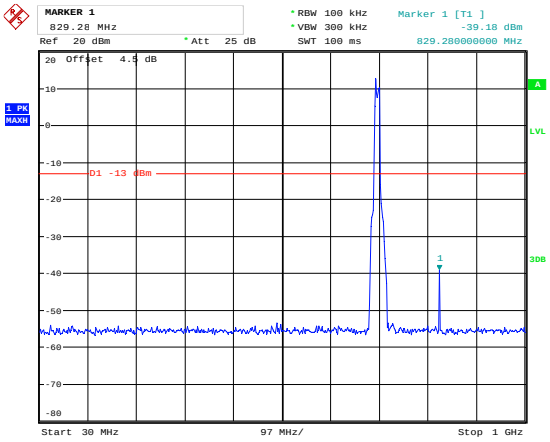
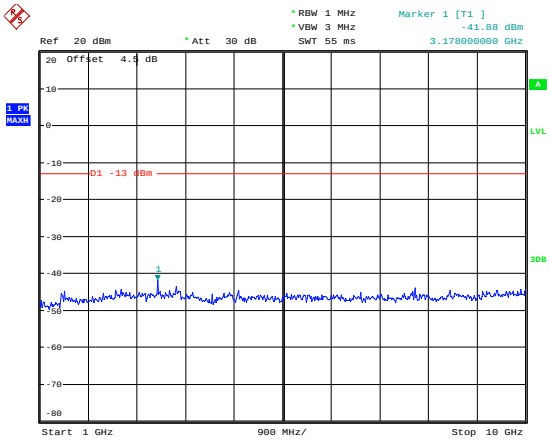
10M, QPSK, Low Channel

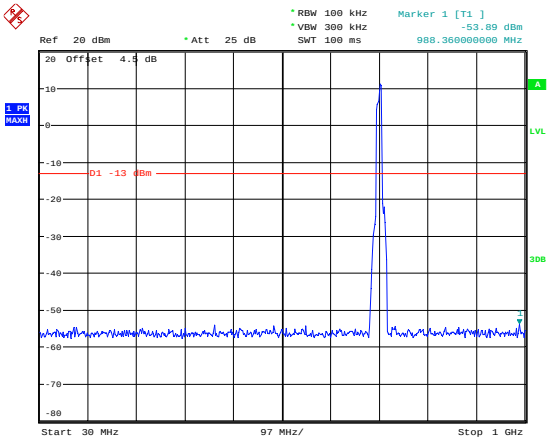


Date: 16.OCT.2020 09:46:50

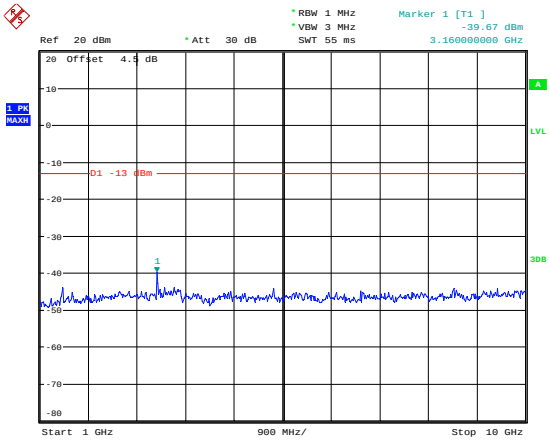


Date: 16.OCT.2020 09:47:15

10M, QPSK, Middle Channel

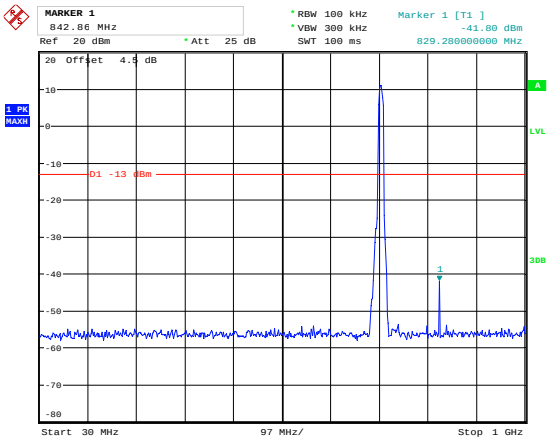


Date: 16.OCT.2020 09:13:42

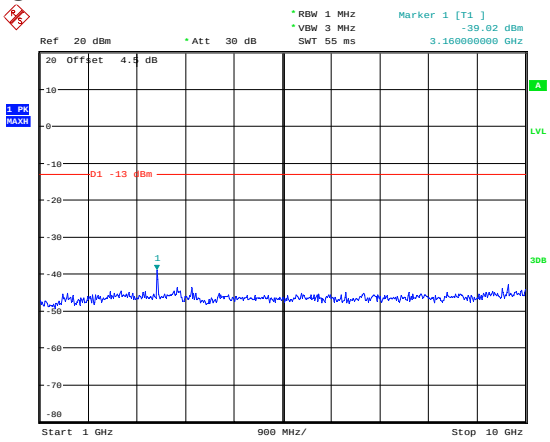


Date: 16.OCT.2020 09:13:56

10M, QPSK, High Channel



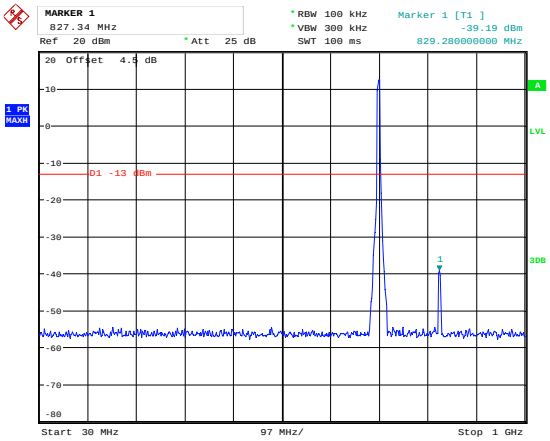
Date: 16.OCT.2020 10:22:58



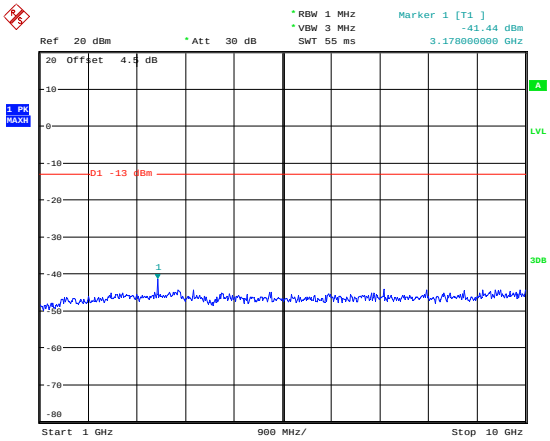
Date: 16.OCT.2020 10:23:12

LTE Band 17:

5M, QPSK, Low Channel

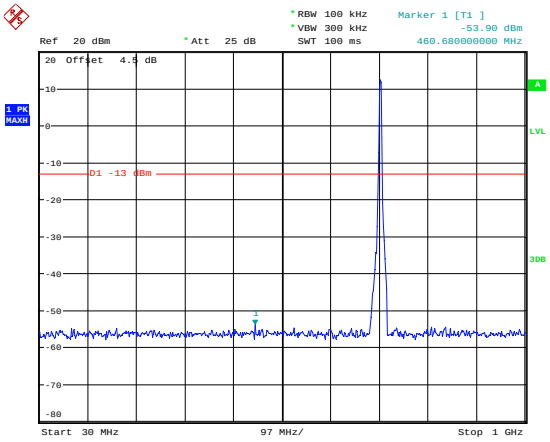


Date: 16.OCT.2020 09:47:59

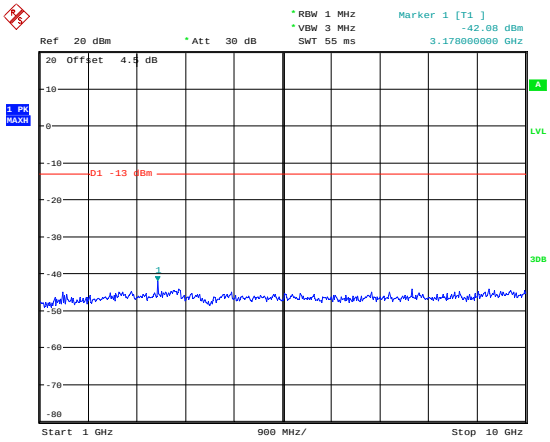


Date: 16.OCT.2020 09:48:13

5M, QPSK, Middle Channel

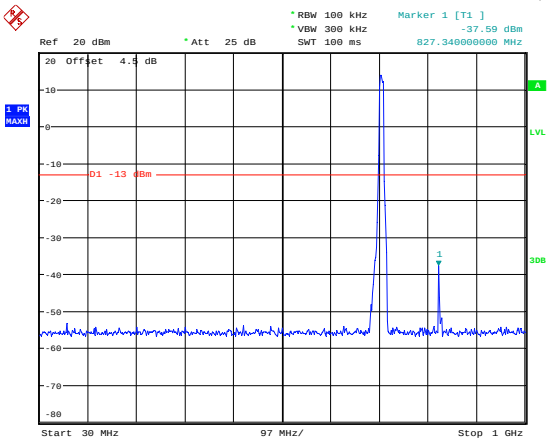


Date: 16.OCT.2020 09:14:23

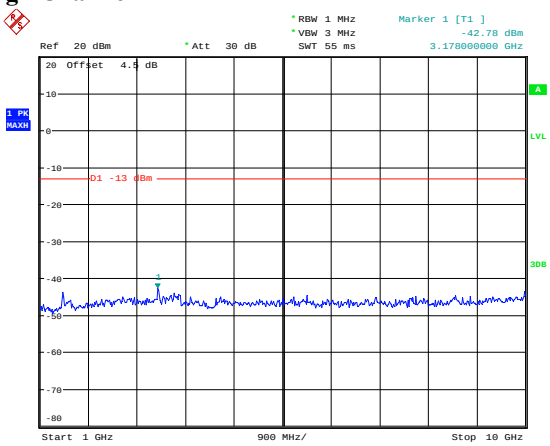


Date: 16.OCT.2020 09:14:37

5M, QPSK, High Channel

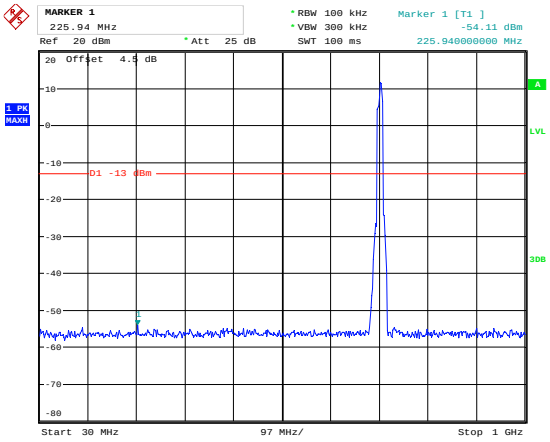


Date: 16.OCT.2020 10:24:11

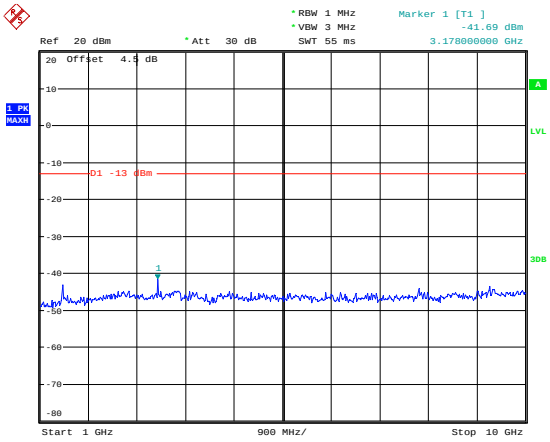


Date: 16.OCT.2020 10:24:25

10M, QPSK, Low Channel

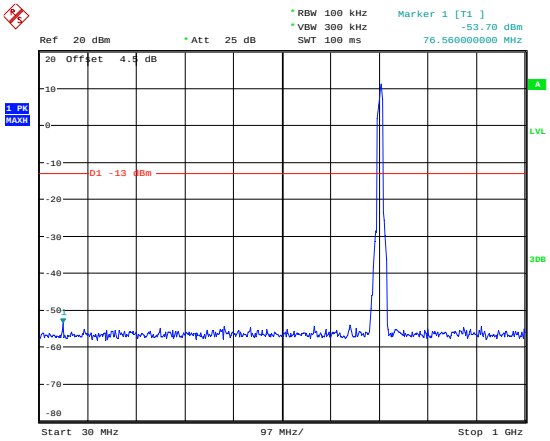


Date: 16.OCT.2020 09:49:03

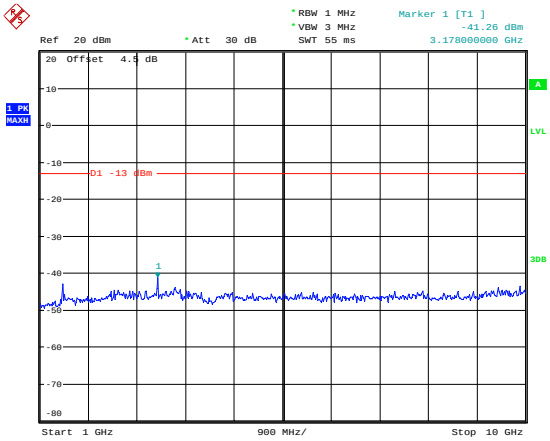


Date: 16.OCT.2020 09:49:17

10M, QPSK, Middle Channel

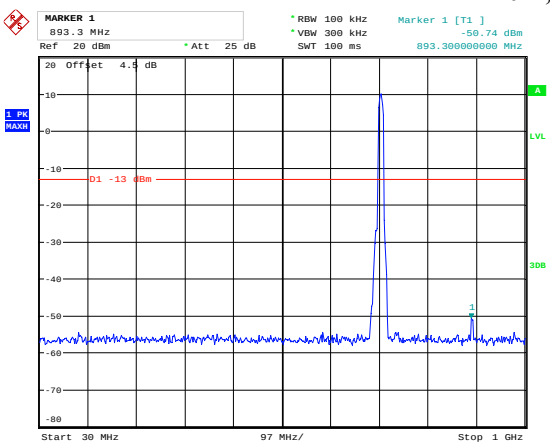


Date: 16.OCT.2020 09:15:00

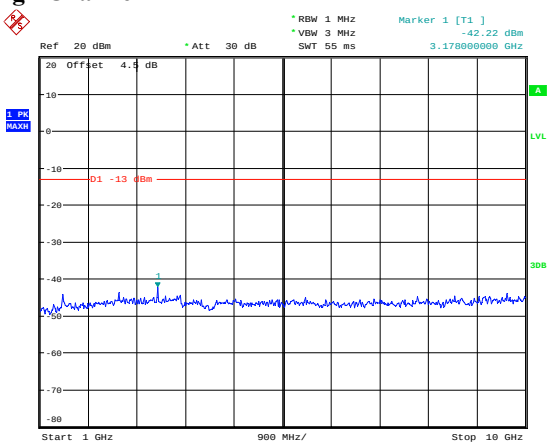


Date: 16.OCT.2020 09:15:14

10M, QPSK, High Channel



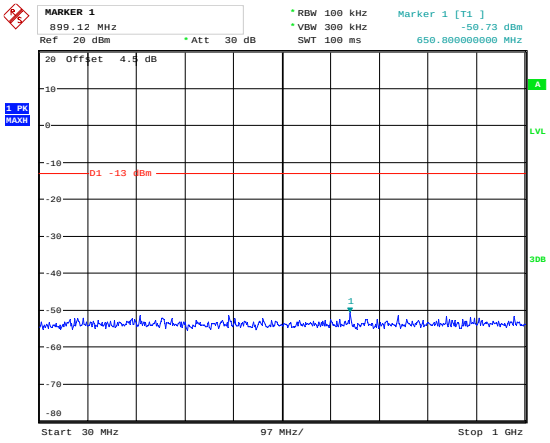
Date: 16.OCT.2020 10:25:13



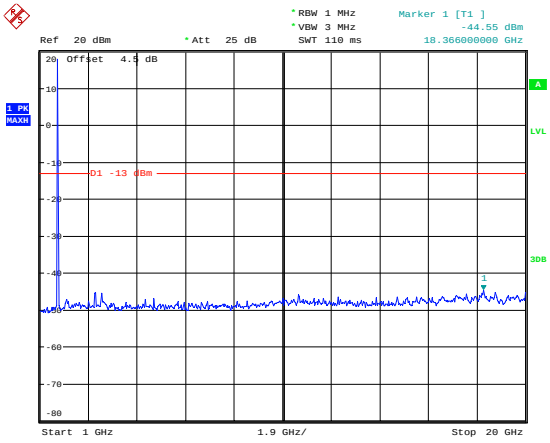
Date: 16.OCT.2020 10:25:27

LTE Band 66:

