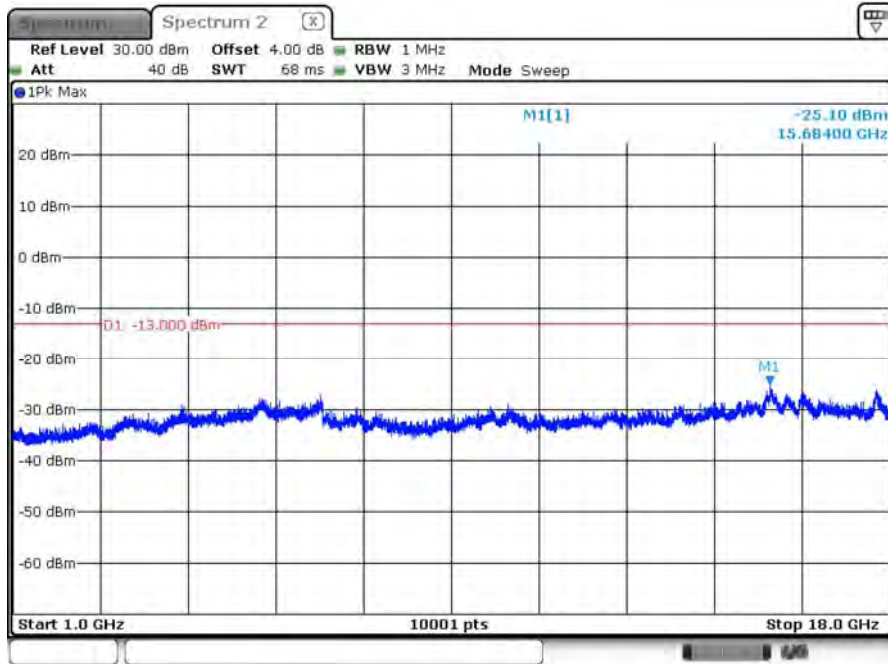
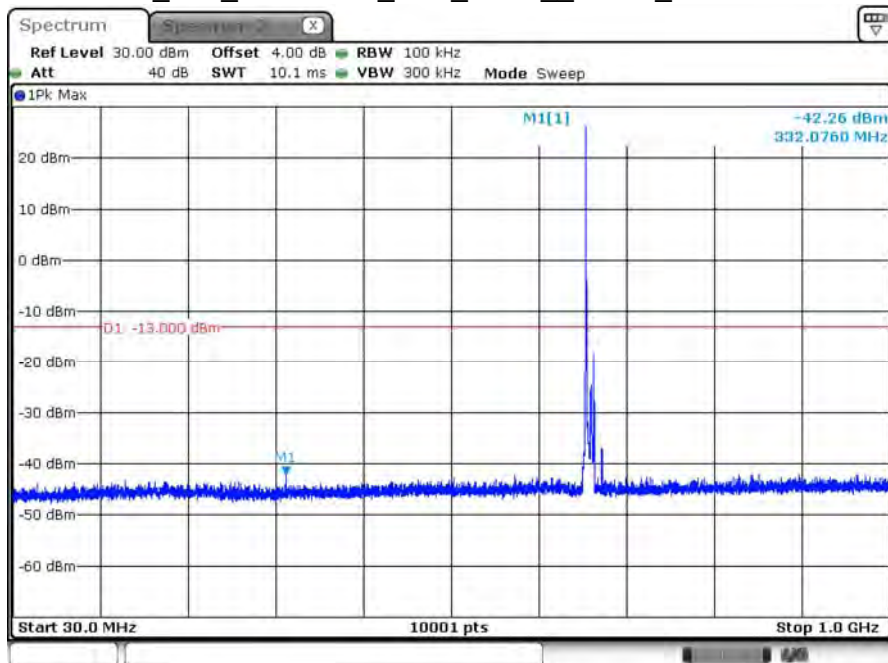


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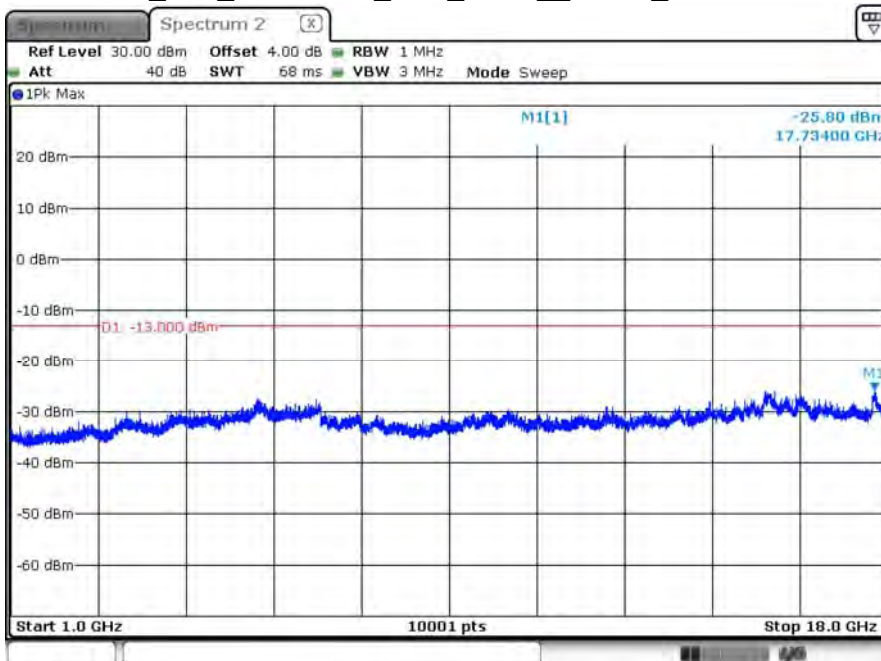
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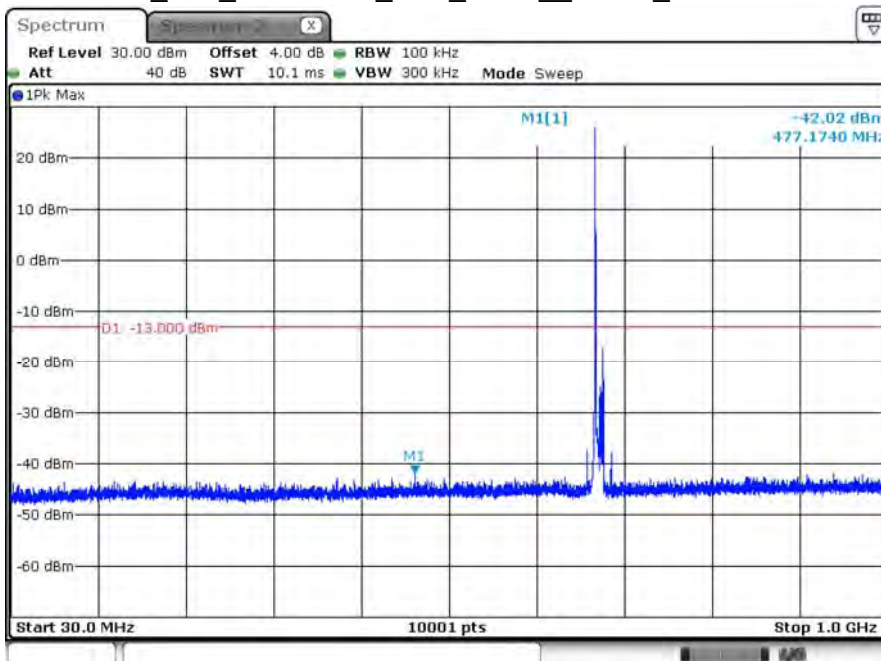
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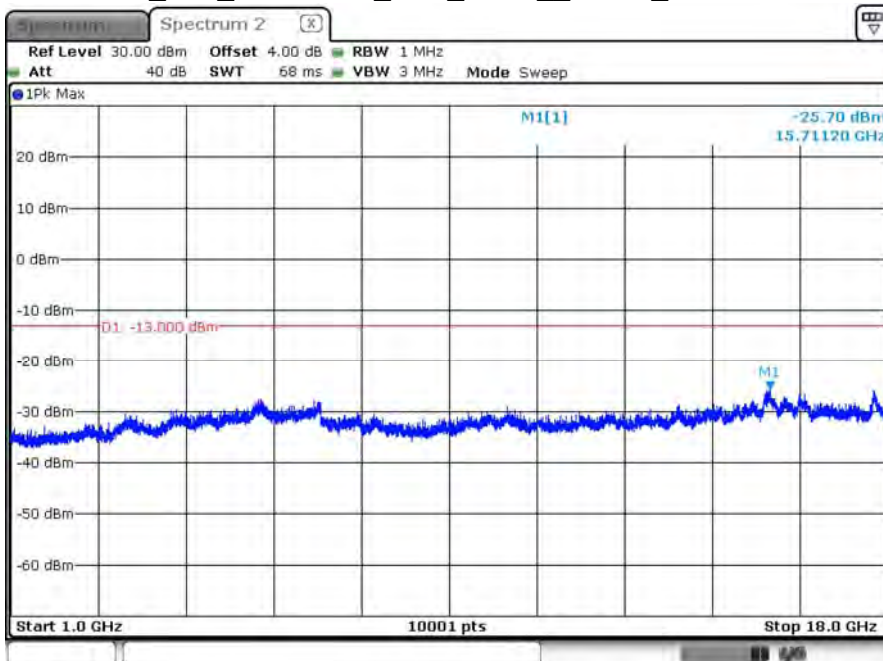
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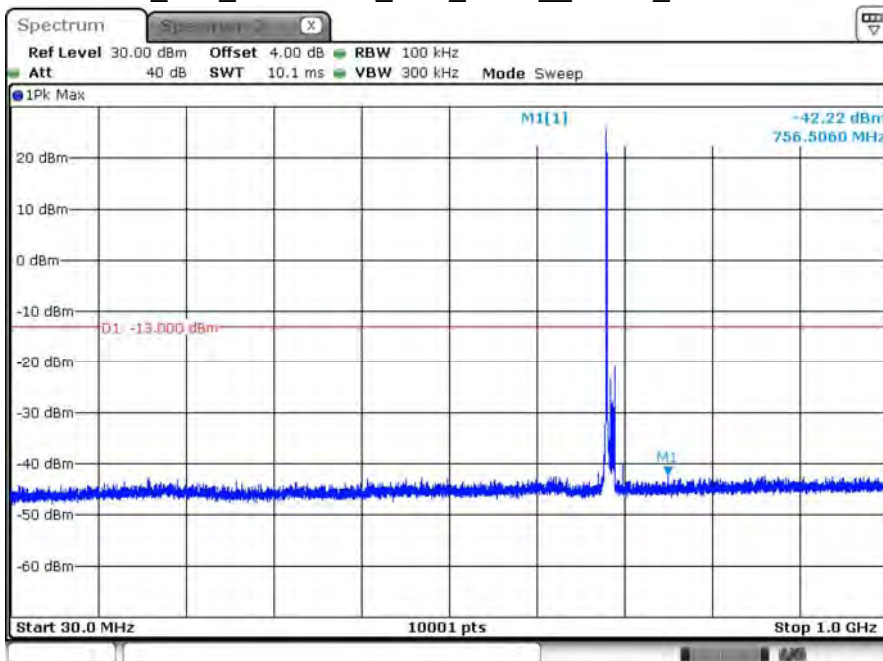
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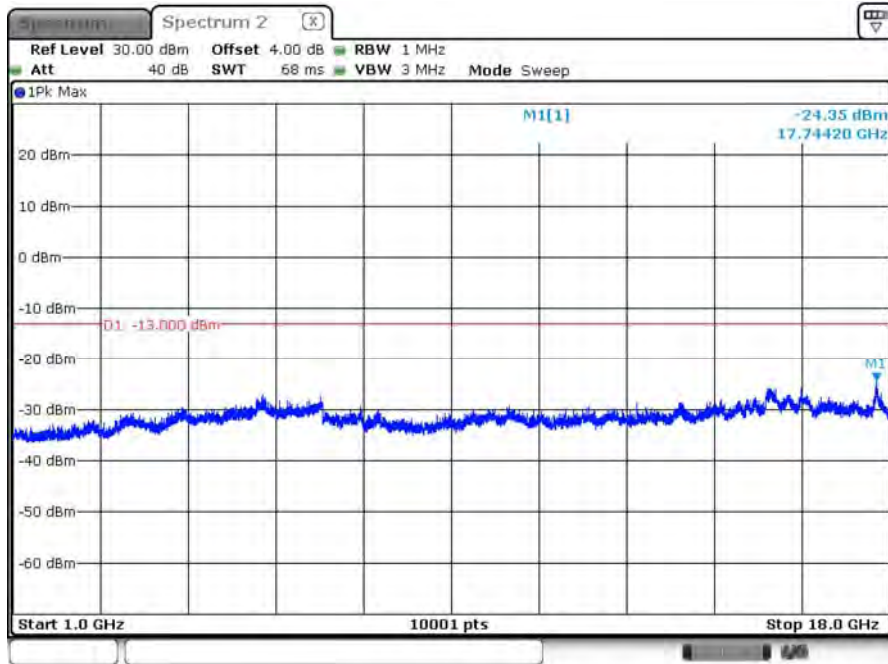
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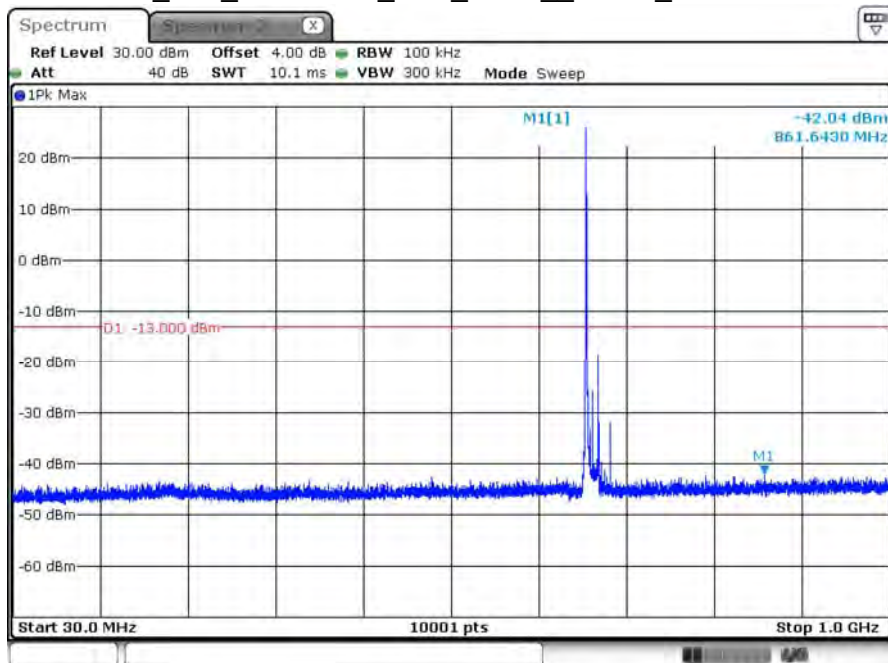
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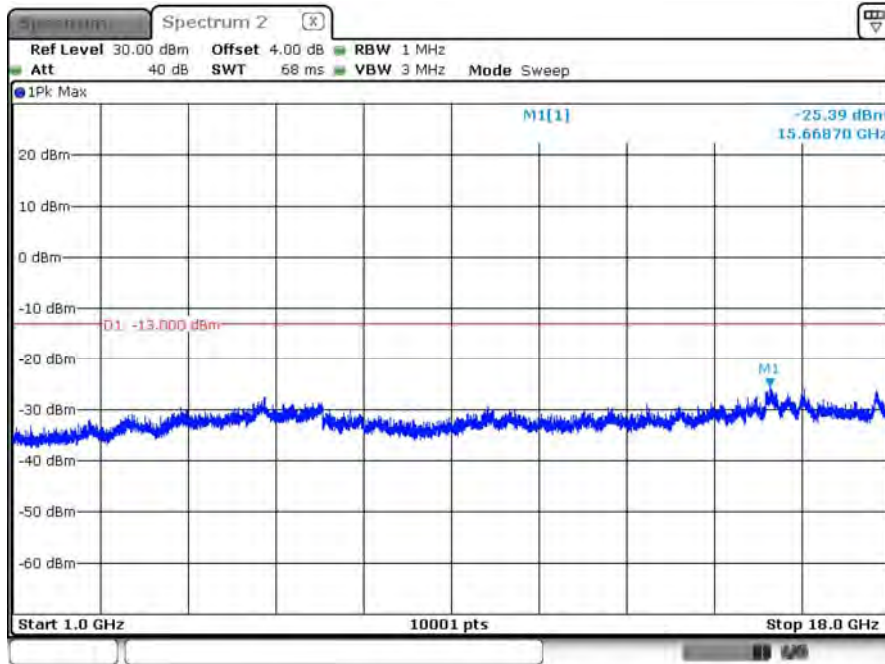
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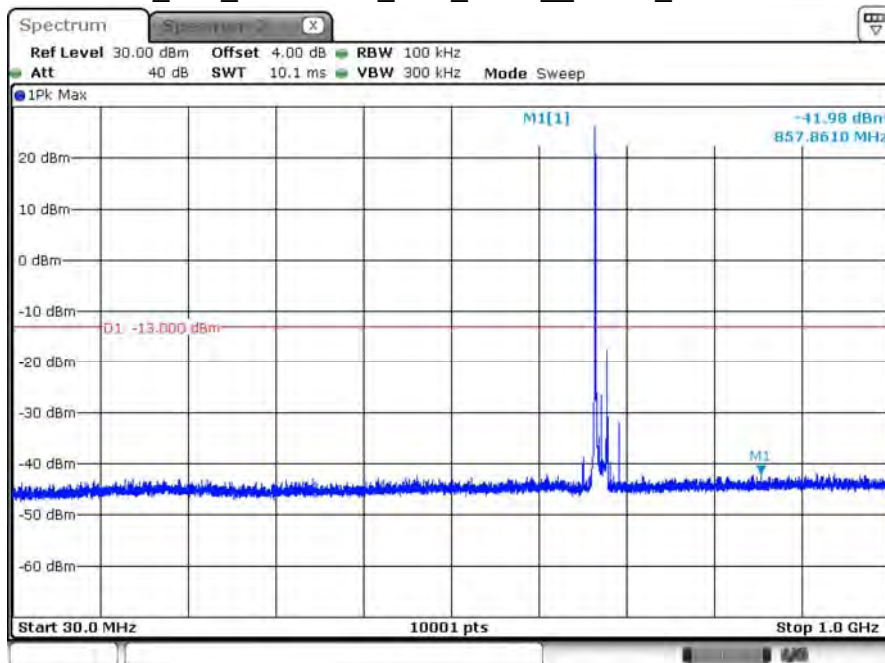
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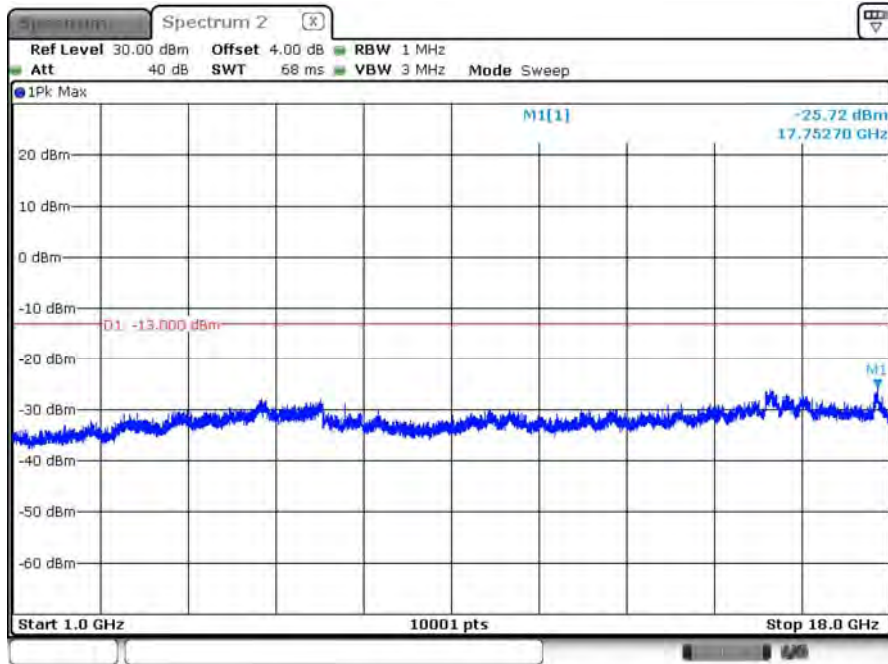
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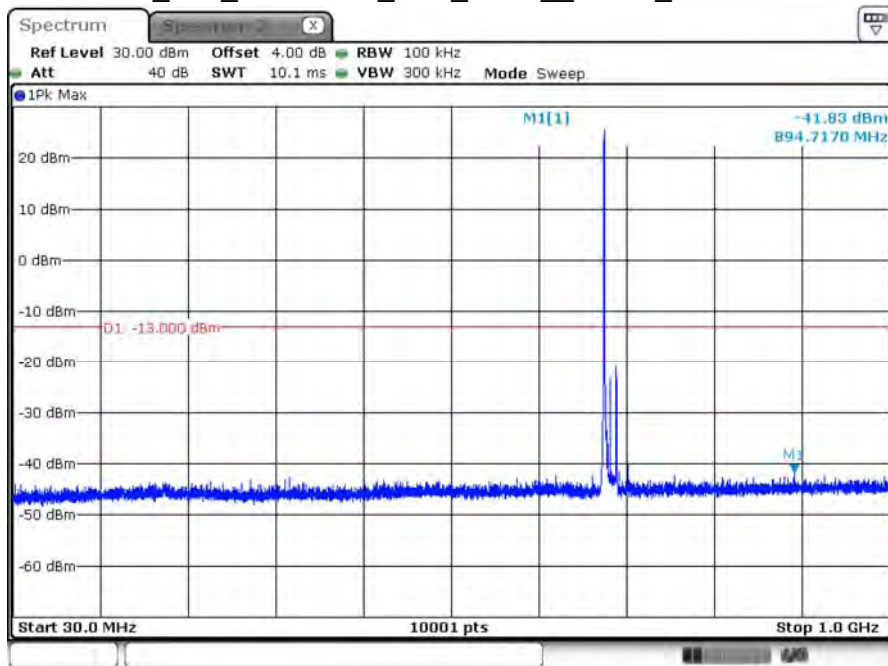
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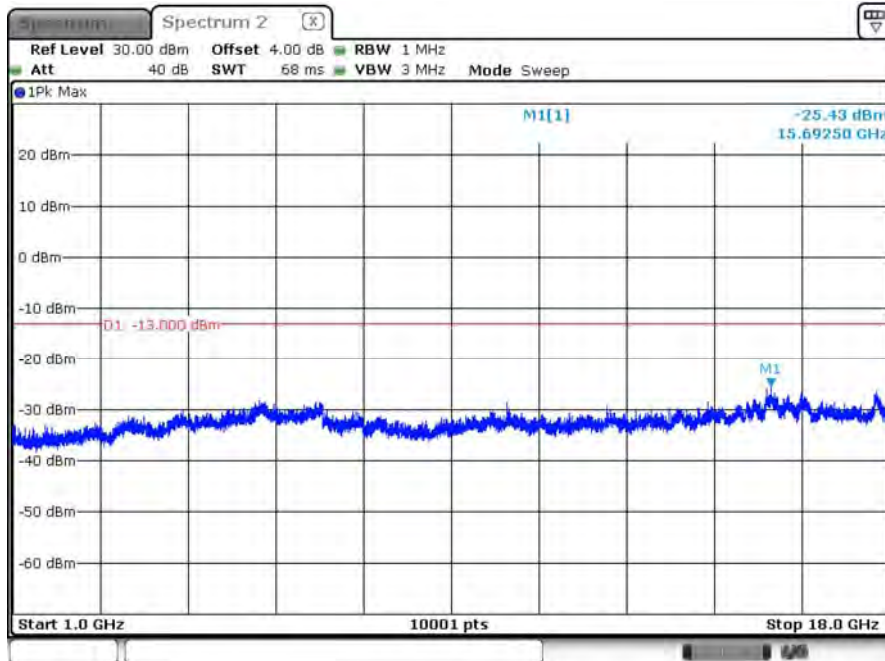
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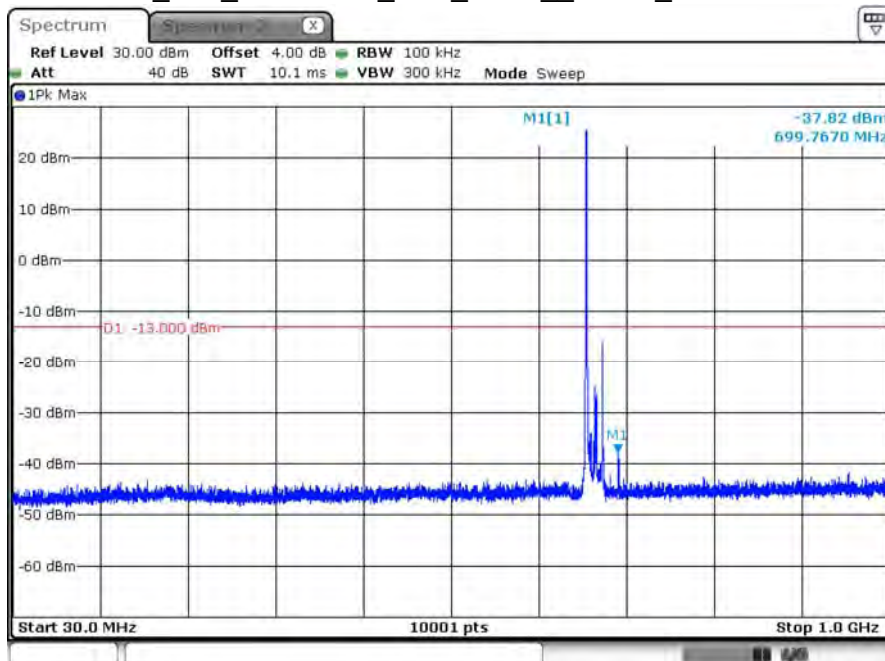
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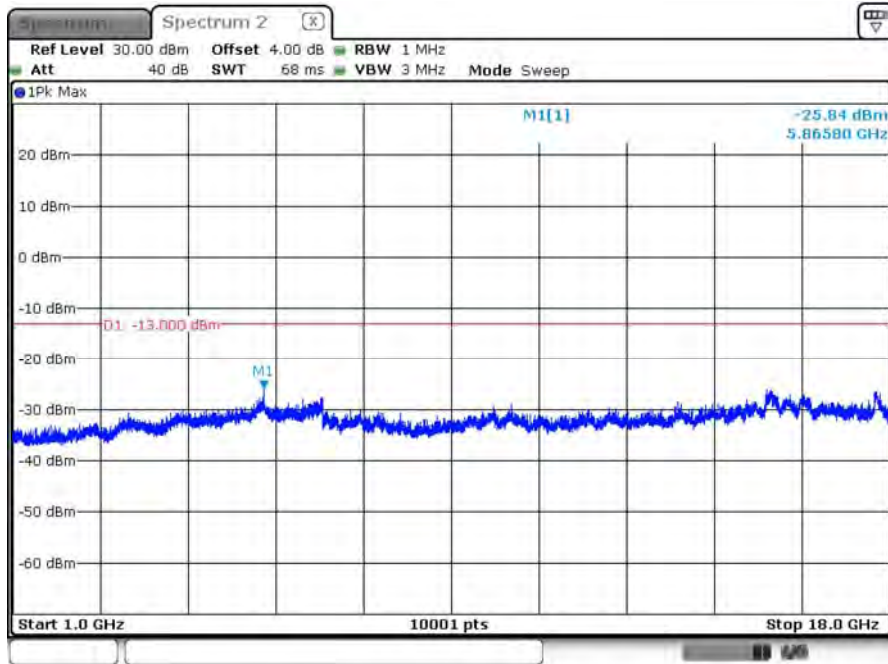
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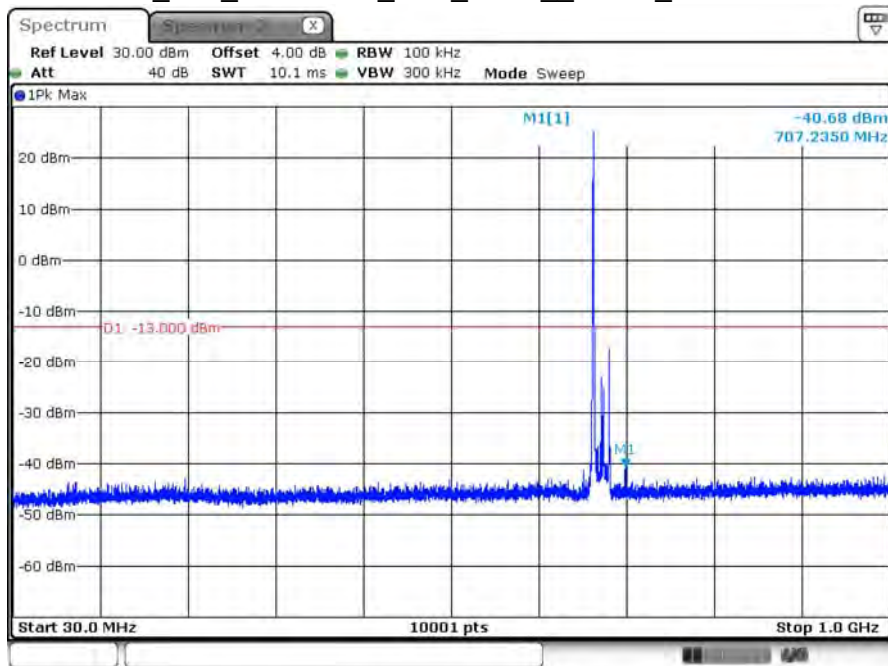
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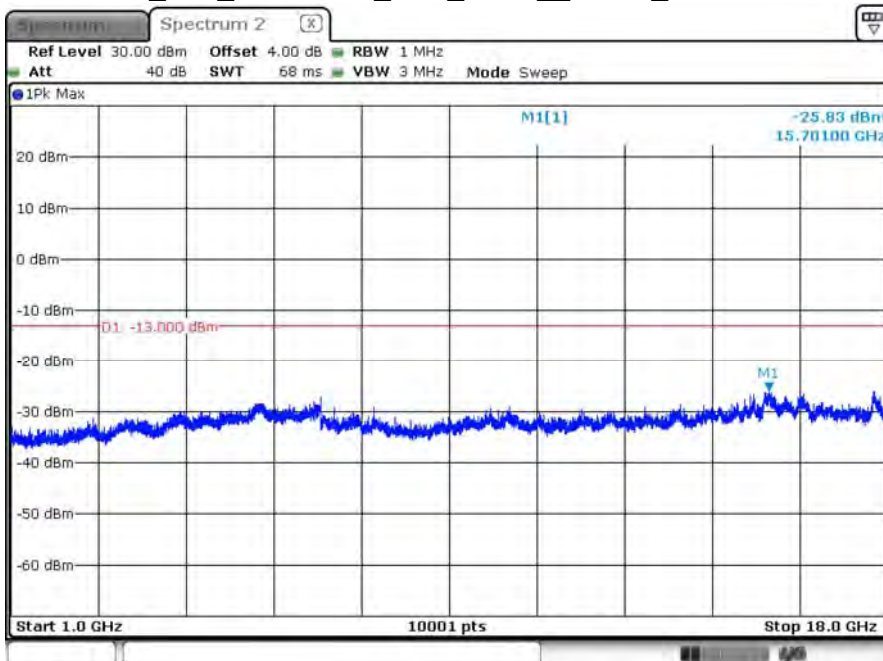
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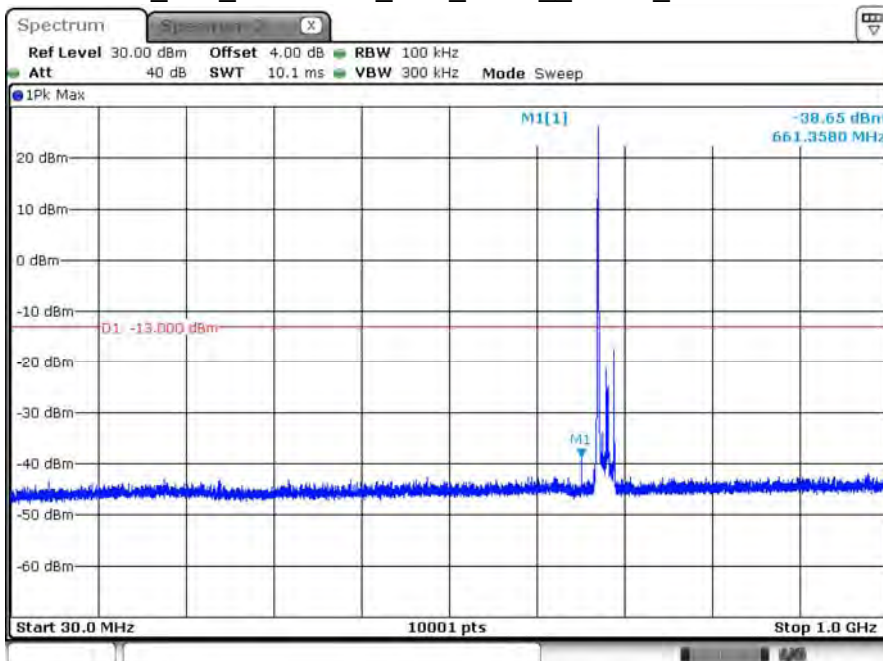
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Date: 17 DEC 2020 15:44:13

