Appendix B

E-UTRA Band 13

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1 Effective (Isotropic) Radiated Power Output Data

Effective Radiated Power of Transmitter (ERP) for LTE BAND 13

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND13	LTE/TM1	5M	LCH	RB1#0	21.65	22.5	34.77	PASS
				RB1#13	21.65	22.5	34.77	PASS
				RB1#24	21.55	22.4	34.77	PASS
				RB12#0	22.37	23.22	34.77	PASS
				RB12#6	22.64	23.49	34.77	PASS
				RB12#13	22.74	23.59	34.77	PASS
				RB25#0	21.63	22.48	34.77	PASS
			MCH	RB1#0	21.62	22.47	34.77	PASS
				RB1#13	21.68	22.53	34.77	PASS
				RB1#24	21.61	22.46	34.77	PASS
				RB12#0	22.49	23.34	34.77	PASS
				RB12#6	22.96	23.81	34.77	PASS
				RB12#13	22.54	23.39	34.77	PASS
				RB25#0	21.60	22.45	34.77	PASS
			HCH	RB1#0	21.57	22.42	34.77	PASS
				RB1#13	21.51	22.36	34.77	PASS
				RB1#24	21.49	22.34	34.77	PASS
				RB12#0	22.81	23.66	34.77	PASS
				RB12#6	22.64	23.49	34.77	PASS
				RB12#13	22.39	23.24	34.77	PASS
				RB25#0	21.48	22.33	34.77	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND13	LTE/TM2	5M	LCH	RB1#0	20.65	21.5	34.77	PASS
				RB1#13	20.69	21.54	34.77	PASS
				RB1#24	20.65	21.5	34.77	PASS
				RB12#0	21.55	22.4	34.77	PASS
				RB12#6	21.60	22.45	34.77	PASS
				RB12#13	21.87	22.72	34.77	PASS
				RB25#0	20.59	21.44	34.77	PASS
			MCH	RB1#0	20.53	21.38	34.77	PASS
				RB1#13	20.56	21.41	34.77	PASS
				RB1#24	20.44	21.29	34.77	PASS
				RB12#0	21.53	22.38	34.77	PASS
				RB12#6	21.69	22.54	34.77	PASS
				RB12#13	21.47	22.32	34.77	PASS
				RB25#0	20.71	21.56	34.77	PASS
			HCH	RB1#0	20.54	21.39	34.77	PASS
				RB1#13	20.50	21.35	34.77	PASS
				RB1#24	20.61	21.46	34.77	PASS
				RB12#0	21.45	22.3	34.77	PASS
				RB12#6	21.69	22.54	34.77	PASS
				RB12#13	21.68	22.53	34.77	PASS
				RB25#0	20.56	21.41	34.77	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND13	LTE/TM1	10M	MCH	RB1#0	22.53	23.38	34.77	PASS
				RB1#25	22.96	23.81	34.77	PASS
				RB1#49	22.37	23.22	34.77	PASS
				RB25#0	21.65	22.5	34.77	PASS
				RB25#13	21.67	22.52	34.77	PASS
				RB25#25	21.55	22.4	34.77	PASS
				RB50#0	21.67	22.52	34.77	PASS

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

EIRP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBi]

b: SGP=Signal Generator Level

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2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
Band 13	TM1/10M	MCH	4.64	13	PASS

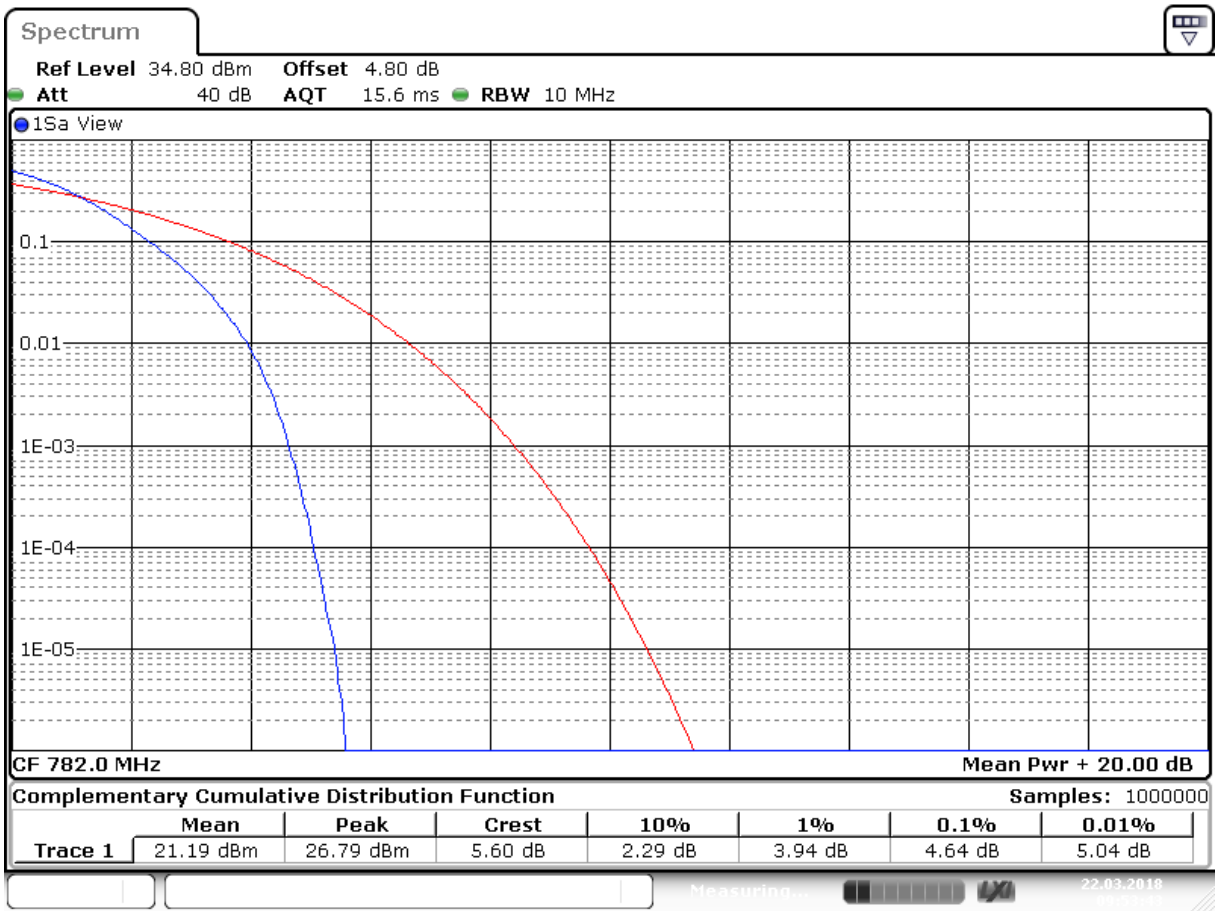
Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE band13

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

2.1.1.1.1 Test Channel = MCH



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3 Modulation Characteristics

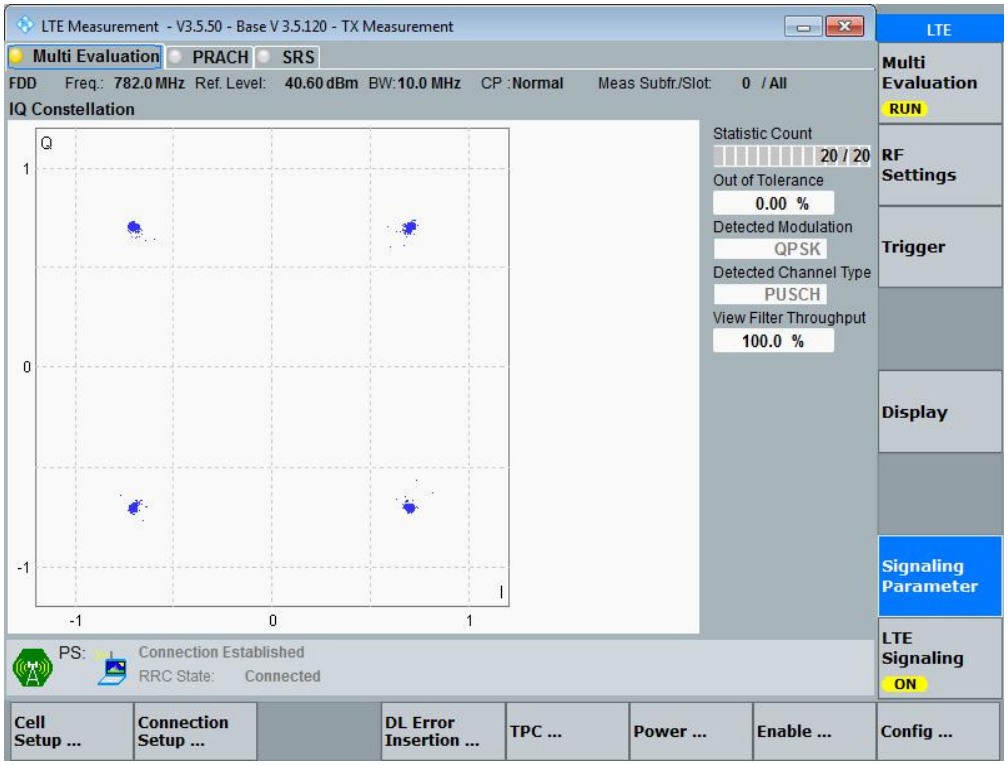
Part I - Test Plots

3.1 For LTE

3.1.1 Test Band = LTE band13

3.1.1.1 Test Mode = LTE /TM1 10MHz

3.1.1.1.1 Test Channel = MCH



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4 Bandwidth

Part I - Test Results

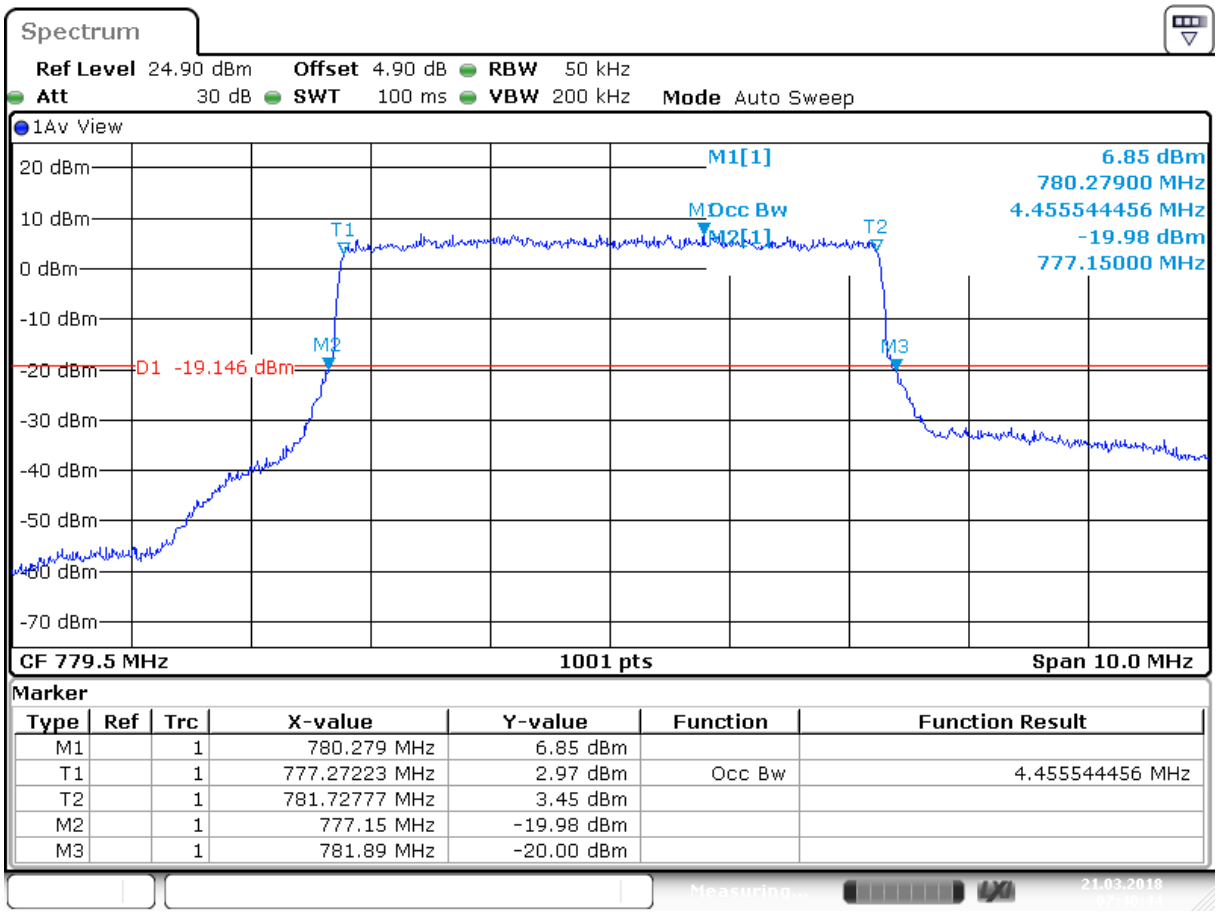
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 13	TM1/ 5MHz	LCH	4.456	4.740	PASS
		MCH	4.476	4.720	PASS
		HCH	4.466	4.710	PASS
	TM2/ 5MHz	LCH	4.466	4.700	PASS
		MCH	4.476	4.760	PASS
		HCH	4.476	4.690	PASS
	TM1/10MHz	MCH	8.891	9.280	PASS

