

Appendix B

E-UTRA Band 14

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1 Effective (Isotropic) Radiated Power Output Data

Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 14

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND14	LTE/TM1	5M	LCH	RB1#0	22.84	18.19	38.45	PASS
				RB1#13	22.86	18.21	38.45	PASS
				RB1#24	22.75	18.1	38.45	PASS
				RB12#0	21.81	17.16	38.45	PASS
				RB12#6	21.98	17.33	38.45	PASS
				RB12#13	21.96	17.31	38.45	PASS
				RB25#0	21.95	17.3	38.45	PASS
			MCH	RB1#0	22.73	18.08	38.45	PASS
				RB1#13	22.87	18.22	38.45	PASS
				RB1#24	22.85	18.2	38.45	PASS
				RB12#0	21.81	17.16	38.45	PASS
				RB12#6	21.88	17.23	38.45	PASS
				RB12#13	21.87	17.22	38.45	PASS
				RB25#0	21.95	17.3	38.45	PASS
			HCH	RB1#0	22.76	18.11	38.45	PASS
				RB1#13	22.98	18.33	38.45	PASS
				RB1#24	22.76	18.11	38.45	PASS
				RB12#0	21.93	17.28	38.45	PASS
				RB12#6	22.02	17.37	38.45	PASS
				RB12#13	21.81	17.16	38.45	PASS
				RB25#0	21.97	17.32	38.45	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND14	LTE/TM2	5M	LCH	RB1#0	21.85	17.2	38.45	PASS
				RB1#13	22.13	17.48	38.45	PASS
				RB1#24	21.59	16.94	38.45	PASS
				RB12#0	20.98	16.33	38.45	PASS
				RB12#6	21	16.35	38.45	PASS
				RB12#13	20.98	16.33	38.45	PASS
				RB25#0	20.91	16.26	38.45	PASS
			MCH	RB1#0	21.86	17.21	38.45	PASS
				RB1#13	21.96	17.31	38.45	PASS
				RB1#24	22.17	17.52	38.45	PASS
				RB12#0	20.91	16.26	38.45	PASS
				RB12#6	20.88	16.23	38.45	PASS
				RB12#13	20.94	16.29	38.45	PASS
				RB25#0	20.92	16.27	38.45	PASS
			HCH	RB1#0	22.11	17.46	38.45	PASS
				RB1#13	22.11	17.46	38.45	PASS
				RB1#24	21.78	17.13	38.45	PASS
				RB12#0	20.94	16.29	38.45	PASS
				RB12#6	21.03	16.38	38.45	PASS
				RB12#13	21.02	16.37	38.45	PASS
				RB25#0	20.87	16.22	38.45	PASS



**SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch**

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND14	LTE/TM1	10M	MCH	RB1#0	22.9	18.25	38.45	PASS
				RB1#25	23.02	18.37	38.45	PASS
				RB1#49	22.91	18.26	38.45	PASS
				RB25#0	21.89	17.24	38.45	PASS
				RB25#13	21.98	17.33	38.45	PASS
				RB25#25	22.06	17.41	38.45	PASS
				RB50#0	21.99	17.34	38.45	PASS

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND14	LTE/TM2	10M	MCH	RB1#0	21.96	17.31	38.45	PASS
				RB1#25	21.79	17.14	38.45	PASS
				RB1#49	22.31	17.66	38.45	PASS
				RB25#0	20.91	16.26	38.45	PASS
				RB25#13	20.96	16.31	38.45	PASS
				RB25#25	20.97	16.32	38.45	PASS
				RB50#0	20.92	16.27	38.45	PASS

Note:

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

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

b: SGP=Signal Generator Level

2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
Band 14	TM1/10M	MCH	7.36	13	PASS
	TM2/10M	MCH	7.45	13	PASS

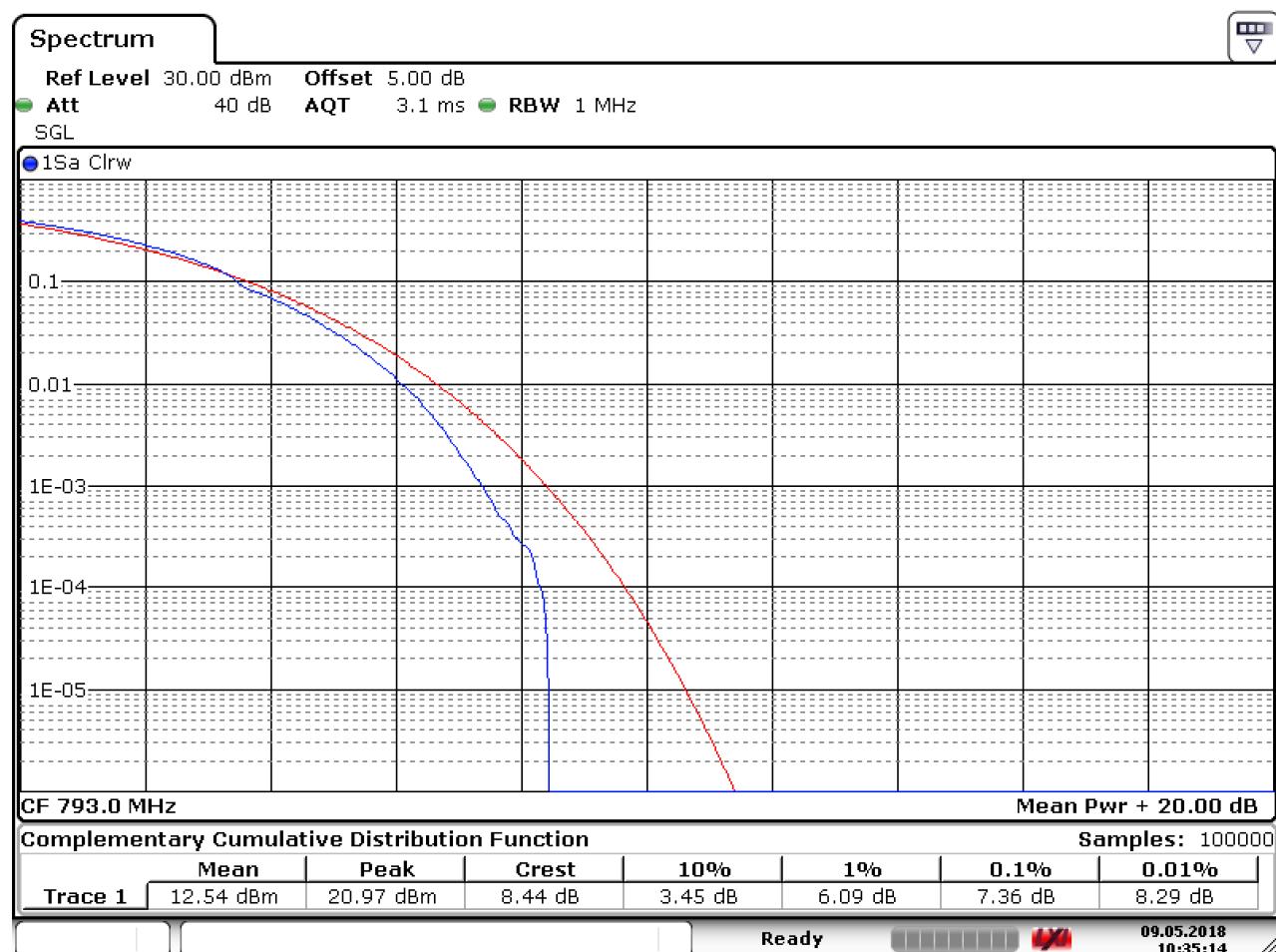
Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE band14

2.1.1.1 Test Mode = LTE/TM1.Bandwidth=10MHz

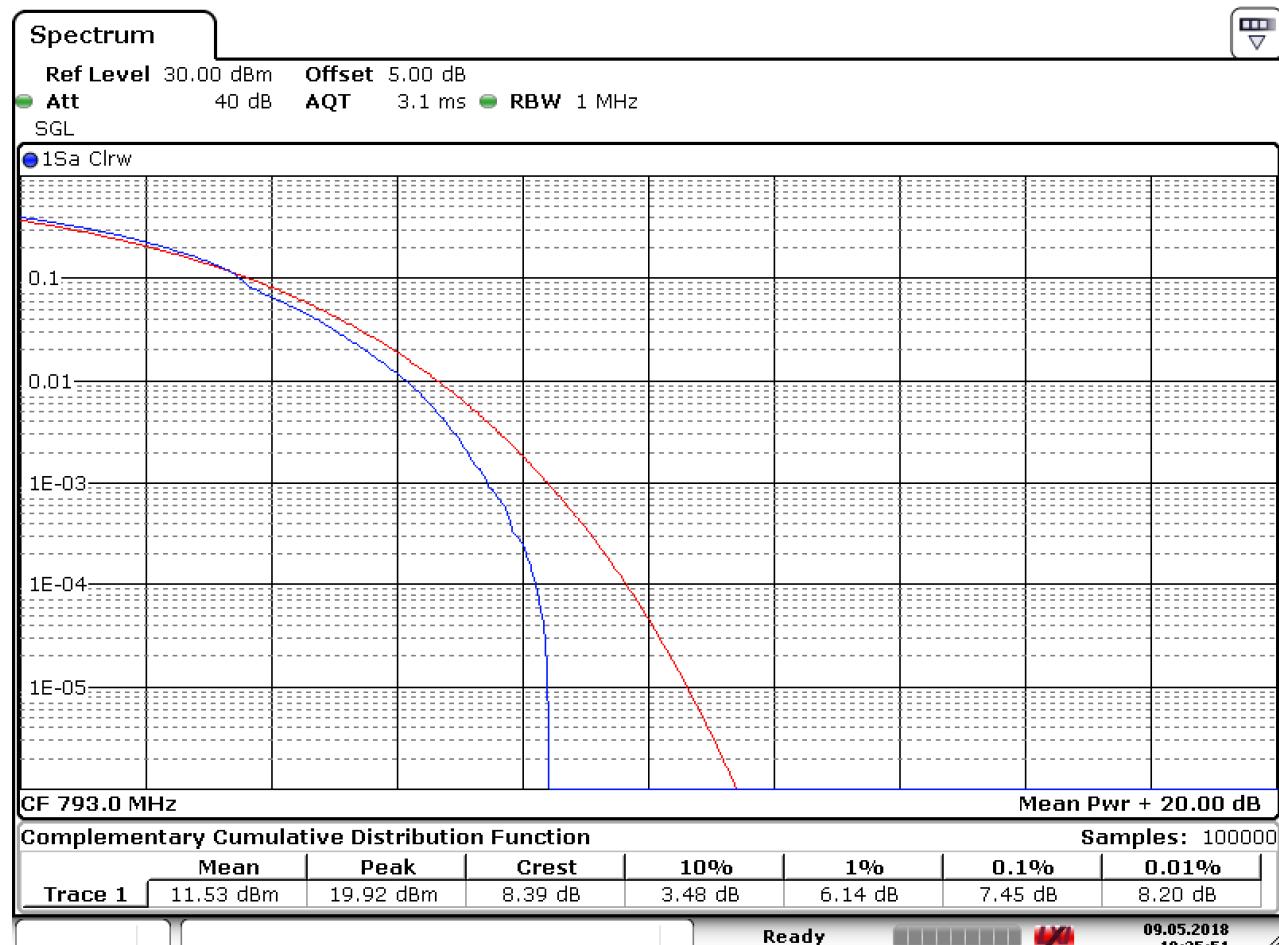
2.1.1.1.1 Test Channel = MCH



Date: 9.MAY.2018 10:35:14

2.1.1.2 Test Mode = LTE/TM2.Bandwidth=10MHz

2.1.1.2.1 Test Channel = MCH



Date: 9.MAY.2018 10:35:52

3 Modulation Characteristics

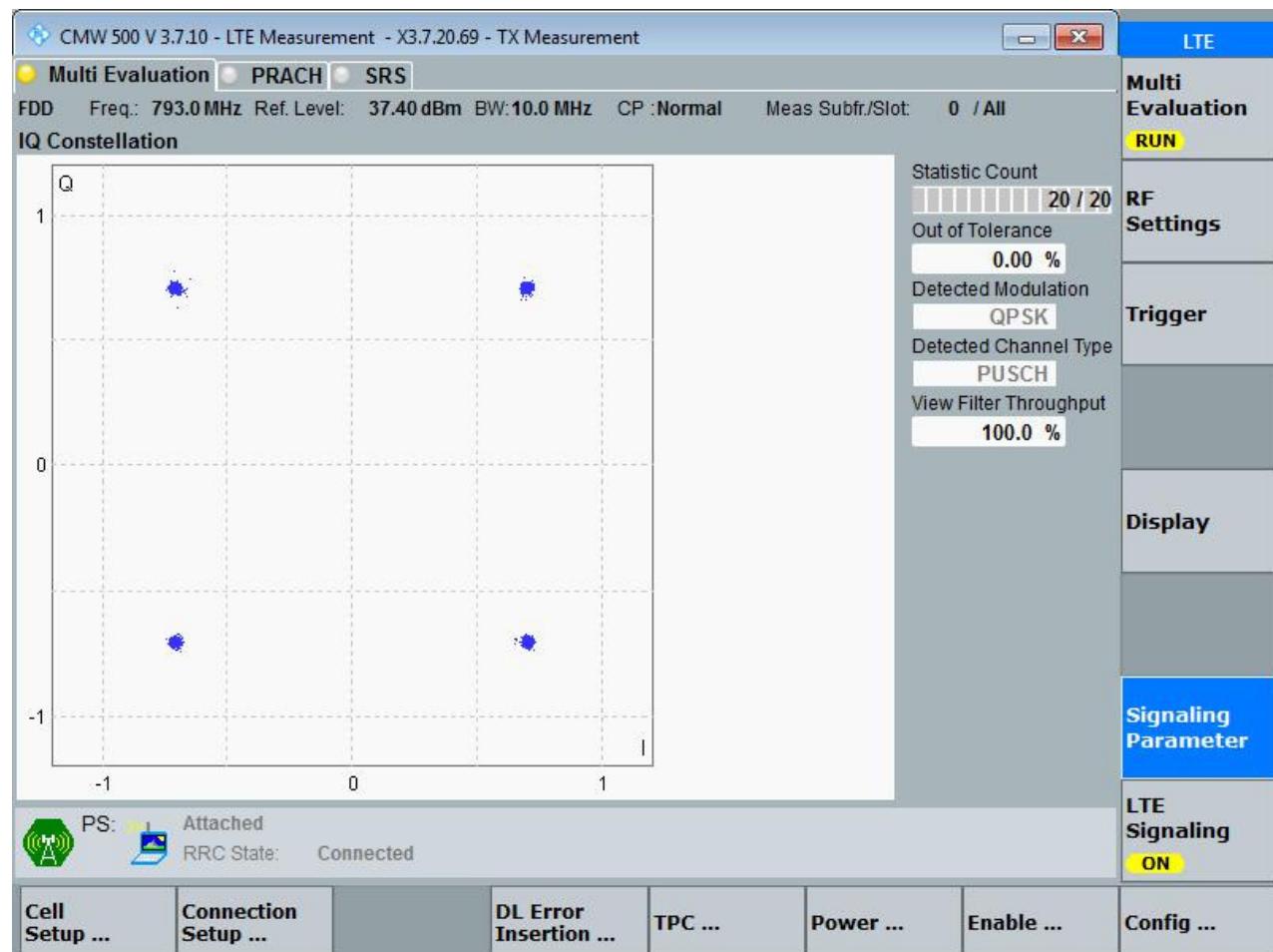
Part I - Test Plots

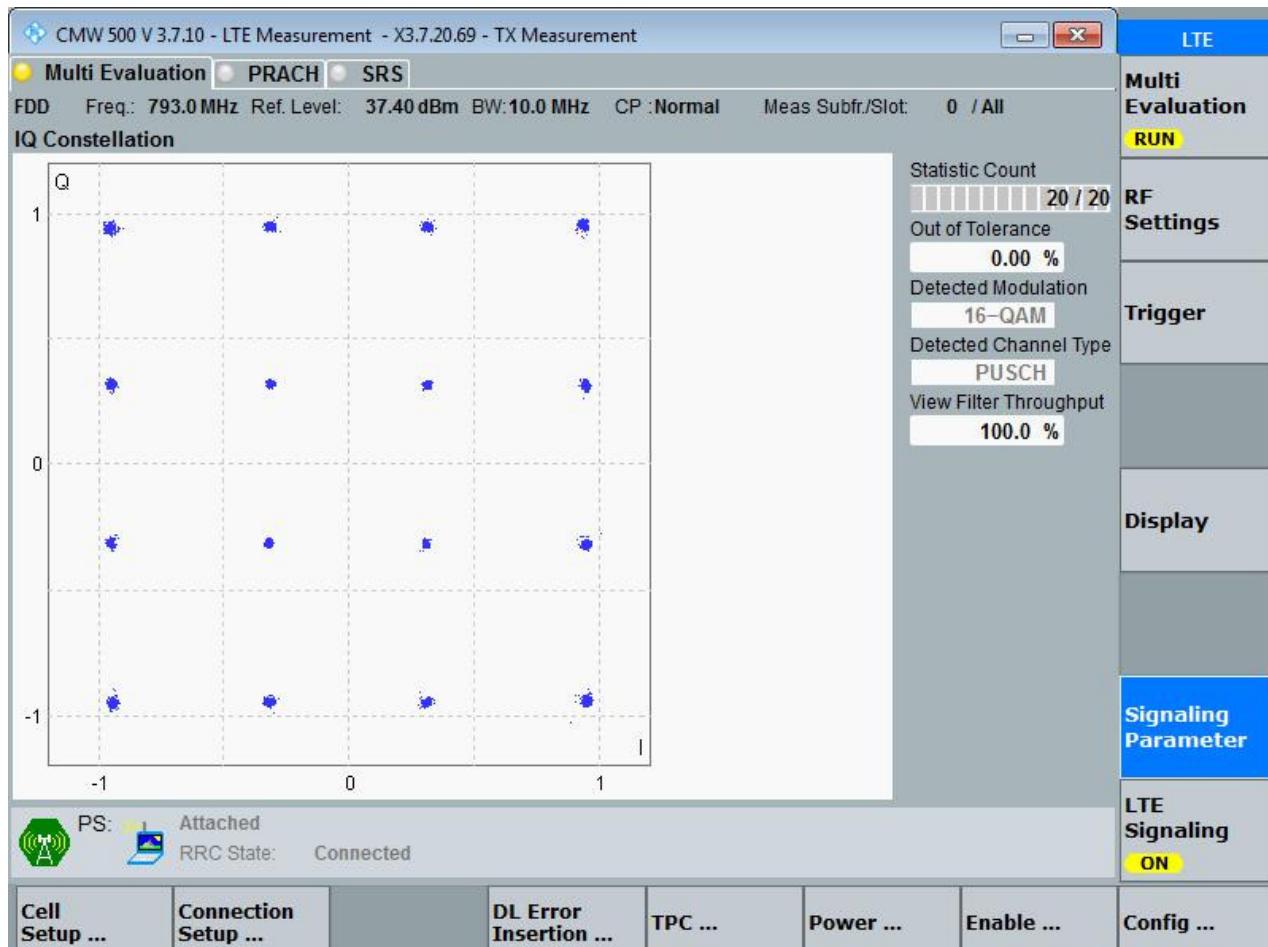
3.1 For LTE

3.1.1 Test Band = LTE band 14

3.1.1.1 Test Mode = LTE /TM1 10MHz

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = LTE /TM2 10MHz**3.1.1.2.1 Test Channel = MCH**

4 Bandwidth

Part I - Test Results

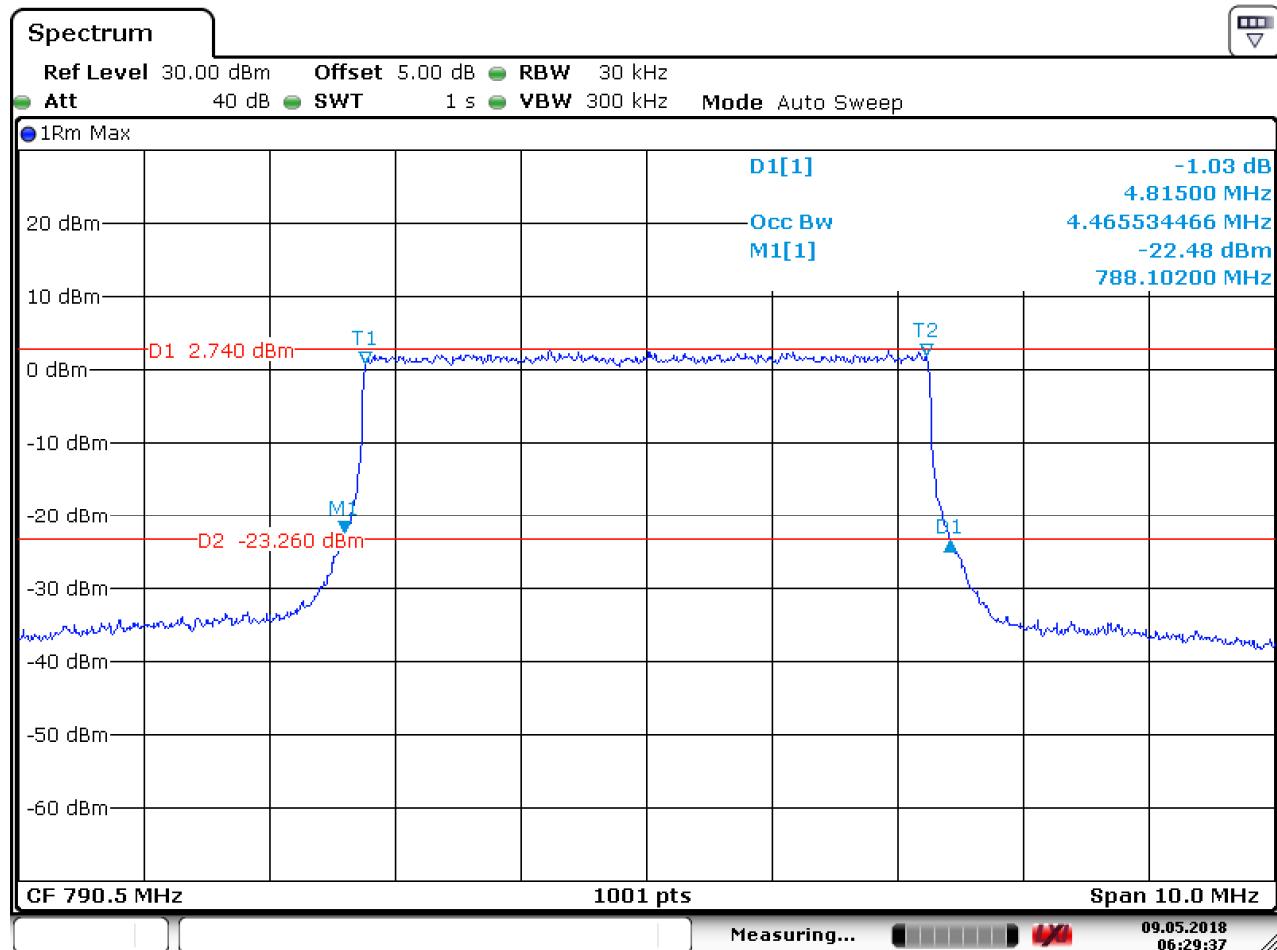
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band14	TM1/ 5MHz	LCH	4.47	4.82	PASS
		MCH	4.47	4.81	PASS
		HCH	4.46	4.87	PASS
	TM2/ 5MHz	LCH	4.46	4.85	PASS
		MCH	4.47	4.85	PASS
		HCH	4.46	4.82	PASS
	TM1/10MHz	HCH	8.93	9.42	PASS
	TM2/ 10MHz	HCH	8.91	9.39	PASS