LTE_B71_CH133372_20M_1RB0__QPSK_Below 1G



Date: 17 DEC 2020 15:45:43

Product	M2M DATA MODULE		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/12/18	Test Site	CB2-H
Temperature	21.5	Humidity	53.3

20M_Ch 18700_QPSK_LTE Band 2

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3720.000	-47.72	-13	-34.72	-55.81	12.61	4.52
	5580.000	-38.95	-13	-25.95	-46.39	13.12	5.68
	7440.000	-38.57	-13	-25.57	-43.25	11.28	6.61
V	3720.000	-46.91	-13	-33.91	-55.00	12.61	4.52
	5580.000	-34.25	-13	-21.25	-41.69	13.12	5.68
	7440.000	-35.97	-13	-22.97	-40.65	11.28	6.61

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

20M_Ch 18900_QPSK_LTE Band 2

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3760.000	-46.76	-13	-33.76	-54.83	12.60	4.54
	5640.000	-39.75	-13	-26.75	-47.15	13.10	5.70
	7520.000	-34.99	-13	-21.99	-39.61	11.24	6.61
V	3760.000	-45.96	-13	-32.96	-54.03	12.60	4.54
	5640.000	-35.72	-13	-22.72	-43.12	13.10	5.70
	7520.000	-33.51	-13	-20.51	-38.13	11.24	6.61

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

20M_Ch 19100_QPSK_LTE Band 2

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3800.000	-41.34	-13	-28.34	-49.39	12.60	4.56
	5700.000	-39.06	-13	-26.06	-46.43	13.08	5.72
	7600.000	-34.74	-13	-21.74	-39.38	11.24	6.60
V	3800.000	-38.34	-13	-25.34	-46.39	12.60	4.56
	5700.000	-37.68	-13	-24.68	-45.05	13.08	5.72
	7600.000	-31.79	-13	-18.79	-36.43	11.24	6.60

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	M2M DATA MODULE		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 2: LTE Band 5		
Date of Test	2020/12/18	Test Site	CB2-H
Temperature	21.5	Humidity	53.3

10M_Ch 20450_QPSK_LTE Band 5

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1658.000	-51.79	-13	-38.79	-58.11	9.32	3.00
	2487.000	-36.28	-13	-23.28	-43.18	10.59	3.69
	3316.000	-51.36	-13	-38.36	-59.29	12.21	4.28
V	1658.000	-51.60	-13	-38.60	-57.92	9.32	3.00
	2487.000	-30.76	-13	-17.76	-37.66	10.59	3.69
	3316.000	-50.28	-13	-37.28	-58.21	12.21	4.28

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

10M_Ch 20525_QPSK_LTE Band 5

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1673.000	-53.08	-13	-40.08	-59.43	9.36	3.01
	2509.500	-37.53	-13	-24.53	-44.44	10.62	3.71
	3346.000	-50.94	-13	-37.94	-58.92	12.27	4.30
V	1673.000	-52.10	-13	-39.10	-58.45	9.36	3.01
	2509.500	-32.91	-13	-19.91	-39.82	10.62	3.71
	3346.000	-51.16	-13	-38.16	-59.14	12.27	4.30

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

10M_Ch 20600_QPSK_LTE Band 5

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1688.000	-52.79	-13	-39.79	-59.17	9.41	3.02
	2532.000	-31.91	-13	-18.91	-38.84	10.66	3.73
	3376.000	-51.20	-13	-38.20	-59.22	12.34	4.32
V	1688.000	-51.08	-13	-38.08	-57.46	9.41	3.02
	2532.000	-28.81	-13	-15.81	-35.74	10.66	3.73
	3376.000	-51.21	-13	-38.21	-59.23	12.34	4.32

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	M2M DATA MODULE		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 3: LTE Band 12		
Date of Test	2020/12/18	Test Site	CB2-H
Temperature	21.5	Humidity	53.3

10M_Ch 23060_QPSK_LTE Band 12

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1408.000	-49.63	-13	-36.63	-55.19	8.31	2.75
	2112.000	-39.04	-13	-26.04	-46.04	10.41	3.41
	2816.000	-51.18	-13	-38.18	-58.44	11.18	3.92
V	1408.000	-44.74	-13	-31.74	-50.30	8.31	2.75
	2112.000	-39.74	-13	-26.74	-46.74	10.41	3.41
	2816.000	-51.15	-13	-38.15	-58.41	11.18	3.92

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

10M_Ch 23095_QPSK_LTE Band 12

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1415.000	-50.32	-13	-37.32	-55.92	8.35	2.75
	2122.500	-44.49	-13	-31.49	-51.48	10.41	3.42
	2830.000	-50.84	-13	-37.84	-58.12	11.21	3.93
V	1415.000	-44.00	-13	-31.00	-49.60	8.35	2.75
	2122.500	-44.94	-13	-31.94	-51.93	10.41	3.42
	2830.000	-51.58	-13	-38.58	-58.86	11.21	3.93

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

10M_Ch 23130_QPSK_LTE Band 12

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1422.000	-50.64	-13	-37.64	-56.27	8.39	2.76
	2133.000	-46.95	-13	-33.95	-53.94	10.42	3.42
	2844.000	-50.96	-13	-37.96	-58.26	11.23	3.94
V	1422.000	-44.26	-13	-31.26	-49.89	8.39	2.76
	2133.000	-46.47	-13	-33.47	-53.46	10.42	3.42
	2844.000	-50.96	-13	-37.96	-58.26	11.23	3.94

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	M2M DATA MODULE		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 4: LTE Band 4/66		
Date of Test	2020/12/18	Test Site	CB2-H
Temperature	21.5	Humidity	53.3

20M_Ch 132072_QPSK_LTE Band 66

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3440.000	-40.53	-13	-27.53	-48.64	12.48	4.37
	5160.000	-39.99	-13	-26.99	-47.39	12.81	5.41
	6880.000	-37.66	-13	-24.66	-43.05	11.79	6.40
V	3440.000	-33.35	-13	-20.35	-41.46	12.48	4.37
	5160.000	-38.19	-13	-25.19	-45.59	12.81	5.41
	6880.000	-33.00	-13	-20.00	-38.39	11.79	6.40

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

20M_Ch 132322_QPSK_LTE Band 66

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3490.000	-39.77	-13	-26.77	-47.96	12.59	4.40
	5235.000	-36.43	-13	-23.43	-43.85	12.88	5.46
	6980.000	-39.03	-13	-26.03	-44.19	11.67	6.51
V	3490.000	-37.72	-13	-24.72	-45.91	12.59	4.40
	5235.000	-36.94	-13	-23.94	-44.36	12.88	5.46
	6980.000	-35.04	-13	-22.04	-40.20	11.67	6.51

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

20M_Ch 132572_QPSK_LTE Band 66

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3540.000	-43.69	-13	-30.69	-51.87	12.61	4.43
	5310.000	-40.54	-13	-27.54	-47.98	12.95	5.51
	7080.000	-38.04	-13	-25.04	-43.07	11.58	6.55
V	3540.000	-44.06	-13	-31.06	-52.24	12.61	4.43
	5310.000	-38.80	-13	-25.80	-46.24	12.95	5.51
	7080.000	-34.71	-13	-21.71	-39.74	11.58	6.55

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

Product	M2M DATA MODULE		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 5: LTE Band 71		
Date of Test	2020/12/18	Test Site	CB2-H
Temperature	21.5	Humidity	53.3

20M_Ch 133222_QPSK_LTE Band 71

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1346.000	-46.23	-13	-33.23	-51.50	7.96	2.68
	2019.000	-49.55	-13	-36.55	-56.57	10.36	3.34
	2692.000	-51.62	-13	-38.62	-58.74	10.95	3.83
V	1346.000	-42.44	-13	-29.44	-47.71	7.96	2.68
	2019.000	-45.07	-13	-32.07	-52.09	10.36	3.34
	2692.000	-51.66	-13	-38.66	-58.78	10.95	3.83

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

20M_Ch 133322_QPSK_LTE Band 71

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1366.000	-45.62	-13	-32.62	-50.99	8.07	2.70
	2049.000	-51.12	-13	-38.12	-58.13	10.37	3.36
	2732.000	-50.92	-13	-37.92	-58.09	11.03	3.86
V	1366.000	-41.91	-13	-28.91	-47.28	8.07	2.70
	2049.000	-49.32	-13	-36.32	-56.33	10.37	3.36
	2732.000	-51.45	-13	-38.45	-58.62	11.03	3.86

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

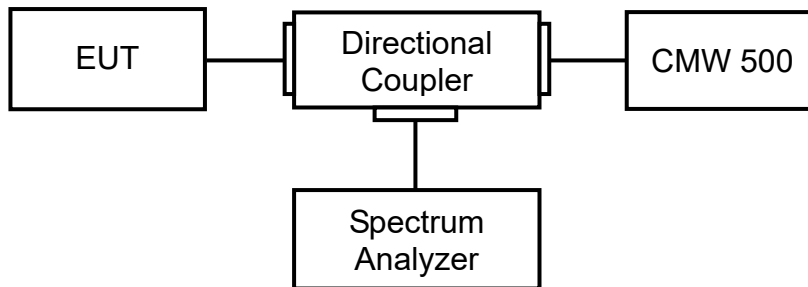
20M_Ch 133372_QPSK_LTE Band 71

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1376.000	-45.95	-13	-32.95	-51.37	8.13	2.71
	2064.000	-48.60	-13	-35.60	-55.61	10.38	3.37
	2752.000	-51.03	-13	-38.03	-58.22	11.06	3.87
V	1376.000	-41.32	-13	-28.32	-46.74	8.13	2.71
	2064.000	-46.52	-13	-33.52	-53.53	10.38	3.37
	2752.000	-50.95	-13	-37.95	-58.14	11.06	3.87

Emission Level=SG(Signal Generator) Level+Antenna Gain-Cable Loss.

7. Spurious Emissions at Antenna Terminals

7.1. Test Setup



7.2. Test Procedure

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMW500 by a Directional Couple.
- c) EUT Communicate with CMW500, then select a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.
- e) The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10th harmonic.

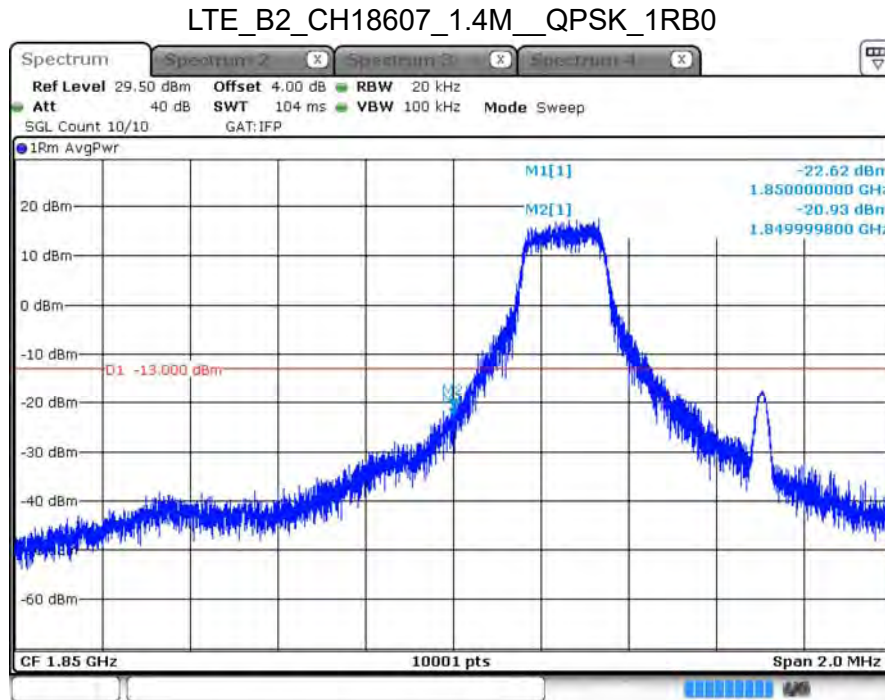
7.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 6.1

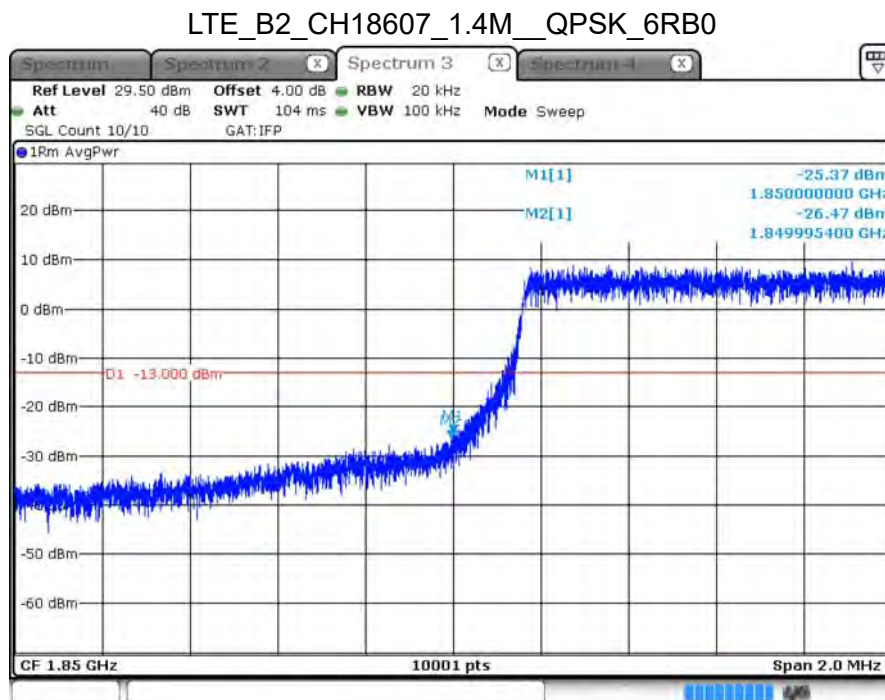
ANSI C63.26: 2015 Sub-clause 5.7

7.4. Test Result

Product	M2M DATA MODULE		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/12/18	Test Site	SR12-H
Temperature (°C)	22	Humidity (%RH)	66

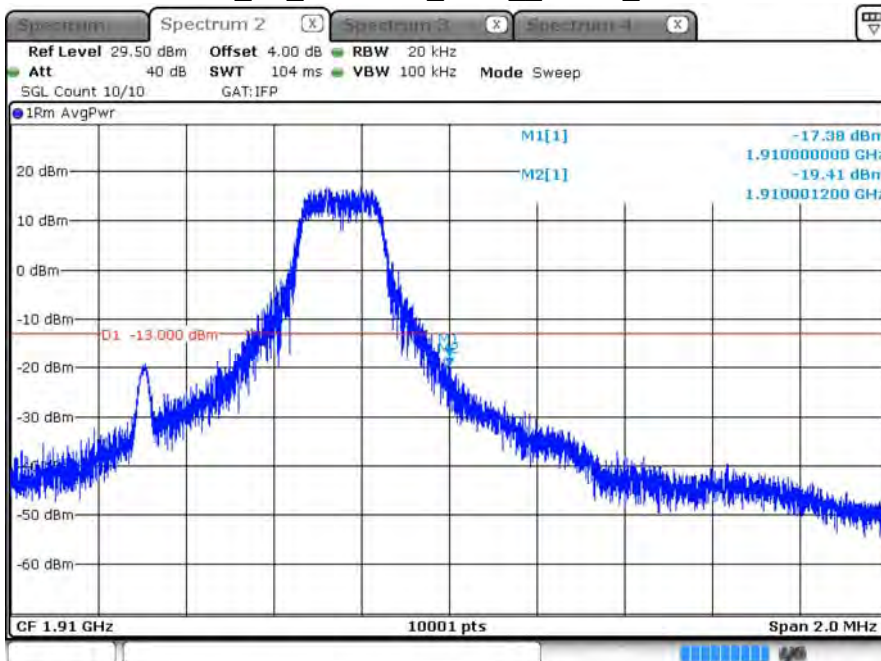


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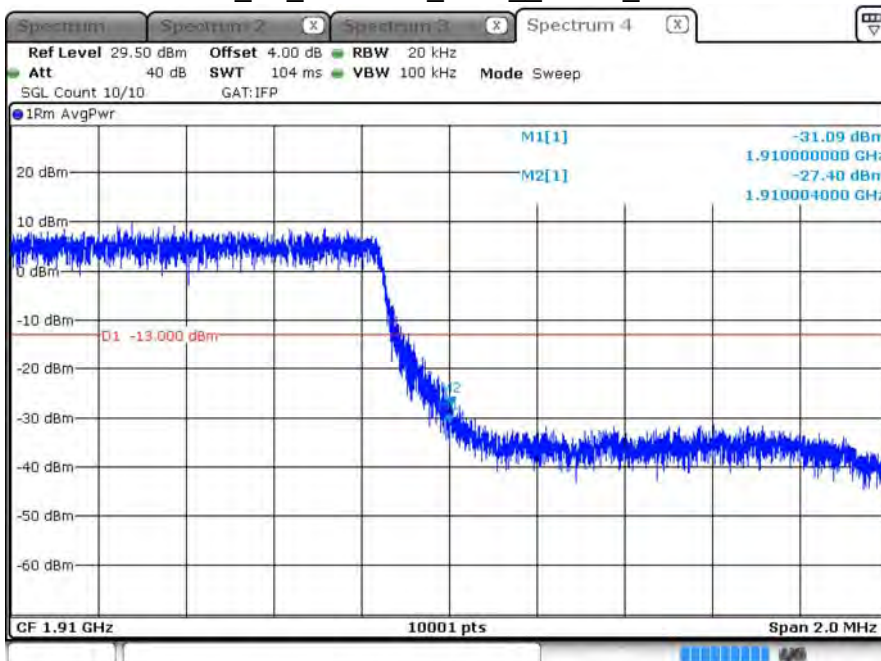
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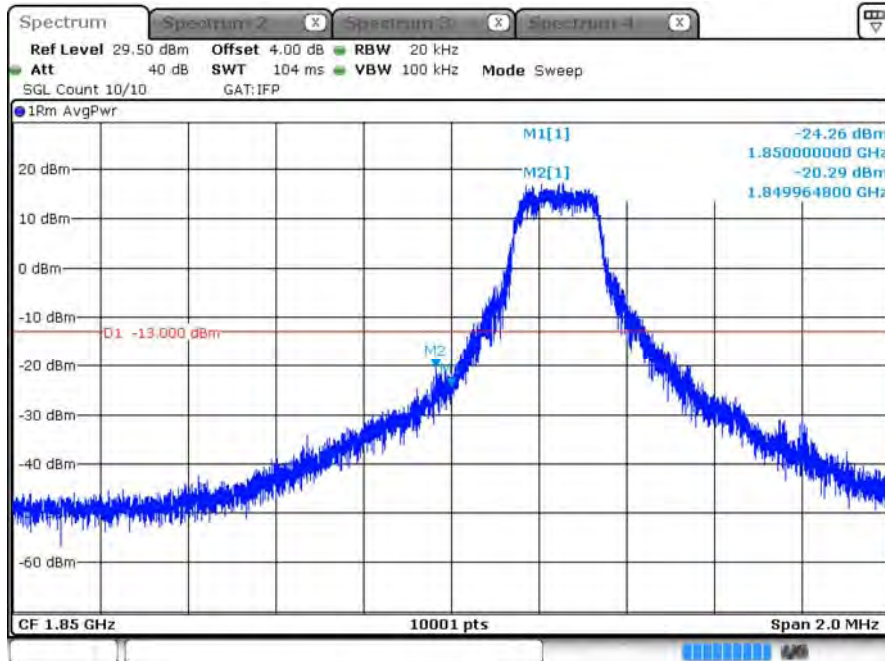
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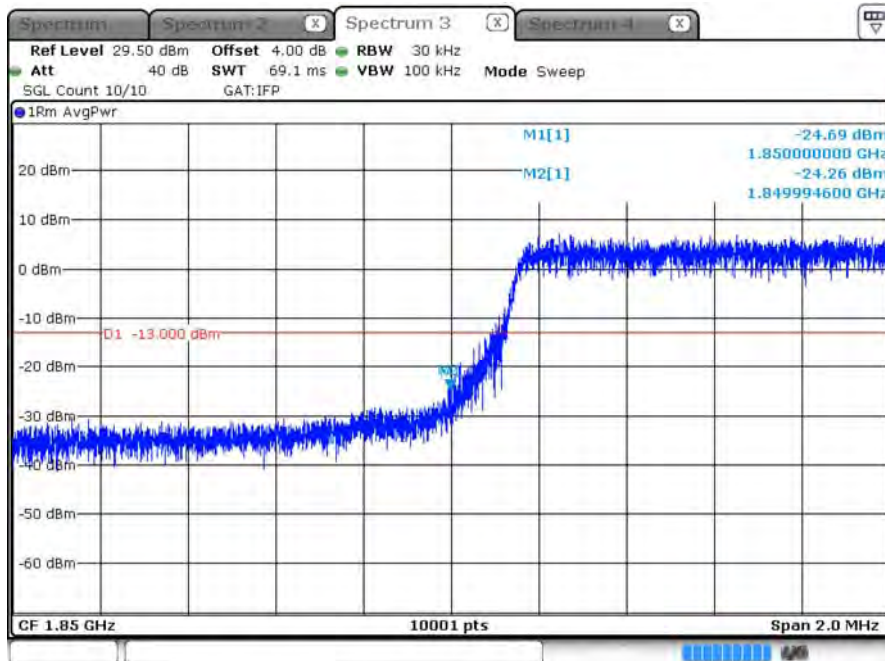
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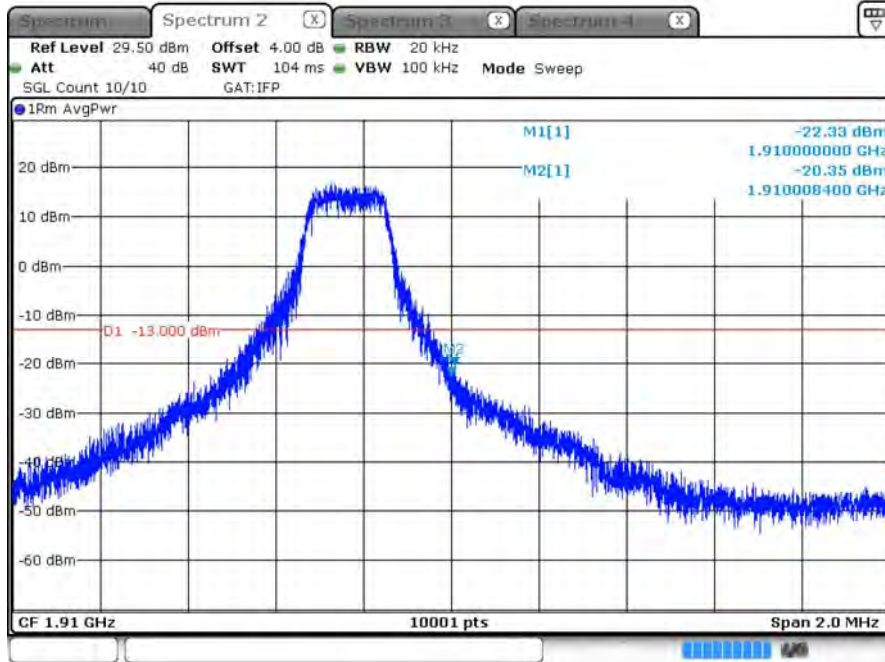
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LTE_B2_CH18615_3M_QPSK_15RB0



