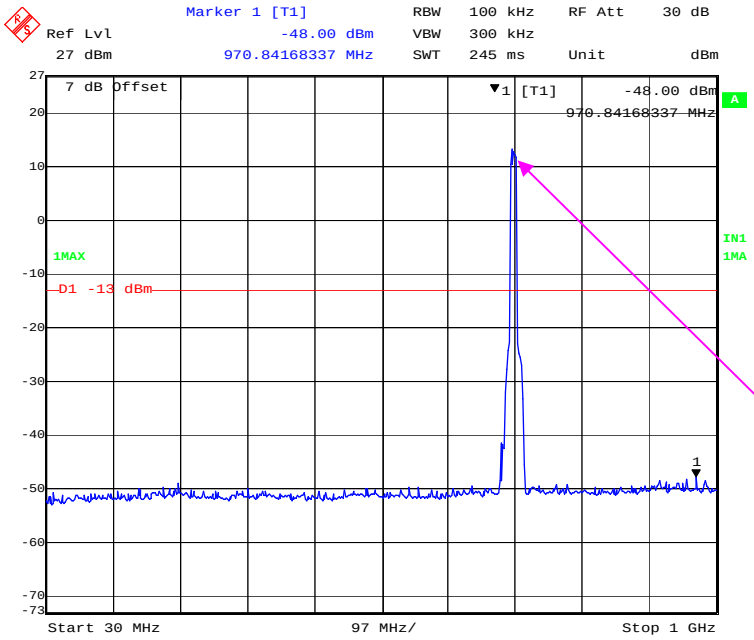
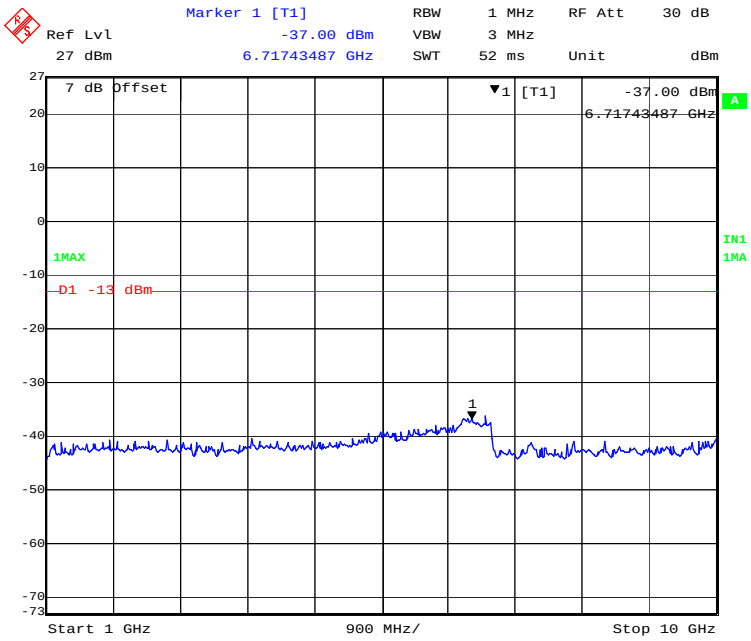
30 MHz - 1 GHz (10 MHz, QPSK, Middle Channel)

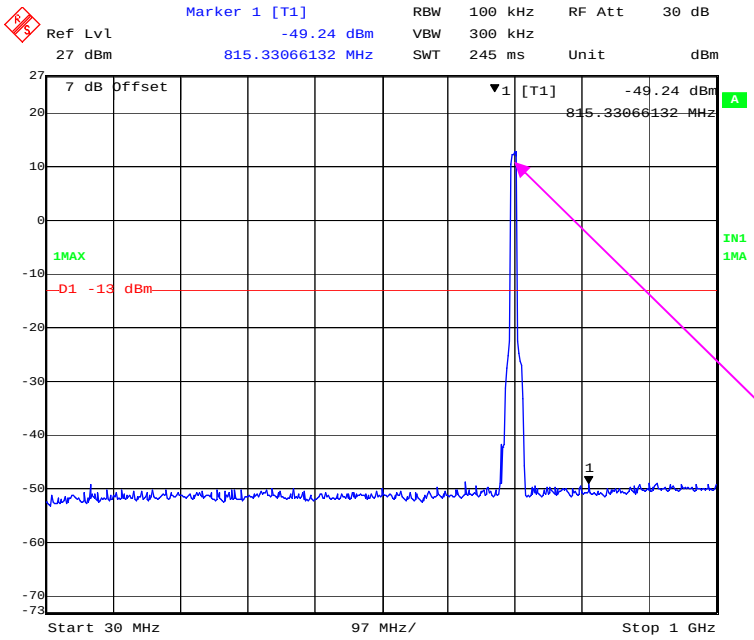


Fundamental

1 GHz – 10 GHz (10 MHz, QPSK, Middle Channel)

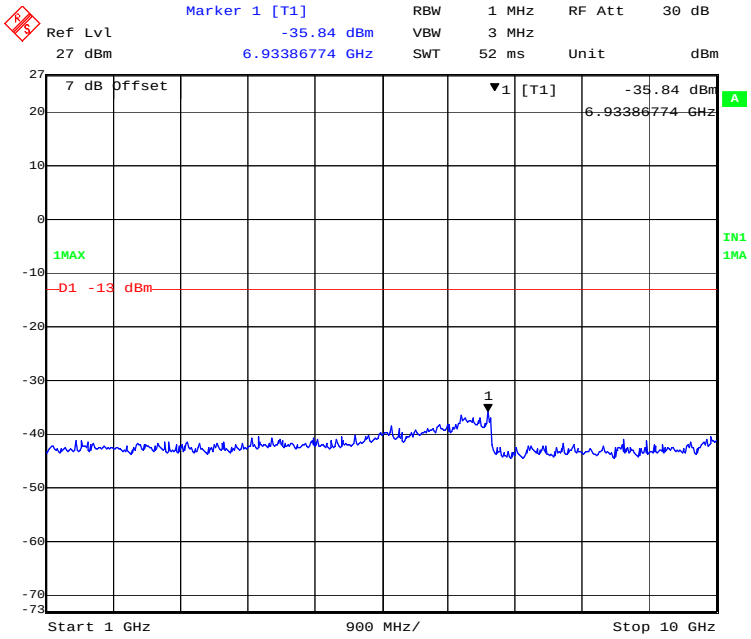


30 MHz - 1 GHz (10 MHz, 16-QAM, Middle Channel)



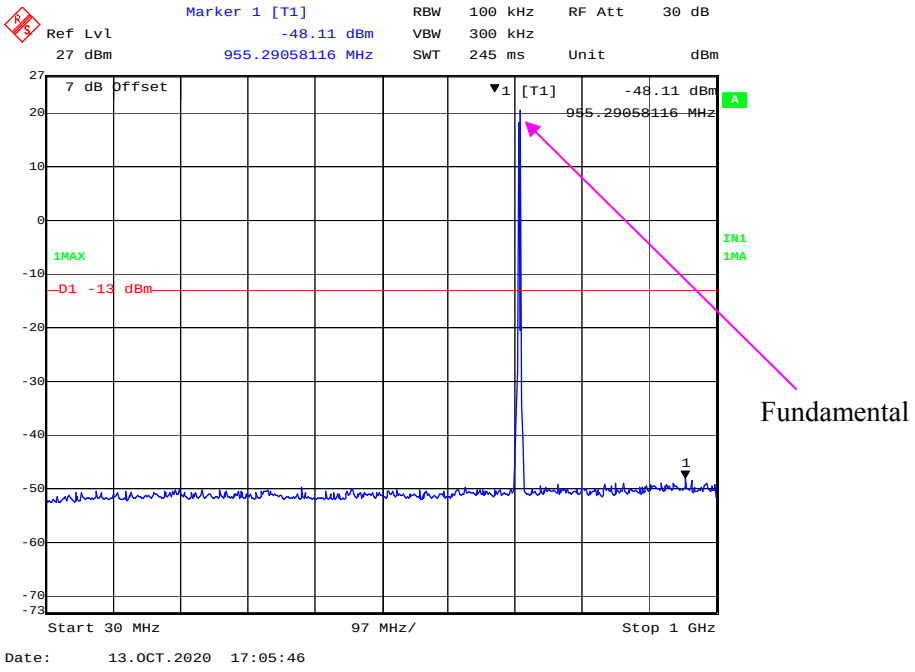
Date: 13.OCT.2020 16:49:42

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



Date: 14.OCT.2020 09:39:08

30 MHz - 1 GHz (1.4 MHz, QPSK, High Channel)

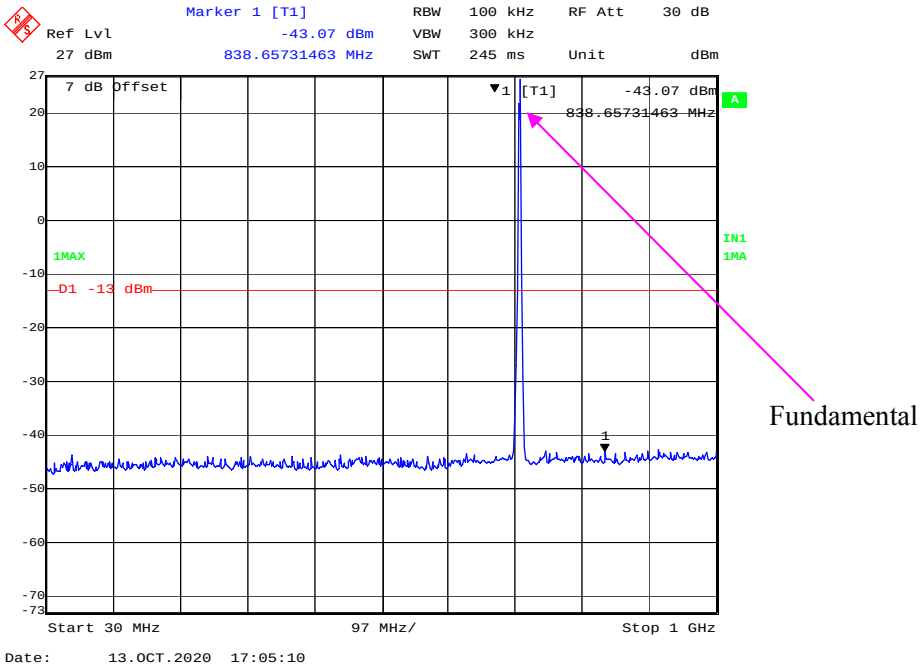


Date: 13.OCT.2020 17:05:46

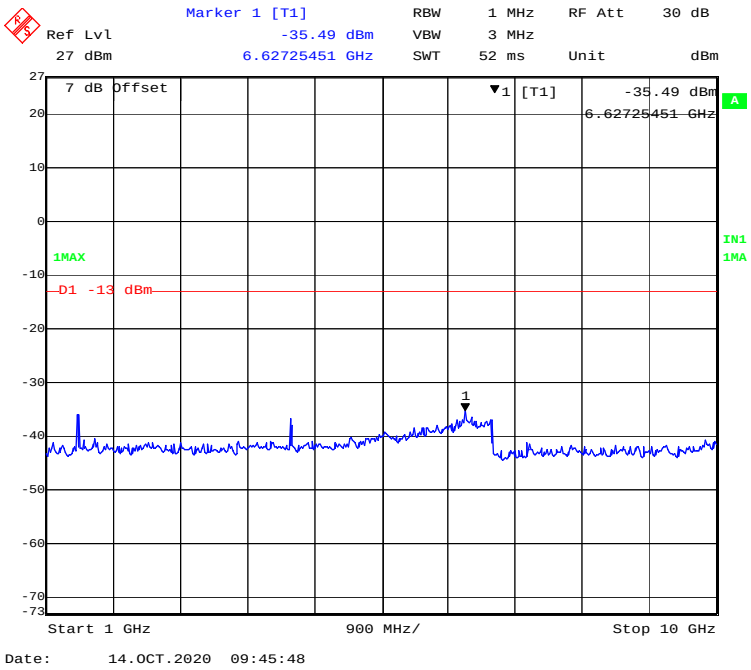
1 GHz – 10 GHz (1.4 MHz, QPSK, High Channel)

Date: 14.OCT.2020 09:46:33

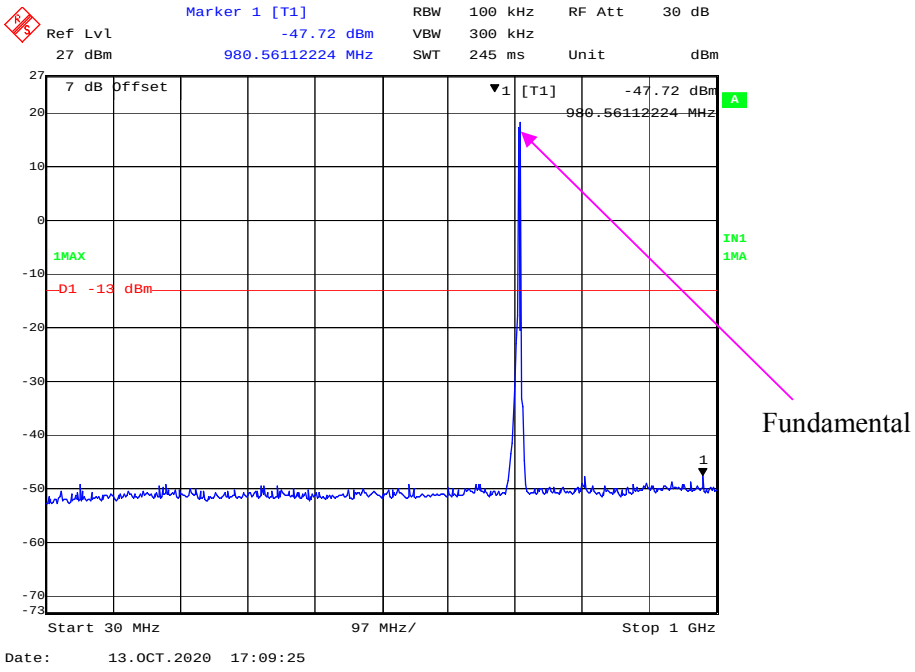
30 MHz - 1 GHz (1.4 MHz, 16-QAM, High Channel)



1 GHz – 10 GHz (1.4 MHz, 16-QAM, High Channel)



30 MHz - 1 GHz (3 MHz, QPSK, High Channel)

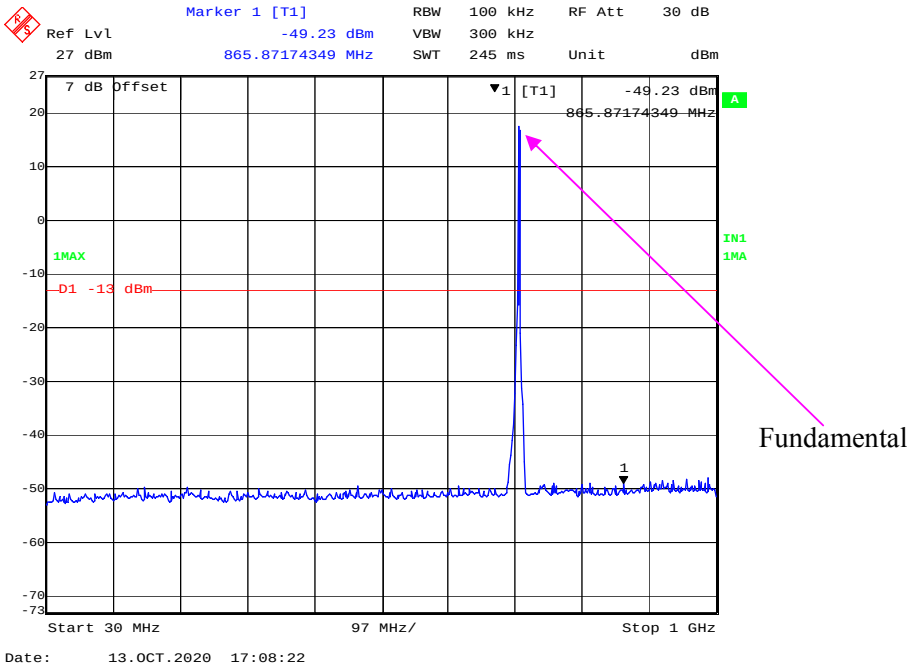


Date: 13.OCT.2020 17:09:25

1 GHz – 10 GHz (3 MHz, QPSK, High Channel)

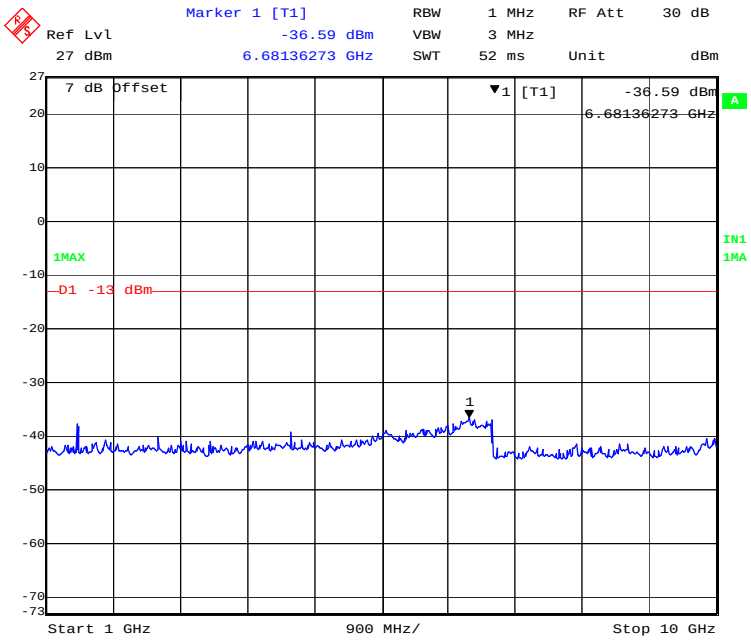
Date: 14.OCT.2020 09:44:39

30 MHz - 1 GHz (3 MHz, 16-QAM, High Channel)



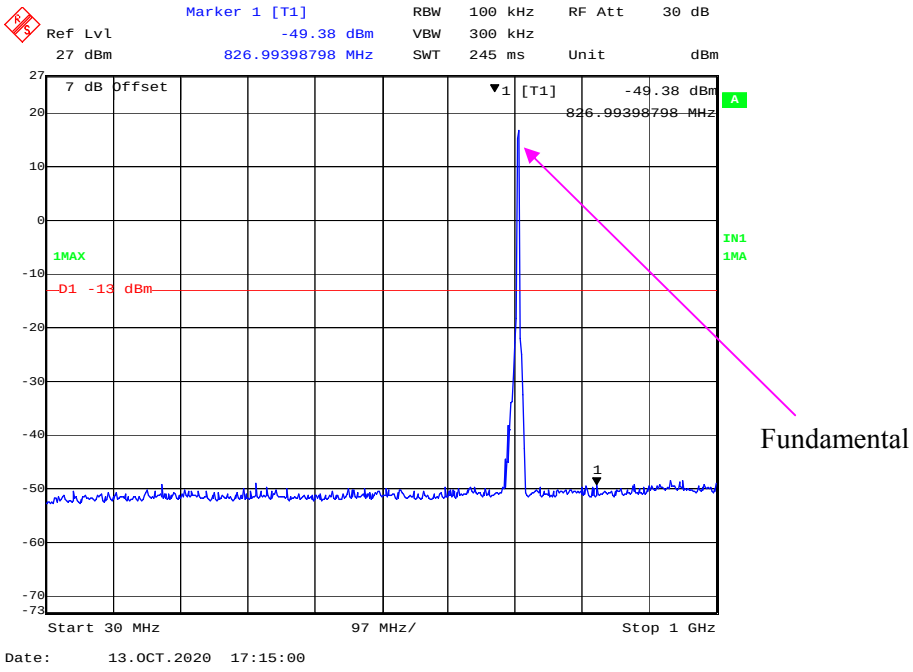
Date: 13.OCT.2020 17:08:22

1 GHz – 10 GHz (3 MHz, 16-QAM, High Channel)



Date: 14.OCT.2020 09:44:15

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

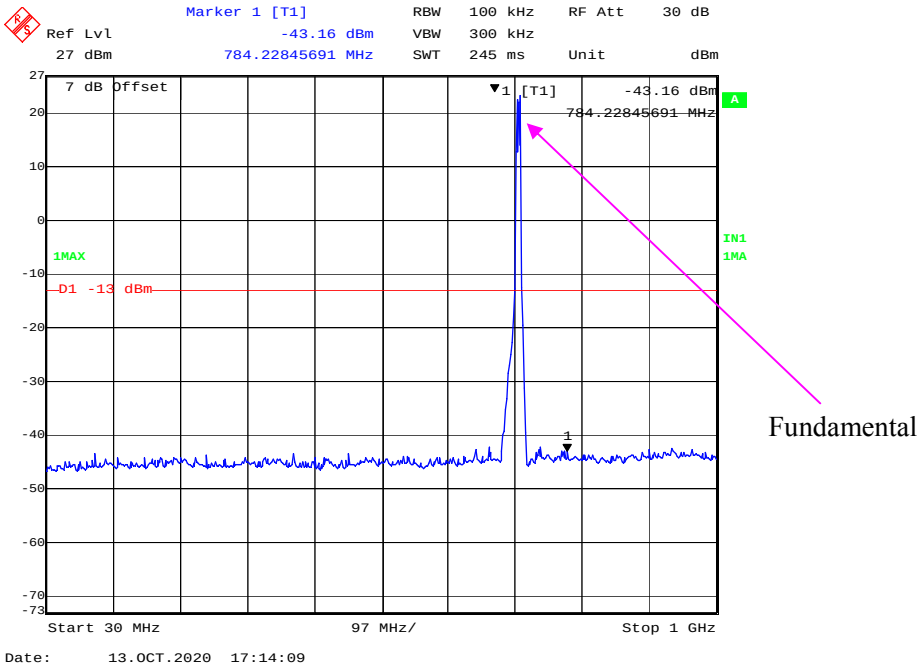


Date: 13.OCT.2020 17:15:00

1 GHz – 10 GHz (5 MHz, QPSK, High Channel)

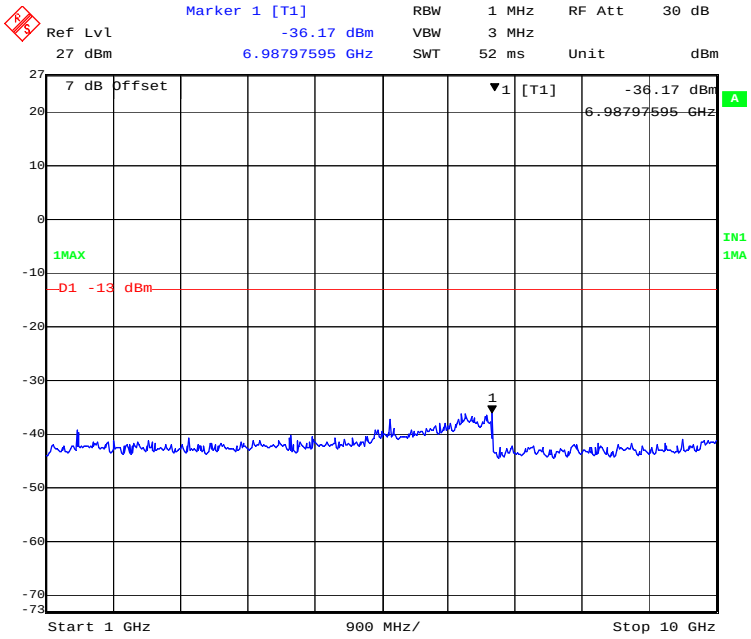
Date: 14.OCT.2020 09:43:10

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



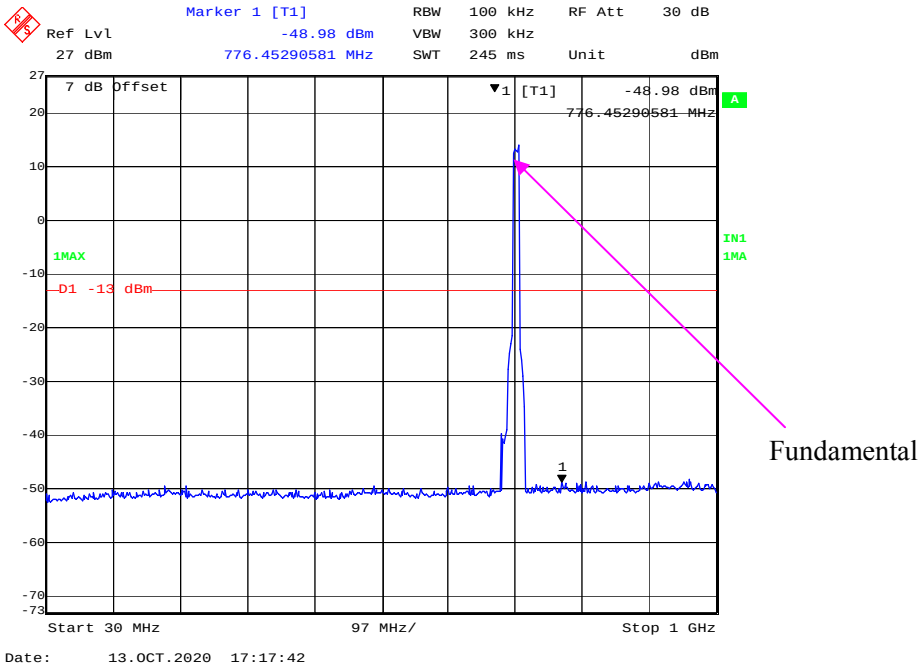
Date: 13.OCT.2020 17:14:09

1 GHz – 10 GHz (5 MHz, 16-QAM, High Channel)

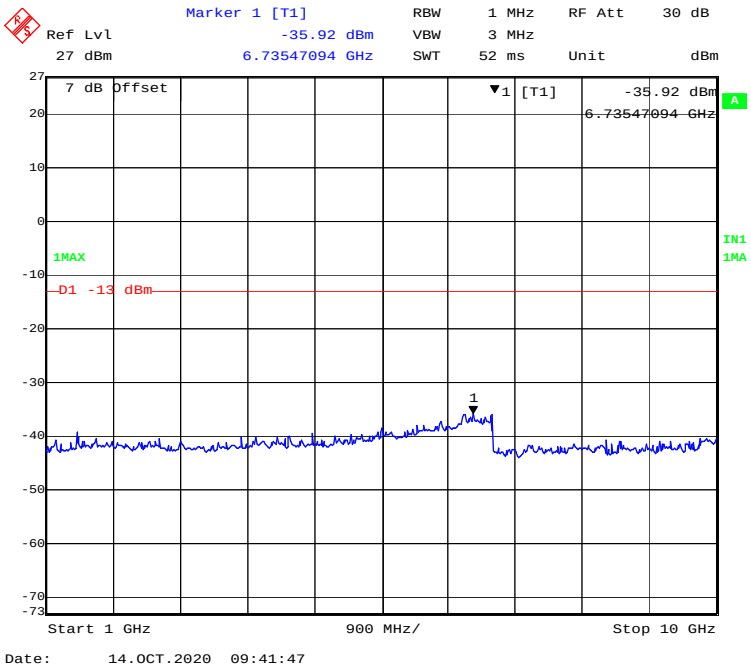


Date: 14.OCT.2020 09:42:34

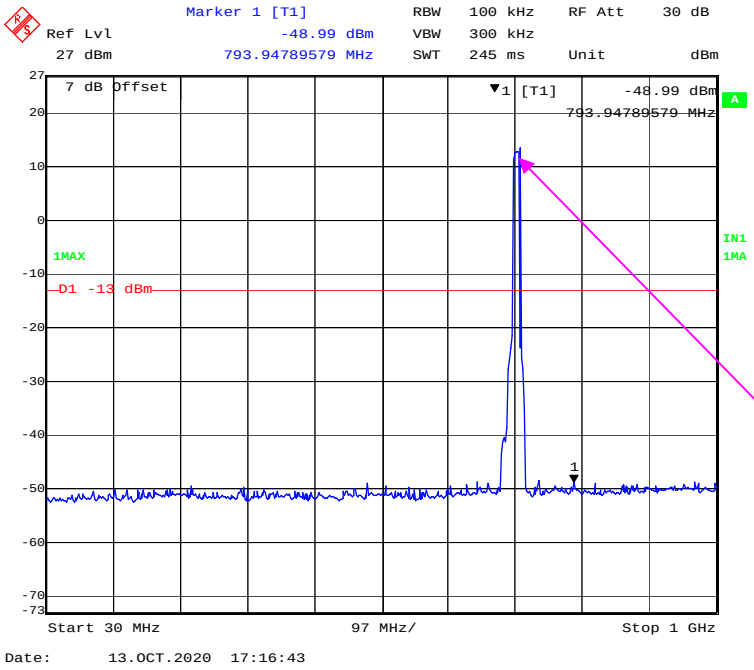
30 MHz - 1 GHz (10 MHz, QPSK, High Channel)



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

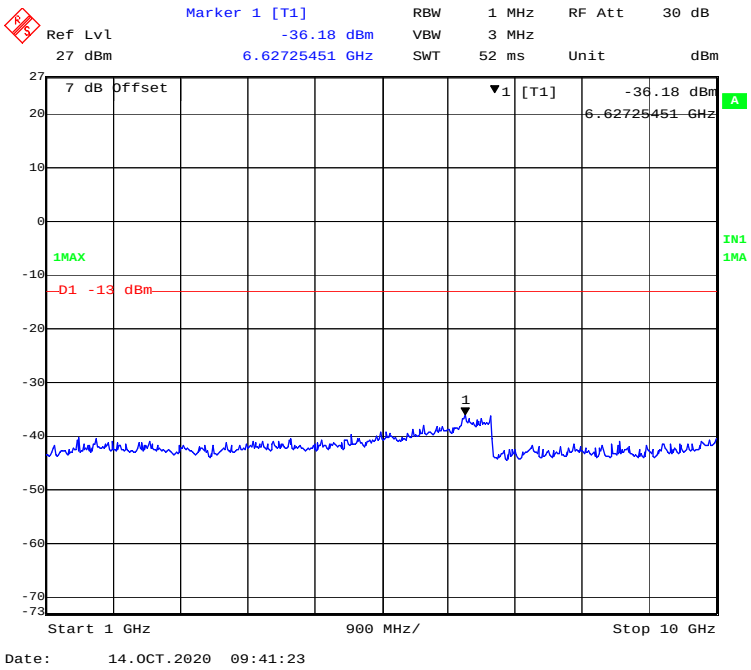


30 MHz - 1 GHz (10 MHz, 16-QAM, High Channel)



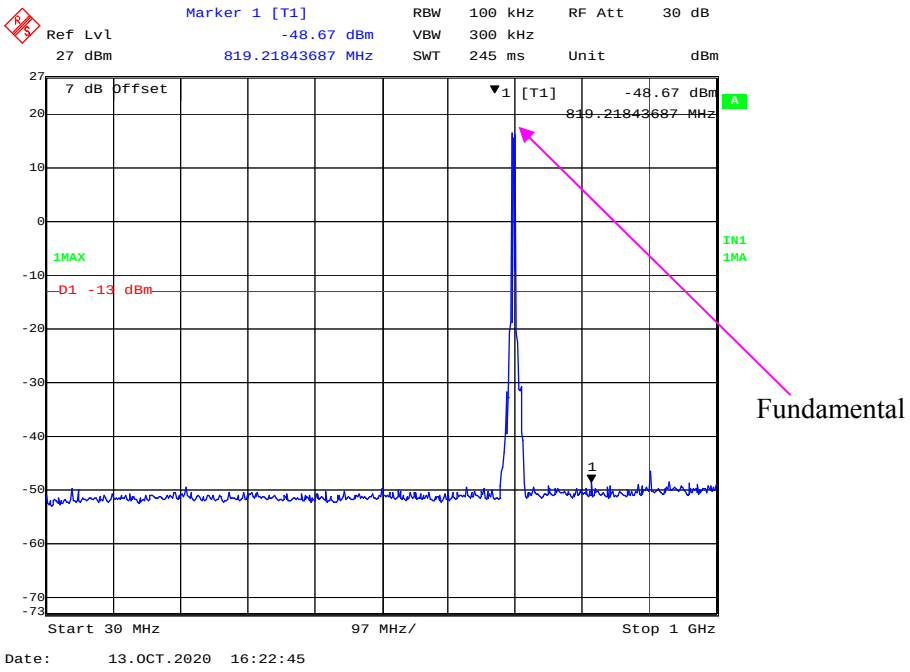
Fundamental

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

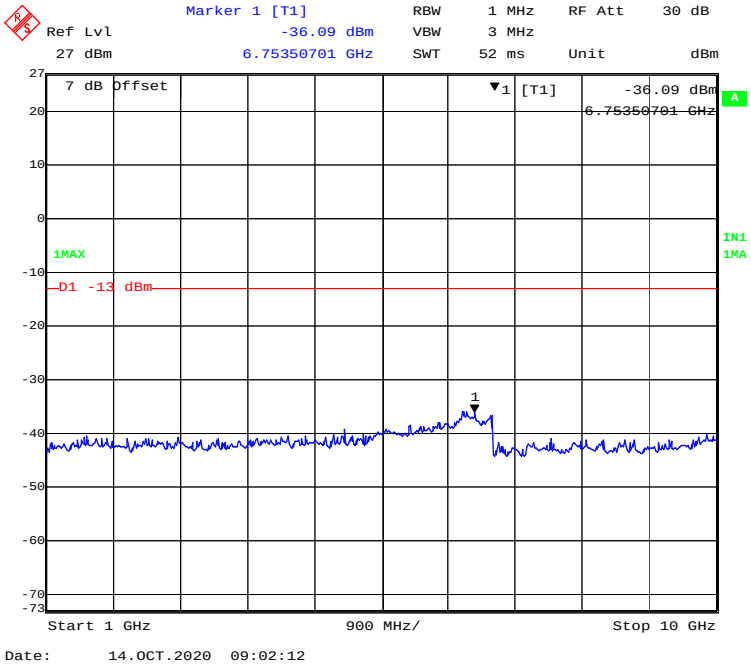


LTE Band 17:

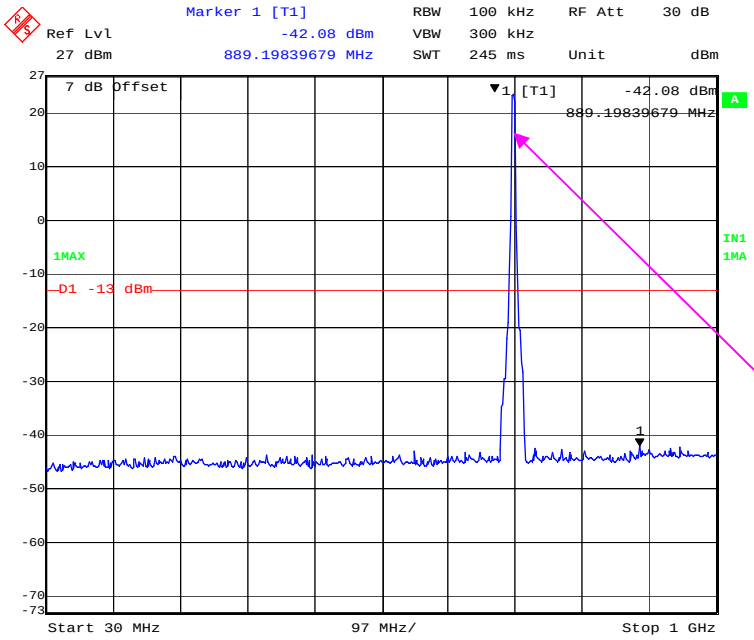
30 MHz - 1 GHz (5 MHz, QPSK, Low Channel)



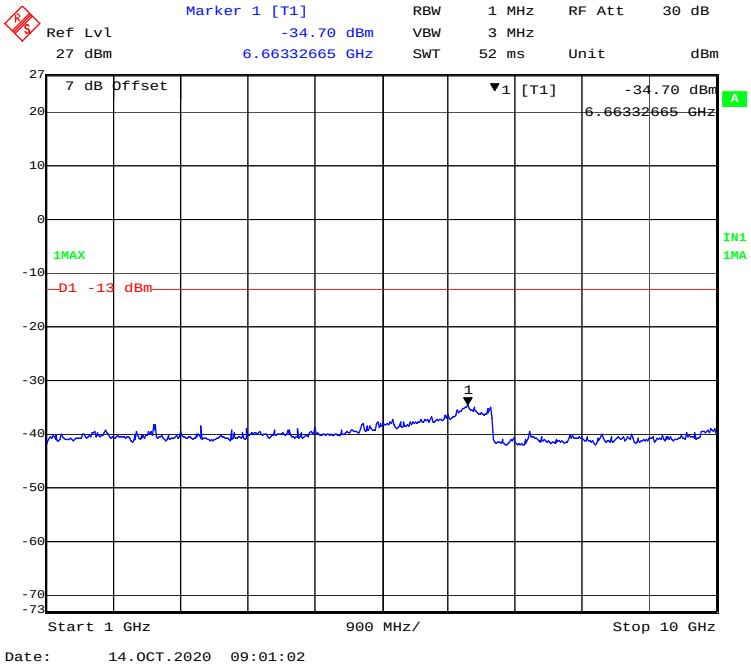
1 GHz – 10 GHz (5 MHz, QPSK, Low Channel)



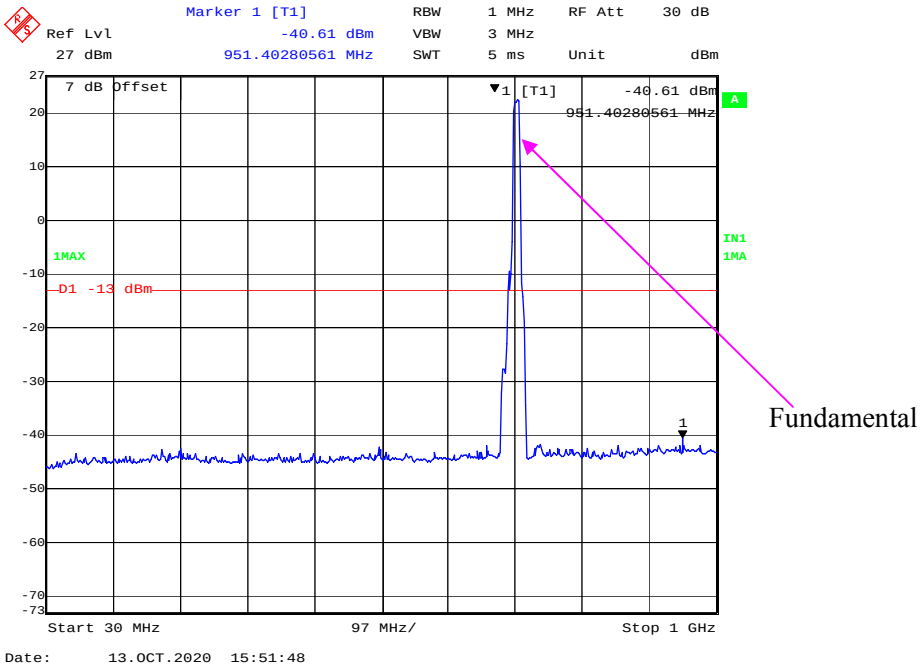
30 MHz - 1 GHz (5 MHz, 16-QAM, Low Channel)



1 GHz – 10 GHz (5 MHz, 16-QAM, Low Channel)

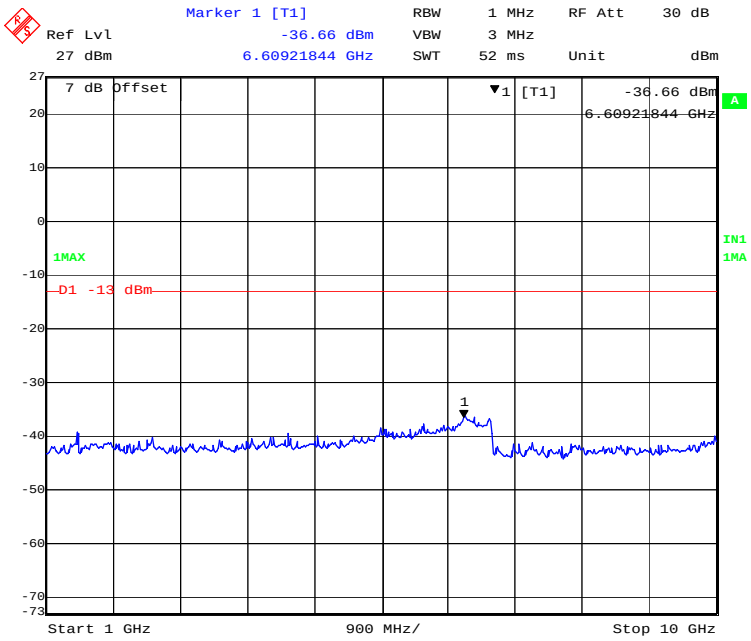


30 MHz - 1 GHz (10 MHz, QPSK, Low Channel)



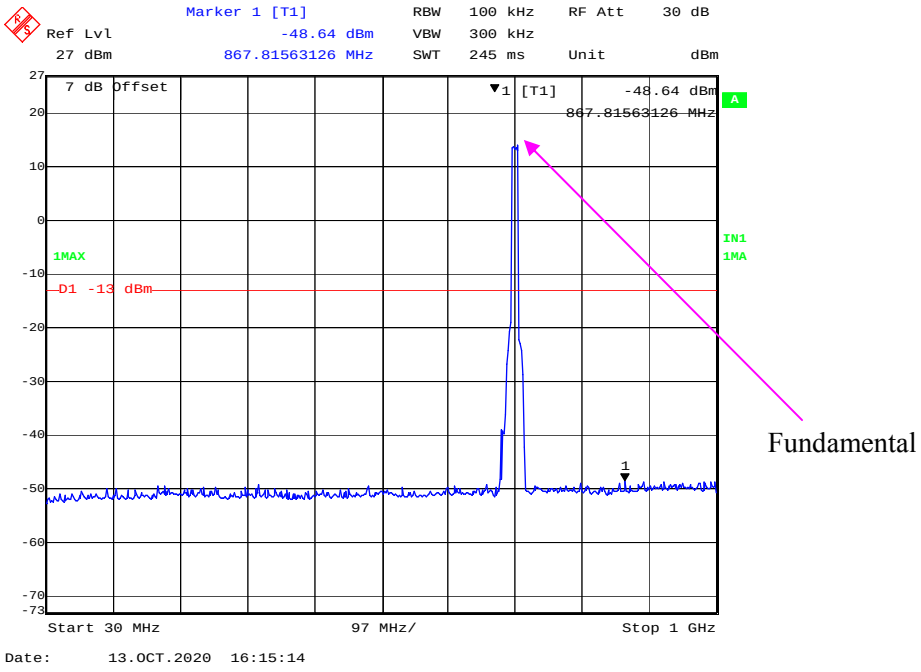
Date: 13.OCT.2020 15:51:48

1 GHz – 10 GHz (10 MHz, QPSK, Low Channel)



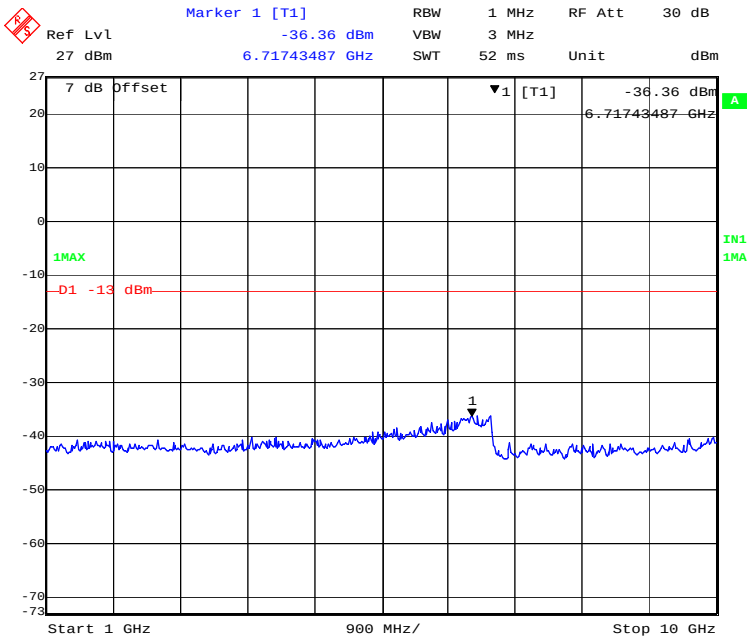
Date: 14.OCT.2020 09:11:01

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



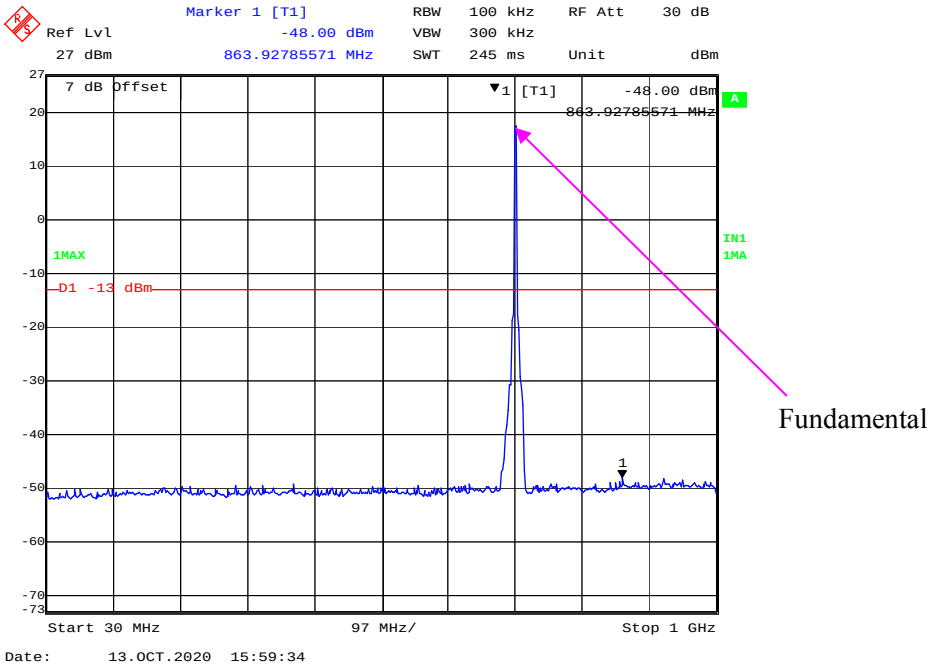
Date: 13.OCT.2020 16:15:14

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

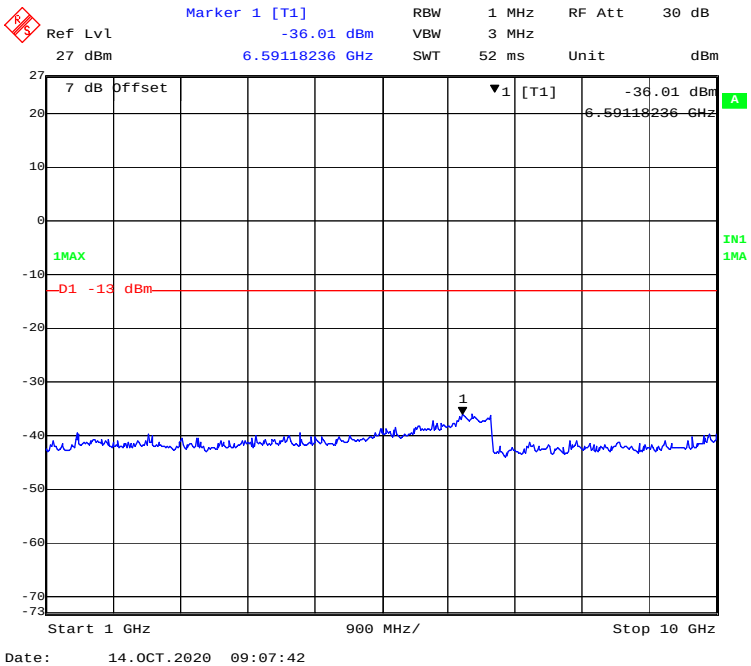


Date: 14.OCT.2020 09:03:49

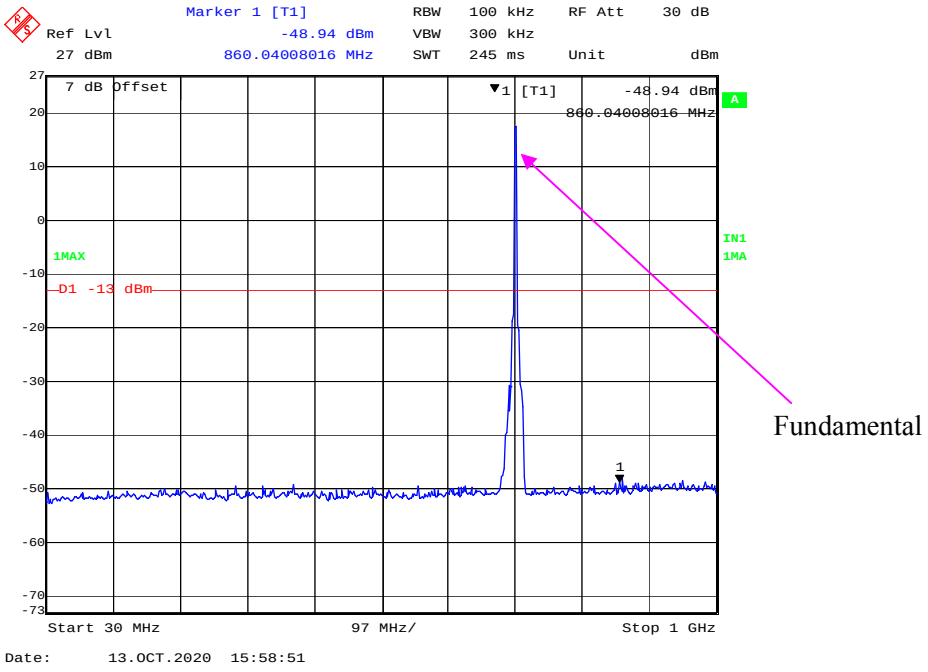
30 MHz - 1 GHz (5 MHz, QPSK, Middle Channel)



1 GHz – 10 GHz (5 MHz, QPSK, Middle Channel)

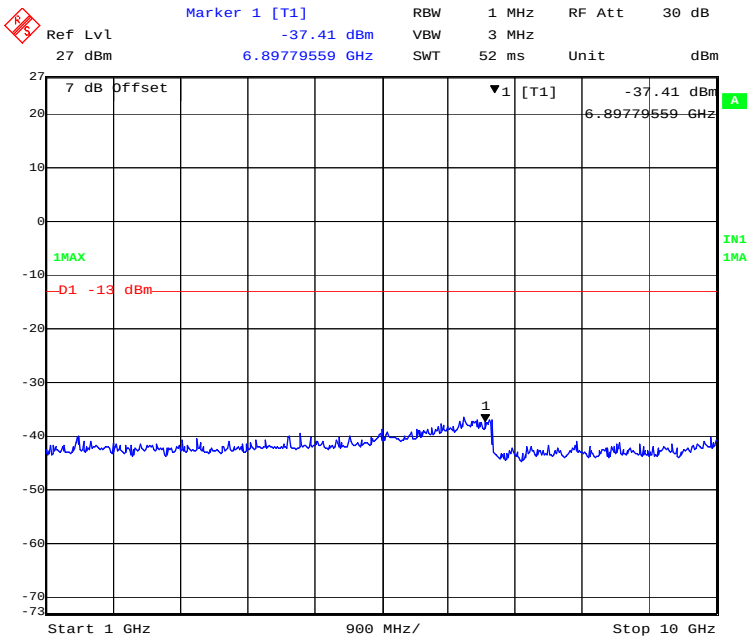


30 MHz - 1 GHz (5 MHz, 16-QAM, Middle Channel)



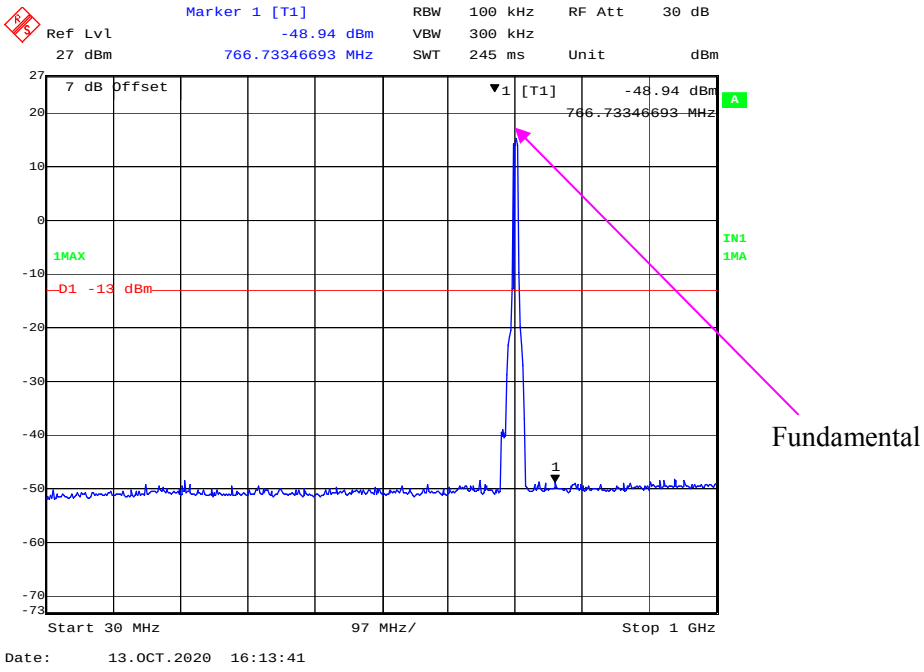
Date: 13.OCT.2020 15:58:51

1 GHz – 10 GHz (5 MHz, 16-QAM, Middle Channel)

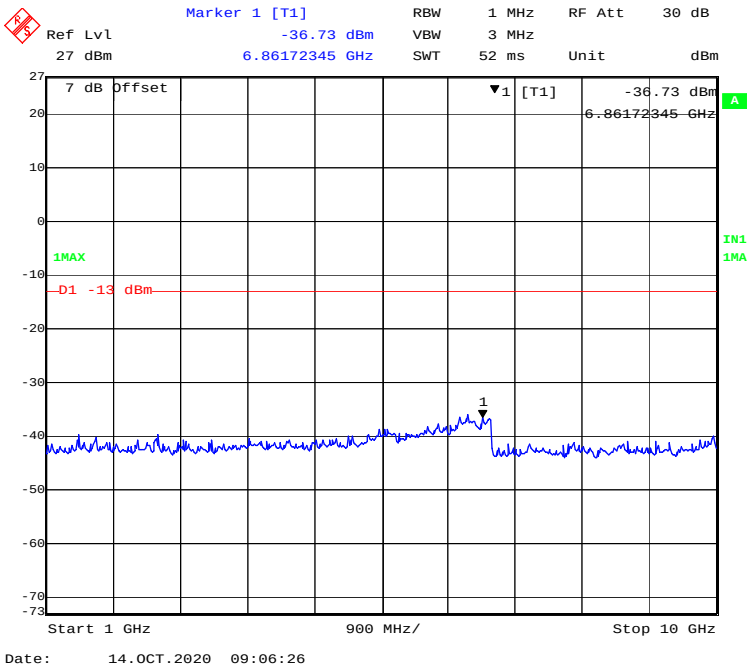


Date: 14.OCT.2020 09:07:15

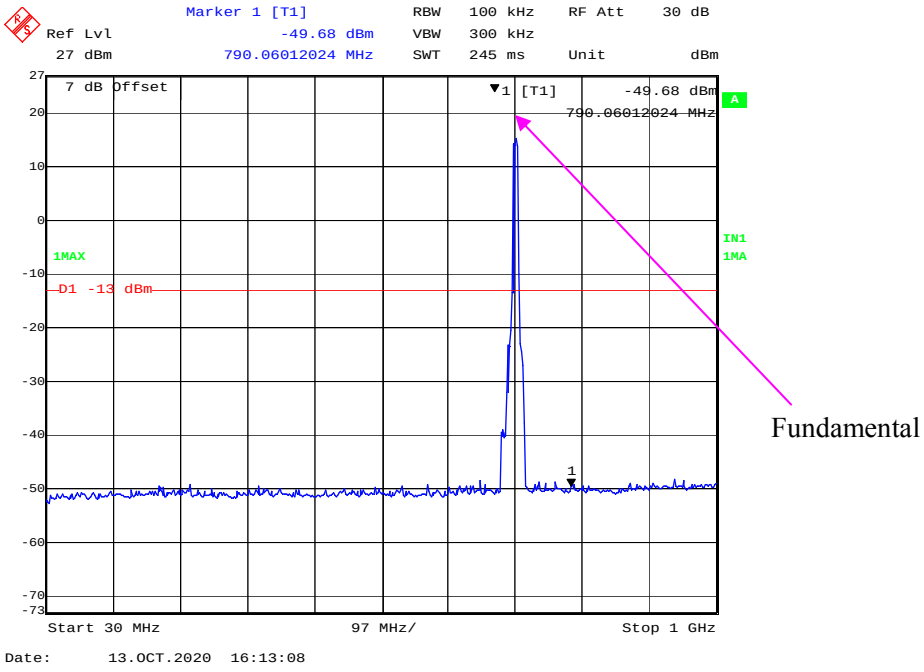
30 MHz - 1 GHz (10 MHz, QPSK, Middle Channel)