4.1 For LTE

4.1.1 Test Band = LTE band13

4.1.1.1 Test Mode = LTE/TM1 5MHz

4.1.1.1.1 Test Channel = LCH



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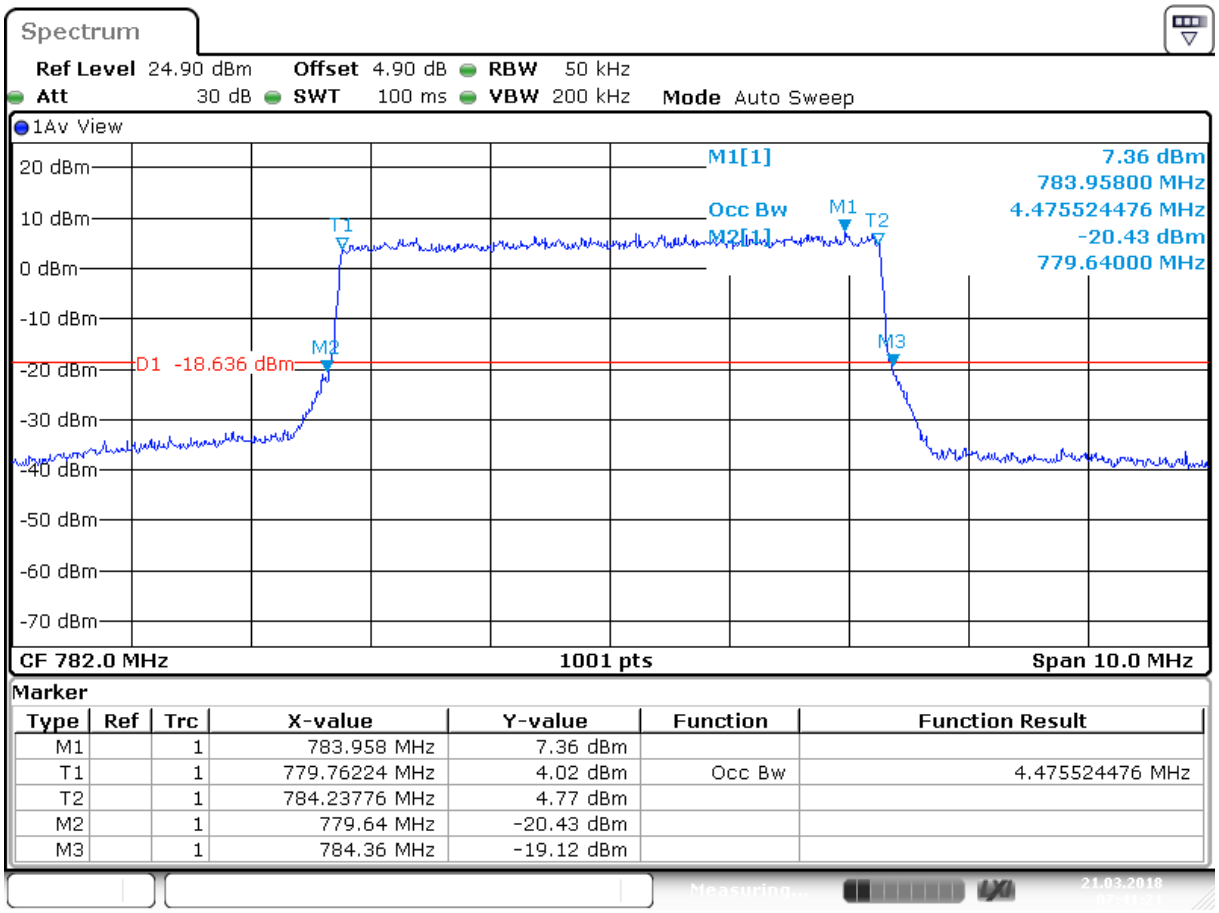
4.1.1.1.2 Test Channel = MCH



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	783.958 MHz	7.36 dBm		
T1		1	779.76224 MHz	4.02 dBm	Occ Bw	4.475524476 MHz
T2		1	784.23776 MHz	4.77 dBm		
M2		1	779.64 MHz	-20.43 dBm		
M3		1	784.36 MHz	-19.12 dBm		

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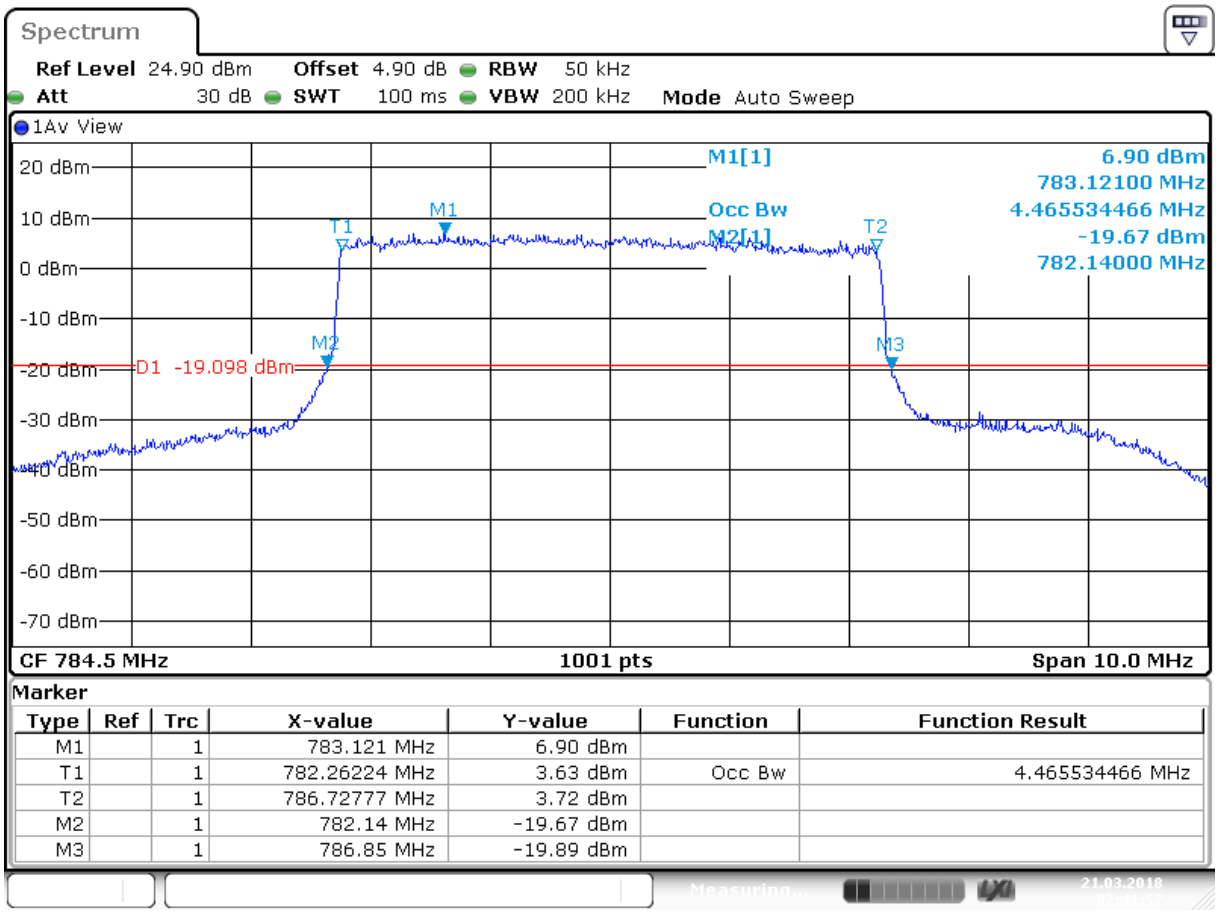
4.1.1.1.3 Test Channel = HCH



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	783.121 MHz	6.90 dBm		
T1		1	782.26224 MHz	3.63 dBm	Occ Bw	4.465534466 MHz
T2		1	786.72777 MHz	3.72 dBm		
M2		1	782.14 MHz	-19.67 dBm		
M3		1	786.85 MHz	-19.89 dBm		

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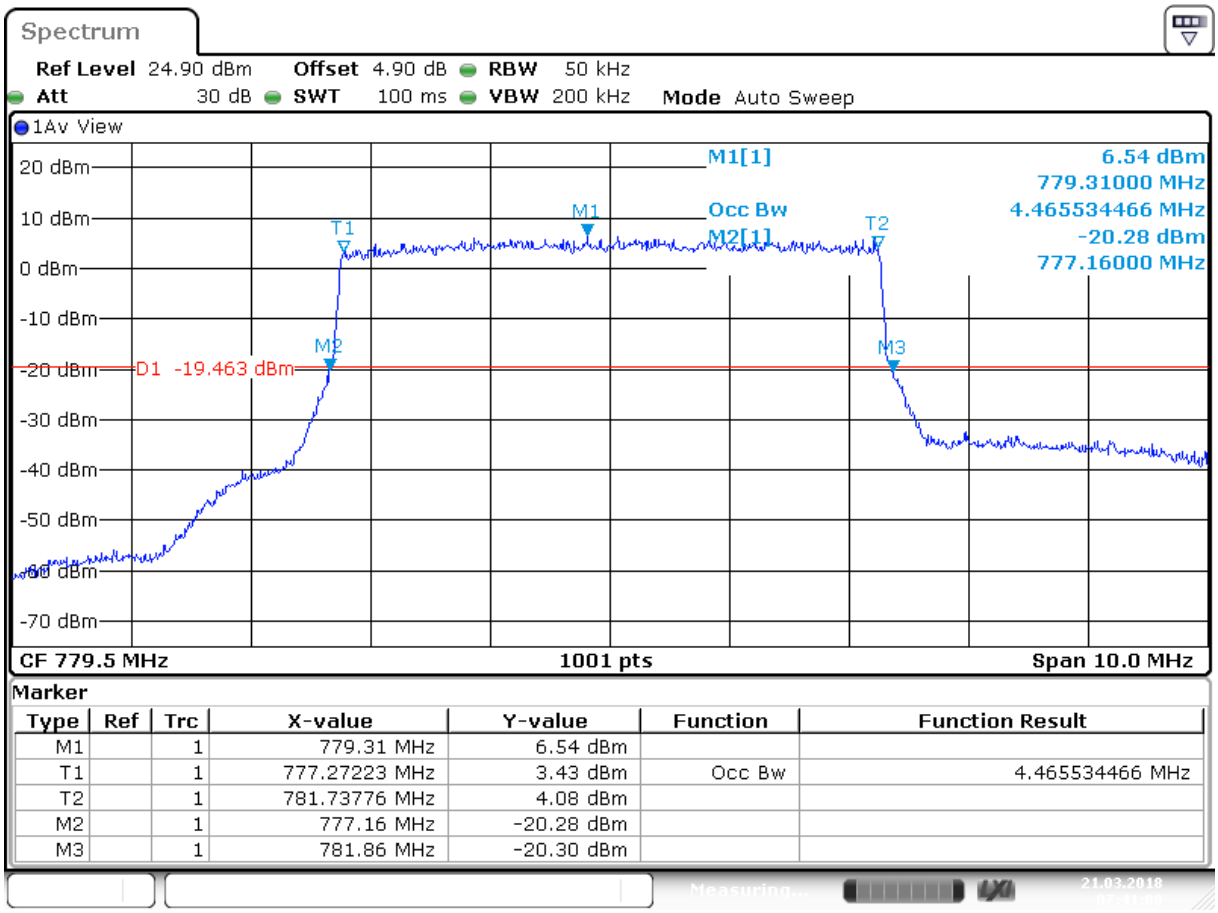
4.1.1.2 Test Mode = LTE/TM2 5MHz

4.1.1.2.1 Test Channel = LCH



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	779.31 MHz	6.54 dBm		
T1		1	777.27223 MHz	3.43 dBm	Occ Bw	4.465534466 MHz
T2		1	781.73776 MHz	4.08 dBm		
M2		1	777.16 MHz	-20.28 dBm		
M3		1	781.86 MHz	-20.30 dBm		