1.4M, QPSK, Low Channel

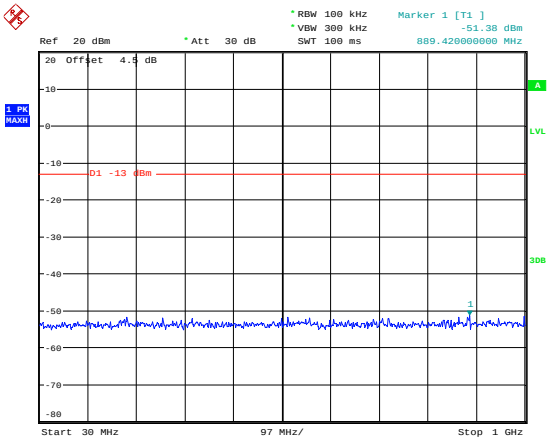


Date: 16.OCT.2020 09:50:10

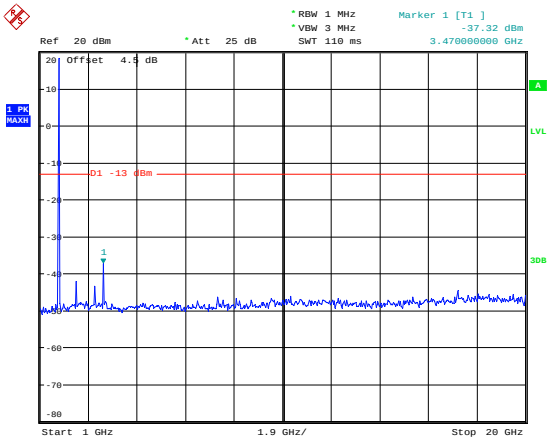


Date: 16.OCT.2020 09:50:24

1.4M, QPSK, Middle Channel

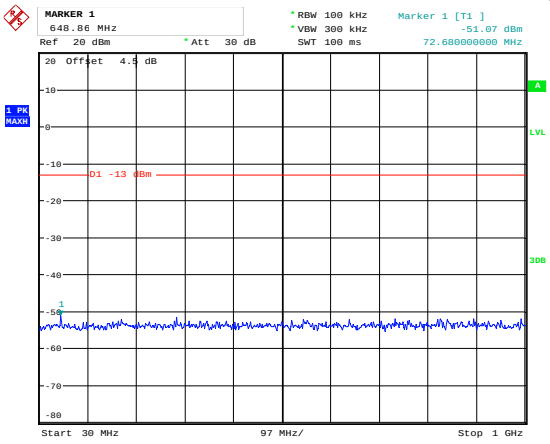


Date: 16.OCT.2020 09:15:42

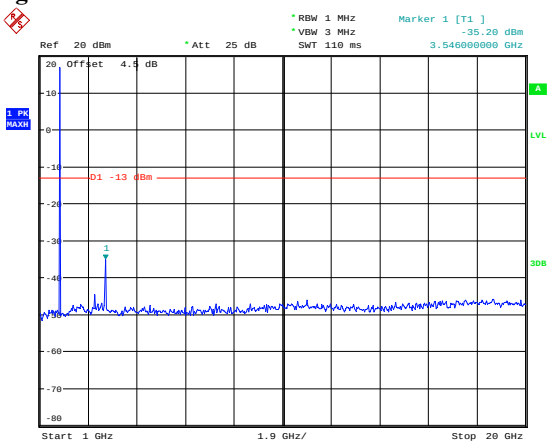


Date: 16.OCT.2020 09:15:56

1.4M, QPSK, High Channel

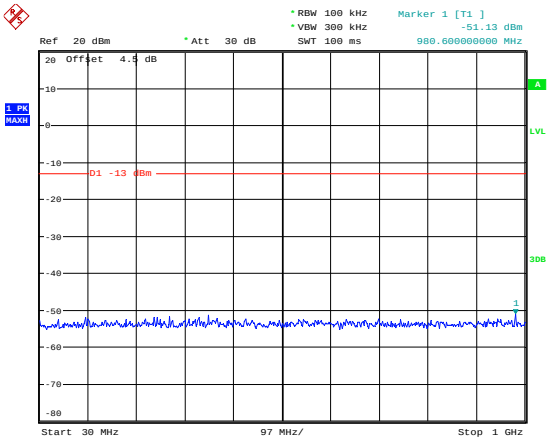


Date: 16.OCT.2020 10:26:22

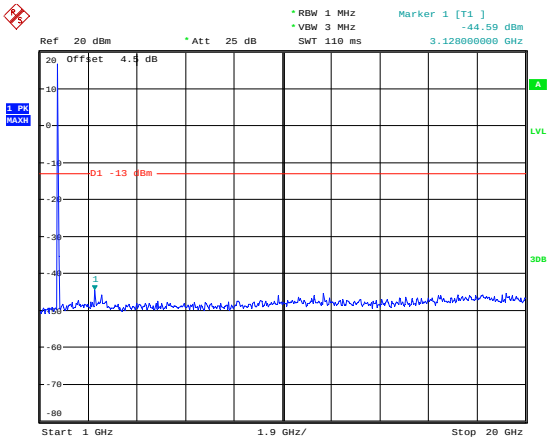


Date: 16.OCT.2020 10:26:36

3M, QPSK, Low Channel

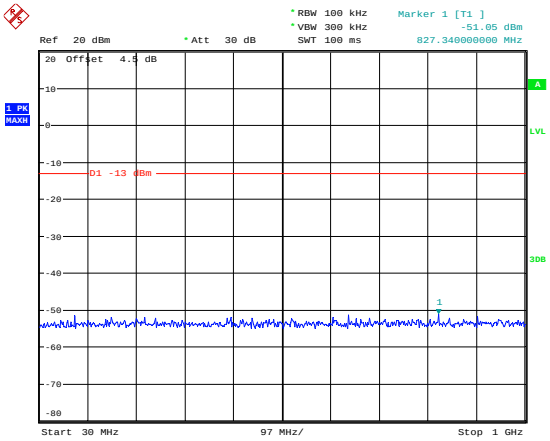


Date: 16.OCT.2020 09:52:11

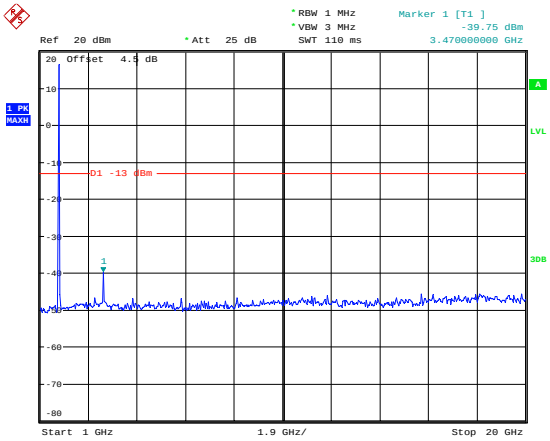


Date: 16.OCT.2020 09:52:26

3M, QPSK, Middle Channel

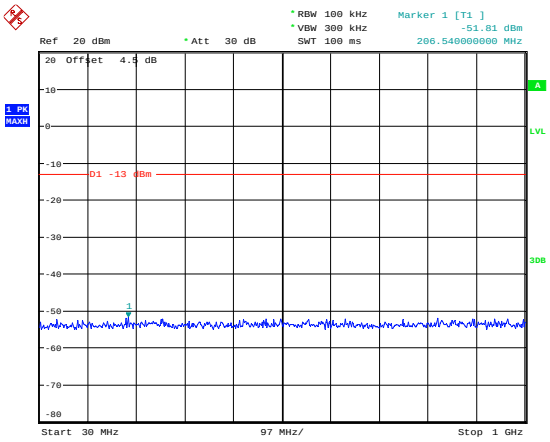


Date: 16.OCT.2020 09:16:20

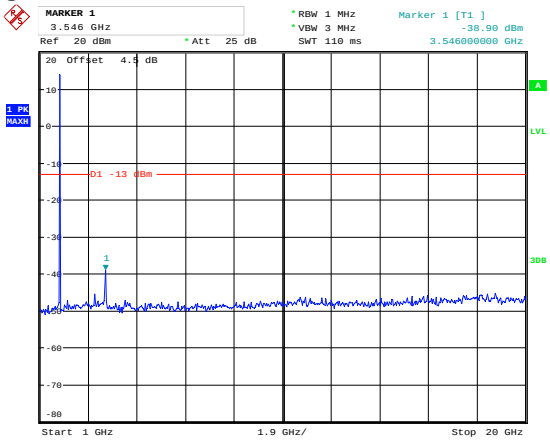


Date: 16.OCT.2020 09:16:34

3M, QPSK, High Channel

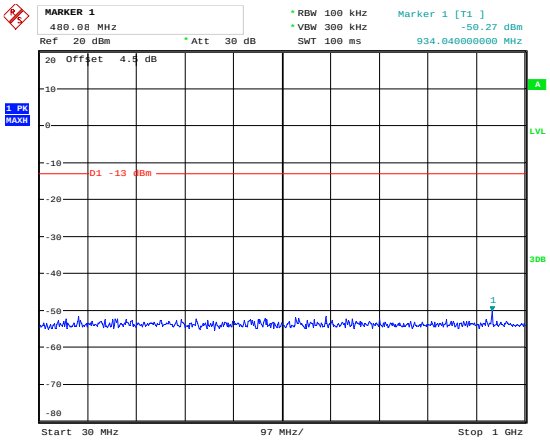


Date: 16.OCT.2020 10:27:06

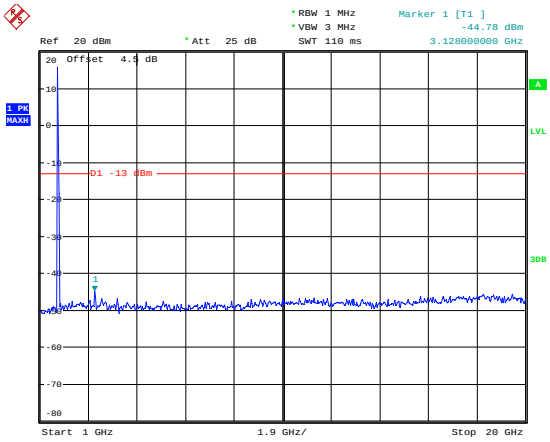


Date: 16.OCT.2020 10:28:10

5M, QPSK, Low Channel

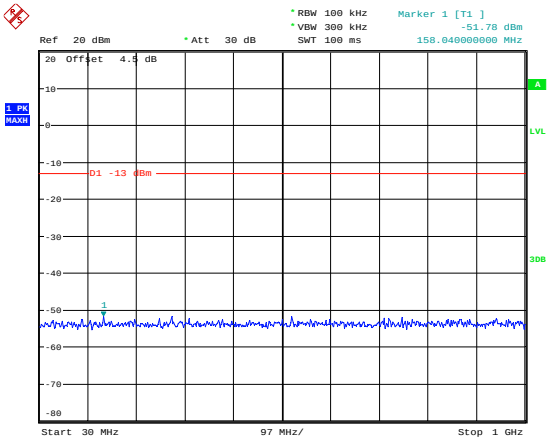


Date: 16.OCT.2020 09:53:11

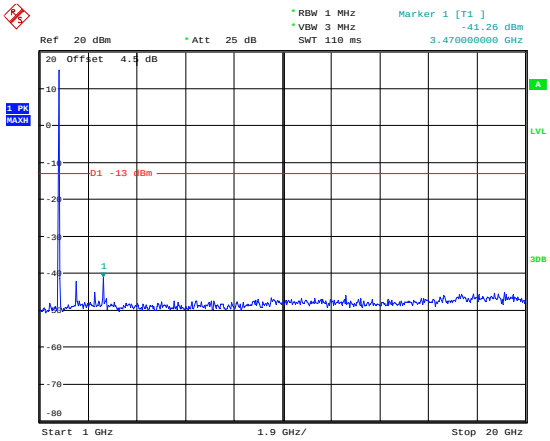


Date: 16.OCT.2020 09:53:26

5M, QPSK, Middle Channel

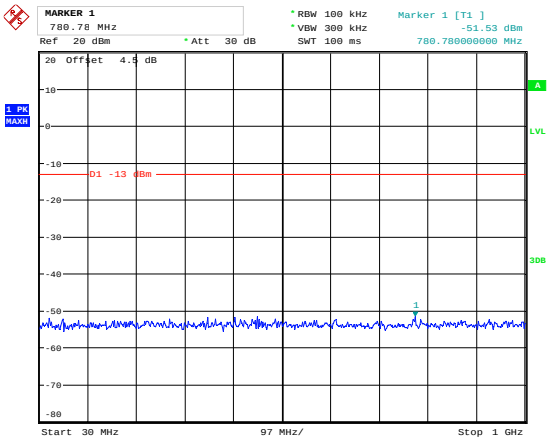


Date: 16.OCT.2020 09:16:58

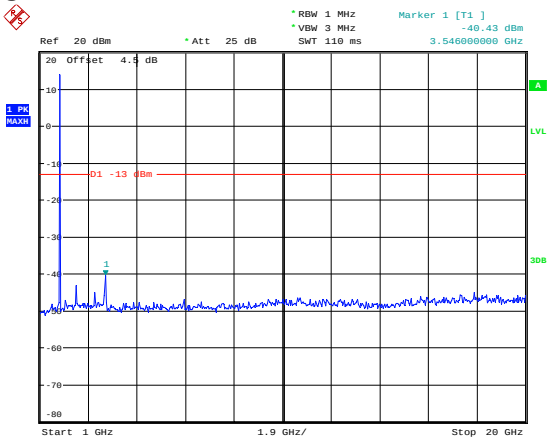


Date: 16.OCT.2020 09:17:12

5M, QPSK, High Channel

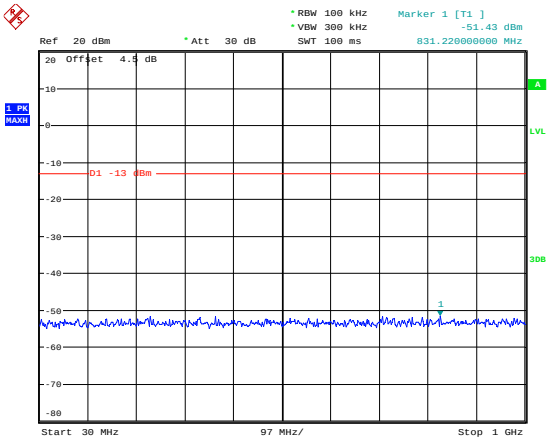


Date: 16.OCT.2020 10:28:55

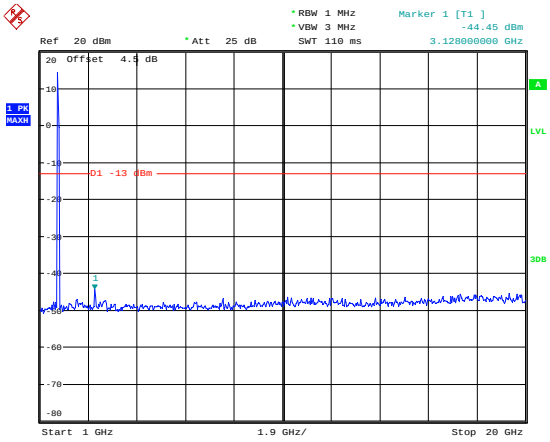


Date: 16.OCT.2020 10:29:09

10M, QPSK, Low Channel

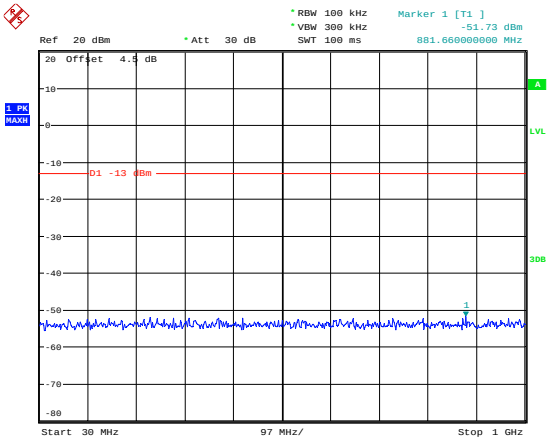


Date: 16.OCT.2020 09:54:03

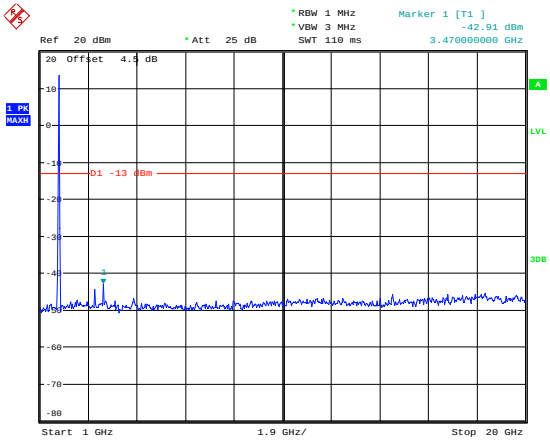


Date: 16.OCT.2020 09:54:17

10M, QPSK, Middle Channel

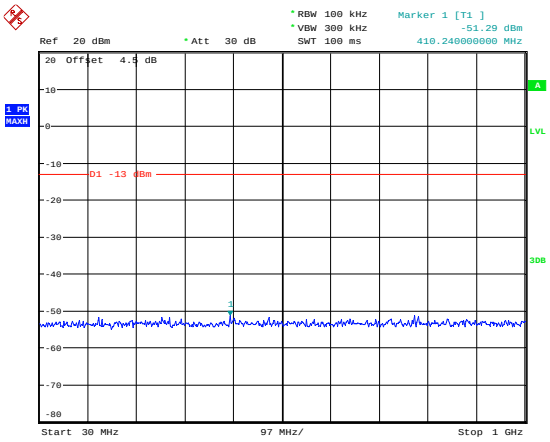


Date: 16.OCT.2020 09:17:34

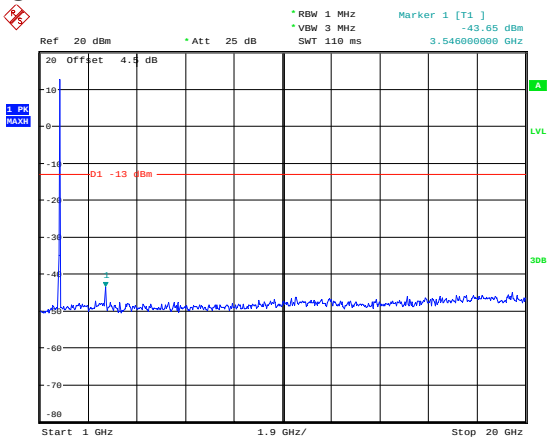


Date: 16.OCT.2020 09:17:48

10M, QPSK, High Channel

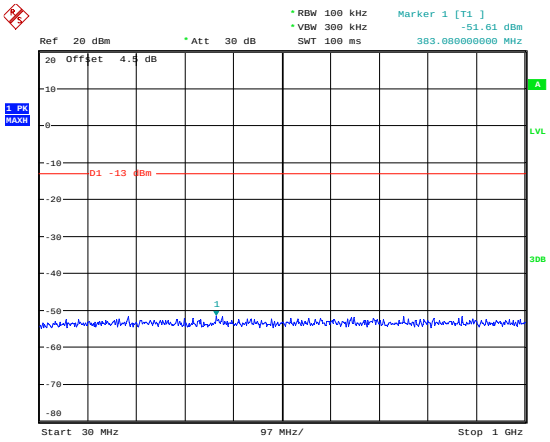


Date: 16.OCT.2020 10:29:49

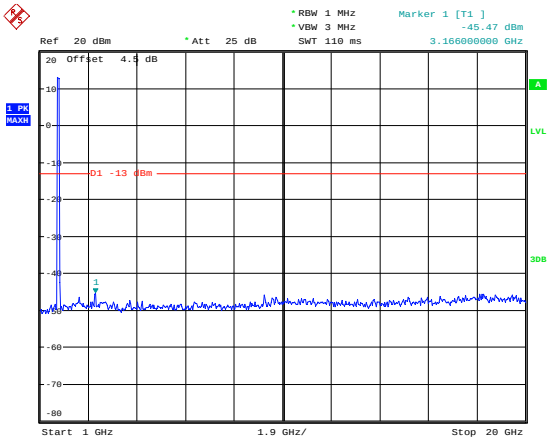


Date: 16.OCT.2020 10:30:03

15M, QPSK, Low Channel

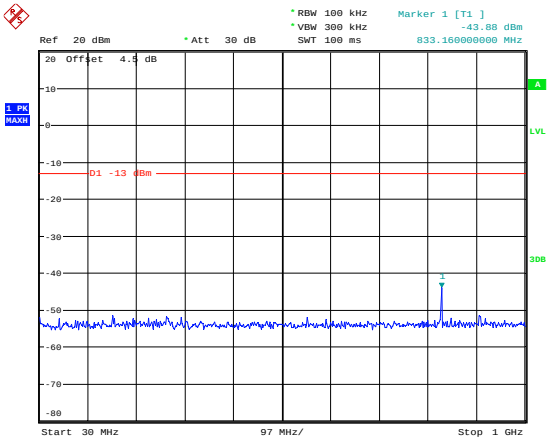


Date: 16.OCT.2020 09:54:56

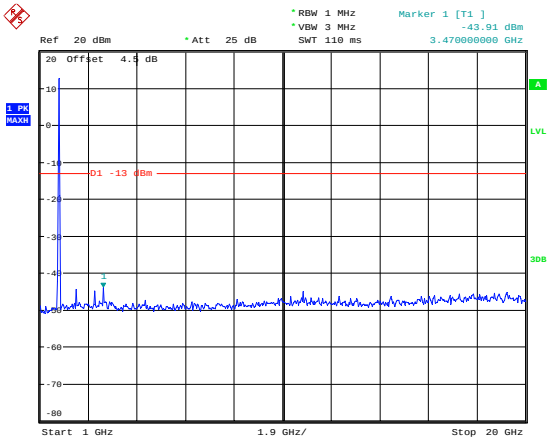


Date: 16.OCT.2020 09:55:10

15M, QPSK, Middle Channel

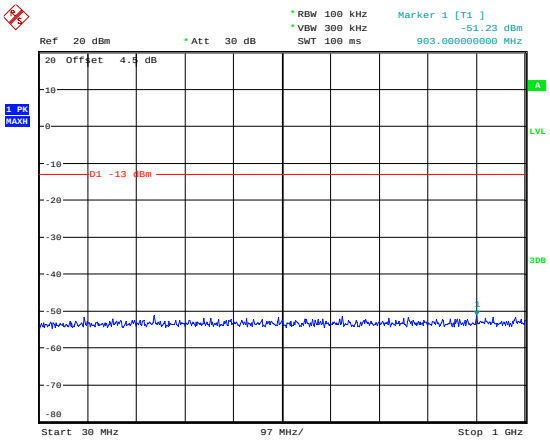


Date: 16.OCT.2020 09:18:12

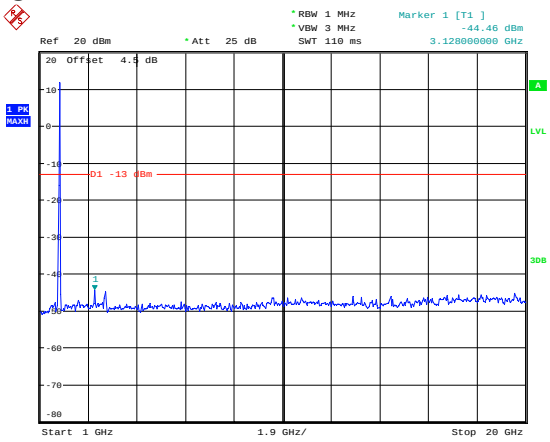


Date: 16.OCT.2020 09:18:26

15M, QPSK, High Channel

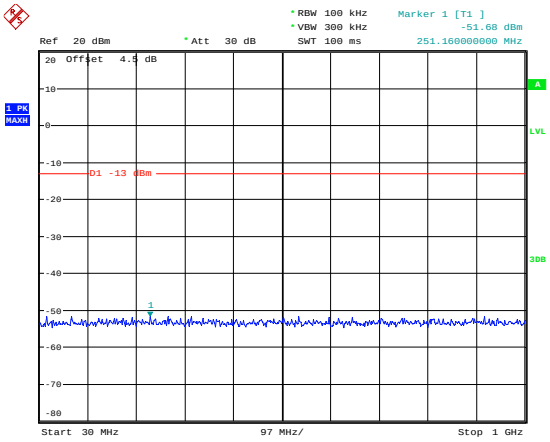


Date: 16.OCT.2020 10:30:48

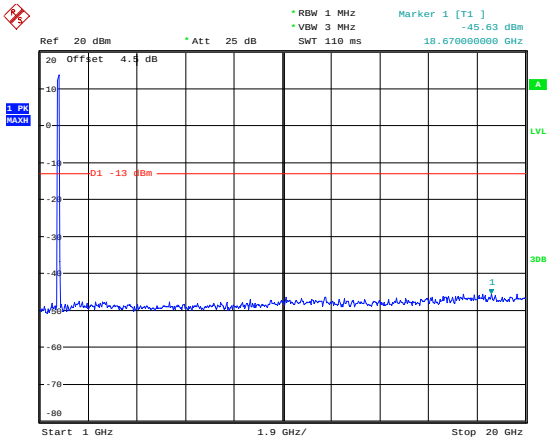


Date: 16.OCT.2020 10:31:02

20M, QPSK, Low Channel

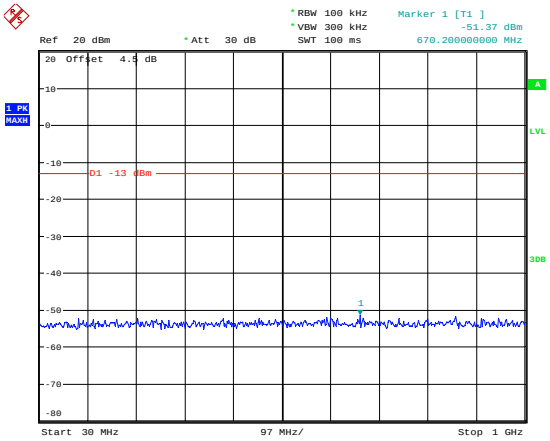


Date: 16.OCT.2020 09:55:51

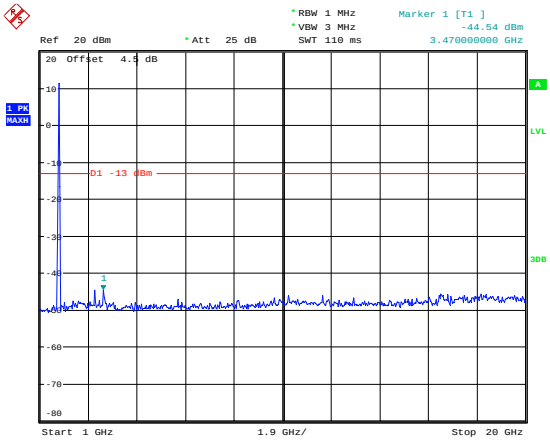


Date: 16.OCT.2020 09:56:05

20M, QPSK, Middle Channel

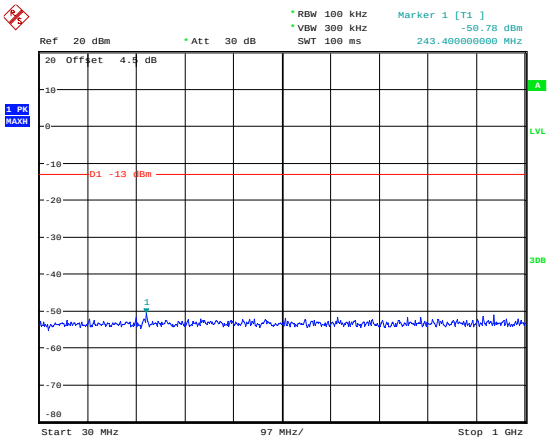


Date: 16.OCT.2020 09:18:54

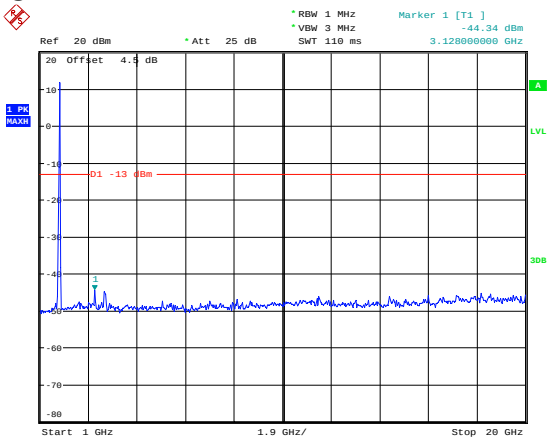


Date: 16.OCT.2020 09:19:09

20M, QPSK, High Channel



Date: 16.OCT.2020 10:31:44



Date: 16.OCT.2020 10:31:58

FCC §2.1053, §22.917 & §24.238 & §27.53- SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53;

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 (TXpwr in Watts/0.001) – the absolute level

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
R&S	EMI Test Receiver	ESR3	102453	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
HP	Amplifier	8447D	2727A05902	2020-09-05	2021-09-05
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
TDK RF	Horn Antenna	HRN-0118	130 084	2018-10-12	2021-10-12
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
Ducommun Technolagies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-12-06	2020-12-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2020-07-07	2021-07-07
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-02	2020-06-27	2021-06-27
Mini-Circuit	Amplifier	ZVA-213-S+	54201245	2020-09-05	2021-09-05
Quinstar	Amplifier	QLW-18405536-JO	15964001001	2020-06-27	2021-06-27
Sinoscite	Band-stop filter	BSF1850-1910MS-0935V2	0935V2	2020-06-16	2021-06-16
Sinoscite	Band-stop filter	BSF2500-2750MS-1439-001	1437001	2020-06-16	2021-06-16
Micro-tronics	High Pass Filter	HPM50111	S/N-G217	2020-06-16	2021-06-16
Agilent	Signal Generator	E8247C	MY43321350	2019-12-10	2020-12-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-02	2020-09-05	2021-09-05
EMCO	Adjustable Dipole Antenna	3121C	9109-753	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Test Items	Radiation Below 1GHz	Radiation Above 1GHz
Temperature:	28.5°C	27°C
Relative Humidity:	37%	46%
ATM Pressure:	100.6kPa	101.1kPa
Tester:	Jalon Liu	Felix Wang,Bond Qin
Test Date:	2020-09-23	2020-10-09

Test Result: Compliance.

