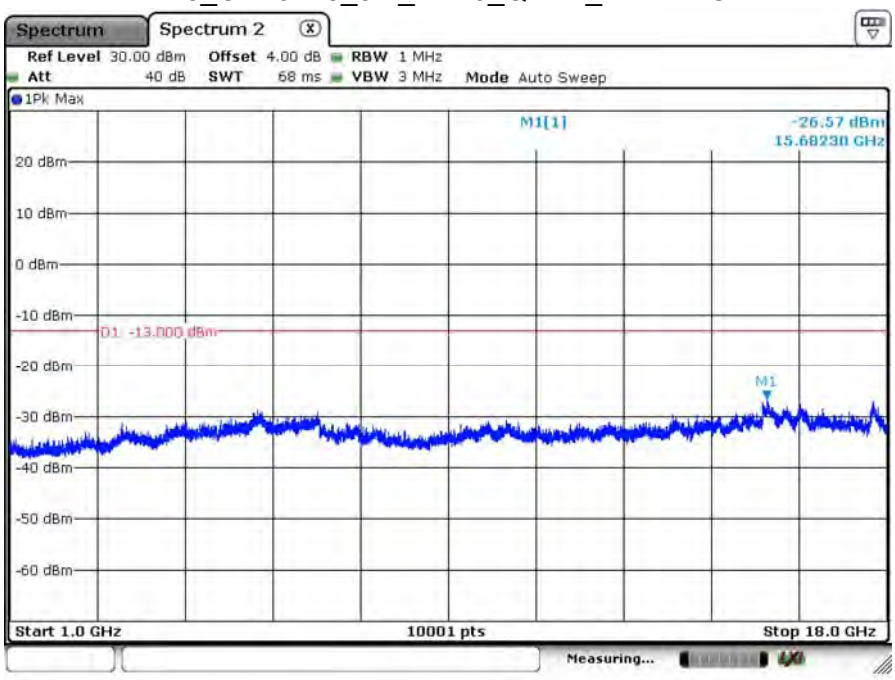
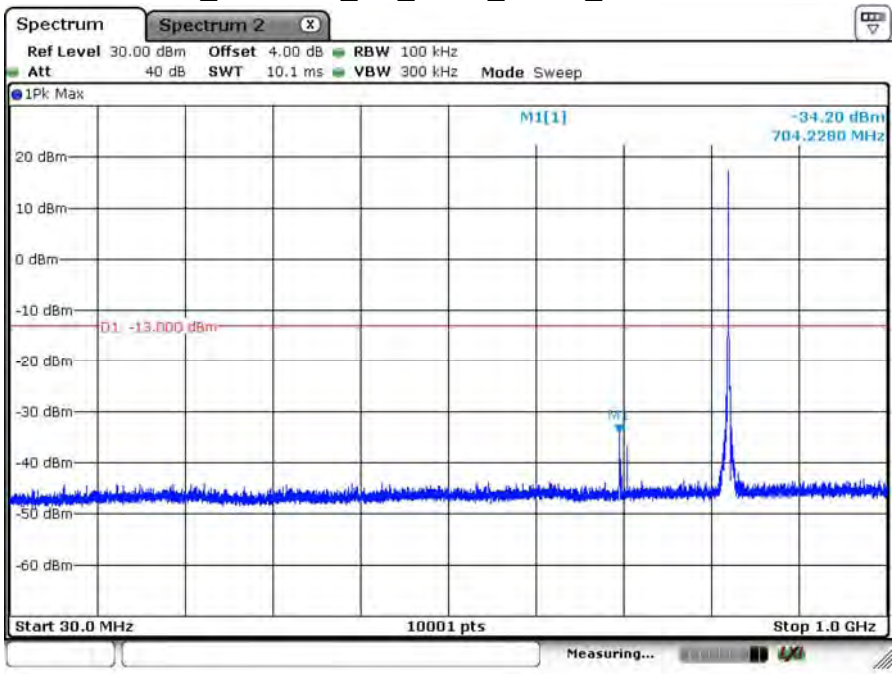
B5_CH20425_5M_1RB0_QPSK_above 1G



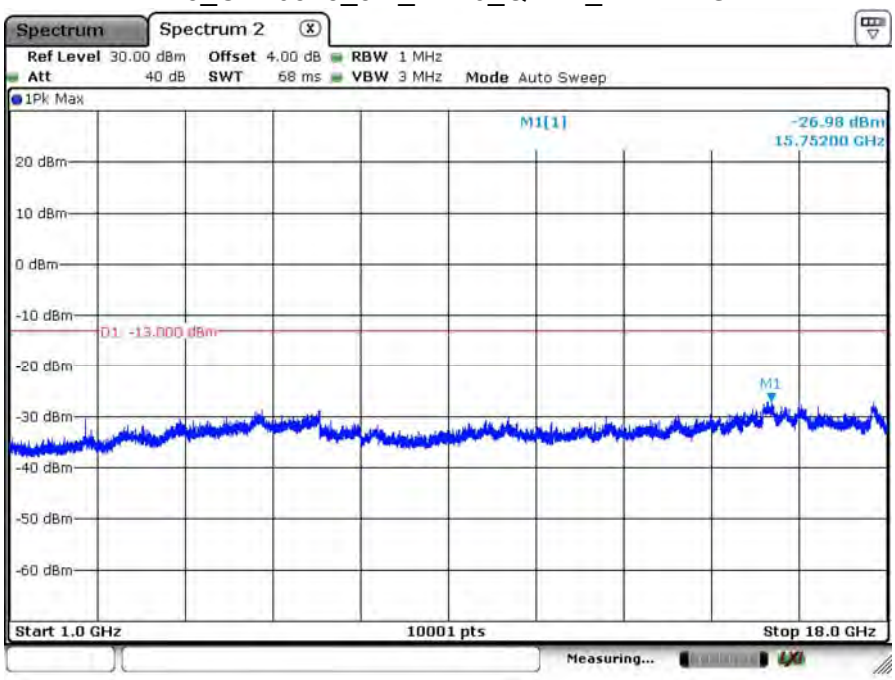
Date: 6.OCT.2020 16:04:44

B5_CH20425_5M_1RB0_QPSK_Below 1G



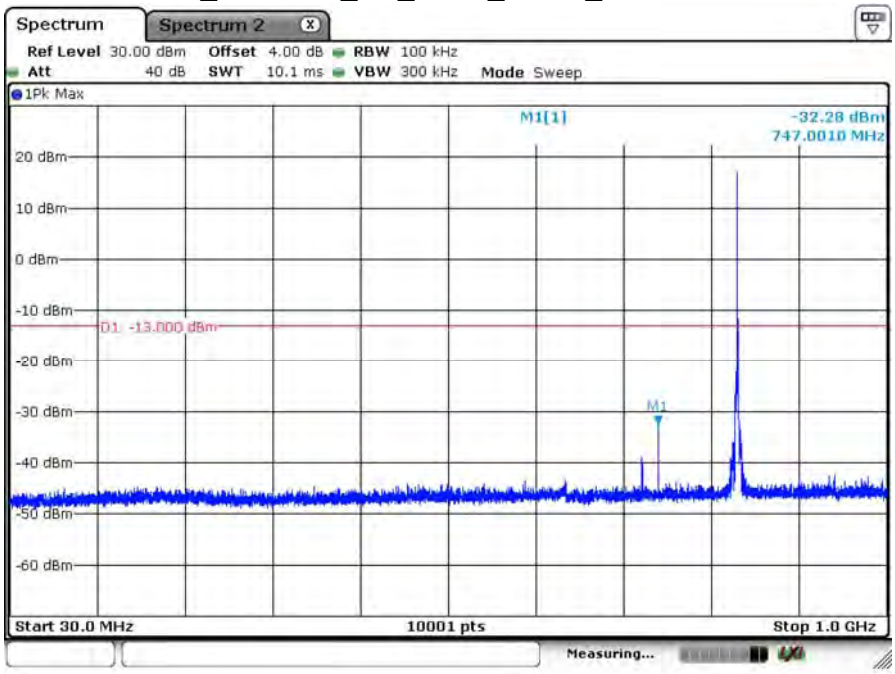
Date: 6.OCT.2020 16:04:00

B5_CH20525_5M_1RB0_QPSK_above 1G



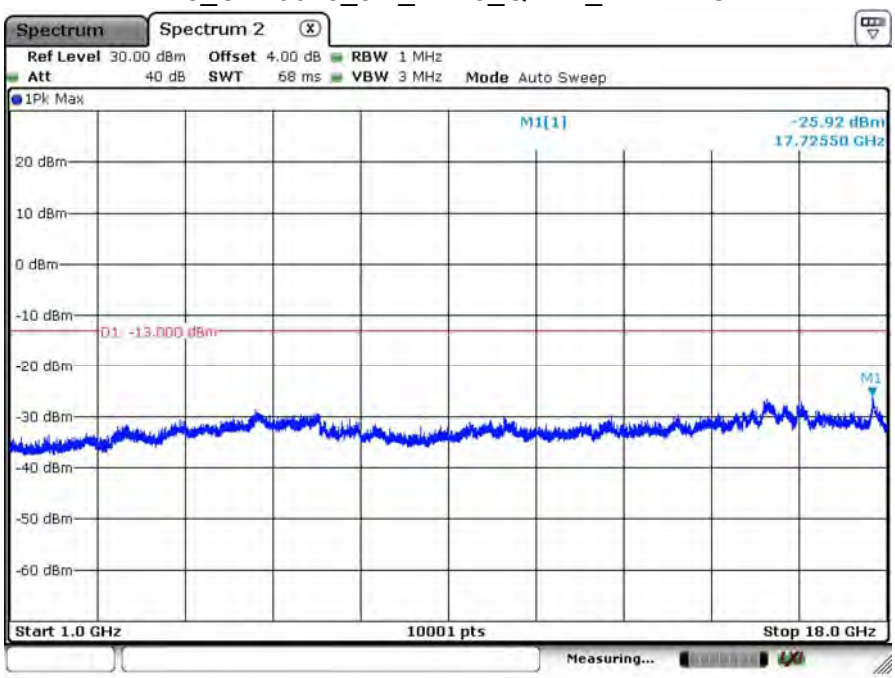
Date: 6.OCT.2020 16:06:26

B5_CH20525_5M_1RB0_QPSK_Below 1G



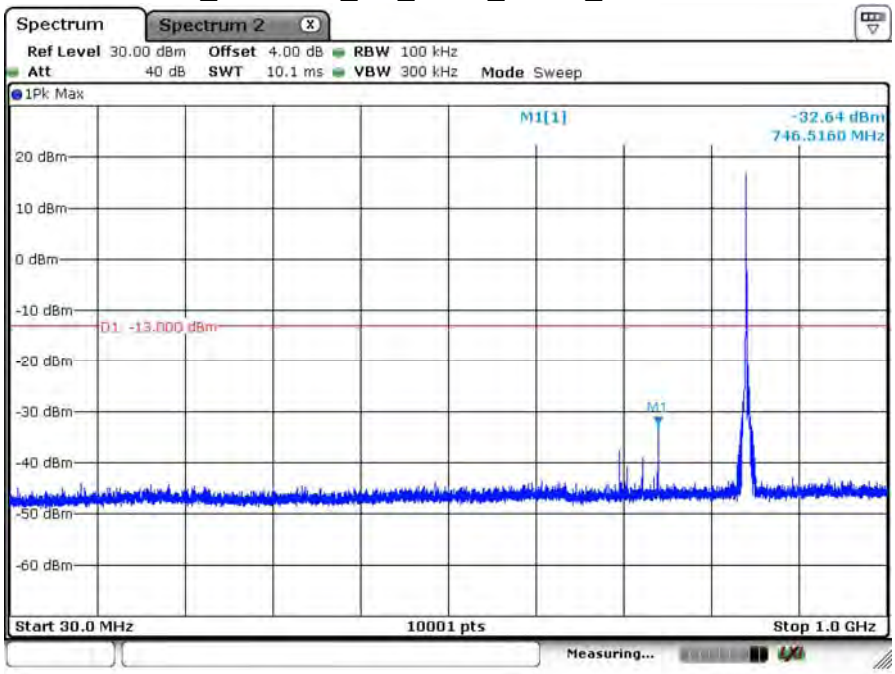
Date: 6.OCT.2020 16:07:31

B5_CH20625_5M_1RB5_QPSK_above 1G



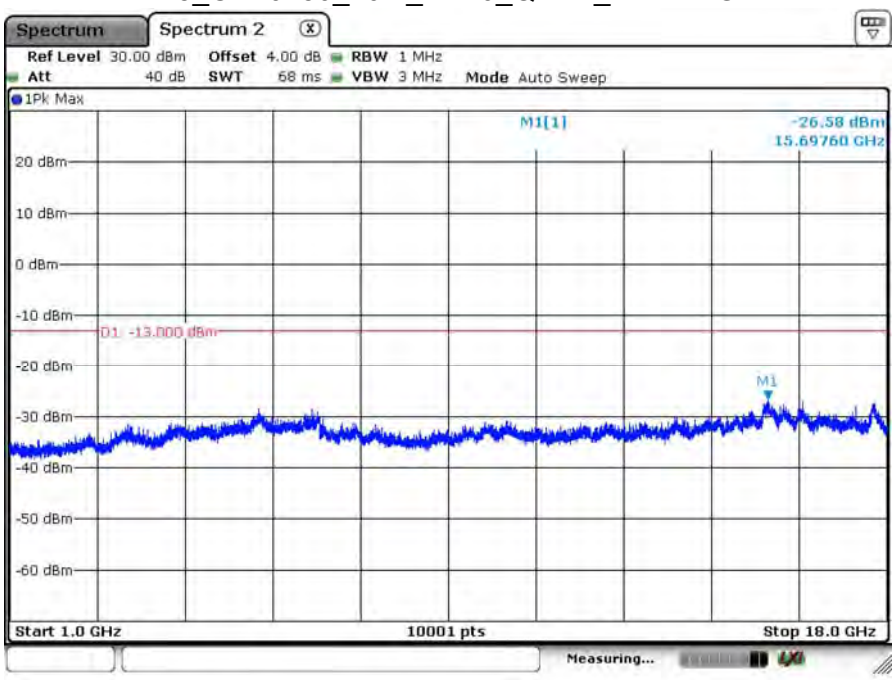
Date: 6.OCT.2020 16:10:44

B5_CH20625_5M_1RB5_QPSK_Below 1G



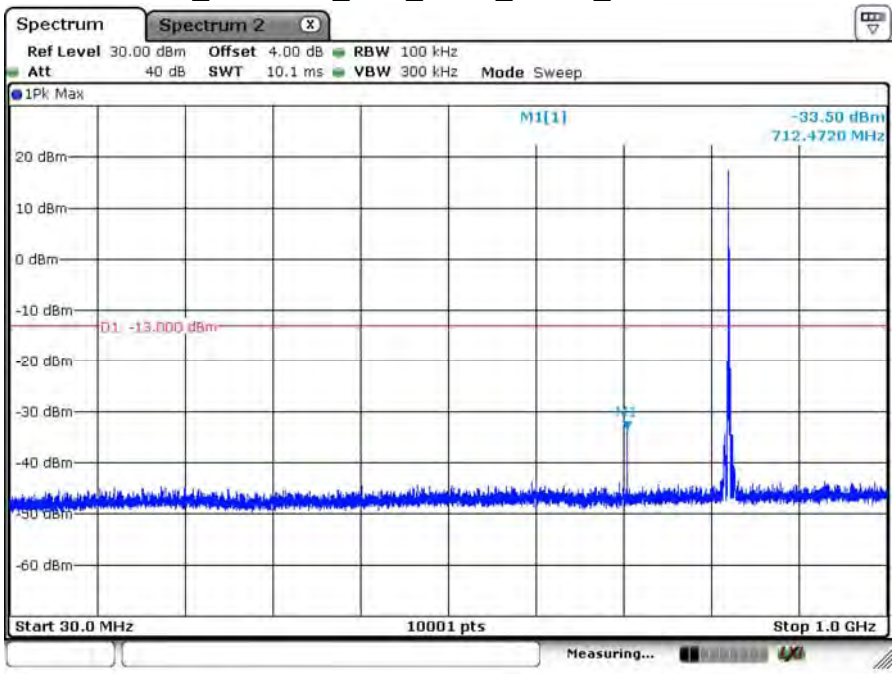
Date: 6.OCT.2020 16:09:03

B5_CH20450_10M_1RB0_QPSK_above 1G



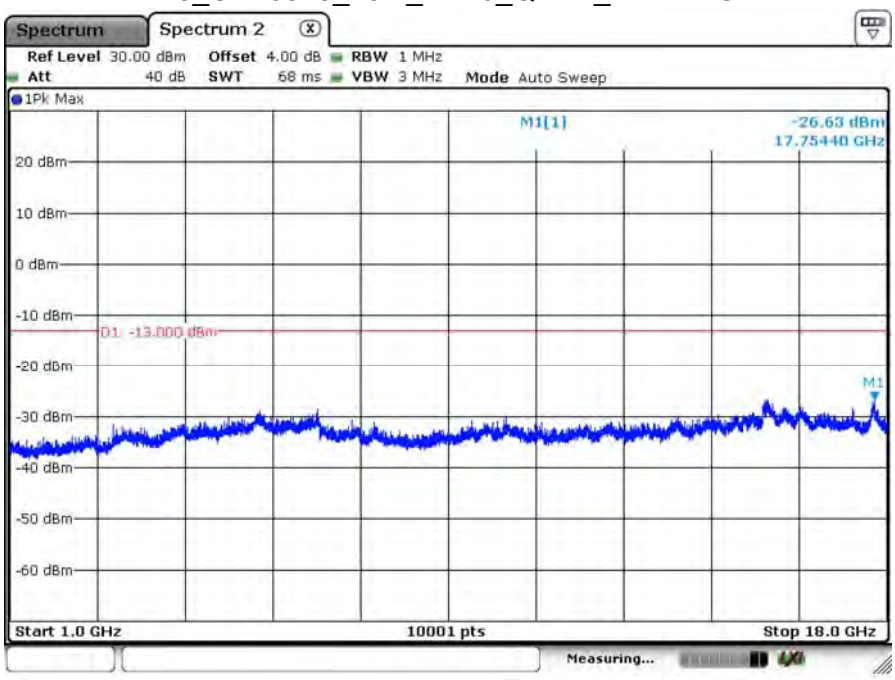
Date: 6.OCT.2020 16:13:22

B5_CH20450_10M_1RB0_QPSK_Below 1G



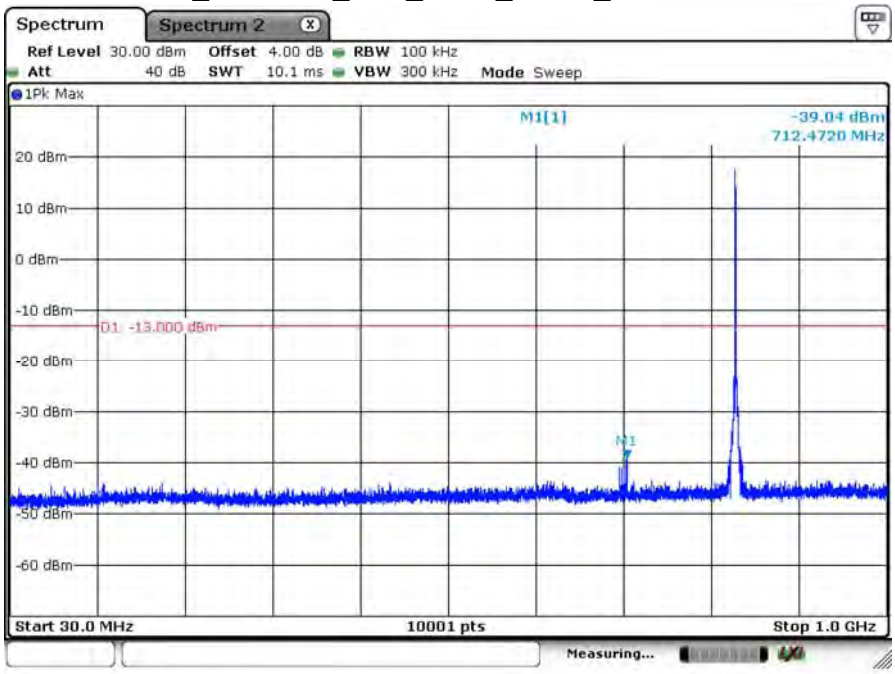
Date: 6.OCT.2020 16:25:06

B5_CH20525_10M_1RB0_QPSK_above 1G



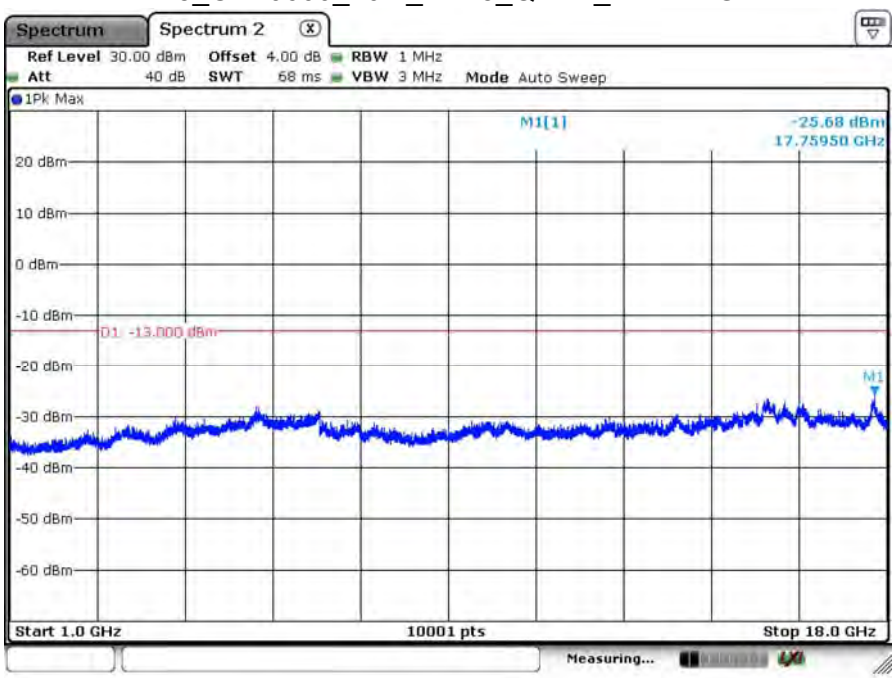
Date: 6.OCT.2020 16:27:06

B5_CH20525_10M_1RB0_QPSK_Below 1G



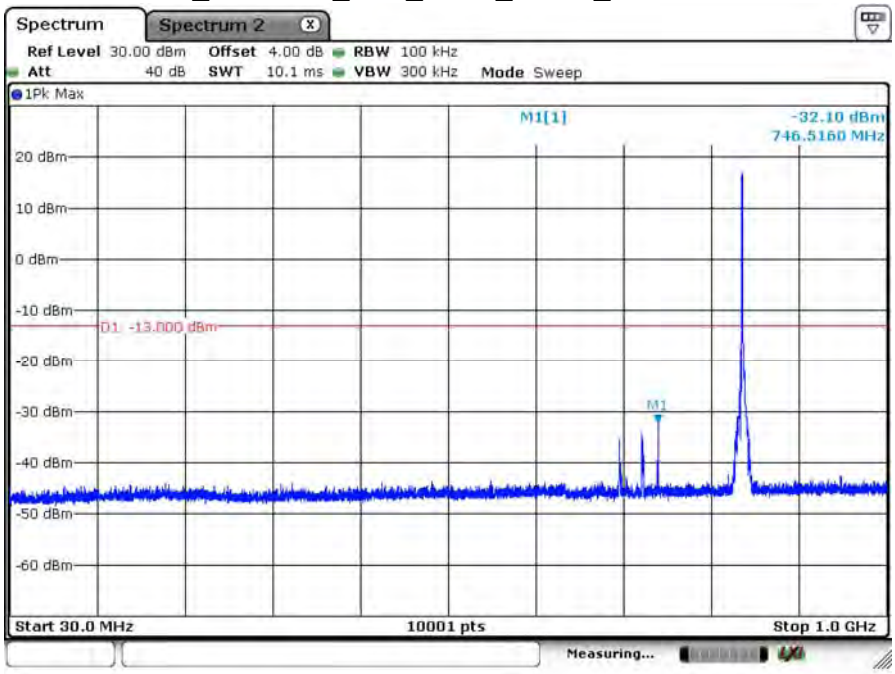
Date: 6.OCT.2020 16:26:20

B5_CH20600_10M_1RB5_QPSK_above 1G



Date: 6.OCT.2020 16:29:31

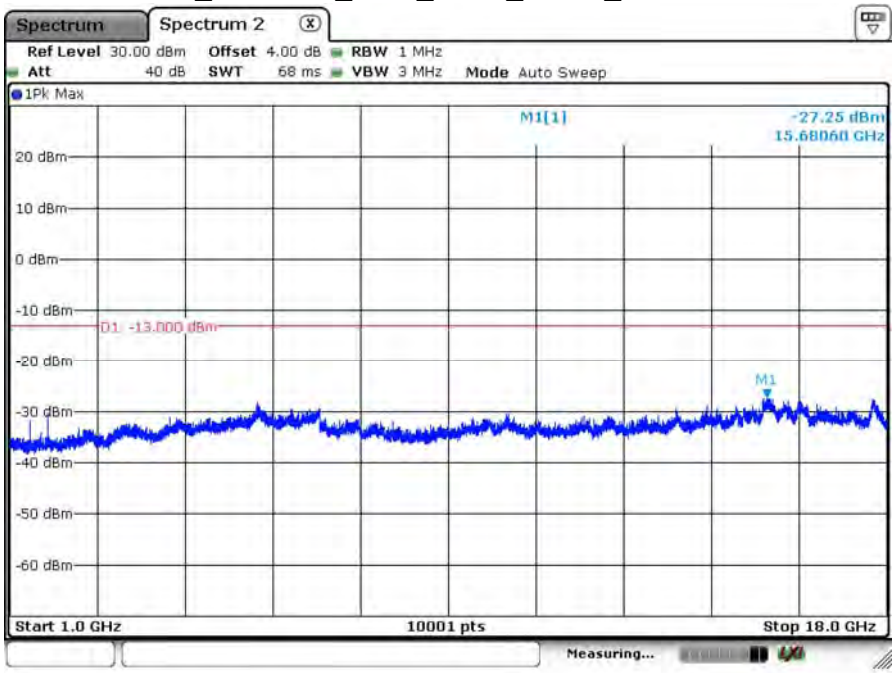
B5_CH20600_10M_1RB5_QPSK_Below 1G



Date: 6.OCT.2020 16:32:49

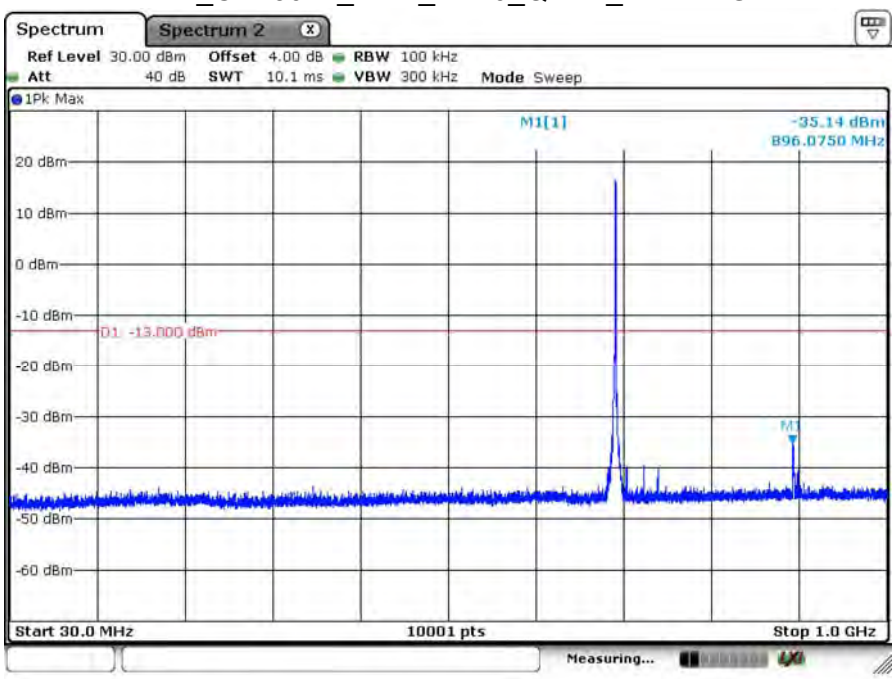
Product	LGA module		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2020/10/06	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	60

