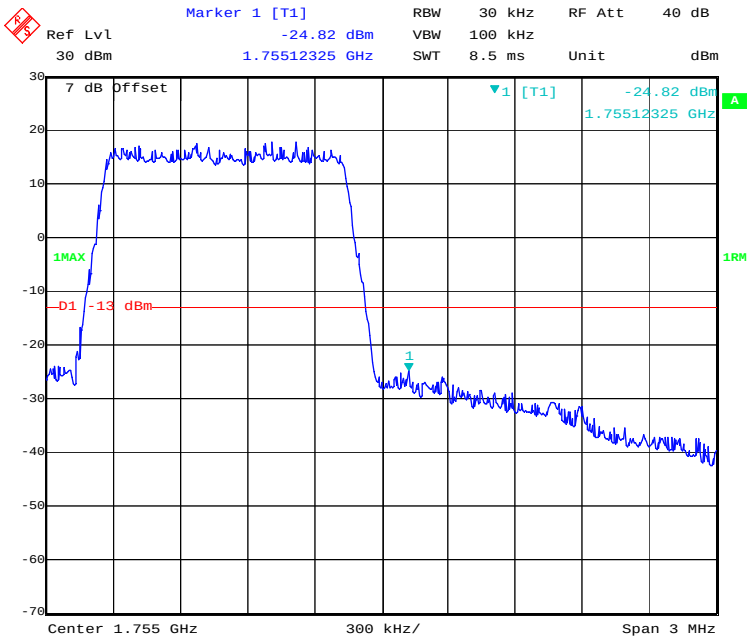
QPSK (20 MHz, FULL RB) - Right Band Edge



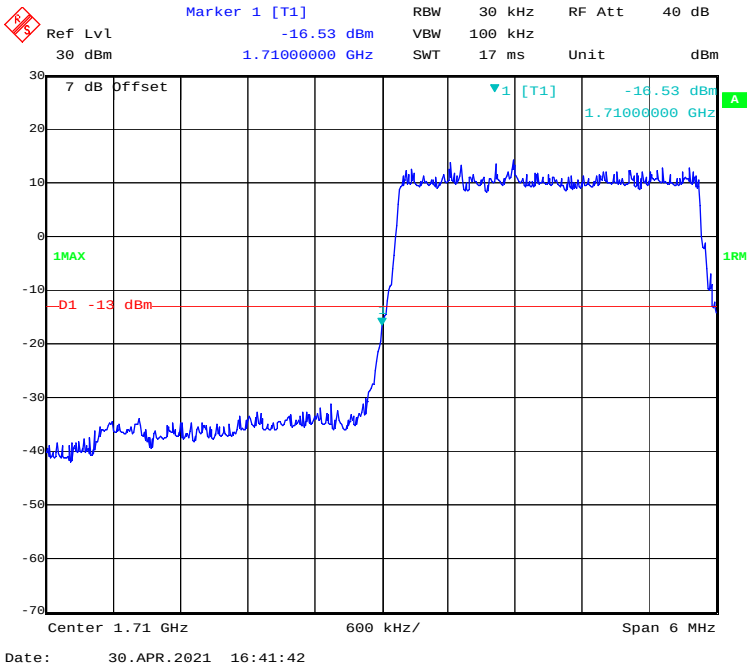
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



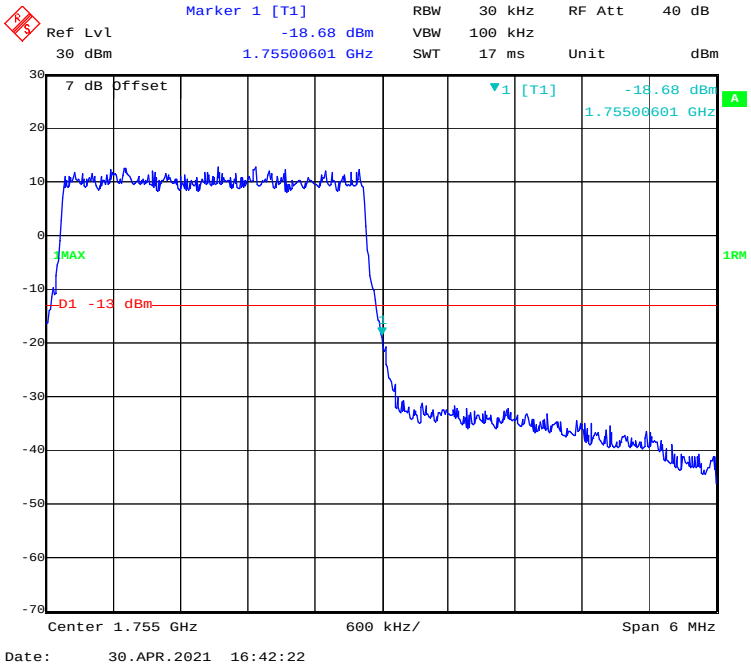
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



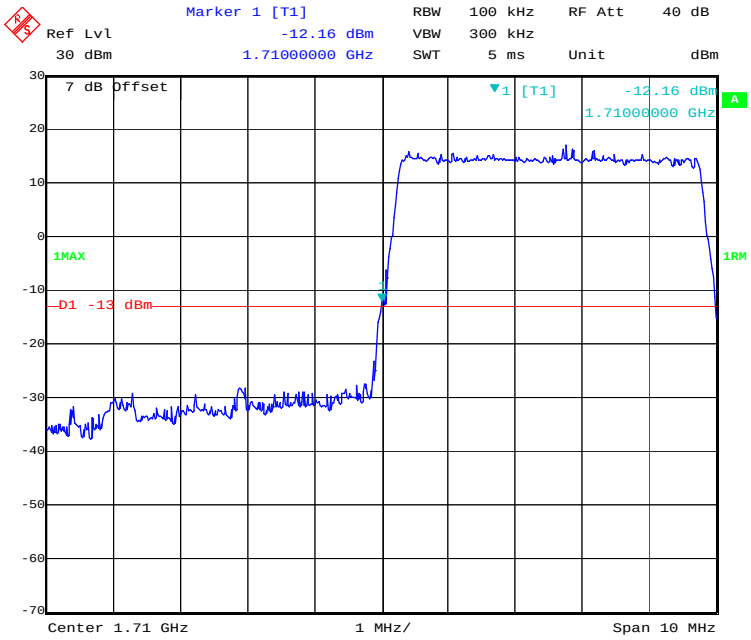
16-QAM (3 MHz, FULL RB) - Left Band Edge



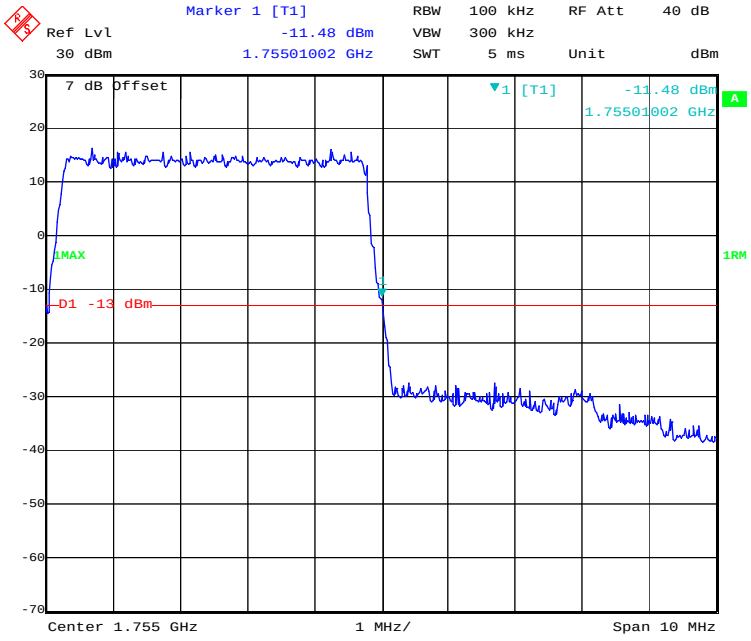
16-QAM (3 MHz, FULL RB) - Right Band Edge



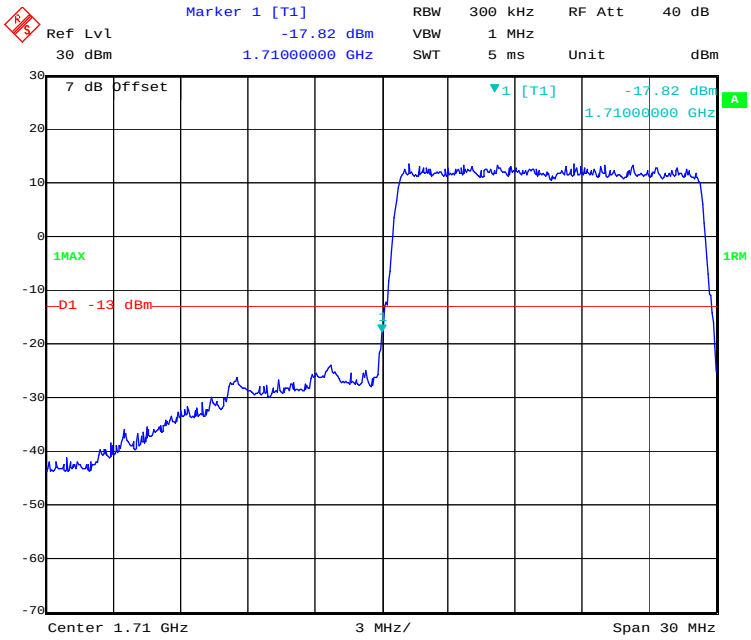
16-QAM (5 MHz, FULL RB) - Left Band Edge



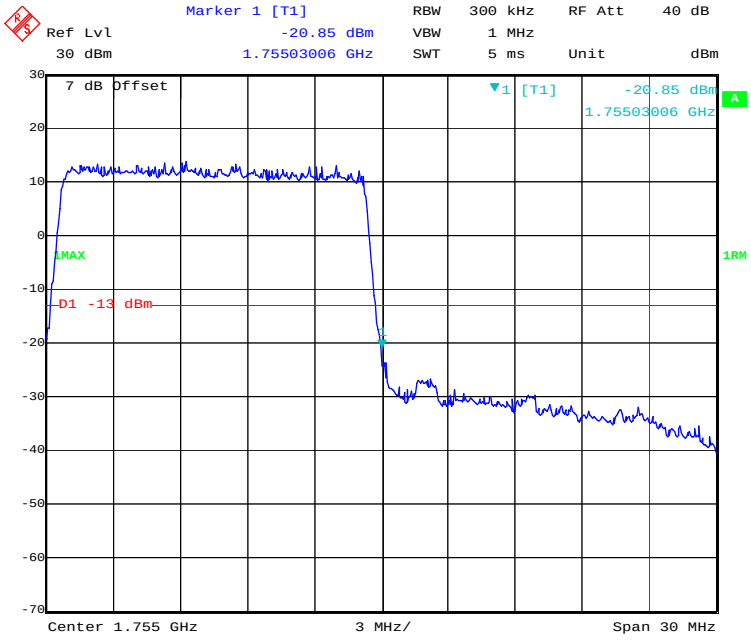
16-QAM (5 MHz, FULL RB) - Right Band Edge



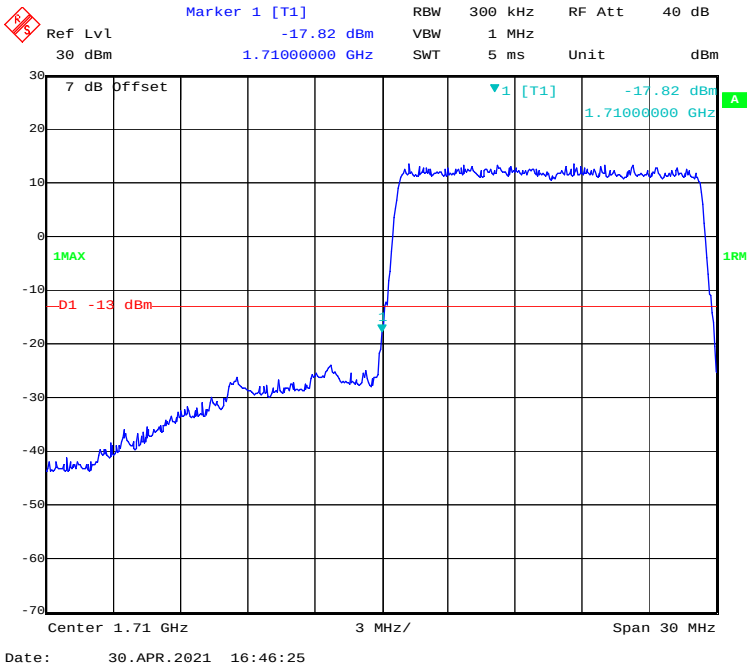
16-QAM (10 MHz, FULL RB) - Left Band Edge



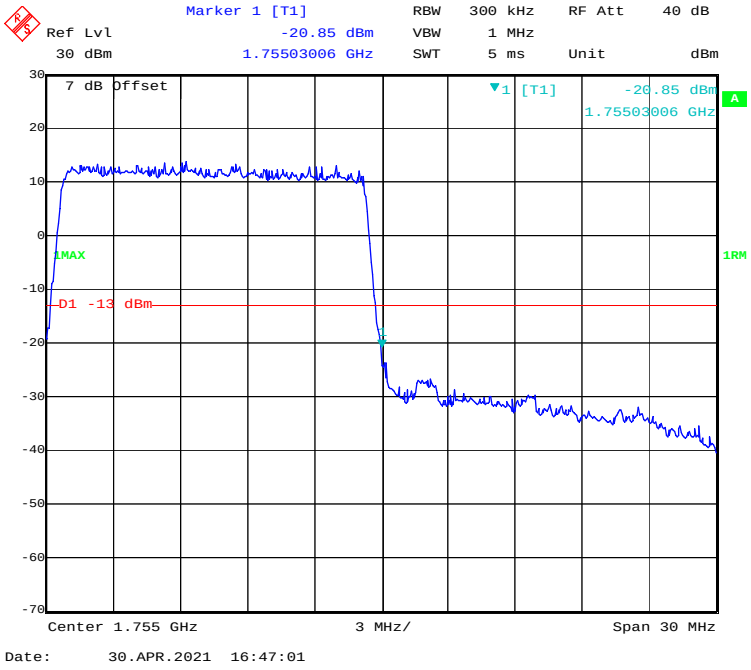
16-QAM (10 MHz, FULL RB) - Right Band Edge



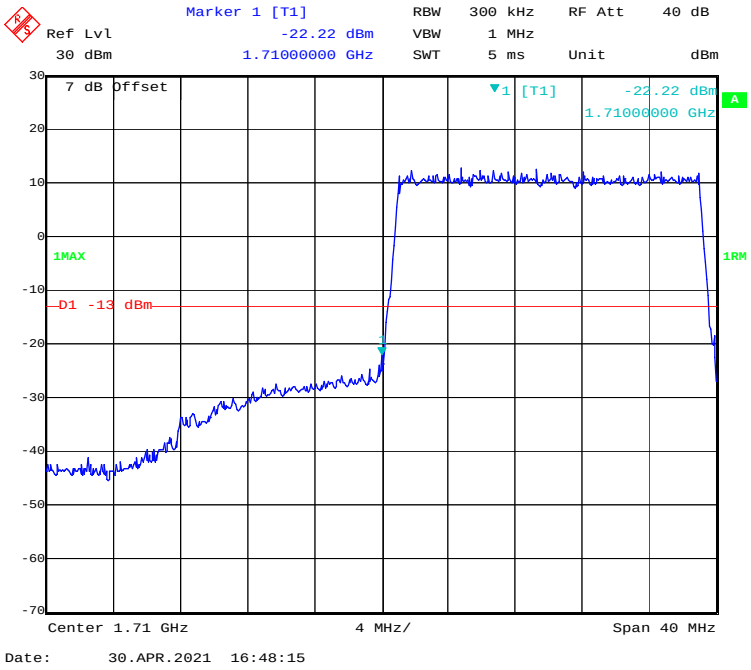
16-QAM (15 MHz, FULL RB) - Left Band Edge



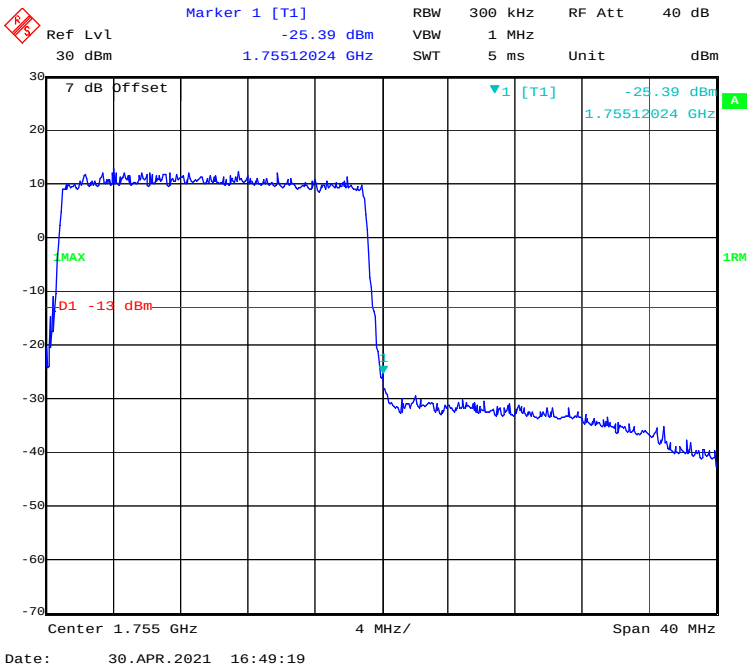
16-QAM (15 MHz, FULL RB) - Right Band Edge



16-QAM (20 MHz, FULL RB) - Left Band Edge

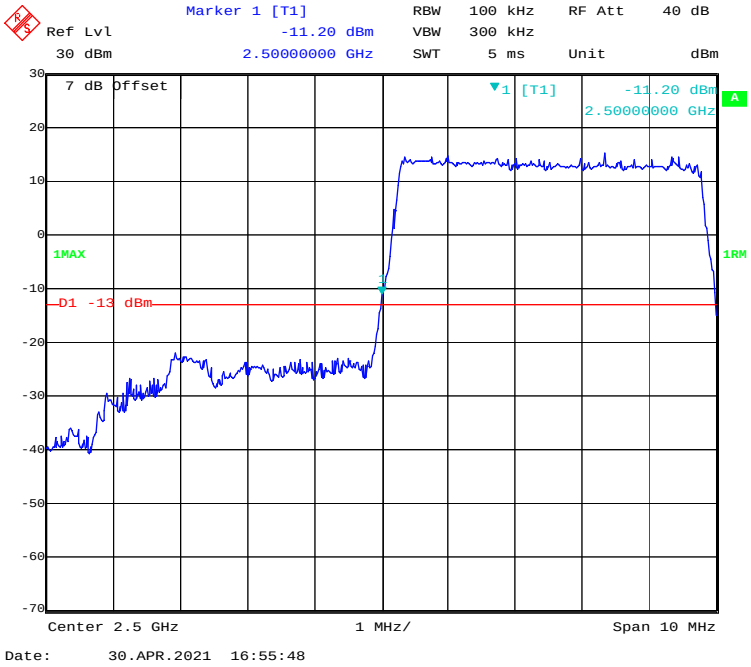


16-QAM (20 MHz, FULL RB) - Right Band Edge

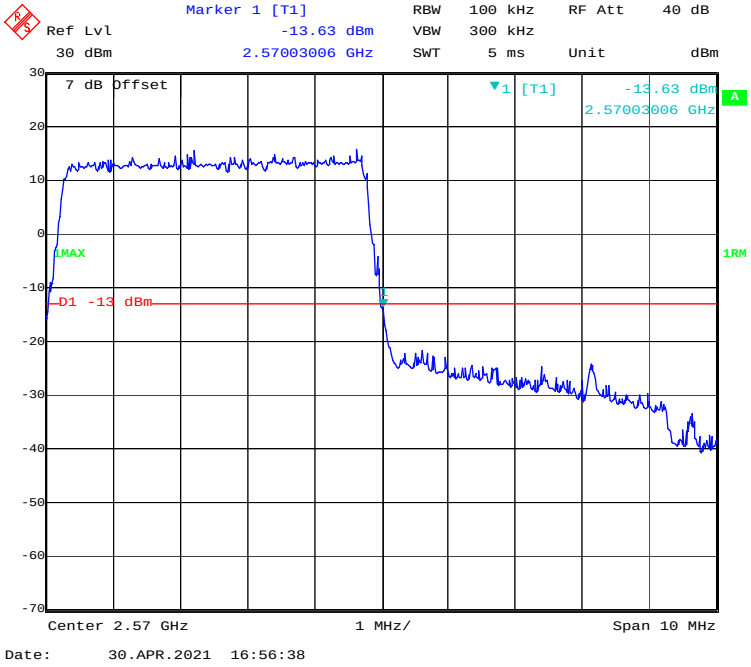


LTE Band 7:

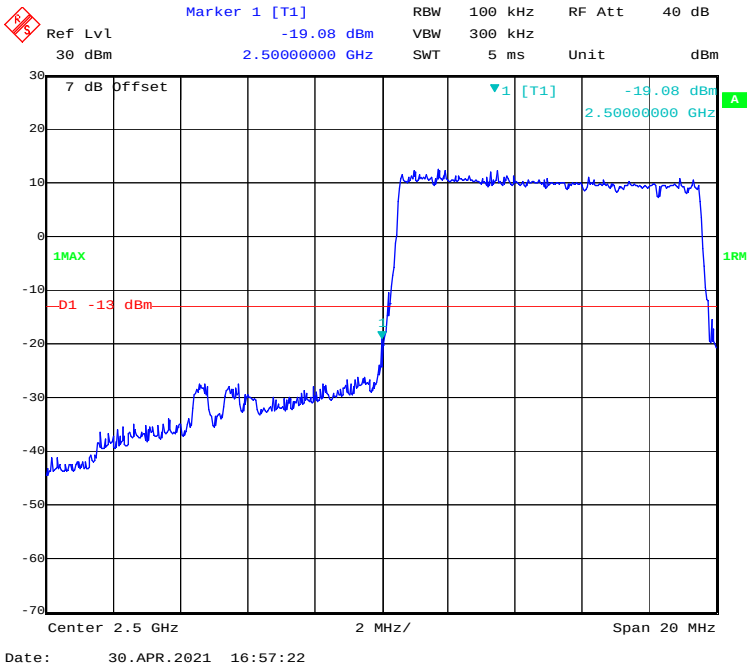
QPSK (5.0 MHz, FULL RB) - Left Band Edge



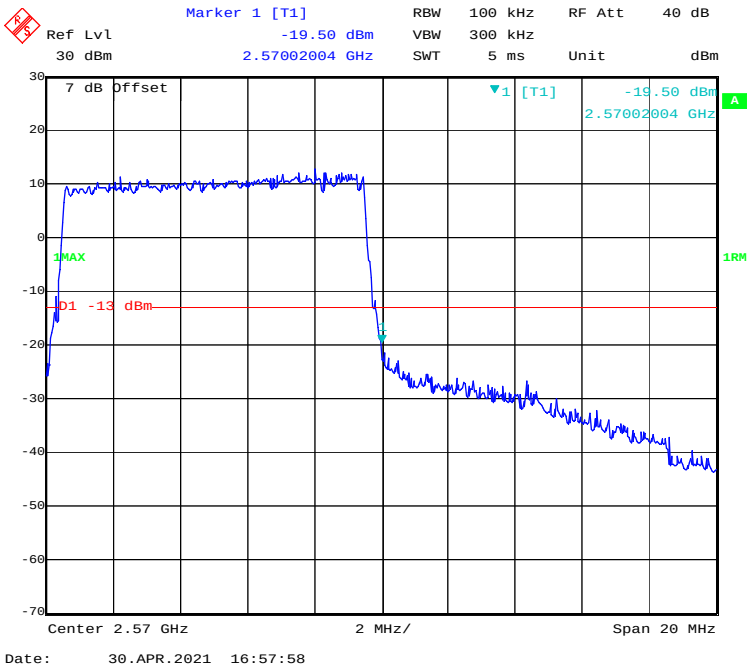
QPSK (5.0 MHz, FULL RB) - Right Band Edge



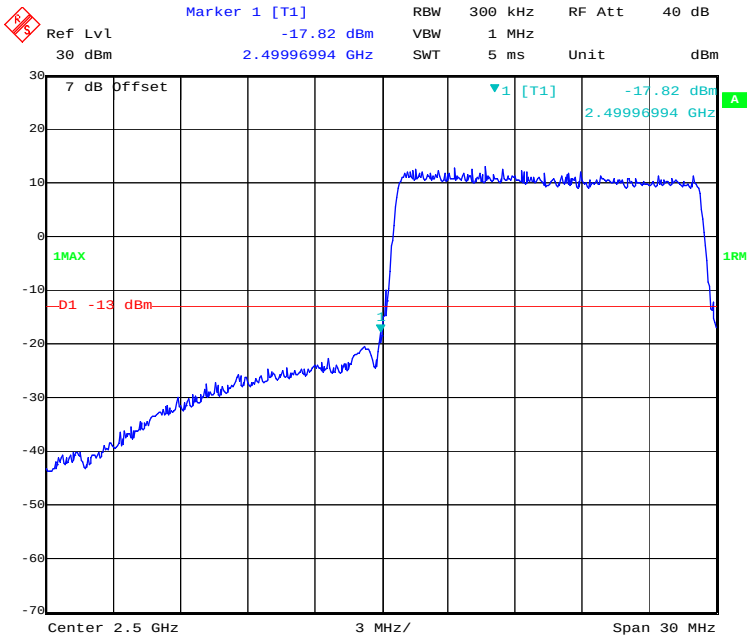
QPSK (10.0 MHz, FULL RB) - Left Band Edge



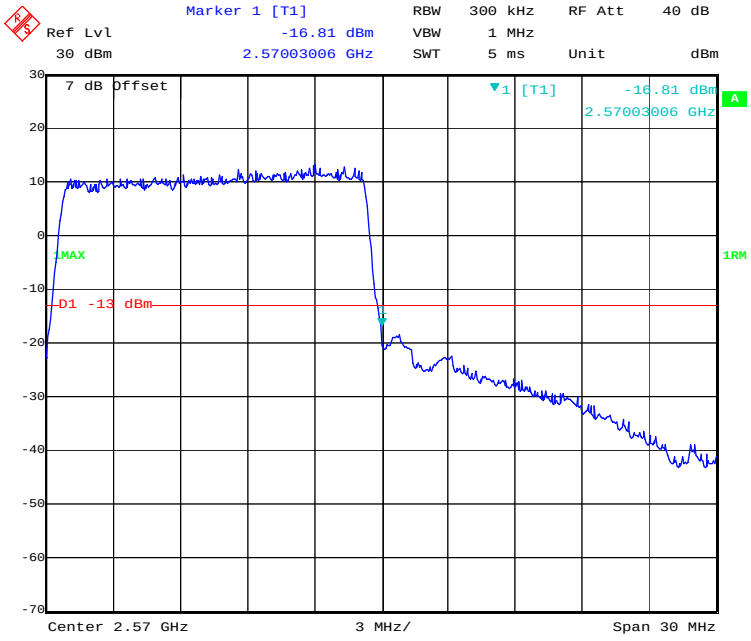
QPSK (10.0 MHz, FULL RB) - Right Band Edge



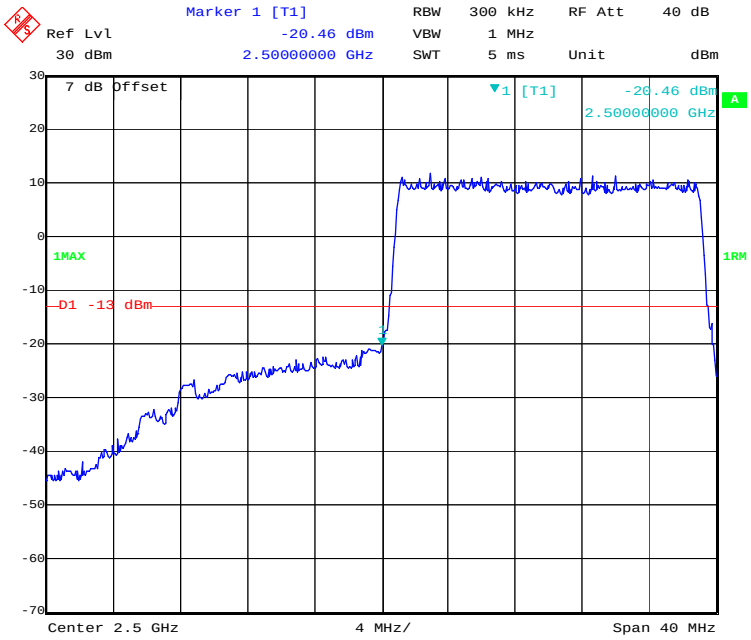
QPSK (15.0 MHz, FULL RB) - Left Band Edge



QPSK (15.0 MHz, FULL RB) - Right Band Edge



QPSK (20.0 MHz, FULL RB) - Left Band Edge



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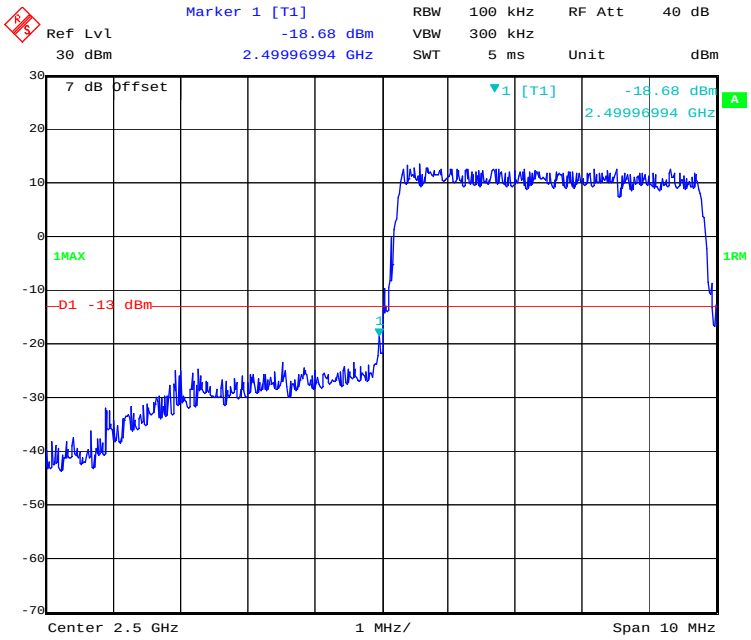
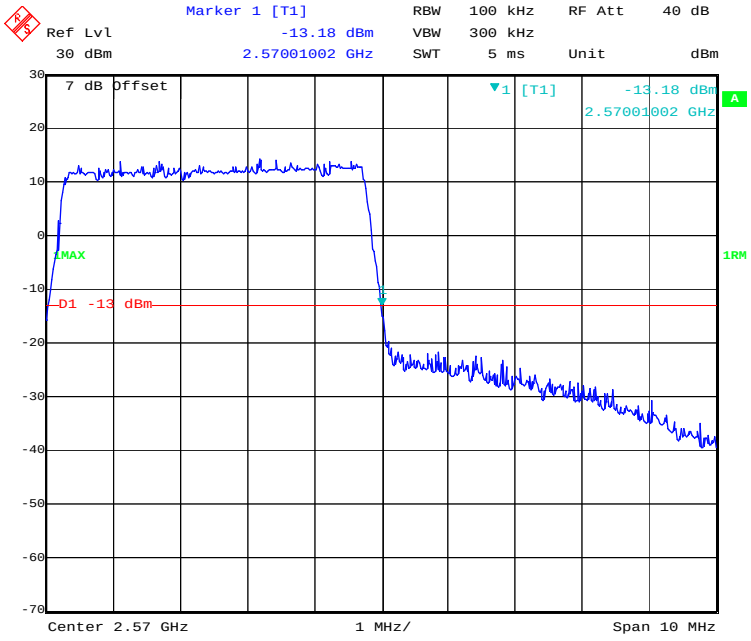
QPSK (20.0 MHz, FULL RB) - Right Band Edge

Date: 30.APR.2021 17:00:30

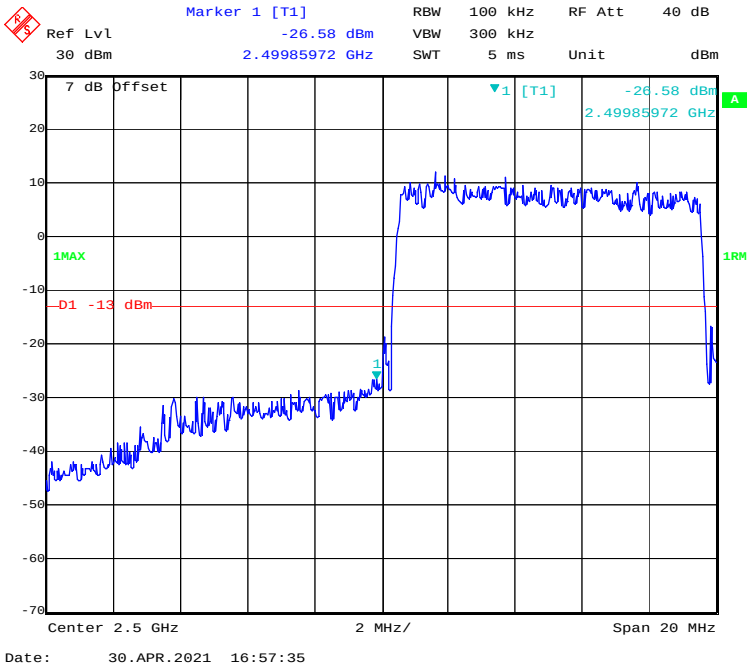
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