EUT Operation Mode: Transmitting

Cellular Band (PART 22H)

30 MHz-10 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM850 Frequency:824.2MHz								
1648.40	H	48.76	-55.42	10.44	0.71	-45.69	-13.00	32.69
1648.40	V	46.69	-58.09	10.44	0.71	-48.36	-13.00	35.36
2472.60	H	42.02	-60.76	12.88	1.25	-49.13	-13.00	36.13
2472.60	V	40.59	-62.24	12.88	1.25	-50.61	-13.00	37.61
3296.80	H	44.16	-55.62	13.60	1.59	-43.61	-13.00	30.61
3296.80	V	43.23	-56.56	13.60	1.59	-44.55	-13.00	31.55
701.24	H	47.65	-53.22	0.00	0.38	-53.60	-13.00	40.60
47.76	V	56.96	-36.92	-17.10	0.19	-54.21	-13.00	41.21
GSM850 Frequency:836.6MHz								
1673.20	H	48.75	-55.19	10.61	0.73	-45.31	-13.00	32.31
1673.20	V	47.18	-57.36	10.61	0.73	-47.48	-13.00	34.48
2509.80	H	44.45	-58.46	13.11	1.25	-46.60	-13.00	33.60
2509.80	V	43.02	-59.92	13.11	1.25	-48.06	-13.00	35.06
3346.40	H	42.55	-57.13	13.83	1.61	-44.91	-13.00	31.91
3346.40	V	41.64	-58.08	13.83	1.61	-45.86	-13.00	32.86
701.24	H	46.19	-54.68	0.00	0.38	-55.06	-13.00	42.06
47.46	V	56.86	-36.85	-17.39	0.19	-54.43	-13.00	41.43
GSM850 Frequency:848.8MHz								
1697.60	H	49.45	-54.25	10.78	0.75	-44.22	-13.00	31.22
1697.60	V	48.25	-56.05	10.78	0.75	-46.02	-13.00	33.02
2546.40	H	46.67	-56.28	13.15	1.27	-44.40	-13.00	31.40
2546.40	V	46.35	-56.74	13.15	1.27	-44.86	-13.00	31.86
3395.20	H	42.53	-56.99	14.08	1.64	-44.55	-13.00	31.55
3395.20	V	42.22	-57.40	14.08	1.64	-44.96	-13.00	31.96
701.24	H	44.81	-56.06	0.00	0.38	-56.44	-13.00	43.44
47.46	V	56.99	-36.72	-17.39	0.19	-54.30	-13.00	41.30

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band 5 Frequency:826.4 MHz								
1652.80	H	39.54	-64.59	10.47	0.72	-54.84	-13.00	41.84
1652.80	V	39.50	-65.23	10.47	0.72	-55.48	-13.00	42.48
2479.20	H	39.07	-63.74	12.93	1.25	-52.06	-13.00	39.06
2479.20	V	37.23	-65.62	12.93	1.25	-53.94	-13.00	40.94
3305.60	H	36.39	-63.41	13.63	1.59	-51.37	-13.00	38.37
3305.60	V	37.54	-62.27	13.63	1.59	-50.23	-13.00	37.23
802.12	H	58.08	-40.39	0.00	0.49	-40.88	-13.00	27.88
249.22	V	52.28	-55.67	0.00	0.27	-55.94	-13.00	42.94
WCDMA Band 5 Frequency:836.6MHz								
1673.20	H	38.83	-65.11	10.61	0.73	-55.23	-13.00	42.23
1673.20	V	40.30	-64.24	10.61	0.73	-54.36	-13.00	41.36
2509.80	H	40.77	-62.14	13.11	1.25	-50.28	-13.00	37.28
2509.80	V	40.70	-62.24	13.11	1.25	-50.38	-13.00	37.38
3346.40	H	37.16	-62.52	13.83	1.61	-50.30	-13.00	37.30
3346.40	V	36.46	-63.26	13.83	1.61	-51.04	-13.00	38.04
802.12	H	57.27	-41.20	0.00	0.49	-41.69	-13.00	28.69
559.62	V	52.92	-48.18	0.00	0.36	-48.54	-13.00	35.54
WCDMA Band 5 Frequency:846.6MHz								
1693.20	H	38.22	-65.53	10.75	0.75	-55.53	-13.00	42.53
1693.20	V	38.29	-66.06	10.75	0.75	-56.06	-13.00	43.06
2539.80	H	38.23	-64.71	13.14	1.27	-52.84	-13.00	39.84
2539.80	V	37.59	-65.47	13.14	1.27	-53.60	-13.00	40.60
3386.40	H	36.45	-63.10	14.03	1.63	-50.70	-13.00	37.70
3386.40	V	36.81	-62.83	14.03	1.63	-50.43	-13.00	37.43
802.12	H	57.19	-41.28	0.00	0.49	-41.77	-13.00	28.77
249.22	V	52.04	-55.91	0.00	0.27	-56.18	-13.00	43.18

PCS Band (PART 24E)

30 MHz-20 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
GSM1900 Frequency:1850.2MHz								
3700.40	H	47.44	-50.55	14.00	1.83	-38.38	-13.00	25.38
3700.40	V	45.13	-52.84	14.00	1.83	-40.67	-13.00	27.67
5550.60	H	45.96	-48.01	13.95	1.27	-35.33	-13.00	22.33
5550.60	V	45.57	-48.25	13.95	1.27	-35.57	-13.00	22.57
701.24	H	45.54	-55.33	0.00	0.38	-55.71	-13.00	42.71
47.46	V	57.39	-36.32	-17.39	0.19	-53.90	-13.00	40.90
GSM 1900 Frequency:1880MHz								
3760.00	H	45.22	-52.42	13.76	1.63	-40.29	-13.00	27.29
3760.00	V	42.58	-54.92	13.76	1.63	-42.79	-13.00	29.79
5640.00	H	47.90	-45.69	14.02	1.31	-32.98	-13.00	19.98
5640.00	V	47.58	-45.90	14.02	1.31	-33.19	-13.00	20.19
701.24	H	45.38	-55.49	0.00	0.38	-55.87	-13.00	42.87
47.46	V	56.73	-36.98	-17.39	0.19	-54.56	-13.00	41.56
GSM 1900 Frequency:1909.8MHz								
3819.60	H	44.26	-52.99	13.56	1.50	-40.93	-13.00	27.93
3819.60	V	41.74	-55.33	13.56	1.50	-43.27	-13.00	30.27
5729.40	H	52.99	-40.72	13.96	1.31	-28.07	-13.00	15.07
5729.40	V	52.26	-41.42	13.96	1.31	-28.77	-13.00	15.77
701.24	H	47.27	-53.60	0.00	0.38	-53.98	-13.00	40.98
47.46	V	57.02	-36.69	-17.39	0.19	-54.27	-13.00	41.27

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band II, Frequency:1852.4 MHz								
3704.80	H	37.92	-60.04	13.98	1.81	-47.87	-13.00	34.87
3704.80	V	36.88	-61.05	13.98	1.81	-48.88	-13.00	35.88
5557.20	H	36.72	-57.17	13.97	1.27	-44.47	-13.00	31.47
5557.20	V	36.31	-57.43	13.97	1.27	-44.73	-13.00	31.73
802.12	H	59.02	-39.45	0.00	0.49	-39.94	-13.00	26.94
559.62	V	53.68	-47.42	0.00	0.36	-47.78	-13.00	34.78
WCDMA Band II, Frequency:1880 MHz								
3760.00	H	36.47	-61.17	13.76	1.63	-49.04	-13.00	36.04
3760.00	V	37.88	-59.62	13.76	1.63	-47.49	-13.00	34.49
5640.00	H	34.92	-58.67	14.02	1.31	-45.96	-13.00	32.96
5640.00	V	35.46	-58.02	14.02	1.31	-45.31	-13.00	32.31
802.12	H	58.08	-40.39	0.00	0.49	-40.88	-13.00	27.88
49.40	V	53.42	-41.39	-15.49	0.19	-57.07	-13.00	44.07
WCDMA Band II, Frequency:1907.6MHz								
3815.20	H	37.59	-59.69	13.57	1.50	-47.62	-13.00	34.62
3815.20	V	37.62	-59.48	13.57	1.50	-47.41	-13.00	34.41
5722.80	H	36.36	-57.40	13.95	1.32	-44.77	-13.00	31.77
5722.80	V	36.32	-57.40	13.95	1.32	-44.77	-13.00	31.77
802.12	H	58.62	-39.85	0.00	0.49	-40.34	-13.00	27.34
249.22	V	53.43	-54.52	0.00	0.27	-54.79	-13.00	41.79

AWS Band, Part 27

30 MHz-20 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
WCDMA Band IV, Frequency:1712.4 MHz								
3424.80	H	45.15	-54.24	14.03	1.63	-41.84	-13.00	28.84
3424.80	V	40.05	-59.41	14.03	1.63	-47.01	-13.00	34.01
5137.20	H	35.25	-59.43	13.94	1.39	-46.88	-13.00	33.88
5137.20	V	35.07	-59.53	13.94	1.39	-46.98	-13.00	33.98
802.12	H	58.04	-40.43	0.00	0.49	-40.92	-13.00	27.92
559.62	V	53.02	-48.08	0.00	0.36	-48.44	-13.00	35.44
WCDMA Band IV, Frequency:1732.6 MHz								
3465.20	H	43.52	-55.66	13.90	1.62	-43.38	-13.00	30.38
3465.20	V	39.09	-60.13	13.90	1.62	-47.85	-13.00	34.85
5197.80	H	35.62	-59.07	14.00	1.52	-46.59	-13.00	33.59
5197.80	V	35.99	-58.77	14.00	1.52	-46.29	-13.00	33.29
802.12	H	59.12	-39.35	0.00	0.49	-39.84	-13.00	26.84
249.22	V	53.69	-54.26	0.00	0.27	-54.53	-13.00	41.53
WCDMA Band II, Frequency:1952.6MHz								
3505.20	H	46.25	-52.76	13.82	1.60	-40.54	-13.00	27.54
3505.20	V	41.04	-57.97	13.82	1.60	-45.75	-13.00	32.75
5257.80	H	35.25	-59.80	14.17	1.31	-46.94	-13.00	33.94
5257.80	V	34.86	-60.27	14.17	1.31	-47.41	-13.00	34.41
802.12	H	57.52	-40.95	0.00	0.49	-41.44	-13.00	28.44
249.22	V	52.74	-55.21	0.00	0.27	-55.48	-13.00	42.48

Note:
1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
3) Margin = Limit-Absolute Level

LTE Band 2 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1850.7 MHz								
3701.40	H	38.62	-59.36	13.99	1.83	-47.20	-13.00	34.20
3701.40	V	37.86	-60.10	13.99	1.83	-47.94	-13.00	34.94
5552.10	H	41.02	-52.93	13.96	1.27	-40.24	-13.00	27.24
5552.10	V	43.11	-50.69	13.96	1.27	-38.00	-13.00	25.00
802.12	H	57.55	-40.92	0.00	0.49	-41.41	-13.00	28.41
249.22	V	52.97	-54.98	0.00	0.27	-55.25	-13.00	42.25
QPSK,Frequency:1880 MHz								
3760.00	H	37.50	-60.14	13.76	1.63	-48.01	-13.00	35.01
3760.00	V	37.29	-60.21	13.76	1.63	-48.08	-13.00	35.08
5640.00	H	44.38	-49.21	14.02	1.31	-36.50	-13.00	23.50
5640.00	V	46.63	-46.85	14.02	1.31	-34.14	-13.00	21.14
802.12	H	58.00	-40.47	0.00	0.49	-40.96	-13.00	27.96
229.82	V	53.09	-54.28	0.00	0.23	-54.51	-13.00	41.51
QPSK,Frequency:1909.3 MHz								
3818.60	H	38.01	-59.25	13.56	1.50	-47.19	-13.00	34.19
3818.60	V	37.94	-59.13	13.56	1.50	-47.07	-13.00	34.07
5727.90	H	46.04	-47.68	13.96	1.31	-35.03	-13.00	22.03
5727.90	V	47.87	-45.82	13.96	1.31	-33.17	-13.00	20.17
802.12	H	58.28	-40.19	0.00	0.49	-40.68	-13.00	27.68
249.22	V	53.61	-54.34	0.00	0.27	-54.61	-13.00	41.61

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK,Frequency:1710.7 MHz								
3421.40	H	43.50	-55.90	14.04	1.63	-43.49	-13.00	30.49
3421.40	V	42.44	-57.04	14.04	1.63	-44.63	-13.00	31.63
5132.10	H	43.53	-51.15	13.93	1.37	-38.59	-13.00	25.59
5132.10	V	47.49	-47.10	13.93	1.37	-34.54	-13.00	21.54
802.12	H	58.53	-39.94	0.00	0.49	-40.43	-13.00	27.43
249.22	V	53.69	-54.26	0.00	0.27	-54.53	-13.00	41.53
QPSK,Frequency:1732.5 MHz								
3465.00	H	50.27	-48.92	13.91	1.62	-36.63	-13.00	23.63
3465.00	V	46.32	-52.90	13.91	1.62	-40.61	-13.00	27.61
5197.50	H	37.97	-56.72	14.00	1.52	-44.24	-13.00	31.24
5197.50	V	42.34	-52.42	14.00	1.52	-39.94	-13.00	26.94
802.12	H	57.72	-40.75	0.00	0.49	-41.24	-13.00	28.24
249.22	V	53.88	-54.07	0.00	0.27	-54.34	-13.00	41.34
QPSK,Frequency:1754.3 MHz								
3508.60	H	41.53	-57.48	13.83	1.60	-45.25	-13.00	32.25
3508.60	V	45.14	-53.87	13.83	1.60	-41.64	-13.00	28.64
5262.90	H	43.11	-51.98	14.19	1.29	-39.08	-13.00	26.08
5262.90	V	47.37	-47.80	14.19	1.29	-34.90	-13.00	21.90
802.12	H	58.41	-40.06	0.00	0.49	-40.55	-13.00	27.55
249.22	V	53.72	-54.23	0.00	0.27	-54.50	-13.00	41.50

LTE Band 5(30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 824.7 MHz								
1649.40	H	40.36	-63.81	10.45	0.71	-54.07	-13.00	41.07
1649.40	V	40.78	-63.99	10.45	0.71	-54.25	-13.00	41.25
2474.10	H	44.35	-58.44	12.89	1.25	-46.80	-13.00	33.80
2474.10	V	41.64	-61.20	12.89	1.25	-49.56	-13.00	36.56
3298.80	H	36.52	-63.29	13.60	1.59	-51.28	-13.00	38.28
3298.80	V	36.31	-63.50	13.60	1.59	-51.49	-13.00	38.49
802.12	H	58.76	-39.71	0.00	0.49	-40.20	-13.00	27.20
559.62	V	52.97	-48.13	0.00	0.36	-48.49	-13.00	35.49
QPSK, Frequency: 836.5 MHz								
1673.00	H	39.90	-64.04	10.61	0.73	-54.16	-13.00	41.16
1673.00	V	42.81	-61.73	10.61	0.73	-51.85	-13.00	38.85
2509.50	H	41.36	-61.55	13.11	1.25	-49.69	-13.00	36.69
2509.50	V	41.14	-61.80	13.11	1.25	-49.94	-13.00	36.94
3346.00	H	37.16	-62.52	13.83	1.61	-50.30	-13.00	37.30
3346.00	V	36.72	-63.00	13.83	1.61	-50.78	-13.00	37.78
802.12	H	57.12	-41.35	0.00	0.49	-41.84	-13.00	28.84
559.62	V	53.00	-48.10	0.00	0.36	-48.46	-13.00	35.46
QPSK, Frequency: 848.3 MHz								
1696.60	H	39.09	-64.62	10.78	0.75	-54.59	-13.00	41.59
1696.60	V	38.84	-65.47	10.78	0.75	-55.44	-13.00	42.44
2544.90	H	41.55	-61.40	13.14	1.27	-49.53	-13.00	36.53
2544.90	V	38.86	-64.22	13.14	1.27	-52.35	-13.00	39.35
3393.20	H	36.38	-63.15	14.07	1.64	-50.72	-13.00	37.72
3393.20	V	36.44	-63.18	14.07	1.64	-50.75	-13.00	37.75
802.12	H	58.50	-39.97	0.00	0.49	-40.46	-13.00	27.46
559.62	V	53.23	-47.87	0.00	0.36	-48.23	-13.00	35.23

LTE Band 12(30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBμV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 699.7 MHz								
1399.40	H	39.18	-64.21	9.00	1.20	-56.41	-13.00	43.41
1399.40	V	39.81	-64.18	9.00	1.20	-56.38	-13.00	43.38
2099.10	H	37.82	-64.25	11.41	1.10	-53.94	-13.00	40.94
2099.10	V	37.63	-64.44	11.41	1.10	-54.13	-13.00	41.13
2798.80	H	37.83	-63.89	13.10	1.36	-52.15	-13.00	39.15
2798.80	V	37.16	-64.76	13.10	1.36	-53.02	-13.00	40.02
249.22	H	53.74	-55.55	0.00	0.27	-55.82	-13.00	42.82
474.26	V	53.31	-49.77	0.00	0.36	-50.13	-13.00	37.13
QPSK, Frequency:707.5 MHz								
1415.00	H	40.06	-63.55	9.08	1.22	-55.69	-13.00	42.69
1415.00	V	39.81	-64.32	9.08	1.22	-56.46	-13.00	43.46
2122.50	H	37.47	-64.54	11.27	1.11	-54.38	-13.00	41.38
2122.50	V	37.57	-64.42	11.27	1.11	-54.26	-13.00	41.26
2830.00	H	36.80	-64.62	13.34	1.36	-52.64	-13.00	39.64
2830.00	V	37.61	-64.04	13.34	1.36	-52.06	-13.00	39.06
249.22	H	53.67	-55.62	0.00	0.27	-55.89	-13.00	42.89
474.24	V	53.48	-49.60	0.00	0.36	-49.96	-13.00	36.96
QPSK, Frequency: 715.3 MHz								
1430.60	H	38.40	-65.44	9.15	1.25	-57.54	-13.00	44.54
1430.60	V	38.44	-65.84	9.15	1.25	-57.94	-13.00	44.94
2145.90	H	37.63	-64.33	11.12	1.12	-54.33	-13.00	41.33
2145.90	V	37.27	-64.65	11.12	1.12	-54.65	-13.00	41.65
2861.20	H	37.52	-63.59	13.59	1.35	-51.35	-13.00	38.35
2861.20	V	37.59	-63.78	13.59	1.35	-51.54	-13.00	38.54
249.21	H	53.47	-55.82	0.00	0.27	-56.09	-13.00	43.09
474.24	V	53.69	-49.39	0.00	0.36	-49.75	-13.00	36.75

LTE Band 17(30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 706.5 MHz								
1413.00	H	38.64	-64.94	9.07	1.22	-57.09	-13.00	44.09
1413.00	V	38.62	-65.49	9.07	1.22	-57.64	-13.00	44.64
2119.50	H	37.99	-64.03	11.28	1.11	-53.86	-13.00	40.86
2119.50	V	37.54	-64.46	11.28	1.11	-54.29	-13.00	41.29
2826.00	H	36.85	-64.61	13.31	1.36	-52.66	-13.00	39.66
2826.00	V	37.24	-64.45	13.31	1.36	-52.50	-13.00	39.50
249.22	H	51.97	-57.32	0.00	0.27	-57.59	-13.00	44.59
474.26	V	52.32	-50.76	0.00	0.36	-51.12	-13.00	38.12
QPSK, Frequency:710 MHz								
1420.00	H	38.80	-64.88	9.10	1.23	-57.01	-13.00	44.01
1420.00	V	39.19	-64.99	9.10	1.23	-57.12	-13.00	44.12
2130.00	H	37.25	-64.75	11.22	1.11	-54.64	-13.00	41.64
2130.00	V	37.94	-64.03	11.22	1.11	-53.92	-13.00	40.92
2840.00	H	37.57	-63.75	13.42	1.36	-51.69	-13.00	38.69
2840.00	V	38.01	-63.55	13.42	1.36	-51.49	-13.00	38.49
249.22	H	54.14	-55.15	0.00	0.27	-55.42	-13.00	42.42
474.26	V	52.77	-50.31	0.00	0.36	-50.67	-13.00	37.67
QPSK, Frequency: 713.5 MHz								
1427.00	H	37.88	-65.90	9.14	1.24	-58.00	-13.00	45.00
1427.00	V	38.79	-65.46	9.14	1.24	-57.56	-13.00	44.56
2140.50	H	38.23	-63.74	11.16	1.12	-53.70	-13.00	40.70
2140.50	V	37.67	-64.26	11.16	1.12	-54.22	-13.00	41.22
2854.00	H	37.25	-63.93	13.53	1.35	-51.75	-13.00	38.75
2854.00	V	37.20	-64.23	13.53	1.35	-52.05	-13.00	39.05
249.22	H	53.22	-56.07	0.00	0.27	-56.34	-13.00	43.34
474.26	V	51.66	-51.42	0.00	0.36	-51.78	-13.00	38.78

LTE Band 66(30MHz-10GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dBµV)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 1710.7 MHz								
3421.40	H	42.67	-56.73	14.04	1.63	-44.32	-13.00	31.32
3421.40	V	42.35	-57.13	14.04	1.63	-44.72	-13.00	31.72
5132.10	H	45.76	-48.92	13.93	1.37	-36.36	-13.00	23.36
5132.10	V	47.79	-46.80	13.93	1.37	-34.24	-13.00	21.24
802.12	H	58.41	-40.06	0.00	0.49	-40.55	-13.00	27.55
249.22	V	53.72	-54.23	0.00	0.27	-54.50	-13.00	41.50
QPSK, Frequency:1745 MHz								
3490.00	H	49.42	-49.64	13.83	1.61	-37.42	-13.00	24.42
3490.00	V	45.60	-53.47	13.83	1.61	-41.25	-13.00	28.25
5235.00	H	42.83	-52.08	14.11	1.40	-39.37	-13.00	26.37
5235.00	V	44.36	-50.63	14.11	1.40	-37.92	-13.00	24.92
249.21	H	53.47	-55.82	0.00	0.27	-56.09	-13.00	43.09
474.24	V	53.69	-49.39	0.00	0.36	-49.75	-13.00	36.75
QPSK, Frequency: 1779.3 MHz								
3558.60	H	55.79	-43.23	13.98	1.55	-30.80	-13.00	17.80
3558.60	V	50.69	-48.33	13.98	1.55	-35.90	-13.00	22.90
5337.90	H	43.57	-51.25	14.22	1.26	-38.29	-13.00	25.29
5337.90	V	46.33	-48.52	14.22	1.26	-35.56	-13.00	22.56
802.12	H	58.28	-40.19	0.00	0.49	-40.68	-13.00	27.68
249.22	V	53.61	-54.34	0.00	0.27	-54.61	-13.00	41.61

Note:
1) The unit of Antenna Gain is dBd for frequency below 1GHz, and the unit of Antenna Gain is dBi for frequency above 1GHz.
2) Absolute Level = Substituted Level - Cable loss + Antenna Gain
3) Margin = Limit-Absolute Level

FCC §22.917(a) & §24.238(a) & §27.53 - BAND EDGES

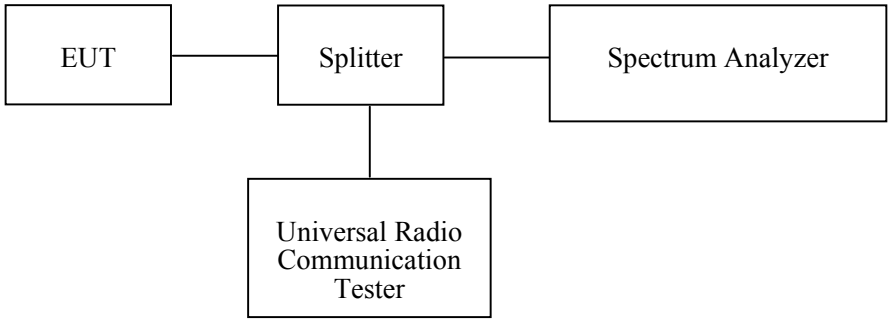
Applicable Standard

FCC § 2.1053, §22.917, § 24.238 and § 27.53

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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A
E-Microwave	Two-way Spliter	ODP-1-6-2S	OE0120142	Each time	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

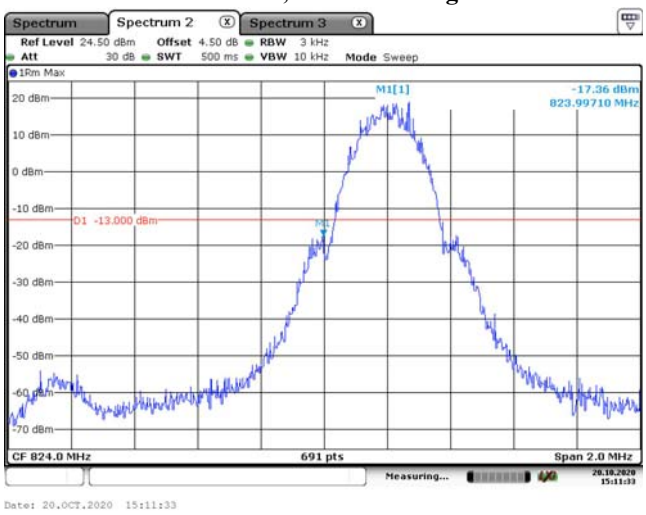
Environmental Conditions

Temperature:	26.5~27.9 °C
Relative Humidity:	45~58%
ATM Pressure:	100.8~101.1kPa
Tester:	Chris Mo,Billy Li
Test Date:	2020-10-17~2020-10-20

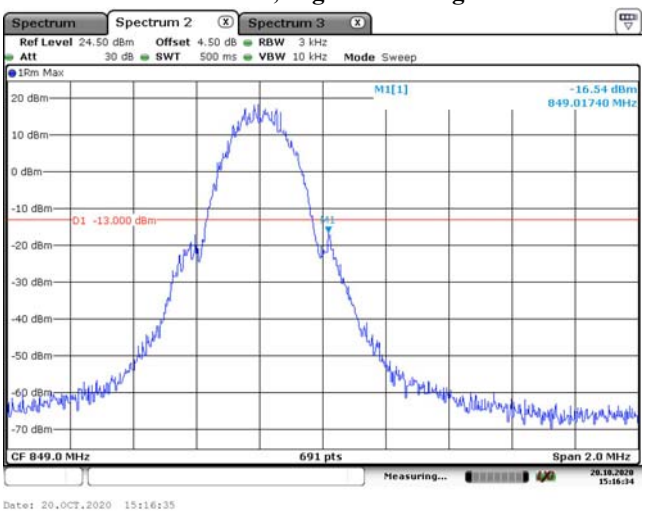
Test Mode: Transmitting

Test Result: Compliance. Please refer to the following plots.

