



# 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#0	23.09	19.39	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.11	19.41	34.77	PASS
Band13	5MHz	QPSK	23205	1RB#24	23.41	19.71	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#13	22.25	18.55	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.38	18.68	34.77	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.41	18.71	34.77	PASS
Band13	5MHz	QPSK	23205	25RB#0	22.35	18.65	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#0	22.93	19.23	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.07	19.37	34.77	PASS
Band13	5MHz	QPSK	23230	1RB#12	22.91	19.21	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.30	18.60	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.26	18.56	34.77	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.14	18.44	34.77	PASS
Band13	5MHz	QPSK	23230	25RB#0	22.11	18.41	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.02	19.32	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#24	22.92	19.22	34.77	PASS
Band13	5MHz	QPSK	23255	1RB#0	22.79	19.09	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.08	18.38	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.10	18.40	34.77	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.07	18.37	34.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	22.13	18.43	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#24	22.18	18.48	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#0	22.43	18.73	34.77	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.74	18.04	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#13	21.03	17.33	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.14	17.44	34.77	PASS
Band13	5MHz	16QAM	23205	12RB#0	21.11	17.41	34.77	PASS



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Band13	5MHz	16QAM	23205	25RB#0	21.16	17.46	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#0	22.30	18.60	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#12	22.01	18.31	34.77	PASS
Band13	5MHz	16QAM	23230	1RB#24	21.65	17.95	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#0	20.98	17.28	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#6	21.11	17.41	34.77	PASS
Band13	5MHz	16QAM	23230	12RB#13	20.93	17.23	34.77	PASS
Band13	5MHz	16QAM	23230	25RB#0	21.19	17.49	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#0	22.41	18.71	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#12	21.99	18.29	34.77	PASS
Band13	5MHz	16QAM	23255	1RB#24	21.66	17.96	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#0	21.05	17.35	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#6	21.02	17.32	34.77	PASS
Band13	5MHz	16QAM	23255	12RB#13	21.08	17.38	34.77	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.17	17.47	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#0	23.00	19.30	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.37	19.67	34.77	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.11	19.41	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.22	18.52	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#25	22.20	18.50	34.77	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.02	18.32	34.77	PASS
Band13	10MHz	QPSK	23230	50RB#0	22.14	18.44	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#49	22.93	19.23	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#0	23.07	19.37	34.77	PASS
Band13	10MHz	16QAM	23230	1RB#24	22.91	19.21	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#12	22.30	18.60	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#0	22.26	18.56	34.77	PASS
Band13	10MHz	16QAM	23230	25RB#25	22.14	18.44	34.77	PASS
Band13	10MHz	16QAM	23230	50RB#0	22.11	18.41	34.77	PASS

Remark:

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

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

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

The conducted Power is measured by Base Station Simulator



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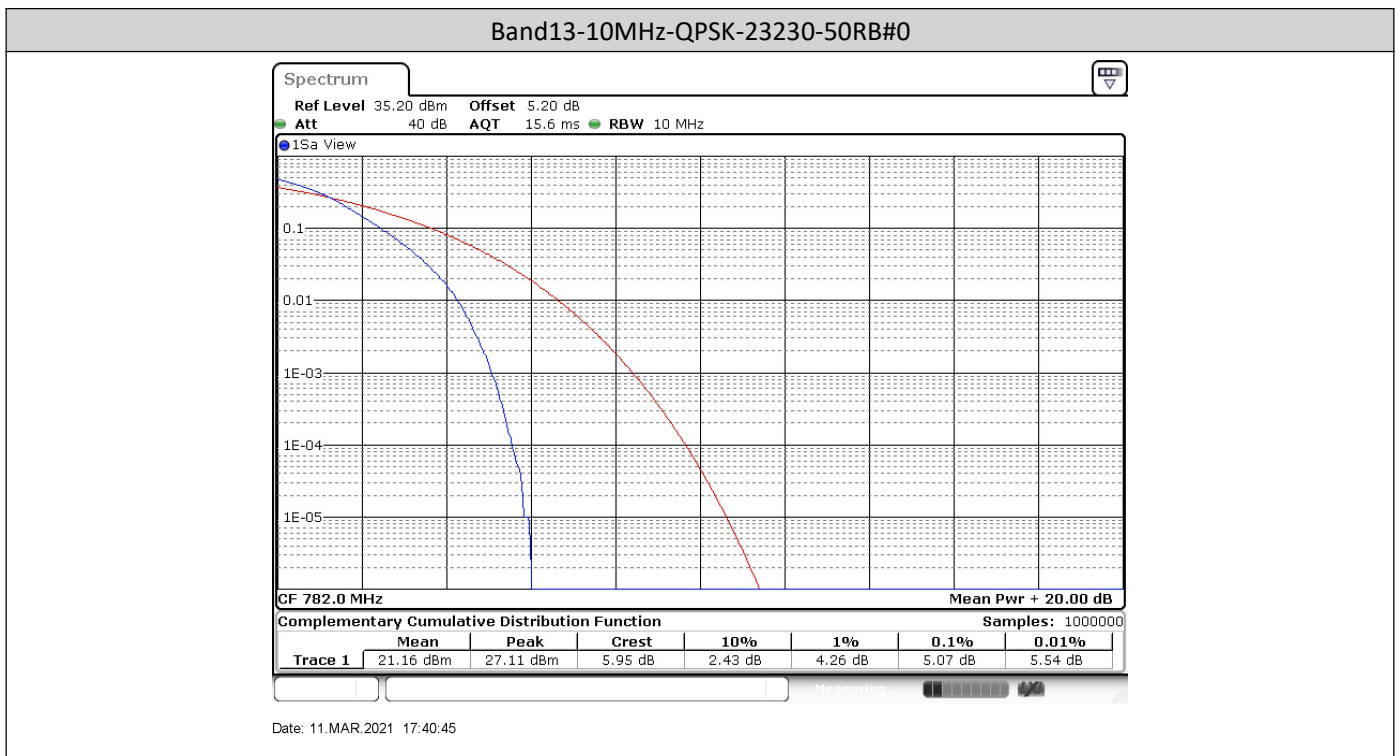


## 2. Peak-to-Average Ratio (CCDF)

### 2.1. Test Result

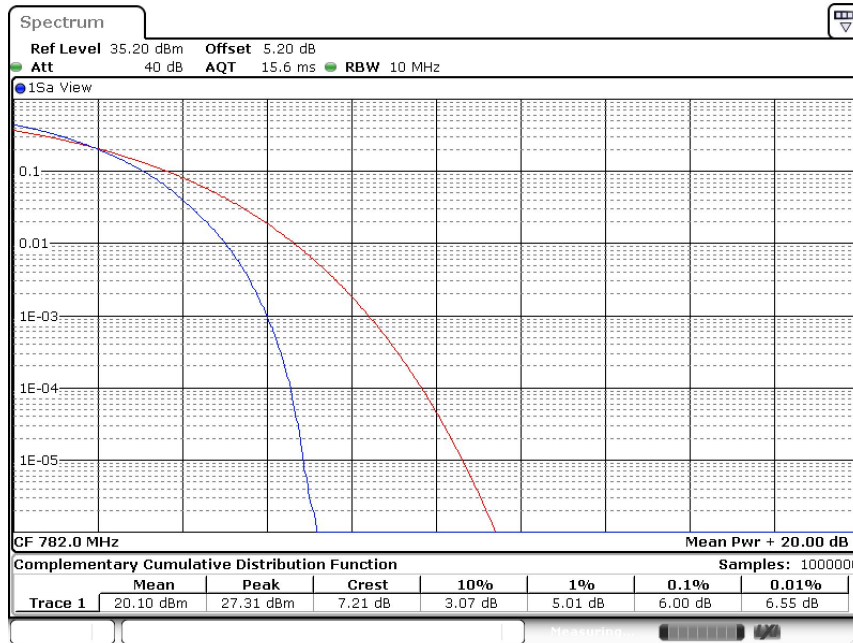
Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	10MHz	QPSK	23230	50RB#0	5.07	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	6.00	13	PASS