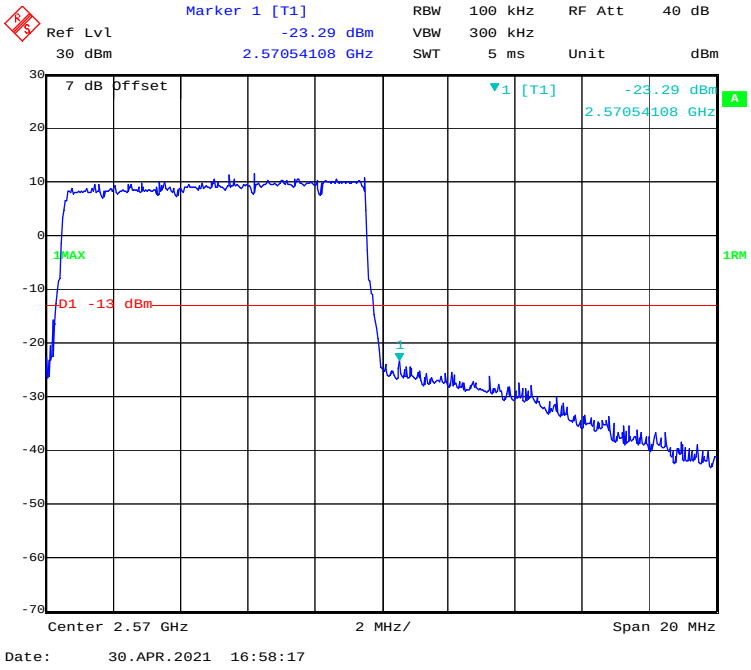
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



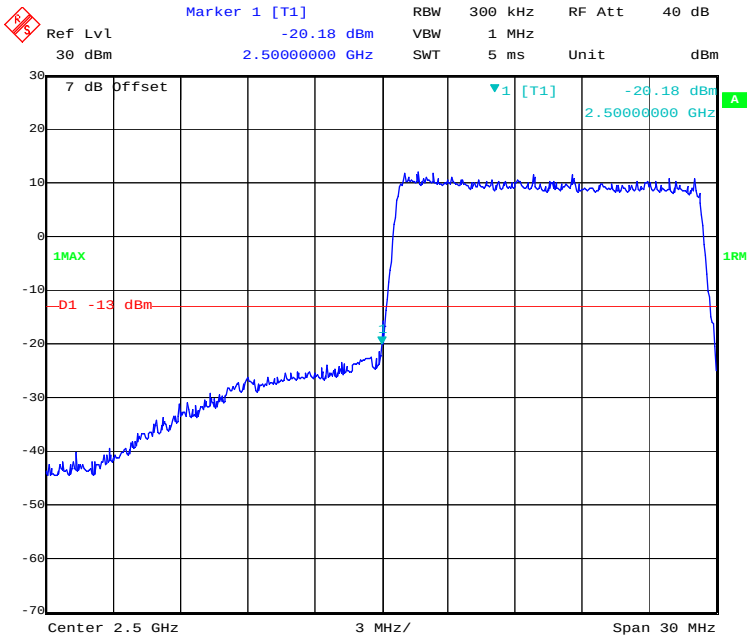
16-QAM (10.0 MHz, FULL RB) - Left Band Edge



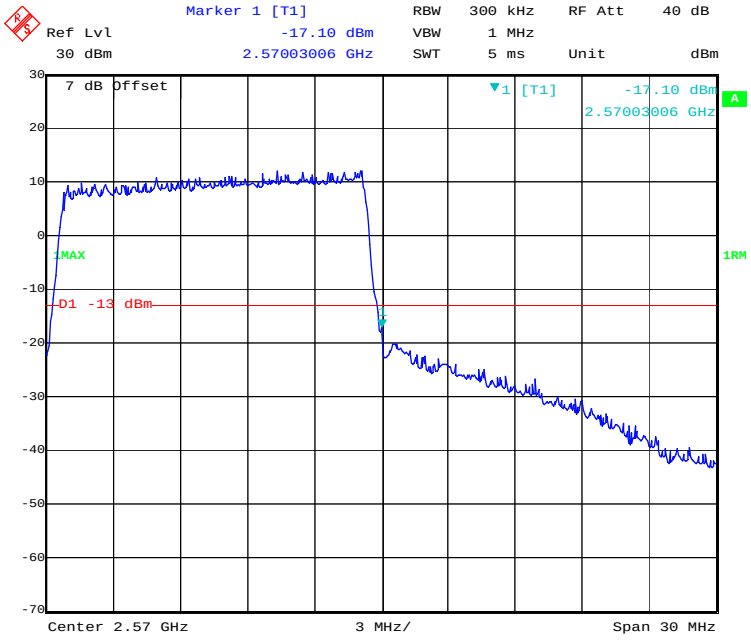
16-QAM (10.0 MHz, FULL RB) - Right Band Edge



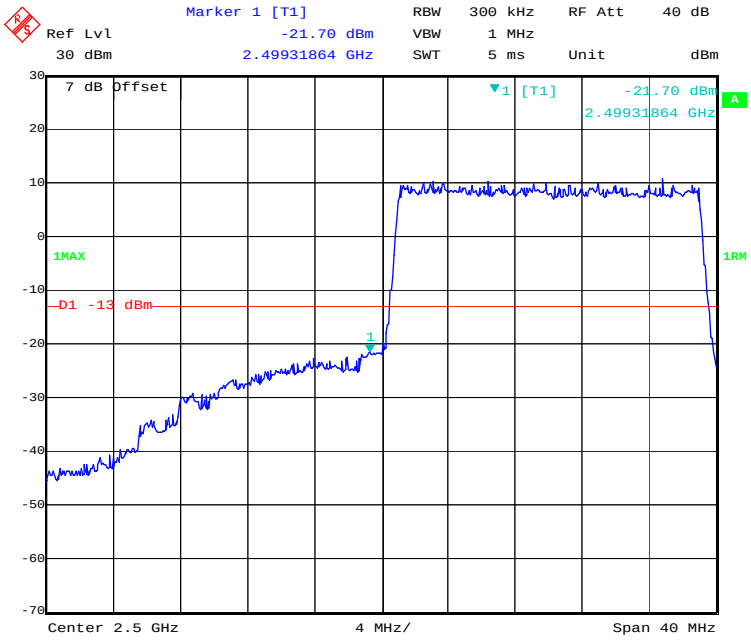
16-QAM (15.0 MHz, FULL RB) - Left Band Edge



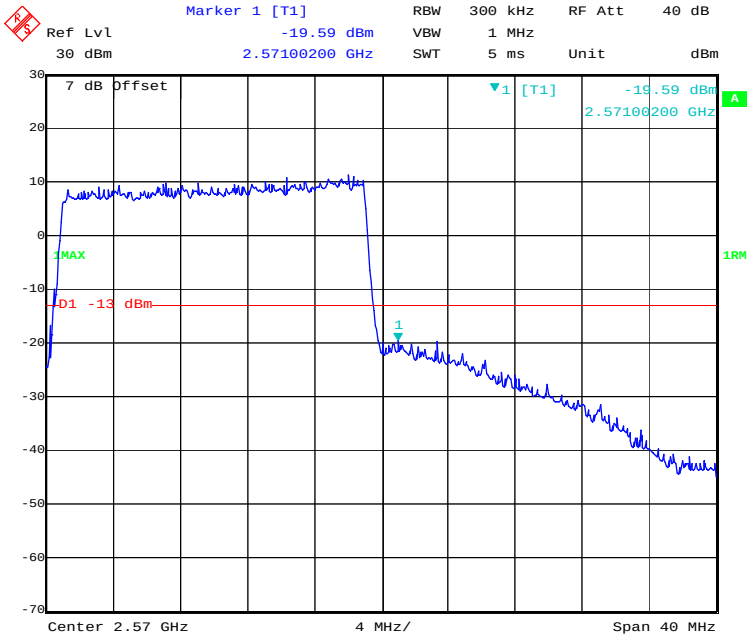
16-QAM (15.0 MHz, FULL RB) - Right Band Edge



16-QAM (20.0 MHz, FULL RB) - Left Band Edge

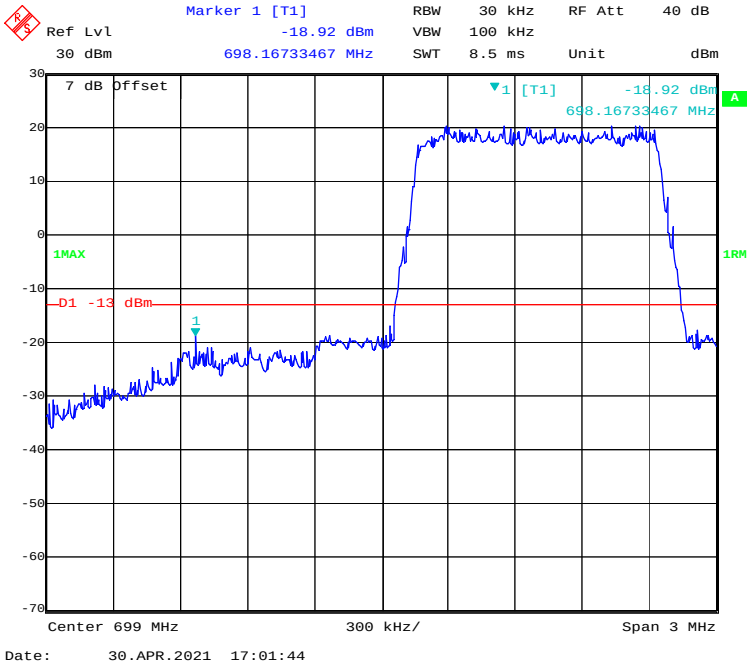


16-QAM (20.0 MHz, FULL RB) - Right Band Edge

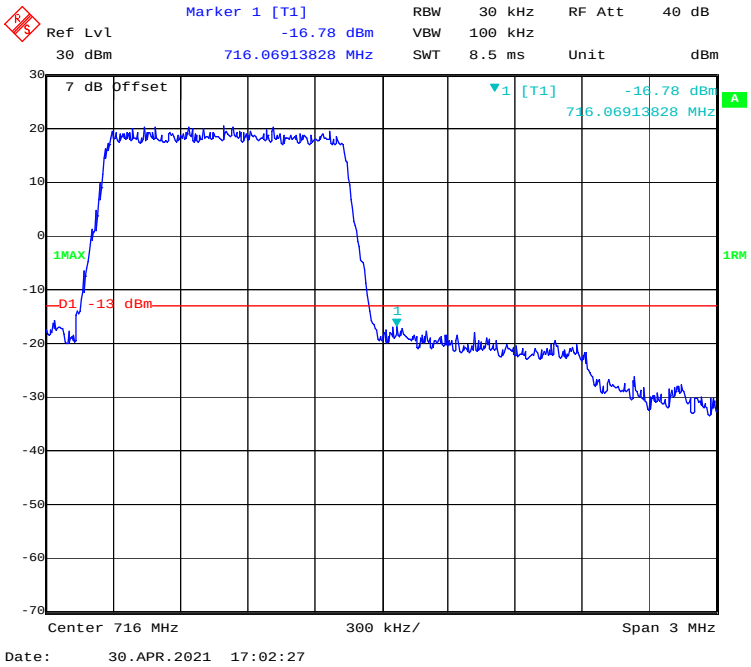


LTE Band 12:

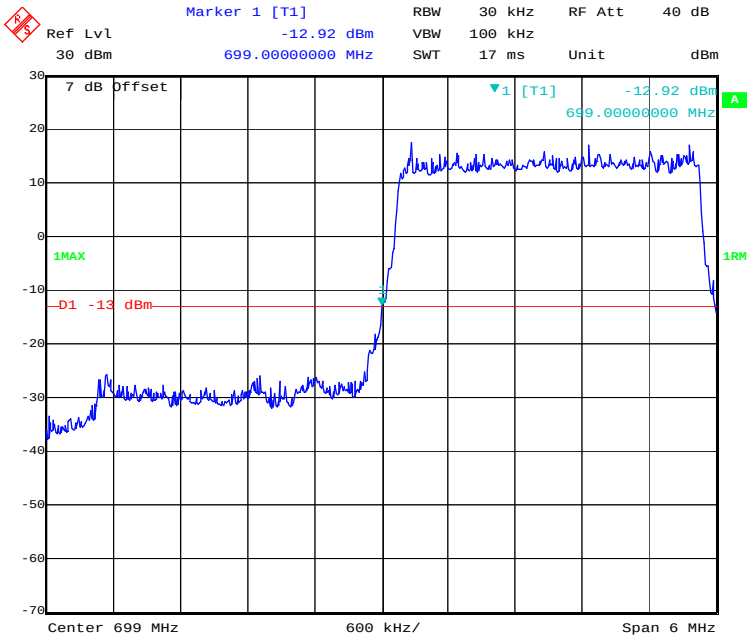
QPSK (1.4 MHz, FULL RB) - Left Band Edge



QPSK (1.4 MHz, FULL RB) - Right Band Edge

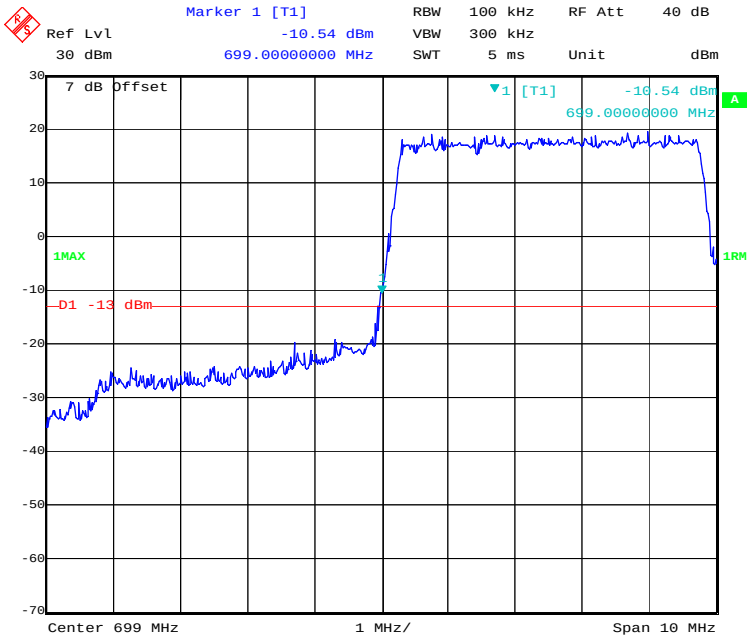


QPSK (3.0 MHz, FULL RB) - Left Band Edge

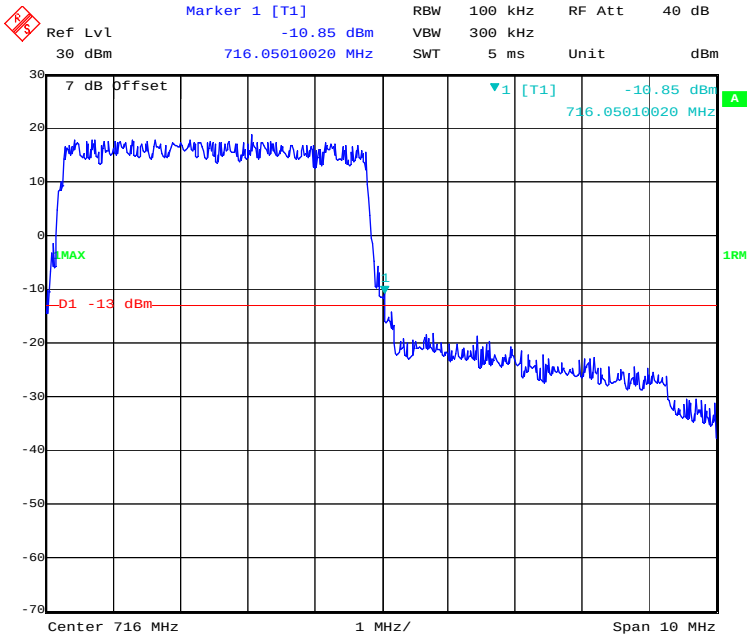


QPSK (3.0 MHz, FULL RB) - Right Band Edge

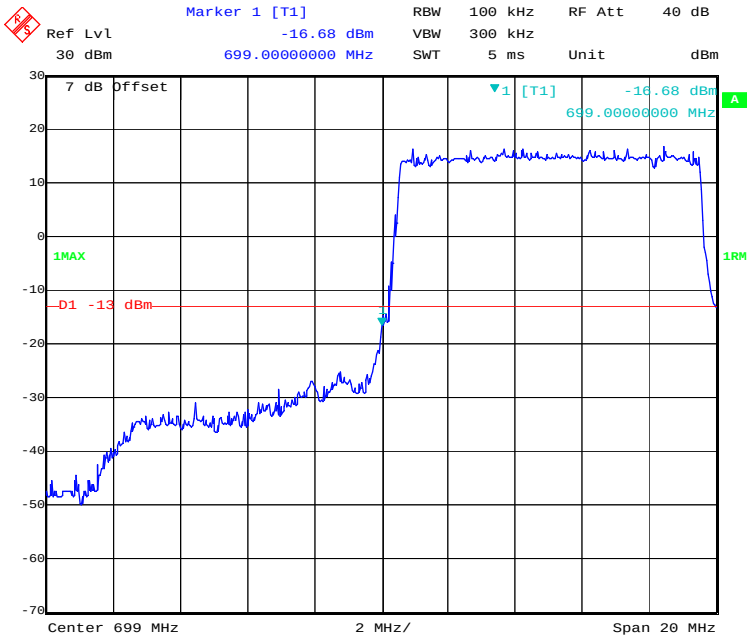
QPSK (5.0 MHz, FULL RB) - Left Band Edge



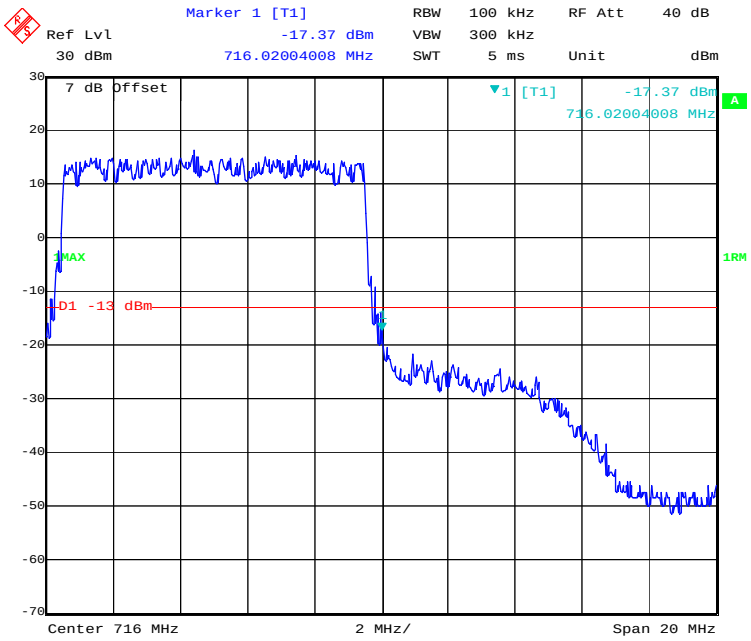
QPSK (5.0 MHz, FULL RB) - Right Band Edge



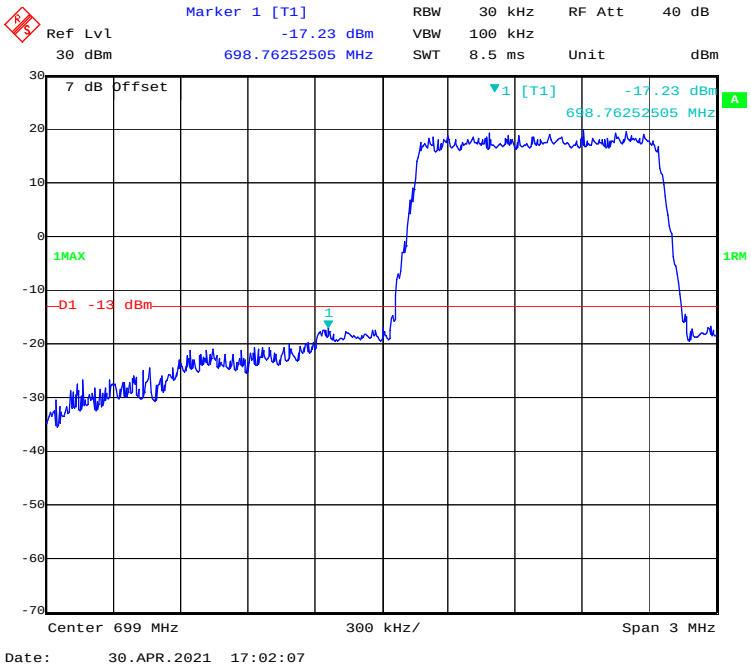
QPSK (10.0 MHz, FULL RB) - Left Band Edge



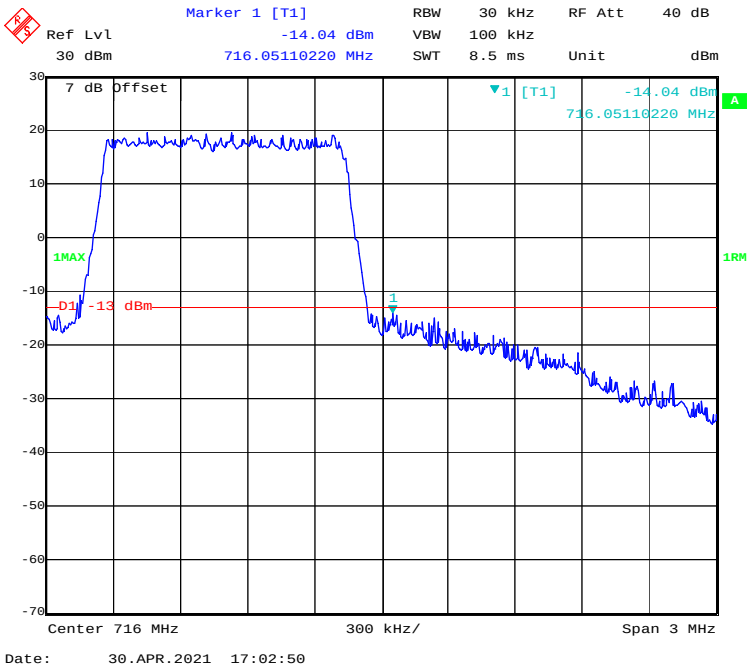
QPSK (10.0 MHz, FULL RB) - Right Band Edge



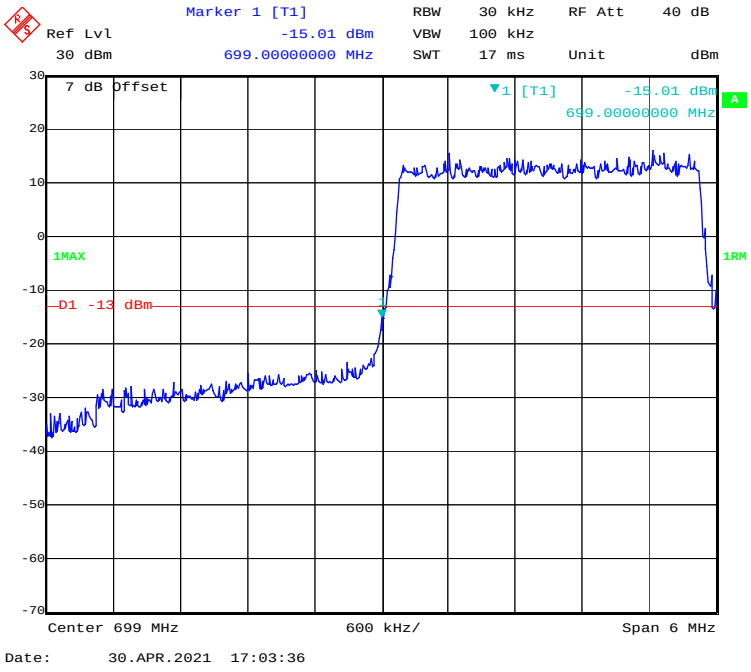
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



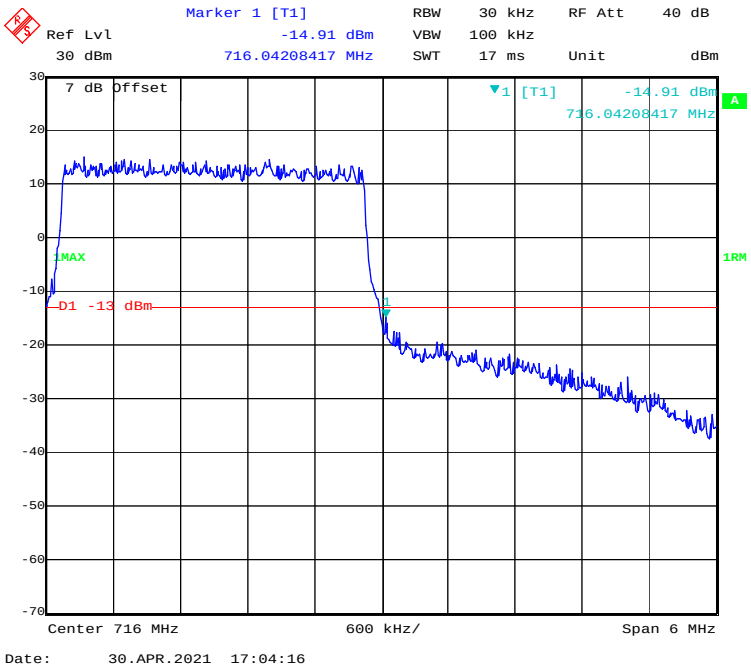
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



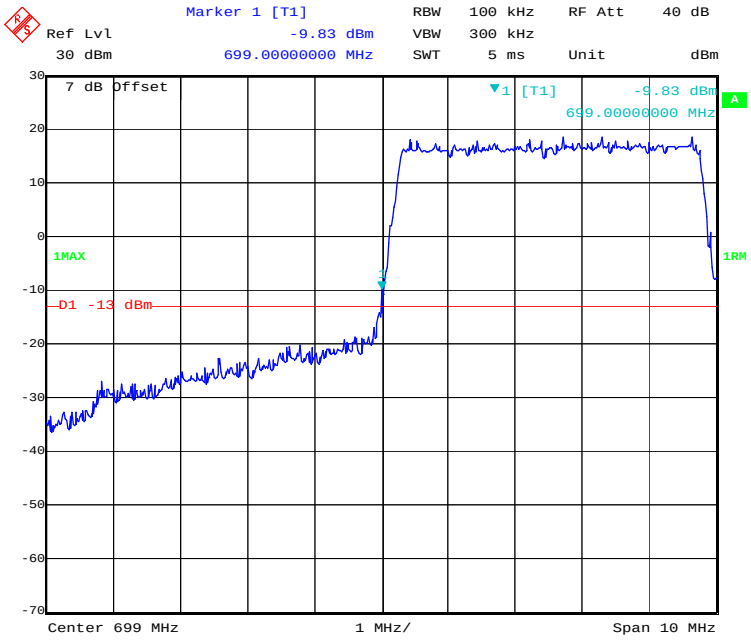
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



16-QAM (3.0 MHz, FULL RB) - Right Band Edge



16-QAM (5.0 MHz, FULL RB) - Left Band Edge



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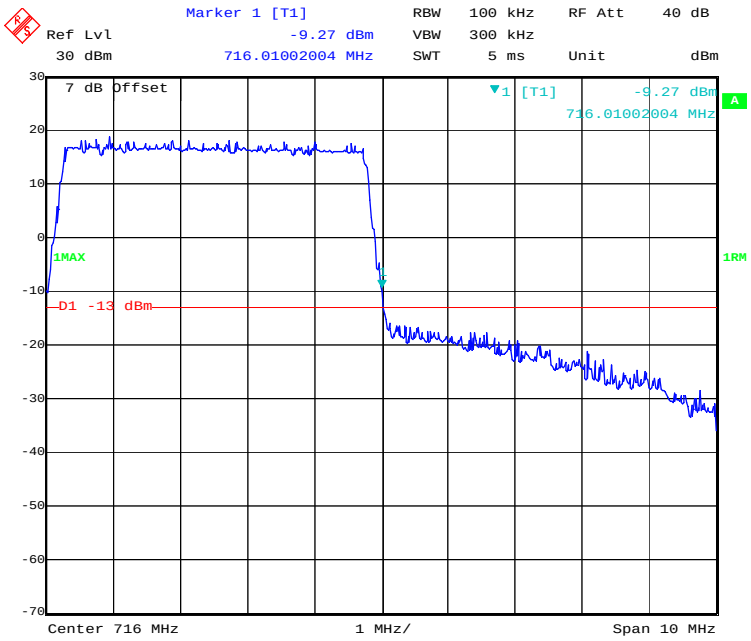
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



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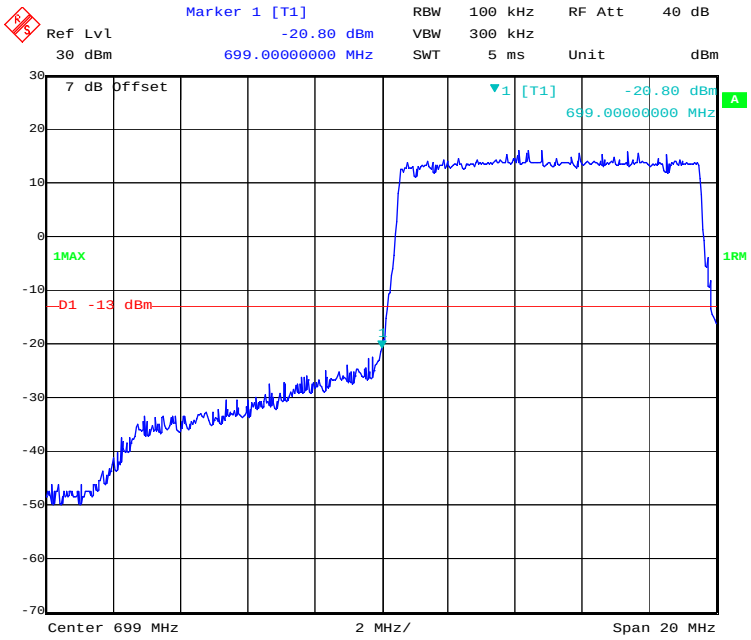
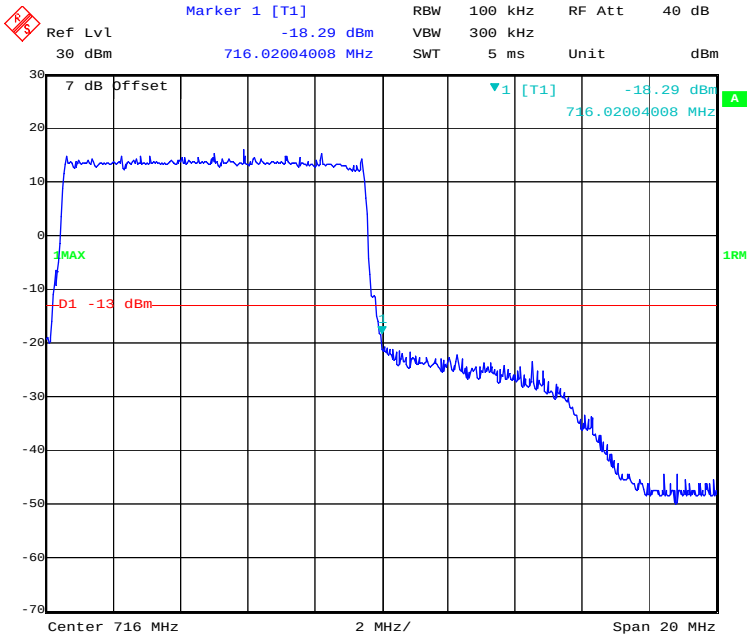
16-QAM (10.0 MHz, FULL RB) - Left Band Edge

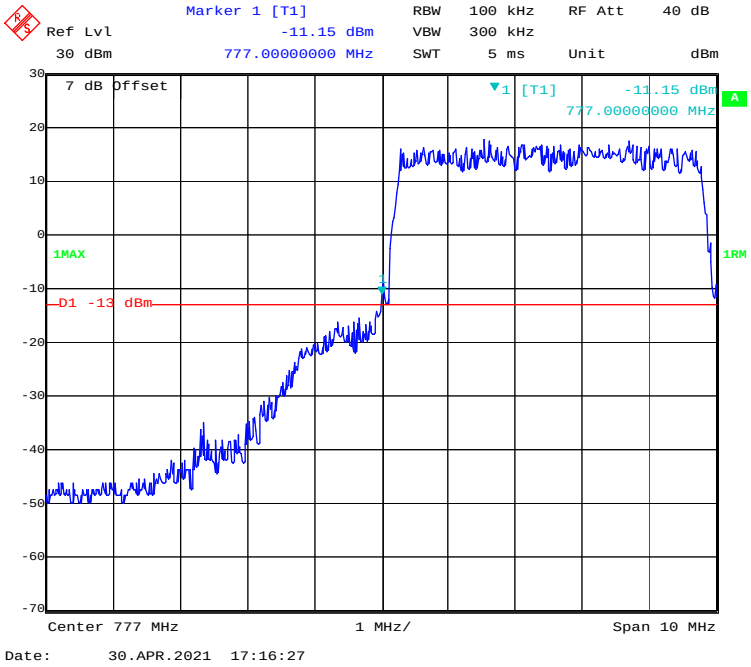


16-QAM (10.0 MHz, FULL RB) - Right Band Edge

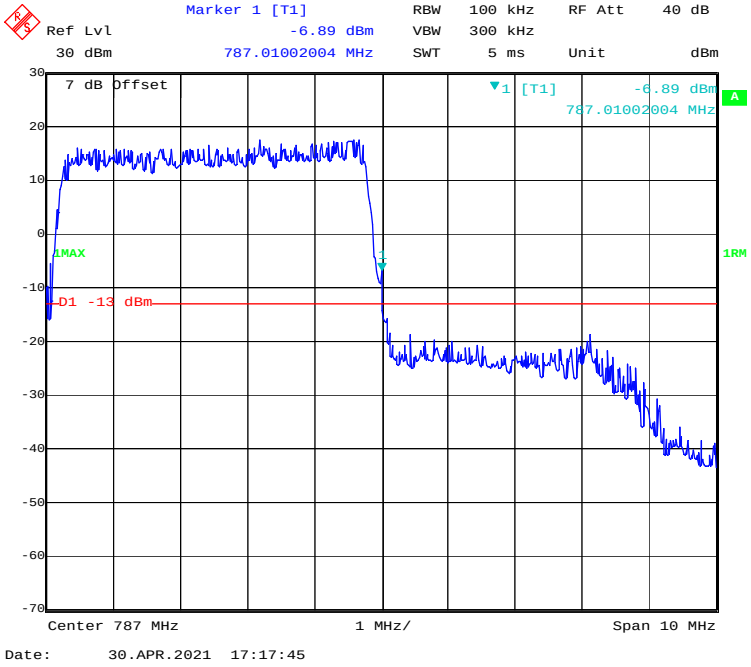


LTE Band 13:

