



# Appendix B

## E-UTRA Band 14



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## 1 Effective (Isotropic) Radiated Power

### 1.1 Test Result

| Band   | Bandwidth | Modulation | Channel | RB Config. | Result (dBm) | ERP (dBm) | Limit (dBm) | Verdict |
|--------|-----------|------------|---------|------------|--------------|-----------|-------------|---------|
| Band14 | 5MHz      | QPSK       | 23305   | 1RB#0      | 23.02        | 20.97     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23305   | 1RB#12     | 24.06        | 22.01     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23305   | 1RB#24     | 23.34        | 21.29     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23305   | 12RB#0     | 21.98        | 19.93     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23305   | 12RB#6     | 22.53        | 20.48     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23305   | 12RB#13    | 22.38        | 20.33     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23305   | 25RB#0     | 22.13        | 20.08     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 1RB#0      | 22.90        | 20.85     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 1RB#12     | 23.35        | 21.30     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 1RB#24     | 23.05        | 21.00     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 12RB#0     | 22.35        | 20.30     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 12RB#6     | 22.24        | 20.19     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 12RB#13    | 22.15        | 20.10     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 25RB#0     | 22.17        | 20.12     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 1RB#0      | 23.18        | 21.13     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 1RB#12     | 22.99        | 20.94     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 1RB#24     | 22.72        | 20.67     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 12RB#0     | 22.46        | 20.41     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 12RB#6     | 22.10        | 20.05     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 12RB#13    | 21.90        | 19.85     | 34.77       | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 25RB#0     | 22.25        | 20.20     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 1RB#0      | 21.58        | 19.53     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 1RB#12     | 22.63        | 20.58     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 1RB#24     | 21.60        | 19.55     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 12RB#0     | 20.68        | 18.63     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 12RB#6     | 21.06        | 19.01     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 12RB#13    | 20.94        | 18.89     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 25RB#0     | 20.75        | 18.70     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23330   | 1RB#0      | 21.77        | 19.72     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23330   | 1RB#12     | 22.05        | 20.00     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23330   | 1RB#24     | 21.72        | 19.67     | 34.77       | PASS    |
| Band14 | 5MHz      | 16QAM      | 23330   | 12RB#0     | 20.99        | 18.94     | 34.77       | PASS    |



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|        |       |       |       |         |       |       |       |      |
|--------|-------|-------|-------|---------|-------|-------|-------|------|
| Band14 | 5MHz  | 16QAM | 23330 | 12RB#6  | 20.71 | 18.66 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23330 | 12RB#13 | 20.92 | 18.87 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23330 | 25RB#0  | 20.84 | 18.79 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 1RB#0   | 21.77 | 19.72 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 1RB#12  | 21.68 | 19.63 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 1RB#24  | 21.38 | 19.33 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 12RB#0  | 21.01 | 18.96 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 12RB#6  | 20.55 | 18.50 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 12RB#13 | 20.45 | 18.40 | 34.77 | PASS |
| Band14 | 5MHz  | 16QAM | 23355 | 25RB#0  | 20.97 | 18.92 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 1RB#0   | 22.93 | 20.88 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 1RB#24  | 24.11 | 22.06 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 1RB#49  | 22.29 | 20.24 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 25RB#0  | 22.53 | 20.48 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 25RB#12 | 22.58 | 20.53 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 25RB#25 | 22.08 | 20.03 | 34.77 | PASS |
| Band14 | 10MHz | QPSK  | 23330 | 50RB#0  | 21.92 | 19.87 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 1RB#0   | 21.75 | 19.70 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 1RB#24  | 21.98 | 19.93 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 1RB#49  | 21.28 | 19.23 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 25RB#0  | 21.03 | 18.98 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 25RB#12 | 21.11 | 19.06 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 25RB#25 | 20.63 | 18.58 | 34.77 | PASS |
| Band14 | 10MHz | 16QAM | 23330 | 27RB#0  | 20.86 | 18.81 | 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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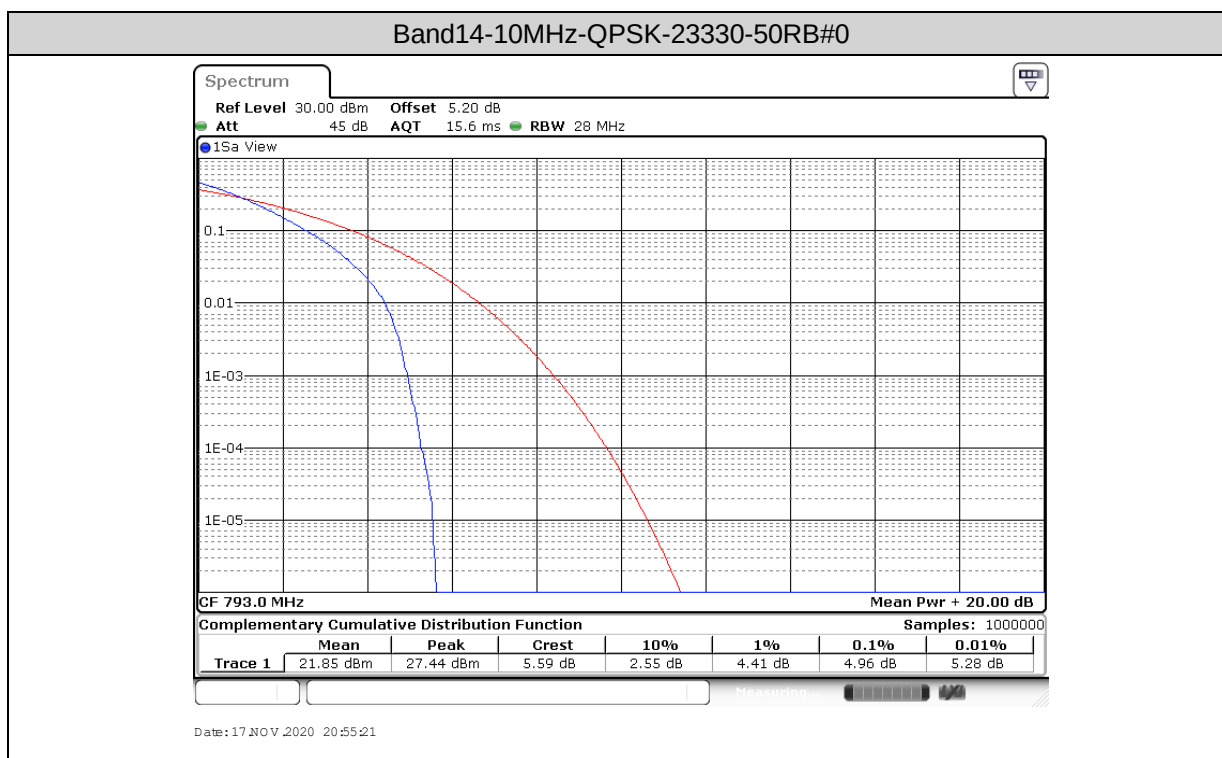
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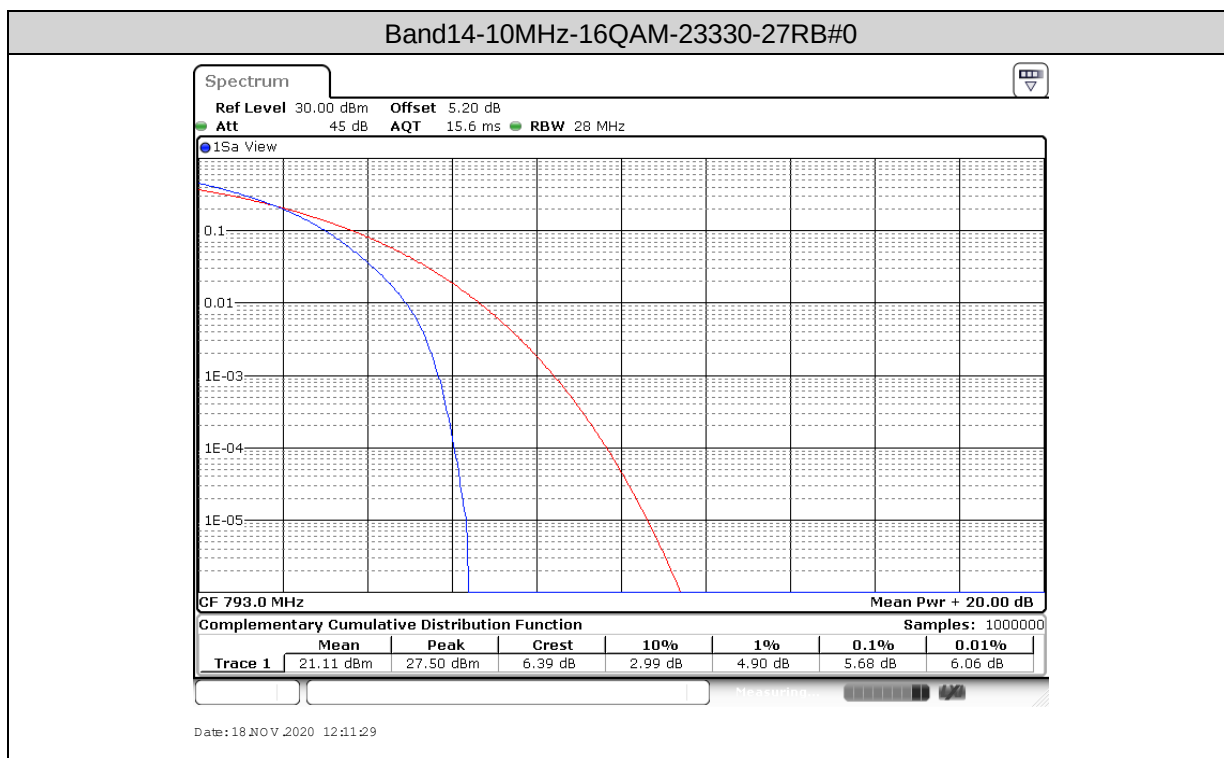
## 2 Peak-to-Average Ratio (CCDF)

### 2.1 Test Result

| Band   | Bandwidth | Modulation | Channel | RB Configuration | Result(dB) | Limit(dB) | Verdict |
|--------|-----------|------------|---------|------------------|------------|-----------|---------|
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0           | 4.96       | 13        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0           | 5.68       | 13        | PASS    |