B12_CH23017_1.4M_1RB0_QPSK_Above 1G



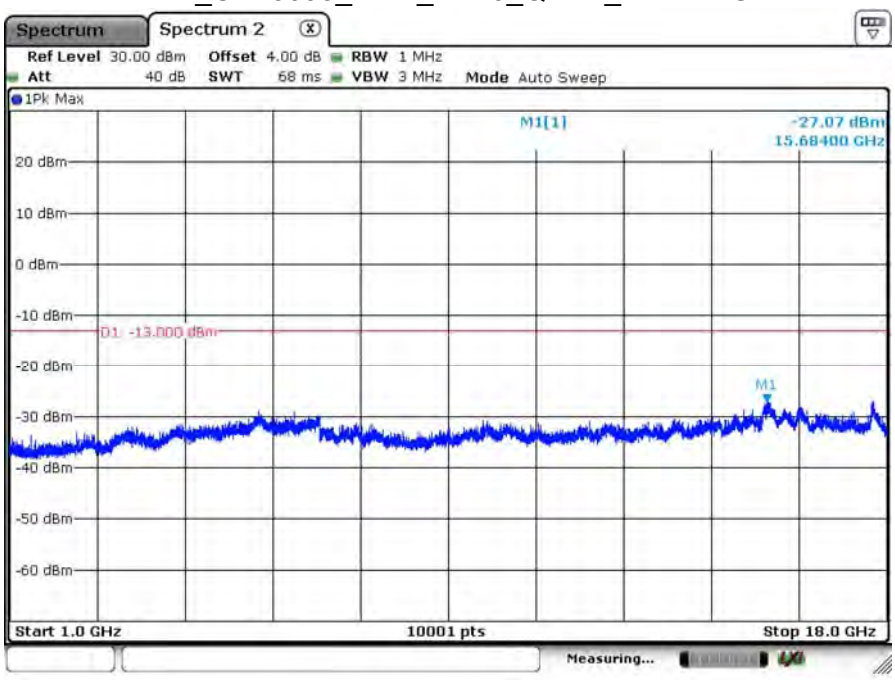
Date: 6.OCT.2020 16:41:00

B12_CH23017_1.4M_1RB0_QPSK_Below 1G



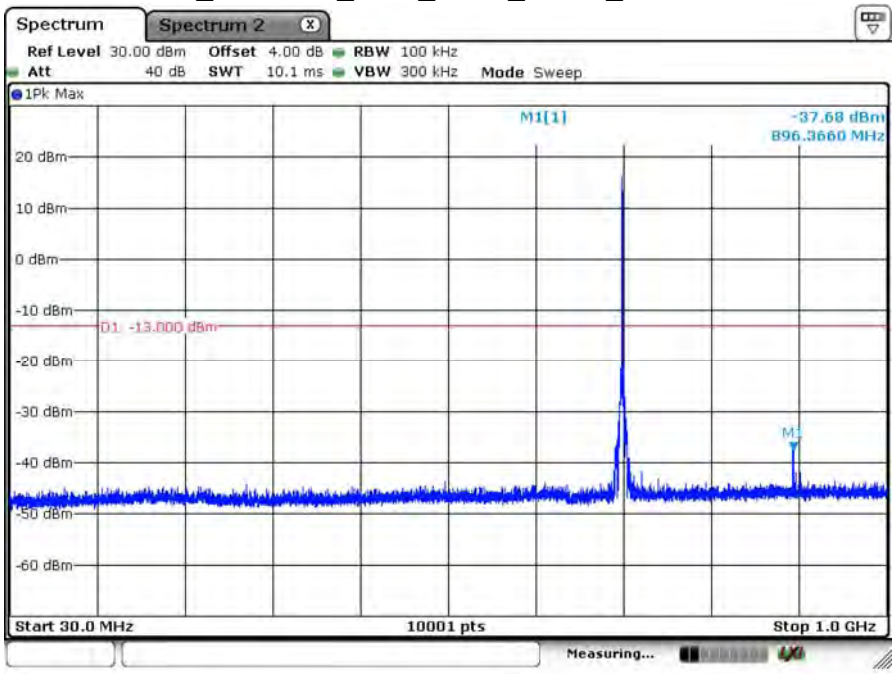
Date: 6.OCT.2020 16:38:25

B12_CH23095_1.4M_1RB0_QPSK_Above 1G



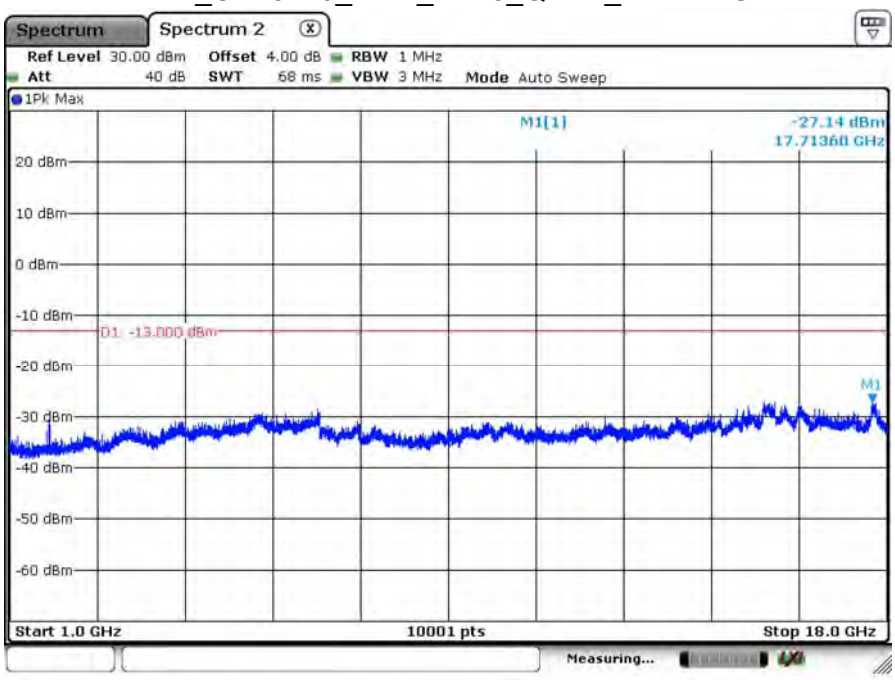
Date: 6.OCT.2020 16:41:46

B12_CH23095_1.4M_1RB0_QPSK_Below 1G



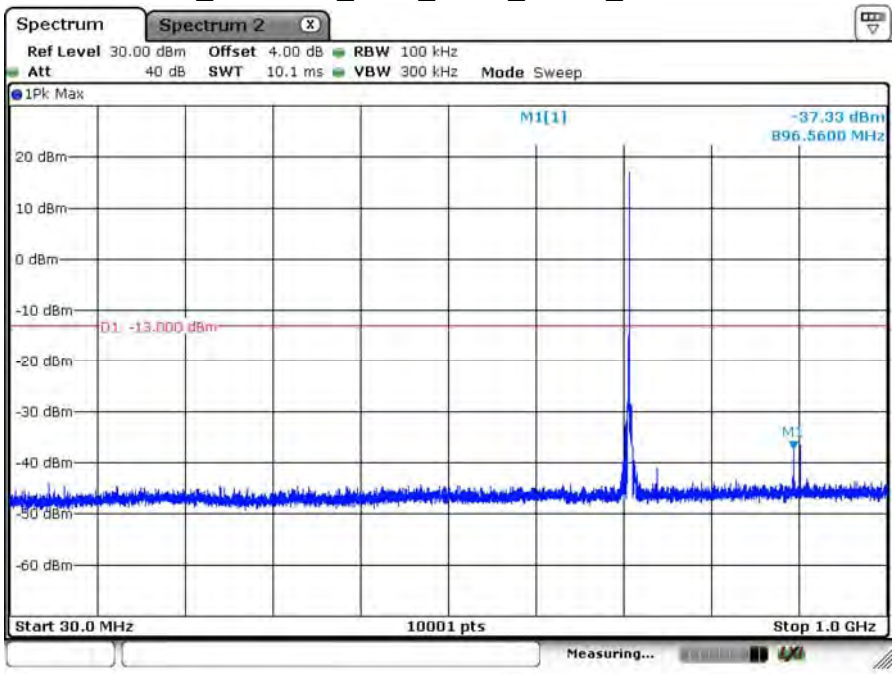
Date: 6.OCT.2020 16:42:48

B12_CH23173_1.4M_1RB5_QPSK_Above 1G



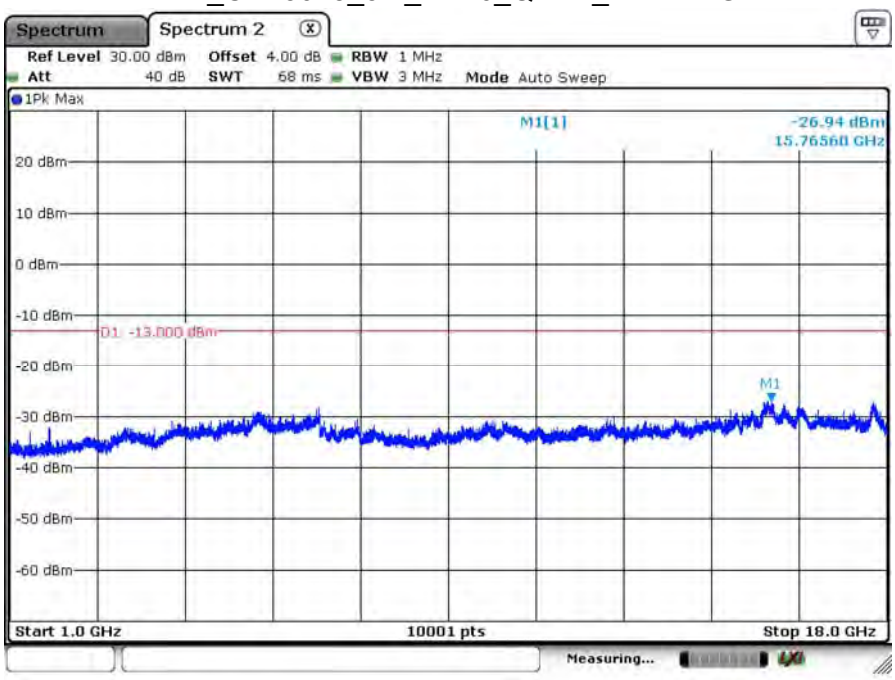
Date: 6.OCT.2020 16:44:40

B12_CH23173_1.4M_1RB5_QPSK_Below 1G



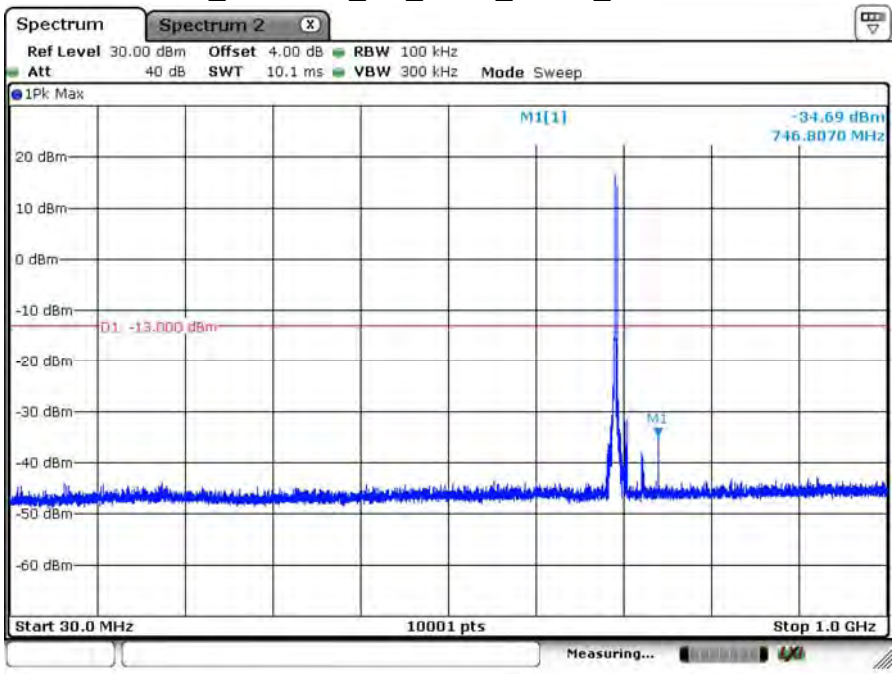
Date: 6.OCT.2020 16:43:49

B12_CH23025_3M_1RB0_QPSK_Above 1G



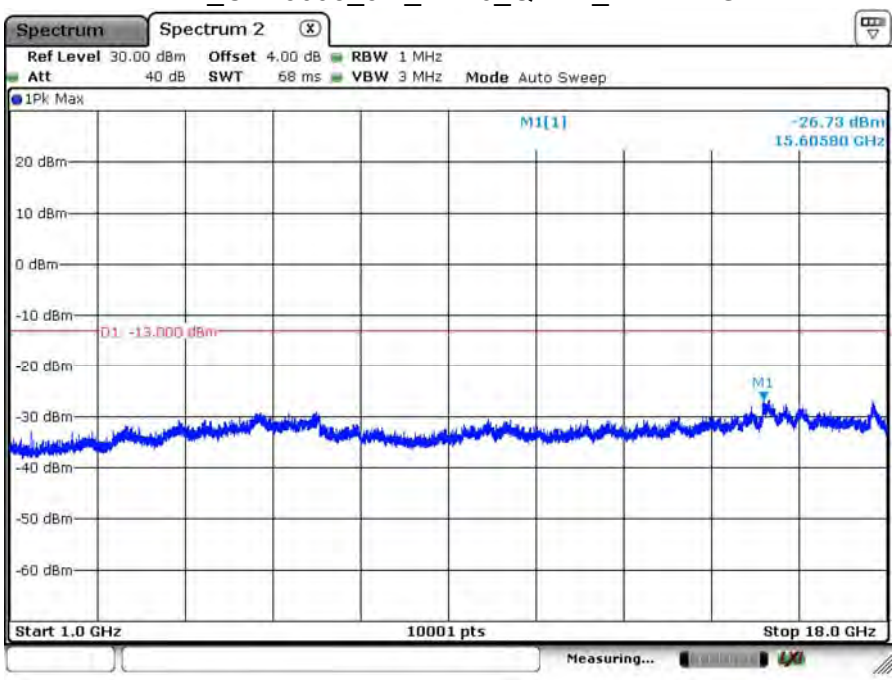
Date: 6.OCT.2020 16:45:55

B12_CH23025_3M_1RB0_QPSK_Below 1G



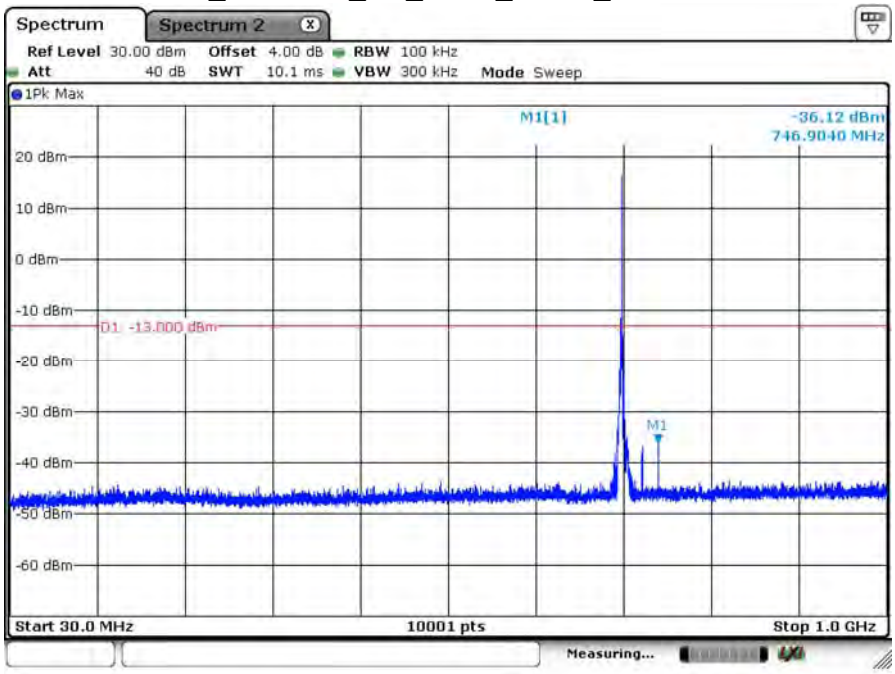
Date: 6.OCT.2020 16:47:32

B12_CH23095_3M_1RB0_QPSK_Above 1G



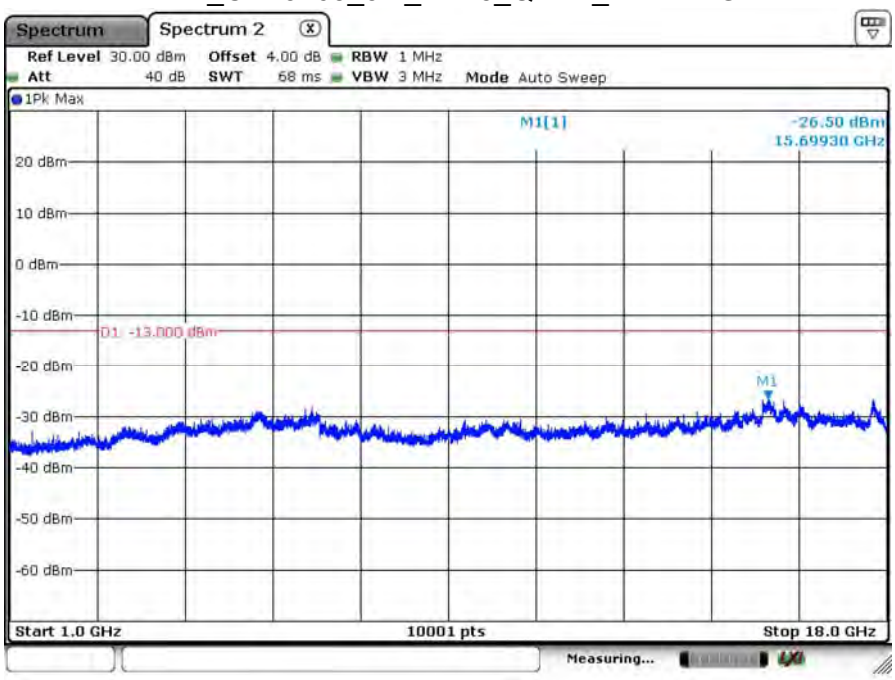
Date: 6.OCT.2020 16:49:38

B12_CH23095_3M_1RB0_QPSK_Below 1G



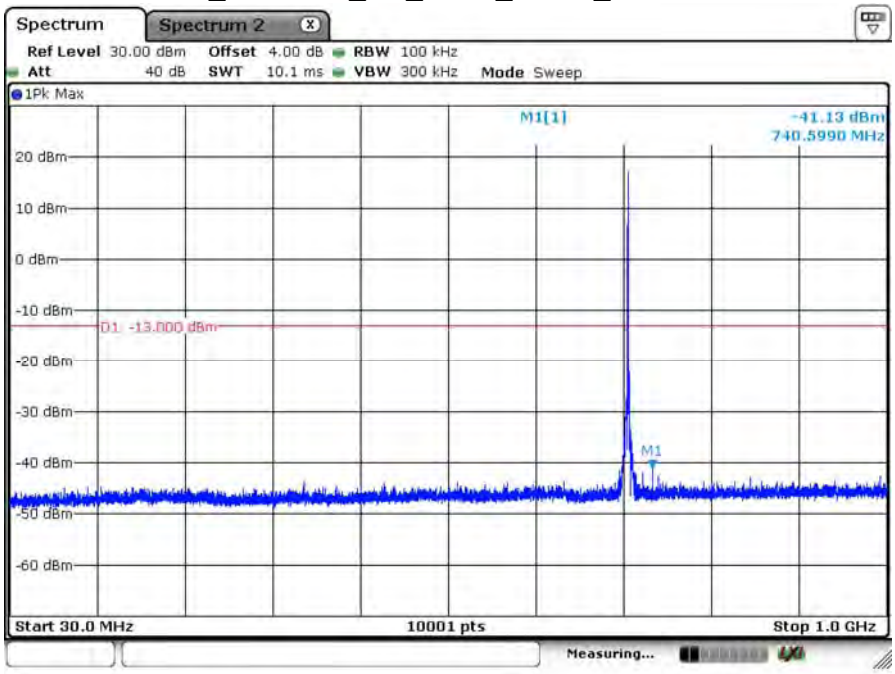
Date: 6.OCT.2020 16:48:41

B12_CH23165_3M_1RB5_QPSK_Above 1G



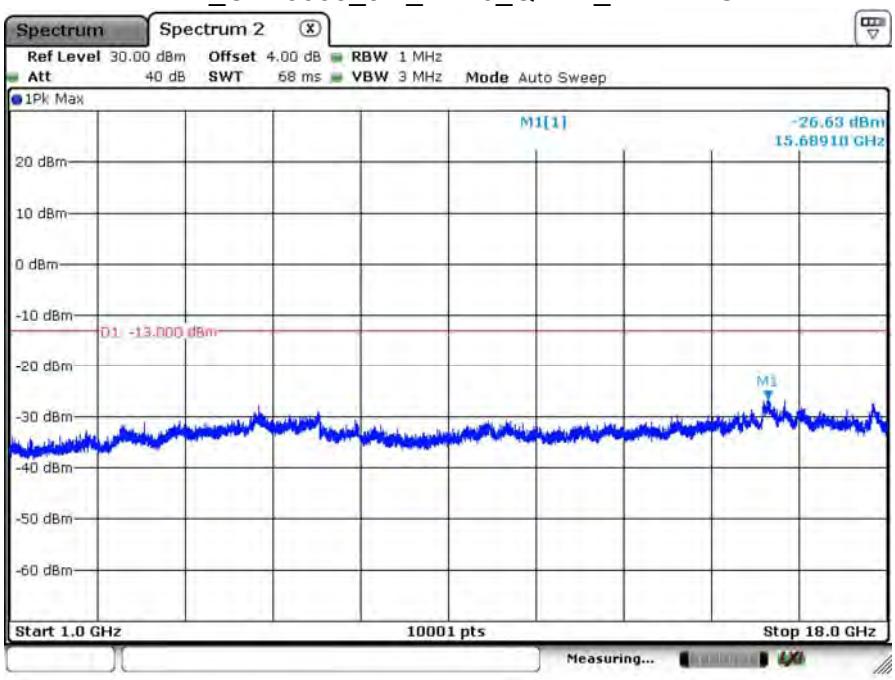
Date: 6.OCT.2020 16:51:53

B12_CH23165_3M_1RB5_QPSK_Below 1G



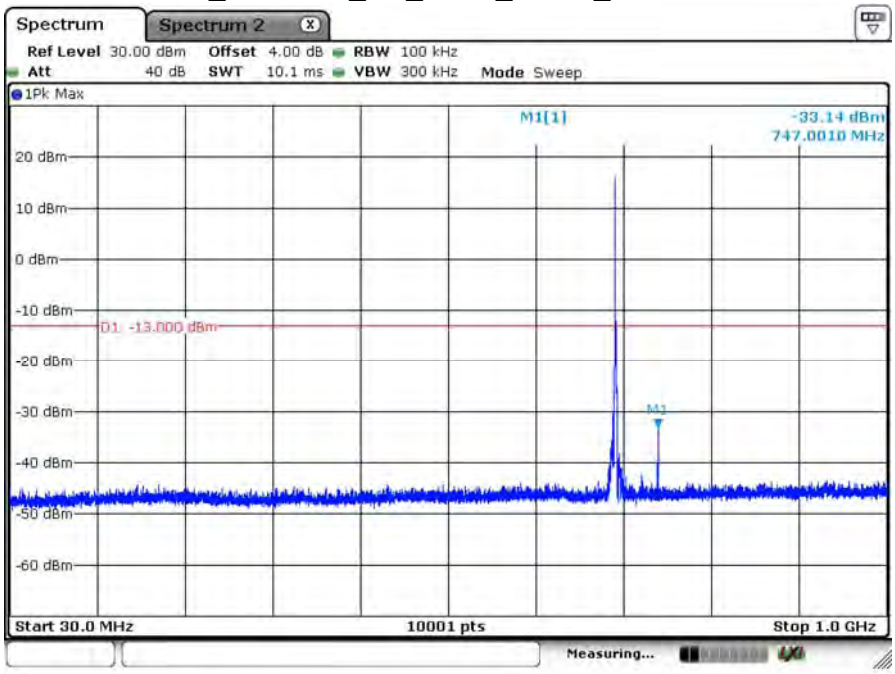
Date: 6.OCT.2020 16:53:06

B12_CH23035_5M_1RB0_QPSK_above 1G



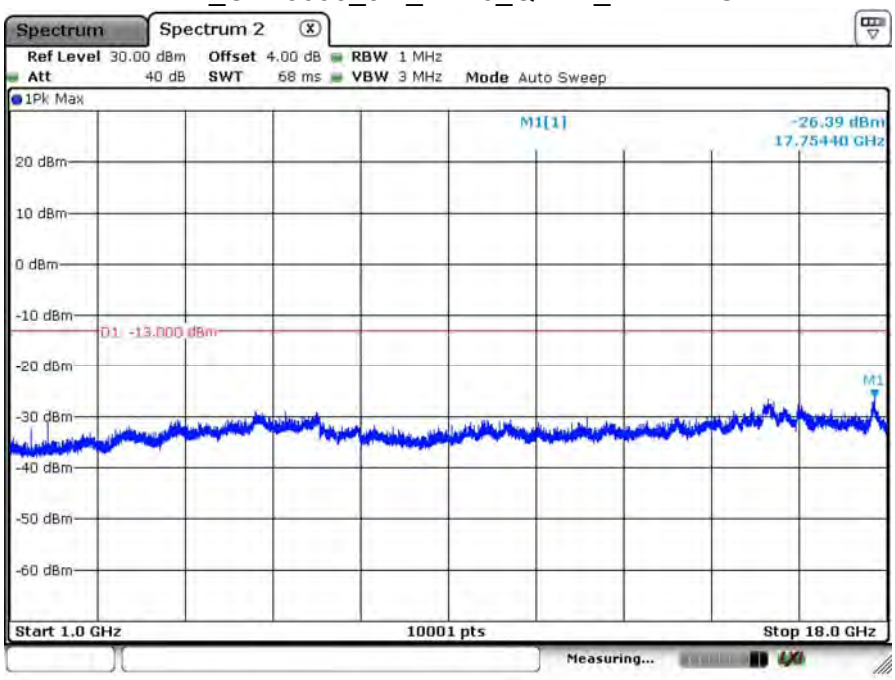
Date: 6.OCT.2020 16:55:27

B12_CH23035_5M_1RB0_QPSK_Below 1G



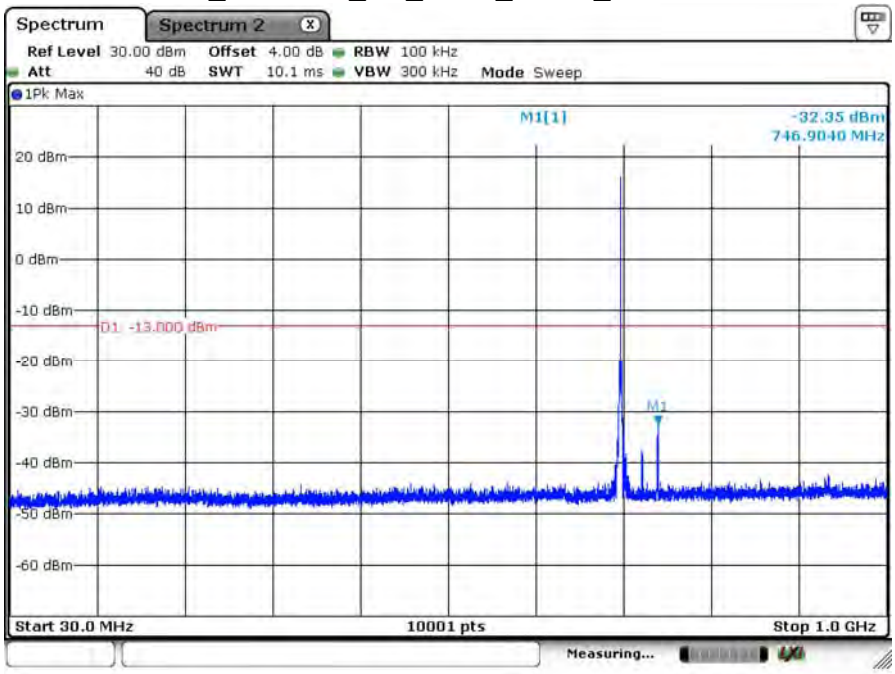
Date: 6.OCT.2020 16:54:35

B12_CH23095_5M_1RB0_QPSK_above 1G



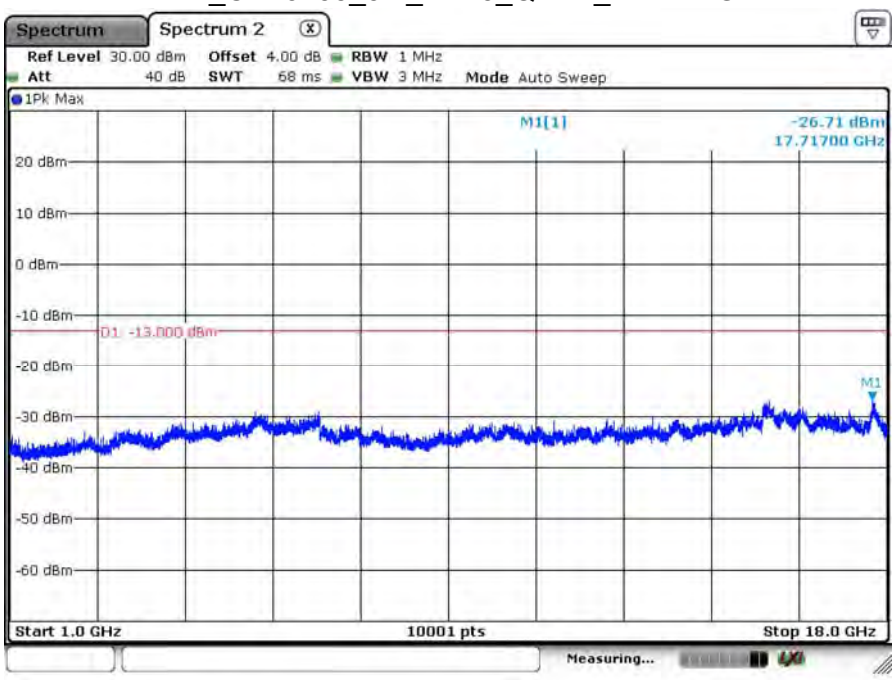
Date: 6.OCT.2020 16:56:32

B12_CH23095_5M_1RB0_QPSK_Below 1G



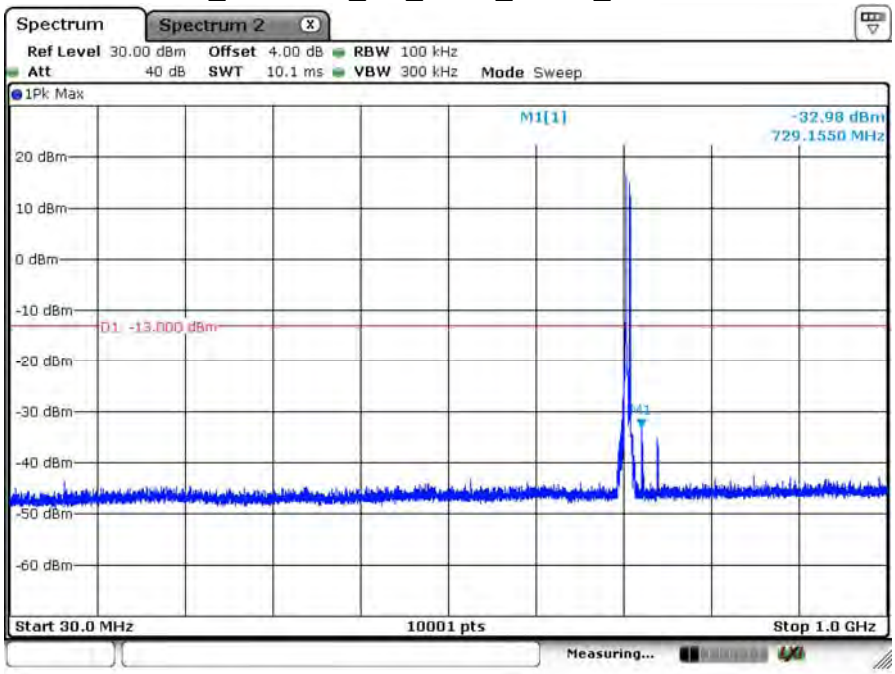
Date: 6.OCT.2020 16:57:29

B12_CH23155_5M_1RB5_QPSK_above 1G



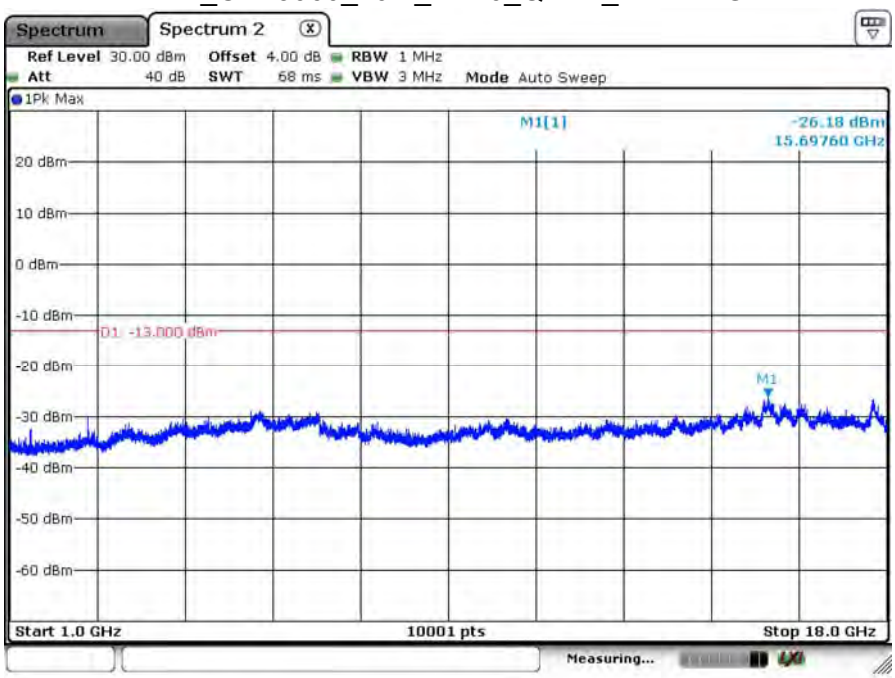
Date: 6.OCT.2020 16:59:44

B12_CH23155_5M_1RB5_QPSK_Below 1G



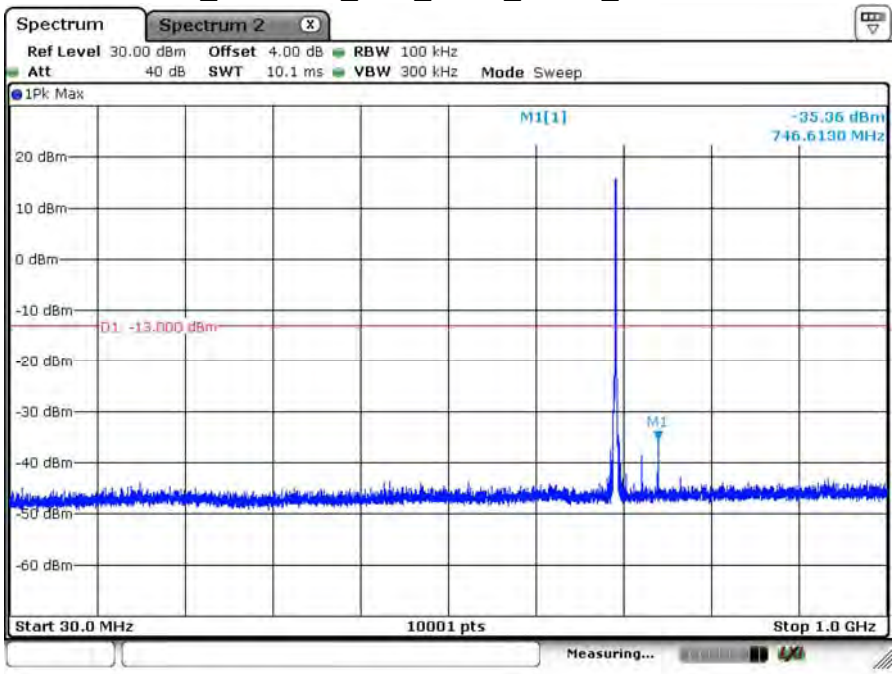
Date: 6.OCT.2020 16:59:12

B12_CH23060_10M_1RB0_QPSK_above 1G



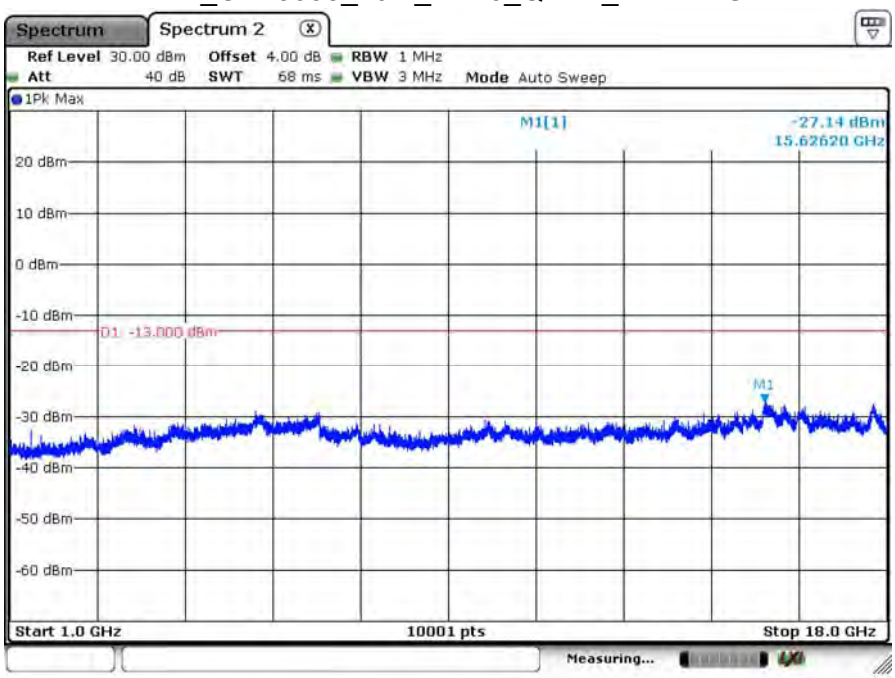
Date: 6.OCT.2020 17:01:52

B12_CH23060_10M_1RB0_QPSK_Below 1G



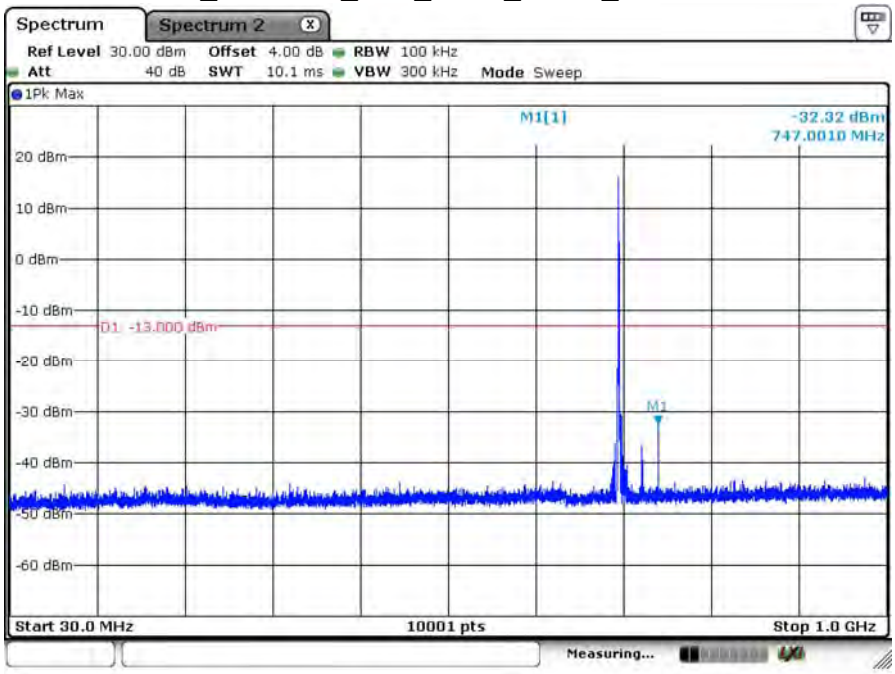
Date: 6.OCT.2020 17:02:45

B12_CH23095_10M_1RB0_QPSK_above 1G



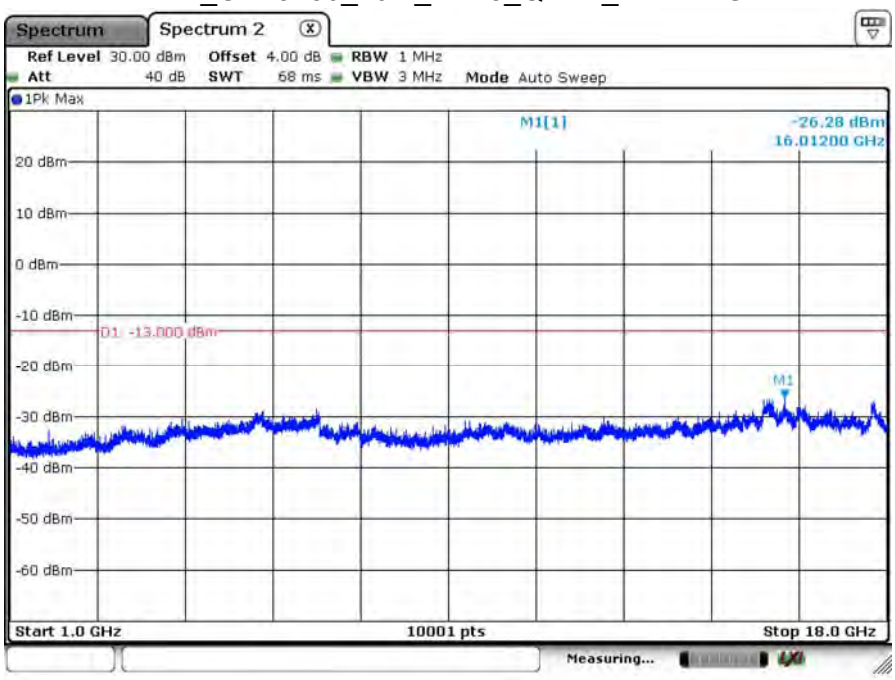
Date: 6.OCT.2020 17:04:04

B12_CH23095_10M_1RB0_QPSK_Below 1G



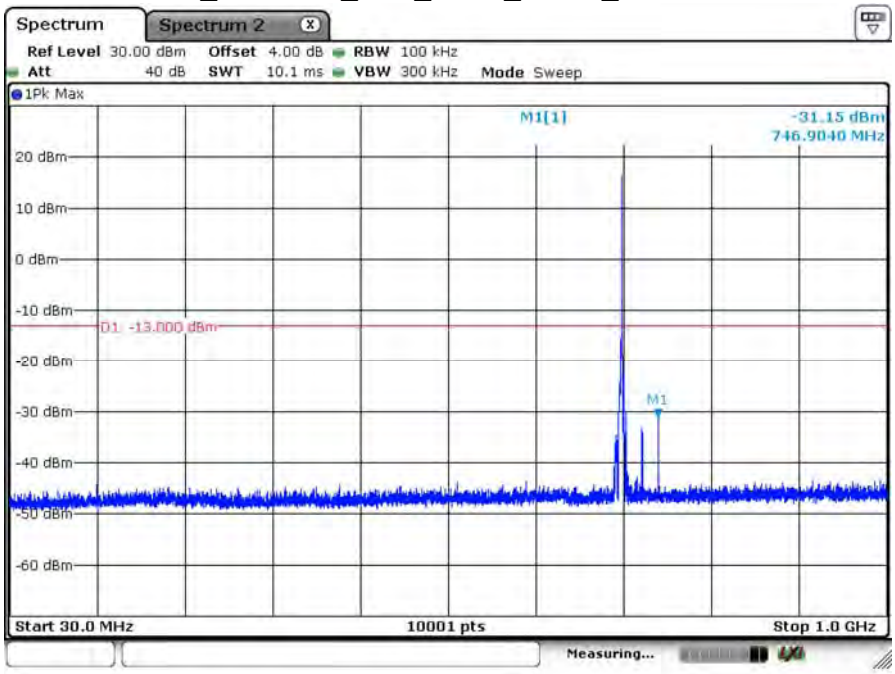
Date: 6.OCT.2020 17:03:26

B12_CH23130_10M_1RB5_QPSK_above 1G



Date: 6.OCT.2020 17:05:03

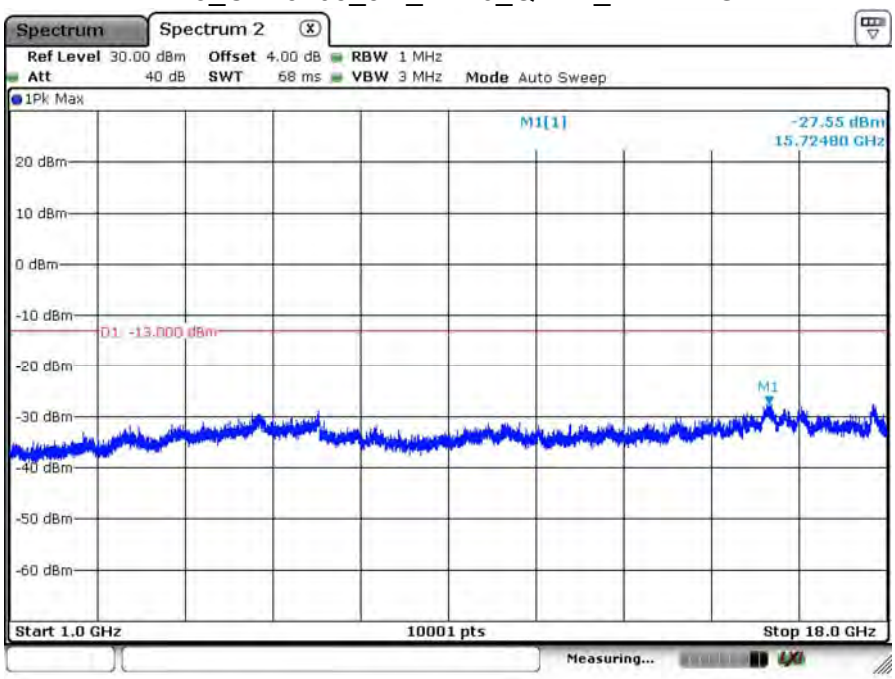
B12_CH23130_10M_1RB5_QPSK_Below 1G



Date: 6.OCT.2020 17:05:41

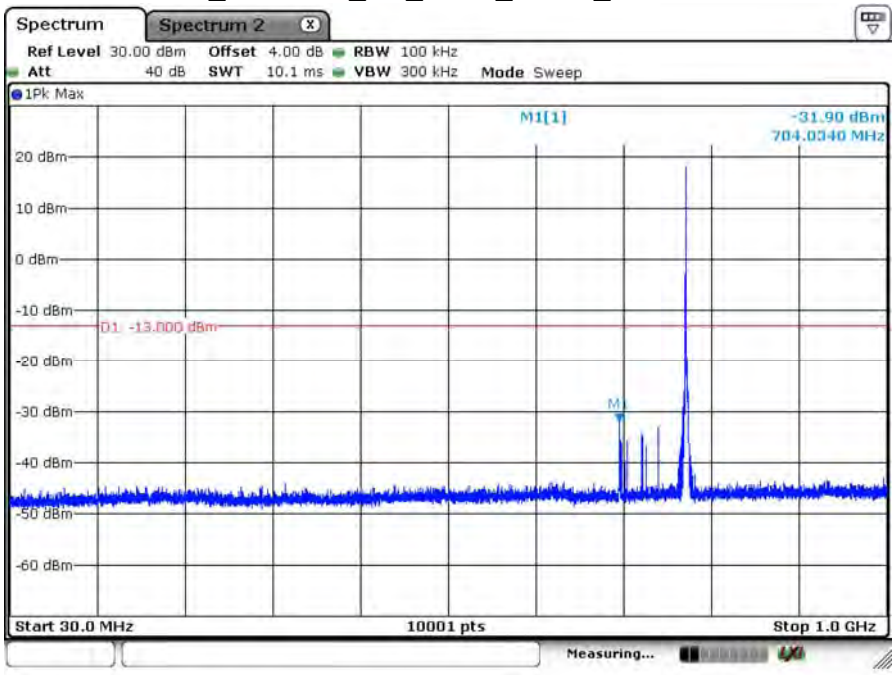
Product	LGA module		
Test Item	Conducted Spurious Emissions		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2020/10/06	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	60

