

Band 4:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.096	1.296
		Middle	1.096	1.314
		High	1.102	1.284
	16QAM	Low	1.096	1.314
		Middle	1.096	1.308
		High	1.096	1.296
3	QPSK	Low	2.683	2.880
		Middle	2.695	2.880
		High	2.683	2.880
	16QAM	Low	2.683	2.892
		Middle	2.683	2.880
		High	2.683	2.880
5	QPSK	Low	4.511	4.960
		Middle	4.511	4.980
		High	4.491	4.940
	16QAM	Low	4.491	4.900
		Middle	4.511	4.960
		High	4.511	4.980
10	QPSK	Low	8.942	9.640
		Middle	8.942	9.600
		High	8.982	9.640
	16QAM	Low	8.942	9.600
		Middle	8.942	9.680
		High	8.981	9.600
15	QPSK	Low	13.533	14.580
		Middle	13.413	14.520
		High	13.473	14.640
	16QAM	Low	13.473	14.640
		Middle	13.473	14.580
		High	13.473	14.580
20	QPSK	Low	18.044	19.280
		Middle	17.884	19.280
		High	17.964	19.200
	16QAM	Low	18.044	19.440
		Middle	17.884	19.360
		High	17.964	19.120

Band 5:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.108	1.338
		Middle	1.102	1.290
		High	1.102	1.314
	16QAM	Low	1.102	1.350
		Middle	1.090	1.284
		High	1.102	1.428
3	QPSK	Low	2.683	2.880
		Middle	2.683	2.868
		High	2.683	2.892
	16QAM	Low	2.683	2.868
		Middle	2.683	2.880
		High	2.683	2.868
5	QPSK	Low	4.511	4.940
		Middle	4.531	5.660
		High	4.511	4.960
	16QAM	Low	4.531	4.960
		Middle	4.511	4.960
		High	4.511	4.940
10	QPSK	Low	8.942	9.640
		Middle	8.942	9.600
		High	8.942	9.560
	16QAM	Low	8.942	9.560
		Middle	8.942	9.600
		High	8.942	9.640

Band 7

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.511	4.960
		Middle	4.511	4.960
		High	4.491	4.940
	16QAM	Low	4.491	4.920
		Middle	4.511	4.940
		High	4.491	4.980
10	QPSK	Low	8.942	9.680
		Middle	8.942	9.600
		High	8.942	9.680
	16QAM	Low	8.942	9.600
		Middle	8.942	9.600
		High	8.942	9.640
15	QPSK	Low	13.533	14.640
		Middle	13.413	14.580
		High	13.473	14.520
	16QAM	Low	13.473	14.580
		Middle	13.533	14.640
		High	13.473	14.640
20	QPSK	Low	18.044	19.200
		Middle	17.884	19.200
		High	17.964	19.360
	16QAM	Low	18.044	19.280
		Middle	17.964	20.000
		High	17.964	19.280

Band 17

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.531	5.240
		Middle	4.531	5.260
		High	4.531	5.180
	16QAM	Low	4.551	5.420
		Middle	4.551	5.200
		High	4.571	5.220
10	QPSK	Low	8.942	9.840
		Middle	8.942	9.840
		High	8.942	9.800
	16QAM	Low	8.942	9.920
		Middle	8.942	9.840
		High	8.942	9.840

LTE Band 38:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.511	5.040
		Middle	4.511	5.020
		High	4.511	5.120
	16QAM	Low	4.511	4.980
		Middle	4.511	5.180
		High	4.511	4.960
10	QPSK	Low	8.982	9.560
		Middle	8.942	9.680
		High	8.942	9.680
	16QAM	Low	8.942	9.600
		Middle	8.942	9.520
		High	8.942	9.560
15	QPSK	Low	13.473	14.640
		Middle	13.413	14.460
		High	13.413	14.580
	16QAM	Low	13.533	14.640
		Middle	13.533	14.640
		High	13.473	14.580
20	QPSK	Low	17.884	19.120
		Middle	17.884	19.120
		High	17.884	19.200
	16QAM	Low	17.884	19.040
		Middle	17.884	19.520
		High	17.964	19.520

LTE Band 41:

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
5	QPSK	Low	4.491	4.960
		Middle	4.511	4.980
		High	4.511	4.960
	16QAM	Low	4.491	4.960
		Middle	4.511	5.200
		High	4.511	4.960
10	QPSK	Low	8.982	9.880
		Middle	8.942	9.680
		High	8.982	9.720
	16QAM	Low	8.982	9.520
		Middle	8.942	9.560
		High	8.942	9.800
15	QPSK	Low	13.473	14.760
		Middle	13.413	14.580
		High	13.473	14.640
	16QAM	Low	13.473	15.720
		Middle	13.533	14.700
		High	13.533	15.420
20	QPSK	Low	17.964	19.120
		Middle	17.884	19.040
		High	17.884	19.920
	16QAM	Low	17.884	19.200
		Middle	17.884	19.600
		High	17.884	19.280

LTE Band 66

Bandwidth (MHz)	Modulation	Channel	99% Occupied Bandwidth (MHz)	26 dB Emission Bandwidth (MHz)
1.4	QPSK	Low	1.102	1.356
		Middle	1.108	1.338
		High	1.102	1.290
	16QAM	Low	1.108	1.332
		Middle	1.090	1.284
		High	1.096	1.296
3	QPSK	Low	2.695	2.892
		Middle	2.683	2.880
		High	2.683	2.892
	16QAM	Low	2.683	2.940
		Middle	2.683	2.880
		High	2.683	2.868
5	QPSK	Low	4.551	5.220
		Middle	4.531	5.200
		High	4.511	5.180
	16QAM	Low	4.531	5.120
		Middle	4.531	5.200
		High	4.551	5.240
10	QPSK	Low	8.982	9.960
		Middle	8.982	9.800
		High	8.982	9.880
	16QAM	Low	8.942	9.840
		Middle	8.982	9.880
		High	8.982	9.920
15	QPSK	Low	13.593	14.940
		Middle	13.473	14.700
		High	13.533	14.820
	16QAM	Low	13.533	14.820
		Middle	13.533	14.760
		High	13.533	14.640
20	QPSK	Low	18.044	19.600
		Middle	17.964	19.520
		High	17.884	19.760
	16QAM	Low	18.044	19.760
		Middle	18.044	19.520
		High	17.884	19.440

The test plots of LTE band please refer to the Appendix A.

FCC §2.1051, §22.917(a) & §24.238(a); §27.53 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

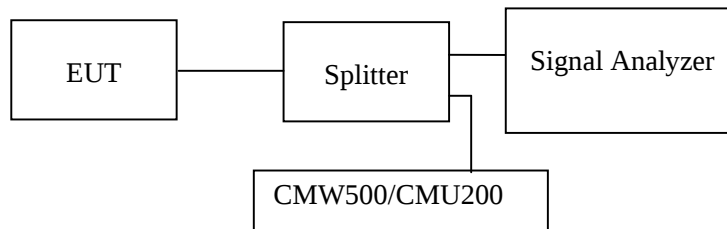
Applicable Standard

FCC §2.1051, §22.917(a) and §24.238(a) and §27.53.

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.



Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gavin Guo from 2021-02-05 to 2021-03-17.

EUT operation mode: Transmitting

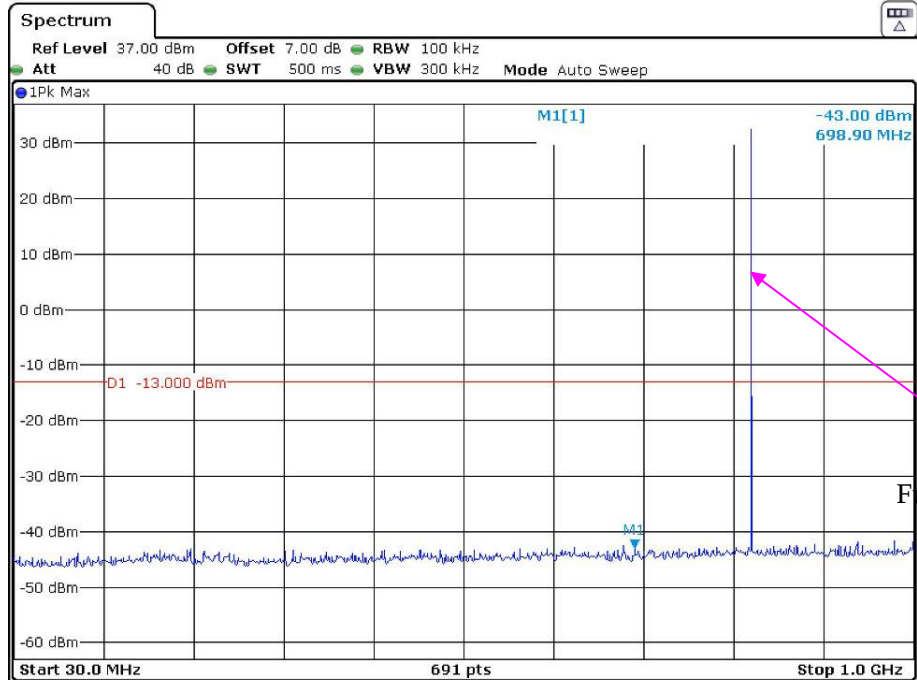
Test result: Pass

Please refer to the following plots.

Cellular Band (Part 22H)

Low Channel:

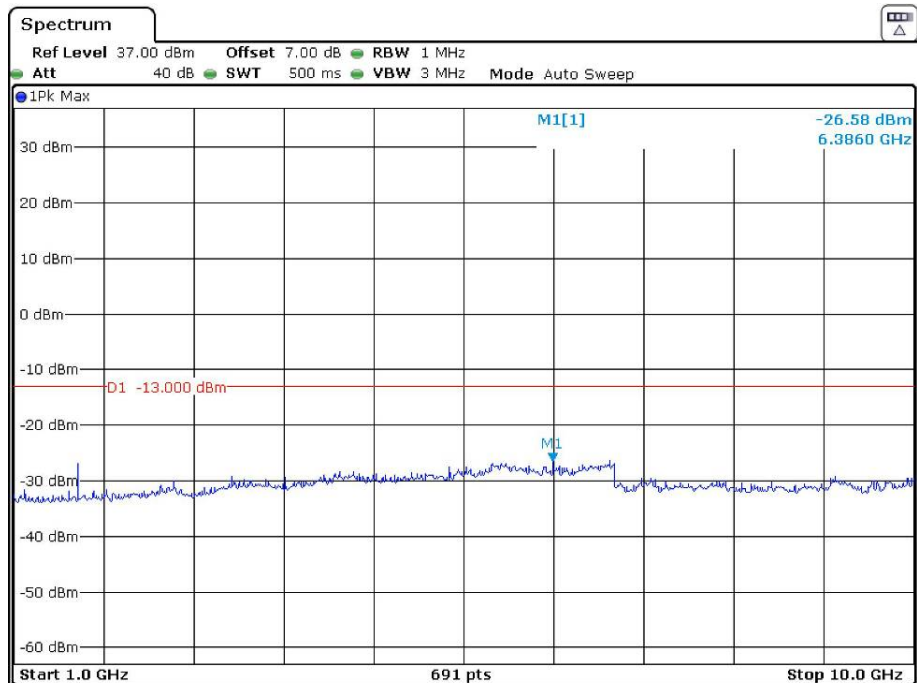
30 MHz – 1 GHz (GSM Mode)