1 GHz – 10 GHz (10 MHz, QPSK, Middle Channel)

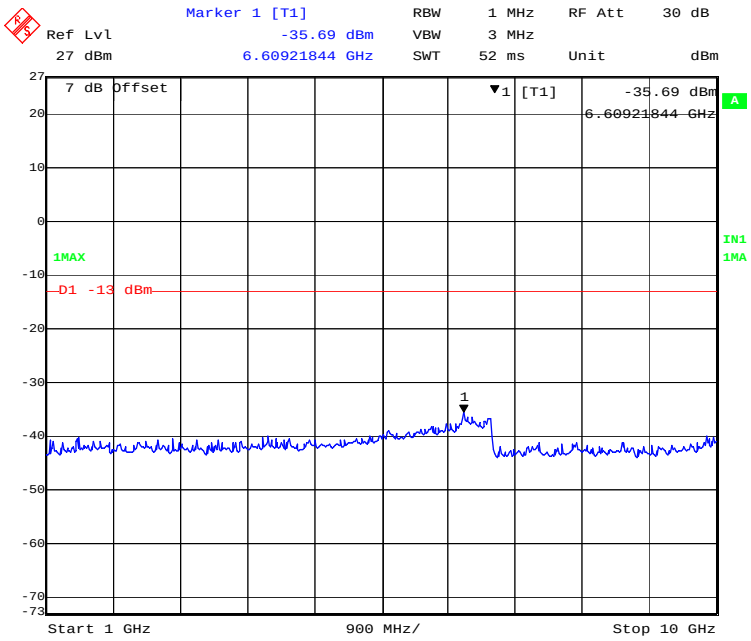


30 MHz - 1 GHz (10 MHz, 16-QAM, Middle Channel)



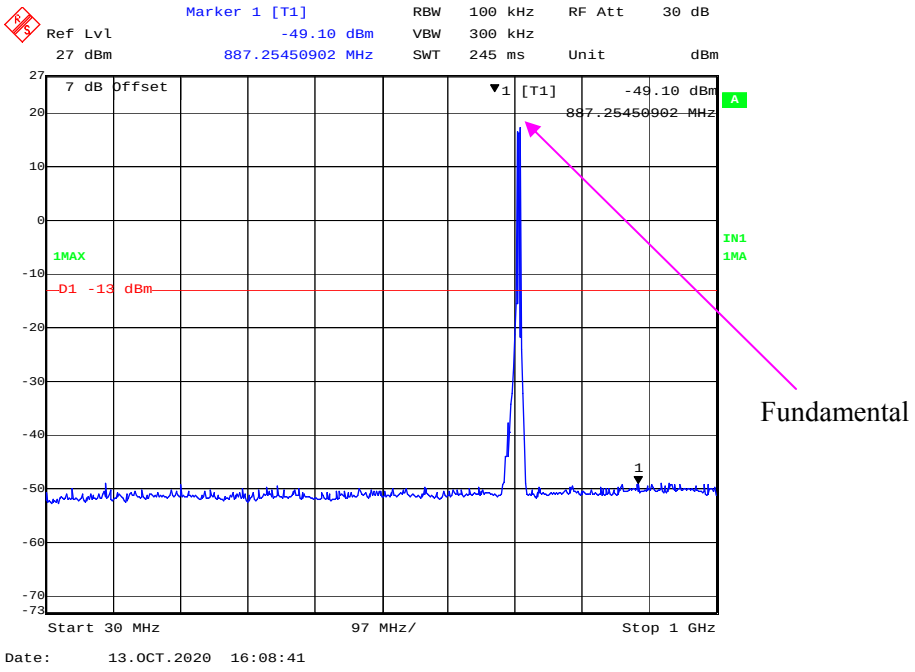
Date: 13.OCT.2020 16:13:08

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



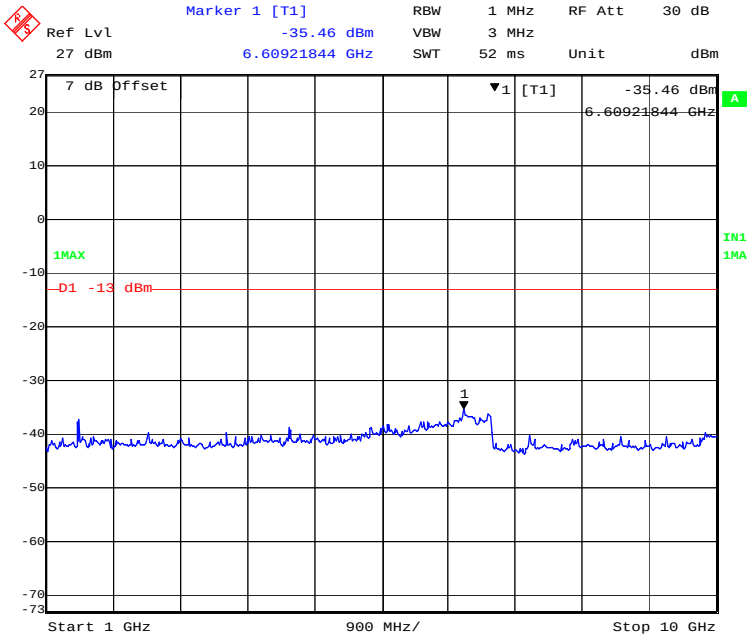
Date: 14.OCT.2020 09:05:31

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



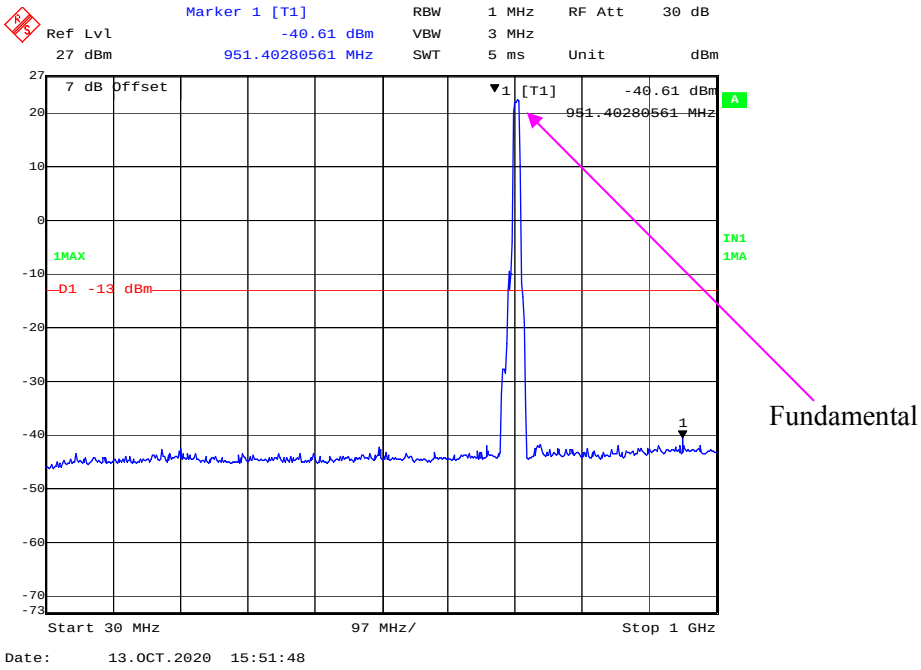
Date: 13.OCT.2020 16:08:41

1 GHz – 10 GHz (5 MHz, QPSK, High Channel)



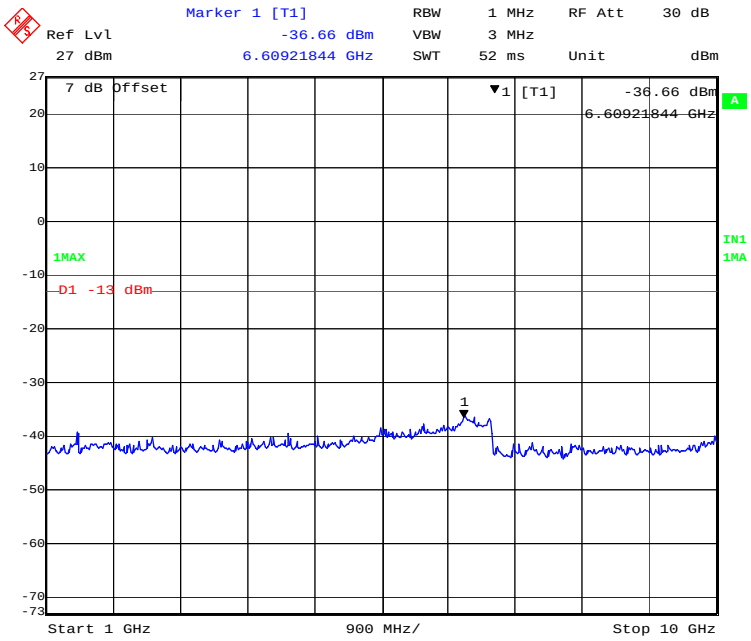
Date: 14.OCT.2020 09:08:53

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



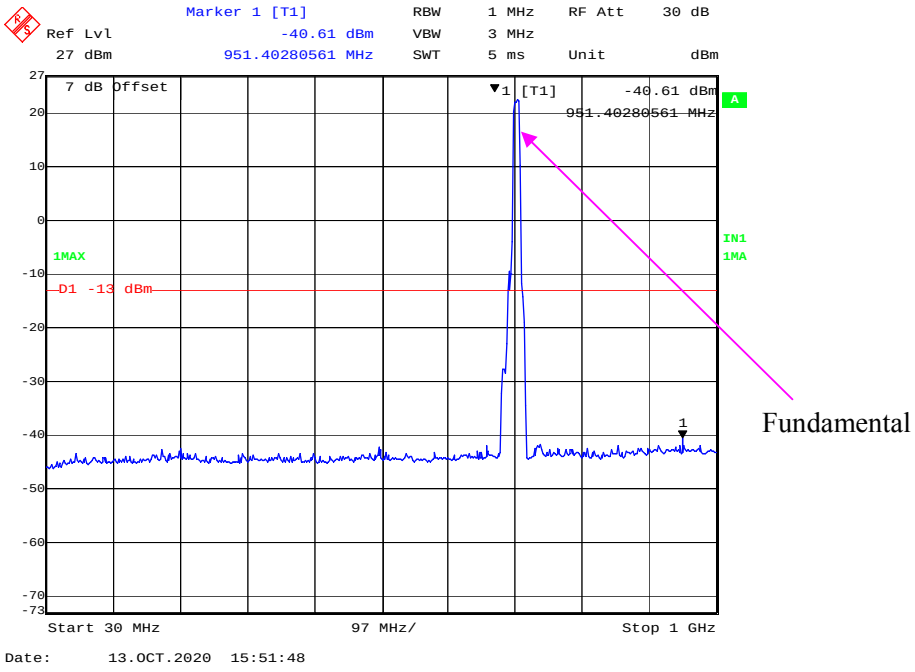
Date: 13.OCT.2020 15:51:48

1 GHz – 10 GHz (5 MHz, 16-QAM, High Channel)



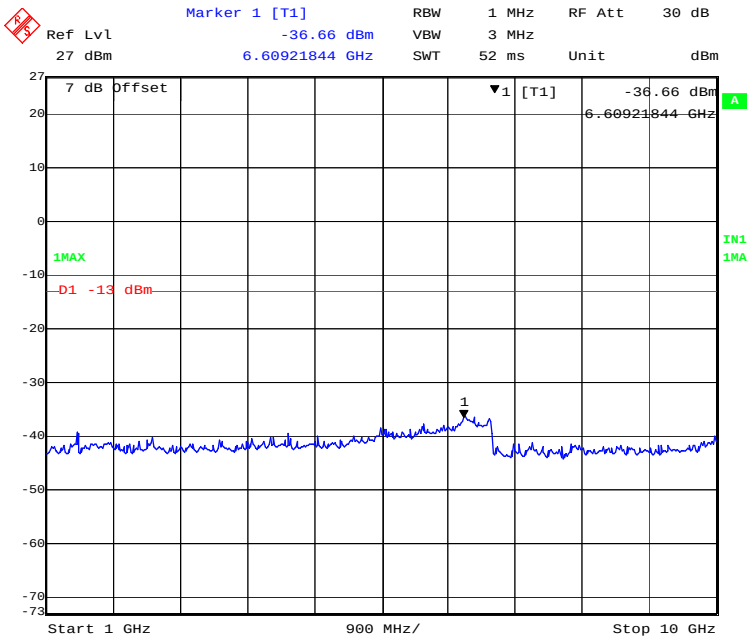
Date: 14.OCT.2020 09:11:01

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



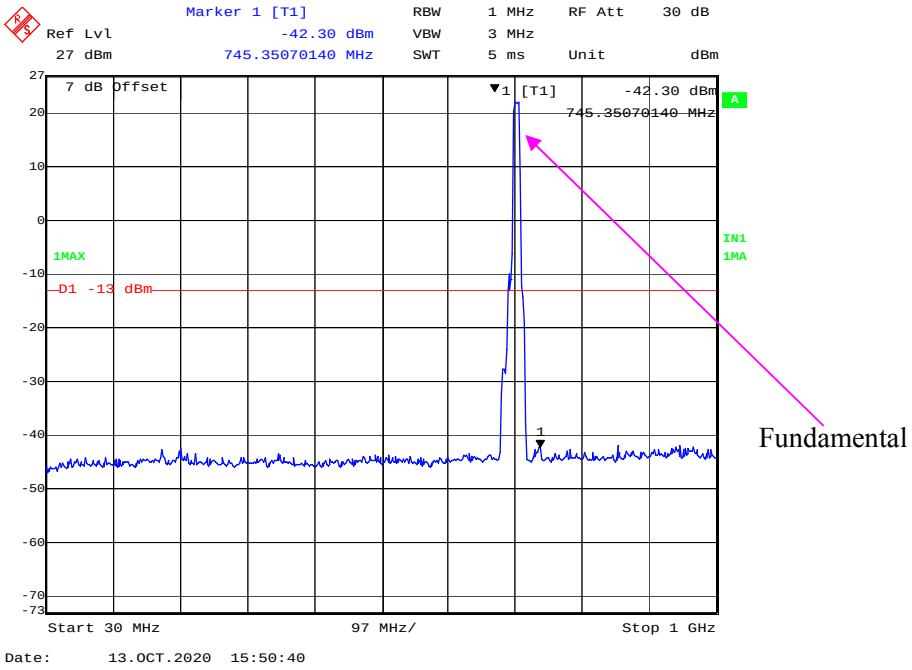
Date: 13.OCT.2020 15:51:48

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



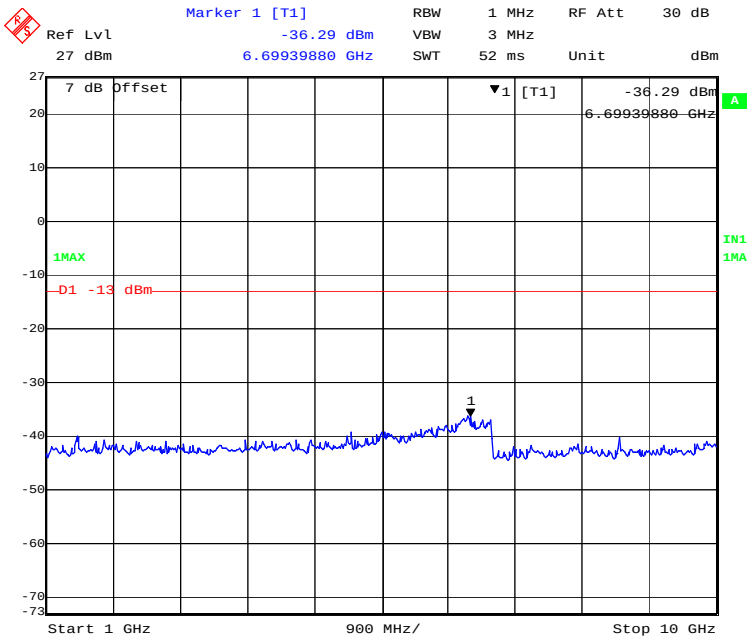
Date: 14.OCT.2020 09:11:01

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



Date: 13.OCT.2020 15:50:40

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



Date: 14.OCT.2020 09:10:20

FCC § 2.1053; § 22.917 (a); § 24.238 (a) ; § 27.53 (g) (h) - SPURIOUS RADIATED EMISSIONS

Applicable Standards

FCC § 2.1053, §22.917(a) ,§ 24.238(a) and § 27.53 (g) (h)

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.

(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.

(h) For operations in the 1710-1755 MHz, 1755-1780 MHz, 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.

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:	23.5~24.9 ℃
Relative Humidity:	50~52 %
ATM Pressure:	100.7~101.9 kPa

The testing was performed by Jack Jiao from 2020-11-20 to 2020-11-26.

Test mode: Transmitting (Pre-scan with low, middle and high channels, and the worse case data as below)

30 MHz ~ 10 GHz:

GPRS 850 Band

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)			
GPRS Mode, Low channel										
296.99	55.02	195	210	H	-51.85	0.46	-2.16	-54.47	-13	41.47
296.99	55.43	56	158	V	-51.44	0.46	-2.16	-54.06	-13	41.06
1648.40	50.72	78	125	H	-62.63	0.84	8.44	-55.03	-13	42.03
1648.40	49.94	96	139	V	-63.41	0.84	8.44	-55.81	-13	42.81
GPRS Mode, Middle channel										
296.99	55.89	96	100	H	-50.98	0.46	-2.16	-53.6	-13	40.60
296.99	55.30	289	150	V	-51.57	0.46	-2.16	-54.19	-13	41.19
1673.20	55.55	271	150	H	-47.84	0.84	8.48	-40.2	-13	27.20
1673.20	55.04	101	150	V	-48.35	0.84	8.48	-40.71	-13	27.71
GPRS Mode, High channel										
296.99	55.05	195	210	H	-51.82	0.46	-2.16	-54.44	-13	41.44
296.99	55.48	56	158	V	-51.39	0.46	-2.16	-54.01	-13	41.01
1697.60	49.51	78	125	H	-63.50	0.84	8.52	-55.82	-13	42.82
1697.60	50.19	96	139	V	-62.82	0.84	8.52	-55.14	-13	42.14

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										
335.30	55.17	249	150	H	-52.91	0.48	-1.87	-55.26	-13	42.26
335.30	55.85	214	150	V	-52.23	0.48	-1.87	-54.58	-13	41.58
1652.80	36.45	221	100	H	-76.87	0.84	8.44	-69.27	-13	56.27
1652.80	36.37	50	100	V	-76.95	0.84	8.44	-69.35	-13	56.35
WCDMA Mode, Middle channel										
335.30	55.14	153	150	H	-52.94	0.48	-1.87	-55.29	-13	42.29
335.30	55.12	259	150	V	-52.96	0.48	-1.87	-55.31	-13	42.31
1673.20	36.46	31	100	H	-66.93	0.84	8.48	-59.29	-13	46.29
1673.20	36.09	196	100	V	-67.30	0.84	8.48	-59.66	-13	46.66
WCDMA Mode, High channel										
335.30	55.15	59	150	H	-52.93	0.48	-1.87	-55.28	-13	42.28
335.30	55.76	343	150	V	-52.32	0.48	-1.87	-54.67	-13	41.67
1693.20	36.58	203	100	H	-76.45	0.84	8.51	-68.78	-13	55.78
1693.20	36.09	240	100	V	-76.94	0.84	8.51	-69.27	-13	56.27

30 MHz ~ 20 GHz:

PCS 1900 Band

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)			
GPRS Mode, Low channel										
296.99	55.10	55	145	H	-51.77	0.46	-2.16	-54.39	-13	41.39
296.99	55.13	302	156	V	-51.74	0.46	-2.16	-54.36	-13	41.36
3700.40	42.17	225	189	H	-64.80	0.95	9.78	-55.97	-13	42.97
3700.40	42.42	110	200	V	-64.55	0.95	9.78	-55.72	-13	42.72
GPRS Mode, Middle channel										
296.99	55.62	330	100	H	-51.25	0.46	-2.16	-53.87	-13	40.87
296.99	55.67	52	100	V	-51.20	0.46	-2.16	-53.82	-13	40.82
3760.00	55.06	339	200	H	-51.72	0.95	9.74	-42.93	-13	29.93
3760.00	55.81	55	200	V	-51.29	0.95	9.74	-42.50	-13	29.5
GPRS Mode, High channel										
296.99	55.69	55	145	H	-51.18	0.46	-2.16	-53.80	-13	40.80
296.99	55.07	302	156	V	-51.80	0.46	-2.16	-54.42	-13	41.42
3819.60	42.23	225	189	H	-64.36	0.96	9.71	-55.61	-13	42.61
3819.60	42.60	110	200	V	-63.99	0.96	9.71	-55.24	-13	42.24

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										
557.43	53.58	328	150	H	-51.05	0.58	-1.2	-52.83	-13	39.83
557.43	53.28	239	150	V	-51.35	0.58	-1.2	-53.13	-13	40.13
3704.80	37.27	186	200	H	-69.69	0.95	9.78	-60.86	-13	47.86
3704.80	37.21	224	100	V	-69.75	0.95	9.78	-60.92	-13	47.92
WCDMA Mode, Middle channel										
557.43	53.87	357	150	H	-50.76	0.58	-1.2	-52.54	-13	39.54
557.43	53.09	19	150	V	-51.54	0.58	-1.2	-53.32	-13	40.32
3760.00	37.72	241	200	H	-69.06	0.95	9.74	-60.27	-13	47.27
3760.00	37.89	188	100	V	-68.89	0.95	9.74	-60.10	-13	47.10
WCDMA Mode, High channel										
557.43	53.51	38	150	H	-51.12	0.58	-1.2	-52.90	-13	39.90
557.43	53.68	80	150	V	-50.95	0.58	-1.2	-52.73	-13	39.73
3815.20	37.42	37	200	H	-69.18	0.96	9.71	-60.43	-13	47.43
3815.20	37.84	206	100	V	-68.76	0.96	9.71	-60.01	-13	47.01

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 worse 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										
459.58	52.03	300	100	H	-47.36	0.55	-1.71	-45.1	-13	32.10
459.58	52.05	147	200	V	-47.34	0.55	-1.71	-45.08	-13	32.08
3701.40	41.90	209	150	H	-65.06	0.95	9.78	-56.23	-13	43.23
3701.40	41.64	103	100	V	-65.32	0.95	9.78	-56.49	-13	43.49
16-QAM 1.4MHz Bandwidth Low Channel										
459.58	52.02	294	150	H	-47.37	0.55	-1.71	-45.11	-13	32.11
459.58	51.76	70	150	V	-47.63	0.55	-1.71	-45.37	-13	32.37
3701.40	42.11	39	200	H	-64.85	0.95	9.78	-56.02	-13	43.02
3701.40	42.00	312	200	V	-64.96	0.95	9.78	-56.13	-13	43.13

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 1.4MHz Bandwidth Middle Channel										
459.58	51.32	24	100	H	-48.07	0.55	-1.71	-45.81	-13	32.81
459.58	52.13	33	200	V	-47.26	0.55	-1.71	-45.00	-13	32.00
3760.00	42.47	276	150	H	-64.31	0.95	9.74	-55.52	-13	42.52
3760.00	41.68	152	100	V	-65.10	0.95	9.74	-56.31	-13	43.31
16-QAM 1.4MHz Bandwidth Middle Channel										
459.58	52.31	360	150	H	-47.08	0.55	-1.71	-44.82	-13	31.82
459.58	53.16	302	150	V	-46.23	0.55	-1.71	-43.97	-13	30.97
3760.00	39.38	210	200	H	-67.40	0.95	9.74	-58.61	-13	45.61
3760.00	40.74	303	200	V	-66.04	0.95	9.74	-57.25	-13	44.25

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 High Channel										
459.58	52.19	303	100	H	-47.20	0.55	-1.71	-44.94	-13	31.94
459.58	52.18	39	200	V	-47.21	0.55	-1.71	-44.95	-13	31.95
3818.60	41.22	196	150	H	-65.38	0.96	9.71	-56.63	-13	43.63
3818.60	41.71	71	100	V	-64.89	0.96	9.71	-56.14	-13	43.14
16-QAM 1.4MHz Bandwidth High Channel										
459.58	53.12	253	150	H	-46.27	0.55	-1.71	-44.01	-13	31.01
459.58	52.74	21	150	V	-46.65	0.55	-1.71	-44.39	-13	31.39
3818.60	41.07	3	200	H	-65.53	0.96	9.71	-56.78	-13	43.78
3818.60	41.01	124	200	V	-65.59	0.96	9.71	-56.84	-13	43.84

30 MHz ~ 20 GHz:
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										
457.52	51.17	179	100	H	-47.96	0.55	-1.69	-45.72	-13	32.72
457.52	51.04	152	200	V	-48.09	0.55	-1.69	-45.85	-13	32.85
3421.40	42.35	212	150	H	-65.59	0.93	9.82	-56.7	-13	43.70
3421.40	42.93	141	100	V	-65.01	0.93	9.82	-56.12	-13	43.12
16-QAM 1.4MHz Bandwidth Low Channel										
457.52	51.88	226	150	H	-47.25	0.55	-1.69	-45.01	-13	32.01
457.52	51.69	164	150	V	-47.44	0.55	-1.69	-45.2	-13	32.20
3421.40	42.62	19	200	H	-65.32	0.93	9.82	-56.43	-13	43.43
3421.40	42.32	297	200	V	-65.62	0.93	9.82	-56.73	-13	43.73

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										
457.52	51.95	251	100	H	-47.18	0.55	-1.69	-44.94	-13	31.94
457.52	51.35	295	200	V	-47.78	0.55	-1.69	-45.54	-13	32.54
3465.00	42.76	211	150	H	-64.99	0.93	9.87	-56.05	-13	43.05
3465.00	42.38	27	100	V	-65.37	0.93	9.87	-56.43	-13	43.43
16-QAM 1.4MHz Bandwidth Middle Channel										
457.52	51.44	97	150	H	-47.69	0.55	-1.69	-45.45	-13	32.45
457.52	51.55	39	150	V	-47.58	0.55	-1.69	-45.34	-13	32.34
3465.00	42.39	79	200	H	-65.36	0.93	9.87	-56.42	-13	43.42
3465.00	42.44	38	200	V	-65.31	0.93	9.87	-56.37	-13	43.37

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										
457.52	51.33	33	100	H	-47.80	0.55	-1.69	-45.56	-13	32.56
457.52	51.65	259	200	V	-47.48	0.55	-1.69	-45.24	-13	32.24
3508.60	42.12	194	150	H	-65.45	0.93	9.90	-56.48	-13	43.48
3508.60	42.05	329	100	V	-65.52	0.93	9.90	-56.55	-13	43.55
16-QAM 1.4MHz Bandwidth High Channel										
457.52	51.24	83	150	H	-47.89	0.55	-1.69	-45.65	-13	32.65
457.52	51.32	346	150	V	-47.81	0.55	-1.69	-45.57	-13	32.57
3508.60	41.84	215	200	H	-65.73	0.93	9.90	-56.76	-13	43.76
3508.60	41.74	185	200	V	-65.83	0.93	9.90	-56.86	-13	43.86

LTE Band 5:

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										
459.22	51.58	345	100	H	-47.74	0.55	-1.71	-45.48	-13	32.48
459.22	51.79	61	200	V	-47.53	0.55	-1.71	-45.27	-13	32.27
1649.40	49.69	179	150	H	-63.65	0.84	8.44	-56.05	-13	43.05
1649.40	49.19	315	100	V	-64.15	0.84	8.44	-56.55	-13	43.55
16-QAM 1.4MHz Bandwidth Low Channel										
459.22	51.55	344	150	H	-47.77	0.55	-1.71	-45.51	-13	32.51
459.22	50.41	172	150	V	-48.91	0.55	-1.71	-46.65	-13	33.65
1649.40	49.49	202	200	H	-63.85	0.84	8.44	-56.25	-13	43.25
1649.40	49.63	143	200	V	-63.71	0.84	8.44	-56.11	-13	43.11

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										
459.22	51.47	253	100	H	-47.85	0.55	-1.71	-45.59	-13	32.59
459.22	51.12	324	200	V	-48.20	0.55	-1.71	-45.94	-13	32.94
1673.00	39.66	76	150	H	-63.73	0.84	8.48	-56.09	-13	43.09
1673.00	39.23	12	100	V	-64.16	0.84	8.48	-56.52	-13	43.52
16-QAM 1.4MHz Bandwidth Middle Channel										
459.22	51.25	345	150	H	-48.07	0.55	-1.71	-45.81	-13	32.81
459.22	50.85	130	150	V	-48.47	0.55	-1.71	-46.21	-13	33.21
1673.00	38.80	34	200	H	-64.59	0.84	8.48	-56.95	-13	43.95
1673.00	39.44	118	200	V	-63.95	0.84	8.48	-56.31	-13	43.31

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										
459.22	51.57	206	100	H	-47.75	0.55	-1.71	-45.49	-13	32.49
459.22	51.48	200	200	V	-47.84	0.55	-1.71	-45.58	-13	32.58
1696.60	49.32	303	150	H	-63.69	0.84	8.51	-56.02	-13	43.02
1696.60	48.73	277	100	V	-64.28	0.84	8.51	-56.61	-13	43.61
16-QAM 1.4MHz Bandwidth High Channel										
459.22	51.44	106	150	H	-47.88	0.55	-1.71	-45.62	-13	32.62
459.22	50.85	67	150	V	-48.47	0.55	-1.71	-46.21	-13	33.21
1696.60	49.13	184	200	H	-63.88	0.84	8.51	-56.21	-13	43.21
1696.60	48.79	113	200	V	-64.22	0.84	8.51	-56.55	-13	43.55

30 MHz ~ 10 GHz:
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	50.93	79	100	H	-57.33	0.49	-1.81	-55.03	-13	42.03
342.82	50.49	77	200	V	-57.77	0.49	-1.81	-55.47	-13	42.47
1399.40	44.64	75	150	H	-69.53	0.82	7.92	-62.43	-13	49.43
1399.40	44.58	154	100	V	-69.59	0.82	7.92	-62.49	-13	49.49
16-QAM 1.4MHz Bandwidth Low Channel										
342.82	50.99	158	150	H	-57.27	0.49	-1.91	-54.87	-13	41.87
342.82	50.31	133	150	V	-57.95	0.49	-1.91	-55.55	-13	42.55
1399.40	44.55	105	200	H	-69.62	0.82	7.92	-62.52	-13	49.52
1399.40	44.89	96	200	V	-69.28	0.82	7.92	-62.18	-13	49.18

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										
342.82	50.16	356	100	H	-58.10	0.49	-1.81	-55.80	-13	42.80
342.82	50.06	230	200	V	-58.20	0.49	-1.81	-55.90	-13	42.90
1415.00	44.10	150	150	H	-70.10	0.82	7.96	-62.96	-13	49.96
1415.00	44.64	307	100	V	-69.56	0.82	7.96	-62.42	-13	49.42
16-QAM 1.4MHz Bandwidth Middle Channel										
342.82	50.55	23	150	H	-57.71	0.49	-1.91	-55.31	-13	42.31
342.82	50.55	259	150	V	-57.71	0.49	-1.91	-55.31	-13	42.31
1415.00	44.28	35	200	H	-69.92	0.82	7.96	-62.78	-13	49.78
1415.00	44.59	332	200	V	-69.61	0.82	7.96	-62.47	-13	49.47

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	50.97	185	100	H	-57.29	0.49	-1.81	-54.99	-13	41.99
342.82	50.17	313	200	V	-58.09	0.49	-1.81	-55.79	-13	42.79
1430.60	44.08	199	150	H	-70.15	0.82	8	-62.97	-13	49.97
1430.60	44.4	210	100	V	-69.83	0.82	8	-62.65	-13	49.65
16-QAM 1.4MHz Bandwidth High Channel										
342.82	50.90	57	150	H	-57.36	0.49	-1.91	-54.96	-13	41.96
342.82	50.79	145	150	V	-57.47	0.49	-1.91	-55.07	-13	42.07
1430.60	44.28	213	200	H	-69.95	0.82	8	-62.77	-13	49.77
1430.60	44.21	139	200	V	-70.02	0.82	8	-62.84	-13	49.84

30 MHz ~ 10 GHz:
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										
296.99	54.59	128	100	H	-52.28	0.46	-2.16	-49.66	-13	36.66
296.99	55.50	317	200	V	-51.37	0.46	-2.16	-48.75	-13	35.75
1413.00	55.32	262	150	H	-59.65	0.83	8.06	-52.42	-13	39.42
1413.00	56.60	307	100	V	-58.37	0.83	8.06	-51.14	-13	38.14
16-QAM 5MHz Bandwidth Low Channel										
296.99	54.69	172	150	H	-52.18	0.46	-2.16	-49.56	-13	36.56
296.99	55.09	240	150	V	-51.78	0.46	-2.16	-49.16	-13	36.16
1413.00	55.00	257	200	H	-59.97	0.83	8.06	-52.74	-13	39.74
1413.00	56.26	228	200	V	-58.71	0.83	8.06	-51.48	-13	38.48

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										
296.99	54.66	246	100	H	-52.21	0.46	-2.16	-49.59	-13	36.59
296.99	55.50	26	200	V	-51.37	0.46	-2.16	-48.75	-13	35.75
1420.00	55.16	123	150	H	-59.76	0.83	8.07	-52.52	-13	39.52
1420.00	56.12	127	100	V	-58.80	0.83	8.07	-51.56	-13	38.56
16-QAM 5MHz Bandwidth Middle Channel										
296.99	54.86	175	150	H	-52.01	0.46	-2.16	-49.39	-13	36.39
296.99	55.37	267	150	V	-51.50	0.46	-2.16	-48.88	-13	35.88
1420.00	55.22	15	200	H	-59.70	0.83	8.07	-52.46	-13	39.46
1420.00	55.80	310	200	V	-59.12	0.83	8.07	-51.88	-13	38.88

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										
296.99	54.33	204	100	H	-52.54	0.46	-2.16	-49.92	-13	36.92
296.99	55.92	255	200	V	-50.95	0.46	-2.16	-48.33	-13	35.33
1427.00	54.78	114	150	H	-60.10	0.83	8.08	-52.85	-13	39.85
1427.00	55.99	76	100	V	-58.89	0.83	8.08	-51.64	-13	38.64
16-QAM 5MHz Bandwidth High Channel										
296.99	54.44	37	150	H	-52.43	0.46	-2.16	-49.81	-13	36.81
296.99	55.61	301	150	V	-51.26	0.46	-2.16	-48.64	-13	35.64
1427.00	55.52	32	200	H	-59.36	0.83	8.08	-52.11	-13	39.11
1427.00	55.81	179	200	V	-59.07	0.83	8.08	-51.82	-13	38.82

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 (g) (h)- BAND EDGES

Applicable Standards

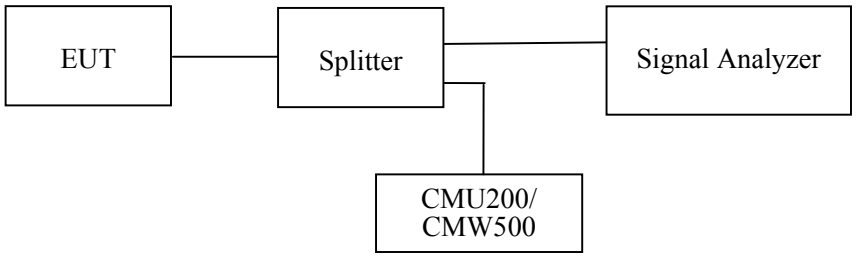
According to § 22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

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.
For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.
FCC §2.1051. 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:	24.9~25.3 ℃
Relative Humidity:	50~52 %
ATM Pressure:	100.7~102.9 kPa

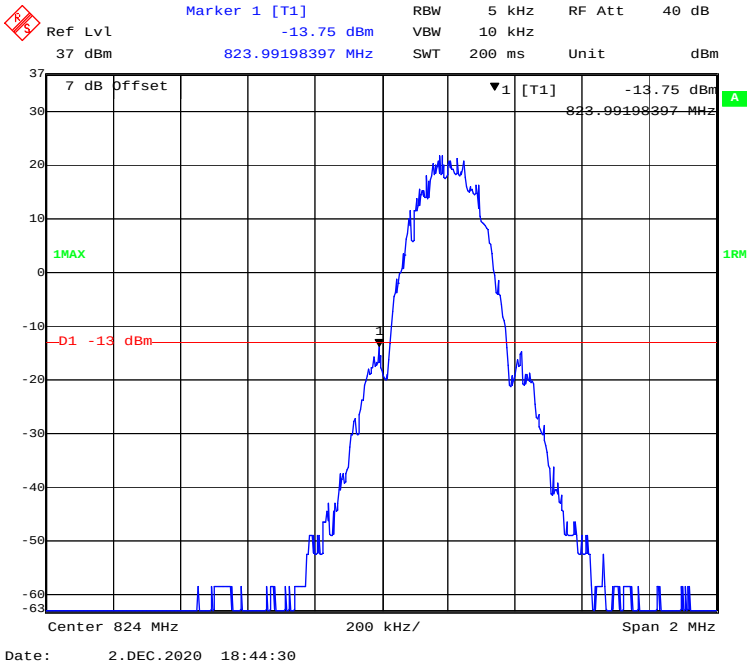
The testing was performed by Jack Jiao from 2020-10-14 to 2020-10-20.

EUT operation mode: Transmitting

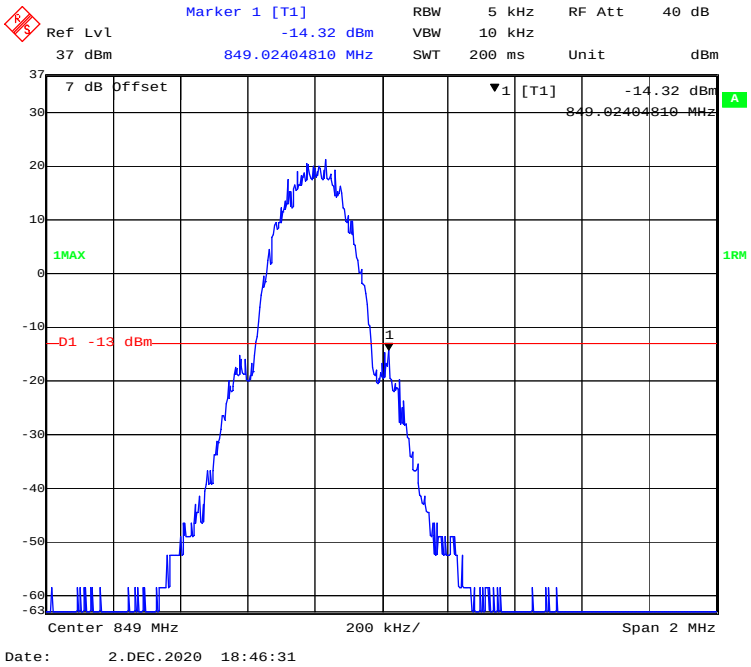
Test Result: Compliance.

