



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	Conducted (dBm)	ERP (dBm)	limit (dBm)	Verdict			
BAND 13	LTE/TM1	5M	LCH	RB1#0	23.15	24.00	34.77	PASS			
				RB1#13	23.19	24.04	34.77	PASS			
				RB1#24	23.18	24.03	34.77	PASS			
				RB12#0	22.28	23.13	34.77	PASS			
				RB12#6	22.32	23.17	34.77	PASS			
				RB12#13	22.25	23.10	34.77	PASS			
			MCH	RB25#0	22.23	23.08	34.77	PASS			
				RB1#0	23.26	24.11	34.77	PASS			
				RB1#13	23.25	24.10	34.77	PASS			
				RB1#24	23.33	24.18	34.77	PASS			
				RB12#0	22.26	23.11	34.77	PASS			
				RB12#6	22.27	23.12	34.77	PASS			
			HCH	RB12#13	22.27	23.12	34.77	PASS			
				RB25#0	22.3	23.15	34.77	PASS			
				RB1#0	23.16	24.01	34.77	PASS			
				RB1#13	23.26	24.11	34.77	PASS			
				RB1#24	23.28	24.13	34.77	PASS			
				RB12#0	22.4	23.25	34.77	PASS			
							RB12#6	22.25	23.10	34.77	PASS
							RB12#13	22.25	23.10	34.77	PASS
							RB25#0	22.3	23.15	34.77	PASS
							RB1#0	23.16	24.01	34.77	PASS
							RB1#13	23.26	24.11	34.77	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Conducted (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND 13	LTE/TM2	5M	LCH	RB1#0	22.29	23.14	34.77	PASS
				RB1#13	22.5	23.35	34.77	PASS
				RB1#24	22.49	23.34	34.77	PASS
				RB12#0	21.37	22.22	34.77	PASS
				RB12#6	21.29	22.14	34.77	PASS
				RB12#13	21.32	22.17	34.77	PASS
				RB25#0	21.27	22.12	34.77	PASS
			MCH	RB1#0	22.88	23.73	34.77	PASS
				RB1#13	22.54	23.39	34.77	PASS
				RB1#24	22.43	23.28	34.77	PASS
				RB12#0	21.29	22.14	34.77	PASS
				RB12#6	21.36	22.21	34.77	PASS
				RB12#13	21.17	22.02	34.77	PASS
				RB25#0	21.32	22.17	34.77	PASS
			HCH	RB1#0	22.37	23.22	34.77	PASS
				RB1#13	22.77	23.62	34.77	PASS
				RB1#24	22.19	23.04	34.77	PASS
				RB12#0	21.28	22.13	34.77	PASS
				RB12#6	21.34	22.19	34.77	PASS
				RB12#13	21.26	22.11	34.77	PASS
				RB25#0	21.33	22.18	34.77	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Conducted (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND 13	LTE/TM3	5M	LCH	RB1#0	22.31	23.16	34.77	PASS
				RB1#13	22.29	23.14	34.77	PASS
				RB1#24	22.15	23.00	34.77	PASS
				RB12#0	21.30	22.15	34.77	PASS
				RB12#6	21.22	22.07	34.77	PASS
				RB12#13	21.14	21.99	34.77	PASS
				RB25#0	21.22	22.07	34.77	PASS
			MCH	RB1#0	22.27	23.12	34.77	PASS
				RB1#13	22.19	23.04	34.77	PASS
				RB1#24	22.17	23.02	34.77	PASS
				RB12#0	21.22	22.07	34.77	PASS
				RB12#6	21.23	22.08	34.77	PASS
				RB12#13	21.18	22.03	34.77	PASS
				RB25#0	21.22	22.07	34.77	PASS
			HCH	RB1#0	22.25	23.10	34.77	PASS
				RB1#13	22.15	23.00	34.77	PASS
				RB1#24	22.18	23.03	34.77	PASS
				RB12#0	21.15	22.00	34.77	PASS
				RB12#6	21.21	22.06	34.77	PASS
				RB12#13	21.13	21.98	34.77	PASS
				RB25#0	21.21	22.06	34.77	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Conducted (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND 13	LTE/TM1	10M	MCH	RB1#0	23.14	23.99	34.77	PASS
				RB1#25	23.14	23.99	34.77	PASS
				RB1#49	23.13	23.98	34.77	PASS
				RB25#0	22.28	23.13	34.77	PASS
				RB25#13	22.38	23.23	34.77	PASS
				RB25#25	22.38	23.23	34.77	PASS
				RB50#0	22.49	23.34	34.77	PASS
	LTE/TM2	10M	MCH	RB1#0	22.3	23.15	34.77	PASS
				RB1#25	23.05	23.90	34.77	PASS
				RB1#49	22.8	23.65	34.77	PASS
				RB25#0	21.24	22.09	34.77	PASS
				RB25#13	21.44	22.29	34.77	PASS
				RB25#25	21.26	22.11	34.77	PASS
				RB50#0	21.38	22.23	34.77	PASS
	LTE/TM3	10M	MCH	RB1#0	22.28	23.13	34.77	PASS
				RB1#25	22.20	23.05	34.77	PASS
				RB1#49	22.13	22.98	34.77	PASS
				RB25#0	21.22	22.07	34.77	PASS
				RB25#13	21.27	22.12	34.77	PASS
				RB25#25	21.27	22.12	34.77	PASS
				RB50#0	21.26	22.11	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,

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



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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	5.04	13	PASS
	TM2/10M	MCH	5.91	13	PASS
	TM3/10M	MCH	6.12	13	PASS

Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE BAND 13

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

2.1.1.1.1 Test Channel = MCH



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

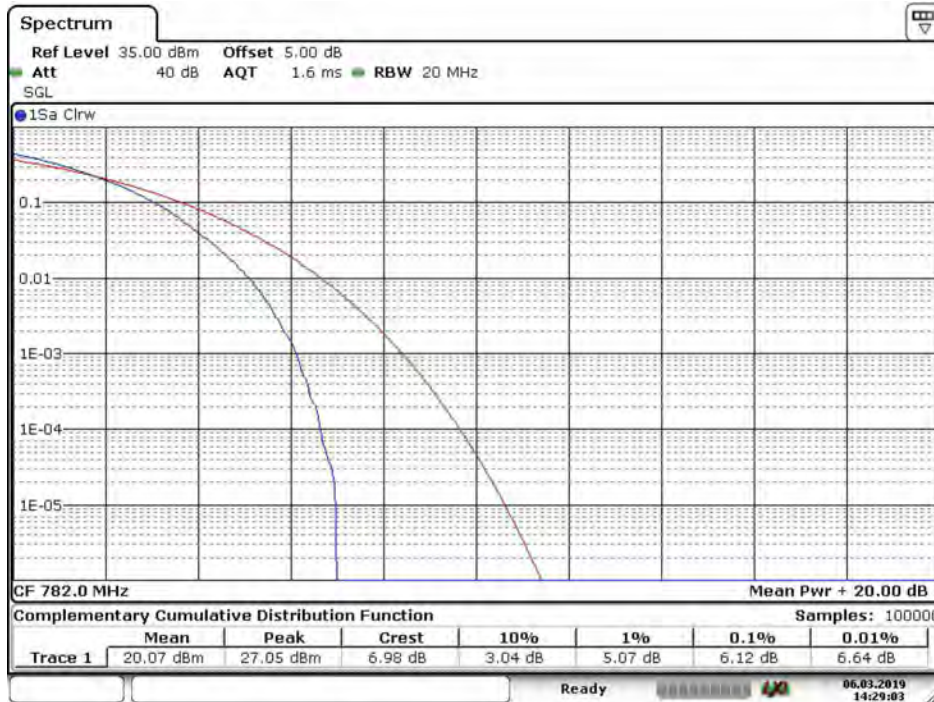
2.1.1.2.1 Test Channel = MCH





2.1.1.3 Test Mode = LTE/TM3.Bandwidth=10MHz

2.1.1.3.1 Test Channel = MCH



3 Modulation Characteristics

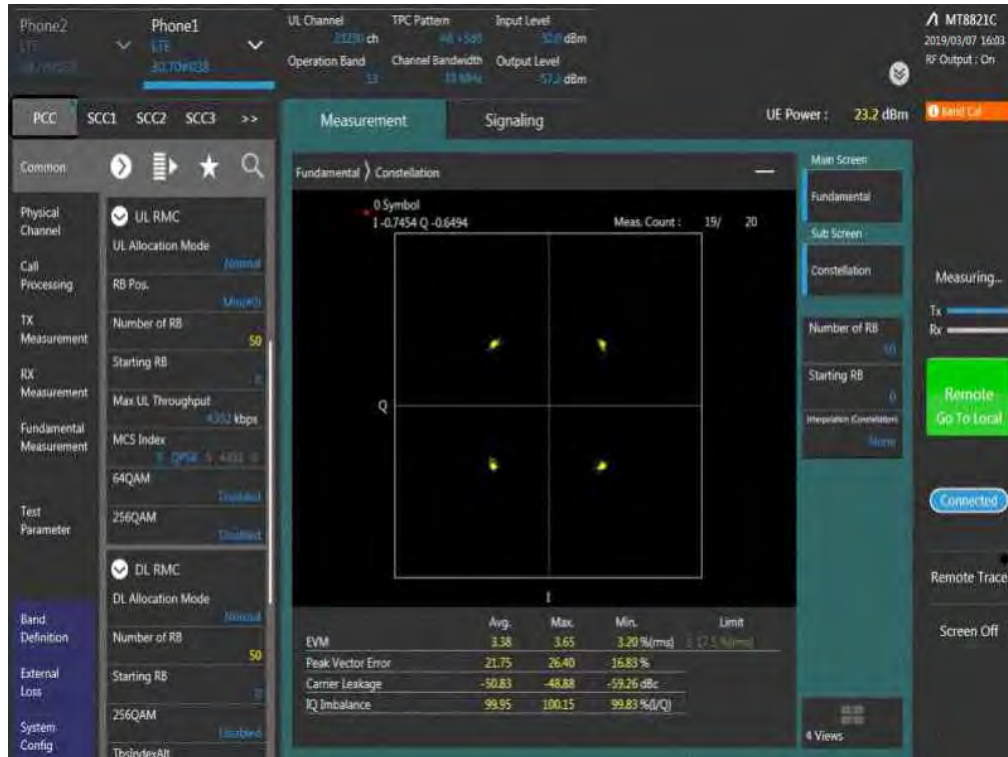
Part I - Test Plots

3.1 For LTE

3.1.1 Test Band = LTE BAND 13

3.1.1.1 Test Mode = LTE /TM1 10MHz

3.1.1.1.1 Test Channel = MCH

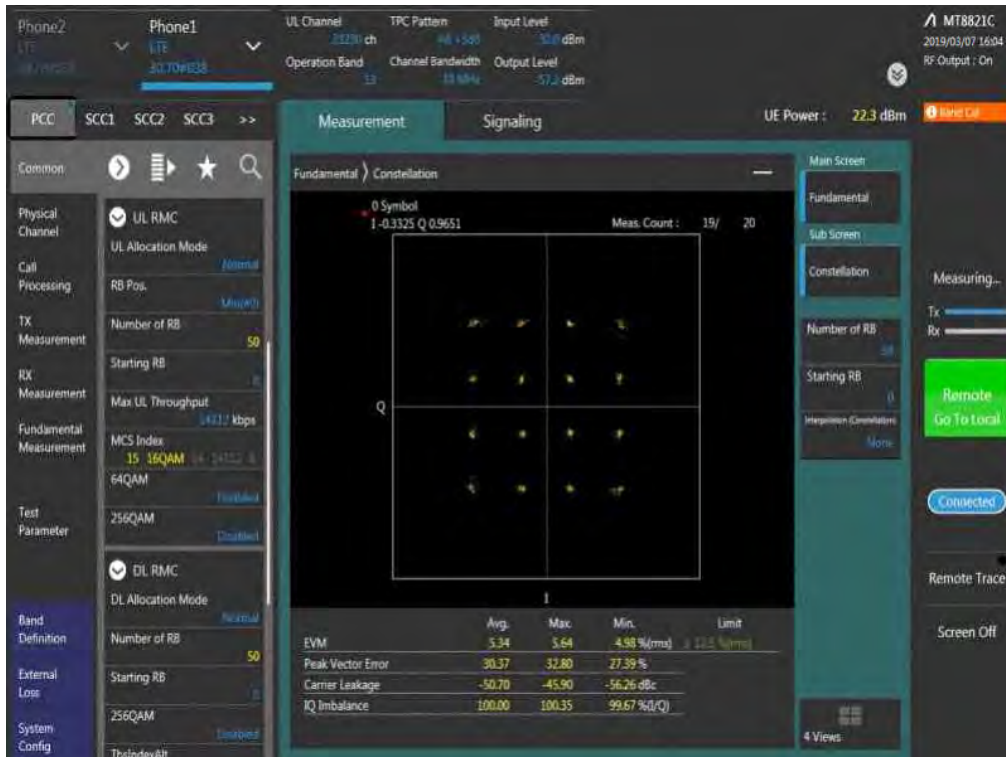


