



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)	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	23.43	19.66	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.12	19.35	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.21	19.44	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.60	18.83	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.45	18.68	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	22.35	18.58	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	22.51	18.74	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.35	19.58	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.54	19.77	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.36	19.59	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.46	18.69	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.40	18.63	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.44	18.67	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	22.42	18.65	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.29	19.52	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.56	19.79	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.29	19.52	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.40	18.63	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.47	18.70	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.35	18.58	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	22.40	18.63	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	22.05	18.28	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	22.66	18.89	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.88	18.11	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	21.33	17.56	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.32	17.55	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	21.44	17.67	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.58	17.81	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.98	18.21	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.66	18.89	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	21.89	18.12	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.40	17.63	34.77	PASS



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Band13	5MHz	16QAM	23230	12RB#6	21.51	17.74	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	21.45	17.68	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	21.51	17.74	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	22.28	18.51	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	22.53	18.76	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	22.34	18.57	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	21.26	17.49	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#6	21.32	17.55	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#13	21.27	17.50	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.46	17.69	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	23.24	19.47	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.57	19.80	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.02	19.25	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.44	18.67	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.47	18.70	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	22.24	18.47	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	22.44	18.67	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	22.02	18.25	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.29	18.52	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.84	18.07	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#0	21.55	17.78	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#12	21.46	17.69	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#25	21.30	17.53	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	21.44	17.67	34.77	PASS

Remark:

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

$$ERP [dBm] = \text{Conducted power [dBm]} + \text{Gain [dBd]}$$



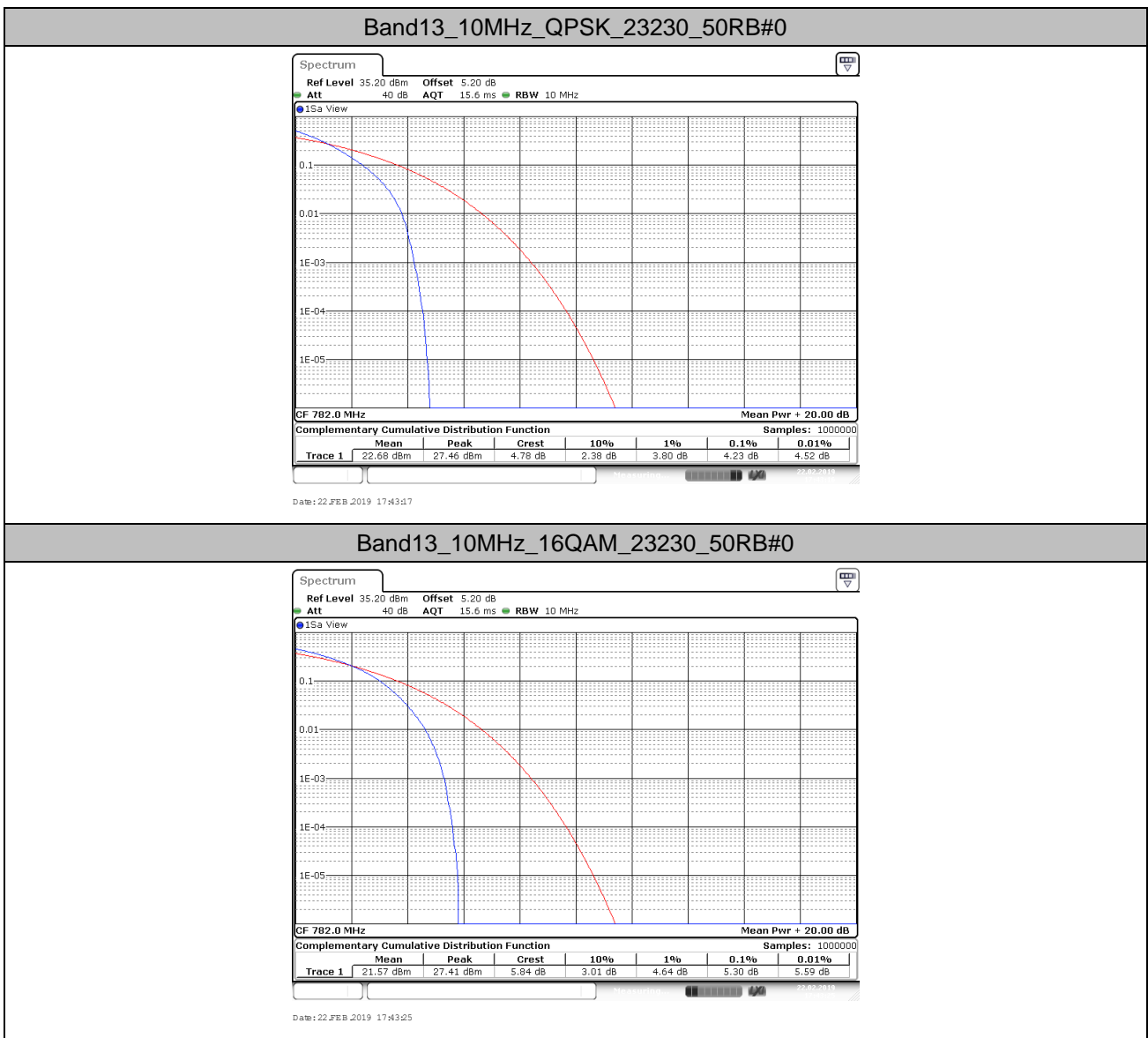
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2. Peak-to-Average Ratio(CCDF)

2.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	4.23	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.30	13	PASS

