



Appendix B

E-UTRA Band 13



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CONTENT

1 EFFECTIVE (ISOTROPIC) RADIATED POWER.....	3
1.1. TEST RESULT.....	3
2. PEAK-TO-AVERAGE RATIO (CCDF).....	6
2.1. TEST RESULT.....	6
2.2. TEST PLOTS.....	6
3. MODULATION CHARACTERISTICS.....	8
3.1. TEST MODE = LTE /TM1 10MHZ.....	8
3.1.1. TEST CHANNEL = MCH.....	8
3.2. TEST MODE = LTE /TM2 10MHZ.....	9
3.2.1. TEST CHANNEL = MCH.....	9
3.3. TEST MODE = LTE /TM3 10MHZ.....	10
3.3.1. TEST CHANNEL = MCH.....	10
4. 26DB BANDWIDTH AND OCCUPIED BANDWIDTH.....	11
4.1. TEST RESULT.....	11
4.2. TEST PLOTS.....	12
5. BAND EDGE COMPLIANCE.....	19
5.1. TEST PLOTS.....	19
6. SPURIOUS EMISSION AT ANTENNA TERMINAL.....	30
6.1. TEST PLOTS.....	30
7. FIELD STRENGTH OF SPURIOUS RADIATION.....	33
7.1. Test Band = LTE_Band=13 BW=10MHZ _TM1.....	33
7.1.1. Test Channel = 23230.....	33
7.2. Test Band = LTE_Band=13 BW=10MHZ _TM1.....	34
7.2.1. Test Channel = 23230.....	34
8. FREQUENCY STABILITY.....	35
8.1. FREQUENCY VS VOLTAGE.....	35
8.2. FREQUENCY VS TEMPERATURE.....	35



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1 Effective (Isotropic) Radiated Power

1.1. Test Result

Band	Bandwidth h	Modulation	Channel	RB Configuration	Conducted Power(dBm)	ERP (dBm)	limit (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	24.56	19.61	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	24.83	19.88	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	24.51	19.56	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	23.64	18.69	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	23.62	18.67	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	23.71	18.76	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	23.63	18.68	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	24.53	19.58	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	24.52	19.57	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	24.84	19.89	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	23.67	18.72	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	23.63	18.68	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	23.72	18.77	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	23.67	18.72	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	24.74	19.79	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	24.50	19.55	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	24.52	19.57	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	23.75	18.80	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	23.75	18.80	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	23.64	18.69	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	23.71	18.76	34.77	PASS
Band13	5MHz	64QAM	23205	1RB#24	22.54	17.59	34.77	PASS
Band13	5MHz	64QAM	23205	1RB#0	22.62	17.67	34.77	PASS
Band13	5MHz	64QAM	23205	1RB#12	22.79	17.84	34.77	PASS
Band13	5MHz	64QAM	23205	12RB#13	21.57	16.62	34.77	PASS
Band13	5MHz	64QAM	23205	12RB#6	21.65	16.70	34.77	PASS
Band13	5MHz	64QAM	23205	12RB#0	21.55	16.60	34.77	PASS
Band13	5MHz	64QAM	23205	25RB#0	21.54	16.59	34.77	PASS



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Band13	5MHz	64QAM	23230	1RB#0	22.52	17.57	34.77	PASS
Band13	5MHz	64QAM	23230	1RB#12	22.80	17.85	34.77	PASS
Band13	5MHz	64QAM	23230	1RB#24	22.55	17.60	34.77	PASS
Band13	5MHz	64QAM	23230	12RB#0	21.59	16.64	34.77	PASS
Band13	5MHz	64QAM	23230	12RB#6	21.67	16.72	34.77	PASS
Band13	5MHz	64QAM	23230	12RB#13	21.55	16.60	34.77	PASS
Band13	5MHz	64QAM	23230	25RB#0	21.61	16.66	34.77	PASS
Band13	5MHz	64QAM	23255	1RB#0	22.54	17.59	34.77	PASS
Band13	5MHz	64QAM	23255	1RB#12	22.82	17.87	34.77	PASS
Band13	5MHz	64QAM	23255	1RB#24	22.58	17.63	34.77	PASS
Band13	5MHz	64QAM	23255	12RB#0	21.66	16.71	34.77	PASS
Band13	5MHz	64QAM	23255	12RB#6	21.69	16.74	34.77	PASS
Band13	5MHz	64QAM	23255	12RB#13	21.57	16.62	34.77	PASS
Band13	5MHz	64QAM	23255	25RB#0	21.65	16.70	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	23.56	18.61	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	23.86	18.91	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	23.69	18.74	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	22.58	17.63	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	22.67	17.72	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	22.59	17.64	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	22.56	17.61	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	23.61	18.66	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	23.59	18.64	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	23.96	19.01	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#6	22.68	17.73	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#0	22.63	17.68	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	22.59	17.64	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	22.60	17.65	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	23.92	18.97	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	23.62	18.67	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	23.58	18.63	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#13	22.58	17.63	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	22.71	17.76	34.77	PASS



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Band13	5MHz	16QAM	23255	12RB#6	22.70	17.75	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	22.66	17.71	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	24.69	19.74	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	24.74	19.79	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	24.60	19.65	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	23.77	18.82	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	23.69	18.74	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	23.70	18.75	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	23.71	18.76	34.77	PASS
Band13	10MHz	64QAM	23230	1RB#49	22.59	17.64	34.77	PASS
Band13	10MHz	64QAM	23230	1RB#0	22.72	17.77	34.77	PASS
Band13	10MHz	64QAM	23230	1RB#24	22.74	17.79	34.77	PASS
Band13	10MHz	64QAM	23230	25RB#12	21.69	16.74	34.77	PASS
Band13	10MHz	64QAM	23230	25RB#0	21.63	16.68	34.77	PASS
Band13	10MHz	64QAM	23230	25RB#25	21.62	16.67	34.77	PASS
Band13	10MHz	64QAM	23230	50RB#0	21.61	16.66	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	23.64	18.69	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	23.84	18.89	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	23.77	18.82	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#12	22.72	17.77	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#0	22.62	17.67	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#25	22.61	17.66	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	22.64	17.69	34.77	PASS

Remark:

a: For getting the EIRP (Efficient Isotropic Radiated Power), the following formula should be taken to calculate it,

ERP [dBm] = Conducted Power [dBm] + Gain [dBi]

EIRP [dBm] = Conducted Power [dBm] + Gain [dBi]



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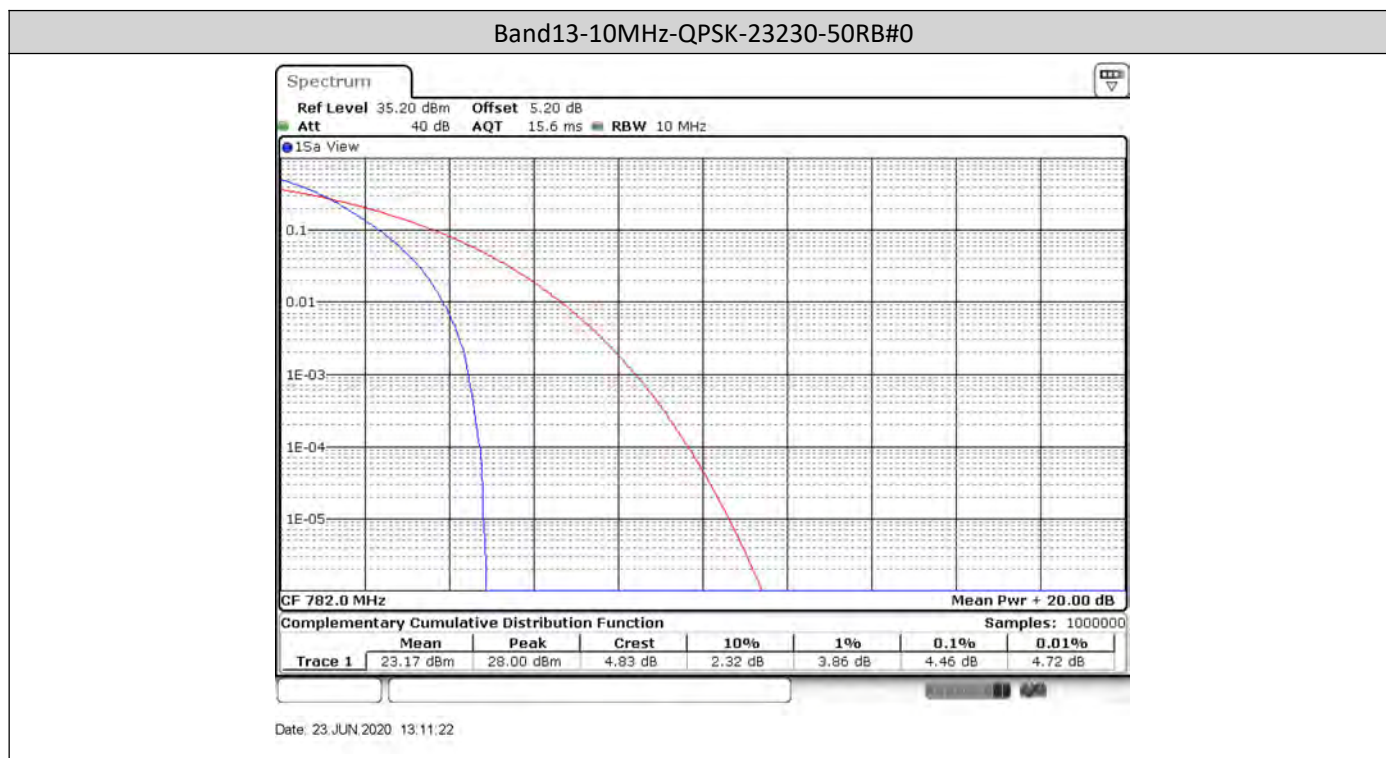