GSM 850 Band:

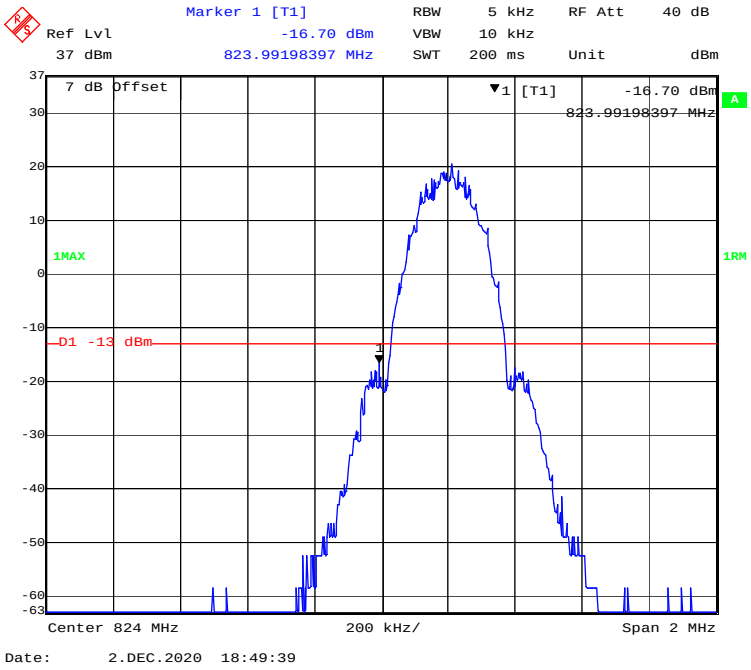
GPRS Mode, Left Band Edge



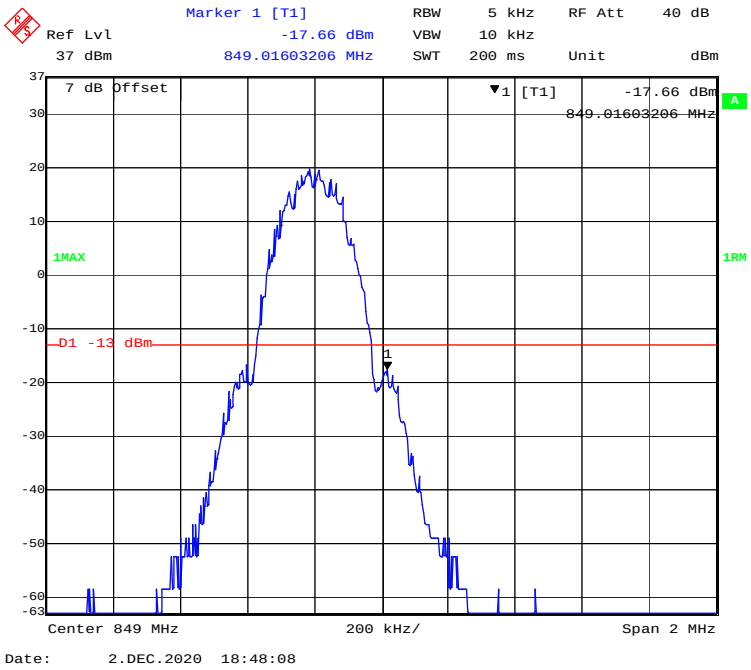
GPRS Mode, Right Band Edge



EGPRS Mode, Left Band Edge

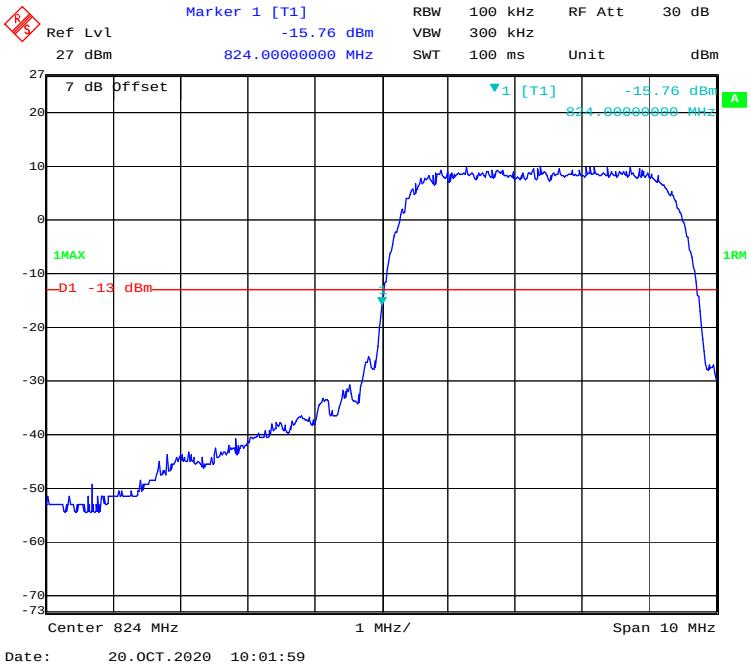


EGPRS Mode, Right Band Edge

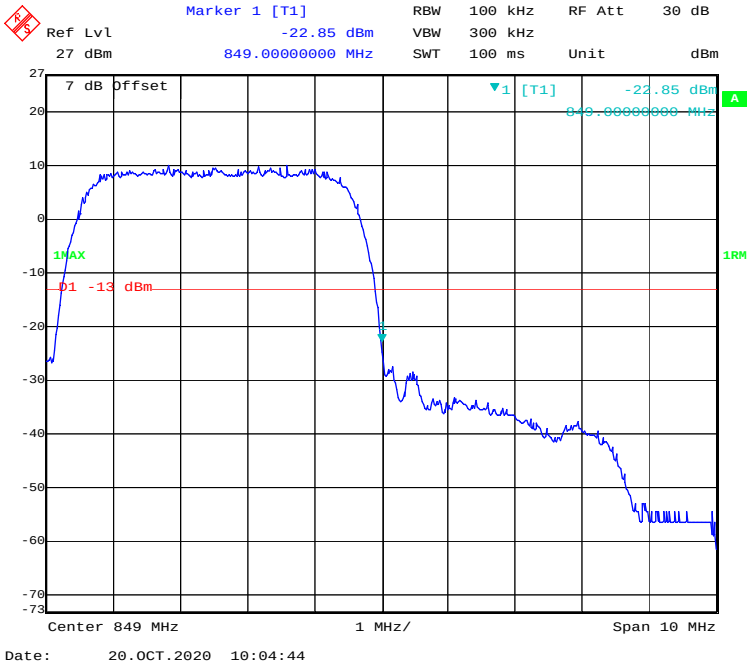


WCDMA Band V

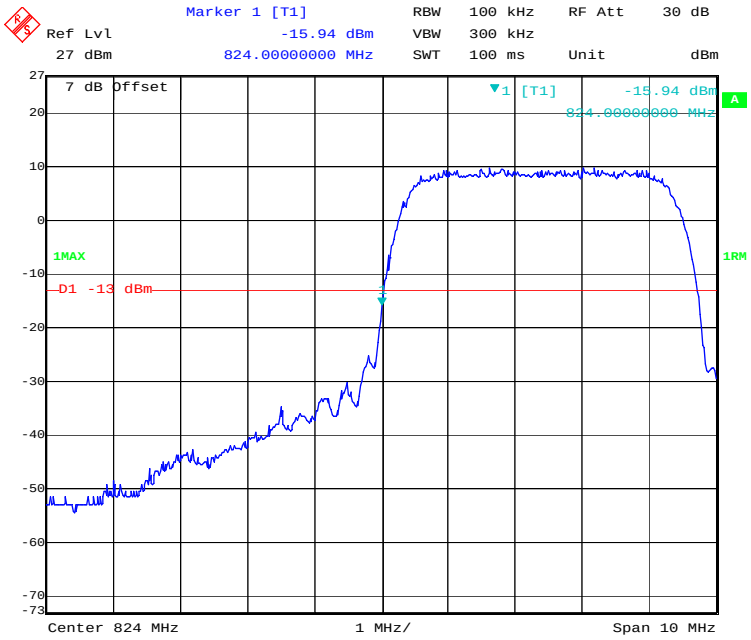
WCDMA (Rel 99) Mode, Left Band Edge



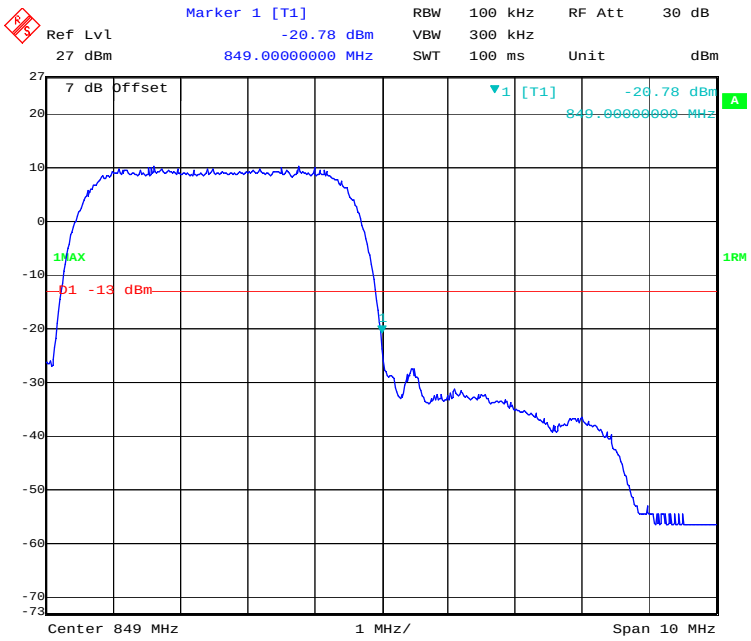
WCDMA (Rel 99) Mode, Right Band Edge



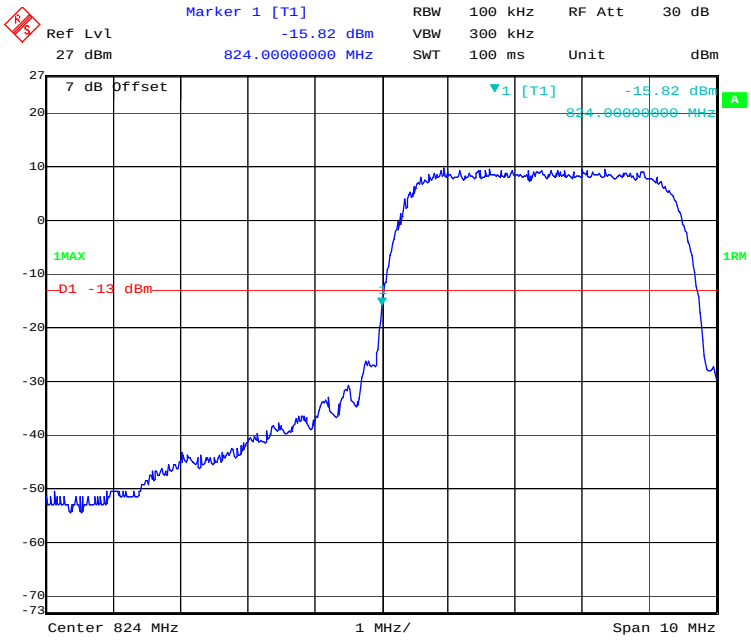
WCDMA (HSDPA) Mode, Left Band Edge



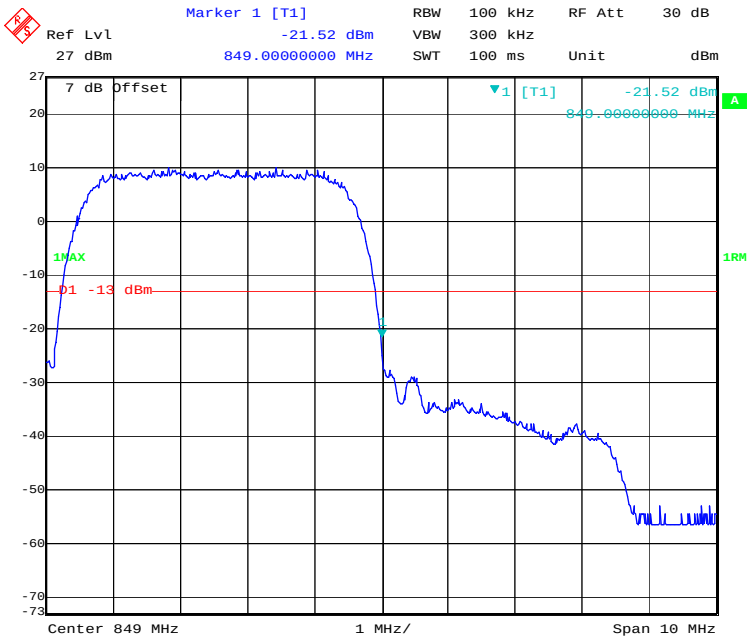
WCDMA (HSDPA) Mode, Right Band Edge



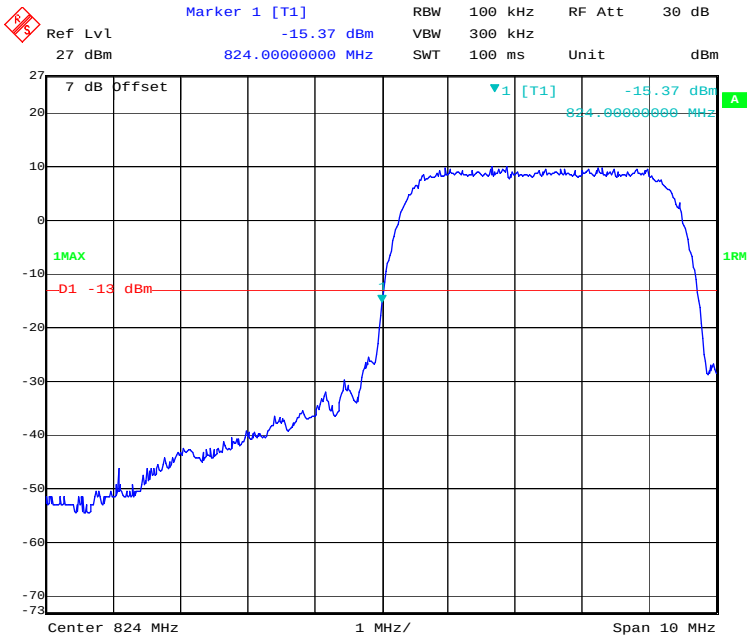
WCDMA (HSUPA) Mode, Left Band Edge



WCDMA (HSUPA) Mode, Right Band Edge



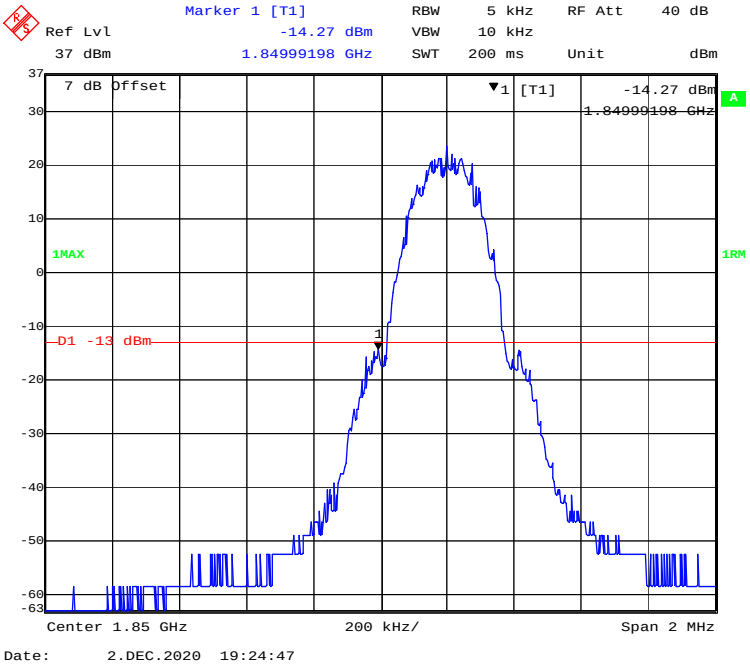
WCDMA (HSPA+) Mode, Left Band Edge



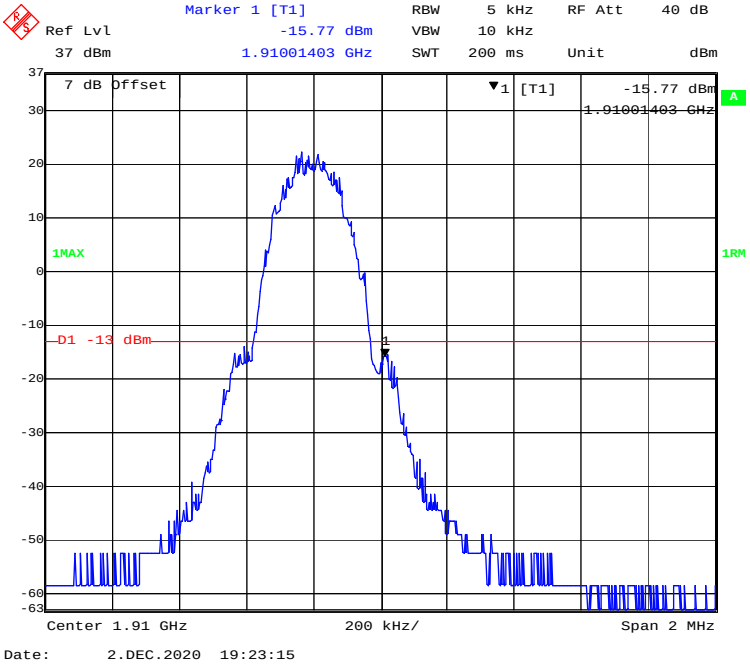
WCDMA (HSPA+) Mode, Right Band Edge

PCS 1900 Band:

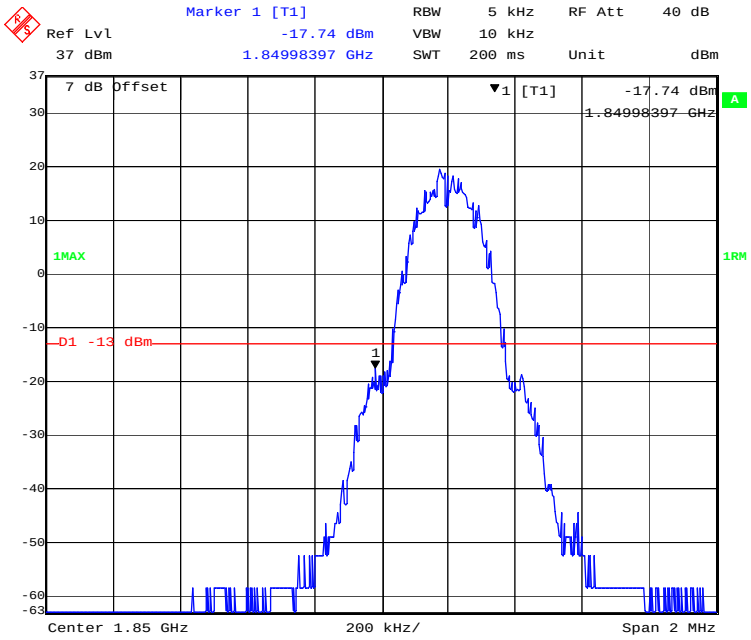
GPRS Mode, Left Band Edge



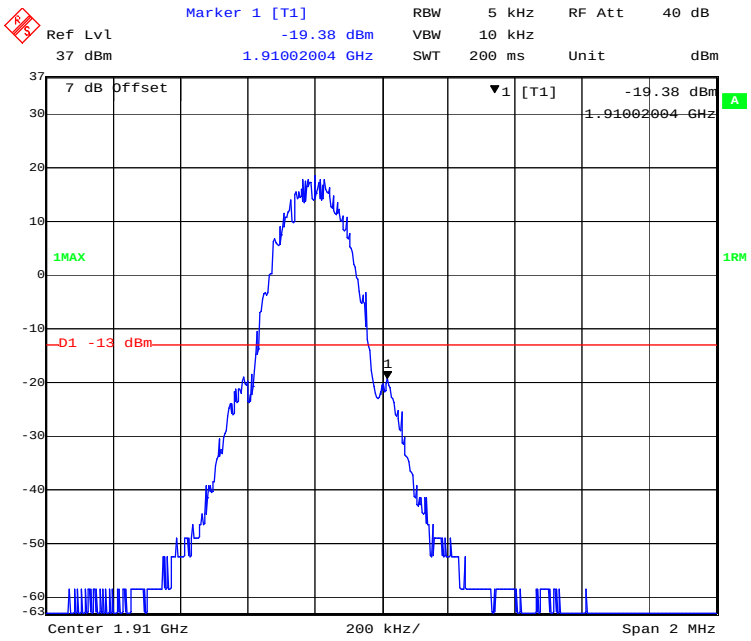
GPRS Mode, Right Band Edge



EGPRS Mode, Left Band Edge

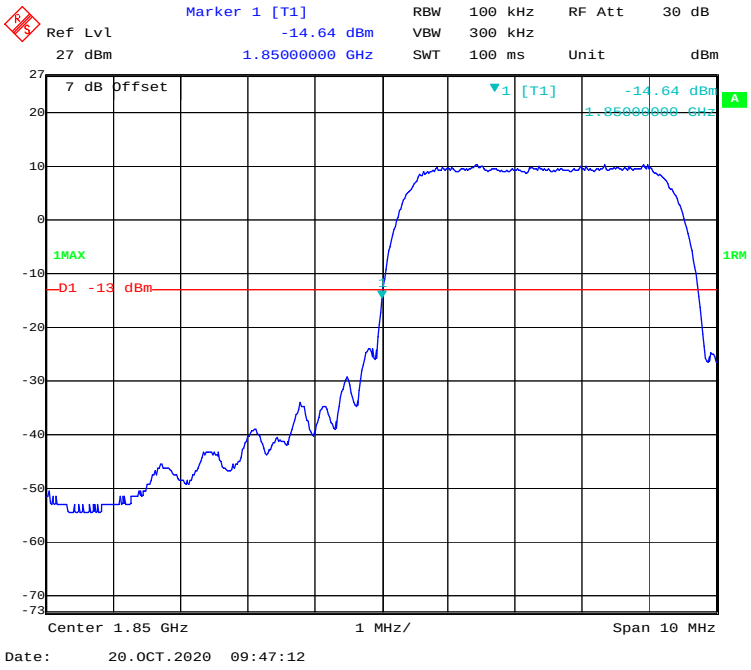


EGPRS Mode, Right Band Edge

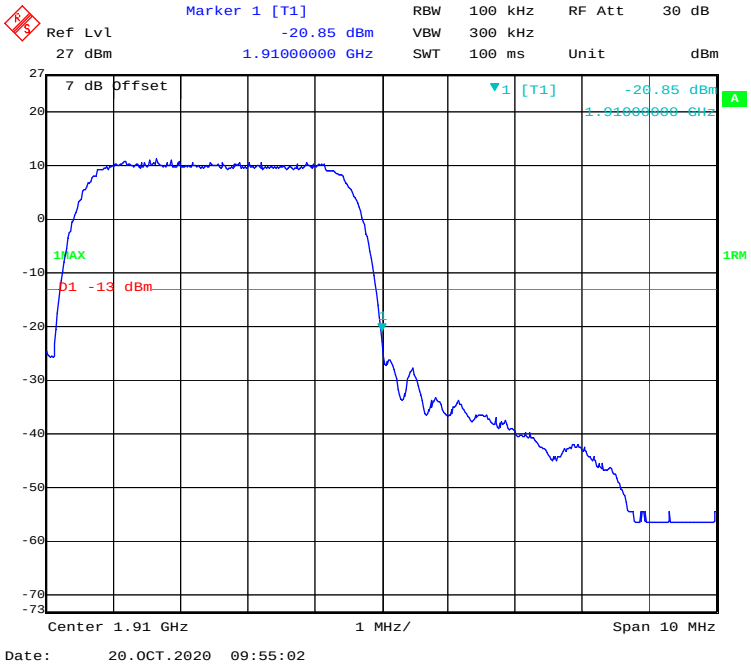


WCDMA Band II

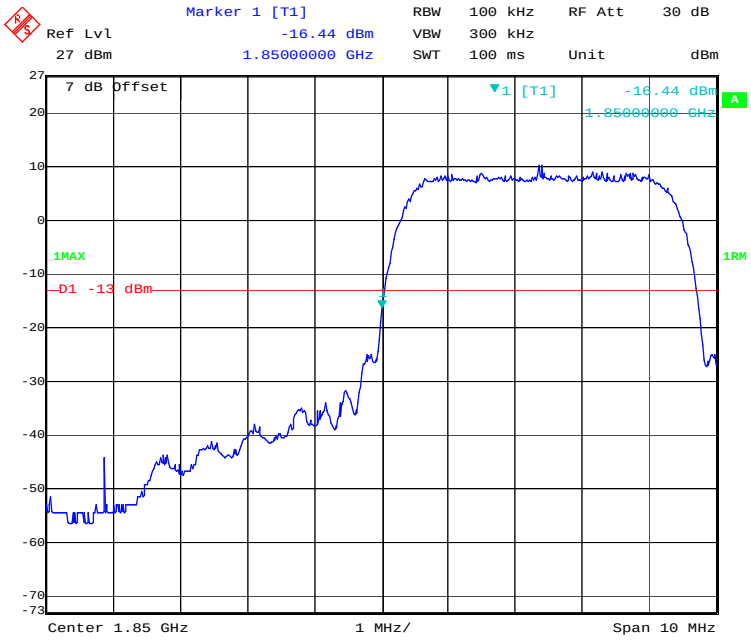
WCDMA (Rel 99) Mode, Left Band Edge



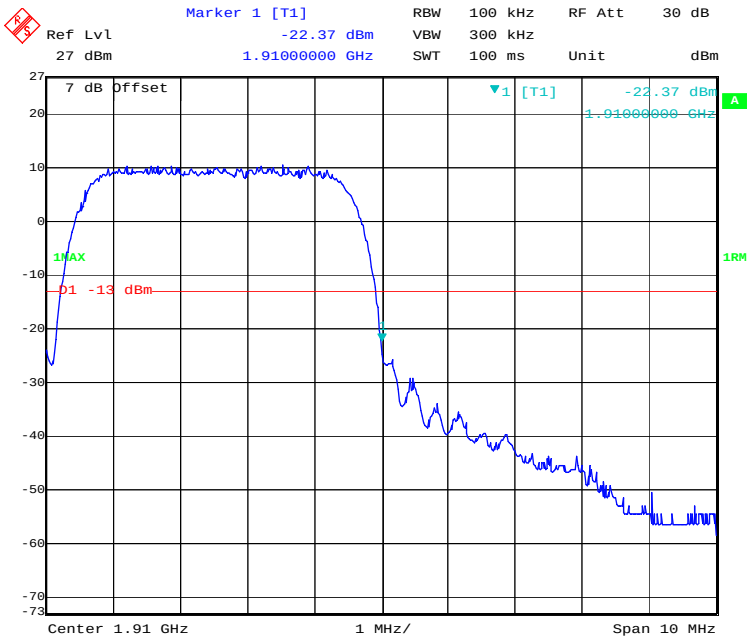
WCDMA (Rel 99) Mode, Right Band Edge



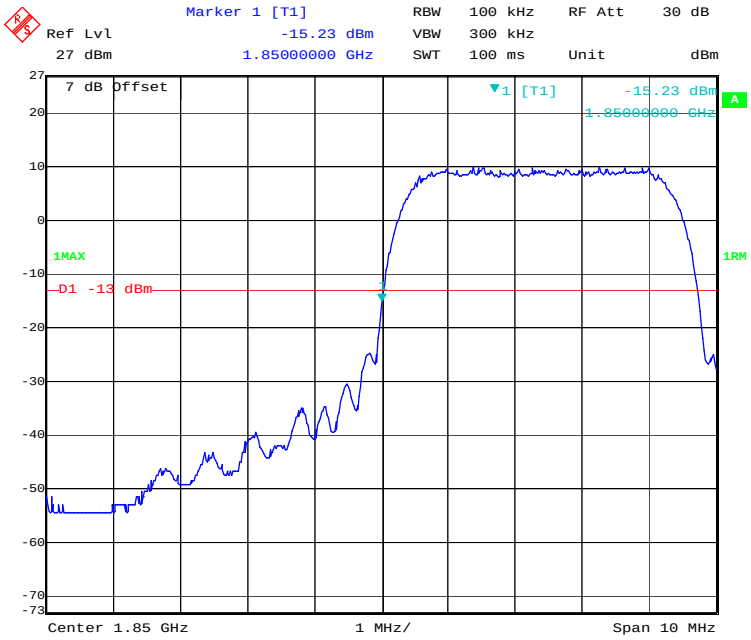
WCDMA (HSDPA) Mode, Left Band Edge



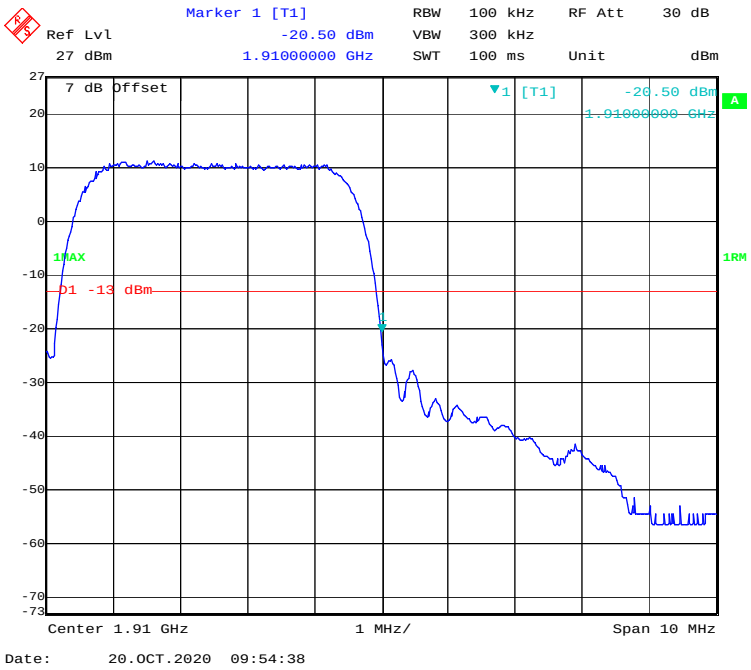
WCDMA (HSDPA) Mode, Right Band Edge



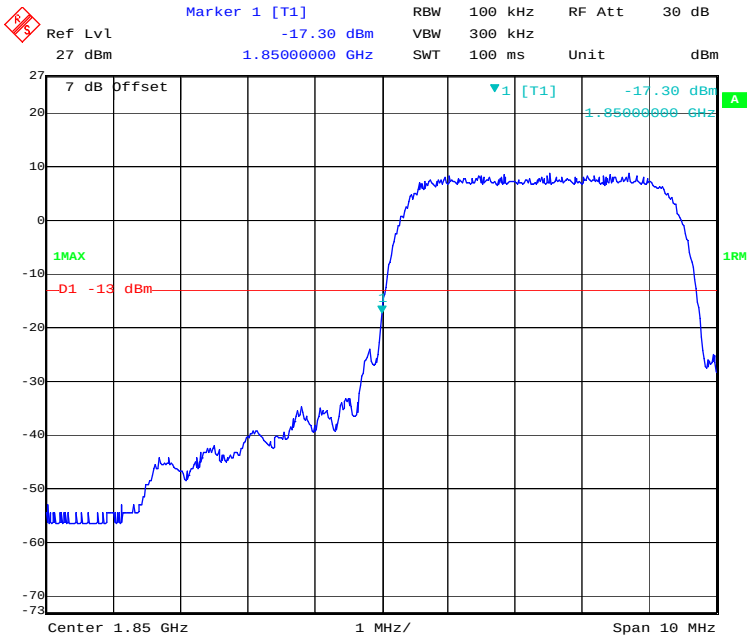
WCDMA (HSUPA) Mode, Left Band Edge



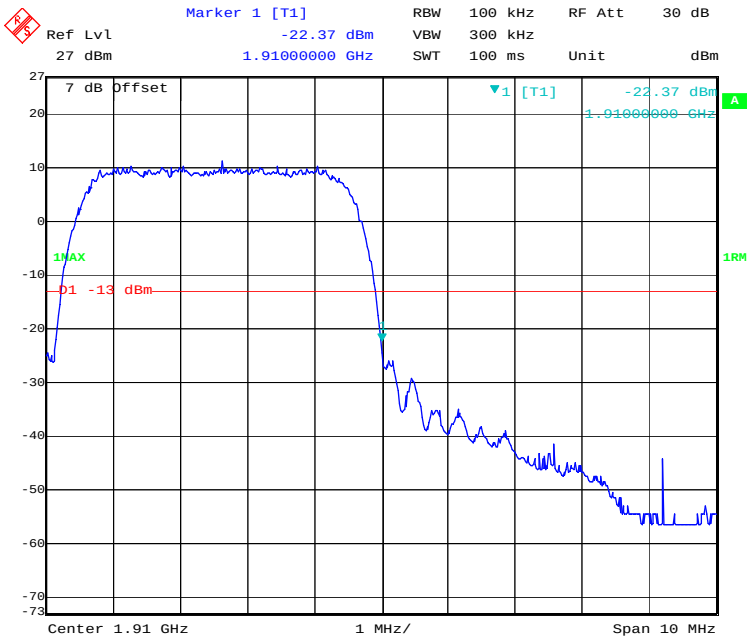
WCDMA (HSUPA) Mode, Right Band Edge



WCDMA (HSPA+) Mode, Left Band Edge

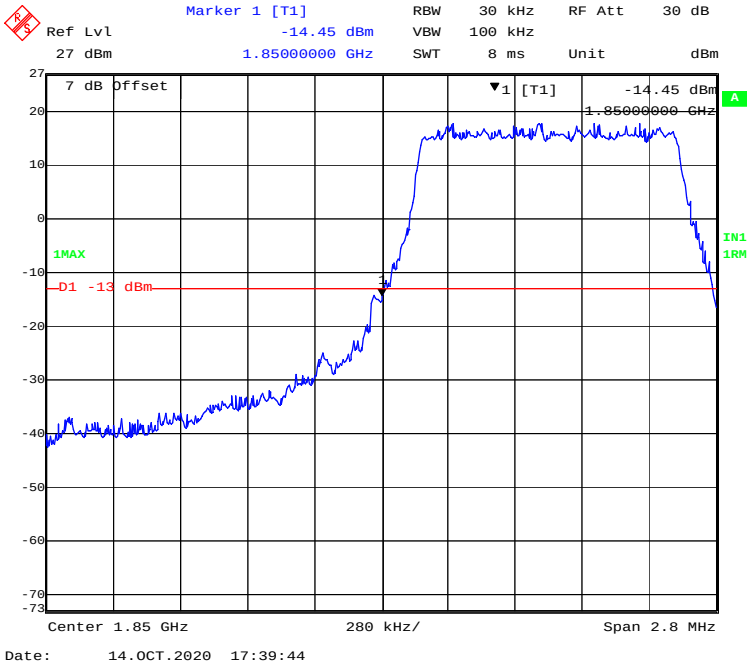


WCDMA (HSPA+) Mode, Right Band Edge

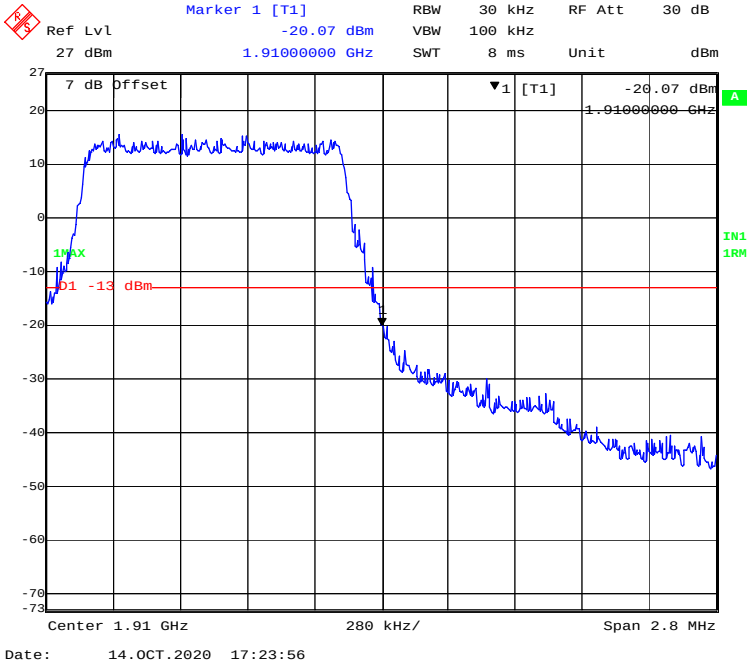


LTE Band 2:

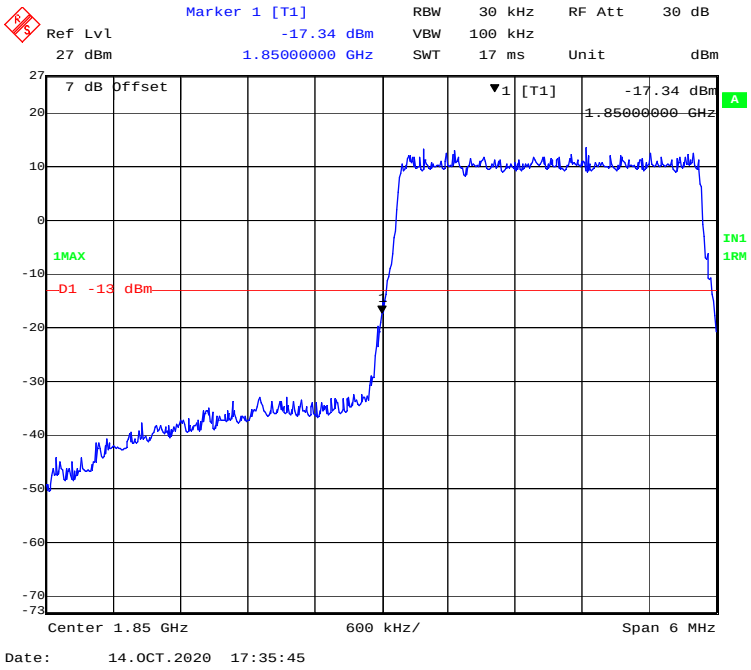
QPSK (1.4 MHz, FULL RB) - Left Band Edge



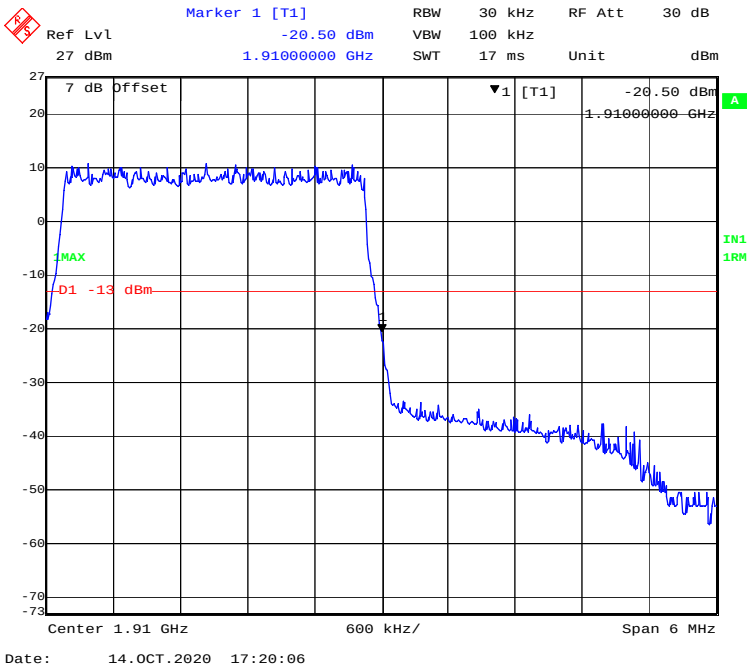
QPSK (1.4 MHz, FULL RB) - Right Band Edge



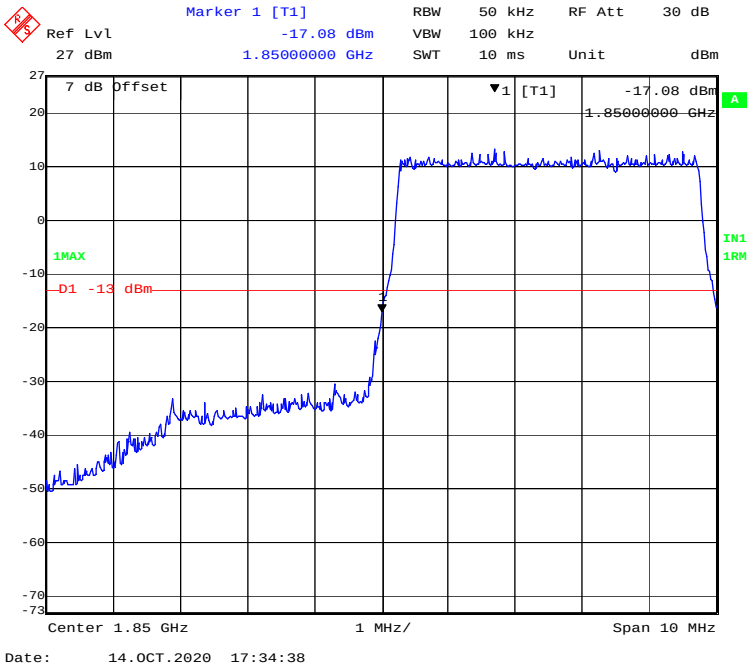
QPSK (3 MHz, FULL RB) - Left Band Edge



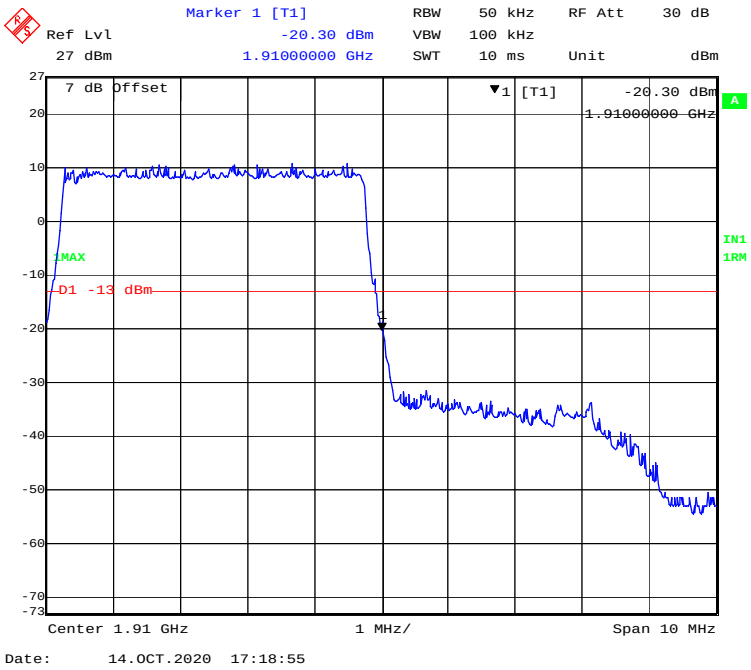
QPSK (3 MHz, FULL RB) - Right Band Edge



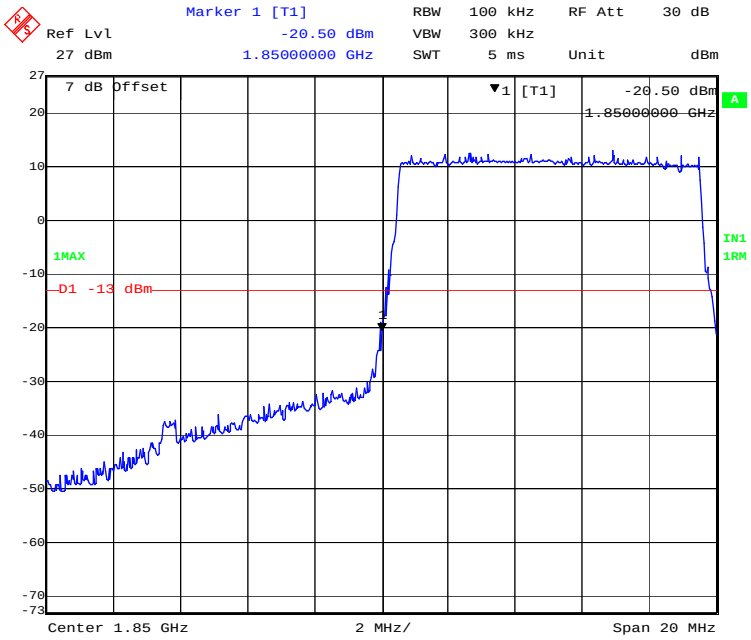
QPSK (5 MHz, FULL RB) - Left Band Edge



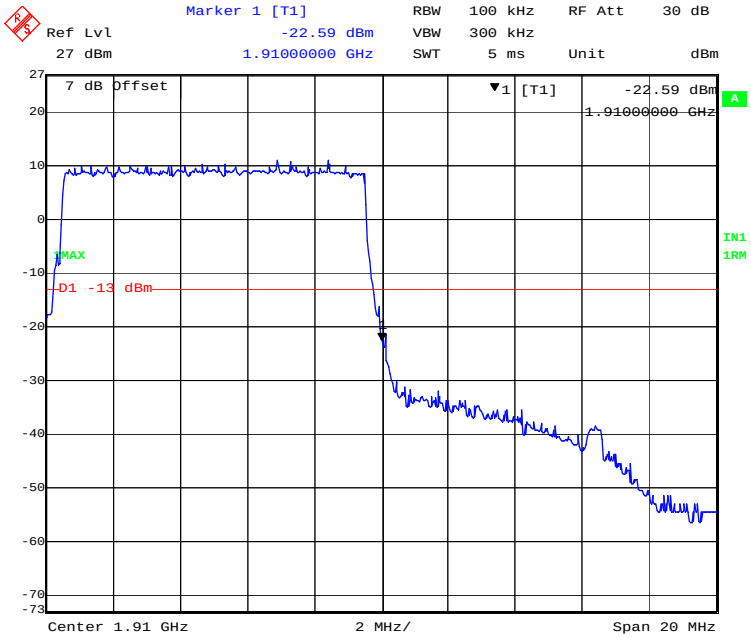
QPSK (5 MHz, FULL RB) - Right Band Edge



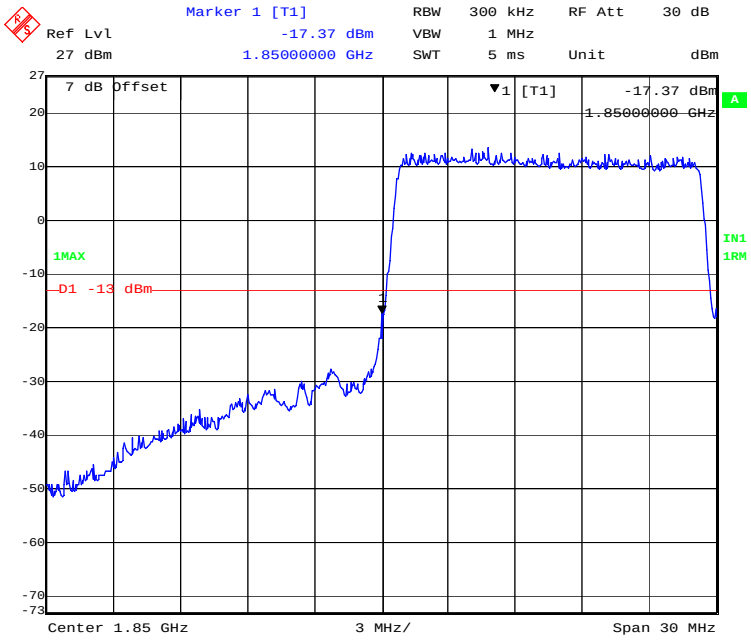
QPSK (10 MHz, FULL RB) - Left Band Edge



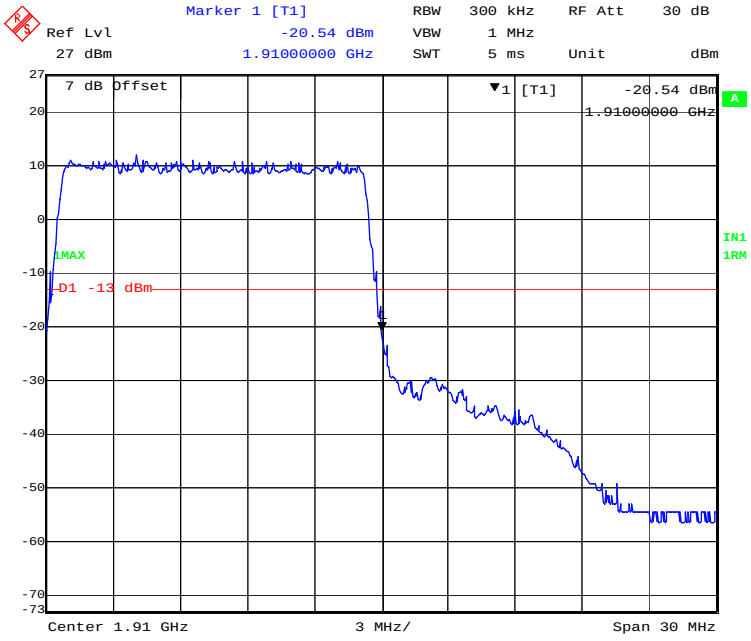
QPSK (10 MHz, FULL RB) - Right Band Edge



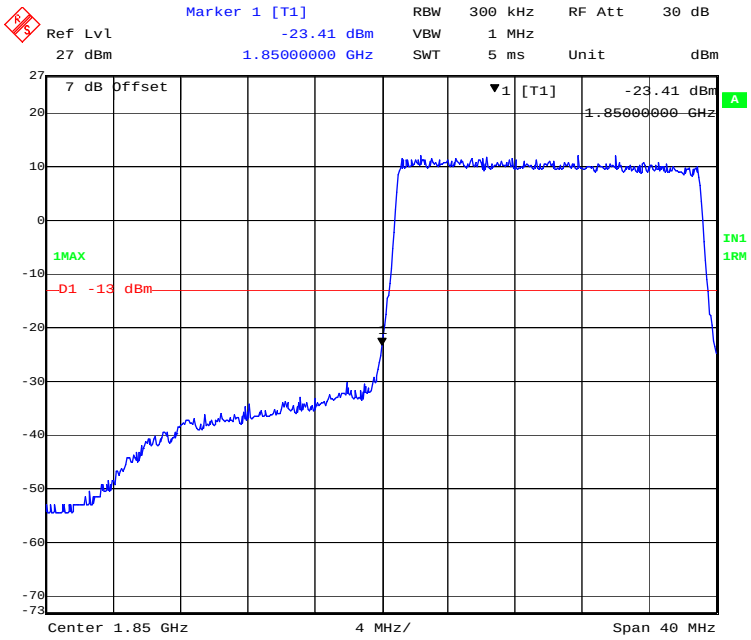
QPSK (15 MHz, FULL RB) - Left Band Edge



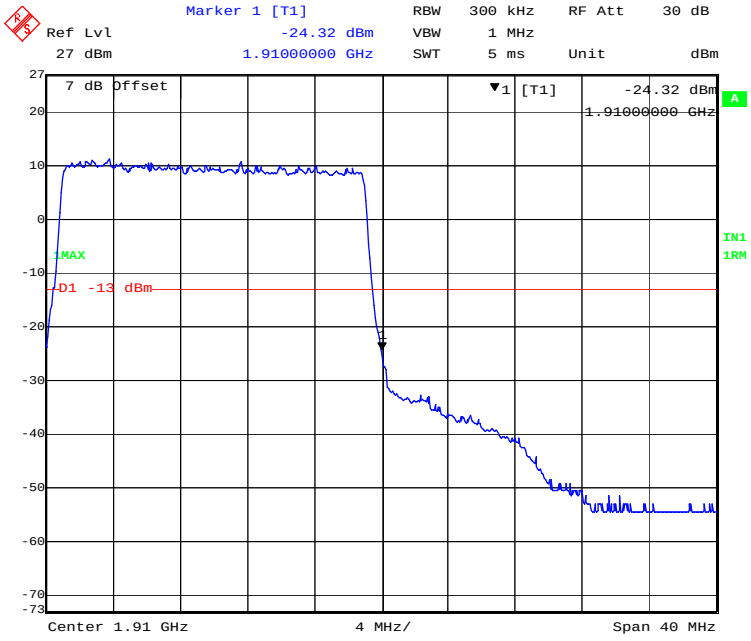
QPSK (15 MHz, FULL RB) - Right Band Edge



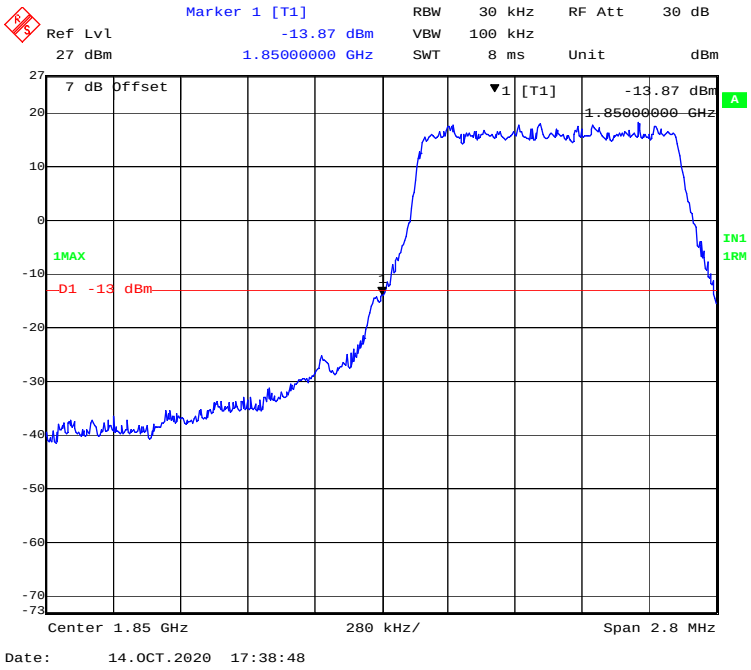
QPSK (20 MHz, FULL RB) - Left Band Edge



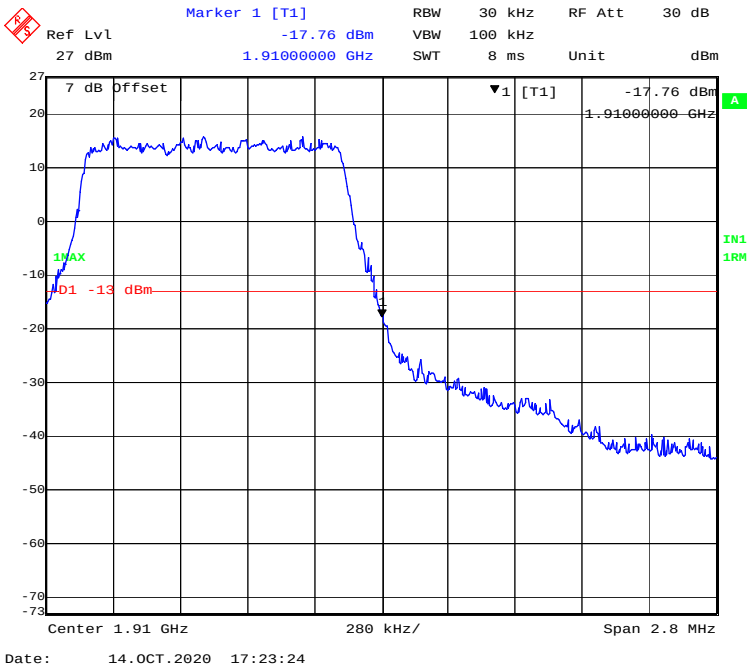
QPSK (20 MHz, FULL RB) - Right Band Edge



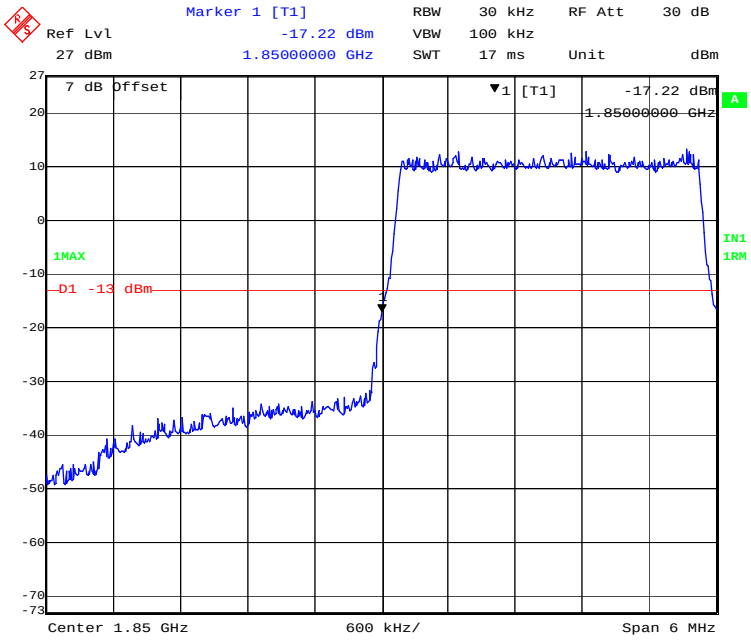
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



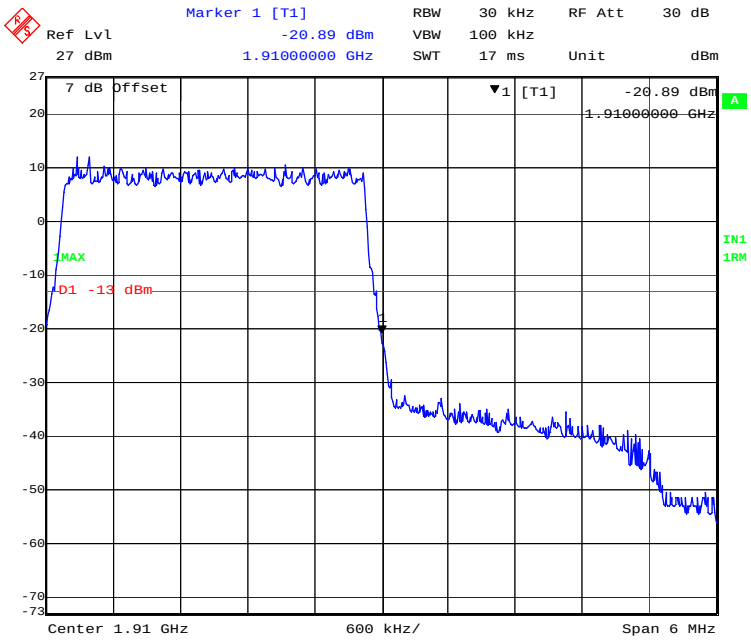
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



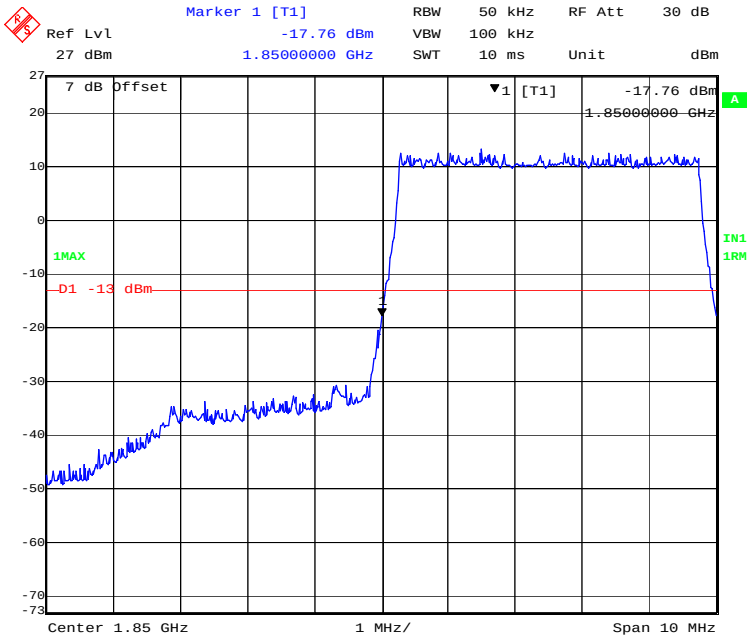
16-QAM (3 MHz, FULL RB) - Left Band Edge



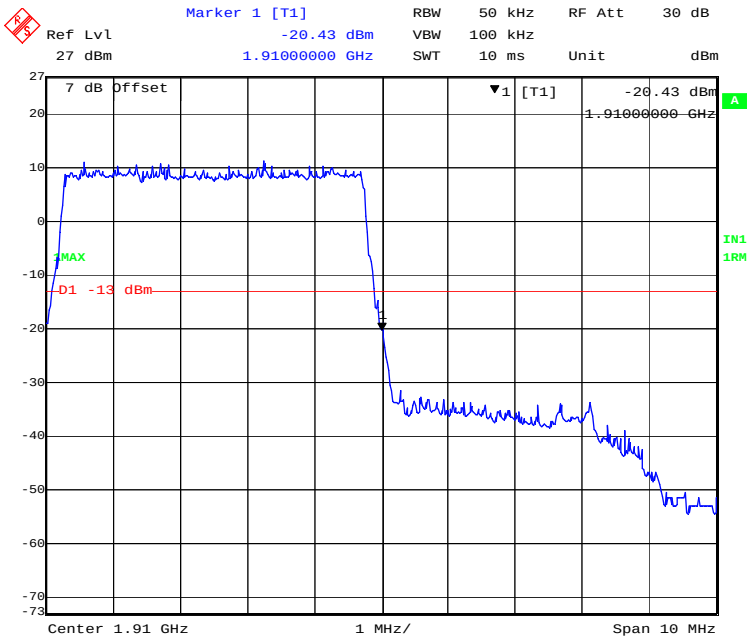
16-QAM (3 MHz, FULL RB) - Right Band Edge



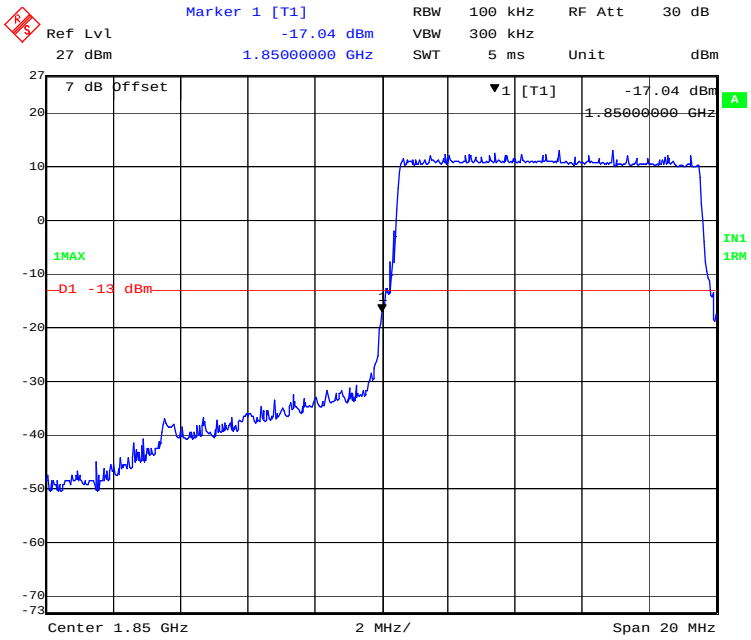
16-QAM (5 MHz, FULL RB) - Left Band Edge



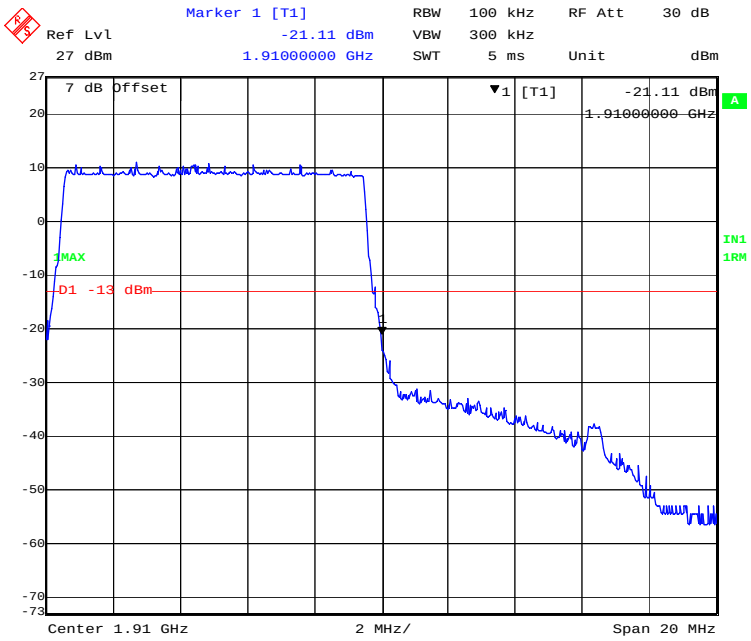
16-QAM (5 MHz, FULL RB) - Right Band Edge



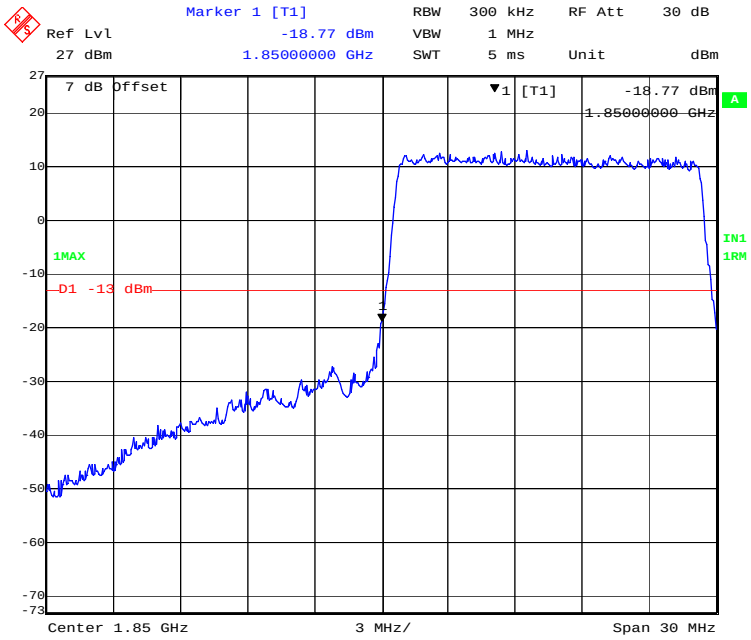
16-QAM (10 MHz, FULL RB) - Left Band Edge



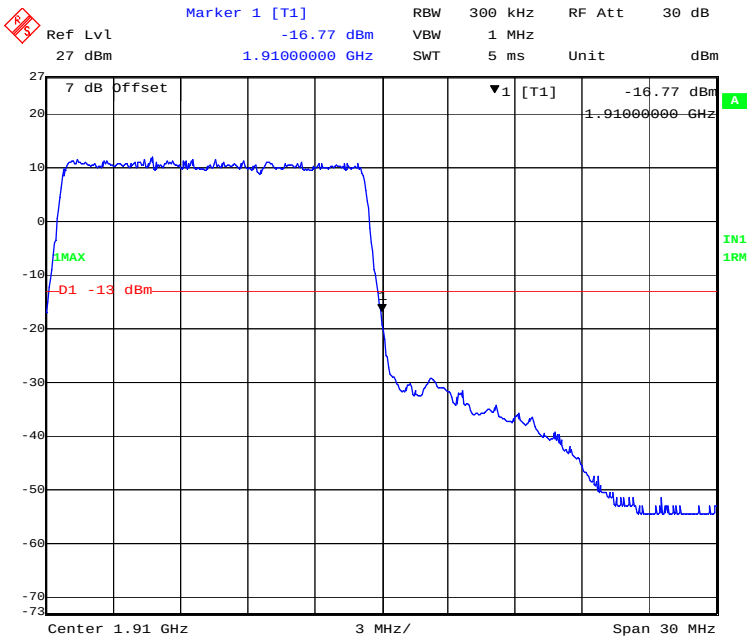
16-QAM (10 MHz, FULL RB) - Right Band Edge



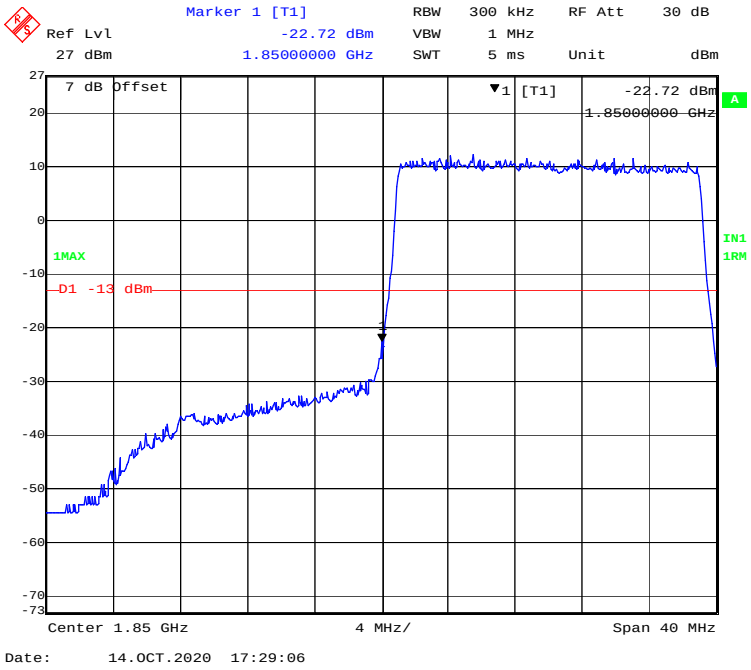
16-QAM (15 MHz, FULL RB) - Left Band Edge