2.2. Test Plots



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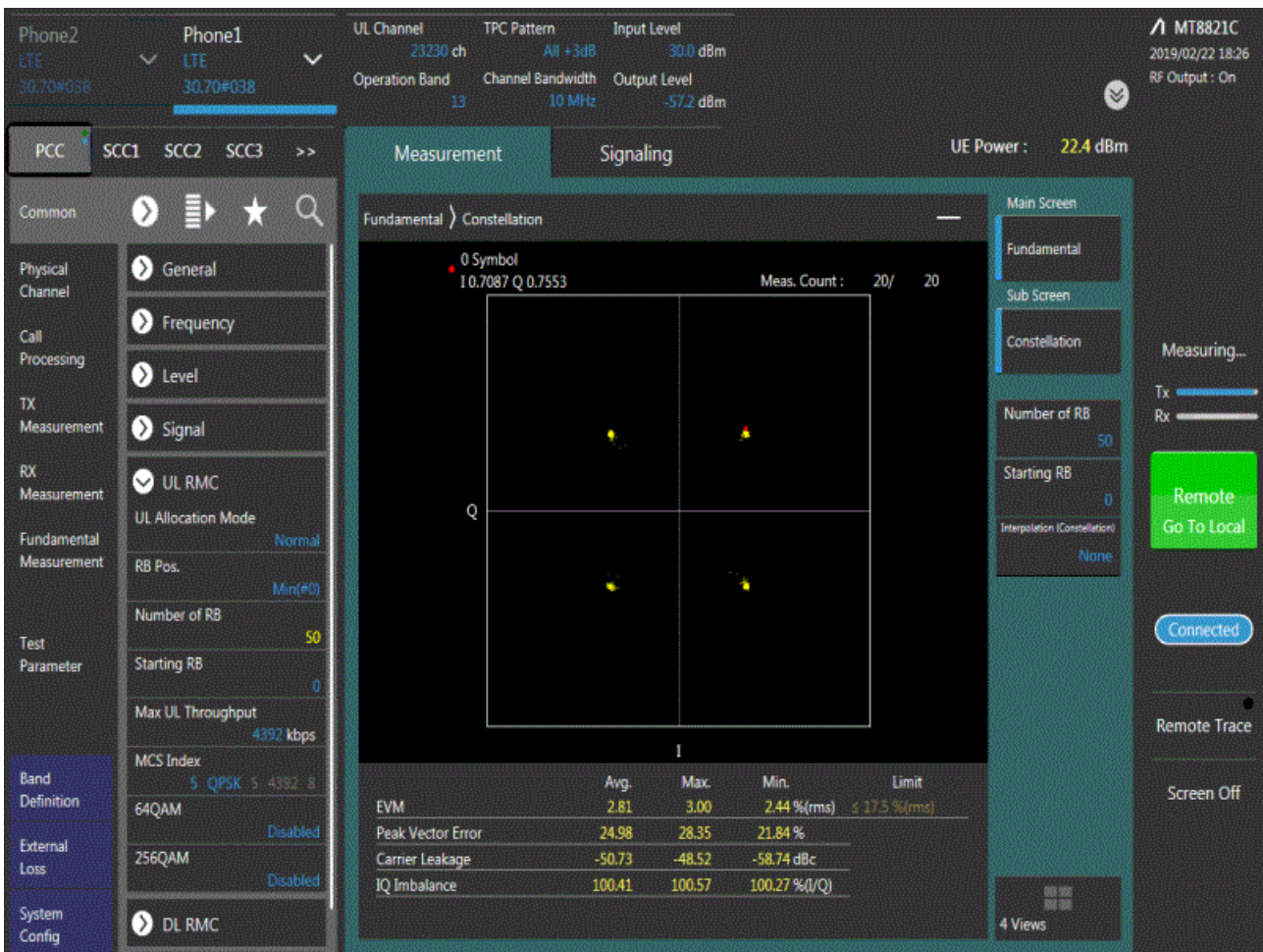
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3. Modulation Characteristics