B13_CH23205_5M_1RB0_QPSK_above 1G



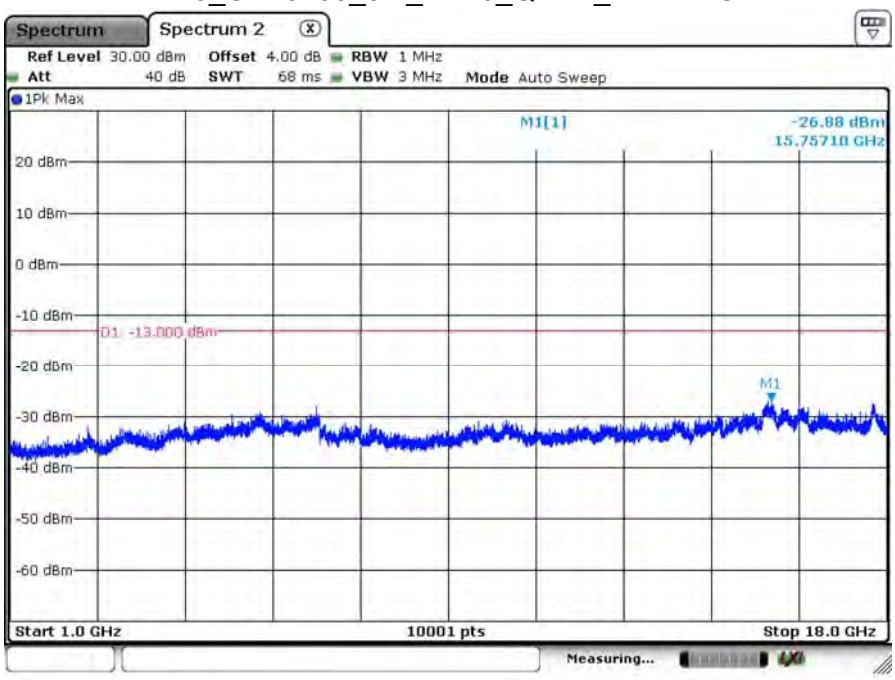
Date: 6.OCT.2020 17:09:50

B13_CH23205_5M_1RB0_QPSK_Below 1G



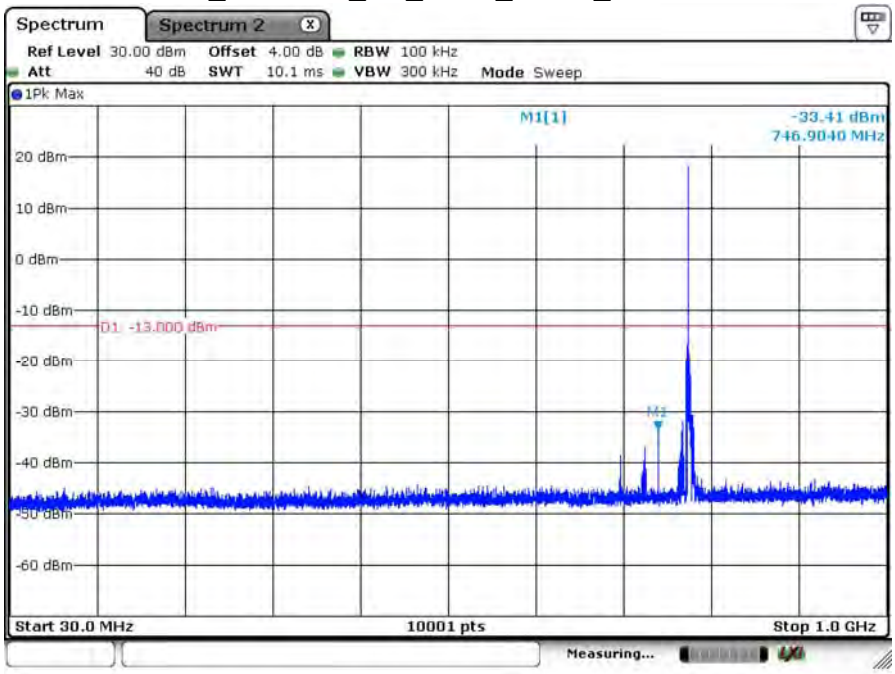
Date: 6.OCT.2020 17:07:30

B13_CH23230_5M_1RB0_QPSK_above 1G



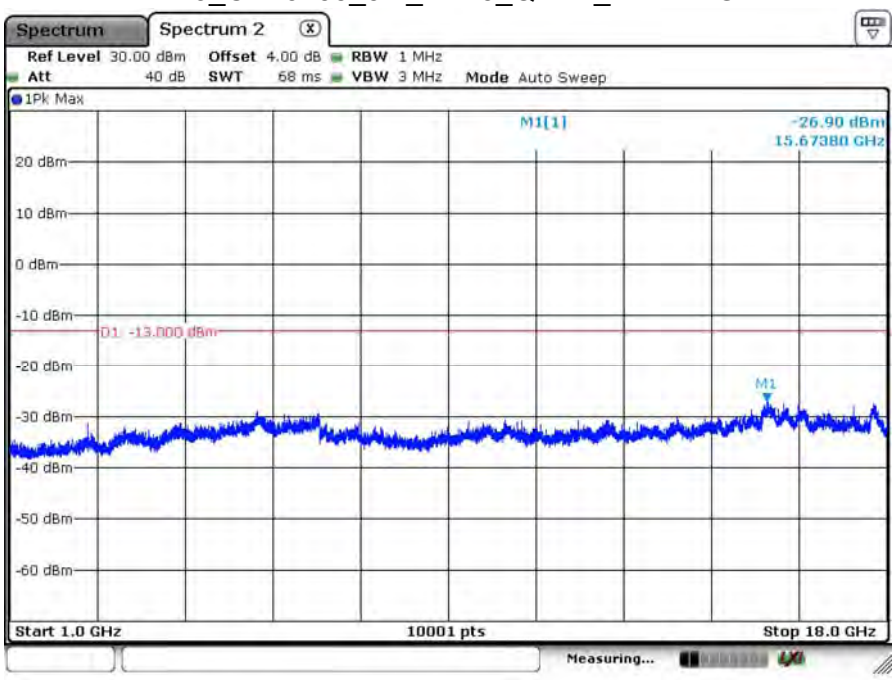
Date: 6.OCT.2020 17:10:37

B13_CH23230_5M_1RB0_QPSK_Below 1G



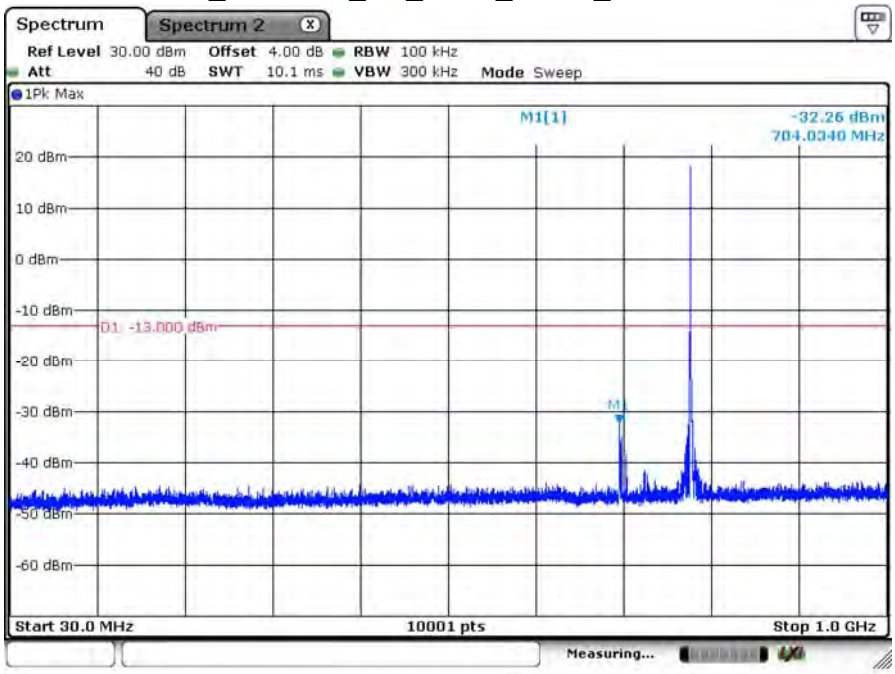
Date: 6.OCT.2020 17:11:18

B13_CH23255_5M_1RB5_QPSK_above 1G



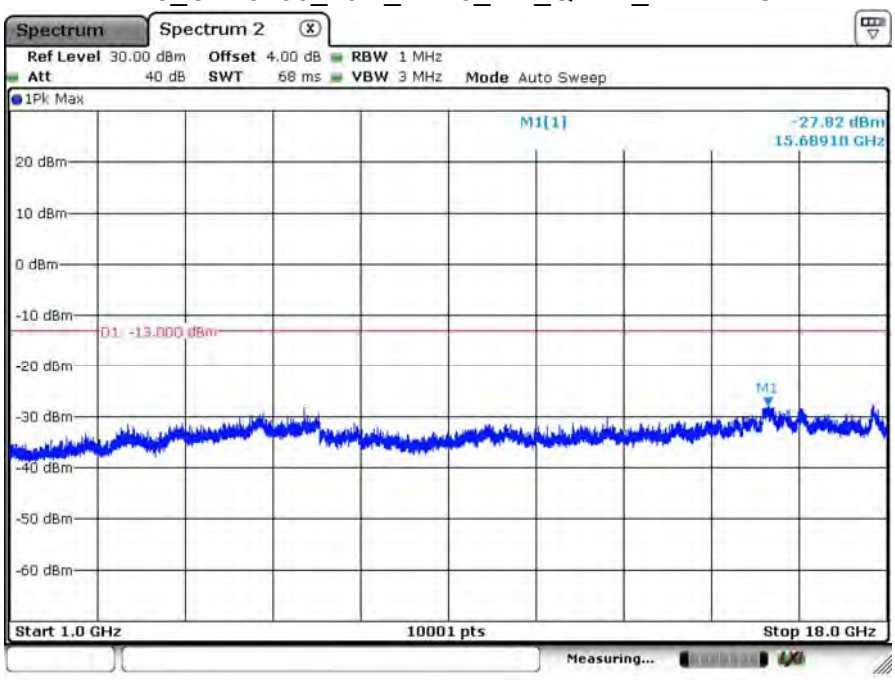
Date: 6.OCT.2020 17:13:07

B13_CH23255_5M_1RB5_QPSK_Below 1G



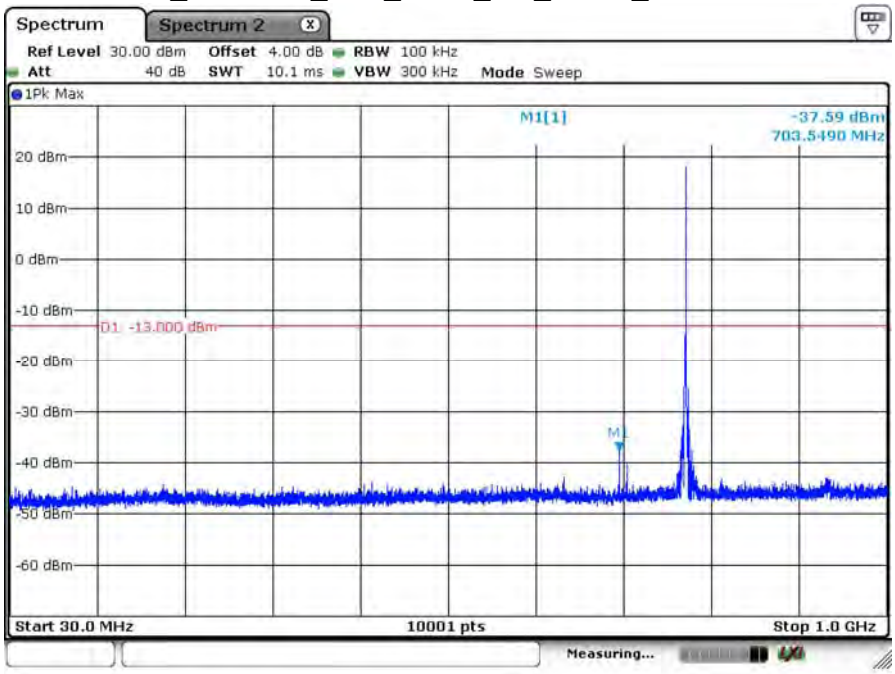
Date: 6.OCT.2020 17:12:15

B13_CH23230_10M_1RB0_low_QPSK_above 1G



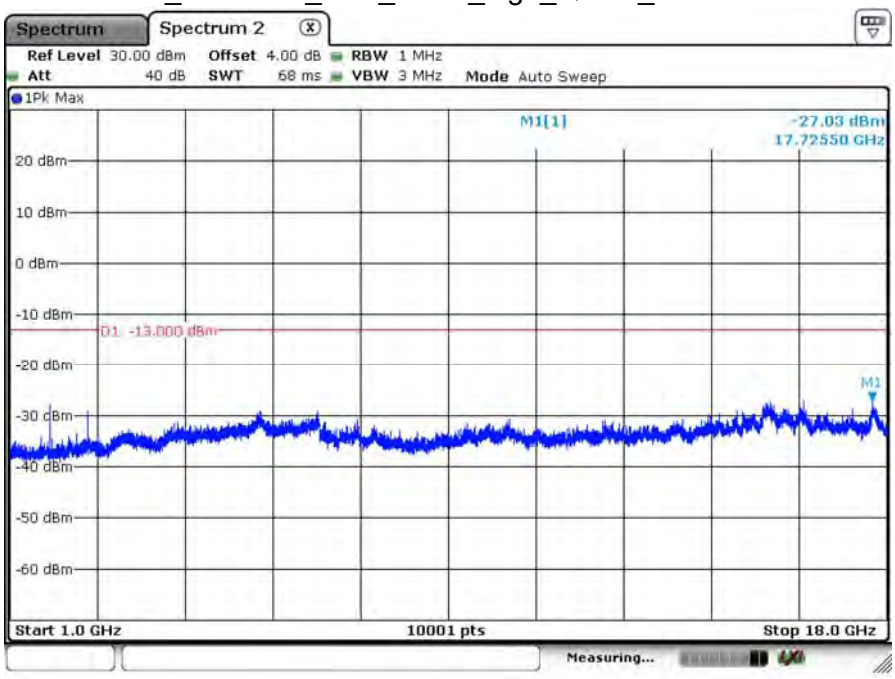
Date: 6.OCT.2020 17:17:10

B13_CH23230_10M_1RB0_low_QPSK_Below 1G



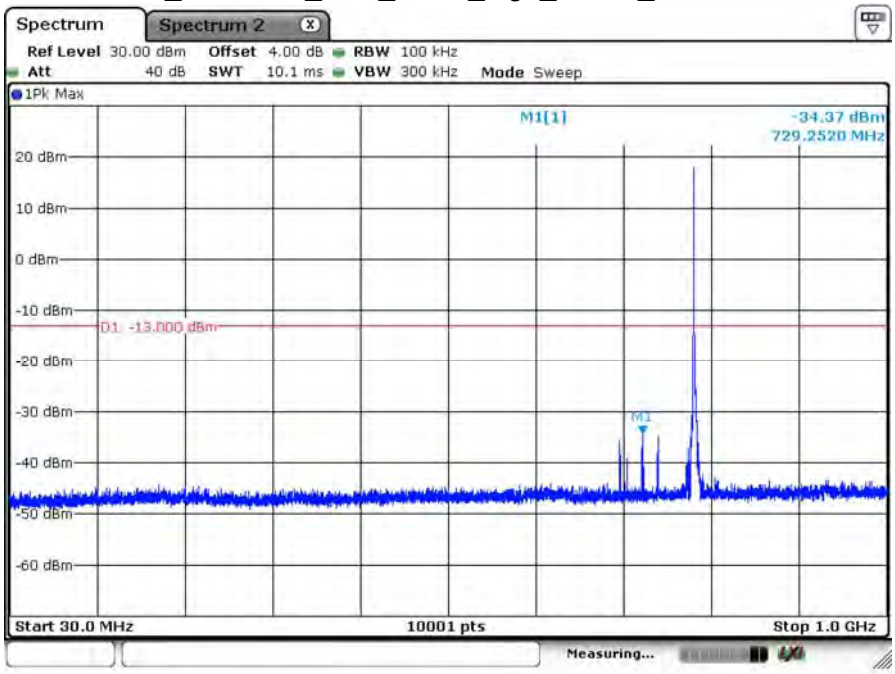
Date: 6.OCT.2020 17:14:25

B13_CH23230_10M_1RB5_high_QPSK_above 1G



Date: 6.OCT.2020 17:18:09

B13_CH23230_10M_1RB5_high_QPSK_Below 1G



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Product	LGA module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/10/14	Test Site	CB2-H
Temperature	25	Humidity	55

BW20M_Ch18700_CAT-M1_CAT-M1 Band2

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3720.000	-41.13	-13	-28.13	-49.22	12.61	4.52
	5580.000	-47.91	-13	-34.91	-55.35	13.12	5.68
	7440.000	-43.18	-13	-30.18	-47.86	11.28	6.61
V	3720.000	-35.56	-13	-22.56	-43.65	12.61	4.52
	5580.000	-42.06	-13	-29.06	-49.50	13.12	5.68
	7440.000	-43.28	-13	-30.28	-47.96	11.28	6.61

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

BW20M_Ch18900_CAT-M1_CAT-M1 Band2

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3760.000	-41.30	-13	-28.30	-49.37	12.60	4.54
	5640.000	-45.40	-13	-32.40	-52.80	13.10	5.70
	7520.000	-42.93	-13	-29.93	-47.55	11.24	6.61
V	3760.000	-38.50	-13	-25.50	-46.57	12.60	4.54
	5640.000	-40.68	-13	-27.68	-48.08	13.10	5.70
	7520.000	-43.09	-13	-30.09	-47.71	11.24	6.61

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

BW20M_Ch19100_CAT-M1_CAT-M1 Band2

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3800.000	-41.99	-13	-28.99	-50.04	12.60	4.56
	5700.000	-43.14	-13	-30.14	-50.51	13.08	5.72
	7600.000	-43.47	-13	-30.47	-48.11	11.24	6.60
V	3800.000	-38.03	-13	-25.03	-46.08	12.60	4.56
	5700.000	-39.77	-13	-26.77	-47.14	13.08	5.72
	7600.000	-43.28	-13	-30.28	-47.92	11.24	6.60

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

Product	LGA module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 2: LTE Band 4		
Date of Test	2020/10/14	Test Site	CB2-H
Temperature	25	Humidity	55

BW20M_Ch20050_CAT-M1_CAT-M1 Band4

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3440.000	-45.92	-13	-32.92	-54.03	12.48	4.37
	5160.000	-44.27	-13	-31.27	-51.67	12.81	5.41
	6880.000	-44.88	-13	-31.88	-50.27	11.79	6.40
V	3440.000	-36.40	-13	-23.40	-44.51	12.48	4.37
	5160.000	-40.55	-13	-27.55	-47.95	12.81	5.41
	6880.000	-44.58	-13	-31.58	-49.97	11.79	6.40

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

BW20M_Ch20175_CAT-M1_CAT-M1 Band4

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3465.000	-46.52	-13	-33.52	-54.67	12.53	4.38
	5197.500	-43.78	-13	-30.78	-51.19	12.84	5.43
	6930.000	-44.56	-13	-31.56	-49.83	11.73	6.46
V	3465.000	-38.20	-13	-25.20	-46.35	12.53	4.38
	5197.500	-39.94	-13	-26.94	-47.35	12.84	5.43
	6930.000	-44.62	-13	-31.62	-49.89	11.73	6.46

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

BW20M_Ch20300_CAT-M1_CAT-M1 Band4

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	3490.000	-45.37	-13	-32.37	-53.56	12.59	4.40
	5235.000	-43.60	-13	-30.60	-51.02	12.88	5.46
	6980.000	-45.53	-13	-32.53	-50.69	11.67	6.51
V	3490.000	-40.76	-13	-27.76	-48.95	12.59	4.40
	5235.000	-38.37	-13	-25.37	-45.79	12.88	5.46
	6980.000	-45.65	-13	-32.65	-50.81	11.67	6.51

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

Product	LGA module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 3: LTE Band 5		
Date of Test	2020/10/14	Test Site	CB2-H
Temperature	25	Humidity	55

BW10M_Ch20450_CAT-M1_CAT-M1 Band5

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1658.000	-51.30	-13	-38.30	-57.62	9.32	3.00
	2487.000	-45.43	-13	-32.43	-52.33	10.59	3.69
	3316.000	-52.06	-13	-39.06	-59.99	12.21	4.28
V	1658.000	-44.58	-13	-31.58	-50.90	9.32	3.00
	2487.000	-35.96	-13	-22.96	-42.86	10.59	3.69
	3316.000	-48.33	-13	-35.33	-56.26	12.21	4.28

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

BW10M_Ch20525_CAT-M1_CAT-M1 Band5

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1673.000	-51.79	-13	-38.79	-58.14	9.36	3.01
	2509.500	-44.19	-13	-31.19	-51.10	10.62	3.71
	3346.000	-51.81	-13	-38.81	-59.79	12.27	4.30
V	1673.000	-49.11	-13	-36.11	-55.46	9.36	3.01
	2509.500	-34.58	-13	-21.58	-41.49	10.62	3.71
	3346.000	-48.07	-13	-35.07	-56.05	12.27	4.30

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

BW10M_Ch20600_CAT-M1_CAT-M1 Band5

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1688.000	-53.22	-13	-40.22	-59.60	9.41	3.02
	2532.000	-43.36	-13	-30.36	-50.29	10.66	3.73
	3376.000	-52.01	-13	-39.01	-60.03	12.34	4.32
V	1688.000	-51.23	-13	-38.23	-57.61	9.41	3.02
	2532.000	-34.49	-13	-21.49	-41.42	10.66	3.73
	3376.000	-47.97	-13	-34.97	-55.99	12.34	4.32

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

Product	LGA module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2020/10/14	Test Site	CB2-H
Temperature	25	Humidity	55

BW10M_Ch23060_CAT-M1_CAT-M1 Band12

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1408.000	-37.53	-13	-24.53	-43.09	8.31	2.75
	2112.000	-40.37	-13	-27.37	-47.37	10.41	3.41
	2816.000	-44.06	-13	-31.06	-51.32	11.18	3.92
V	1408.000	-33.18	-13	-20.18	-38.74	8.31	2.75
	2112.000	-37.73	-13	-24.73	-44.73	10.41	3.41
	2816.000	-41.67	-13	-28.67	-48.93	11.18	3.92

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

BW10M_Ch23095_CAT-M1_CAT-M1 Band12

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1415.000	-38.91	-13	-25.91	-44.51	8.35	2.75
	2122.500	-40.63	-13	-27.63	-47.62	10.41	3.42
	2830.000	-44.95	-13	-31.95	-52.23	11.21	3.93
V	1415.000	-34.43	-13	-21.43	-40.03	8.35	2.75
	2122.500	-37.85	-13	-24.85	-44.84	10.41	3.42
	2830.000	-41.58	-13	-28.58	-48.86	11.21	3.93

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

BW10M_Ch23130_CAT-M1_CAT-M1 Band12

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1422.000	-40.53	-13	-27.53	-46.16	8.39	2.76
	2133.000	-40.14	-13	-27.14	-47.13	10.42	3.42
	2844.000	-45.07	-13	-32.07	-52.37	11.23	3.94
V	1422.000	-35.61	-13	-22.61	-41.24	8.39	2.76
	2133.000	-38.09	-13	-25.09	-45.08	10.42	3.42
	2844.000	-41.55	-13	-28.55	-48.85	11.23	3.94

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

Product	LGA module		
Test Item	Radiated Spurious Emissions		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2020/12/08	Test Site	CB2-H
Temperature	23	Humidity	59

BW10M_Ch23230_low_CAT-M1_CAT-M1 Band13

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1564	-44.1	-40	-4.1	-50.23	9.03	2.91
	2346	-49.73	-13	-36.73	-56.67	10.52	3.59
	3128	-50.2	-13	-37.2	-57.86	11.8	4.14
V	1564	-40.32	-40	-0.32	-46.45	9.03	2.91
	2346	-45.58	-13	-32.58	-52.52	10.52	3.59
	3128	-46.73	-13	-33.73	-54.39	11.8	4.14

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

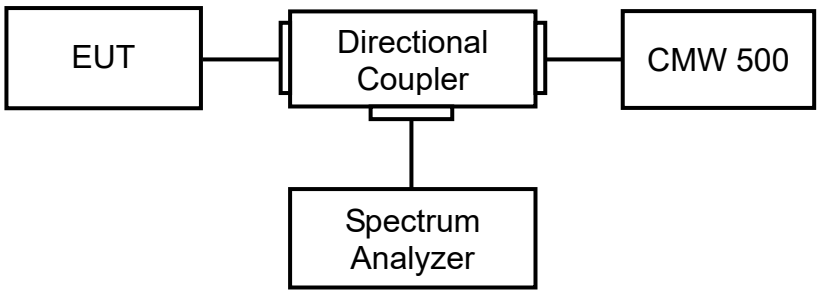
BW10M_Ch23230_high_CAT-M1_CAT-M1 Band13

Antenna Polarity	Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Margin (dB)	SG Level (dBm)	Antenna Gain (dBi)	Cable Loss (dB)
H	1564	-46.99	-40	-6.99	-53.12	9.03	2.91
	2346	-49.31	-13	-36.31	-56.25	10.52	3.59
	3128	-51.25	-13	-38.25	-58.91	11.8	4.14
V	1564	-40.16	-40	-0.16	-46.29	9.03	2.91
	2346	-44.68	-13	-31.68	-51.62	10.52	3.59
	3128	-46.79	-13	-33.79	-54.45	11.8	4.14

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	LGA module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/10/01	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	61

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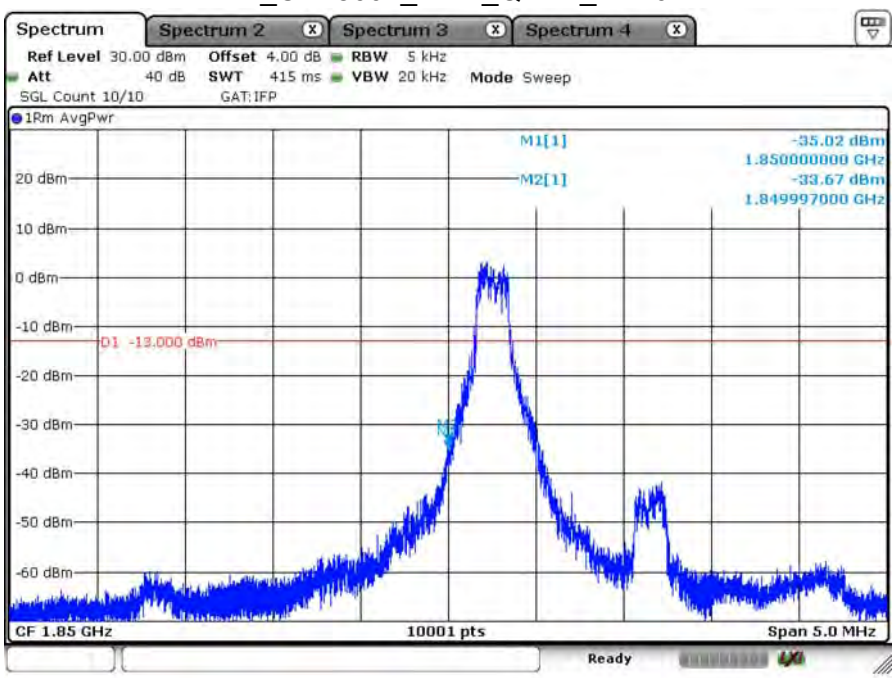

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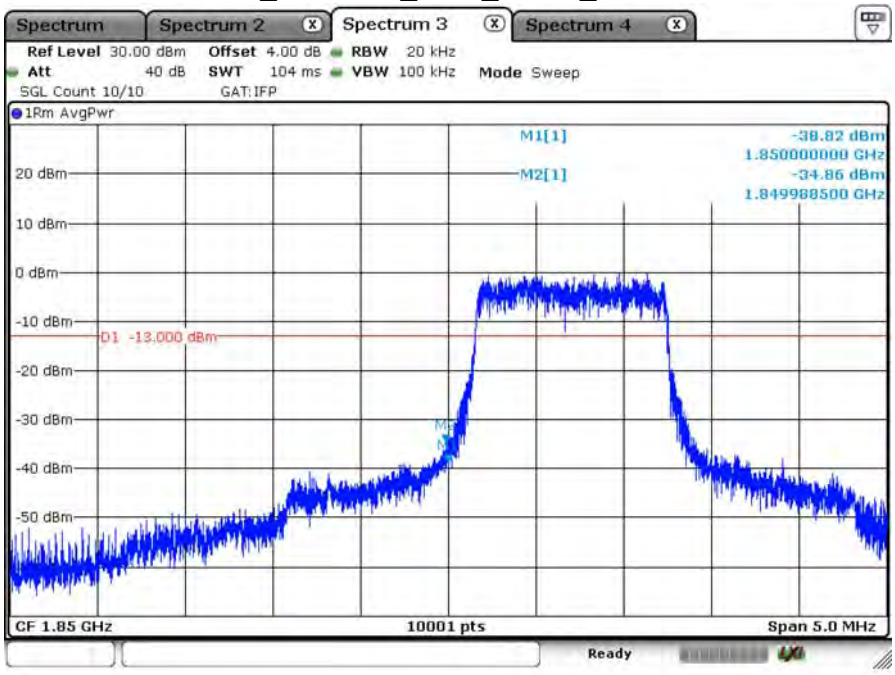

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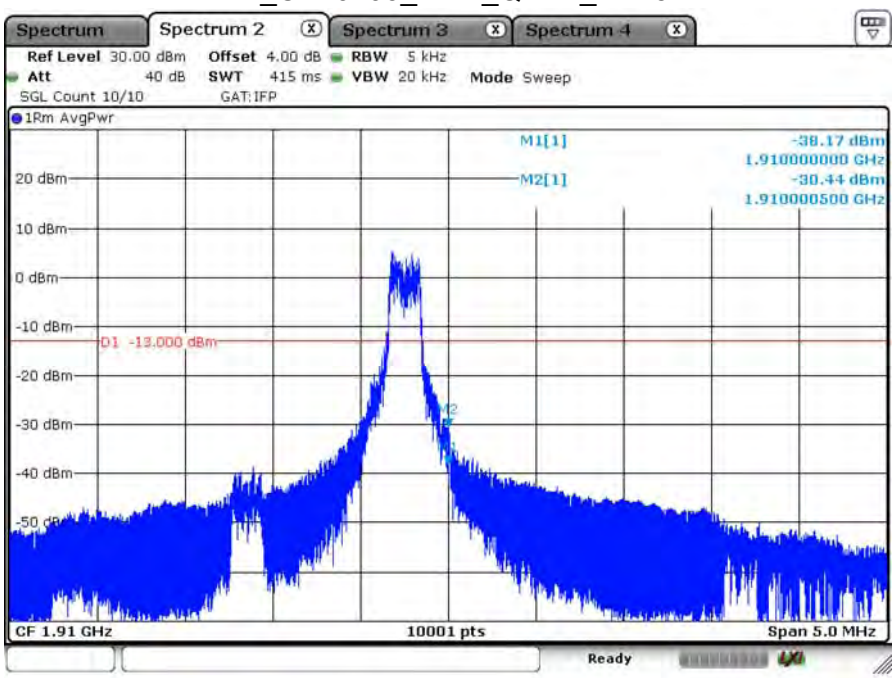

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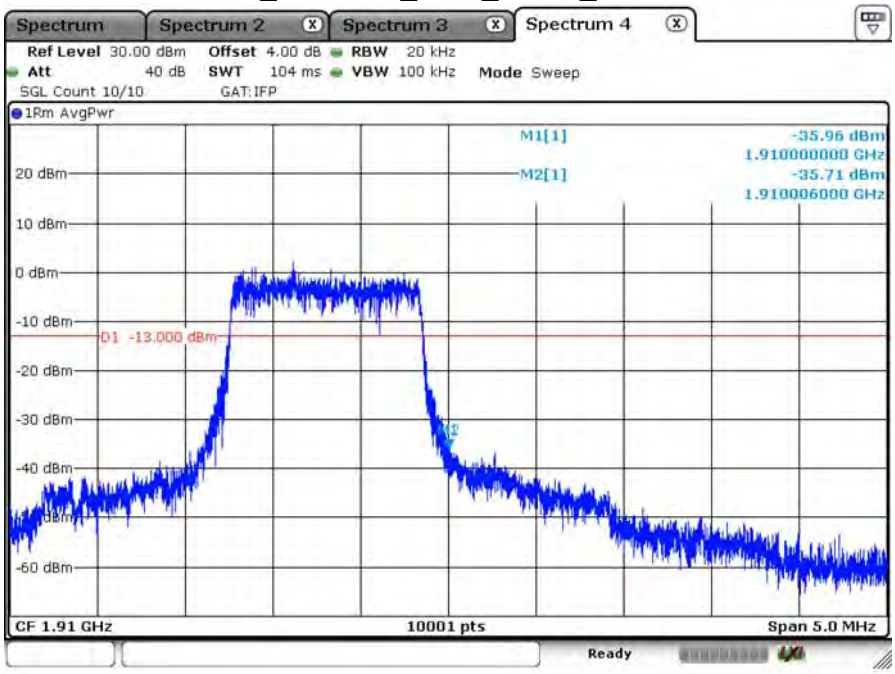

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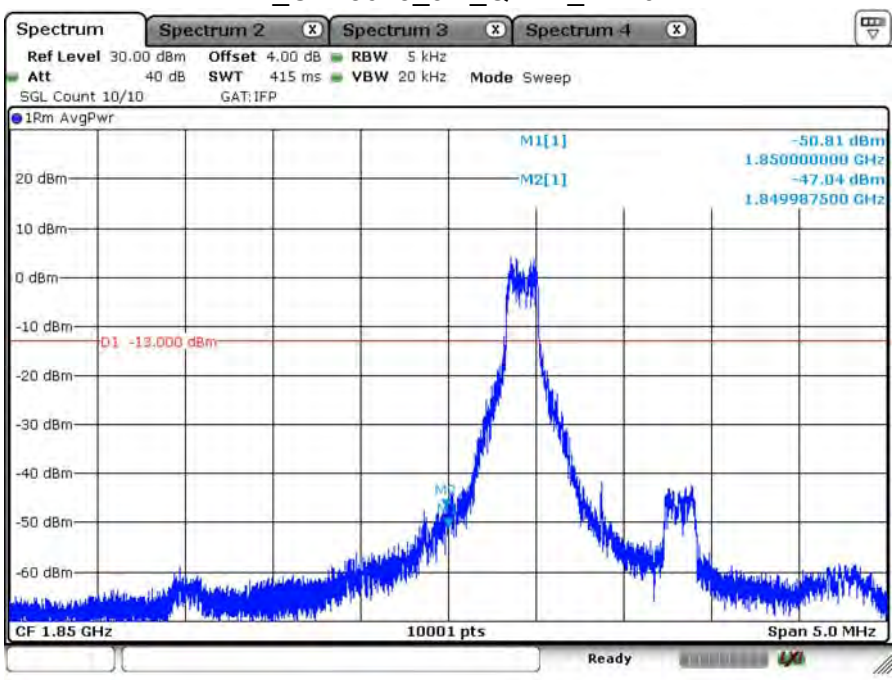

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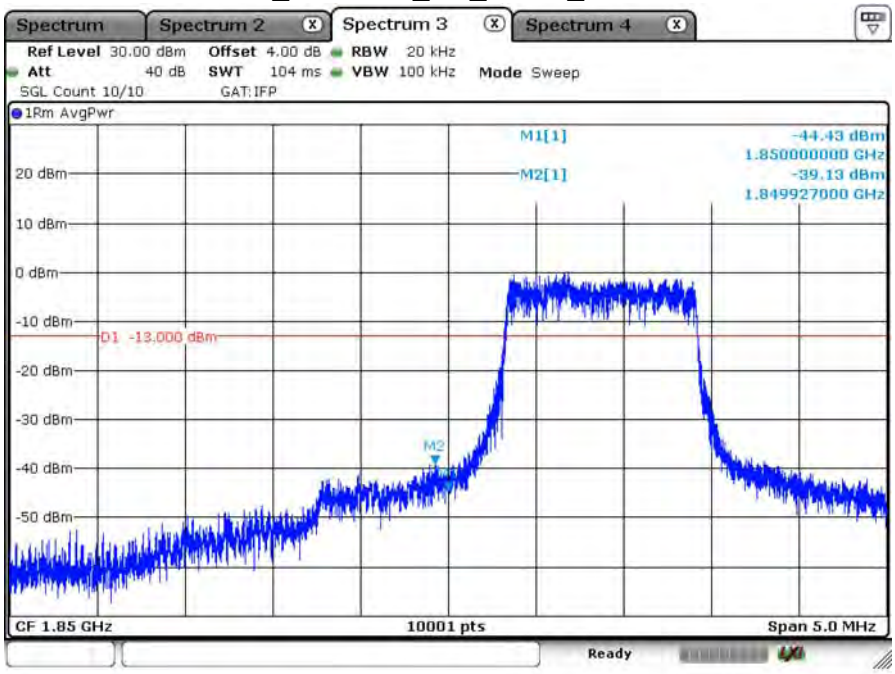

