



Appendix B

E-UTRA BAND 13



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CONTENT

1.	EFFECTIVE (ISOTROPIC) RADIATED POWER	3
1.1.	<i>Test Result</i>	3
2.	PEAK-TO-AVERAGE RATIO(CCDF).....	5
2.1.	<i>Test Result</i>	5
2.2.	<i>Test Plots</i>	5
3.	MODULATION CHARACTERISTICS	6
3.1.	<i>Test BAND = LTE BAND13</i>	6
3.1.1.	<i>Test Mode = LTE /TM1 10MHZ</i>	6
3.1.1.1.	<i>Test Channel = MCH</i>	6
3.1.2.	<i>Test Mode = LTE /TM2 10MHZ</i>	7
3.1.2.1.	<i>Test Channel = MCH</i>	7
4.	26dB BANDWIDTH AND OCCUPIED BANDWIDTH	8
4.1.	<i>Test Result</i>	8
4.2.	<i>Test Plots</i>	8
5.	BAND EDGE COMPLIANCE	13
5.1.	<i>Test Plots</i>	13
6.	SPURIOUS EMISSION AT ANTENNA TERMINAL	20
6.1.	<i>Test Plots</i>	20
7.	FIELD STRENGTH OF SPURIOUS RADIATION.....	21
7.1.	<i>Test BAND = LTE BAND 13</i>	21
7.1.1.	<i>Test Mode =LTE/TM1 10MHZ</i>	21
7.1.1.1.	<i>Test Channel = MCH</i>	21
8.	FREQUENCY STABILITY	22
8.1.	<i>Frequency Vs Voltage</i>	22
8.2.	<i>Frequency Vs Temperature</i>	22



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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#0	24.60	22.32	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	24.50	22.22	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	24.90	22.62	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	23.88	21.60	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	23.04	20.76	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	23.65	21.37	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	23.64	21.36	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	24.42	22.14	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	24.49	22.21	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	24.78	22.50	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	23.66	21.38	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	23.76	21.48	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	23.66	21.38	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	23.54	21.26	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	24.59	22.31	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	24.63	22.35	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	24.61	22.33	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	23.50	21.22	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	23.47	21.19	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	23.67	21.39	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	23.58	21.30	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	23.70	21.42	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	23.17	20.89	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	23.54	21.26	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	22.43	20.15	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	22.40	20.12	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	22.61	20.33	34.77	PASS
Band13	5MHz	16QAM	23205	25RB#0	22.86	20.58	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	23.42	21.14	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	23.65	21.37	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	23.35	21.07	34.77	PASS



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Band13	5MHz	16QAM	23230	12RB#0	22.56	20.28	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#6	22.53	20.25	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	22.51	20.23	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	22.69	20.41	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	23.66	21.38	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	23.58	21.30	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	23.04	20.76	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	22.69	20.41	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#6	22.54	20.26	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#13	22.53	20.25	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	22.72	20.44	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	23.95	21.67	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.59	21.31	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	24.55	22.27	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	23.74	21.46	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	23.64	21.36	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	23.56	21.28	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	23.60	21.32	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	23.15	20.87	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	23.21	20.93	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	23.23	20.95	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#0	22.82	20.54	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#12	22.80	20.52	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#25	22.70	20.42	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	22.82	20.54	34.77	PASS

Remark:

a: For getting the ERP (Efficient Radiated Power), the following formula should be taken to calculate it,
 $ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBd]$

$EIRP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi]$



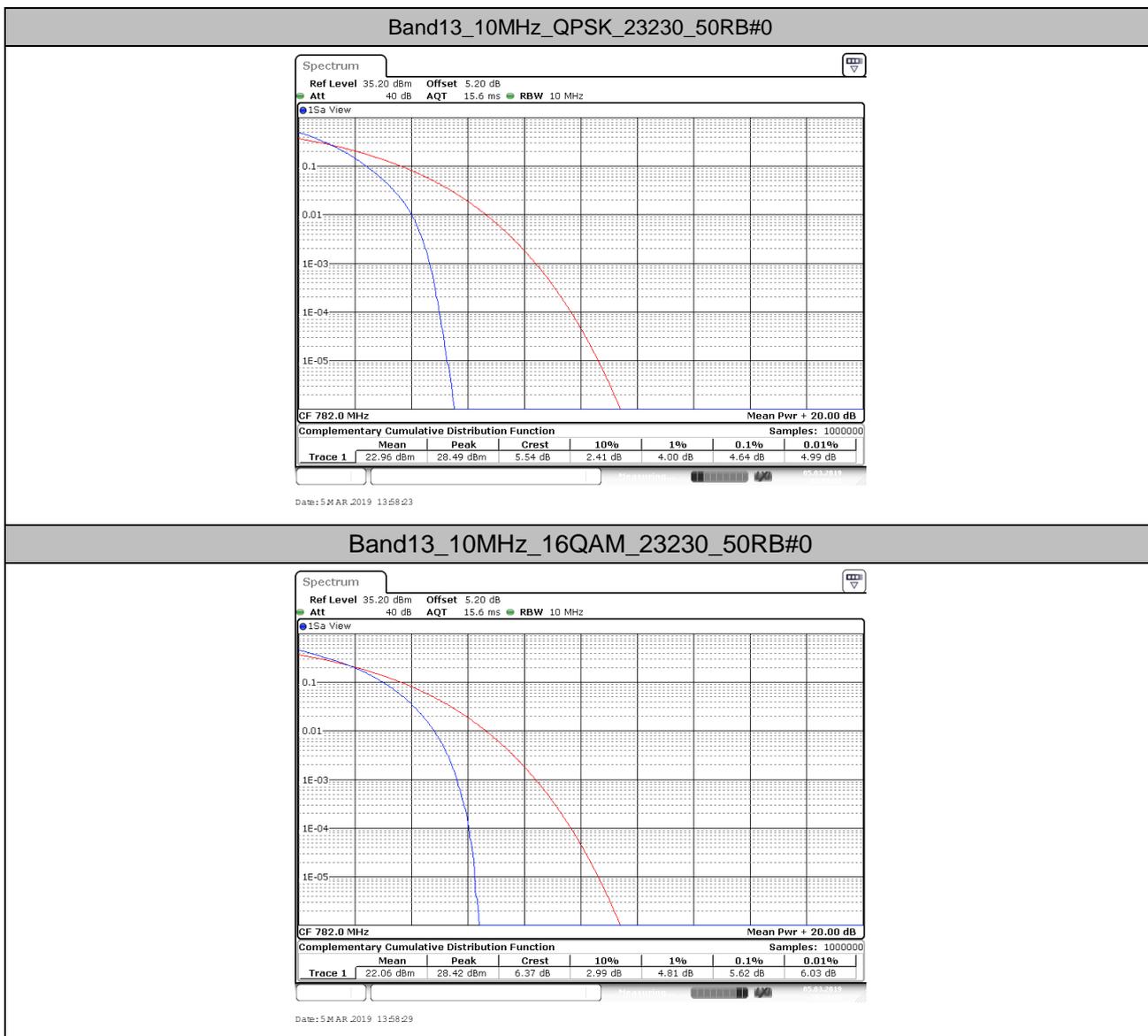
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2. Peak-to-Average Ratio(CCDFF)