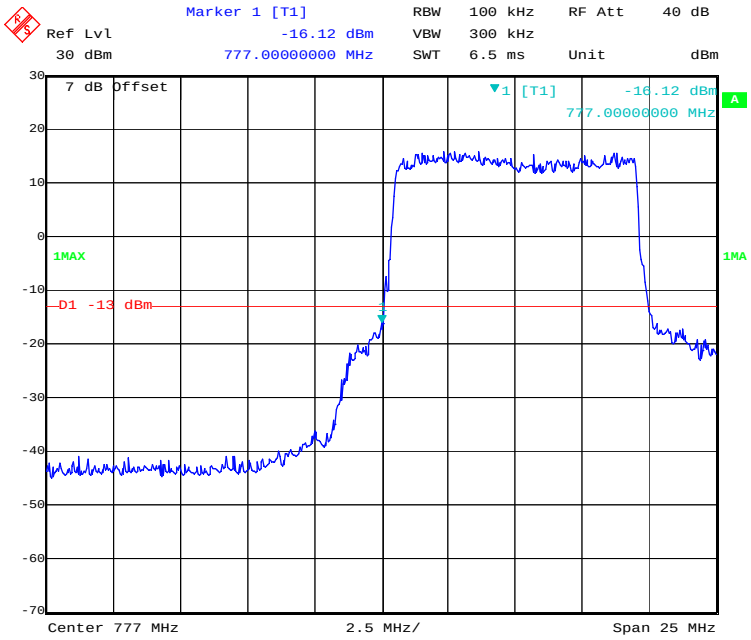
QPSK (5 MHz, FULL RB) - Left Band Edge



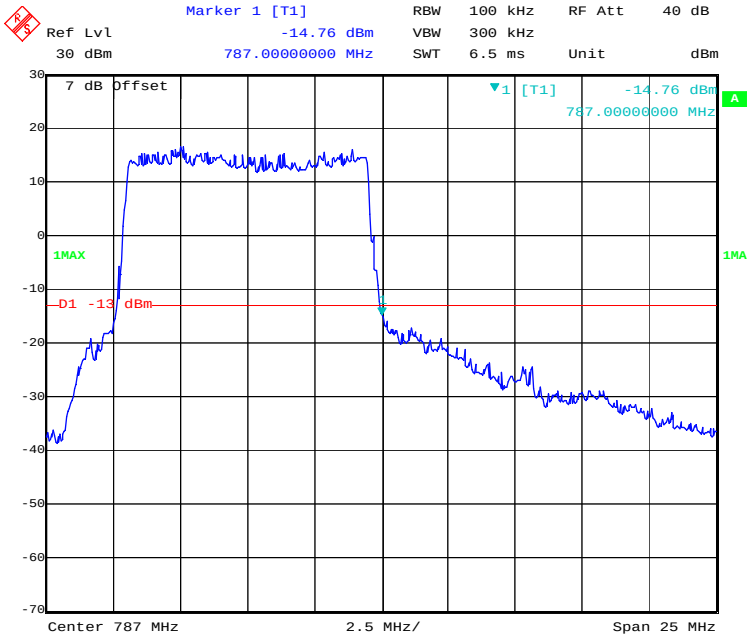
QPSK (5 MHz, FULL RB) - Right Band Edge



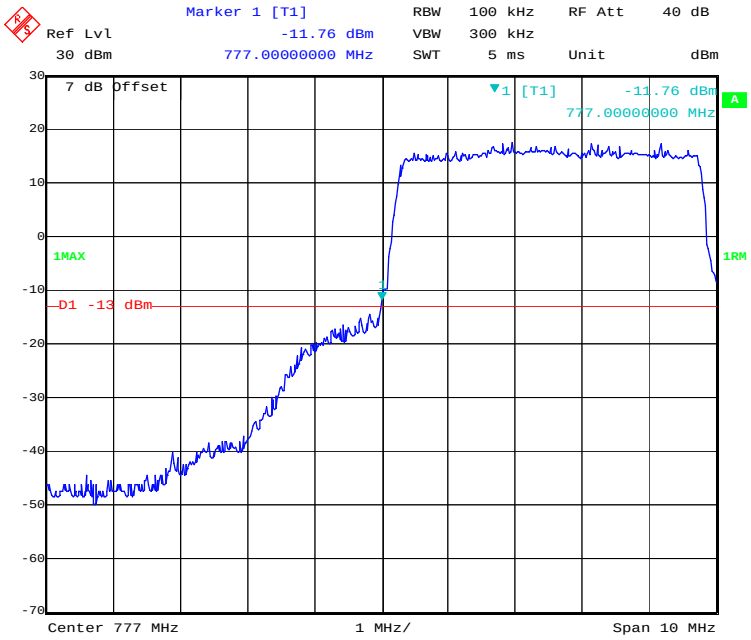
QPSK (10 MHz, FULL RB) - Left Band Edge



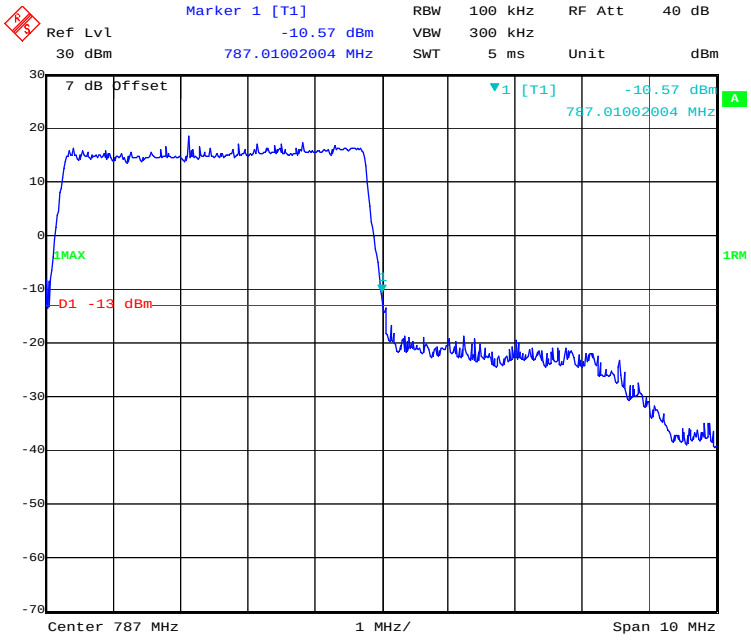
QPSK (10 MHz, FULL RB) - Right Band Edge



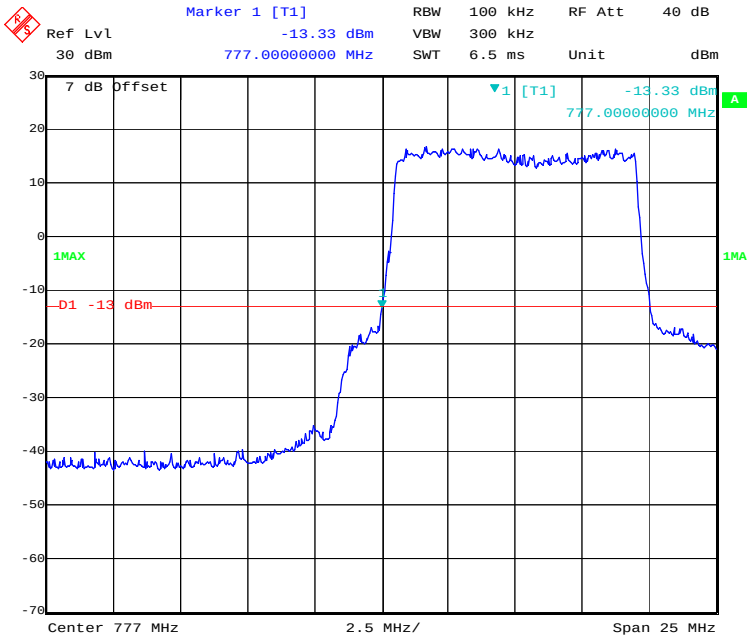
16-QAM (5 MHz, FULL RB) - Left Band Edge



16-QAM (5 MHz, FULL RB) - Right Band Edge



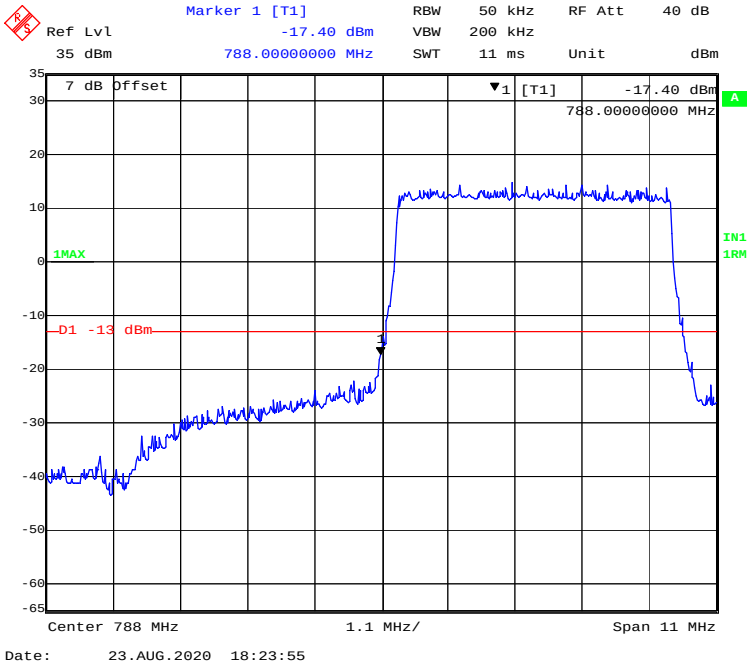
16-QAM (10 MHz, FULL RB) - Left Band Edge



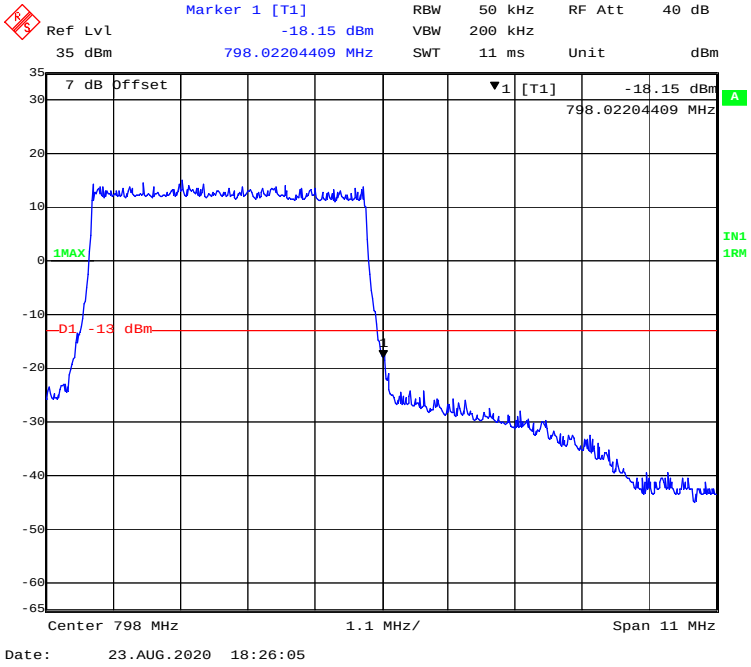
16-QAM (10 MHz, FULL RB) - Right Band Edge

LTE Band 14:

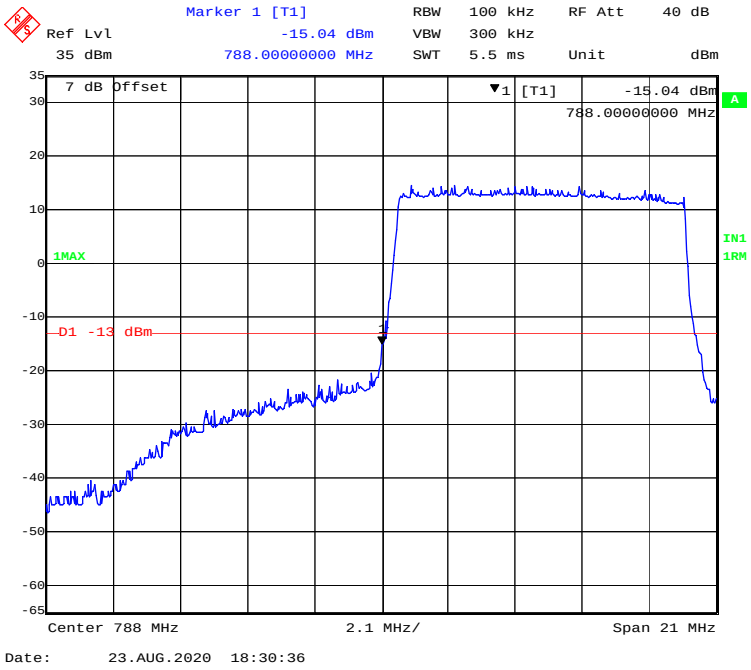
QPSK (5 MHz, FULL RB) - Left Band Edge



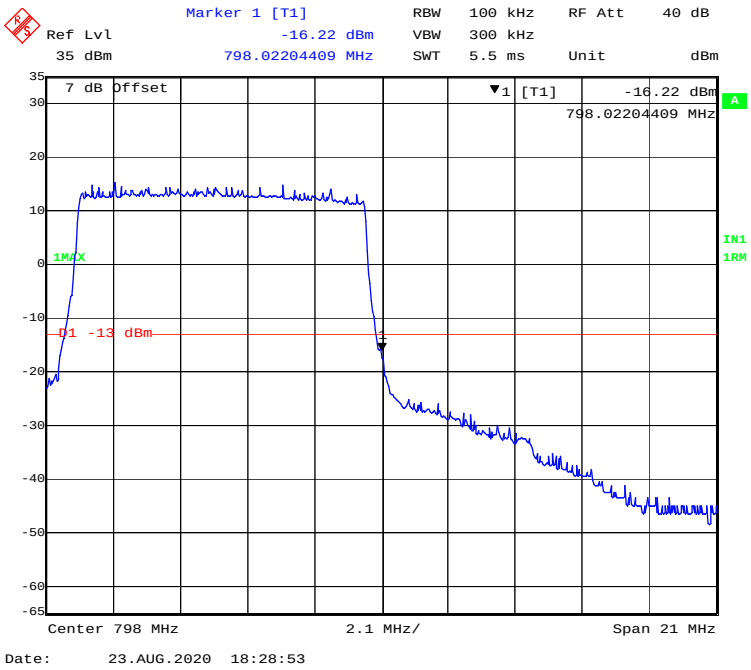
QPSK (5 MHz, FULL RB) - Right Band Edge



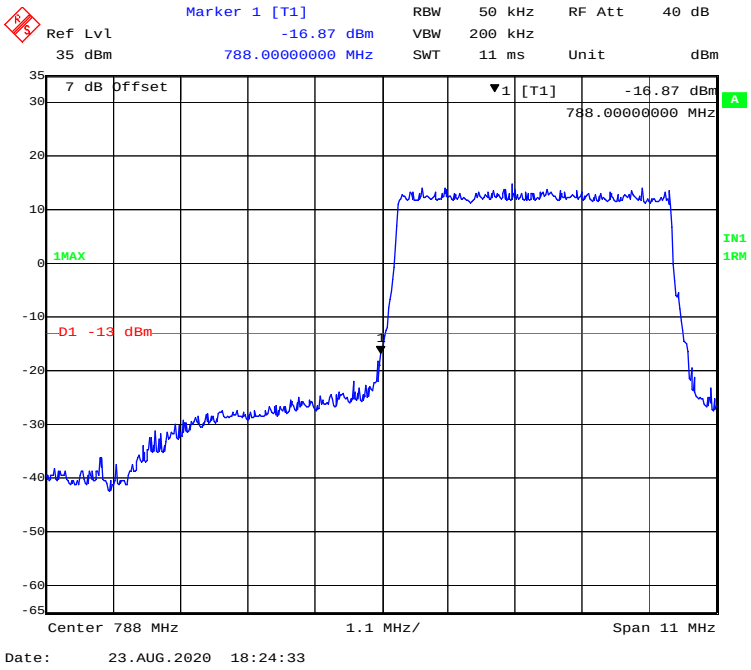
QPSK (10 MHz, FULL RB) - Left Band Edge



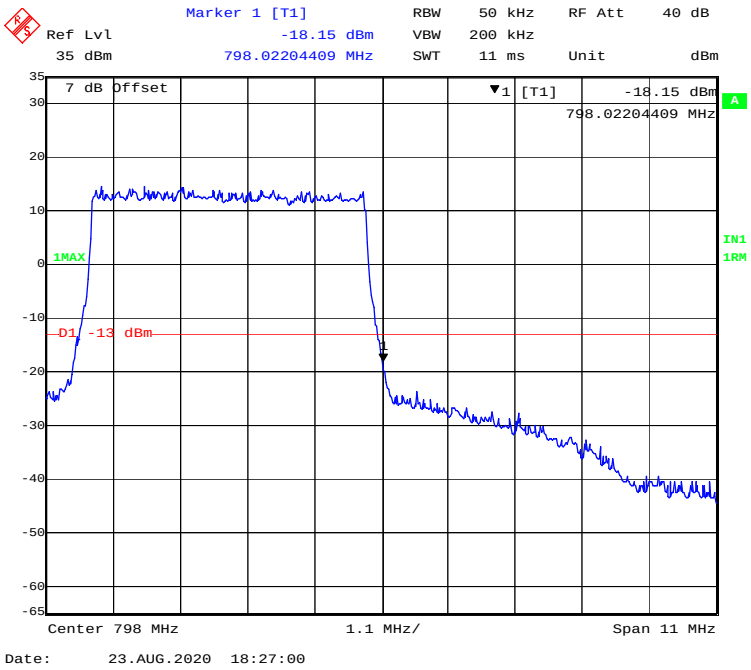
QPSK (10 MHz, FULL RB) - Right Band Edge



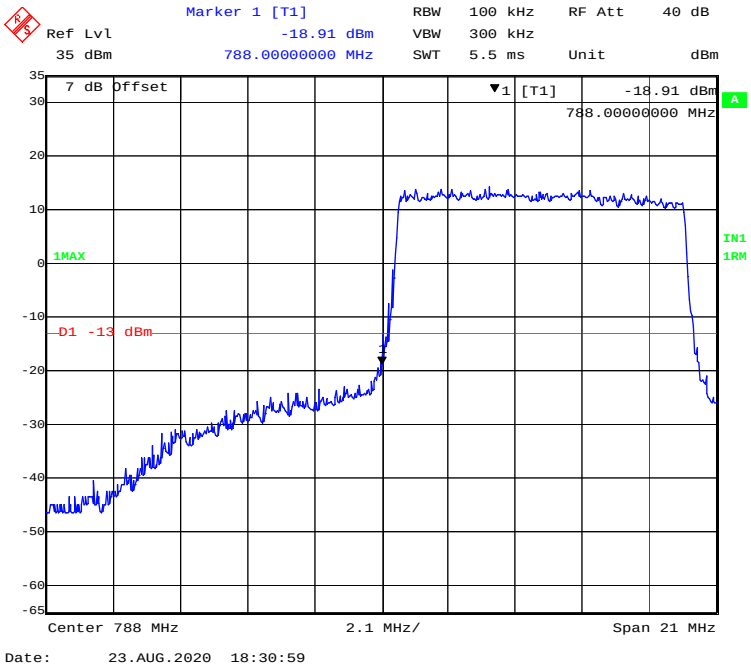
16-QAM (5 MHz, FULL RB) - Left Band Edge



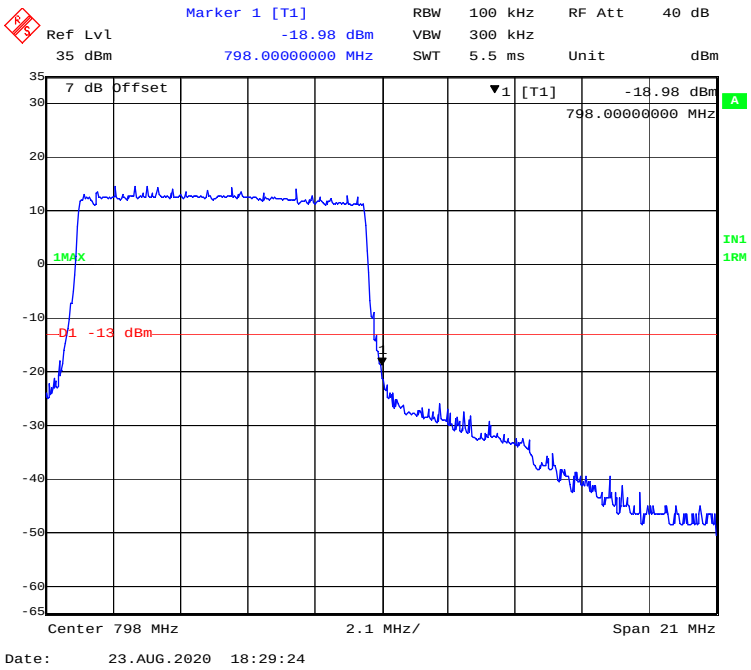
16-QAM (5 MHz, FULL RB) - Right Band Edge



16-QAM (10 MHz, FULL RB) - Left Band Edge

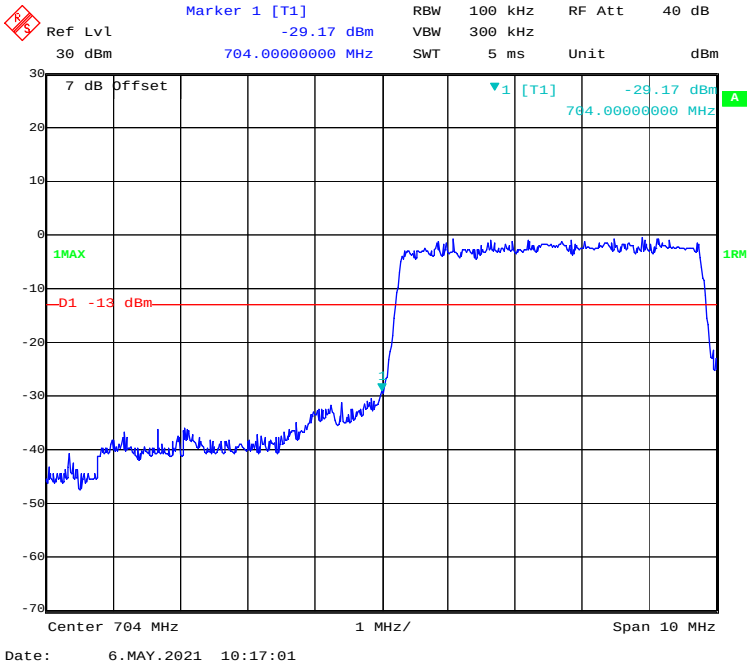


16-QAM (10 MHz, FULL RB) - Right Band Edge

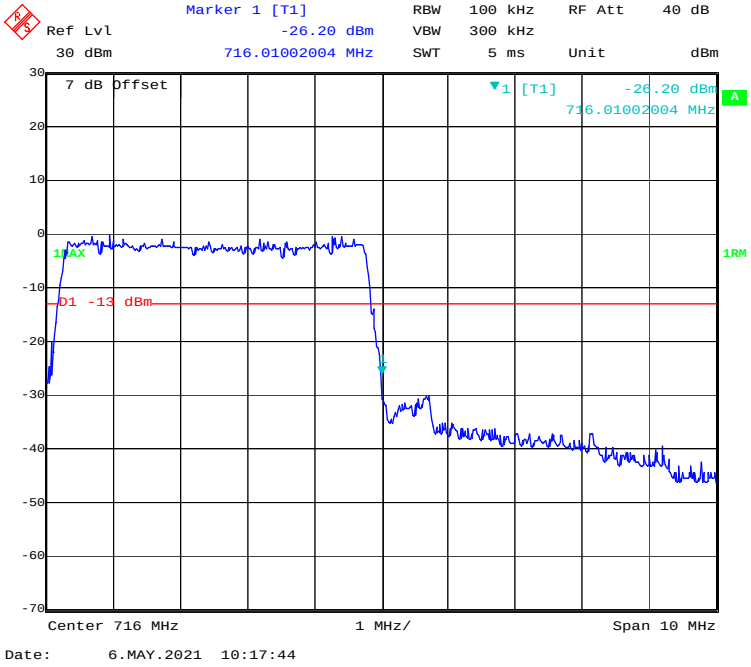


LTE Band 17:

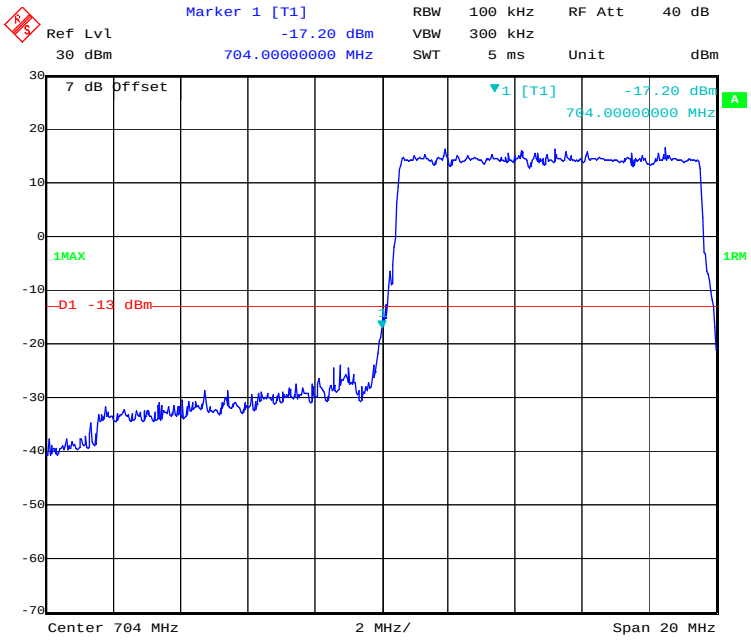
QPSK (5.0 MHz, FULL RB) - Left Band Edge



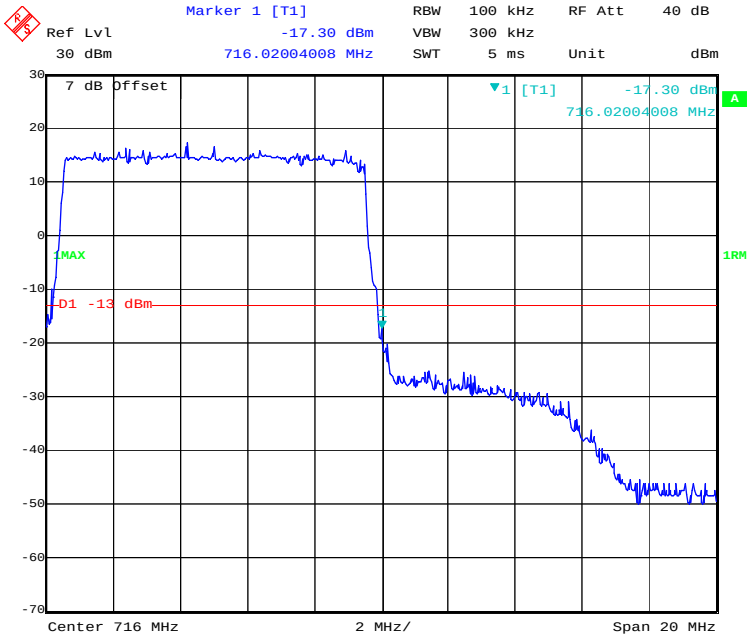
QPSK (5.0 MHz, FULL RB) - Right Band Edge



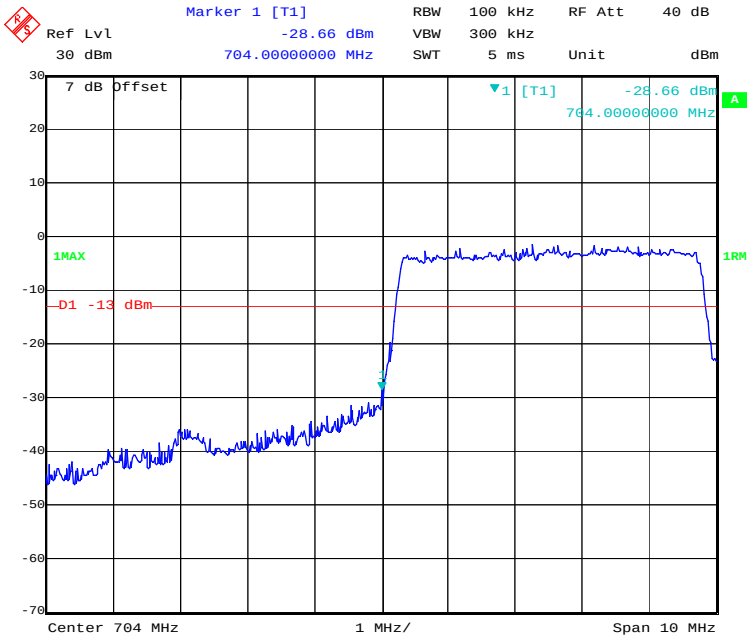
QPSK (10.0 MHz, FULL RB) - Left Band Edge



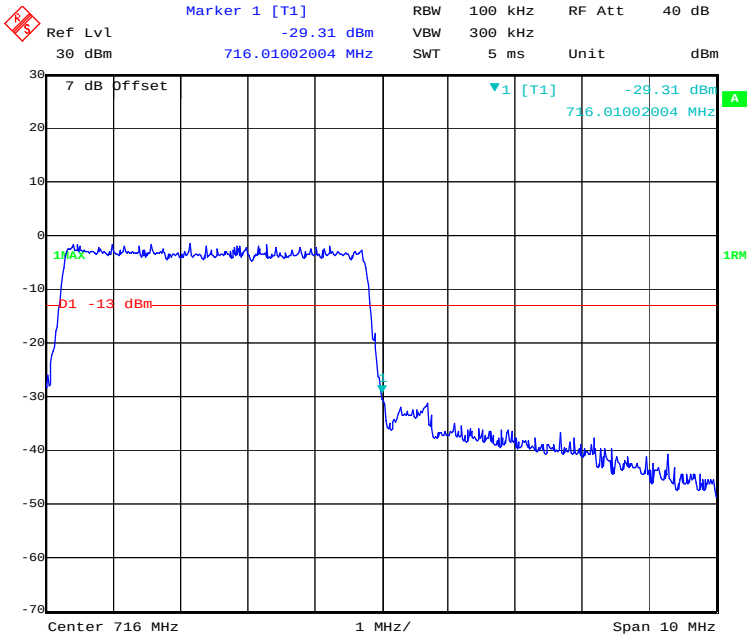
QPSK (10.0 MHz, FULL RB) - Right Band Edge



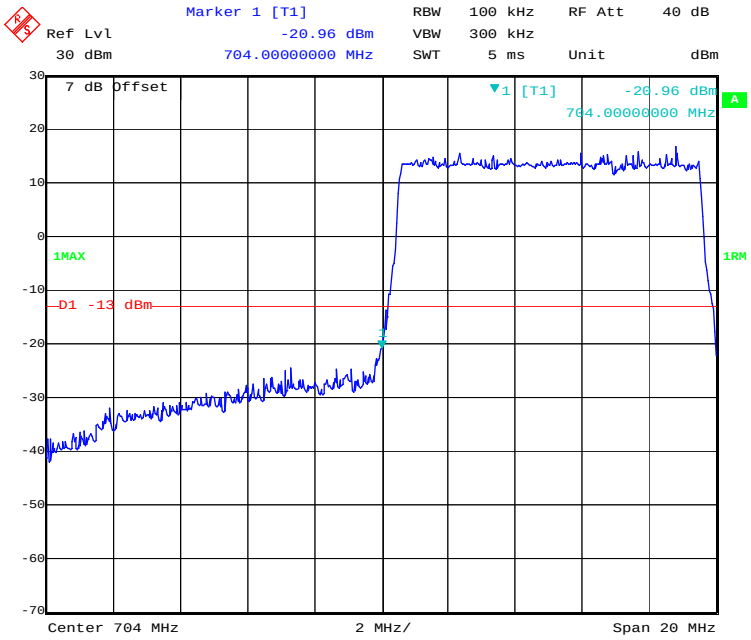
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



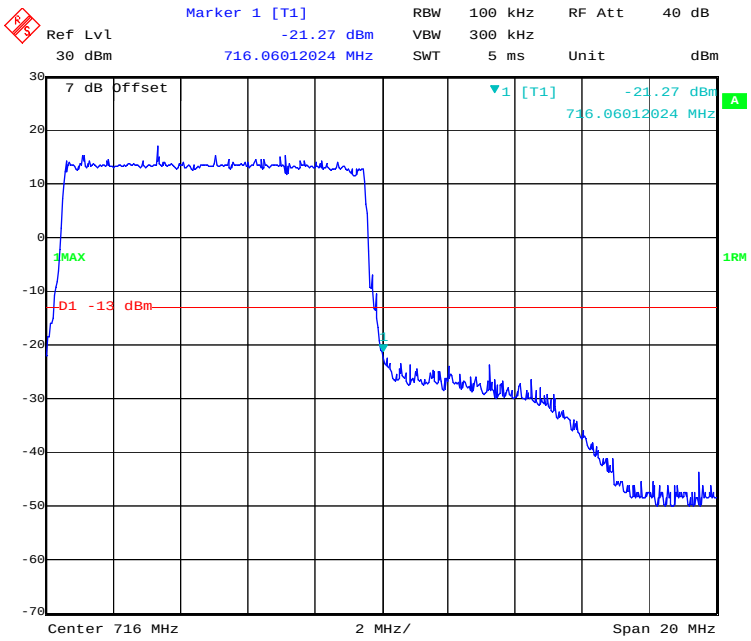
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