2. Peak-to-Average Ratio (CCDF)

2.1. Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	4.46	13	PASS
Band13	10MHz	64QAM	23230	50RB#0	5.86	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.45	13	PASS

2.2. Test Plots



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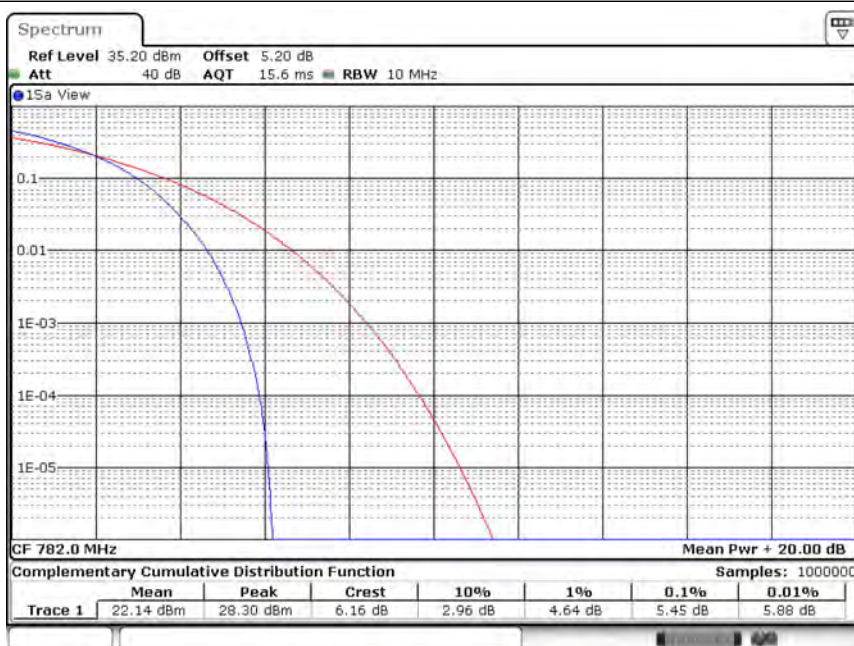
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Band13-10MHz-64QAM-23230-50RB#0



Date: 24 JUN 2020 09:45:11

Band13-10MHz-16QAM-23230-50RB#0



Date: 23 JUN 2020 13:11:33



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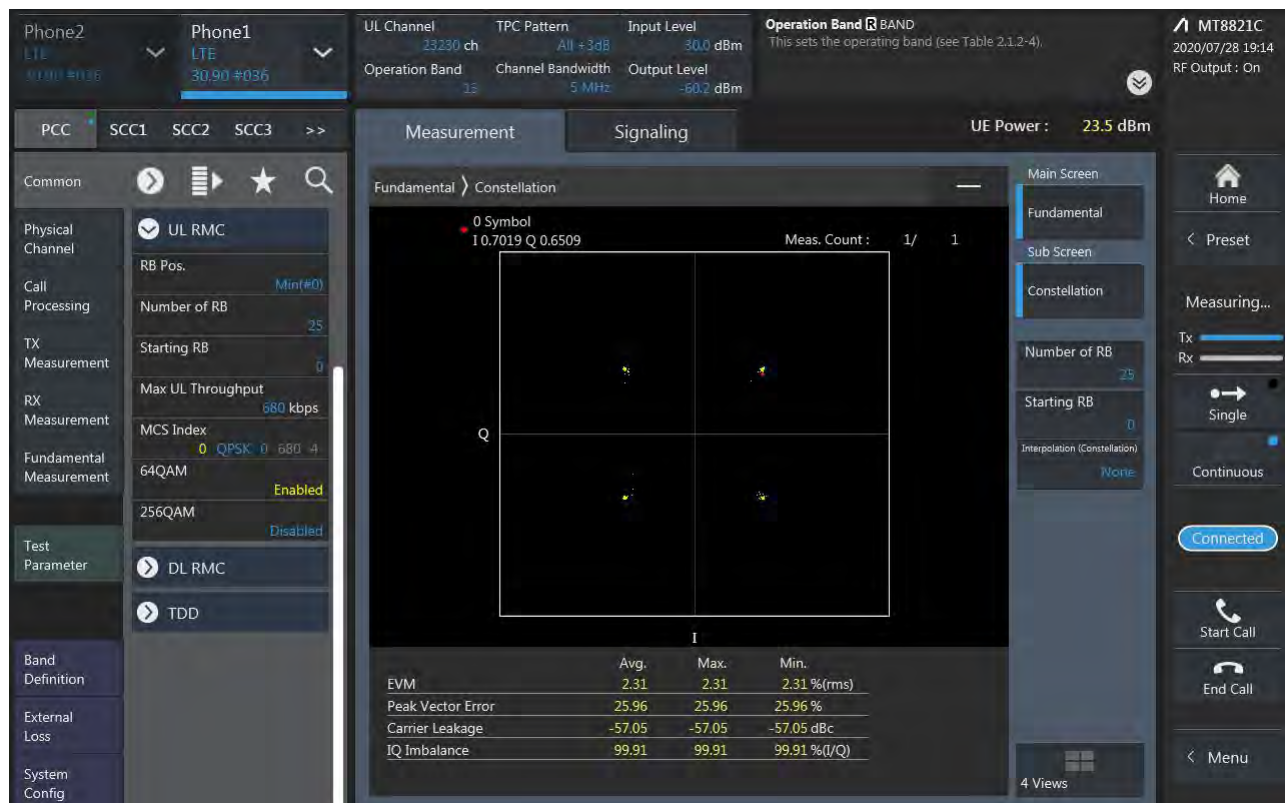
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3. Modulation Characteristics

3.1. Test Mode = LTE /TM1 10MHz

3.1.1. Test Channel = MCH



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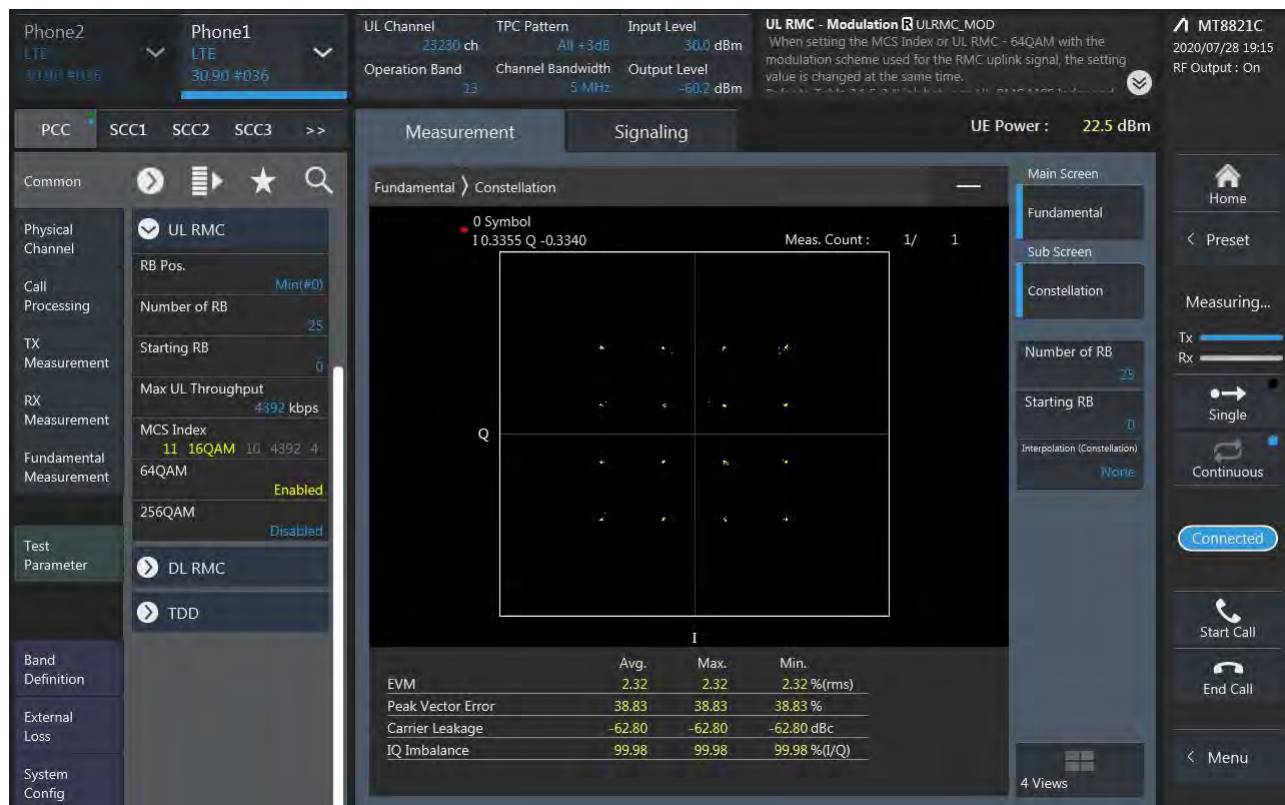
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3.2. Test Mode = LTE /TM2 10MHz