### 2.2 Test Plots

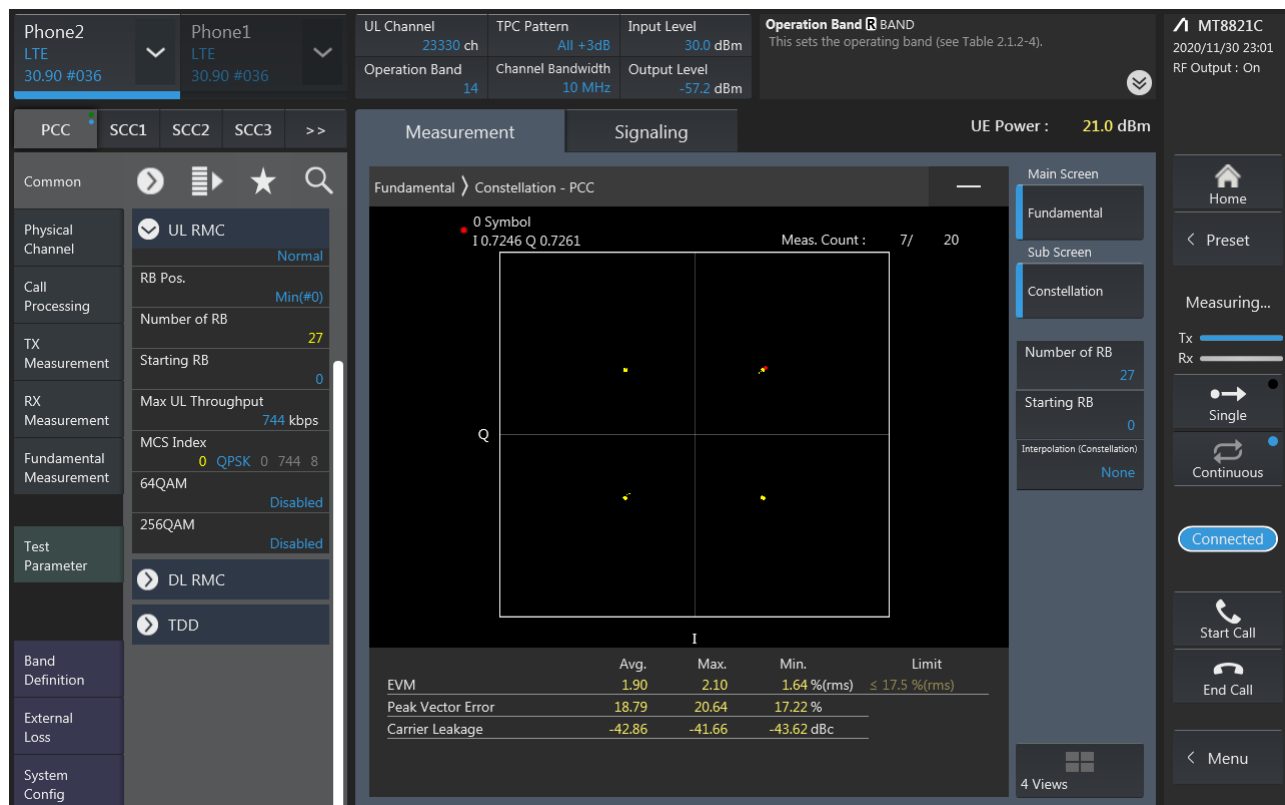




## 3 Modulation Characteristics

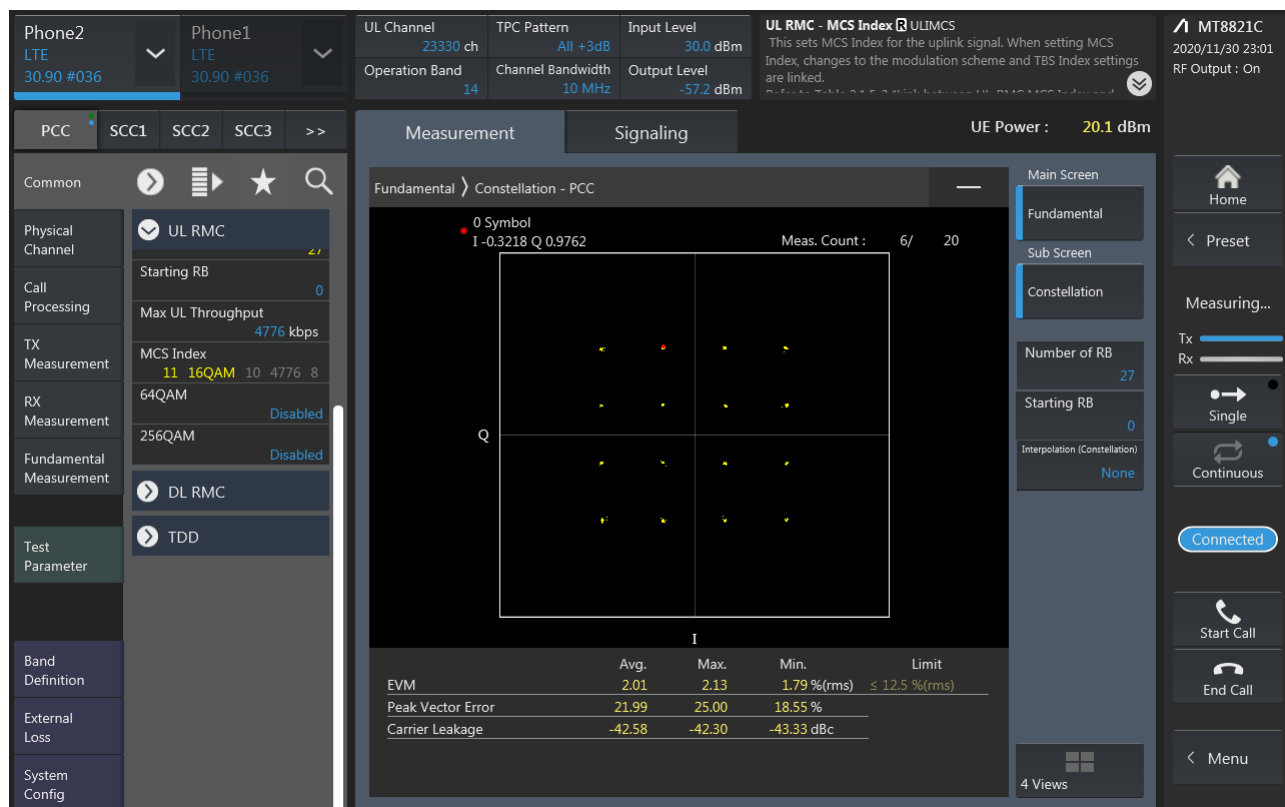
### 3.1 Test Mode = LTE /TM1 10MHz

#### 3.1.1 Test Channel = MCH



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

### 3.2.1 Test Channel = MCH



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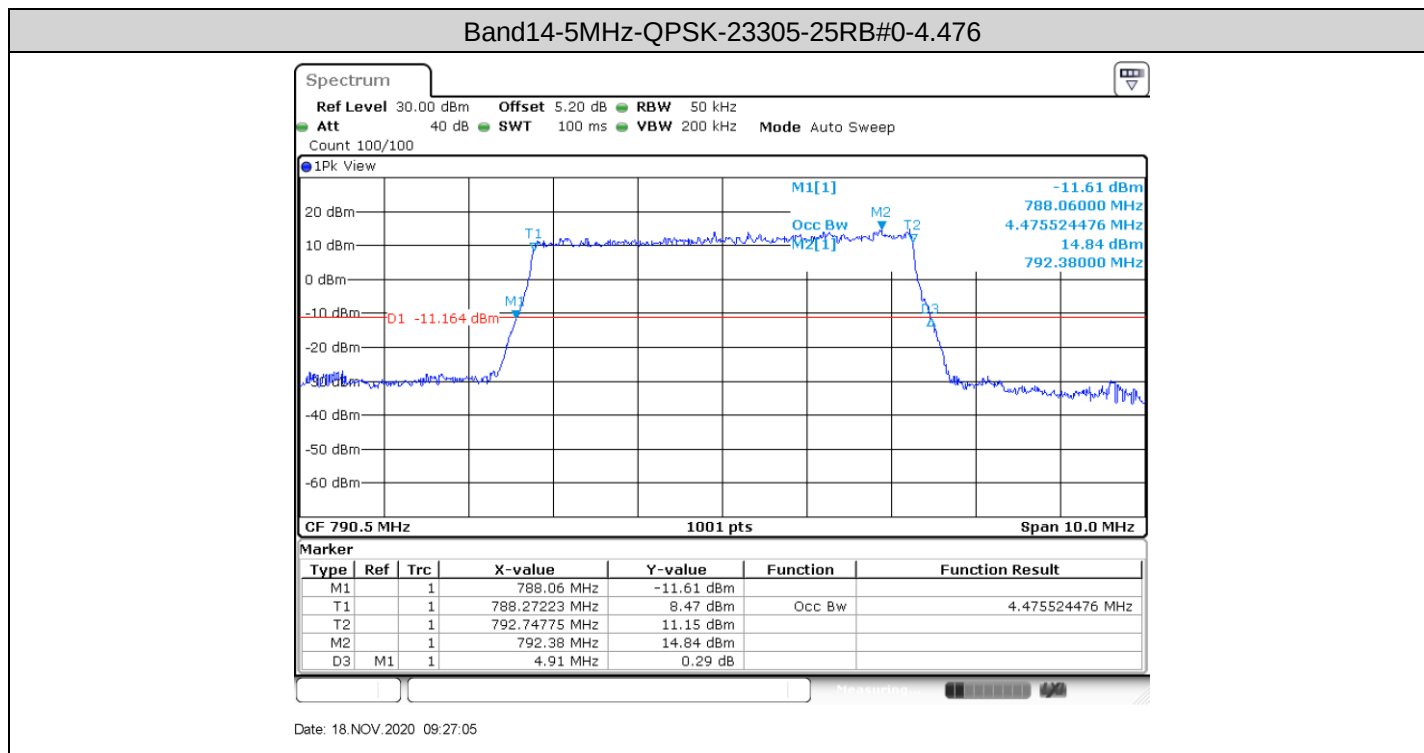


## 4 26dB Bandwidth and Occupied Bandwidth

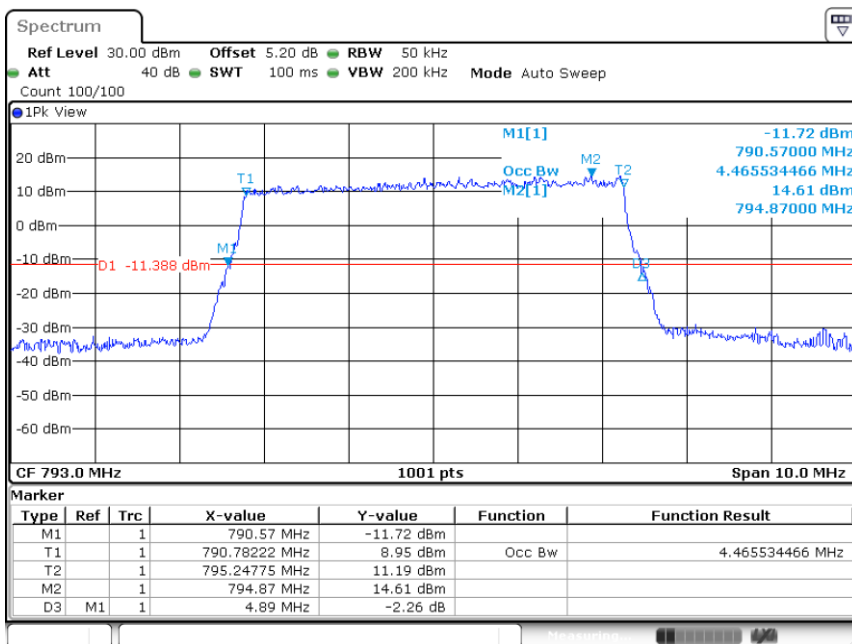
### 4.1 Test Result

| Band   | Bandwidth | Modulation | Channel | RB Configuration | Occupied Bandwidth (MHz) | 26dB Bandwidth (MHz) | Verdict |
|--------|-----------|------------|---------|------------------|--------------------------|----------------------|---------|
| Band14 | 5MHz      | QPSK       | 23305   | 25RB#0           | 4.476                    | 4.910                | PASS    |
| Band14 | 5MHz      | QPSK       | 23330   | 25RB#0           | 4.466                    | 4.890                | PASS    |
| Band14 | 5MHz      | QPSK       | 23355   | 25RB#0           | 4.456                    | 4.900                | PASS    |
| Band14 | 5MHz      | 16QAM      | 23305   | 25RB#0           | 4.486                    | 4.930                | PASS    |
| Band14 | 5MHz      | 16QAM      | 23330   | 25RB#0           | 4.476                    | 4.930                | PASS    |
| Band14 | 5MHz      | 16QAM      | 23355   | 25RB#0           | 4.476                    | 4.940                | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0           | 8.911                    | 9.660                | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0           | 4.855                    | 5.680                | PASS    |