### 2.2. Test Plots



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



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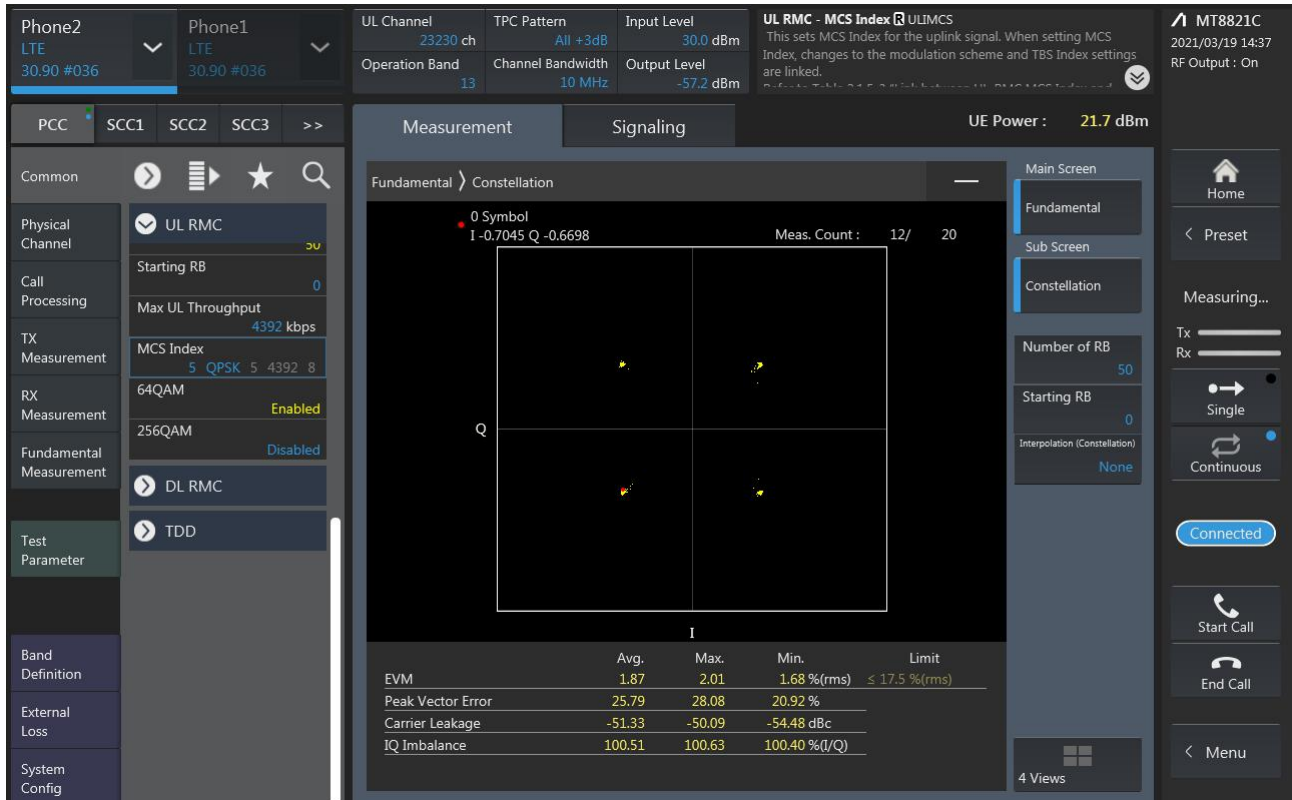
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### 3. Modulation Characteristics

#### 3.1. Test Mode = LTE /TM1 10MHz

##### 3.1.1. Test Channel = MCH



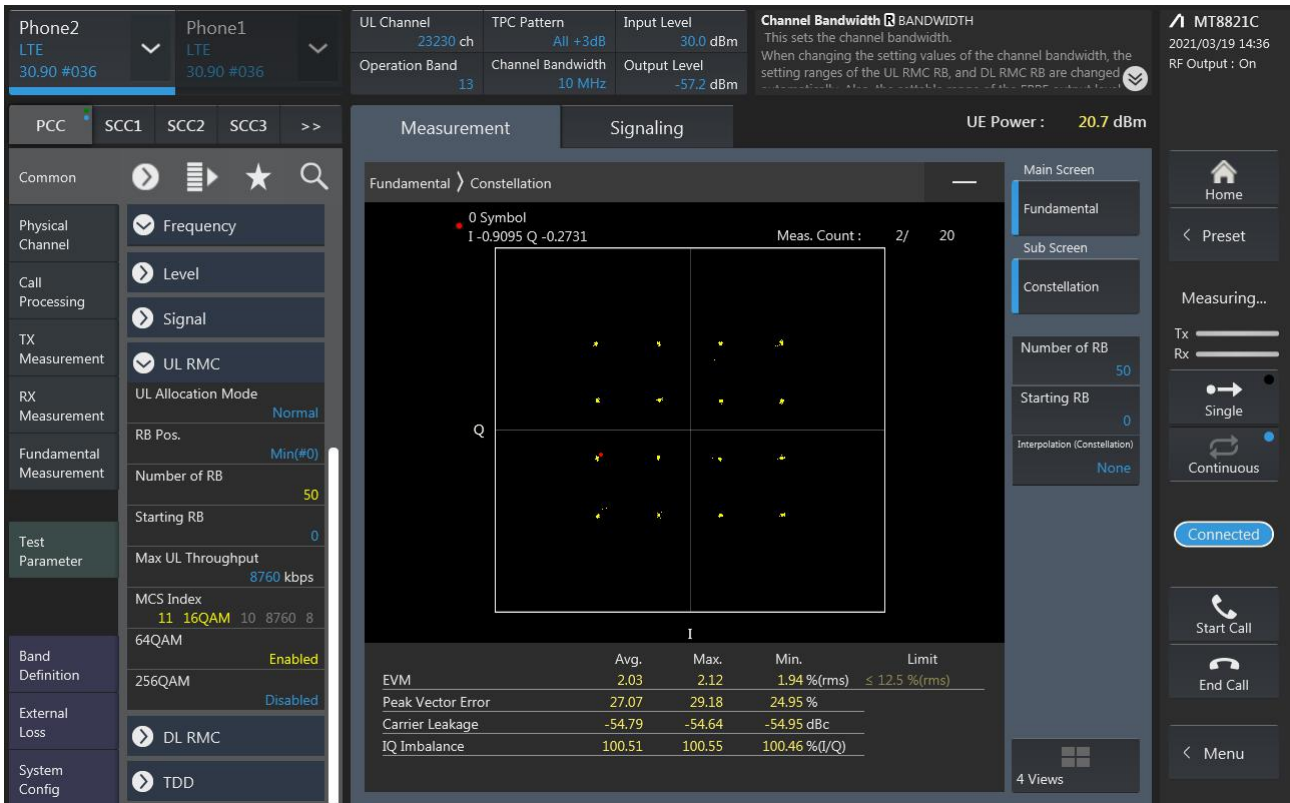
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### 3.2. Test Mode = LTE /TM2 10MHz

#### 3.2.1. 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	4.920	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.466	4.930	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.476	4.950	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.486	4.950	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.486	4.950	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.486	4.960	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.891	9.660	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.911	9.700	PASS