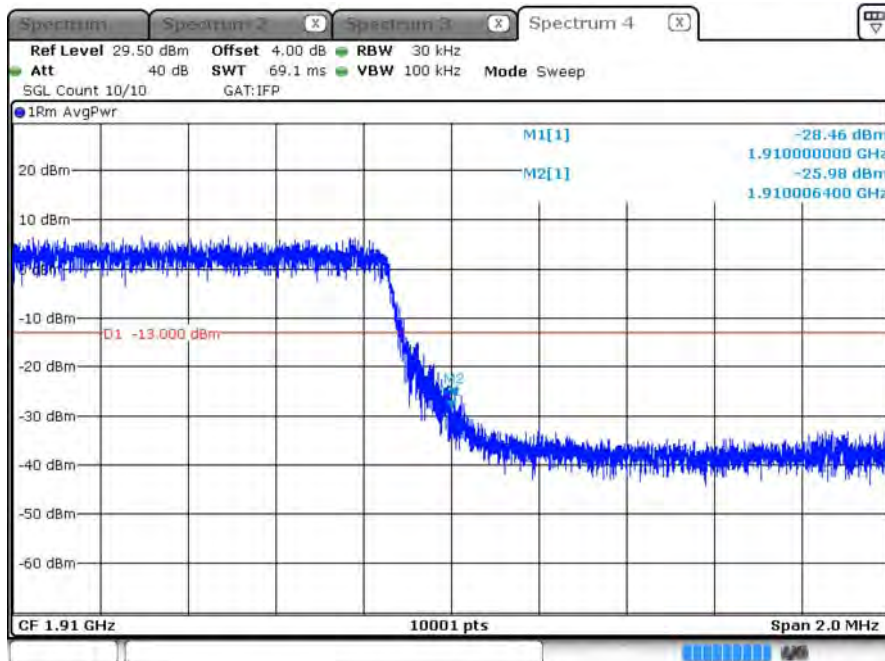
Date: 18 DEC.2020 09:45:00

LTE_B2_CH19185_3M_QPSK_1RB14



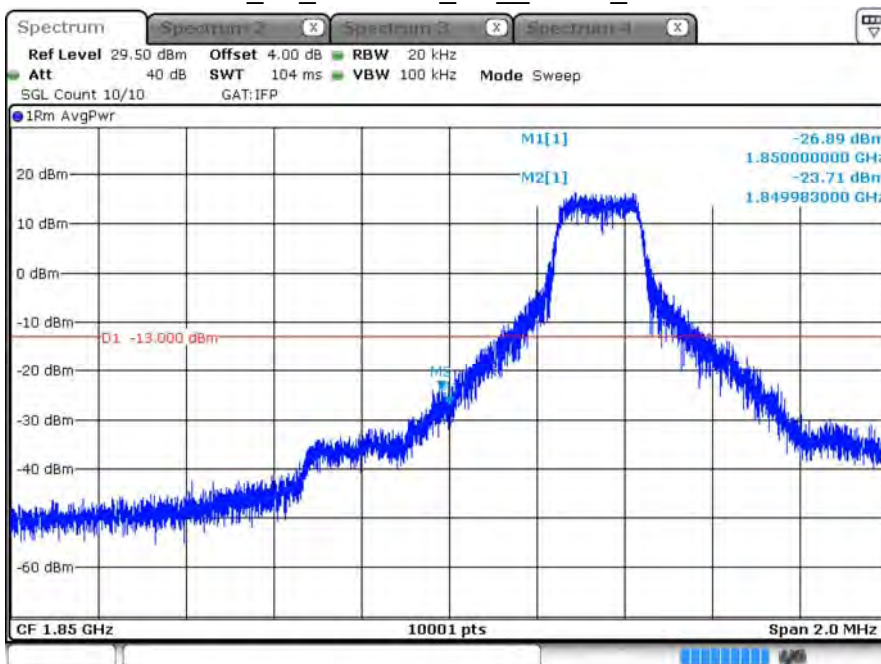
Date: 18 DEC.2020 09:45:39

LTE_B2_CH19185_3M_QPSK_15RB0



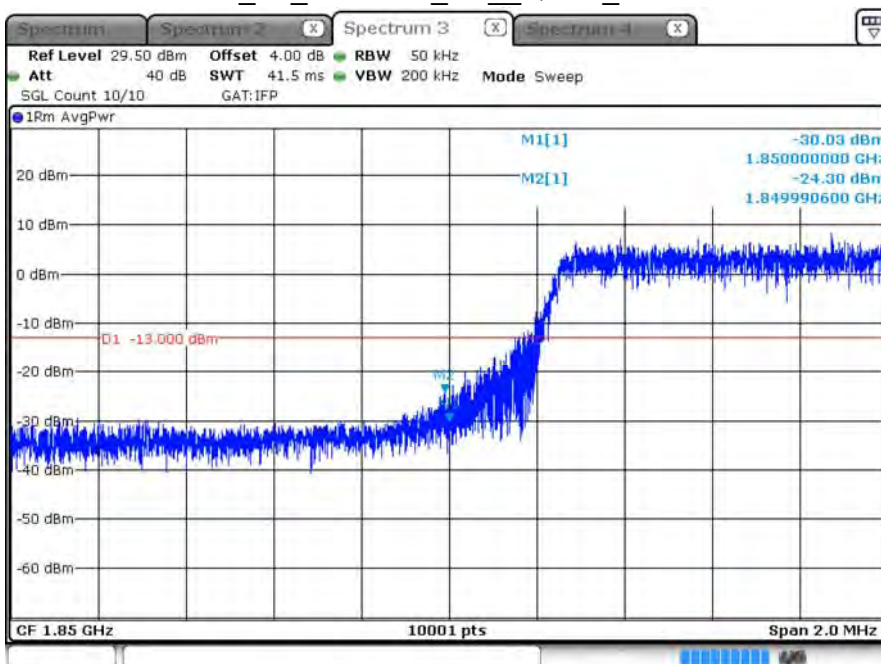
Date: 18 DEC.2020 09:45:20

LTE_B2_CH18625_5M_QPSK_1RB0



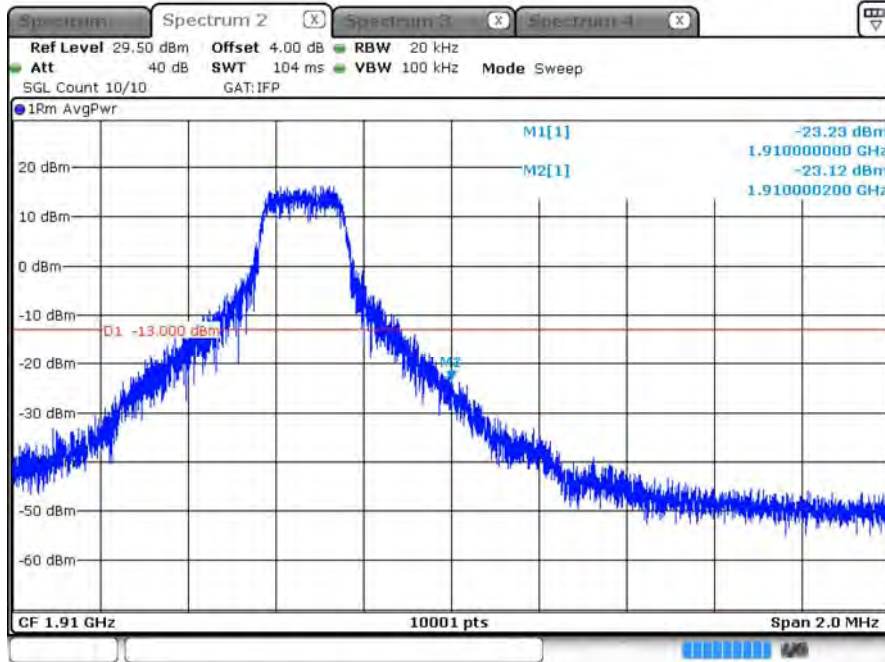
Date: 18 DEC.2020 09:46:26

LTE_B2_CH18625_5M_QPSK_25RB0



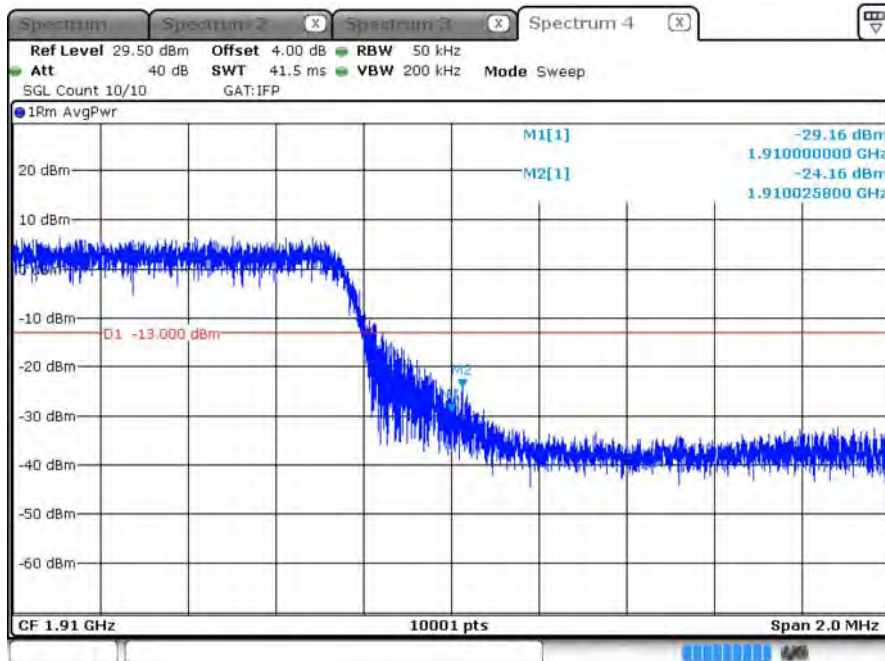
Date: 18 DEC.2020 09:50:56

LTE_B2_CH19175_5M_QPSK_1RB24



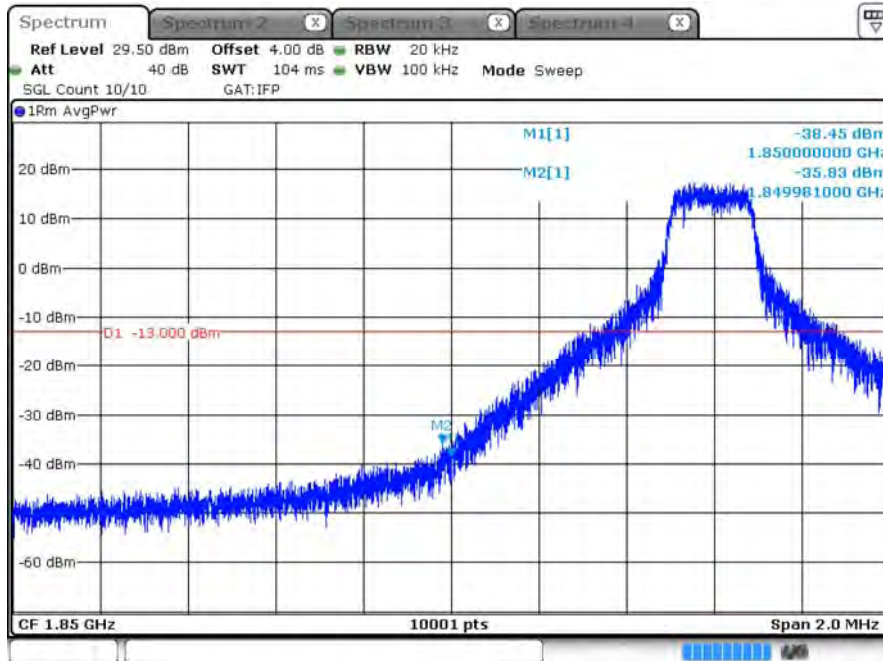
Date: 18 DEC.2020 09:51:46

LTE_B2_CH19175_5M_QPSK_25RB0



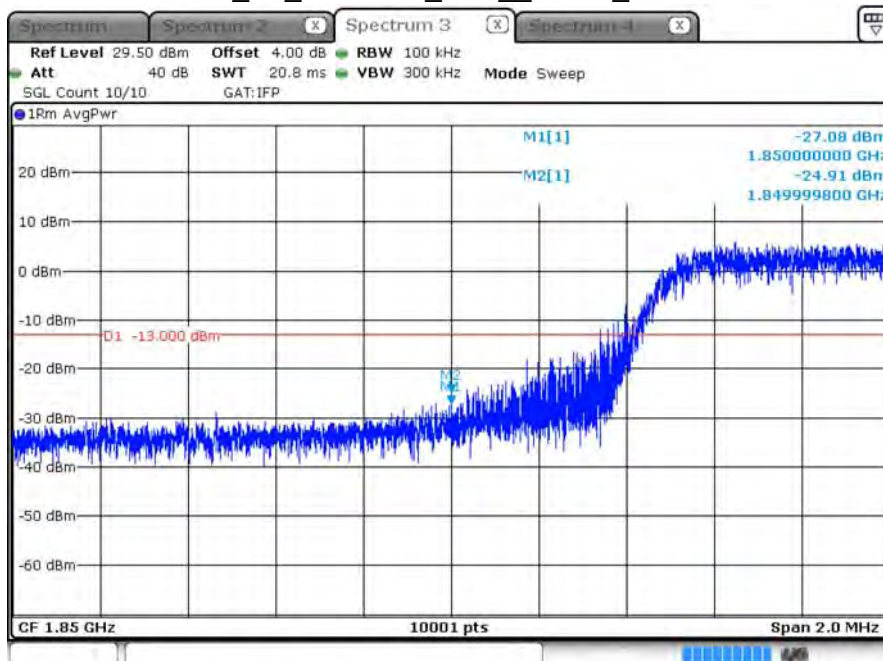
Date: 18 DEC.2020 09:51:23

LTE_B2_CH18650_10M_QPSK_1RB0



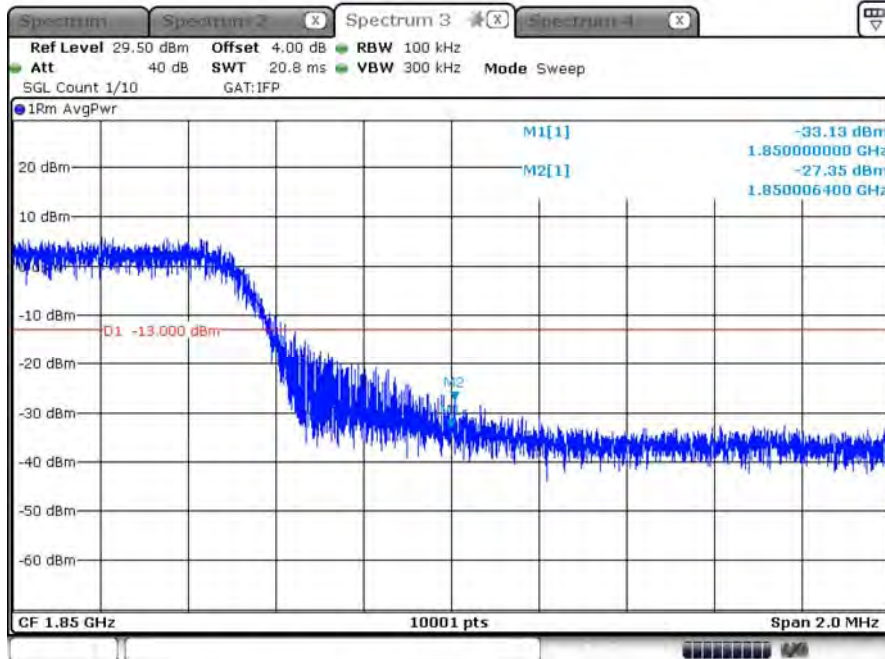
Date: 18 DEC.2020 10:27:18

LTE_B2_CH18650_10M_QPSK_50RB0



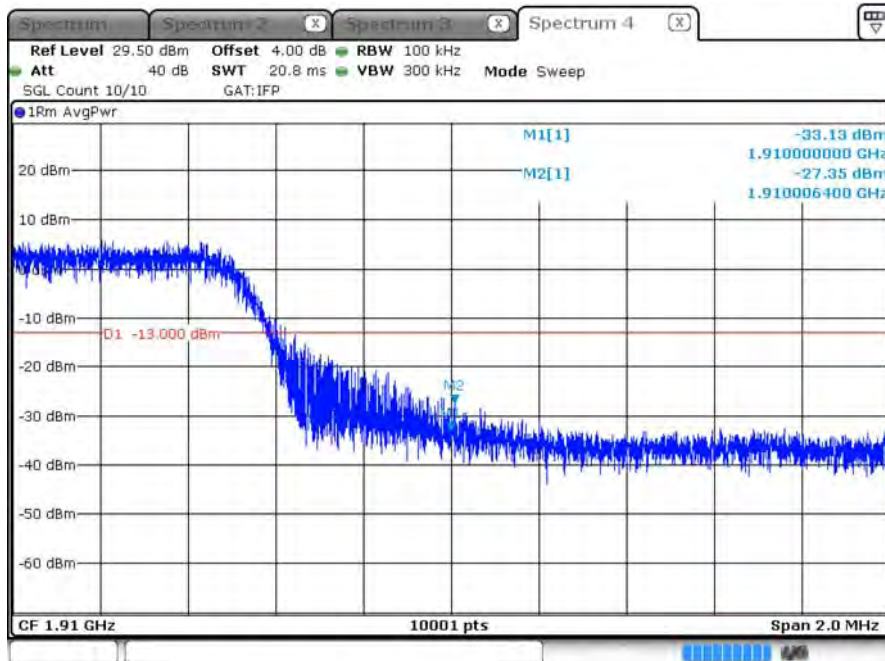
Date: 18 DEC.2020 10:32:41

LTE_B2_CH19150_10M_QPSK_1RB49



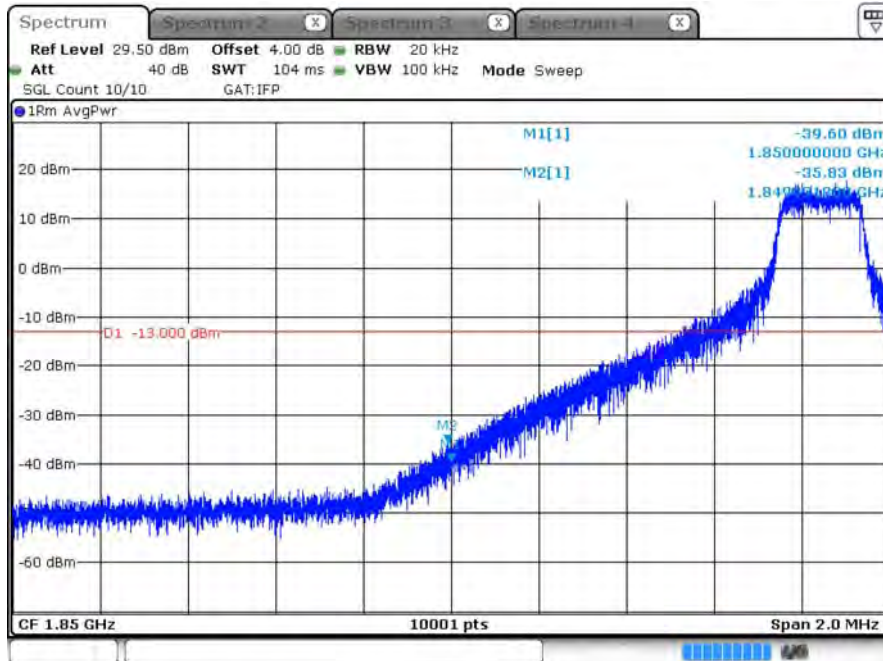
Date: 18 DEC.2020 10:41:28

LTE_B2_CH19150_10M_QPSK_50RB0



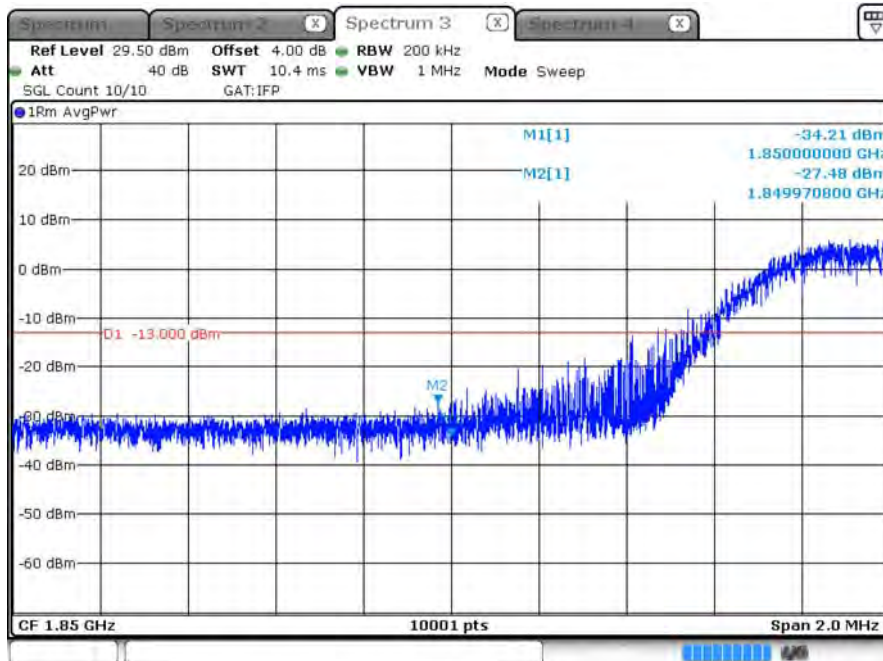
Date: 18 DEC.2020 10:33:32

LTE_B2_CH18675_15M_QPSK_1RB0



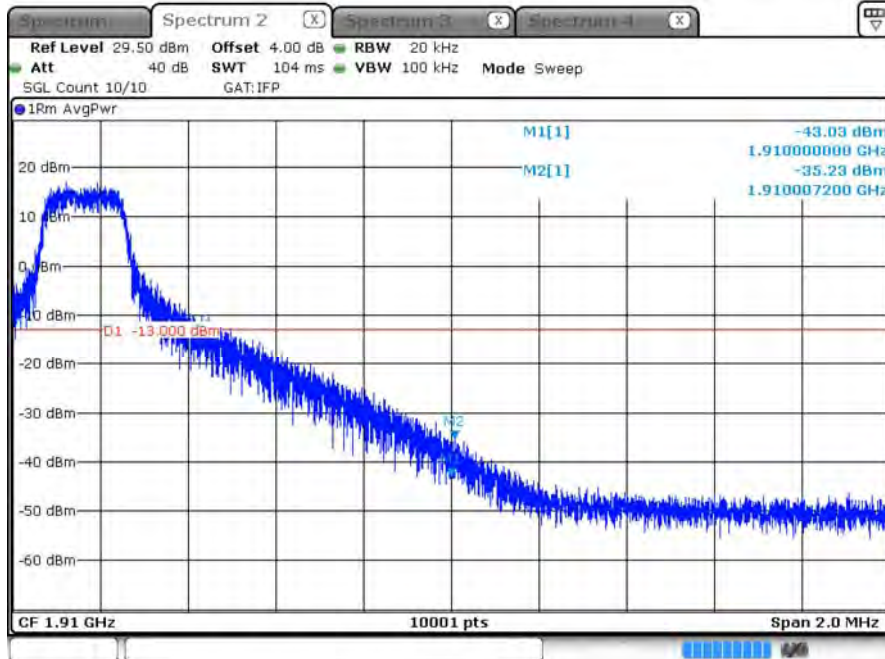
Date: 18 DEC.2020 10:44:04

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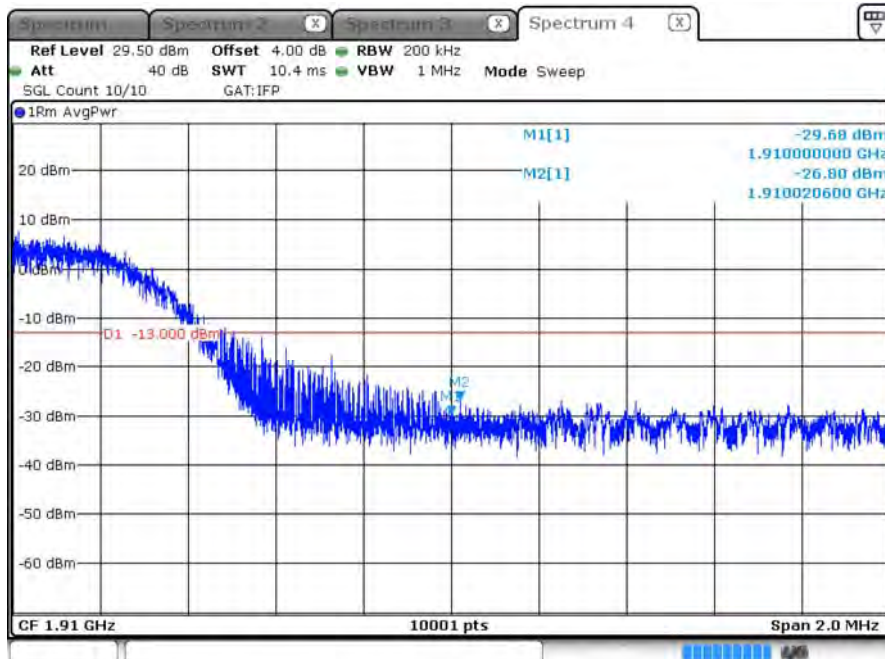
Date: 18 DEC.2020 10:44:36

LTE_B2_CH19125_15M_QPSK_1RB74



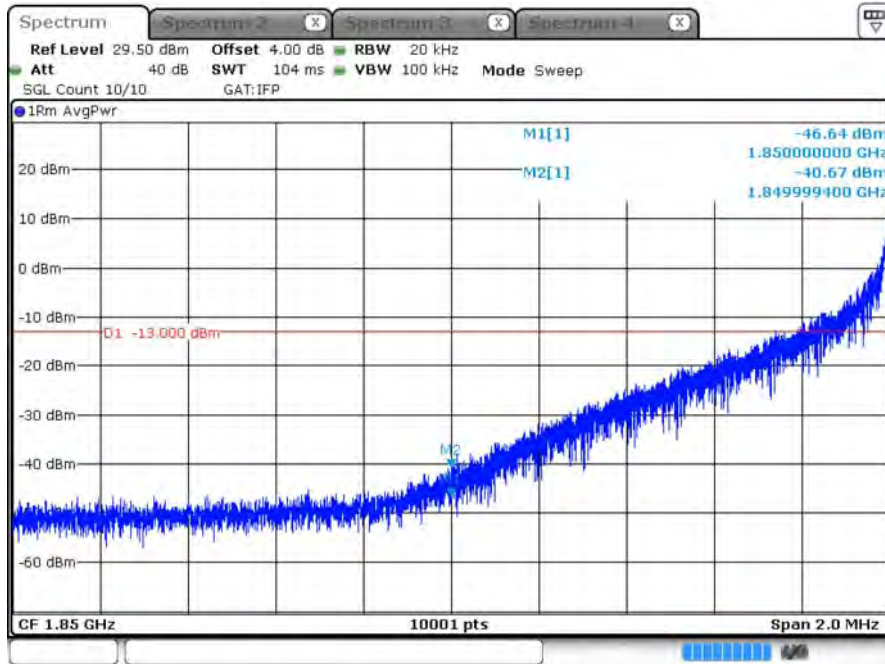
Date: 18 DEC.2020 10:46:30

LTE_B2_CH19125_15M_QPSK_75RB0



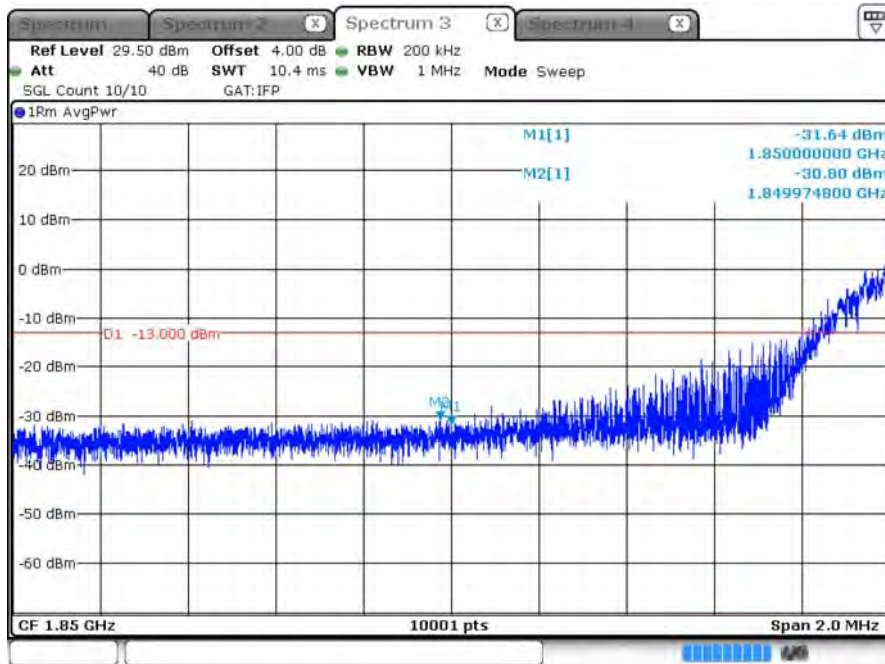
Date: 18 DEC.2020 10:45:25

LTE_B2_CH18700_20M_QPSK_1RB0



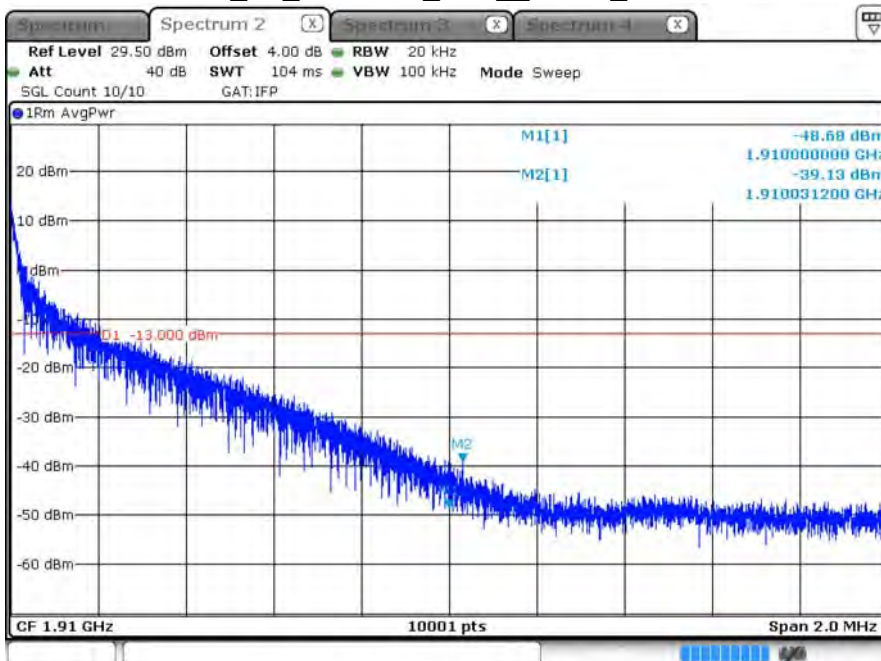
Date: 18 DEC.2020 10:49:04

LTE_B2_CH18700_20M_QPSK_100RB0



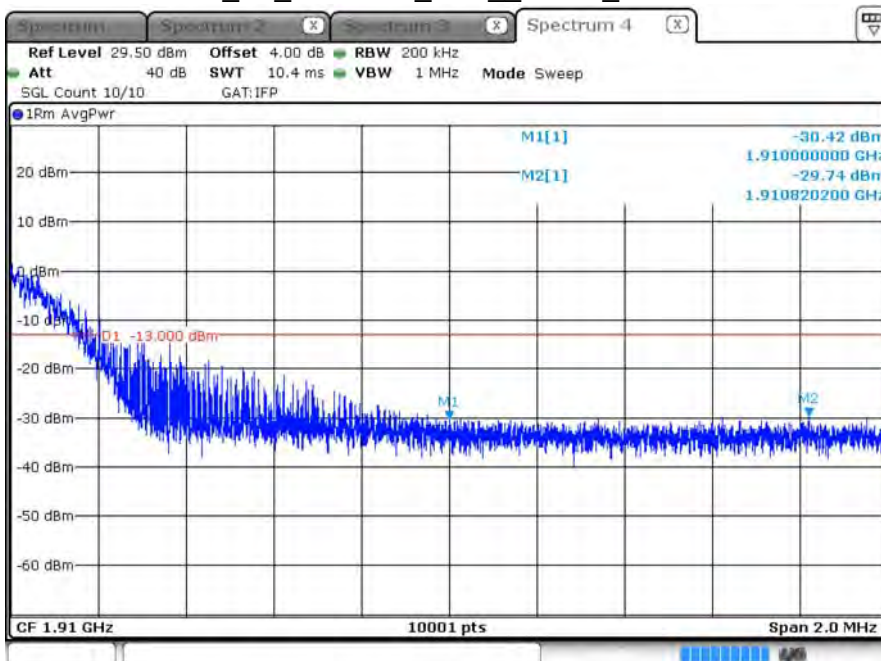
Date: 18 DEC.2020 10:51:59

LTE_B2_CH19100_20M_QPSK_1RB99



Date: 18 DEC.2020 10:55:10

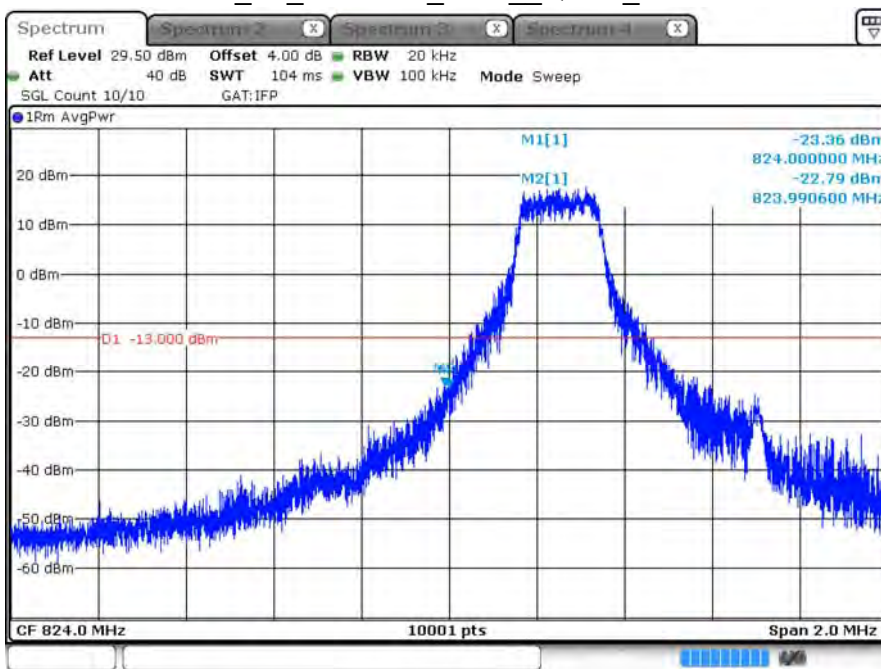
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Date: 18 DEC.2020 10:52:44

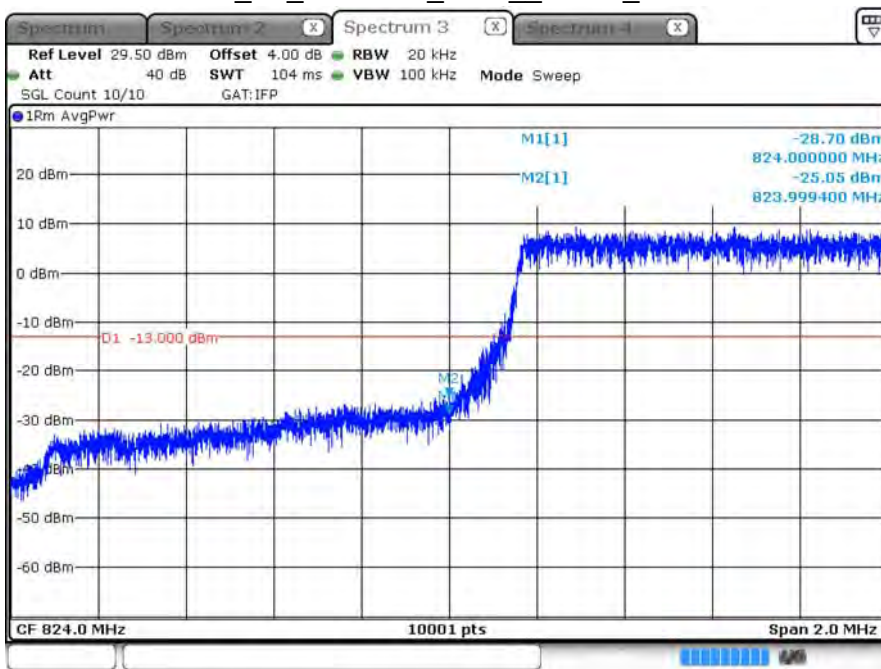
Product	M2M DATA MODULE		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 2: LTE Band 5		
Date of Test	2020/12/18	Test Site	SR12-H
Temperature (°C)	22	Humidity (%RH)	66

