



Appendix B

WCDMA Band II & IV & V



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1. Effective (Isotropic) Radiated Power

1.1. Test Result

Band	Modulation	Channel	Conducted Power(dBm)	EIRP (dBm)	Limit (dBm)	Verdict
Band II	QPSK	9262	22.23	21.23	33.00	PASS
Band II	QPSK	9400	22.51	21.51	33.00	PASS
Band II	QPSK	9538	22.83	21.83	33.00	PASS
Band II	16QAM	9262	19.05	18.05	33.00	PASS
Band II	16QAM	9400	19.08	18.08	33.00	PASS
Band II	16QAM	9538	19.13	18.13	33.00	PASS
Band IV	QPSK	1312	23.33	23.03	30.00	PASS
Band IV	QPSK	1413	23.41	23.11	30.00	PASS
Band IV	QPSK	1513	23.47	23.17	30.00	PASS
Band IV	16QAM	1312	20.01	19.71	30.00	PASS
Band IV	16QAM	1413	19.96	19.66	30.00	PASS
Band IV	16QAM	1513	19.99	19.69	30.00	PASS

Band	Modulation	Channel	Conducted Power(dBm)	ERP (dBm)	Limit (dBm)	Verdict
Band V	QPSK	4132	22.05	18.11	38.45	PASS
Band V	QPSK	4182	21.99	18.05	38.45	PASS
Band V	QPSK	4233	21.97	18.03	38.45	PASS
Band V	16QAM	4132	19.03	15.09	38.45	PASS
Band V	16QAM	4182	18.96	15.02	38.45	PASS
Band V	16QAM	4233	19.11	15.17	38.45	PASS

Remark:

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

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

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



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2. Peak-to-Average Ratio(CCDF)

2.1. Test Result

Band	Modulation	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	QPSK	9262	2.49	13	PASS
Band II	QPSK	9400	2.49	13	PASS
Band II	QPSK	9538	2.61	13	PASS
Band II	16QAM	9262	2.55	13	PASS
Band II	16QAM	9400	2.72	13	PASS
Band II	16QAM	9538	2.58	13	PASS
Band IV	QPSK	1312	2.64	13	PASS
Band IV	QPSK	1413	2.87	13	PASS
Band IV	QPSK	1513	2.70	13	PASS
Band IV	16QAM	1312	2.64	13	PASS
Band IV	16QAM	1413	2.90	13	PASS
Band IV	16QAM	1513	2.70	13	PASS
Band V	QPSK	4132	2.61	13	PASS
Band V	QPSK	4182	2.90	13	PASS
Band V	QPSK	4233	2.38	13	PASS
Band V	16QAM	4132	2.58	13	PASS
Band V	16QAM	4182	2.87	13	PASS
Band V	16QAM	4233	2.29	13	PASS



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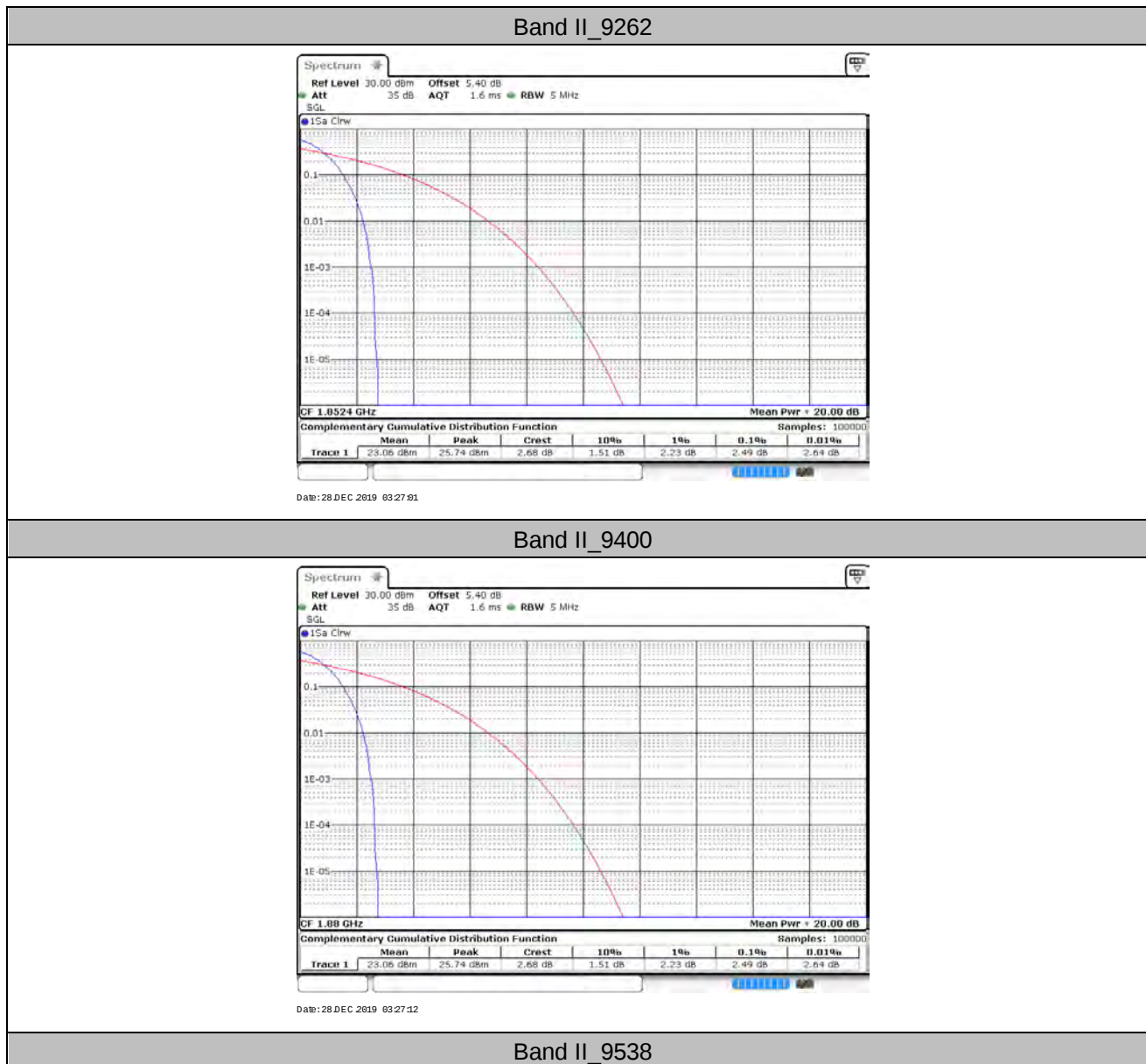
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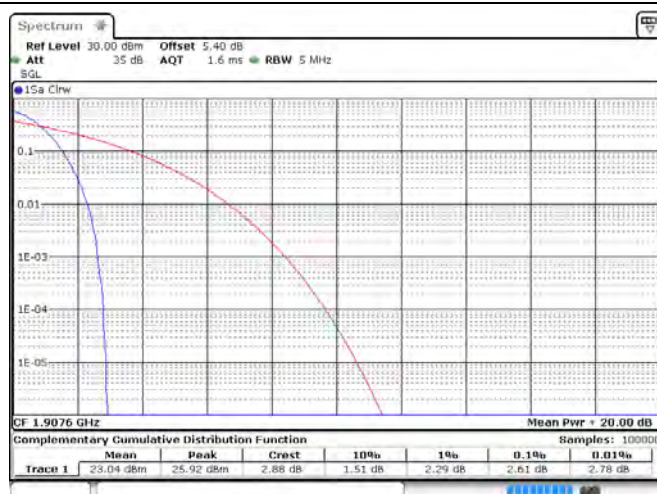
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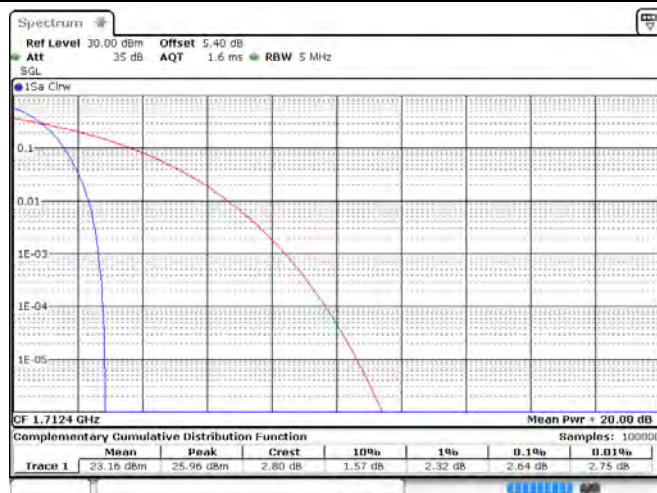
2.2. Test Plots for QPSK





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Band IV_1312



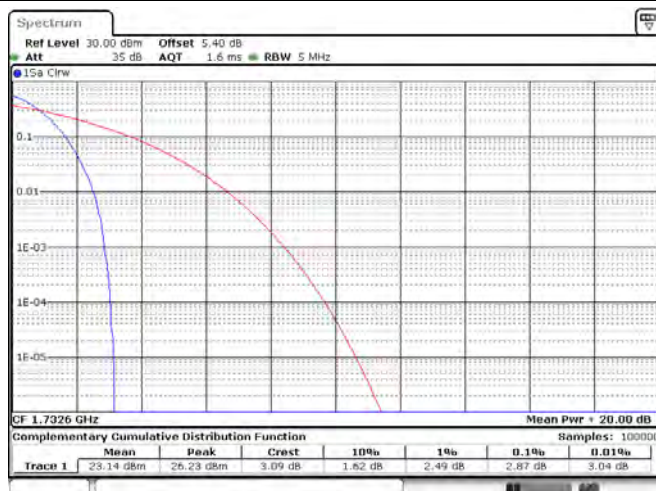
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Band IV_1413



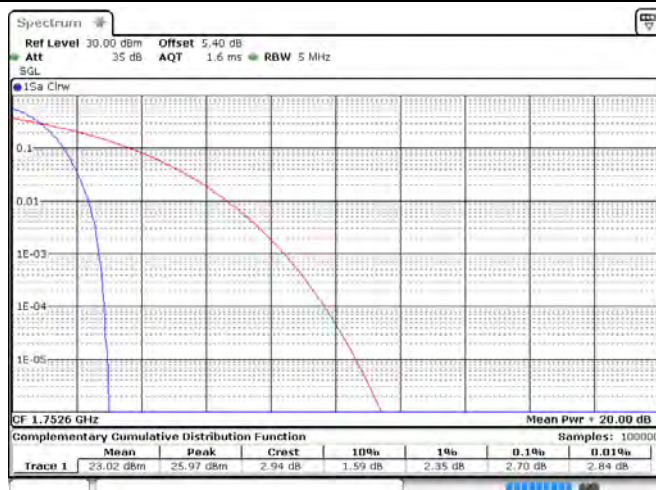
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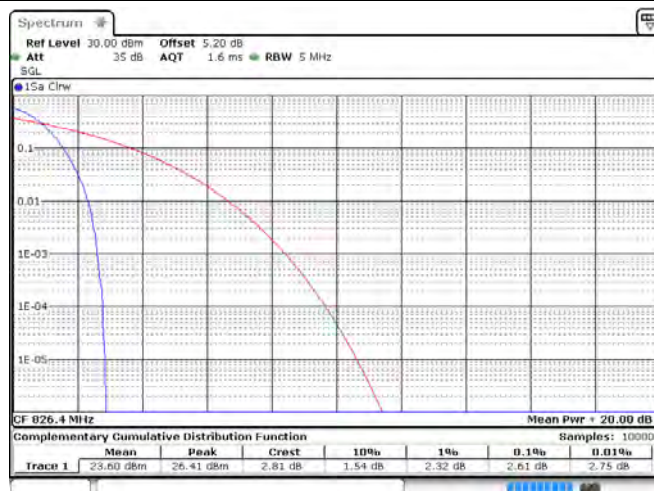
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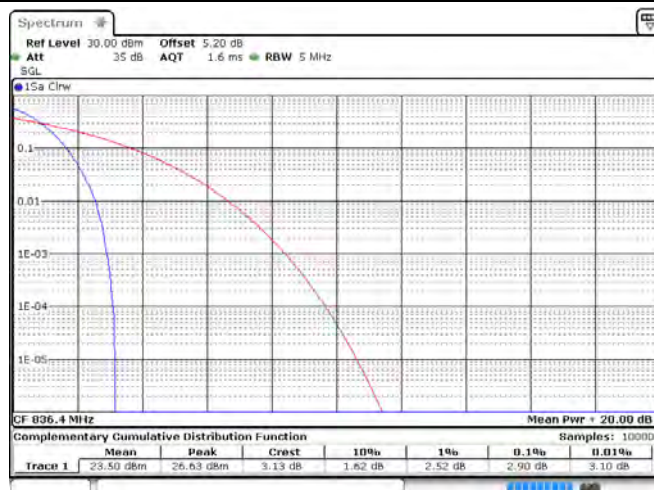
Band V_4132





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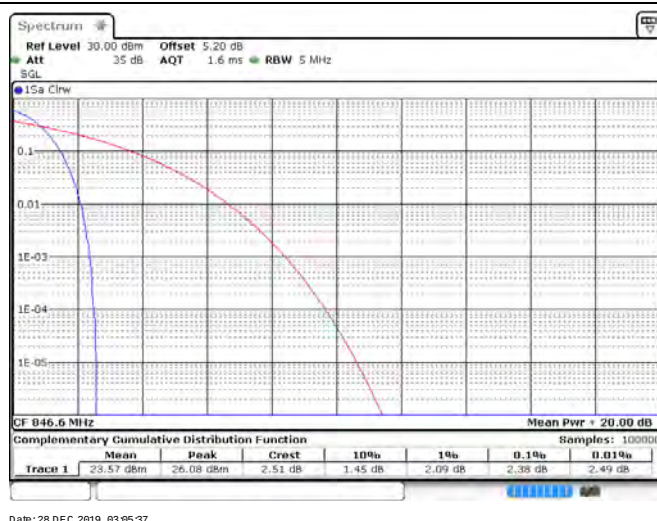
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Band V_4233

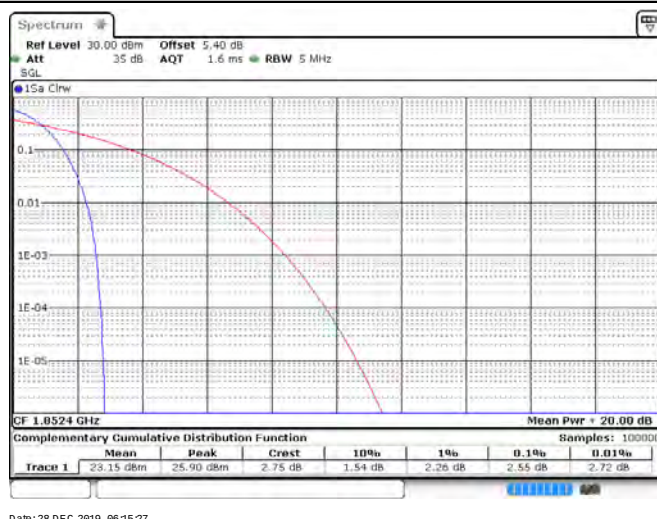




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2.3. Test Plots for 16QAM

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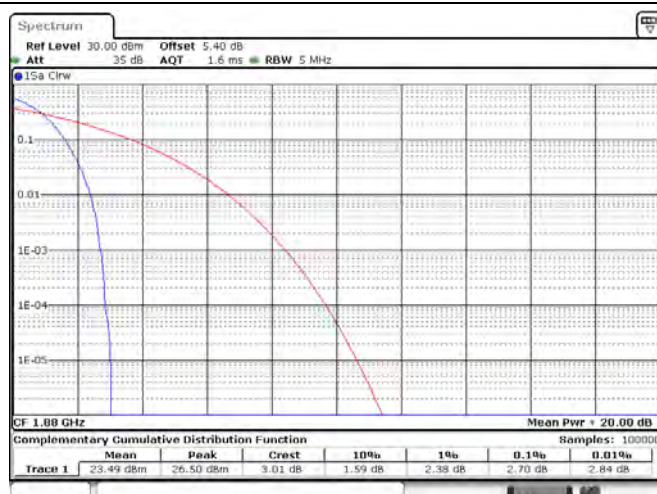
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Band II_9400



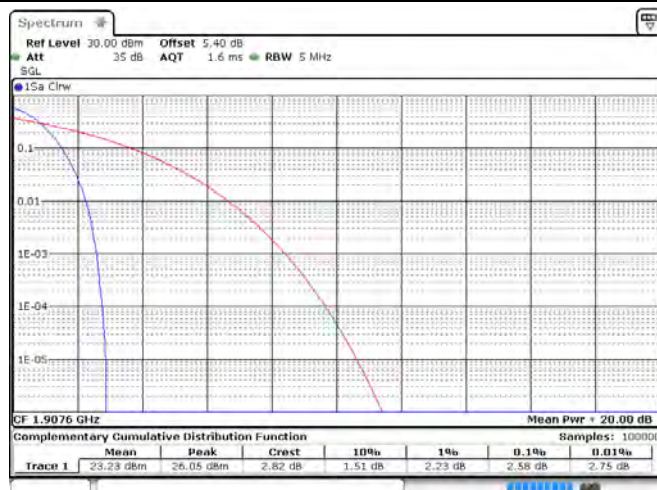
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Band II_9538



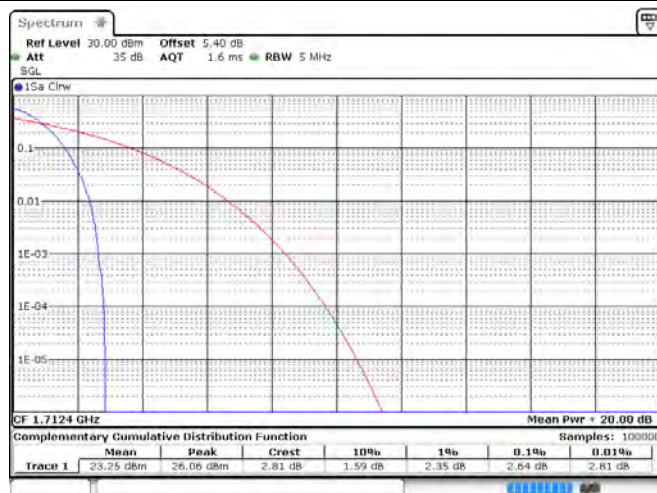
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Band IV_1312



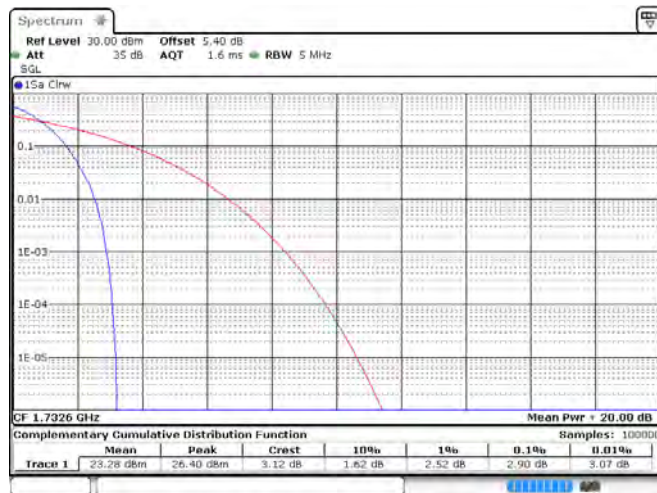
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Band IV_1413



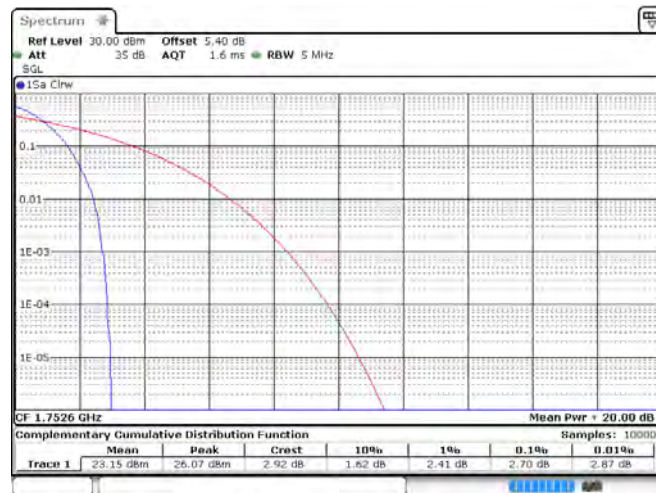
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Band IV_1513



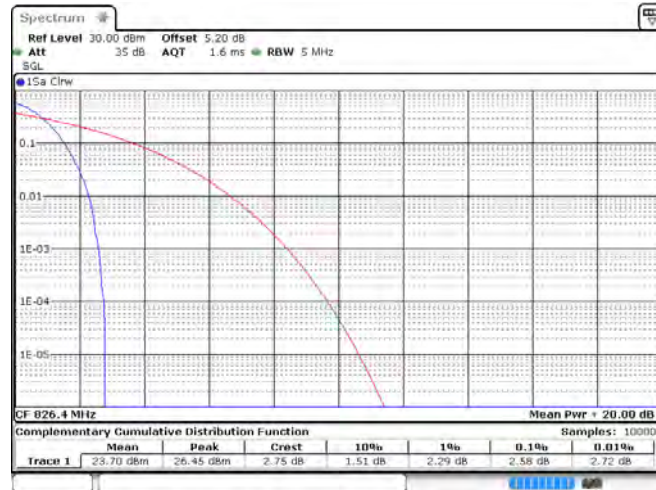
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Band V_4132



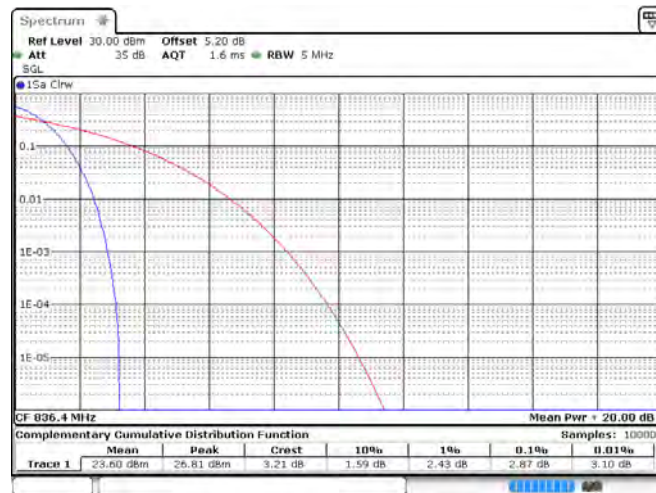
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Band V_4182



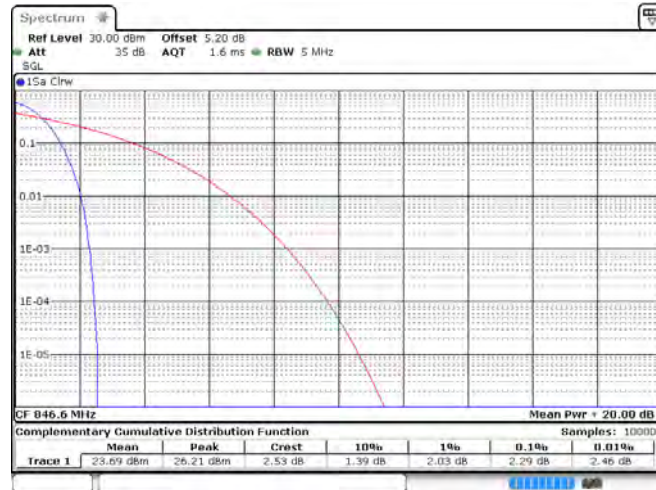
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Band V_4233



