



Appendix B

E-UTRA Band 17



CONTENT

	Page
1 EFFECTIVE (ISOTROPIC) RADIATED POWER OUTPUT DATA.....	3
2 PEAK-TO-AVERAGE RATIO	6
2.1 FOR LTE	6
2.1.1 Test Band = LTE Band 17.....	6
3 MODULATION CHARACTERISTICS	9
3.1 FOR LTE	9
3.1.1 Test Band = LTE Band 17.....	9
4 BANDWIDTH	10
4.1 FOR LTE	11
4.1.1 Test Band = LTE Band 17.....	11
5 BAND EDGES COMPLIANCE	20
5.1 FOR LTE	20
5.1.1 Test Band = LTE Band 17.....	20
6 SPURIOUS EMISSION AT ANTENNA TERMINAL.....	32
6.1 FOR LTE	32
7 FIELD STRENGTH OF SPURIOUS RADIATION	50
7.1 FOR LTE	50
7.1.1 Test Band = LTE Band 17.....	50
8 FREQUENCY STABILITY	52
8.1 FREQUENCY ERROR VS. VOLTAGE	52
8.2 FREQUENCY ERROR VS. TEMPERATURE	53



1 Effective (Isotropic) Radiated Power Output Data

Effective Radiated Power of Transmitter (ERP) for LTE BAND 17

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND 17	LTE/TM1	5M	LCH	RB1#0	21.68	22.53	38.45	PASS
				RB1#13	21.53	22.38	38.45	PASS
				RB1#24	21.63	22.48	38.45	PASS
				RB12#0	22.39	23.24	38.45	PASS
				RB12#6	22.44	23.29	38.45	PASS
				RB12#13	22.25	23.1	38.45	PASS
				RB25#0	21.68	22.53	38.45	PASS
			MCH	RB1#0	21.50	22.35	38.45	PASS
				RB1#13	21.65	22.5	38.45	PASS
				RB1#24	21.52	22.37	38.45	PASS
				RB12#0	22.56	23.41	38.45	PASS
				RB12#6	22.80	23.65	38.45	PASS
				RB12#13	22.76	23.61	38.45	PASS
				RB25#0	21.67	22.52	38.45	PASS
			HCH	RB1#0	21.51	22.36	38.45	PASS
				RB1#13	21.65	22.5	38.45	PASS
				RB1#24	21.60	22.45	38.45	PASS
				RB12#0	22.45	23.3	38.45	PASS
				RB12#6	22.57	23.42	38.45	PASS
				RB12#13	22.33	23.18	38.45	PASS
				RB25#0	21.54	22.39	38.45	PASS



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Report No.: SZEM180300168901

Page: 4 of 53

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND 17	LTE/TM2	5M	LCH	RB1#0	20.67	21.52	38.45	PASS
				RB1#13	20.59	21.44	38.45	PASS
				RB1#24	20.52	21.37	38.45	PASS
				RB12#0	21.20	22.05	38.45	PASS
				RB12#6	21.27	22.12	38.45	PASS
				RB12#13	21.16	22.01	38.45	PASS
				RB25#0	20.74	21.59	38.45	PASS
			MCH	RB1#0	20.54	21.39	38.45	PASS
				RB1#13	20.59	21.44	38.45	PASS
				RB1#24	20.54	21.39	38.45	PASS
				RB12#0	21.47	22.32	38.45	PASS
				RB12#6	21.82	22.67	38.45	PASS
				RB12#13	21.97	22.82	38.45	PASS
				RB25#0	20.60	21.45	38.45	PASS
			HCH	RB1#0	20.49	21.34	38.45	PASS
				RB1#13	20.65	21.5	38.45	PASS
				RB1#24	20.58	21.43	38.45	PASS
				RB12#0	21.41	22.26	38.45	PASS
				RB12#6	21.60	22.45	38.45	PASS
				RB12#13	21.58	22.43	38.45	PASS
				RB25#0	20.61	21.46	38.45	PASS



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Report No.: SZEM180300168901

Page: 5 of 53

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND 17	LTE/TM1	10M	LCH	RB1#0	22.53	23.38	38.45	PASS
				RB1#25	22.62	23.47	38.45	PASS
				RB1#49	22.51	23.36	38.45	PASS
				RB25#0	21.69	22.54	38.45	PASS
				RB25#13	21.72	22.57	38.45	PASS
				RB25#25	21.78	22.63	38.45	PASS
				RB50#0	21.67	22.52	38.45	PASS
			MCH	RB1#0	22.36	23.21	38.45	PASS
				RB1#25	22.93	23.78	38.45	PASS
				RB1#49	22.55	23.4	38.45	PASS
				RB25#0	21.62	22.47	38.45	PASS
				RB25#13	21.65	22.5	38.45	PASS
				RB25#25	21.73	22.58	38.45	PASS
				RB50#0	21.64	22.49	38.45	PASS
			HCH	RB1#0	22.40	23.25	38.45	PASS
				RB1#25	22.78	23.63	38.45	PASS
				RB1#49	22.41	23.26	38.45	PASS
				RB25#0	21.54	22.39	38.45	PASS
				RB25#13	21.59	22.44	38.45	PASS
				RB25#25	21.77	22.62	38.45	PASS
				RB50#0	21.64	22.49	38.45	PASS

Note:

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

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

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 17	TM1/10M	LCH	4.99	13	PASS
		MCH	5.04	13	PASS
		HCH	5.01	13	PASS

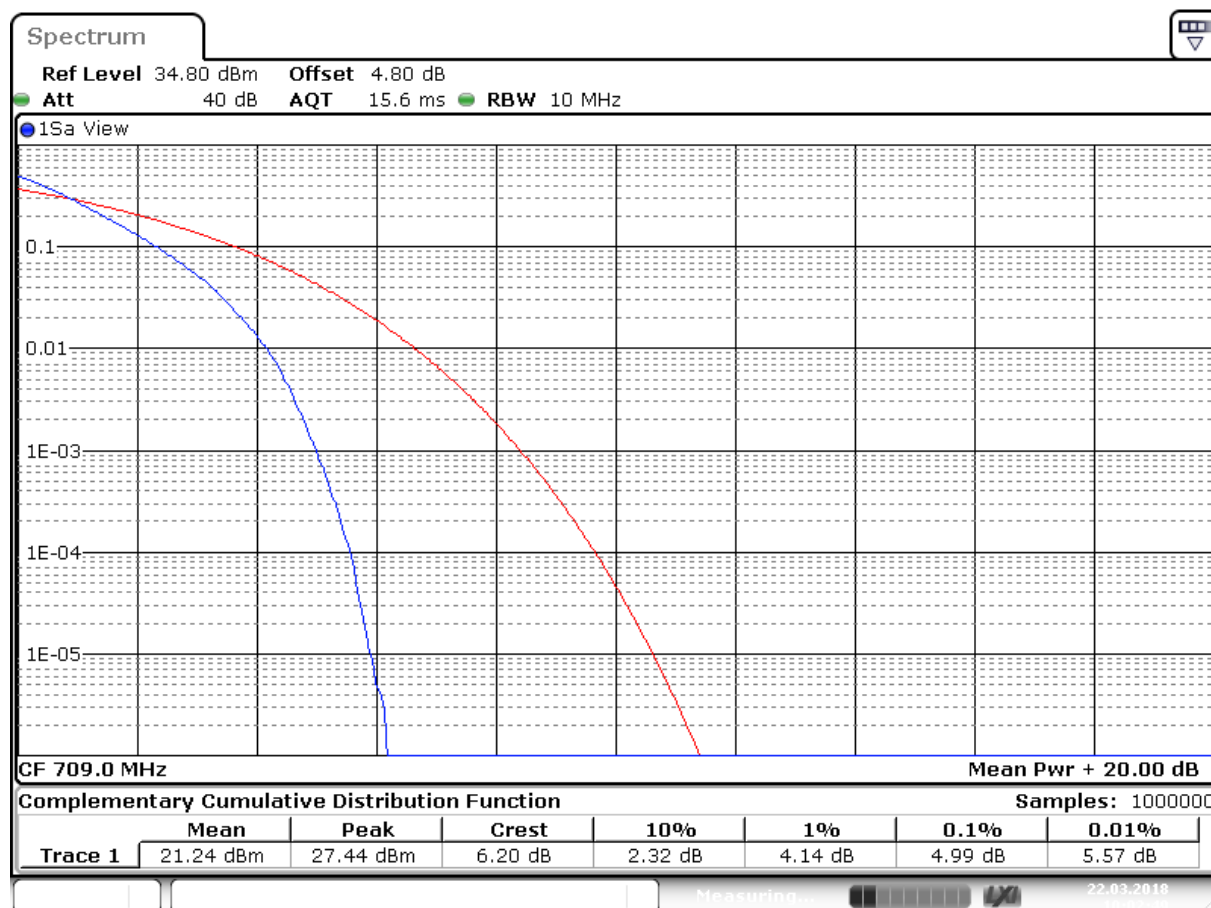
Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE Band 17

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

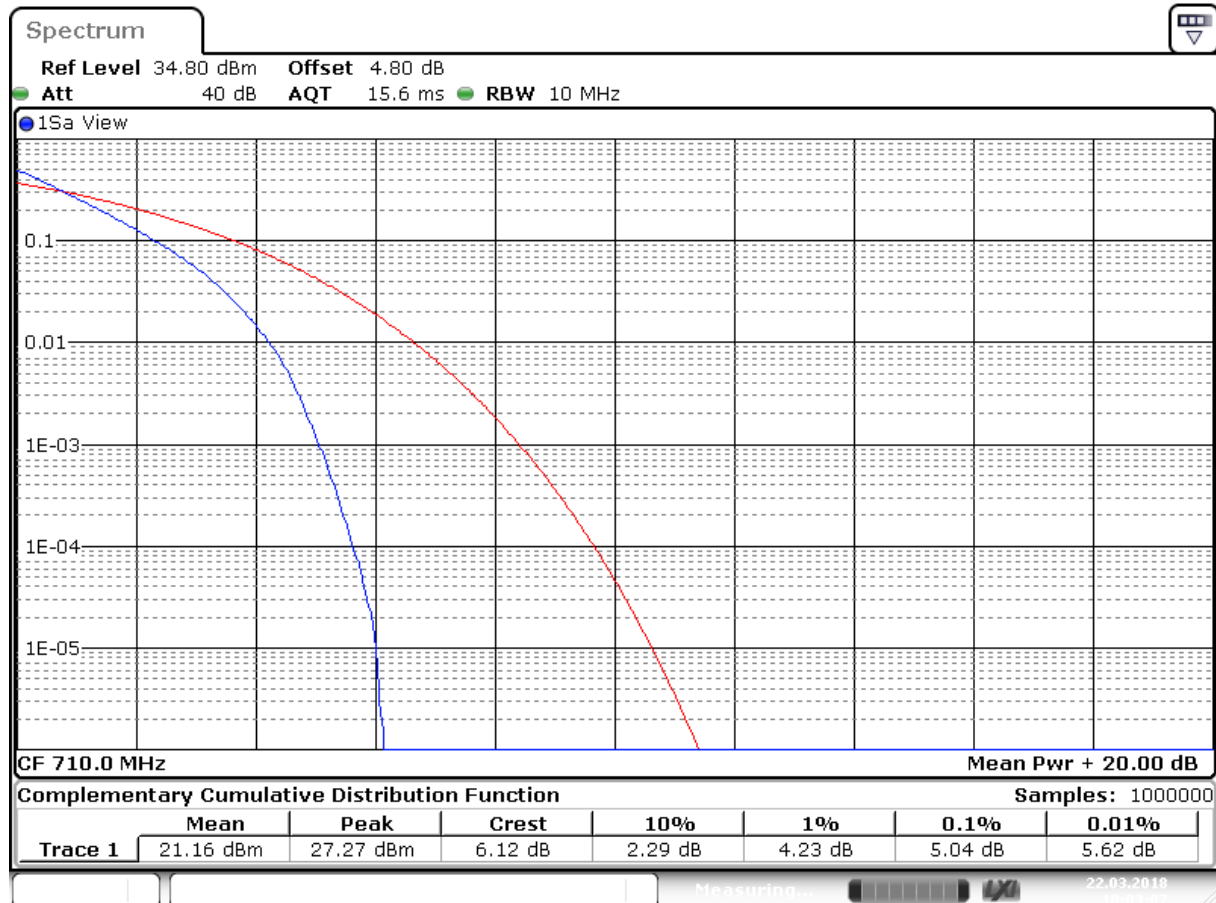
2.1.1.1.1 Test Channel = LCH



Date: 22 MAR 2018 10:02:49



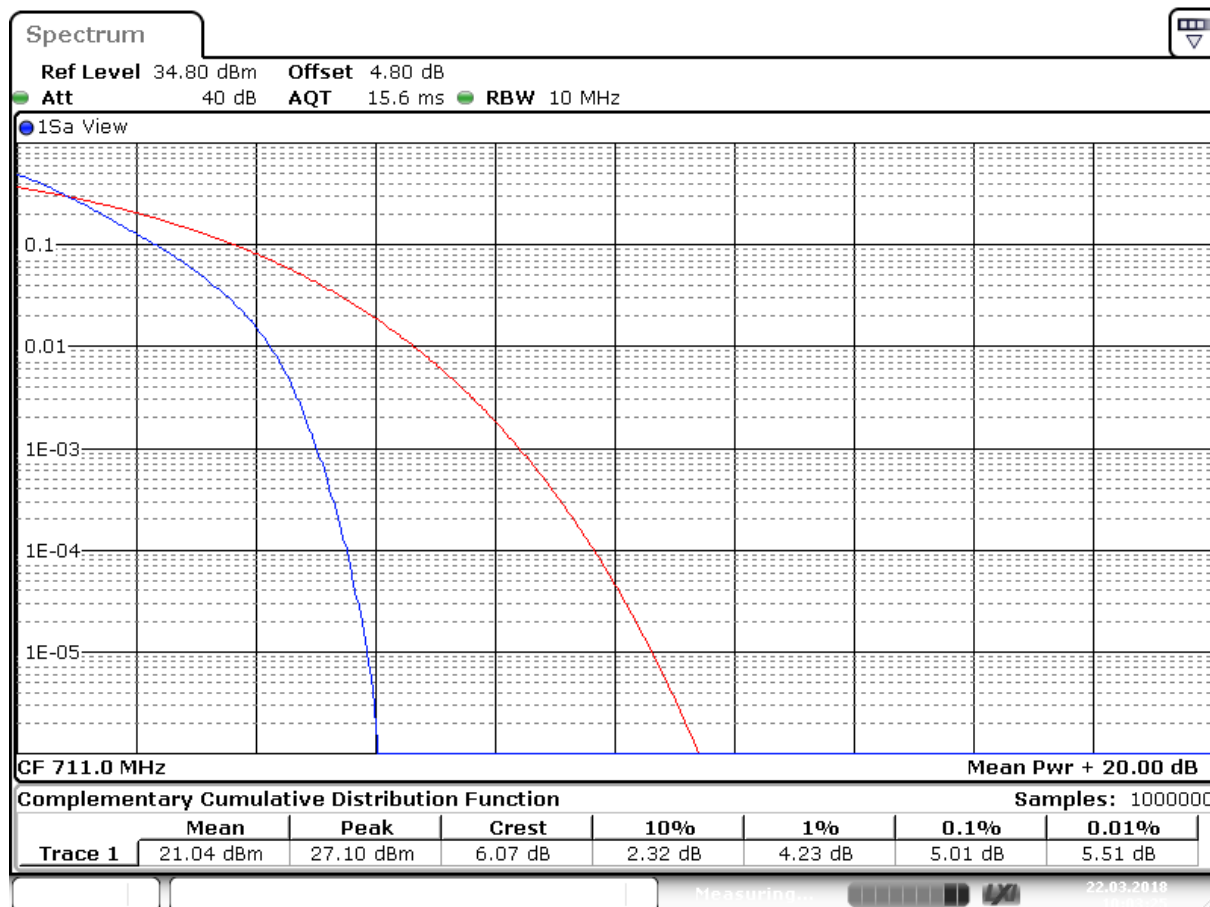
2.1.1.1.2 Test Channel = MCH



Date: 22 MAR 2018 10:03:08



2.1.1.1.3 Test Channel = HCH



Date: 22 MAR 2018 10:03:26

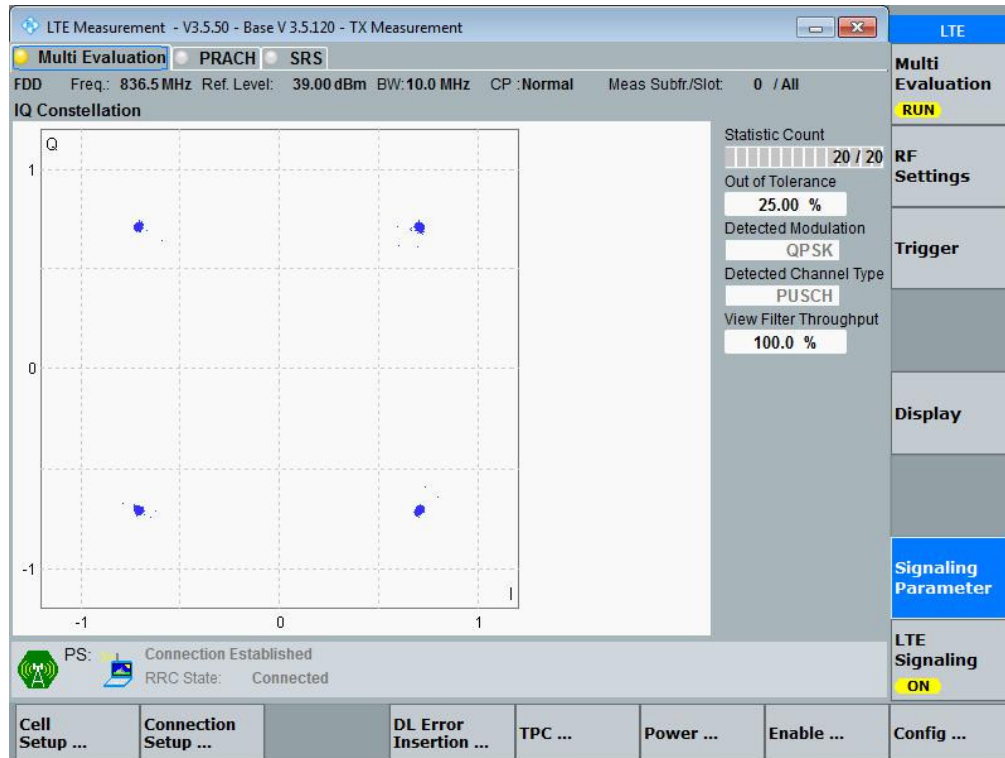
3 Modulation Characteristics

3.1 For LTE

3.1.1 Test Band = LTE Band 17

3.1.1.1 Test Mode = LTE /TM1 10MHz

3.1.1.1.1 Test Channel = MCH





4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 17	TM1/ 5MHz	LCH	4.466	4.740	PASS
		MCH	4.476	4.730	PASS
		HCH	4.476	4.700	PASS
	TM2/ 5MHz	LCH	4.466	4.700	PASS
		MCH	4.476	4.720	PASS
		HCH	4.476	4.720	PASS
	TM1/10MHz	LCH	8.951	9.300	PASS
		MCH	8.951	9.340	PASS
		HCH	8.951	9.320	PASS