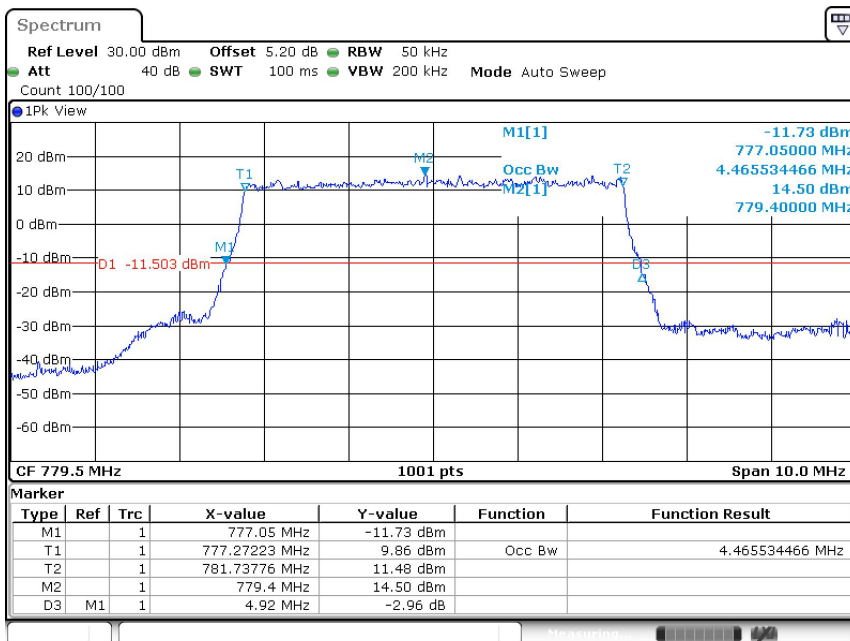
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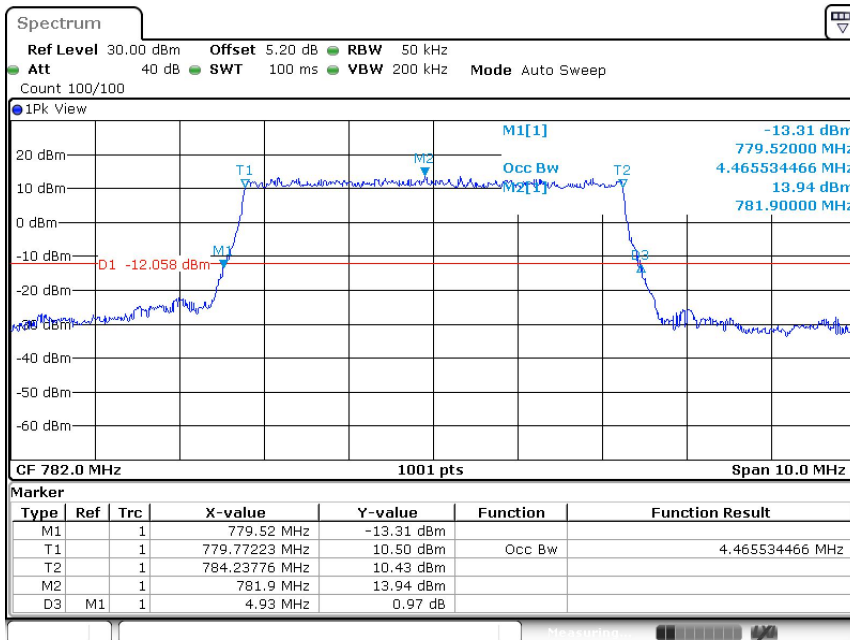
## 4.2. Test Plots

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



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

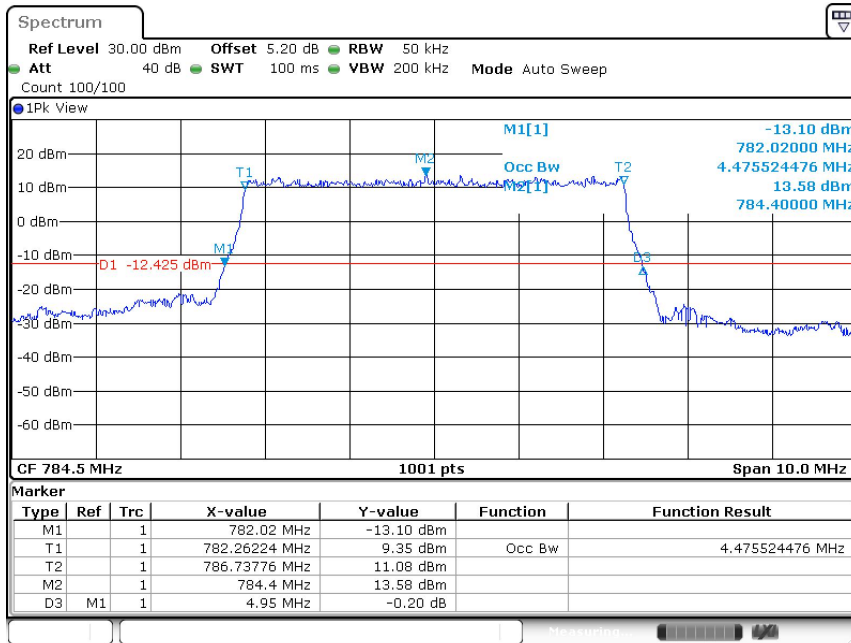


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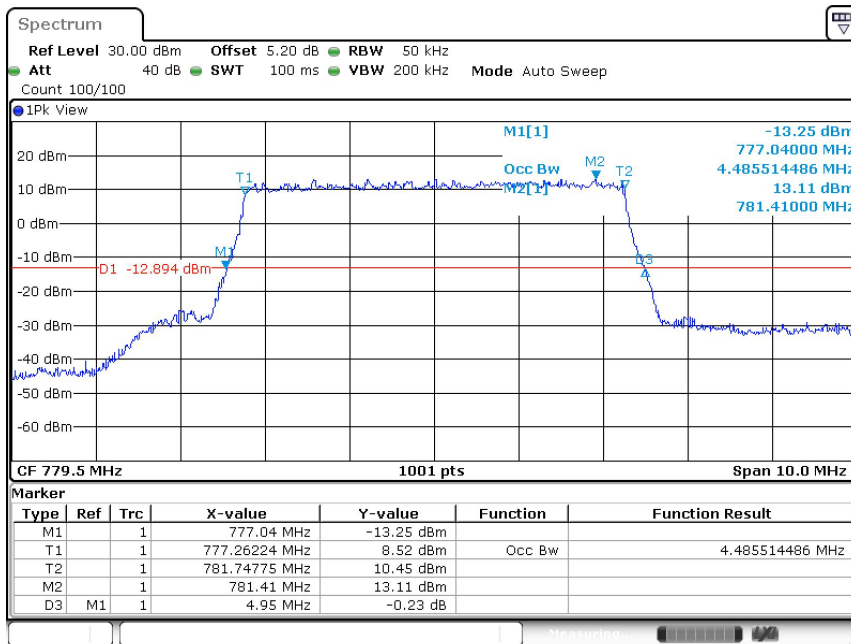
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**Band13-5MHz-QPSK-23255-25RB#0-4.476**



