

## Appendix for LTE B13 test report

## Appendix A: Effective (Isotropic) Radiated Power Output Data

**Test Results:**

Band	Bandwidth	Modulation	Channel	RB Configuration	Conducted Power[dBm]	ERP[dBm]	Limit[dBm]	Verdict
Band13	5MHz	QPSK	23205	1RB#24	23.28	21.18	33	PASS
Band13	5MHz	QPSK	23205	1RB#12	23.15	21.05	33	PASS
Band13	5MHz	QPSK	23205	1RB#0	23.29	21.19	33	PASS
Band13	5MHz	QPSK	23205	12RB#0	22.30	20.2	33	PASS
Band13	5MHz	QPSK	23205	12RB#6	22.30	20.2	33	PASS
Band13	5MHz	QPSK	23205	12RB#13	22.25	20.15	33	PASS
Band13	5MHz	QPSK	23205	25RB#0	22.13	20.03	33	PASS
Band13	5MHz	QPSK	23230	1RB#0	23.30	21.2	33	PASS
Band13	5MHz	QPSK	23230	1RB#12	23.33	21.23	33	PASS
Band13	5MHz	QPSK	23230	1RB#24	23.44	21.34	33	PASS
Band13	5MHz	QPSK	23230	12RB#0	22.23	20.13	33	PASS
Band13	5MHz	QPSK	23230	12RB#13	22.43	20.33	33	PASS
Band13	5MHz	QPSK	23230	12RB#6	22.26	20.16	33	PASS
Band13	5MHz	QPSK	23230	25RB#0	22.28	20.18	33	PASS
Band13	5MHz	QPSK	23255	1RB#12	23.30	21.2	33	PASS
Band13	5MHz	QPSK	23255	1RB#24	23.41	21.31	33	PASS
Band13	5MHz	QPSK	23255	1RB#0	23.35	21.25	33	PASS
Band13	5MHz	QPSK	23255	12RB#0	22.48	20.38	33	PASS
Band13	5MHz	QPSK	23255	12RB#6	22.48	20.38	33	PASS
Band13	5MHz	QPSK	23255	12RB#13	22.41	20.31	33	PASS
Band13	5MHz	QPSK	23255	25RB#0	22.39	20.29	33	PASS
Band13	5MHz	16QAM	23205	1RB#12	21.72	19.62	33	PASS
Band13	5MHz	16QAM	23205	1RB#24	21.98	19.88	33	PASS
Band13	5MHz	16QAM	23205	1RB#0	21.80	19.7	33	PASS
Band13	5MHz	16QAM	23205	12RB#6	21.37	19.27	33	PASS
Band13	5MHz	16QAM	23205	12RB#0	21.30	19.2	33	PASS
Band13	5MHz	16QAM	23205	12RB#13	21.53	19.43	33	PASS
Band13	5MHz	16QAM	23205	25RB#0	21.41	19.31	33	PASS
Band13	5MHz	16QAM	23230	1RB#12	21.87	19.77	33	PASS
Band13	5MHz	16QAM	23230	1RB#0	21.98	19.88	33	PASS
Band13	5MHz	16QAM	23230	1RB#24	22.24	20.14	33	PASS
Band13	5MHz	16QAM	23230	12RB#13	21.45	19.35	33	PASS

Band13	5MHz	16QAM	23230	12RB#6	21.56	19.46	33	PASS
Band13	5MHz	16QAM	23230	12RB#0	21.56	19.46	33	PASS
Band13	5MHz	16QAM	23230	25RB#0	21.30	19.2	33	PASS
Band13	5MHz	16QAM	23255	1RB#0	21.80	19.7	33	PASS
Band13	5MHz	16QAM	23255	1RB#12	21.63	19.53	33	PASS
Band13	5MHz	16QAM	23255	1RB#24	21.74	19.64	33	PASS
Band13	5MHz	16QAM	23255	12RB#13	21.33	19.23	33	PASS
Band13	5MHz	16QAM	23255	12RB#0	21.47	19.37	33	PASS
Band13	5MHz	16QAM	23255	12RB#6	21.47	19.37	33	PASS
Band13	5MHz	16QAM	23255	25RB#0	21.55	19.45	33	PASS
Band13	10MHz	QPSK	23230	1RB#49	23.43	21.33	33	PASS
Band13	10MHz	QPSK	23230	1RB#0	23.38	21.28	33	PASS
Band13	10MHz	QPSK	23230	1RB#24	23.35	21.25	33	PASS
Band13	10MHz	QPSK	23230	25RB#0	22.25	20.15	33	PASS
Band13	10MHz	QPSK	23230	25RB#12	22.25	20.15	33	PASS
Band13	10MHz	QPSK	23230	25RB#25	22.44	20.34	33	PASS
Band13	10MHz	QPSK	23230	50RB#0	22.39	20.29	33	PASS
Band13	10MHz	16QAM	23230	1RB#24	21.67	19.57	33	PASS
Band13	10MHz	16QAM	23230	1RB#49	21.81	19.71	33	PASS
Band13	10MHz	16QAM	23230	1RB#0	21.80	19.7	33	PASS
Band13	10MHz	16QAM	23230	25RB#0	21.72	19.62	33	PASS
Band13	10MHz	16QAM	23230	25RB#12	21.72	19.62	33	PASS
Band13	10MHz	16QAM	23230	25RB#25	21.52	19.42	33	PASS
Band13	10MHz	16QAM	23230	50RB#0	21.38	19.28	33	PASS

## Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

c, Antenna gain of LTE Band 13 is -2.1dBi.

Note2: SET Span=1.5\*OBW

SET RBW=1%of the OBW,not to exceed 1MHz

SET VBW>= 3\*RBW

SET Sweep time=auto-couple.

Detector:RMS

## Appendix B: Peak-to-Average Ratio

### Test Results

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dB)	Limit(dB)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	5.25	13	PASS
Band13	5MHz	QPSK	23205	25RB#0	5.22	13	PASS
Band13	5MHz	QPSK	23230	1RB#0	5.10	13	PASS
Band13	5MHz	QPSK	23230	25RB#0	5.25	13	PASS
Band13	5MHz	QPSK	23255	1RB#0	5.48	13	PASS
Band13	5MHz	QPSK	23255	25RB#0	5.22	13	PASS
Band13	5MHz	16QAM	23205	1RB#0	6.00	13	PASS
Band13	5MHz	16QAM	23205	25RB#0	6.03	13	PASS
Band13	5MHz	16QAM	23230	1RB#0	5.80	13	PASS
Band13	5MHz	16QAM	23230	25RB#0	6.06	13	PASS
Band13	5MHz	16QAM	23255	1RB#0	6.00	13	PASS
Band13	5MHz	16QAM	23255	25RB#0	6.00	13	PASS
Band13	10MHz	QPSK	23230	1RB#0	5.19	13	PASS
Band13	10MHz	QPSK	23230	50RB#0	5.28	13	PASS
Band13	10MHz	16QAM	23230	1RB#0	5.86	13	PASS
Band13	10MHz	16QAM	23230	50RB#0	6.14	13	PASS

## Appendix C: Modulation Characteristics

### Test Plots

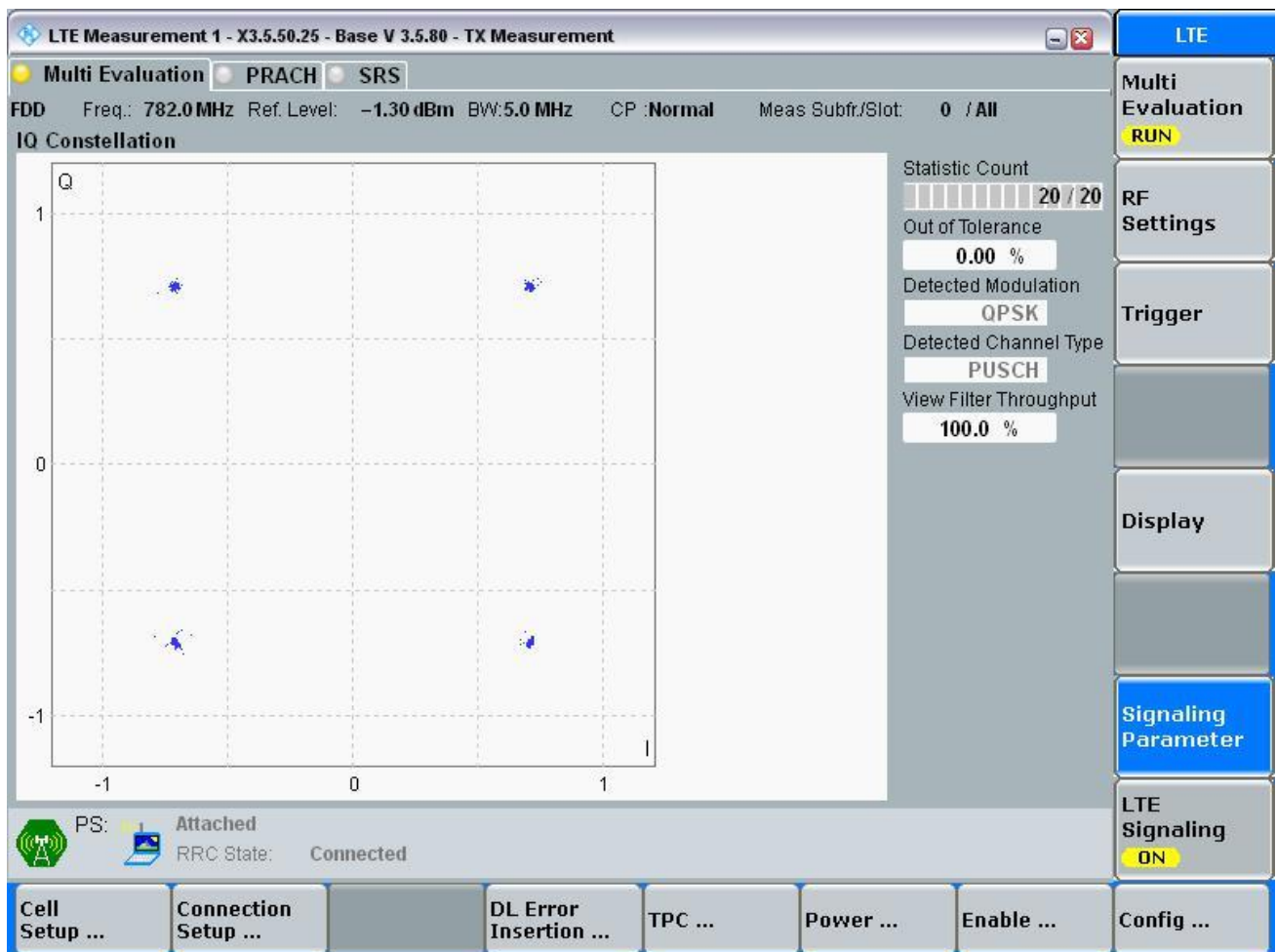
Test Band = BAND13

Test Mode = LTE/TM1

Test Bandwidth = 5MHz

Test Channel = MCH

Test RB = RB25#0



Test Bandwidth = 10MHz

Test Channel = MCH

Test RB = RB50#0

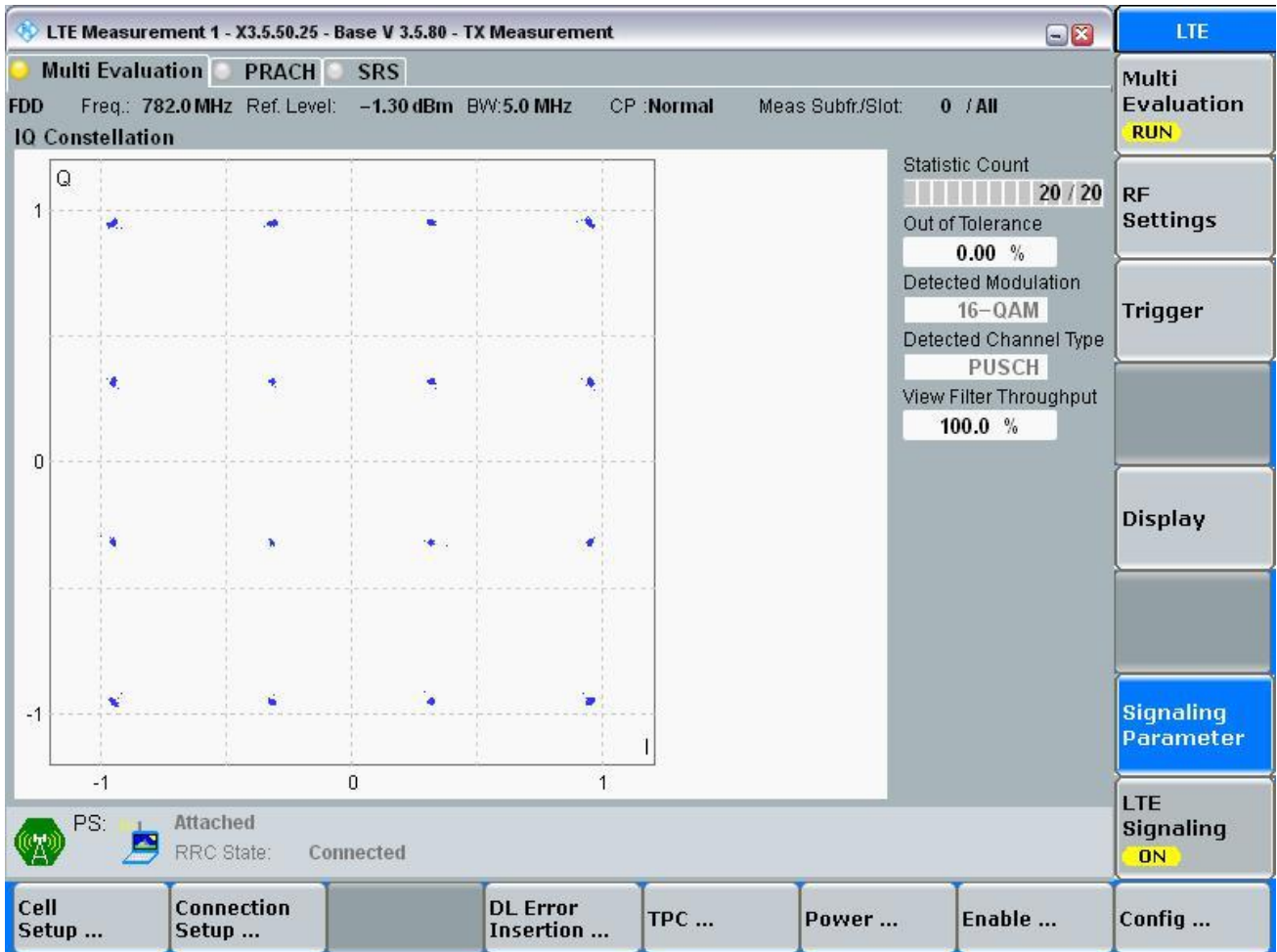
The screenshot displays the 'LTE Measurement 1 - X3.5.50.25 - Base V 3.5.80 - TX Measurement' window. The interface includes a top navigation bar with 'Multi Evaluation', 'PRACH', and 'SRS' tabs. Below this, measurement parameters are shown: 'FDD', 'Freq.: 782.0 MHz', 'Ref. Level: -1.90 dBm', 'BW: 10.0 MHz', 'CP: Normal', and 'Meas Subfr./Slot: 0 / All'. The main area features an 'IQ Constellation' plot with a grid and four data points. To the right of the plot is a 'Statistic Count' section with a progress bar for '20 / 20', 'Out of Tolerance' at '0.00 %', 'Detected Modulation' as 'QPSK', 'Detected Channel Type' as 'PUSCH', and 'View Filter Throughput' at '100.0 %'. A vertical toolbar on the right contains buttons for 'LTE', 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling ON'. The bottom status bar shows 'PS: Attached' and 'RRC State: Connected'. A bottom control bar contains buttons for 'Cell Setup ...', 'Connection Setup ...', 'DL Error Insertion ...', 'TPC ...', 'Power ...', 'Enable ...', and 'Config ...'.