16-QAM (10.0 MHz, FULL RB) - Left Band Edge

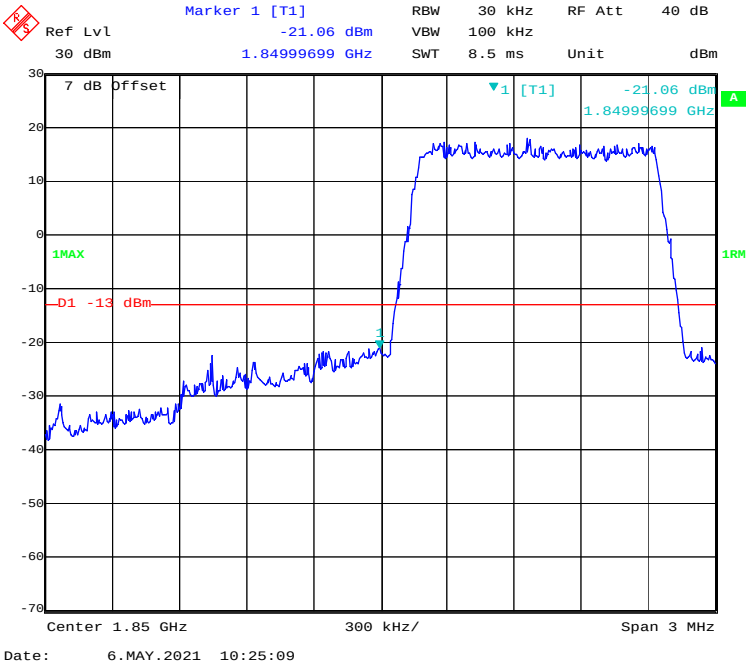


16-QAM (10.0 MHz, FULL RB) - Right Band Edge

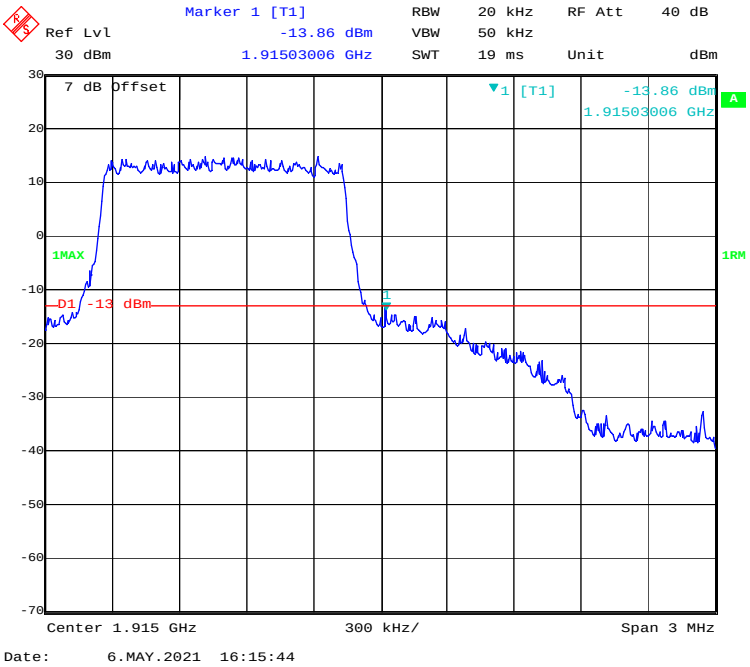


LTE Band 25:

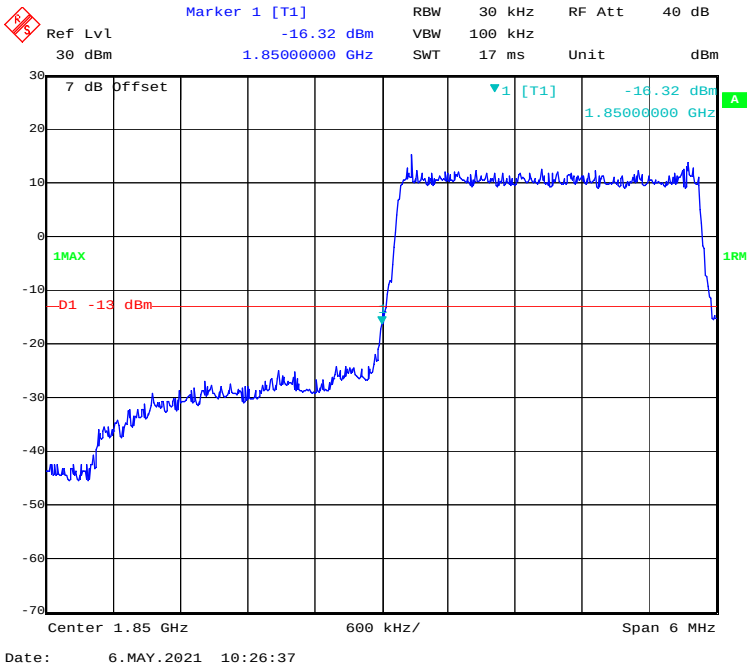
QPSK (1.4 MHz, FULL RB) - Left Band Edge



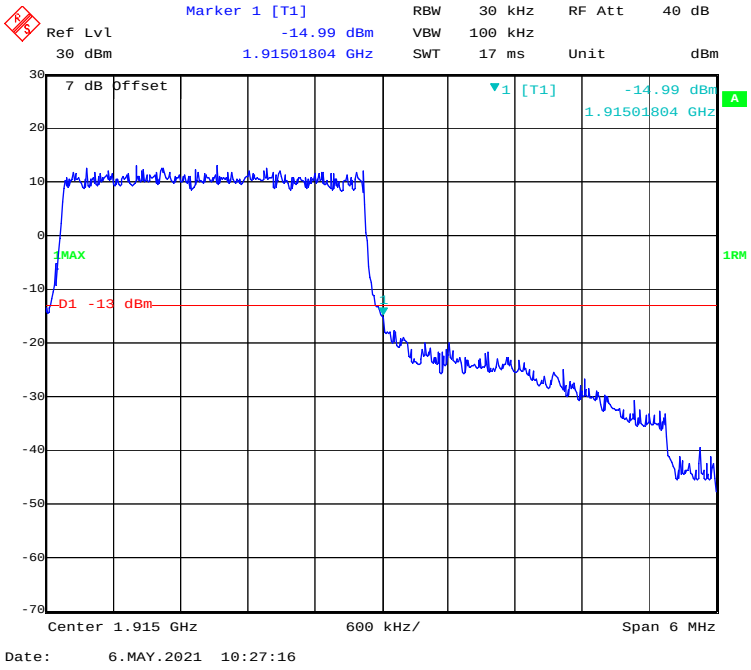
QPSK (1.4 MHz, FULL RB) - Right Band Edge



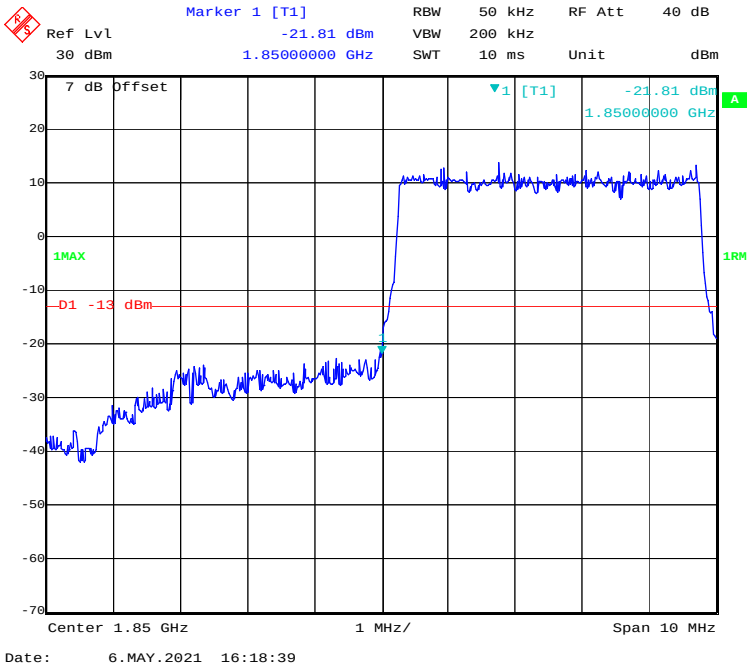
QPSK (3 MHz, FULL RB) - Left Band Edge



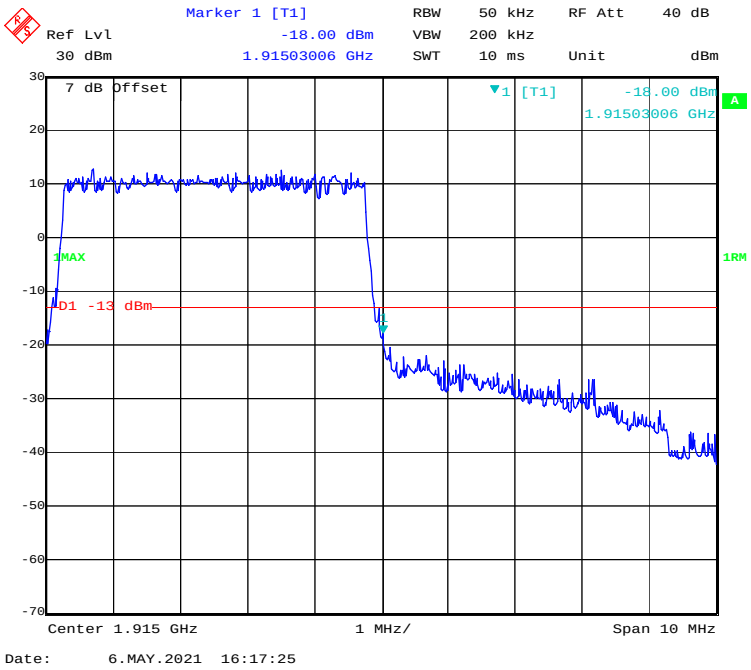
QPSK (3 MHz, FULL RB) - Right Band Edge



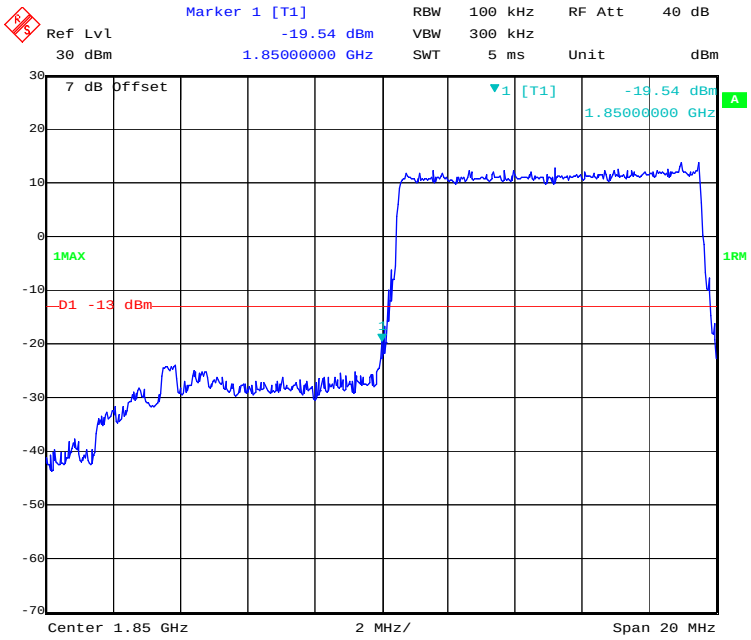
QPSK (5 MHz, FULL RB) - Left Band Edge



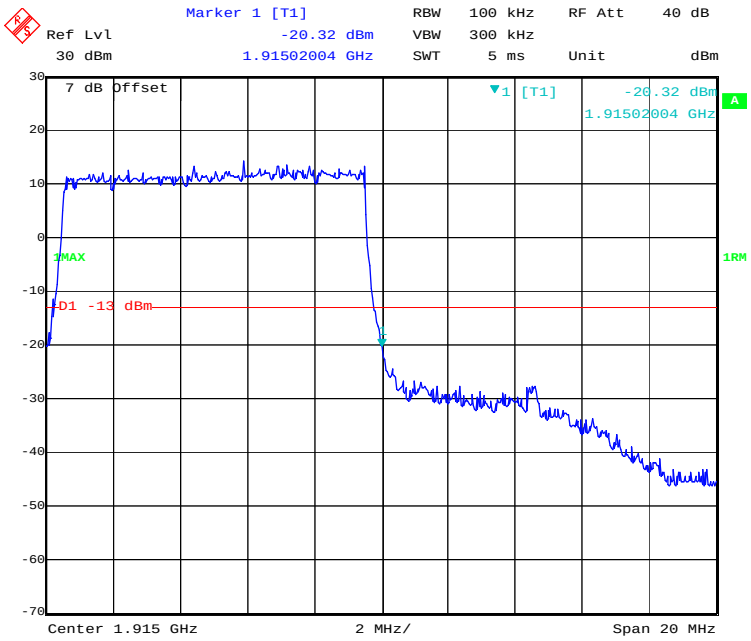
QPSK (5 MHz, FULL RB) - Right Band Edge



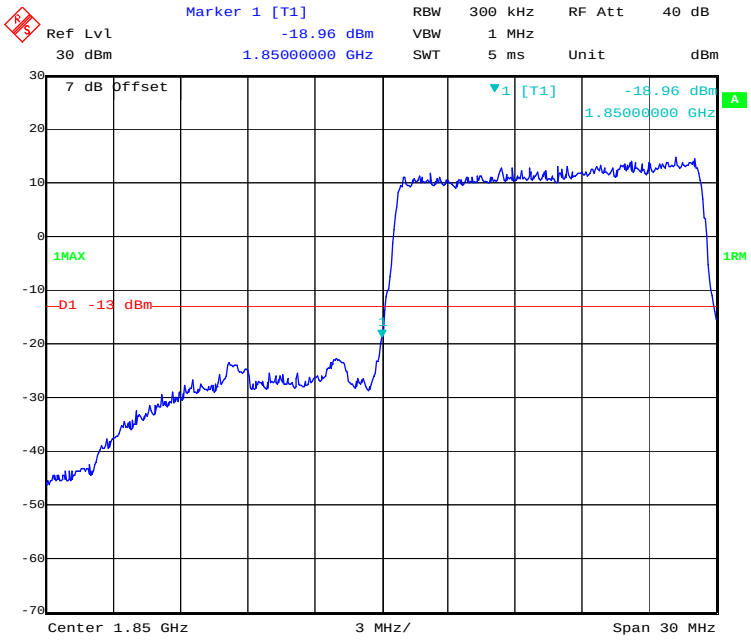
QPSK (10 MHz, FULL RB) - Left Band Edge



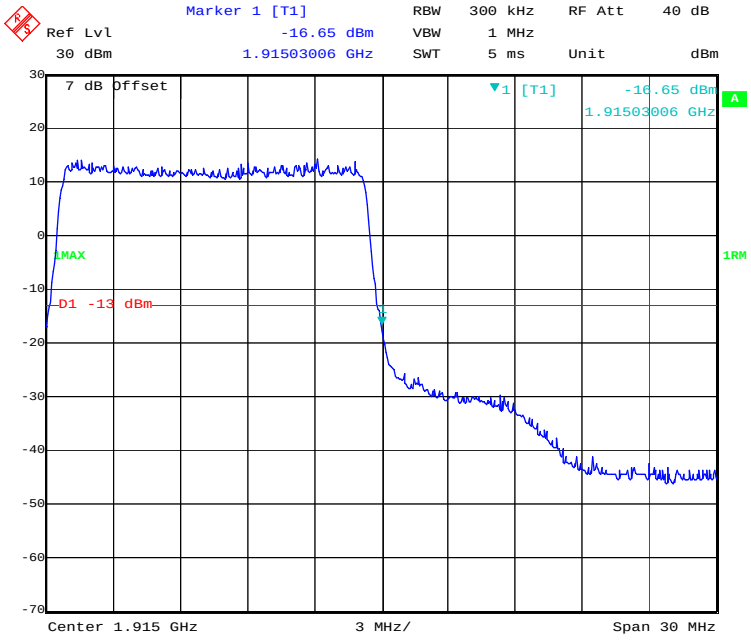
QPSK (10 MHz, FULL RB) - Right Band Edge



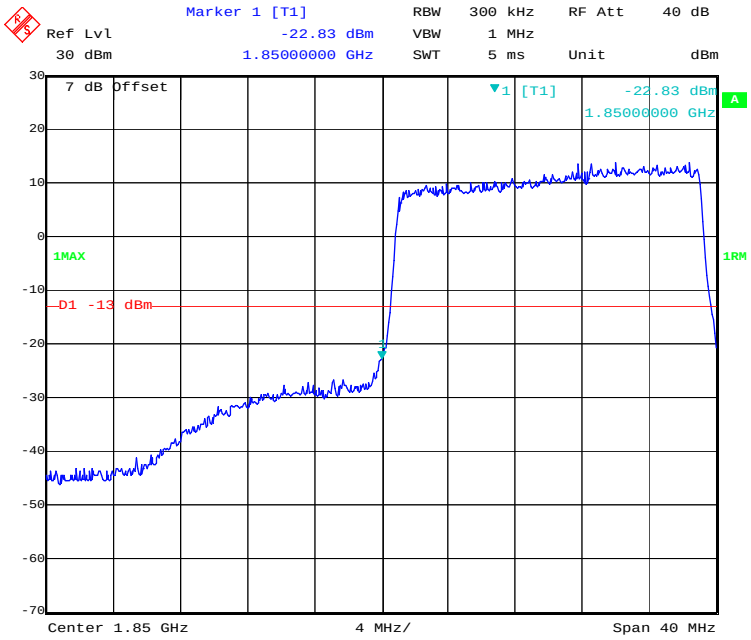
QPSK (15 MHz, FULL RB) - Left Band Edge



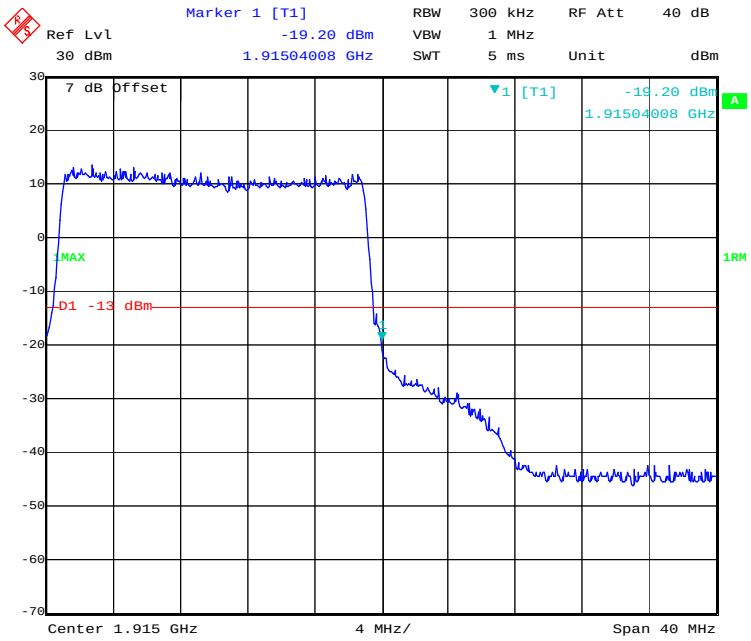
QPSK (15 MHz, FULL RB) - Right Band Edge



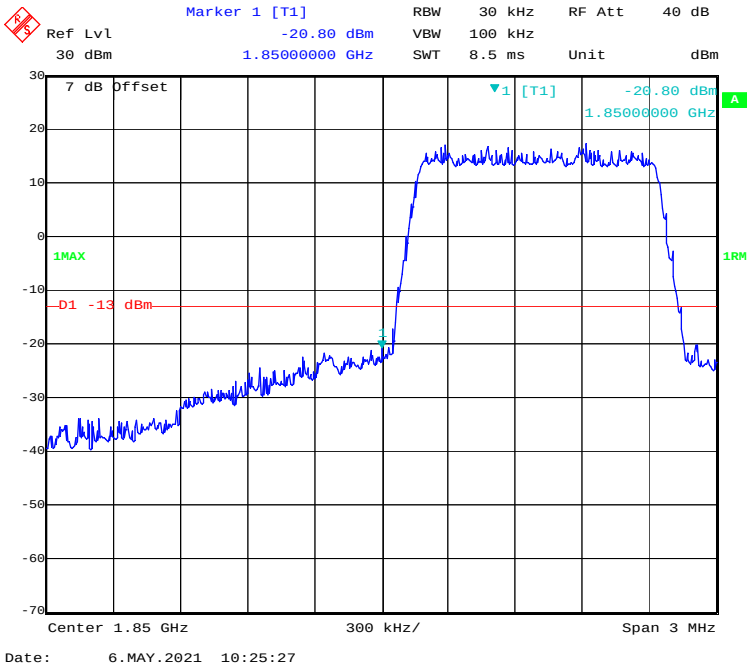
QPSK (20 MHz, FULL RB) - Left Band Edge



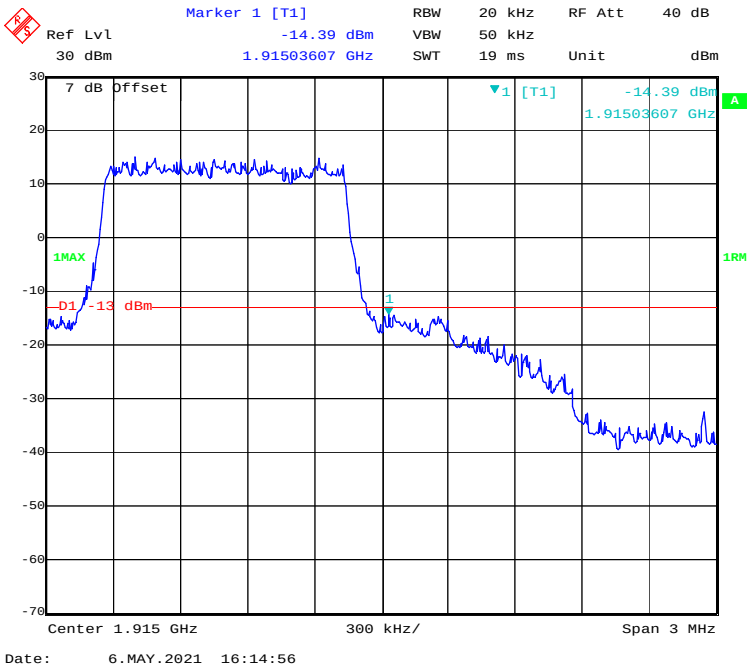
QPSK (20 MHz, FULL RB) - Right Band Edge



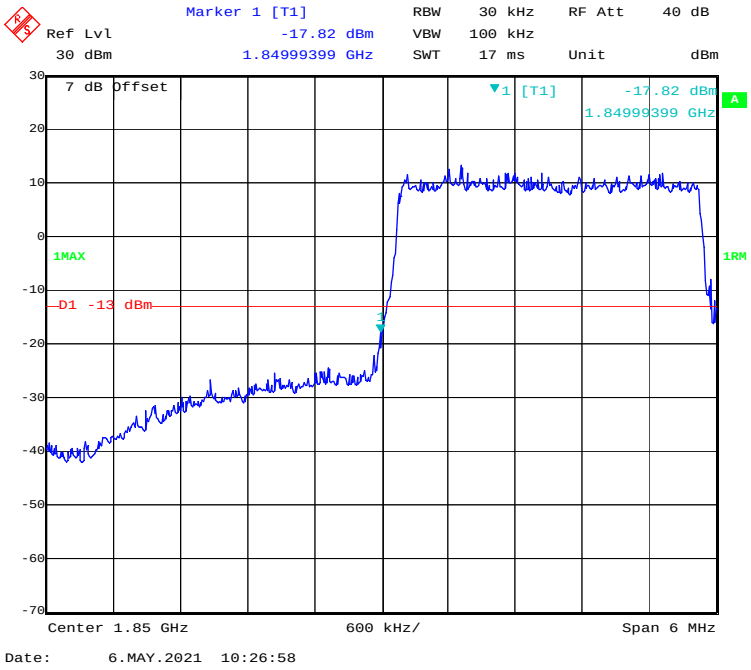
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



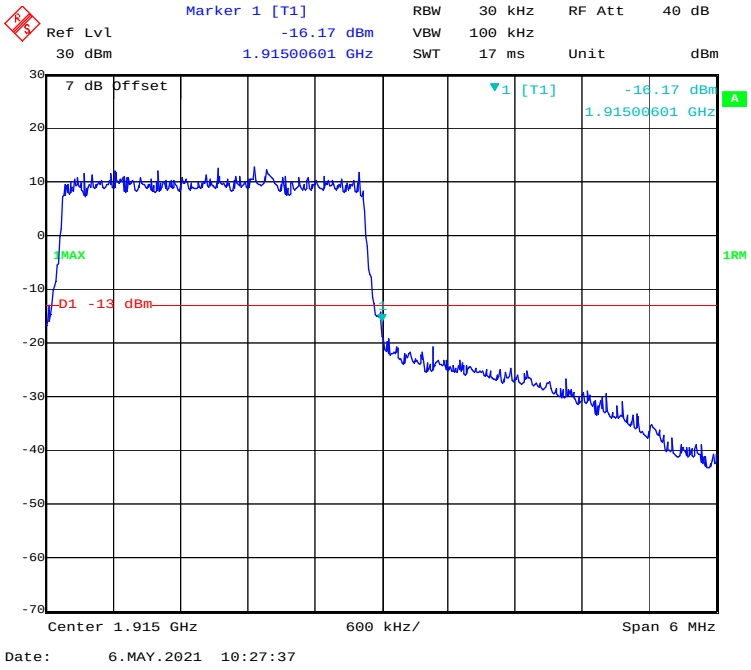
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



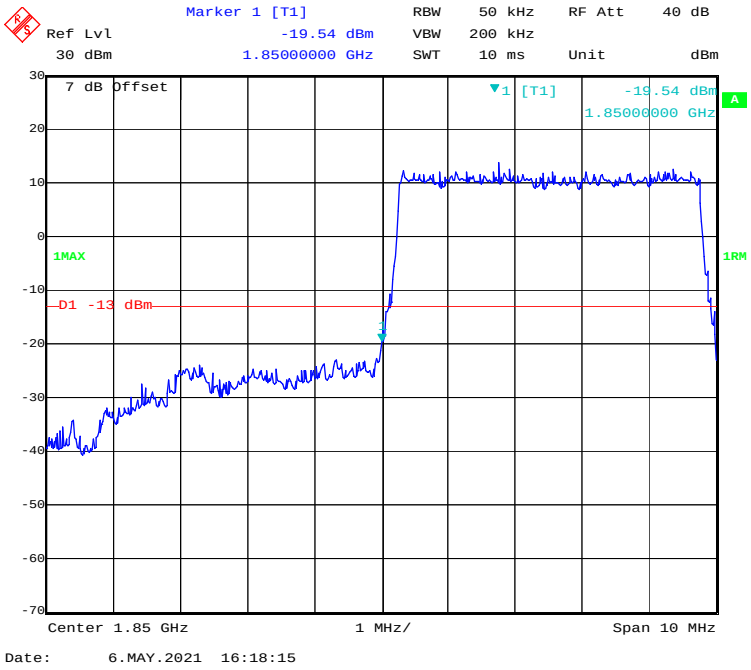
16-QAM (3 MHz, FULL RB) - Left Band Edge



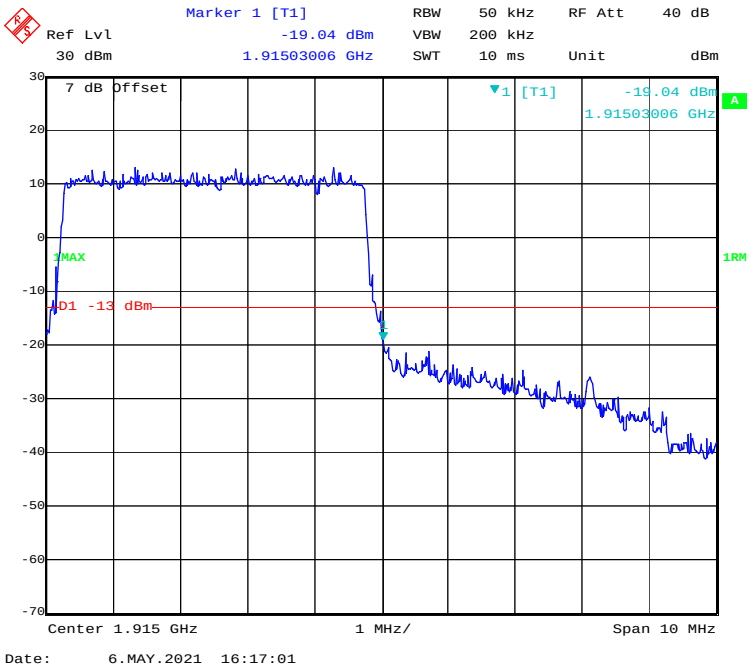
16-QAM (3 MHz, FULL RB) - Right Band Edge



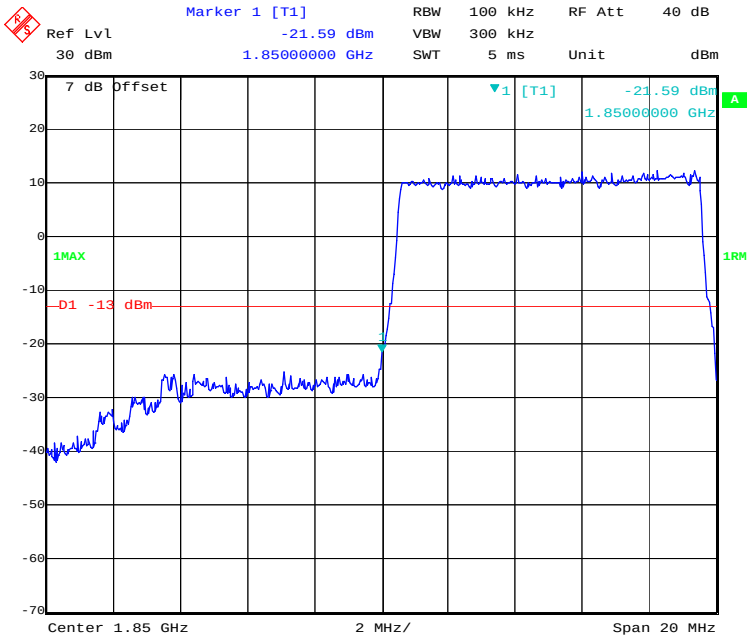
16-QAM (5 MHz, FULL RB) - Left Band Edge



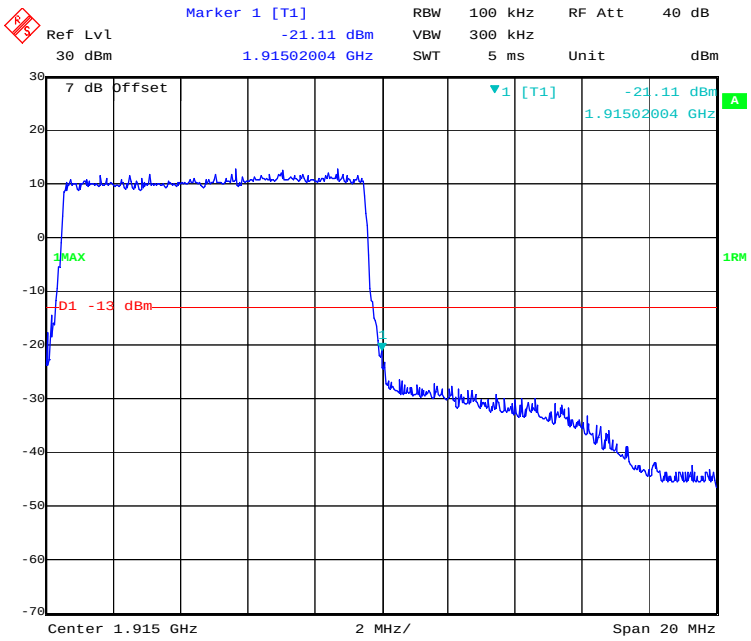
16-QAM (5 MHz, FULL RB) - Right Band Edge



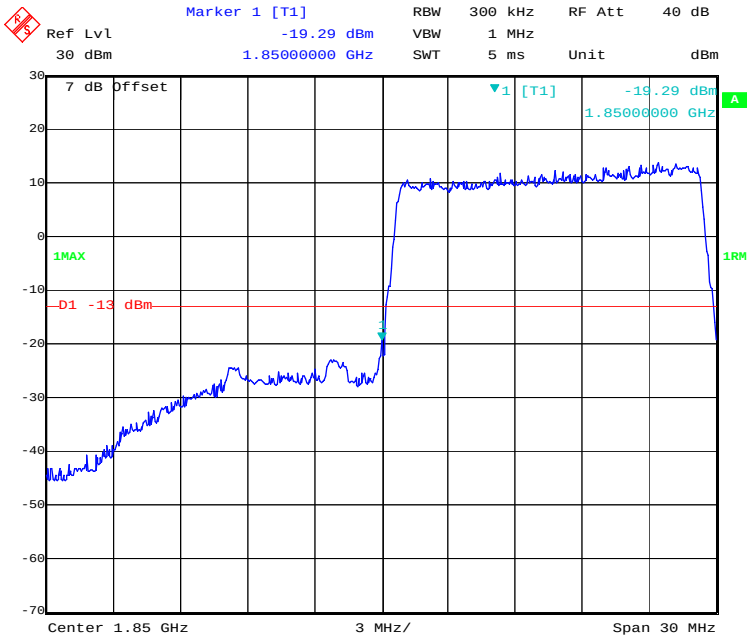
16-QAM (10 MHz, FULL RB) - Left Band Edge