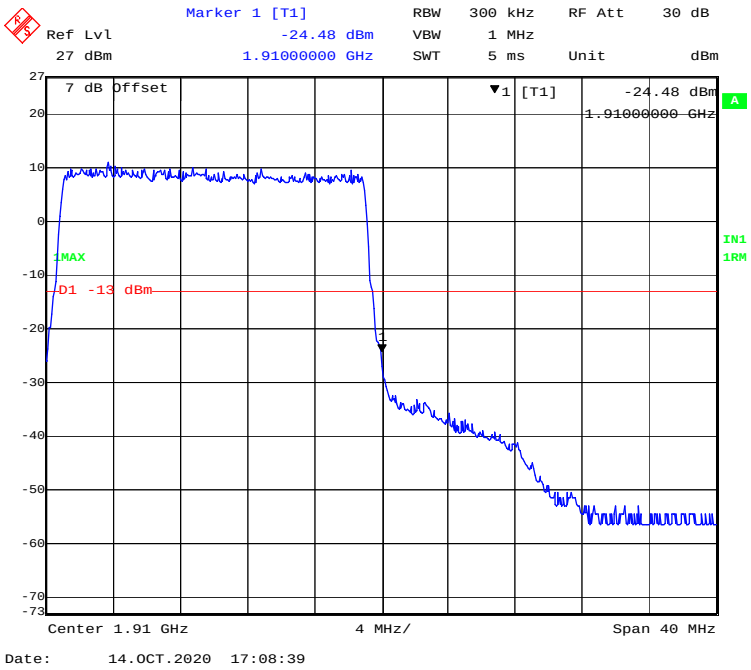
16-QAM (15 MHz, FULL RB) - Right Band Edge



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

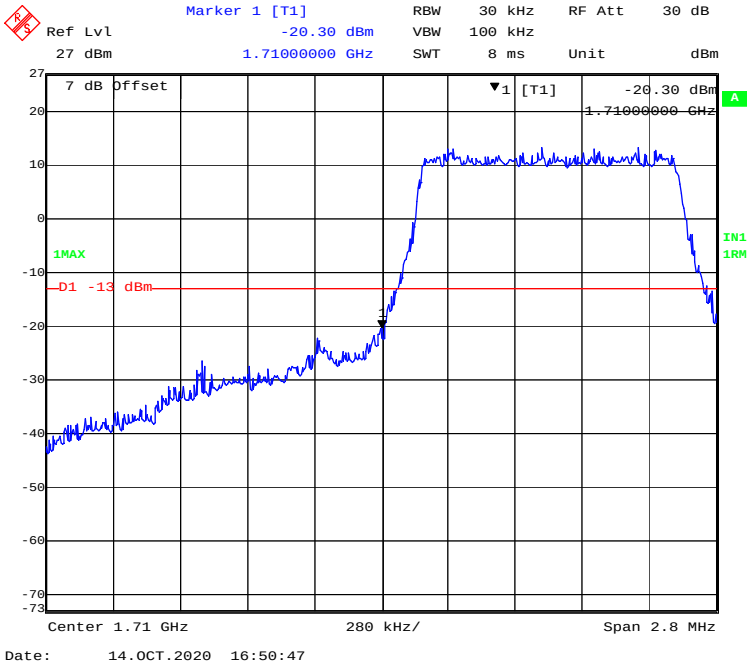


16-QAM (20 MHz, FULL RB) - Right Band Edge

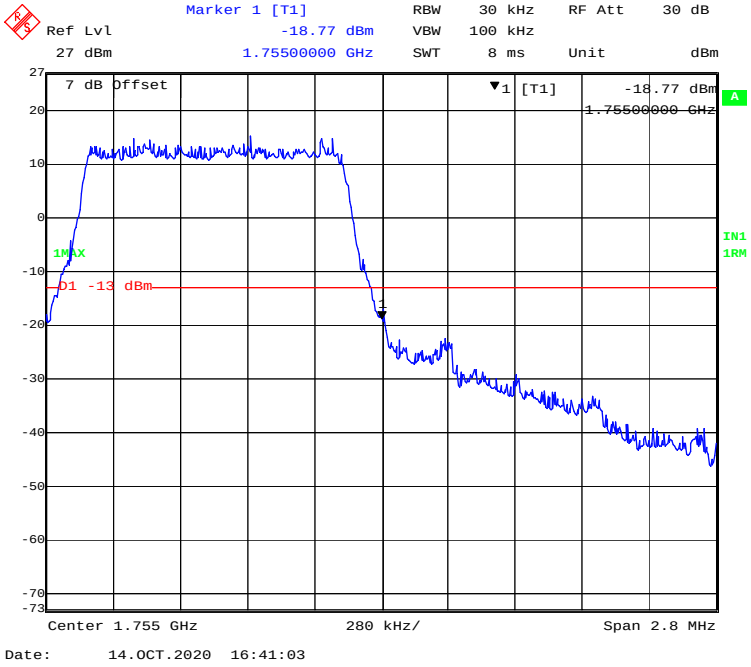


LTE Band 4:

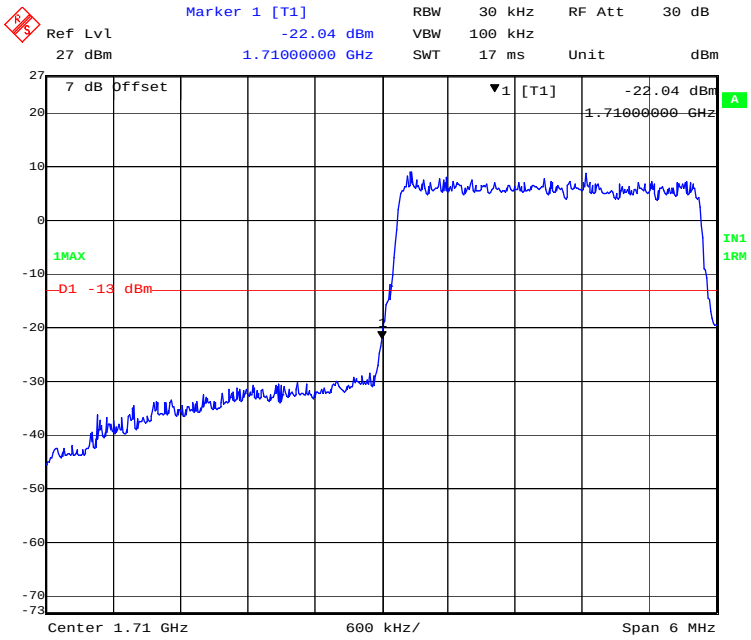
QPSK (1.4 MHz, FULL RB) - Left Band Edge



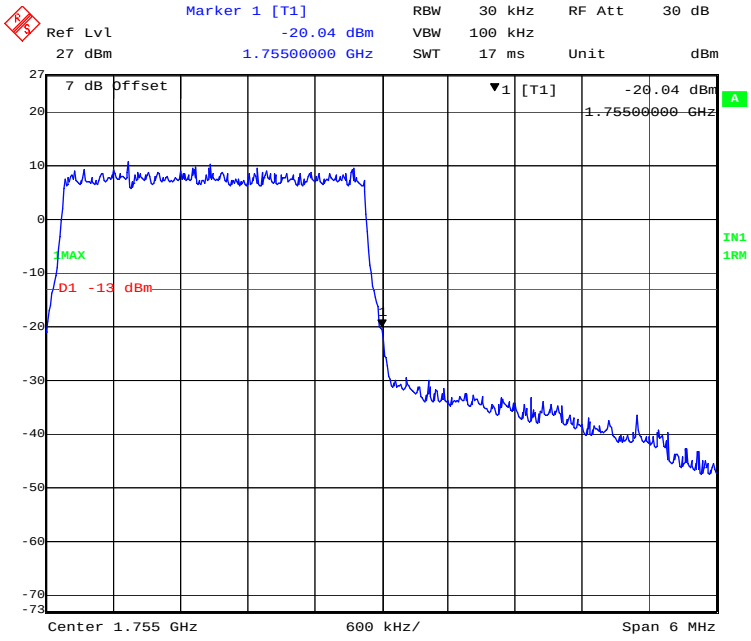
QPSK (1.4 MHz, FULL RB) - Right Band Edge



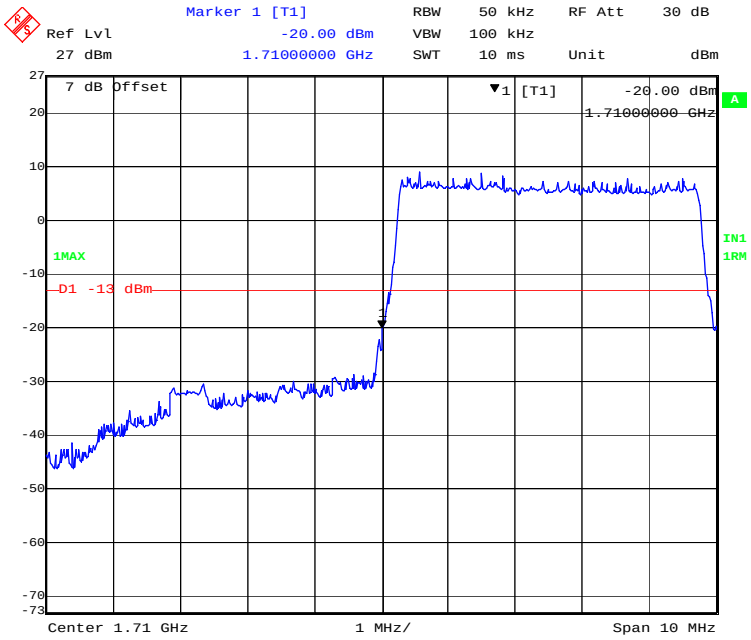
QPSK (3 MHz, FULL RB) - Left Band Edge



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

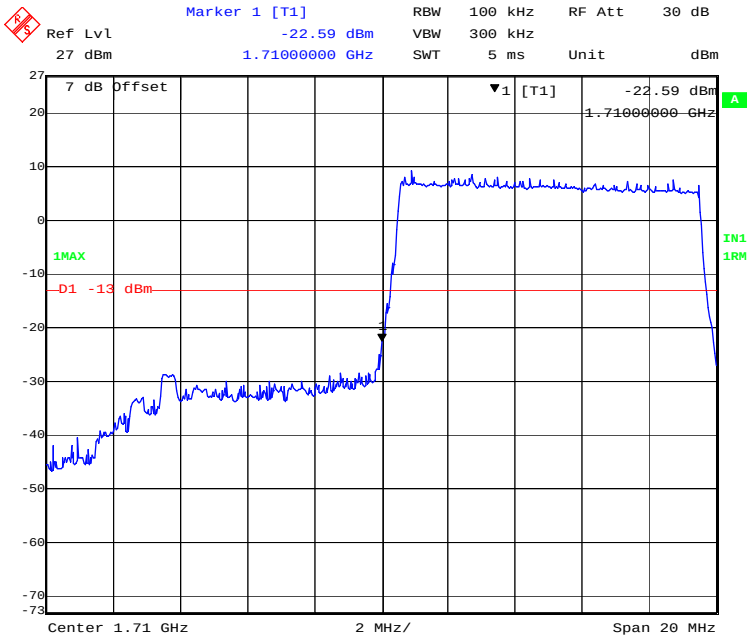


QPSK (5 MHz, FULL RB) - Left Band Edge

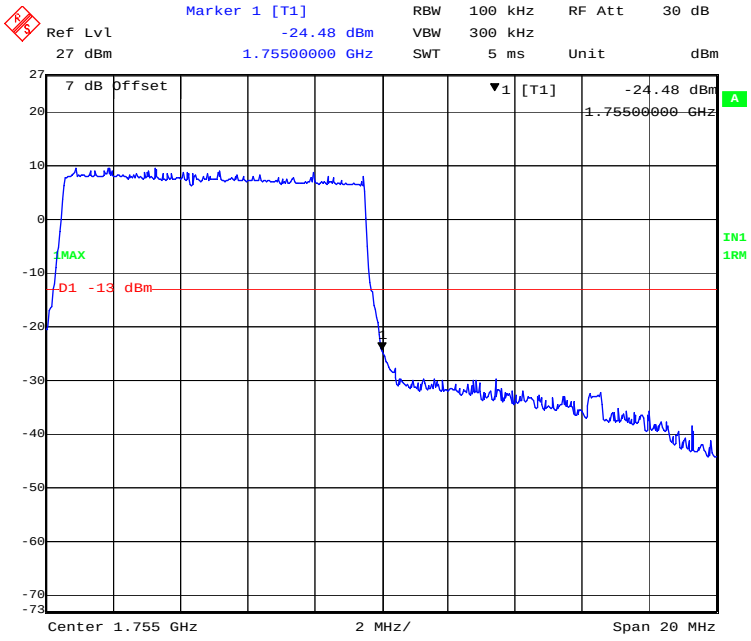


QPSK (5 MHz, FULL RB) - Right Band Edge

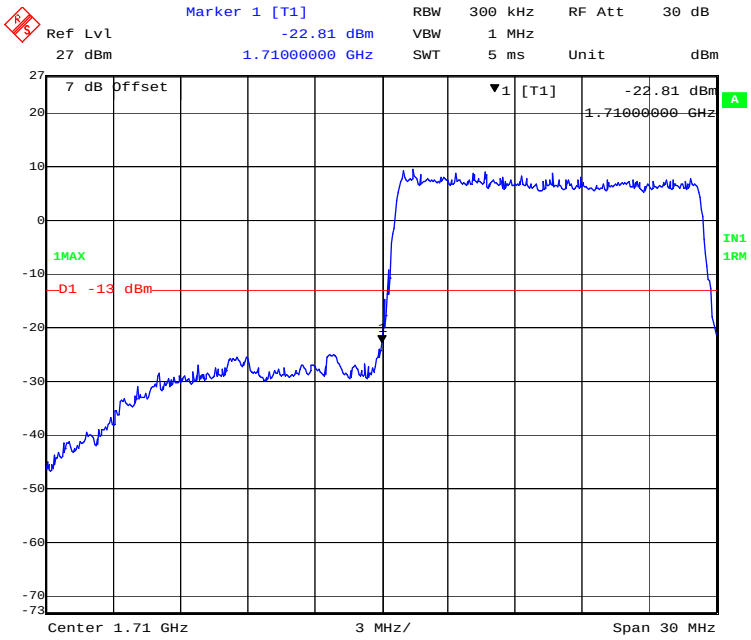
QPSK (10 MHz, FULL RB) - Left Band Edge



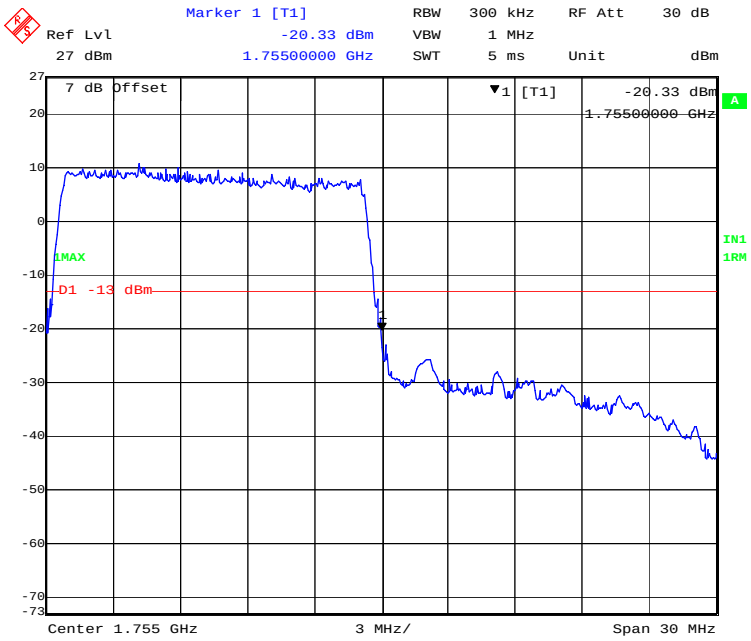
QPSK (10 MHz, FULL RB) - Right Band Edge



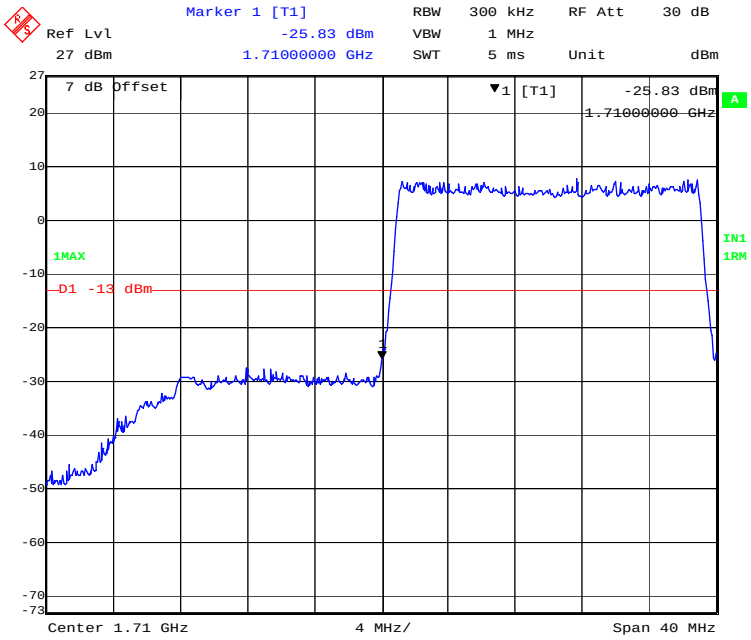
QPSK (15 MHz, FULL RB) - Left Band Edge



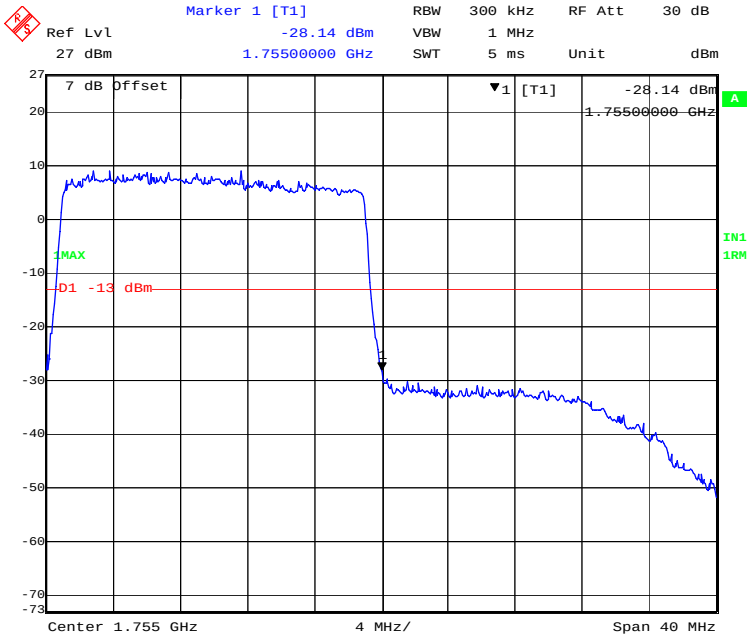
QPSK (15 MHz, FULL RB) - Right Band Edge



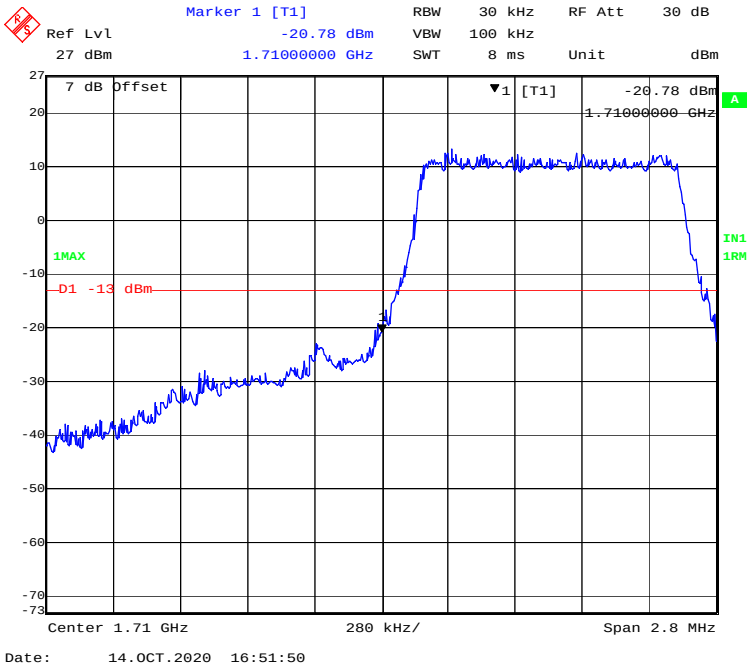
QPSK (20 MHz, FULL RB) - Left Band Edge



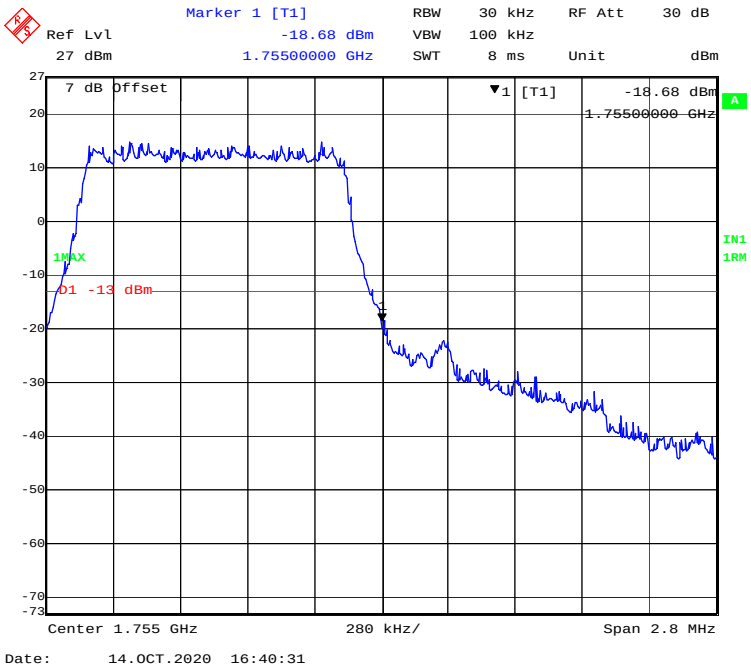
QPSK (20 MHz, FULL RB) - Right Band Edge



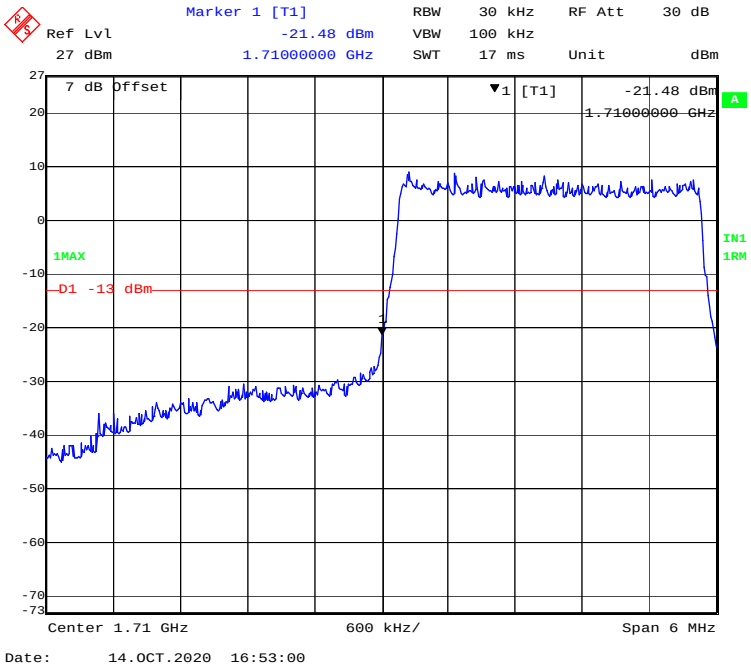
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



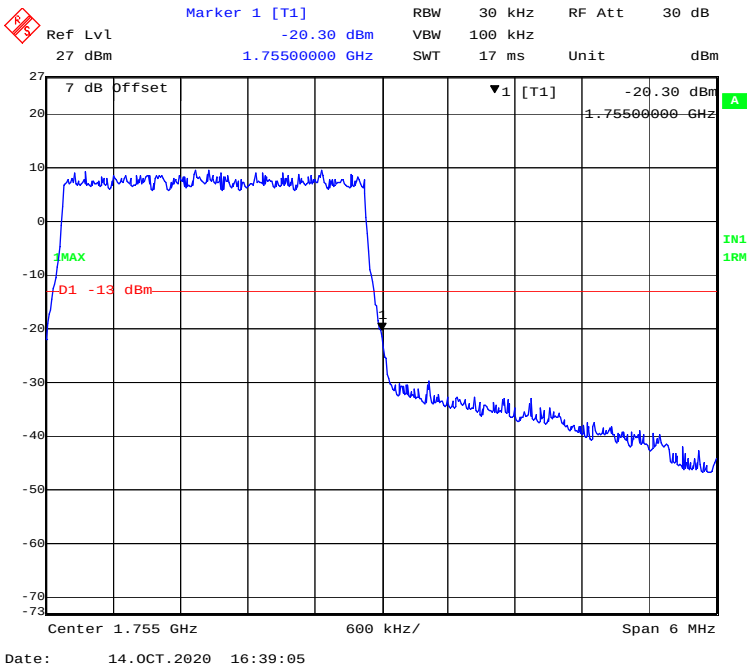
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



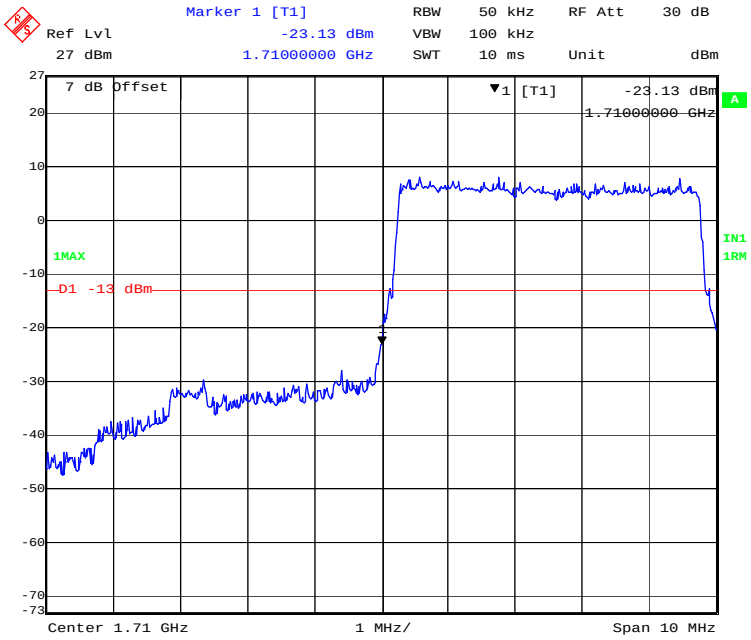
16-QAM (3 MHz, FULL RB) - Left Band Edge



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

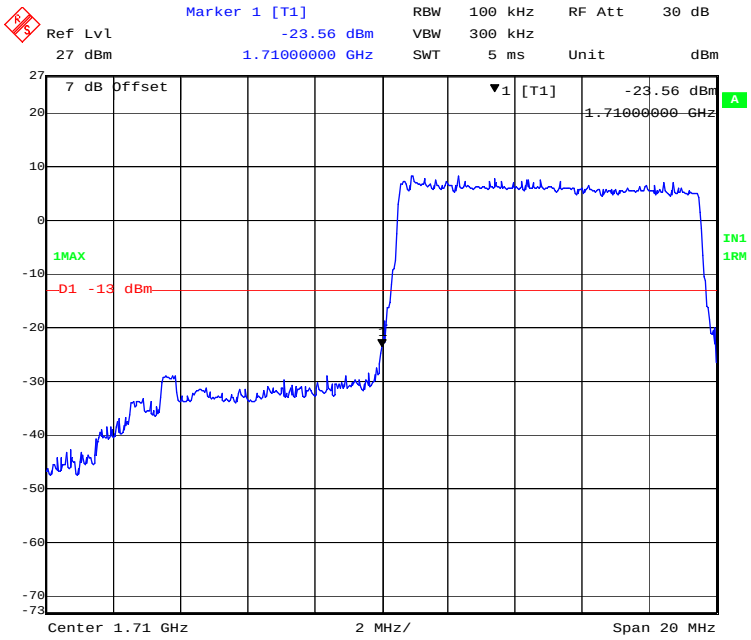


16-QAM (5 MHz, FULL RB) - Left Band Edge

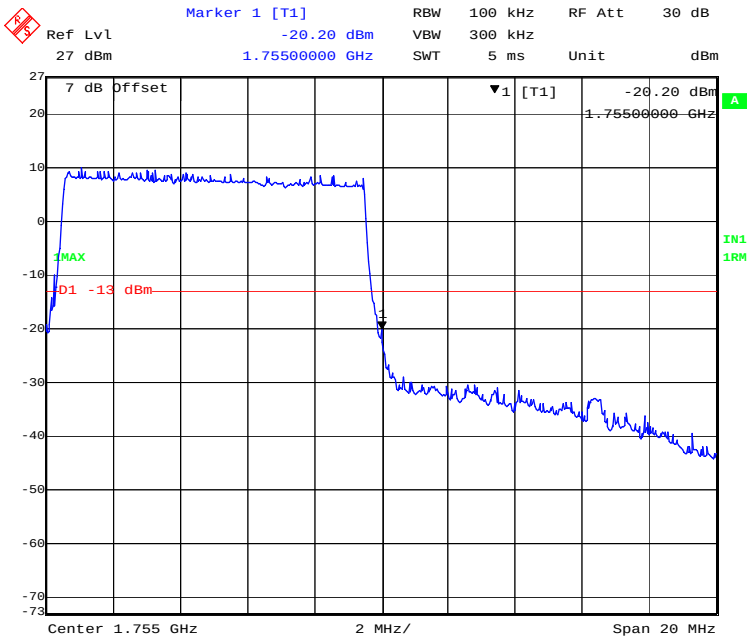


16-QAM (5 MHz, FULL RB) - Right Band Edge

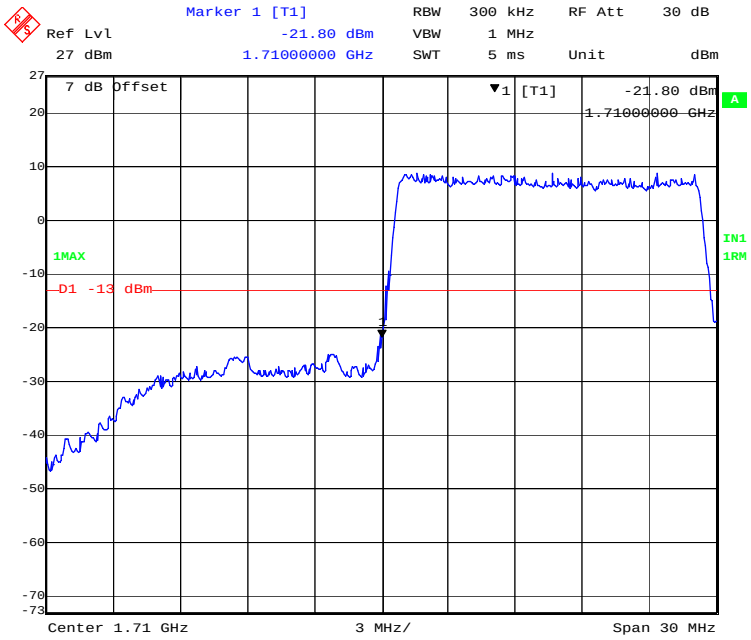
16-QAM (10 MHz, FULL RB) - Left Band Edge



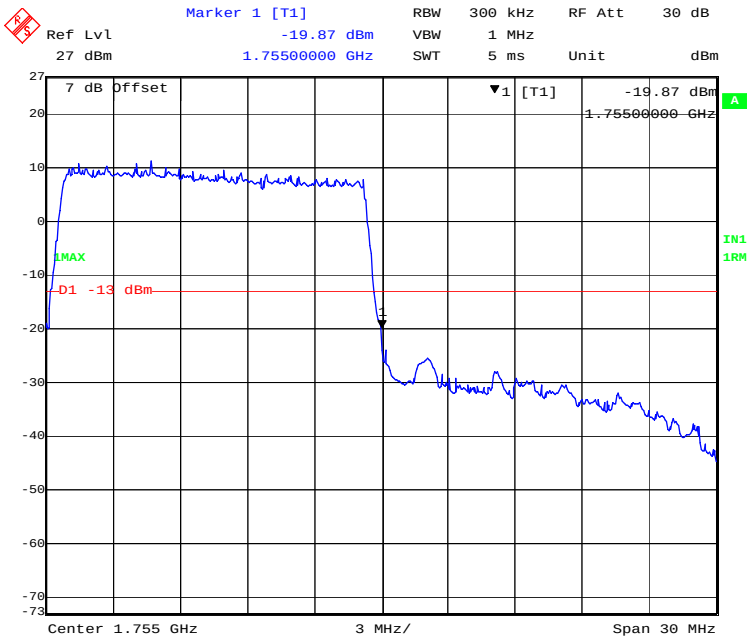
16-QAM (10 MHz, FULL RB) - Right Band Edge



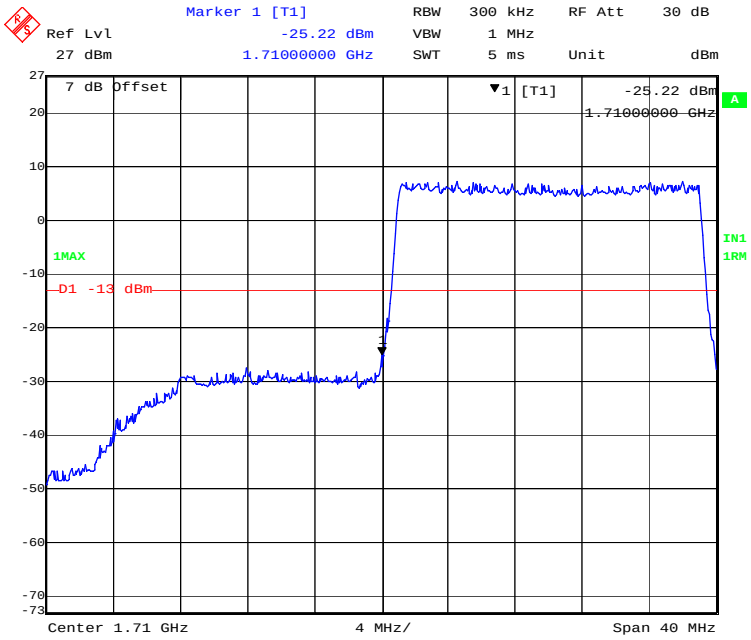
16-QAM (15 MHz, FULL RB) - Left Band Edge