LTE_B5_CH20407_1.4M_QPSK_1RB0



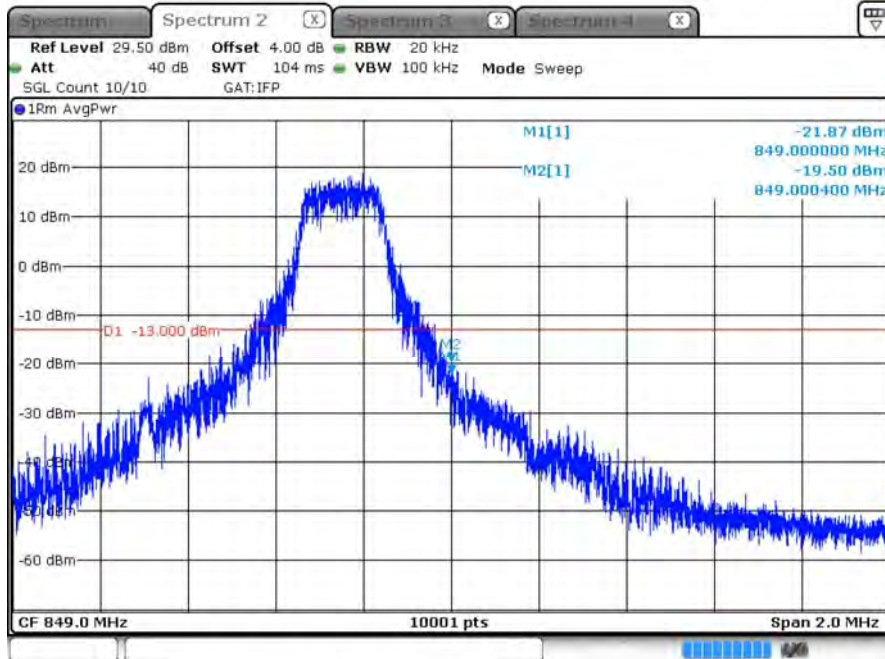
Date: 18 DEC.2020 12:36:07

LTE_B5_CH20407_1.4M_QPSK_6RB0



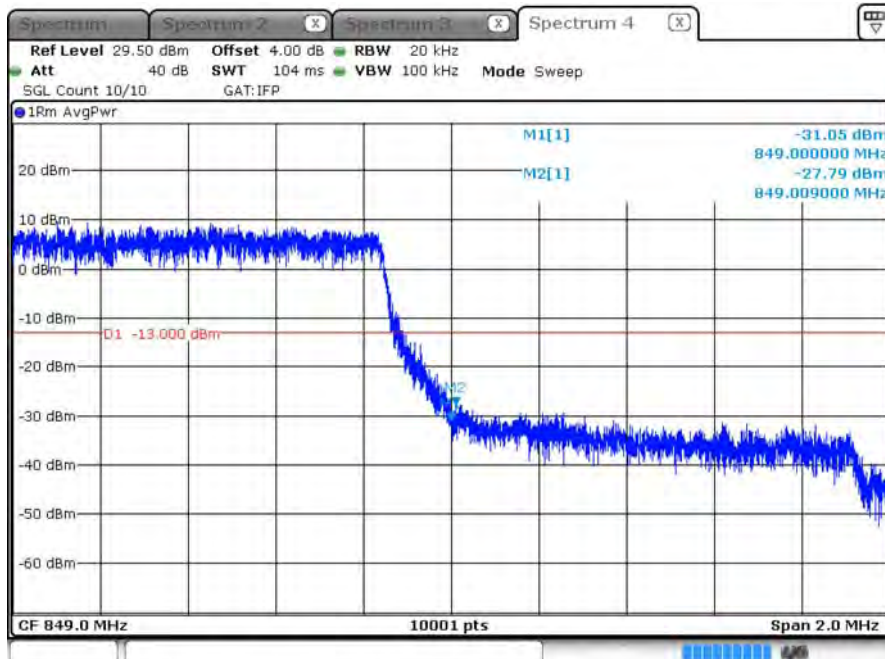
Date: 18 DEC.2020 12:36:37

LTE_B5_CH20643_1.4M_QPSK_1RB5



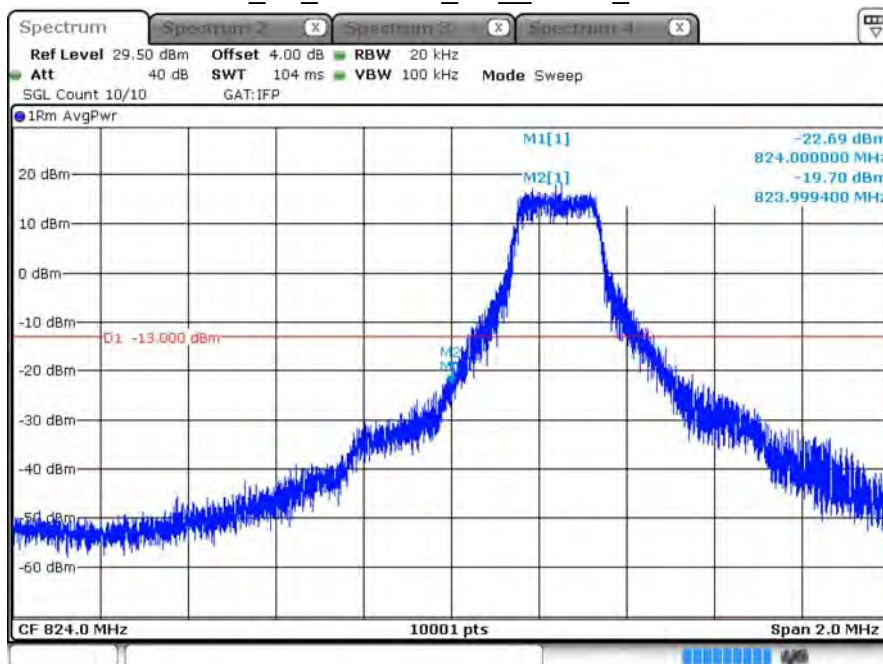
Date: 18 DEC.2020 12:37:40

LTE_B5_CH20643_1.4M_QPSK_6RB0



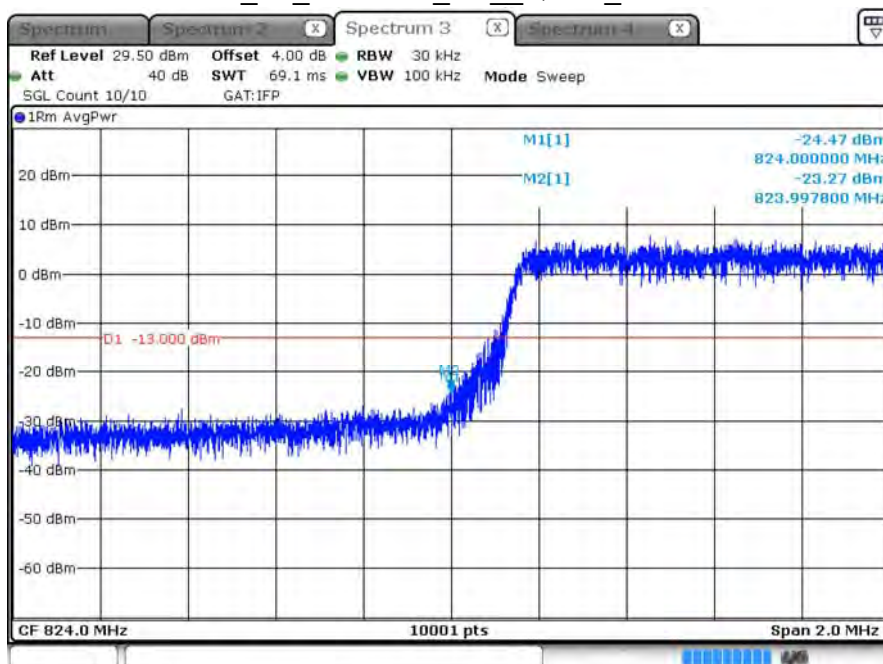
Date: 18 DEC.2020 12:36:57

LTE_B5_CH20415_3M_QPSK_1RB0



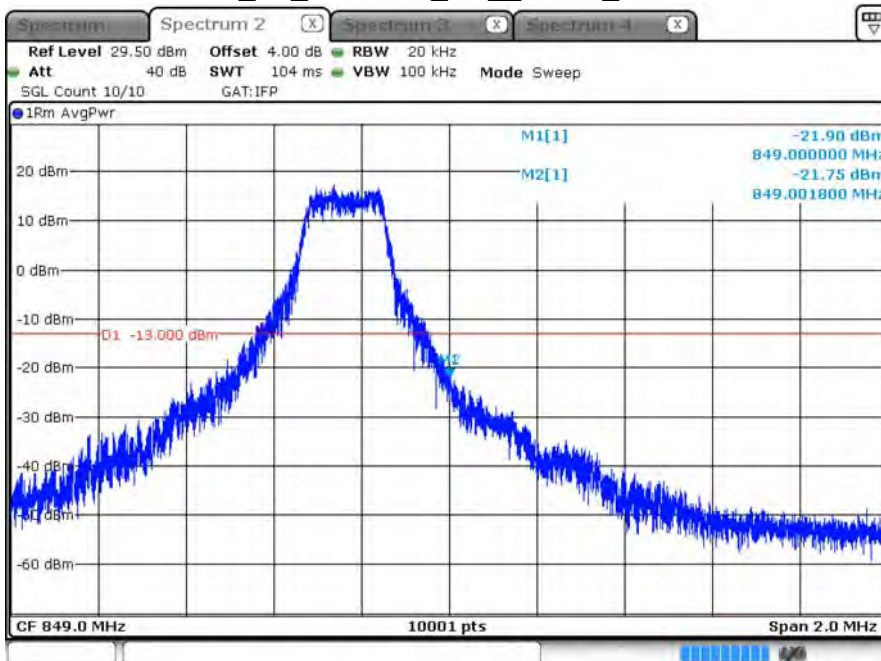
Date: 18 DEC.2020 12:40:47

LTE_B5_CH20415_3M_QPSK_15RB0



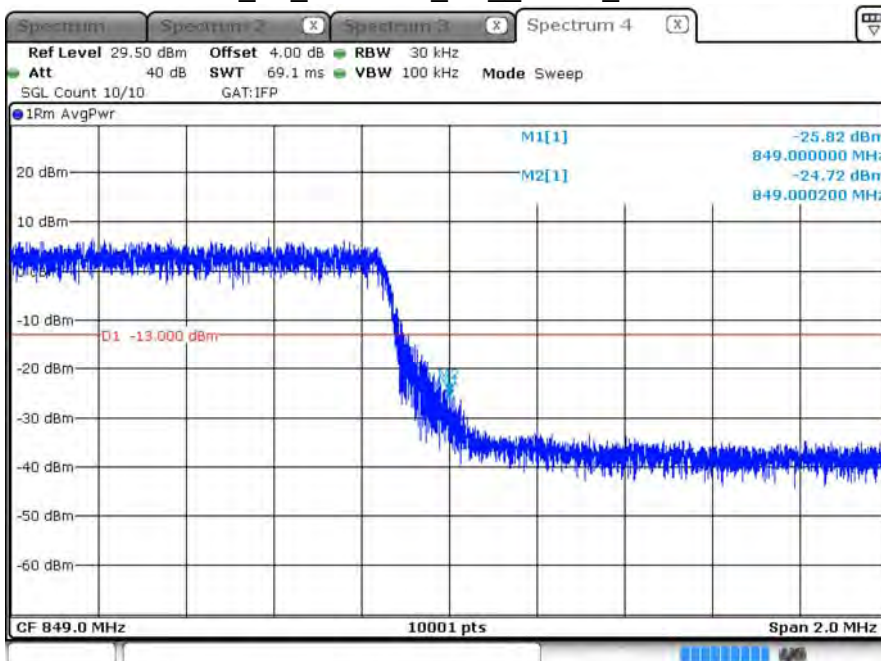
Date: 18 DEC.2020 12:42:32

LTE_B5_CH20635_3M_QPSK_1RB14



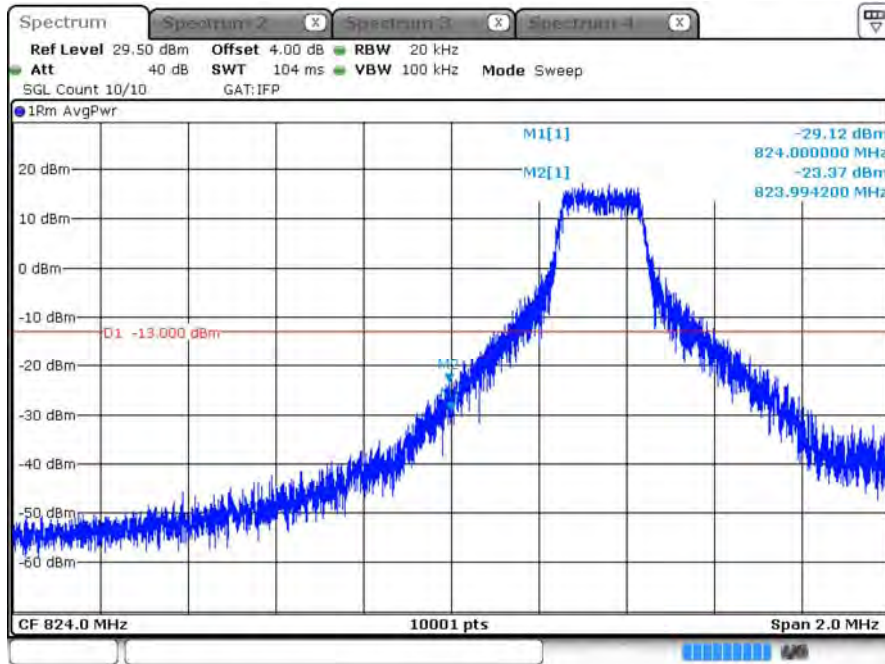
Date: 18 DEC.2020 12:43:12

LTE_B5_CH20635_3M_QPSK_15RB0



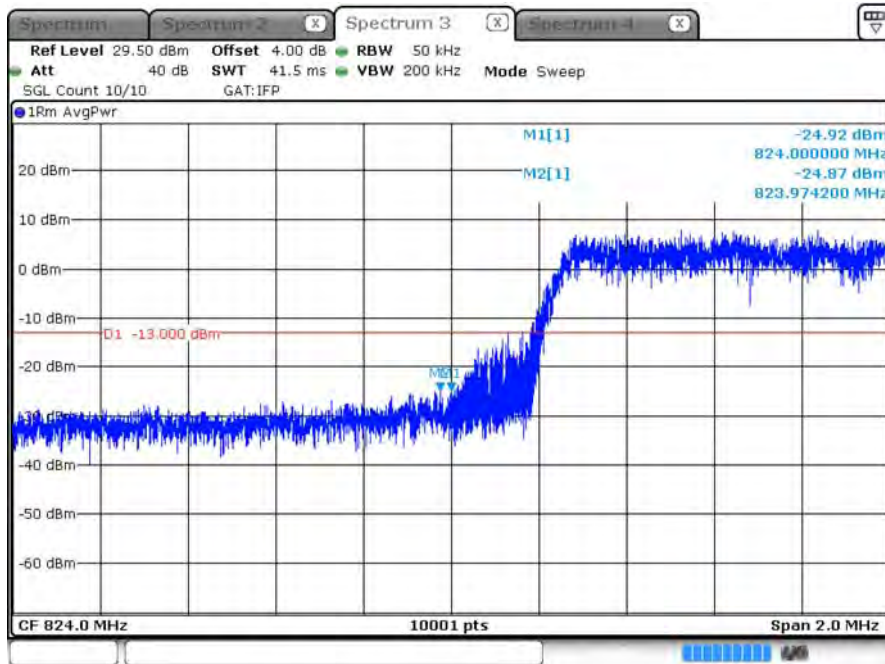
Date: 18 DEC.2020 12:42:54

LTE_B5_CH20425_5M_QPSK_1RB0



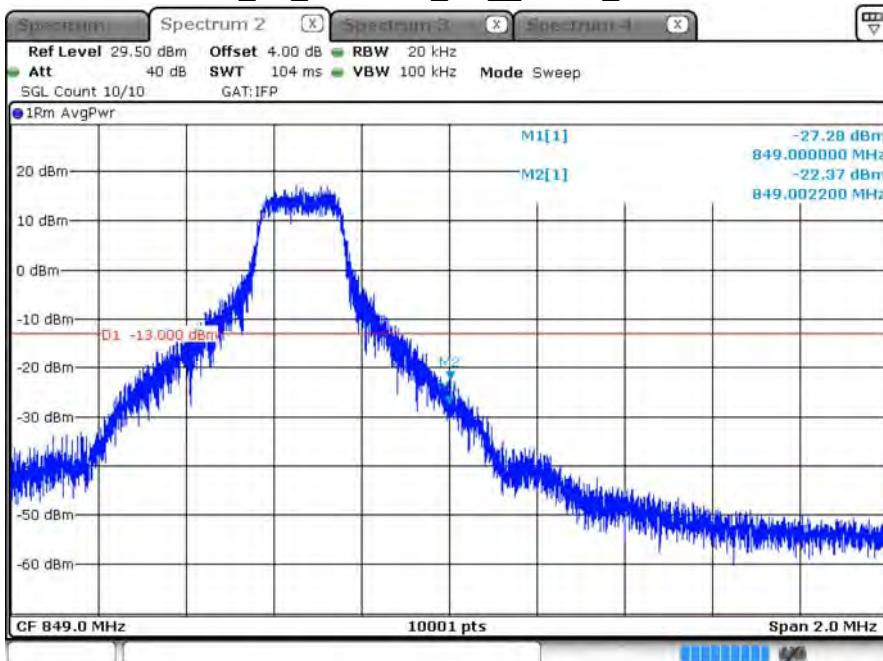
Date: 18 DEC.2020 12:45:09

LTE_B5_CH20425_5M_QPSK_25RB0



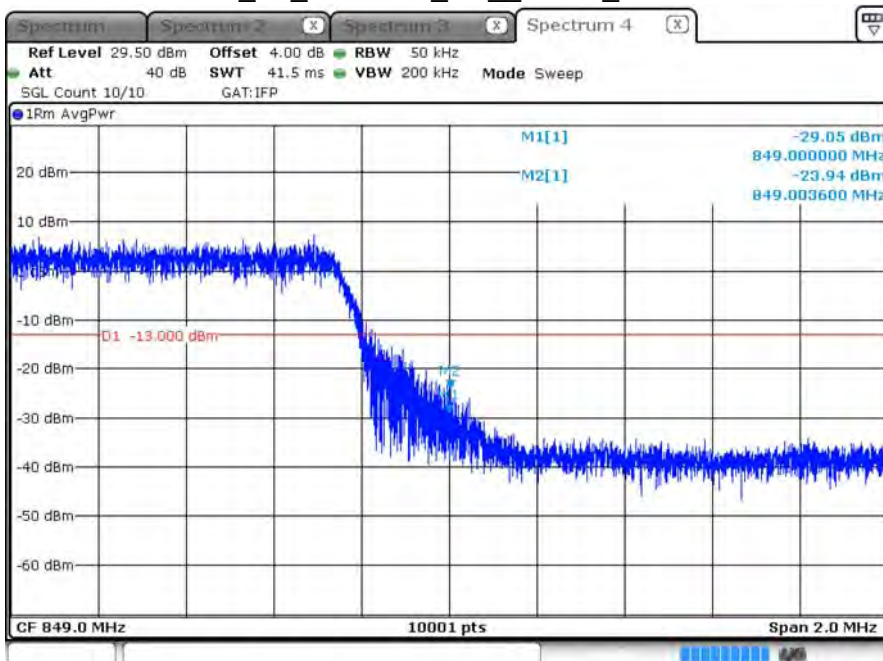
Date: 18 DEC.2020 12:46:40

LTE_B5_CH20625_5M_QPSK_1RB24



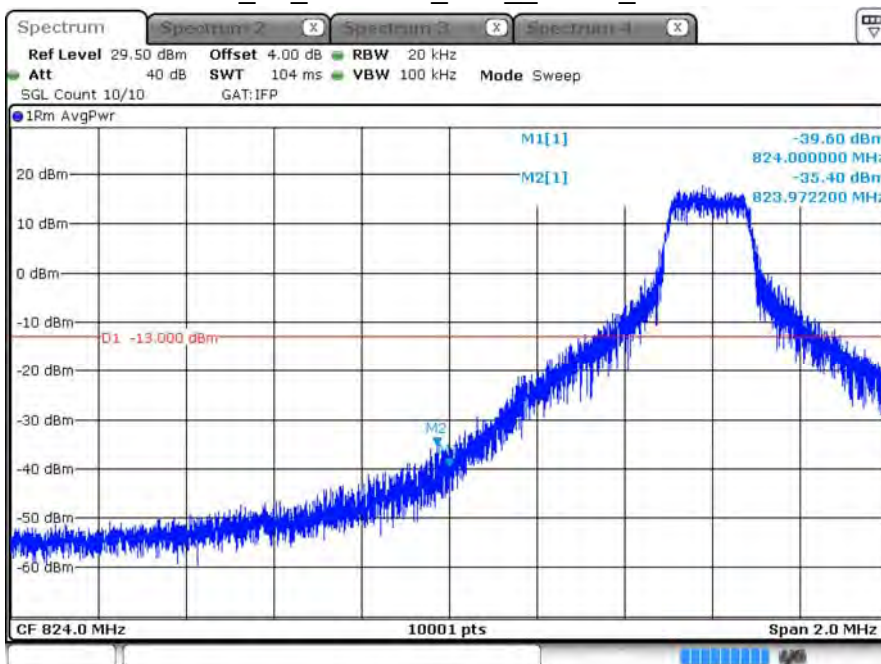
Date: 18 DEC.2020 12:50:23

LTE_B5_CH20625_5M_QPSK_25RB0



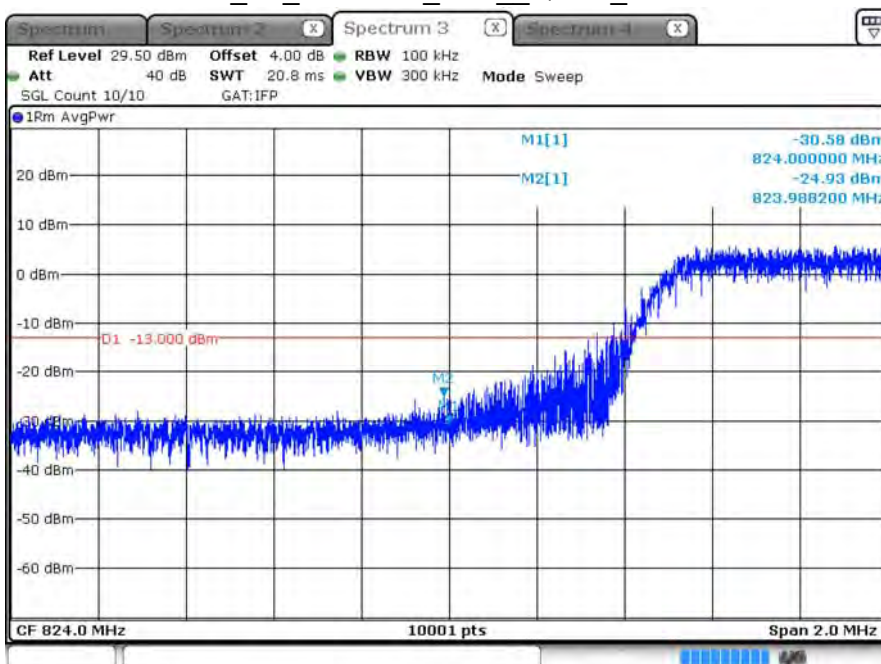
Date: 18 DEC.2020 12:47:44

LTE_B5_CH20450_10M_QPSK_1RB0



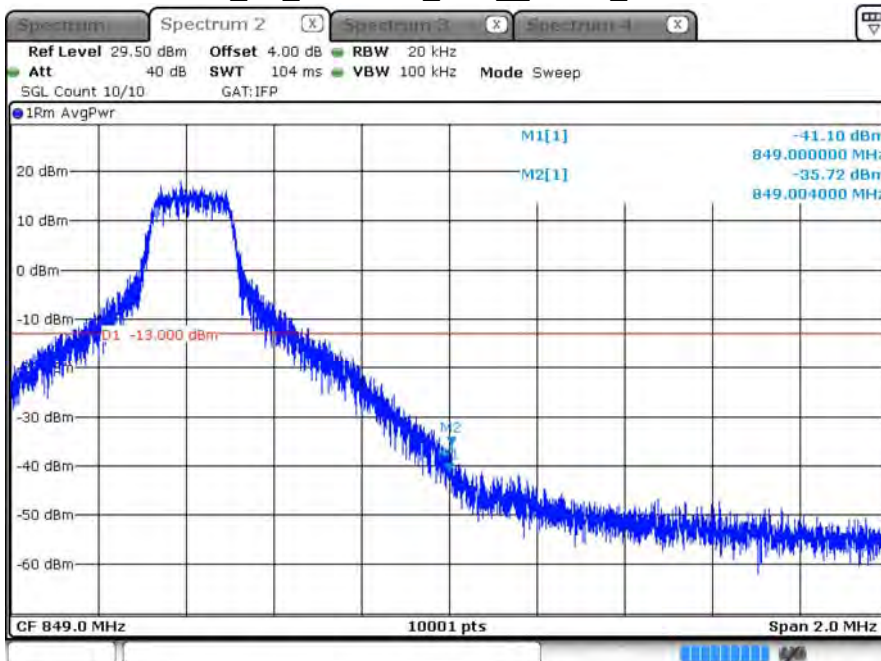
Date: 18 DEC.2020 13:13:54

LTE_B5_CH20450_10M_QPSK_50RB0



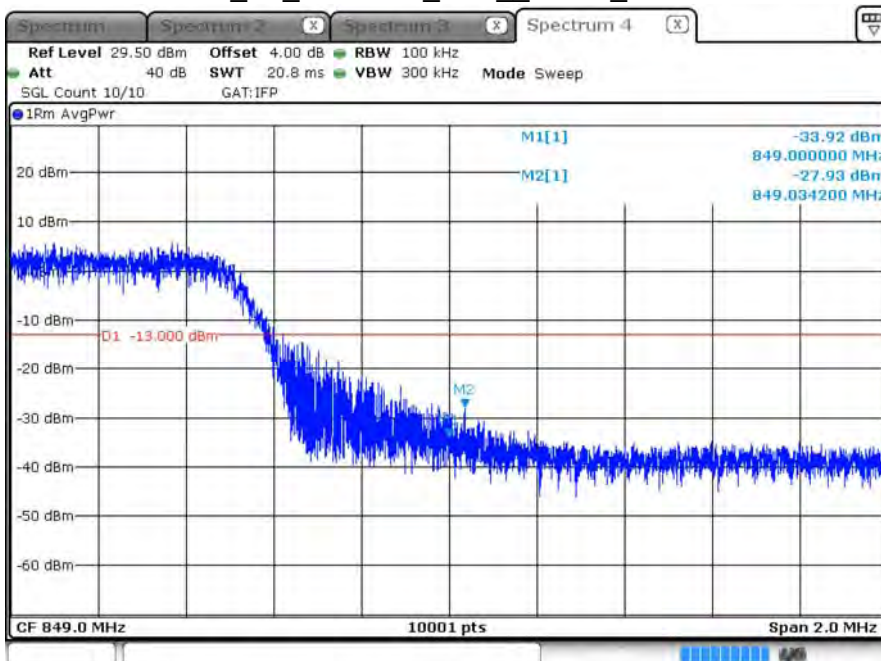
Date: 18 DEC.2020 13:14:13

LTE_B5_CH20600_10M_QPSK_1RB49



Date: 18 DEC.2020 13:16:15

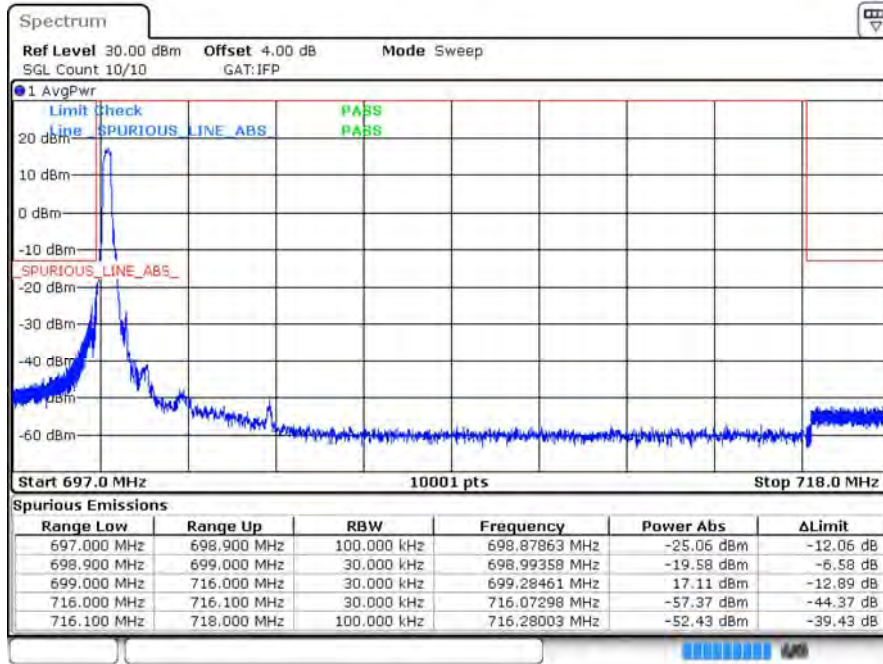
LTE_B5_CH20600_10M_QPSK_50RB0



Date: 18 DEC.2020 13:15:56

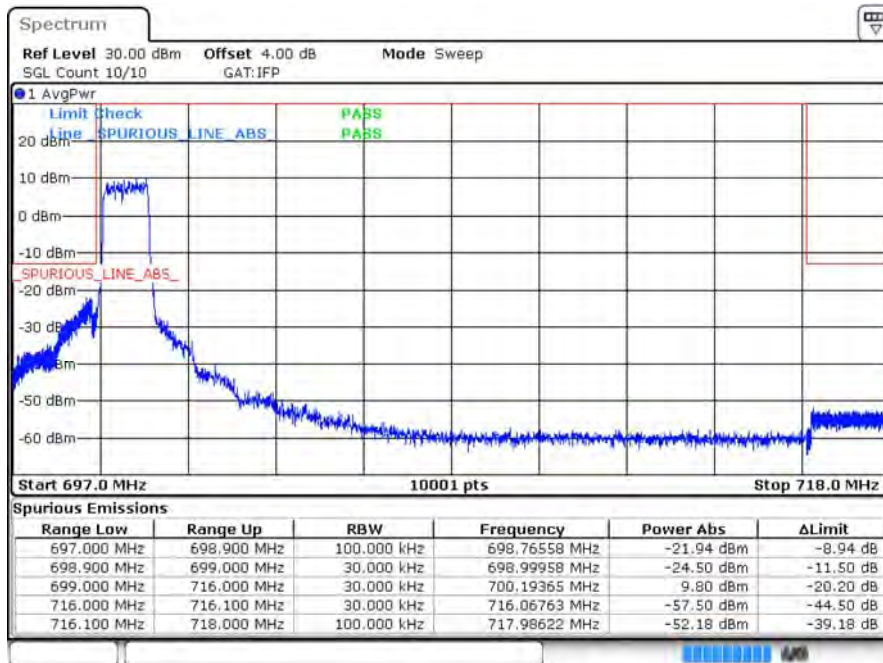
Product	M2M DATA MODULE		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 3: LTE Band 12		
Date of Test	2020/12/18	Test Site	SR12-H
Temperature (°C)	22	Humidity (%RH)	66

