



Appendix B

E-UTRA Band 13



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1 Effective (Isotropic) Radiated Power

1.1. Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power(dBm)	ERP (dBm)	limit (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#12	23.8	13.32	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#0	23.79	13.31	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.81	13.33	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.99	12.51	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	23.01	12.53	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	23.02	12.54	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	23.00	12.52	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.85	13.37	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.85	13.37	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.91	13.43	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.95	12.47	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	23.06	12.58	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.96	12.48	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	23.06	12.58	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.83	13.35	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.79	13.31	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.85	13.37	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.91	12.43	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.98	12.5	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.9	12.42	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	23.01	12.53	34.77	PASS
Band13	5MHz	64QAM	23205	1RB#0	21.92	11.44	34.77	PASS
Band13	5MHz	64QAM	23205	1RB#12	21.63	11.15	34.77	PASS
Band13	5MHz	64QAM	23205	1RB#24	21.76	11.28	34.77	PASS
Band13	5MHz	64QAM	23205	12RB#6	20.97	10.49	34.77	PASS
Band13	5MHz	64QAM	23205	12RB#13	21.02	10.54	34.77	PASS
Band13	5MHz	64QAM	23205	12RB#0	20.72	10.24	34.77	PASS



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Band13	5MHz	64QAM	23205	25RB#0	20.85	10.37	34.77	PASS
Band13	5MHz	64QAM	23230	1RB#24	21.93	11.45	34.77	PASS
Band13	5MHz	64QAM	23230	1RB#12	21.79	11.31	34.77	PASS
Band13	5MHz	64QAM	23230	1RB#0	21.84	11.36	34.77	PASS
Band13	5MHz	64QAM	23230	12RB#0	21.07	10.59	34.77	PASS
Band13	5MHz	64QAM	23230	12RB#6	20.99	10.51	34.77	PASS
Band13	5MHz	64QAM	23230	12RB#13	20.89	10.41	34.77	PASS
Band13	5MHz	64QAM	23230	25RB#0	20.9	10.42	34.77	PASS
Band13	5MHz	64QAM	23255	1RB#12	21.92	11.44	34.77	PASS
Band13	5MHz	64QAM	23255	1RB#24	21.77	11.29	34.77	PASS
Band13	5MHz	64QAM	23255	1RB#0	21.77	11.29	34.77	PASS
Band13	5MHz	64QAM	23255	12RB#6	20.85	10.37	34.77	PASS
Band13	5MHz	64QAM	23255	12RB#0	21	10.52	34.77	PASS
Band13	5MHz	64QAM	23255	12RB#13	20.83	10.35	34.77	PASS
Band13	5MHz	64QAM	23255	25RB#0	20.84	10.36	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	23.21	12.73	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	23.25	12.77	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	22.94	12.46	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	22.04	11.56	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.76	11.28	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	21.87	11.39	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.88	11.4	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	23.35	12.87	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	23.41	12.93	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	22.93	12.45	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	22.05	11.57	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.89	11.41	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#6	21.99	11.51	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	21.98	11.5	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	23.24	12.76	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	23.35	12.87	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.84	12.36	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	22.04	11.56	34.77	PASS



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Band13	5MHz	16QAM	23255	12RB#13	21.89	11.41	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#6	21.87	11.39	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.76	11.28	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.88	13.4	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	24.12	13.64	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.88	13.4	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	22.96	12.48	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	23.04	12.56	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	23.07	12.59	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	23.15	12.67	34.77	PASS
Band13	10MHz	64QAM	23230	1RB#49	21.92	11.44	34.77	PASS
Band13	10MHz	64QAM	23230	1RB#24	21.83	11.35	34.77	PASS
Band13	10MHz	64QAM	23230	1RB#0	21.88	11.4	34.77	PASS
Band13	10MHz	64QAM	23230	25RB#0	21.12	10.64	34.77	PASS
Band13	10MHz	64QAM	23230	25RB#12	21.08	10.6	34.77	PASS
Band13	10MHz	64QAM	23230	25RB#25	20.92	10.44	34.77	PASS
Band13	10MHz	64QAM	23230	50RB#0	20.93	10.45	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	23.25	12.77	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	23.37	12.89	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	23.31	12.83	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#25	22.09	11.61	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#0	21.97	11.49	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#12	22	11.52	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	22.07	11.59	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 [dBd]

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



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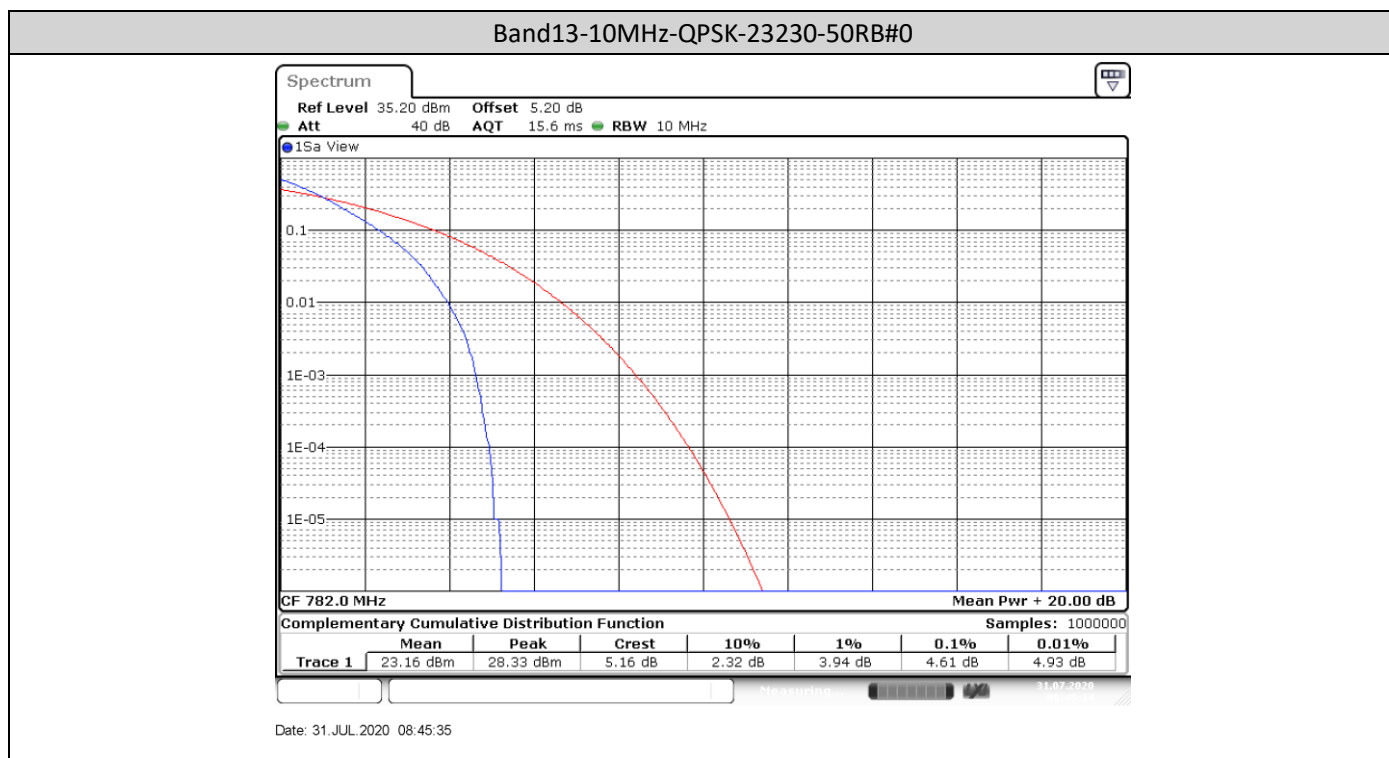


2. Peak-to-Average Ratio (CCDF)

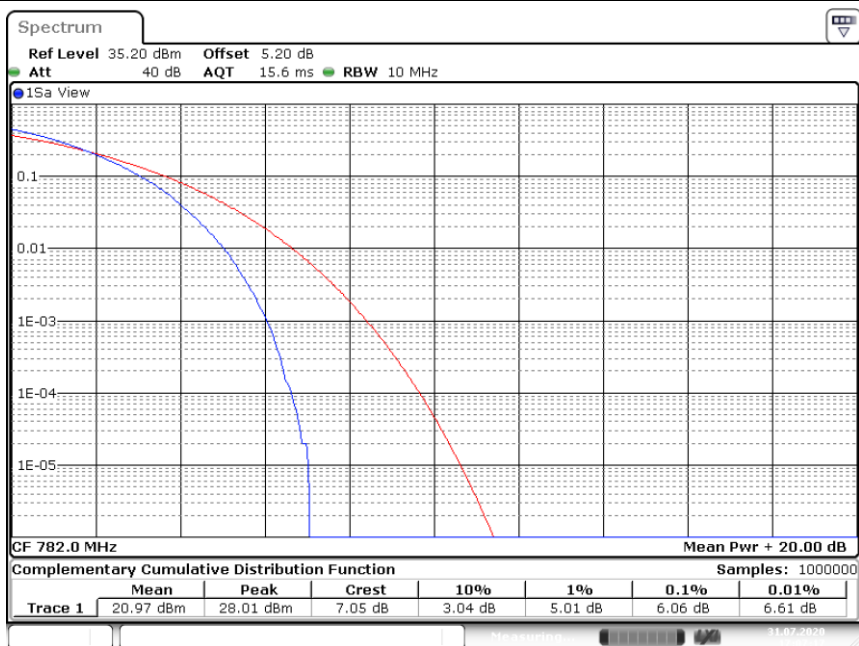
2.1. Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	4.61	13	PASS
Band13	10MHz	64QAM	23230	50RB#0	6.06	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.48	13	PASS