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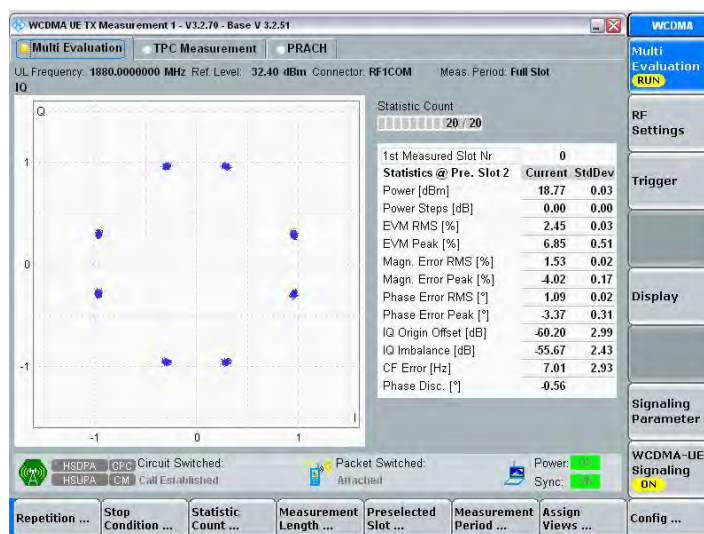
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3. Modulation Characteristics

3.1. Test Band = WCDMA Band II

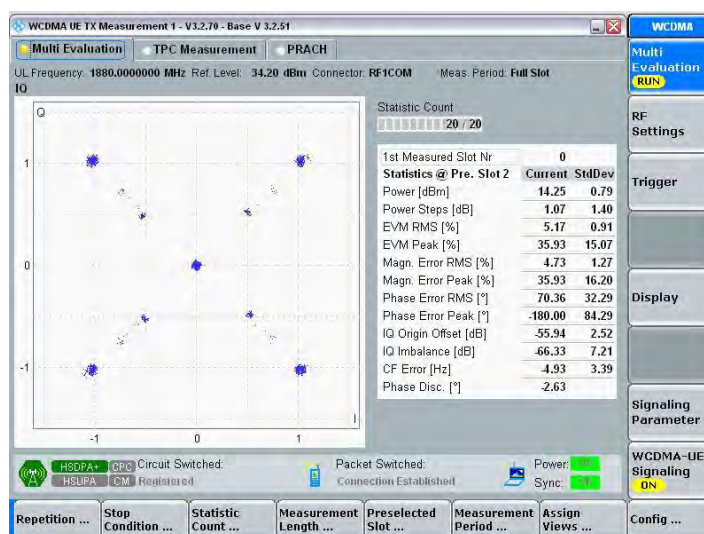
3.1.1. Test Mode = UMTS/TM1

3.1.1.1. Test Channel = MCH



3.1.2. Test Mode = UMTS/TM2

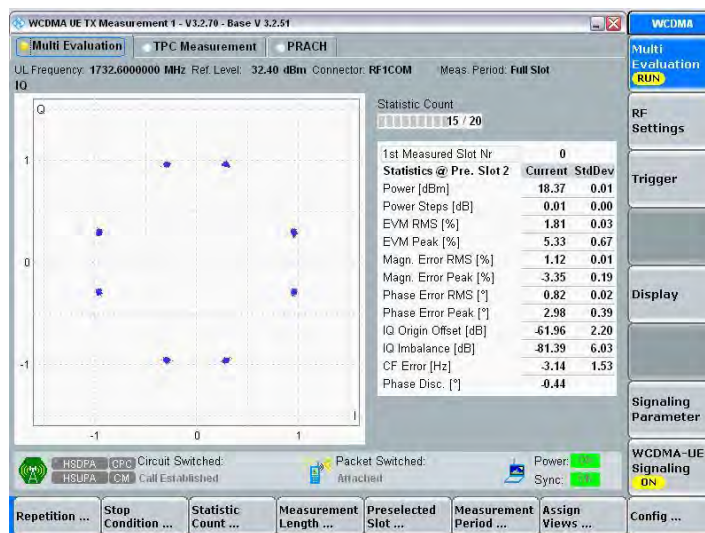
3.1.2.1. Test Channel = MCH



3.2. Test Band = WCDMA Band IV

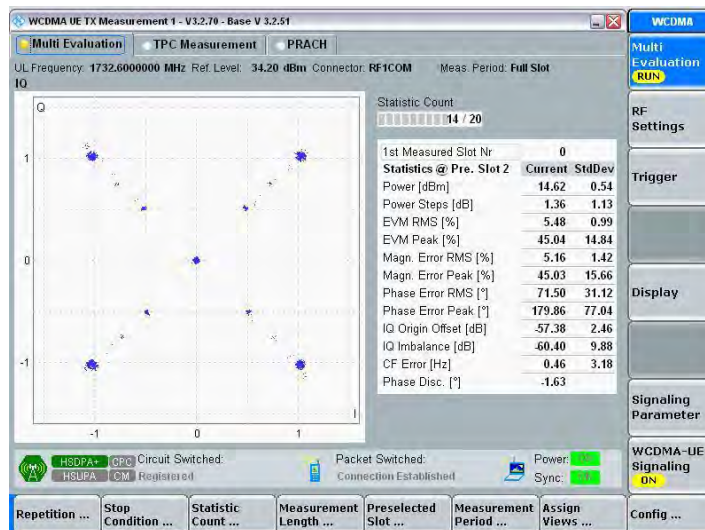
3.2.1. Test Mode = UMTS/TM1

3.2.1.1. Test Channel = MCH



3.2.2. Test Mode = UMTS/TM2

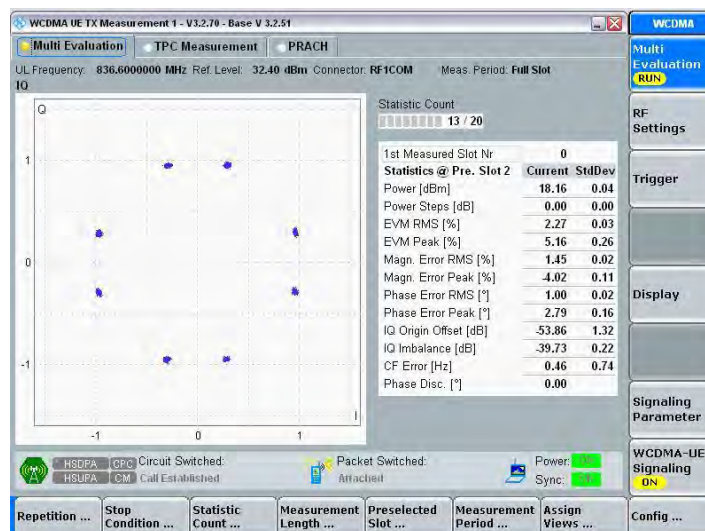
3.2.2.1. Test Channel = MCH



3.3. Test Band = WCDMA Band V

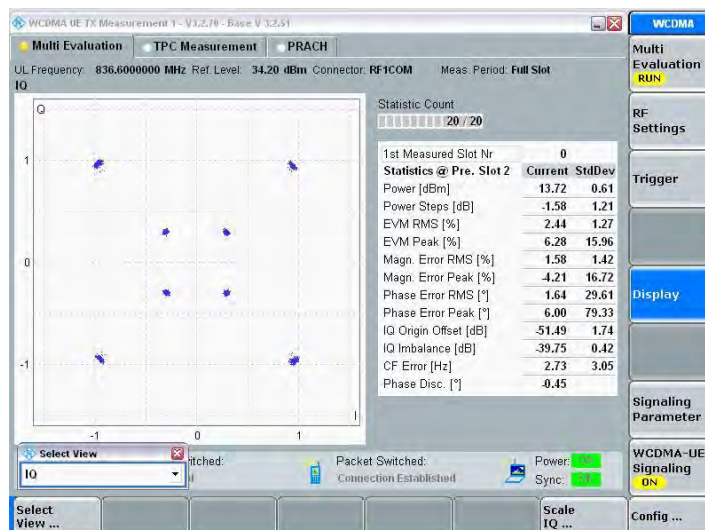
3.3.1. Test Mode = UMTS/TM1

3.3.1.1. Test Channel = MCH



3.3.2. Test Mode = UMTS/TM2

3.3.2.1. Test Channel = MCH



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4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

BAND	Modulation	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	QPSK	9262	4225.8	4812	---	PASS
Band II	QPSK	9400	4182.3	4754	---	PASS
Band II	QPSK	9538	4182.3	4768	---	PASS
Band II	16QAM	9262	4182.3	4768	---	PASS
Band II	16QAM	9400	4167.9	4754	---	PASS
Band II	16QAM	9538	4167.9	4768	---	PASS
Band IV	QPSK	1312	4167.9	4754	---	PASS
Band IV	QPSK	1413	4167.9	4739	---	PASS
Band IV	QPSK	1513	4167.9	4754	---	PASS
Band IV	16QAM	1312	4167.9	4754	---	PASS
Band IV	16QAM	1413	4167.9	4754	---	PASS
Band IV	16QAM	1513	4167.9	4754	---	PASS
Band V	QPSK	4132	4167.9	4768	---	PASS
Band V	QPSK	4182	4196.8	4725	---	PASS
Band V	QPSK	4233	4182.3	4783	---	PASS
Band V	16QAM	4132	4167.9	4754	---	PASS
Band V	16QAM	4182	4153.4	4754	---	PASS
Band V	16QAM	4233	4182.3	4783	---	PASS



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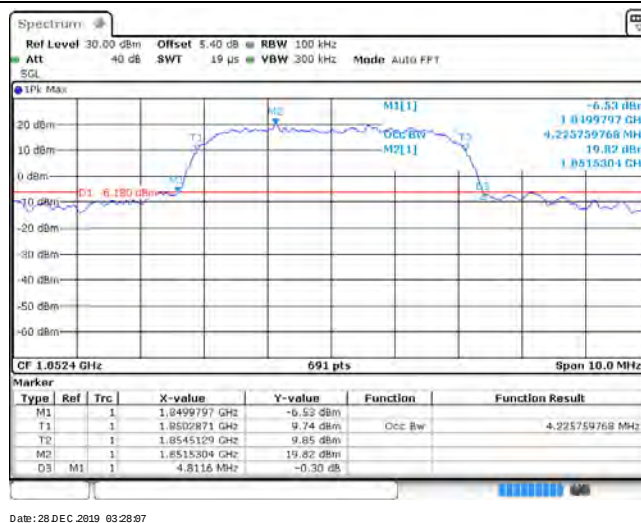
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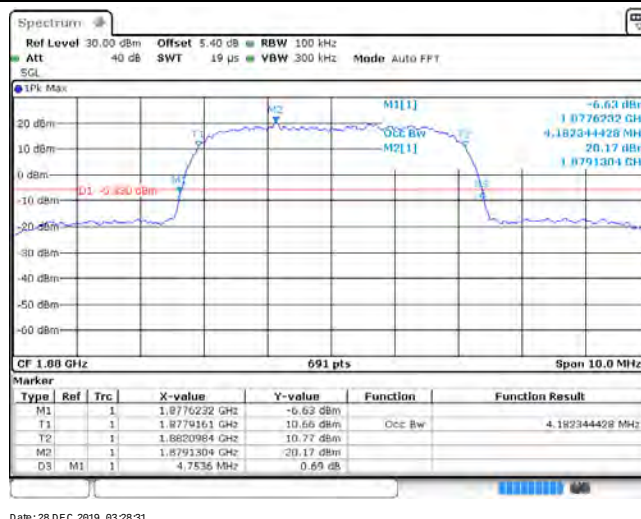


4.2. Test Plots for QPSK



Date: 28 DEC 2019 03:28:97

Band II_9262



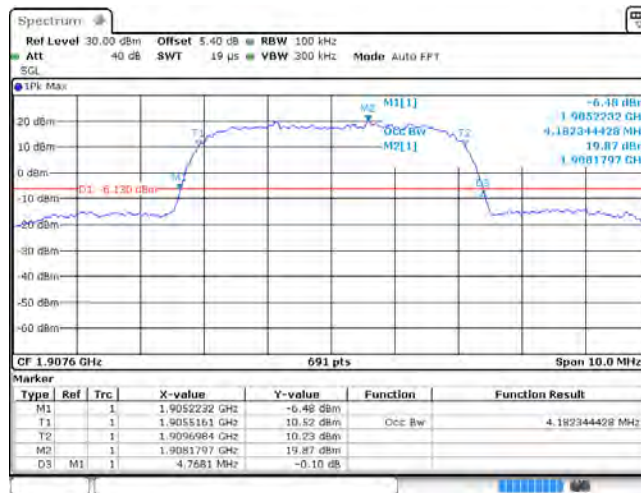
Date: 28 DEC 2019 03:28:31

Band II_9400



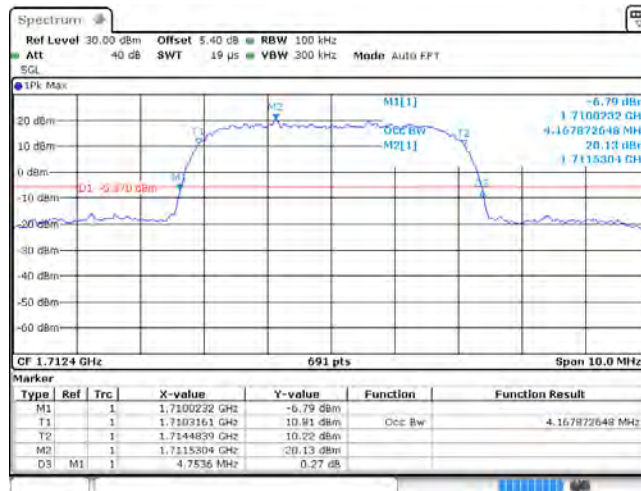
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Date: 28 DEC 2019 03:28:55

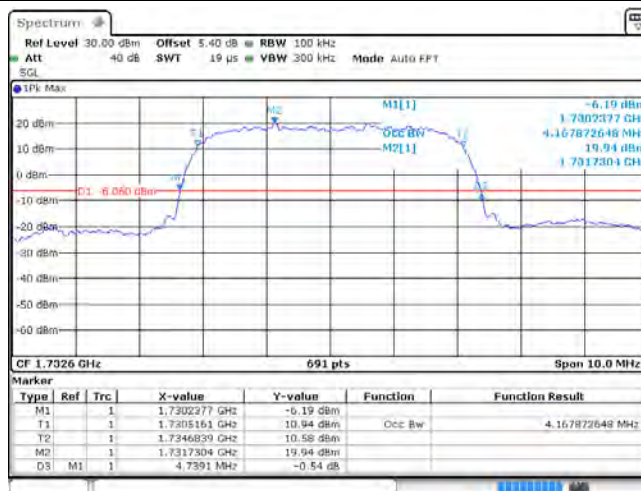
Band II_9538



Date: 28 DEC 2019 03:26:21

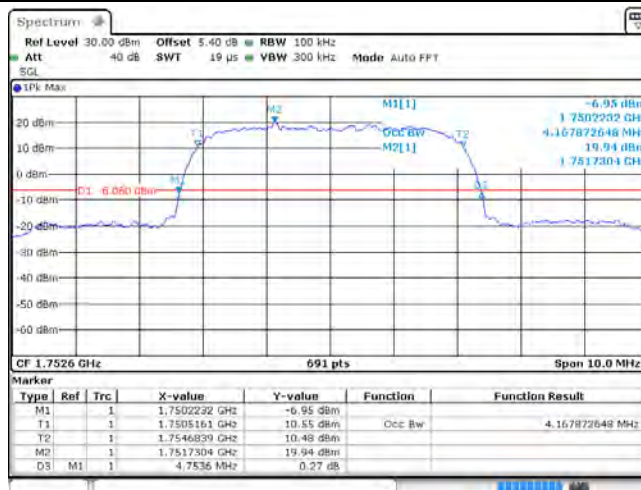
Band IV_1312





Date: 28 DEC 2019 03:36:46

Band IV_1413



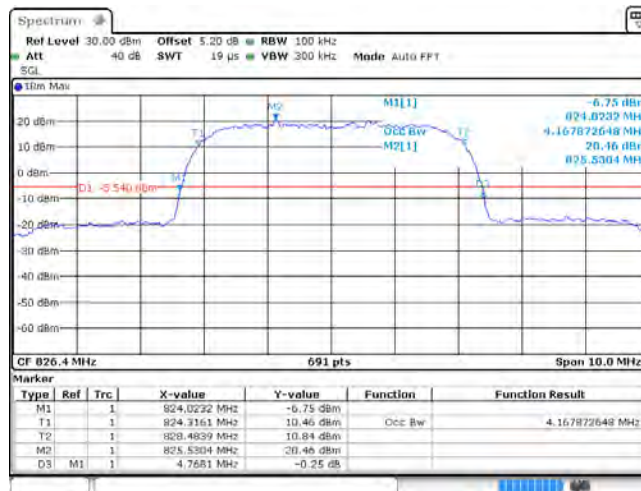
Date: 28 DEC 2019 03:37:10

Band IV_1513



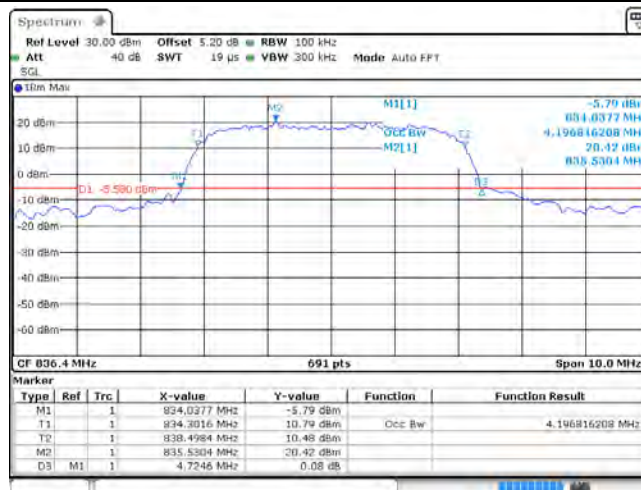
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Date: 28 DEC 2019 03:56:12

Band V_4132



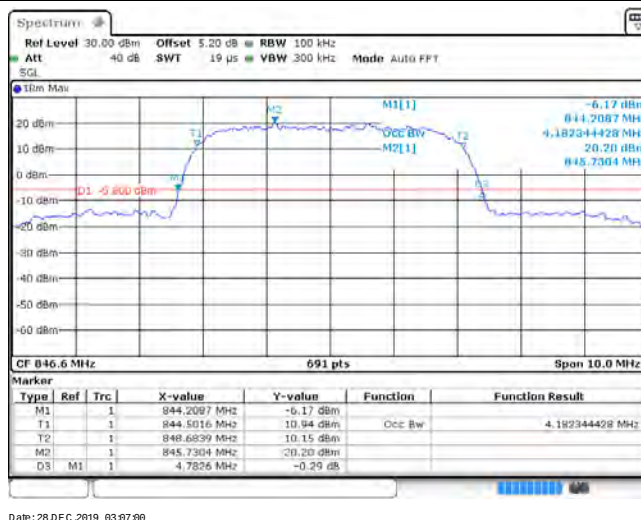
Date: 28 DEC 2019 03:56:36

Band V_4182



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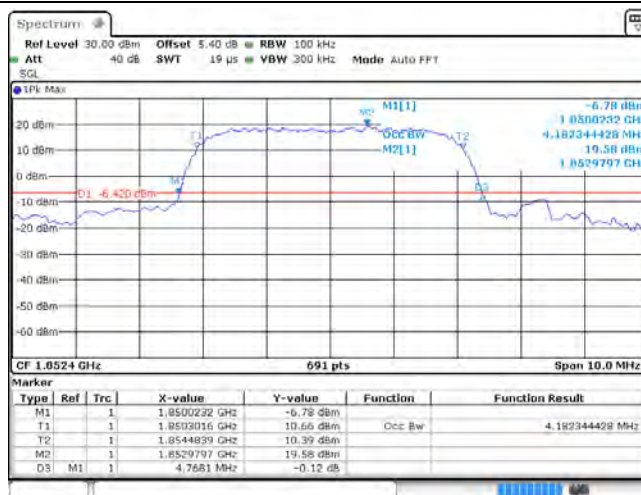
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Date: 28 DEC 2019 03:57:00