Test Mode = LTE/TM2

Test Bandwidth = 5MHz

Test Channel = MCH

Test RB = RB25#0

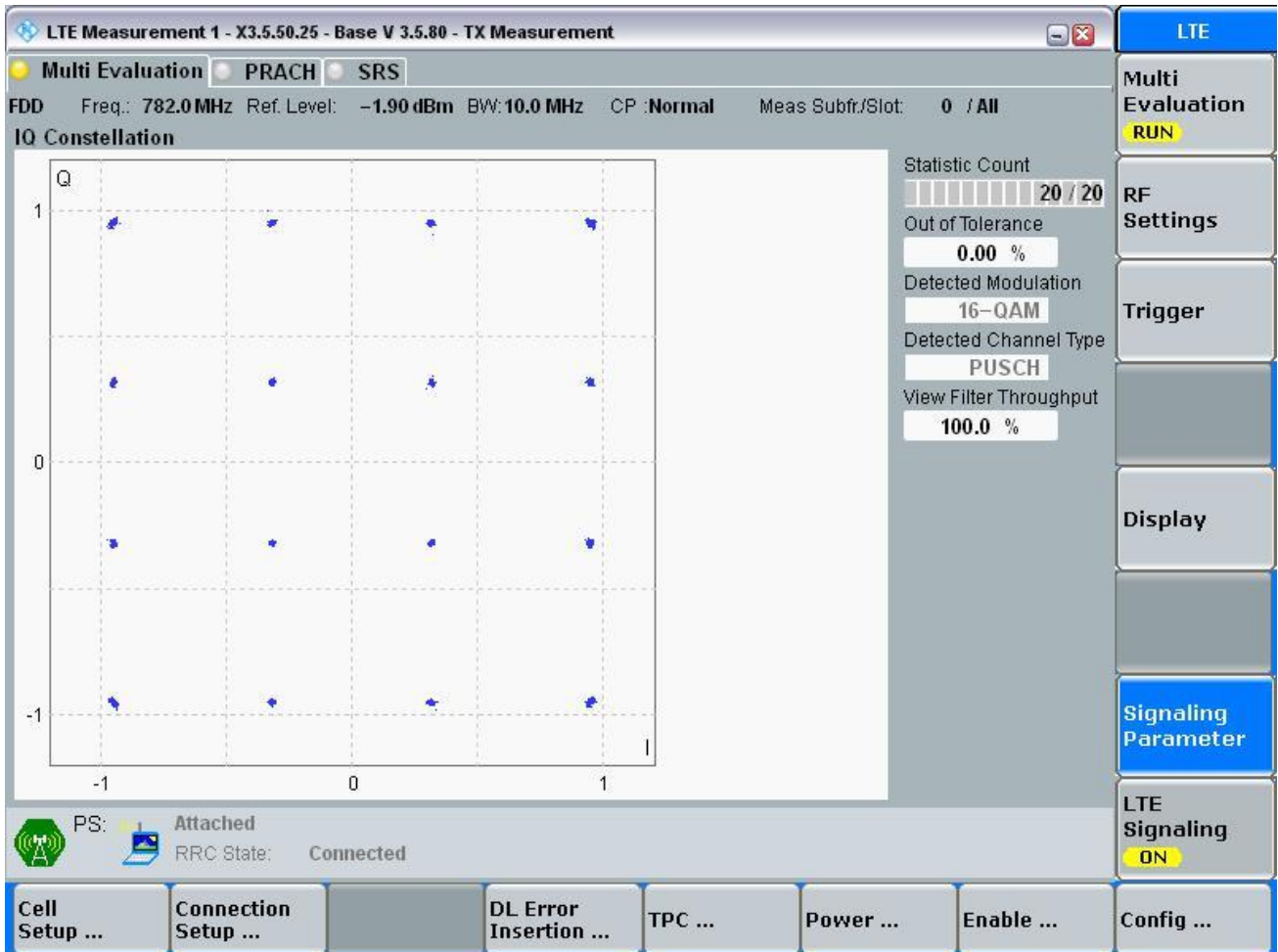




Test Bandwidth = 10MHz

Test Channel = MCH

Test RB = RB50#0



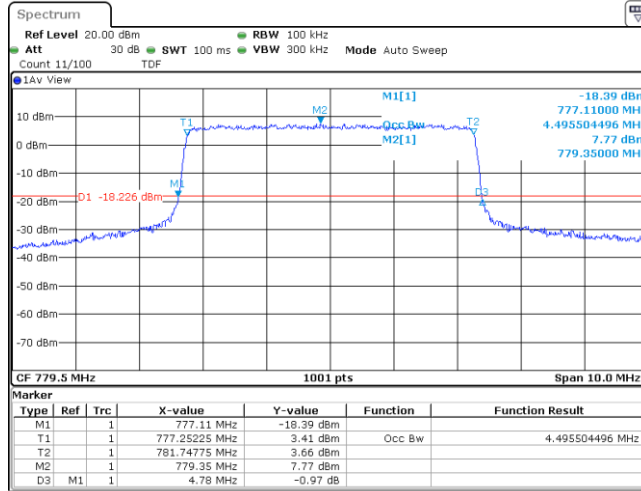
## Appendix D: Bandwidth

### Test Results

Band	Bandwidth	Modulation	Channel	RB Configuration	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	4.496	4.780	PASS
Band13	5MHz	QPSK	23230	25RB#0	4.496	4.800	PASS
Band13	5MHz	QPSK	23255	25RB#0	4.496	4.790	PASS
Band13	5MHz	16QAM	23205	25RB#0	4.496	4.790	PASS
Band13	5MHz	16QAM	23230	25RB#0	4.505	4.770	PASS
Band13	5MHz	16QAM	23255	25RB#0	4.505	4.780	PASS
Band13	10MHz	QPSK	23230	50RB#0	8.985	9.533	PASS
Band13	10MHz	16QAM	23230	50RB#0	8.985	9.533	PASS

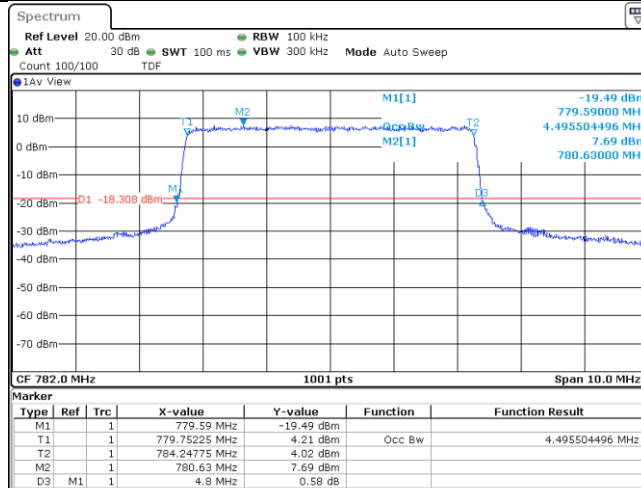
**Test Plots**

**Band13-5MHz-QPSK-23205-25RB#0-4.496**



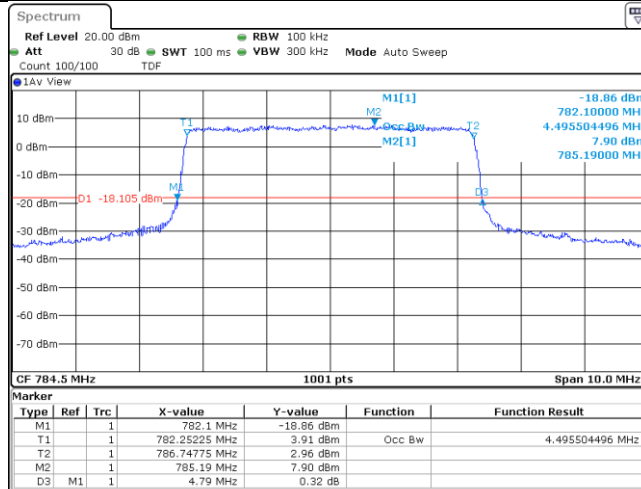
Date: 18 AUG 2020 02:56:38

**Band13-5MHz-QPSK-23230-25RB#0-4.496**



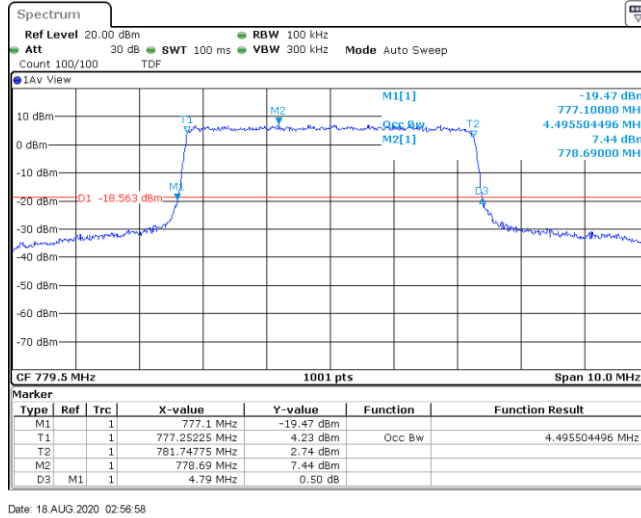
Date: 18 AUG 2020 02:57:20

**Band13-5MHz-QPSK-23255-25RB#0-4.496**

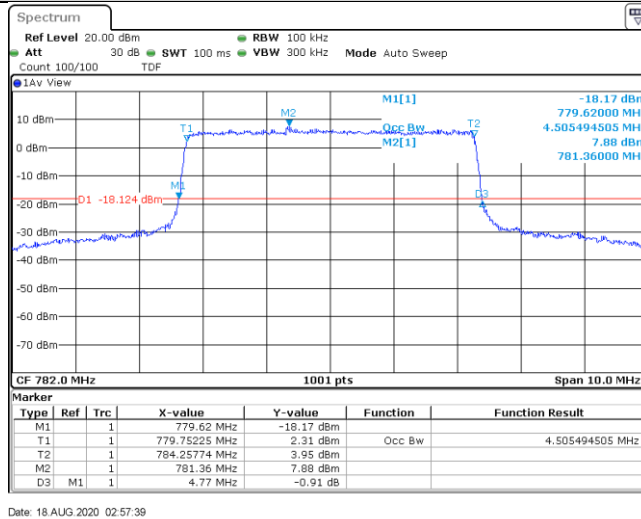


Date: 18 AUG 2020 02:58:01

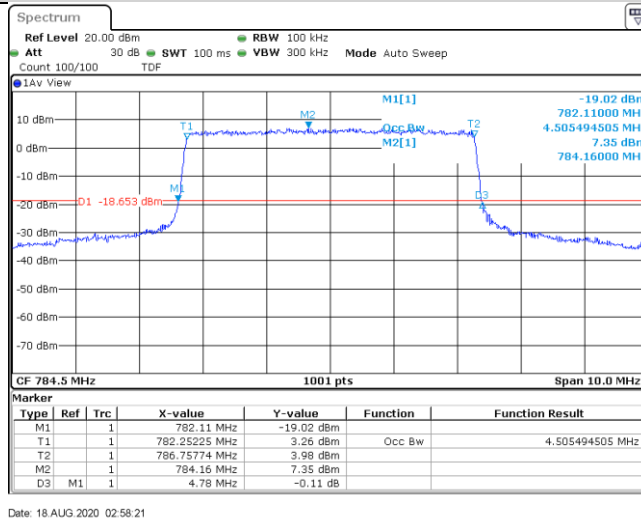
**Band13-5MHz-16QAM-23205-25RB#0-4.496**



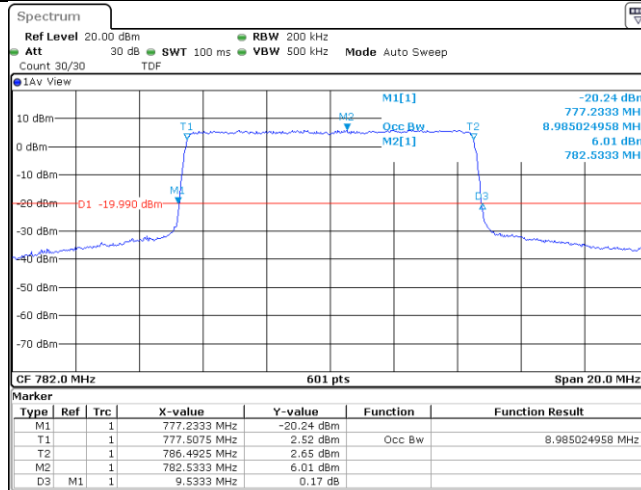
**Band13-5MHz-16QAM-23230-25RB#0-4.505**



**Band13-5MHz-16QAM-23255-25RB#0-4.505**

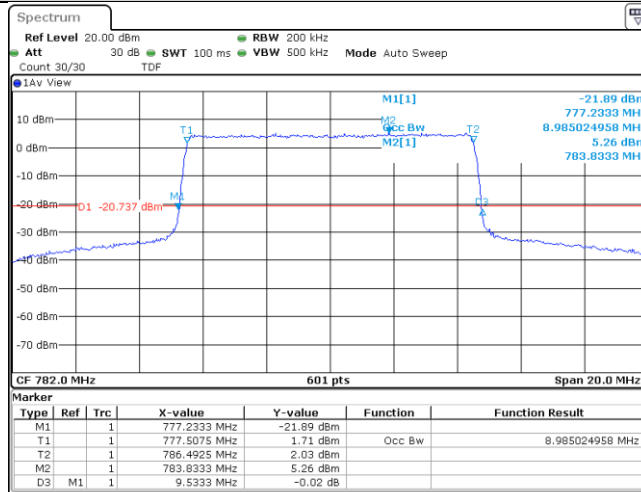


**Band13-10MHz-QPSK-23230-50RB#0-8.985**



Date: 18 AUG 2020 03:17:20

## Band13-10MHz-16QAM-23230-50RB#0-8.985



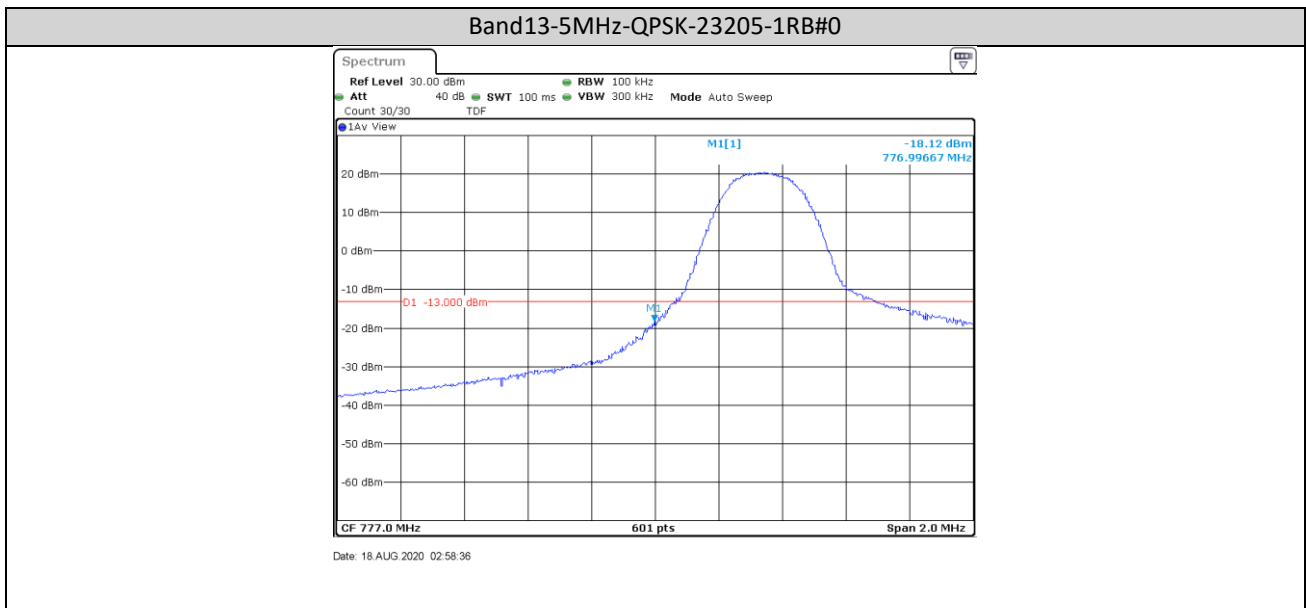
Date: 18 AUG 2020 03:17:32

## Appendix E: Band Edges Compliance

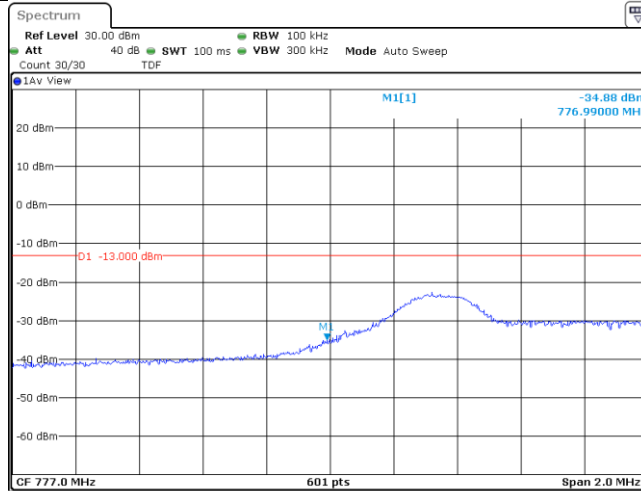
### Test Plots

Band	Bandwidth	Modulation	Channel	RB Configuration	Result(dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	-18.12	PASS
Band13	5MHz	QPSK	23205	1RB#24	-34.88	PASS
Band13	5MHz	QPSK	23205	25RB#0	-26.26	PASS
Band13	5MHz	QPSK	23255	1RB#0	-34.16	PASS
Band13	5MHz	QPSK	23255	1RB#24	-18.77	PASS
Band13	5MHz	QPSK	23255	25RB#0	-26.10	PASS
Band13	5MHz	16QAM	23205	1RB#0	-20.20	PASS
Band13	5MHz	16QAM	23205	1RB#24	-35.07	PASS
Band13	5MHz	16QAM	23205	25RB#0	-27.72	PASS
Band13	5MHz	16QAM	23255	1RB#0	-35.99	PASS
Band13	5MHz	16QAM	23255	1RB#24	-17.64	PASS
Band13	5MHz	16QAM	23255	25RB#0	-26.65	PASS
Band13	10MHz	QPSK	23230	1RB#49	-39.06,-24.66	PASS
Band13	10MHz	QPSK	23230	1RB#0	-24.03,-40.15	PASS
Band13	10MHz	QPSK	23230	50RB#0	-30.53,-29.47	PASS
Band13	10MHz	16QAM	23230	1RB#0	-24.92,-39.97	PASS
Band13	10MHz	16QAM	23230	1RB#49	-41.31,-26.59	PASS
Band13	10MHz	16QAM	23230	50RB#0	-30.25,-30.16	PASS