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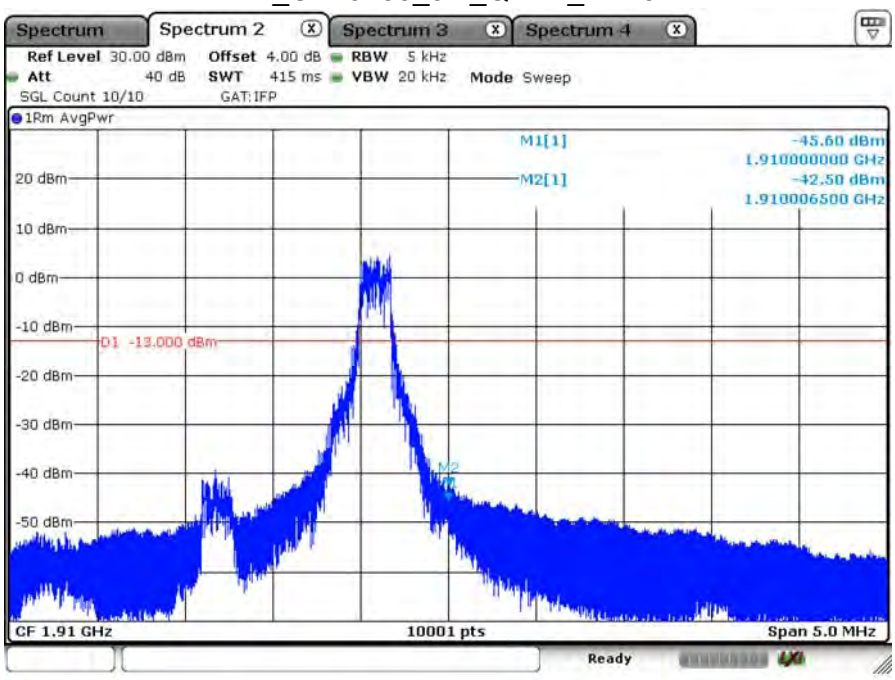

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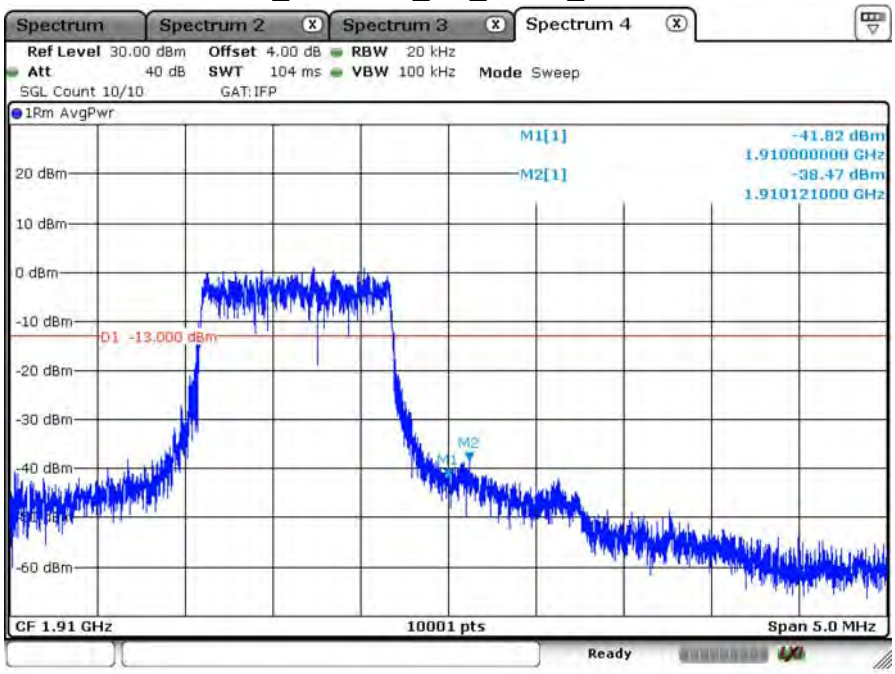

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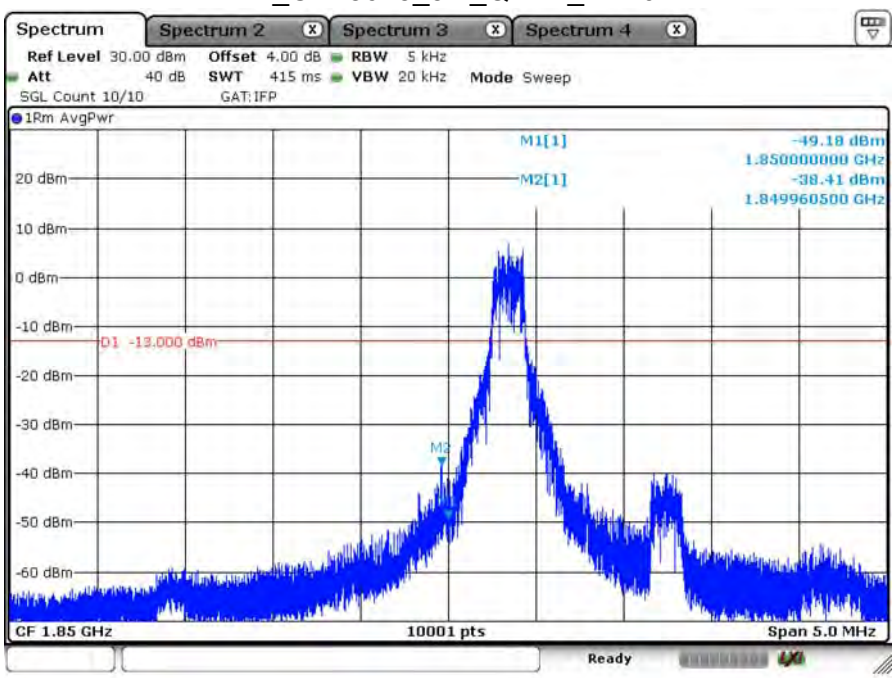

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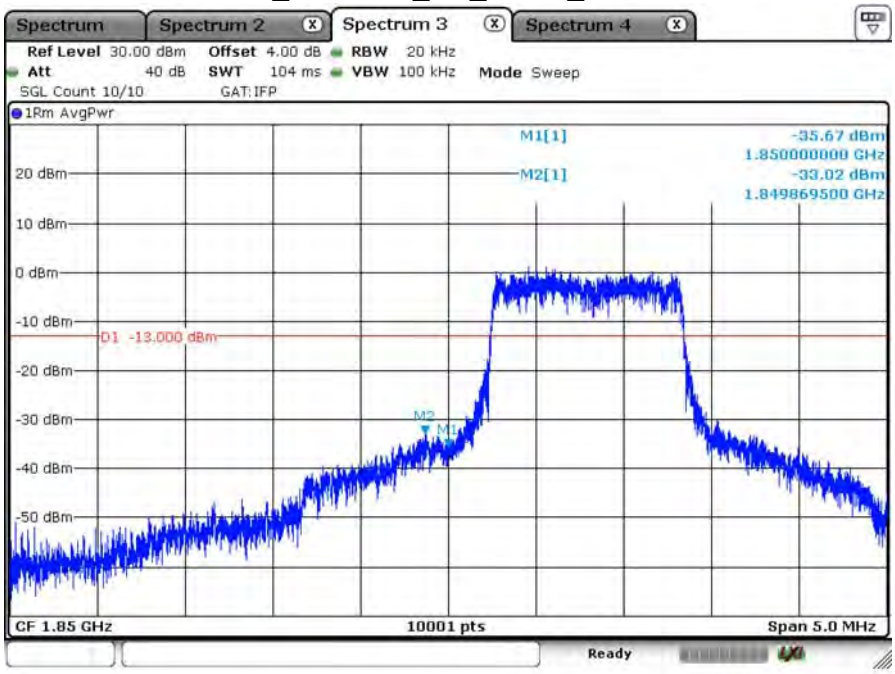

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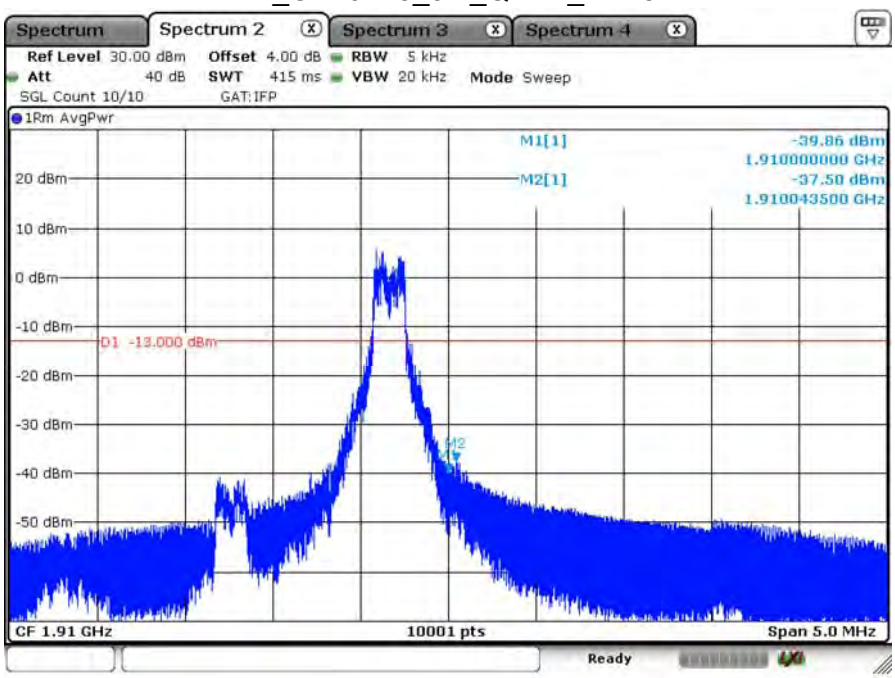

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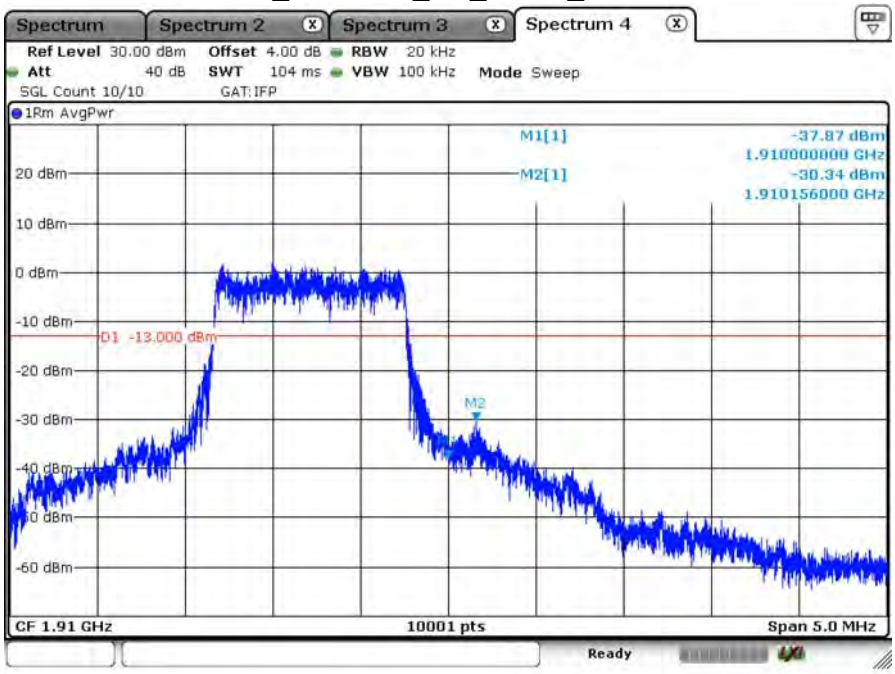

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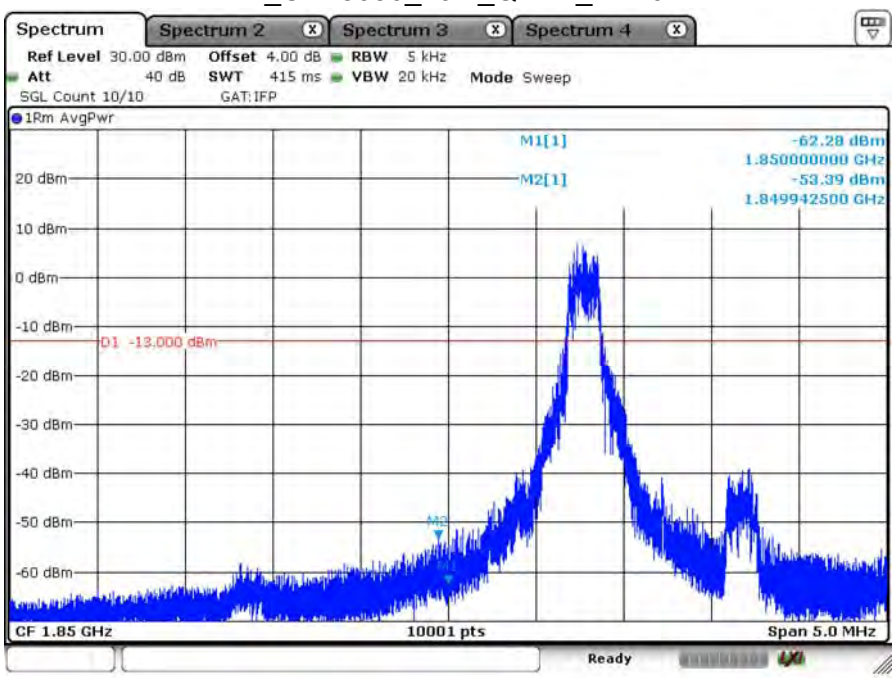

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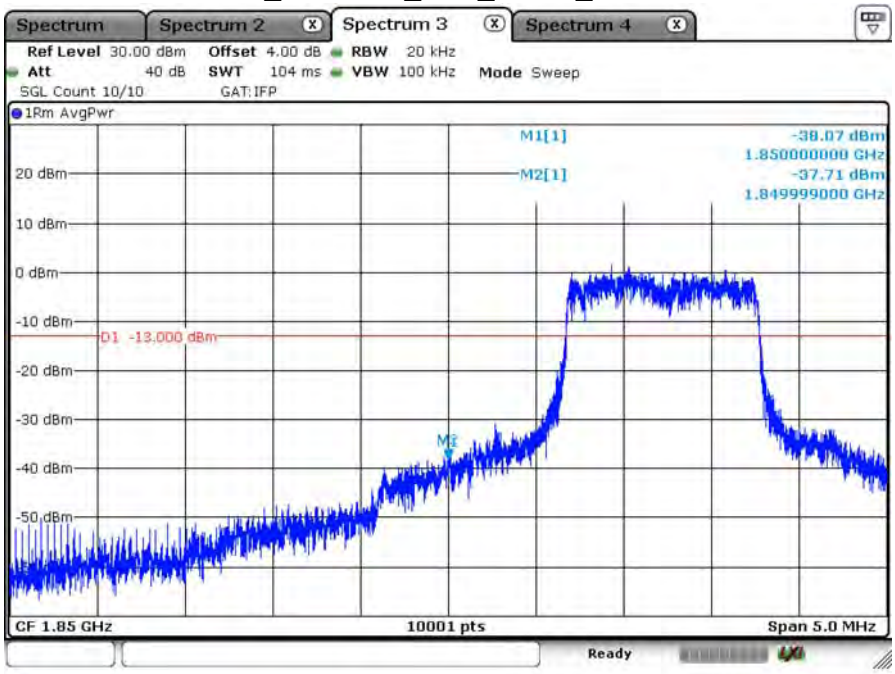

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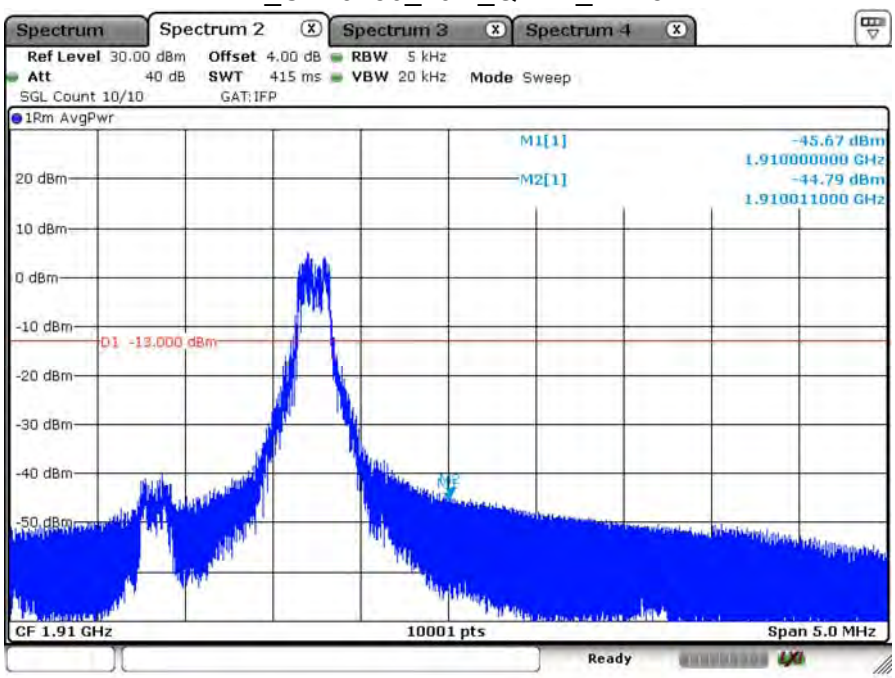

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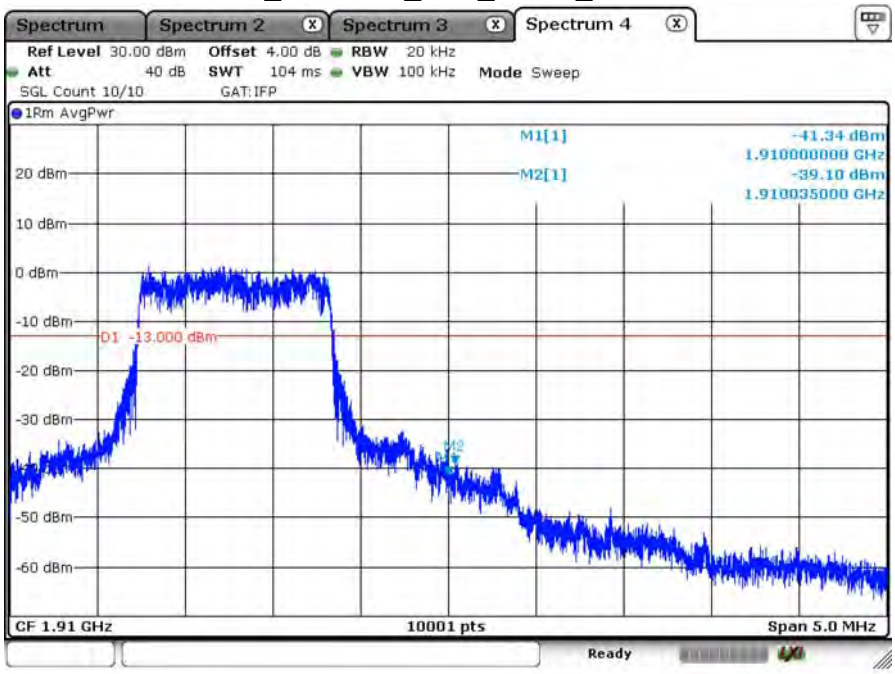

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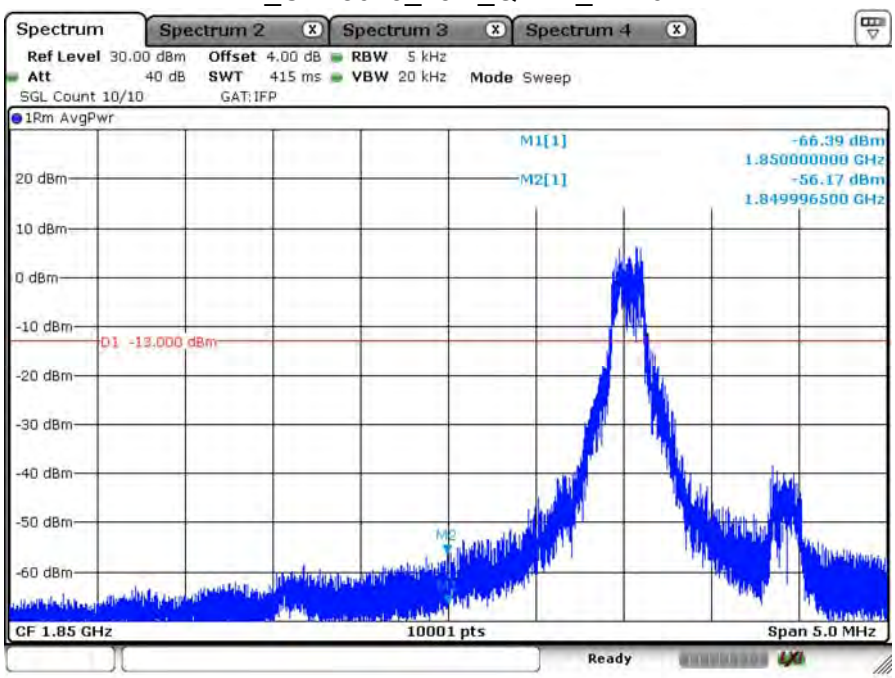
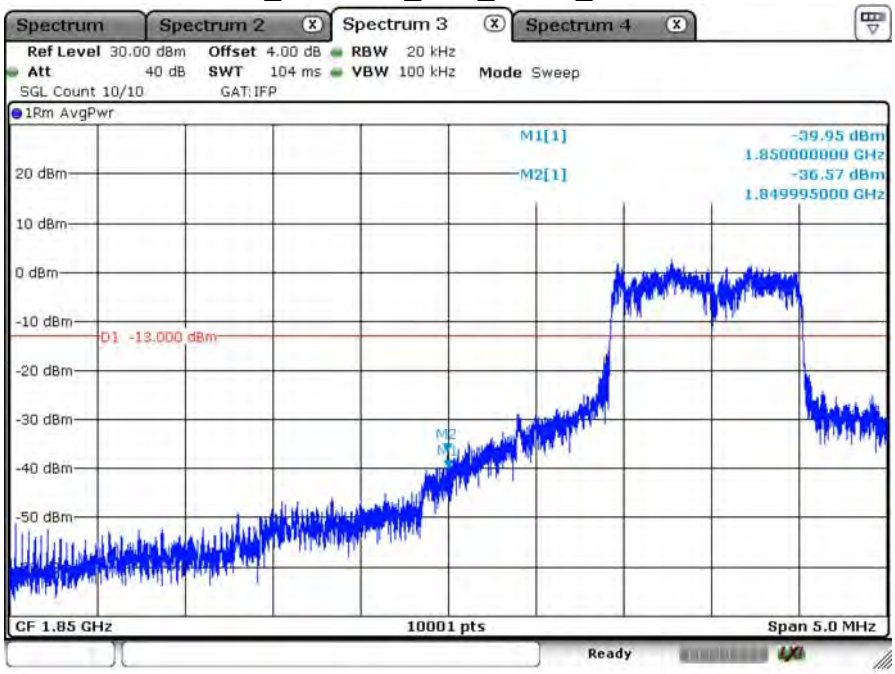
B2_CH18675_15M_QPSK_1RB0



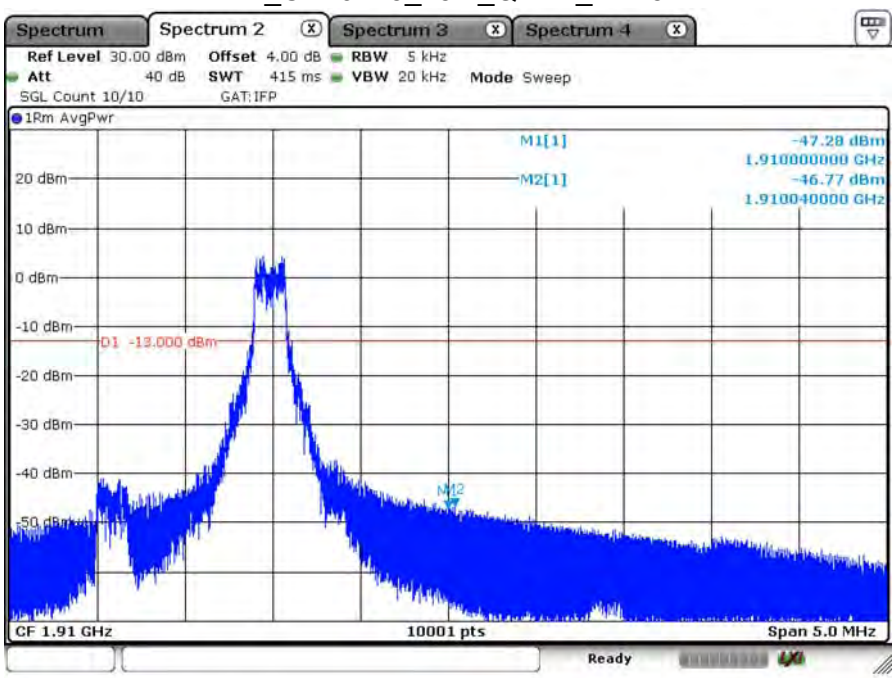
Date: 1.OCT.2020 10:09:23

B2_CH18675_15M_QPSK_6RB0



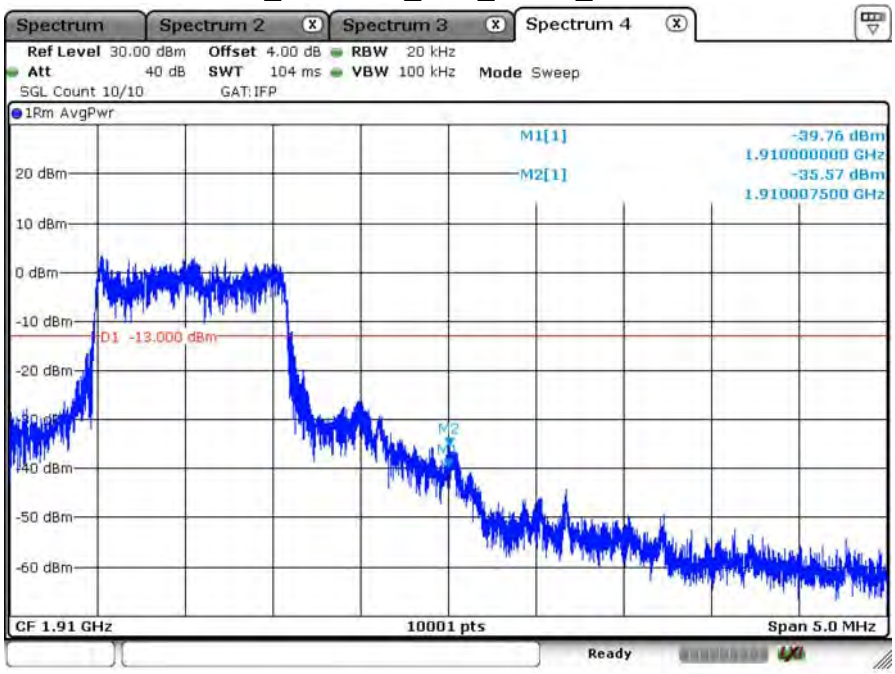
Date: 1.OCT.2020 10:10:50

B2_CH19125_15M_QPSK_1RB5



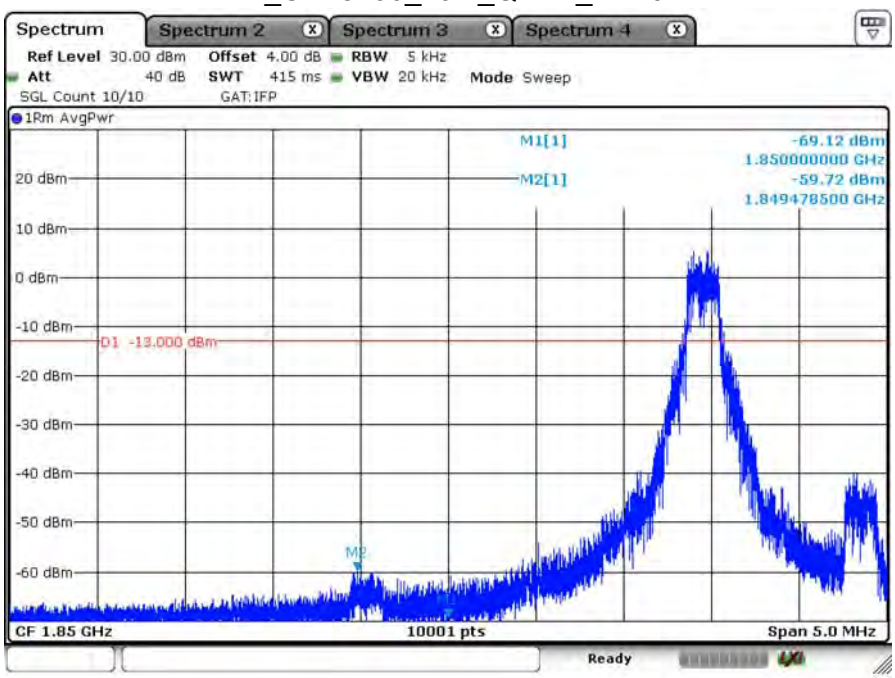
Date: 1.OCT.2020 10:05:36

B2_CH19125_15M_QPSK_6RB0



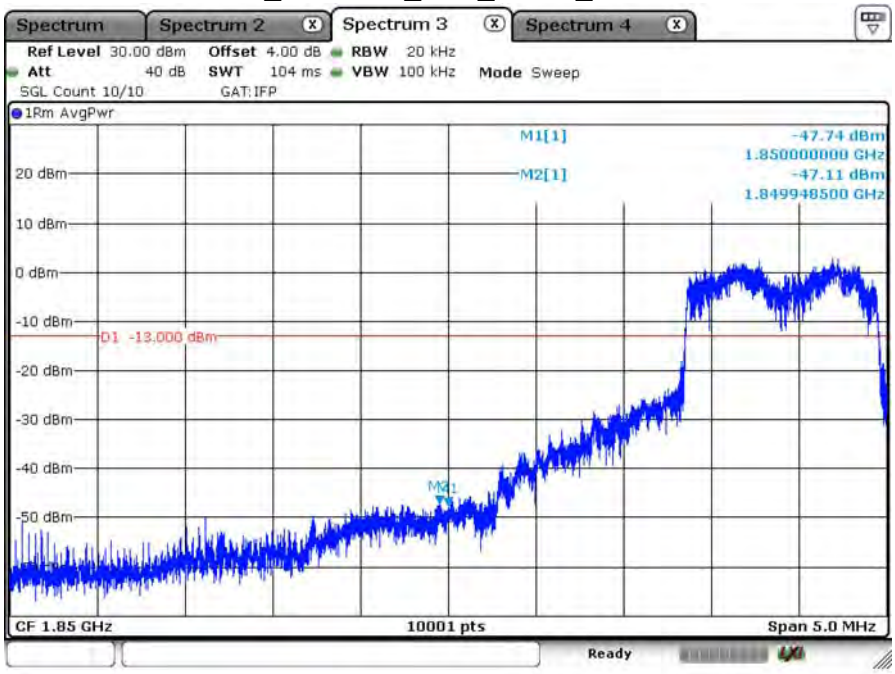
Date: 1.OCT.2020 10:02:43

B2_CH18700_20M_QPSK_1RB0



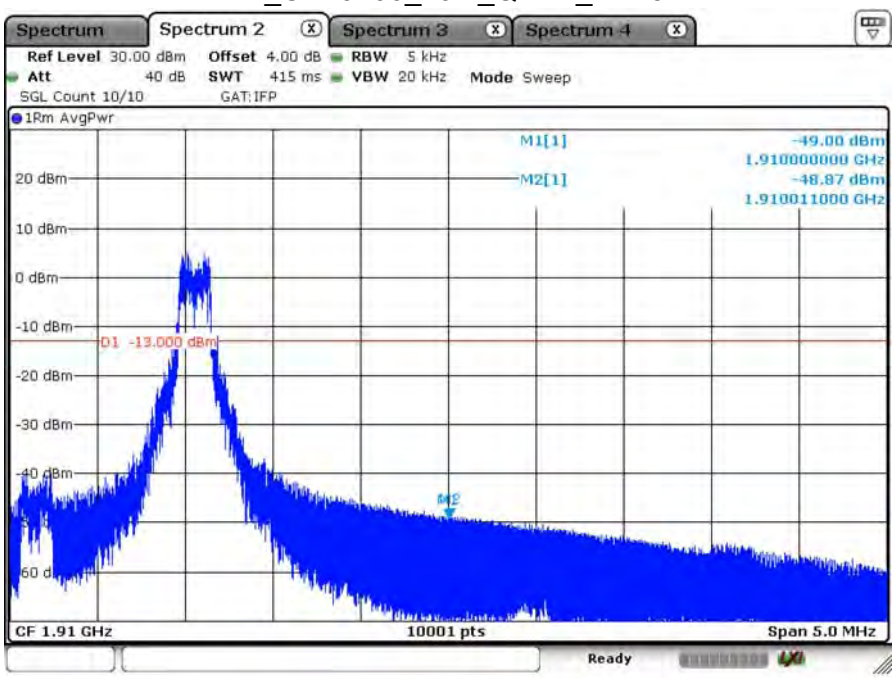
Date: 1.OCT.2020 09:59:40

B2_CH18700_20M_QPSK_6RB0



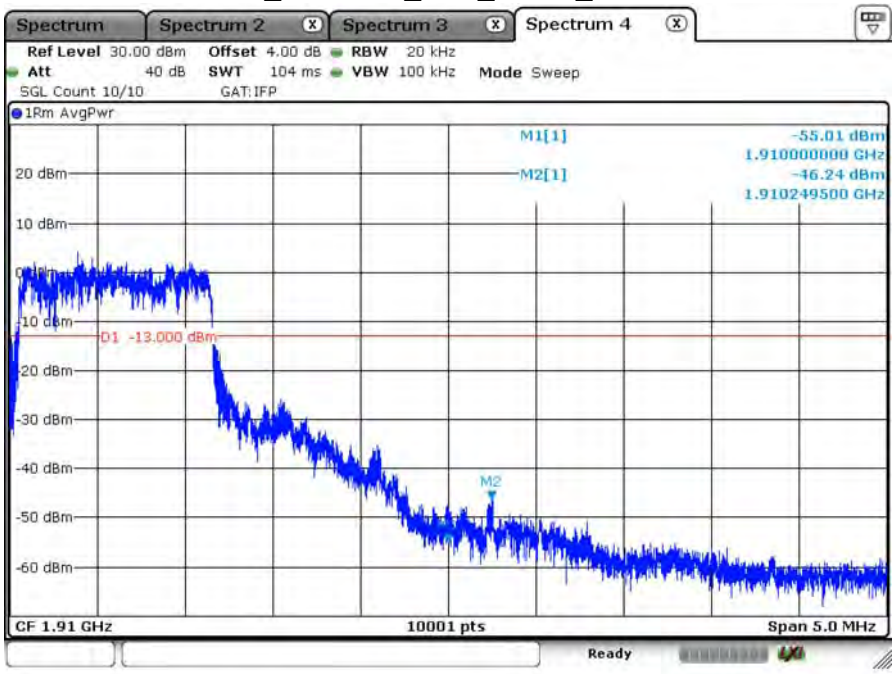
Date: 1.OCT.2020 10:01:16

B2_CH19100_20M_QPSK_1RB5



Date: 1.OCT.2020 09:55:59

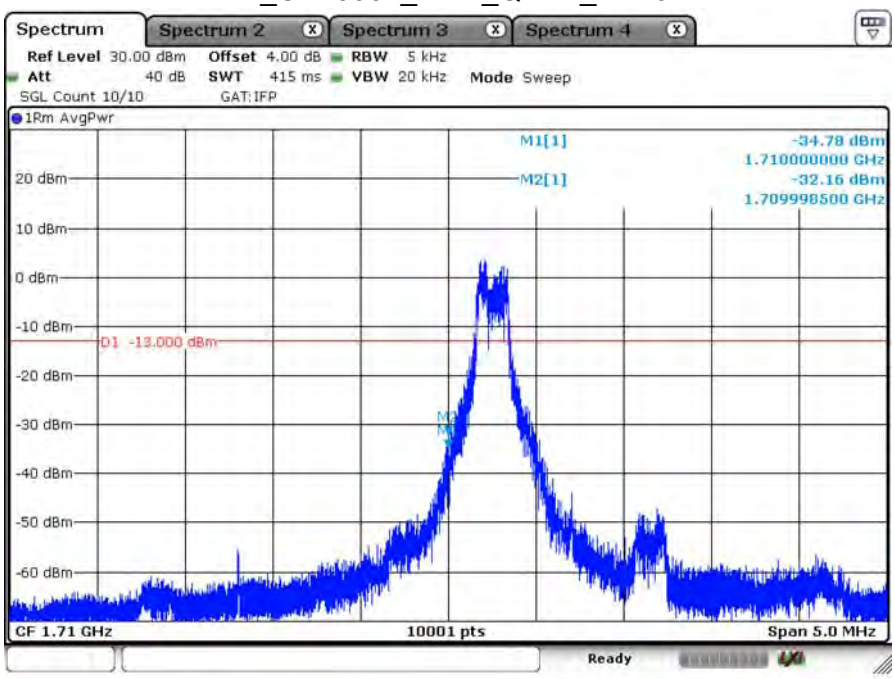
B2_CH19100_20M_QPSK_6RB0



Date: 1.OCT.2020 09:49:37

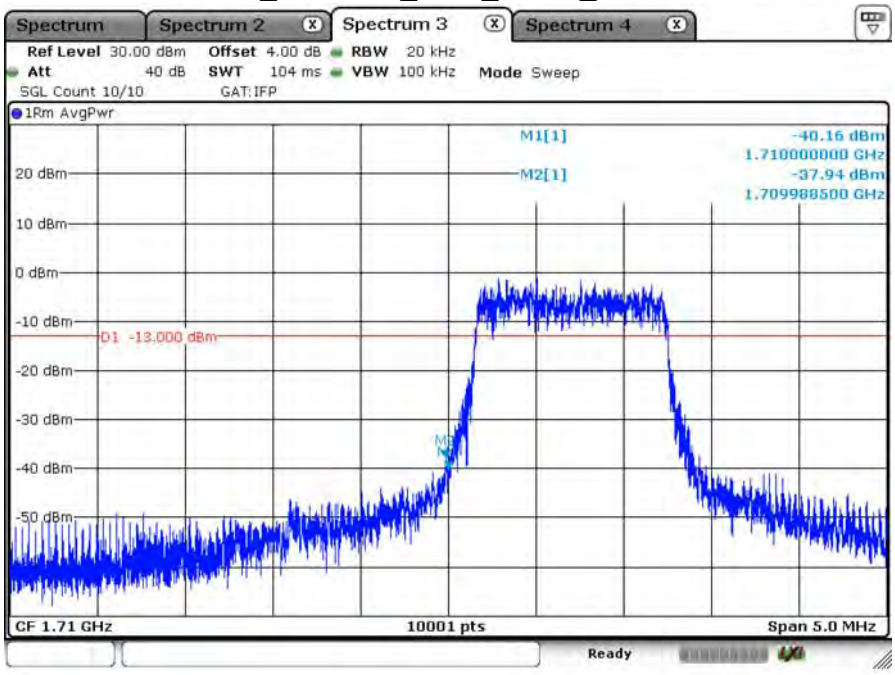
Product	LGA module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 2: LTE Band 4		
Date of Test	2020/10/01	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	61