LTE_B12_CH23017_1.4M_QPSK_1RB0



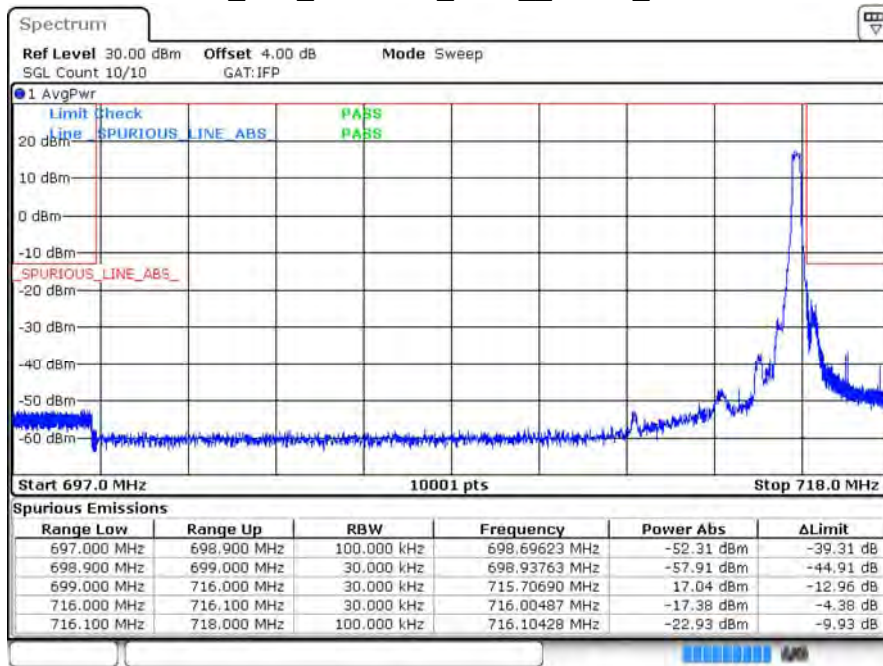
Date: 18 DEC.2020 14:36:45

LTE_B12_CH23017_1.4M_QPSK_6RB0



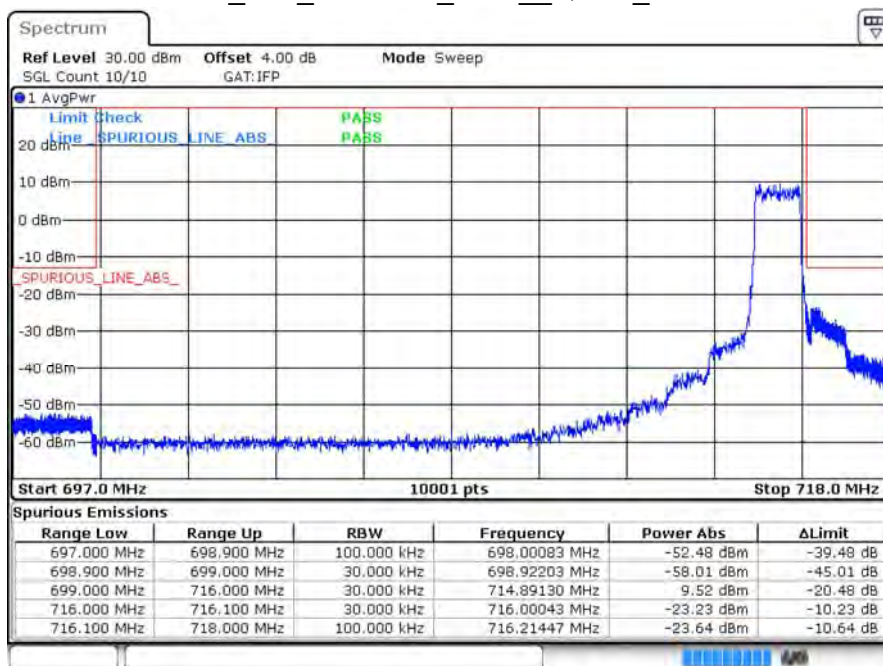
Date: 18 DEC.2020 14:37:37

LTE_B12_CH23173_1.4M_QPSK_1RB5



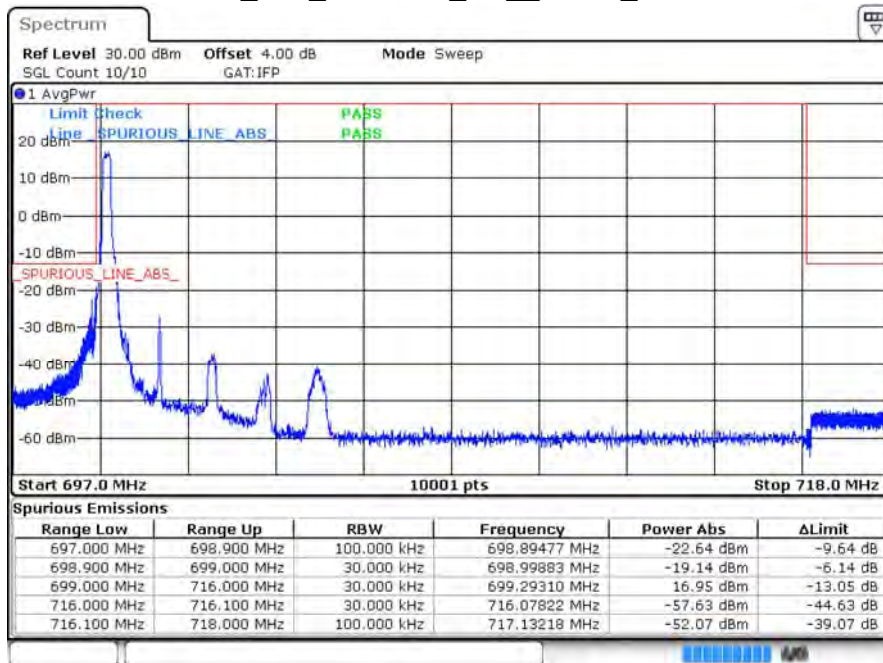
Date: 18 DEC.2020 14:38:18

LTE_B12_CH23173_1.4M_QPSK_6RB0



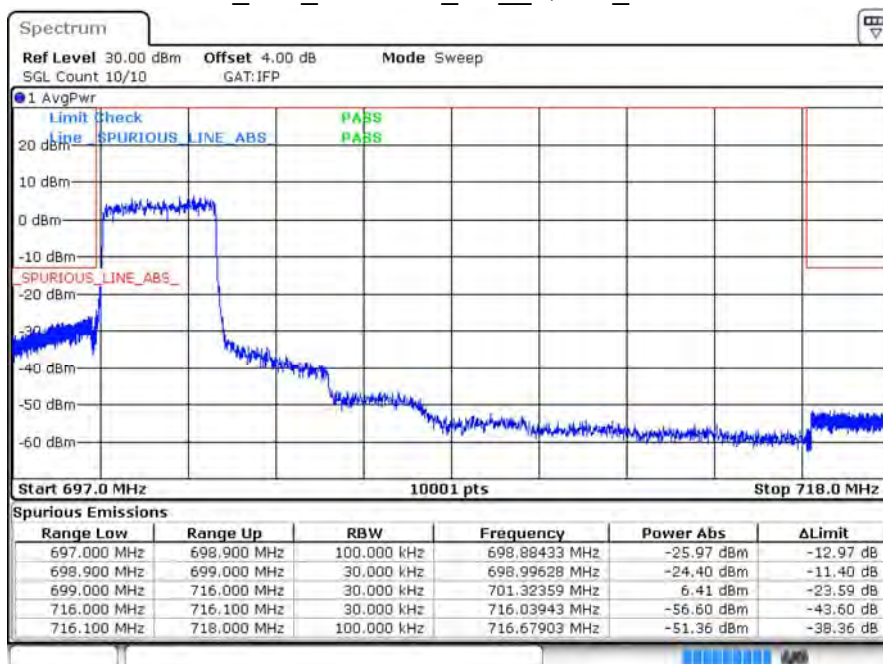
Date: 18 DEC.2020 14:38:01

LTE_B12_CH23025_3M_QPSK_1RB0



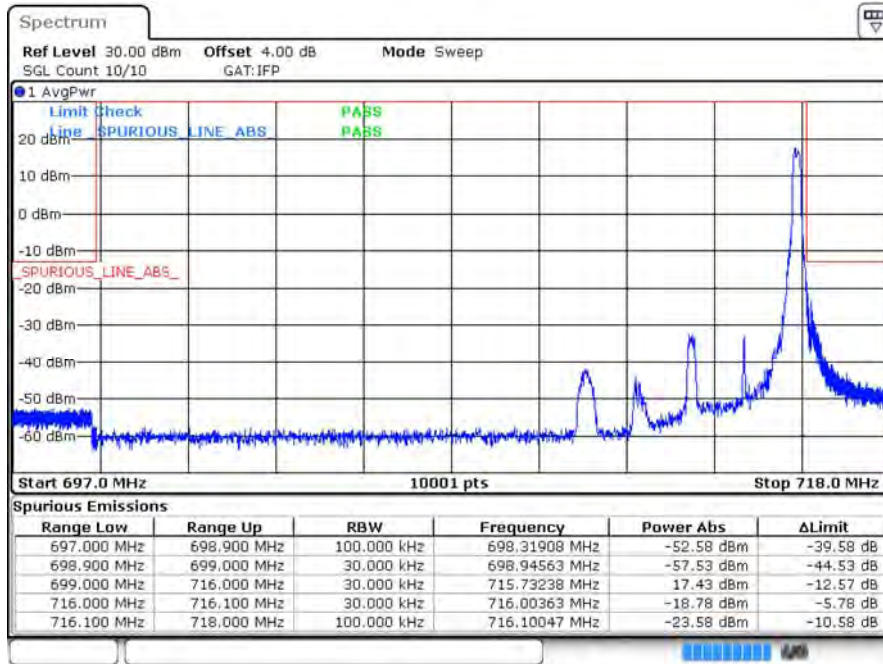
Date: 18 DEC.2020 14:40:00

LTE_B12_CH23025_3M_QPSK_15RB0



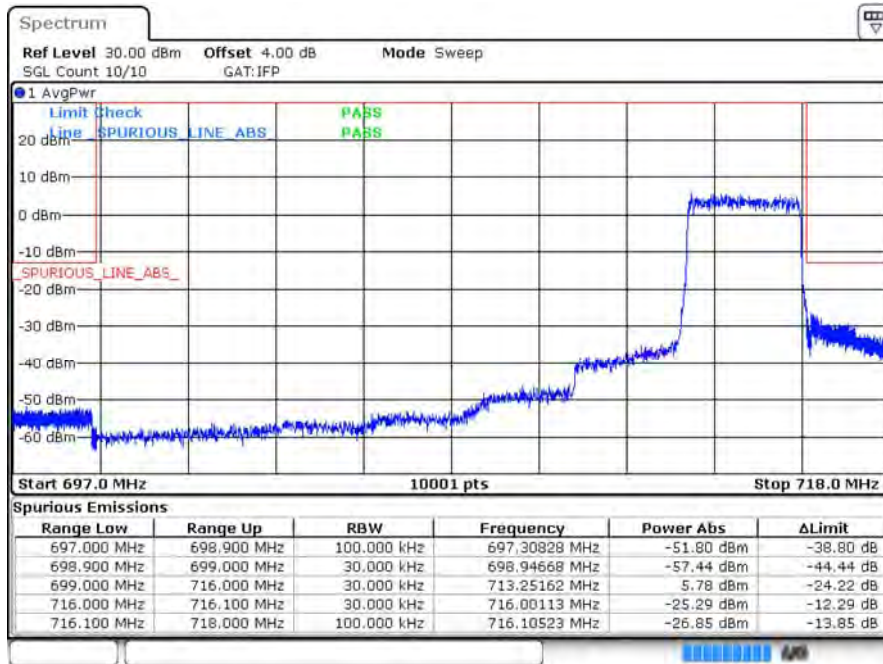
Date: 18 DEC.2020 14:39:44

LTE_B12_CH23165_3M_QPSK_1RB14



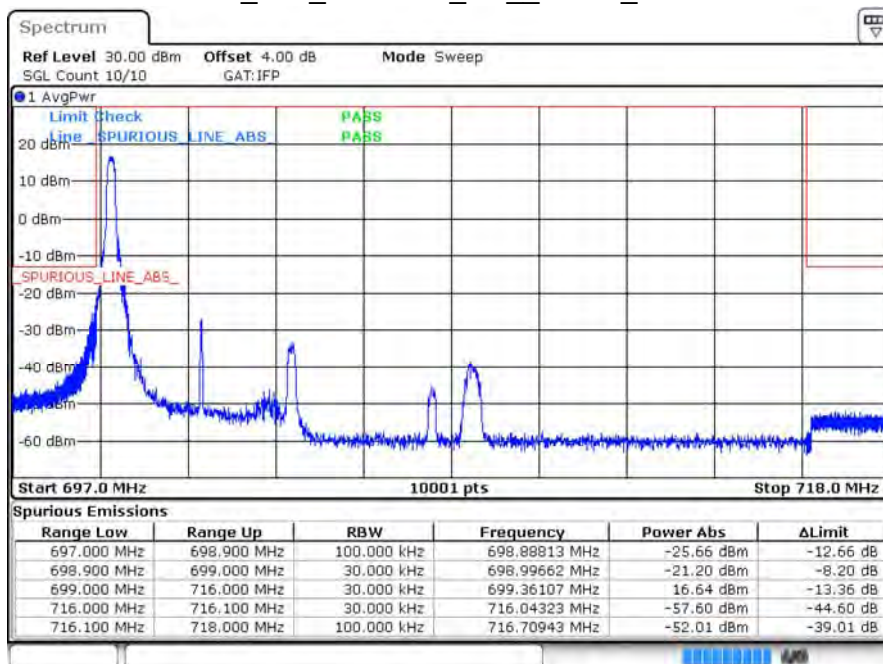
Date: 18 DEC.2020 14:39:02

LTE_B12_CH23165_3M_QPSK_15RB0



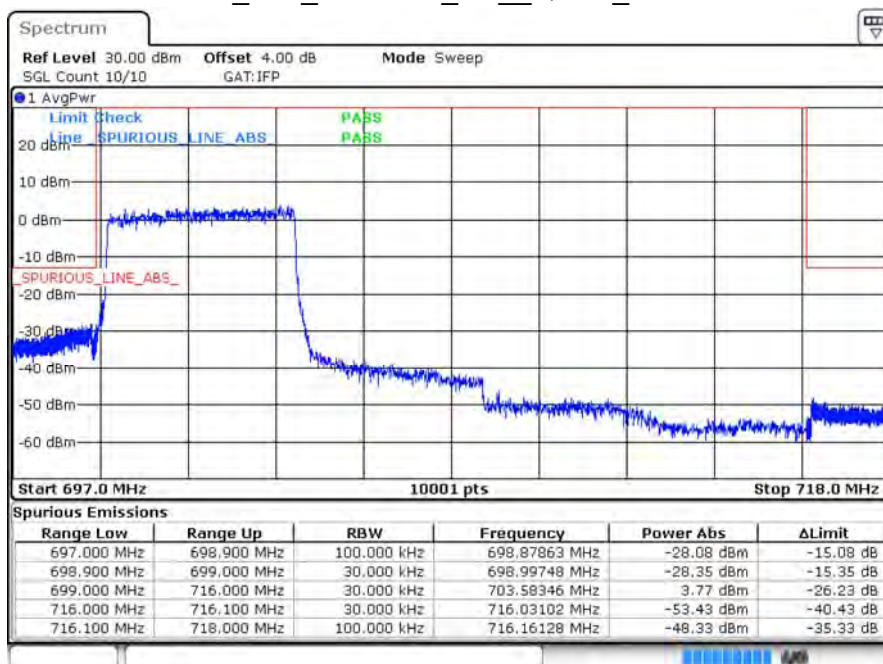
Date: 18 DEC.2020 14:39:25

LTE_B12_CH23035_5M_QPSK_1RB0



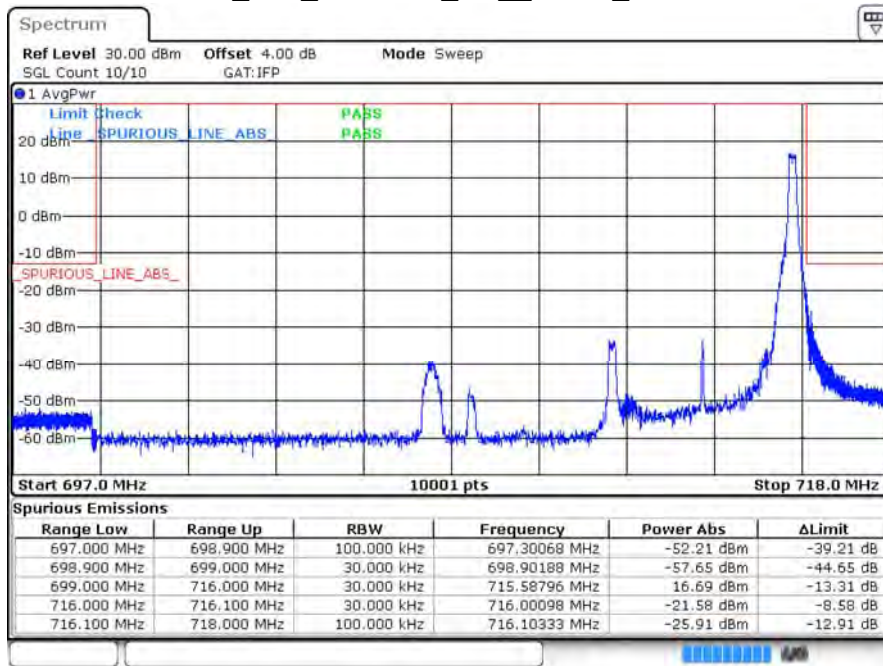
Date: 18 DEC.2020 14:41:39

LTE_B12_CH23035_5M_QPSK_25RB0



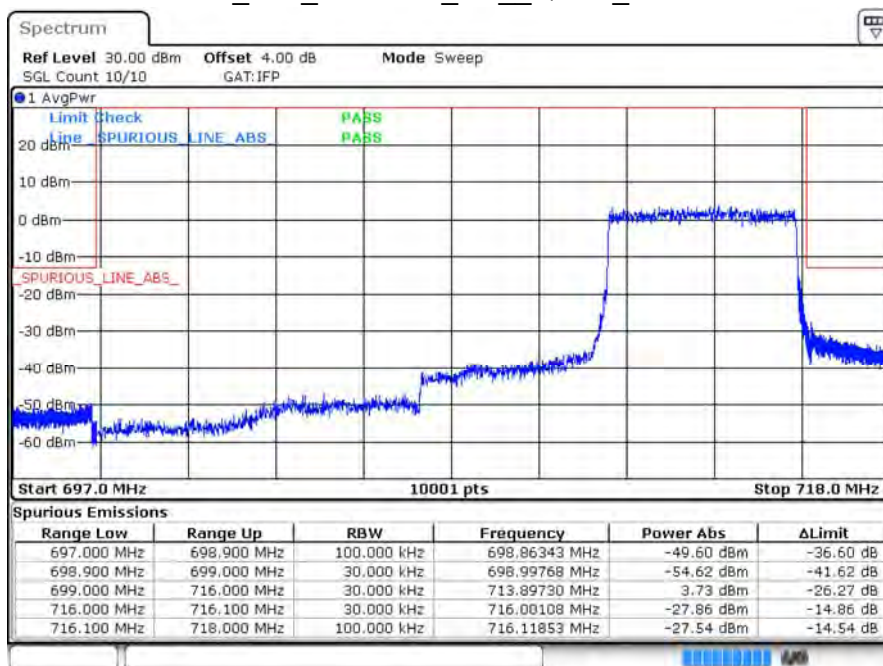
Date: 18 DEC.2020 14:41:22

LTE_B12_CH23155_5M_QPSK_1RB24



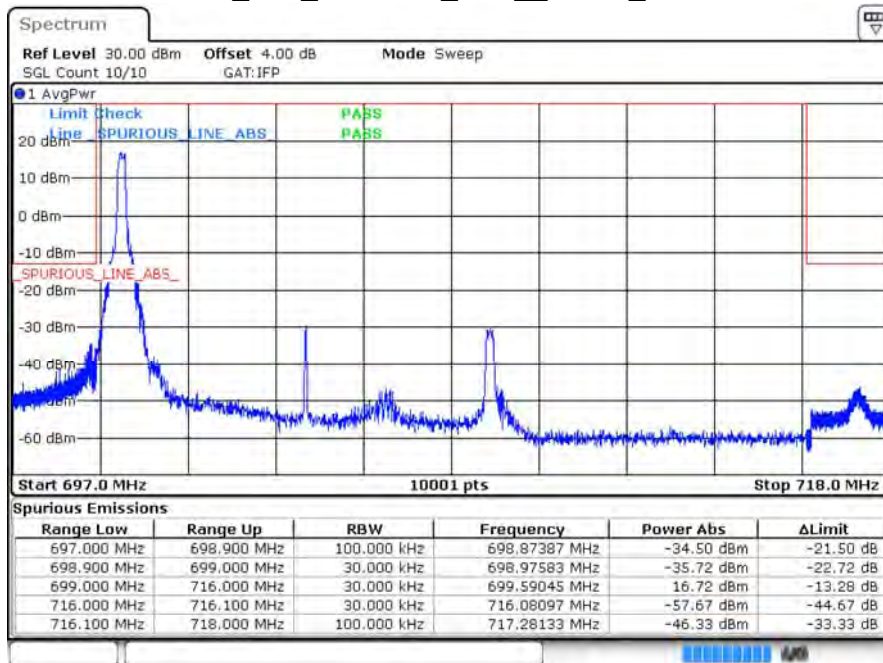
Date: 18 DEC. 2020 14:40:45

LTE_B12_CH23155_5M_QPSK_25RB0



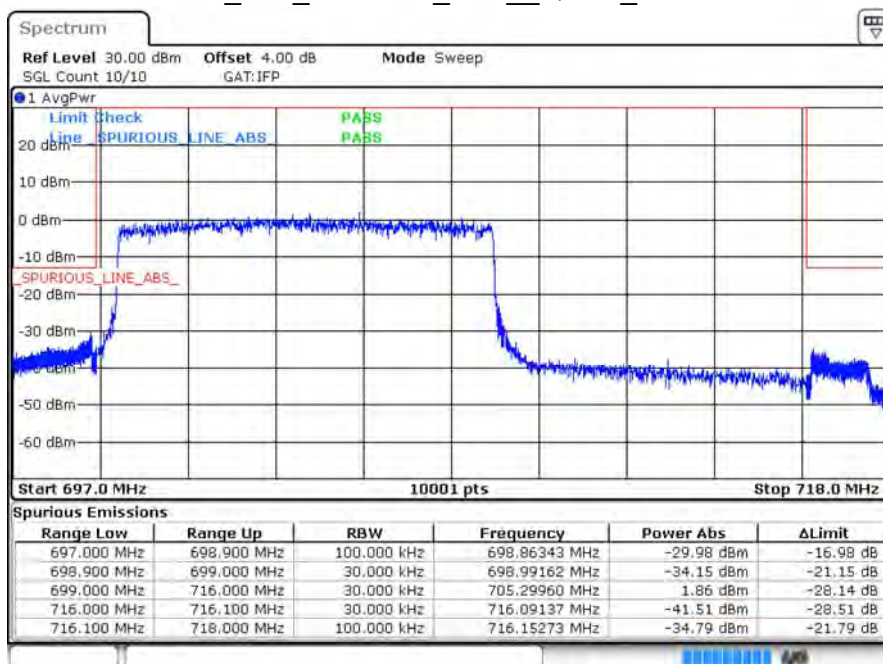
Date: 18 DEC. 2020 14:41:03

LTE_B12_CH23060_10M_QPSK_1RB0



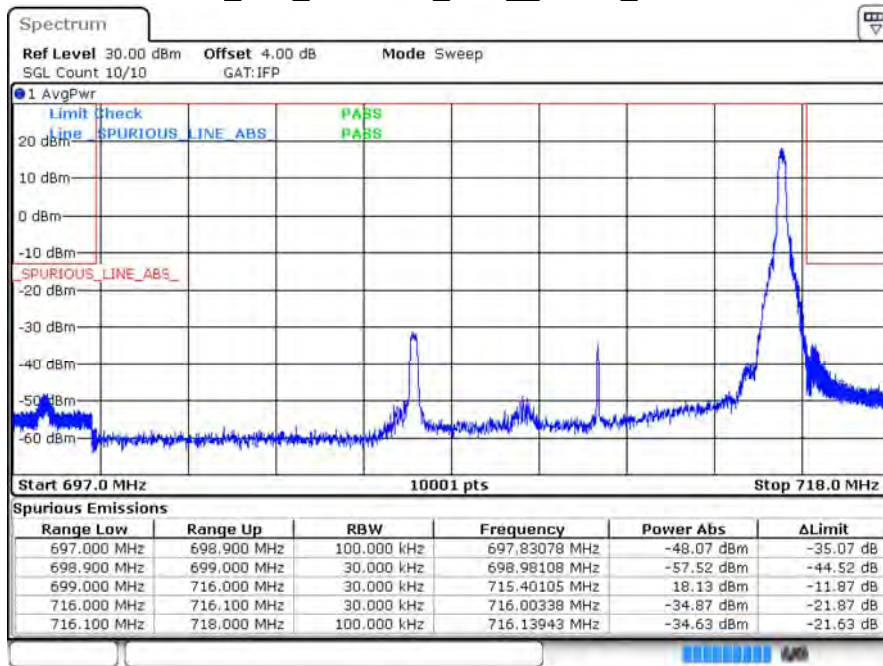
Date: 18 DEC. 2020 14:43:29

LTE_B12_CH23060_10M_QPSK_50RB0



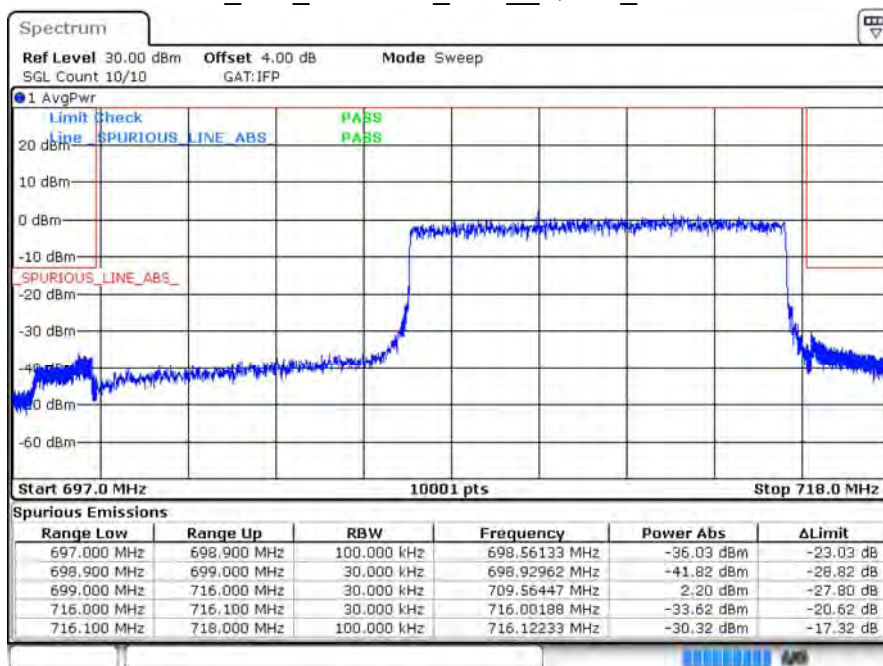
Date: 18 DEC. 2020 14:43:13

LTE_B12_CH23130_10M_QPSK_1RB49



Date: 18 DEC. 2020 14:42:28

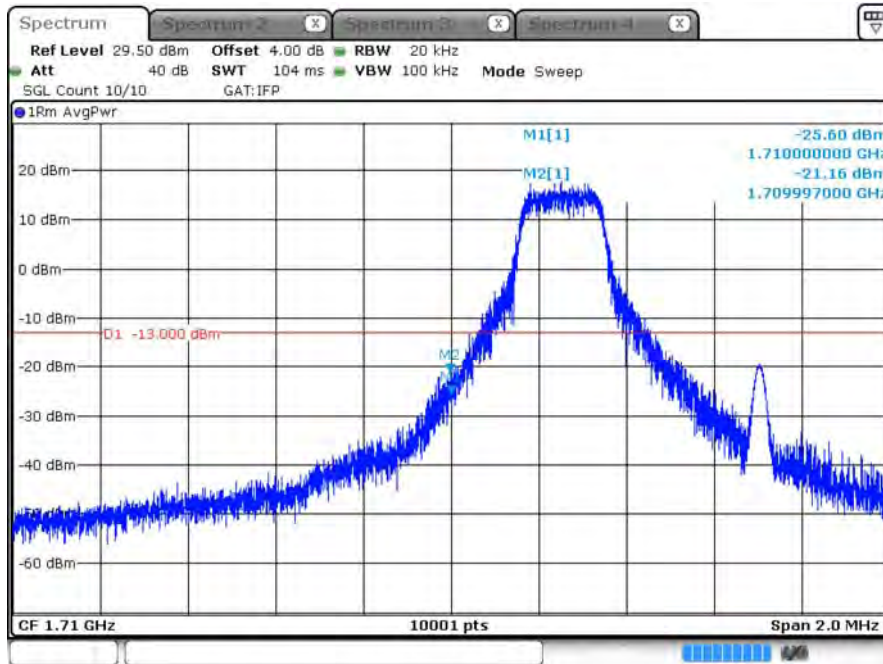
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Date: 18 DEC. 2020 14:42:48

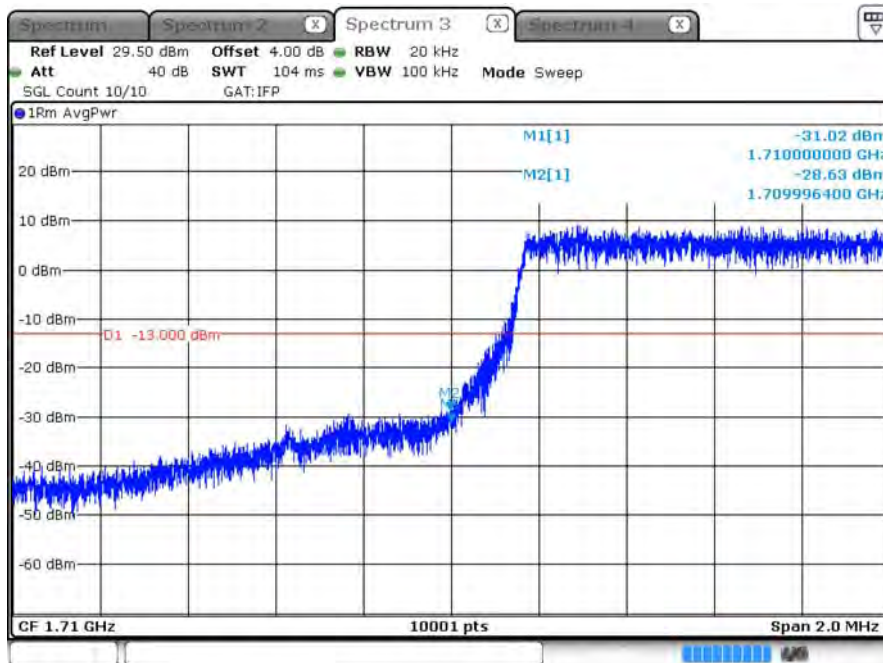
Product	M2M DATA MODULE		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 4: LTE Band 4/66		
Date of Test	2020/12/18	Test Site	SR12-H
Temperature (°C)	22	Humidity (%RH)	66