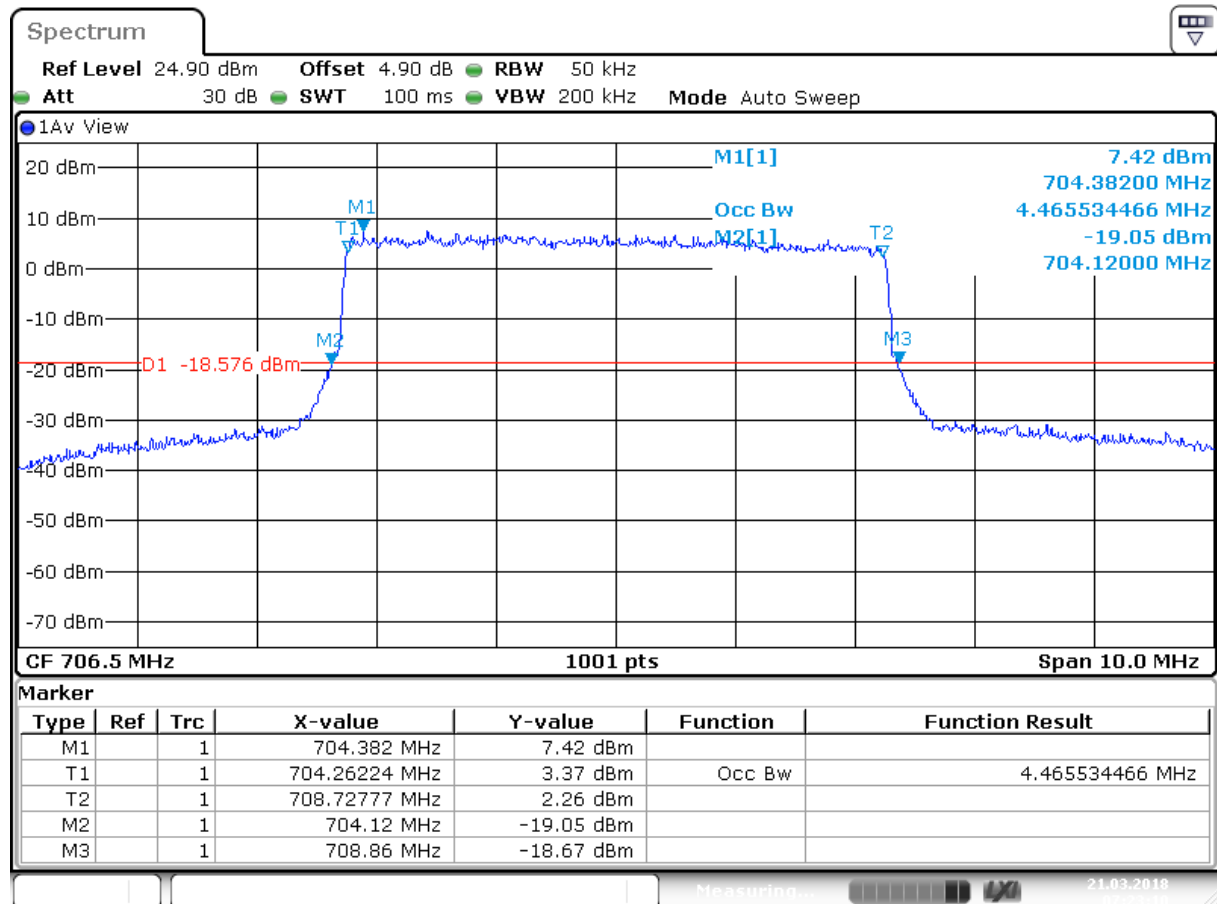
Part II –Test Plots

4.1 For LTE

4.1.1 Test Band = LTE Band 17

4.1.1.1 Test Mode = LTE/TM1 5MHz

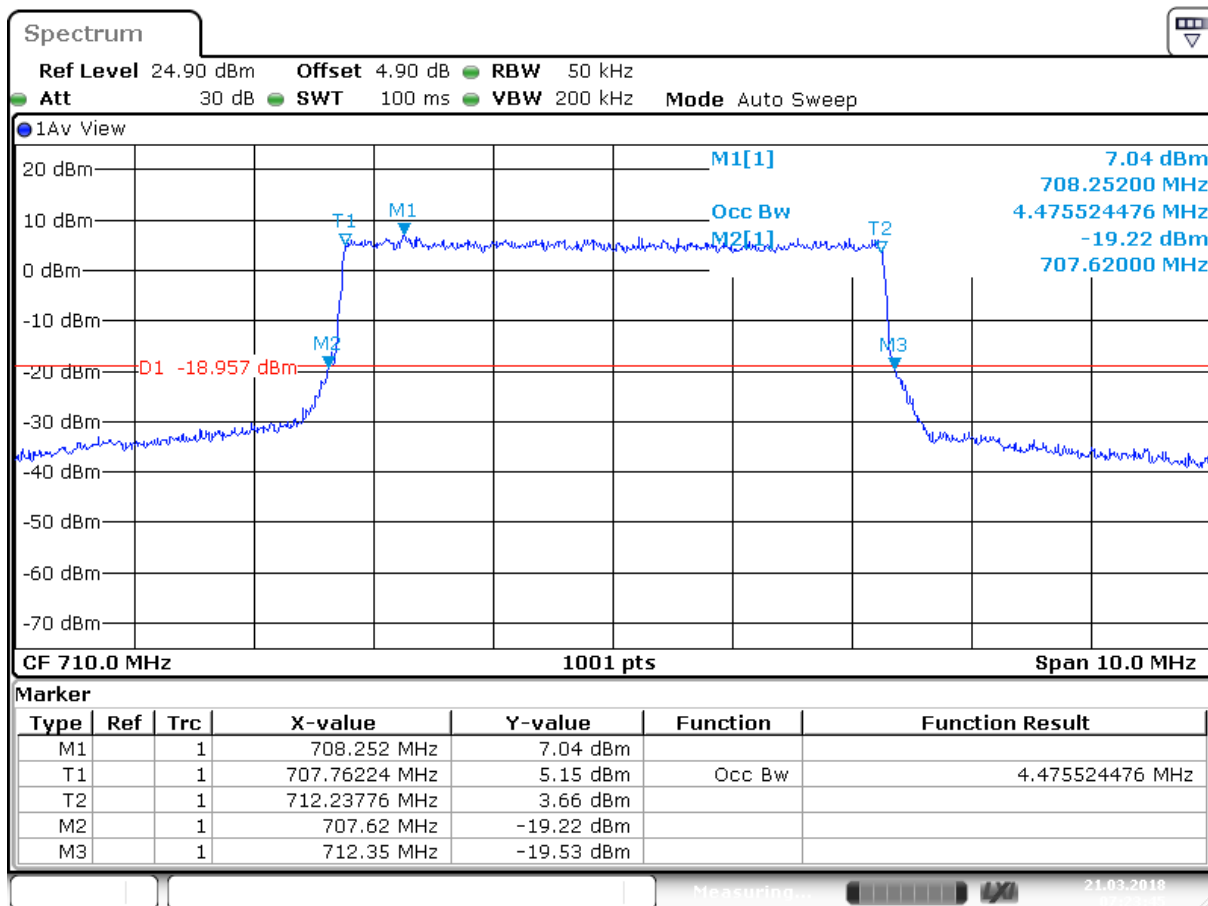
4.1.1.1.1 Test Channel = LCH



Date: 21 MAR 2018 07:23:10



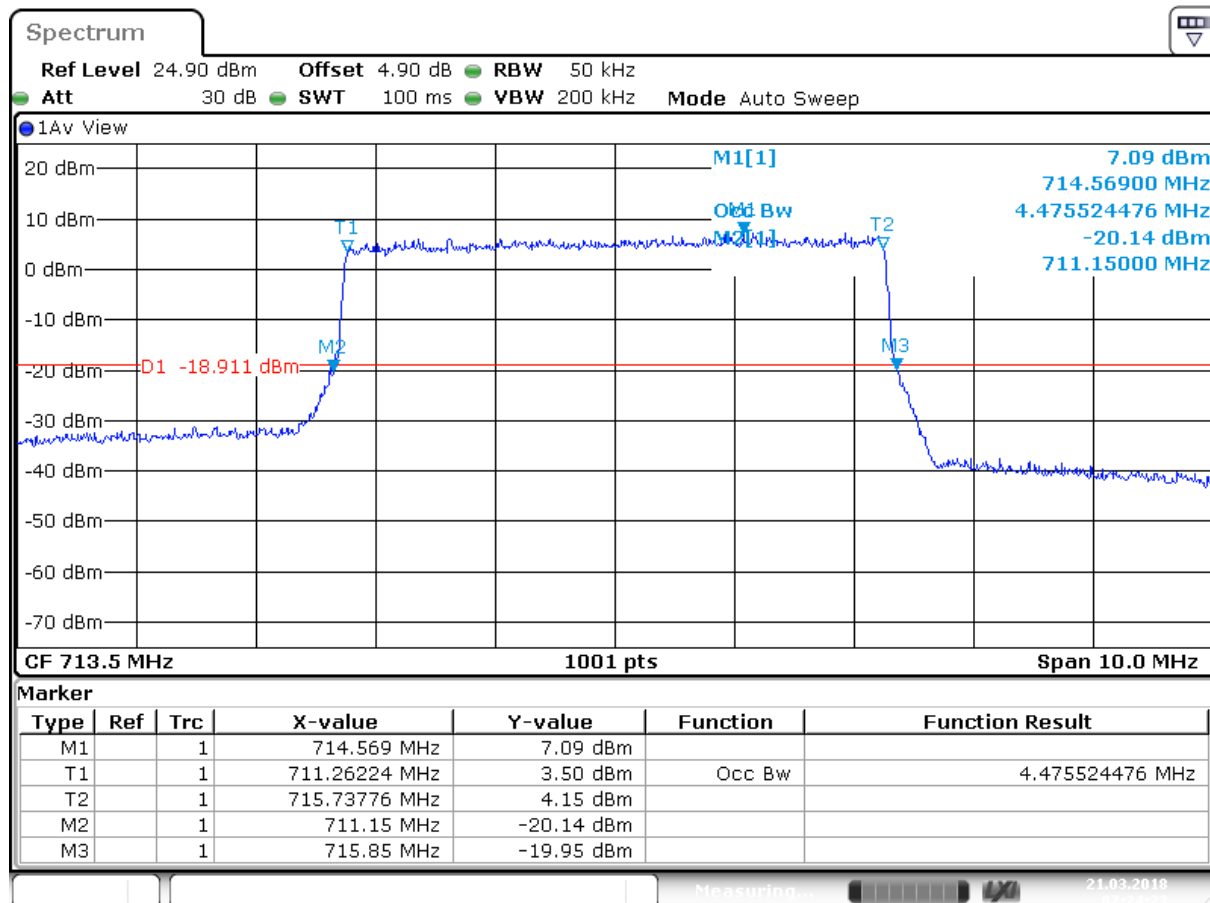
4.1.1.1.2 Test Channel = MCH



Date: 21 MAR 2018 07:23:46



4.1.1.1.3 Test Channel = HCH

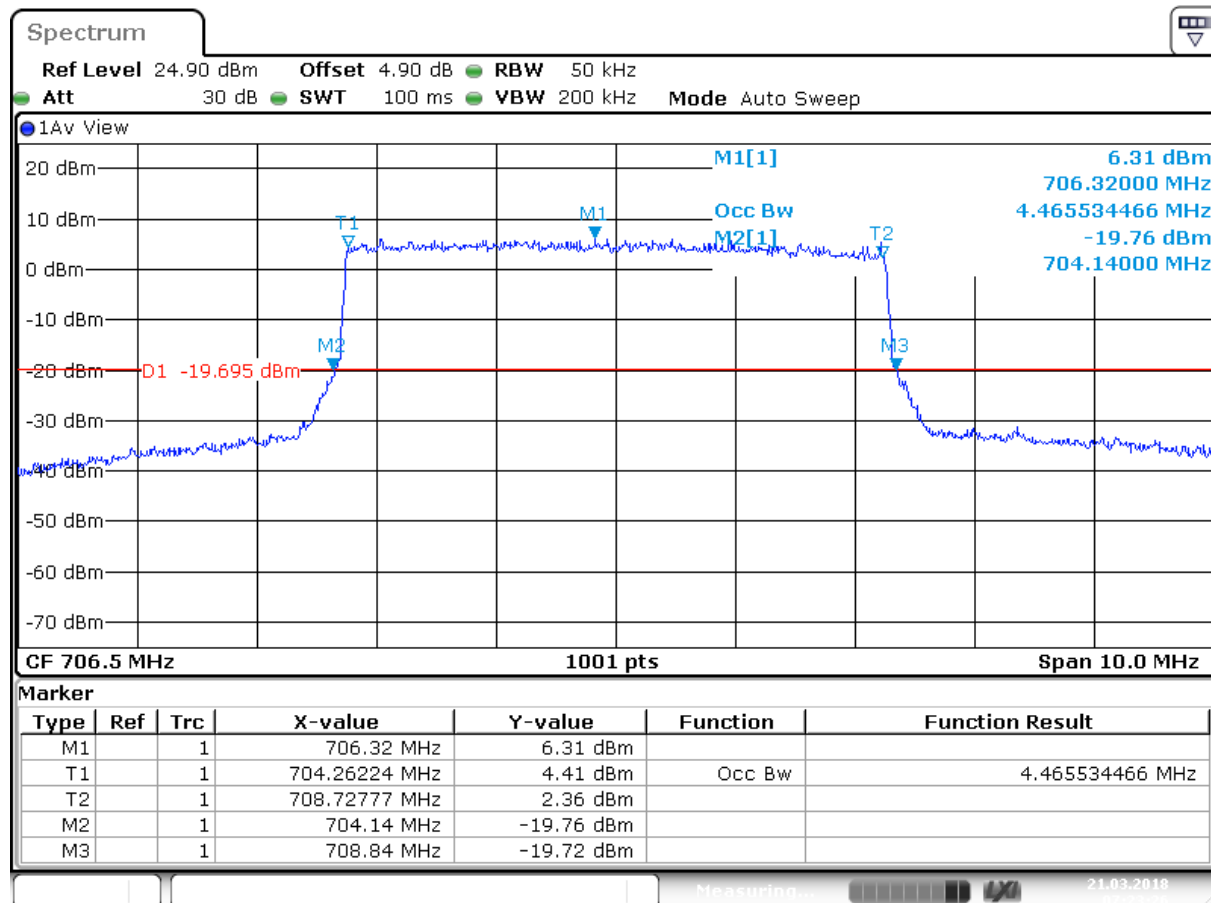


Date: 21 MAR 2018 07:24:23



4.1.1.2 Test Mode = LTE/TM2 5MHz

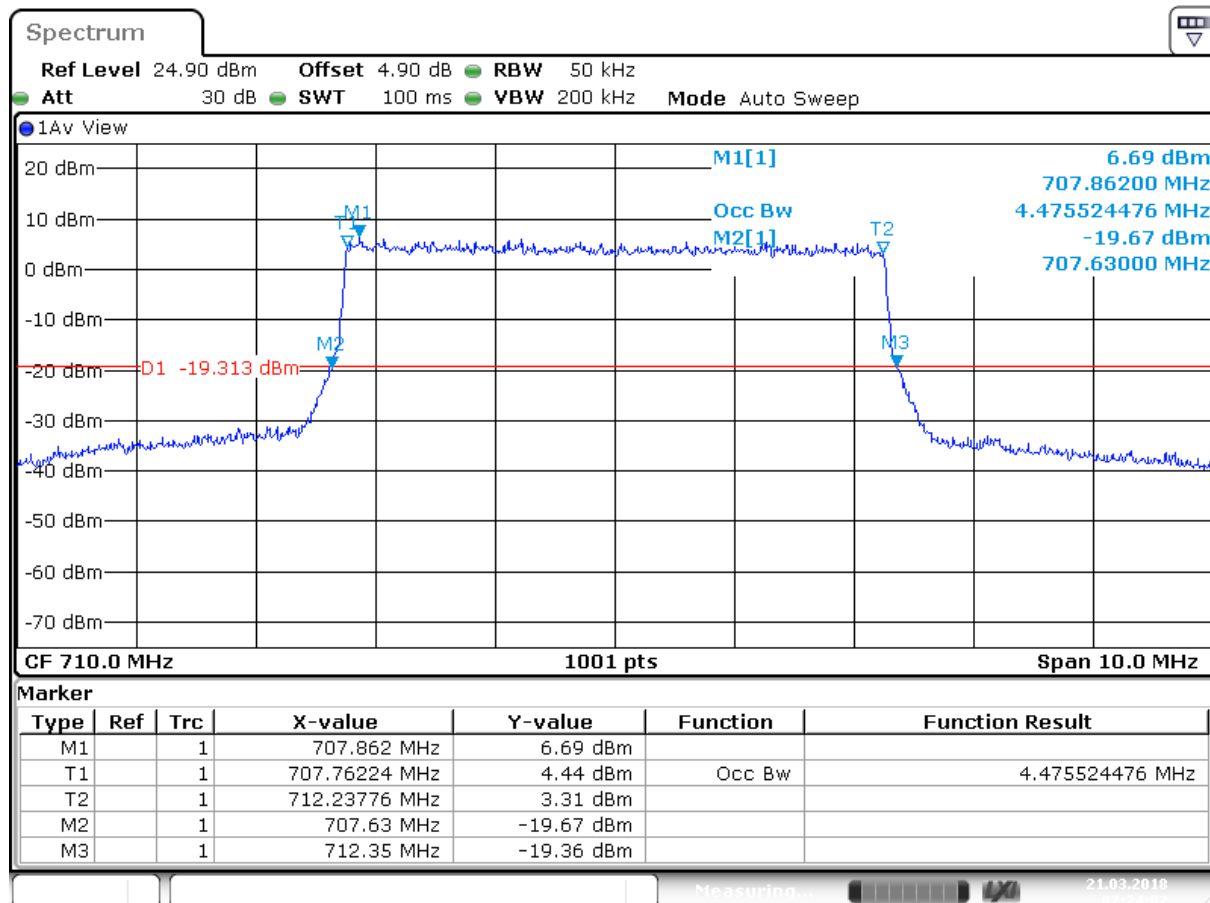
4.1.1.2.1 Test Channel = LCH



Date: 21 MAR 2018 07:23:26



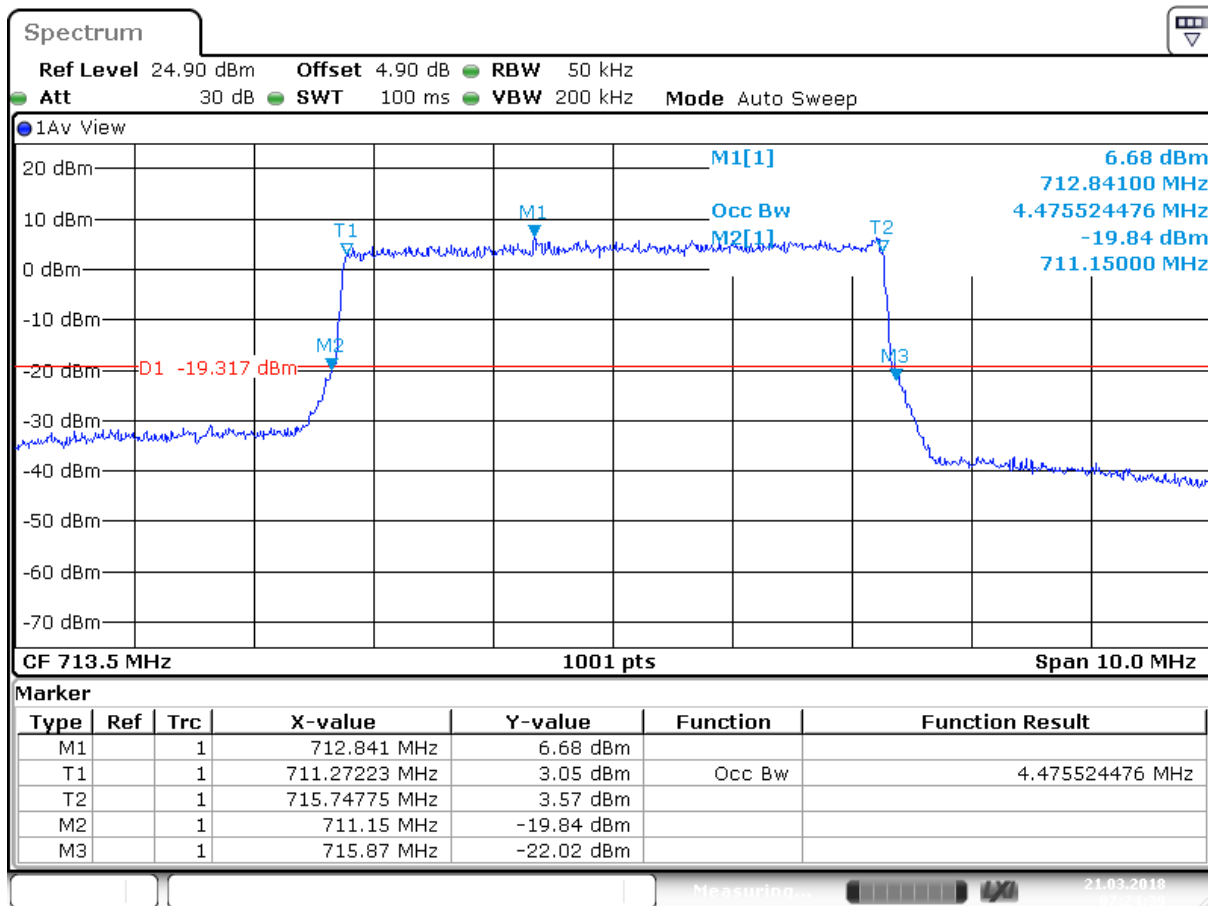
4.1.1.2.2 Test Channel = MCH



Date: 21 MAR 2018 07:24:03



4.1.1.2.3 Test Channel = HCH