Date: 19.FEB.2021 14:43:28

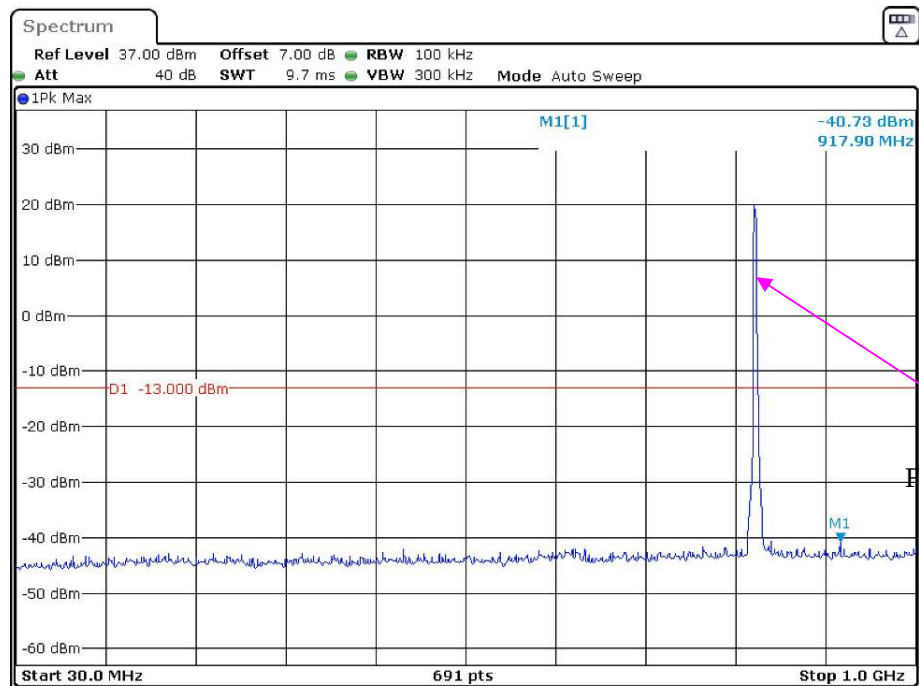
Fundamental test

1 GHz – 10 GHz (GSM Mode)



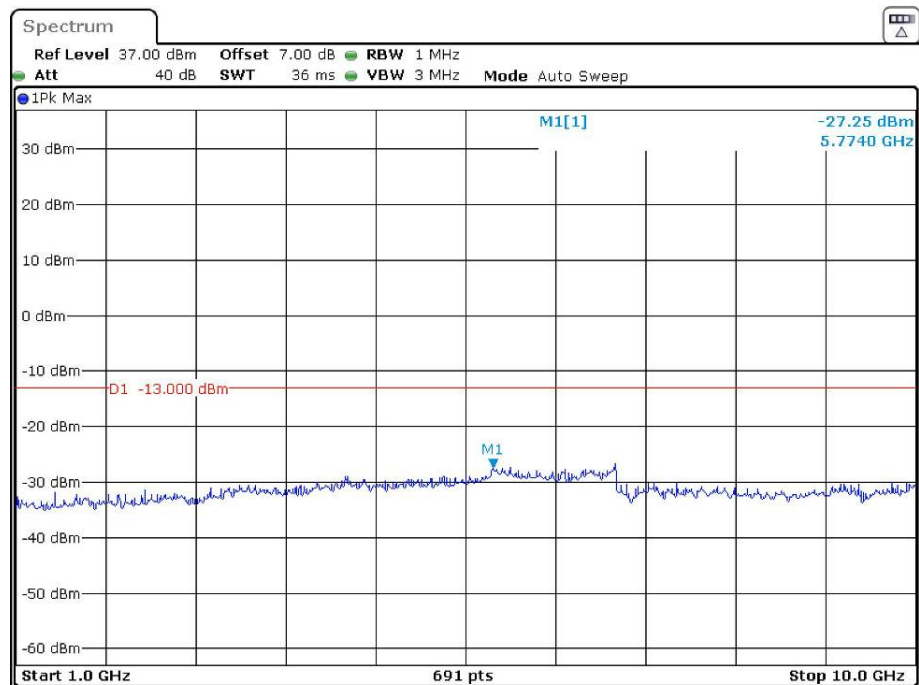
Date: 19.FEB.2021 14:39:39

30 MHz – 1 GHz (WCDMA Mode)

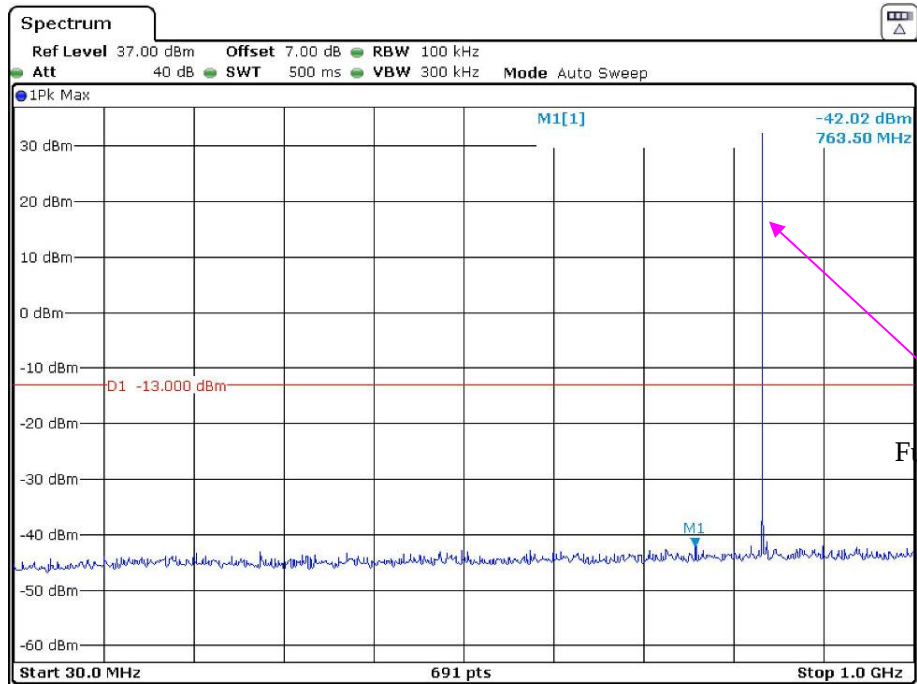


Date: 19.FEB.2021 19:54:39

1 GHz – 10 GHz (WCDMA Mode)

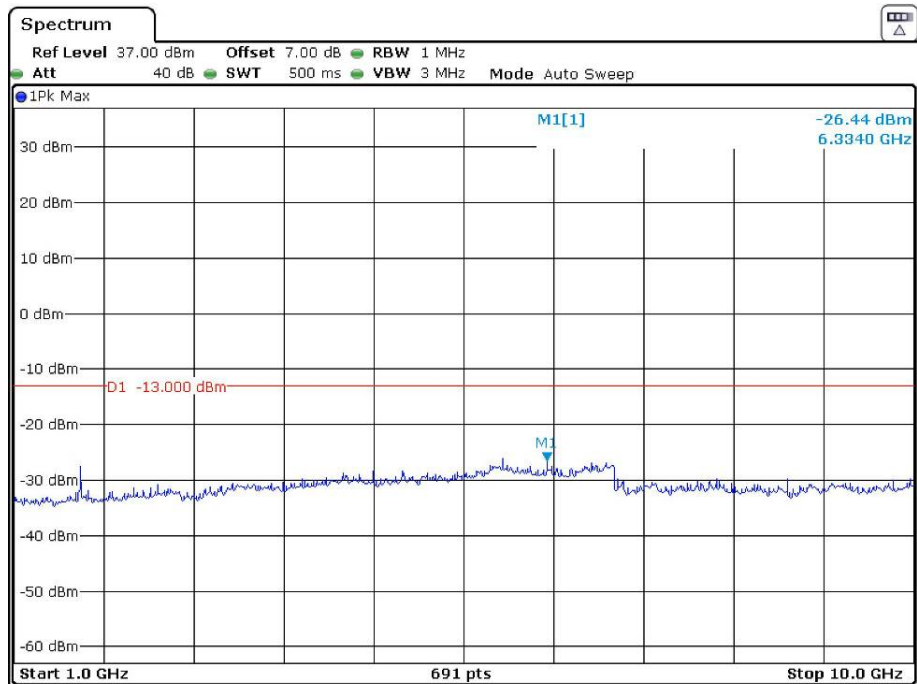


Date: 19.FEB.2021 19:52:55

Middle Channel:**30 MHz – 1 GHz (GSM Mode)**

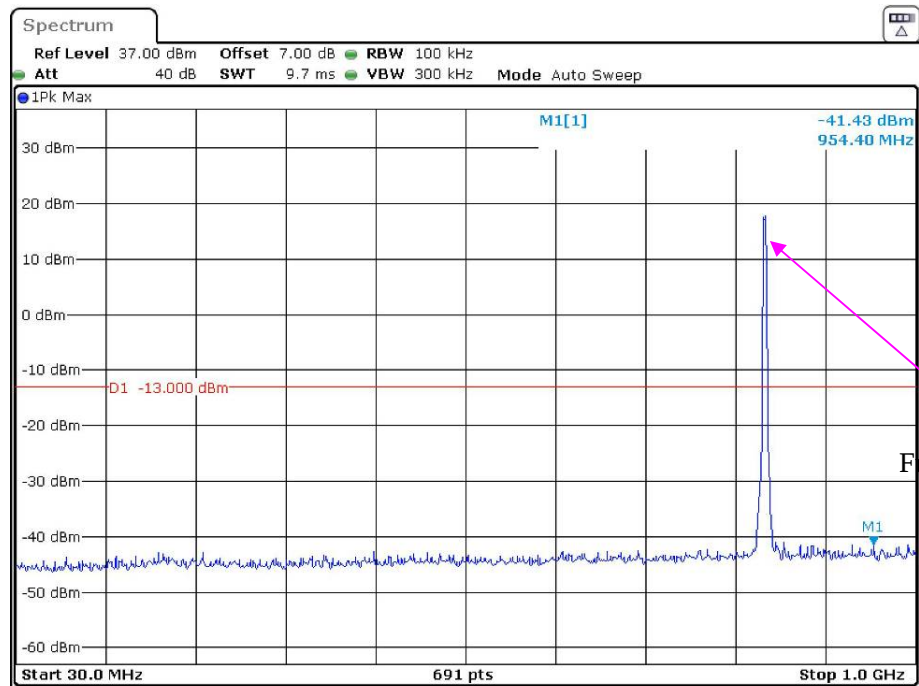
Date: 19.FEB.2021 14:42:50

Fundamental test

1 GHz – 10 GHz (GSM Mode)

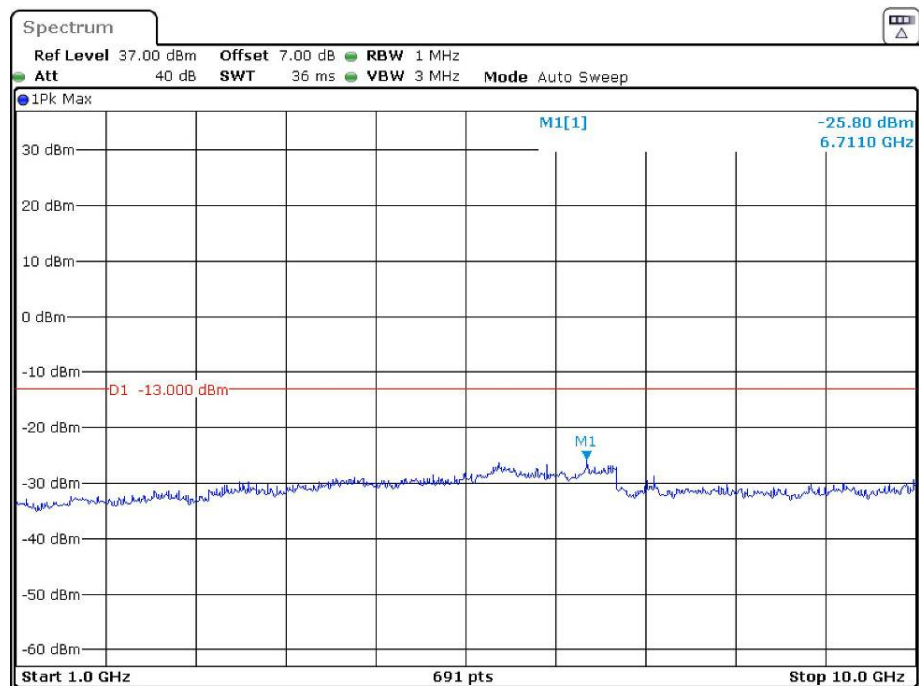
Date: 19.FEB.2021 14:40:05

30 MHz – 1 GHz (WCDMA Mode)



Date: 19.FEB.2021 19:55:11

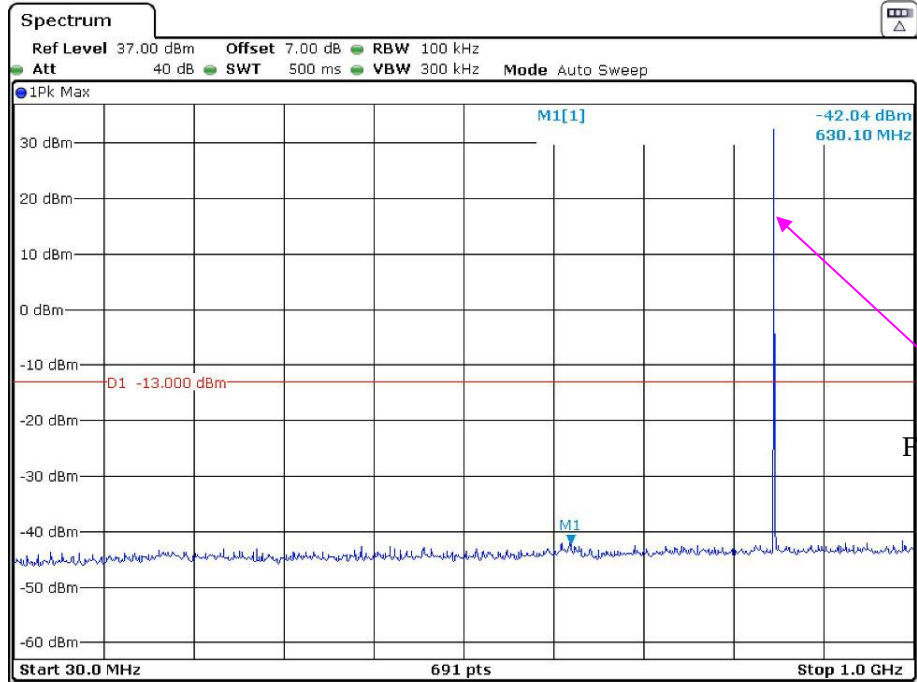
1 GHz – 10 GHz (WCDMA Mode)



Date: 19.FEB.2021 19:52:23

High Channel:

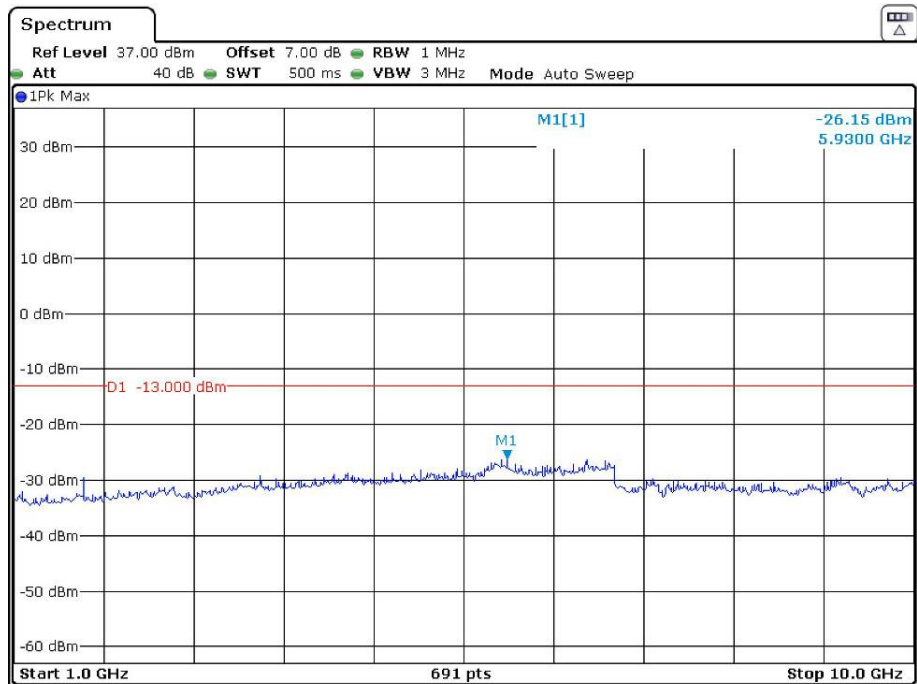
30 MHz – 1 GHz (GSM Mode)



Date: 19.FEB.2021 14:42:08

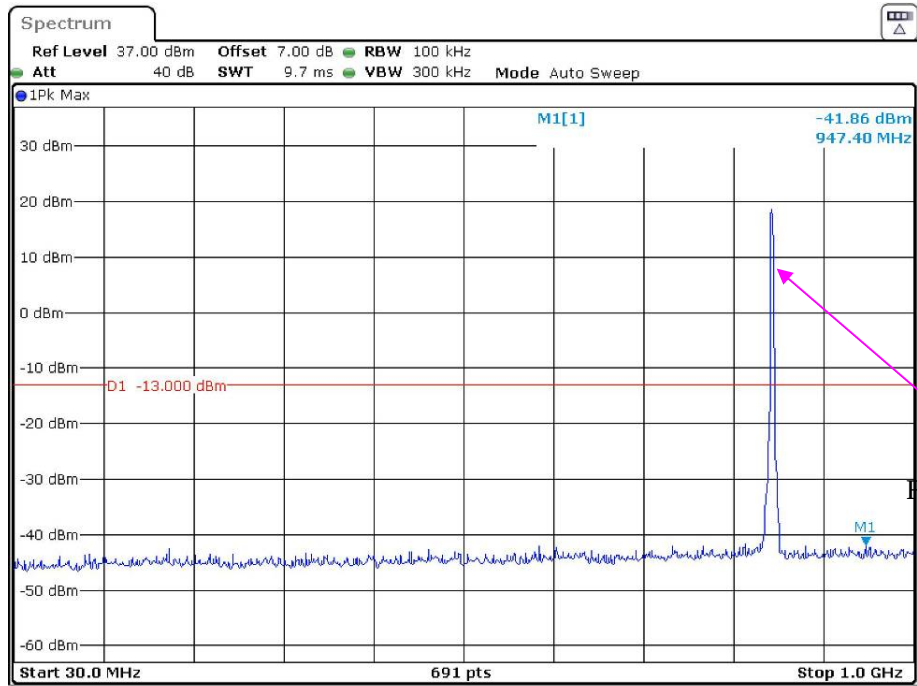
Fundamental test

1 GHz – 10 GHz (GSM Mode)



Date: 19.FEB.2021 14:40:31

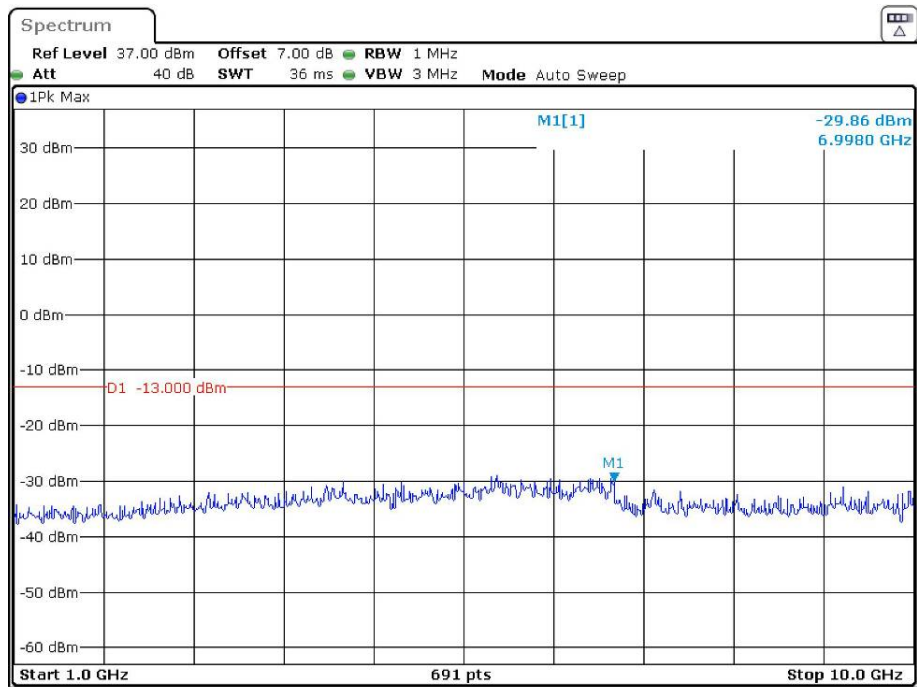
30 MHz – 1 GHz (WCDMA Mode)



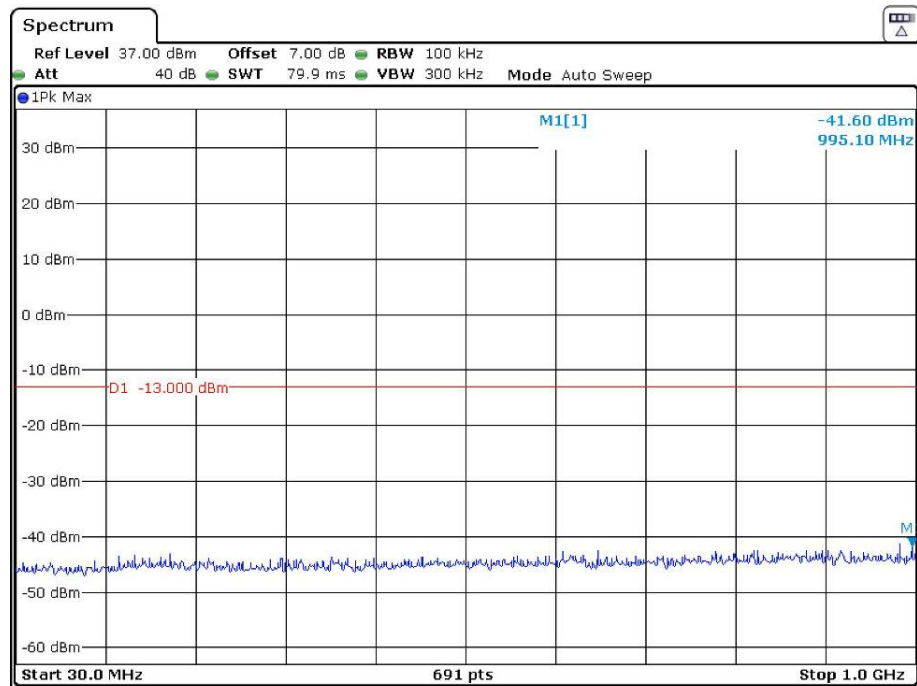
Date: 19.FEB.2021 19:55:40

Fundamental test

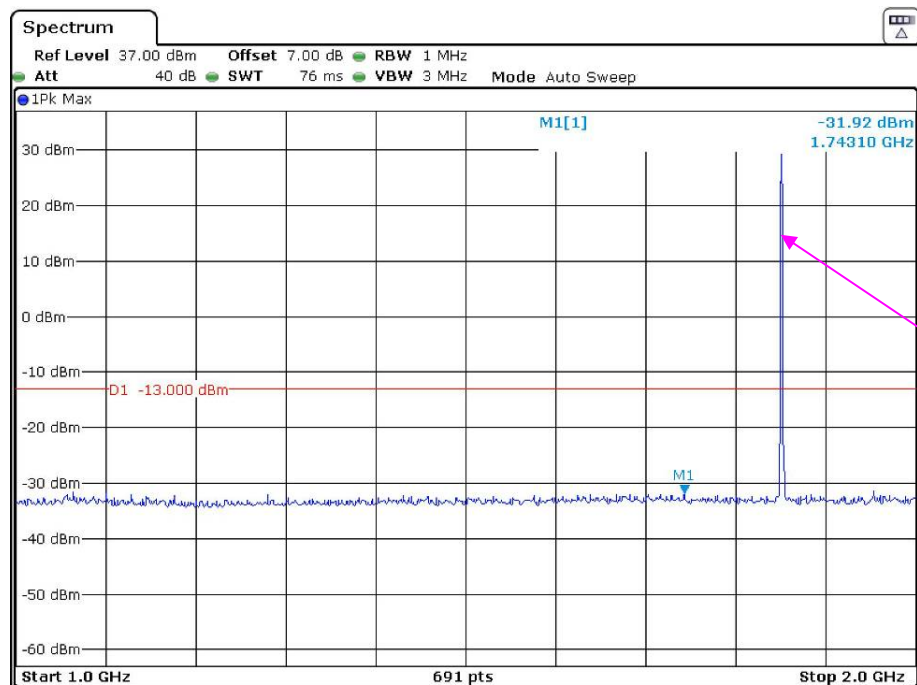
1 GHz – 10 GHz (WCDMA Mode)



Date: 19.FEB.2021 19:51:35

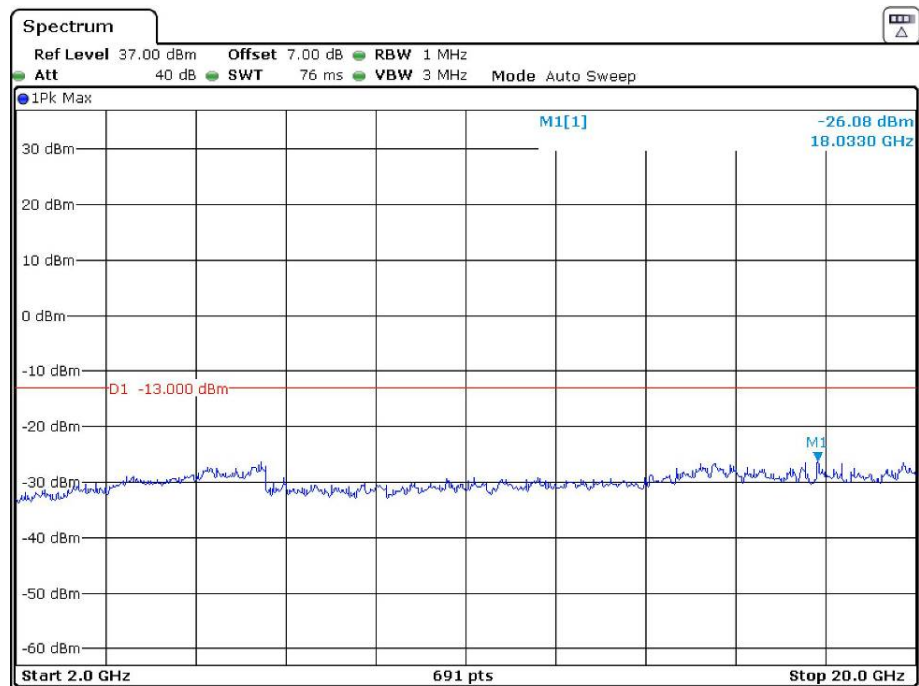
PCS Band (Part 24E) Low Channel:**30 MHz – 1 GHz (GSM Mode)**

Date: 19.FEB.2021 15:32:29

1 GHz – 2 GHz (GSM Mode)

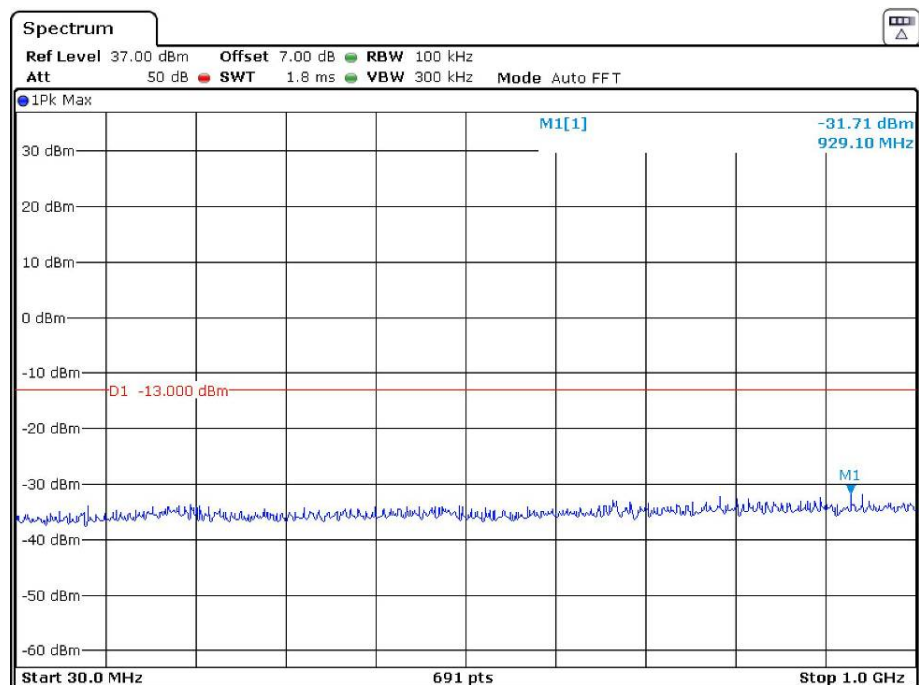
Date: 19.FEB.2021 15:31:14

2 GHz – 2 0GHz (GSM Mode)



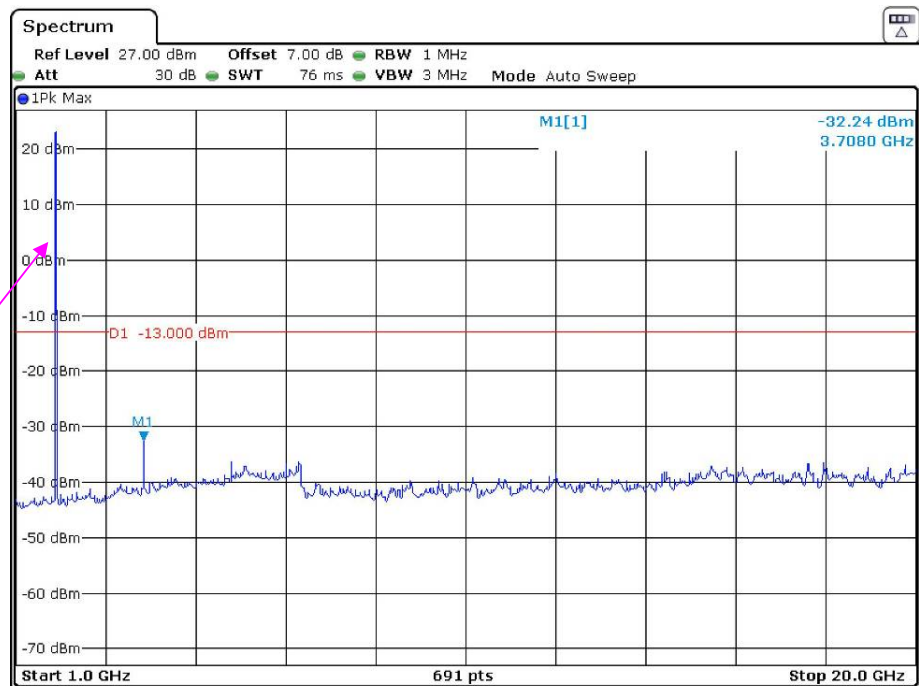
Date: 19.FEB.2021 15:31:50

30 MHz – 1 GHz (WCDMA Mode)



Date: 19.FEB.2021 18:53:06

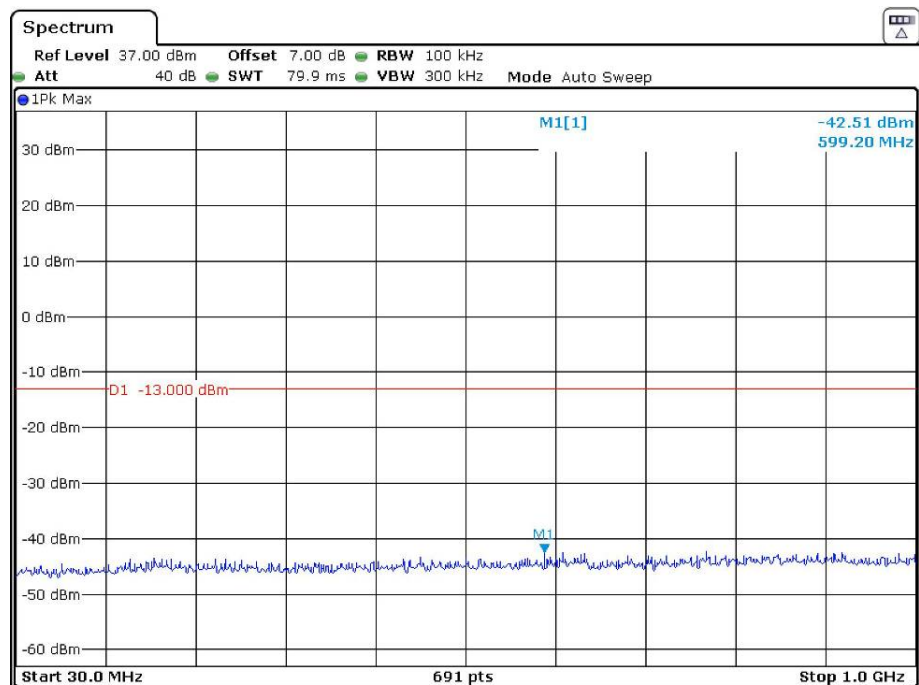
1 GHz – 20 GHz (WCDMA Mode)