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3.1.1.2 Test Mode = LTE /TM2 10MHz

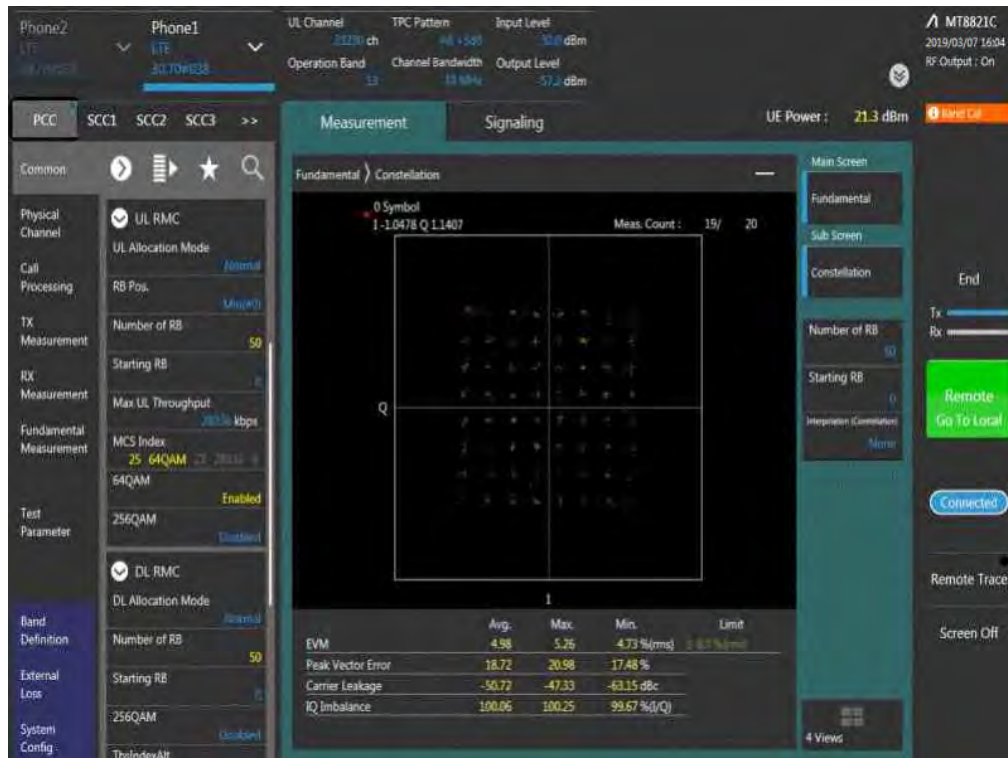
3.1.1.2.1 Test Channel = MCH





3.1.1.3 Test Mode = LTE /TM3 10MHz

3.1.1.3.1 Test Channel = MCH



4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 13	TM1/ 5MHz	LCH	4.48	4.88	PASS
		MCH	4.47	4.87	PASS
		HCH	4.49	4.87	PASS
	TM2/ 5MHz	LCH	4.48	4.88	PASS
		MCH	4.46	4.83	PASS
		HCH	4.50	4.90	PASS
	TM3/ 5MHz	LCH	4.46	4.85	PASS
		MCH	4.44	4.82	PASS
		HCH	4.46	4.86	PASS
	TM1/10MHz	MCH	8.93	9.56	PASS
	TM2/10MHz	MCH	8.91	9.54	PASS
	TM3/10MHz	MCH	8.89	9.65	PASS

