



Appendix B

WCDMA BAND II & IV & V





CONTENT

1. EFFECTIVE (ISOTROPIC) RADIATED POWER.....	4
1.1. TEST RESULT	4
2. PEAK-TO-AVERAGE RATIO(CCDF).....	5
2.1. TEST RESULT	5
2.2. TEST PLOTS.....	5
3. MODULATION CHARACTERISTICS	10
3.1. TEST BAND = LTE BAND 2	10
3.2. TEST BAND = WCDMA BAND II.....	10
3.2.1. TEST MODE = UMTS/TM1	10
3.2.1.1. TEST CHANNEL = MCH.....	10
3.3. TEST BAND = WCDMA BAND IV	11
3.3.1. TEST MODE = UMTS/TM1	11
3.3.1.1. TEST CHANNEL = MCH.....	11
3.4. TEST BAND = WCDMA BAND V	12
3.4.1. TEST MODE = UMTS/TM1	12
3.4.1.1. TEST CHANNEL = MCH.....	12
4. 26DB BANDWIDTH AND OCCUPIED BANDWIDTH	13
4.1. TEST RESULT	13
4.2. TEST PLOTS.....	13
5. BAND EDGE COMPLIANCE	18
5.1. TEST PLOTS.....	18
6. SPURIOUS EMISSION AT ANTENNA TERMINAL	21
6.1. TEST PLOTS.....	21
7. FIELD STRENGTH OF SPURIOUS RADIATION.....	45
7.1. TEST BAND = WCDMA BAND II.....	45
7.1.1. TEST MODE =WCDMA/TM1.....	45
7.1.1.1. TEST CHANNEL = LCH	45
7.1.1.2. TEST CHANNEL = MCH.....	45



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7.1.1.3.	TEST CHANNEL = HCH	46
7.2.	TEST BAND = WCDMA BAND IV	46
7.2.1.	TEST MODE =WCDMA/TM1.....	46
7.2.1.1.	TEST CHANNEL = LCH	46
7.2.1.2.	TEST CHANNEL = MCH.....	47
7.2.1.3.	TEST CHANNEL = HCH	47
7.3.	TEST BAND = WCDMA BAND V	48
7.3.1.	TEST MODE =WCDMA/TM1.....	48
7.3.1.1.	TEST CHANNEL = LCH	48
7.3.1.2.	TEST CHANNEL = MCH.....	48
7.3.1.3.	TEST CHANNEL = HCH	49
8.	FREQUENCY STABILITY	50
8.1.	FREQUENCY VS VOLTAGE	50
8.2.	FREQUENCY VS TEMPERATURE	51





1. Effective (Isotropic) Radiated Power

1.1. Test Result

BAND	Channel	Conducted Power(dBm)	EIRP(dBm)	Limit(dBm)	Verdict
Band II	9262	23.92	24.92	33.00	PASS
Band II	9400	23.99	24.99	33.00	PASS
Band II	9538	23.98	24.98	33.00	PASS
Band IV	1312	23.50	24.90	30.00	PASS
Band IV	1413	23.50	24.90	30.00	PASS
Band IV	1513	23.26	24.66	30.00	PASS

BAND	Channel	Conducted Power(dBm)	ERP(dBm)	Limit(dBm)	Verdict
Band V	4132	23.53	20.38	38.45	PASS
Band V	4182	23.56	20.41	38.45	PASS
Band V	4233	23.72	20.57	38.45	PASS

Remark:

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

ERP [dBm] = Conducted Power [dBm] + Gain [dBd]

EIRP [dBm] = Conducted Power [dBm] + Gain [dBi]



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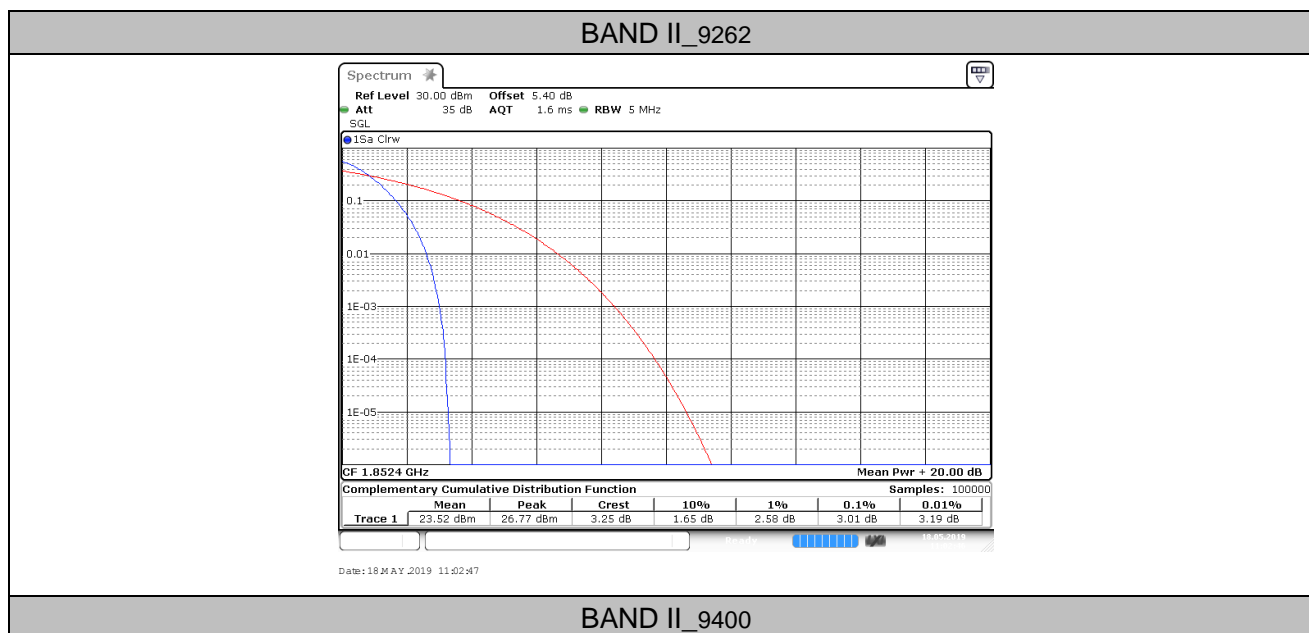


2. Peak-to-Average Ratio(CCDF)

2.1. Test Result

BAND	Channel	Peak-to-Average Ratio(dB)	Limit(dB)	Verdict
Band II	9262	3.01	13	PASS
Band II	9400	2.96	13	PASS
Band II	9538	2.99	13	PASS
Band IV	1312	2.90	13	PASS
Band IV	1413	3.22	13	PASS
Band IV	1513	3.25	13	PASS
Band V	4132	2.99	13	PASS
Band V	4182	2.52	13	PASS
Band V	4233	2.55	13	PASS

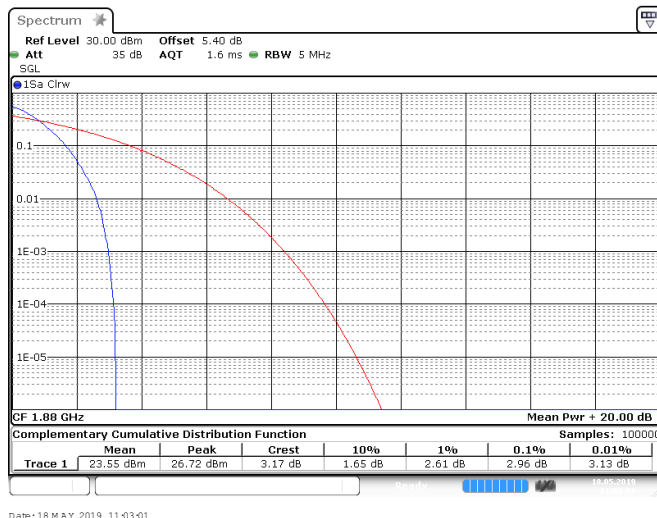
2.2. Test Plots



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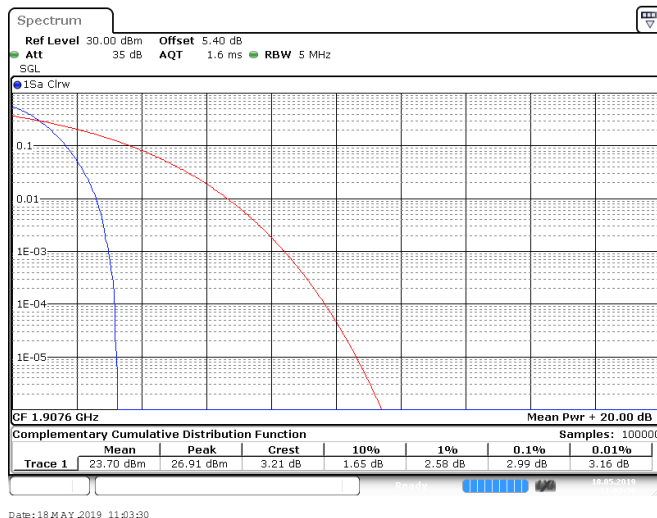
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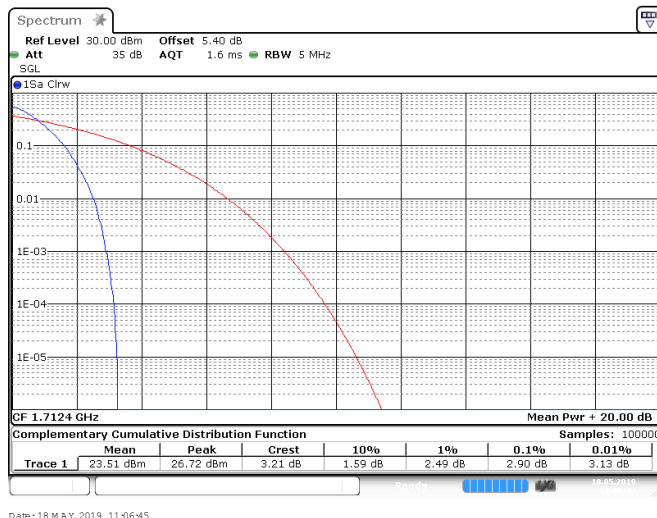
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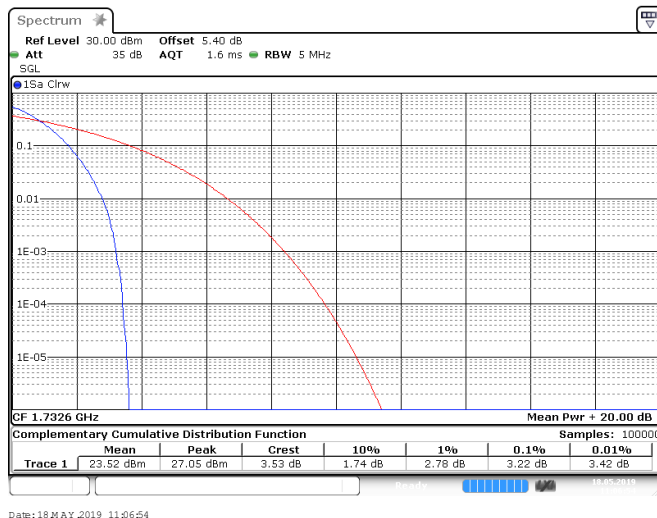
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BAND IV_1312





BAND IV_1413



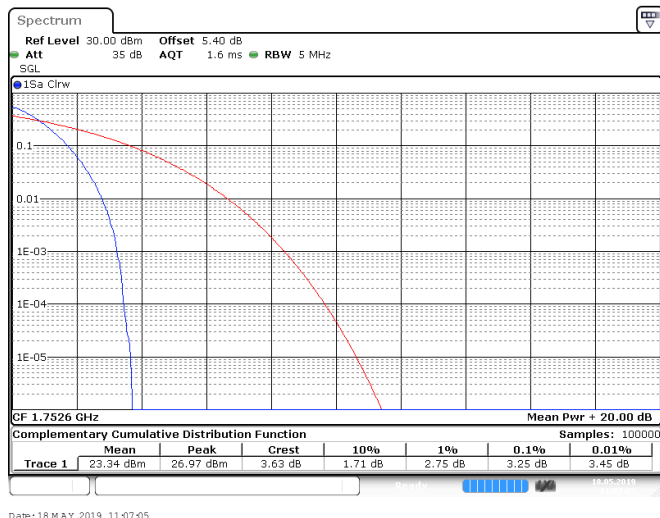
BAND IV_1513



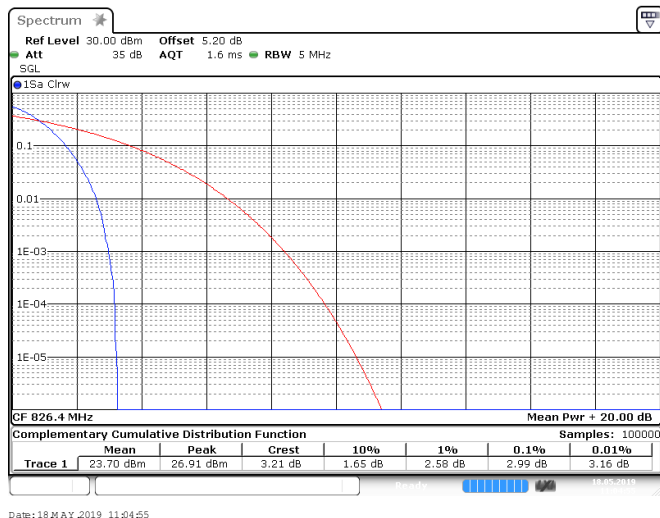
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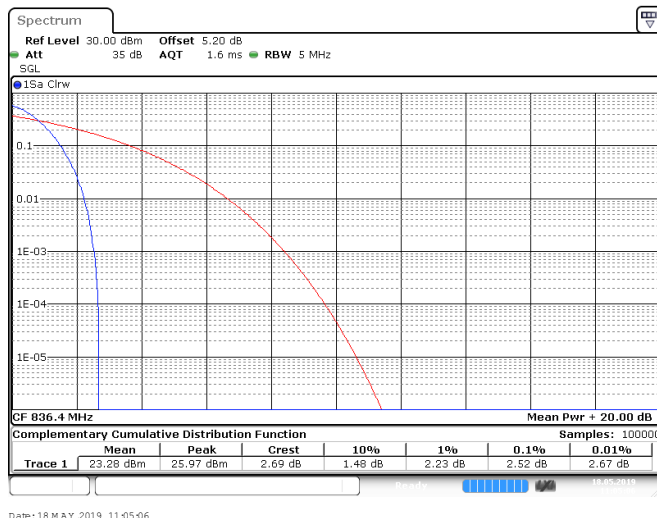