LTE_B66_CH131979_1.4M_QPSK_1RB0



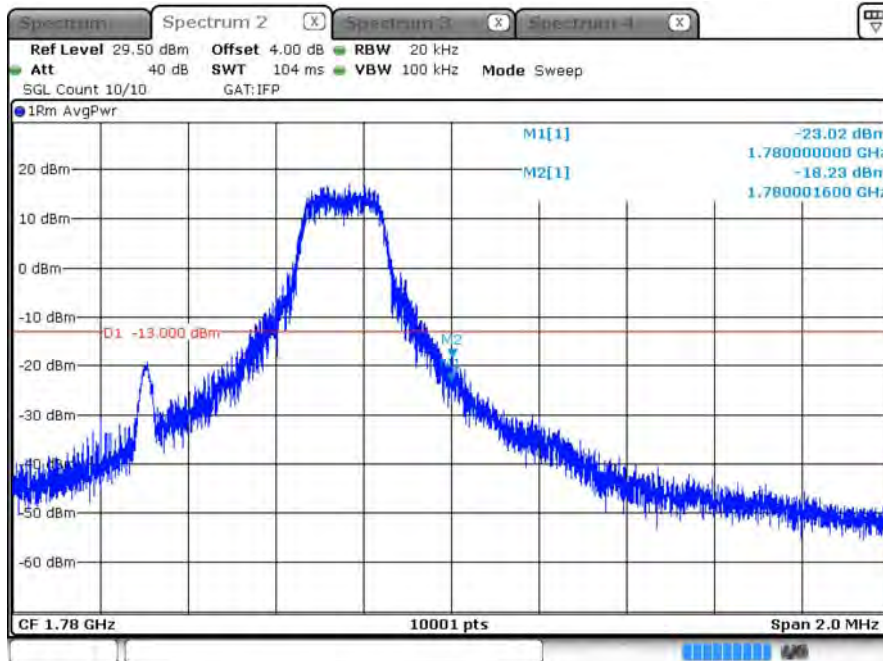
Date: 18 DEC.2020 13:33:06

LTE_B66_CH131979_1.4M_QPSK_6RB0



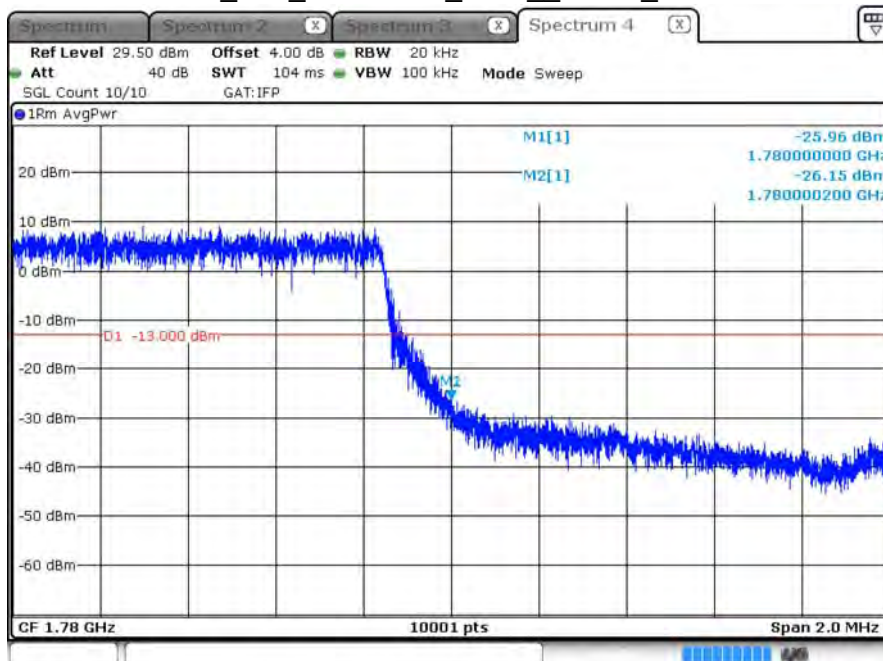
Date: 18 DEC.2020 13:33:41

LTE_B66_CH132665_1.4M_QPSK_1RB5



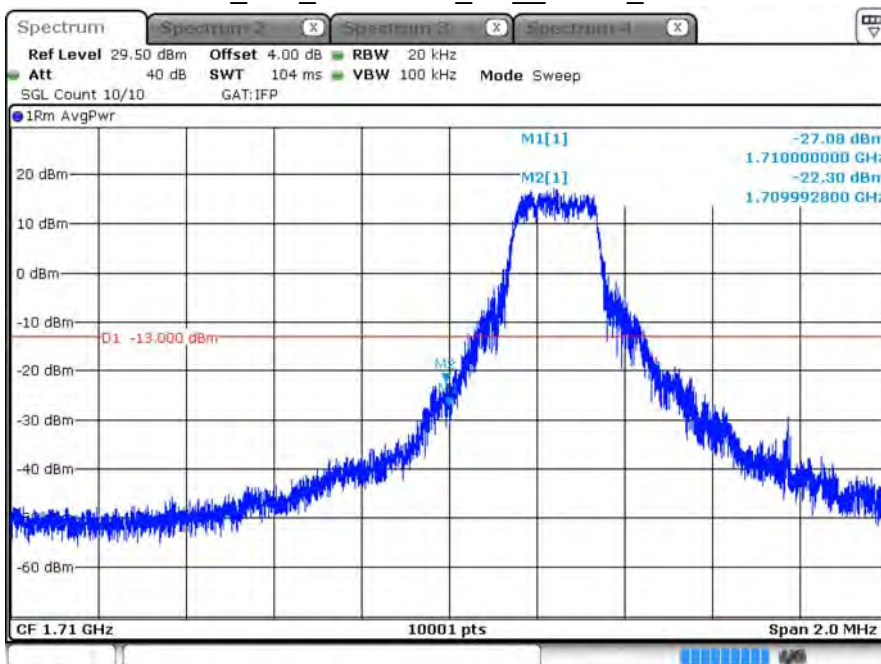
Date: 18 DEC.2020 13:34:26

LTE_B66_CH132665_1.4M_QPSK_6RB0



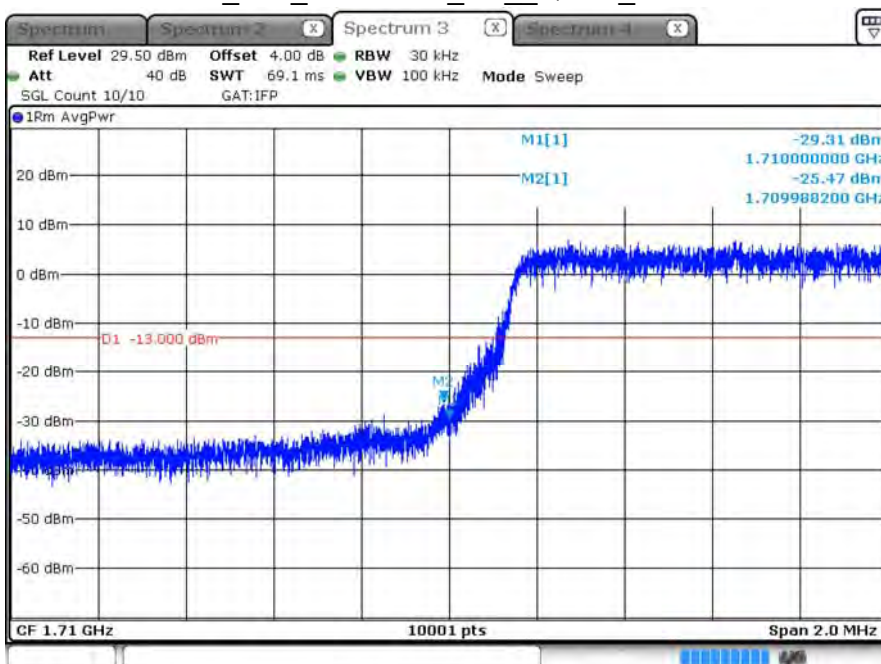
Date: 18 DEC.2020 13:34:03

LTE_B66_CH131987_3M_QPSK_1RB0



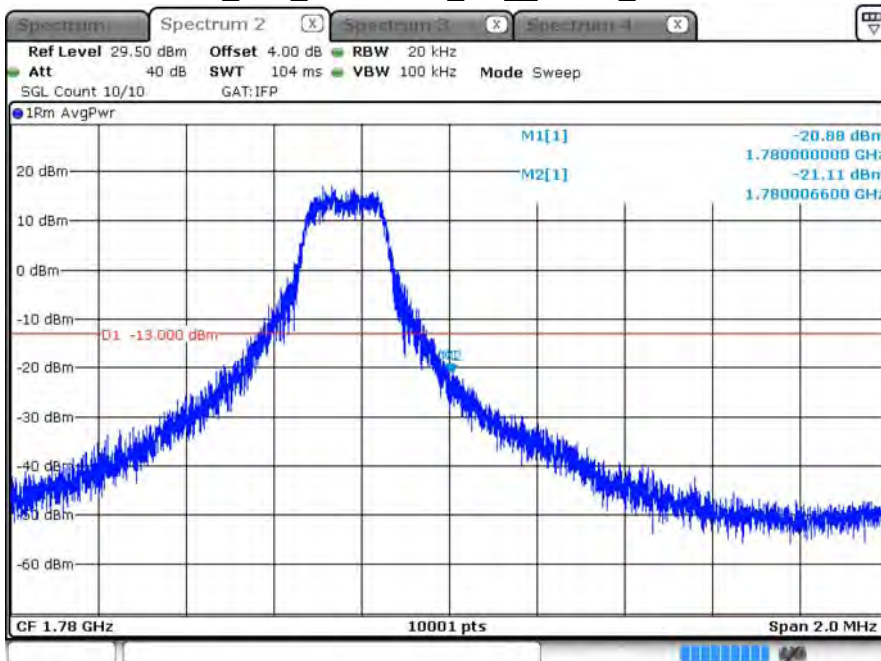
Date: 18 DEC.2020 13:35:20

LTE_B66_CH131987_3M_QPSK_15RB0



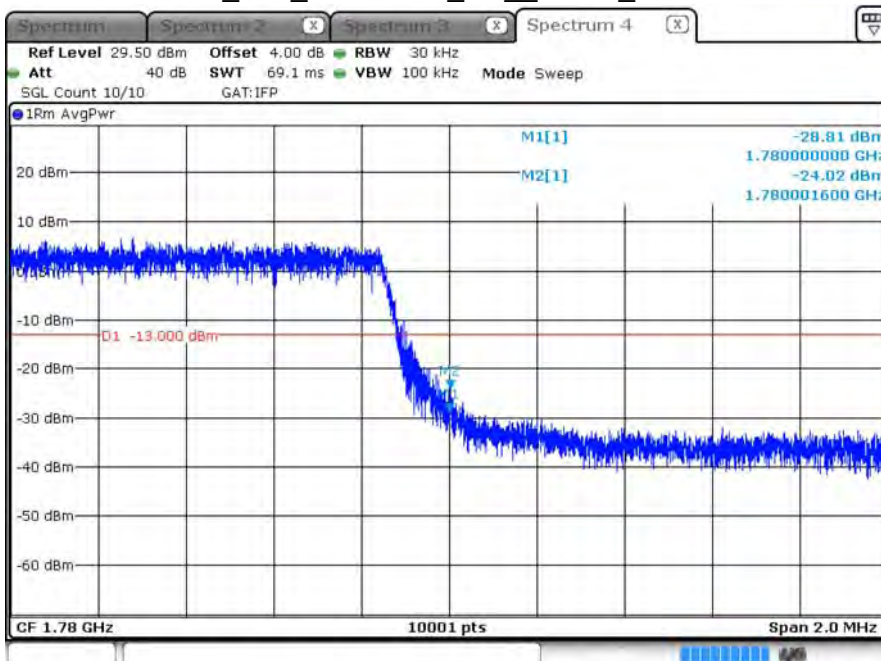
Date: 18 DEC.2020 13:36:12

LTE_B66_CH132657_3M_QPSK_1RB14



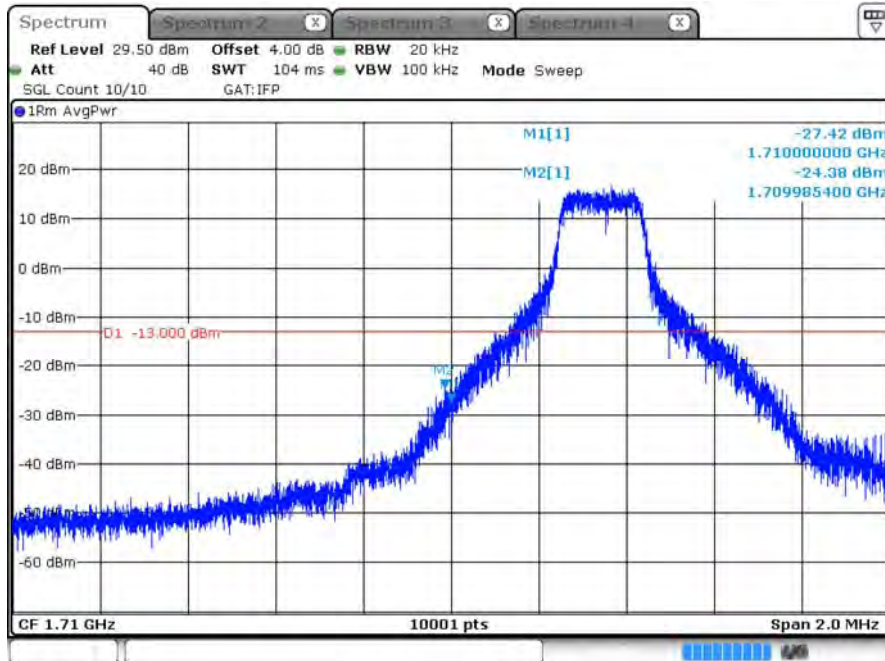
Date: 18 DEC.2020 13:37:00

LTE_B66_CH132657_3M_QPSK_15RB0



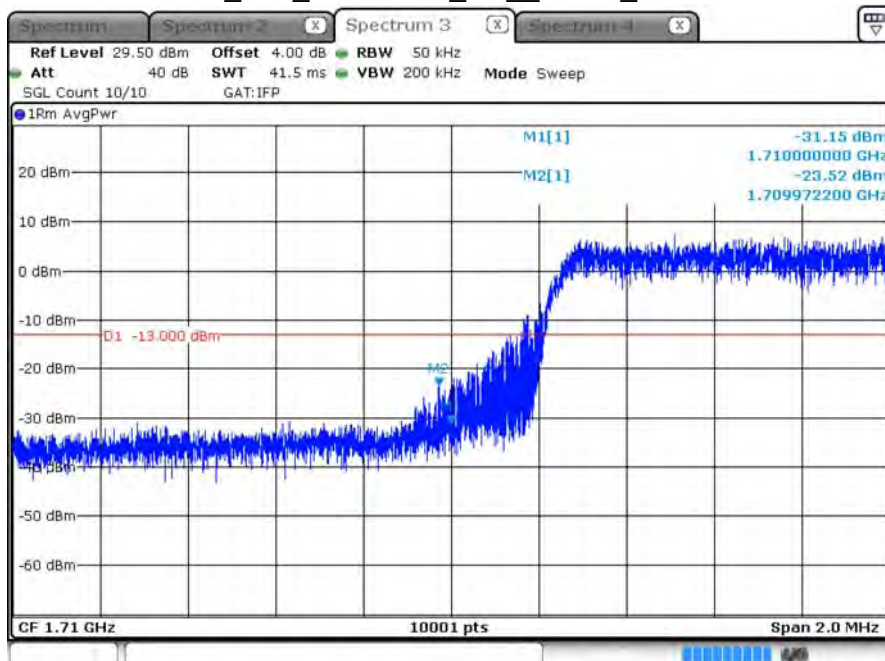
Date: 18 DEC.2020 13:36:38

LTE_B66_CH131997_5M_QPSK_1RB0



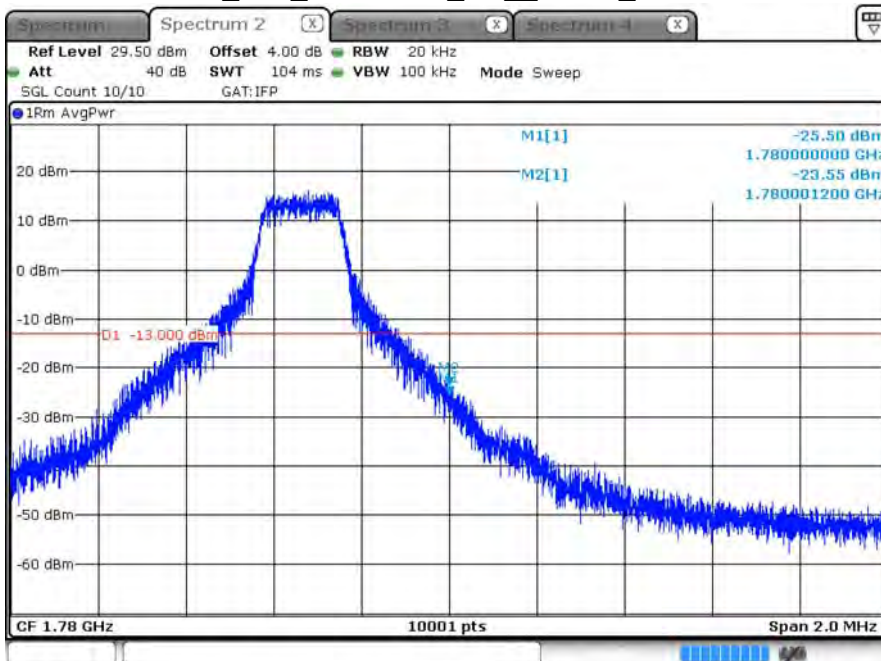
Date: 18 DEC.2020 13:37:55

LTE_B66_CH131997_5M_QPSK_25RB0



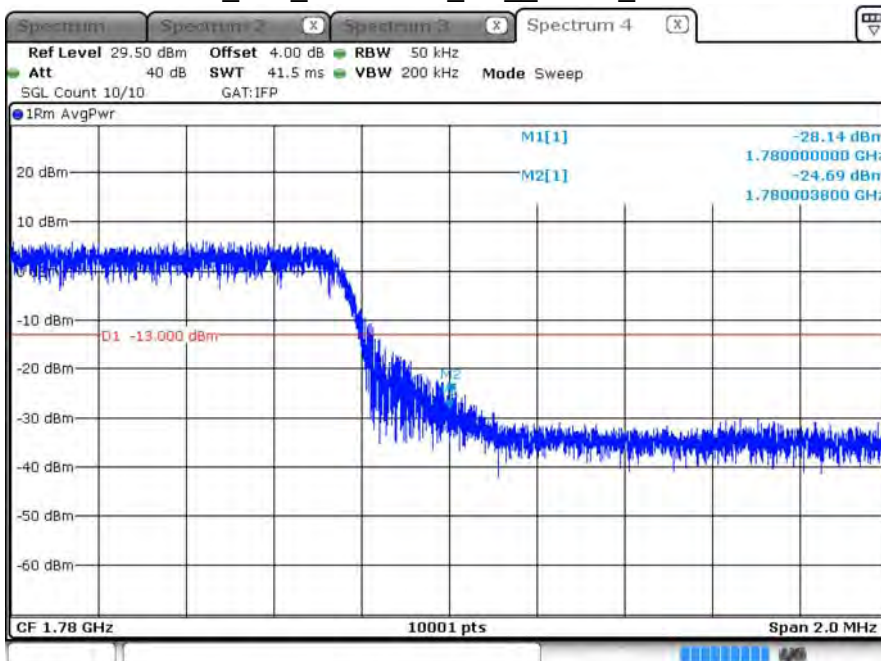
Date: 18 DEC.2020 13:38:15

LTE_B66_CH132647_5M_QPSK_1RB24



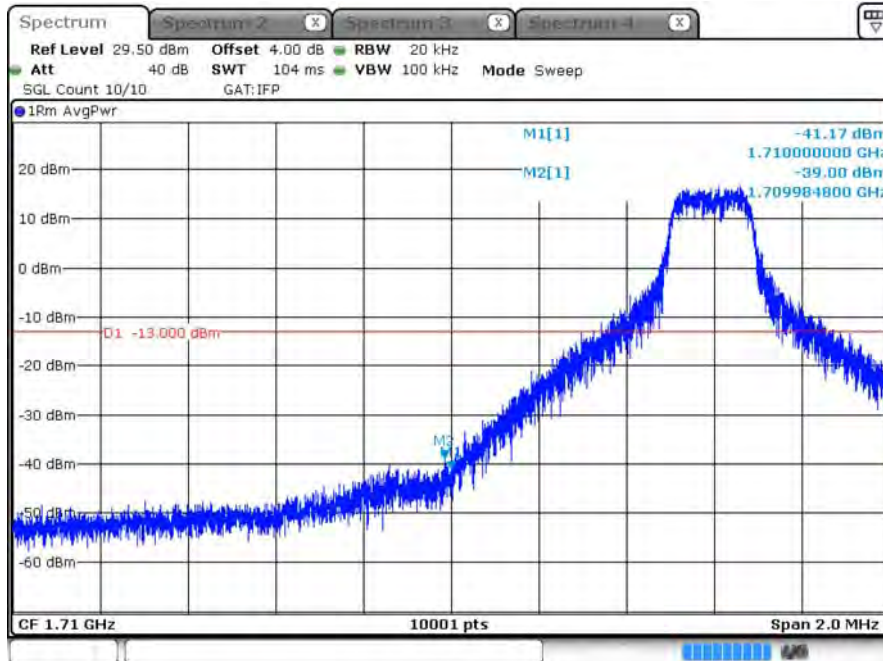
Date: 18 DEC.2020 13:39:02

LTE_B66_CH132647_5M_QPSK_25RB0



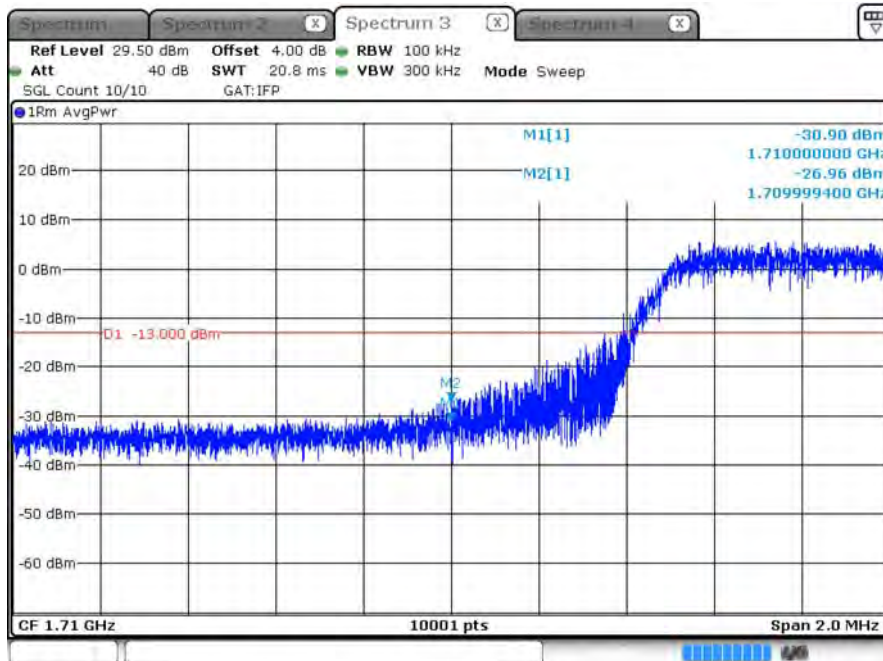
Date: 18 DEC.2020 13:38:43

LTE_B66_CH132022_10M_QPSK_1RB0



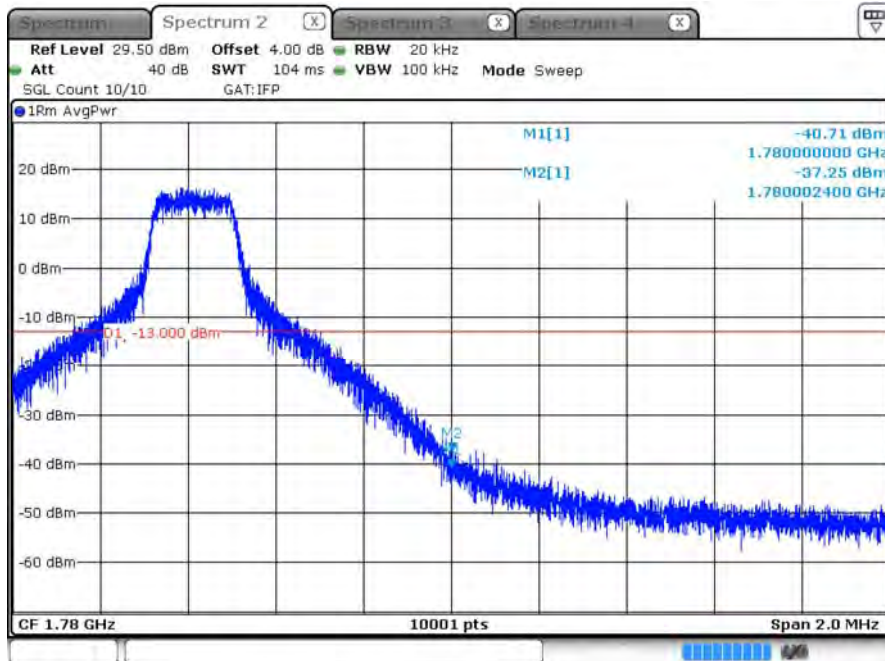
Date: 18 DEC.2020 13:41:21