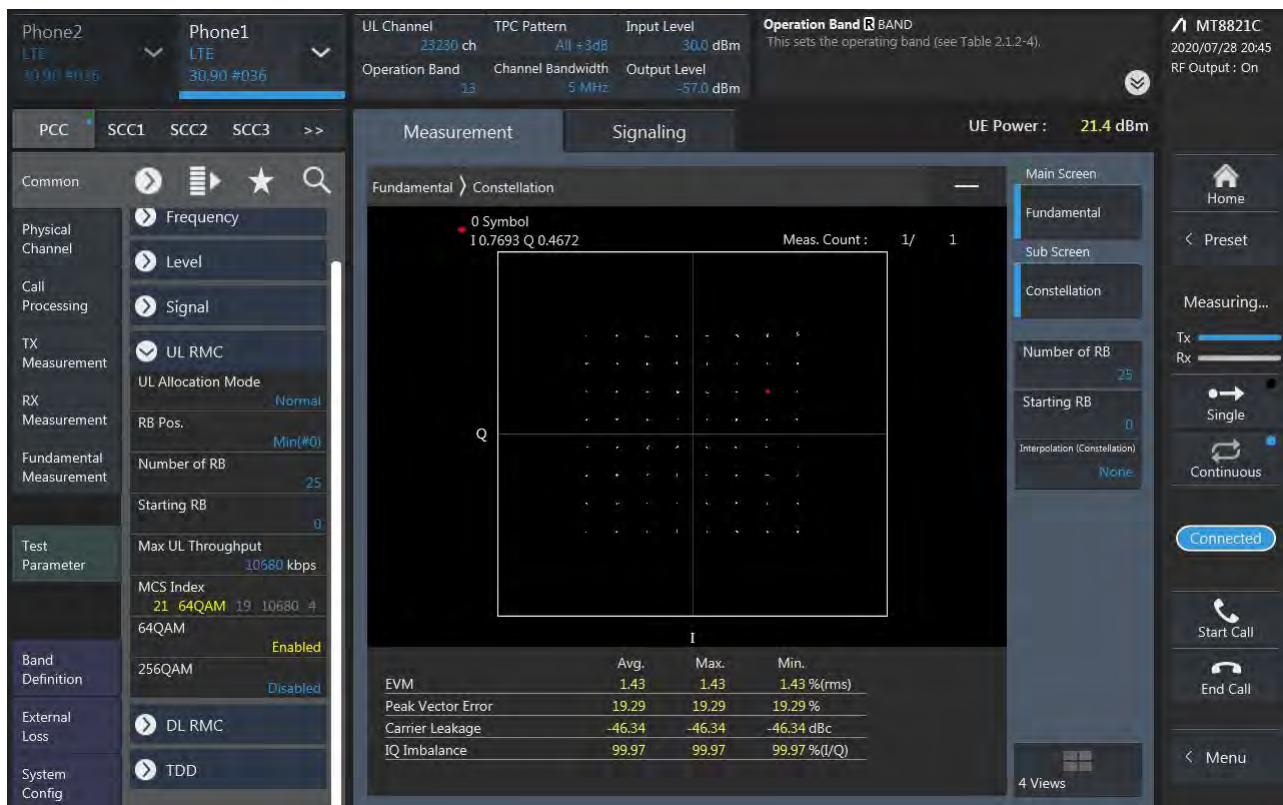
3.2.1.Test Channel = MCH





3.3. Test Mode = LTE /TM3 10MHz

3.3.1. Test Channel = MCH



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4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.456	4.820	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.466	4.810	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.476	4.840	PASS
Band13	5MHz	64QAM	23205	25RB#0	4.456	4.810	PASS
Band13	5MHz	64QAM	23230	25RB#0	4.466	4.970	PASS
Band13	5MHz	64QAM	23255	25RB#0	4.476	4.860	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.476	4.840	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.476	4.840	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.486	4.880	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.891	9.540	PASS
Band13	10MHz	64QAM	23230	50RB#0	8.911	9.500	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.911	9.600	PASS



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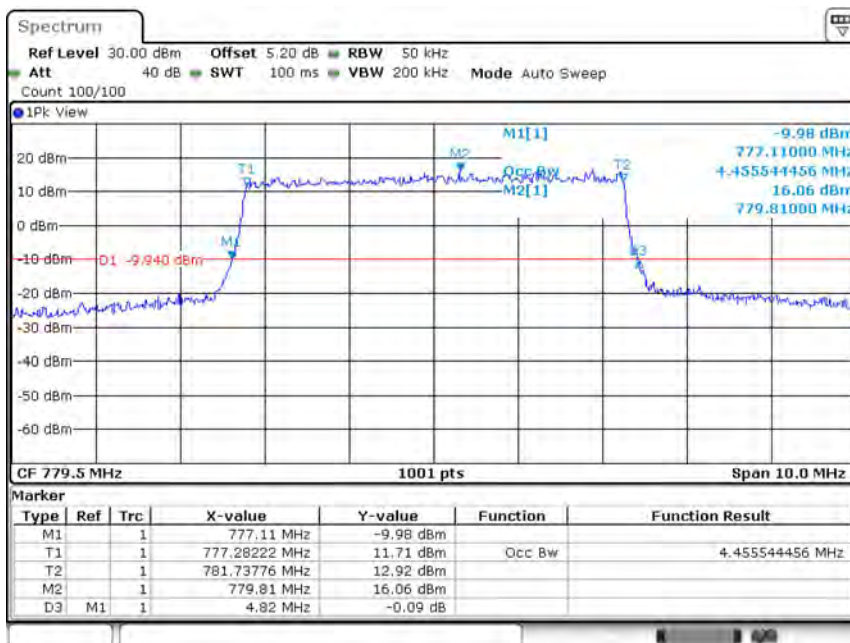
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4.2. Test Plots

Band13-5MHz-QPSK-23205-25RB#0-4.456



Date: 23 JUN 2020 13:03:02



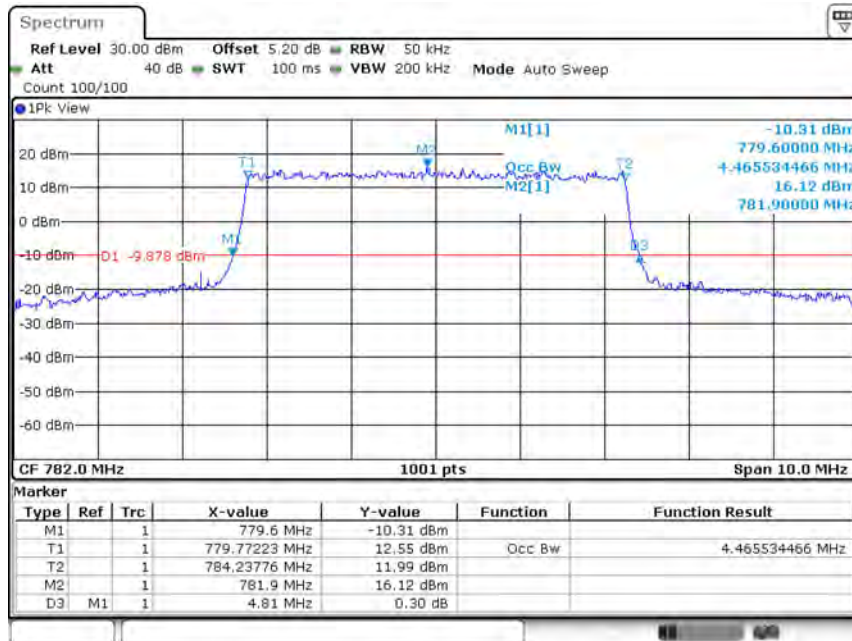
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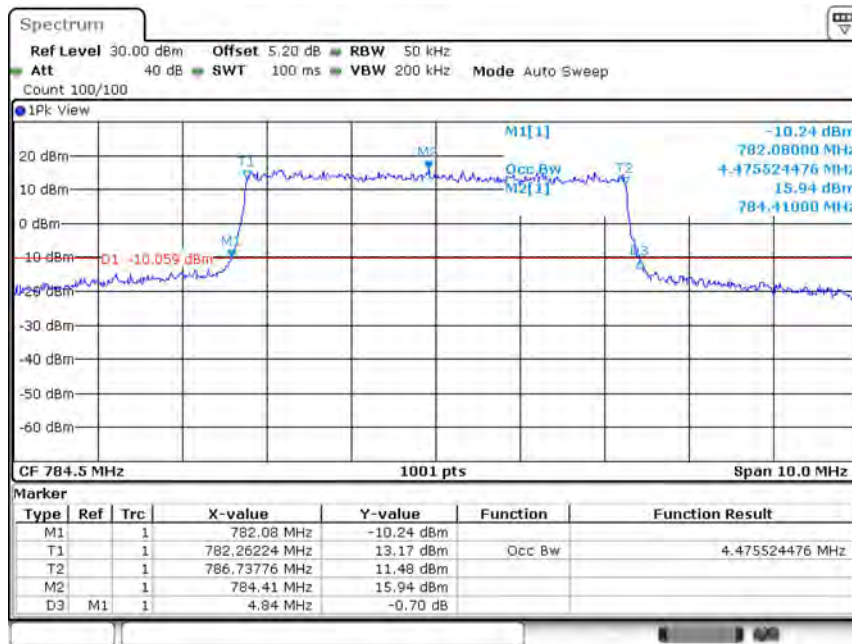
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Band13-5MHz-QPSK-23230-25RB#0-4.466



