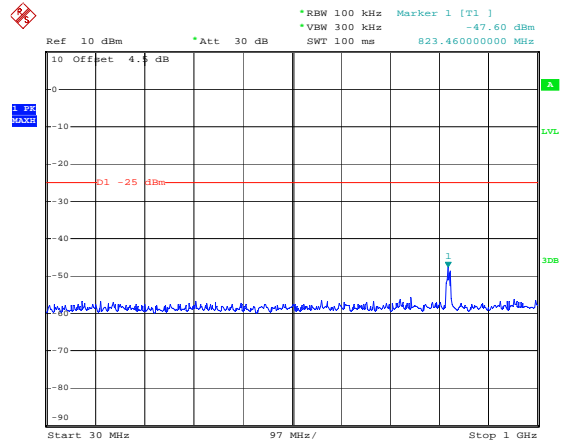
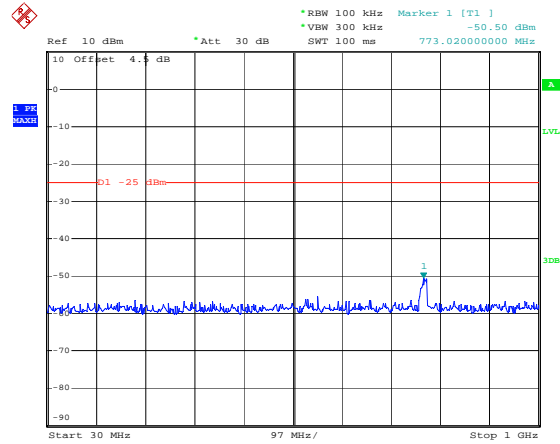


15M, QPSK, High Channel

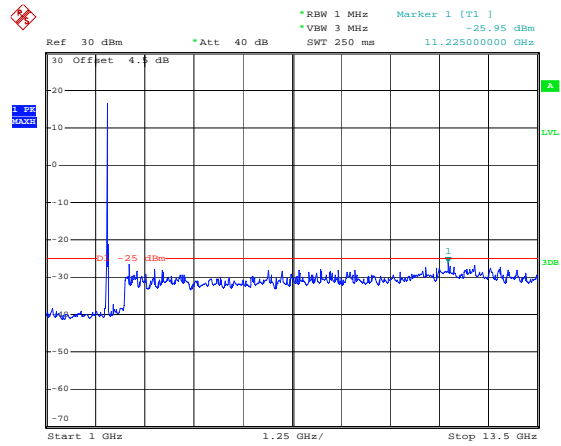


Date: 21.NOV.2020 15:47:14

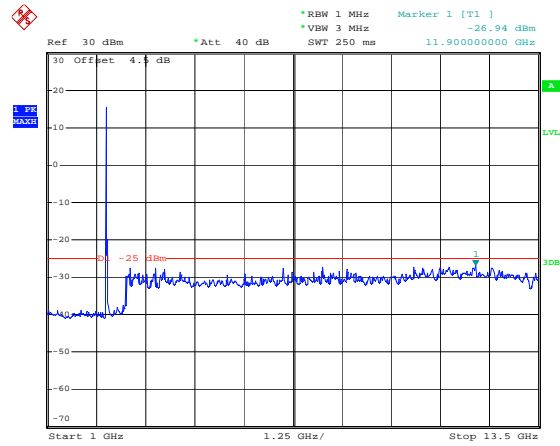
20M, QPSK, Low Channel



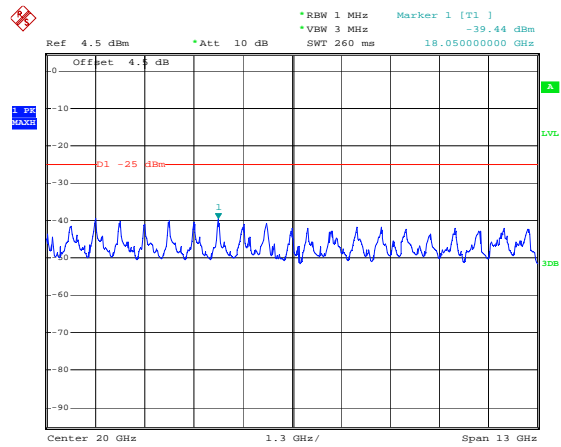
Date: 21.NOV.2020 15:48:17



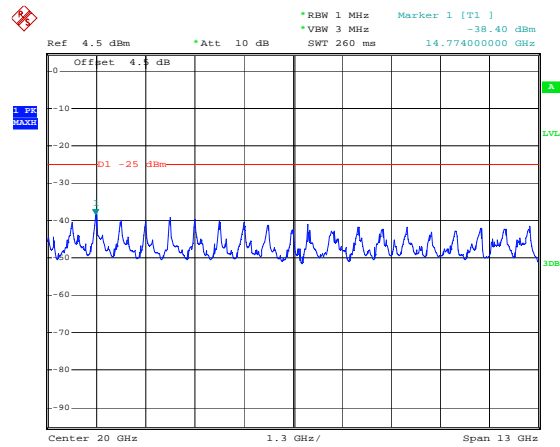
Date: 21.NOV.2020 15:47:26



Date: 21.NOV.2020 15:48:30

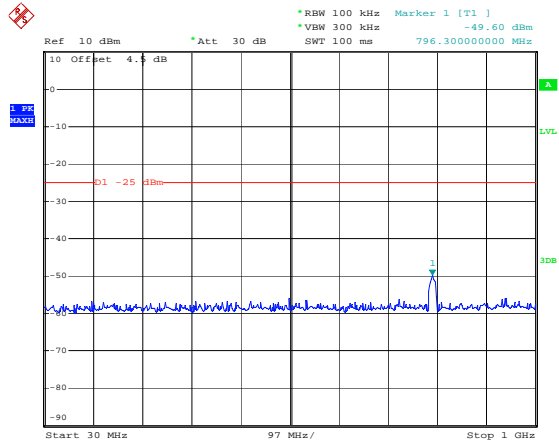


Date: 21.NOV.2020 15:47:53



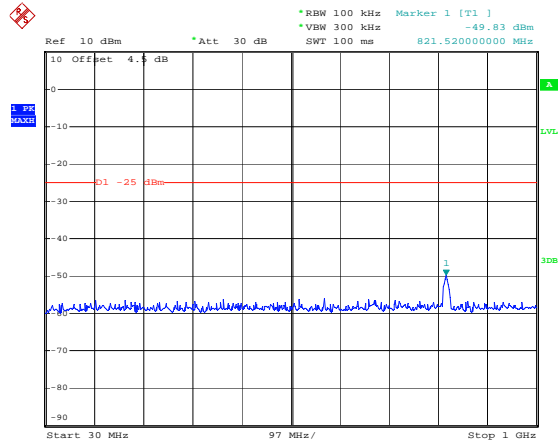
Date: 21.NOV.2020 15:48:57

20M, QPSK, Middle Channel

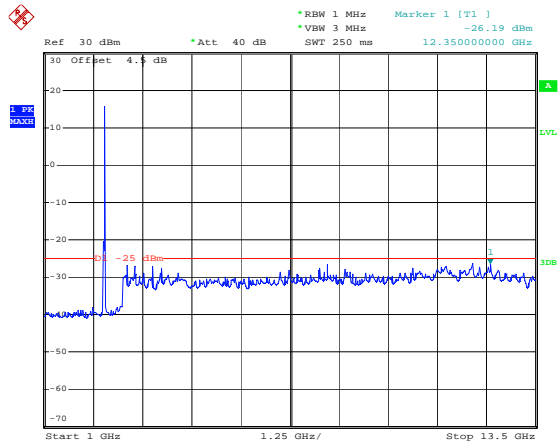


Date: 21.NOV.2020 15:49:21

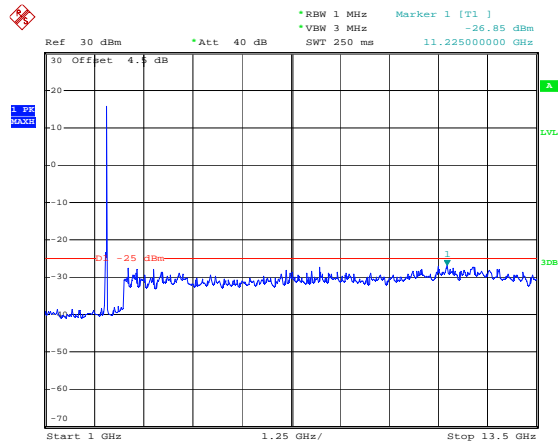
20M, QPSK, High Channel



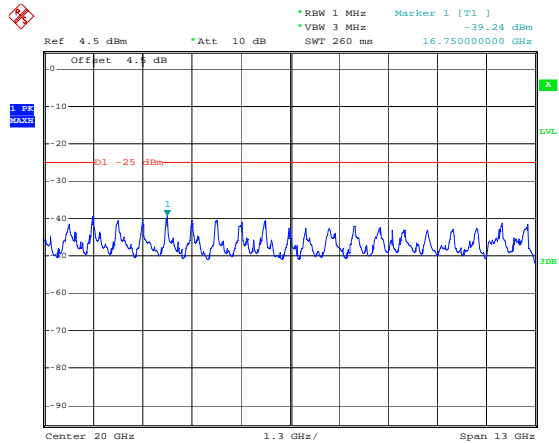
Date: 21.NOV.2020 15:50:26



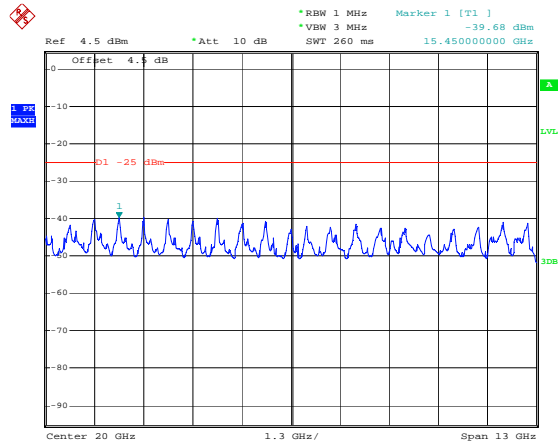
Date: 21.NOV.2020 15:49:34



Date: 21.NOV.2020 15:50:39



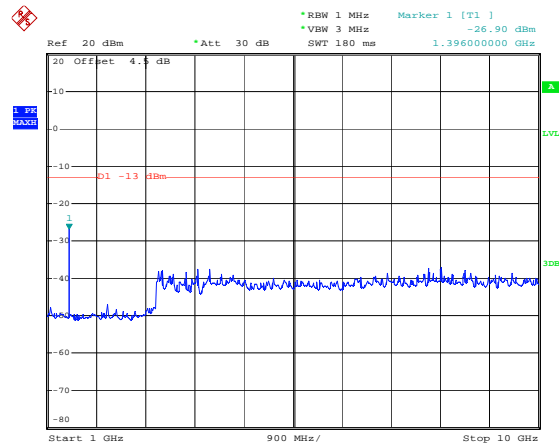
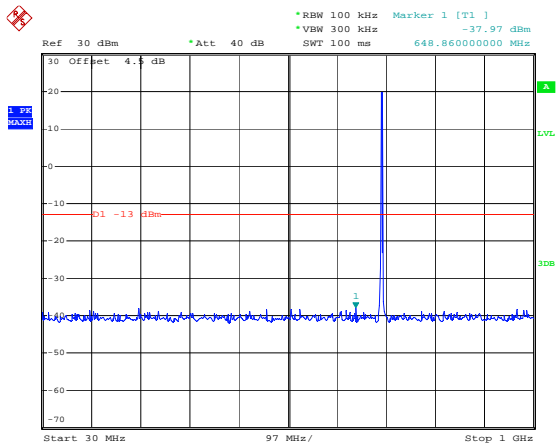
Date: 21.NOV.2020 15:50:02



Date: 21.NOV.2020 15:51:04

LTE Band 12:

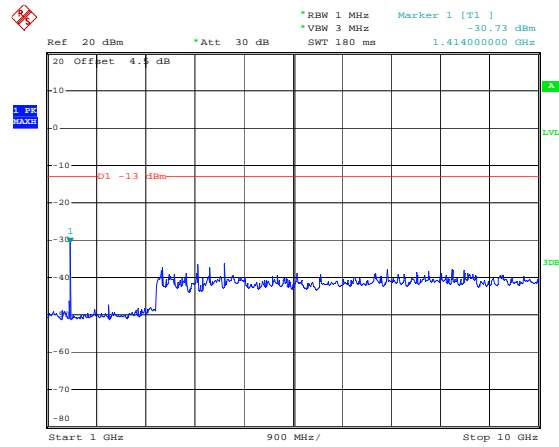
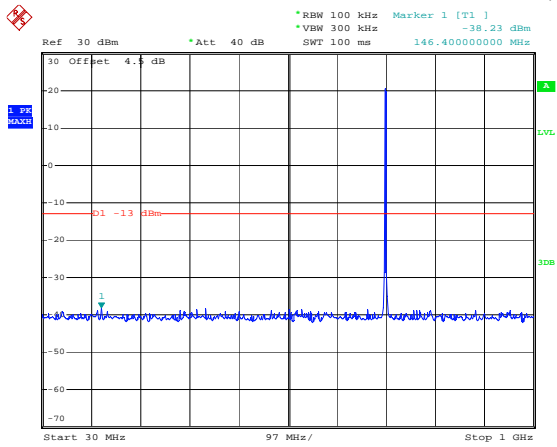
1.4M, QPSK, Low Channel



Date: 21.NOV.2020 15:51:27

Date: 21.NOV.2020 15:51:40

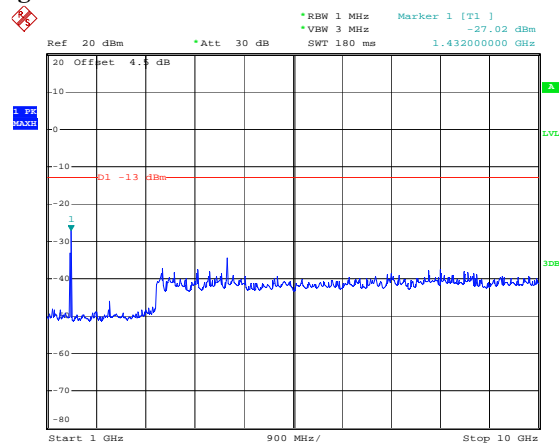
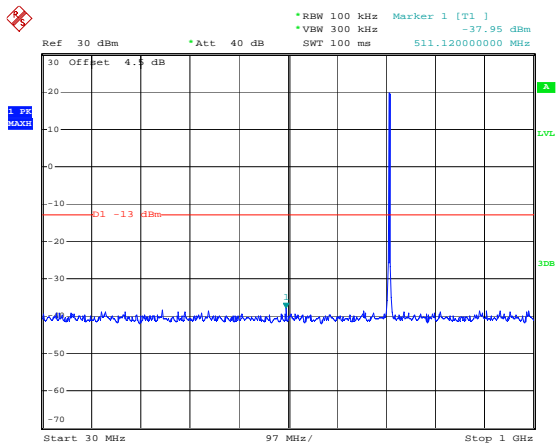
1.4M, QPSK, Middle Channel