B4_CH19957_1.4M_QPSK_1RB0



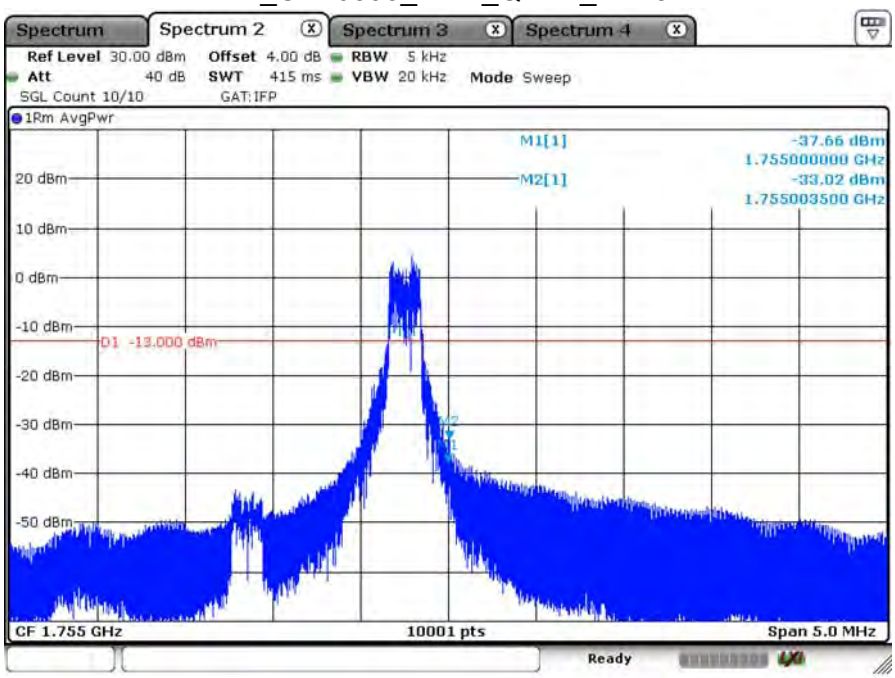
Date: 1.OCT.2020 11:06:22

B4_CH19957_1.4M_QPSK_6RB0



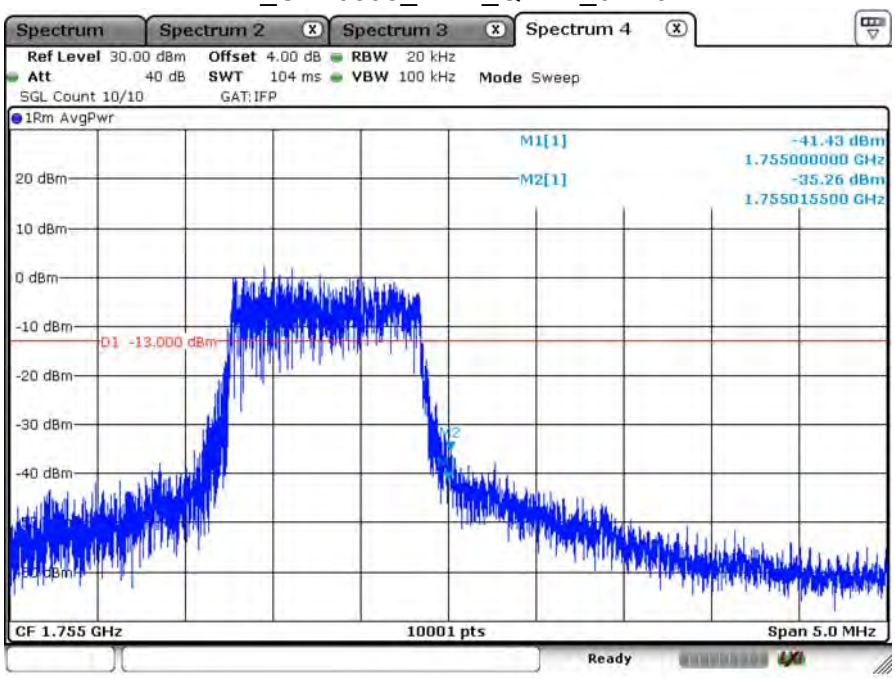
Date: 1.OCT.2020 11:02:10

B4_CH20393_1.4M_QPSK_1RB5



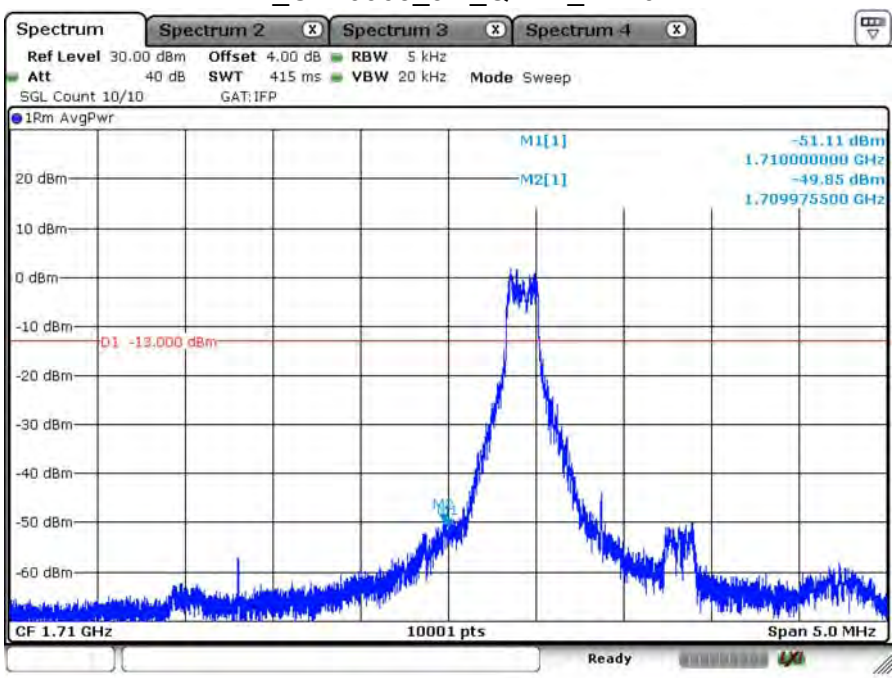
Date: 1.OCT.2020 11:09:06

B4_CH20393_1.4M_QPSK_6RB0



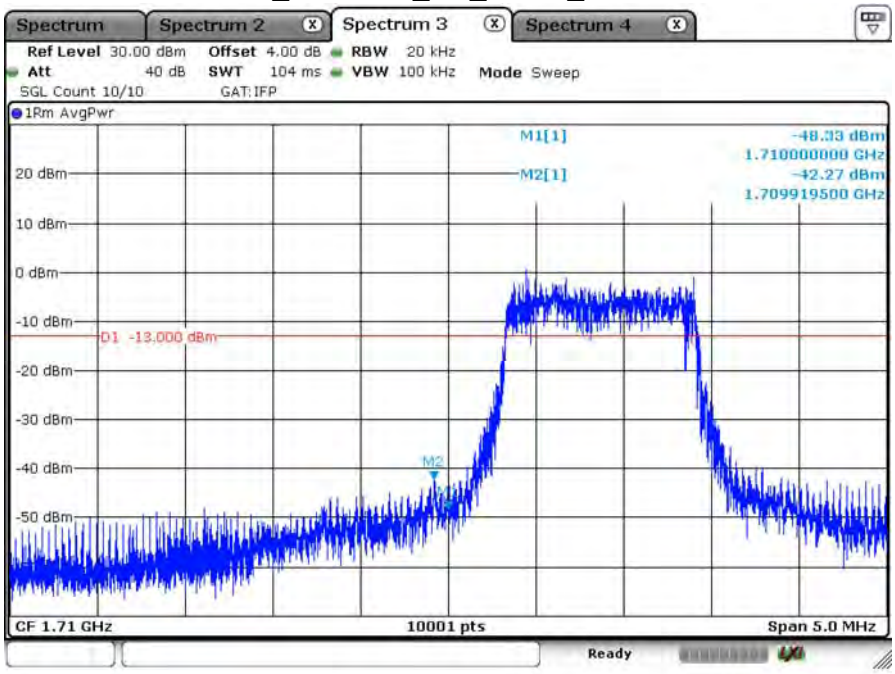
Date: 1.OCT.2020 11:09:46

B4_CH19965_3M_QPSK_1RB0



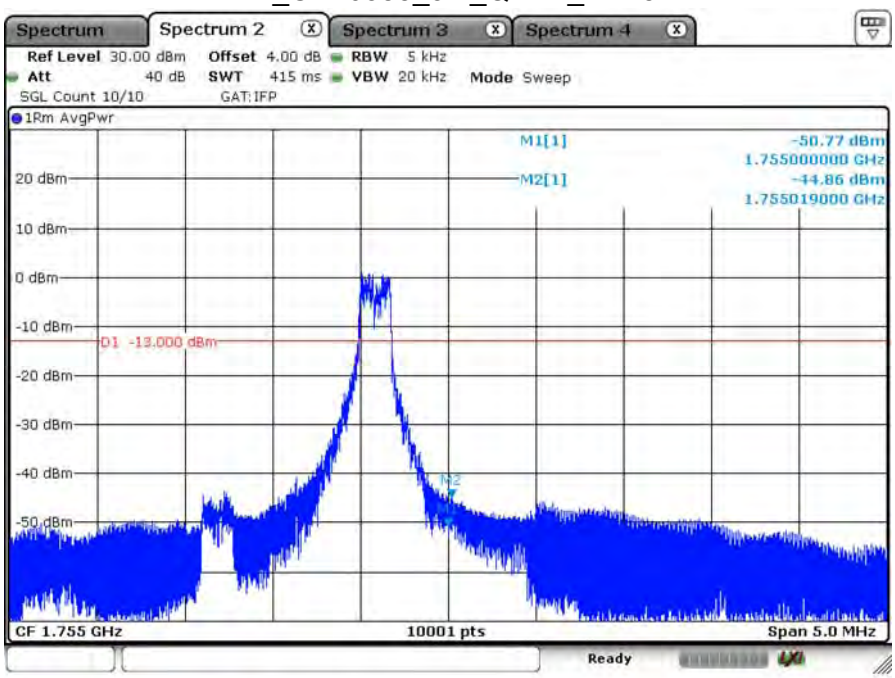
Date: 1.OCT.2020 11:17:45

B4_CH19965_3M_QPSK_6RB0



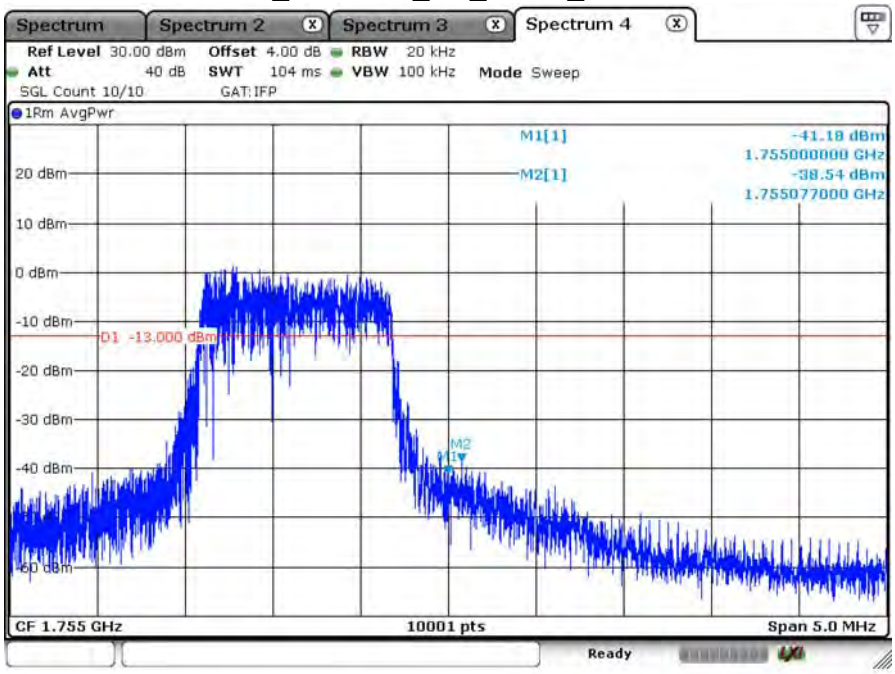
Date: 1.OCT.2020 11:18:41

B4_CH20385_3M_QPSK_1RB5



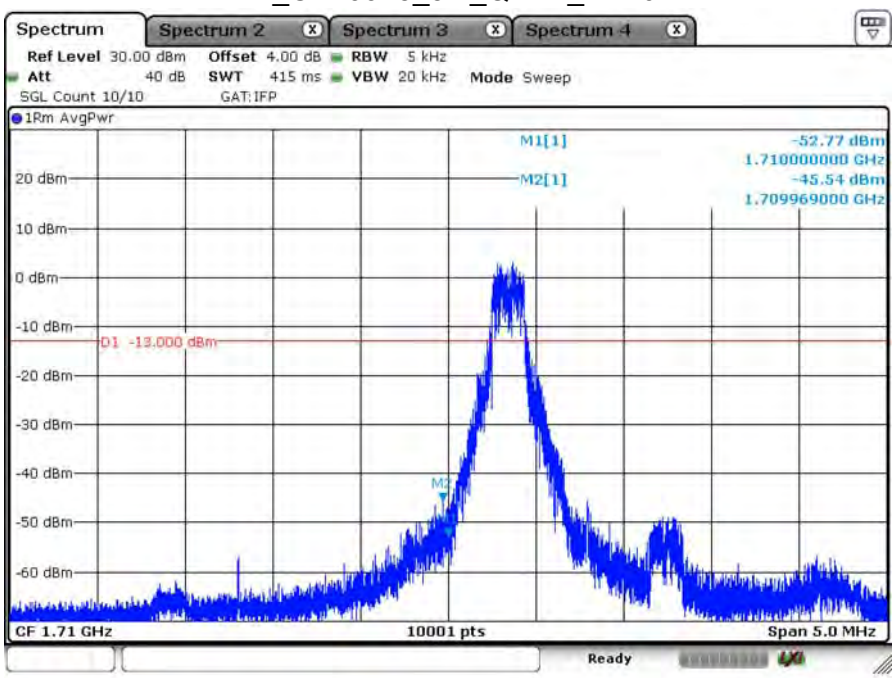
Date: 1.OCT.2020 11:13:25

B4_CH20385_3M_QPSK_6RB0



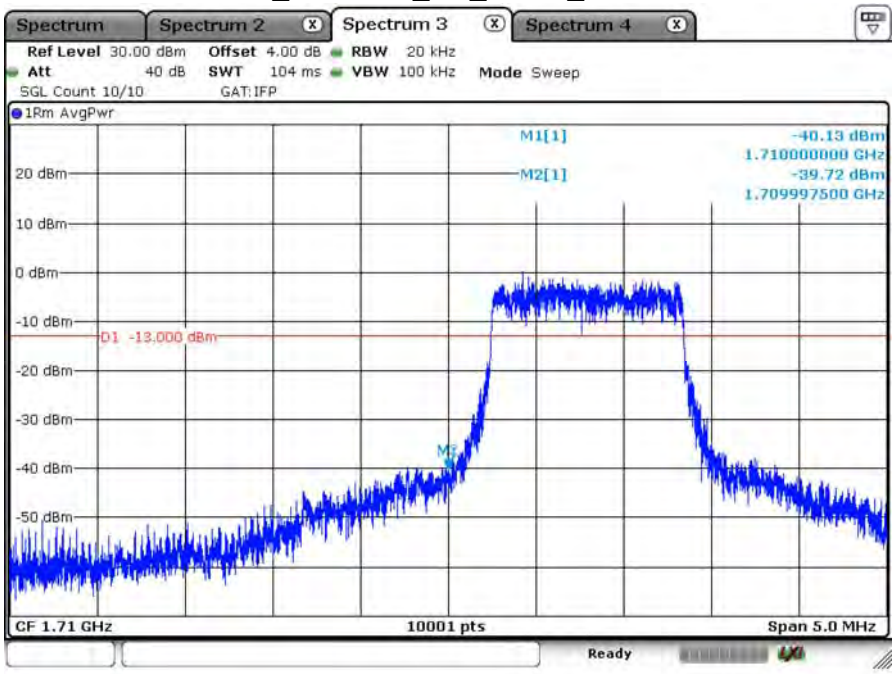
Date: 1.OCT.2020 11:10:32

B4_CH19975_5M_QPSK_1RB0



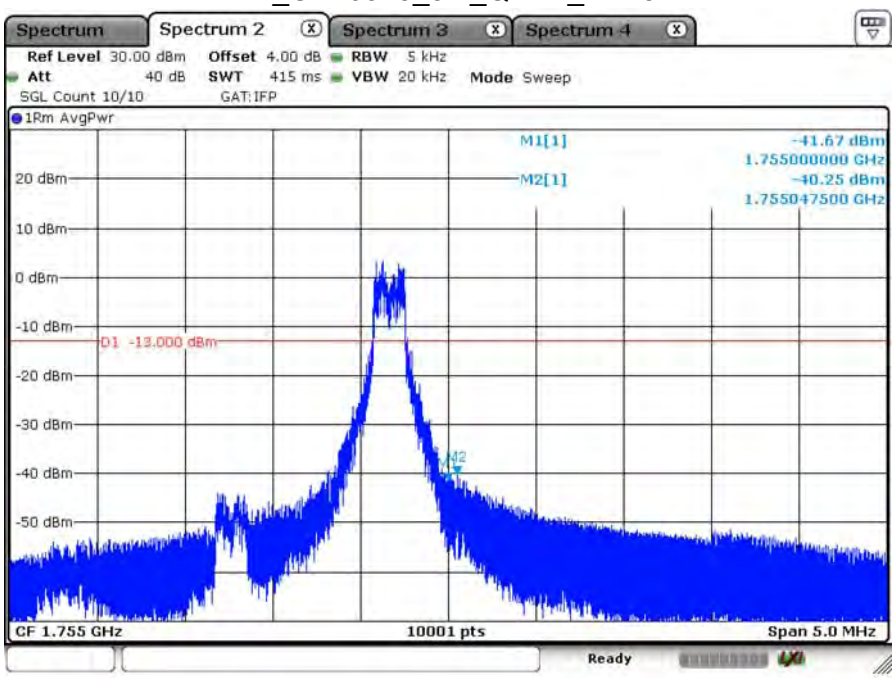
Date: 1.OCT.2020 11:23:38

B4_CH19975_5M_QPSK_6RB0



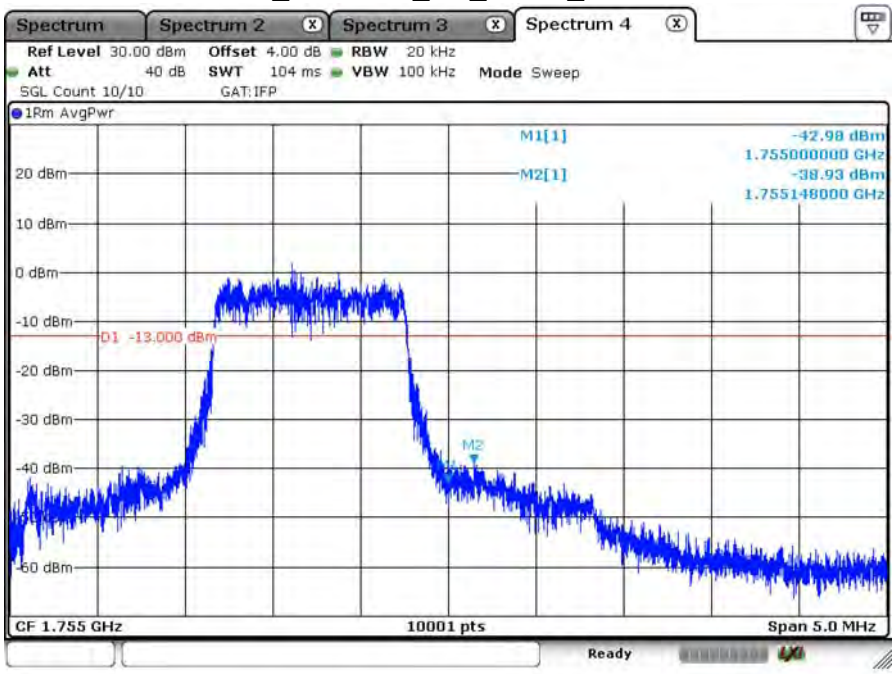
Date: 1.OCT.2020 11:19:53

B4_CH20375_5M_QPSK_1RB5



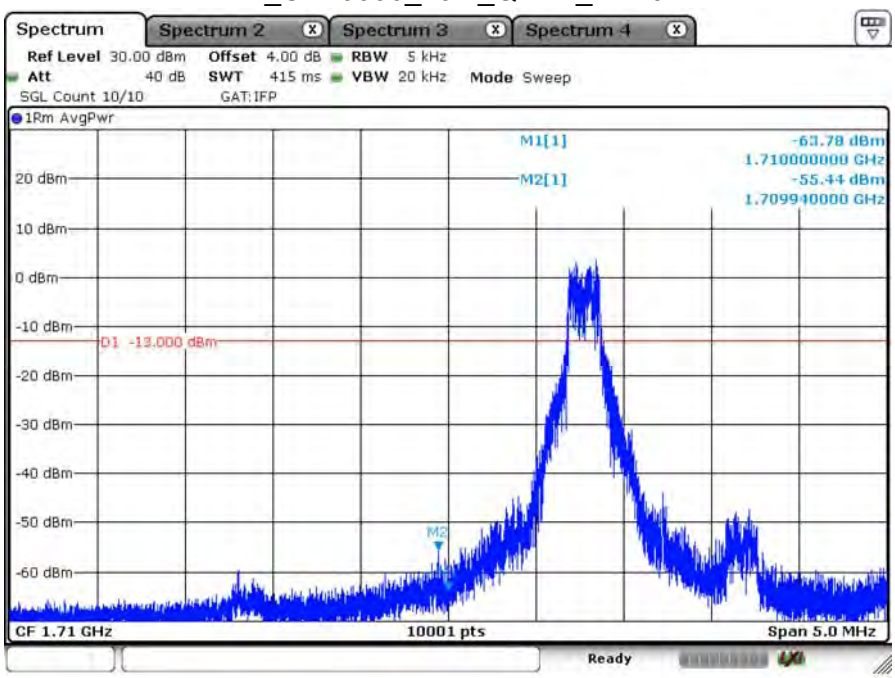
Date: 1.OCT.2020 11:26:29

B4_CH20375_5M_QPSK_6RB0



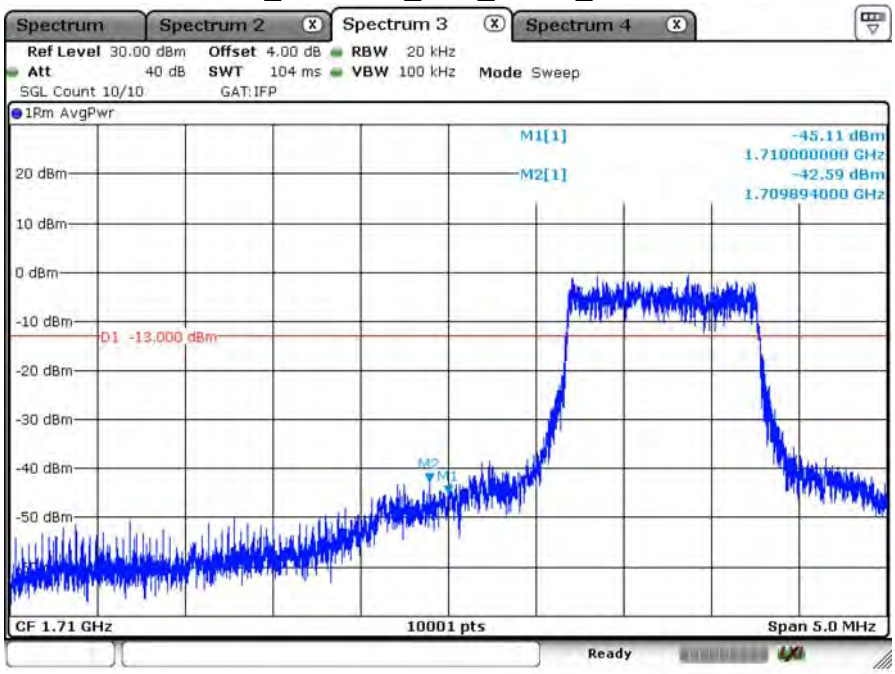
Date: 1.OCT.2020 11:27:34

B4_CH20000_10M_QPSK_1RB0



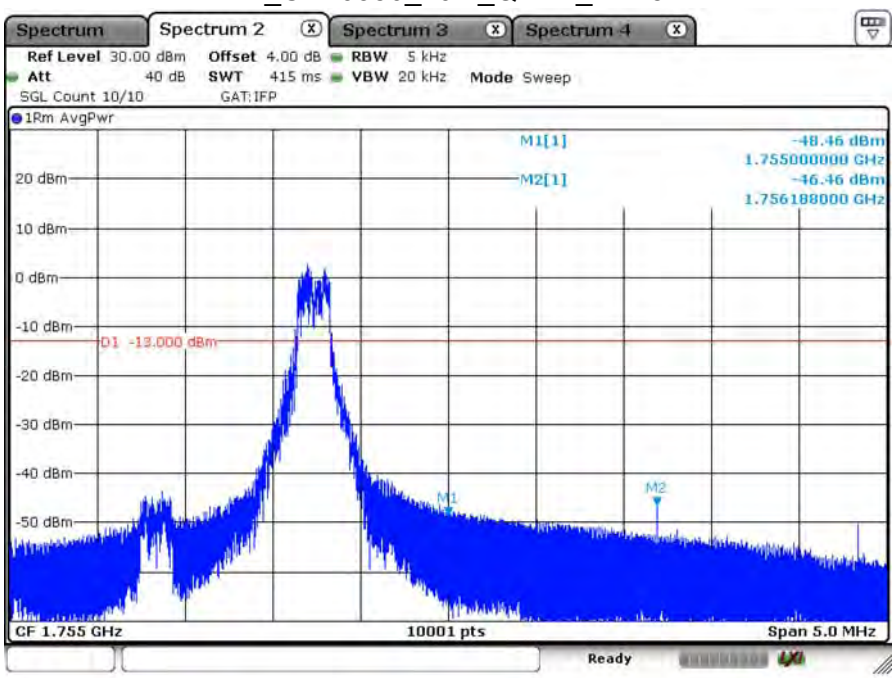
Date: 1.OCT.2020 11:36:32

B4_CH20000_10M_QPSK_6RB0



Date: 1.OCT.2020 11:36:59

B4_CH20350_10M_QPSK_1RB5



Date: 1.OCT.2020 11:32:58

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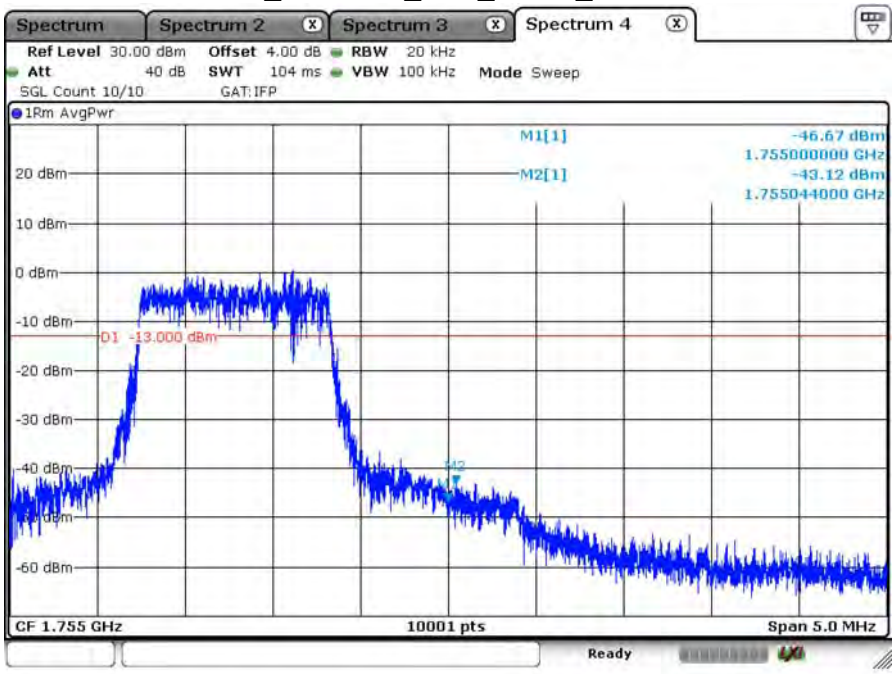
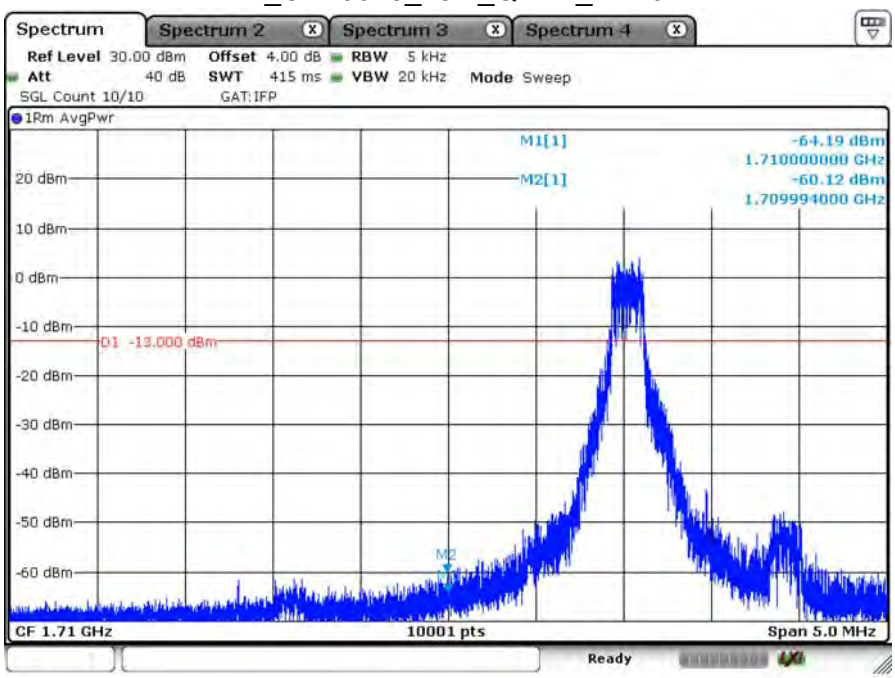