3.1. Test BAND = LTE Band 13

3.2. Test Mode = LTE /TM1 10MHz

3.2.1. Test Channel = MCH

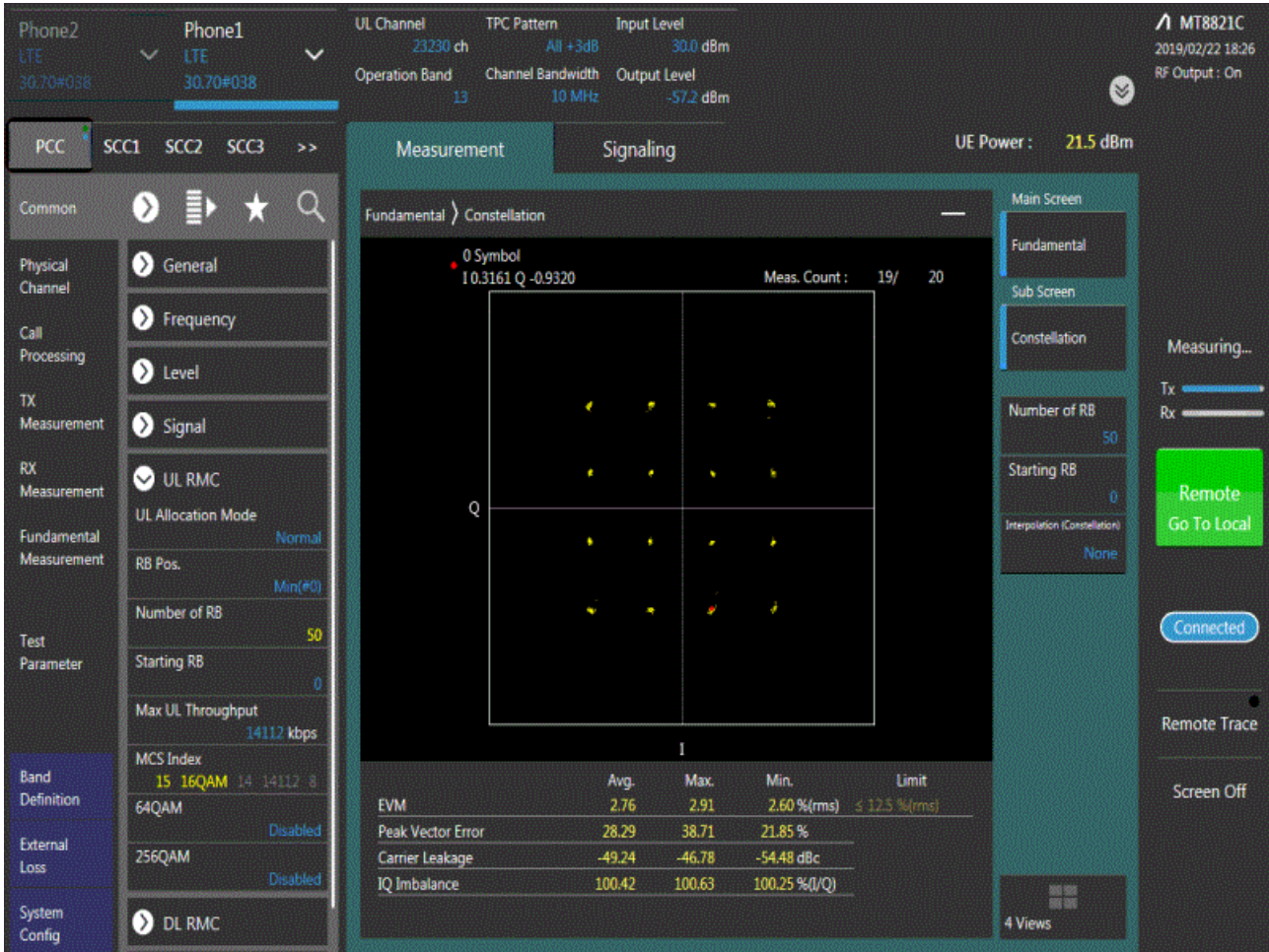


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3.3. Test Mode = LTE /TM2 10MHz

3.3.1. Test Channel = MCH



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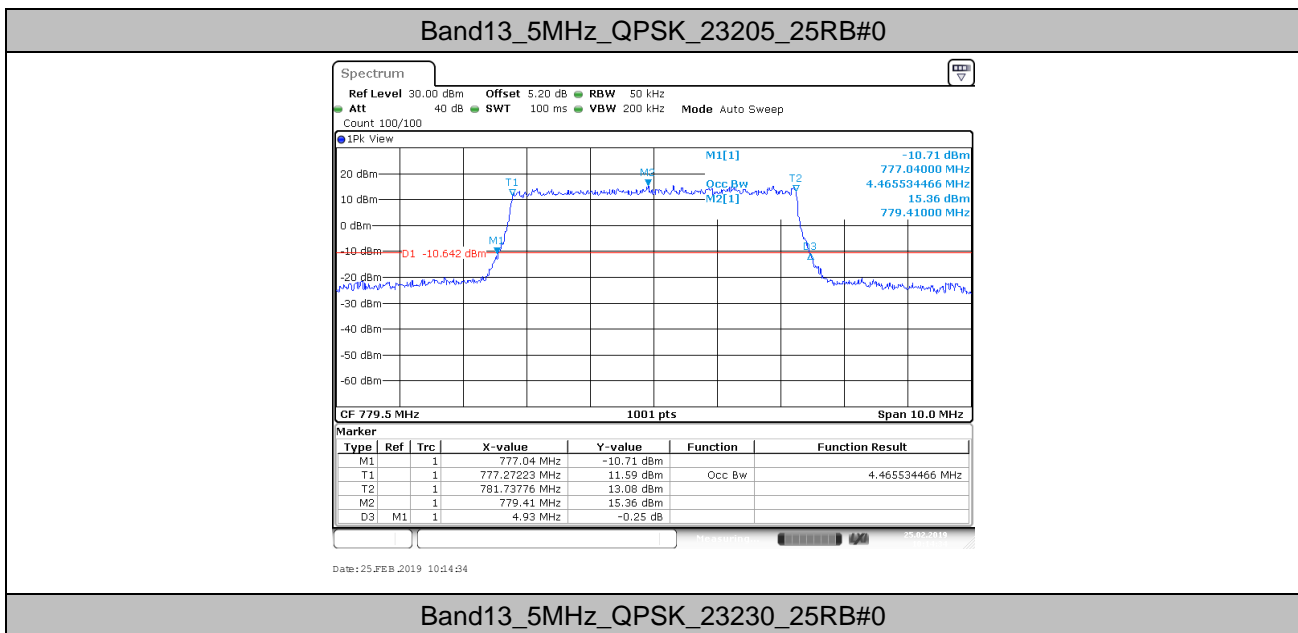
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4. 26dB Bandwidth and Occupied Bandwidth

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	4.930	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.466	4.910	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.476	4.910	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.486	4.980	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.486	4.960	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.496	4.970	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.891	9.680	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.911	9.740	PASS