Date: 21.NOV.2020 15:52:01

Date: 21.NOV.2020 15:52:13

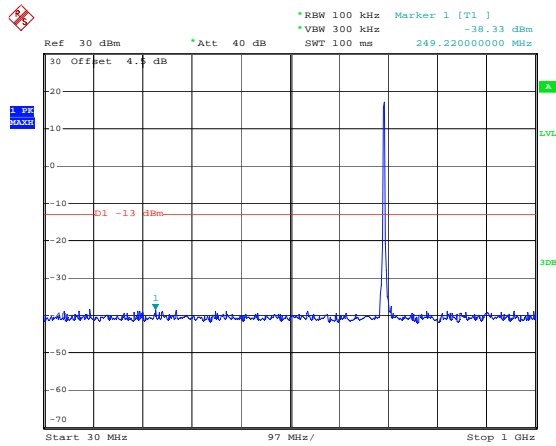
1.4M, QPSK, High Channel



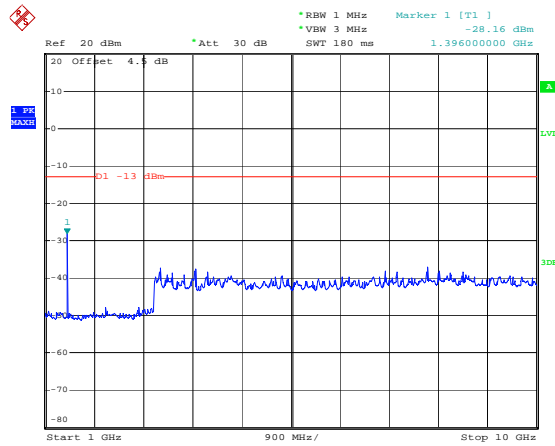
Date: 21.NOV.2020 15:52:34

Date: 21.NOV.2020 15:52:47

3M, QPSK, Low Channel

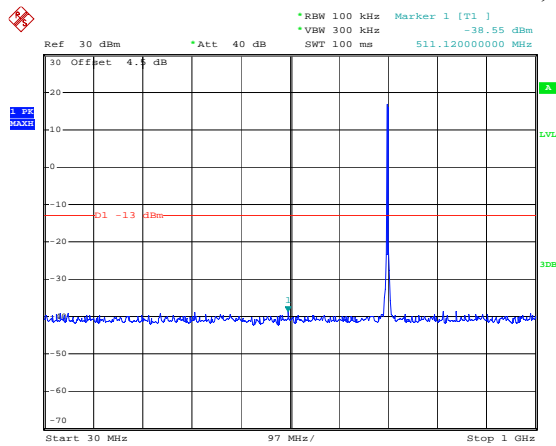


Date: 21.NOV.2020 15:53:10

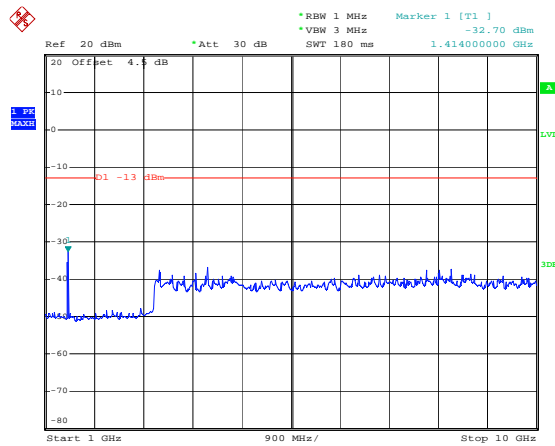


Date: 21.NOV.2020 15:53:23

3M, QPSK, Middle Channel

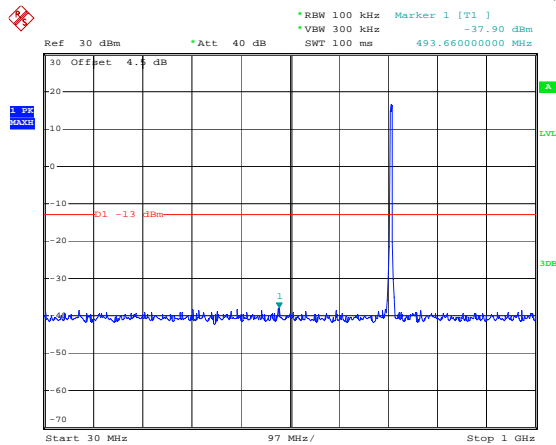


Date: 21.NOV.2020 15:53:40

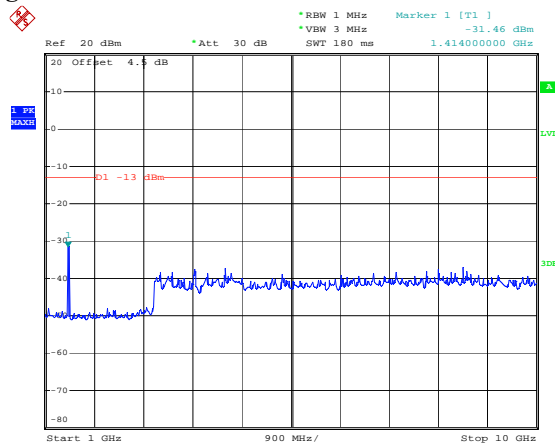


Date: 21.NOV.2020 15:53:53

3M, QPSK, High Channel

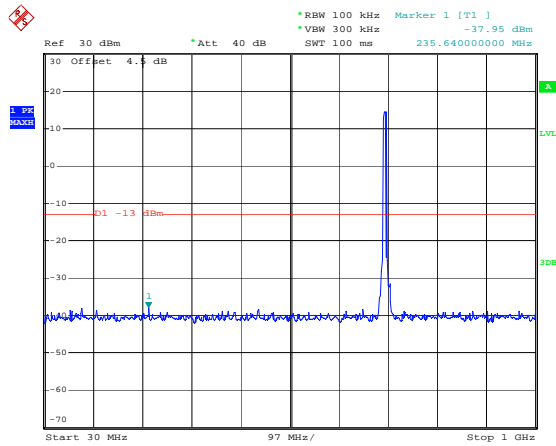


Date: 21.NOV.2020 15:54:14

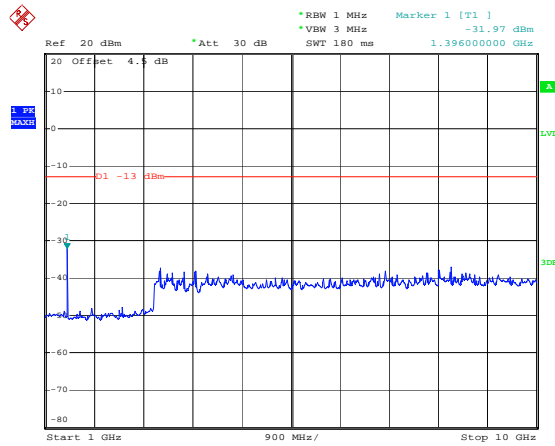


Date: 21.NOV.2020 15:54:26

5M, QPSK, Low Channel

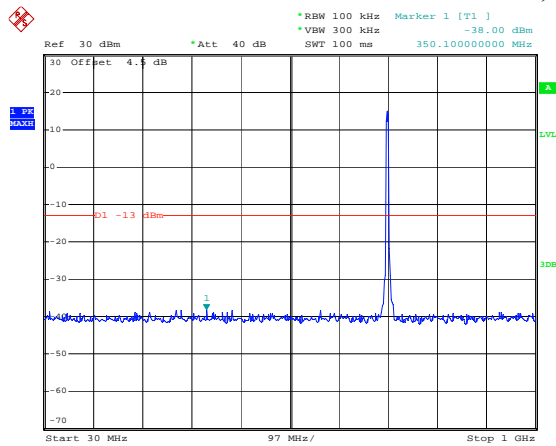


Date: 21.NOV.2020 15:54:50

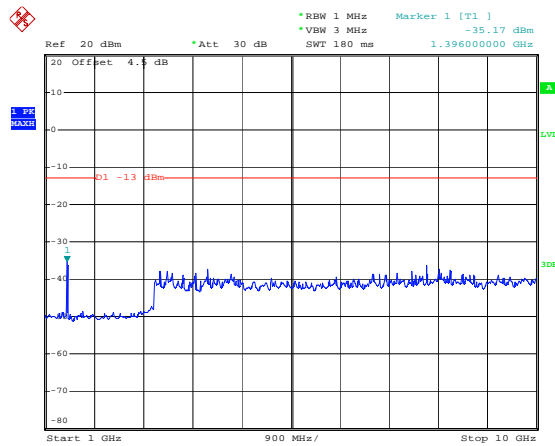


Date: 21.NOV.2020 15:55:03

5M, QPSK, Middle Channel

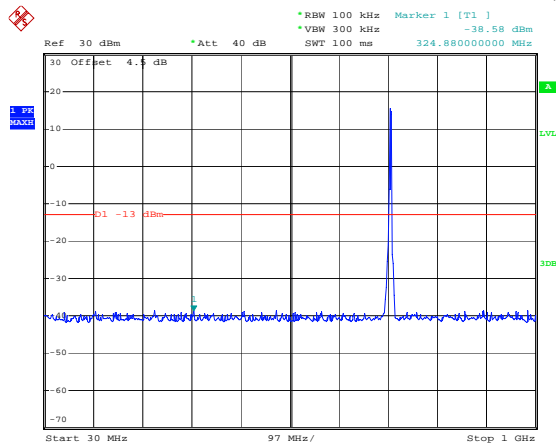


Date: 21.NOV.2020 15:55:23

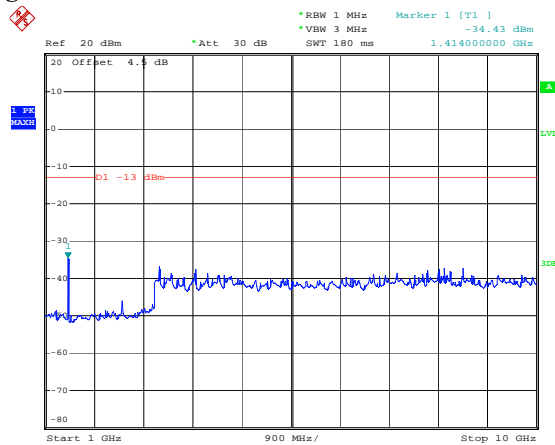


Date: 21.NOV.2020 15:55:39

5M, QPSK, High Channel

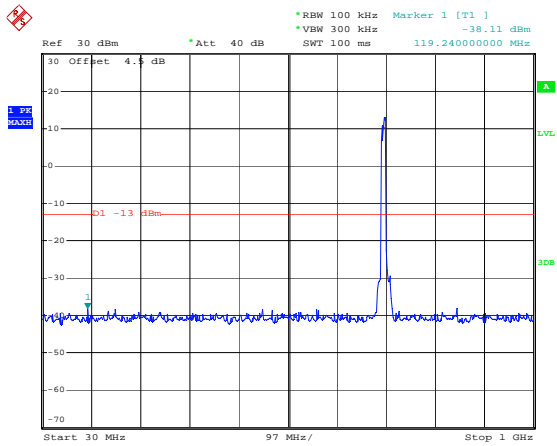


Date: 21.NOV.2020 15:56:00

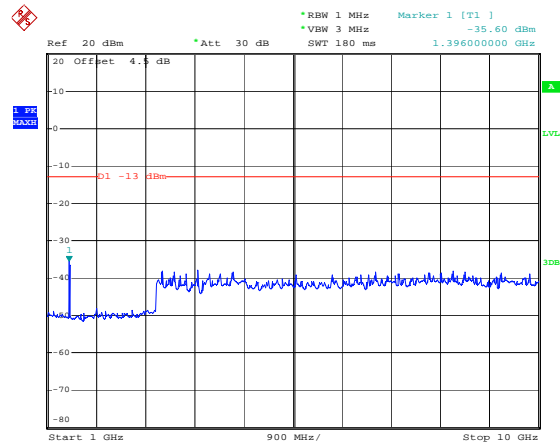


Date: 21.NOV.2020 15:56:12

10M, QPSK, Low Channel

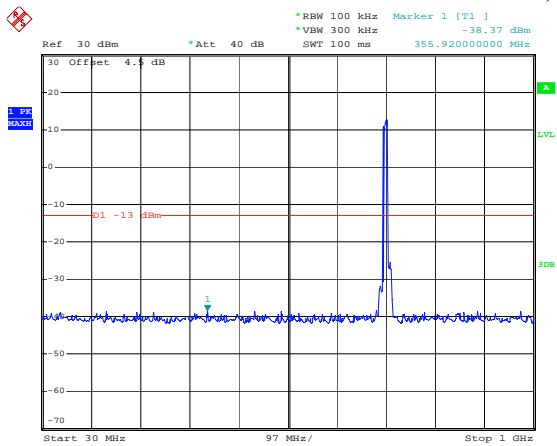


Date: 21.NOV.2020 15:57:53

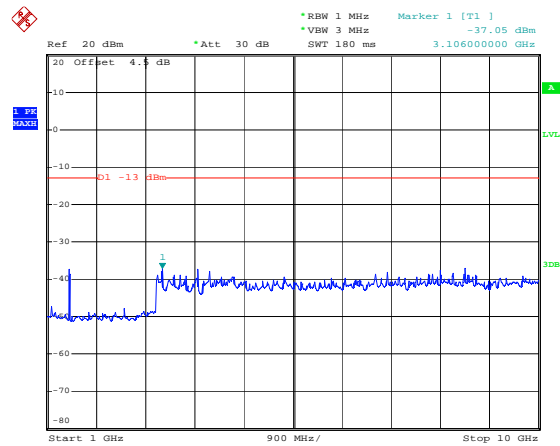


Date: 21.NOV.2020 15:58:06

10M, QPSK, Middle Channel

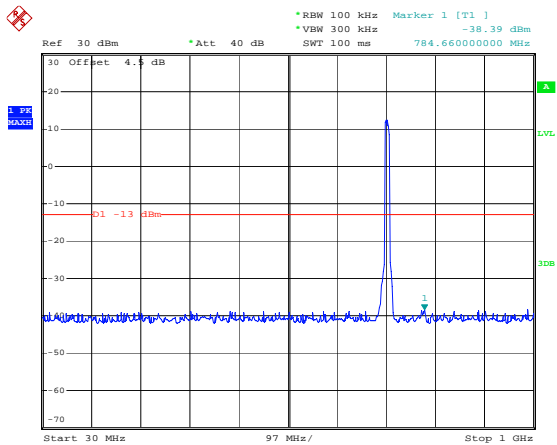


Date: 21.NOV.2020 15:58:28

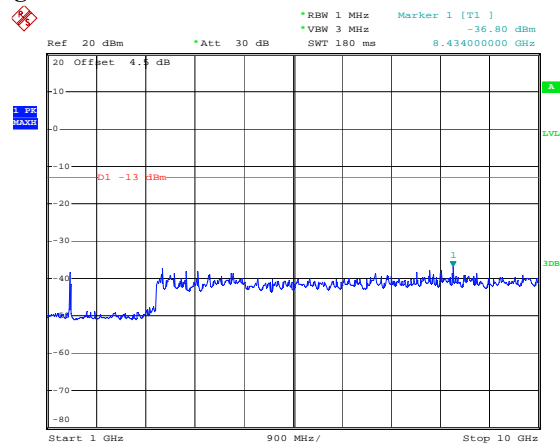


Date: 21.NOV.2020 15:58:41

10M, QPSK, High Channel



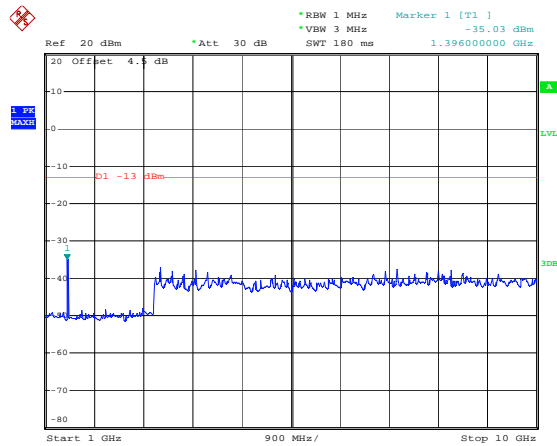
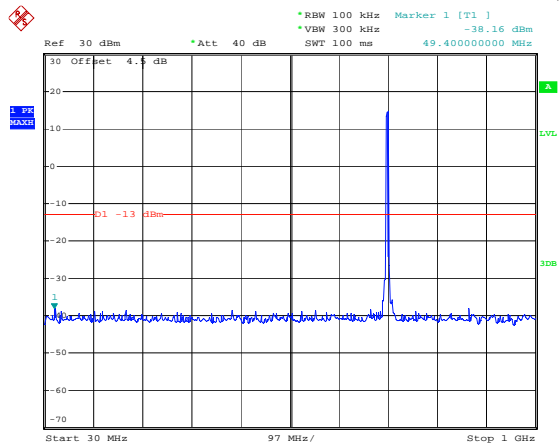
Date: 21.NOV.2020 15:58:59



Date: 21.NOV.2020 15:59:12

LTE Band 17:

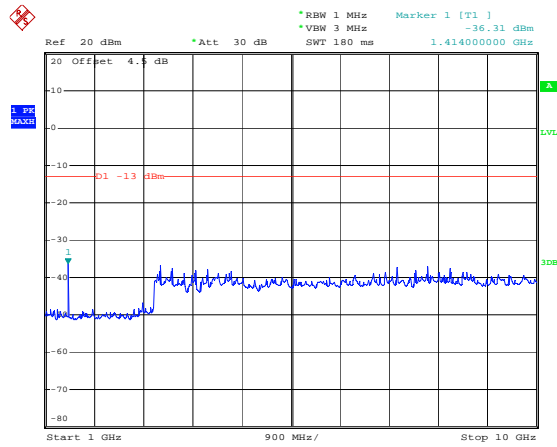
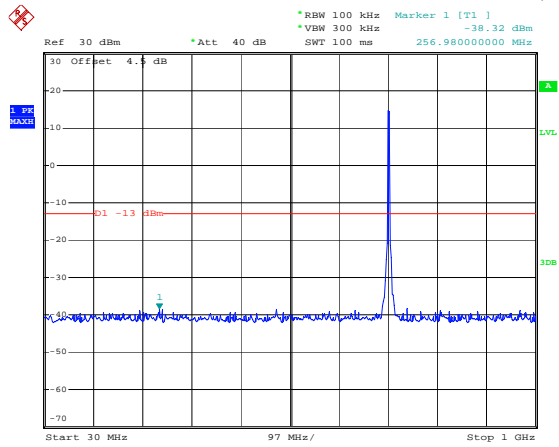
5M, QPSK, Low Channel



Date: 21.NOV.2020 16:00:15

Date: 21.NOV.2020 16:00:28

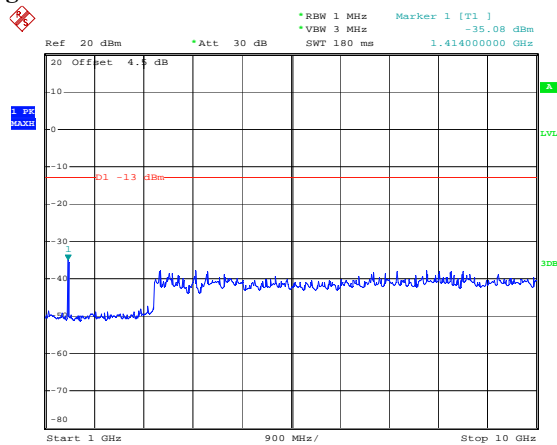
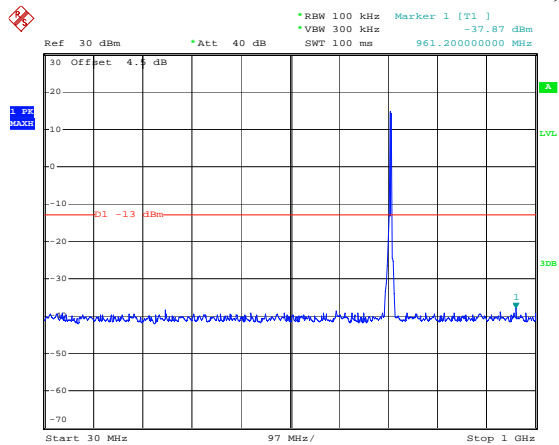
5M, QPSK, Middle Channel



Date: 21.NOV.2020 16:00:45

Date: 21.NOV.2020 16:00:58

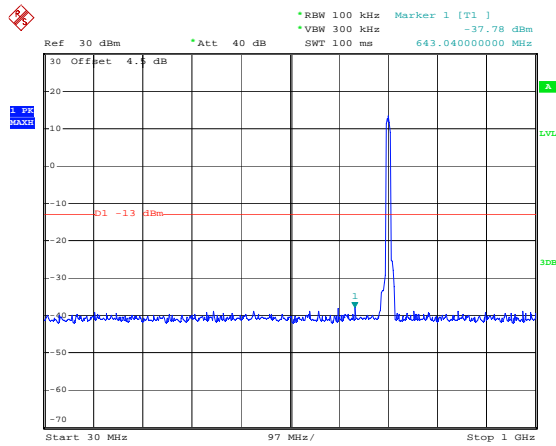
5M, QPSK, High Channel



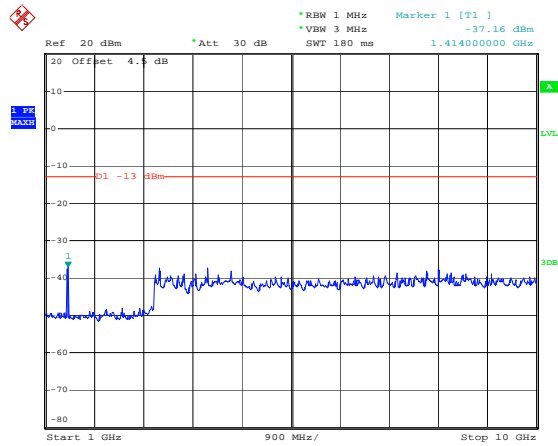
Date: 21.NOV.2020 16:01:19

Date: 21.NOV.2020 16:01:32

10M, QPSK, Low Channel

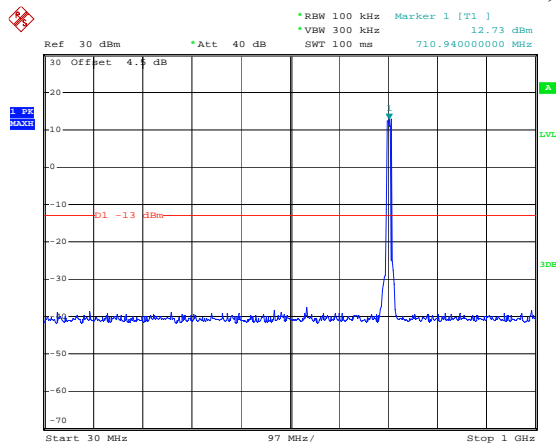


Date: 21.NOV.2020 16:01:54

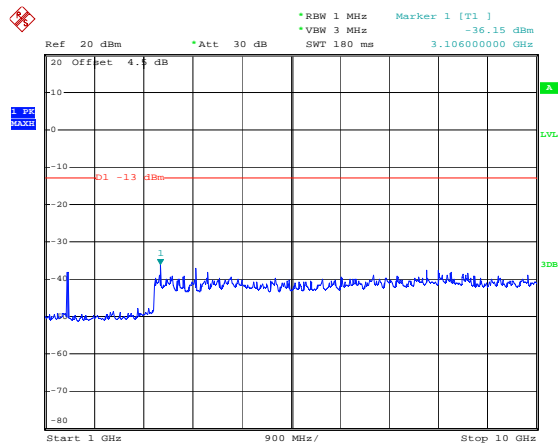


Date: 21.NOV.2020 16:02:06

10M, QPSK, Middle Channel

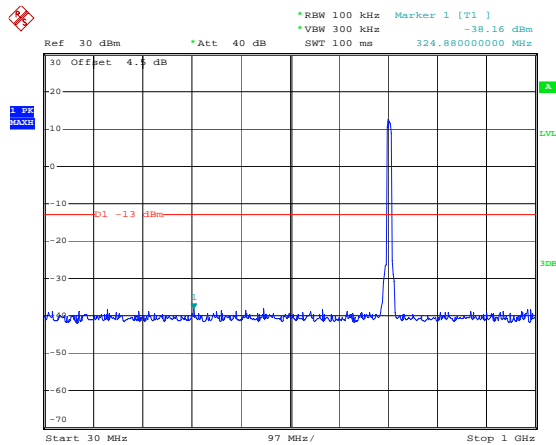


Date: 21.NOV.2020 16:02:28

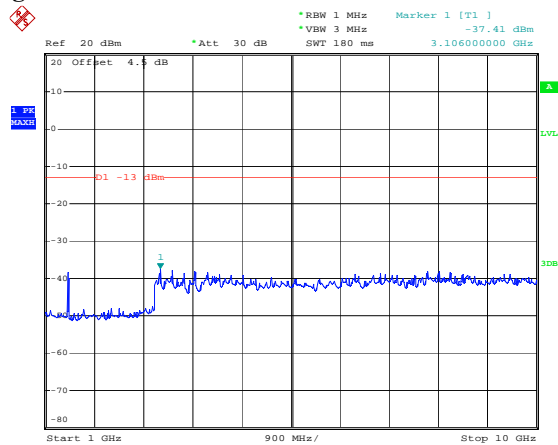


Date: 21.NOV.2020 16:02:41

10M, QPSK, High Channel



Date: 21.NOV.2020 16:03:03



Date: 21.NOV.2020 16:03:18

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 = $10 \lg (\text{TXpwr in Watts}/0.001)$ – the absolute level

Spurious attenuation limit in dB = $43 + 10 \text{Log}_{10} (\text{power out in Watts})$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB3	A060611-2	2020-08-25	2023-08-25
R&S	EMI Test Receiver	ESCI	100224	2020-09-12	2021-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-02	2020-09-05	2021-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2020-09-24	2021-09-24
Sonoma	Amplifier	310N	185914	2020-10-13	2021-10-13
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 Technologies	Horn Antenna	ARH-4223-02	1007726-01 1304	2017-12-06	2020-12-05
Ducommun Technologies	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:	27.6°C	26.6°C
Relative Humidity:	39%	49%
ATM Pressure:	100.5kPa	100.8kPa
Tester:	Asa Chen	Bond Qin, Lee Li
Test Date:	2020-11-08	2020-11-05

Test Result: Compliance.

EUT Operation Mode: Transmitting

Cellular Band (PART 22H)

30 MHz-10 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	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	46.96	-57.22	10.44	0.71	-47.49	-13.00	34.49
1648.40	V	45.70	-59.08	10.44	0.71	-49.35	-13.00	36.35
2472.60	H	39.32	-63.46	12.88	1.25	-51.83	-13.00	38.83
2472.60	V	39.49	-63.34	12.88	1.25	-51.71	-13.00	38.71
3296.80	H	37.16	-62.62	13.60	1.59	-50.61	-13.00	37.61
3296.80	V	37.36	-62.43	13.60	1.59	-50.42	-13.00	37.42
701.24	H	49.21	-51.66	0.00	0.38	-52.04	-13.00	39.04
877.78	V	45.73	-47.22	0.00	0.51	-47.73	-13.00	34.73
GSM850 Frequency:836.6MHz								
1673.20	H	44.82	-59.12	10.61	0.73	-49.24	-13.00	36.24
1673.20	V	43.35	-61.19	10.61	0.73	-51.31	-13.00	38.31
2509.80	H	39.52	-63.39	13.11	1.25	-51.53	-13.00	38.53
2509.80	V	38.04	-64.90	13.11	1.25	-53.04	-13.00	40.04
3346.40	H	37.09	-62.59	13.83	1.61	-50.37	-13.00	37.37
3346.40	V	37.48	-62.24	13.83	1.61	-50.02	-13.00	37.02
701.24	H	49.68	-51.19	0.00	0.38	-51.57	-13.00	38.57
877.78	V	43.95	-49.00	0.00	0.51	-49.51	-13.00	36.51
GSM850 Frequency:848.8MHz								
1697.60	H	41.61	-62.09	10.78	0.75	-52.06	-13.00	39.06
1697.60	V	40.86	-63.44	10.78	0.75	-53.41	-13.00	40.41
2546.40	H	39.04	-63.91	13.15	1.27	-52.03	-13.00	39.03
2546.40	V	37.85	-65.24	13.15	1.27	-53.36	-13.00	40.36
3395.20	H	36.86	-62.66	14.08	1.64	-50.22	-13.00	37.22
3395.20	V	37.60	-62.02	14.08	1.64	-49.58	-13.00	36.58
701.24	H	50.03	-50.84	0.00	0.38	-51.22	-13.00	38.22
877.78	V	45.28	-47.67	0.00	0.51	-48.18	-13.00	35.18

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	44.83	-59.30	10.47	0.72	-49.55	-13.00	36.55
1652.80	V	45.09	-59.64	10.47	0.72	-49.89	-13.00	36.89
2479.20	H	37.16	-65.65	12.93	1.25	-53.97	-13.00	40.97
2479.20	V	37.58	-65.27	12.93	1.25	-53.59	-13.00	40.59
3305.60	H	37.04	-62.76	13.63	1.59	-50.72	-13.00	37.72
3305.60	V	37.17	-62.64	13.63	1.59	-50.60	-13.00	37.60
953.67	H	36.54	-57.16	0.00	0.51	-57.67	-13.00	44.67
896.35	V	35.69	-56.65	0.00	0.51	-57.16	-13.00	44.16
WCDMA Band 5 Frequency:836.6MHz								
1673.20	H	41.96	-61.98	10.61	0.73	-52.10	-13.00	39.10
1673.20	V	41.11	-63.43	10.61	0.73	-53.55	-13.00	40.55
2509.80	H	38.44	-64.47	13.11	1.25	-52.61	-13.00	39.61
2509.80	V	38.79	-64.15	13.11	1.25	-52.29	-13.00	39.29
3346.40	H	37.07	-62.61	13.83	1.61	-50.39	-13.00	37.39
3346.40	V	37.61	-62.11	13.83	1.61	-49.89	-13.00	36.89
946.38	H	35.96	-58.00	0.00	0.51	-58.51	-13.00	45.51
923.65	V	36.12	-55.42	0.00	0.51	-55.93	-13.00	42.93
WCDMA Band 5 Frequency:846.6MHz								
1693.20	H	43.01	-60.74	10.75	0.75	-50.74	-13.00	37.74
1693.20	V	42.01	-62.34	10.75	0.75	-52.34	-13.00	39.34
2539.80	H	39.18	-63.76	13.14	1.27	-51.89	-13.00	38.89
2539.80	V	37.20	-65.86	13.14	1.27	-53.99	-13.00	40.99
3386.40	H	37.20	-62.35	14.03	1.63	-49.95	-13.00	36.95
3386.40	V	37.17	-62.47	14.03	1.63	-50.07	-13.00	37.07
939.36	H	36.47	-57.74	0.00	0.51	-58.25	-13.00	45.25
911.65	V	35.69	-56.20	0.00	0.51	-56.71	-13.00	43.71

PCS Band (PART 24E)**30 MHz-20 GHz:**

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	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	38.07	-59.92	14.00	1.83	-47.75	-13.00	34.75
3700.40	V	37.49	-60.48	14.00	1.83	-48.31	-13.00	35.31
5550.60	H	37.05	-56.92	13.95	1.27	-44.24	-13.00	31.24
5550.60	V	38.96	-54.86	13.95	1.27	-42.18	-13.00	29.18
701.24	H	49.68	-51.19	0.00	0.38	-51.57	-13.00	38.57
701.24	V	48.63	-48.87	0.00	0.38	-49.25	-13.00	36.25
GSM 1900 Frequency:1880MHz								
3760.00	H	38.79	-58.85	13.76	1.63	-46.72	-13.00	33.72
3760.00	V	37.67	-59.83	13.76	1.63	-47.70	-13.00	34.70
5640.00	H	37.61	-55.98	14.02	1.31	-43.27	-13.00	30.27
5640.00	V	35.88	-57.60	14.02	1.31	-44.89	-13.00	31.89
701.24	H	48.24	-52.63	0.00	0.38	-53.01	-13.00	40.01
701.24	V	47.72	-49.78	0.00	0.38	-50.16	-13.00	37.16
GSM 1900 Frequency:1909.8MHz								
3819.60	H	39.06	-58.19	13.56	1.50	-46.13	-13.00	33.13
3819.60	V	37.78	-59.29	13.56	1.50	-47.23	-13.00	34.23
5729.40	H	40.62	-53.09	13.96	1.31	-40.44	-13.00	27.44
5729.40	V	38.02	-55.66	13.96	1.31	-43.01	-13.00	30.01
701.24	H	49.68	-51.19	0.00	0.38	-51.57	-13.00	38.57
701.24	V	48.69	-48.81	0.00	0.38	-49.19	-13.00	36.19