Date: 23 JUN 2020 13:03:42

Band13-5MHz-QPSK-23255-25RB#0-4.476



Date: 23 JUN 2020 13:04:21

Band13-5MHz-64QAM-23205-25RB#0-4.456



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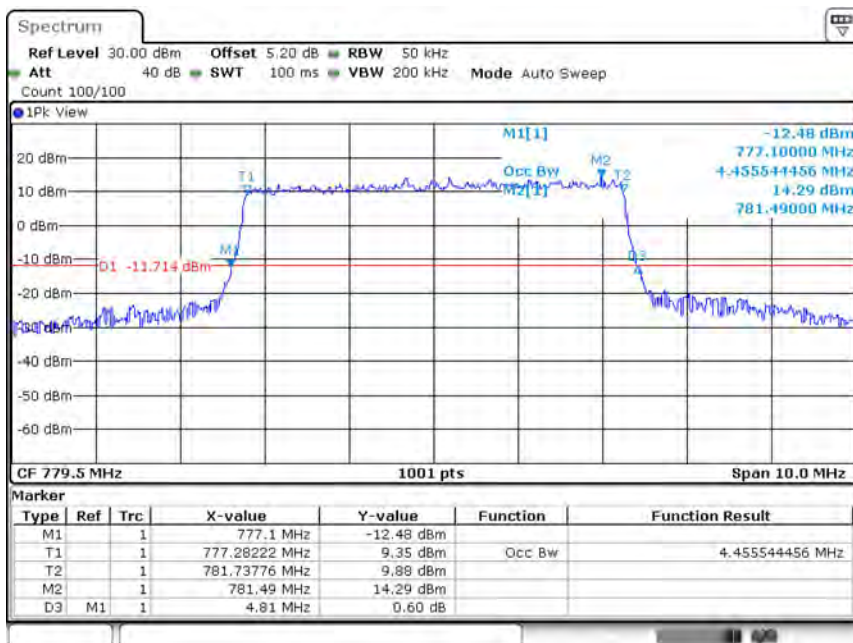
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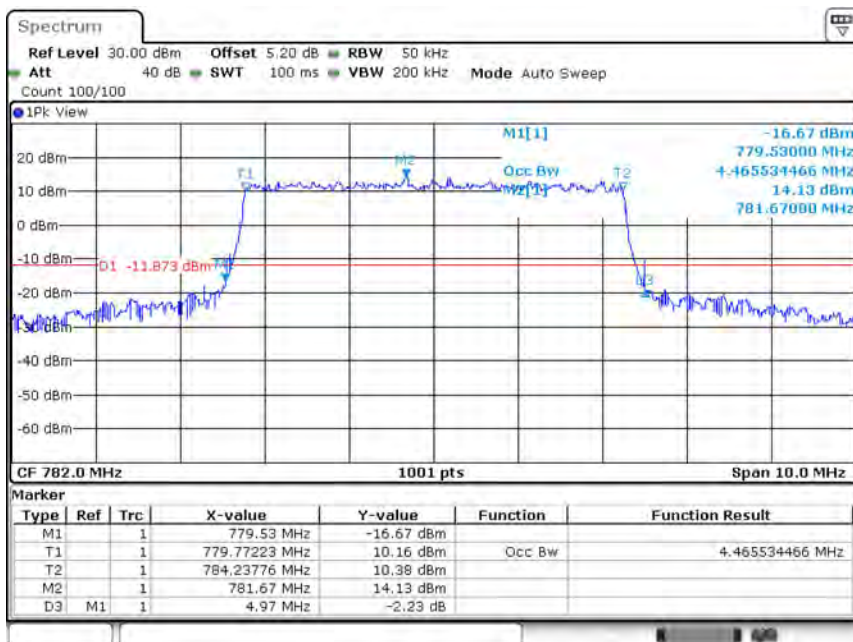
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Band13-5MHz-64QAM-23230-25RB#0-4.466



Date: 24 JUN 2020 09:40:39

Band13-5MHz-64QAM-23255-25RB#0-4.476

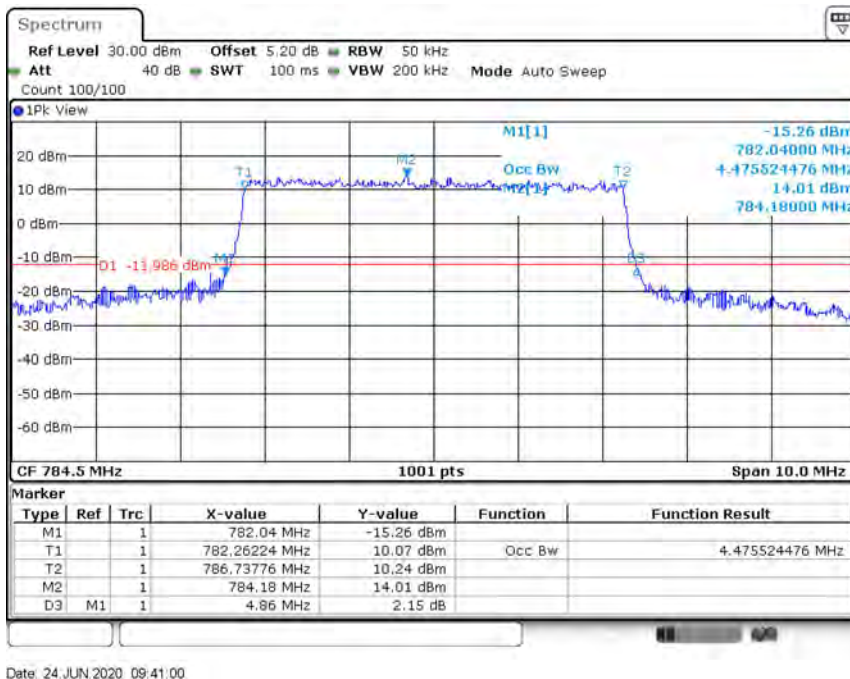


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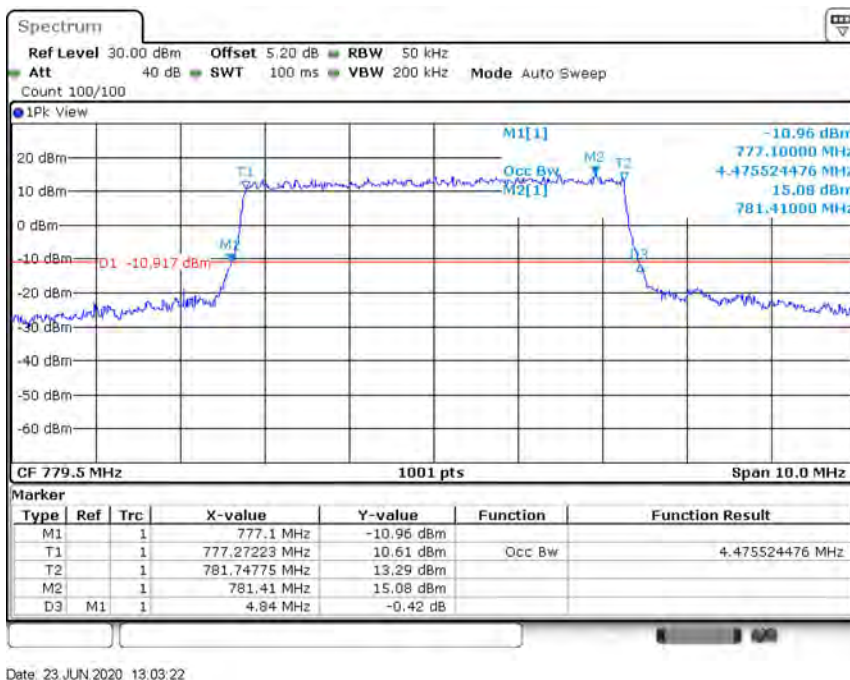
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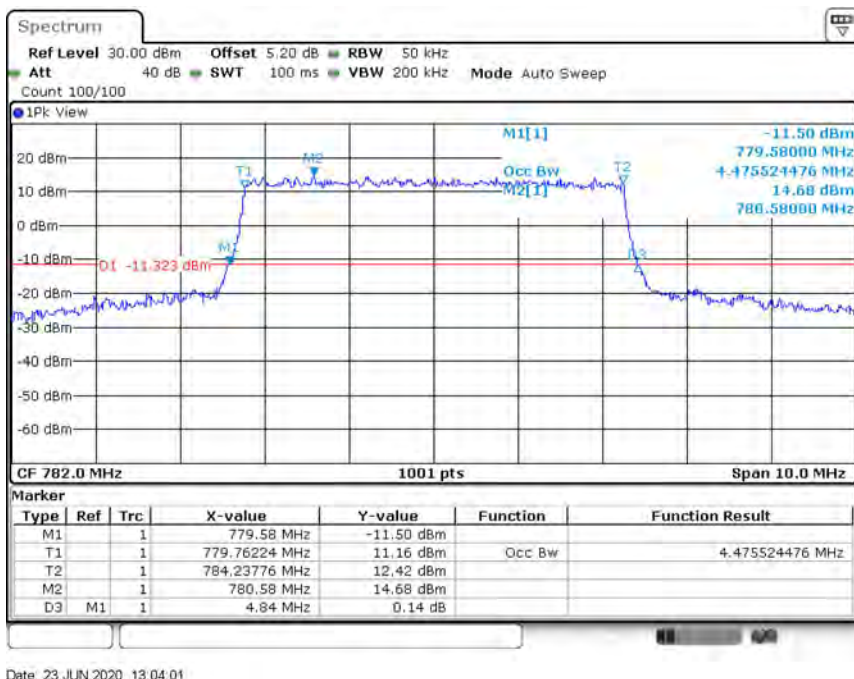