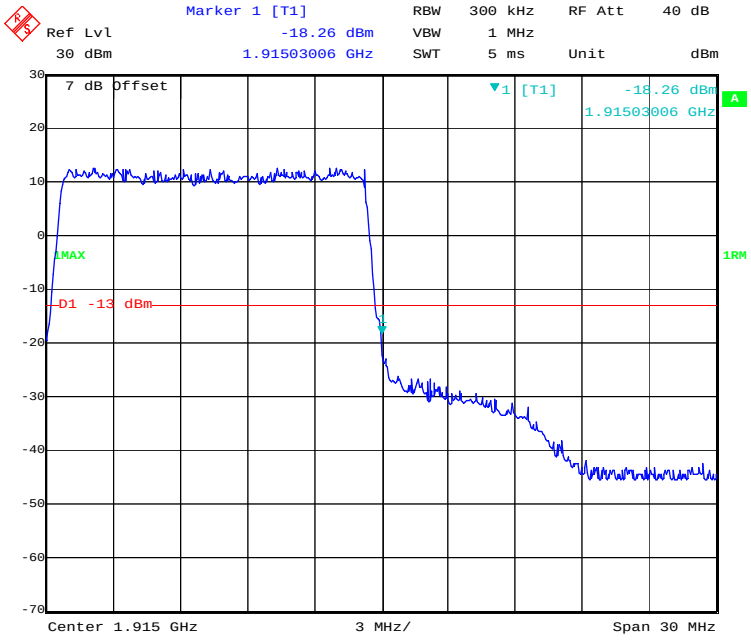
16-QAM (10 MHz, FULL RB) - Right Band Edge



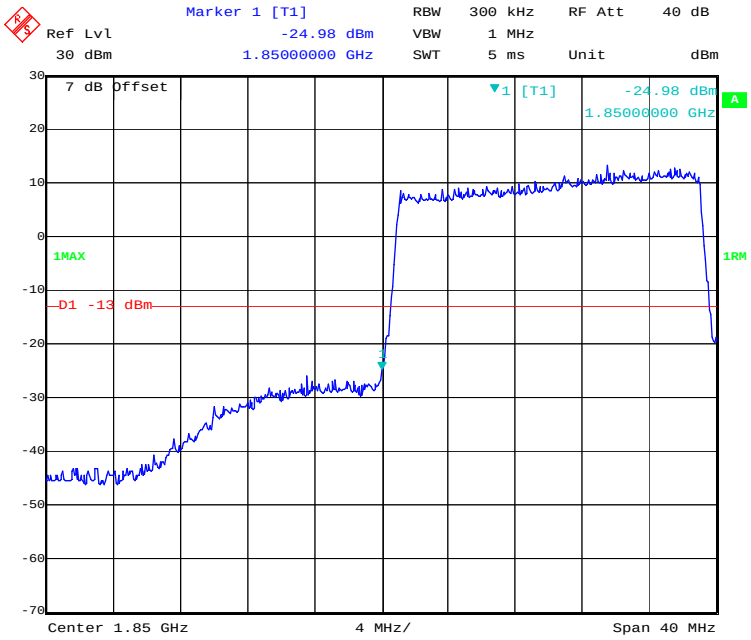
16-QAM (15 MHz, FULL RB) - Left Band Edge



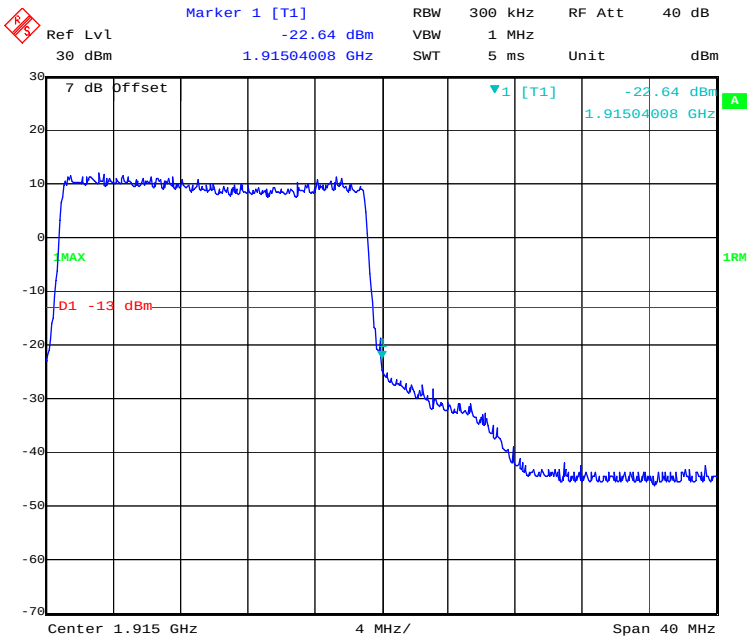
16-QAM (15 MHz, FULL RB) - Right Band Edge



16-QAM (20 MHz, FULL RB) - Left Band Edge

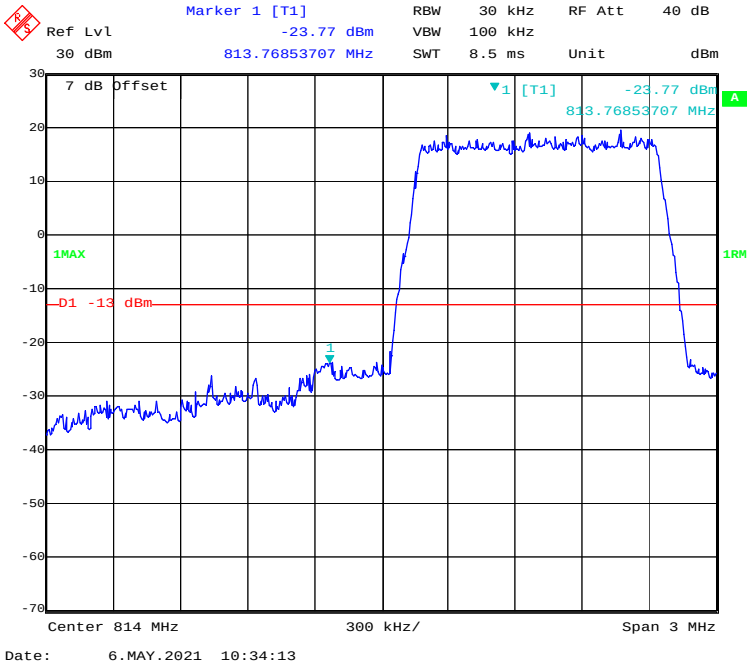


16-QAM (20 MHz, FULL RB) - Right Band Edge

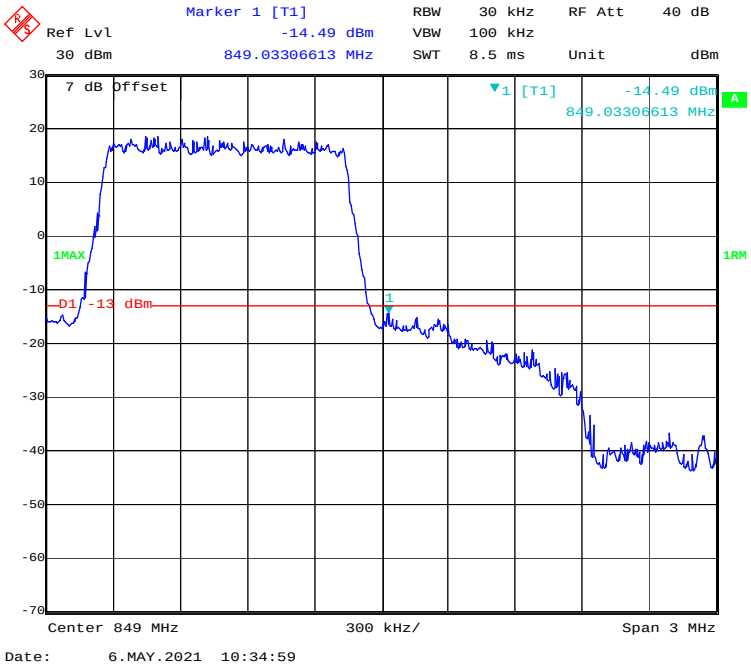


LTE Band 26:

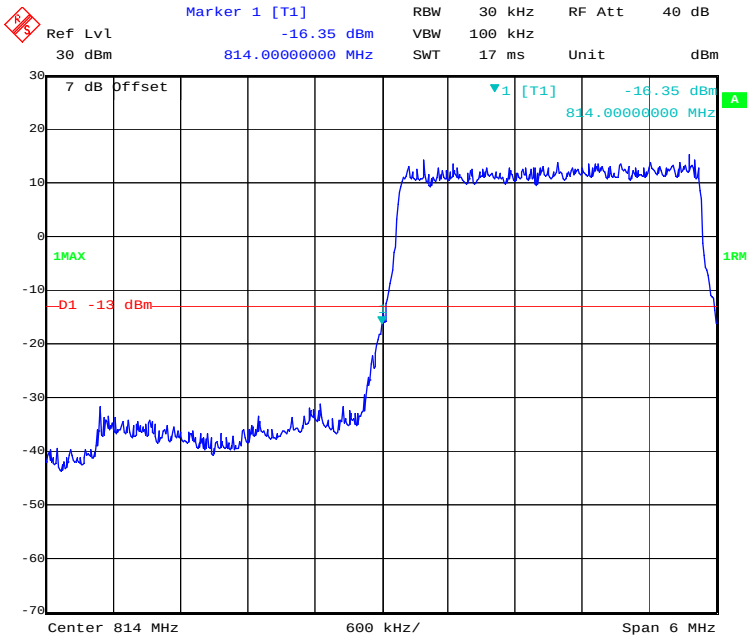
QPSK (1.4 MHz, FULL RB) - Left Band Edge



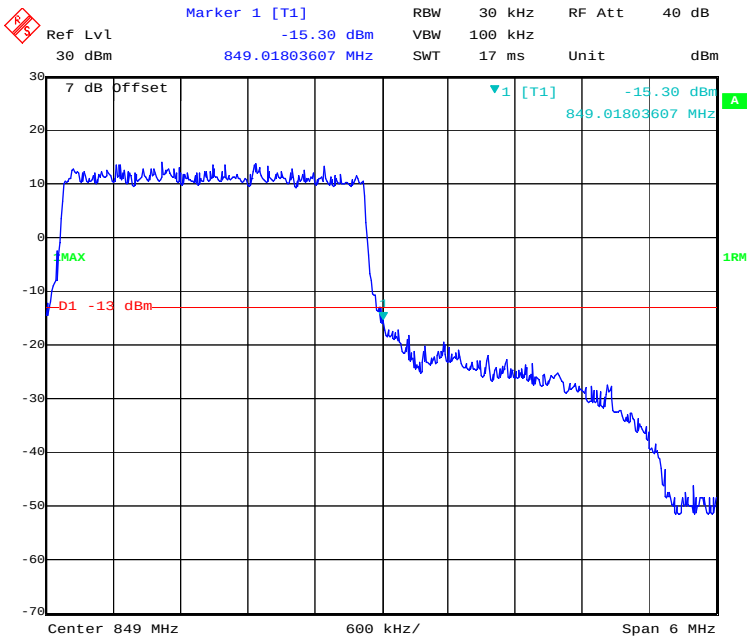
QPSK (1.4 MHz, FULL RB) - Right Band Edge



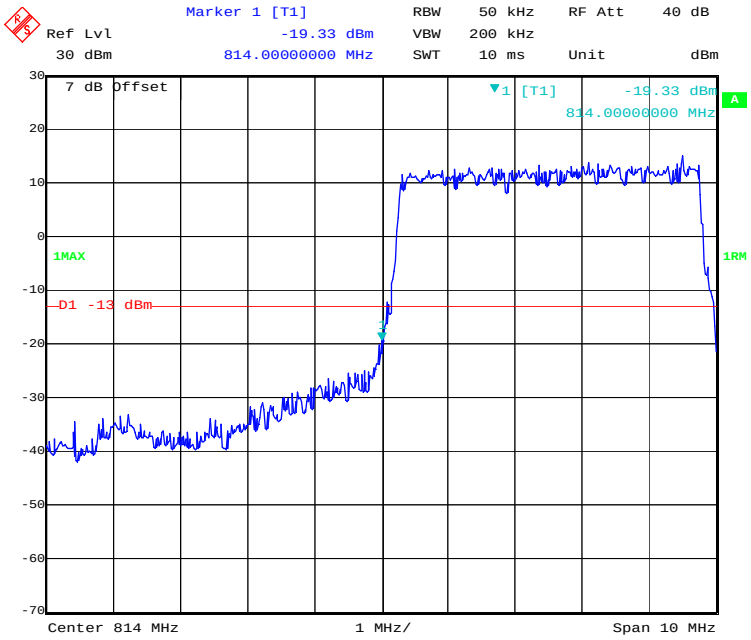
QPSK (3 MHz, FULL RB) - Left Band Edge



QPSK (3 MHz, FULL RB) - Right Band Edge

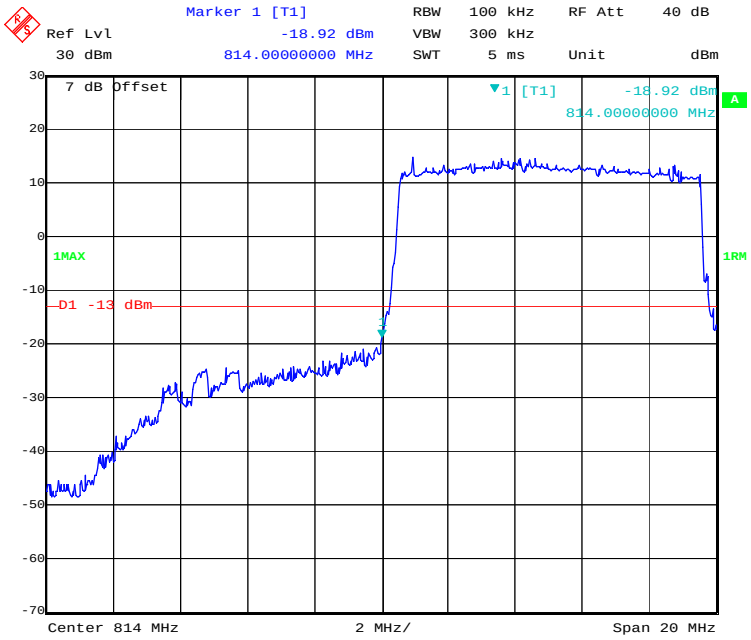


QPSK (5 MHz, FULL RB) - Left Band Edge

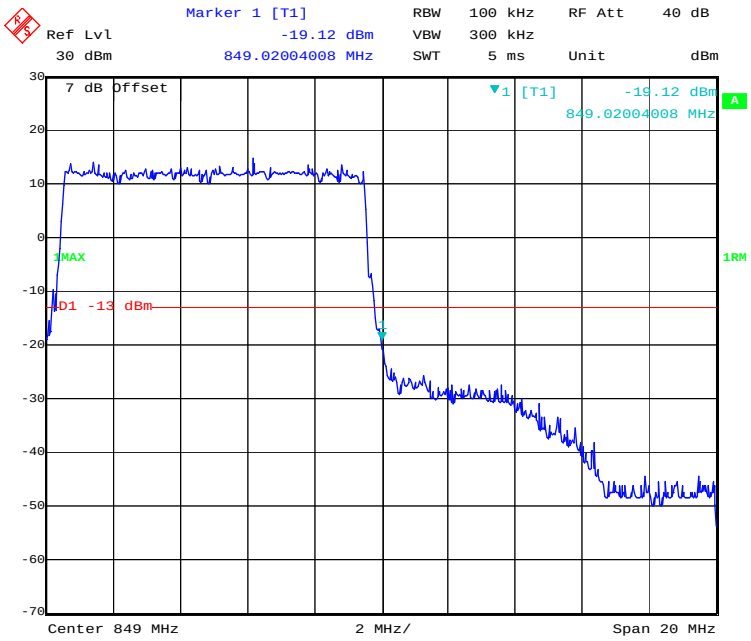


QPSK (5 MHz, FULL RB) - Right Band Edge

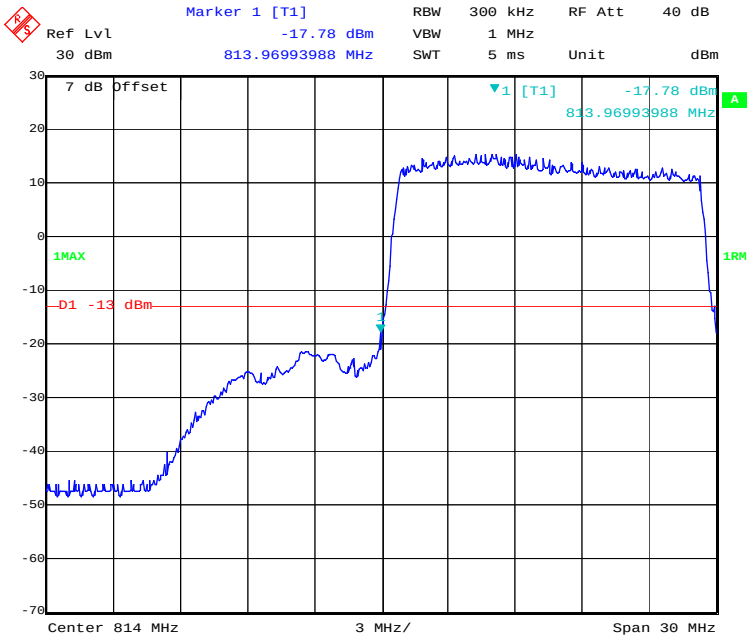
QPSK (10 MHz, FULL RB) - Left Band Edge



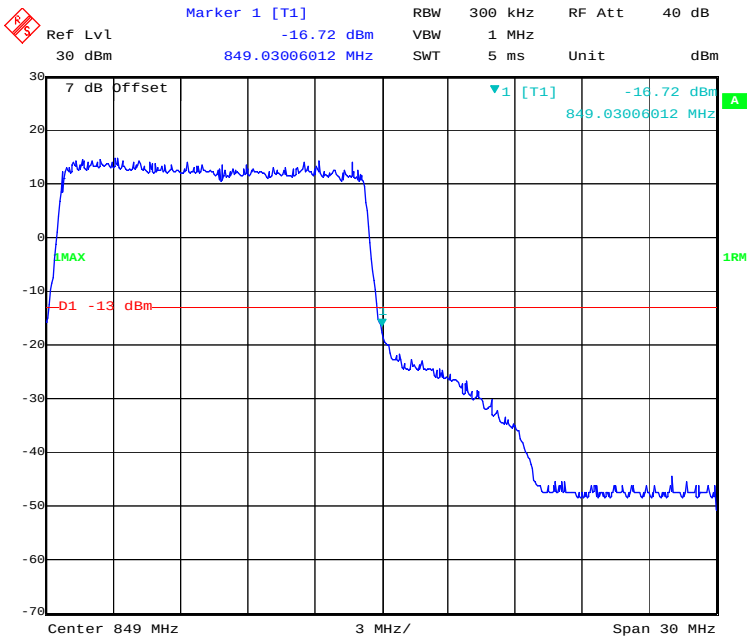
QPSK (10 MHz, FULL RB) - Right Band Edge



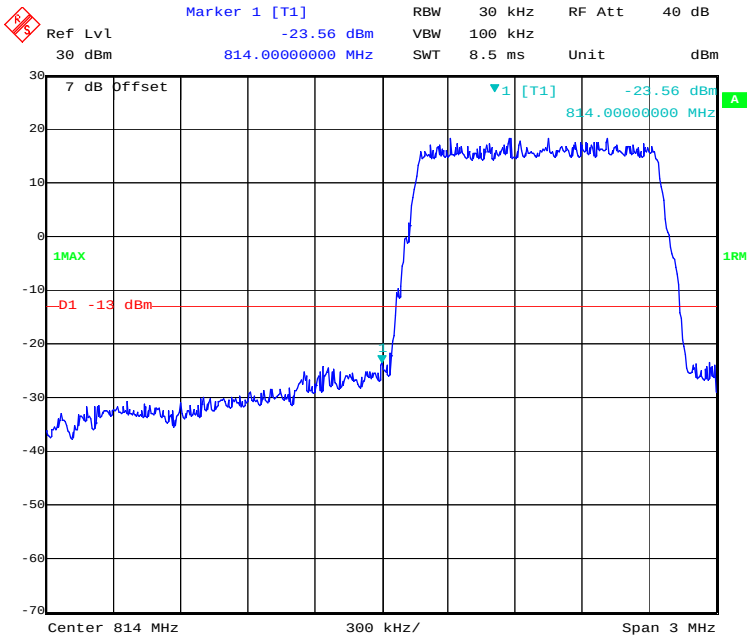
QPSK (15 MHz, FULL RB) - Left Band Edge



QPSK (15 MHz, FULL RB) - Right Band Edge

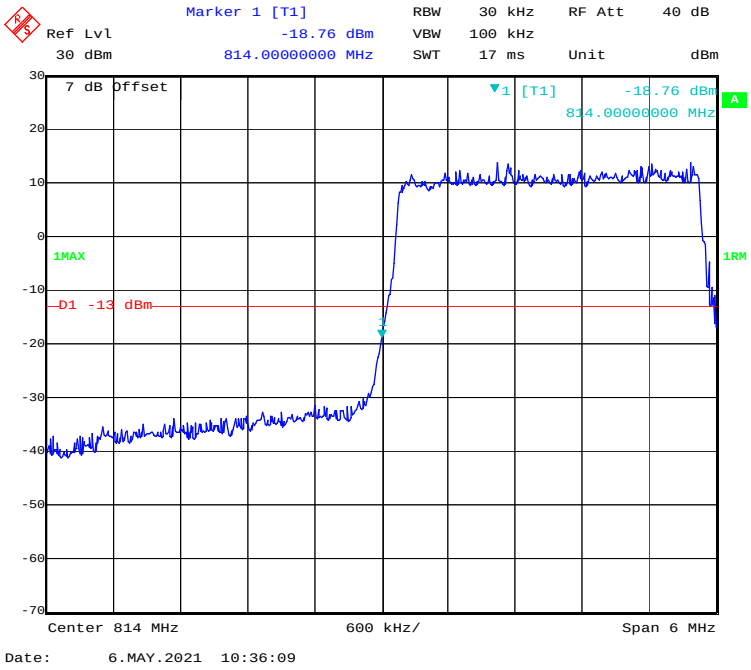


16-QAM (1.4 MHz, FULL RB) - Left Band Edge

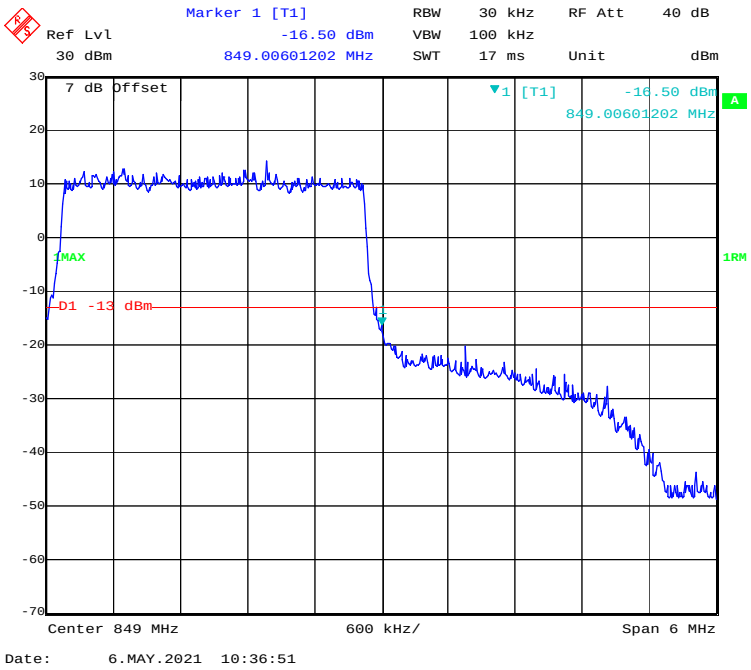


16-QAM (1.4 MHz, FULL RB) - Right Band Edge

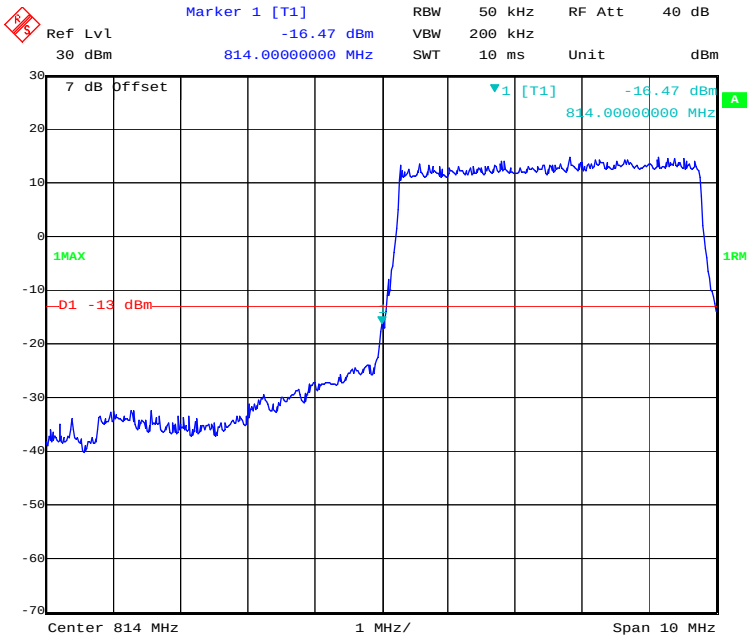
16-QAM (3 MHz, FULL RB) - Left Band Edge



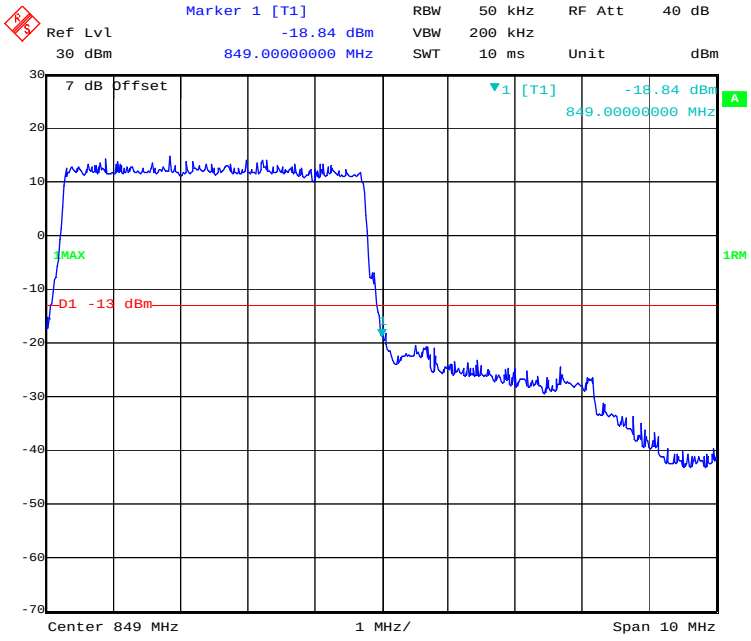
16-QAM (3 MHz, FULL RB) - Right Band Edge



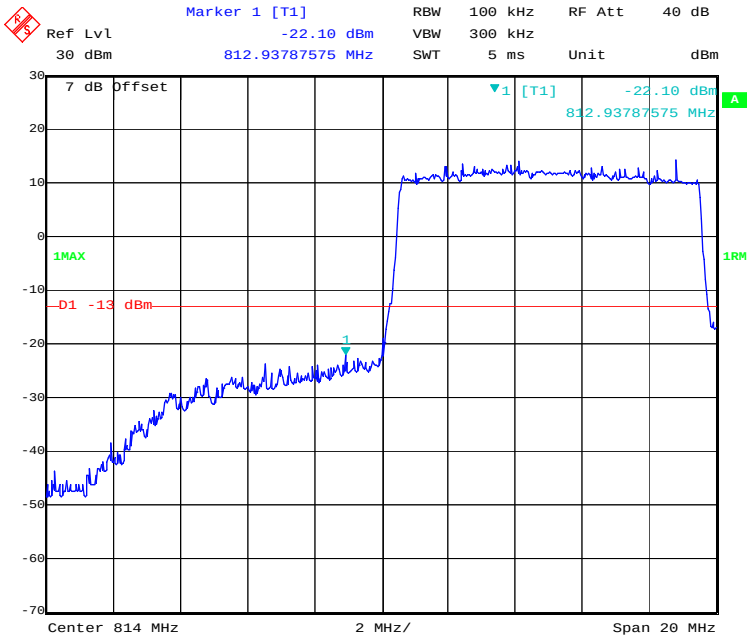
16-QAM (5 MHz, FULL RB) - Left Band Edge



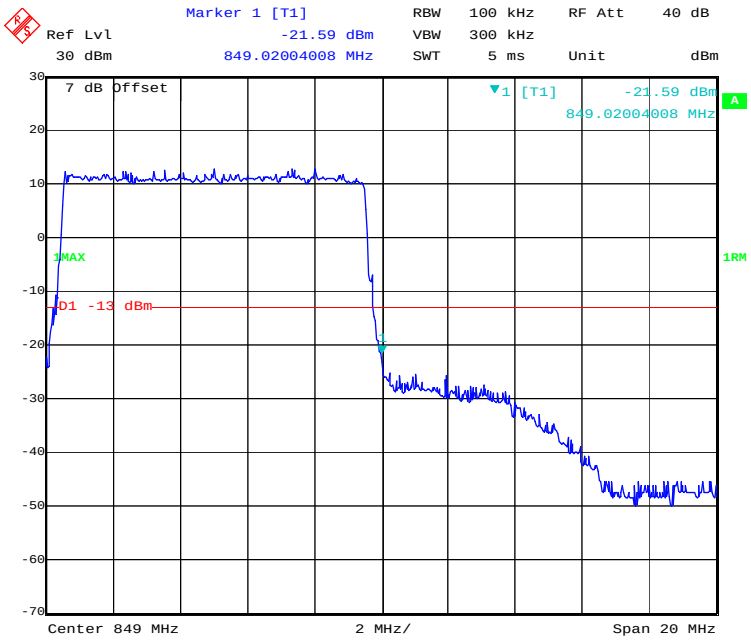
16-QAM (5 MHz, FULL RB) - Right Band Edge



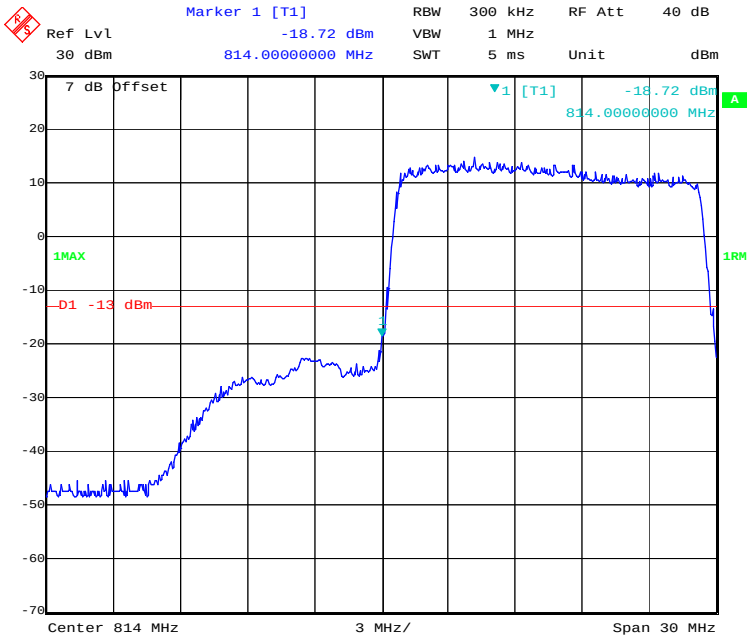
16-QAM (10 MHz, FULL RB) - Left Band Edge