4.1 For LTE

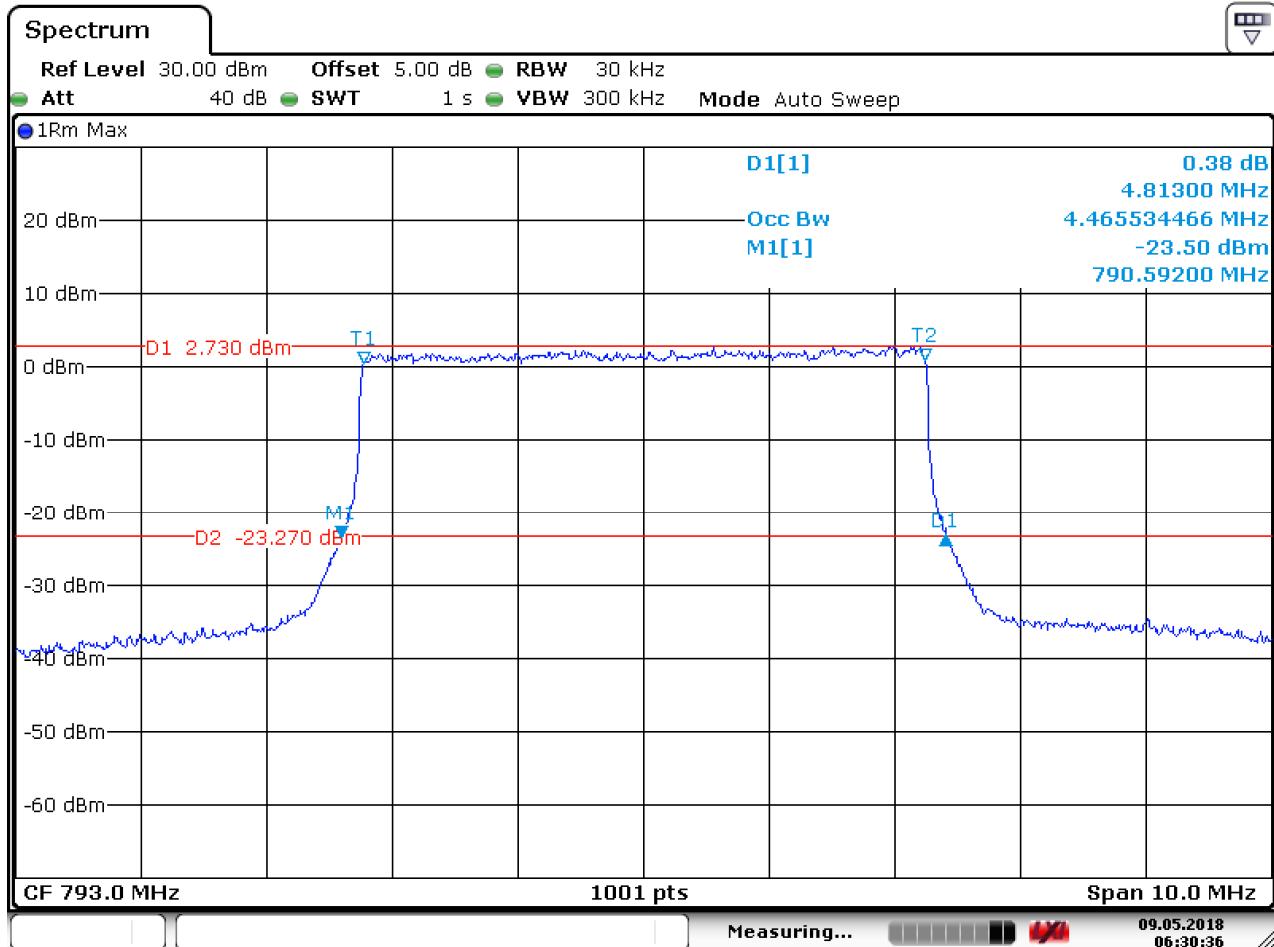
4.1.1 Test Band = LTE band14

4.1.1.1 Test Mode = LTE/TM1 5MHz

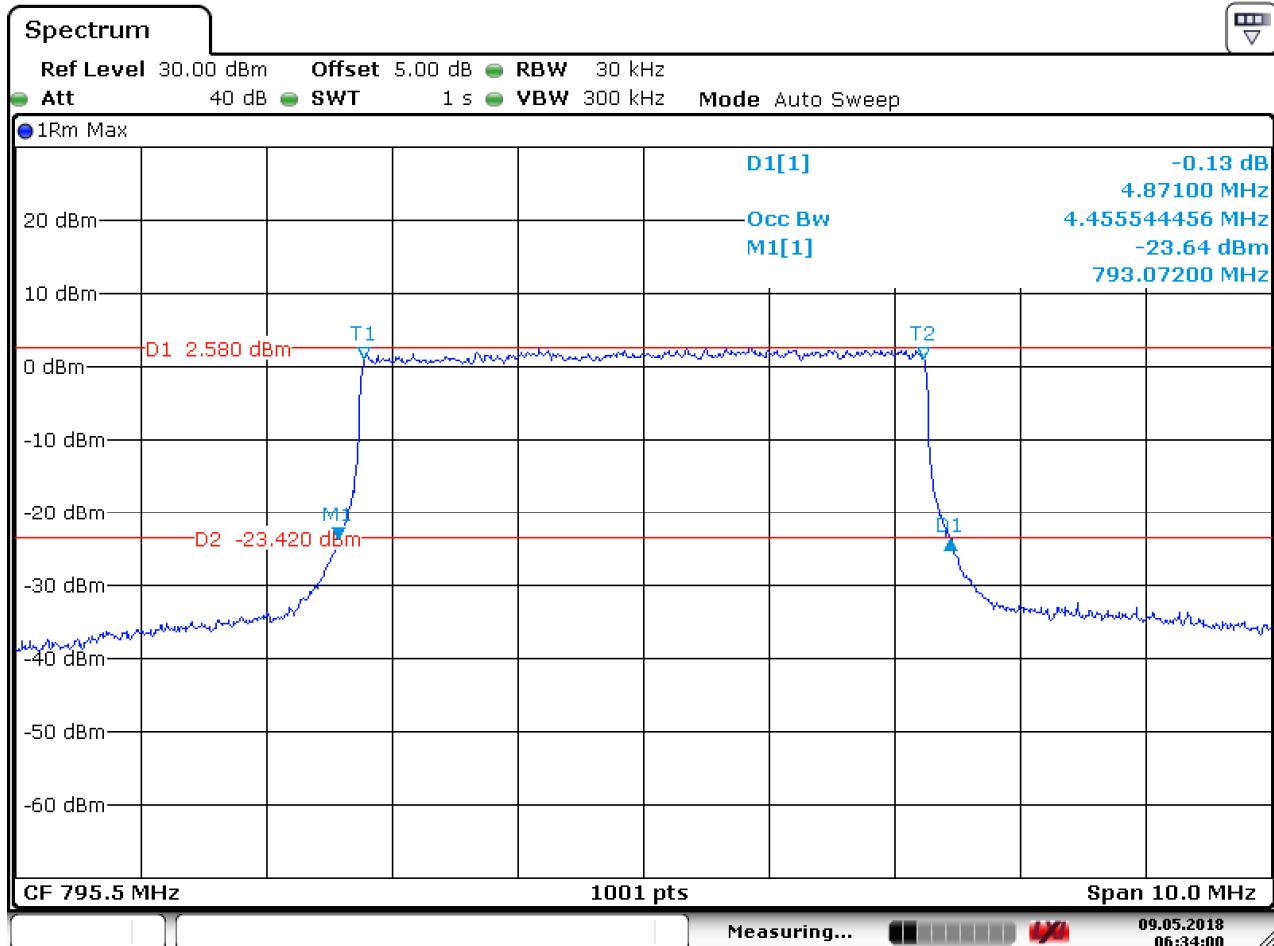
4.1.1.1.1 Test Channel = LCH



Date: 9.MAY.2018 06:29:37

4.1.1.1.2 Test Channel = MCH

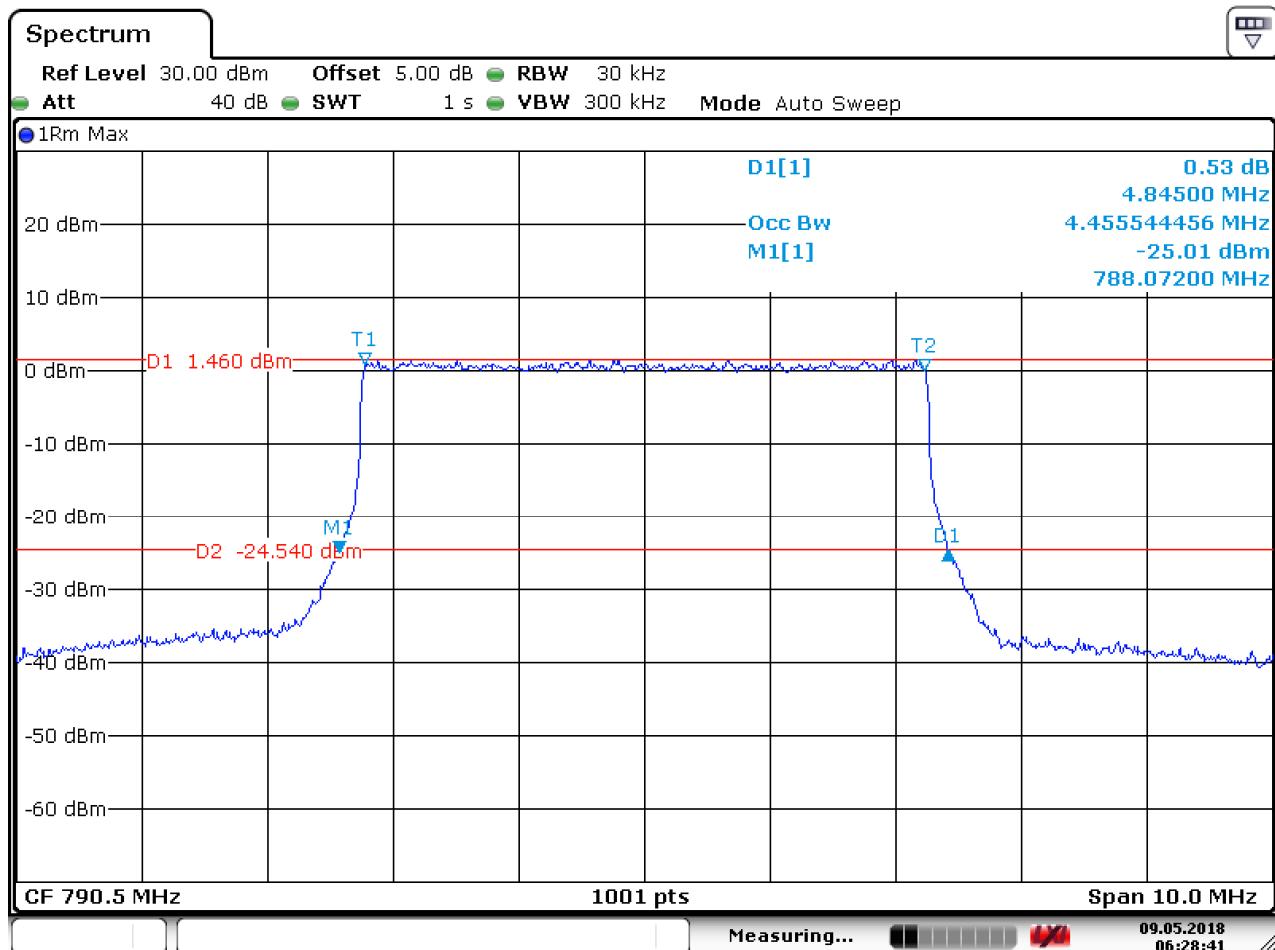
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4.1.1.1.3 Test Channel = HCH

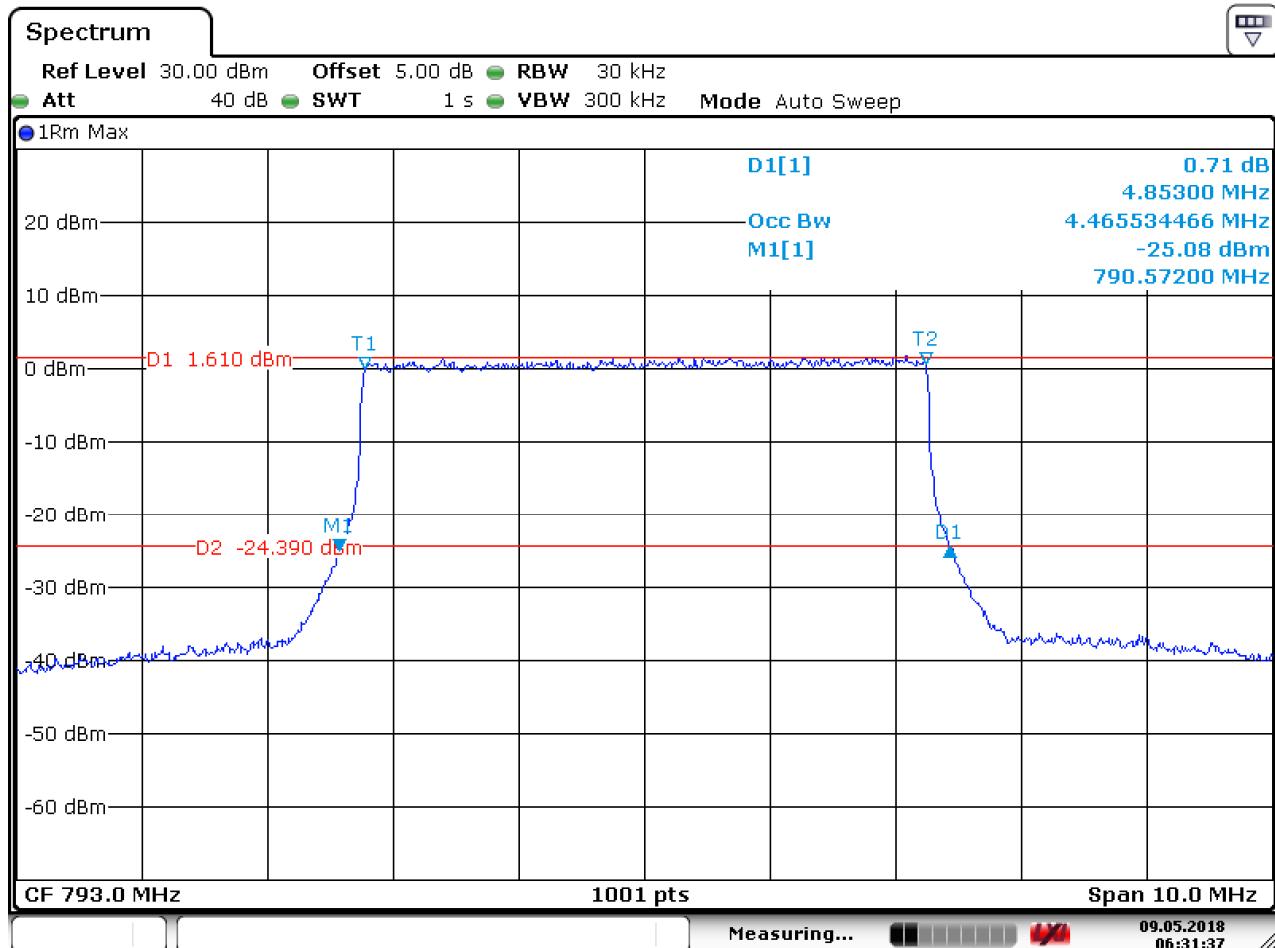
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4.1.1.2 Test Mode = LTE/TM2 5MHz

4.1.1.2.1 Test Channel = LCH

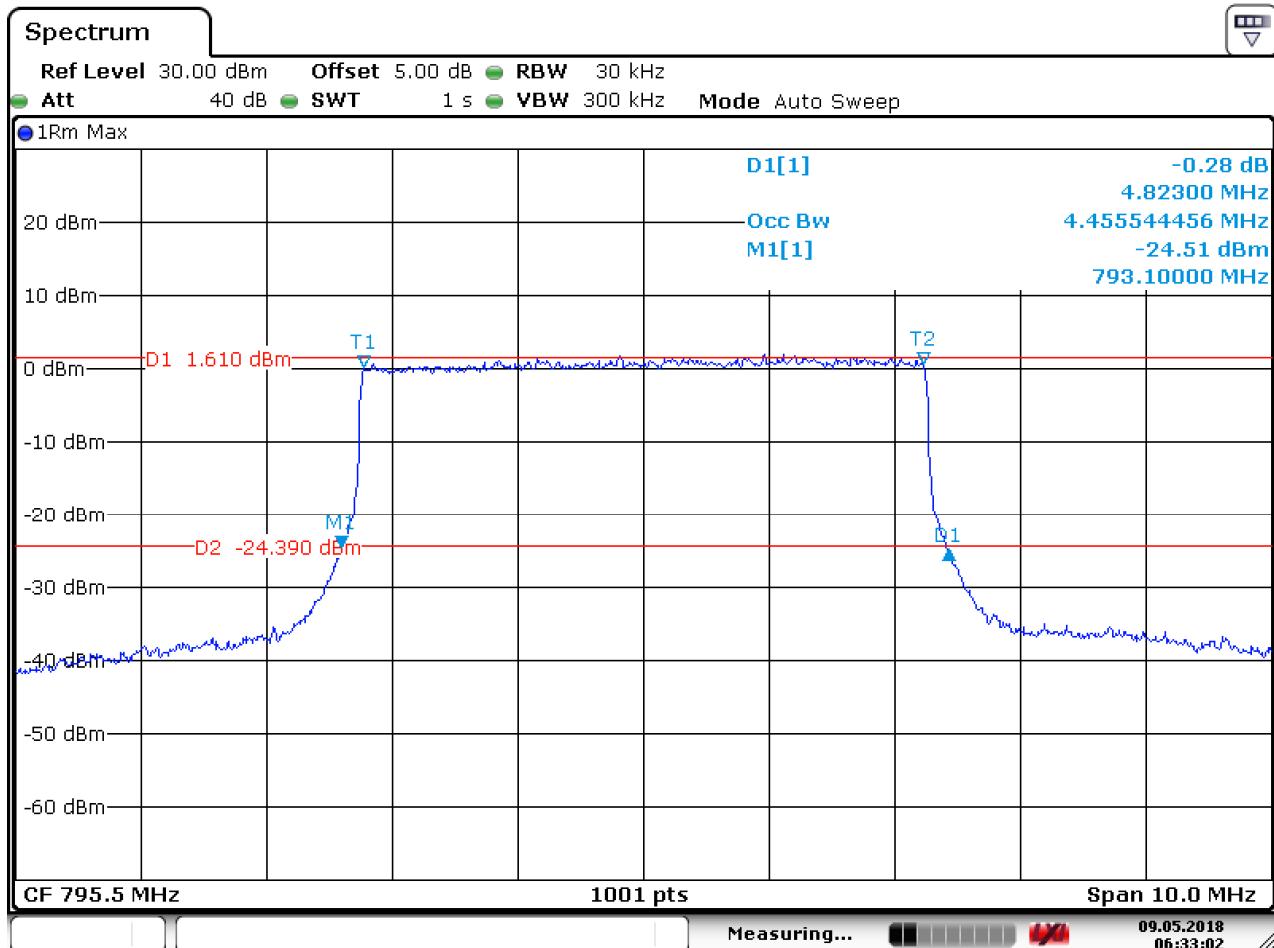


Date: 9.MAY.2018 06:28:42

4.1.1.2.2 Test Channel = MCH

Date: 9.MAY.2018 06:31:37

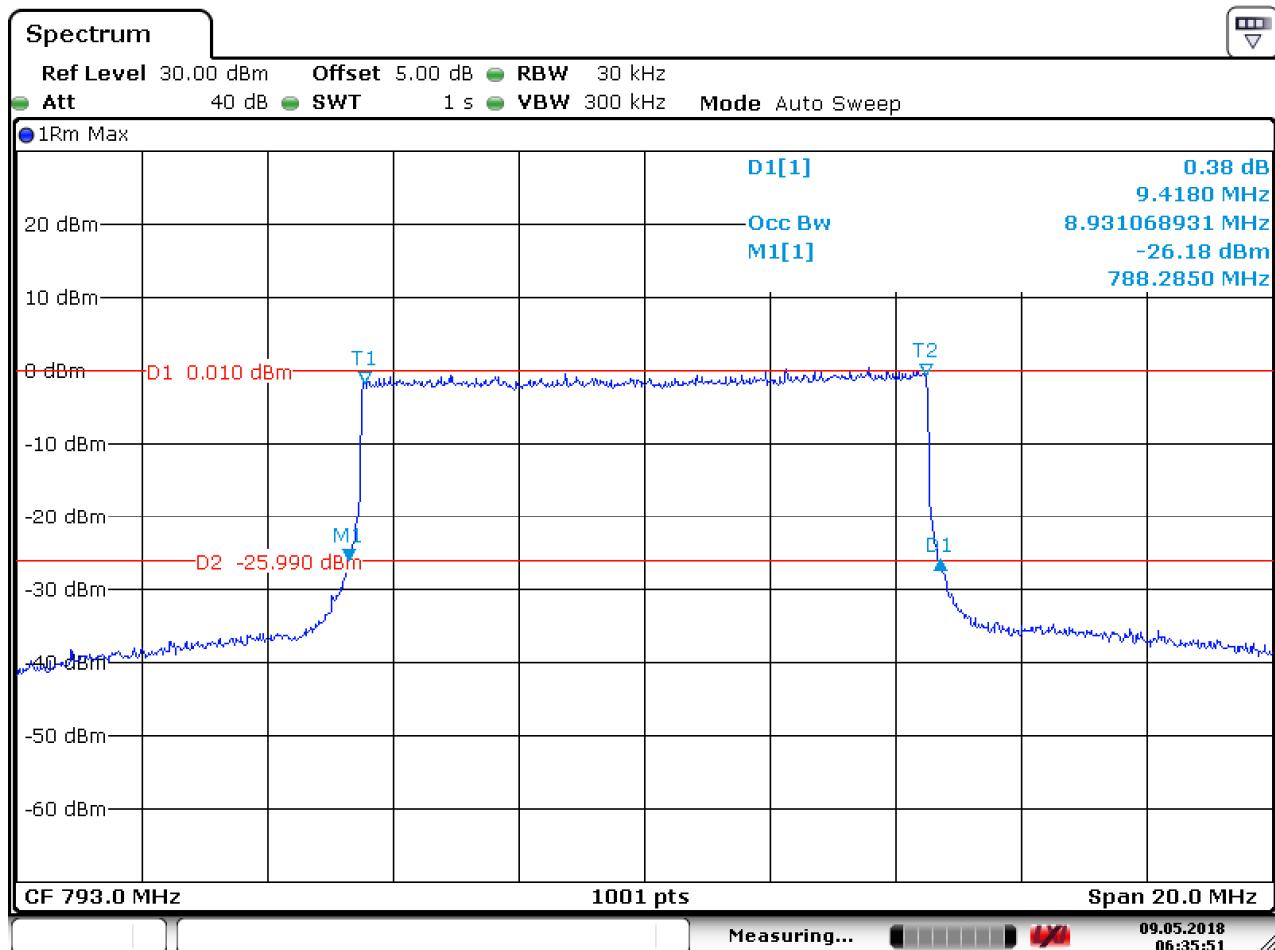
4.1.1.2.3 Test Channel = HCH



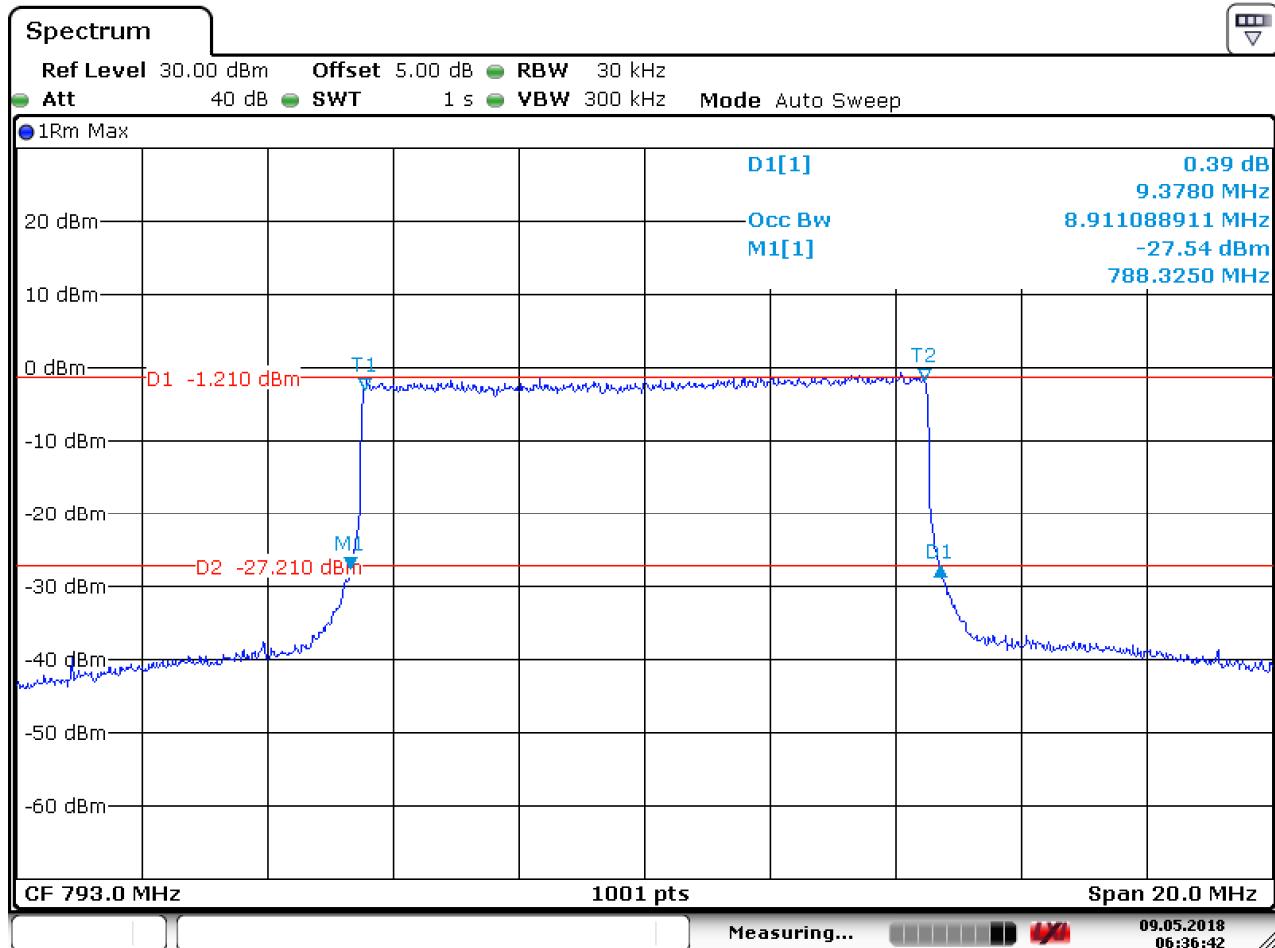
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4.1.1.3 Test Mode = LTE/TM1 10MHz