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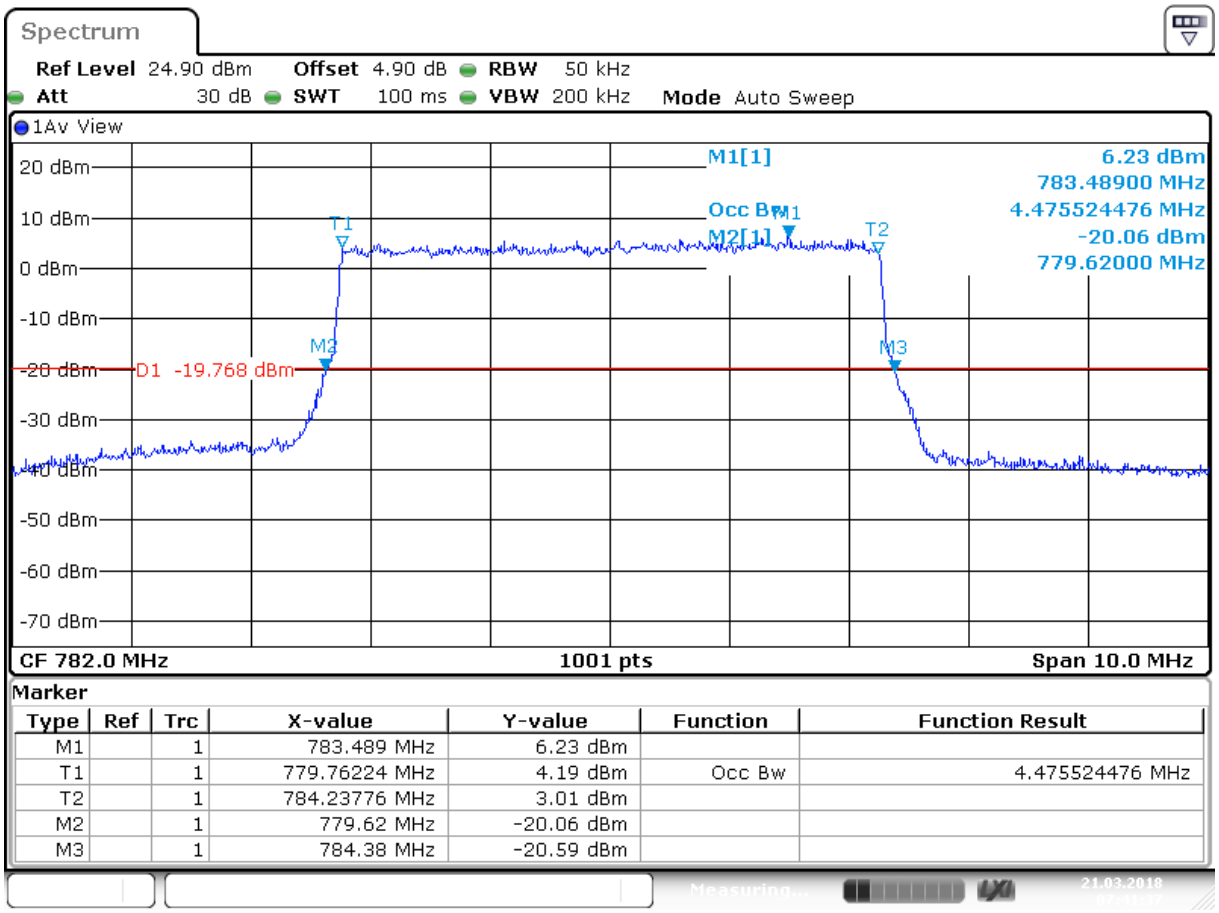
4.1.1.2.2 Test Channel = MCH



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	783.489 MHz	6.23 dBm		
T1		1	779.76224 MHz	4.19 dBm	Occ Bw	4.475524476 MHz
T2		1	784.23776 MHz	3.01 dBm		
M2		1	779.62 MHz	-20.06 dBm		
M3		1	784.38 MHz	-20.59 dBm		

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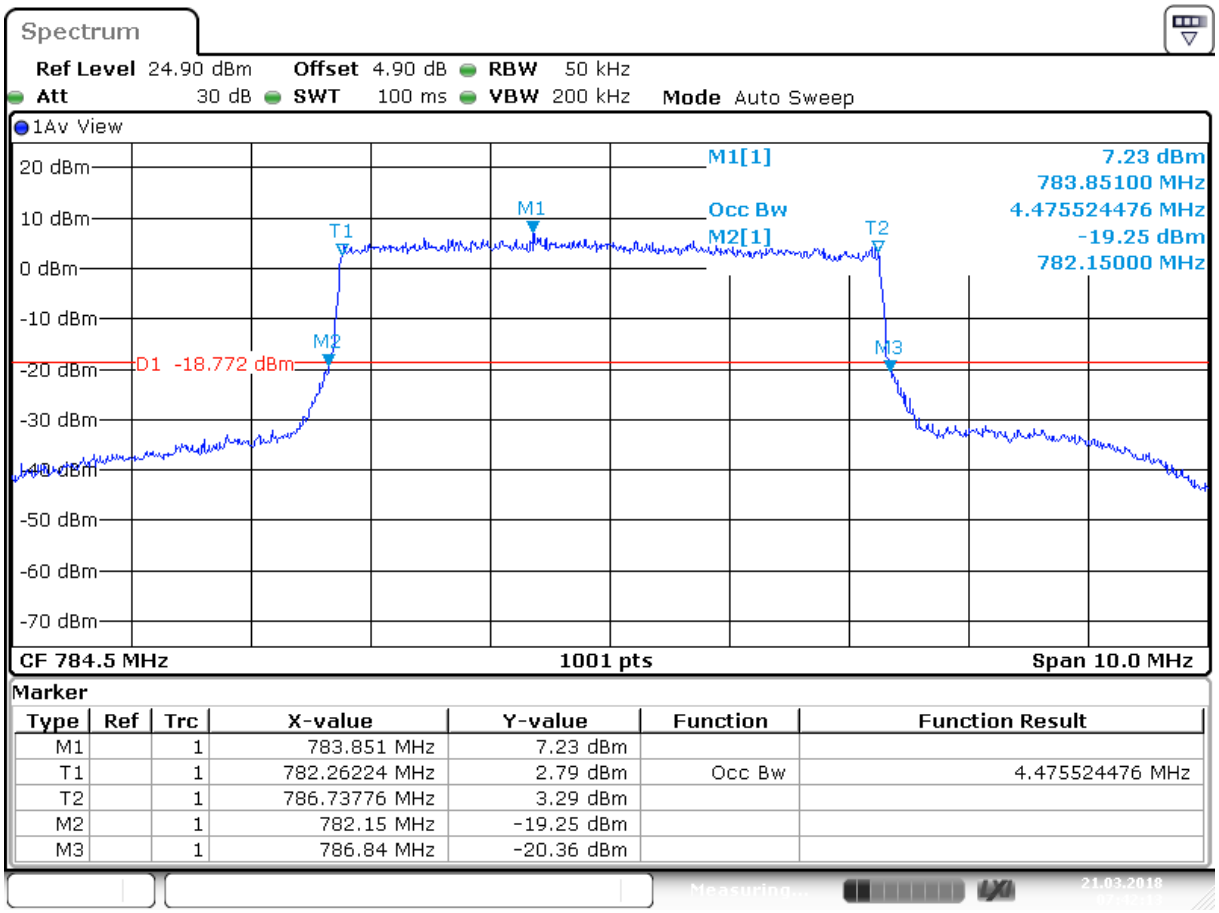
4.1.1.2.3 Test Channel = HCH



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	783.851 MHz	7.23 dBm		
T1		1	782.26224 MHz	2.79 dBm	Occ Bw	4.475524476 MHz
T2		1	786.73776 MHz	3.29 dBm		
M2		1	782.15 MHz	-19.25 dBm		
M3		1	786.84 MHz	-20.36 dBm		

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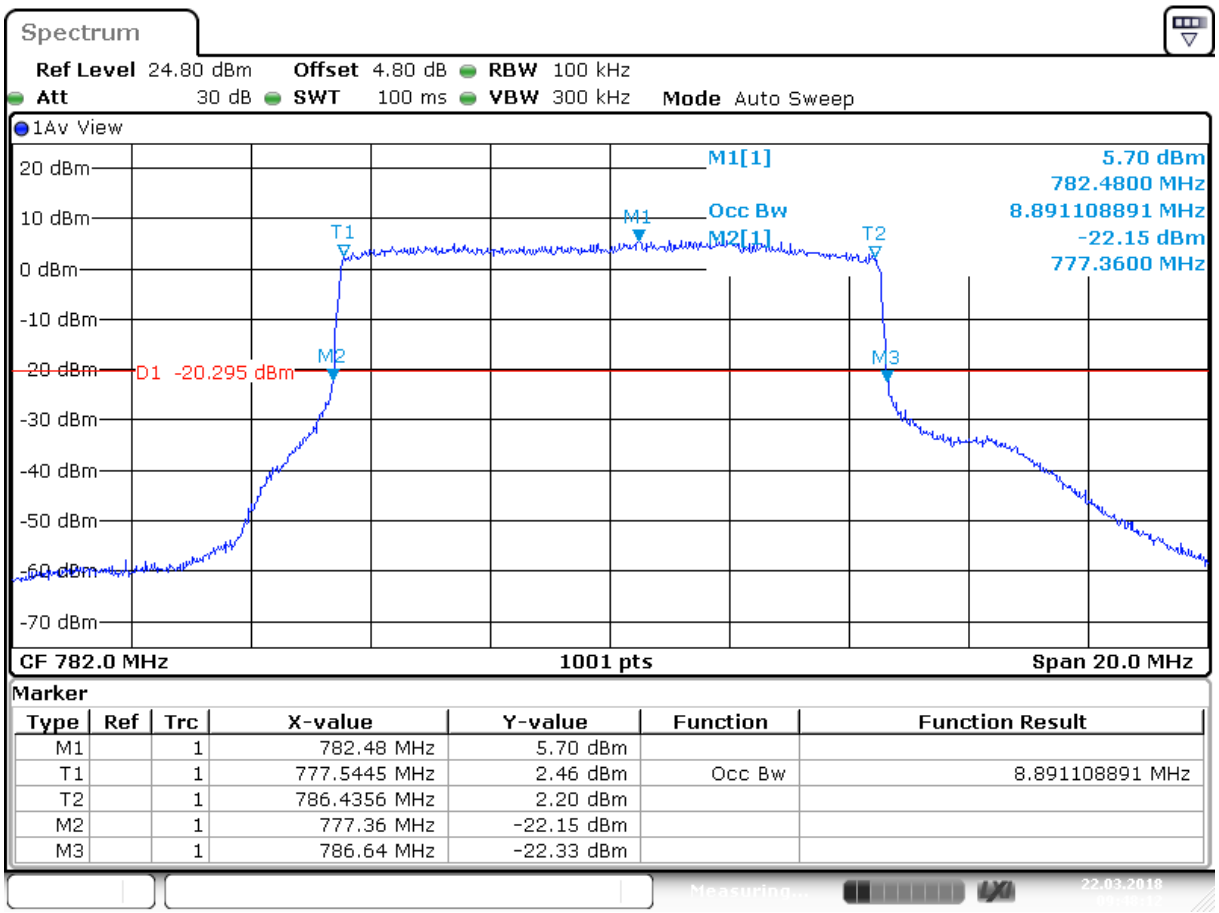
4.1.1.3 Test Mode = LTE/TM1 10MHz

4.1.1.3.1 Test Channel = MCH



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	782.48 MHz	5.70 dBm		
T1		1	777.5445 MHz	2.46 dBm	Occ Bw	8.891108891 MHz
T2		1	786.4356 MHz	2.20 dBm		
M2		1	777.36 MHz	-22.15 dBm		
M3		1	786.64 MHz	-22.33 dBm		