4.2. Test Plots



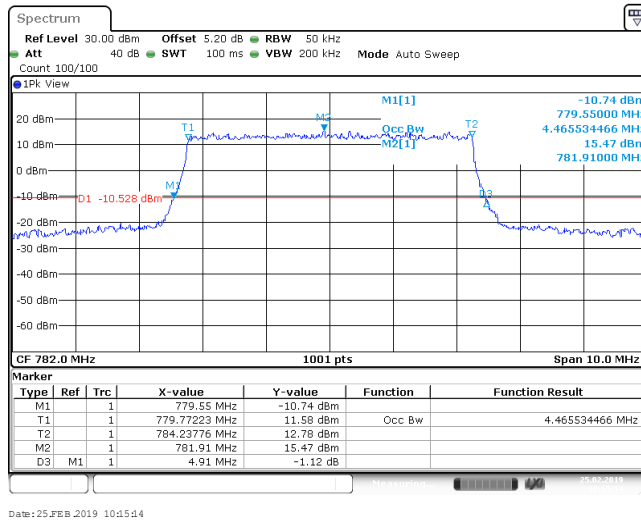
Band13_5MHz_QPSK_23230_25RB#0



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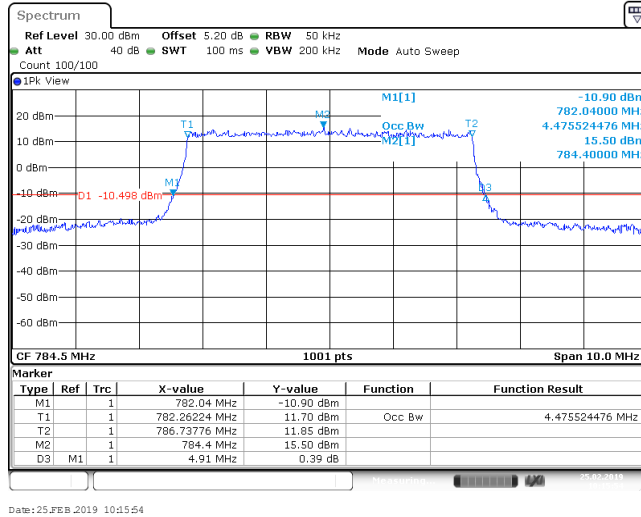
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Band13_5MHz_QPSK_23255_25RB#0

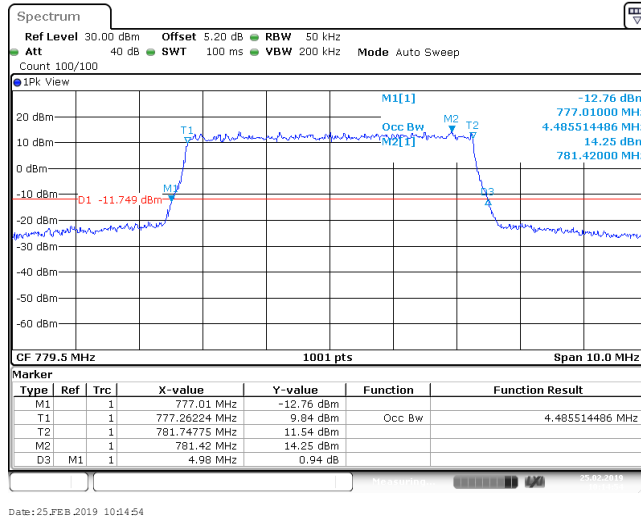


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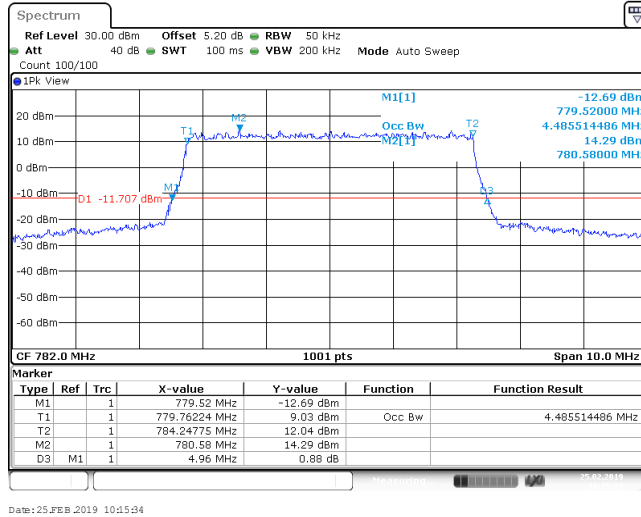
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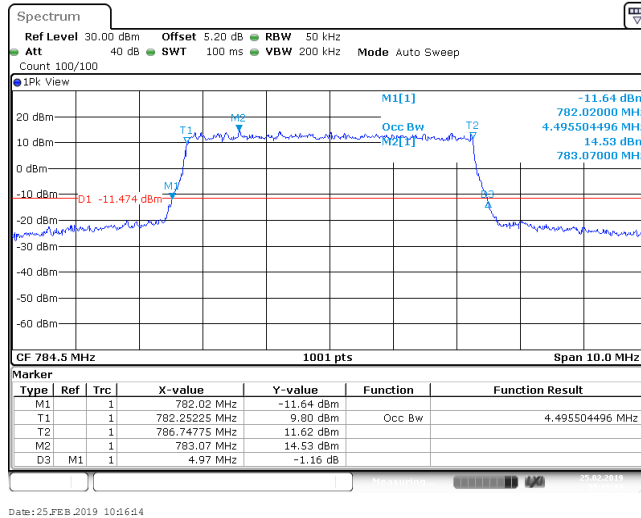
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Band13_5MHz_16QAM_23255_25RB#

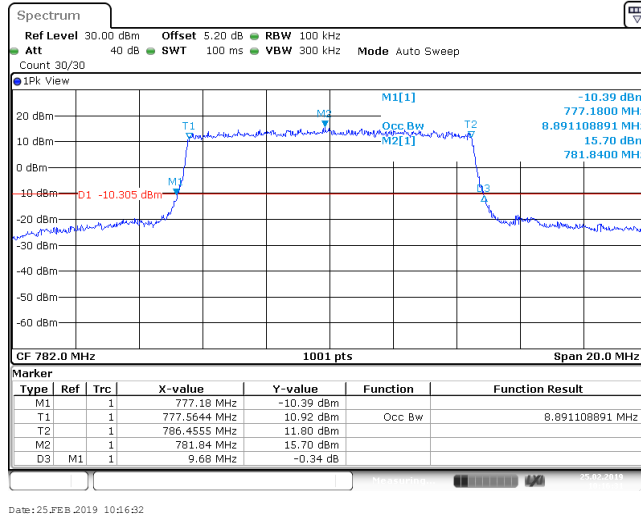


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Band13_10MHz_QPSK_23230_50RB#0