BAND V_4132

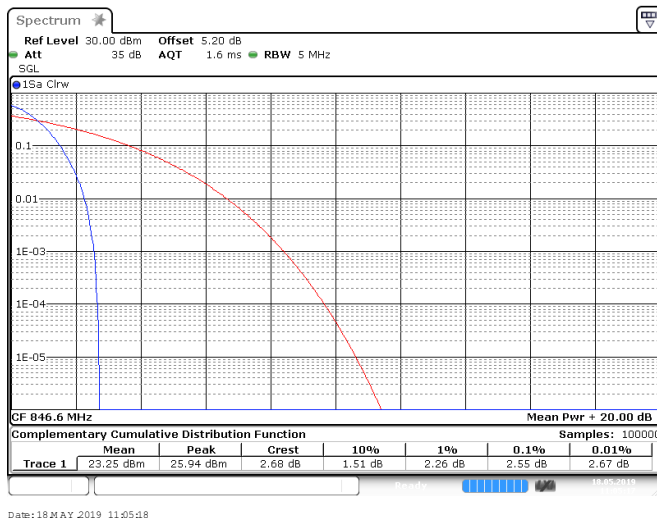


BAND V_4182





BAND V_4233



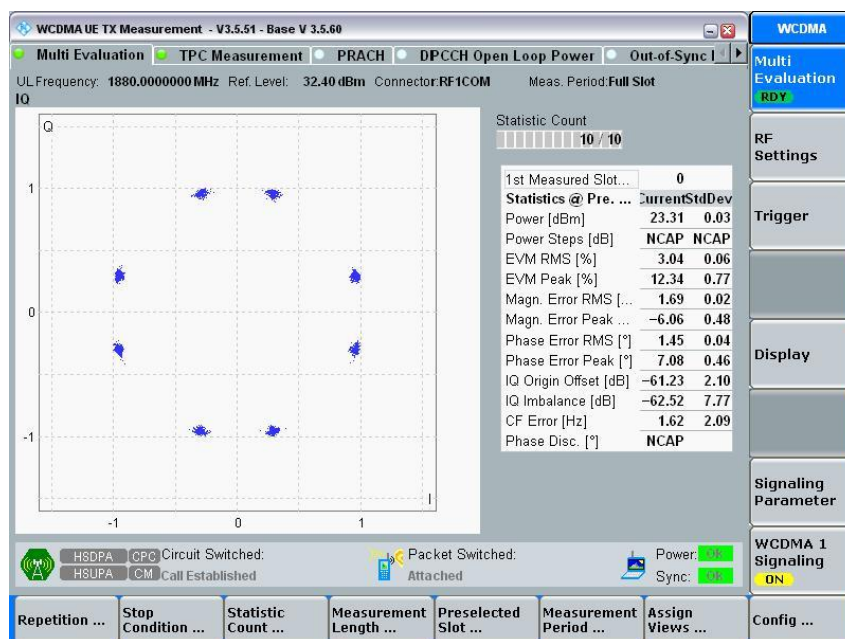
3. Modulation Characteristics

3.1. Test BAND = LTE Band 2

3.2. Test BAND = WCDMA BAND II

3.2.1. Test Mode = UMTS/TM1

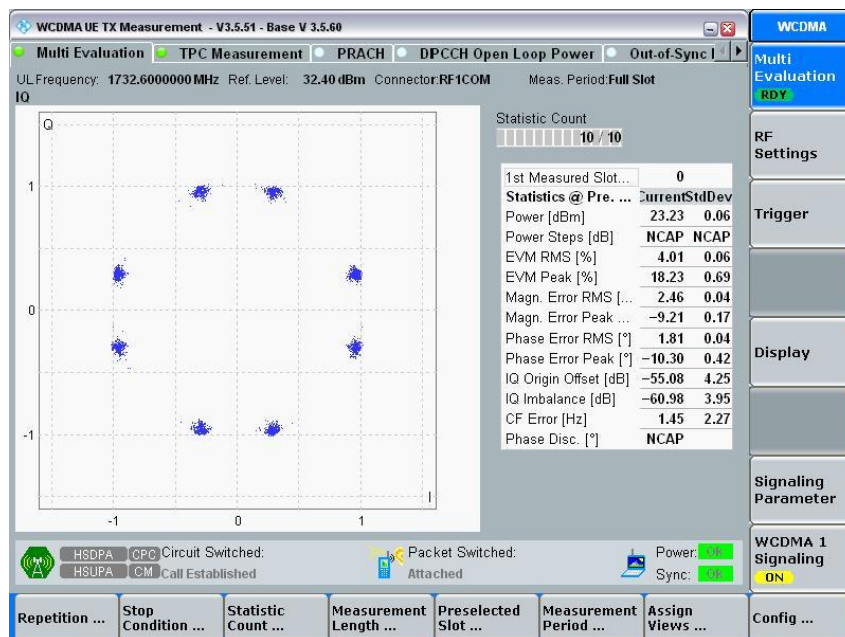
3.2.1.1. Test Channel = MCH



3.3. Test BAND = WCDMA BAND IV

3.3.1. Test Mode = UMTS/TM1

3.3.1.1. Test Channel = MCH

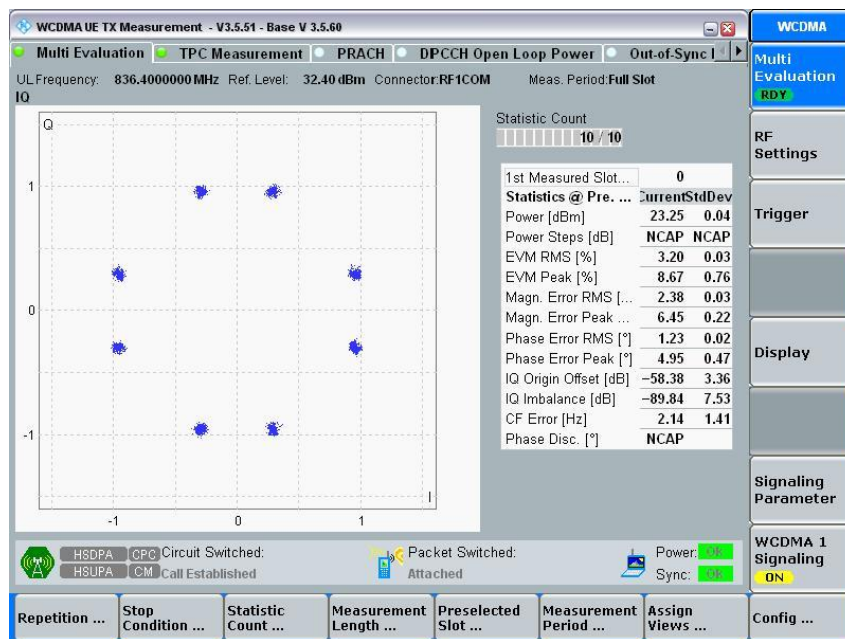


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3.4. Test BAND = WCDMA BAND V

3.4.1. Test Mode = UMTS/TM1

3.4.1.1. Test Channel = MCH



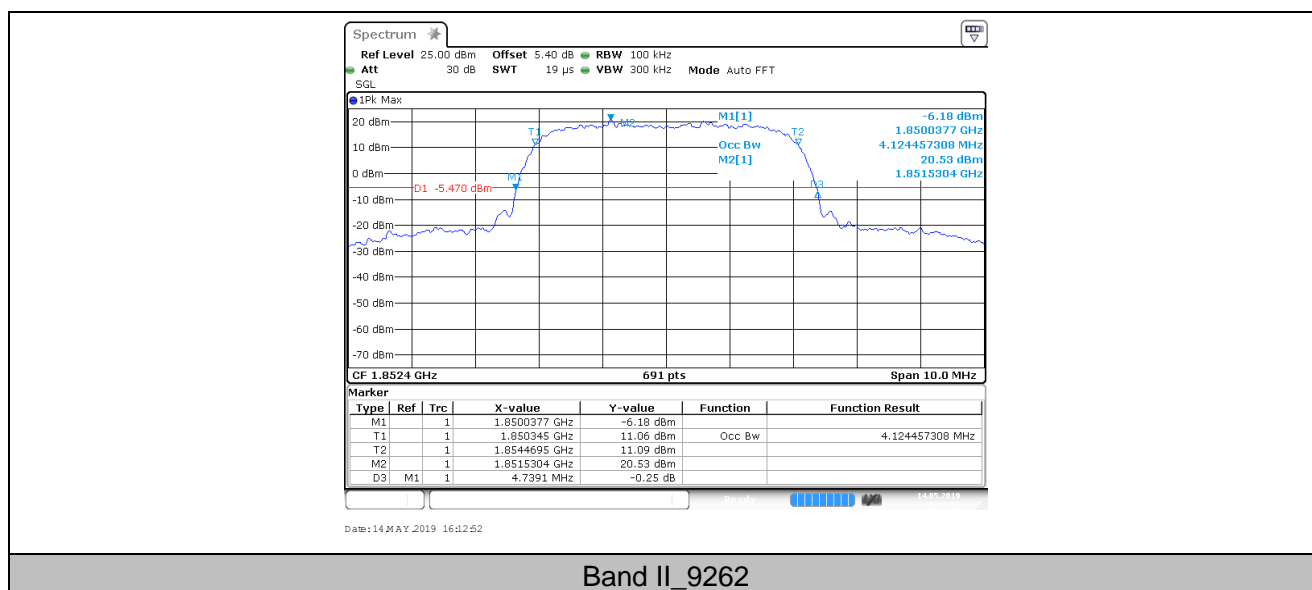


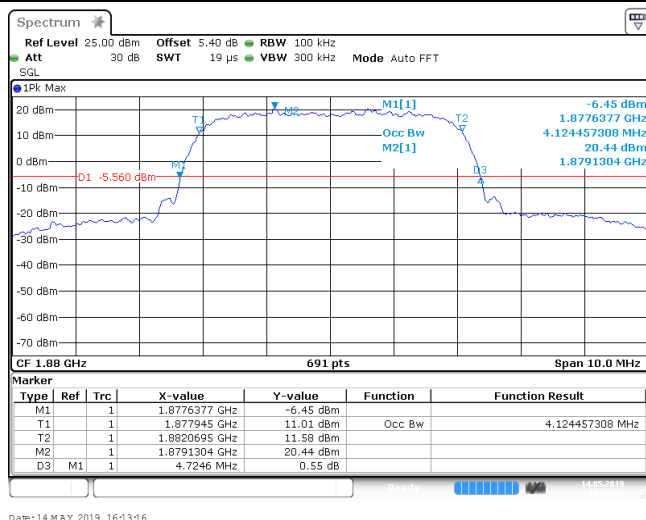
4. 26dB Bandwidth and Occupied Bandwidth

4.1. Test Result

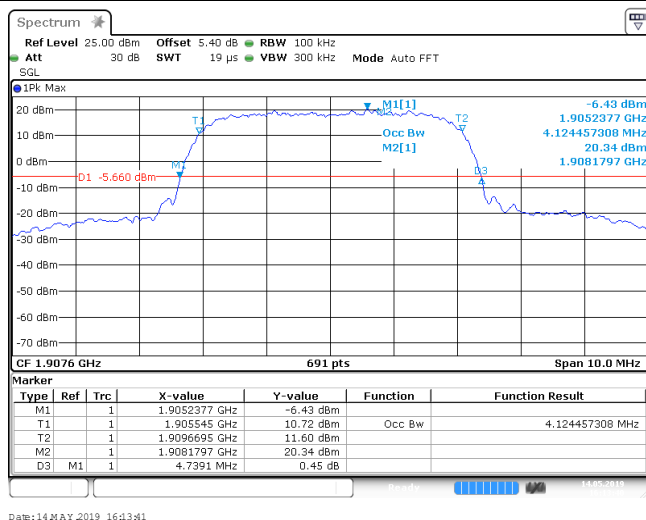
BAND	Channel	Occupied Bandwidth (kHz)	26dB Bandwidth (kHz)	Limit(kHz)	Verdict
Band II	9262	4124.5	4739	---	PASS
Band II	9400	4124.5	4725	---	PASS
Band II	9538	4124.5	4739	---	PASS
Band IV	1312	4124.5	4725	---	PASS
Band IV	1413	4124.5	4725	---	PASS
Band IV	1513	4124.5	4725	---	PASS
Band V	4132	4110.0	4739	---	PASS
Band V	4182	4124.5	4739	---	PASS
Band V	4233	4110.0	4725	---	PASS