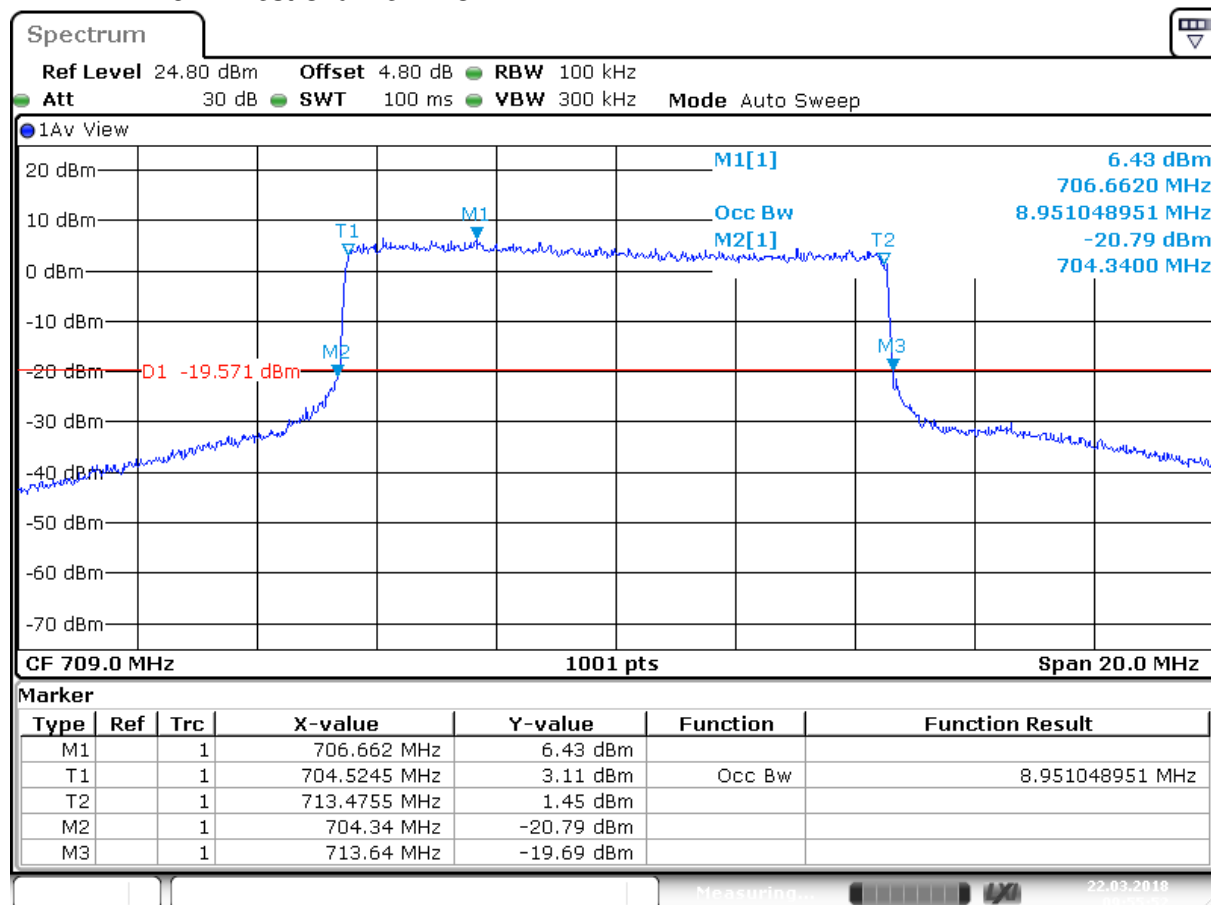


Date: 21 MAR 2018 07:24:39



4.1.1.3 Test Mode = LTE/TM1 10MHz

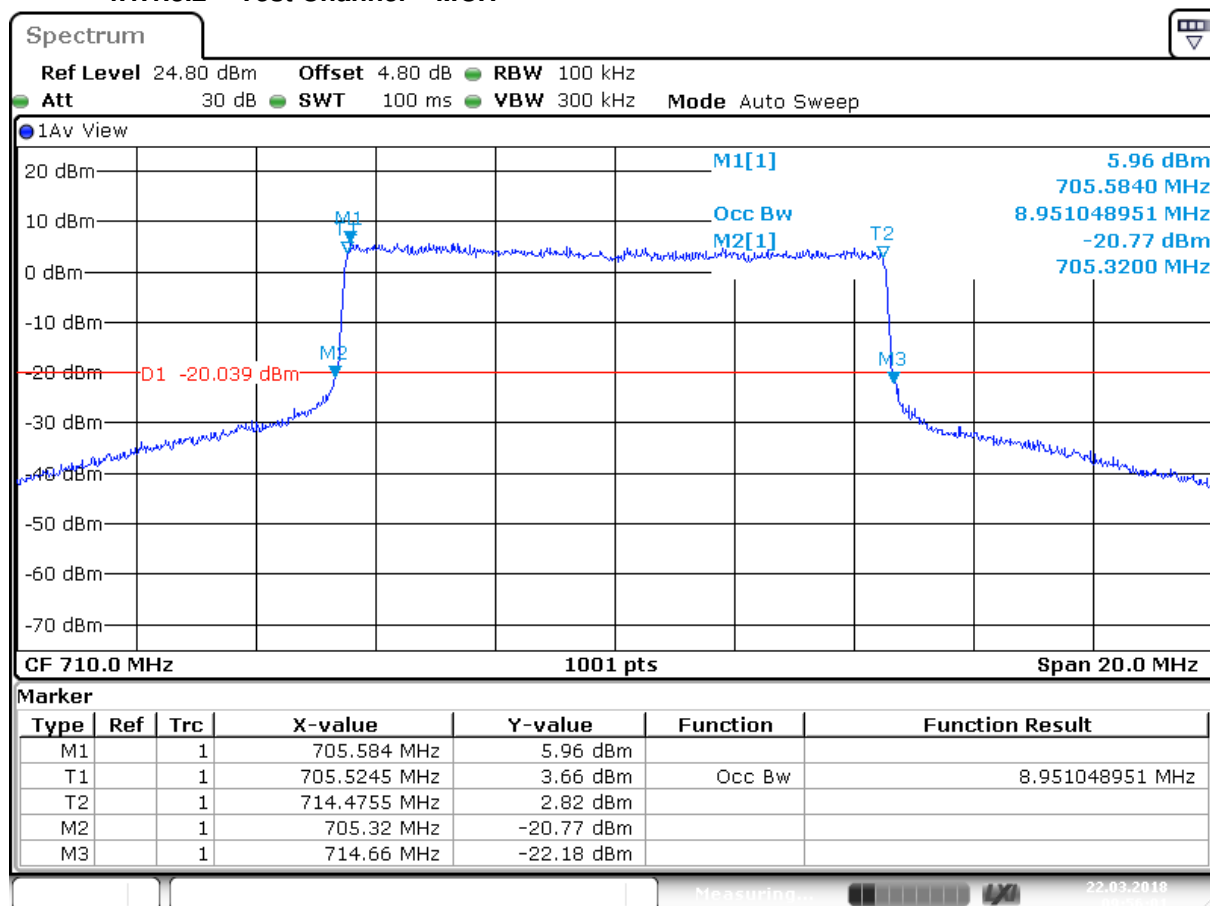
4.1.1.3.1 Test Channel = LCH



Date: 22 MAR 2018 09:55:52



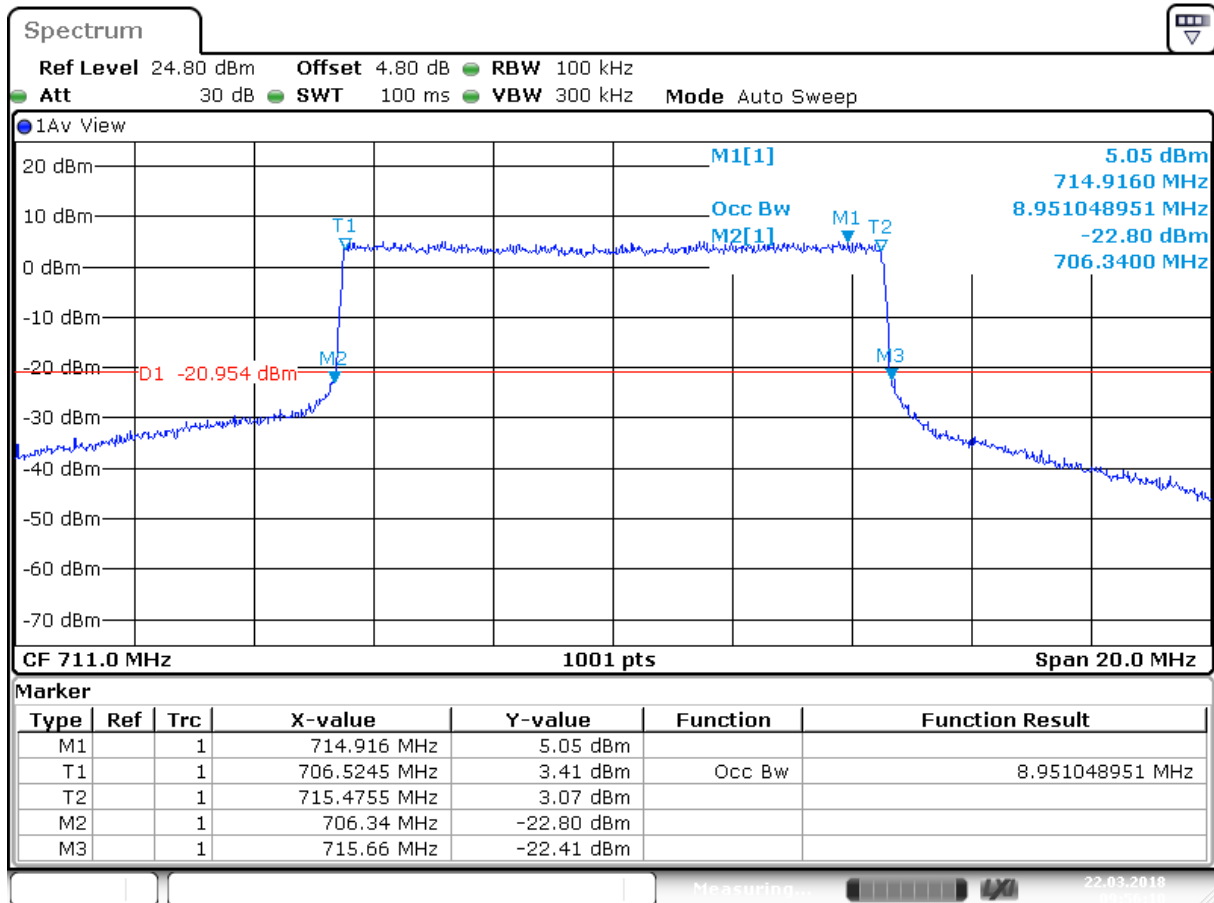
4.1.1.3.2 Test Channel = MCH



Date: 22 MAR 2018 09:56:02



4.1.1.3.3 Test Channel = HCH



Date: 22 MAR 2018 09:56:11

5 Band Edges Compliance

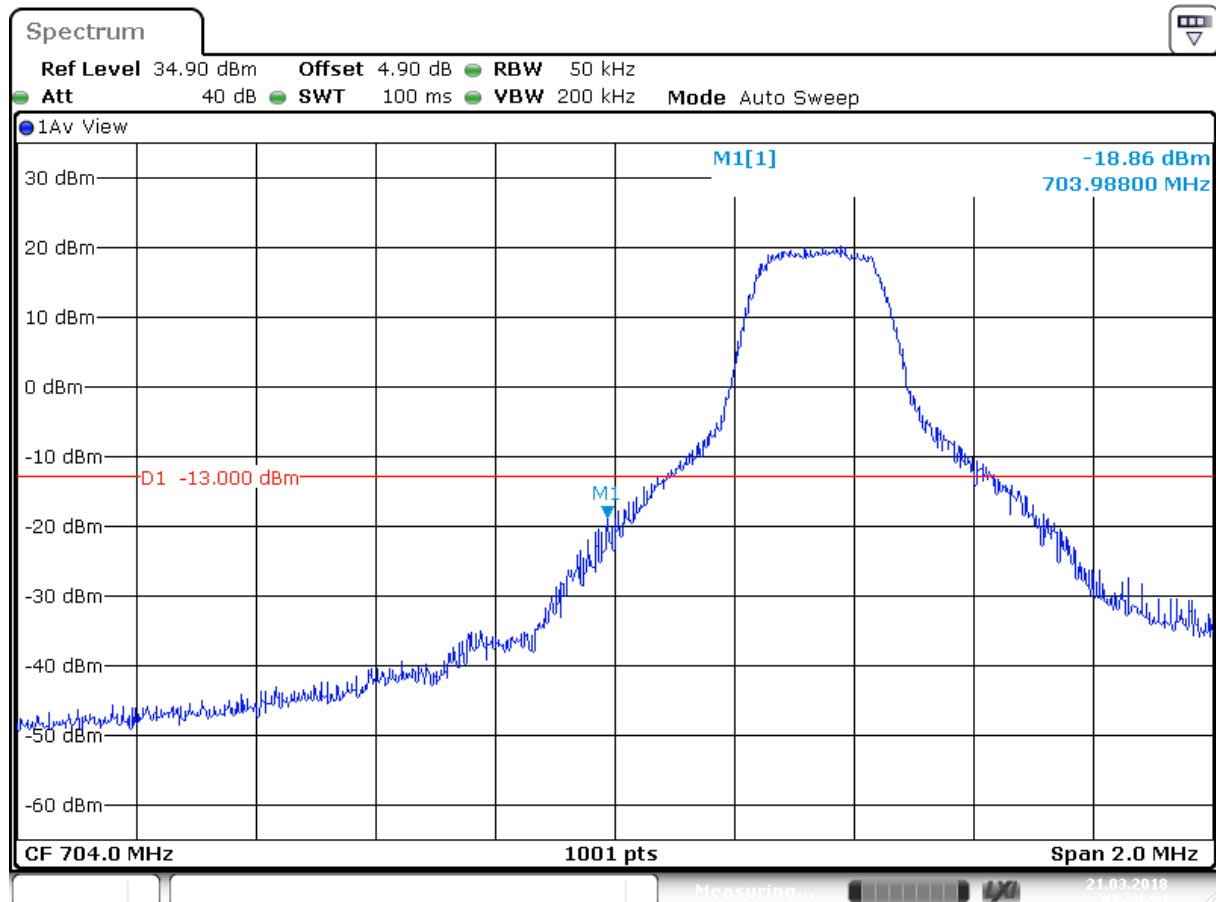
5.1 For LTE

5.1.1 Test Band = LTE Band 17

5.1.1.1 Test Mode = LTE/TM1 5MHz

5.1.1.1.1 Test Channel = LCH

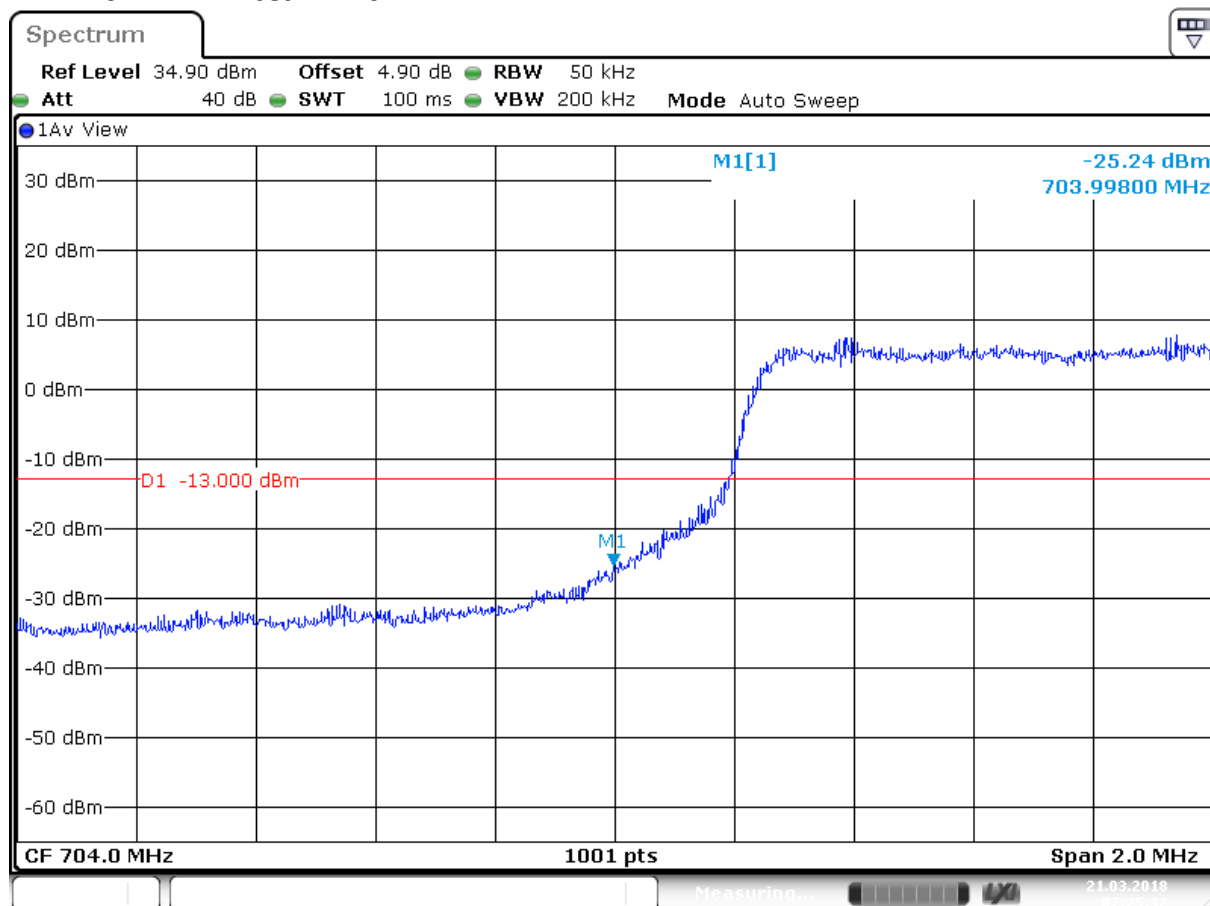
5.1.1.1.1.1 Test RB=1RB



Date: 21 MAR 2018 07:24:54



5.1.1.1.2 Test RB=25RB