Date: 11.MAR.2021 17:34:33

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

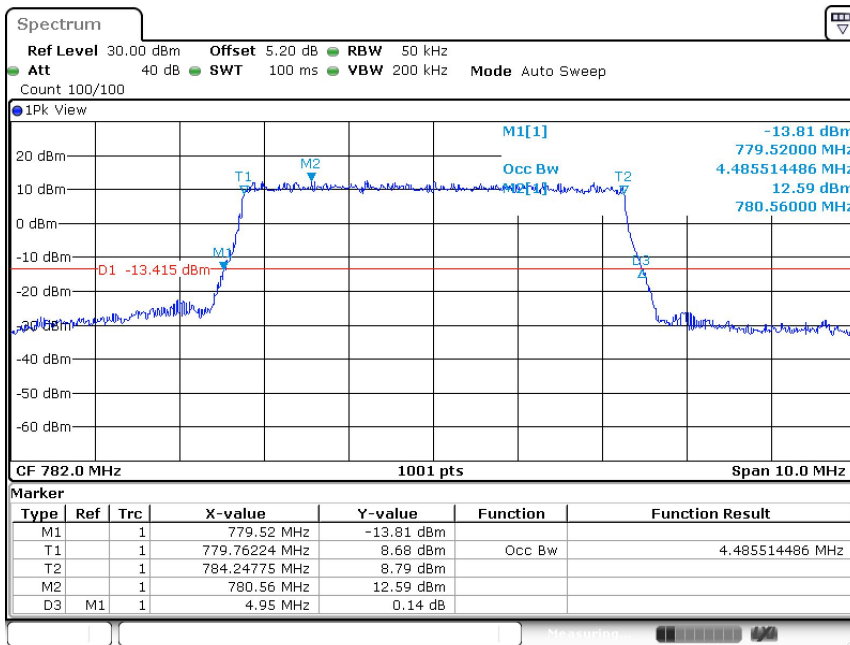


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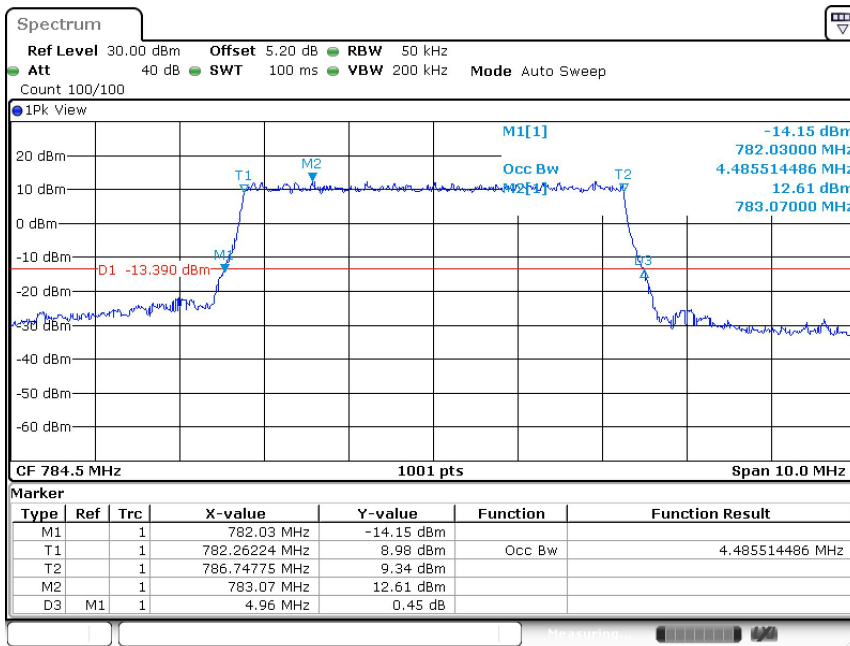
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**Band13-5MHz-16QAM-23230-25RB#0-4.486**



Date: 11.MAR.2021 17:34:13

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

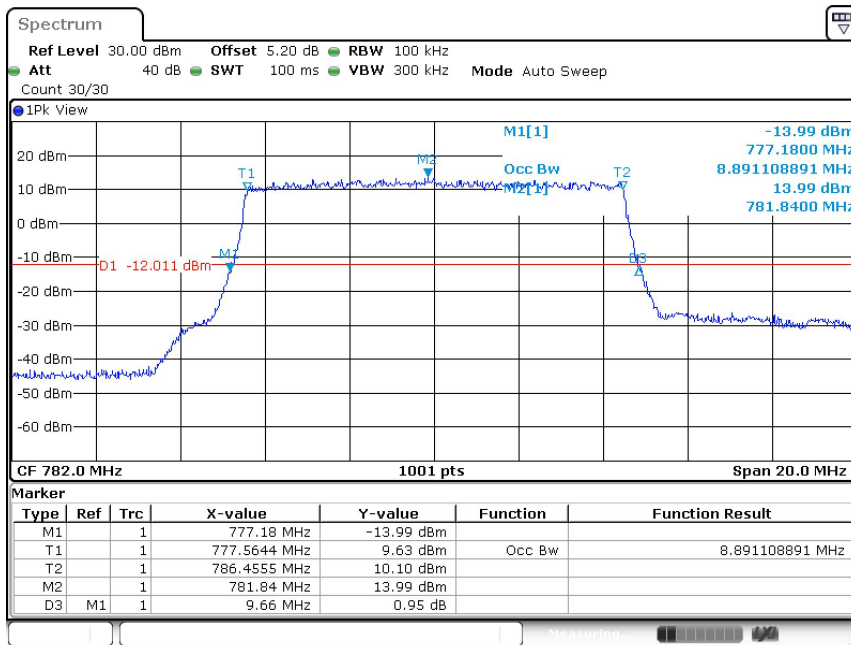


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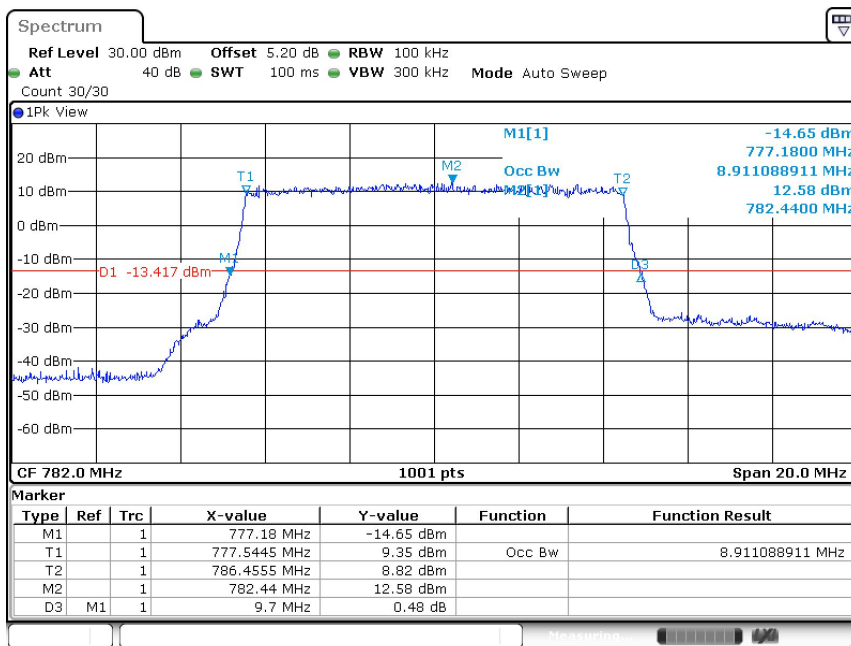
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**Band13-10MHz-QPSK-23230-50RB#0-8.891**