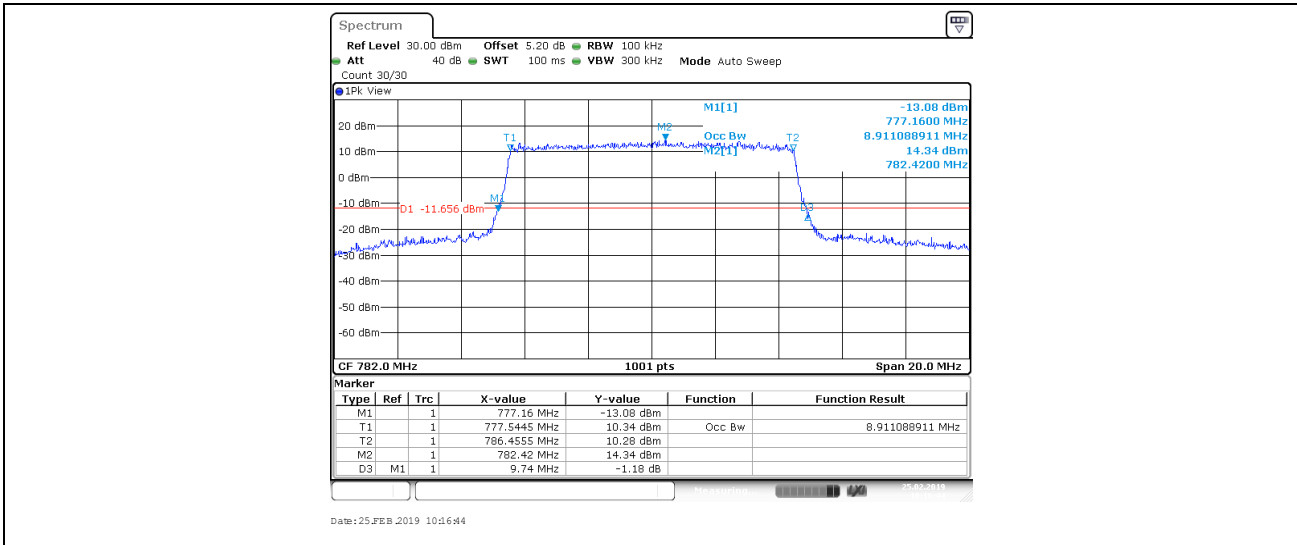


Date: 25 FEB 2019 10:16:32

Band13_10MHz_16QAM_23230_50RB#0



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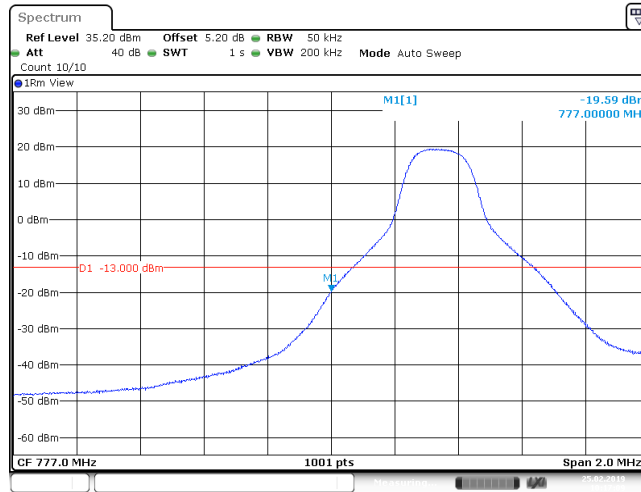
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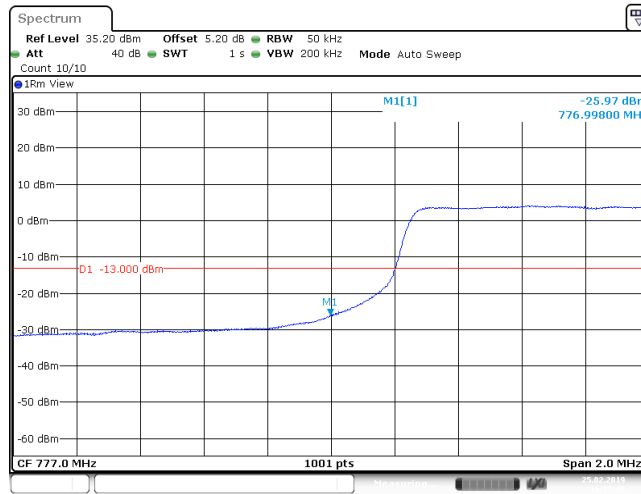
5. Band Edge Compliance

5.1. Test Plots

Band13_5MHz_QPSK_23205_1RB#0



Band13_5MHz_QPSK_23205_25RB#0

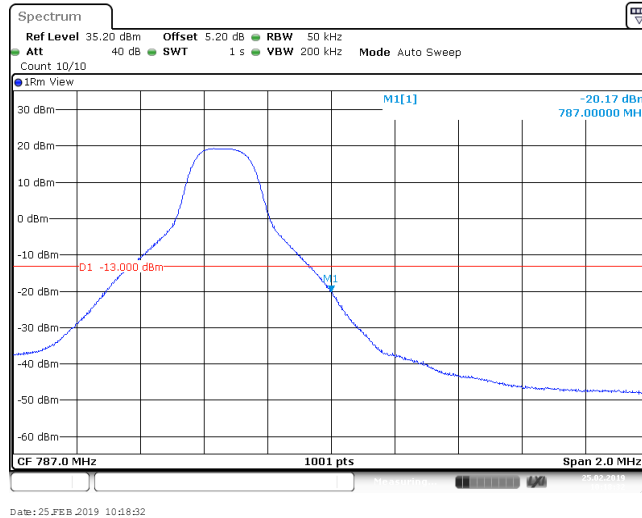


Band13_5MHz_QPSK_23255_1RB#24

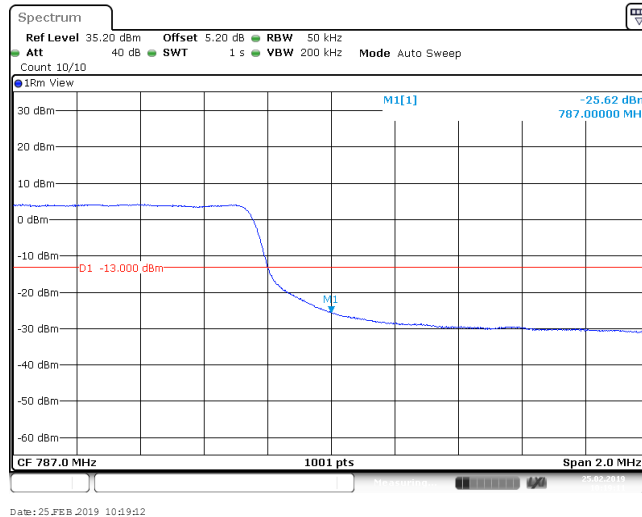


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Band13_5MHz_QPSK_23255_25RB#0