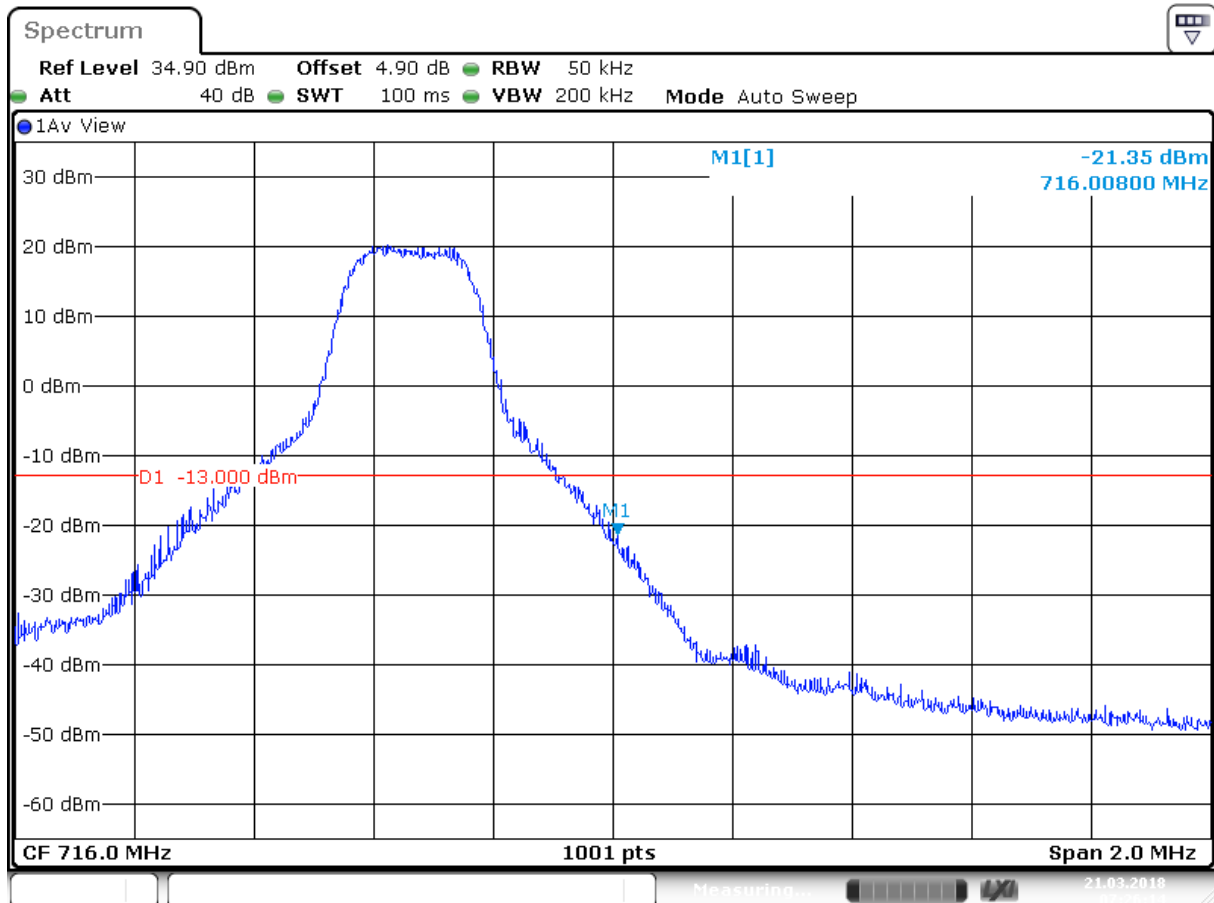


Date: 21 MAR 2018 07:25:32



5.1.1.1.2 Test Channel = HCH

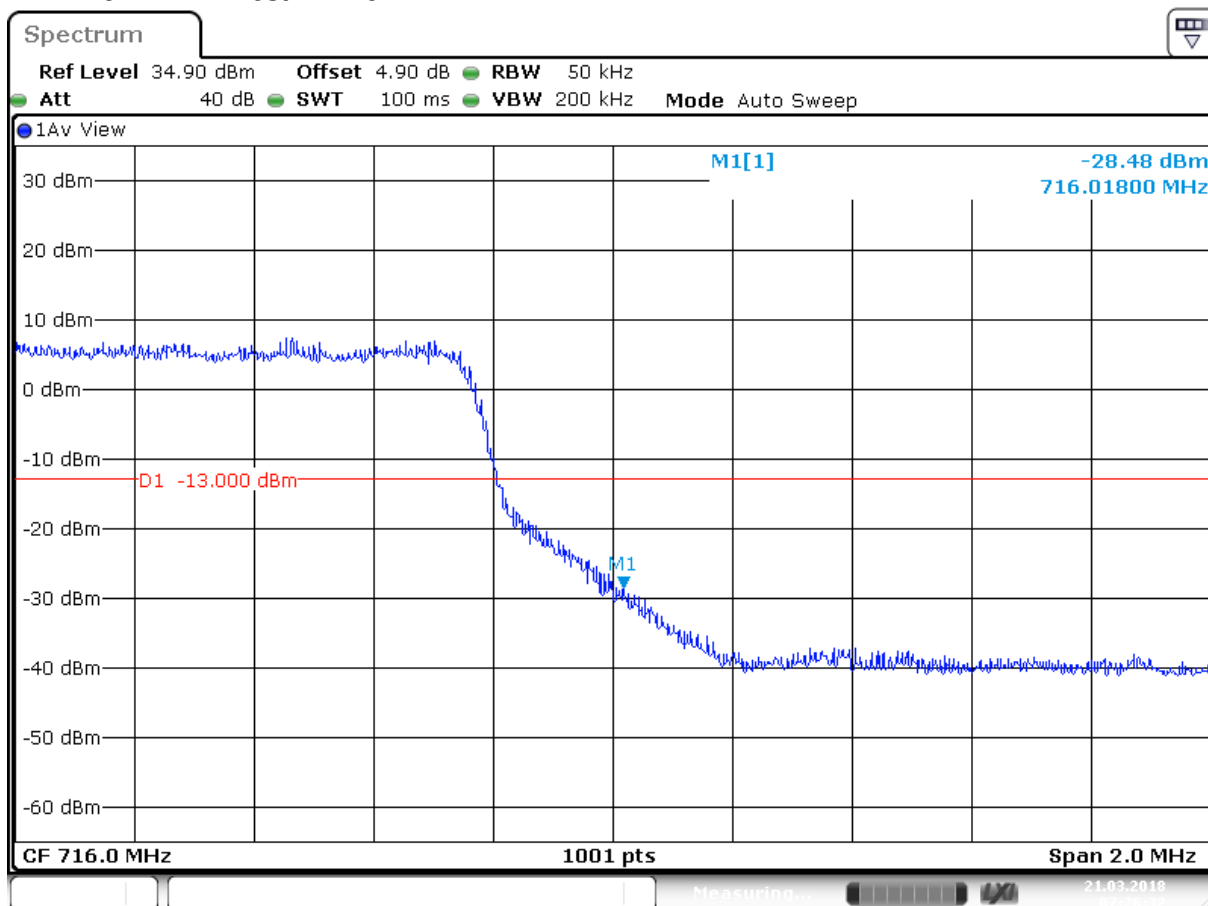
5.1.1.1.2.1 Test RB=1RB



Date: 21 MAR 2018 07:26:14



5.1.1.1.2.2 Test RB=25RB



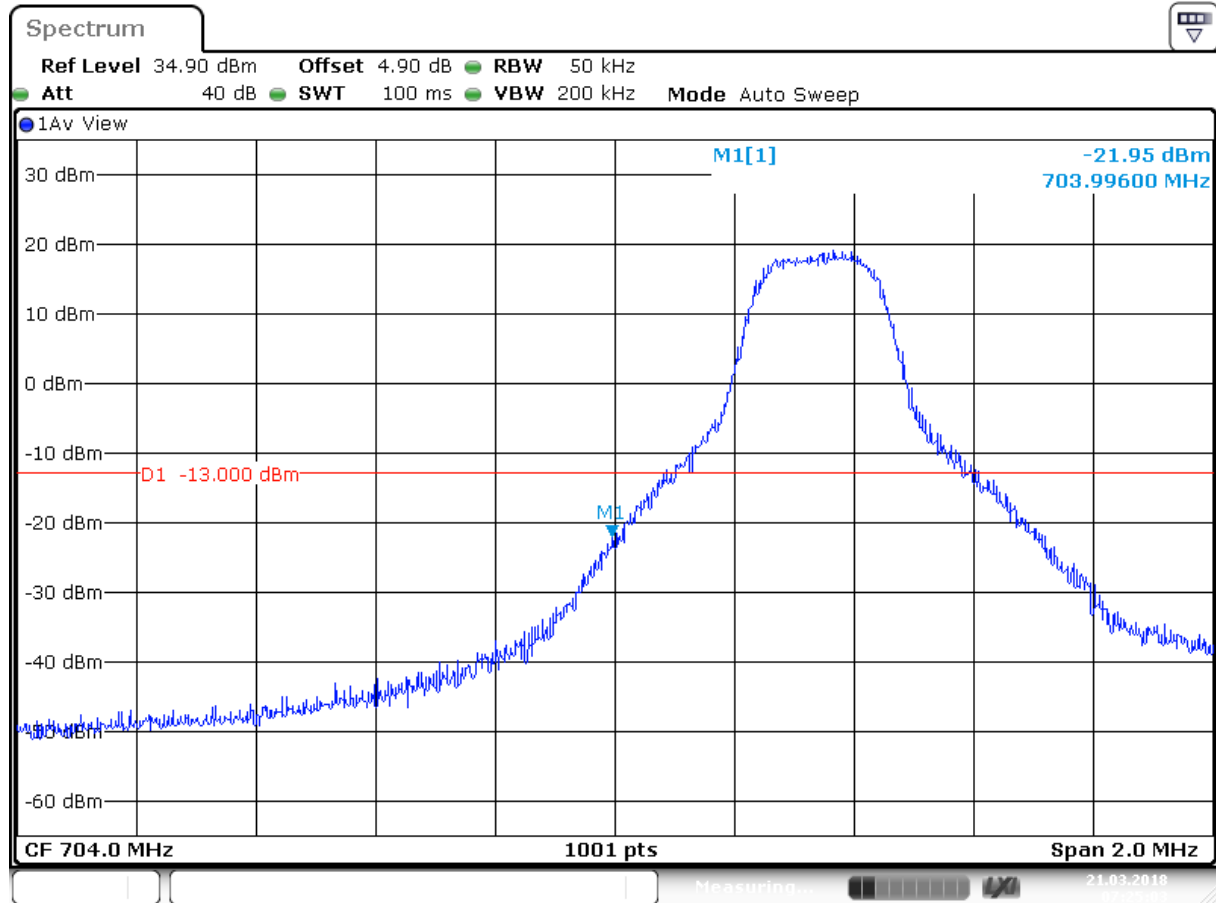
Date: 21 MAR 2018 07:26:33



5.1.1.2 Test Mode = LTE/TM2 5MHz

5.1.1.2.1 Test Channel = LCH

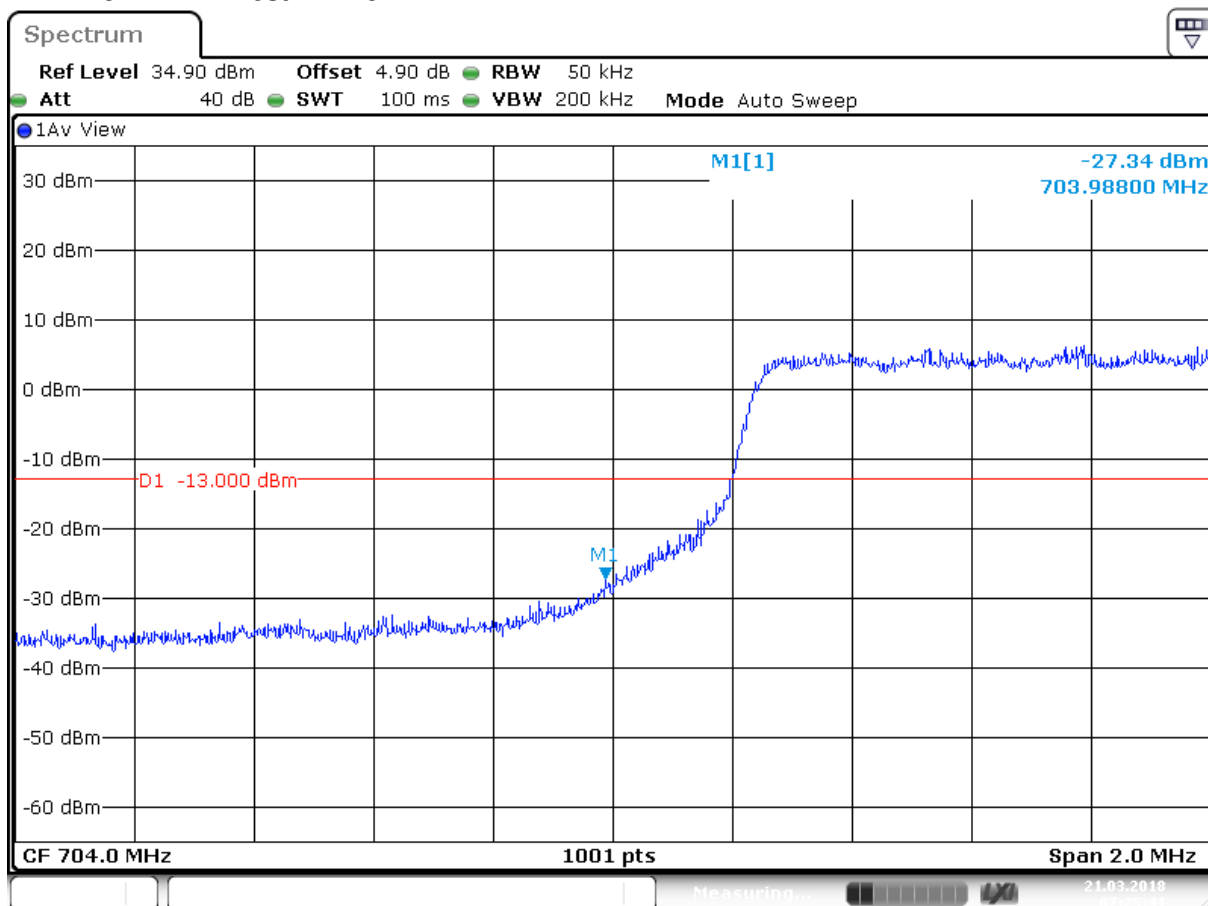
5.1.1.2.1.1 Test RB=1RB



Date: 21 MAR 2018 07:25:03



5.1.1.2.1.2 Test RB=25RB

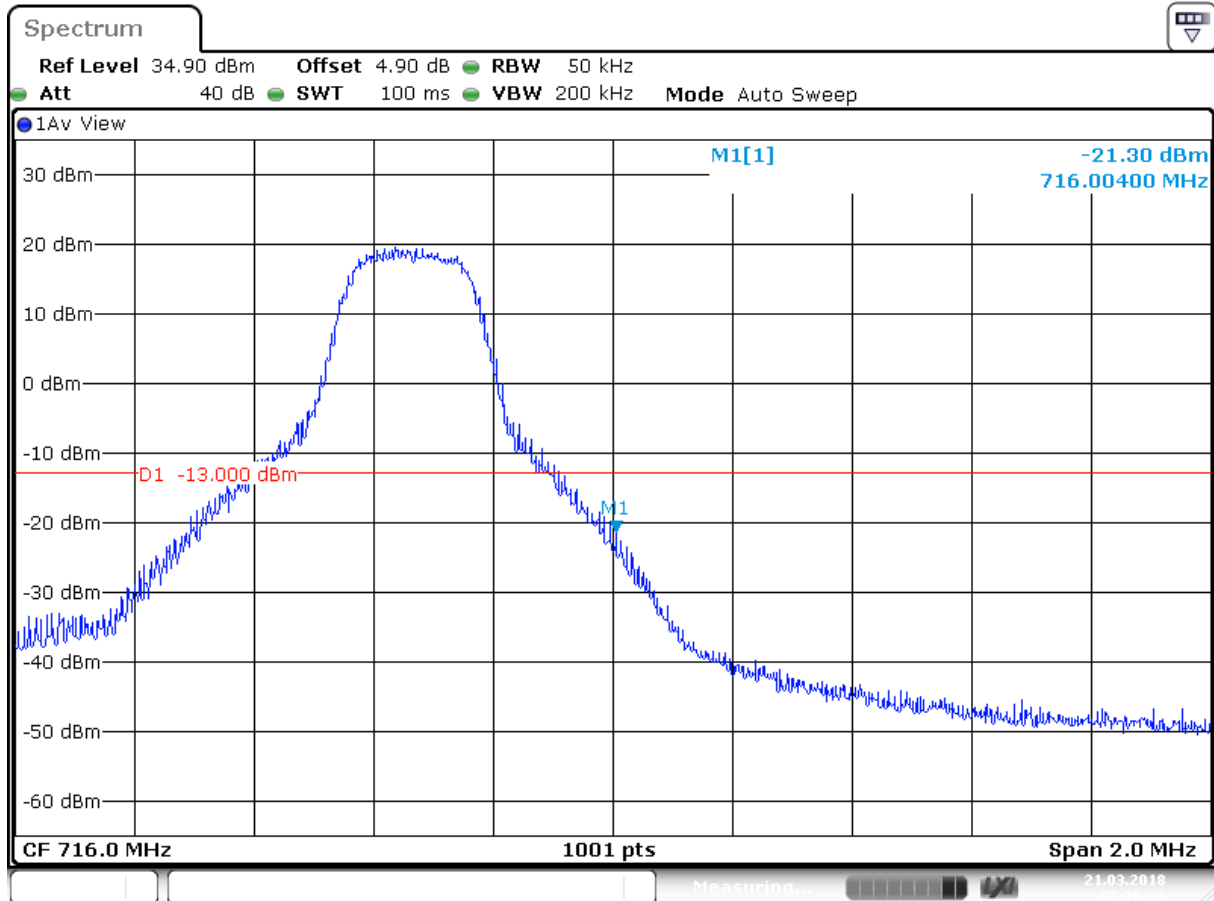


Date: 21 MAR 2018 07:25:41



5.1.1.2.2 Test Channel = HCH

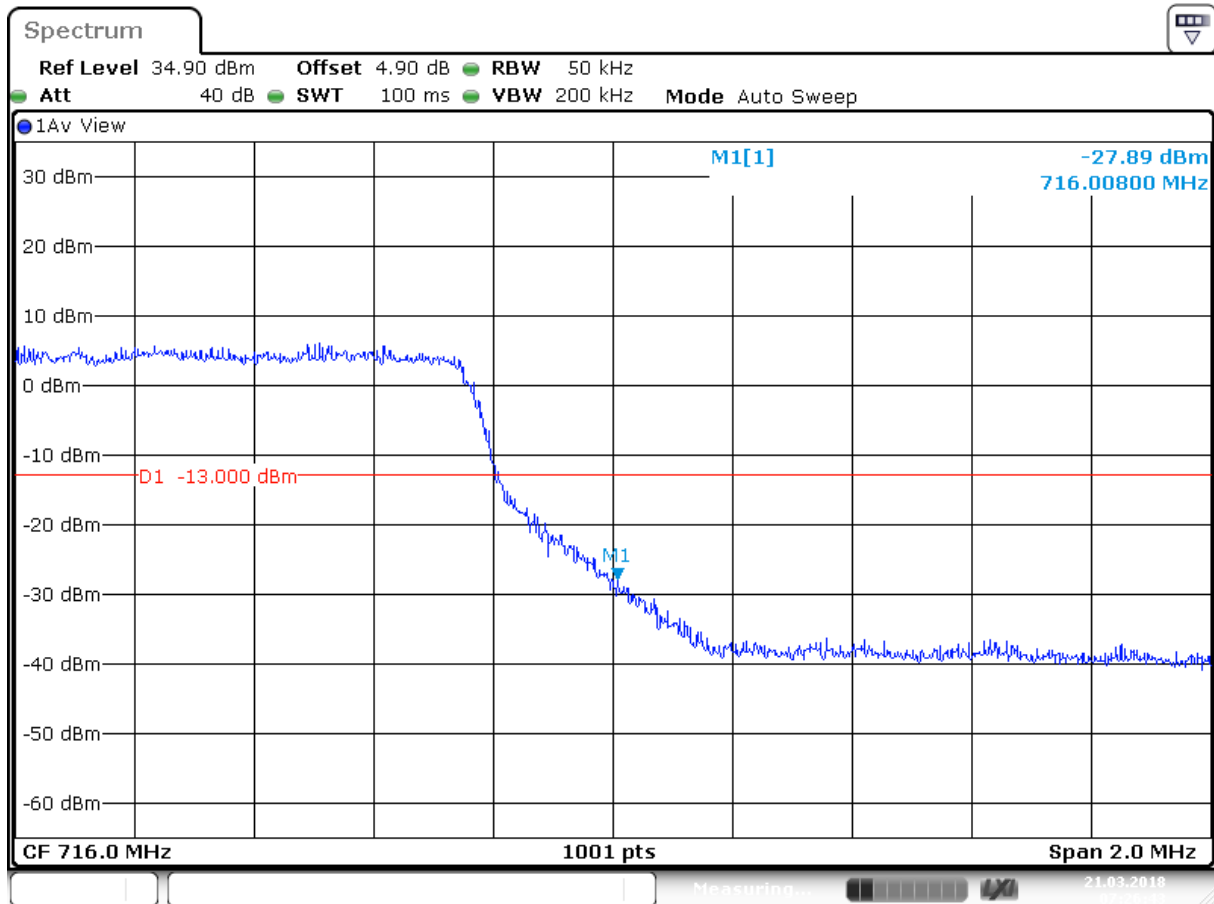
5.1.1.2.2.1 Test RB=1RB



Date: 21 MAR 2018 07:26:24



5.1.1.2.2.2 Test RB=25RB