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	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	39.84	-58.12	13.98	1.81	-45.95	-13.00	32.95
3704.80	V	39.61	-58.32	13.98	1.81	-46.15	-13.00	33.15
5557.20	H	36.46	-57.43	13.97	1.27	-44.73	-13.00	31.73
5557.20	V	36.20	-57.54	13.97	1.27	-44.84	-13.00	31.84
965.08	H	35.23	-58.07	0.00	0.51	-58.58	-13.00	45.58
941.80	V	35.20	-55.82	0.00	0.51	-56.33	-13.00	43.33
WCDMA Band II, Frequency:1880 MHz								
3760.00	H	39.08	-58.56	13.76	1.63	-46.43	-13.00	33.43
3760.00	V	37.66	-59.84	13.76	1.63	-47.71	-13.00	34.71
5640.00	H	35.32	-58.27	14.02	1.31	-45.56	-13.00	32.56
5640.00	V	35.27	-58.21	14.02	1.31	-45.50	-13.00	32.50
934.04	H	35.42	-58.97	0.00	0.51	-59.48	-13.00	46.48
875.84	V	36.88	-56.13	0.00	0.51	-56.64	-13.00	43.64
WCDMA Band II, Frequency:1907.6MHz								
3815.20	H	41.84	-55.44	13.57	1.50	-43.37	-13.00	30.37
3815.20	V	40.02	-57.08	13.57	1.50	-45.01	-13.00	32.01
5722.80	H	36.55	-57.21	13.95	1.32	-44.58	-13.00	31.58
5722.80	V	36.44	-57.28	13.95	1.32	-44.65	-13.00	31.65
934.04	H	36.75	-57.64	0.00	0.51	-58.15	-13.00	45.15
976.72	V	35.10	-54.92	0.00	0.51	-55.43	-13.00	42.43

AWS Band, Part 27

30 MHz-20 GHz:

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	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	38.22	-61.17	14.03	1.63	-48.77	-13.00	35.77
3424.80	V	39.14	-60.32	14.03	1.63	-47.92	-13.00	34.92
5137.20	H	38.31	-56.37	13.94	1.39	-43.82	-13.00	30.82
5137.20	V	36.47	-58.13	13.94	1.39	-45.58	-13.00	32.58
947.62	H	35.11	-58.80	0.00	0.51	-59.31	-13.00	46.31
875.84	V	36.92	-56.09	0.00	0.51	-56.60	-13.00	43.60
WCDMA Band IV, Frequency:1732.6 MHz								
3465.20	H	37.91	-61.27	13.90	1.62	-48.99	-13.00	35.99
3465.20	V	40.33	-58.89	13.90	1.62	-46.61	-13.00	33.61
5197.80	H	38.24	-56.45	14.00	1.52	-43.97	-13.00	30.97
5197.80	V	37.44	-57.32	14.00	1.52	-44.84	-13.00	31.84
964.65	H	35.68	-57.63	0.00	0.51	-58.14	-13.00	45.14
942.74	V	36.52	-54.47	0.00	0.51	-54.98	-13.00	41.98
WCDMA Band II, Frequency:1952.6MHz								
3505.20	H	37.84	-61.17	13.82	1.60	-48.95	-13.00	35.95
3505.20	V	38.76	-60.25	13.82	1.60	-48.03	-13.00	35.03
5257.80	H	38.78	-56.27	14.17	1.31	-43.41	-13.00	30.41
5257.80	V	37.16	-57.97	14.17	1.31	-45.11	-13.00	32.11
974.28	H	35.39	-57.58	0.00	0.51	-58.09	-13.00	45.09
869.67	V	36.82	-56.39	0.00	0.50	-56.89	-13.00	43.89

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 (dB μ V)	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	39.16	-58.82	13.99	1.83	-46.66	-13.00	33.66
3701.40	V	43.02	-54.94	13.99	1.83	-42.78	-13.00	29.78
5552.10	H	36.03	-57.92	13.96	1.27	-45.23	-13.00	32.23
5552.10	V	39.17	-54.63	13.96	1.27	-41.94	-13.00	28.94
249.22	H	35.77	-73.52	0.00	0.27	-73.79	-13.00	60.79
957.32	V	35.61	-54.96	0.00	0.51	-55.47	-13.00	42.47
QPSK, Frequency: 1880 MHz								
3760.00	H	38.79	-58.85	13.76	1.63	-46.72	-13.00	33.72
3760.00	V	42.37	-55.13	13.76	1.63	-43.00	-13.00	30.00
5640.00	H	35.21	-58.38	14.02	1.31	-45.67	-13.00	32.67
5640.00	V	36.62	-56.86	14.02	1.31	-44.15	-13.00	31.15
222.06	H	34.97	-74.84	0.00	0.22	-75.06	-13.00	62.06
990.30	V	34.78	-54.85	0.00	0.51	-55.36	-13.00	42.36
QPSK, Frequency: 1909.3 MHz								
3818.60	H	44.35	-52.91	13.56	1.50	-40.85	-13.00	27.85
3818.60	V	49.10	-47.97	13.56	1.50	-35.91	-13.00	22.91
5727.90	H	35.99	-57.73	13.96	1.31	-45.08	-13.00	32.08
5727.90	V	38.39	-55.30	13.96	1.31	-42.65	-13.00	29.65
932.10	H	36.05	-58.41	0.00	0.51	-58.92	-13.00	45.92
875.84	V	35.35	-57.66	0.00	0.51	-58.17	-13.00	45.17

LTE Band 4 (30MHz-20GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	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	40.74	-58.66	14.04	1.63	-46.25	-13.00	33.25
3421.40	V	41.56	-57.92	14.04	1.63	-45.51	-13.00	32.51
5132.10	H	45.97	-48.71	13.93	1.37	-36.15	-13.00	23.15
5132.10	V	51.47	-43.12	13.93	1.37	-30.56	-13.00	17.56
937.92	H	35.07	-59.19	0.00	0.51	-59.70	-13.00	46.70
666.32	V	39.86	-58.51	0.00	0.37	-58.88	-13.00	45.88
QPSK, Frequency: 1732.5 MHz								
3465.00	H	39.90	-59.29	13.91	1.62	-47.00	-13.00	34.00
3465.00	V	41.34	-57.88	13.91	1.62	-45.59	-13.00	32.59
5197.50	H	46.33	-48.36	14.00	1.52	-35.88	-13.00	22.88
5197.50	V	50.67	-44.09	14.00	1.52	-31.61	-13.00	18.61
945.68	H	34.71	-59.27	0.00	0.51	-59.78	-13.00	46.78
920.46	V	34.76	-56.87	0.00	0.51	-57.38	-13.00	44.38
QPSK, Frequency: 1754.3 MHz								
3508.60	H	39.49	-59.52	13.83	1.60	-47.29	-13.00	34.29
3508.60	V	42.56	-56.45	13.83	1.60	-44.22	-13.00	31.22
5262.90	H	38.77	-56.32	14.19	1.29	-43.42	-13.00	30.42
5262.90	V	42.60	-52.57	14.19	1.29	-39.67	-13.00	26.67
934.04	H	36.49	-57.90	0.00	0.51	-58.41	-13.00	45.41
679.90	V	36.10	-61.93	0.00	0.38	-62.31	-13.00	49.31

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	46.68	-57.49	10.45	0.71	-47.75	-13.00	34.75
1649.40	V	43.95	-60.82	10.45	0.71	-51.08	-13.00	38.08
2474.10	H	41.14	-61.65	12.89	1.25	-50.01	-13.00	37.01
2474.10	V	38.83	-64.01	12.89	1.25	-52.37	-13.00	39.37
3298.80	H	39.27	-60.54	13.60	1.59	-48.53	-13.00	35.53
3298.80	V	38.62	-61.19	13.60	1.59	-49.18	-13.00	36.18
946.37	H	36.47	-57.49	0.00	0.51	-58.00	-13.00	45.00
645.97	V	38.64	-60.23	0.00	0.37	-60.60	-13.00	47.60
QPSK, Frequency: 836.5 MHz								
1673.00	H	45.57	-58.37	10.61	0.73	-48.49	-13.00	35.49
1673.00	V	42.07	-62.47	10.61	0.73	-52.59	-13.00	39.59
2509.50	H	40.12	-62.79	13.11	1.25	-50.93	-13.00	37.93
2509.50	V	39.80	-63.14	13.11	1.25	-51.28	-13.00	38.28
3346.00	H	38.65	-61.03	13.83	1.61	-48.81	-13.00	35.81
3346.00	V	37.99	-61.73	13.83	1.61	-49.51	-13.00	36.51
968.65	H	37.64	-55.53	0.00	0.51	-56.04	-13.00	43.04
693.87	V	37.53	-60.15	0.00	0.38	-60.53	-13.00	47.53
QPSK, Frequency: 848.3 MHz								
1696.60	H	43.94	-59.77	10.78	0.75	-49.74	-13.00	36.74
1696.60	V	43.11	-61.20	10.78	0.75	-51.17	-13.00	38.17
2544.90	H	42.54	-60.41	13.14	1.27	-48.54	-13.00	35.54
2544.90	V	42.03	-61.05	13.14	1.27	-49.18	-13.00	36.18
3393.20	H	38.65	-60.88	14.07	1.64	-48.45	-13.00	35.45
3393.20	V	38.24	-61.38	14.07	1.64	-48.95	-13.00	35.95
978.64	H	36.80	-56.02	0.00	0.51	-56.53	-13.00	43.53
748.34	V	37.48	-59.07	0.00	0.43	-59.50	-13.00	46.50

LTE Band 7(30MHz-26.5GHz):

Frequency (MHz)	Polar (H/V)	Receiver Reading (dB μ V)	Substituted Method			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
			Substituted Level (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)			
QPSK, Frequency: 2502.5 MHz								
5005.00	H	37.91	-58.16	14.00	1.43	-45.59	-25.00	20.59
5005.00	V	36.41	-59.42	14.00	1.43	-46.85	-25.00	21.85
7507.50	H	35.67	-52.97	13.20	1.33	-41.10	-25.00	16.10
7507.50	V	35.28	-53.84	13.20	1.33	-41.97	-25.00	16.97
961.20	H	35.65	-57.78	0.00	0.51	-58.29	-25.00	33.29
846.74	V	35.32	-58.65	0.00	0.50	-59.15	-25.00	34.15
QPSK, Frequency: 2535 MHz								
5070.00	H	37.65	-57.46	13.93	1.34	-44.87	-25.00	19.87
5070.00	V	36.25	-58.67	13.93	1.34	-46.08	-25.00	21.08
7605.00	H	37.05	-51.83	13.21	1.40	-40.02	-25.00	15.02
7605.00	V	36.47	-52.81	13.21	1.40	-41.00	-25.00	16.00
934.04	H	35.14	-59.25	0.00	0.51	-59.76	-25.00	34.76
860.32	V	34.65	-58.87	0.00	0.50	-59.37	-25.00	34.37
QPSK, Frequency: 2567.5 MHz								
5135.00	H	36.91	-57.77	13.94	1.38	-45.21	-25.00	20.21
5135.00	V	36.26	-58.33	13.94	1.38	-45.77	-25.00	20.77
7702.50	H	36.92	-52.20	13.40	1.47	-40.27	-25.00	15.27
7702.50	V	36.38	-53.06	13.40	1.47	-41.13	-25.00	16.13
934.04	H	34.56	-59.83	0.00	0.51	-60.34	-25.00	35.34
961.20	V	35.13	-55.33	0.00	0.51	-55.84	-25.00	30.84

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	40.05	-63.34	9.00	1.20	-55.54	-13.00	42.54
1399.40	V	44.24	-59.75	9.00	1.20	-51.95	-13.00	38.95
2099.10	H	34.58	-67.49	11.41	1.10	-57.18	-13.00	44.18
2099.10	V	35.84	-66.23	11.41	1.10	-55.92	-13.00	42.92
2798.80	H	37.53	-64.19	13.10	1.36	-52.45	-13.00	39.45
2798.80	V	37.62	-64.30	13.10	1.36	-52.56	-13.00	39.56
963.87	H	35.69	-57.65	0.00	0.51	-58.16	-13.00	45.16
951.20	V	36.54	-54.21	0.00	0.51	-54.72	-13.00	41.72
QPSK, Frequency: 707.5 MHz								
1415.00	H	40.96	-62.65	9.08	1.22	-54.79	-13.00	41.79
1415.00	V	47.17	-56.96	9.08	1.22	-49.10	-13.00	36.10
2122.50	H	35.27	-66.74	11.27	1.11	-56.58	-13.00	43.58
2122.50	V	35.58	-66.41	11.27	1.11	-56.25	-13.00	43.25
2830.00	H	37.65	-63.77	13.34	1.36	-51.79	-13.00	38.79
2830.00	V	37.46	-64.19	13.34	1.36	-52.21	-13.00	39.21
987.68	H	36.54	-55.96	0.00	0.51	-56.47	-13.00	43.47
931.25	V	35.68	-55.64	0.00	0.51	-56.15	-13.00	43.15
QPSK, Frequency: 715.3 MHz								
1430.60	H	39.17	-64.67	9.15	1.25	-56.77	-13.00	43.77
1430.60	V	43.54	-60.74	9.15	1.25	-52.84	-13.00	39.84
2145.90	H	35.17	-66.79	11.12	1.12	-56.79	-13.00	43.79
2145.90	V	35.07	-66.85	11.12	1.12	-56.85	-13.00	43.85
2861.20	H	37.21	-63.90	13.59	1.35	-51.66	-13.00	38.66
2861.20	V	37.49	-63.88	13.59	1.35	-51.64	-13.00	38.64
936.85	H	36.54	-57.76	0.00	0.51	-58.27	-13.00	45.27
876.69	V	35.68	-57.30	0.00	0.51	-57.81	-13.00	44.81

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	38.40	-65.18	9.07	1.22	-57.33	-13.00	44.33
1413.00	V	43.52	-60.59	9.07	1.22	-52.74	-13.00	39.74
2119.50	H	35.61	-66.41	11.28	1.11	-56.24	-13.00	43.24
2119.50	V	35.66	-66.34	11.28	1.11	-56.17	-13.00	43.17
2826.00	H	37.50	-63.96	13.31	1.36	-52.01	-13.00	39.01
2826.00	V	37.24	-64.45	13.31	1.36	-52.50	-13.00	39.50
968.57	H	36.54	-56.63	0.00	0.51	-57.14	-13.00	44.14
903.61	V	36.54	-55.58	0.00	0.51	-56.09	-13.00	43.09
QPSK, Frequency:710 MHz								
1420.00	H	41.90	-61.78	9.10	1.23	-53.91	-13.00	40.91
1420.00	V	43.77	-60.41	9.10	1.23	-52.54	-13.00	39.54
2130.00	H	35.21	-66.79	11.22	1.11	-56.68	-13.00	43.68
2130.00	V	35.90	-66.07	11.22	1.11	-55.96	-13.00	42.96
2840.00	H	37.20	-64.12	13.42	1.36	-52.06	-13.00	39.06
2840.00	V	37.29	-64.27	13.42	1.36	-52.21	-13.00	39.21
926.87	H	35.67	-58.98	0.00	0.51	-59.49	-13.00	46.49
864.68	V	36.24	-57.14	0.00	0.50	-57.64	-13.00	44.64
QPSK, Frequency: 713.5 MHz								
1427.00	H	41.06	-62.72	9.14	1.24	-54.82	-13.00	41.82
1427.00	V	41.54	-62.71	9.14	1.24	-54.81	-13.00	41.81
2140.50	H	35.25	-66.72	11.16	1.12	-56.68	-13.00	43.68
2140.50	V	34.69	-67.24	11.16	1.12	-57.20	-13.00	44.20
2854.00	H	37.60	-63.58	13.53	1.35	-51.40	-13.00	38.40
2854.00	V	38.02	-63.41	13.53	1.35	-51.23	-13.00	38.23
953.24	H	35.96	-57.76	0.00	0.51	-58.27	-13.00	45.27
932.65	V	36.47	-54.81	0.00	0.51	-55.32	-13.00	42.32

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

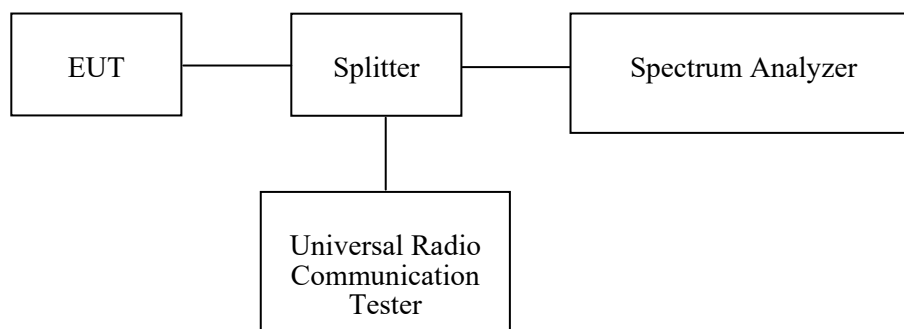
Applicable Standard

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	FSU 26	200256	2020-07-07	2021-07-07
R&S	Spectrum Analyzer	FSP 38	100478	2020-07-07	2021-07-07
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
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 Splitter	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

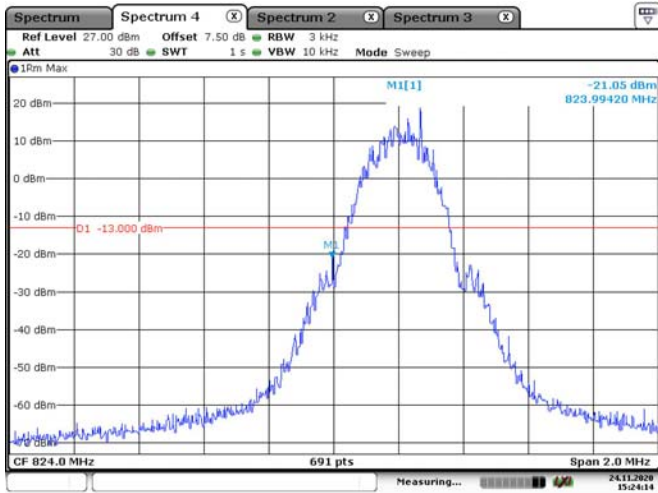
Environmental Conditions

Temperature:	21.2~28.1 °C
Relative Humidity:	45~54%
ATM Pressure:	100.9~102.5kPa
Tester:	Theshy Xie
Test Date:	2020-11-21~2020-11-30

Test Mode: Transmitting

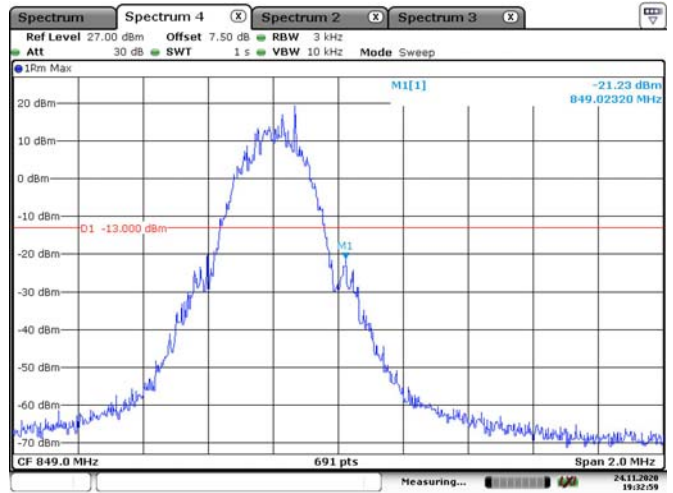
Test Result: Compliance. Please refer to the following plots.