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5 Band Edges Compliance

Part I –

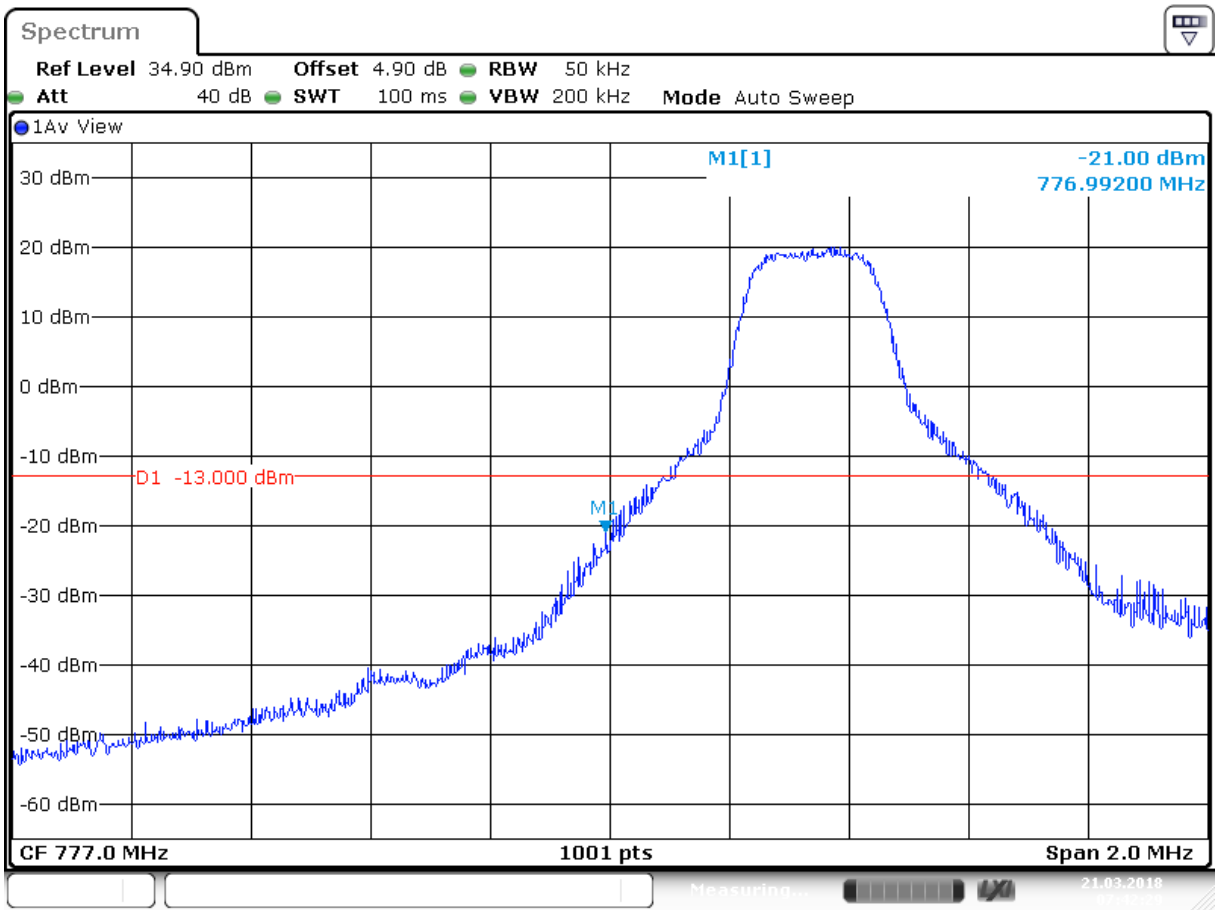
5.1 For LTE

5.1.1 Test Band = LTE band13

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 07:42:29

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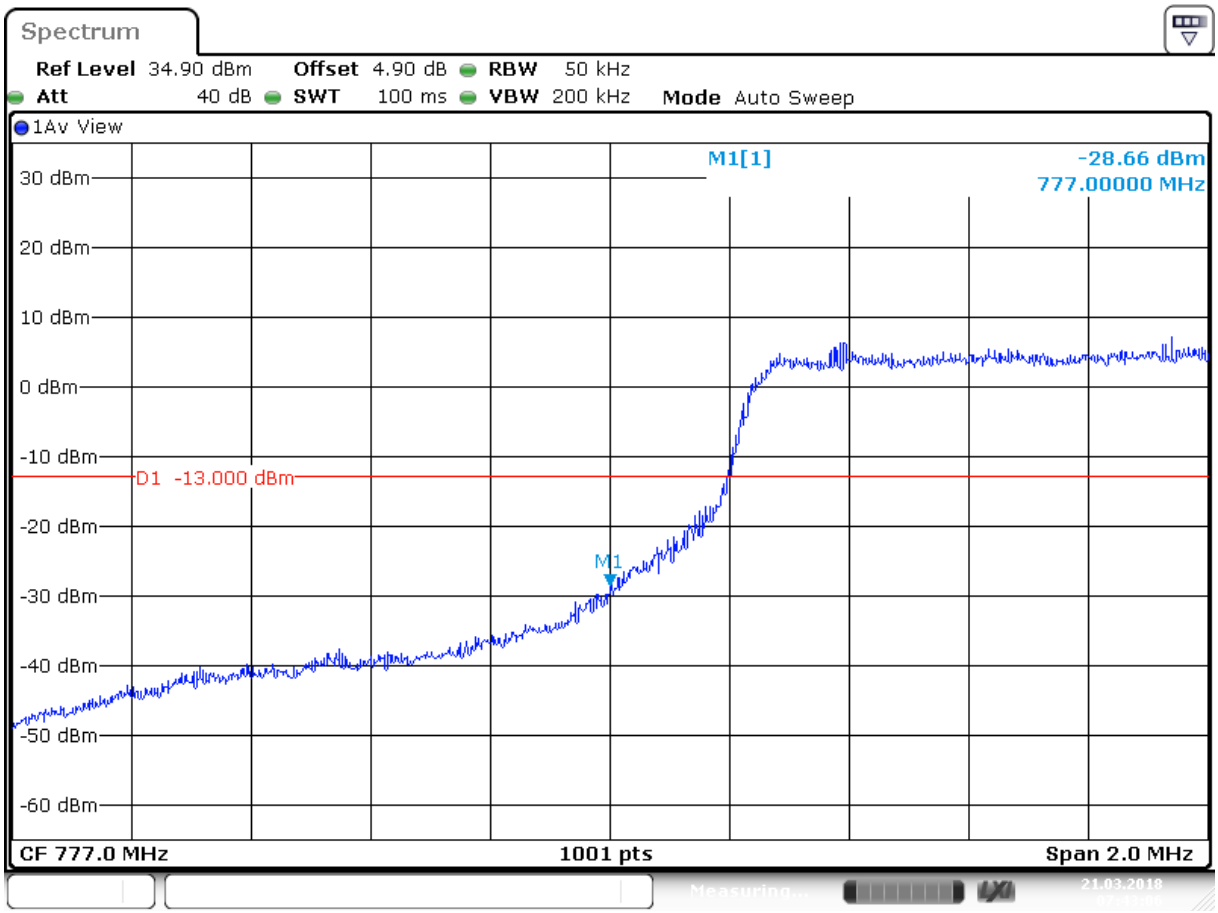
5.1.1.1.1.2 Test RB=25RB



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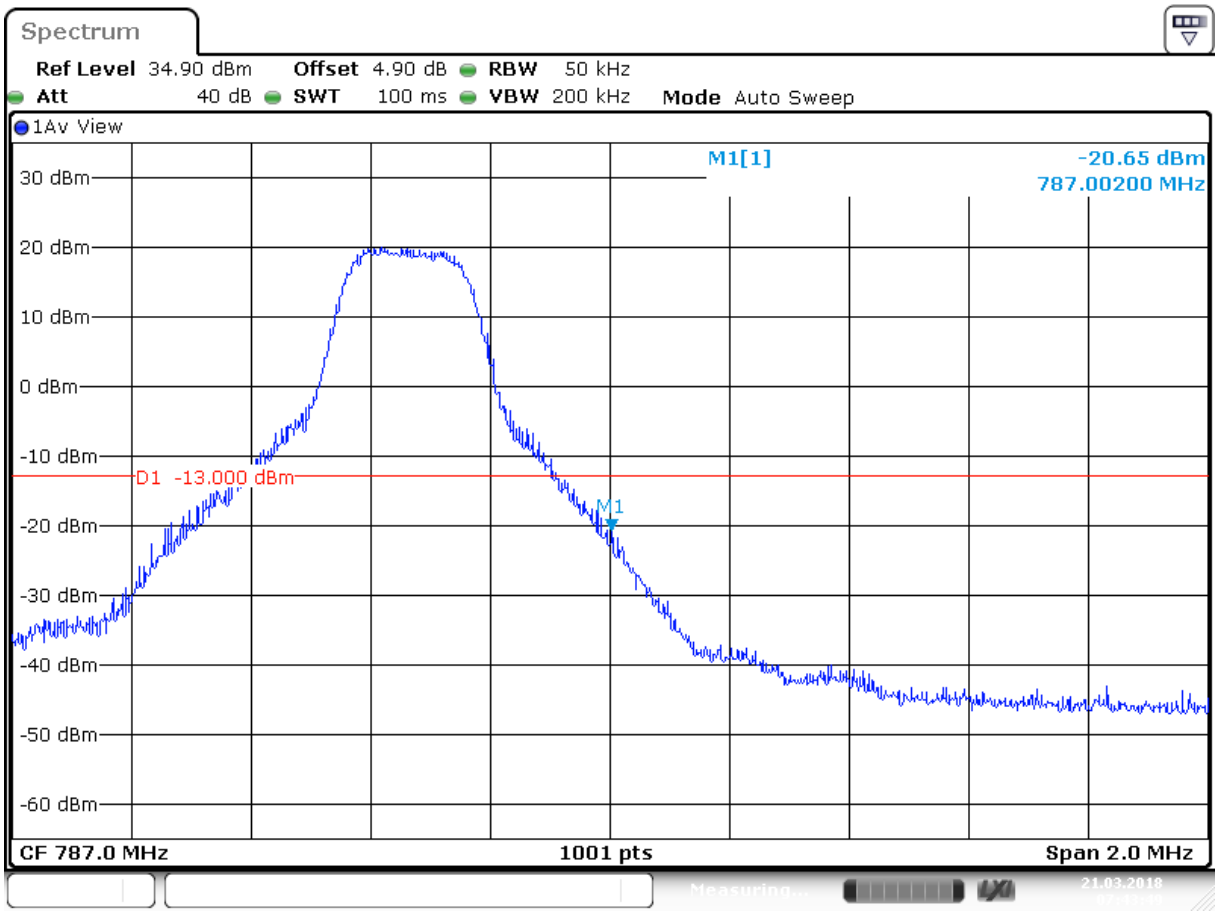
5.1.1.1.2 Test Channel = HCH

5.1.1.1.2.1 Test RB=1RB



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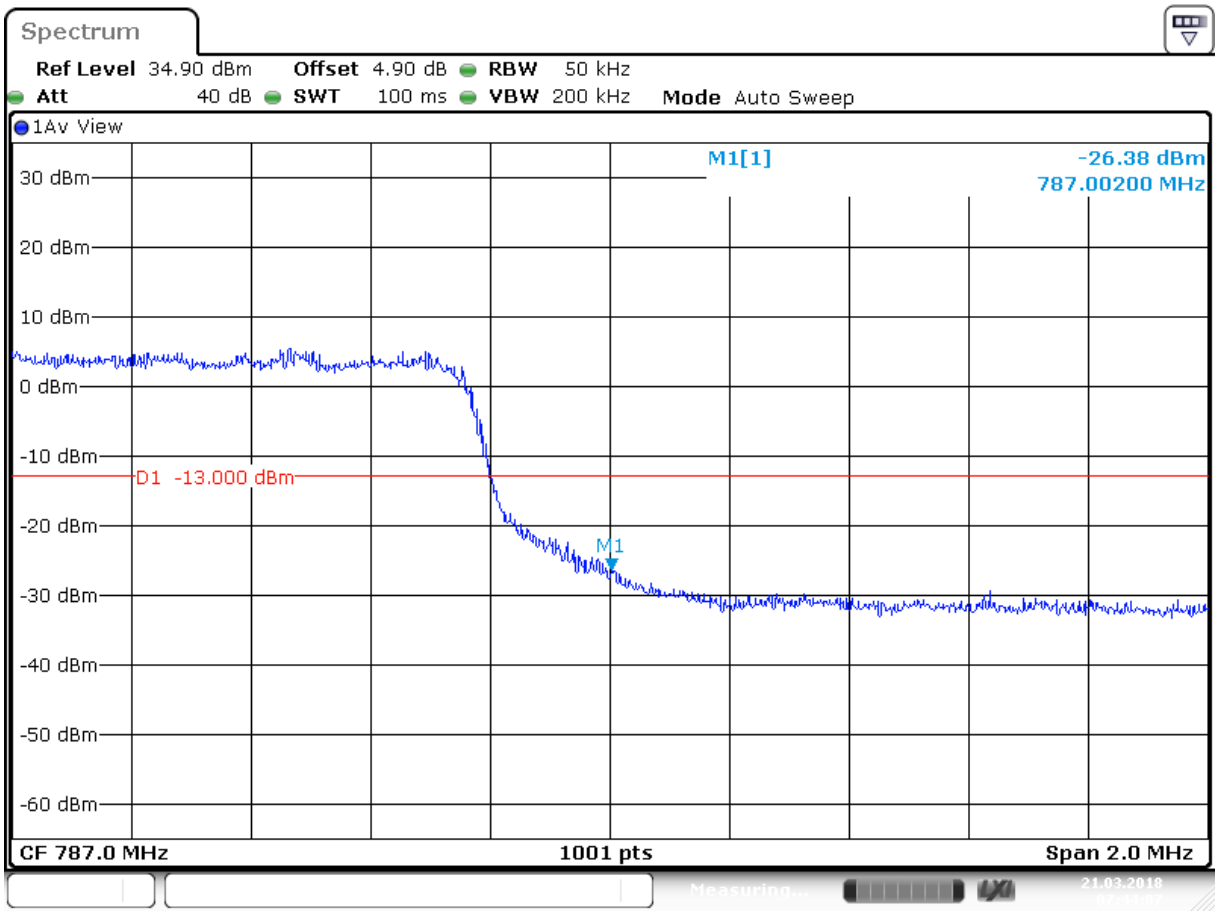
5.1.1.1.2.2 Test RB=25RB