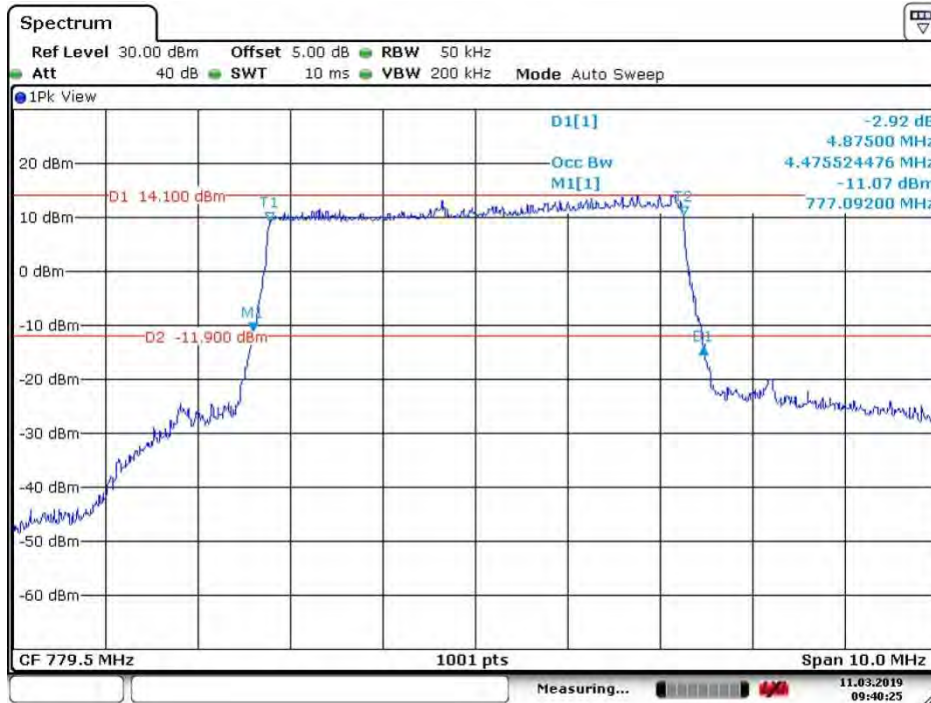


4.1 For LTE

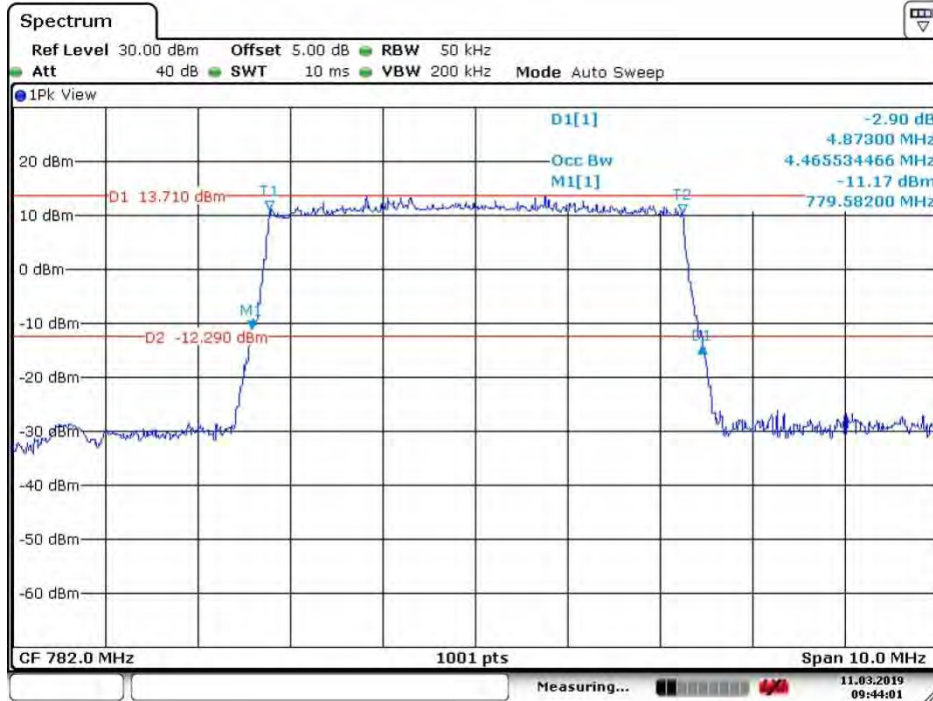
4.1.1 Test Band = LTE BAND 13

4.1.1.1 Test Mode = LTE/TM1 5MHz

4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH

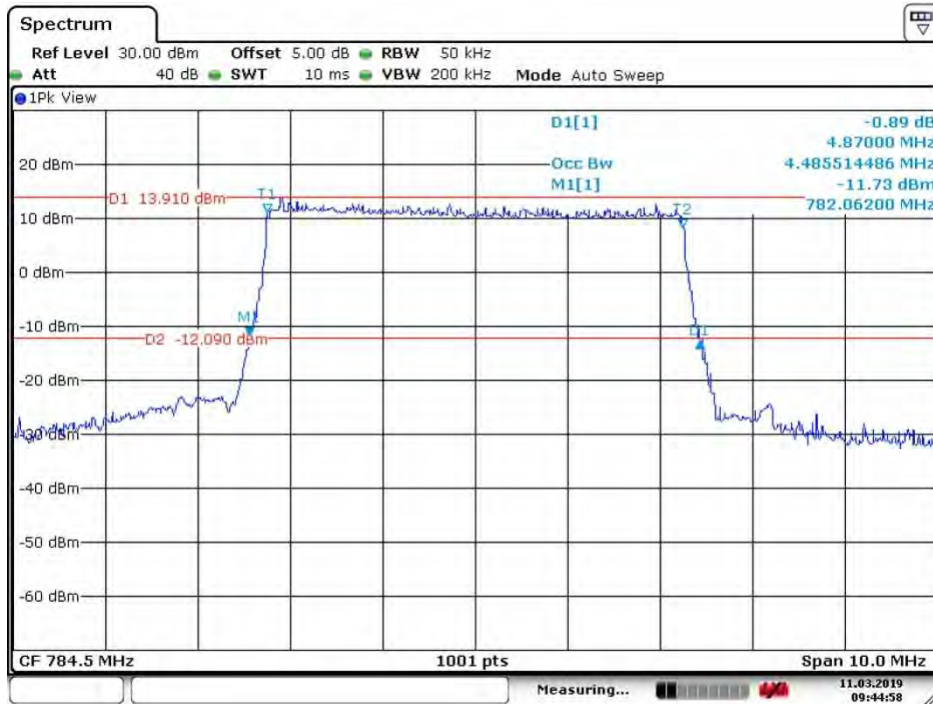


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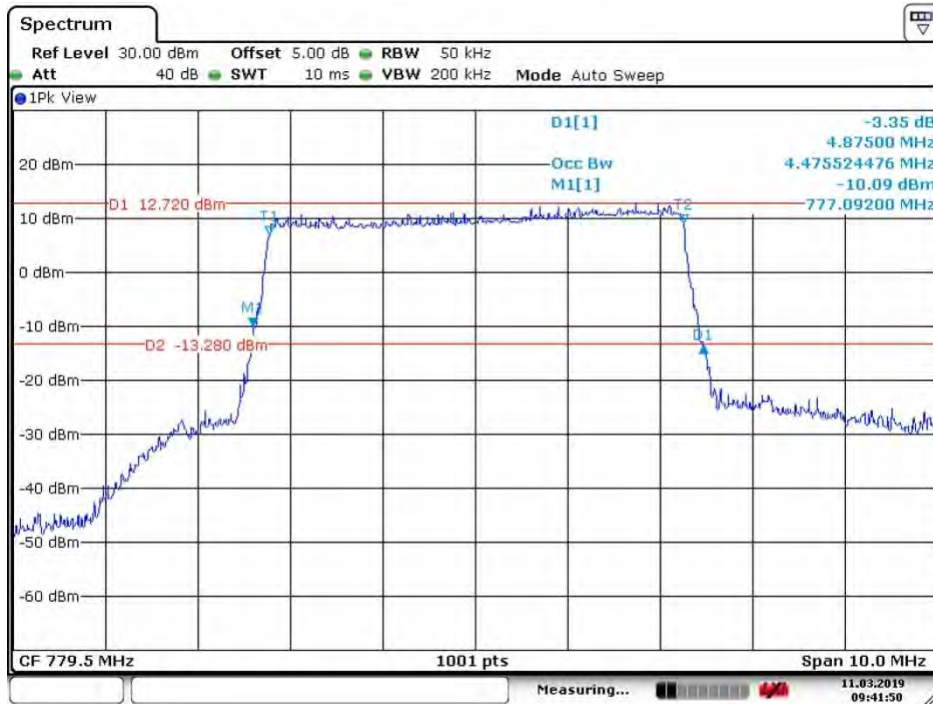
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4.1.1.1.3 Test Channel = HCH