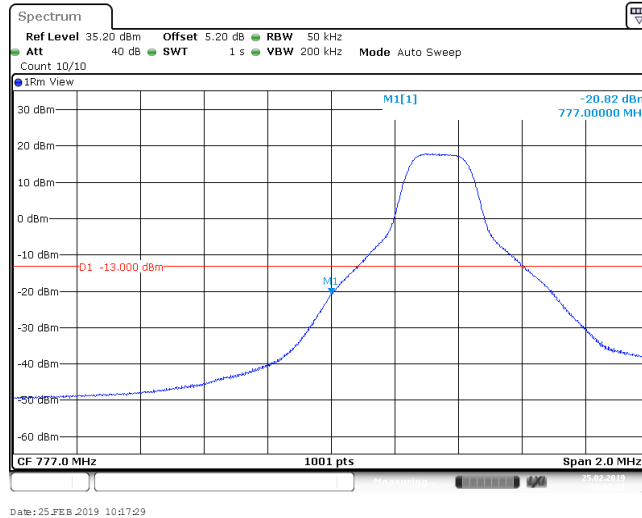


Band13_5MHz_16QAM_23205_1RB#0

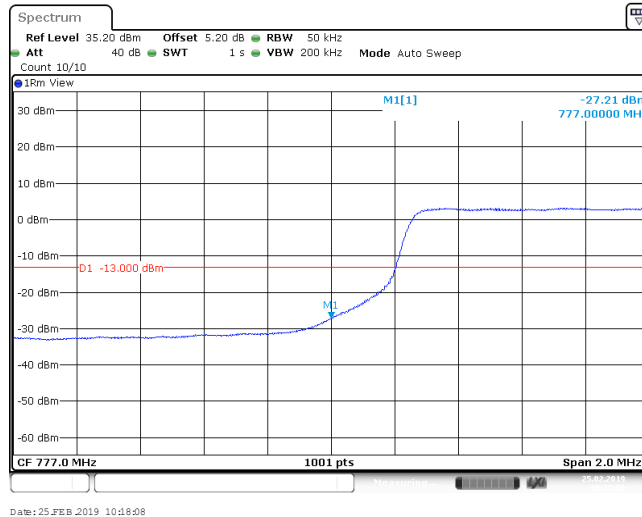


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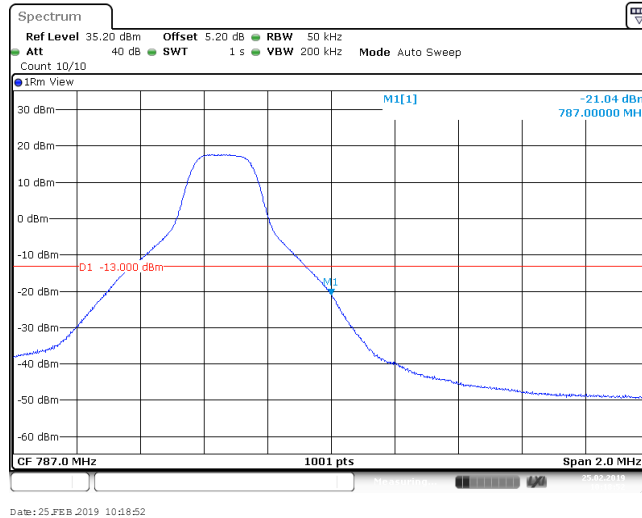
Band13_5MHz_16QAM_23205_25RB#0



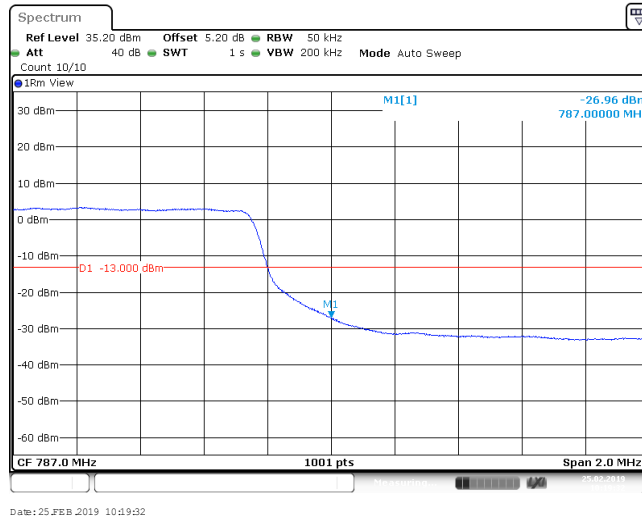
Band13_5MHz_16QAM_23255_1RB#24



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Band13_5MHz_16QAM_23255_25RB#0