### Test Graphs

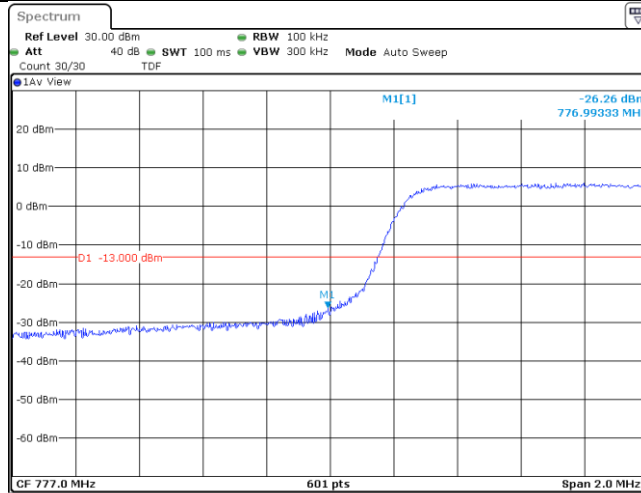


**Band13-5MHz-QPSK-23205-1RB#24**



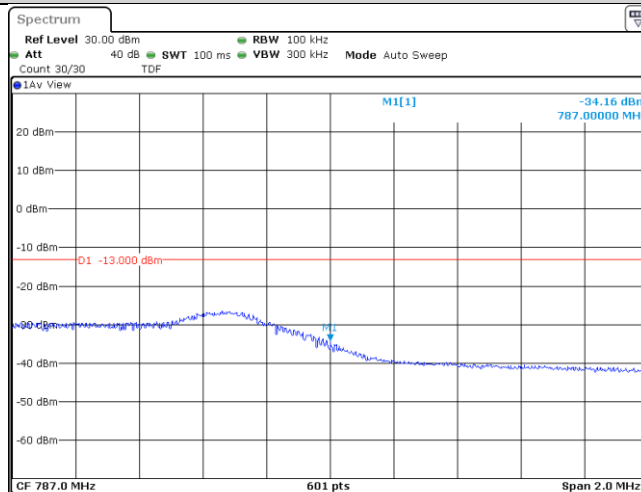
Date: 18 AUG 2020 02:59:03

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



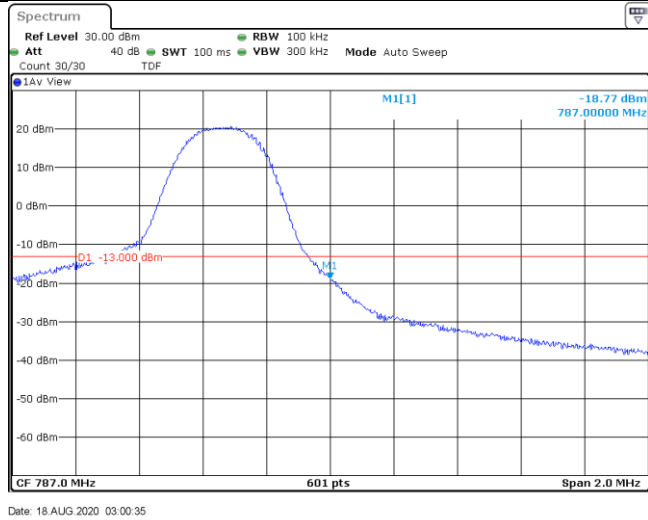
Date: 18 AUG 2020 02:59:30

**Band13-5MHz-QPSK-23255-1RB#0**

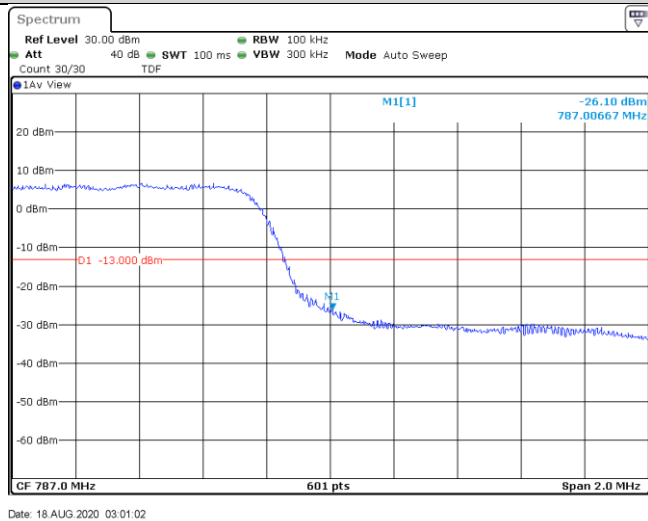


Date: 18 AUG 2020 03:00:09

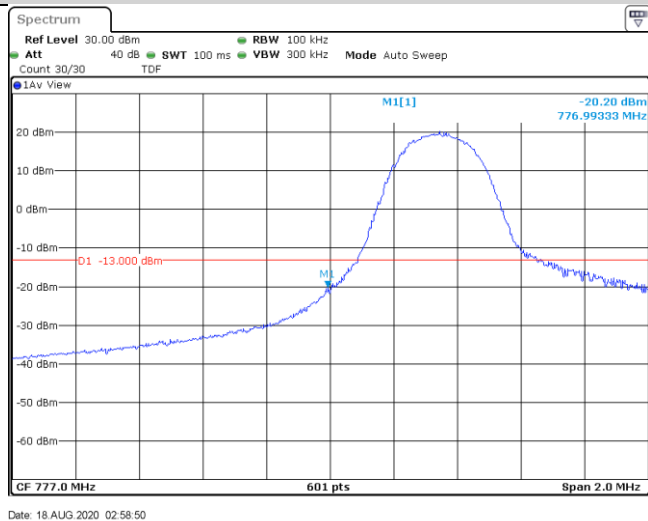
**Band13-5MHz-QPSK-23255-1RB#24**



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

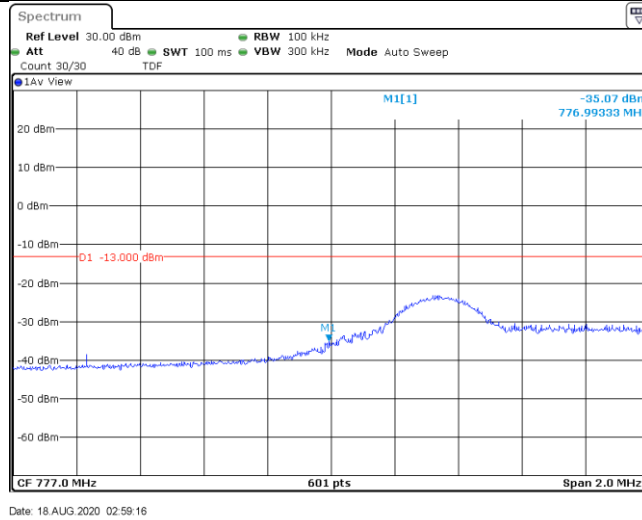


**Band13-5MHz-16QAM-23205-1RB#0**

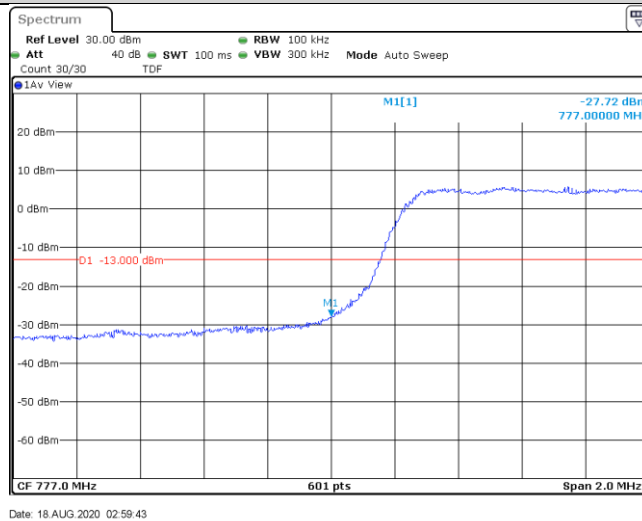


**Band13-5MHz-16QAM-23205-1RB#24**

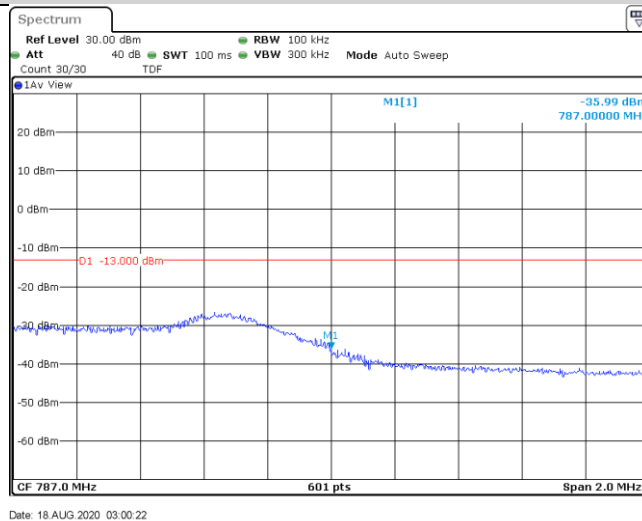




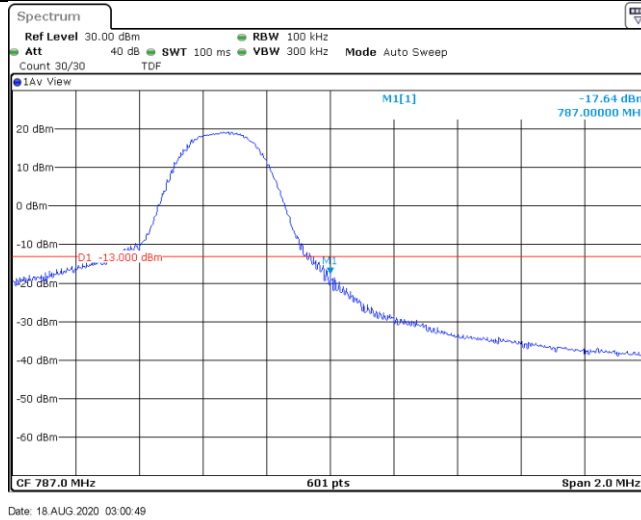
Band13-5MHz-16QAM-23205-25RB#0



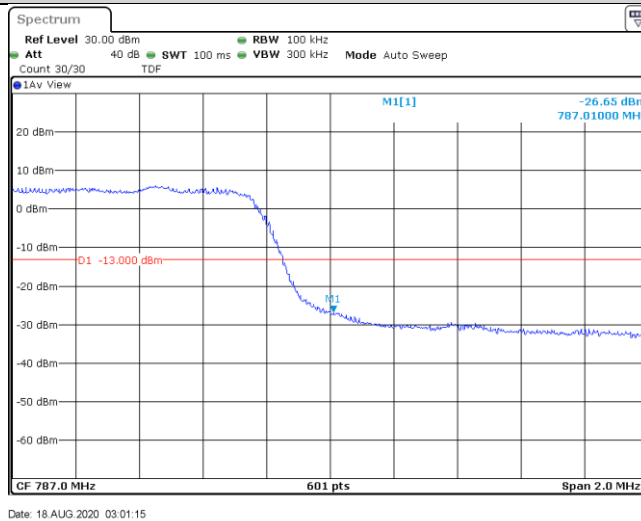
Band13-5MHz-16QAM-23255-1RB#0



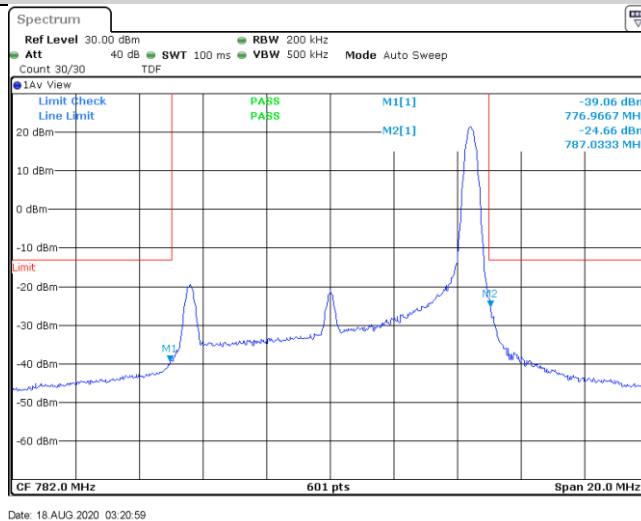
Band13-5MHz-16QAM-23255-1RB#24



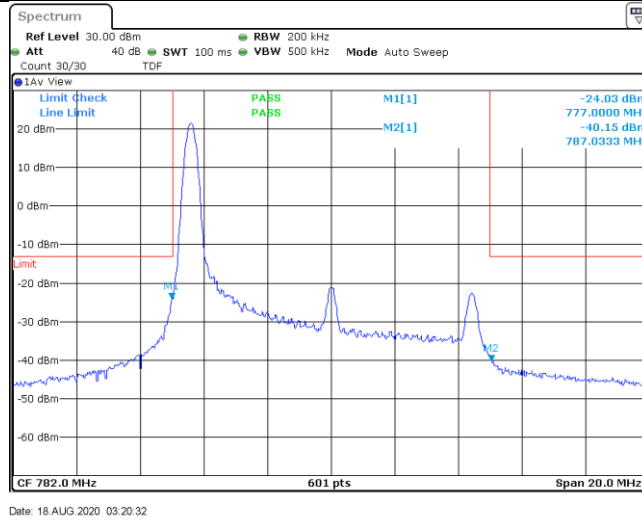
Band13-5MHz-16QAM-23255-25RB#0



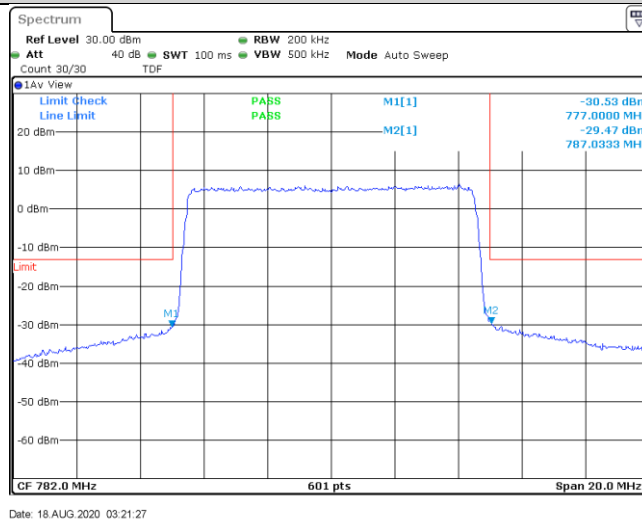
Band13-10MHz-QPSK-23230-1RB#49



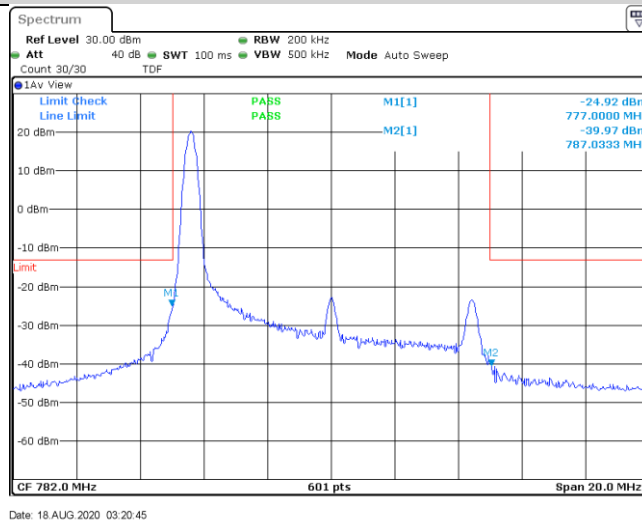
Band13-10MHz-QPSK-23230-1RB#0



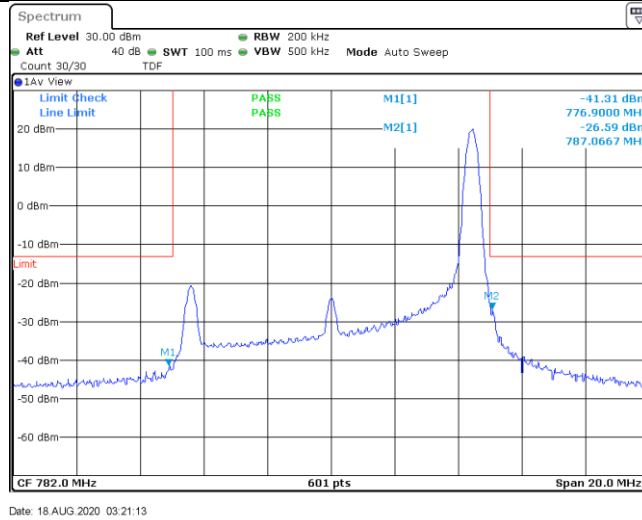
### Band13-10MHz-QPSK-23230-50RB#0



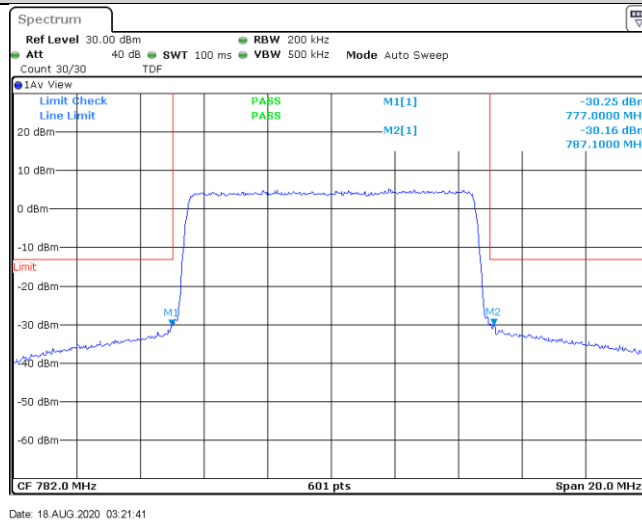
### Band13-10MHz-16QAM-23230-1RB#0



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



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



## Appendix F: Spurious Emission at Antenna Terminals

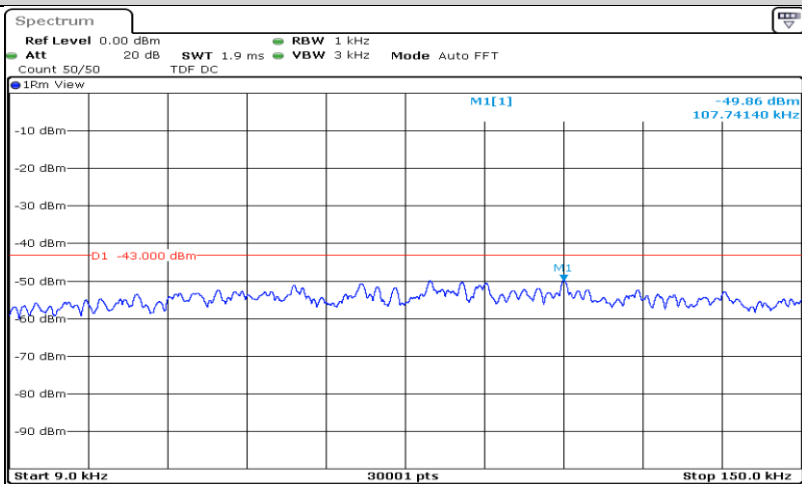
### Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Frequency Range	Result (dBm)	Verdict
Band13	5MHz	QPSK	23205	1RB#0	Range1:0.009~0.15MHz	-49.86	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range2:0.15~30MHz	-50.9	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range3:30~1000MHz	-28.23	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range4:1000~5000MHz	-31.36	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range5:5000~12000MHz	-45.78	PASS
Band13	5MHz	QPSK	23205	1RB#0	Range6:12000~26500MHz	-61.27	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range1:0.009~0.15MHz	-49.98	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range2:0.15~30MHz	-50.48	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range3:30~1000MHz	-28.18	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range4:1000~5000MHz	-31.49	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range5:5000~12000MHz	-45.74	PASS
Band13	5MHz	QPSK	23230	1RB#0	Range6:12000~26500MHz	-61.29	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range1:0.009~0.15MHz	-49.56	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range2:0.15~30MHz	-50.07	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range3:30~1000MHz	-28.41	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range4:1000~5000MHz	-31.3	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range5:5000~12000MHz	-45.95	PASS
Band13	5MHz	QPSK	23255	1RB#0	Range6:12000~26500MHz	-61.2	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range1:0.009~0.15MHz	-51.44	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range2:0.15~30MHz	-51.43	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range3:30~1000MHz	-29.1	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range4:1000~5000MHz	-31.29	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range5:5000~12000MHz	-45.78	PASS