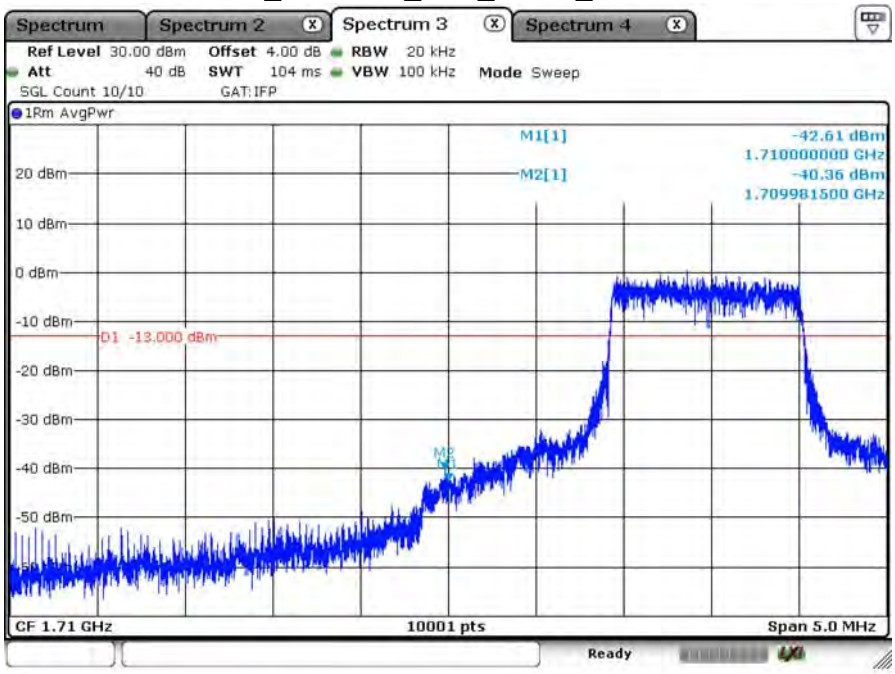
Date: 1.OCT.2020 11:28:50

B4_CH20025_15M_QPSK_1RB0



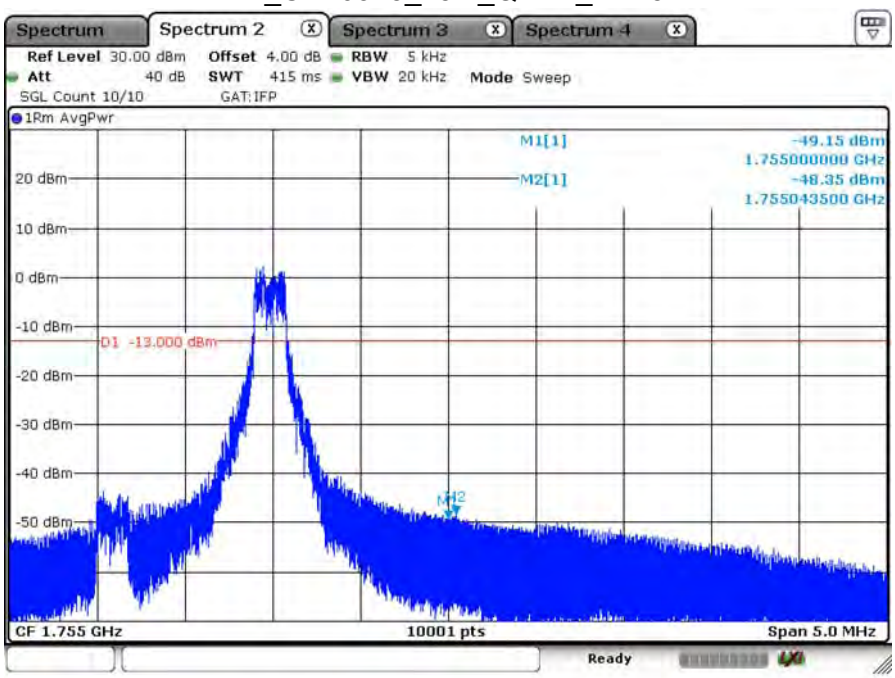
Date: 1.OCT.2020 11:41:05

B4_CH20025_15M_QPSK_6RB0



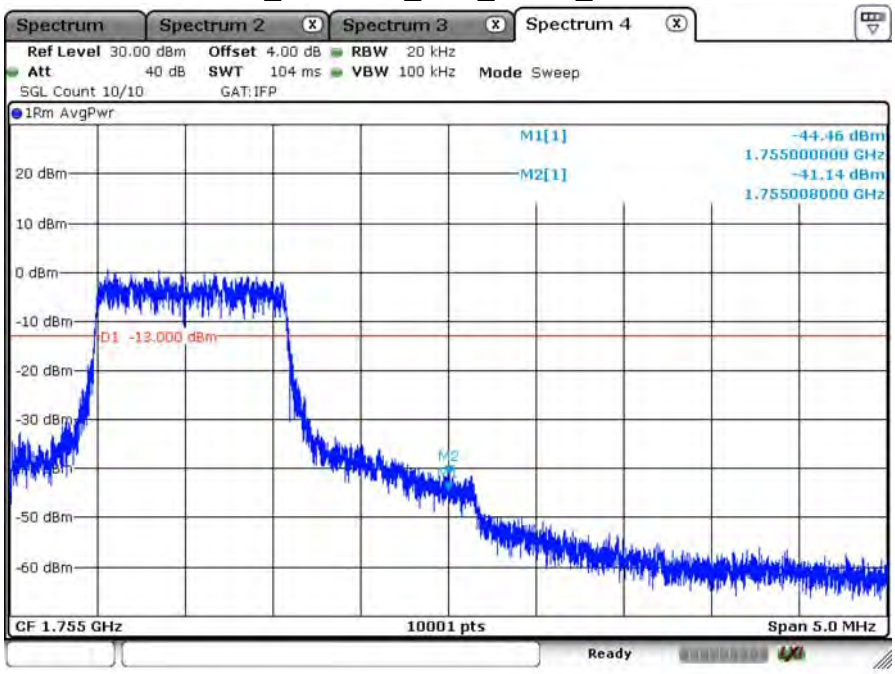
Date: 1.OCT.2020 11:37:39

B4_CH20325_15M_QPSK_1RB5



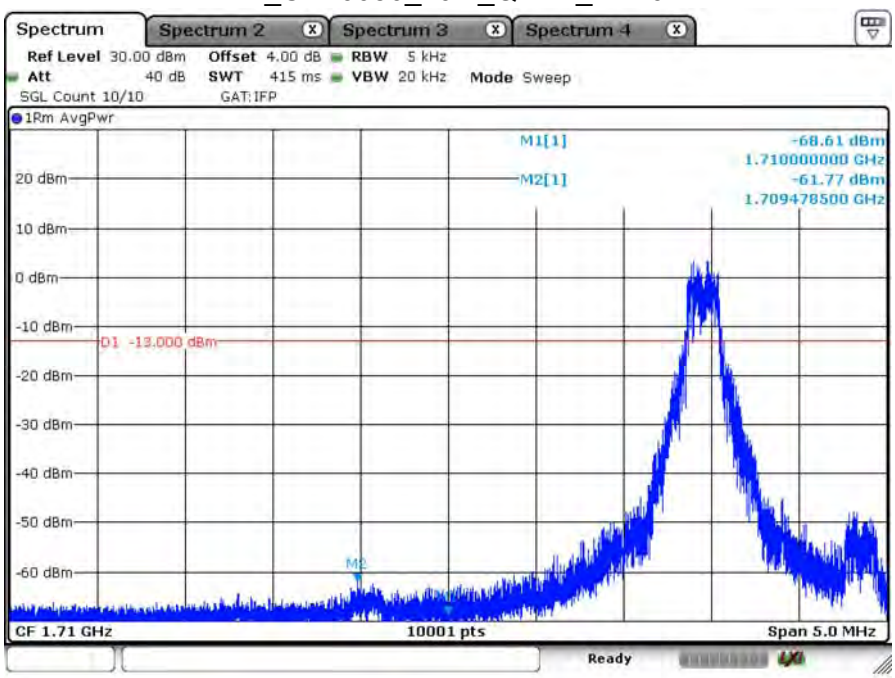
Date: 1.OCT.2020 11:45:15

B4_CH20325_15M_QPSK_6RB0



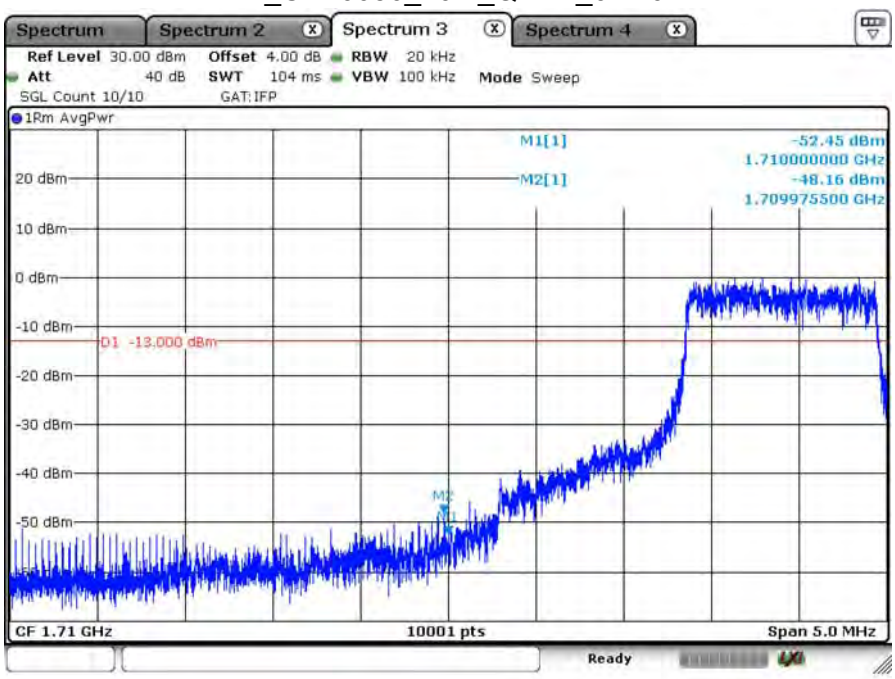
Date: 1.OCT.2020 11:45:42

B4_CH20050_20M_QPSK_1RB0



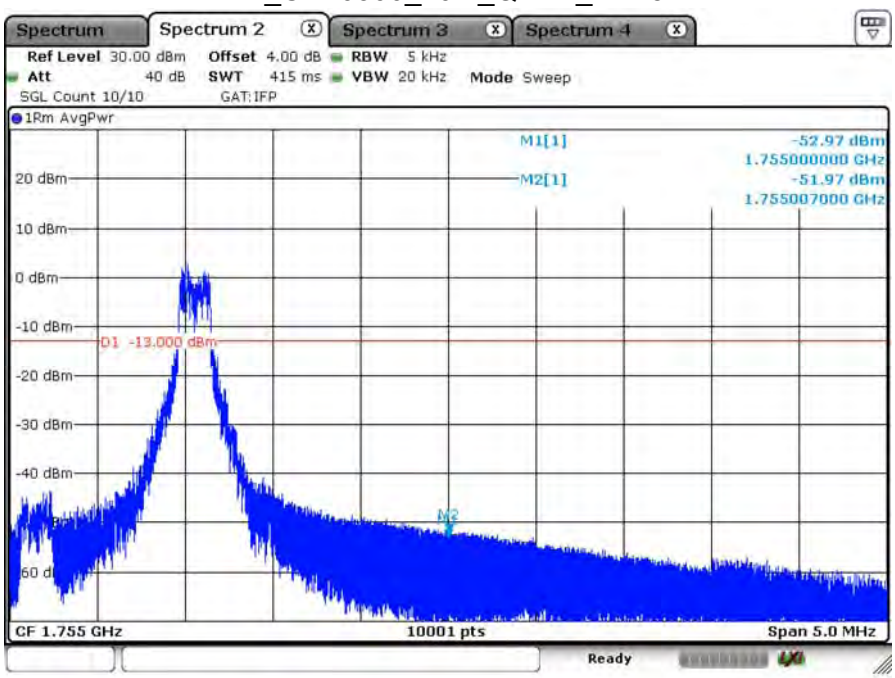
Date: 1.OCT.2020 11:53:04

B4_CH20050_20M_QPSK_6RB0



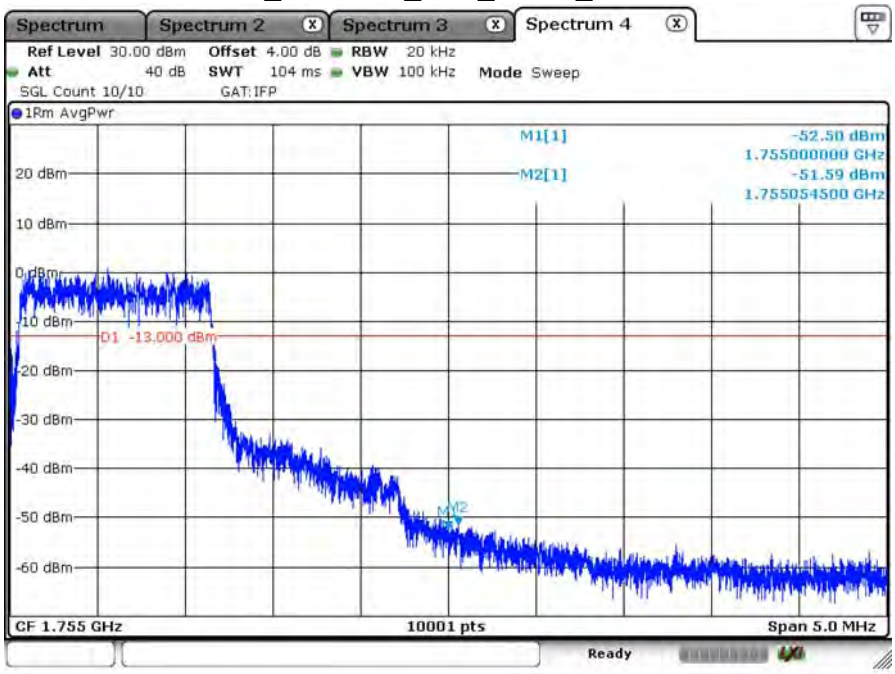
Date: 1.OCT.2020 11:53:35

B4_CH20300_20M_QPSK_1RB5



Date: 1.OCT.2020 11:49:30

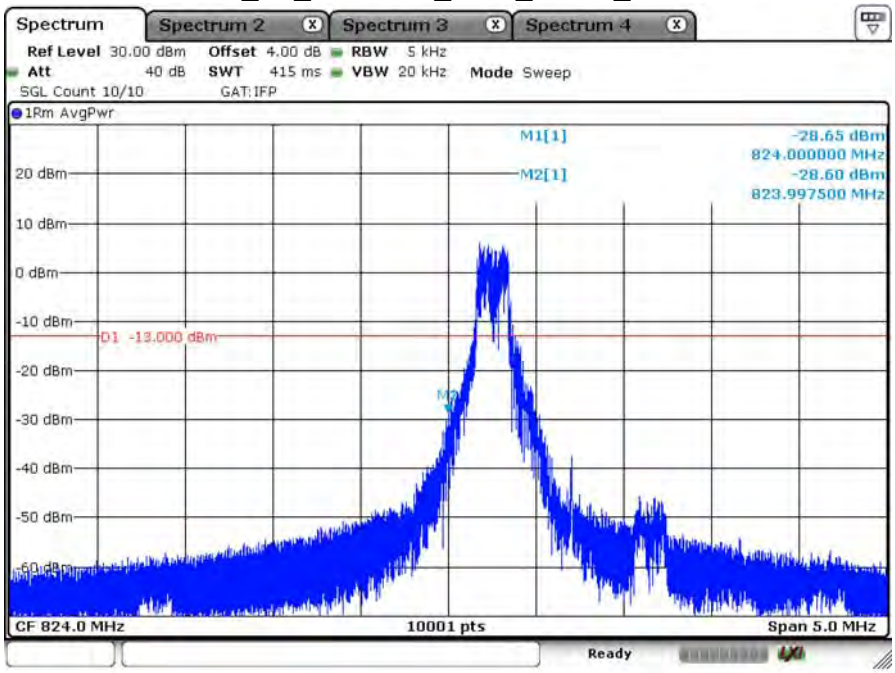
B4_CH20300_20M_QPSK_6RB0



Date: 1.OCT.2020 11:47:02

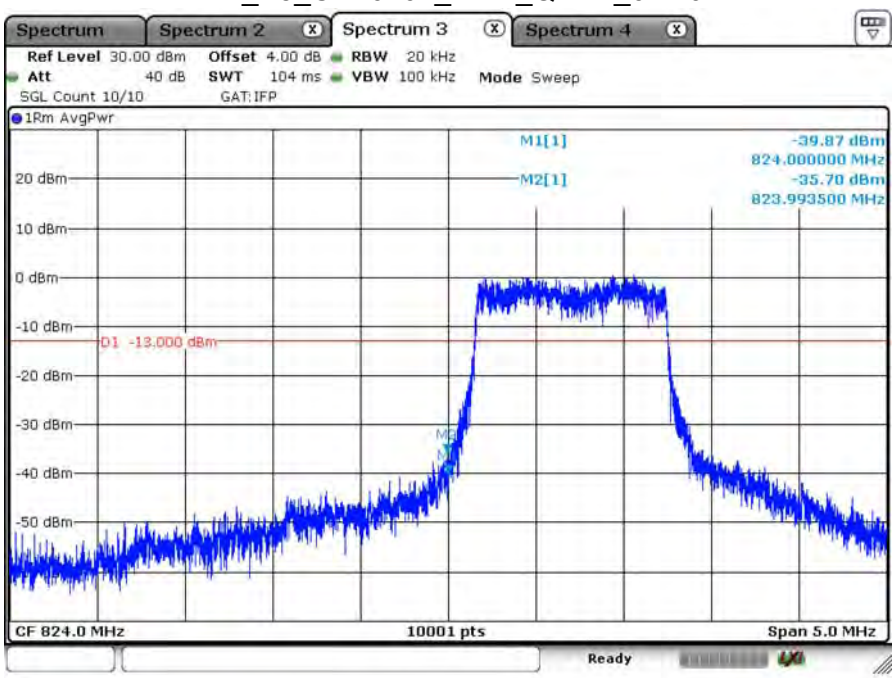
Product	LGA module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 3: LTE Band 5		
Date of Test	2020/10/01	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	61

LTE_B5_CH20407_1.4M_QPSK_1RB0



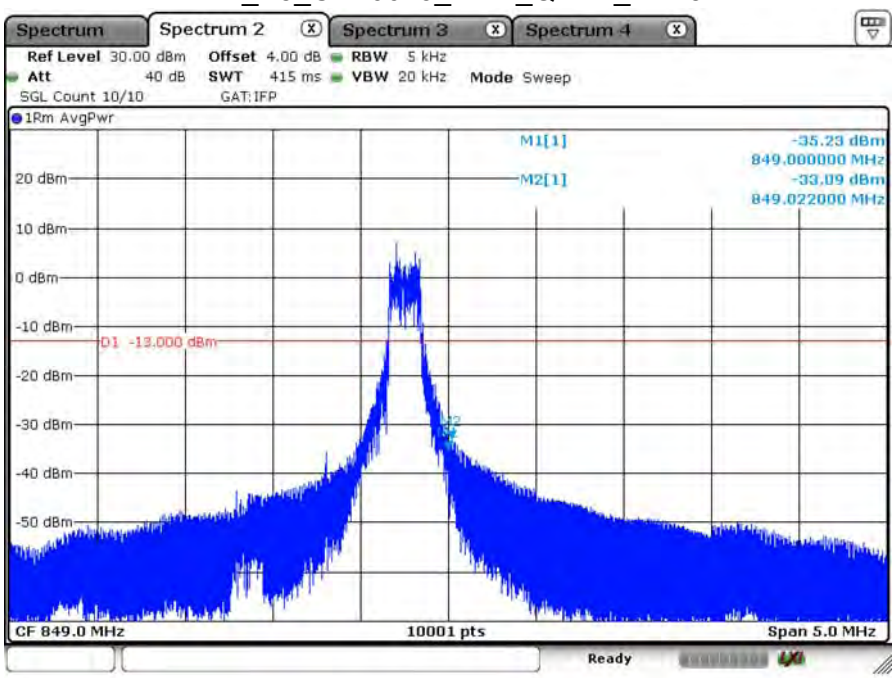
Date: 1.OCT.2020 11:58:55

LTE_B5_CH20407_1.4M_QPSK_6RB0



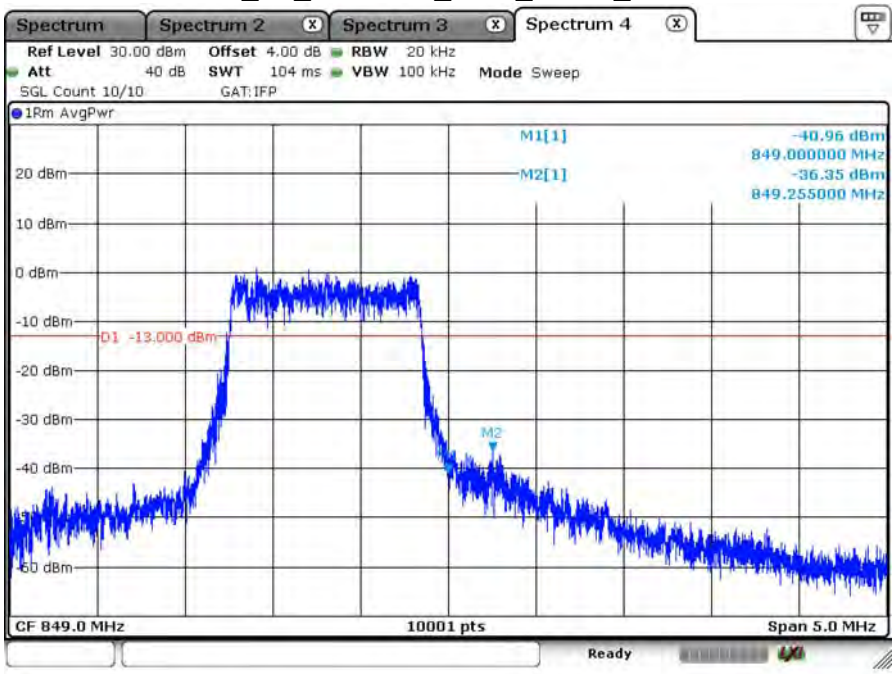
Date: 1.OCT.2020 11:55:27

LTE_B5_CH20643_1.4M_QPSK_1RB5



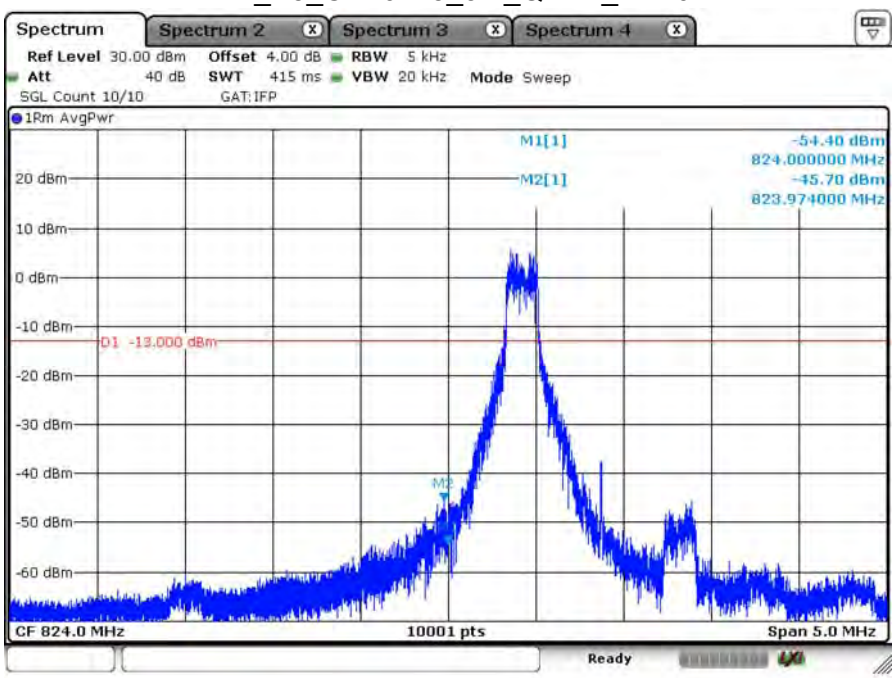
Date: 1.OCT.2020 12:01:45

LTE_B5_CH20643_1.4M_QPSK_6RB0



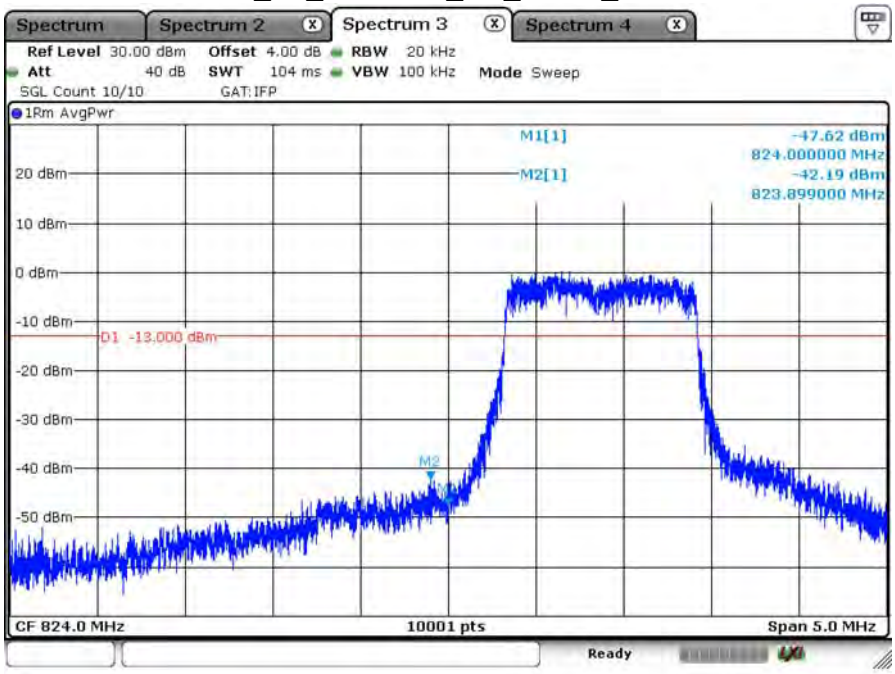
Date: 1.OCT.2020 12:02:08

LTE_B5_CH20415_3M_QPSK_1RB0



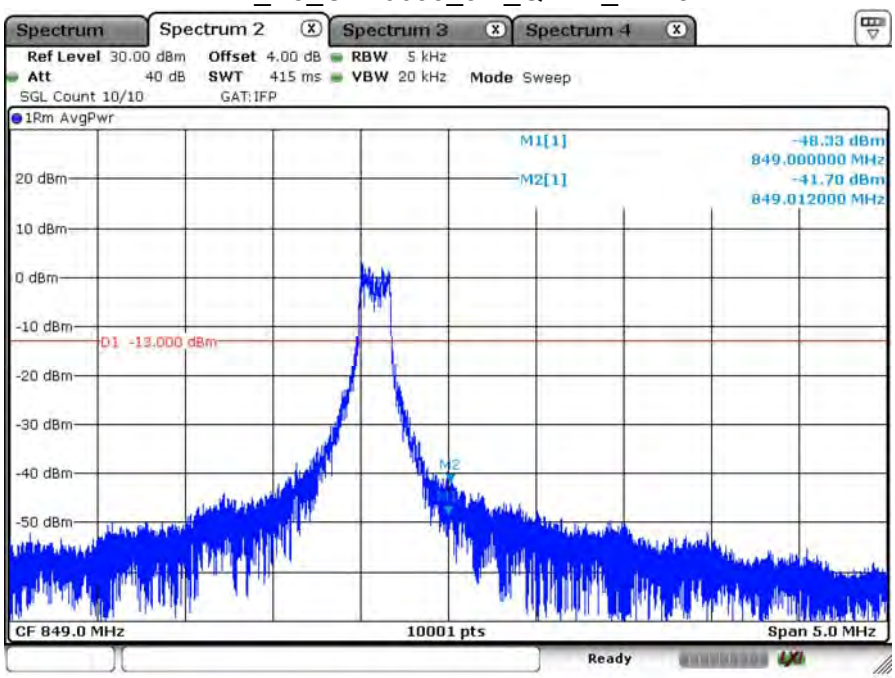
Date: 1.OCT.2020 12:09:51

LTE_B5_CH20415_3M_QPSK_6RB0



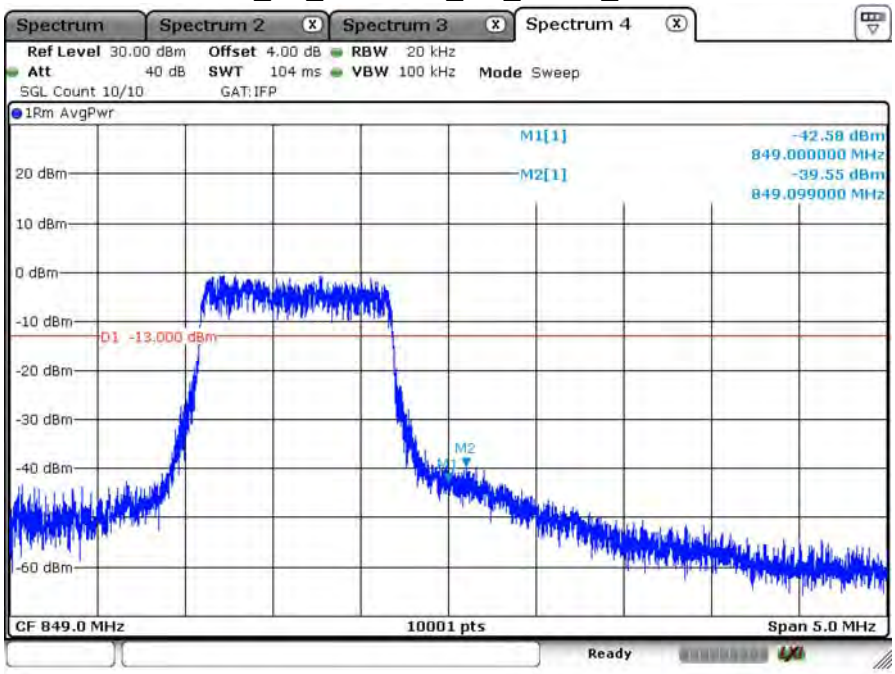
Date: 1.OCT.2020 12:10:21

LTE_B5_CH20635_3M_QPSK_1RB5



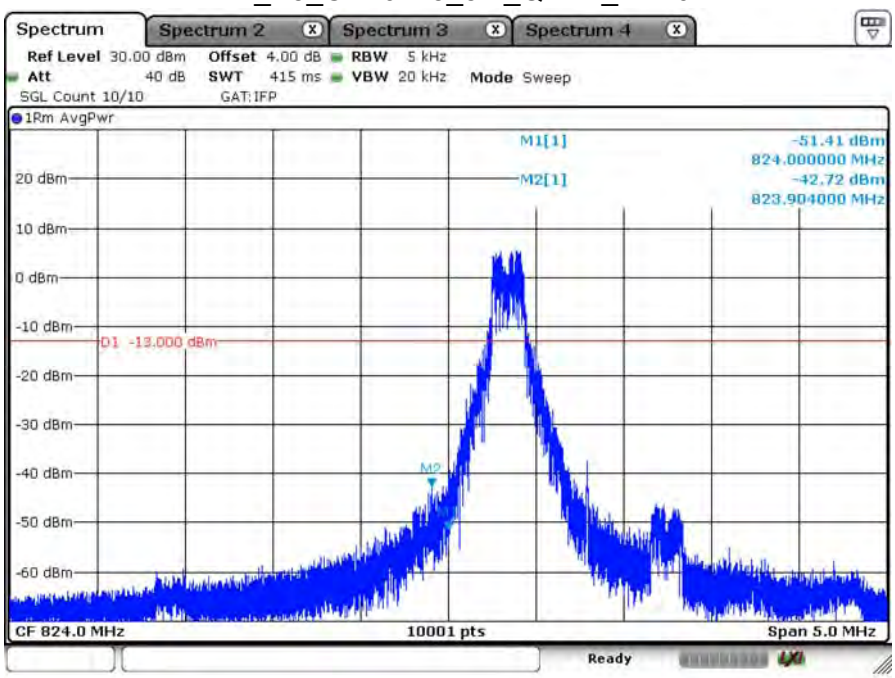
Date: 1.OCT.2020 12:05:36

LTE_B5_CH20635_3M_QPSK_6RB0



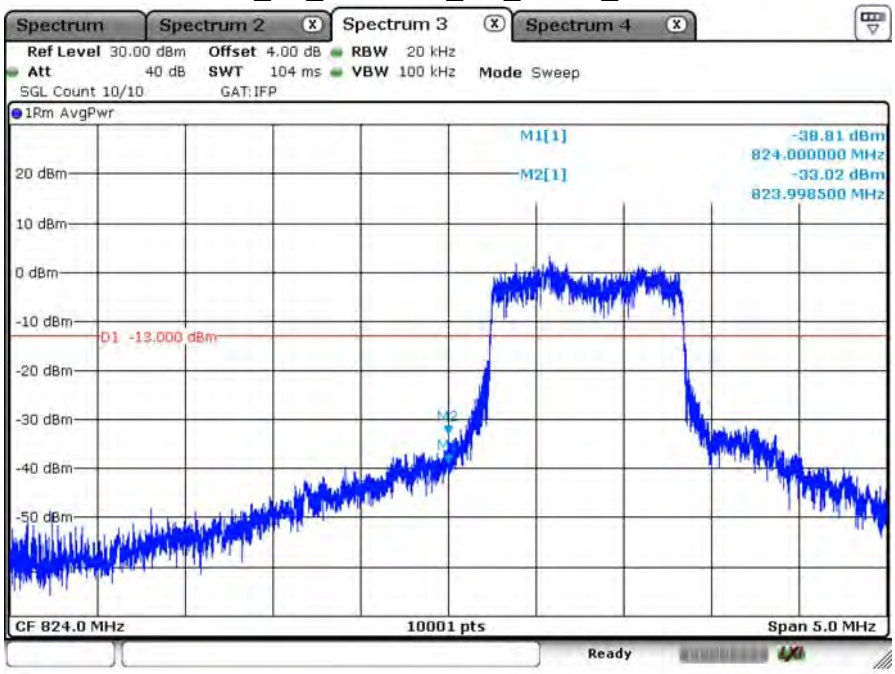
Date: 1.OCT.2020 12:02:46

LTE_B5_CH20425_5M_QPSK_1RB0



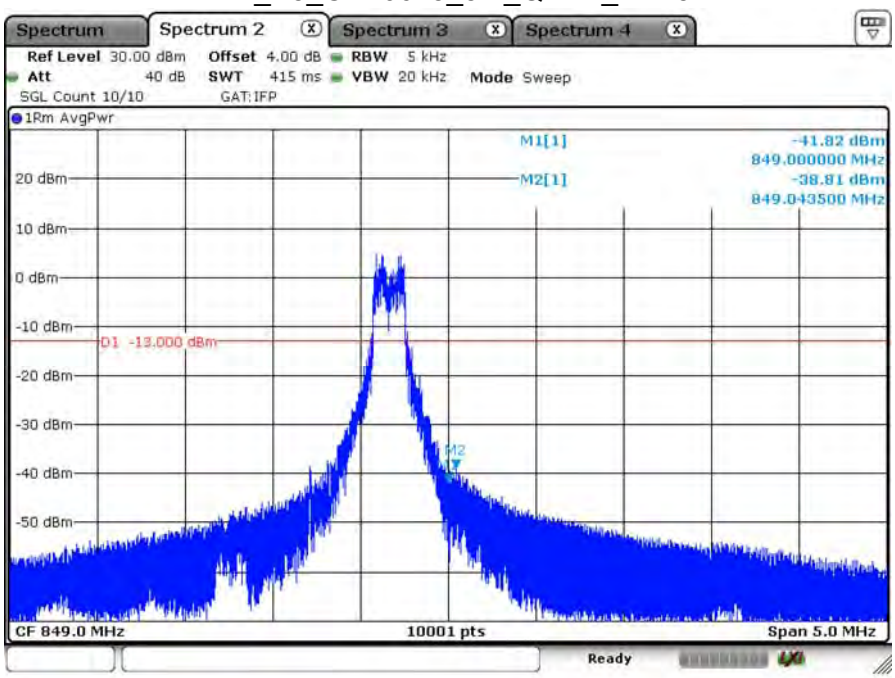
Date: 1.OCT.2020 12:14:42

LTE_B5_CH20425_5M_QPSK_6RB0



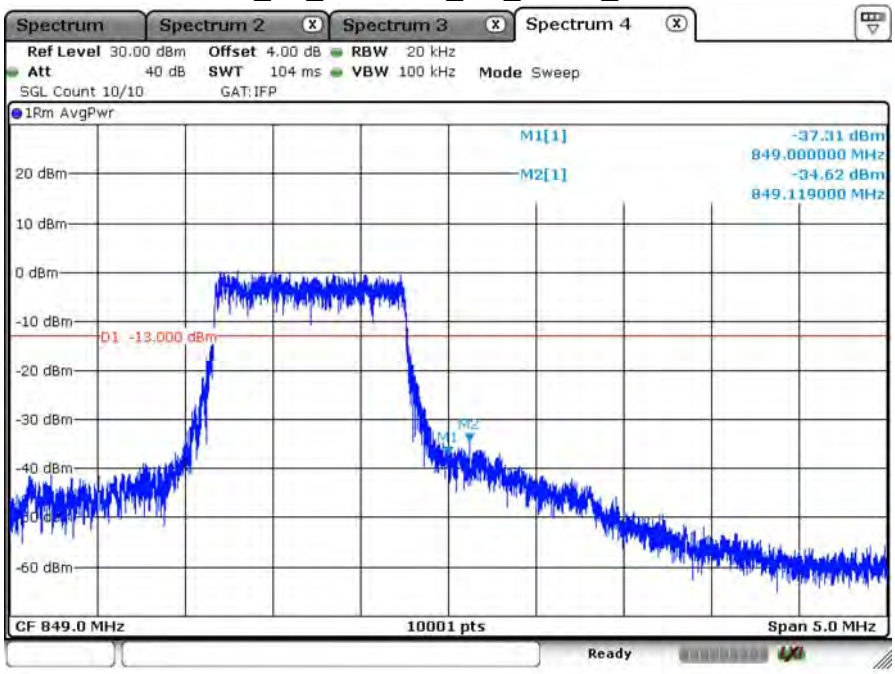
Date: 1.OCT.2020 12:11:11

LTE_B5_CH20625_5M_QPSK_1RB5



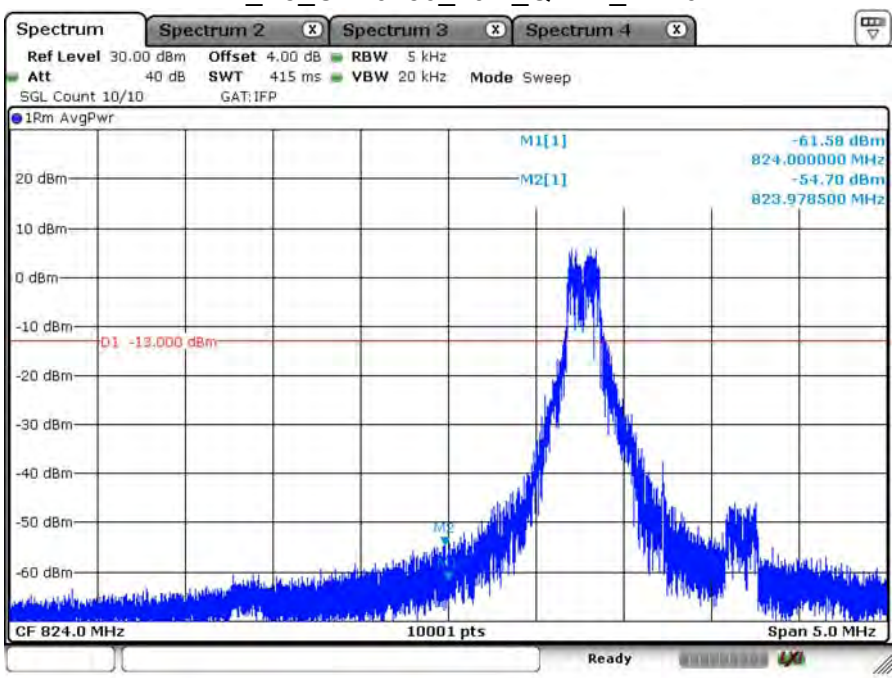
Date: 1.OCT.2020 12:17:26

LTE_B5_CH20625_5M_QPSK_6RB0



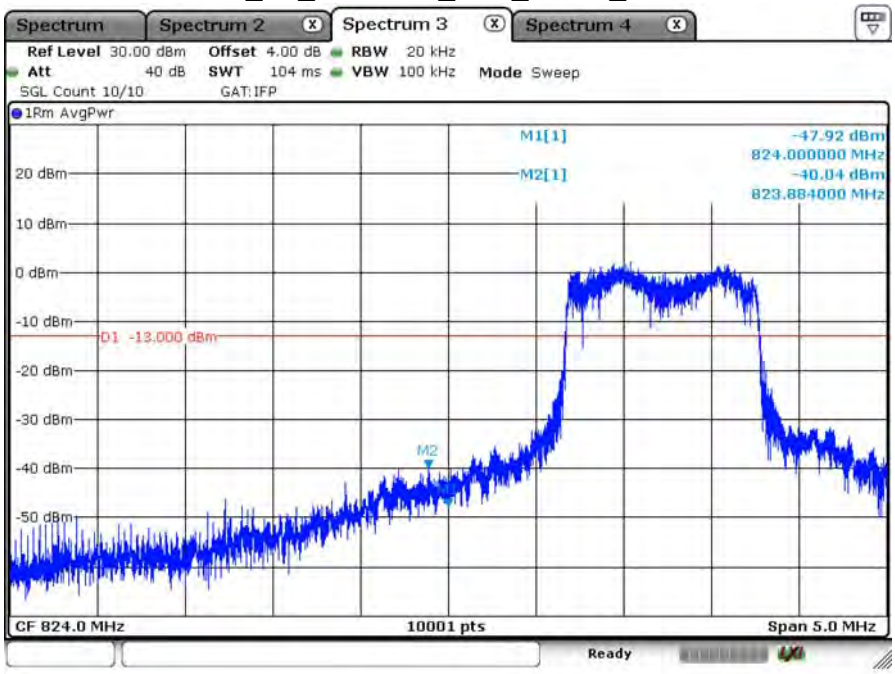
Date: 1.OCT.2020 12:17:52

LTE_B5_CH20450_10M_QPSK_1RB0



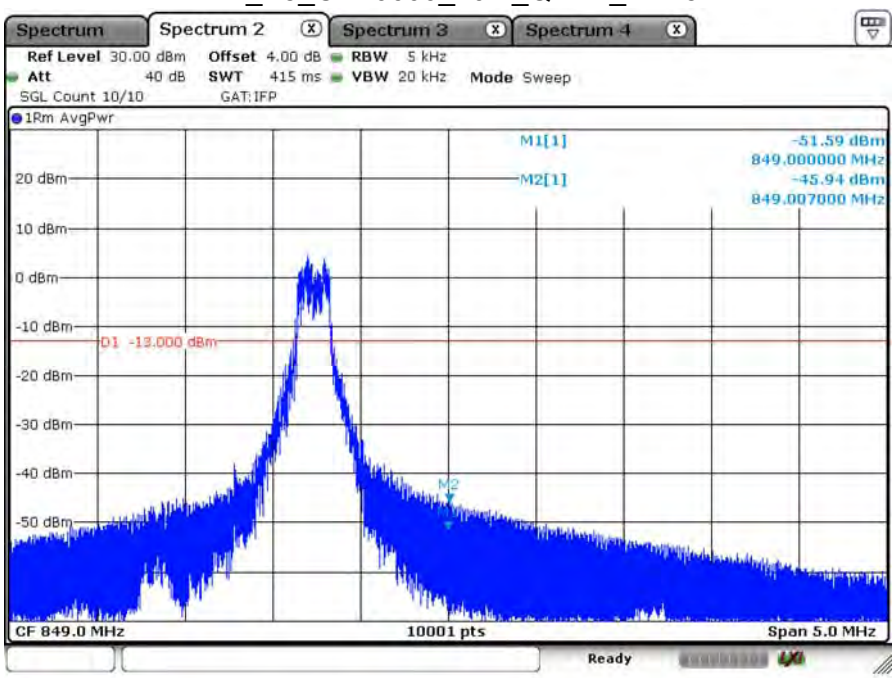
Date: 1.OCT.2020 12:24:56

LTE_B5_CH20450_10M_QPSK_6RB0



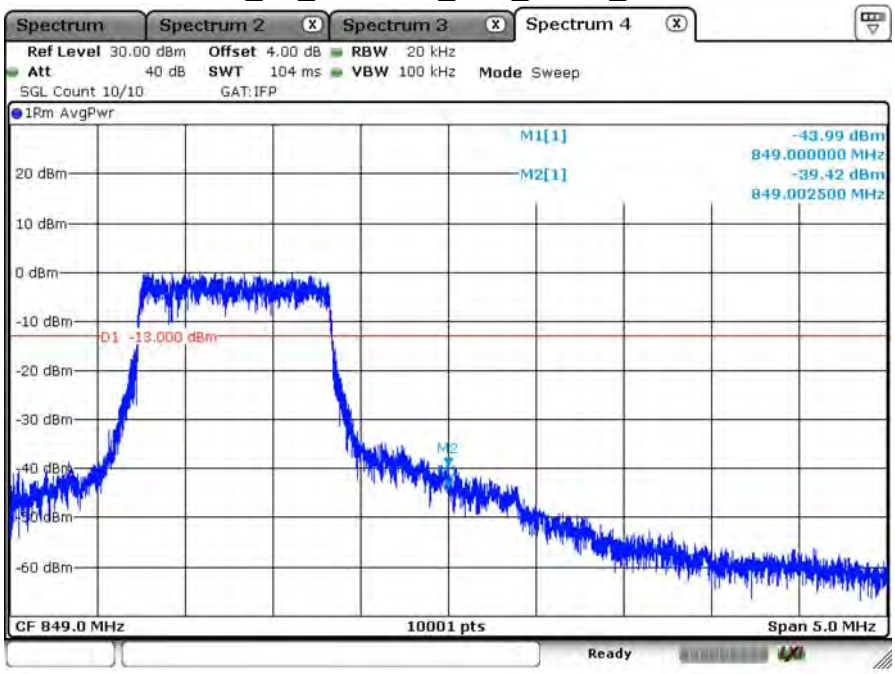
Date: 1.OCT.2020 12:26:09

LTE_B5_CH20600_10M_QPSK_1RB5



Date: 1.OCT.2020 12:21:16

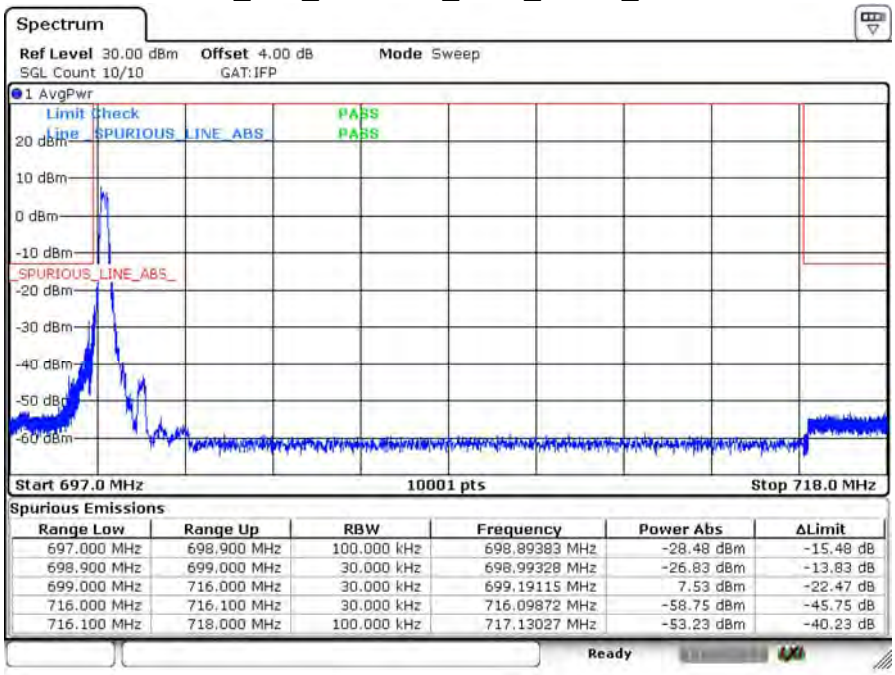
LTE_B5_CH20600_10M_QPSK_6RB0



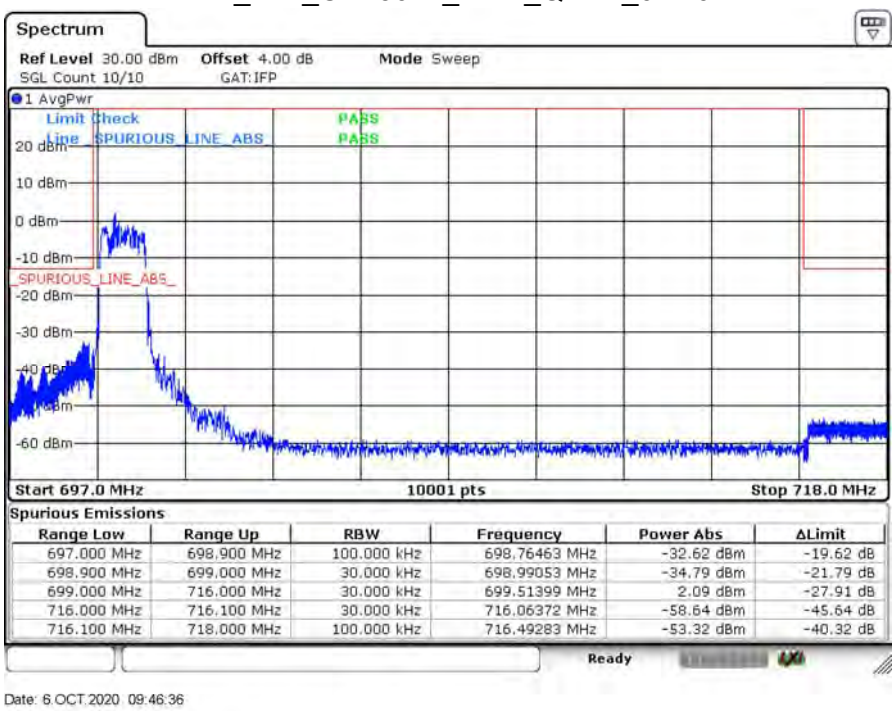
Date: 1.OCT.2020 12:18:36

Product	LGA module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2020/10/06	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	60