2.2. Test Plots

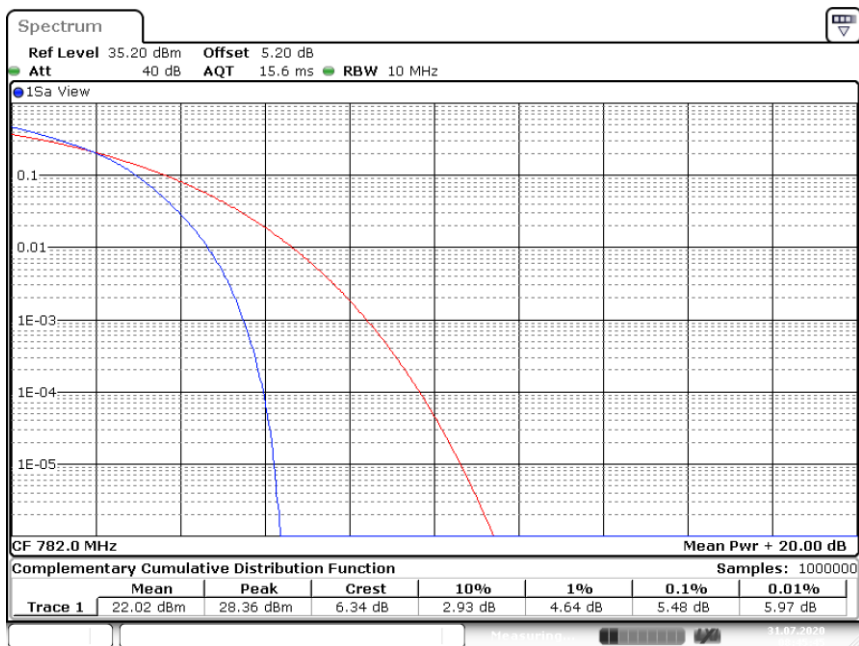


Band13-10MHz-64QAM-23230-50RB#0



Date: 31.JUL.2020 17:07:17

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



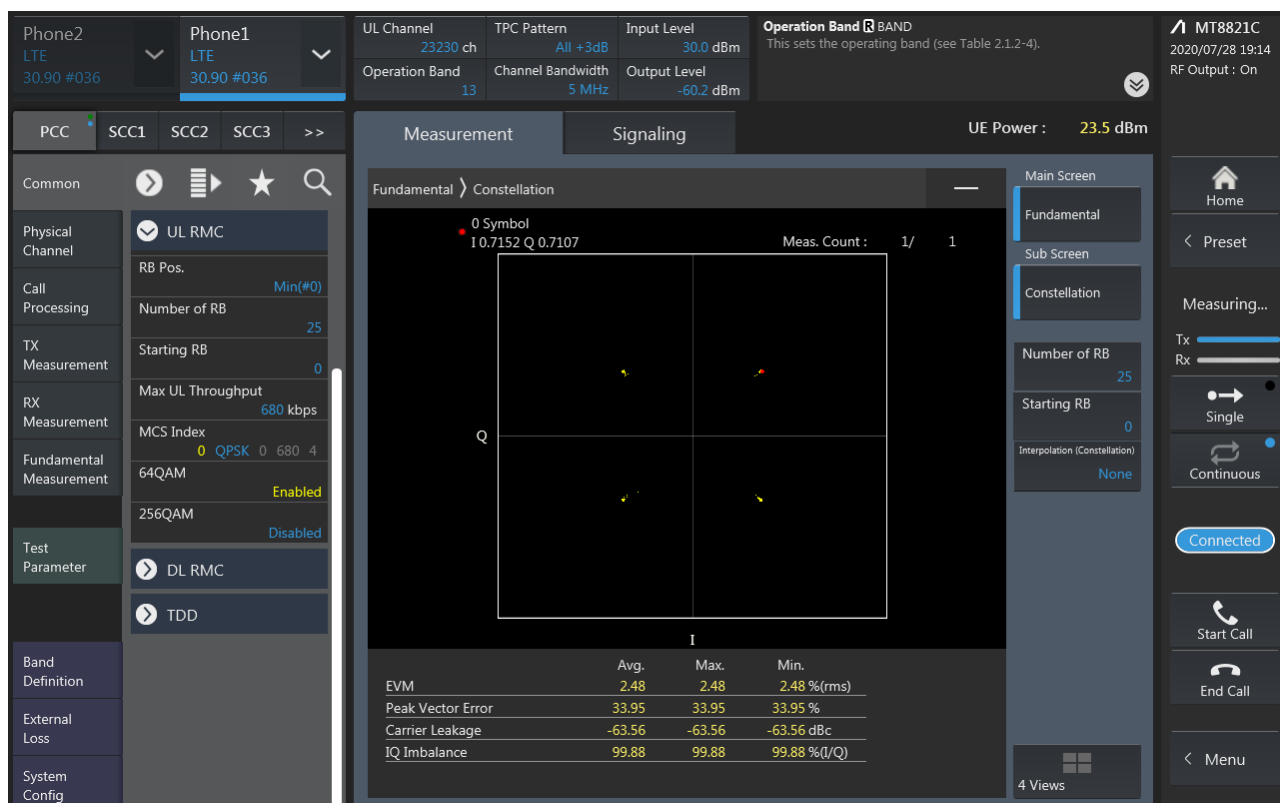
Date: 31.JUL.2020 08:45:46



3. Modulation Characteristics

3.1. Test Mode = LTE /TM1 10MHz

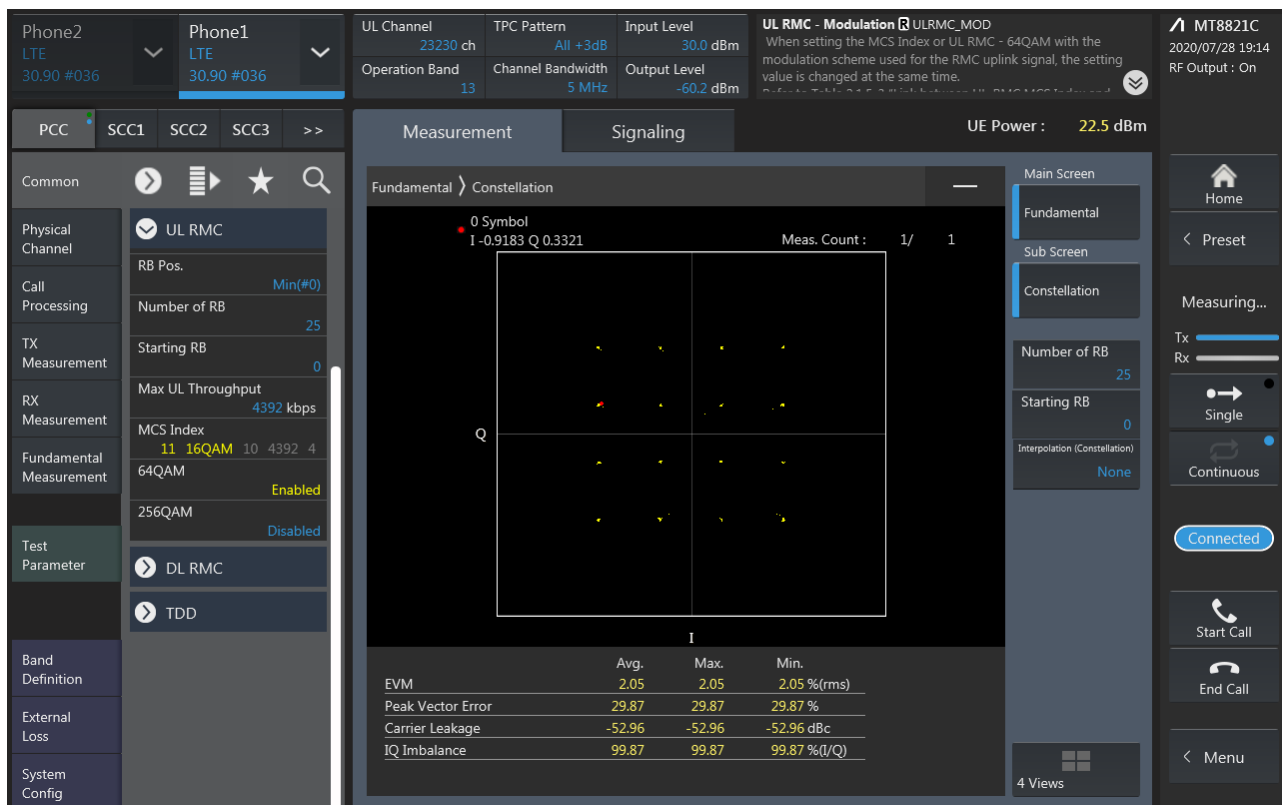
3.1.1.Test Channel = MCH





3.2. Test Mode = LTE /TM2 10MHz

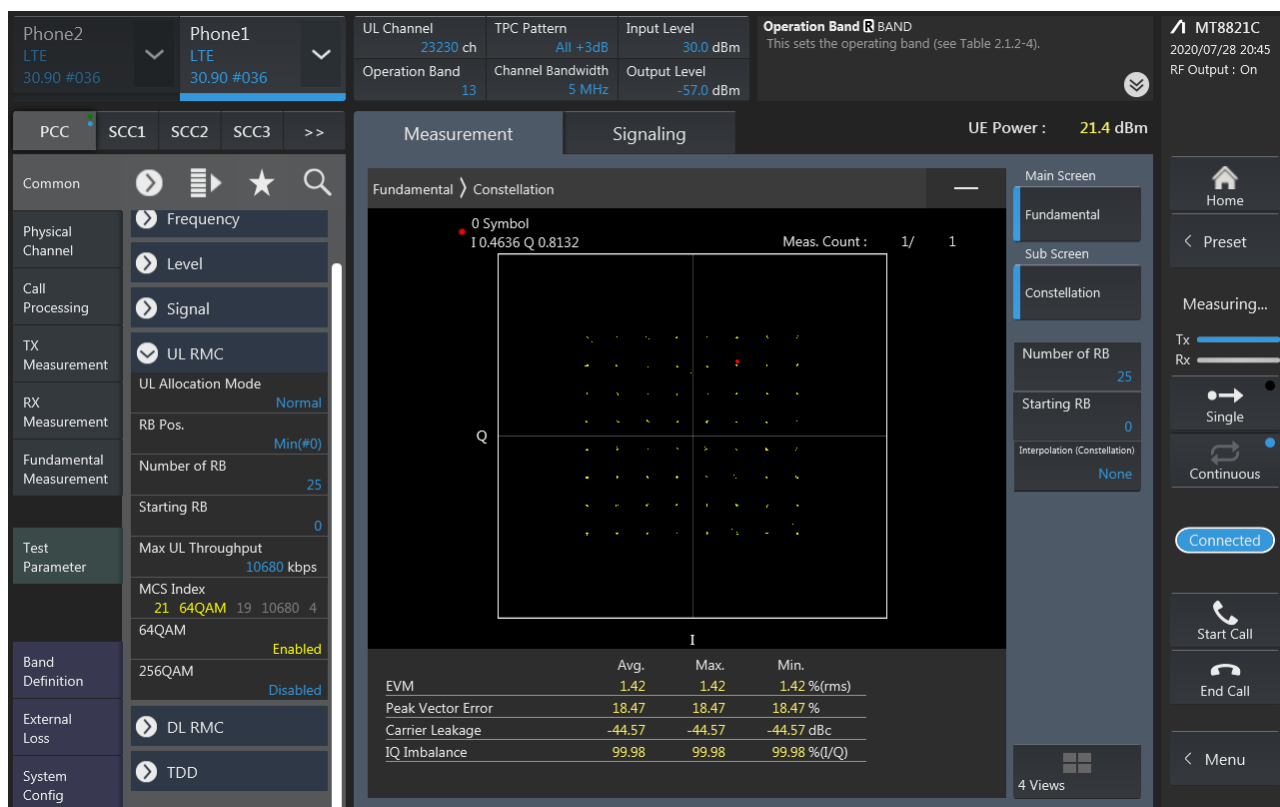
3.2.1. Test Channel = MCH





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	4.466	4.840	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.466	4.820	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.476	4.840	PASS
Band13	5MHz	64QAM	23205	25RB#0	4.466	4.810	PASS
Band13	5MHz	64QAM	23230	25RB#0	4.466	4.820	PASS
Band13	5MHz	64QAM	23255	25RB#0	4.476	4.820	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.486	4.840	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.486	4.870	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.476	4.850	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.931	9.600	PASS
Band13	10MHz	64QAM	23230	50RB#0	8.911	9.620	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.891	9.600	PASS