Band V_4233

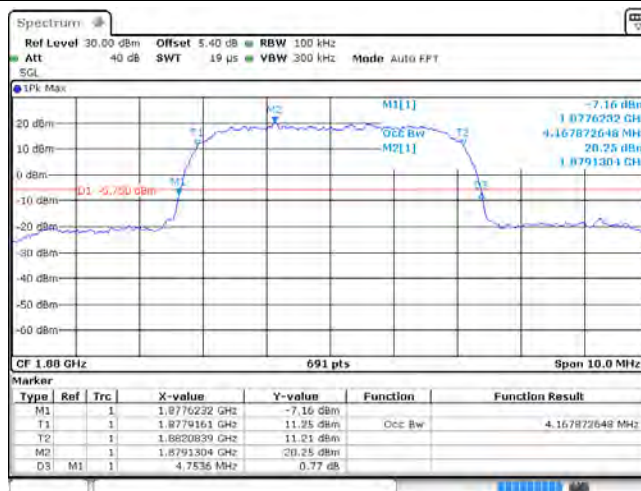
4.3. Test Plots for 16QAM



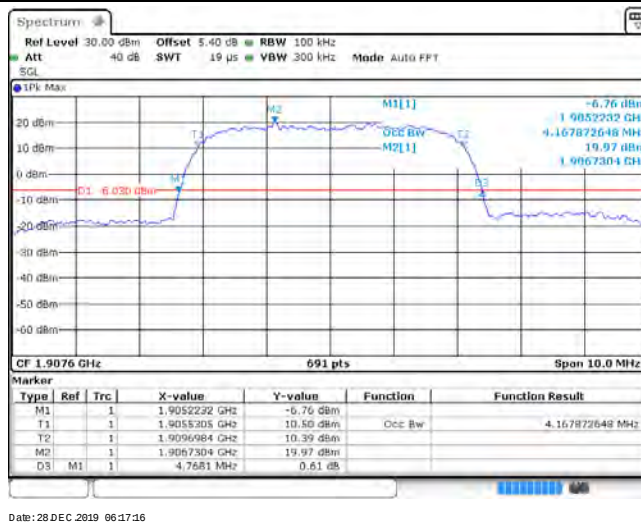
Date: 28 DEC 2019 06:16:27

Band II_9262



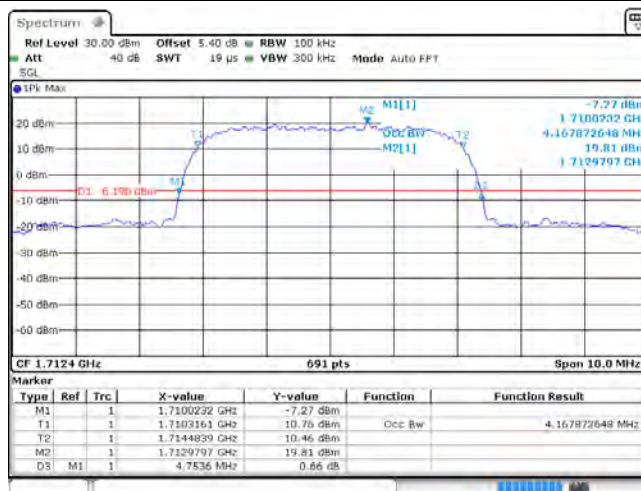


Band II_9400



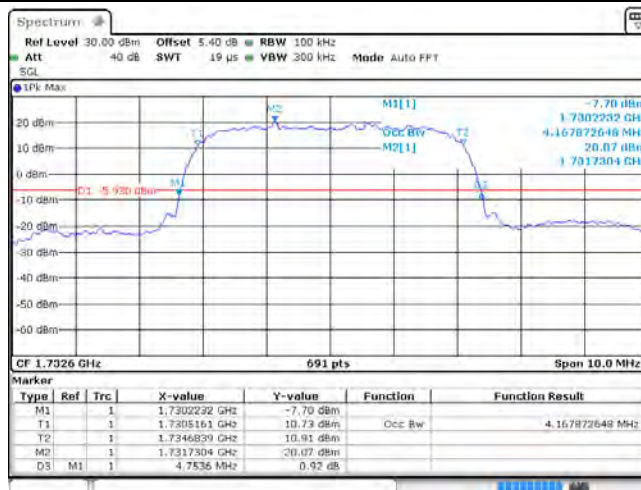
Band II_9538





Date: 28 DEC 2019 06:34:07

Band IV_1312



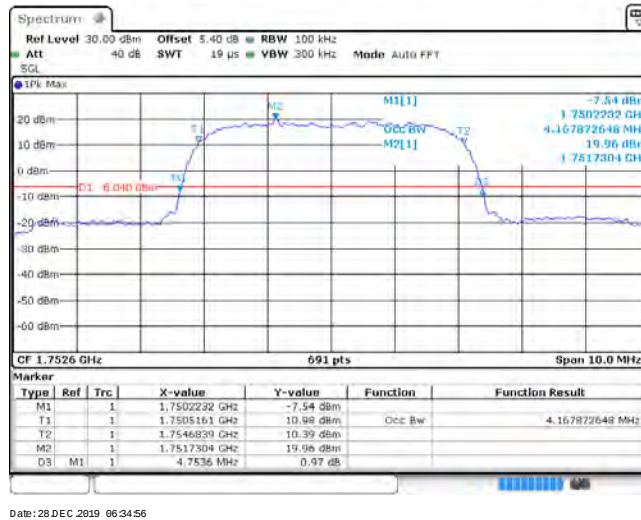
Date: 28 DEC 2019 06:34:31

Band IV_1413

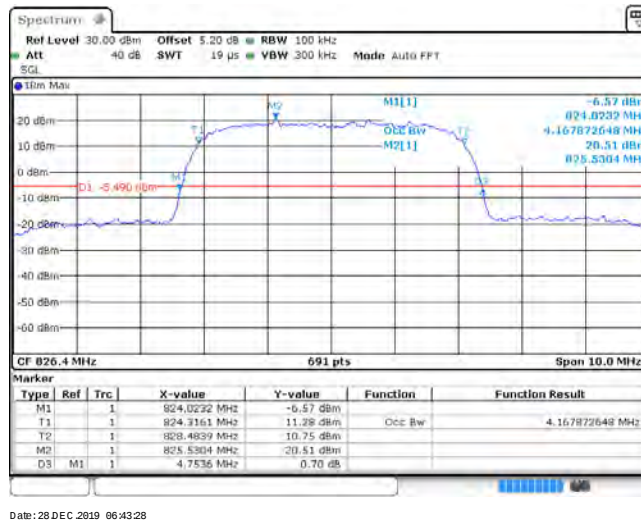


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Band IV_1513

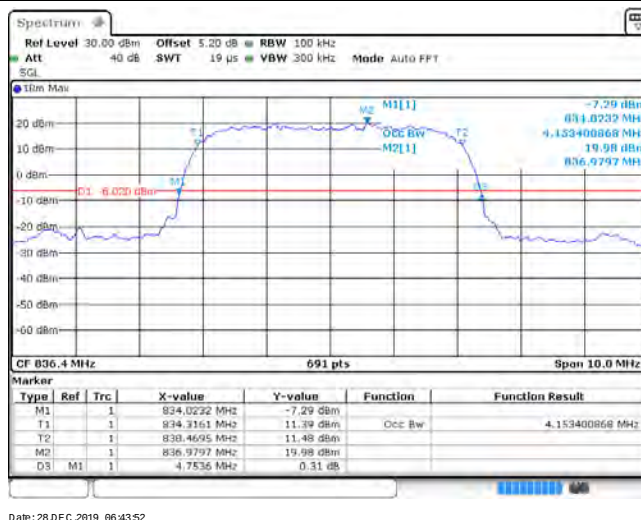


Band V_4132



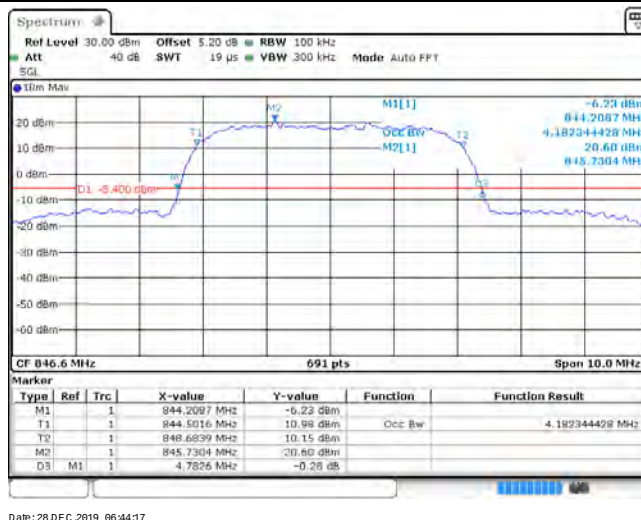
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Date: 28 DEC 2019 06:43:52

Band V_4182



Date: 28 DEC 2019 06:44:17

Band V_4233



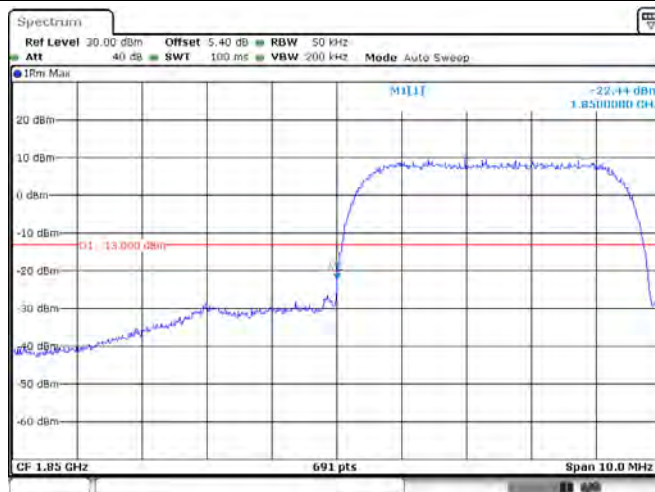
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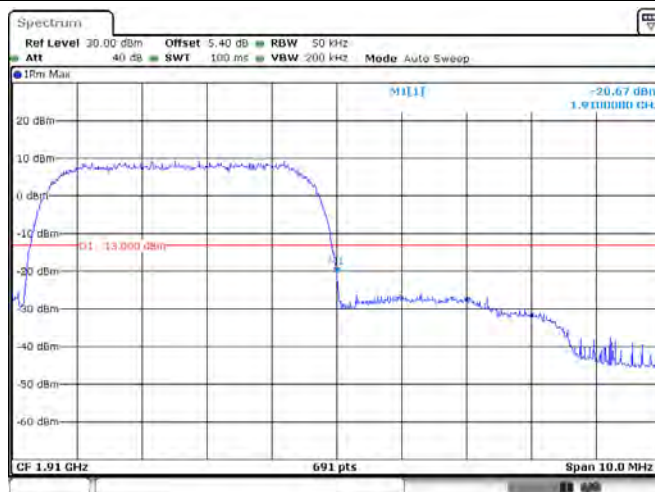
5. Band Edge Compliance

5.1. Test Plots for QPSK



Date: 28 DEC 2019 08:23:31

Band II_9262



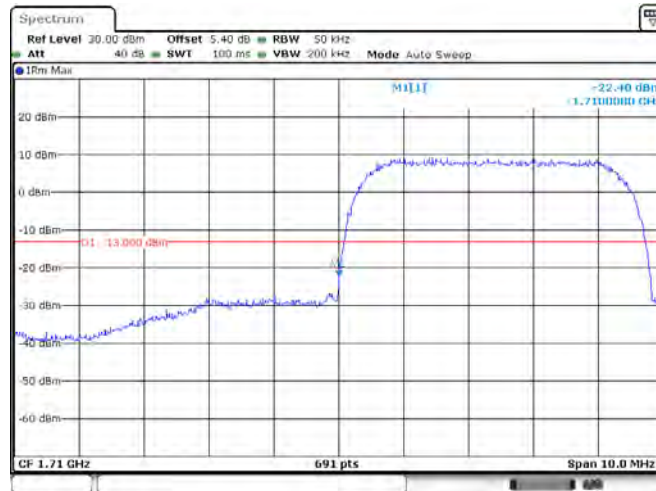
Date: 28 DEC 2019 08:23:48

Band II_9538



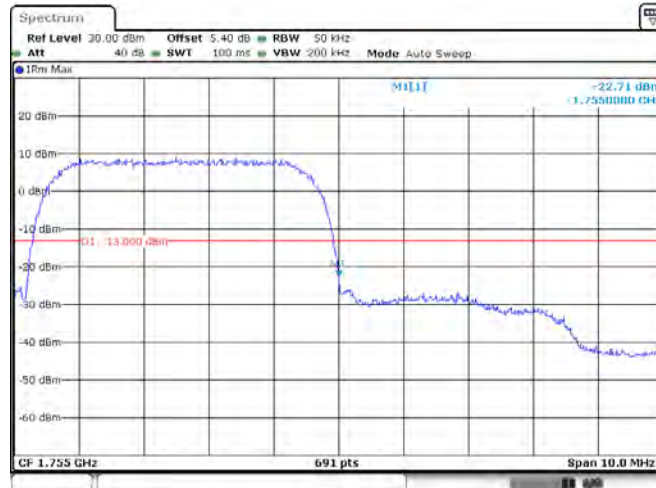
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Date: 28 DEC 2019 08:27:42

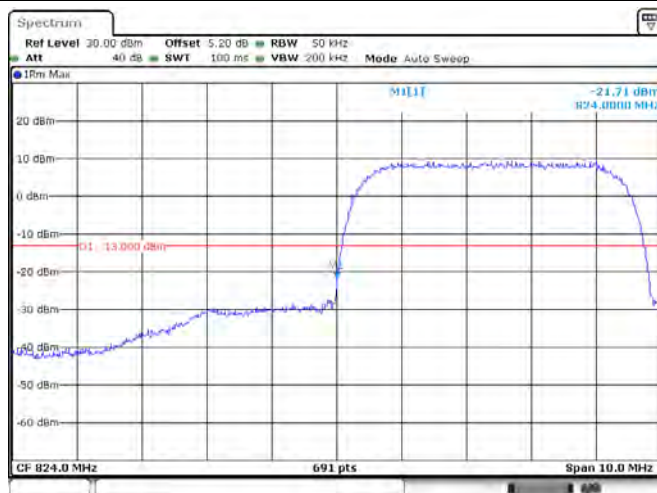
Band IV_1312



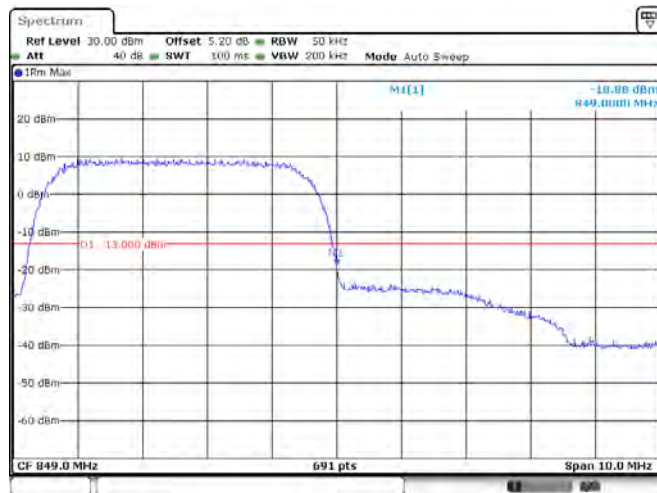
Date: 28 DEC 2019 08:28:00

Band IV_1513





Band V_4132

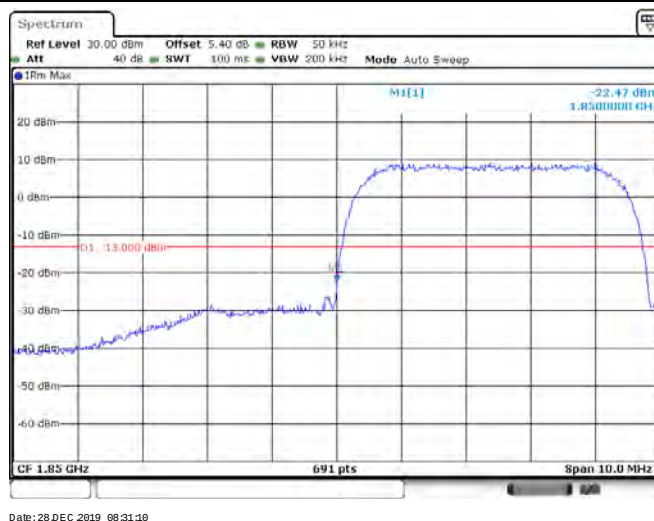


Band V_4233





5.2. Test Plots for 16QAM

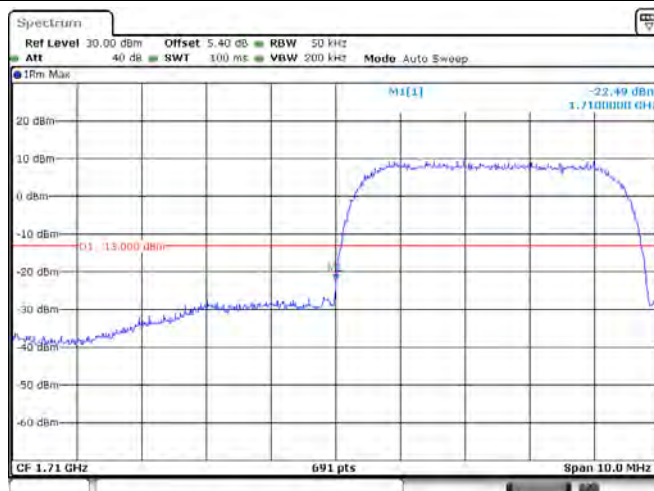


Band II_9262



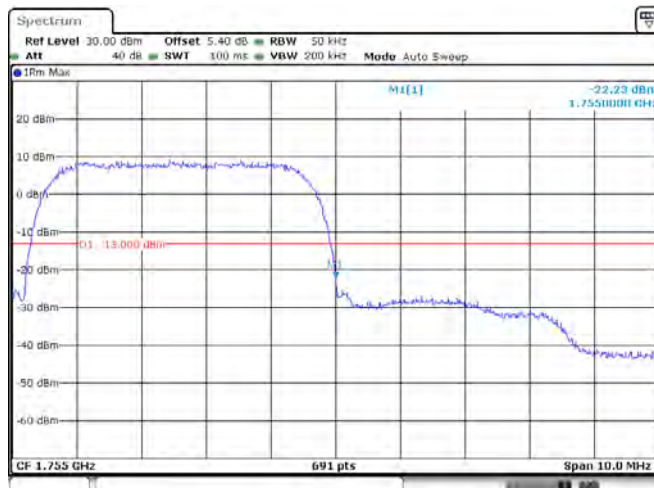
Band II_9538





Date: 28 DEC 2019 08:29:43

Band IV_1312



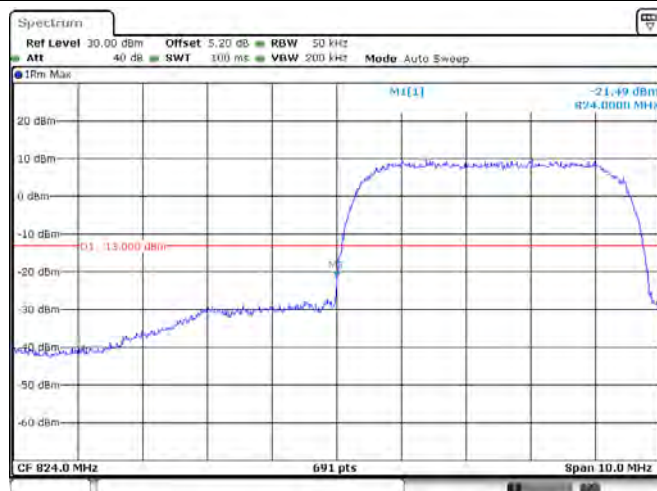
Date: 28 DEC 2019 08:30:01

Band IV_1513



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Date: 28 DEC 2019 08:32:53

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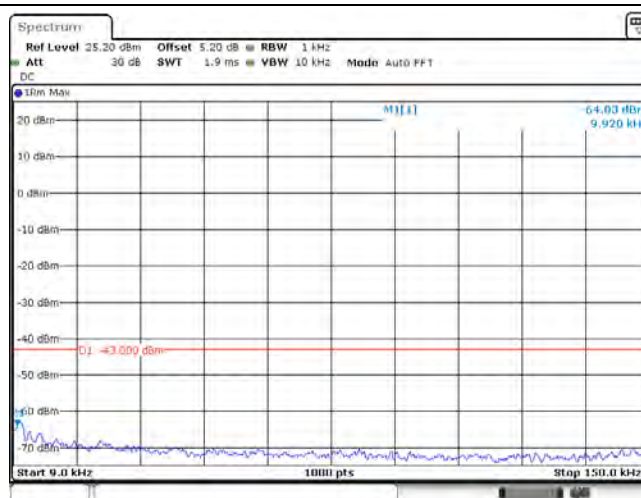


6. Spurious Emission at Antenna Terminal

Remark1: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (\text{Span} / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

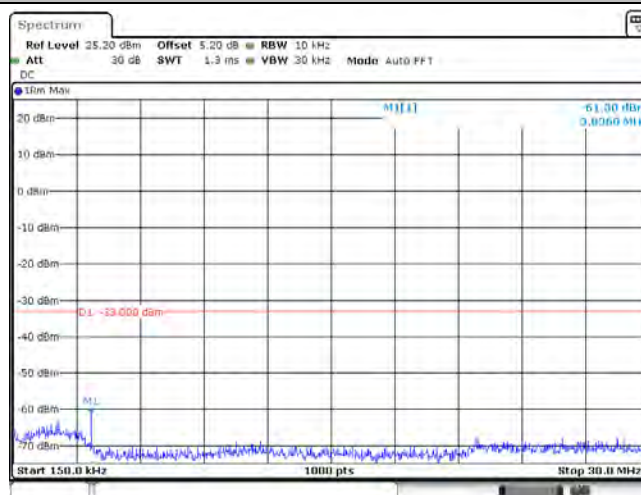
Remark2: only the worst case data displayed in this report.

6.1. Test Plots for QPSK



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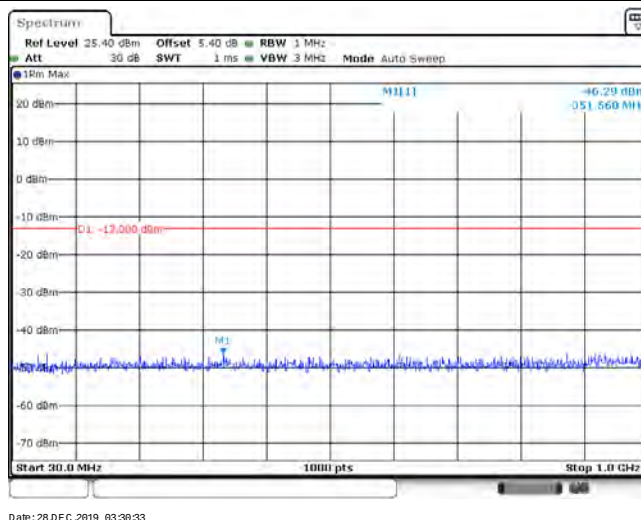
Band II_9262



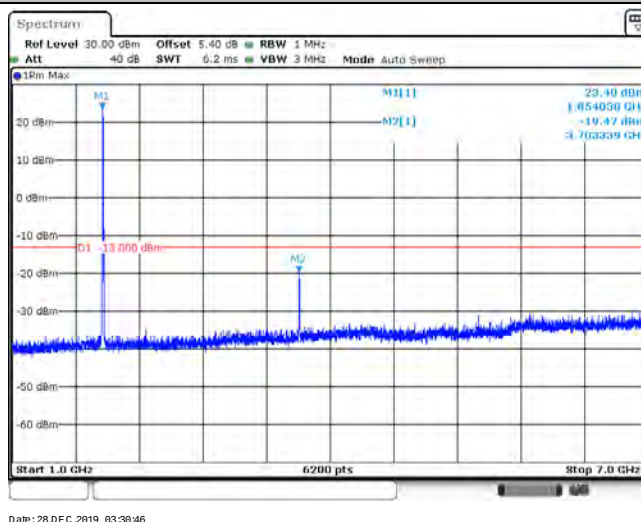
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Band II_9262



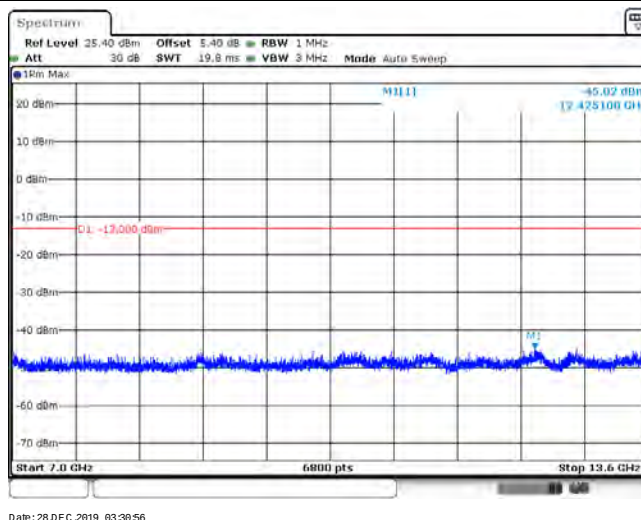


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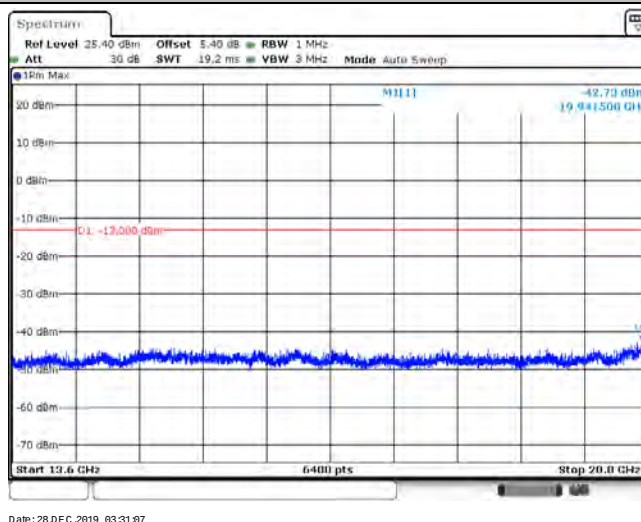


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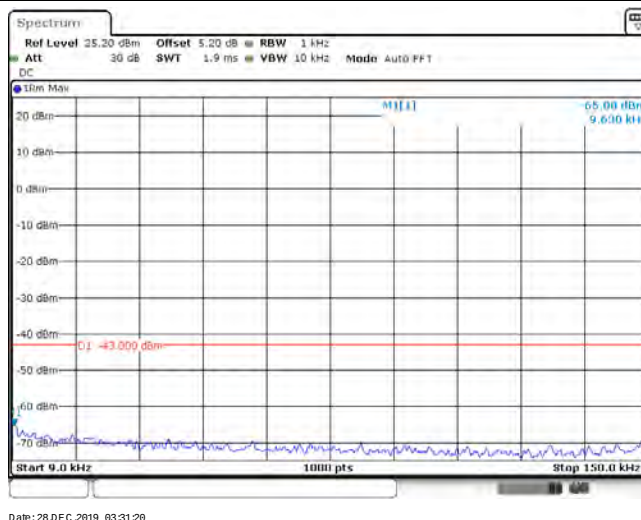


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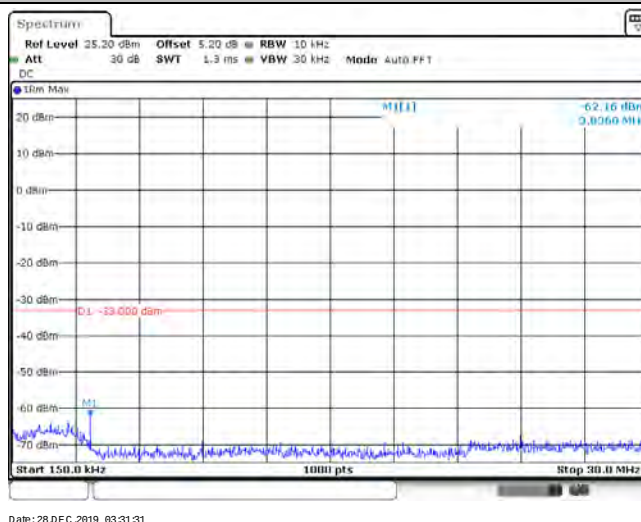