Band13	5MHz	16QAM	23205	1RB#0	Range6:12000~26500MHz	-61.27	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range1:0.009~0.15MHz	-50.58	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range2:0.15~30MHz	-51.64	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range3:30~1000MHz	-29.03	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range4:1000~5000MHz	-31.3	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range5:5000~12000MHz	-45.85	PASS
Band13	5MHz	16QAM	23230	1RB#0	Range6:12000~26500MHz	-61.28	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range1:0.009~0.15MHz	-51.62	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range2:0.15~30MHz	-51.27	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range3:30~1000MHz	-28.69	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range4:1000~5000MHz	-31.23	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range5:5000~12000MHz	-45.84	PASS
Band13	5MHz	16QAM	23255	1RB#0	Range6:12000~26500MHz	-61.21	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range1:0.009~0.15MHz	-50.3	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range2:0.15~30MHz	-49.93	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range3:30~1000MHz	-28.42	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range4:1000~5000MHz	-31.43	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range5:5000~12000MHz	-45.49	PASS
Band13	10MHz	QPSK	23230	1RB#0	Range6:12000~26500MHz	-61.24	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range1:0.009~0.15MHz	-50.64	PASS

Total Quality. Assured.

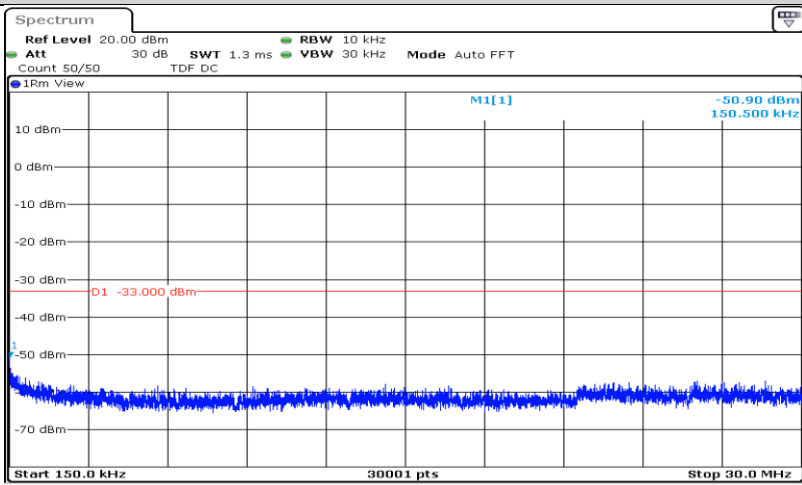
Band13	10MHz	16QAM	23230	1RB#0	Range2:0.15~30MHz	-51.7	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range3:30~1000MHz	-28.58	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range4:1000~5000MHz	-31.45	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range5:5000~12000MHz	-45.85	PASS
Band13	10MHz	16QAM	23230	1RB#0	Range6:12000~26500MHz	-61.18	PASS

**Band13-5MHz-QPSK-23205-1RB#0-Range1:0.009~0.15MHz**



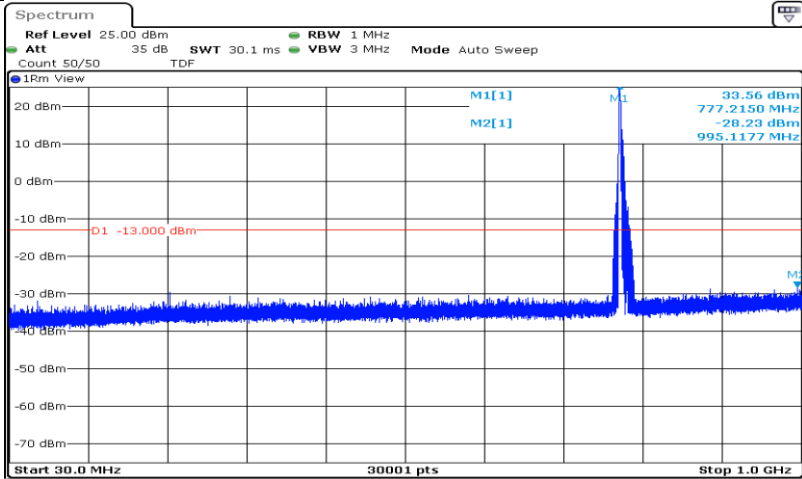
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**Band13-5MHz-QPSK-23205-1RB#0-Range2:0.15~30MHz**



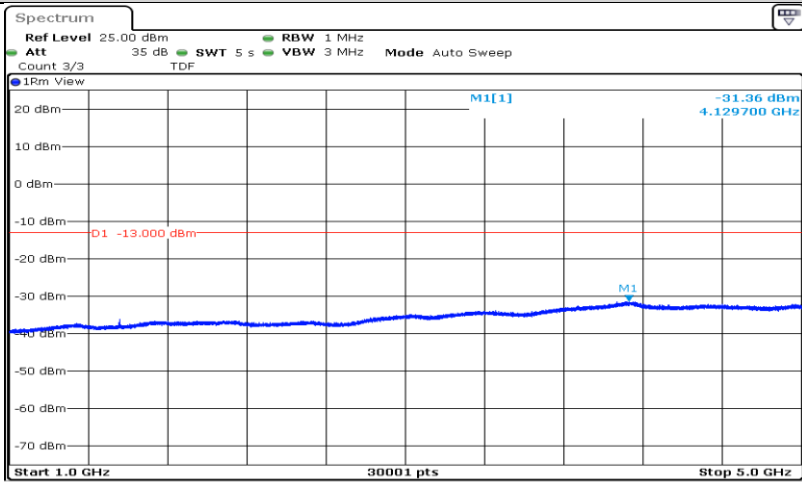
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Date: 22.SEP.2020 13:38:31

## Band13-5MHz-QPSK-23205-1RB#0-Range3:30~1000MHz



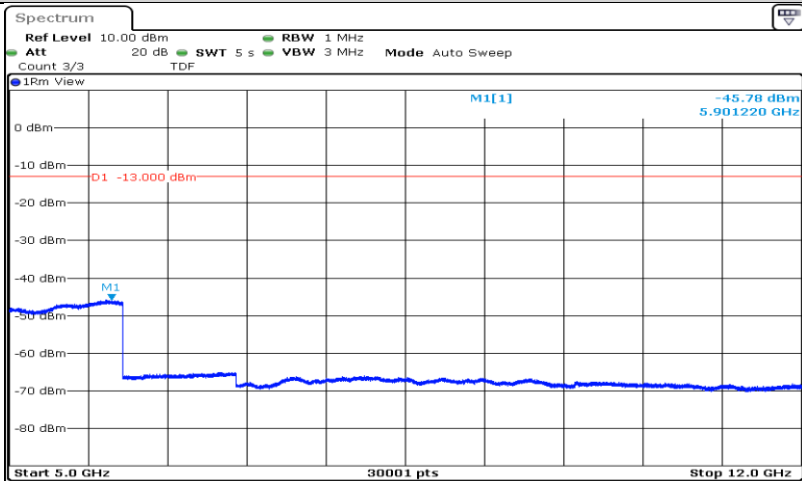
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Date: 22.SEP.2020 13:38:40

## Band13-5MHz-QPSK-23205-1RB#0-Range4:1000~5000MHz



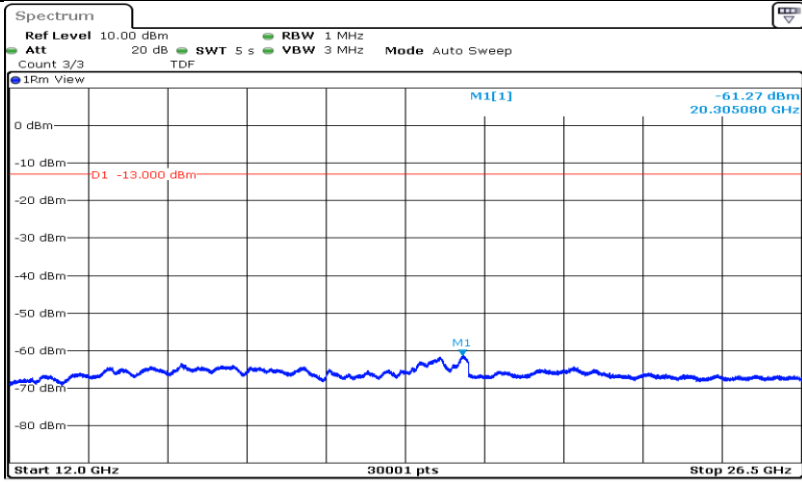
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Date: 22.SEP.2020 13:39:03

## Band13-5MHz-QPSK-23205-1RB#0-Range5:5000~12000MHz



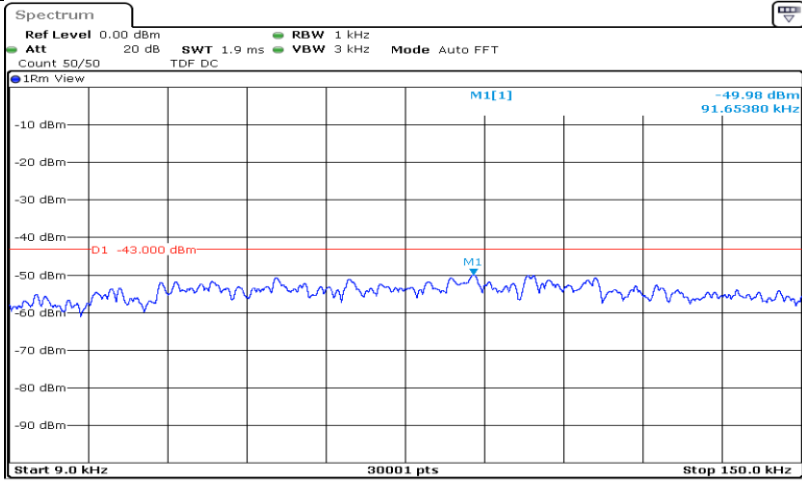
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Date: 22.SEP.2020 13:39:26

## Band13-5MHz-QPSK-23205-1RB#0-Range6:12000~26500MHz



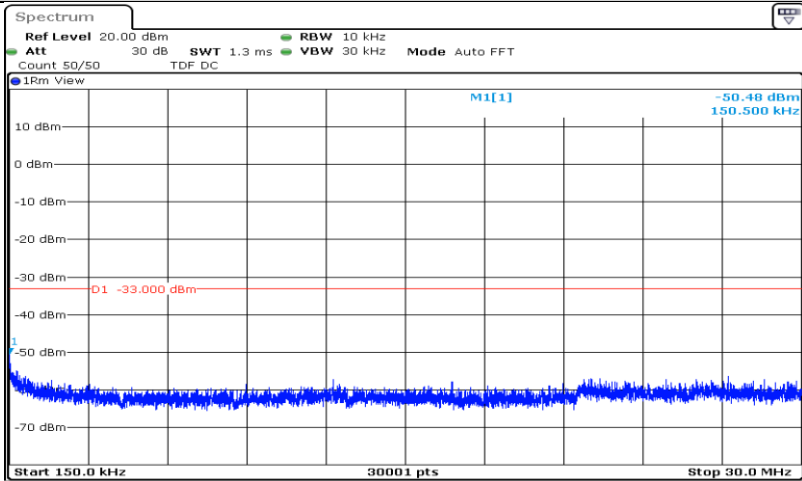
P  
 Date: 22.SEP.2020 13:39:49

### Band13-5MHz-QPSK-23230-1RB#0-Range1:0.009~0.15MHz



P  
 Date: 22.SEP.2020 13:41:30

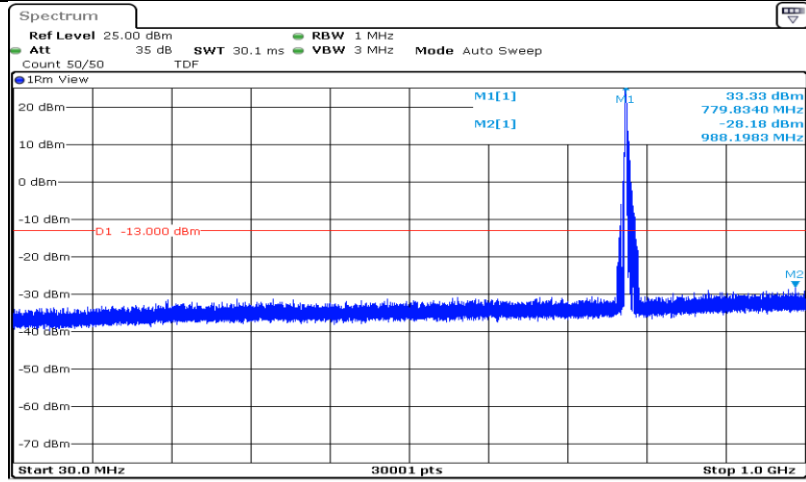
### Band13-5MHz-QPSK-23230-1RB#0-Range2:0.15~30MHz