4.2. Test Plots



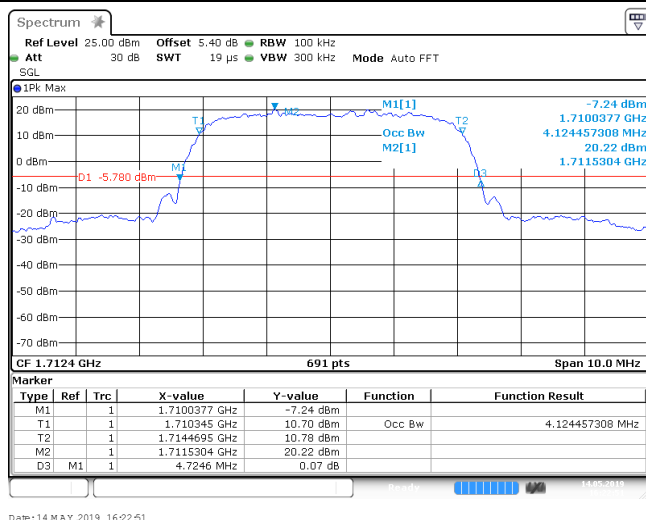


Band II_9400

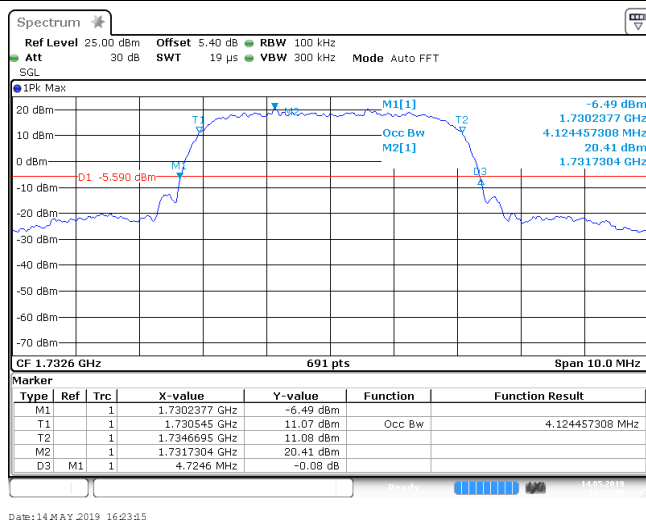


Band II_9538



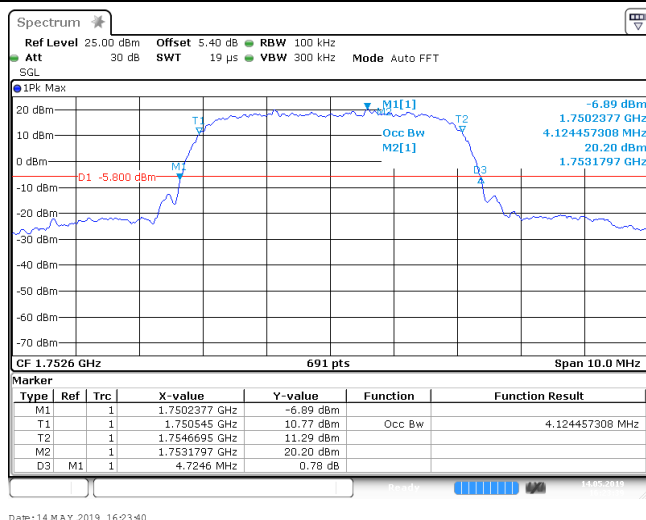


Band IV_1312

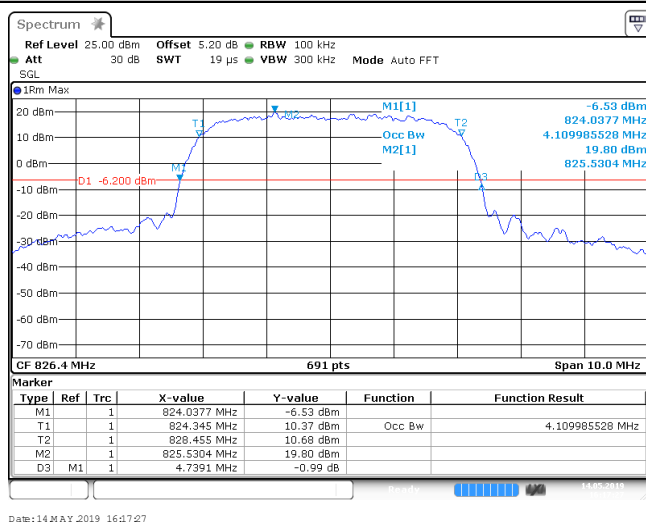


Band IV_1413



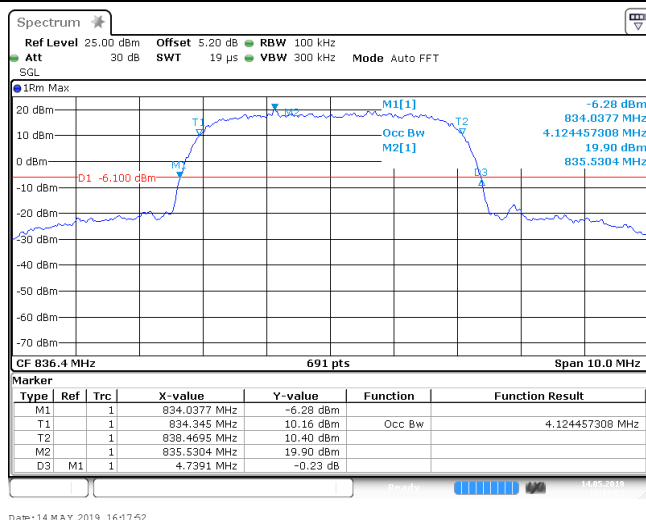


Band IV_1513

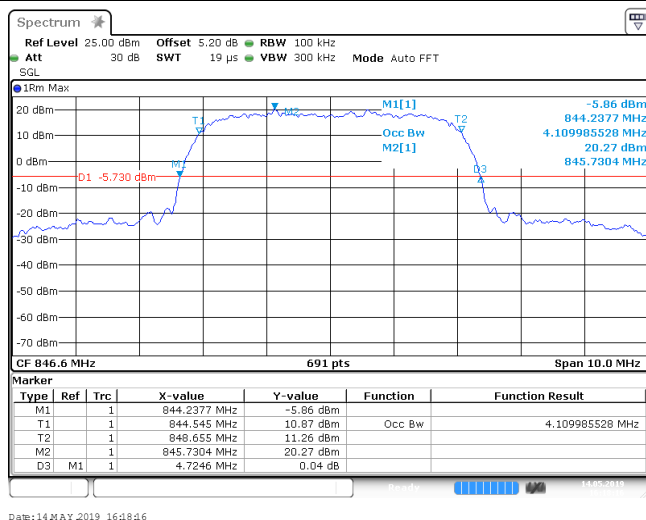


Band V_4132





Band V_4182

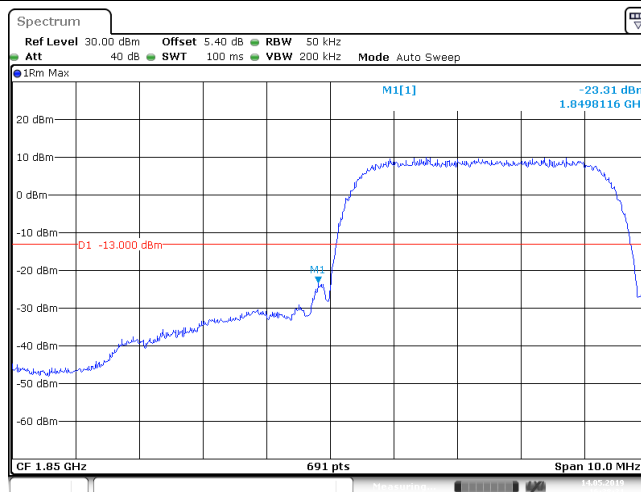


Band V_4233

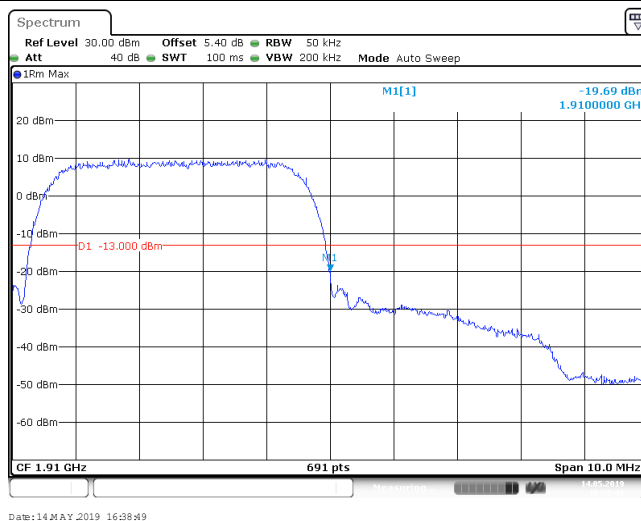


5. Band Edge Compliance

5.1. Test Plots



Band II_9262



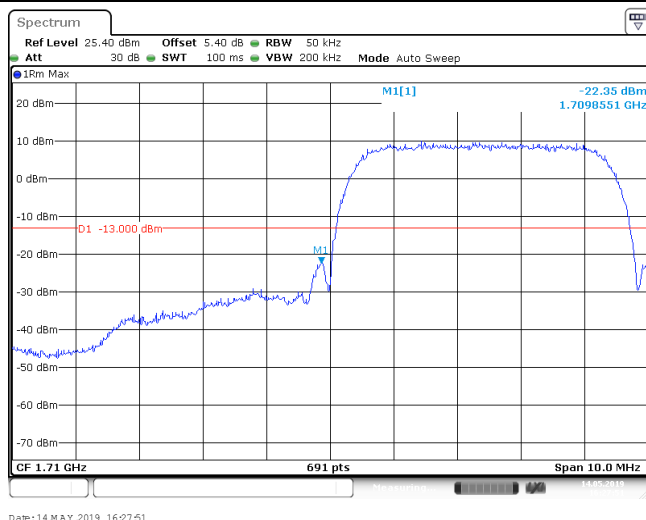
Band II_9538



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Band IV_1312

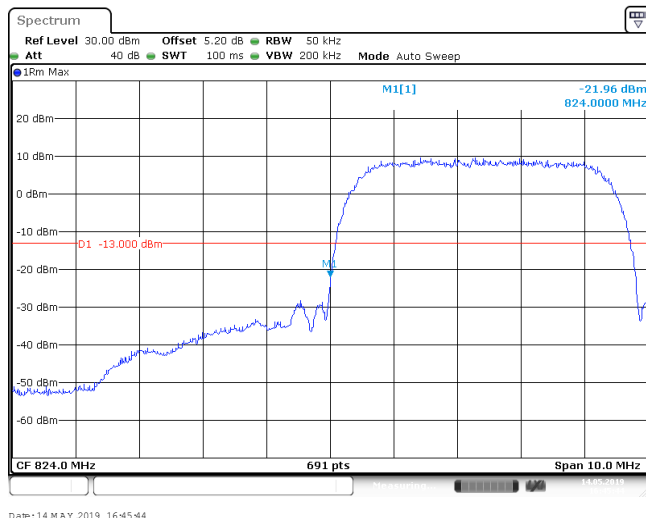


Band IV_1513



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Band V_4132



Band V_4233



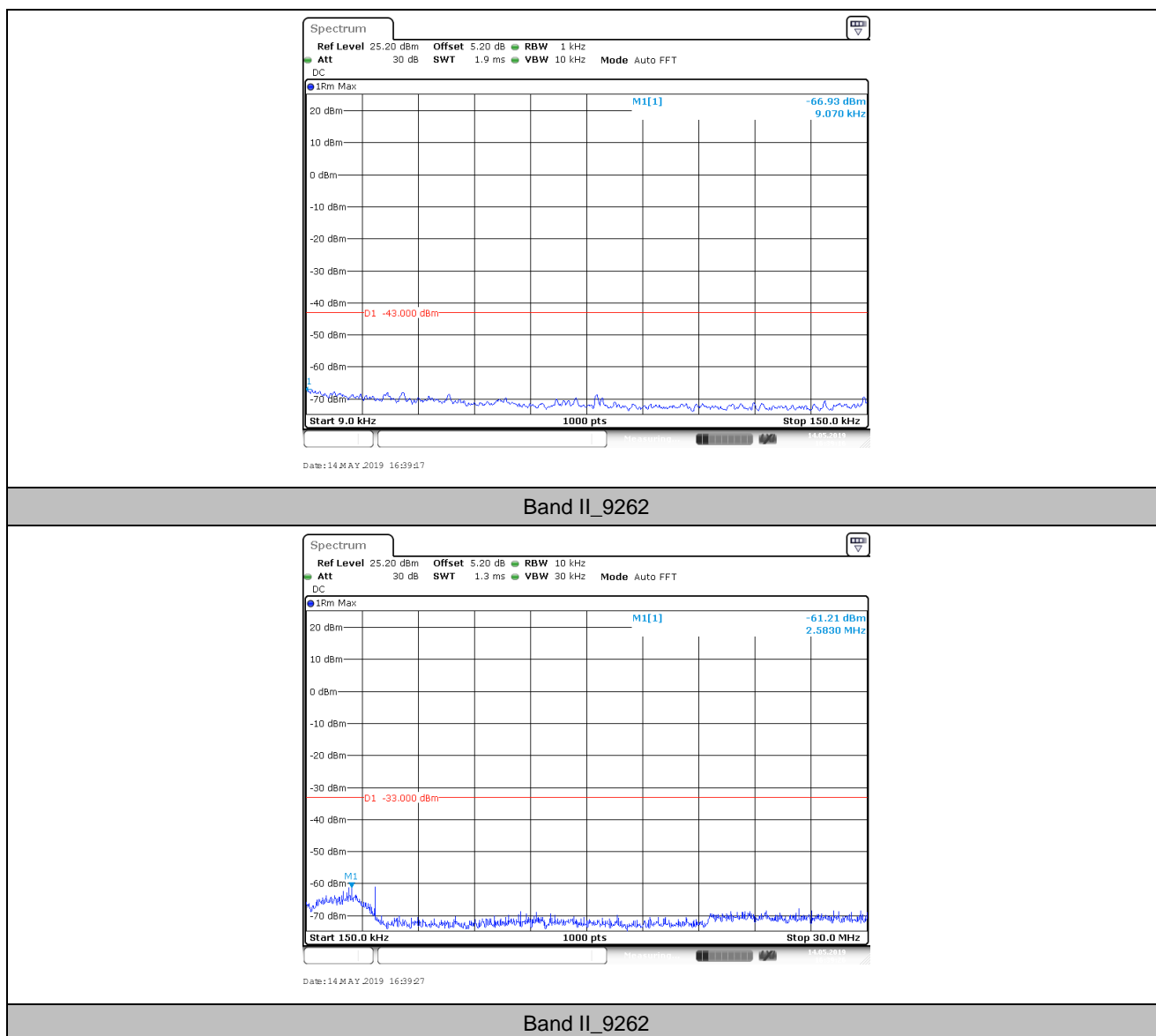


6. Spurious Emission at Antenna Terminal

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