4.1.1.3.1 Test Channel = HCH



Date: 9.MAY.2018 06:35:52

4.1.1.4 Test Mode = LTE/TM2 10MHz**4.1.1.4.1 Test Channel = HCH**

Date: 9.MAY.2018 06:36:42

5 Band Edges Compliance

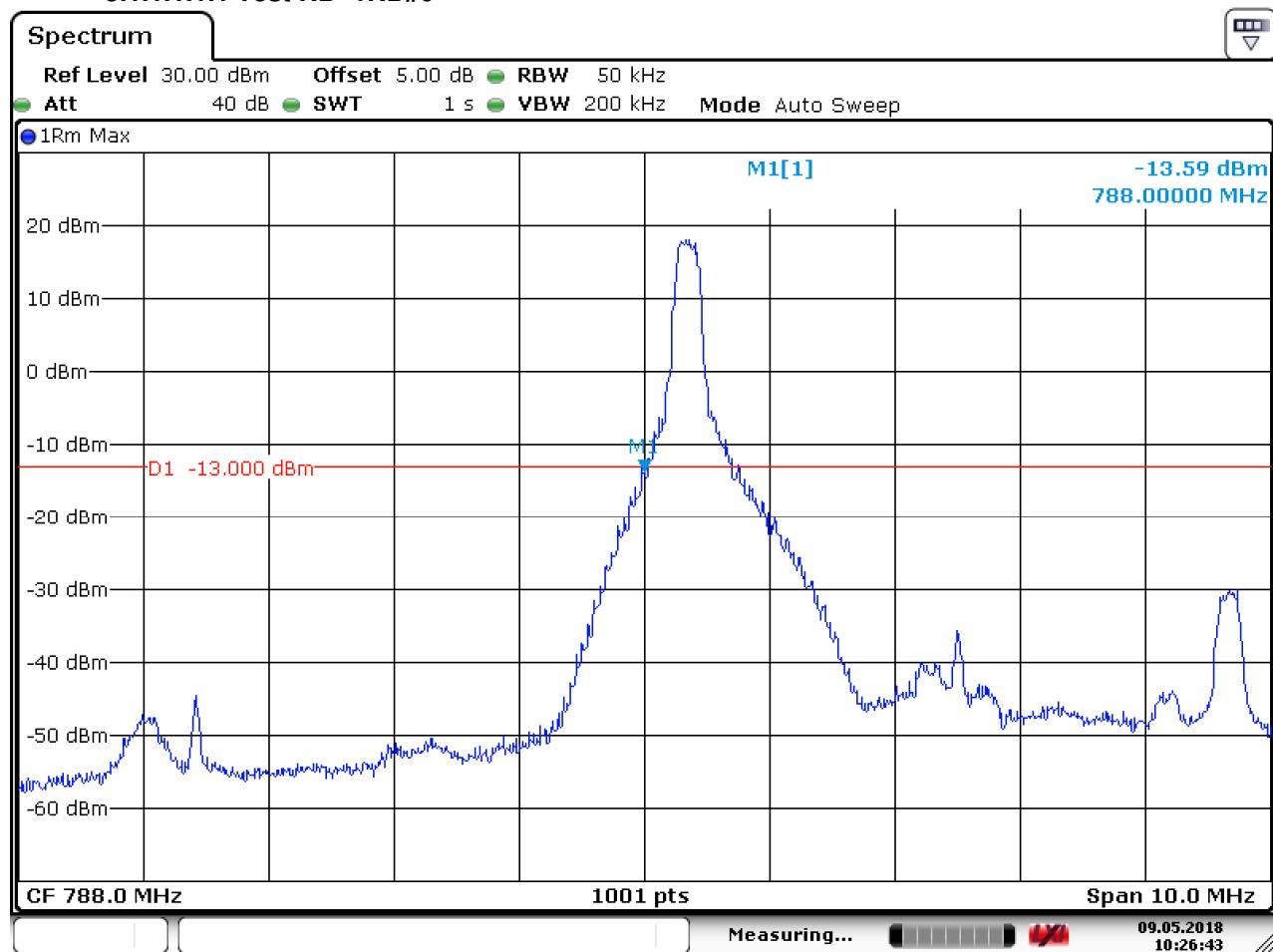
5.1 For LTE

5.1.1 Test Band = LTE band14

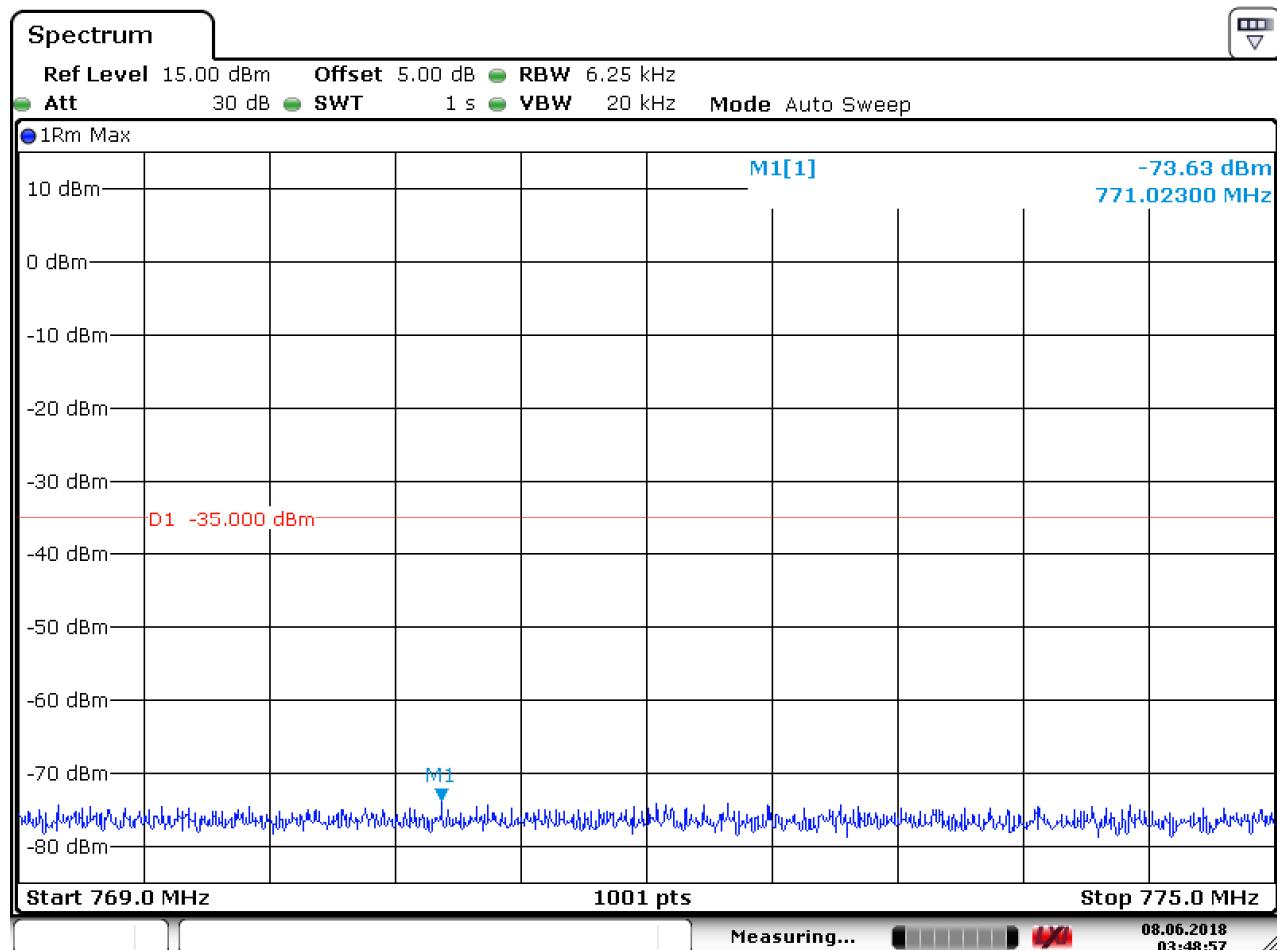
5.1.1.1 Test Mode = LTE/TM1 5MHz

5.1.1.1.1 Test Channel = LCH

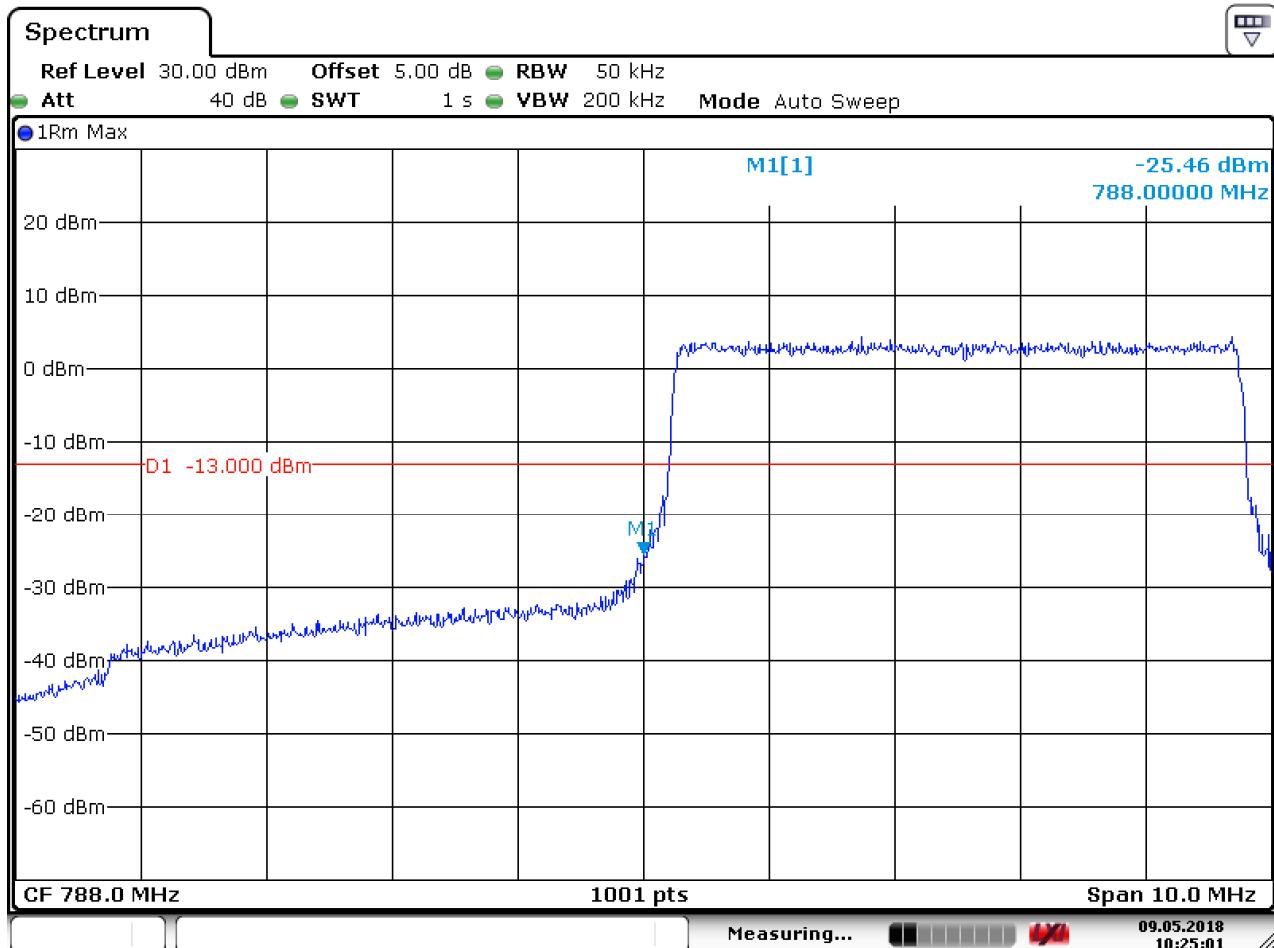
5.1.1.1.1.1 Test RB=1RB#0



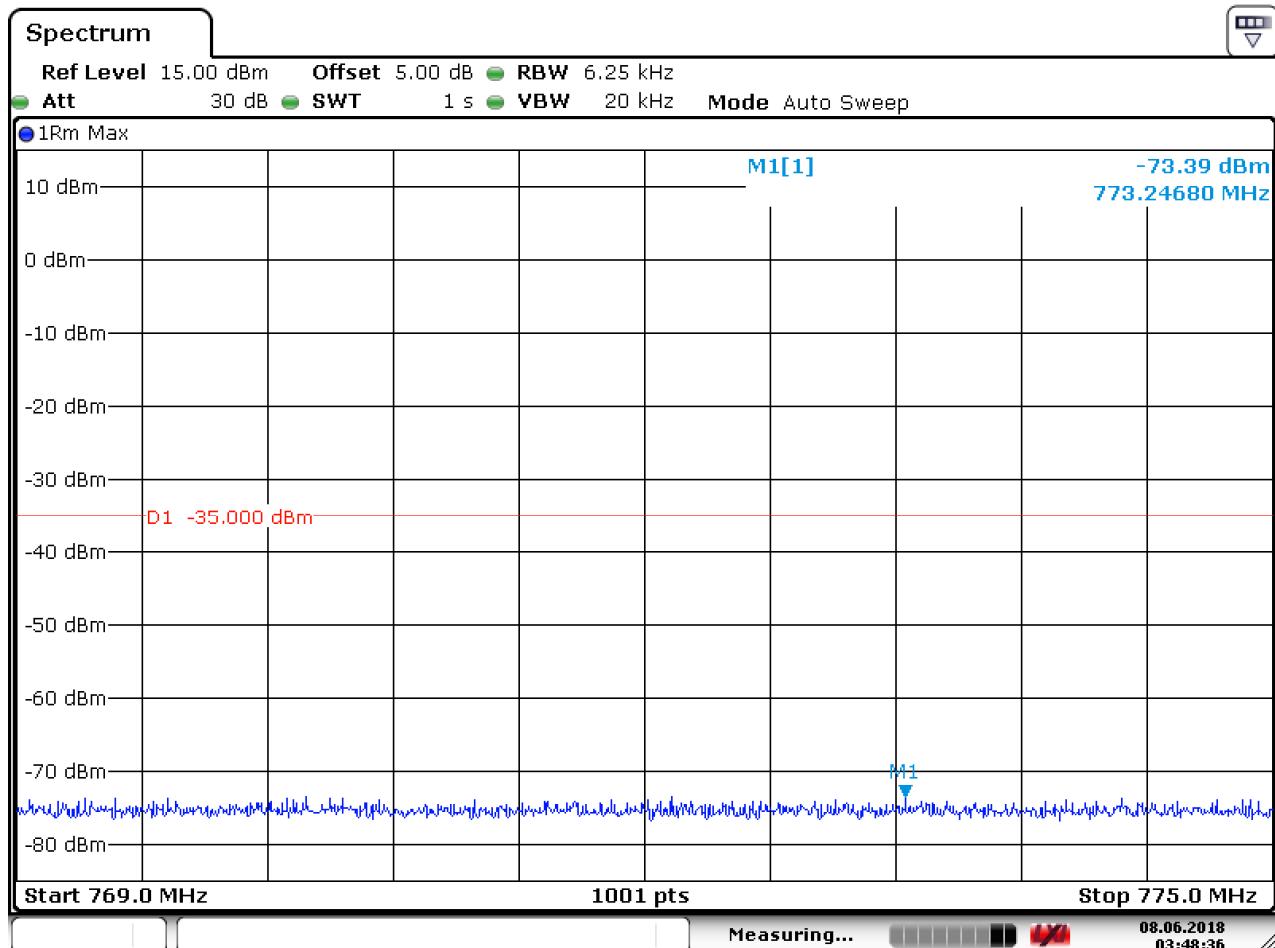
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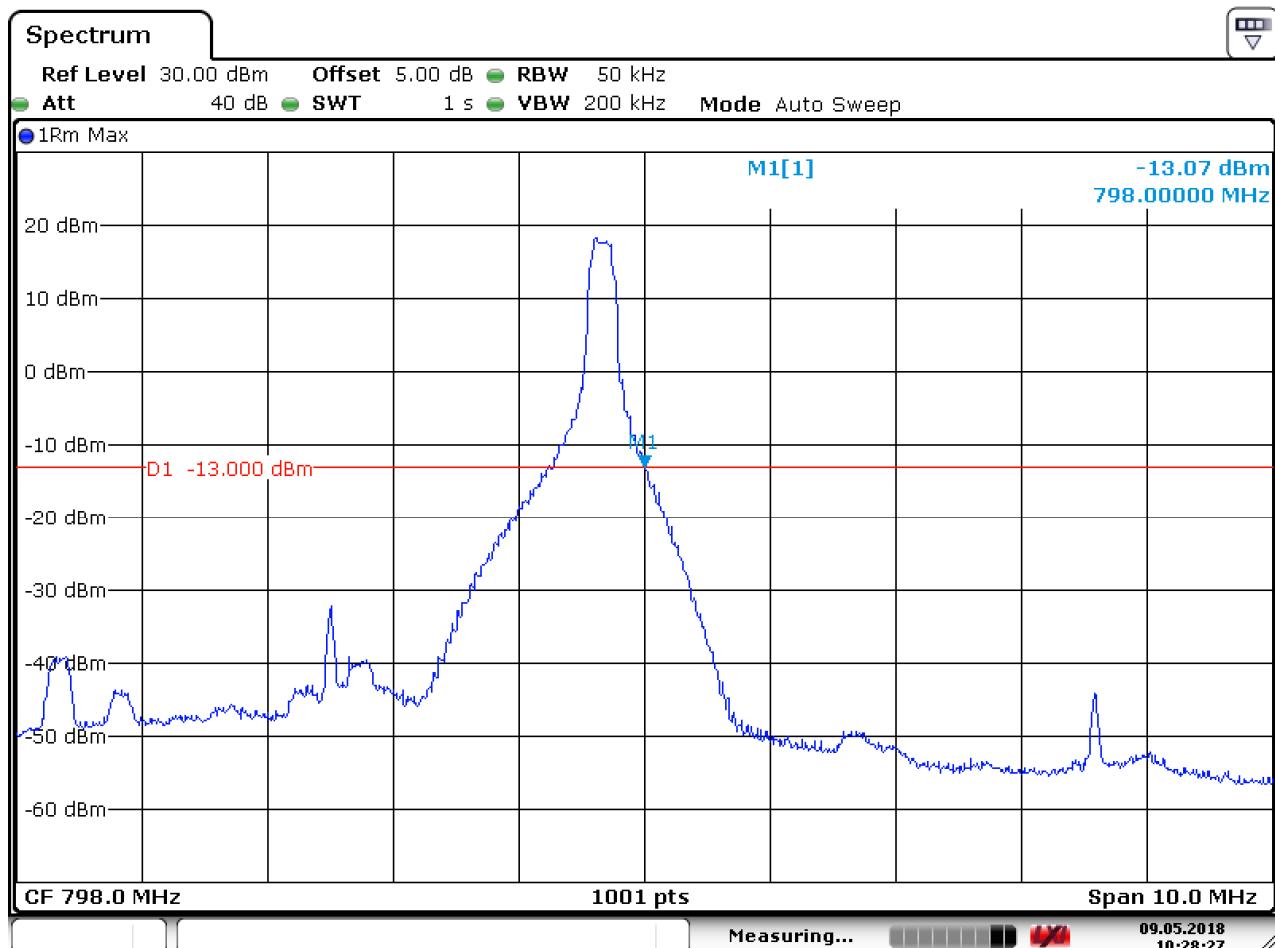
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5.1.1.1.2 Test RB=25RB