### 4.2 Test Plots

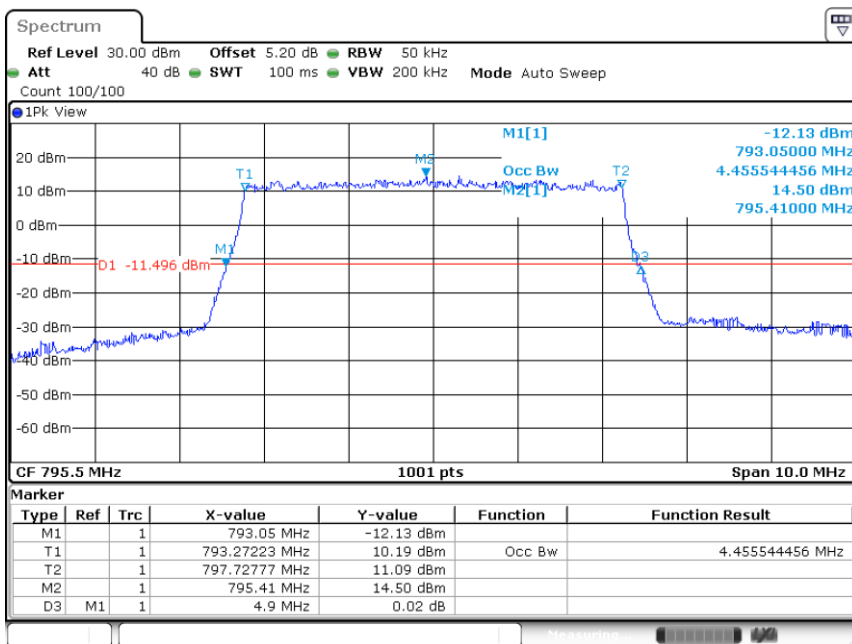


## Band14-5MHz-QPSK-23330-25RB#0-4.466



Date: 18.NOV.2020 09:27:25

## Band14-5MHz-QPSK-23355-25RB#0-4.456

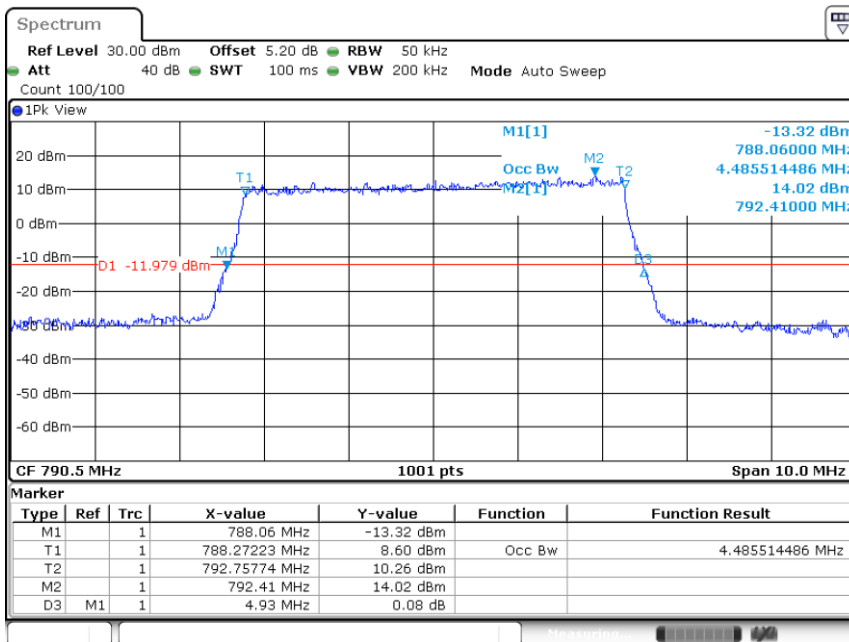


Date: 18.NOV.2020 09:27:45



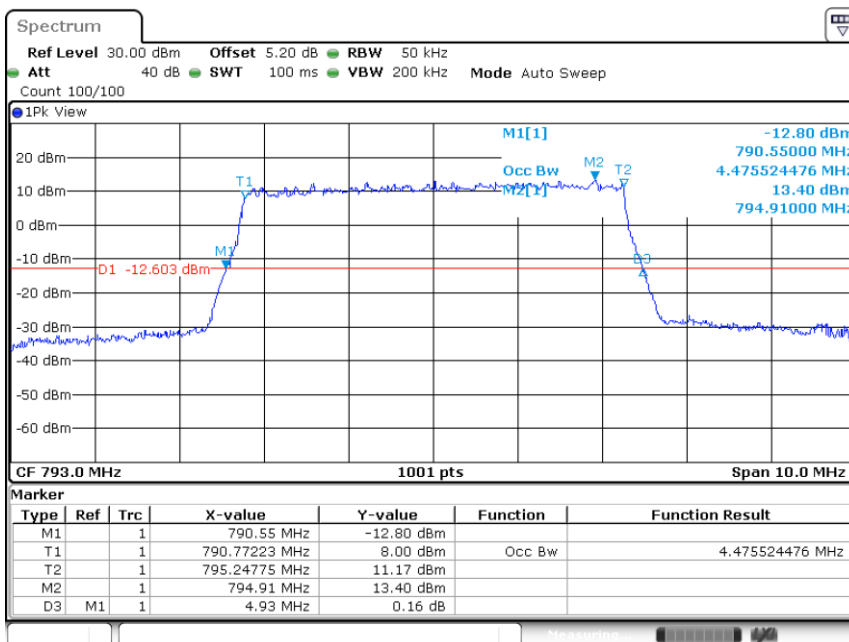


Band14-5MHz-16QAM-23305-25RB#0-4.486



Date: 18.NOV.2020 10:06:18

Band14-5MHz-16QAM-23330-25RB#0-4.476



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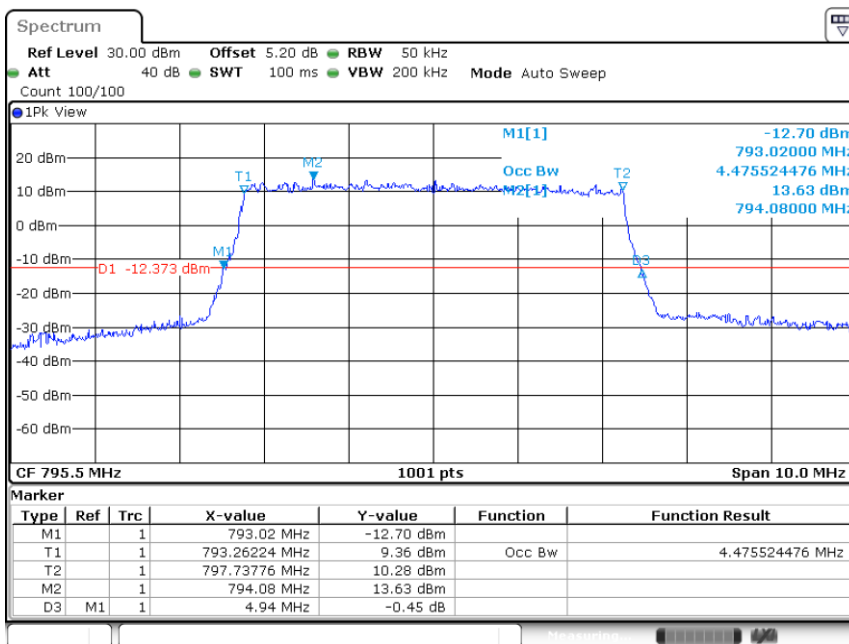


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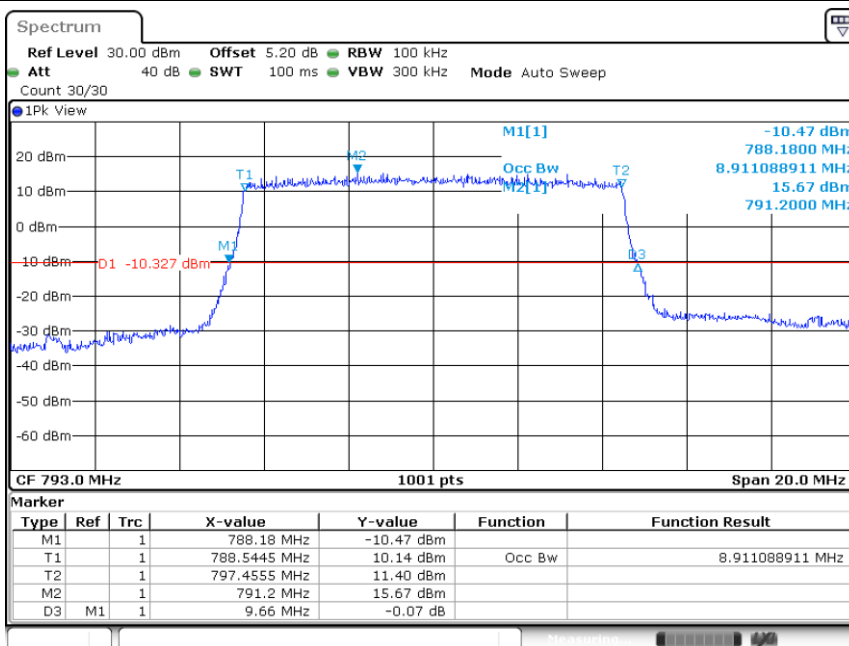


Band14-5MHz-16QAM-23355-25RB#0-4.476



Date: 18.NOV.2020 10:06:58

Band14-10MHz-QPSK-23330-50RB#0-8.911



Date: 26.NOV.2020 17:35:42



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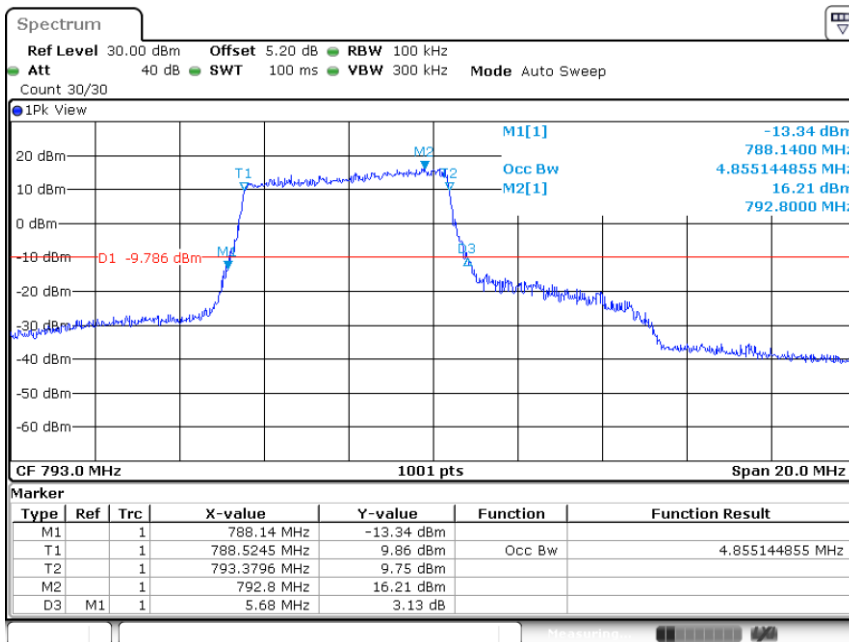
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Band14-10MHz-16QAM-23330-27RB#0-4.855



Date: 18.NOV.2020 10:07:15



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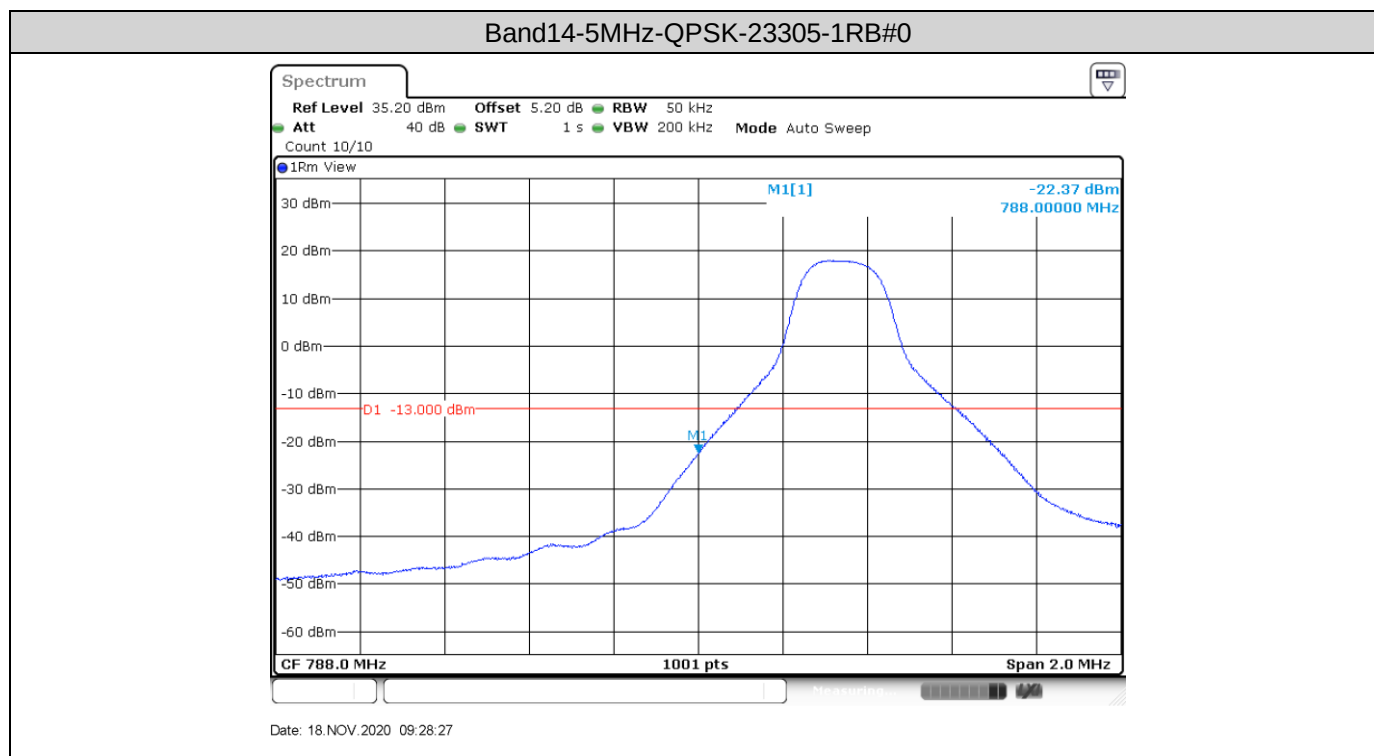
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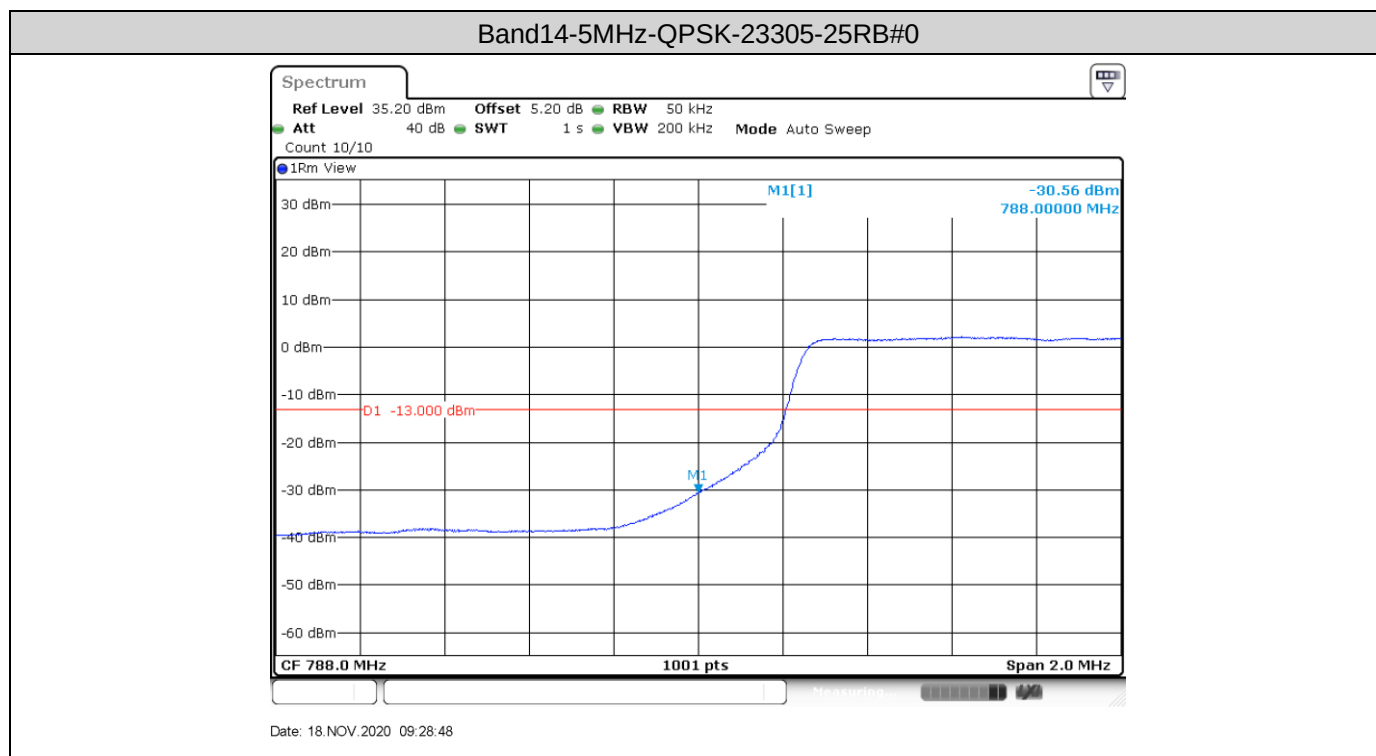
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## 5 Band Edge Compliance