Date: 11.MAR.2021 17:35:10

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



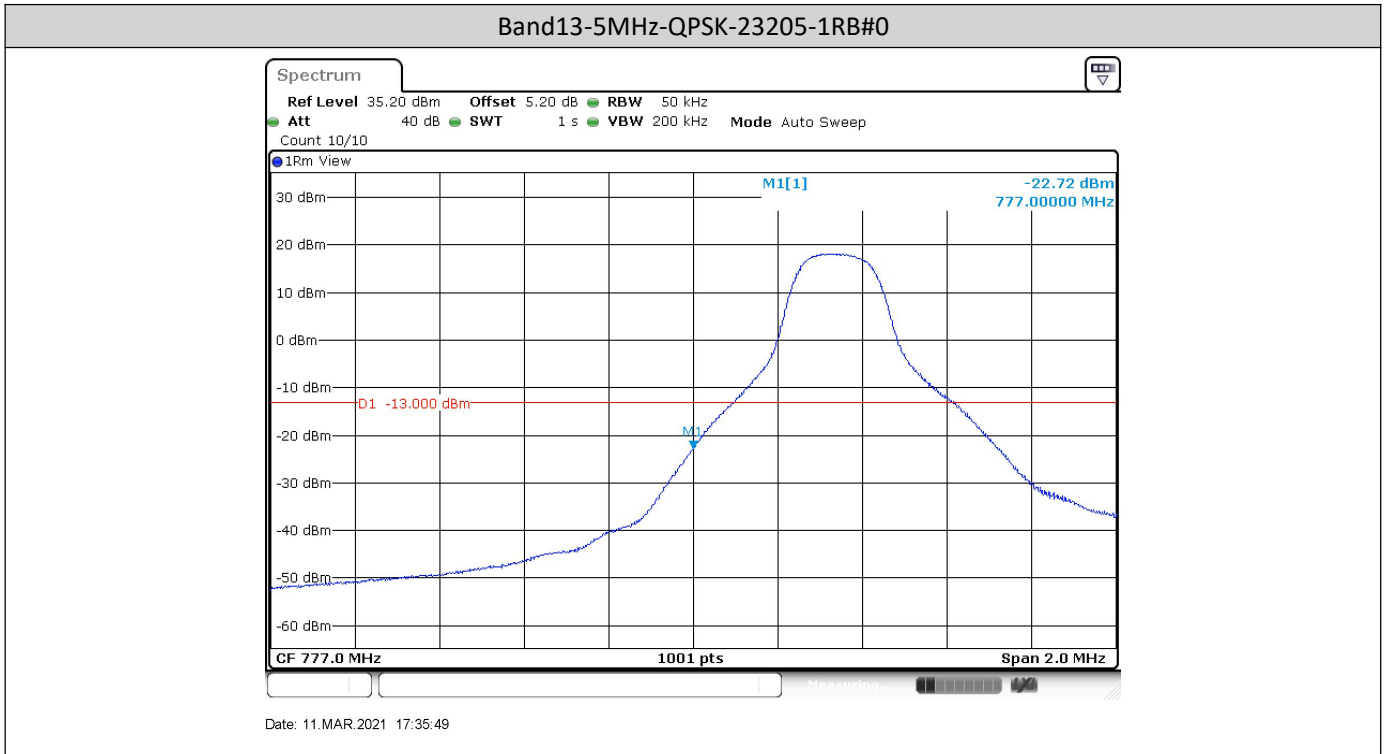
Date: 11.MAR.2021 17:35:23



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## 5. Band Edge Compliance

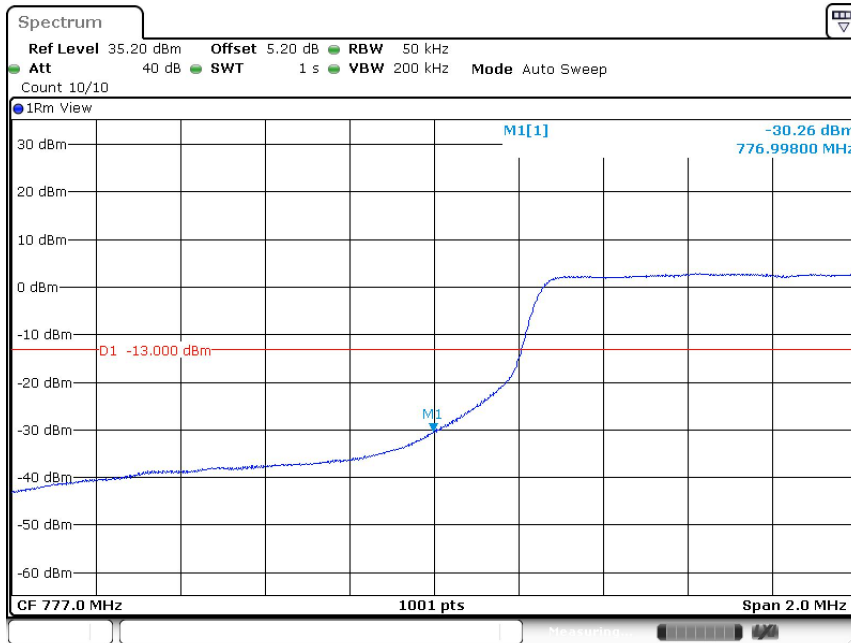
### 5.1. Test Plots



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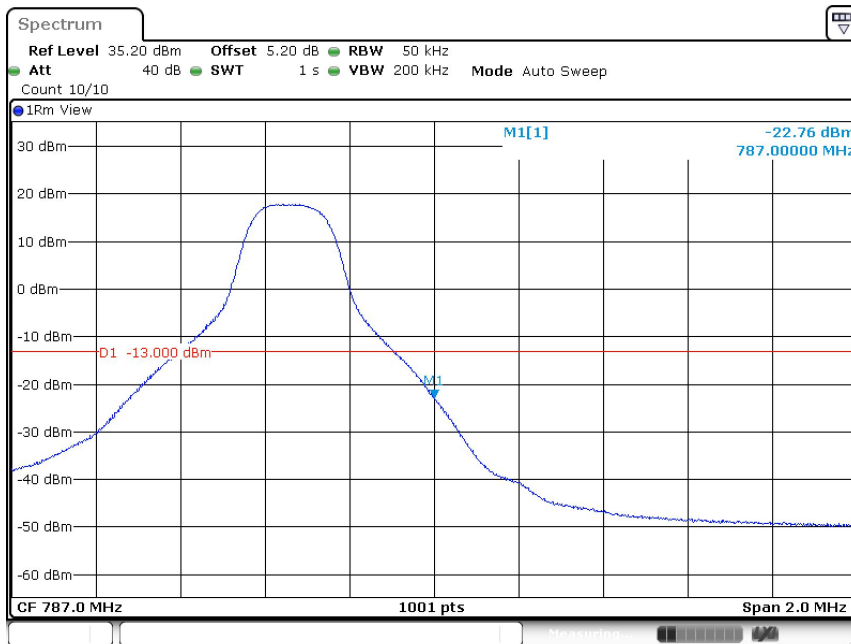
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**Band13-5MHz-QPSK-23205-25RB#0**



Date: 11.MAR.2021 17:36:30

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

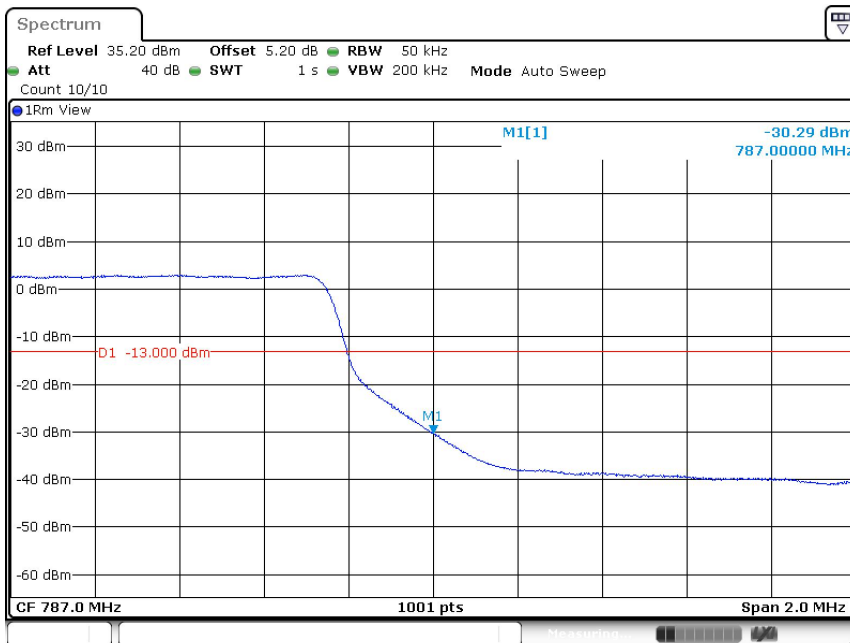


Date: 11.MAR.2021 17:37:16



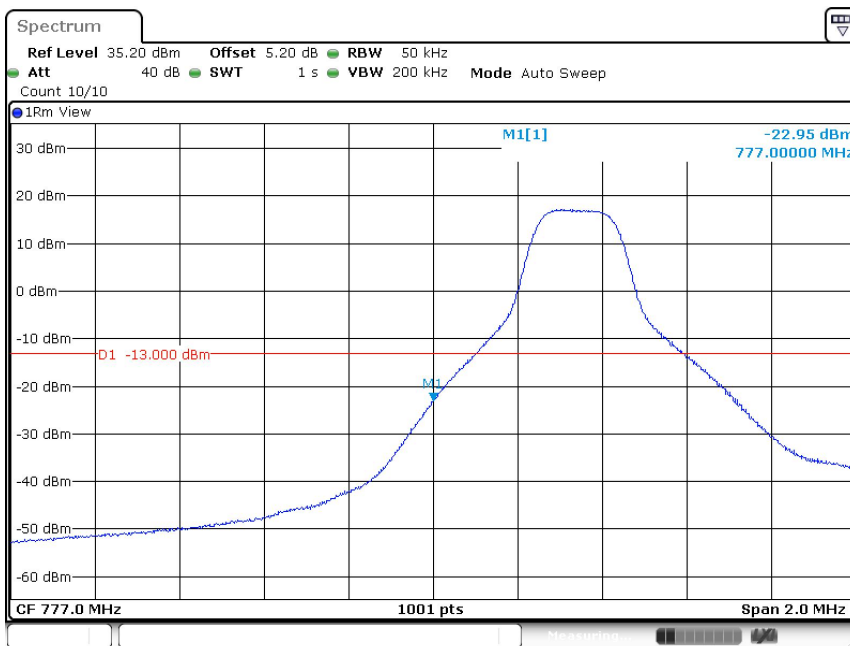
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**Band13-5MHz-QPSK-23255-25RB#0**