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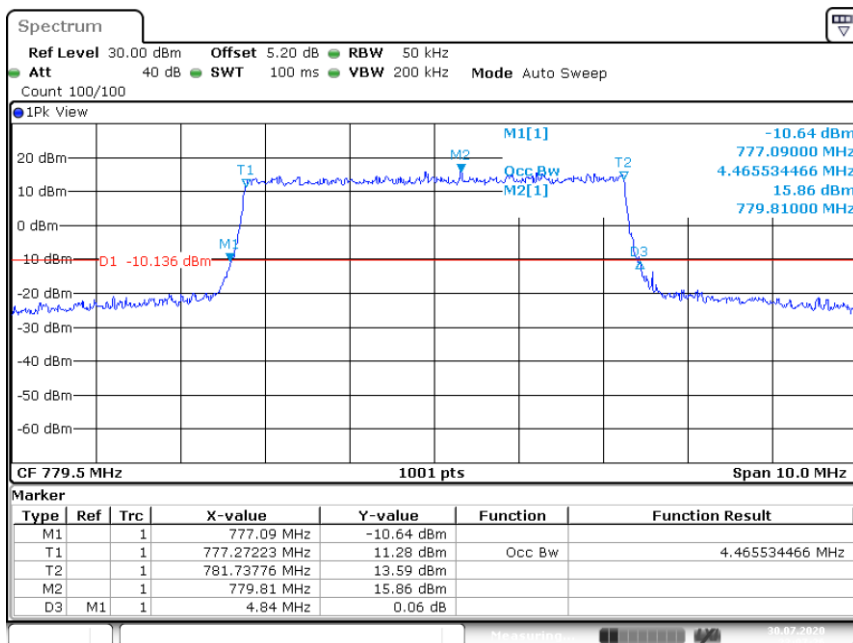
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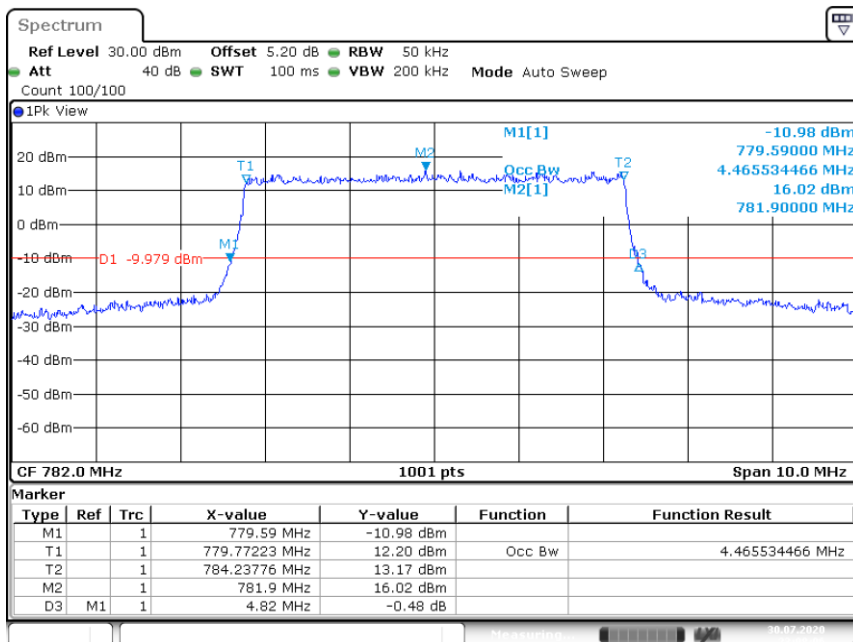
4.2. Test Plots

Band13-5MHz-QPSK-23205-25RB#0-4.466



Date: 30 JUL 2020 23:07:26

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



Date: 30 JUL 2020 23:08:06

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



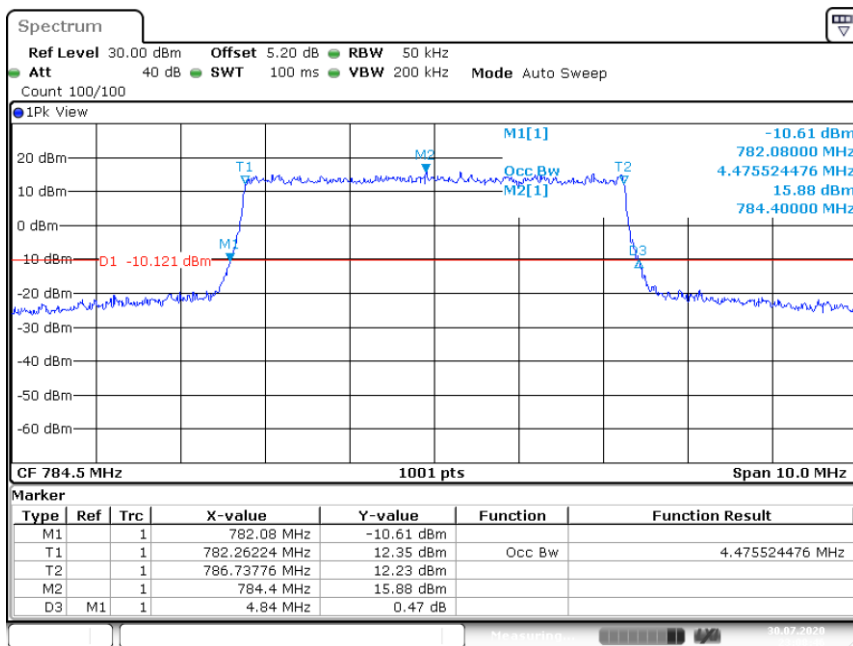
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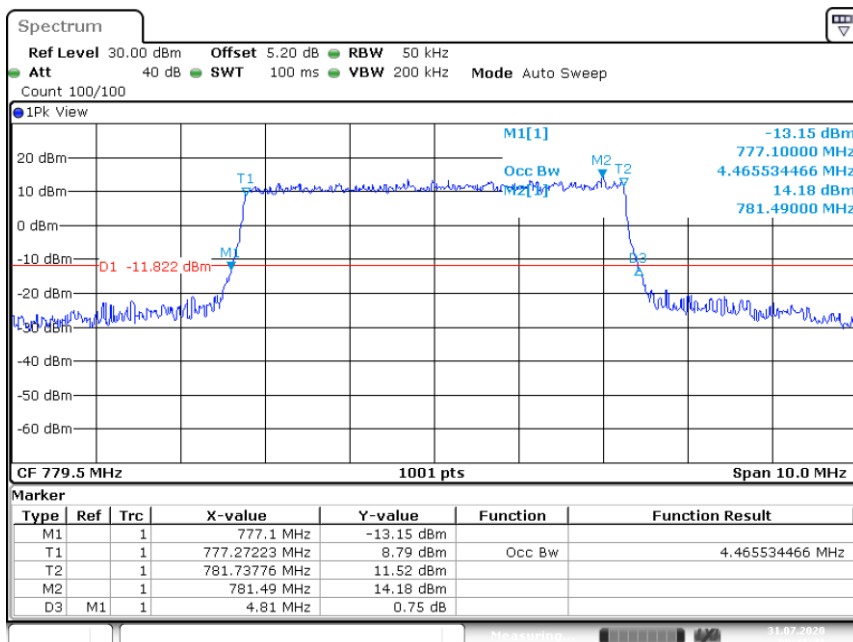
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Date: 30 JUL 2020 23:08:47

Band13-5MHz-64QAM-23205-25RB#0-4.466



Date: 31 JUL 2020 08:41:41



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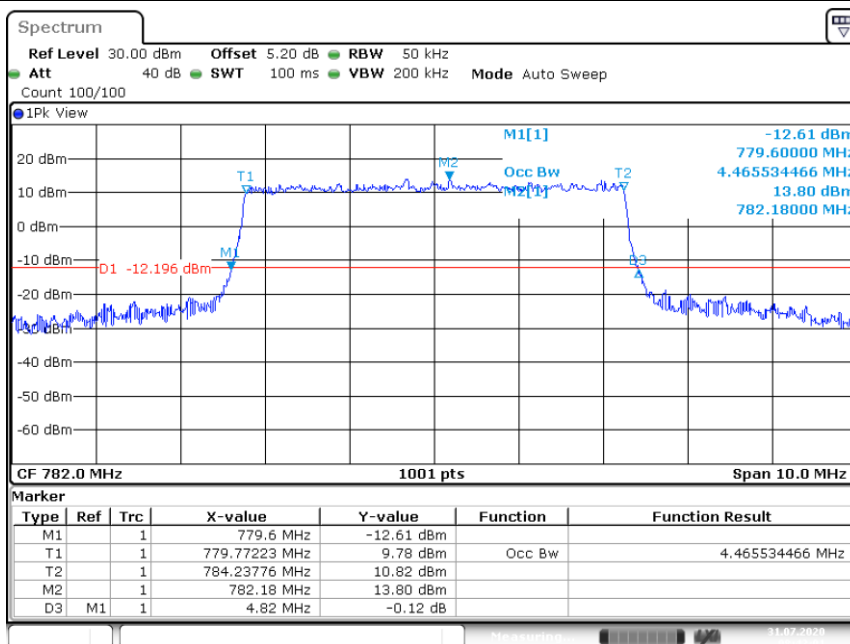
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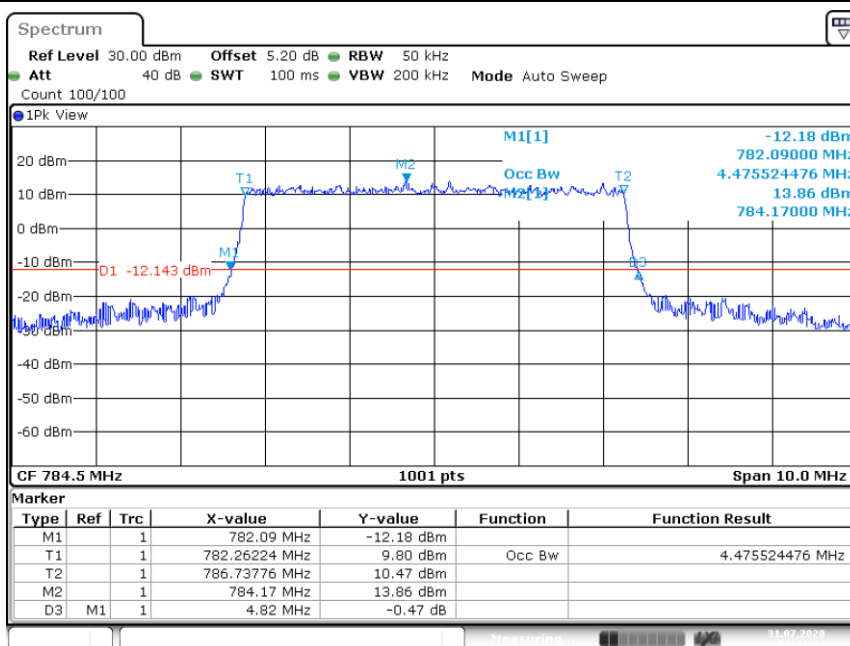