Date: 19.FEB.2021 18:55:54

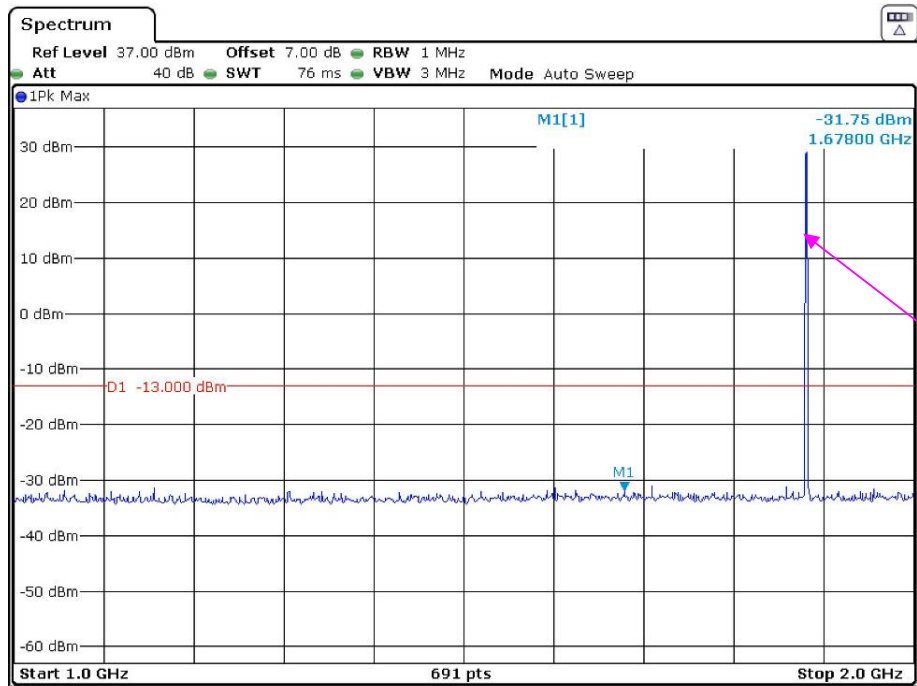
Middle Channel:

30 MHz – 1 GHz (GSM Mode)



Date: 19.FEB.2021 15:32:56

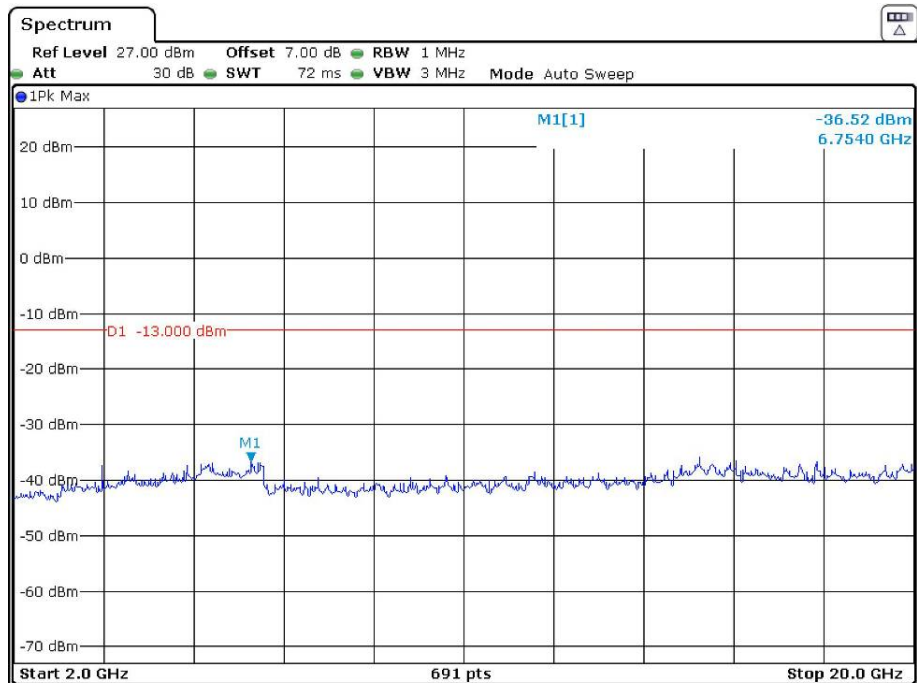
1 GHz – 2 GHz (GSM Mode)



Fundamental test

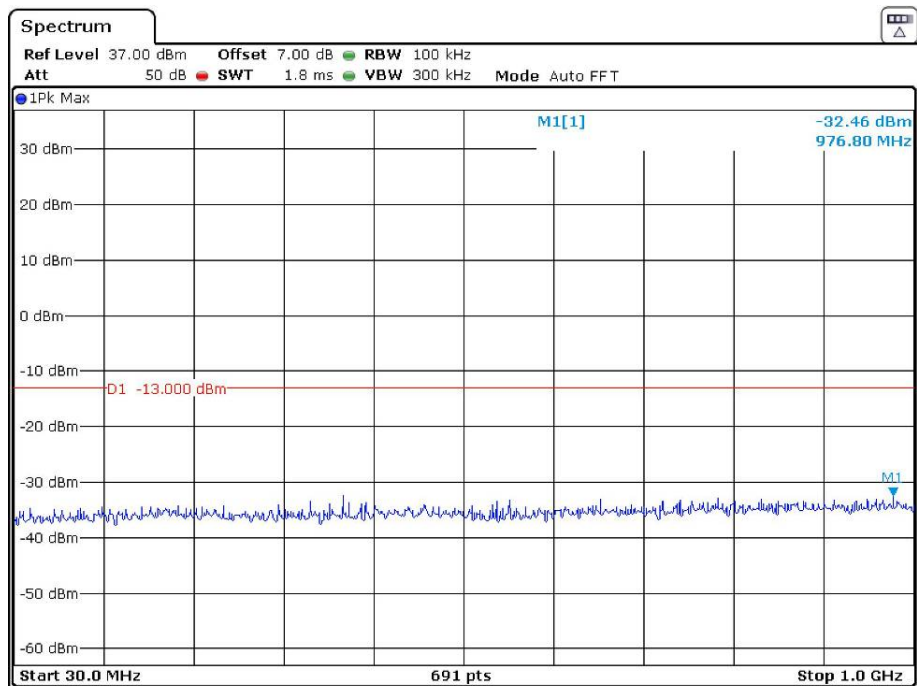
Date: 19.FEB.2021 15:30:34

2 GHz – 20GHz (GSM Mode)



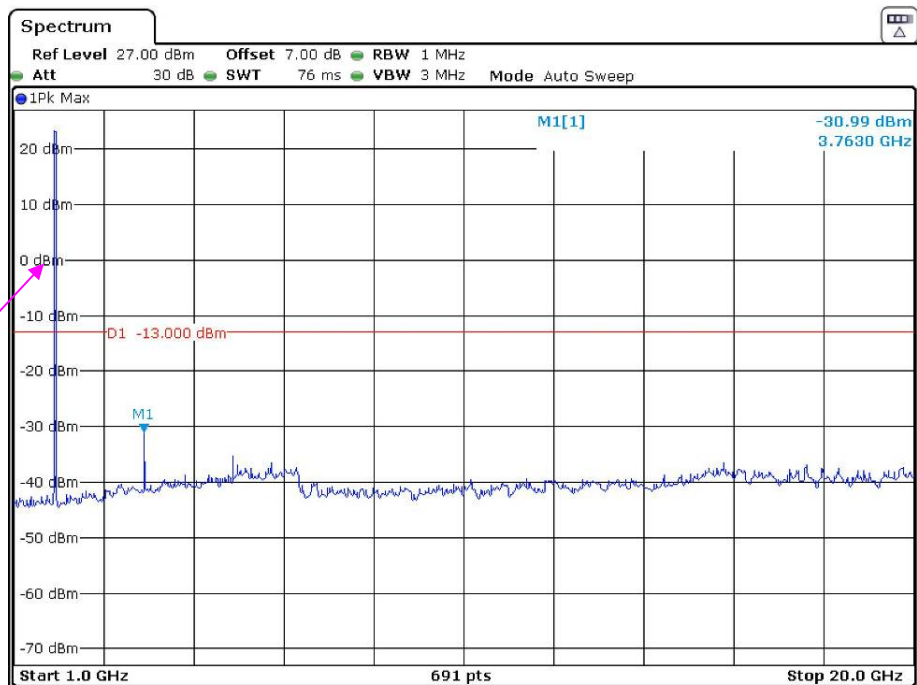
Date: 19.FEB.2021 15:29:42

30 MHz – 1 GHz (WCDMA Mode)

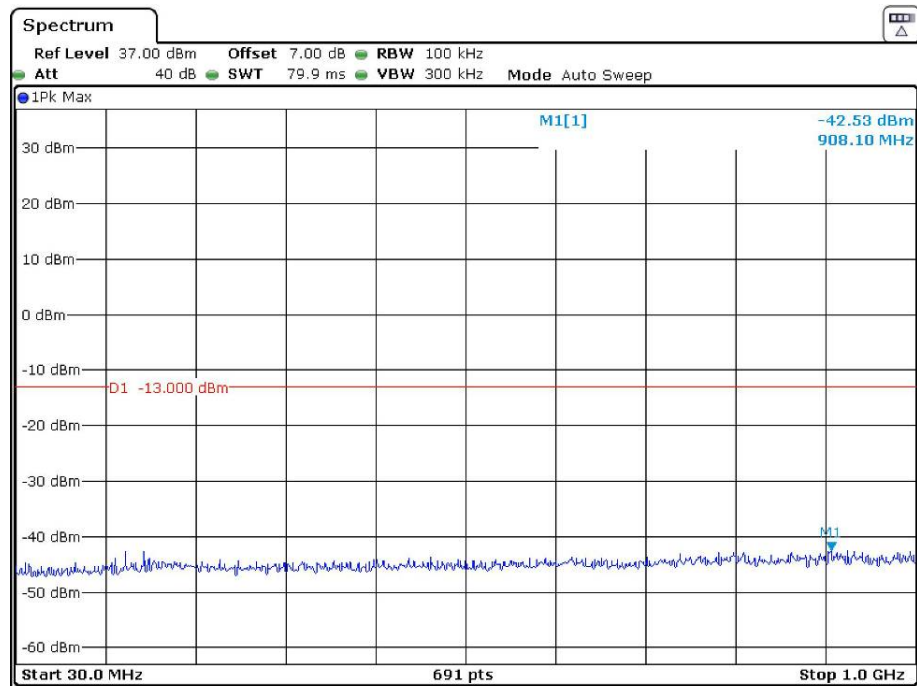


Date: 19.FEB.2021 18:53:38

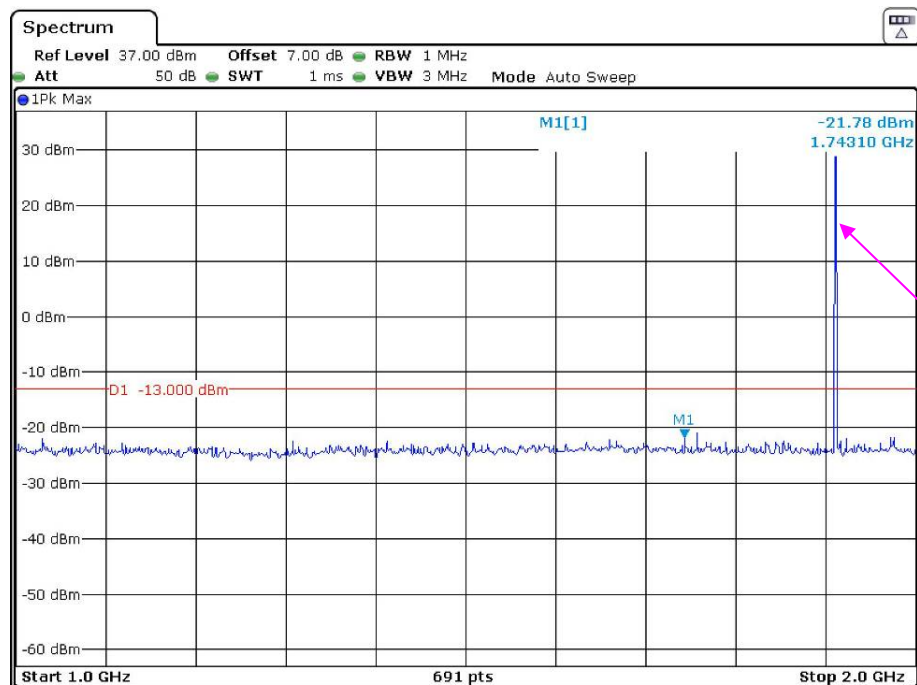
1 GHz – 20 GHz (WCDMA Mode)



Date: 19.FEB.2021 18:55:24

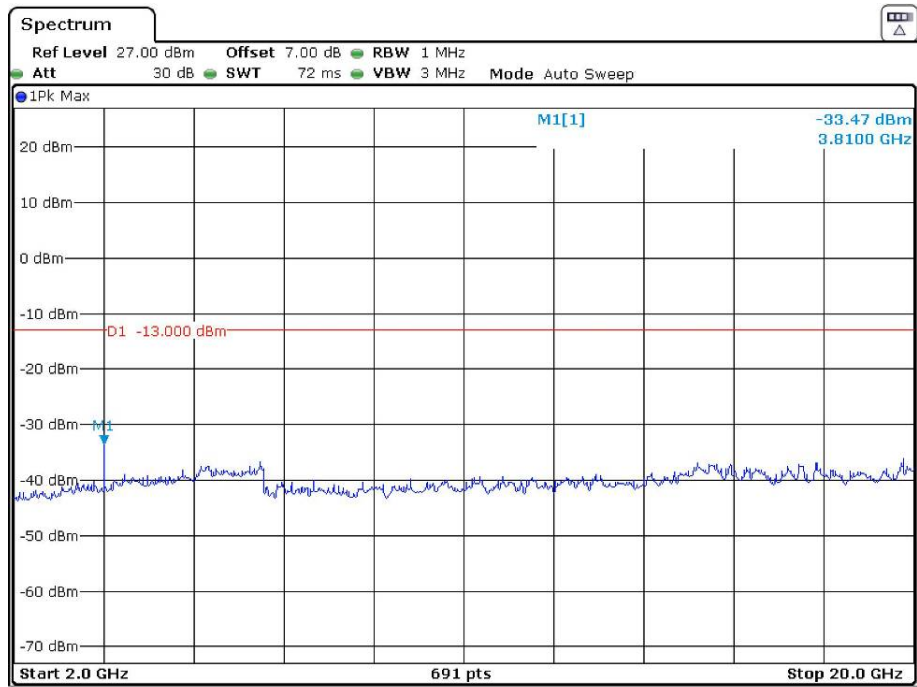
High Channel:**30 MHz – 1 GHz (GSM Mode)**

Date: 19.FEB.2021 15:33:26

1 GHz – 2 GHz (GSM Mode)

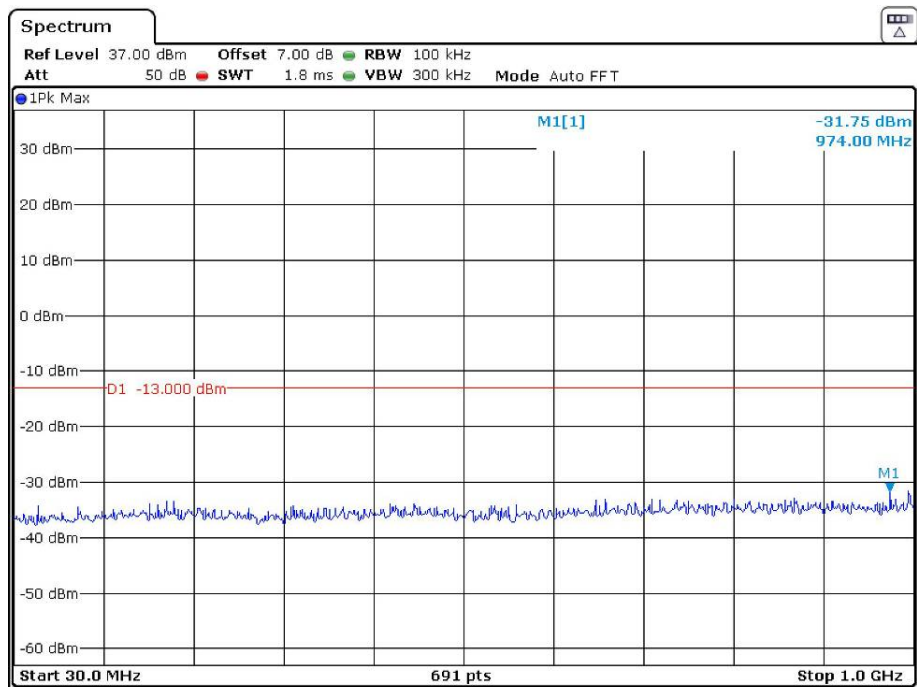
Date: 19.FEB.2021 15:28:13

2 GHz – 20GHz (GSM Mode)



Date: 19.FEB.2021 15:29:01

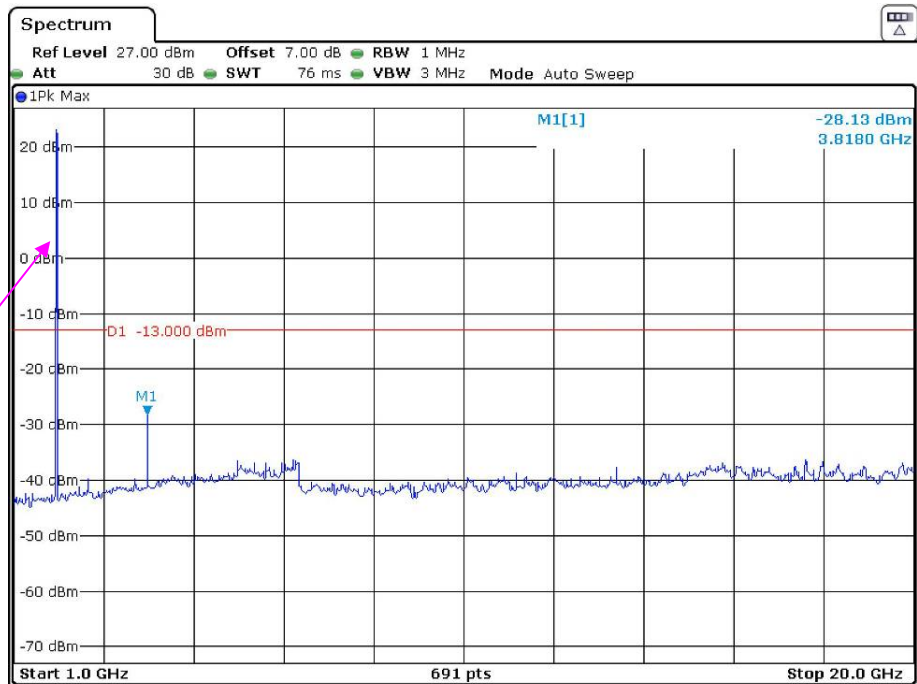
30 MHz – 1 GHz (WCDMA Mode)