P  
 Date: 22.SEP.2020 13:41:36

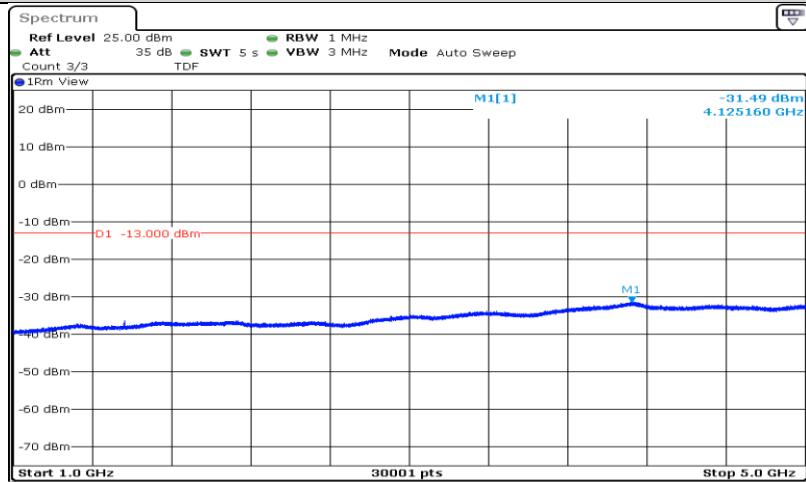
### Band13-5MHz-QPSK-23230-1RB#0-Range3:30~1000MHz





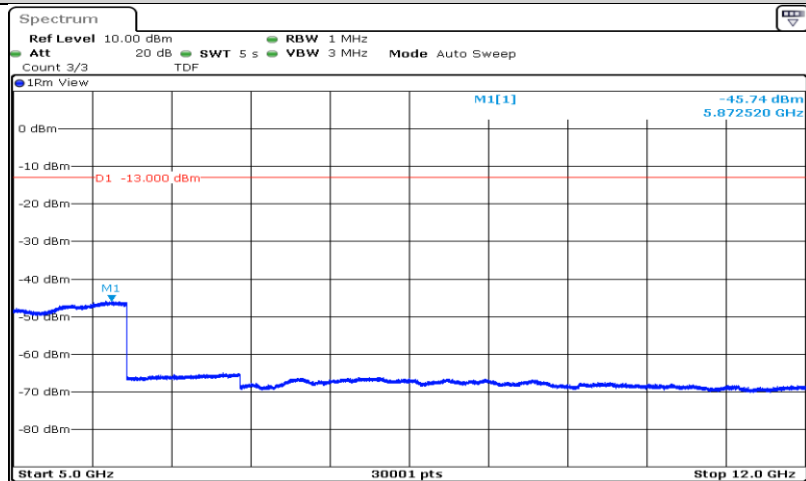
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Date: 22.SEP.2020 13:41:45

Band13-5MHz-QPSK-23230-1RB#0-Range4:1000~5000MHz



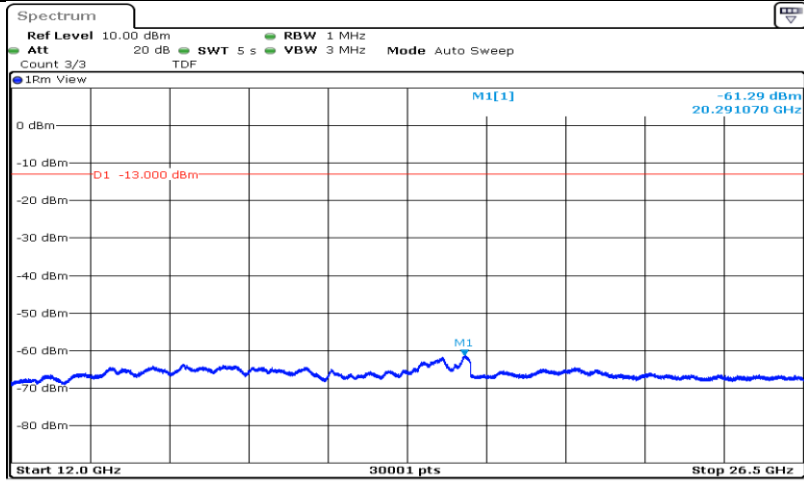
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Date: 22.SEP.2020 13:42:08

Band13-5MHz-QPSK-23230-1RB#0-Range5:5000~12000MHz



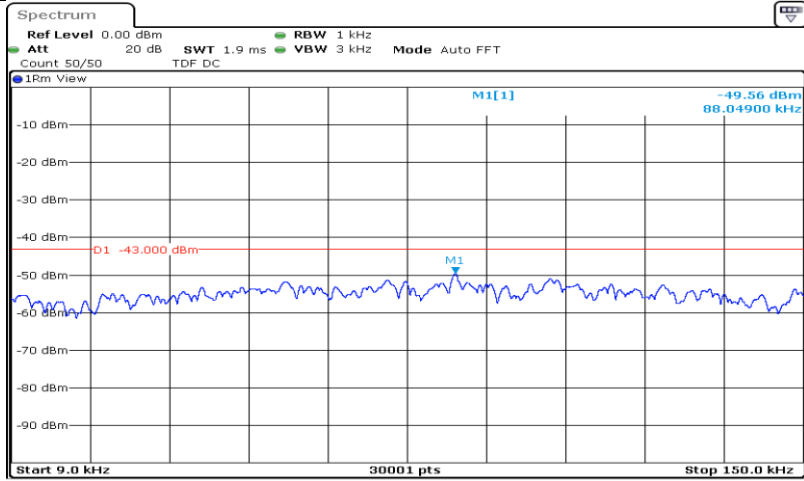
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Date: 22.SEP.2020 13:42:31

Band13-5MHz-QPSK-23230-1RB#0-Range6:12000~26500MHz



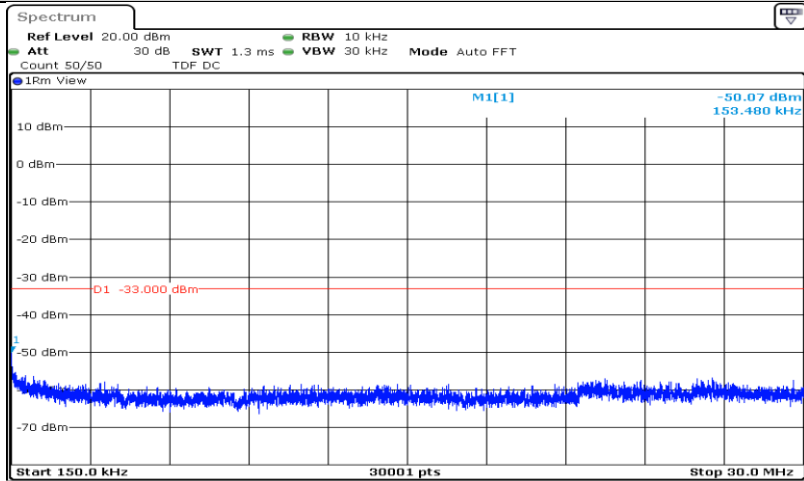
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Date: 22.SEP.2020 13:42:53

Band13-5MHz-QPSK-23255-1RB#0-Range1:0.009~0.15MHz



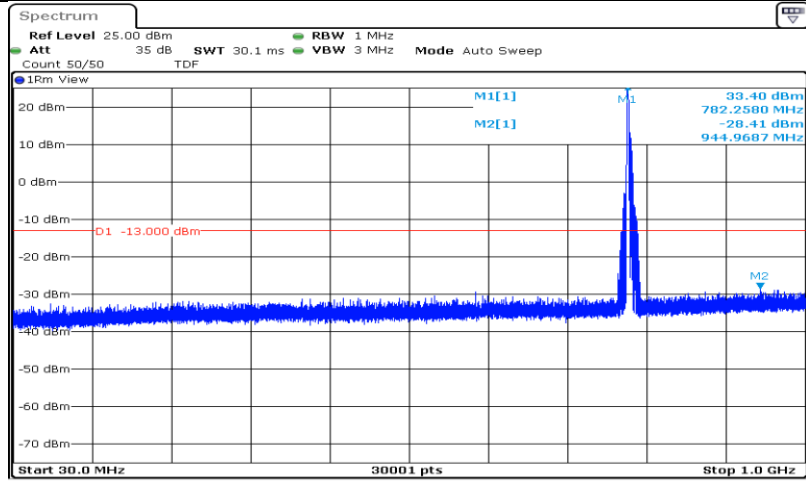
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Date: 22.SEP.2020 13:44:34

Band13-5MHz-QPSK-23255-1RB#0-Range2:0.15~30MHz



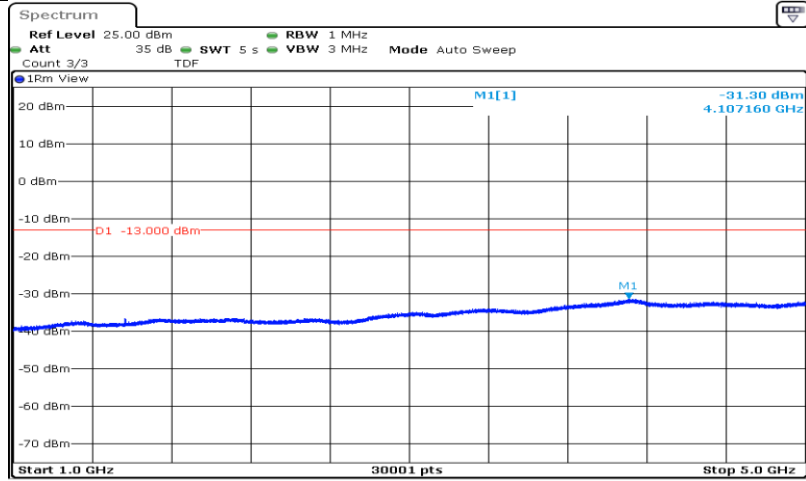
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Date: 22.SEP.2020 13:44:40

Band13-5MHz-QPSK-23255-1RB#0-Range3:30~1000MHz



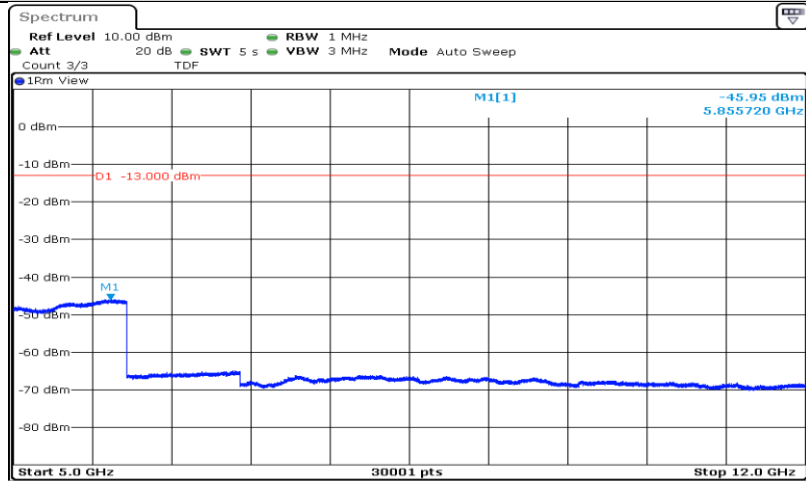
P  
Date: 22.SEP.2020 13:44:49

### Band13-5MHz-QPSK-23255-1RB#0-Range4:1000~5000MHz



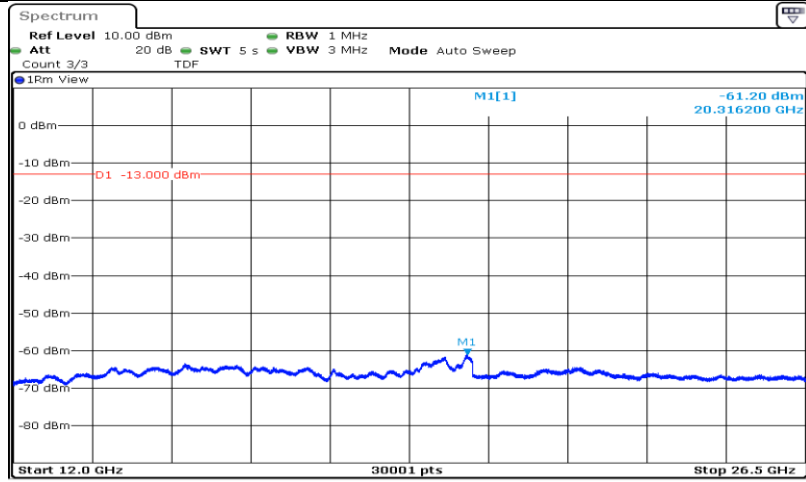
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Date: 22.SEP.2020 13:45:12

### Band13-5MHz-QPSK-23255-1RB#0-Range5:5000~12000MHz



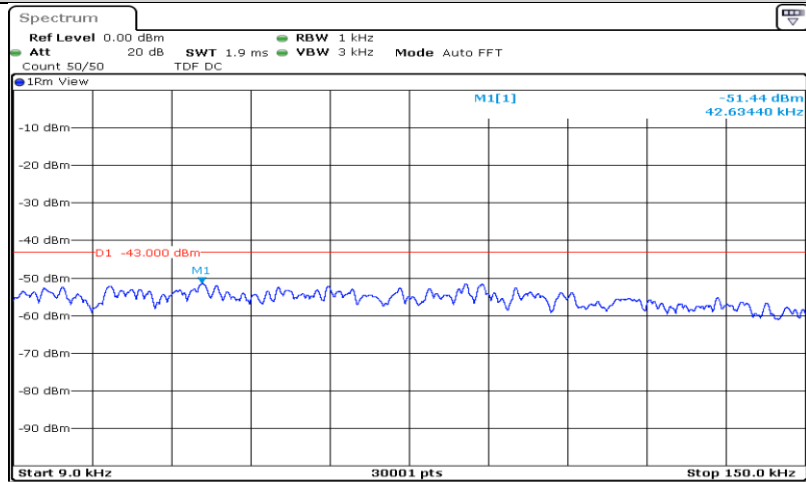
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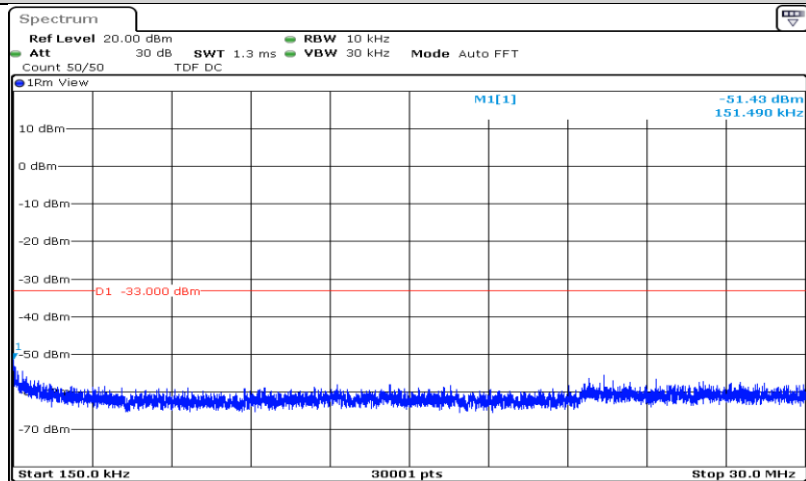
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Date: 22.SEP.2020 13:45:58