2.1. Test Result

BAND	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	4.64	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	5.62	13	PASS

2.2. Test Plots



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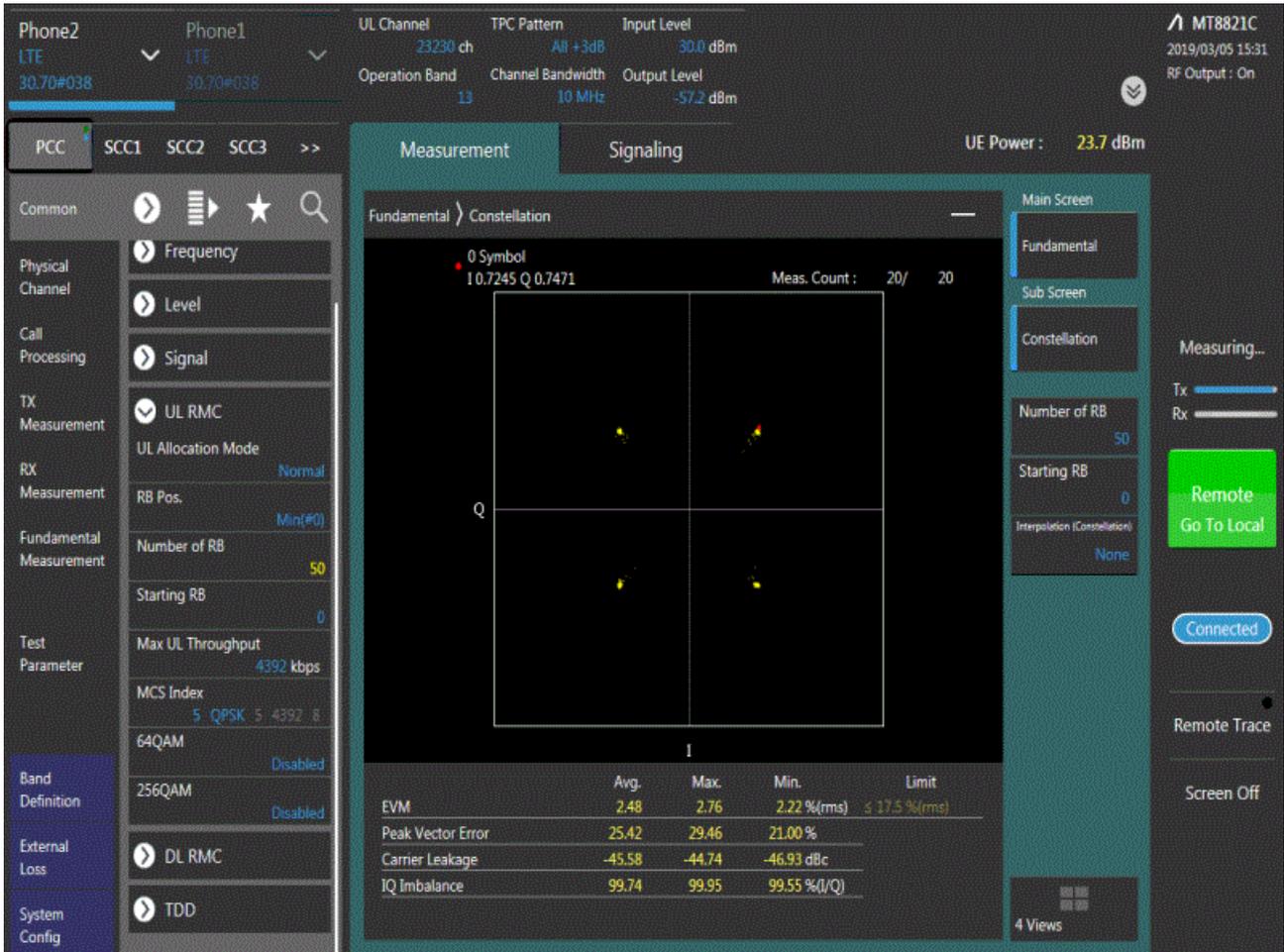
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3. Modulation Characteristics