LTE_B66_CH132022_10M_QPSK_50RB0



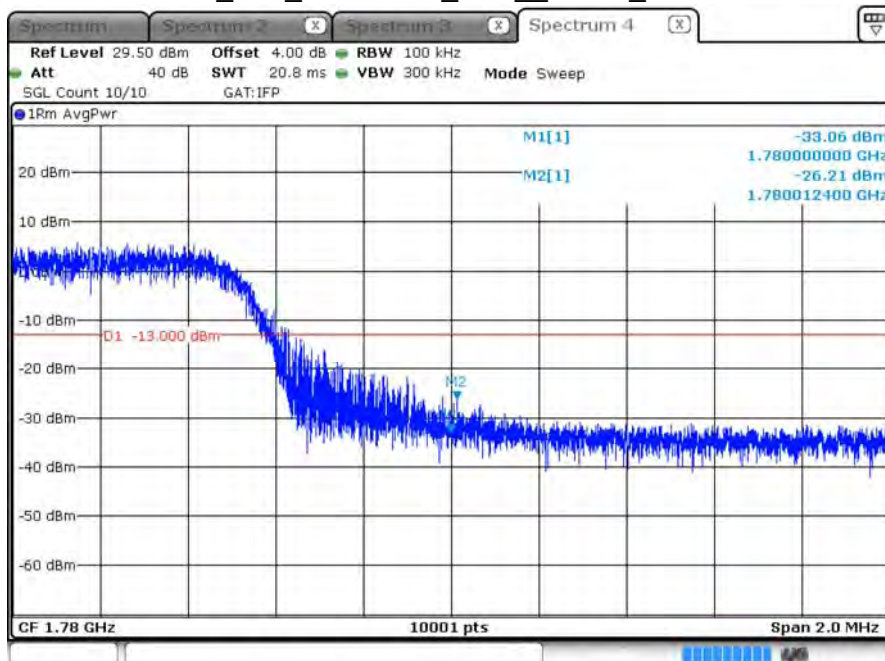
Date: 18 DEC.2020 13:41:00

LTE_B66_CH132622_10M_QPSK_1RB49



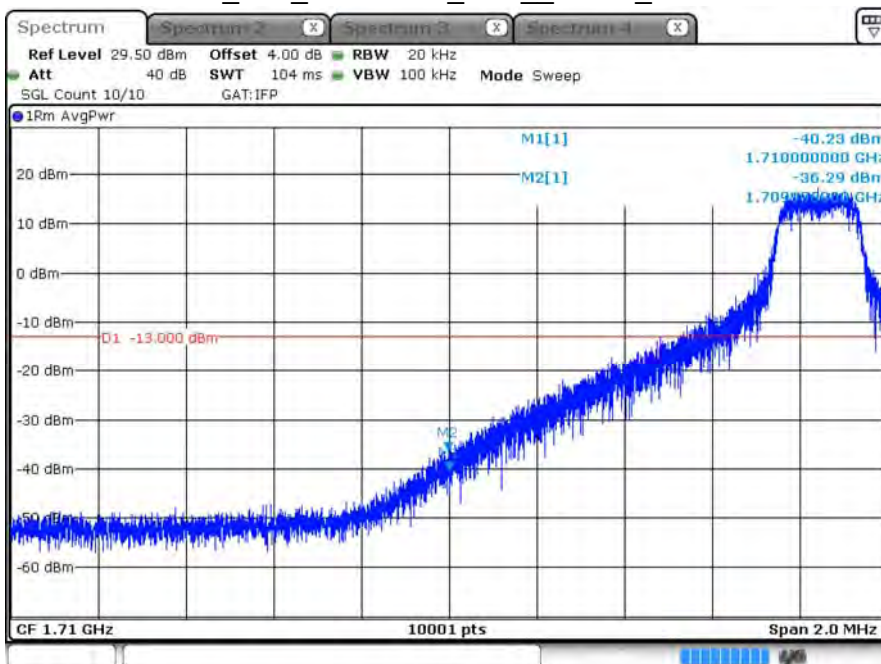
Date: 18 DEC.2020 13:40:10

LTE_B66_CH132622_10M_QPSK_50RB0



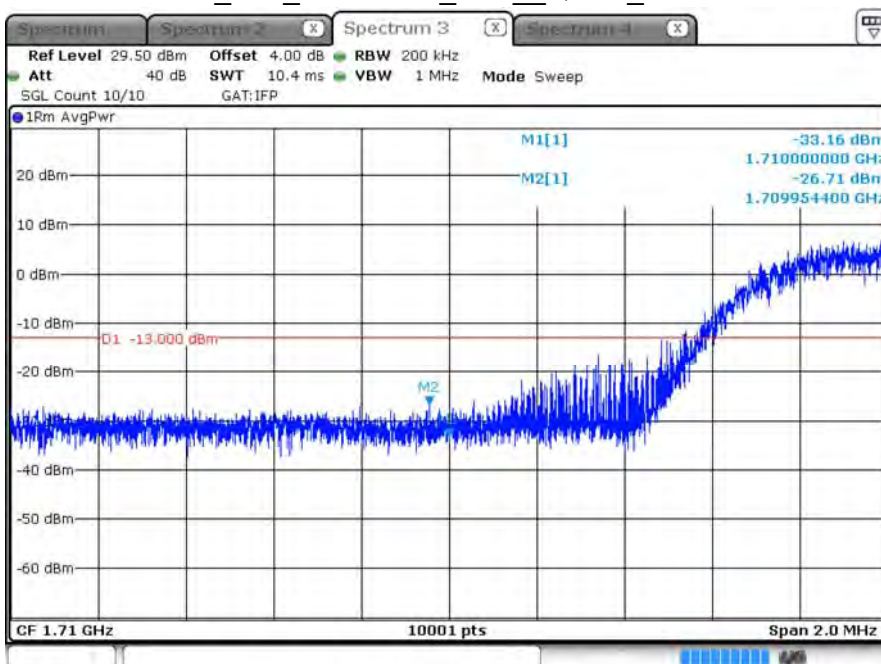
Date: 18 DEC.2020 13:40:37

LTE_B66_CH132047_15M_QPSK_1RB0



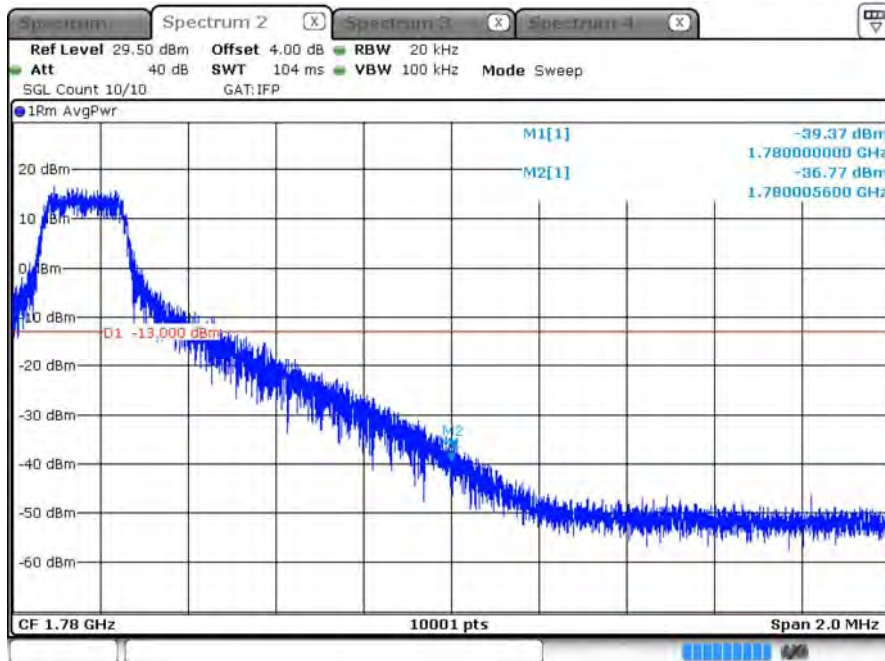
Date: 18 DEC.2020 13:45:15

LTE_B66_CH132047_15M_QPSK_75RB0



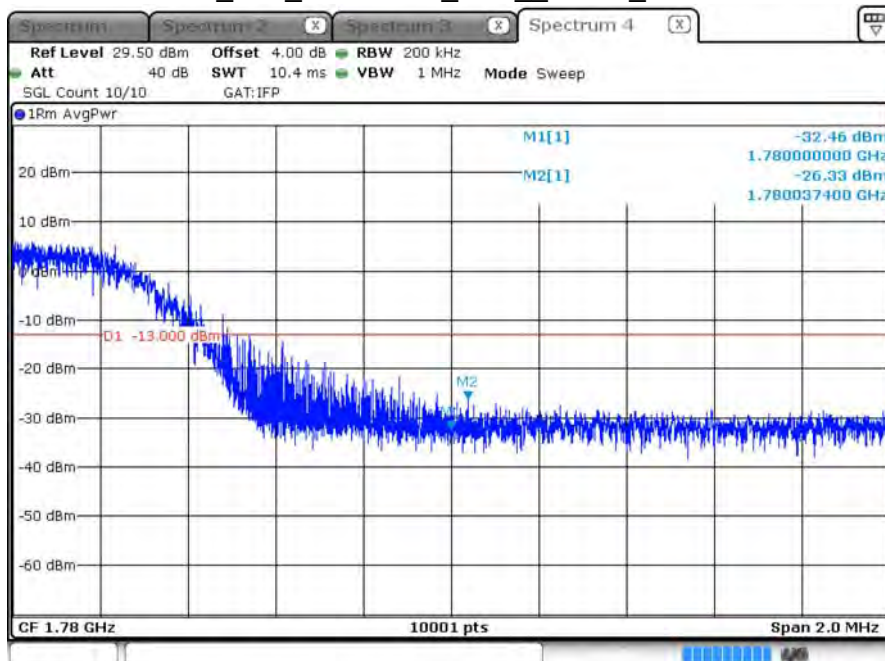
Date: 18 DEC.2020 13:44:52

LTE_B66_CH132597_15M_QPSK_1RB74



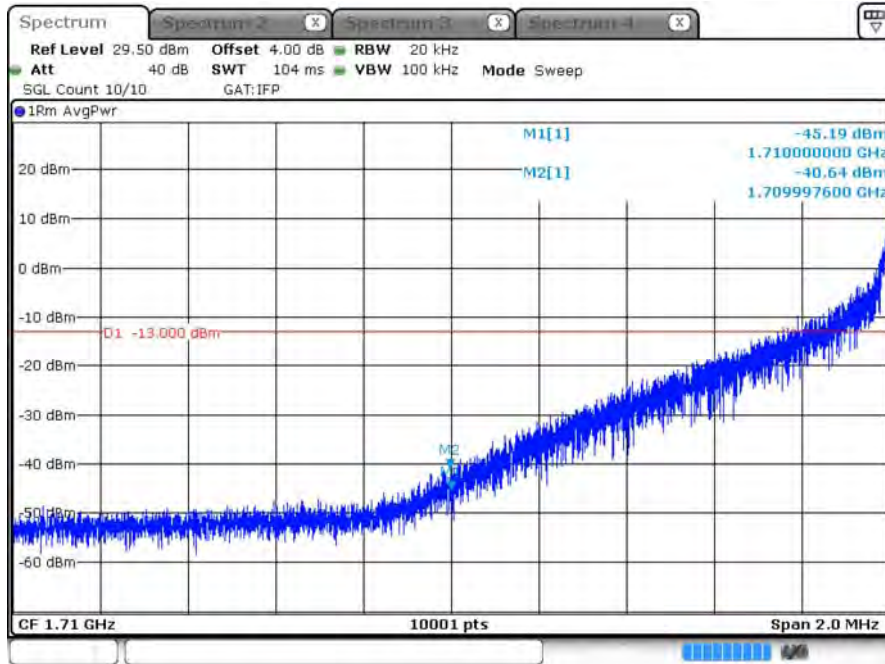
Date: 18 DEC.2020 13:42:52

LTE_B66_CH132597_15M_QPSK_75RB0



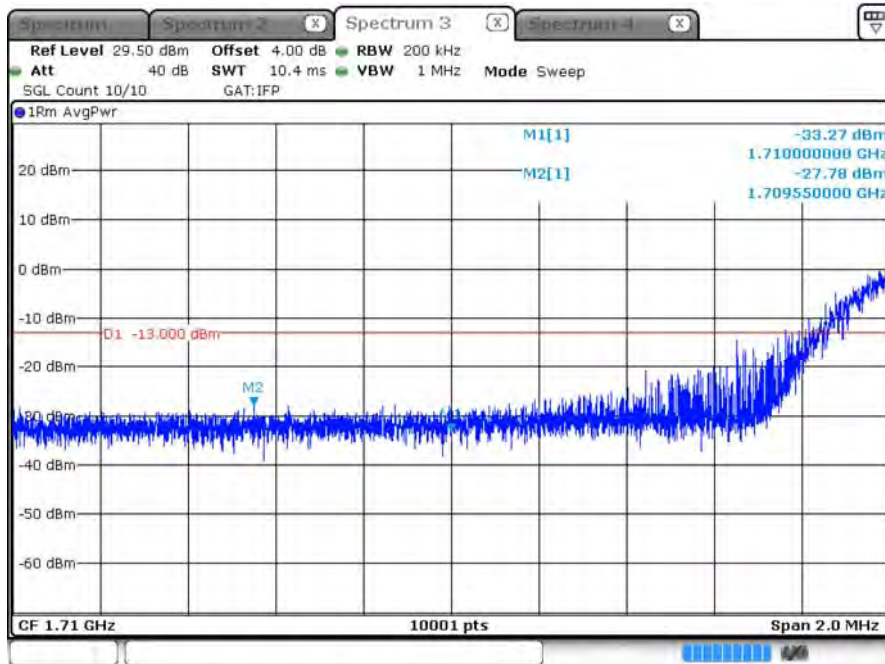
Date: 18 DEC.2020 13:43:23

LTE_B66_CH132072_20M_QPSK_1RB0



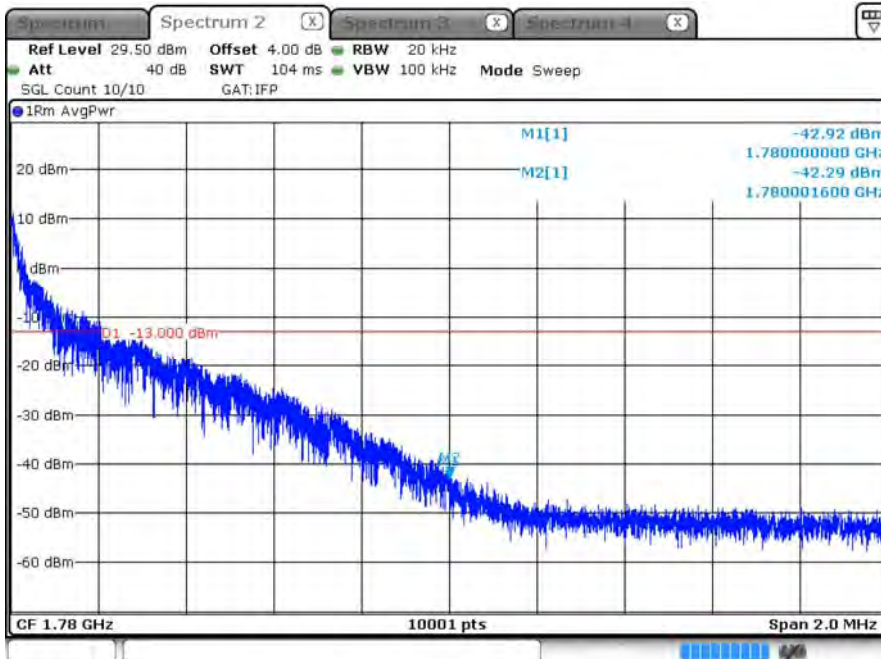
Date: 18 DEC.2020 13:47:01

LTE_B66_CH132072_20M_QPSK_100RB0



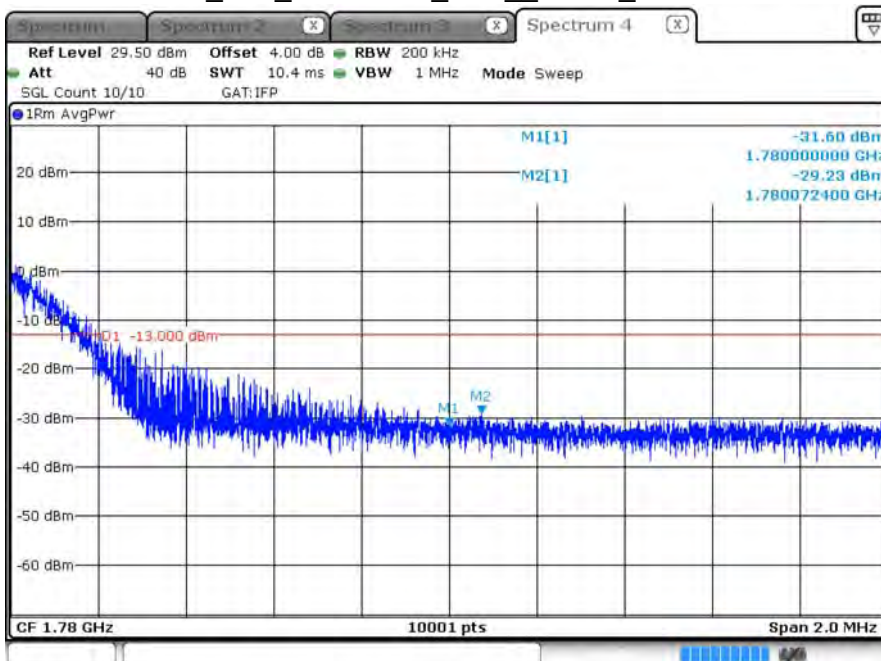
Date: 18 DEC.2020 13:46:44

LTE_B66_CH132572_20M_QPSK_1RB99



Date: 18 DEC.2020 13:46:07

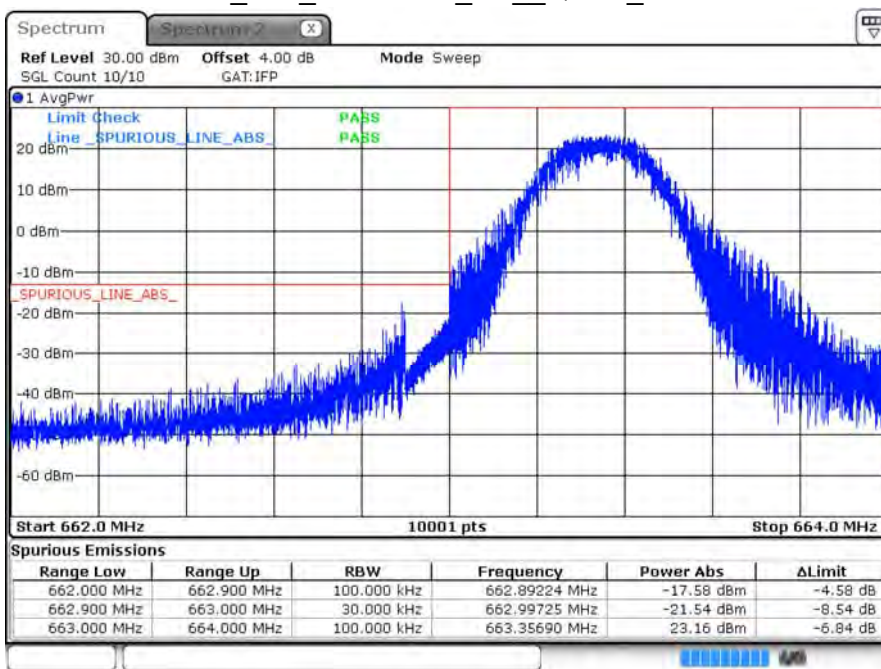
LTE_B66_CH132572_20M_QPSK_100RB0



Date: 18 DEC.2020 13:46:27

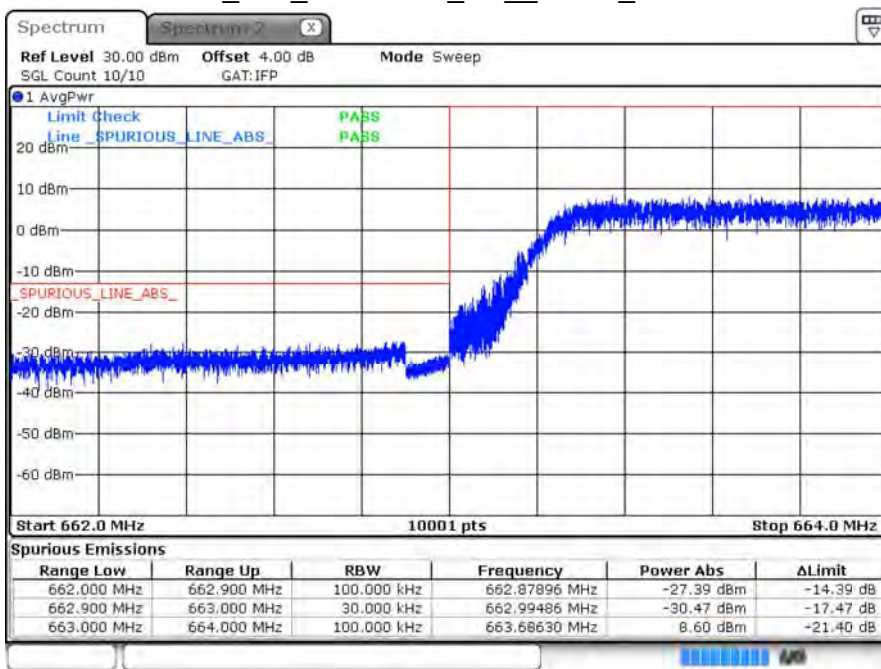
Product	M2M DATA MODULE		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 5: LTE Band 71		
Date of Test	2020/12/18	Test Site	SR12-H
Temperature (°C)	22	Humidity (%RH)	66