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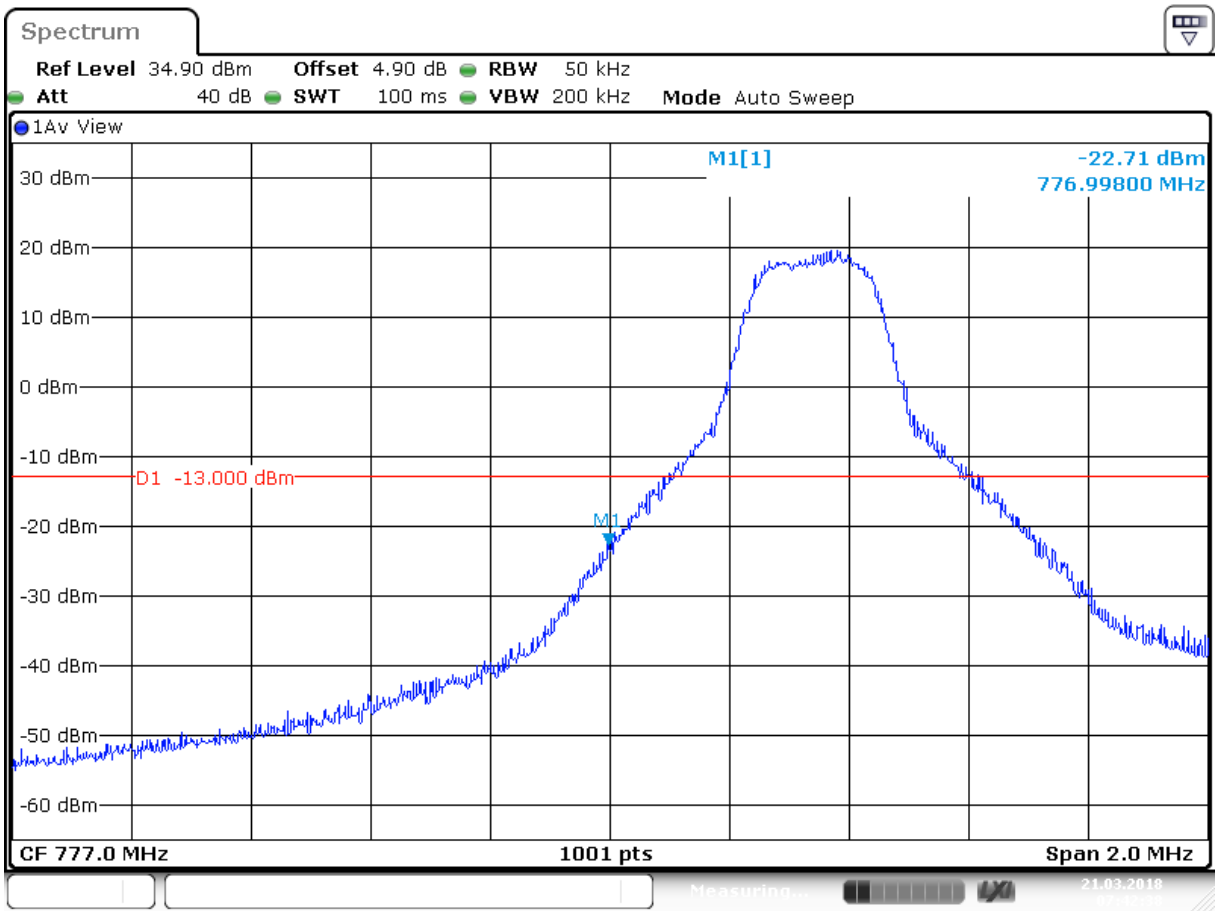
5.1.1.2 Test Mode = LTE/TM2 5MHz

5.1.1.2.1 Test Channel = LCH

5.1.1.2.1.1 Test RB=1RB



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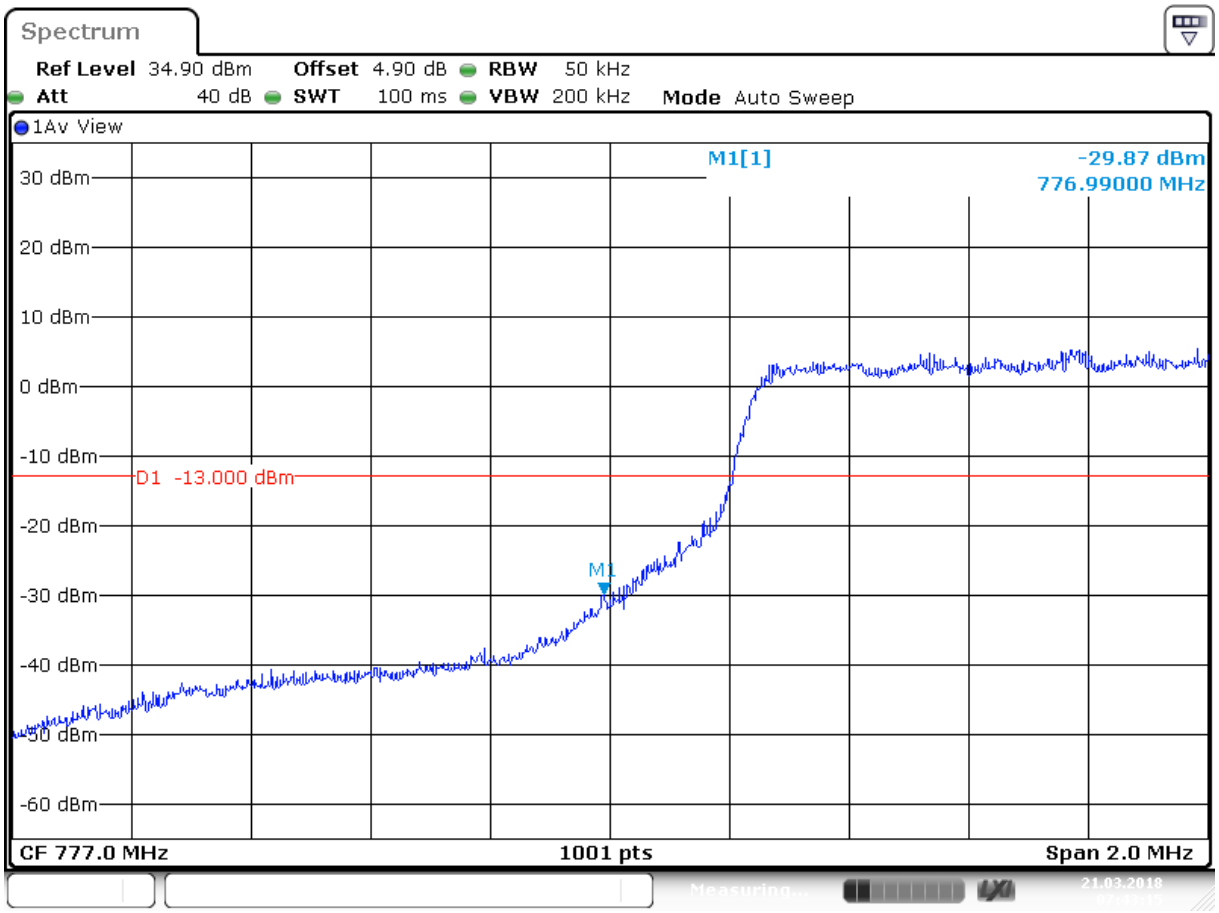
5.1.1.2.1.2 Test RB=25RB



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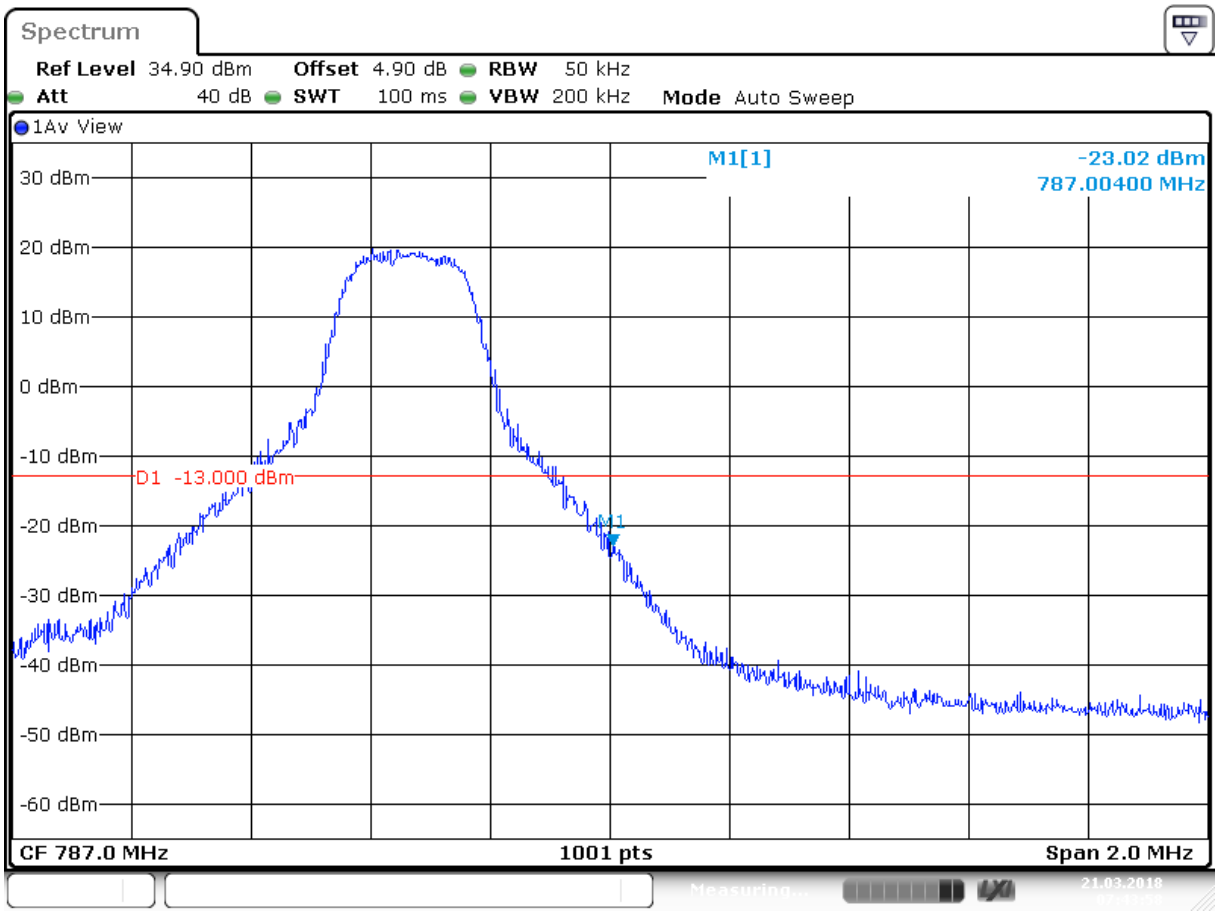
5.1.1.2.2 Test Channel = HCH

5.1.1.2.2.1 Test RB=1RB



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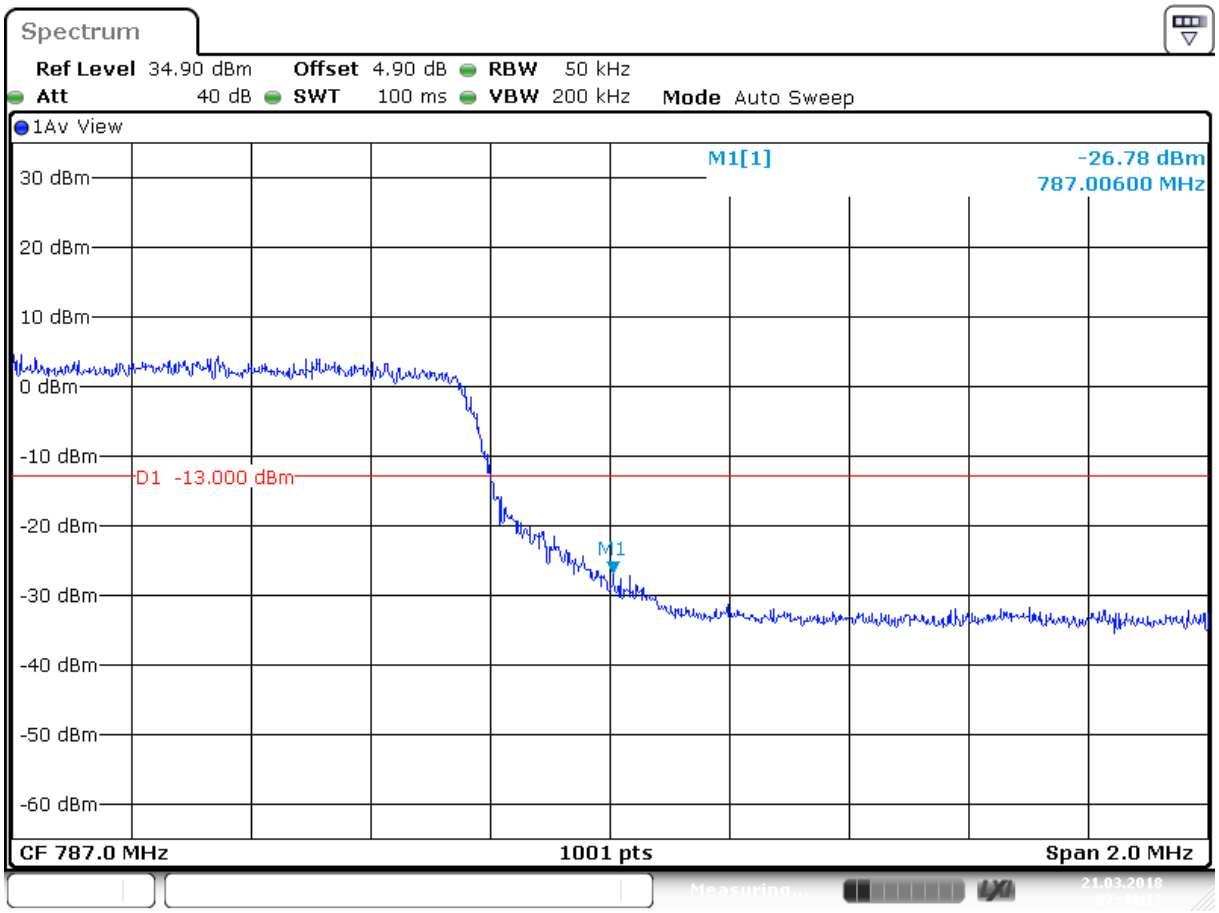
5.1.1.2.2.2 Test RB=25RB