16-QAM (10 MHz, FULL RB) - Right Band Edge

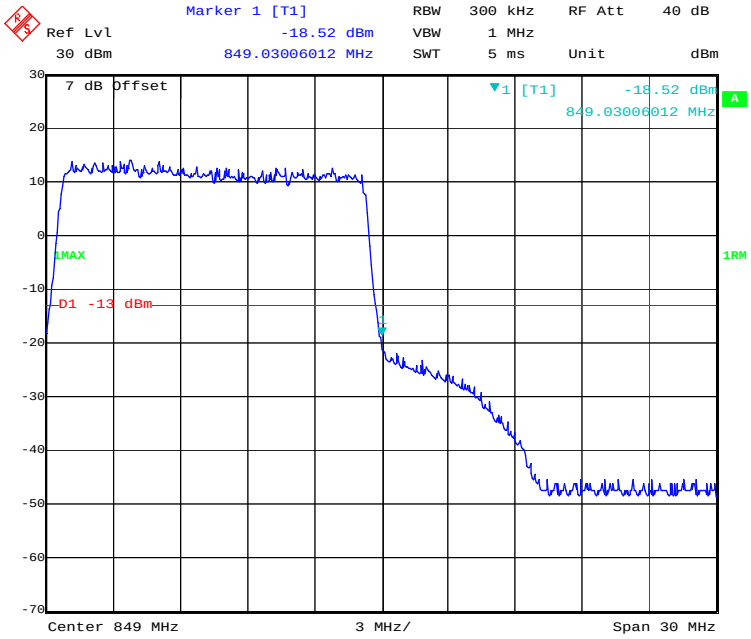


16-QAM (15 MHz, FULL RB) - Left Band Edge



Date: 6.MAY.2021 10:40:28

16-QAM (15 MHz, FULL RB) - Right Band Edge



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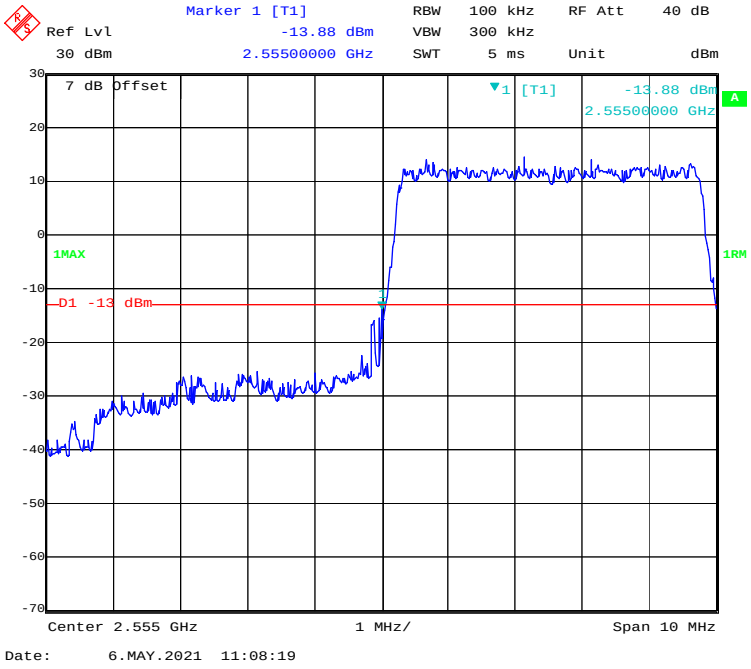
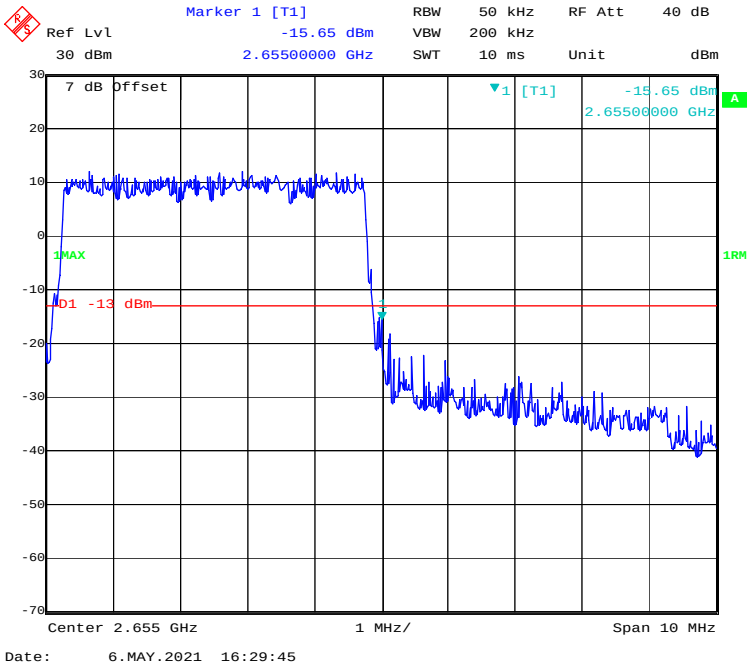
LTE Band 41:

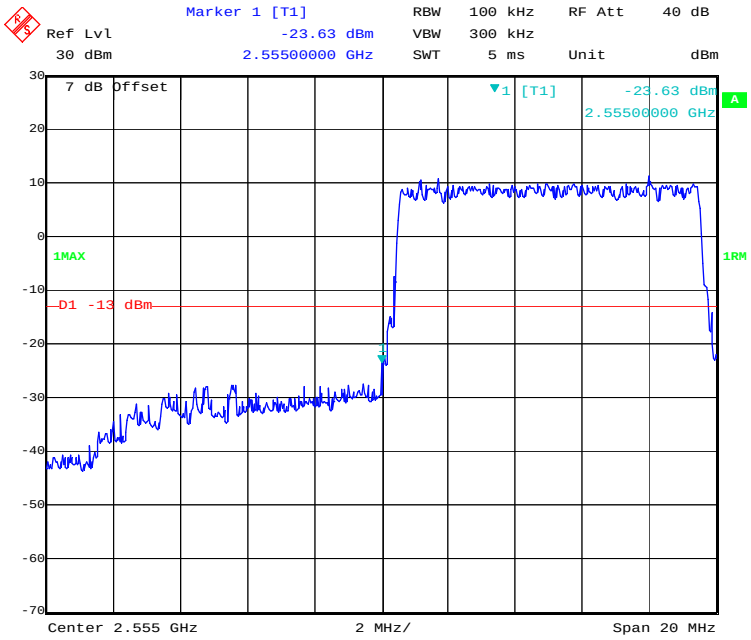
QPSK (5.0 MHz, FULL RB) - Left Band Edge



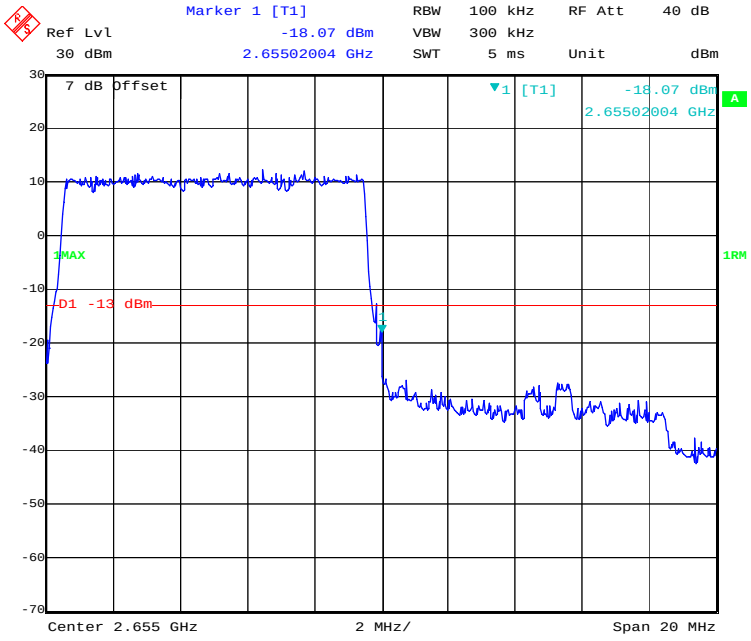
QPSK (5.0 MHz, FULL RB) - Right Band Edge



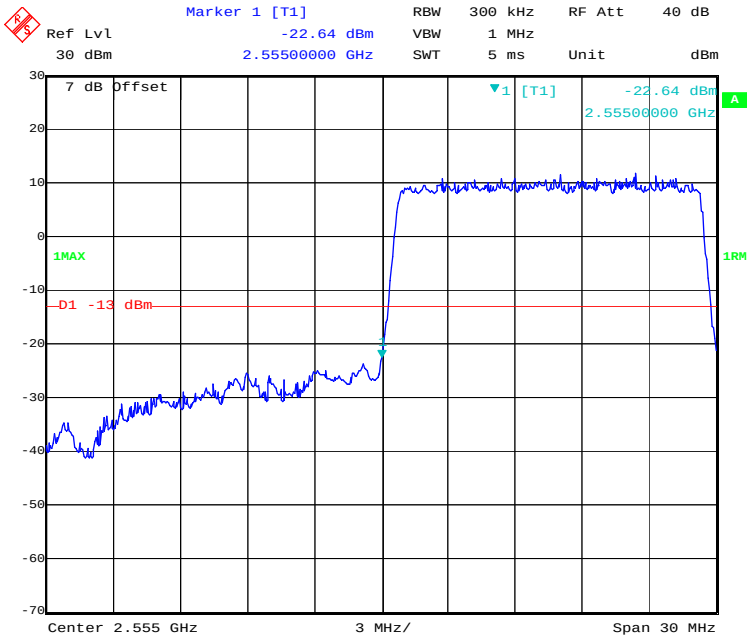
QPSK (10.0 MHz, FULL RB) - Left Band Edge



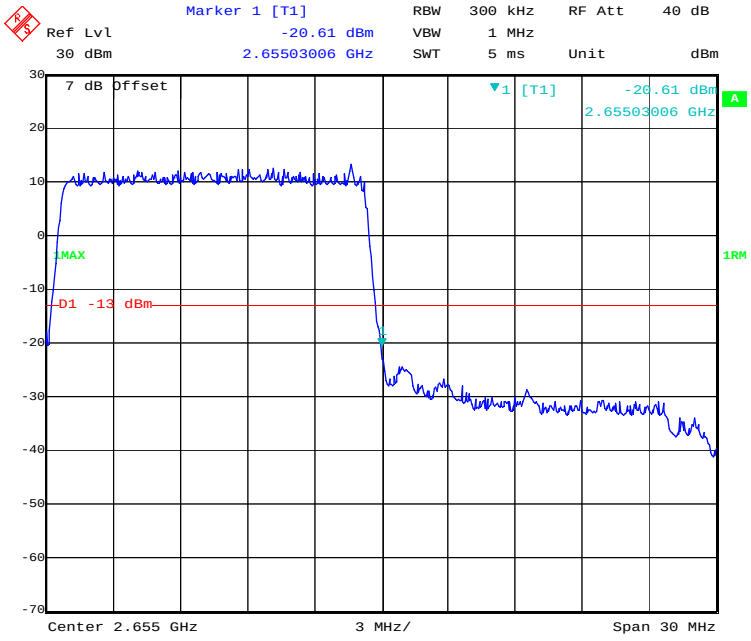
QPSK (10.0 MHz, FULL RB) - Right Band Edge



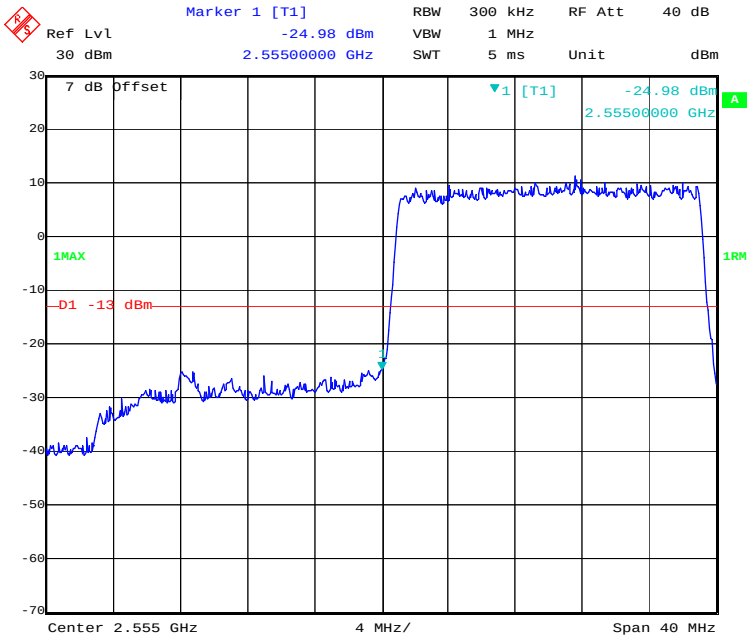
QPSK (15.0 MHz, FULL RB) - Left Band Edge



QPSK (15.0 MHz, FULL RB) - Right Band Edge

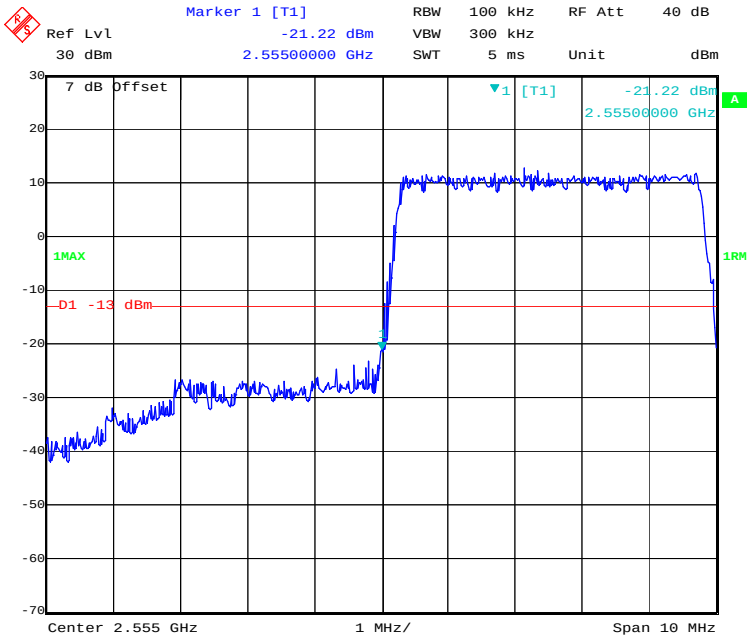


QPSK (20.0 MHz, FULL RB) - Left Band Edge

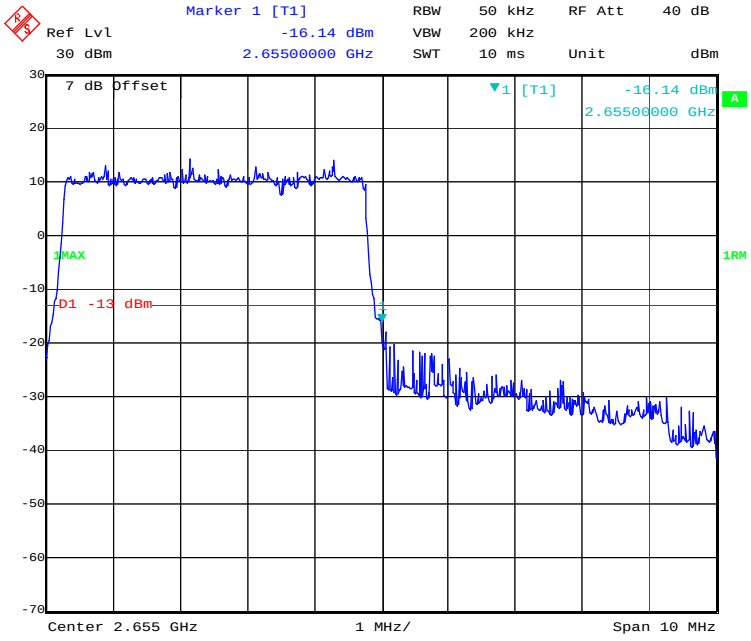


QPSK (20.0 MHz, FULL RB) - Right Band Edge

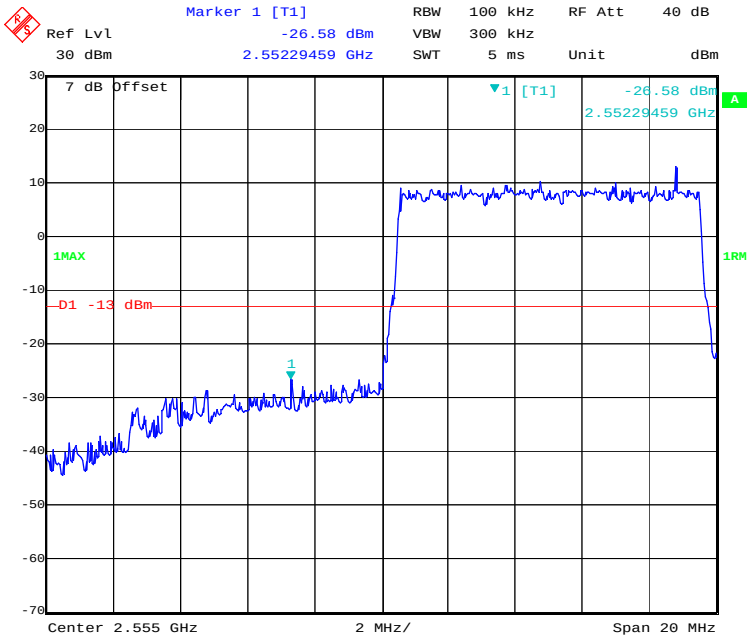
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



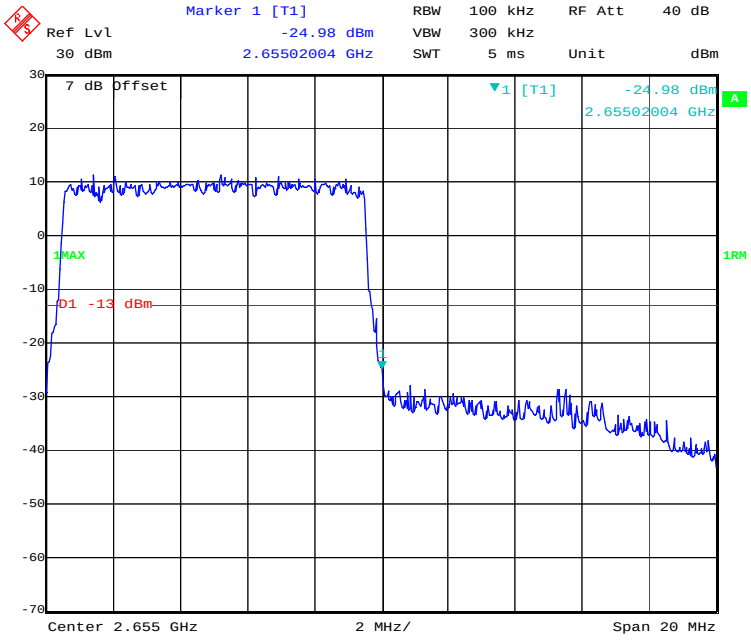
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



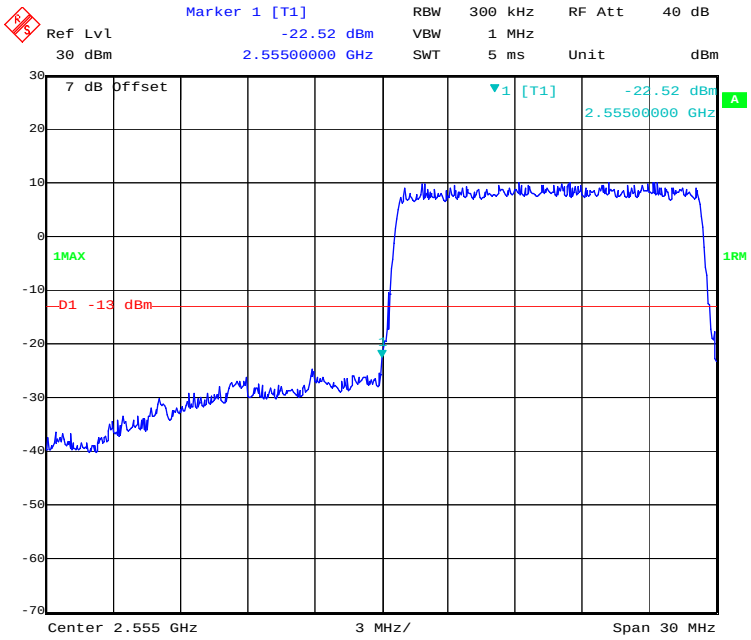
16-QAM (10.0 MHz, FULL RB) - Left Band Edge



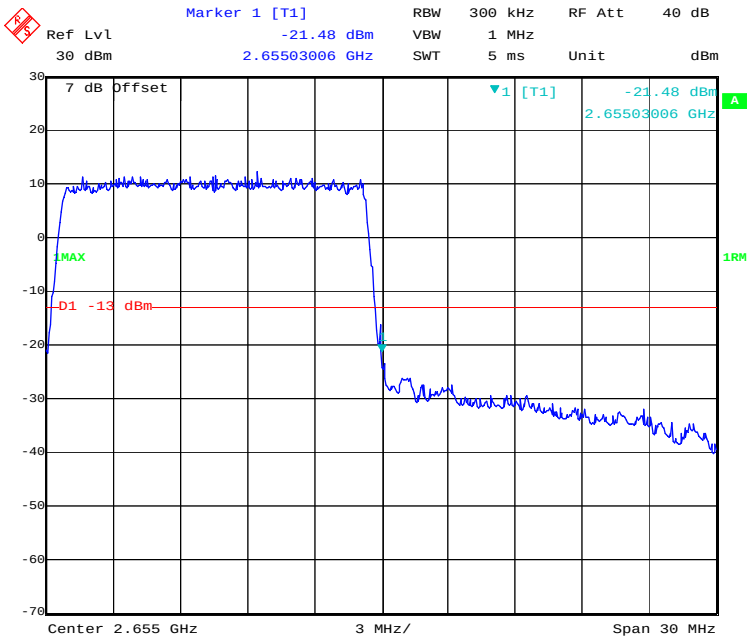
16-QAM (10.0 MHz, FULL RB) - Right Band Edge



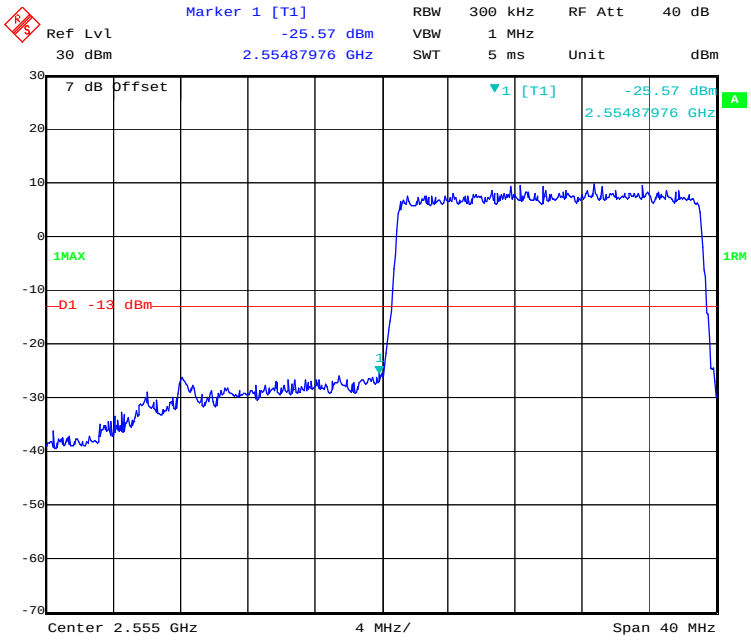
16-QAM (15.0 MHz, FULL RB) - Left Band Edge



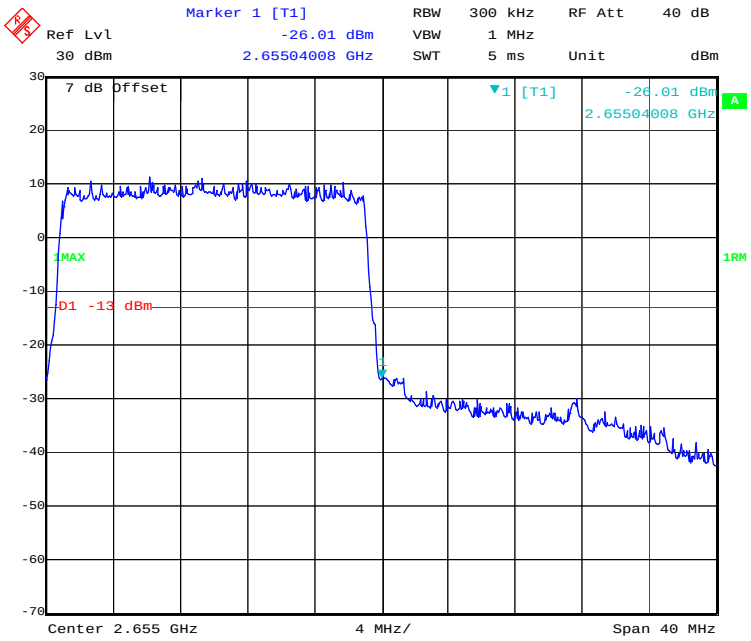
16-QAM (15.0 MHz, FULL RB) - Right Band Edge



16-QAM (20.0 MHz, FULL RB) - Left Band Edge

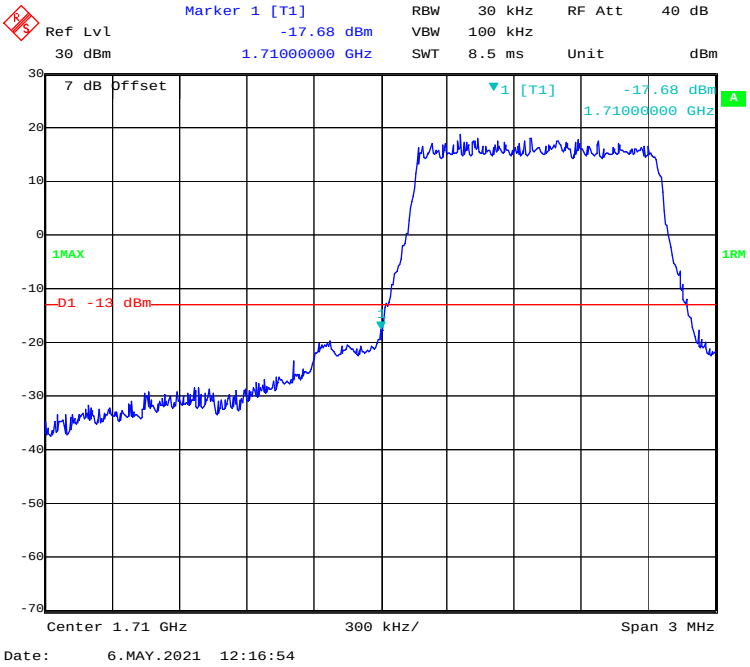


16-QAM (20.0 MHz, FULL RB) - Right Band Edge

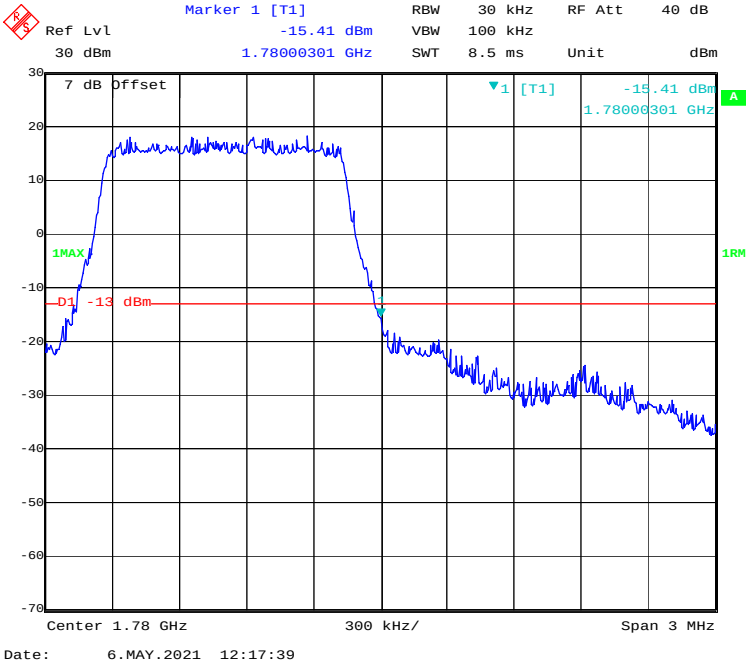


LTE Band 66:

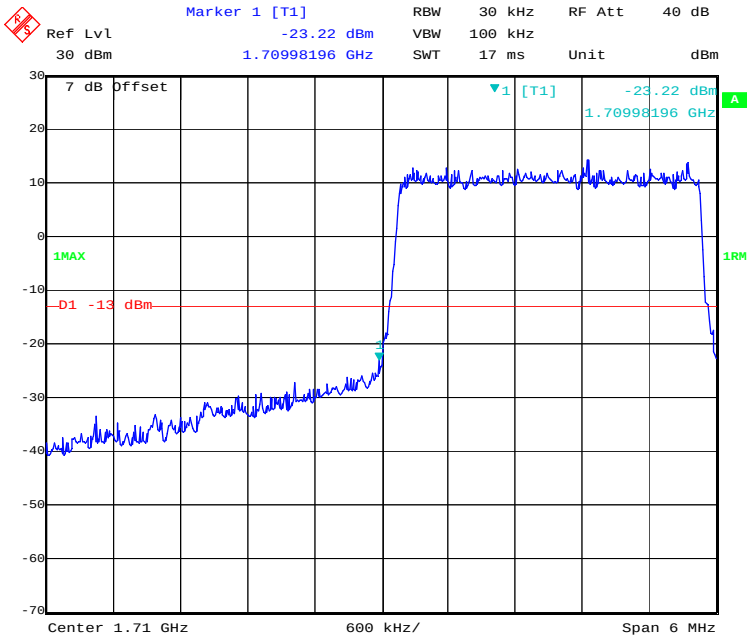
QPSK (1.4 MHz, FULL RB) - Left Band Edge



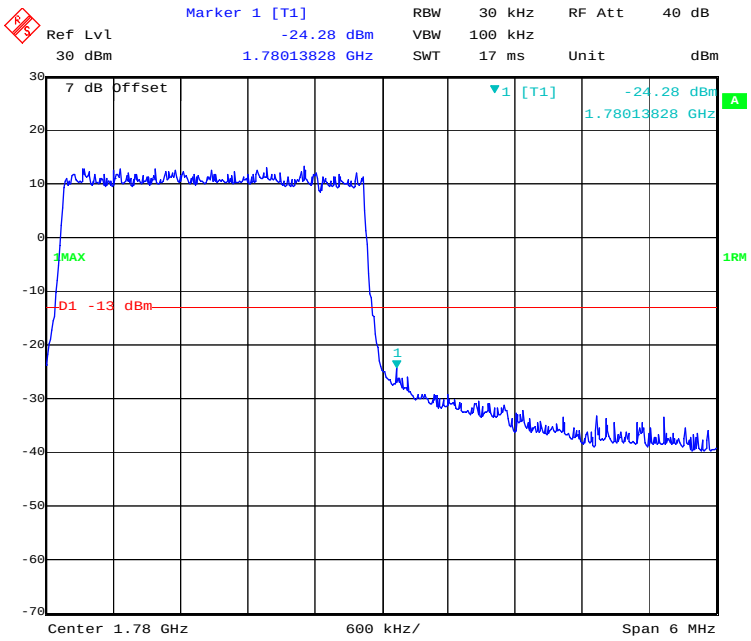
QPSK (1.4 MHz, FULL RB) - Right Band Edge