LTE_B71_CH133147_5M_QPSK_1RB0



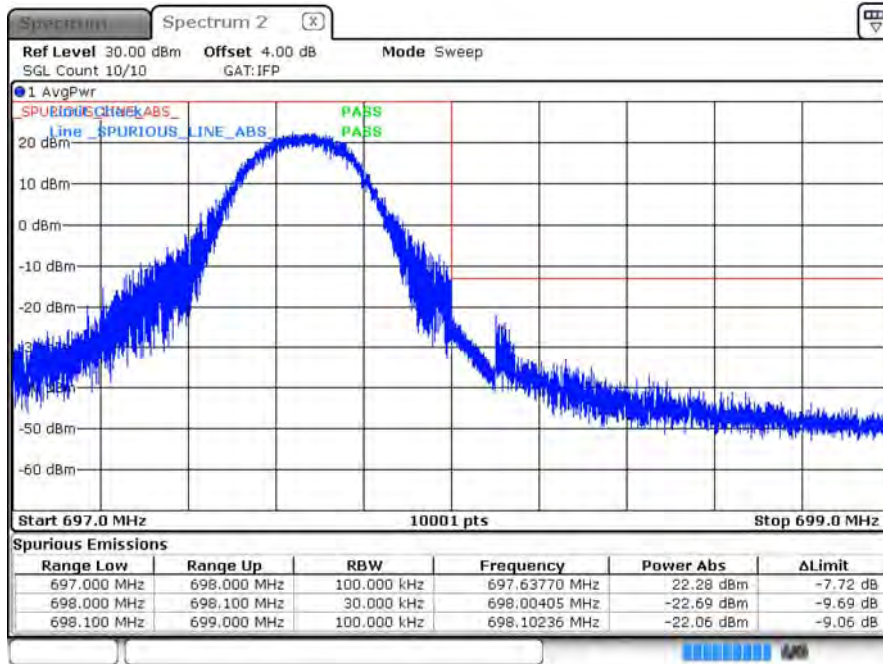
Date: 18 DEC.2020 14:08:54

LTE_B71_CH133147_5M_QPSK_25RB0



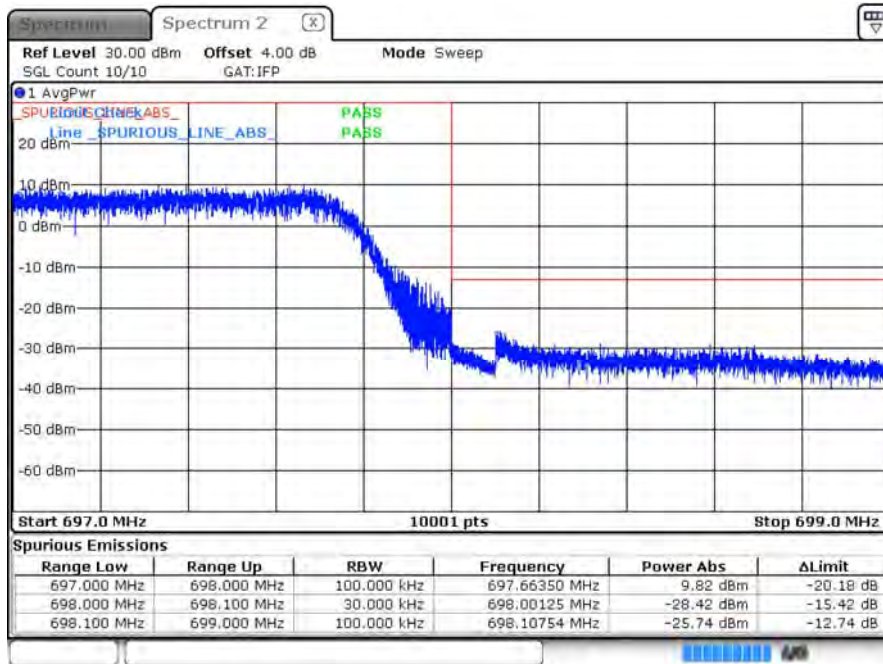
Date: 18 DEC.2020 14:08:59

LTE_B71_CH133447_5M_QPSK_1RB24



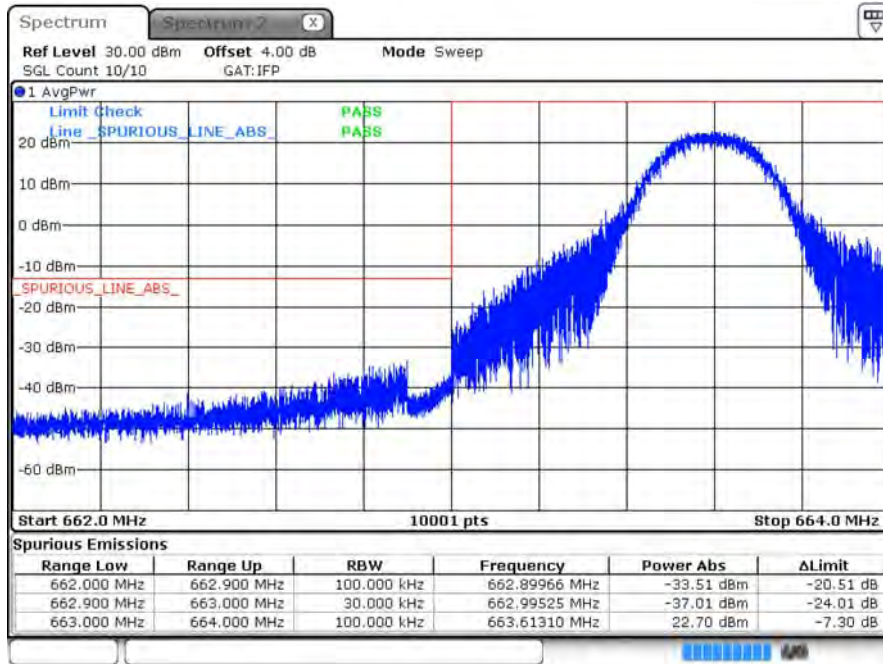
Date: 18 DEC.2020 14:19:21

LTE_B71_CH133447_5M_QPSK_25RB0



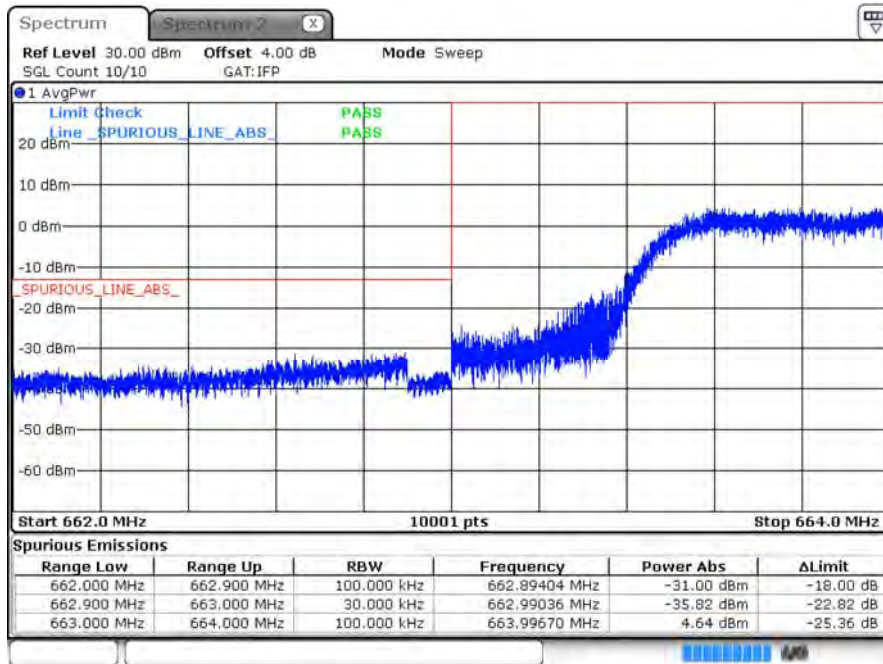
Date: 18 DEC.2020 14:18:58

LTE_B71_CH133172_10M_QPSK_1RB0



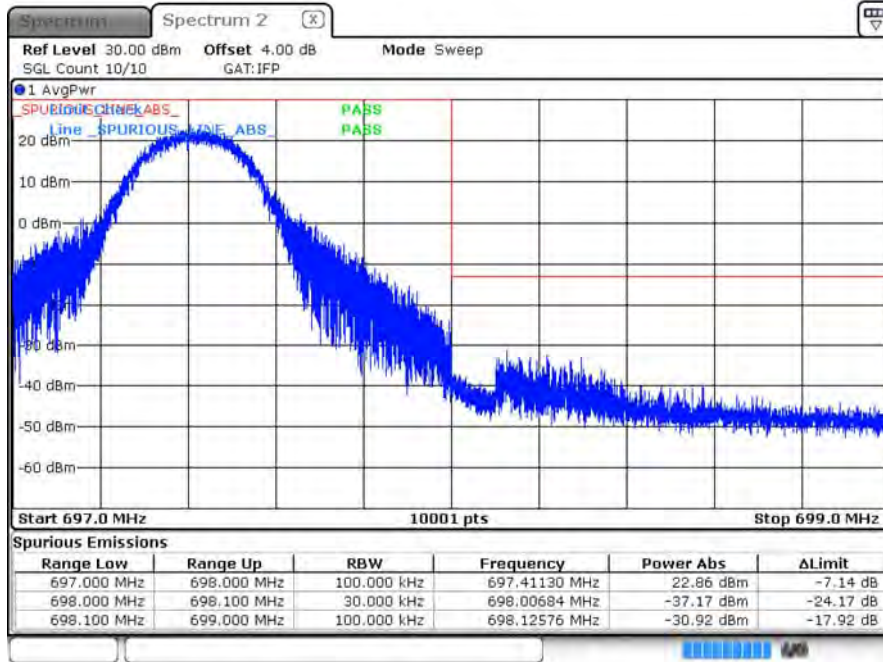
Date: 18 DEC.2020 14:21:17

LTE_B71_CH133172_10M_QPSK_50RB0



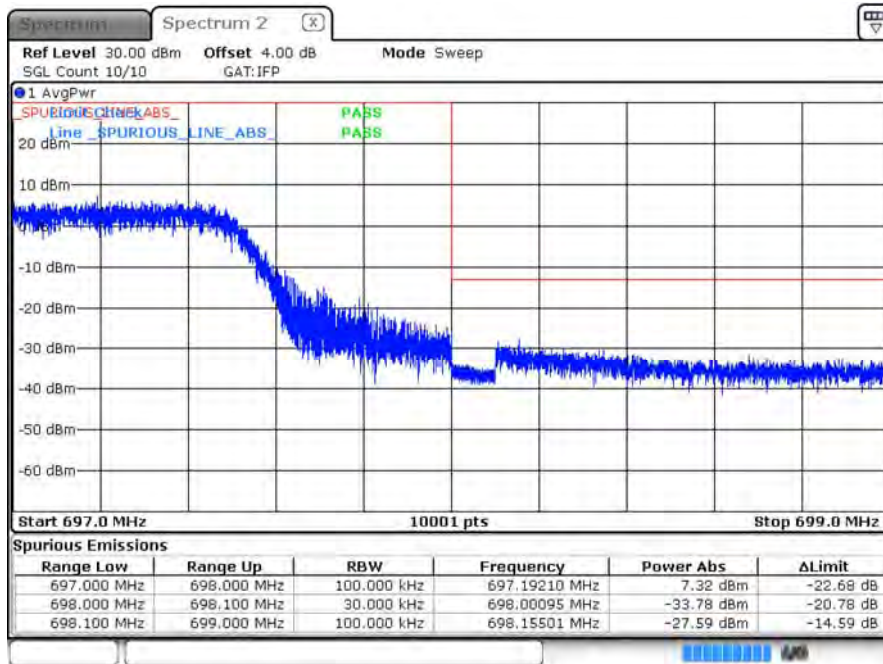
Date: 18 DEC.2020 14:22:14

LTE_B71_CH133422_10M__QPSK_1RB49



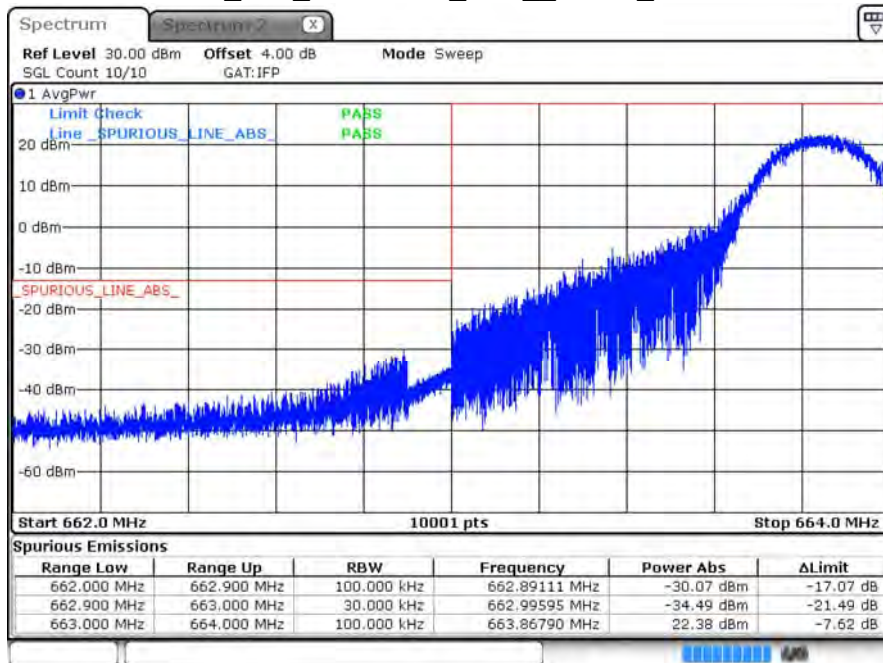
Date: 18 DEC. 2020 14:23:40

LTE_B71_CH133422_10M__QPSK_50RB0



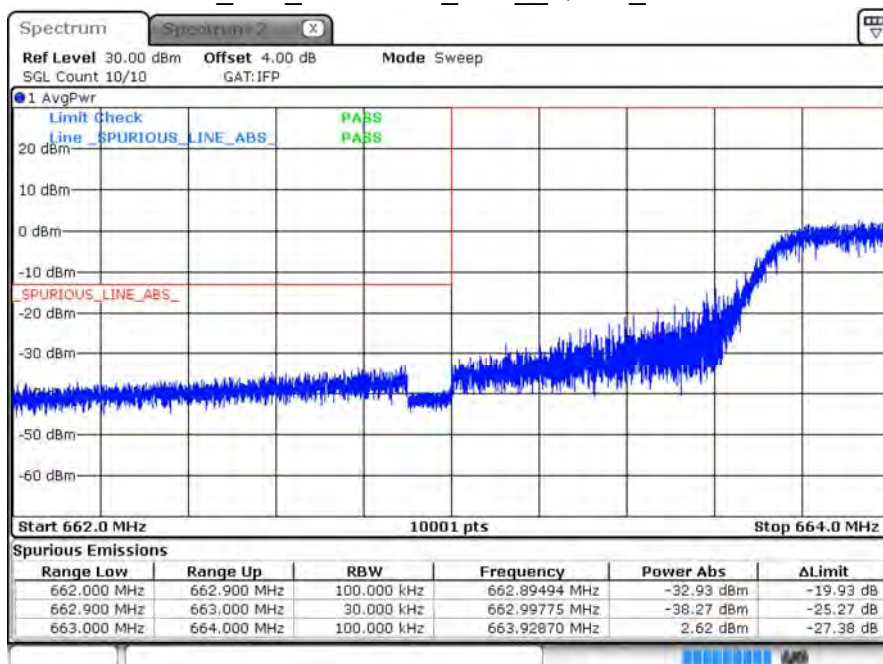
Date: 18 DEC. 2020 14:23:14

LTE_B71_CH133197_15M_QPSK_1RB0



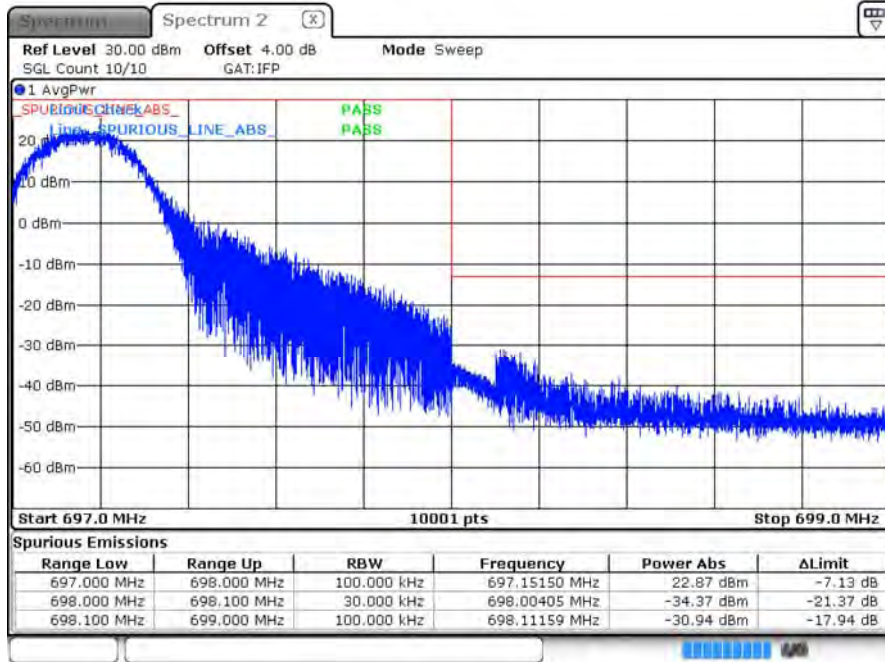
Date: 18 DEC.2020 14:24:18

LTE_B71_CH133197_15M_QPSK_75RB0



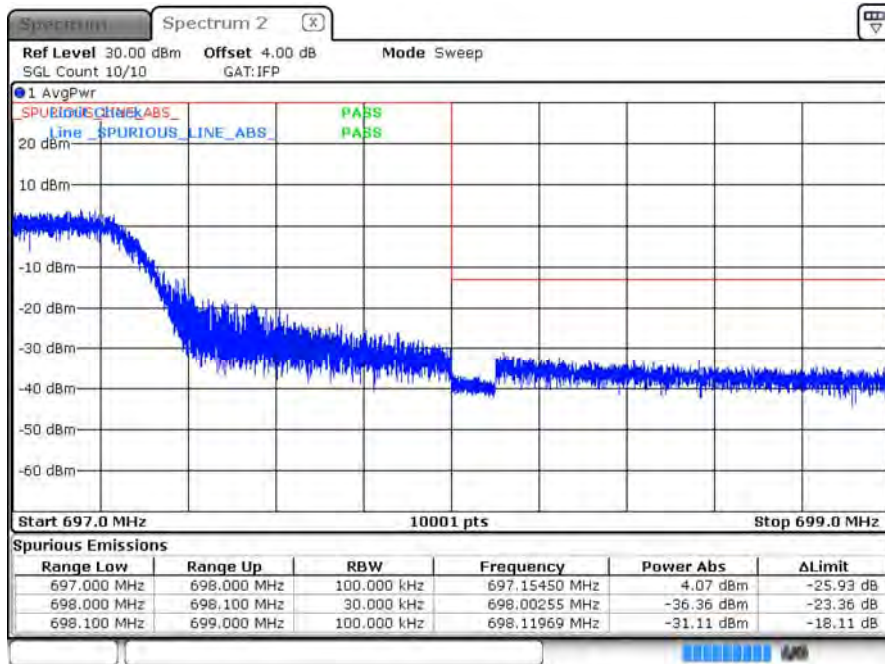
Date: 18 DEC.2020 14:24:44

LTE_B71_CH133397_15M_QPSK_1RB74



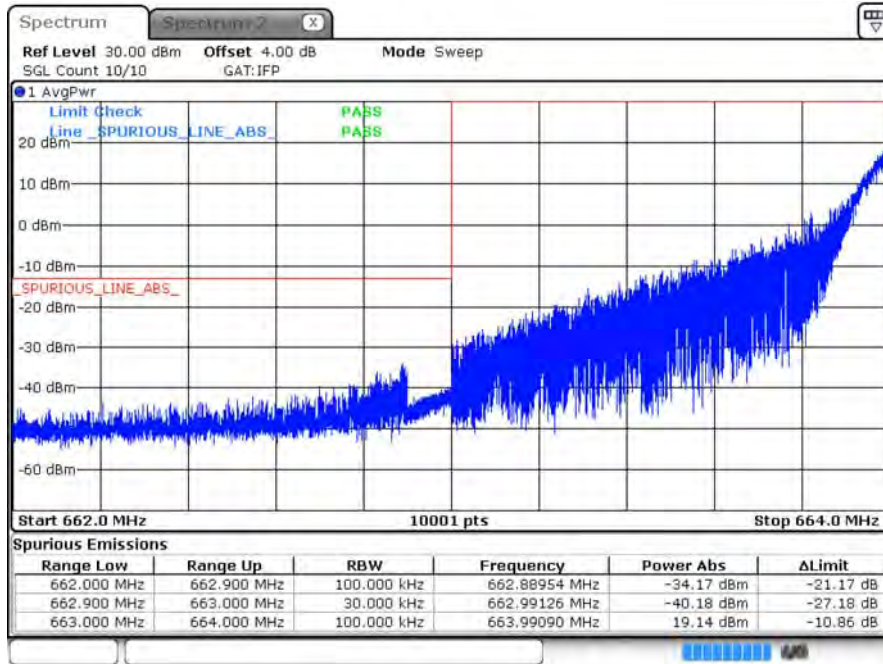
Date: 18 DEC.2020 14:29:03

LTE_B71_CH133397_15M_QPSK_75RB0



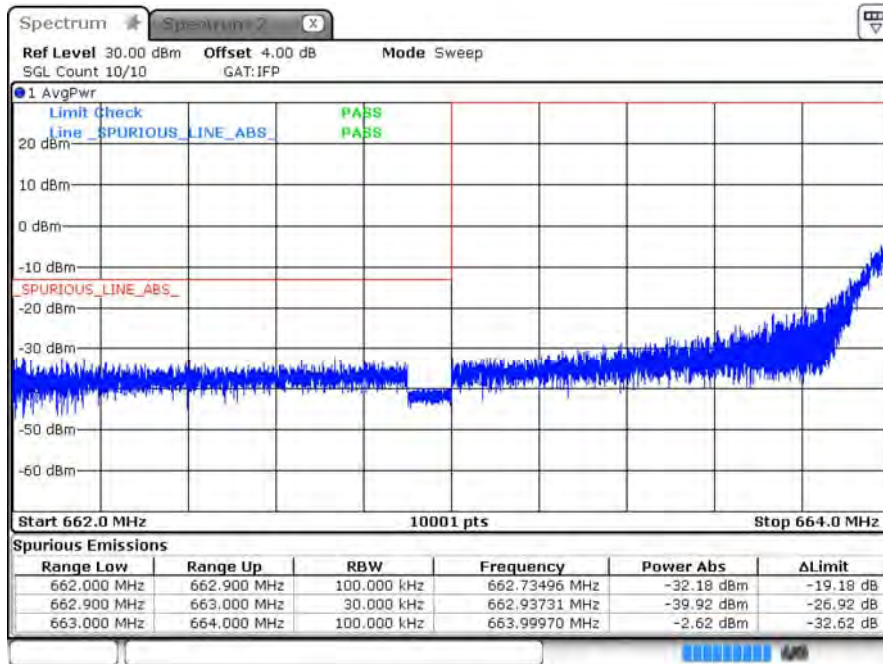
Date: 18 DEC.2020 14:26:23

LTE_B71_CH133222_20M_QPSK_1RB0



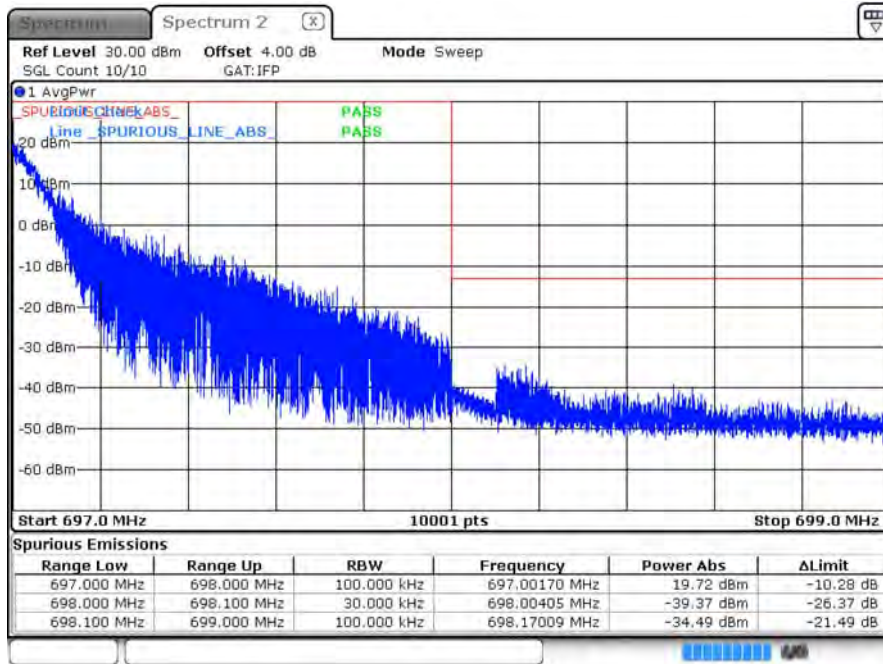
Date: 18 DEC.2020 14:29:44

LTE_B71_CH133222_20M_QPSK_100RB0



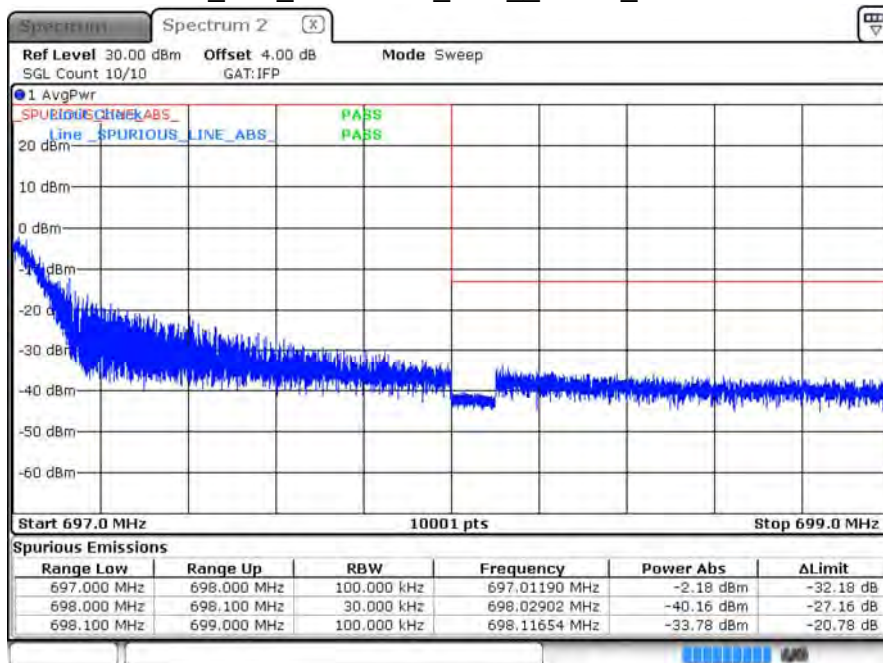
Date: 18 DEC.2020 14:30:21

LTE_B71_CH133372_20M__QPSK_1RB99



Date: 18 DEC.2020 14:31:14

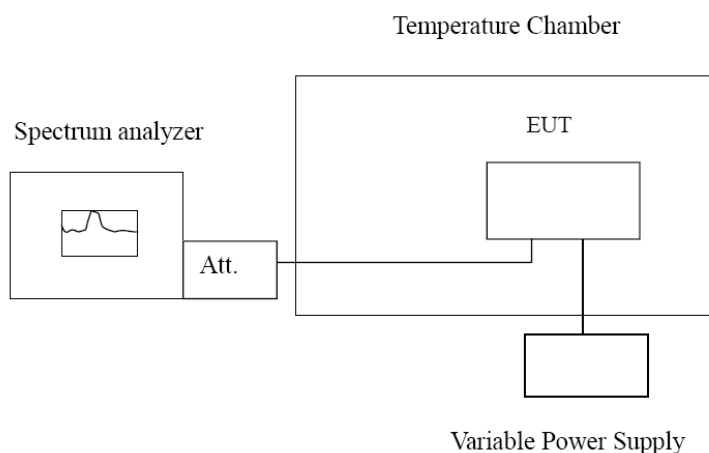
LTE_B71_CH133372_20M__QPSK_100RB0



Date: 18 DEC.2020 14:30:47

8. Frequency Stability

8.1. Test Setup



8.2. Test Procedure

Frequency Stability Under Temperature Variations:

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency. Reduce the input voltage to specify extreme voltage variation ($\pm 15\%$) and endpoint, record the maximum frequency change.

8.3. Test Method

KDB 971168 D01 Power Meas License Digital Systems v03 sub-clause 9

ANSI C63.26: 2015 Sub-clause 5.6

8.4. Test Result

Product	M2M DATA MODULE		
Test Item	Frequency Stability		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/12/22	Test Site	SR12-H
Temperature (°C)	23	Humidity (%RH)	52

LTE-Band 2 1850.7MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	1.38	0.0007
3.80	2.45	0.0013
3.30	0.70	0.0004

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.95	0.0011
-10	1.38	0.0007
0	1.98	0.0011
10	1.35	0.0007
20	1.77	0.0010
30	2.39	0.0013
40	3.13	0.0017
50	2.10	0.0011
60	2.17	0.0012

LTE-Band 2 1909.3 MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.73	0.0014
3.80	3.12	0.0016
3.30	2.53	0.0013

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.33	0.0017
-10	2.90	0.0015
0	2.68	0.0014
10	3.38	0.0018
20	2.70	0.0014
30	2.77	0.0015
40	2.33	0.0012
50	2.33	0.0012
60	3.24	0.0017

LTE-Band 2 1851.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.99	0.0016
3.80	3.76	0.0020
3.30	2.93	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.02	0.0016
-10	3.13	0.0017
0	2.75	0.0015
10	2.93	0.0016
20	2.72	0.0015
30	2.58	0.0014
40	3.13	0.0017
50	4.13	0.0022
60	3.08	0.0017

LTE-Band 2 1908.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.11	0.0011
3.80	2.13	0.0011
3.30	0.55	0.0003

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.94	0.0010
-10	2.27	0.0012
0	1.22	0.0006
10	1.58	0.0008
20	1.74	0.0009
30	2.79	0.0015
40	1.48	0.0008
50	2.53	0.0013
60	1.87	0.0010

LTE-Band 2 1852.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	1.18	0.0006
3.80	2.03	0.0011
3.30	1.52	0.0008

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.09	0.0011
-10	1.09	0.0006
0	1.86	0.0010
10	1.55	0.0008
20	1.21	0.0007
30	2.07	0.0011
40	1.50	0.0008
50	1.46	0.0008
60	1.67	0.0009

LTE-Band 2 1907.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.03	0.0011
3.80	2.86	0.0015
3.30	2.07	0.0011

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.66	0.0014
-10	1.94	0.0010
0	2.21	0.0012
10	2.64	0.0014
20	2.45	0.0013
30	2.95	0.0015
40	3.10	0.0016
50	2.61	0.0014
60	2.29	0.0012

LTE-Band 2 1855MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.98	0.0016
3.80	3.57	0.0019
3.30	3.25	0.0018

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.16	0.0017
-10	3.50	0.0019
0	3.03	0.0016
10	2.26	0.0012
20	2.83	0.0015
30	2.64	0.0014
40	2.91	0.0016
50	3.58	0.0019
60	2.87	0.0015

LTE-Band 2 1905MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.99	0.0021
3.80	3.42	0.0018
3.30	3.01	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.61	0.0014
-10	2.90	0.0015
0	2.51	0.0013
10	3.23	0.0017
20	2.34	0.0012
30	3.86	0.0020
40	3.95	0.0021
50	3.34	0.0018
60	2.53	0.0013

LTE-Band 2 1857.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.11	0.0017
3.80	2.80	0.0015
3.30	2.70	0.0015

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.62	0.0014
-10	2.55	0.0014
0	2.15	0.0012
10	2.56	0.0014
20	2.82	0.0015
30	2.14	0.0012
40	2.23	0.0012
50	1.82	0.0010
60	2.38	0.0013

LTE-Band 2 1902.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.77	0.0015
3.80	3.33	0.0018
3.30	2.32	0.0012

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.67	0.0014
-10	3.59	0.0019
0	2.68	0.0014
10	2.88	0.0015
20	2.51	0.0013
30	1.94	0.0010
40	3.16	0.0017
50	2.96	0.0016
60	2.99	0.0016

LTE-Band 2 1860MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.54	0.0014
3.80	3.97	0.0021
3.30	3.36	0.0018

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.08	0.0017
-10	3.86	0.0021
0	3.55	0.0019
10	3.93	0.0021
20	3.74	0.0020
30	4.12	0.0022
40	3.81	0.0020
50	3.08	0.0017
60	3.12	0.0017

LTE-Band 2 1900MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.53	0.0019
3.80	4.33	0.0023
3.30	4.48	0.0024

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.61	0.0019
-10	4.14	0.0022
0	3.60	0.0019
10	3.41	0.0018
20	3.97	0.0021
30	3.00	0.0016
40	3.71	0.0020
50	4.54	0.0024
60	3.75	0.0020

Product	M2M DATA MODULE		
Test Item	Frequency Stability		
Test Mode	Mode 2: LTE Band 5		
Date of Test	2020/12/22	Test Site	SR12-H
Temperature (°C)	23	Humidity (%RH)	52

LTE-Band 5 824.7MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.13	0.0038
3.80	3.55	0.0043
3.30	2.90	0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.97	0.0036
-10	3.15	0.0038
0	3.51	0.0043
10	3.38	0.0041
20	3.41	0.0041
30	3.05	0.0037
40	3.53	0.0043
50	2.96	0.0036
60	3.18	0.0039

LTE-Band 5 848.3MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.97	0.0035
3.80	3.62	0.0043
3.30	3.01	0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.31	0.0027
-10	2.83	0.0033
0	3.13	0.0037
10	3.32	0.0039
20	3.42	0.0040
30	2.54	0.0030
40	3.02	0.0036
50	3.15	0.0037
60	3.26	0.0038

LTE-Band 5 825.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.64	0.0044
3.80	4.02	0.0049
3.30	3.21	0.0039

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.55	0.0043
-10	3.48	0.0042
0	4.19	0.0051
10	4.44	0.0054
20	2.35	0.0028
30	2.49	0.0030
40	3.80	0.0046
50	3.40	0.0041
60	3.55	0.0043

LTE-Band 5 847.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.27	0.0039
3.80	3.09	0.0036
3.30	2.87	0.0034

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.92	0.0034
-10	2.65	0.0031
0	2.89	0.0034
10	2.36	0.0028
20	3.24	0.0038
30	2.64	0.0031
40	2.64	0.0031
50	2.93	0.0035
60	2.32	0.0027

LTE-Band 5 826.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.79	0.0034
3.80	3.15	0.0038
3.30	2.90	0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.13	0.0026
-10	2.57	0.0031
0	2.57	0.0031
10	2.20	0.0027
20	3.24	0.0039
30	2.72	0.0033
40	3.40	0.0041
50	2.19	0.0026
60	2.89	0.0035

LTE-Band 5 846.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	4.02	0.0047
3.80	4.03	0.0048
3.30	3.82	0.0045

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.43	0.0041
-10	3.55	0.0042
0	3.56	0.0042
10	3.60	0.0043
20	3.86	0.0046
30	3.81	0.0045
40	3.14	0.0037
50	3.56	0.0042
60	3.02	0.0036

LTE-Band 5 829MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.88	0.0035
3.80	3.68	0.0044
3.30	2.66	0.0032

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.43	0.0041
-10	3.37	0.0041
0	3.59	0.0043
10	2.68	0.0032
20	3.35	0.0040
30	3.44	0.0041
40	3.14	0.0038
50	3.10	0.0037
60	3.49	0.0042

LTE-Band 5 844MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.06	0.0024
3.80	3.09	0.0037
3.30	1.86	0.0022

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.79	0.0021
-10	1.82	0.0022
0	3.28	0.0039
10	1.97	0.0023
20	1.59	0.0019
30	3.35	0.0040
40	2.70	0.0032
50	3.43	0.0041
60	1.86	0.0022

Product	M2M DATA MODULE		
Test Item	Frequency Stability		
Test Mode	Mode 3: LTE Band 12		
Date of Test	2020/12/22	Test Site	SR12-H
Temperature (°C)	23	Humidity (%RH)	52

LTE-Band 12 699.7MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.20	0.0031
3.80	2.99	0.0043
3.30	2.48	0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.91	0.0042
-10	2.97	0.0042
0	2.99	0.0043
10	1.85	0.0026
20	2.46	0.0035
30	2.70	0.0039
40	2.67	0.0038
50	1.65	0.0024
60	2.19	0.0031

LTE-Band 12 715.3MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.04	0.0029
3.80	2.45	0.0034
3.30	2.91	0.0041

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.45	0.0020
-10	1.64	0.0023
0	2.32	0.0032
10	2.43	0.0034
20	2.55	0.0036
30	1.37	0.0019
40	2.02	0.0028
50	0.82	0.0011
60	2.69	0.0038

LTE-Band 12 700.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	0.80	0.0011
3.80	1.99	0.0028
3.30	2.14	0.0031

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	0.84	0.0012
-10	1.05	0.0015
0	0.76	0.0011
10	2.13	0.0030
20	1.34	0.0019
30	1.25	0.0018
40	1.61	0.0023
50	1.81	0.0026
60	1.39	0.0020

LTE-Band 12 714.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.30	0.0046
3.80	3.54	0.0050
3.30	2.40	0.0034

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.95	0.0041
-10	2.11	0.0030
0	3.11	0.0044
10	3.49	0.0049
20	3.96	0.0055
30	3.78	0.0053
40	3.57	0.0050
50	3.66	0.0051
60	3.18	0.0045

LTE-Band 12 701.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	4.12	0.0059
3.80	3.84	0.0055
3.30	3.36	0.0048

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.30	0.0033
-10	2.64	0.0038
0	2.71	0.0039
10	3.52	0.0050
20	3.05	0.0043
30	2.83	0.0040
40	3.10	0.0044
50	2.83	0.0040
60	3.75	0.0053

LTE-Band 12 713.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.34	0.0047
3.80	3.57	0.0050
3.30	3.33	0.0047

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.30	0.0046
-10	3.35	0.0047
0	3.73	0.0052
10	3.20	0.0045
20	2.63	0.0037
30	4.30	0.0060
40	3.46	0.0048
50	2.35	0.0033
60	3.03	0.0042

LTE-Band 12 704MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.51	0.0050
3.80	2.96	0.0042
3.30	2.56	0.0036

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.67	0.0024
-10	1.62	0.0023
0	1.38	0.0020
10	2.26	0.0032
20	3.35	0.0048
30	2.75	0.0039
40	2.05	0.0029
50	1.76	0.0025
60	2.36	0.0034

LTE-Band 12 711MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.10	0.0044
3.80	3.69	0.0052
3.30	3.24	0.0046

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.76	0.0053
-10	2.71	0.0038
0	3.78	0.0053
10	3.39	0.0048
20	2.90	0.0041
30	2.92	0.0041
40	3.07	0.0043
50	3.06	0.0043
60	3.64	0.0051

Product	M2M DATA MODULE		
Test Item	Frequency Stability		
Test Mode	Mode 4: LTE Band 4/66		
Date of Test	2020/12/22	Test Site	SR12-H
Temperature (°C)	23	Humidity (%RH)	52

LTE-Band 66 1710.7MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.44	0.0014
3.80	3.11	0.0018
3.30	2.11	0.0012

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.51	0.0021
-10	2.61	0.0015
0	1.72	0.0010
10	2.71	0.0016
20	2.84	0.0017
30	2.30	0.0013
40	2.14	0.0013
50	2.38	0.0014
60	2.84	0.0017

LTE-Band 66 1779.3MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.77	0.0016
3.80	4.12	0.0023
3.30	3.54	0.0020

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.33	0.0019
-10	2.91	0.0016
0	3.49	0.0020
10	3.88	0.0022
20	4.07	0.0023
30	4.04	0.0023
40	3.77	0.0021
50	3.56	0.0020
60	2.56	0.0014

LTE-Band 66 1711.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	0.96	0.0006
3.80	2.08	0.0012
3.30	1.91	0.0011

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.66	0.0010
-10	1.90	0.0011
0	1.99	0.0012
10	0.83	0.0005
20	1.52	0.0009
30	2.12	0.0012
40	1.98	0.0012
50	2.56	0.0015
60	0.94	0.0005

LTE-Band 66 1778.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.16	0.0018
3.80	4.18	0.0024
3.30	4.04	0.0023

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	4.00	0.0022
-10	3.45	0.0019
0	3.80	0.0021
10	2.92	0.0016
20	3.10	0.0017
30	3.97	0.0022
40	3.42	0.0019
50	2.98	0.0017
60	2.94	0.0017

LTE-Band 66 1712.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.19	0.0019
3.80	4.19	0.0024
3.30	4.81	0.0028

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	4.22	0.0025
-10	3.28	0.0019
0	4.20	0.0025
10	3.92	0.0023
20	4.04	0.0024
30	3.23	0.0019
40	4.66	0.0027
50	3.13	0.0018
60	4.41	0.0026

LTE-Band 66 1777.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.01	0.0017
3.80	3.66	0.0021
3.30	2.88	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.15	0.0018
-10	3.60	0.0020
0	3.44	0.0019
10	3.51	0.0020
20	3.23	0.0018
30	3.58	0.0020
40	2.60	0.0015
50	2.80	0.0016
60	2.64	0.0015

LTE-Band 66 1715MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.07	0.0018
3.80	2.77	0.0016
3.30	1.81	0.0011

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.48	0.0014
-10	1.60	0.0009
0	2.64	0.0015
10	2.31	0.0013
20	1.99	0.0012
30	2.77	0.0016
40	2.66	0.0016
50	1.99	0.0012
60	1.73	0.0010

LTE-Band 66 1775MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.69	0.0015
3.80	3.25	0.0018
3.30	2.76	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.28	0.0018
-10	2.05	0.0012
0	3.64	0.0021
10	2.57	0.0014
20	2.84	0.0016
30	2.28	0.0013
40	2.74	0.0015
50	2.28	0.0013
60	3.16	0.0018

LTE-Band 66 1717.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	4.27	0.0025
3.80	4.10	0.0024
3.30	2.80	0.0016

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.71	0.0022
-10	3.36	0.0020
0	4.30	0.0025
10	3.84	0.0022
20	4.03	0.0023
30	3.45	0.0020
40	4.33	0.0025
50	3.36	0.0020
60	3.14	0.0018

LTE-Band 66 1772.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	4.07	0.0023
3.80	3.90	0.0022
3.30	2.99	0.0017

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	4.01	0.0023
-10	4.38	0.0025
0	3.73	0.0021
10	3.43	0.0019
20	3.92	0.0022
30	3.42	0.0019
40	4.54	0.0026
50	4.66	0.0026
60	3.24	0.0018

LTE-Band 66 1720MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.17	0.0013
3.80	3.08	0.0018
3.30	1.89	0.0011

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.56	0.0015
-10	2.12	0.0012
0	2.71	0.0016
10	2.60	0.0015
20	2.65	0.0015
30	2.71	0.0016
40	3.24	0.0019
50	3.58	0.0021
60	3.12	0.0018

LTE-Band 66 1770MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.65	0.0015
3.80	2.07	0.0012
3.30	1.29	0.0007

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.91	0.0011
-10	1.81	0.0010
0	1.78	0.0010
10	1.73	0.0010
20	1.72	0.0010
30	1.17	0.0007
40	1.76	0.0010
50	1.24	0.0007
60	1.34	0.0008

Product	M2M DATA MODULE		
Test Item	Frequency Stability		
Test Mode	Mode 5: LTE Band 71		
Date of Test	2020/12/22	Test Site	SR12-H
Temperature (°C)	23	Humidity (%RH)	52

LTE-Band 71 665.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	1.66	0.0025
3.80	2.46	0.0037
3.30	1.81	0.0027

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	1.79	0.0027
-10	0.88	0.0013
0	2.15	0.0032
10	1.13	0.0017
20	2.18	0.0033
30	2.54	0.0038
40	2.38	0.0036
50	2.62	0.0039
60	1.54	0.0023

LTE-Band 71 695.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	1.87	0.0027
3.80	2.68	0.0039
3.30	2.53	0.0036

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.32	0.0033
-10	2.54	0.0037
0	3.35	0.0048
10	2.84	0.0041
20	2.41	0.0035
30	2.61	0.0038
40	2.34	0.0034
50	1.72	0.0025
60	1.89	0.0027

LTE-Band 71 668MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	1.99	0.0030
3.80	2.45	0.0037
3.30	2.30	0.0034

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.10	0.0031
-10	2.06	0.0031
0	1.95	0.0029
10	2.14	0.0032
20	1.58	0.0024
30	2.20	0.0033
40	0.63	0.0009
50	2.28	0.0034
60	1.88	0.0028

LTE-Band 71 693MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	2.42	0.0035
3.80	3.70	0.0053
3.30	1.95	0.0028

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.49	0.0036
-10	2.47	0.0036
0	2.32	0.0033
10	2.99	0.0043
20	3.25	0.0047
30	2.34	0.0034
40	3.12	0.0045
50	4.00	0.0058
60	3.81	0.0055

LTE-Band 71 670.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.06	0.0046
3.80	2.70	0.0040
3.30	2.63	0.0039

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.76	0.0041
-10	2.08	0.0031
0	3.20	0.0048
10	2.47	0.0037
20	2.37	0.0035
30	2.53	0.0038
40	1.62	0.0024
50	2.13	0.0032
60	2.77	0.0041

LTE-Band 71 690.5MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	4.48	0.0065
3.80	4.30	0.0062
3.30	4.42	0.0064

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.69	0.0053
-10	3.22	0.0047
0	3.11	0.0045
10	4.29	0.0062
20	4.33	0.0063
30	3.00	0.0043
40	4.72	0.0068
50	3.84	0.0056
60	4.30	0.0062

LTE-Band 71 673MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	3.55	0.0053
3.80	3.11	0.0046
3.30	2.78	0.0041

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	2.39	0.0036
-10	2.72	0.0040
0	1.86	0.0028
10	3.49	0.0052
20	3.14	0.0047
30	2.28	0.0034
40	2.56	0.0038
50	3.28	0.0049
60	2.04	0.0030

LTE-Band 71 688MHz

Voltage

Voltage (Vdc)	Frequency Error(Hz)	Frequency Error(ppm)
4.20	4.09	0.0059
3.80	4.13	0.0060
3.30	3.37	0.0049

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	3.11	0.0045
-10	3.77	0.0055
0	3.33	0.0048
10	3.21	0.0047
20	3.78	0.0055
30	3.80	0.0055
40	3.79	0.0055
50	4.29	0.0062
60	3.36	0.0049