Band13-5MHz-16QAM-23205-1RB#0-Range1:0.009~0.15MHz



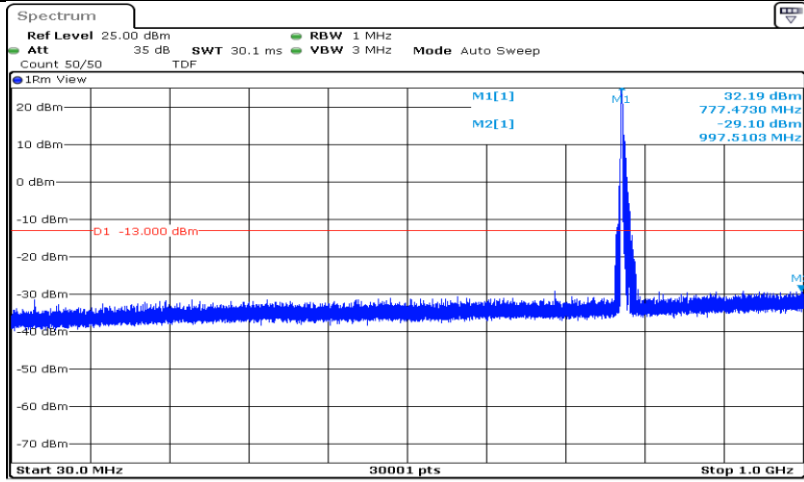
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Date: 22.SEP.2020 13:39:56

Band13-5MHz-16QAM-23205-1RB#0-Range2:0.15~30MHz



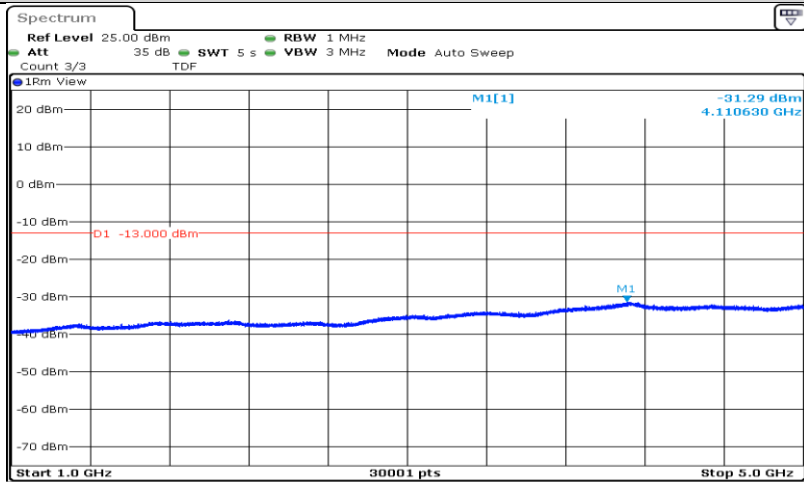
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Band13-5MHz-16QAM-23205-1RB#0-Range3:30~1000MHz



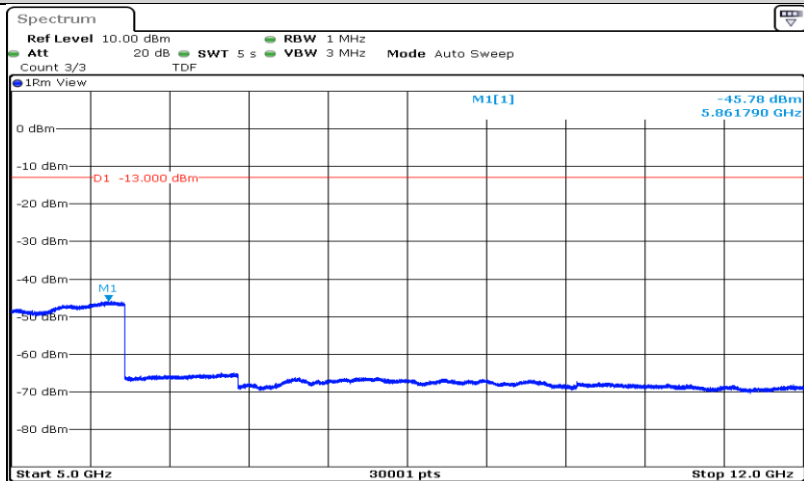
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Date: 22.SEP.2020 13:40:11

Band13-5MHz-16QAM-23205-1RB#0-Range4:1000~5000MHz



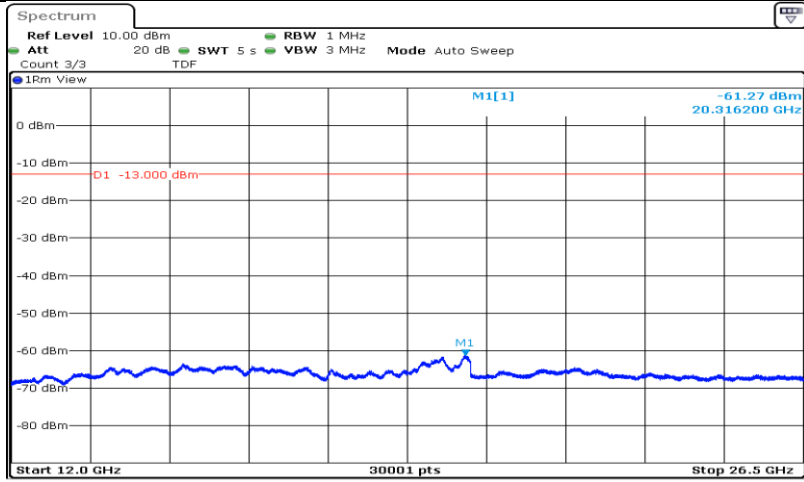
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Date: 22.SEP.2020 13:40:34

Band13-5MHz-16QAM-23205-1RB#0-Range5:5000~12000MHz



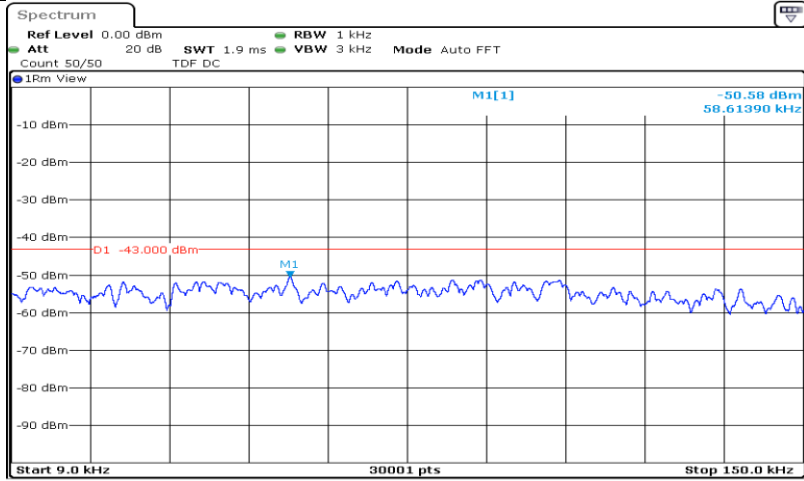
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Date: 22.SEP.2020 13:40:57

Band13-5MHz-16QAM-23205-1RB#0-Range6:12000~26500MHz



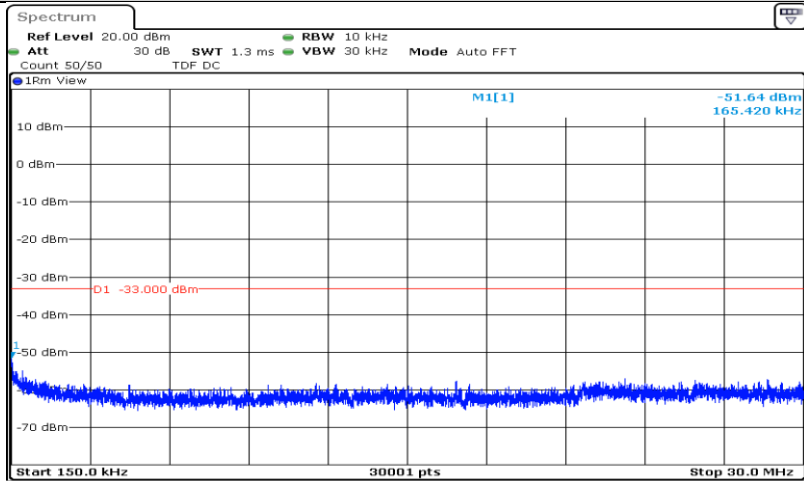
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Date: 22.SEP.2020 13:41:20

Band13-5MHz-16QAM-23230-1RB#0-Range1:0.009~0.15MHz



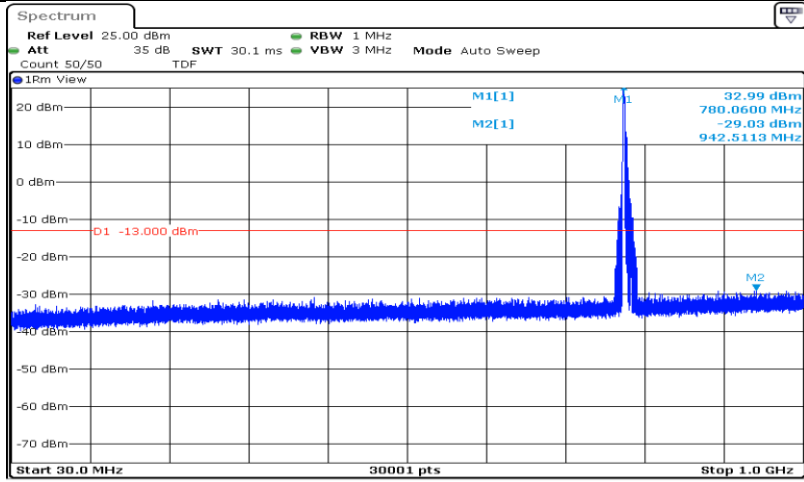
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Date: 22.SEP.2020 13:43:01

Band13-5MHz-16QAM-23230-1RB#0-Range2:0.15~30MHz



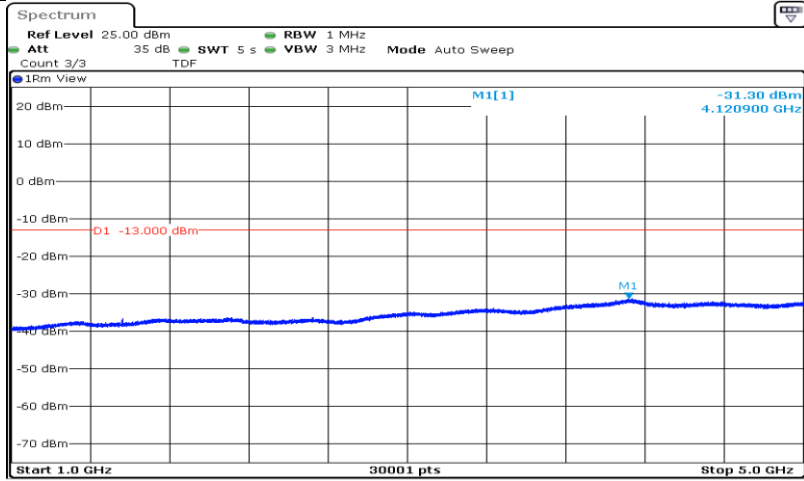
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Band13-5MHz-16QAM-23230-1RB#0-Range3:30~1000MHz



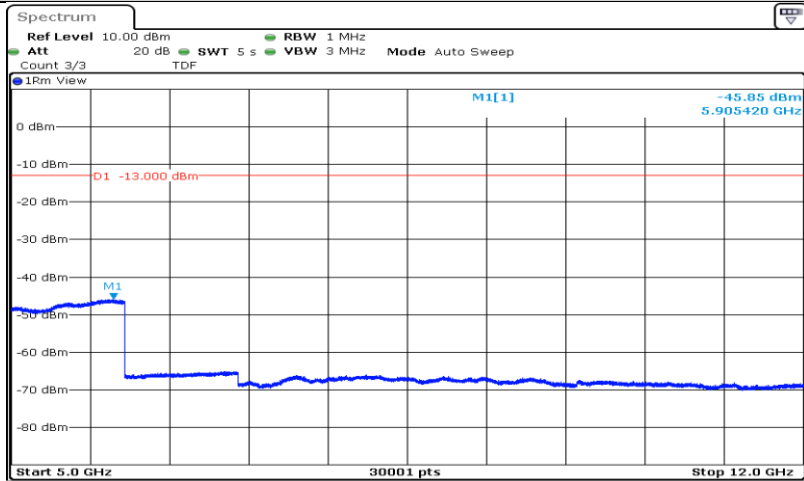
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Date: 22.SEP.2020 13:43:16

**Band13-5MHz-16QAM-23230-1RB#0-Range4:1000~5000MHz**



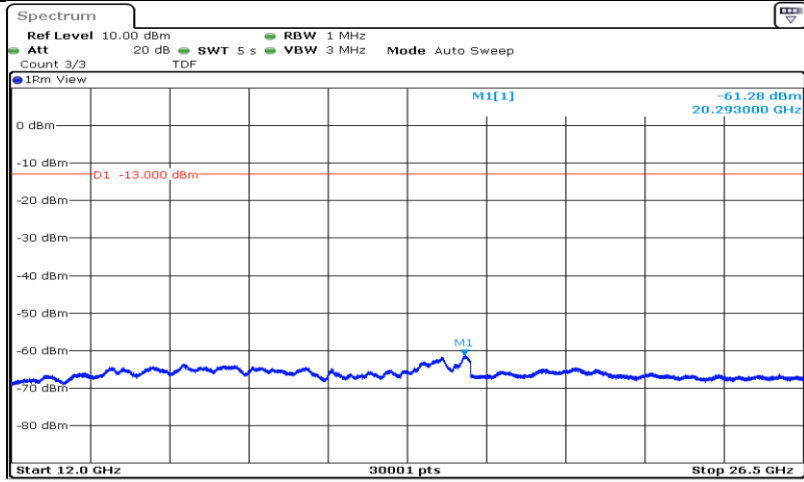
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Date: 22.SEP.2020 13:43:39

**Band13-5MHz-16QAM-23230-1RB#0-Range5:5000~12000MHz**



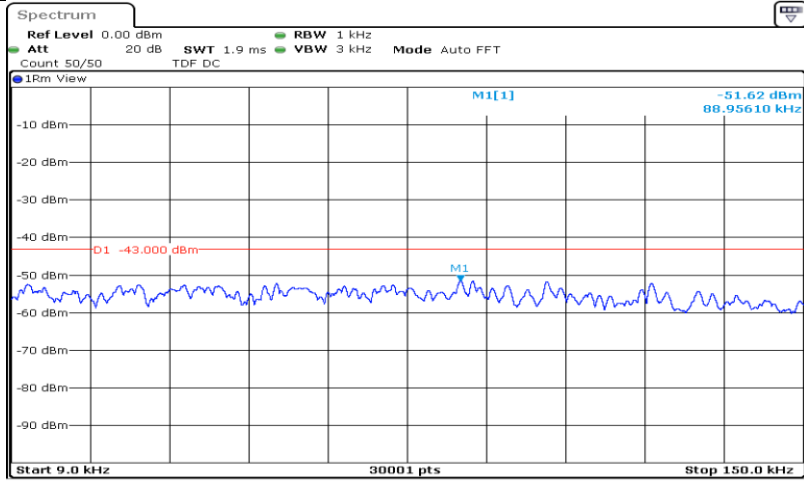
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Date: 22.SEP.2020 13:44:02

**Band13-5MHz-16QAM-23230-1RB#0-Range6:12000~26500MHz**



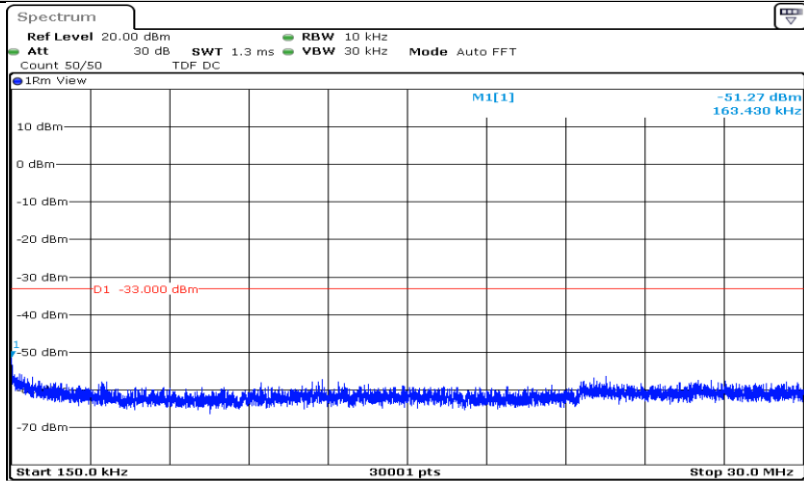
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 Date: 22.SEP.2020 13:44:25