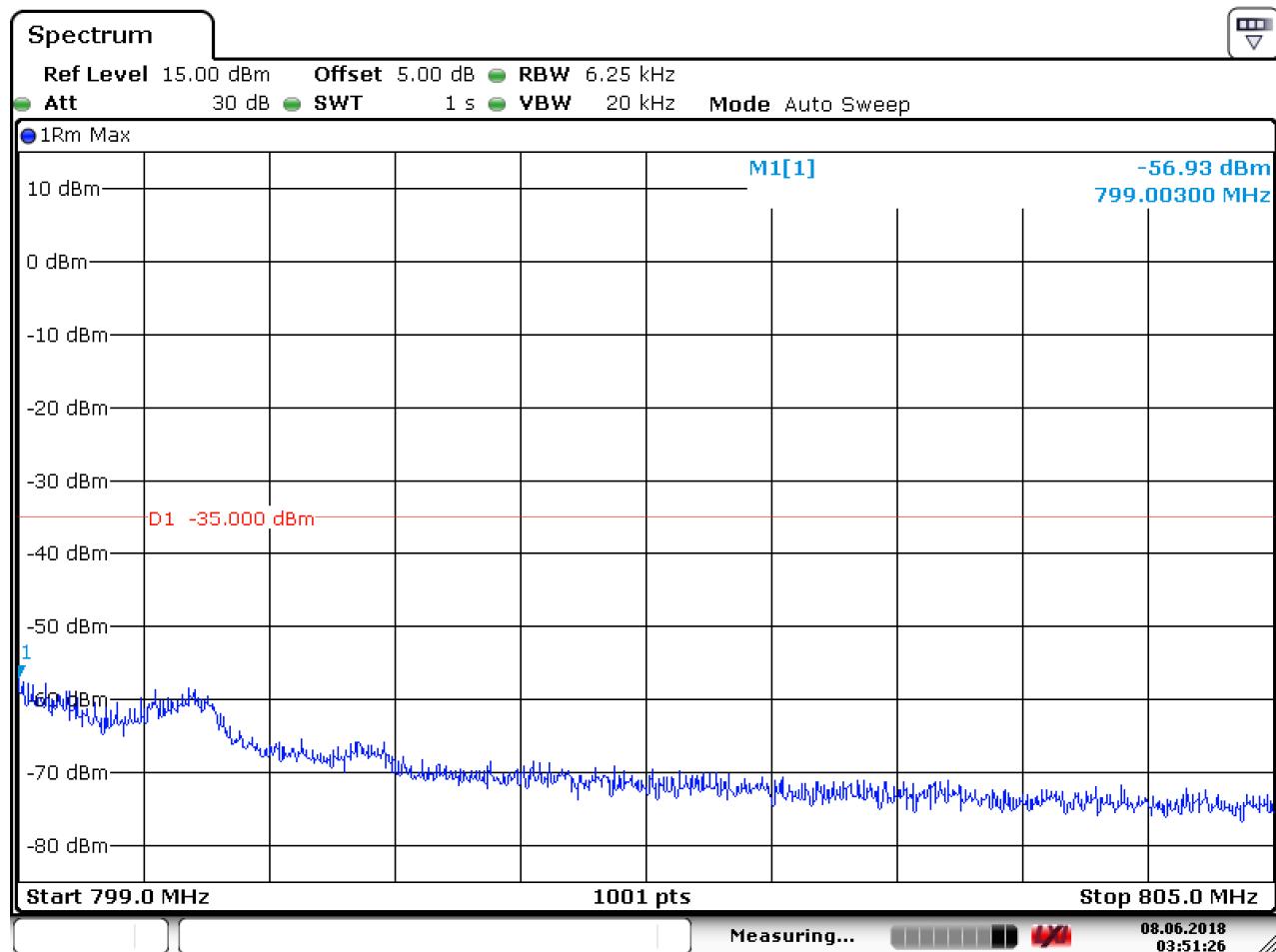
Date: 9.MAY.2018 10:25:01



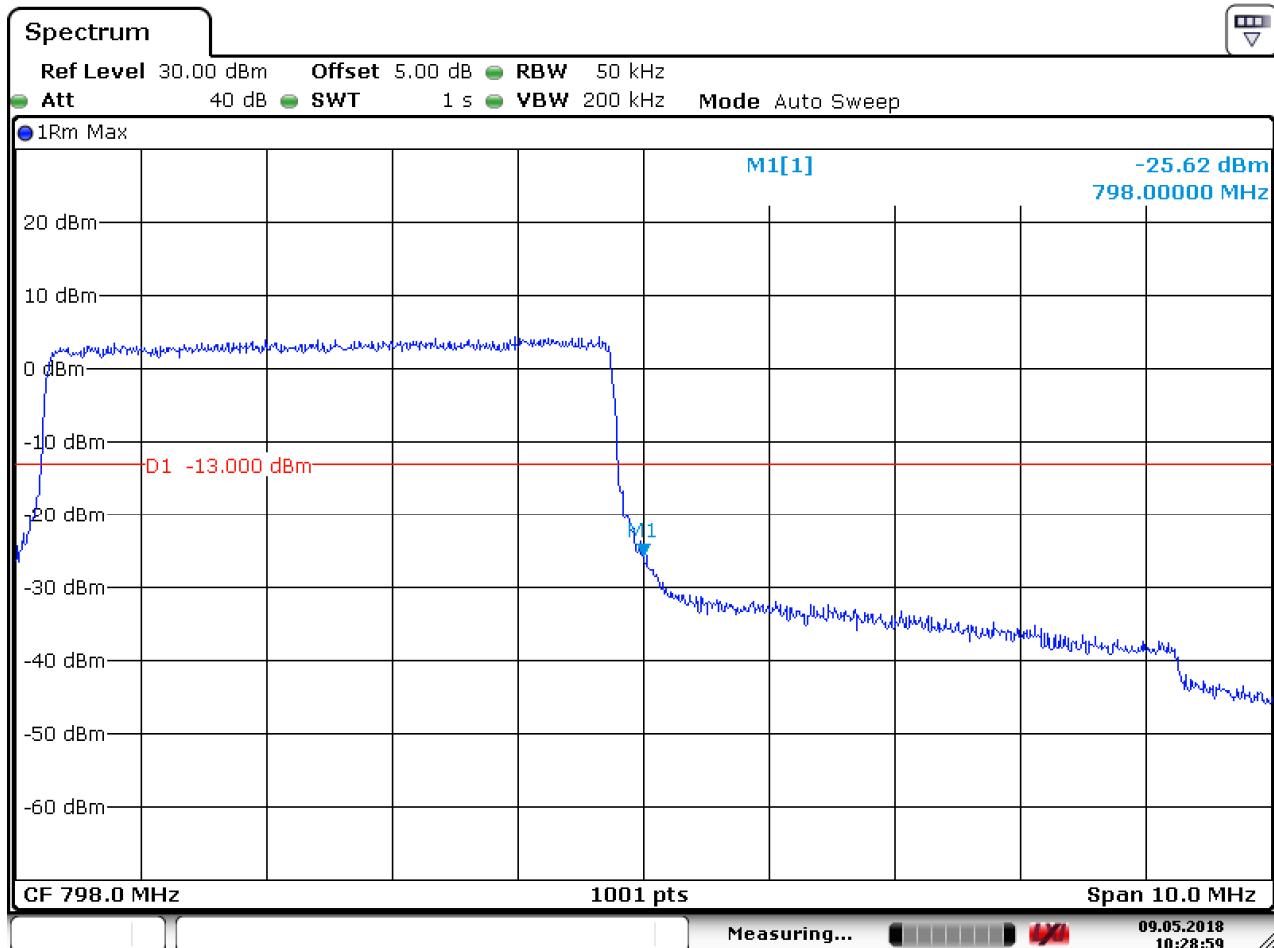
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5.1.1.1.2 Test Channel = HCH**5.1.1.1.2.1 Test RB=1RB#24**

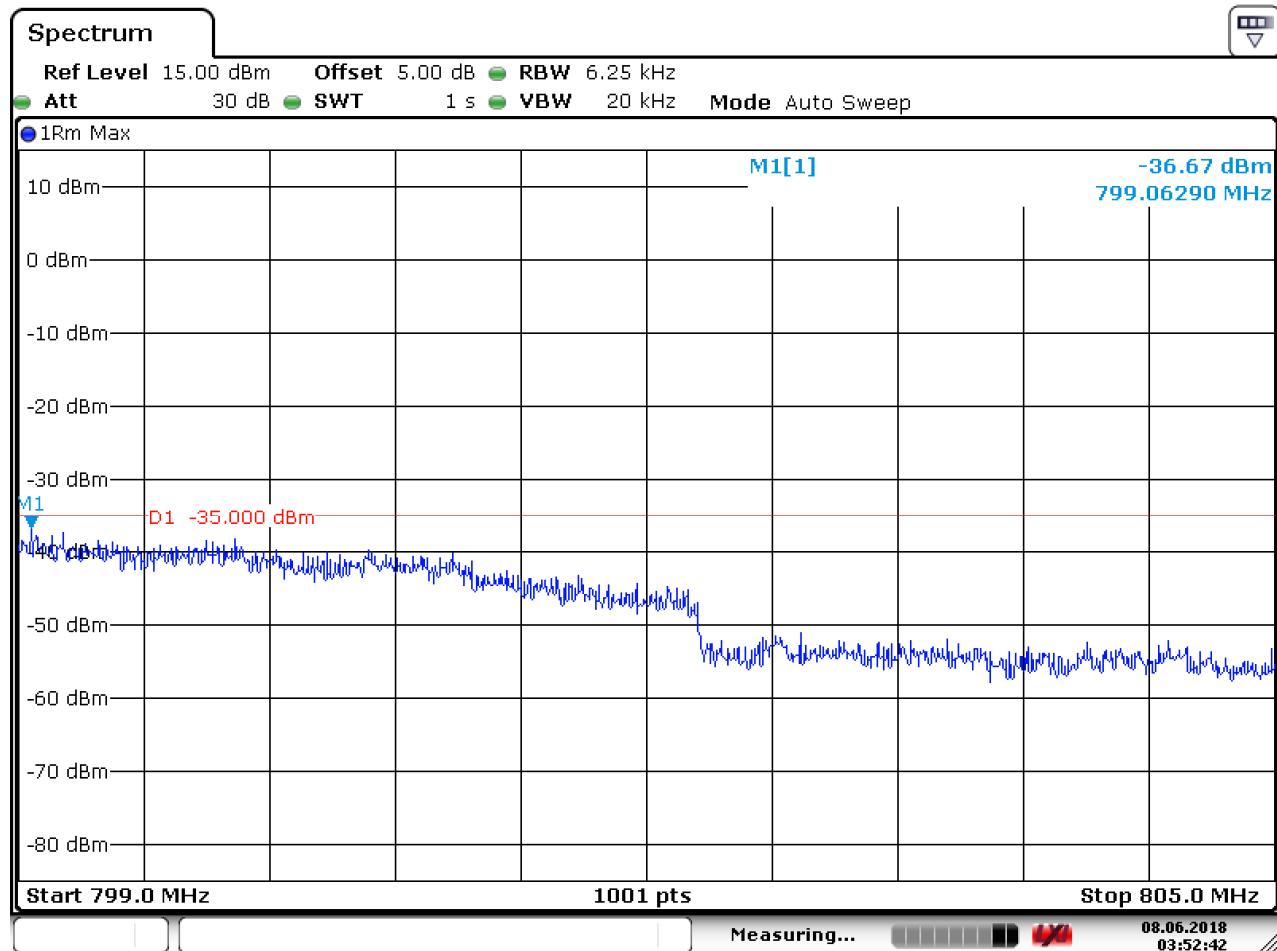
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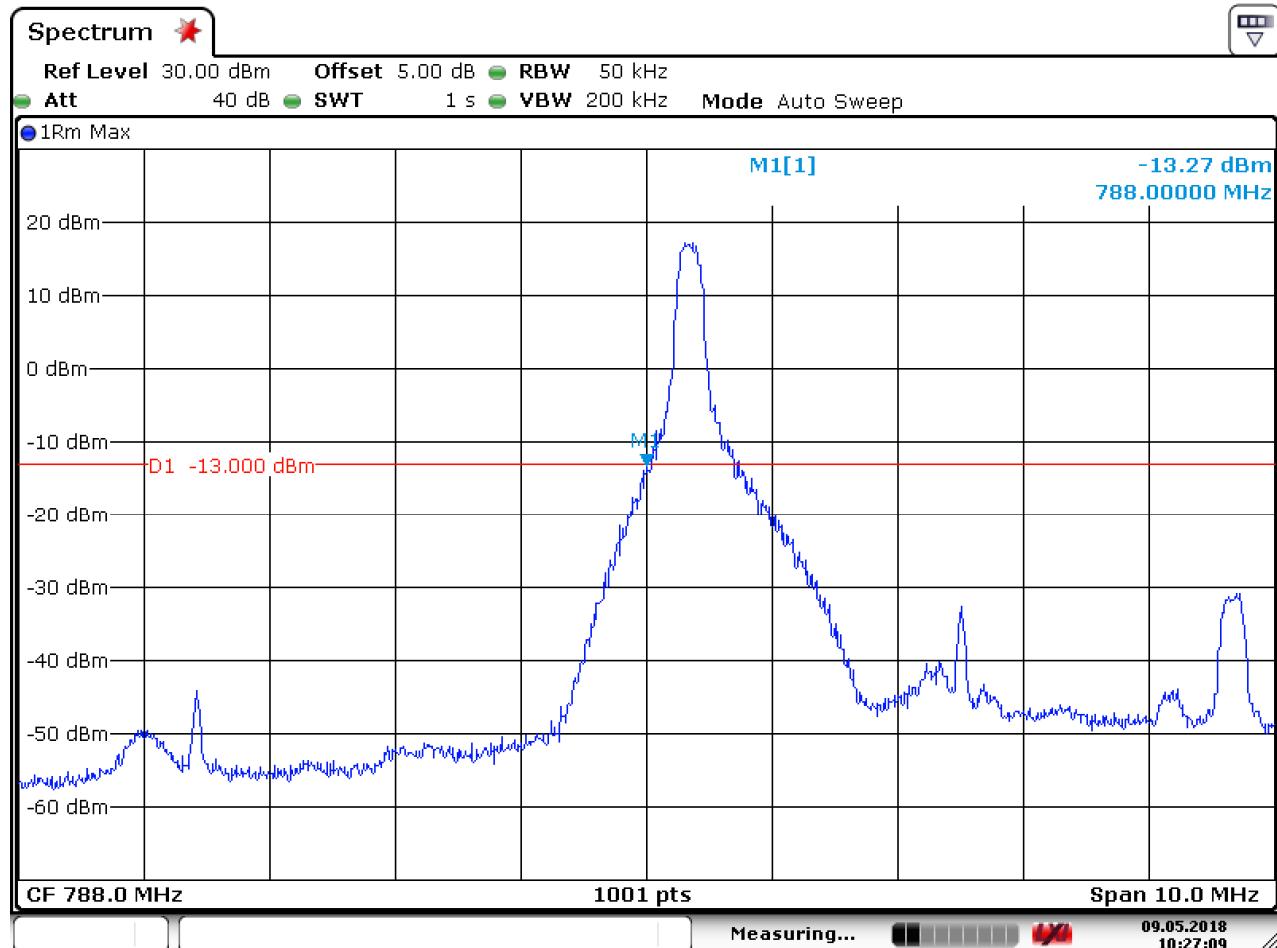
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5.1.1.1.2.2 Test RB=25RB

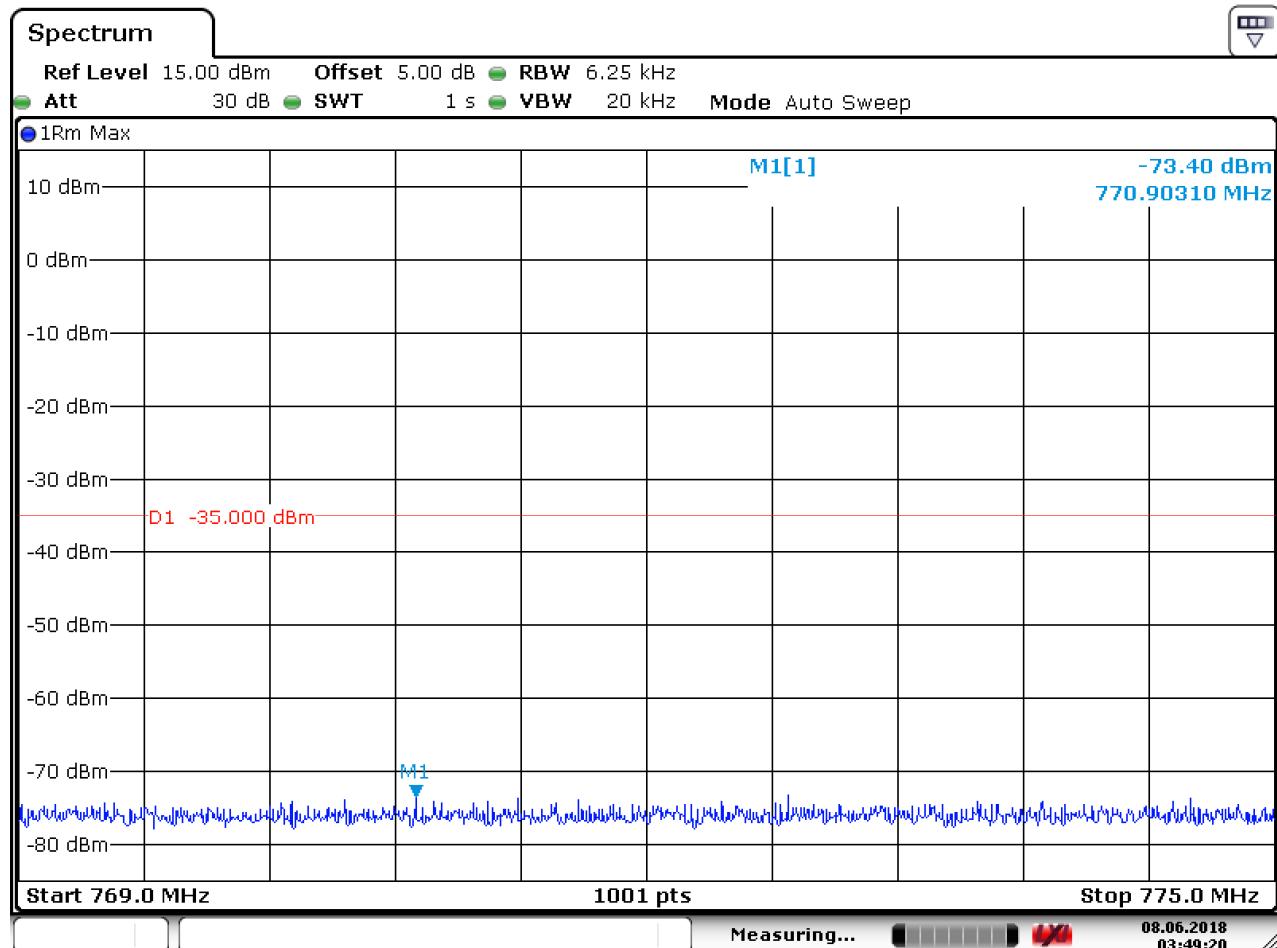
Date: 9.MAY.2018 10:29:00



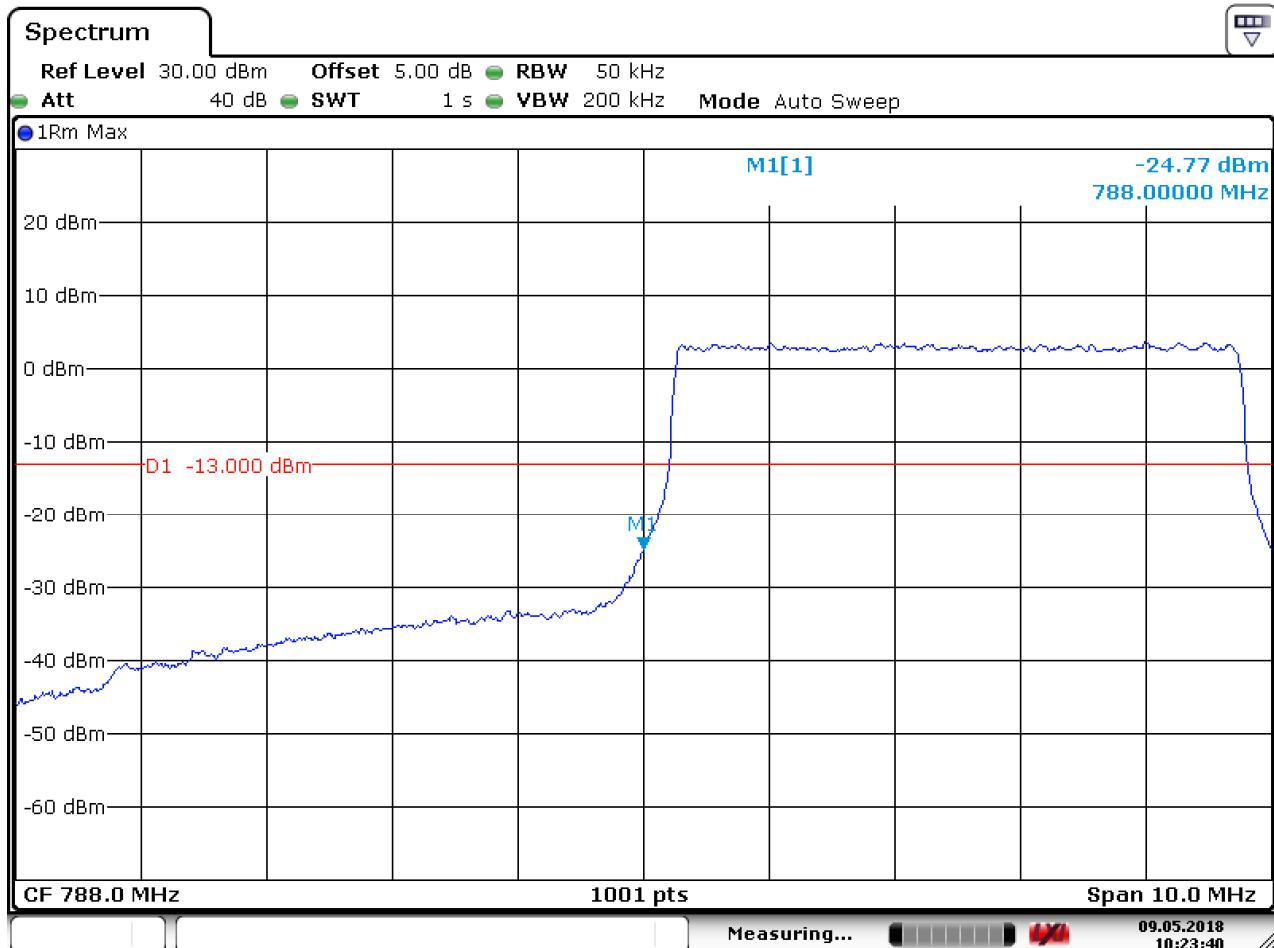
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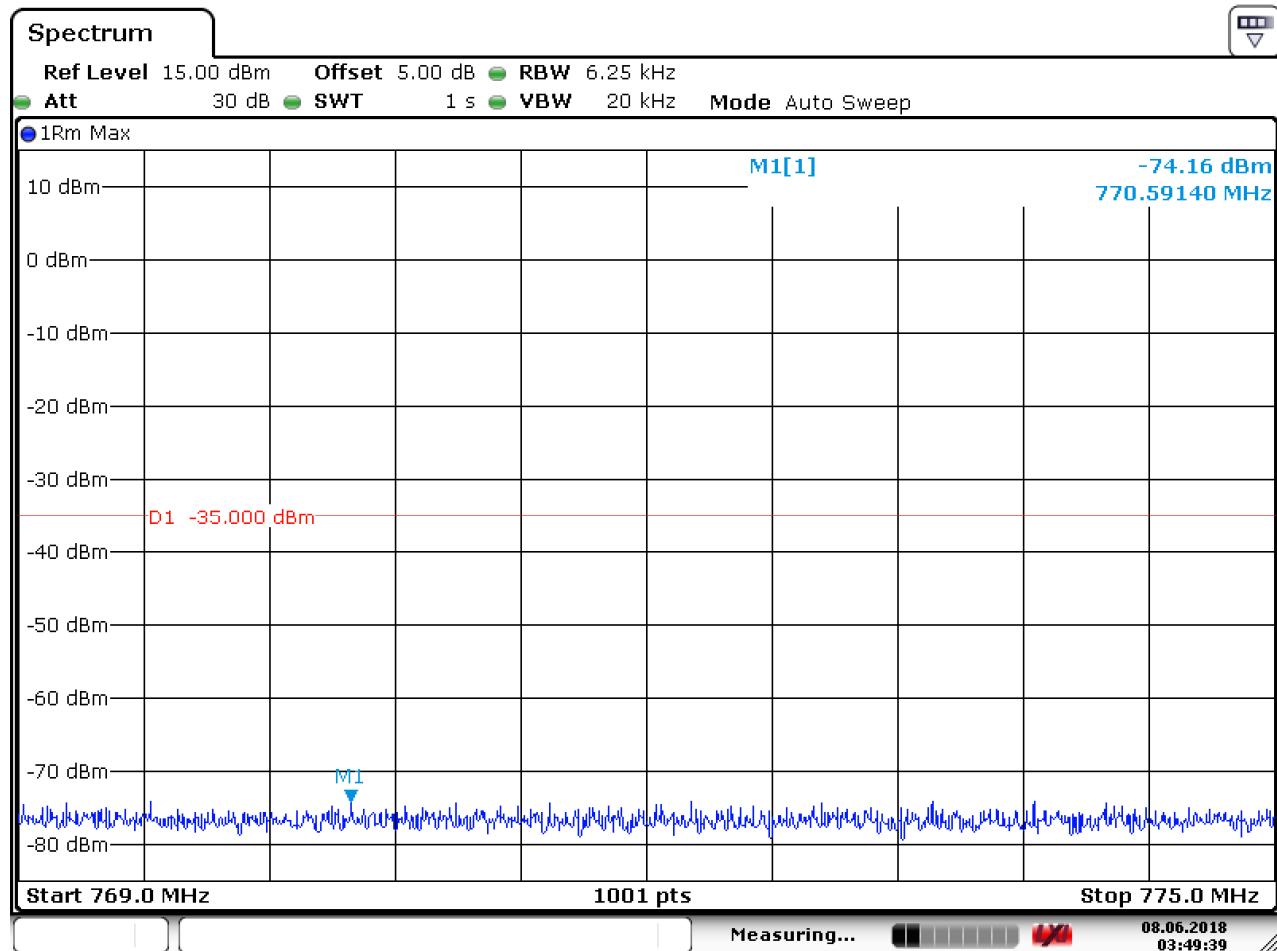
5.1.1.2 Test Mode = LTE/TM2 5MHz**5.1.1.2.1 Test Channel = LCH****5.1.1.2.1.1 Test RB=1RB#0**