GSM 850, Left Band Edge



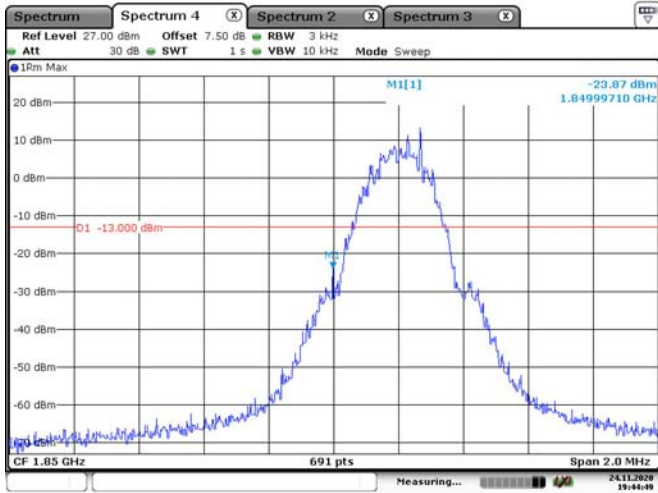
Date: 24.NOV.2020 15:24:14

GSM 850, Right Band Edge



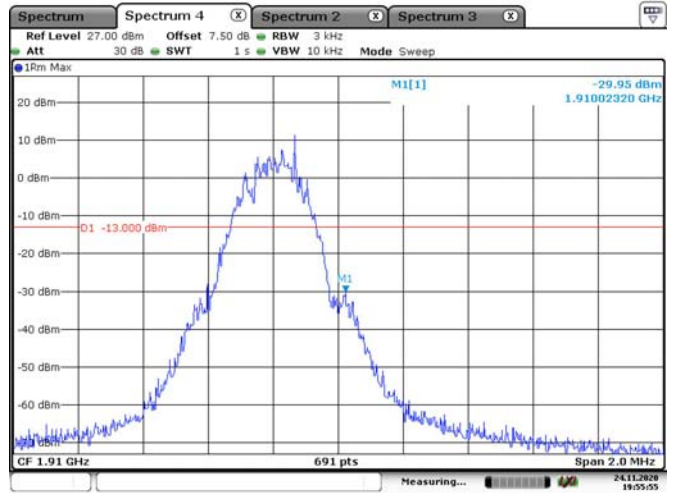
Date: 24.NOV.2020 19:32:59

PCS 1900, Left Band Edge



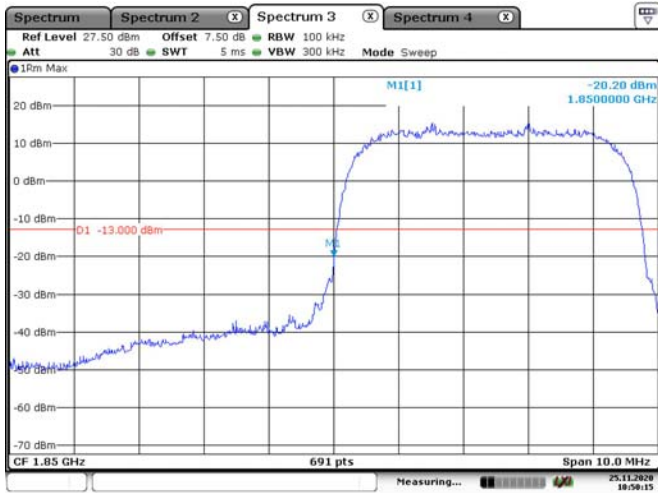
Date: 24.NOV.2020 19:44:50

PCS 1900, Right Band Edge



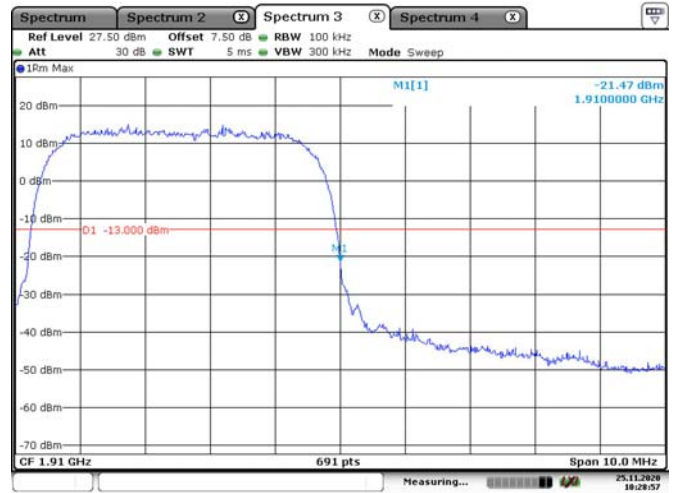
Date: 24.NOV.2020 19:55:55

WCDMA Band II,Rel99, Left Band Edge



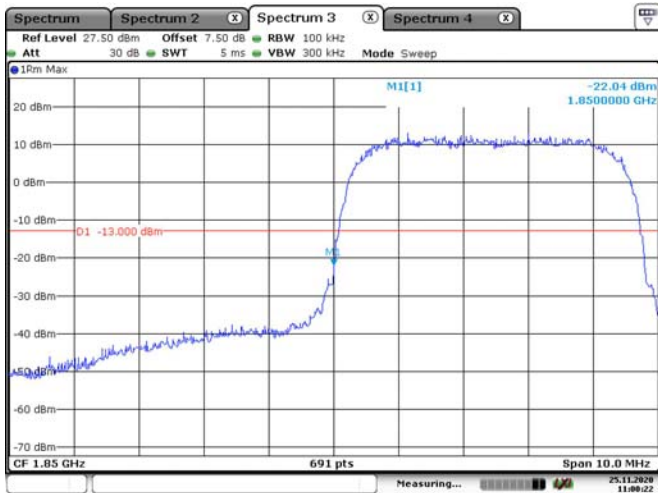
Date: 25.NOV.2020 10:50:15

WCDMA Band II,Rel99, Right Band Edge



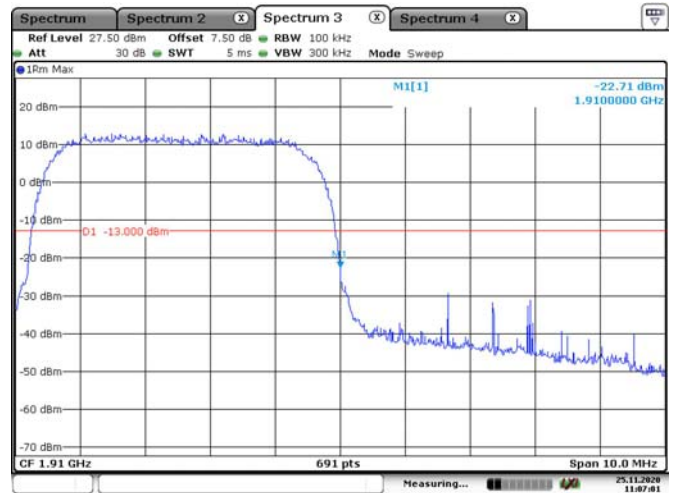
Date: 25.NOV.2020 10:28:57

WCDMA Band II,HSDPA, Left Band Edge



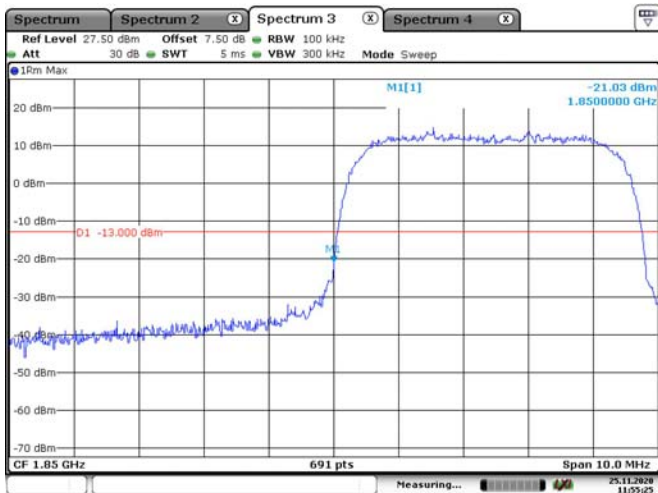
Date: 25.NOV.2020 11:00:22

WCDMA Band II,HSDPA,Right Band Edge



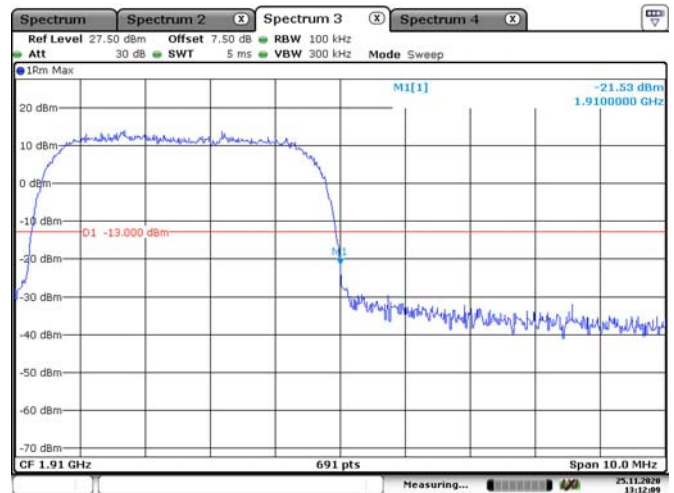
Date: 25.NOV.2020 11:07:02

WCDMA Band II,HSUPA, Left Band Edge



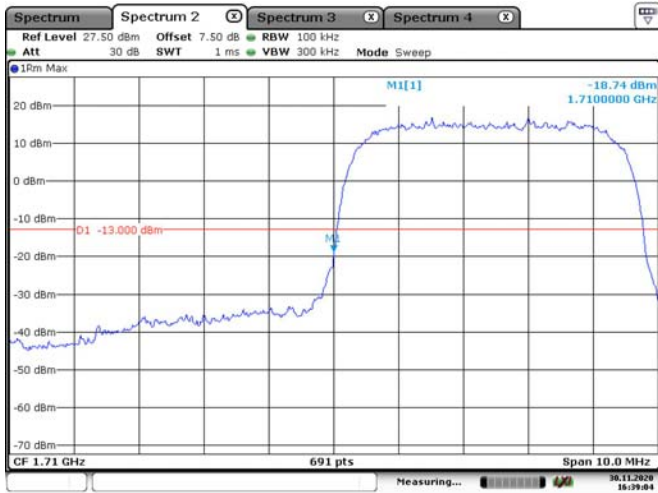
Date: 25.NOV.2020 11:55:25

WCDMA Band II,HSUPA, Right Band Edge



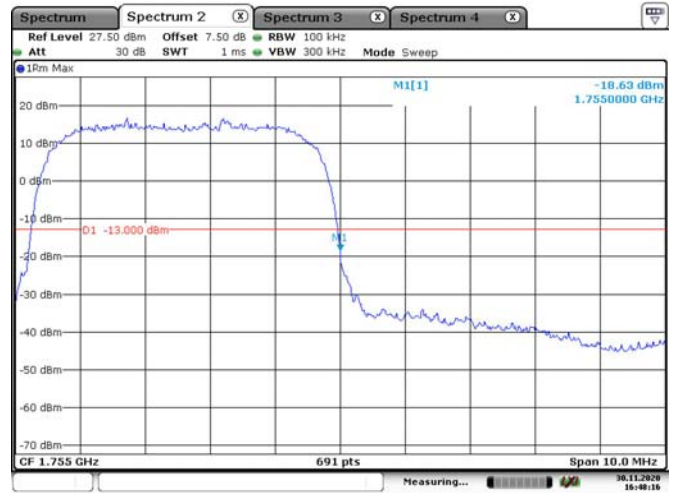
Date: 25.NOV.2020 13:12:09

WCDMA Band IV,Rel99, Left Band Edge



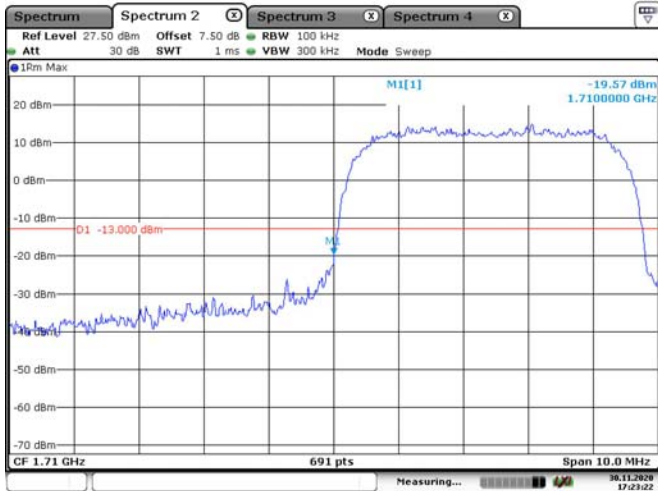
Date: 30.NOV.2020 16:39:05

WCDMA Band IV,Rel99, Right Band Edge



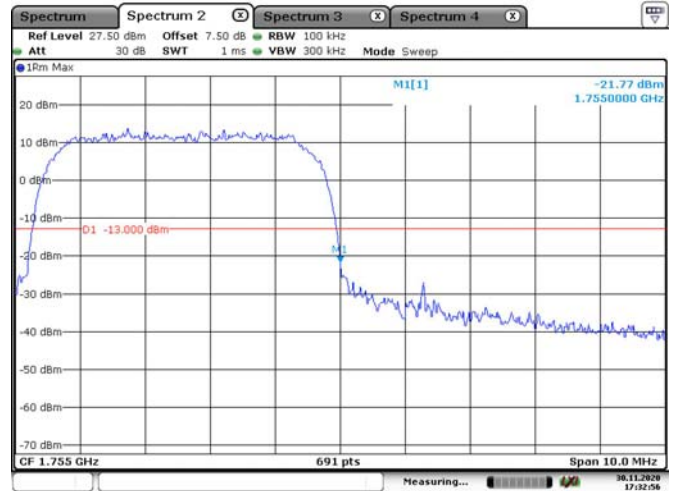
Date: 30.NOV.2020 16:48:17

WCDMA Band IV,HSDPA, Left Band Edge



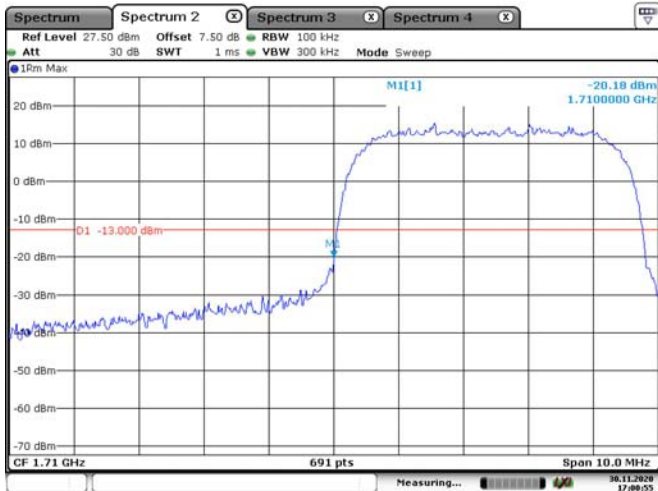
Date: 30.NOV.2020 17:23:22

WCDMA Band IV,HSDPA,Right Band Edge



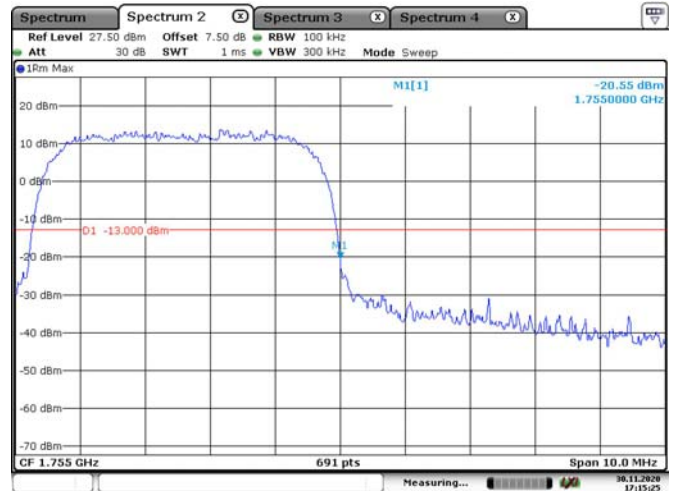
Date: 30.NOV.2020 17:32:57

WCDMA Band IV,HSUPA, Left Band Edge



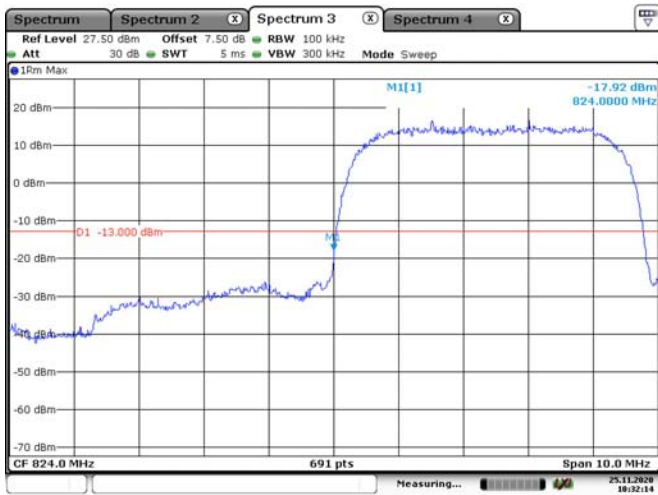
Date: 30.NOV.2020 17:00:56

WCDMA Band IV,HSUPA, Right Band Edge

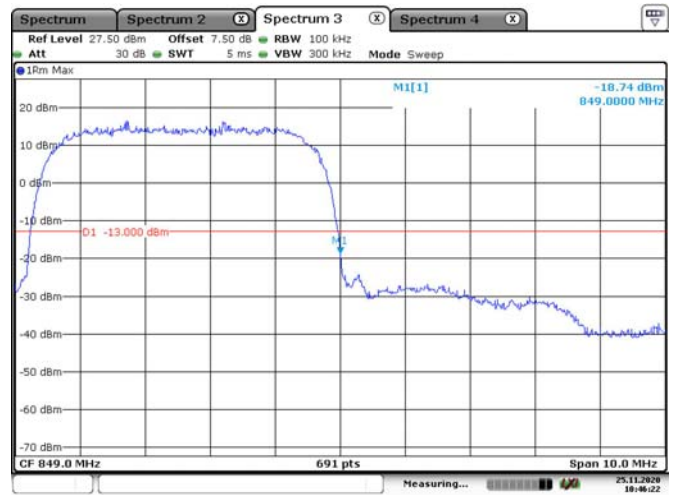


Date: 30.NOV.2020 17:15:26

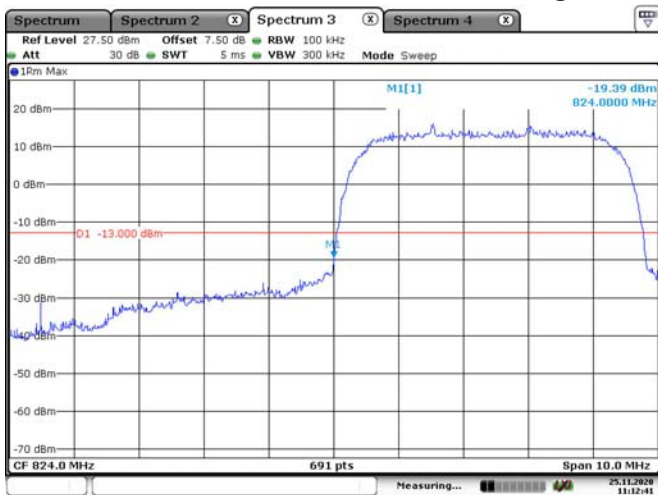
WCDMA Band V,Rel99, Left Band Edge



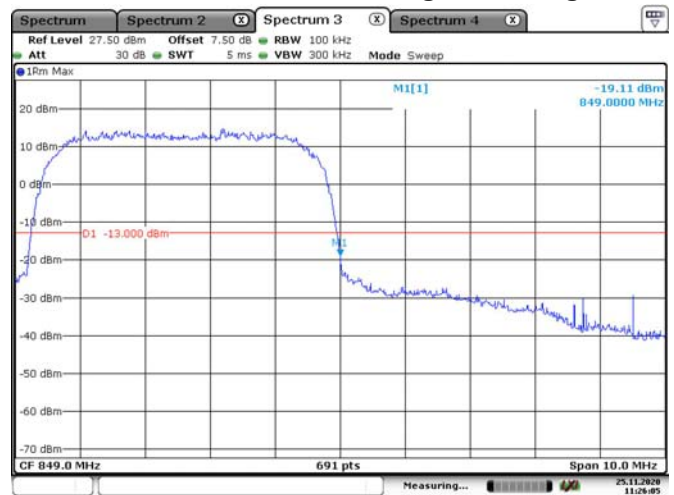
WCDMA Band V,Rel99, Right Band Edge



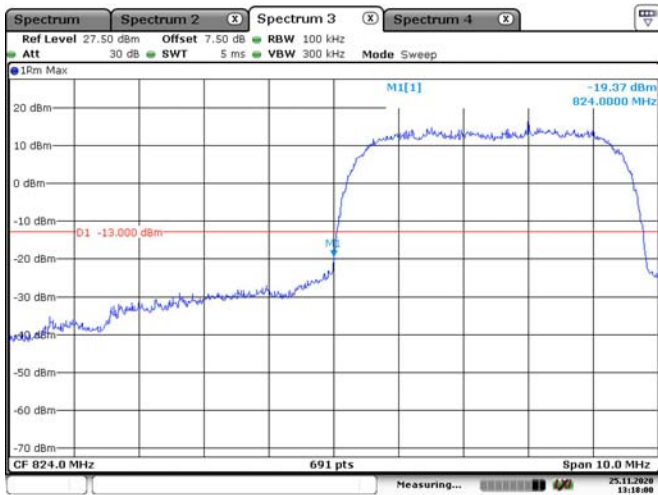
WCDMA Band V,HSDPA, Left Band Edge



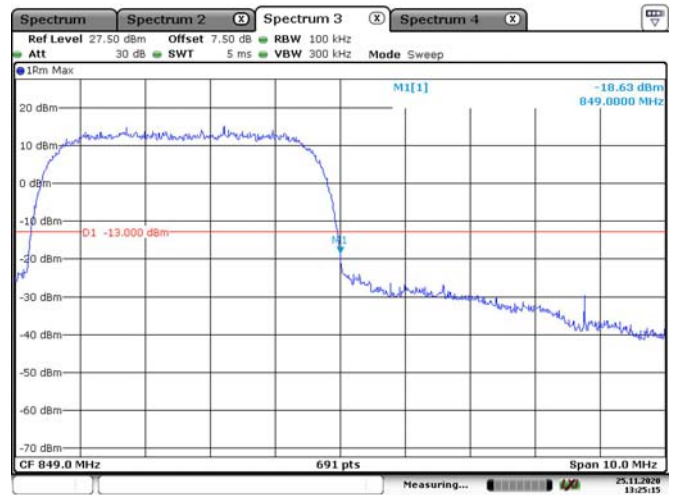
WCDMA Band V,HSDPA,Right Band Edge



WCDMA Band V,HSUPA, Left Band Edge

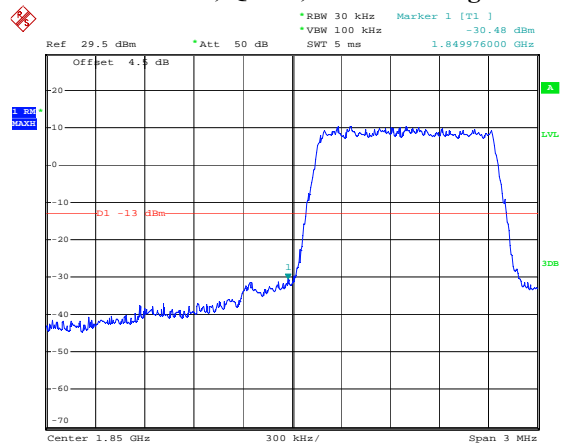


WCDMA Band V,HSUPA, Right Band Edge



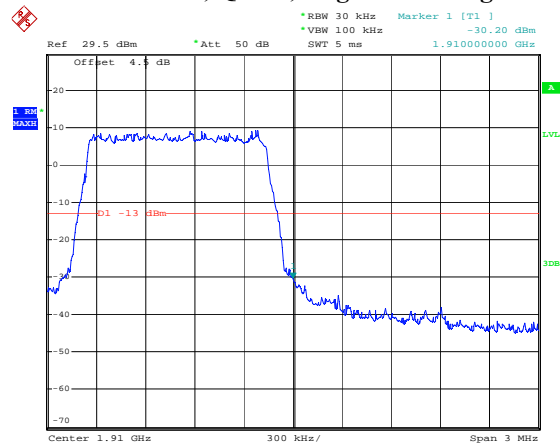
LTE Band 2:

1.4M, QPSK, Left Band Edge



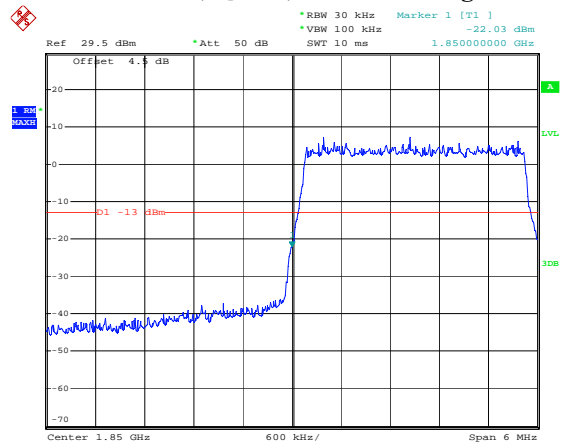
Date: 21.NOV.2020 14:00:42

1.4M, QPSK, Right Band Edge



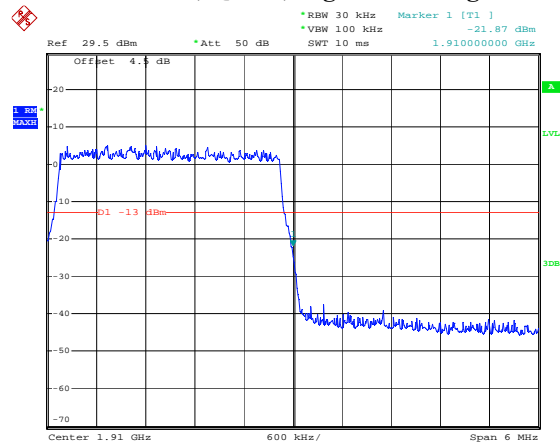
Date: 21.NOV.2020 14:01:23

3M, QPSK, Left Band Edge



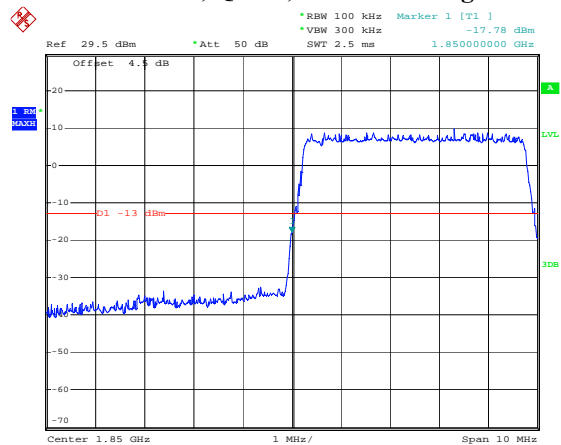
Date: 21.NOV.2020 14:02:01

3M, QPSK, Right Band Edge



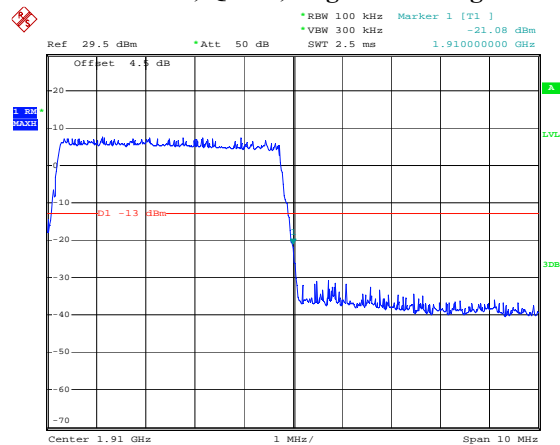
Date: 21.NOV.2020 14:03:10

5M, QPSK, Left Band Edge



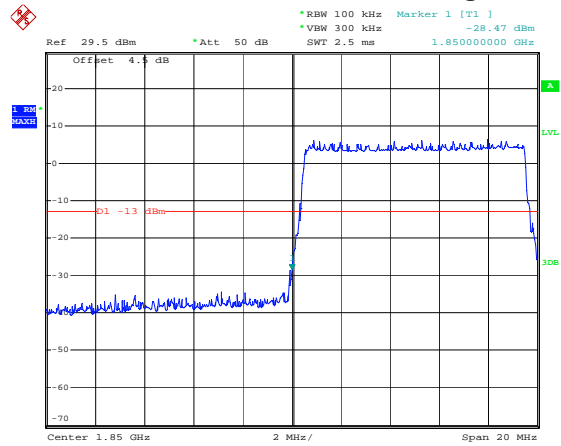
Date: 21.NOV.2020 14:03:51

5M, QPSK, Right Band Edge



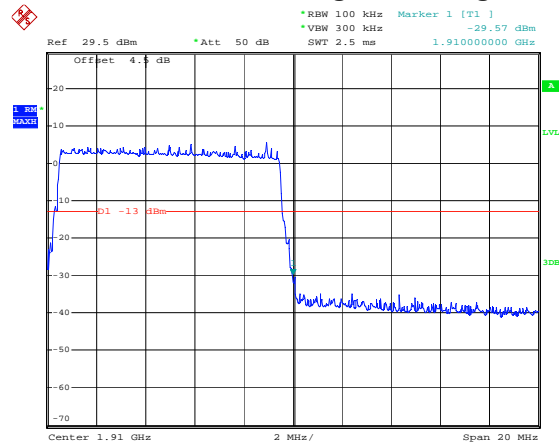
Date: 21.NOV.2020 14:04:33

10M, QPSK, Left Band Edge



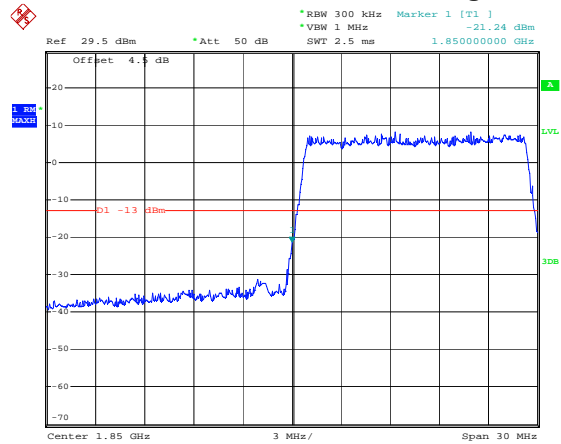
Date: 21.NOV.2020 14:05:14

10M, QPSK, Right Band Edge



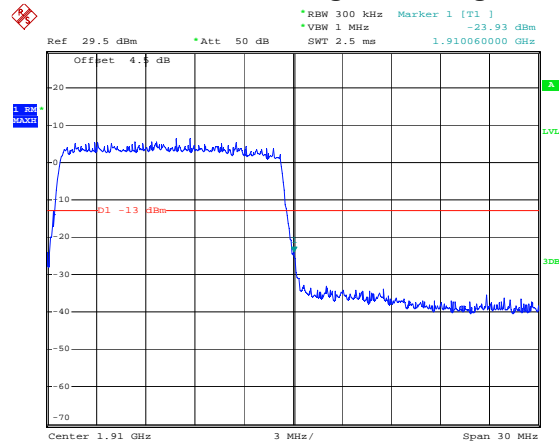
Date: 21.NOV.2020 14:05:52

15M, QPSK, Left Band Edge



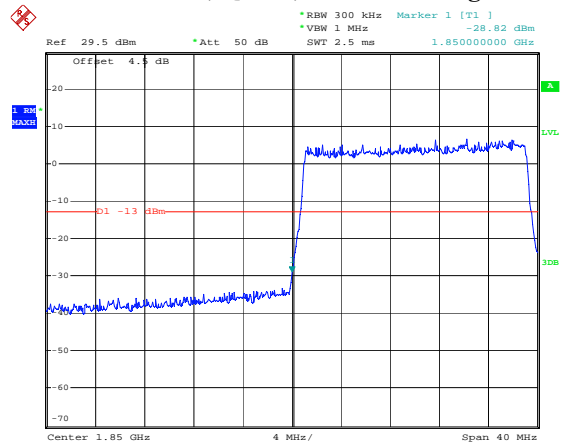
Date: 21.NOV.2020 14:06:37

15M, QPSK, Right Band Edge



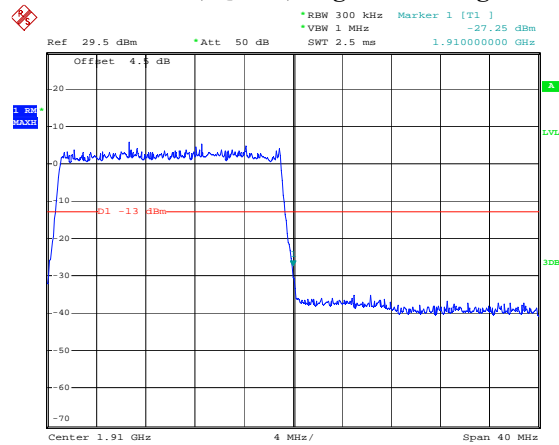
Date: 21.NOV.2020 14:07:19

20M, QPSK, Left Band Edge



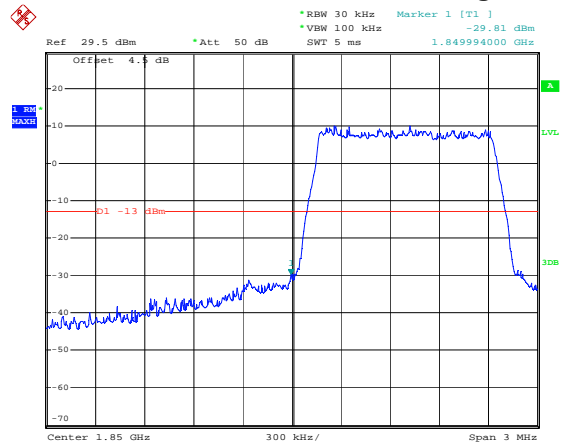
Date: 21.NOV.2020 14:08:04

20M, QPSK, Right Band Edge



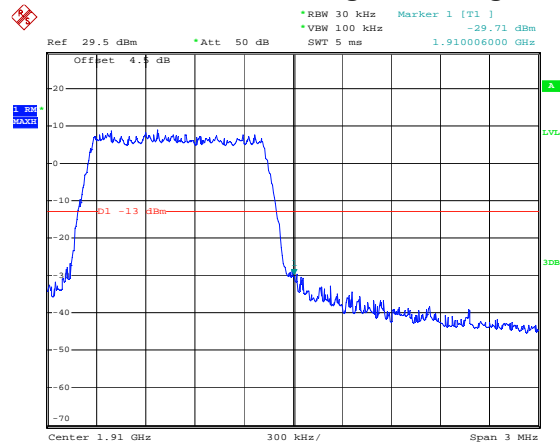
Date: 21.NOV.2020 14:08:45

1.4M, 16QAM, Left Band Edge



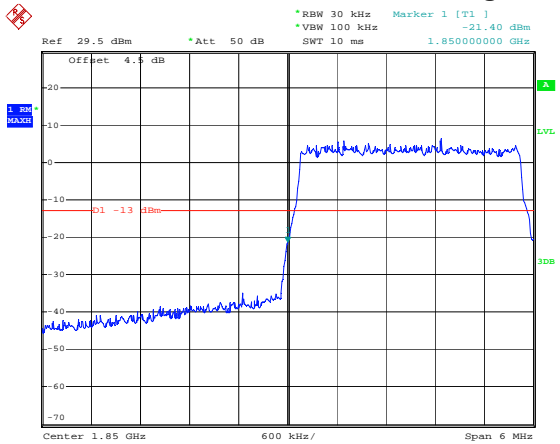
Date: 21.NOV.2020 14:01:02

1.4M, 16QAM, Right Band Edge



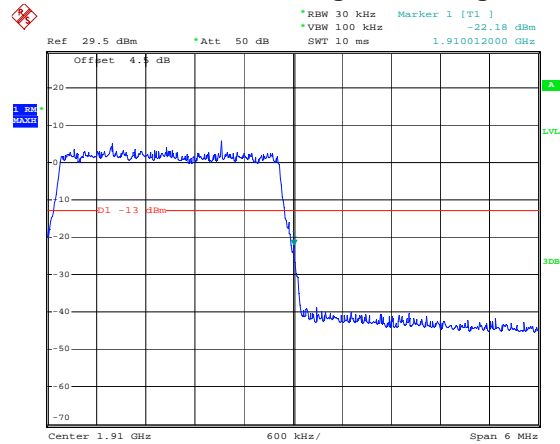
Date: 21.NOV.2020 14:01:40

3M, 16QAM, Left Band Edge



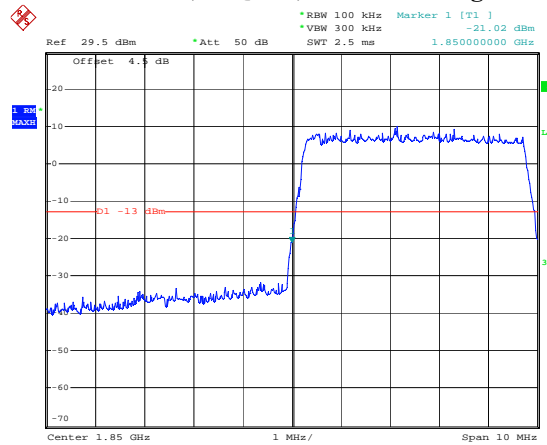
Date: 21.NOV.2020 14:02:52

3M, 16QAM, Right Band Edge



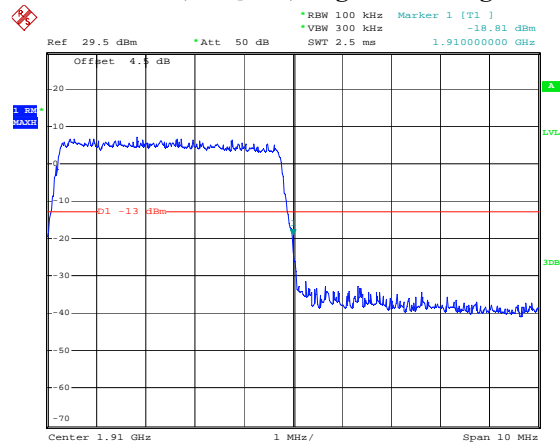
Date: 21.NOV.2020 14:03:30

5M, 16QAM, Left Band Edge



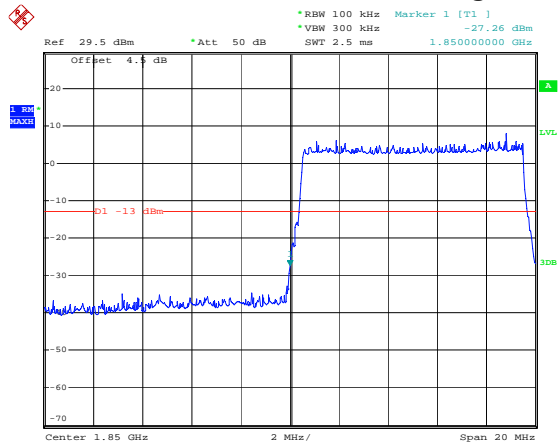
Date: 21.NOV.2020 14:04:12

5M, 16QAM, Right Band Edge



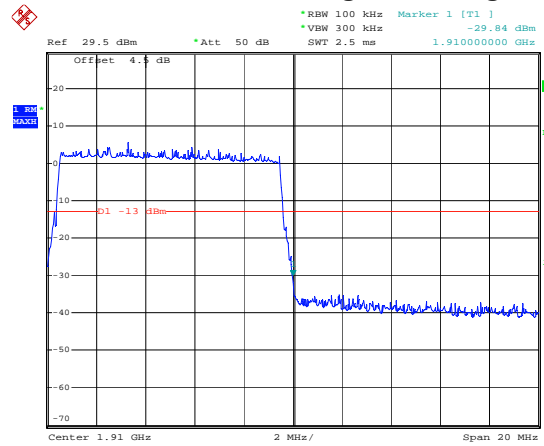
Date: 21.NOV.2020 14:04:53

10M, 16QAM, Left Band Edge



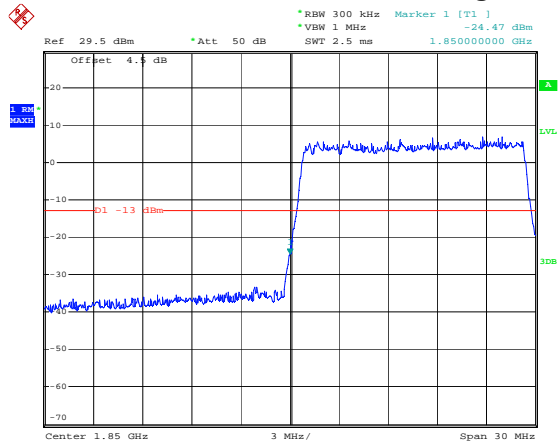
Date: 21.NOV.2020 14:05:32

10M, 16QAM, Right Band Edge



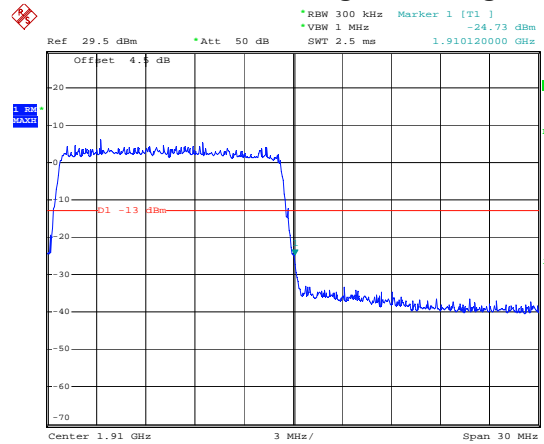
Date: 21.NOV.2020 14:06:10

15M, 16QAM, Left Band Edge



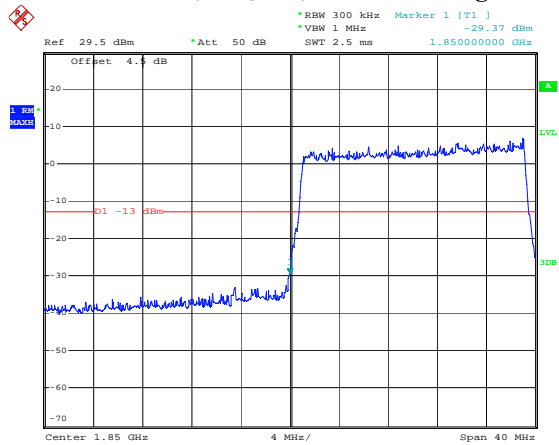
Date: 21.NOV.2020 14:06:57

15M, 16QAM, Right Band Edge



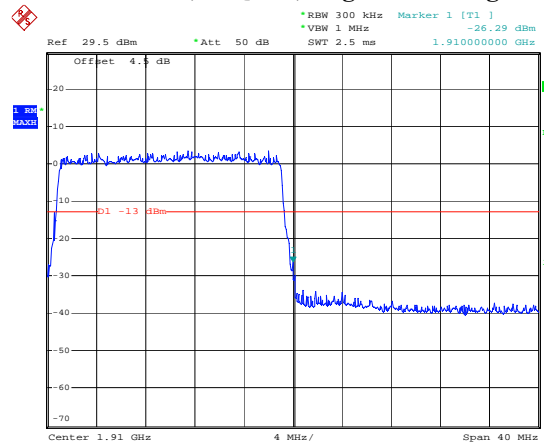
Date: 21.NOV.2020 14:07:39

20M, 16QAM, Left Band Edge



Date: 21.NOV.2020 14:08:24

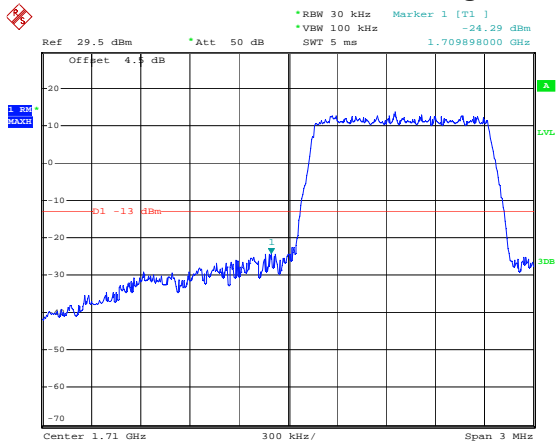
20M, 16QAM, Right Band Edge



Date: 21.NOV.2020 14:09:06

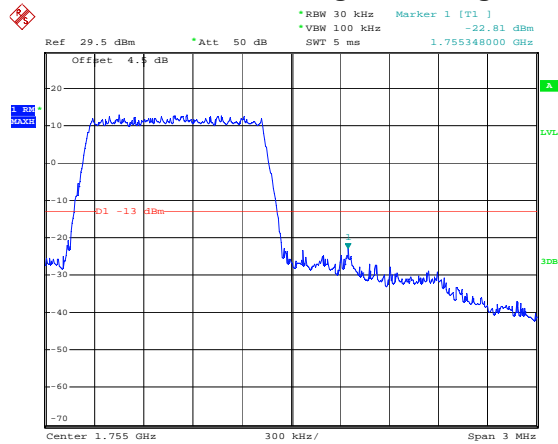
LTE Band 4:

1.4M, QPSK, Left Band Edge



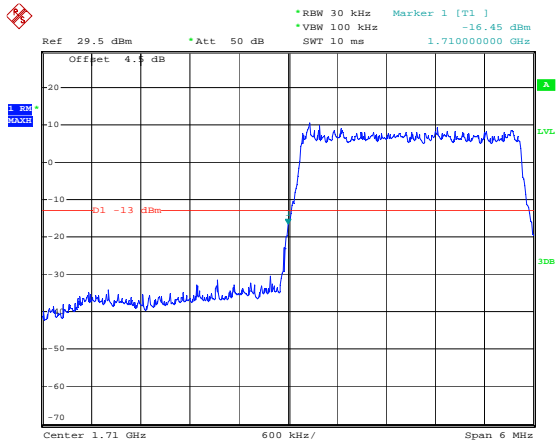
Date: 21.NOV.2020 14:09:29

1.4M, QPSK, Right Band Edge



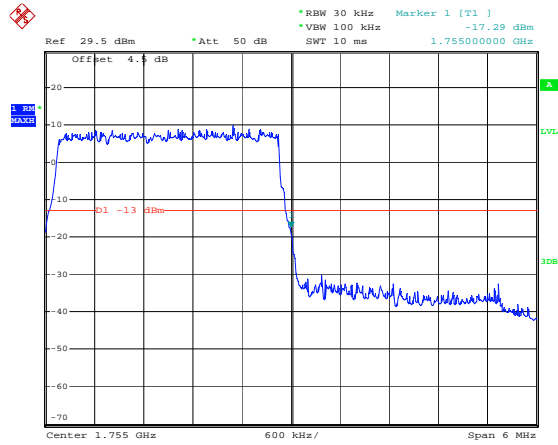
Date: 21.NOV.2020 14:10:10

3M, QPSK, Left Band Edge



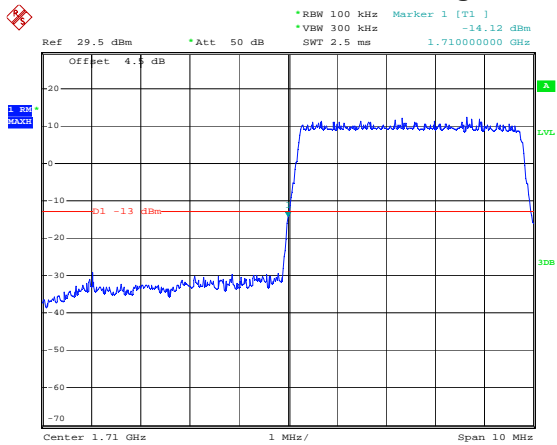
Date: 21.NOV.2020 14:10:51

3M, QPSK, Right Band Edge



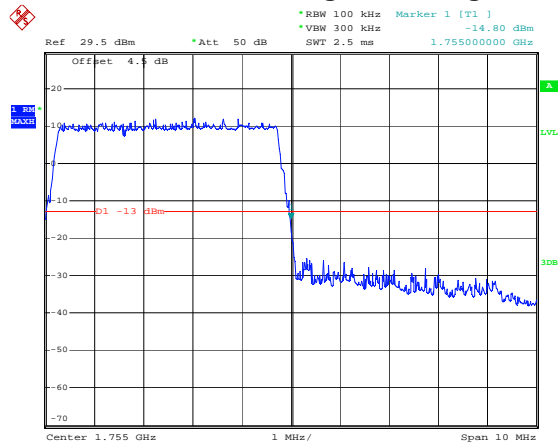
Date: 21.NOV.2020 14:11:32

5M, QPSK, Left Band Edge



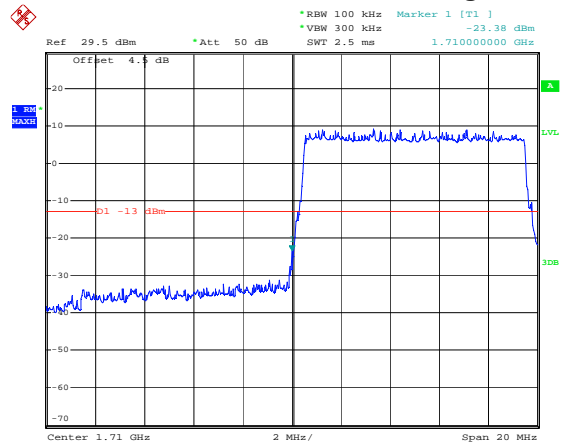
Date: 21.NOV.2020 14:12:16

5M, QPSK, Right Band Edge



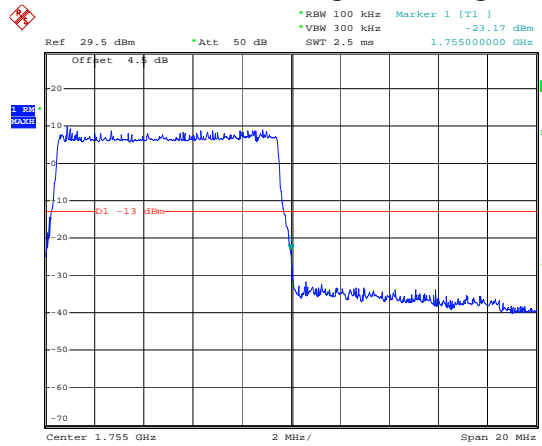
Date: 21.NOV.2020 14:12:54

10M, QPSK, Left Band Edge



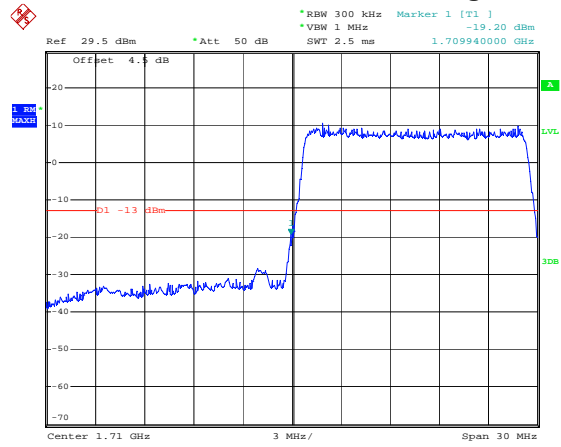
Date: 21.NOV.2020 14:14:21

10M, QPSK, Right Band Edge



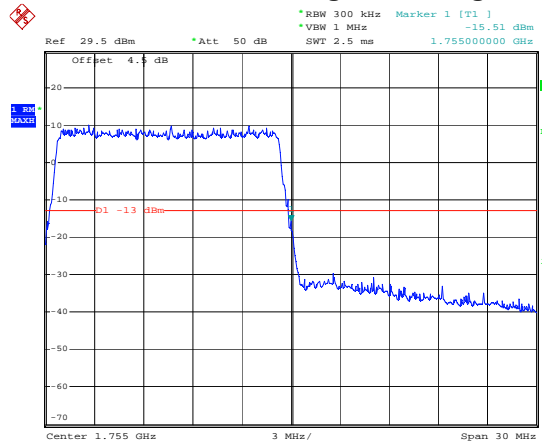
Date: 21.NOV.2020 14:14:59

15M, QPSK, Left Band Edge



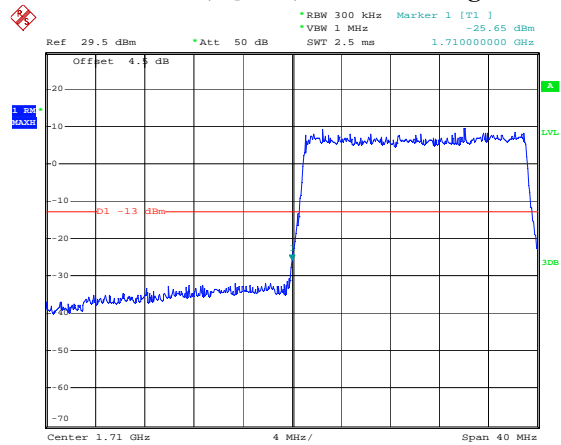
Date: 21.NOV.2020 14:16:16

15M, QPSK, Right Band Edge



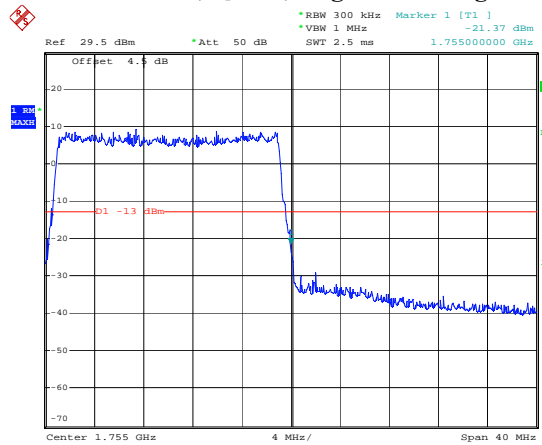
Date: 21.NOV.2020 14:16:58

20M, QPSK, Left Band Edge



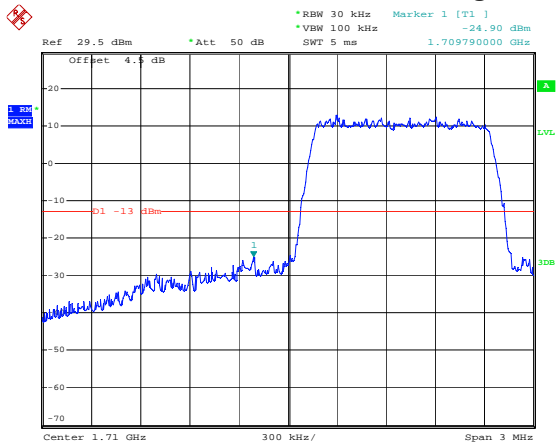
Date: 21.NOV.2020 14:17:46

20M, QPSK, Right Band Edge



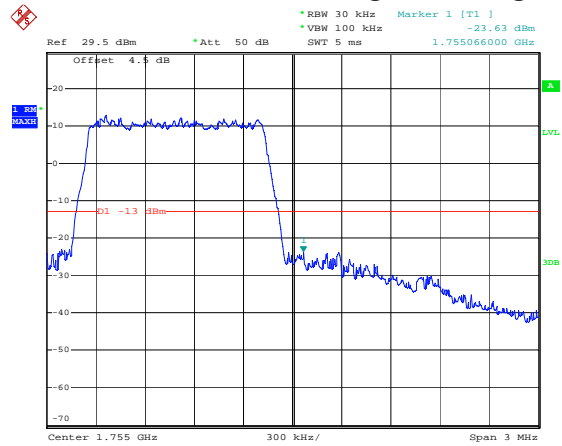
Date: 21.NOV.2020 14:18:28

1.4M, 16QAM, Left Band Edge



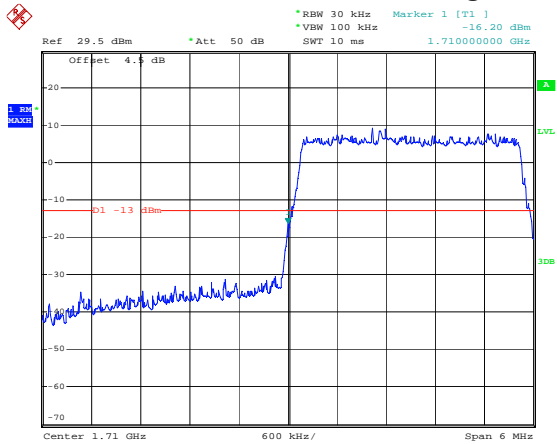
Date: 21.NOV.2020 14:09:49

1.4M, 16QAM, Right Band Edge



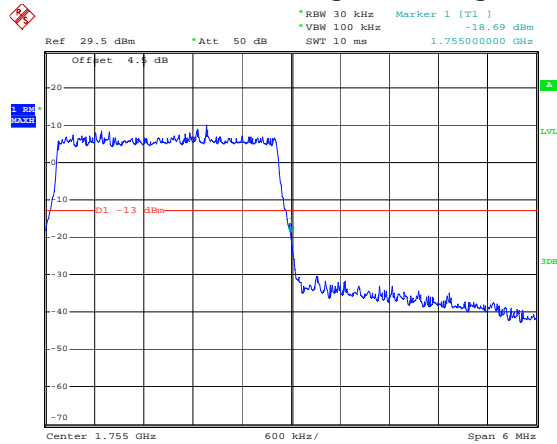
Date: 21.NOV.2020 14:10:30

3M, 16QAM, Left Band Edge



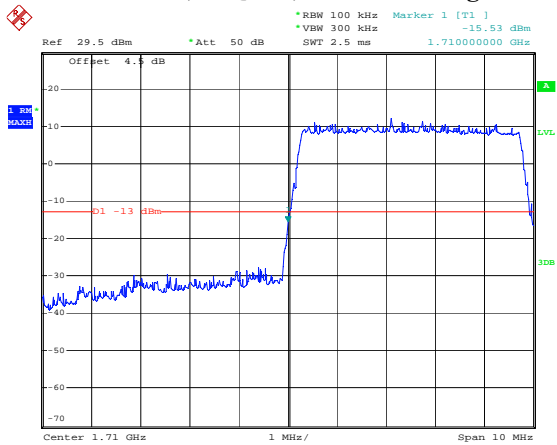
Date: 21.NOV.2020 14:11:11

3M, 16QAM, Right Band Edge



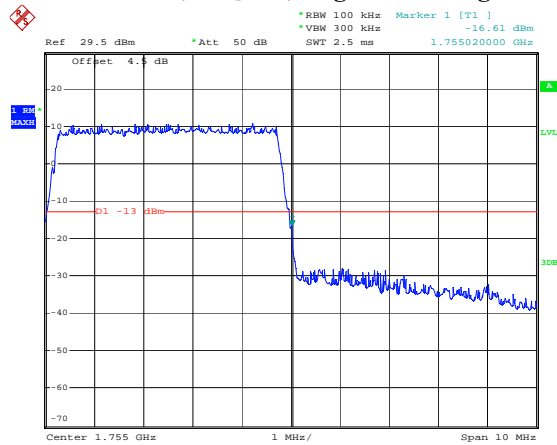
Date: 21.NOV.2020 14:11:52

5M, 16QAM, Left Band Edge



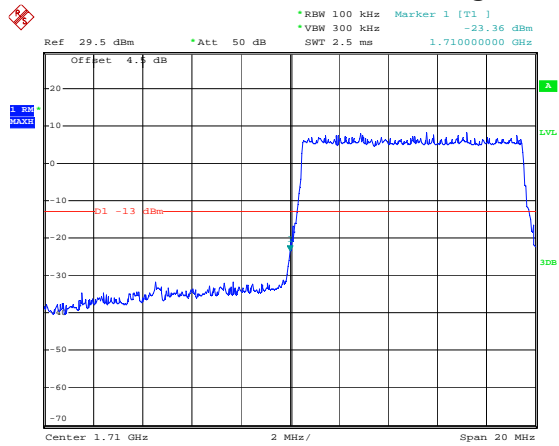
Date: 21.NOV.2020 14:12:33

5M, 16QAM, Right Band Edge



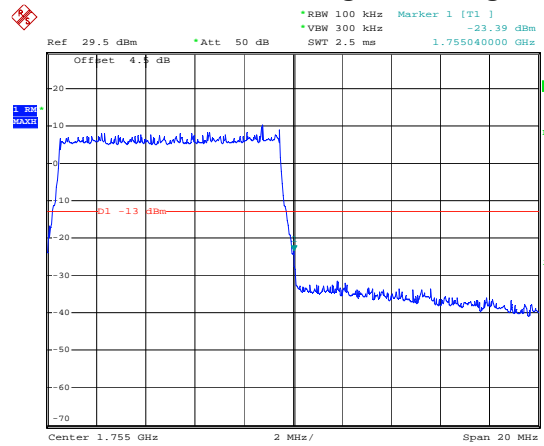
Date: 21.NOV.2020 14:13:14

10M, 16QAM, Left Band Edge



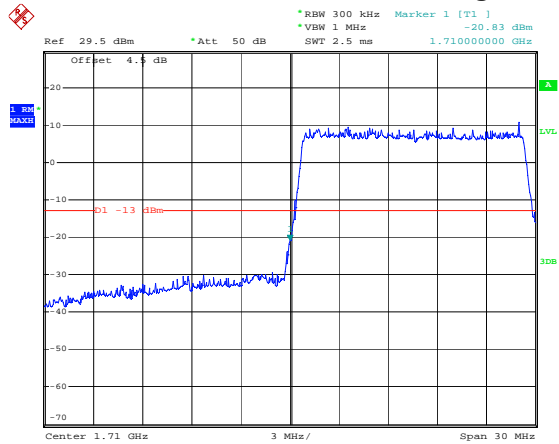
Date: 21.NOV.2020 14:14:40

10M, 16QAM, Right Band Edge



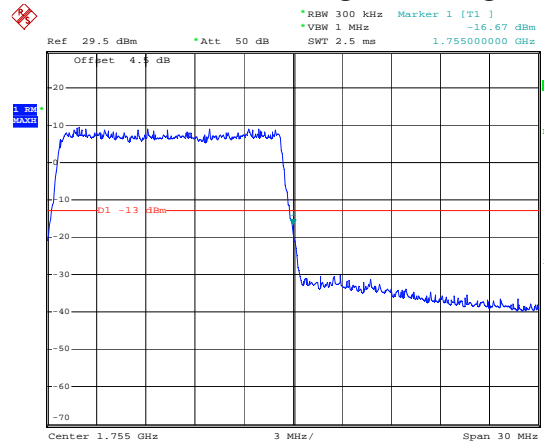
Date: 21.NOV.2020 14:15:20

15M, 16QAM, Left Band Edge



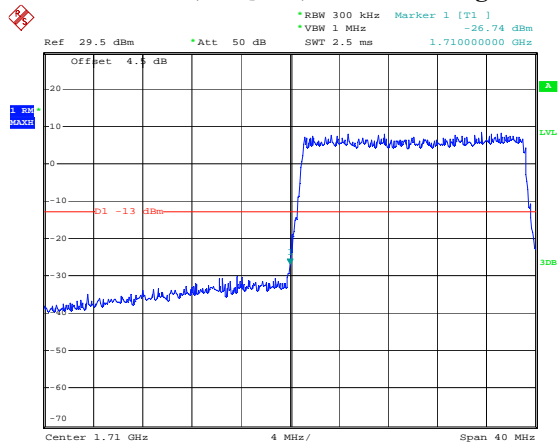
Date: 21.NOV.2020 14:16:37

15M, 16QAM, Right Band Edge



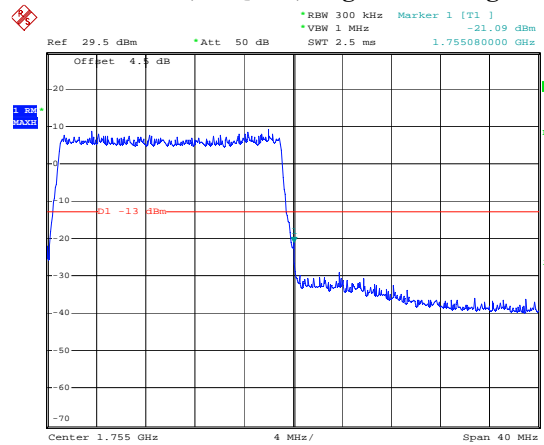
Date: 21.NOV.2020 14:17:22

20M, 16QAM, Left Band Edge



Date: 21.NOV.2020 14:18:07

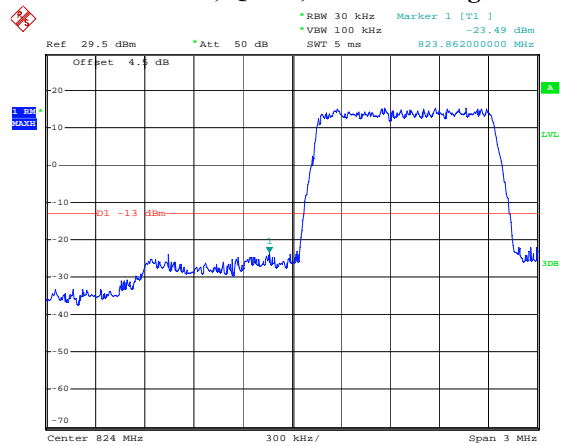
20M, 16QAM, Right Band Edge



Date: 21.NOV.2020 14:18:52

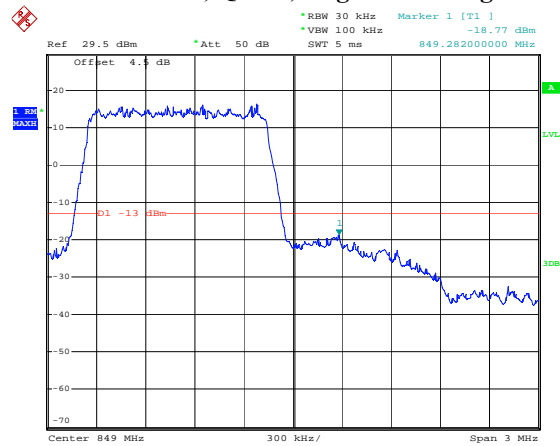
LTE Band 5:

1.4M, QPSK, Left Band Edge



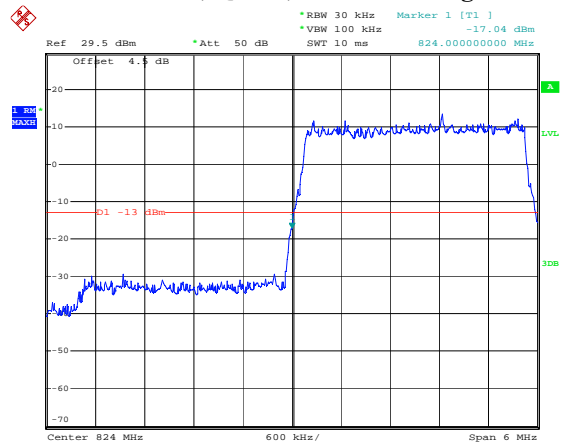
Date: 21.NOV.2020 14:19:15

1.4M, QPSK, Right Band Edge



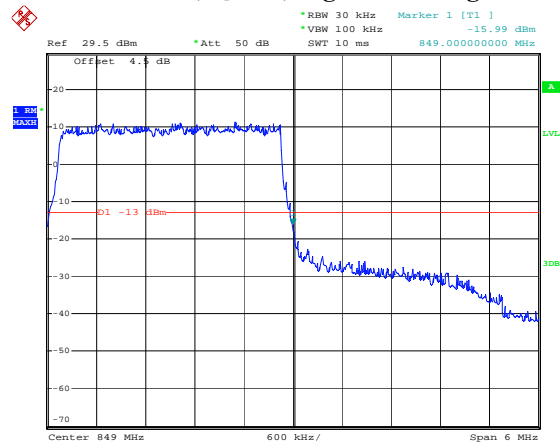
Date: 21.NOV.2020 14:20:00

3M, QPSK, Left Band Edge



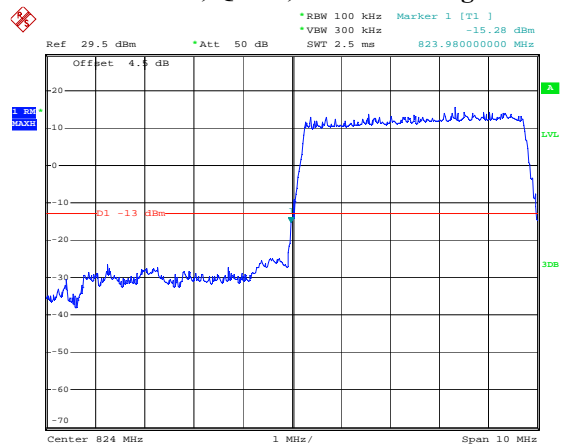
Date: 21.NOV.2020 14:20:44

3M, QPSK, Right Band Edge



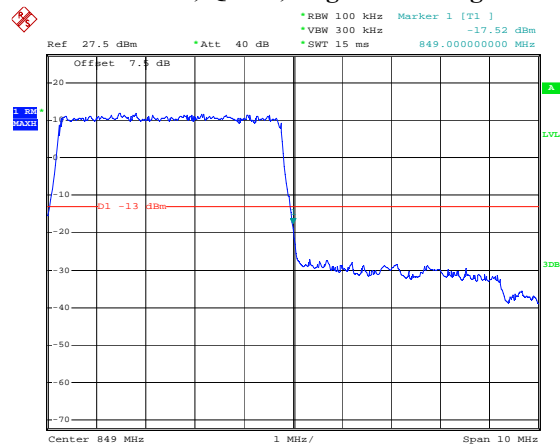
Date: 21.NOV.2020 14:21:26

5M, QPSK, Left Band Edge



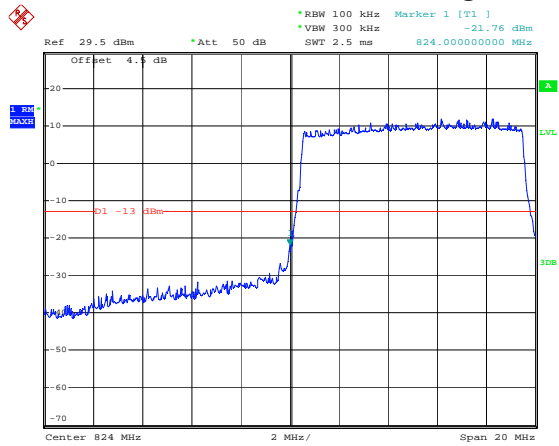
Date: 21.NOV.2020 14:22:07

5M, QPSK, Right Band Edge



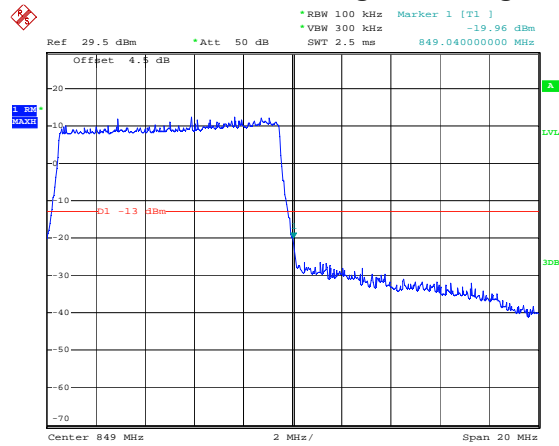
Date: 26.NOV.2020 09:51:35

10M, QPSK, Left Band Edge



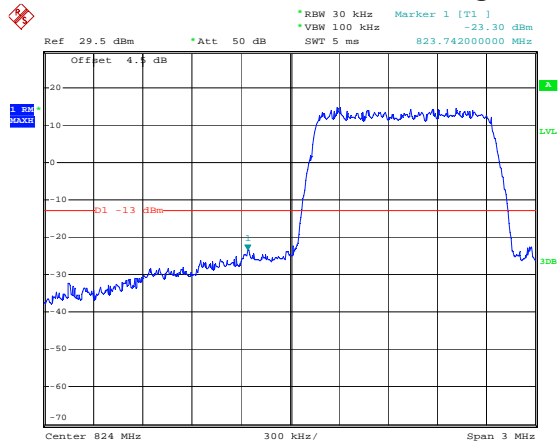
Date: 21.NOV.2020 14:23:26

10M, QPSK, Right Band Edge



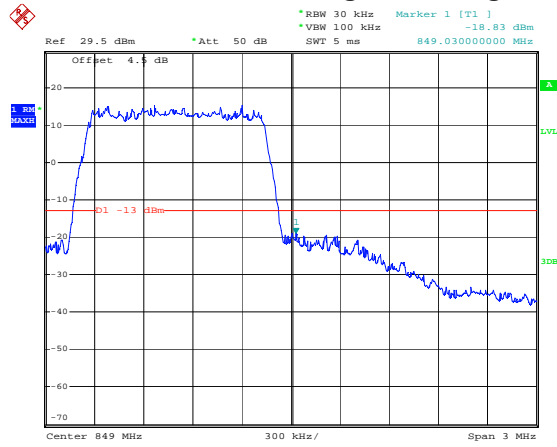
Date: 21.NOV.2020 14:24:07

1.4M, 16QAM, Left Band Edge



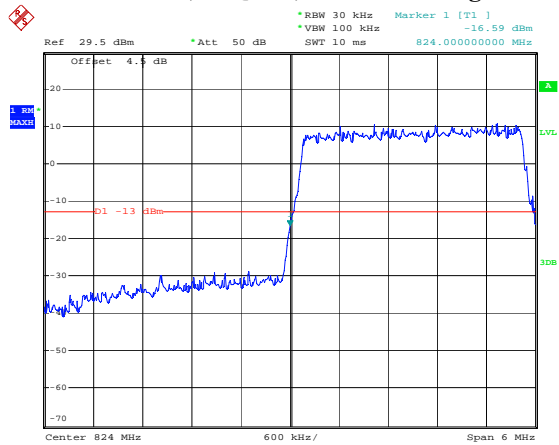
Date: 21.NOV.2020 14:19:36

1.4M, 16QAM, Right Band Edge



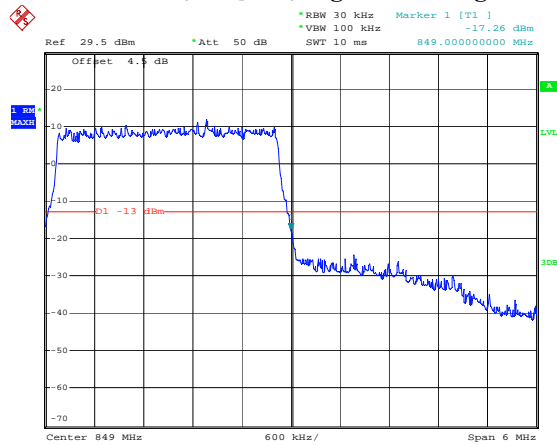
Date: 21.NOV.2020 14:20:20

3M, 16QAM, Left Band Edge



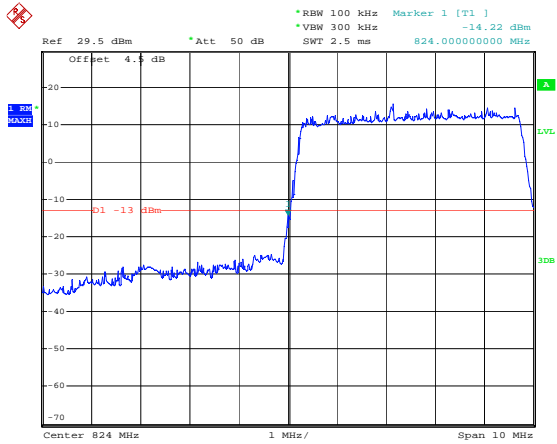
Date: 21.NOV.2020 14:21:05

3M, 16QAM, Right Band Edge



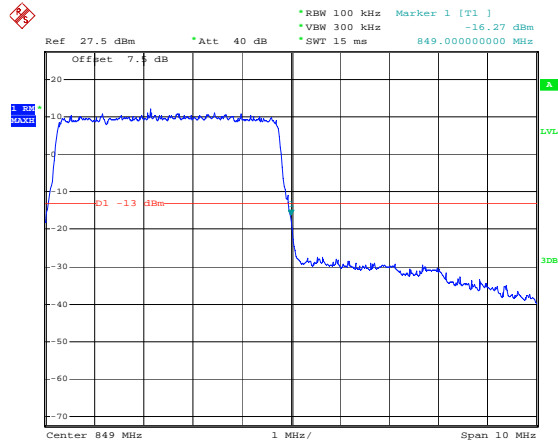
Date: 21.NOV.2020 14:21:46

5M, 16QAM, Left Band Edge



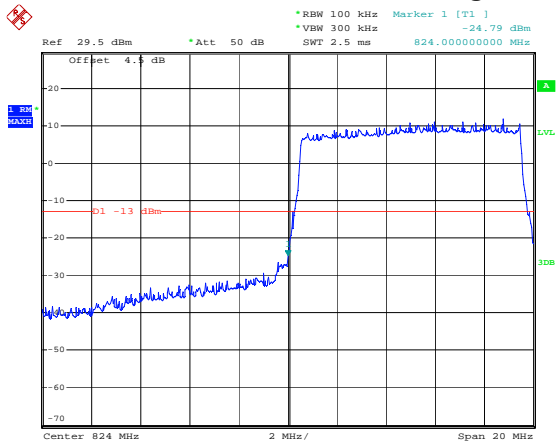
Date: 21.NOV.2020 14:22:27

5M, 16QAM, Right Band Edge



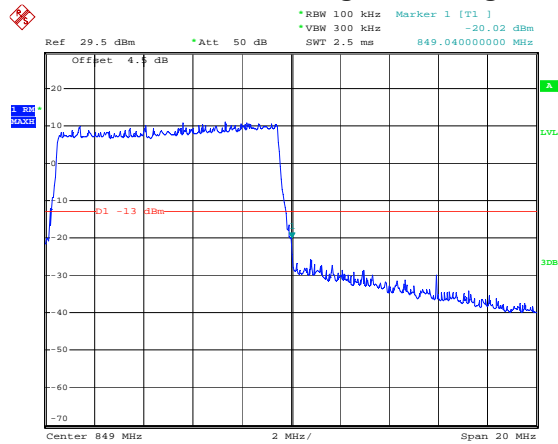
Date: 26.NOV.2020 09:52:07

10M, 16QAM, Left Band Edge



Date: 21.NOV.2020 14:23:45

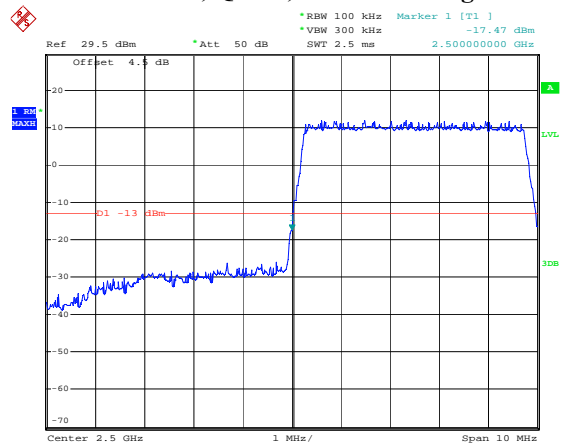
10M, 16QAM, Right Band Edge



Date: 21.NOV.2020 14:24:25

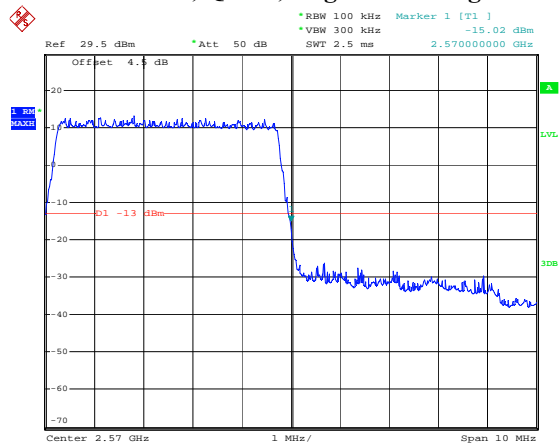
LTE Band 7:

5M, QPSK, Left Band Edge



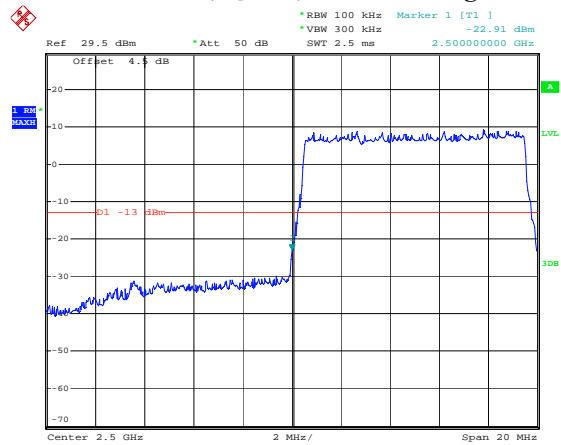
Date: 21.NOV.2020 14:24:49

5M, QPSK, Right Band Edge



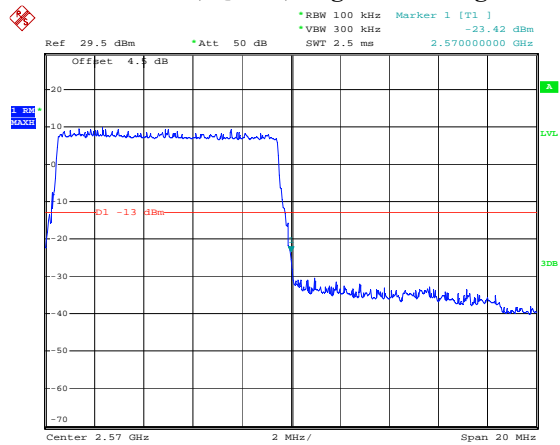
Date: 21.NOV.2020 14:25:34

10M, QPSK, Left Band Edge



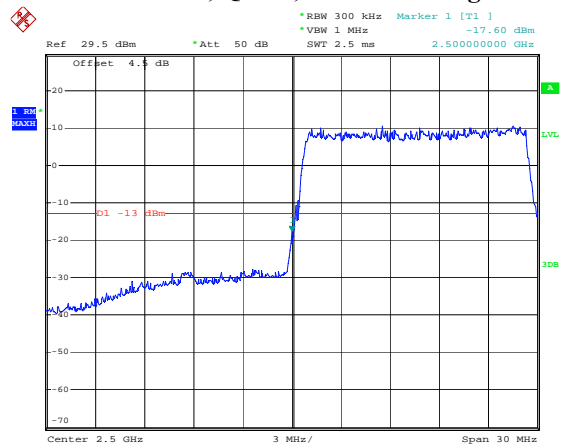
Date: 21.NOV.2020 14:26:17

10M, QPSK, Right Band Edge



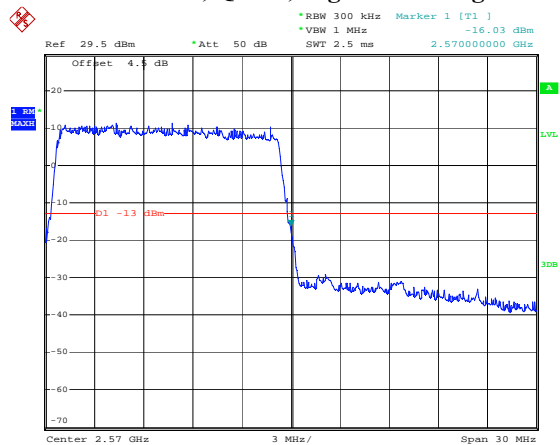
Date: 21.NOV.2020 14:26:54

15M, QPSK, Left Band Edge



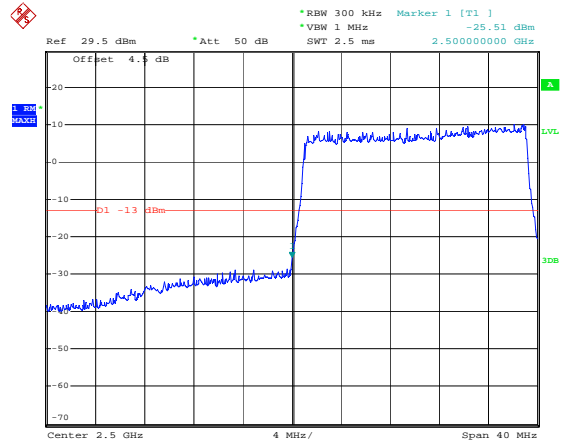
Date: 21.NOV.2020 14:27:37

15M, QPSK, Right Band Edge



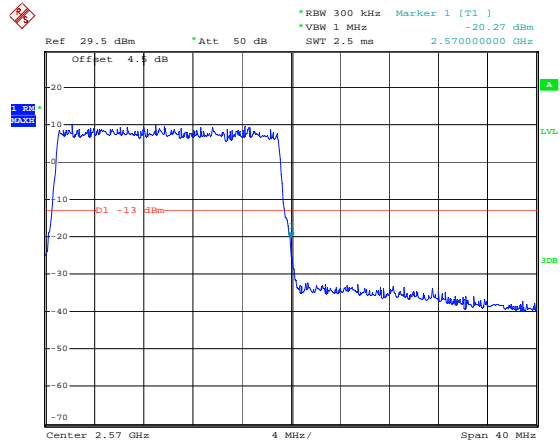
Date: 21.NOV.2020 14:28:22

20M, QPSK, Left Band Edge



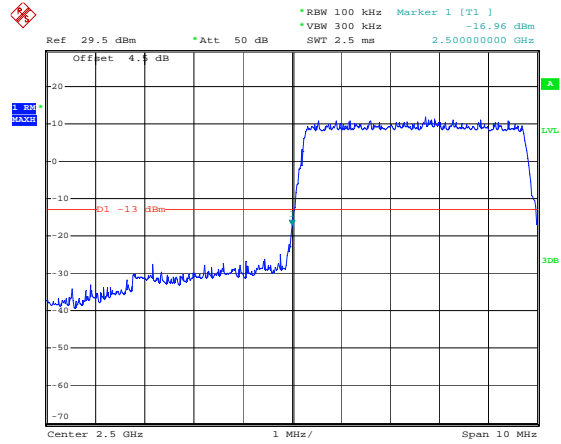
Date: 21.NOV.2020 14:29:10

20M, QPSK, Right Band Edge



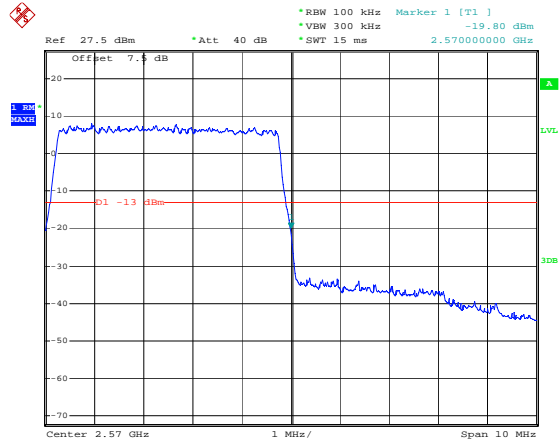
Date: 21.NOV.2020 14:29:55

5M, 16QAM, Left Band Edge



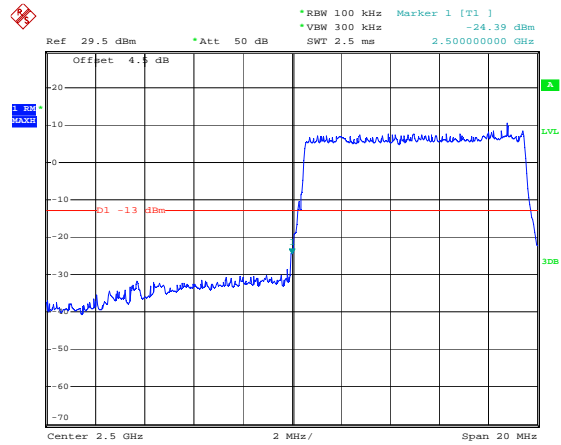
Date: 21.NOV.2020 14:25:10

5M, 16QAM, Right Band Edge



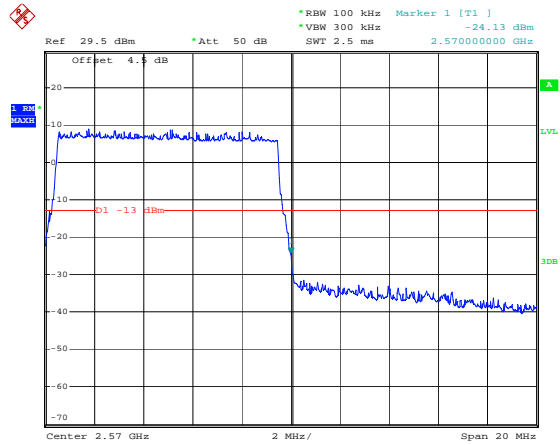
Date: 26.NOV.2020 09:54:52

10M, 16QAM, Left Band Edge



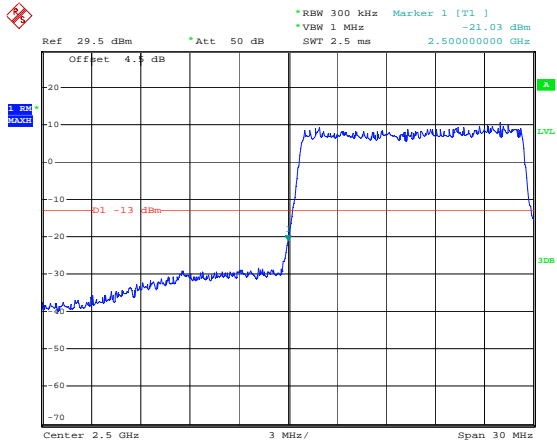
Date: 21.NOV.2020 14:26:35

10M, 16QAM, Right Band Edge



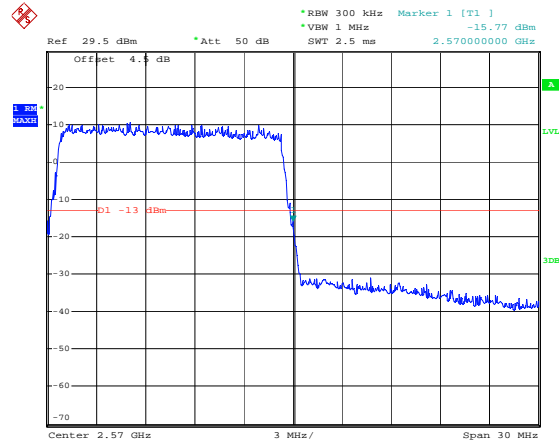
Date: 21.NOV.2020 14:27:13

15M, 16QAM, Left Band Edge



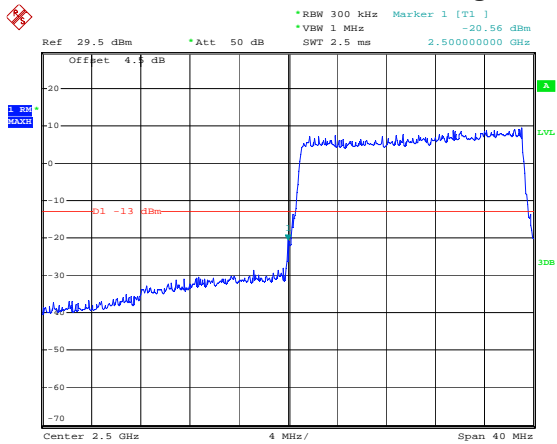
Date: 21.NOV.2020 14:27:57

15M, 16QAM, Right Band Edge



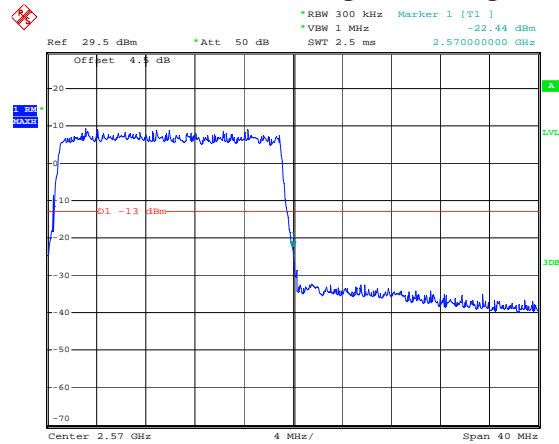
Date: 21.NOV.2020 14:28:45

20M, 16QAM, Left Band Edge



Date: 21.NOV.2020 14:29:30

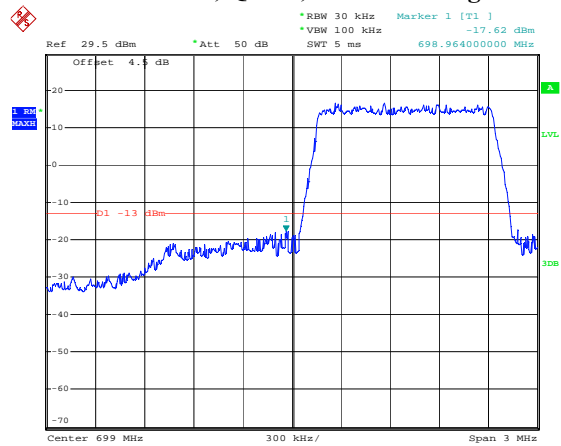
20M, 16QAM, Right Band Edge



Date: 21.NOV.2020 14:30:18

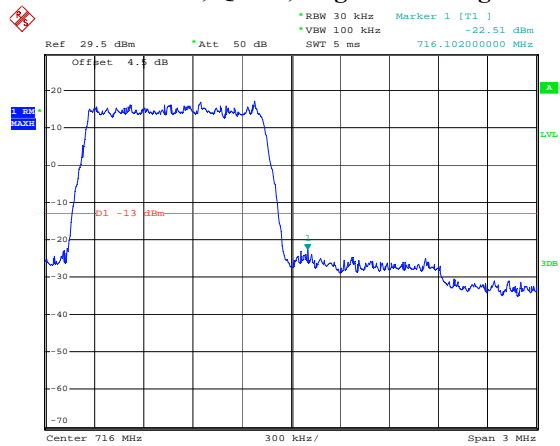
LTE Band 12:

1.4M, QPSK, Left Band Edge



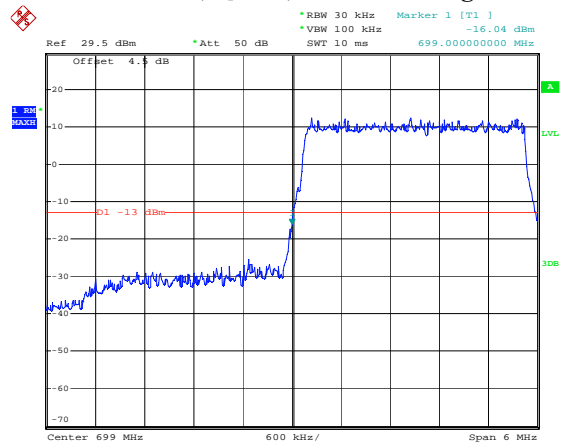
Date: 21.NOV.2020 14:30:42

1.4M, QPSK, Right Band Edge



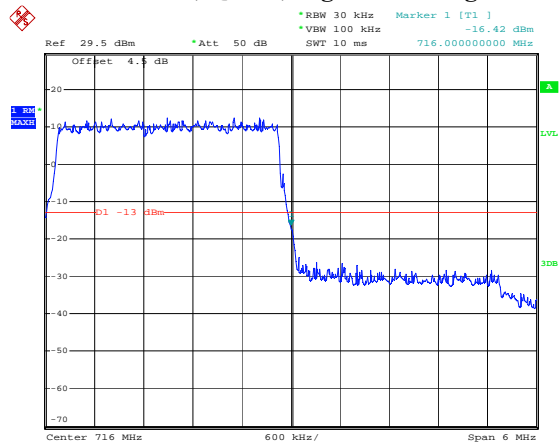
Date: 21.NOV.2020 14:31:27

3M, QPSK, Left Band Edge



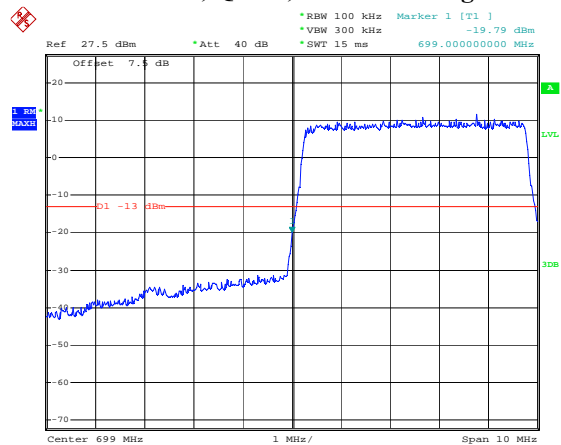
Date: 21.NOV.2020 14:32:05

3M, QPSK, Right Band Edge



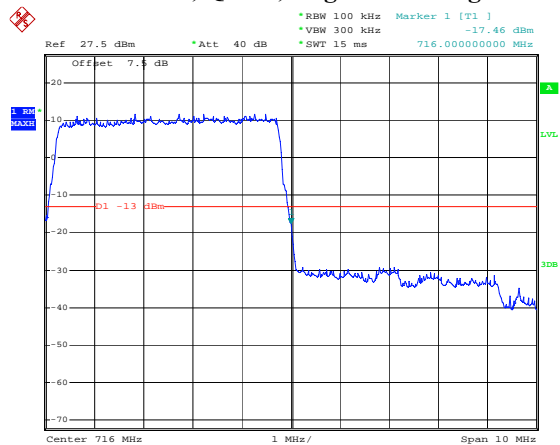
Date: 21.NOV.2020 14:32:40

5M, QPSK, Left Band Edge



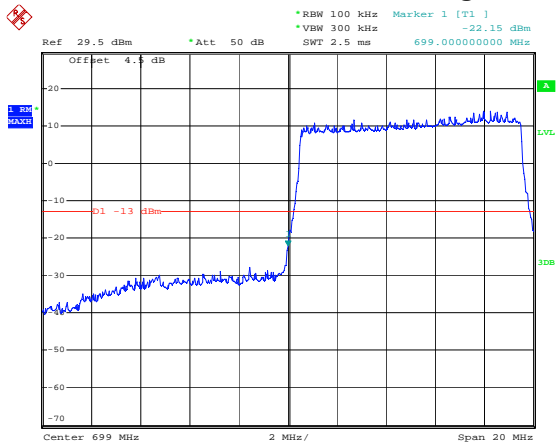
Date: 26.NOV.2020 09:58:19

5M, QPSK, Right Band Edge



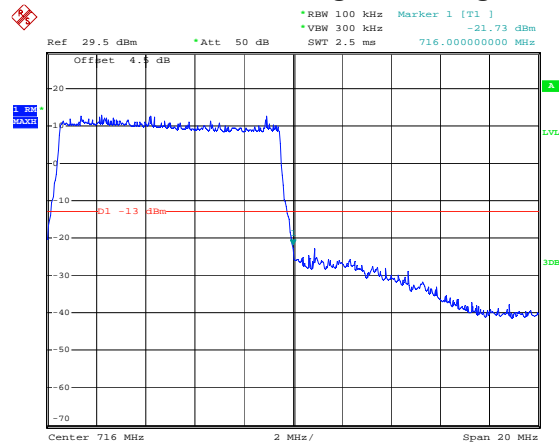
Date: 26.NOV.2020 12:41:37

10M, QPSK, Left Band Edge



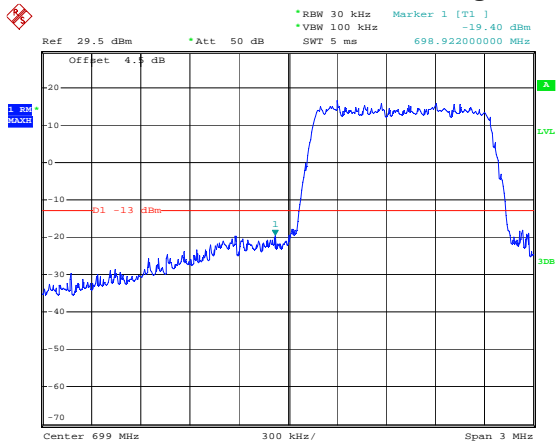
Date: 21.NOV.2020 14:34:43

10M, QPSK, Right Band Edge



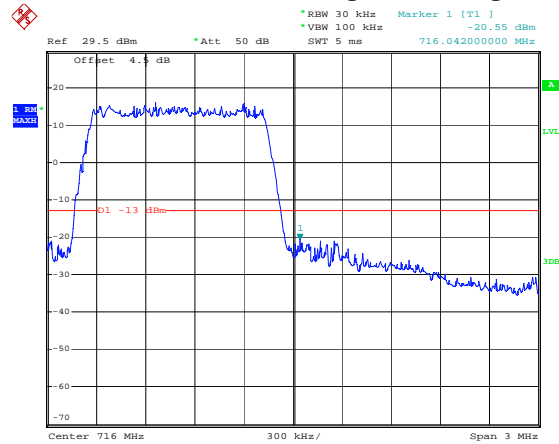
Date: 21.NOV.2020 14:35:20

1.4M, 16QAM, Left Band Edge



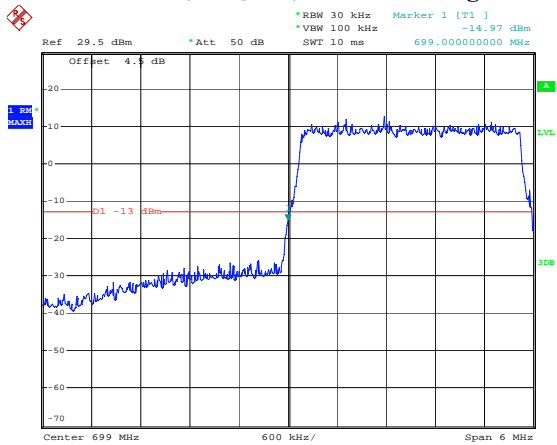
Date: 21.NOV.2020 14:31:02

1.4M, 16QAM, Right Band Edge



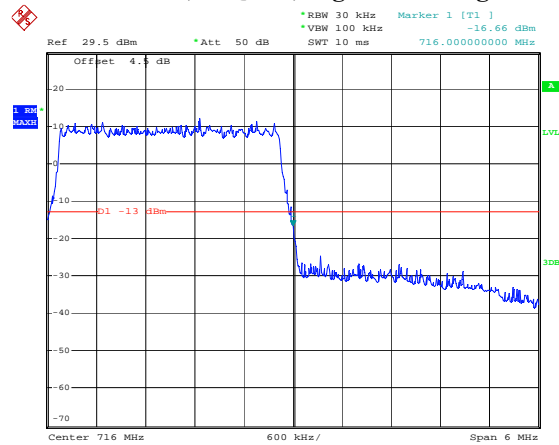
Date: 21.NOV.2020 14:31:44

3M, 16QAM, Left Band Edge



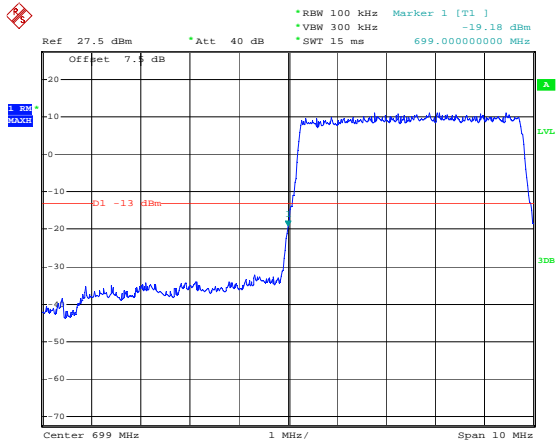
Date: 21.NOV.2020 14:32:22

3M, 16QAM, Right Band Edge



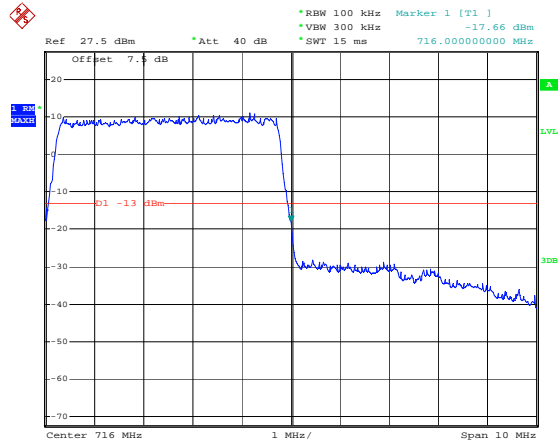
Date: 21.NOV.2020 14:32:57

5M, 16QAM, Left Band Edge



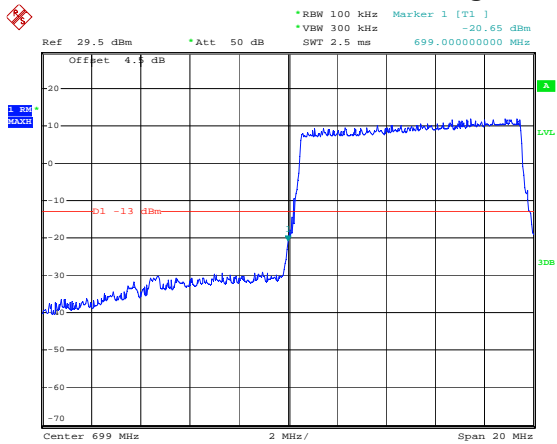
Date: 26.NOV.2020 09:59:01

5M, 16QAM, Right Band Edge



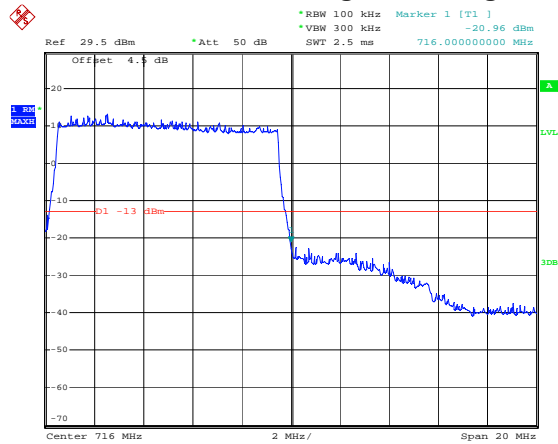
Date: 26.NOV.2020 12:42:33

10M, 16QAM, Left Band Edge



Date: 21.NOV.2020 14:35:01

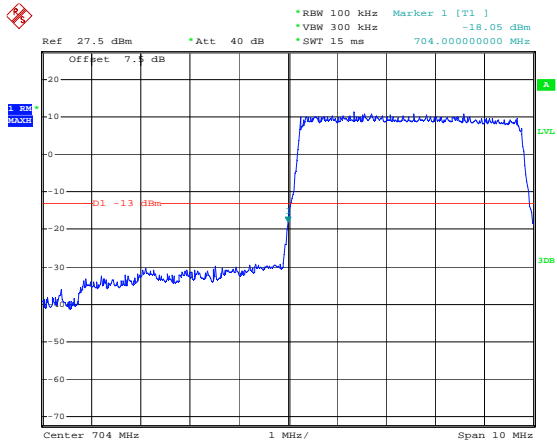
10M, 16QAM, Right Band Edge



Date: 21.NOV.2020 14:35:41

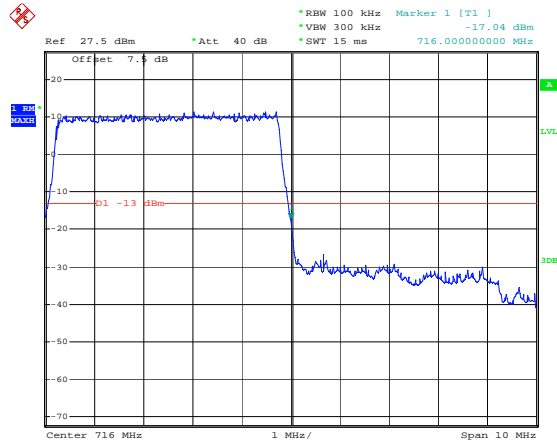
LTE Band 17:

5M, QPSK, Left Band Edge



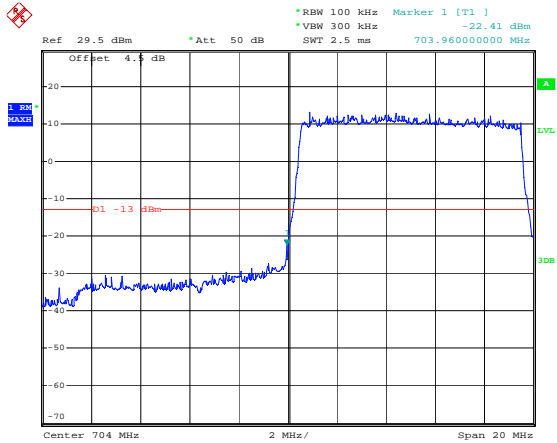
Date: 26.NOV.2020 12:46:25

5M, QPSK, Right Band Edge



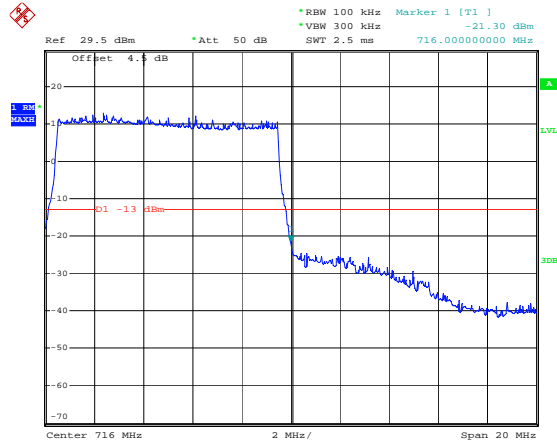
Date: 26.NOV.2020 12:48:55

10M, QPSK, Left Band Edge



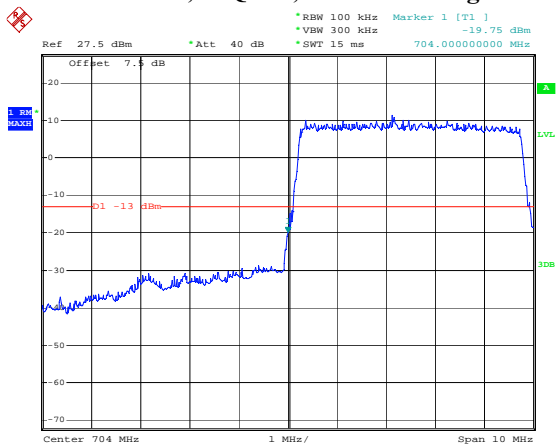
Date: 21.NOV.2020 14:37:24

10M, QPSK, Right Band Edge



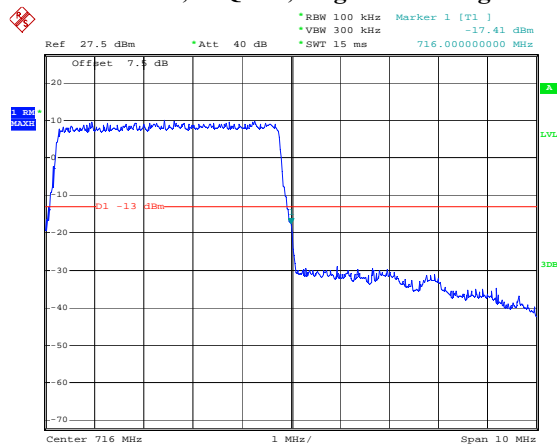
Date: 21.NOV.2020 14:38:01

5M, 16QAM, Left Band Edge



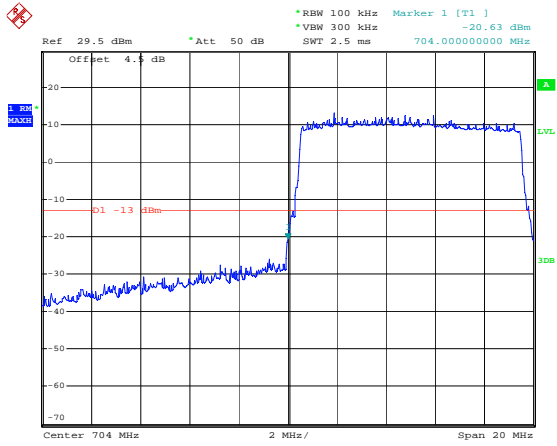
Date: 26.NOV.2020 12:46:49

5M, 16QAM, Right Band Edge



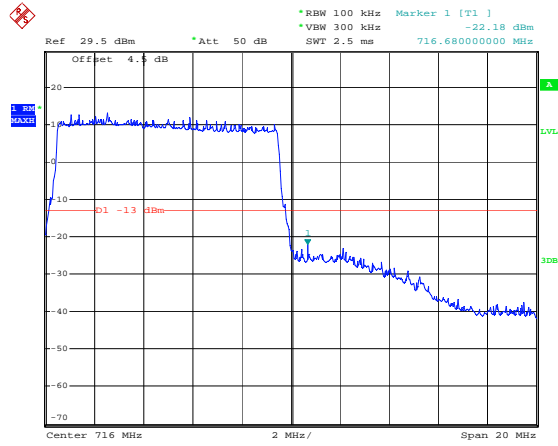
Date: 26.NOV.2020 12:49:31

10M, 16QAM, Left Band Edge



Date: 21.NOV.2020 14:37:42

10M, 16QAM, Right Band Edge



Date: 21.NOV.2020 14:38:19

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

Applicable Standard

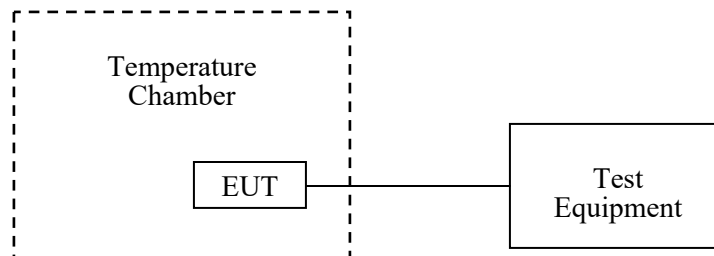
FCC § 2.1055 (a), § 2.1055 (d), §22.355, §24.235, §27.54

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	FSU 26	200256	2020-07-07	2021-07-07
R&S	Spectrum Analyzer	FSP 38	100478	2020-07-07	2021-07-07
R&S	Spectrum Analyzer	FSV40	101474	2020-01-09	2021-01-09
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:	21.2~28.1 °C
Relative Humidity:	45~54%
ATM Pressure:	100.9~102.5kPa
Tester:	Theshy Xie
Test Date:	2020-11-21~2020-11-30

Test Result: Compliance.

GMSK, Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	5	0.00598	2.5
-20		-9	-0.01076	
-10		-12	-0.01434	
0		-5	-0.00598	
10		-2	-0.00239	
20		9	0.01076	
30		8	0.00956	
40		-4	-0.00478	
50		-12	-0.01434	
20		3.5	10	
20	4.2	7	0.00837	

GMSK, Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	5	0.00266	Pass
-20		-3	-0.00160	
-10		-4	-0.00213	
0		-9	-0.00479	
10		-5	-0.00266	
20		6	0.00319	
30		13	0.00691	
40		-8	-0.00426	
50		-5	-0.00266	
20		3.5	5	
20	4.2	6	0.00319	

WCDMA Band II: R99

Middle Channel, $f_c = 1880.0$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V _{DC}	Hz	ppm	
-30	3.7	8	0.00426	Pass
-20		-2	-0.00106	
-10		5	0.00266	
0		-7	-0.00372	
10		13	0.00691	
20		5	0.00266	
30		7	0.00372	
40		-9	-0.00479	
50		-12	-0.00638	
20		3.5	10	
20	4.2	-4	-0.00213	

WCDMA Band IV: R99

Power Supplied	Temperature	F _L	Limit	F _H	Limit
V _{dc}	°C	MHz	MHz	MHz	MHz
3.7	-30	1710.5735	1710	1754.6843	1755
	-20	1710.5738		1754.6846	
	-10	1710.5736		1754.6845	
	0	1710.5739		1754.6842	
	10	1710.5732		1754.6846	
	20	1710.5737		1754.6847	
	30	1710.5738		1754.6848	
	40	1710.5733		1754.6839	
	50	1710.5734		1754.6855	
3.5	20	1710.5745		1754.6844	
4.2	20	1710.5745		1754.6848	

WCDMA Band V: R99

Middle Channel, $f_c = 836.6$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V _{DC}	Hz	ppm	ppm
-30	3.7	-5	-0.00598	2.5
-20		6	0.00717	
-10		7	0.00837	
0		12	0.01434	
10		9	0.01076	
20		6	0.00717	
30		-8	-0.00956	
40		-3	-0.00359	
50		-1	-0.00120	
20		3.5	5	
20	4.2	1	0.00120	

LTE Band 2:

QPSK, Channel Bandwidth:10MHz				
Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	9.10	0.0048	Pass
-20		9.02	0.0048	
-10		-9.69	-0.0052	
0		-7.61	-0.004	
10		-9.80	-0.0052	
20		5.37	0.0029	
30		-8.27	-0.0044	
40		9.11	0.0048	
50		-8.60	-0.0046	
20		3.5	-8.59	
20	4.2	5.19	0.0028	

16QAM, Channel Bandwidth:10MHz				
Middle Channel, $f_c = 1880$ MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Result
°C	V_{DC}	Hz	ppm	
-30	3.7	-1.04	-0.0006	Pass
-20		-6.33	-0.0034	
-10		-7.53	-0.004	
0		-9.48	-0.005	
10		-7.73	-0.0041	
20		9.56	0.0051	
30		6.31	0.0034	
40		-9.77	-0.0052	
50		-7.45	-0.004	
20		3.5	-5.44	
20	4.2	-7.79	-0.0041	

LTE Band 4

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	1710.570000	1710	1754.680000	1755
	-20	1710.570000		1754.630000	
	-10	1710.570000		1754.530000	
	0	1710.620000		1754.630000	
	10	1710.670000		1754.530000	
	20	1710.520000		1754.480000	
	30	1710.670000		1754.730000	
	40	1710.620000		1754.580000	
3.5	20	1710.670000		1754.530000	
4.2	20	1710.570000		1754.530000	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	1710.580000	1710	1754.680000	1755
	-20	1710.630000		1754.530000	
	-10	1710.530000		1754.630000	
	0	1710.530000		1754.580000	
	10	1710.530000		1754.680000	
	20	1710.520000		1754.480000	
	30	1710.630000		1754.630000	
	40	1710.580000		1754.730000	
3.5	20	1710.530000		1754.580000	
4.2	20	1710.630000		1754.580000	

LTE Band 5:

Middle Channel, $f_c = 836.5$ MHz, Channel Bandwidth:10MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V_{DC}	Hz	ppm	ppm
-30	3.7	6.29	0.0075	2.5
-20		9.42	0.0113	
-10		-8.06	-0.0096	
0		6.79	0.0081	
10		9.23	0.011	
20		7.07	0.0085	
30		9.75	0.0117	
40		8.23	0.0098	
50		9.69	0.0116	
20		3.5	-5.87	
20	4.2	6.19	0.0074	

Middle Channel, $f_c = 836.5$ MHz, Channel Bandwidth:10MHz				
Temperature	Voltage	Frequency Error	Frequency Error	Limit
°C	V_{DC}	Hz	ppm	ppm
-30	3.7	0.21	0.0003	2.5
-20		-7.30	-0.0087	
-10		8.09	0.0097	
0		-7.21	-0.0086	
10		-7.92	-0.0095	
20		-9.23	-0.011	
30		6.27	0.0075	
40		-7.76	-0.0093	
50		-6.65	-0.0079	
20		3.5	6.56	
20	4.2	7.77	0.0093	

LTE Band 7

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	2500.770000	2500	2569.780000	2570
	-20	2500.670000		2569.620000	
	-10	2500.770000		2569.720000	
	0	2500.670000		2569.770000	
	10	2500.720000		2569.770000	
	20	2500.520000		2569.480000	
	30	2500.820000		2569.680000	
	40	2500.820000		2569.670000	
3.5	20	2500.770000		2569.620000	
4.2	20	2500.570000		2569.820000	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	2500.620000	2500	2569.730000	2570
	-20	2500.820000		2569.770000	
	-10	2500.670000		2569.770000	
	0	2500.820000		2569.720000	
	10	2500.770000		2569.670000	
	20	2500.520000		2569.480000	
	30	2500.620000		2569.780000	
	40	2500.820000		2569.570000	
3.5	20	2500.720000		2569.620000	
4.2	20	2500.820000		2569.620000	

LTE Band 12

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	699.620000	699	715.770000	716
	-20	699.620000		715.720000	
	-10	699.720000		715.770000	
	0	699.770000		715.670000	
	10	699.570000		715.670000	
	20	699.520000		715.520000	
	30	699.770000		715.620000	
	40	699.770000		715.620000	
50	699.720000	715.620000			
3.5	20	699.570000		715.770000	
4.2	20	699.620000		715.820000	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	699.570000	699	715.570000	716
	-20	699.820000		715.720000	
	-10	699.670000		715.720000	
	0	699.720000		715.770000	
	10	699.670000		715.820000	
	20	699.520000		715.520000	
	30	699.570000		715.570000	
	40	699.620000		715.570000	
50	699.670000	715.670000			
3.5	20	699.620000		715.820000	
4.2	20	699.670000		715.720000	

LTE Band 17

QPSK, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	704.630000	704	715.580000	716
	-20	704.730000		715.730000	
	-10	704.780000		715.680000	
	0	704.780000		715.680000	
	10	704.680000		715.580000	
	20	704.480000		715.480000	
	30	704.730000		715.630000	
	40	704.680000		715.630000	
50	704.530000	715.530000			
3.5	20	704.530000		715.580000	
4.2	20	704.680000		715.580000	

16-QAM, Channel Bandwidth:10MHz					
Power Supplied	Temperature	F_L	Limit	F_H	Limit
Vdc	°C	MHz	MHz	MHz	MHz
3.7	-30	704.680000	704	715.530000	716
	-20	704.680000		715.580000	
	-10	704.680000		715.680000	
	0	704.780000		715.630000	
	10	704.780000		715.680000	
	20	704.480000		715.520000	
	30	704.680000		715.630000	
	40	704.780000		715.580000	
50	704.580000	715.730000			
3.5	20	704.780000		715.530000	
4.2	20	704.530000		715.580000	

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 *******