Date: 19.FEB.2021 18:54:01

1 GHz – 20 GHz (WCDMA Mode)

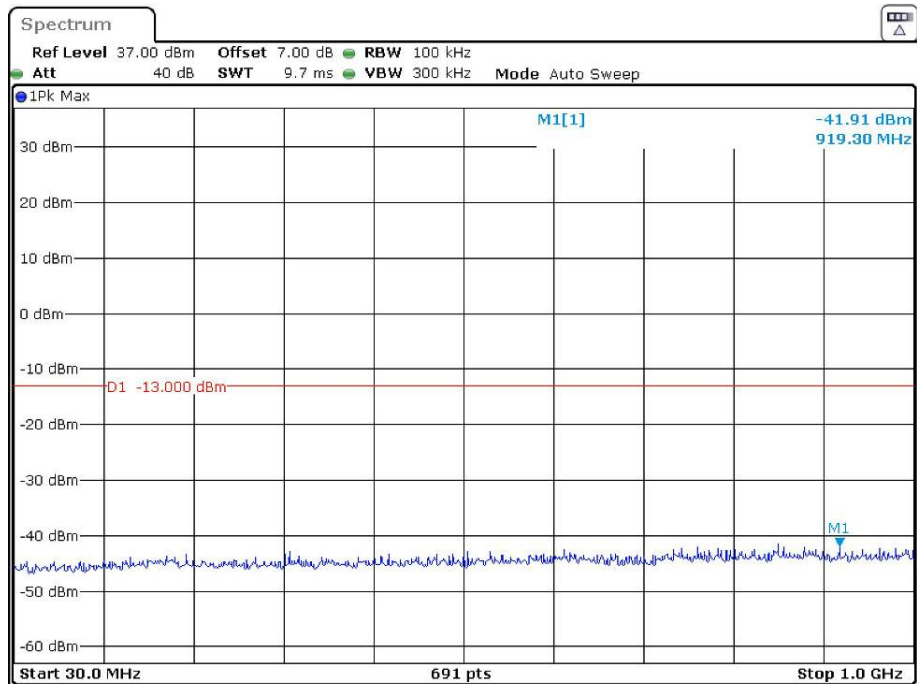
Fundamental test



Date: 19.FEB.2021 18:54:56

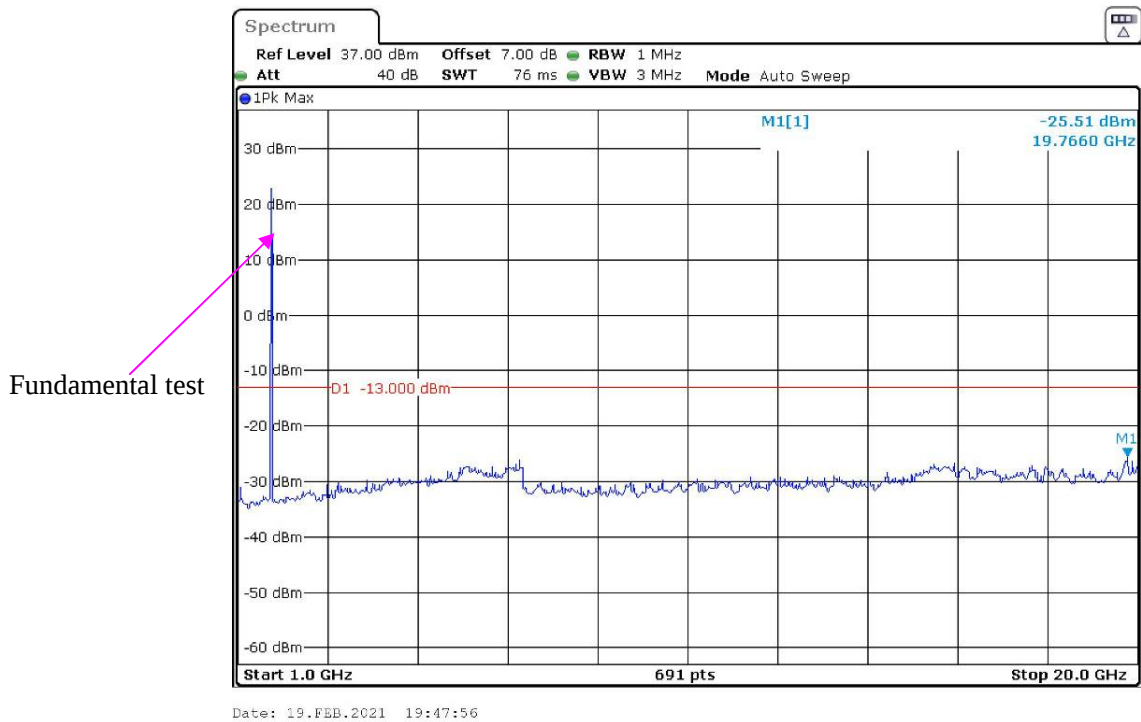
AWS Band (Part 27) Low Channel:

30 MHz – 1 GHz (WCDMA Mode)



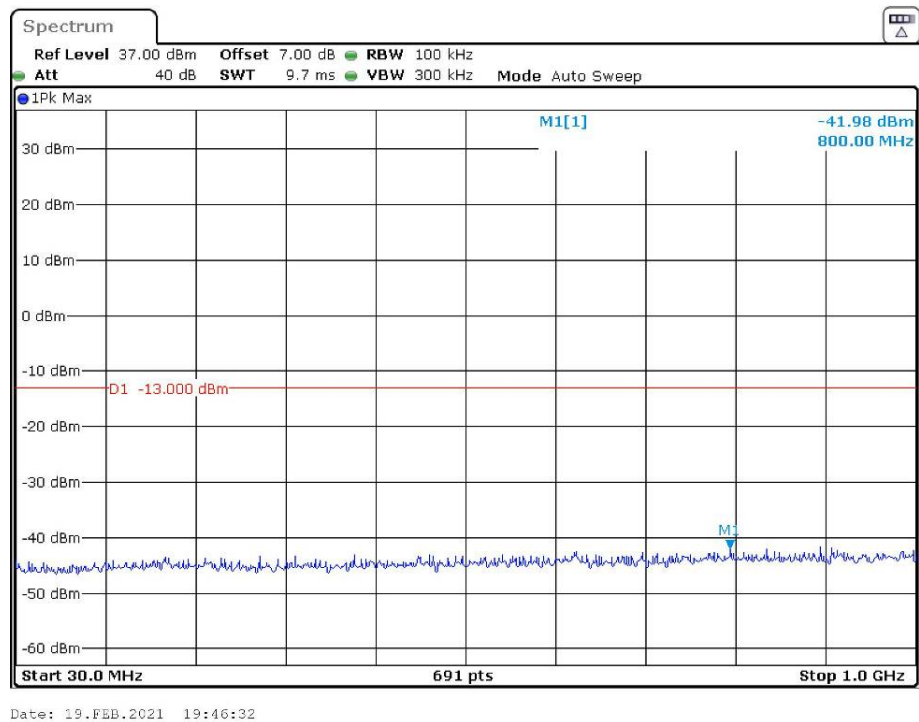
Date: 19.FEB.2021 19:46:51

1 GHz – 20 GHz (WCDMA Mode)



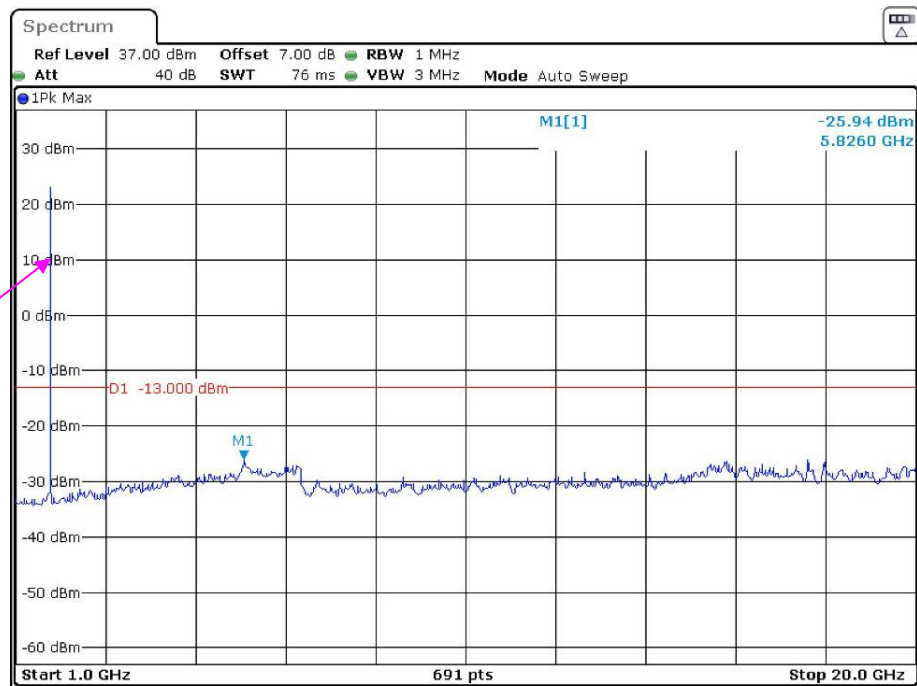
Middle Channel

30 MHz – 1 GHz (WCDMA Mode)



1 GHz – 20 GHz (WCDMA Mode)

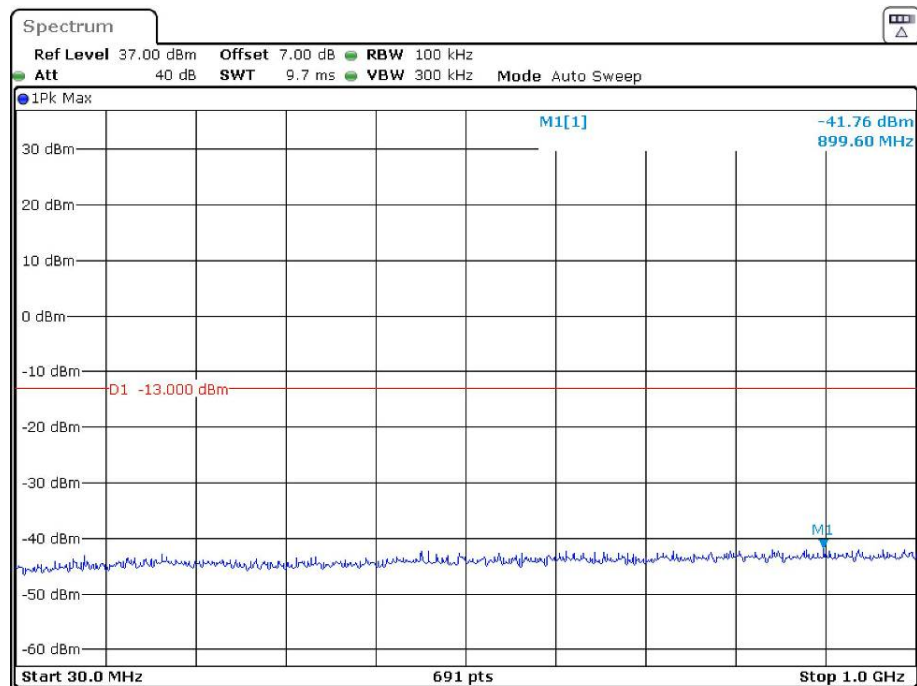
Fundamental test



Date: 19.FEB.2021 19:48:36

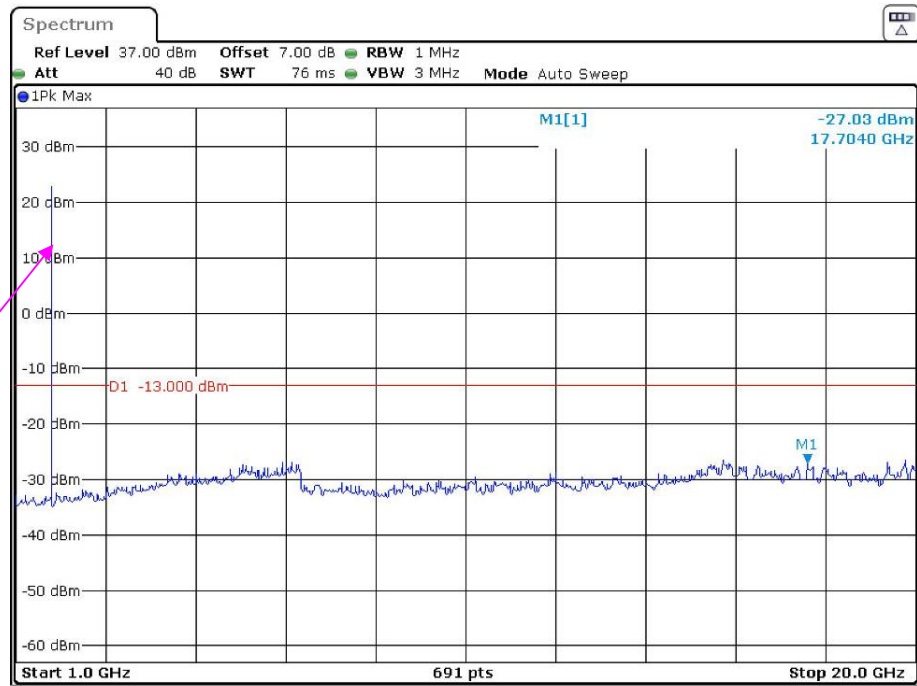
High Channel:

30 MHz – 1 GHz (WCDMA Mode)



Date: 19.FEB.2021 19:46:09

1 GHz – 20 GHz (WCDMA Mode)



Date: 19.FEB.2021 19:48:56

The test plots of LTE band please refer to the Appendix B.

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

Applicable Standard

FCC § 2.1053, §22.917(a) and § 24.238(a) 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 receiving 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.

Test Data**Environmental Conditions**

Temperature:	22~25.3 °C
Relative Humidity:	52~58 %
ATM Pressure:	101.0~101.1 kPa

The testing was performed by Harri He from 2021-01-18 to 2021-02-24 for below 1GHz and Troy Wang and Alen He from 2021-02-24 to 2021-03-31 for above 1GHz.

EUT operation mode: Transmitting

30 MHz ~ 10 GHz:**Cellular Band (Part 22H)**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
952.3	32.43	28	1.1	H	-64.1	1.36	0.0	-65.46	-13	52.46
952.3	33.14	104	1.8	V	-60.9	1.36	0.0	-62.26	-13	49.26
1648.40	67.35	335	1.3	H	-40.7	1.40	8.70	-33.40	-13	20.40
1648.40	61.90	199	1.7	V	-46.0	1.40	8.70	-38.70	-13	25.70
2472.60	71.85	243	1.9	H	-31.5	2.60	10.20	-23.90	-13	10.90
2472.60	67.44	309	2.3	V	-35.3	2.60	10.20	-27.70	-13	14.70
3296.80	68.95	274	1.9	H	-31.9	1.50	11.70	-21.70	-13	8.70
3296.80	63.14	37	1.2	V	-37.8	1.50	11.70	-27.60	-13	14.60
4121.00	50.24	68	1.8	H	-51.9	1.40	12.20	-41.10	-13	28.10
4121.00	47.83	315	1.4	V	-53.2	1.40	12.20	-42.40	-13	29.40
Middle channel										
956.6	32.31	334	1.7	H	-64.2	1.36	0.0	-65.56	-13	52.56
956.6	33.26	44	2.0	V	-60.8	1.36	0.0	-62.16	-13	49.16
1673.20	67.85	140	1.7	H	-38.5	1.30	8.90	-30.90	-13	17.90
1673.20	62.18	246	1.6	V	-43.6	1.30	8.90	-36.00	-13	23.00
2509.80	72.38	242	1.2	H	-31.0	2.60	10.20	-23.40	-13	10.40
2509.80	68.34	139	1.1	V	-34.4	2.60	10.20	-26.80	-13	13.80
3346.40	67.97	263	1.5	H	-32.9	1.50	11.70	-22.70	-13	9.70
3346.40	62.58	151	1.7	V	-38.3	1.50	11.70	-28.10	-13	15.10
4183.00	49.47	98	1.7	H	-52.5	1.50	11.80	-42.20	-13	29.20
4183.00	46.38	186	1.3	V	-54.8	1.50	11.80	-44.50	-13	31.50
High channel										
963.8	32.67	16	1.4	H	-63.8	1.36	0.0	-65.16	-13	52.16
963.8	33.19	220	2.2	V	-60.9	1.36	0.0	-62.26	-13	49.26
1697.60	68.41	259	1.6	H	-37.9	1.30	8.90	-30.30	-13	17.30
1697.60	62.37	87	1.1	V	-43.4	1.30	8.90	-35.80	-13	22.80
2546.40	72.67	177	1.8	H	-30.7	2.60	10.20	-23.10	-13	10.10
2546.40	67.54	229	1.3	V	-35.2	2.60	10.20	-27.60	-13	14.60
3395.20	68.24	124	1.3	H	-33.0	1.40	11.80	-22.60	-13	9.60
3395.20	63.05	196	1.4	V	-38.0	1.40	11.80	-27.60	-13	14.60
4244.00	50.15	343	1.7	H	-51.8	1.50	11.80	-41.50	-13	28.50
1697.60	68.41	259	1.6	H	-37.9	1.30	8.90	-30.30	-13	17.30

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 22H	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
952.0	32.87	185	2.3	H	-63.6	1.36	0.0	-64.96	-13	51.96
952.0	33.94	92	1.5	V	-60.1	1.36	0.0	-61.46	-13	48.46
1652.80	44.84	119	1.7	H	-61.5	1.30	8.90	-53.90	-13	40.90
1652.80	44.68	156	1.2	V	-61.1	1.30	8.90	-53.50	-13	40.50
2479.20	43.95	50	1.7	H	-59.4	2.60	10.20	-51.80	-13	38.80
2479.20	43.73	54	2.1	V	-59.0	2.60	10.20	-51.40	-13	38.40
3305.60	42.56	80	2.2	H	-58.3	1.50	11.70	-48.10	-13	35.10
3305.60	42.23	230	1.8	V	-58.7	1.50	11.70	-48.50	-13	35.50
Middle channel										
954.1	32.47	28	2.1	H	-64.0	1.36	0.0	-65.36	-13	52.36
954.1	33.65	142	1.6	V	-60.4	1.36	0.0	-61.76	-13	48.76
1673.20	44.85	317	1.9	H	-61.5	1.30	8.90	-53.90	-13	40.90
1673.20	44.57	234	2.4	V	-61.2	1.30	8.90	-53.60	-13	40.60
2509.80	43.92	49	1.6	H	-59.4	2.60	10.20	-51.80	-13	38.80
2509.80	43.67	68	1.9	V	-59.1	2.60	10.20	-51.50	-13	38.50
3346.40	42.61	206	1.9	H	-58.3	1.50	11.70	-48.10	-13	35.10
3346.40	42.26	114	1.5	V	-58.7	1.50	11.70	-48.50	-13	35.50
High channel										
967.4	32.44	23	1.5	H	-64.1	1.36	0.0	-65.46	-13	52.46
967.4	33.82	44	1.9	V	-60.2	1.36	0.0	-61.56	-13	48.56
1693.20	44.93	176	1.1	H	-61.4	1.30	8.90	-53.80	-13	40.80
1693.20	44.72	260	1.6	V	-61.0	1.30	8.90	-53.40	-13	40.40
2539.80	43.87	258	2.5	H	-59.5	2.60	10.20	-51.90	-13	38.90
2539.80	43.72	45	2.4	V	-59.0	2.60	10.20	-51.40	-13	38.40
3386.40	42.68	217	2.5	H	-58.6	1.40	11.80	-48.20	-13	35.20
3386.40	42.45	12	2.2	V	-58.6	1.40	11.80	-48.20	-13	35.20

30 MHz ~ 20 GHz:

PCS Band (Part 24E)