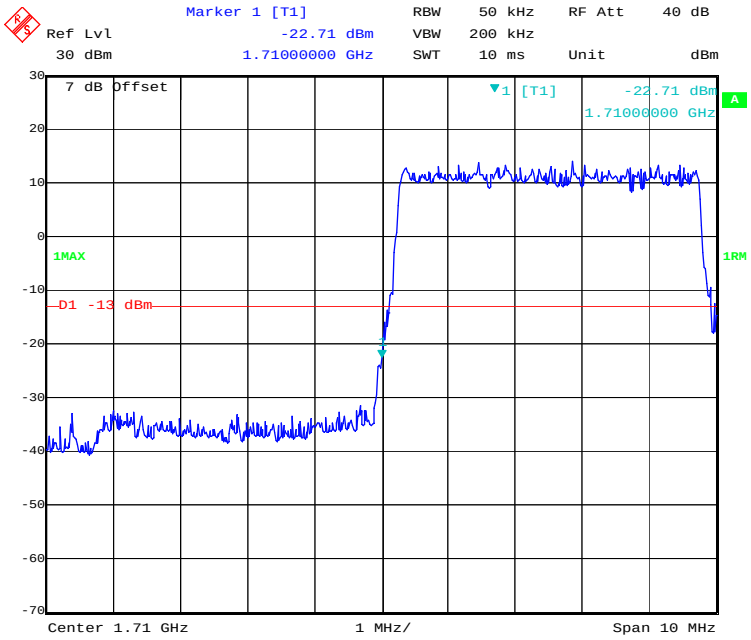
QPSK (3 MHz, FULL RB) - Left Band Edge



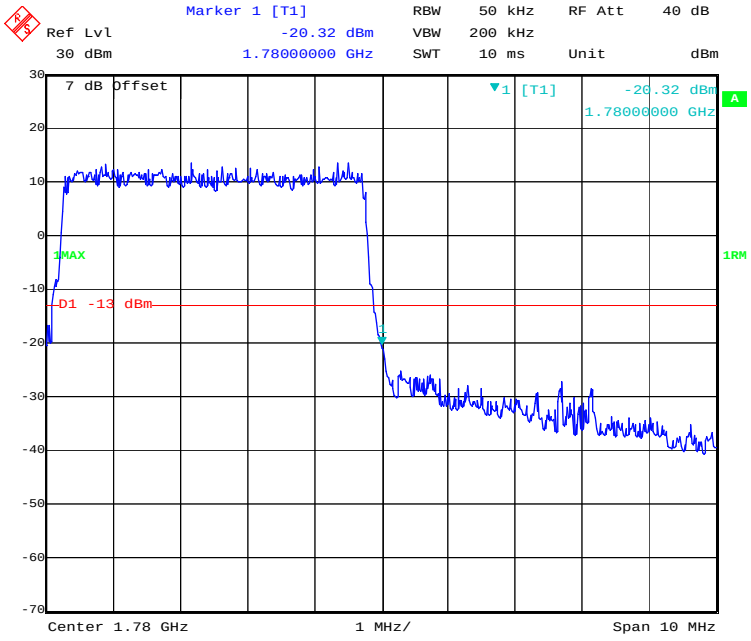
QPSK (3 MHz, FULL RB) - Right Band Edge



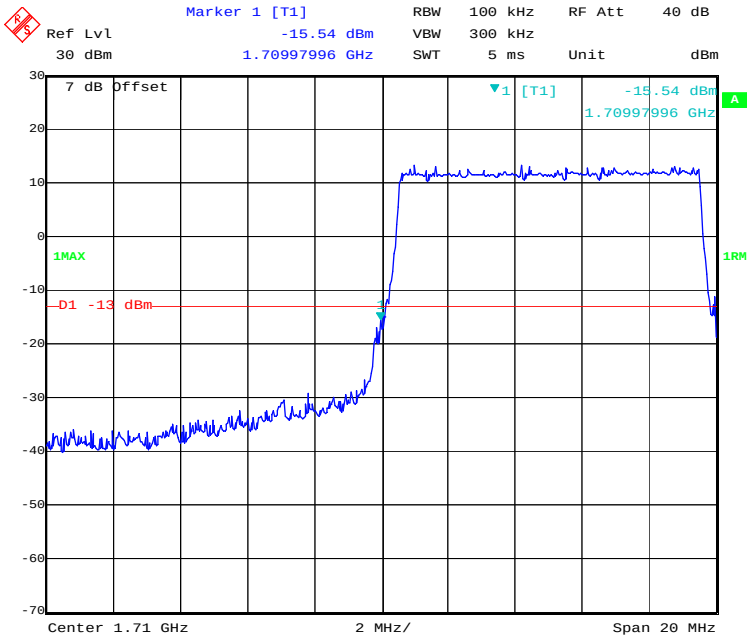
QPSK (5 MHz, FULL RB) - Left Band Edge



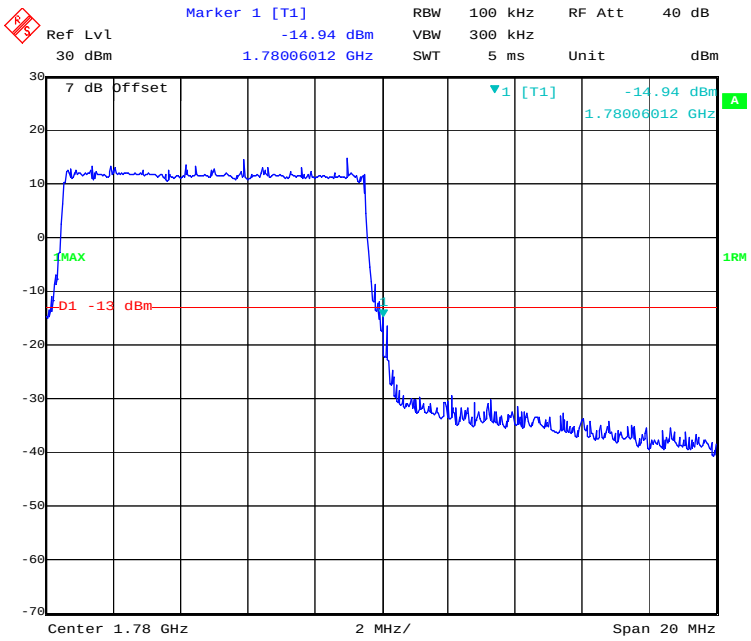
QPSK (5 MHz, FULL RB) - Right Band Edge



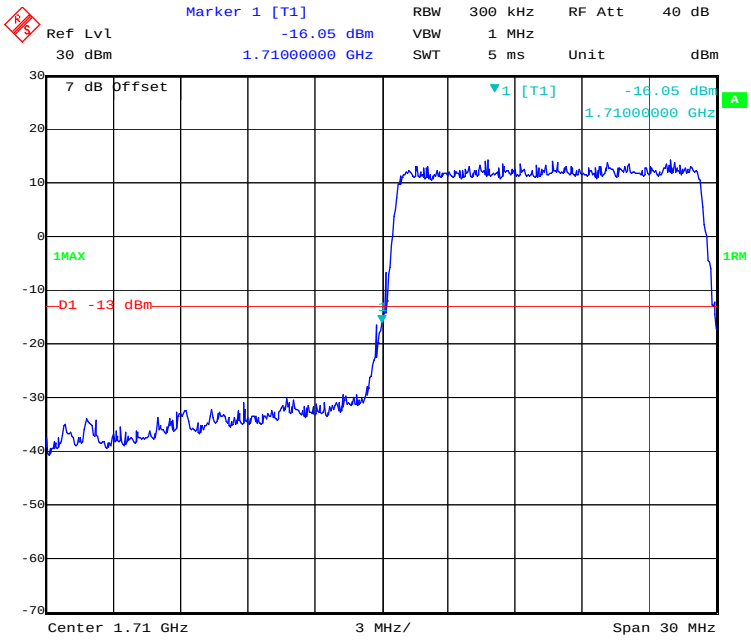
QPSK (10 MHz, FULL RB) - Left Band Edge



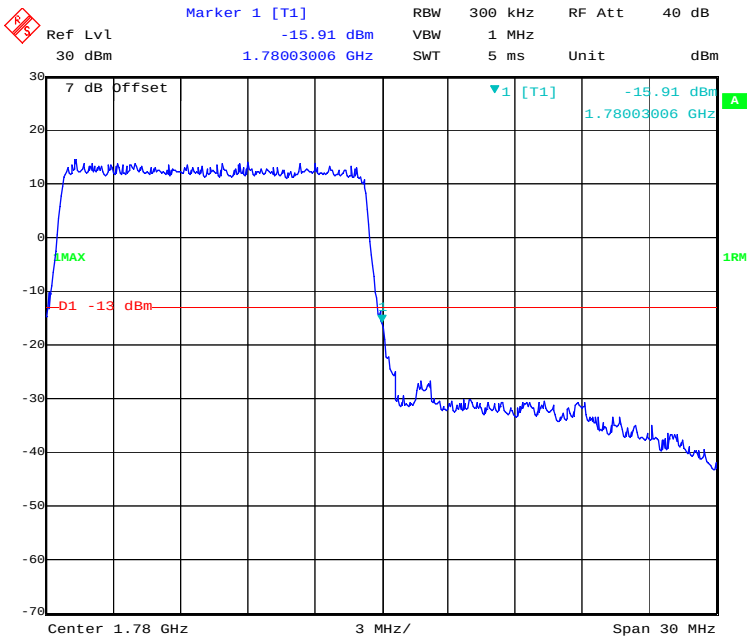
QPSK (10 MHz, FULL RB) - Right Band Edge



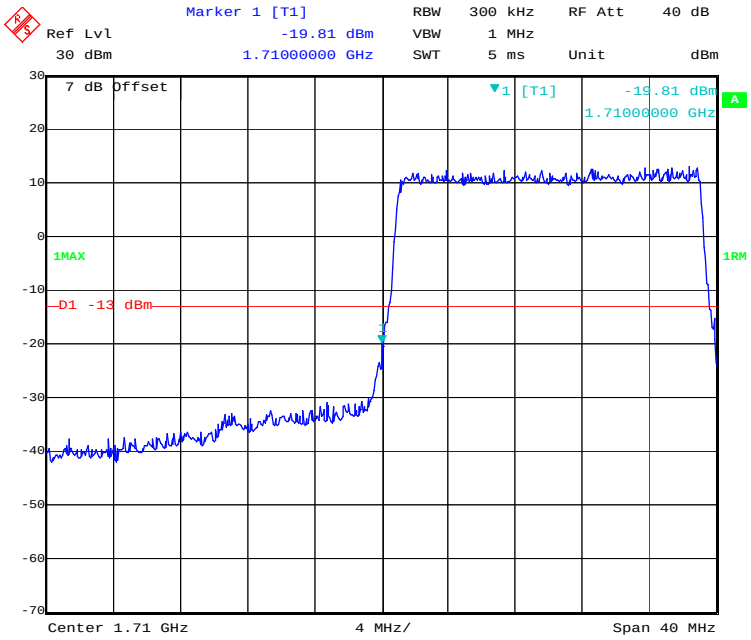
QPSK (15 MHz, FULL RB) - Left Band Edge



QPSK (15 MHz, FULL RB) - Right Band Edge



QPSK (20 MHz, FULL RB) - Left Band Edge

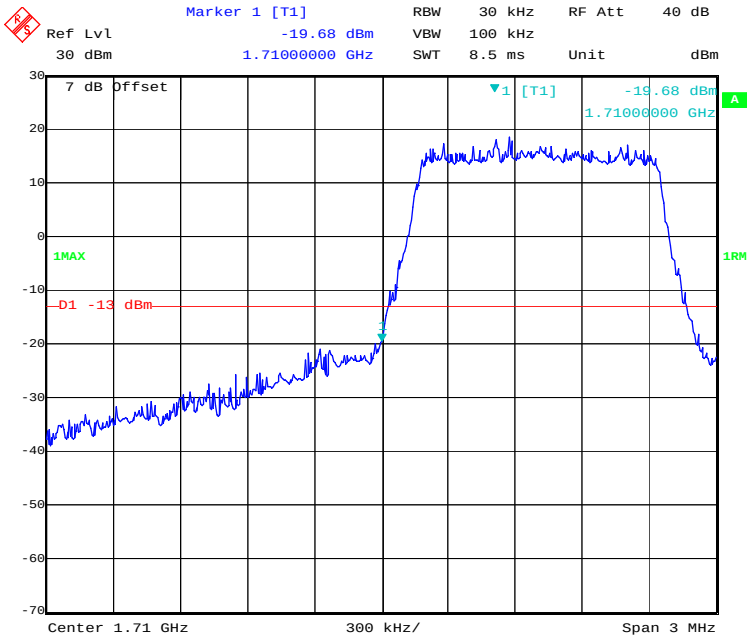


Date: 6.MAY.2021 12:24:23

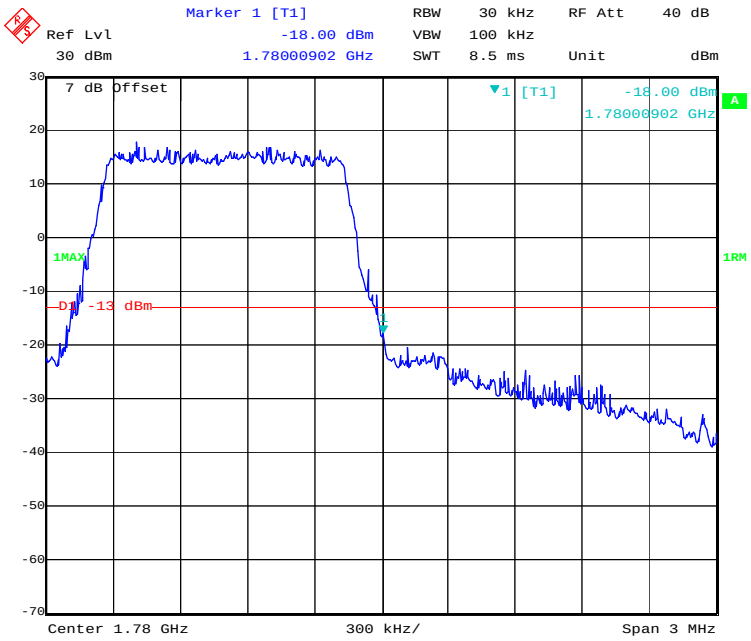
QPSK (20 MHz, FULL RB) - Right Band Edge

Date: 6.MAY.2021 12:25:08

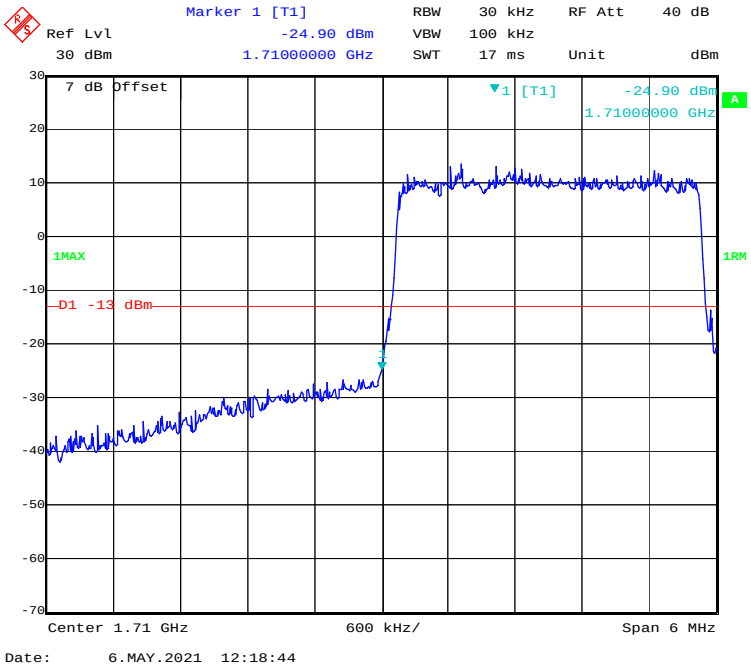
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



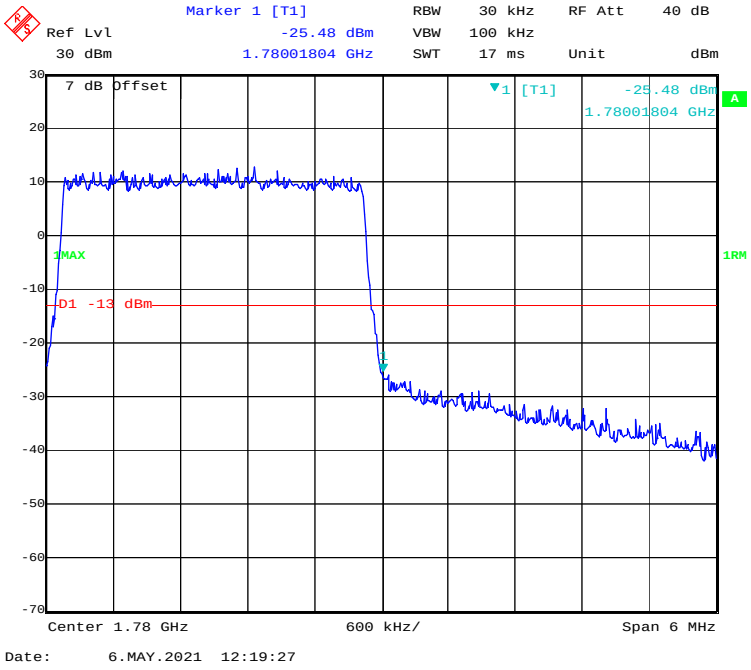
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



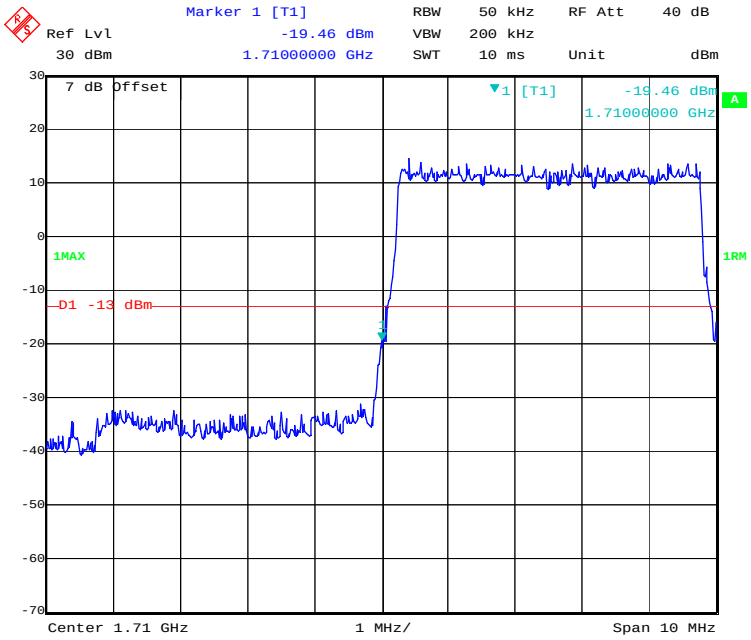
16-QAM (3 MHz, FULL RB) - Left Band Edge



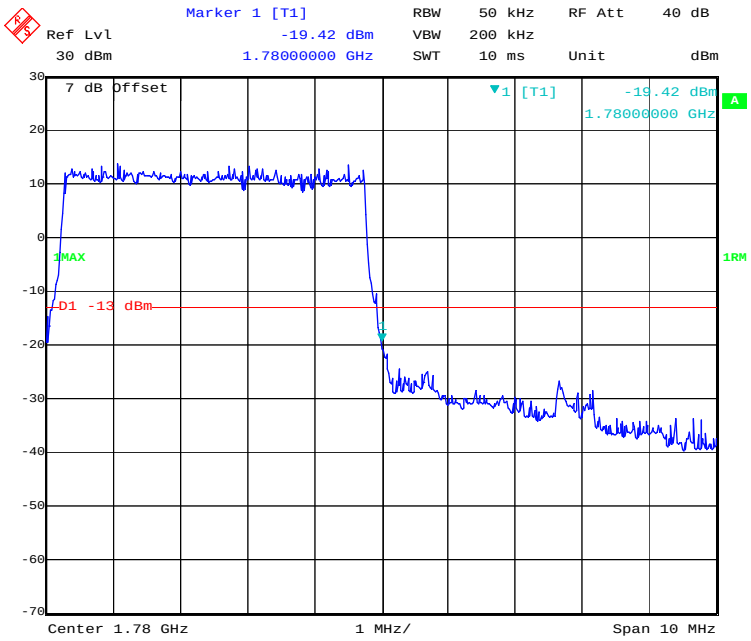
16-QAM (3 MHz, FULL RB) - Right Band Edge



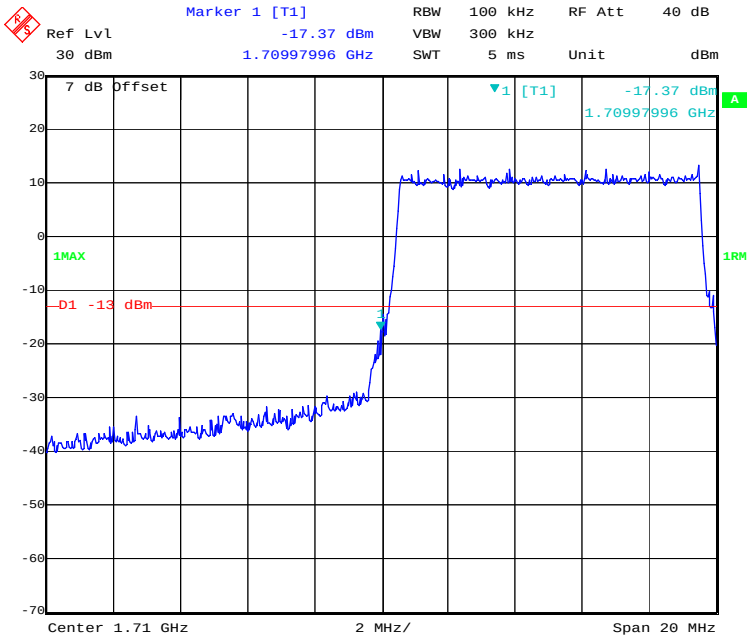
16-QAM (5 MHz, FULL RB) - Left Band Edge



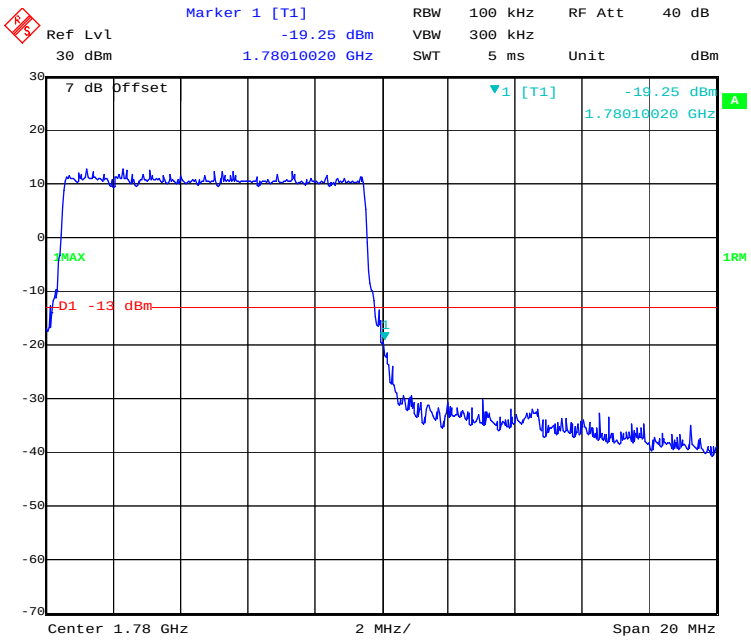
16-QAM (5 MHz, FULL RB) - Right Band Edge



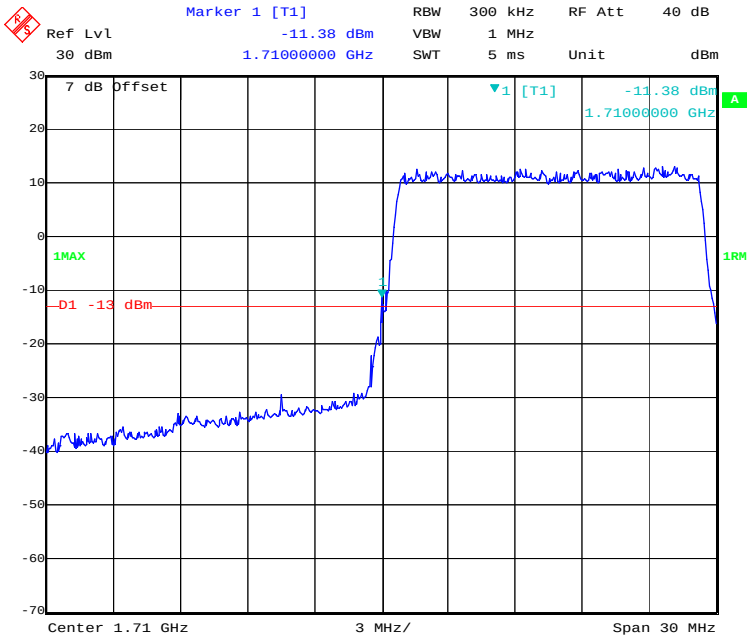
16-QAM (10 MHz, FULL RB) - Left Band Edge



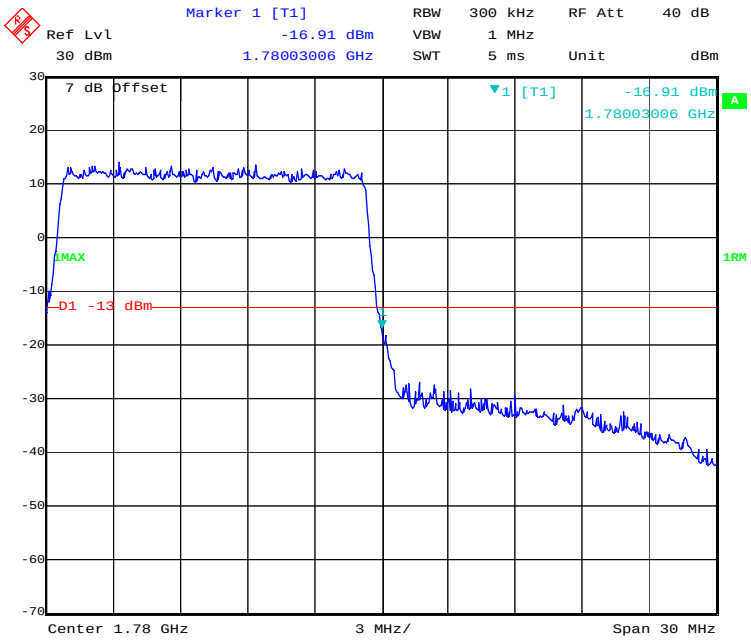
16-QAM (10 MHz, FULL RB) - Right Band Edge



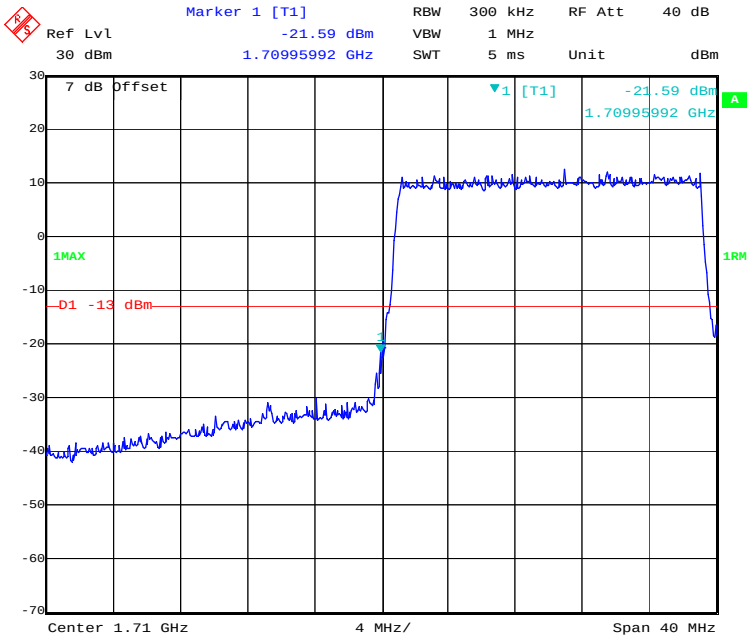
16-QAM (15 MHz, FULL RB) - Left Band Edge



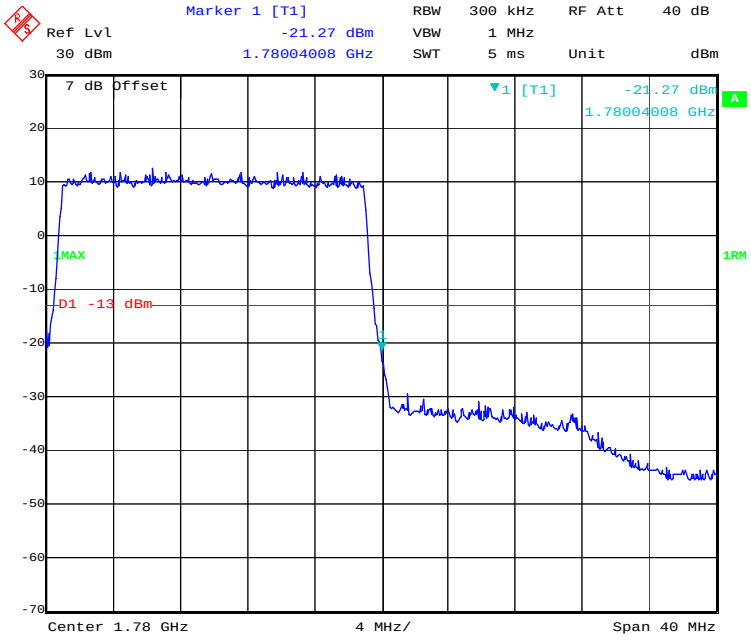
16-QAM (15 MHz, FULL RB) - Right Band Edge



16-QAM (20 MHz, FULL RB) - Left Band Edge

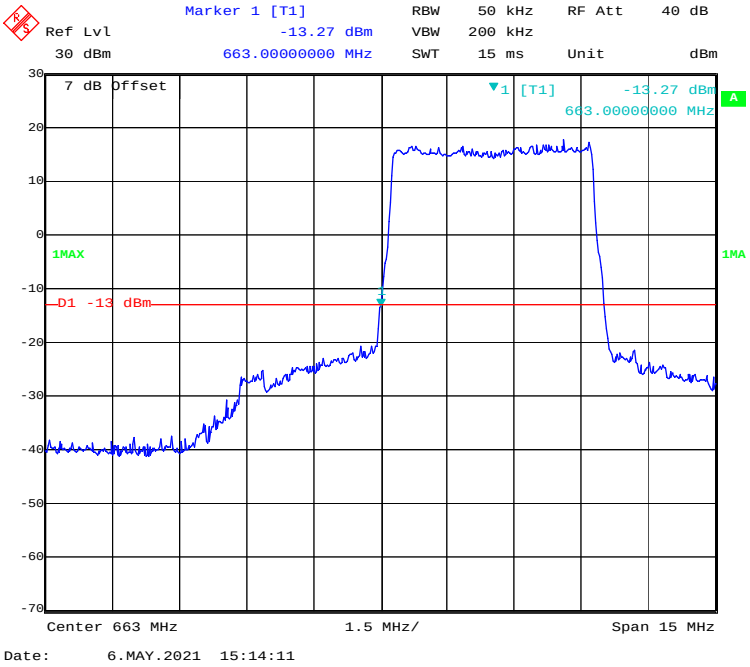


16-QAM (20 MHz, FULL RB) - Right Band Edge

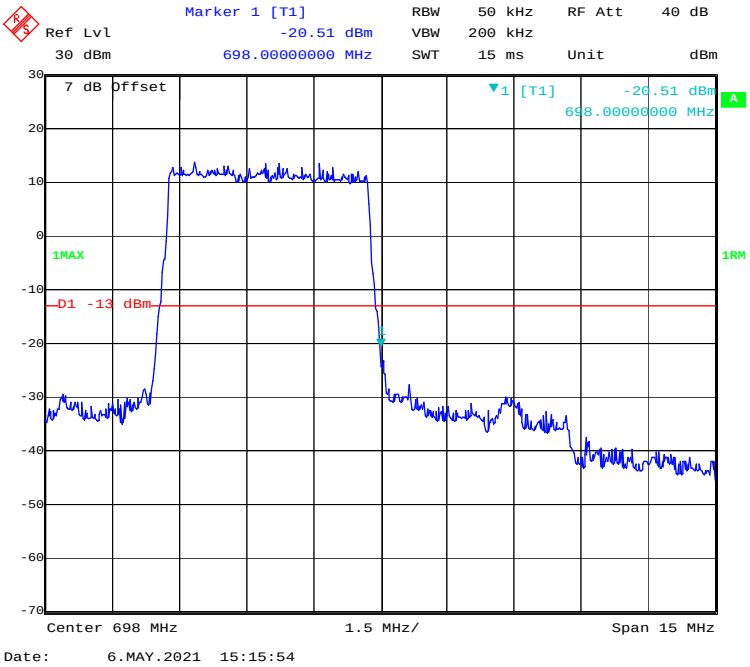


LTE Band 71:

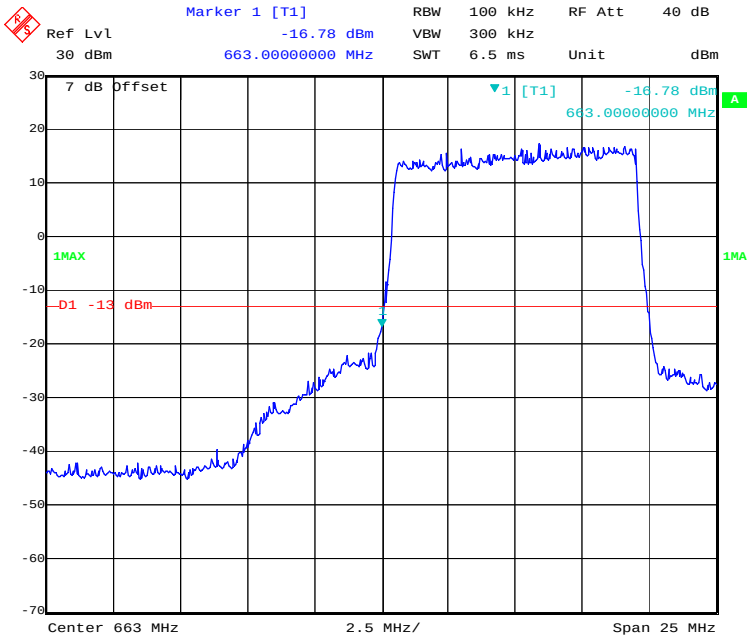
QPSK (5 MHz, FULL RB) - Left Band Edge



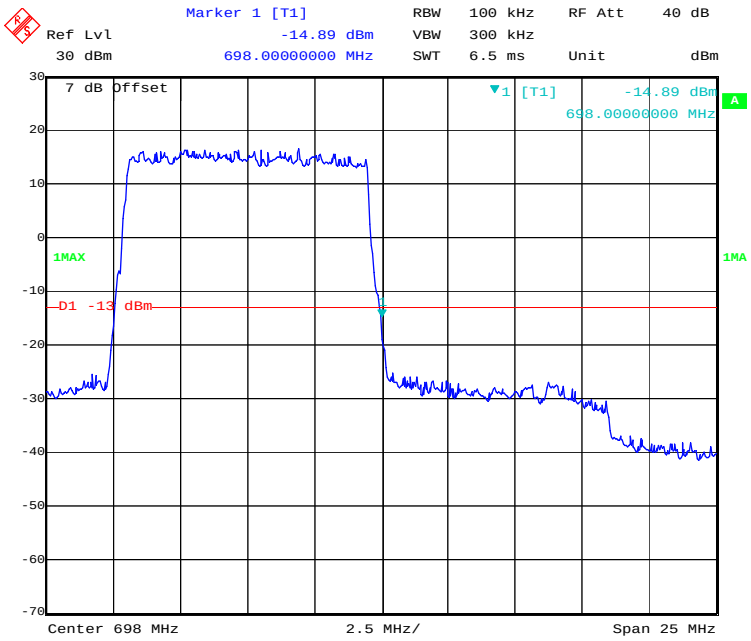
QPSK (5 MHz, FULL RB) - Right Band Edge



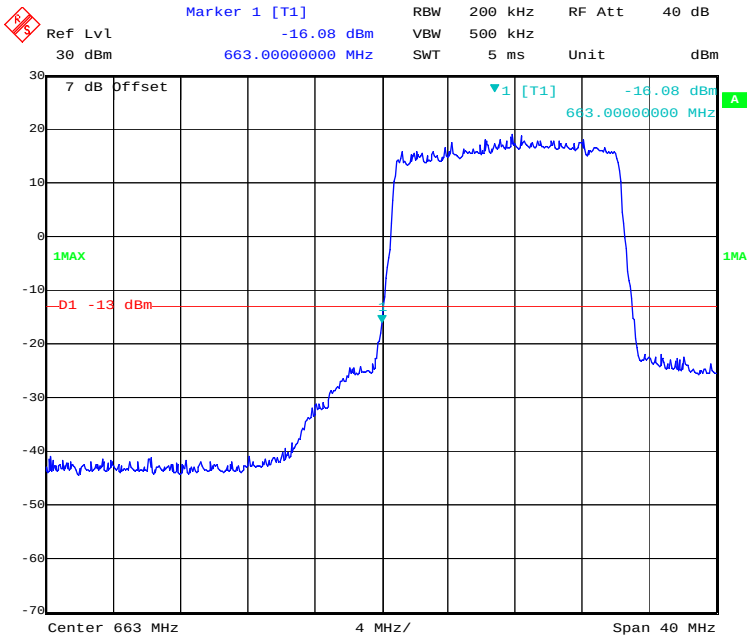
QPSK (10 MHz, FULL RB) - Left Band Edge



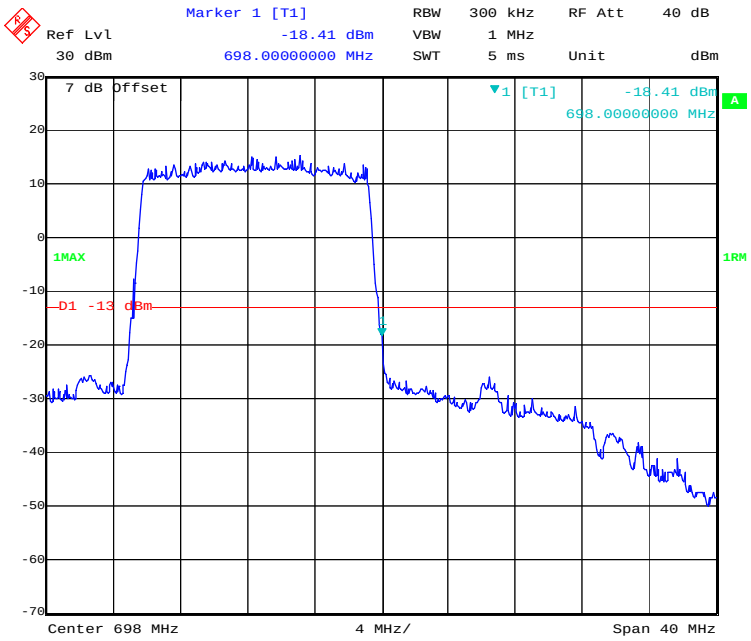
QPSK (10 MHz, FULL RB) - Right Band Edge