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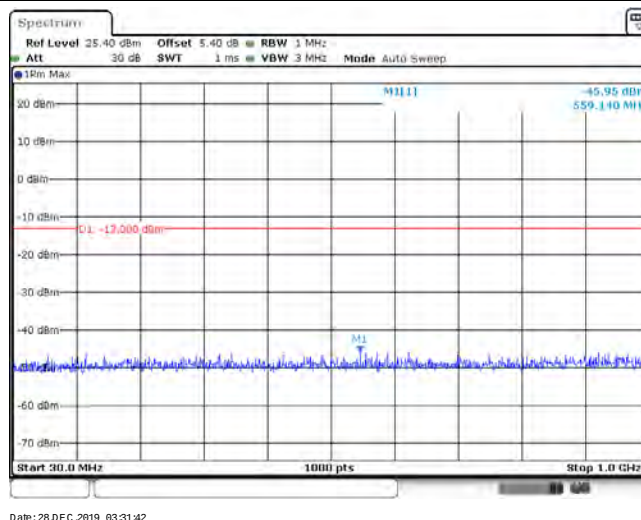


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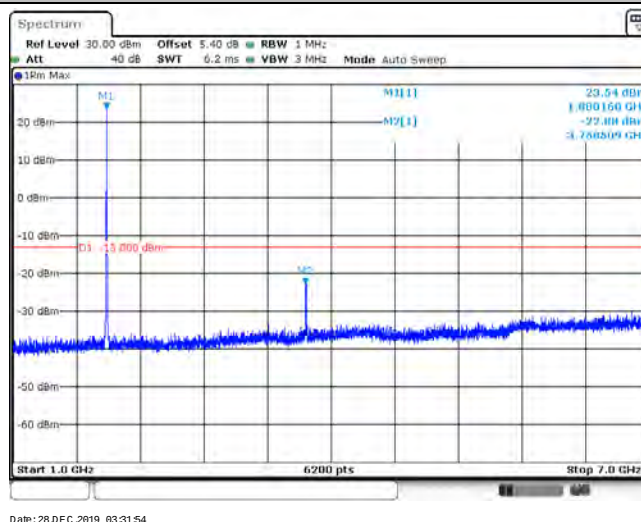


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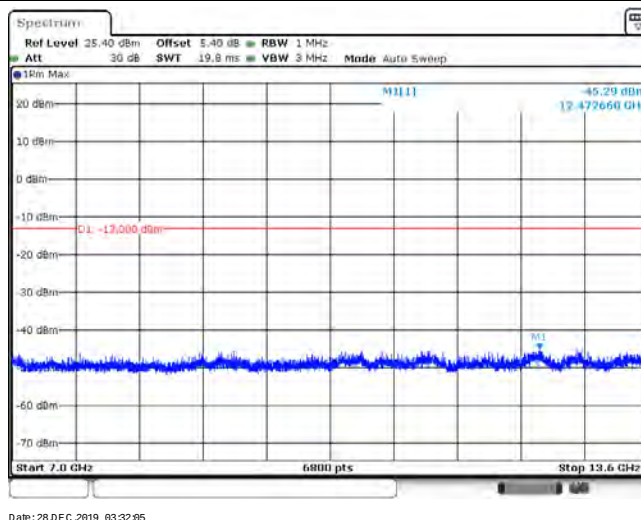


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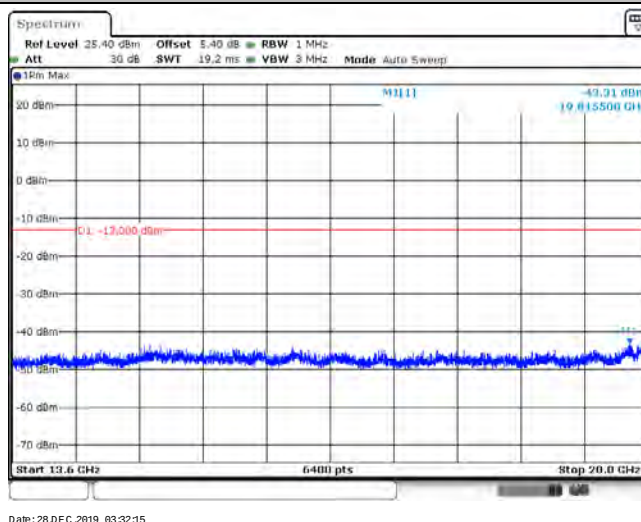


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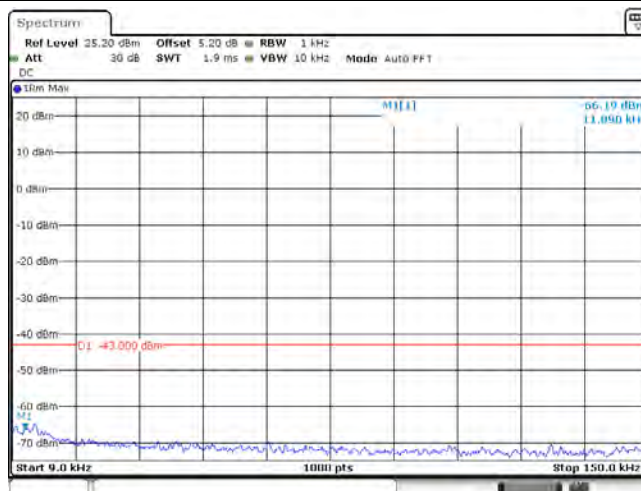


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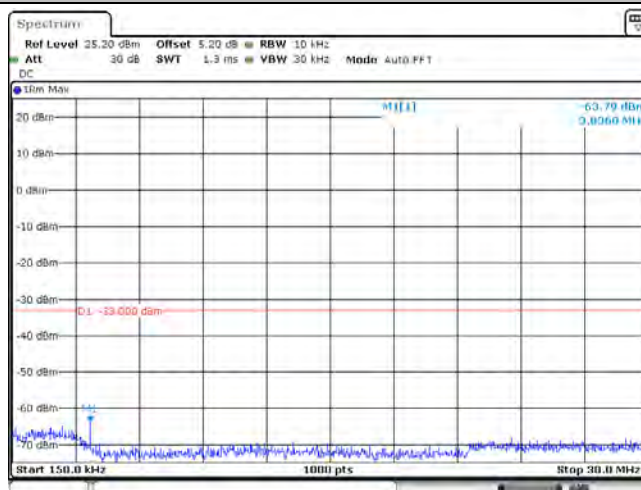
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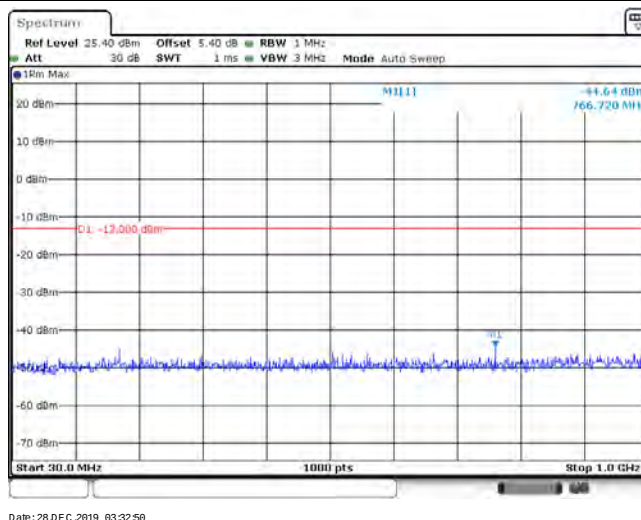
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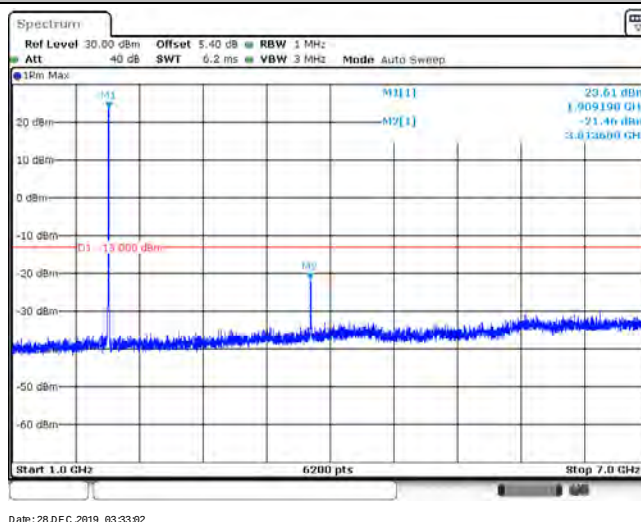
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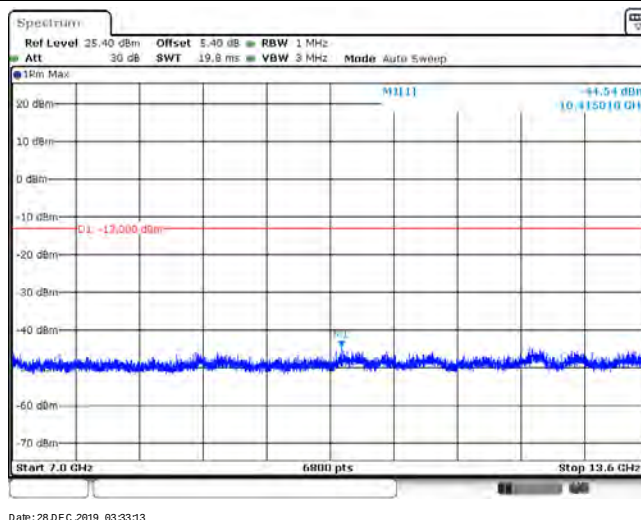


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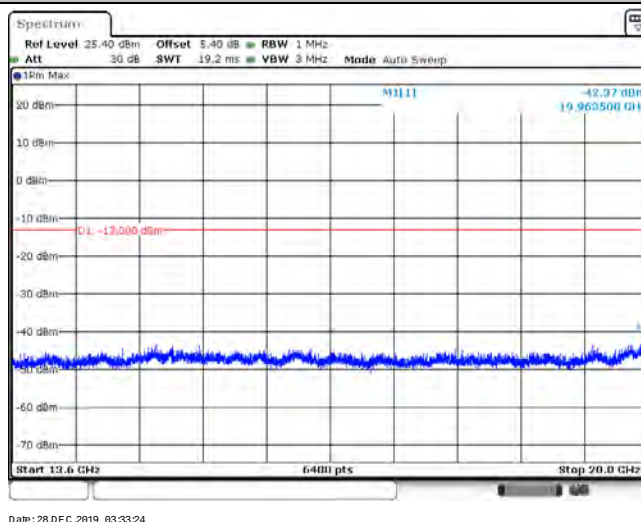


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Band II_9538

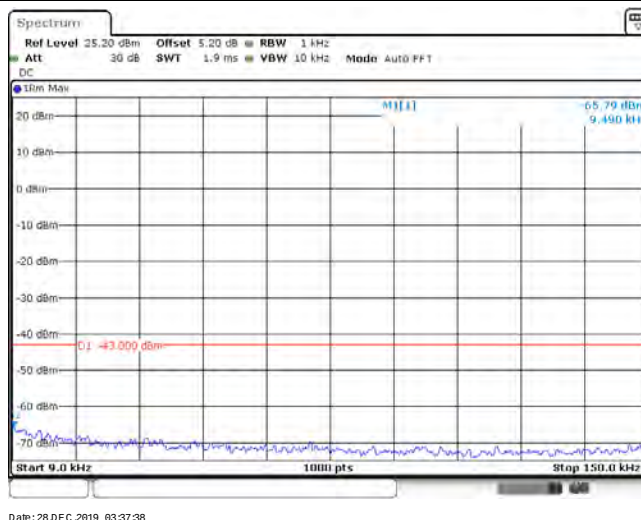


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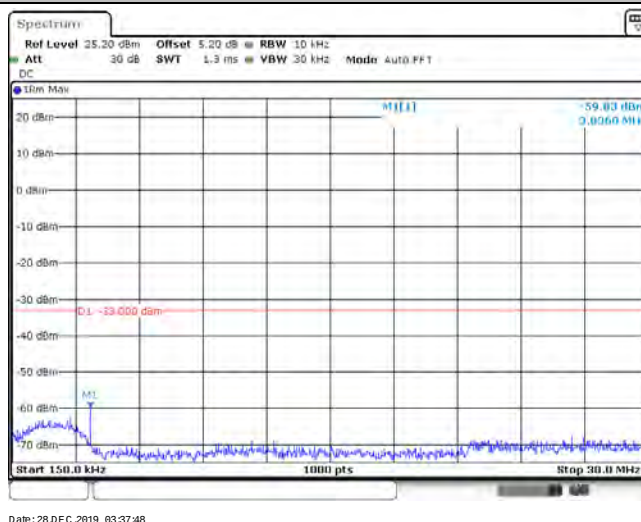


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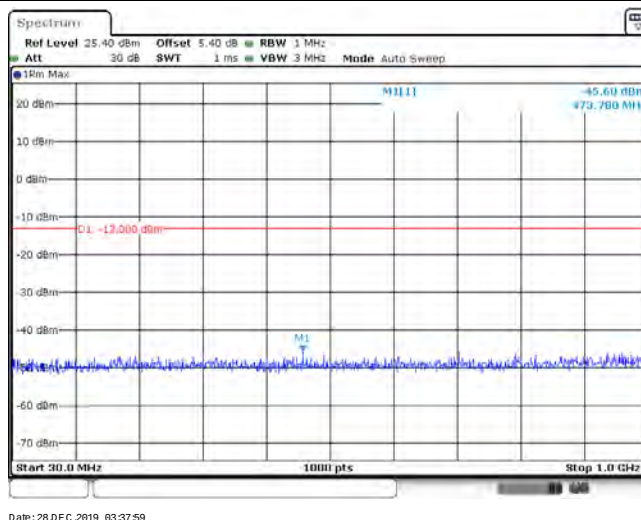


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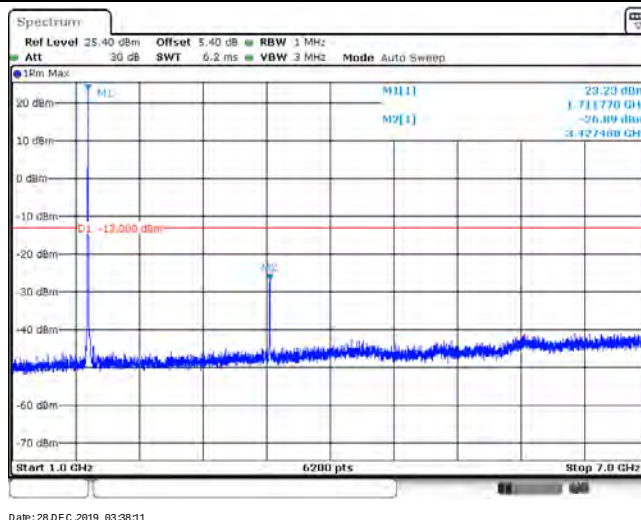


Band IV_1312





Band IV_1312



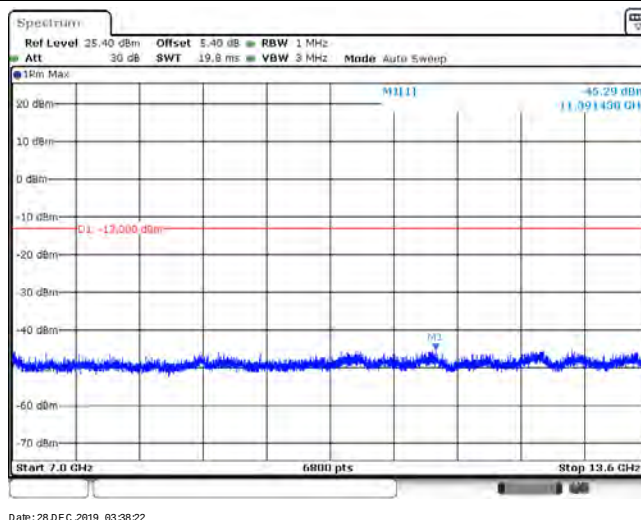
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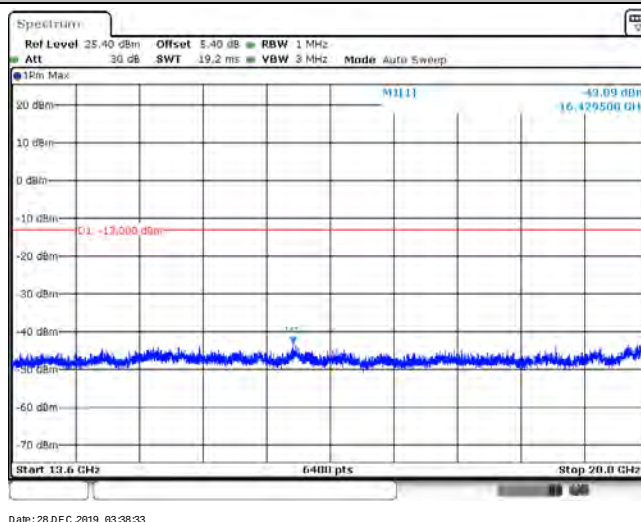
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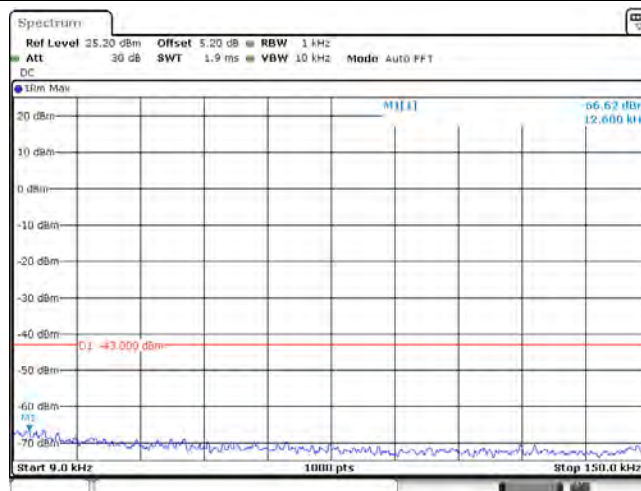
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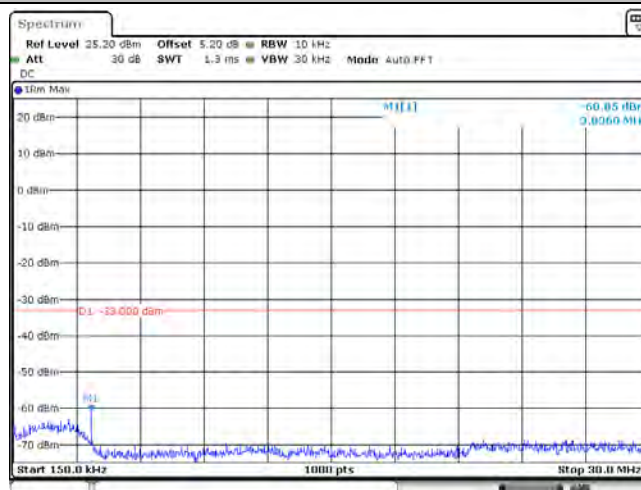
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Band IV_1413



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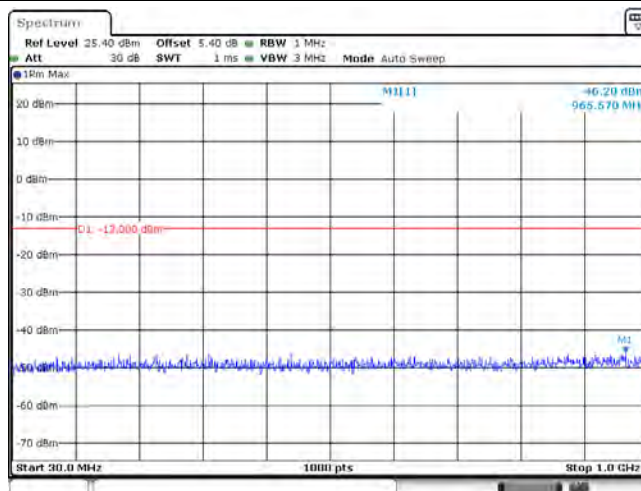
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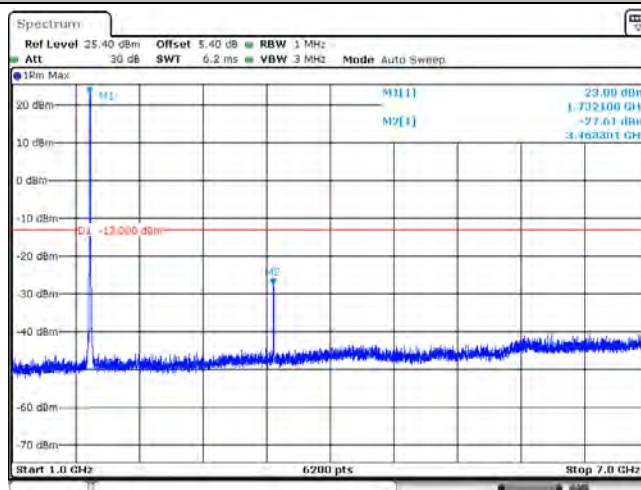
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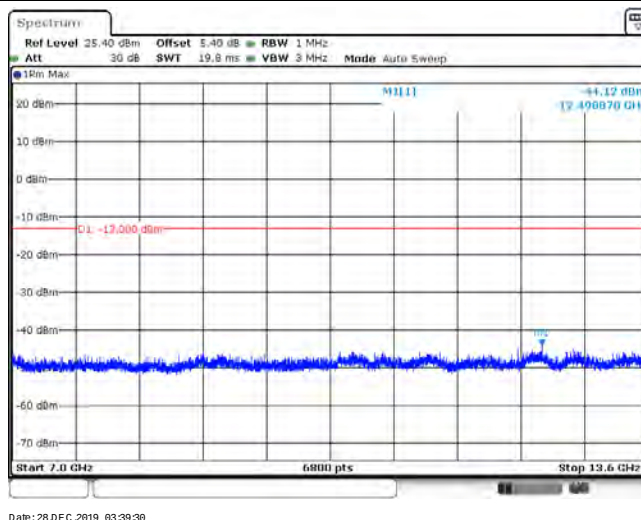
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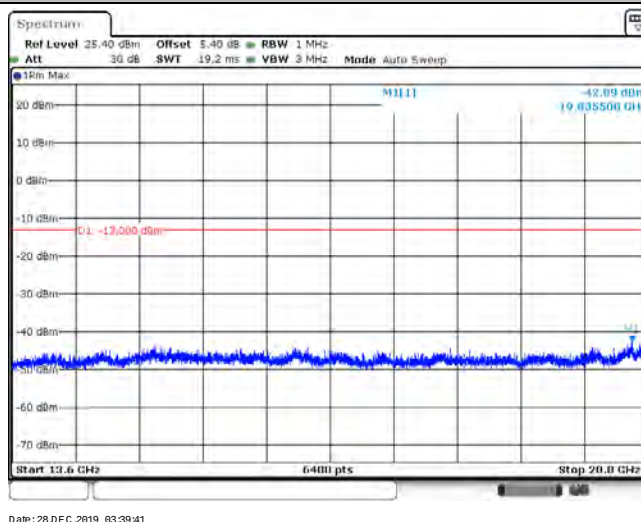