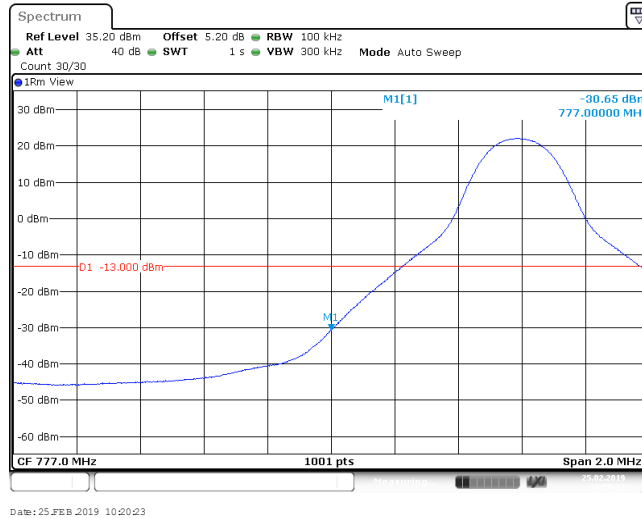


Band13_10MHz_QPSK_23230_Left_1RB#0



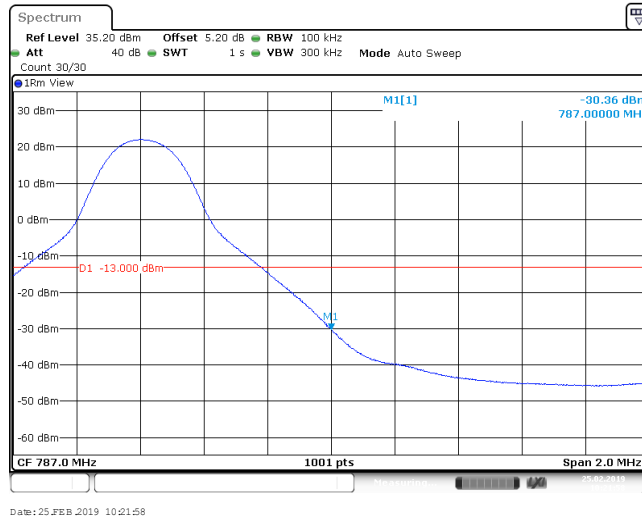
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Date: 25.FEB.2019 10:20:23

Band13_10MHz_QPSK_23230_Right_1RB#49



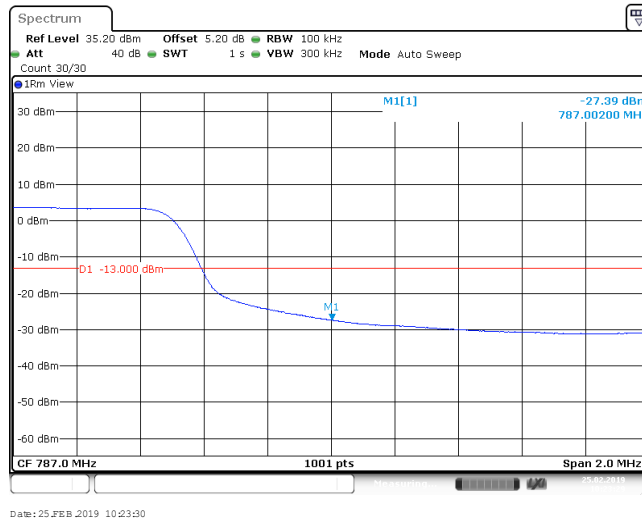
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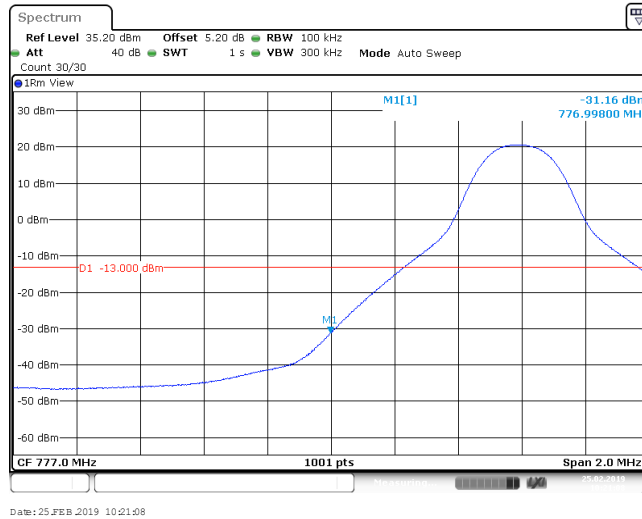


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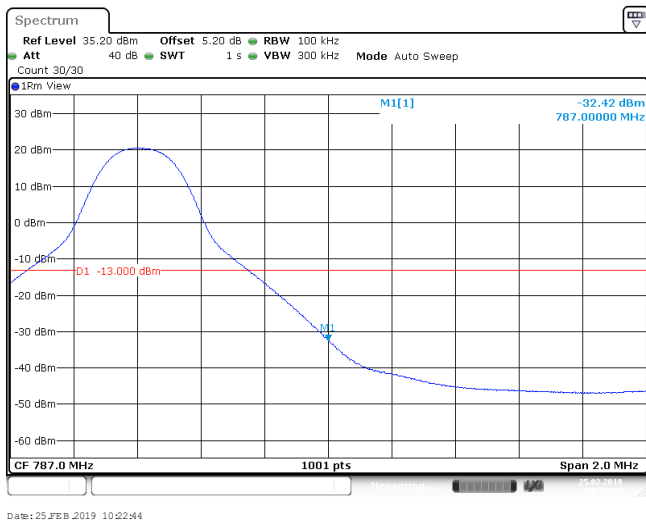
Band13_10MHz_16QAM_23230_Left_1RB#0



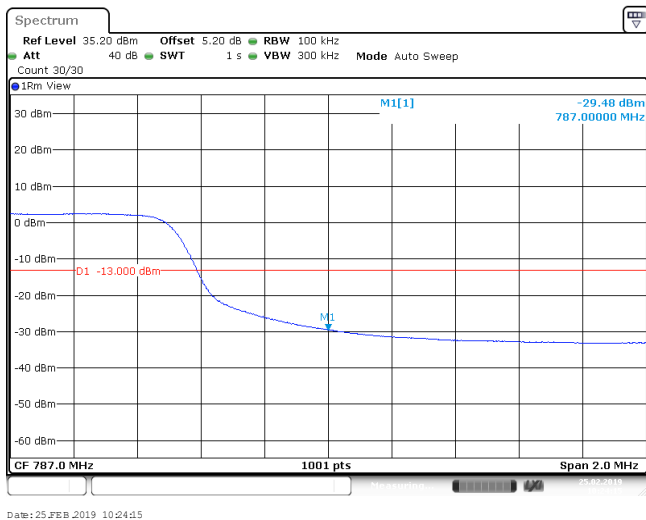
Band13_10MHz_16QAM_23230_Right_1RB#49



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Band13_10MHz_16QAM_23230_Right_50RB#0