Band13-5MHz-16QAM-23205-25RB#0-4.476

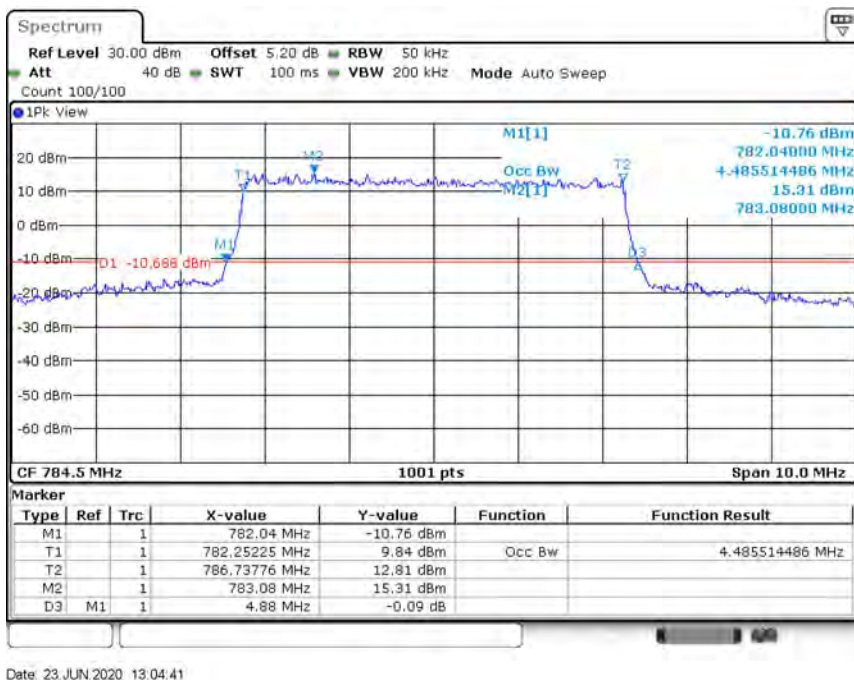


Band13-5MHz-16QAM-23230-25RB#0-4.476



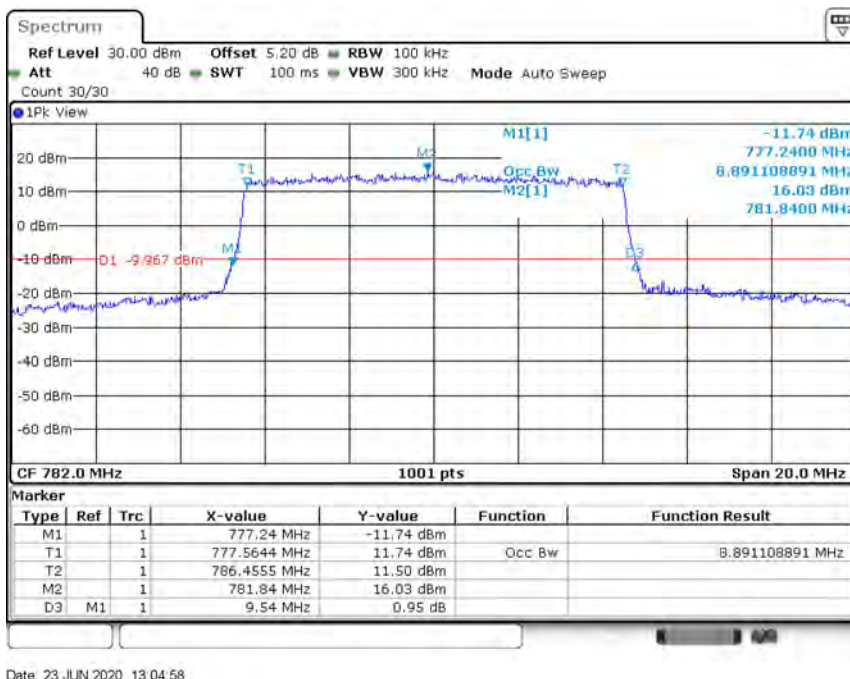


Band13-5MHz-16QAM-23255-25RB#0-4.486

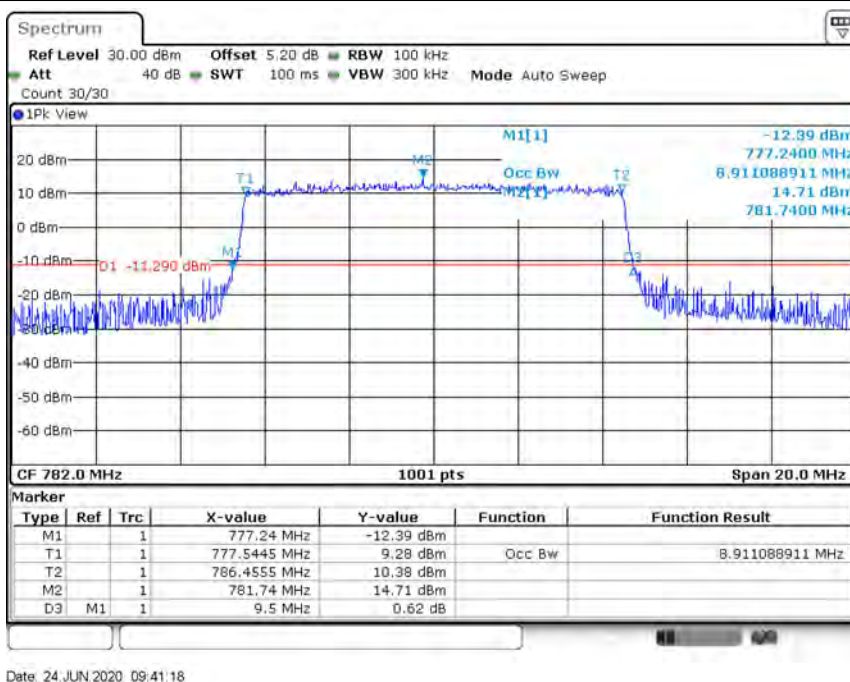


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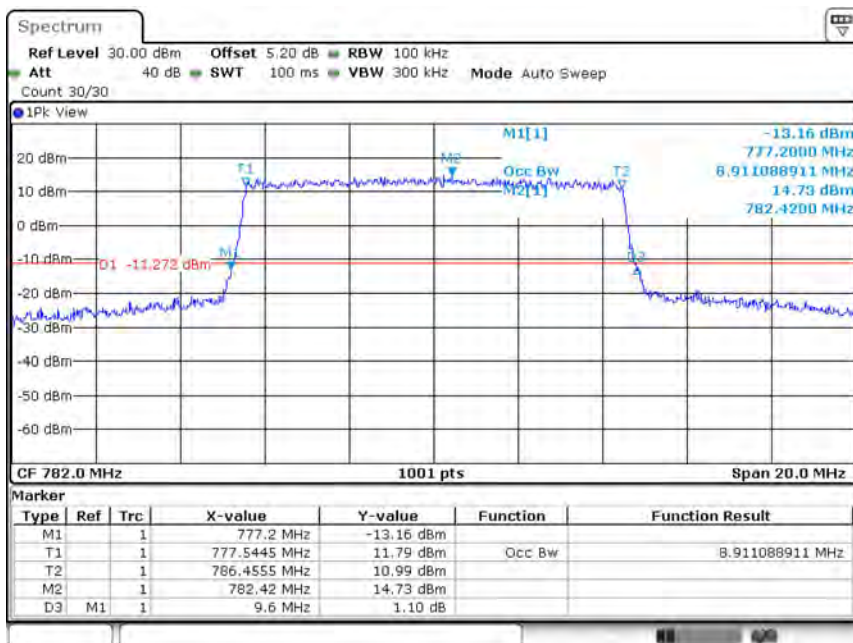


Band13-10MHz-64QAM-23230-50RB#0-8.911



Band13-10MHz-16QAM-23230-50RB#0-8.911





Date: 23 JUN 2020 13:05:11



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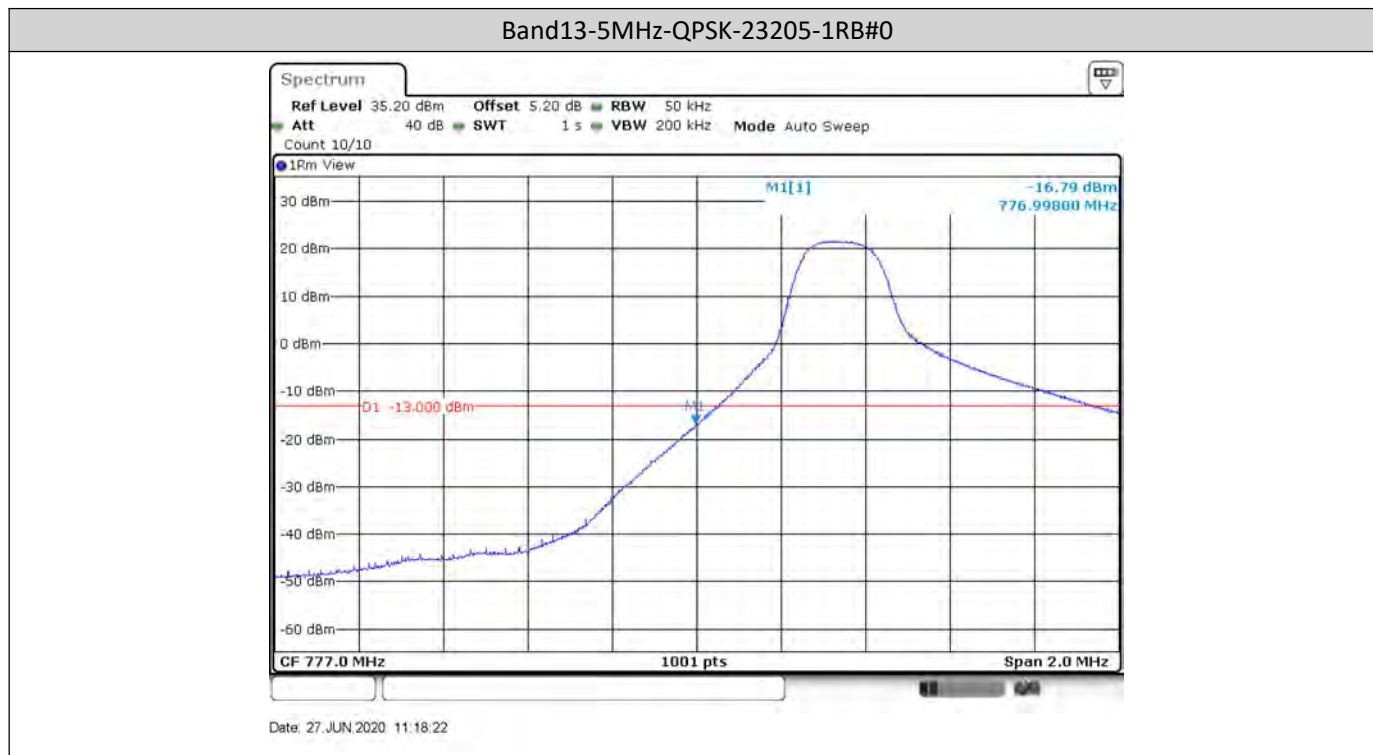
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5. Band Edge Compliance