3.1. Test BAND = LTE BAND13

3.1.1. Test Mode = LTE /TM1 10MHz

3.1.1.1. Test Channel = MCH

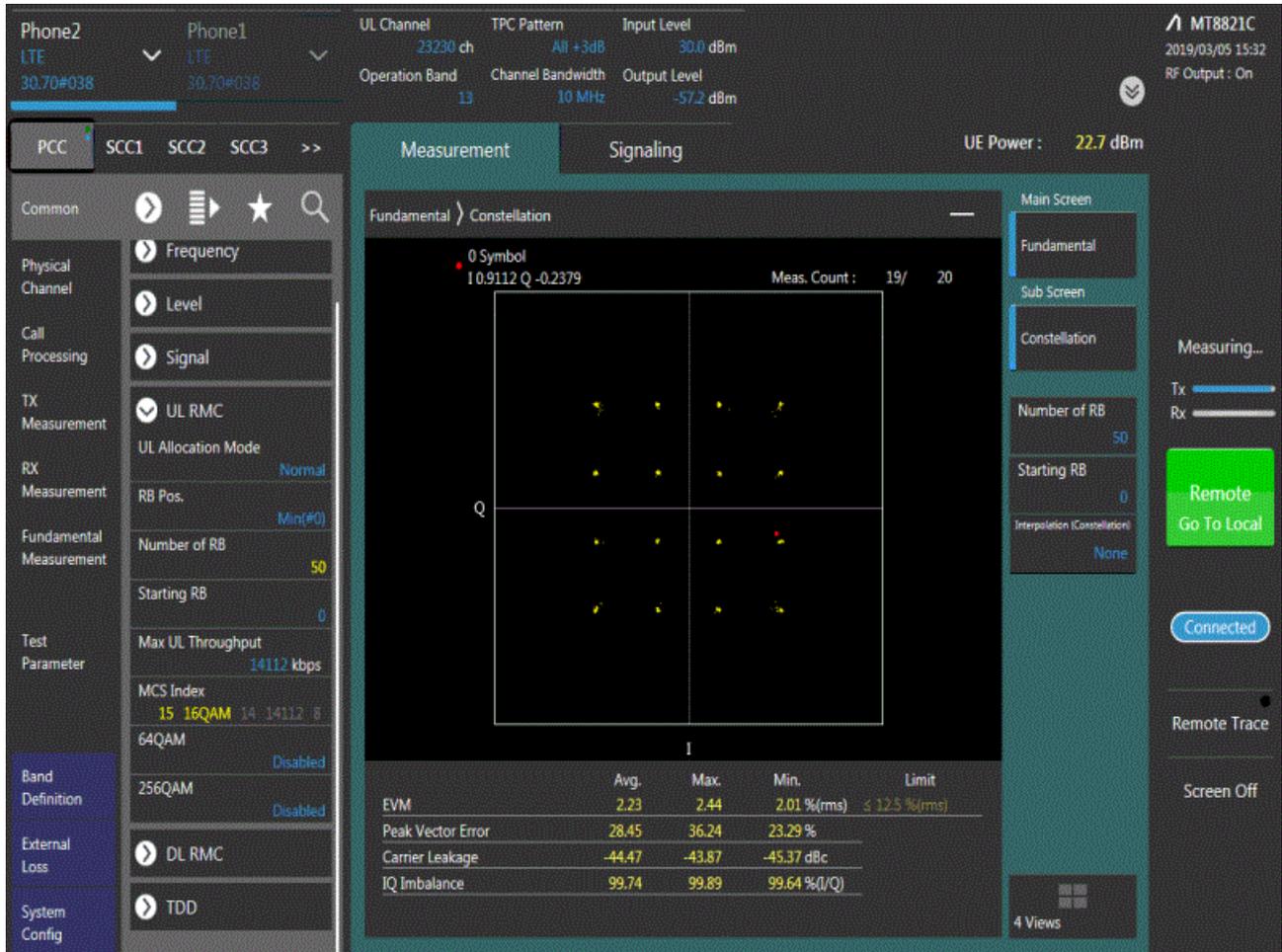


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3.1.2. Test Mode = LTE /TM2 10MHz

3.1.2.1. Test Channel = MCH



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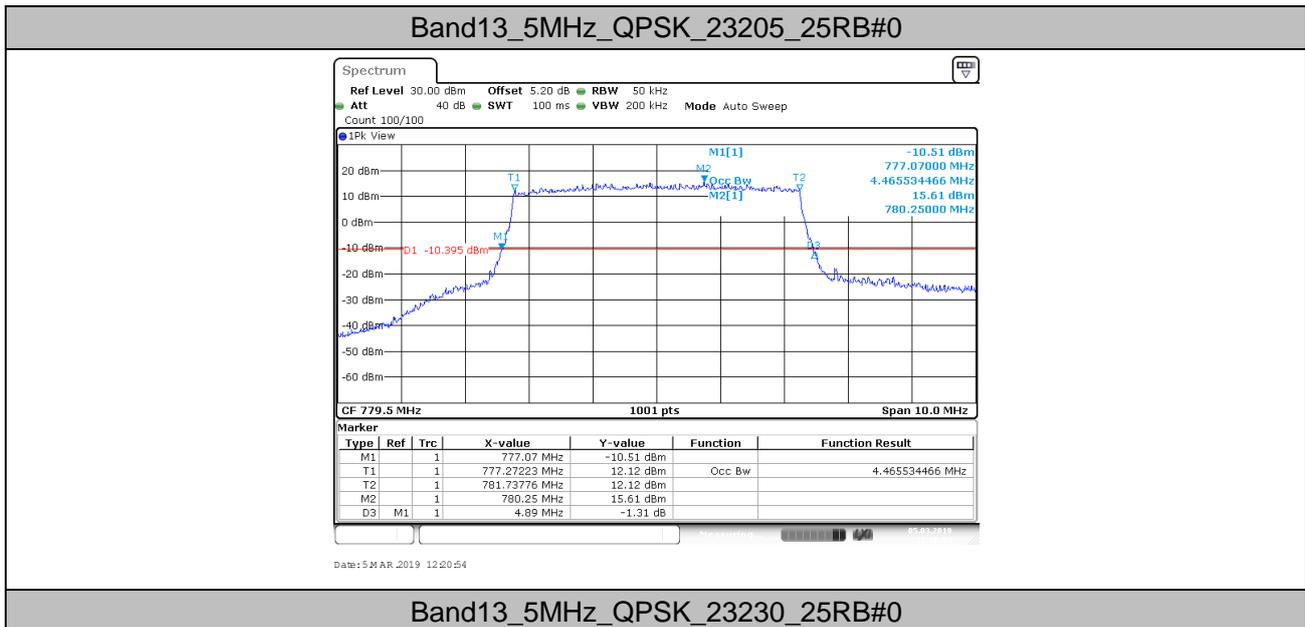
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4. 26dB Bandwidth and Occupied Bandwidth