Band13-5MHz-64QAM-23230-25RB#0-4.466



Date: 31.JUL.2020 08:42:01

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



Date: 31.JUL.2020 08:42:21



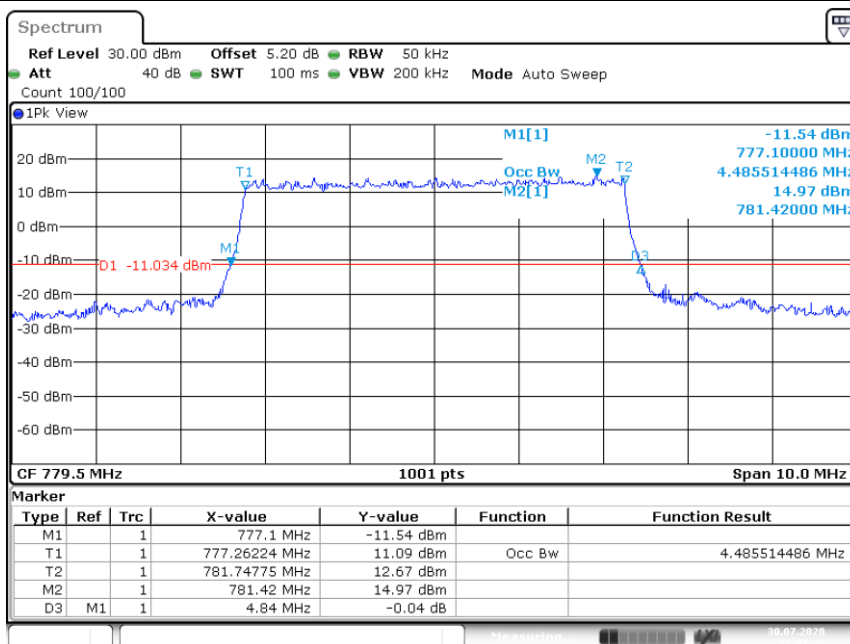
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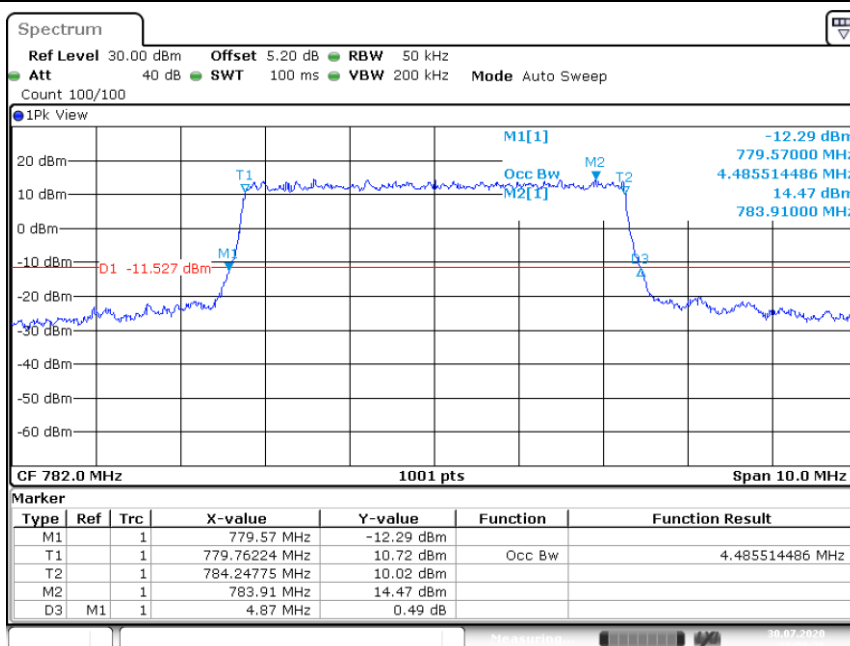


Band13-5MHz-16QAM-23205-25RB#0-4.486



Date: 30.JUL.2020 23:07:46

Band13-5MHz-16QAM-23230-25RB#0-4.486



Date: 30.JUL.2020 23:08:26



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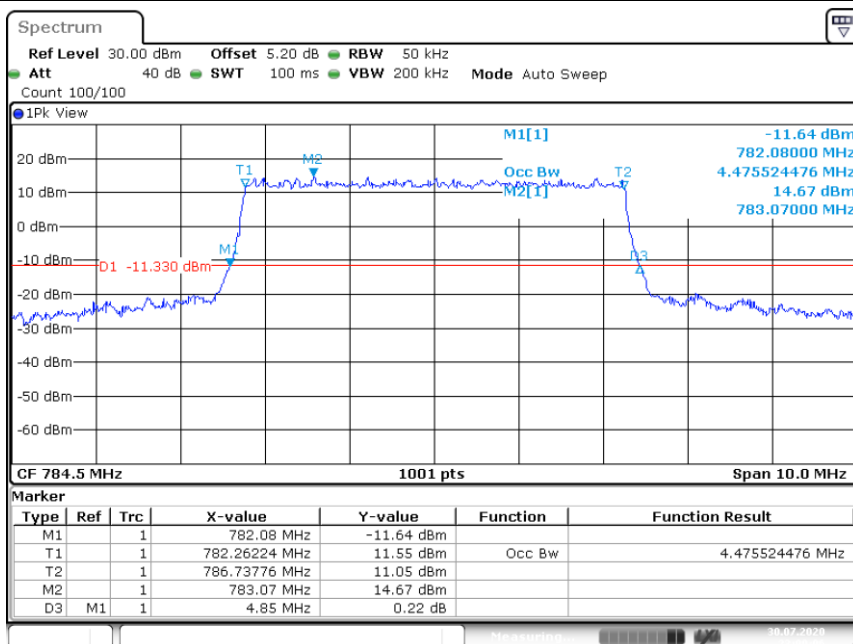
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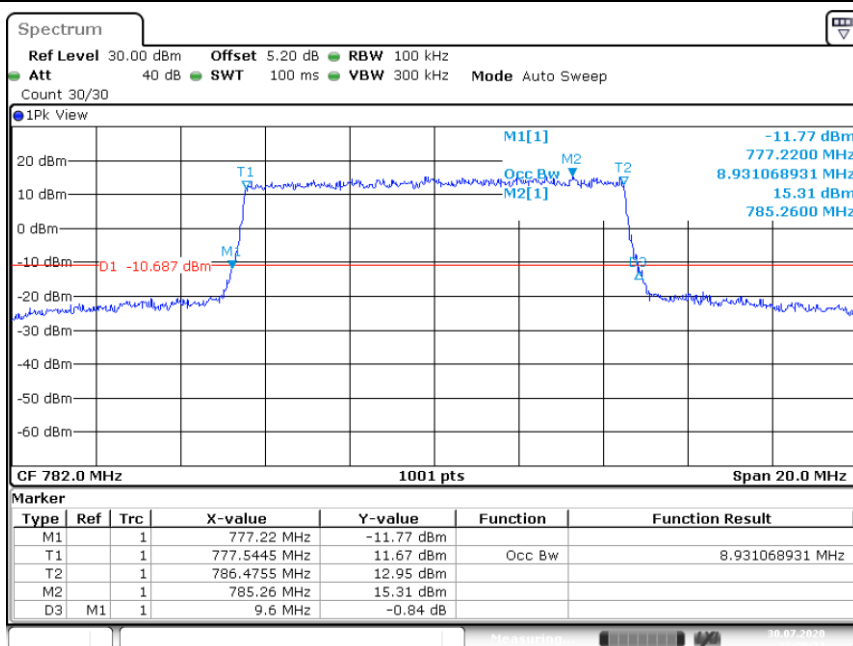


Band13-5MHz-16QAM-23255-25RB#0-4.476



Date: 30.JUL.2020 23:09:06

Band13-10MHz-QPSK-23230-50RB#0-8.931



Date: 30.JUL.2020 23:09:23



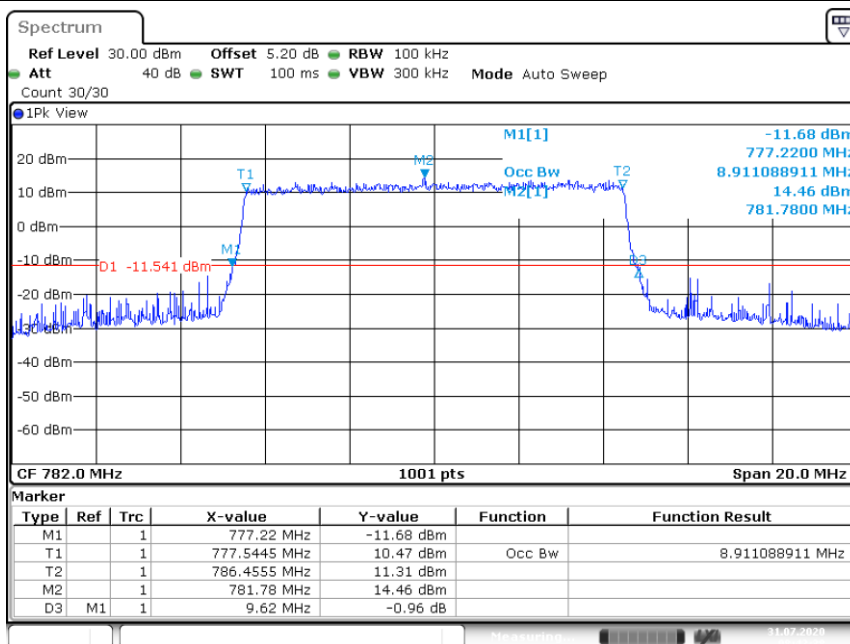
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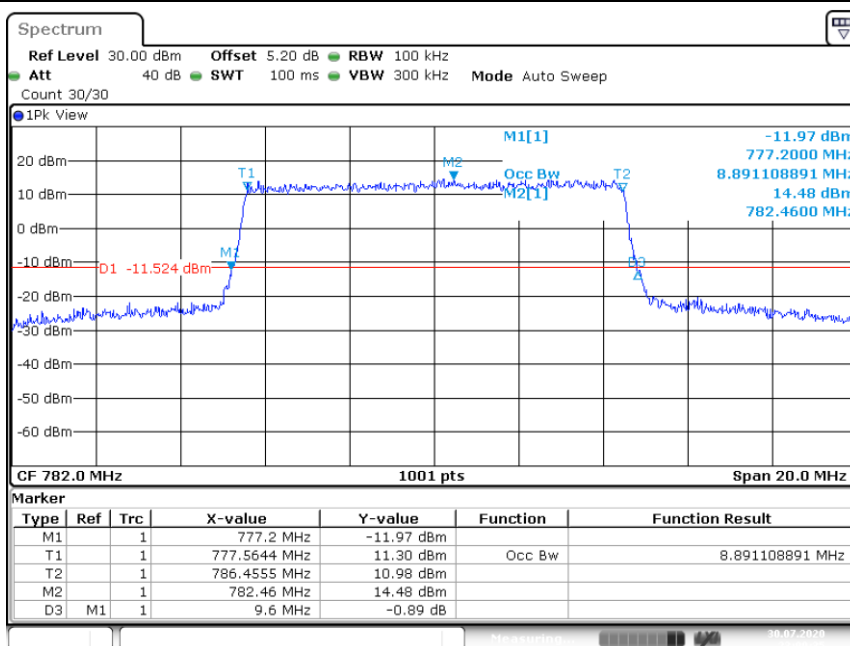