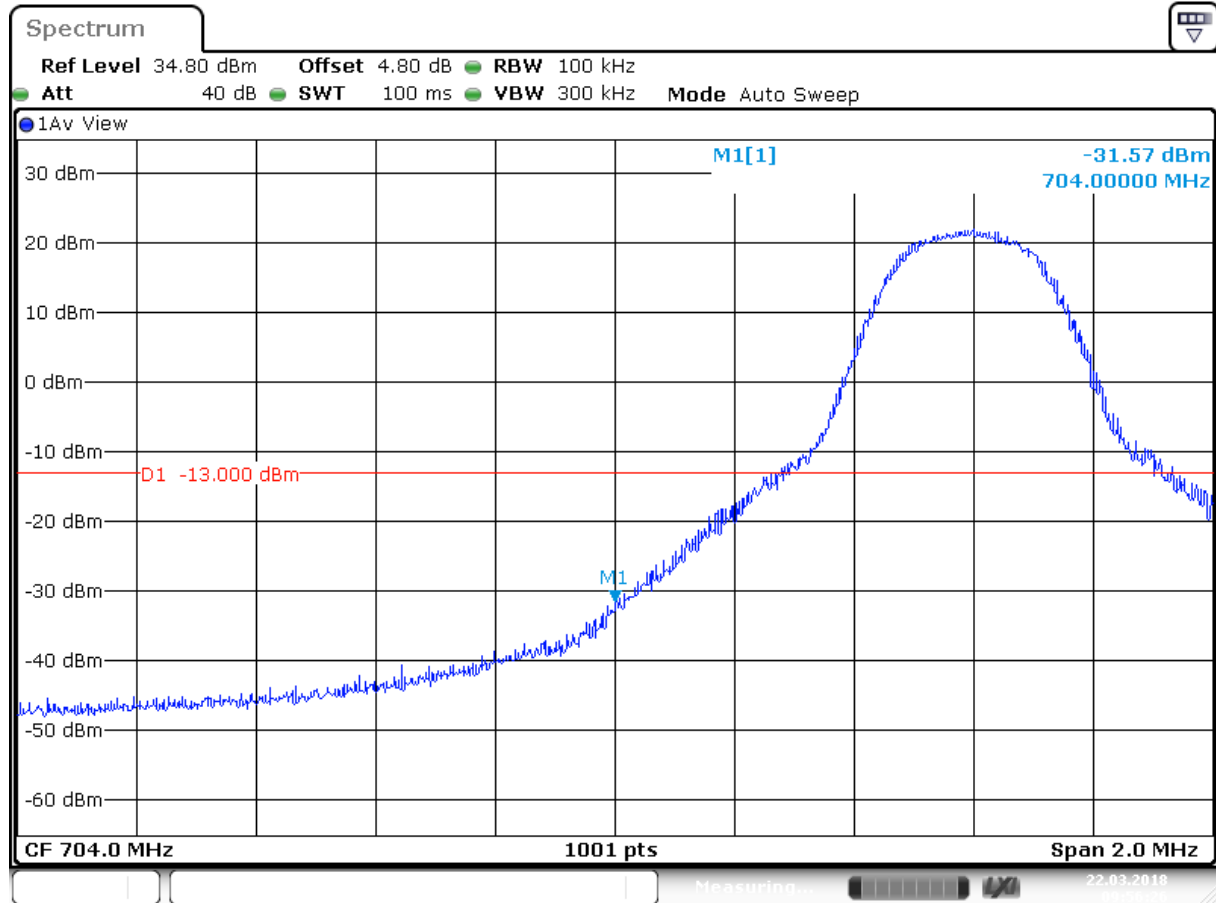
Date: 21 MAR 2018 07:26:43



5.1.1.3 Test Mode = LTE/TM1 10MHz

5.1.1.3.1 Test Channel = LCH

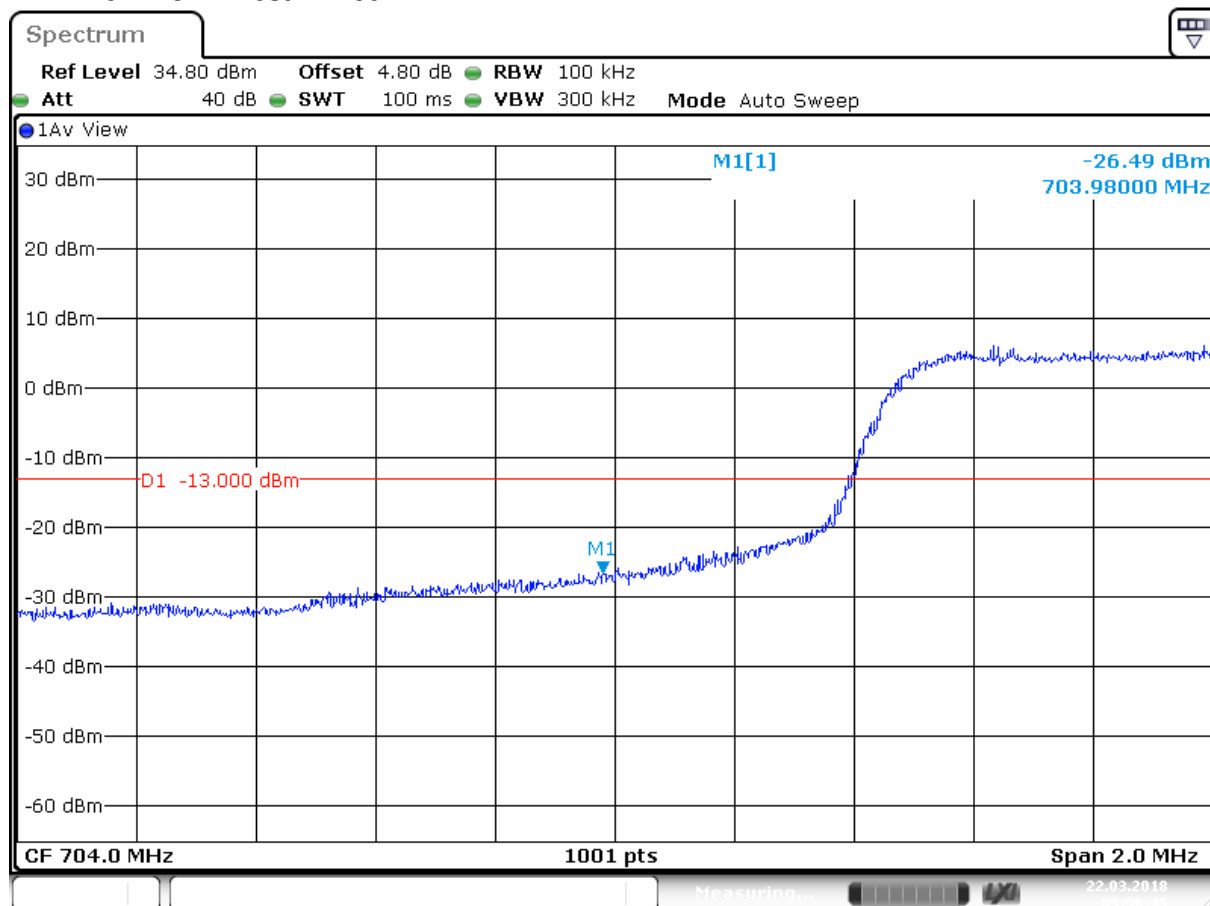
5.1.1.3.1.1 Test RB=1RB



Date: 22 MAR 2018 09:56:26



5.1.1.3.1.2 Test RB=50RB

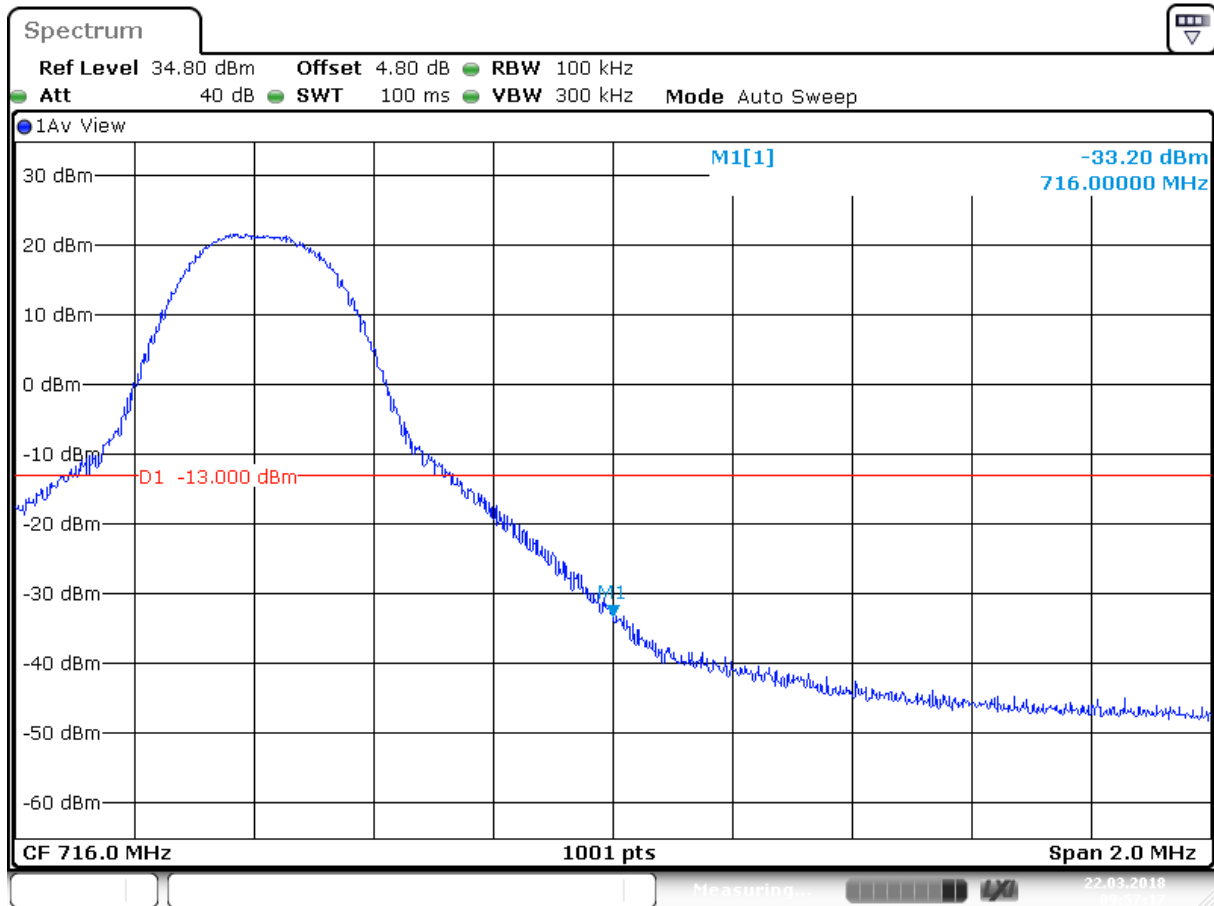


Date: 22 MAR 2018 09:56:45



5.1.1.3.2 Test Channel = HCH

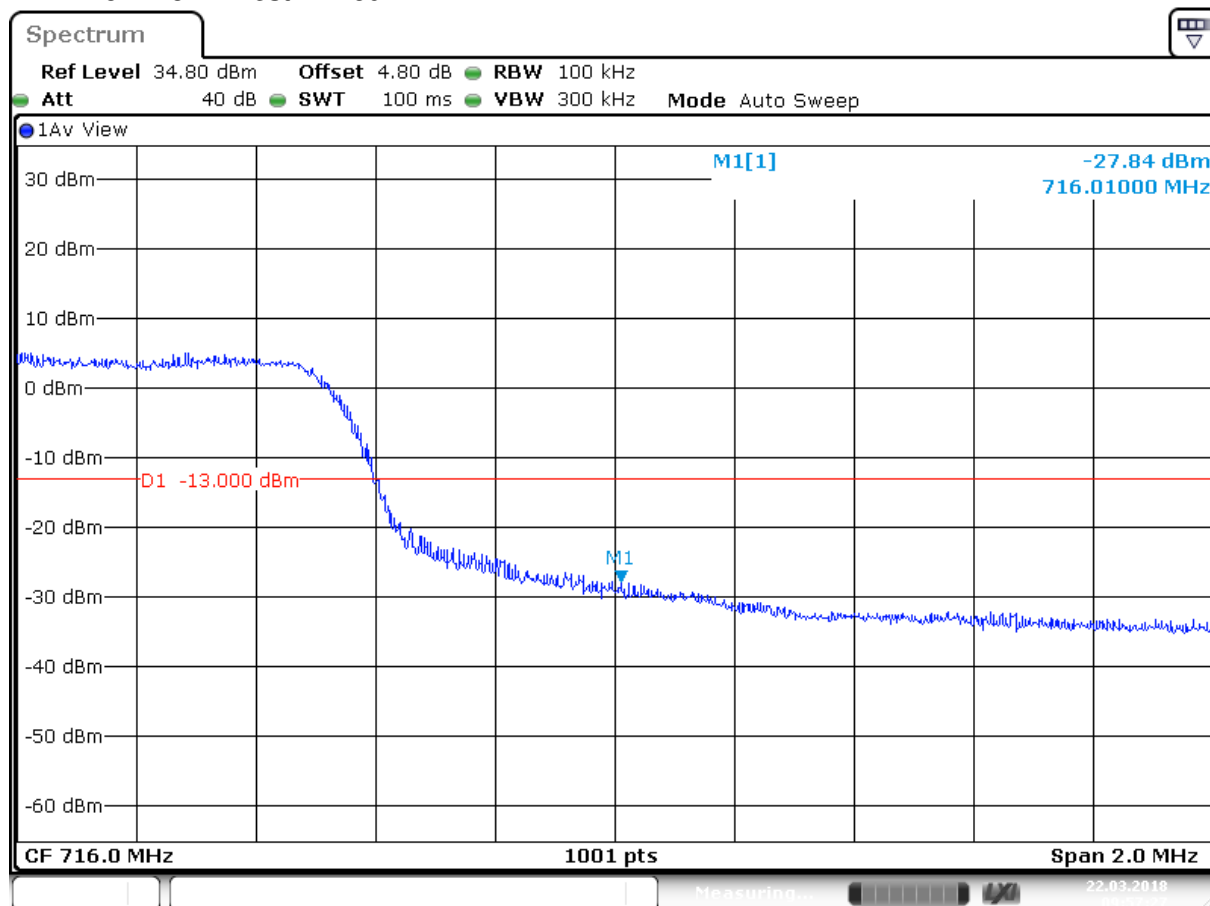
5.1.1.3.2.1 Test RB=1RB



Date: 22 MAR 2018 09:57:18



5.1.1.3.2.2 Test RB=50RB



Date: 22 MAR 2018 09:57:27



6 Spurious Emission at Antenna Terminal

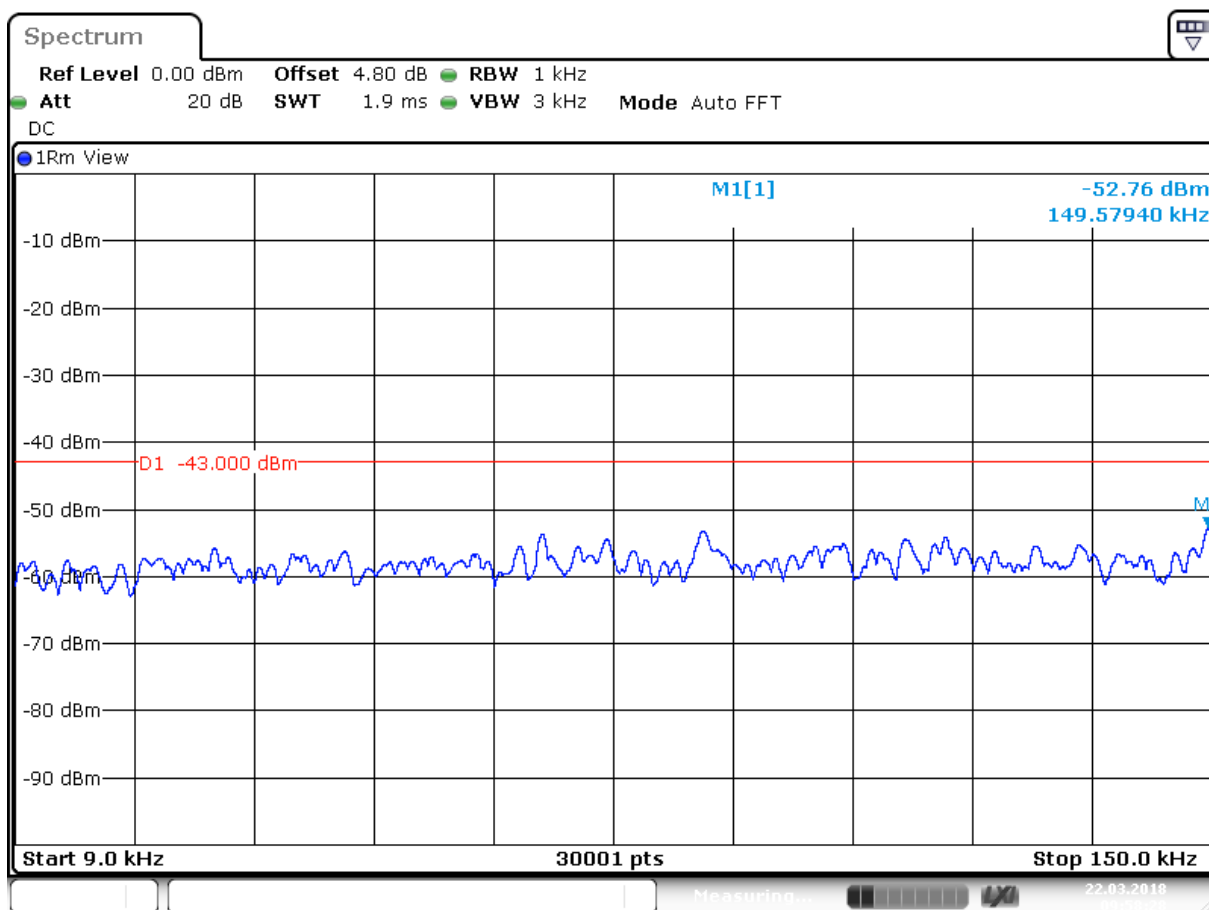
NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k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