**Band13-5MHz-16QAM-23255-1RB#0-Range1:0.009~0.15MHz**



P  
 Date: 22.SEP.2020 13:46:06

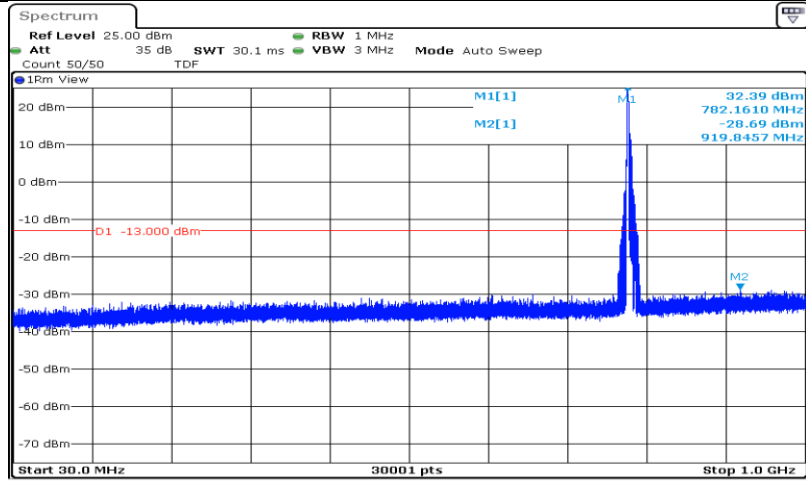
**Band13-5MHz-16QAM-23255-1RB#0-Range2:0.15~30MHz**



P  
 Date: 22.SEP.2020 13:46:12

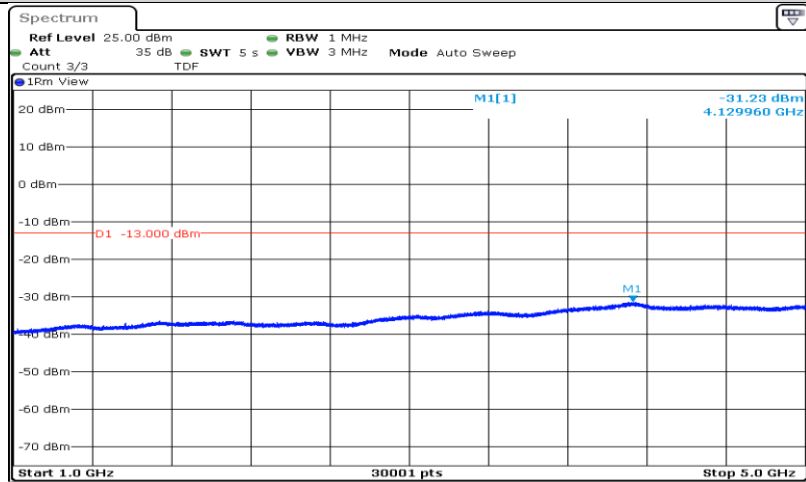
**Band13-5MHz-16QAM-23255-1RB#0-Range3:30~1000MHz**





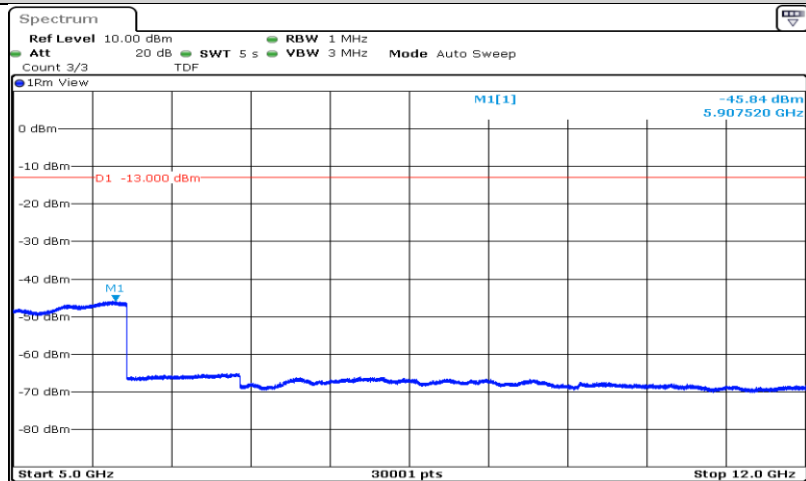
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Date: 22.SEP.2020 13:46:21

Band13-5MHz-16QAM-23255-1RB#0-Range4:1000~5000MHz



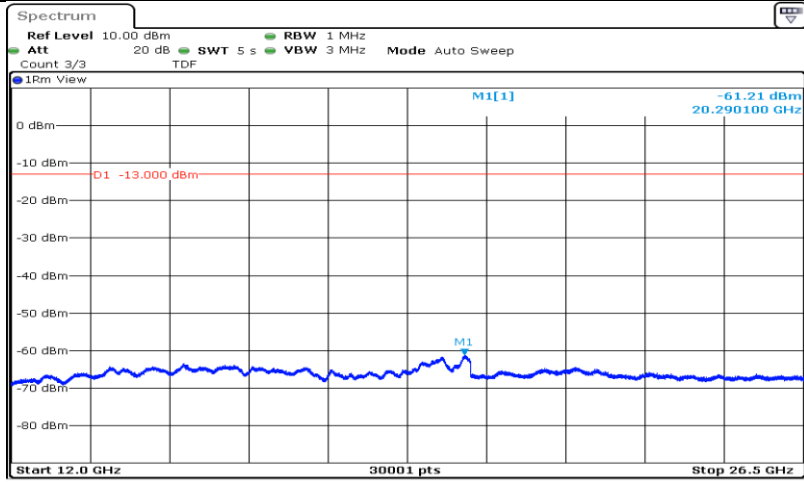
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Date: 22.SEP.2020 13:46:44

Band13-5MHz-16QAM-23255-1RB#0-Range5:5000~12000MHz



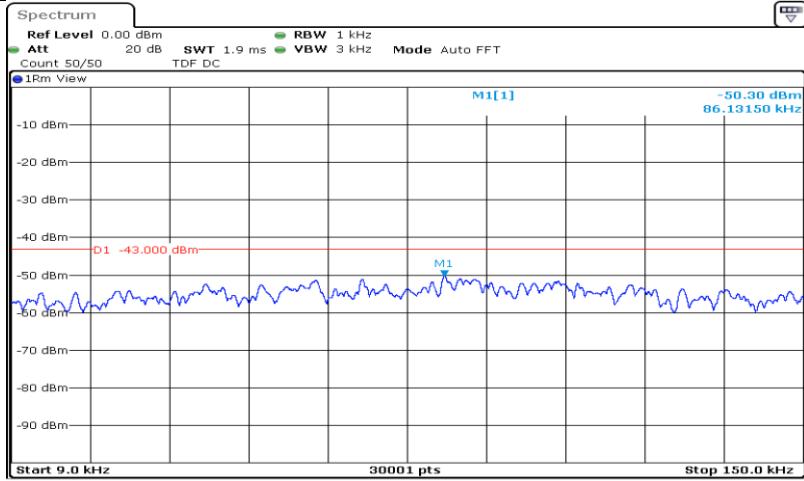
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Date: 22.SEP.2020 13:47:07

Band13-5MHz-16QAM-23255-1RB#0-Range6:12000~26500MHz



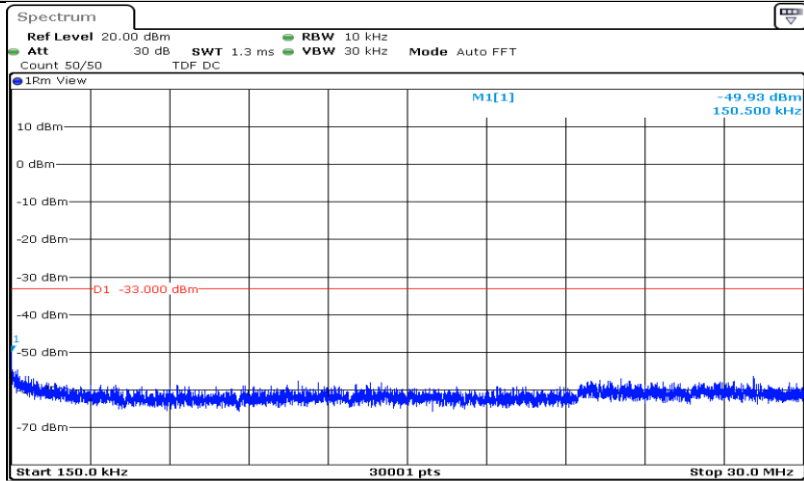
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 Date: 22.SEP.2020 13:47:30

### Band13-10MHz-QPSK-23230-1RB#0-Range1:0.009~0.15MHz



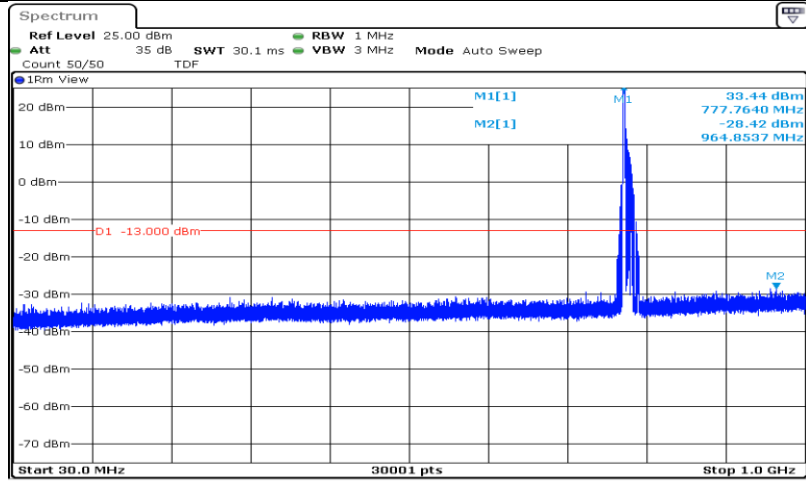
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### Band13-10MHz-QPSK-23230-1RB#0-Range2:0.15~30MHz



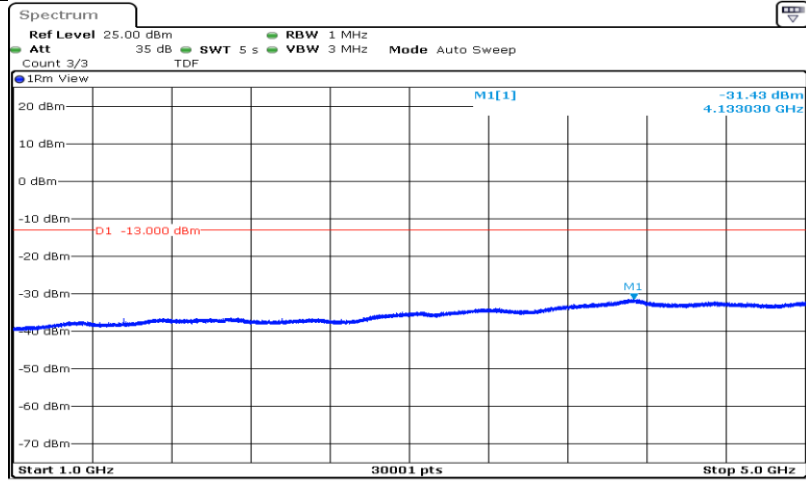
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### Band13-10MHz-QPSK-23230-1RB#0-Range3:30~1000MHz



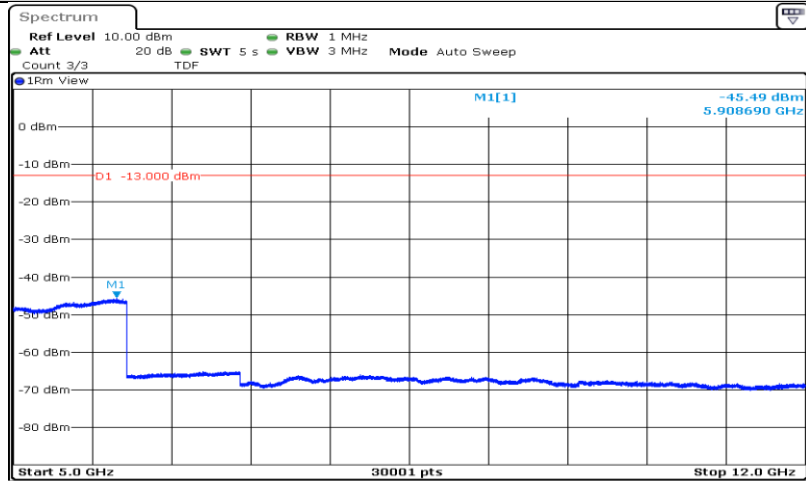
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 Date: 22.SEP.2020 13:54:06

### Band13-10MHz-QPSK-23230-1RB#0-Range4:1000~5000MHz



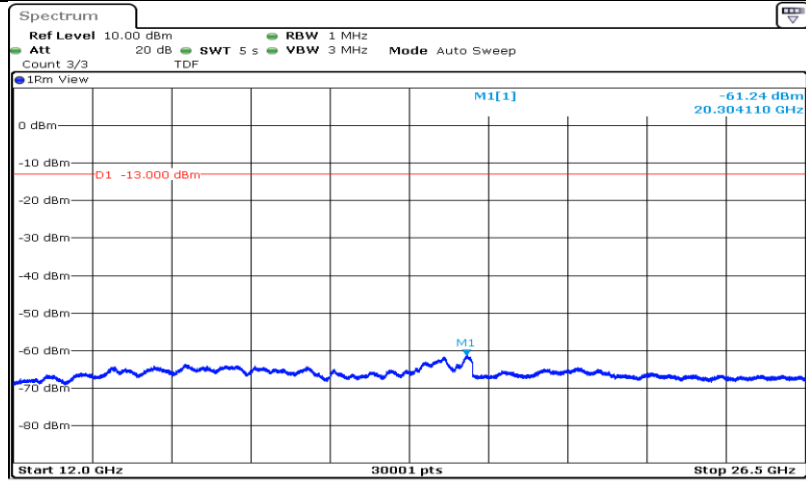
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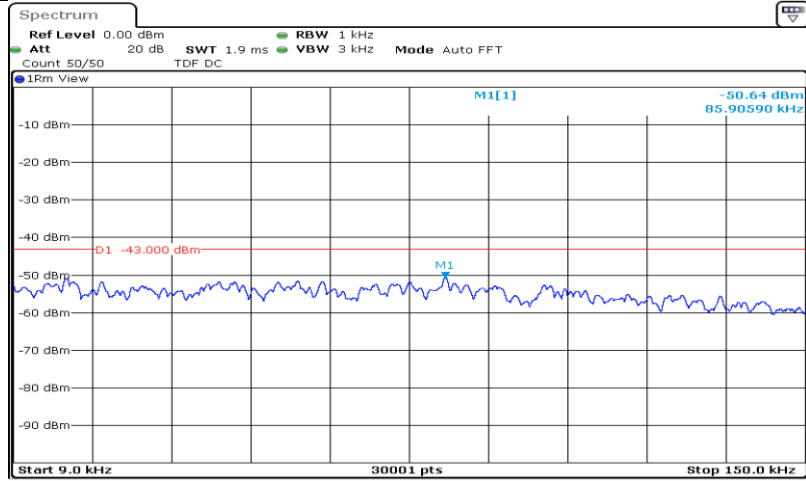
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 Date: 22.SEP.2020 13:54:52

### Band13-10MHz-QPSK-23230-1RB#0-Range6:12000~26500MHz



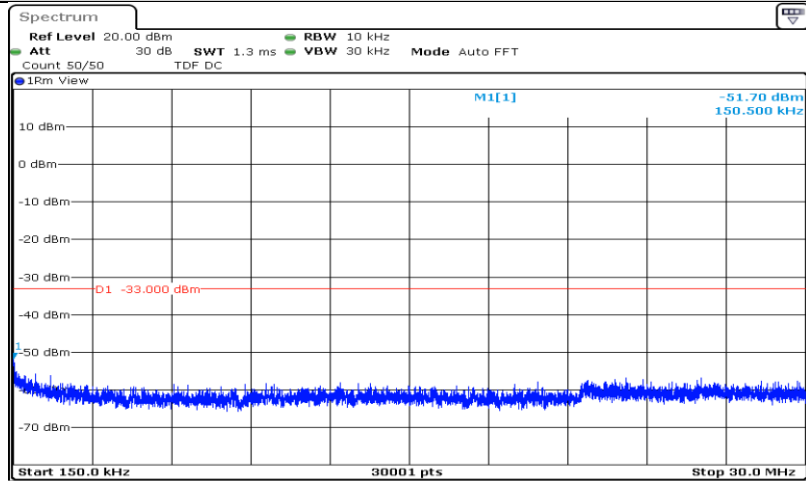
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Date: 22.SEP.2020 13:55:15