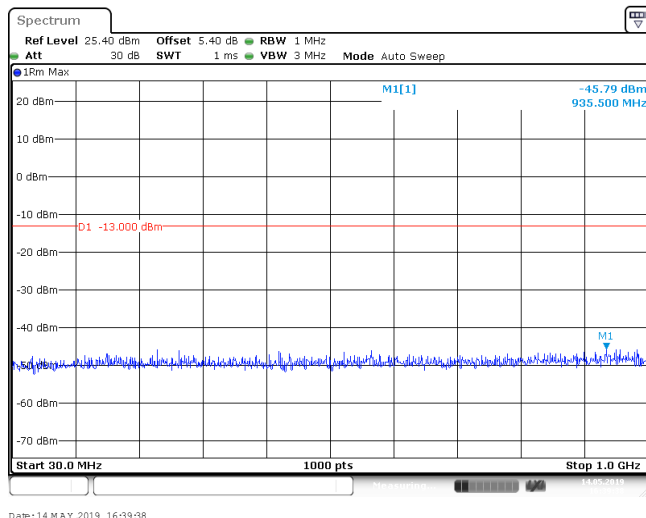


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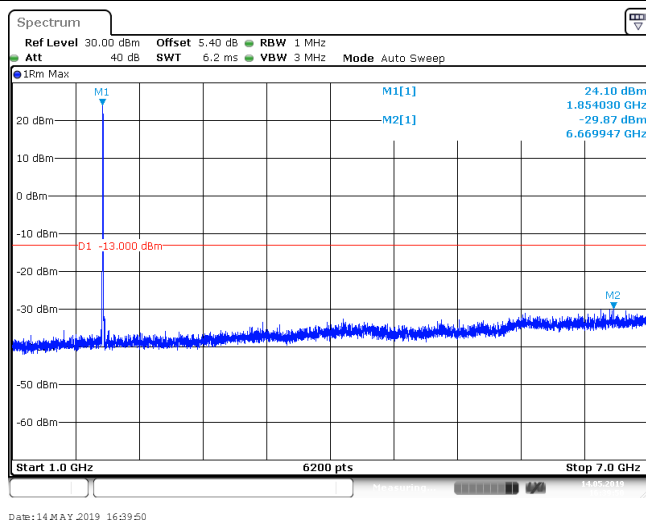
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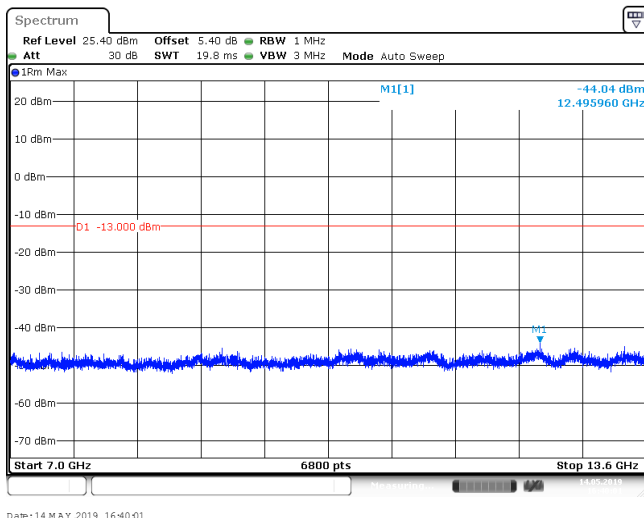
Band II_9262



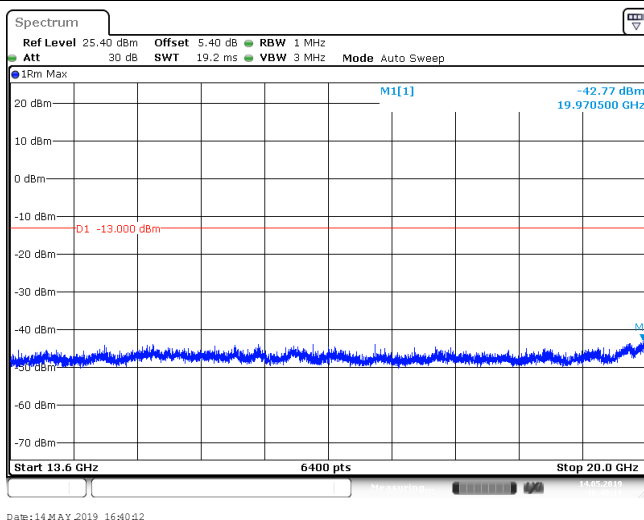
Band II_9262



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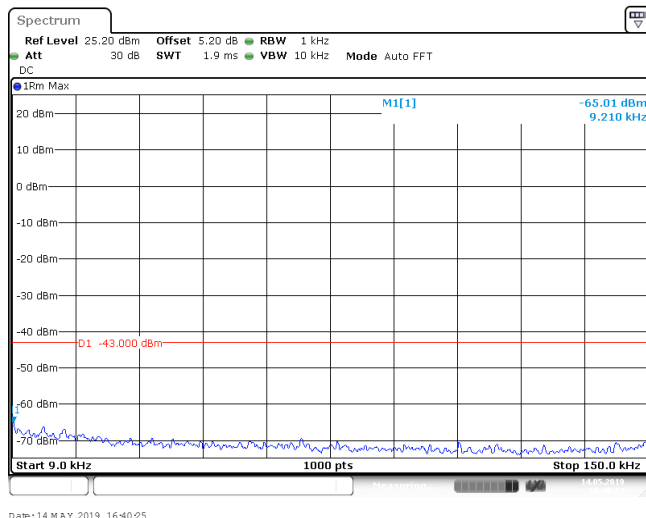


Band II_9262

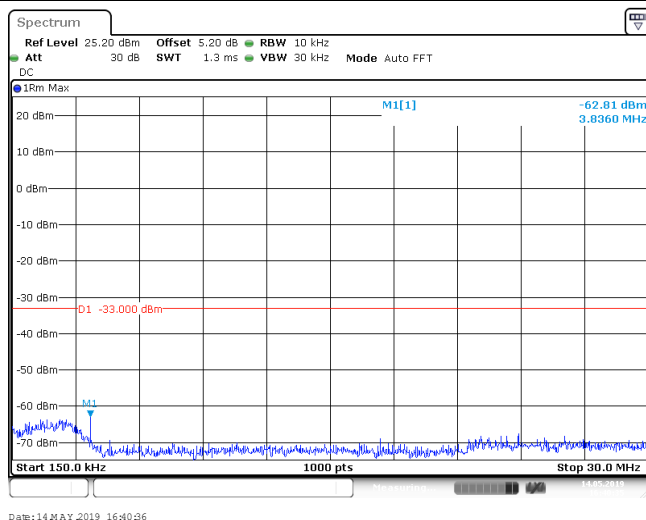


Band II_9262





Band II_9400



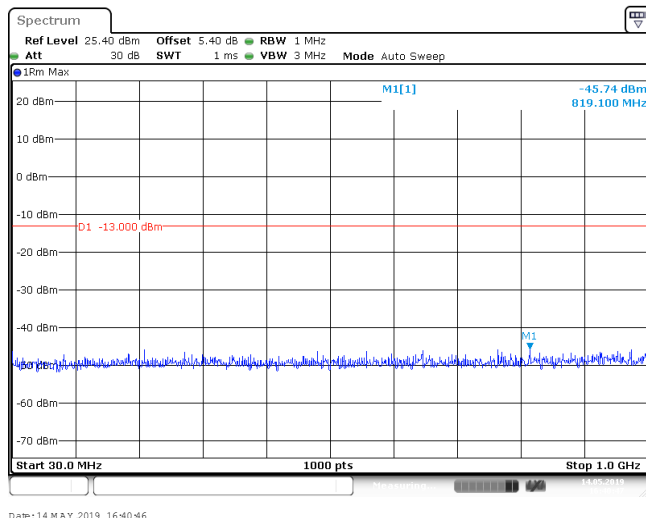
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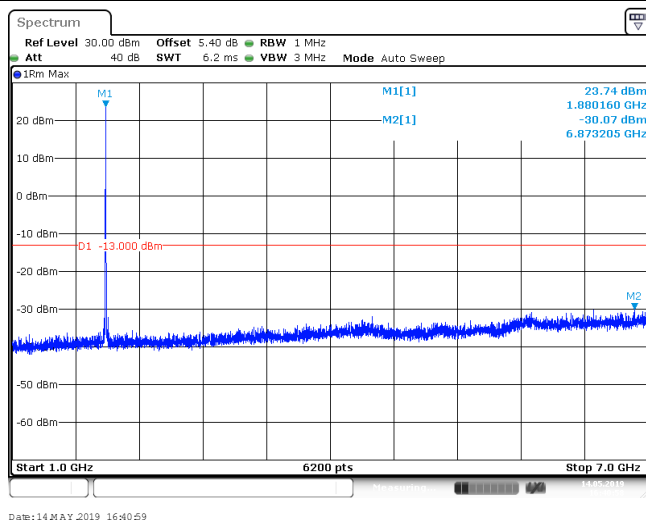
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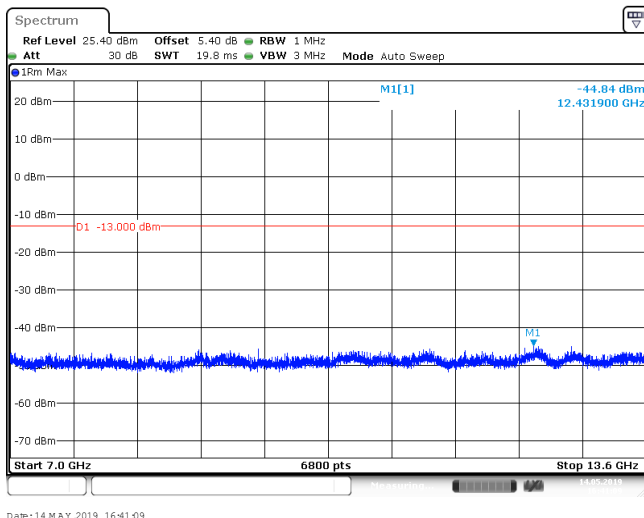
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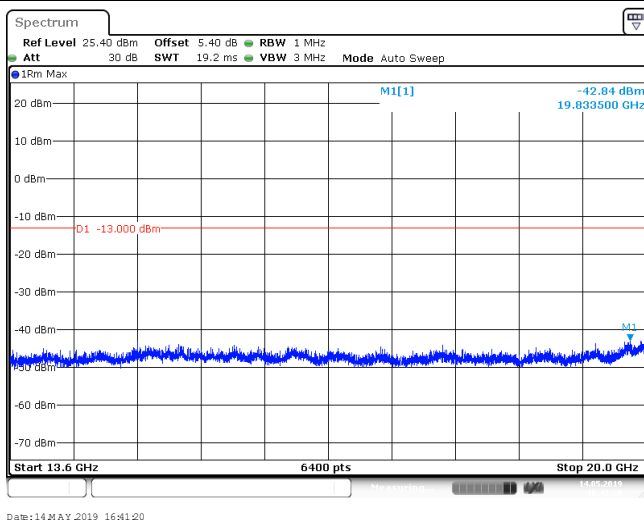
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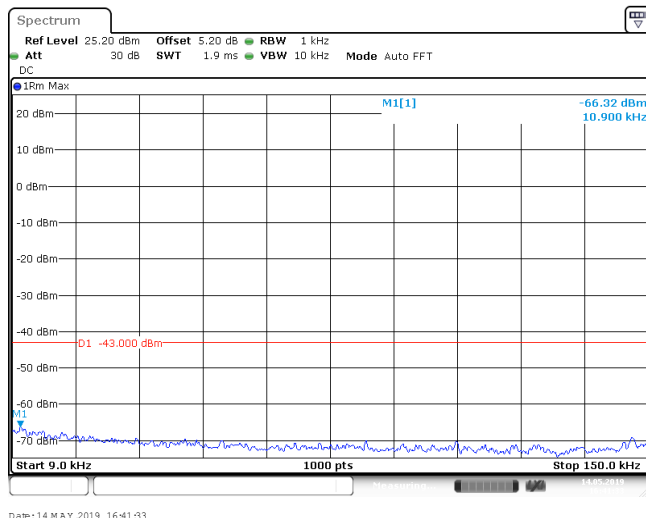