Band13-10MHz-64QAM-23230-50RB#0-8.911



Date: 31.JUL.2020 08:42:39

Band13-10MHz-16QAM-23230-50RB#0-8.891



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5. Band Edge Compliance

5.1. Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-18.30	PASS
Band13	5MHz	QPSK	23205	25RB#0	-28.76	PASS
Band13	5MHz	QPSK	23255	1RB#24	-18.41	PASS
Band13	5MHz	QPSK	23255	25RB#0	-28.31	PASS
Band13	5MHz	64QAM	23205	1RB#0	-20.02	PASS
Band13	5MHz	64QAM	23205	25RB#0	-32.84	PASS
Band13	5MHz	64QAM	23255	1RB#24	-19.79	PASS
Band13	5MHz	64QAM	23255	25RB#0	-32.23	PASS
Band13	5MHz	16QAM	23205	1RB#0	-19.39	PASS
Band13	5MHz	16QAM	23205	25RB#0	-30.51	PASS
Band13	5MHz	16QAM	23255	1RB#24	-18.67	PASS
Band13	5MHz	16QAM	23255	25RB#0	-30.05	PASS
Band13	10MHz	QPSK	23230_Left	1RB#0	-30.37	PASS
Band13	10MHz	QPSK	23230_Right	1RB#49	-30.26	PASS
Band13	10MHz	QPSK	23230_Right	50RB#0	-37.80	PASS
Band13	10MHz	64QAM	23230_Left	1RB#0	-22.60	PASS
Band13	10MHz	64QAM	23230_Right	1RB#49	-22.58	PASS
Band13	10MHz	64QAM	23230_Right	50RB#0	-33.39	PASS
Band13	10MHz	16QAM	23230_Left	1RB#0	-30.24	PASS
Band13	10MHz	16QAM	23230_Right	1RB#49	-31.82	PASS
Band13	10MHz	16QAM	23230_Right	50RB#0	-40.29	PASS



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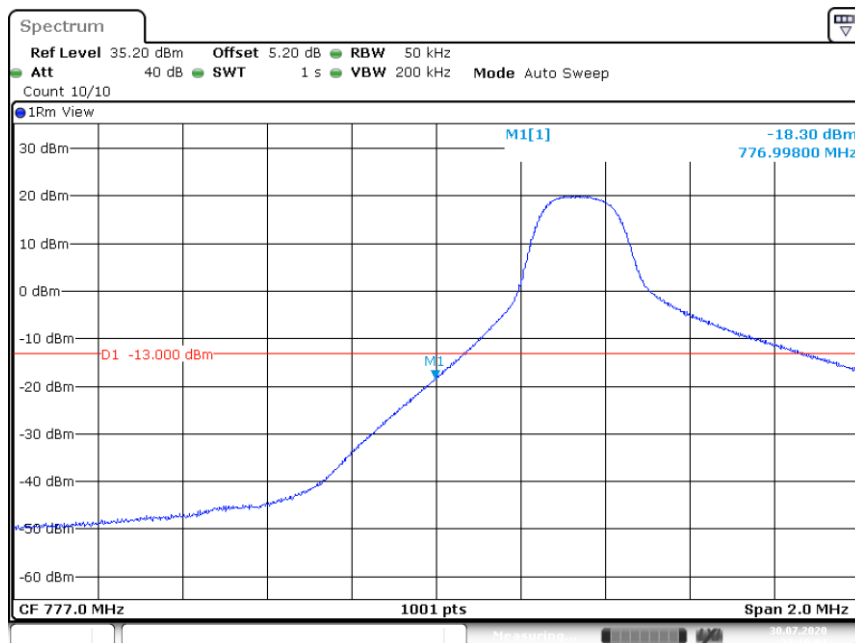
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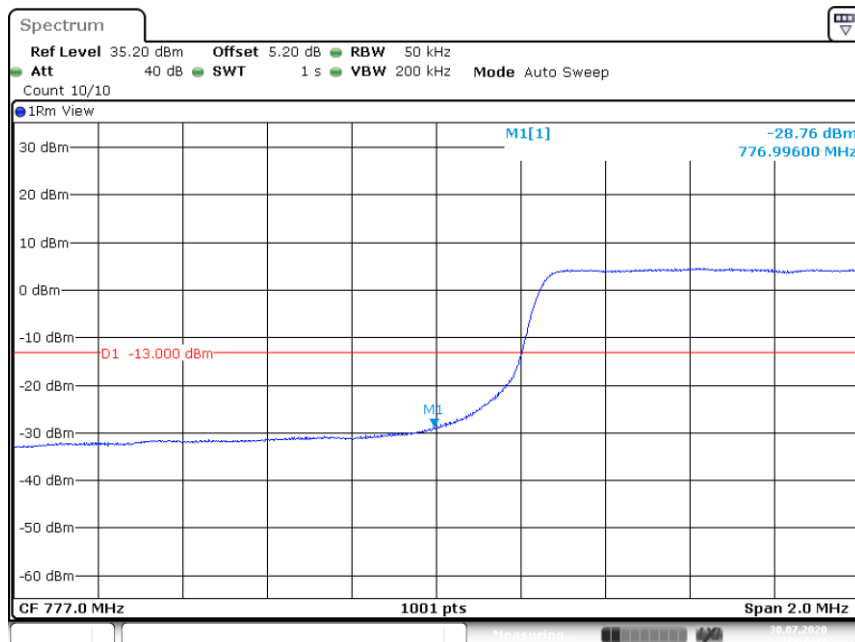


5.2. Test Plots

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



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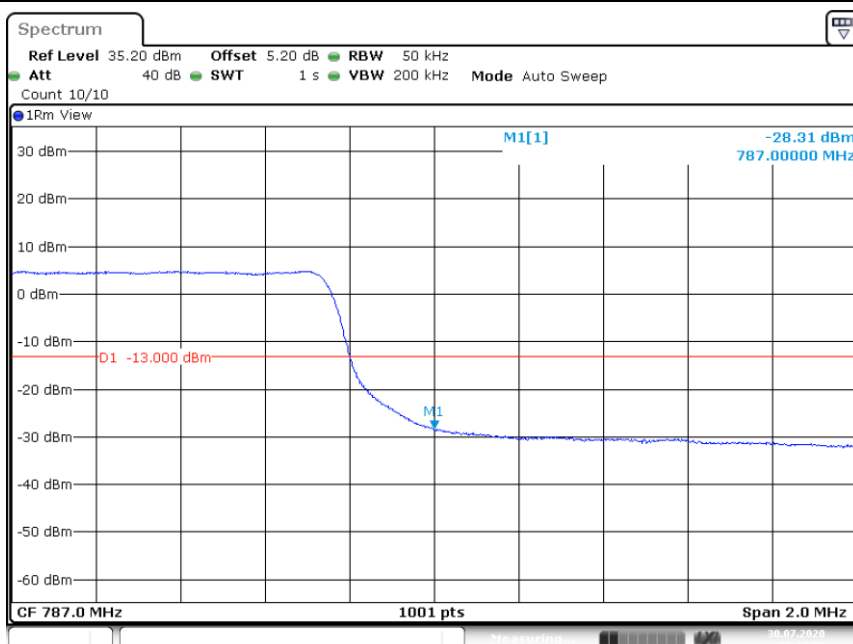


Band13-5MHz-QPSK-23255-1RB#24



Date: 30.JUL.2020 23:11:28

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Date: 30.JUL.2020 23:12:09



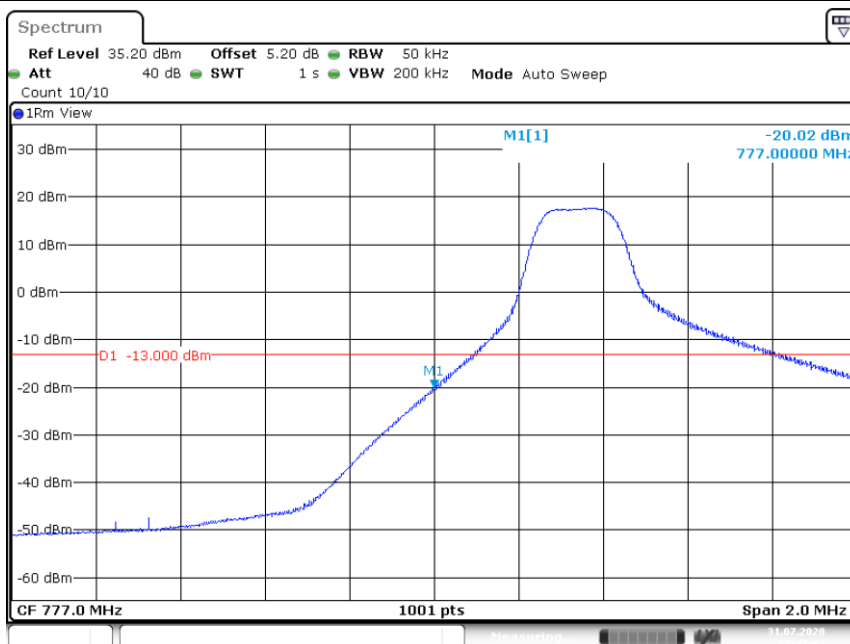
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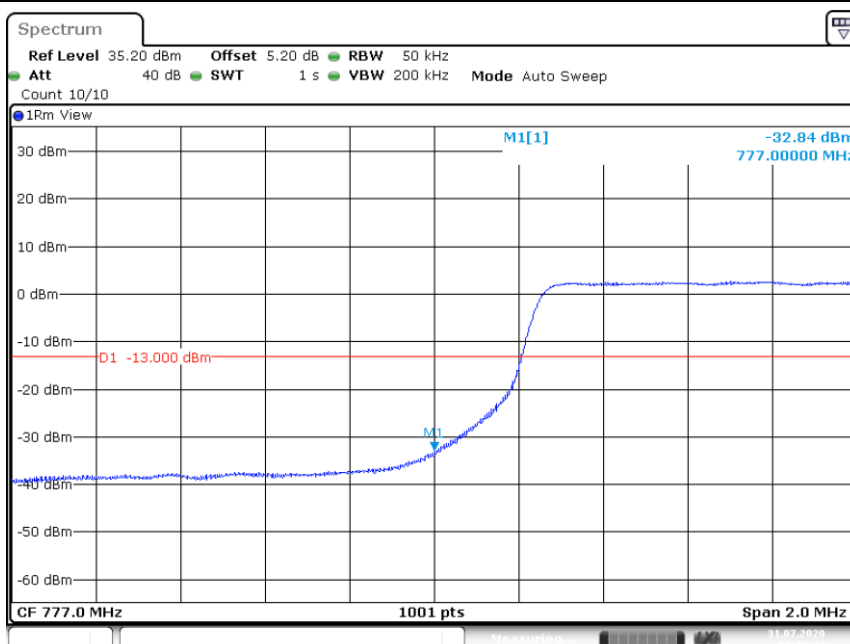