5.1. Test Plots



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Band13-5MHz-QPSK-23205-25RB#0



Date: 27.JUN 2020 11:19:03

Band13-5MHz-QPSK-23255-1RB#24



Date: 27.JUN 2020 11:19:49

Band13-5MHz-QPSK-23255-25RB#0

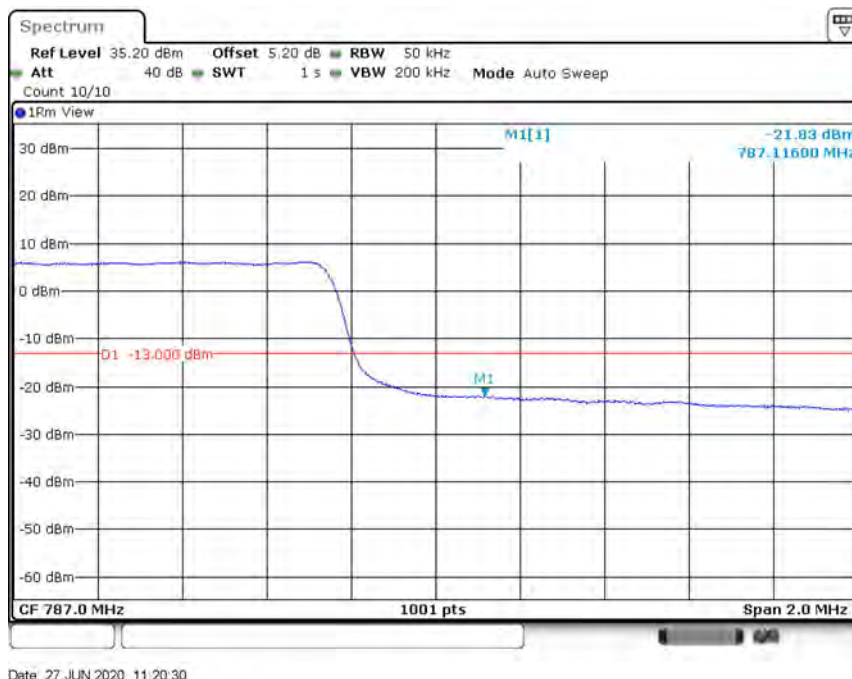


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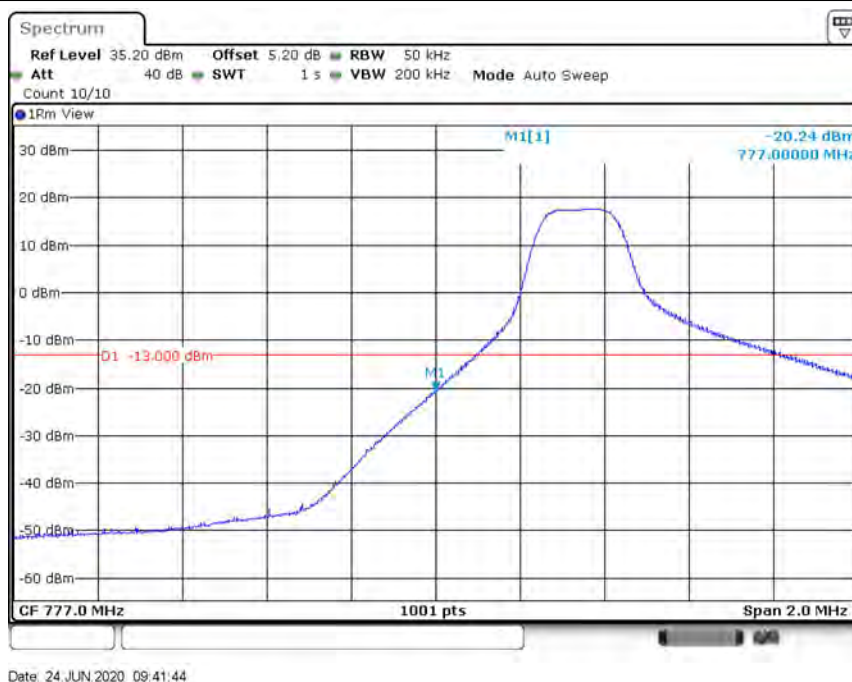
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Band13-5MHz-64QAM-23205-1RB#0