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	4.890	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.476	4.940	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.476	4.950	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.446	4.840	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.486	4.990	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.486	4.950	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.931	9.660	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.911	9.660	PASS

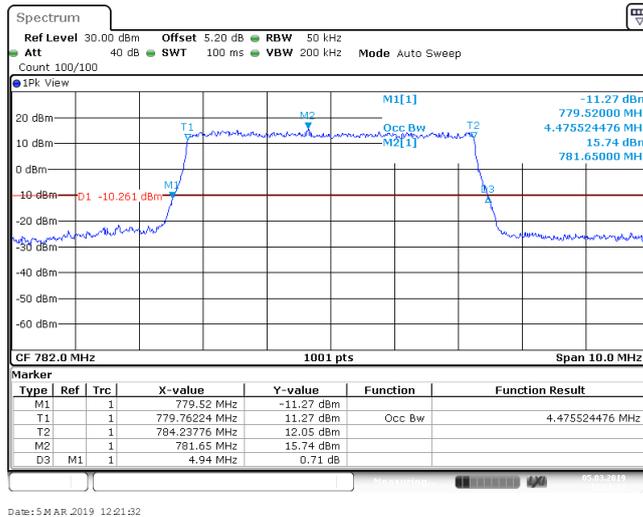
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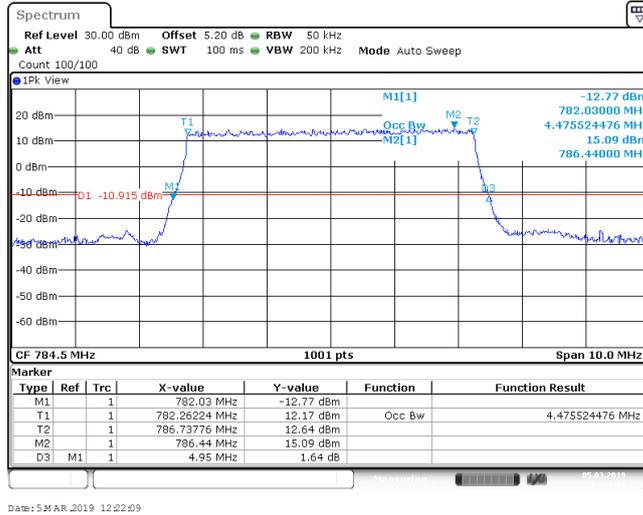
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Date: 5 MAR 2019 12:21:32

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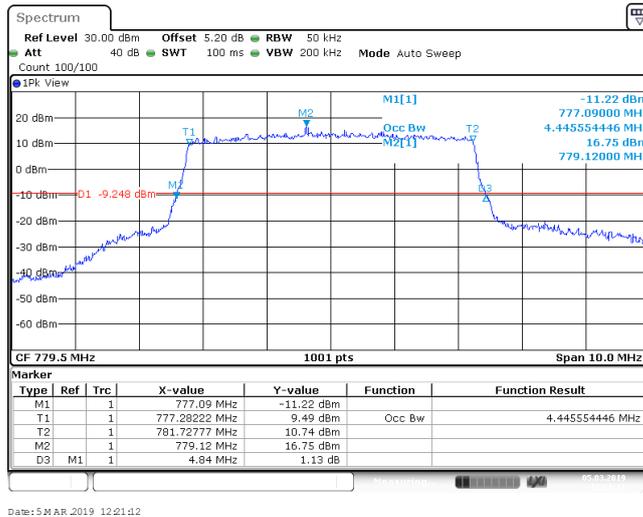


Date: 5 MAR 2019 12:22:09

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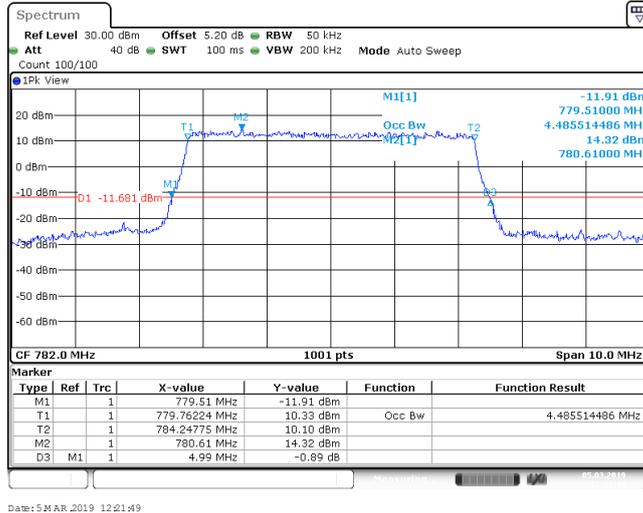


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Date: 5 MAR 2019 12:21:12

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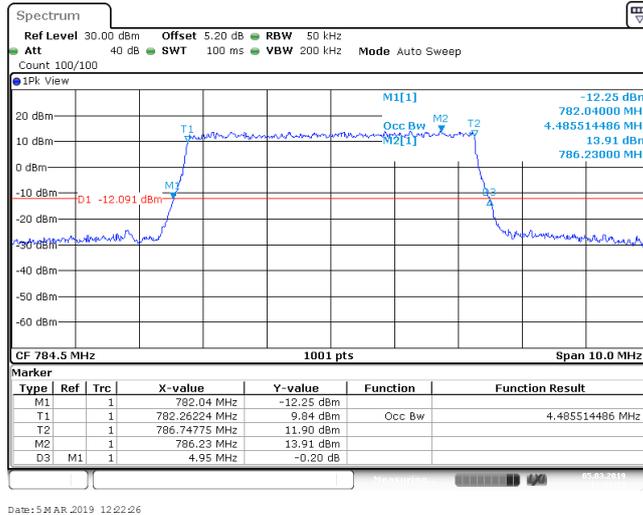