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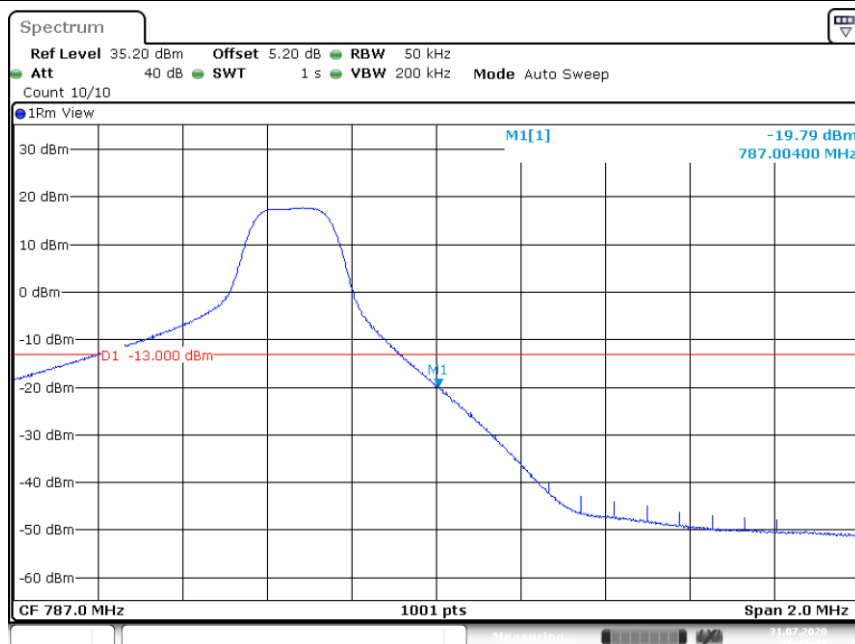
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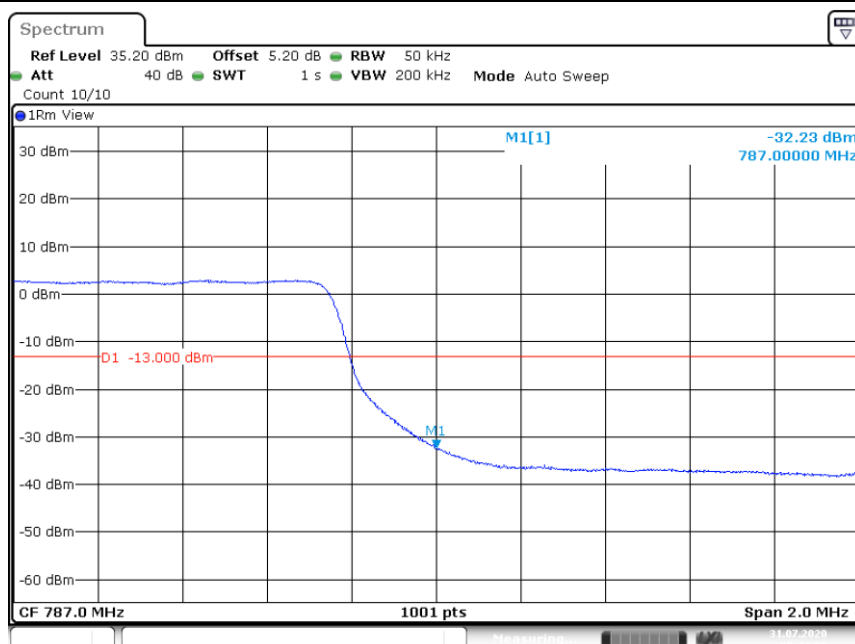


Band13-5MHz-64QAM-23255-1RB#24



Date: 31.JUL.2020 08:43:49

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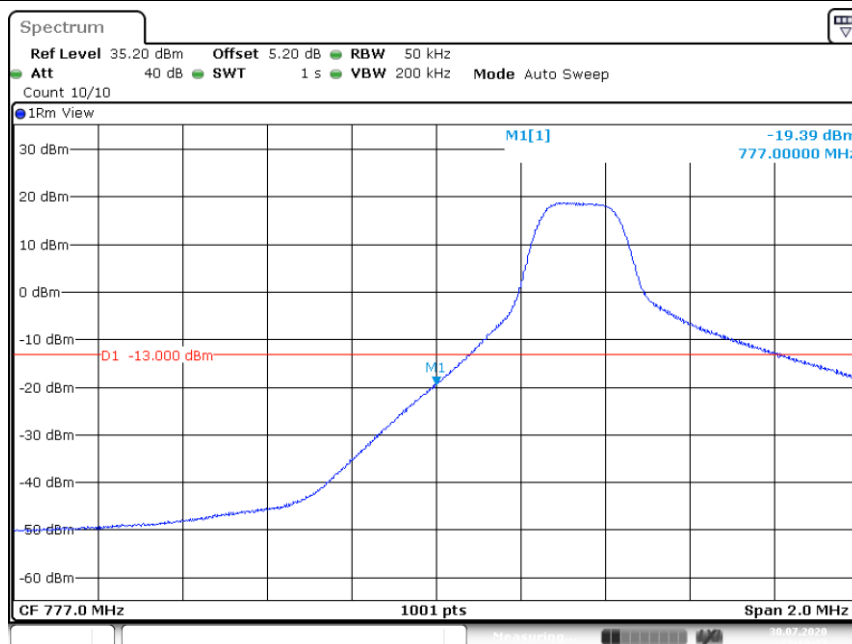
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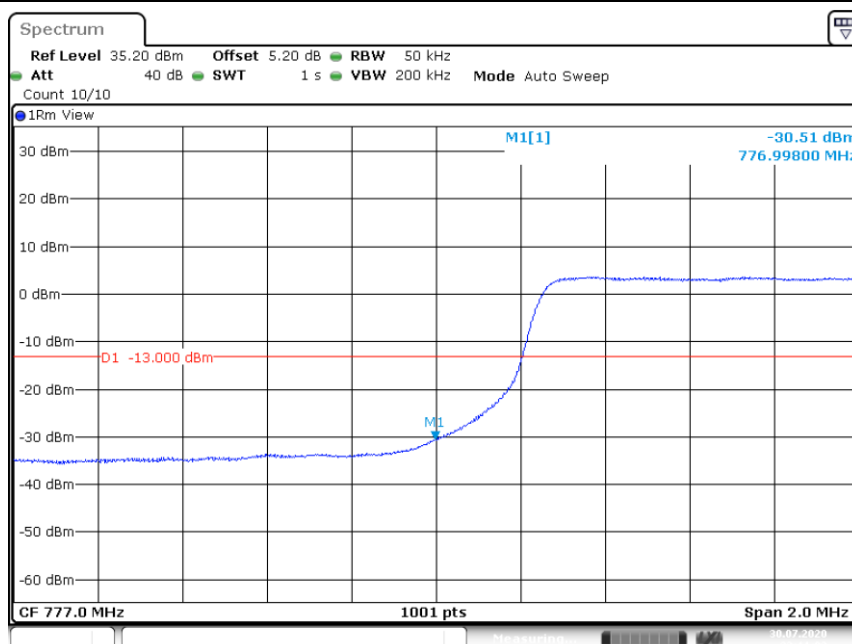


Band13-5MHz-16QAM-23205-1RB#0



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Date: 30.JUL.2020 23:11:03



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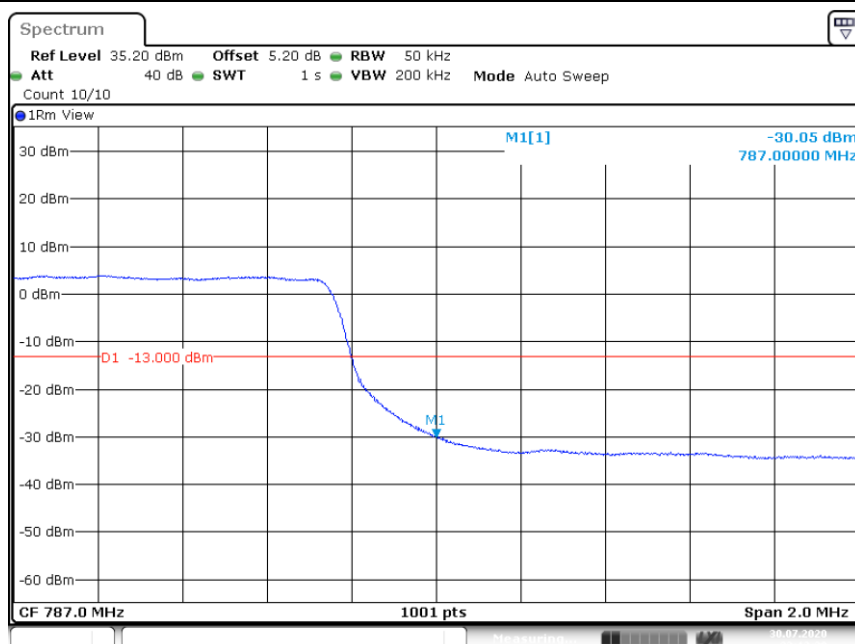


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Date: 30.JUL.2020 23:11:48

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



Date: 30.JUL.2020 23:12:30



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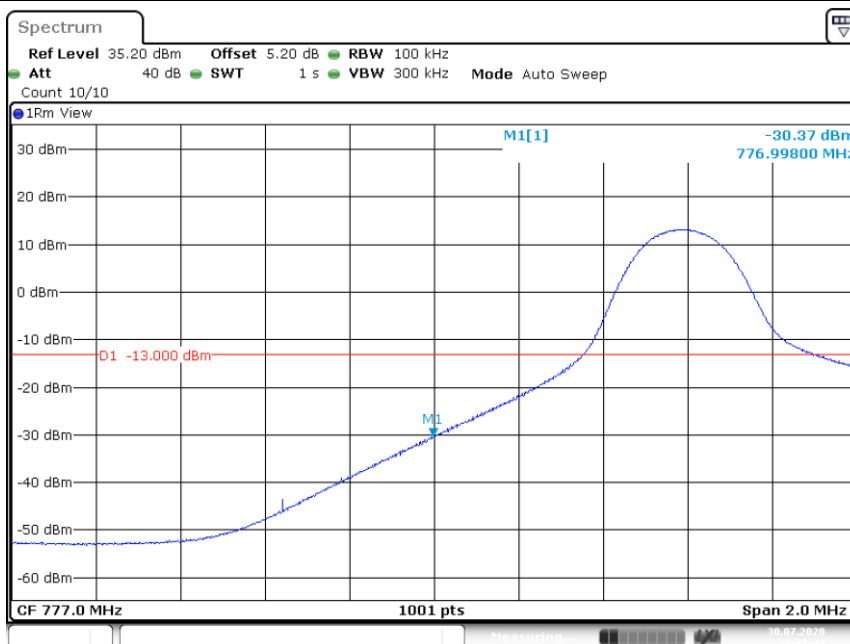
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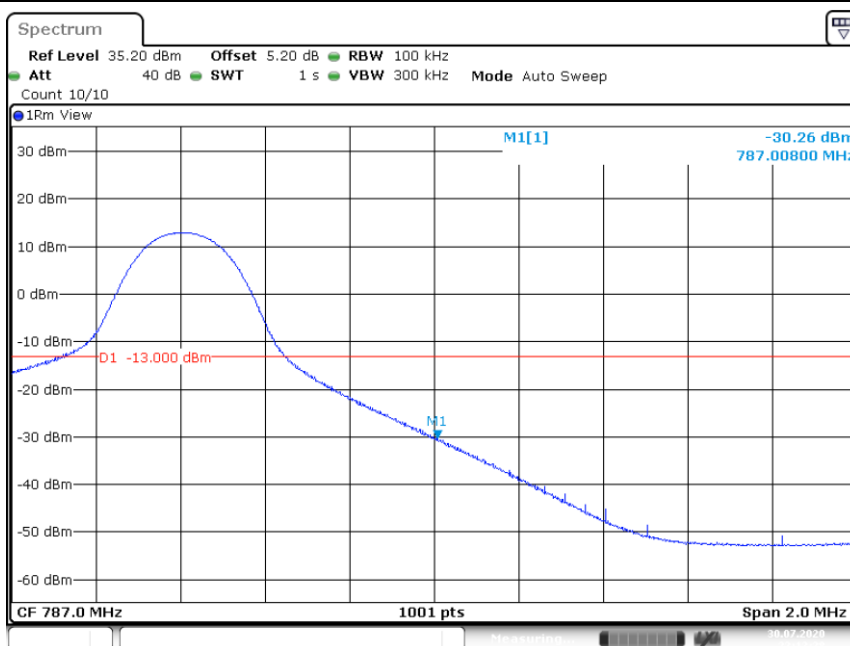