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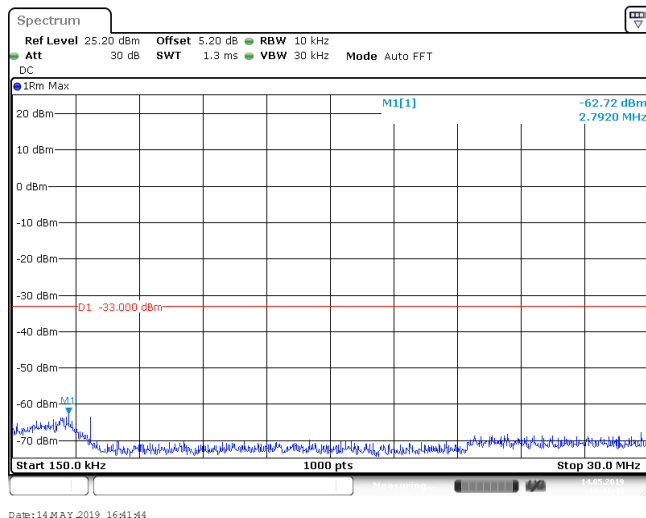


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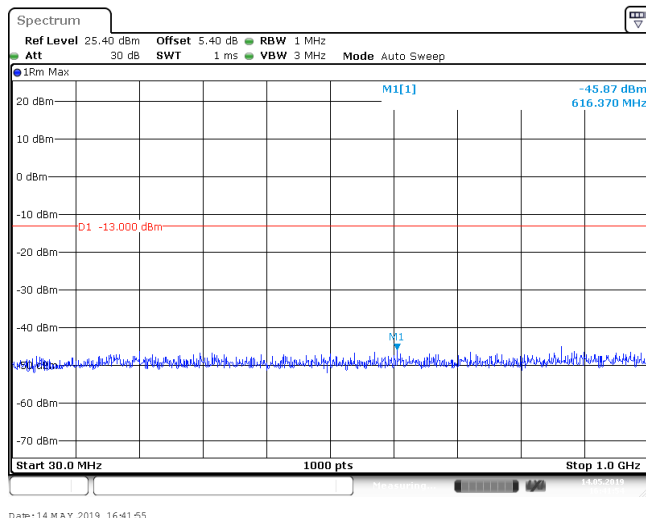


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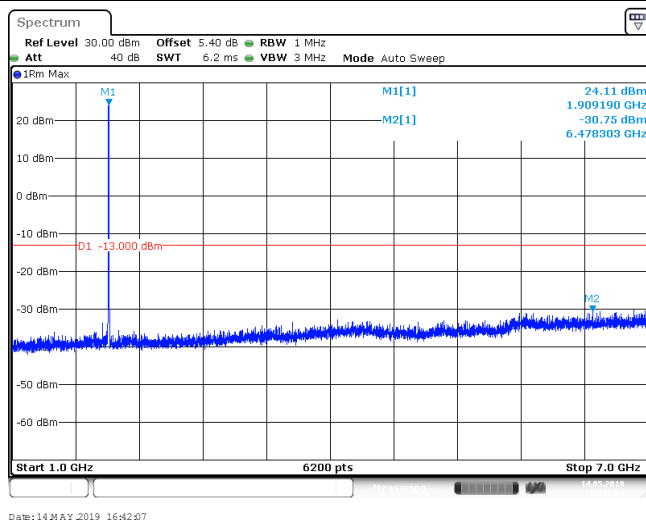


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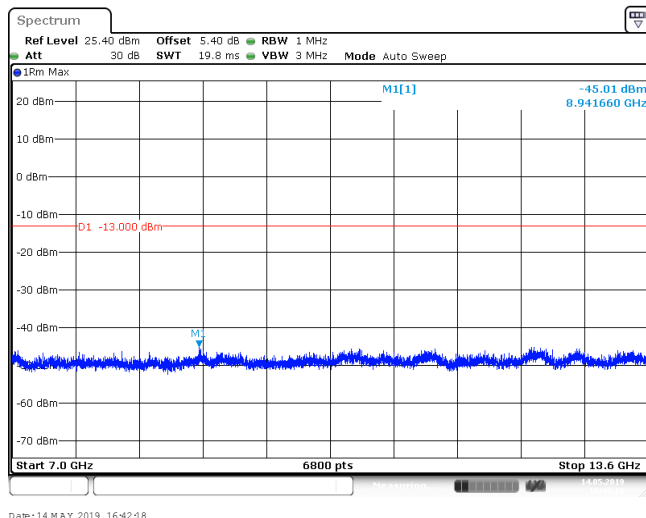


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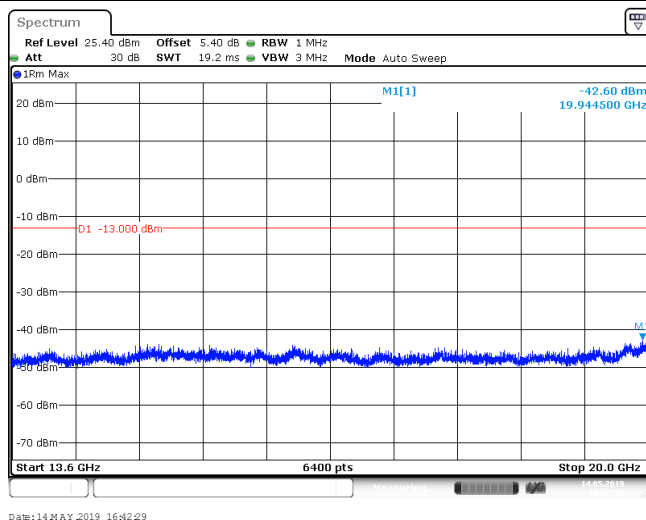


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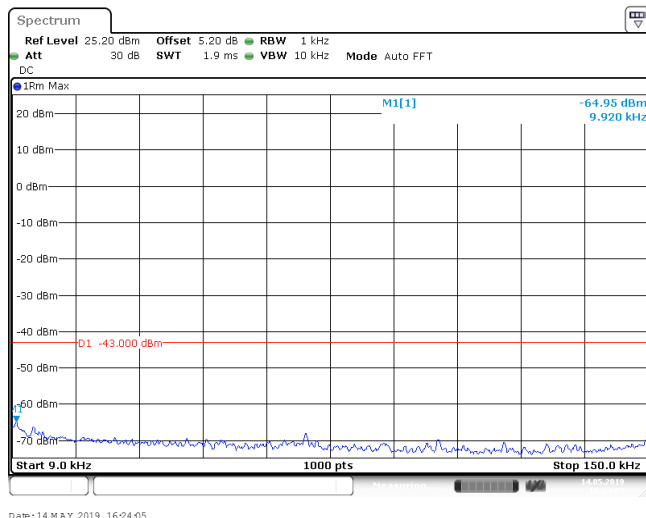


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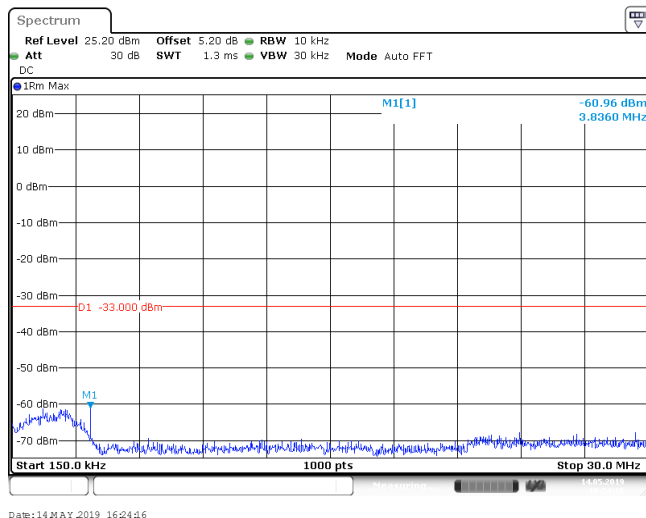


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Band IV_1312

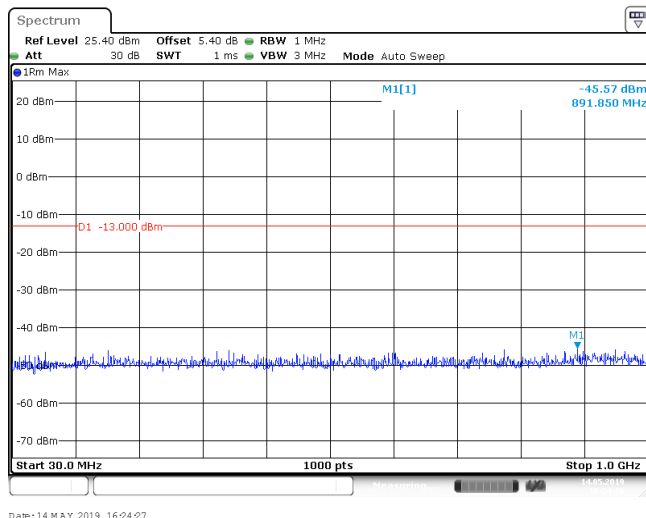


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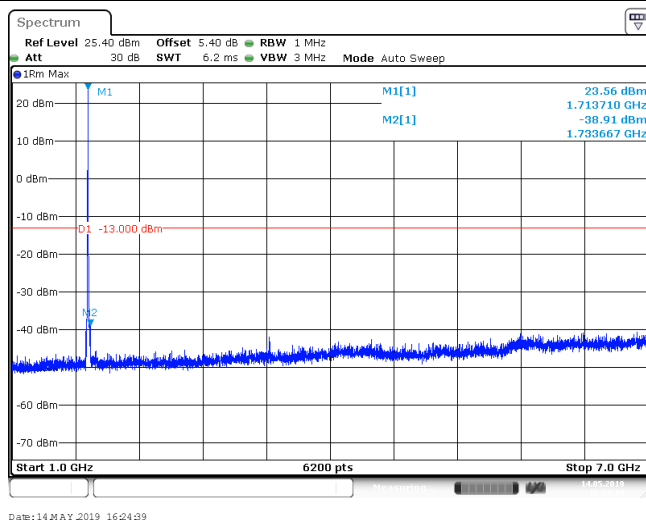


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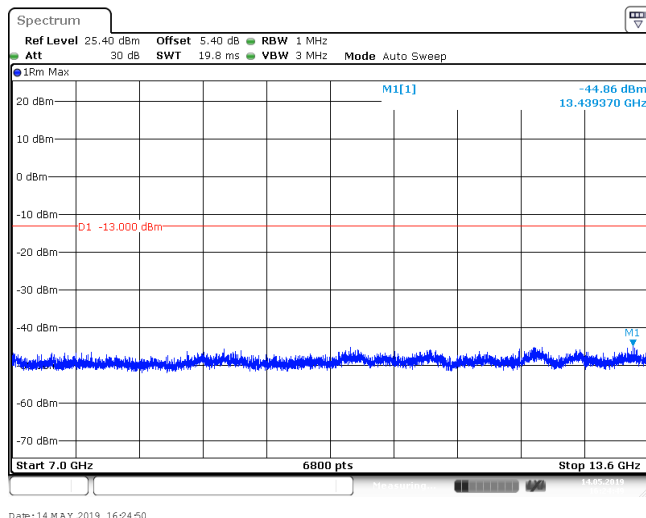


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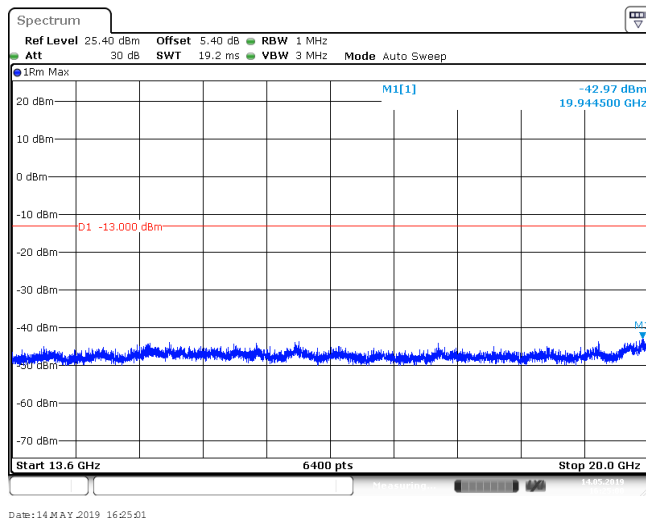


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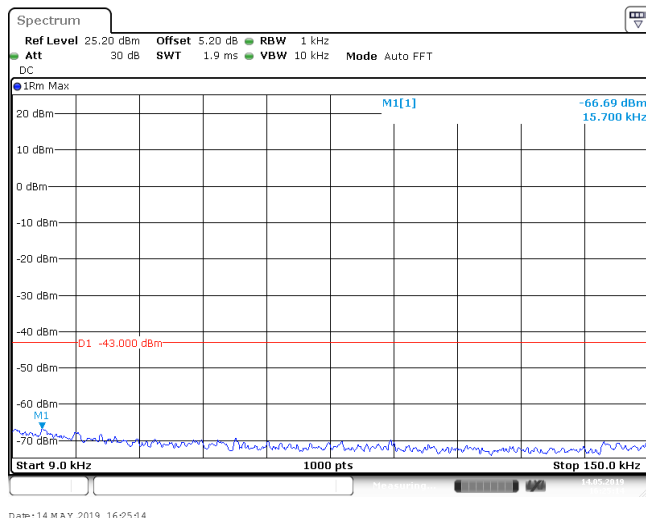