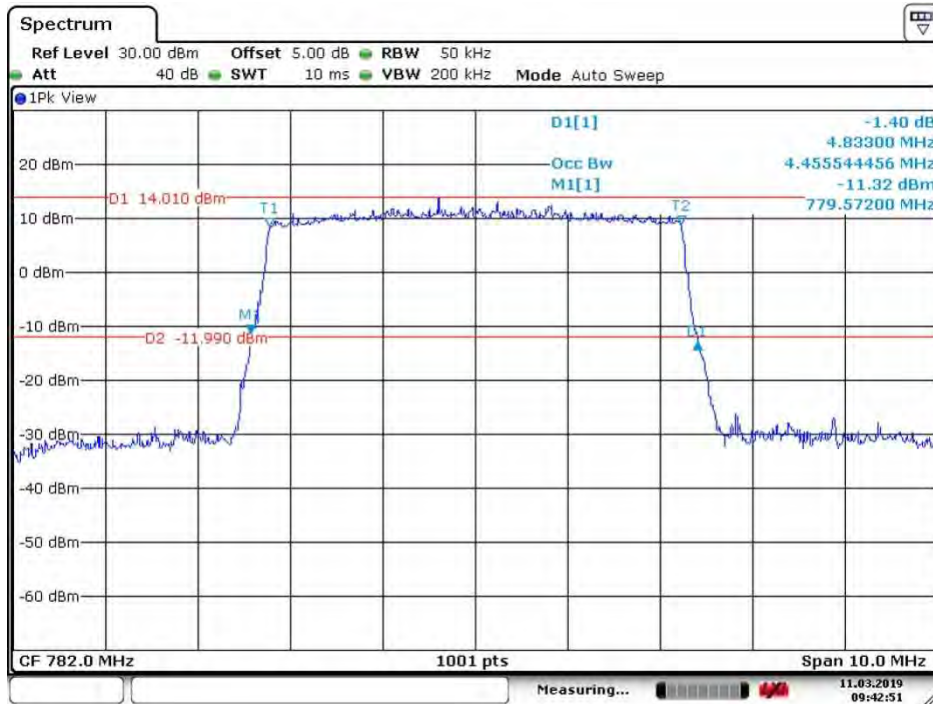


4.1.1.2 Test Mode = LTE/TM2 5MHz

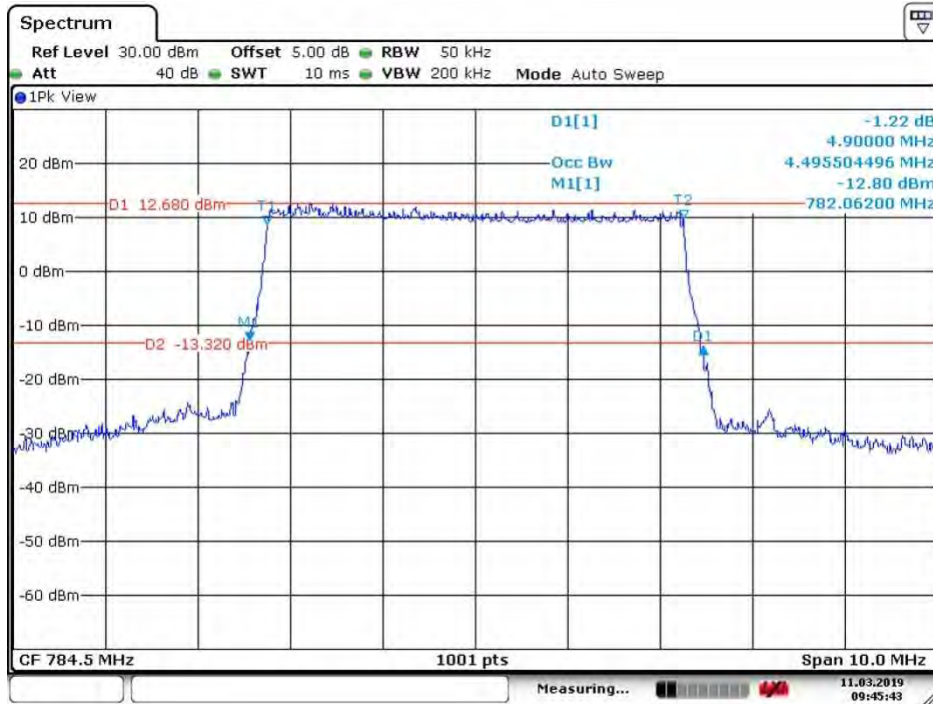
4.1.1.2.1 Test Channel = LCH



4.1.1.2.2 Test Channel = MCH

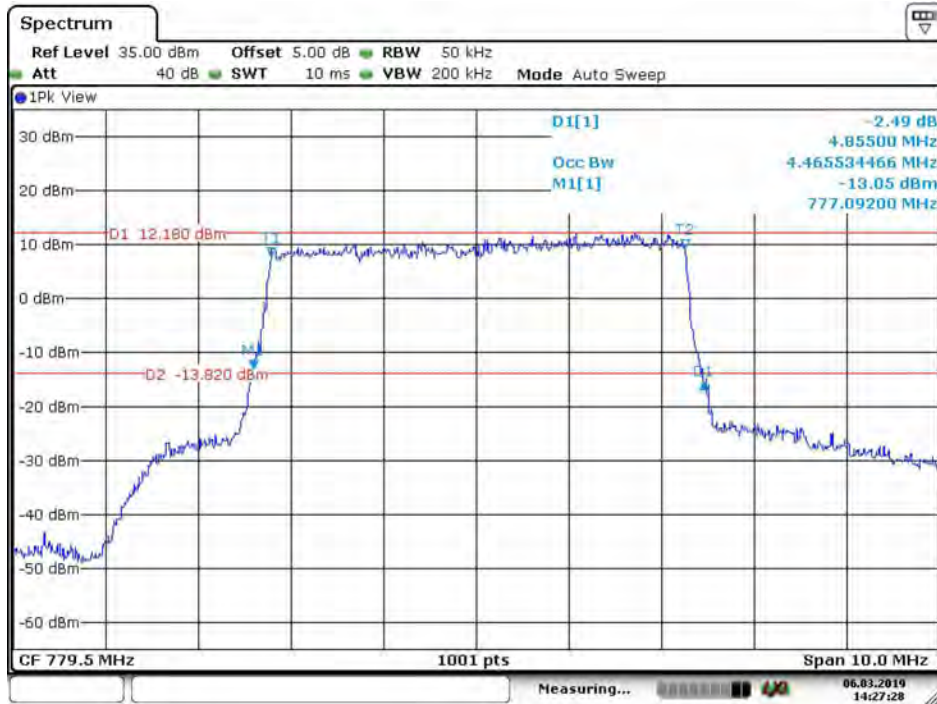


4.1.1.2.3 Test Channel = HCH

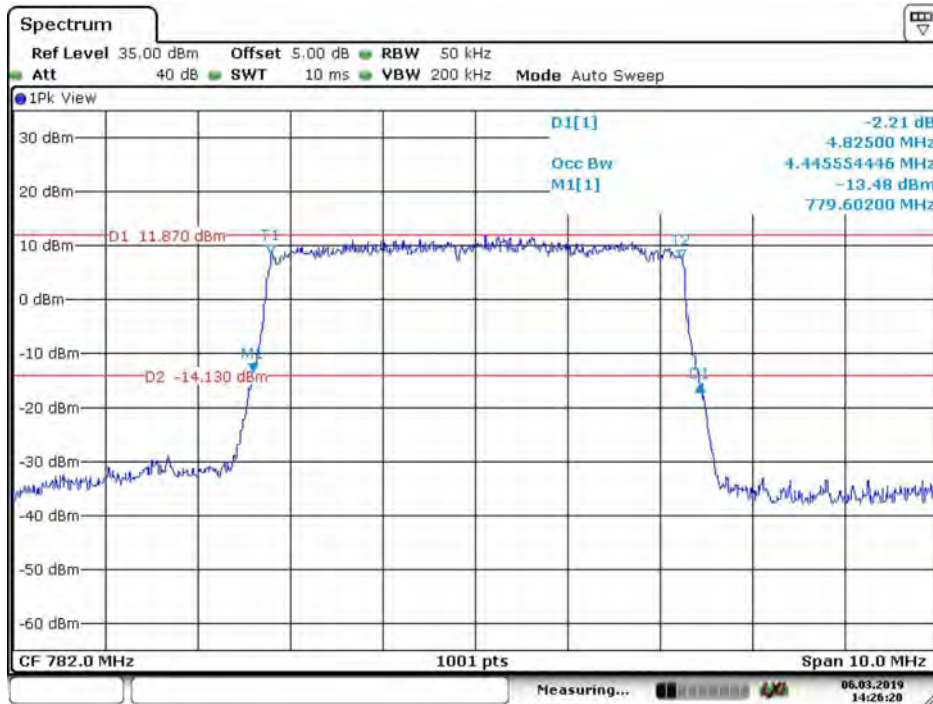