6.1.1.1 Test Mode = LTE / TM1 15MHz RB1#0

6.1.1.1.1 Test Channel = LCH

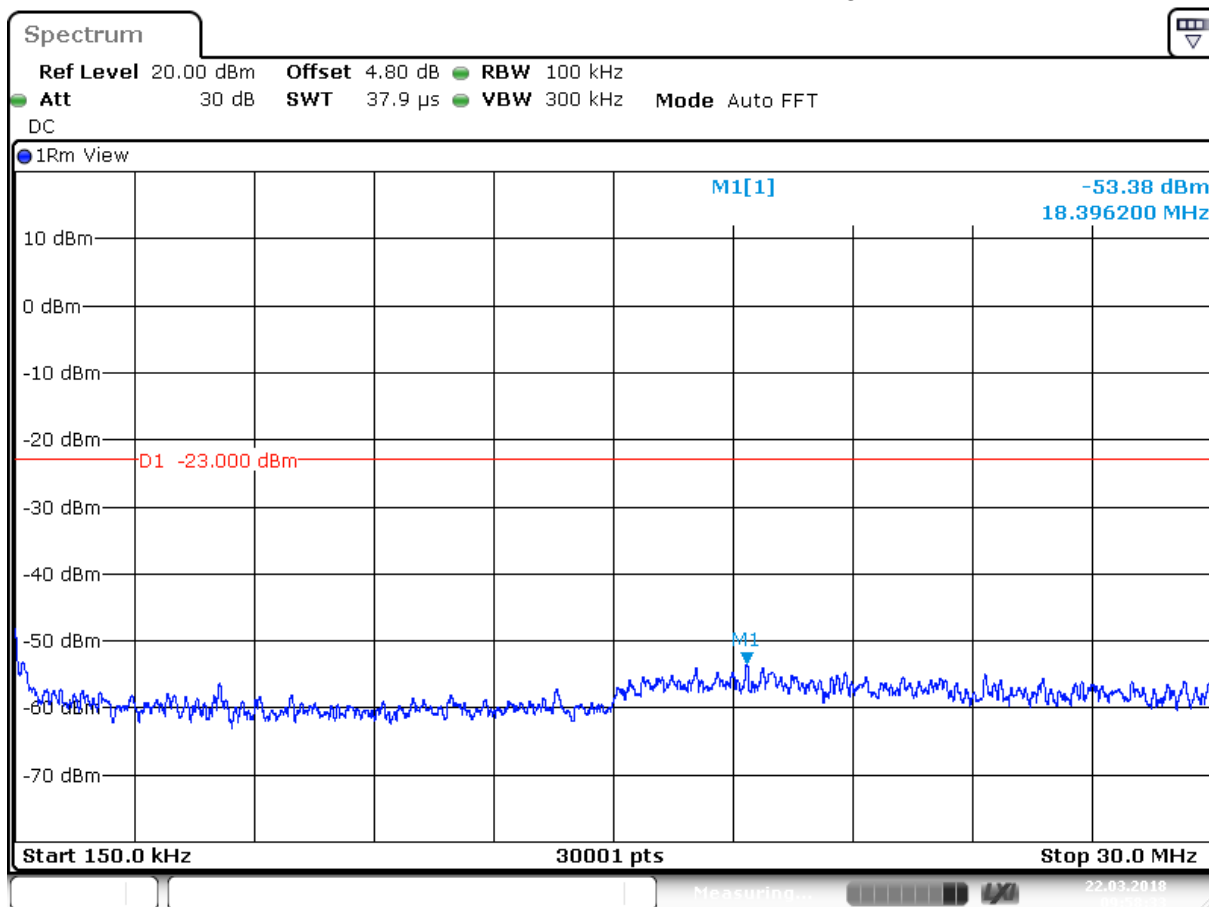


Date: 22 MAR 2018 09:58:29

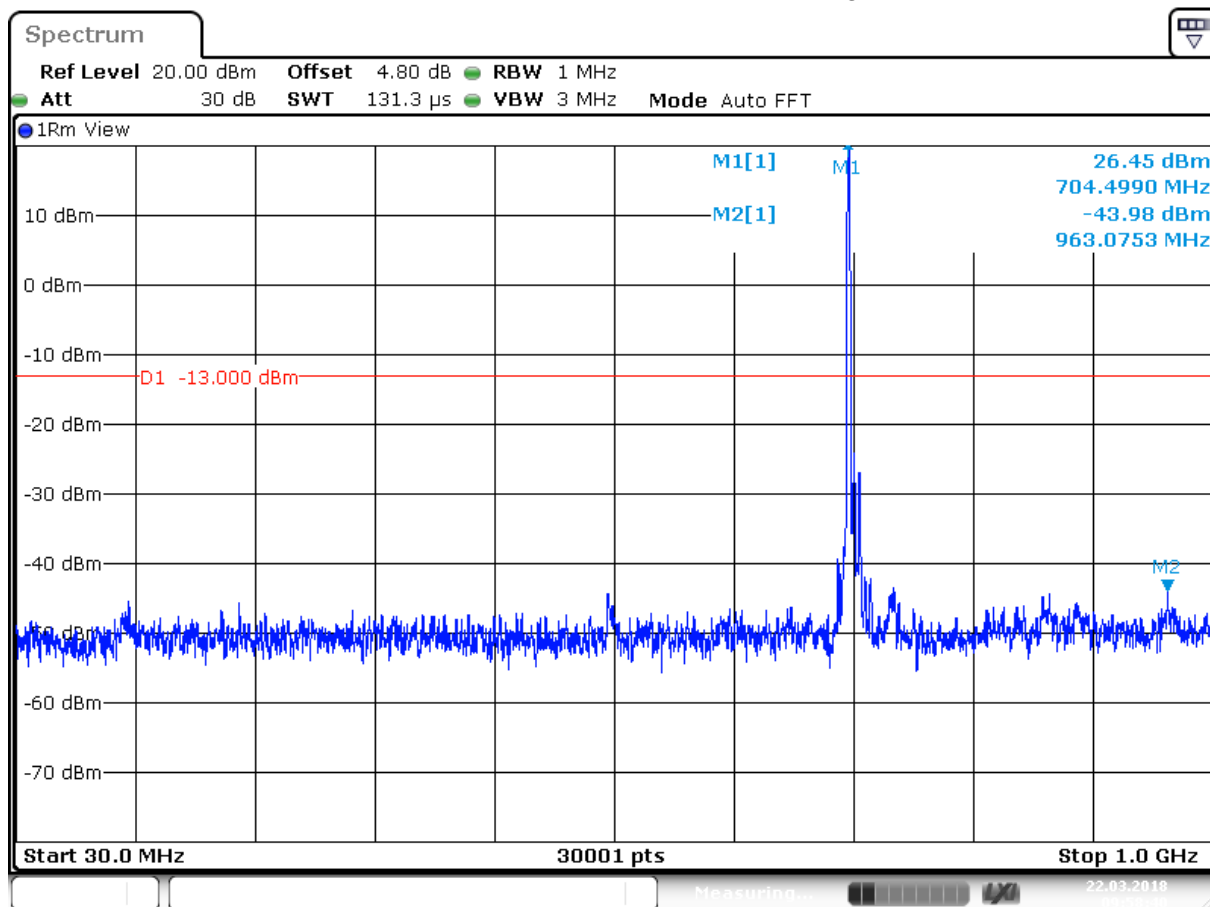


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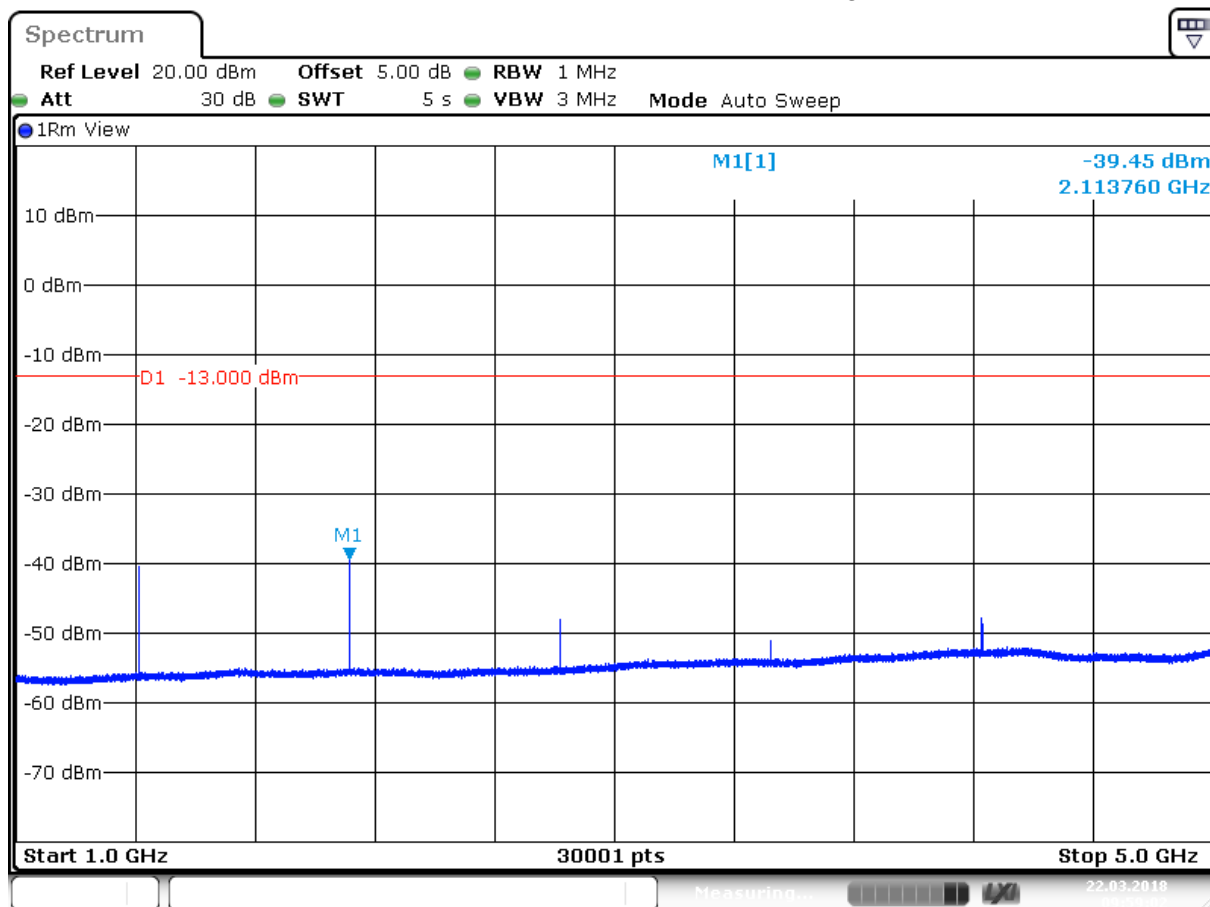
Report No.: SZEM180300168901
Page: 33 of 53



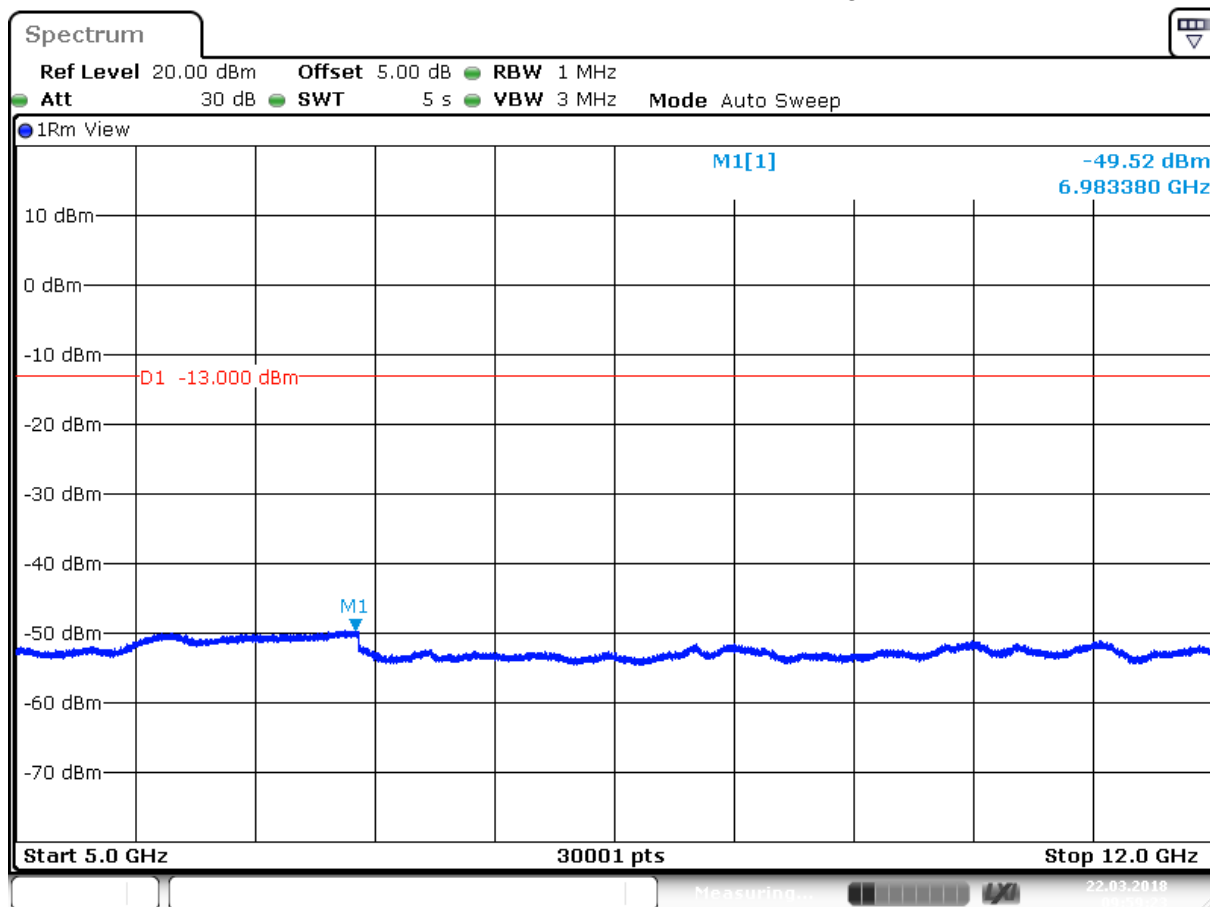
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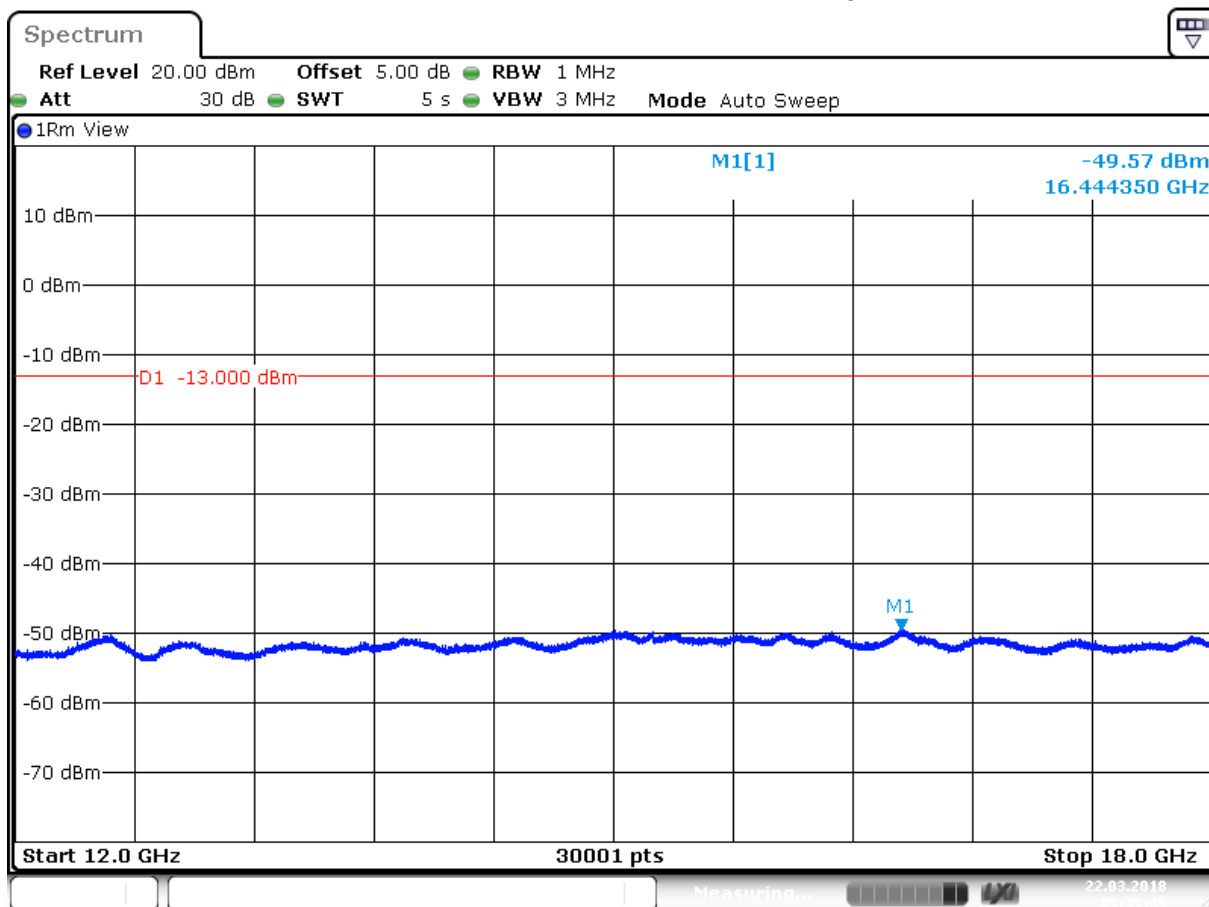
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Date: 22 MAR 2018 09:59:02