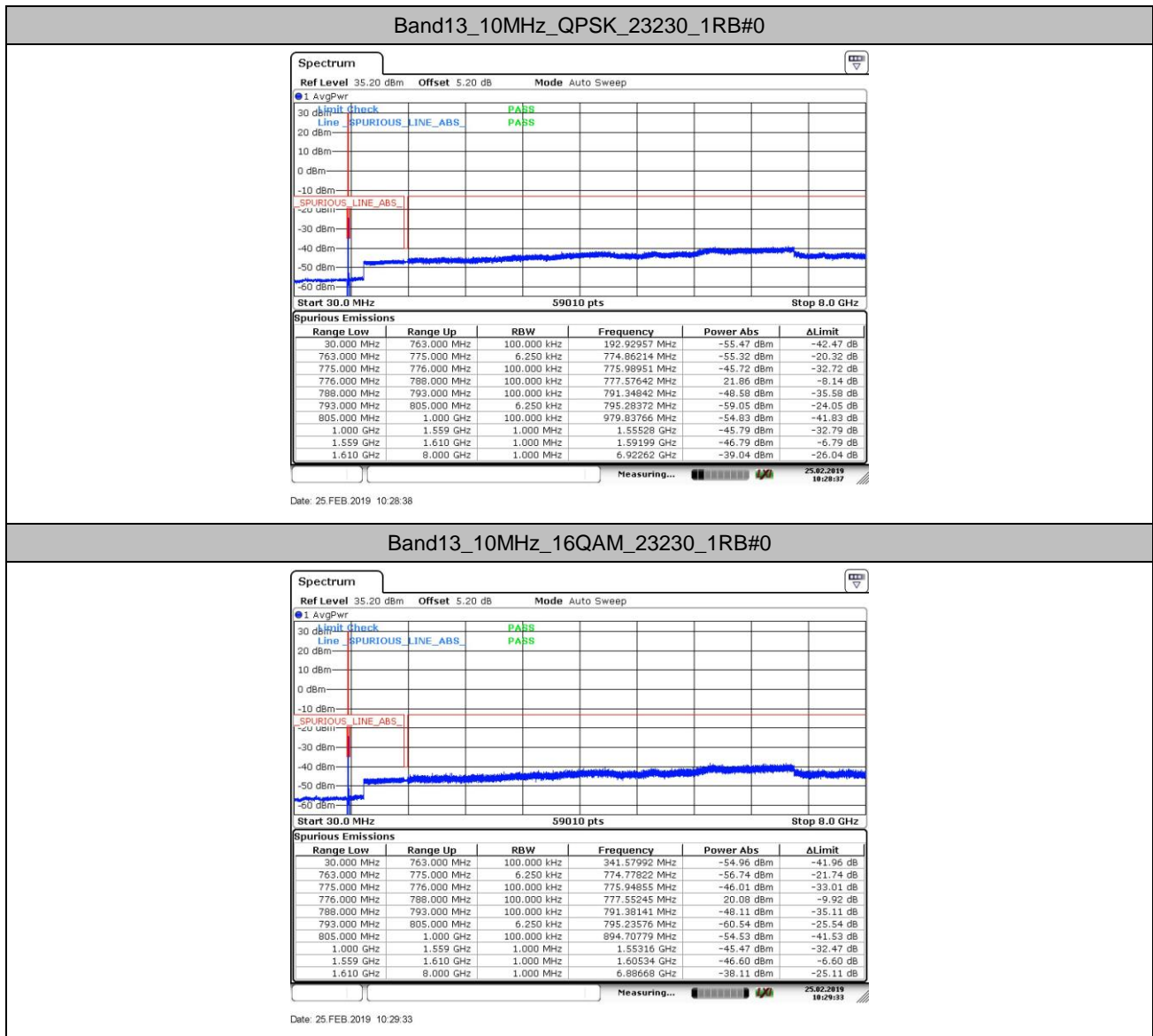
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6. Spurious Emission at Antenna Terminal

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.

6.1. Test Plots



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7. Field Strength of Spurious Radiation

7.1. Test BAND = LTE Band 13

7.1.1. Test Mode = LTE/TM1 10MHz

7.1.1.1. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
35.5293	-71.77	-13.00	58.77	Vertical
108.9619	-64.65	-13.00	51.65	Vertical
612.5626	-64.60	-13.00	51.60	Vertical
1572.9146	-60.55	-40.00	20.55	Vertical
2711.1422	-57.66	-13.00	44.66	Vertical
17993.9998	-31.67	-13.00	18.67	Vertical
39.9915	-65.32	-13.00	52.32	Horizontal
245.0113	-68.50	-13.00	55.50	Horizontal
631.9151	-64.68	-13.00	51.68	Horizontal
1572.9146	-61.50	-40.00	21.50	Horizontal
2697.5395	-56.47	-13.00	43.47	Horizontal
17993.9998	-36.60	-13.00	23.60	Horizontal

Remark:

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 had been displayed.

We have tested all modulation and all Bandwidth , but only the worst case data presented in this report.



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8. Frequency Stability

8.1. Frequency Vs Voltage

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	-0.40	-0.000512	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	1.00	0.001279	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	0.00	0.000000	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	0.00	0.000000	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	1.10	0.001407	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	-0.30	-0.000384	±2.5	PASS

8.2. Frequency Vs Temperature

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	-0.90	-0.001151	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-0.40	-0.000512	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	0.30	0.000384	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	0.10	0.000128	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	0.20	0.000256	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	0.80	0.001023	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	0.30	0.000384	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	-0.20	-0.000256	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	0.00	0.000000	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	-1.00	-0.001279	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	0.60	0.000767	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	-0.40	-0.000512	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	-0.40	-0.000512	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	-0.60	-0.000767	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	-0.90	-0.001151	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	0.50	0.000639	±2.5	PASS

The End



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