4.1.1.3 Test Mode = LTE/TM3 5MHz

4.1.1.3.1 Test Channel = LCH

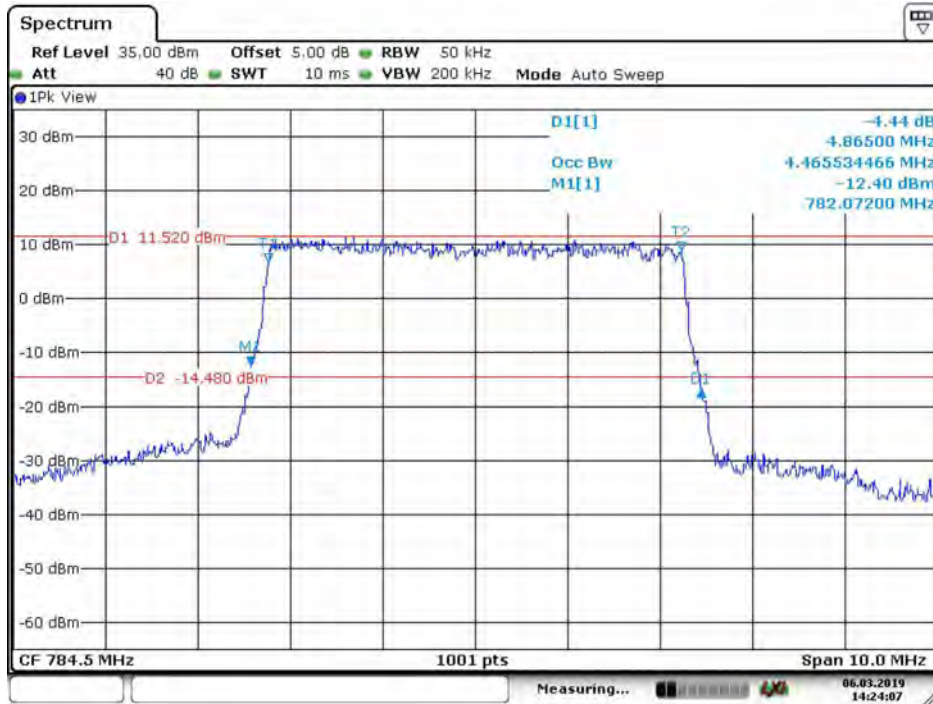


4.1.1.3.2 Test Channel = MCH



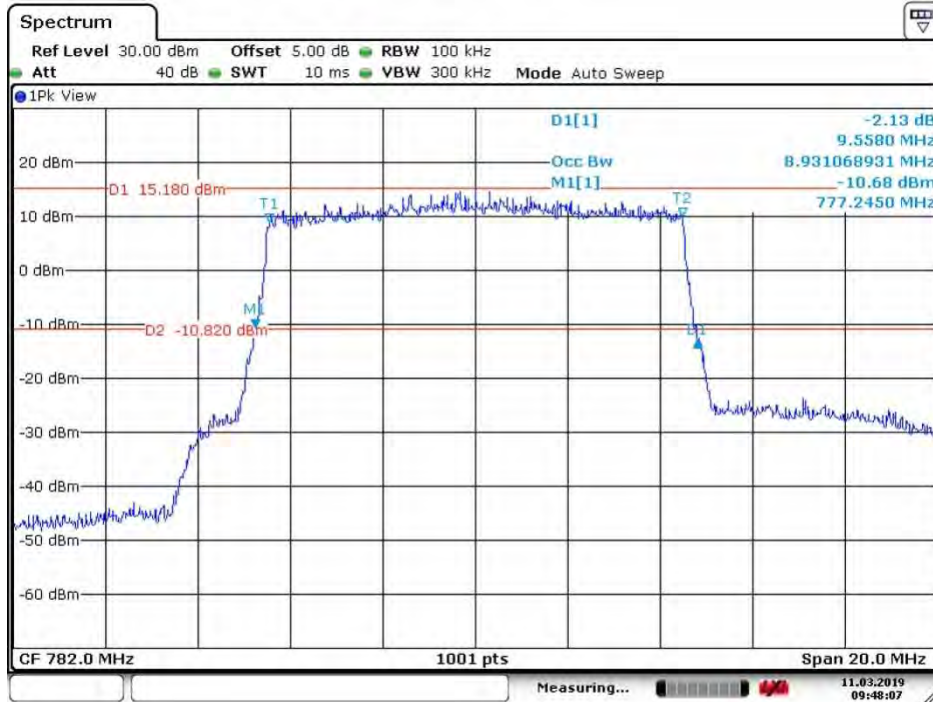
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4.1.1.3.3 Test Channel = HCH