Date: 5 MAR 2019 12:21:49

Band13_5MHz_16QAM_23255_25RB#0

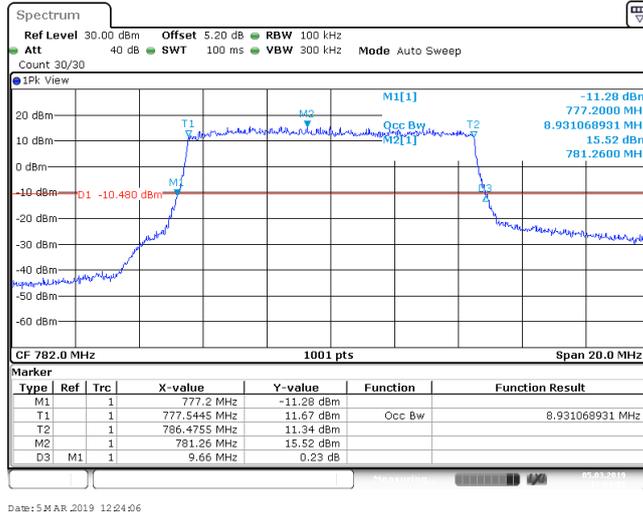


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Date: 5 MAR 2019 12:22:26

Band13_10MHz_QPSK_23230_50RB#0

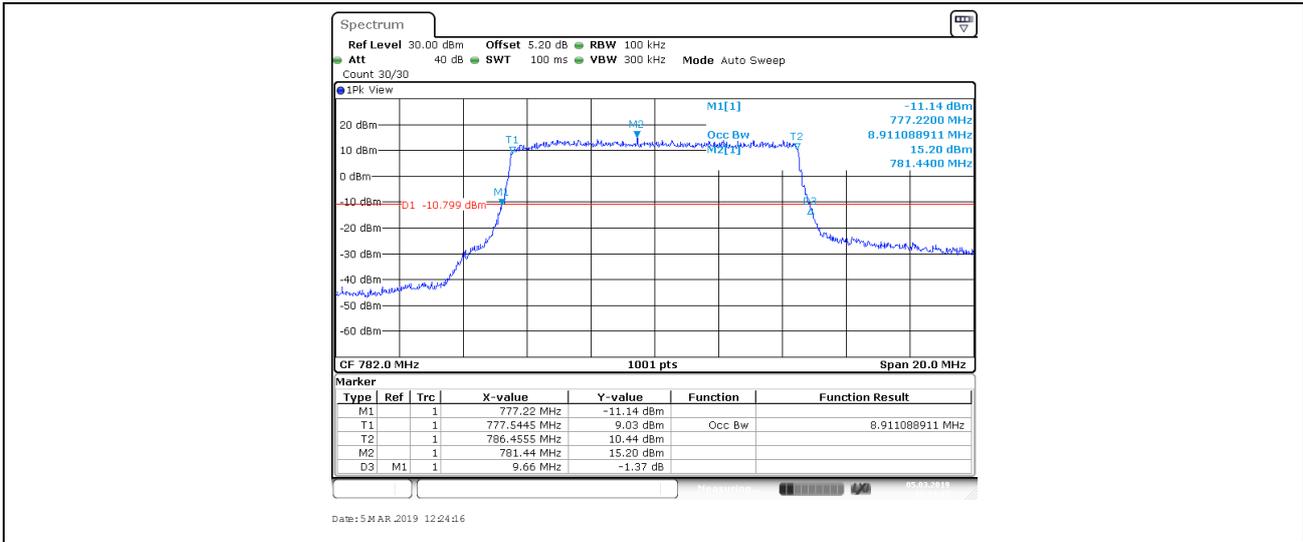


Date: 5 MAR 2019 12:24:06

Band13_10MHz_16QAM_23230_50RB#0



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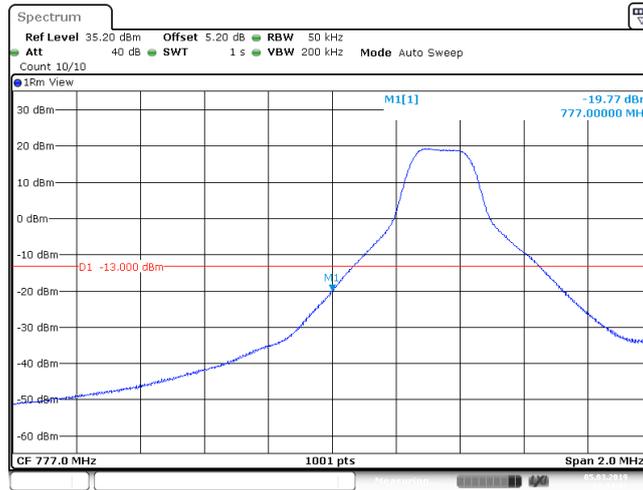


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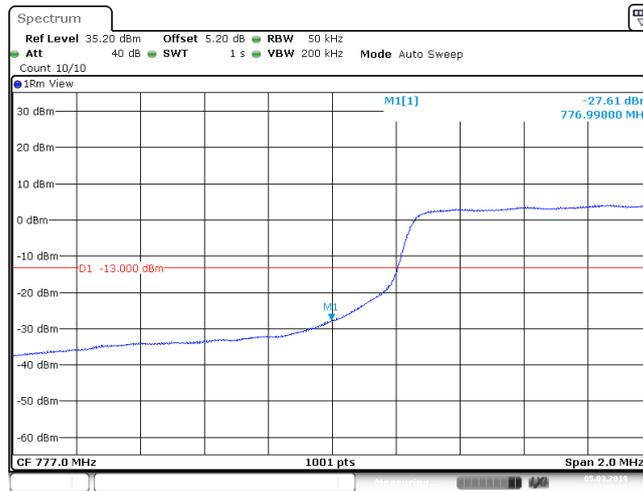
5. Band Edge Compliance