**Band13-10MHz-16QAM-23230-1RB#0-Range1:0.009~0.15MHz**



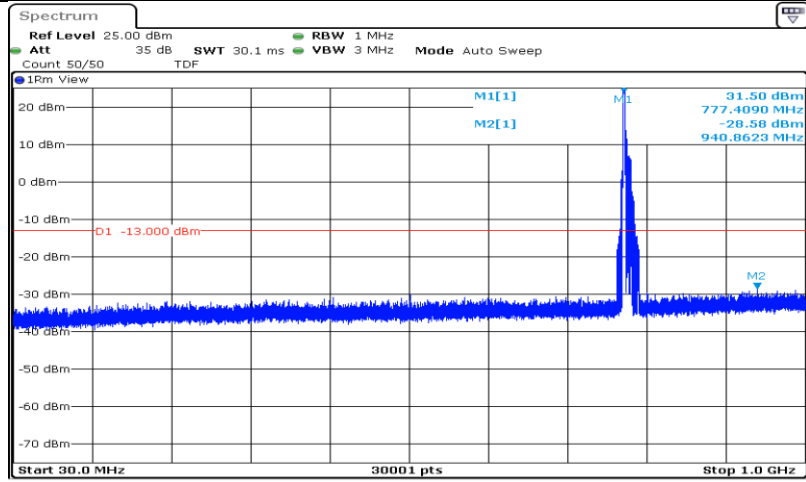
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Date: 22.SEP.2020 13:55:22

**Band13-10MHz-16QAM-23230-1RB#0-Range2:0.15~30MHz**



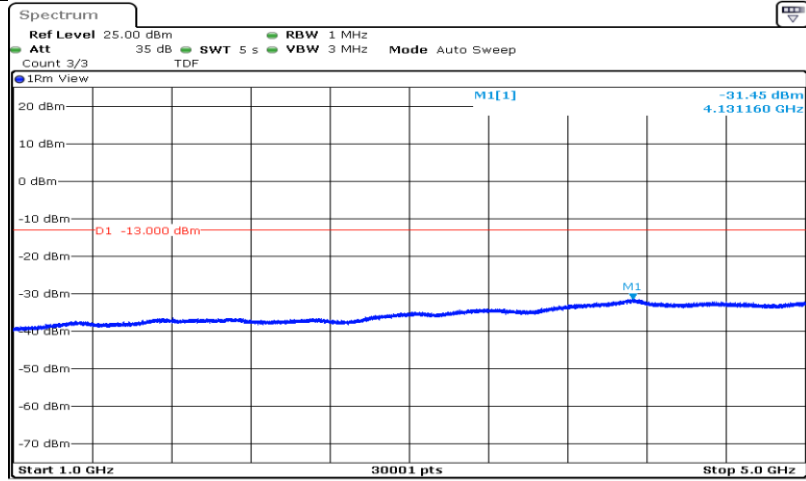
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Date: 22.SEP.2020 13:55:29

**Band13-10MHz-16QAM-23230-1RB#0-Range3:30~1000MHz**



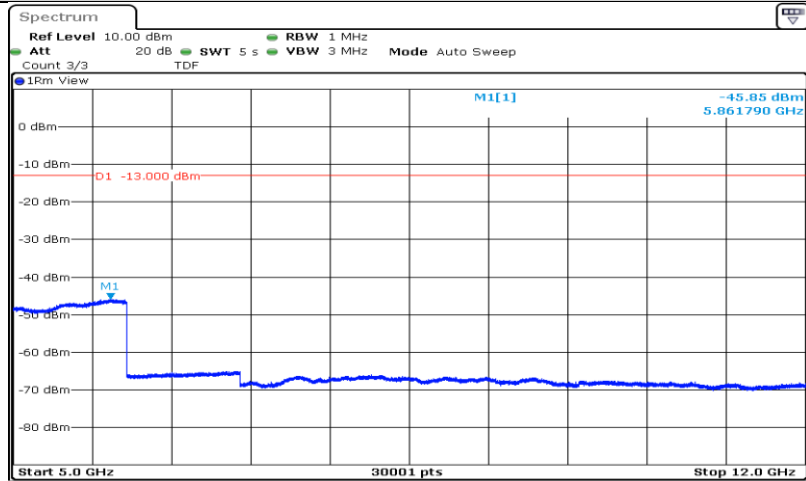
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 Date: 22.SEP.2020 13:55:37

**Band13-10MHz-16QAM-23230-1RB#0-Range4:1000~5000MHz**



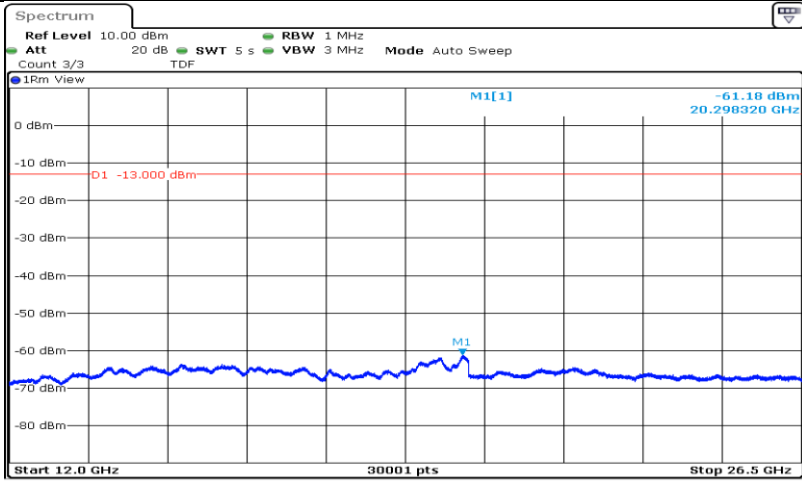
P  
 Date: 22.SEP.2020 13:56:00

**Band13-10MHz-16QAM-23230-1RB#0-Range5:5000~12000MHz**



P  
 Date: 22.SEP.2020 13:56:23

**Band13-10MHz-16QAM-23230-1RB#0-Range6:12000~26500MHz**



P  
Date: 22.SEP.2020 13:56:46

## Appendix G Field Strength of Spurious Radiation

The transmitting equipment under test (EUT) is placed on a styrene turntable which is four feet in diameter and approximately 0.8 meter up to 1GHz and 1.5 meter above 1GHz in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. The emissions were very low against the limit in the frequency range 9kHz to 30MHz.

Note: We tested all modes, but the data presented below is the worst case.

9kHz~150kHz, VBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, VBW = 9kHz, VBW = 30k Hz, Detector: PK

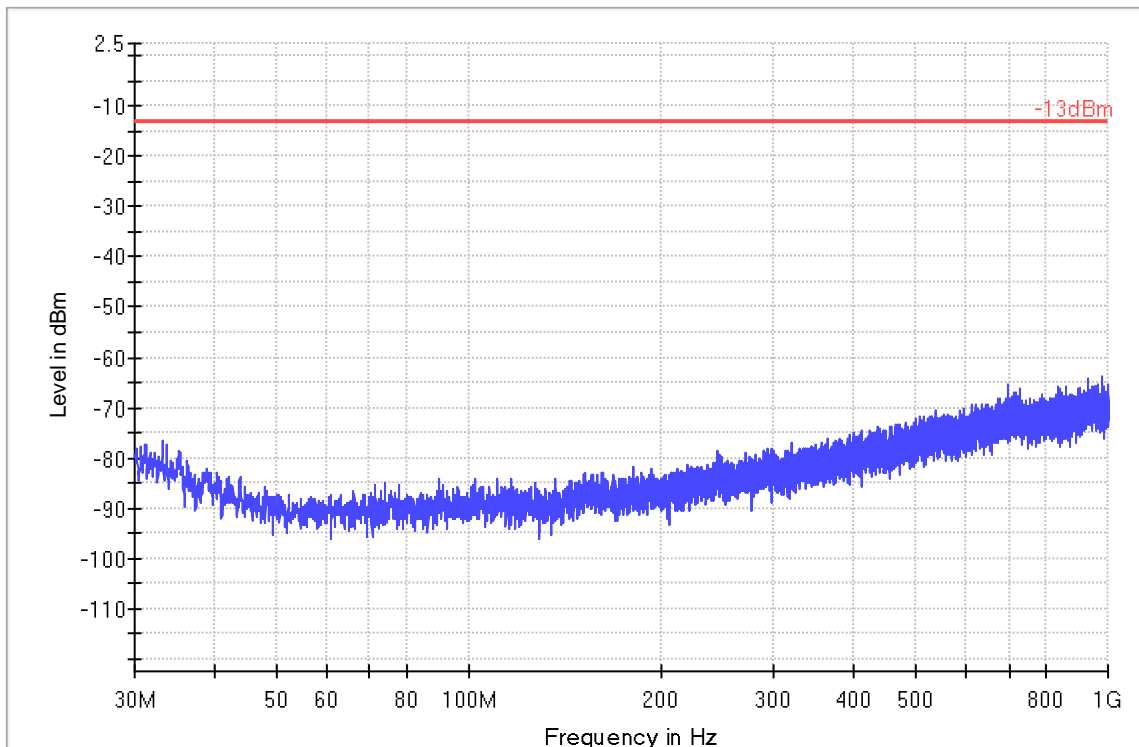
30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

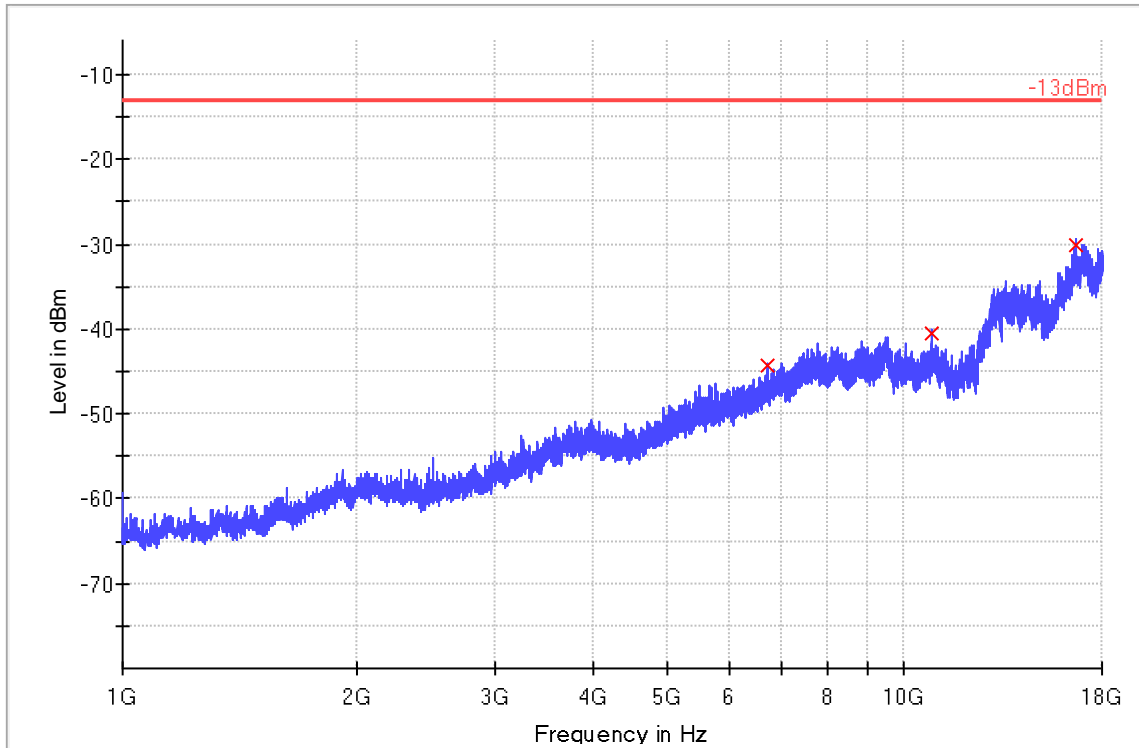
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

### Test Plots

Test Band = BAND13

Worst Test Bandwidth = 10MHz







## Appendix H: Frequency Stability

### Test Result

Frequency Error vs. Voltage:

Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	VL	NT	23.33	0.029929	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	VN	NT	40.81	0.052354	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	VH	NT	-5.44	-0.006979	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VL	NT	5.49	0.007020	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VN	NT	8.23	0.010524	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	VH	NT	-15.34	-0.019616	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VL	NT	7.04	0.008974	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VN	NT	8.00	0.010198	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	VH	NT	-7.21	-0.009191	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VL	NT	-12.19	-0.015638	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VN	NT	-13.62	-0.017473	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	VH	NT	2.99	0.003836	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VL	NT	-13.26	-0.016957	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VN	NT	-19.13	-0.024463	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	VH	NT	-7.40	-0.009463	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VL	NT	-38.55	-0.049140	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VN	NT	-43.59	-0.055564	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	VH	NT	-33.10	-0.042192	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VL	NT	5.85	0.007481	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VN	NT	11.97	0.015307	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	VH	NT	-9.61	-0.012289	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VL	NT	-32.40	-0.041432	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VN	NT	-40.80	-0.052174	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	VH	NT	-23.59	-0.030166	±2.5	PASS

Frequency Error vs. Temperature:

Band	Bandwidth	Modulation	Channel	RB Configure	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band13	5MHz	QPSK	23205	25RB#0	NV	-20	-25.36	-0.03253	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	-10	-33.87	-0.04345	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	0	-39.88	-0.05116	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	10	-45.93	-0.05892	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	20	-49.94	-0.06407	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	30	-53.63	-0.0688	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	40	-7.3	-0.00937	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	50	-9.66	-0.01239	±2.5	PASS
Band13	5MHz	QPSK	23205	25RB#0	NV	60	-11.74	-0.01506	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-20	-35.86	-0.04586	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	-10	-40.81	-0.05219	±2.5	PASS

## Total Quality. Assured.

Band13	5MHz	QPSK	23230	25RB#0	NV	0	-46.08	-0.05893	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	10	-51.53	-0.0659	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	20	-55.17	-0.07055	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	30	-8.1	-0.01036	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	40	-9.67	-0.01237	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	50	-12.62	-0.01614	±2.5	PASS
Band13	5MHz	QPSK	23230	25RB#0	NV	60	-15.23	-0.01948	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-20	-18.8	-0.02396	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	-10	-23.67	-0.03017	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	0	-26.87	-0.03425	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	10	-31.97	-0.04075	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	20	-33.57	-0.04279	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	30	-34.23	-0.04363	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	40	-36.06	-0.04597	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	50	-38.34	-0.04887	±2.5	PASS
Band13	5MHz	QPSK	23255	25RB#0	NV	60	-41.04	-0.05231	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-20	10.31	0.013226	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	-10	15.32	0.019654	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	0	17.71	0.02272	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	10	20.73	0.026594	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	20	22.96	0.029455	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	30	24.88	0.031918	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	40	26.14	0.033534	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	50	30.38	0.038974	±2.5	PASS
Band13	5MHz	16QAM	23205	25RB#0	NV	60	28.95	0.037139	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-20	8.4	0.010742	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	-10	11.69	0.014949	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	0	15.19	0.019425	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	10	17.45	0.022315	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	20	19.54	0.024987	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	30	21.46	0.027442	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	40	22.65	0.028964	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	50	24.63	0.031496	±2.5	PASS
Band13	5MHz	16QAM	23230	25RB#0	NV	60	24.76	0.031662	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	-20	-20.61	-0.02627	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	-10	-16.99	-0.02166	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	0	-12.3	-0.01568	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	10	-10.09	-0.01286	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	20	-8.03	-0.01024	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	30	-5.34	-0.00681	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	40	-4.69	-0.00598	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	50	3.88	0.004946	±2.5	PASS
Band13	5MHz	16QAM	23255	25RB#0	NV	60	5.12	0.006526	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-20	-20.57	-0.0263	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	-10	-23.2	-0.02967	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	0	-27.82	-0.03558	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	10	-28.77	-0.03679	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	20	-31.71	-0.04055	±2.5	PASS

## Total Quality. Assured.

Band13	10MHz	QPSK	23230	50RB#0	NV	30	-33.42	-0.04274	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	40	-34.19	-0.04372	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	50	-37.18	-0.04755	±2.5	PASS
Band13	10MHz	QPSK	23230	50RB#0	NV	60	-38.12	-0.04875	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-20	-10.99	-0.01405	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	-10	-6.09	-0.00779	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	0	4.82	0.006164	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	10	8.53	0.010908	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	20	9.2	0.011765	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	30	11.19	0.014309	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	40	14.88	0.019028	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	50	16.47	0.021061	±2.5	PASS
Band13	10MHz	16QAM	23230	50RB#0	NV	60	18.73	0.023951	±2.5	PASS

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