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 24E	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
GSM Mode										
Low channel										
957.4	32.78	358	1.1	H	-63.7	1.36	0.0	-65.06	-13	52.06
957.4	33.65	134	1.2	V	-60.4	1.36	0.0	-61.76	-13	48.76
3700.40	52.95	229	2.2	H	-48.9	1.60	11.90	-38.60	-13	25.60
3700.40	49.12	298	1.3	V	-52.1	1.60	11.90	-41.80	-13	28.80
Middle channel										
960.3	32.49	95	2.1	H	-64.0	1.36	0.0	-65.36	-13	52.36
960.3	33.54	296	1.9	V	-60.5	1.36	0.0	-61.86	-13	48.86
3760.00	53.32	154	2.3	H	-48.7	1.50	11.80	-38.40	-13	25.40
3760.00	48.75	291	1.3	V	-52.8	1.50	11.80	-42.50	-13	29.50
High channel										
961.2	32.91	72	2.1	H	-63.6	1.36	0.0	-64.96	-13	51.96
961.2	33.75	240	1.0	V	-60.3	1.36	0.0	-61.66	-13	48.66
3819.60	52.89	189	1.1	H	-49.2	1.50	11.80	-38.90	-13	25.90
3819.60	48.65	193	2.2	V	-52.9	1.50	11.80	-42.60	-13	29.60
WCDMA Mode										
Low channel										
946.9	32.14	299	2.4	H	-64.4	1.36	0.0	-65.76	-13	52.76
946.9	33.32	325	1.9	V	-60.7	1.36	0.0	-62.06	-13	49.06
3704.80	56.89	55	2.4	H	-44.9	1.60	11.90	-34.60	-13	21.60
3704.80	54.03	143	1.5	V	-47.2	1.60	11.90	-36.90	-13	23.90
Middle channel										
955.2	32.61	161	2.1	H	-63.9	1.36	0.0	-65.26	-13	52.26
955.2	33.46	2	1.9	V	-60.6	1.36	0.0	-61.96	-13	48.96
3760.00	57.12	45	1.9	H	-44.9	1.50	11.80	-34.60	-13	21.60
3760.00	54.83	254	1.9	V	-46.8	1.50	11.80	-36.50	-13	23.50
High channel										
969.7	32.81	304	2.5	H	-63.7	1.36	0.0	-65.06	-13	52.06
969.7	33.74	63	1.8	V	-60.3	1.36	0.0	-61.66	-13	48.66
3815.20	59.84	207	1.8	H	-42.2	1.50	11.80	-31.90	-13	18.90
3815.20	55.14	50	1.2	V	-46.4	1.50	11.80	-36.10	-13	23.10

30 MHz ~ 20 GHz:**AWS Band**

Frequency (MHz)	Receiver Reading (dBμV)	Turntable Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 27	
			Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)		Limit (dBm)	Margin (dB)
WCDMA Mode										
Low channel										
947.1	32.49	254	2.5	H	-64.0	1.36	0.0	-65.36	-13	52.36
947.1	33.67	34	1.6	V	-60.4	1.36	0.0	-61.76	-13	48.76
3424.80	55.23	219	1.2	H	-45.6	1.40	11.80	-35.20	-13	22.20
3424.80	53.62	55	1.3	V	-47.0	1.40	11.80	-36.60	-13	23.60
Middle channel										
956.8	32.56	22	1.8	H	-63.9	1.36	0.0	-65.26	-13	52.26
956.8	33.22	21	2.5	V	-60.8	1.36	0.0	-62.16	-13	49.16
3465.20	55.64	20	2.0	H	-45.1	1.50	12.00	-34.60	-13	21.60
3465.20	53.84	6	1.2	V	-47.7	1.50	12.00	-37.20	-13	24.20
High channel										
963.5	32.66	215	1.5	H	-63.8	1.36	0.0	-65.16	-13	52.16
963.5	33.31	251	1.7	V	-60.7	1.36	0.0	-62.06	-13	49.06
3505.20	56.14	286	1.4	H	-44.6	1.50	12.00	-34.10	-13	21.10
3505.20	54.02	44	1.1	V	-47.5	1.50	12.00	-37.00	-13	24.00

LTE Band: (Pre-scan with all the bandwidth, and worst case as below)

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 2										
Test frequency range: 30 MHz ~ 20 GHz										
1.4MHz, Low channel										
957.4	32.11	277	1.8	H	-64.4	1.36	0.0	-65.76	-13	52.76
957.4	33.52	244	1.8	V	-60.5	1.36	0.0	-61.86	-13	48.86
3701.40	49.41	268	1.0	H	-52.4	1.60	11.90	-42.10	-13	29.10
3701.40	49.05	198	1.4	V	-52.2	1.60	11.90	-41.90	-13	28.90
1.4MHz, Middle channel										
966.2	32.67	195	2.0	H	-63.8	1.36	0.0	-65.16	-13	52.16
966.2	33.24	334	2.2	V	-60.8	1.36	0.0	-62.16	-13	49.16
3760.00	49.35	2	1.0	H	-52.7	1.50	11.80	-42.40	-13	29.40
3760.00	49.12	353	1.2	V	-52.5	1.50	11.80	-42.20	-13	29.20
1.4MHz, High channel										
949.3	32.49	343	1.5	H	-64.0	1.36	0.0	-65.36	-13	52.36
949.3	33.55	82	1.4	V	-60.5	1.36	0.0	-61.86	-13	48.86
3818.60	49.51	37	1.0	H	-52.5	1.50	11.80	-42.20	-13	29.20
3818.60	49.12	57	1.2	V	-52.5	1.50	11.80	-42.20	-13	29.20
Band 4										
Test frequency range:30 MHz ~ 20 GHz										
1.4MHz, Low channel										
962.8	32.68	3	1.8	H	-63.8	1.36	0.0	-65.16	-13	52.16
962.8	33.26	226	1.6	V	-60.8	1.36	0.0	-62.16	-13	49.16
3421.40	52.30	338	1.6	H	-48.5	1.40	11.80	-38.10	-13	25.10
3421.40	49.34	318	2.1	V	-51.3	1.40	11.80	-40.90	-13	27.90
1.4MHz, Middle channel										
952.1	32.49	118	1.4	H	-64.0	1.36	0.0	-65.36	-13	52.36
952.1	33.55	240	1.6	V	-60.5	1.36	0.0	-61.86	-13	48.86
3465.00	51.97	262	1.2	H	-48.8	1.50	12.00	-38.30	-13	25.30
3465.00	48.85	39	2.4	V	-52.7	1.50	12.00	-42.20	-13	29.20
1.4MHz, High channel										
963.0	32.85	5	1.9	H	-63.7	1.36	0.0	-65.06	-13	52.06
963.0	33.67	39	1.5	V	-60.4	1.36	0.0	-61.76	-13	48.76
3508.60	52.24	91	2.4	H	-48.5	1.50	12.00	-38.00	-13	25.00
3508.60	49.17	342	1.8	V	-52.3	1.50	12.00	-41.80	-13	28.80

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 5										
Test frequency range:30 MHz ~ 10 GHz										
1.4MHz, Low channel										
947.0	32.57	249	2.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
947.0	33.26	352	1.2	V	-60.8	1.36	0.0	-62.16	-13	49.16
1649.40	47.86	170	1.0	H	-60.2	1.40	8.70	-52.90	-13	39.90
1649.40	48.16	342	2.2	V	-59.7	1.40	8.70	-52.40	-13	39.40
1.4MHz, Middle channel										
967.4	32.77	243	1.3	H	-63.7	1.36	0.0	-65.06	-13	52.06
967.4	33.90	256	1.5	V	-60.2	1.36	0.0	-61.56	-13	48.56
1673.00	47.51	225	1.0	H	-58.8	1.30	8.90	-51.20	-13	38.20
1673.00	48.10	130	2.1	V	-57.6	1.30	8.90	-50.00	-13	37.00
1.4MHz, High channel										
951.3	32.62	59	1.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
951.3	33.84	25	2.0	V	-60.2	1.36	0.0	-61.56	-13	48.56
1696.60	47.15	239	1.0	H	-59.2	1.30	8.90	-51.60	-13	38.60
1696.60	48.39	270	2.1	V	-57.3	1.30	8.90	-49.70	-13	36.70
Band 7										
Test frequency range: 30 MHz ~ 26.5 GHz										
5MHz, Low channel										
963.9	32.69	160	1.6	H	-63.8	1.36	0.0	-65.16	-25	40.16
963.9	33.85	226	1.4	V	-60.2	1.36	0.0	-61.56	-25	36.56
5005.00	52.68	116	1.9	H	-47.9	1.70	12.00	-37.60	-25	12.60
5005.00	53.82	122	2.3	V	-46.2	1.70	12.00	-35.90	-25	10.90
5MHz, Middle channel										
954.8	32.15	282	1.4	H	-64.4	1.36	0.0	-65.76	-25	40.76
954.8	33.32	193	1.6	V	-60.7	1.36	0.0	-62.06	-25	37.06
5070.00	52.85	270	1.5	H	-47.2	1.60	12.10	-36.70	-25	11.70
5070.00	53.96	57	2.4	V	-46.1	1.60	12.10	-35.60	-25	10.60
5MHz, High channel										
946.2	32.25	192	1.8	H	-64.3	1.36	0.0	-65.66	-25	40.66
946.2	33.02	291	1.1	V	-61.0	1.36	0.0	-62.36	-25	37.36
5135.00	52.72	80	1.5	H	-47.3	1.60	12.10	-36.80	-25	11.80
5135.00	53.67	10	1.4	V	-46.3	1.60	12.10	-35.80	-25	10.80

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level	Limit	Margin
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)	(dBm)	(dBm)	(dB)
Band 17										
Test frequency range: 30 MHz ~ 26.5 GHz										
5MHz, Low channel										
956.3	32.08	293	2.1	H	-64.4	1.36	0.0	-65.76	-13	52.76
956.3	33.46	232	2.3	V	-60.6	1.36	0.0	-61.96	-13	48.96
1413.00	52.82	247	1.0	H	-55.4	1.60	7.90	-49.10	-13	36.10
1413.00	49.44	227	2.2	V	-59.0	1.60	7.90	-52.70	-13	39.70
4945.50	51.37	312	1.9	H	-48.8	1.60	12.10	-38.30	-13	25.30
4945.50	47.30	261	2.3	V	-53.1	1.60	12.10	-42.60	-13	29.60
5MHz, Middle channel										
955.7	32.17	3	2.0	H	-64.3	1.36	0.0	-65.66	-13	52.66
955.7	33.49	72	2.0	V	-60.6	1.36	0.0	-61.96	-13	48.96
1420.00	52.66	200	1.0	H	-55.5	1.60	7.90	-49.20	-13	36.20
1420.00	49.35	123	2.4	V	-59.1	1.60	7.90	-52.80	-13	39.80
4970.00	51.16	114	1.7	H	-47.6	1.70	12.00	-37.30	-13	24.30
4970.00	47.35	296	1.7	V	-50.9	1.70	12.00	-40.60	-13	27.60
5MHz, High channel										
961.3	32.55	41	2.3	H	-64.0	1.36	0.0	-65.36	-13	52.36
961.3	33.67	320	1.6	V	-60.4	1.36	0.0	-61.76	-13	48.76
1427.00	52.73	268	1.0	H	-55.4	1.60	7.90	-49.10	-13	36.10
1427.00	49.18	278	1.4	V	-59.3	1.60	7.90	-53.00	-13	40.00
4994.50	51.50	298	1.8	H	-47.3	1.70	12.00	-37.00	-13	24.00
4994.50	47.62	121	1.2	V	-50.6	1.70	12.00	-40.30	-13	27.30
Band 38										
Test frequency range: 30 MHz ~26.5GHz										
5MHz, Low channel										
960.5	32.16	310	1.3	H	-64.3	1.36	0.0	-65.66	-25	40.66
960.5	33.32	141	1.8	V	-60.7	1.36	0.0	-62.06	-25	37.06
5145.00	44.51	354	1.9	H	-55.5	1.60	12.10	-45.00	-25	20.00
5145.00	44.76	242	1.3	V	-55.3	1.60	12.10	-44.80	-25	19.80
5MHz, Middle channel										
965.3	32.85	231	1.1	H	-63.7	1.36	0.0	-65.06	-25	40.06
965.3	33.94	276	1.3	V	-60.1	1.36	0.0	-61.46	-25	36.46
5190.00	44.68	276	2.0	H	-55.4	1.60	12.10	-44.90	-25	19.90
5190.00	44.52	83	2.0	V	-55.1	1.60	12.10	-44.60	-25	19.60
5MHz, High channel										
947.7	32.76	242	1.8	H	-63.7	1.36	0.0	-65.06	-25	40.06
947.7	33.85	181	2.3	V	-60.2	1.36	0.0	-61.56	-25	36.56
5235.00	44.47	50	1.6	H	-55.6	1.60	12.10	-45.10	-25	20.10
5235.00	44.80	182	2.0	V	-54.8	1.60	12.10	-44.30	-25	19.30

Frequency	Receiver	Turntable	Rx Antenna		Substituted			Absolute Level (dBm)	Limit (dBm)	Margin (dB)
(MHz)	Reading (dBμV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Cable Loss (dB)	Antenna Gain (dBd/dBi)			
Band 41										
Test frequency range: 30 MHz ~26.5GHz										
5MHz, Low channel										
952.3	32.64	86	2.4	H	-63.9	1.36	0.0	-65.26	-25	40.26
952.3	33.85	106	1.1	V	-60.2	1.36	0.0	-61.56	-25	36.56
5075.00	44.56	77	1.7	H	-55.4	1.60	12.10	-44.90	-25	19.90
5075.00	44.75	70	1.8	V	-55.3	1.60	12.10	-44.80	-25	19.80
5MHz, Middle channel										
960.0	32.75	289	1.2	H	-63.8	1.36	0.0	-65.16	-25	40.16
960.0	33.57	202	2.5	V	-60.5	1.36	0.0	-61.86	-25	37.86
5190.00	44.39	105	2.3	H	-55.7	1.60	12.10	-45.20	-25	20.20
5190.00	44.68	96	2.3	V	-54.9	1.60	12.10	-44.40	-25	19.40
5 MHz, High channel										
945.1	32.15	179	1.3	H	-64.4	1.36	0.0	-65.76	-25	40.76
945.1	33.22	177	2.3	V	-60.8	1.36	0.0	-62.16	-25	37.16
5305.00	44.61	294	1.3	H	-55.1	1.60	12.20	-44.50	-25	19.50
5305.00	44.86	9	1.7	V	-54.3	1.60	12.20	-43.70	-25	18.70
Band 66										
Test frequency range: 30 MHz ~ 20GHz										
1.4MHz, Low channel										
956.2	32.62	71	1.2	H	-63.9	1.36	0.0	-65.26	-13	52.26
956.2	33.48	358	1.4	V	-60.6	1.36	0.0	-61.96	-13	48.96
3421.40	51.25	273	1.5	H	-49.5	1.40	11.80	-39.10	-13	26.10
3421.40	50.36	320	1.4	V	-50.2	1.40	11.80	-39.80	-13	26.80
5132.10	48.76	56	1.3	H	-51.2	1.60	12.10	-40.70	-13	27.70
5132.10	46.85	43	1.3	V	-53.2	1.60	12.10	-42.70	-13	29.70
1.4MHz, Middle channel										
967.1	32.85	244	1.9	H	-63.7	1.36	0.0	-65.06	-13	52.06
967.1	33.52	298	1.7	V	-60.5	1.36	0.0	-61.86	-13	48.86
3490.00	51.87	186	1.2	H	-48.9	1.50	12.00	-38.40	-13	25.40
3490.00	50.16	112	2.3	V	-51.3	1.50	12.00	-40.80	-13	27.80
5235.00	48.65	117	1.7	H	-51.4	1.60	12.10	-40.90	-13	27.90
5235.00	46.78	148	2.3	V	-52.8	1.60	12.10	-42.30	-13	29.30
1.4MHz, High channel										
969.0	32.66	154	1.1	H	-63.8	1.36	0.0	-65.16	-13	52.16
969.0	33.75	154	1.3	V	-60.3	1.36	0.0	-61.66	-13	48.66
3558.60	52.03	23	2.5	H	-49.5	1.50	12.10	-38.90	-13	25.90
3558.60	50.85	67	1.1	V	-50.2	1.50	12.10	-39.60	-13	26.60
5337.90	48.35	285	2.3	H	-51.4	1.60	12.20	-40.80	-13	27.80
5337.90	46.71	242	1.3	V	-52.5	1.60	12.20	-41.90	-13	28.90

Note:

Absolute Level = Substituted Level - Cable loss + Antenna Gain

Margin = Limit- Absolute Level

dBd is for the ERP, dBi is for EIRP.

FCC § 22.917 (a); § 24.238 (a); § 27.53(c) (h)(m) - BAND EDGES**Applicable Standard**

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

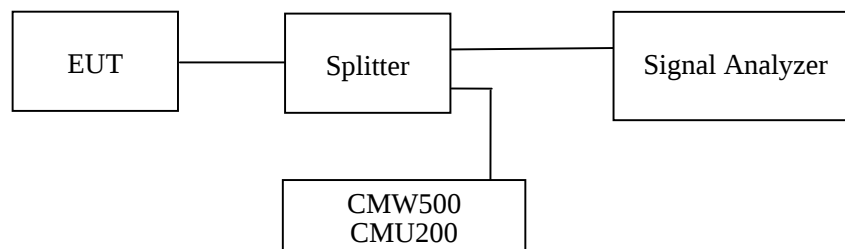
According to § 24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to FCC § 27.53 (c)(h)(m), the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

Test Procedure

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

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



Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

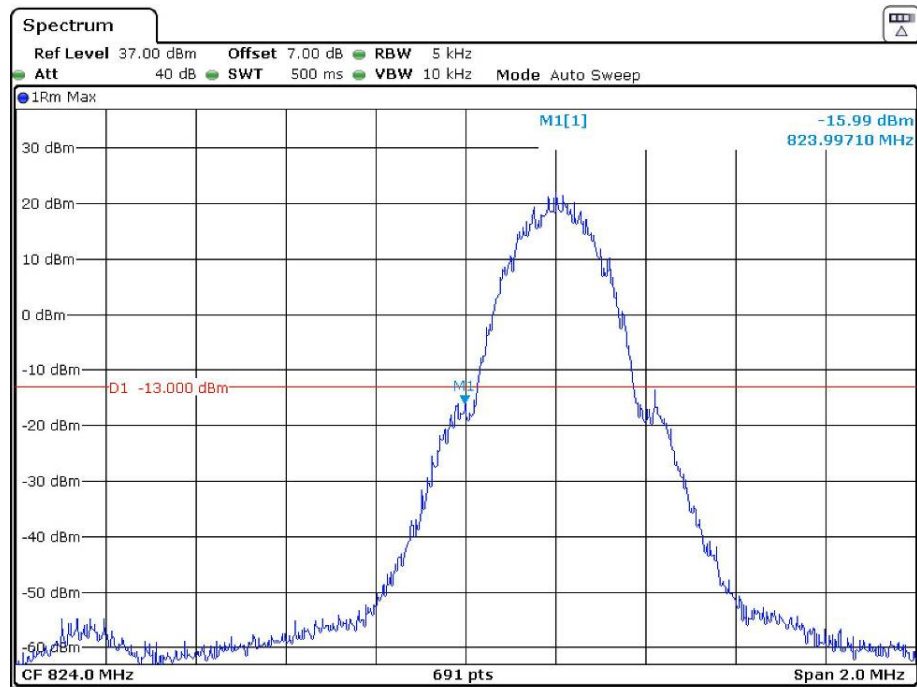
The testing was performed by Gavin Guo from 2021-02-05 to 2021-04-06.

EUT operation mode: Transmitting (Worst case)

Test Result: Pass

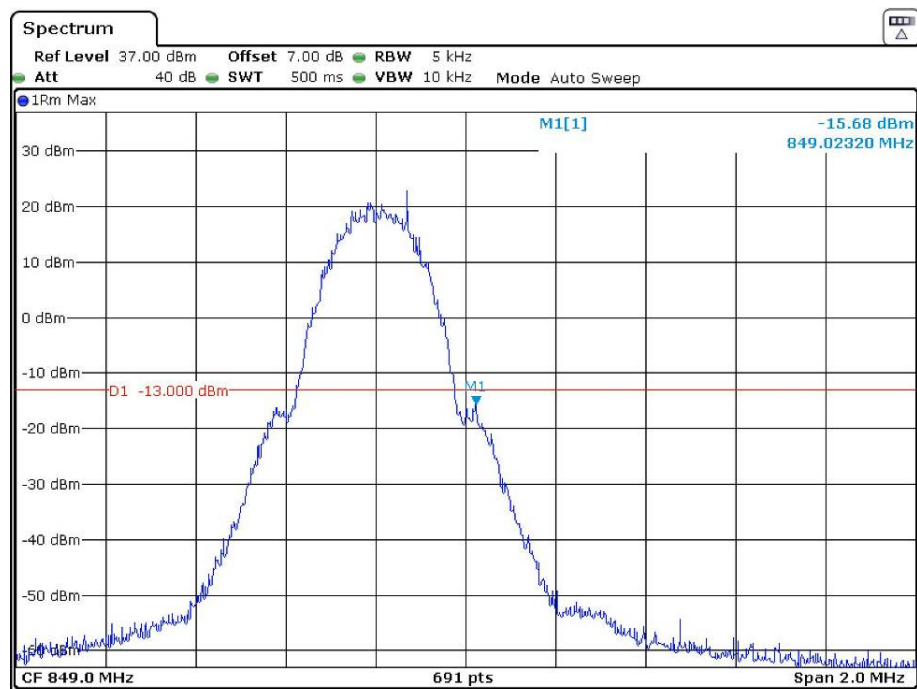
Please refer to the following plots.