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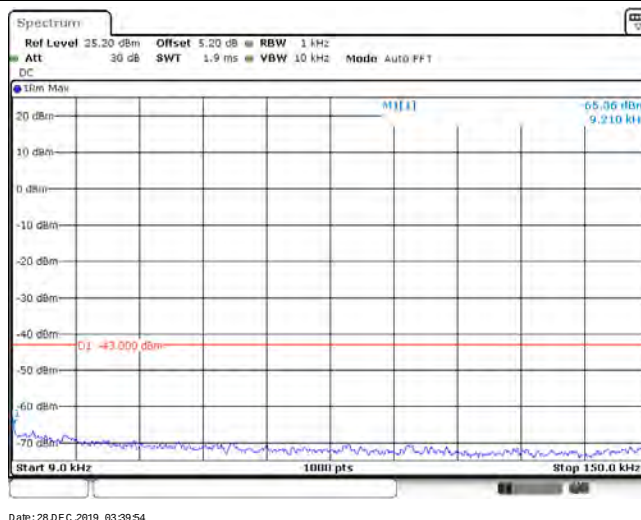
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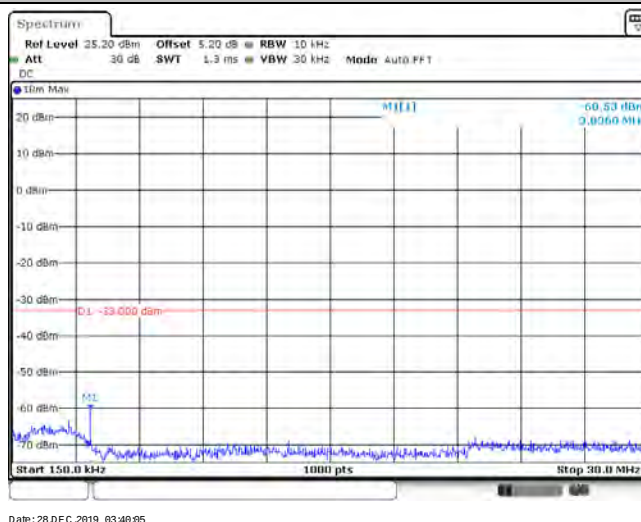
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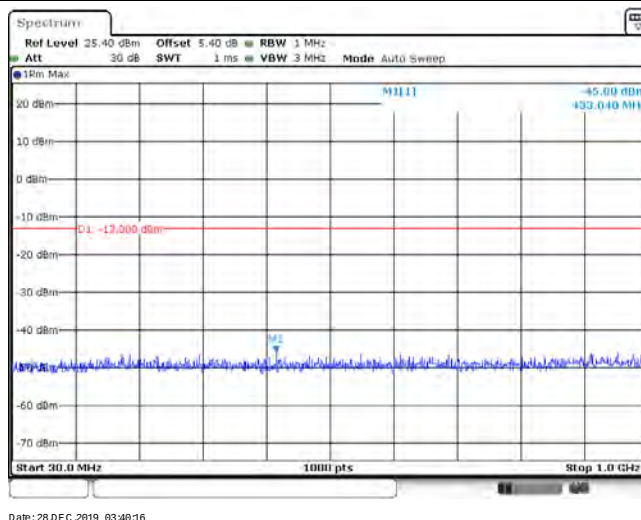


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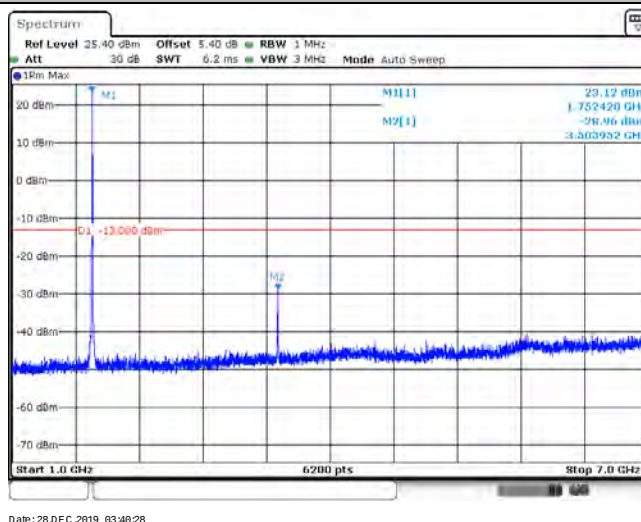


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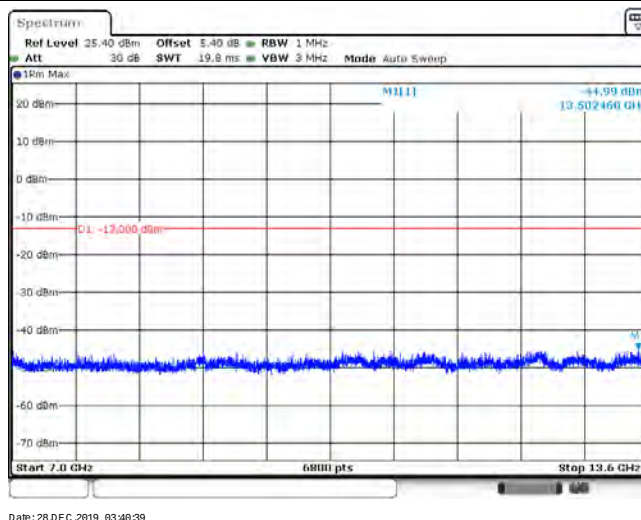


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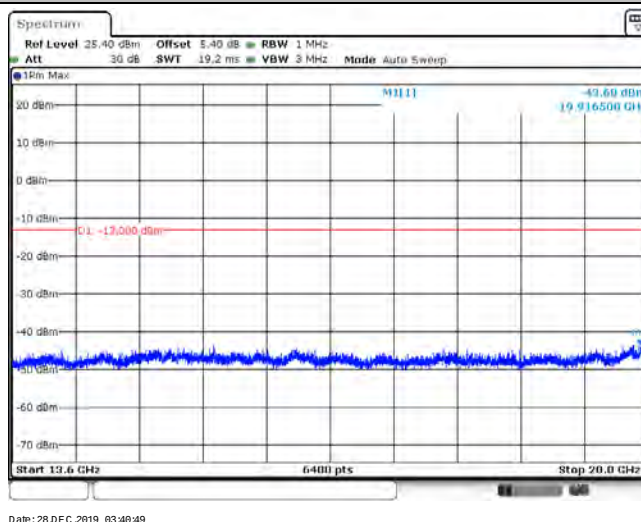


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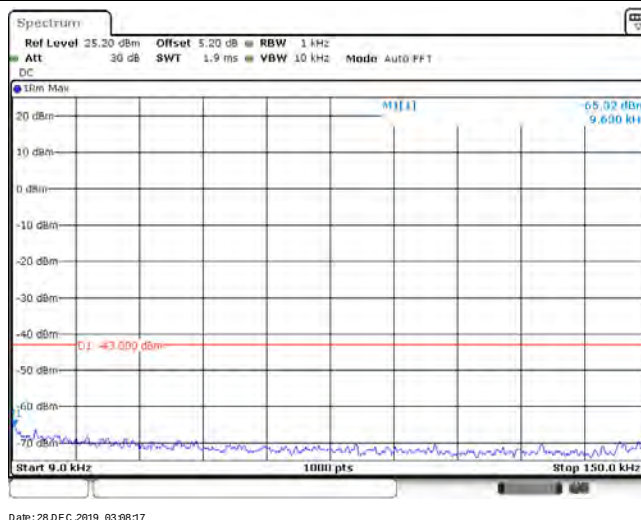


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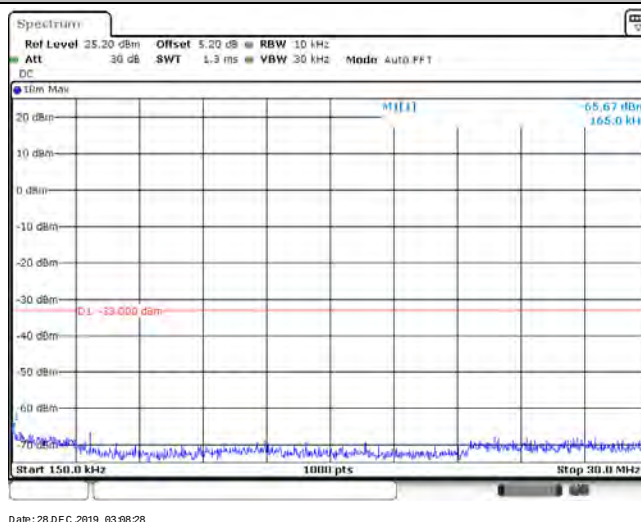


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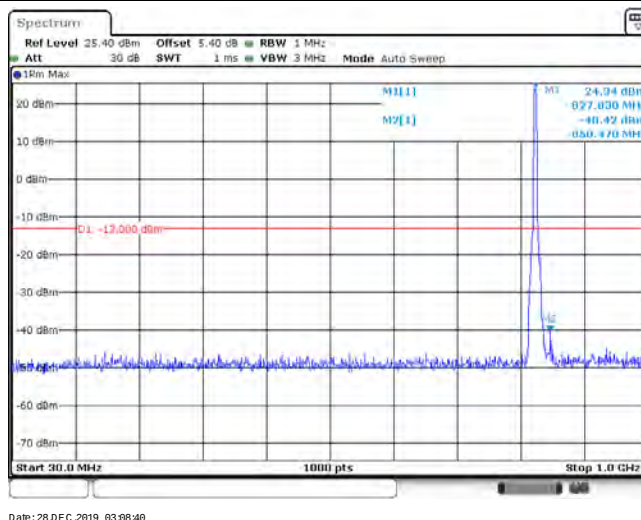


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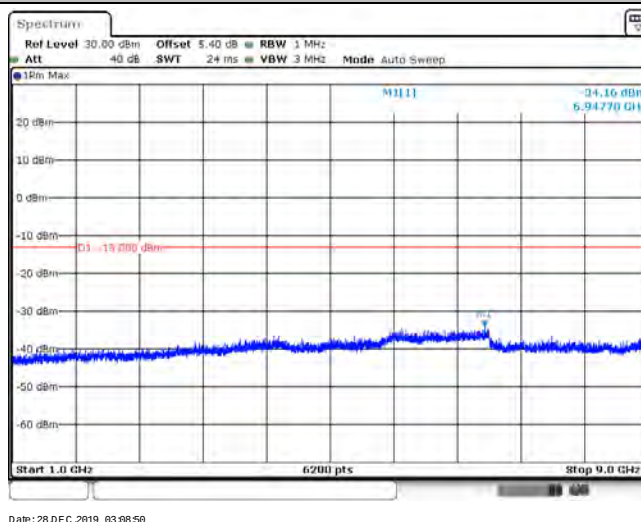


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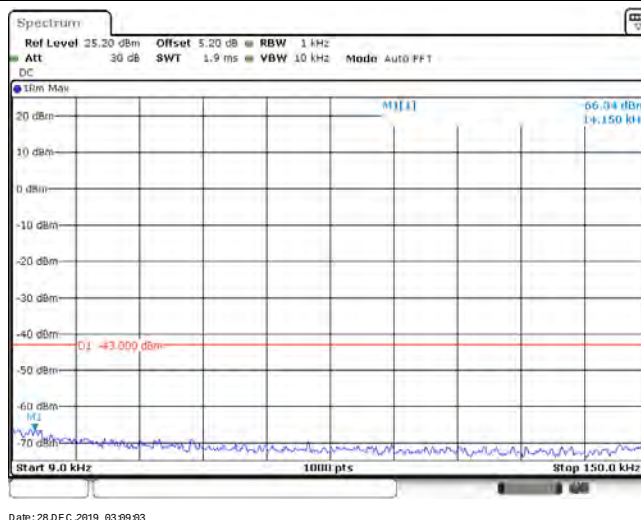


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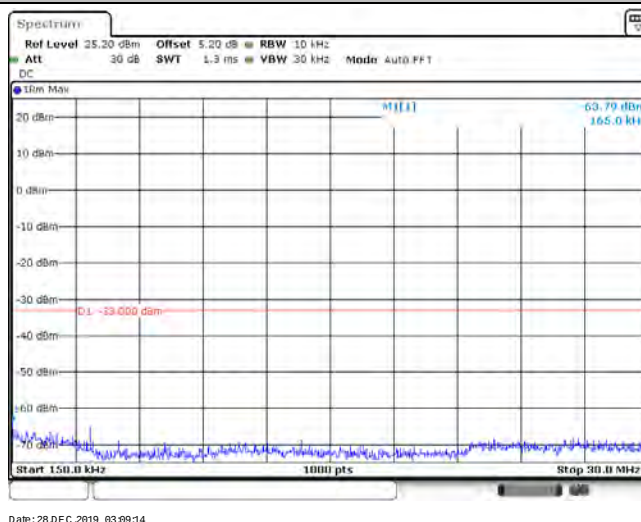


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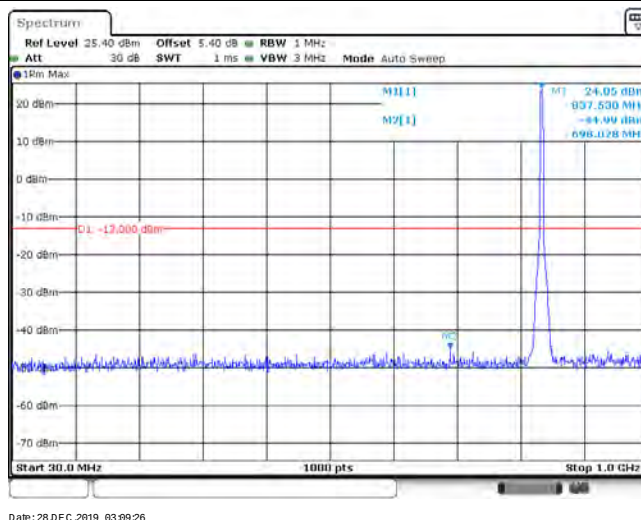


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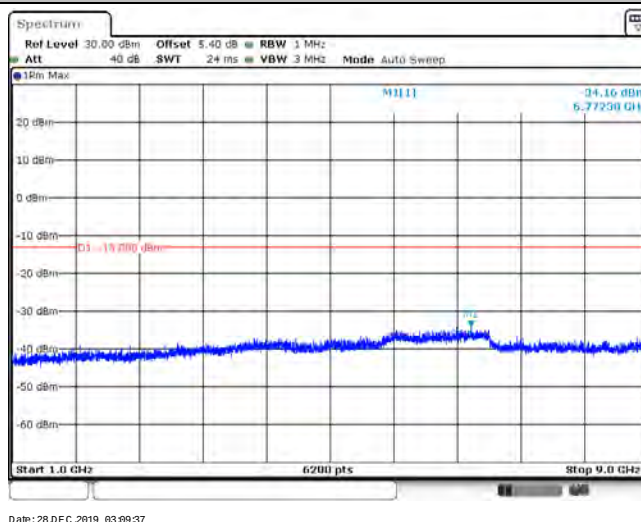
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Band V_4182



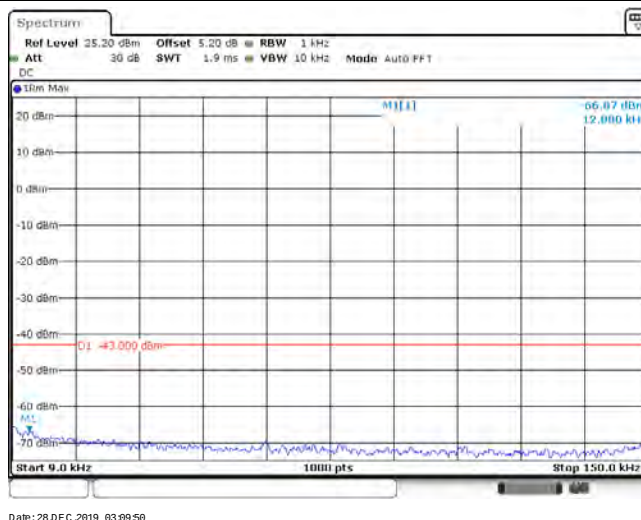
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Band V_4182

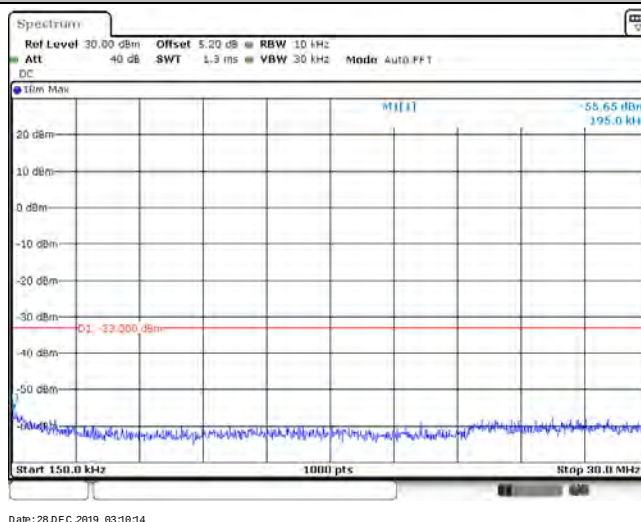


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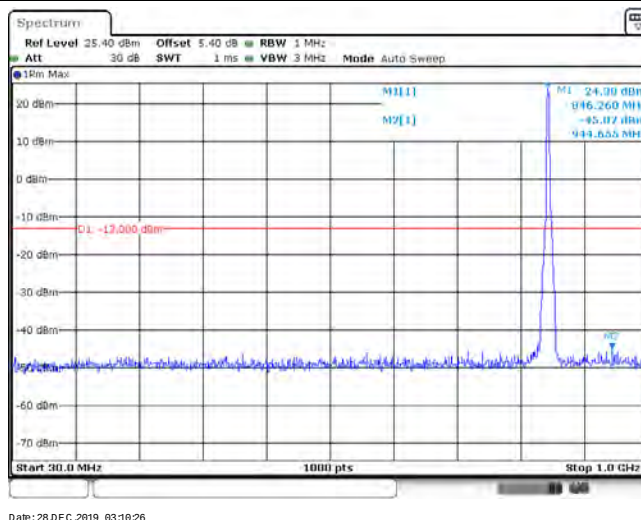


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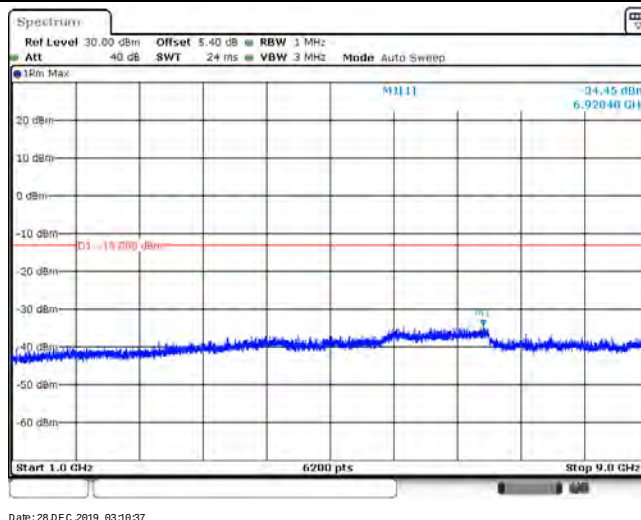


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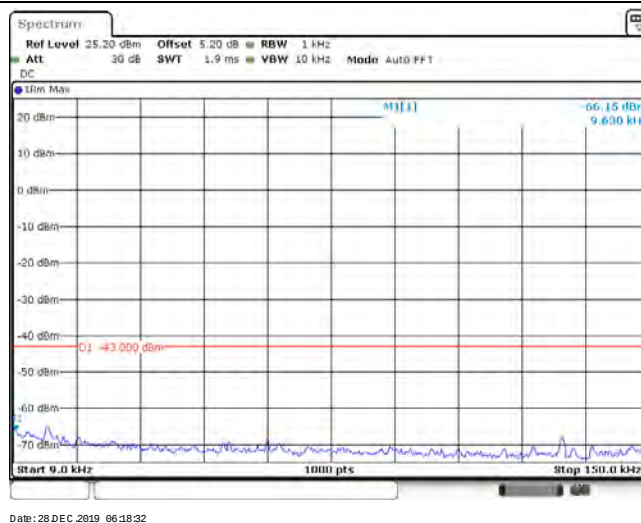
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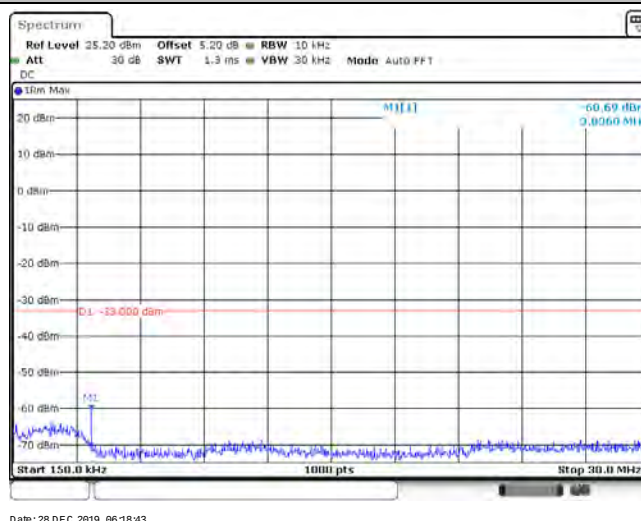
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6.2. Test Plots for 16QAM



Band II_9262



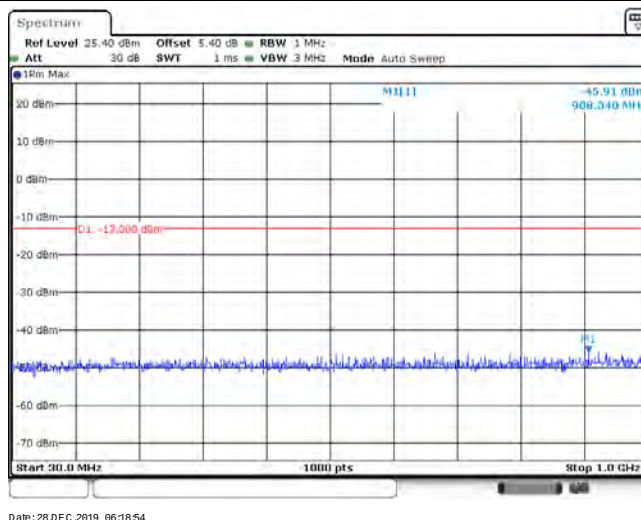
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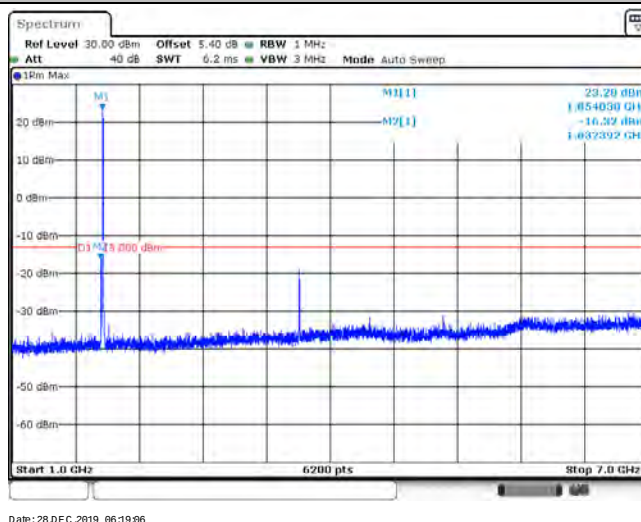
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Band II_9262