Date: 9.MAY.2018 10:27:09

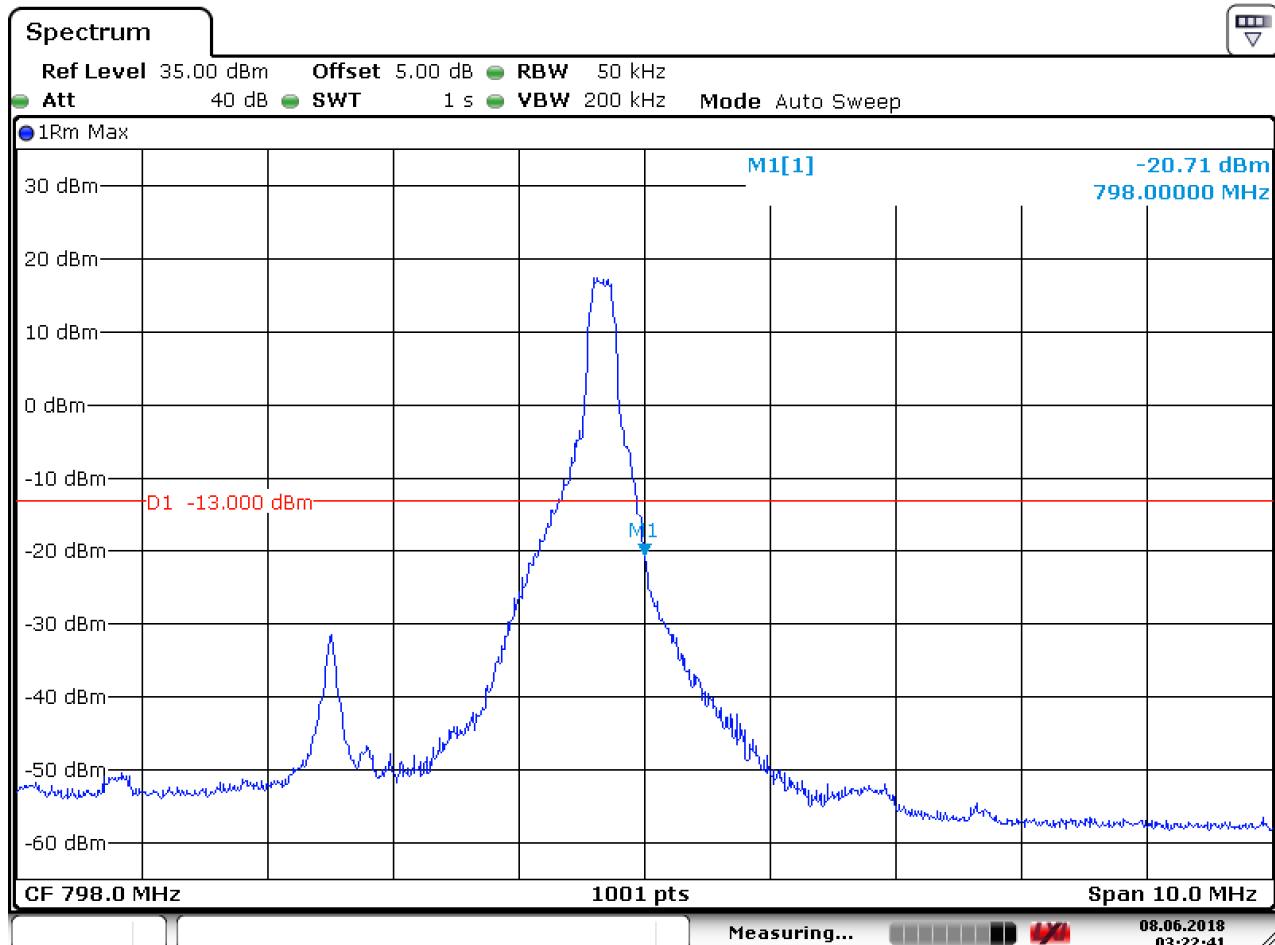


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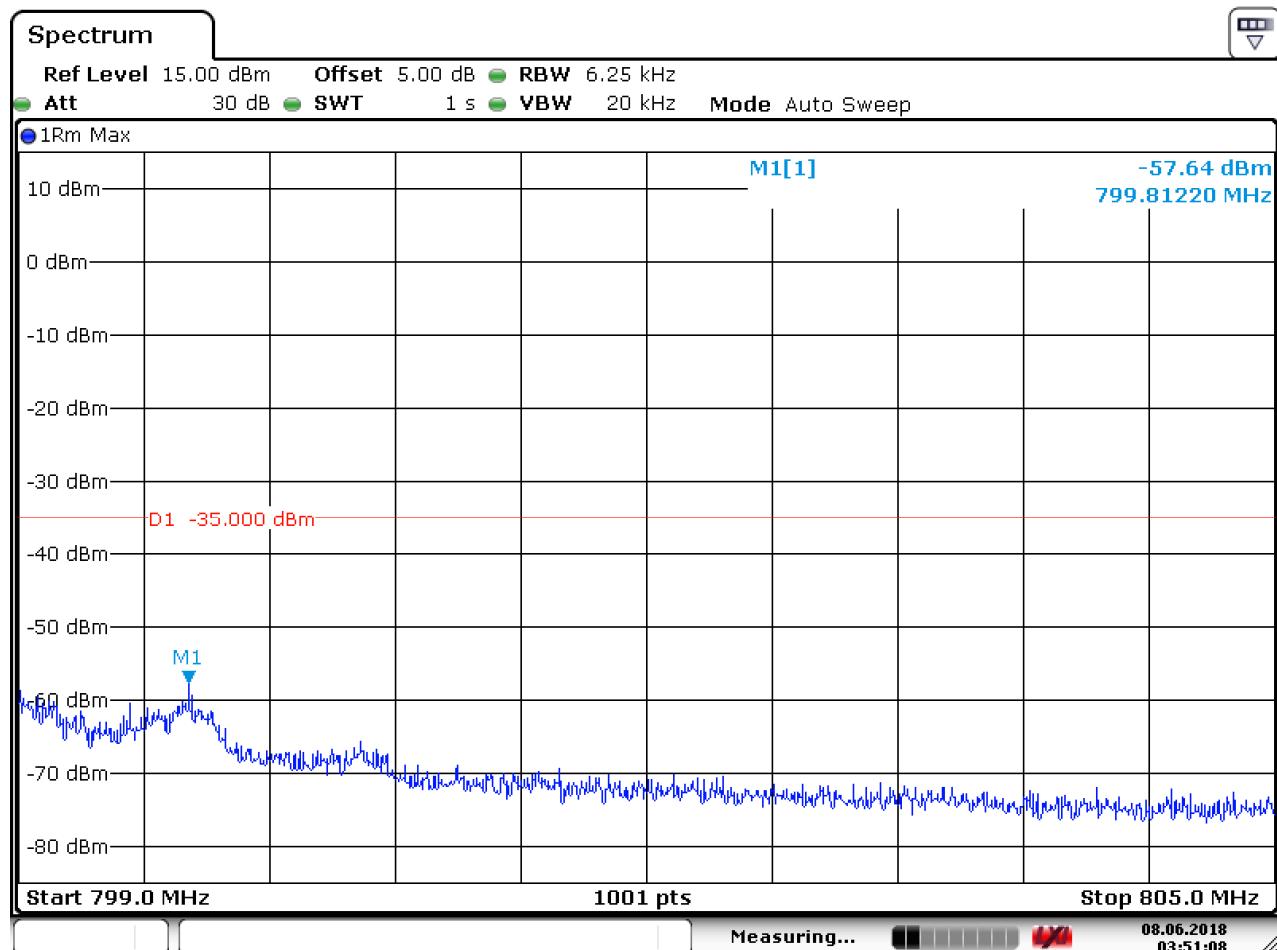
5.1.1.2.1.2 Test RB=25RB



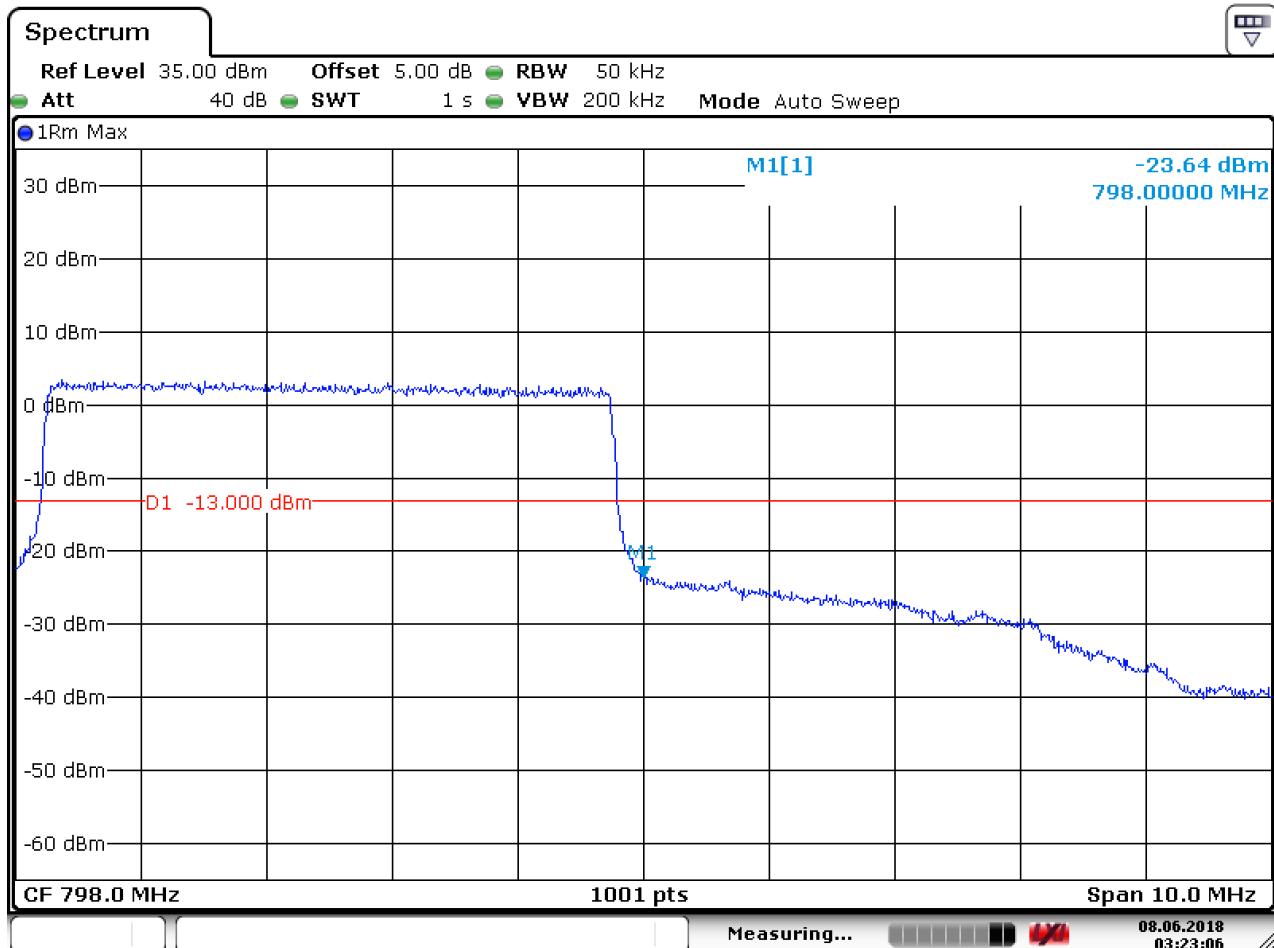
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5.1.1.2.2 Test Channel = HCH**5.1.1.2.2.1 Test RB=1RB#24**

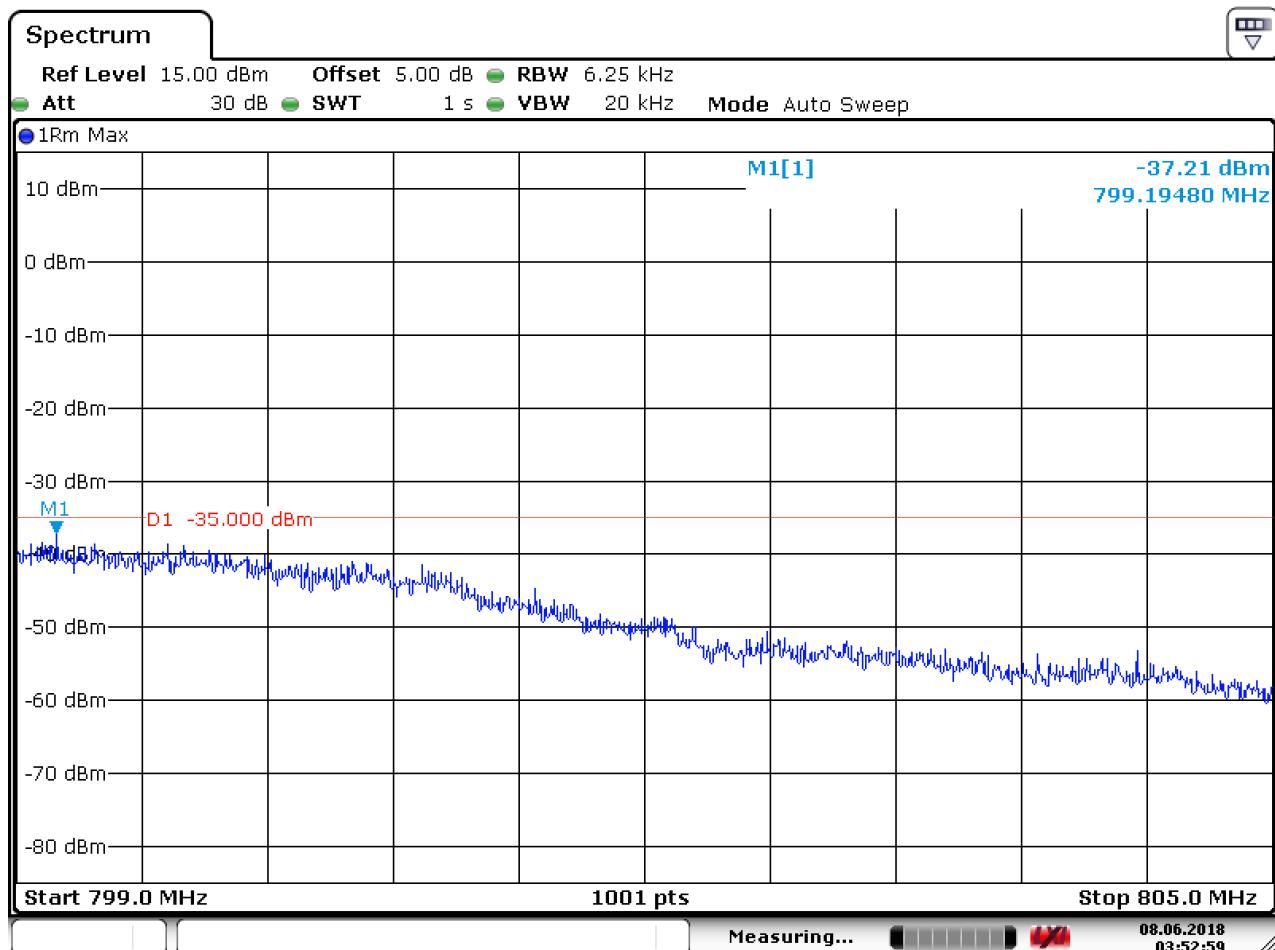
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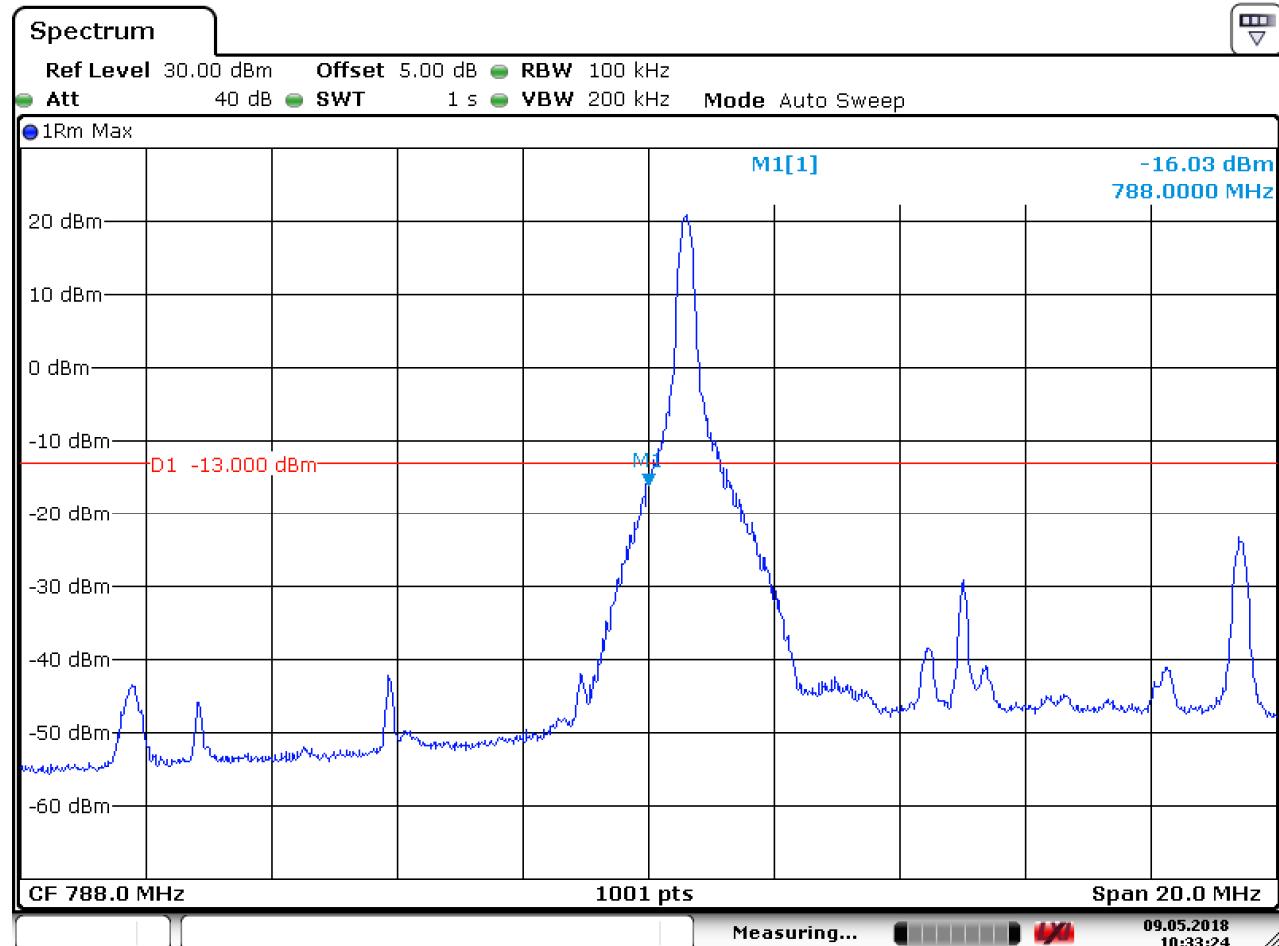
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5.1.1.2.2.2 Test RB=25RB

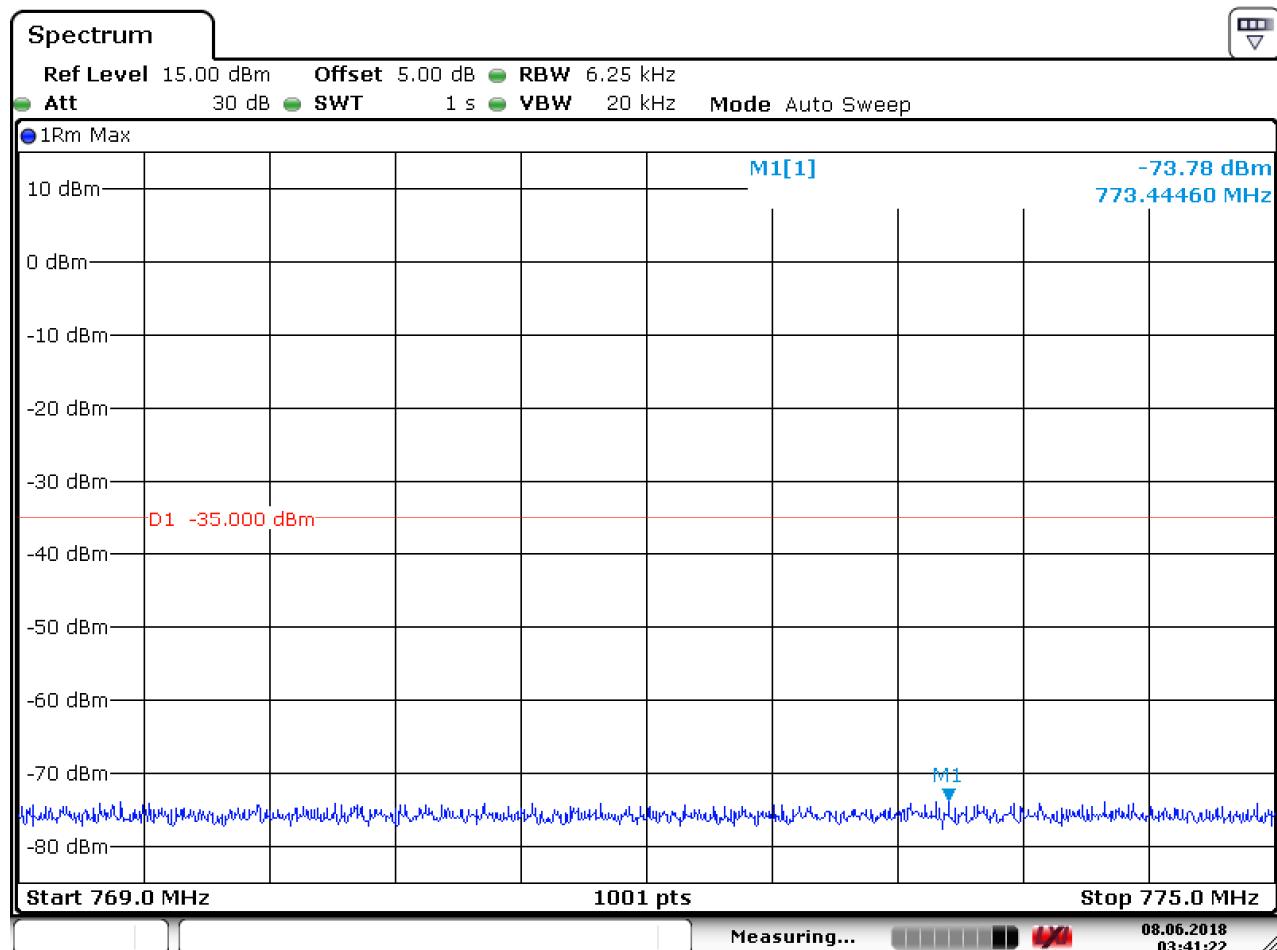
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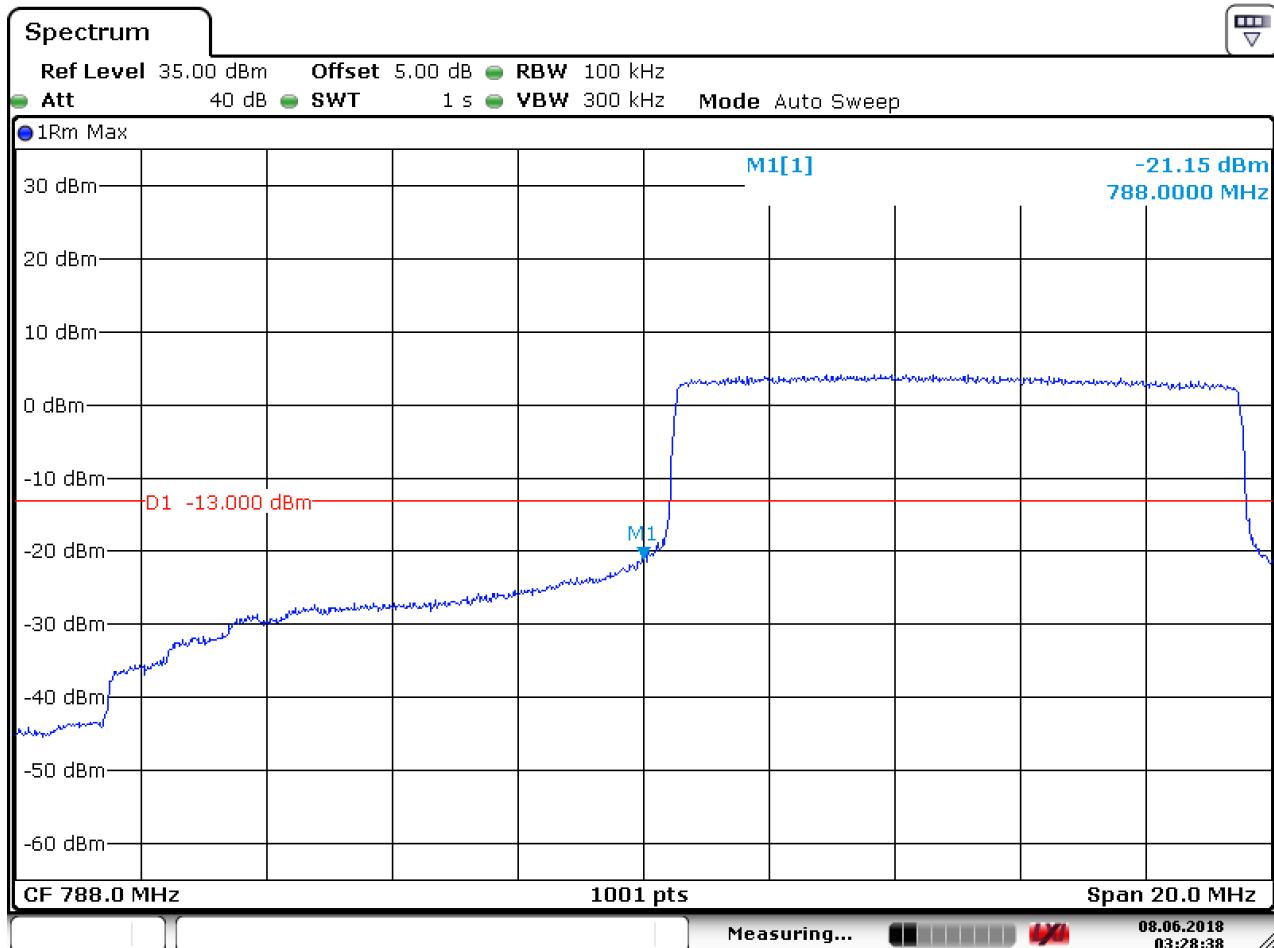
Date: 8.JUN.2018 03:53:00