Cellular Band, Left Band Edge for GSM (GMSK) Mode



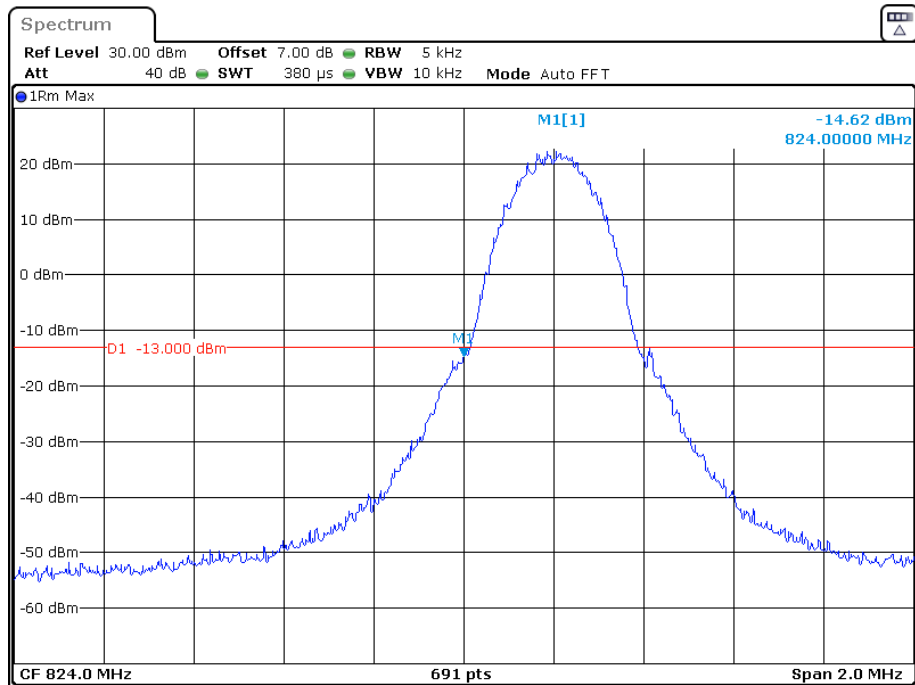
Date: 19.FEB.2021 14:27:36

Cellular Band, Right Band Edge for GSM (GMSK) Mode



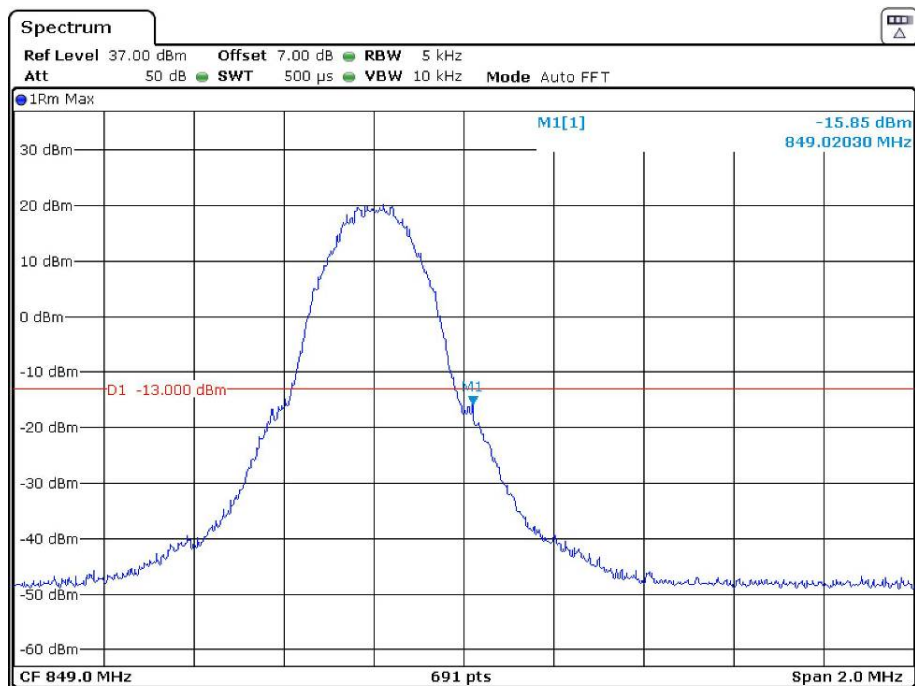
Date: 19.FEB.2021 14:28:55

Cellular Band, Left Band Edge for EGPRS (GMSK) Mode



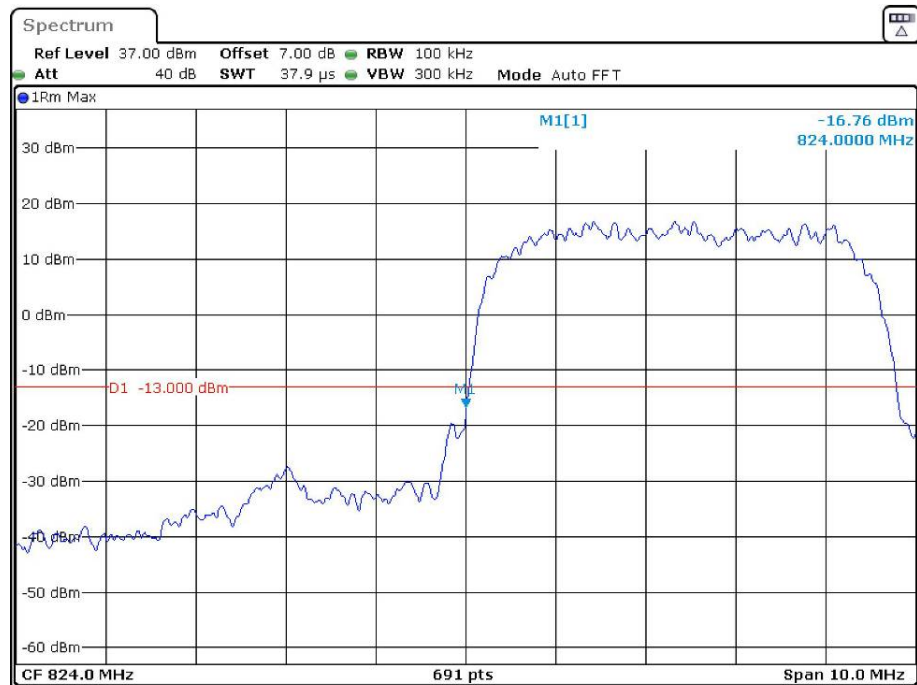
Date: 6.APR.2021 14:41:23

Cellular Band, Right Band Edge for EGPRS (GMSK) Mode



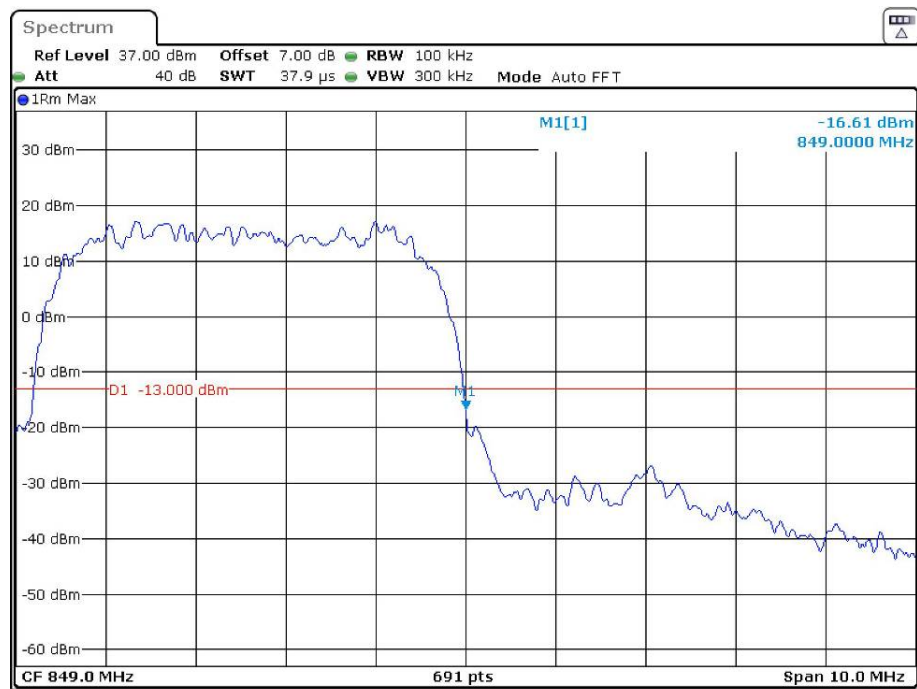
Date: 19.FEB.2021 15:05:30

Cellular Band, Left Band Edge for WCDMA (BPSK) Mode



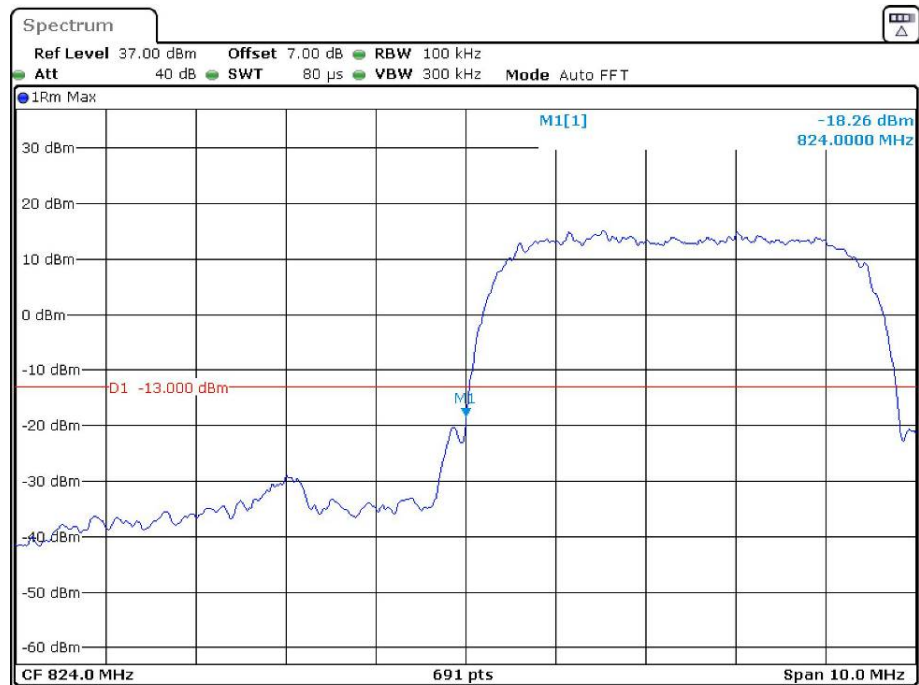
Date: 19.FEB.2021 19:57:42

Cellular Band, Right Band Edge for WCDMA (BPSK) Mode



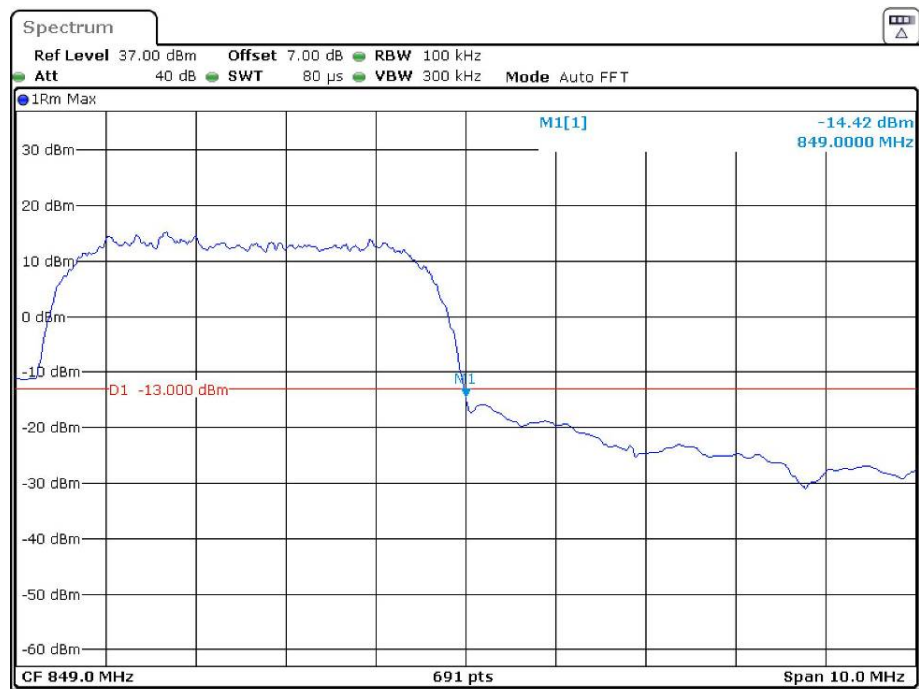
Date: 19.FEB.2021 19:57:09

Cellular Band, Left Band Edge for HSDPA (16QAM) Mode



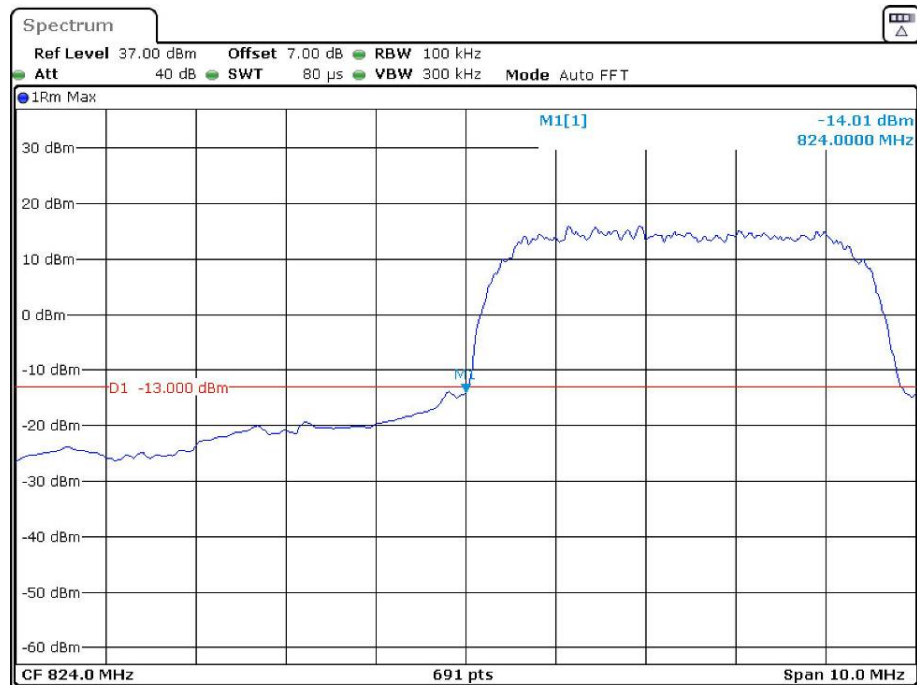
Date: 19.FEB.2021 20:03:18

Cellular Band, Right Band Edge for HSDPA (16QAM) Mode



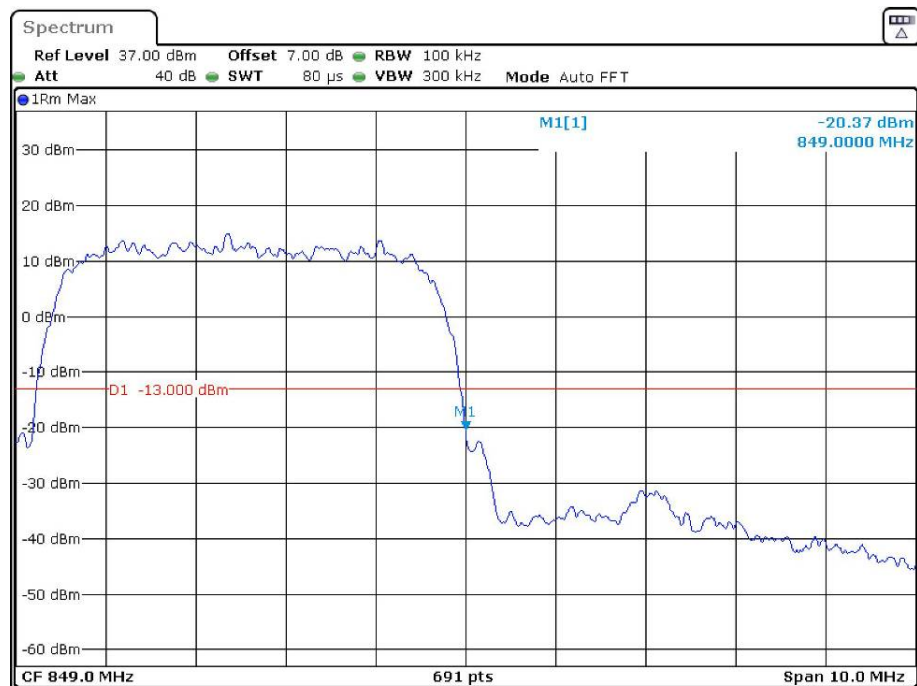
Date: 19.FEB.2021 20:01:23

Cellular Band, Left Band Edge for HSUPA (BPSK) Mode



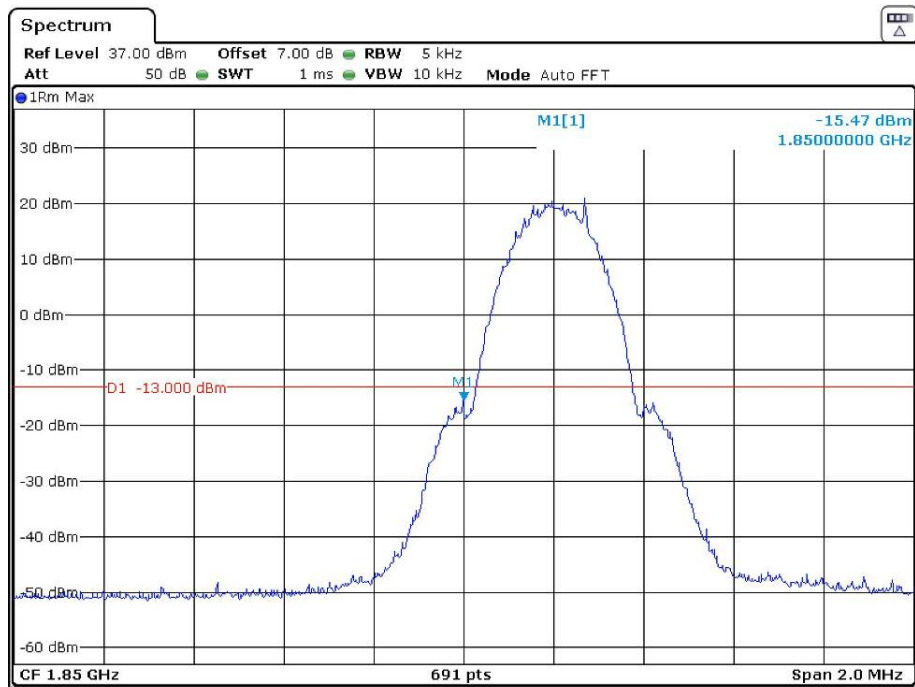
Date: 19.FEB.2021 19:59:36

Cellular Band, Right Band Edge for HSUPA (BPSK) Mode



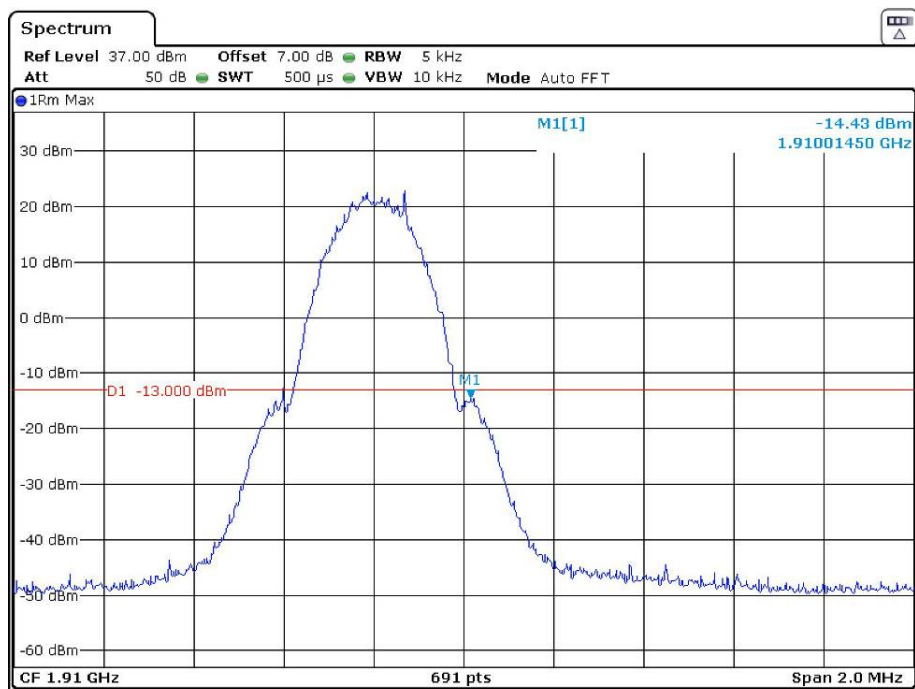
Date: 19.FEB.2021 20:00:14

PCS Band, Left Band Edge for GSM (GMSK) Mode



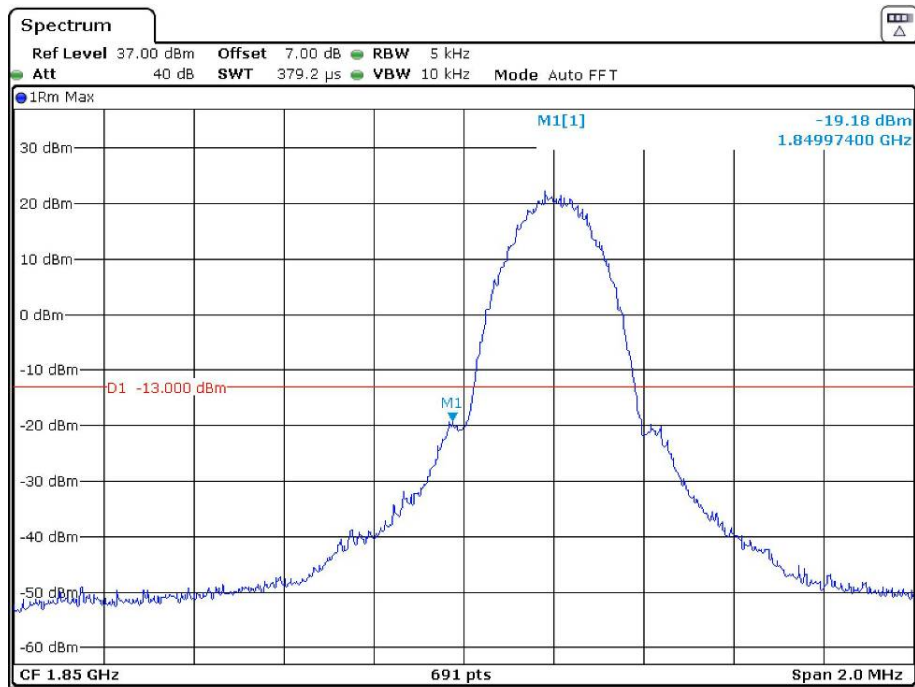
Date: 19.FEB.2021 15:14:11

PCS Band, Right Band Edge for GSM (GMSK) Mode



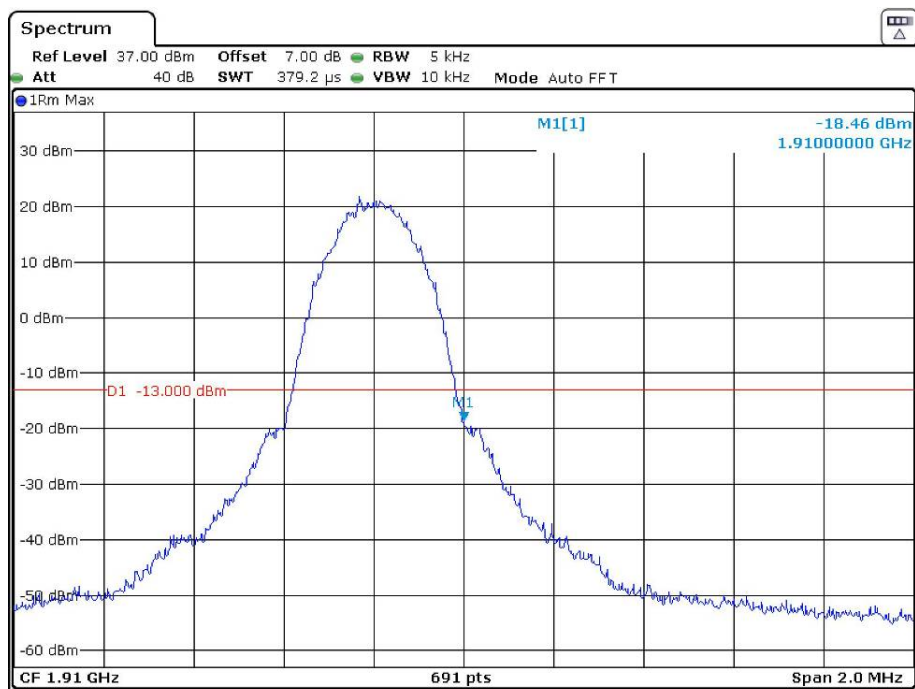
Date: 19.FEB.2021 15:12:57

PCS Band, Left Band Edge for EGPRS (GMSK) Mode



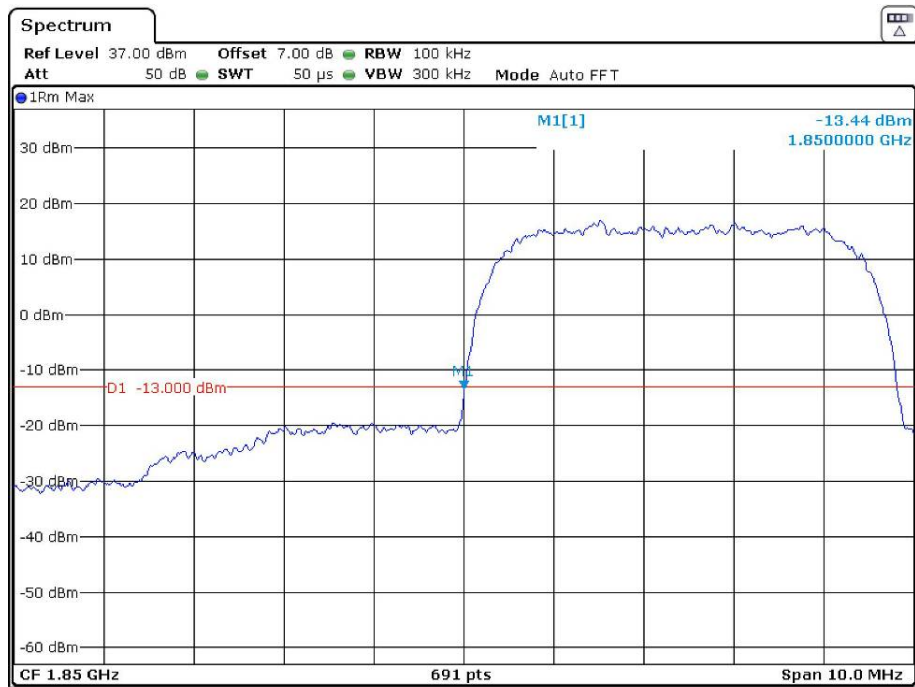
Date: 19.FEB.2021 15:45:55

PCS Band, Right Band Edge for EGPRS (GMSK) Mode



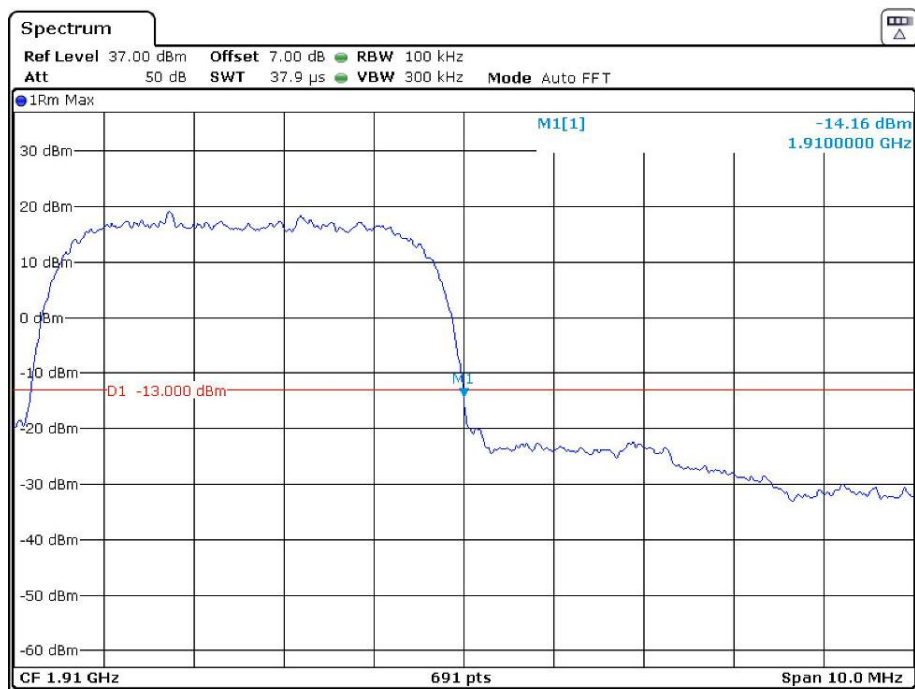
Date: 19.FEB.2021 15:46:46

PCS Band, Left Band Edge for WCDMA (BPSK) Mode



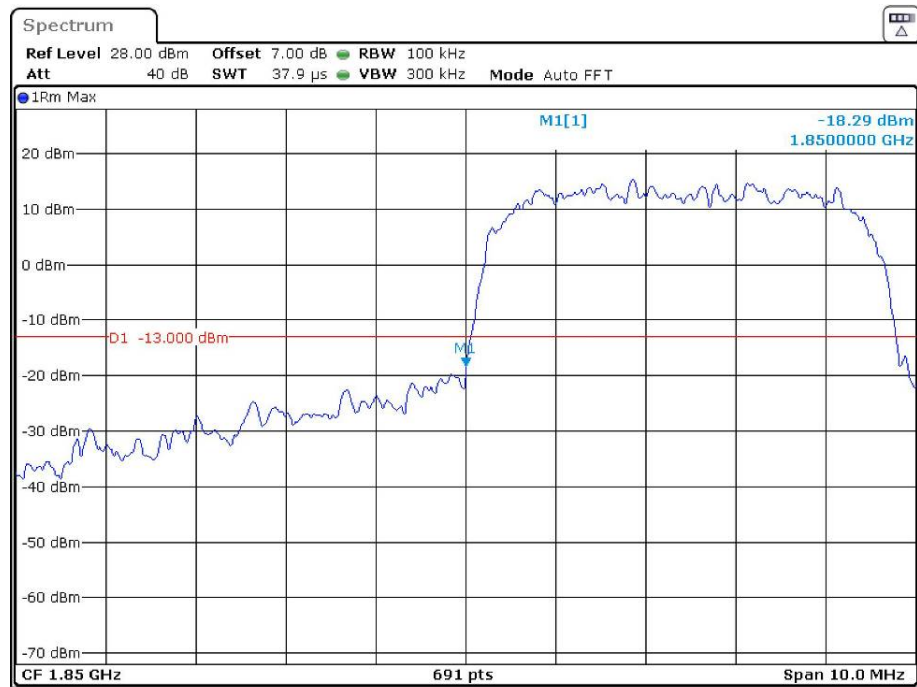
Date: 19.FEB.2021 18:52:03

PCS Band, Right Band Edge for WCDMA (BPSK) Mode



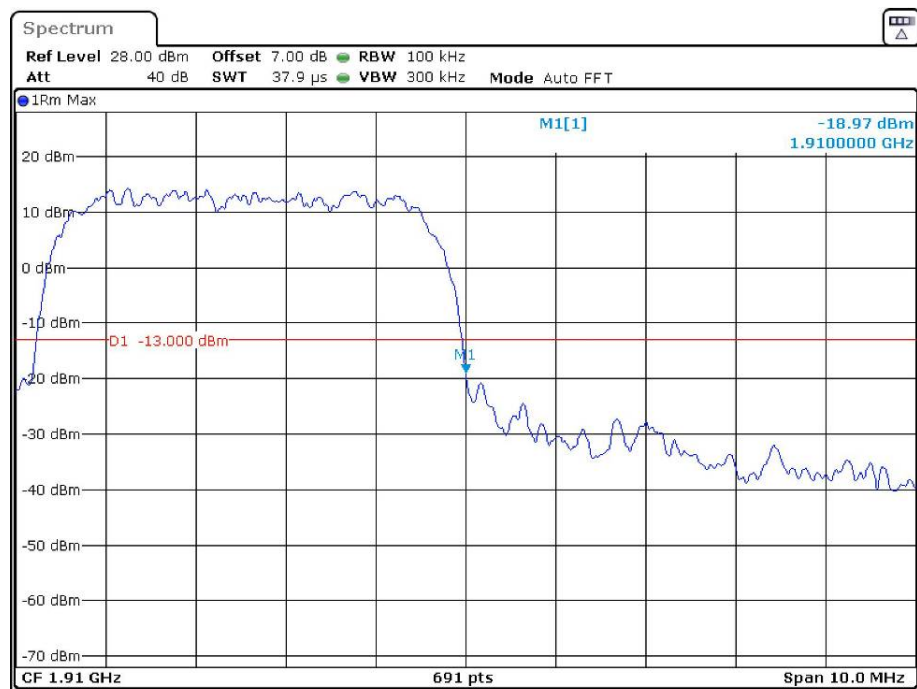
Date: 19.FEB.2021 18:50:59

PCS Band, Left Band Edge for HSDPA (16QAM) Mode



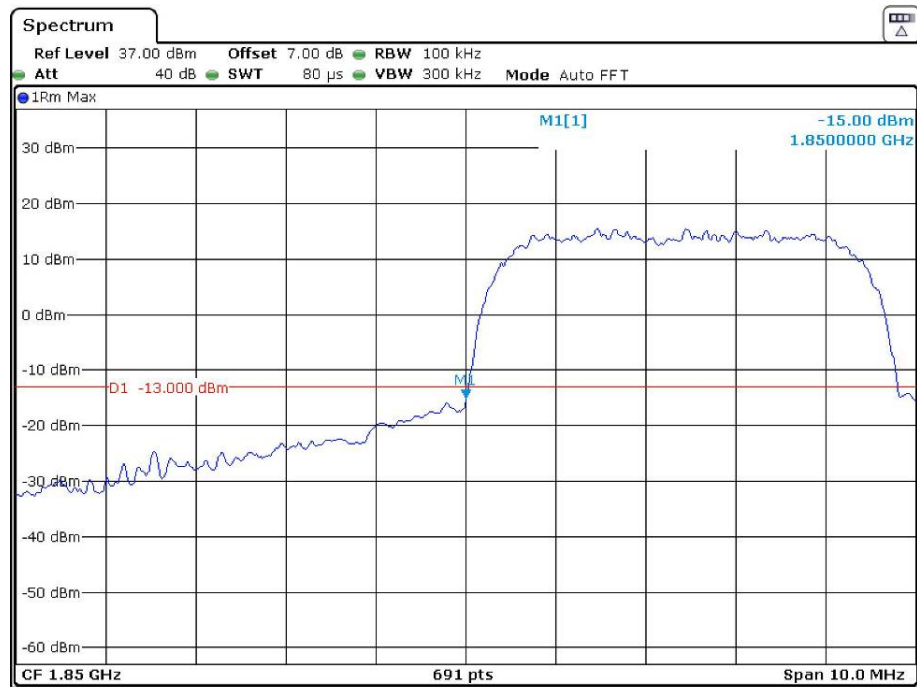
Date: 19.FEB.2021 19:08:54

PCS Band, Right Band Edge for HSDPA (16QAM) Mode



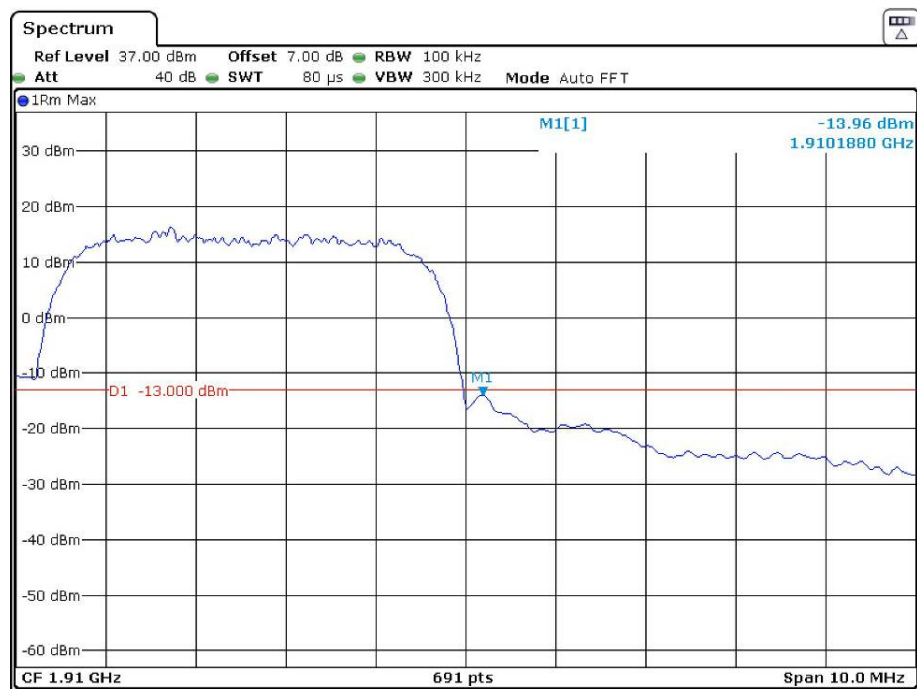
Date: 19.FEB.2021 19:09:38

PCS Band, Left Band Edge for HSUPA (BPSK) Mode



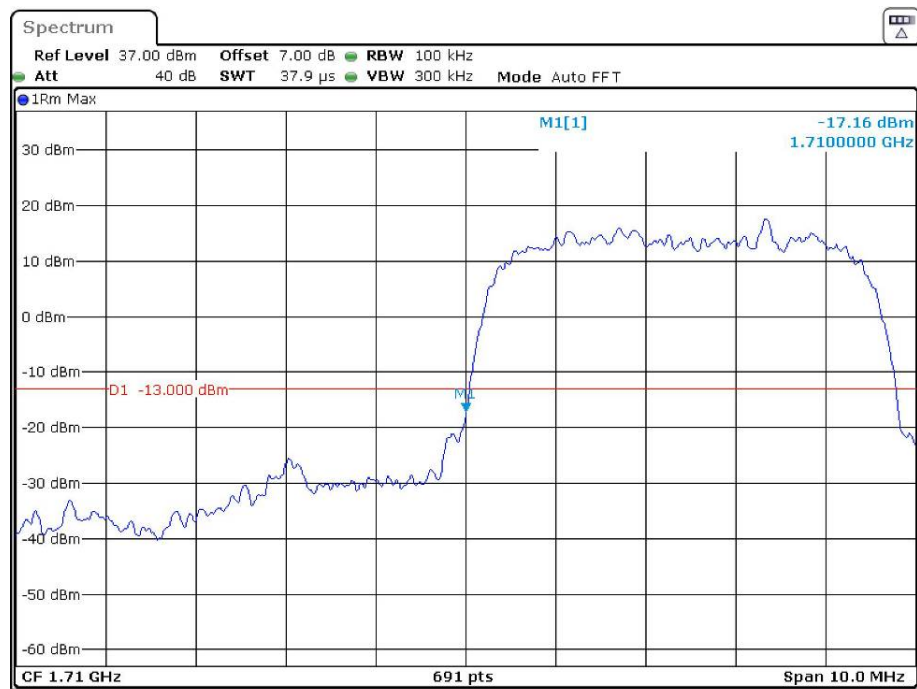
Date: 20.FEB.2021 16:42:07

PCS Band, Right Band Edge for HSUPA (BPSK) Mode



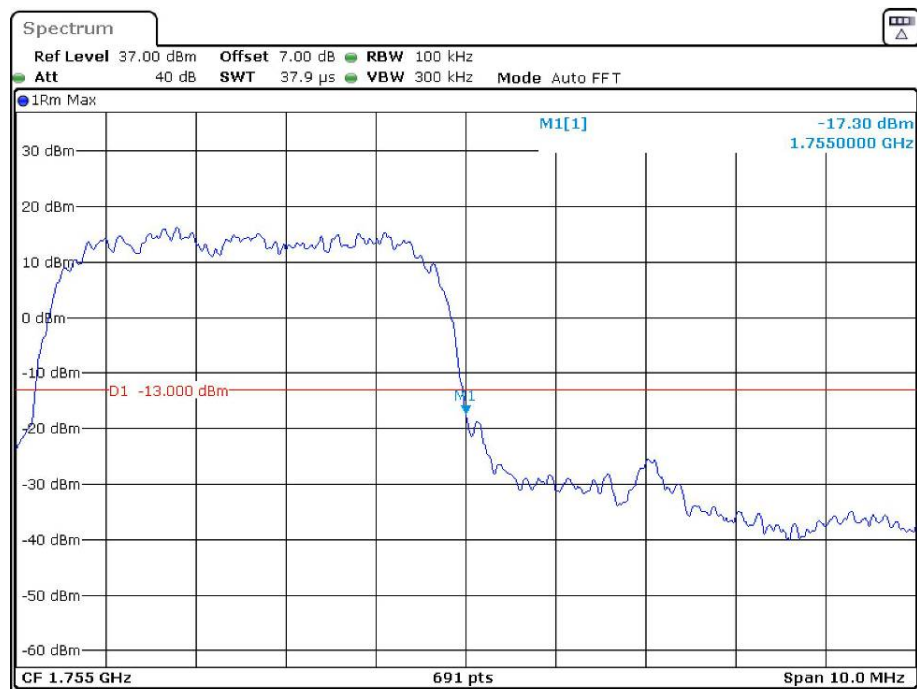
Date: 20.FEB.2021 16:42:34

AWS Band, Left Band Edge for WCDMA (BPSK) Mode



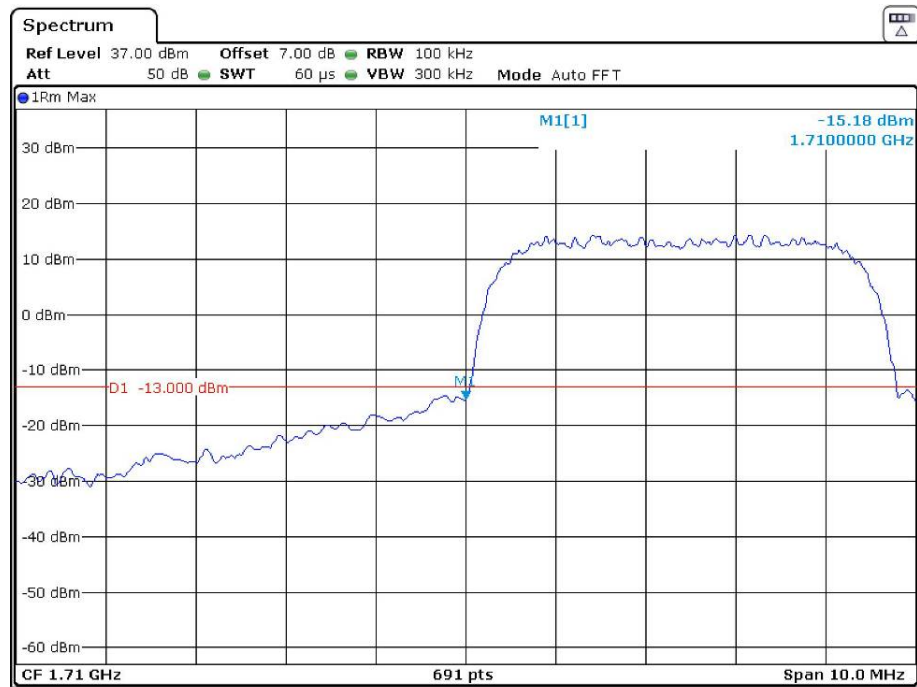
Date: 19.FEB.2021 19:44:16

AWS Band, Right Band Edge for WCDMA (BPSK) Mode



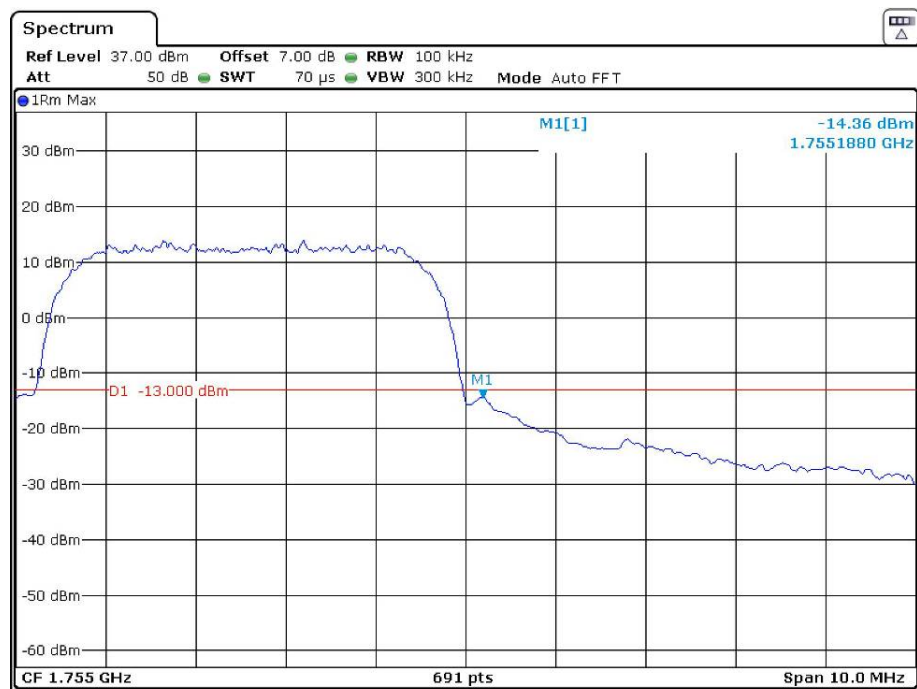
Date: 19.FEB.2021 19:44:51

AWS Band, Left Band Edge for HSDPA (16QAM) Mode



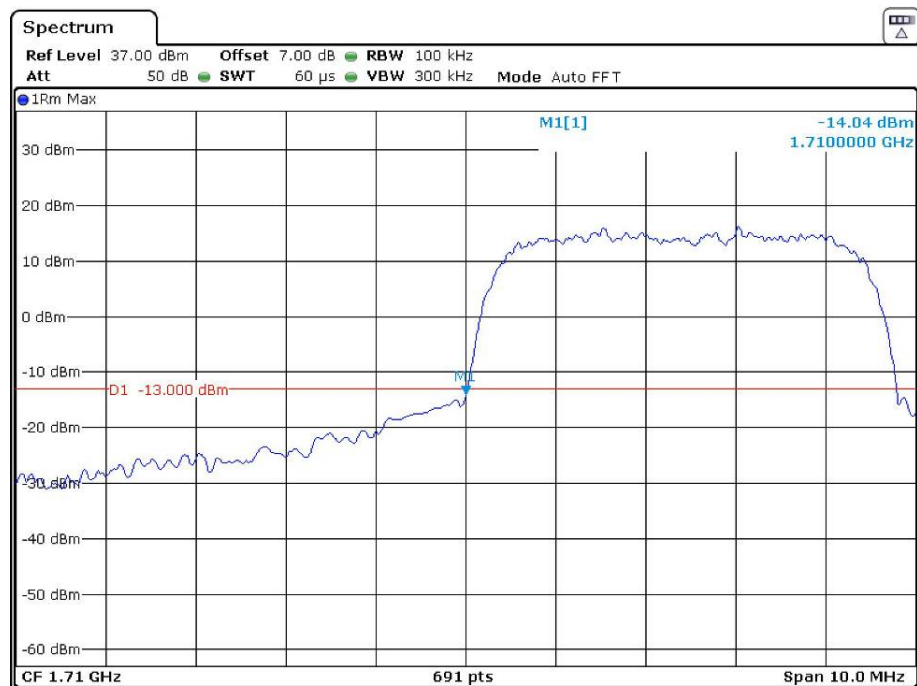
Date: 20.FEB.2021 13:46:27

AWS Band, Right Band Edge for HSDPA (16QAM) Mode



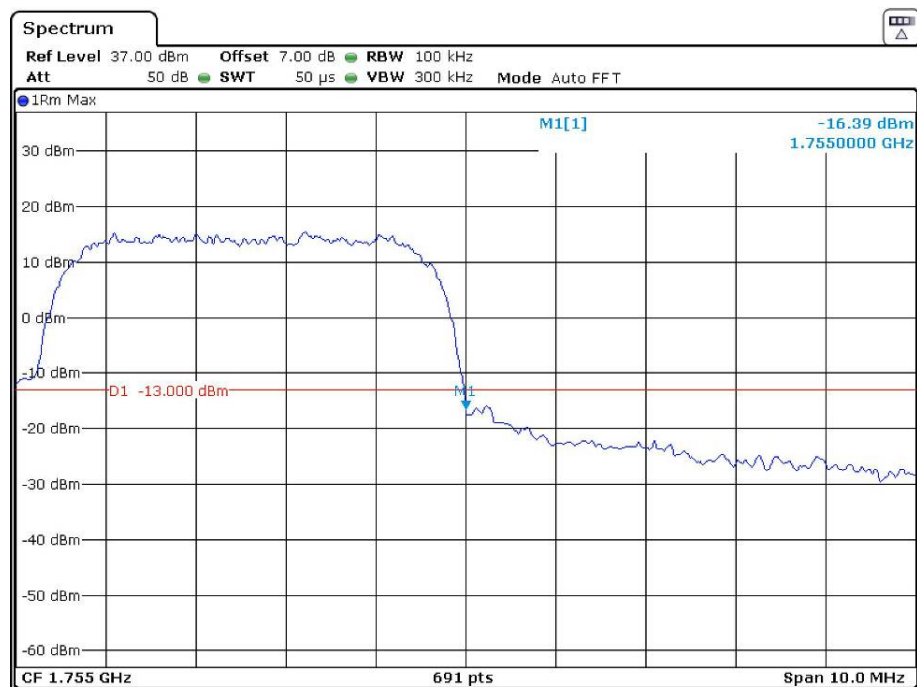
Date: 20.FEB.2021 13:48:36

AWS Band, Left Band Edge for HSUPA (BPSK) Mode



Date: 20.FEB.2021 13:45:47

AWS Band, Right Band Edge for HSUPA (BPSK) Mode



Date: 20.FEB.2021 13:44:44

The test plot of LTE band please refer to the Appendix C.

FCC § 2.1055; § 22.355; § 24.235; §27.54 - FREQUENCY STABILITY**Applicable Standard**

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

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

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

Frequency Tolerance for Transmitters in the Public Mobile Services

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

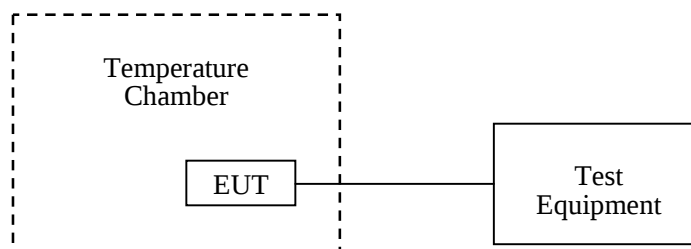
According to §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Procedure

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

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

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



Test Data**Environmental Conditions**

Temperature:	25 °C
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

The testing was performed by Gavin Guo from 2021-02-05 to 2021-03-22.

EUT operation mode: Transmitting

Test Result: Pass

Please refer to the following tables.

Cellular Band (Part 22H)**GSM Mode**

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	7	0.0084	2.5
-20		7	0.0084	2.5
-10		10	0.0120	2.5
0		3	0.0036	2.5
10		8	0.0096	2.5
20		9	0.0108	2.5
30		8	0.0096	2.5
40		7	0.0084	2.5
50		8	0.0096	2.5
20	3.45	10	0.0120	2.5
	4.4	5	0.0060	2.5

EDGE Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	3	0.0036	2.5