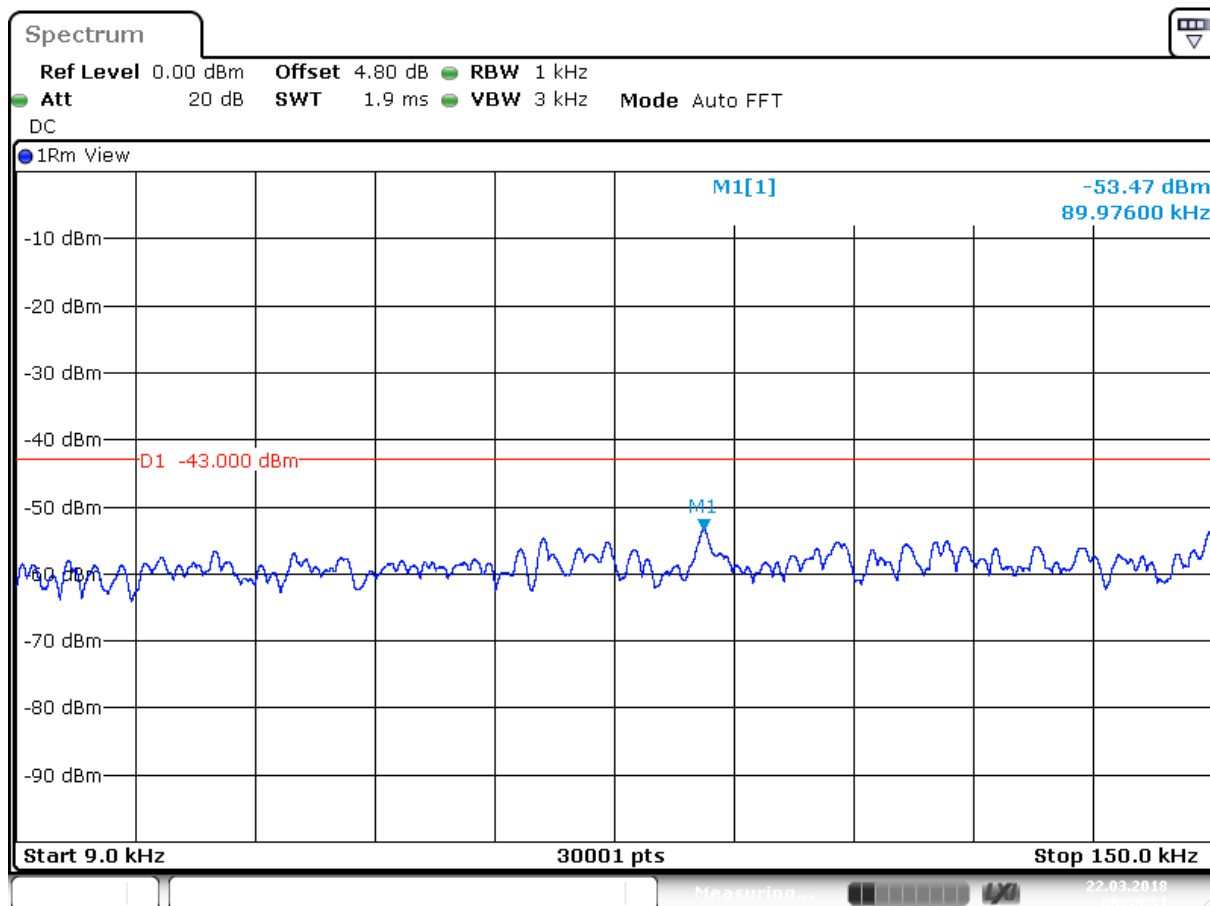
Date: 22 MAR 2018 09:59:24



Date: 22 MAR 2018 09:59:45



6.1.1.1.2 Test Channel = MCH



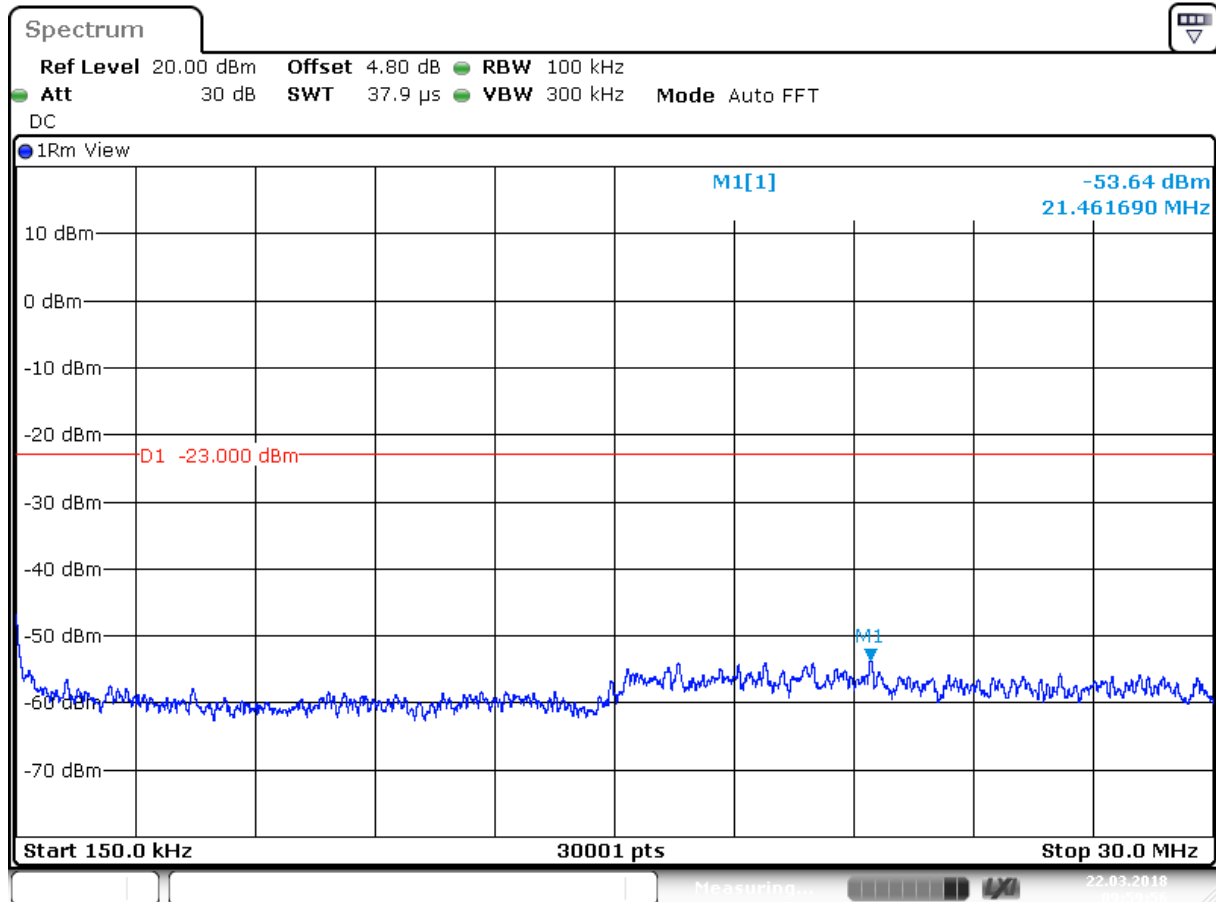
Date: 22 MAR 2018 09:59:51



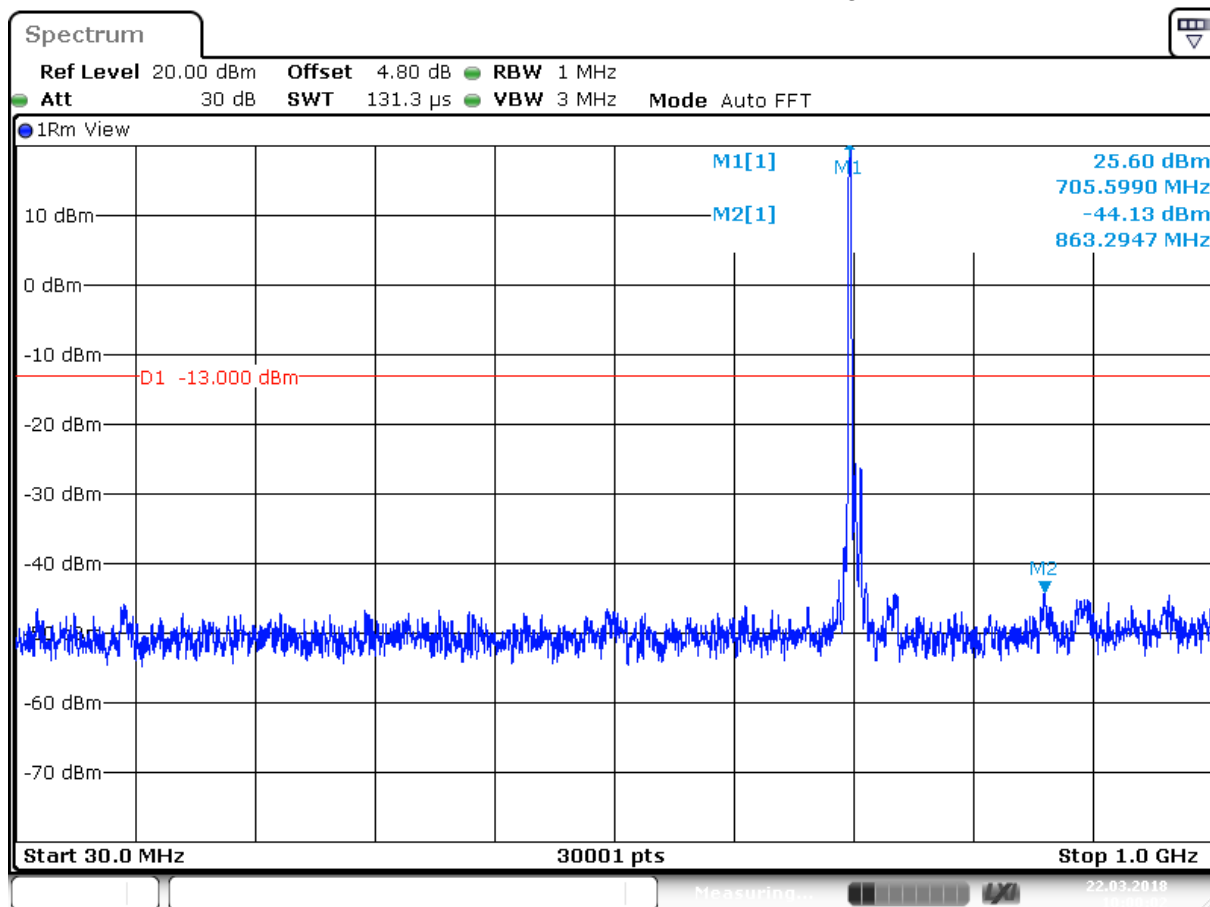
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Report No.: SZEM180300168901