5.1.1.3 Test Mode = LTE/TM1 10MHz**5.1.1.3.1 Test Channel = LCH****5.1.1.3.1.1 Test RB=1RB#0**

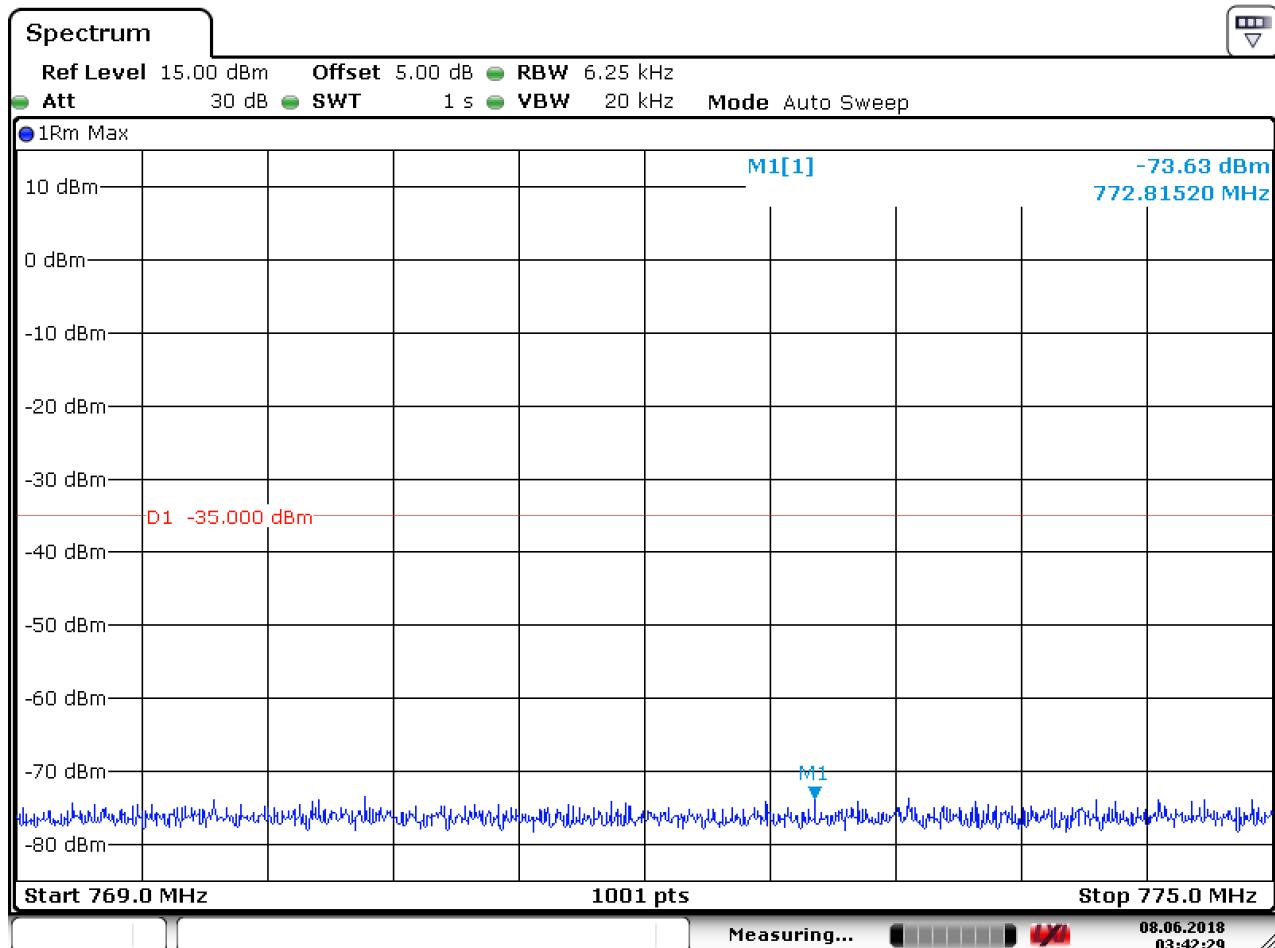
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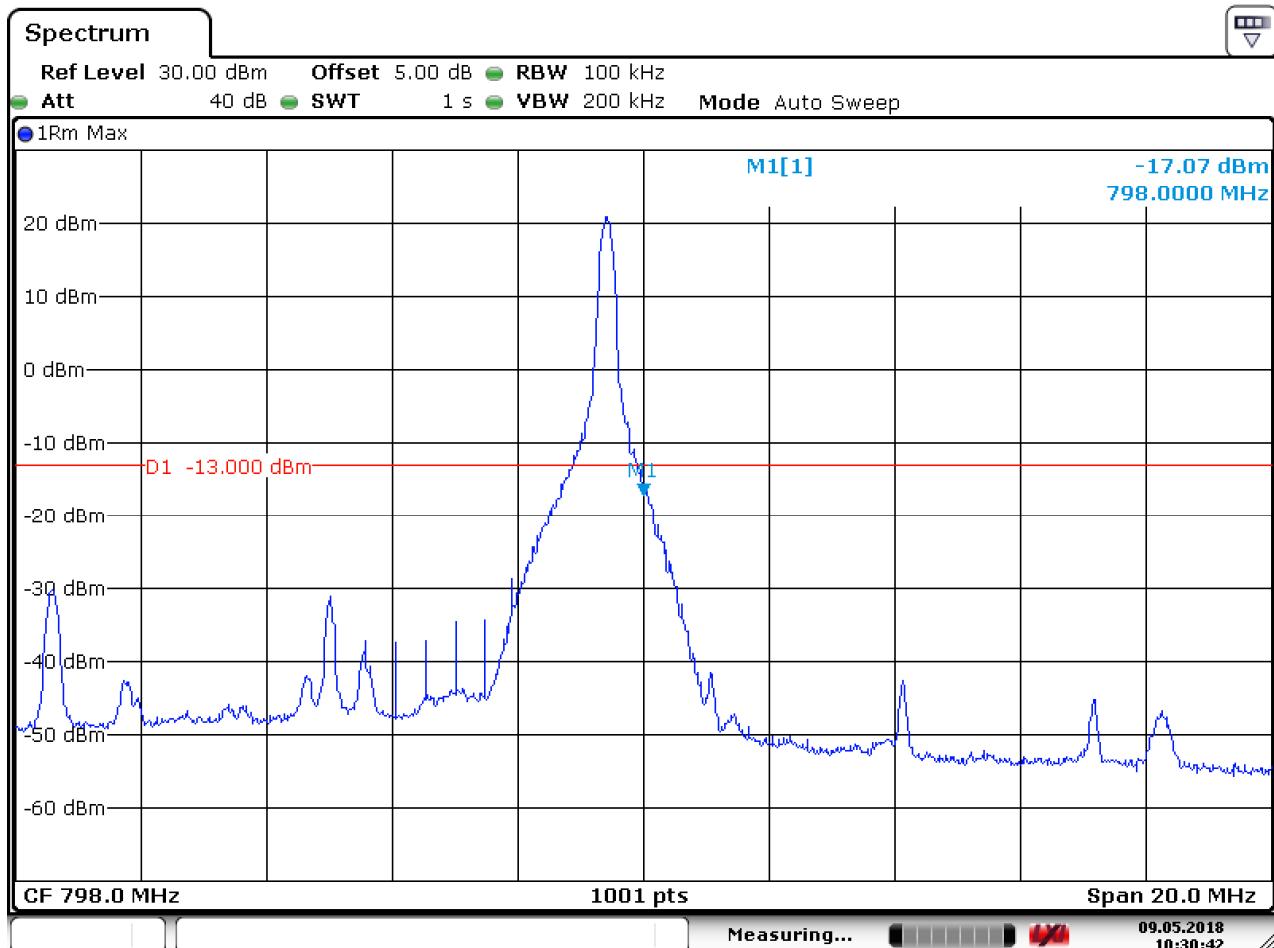
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5.1.1.3.1.2 Test RB=50RB

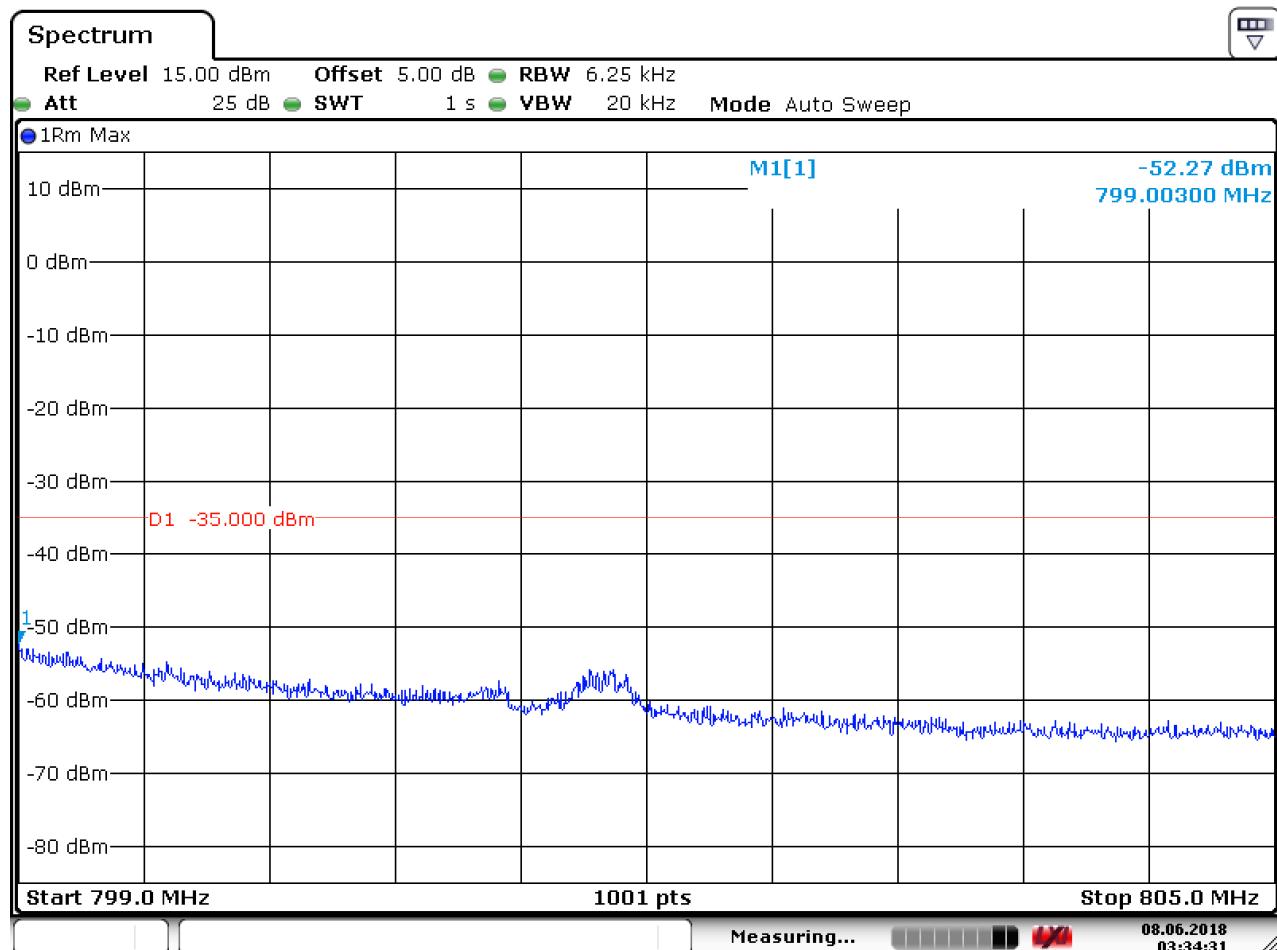
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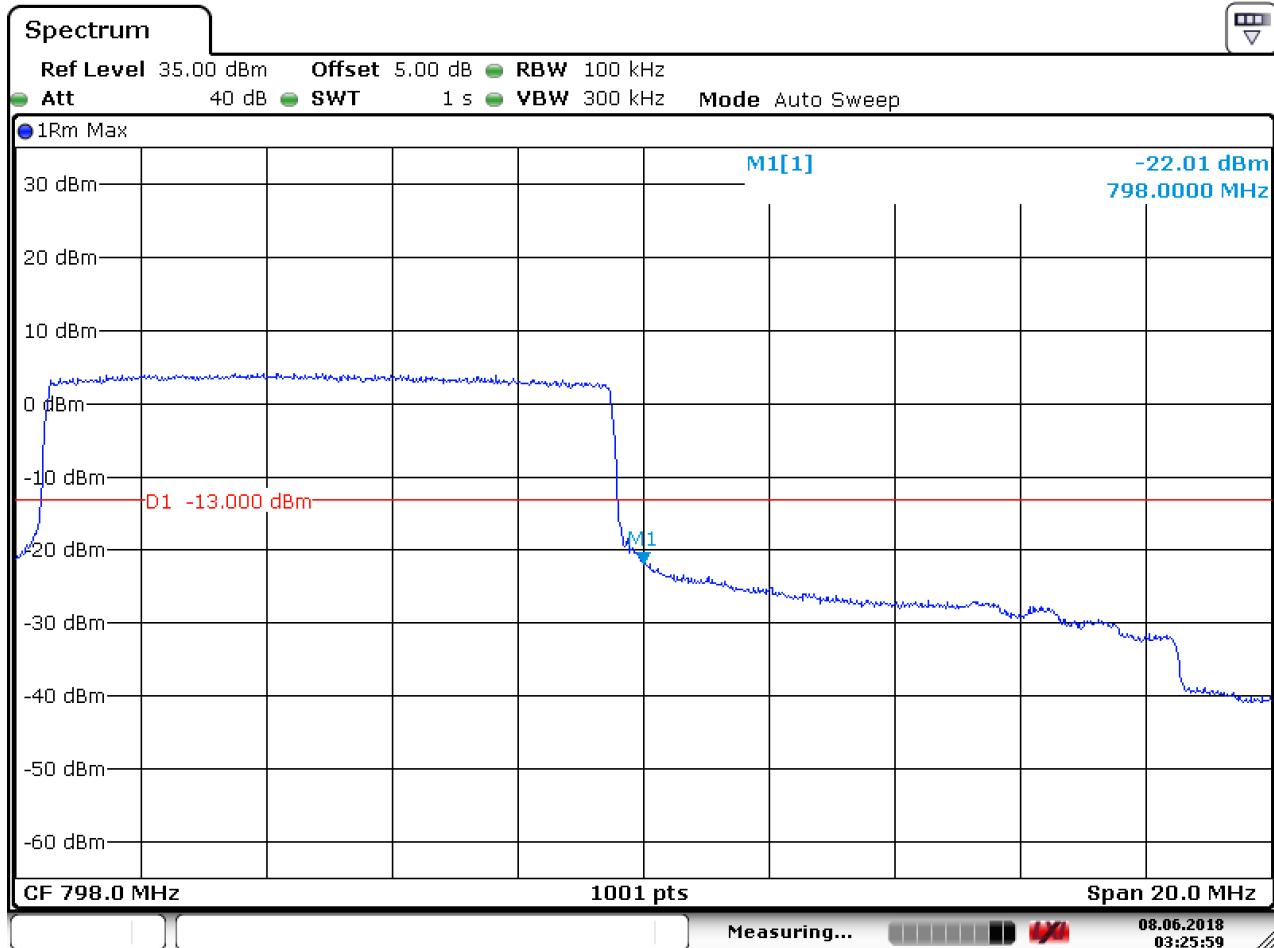
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5.1.1.3.2 Test Channel = HCH**5.1.1.3.2.1 Test RB=1RB#49**

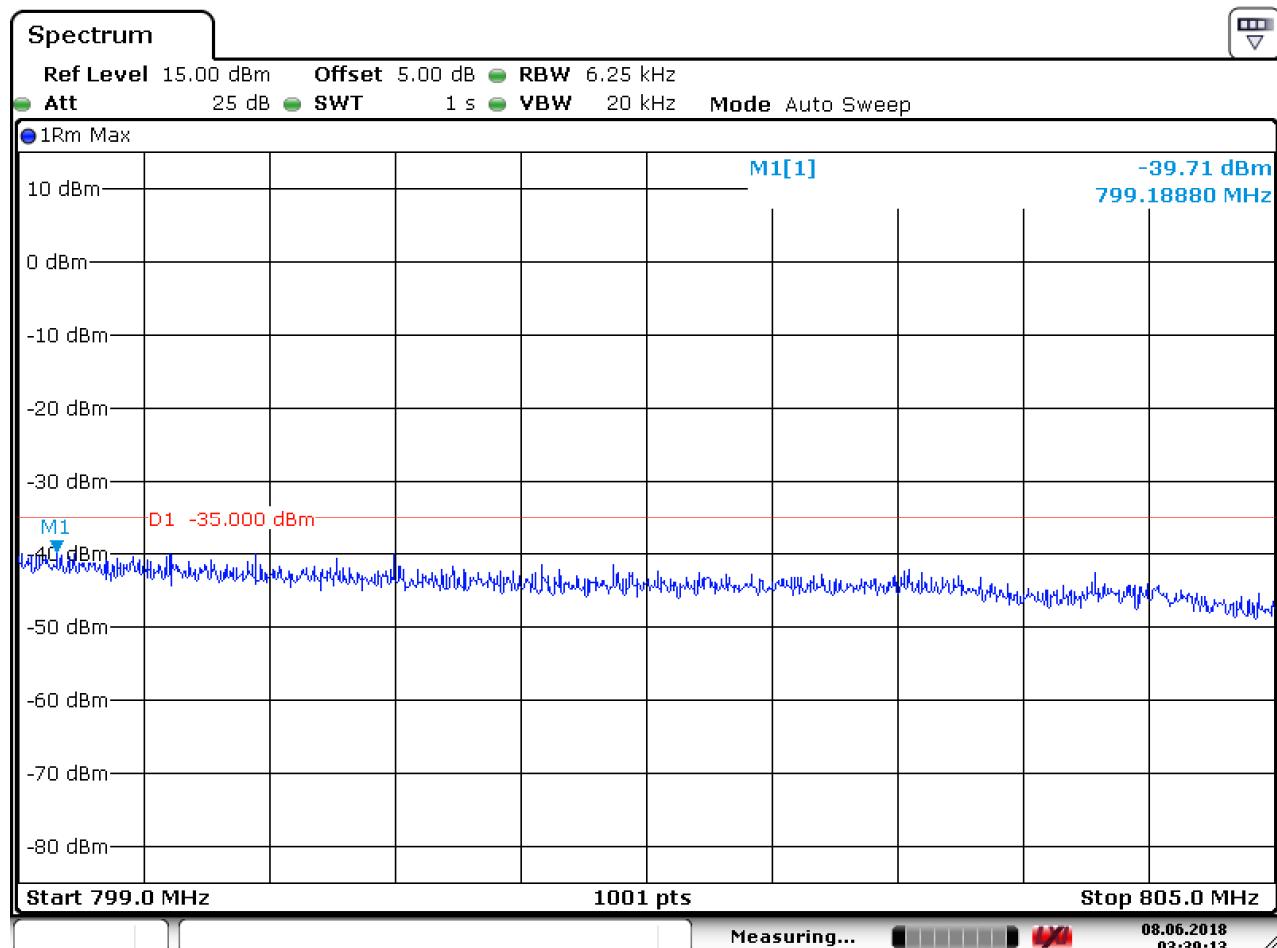
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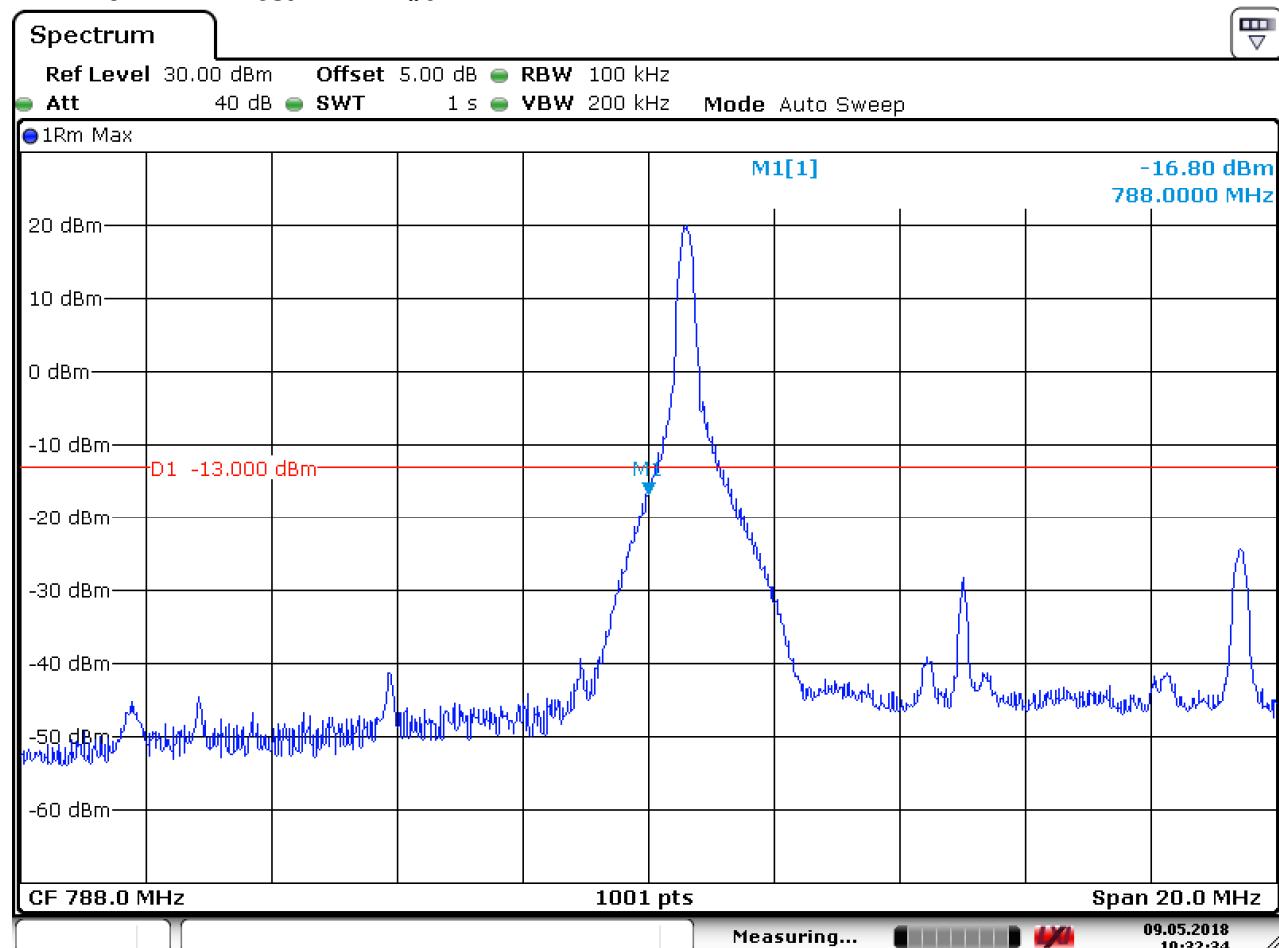
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5.1.1.3.2.2 Test RB=50RB