-20		6	0.0072	2.5
-10		7	0.0084	2.5
0		4	0.0048	2.5
10		9	0.0108	2.5
20		7	0.0084	2.5
30		10	0.0120	2.5
40		8	0.0096	2.5
50		7	0.0084	2.5
20	3.45	9	0.0108	2.5
	4.4	7	0.0084	2.5

WCDMA Mode

Middle Channel, $f_0=836.6\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	2	0.0024	2.5
-20		3	0.0036	2.5
-10		-1	-0.0012	2.5
0		6	0.0072	2.5
10		7	0.0084	2.5
20		8	0.0096	2.5
30		8	0.0096	2.5
40		2	0.0024	2.5
50		5	0.0060	2.5
20	3.45	6	0.0072	2.5
	4.4	1	0.0012	2.5

PCS Band (Part 24E)**GSM Mode**

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	-4	-0.0021	pass
-20		6	0.0032	pass
-10		6	0.0032	pass
0		8	0.0043	pass
10		-2	-0.0011	pass
20		5	0.0027	pass
30		-2	-0.0011	pass
40		8	0.0043	pass
50		6	0.0032	pass
20	3.45	6	0.0032	pass
	4.4	-2	-0.0011	pass

EDGE Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	-5	-0.0027	pass
-20		-3	-0.0016	pass
-10		2	0.0011	pass
0		1	0.0005	pass
10		-5	-0.0027	pass
20		1	0.0005	pass
30		-1	-0.0005	pass
40		1	0.0005	pass
50		-5	-0.0027	pass
20	3.45	1	0.0005	pass
	4.4	0	0	pass

WCDMA Mode

Middle Channel, $f_0 = 1880.0$ MHz				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	9	0.0048	pass
-20		6	0.0032	pass
-10		9	0.0048	pass
0		7	0.0037	pass
10		9	0.0048	pass
20		4	0.0021	pass
30		6	0.0032	pass
40		5	0.0027	pass
50		4	0.0021	pass
20	3.45	3	0.0016	pass
	4.4	6	0.0032	pass

AWS Band (Part 27)

Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	1710.0657	1754.9365	1710	1755
-20		1710.0655	1754.9328	1710	1755
-10		1710.0643	1754.9309	1710	1755
0		1710.0602	1754.9367	1710	1755
10		1710.0623	1754.9335	1710	1755
20		1710.0612	1754.9351	1710	1755
30		1710.0625	1754.9353	1710	1755
40		1710.0649	1754.9343	1710	1755
50		1710.0601	1754.9320	1710	1755
20	3.45	1710.0654	1754.9348	1710	1755
	4.4	1710.0606	1754.9312	1710	1755

LTE:
QPSK:

Band 2:

10.0 MHz Middle Channel, $f_o=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	-5.64	-0.003	pass
-20		-9.97	-0.0053	pass
-10		-6.13	-0.0033	pass
0		6.17	0.0033	pass
10		7.92	0.0042	pass
20		6.46	0.0034	pass
30		-6.52	-0.0035	pass
40		7.18	0.0038	pass
50		-9.69	-0.0052	pass
20	3.45	-8.17	-0.0043	pass
	4.4	-7.05	-0.0038	pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	1710.4005	1754.5615	1710	1755
-20		1710.4171	1754.5347	1710	1755
-10		1710.3989	1754.5299	1710	1755
0		1710.3808	1754.5883	1710	1755
10		1710.4662	1754.5599	1710	1755
20		1710.3992	1754.4956	1710	1755
30		1710.4002	1754.4626	1710	1755
40		1710.4384	1754.5112	1710	1755
50		1710.3886	1754.5532	1710	1755
20	3.45	1710.4346	1754.5284	1710	1755
	4.4	1710.4657	1754.5903	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_o=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V_{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	-9.03	-0.0108	2.5
-20		9.11	0.0109	2.5
-10		8.51	0.0102	2.5
0		-7.15	-0.0085	2.5
10		-5.29	-0.0063	2.5
20		7.24	0.0087	2.5
30		-5.81	-0.0069	2.5
40		5.59	0.0067	2.5
50		6.87	0.0082	2.5
20	3.45	9.94	0.0119	2.5
	4.4	9.99	0.0119	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V_{DC})	F_L (MHz)	F_H (MHz)	F_L Limit (MHz)	F_H Limit (MHz)
-30	3.87	2500.4078	2569.5484	2500	2570
-20		2500.5082	2569.4884	2500	2570
-10		2500.4724	2569.5752	2500	2570
0		2500.4902	2569.5205	2500	2570
10		2500.4685	2569.5281	2500	2570
20		2500.4648	2569.5680	2500	2570
30		2500.5106	2569.4452	2500	2570
40		2500.4246	2569.5354	2500	2570
50		2500.4701	2569.5584	2500	2570
20	3.45	2500.4109	2569.5146	2500	2570
	4.4	2500.4323	2569.4945	2500	2570

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	704.4087	715.5471	704	716
-20		704.5083	715.4891	704	716
-10		704.4721	715.5749	704	716
0		704.4889	715.5209	704	716
10		704.4673	715.5278	704	716
20		704.4650	715.5685	704	716
30		704.5109	715.4454	704	716
40		704.4240	715.5364	704	716
50		704.4704	715.5599	704	716
20	3.45	704.4106	715.5146	704	716
	4.4	704.4327	715.4944	704	716

Band 38:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2570.0292	2619.9135	2570	2620
-20		2570.0539	2619.9189	2570	2620
-10		2570.0734	2619.9157	2570	2620
0		2570.0475	2619.9017	2570	2620
10		2570.0112	2619.9582	2570	2620
20		2570.0991	2619.9035	2570	2620
30		2570.0171	2619.9341	2570	2620
40		2570.0842	2619.9974	2570	2620
50		2570.0067	2619.9457	2570	2620
20	3.45	2570.0834	2619.9023	2570	2620
	4.4	2570.1002	2619.9826	2570	2620

Band 41:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2535.0741	2654.9232	2535	2655