### 5.1 Test Plots





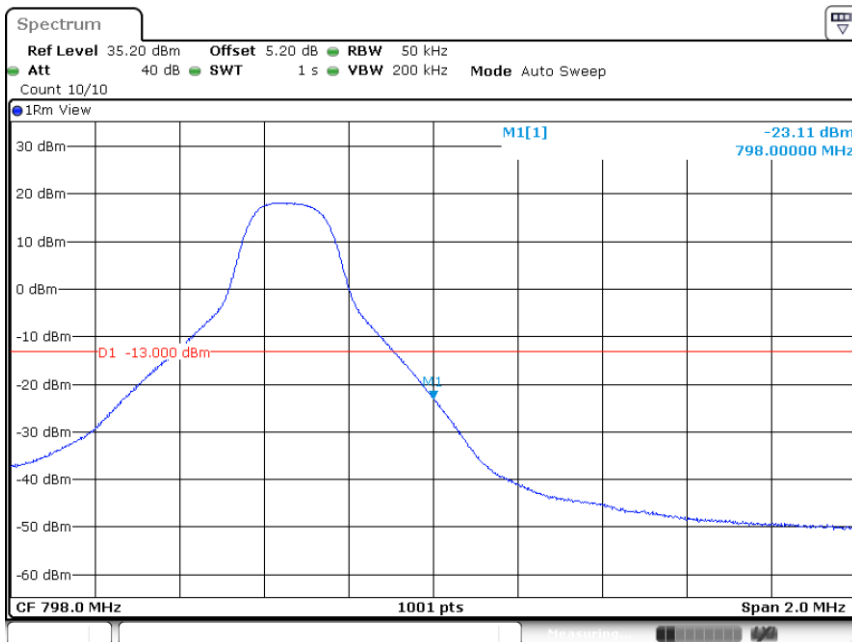
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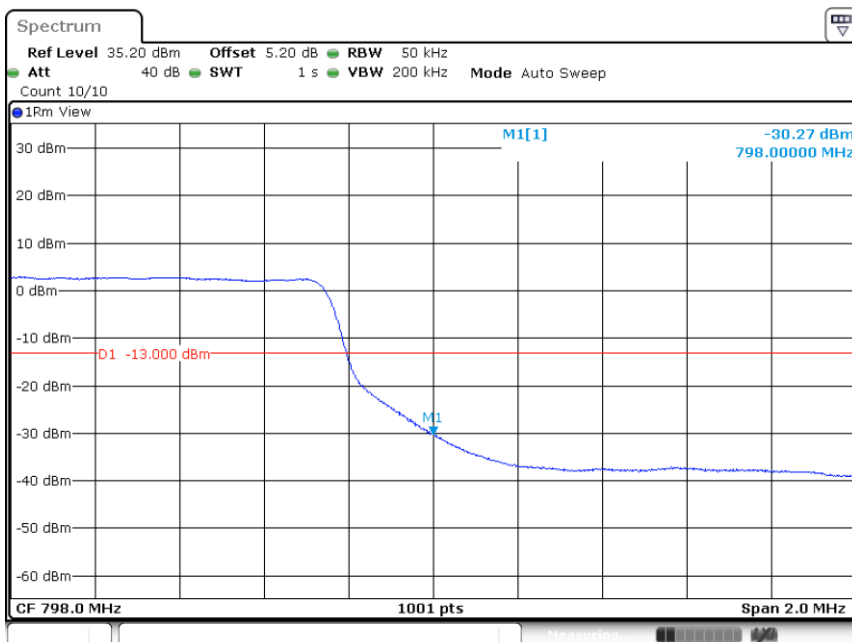
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Band14-5MHz-QPSK-23355-1RB#24



Date: 18.NOV.2020 09:29:13

Band14-5MHz-QPSK-23355-25RB#0



Date: 18.NOV.2020 09:29:33

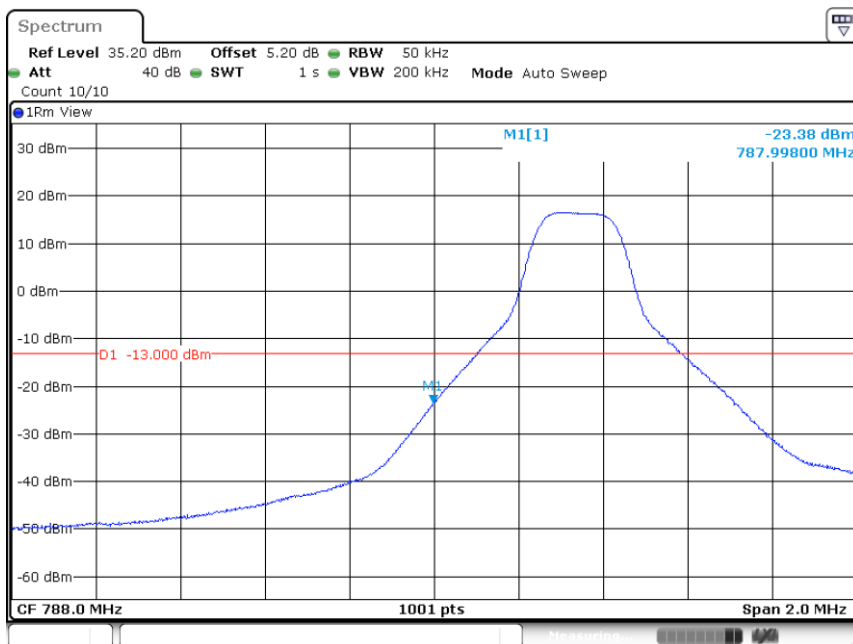


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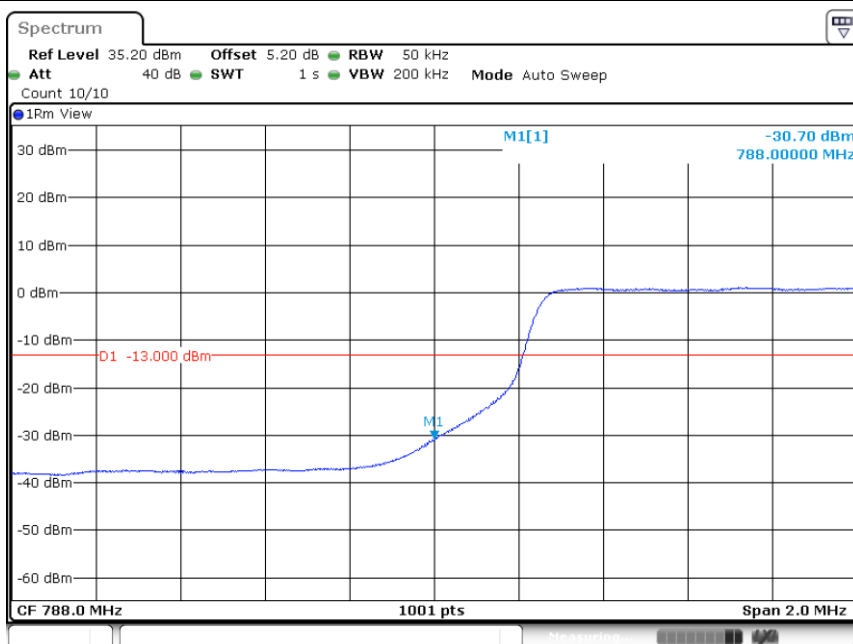


Band14-5MHz-16QAM-23305-1RB#0



Date: 18.NOV.2020 10:07:40

Band14-5MHz-16QAM-23305-25RB#0



Date: 18.NOV.2020 10:08:00

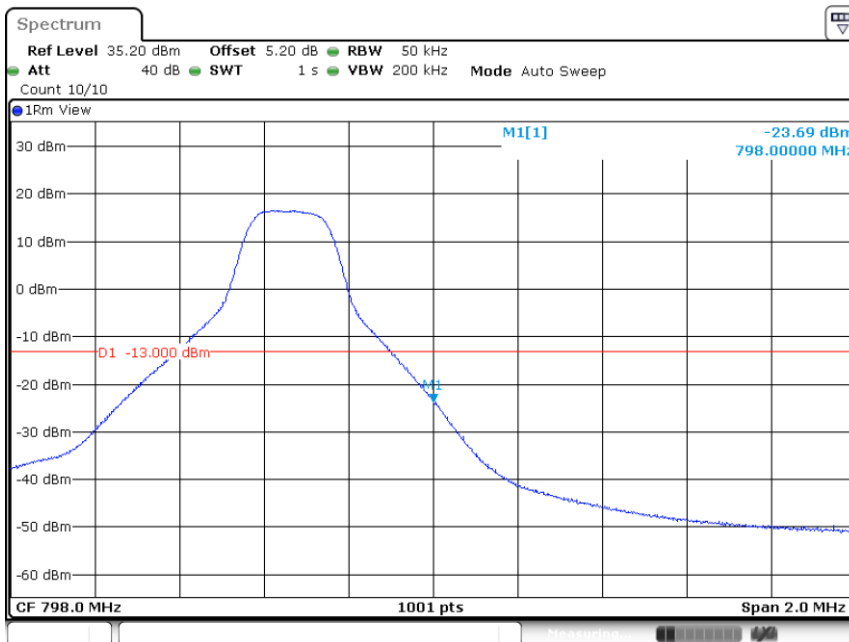


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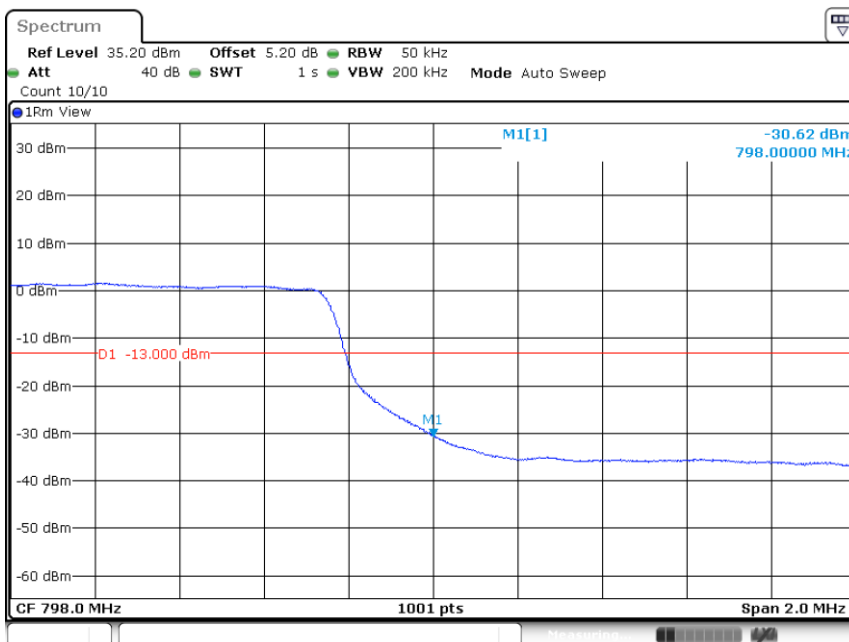