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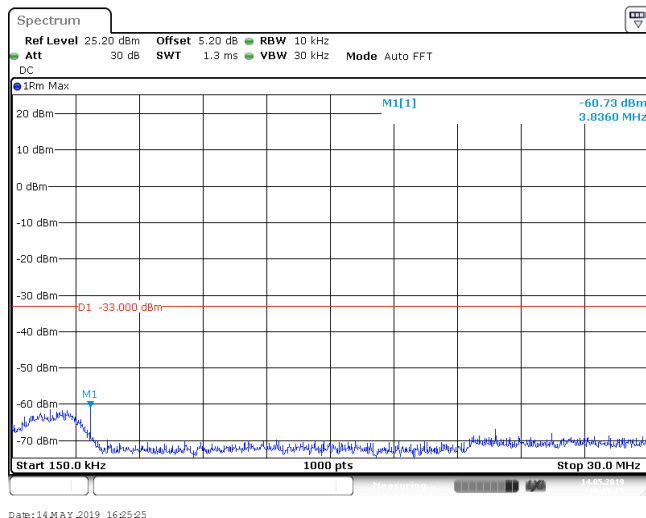


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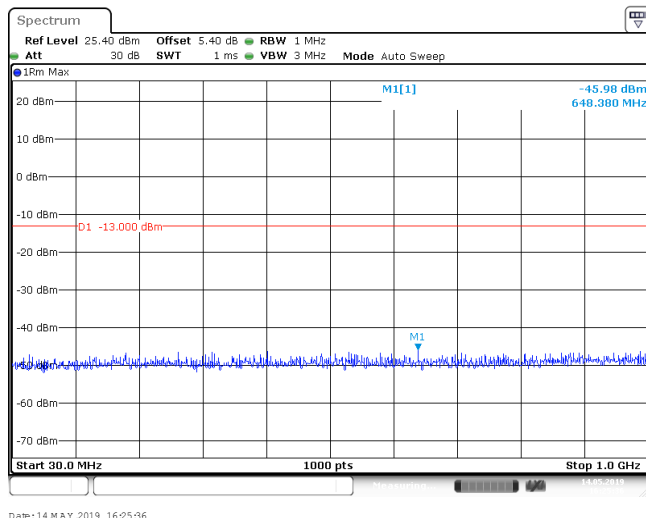


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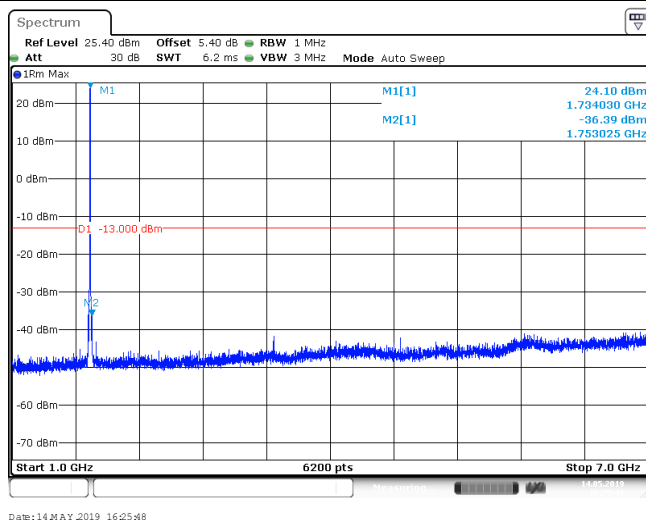


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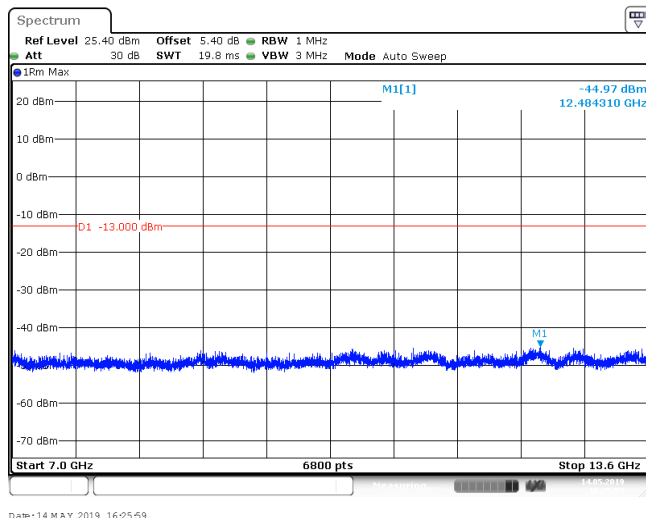
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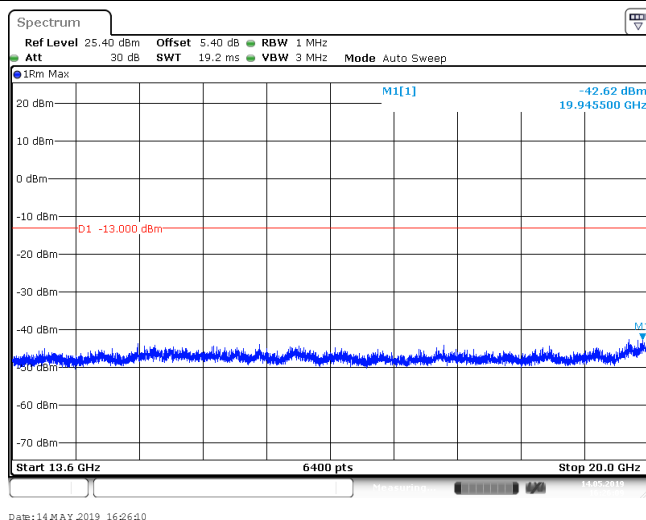
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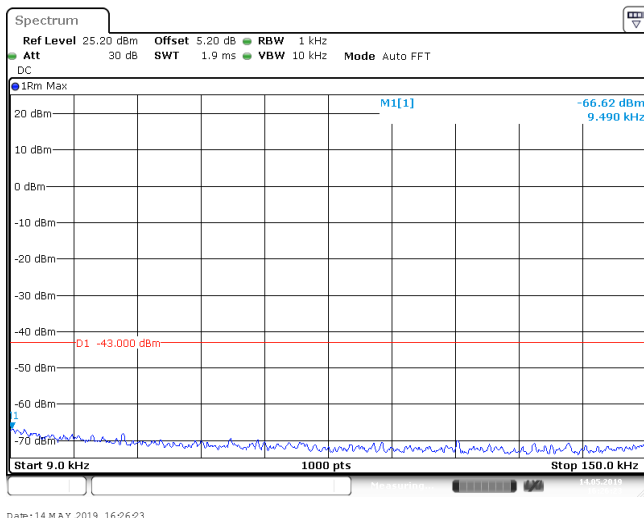


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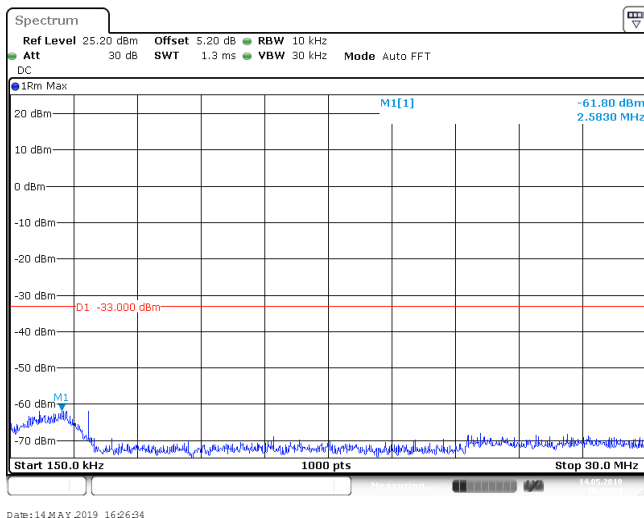
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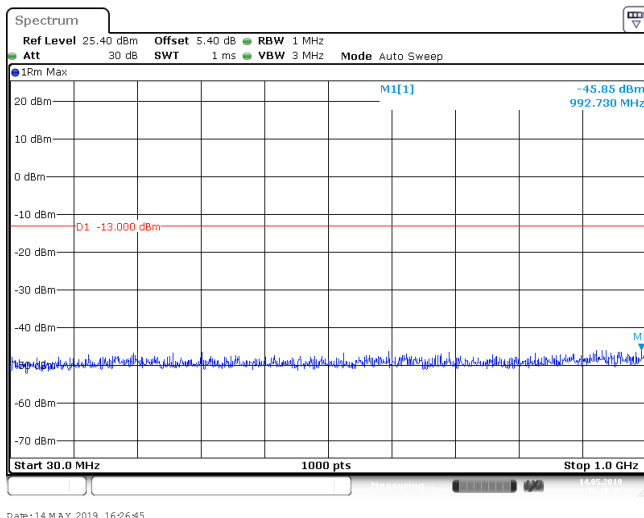


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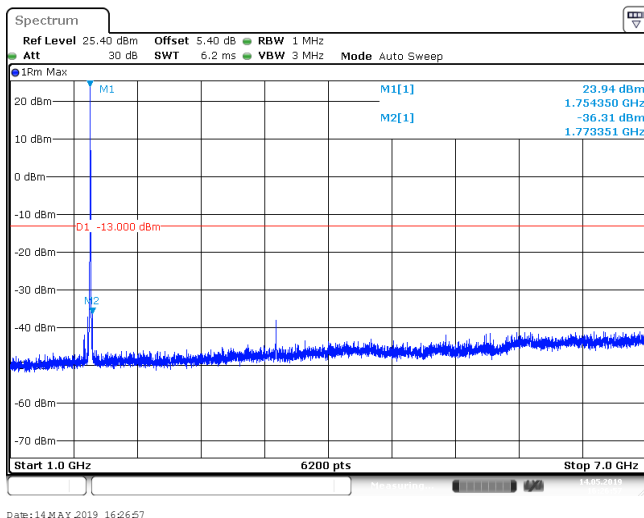


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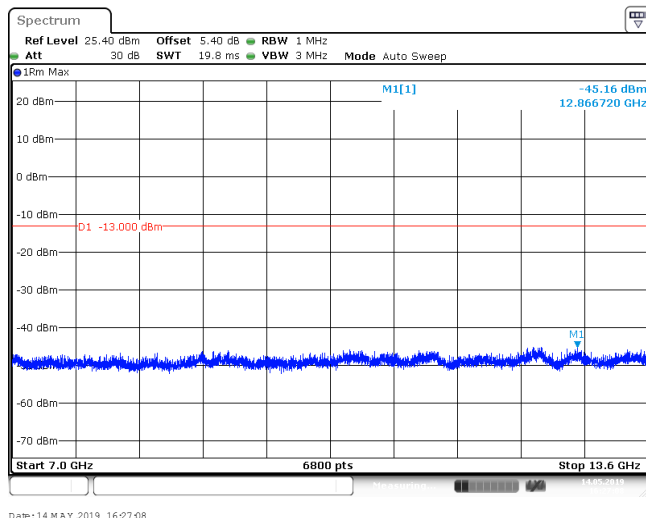
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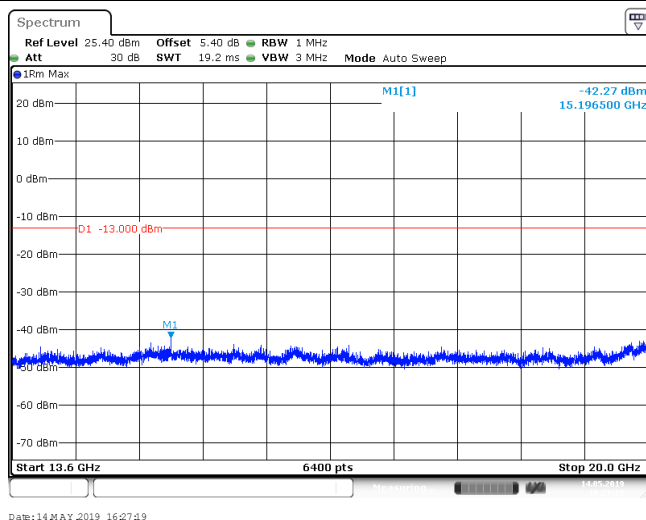
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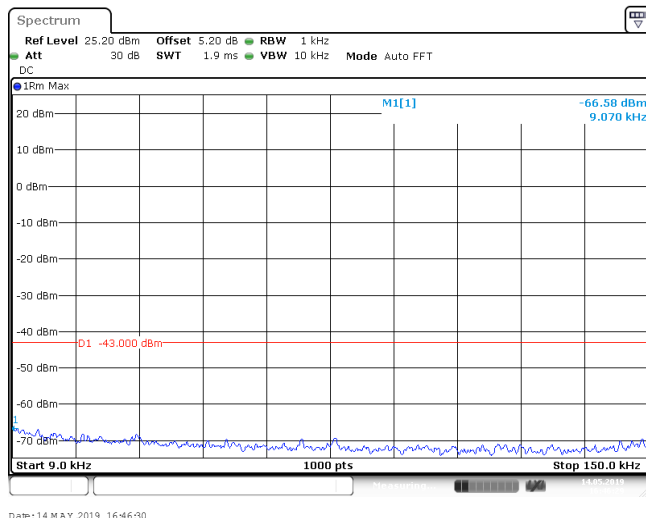