Band13-10MHz-QPSK-23230_Left-1RB#0



Date: 30.JUL.2020 22:11:44

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



Date: 30.JUL.2020 22:12:29



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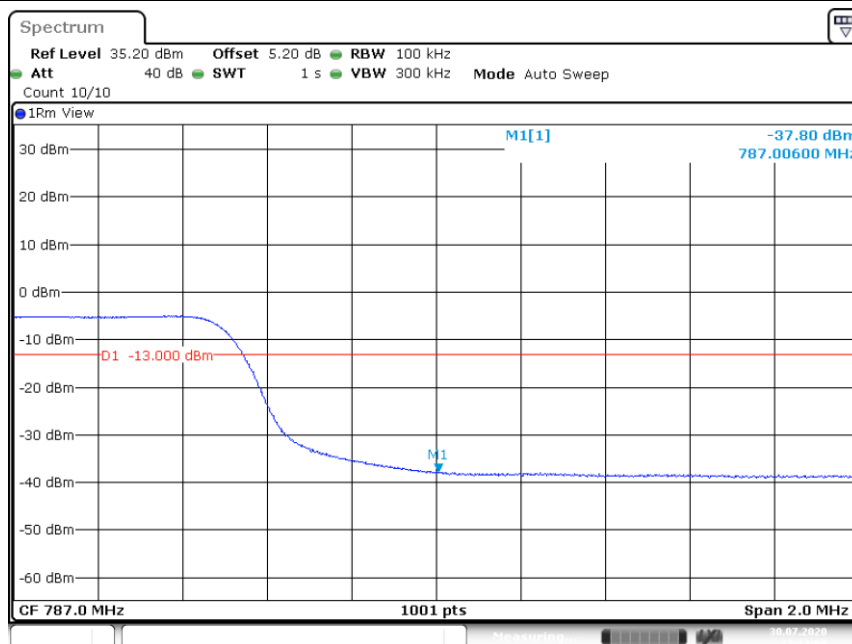
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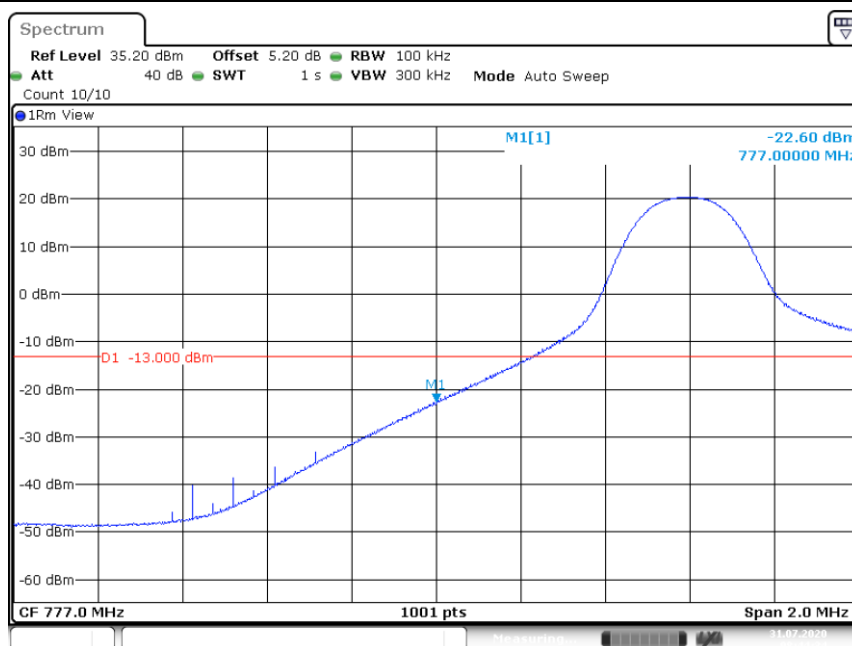


Band13-10MHz-QPSK-23230_Right-50RB#0



Date: 30.JUL.2020 22:13:09

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



Date: 31.JUL.2020 08:44:35



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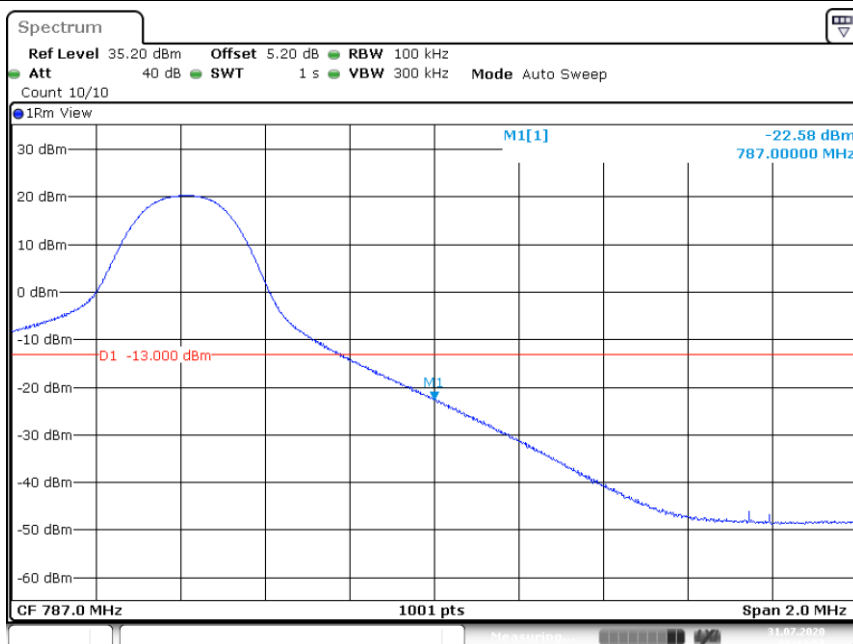
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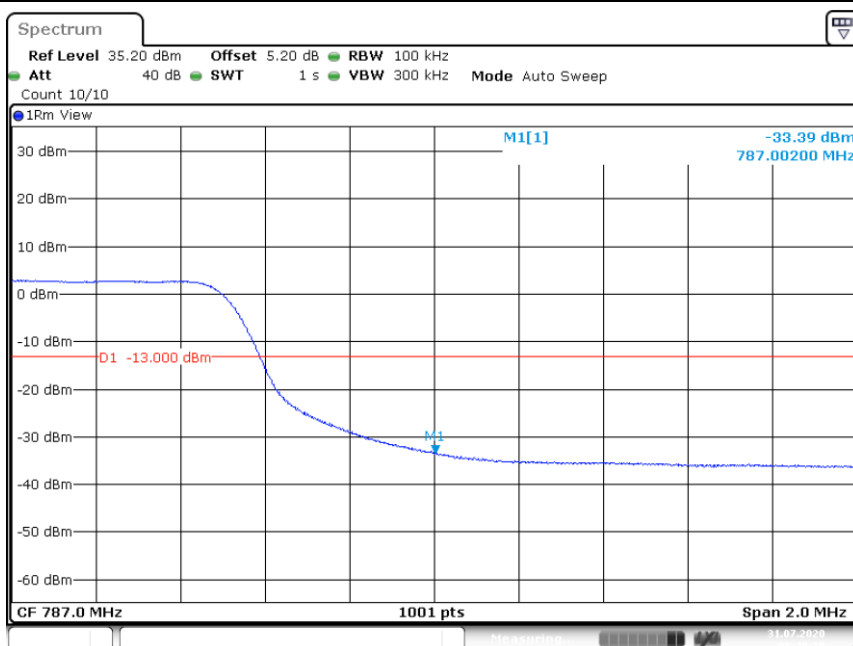


Band13-10MHz-64QAM-23230_Right-1RB#49



Date: 31.JUL.2020 08:44:59

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



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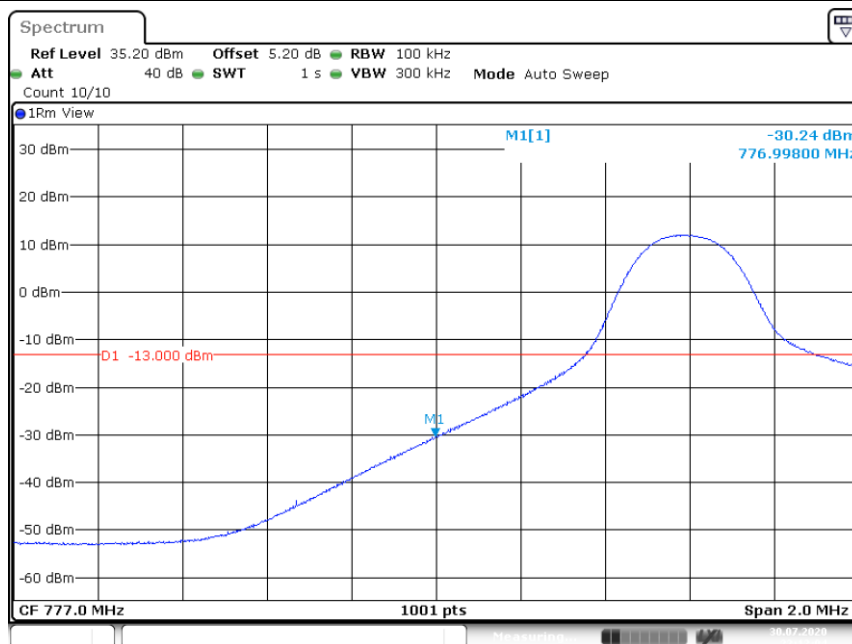
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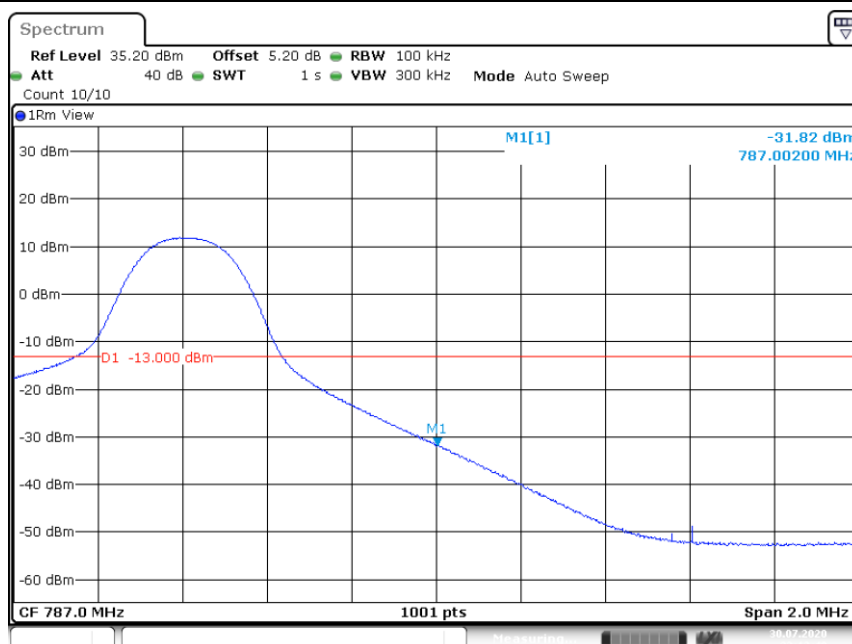