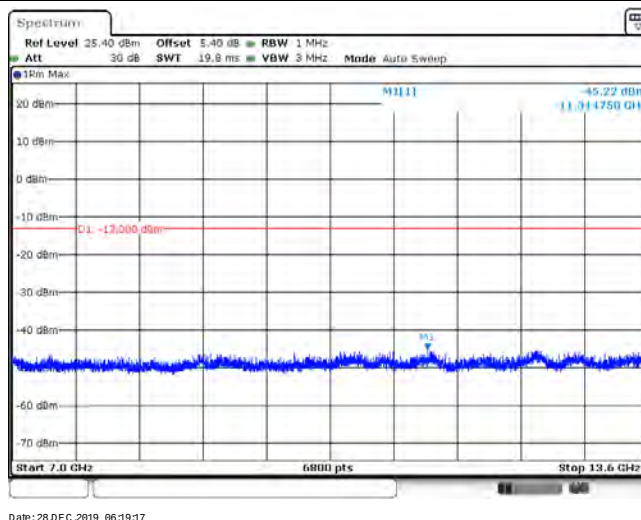
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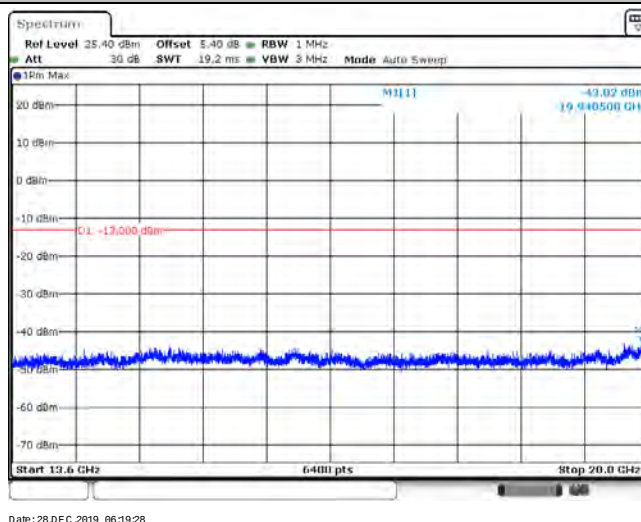
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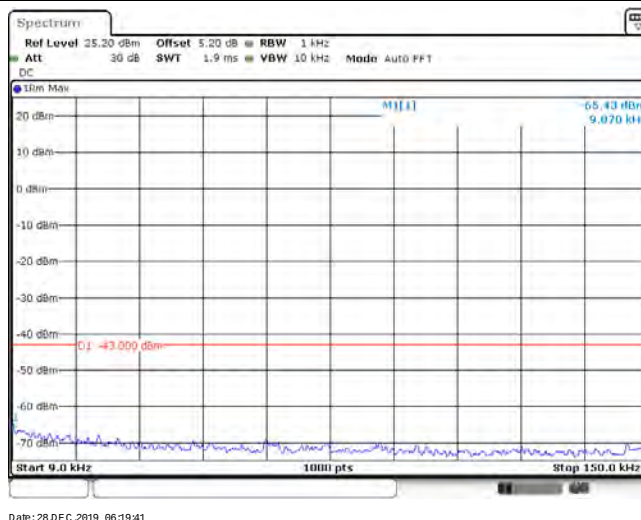


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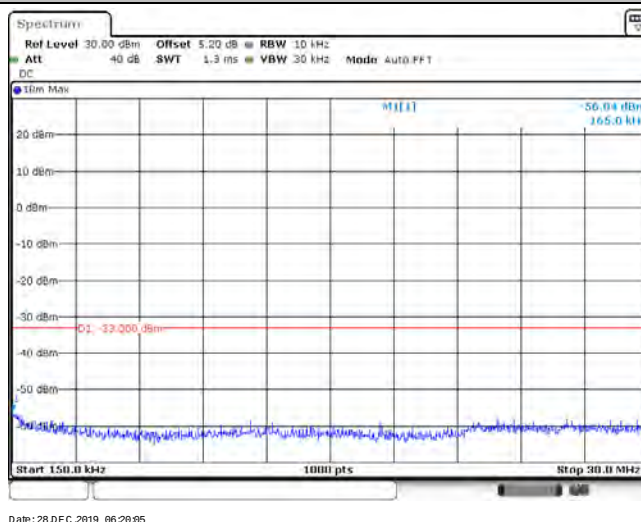


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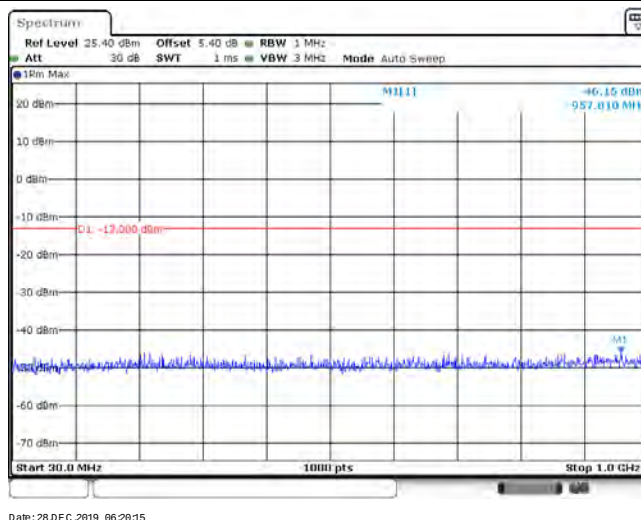


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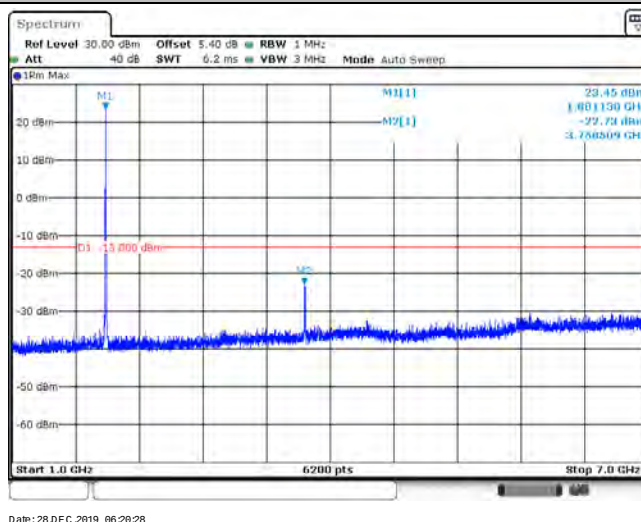


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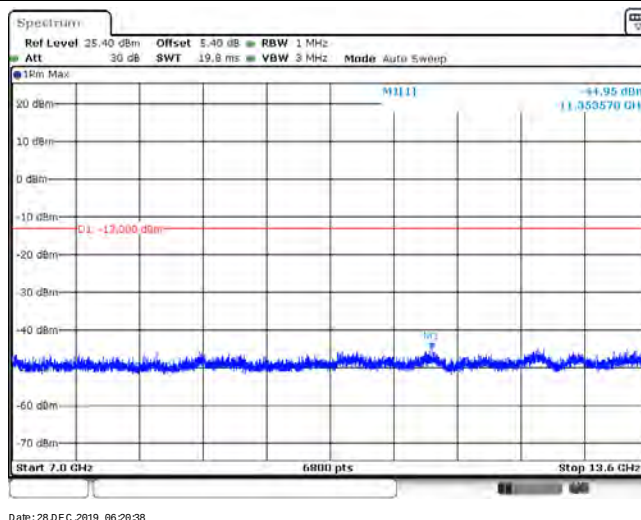


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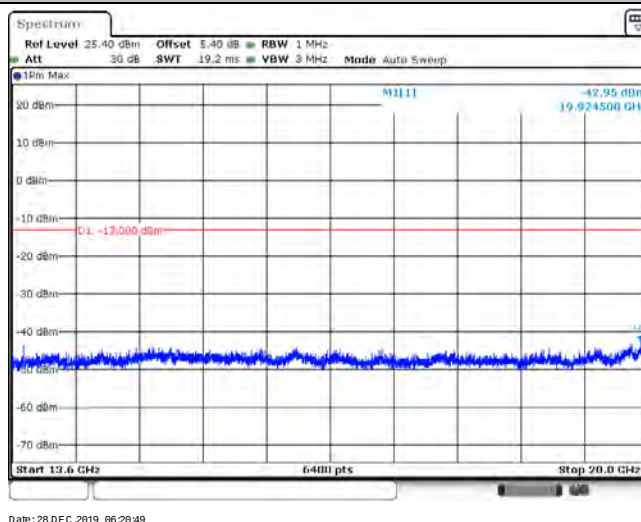


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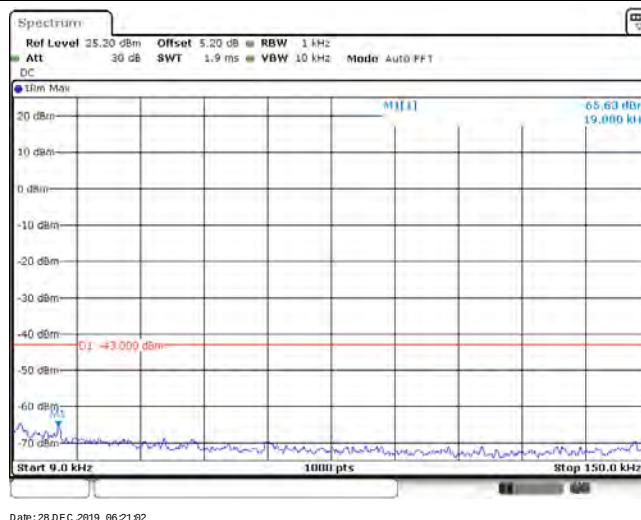


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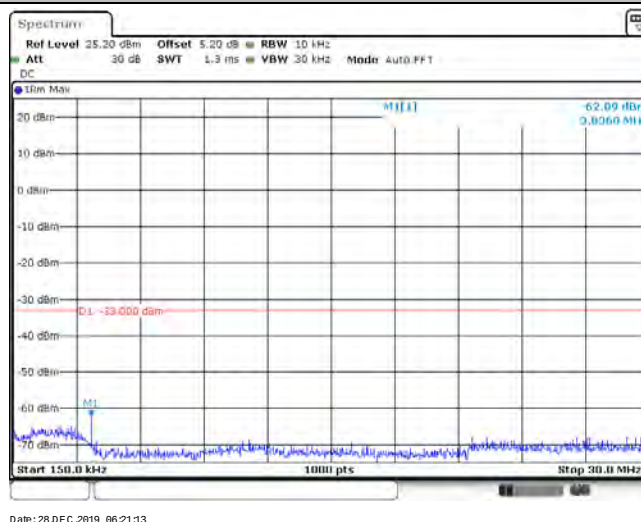


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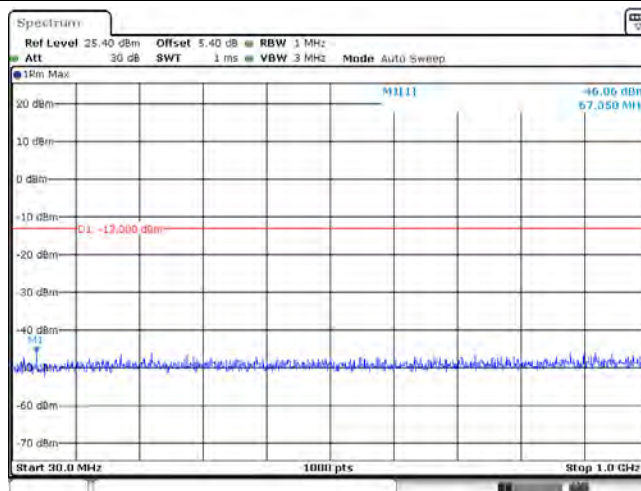


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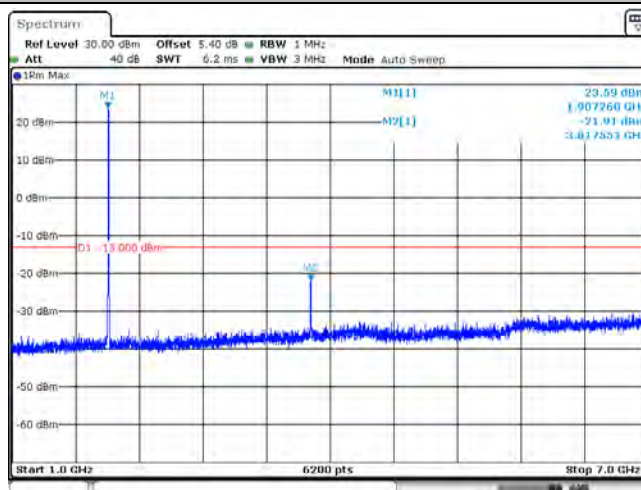
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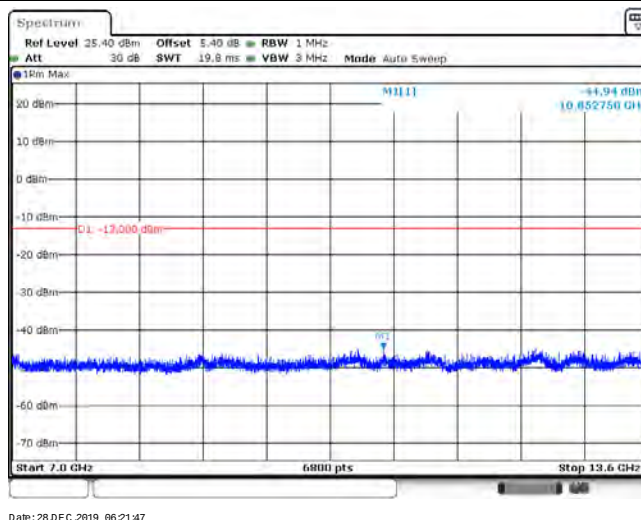
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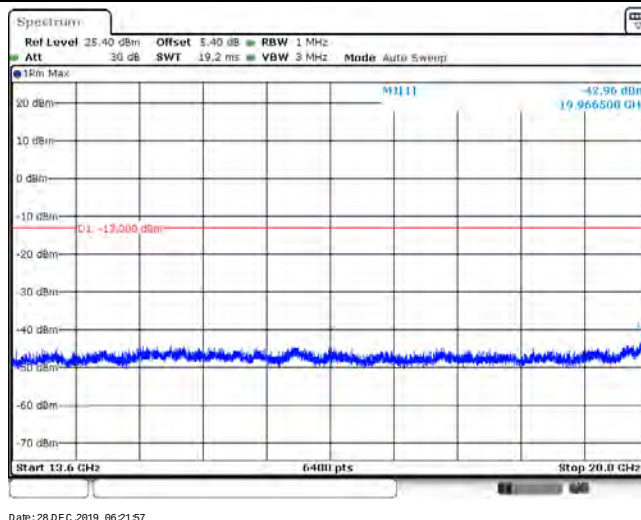
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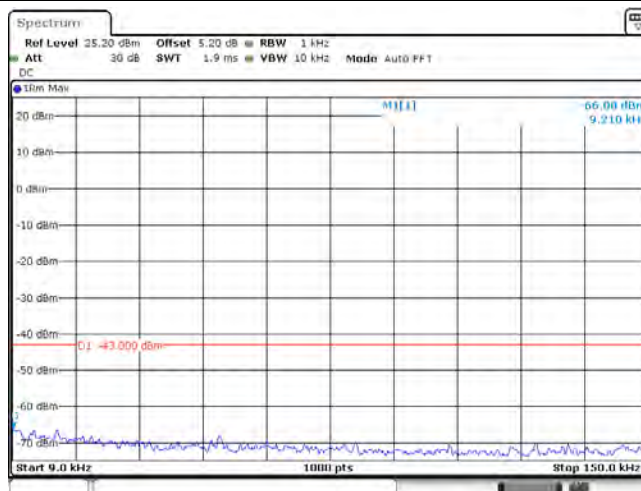


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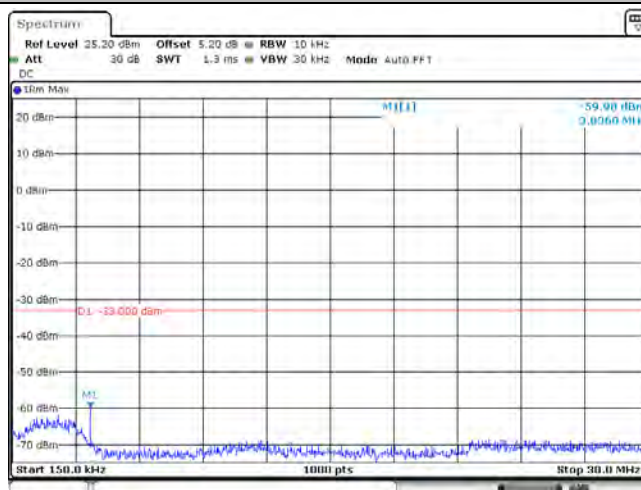
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Date: 28 DEC 2019 06:35:23

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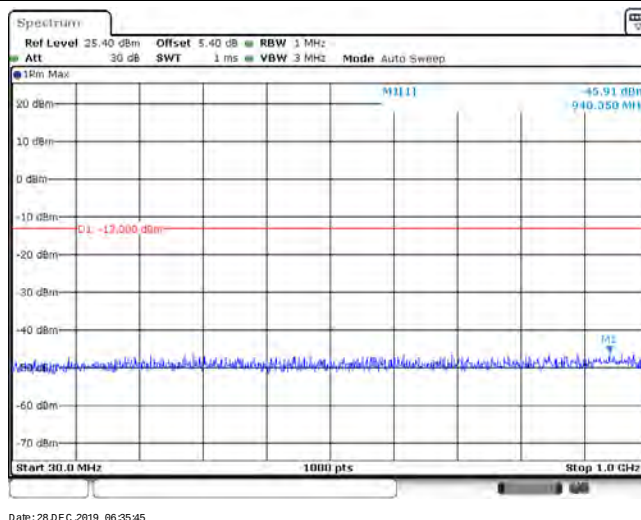
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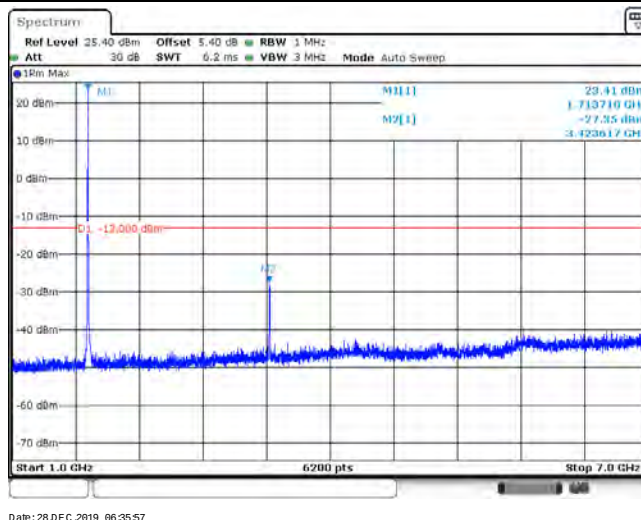


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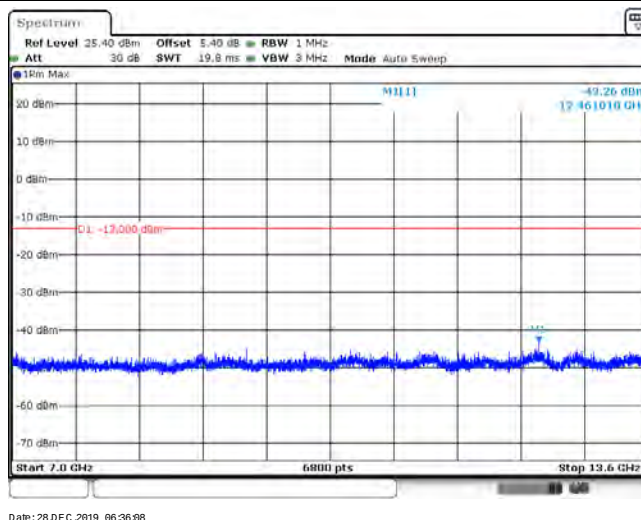
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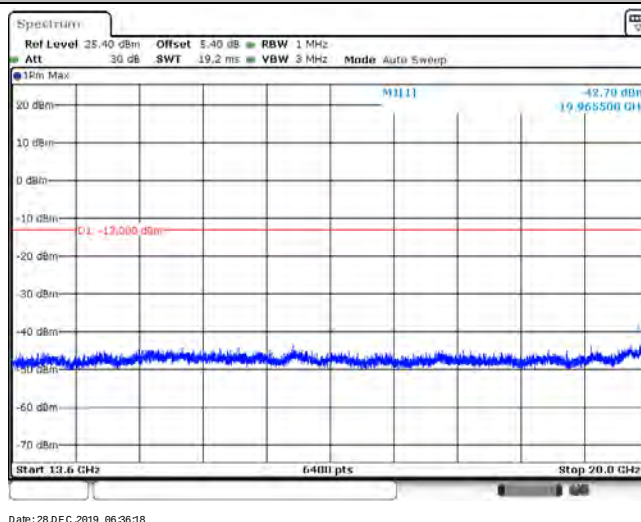
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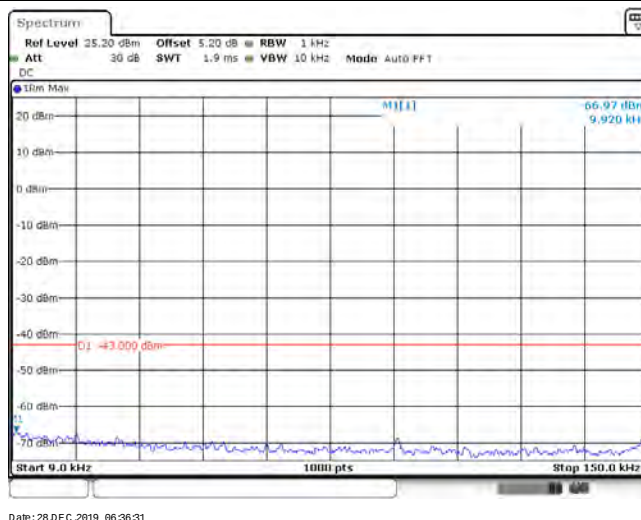


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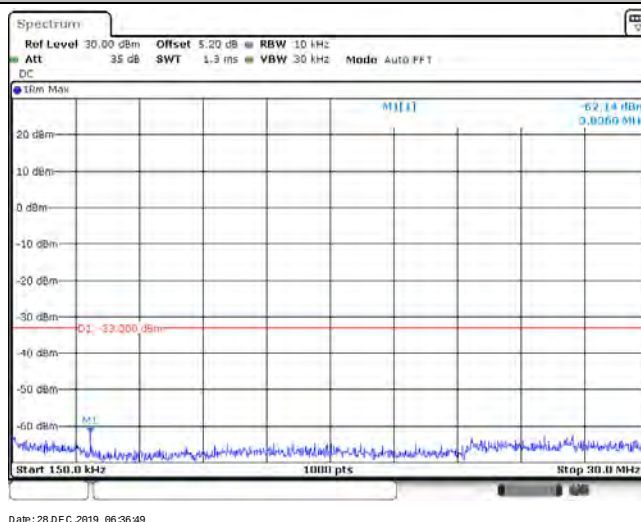


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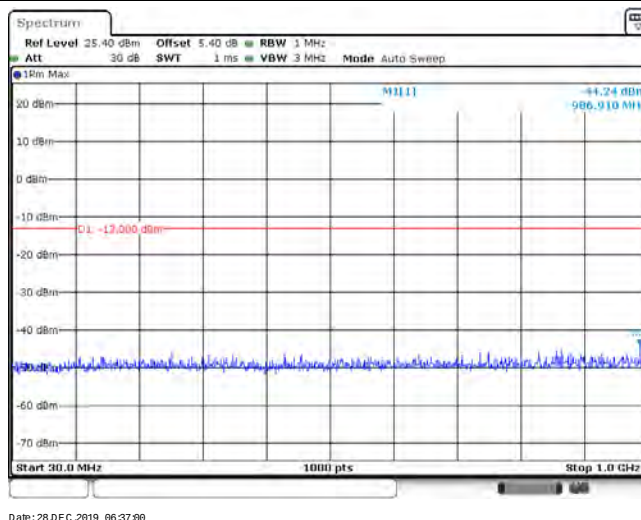


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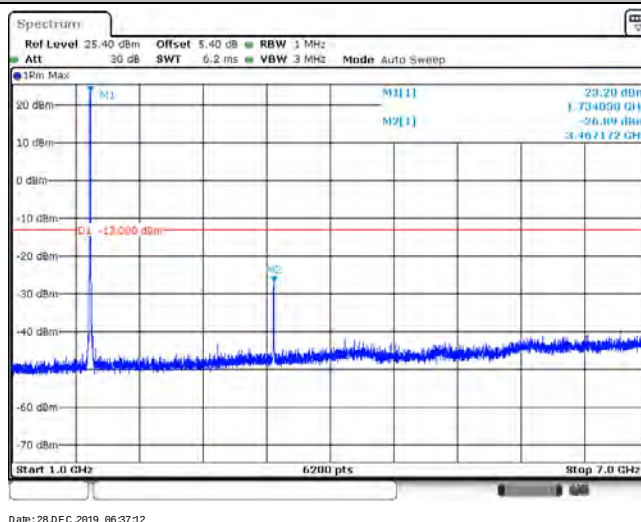