Date: 11.MAR.2021 17:37:57

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



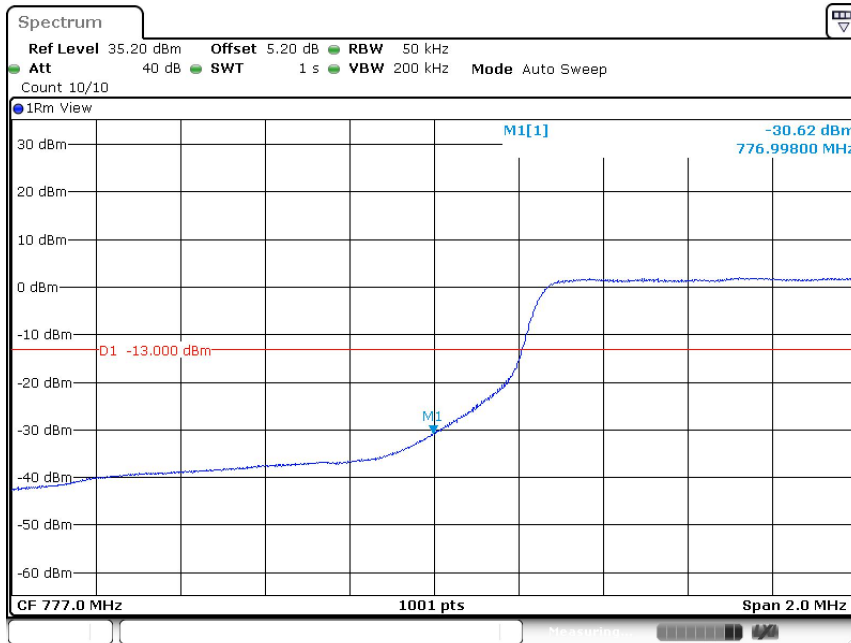
Date: 11.MAR.2021 17:36:10



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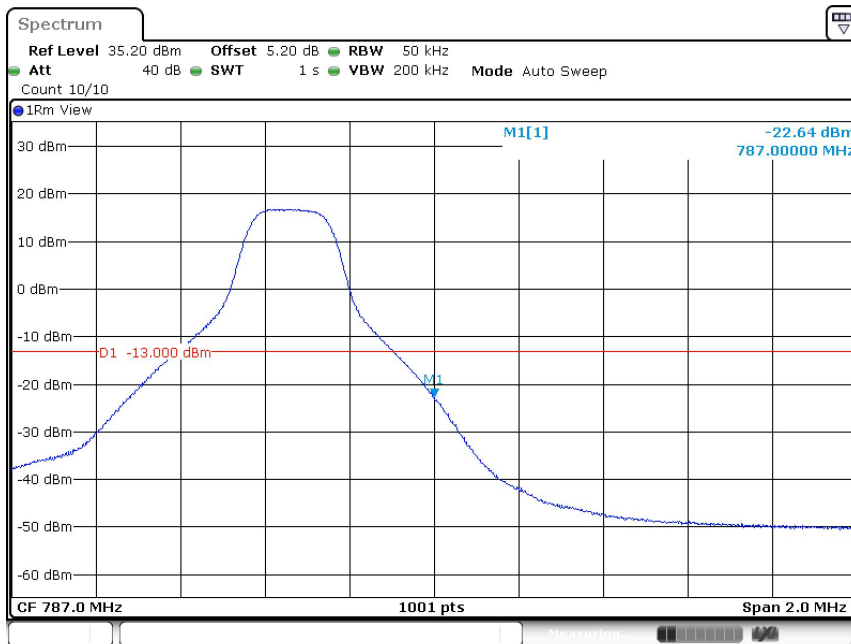


**Band13-5MHz-16QAM-23205-25RB#0**



Date: 11.MAR.2021 17:36:51

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

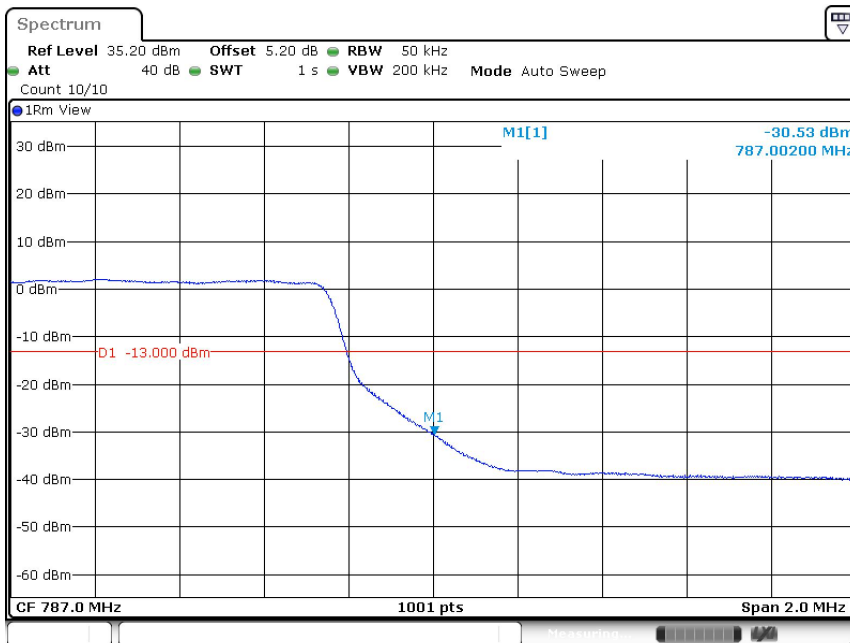


Date: 11.MAR.2021 17:37:36



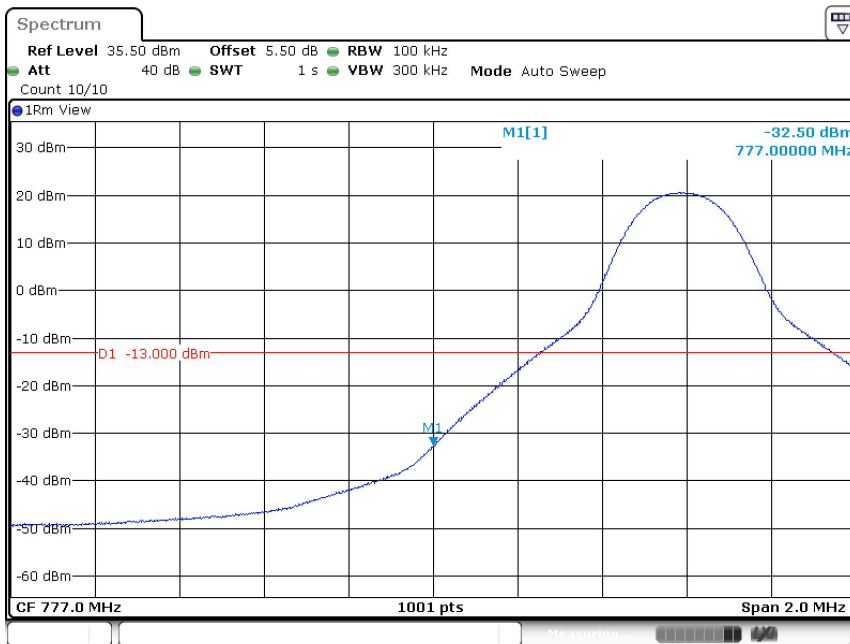
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**Band13-5MHz-16QAM-23255-25RB#0**