Band13-5MHz-64QAM-23205-25RB#0





Band13-5MHz-64QAM-23255-1RB#24



Band13-5MHz-64QAM-23255-25RB#0



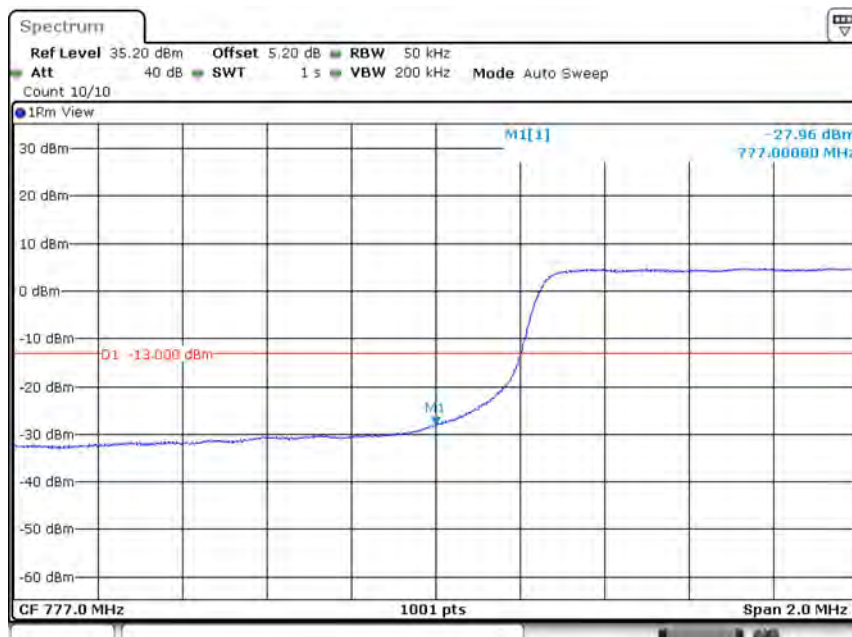


Band13-5MHz-16QAM-23205-1RB#0



Band13-5MHz-16QAM-23205-25RB#0





Date: 27 JUN 2020 11:19:24

Band13-5MHz-16QAM-23255-1RB#24



Date: 27 JUN 2020 11:20:09

Band13-5MHz-16QAM-23255-25RB#0



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Date: 27 JUN 2020 11:20:51

Band13-10MHz-QPSK-23230_Left-1RB#0



Date: 23 JUN 2020 13:08:29

Band13-10MHz-QPSK-23230_Right-1RB#49



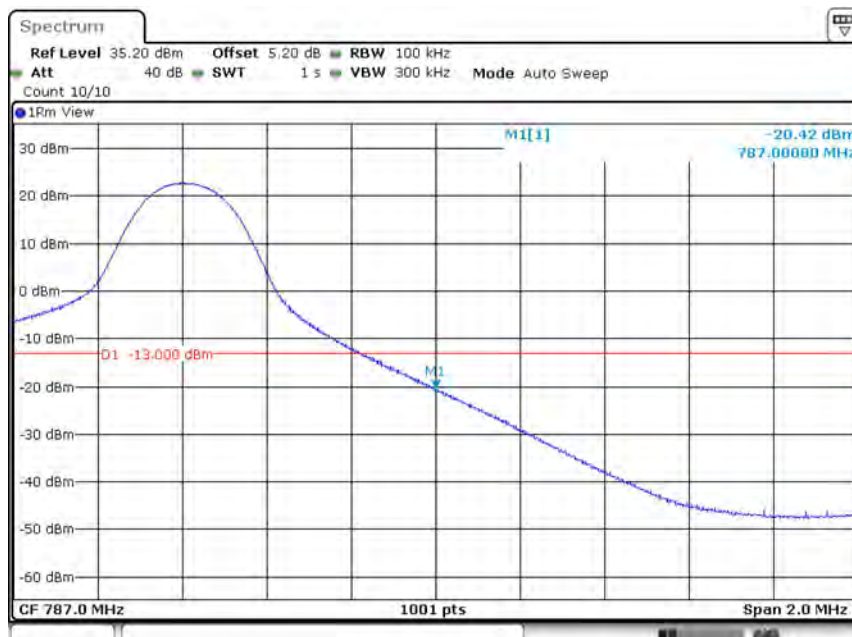
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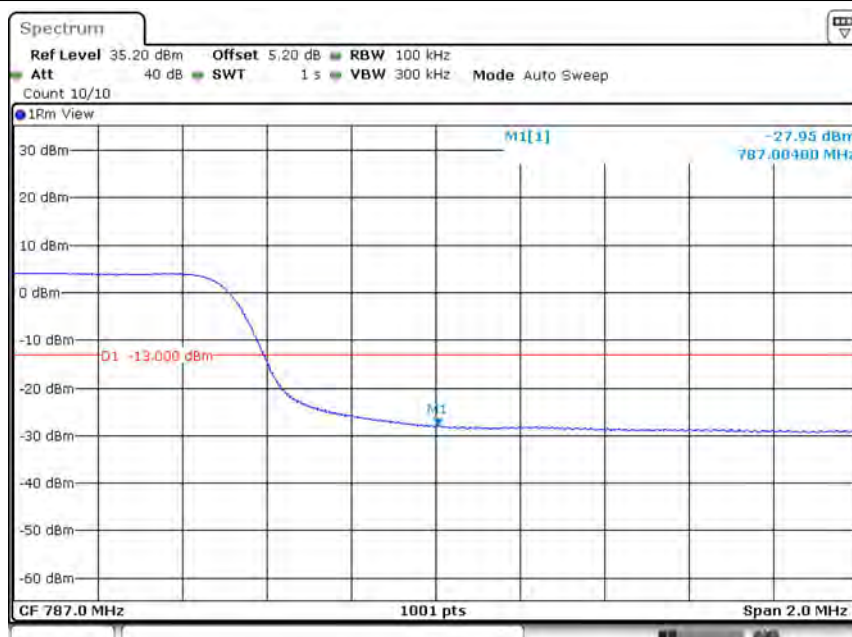
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Date: 23 JUN 2020 13:09:14

Band13-10MHz-QPSK-23230_Right-50RB#0



Date: 23 JUN 2020 13:09:55

Band13-10MHz-64QAM-23230_Left-1RB#0



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Date: 24 JUN 2020 09:43:18

Band13-10MHz-64QAM-23230_Right-1RB#49



Date: 24 JUN 2020 09:43:42

Band13-10MHz-64QAM-23230_Right-50RB#0



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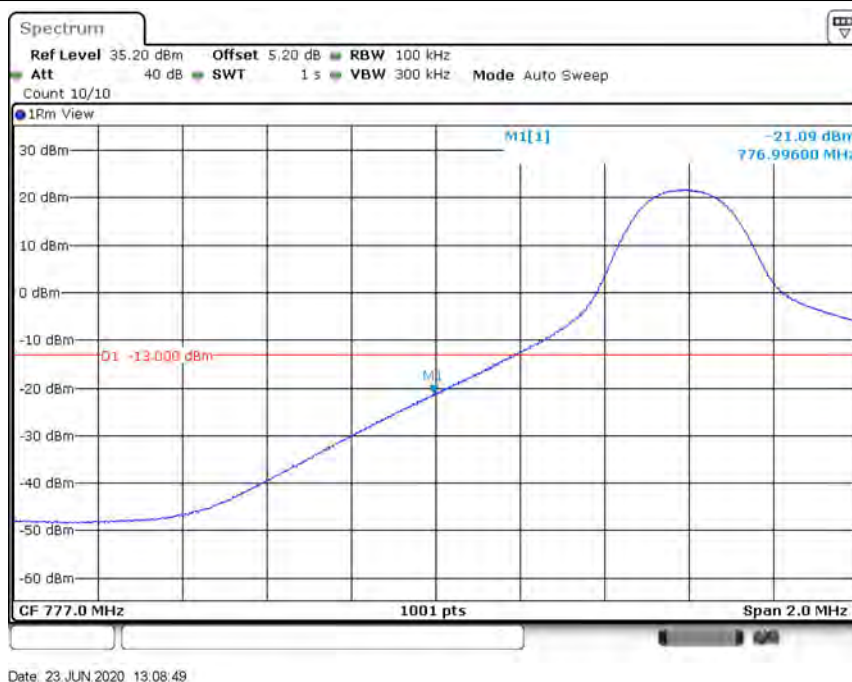
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Band13-10MHz-16QAM-23230_Left-1RB#0

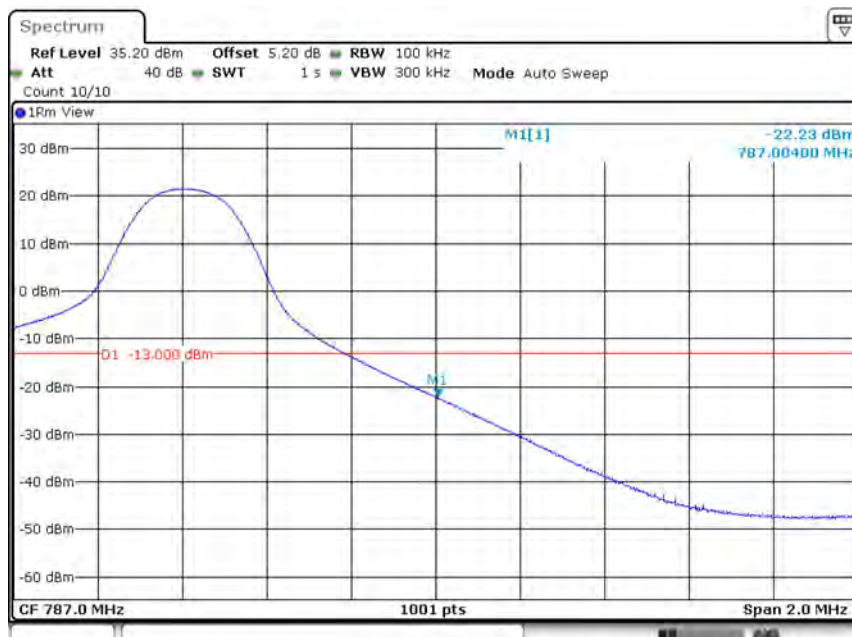


Band13-10MHz-16QAM-23230_Right-1RB#49



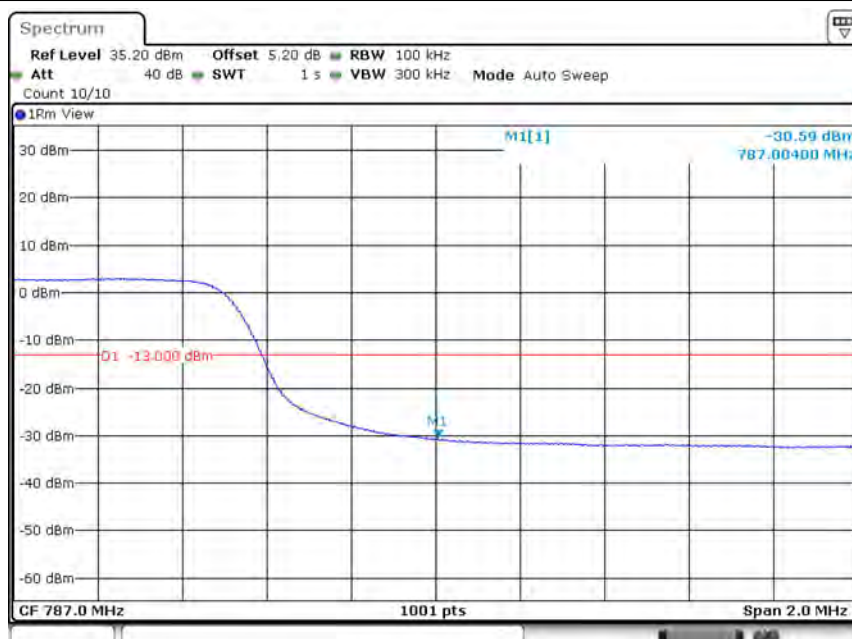
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Date: 23 JUN 2020 13:09:34