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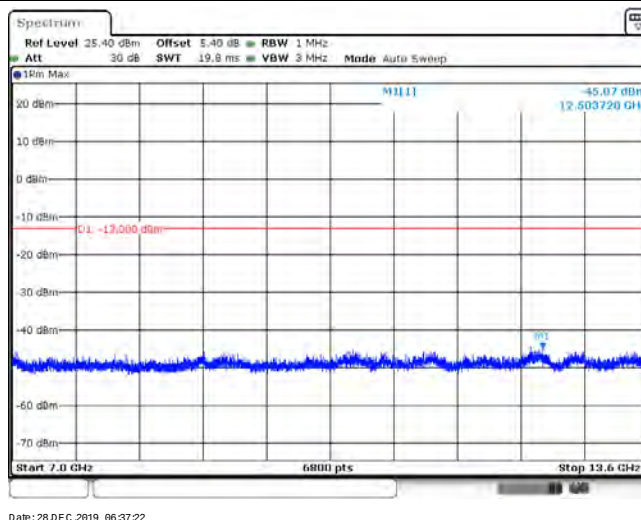


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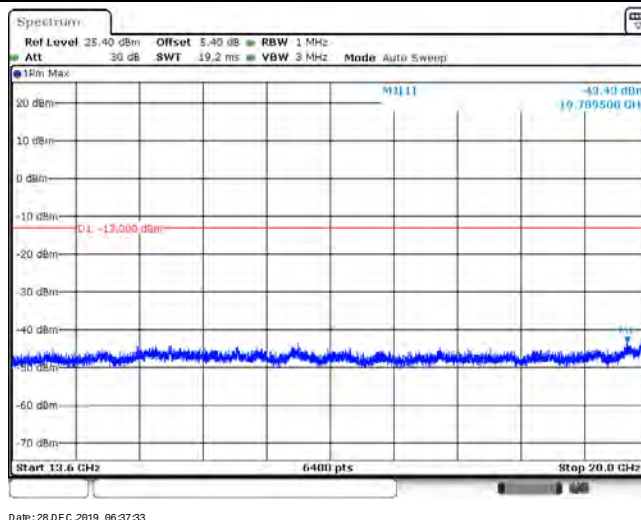


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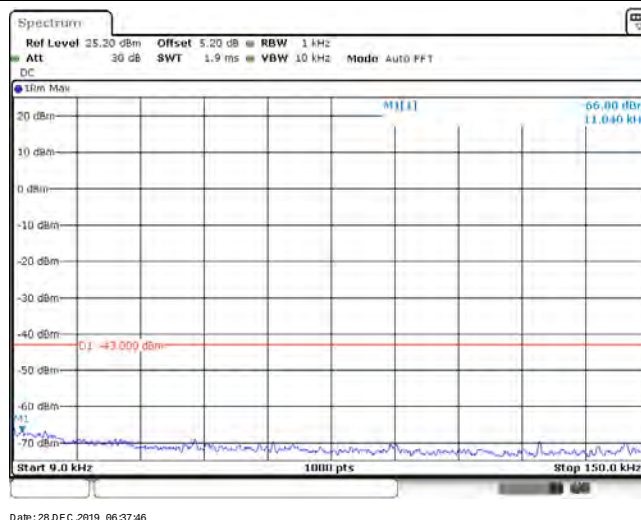


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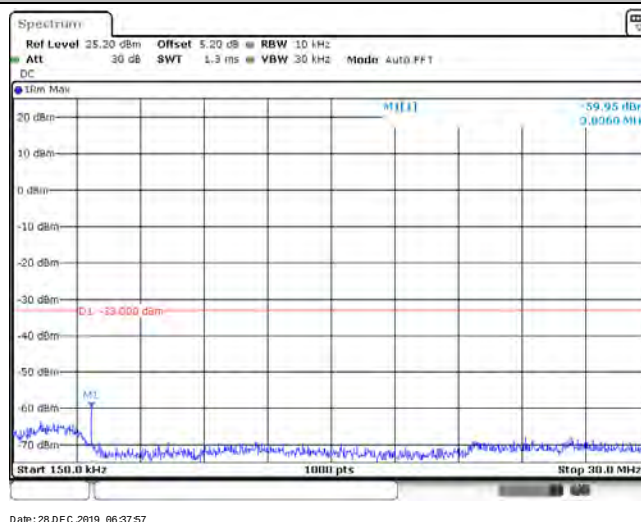


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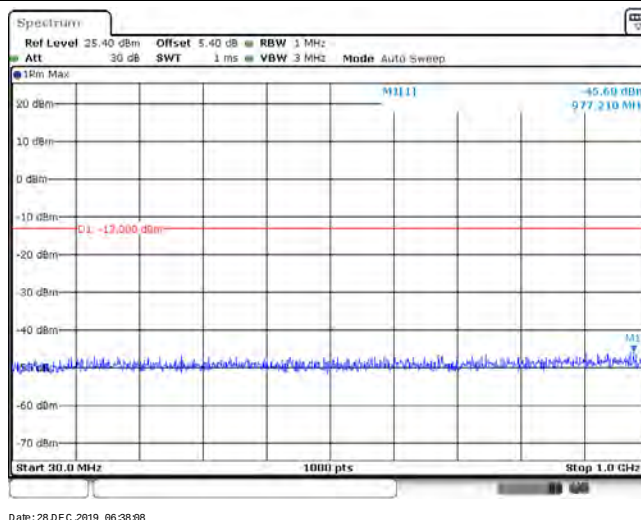


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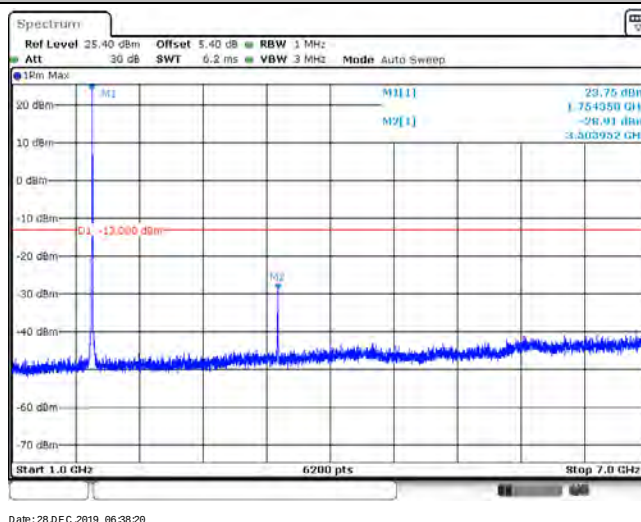


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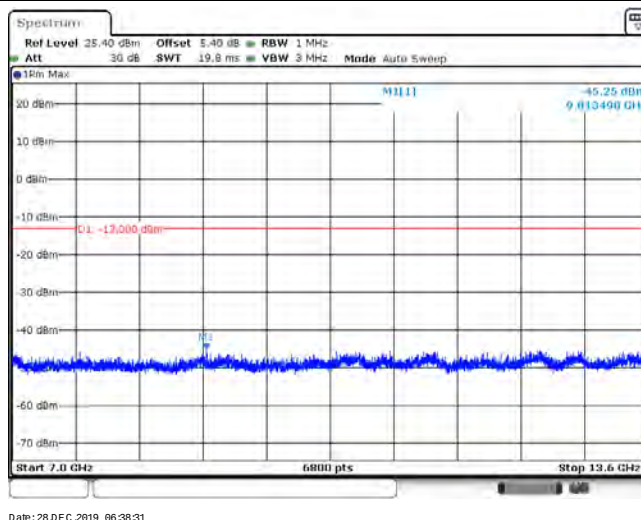


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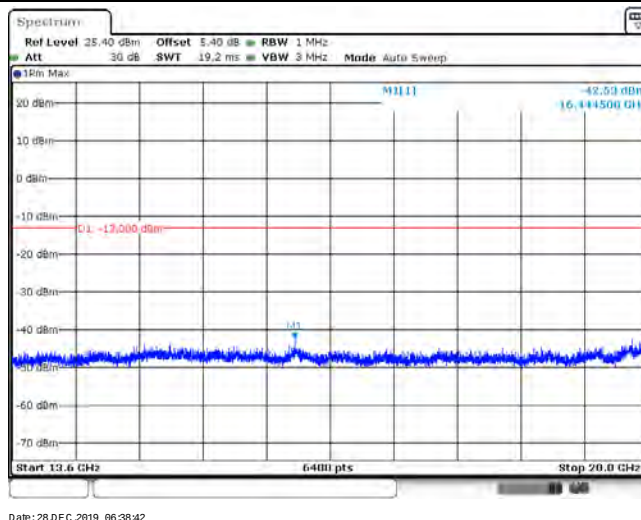
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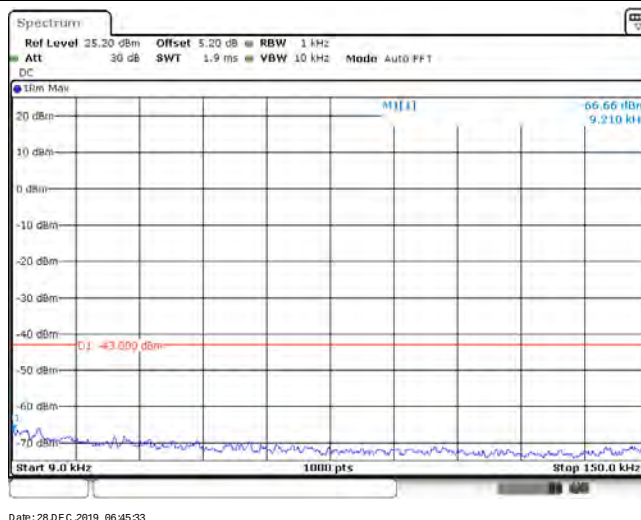
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Band IV_1513

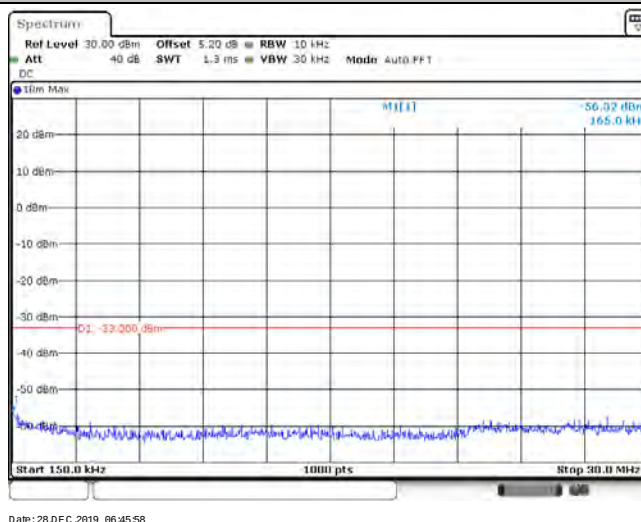


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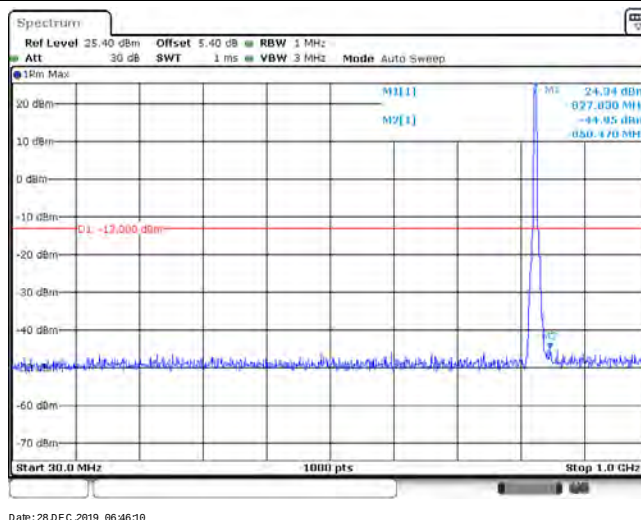


Band V_4132

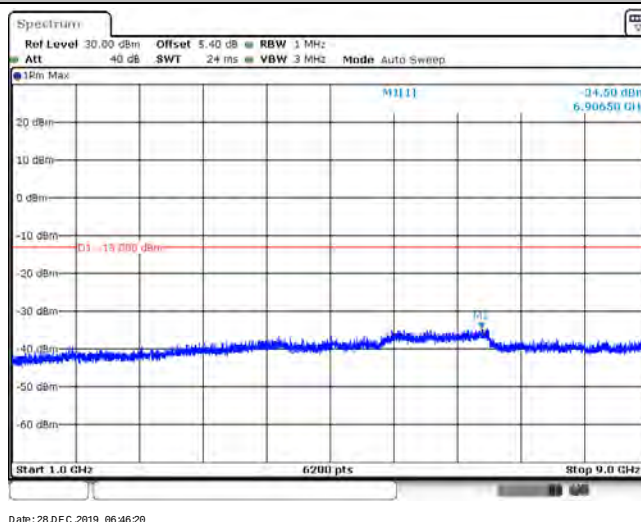


Band V_4132



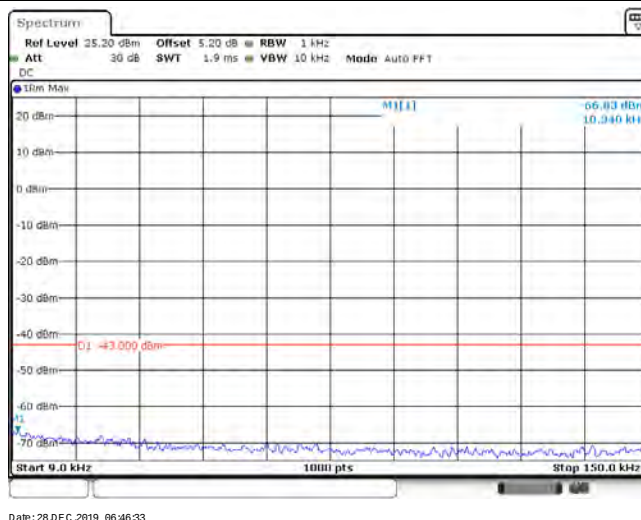


Band V_4132

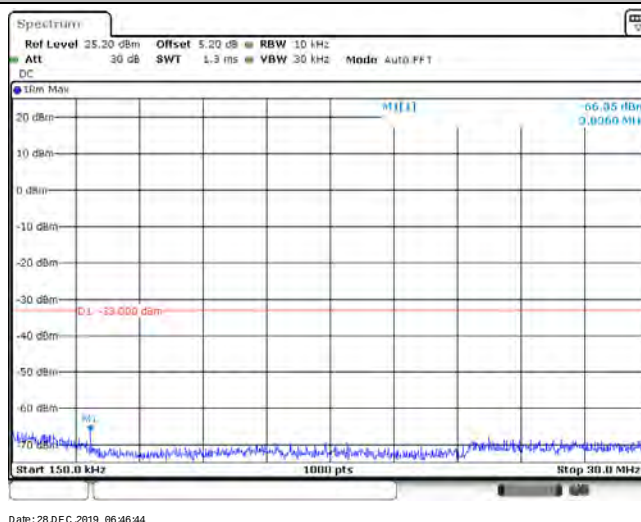


Band V_4132



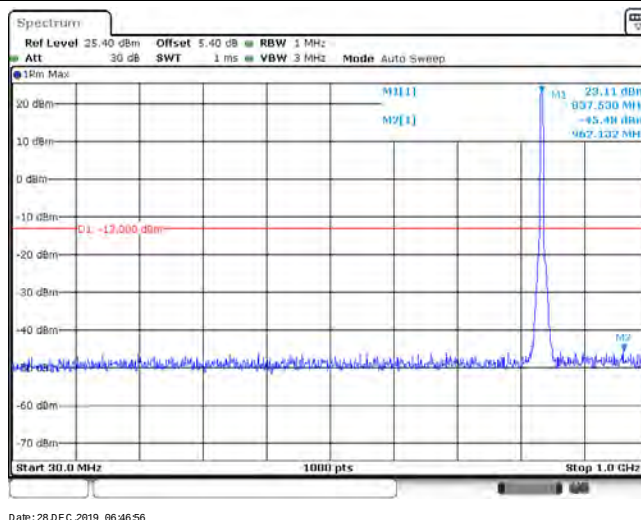


Band V_4182



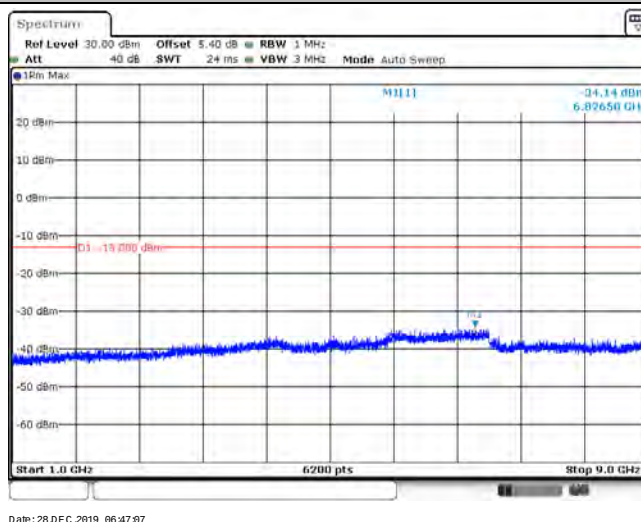
Band V_4182





Date: 28 DEC 2019 06:46:56

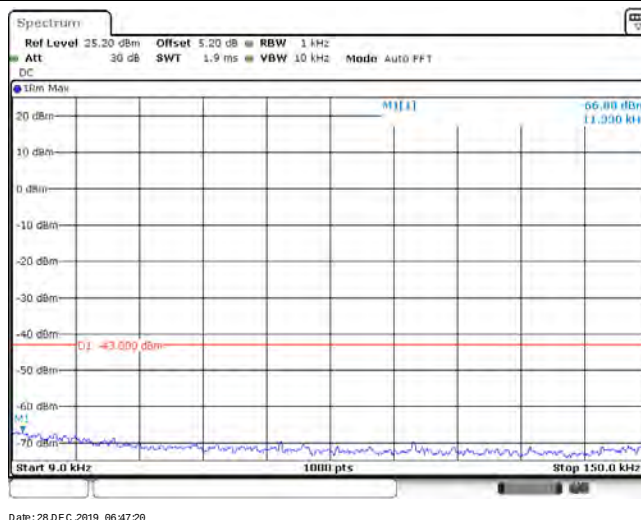
Band V_4182



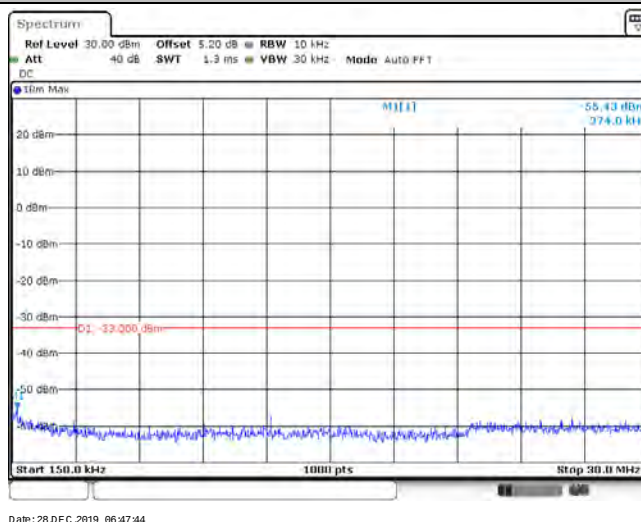
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Band V_4182



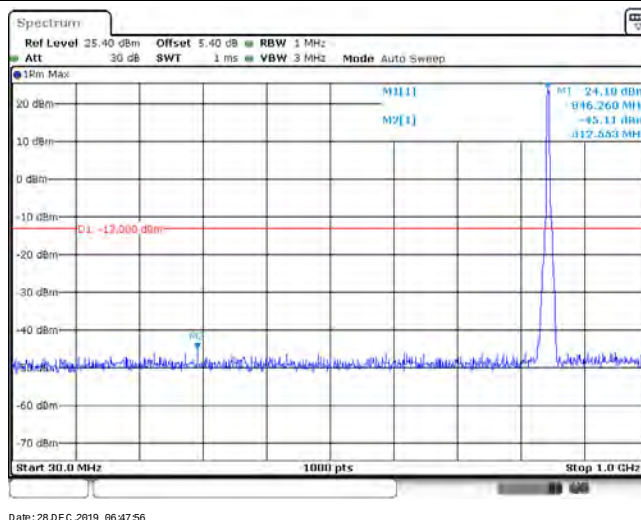


Band V_4233

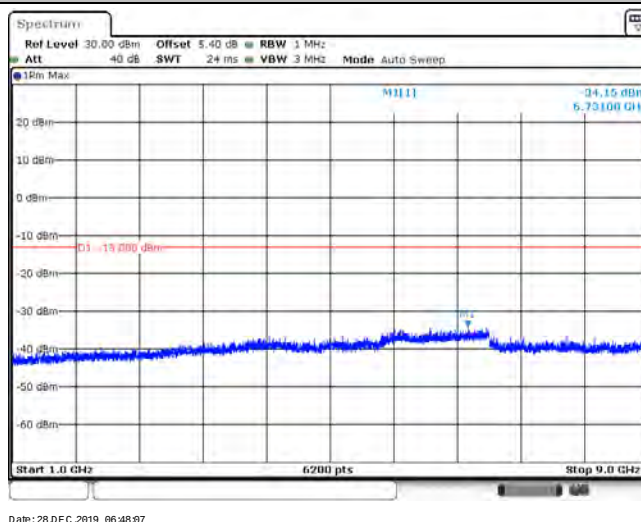


Band V_4233





Band V_4233



Band V_4233



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7. Field Strength of Spurious Radiation

7.1. Test Band = WCDMA Band II

7.1.1. Test Mode = WCDMA/TM1

7.1.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
108.8164	-64.81	-13.00	51.81	Vertical
3703.0234	-35.72	-13.00	22.72	Vertical
7406.6469	-50.07	-13.00	37.07	Vertical
9256.2085	-49.43	-13.00	36.43	Vertical
14475.8825	-47.89	-13.00	34.89	Vertical
17997.9999	-39.33	-13.00	26.33	Vertical
42.1256	-64.38	-13.00	51.38	Horizontal
3706.5236	-30.82	-13.00	17.82	Horizontal
5559.5853	-59.97	-13.00	46.97	Horizontal
7405.6469	-50.45	-13.00	37.45	Horizontal
9257.7086	-50.78	-13.00	37.78	Horizontal
16399.9467	-43.93	-13.00	30.93	Horizontal





7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
107.8464	-64.27	-13.00	51.27	Vertical
3761.5254	-37.05	-13.00	24.05	Vertical
7523.1508	-47.11	-13.00	34.11	Vertical
9404.2135	-48.37	-13.00	35.37	Vertical
14463.8821	-47.90	-13.00	34.90	Vertical
17998.5000	-39.50	-13.00	26.50	Vertical
42.2226	-64.17	-13.00	51.17	Horizontal
3761.5254	-32.64	-13.00	19.64	Horizontal
5636.5879	-56.97	-13.00	43.97	Horizontal
7517.1506	-47.16	-13.00	34.16	Horizontal
9395.7132	-46.84	-13.00	33.84	Horizontal
16396.9466	-43.46	-13.00	30.46	Horizontal

7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
111.4356	-64.21	-13.00	51.21	Vertical
3813.5271	-37.23	-13.00	24.23	Vertical
5725.5909	-57.54	-13.00	44.54	Vertical
7634.1545	-46.09	-13.00	33.09	Vertical
9542.7181	-46.25	-13.00	33.25	Vertical
17999.5000	-39.54	-13.00	26.54	Vertical
42.4651	-64.21	-13.00	51.21	Horizontal
3813.5271	-31.79	-13.00	18.79	Horizontal
5725.5909	-53.62	-13.00	40.62	Horizontal
7634.1545	-43.71	-13.00	30.71	Horizontal
9533.7178	-44.21	-13.00	31.21	Horizontal
16388.9463	-43.97	-13.00	30.97	Horizontal