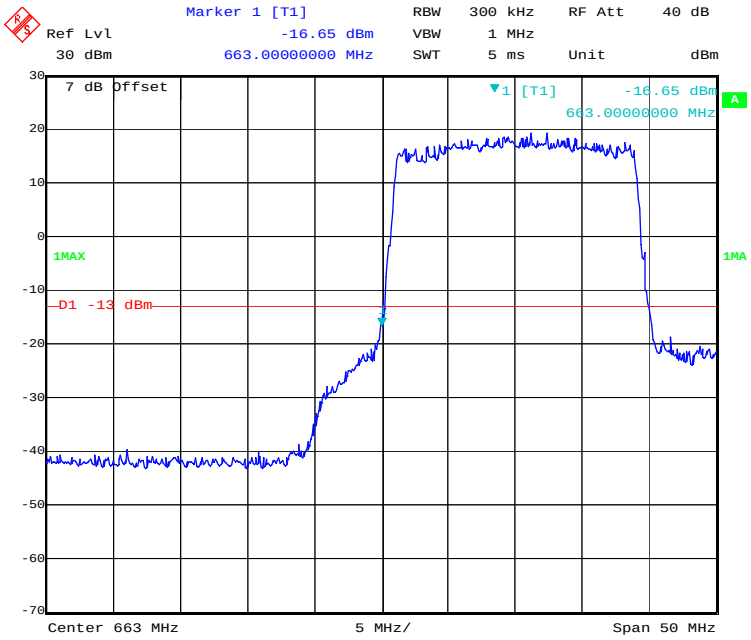
QPSK (15 MHz, FULL RB) - Left Band Edge



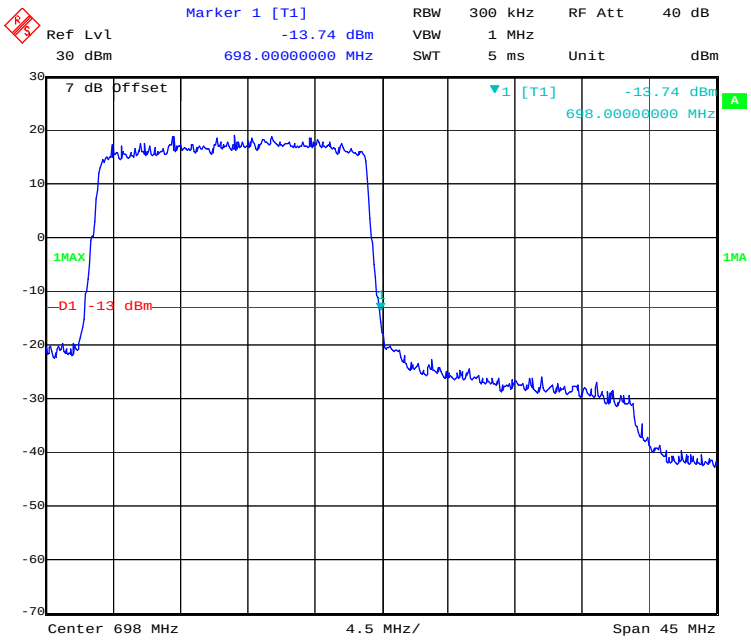
QPSK (15 MHz, FULL RB) - Right Band Edge



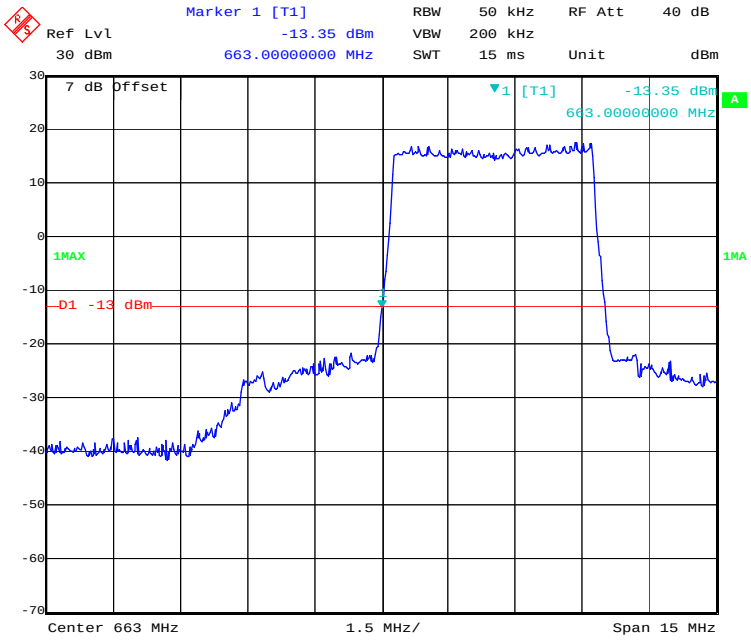
QPSK (20 MHz, FULL RB) - Left Band Edge



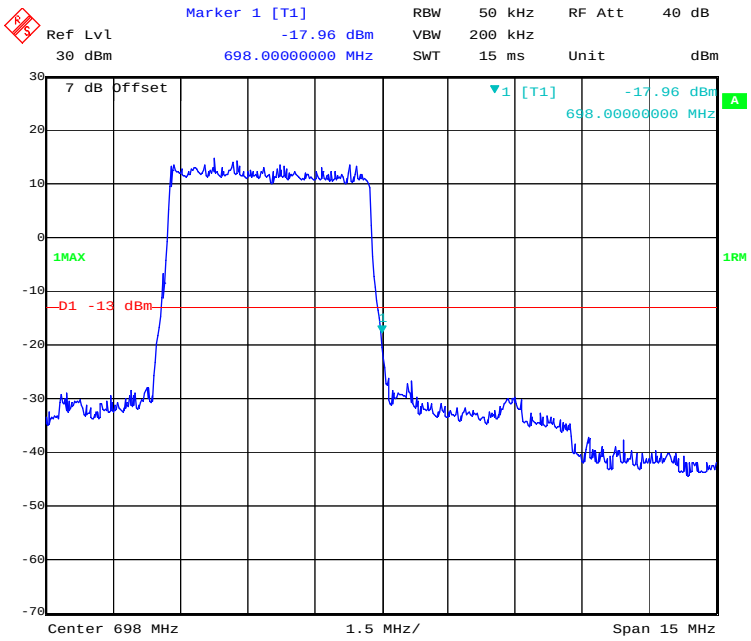
QPSK (20 MHz, FULL RB) - Right Band Edge



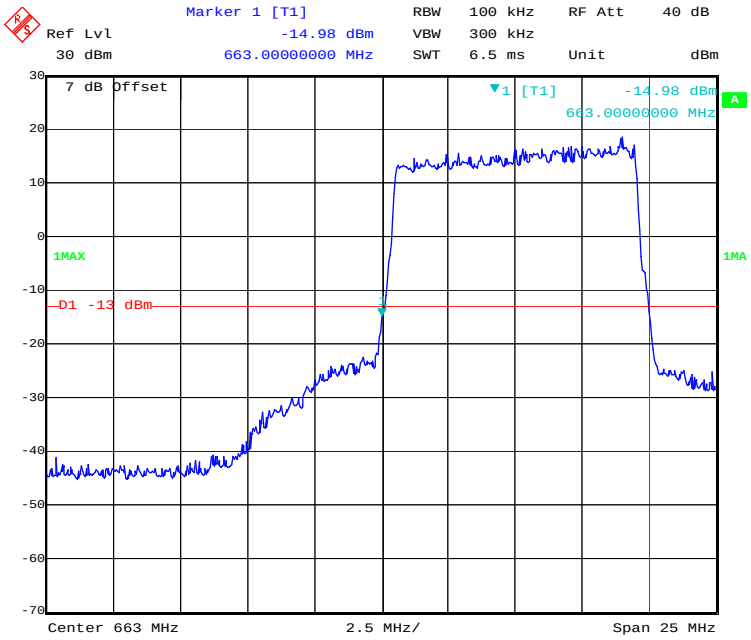
16-QAM (5 MHz, FULL RB) - Left Band Edge



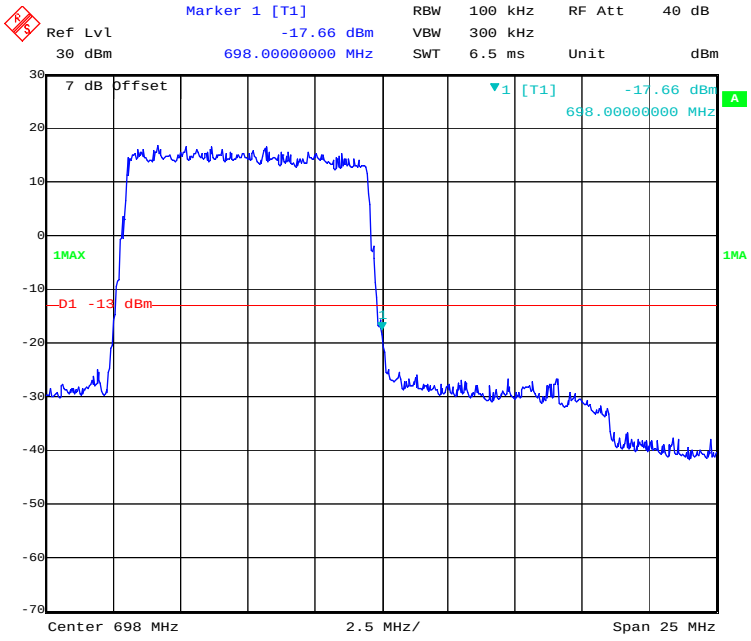
16-QAM (5 MHz, FULL RB) - Right Band Edge



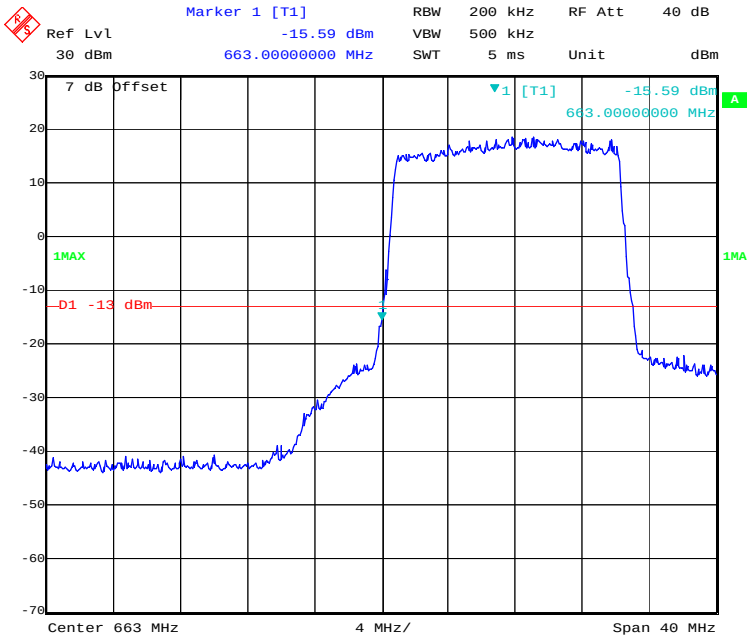
16-QAM (10 MHz, FULL RB) - Left Band Edge



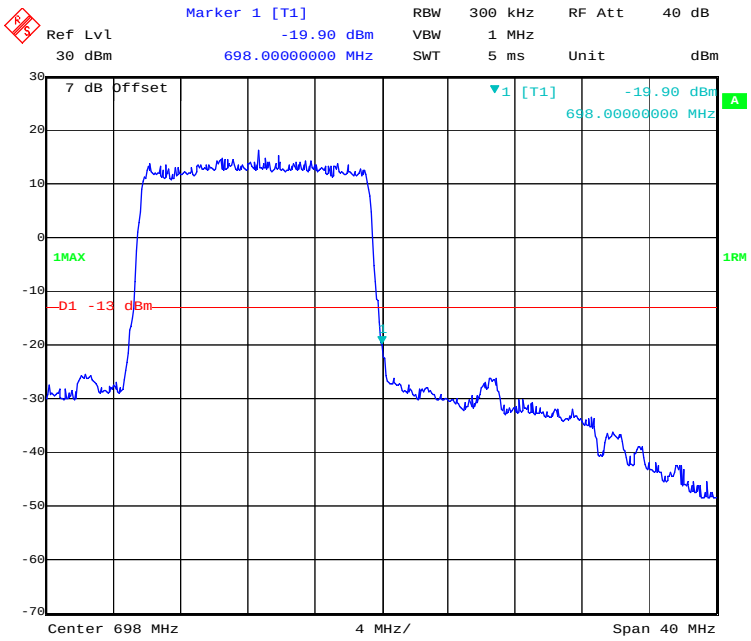
16-QAM (10 MHz, FULL RB) - Right Band Edge



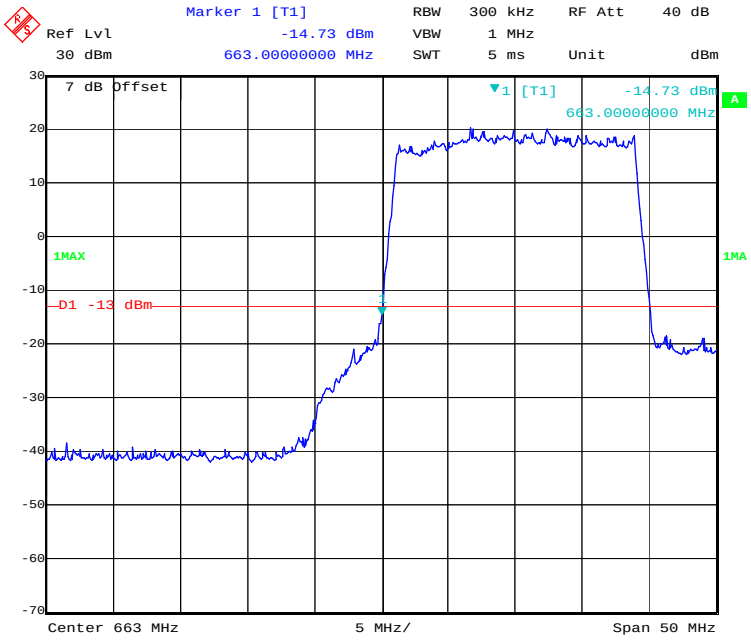
16-QAM (15 MHz, FULL RB) - Left Band Edge



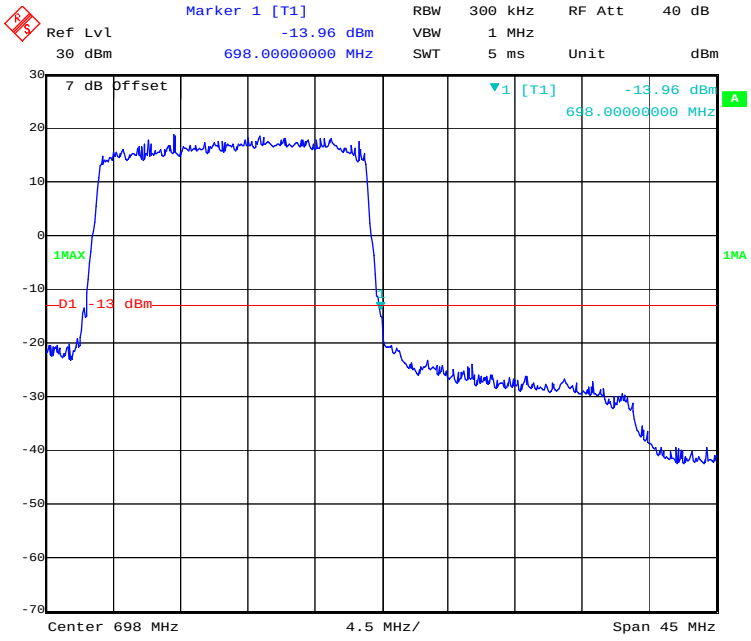
16-QAM (15 MHz, FULL RB) - Right Band Edge



16-QAM (20 MHz, FULL RB) - Left Band Edge



16-QAM (20 MHz, FULL RB) - Right Band Edge



FCC § 2.1055; § 22.355; § 24.235; §27.54; §90.213- FREQUENCY STABILITY

Applicable Standards

FCC § 2.1055, §22.355, §24.235, §27.54 and §90.213.

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

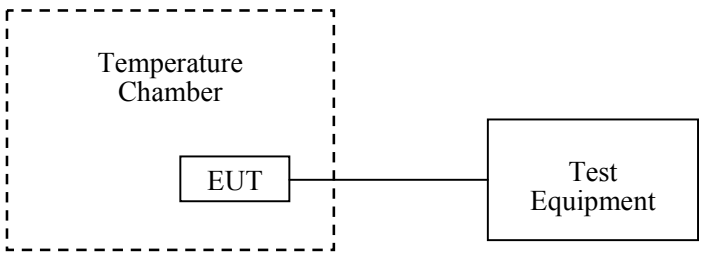
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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: For hand carried, battery powered equipment; reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.



Test Data

Environmental Conditions

Temperature:	21.5-23.5 ℃
Relative Humidity:	47-52 %
ATM Pressure:	101.2-101.9 kPa

The testing was performed by Stone Zhang from 2020-11-24 to 2020-11-28.

EUT operation mode: Transmitting

Test Result: Compliant.

WCDMA Band V:

WCDMA Mode, Middle Channel, f_o = 836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.85	17	0.015539	2.5
-20		14	0.016734	2.5
-10		13	0.015539	2.5
0		10	0.011953	2.5
10		12	0.014344	2.5
20		9	0.010758	2.5
30		11	0.013148	2.5
40		13	0.015539	2.5
50		8	0.009563	2.5
20	V min.= 3.47	17	0.015539	2.5
20	V max.= 4.24	14	0.016734	2.5

WCDMA Band II:

WCDMA Mode, Middle Channel, f_o = 1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	18	0.009574	pass
-20		16	0.008511	pass
-10		15	0.007979	pass
0		12	0.006383	pass
10		14	0.007447	pass
20		11	0.005851	pass
30		13	0.006915	pass
40		12	0.006383	pass
50		16	0.008511	pass
20	V min.= 3.47	18	0.009574	pass
20	V max.= 4.24	16	0.008511	pass

WCDMA Band IV:

WCDMA Mode, Low Channel & High Channel					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	1710.4150	1754.9217	1710	1755
-20		1710.3287	1754.8053	1710	1755
-10		1710.3962	1754.8659	1710	1755
0		1710.4250	1754.8916	1710	1755
10		1710.3350	1754.6129	1710	1755
20		1710.3386	1754.6302	1710	1755
30		1710.3381	1754.6461	1710	1755
40		1710.4322	1754.8177	1710	1755
50		1710.4506	1754.8950	1710	1755
20	V min.= 3.47	1710.4150	1754.9217	1710	1755
20	V max.= 4.24	1710.3287	1754.8053	1710	1755

LTE Band 2:

f_o =1880.0 MHz (QPSK)				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	13	0.0155	Pass
-20		12	0.0143	Pass
-10		11	0.0132	Pass
0		9	0.0108	Pass
10		5	0.0060	Pass
20		8	0.0096	Pass
30		9	0.0108	Pass
40		14	0.0167	Pass
50		11	0.0132	Pass
20	V min.= 3.47	10	0.0120	Pass
20	V max.= 4.24	13	0.0155	Pass

f_o =1880.0 MHz (16-QAM)				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.85	19	0.0227	Pass
-20		15	0.0179	Pass
-10		14	0.0167	Pass
0		12	0.0143	Pass
10		11	0.0132	Pass
20		13	0.0155	Pass
30		12	0.0143	Pass
40		16	0.0191	Pass
50		12	0.0143	Pass
20	V min.= 3.47	9	0.0108	Pass
20	V max.= 4.24	14	0.0167	Pass

LTE Band 4:

Low Channel & High Channel (QPSK)					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	1710.0482	1754.9687	1710	1755
-20		1710.0453	1754.9622	1710	1755
-10		1710.0408	1754.9690	1710	1755
0		1710.0480	1754.9616	1710	1755
10		1710.0496	1754.9649	1710	1755
20		1710.0476	1754.9688	1710	1755
30		1710.0412	1754.9630	1710	1755
40		1710.0434	1754.9683	1710	1755
50		1710.0457	1754.9614	1710	1755
20	V min.= 3.47	1710.0429	1754.9686	1710	1755
20	V max.= 4.24	1710.0476	1754.9613	1710	1755

Low Channel & High Channel (16-QAM)					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	1710.0493	1754.9649	1710	1755
-20		1710.0424	1754.9617	1710	1755
-10		1710.0413	1754.9673	1710	1755
0		1710.0417	1754.9623	1710	1755
10		1710.0439	1754.9680	1710	1755
20		1710.0495	1754.9659	1710	1755
30		1710.0457	1754.9643	1710	1755
40		1710.0452	1754.9672	1710	1755
50		1710.0479	1754.9643	1710	1755
20	V min.= 3.47	1710.0442	1754.9613	1710	1755
20	V max.= 4.24	1710.0435	1754.9656	1710	1755

LTE Band 7:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	2500.1067	2569.8113	2500	2570
-20		2500.0097	2569.8458	2500	2570
-10		2500.2021	2569.9401	2500	2570
0		2500.0681	2569.9024	2500	2570
10		2500.1275	2569.9632	2500	2570
20		2500.2742	2569.9958	2500	2570
30		2500.1971	2569.9792	2500	2570
40		2500.0022	2569.8847	2500	2570
50		2500.2295	2569.8561	2500	2570
20	V min.= 3.47	2500.2355	2569.8363	2500	2570
20	V max.= 4.24	2500.0287	2569.8076	2500	2570

Low Channel & High Channel (16-QAM) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	2500.2758	2569.8345	2500	2570
-20		2500.1445	2569.8451	2500	2570
-10		2500.0976	2569.8457	2500	2570
0		2500.1654	2569.8031	2500	2570
10		2500.0263	2569.8532	2500	2570
20		2500.1388	2569.9035	2500	2570
30		2500.2332	2569.8969	2500	2570
40		2500.1495	2569.8788	2500	2570
50		2500.2492	2569.9696	2500	2570
20	V min.= 3.47	2500.1194	2569.8556	2500	2570
20	V max.= 4.24	2500.1802	2569.8873	2500	2570

LTE Band 12:

Low Channel & High Channel (QPSK)					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	699.2409	715.9906	699	716
-20		699.0127	715.9247	699	716
-10		699.1598	715.8345	699	716
0		699.1139	715.9463	699	716
10		699.2139	715.9078	699	716
20		699.1434	715.8034	699	716
30		699.1011	715.9629	699	716
40		699.2513	715.8512	699	716
50		699.2212	715.8126	699	716
20	V min.= 3.47	699.0394	715.9129	699	716
20	V max.= 4.24	699.1862	715.9117	699	716

Low Channel & High Channel (16-QAM)					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	699.0339	715.9255	699	716
-20		699.0599	715.8583	699	716
-10		699.2952	715.8458	699	716
0		699.0955	715.9827	699	716
10		699.1904	715.8732	699	716
20		699.0482	715.8620	699	716
30		699.1849	715.9580	699	716
40		699.2357	715.8209	699	716
50		699.1276	715.8165	699	716
20	V min.= 3.47	699.1785	715.9909	699	716
20	V max.= 4.24	699.2874	715.8675	699	716

LTE Band 13:

Middle Channel (QPSK) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	3.85	777.1922	786.8340	777	787
-20		777.2990	786.9676	777	787
-10		777.0507	786.9653	777	787
0		777.0777	786.9832	777	787
10		777.0111	786.8072	777	787
20		777.0448	786.8415	777	787
30		777.0950	786.8562	777	787
40		777.2206	786.9729	777	787
50		777.1223	786.9824	777	787
20	V min.= 3.47	777.2423	786.9887	777	787
20	V max.= 4.24	777.2680	786.9263	777	787

Middle Channel (QPSK) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	3.85	777.1076	786.8613	777	787
-20		777.0627	786.8260	777	787
-10		777.2427	786.8064	777	787
0		777.2355	786.8929	777	787
10		777.0260	786.8814	777	787
20		777.2088	786.9535	777	787
30		777.1736	786.9333	777	787
40		777.0924	786.9678	777	787
50		777.2506	786.8431	777	787
20	V min.= 3.47	777.1410	786.8574	777	787
20	V max.= 4.24	777.0489	786.9557	777	787

LTE Band 14:

Middle Channel, f_o=793.0 MHz (QPSK) /Channel Bandwidth:10MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.85	19	0.0240	2.5
-20		16	0.0202	2.5
-10		13	0.0164	2.5
0		10	0.0126	2.5
10		9	0.0113	2.5
20		12	0.0151	2.5
30		8	0.0101	2.5
40		14	0.0177	2.5
50		12	0.0151	2.5
20	V min.= 3.47	11	0.0139	2.5
20	V max.= 4.24	13	0.0164	2.5

Middle Channel, f_o=793.0 MHz (16-QAM) /Channel Bandwidth:10MHz				
Temperature (℃)	Power Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.85	18	0.0227	2.5
-20		15	0.0189	2.5
-10		13	0.0164	2.5
0		15	0.0189	2.5
10		8	0.0101	2.5
20		12	0.0151	2.5
30		11	0.0139	2.5
40		16	0.0202	2.5
50		14	0.0177	2.5
20	V min.= 3.47	9	0.0113	2.5
20	V max.= 4.24	14	0.0177	2.5

LTE Band 17:

Low Channel & High Channel (QPSK)					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	704.2036	715.9880	704	716
-20		704.1599	715.9564	704	716
-10		704.2527	715.9576	704	716
0		704.1414	715.9608	704	716
10		704.2416	715.8050	704	716
20		704.0692	715.8752	704	716
30		704.0607	715.8633	704	716
40		704.2404	715.8436	704	716
50		704.0085	715.9015	704	716
20	V min.= 3.47	704.0609	715.9309	704	716
20	V max.= 4.24	704.1011	715.8257	704	716

Low Channel & High Channel (16-QAM)					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	704.2535	715.9134	704	716
-20		704.1662	715.9113	704	716
-10		704.2305	715.8057	704	716
0		704.2370	715.8048	704	716
10		704.1593	715.8353	704	716
20		704.2307	715.9111	704	716
30		704.2280	715.8131	704	716
40		704.0414	715.8365	704	716
50		704.2406	715.9474	704	716
20	V min.= 3.47	704.1001	715.9537	704	716
20	V max.= 4.24	704.0277	715.851	704	716

LTE Band 25:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	3.85	1850.2173	1914.8052	1850	1915
-20		1850.0844	1914.9324	1850	1915
-10		1850.0492	1914.9216	1850	1915
0		1850.1094	1914.8099	1850	1915
10		1850.0099	1914.9153	1850	1915
20		1850.2258	1914.8047	1850	1915
30		1850.0900	1914.9558	1850	1915
40		1850.0749	1914.9603	1850	1915
50		1850.0491	1914.8061	1850	1915
20	V min.= 3.47	1850.2850	1914.9167	1850	1915
20	V max.= 4.24	1850.1252	1914.9404	1850	1915

Low Channel & High Channel (16-QAM) /Channel Bandwidth:10MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	3.85	1850.1709	1914.8572	1850	1915
-20		1850.2209	1914.9112	1850	1915
-10		1850.0159	1914.9156	1850	1915
0		1850.0334	1914.9214	1850	1915
10		1850.2405	1914.9493	1850	1915
20		1850.1469	1914.9105	1850	1915
30		1850.2826	1914.8801	1850	1915
40		1850.1611	1914.9416	1850	1915
50		1850.1951	1914.8484	1850	1915
20	V min.= 3.47	1850.0924	1914.8819	1850	1915
20	V max.= 4.24	1850.1094	1914.9552	1850	1915

LTE Band 26:

Middle Channel, f_o = 831.5 MHz (QPSK)				
Temperature	**Power Supplied**	**Frequency Error**	**Frequency Error**	**Limit**
(℃)	**(V_{DC})**	**(Hz)**	**(ppm)**	**(ppm)**
-30	3.85	19	0.0227	2.5
-20		13	0.0155	2.5
-10		11	0.0132	2.5
0		14	0.0167	2.5
10		12	0.0143	2.5
20		9	0.0108	2.5
30		12	0.0143	2.5
40		14	0.0167	2.5
50		16	0.0191	2.5
20	V min.= 3.47	9	0.0108	2.5
20	V max.= 4.24	17	0.0203	2.5

Middle Channel, f_o = 831.5 MHz (16-QAM)				
Temperature	**Power Supplied**	**Frequency Error**	**Frequency Error**	**Limit**
(℃)	**(V_{DC})**	**(Hz)**	**(ppm)**	**(ppm)**
-30	3.85	19	0.0227	2.5
-20		16	0.0191	2.5
-10		12	0.0143	2.5
0		11	0.0132	2.5
10		9	0.0108	2.5
20		13	0.0155	2.5
30		8	0.0096	2.5
40		16	0.0191	2.5
50		13	0.0155	2.5
20	V min.= 3.47	8	0.0096	2.5
20	V max.= 4.24	18	0.0215	2.5

LTE Band 41:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	3.85	2555.0555	2654.9539	2555	2655
-20		2555.0551	2654.9514	2555	2655
-10		2555.0518	2654.9529	2555	2655
0		2555.0509	2654.9589	2555	2655
10		2555.0559	2654.9543	2555	2655
20		2555.0504	2654.9526	2555	2655
30		2555.0591	2654.9569	2555	2655
40		2555.0563	2654.9573	2555	2655
50		2555.0552	2654.9509	2555	2655
20	V min.= 3.47	2555.0556	2654.9549	2555	2655
20	V max.= 4.24	2555.0568	2654.95246	2555	2655

Low Channel & High Channel (16-QAM) /Channel Bandwidth:20MHz					
Temperature	Power Supplied	F_L	F_H	F_L Limit	F_H Limit
(℃)	(V_{DC})	(MHz)	(MHz)	(MHz)	(MHz)
-30	3.85	2555.0588	2654.9580	2555	2655
-20		2555.0576	2654.9566	2555	2655
-10		2555.0549	2654.9526	2555	2655
0		2555.0535	2654.9566	2555	2655
10		2555.0559	2654.9553	2555	2655
20		2555.0549	2654.9552	2555	2655
30		2555.0575	2654.9593	2555	2655
40		2555.0550	2654.9540	2555	2655
50		2555.0535	2654.9596	2555	2655
20	V min.= 3.47	2555.0585	2654.9539	2555	2655
20	V max.= 4.24	2555.0507	2654.9525	2555	2655

LTE Band 66:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	1710.0594	1779.8161	1710	1780
-20		1710.0507	1779.8648	1710	1780
-10		1710.1401	1779.8283	1710	1780
0		1710.1294	1779.9477	1710	1780
10		1710.0713	1779.9084	1710	1780
20		1710.1225	1779.9327	1710	1780
30		1710.1578	1779.9752	1710	1780
40		1710.0626	1779.8697	1710	1780
50		1710.1919	1779.9628	1710	1780
20	V min.= 3.47	1710.294	1779.9817	1710	1780
20	V max.= 4.24	1710.2309	1779.8547	1710	1780

Low Channel & High Channel (16-QAM) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	1710.2854	1779.9099	1710	1780
-20		1710.1561	1779.8207	1710	1780
-10		1710.2889	1779.9241	1710	1780
0		1710.2902	1779.8382	1710	1780
10		1710.2569	1779.9811	1710	1780
20		1710.0201	1779.9564	1710	1780
30		1710.0333	1779.9601	1710	1780
40		1710.0483	1779.8053	1710	1780
50		1710.2715	1779.9651	1710	1780
20	V min.= 3.47	1710.2149	1779.8799	1710	1780
20	V max.= 4.24	1710.2947	1779.9841	1710	1780

LTE Band 71:

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	663.1430	697.8978	663	698
-20		663.1319	697.8811	663	698
-10		663.2827	697.8666	663	698
0		663.0871	697.9269	663	698
10		663.2585	697.8534	663	698
20		663.2795	697.9068	663	698
30		663.1025	697.8525	663	698
40		663.1513	697.9481	663	698
50		663.0018	697.8800	663	698
20	V min.= 3.47	663.1905	697.9173	663	698
20	V max.= 4.24	663.2242	697.9297	663	698

Low Channel & High Channel (QPSK) /Channel Bandwidth:20MHz					
Temperature	**Power Supplied**	**F_L**	**F_H**	**F_L Limit**	**F_H Limit**
(℃)	**(V_{DC})**	**(MHz)**	**(MHz)**	**(MHz)**	**(MHz)**
-30	3.85	663.0790	697.8903	663	698
-20		663.0087	697.9754	663	698
-10		663.2970	697.9786	663	698
0		663.1452	697.9499	663	698
10		663.2187	697.8572	663	698
20		663.0443	697.9916	663	698
30		663.2209	697.9711	663	698
40		663.2323	697.9824	663	698
50		663.2462	697.9165	663	698
20	V min.= 3.47	663.1638	697.9131	663	698
20	V max.= 4.24	663.1452	697.9276	663	698

Declarations

1: BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with an asterisk '*'. Customer model name, addresses, names, trademarks etc. are not considered data.

2: Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

3: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

4: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

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******* END OF REPORT *******