5.1. Test Plots

Band13_5MHz_QPSK_23205_1RB#0



Band13_5MHz_QPSK_23205_25RB#0

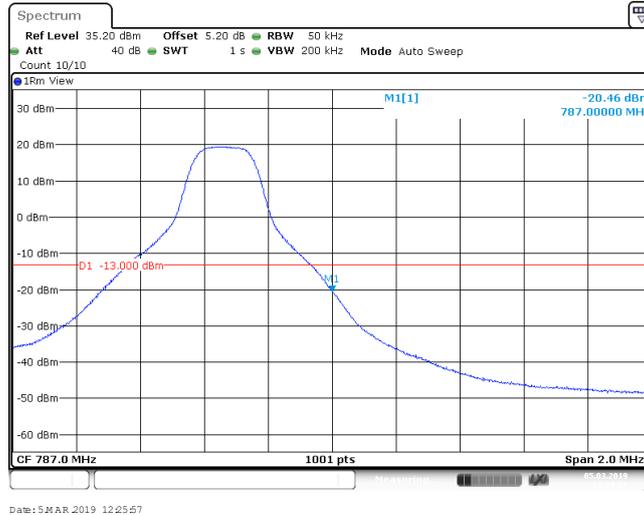


Band13_5MHz_QPSK_23255_1RB#24



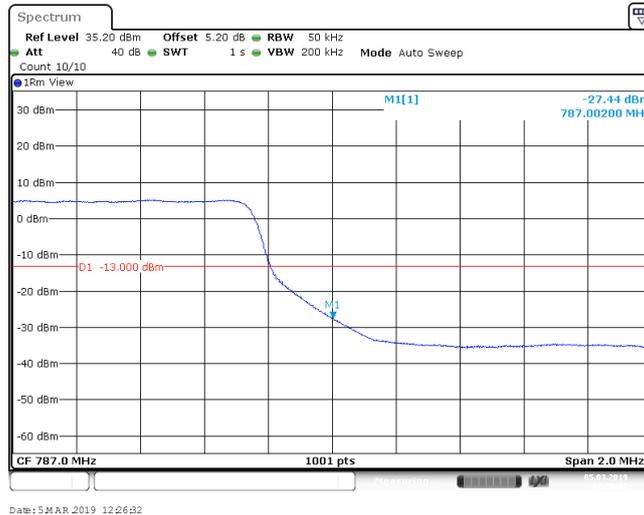
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Date: 5 MAR 2019 12:25:57

Band13_5MHz_QPSK_23255_25RB#0

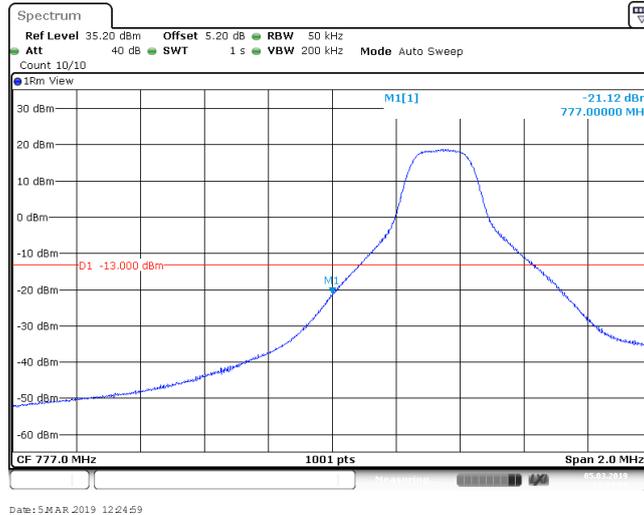


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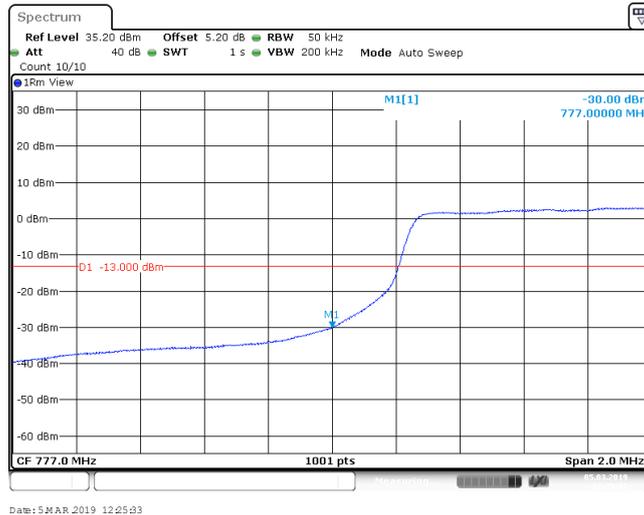
Band13_5MHz_16QAM_23205_1RB#0



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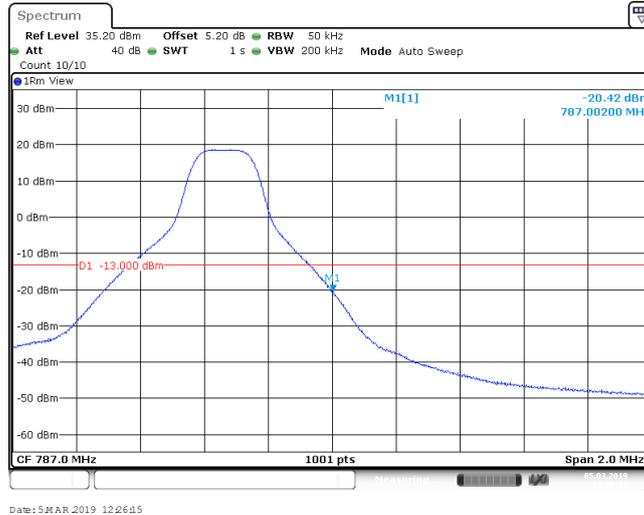
Band13_5MHz_16QAM_23205_25RB#0