Date: 11.MAR.2021 17:38:17

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

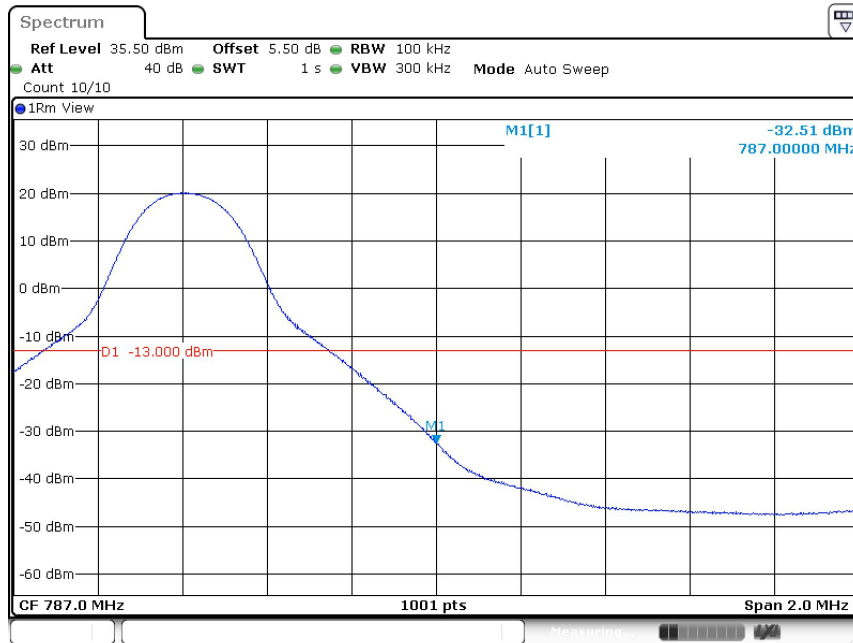


Date: 10.MAR.2021 09:59:28



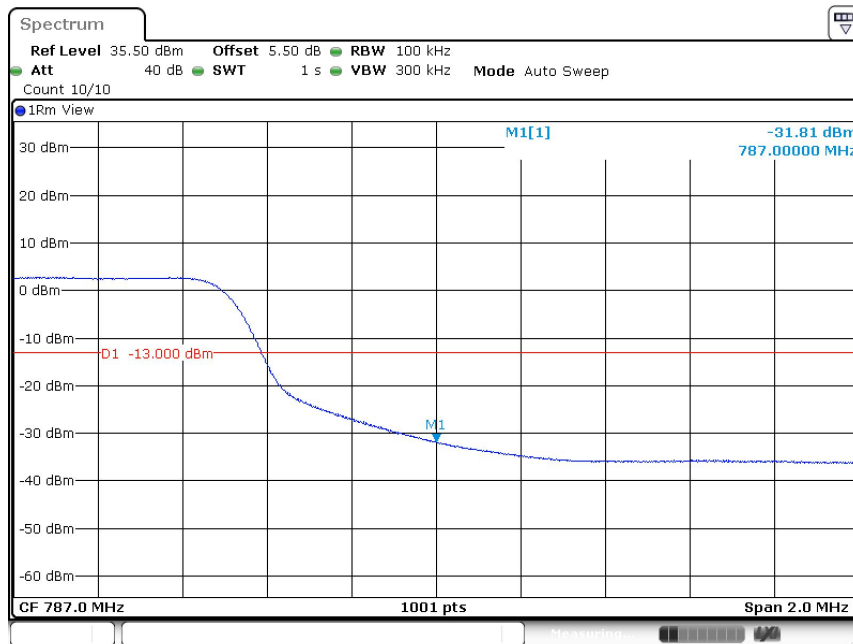
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**Band13-10MHz-QPSK-23230\_Right-1RB#49**



Date: 10.MAR.2021 10:00:13

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

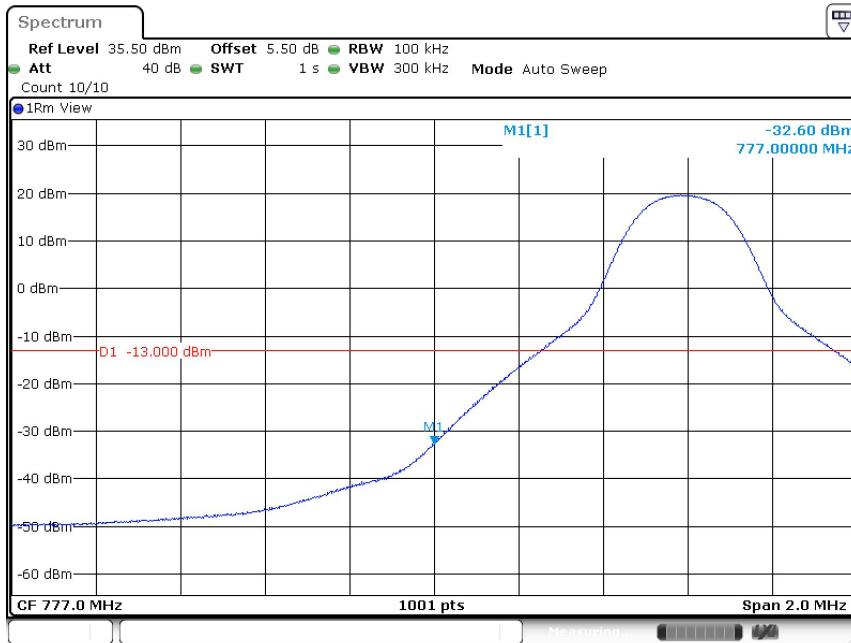


Date: 10.MAR.2021 10:00:54



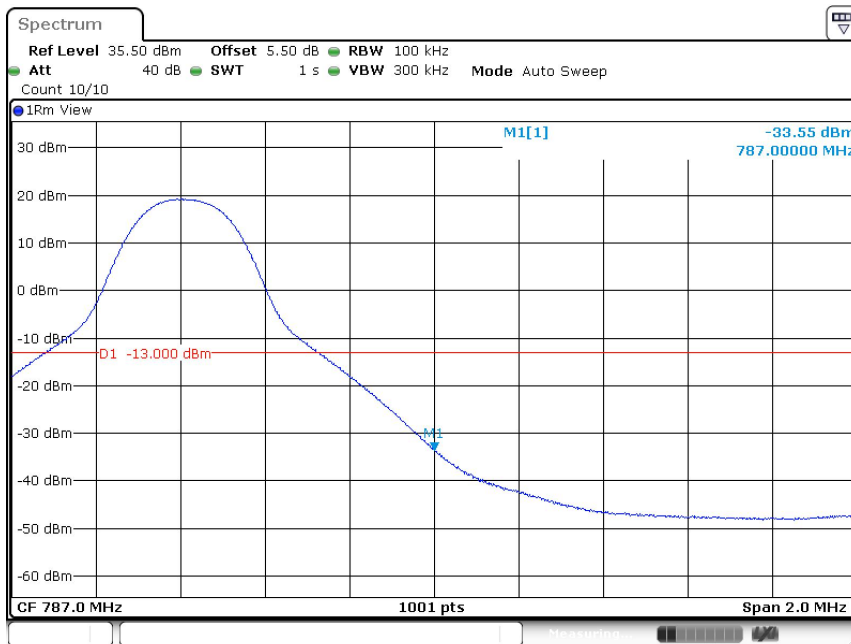
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**Band13-10MHz-16QAM-23230\_Left-1RB#0**