Band14-5MHz-16QAM-23355-1RB#24



Date: 18.NOV.2020 10:08:26

Band14-5MHz-16QAM-23355-25RB#0

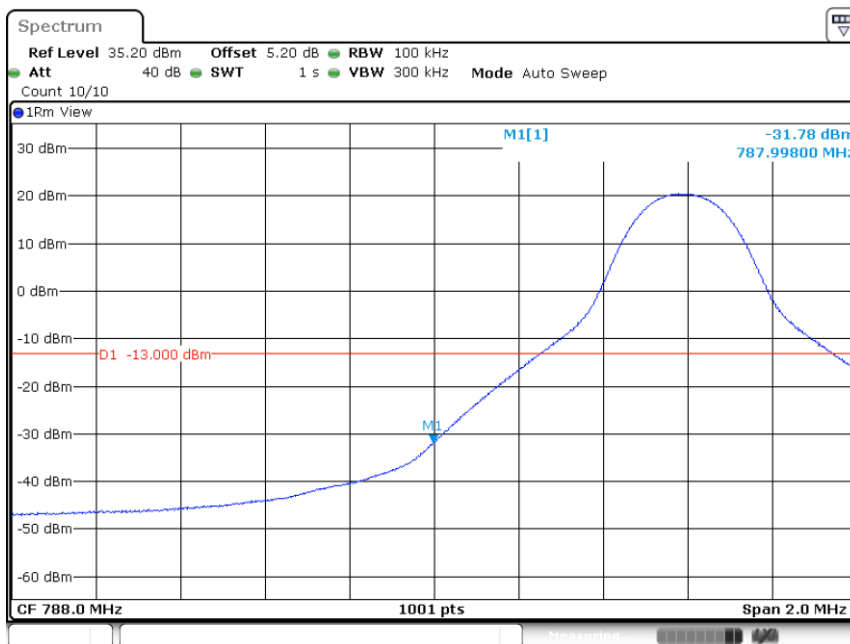


Date: 18.NOV.2020 10:08:46



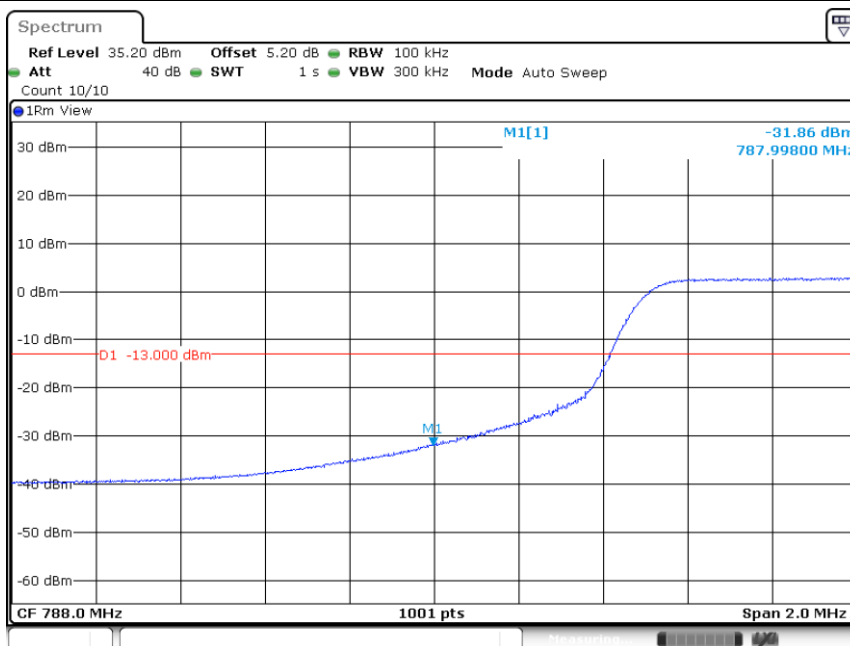


Band14-10MHz-QPSK-23330\_Left-1RB#0



Date: 18.NOV.2020 09:39:16

Band14-10MHz-QPSK-23330\_Left-50RB#0

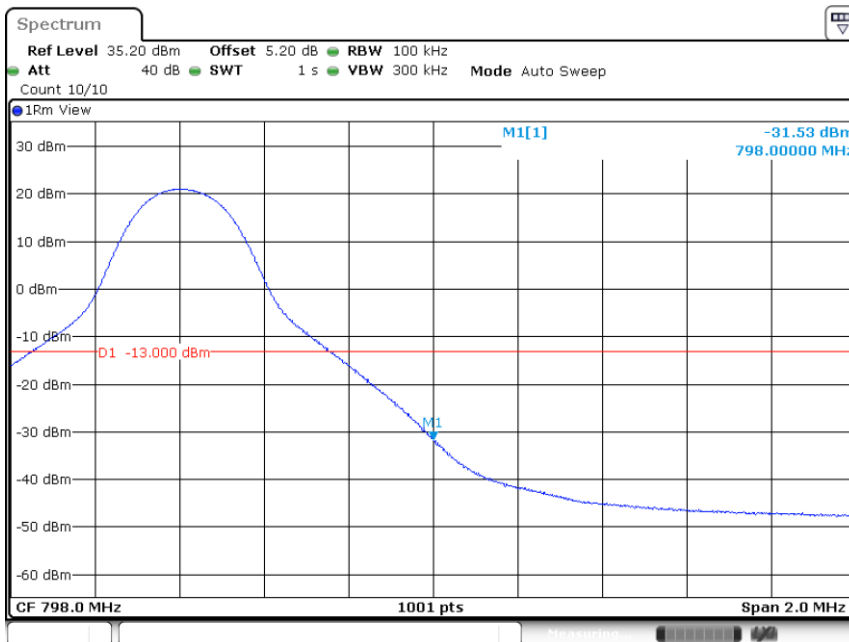


Date: 26.NOV.2020 17:36:06



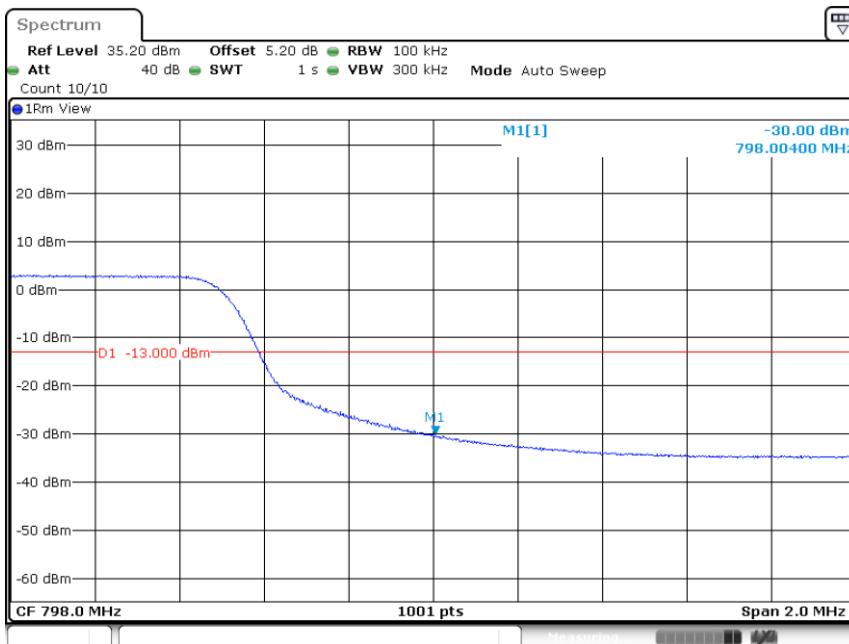


Band14-10MHz-QPSK-23330\_Right-1RB#49



Date: 18.NOV.2020 09:30:23

Band14-10MHz-QPSK-23330\_Right-50RB#0

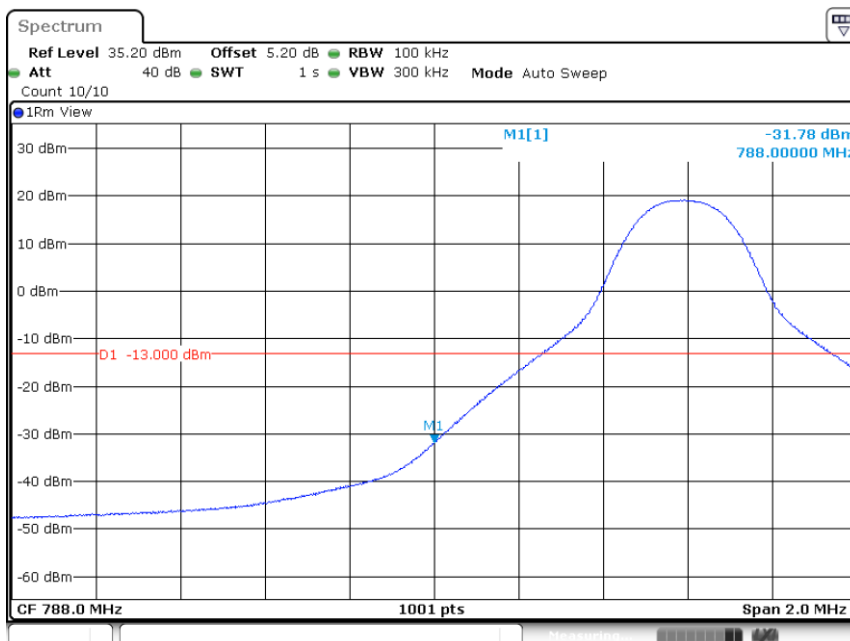


Date: 26.NOV.2020 17:36:30



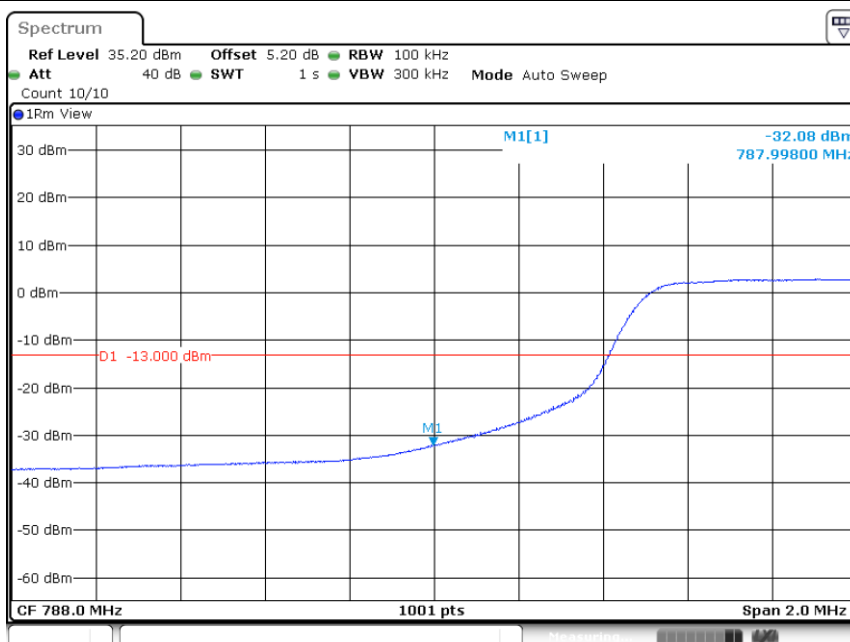


Band14-10MHz-16QAM-23330\_Left-1RB#0



Date: 18.NOV.2020 10:09:11

Band14-10MHz-16QAM-23330\_Left-27RB#0

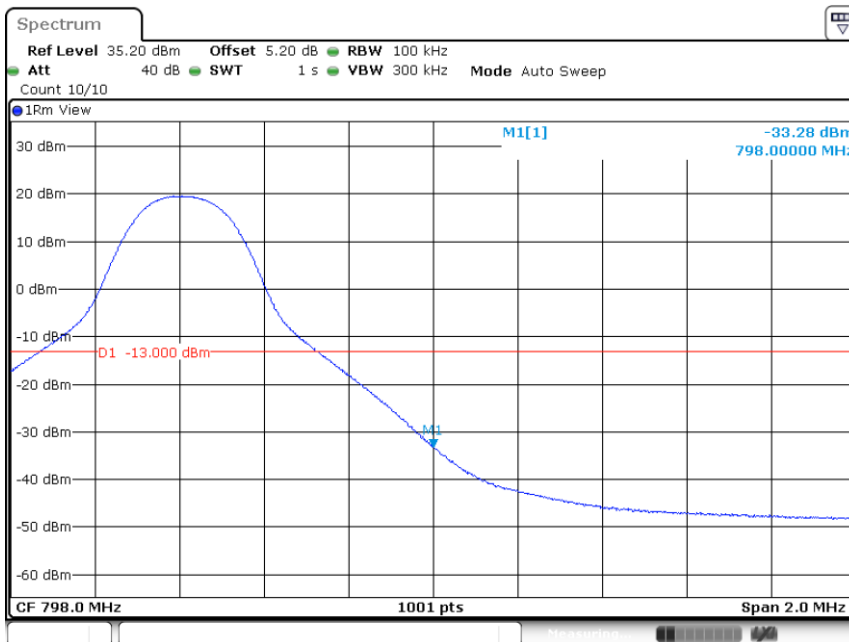


Date: 18.NOV.2020 10:09:31