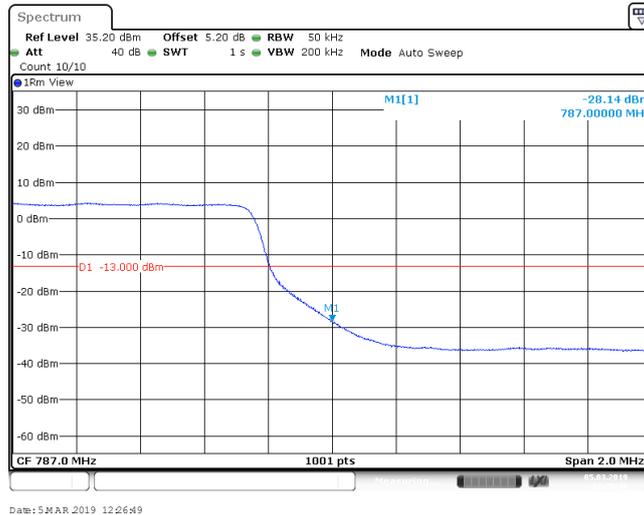
Band13_5MHz_16QAM_23255_1RB#24



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Band13_5MHz_16QAM_23255_25RB#0

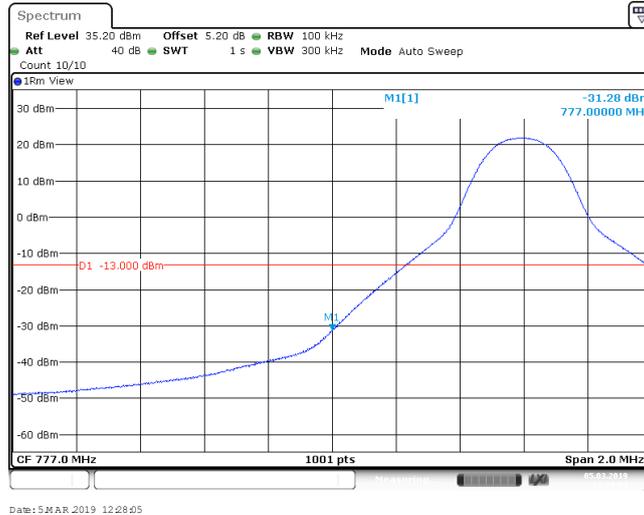


Band13_10MHz_QPSK_23230_Left_1RB#0

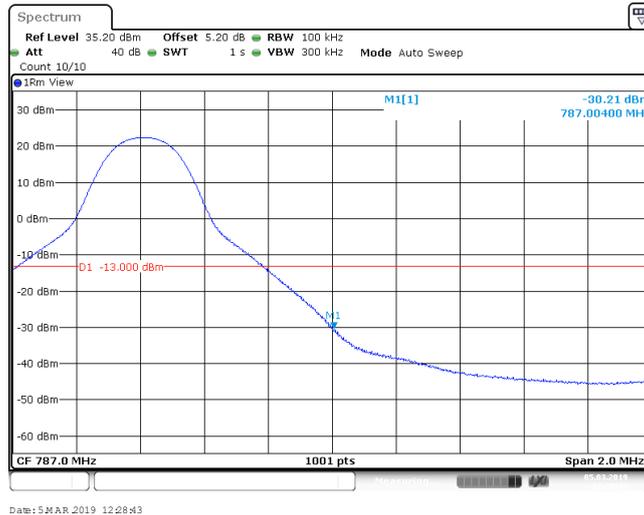


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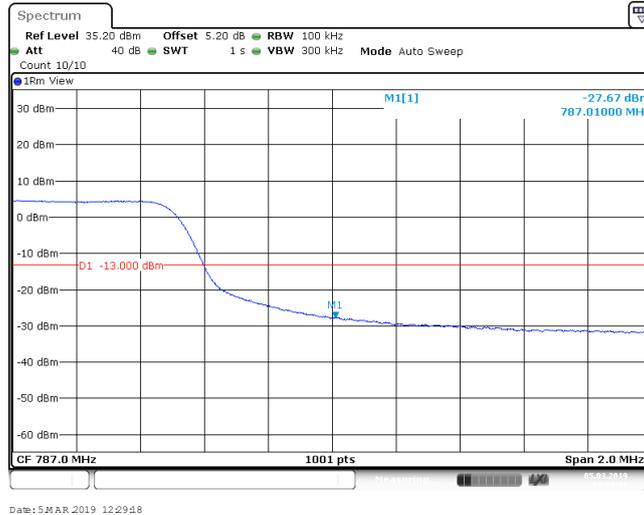
Band13_10MHz_QPSK_23230_Right_1RB#49



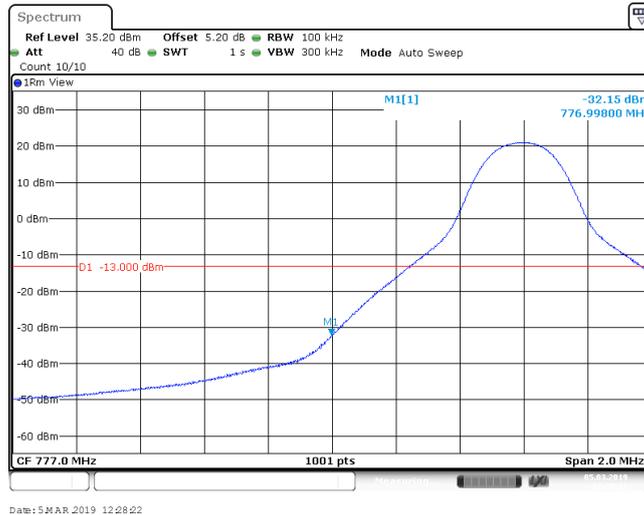
Band13_10MHz_QPSK_23230_Right_50RB#0



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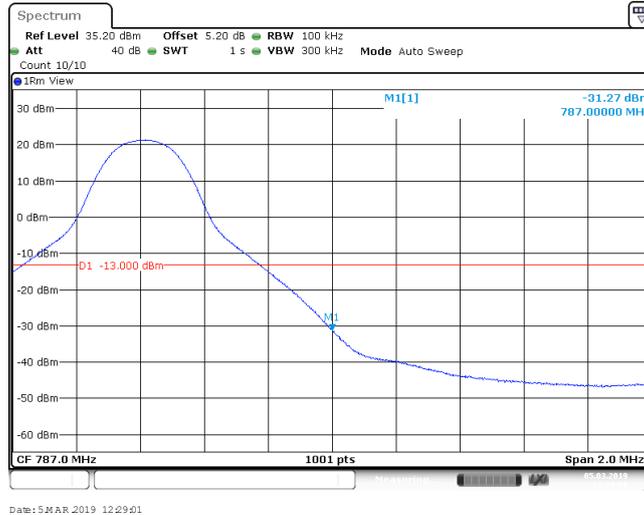
Band13_10MHz_16QAM_23230_Left_1RB#0