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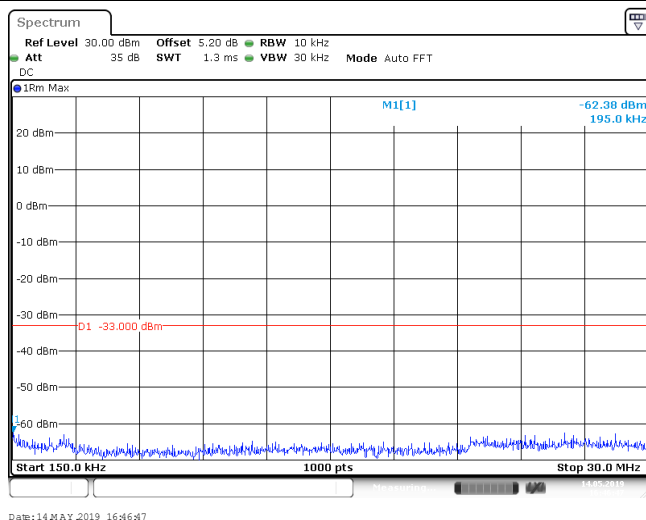
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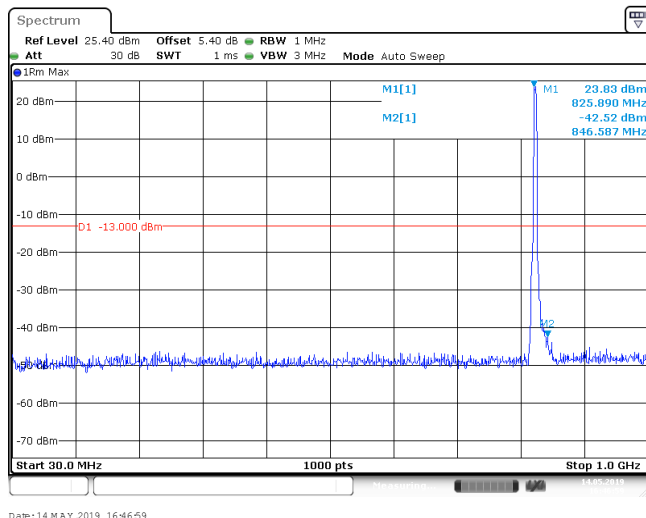
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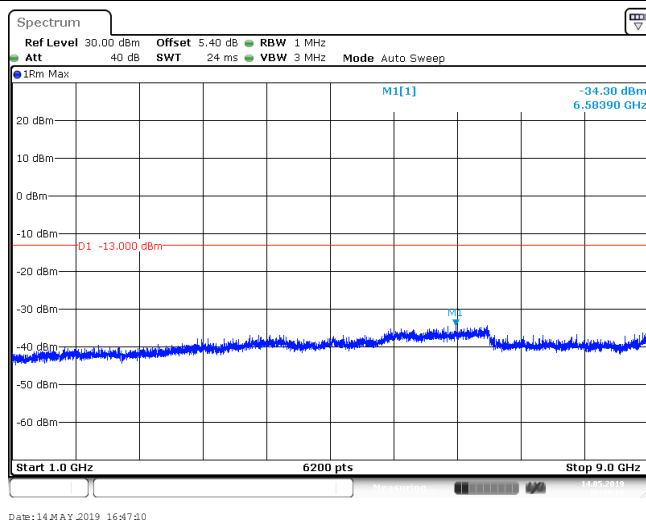
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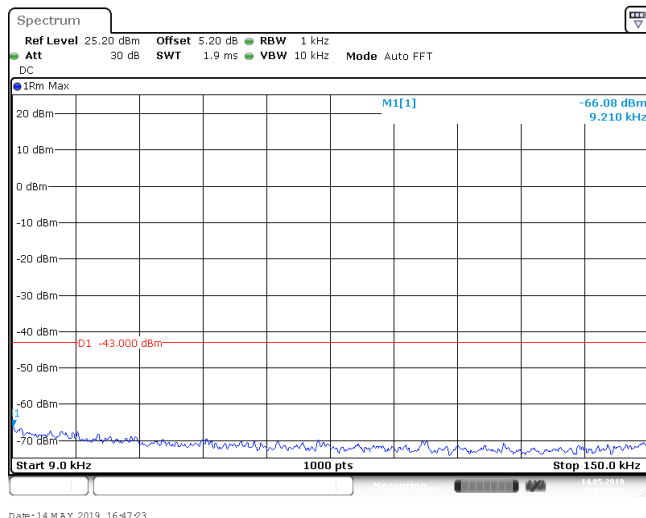
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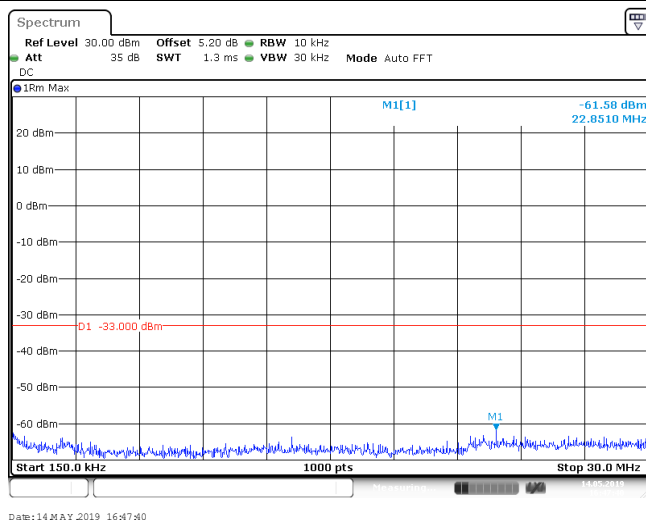
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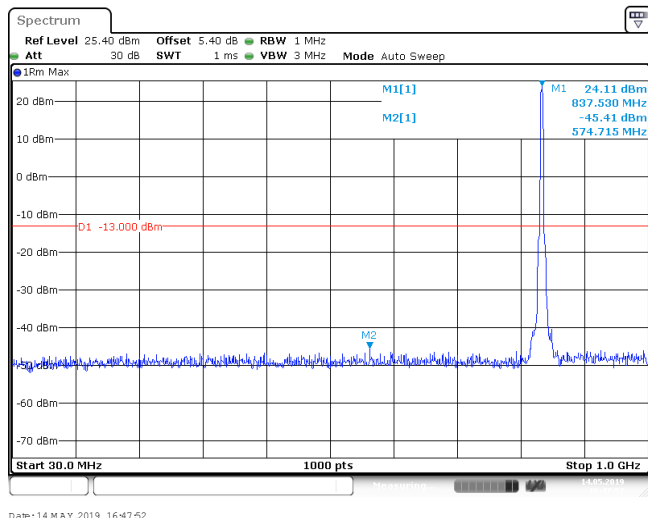


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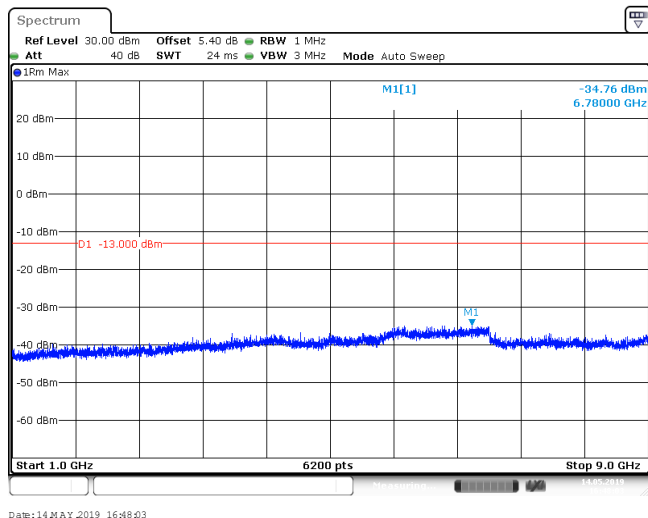


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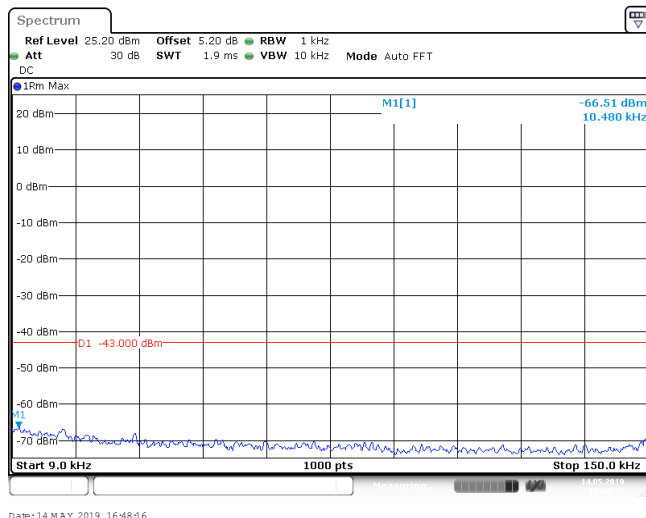


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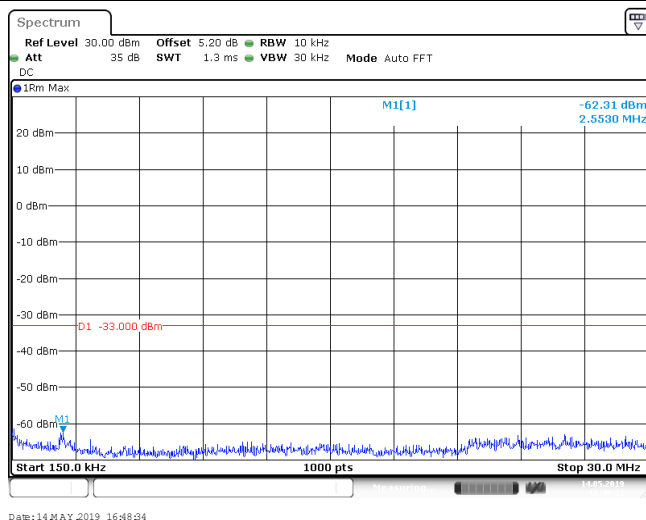


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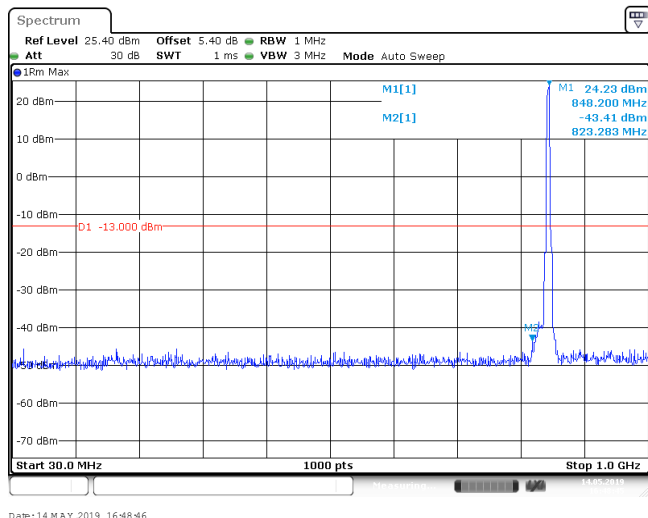


Band V_4233

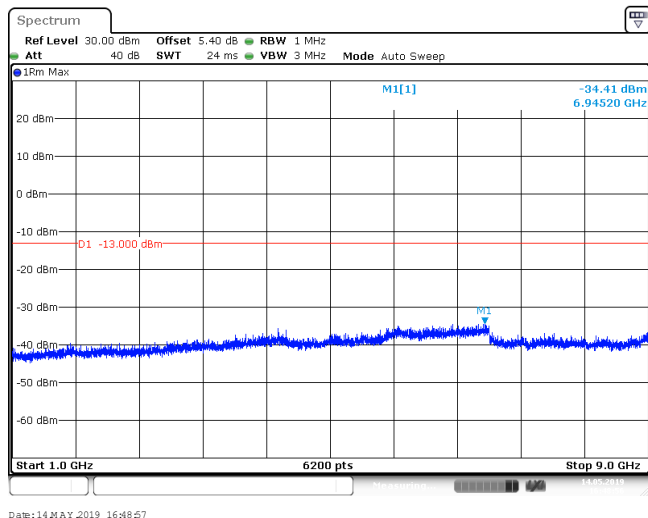


Band V_4233





Band V_4233



Band V_4233





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
64.850000	-81.44	-13.00	68.44	Vertical
125.000000	-86.83	-13.00	73.83	Vertical
936.383333	-78.26	-13.00	65.26	Vertical
3702.975000	-53.99	-13.00	40.99	Vertical
5554.012500	-65.22	-13.00	52.22	Vertical
9081.562500	-63.64	-13.00	50.64	Vertical
63.000000	-77.17	-13.00	64.17	Horizontal
104.300000	-85.92	-13.00	72.92	Horizontal
946.054167	-77.65	-13.00	64.65	Horizontal
3702.975000	-58.11	-13.00	45.11	Horizontal
5554.012500	-60.69	-13.00	47.69	Horizontal
7936.912500	-63.64	-13.00	50.64	Horizontal

7.1.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.800000	-81.63	-13.00	68.63	Vertical
104.250000	-85.98	-13.00	72.98	Vertical
958.016667	-77.84	-13.00	64.84	Vertical
3758.062500	-51.20	-13.00	38.20	Vertical
5642.250000	-63.12	-13.00	50.12	Vertical
56.050000	-77.47	-13.00	64.47	Vertical
196.800000	-78.13	-13.00	65.13	Horizontal
954.395833	-77.59	-13.00	64.59	Horizontal



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3761.475000	-50.35	-13.00	37.35	Horizontal
5642.737500	-57.04	-13.00	44.04	Horizontal
9242.925000	-62.97	-13.00	49.97	Horizontal
56.050000	-77.47	-13.00	64.47	Horizontal