Date: 10.MAR.2021 09:59:49

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

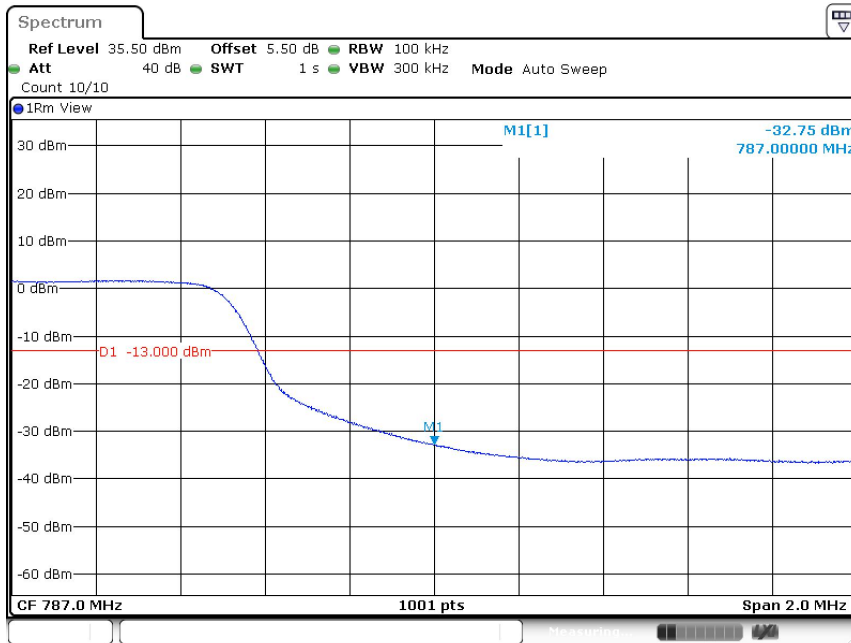


Date: 10.MAR.2021 10:00:34



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



Date: 10.MAR.2021 10:01:15



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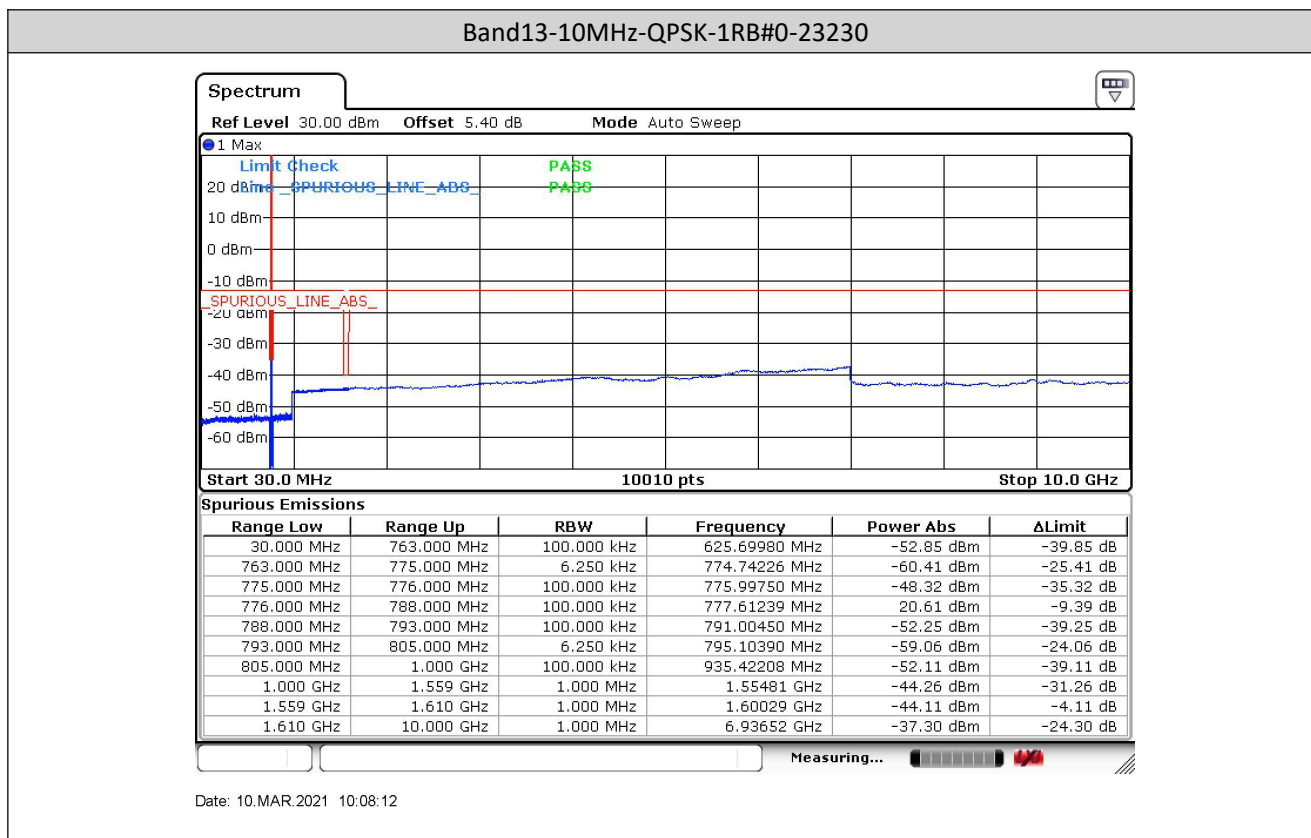
## 6. Spurious Emission at Antenna Terminal

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: 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.

Remark3: 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.

### 6.1. Test Plots

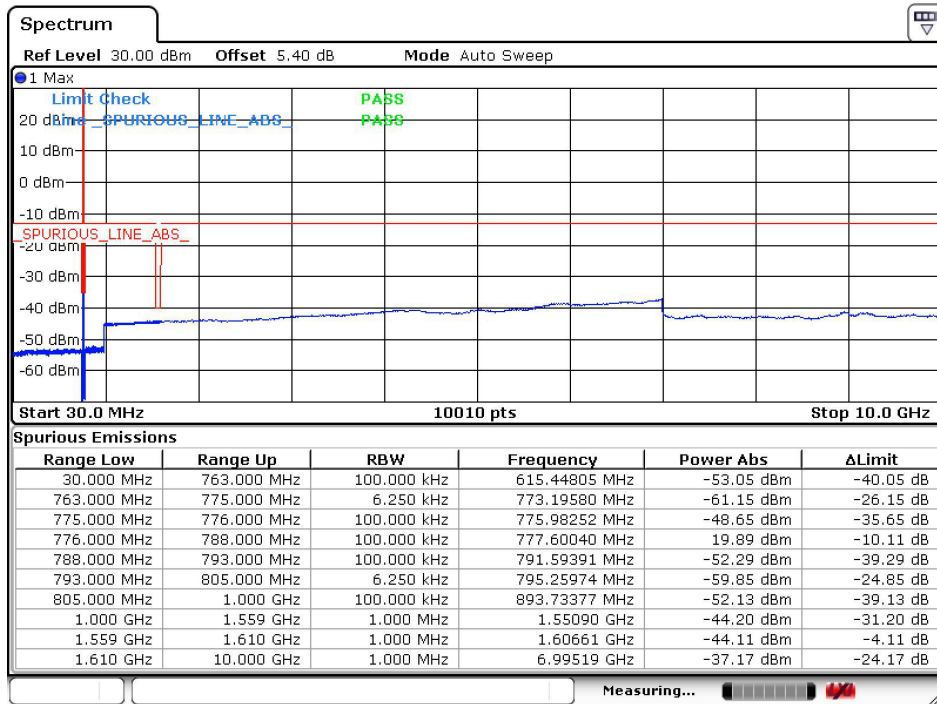


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Band13-10MHz-16QAM-1RB#0-23230



Date: 10.MAR.2021 10:06:55



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## 7. Field Strength of Spurious Radiation

### 7.1. Test Band = LTE\_Band=13 \_TM1

#### 7.1.1. Test Channel = Mid Channel

Suspected Data List						
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	40.9139	-74.15	-58.38	-13.00	45.38	Horizontal
2	241.3652	-81.13	-69.45	-13.00	56.45	Horizontal
3	1336.5421	-66.38	-57.47	-13.00	44.47	Horizontal
4	2697.7122	-74.42	-55.57	-13.00	42.57	Horizontal
5	5294.9718	-54.57	-53.07	-13.00	40.07	Horizontal
6	9364.3746	-57.65	-51.03	-13.00	38.03	Horizontal

### 7.2. Test Band = LTE\_Band=13 \_TM1

#### 7.2.1. Test Channel = Mid Channel

Suspected Data List						
NO.	Freq. [MHz]	Reading [dBm]	Level [dBm]	Limit [dBm]	Margin [dB]	Polarity
1	107.1246	-80.34	-65.62	-13.00	52.62	Vertical
2	557.0184	-80.08	-65.50	-13.00	52.50	Vertical
3	1336.5421	-66.17	-56.73	-13.00	43.73	Vertical
4	2332.9166	-70.11	-54.41	-13.00	41.41	Vertical
5	5300.5720	-55.10	-54.03	-13.00	41.03	Vertical
6	9848.5139	-57.64	-49.88	-13.00	36.88	Vertical



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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	-1.80	-0.002302	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	-0.50	-0.000639	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-1.40	-0.001790	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	-1.60	-0.002046	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	0.30	0.000384	±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	0.20	0.000256	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-1.00	-0.001279	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-10	-1.70	-0.002174	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-1.30	-0.001662	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-1.50	-0.001918	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	-2.10	-0.002685	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	30	-0.10	-0.000128	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	-0.40	-0.000512	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	-0.40	-0.000512	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-30	-0.50	-0.000639	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	-0.30	-0.000384	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-10	-2.00	-0.002558	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	-0.30	-0.000384	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	-0.50	-0.000639	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	-1.30	-0.001662	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	-0.50	-0.000639	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	-1.10	-0.001407	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	0.40	0.000512	±2.5	PASS



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