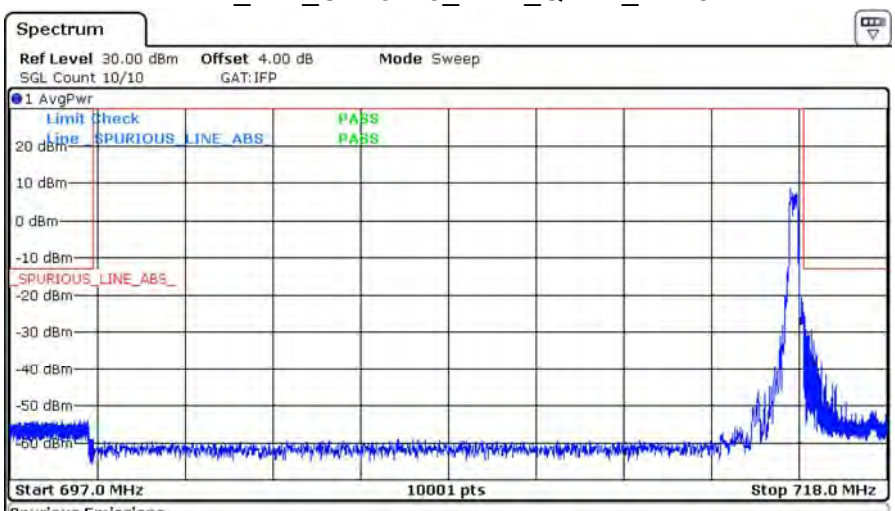
LTE_B12_CH23017_1.4M_QPSK_1RB0



LTE_B12_CH23017_1.4M_QPSK_6RB0



LTE_B12_CH23173_1.4M_QPSK_1RB5



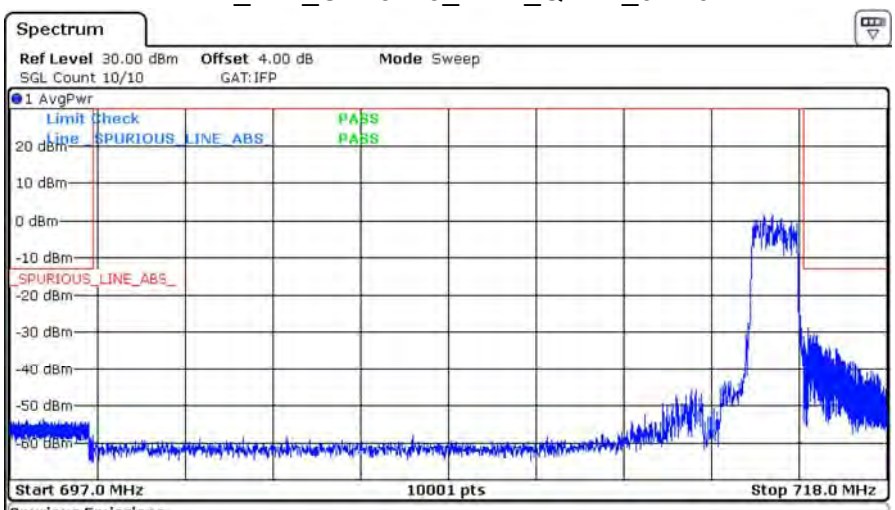
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.67628 MHz	-53.88 dBm	-40.88 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.90043 MHz	-59.00 dBm	-46.00 dB
699.000 MHz	716.000 MHz	30.000 kHz	715.68991 MHz	8.59 dBm	-21.41 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.01288 MHz	-24.50 dBm	-11.50 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.18218 MHz	-29.48 dBm	-16.48 dB

Ready

Date: 6.OCT.2020 09:48:43

LTE_B12_CH23173_1.4M_QPSK_6RB0



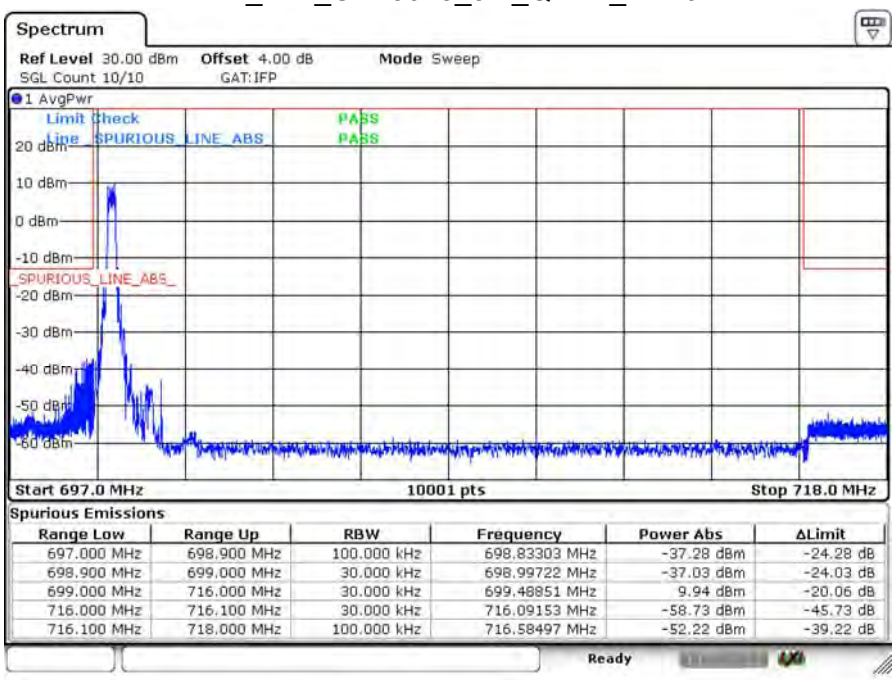
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	697.78993 MHz	-53.56 dBm	-40.56 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.98487 MHz	-58.15 dBm	-45.15 dB
699.000 MHz	716.000 MHz	30.000 kHz	715.03573 MHz	1.68 dBm	-28.32 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00468 MHz	-31.24 dBm	-18.24 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.10047 MHz	-28.79 dBm	-15.79 dB

Ready

Date: 6.OCT.2020 09:48:17

LTE_B12_CH23025_3M_QPSK_1RB0

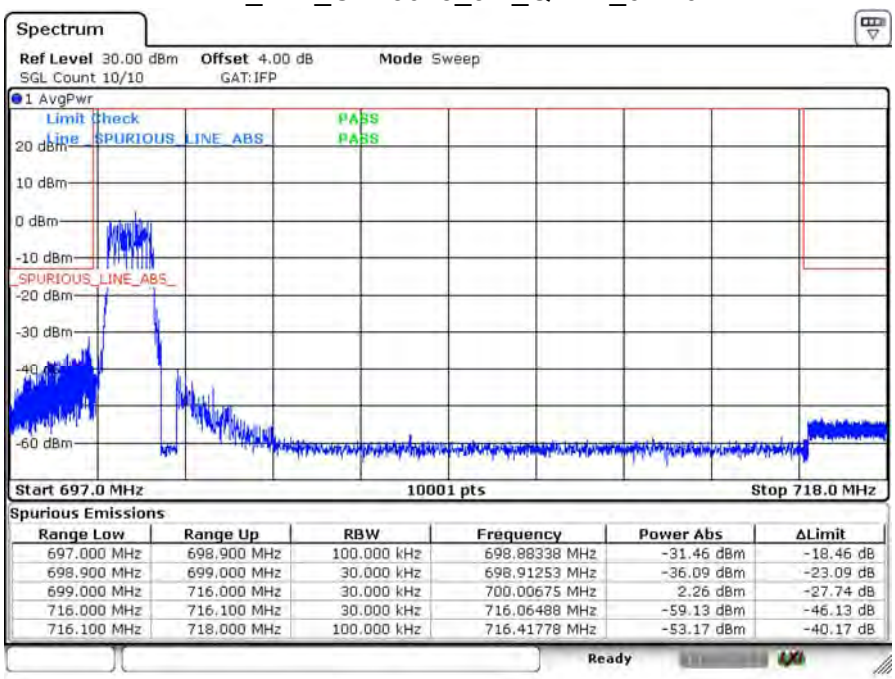


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.83303 MHz	-37.28 dBm	-24.28 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99722 MHz	-37.03 dBm	-24.03 dB
699.000 MHz	716.000 MHz	30.000 kHz	699.48851 MHz	9.94 dBm	-20.06 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.09153 MHz	-58.73 dBm	-45.73 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.58497 MHz	-52.22 dBm	-39.22 dB

Date: 6.OCT.2020 09:51:01

LTE_B12_CH23025_3M_QPSK_6RB0

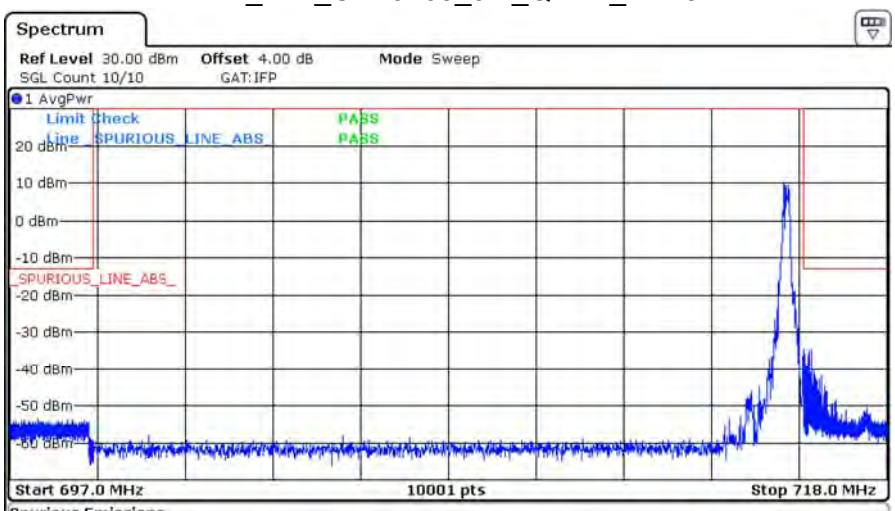


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.88338 MHz	-31.46 dBm	-18.46 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.91253 MHz	-36.09 dBm	-23.09 dB
699.000 MHz	716.000 MHz	30.000 kHz	700.00675 MHz	2.26 dBm	-27.74 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.06488 MHz	-59.13 dBm	-46.13 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.41778 MHz	-53.17 dBm	-40.17 dB

Date: 6.OCT.2020 09:51:30

LTE_B12_CH23165_3M_QPSK_1RB5



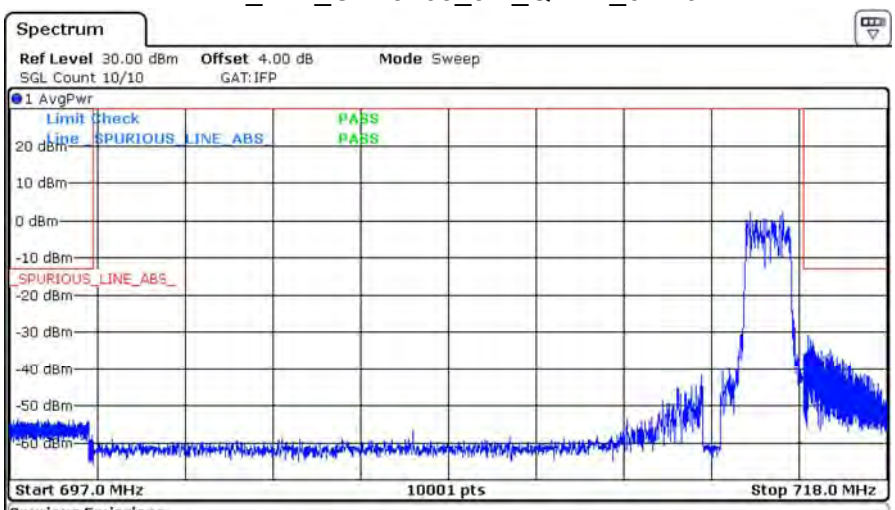
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	697.66833 MHz	-53.52 dBm	-40.52 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.91068 MHz	-58.57 dBm	-45.57 dB
699.000 MHz	716.000 MHz	30.000 kHz	715.53698 MHz	9.72 dBm	-20.28 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00347 MHz	-34.58 dBm	-21.58 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.18218 MHz	-34.65 dBm	-21.65 dB

Ready

Date: 6.OCT.2020 09:50:33

LTE_B12_CH23165_3M_QPSK_6RB0



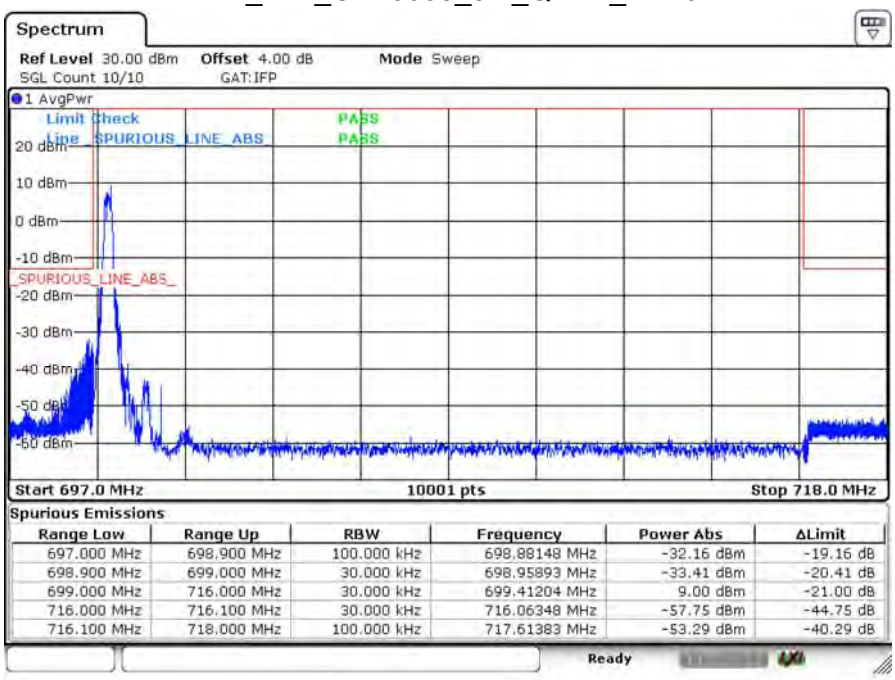
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	697.19713 MHz	-53.65 dBm	-40.65 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.95468 MHz	-58.12 dBm	-45.12 dB
699.000 MHz	716.000 MHz	30.000 kHz	714.72989 MHz	2.29 dBm	-27.71 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.08513 MHz	-35.50 dBm	-22.50 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.11188 MHz	-30.97 dBm	-17.97 dB

Ready

Date: 6.OCT.2020 09:50:01

LTE_B12_CH23035_5M_QPSK_1RB0

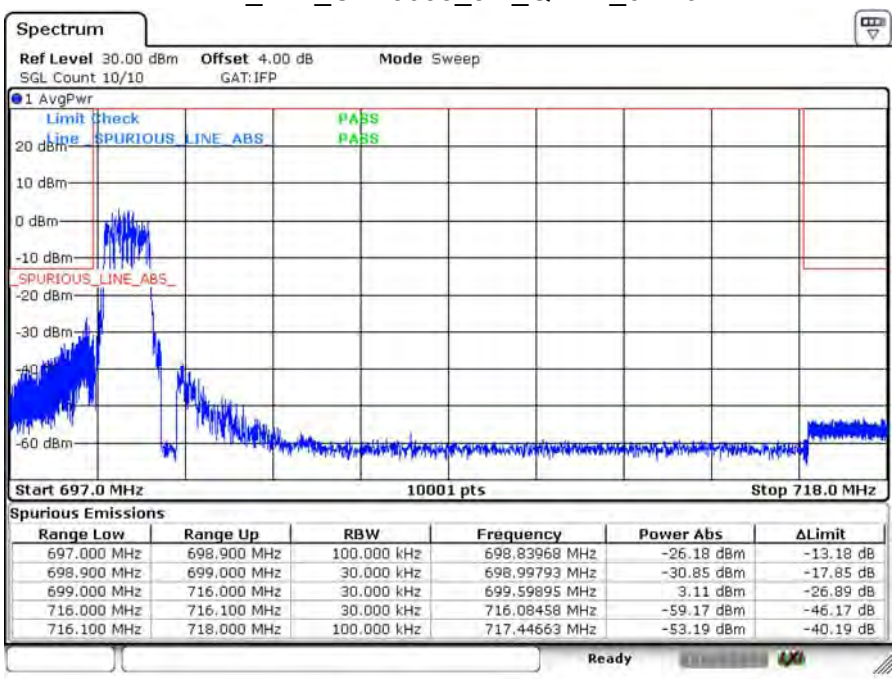


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.88148 MHz	-32.16 dBm	-19.16 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.95893 MHz	-33.41 dBm	-20.41 dB
699.000 MHz	716.000 MHz	30.000 kHz	699.41204 MHz	9.00 dBm	-21.00 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.06348 MHz	-57.75 dBm	-44.75 dB
716.100 MHz	718.000 MHz	100.000 kHz	717.61383 MHz	-53.29 dBm	-40.29 dB

Date: 6.OCT.2020 09:53:46

LTE_B12_CH23035_5M_QPSK_6RB0

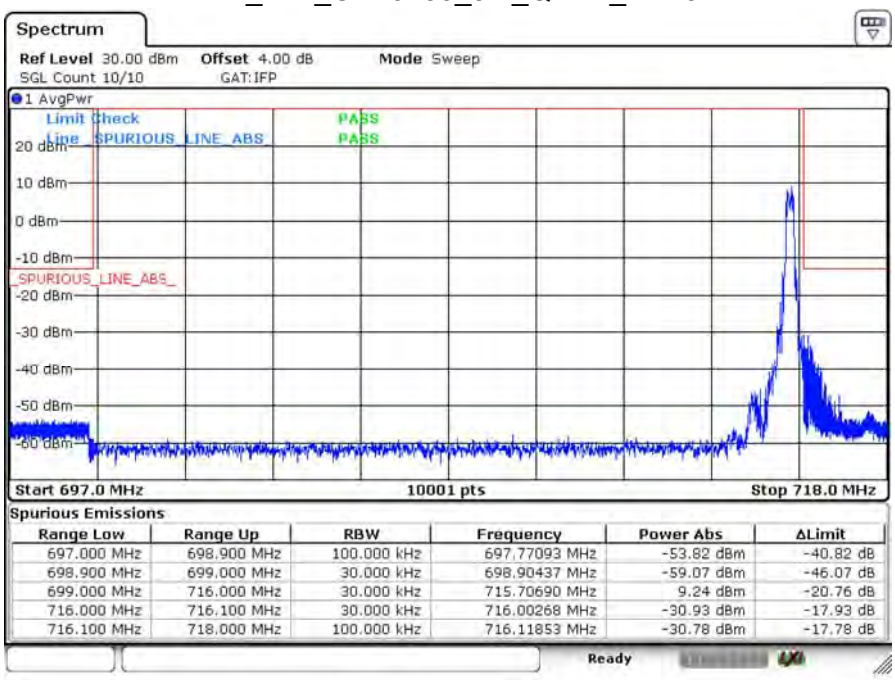


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.83968 MHz	-26.18 dBm	-13.18 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.99793 MHz	-30.85 dBm	-17.85 dB
699.000 MHz	716.000 MHz	30.000 kHz	699.59895 MHz	3.11 dBm	-26.89 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.08458 MHz	-59.17 dBm	-46.17 dB
716.100 MHz	718.000 MHz	100.000 kHz	717.44663 MHz	-53.19 dBm	-40.19 dB

Date: 6.OCT.2020 09:52:27

LTE_B12_CH23155_5M_QPSK_1RB5

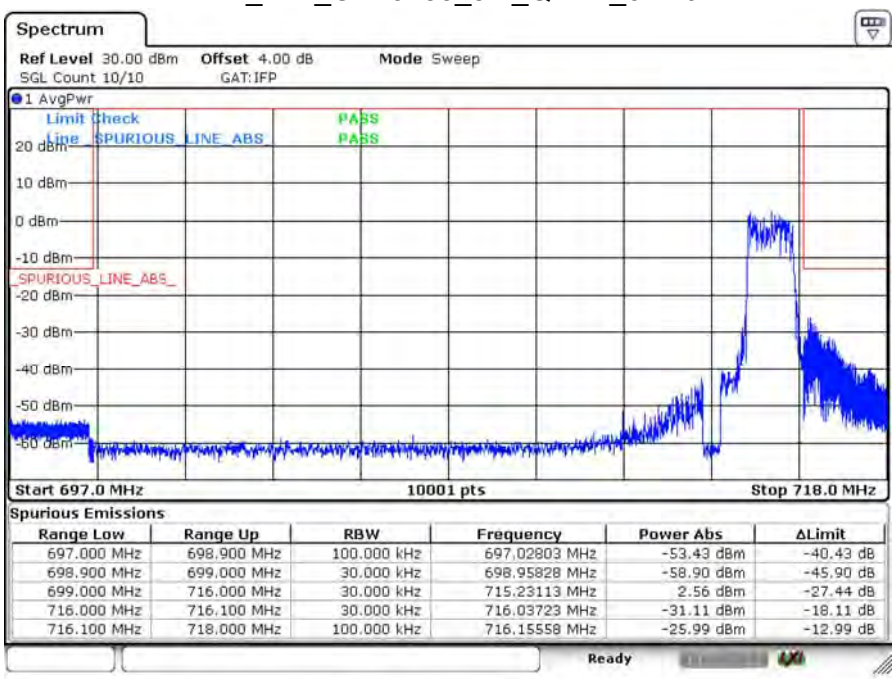


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	697.77093 MHz	-53.82 dBm	-40.82 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.90437 MHz	-59.07 dBm	-46.07 dB
699.000 MHz	716.000 MHz	30.000 kHz	715.70690 MHz	9.24 dBm	-20.76 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00268 MHz	-30.93 dBm	-17.93 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.11853 MHz	-30.78 dBm	-17.78 dB

Date: 6.OCT.2020 09:54:17

LTE_B12_CH23155_5M_QPSK_6RB0

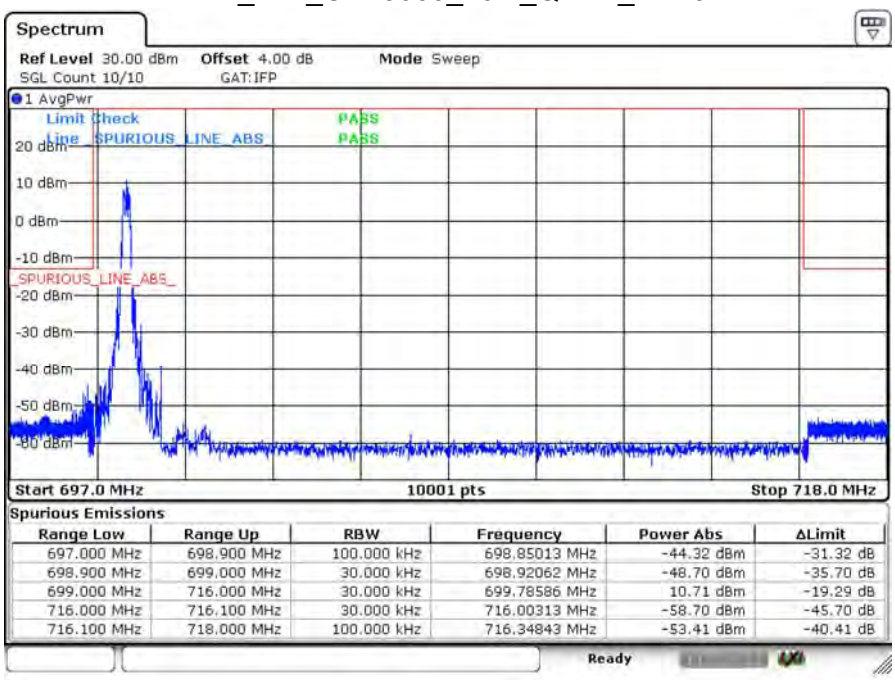


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	697.02803 MHz	-53.43 dBm	-40.43 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.95828 MHz	-58.90 dBm	-45.90 dB
699.000 MHz	716.000 MHz	30.000 kHz	715.23113 MHz	2.56 dBm	-27.44 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.03723 MHz	-31.11 dBm	-18.11 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.15558 MHz	-25.99 dBm	-12.99 dB

Date: 6.OCT.2020 09:54:58

LTE_B12_CH23060_10M_QPSK_1RB0

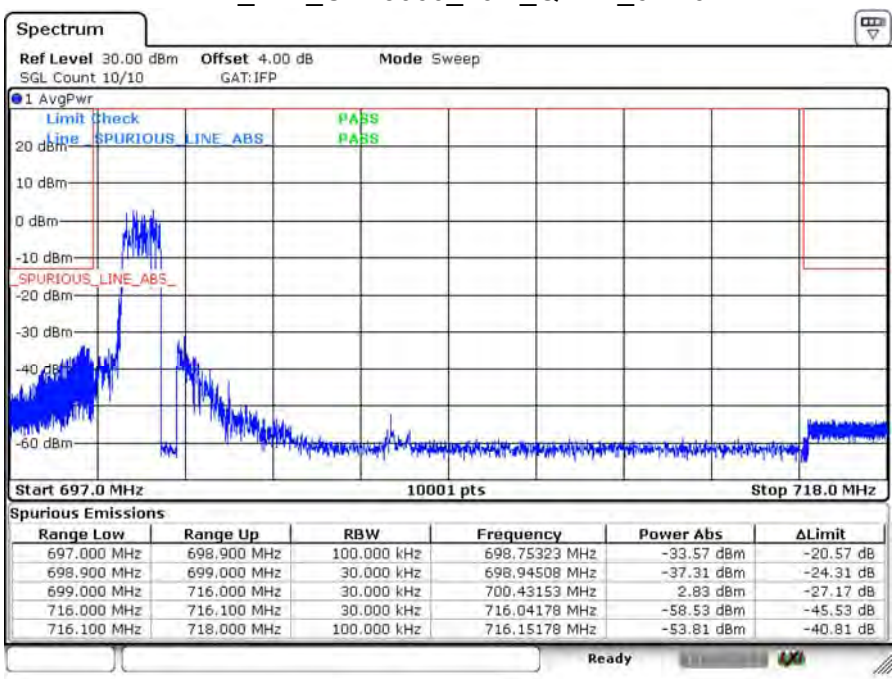


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.85013 MHz	-44.32 dBm	-31.32 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.92062 MHz	-48.70 dBm	-35.70 dB
699.000 MHz	716.000 MHz	30.000 kHz	699.78586 MHz	10.71 dBm	-19.29 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00313 MHz	-58.70 dBm	-45.70 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.34843 MHz	-53.41 dBm	-40.41 dB

Date: 6.OCT.2020 09:56:40

LTE_B12_CH23060_10M_QPSK_6RB0

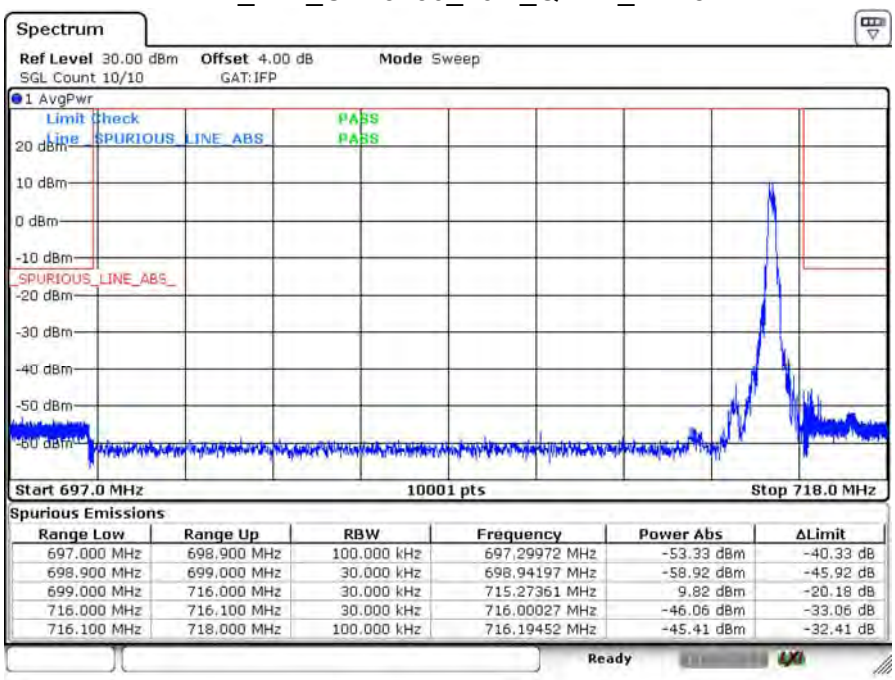


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.75323 MHz	-33.57 dBm	-20.57 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.94508 MHz	-37.31 dBm	-24.31 dB
699.000 MHz	716.000 MHz	30.000 kHz	700.43153 MHz	2.83 dBm	-27.17 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.04178 MHz	-58.53 dBm	-45.53 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.15178 MHz	-53.81 dBm	-40.81 dB

Date: 6.OCT.2020 09:55:55

LTE_B12_CH23130_10M_QPSK_1RB5

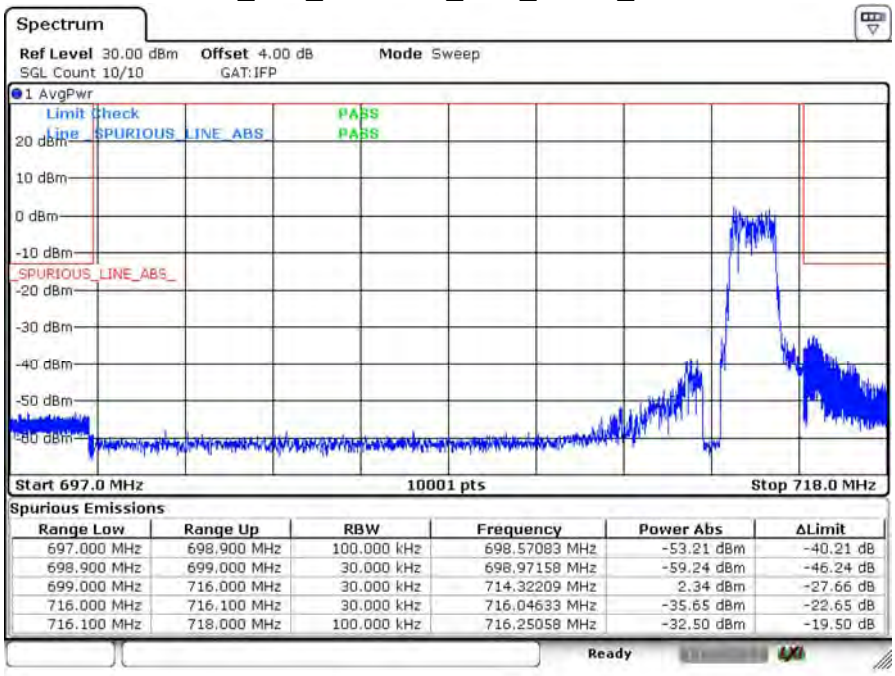


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	697.29972 MHz	-53.33 dBm	-40.33 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.94197 MHz	-58.92 dBm	-45.92 dB
699.000 MHz	716.000 MHz	30.000 kHz	715.27361 MHz	9.82 dBm	-20.18 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.00027 MHz	-46.06 dBm	-33.06 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.19452 MHz	-45.41 dBm	-32.41 dB

Date: 6.OCT.2020 09:57:25

LTE_B12_CH23130_10M_QPSK_6RB0



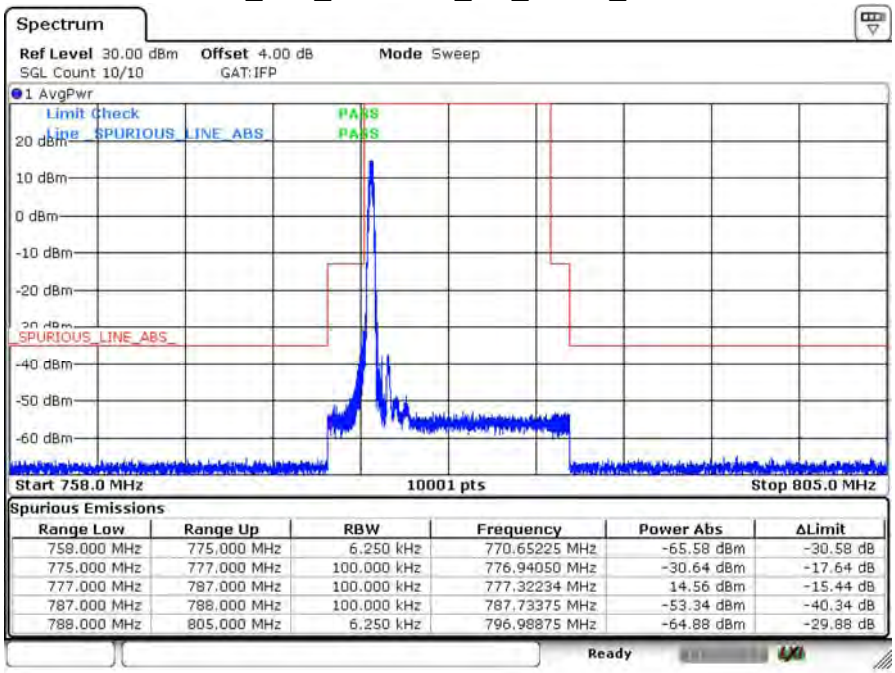
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
697.000 MHz	698.900 MHz	100.000 kHz	698.57083 MHz	-53.21 dBm	-40.21 dB
698.900 MHz	699.000 MHz	30.000 kHz	698.97158 MHz	-59.24 dBm	-46.24 dB
699.000 MHz	716.000 MHz	30.000 kHz	714.32209 MHz	2.34 dBm	-27.66 dB
716.000 MHz	716.100 MHz	30.000 kHz	716.04633 MHz	-35.65 dBm	-22.65 dB
716.100 MHz	718.000 MHz	100.000 kHz	716.25058 MHz	-32.50 dBm	-19.50 dB

Date: 6.OCT.2020 09:57:57

Product	LGA module		
Test Item	Spurious Emissions at Antenna Terminals		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2020/10/06	Test Site	SR12-H
Temperature (°C)	25	Humidity (%RH)	60