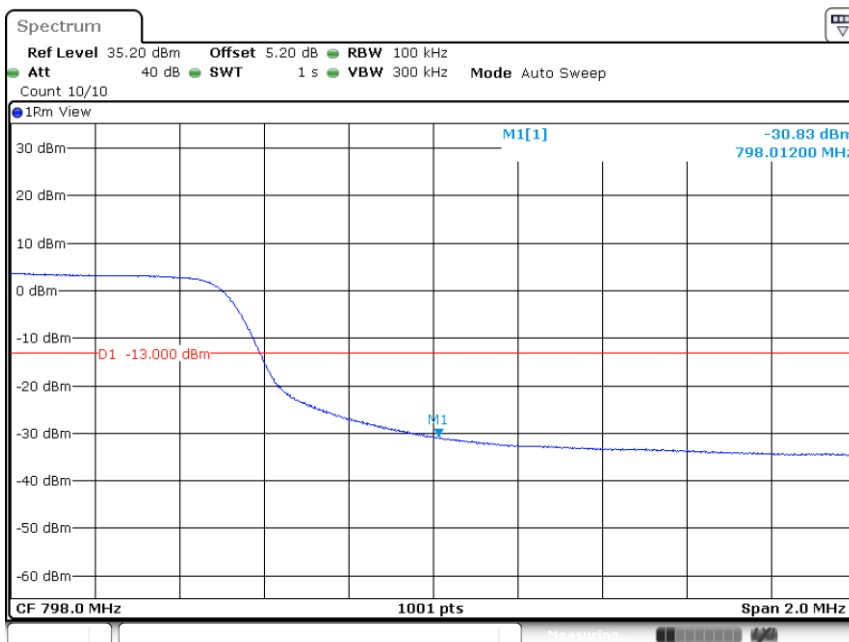


Band14-10MHz-16QAM-23330\_Right-1RB#49



Date: 18.NOV.2020 10:09:56

Band14-10MHz-16QAM-23330\_Right-27RB#23



Date: 18.NOV.2020 10:10:16

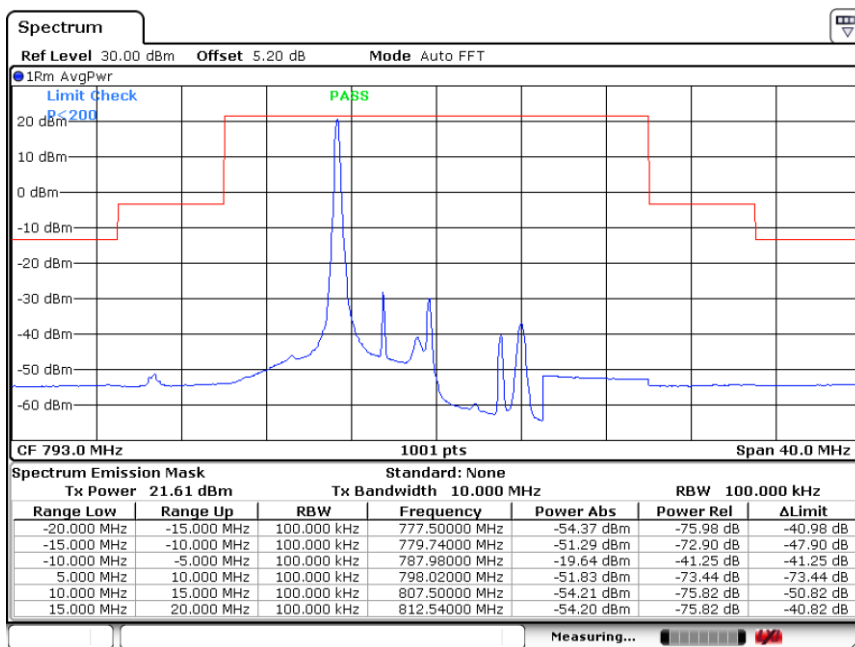


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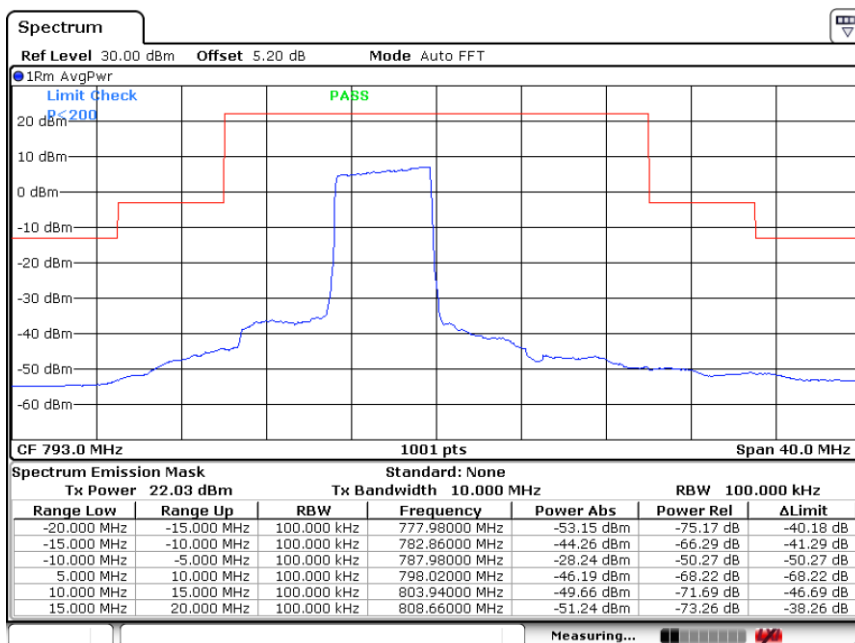
## 6 Emission mask

Band14-5MHz-QPSK-23305-1RB#0



Date: 18.NOV.2020 09:49:02

Band14-5MHz-QPSK-23305-25RB#0



Date: 18.NOV.2020 09:48:36

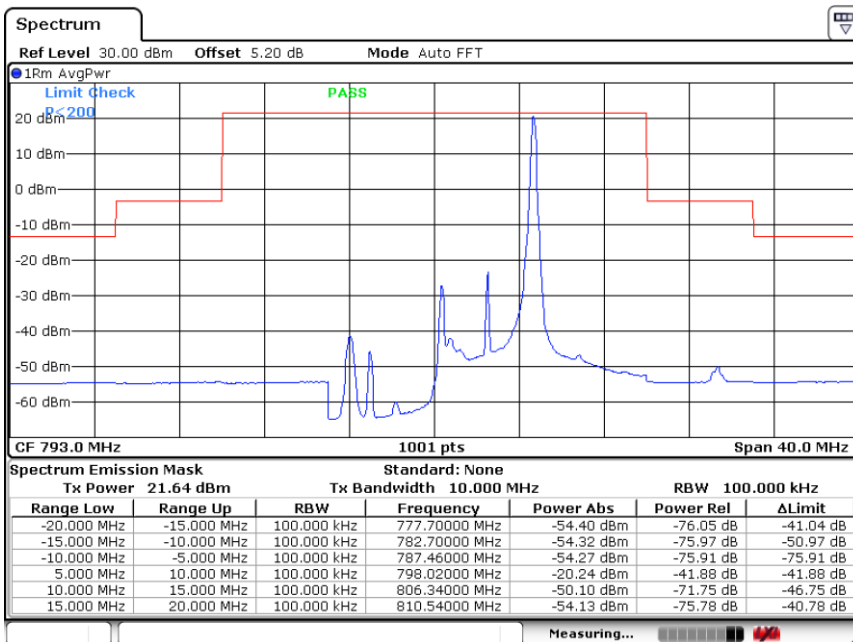


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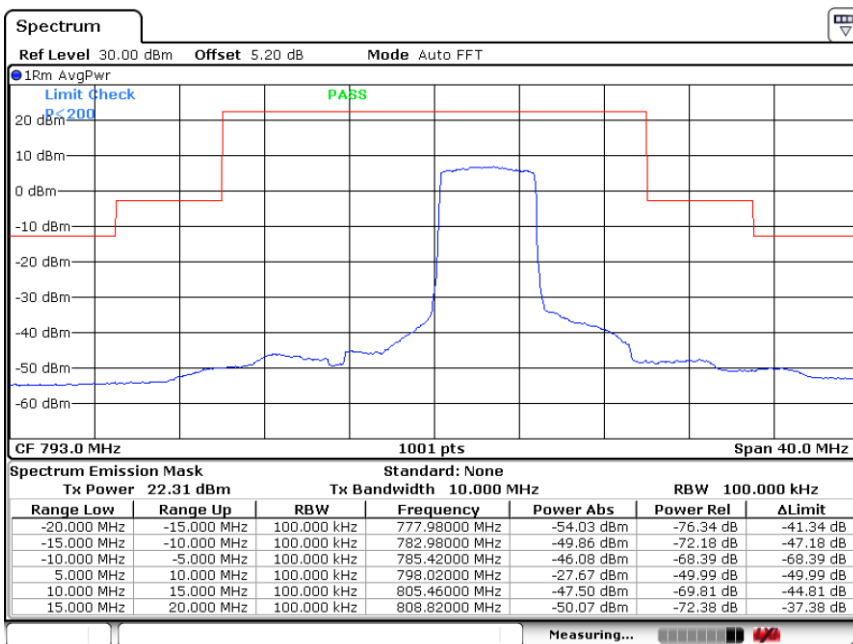
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## Band14-5MHz-QPSK-23355-1RB#24



Date: 18.NOV.2020 09:49:41

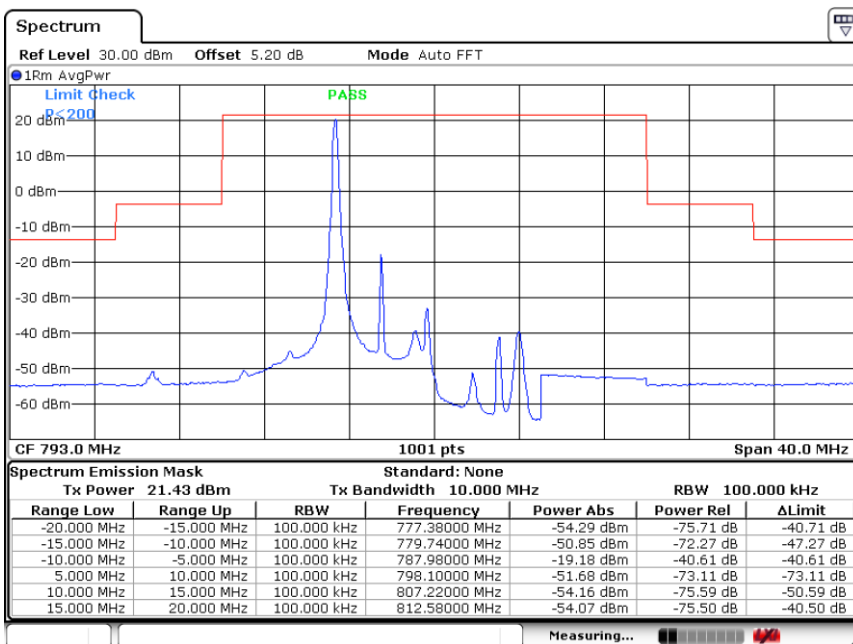
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Date: 18.NOV.2020 09:49:58