Band13_10MHz_16QAM_23230_Right_1RB#49



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Band13_10MHz_16QAM_23230_Right_50RB#0



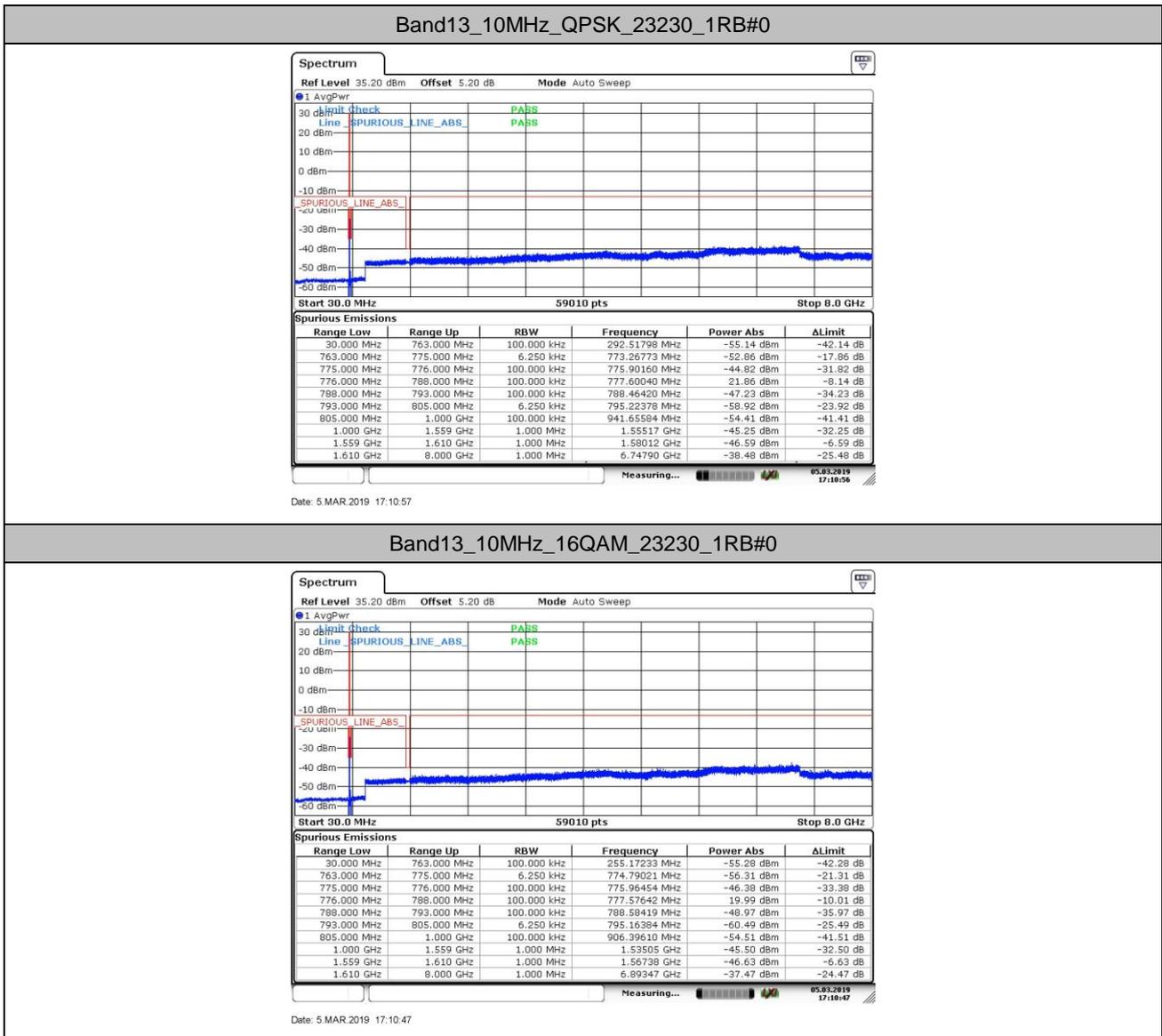
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6. Spurious Emission at Antenna Terminal

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 = $k * (Span / RBW)$ " 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
104.293333	-71.43	-13.00	58.43	Vertical
144.006667	-75.99	-13.00	62.99	Vertical
1555.000000	-62.80	-13.00	49.80	Vertical
1566.000000	-66.21	-40.00	26.21	Vertical
2332.500000	-57.63	-13.00	44.63	Vertical
3110.175000	-67.36	-13.00	54.36	Vertical
64.113333	-77.37	-13.00	64.37	Horizontal
143.913333	-75.80	-13.00	62.80	Horizontal
1555.000000	-64.87	-13.00	51.87	Horizontal
1566.000000	-65.84	-40.00	25.84	Horizontal
3887.250000	-65.40	-13.00	52.40	Horizontal
9331.650000	-59.00	-13.00	46.00	Horizontal

Remark:

- 1) 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.
- 2) 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	0.00	0.000000	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	0.40	0.000512	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-0.70	-0.000895	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	1.00	0.001279	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	-0.90	-0.001151	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	0.20	0.000256	±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	1.80	0.002302	±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	1.20	0.001535	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	0.50	0.000639	±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	30	0.60	0.000767	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	0.80	0.001023	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	1.20	0.001535	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	1.60	0.002046	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	1.20	0.001535	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	1.00	0.001279	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	1.50	0.001918	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	0.90	0.001151	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	-0.30	-0.000384	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	0.70	0.000895	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	1.10	0.001407	±2.5	PASS

The End



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