Band13-10MHz-16QAM-23230_Left-1RB#0



Date: 30.JUL.2020 22:12:04

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



Date: 30.JUL.2020 22:12:49



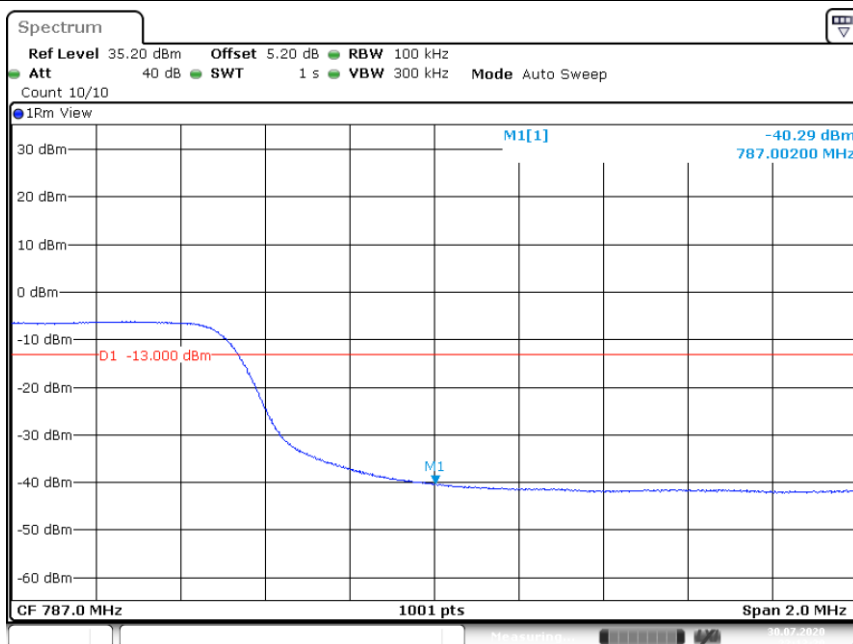
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Band13-10MHz-16QAM-23230_Right-50RB#0



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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.

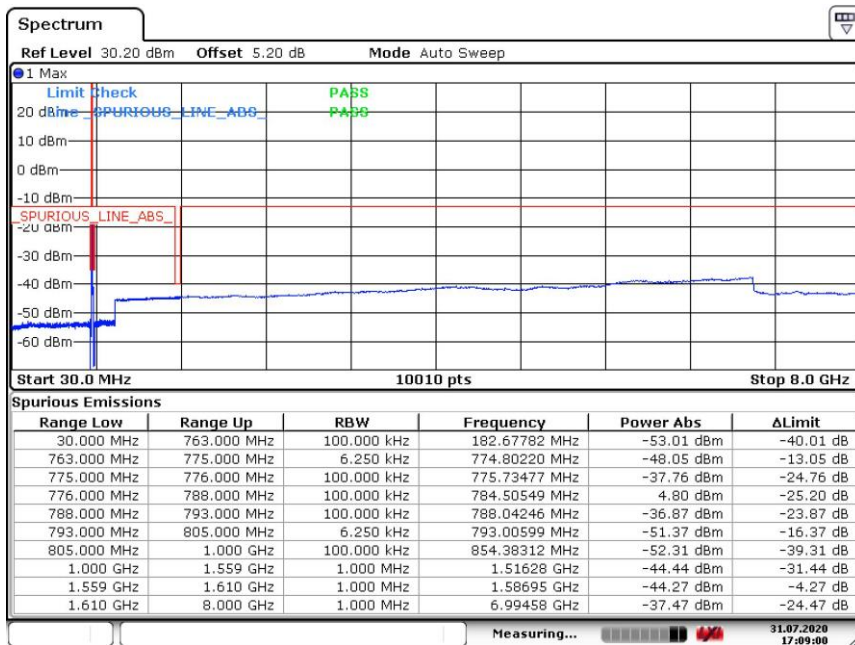


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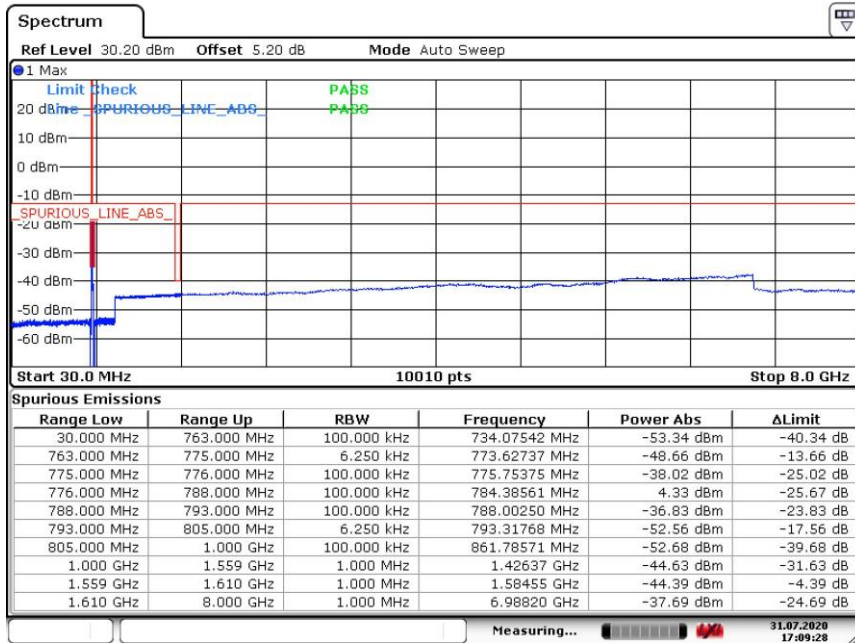
6.1. Test Plots

Band13-10MHz-QPSK-23230-1RB#0-Range:30~8000MHz



Date: 31. JUL. 2020 17:09:00

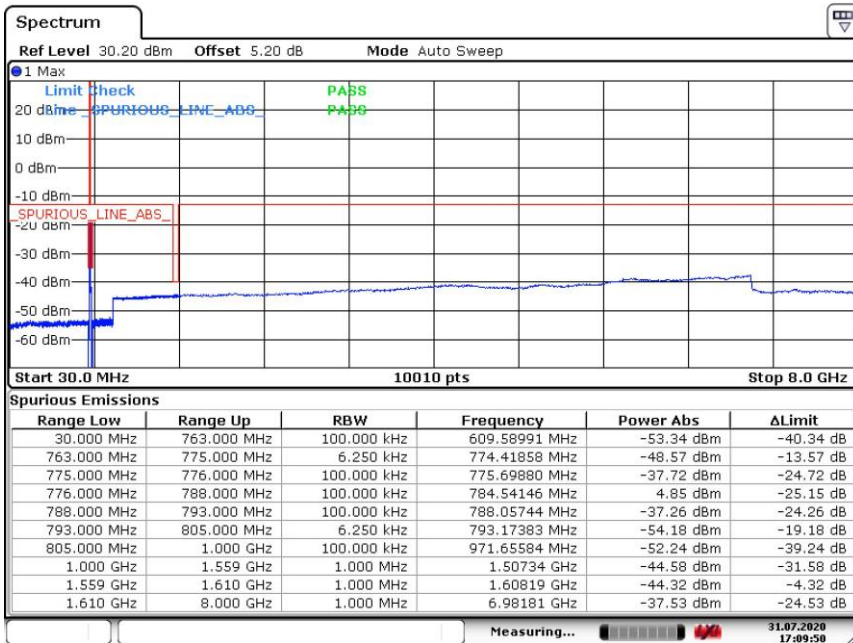
Band13-10MHz-64QAM-23230-1RB#0-Range:30~8000MHz



Date: 31. JUL. 2020 17:09:29



Band13-10MHz-16QAM-23230-1RB#0-Range2:30~8000MHz



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7. Field Strength of Spurious Radiation

7.1. Test Mode =LTE/TM1 10MHz

7.1.1.Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Height [cm]	Angle [°]	Polarization
49.2555	-72.55	-13.00	59.55	271	345	Vertical
110.1745	-65.10	-13.00	52.10	259	112	Vertical
494.8472	-66.34	-13.00	53.34	261	197	Vertical
1599.7199	-65.03	-40.00	25.03	287	208	Vertical
2995.5991	-56.31	-13.00	43.31	263	193	Vertical
17999.4000	-40.35	-13.00	27.35	214	240	Vertical
44.9387	-64.56	-13.00	51.56	147	153	Horizontal
231.9641	-68.06	-13.00	55.06	195	89	Horizontal
529.5265	-65.58	-13.00	52.58	184	302	Horizontal
1554.9110	-63.43	-13.00	50.43	163	320	Horizontal
2698.7397	-56.52	-13.00	43.52	185	345	Horizontal
16402.7361	-43.72	-13.00	30.72	172	132	Horizontal

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	-4.10	-0.005243	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	-4.00	-0.005115	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-4.70	-0.006010	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VL	NT	-3.20	-0.004092	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VN	NT	-1.70	-0.002174	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	VH	NT	-8.70	-0.011125	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	-4.70	-0.006010	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	-5.00	-0.006394	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	-7.40	-0.009463	±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	-4.20	-0.005371	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-12.60	-0.016113	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-10	-8.39	-0.010729	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-7.50	-0.009591	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-12.10	-0.015473	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	-10.10	-0.012916	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	-7.10	-0.009079	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	-8.90	-0.011381	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	-8.50	-0.010870	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-30	-8.00	-0.010230	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-20	-4.50	-0.005754	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	-10	-7.35	-0.009399	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	0	-6.50	-0.008312	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	10	-8.50	-0.010870	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	20	-7.70	-0.009847	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	30	-8.80	-0.011253	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	40	-2.60	-0.003325	±2.5	PASS
Band13	10MHz	64QAM	23230	50RB#0	NV	50	-3.30	-0.004220	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	-12.60	-0.016113	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	-2.50	-0.003197	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-10	-4.21	-0.005384	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	-5.90	-0.007545	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	-5.20	-0.006650	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	-5.20	-0.006650	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	-4.00	-0.005115	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	-8.50	-0.010870	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	-6.20	-0.007928	±2.5	PASS



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