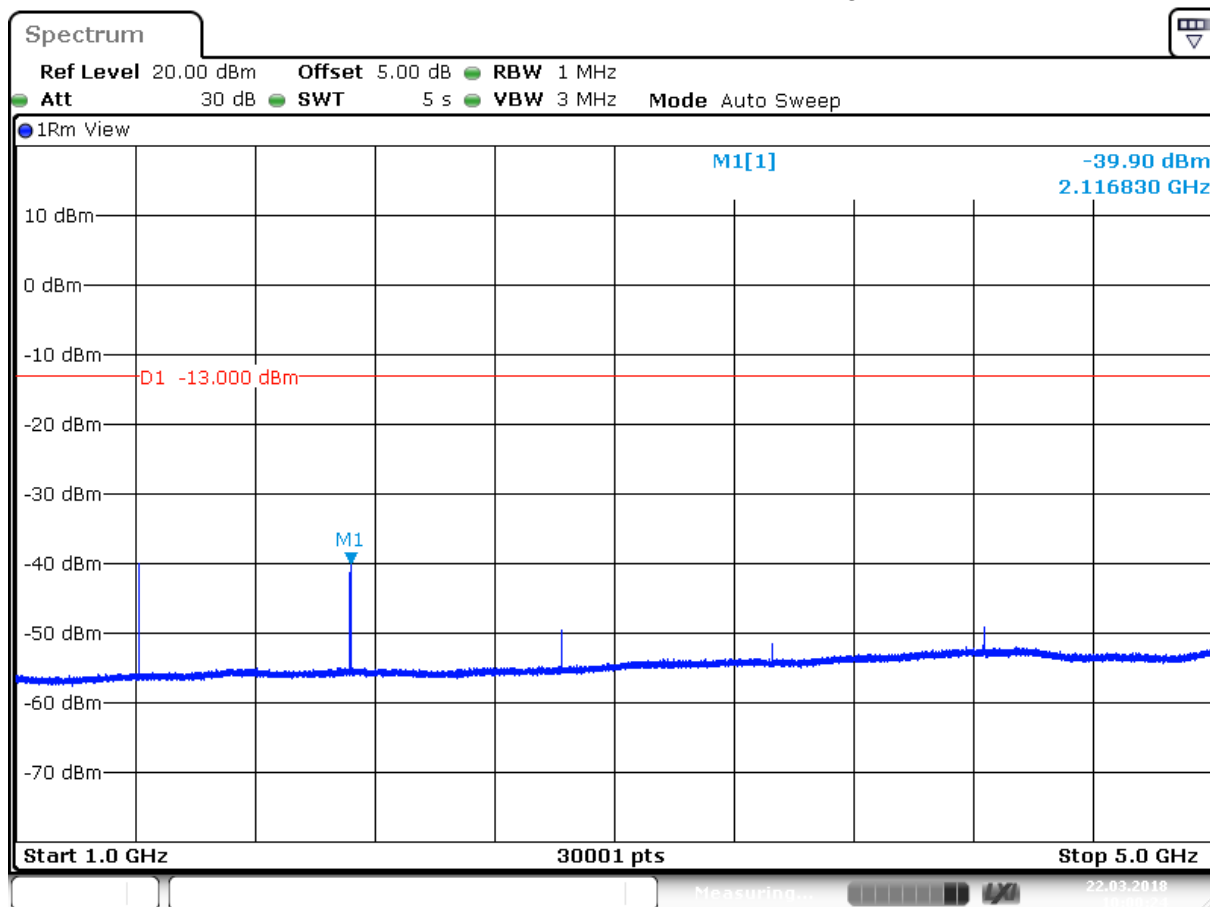
Page: 39 of 53



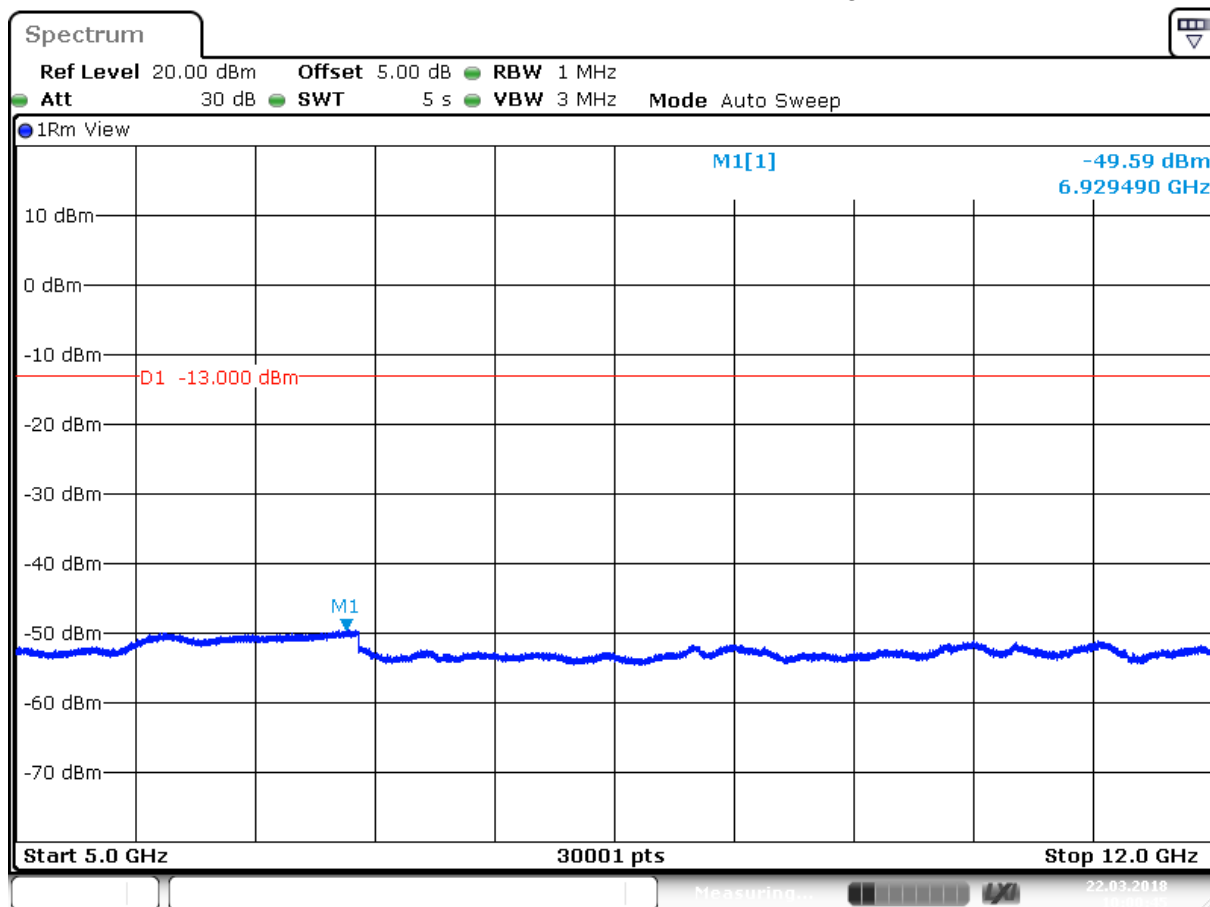
Date: 22 MAR 2018 09:59:56



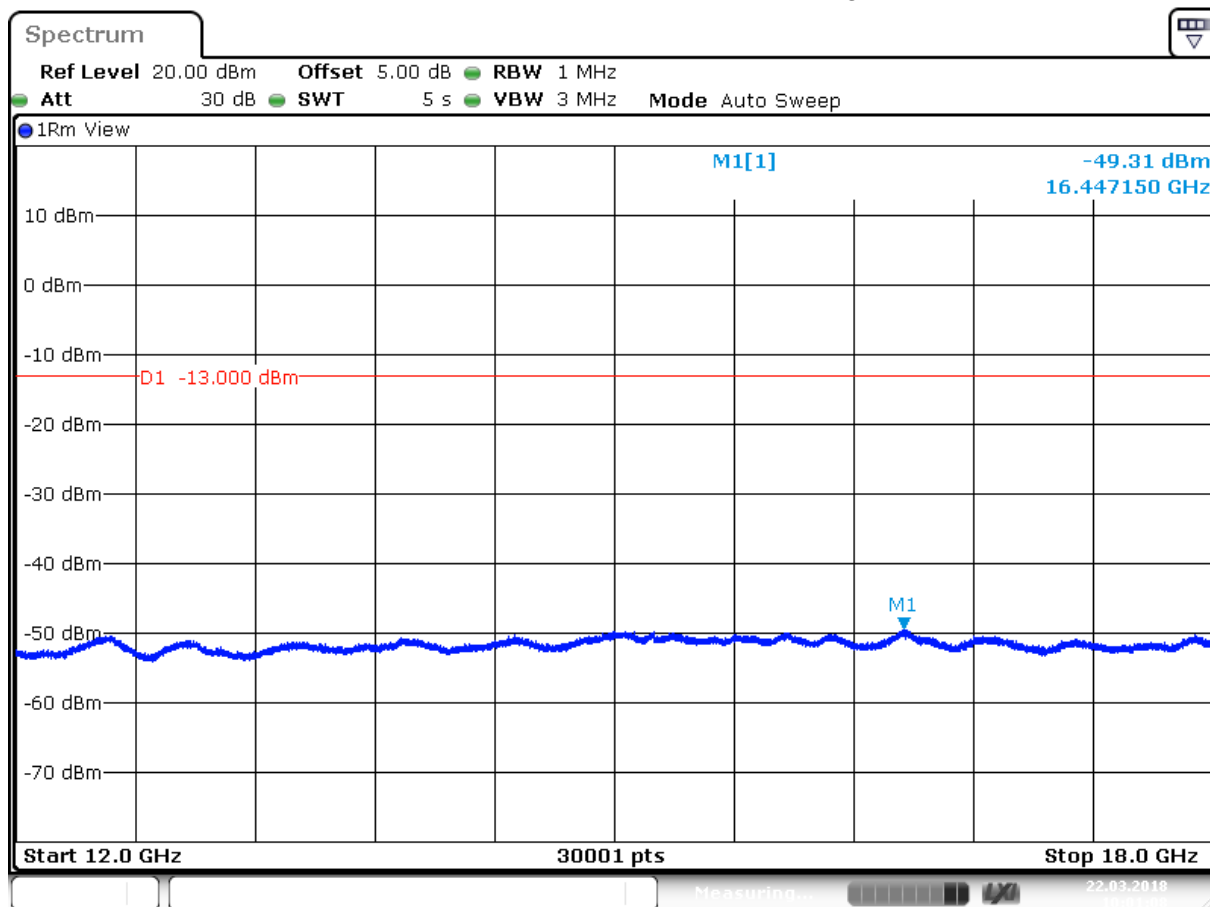
Date: 22 MAR 2018 10:00:02



Date: 22 MAR 2018 10:00:24



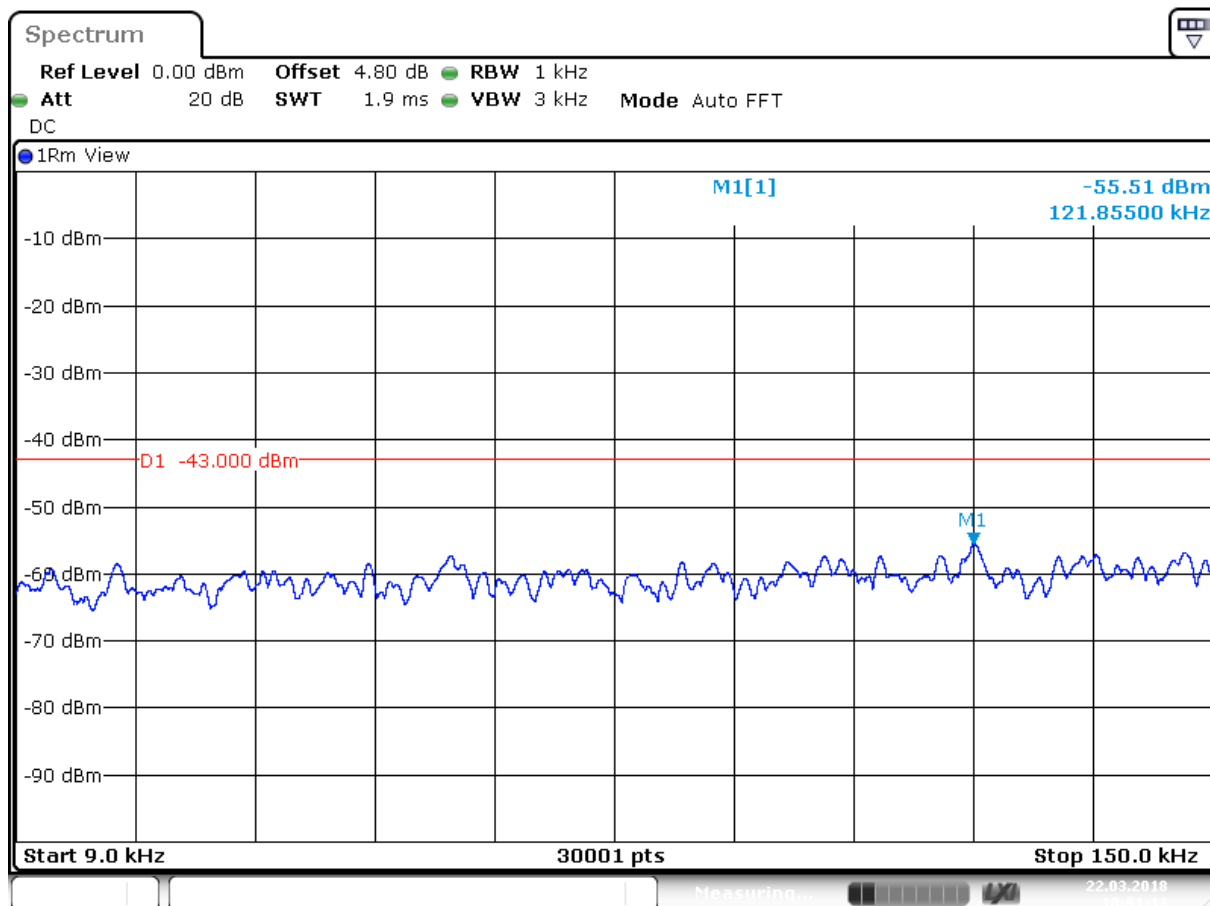
Date: 22 MAR 2018 10:00:46



Date: 22 MAR 2018 10:01:08



6.1.1.1.3 Test Channel = HCH



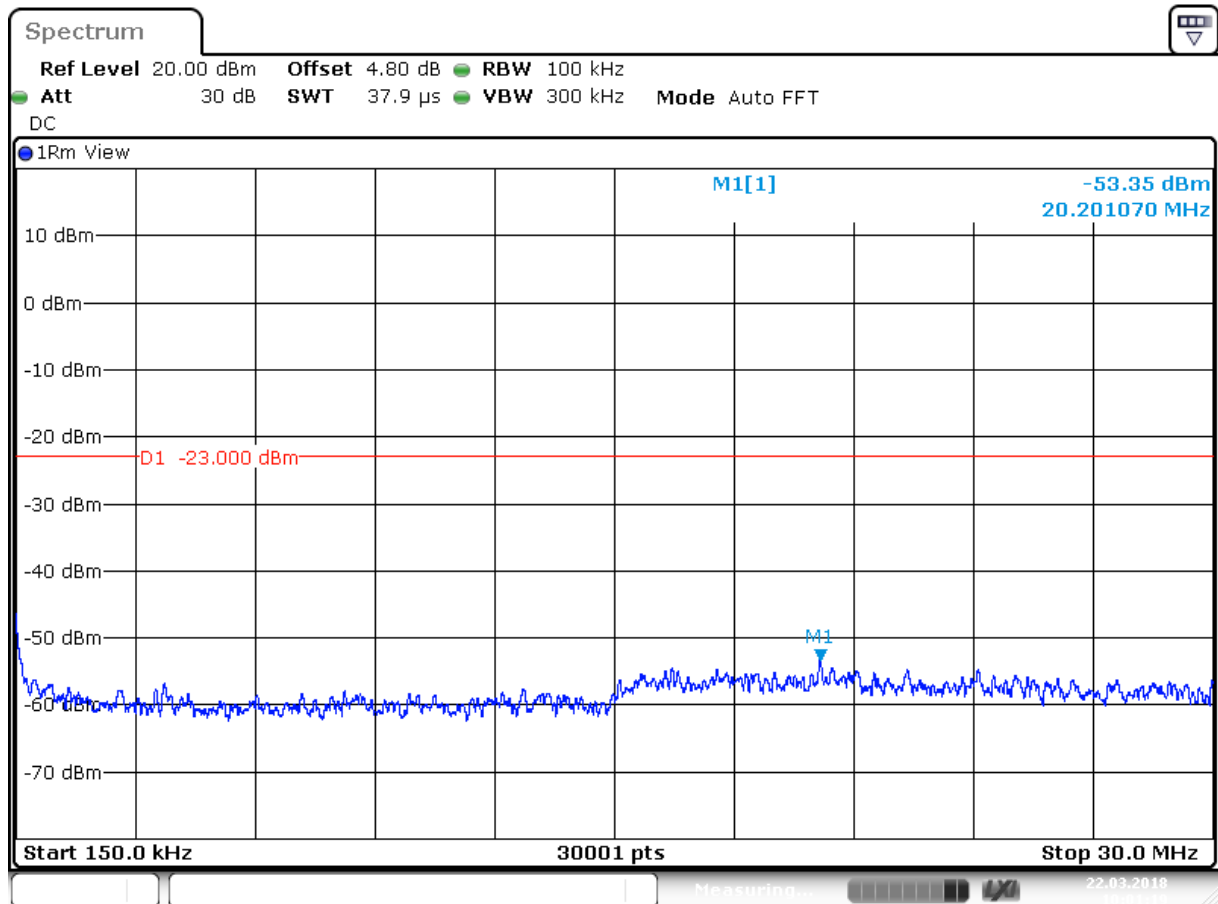
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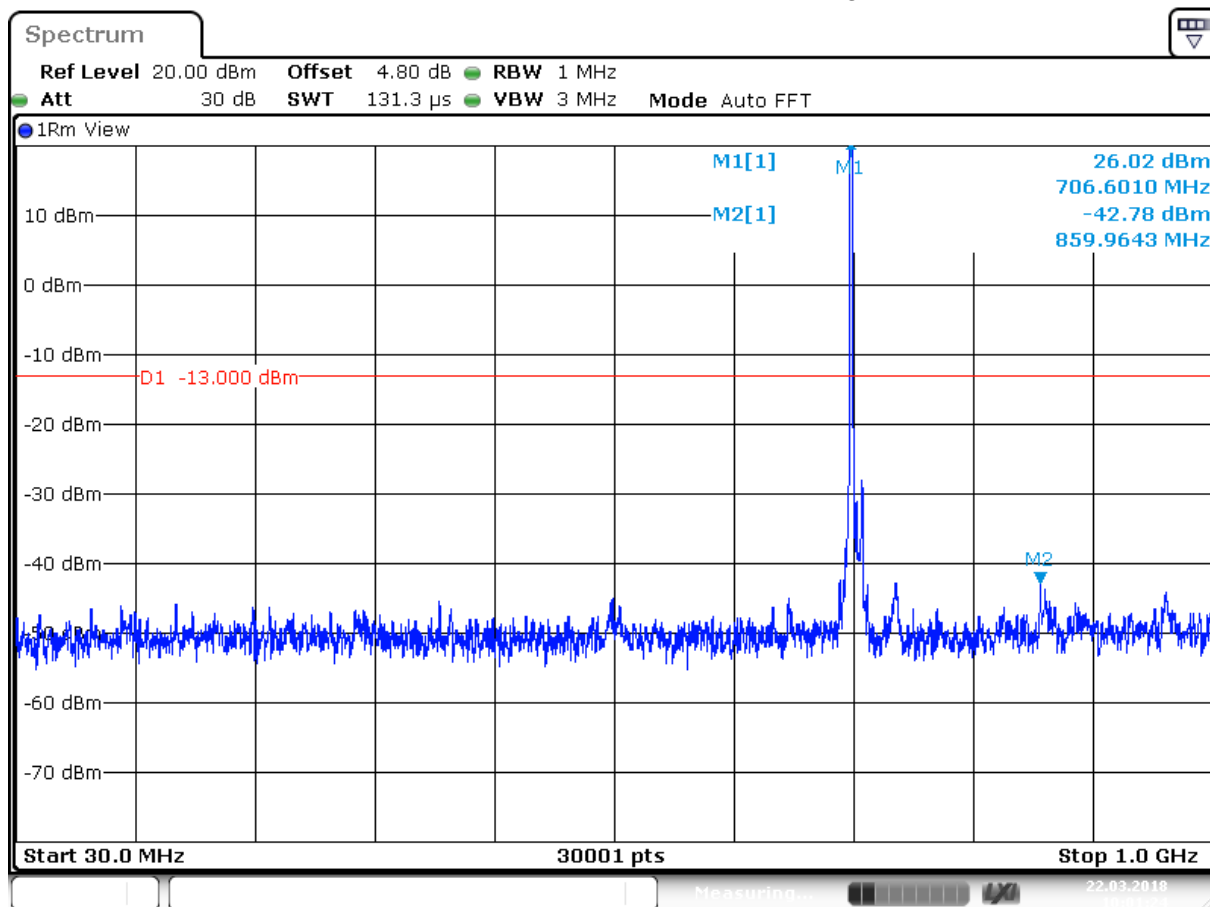
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Report No.: SZEM180300168901

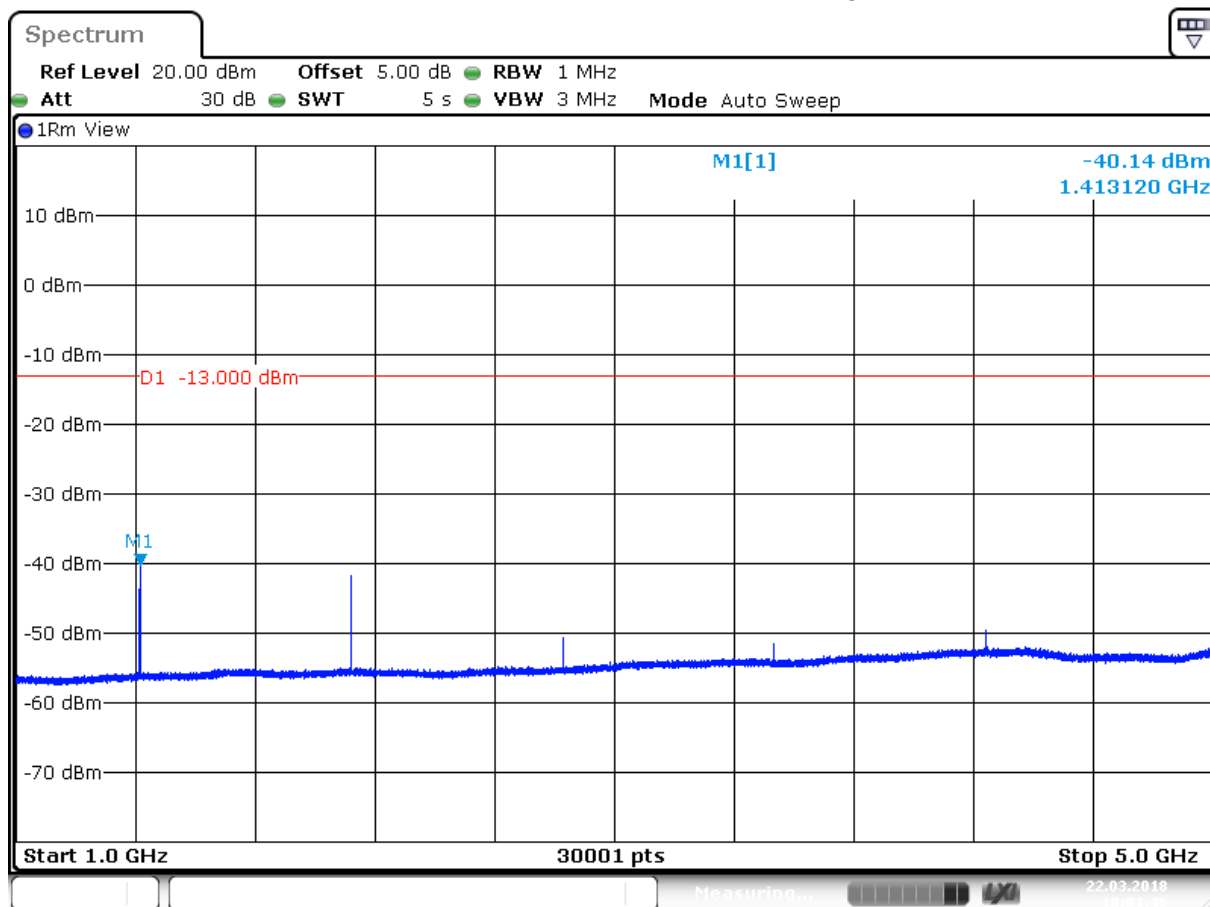
Page: 45 of 53



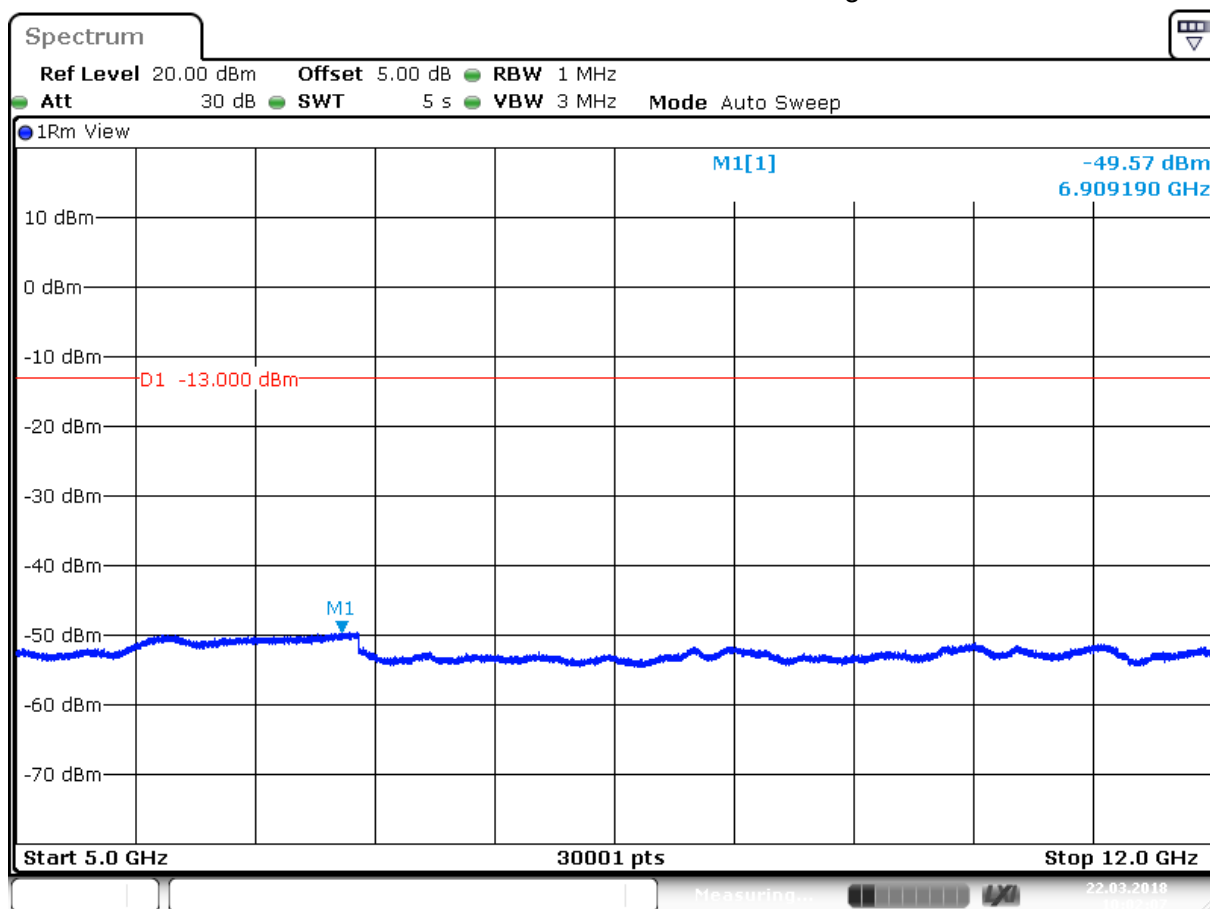
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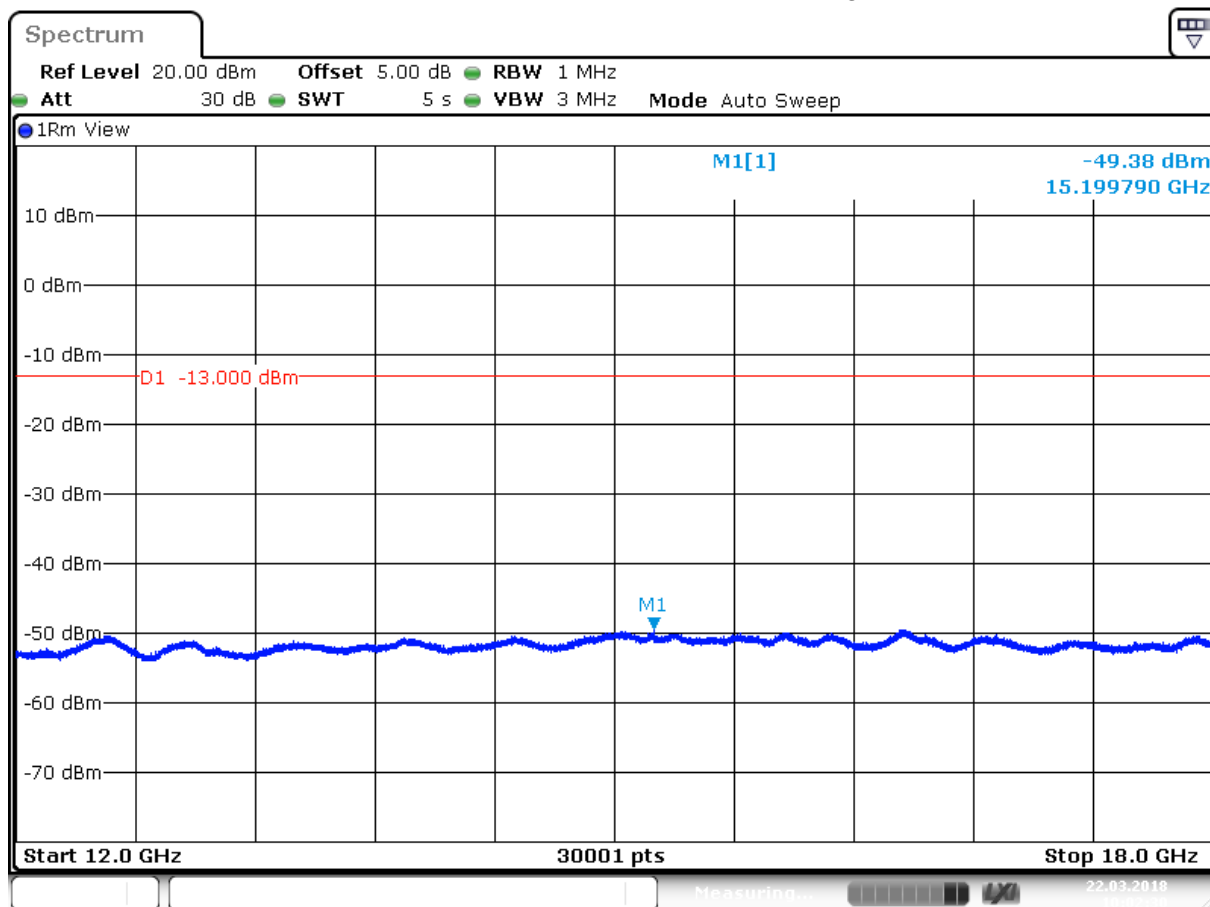
Date: 22 MAR 2018 10:01:25



Date: 22 MAR 2018 10:01:46



Date: 22 MAR 2018 10:02:08



Date: 22 MAR 2018 10:02:30



7 Field Strength of Spurious Radiation

7.1 For LTE

7.1.1 Test Band = LTE Band 17

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

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.206667	-81.51	-13.00	68.51	Vertical
191.980000	-79.95	-13.00	66.95	Vertical
1409.000000	-58.37	-13.00	45.37	Vertical
2114.000000	-52.42	-13.00	39.42	Vertical
2818.500000	-55.25	-13.00	42.25	Vertical
3522.600000	-66.40	-13.00	53.40	Vertical
55.246667	-77.89	-13.00	64.89	Horizontal
191.980000	-73.81	-13.00	60.81	Horizontal
1409.000000	-47.78	-13.00	34.78	Horizontal
2114.000000	-51.12	-13.00	38.12	Horizontal
2818.500000	-52.91	-13.00	39.91	Horizontal
3523.087500	-65.99	-13.00	52.99	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
63.786667	-81.89	-13.00	68.89	Vertical
244.526667	-78.53	-13.00	65.53	Vertical
1411.000000	-57.32	-13.00	44.32	Vertical
2117.000000	-51.87	-13.00	38.87	Vertical
2822.500000	-55.18	-13.00	42.18	Vertical
4233.375000	-61.94	-13.00	48.94	Vertical
62.620000	-77.88	-13.00	64.88	Horizontal
243.920000	-70.30	-13.00	57.30	Horizontal
1411.000000	-49.65	-13.00	36.65	Horizontal
2117.000000	-50.84	-13.00	37.84	Horizontal
2822.500000	-52.94	-13.00	39.94	Horizontal
3527.962500	-65.13	-13.00	52.13	Horizontal



7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.486667	-81.69	-13.00	68.69	Vertical
162.766667	-74.86	-13.00	61.86	Vertical
1413.000000	-58.37	-13.00	45.37	Vertical
2120.000000	-52.91	-13.00	39.91	Vertical
3532.837500	-66.11	-13.00	53.11	Vertical
4239.225000	-62.19	-13.00	49.19	Vertical
62.013333	-78.35	-13.00	65.35	Horizontal
135.606667	-71.91	-13.00	58.91	Horizontal
1413.000000	-50.58	-13.00	37.58	Horizontal
2120.000000	-50.76	-13.00	37.76	Horizontal
2826.500000	-54.16	-13.00	41.16	Horizontal
3532.837500	-65.16	-13.00	52.16	Horizontal

NOTE:

- 1) All modes are tested, but the data presented above is the worst case. 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 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
LTE Band 17	LTE/TM1 10MHz	LCH	TN	VL	-2.66	-0.00321	PASS
				VN	1.42	0.00171	PASS
				VH	-5.23	-0.00631	PASS
		MCH	TN	VL	-1.56	-0.00186	PASS
				VN	-2.80	-0.00335	PASS
				VH	1.72	0.00206	PASS
		HCH	TN	VL	-5.36	-0.00635	PASS
				VN	-4.90	-0.00581	PASS
				VH	-1.88	-0.00223	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
LTE Band 17	LTE/TM1 10MHz	LCH	VN	-30	-4.30	-0.00519	PASS
				-20	-2.38	-0.00287	PASS
				-10	-2.77	-0.00334	PASS
				0	1.20	0.00145	PASS
				10	1.22	0.00147	PASS
				20	0.59	0.00071	PASS
				30	-0.68	-0.00082	PASS
				40	-2.70	-0.00326	PASS
				50	-6.02	-0.00726	PASS
		MCH	VN	-30	-5.44	-0.00650	PASS
				-20	-5.20	-0.00622	PASS
				-10	-3.32	-0.00397	PASS
				0	-1.55	-0.00185	PASS
				10	-2.27	-0.00271	PASS
				20	-0.89	-0.00106	PASS
				30	-3.09	-0.00369	PASS
				40	-4.88	-0.00583	PASS
				50	-5.42	-0.00648	PASS
		HCH	VN	-30	-6.66	-0.00789	PASS
				-20	-3.24	-0.00384	PASS
				-10	0.69	0.00082	PASS
				0	-2.40	-0.00284	PASS
				10	2.44	0.00289	PASS
				20	-0.39	-0.00046	PASS
				30	-2.49	-0.00295	PASS
				40	-4.39	-0.00520	PASS
				50	-3.88	-0.00460	PASS

The End