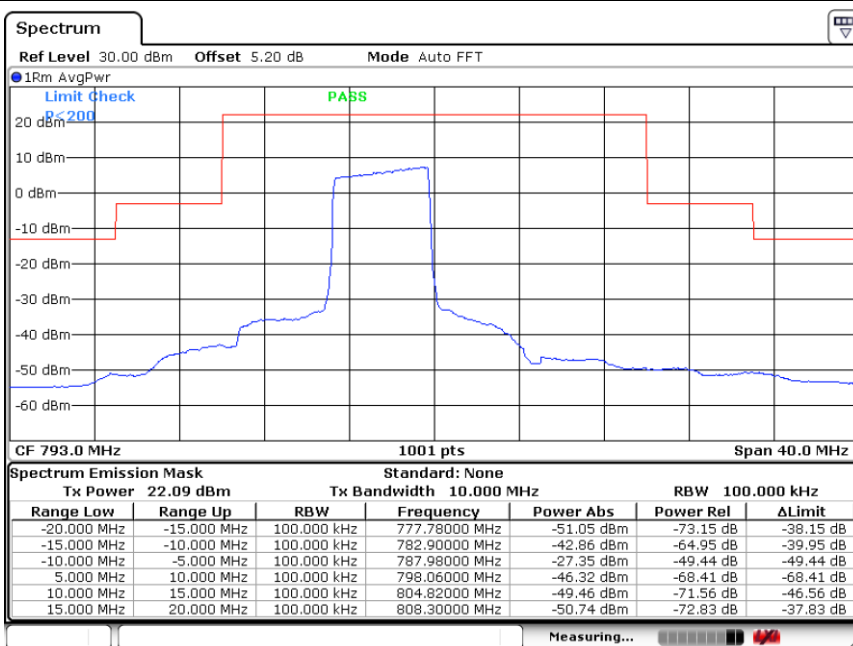


## Band14-5MHz-16QAM-23305-1RB#0



Date: 18.NOV.2020 10:41:15

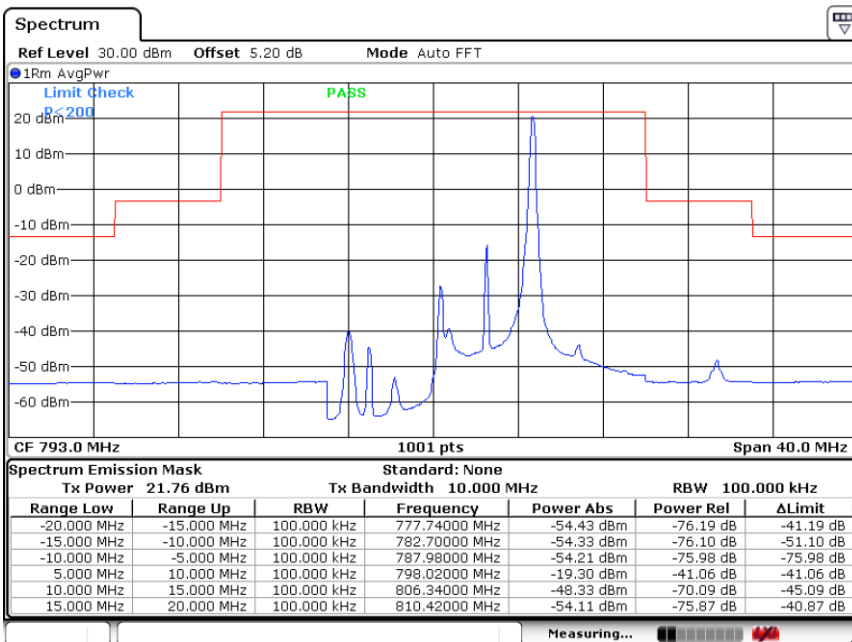
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Date: 18.NOV.2020 10:41:34

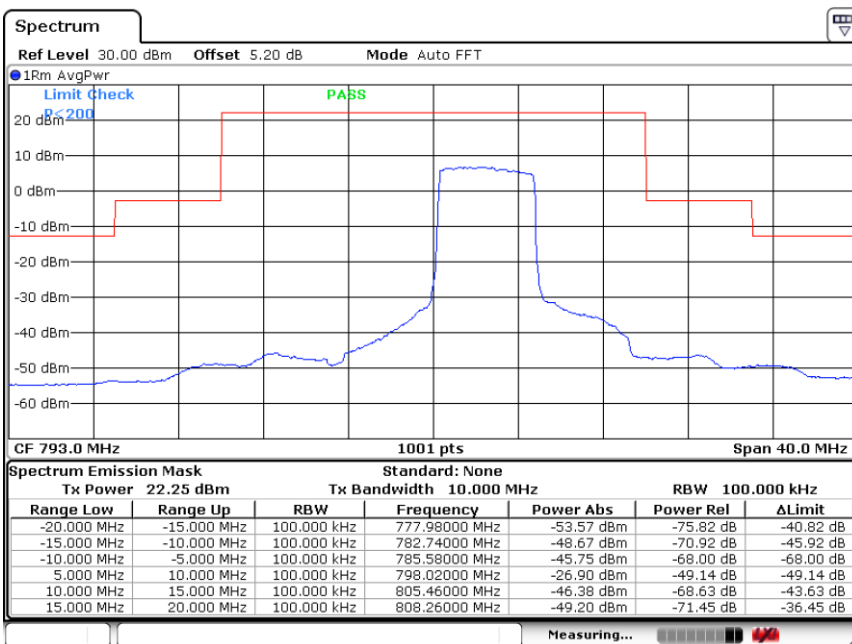


## Band14-5MHz-16QAM-23355-1RB#24



Date: 18.NOV.2020 10:42:45

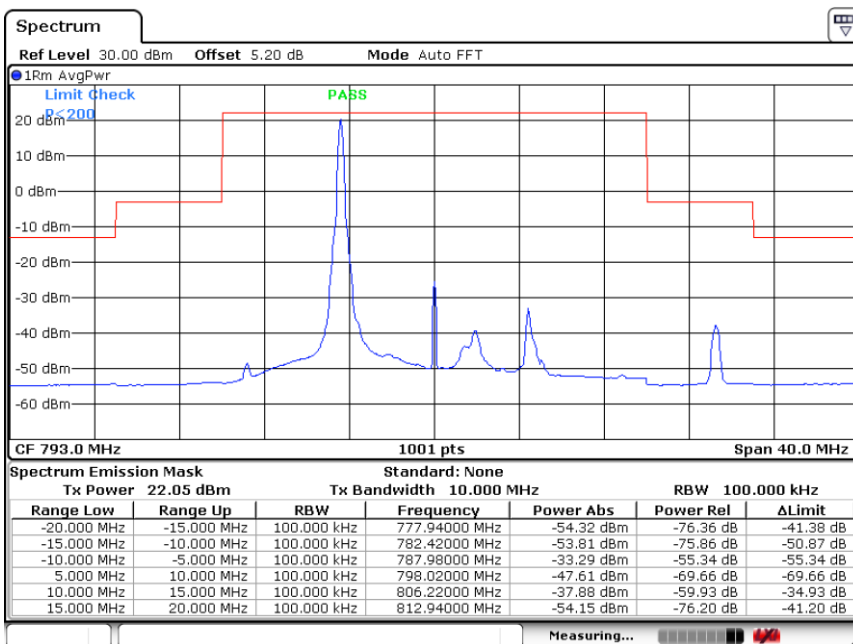
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Date: 18.NOV.2020 10:42:23

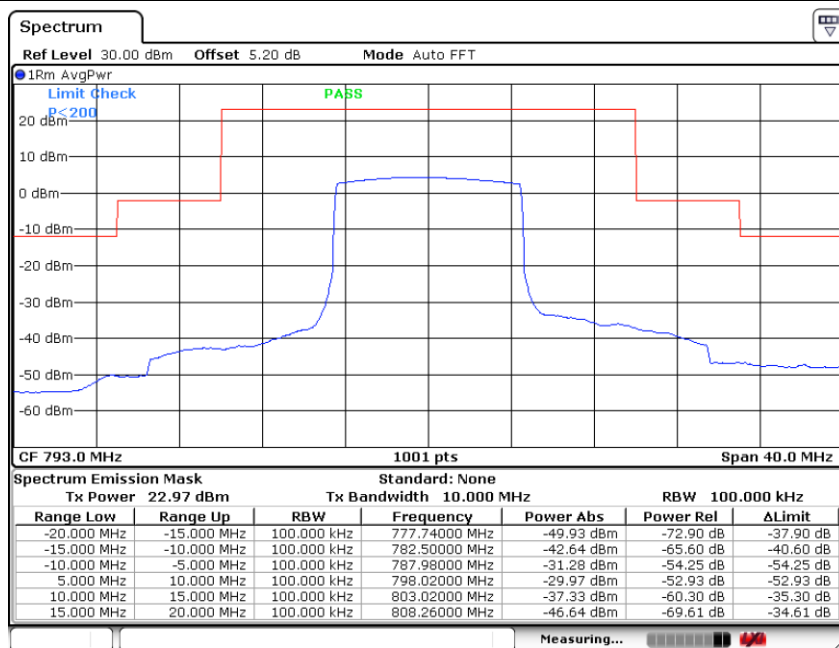


## Band14-10MHz-QPSK-23330\_Left-1RB#0



Date: 18.NOV.2020 09:47:21

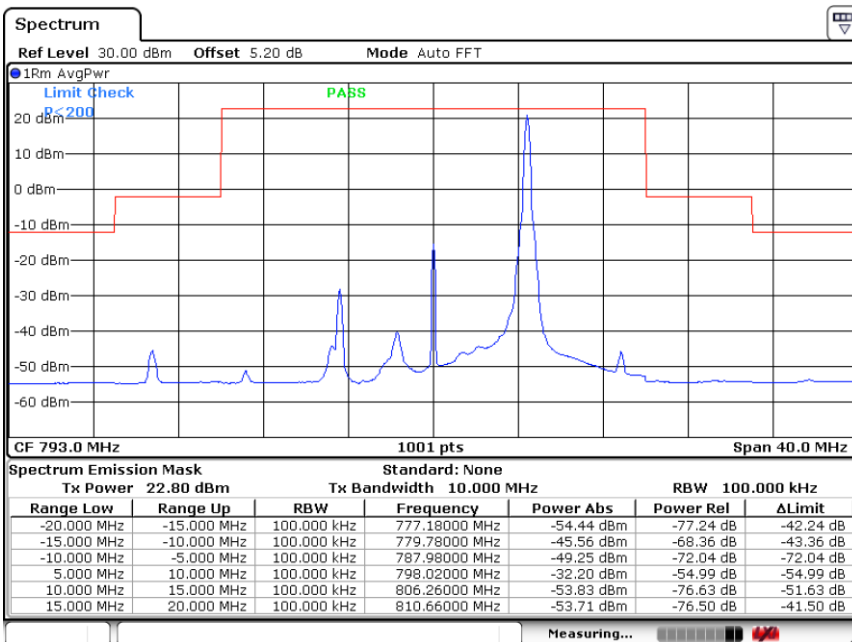
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Date: 26.NOV.2020 17:45:19



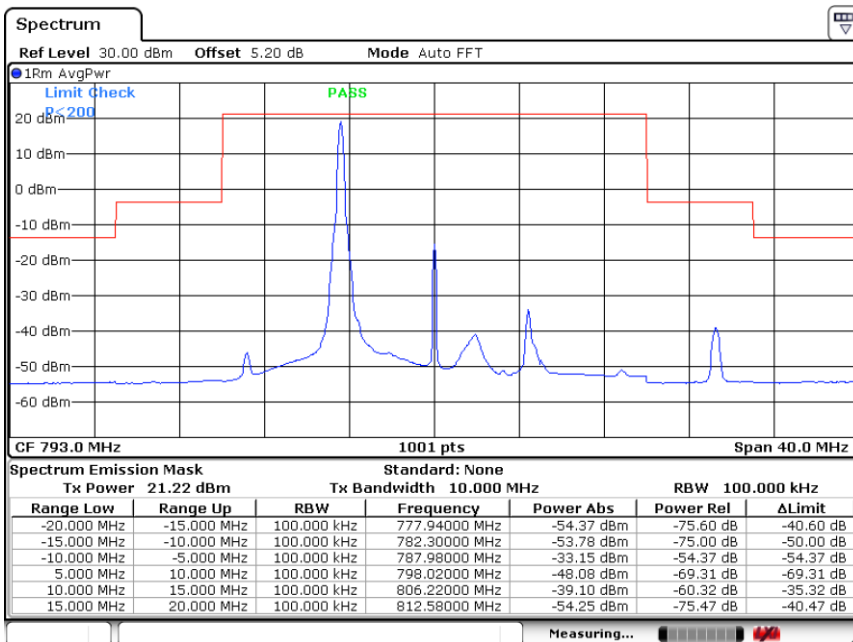
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Date: 18.NOV.2020 10:40:19