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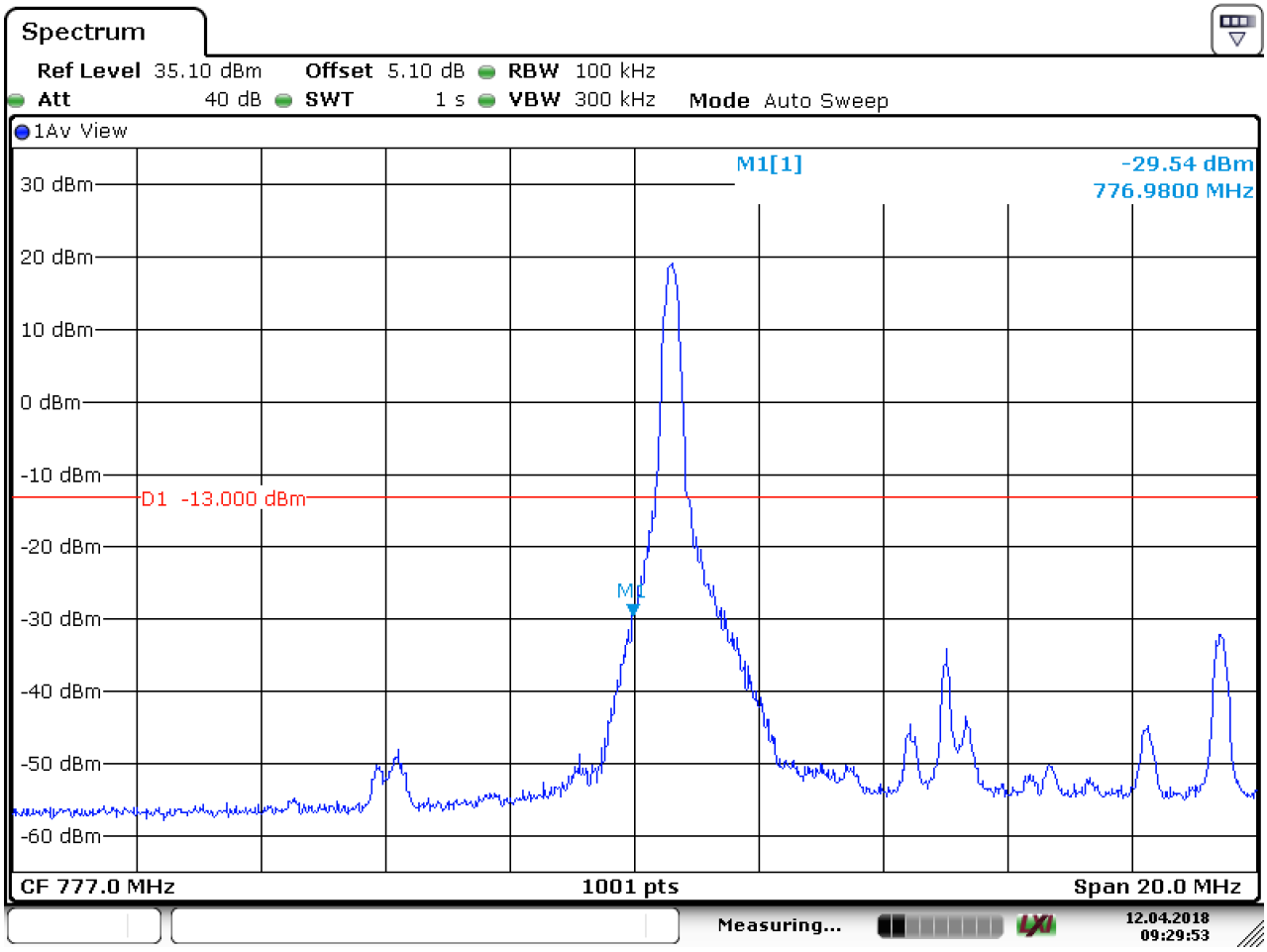
5.1.1.3 Test Mode = LTE/TM1 10MHz

5.1.1.3.1 Test Channel = LCH

5.1.1.3.1.1 Test RB=1RB



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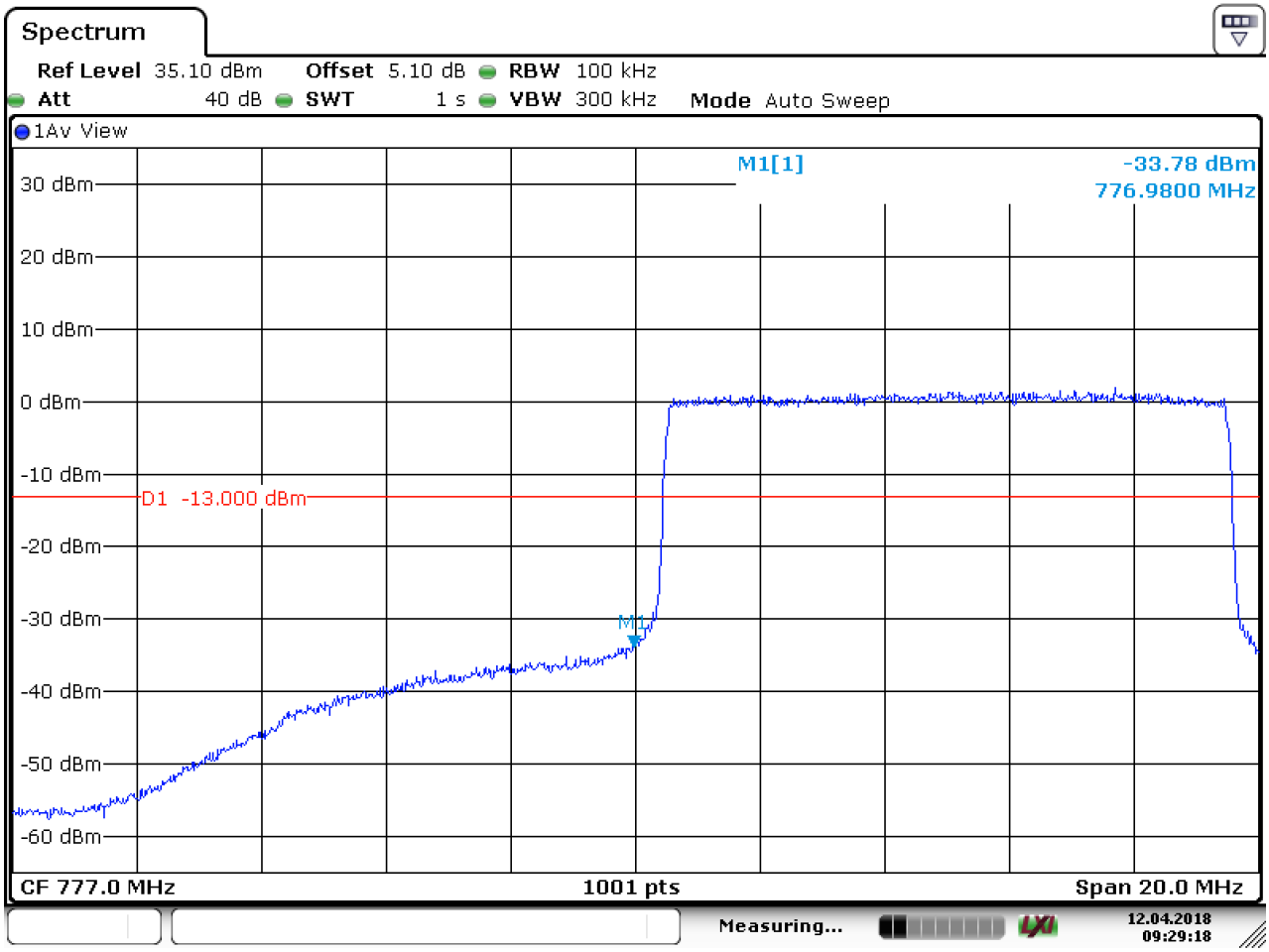
5.1.1.3.1.2 Test RB=50RB



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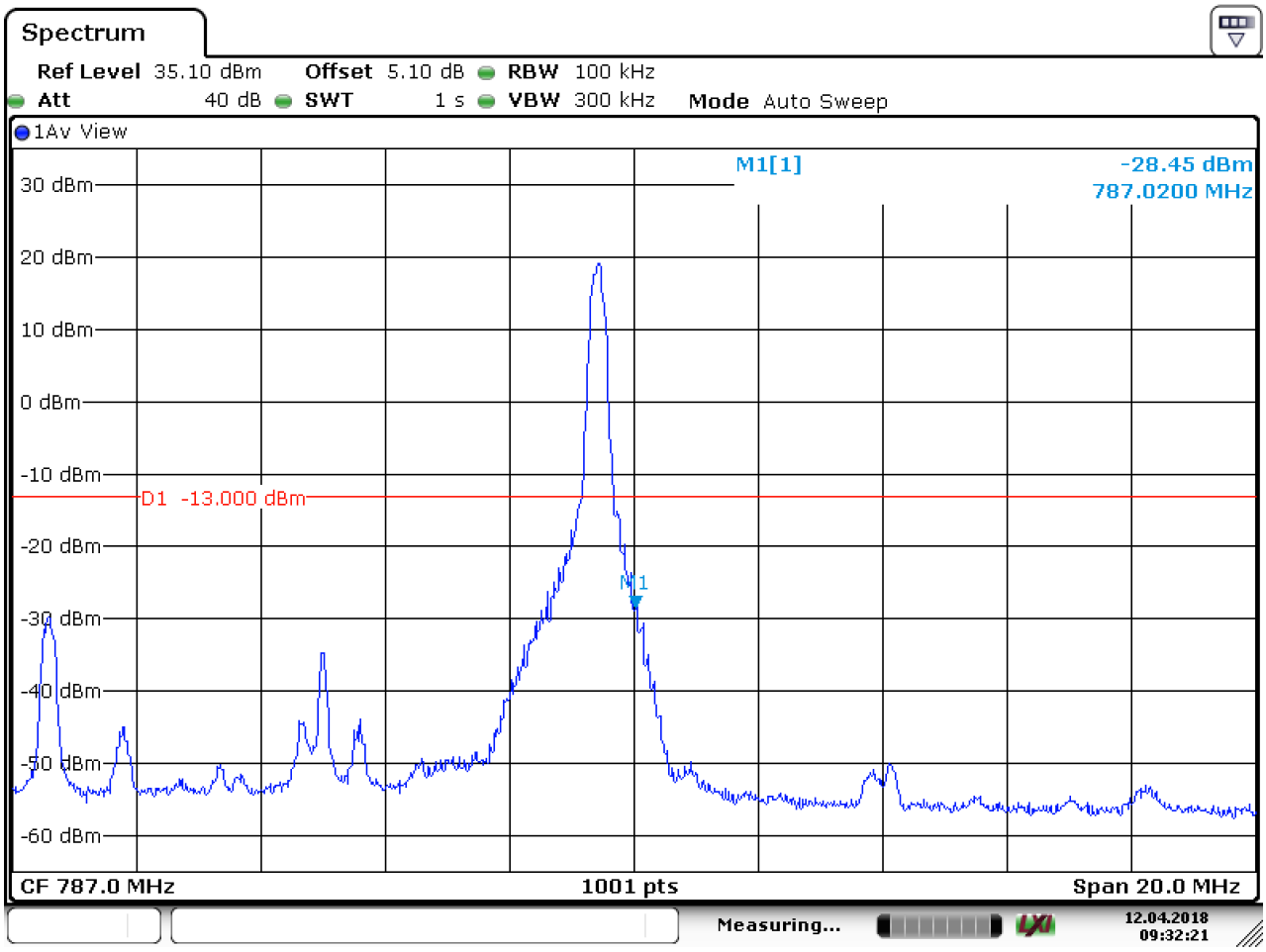
5.1.1.3.2 Test Channel = HCH