LTE_B13_CH23205_5M_QPSK_1RB0

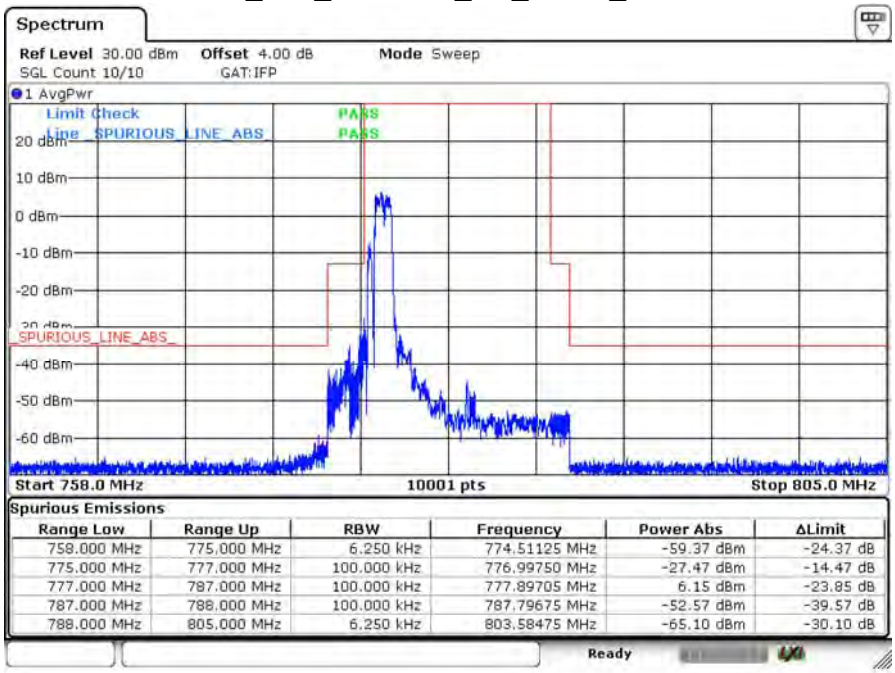


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	775.000 MHz	6.250 kHz	770.65225 MHz	-65.58 dBm	-30.58 dB
775.000 MHz	777.000 MHz	100.000 kHz	776.94050 MHz	-30.64 dBm	-17.64 dB
777.000 MHz	787.000 MHz	100.000 kHz	777.32234 MHz	14.56 dBm	-15.44 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.73375 MHz	-53.34 dBm	-40.34 dB
788.000 MHz	805.000 MHz	6.250 kHz	796.98875 MHz	-64.88 dBm	-29.88 dB

Date: 6.OCT.2020 11:06:21

LTE_B13_CH23205_5M_QPSK_6RB0

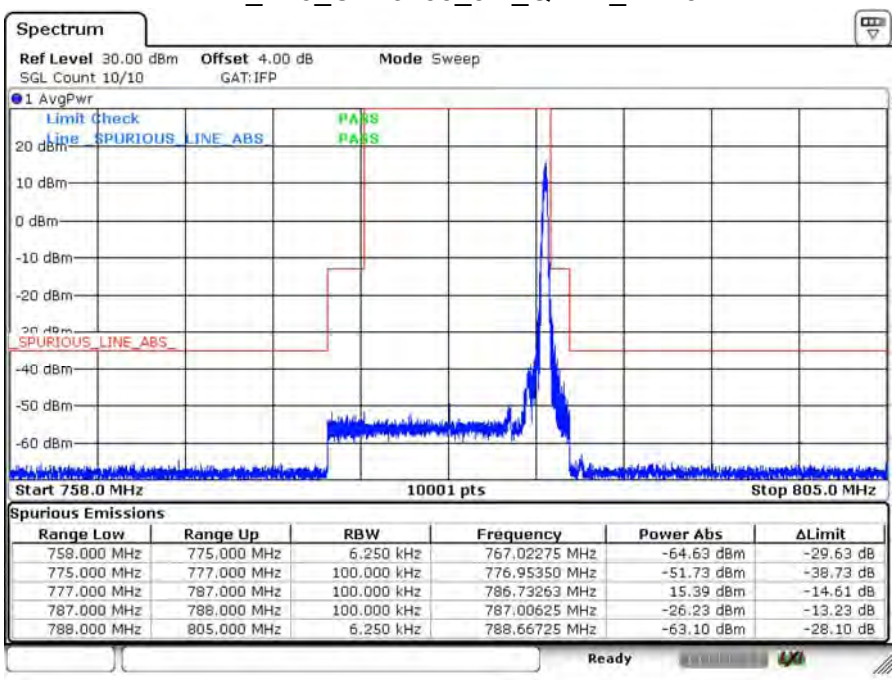


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	775.000 MHz	6.250 kHz	774.51125 MHz	-59.37 dBm	-24.37 dB
775.000 MHz	777.000 MHz	100.000 kHz	776.99750 MHz	-27.47 dBm	-14.47 dB
777.000 MHz	787.000 MHz	100.000 kHz	777.89705 MHz	6.15 dBm	-23.85 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.79675 MHz	-52.57 dBm	-39.57 dB
788.000 MHz	805.000 MHz	6.250 kHz	803.58475 MHz	-65.10 dBm	-30.10 dB

Date: 6.OCT.2020 11:05:24

LTE_B13_CH23255_5M_QPSK_1RB5

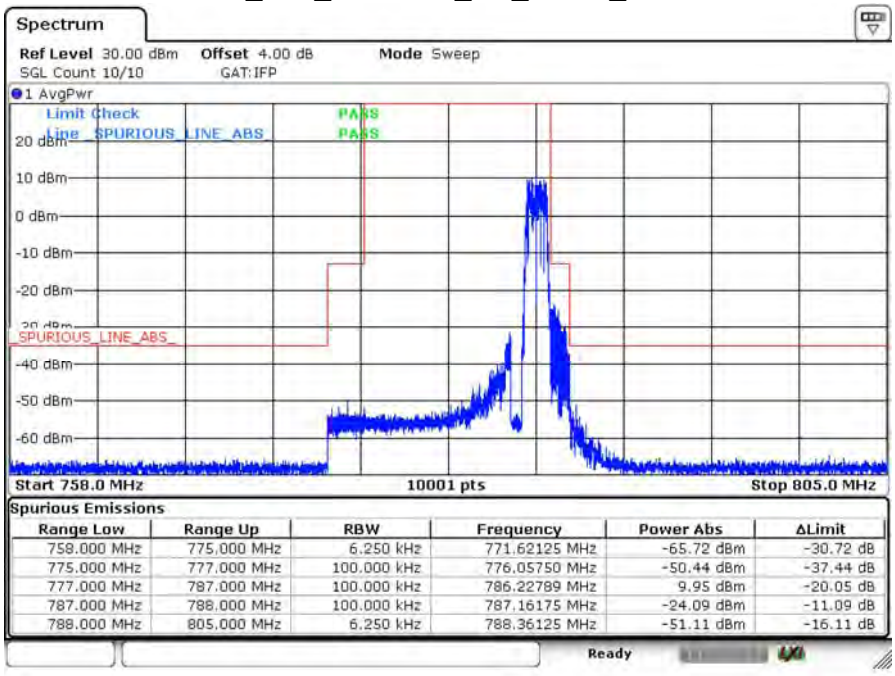


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	775.000 MHz	6.250 kHz	767.02275 MHz	-64.63 dBm	-29.63 dB
775.000 MHz	777.000 MHz	100.000 kHz	776.95350 MHz	-51.73 dBm	-38.73 dB
777.000 MHz	787.000 MHz	100.000 kHz	786.73263 MHz	15.39 dBm	-14.61 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.00625 MHz	-26.23 dBm	-13.23 dB
788.000 MHz	805.000 MHz	6.250 kHz	788.66725 MHz	-63.10 dBm	-28.10 dB

Date: 6.OCT.2020 11:07:52

LTE_B13_CH23255_5M_QPSK_6RB0

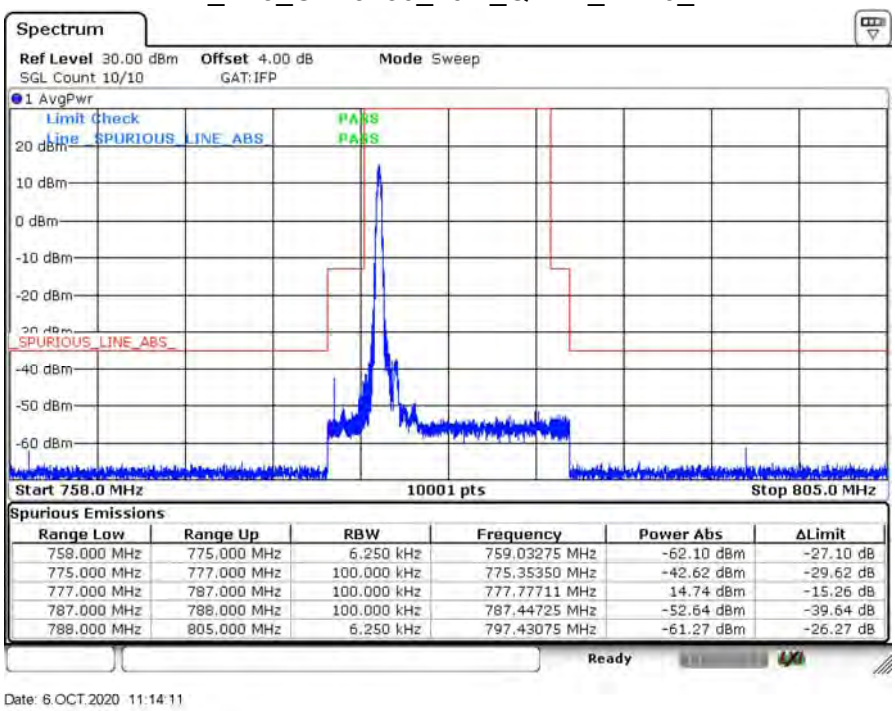


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	775.000 MHz	6.250 kHz	771.62125 MHz	-65.72 dBm	-30.72 dB
775.000 MHz	777.000 MHz	100.000 kHz	776.05750 MHz	-50.44 dBm	-37.44 dB
777.000 MHz	787.000 MHz	100.000 kHz	786.22789 MHz	9.95 dBm	-20.05 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.16175 MHz	-24.09 dBm	-11.09 dB
788.000 MHz	805.000 MHz	6.250 kHz	788.36125 MHz	-51.11 dBm	-16.11 dB

Date: 6.OCT.2020 11:08:52

LTE_B13_CH23230_10M_QPSK_1RB0_low

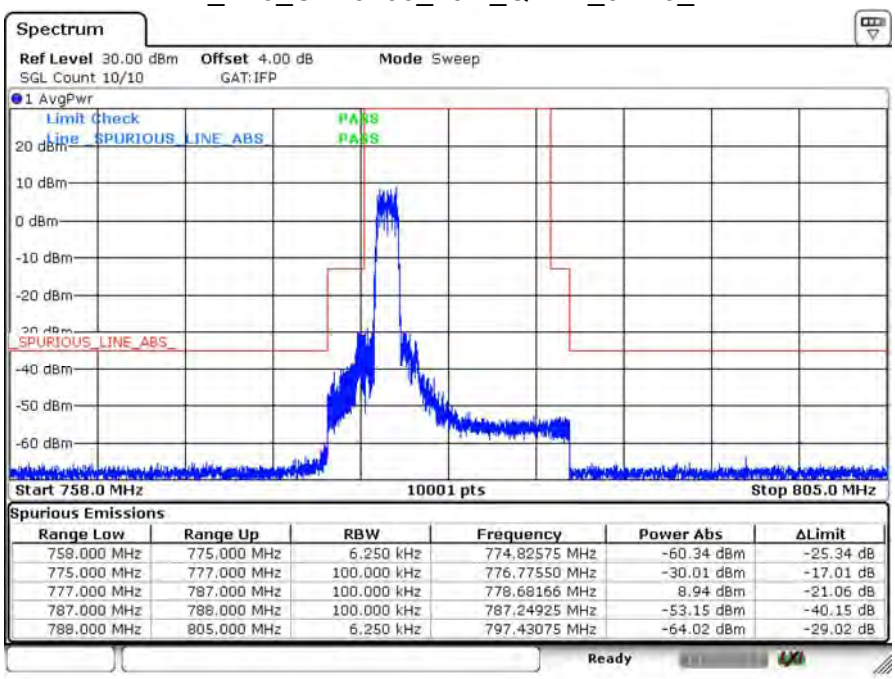


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
759.000 MHz	775.000 MHz	6.250 kHz	759.03275 MHz	-62.10 dBm	-27.10 dB
775.000 MHz	777.000 MHz	100.000 kHz	775.35350 MHz	-42.62 dBm	-29.62 dB
777.000 MHz	787.000 MHz	100.000 kHz	777.77711 MHz	14.74 dBm	-15.26 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.44725 MHz	-52.64 dBm	-39.64 dB
788.000 MHz	805.000 MHz	6.250 kHz	797.43075 MHz	-61.27 dBm	-26.27 dB

Date: 6.OCT.2020 11:14:11

LTE_B13_CH23230_10M_QPSK_6RB0_low

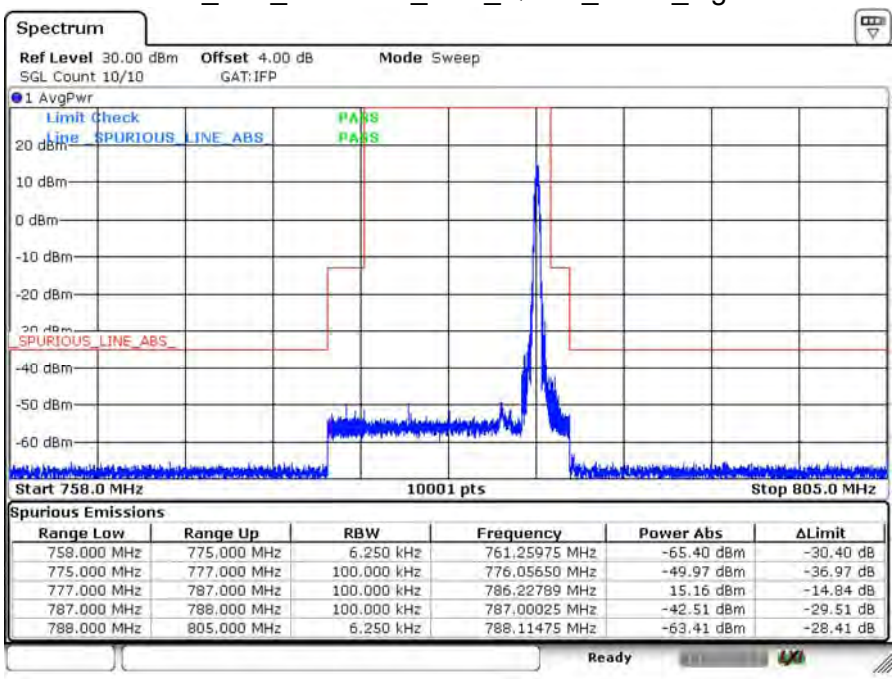


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
759.000 MHz	775.000 MHz	6.250 kHz	774.82575 MHz	-60.34 dBm	-25.34 dB
775.000 MHz	777.000 MHz	100.000 kHz	776.77550 MHz	-30.01 dBm	-17.01 dB
777.000 MHz	787.000 MHz	100.000 kHz	778.68166 MHz	8.94 dBm	-21.06 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.24925 MHz	-53.15 dBm	-40.15 dB
788.000 MHz	805.000 MHz	6.250 kHz	797.43075 MHz	-64.02 dBm	-29.02 dB

Date: 6.OCT.2020 11:15:31

LTE_B13_CH23230_10M_QPSK_1RB5_high

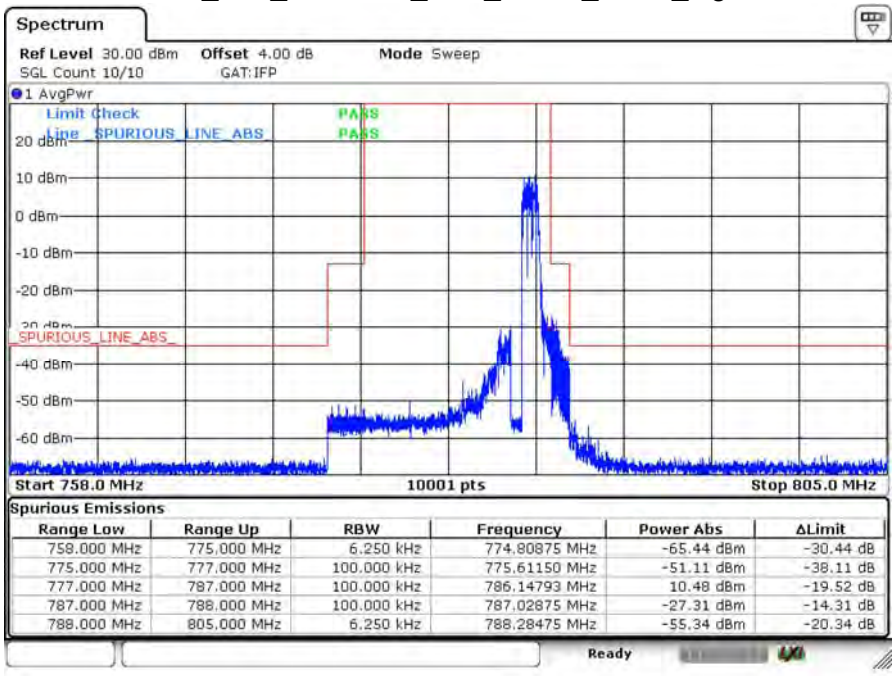


Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	775.000 MHz	6.250 kHz	761.25975 MHz	-65.40 dBm	-30.40 dB
775.000 MHz	777.000 MHz	100.000 kHz	776.05650 MHz	-49.97 dBm	-36.97 dB
777.000 MHz	787.000 MHz	100.000 kHz	786.22789 MHz	15.16 dBm	-14.84 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.00025 MHz	-42.51 dBm	-29.51 dB
788.000 MHz	805.000 MHz	6.250 kHz	788.11475 MHz	-63.41 dBm	-28.41 dB

Date: 6.OCT.2020 11:12:08

LTE_B13_CH23230_10M_QPSK_6RB0_high



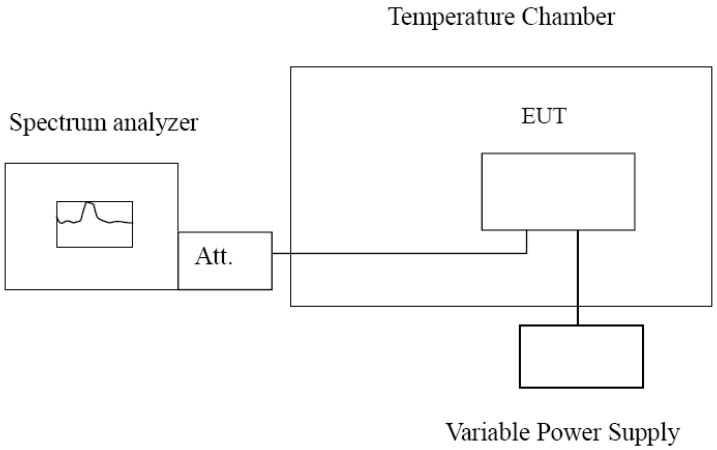
Spurious Emissions

Range Low	Range Up	RBW	Frequency	Power Abs	ΔLimit
758.000 MHz	775.000 MHz	6.250 kHz	774.80875 MHz	-65.44 dBm	-30.44 dB
775.000 MHz	777.000 MHz	100.000 kHz	775.61150 MHz	-51.11 dBm	-38.11 dB
777.000 MHz	787.000 MHz	100.000 kHz	786.14793 MHz	10.48 dBm	-19.52 dB
787.000 MHz	788.000 MHz	100.000 kHz	787.02875 MHz	-27.31 dBm	-14.31 dB
788.000 MHz	805.000 MHz	6.250 kHz	788.28475 MHz	-55.34 dBm	-20.34 dB

Date: 6.OCT.2020 11:10:24

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℃ operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30℃. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10℃ increased per stage until the highest temperature of +50℃ reached.

Frequency Stability Under Voltage Variations:

Set chamber temperature to 20℃. 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 (±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	LGA module		
Test Item	Frequency Stability		
Test Mode	Mode 1: LTE Band 2		
Date of Test	2020/10/08	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	63

LTE Band 2_1860 MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.43	-0.0040
3.8	-7.07	-0.0038
3.3	-7.34	-0.0040

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.85	-0.0042
-10	-8.18	-0.0044
0	-7.38	-0.0040
10	-7.95	-0.0043
20	-7.43	-0.0040
30	-7.37	-0.0040
40	-7.04	-0.0038
50	-8.45	-0.0046
60	-7.61	-0.0041

LTE Band 2_1900MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-8.33	-0.0045
3.8	-7.58	-0.0041
3.3	-7.31	-0.0040

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.66	-0.0041
-10	-7.11	-0.0038
0	-6.36	-0.0034
10	-6.98	-0.0038
20	-6.96	-0.0038
30	-7.10	-0.0038
40	-6.90	-0.0037
50	-6.95	-0.0038
60	-7.52	-0.0041

LTE Band 2_1860MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-2.66	-0.0014
3.8	-2.59	-0.0014
3.3	-3.76	-0.0020

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-3.50	-0.0019
-10	-2.74	-0.0015
0	-2.51	-0.0014
10	-2.27	-0.0012
20	-3.01	-0.0016
30	-3.06	-0.0017
40	-3.37	-0.0018
50	-2.96	-0.0016
60	-2.95	-0.0016

LTE Band 2_1900MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-3.39	-0.0018
3.8	-2.34	-0.0013
3.3	-1.86	-0.0010

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-3.66	-0.0020
-10	-4.18	-0.0023
0	-4.04	-0.0022
10	-3.56	-0.0019
20	-3.01	-0.0016
30	-3.82	-0.0021
40	-4.71	-0.0025
50	-3.45	-0.0019
60	-3.91	-0.0021

LTE Band 2_1860MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.63	-0.0041
3.8	-7.08	-0.0038
3.3	-7.59	-0.0041

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.93	-0.0037
-10	-7.85	-0.0042
0	-7.85	-0.0042
10	-7.90	-0.0043
20	-7.68	-0.0042
30	-7.52	-0.0041
40	-7.97	-0.0043
50	-6.94	-0.0038
60	-7.34	-0.0040

LTE Band 2_1900MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.29	-0.0039
3.8	-6.73	-0.0036
3.3	-6.79	-0.0037

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.35	-0.0040
-10	-6.62	-0.0036
0	-7.38	-0.0040
10	-8.44	-0.0046
20	-7.56	-0.0041
30	-7.69	-0.0042
40	-6.74	-0.0036
50	-8.01	-0.0043
60	-7.35	-0.0040

LTE Band 2_1860MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.66	-0.0031
3.8	-5.54	-0.0030
3.3	-6.58	-0.0036

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.67	-0.0031
-10	-5.86	-0.0032
0	-6.02	-0.0033
10	-5.61	-0.0030
20	-5.53	-0.0030
30	-6.28	-0.0034
40	-7.19	-0.0039
50	-5.83	-0.0032
60	-6.22	-0.0034

LTE Band 2_1900MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.68	-0.0036
3.8	-6.14	-0.0033
3.3	-7.51	-0.0041

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.87	-0.0037
-10	-7.90	-0.0043
0	-6.84	-0.0037
10	-7.09	-0.0038
20	-7.12	-0.0038
30	-7.43	-0.0040
40	-7.99	-0.0043
50	-7.47	-0.0040
60	-8.02	-0.0043

LTE Band 2_1860MHz_BW 15MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.02	-0.0033
3.8	-6.04	-0.0033
3.3	-6.20	-0.0034

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.08	-0.0033
-10	-6.92	-0.0037
0	-6.63	-0.0036
10	-6.47	-0.0035
20	-5.38	-0.0029
30	-6.54	-0.0035
40	-7.29	-0.0039
50	-5.72	-0.0031
60	-5.49	-0.0030

LTE Band 2_1900MHz_BW 15MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.49	-0.0035
3.8	-5.63	-0.0030
3.3	-5.71	-0.0031

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.36	-0.0040
-10	-6.77	-0.0037
0	-8.35	-0.0045
10	-7.83	-0.0042
20	-7.01	-0.0038
30	-7.44	-0.0040
40	-6.67	-0.0036
50	-7.53	-0.0041
60	-7.37	-0.0040

LTE Band 2_1860MHz_BW 20MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.25	-0.0039
3.8	-6.78	-0.0037
3.3	-7.08	-0.0038

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.63	-0.0041
-10	-7.27	-0.0039
0	-7.30	-0.0039
10	-7.48	-0.0040
20	-7.59	-0.0041
30	-6.89	-0.0037
40	-6.83	-0.0037
50	-7.56	-0.0041
60	-8.26	-0.0045

LTE Band 2_1900MHz_BW 20MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-8.07	-0.0044
3.8	-7.14	-0.0039
3.3	-7.94	-0.0043

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-8.25	-0.0045
-10	-8.41	-0.0045
0	-8.70	-0.0047
10	-8.45	-0.0046
20	-8.73	-0.0047
30	-8.22	-0.0044
40	-7.41	-0.0040
50	-7.42	-0.0040
60	-7.96	-0.0043

Product	LGA module		
Test Item	Frequency Stability		
Test Mode	Mode 2: LTE Band 4		
Date of Test	2020/10/08	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	63

LTE Band 4_1720MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.00	-0.0032
3.8	-5.35	-0.0029
3.3	-5.32	-0.0029

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.32	-0.0029
-10	-5.29	-0.0029
0	-5.13	-0.0028
10	-5.17	-0.0028
20	-6.25	-0.0034
30	-5.18	-0.0028
40	-5.25	-0.0028
50	-5.72	-0.0031
60	-6.29	-0.0034

LTE Band 4_1745MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.03	-0.0033
3.8	-5.58	-0.0030
3.3	-6.54	-0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.08	-0.0033
-10	-6.79	-0.0037
0	-5.69	-0.0031
10	-6.06	-0.0033
20	-6.48	-0.0035
30	-7.23	-0.0039
40	-6.23	-0.0034
50	-6.31	-0.0034
60	-6.98	-0.0038

LTE Band 4_1720MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-4.71	-0.0025
3.8	-3.75	-0.0020
3.3	-3.37	-0.0018

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.91	-0.0027
-10	-3.54	-0.0019
0	-3.80	-0.0021
10	-3.98	-0.0022
20	-4.76	-0.0026
30	-3.74	-0.0020
40	-4.51	-0.0024
50	-4.53	-0.0024
60	-4.44	-0.0024

LTE Band 4_1745MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.35	-0.0029
3.8	-4.70	-0.0025
3.3	-5.72	-0.0031

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.76	-0.0026
-10	-5.43	-0.0029
0	-5.02	-0.0027
10	-3.69	-0.0020
20	-4.92	-0.0027
30	-4.22	-0.0023
40	-4.64	-0.0025
50	-4.38	-0.0024
60	-4.03	-0.0022

LTE Band 4_1720MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.91	-0.0037
3.8	-6.27	-0.0034
3.3	-6.88	-0.0037

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.12	-0.0038
-10	-6.61	-0.0036
0	-6.69	-0.0036
10	-6.45	-0.0035
20	-6.74	-0.0036
30	-6.35	-0.0034
40	-7.16	-0.0039
50	-7.84	-0.0042
60	-5.80	-0.0031

LTE Band 4_1745MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.18	-0.0033
3.8	-6.52	-0.0035
3.3	-6.07	-0.0033

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.83	-0.0042
-10	-8.22	-0.0044
0	-7.44	-0.0040
10	-7.26	-0.0039
20	-7.84	-0.0042
30	-8.10	-0.0044
40	-8.04	-0.0043
50	-7.05	-0.0038
60	-7.38	-0.0040

LTE Band 4_1720MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.02	-0.0027
3.8	-3.78	-0.0020
3.3	-4.18	-0.0023

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.48	-0.0024
-10	-4.15	-0.0022
0	-5.00	-0.0027
10	-3.75	-0.0020
20	-4.69	-0.0025
30	-3.75	-0.0020
40	-3.58	-0.0019
50	-4.85	-0.0026
60	-4.44	-0.0024

LTE Band 4_1745MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.77	-0.0031
3.8	-5.01	-0.0027
3.3	-4.87	-0.0026

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.15	-0.0028
-10	-4.71	-0.0025
0	-4.52	-0.0024
10	-4.58	-0.0025
20	-3.68	-0.0020
30	-4.61	-0.0025
40	-5.37	-0.0029
50	-4.43	-0.0024
60	-5.57	-0.0030

LTE Band 4_1720MHz_BW 15MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.37	-0.0029
3.8	-4.63	-0.0025
3.3	-5.52	-0.0030

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.33	-0.0029
-10	-5.26	-0.0028
0	-5.82	-0.0031
10	-4.60	-0.0025
20	-4.70	-0.0025
30	-4.43	-0.0024
40	-5.22	-0.0028
50	-4.51	-0.0024
60	-5.64	-0.0030

LTE Band 4_1745MHz_BW 15MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-4.71	-0.0025
3.8	-4.32	-0.0023
3.3	-4.53	-0.0024

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.30	-0.0029
-10	-5.59	-0.0030
0	-5.67	-0.0031
10	-5.14	-0.0028
20	-5.87	-0.0032
30	-5.89	-0.0032
40	-5.82	-0.0031
50	-5.43	-0.0029
60	-6.38	-0.0034

LTE Band 4_1720MHz_BW 20MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.78	-0.0031
3.8	-5.54	-0.0030
3.3	-6.22	-0.0034

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.96	-0.0032
-10	-6.77	-0.0037
0	-5.92	-0.0032
10	-6.21	-0.0034
20	-6.50	-0.0035
30	-6.74	-0.0036
40	-6.43	-0.0035
50	-6.07	-0.0033
60	-5.29	-0.0029

LTE Band 4_1745MHz_BW 20MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.44	-0.0035
3.8	-5.58	-0.0030
3.3	-5.71	-0.0031

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.90	-0.0037
-10	-5.30	-0.0029
0	-5.71	-0.0031
10	-5.76	-0.0031
20	-5.30	-0.0029
30	-5.60	-0.0030
40	-6.01	-0.0032
50	-5.41	-0.0029
60	-5.63	-0.0030

Product	LGA module		
Test Item	Frequency Stability		
Test Mode	Mode 3: LTE Band 5		
Date of Test	2020/10/08	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	63

LTE Band 5_829MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.50	-0.0035
3.8	-6.19	-0.0033
3.3	-5.95	-0.0032

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.59	-0.0041
-10	-6.69	-0.0036
0	-5.89	-0.0032
10	-7.36	-0.0040
20	-7.36	-0.0040
30	-6.74	-0.0036
40	-6.63	-0.0036
50	-7.63	-0.0041
60	-5.71	-0.0031

LTE Band 5_844MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.36	-0.0040
3.8	-7.05	-0.0038
3.3	-8.62	-0.0047

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.54	-0.0035
-10	-6.90	-0.0037
0	-6.81	-0.0037
10	-6.43	-0.0035
20	-6.44	-0.0035
30	-5.32	-0.0029
40	-6.87	-0.0037
50	-6.24	-0.0034
60	-5.02	-0.0027

LTE Band 5_829MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.73	-0.0031
3.8	-4.42	-0.0024
3.3	-4.30	-0.0023

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.33	-0.0023
-10	-5.24	-0.0028
0	-5.17	-0.0028
10	-5.04	-0.0027
20	-5.31	-0.0029
30	-5.55	-0.0030
40	-5.06	-0.0027
50	-4.84	-0.0026
60	-5.25	-0.0028

LTE Band 5_844MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.48	-0.0030
3.8	-4.94	-0.0027
3.3	-5.26	-0.0028

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.19	-0.0033
-10	-5.53	-0.0030
0	-5.65	-0.0031
10	-5.72	-0.0031
20	-6.44	-0.0035
30	-6.35	-0.0034
40	-6.07	-0.0033
50	-5.54	-0.0030
60	-5.77	-0.0031

LTE Band 5_829MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.04	-0.0033
3.8	-5.11	-0.0028
3.3	-5.93	-0.0032

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.69	-0.0031
-10	-6.36	-0.0034
0	-5.47	-0.0030
10	-5.27	-0.0028
20	-5.15	-0.0028
30	-6.15	-0.0033
40	-6.32	-0.0034
50	-5.11	-0.0028
60	-5.32	-0.0029

LTE Band 5_844MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.33	-0.0040
3.8	-6.28	-0.0034
3.3	-7.14	-0.0039

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.59	-0.0025
-10	-6.61	-0.0036
0	-5.69	-0.0031
10	-5.77	-0.0031
20	-5.47	-0.0030
30	-5.15	-0.0028
40	-5.98	-0.0032
50	-5.42	-0.0029
60	-5.70	-0.0031

LTE Band 5_829MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.55	-0.0041
3.8	-7.32	-0.0040
3.3	-8.20	-0.0044

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-8.16	-0.0044
-10	-7.55	-0.0041
0	-7.67	-0.0041
10	-7.67	-0.0041
20	-8.39	-0.0045
30	-7.93	-0.0043
40	-7.21	-0.0039
50	-8.41	-0.0045
60	-8.28	-0.0045

LTE Band 5_844MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-8.32	-0.0045
3.8	-8.32	-0.0045
3.3	-8.07	-0.0044

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-8.74	-0.0047
-10	-8.65	-0.0047
0	-8.69	-0.0047
10	-8.75	-0.0047
20	-8.27	-0.0045
30	-8.94	-0.0048
40	-8.63	-0.0047
50	-8.81	-0.0048
60	-8.65	-0.0047

Product	LGA module		
Test Item	Frequency Stability		
Test Mode	Mode 4: LTE Band 12		
Date of Test	2020/10/08	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	63

LTE Band 12_704MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-3.88	-0.0021
3.8	-3.33	-0.0018
3.3	-4.01	-0.0022

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-3.75	-0.0020
-10	-4.08	-0.0022
0	-4.00	-0.0022
10	-3.92	-0.0021
20	-2.86	-0.0015
30	-3.94	-0.0021
40	-4.34	-0.0023
50	-3.74	-0.0020
60	-3.48	-0.0019

LTE Band 12_711MHz_BW 1.4MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-3.39	-0.0018
3.8	-3.67	-0.0020
3.3	-3.37	-0.0018

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-3.89	-0.0021
-10	-4.58	-0.0025
0	-4.74	-0.0026
10	-5.13	-0.0028
20	-4.14	-0.0022
30	-4.44	-0.0024
40	-4.07	-0.0022
50	-5.15	-0.0028
60	-4.10	-0.0022

LTE Band 12_704MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.09	-0.0033
3.8	-5.51	-0.0030
3.3	-6.05	-0.0033

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.82	-0.0037
-10	-6.16	-0.0033
0	-6.15	-0.0033
10	-5.46	-0.0030
20	-6.58	-0.0036
30	-6.43	-0.0035
40	-5.41	-0.0029
50	-6.99	-0.0038
60	-5.24	-0.0028

LTE Band 12_711MHz_BW 3MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.43	-0.0040
3.8	-6.63	-0.0036
3.3	-6.49	-0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.83	-0.0037
-10	-6.49	-0.0035
0	-6.99	-0.0038
10	-6.35	-0.0034
20	-6.72	-0.0036
30	-6.99	-0.0038
40	-6.03	-0.0033
50	-6.46	-0.0035
60	-6.11	-0.0033

LTE Band 12_704MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-4.61	-0.0025
3.8	-4.43	-0.0024
3.3	-5.73	-0.0031

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.19	-0.0028
-10	-4.77	-0.0026
0	-5.50	-0.0030
10	-4.24	-0.0023
20	-4.96	-0.0027
30	-4.40	-0.0024
40	-5.29	-0.0029
50	-5.16	-0.0028
60	-4.22	-0.0023

LTE Band 12_711MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.09	-0.0028
3.8	-4.51	-0.0024
3.3	-5.32	-0.0029

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.82	-0.0026
-10	-5.18	-0.0028
0	-6.08	-0.0033
10	-4.16	-0.0022
20	-4.00	-0.0022
30	-5.41	-0.0029
40	-4.75	-0.0026
50	-5.43	-0.0029
60	-4.79	-0.0026

LTE Band 12_704MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.13	-0.0033
3.8	-5.35	-0.0029
3.3	-5.31	-0.0029

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-4.93	-0.0027
-10	-5.85	-0.0032
0	-6.00	-0.0032
10	-5.41	-0.0029
20	-6.00	-0.0032
30	-6.79	-0.0037
40	-6.73	-0.0036
50	-6.02	-0.0033
60	-6.46	-0.0035

LTE Band 12_711MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-6.23	-0.0034
3.8	-6.77	-0.0037
3.3	-6.90	-0.0037

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.07	-0.0027
-10	-6.37	-0.0034
0	-5.92	-0.0032
10	-6.13	-0.0033
20	-5.70	-0.0031
30	-5.25	-0.0028
40	-6.42	-0.0035
50	-5.15	-0.0028
60	-6.22	-0.0034

Product	LGA module		
Test Item	Frequency Stability		
Test Mode	Mode 5: LTE Band 13		
Date of Test	2020/10/08	Test Site	SR12-H
Temperature (°C)	24	Humidity (%RH)	63

LTE Band 13_779.5MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-5.90	-0.0032
3.8	-5.69	-0.0031
3.3	-6.50	-0.0035

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-5.65	-0.0031
-10	-6.07	-0.0033
0	-6.47	-0.0035
10	-6.80	-0.0037
20	-5.56	-0.0030
30	-6.36	-0.0034
40	-5.98	-0.0032
50	-6.14	-0.0033
60	-6.25	-0.0034

LTE Band 13_784.5MHz_BW 5MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.67	-0.0041
3.8	-6.57	-0.0036
3.3	-6.85	-0.0037

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-6.33	-0.0034
-10	-6.64	-0.0036
0	-6.73	-0.0036
10	-5.82	-0.0031
20	-6.64	-0.0036
30	-6.78	-0.0037
40	-6.50	-0.0035
50	-7.69	-0.0042
60	-6.10	-0.0033

LTE Band 13_782MHz_BW 10MHz

Voltage

Voltage (VAC)	Frequency Error(Hz)	Frequency Error(ppm)
4.2	-7.36	-0.0040
3.8	-7.00	-0.0038
3.3	-6.67	-0.0036

Temperature

TEMPERATURE	Frequency Error(Hz)	Frequency Error (ppm)
-20	-7.01	-0.0038
-10	-7.03	-0.0038
0	-8.16	-0.0044
10	-7.87	-0.0043
20	-7.66	-0.0041
30	-7.81	-0.0042
40	-7.97	-0.0043
50	-7.28	-0.0039
60	-7.14	-0.0039