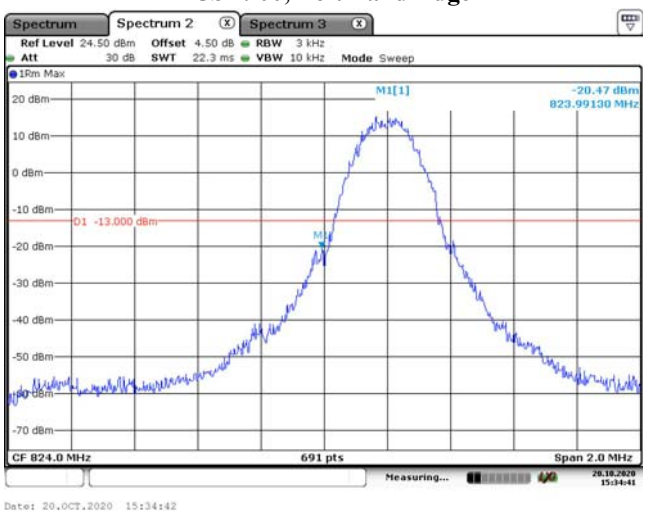
GSM 850, Left Band Edge



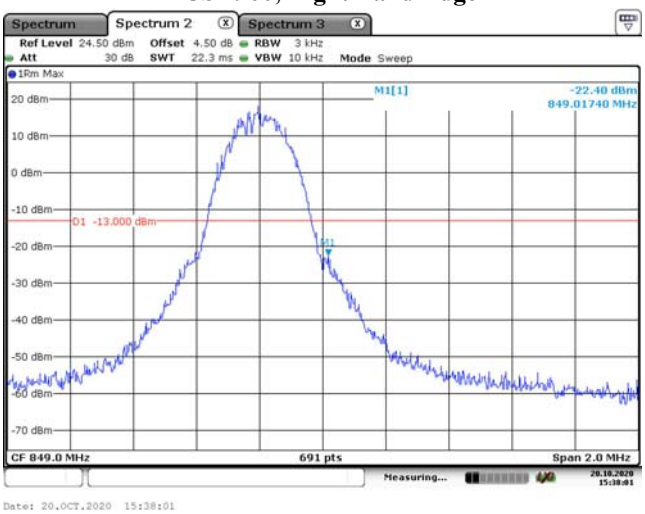
GSM 850, Right Band Edge



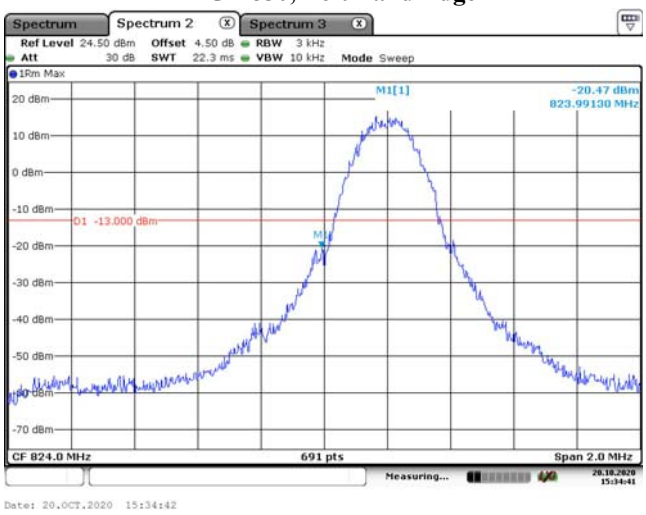
PCS 1900, Left Band Edge



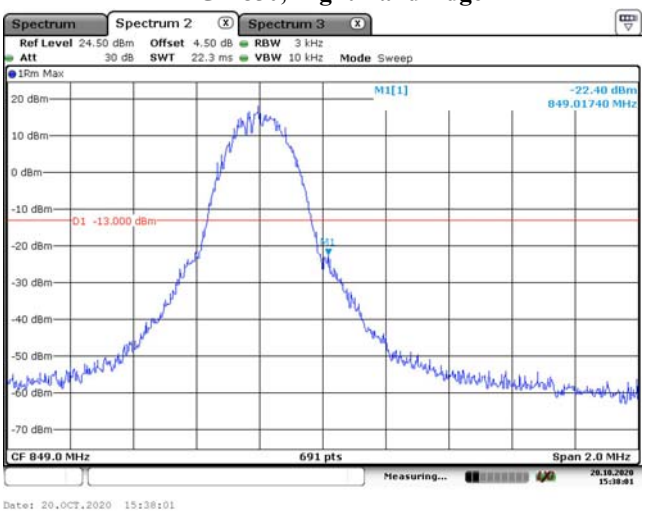
PCS 1900, Right Band Edge



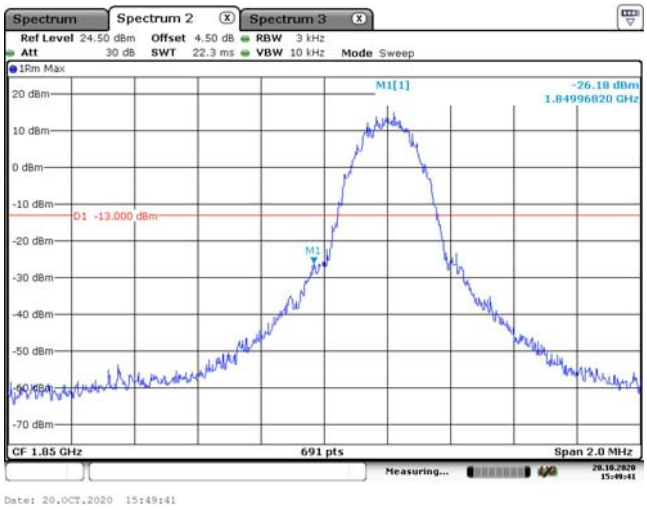
EDGE 850, Left Band Edge



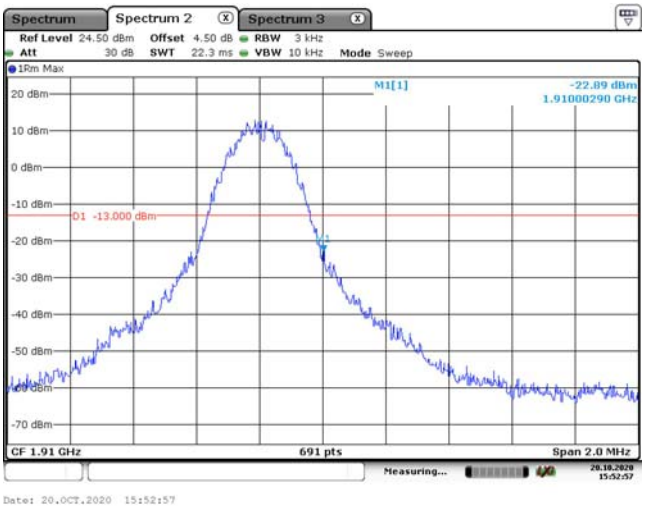
EDGE 850, Right Band Edge



EDGE 1900, Left Band Edge



EDGE 1900, Right Band Edge



WCDMA Band II,Rel99, Left Band Edge

WCDMA Band II,Rel99, Right Band Edge

WCDMA Band II,HSDPA, Left Band Edge

WCDMA Band II,HSDPA,Right Band Edge

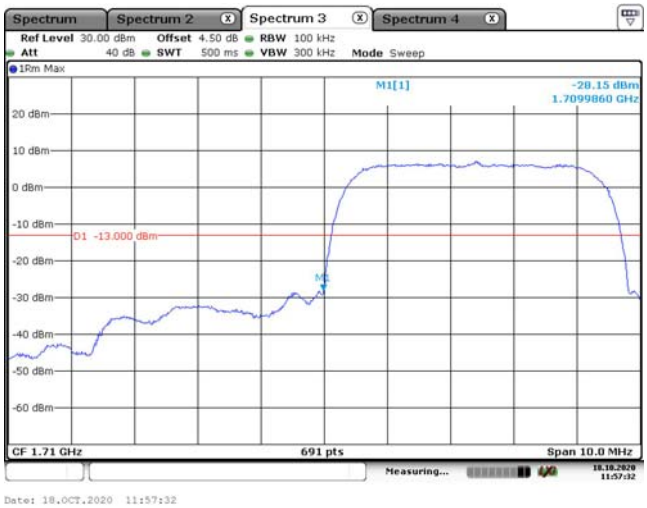
WCDMA Band II,HSUPA, Left Band Edge

WCDMA Band II,HSUPA, Right Band Edge

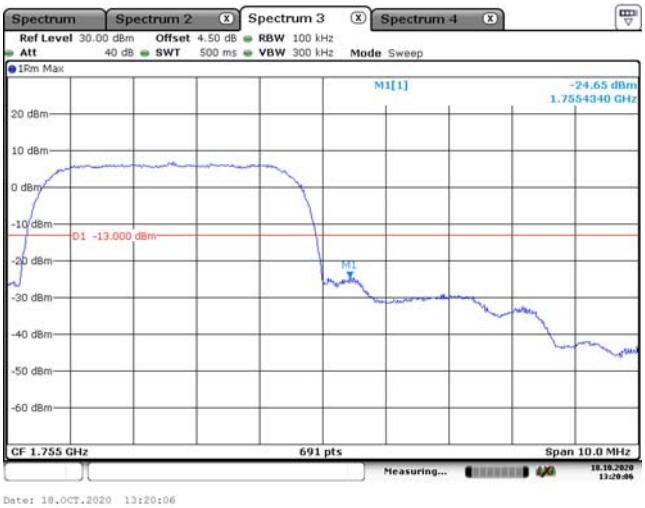
WCDMA Band IV,Rel99, Left Band Edge

WCDMA Band IV,Rel99, Right Band Edge

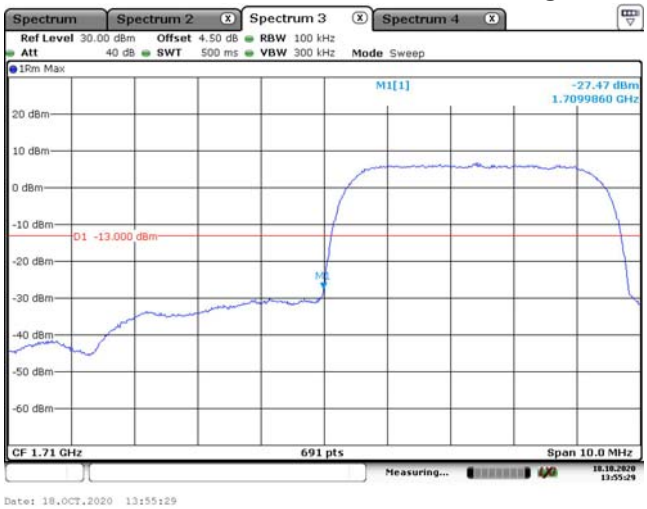
WCDMA Band IV,HSDPA, Left Band Edge



WCDMA Band IV,HSDPA,Right Band Edge

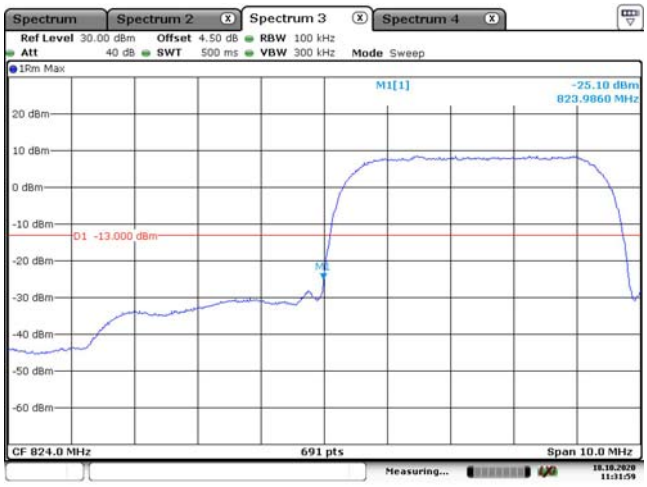


WCDMA Band IV,HSUPA, Left Band Edge



WCDMA Band IV,HSUPA, Right Band Edge

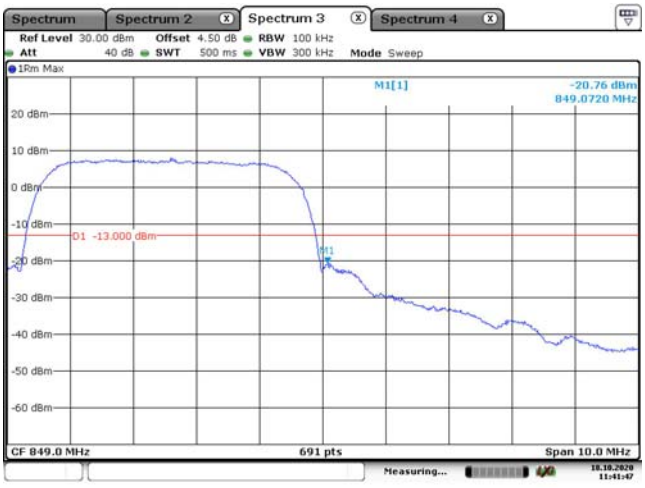
WCDMA Band V,Rel99, Left Band Edge



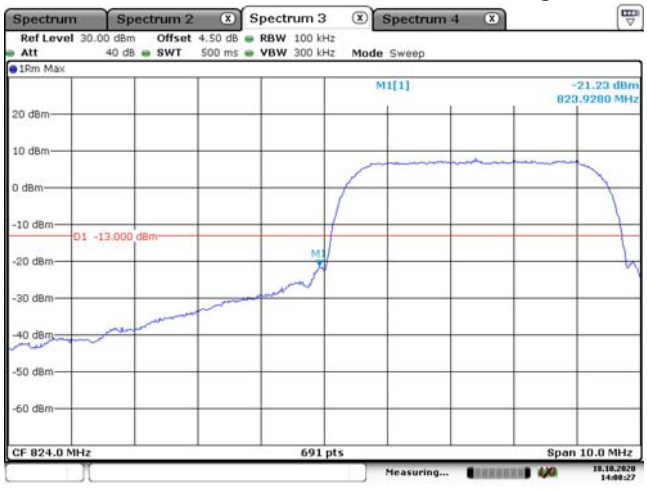
WCDMA Band V,Rel99, Right Band Edge

WCDMA Band V,HSDPA, Left Band Edge

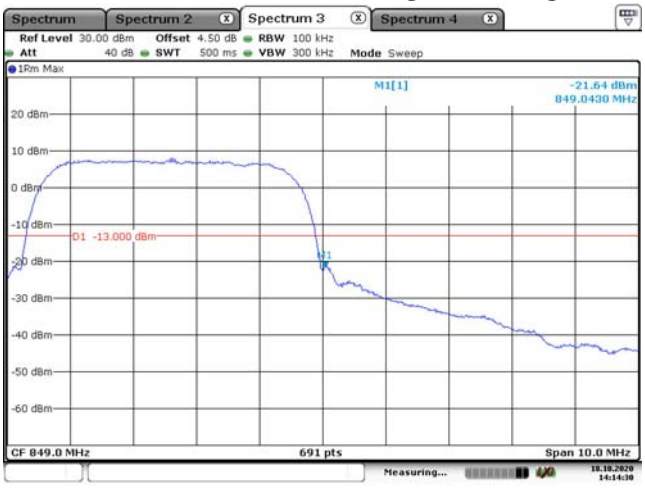
WCDMA Band V,HSDPA,Right Band Edge



WCDMA Band V,HSUPA, Left Band Edge

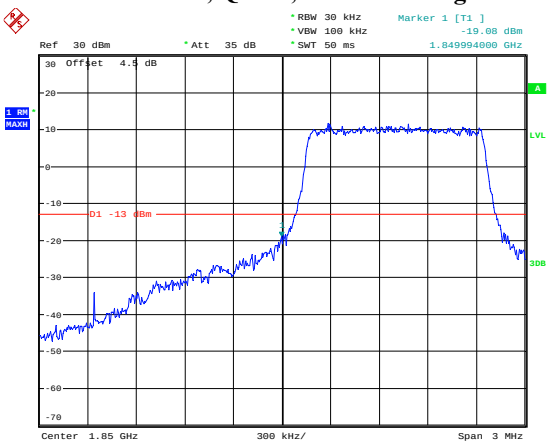


WCDMA Band V,HSUPA, Right Band Edge



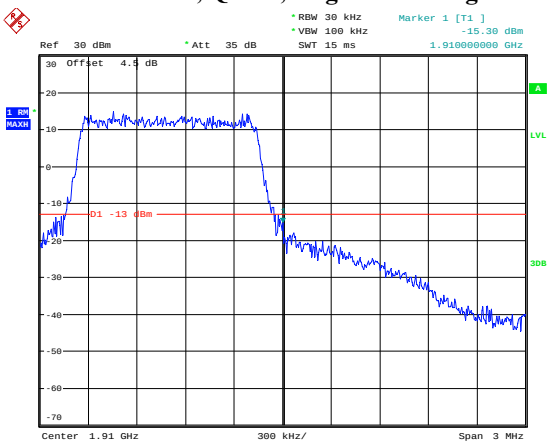
LTE Band 2:

1.4M, QPSK, Left Band Edge



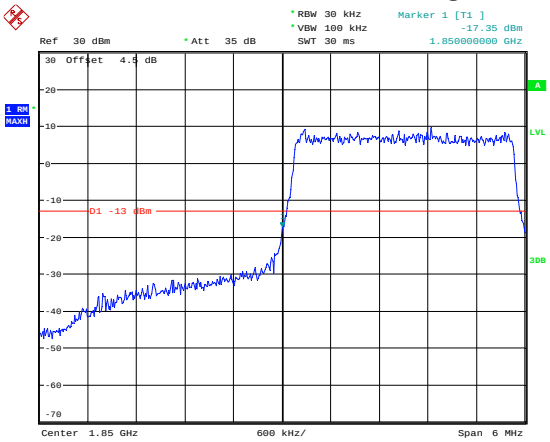
Date: 17.OCT.2020 11:39:46

1.4M, QPSK, Right Band Edge



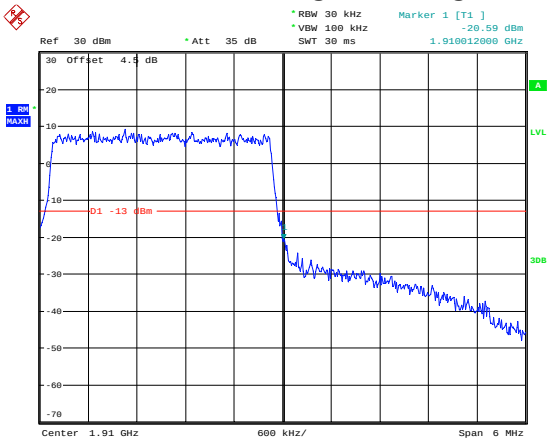
Date: 17.OCT.2020 11:40:34

3M, QPSK, Left Band Edge



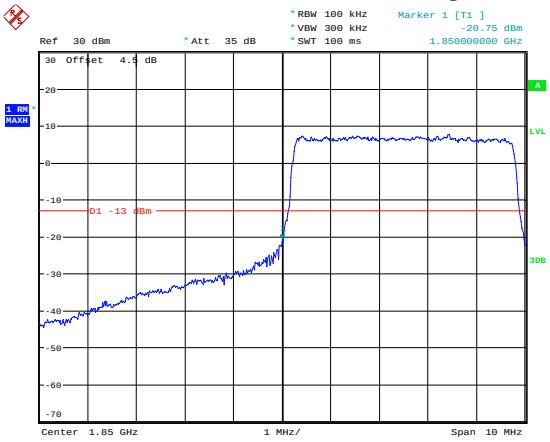
Date: 17.OCT.2020 11:41:19

3M, QPSK, Right Band Edge



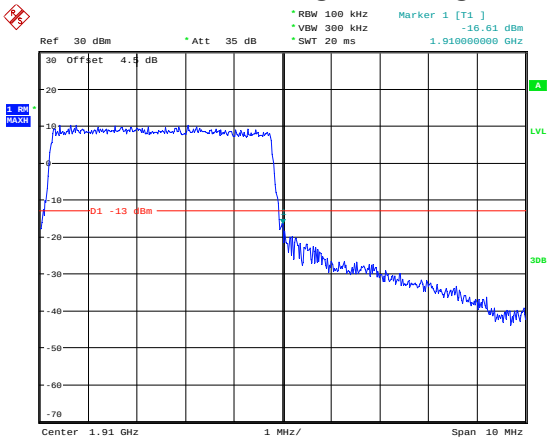
Date: 17.OCT.2020 11:41:57

5M, QPSK, Left Band Edge



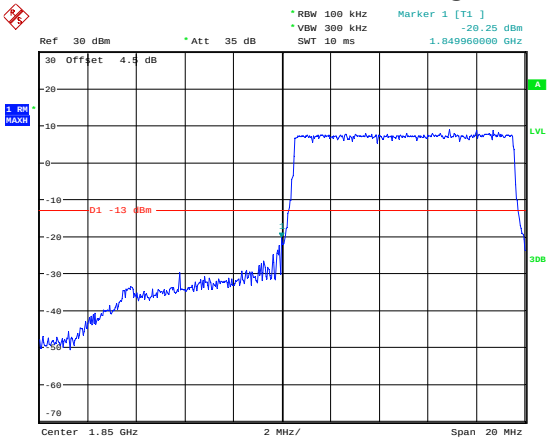
Date: 17.OCT.2020 11:43:15

5M, QPSK, Right Band Edge



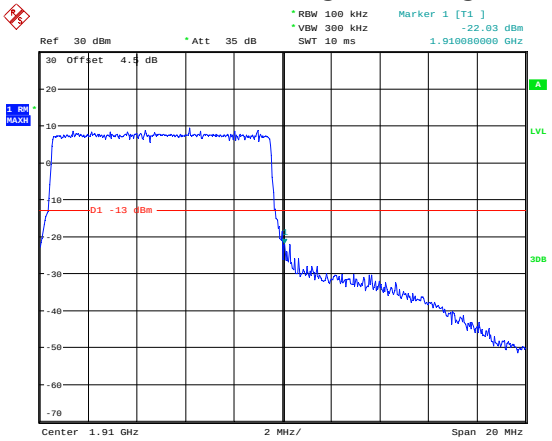
Date: 17.OCT.2020 11:44:44

10M, QPSK, Left Band Edge



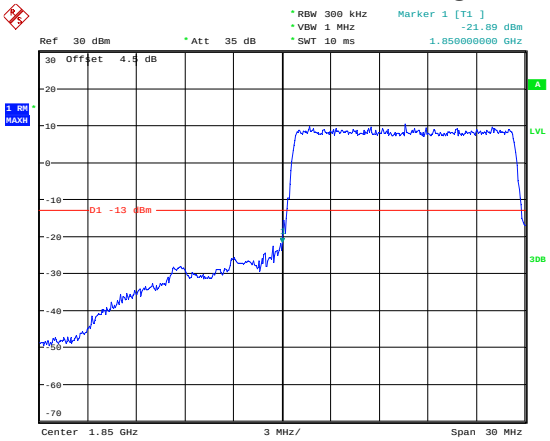
Date: 17.OCT.2020 11:46:02

10M, QPSK, Right Band Edge



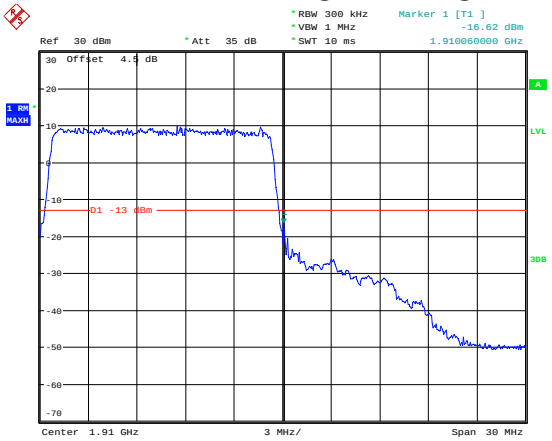
Date: 17.OCT.2020 11:46:45

15M, QPSK, Left Band Edge



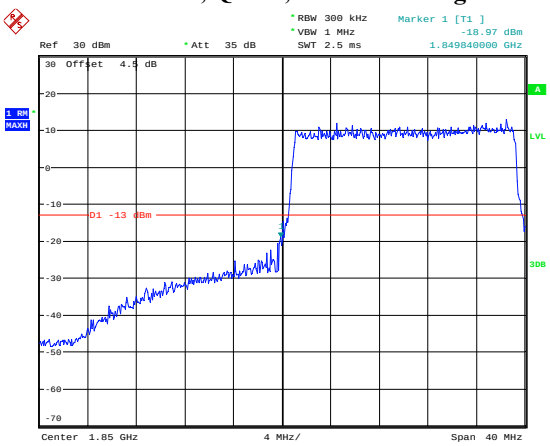
Date: 17.OCT.2020 11:47:56

15M, QPSK, Right Band Edge



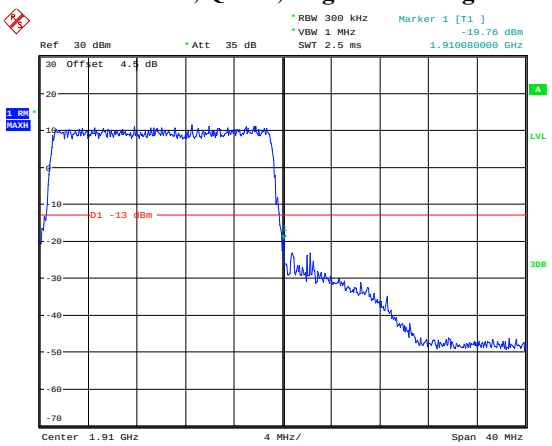
Date: 17.OCT.2020 11:49:16

20M, QPSK, Left Band Edge



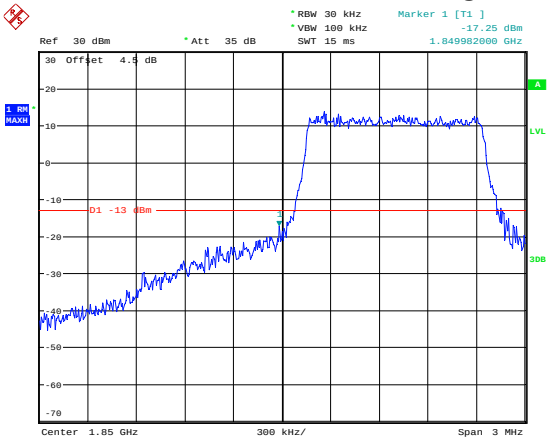
Date: 17.OCT.2020 11:50:23

20M, QPSK, Right Band Edge



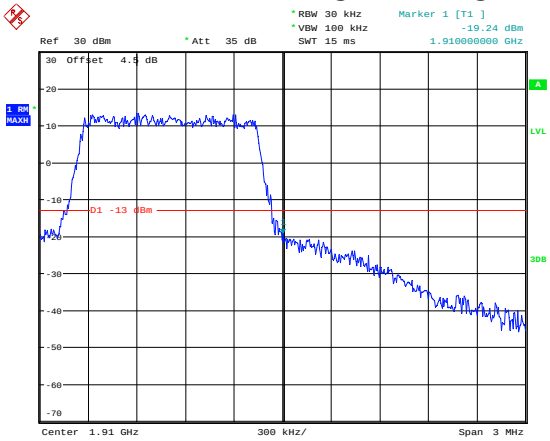
Date: 17.OCT.2020 11:51:10

1.4M, 16QAM, Left Band Edge



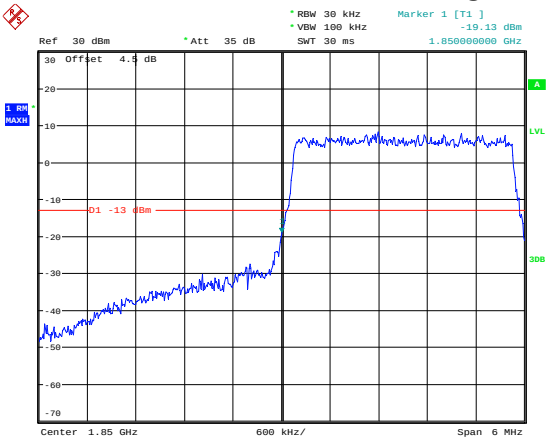
Date: 17.OCT.2020 11:40:08

1.4M, 16QAM, Right Band Edge



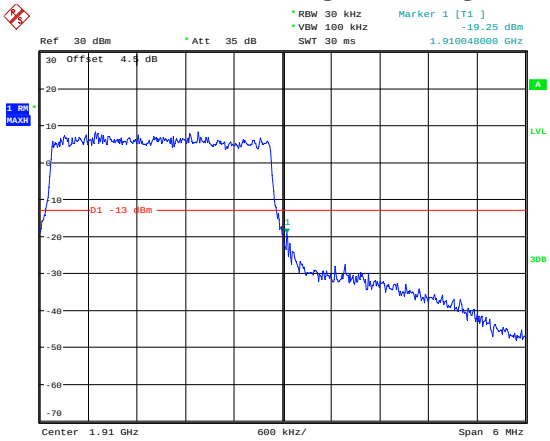
Date: 17.OCT.2020 11:40:58

3M, 16QAM, Left Band Edge



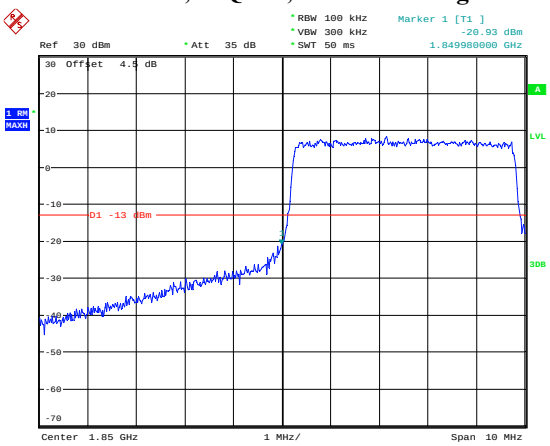
Date: 17.OCT.2020 11:41:38

3M, 16QAM, Right Band Edge



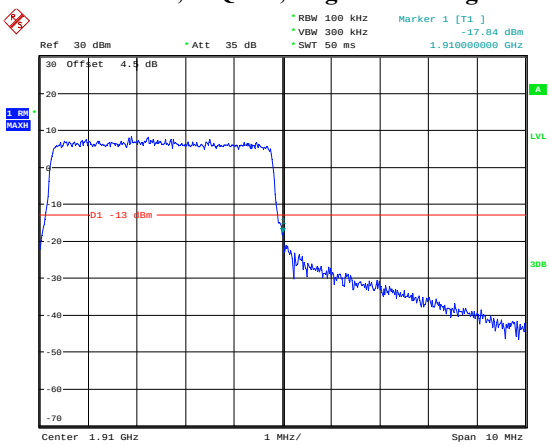
Date: 17.OCT.2020 11:42:19

5M, 16QAM, Left Band Edge



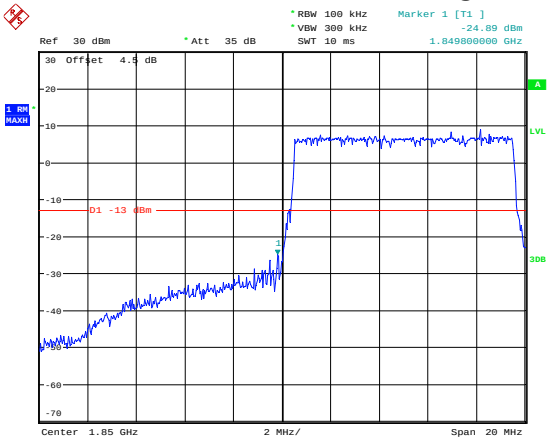
Date: 17.OCT.2020 11:44:02

5M, 16QAM, Right Band Edge



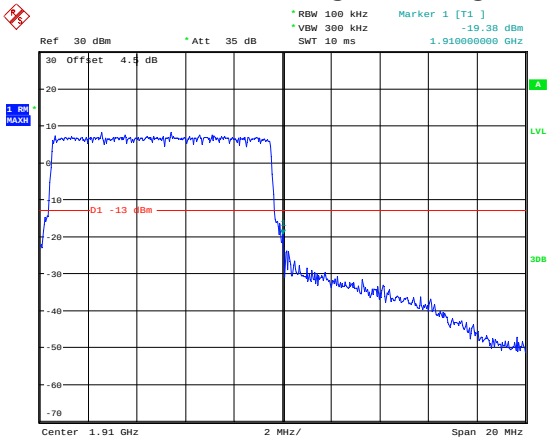
Date: 17.OCT.2020 11:45:36

10M, 16QAM, Left Band Edge



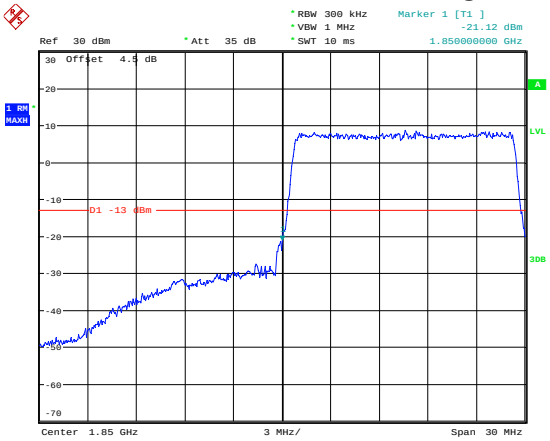
Date: 17.OCT.2020 11:46:21

10M, 16QAM, Right Band Edge



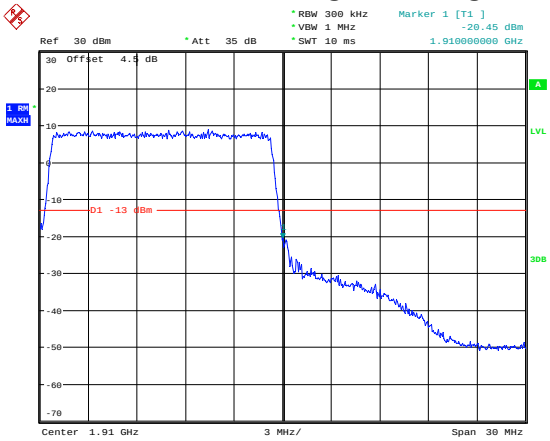
Date: 17.OCT.2020 11:47:07

15M, 16QAM, Left Band Edge



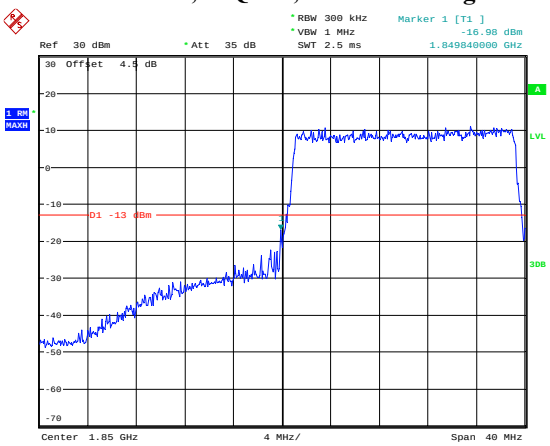
Date: 17.OCT.2020 11:48:38

15M, 16QAM, Right Band Edge



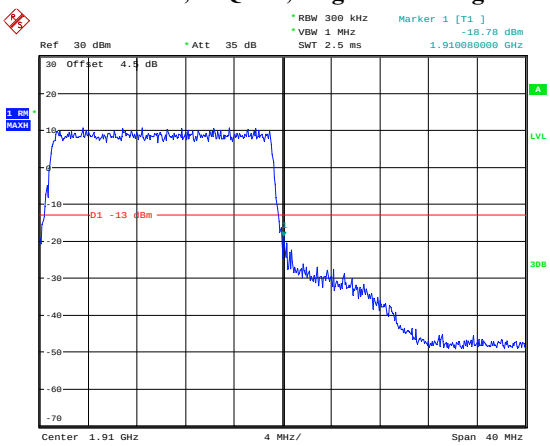
Date: 17.OCT.2020 11:49:54

20M, 16QAM, Left Band Edge



Date: 17.OCT.2020 11:50:48

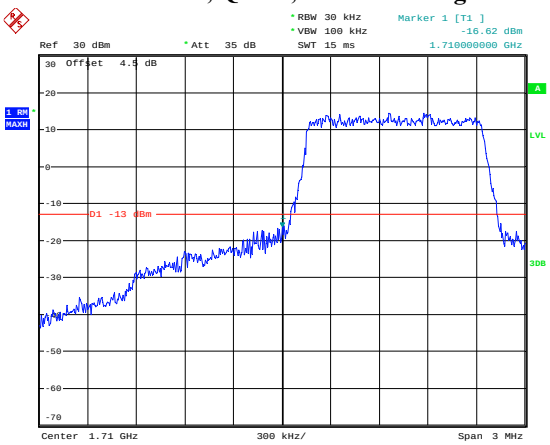
20M, 16QAM, Right Band Edge



Date: 17.OCT.2020 11:51:35

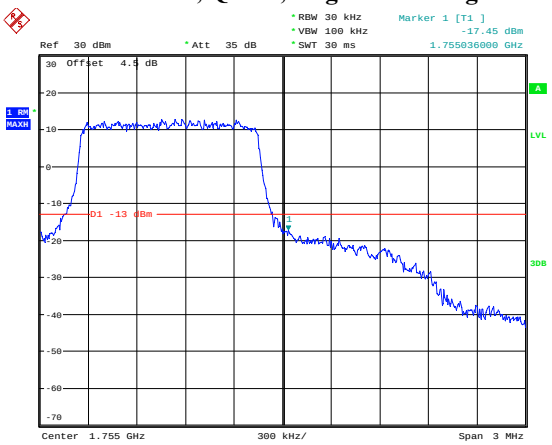
LTE Band 4:

1.4M, QPSK, Left Band Edge



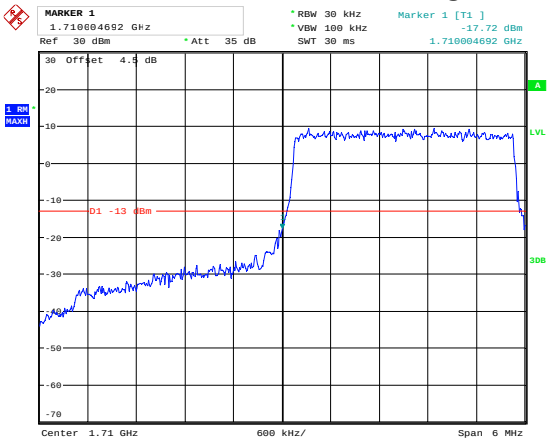
Date: 17.OCT.2020 11:52:03

1.4M, QPSK, Right Band Edge



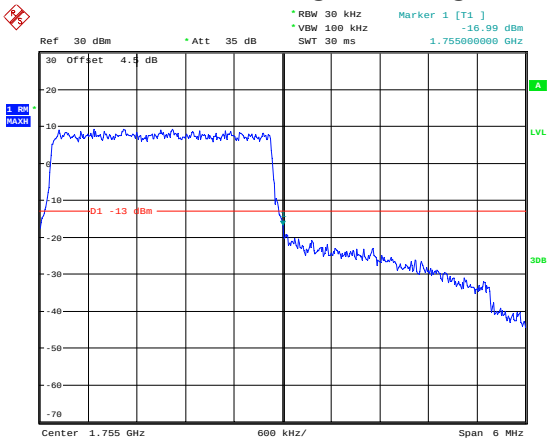
Date: 17.OCT.2020 11:53:10

3M, QPSK, Left Band Edge



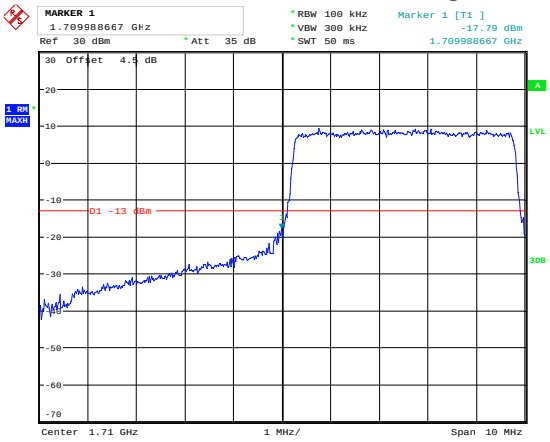
Date: 17.OCT.2020 13:57:19

3M, QPSK, Right Band Edge



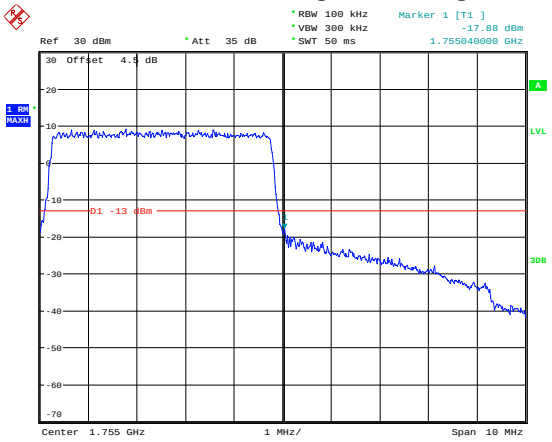
Date: 17.OCT.2020 11:54:45

5M, QPSK, Left Band Edge



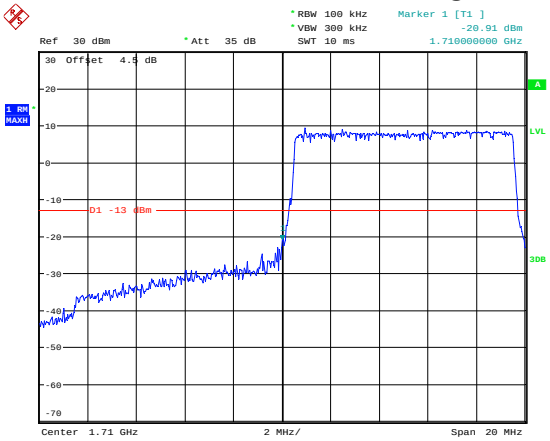
Date: 17.OCT.2020 13:59:56

5M, QPSK, Right Band Edge



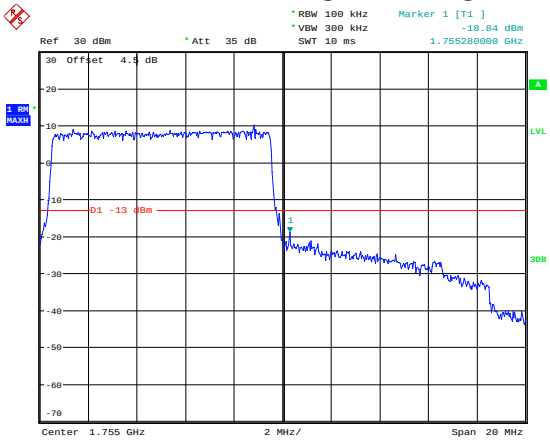
Date: 17.OCT.2020 13:08:34

10M, QPSK, Left Band Edge



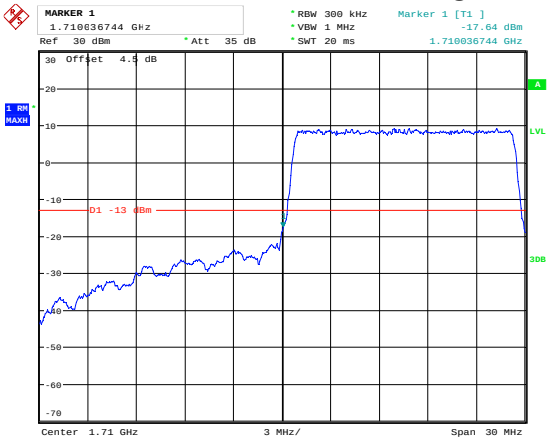
Date: 17.OCT.2020 13:09:47

10M, QPSK, Right Band Edge



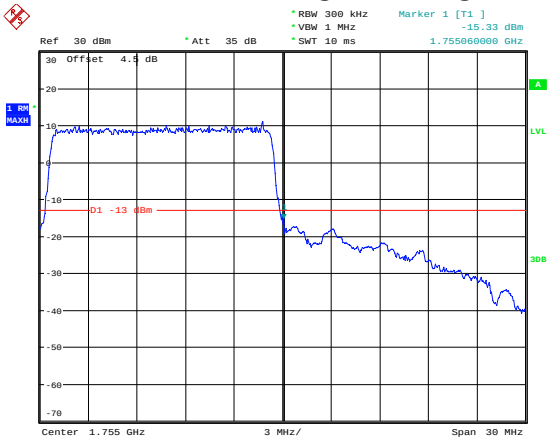
Date: 17.OCT.2020 13:10:30

15M, QPSK, Left Band Edge



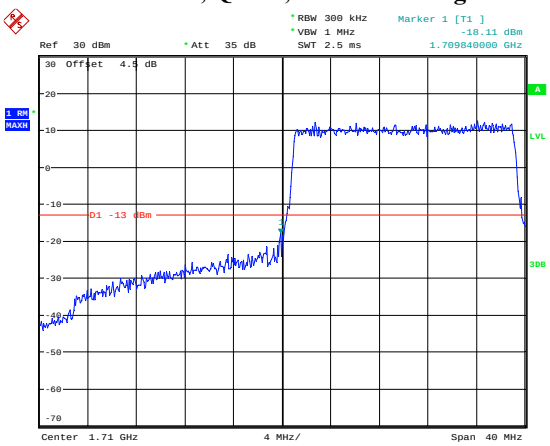
Date: 17.OCT.2020 14:01:58

15M, QPSK, Right Band Edge



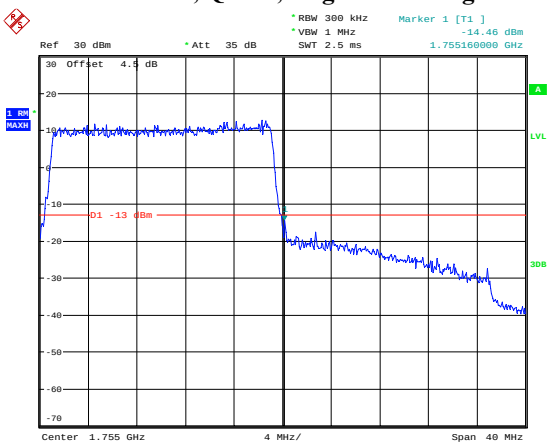
Date: 17.OCT.2020 13:13:30

20M, QPSK, Left Band Edge



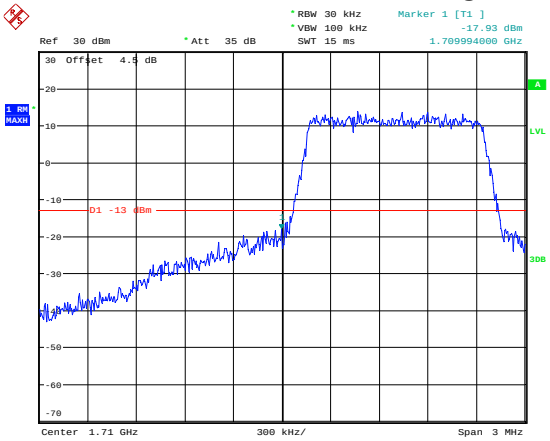
Date: 17.OCT.2020 13:14:33

20M, QPSK, Right Band Edge



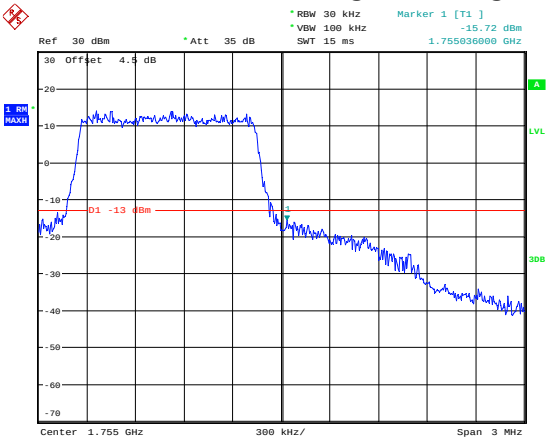
Date: 17.OCT.2020 13:15:28

1.4M, 16QAM, Left Band Edge



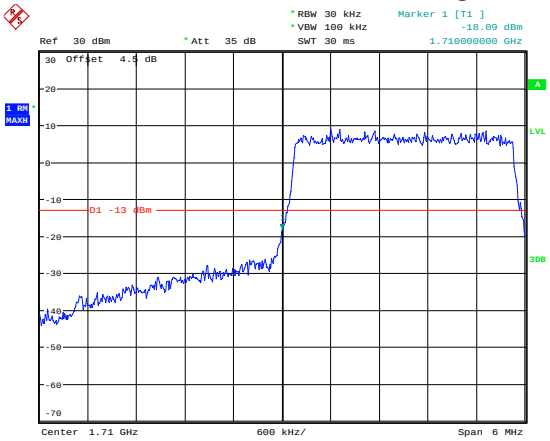
Date: 17.OCT.2020 11:52:25

1.4M, 16QAM, Right Band Edge



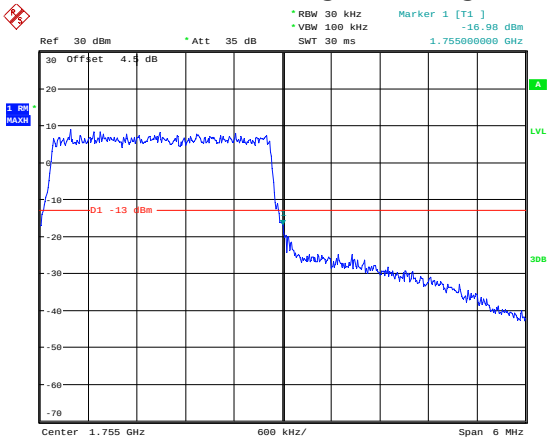
Date: 17.OCT.2020 11:53:32

3M, 16QAM, Left Band Edge



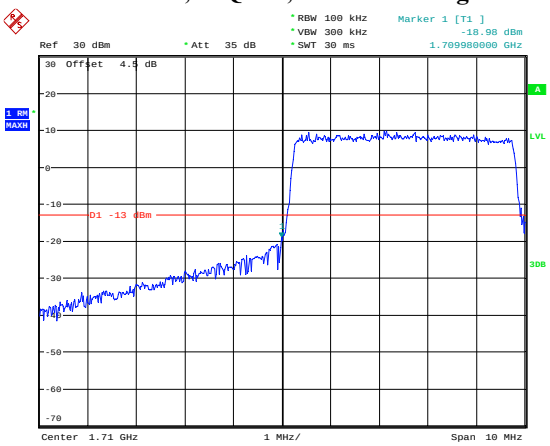
Date: 17.OCT.2020 11:54:22

3M, 16QAM, Right Band Edge



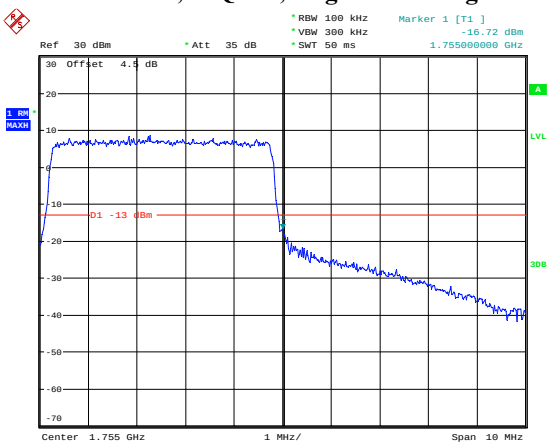
Date: 17.OCT.2020 13:06:14

5M, 16QAM, Left Band Edge



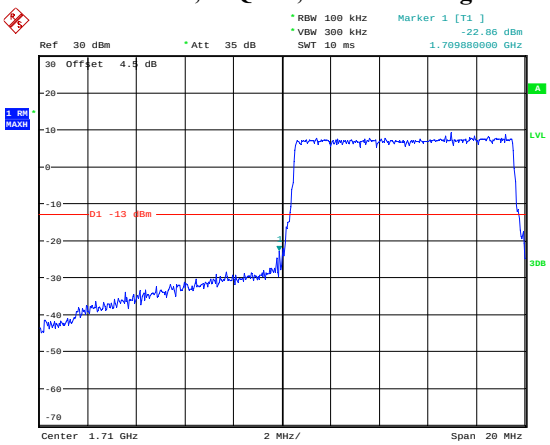
Date: 17.OCT.2020 13:07:58

5M, 16QAM, Right Band Edge



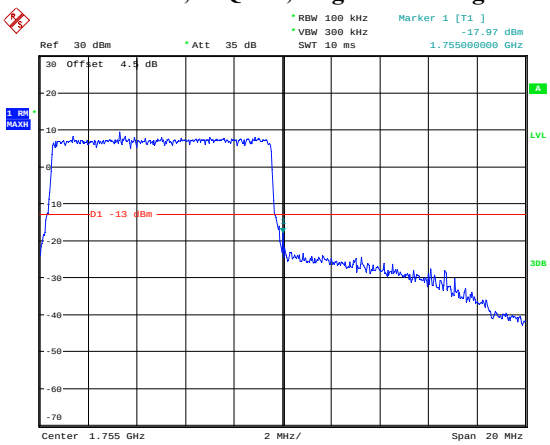
Date: 17.OCT.2020 13:09:24

10M, 16QAM, Left Band Edge



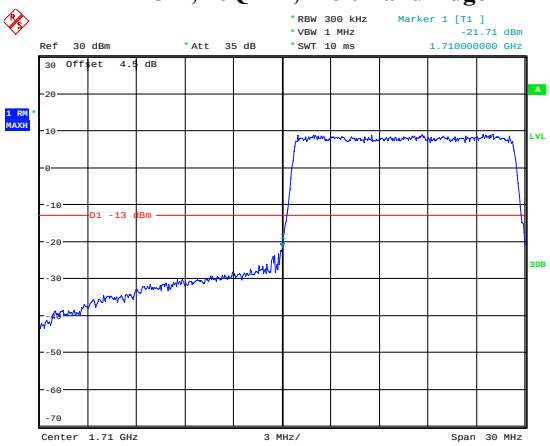
Date: 17.OCT.2020 13:10:09

10M, 16QAM, Right Band Edge



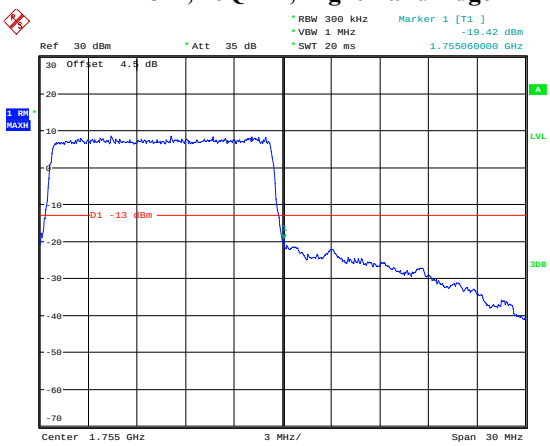
Date: 17.OCT.2020 13:10:52

15M, 16QAM, Left Band Edge



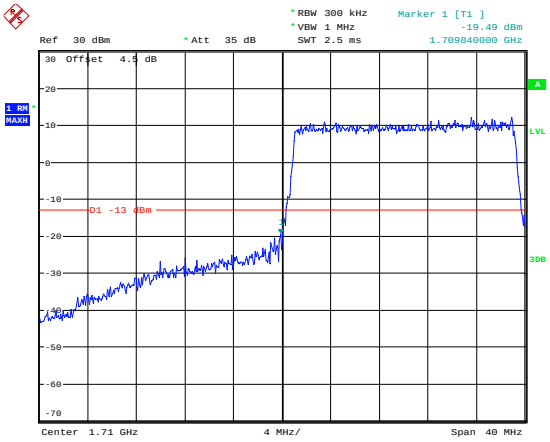
Date: 17.OCT.2020 13:12:50

15M, 16QAM, Right Band Edge



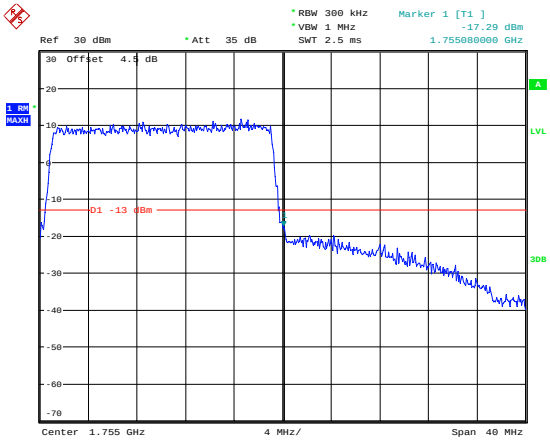
Date: 17.OCT.2020 13:14:05

20M, 16QAM, Left Band Edge



Date: 17.OCT.2020 13:15:02

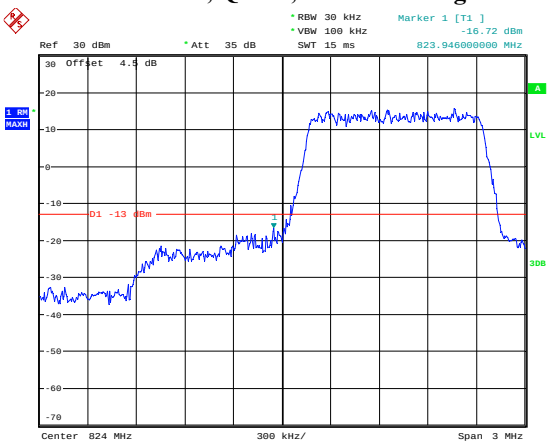
20M, 16QAM, Right Band Edge



Date: 17.OCT.2020 13:15:53

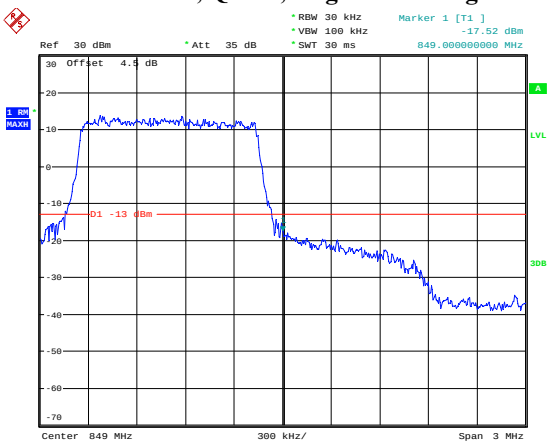
LTE Band 5:

1.4M, QPSK, Left Band Edge



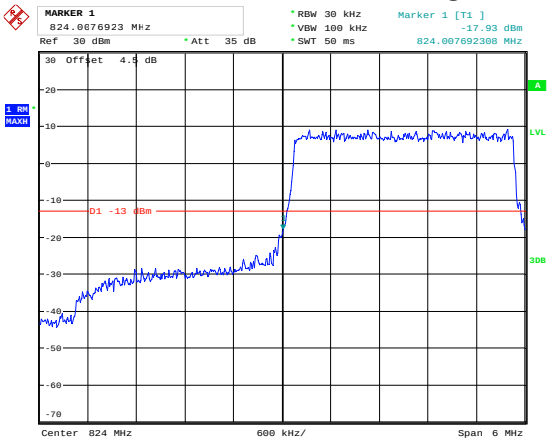
Date: 17.OCT.2020 13:16:18

1.4M, QPSK, Right Band Edge



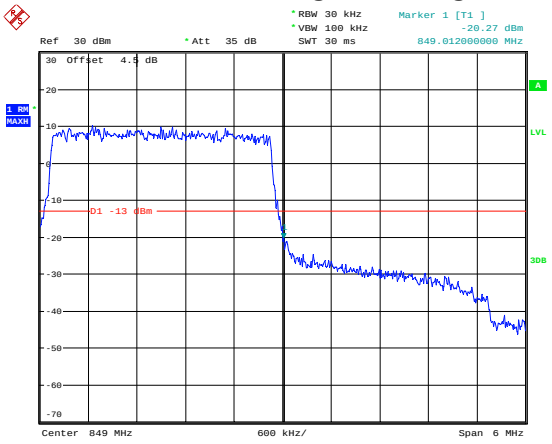
Date: 17.OCT.2020 13:17:16

3M, QPSK, Left Band Edge



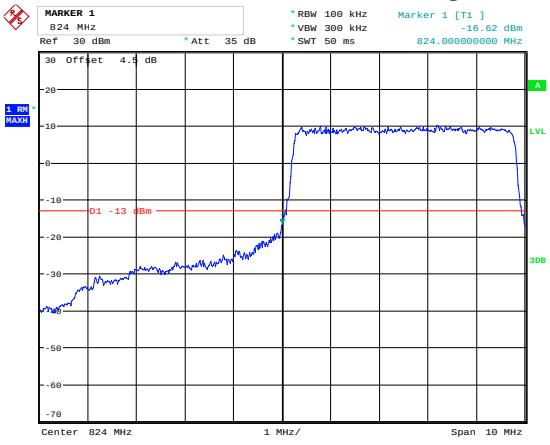
Date: 17.OCT.2020 14:05:06

3M, QPSK, Right Band Edge



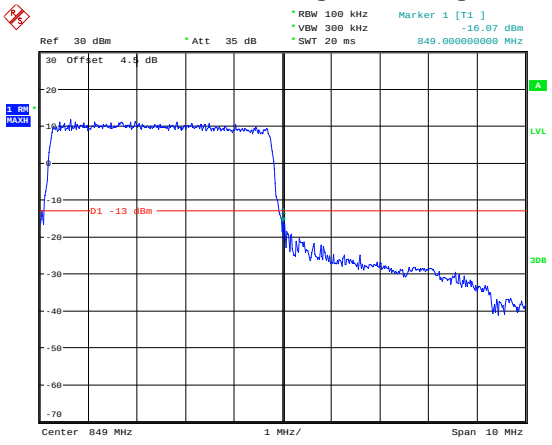
Date: 17.OCT.2020 13:18:57

5M, QPSK, Left Band Edge



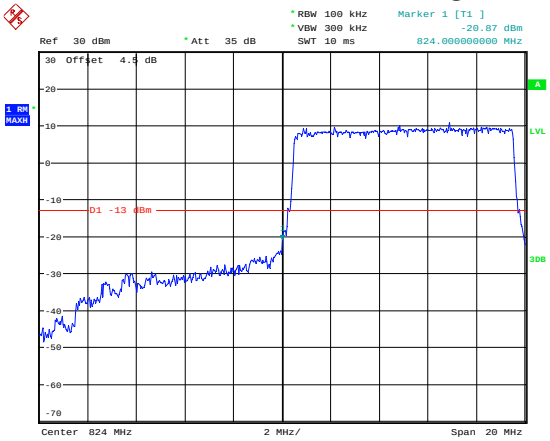
Date: 17.OCT.2020 14:06:34

5M, QPSK, Right Band Edge



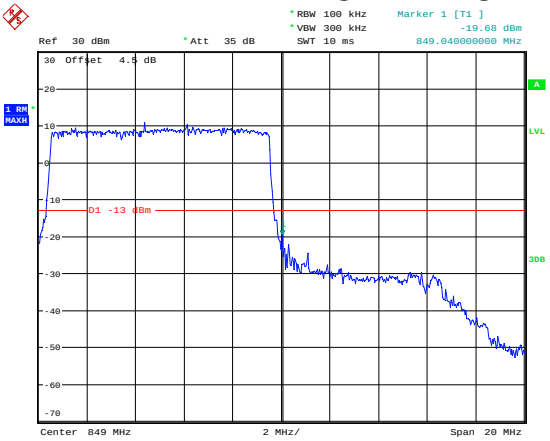
Date: 17.OCT.2020 13:21:17

10M, QPSK, Left Band Edge



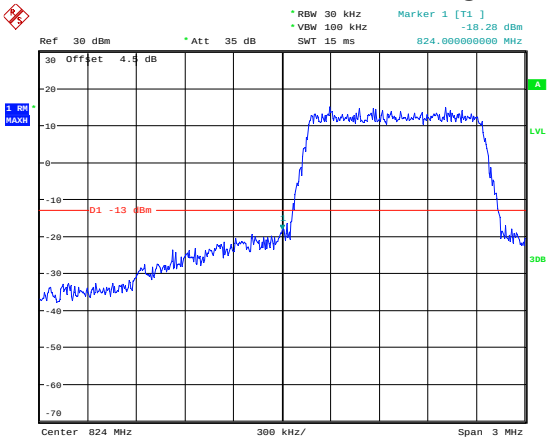
Date: 17.OCT.2020 13:22:15

10M, QPSK, Right Band Edge



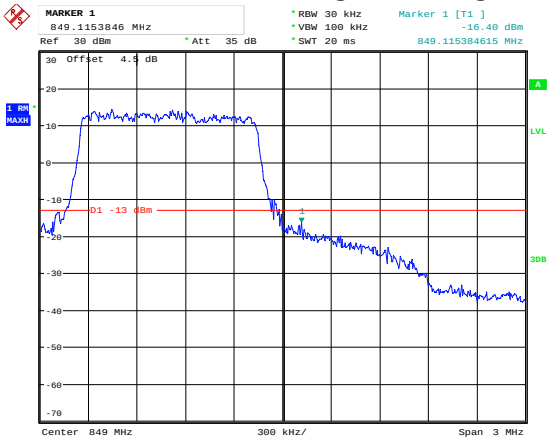
Date: 17.OCT.2020 13:22:58

1.4M, 16QAM, Left Band Edge



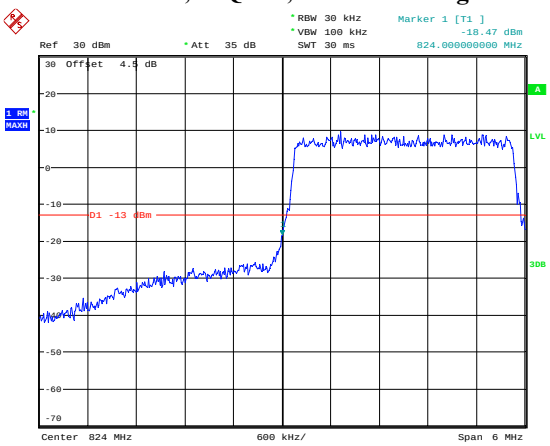
Date: 17.OCT.2020 13:16:37

1.4M, 16QAM, Right Band Edge



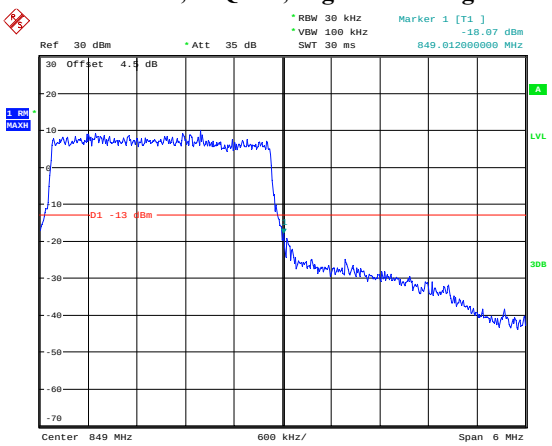
Date: 17.OCT.2020 14:03:26

3M, 16QAM, Left Band Edge



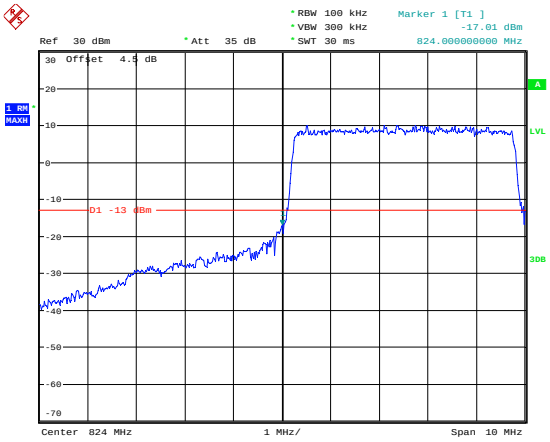
Date: 17.OCT.2020 13:18:38

3M, 16QAM, Right Band Edge



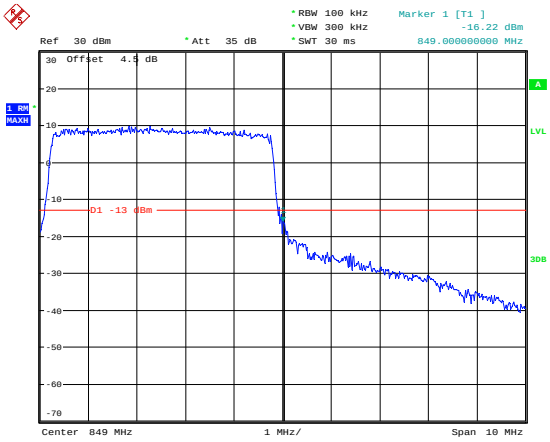
Date: 17.OCT.2020 13:19:16

5M, 16QAM, Left Band Edge



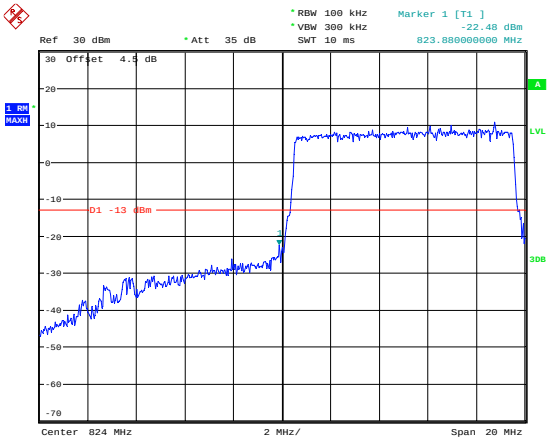
Date: 17.OCT.2020 13:20:41

5M, 16QAM, Right Band Edge



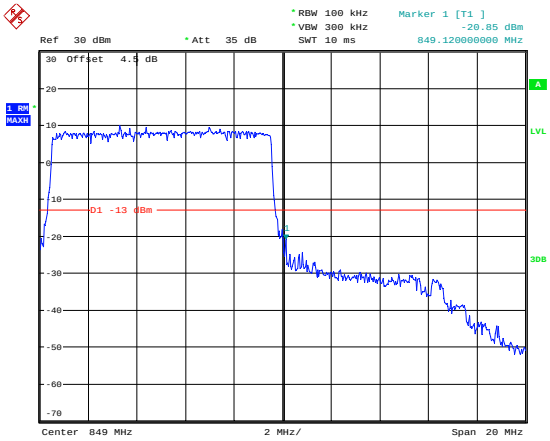
Date: 17.OCT.2020 13:21:52

10M, 16QAM, Left Band Edge



Date: 17.OCT.2020 13:22:35

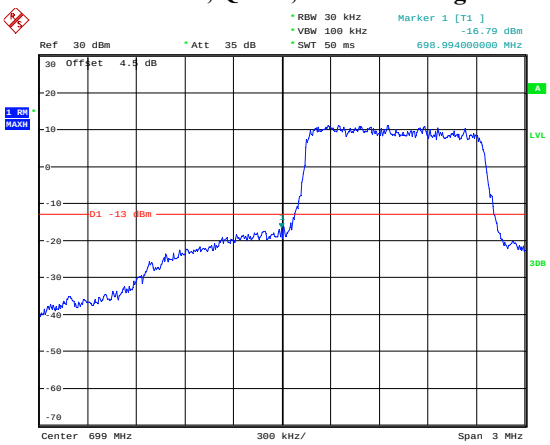
10M, 16QAM, Right Band Edge



Date: 17.OCT.2020 13:23:21

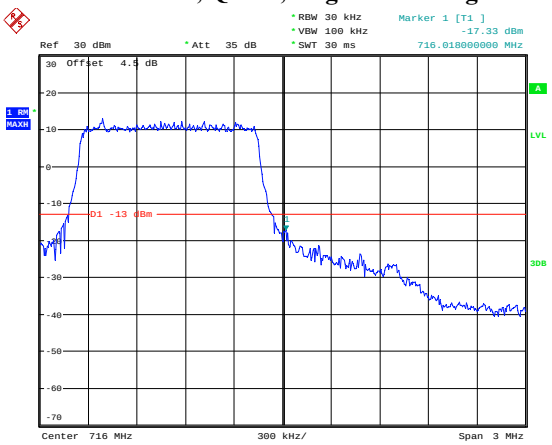
LTE Band 12:

1.4M, QPSK, Left Band Edge



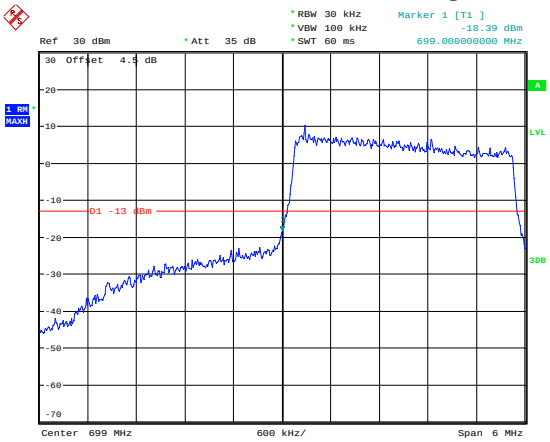
Date: 17.OCT.2020 13:24:02

1.4M, QPSK, Right Band Edge



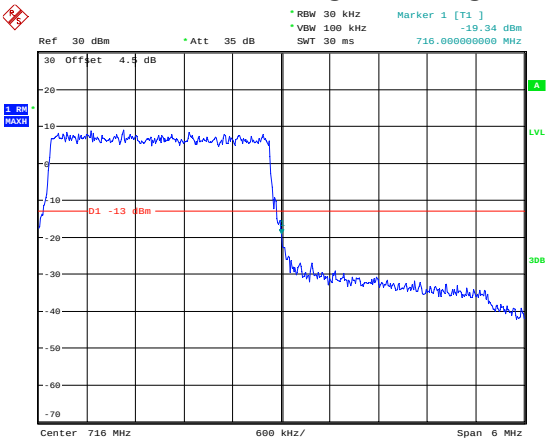
Date: 17.OCT.2020 13:25:08

3M, QPSK, Left Band Edge



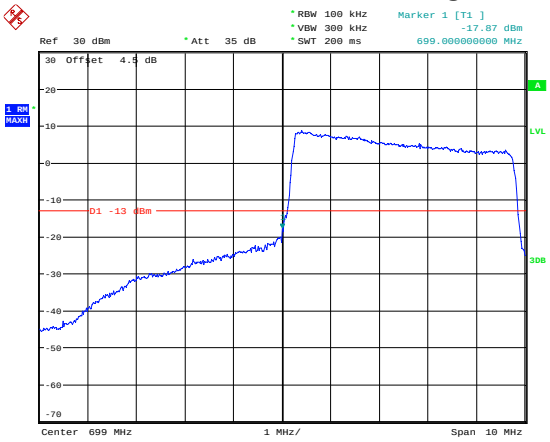
Date: 17.OCT.2020 13:26:19

3M, QPSK, Right Band Edge



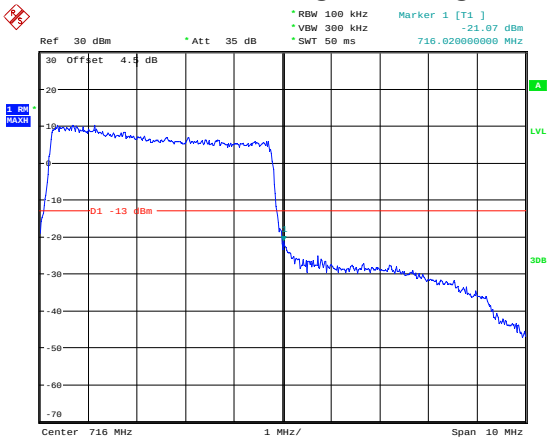
Date: 17.OCT.2020 13:26:56

5M, QPSK, Left Band Edge



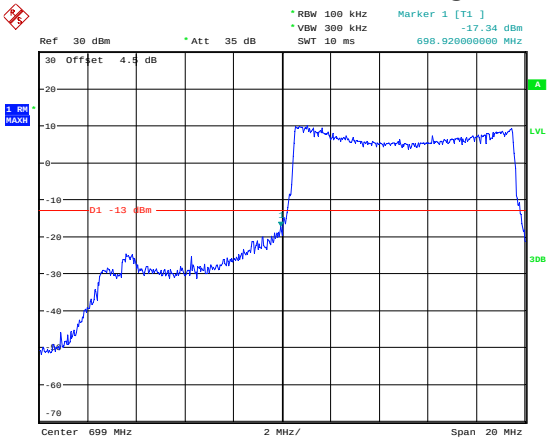
Date: 17.OCT.2020 13:28:03

5M, QPSK, Right Band Edge



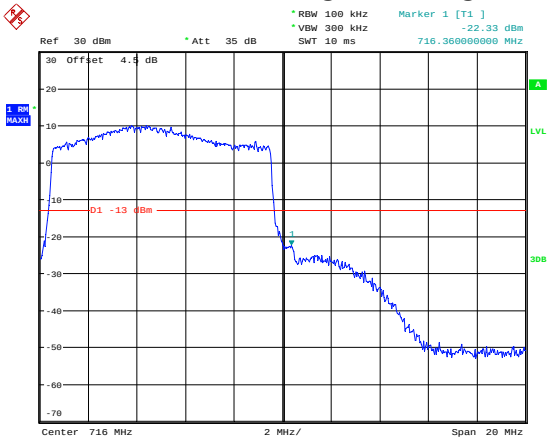
Date: 17.OCT.2020 13:29:09

10M, QPSK, Left Band Edge



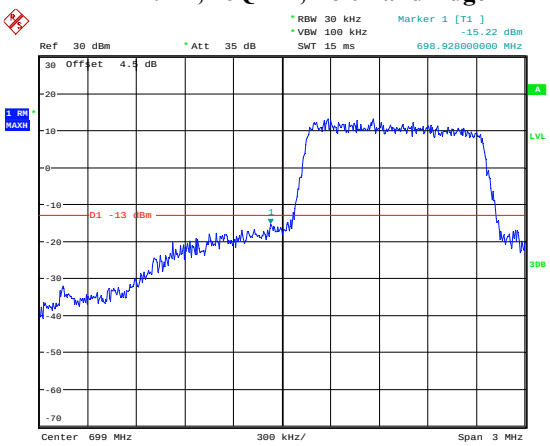
Date: 17.OCT.2020 13:30:09

10M, QPSK, Right Band Edge



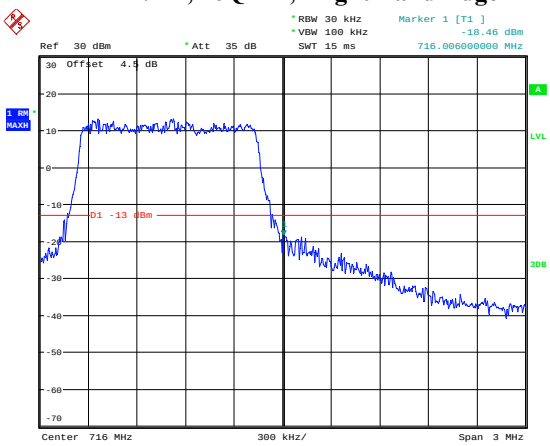
Date: 17.OCT.2020 13:30:52

1.4M, 16QAM, Left Band Edge



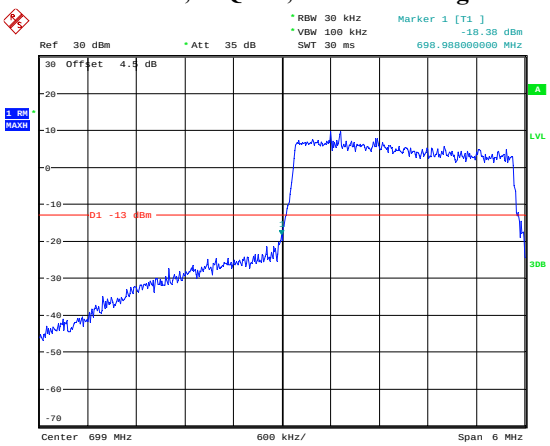
Date: 17.OCT.2020 13:24:24

1.4M, 16QAM, Right Band Edge



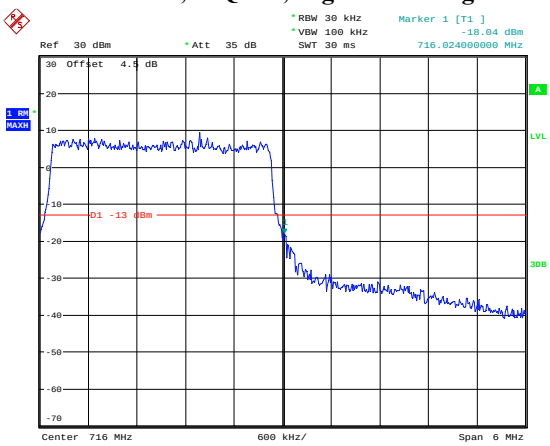
Date: 17.OCT.2020 13:25:33

3M, 16QAM, Left Band Edge



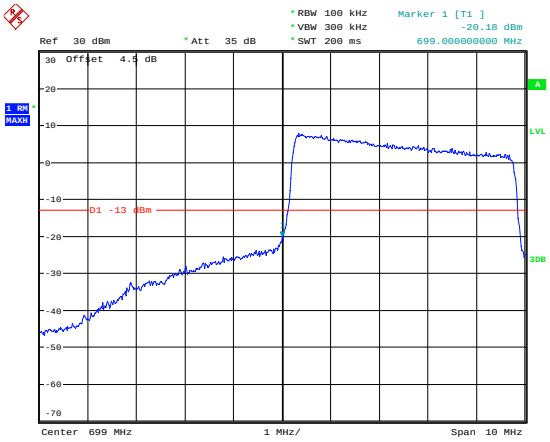
Date: 17.OCT.2020 13:26:37

3M, 16QAM, Right Band Edge



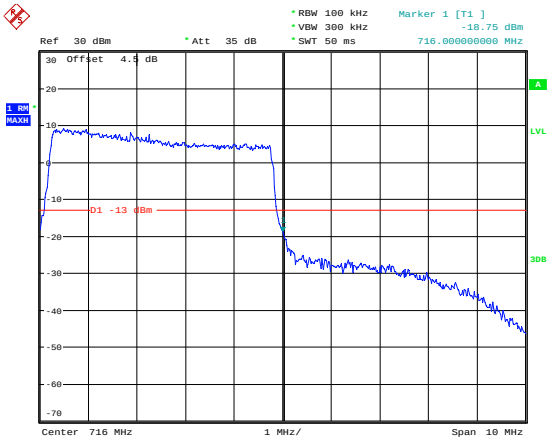
Date: 17.OCT.2020 13:27:15

5M, 16QAM, Left Band Edge



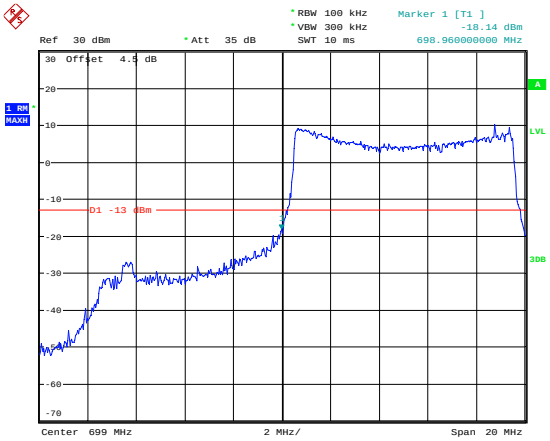
Date: 17.OCT.2020 13:28:30

5M, 16QAM, Right Band Edge



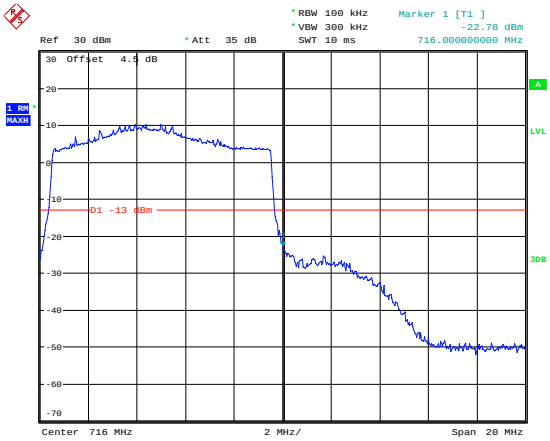
Date: 17.OCT.2020 13:29:42

10M, 16QAM, Left Band Edge



Date: 17.OCT.2020 13:30:31

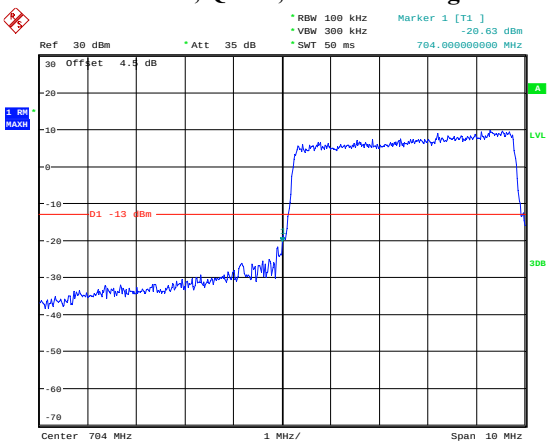
10M, 16QAM, Right Band Edge



Date: 17.OCT.2020 13:32:12

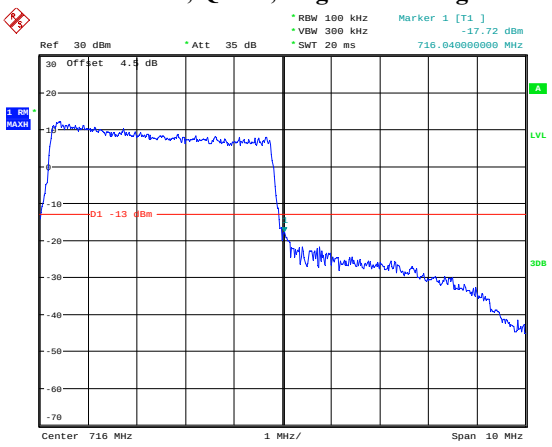
LTE Band 17:

5M, QPSK, Left Band Edge



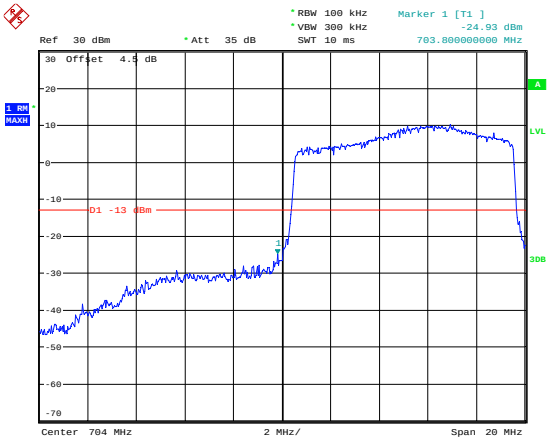
Date: 17.OCT.2020 13:32:57

5M, QPSK, Right Band Edge



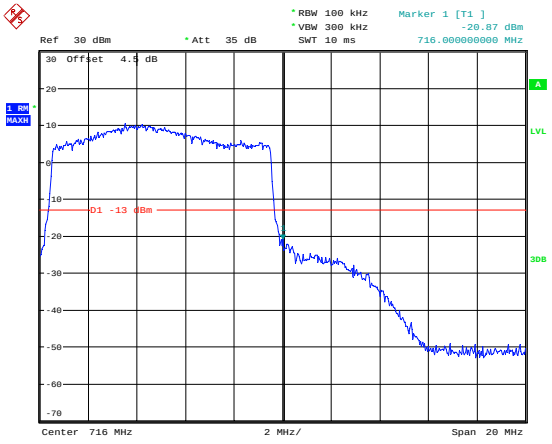
Date: 17.OCT.2020 13:34:26

10M, QPSK, Left Band Edge



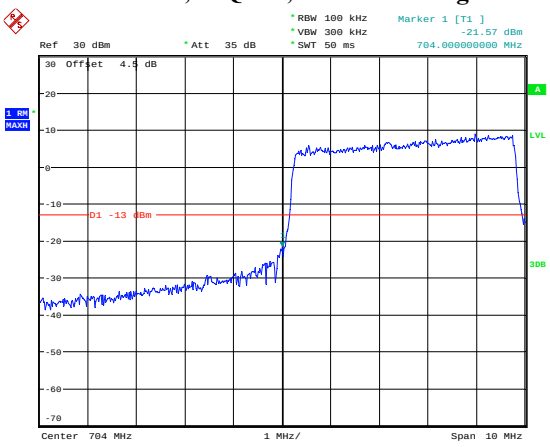
Date: 17.OCT.2020 13:35:31

10M, QPSK, Right Band Edge



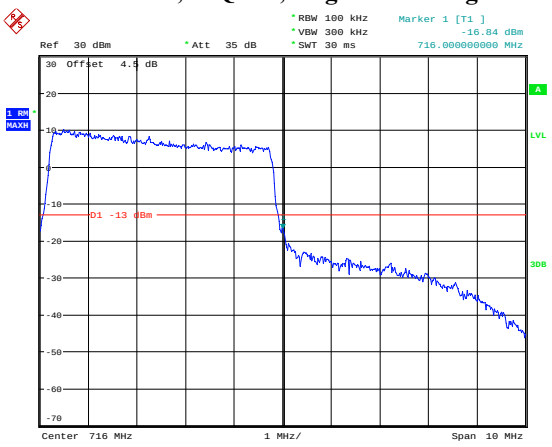
Date: 17.OCT.2020 13:36:11

5M, 16QAM, Left Band Edge



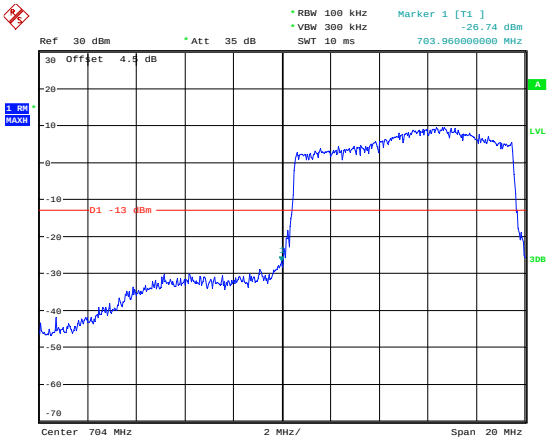
Date: 17.OCT.2020 13:33:35

5M, 16QAM, Right Band Edge



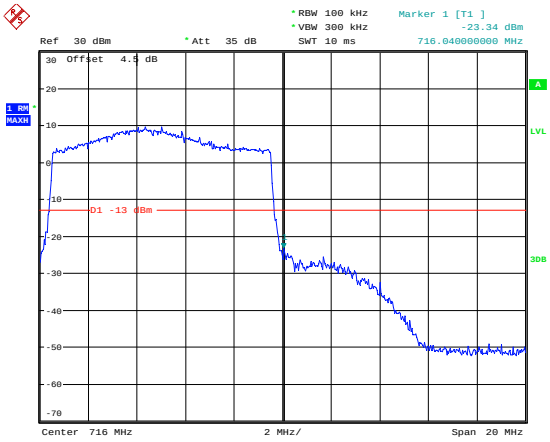
Date: 17.OCT.2020 13:35:05

10M, 16QAM, Left Band Edge



Date: 17.OCT.2020 13:35:51

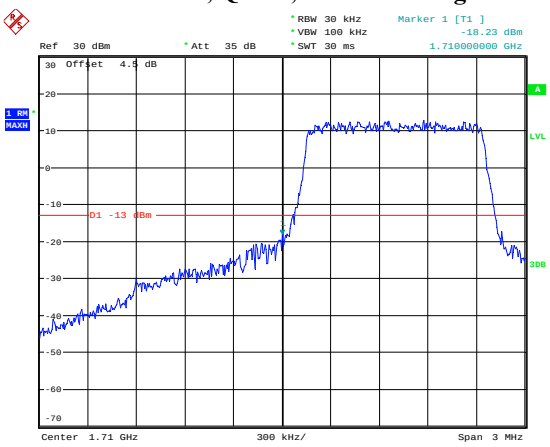
10M, 16QAM, Right Band Edge



Date: 17.OCT.2020 13:36:34

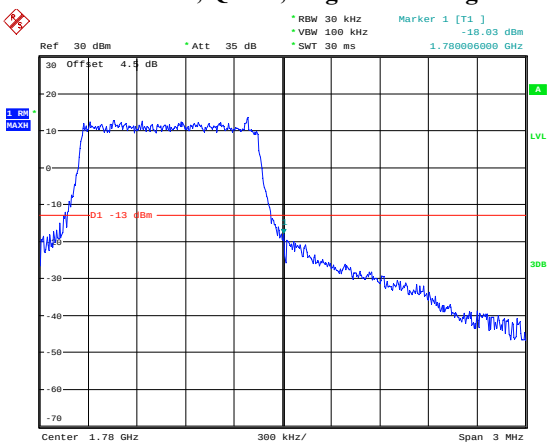
LTE Band 66:

1.4M, QPSK, Left Band Edge



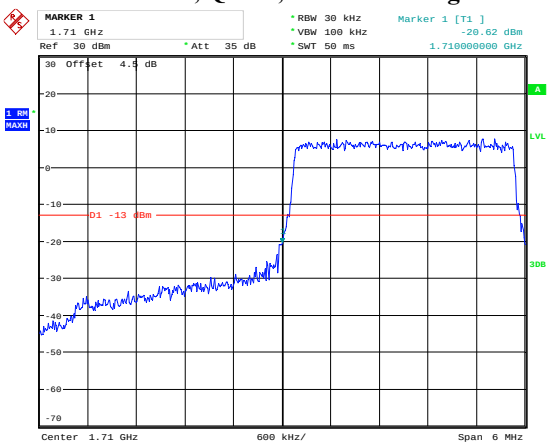
Date: 17.OCT.2020 13:37:18

1.4M, QPSK, Right Band Edge



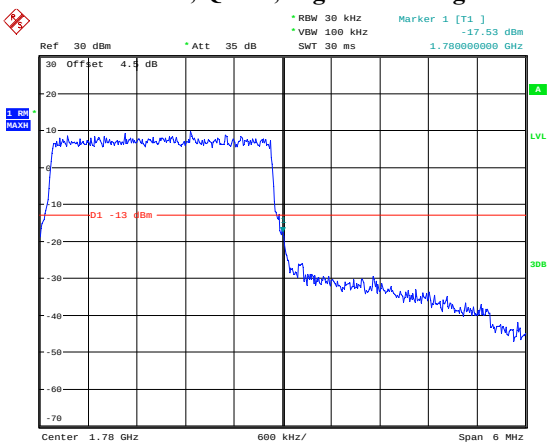
Date: 17.OCT.2020 13:38:24

3M, QPSK, Left Band Edge



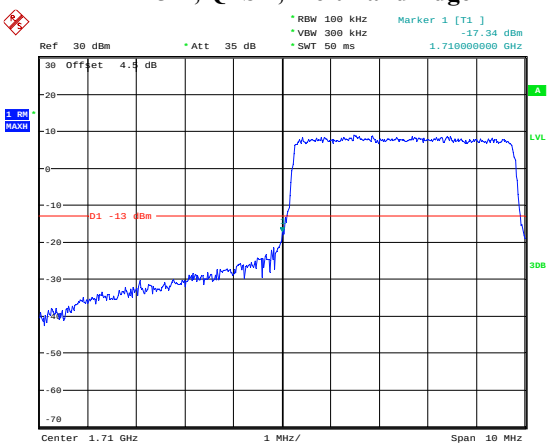
Date: 17.OCT.2020 14:07:49

3M, QPSK, Right Band Edge



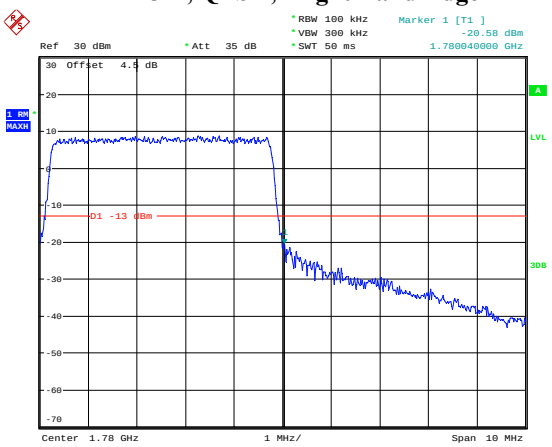
Date: 17.OCT.2020 13:39:55

5M, QPSK, Left Band Edge



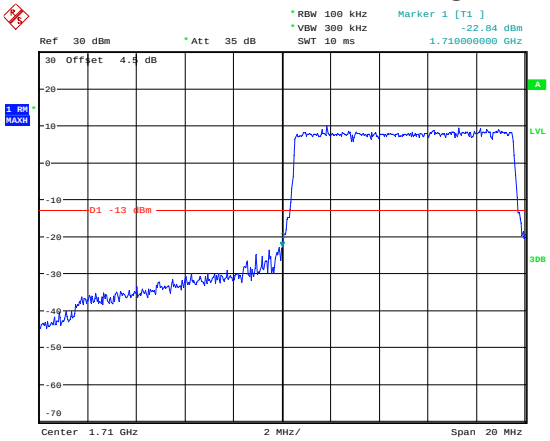
Date: 17.OCT.2020 13:40:55

5M, QPSK, Right Band Edge



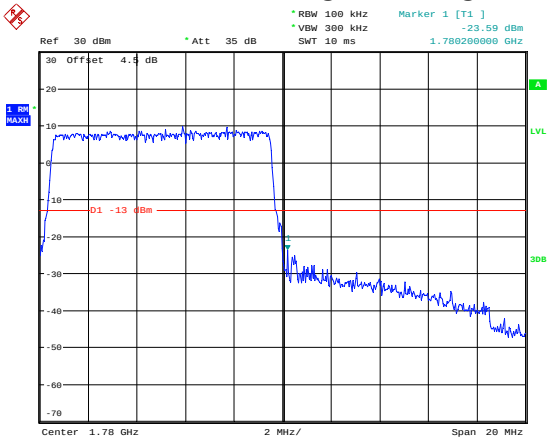
Date: 17.OCT.2020 13:42:10

10M, QPSK, Left Band Edge



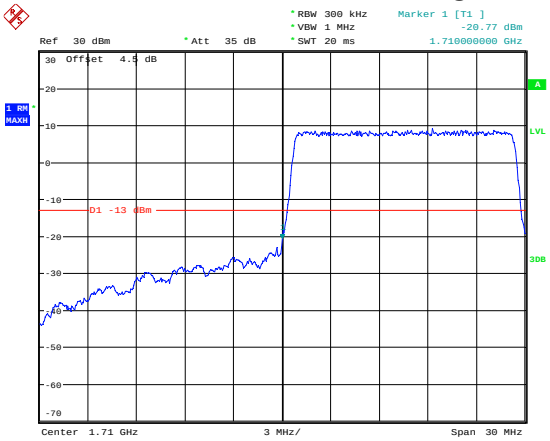
Date: 17.OCT.2020 13:43:34

10M, QPSK, Right Band Edge



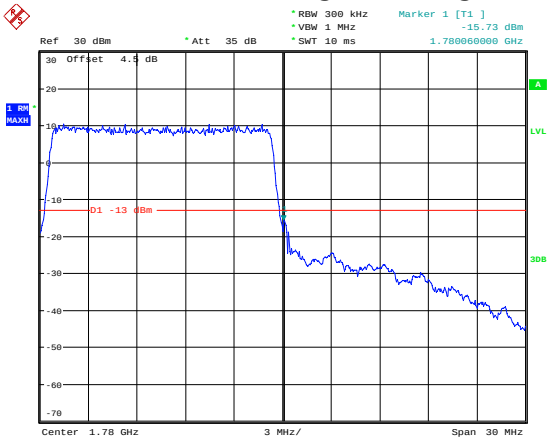
Date: 17.OCT.2020 13:44:17

15M, QPSK, Left Band Edge



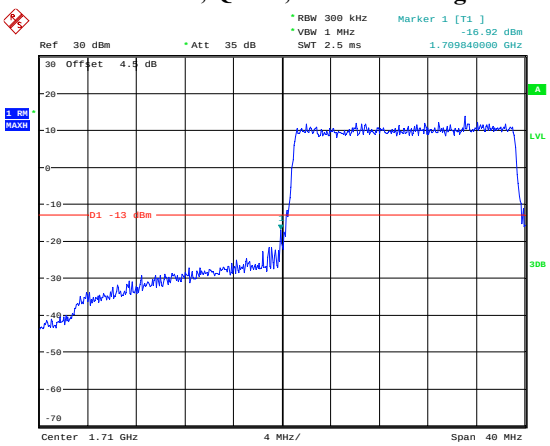
Date: 17.OCT.2020 13:45:18

15M, QPSK, Right Band Edge



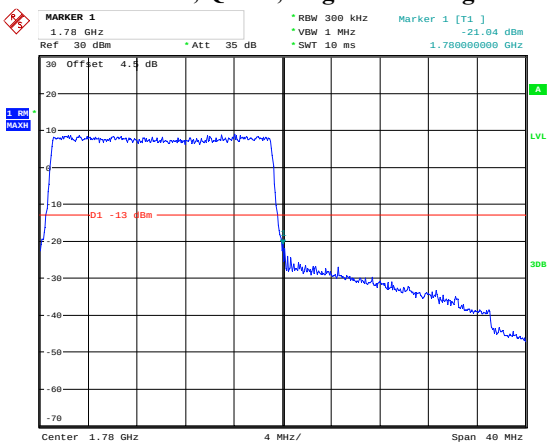
Date: 17.OCT.2020 13:46:34

20M, QPSK, Left Band Edge



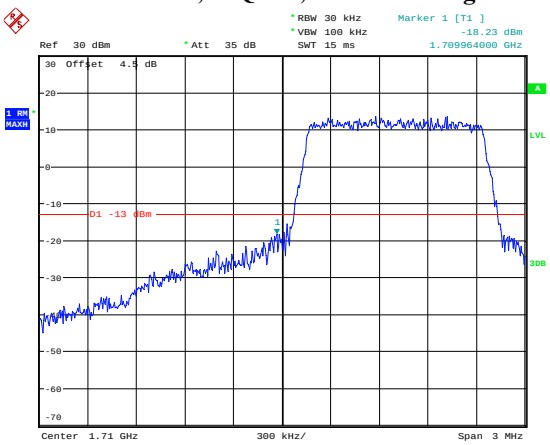
Date: 17.OCT.2020 13:49:56

20M, QPSK, Right Band Edge



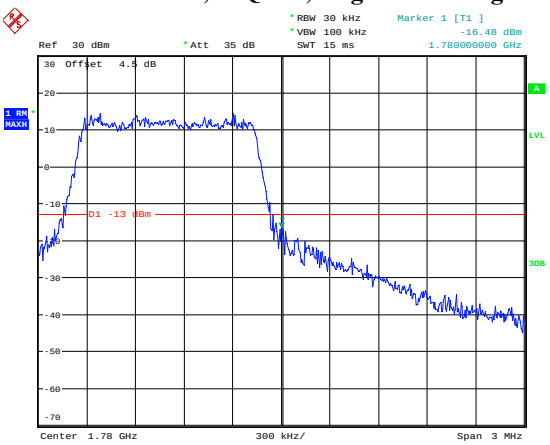
Date: 17.OCT.2020 14:09:20

1.4M, 16QAM, Left Band Edge



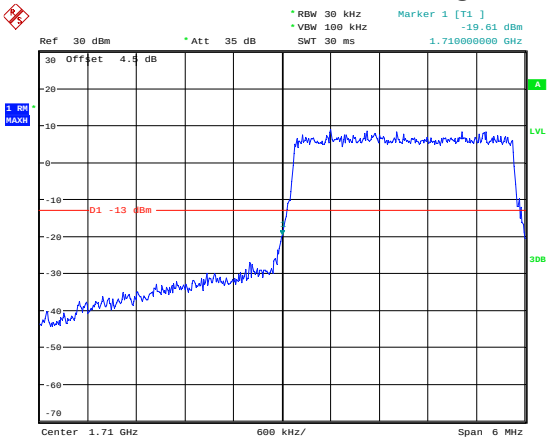
Date: 17.OCT.2020 13:37:43

1.4M, 16QAM, Right Band Edge



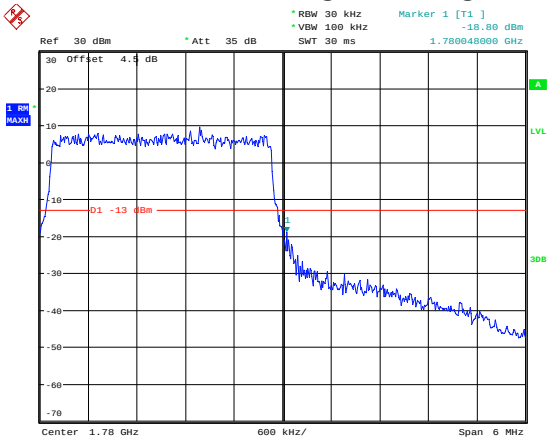
Date: 17.OCT.2020 13:38:49

3M, 16QAM, Left Band Edge



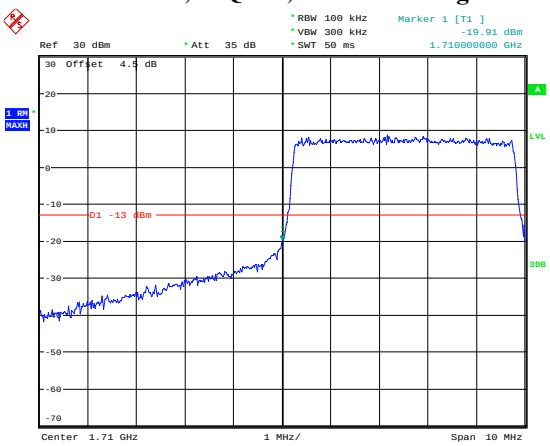
Date: 17.OCT.2020 13:39:32

3M, 16QAM, Right Band Edge



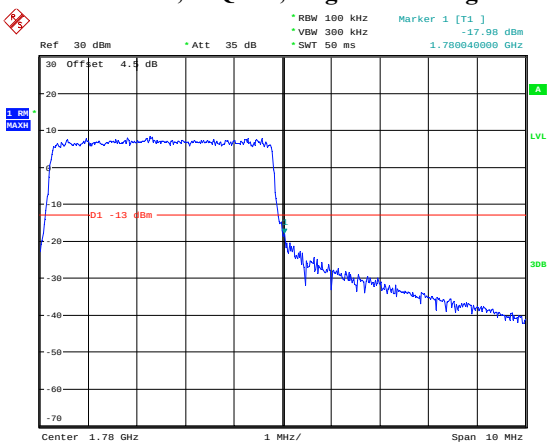
Date: 17.OCT.2020 13:40:14

5M, 16QAM, Left Band Edge



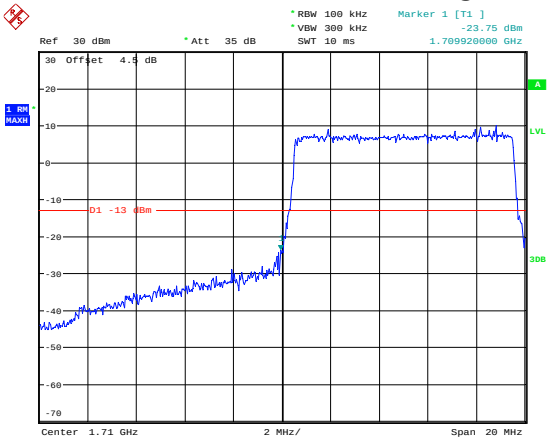
Date: 17.OCT.2020 13:41:33

5M, 16QAM, Right Band Edge



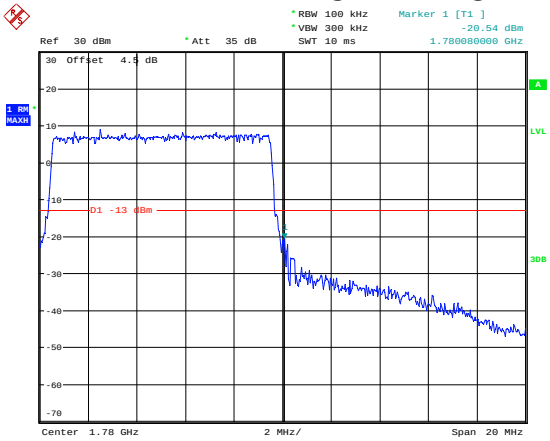
Date: 17.OCT.2020 13:43:07

10M, 16QAM, Left Band Edge



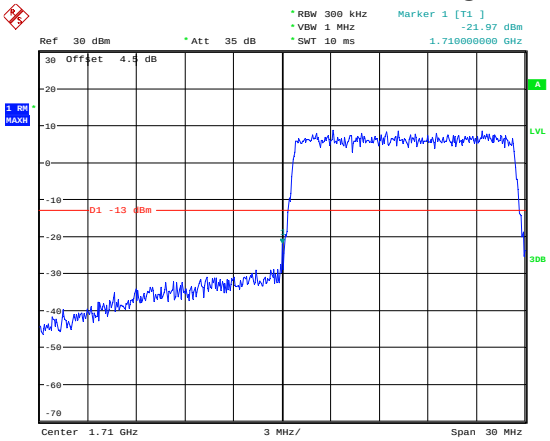
Date: 17.OCT.2020 13:43:56

10M, 16QAM, Right Band Edge



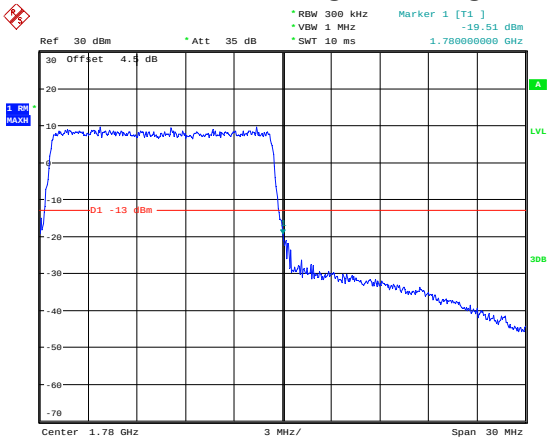
Date: 17.OCT.2020 13:44:39

15M, 16QAM, Left Band Edge



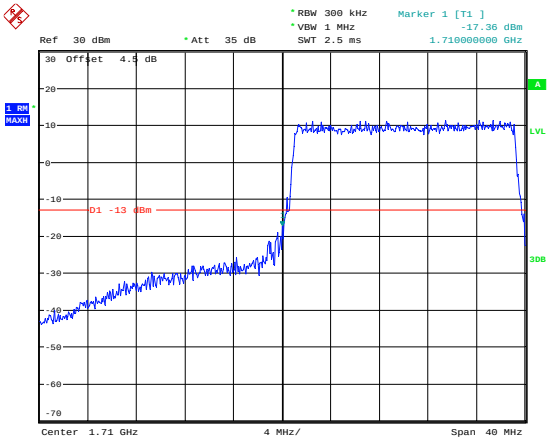
Date: 17.OCT.2020 13:45:52

15M, 16QAM, Right Band Edge



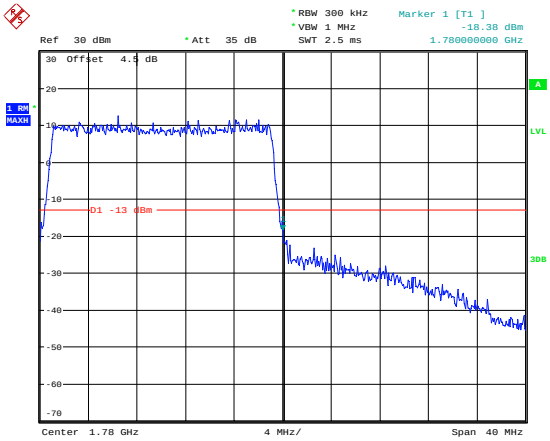
Date: 17.OCT.2020 13:47:12

20M, 16QAM, Left Band Edge



Date: 17.OCT.2020 13:50:24

20M, 16QAM, Right Band Edge



Date: 17.OCT.2020 13:51:16

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

Applicable Standard

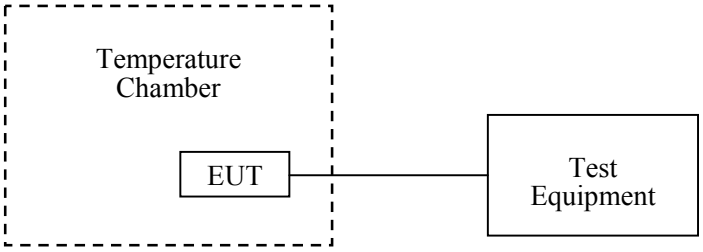
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235, §27.54

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 leads and RF output cable exited the chamber through an opening made for the purpose.

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

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



Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
R&S	Spectrum Analyzer	FSU 26	200256	2020-01-04	2021-01-04
Unknown	Coaxial Cable	C-SJ00-0010	C0010/04	Each time	N/A
E-Microwave	Blocking Control	EMDCB-00036	0E01201048	Each time	N/A
E-Microwave	Coaxial Attenuators	EMCA10-5RN-6	OE01203239	Each time	N/A
R&S	Universal Radio Communication Tester	CMU200	106 891	2020-09-12	2021-09-12
R&S	Wideband Radio Communication Tester	CMW500	149216	2020-09-12	2021-09-12
ESPEC	Constant temperature and humidity Tester	ESX-4CA	018 463	2020-03-10	2021-03-09
UNI-T	Multimeter	UT39A	M130199938	2020-07-24	2021-07-24
Pro instrument	DC Power Supply	pps3300	3300012	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	24.9~26.9 °C
Relative Humidity:	35~51%
ATM Pressure:	100.8~101.2kPa
Tester:	Chris Mo,Billy Li
Test Date:	2020-10-18~2020-10-20

Test Result: Compliance.

Cellular Band

GMSK, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	2	0.00598	2.5
-20		-1	-0.00717	
-10		3	-0.00598	
0		-12	0.00478	
10		7	0.00837	
20		-3	-0.00956	
30		4	-0.00837	
40		10	-0.01076	
50		7	0.01315	
20	3.6	-8	0.00598	
20	4.35	-13	0.00359	

8PSK, Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	11	0.00598	2.5
-20		3	0.00837	
-10		-5	0.00478	
0		7	0.00239	
10		8	0.00359	
20		9	0.00598	
30		-5	-0.00717	
40		-7	-0.00478	
50		7	0.00239	
20	3.6	11	-0.00956	
20	4.35	-11	-0.00717	

PCS Band

GMSK, Middle Channel, f_c = 1880.0 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Results**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	-13	0.00106	Pass
-20		11	0.00266	
-10		6	0.00213	
0		1	0.00479	
10		-1	0.00745	
20		13	-0.00053	
30		-2	-0.00585	
40		0	0.00638	
50		-9	0.00532	
20	3.6	-8	0.00319	
20	4.35	2	0.00160	

8PSK, Middle Channel, f_c = 1880.0 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Results
℃	V_{DC}	Hz	ppm	
-30	3.8	-4	-0.00319	Pass
-20		6	0.00266	
-10		1	-0.00106	
0		-2	-0.00585	
10		-9	-0.00691	
20		6	0.00213	
30		-11	0.00266	
40		9	0.00479	
50		9	0.00691	
20	3.6	11	0.00745	
20	4.35	-7	0.00426	

WCDMA Band II: R99

Middle Channel, f_c = 1880.0 MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
℃	V_{DC}	Hz	ppm	
-30	3.8	-1	-0.00213	Pass
-20		-2	-0.00266	
-10		-1	-0.00213	
0		1	-0.00319	
10		3	-0.00372	
20		-2	-0.00479	
30		2	-0.00213	
40		-4	-0.00266	
50		-2	-0.00213	
25	3.6	-3	-0.00213	
25	4.35	-5	-0.00106	

WCDMA BandⅣ: R99

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	℃	GHz	GHz	GHz	GHz
3.8	-30	1.710311	1.710	1.754679	1.755
	-20	1.710312		1.754681	
	-10	1.710314		1.754684	
	0	1.710316		1.754683	
	10	1.710315		1.754682	
	20	1.710316		1.754684	
	30	1.710317		1.754683	
	40	1.710318		1.754681	
	50	1.710319		1.754679	
3.6	25	1.710321		1.754677	
4.35	25	1.710322		1.754672	

WCDMA Band Ⅴ: R99

Middle Channel, f_c = 836.6 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	-6	-0.00239	2.5
-20		-2	-0.00120	
-10		-3	-0.00359	
0		-4	-0.00478	
10		-4	-0.00359	
20		1	-0.00478	
30		2	-0.00478	
40		3	-0.00598	
50		-1	-0.00598	
25	3.6	-3	-0.00239	
25	4.35	-2	-0.00359	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz Middle Channel, f_c = 1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	-44.07	-0.0234	Pass
-20		-10.23	-0.0054	
-10		33.76	0.0180	
0		21.85	0.0116	
10		24.44	0.0130	
20		-31.03	-0.0165	
30		24.02	0.0128	
40		10.73	0.0057	
50		3.06	0.0016	
20	3.6	-37.52	-0.0200	
20	4.35	-22.54	-0.0120	

16QAM, Channel Bandwidth:10MHz Middle Channel, f_c =1880 MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Result**
℃	**V_{DC}**	**Hz**	**ppm**	
-30	3.8	-14.96	-0.0080	Pass
-20		28.94	0.0154	
-10		8.51	0.0045	
0		22.31	0.0119	
10		10.87	0.0058	
20		46.94	0.0250	
30		-35.40	-0.0188	
40		26.97	0.0143	
50		38.42	0.0204	
20	3.6	30.16	0.0160	
20	4.35	-4.86	-0.0026	

LTE Band 4

QPSK, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	1710.521	1710	1754.517	1755
	-20	1710.518		1754.518	
	-10	1710.518		1754.521	
	0	1710.520		1754.517	
	10	1710.521		1754.514	
	20	1710.520		1754.520	
	30	1710.520		1754.518	
	40	1710.518		1754.523	
	50	1710.519		1754.524	
4.35	20	1710.521		1754.526	
3.6	20	1710.518		1754.525	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	1710.519	1710	1754.478	1755
	-20	1710.521		1754.480	
	-10	1710.522		1754.483	
	0	1710.522		1754.477	
	10	1710.522		1754.477	
	20	1710.520		1754.480	
	30	1710.519		1754.477	
	40	1710.521		1754.481	
	50	1710.519		1754.477	
4.35	20	1710.518		1754.478	
3.6	20	1710.520		1754.481	

LTE Band 5:

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	14.88	0.02	2.5
-20		18.93	0.02	
-10		-14.72	-0.02	
0		10.38	0.01	
10		8.17	0.01	
20		-8.98	-0.01	
30		-19.43	-0.02	
40		-4.96	-0.01	
50		-3.75	0.00	
20	3.6	1.62	0.00	
20	4.35	-8.58	-0.01	

Middle Channel, f_c = 836.5 MHz, Channel Bandwidth:10MHz				
Temperature	**Voltage**	**Frequency Error**	**Frequency Error**	**Limit**
℃	**V_{DC}**	**Hz**	**ppm**	**ppm**
-30	3.8	4.43	0.01	2.5
-20		-5.26	-0.01	
-10		-0.32	0.00	
0		9.98	0.01	
10		-10.51	-0.01	
20		-9.96	-0.01	
30		7.84	0.01	
40		4.50	0.01	
50		-8.67	-0.01	
20	3.6	11.41	0.01	
20	4.35	-6.64	-0.01	

LTE Band 12

QPSK, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	699.437	699	715.437	716
	-20	699.438		715.440	
	-10	699.441		715.438	
	0	699.442		715.443	
	10	699.439		715.438	
	20	699.440		715.440	
	30	699.441		715.439	
	40	699.437		715.440	
	50	699.440		715.442	
3.6	20	699.442		715.439	
4.35	20	699.443		715.441	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	699.481	699	715.441	716
	-20	699.482		715.438	
	-10	699.479		715.438	
	0	699.477		715.439	
	10	699.480		715.437	
	20	699.480		715.440	
	30	699.483		715.437	
	40	699.482		715.440	
	50	699.480		715.439	
3.6	20	699.478		715.442	
4.35	20	699.481		715.443	

LTE Band 17

QPSK, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	704.597	704	715.477	716
	-20	704.603		715.477	
	-10	704.600		715.479	
	0	704.597		715.481	
	10	704.599		715.483	
	20	704.600		715.480	
	30	704.597		715.478	
	40	704.603		715.480	
	50	704.601		715.477	
3.6	20	704.603		715.481	
4.35	20	704.599		715.481	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	704.599	704	715.439	716
	-20	704.602		715.437	
	-10	704.598		715.439	
	0	704.602		715.440	
	10	704.600		715.442	
	20	704.600		715.440	
	30	704.599		715.442	
	40	704.602		715.442	
	50	704.602		715.440	
3.6	20	704.597		715.439	
4.35	20	704.602		715.443	

LTE Band 66

QPSK, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	1710.522	1710	1779.482	1780
	-20	1710.522		1779.481	
	-10	1710.518		1779.479	
	0	1710.517		1779.478	
	10	1710.520		1779.481	
	20	1710.520		1779.480	
	30	1710.519		1779.477	
	40	1710.518		1779.479	
	50	1710.523		1779.479	
3.6	20	1710.519		1779.483	
4.35	20	1710.520		1779.482	

16QAM, Channel Bandwidth:10MHz					
Power Supplied	**Temperature**	**F_L**	**Limit**	**F_H**	**Limit**
Vdc	**℃**	**MHz**	**MHz**	**MHz**	**MHz**
3.8	-30	1710.522	1710	1779.481	1780
	-20	1710.522		1779.482	
	-10	1710.522		1779.480	
	0	1710.519		1779.481	
	10	1710.518		1779.479	
	20	1710.520		1779.480	
	30	1710.523		1779.482	
	40	1710.521		1779.482	
	50	1710.523		1779.478	
3.6	20	1710.521		1779.477	
4.35	20	1710.519		1779.478	

Note: The fundamental emissions stay within the authorized bands of operation based on the frequency deviation measured is small, the extreme voltage was declared by applicant.

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