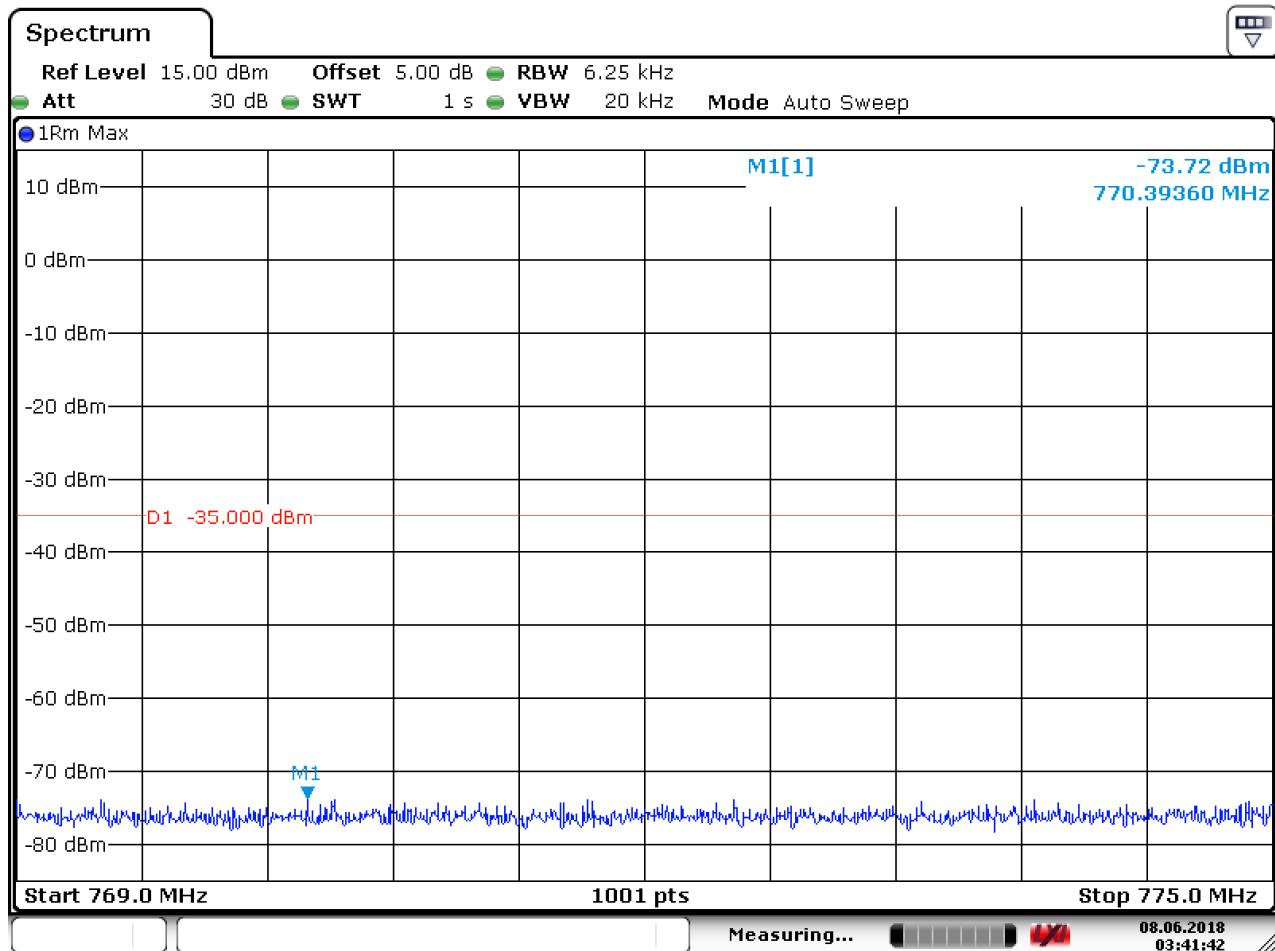
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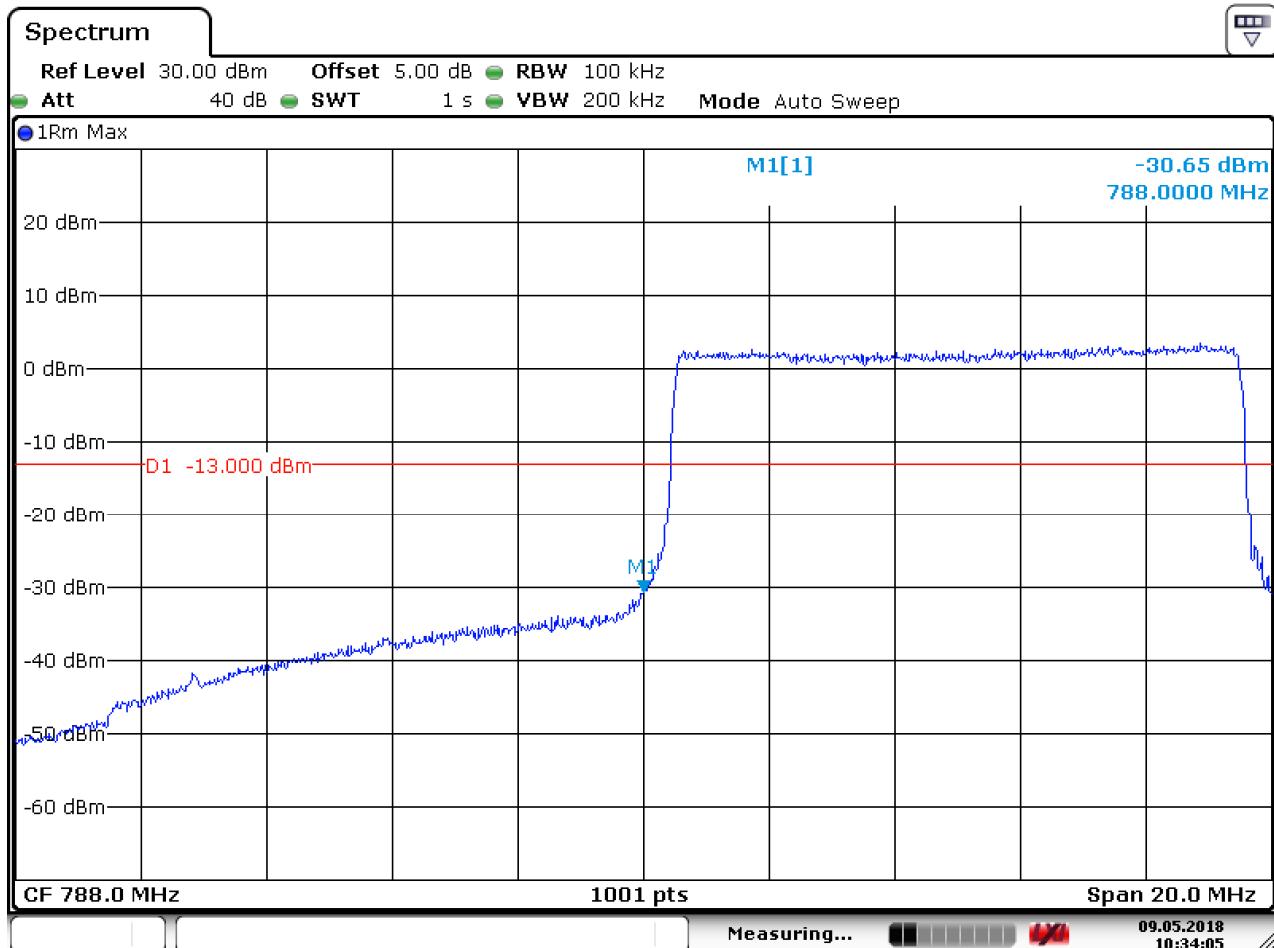
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5.1.1.4 Test Mode = LTE/TM2 10MHz**5.1.1.4.1 Test Channel = LCH****5.1.1.4.1.1 Test RB=1RB#0**

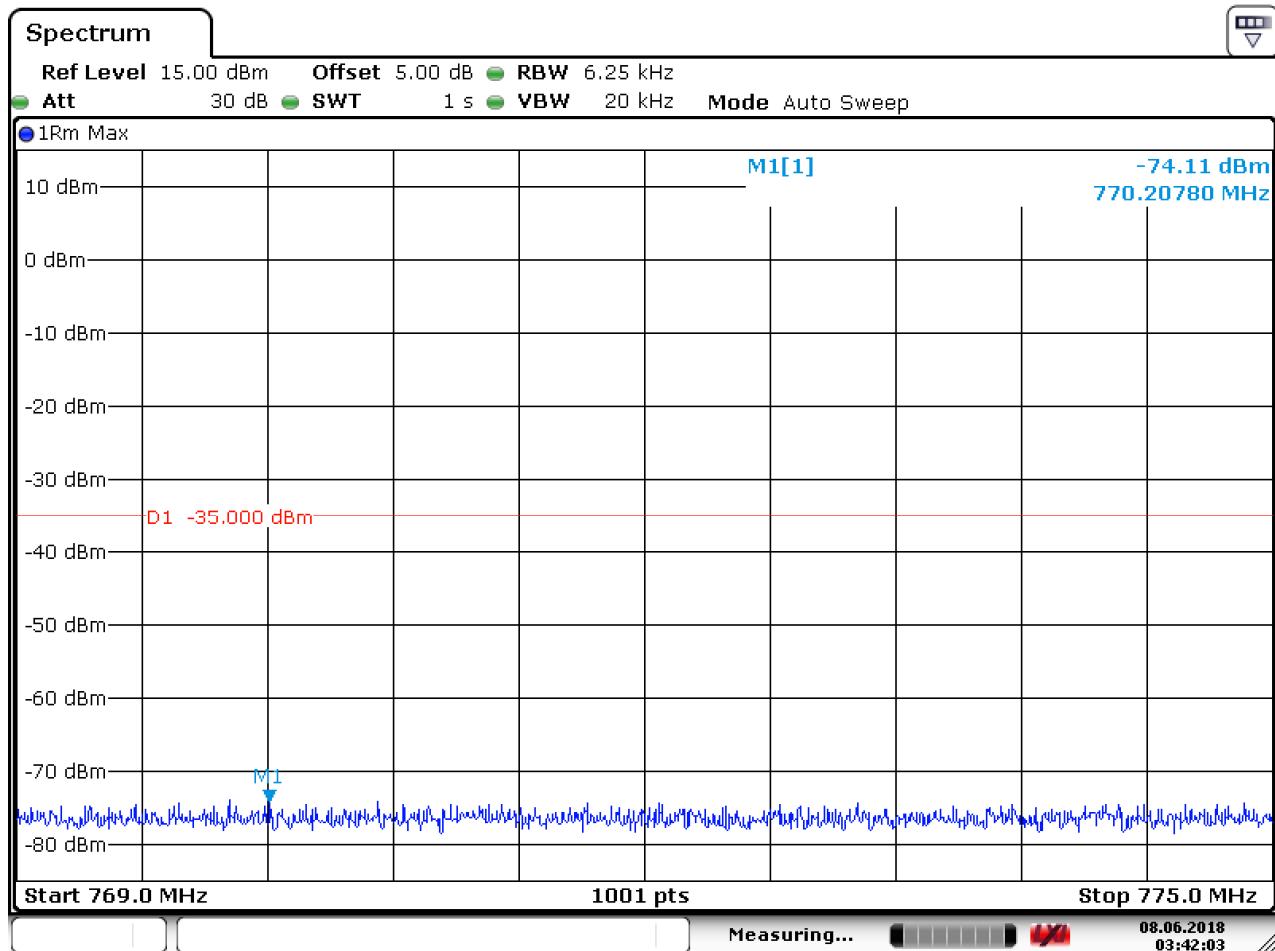
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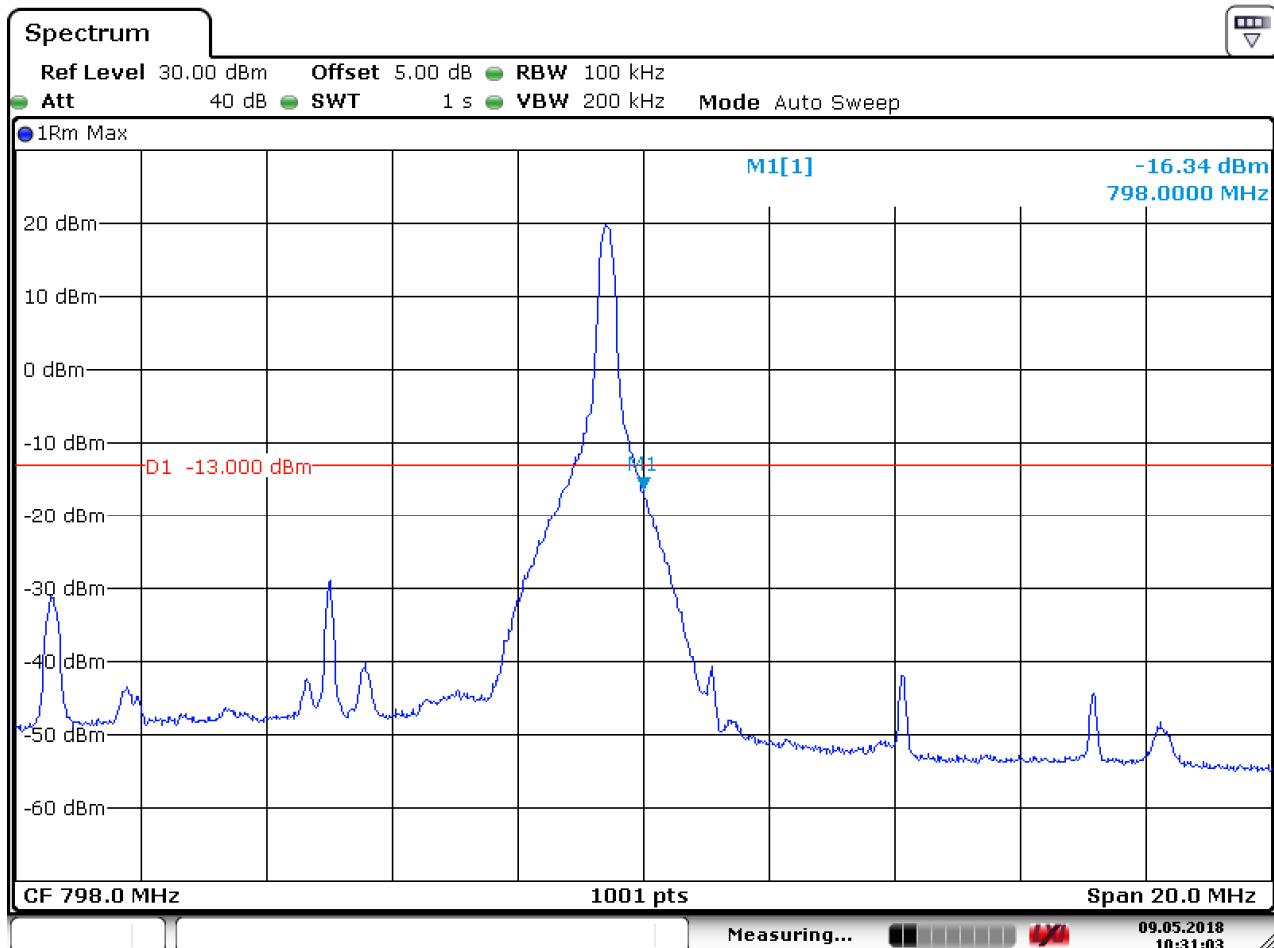
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5.1.1.4.1.2 Test RB=50RB

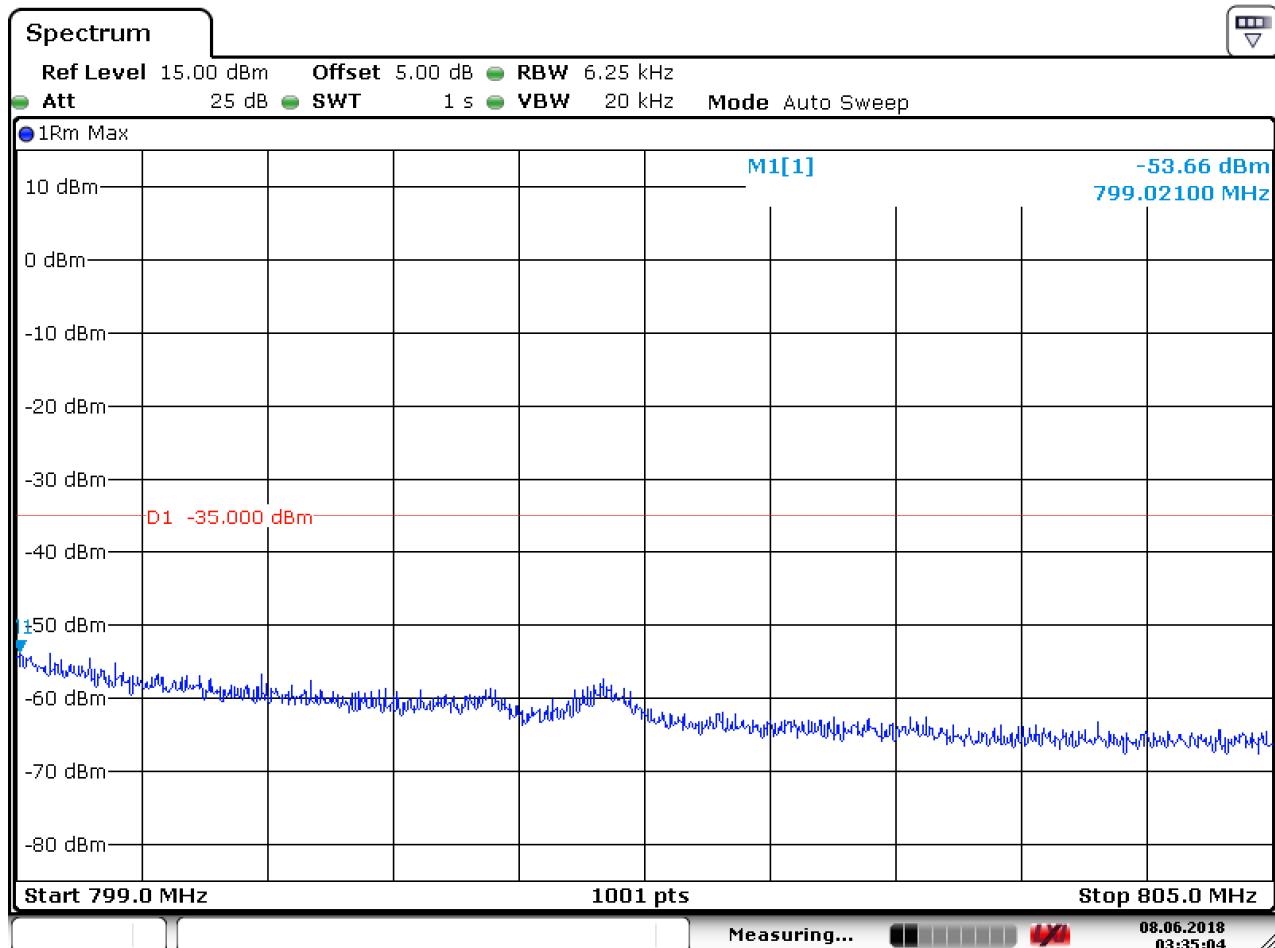
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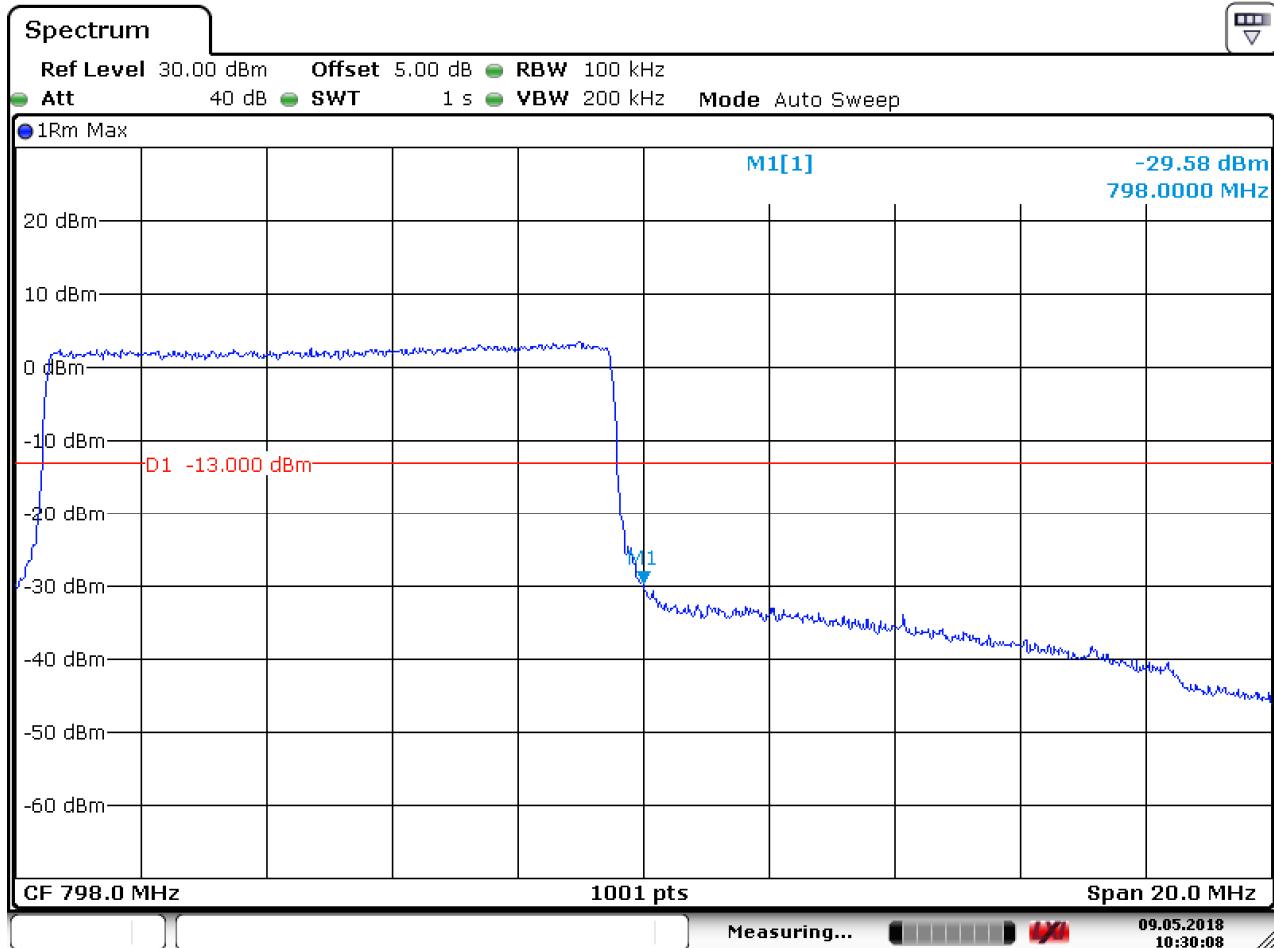
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5.1.1.4.2 Test Channel = HCH**5.1.1.4.2.1 Test RB=1RB#49**