7.1.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.750000	-81.53	-13.00	68.53	Vertical
104.300000	-84.07	-13.00	71.07	Vertical
960.537500	-78.32	-13.00	65.32	Vertical
3813.150000	-49.31	-13.00	36.31	Vertical
5725.612500	-57.91	-13.00	44.91	Vertical
7933.500000	-63.93	-13.00	50.93	Vertical
62.700000	-77.61	-13.00	64.61	Horizontal
196.750000	-78.47	-13.00	65.47	Horizontal
936.887500	-77.83	-13.00	64.83	Horizontal
3813.150000	-50.94	-13.00	37.94	Horizontal
5725.125000	-48.66	-13.00	35.66	Horizontal
9242.437500	-62.91	-13.00	49.91	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
64.900000	-81.65	-13.00	68.65	Vertical
196.800000	-82.38	-13.00	69.38	Vertical
938.950000	-77.84	-13.00	64.84	Vertical
3426.075000	-48.42	-13.00	35.42	Vertical
5133.787500	-65.19	-13.00	52.19	Vertical
7854.037500	-63.93	-13.00	50.93	Vertical



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62.700000	-77.68	-13.00	64.68	Horizontal
206.400000	-81.02	-13.00	68.02	Horizontal
962.920833	-77.21	-13.00	64.21	Horizontal
3426.075000	-50.29	-13.00	37.29	Horizontal
5134.275000	-64.86	-13.00	51.86	Horizontal
9220.012500	-62.91	-13.00	49.91	Horizontal

7.2.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.900000	-81.52	-13.00	68.52	Vertical
104.250000	-84.06	-13.00	71.06	Vertical
944.083333	-78.36	-13.00	65.36	Vertical
3462.637500	-48.56	-13.00	35.56	Vertical
6026.887500	-65.13	-13.00	52.13	Vertical
7957.387500	-63.83	-13.00	50.83	Vertical
62.350000	-77.42	-13.00	64.42	Horizontal
104.300000	-85.24	-13.00	72.24	Horizontal
969.841667	-77.61	-13.00	64.61	Horizontal
3466.537500	-47.13	-13.00	34.13	Horizontal
5194.725000	-66.05	-13.00	53.05	Horizontal
9085.950000	-63.25	-13.00	50.25	Horizontal

7.2.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.350000	-81.61	-13.00	68.61	Vertical
104.250000	-85.54	-13.00	72.54	Vertical
960.033333	-78.14	-13.00	65.14	Vertical
3506.512500	-47.83	-13.00	34.83	Vertical
5507.212500	-66.26	-13.00	53.26	Vertical
9067.425000	-63.63	-13.00	50.63	Vertical
62.350000	-77.59	-13.00	64.59	Horizontal



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104.300000	-87.54	-13.00	74.54	Horizontal
948.254167	-77.43	-13.00	64.43	Horizontal
3506.512500	-47.21	-13.00	34.21	Horizontal
6029.325000	-64.97	-13.00	51.97	Horizontal
9229.762500	-62.96	-13.00	49.96	Horizontal

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
64.100000	-81.64	-13.00	68.64	Vertical
196.800000	-82.26	-13.00	69.26	Vertical
598.454167	-80.04	-13.00	67.04	Vertical
1651.000000	-60.56	-13.00	47.56	Vertical
4424.962500	-66.98	-13.00	53.98	Vertical
7967.625000	-63.61	-13.00	50.61	Vertical
63.400000	-77.91	-13.00	64.91	Horizontal
158.400000	-82.73	-13.00	69.73	Horizontal
617.016667	-78.70	-13.00	65.70	Horizontal
1651.000000	-62.28	-13.00	49.28	Horizontal
4305.525000	-66.64	-13.00	53.64	Horizontal
7939.350000	-63.54	-13.00	50.54	Horizontal

7.3.1.2. Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
63.100000	-81.74	-13.00	68.74	Vertical
168.000000	-78.35	-13.00	65.35	Vertical
622.608333	-79.71	-13.00	66.71	Vertical
1674.500000	-60.14	-13.00	47.14	Vertical
4185.600000	-66.88	-13.00	53.88	Vertical



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7956.900000	-63.58	-13.00	50.58	Vertical
63.150000	-77.55	-13.00	64.55	Horizontal
110.400000	-69.41	-13.00	56.41	Horizontal
196.800000	-73.83	-13.00	60.83	Horizontal
1674.500000	-60.28	-13.00	47.28	Horizontal
4277.250000	-66.63	-13.00	53.63	Horizontal
7757.025000	-63.95	-13.00	50.95	Horizontal

7.3.1.3. Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Margin (dB)	Polarization
64.150000	-80.80	-13.00	67.80	Vertical
125.000000	-86.28	-13.00	73.28	Vertical
1691.500000	-56.58	-13.00	43.58	Vertical
3389.025000	-62.87	-13.00	49.87	Vertical
4237.275000	-58.91	-13.00	45.91	Vertical
5081.625000	-64.26	-13.00	51.26	Vertical
62.900000	-77.20	-13.00	64.20	Horizontal
104.300000	-85.74	-13.00	72.74	Horizontal
613.258333	-78.57	-13.00	65.57	Horizontal
1692.000000	-56.96	-13.00	43.96	Horizontal
3389.025000	-65.72	-13.00	52.72	Horizontal
4237.275000	-63.95	-13.00	50.95	Horizontal

Remark:

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.

We have tested all modulation and all Bandwidth , but only the worst case data presented in this report.



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8. Frequency Stability

8.1. Frequency Vs Voltage

Voltage							
BAND	Channel	Voltage (Vdc)	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
Band II	9262	VL	TN	-13.41	-0.007242	±2.5	PASS
Band II	9262	VN	TN	-3.20	-0.001730	±2.5	PASS
Band II	9262	VH	TN	-9.06	-0.004891	±2.5	PASS
Band II	9400	VL	TN	3.09	0.001641	±2.5	PASS
Band II	9400	VN	TN	-10.58	-0.005628	±2.5	PASS
Band II	9400	VH	TN	14.94	0.007948	±2.5	PASS
Band II	9538	VL	TN	-13.49	-0.007074	±2.5	PASS
Band II	9538	VN	TN	0.51	0.000269	±2.5	PASS
Band II	9538	VH	TN	2.54	0.001329	±2.5	PASS
Band IV	1312	VL	TN	-11.58	-0.014018	±2.5	PASS
Band IV	1312	VN	TN	14.52	0.017567	±2.5	PASS
Band IV	1312	VH	TN	10.62	0.012855	±2.5	PASS
Band IV	1413	VL	TN	-14.39	-0.017201	±2.5	PASS
Band IV	1413	VN	TN	-5.87	-0.007014	±2.5	PASS
Band IV	1413	VH	TN	6.98	0.008350	±2.5	PASS
Band IV	1513	VL	TN	-11.07	-0.013081	±2.5	PASS
Band IV	1513	VN	TN	-11.47	-0.013552	±2.5	PASS
Band IV	1513	VH	TN	4.30	0.005076	±2.5	PASS
Band V	4132	VL	TN	-13.41	-0.007242	±2.5	PASS
Band V	4132	VN	TN	-3.20	-0.001730	±2.5	PASS
Band V	4132	VH	TN	-9.06	-0.004891	±2.5	PASS
Band V	4182	VL	TN	3.09	0.001641	±2.5	PASS
Band V	4182	VN	TN	-10.58	-0.005628	±2.5	PASS
Band V	4182	VH	TN	14.94	0.007948	±2.5	PASS
Band V	4233	VL	TN	-13.49	-0.007074	±2.5	PASS
Band V	4233	VN	TN	0.51	0.000269	±2.5	PASS
Band V	4233	VH	TN	2.54	0.001329	±2.5	PASS



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8.2. Frequency Vs Temperature

BAND	Channel	Voltage (Vdc)	Temperature		Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
			Temperature (°C)					
Band II	9262	VN	-30		5.33	0.002878	±2.5	PASS
Band II	9262	VN	-20		-10.52	-0.005680	±2.5	PASS
Band II	9262	VN	-10		0.61	0.000329	±2.5	PASS
Band II	9262	VN	0		-12.94	-0.006988	±2.5	PASS
Band II	9262	VN	10		-8.70	-0.004696	±2.5	PASS
Band II	9262	VN	20		7.32	0.003951	±2.5	PASS
Band II	9262	VN	30		0.53	0.000286	±2.5	PASS
Band II	9262	VN	40		0.55	0.000299	±2.5	PASS
Band II	9262	VN	50		13.69	0.007391	±2.5	PASS
Band II	9400	VN	-30		8.76	0.004658	±2.5	PASS
Band II	9400	VN	-20		-9.88	-0.005258	±2.5	PASS
Band II	9400	VN	-10		-10.35	-0.005507	±2.5	PASS
Band II	9400	VN	0		-11.37	-0.006050	±2.5	PASS
Band II	9400	VN	10		-0.06	-0.000032	±2.5	PASS
Band II	9400	VN	20		2.96	0.001572	±2.5	PASS
Band II	9400	VN	30		9.05	0.004813	±2.5	PASS
Band II	9400	VN	40		11.22	0.005969	±2.5	PASS
Band II	9400	VN	50		7.52	0.003999	±2.5	PASS
Band II	9538	VN	-30		-4.18	-0.002192	±2.5	PASS
Band II	9538	VN	-20		-8.35	-0.004378	±2.5	PASS
Band II	9538	VN	-10		0.50	0.000260	±2.5	PASS
Band II	9538	VN	0		-2.03	-0.001062	±2.5	PASS
Band II	9538	VN	10		-1.39	-0.000728	±2.5	PASS
Band II	9538	VN	20		-4.55	-0.002385	±2.5	PASS
Band II	9538	VN	30		0.14	0.000072	±2.5	PASS
Band II	9538	VN	40		-11.76	-0.006166	±2.5	PASS
Band II	9538	VN	50		1.83	0.000959	±2.5	PASS
Band IV	1312	VN	-30		-11.50	-0.013914	±2.5	PASS
Band IV	1312	VN	-20		-11.10	-0.013429	±2.5	PASS
Band IV	1312	VN	-10		5.70	0.006896	±2.5	PASS
Band IV	1312	VN	0		12.39	0.014992	±2.5	PASS
Band IV	1312	VN	10		-14.97	-0.018111	±2.5	PASS
Band IV	1312	VN	20		-9.58	-0.011588	±2.5	PASS



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Band IV	1312	VN	30	3.68	0.004454	±2.5	PASS
Band IV	1312	VN	40	-5.14	-0.006220	±2.5	PASS
Band IV	1312	VN	50	5.17	0.006255	±2.5	PASS
Band IV	1413	VN	-30	3.08	0.003688	±2.5	PASS
Band IV	1413	VN	-20	0.47	0.000557	±2.5	PASS
Band IV	1413	VN	-10	-12.16	-0.014540	±2.5	PASS
Band IV	1413	VN	0	12.21	0.014594	±2.5	PASS
Band IV	1413	VN	10	-1.67	-0.002000	±2.5	PASS
Band IV	1413	VN	20	14.92	0.017842	±2.5	PASS
Band IV	1413	VN	30	8.20	0.009802	±2.5	PASS
Band IV	1413	VN	40	2.86	0.003422	±2.5	PASS
Band IV	1413	VN	50	-11.67	-0.013952	±2.5	PASS
Band IV	1513	VN	-30	-10.53	-0.012436	±2.5	PASS
Band IV	1513	VN	-20	2.33	0.002752	±2.5	PASS
Band IV	1513	VN	-10	-14.29	-0.016874	±2.5	PASS
Band IV	1513	VN	0	9.76	0.011528	±2.5	PASS
Band IV	1513	VN	10	-8.68	-0.010247	±2.5	PASS
Band IV	1513	VN	20	13.40	0.015832	±2.5	PASS
Band IV	1513	VN	30	-1.16	-0.001371	±2.5	PASS
Band IV	1513	VN	40	7.73	0.009131	±2.5	PASS
Band IV	1513	VN	50	12.27	0.014490	±2.5	PASS
Band V	4132	VN	-30	5.33	0.002878	±2.5	PASS
Band V	4132	VN	-20	-10.52	-0.005680	±2.5	PASS
Band V	4132	VN	-10	0.61	0.000329	±2.5	PASS
Band V	4132	VN	0	-12.94	-0.006988	±2.5	PASS
Band V	4132	VN	10	-8.70	-0.004696	±2.5	PASS
Band V	4132	VN	20	7.32	0.003951	±2.5	PASS
Band V	4132	VN	30	0.53	0.000286	±2.5	PASS
Band V	4132	VN	40	0.55	0.000299	±2.5	PASS
Band V	4132	VN	50	13.69	0.007391	±2.5	PASS
Band V	4182	VN	-30	8.76	0.004658	±2.5	PASS
Band V	4182	VN	-20	-9.88	-0.005258	±2.5	PASS
Band V	4182	VN	-10	-10.35	-0.005507	±2.5	PASS
Band V	4182	VN	0	-11.37	-0.006050	±2.5	PASS
Band V	4182	VN	10	-0.06	-0.000032	±2.5	PASS
Band V	4182	VN	20	2.96	0.001572	±2.5	PASS
Band V	4182	VN	30	9.05	0.004813	±2.5	PASS
Band V	4182	VN	40	11.22	0.005969	±2.5	PASS



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Shenzhen Branch (SGS-CSTC Laboratory)

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Band V	4182	VN	50	7.52	0.003999	±2.5	PASS
Band V	4233	VN	-30	-4.18	-0.002192	±2.5	PASS
Band V	4233	VN	-20	-8.35	-0.004378	±2.5	PASS
Band V	4233	VN	-10	0.50	0.000260	±2.5	PASS
Band V	4233	VN	0	-2.03	-0.001062	±2.5	PASS
Band V	4233	VN	10	-1.39	-0.000728	±2.5	PASS
Band V	4233	VN	20	-4.55	-0.002385	±2.5	PASS
Band V	4233	VN	30	0.14	0.000072	±2.5	PASS
Band V	4233	VN	40	-11.76	-0.006166	±2.5	PASS
Band V	4233	VN	50	1.83	0.000959	±2.5	PASS

The End