7.2. Test Band = WCDMA Band IV

7.2.1. Test Mode = WCDMA/TM1

7.2.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
112.1146	-63.21	-13.00	50.21	Vertical
3423.5141	-40.04	-13.00	27.04	Vertical
5137.0712	-58.73	-13.00	45.73	Vertical
6846.1282	-49.47	-13.00	36.47	Vertical
8556.1852	-40.46	-13.00	27.46	Vertical
17987.9996	-39.56	-13.00	26.56	Vertical
41.7861	-64.30	-13.00	51.30	Horizontal
3426.5142	-37.99	-13.00	24.99	Horizontal
5137.5713	-57.93	-13.00	44.93	Horizontal
6845.6282	-50.79	-13.00	37.79	Horizontal
8556.6852	-44.86	-13.00	31.86	Horizontal
10268.7423	-46.12	-13.00	33.12	Horizontal





7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
108.4769	-65.36	-13.00	52.36	Vertical
3463.5155	-39.51	-13.00	26.51	Vertical
6930.1310	-45.60	-13.00	32.60	Vertical
8667.1889	-42.00	-13.00	29.00	Vertical
14493.3831	-47.72	-13.00	34.72	Vertical
17994.4998	-39.41	-13.00	26.41	Vertical
40.3795	-63.82	-13.00	50.82	Horizontal
3463.5155	-36.95	-13.00	23.95	Horizontal
6926.6309	-47.79	-13.00	34.79	Horizontal
8668.1889	-45.55	-13.00	32.55	Horizontal
10389.2463	-45.68	-13.00	32.68	Horizontal
16393.9465	-44.13	-13.00	31.13	Horizontal

7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
110.8535	-65.14	-13.00	52.14	Vertical
3506.5169	-39.94	-13.00	26.94	Vertical
7007.1336	-49.28	-13.00	36.28	Vertical
8757.1919	-42.25	-13.00	29.25	Vertical
14703.8901	-48.16	-13.00	35.16	Vertical
17999.0000	-39.29	-13.00	26.29	Vertical
43.8717	-62.98	-13.00	49.98	Horizontal
3503.0168	-37.82	-13.00	24.82	Horizontal
7006.1335	-50.02	-13.00	37.02	Horizontal
8759.1920	-46.61	-13.00	33.61	Horizontal
10509.2503	-49.15	-13.00	36.15	Horizontal
16398.9466	-44.20	-13.00	31.20	Horizontal



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7.3. Test Band = WCDMA Band V

7.3.1. Test Mode = WCDMA/TM1

7.3.1.1. Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
110.8050	-64.93	-13.00	51.93	Vertical
1651.3303	-62.46	-13.00	49.46	Vertical
4136.5379	-61.35	-13.00	48.35	Vertical
4952.5651	-58.84	-13.00	45.84	Vertical
14481.3827	-47.57	-13.00	34.57	Vertical
17997.4999	-39.76	-13.00	26.76	Vertical
39.7005	-64.82	-13.00	51.82	Horizontal
588.7479	-63.66	-13.00	50.66	Horizontal
1650.9302	-60.66	-13.00	47.66	Horizontal
4137.5379	-59.24	-13.00	46.24	Horizontal
4963.5655	-58.63	-13.00	45.63	Horizontal
16363.9455	-43.95	-13.00	30.95	Horizontal





7.3.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
115.5583	-65.53	-13.00	52.53	Vertical
1674.9350	-62.30	-13.00	49.30	Vertical
4188.0396	-59.36	-13.00	46.36	Vertical
5016.0672	-57.74	-13.00	44.74	Vertical
14471.3824	-47.74	-13.00	34.74	Vertical
17823.9941	-42.55	-13.00	29.55	Vertical
41.0586	-63.56	-13.00	50.56	Horizontal
1674.5349	-61.69	-13.00	48.69	Horizontal
4177.0392	-57.96	-13.00	44.96	Horizontal
5012.0671	-57.06	-13.00	44.06	Horizontal
9317.2106	-52.58	-13.00	39.58	Horizontal
16375.4458	-44.15	-13.00	31.15	Horizontal

7.3.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
110.5625	-64.63	-13.00	51.63	Vertical
1699.7399	-61.89	-13.00	48.89	Vertical
4228.5410	-59.43	-13.00	46.43	Vertical
5072.0691	-57.93	-13.00	44.93	Vertical
14507.8836	-47.80	-13.00	34.80	Vertical
17995.9999	-39.55	-13.00	26.55	Vertical
39.9430	-63.90	-13.00	50.90	Horizontal
1691.3383	-61.84	-13.00	48.84	Horizontal
4227.5409	-58.12	-13.00	45.12	Horizontal
5073.5691	-57.54	-13.00	44.54	Horizontal
9314.7105	-52.63	-13.00	39.63	Horizontal
16394.9465	-44.11	-13.00	31.11	Horizontal



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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 had been displayed.



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8. Frequency Stability

8.1. Frequency Vs Voltage

Band	Modulation	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	QPSK	9262	VL	TN	15.00	0.008096	±2.5	PASS
Band II	QPSK	9262	VN	TN	3.37	0.001821	±2.5	PASS
Band II	QPSK	9262	VH	TN	-9.47	-0.005113	±2.5	PASS
Band II	QPSK	9400	VL	TN	-9.67	-0.005144	±2.5	PASS
Band II	QPSK	9400	VN	TN	-5.25	-0.002791	±2.5	PASS
Band II	QPSK	9400	VH	TN	10.41	0.005536	±2.5	PASS
Band II	QPSK	9538	VL	TN	9.87	0.005174	±2.5	PASS
Band II	QPSK	9538	VN	TN	-4.83	-0.002531	±2.5	PASS
Band II	QPSK	9538	VH	TN	-7.73	-0.004053	±2.5	PASS
Band II	16QAM	9262	VL	TN	1.88	0.001015	±2.5	PASS
Band II	16QAM	9262	VN	TN	7.70	0.004159	±2.5	PASS
Band II	16QAM	9262	VH	TN	-13.74	-0.007419	±2.5	PASS
Band II	16QAM	9400	VL	TN	10.31	0.005483	±2.5	PASS
Band II	16QAM	9400	VN	TN	-6.53	-0.003473	±2.5	PASS
Band II	16QAM	9400	VH	TN	-12.53	-0.006663	±2.5	PASS
Band II	16QAM	9538	VL	TN	-12.83	-0.006728	±2.5	PASS
Band II	16QAM	9538	VN	TN	-5.65	-0.002961	±2.5	PASS
Band II	16QAM	9538	VH	TN	3.09	0.001618	±2.5	PASS
Band IV	QPSK	1312	VL	TN	12.81	0.007480	±2.5	PASS
Band IV	QPSK	1312	VN	TN	-10.04	-0.005865	±2.5	PASS
Band IV	QPSK	1312	VH	TN	14.00	0.008177	±2.5	PASS
Band IV	QPSK	1413	VL	TN	-1.22	-0.000703	±2.5	PASS
Band IV	QPSK	1413	VN	TN	-4.37	-0.002520	±2.5	PASS
Band IV	QPSK	1413	VH	TN	-6.61	-0.003813	±2.5	PASS
Band IV	QPSK	1513	VL	TN	0.10	0.000057	±2.5	PASS
Band IV	QPSK	1513	VN	TN	12.87	0.007341	±2.5	PASS
Band IV	QPSK	1513	VH	TN	11.48	0.006553	±2.5	PASS
Band IV	16QAM	1312	VL	TN	11.37	0.006641	±2.5	PASS
Band IV	16QAM	1312	VN	TN	1.03	0.000601	±2.5	PASS
Band IV	16QAM	1312	VH	TN	-12.43	-0.007256	±2.5	PASS
Band IV	16QAM	1413	VL	TN	-9.89	-0.005709	±2.5	PASS
Band IV	16QAM	1413	VN	TN	-5.64	-0.003253	±2.5	PASS



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Band IV	16QAM	1413	VH	TN	14.84	0.008565	± 2.5	PASS
Band IV	16QAM	1513	VL	TN	-4.31	-0.002458	± 2.5	PASS
Band IV	16QAM	1513	VN	TN	-9.80	-0.005594	± 2.5	PASS
Band IV	16QAM	1513	VH	TN	4.62	0.002634	± 2.5	PASS
Band V	QPSK	4132	VL	TN	6.63	0.008022	± 2.5	PASS
Band V	QPSK	4132	VN	TN	-11.92	-0.014428	± 2.5	PASS
Band V	QPSK	4132	VH	TN	1.79	0.002161	± 2.5	PASS
Band V	QPSK	4182	VL	TN	-10.74	-0.012842	± 2.5	PASS
Band V	QPSK	4182	VN	TN	13.05	0.015608	± 2.5	PASS
Band V	QPSK	4182	VH	TN	-6.13	-0.007329	± 2.5	PASS
Band V	QPSK	4233	VL	TN	6.11	0.007222	± 2.5	PASS
Band V	QPSK	4233	VN	TN	-8.64	-0.010210	± 2.5	PASS
Band V	QPSK	4233	VH	TN	-13.33	-0.015742	± 2.5	PASS
Band V	16QAM	4132	VL	TN	-6.91	-0.008356	± 2.5	PASS
Band V	16QAM	4132	VN	TN	-1.64	-0.001989	± 2.5	PASS
Band V	16QAM	4132	VH	TN	-1.84	-0.002225	± 2.5	PASS
Band V	16QAM	4182	VL	TN	-8.34	-0.009966	± 2.5	PASS
Band V	16QAM	4182	VN	TN	-1.14	-0.001362	± 2.5	PASS
Band V	16QAM	4182	VH	TN	4.16	0.004975	± 2.5	PASS
Band V	16QAM	4233	VL	TN	-9.70	-0.011454	± 2.5	PASS
Band V	16QAM	4233	VN	TN	-2.54	-0.003002	± 2.5	PASS
Band V	16QAM	4233	VH	TN	9.03	0.010671	± 2.5	PASS

8.2. Frequency Vs Temperature

Band	Modulation	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	QPSK	9262	VN	-30	2.09	0.001127	± 2.5	PASS
Band II	QPSK	9262	VN	-20	2.56	0.001382	± 2.5	PASS
Band II	QPSK	9262	VN	-10	13.36	0.007214	± 2.5	PASS
Band II	QPSK	9262	VN	0	0.96	0.000519	± 2.5	PASS
Band II	QPSK	9262	VN	10	-8.66	-0.004678	± 2.5	PASS
Band II	QPSK	9262	VN	20	7.52	0.004059	± 2.5	PASS
Band II	QPSK	9262	VN	30	3.95	0.002134	± 2.5	PASS
Band II	QPSK	9262	VN	40	10.32	0.005571	± 2.5	PASS
Band II	QPSK	9262	VN	50	8.36	0.004511	± 2.5	PASS
Band II	QPSK	9400	VN	-30	1.83	0.000974	± 2.5	PASS
Band II	QPSK	9400	VN	-20	9.43	0.005016	± 2.5	PASS
Band II	QPSK	9400	VN	-10	0.26	0.000137	± 2.5	PASS



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Band II	QPSK	9400	VN	0	-8.06	-0.004287	± 2.5	PASS
Band II	QPSK	9400	VN	10	12.62	0.006712	± 2.5	PASS
Band II	QPSK	9400	VN	20	2.59	0.001379	± 2.5	PASS
Band II	QPSK	9400	VN	30	-8.18	-0.004350	± 2.5	PASS
Band II	QPSK	9400	VN	40	-0.05	-0.000025	± 2.5	PASS
Band II	QPSK	9400	VN	50	1.62	0.000859	± 2.5	PASS
Band II	QPSK	9538	VN	-30	-1.38	-0.000723	± 2.5	PASS
Band II	QPSK	9538	VN	-20	13.16	0.006900	± 2.5	PASS
Band II	QPSK	9538	VN	-10	-2.04	-0.001070	± 2.5	PASS
Band II	QPSK	9538	VN	0	-13.28	-0.006961	± 2.5	PASS
Band II	QPSK	9538	VN	10	-10.79	-0.005656	± 2.5	PASS
Band II	QPSK	9538	VN	20	-13.31	-0.006979	± 2.5	PASS
Band II	QPSK	9538	VN	30	8.98	0.004710	± 2.5	PASS
Band II	QPSK	9538	VN	40	-1.45	-0.000758	± 2.5	PASS
Band II	QPSK	9538	VN	50	-0.56	-0.000294	± 2.5	PASS
Band II	16QAM	9262	VN	-30	-1.09	-0.000586	± 2.5	PASS
Band II	16QAM	9262	VN	-20	9.18	0.004958	± 2.5	PASS
Band II	16QAM	9262	VN	-10	4.23	0.002282	± 2.5	PASS
Band II	16QAM	9262	VN	0	-12.48	-0.006735	± 2.5	PASS
Band II	16QAM	9262	VN	10	-12.42	-0.006705	± 2.5	PASS
Band II	16QAM	9262	VN	20	2.19	0.001182	± 2.5	PASS
Band II	16QAM	9262	VN	30	-10.64	-0.005745	± 2.5	PASS
Band II	16QAM	9262	VN	40	-14.94	-0.008067	± 2.5	PASS
Band II	16QAM	9262	VN	50	4.85	0.002618	± 2.5	PASS
Band II	16QAM	9400	VN	-30	13.85	0.007369	± 2.5	PASS
Band II	16QAM	9400	VN	-20	1.77	0.000942	± 2.5	PASS
Band II	16QAM	9400	VN	-10	-11.17	-0.005941	± 2.5	PASS
Band II	16QAM	9400	VN	0	-10.56	-0.005615	± 2.5	PASS
Band II	16QAM	9400	VN	10	-10.75	-0.005719	± 2.5	PASS
Band II	16QAM	9400	VN	20	-3.35	-0.001780	± 2.5	PASS
Band II	16QAM	9400	VN	30	-2.88	-0.001533	± 2.5	PASS
Band II	16QAM	9400	VN	40	11.64	0.006194	± 2.5	PASS
Band II	16QAM	9400	VN	50	6.45	0.003431	± 2.5	PASS
Band II	16QAM	9538	VN	-30	-13.23	-0.006934	± 2.5	PASS
Band II	16QAM	9538	VN	-20	8.54	0.004478	± 2.5	PASS
Band II	16QAM	9538	VN	-10	-0.70	-0.000369	± 2.5	PASS
Band II	16QAM	9538	VN	0	-5.48	-0.002874	± 2.5	PASS
Band II	16QAM	9538	VN	10	2.90	0.001520	± 2.5	PASS



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Band II	16QAM	9538	VN	20	-12.51	-0.006556	± 2.5	PASS
Band II	16QAM	9538	VN	30	-7.24	-0.003798	± 2.5	PASS
Band II	16QAM	9538	VN	40	14.33	0.007512	± 2.5	PASS
Band II	16QAM	9538	VN	50	11.37	0.005962	± 2.5	PASS
Band IV	QPSK	1312	VN	-30	12.15	0.007094	± 2.5	PASS
Band IV	QPSK	1312	VN	-20	4.03	0.002352	± 2.5	PASS
Band IV	QPSK	1312	VN	-10	4.75	0.002772	± 2.5	PASS
Band IV	QPSK	1312	VN	0	6.27	0.003664	± 2.5	PASS
Band IV	QPSK	1312	VN	10	10.91	0.006370	± 2.5	PASS
Band IV	QPSK	1312	VN	20	-13.35	-0.007793	± 2.5	PASS
Band IV	QPSK	1312	VN	30	1.55	0.000906	± 2.5	PASS
Band IV	QPSK	1312	VN	40	0.91	0.000530	± 2.5	PASS
Band IV	QPSK	1312	VN	50	7.25	0.004231	± 2.5	PASS
Band IV	QPSK	1413	VN	-30	-8.24	-0.004756	± 2.5	PASS
Band IV	QPSK	1413	VN	-20	1.09	0.000631	± 2.5	PASS
Band IV	QPSK	1413	VN	-10	-1.25	-0.000720	± 2.5	PASS
Band IV	QPSK	1413	VN	0	4.37	0.002525	± 2.5	PASS
Band IV	QPSK	1413	VN	10	-5.66	-0.003269	± 2.5	PASS
Band IV	QPSK	1413	VN	20	5.09	0.002937	± 2.5	PASS
Band IV	QPSK	1413	VN	30	-6.10	-0.003521	± 2.5	PASS
Band IV	QPSK	1413	VN	40	7.83	0.004519	± 2.5	PASS
Band IV	QPSK	1413	VN	50	-2.75	-0.001589	± 2.5	PASS
Band IV	QPSK	1513	VN	-30	8.82	0.005033	± 2.5	PASS
Band IV	QPSK	1513	VN	-20	-1.17	-0.000670	± 2.5	PASS
Band IV	QPSK	1513	VN	-10	13.09	0.007471	± 2.5	PASS
Band IV	QPSK	1513	VN	0	0.55	0.000313	± 2.5	PASS
Band IV	QPSK	1513	VN	10	-8.91	-0.005084	± 2.5	PASS
Band IV	QPSK	1513	VN	20	4.93	0.002815	± 2.5	PASS
Band IV	QPSK	1513	VN	30	4.07	0.002322	± 2.5	PASS
Band IV	QPSK	1513	VN	40	-7.45	-0.004249	± 2.5	PASS
Band IV	QPSK	1513	VN	50	-4.78	-0.002728	± 2.5	PASS
Band IV	16QAM	1312	VN	-30	5.07	0.002960	± 2.5	PASS
Band IV	16QAM	1312	VN	-20	2.54	0.001481	± 2.5	PASS
Band IV	16QAM	1312	VN	-10	7.87	0.004595	± 2.5	PASS
Band IV	16QAM	1312	VN	0	4.54	0.002654	± 2.5	PASS
Band IV	16QAM	1312	VN	10	7.74	0.004518	± 2.5	PASS
Band IV	16QAM	1312	VN	20	11.99	0.007003	± 2.5	PASS
Band IV	16QAM	1312	VN	30	12.40	0.007241	± 2.5	PASS



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Band IV	16QAM	1312	VN	40	6.65	0.003886	± 2.5	PASS
Band IV	16QAM	1312	VN	50	-5.99	-0.003496	± 2.5	PASS
Band IV	16QAM	1413	VN	-30	-12.37	-0.007139	± 2.5	PASS
Band IV	16QAM	1413	VN	-20	9.66	0.005575	± 2.5	PASS
Band IV	16QAM	1413	VN	-10	-3.35	-0.001931	± 2.5	PASS
Band IV	16QAM	1413	VN	0	-8.57	-0.004947	± 2.5	PASS
Band IV	16QAM	1413	VN	10	13.72	0.007917	± 2.5	PASS
Band IV	16QAM	1413	VN	20	0.23	0.000134	± 2.5	PASS
Band IV	16QAM	1413	VN	30	7.58	0.004377	± 2.5	PASS
Band IV	16QAM	1413	VN	40	-7.73	-0.004459	± 2.5	PASS
Band IV	16QAM	1413	VN	50	4.74	0.002735	± 2.5	PASS
Band IV	16QAM	1513	VN	-30	3.89	0.002222	± 2.5	PASS
Band IV	16QAM	1513	VN	-20	-12.97	-0.007399	± 2.5	PASS
Band IV	16QAM	1513	VN	-10	1.88	0.001070	± 2.5	PASS
Band IV	16QAM	1513	VN	0	7.61	0.004344	± 2.5	PASS
Band IV	16QAM	1513	VN	10	-1.32	-0.000755	± 2.5	PASS
Band IV	16QAM	1513	VN	20	-1.46	-0.000834	± 2.5	PASS
Band IV	16QAM	1513	VN	30	-10.84	-0.006185	± 2.5	PASS
Band IV	16QAM	1513	VN	40	6.29	0.003587	± 2.5	PASS
Band IV	16QAM	1513	VN	50	-8.34	-0.004756	± 2.5	PASS
Band V	QPSK	4132	VN	-30	0.32	0.000391	± 2.5	PASS
Band V	QPSK	4132	VN	-20	1.79	0.002161	± 2.5	PASS
Band V	QPSK	4132	VN	-10	-1.37	-0.001653	± 2.5	PASS
Band V	QPSK	4132	VN	0	-10.63	-0.012864	± 2.5	PASS
Band V	QPSK	4132	VN	10	1.49	0.001803	± 2.5	PASS
Band V	QPSK	4132	VN	20	1.00	0.001209	± 2.5	PASS
Band V	QPSK	4132	VN	30	11.00	0.013315	± 2.5	PASS
Band V	QPSK	4132	VN	40	2.91	0.003527	± 2.5	PASS
Band V	QPSK	4132	VN	50	12.63	0.015281	± 2.5	PASS
Band V	QPSK	4182	VN	-30	8.11	0.009692	± 2.5	PASS
Band V	QPSK	4182	VN	-20	-6.06	-0.007248	± 2.5	PASS
Band V	QPSK	4182	VN	-10	1.42	0.001700	± 2.5	PASS
Band V	QPSK	4182	VN	0	6.78	0.008111	± 2.5	PASS
Band V	QPSK	4182	VN	10	0.04	0.000054	± 2.5	PASS
Band V	QPSK	4182	VN	20	2.32	0.002772	± 2.5	PASS
Band V	QPSK	4182	VN	30	-3.23	-0.003867	± 2.5	PASS
Band V	QPSK	4182	VN	40	6.11	0.007310	± 2.5	PASS
Band V	QPSK	4182	VN	50	-10.47	-0.012521	± 2.5	PASS



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Band V	QPSK	4233	VN	-30	7.29	0.008614	± 2.5	PASS
Band V	QPSK	4233	VN	-20	-12.42	-0.014667	± 2.5	PASS
Band V	QPSK	4233	VN	-10	4.44	0.005250	± 2.5	PASS
Band V	QPSK	4233	VN	0	-8.56	-0.010109	± 2.5	PASS
Band V	QPSK	4233	VN	10	2.25	0.002654	± 2.5	PASS
Band V	QPSK	4233	VN	20	0.89	0.001048	± 2.5	PASS
Band V	QPSK	4233	VN	30	-9.92	-0.011714	± 2.5	PASS
Band V	QPSK	4233	VN	40	-7.17	-0.008469	± 2.5	PASS
Band V	QPSK	4233	VN	50	11.37	0.013431	± 2.5	PASS
Band V	16QAM	4132	VN	-30	-8.97	-0.010850	± 2.5	PASS
Band V	16QAM	4132	VN	-20	-11.43	-0.013832	± 2.5	PASS
Band V	16QAM	4132	VN	-10	-4.49	-0.005436	± 2.5	PASS
Band V	16QAM	4132	VN	0	-12.48	-0.015102	± 2.5	PASS
Band V	16QAM	4132	VN	10	-6.51	-0.007876	± 2.5	PASS
Band V	16QAM	4132	VN	20	4.84	0.005862	± 2.5	PASS
Band V	16QAM	4132	VN	30	3.11	0.003763	± 2.5	PASS
Band V	16QAM	4132	VN	40	6.00	0.007265	± 2.5	PASS
Band V	16QAM	4132	VN	50	12.77	0.015449	± 2.5	PASS
Band V	16QAM	4182	VN	-30	3.92	0.004685	± 2.5	PASS
Band V	16QAM	4182	VN	-20	-1.67	-0.001993	± 2.5	PASS
Band V	16QAM	4182	VN	-10	-5.20	-0.006219	± 2.5	PASS
Band V	16QAM	4182	VN	0	-9.46	-0.011314	± 2.5	PASS
Band V	16QAM	4182	VN	10	7.74	0.009251	± 2.5	PASS
Band V	16QAM	4182	VN	20	4.88	0.005838	± 2.5	PASS
Band V	16QAM	4182	VN	30	-7.01	-0.008378	± 2.5	PASS
Band V	16QAM	4182	VN	40	-5.42	-0.006477	± 2.5	PASS
Band V	16QAM	4182	VN	50	2.80	0.003343	± 2.5	PASS
Band V	16QAM	4233	VN	-30	-6.02	-0.007111	± 2.5	PASS
Band V	16QAM	4233	VN	-20	12.05	0.014236	± 2.5	PASS
Band V	16QAM	4233	VN	-10	-13.34	-0.015757	± 2.5	PASS
Band V	16QAM	4233	VN	0	14.02	0.016564	± 2.5	PASS
Band V	16QAM	4233	VN	10	-2.37	-0.002803	± 2.5	PASS
Band V	16QAM	4233	VN	20	4.33	0.005111	± 2.5	PASS
Band V	16QAM	4233	VN	30	5.50	0.006496	± 2.5	PASS
Band V	16QAM	4233	VN	40	-9.30	-0.010990	± 2.5	PASS
Band V	16QAM	4233	VN	50	14.47	0.017096	± 2.5	PASS

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