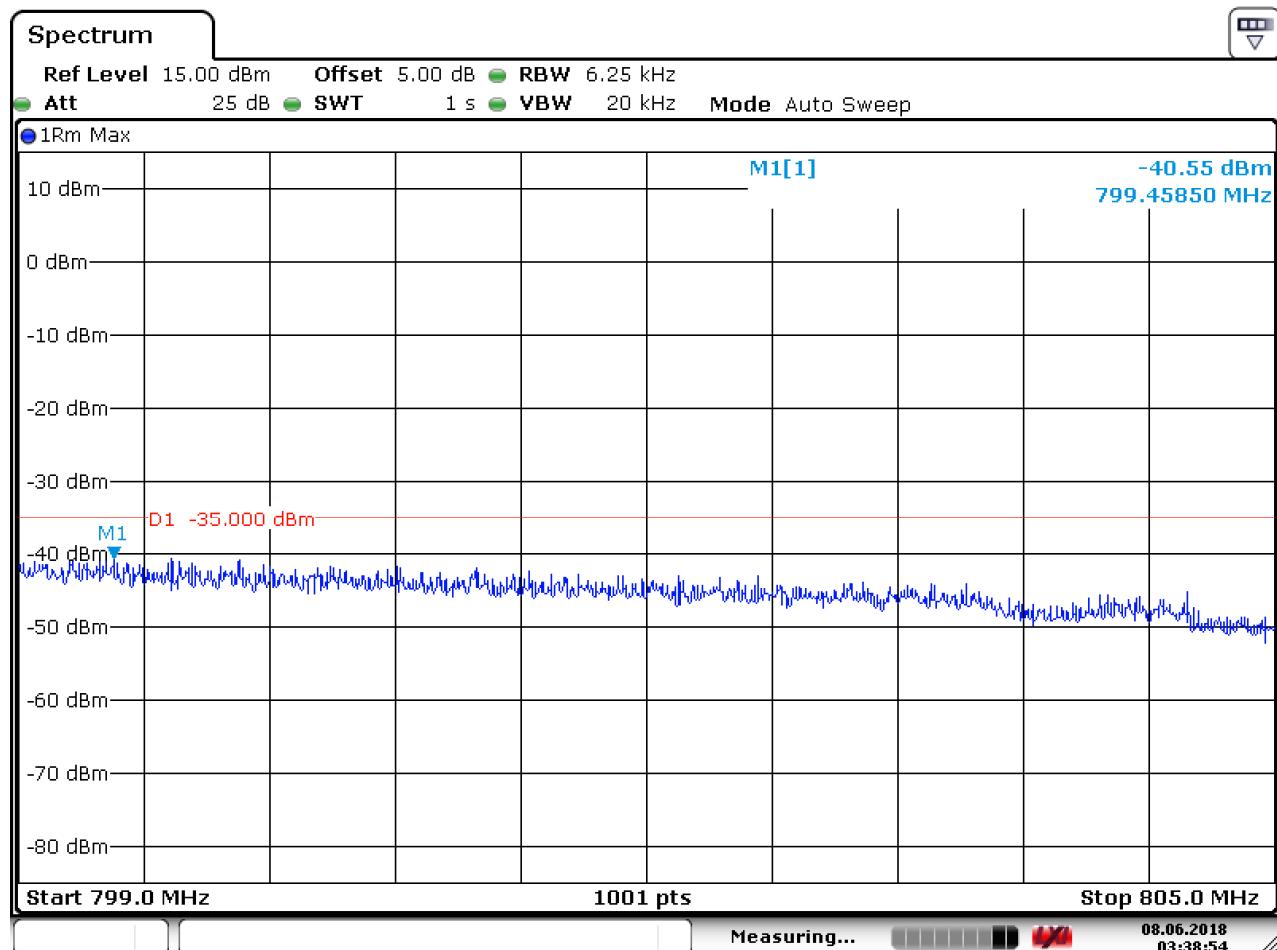
Date: 9.MAY.2018 10:31:04



Date: 8.JUN.2018 03:35:04

5.1.1.4.2.2 Test RB=50RB

Date: 9.MAY.2018 10:30:09



Date: 8.JUN.2018 03:38:54

6 Spurious Emission at Antenna Terminal

NOTE: 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 $< \text{RBW}/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (\text{Span} / \text{RBW})$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

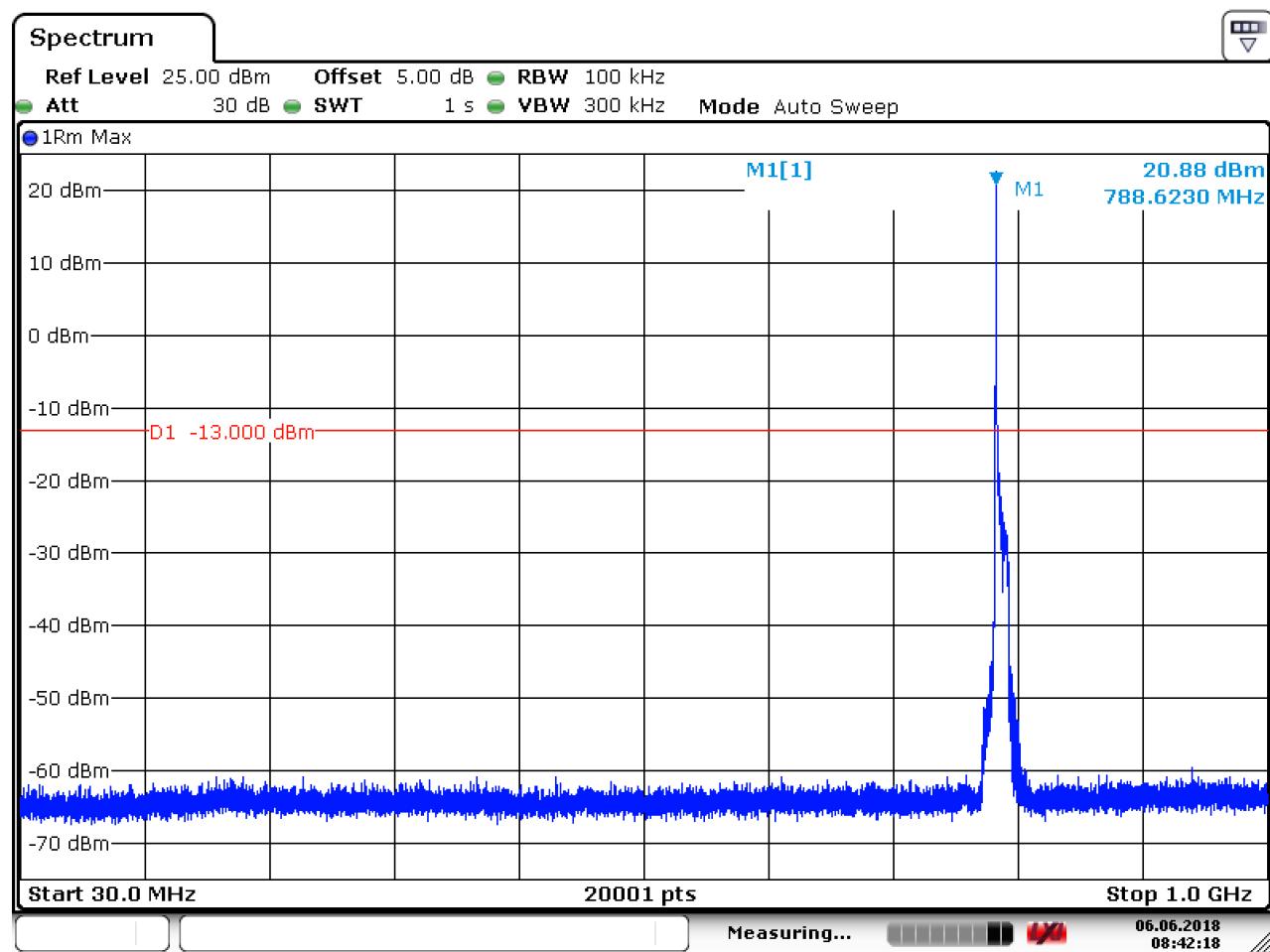
Part I - Test Plots

6.1 For LTE

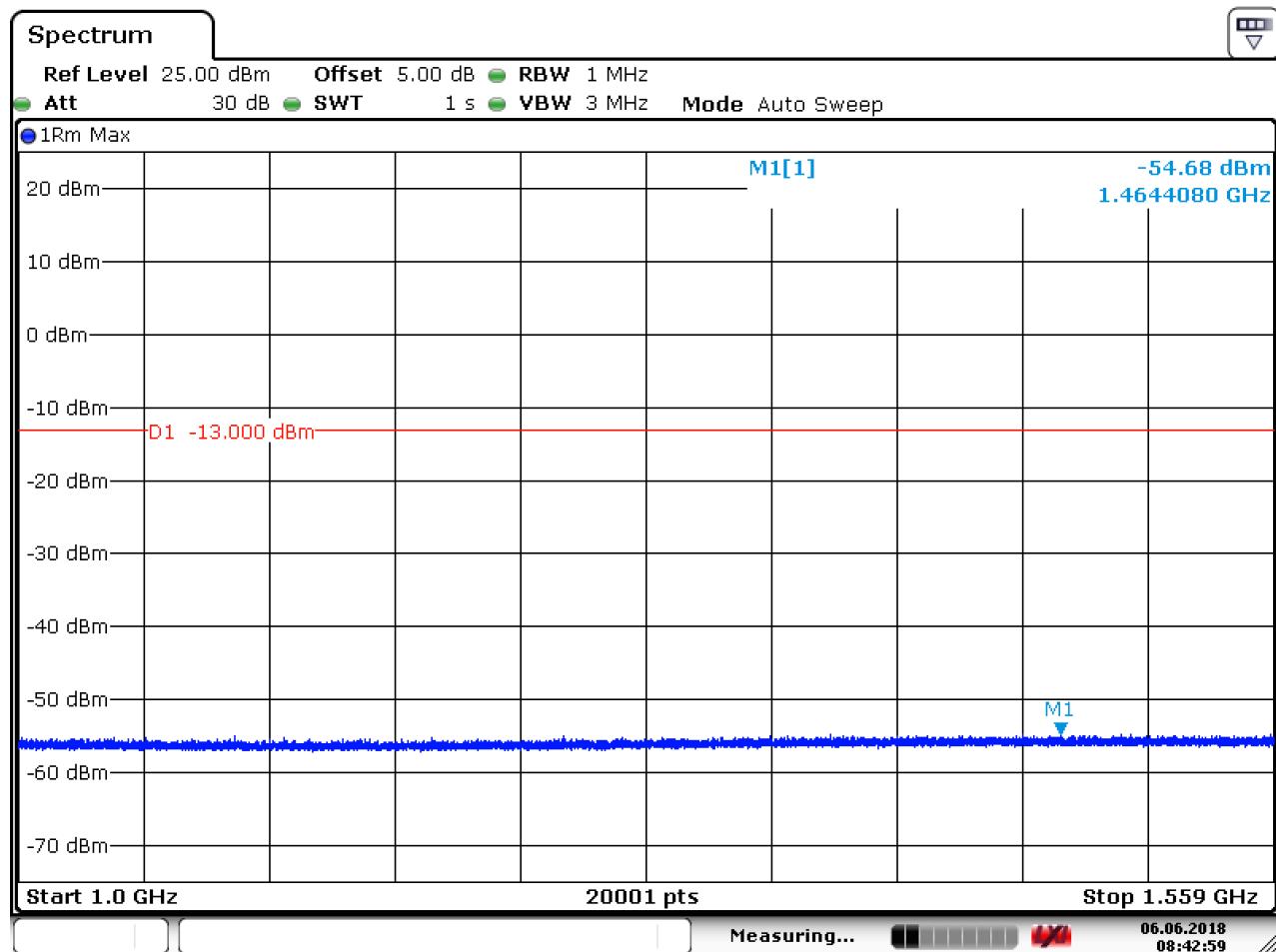
6.1.1 Test Band = LTE band14

6.1.1.1 Test Mode = LTE / TM1 10MHz RB1#0

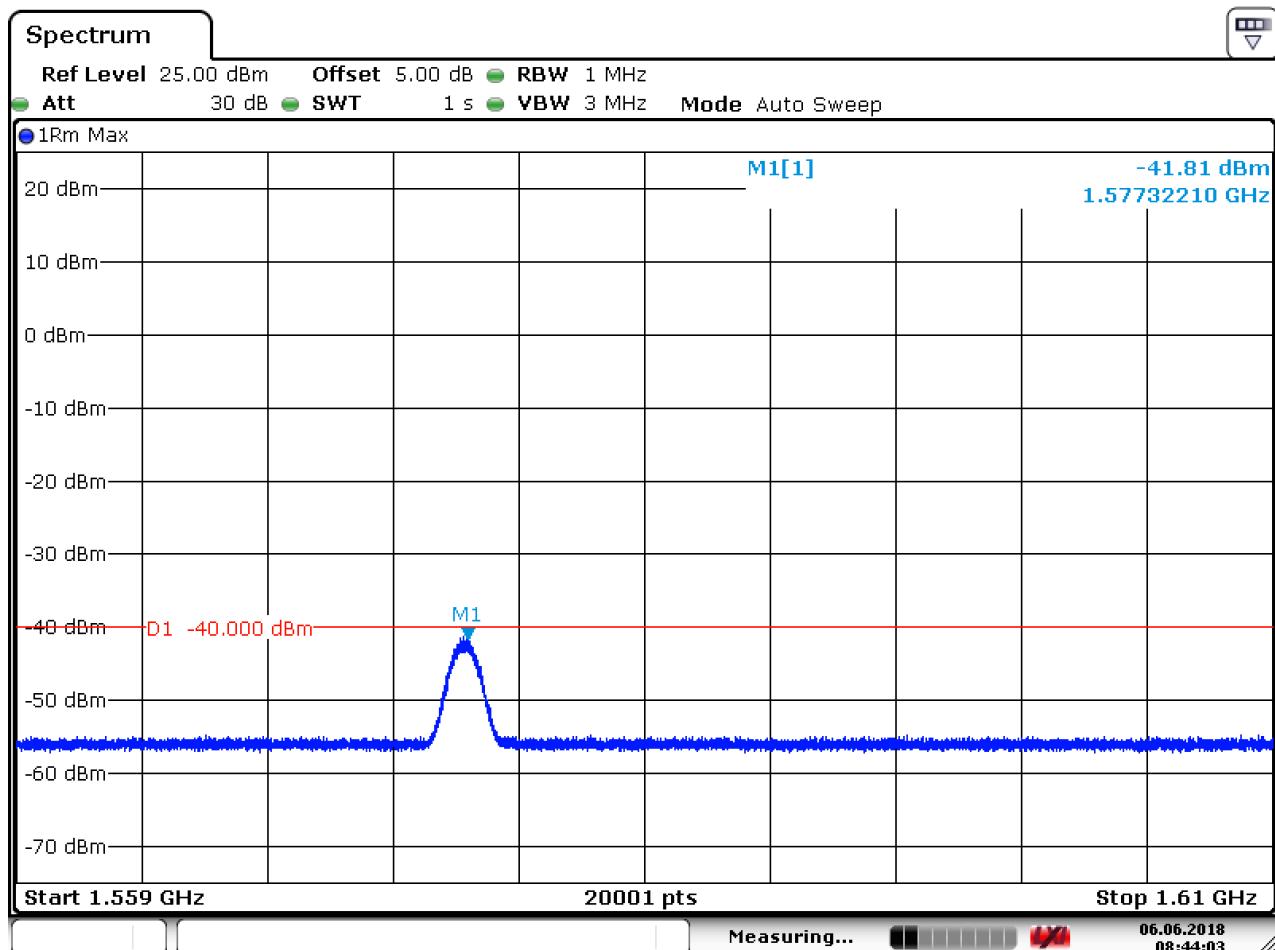
6.1.1.1.1 Test Channel = MCH

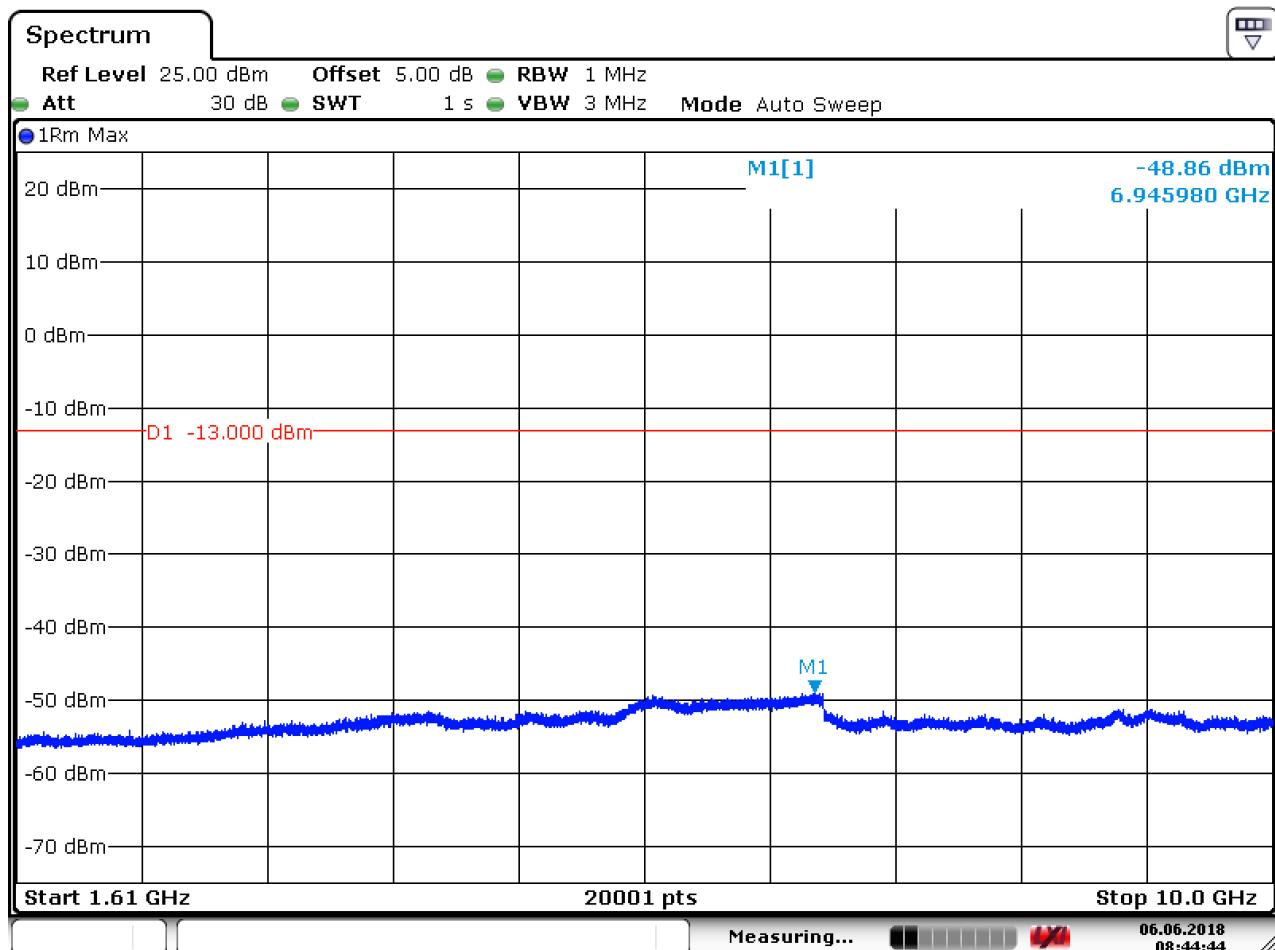


Date: 6.JUN.2018 08:42:18



Date: 6.JUN.2018 08:43:00





Date: 6.JUN.2018 08:44:44

7 Field Strength of Spurious Radiation

7.1 For LTE

7.1.1 Test Band = LTE band14

7.1.1.1 Test Mode =LTE/TM1 20MHz RB1#0

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.400000	-80.76	-13.00	67.76	Vertical
109.700000	-80.48	-13.00	67.48	Vertical
3702.000000	-64.25	-13.00	51.25	Vertical
5553.200000	-64.88	-13.00	51.88	Vertical
7404.400000	-64.79	-13.00	51.79	Vertical
9255.275000	-60.35	-13.00	47.35	Vertical
56.200000	-78.21	-13.00	65.21	Horizontal
182.150000	-82.40	-13.00	69.40	Horizontal
3702.000000	-57.90	-13.00	44.90	Horizontal
5553.200000	-66.33	-13.00	53.33	Horizontal
7404.400000	-65.04	-13.00	52.04	Horizontal
9255.600000	-55.84	-13.00	42.84	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
65.100000	-81.14	-13.00	68.14	Vertical
109.350000	-80.25	-13.00	67.25	Vertical
266.450000	-84.79	-13.00	71.79	Vertical
3741.975000	-66.89	-13.00	53.89	Vertical
5613.325000	-66.32	-13.00	53.32	Vertical
7484.025000	-65.09	-13.00	52.09	Vertical
56.300000	-77.77	-13.00	64.77	Horizontal
110.950000	-83.73	-13.00	70.73	Horizontal
184.550000	-79.25	-13.00	66.25	Horizontal
3741.975000	-60.92	-13.00	47.92	Horizontal
6061.175000	-65.56	-13.00	52.56	Horizontal
9355.375000	-63.06	-13.00	50.06	Horizontal

7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.000000	-81.51	-13.00	68.51	Vertical
110.200000	-80.07	-13.00	67.07	Vertical
352.100000	-86.04	-13.00	73.04	Vertical
3781.950000	-67.68	-13.00	54.68	Vertical
5673.125000	-63.82	-13.00	50.82	Vertical
9455.475000	-63.68	-13.00	50.68	Vertical
62.850000	-77.87	-13.00	64.87	Horizontal
182.050000	-82.76	-13.00	69.76	Horizontal
3781.950000	-64.63	-13.00	51.63	Horizontal
5673.125000	-65.34	-13.00	52.34	Horizontal
7564.625000	-65.58	-13.00	52.58	Horizontal
9455.475000	-59.31	-13.00	46.31	Horizontal

NOTE:

- 1) The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
- 2) We have tested all modulation and all Bandwidth, but only the worst case data presented in this report.

8 Frequency Stability

8.1 Frequency Error VS. Voltage

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband14	LTE/TM1 10MHz	LCH	TN	VL	8.41	0.01060	PASS
				VN	-9.13	-0.01151	PASS
				VH	0.45	0.00057	PASS
		MCH	TN	VL	-9.81	-0.01237	PASS
				VN	-3.91	-0.00493	PASS
				VH	-7.47	-0.00943	PASS
		HCH	TN	VL	-0.91	-0.00115	PASS
				VN	2.25	0.00284	PASS
				VH	-3.50	-0.00441	PASS
	LTE/TM2 10MHz	LCH	TN	VL	-1.35	-0.00170	PASS
				VN	3.16	0.00399	PASS
				VH	-4.33	-0.00546	PASS
		MCH	TN	VL	7.84	0.00988	PASS
				VN	-1.22	-0.00154	PASS
				VH	-2.46	-0.00310	PASS
		HCH	TN	VL	-4.40	-0.00555	PASS
				VN	6.13	0.00773	PASS
				VH	7.86	0.00991	PASS

8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband14	LTE/TM1 10MHz	LCH	VN	-30	3.76	0.00475	PASS
				-20	-5.94	-0.00749	PASS
				-10	-3.12	-0.00394	PASS
				0	1.11	0.00139	PASS
				10	-7.63	-0.00962	PASS
				20	4.48	0.00564	PASS
				30	3.79	0.00478	PASS
				40	-6.83	-0.00861	PASS
				50	-9.17	-0.01157	PASS
		MCH	VN	-30	8.95	0.01128	PASS
				-20	5.64	0.00711	PASS
				-10	-8.60	-0.01085	PASS
				0	-4.16	-0.00524	PASS
				10	-7.16	-0.00903	PASS
				20	5.66	0.00714	PASS
				30	8.93	0.01127	PASS
				40	6.65	0.00839	PASS
				50	5.18	0.00653	PASS
		HCH	VN	-30	1.62	0.00204	PASS
				-20	3.15	0.00397	PASS
				-10	-8.62	-0.01087	PASS
				0	-3.78	-0.00477	PASS
				10	7.08	0.00892	PASS
				20	1.73	0.00218	PASS
				30	-9.18	-0.01158	PASS
				40	2.79	0.00351	PASS
				50	8.65	0.01090	PASS



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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTEband14	LTE/TM2 10MHz	LCH	VN	-30	5.25	0.00661	PASS
				-20	4.40	0.00554	PASS
				-10	-9.71	-0.01224	PASS
				0	-4.48	-0.00565	PASS
				10	9.11	0.01149	PASS
				20	5.89	0.00743	PASS
				30	-1.91	-0.00241	PASS
				40	-3.42	-0.00431	PASS
				50	-7.58	-0.00956	PASS
		MCH	VN	-30	-6.75	-0.00851	PASS
				-20	7.30	0.00921	PASS
				-10	4.36	0.00549	PASS
				0	8.24	0.01039	PASS
				10	-9.90	-0.01248	PASS
				20	-1.99	-0.00250	PASS
				30	2.25	0.00284	PASS
				40	9.01	0.01136	PASS
				50	-1.23	-0.00155	PASS
		HCH	VN	-30	-3.67	-0.00463	PASS
				-20	-5.75	-0.00725	PASS
				-10	-0.92	-0.00117	PASS
				0	-4.03	-0.00508	PASS
				10	4.20	0.00529	PASS
				20	-9.90	-0.01248	PASS
				30	0.56	0.00071	PASS
				40	3.98	0.00501	PASS
				50	2.32	0.00292	PASS

The End