5.1.1.3.2.1 Test RB=1RB



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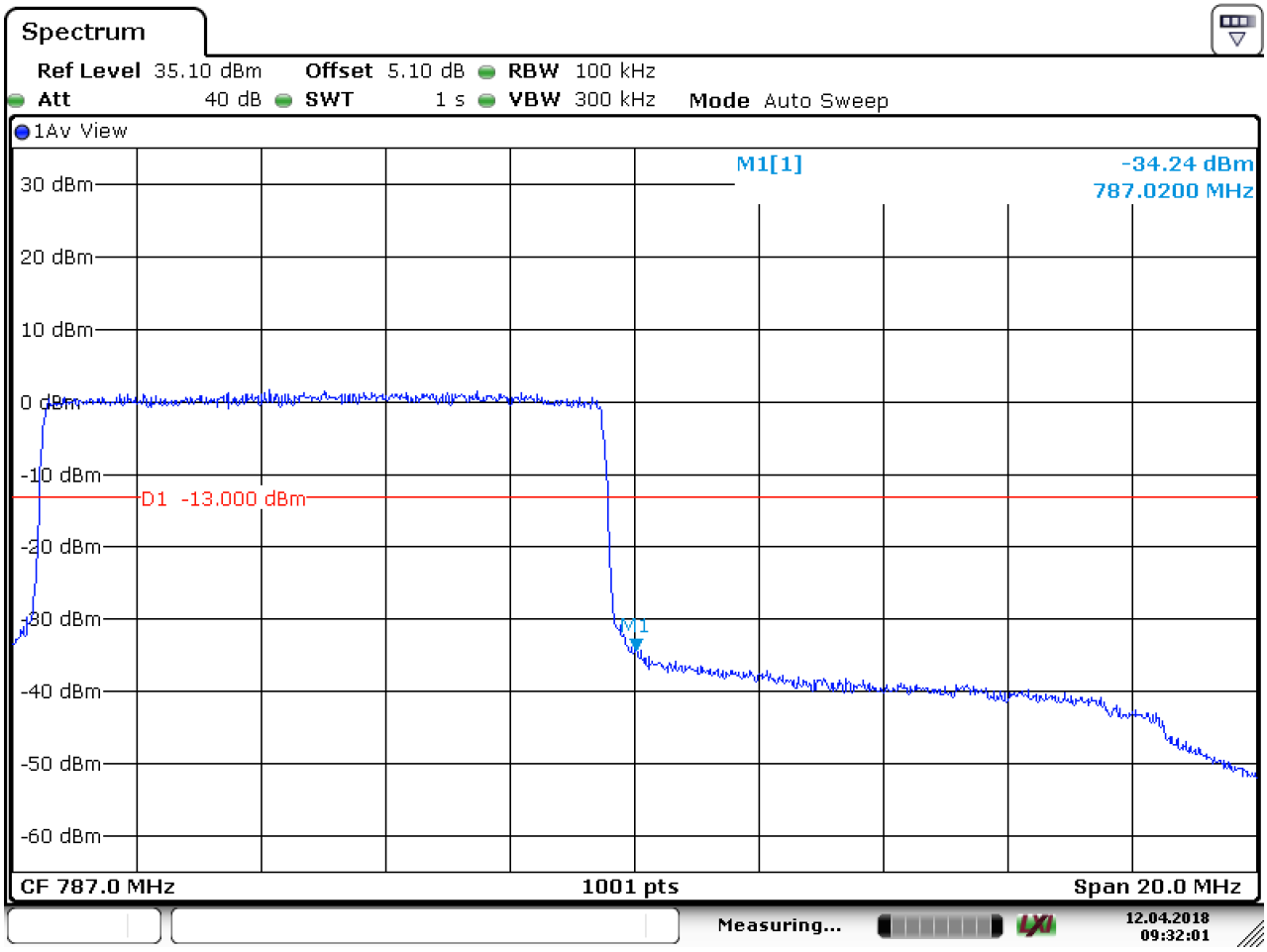
5.1.1.3.2.2 Test RB=50RB



Date: 12.APR.2018 09:32:01

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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.

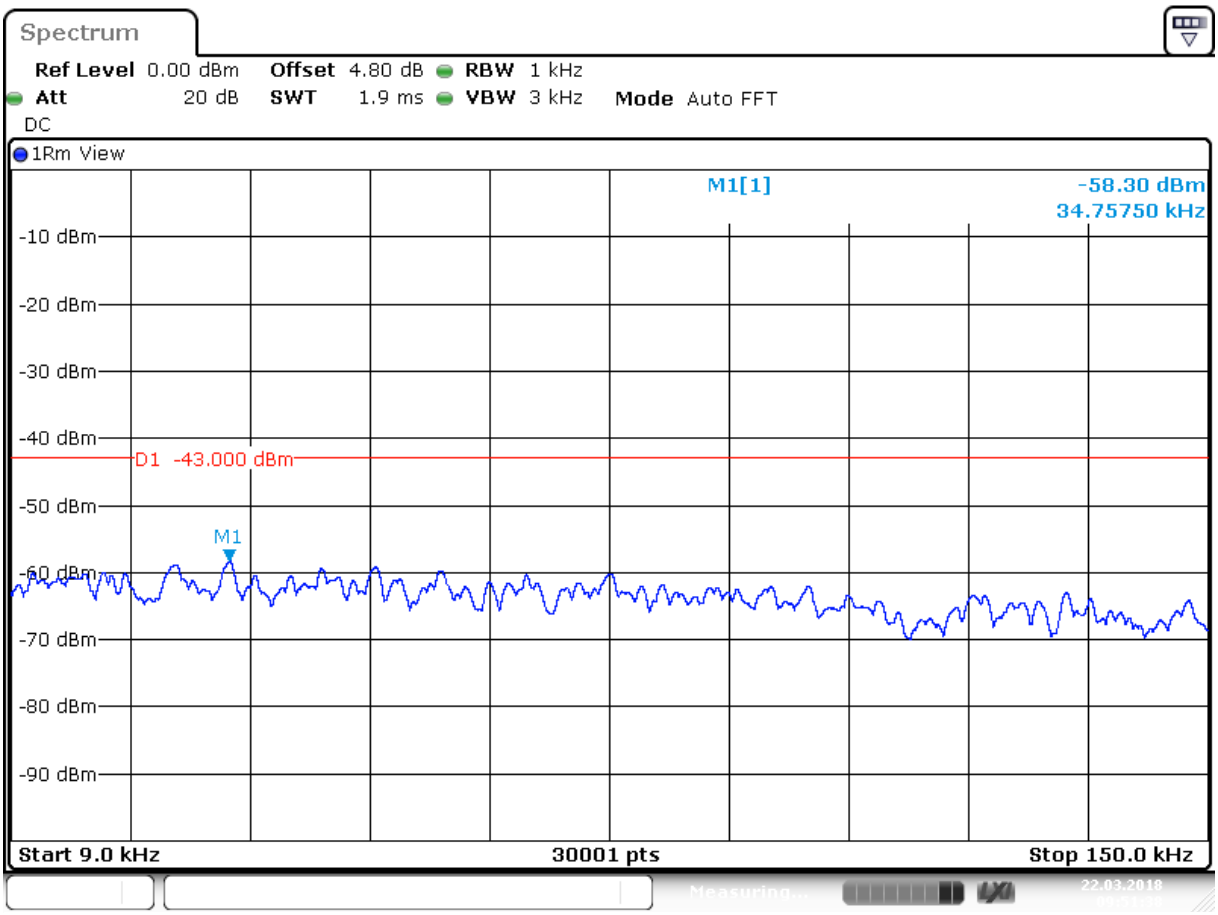
Part I - Test Plots

6.1 For LTE

6.1.1 Test Band = LTE band13

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

6.1.1.1.1 Test Channel = MCH



Date: 22.MAR.2018 09:51:38

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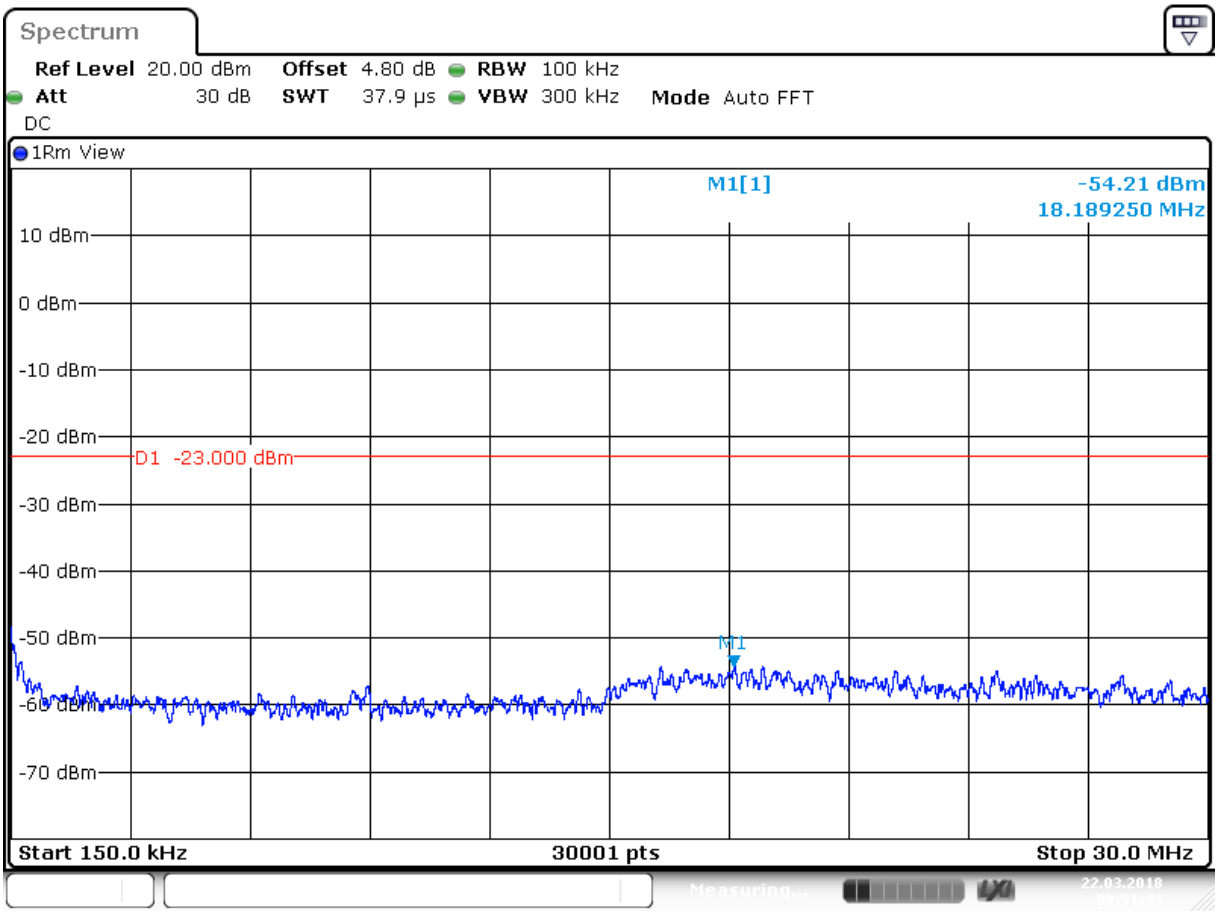

Date:22.MAR.2018 09:51:44

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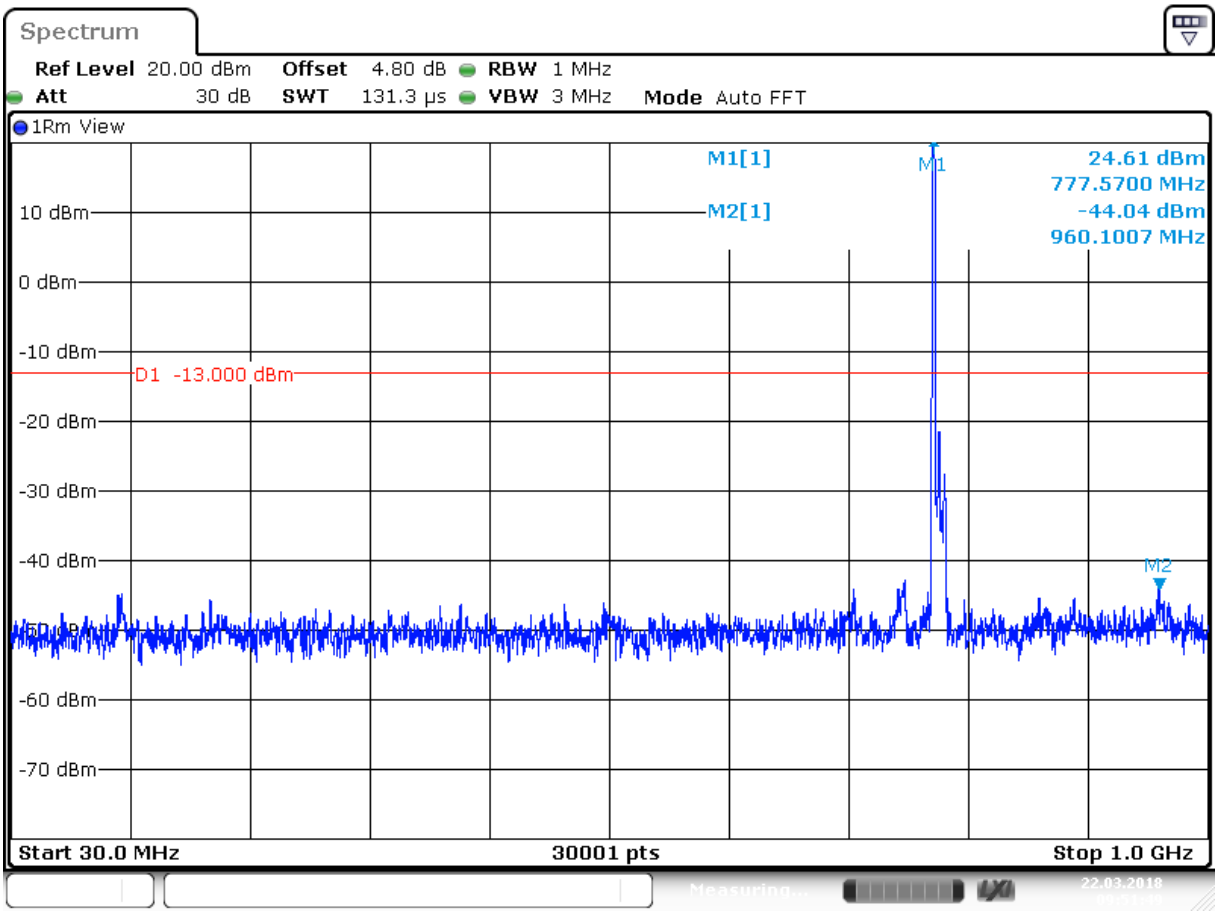