Band13-10MHz-16QAM-23230_Right-50RB#0



Date: 23 JUN 2020 13:10:15



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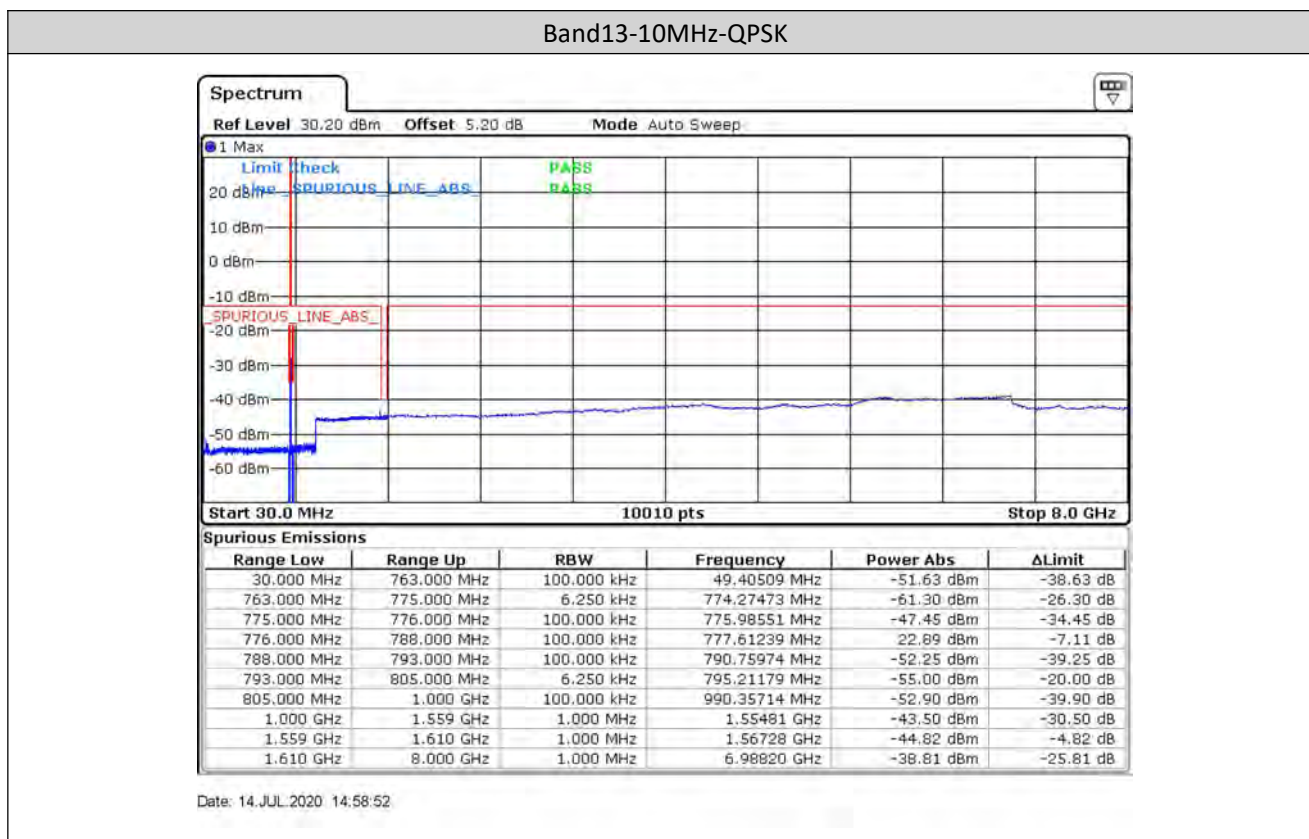
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6. Spurious Emission at Antenna Terminal

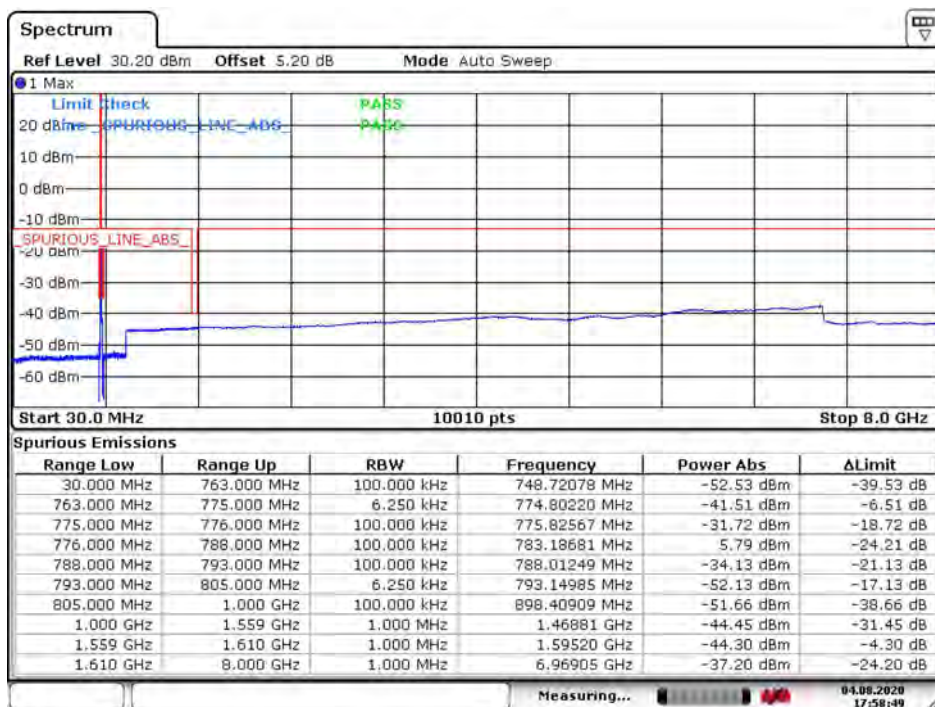
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (\text{Span} / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Remark2: only the worst case data displayed in this report.

6.1. Test Plots



Band13-10MHz-16QAM



Date: 4.AUG.2020 17:58:50



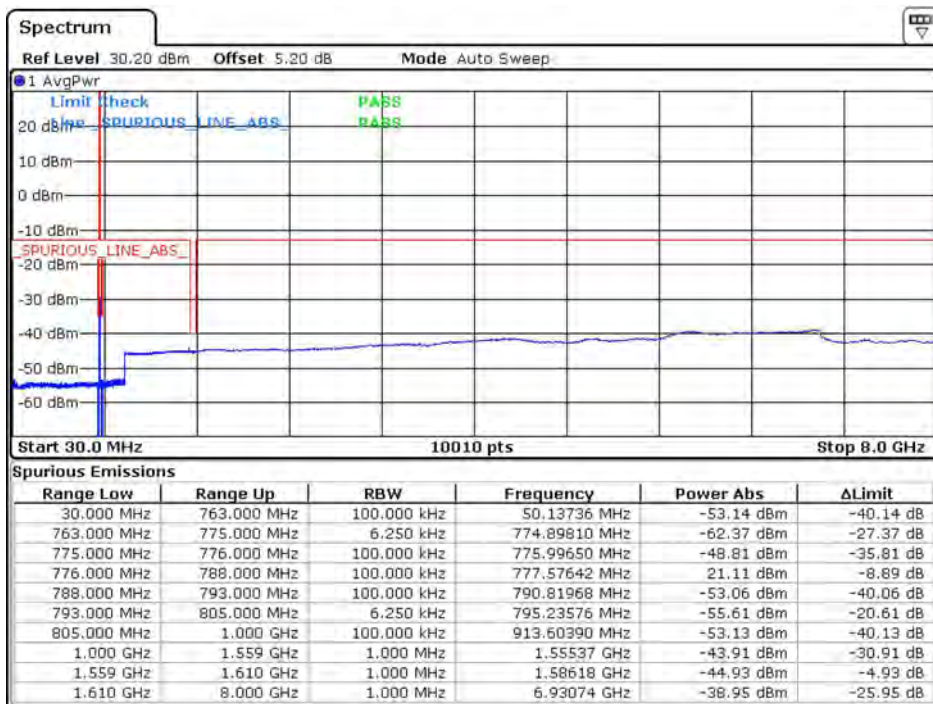
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Band13-10MHz-64QAM



Date: 14 JUL 2020 14:58:01

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7. Field Strength of Spurious Radiation

7.1. Test Band = LTE_Band=13 BW=10MHz_TM1

7.1.1. Test Channel = 23230

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	41.1556	-70.84	-64.02	-13.00	51.02	258	197	Horizontal
2	232.3036	-71.48	-68.66	-13.00	55.66	296	111	Horizontal
3	1554.9110	-65.88	-61.80	-13.00	48.80	158	337	Horizontal
4	2332.6665	-61.67	-52.06	-13.00	39.06	174	160	Horizontal
5	9326.6531	-58.38	-52.69	-13.00	39.69	213	26	Horizontal
6	16400.9360	-57.91	-43.48	-13.00	30.48	256	325	Horizontal



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7.2. Test Band = LTE_Band=13 BW=10MHz_TM1

7.2.1. Test Channel = 23230

Suspected Data List

NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	109.1075	-71.78	-65.58	-13.00	52.58	252	198	Vertical
2	467.0554	-70.06	-65.81	-13.00	52.81	184	218	Vertical
3	1554.9110	-65.47	-61.37	-13.00	48.37	231	291	Vertical
4	2333.0666	-63.41	-53.57	-13.00	40.57	255	162	Vertical
5	14482.6593	-59.89	-47.52	-13.00	34.52	174	283	Vertical
6	17993.9998	-58.08	-40.35	-13.00	27.35	184	155	Vertical

Remark:

- 1 According to 971168 D01 Power Meas License Digital Systems, The amplitudes of unwanted emissions that are attenuated more than 20 dB below the applicable limit are not required to be reported.
- 2 The disturbance below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the worst case data displayed in this report.
- 3 all modulation and all Bandwidth had been tested, but only the worst case data displayed in this report.



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8. Frequency Stability

8.1. Frequency Vs Voltage

Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	VL	NT	-8.50	-0.010870	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	-11.20	-0.014322	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-7.60	-0.009719	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VL	NT	-8.90	-0.011381	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VN	NT	-0.30	-0.000384	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VH	NT	-8.20	-0.010486	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	-11.30	-0.014450	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	0.70	0.000895	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	-1.30	-0.001662	±2.5	PASS

8.2. Frequency Vs Temperature

Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	NV	-30	-1.10	-0.001407	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-7.00	-0.008951	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-3.00	-0.003836	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-13.30	-0.017008	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	-9.20	-0.011765	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	-10.50	-0.013427	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	-10.40	-0.013299	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	0.20	0.000256	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-30	-3.90	-0.004987	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-20	-6.90	-0.008824	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	0	-6.40	-0.008184	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	10	-12.30	-0.015729	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	20	-10.70	-0.013683	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	30	-10.30	-0.013171	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	40	-4.00	-0.005115	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	50	-4.00	-0.005115	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	-3.00	-0.003836	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	-5.30	-0.006777	±2.5	PASS



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Band13	10MHz	16QAM	23230	50RB#0	NV	0	-3.50	-0.004476	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	-13.70	-0.017519	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	-9.10	-0.011637	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	-4.40	-0.005627	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	-1.50	-0.001918	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	-11.00	-0.014066	±2.5	PASS



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