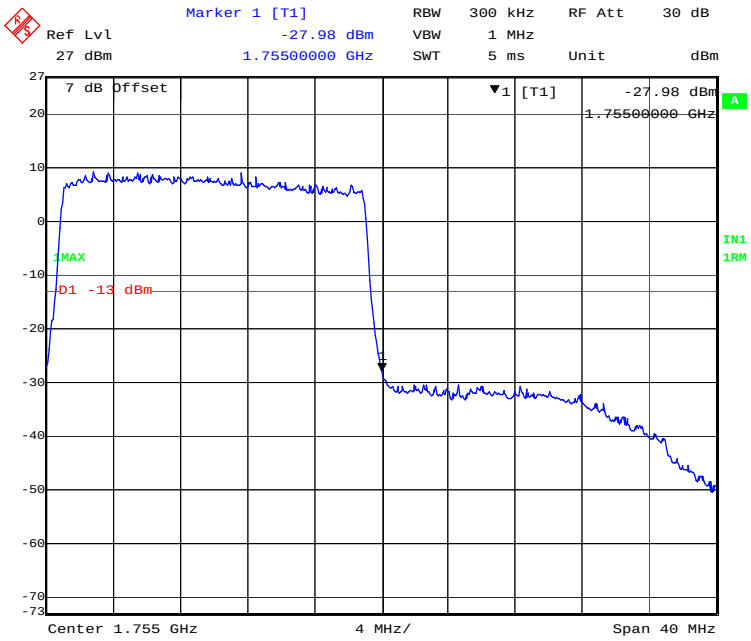
16-QAM (15 MHz, FULL RB) - Right Band Edge



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

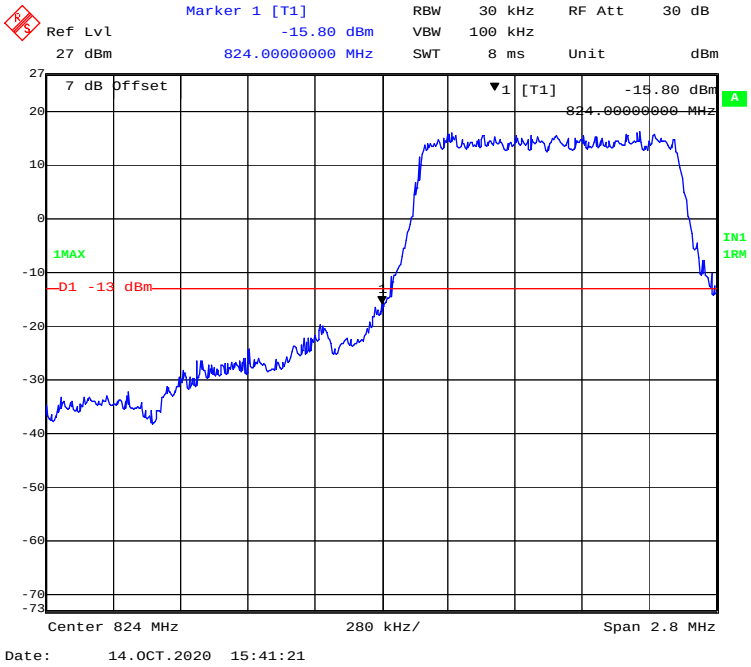


16-QAM (20 MHz, FULL RB) - Right Band Edge

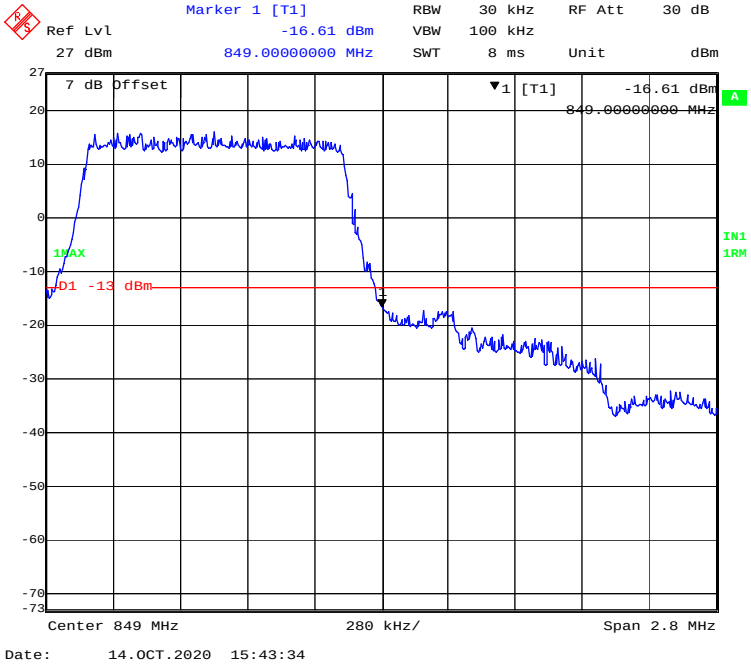


LTE Band 5:

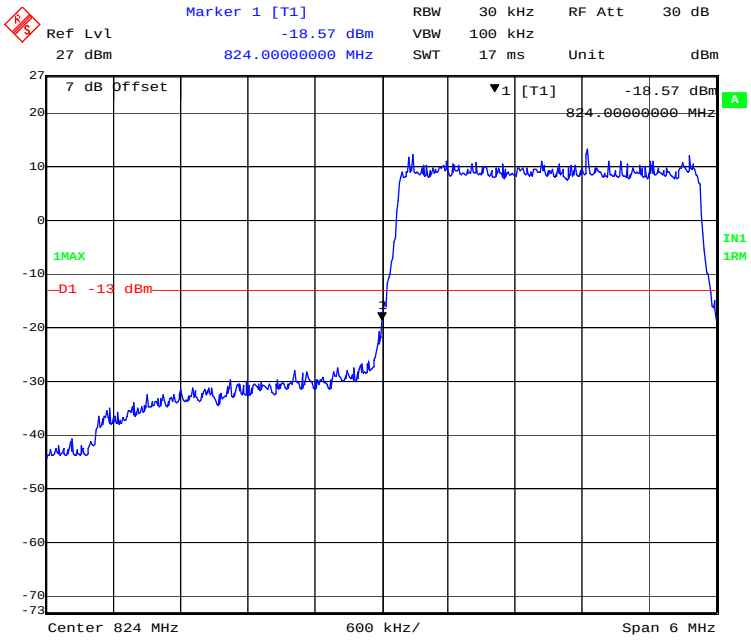
QPSK (1.4 MHz, FULL RB) - Left Band Edge



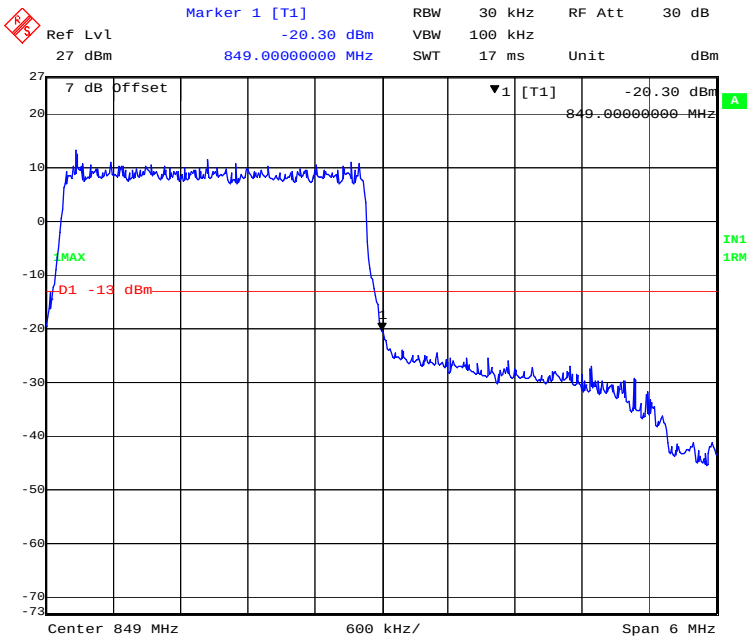
QPSK (1.4 MHz, FULL RB) - Right Band Edge



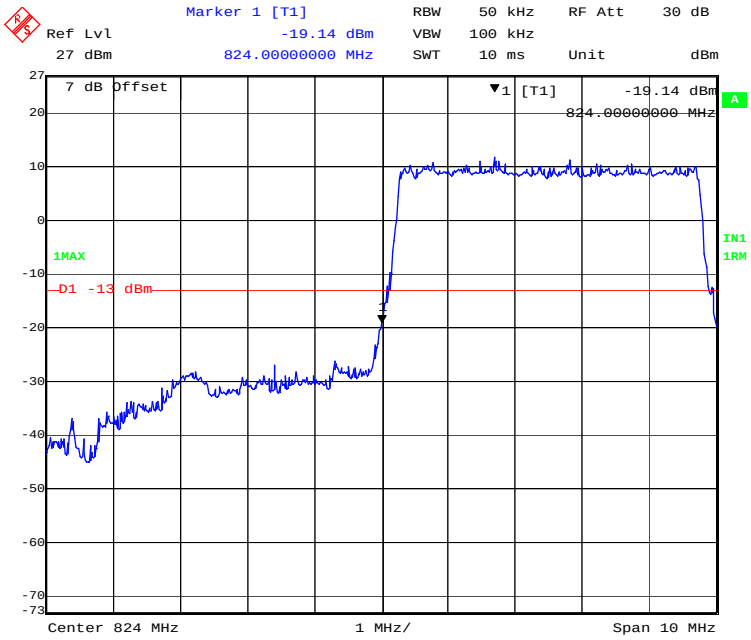
QPSK (3.0 MHz, FULL RB) - Left Band Edge



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

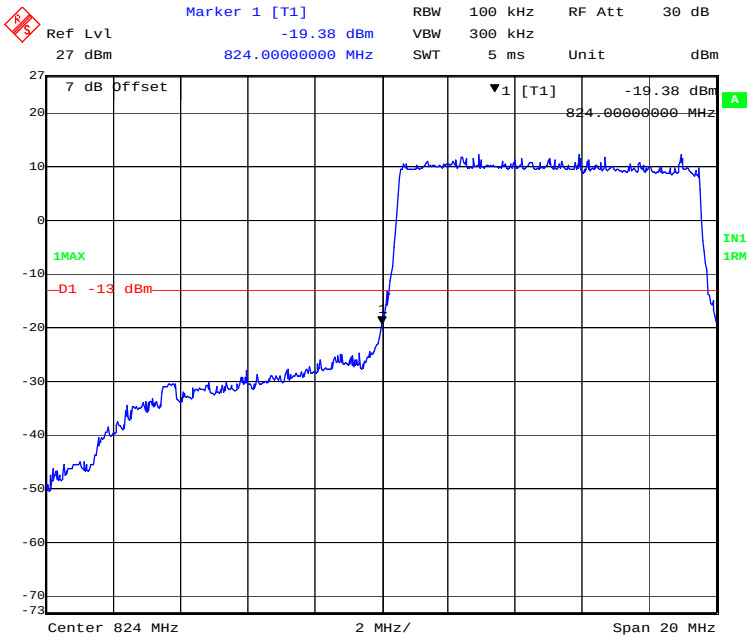


QPSK (5.0 MHz, FULL RB) - Left Band Edge

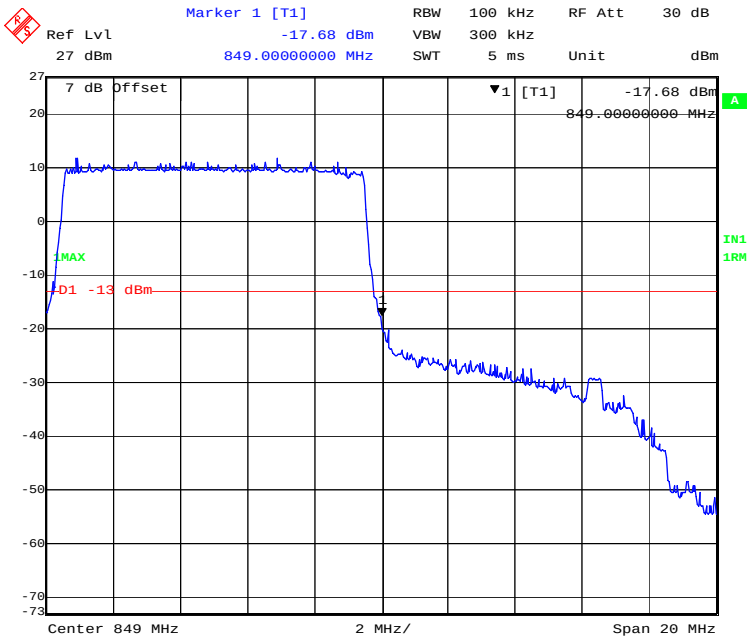


QPSK (5.0 MHz, FULL RB) - Right Band Edge

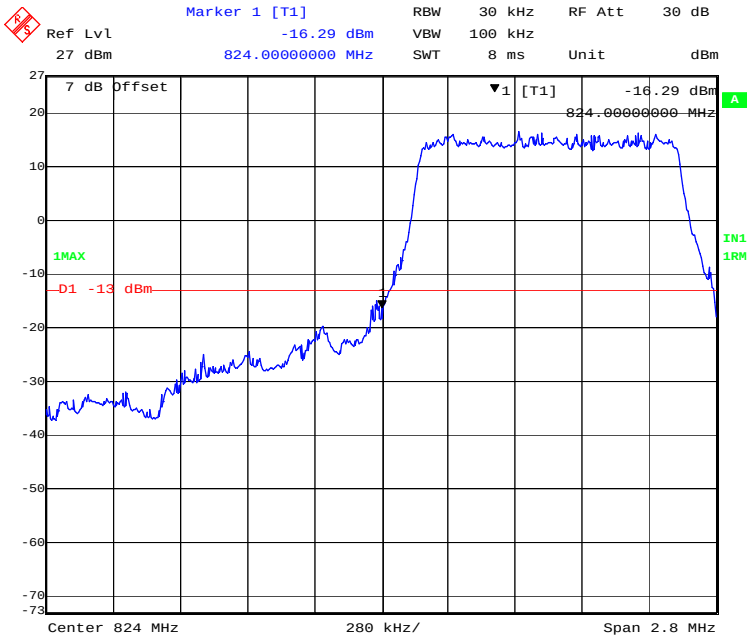
QPSK (10.0 MHz, FULL RB) - Left Band Edge



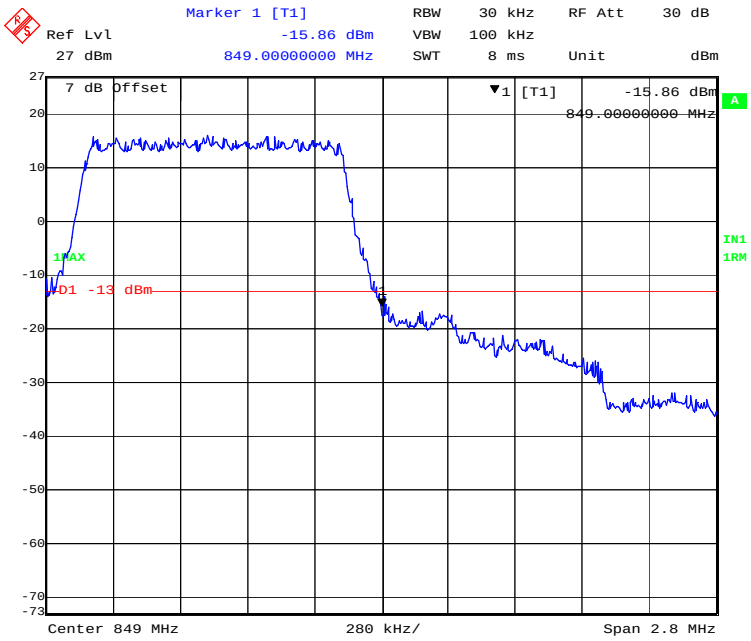
QPSK (10.0 MHz, FULL RB) - Right Band Edge



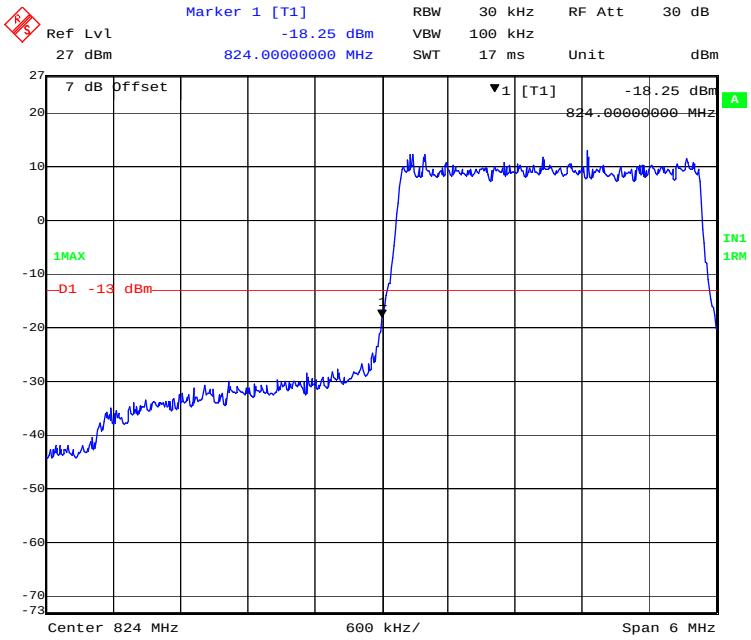
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



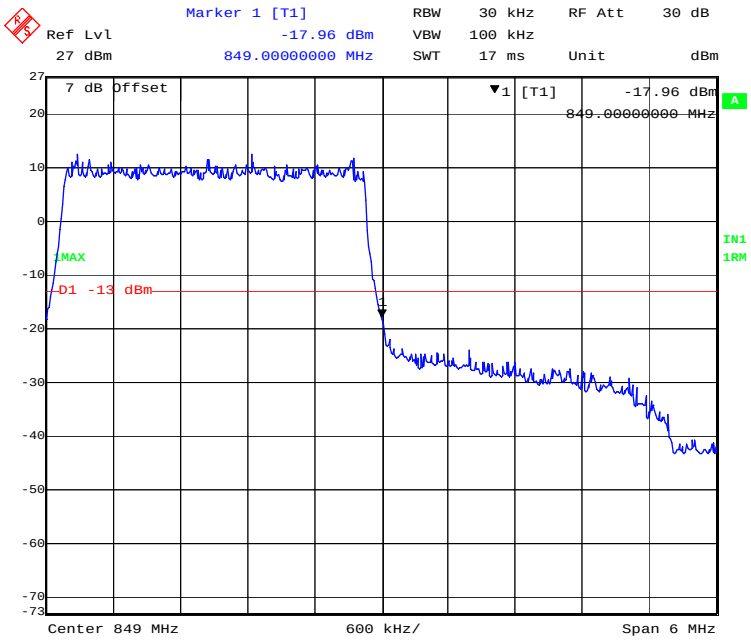
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



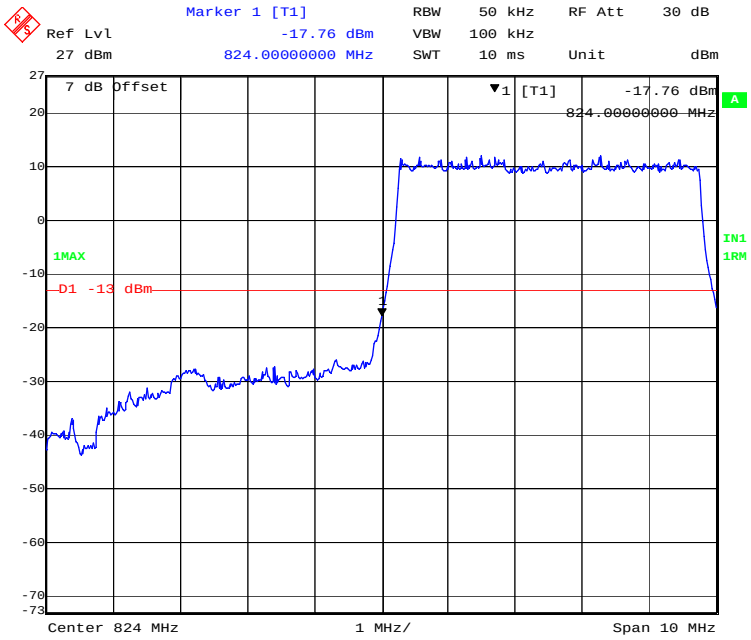
16-QAM (3.0 MHz, FULL RB) - Left Band Edge



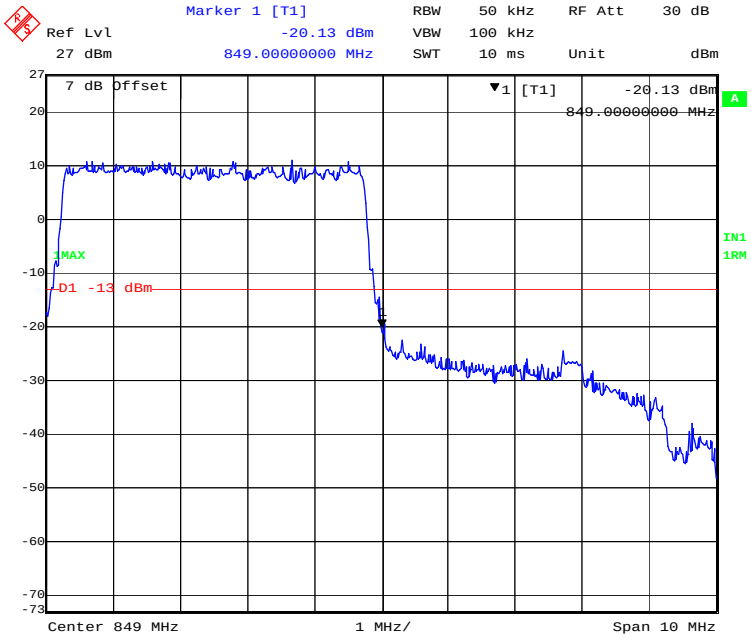
16-QAM (3.0 MHz, FULL RB) - Right Band Edge



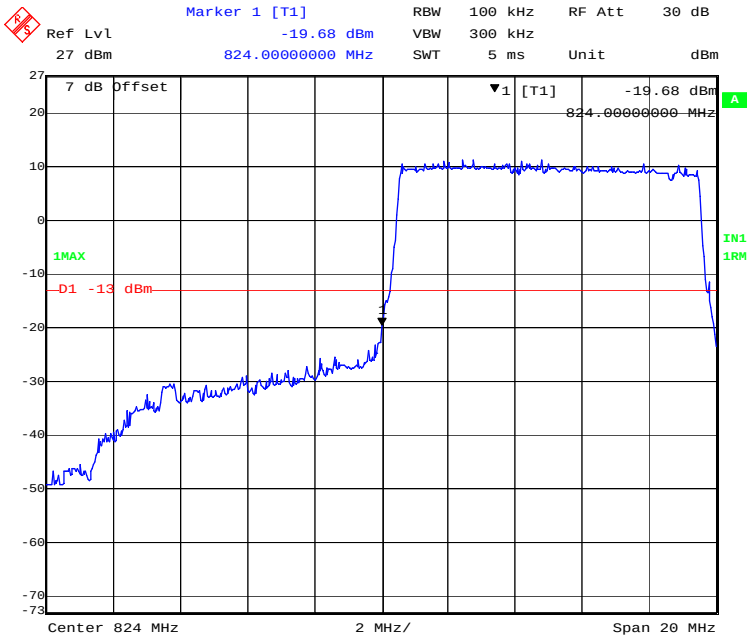
16-QAM (5.0 MHz, FULL RB) - Left Band Edge



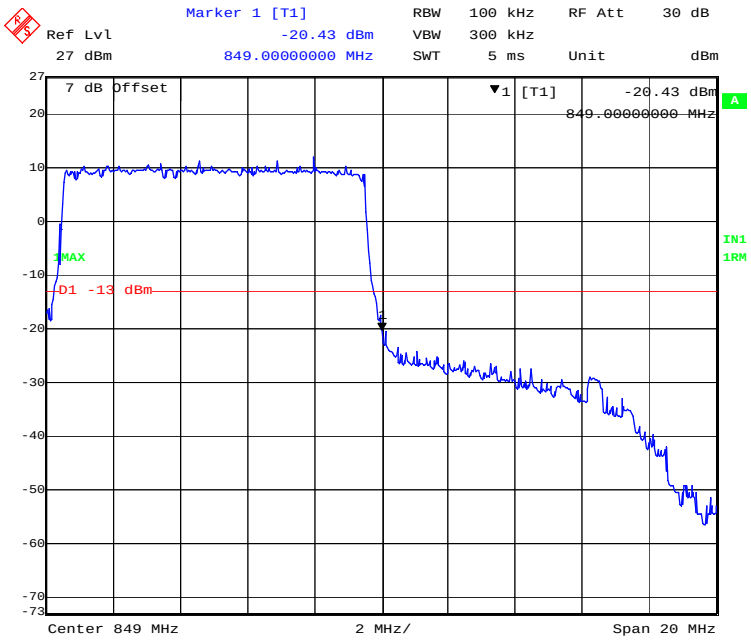
16-QAM (5.0 MHz, FULL RB) - Right Band Edge



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

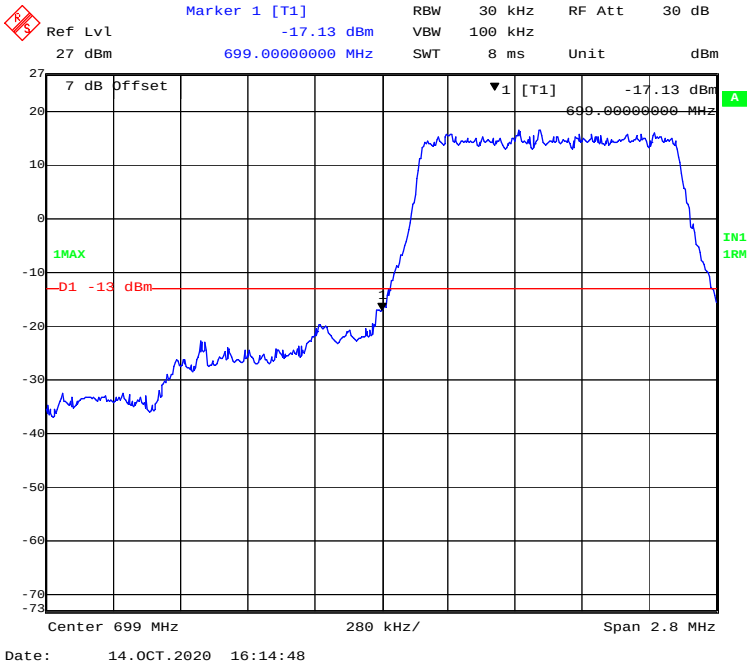


16-QAM (10.0 MHz, FULL RB) - Right Band Edge



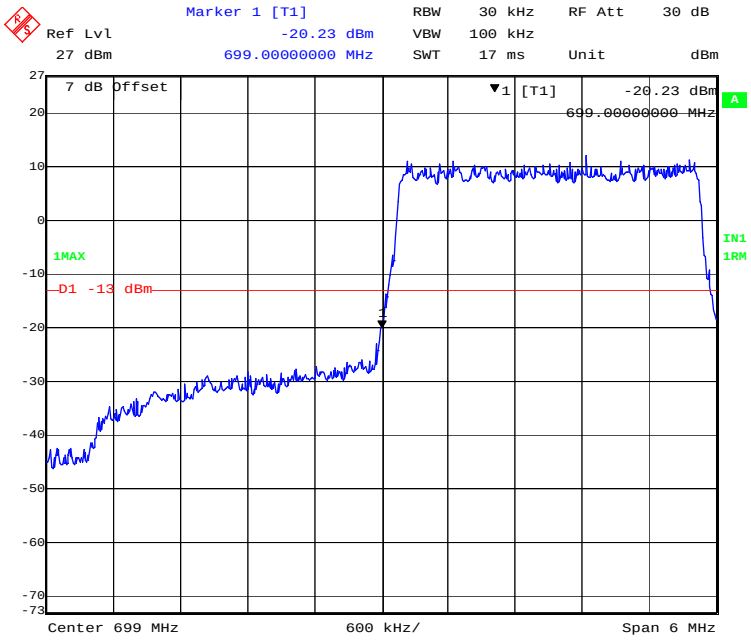
LTE Band 12:

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

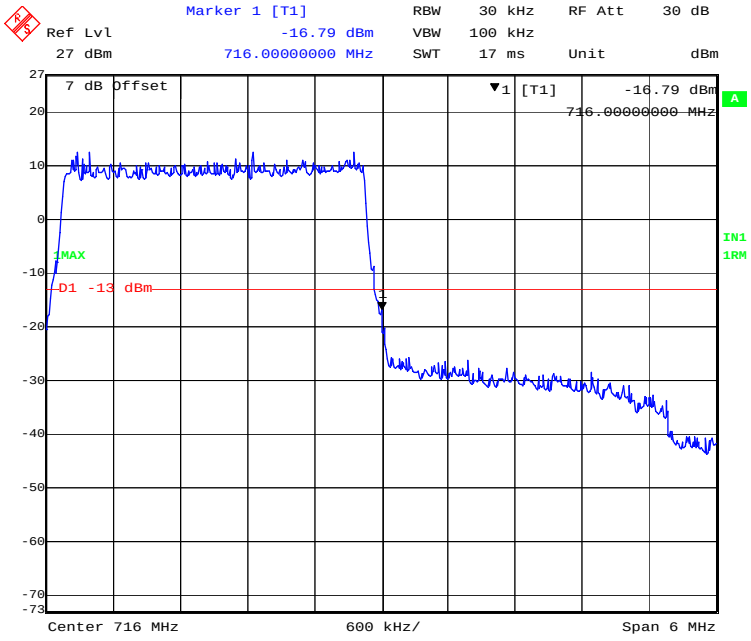


QPSK (1.4 MHz, FULL RB) - Right Band Edge

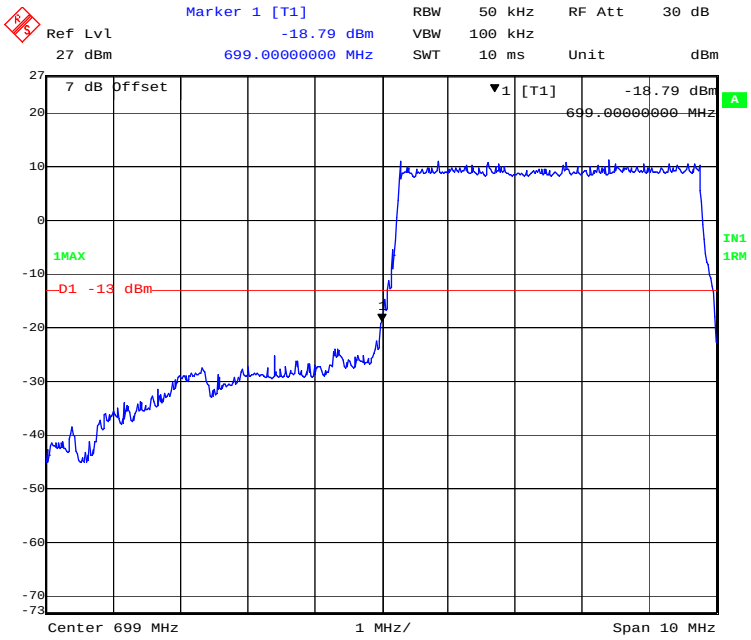
QPSK (3 MHz, FULL RB) - Left Band Edge



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

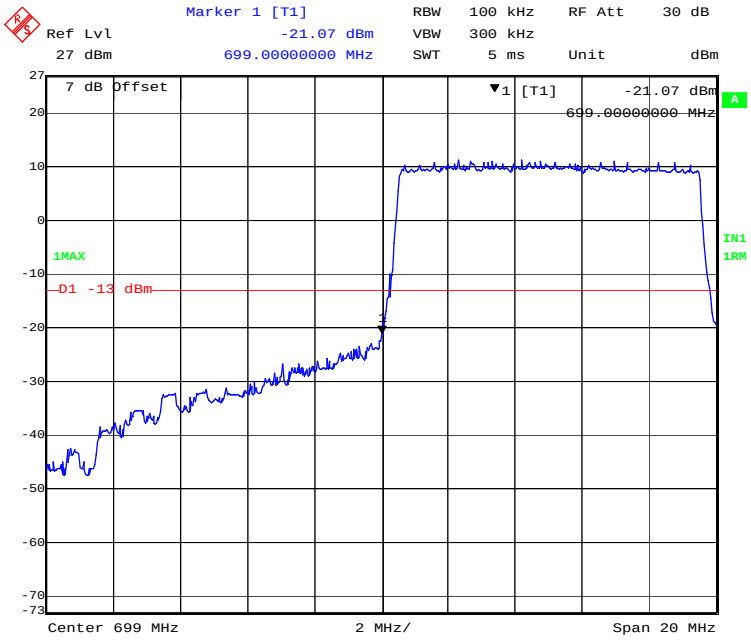


QPSK (5 MHz, FULL RB) - Left Band Edge



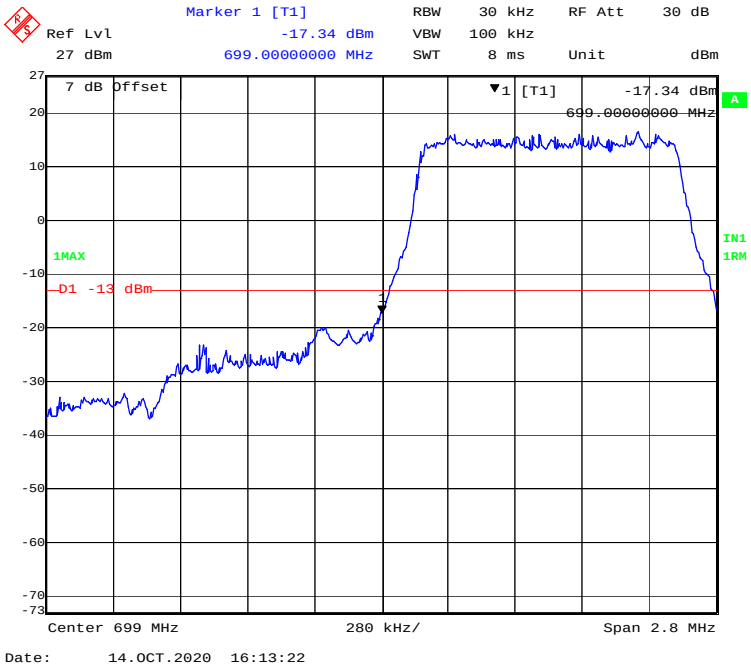
QPSK (5 MHz, FULL RB) - Right Band Edge

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

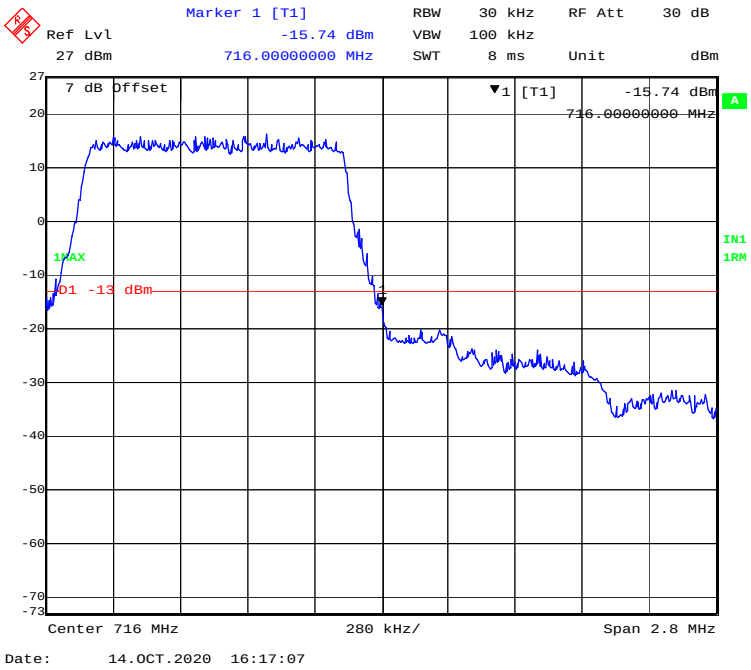


QPSK (10 MHz, FULL RB) - Right Band Edge

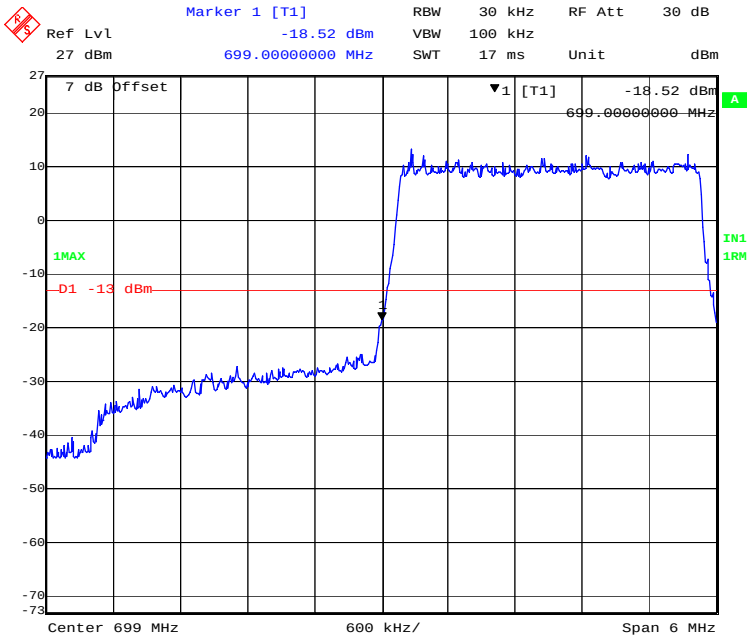
16-QAM (1.4 MHz, FULL RB) - Left Band Edge



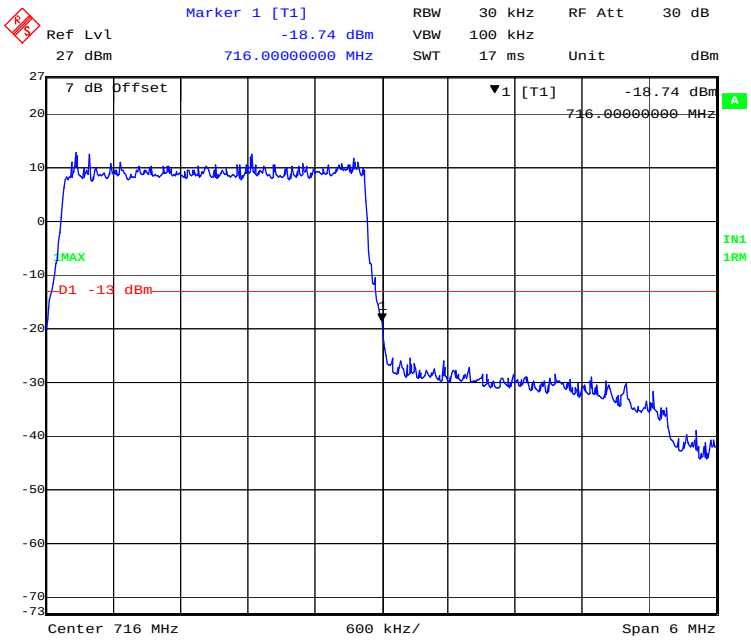
16-QAM (1.4 MHz, FULL RB) - Right Band Edge



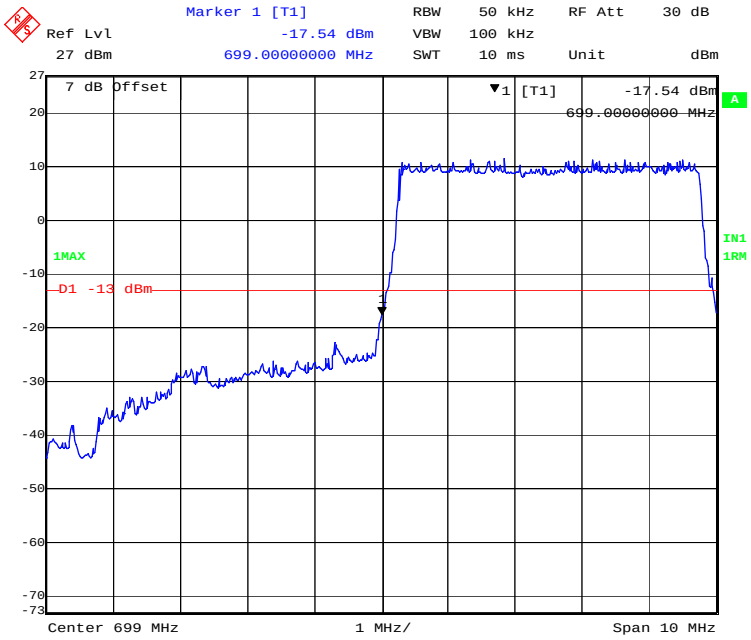
16-QAM (3 MHz, FULL RB) - Left Band Edge



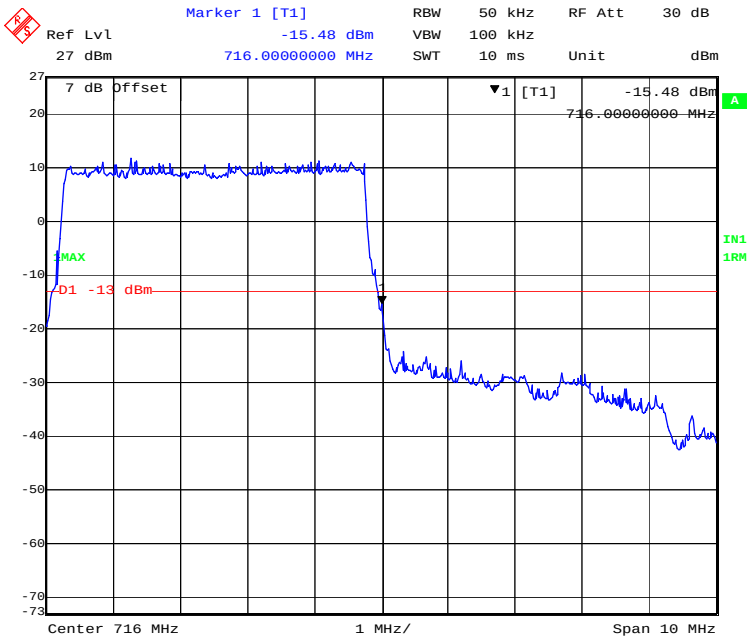
16-QAM (3 MHz, FULL RB) - Right Band Edge



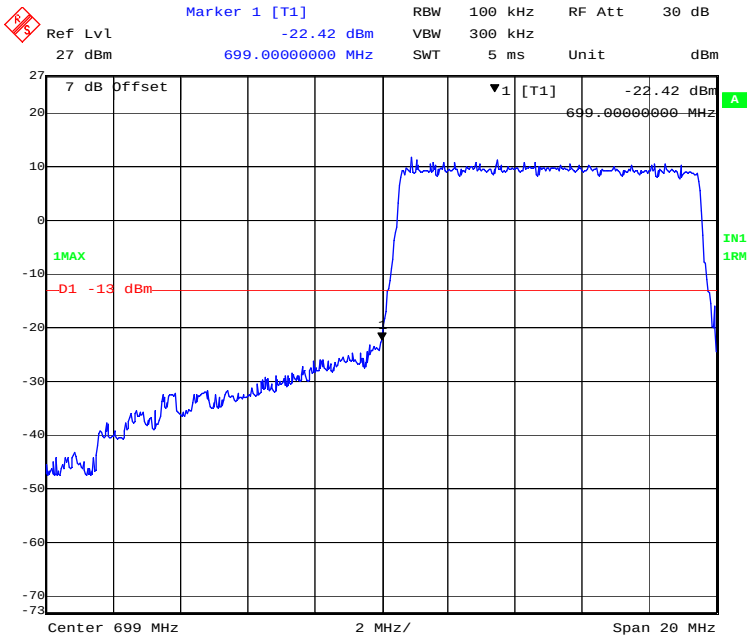
16-QAM (5 MHz, FULL RB) - Left Band Edge



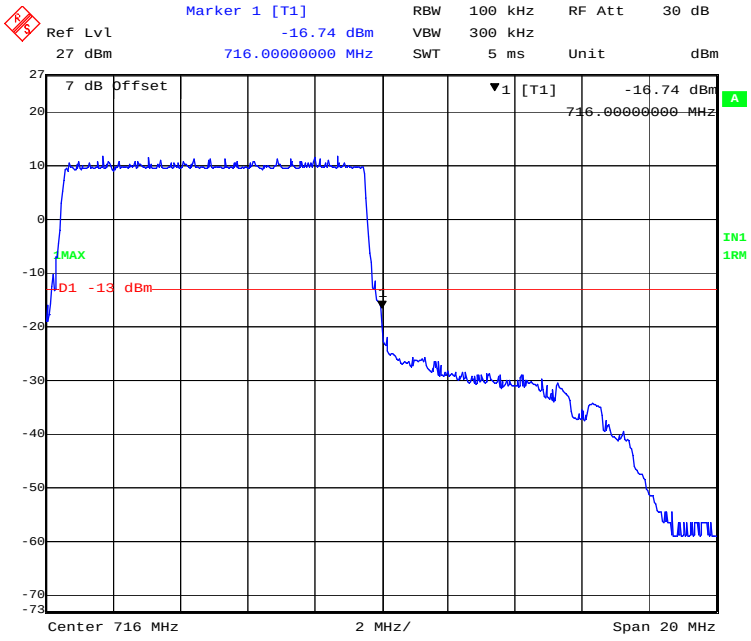
16-QAM (5 MHz, FULL RB) - Right Band Edge



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

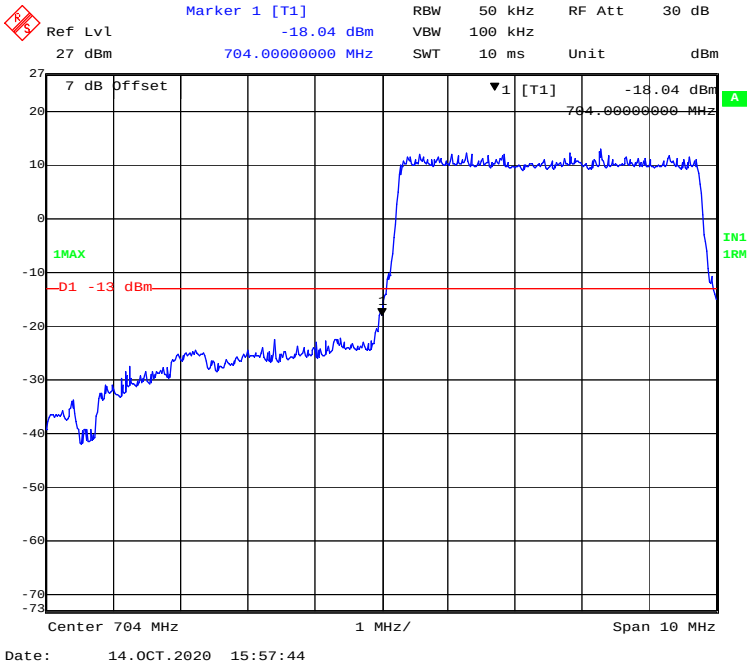


16-QAM (10 MHz, FULL RB) - Right Band Edge

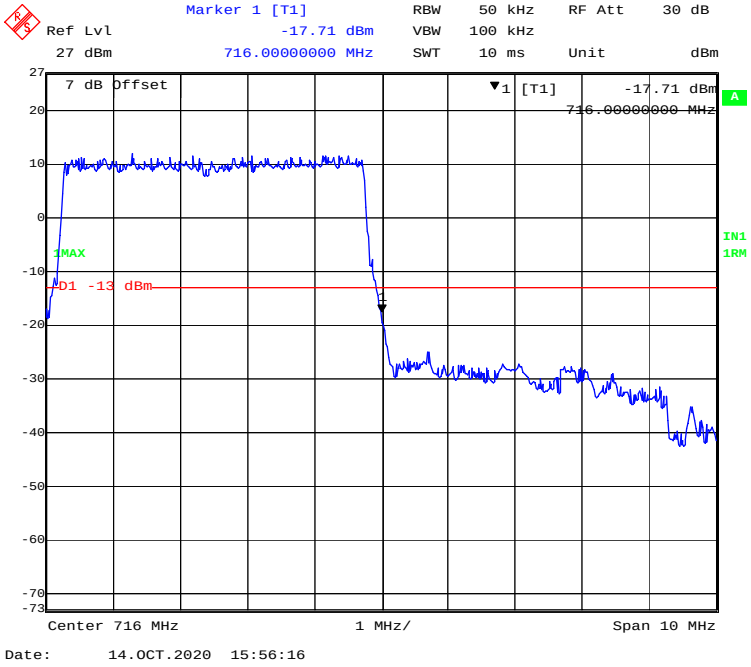


LTE Band 17:

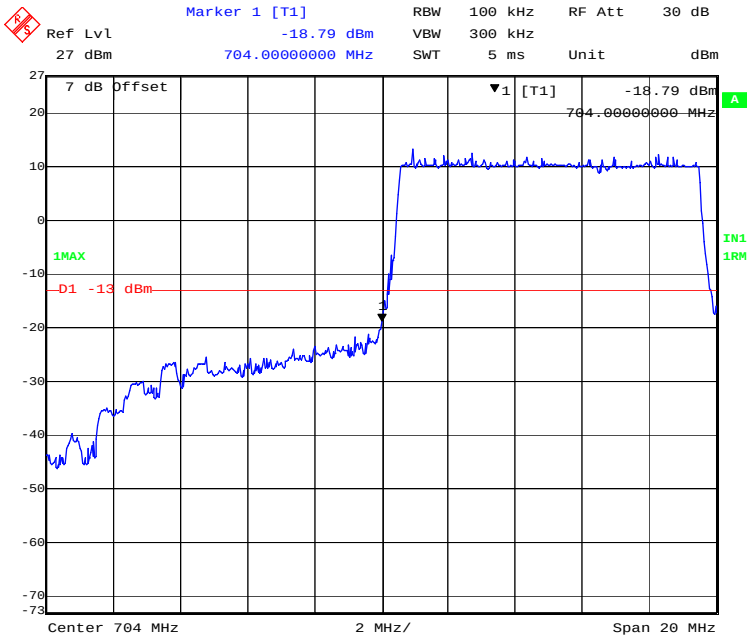
QPSK (5 MHz, FULL RB) - Left Band Edge



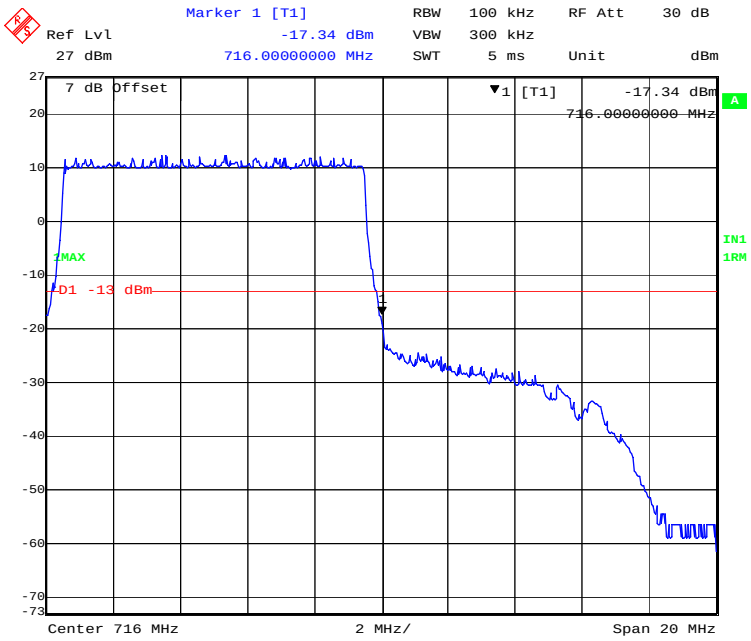
QPSK (5 MHz, FULL RB) - Right Band Edge



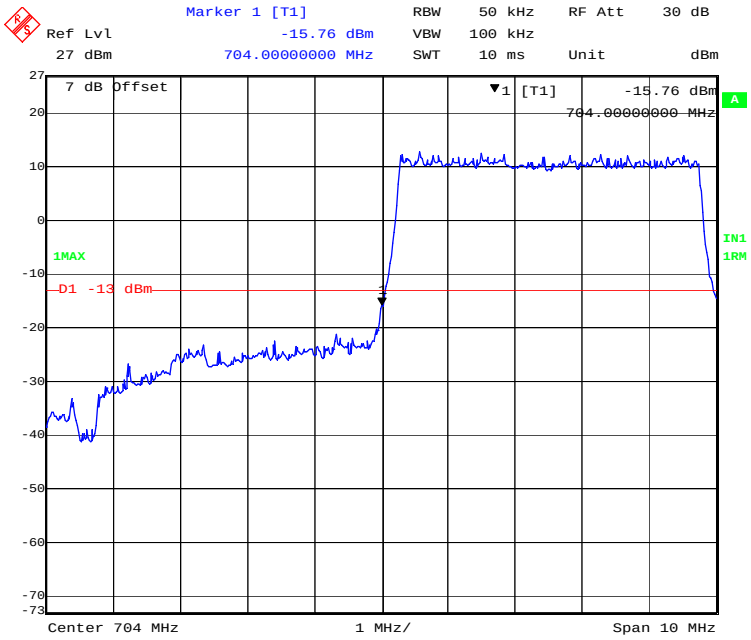
QPSK (10 MHz, FULL RB) - Left Band Edge



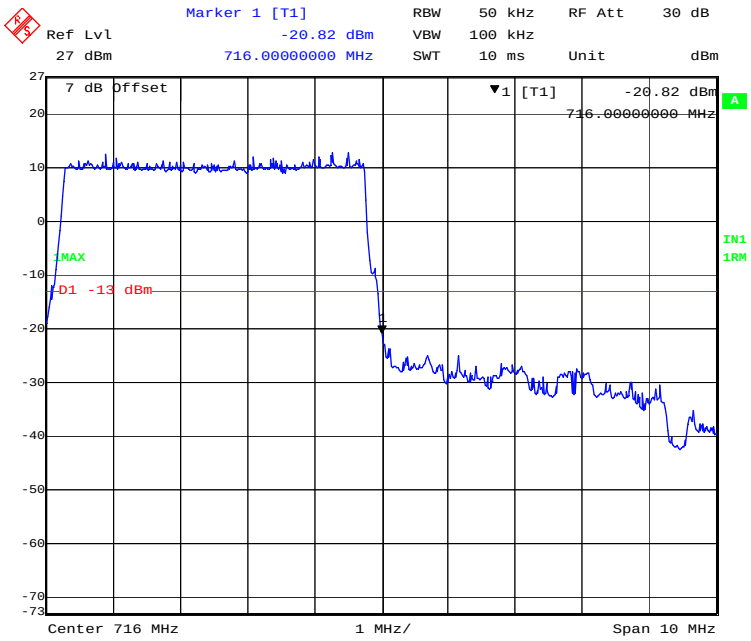
QPSK (10 MHz, FULL RB) - Right Band Edge



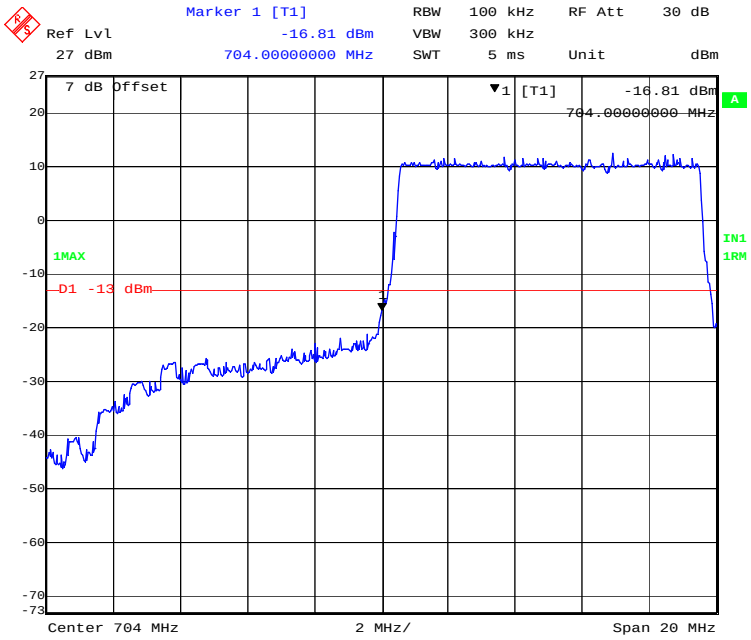
16-QAM (5 MHz, FULL RB) - Left Band Edge



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

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

Applicable Standards

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

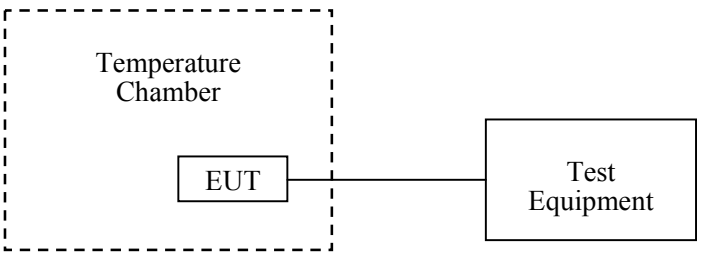
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

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:	24.7~24.9 ℃
Relative Humidity:	50~52 %
ATM Pressure:	101.7~101.9 kPa

The testing was performed by Jack Jiao from 2020-11-20 to 2020-11-26.

EUT operation mode: Transmitting

Test Result: Compliance.

GPRS 850 Band:

GPRS Mode, Middle Channel, f_o =836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.7	10	0.011953	2.5
-20		15	0.017930	2.5
-10		10	0.011953	2.5
0		15	0.017930	2.5
10		13	0.015539	2.5
20		12	0.014344	2.5
30		17	0.020320	2.5
40		12	0.014344	2.5
50		9	0.010758	2.5
20	V min.= 3.52	18	0.021516	2.5
20	V max.= 4.07	11	0.013148	2.5

EGPRS Mode, Middle Channel, f_o=836.6 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.7	12	0.014344	2.5
-20		21	0.025102	2.5
-10		12	0.014344	2.5
0		21	0.025102	2.5
10		19	0.022711	2.5
20		17	0.020320	2.5
30		11	0.013148	2.5
40		10	0.011953	2.5
50		9	0.010758	2.5
20	V min.= 3.52	18	0.021516	2.5
20	V max.= 4.07	19	0.022711	2.5

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	3.7	15	0.017930	2.5
-20		21	0.015539	2.5
-10		15	0.009563	2.5
0		13	0.015539	2.5
10		8	0.009563	2.5
20		14	0.016734	2.5
30		21	0.025102	2.5
40		18	0.021516	2.5
50		12	0.014344	2.5
20	V min.= 3.52	17	0.020320	2.5
20	V max.= 4.07	16	0.019125	2.5

PCS 1900 Band

GPRS Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.7	17	0.009043	pass
-20		20	0.010638	pass
-10		17	0.009043	pass
0		20	0.010638	pass
10		22	0.011702	pass
20		12	0.006383	pass
30		14	0.007447	pass
40		12	0.006383	pass
50		12	0.006383	pass
20	V min.= 3.52	14	0.007447	pass
20	V max.= 4.07	16	0.008511	pass

EGPRS Mode, Middle Channel, f_o=1880.0 MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.7	13	0.006915	pass
-20		14	0.007447	pass
-10		13	0.006915	pass
0		14	0.007447	pass
10		11	0.005851	pass
20		9	0.004787	pass
30		19	0.010106	pass
40		12	0.006383	pass
50		8	0.004255	pass
20	V min.= 3.52	15	0.007979	pass
20	V max.= 4.07	14	0.007447	pass

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	3.7	14	0.007447	pass
-20		19	0.010106	pass
-10		13	0.006915	pass
0		13	0.006915	pass
10		14	0.007447	pass
20		11	0.005851	pass
30		13	0.006915	pass
40		14	0.007447	pass
50		13	0.006915	pass
20	V min.= 3.52	18	0.009574	pass
20	V max.= 4.07	14	0.007447	pass

LTE Band 2:

Middle Channel, f_o=1880.0 MHz (QPSK) /Channel Bandwidth:20MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Result**
-30	3.7	17	0.009043	pass
-20		16	0.008511	pass
-10		13	0.006915	pass
0		15	0.007979	pass
10		12	0.006383	pass
20		16	0.008511	pass
30		13	0.006915	pass
40		11	0.005851	pass
50		22	0.011702	pass
20	V min.= 3.52	13	0.006915	pass
20	V max.= 4.07	8	0.004255	pass

Middle Channel, f_o=1880.0 MHz (16-QAM) /Channel Bandwidth:20MHz				
Temperature (℃)	**Power Supplied (V_{DC})**	**Frequency Error (Hz)**	**Frequency Error (ppm)**	**Limit (ppm)**
-30	3.7	8	0.004255	pass
-20		16	0.008511	pass
-10		11	0.005851	pass
0		8	0.004255	pass
10		20	0.010638	pass
20		18	0.009574	pass
30		15	0.007979	pass
40		11	0.005851	pass
50		14	0.007447	pass
20	V min.= 3.52	9	0.004787	pass
20	V max.= 4.07	18	0.009574	pass

LTE Band 4:

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	3.7	1710.0470	1754.9632	1710	1755
-20		1710.0409	1754.967	1710	1755
-10		1710.0415	1754.9681	1710	1755
0		1710.0427	1754.9604	1710	1755
10		1710.0498	1754.9635	1710	1755
20		1710.0450	1754.9643	1710	1755
30		1710.0456	1754.9689	1710	1755
40		1710.0402	1754.9664	1710	1755
50		1710.0450	1754.9627	1710	1755
20	V min.= 3.52	1710.0452	1754.9682	1710	1755
20	V max.= 4.07	1710.0406	1754.9683	1710	1755

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	3.7	1710.0443	1754.9660	1710	1755
-20		1710.0491	1754.9697	1710	1755
-10		1710.0500	1754.9609	1710	1755
0		1710.0430	1754.9666	1710	1755
10		1710.0471	1754.9699	1710	1755
20		1710.0408	1754.9625	1710	1755
30		1710.0437	1754.9619	1710	1755
40		1710.0473	1754.9631	1710	1755
50		1710.0426	1754.9700	1710	1755
20	V min.= 3.52	1710.0497	1754.9616	1710	1755
20	V max.= 4.07	1710.0400	1754.9691	1710	1755

LTE Band 5:

Middle Channel, f_o = 836.5 MHz (QPSK) /Channel Bandwidth:10MHz				
Temperature	**Power Supplied**	**Frequency Error**	**Frequency Error**	**Limit**
(℃)	**(V_{DC})**	**(Hz)**	**(ppm)**	**(ppm)**
-30	3.7	10	0.0120	2.5
-20		14	0.0167	2.5
-10		15	0.0179	2.5
0		11	0.0132	2.5
10		14	0.0167	2.5
20		7	0.0084	2.5
30		10	0.0120	2.5
40		11	0.0132	2.5
50		14	0.0167	2.5
20	V min.= 3.52	13	0.0155	2.5
20	V max.= 4.07	6	0.0072	2.5

Middle Channel, f_o = 836.5 MHz (16-QAM) /Channel Bandwidth:10MHz				
Temperature	**Power Supplied**	**Frequency Error**	**Frequency Error**	**Limit**
(℃)	**(V_{DC})**	**(Hz)**	**(ppm)**	**(ppm)**
-30	3.7	11	0.0132	2.5
-20		14	0.0167	2.5
-10		9	0.0108	2.5
0		9	0.0108	2.5
10		12	0.0143	2.5
20		16	0.0191	2.5
30		7	0.0084	2.5
40		15	0.0179	2.5
50		17	0.0203	2.5
20	V min.= 3.52	17	0.0203	2.5
20	V max.= 4.07	13	0.0155	2.5

LTE Band 12:

Low Channel & High 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	3.7	699.1691	715.7624	699	716
-20		699.1656	715.7613	699	716
-10		699.1672	715.7684	699	716
0		699.1688	715.7672	699	716
10		699.1619	715.7605	699	716
20		699.1685	715.7617	699	716
30		699.1656	715.7640	699	716
40		699.1621	715.7685	699	716
50		699.1600	715.7632	699	716
20	V min.= 3.52	699.1646	715.7608	699	716
20	V max.= 4.07	699.1634	715.7603	699	716

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	3.7	699.1697	715.7660	699	716
-20		699.1610	715.7692	699	716
-10		699.1623	715.7657	699	716
0		699.1640	715.7628	699	716
10		699.1657	715.7674	699	716
20		699.1637	715.7693	699	716
30		699.1683	715.7617	699	716
40		699.1607	715.7626	699	716
50		699.1601	715.7690	699	716
20	V min.= 3.52	699.1643	715.7693	699	716
20	V max.= 4.07	699.1657	715.7630	699	716

LTE Band 17:

Low Channel & High 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	3.7	704.0014	715.7656	704	716
-20		704.0035	715.7605	704	716
-10		704.0012	715.7651	704	716
0		704.0070	715.7634	704	716
10		704.0073	715.7648	704	716
20		704.0021	715.7613	704	716
30		704.0098	715.7700	704	716
40		704.0046	715.7616	704	716
50		704.0057	715.7649	704	716
20	V min.= 3.52	704.0078	715.7673	704	716
20	V max.= 4.07	704.0079	715.7650	704	716

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	3.7	704.0093	715.7602	704	716
-20		704.0006	715.7666	704	716
-10		704.0082	715.7674	704	716
0		704.0071	715.7620	704	716
10		704.0086	715.7645	704	716
20		704.0021	715.7630	704	716
30		704.0039	715.7681	704	716
40		704.0035	715.7695	704	716
50		704.0068	715.7693	704	716
20	V min.= 3.52	704.0069	715.7647	704	716
20	V max.= 4.07	704.0023	715.7696	704	716

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 *******