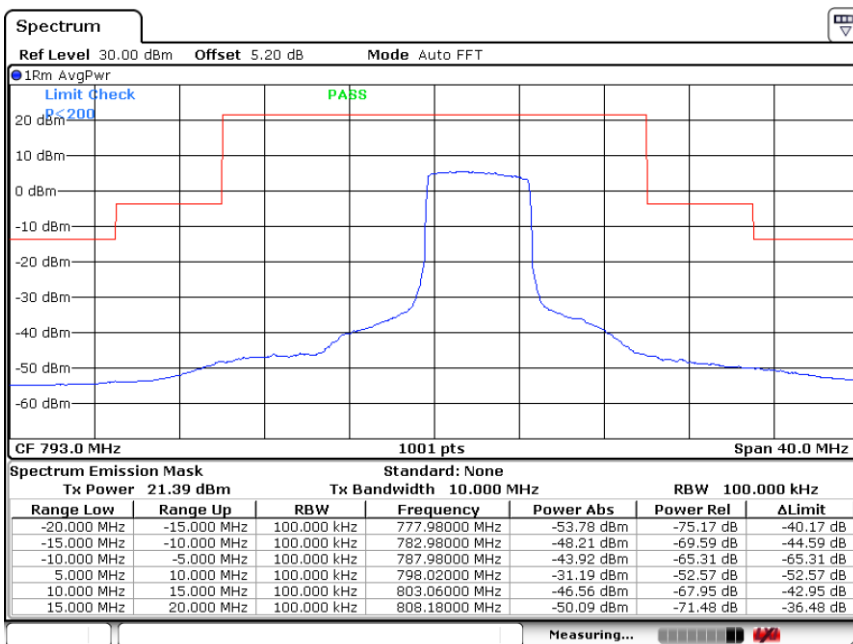


## Band14-10MHz-16QAM-23330\_Left-1RB#0



Date: 18.NOV.2020 10:39:08

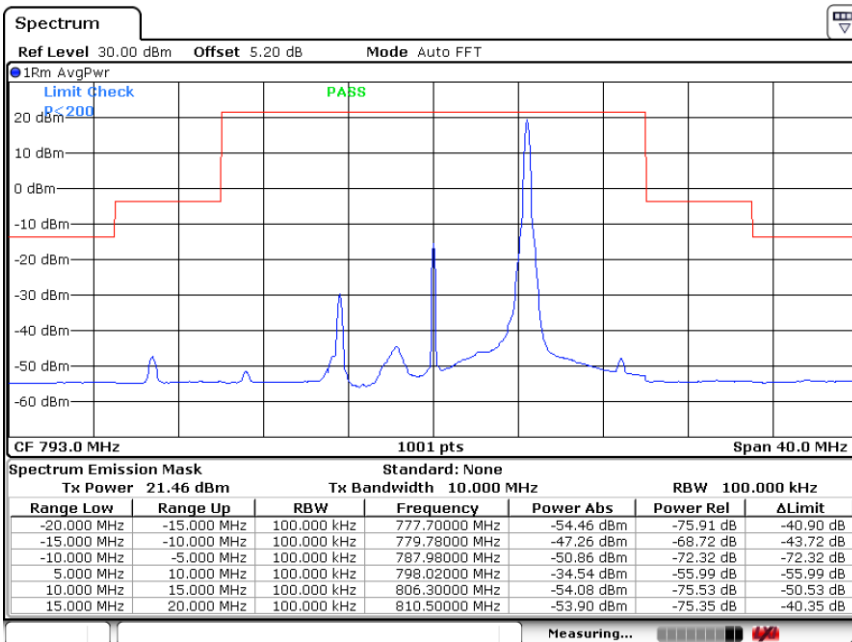
## Band14-10MHz-16QAM-23330\_27RB#0



Date: 18.NOV.2020 10:38:39



## Band14-10MHz-16QAM-23330\_Right-1RB#49



Date: 18.NOV.2020 10:39:32

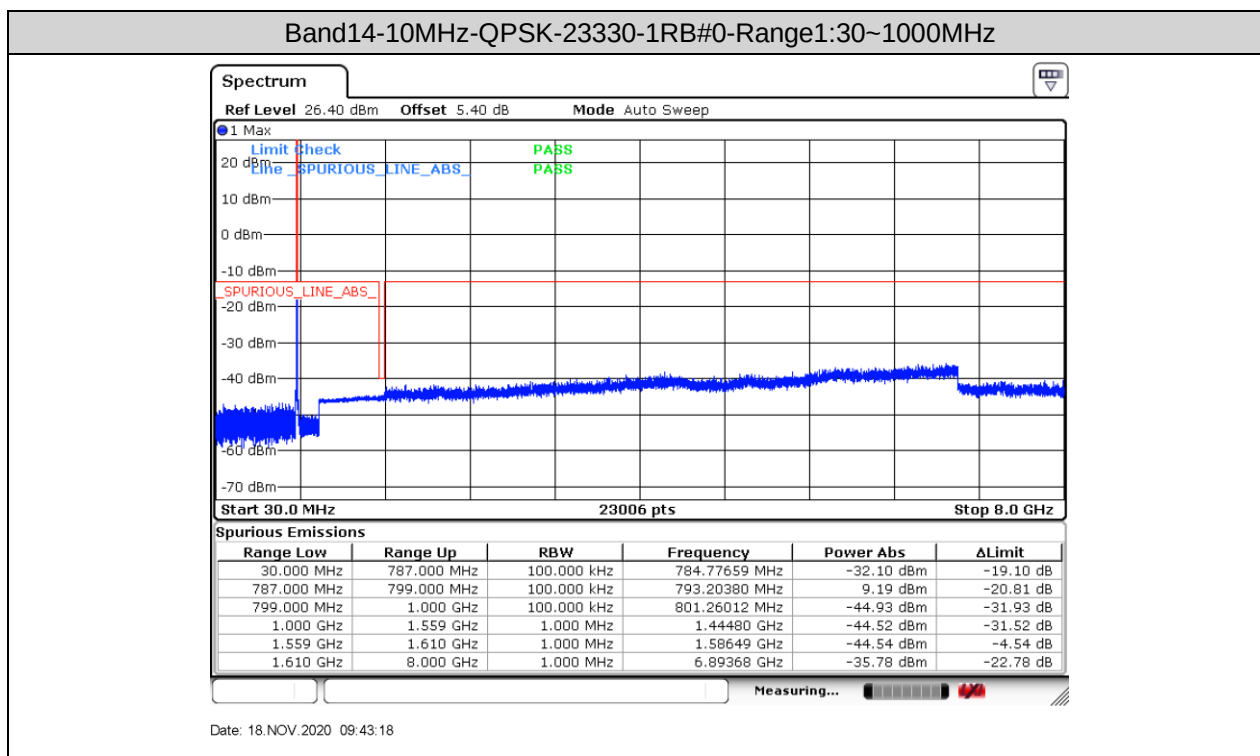


## 7 Spurious Emission at Antenna Terminal

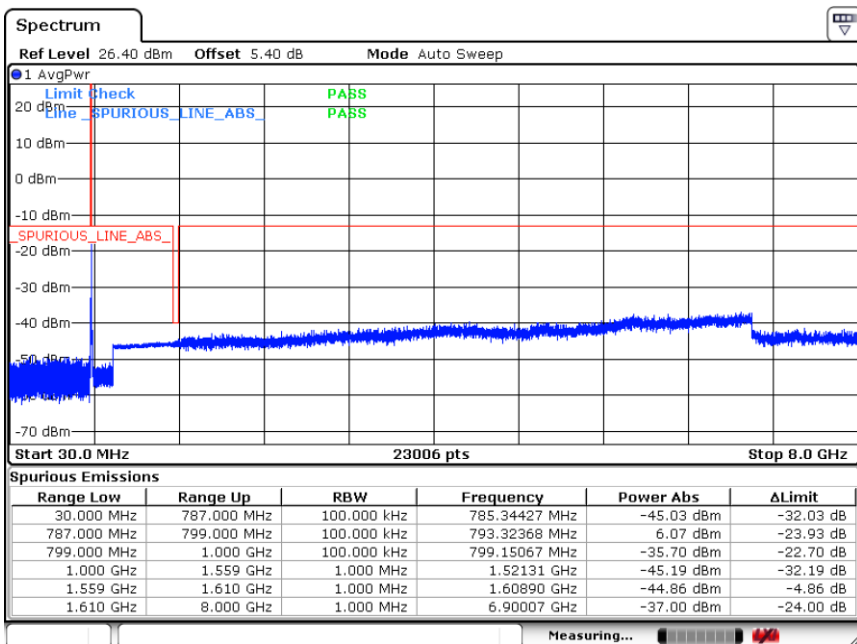
Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of  $< RBW/2$  so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points =  $k \cdot (\text{Span} / RBW)$ " 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.

### 7.1 Test Plots



## Band14-10MHz-16QAM-23330-1RB#0-Range1:30~1000MHz



Date: 18.NOV.2020 10:38:03





## 8 Field Strength of Spurious Radiation

### 8.1 Test Mode =LTE/TM1 10MHz

#### 8.1.1 Test Channel = MCH

| Freq.<br>[MHz] | Level<br>[dBm] | Limit<br>[dBm] | Margin<br>[dB] | Height<br>[cm] | Angle<br>[°] | Polarity   |
|----------------|----------------|----------------|----------------|----------------|--------------|------------|
| 46.1028        | -57.75         | -13.00         | 44.75          | 196            | 322          | Horizontal |
| 120.8450       | -67.79         | -13.00         | 54.79          | 122            | 301          | Horizontal |
| 236.7658       | -66.93         | -13.00         | 53.93          | 138            | 343          | Horizontal |
| 1577.3155      | -57.82         | -40.00         | 17.82          | 141            | 246          | Horizontal |
| 2365.8732      | -37.50         | -13.00         | 24.50          | 288            | 76           | Horizontal |
| 9323.7730      | -52.65         | -13.00         | 39.65          | 264            | 153          | Horizontal |
| 30.2910        | -62.27         | -13.00         | 49.27          | 116            | 111          | Vertical   |
| 116.6738       | -60.72         | -13.00         | 47.72          | 138            | 323          | Vertical   |
| 399.6855       | -67.53         | -13.00         | 54.53          | 229            | 281          | Vertical   |
| 1576.9154      | -58.63         | -40.00         | 18.63          | 246            | 10           | Vertical   |
| 2365.8732      | -39.68         | -13.00         | 26.68          | 132            | 334          | Vertical   |
| 9806.2322      | -52.79         | -13.00         | 39.79          | 211            | 47           | 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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## 9 Frequency Stability

### 9.1 Frequency Vs Voltage

| Band   | Bandwidth | Modulation | Channel | RB Configure | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
|--------|-----------|------------|---------|--------------|---------------|------------------|----------------|-----------------|-------------|---------|
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | VL            | NT               | -0.30          | -0.000378       | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | VN            | NT               | 0.40           | 0.000504        | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | VH            | NT               | 1.10           | 0.001387        | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | VL            | NT               | 0.10           | 0.000126        | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | VN            | NT               | -0.30          | -0.000378       | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | VH            | NT               | 0.30           | 0.000378        | ±2.5        | PASS    |

### 9.2 Frequency Vs Temperature

| Band   | Bandwidth | Modulation | Channel | RB Configure | Voltage [Vdc] | Temperature (°C) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
|--------|-----------|------------|---------|--------------|---------------|------------------|----------------|-----------------|-------------|---------|
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | -30              | 0.50           | 0.000631        | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | -20              | -0.50          | -0.000631       | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | 0                | -1.10          | -0.001387       | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | 10               | 0.20           | 0.000252        | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | 20               | -0.60          | -0.000757       | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | 30               | -0.60          | -0.000757       | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | 40               | -1.60          | -0.002018       | ±2.5        | PASS    |
| Band14 | 10MHz     | QPSK       | 23330   | 50RB#0       | NV            | 50               | -0.70          | -0.000883       | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | -30              | -0.10          | -0.000126       | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | -20              | -0.20          | -0.000252       | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | 0                | -2.00          | -0.002522       | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | 10               | 1.30           | 0.001639        | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | 20               | 0.90           | 0.001135        | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | 30               | 0.00           | 0.000000        | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | 40               | -0.80          | -0.001009       | ±2.5        | PASS    |
| Band14 | 10MHz     | 16QAM      | 23330   | 27RB#0       | NV            | 50               | -2.00          | -0.002522       | ±2.5        | PASS    |

The End



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