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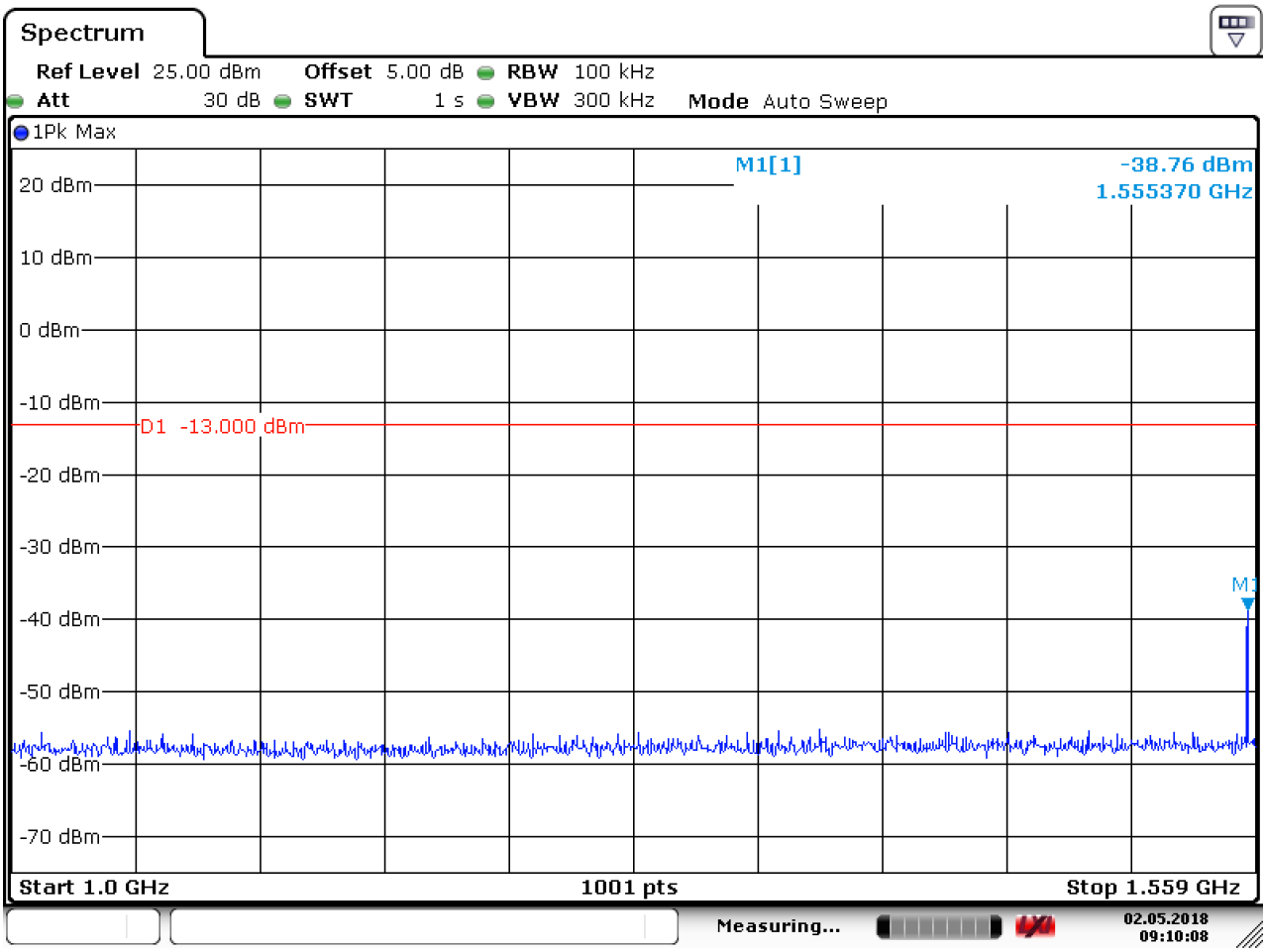

Date: 2.MAY.2018 09:10:08

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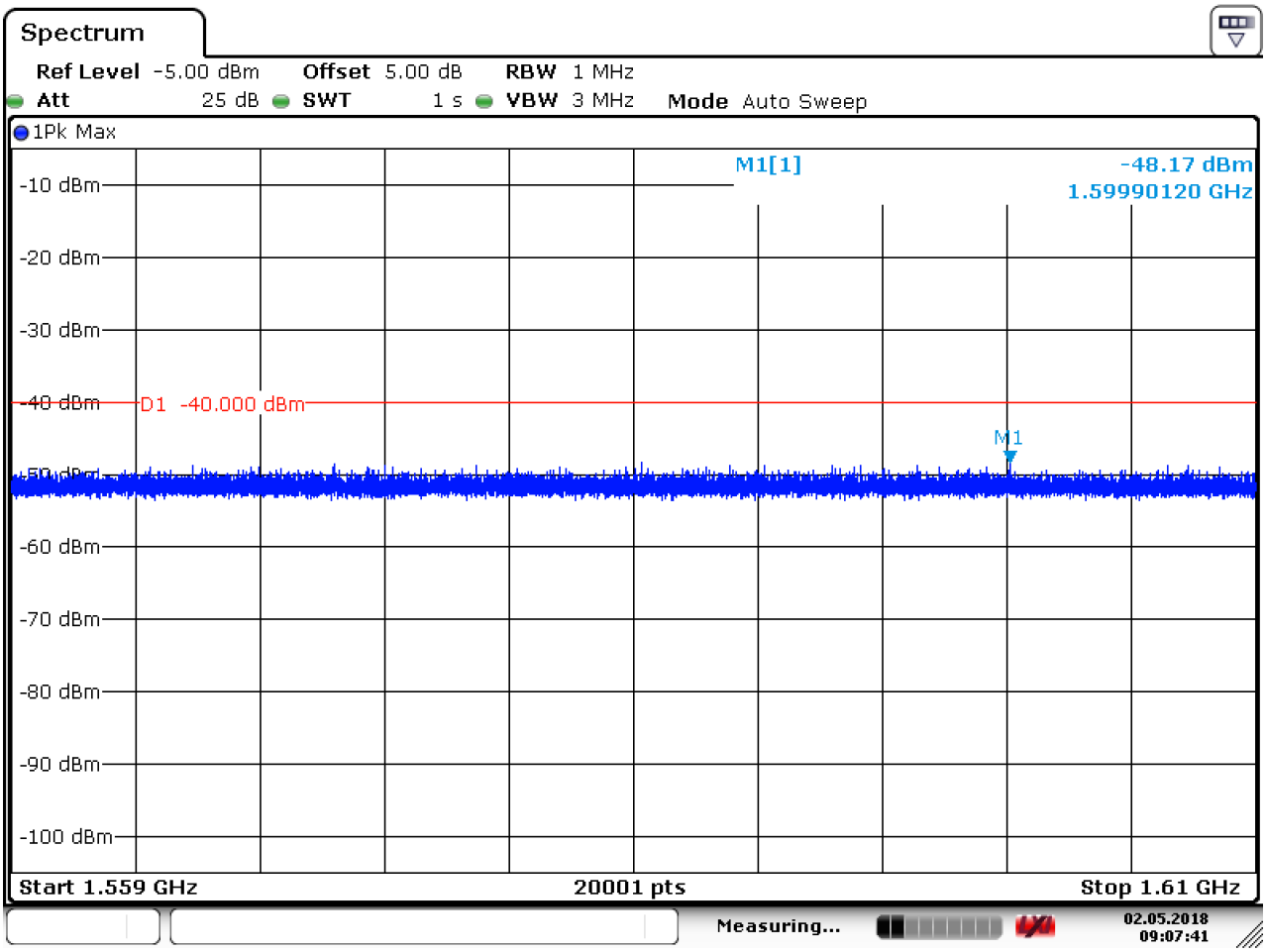

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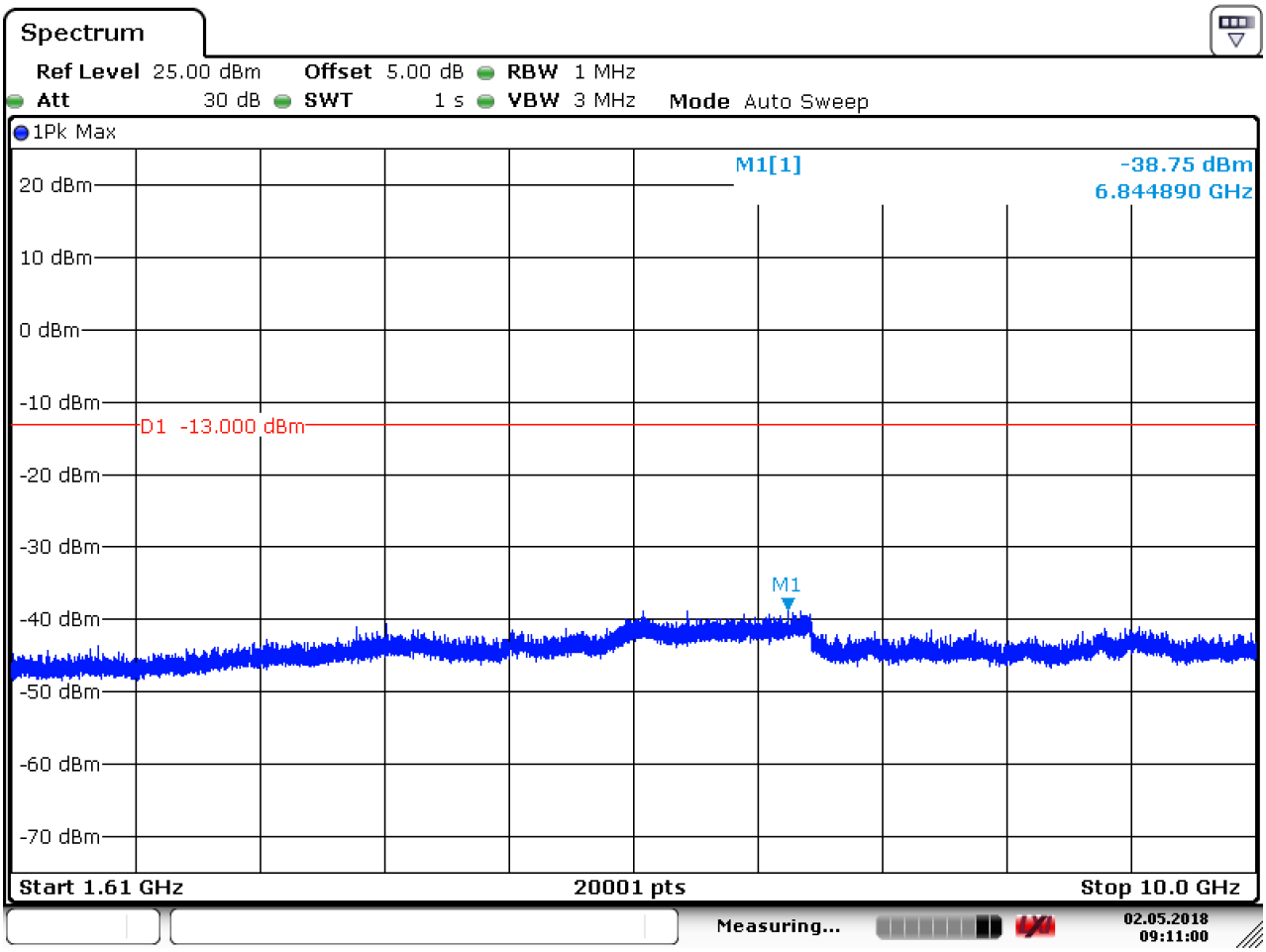

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7 Field Strength of Spurious Radiation

7.1 For LTE

7.1.1 Test Band = LTE band13

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

7.1.1.1.1 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.393333	-81.96	-13.00	68.96	Vertical
244.060000	-55.74	-13.00	42.74	Vertical
1555.000000	-53.46	-13.00	40.46	Vertical
2332.500000	-51.53	-13.00	38.53	Vertical
3110.175000	-63.25	-13.00	50.25	Vertical
3887.737500	-65.15	-13.00	52.15	Vertical
56.273333	-77.56	-13.00	64.56	Horizontal
271.220000	-47.60	-13.00	34.60	Horizontal
1555.000000	-44.58	-13.00	31.58	Horizontal
2332.500000	-49.02	-13.00	36.02	Horizontal
3109.687500	-65.57	-13.00	52.57	Horizontal
3887.737500	-64.62	-13.00	51.62	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.

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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
LTEband13	LTE/TM1 10MHz	LCH	TN	VL	-4.93	-0.00630	PASS
				VN	2.06	0.00263	PASS
				VH	-3.79	-0.00485	PASS
		MCH	TN	VL	2.05	0.00262	PASS
				VN	-2.38	-0.00304	PASS
				VH	2.63	0.00336	PASS
		HCH	TN	VL	-5.46	-0.00698	PASS
				VN	-5.99	-0.00766	PASS
				VH	-0.04	-0.00005	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
LTEband13	LTE/TM1 10MHz	MCH	VN	-30	-0.39	-0.00050	PASS
				-20	-1.94	-0.00248	PASS
				-10	2.76	0.00353	PASS
				0	1.78	0.00228	PASS
				10	1.65	0.00211	PASS
				20	6.71	0.00858	PASS
				30	-3.32	-0.00425	PASS
				40	-2.84	-0.00363	PASS
				50	3.69	0.00472	PASS

The End

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