-20		2535.0501	2654.9877	2535	2655
-10		2535.0388	2654.9084	2535	2655
0		2535.0272	2654.9034	2535	2655
10		2535.0151	2654.9472	2535	2655
20		2535.0700	2654.9044	2535	2655
30		2535.0475	2654.9648	2535	2655
40		2535.0417	2654.9917	2535	2655
50		2535.0924	2654.9792	2535	2655
20	3.45	2535.0310	2654.9552	2535	2655
	4.4	2535.0261	2654.9785	2535	2655

Note: The applicant declared the operating frequency range is 2535-2655MHz.

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	1710.3736	1779.6231	1710	1780
-20		1710.3506	1779.6872	1710	1780
-10		1710.3384	1779.6086	1710	1780
0		1710.3267	1779.6029	1710	1780
10		1710.3148	1779.6459	1710	1780
20		1710.3700	1779.6046	1710	1780
30		1710.3480	1779.6638	1710	1780
40		1710.3408	1779.6918	1710	1780
50		1710.3928	1779.6791	1710	1780
20	3.45	1710.3311	1779.6550	1710	1780
	4.4	1710.3263	1779.6787	1710	1780

16QAM:**Band 2:**

10.0 MHz Middle Channel, $f_o=1880\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Result
-30	3.87	-7	-0.0037	pass
-20		-4	-0.0021	pass
-10		15	0.0080	pass
0		-2	-0.0011	pass
10		9	0.0048	pass
20		-10	-0.0053	pass
30		-6	-0.0032	pass
40		-4	-0.0021	pass
50		11	0.0059	pass
20	3.45	11	0.0059	pass
	4.4	11	0.0059	pass

Band 4:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	1710.3578	1754.5234	1710	1755
-20		1710.4046	1754.5070	1710	1755
-10		1710.5067	1754.5631	1710	1755
0		1710.3410	1754.5772	1710	1755
10		1710.4146	1754.5563	1710	1755
20		1710.4100	1754.5087	1710	1755
30		1710.4145	1754.5495	1710	1755
40		1710.4410	1754.4748	1710	1755
50		1710.4575	1754.6369	1710	1755
20	3.45	1710.4287	1754.5996	1710	1755
	4.4	1710.4474	1754.5462	1710	1755

Band 5:

10.0 MHz Middle Channel, $f_0=836.5\text{MHz}$				
Temperature (°C)	Voltage Supplied (V _{DC})	Frequency Error (Hz)	Frequency Error (ppm)	Limit (ppm)
-30	3.87	-3.60	-0.0043	2.5
-20		6.80	0.0081	2.5
-10		-9.52	-0.0114	2.5
0		-8.15	-0.0097	2.5
10		-8.88	-0.0106	2.5
20		-9.82	-0.0117	2.5
30		8.38	0.01	2.5
40		6.75	0.0081	2.5
50		-5.89	-0.007	2.5
20	3.45	8.98	0.0107	2.5
	4.4	-7.83	-0.0094	2.5

Band 7:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2500.4812	2569.4722	2500	2570
-20		2500.5114	2569.5651	2500	2570
-10		2500.5091	2569.5379	2500	2570
0		2500.4794	2569.5780	2500	2570
10		2500.5073	2569.5504	2500	2570
20		2500.4451	2569.5266	2500	2570
30		2500.4972	2569.4916	2500	2570
40		2500.4728	2569.5320	2500	2570
50		2500.4406	2569.5691	2500	2570
20	3.45	2500.4132	2569.5514	2500	2570
	4.4	2500.4530	2569.4974	2500	2570

Band 17:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	704.4132	715.5465	704	716
-20		704.5078	715.4901	704	716
-10		704.4669	715.5746	704	716
0		704.4902	715.5166	704	716
10		704.4680	715.5367	704	716
20		704.4651	715.5744	704	716
30		704.5062	715.4458	704	716
40		704.4272	715.5410	704	716
50		704.4726	715.5522	704	716
20	3.45	704.4149	715.5175	704	716
	4.4	704.4289	715.4895	704	716

Band 38:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2570.0329	2619.9313	2570	2620
-20		2570.0290	2619.9348	2570	2620
-10		2570.0345	2619.9314	2570	2620
0		2570.0335	2619.9401	2570	2620
10		2570.0297	2619.9353	2570	2620
20		2570.0303	2619.9403	2570	2620
30		2570.0283	2619.9274	2570	2620
40		2570.0317	2619.9226	2570	2620
50		2570.0264	2619.9343	2570	2620
20	3.45	2570.0393	2619.9361	2570	2620
	4.4	2570.0290	2619.9317	2570	2620

Band 41:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	2535.0756	2654.9163	2535	2655
-20		2535.0558	2654.9875	2535	2655
-10		2535.0326	2654.9122	2535	2655
0		2535.0308	2654.9042	2535	2655
10		2535.0125	2654.9529	2535	2655
20		2535.0703	2654.9080	2535	2655
30		2535.0451	2654.9659	2535	2655
40		2535.0464	2654.9948	2535	2655
50		2535.0899	2654.9716	2535	2655
20	3.45	2535.0318	2654.9522	2535	2655
	4.4	2535.0212	2654.9776	2535	2655

Note: The applicant declared the operating frequency range is 2535-2655MHz.

Band 66:

10 MHz Bandwidth					
Temperature (°C)	Power Supplied (V _{DC})	F _L (MHz)	F _H (MHz)	F _L Limit (MHz)	F _H Limit (MHz)
-30	3.87	1710.3768	1779.6278	1710	1780
-20		1710.3508	1779.6841	1710	1780
-10		1710.3306	1779.6086	1710	1780
0		1710.3257	1779.6023	1710	1780
10		1710.3201	1779.6530	1710	1780
20		1710.3695	1779.6111	1710	1780
30		1710.3417	1779.6642	1710	1780
40		1710.3448	1779.6872	1710	1780
50		1710.3899	1779.6798	1710	1780
20	3.45	1710.3321	1779.6570	1710	1780
	4.4	1710.3304	1779.6709	1710	1780

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