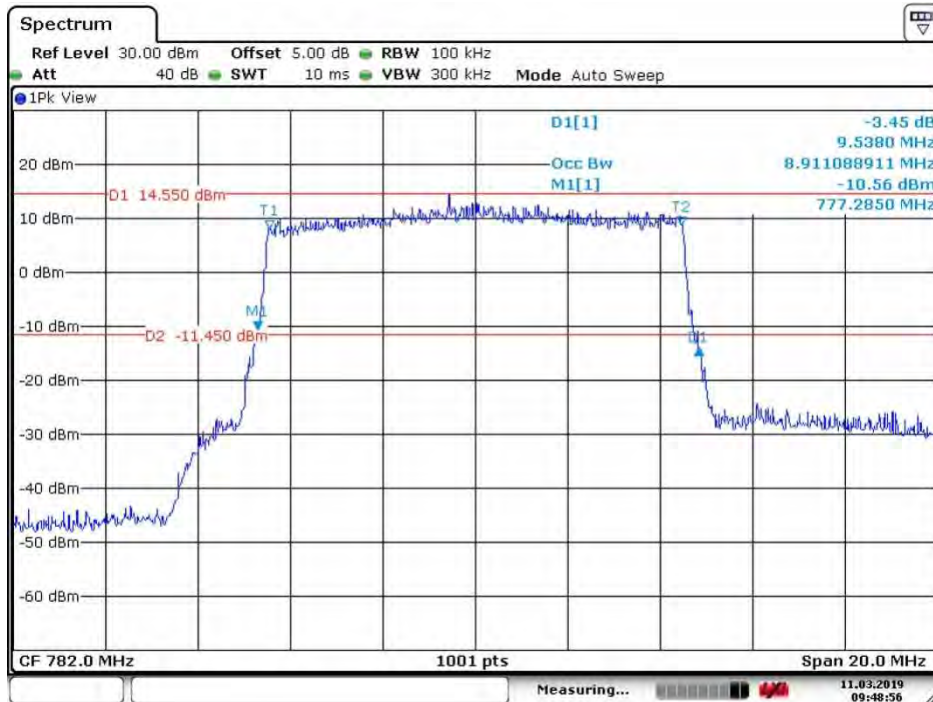
4.1.1.4 Test Mode = LTE/TM1 10MHz

4.1.1.4.1 Test Channel = MCH



4.1.1.5 Test Mode = LTE/TM2 10MHz

4.1.1.5.1 Test Channel = MCH



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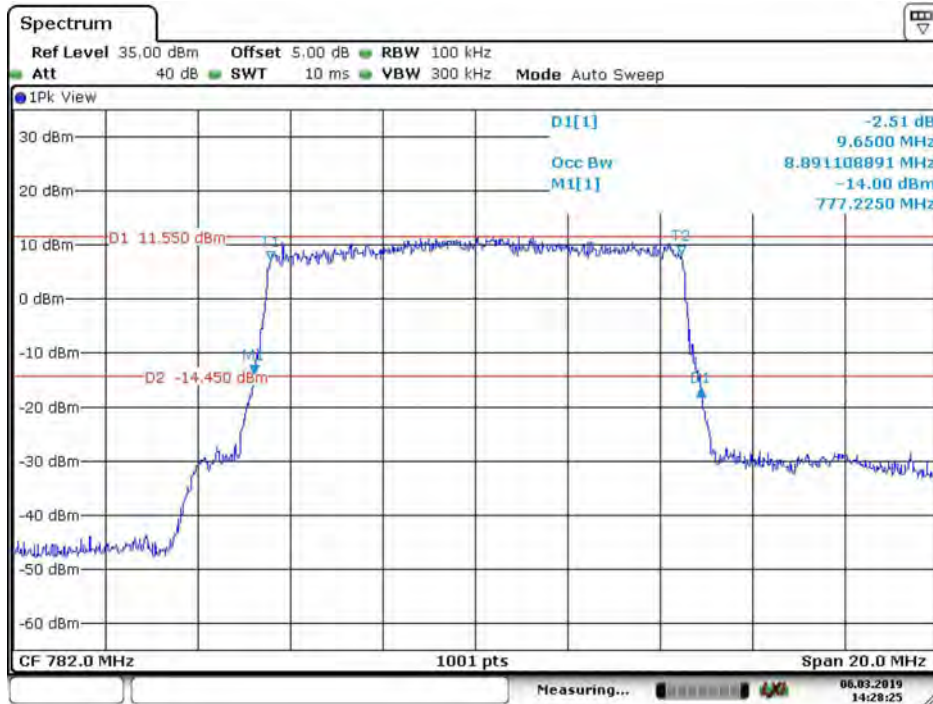
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4.1.1.6 Test Mode = LTE/TM3 10MHz

4.1.1.6.1 Test Channel = MCH



5 Band Edges Compliance

Part I –

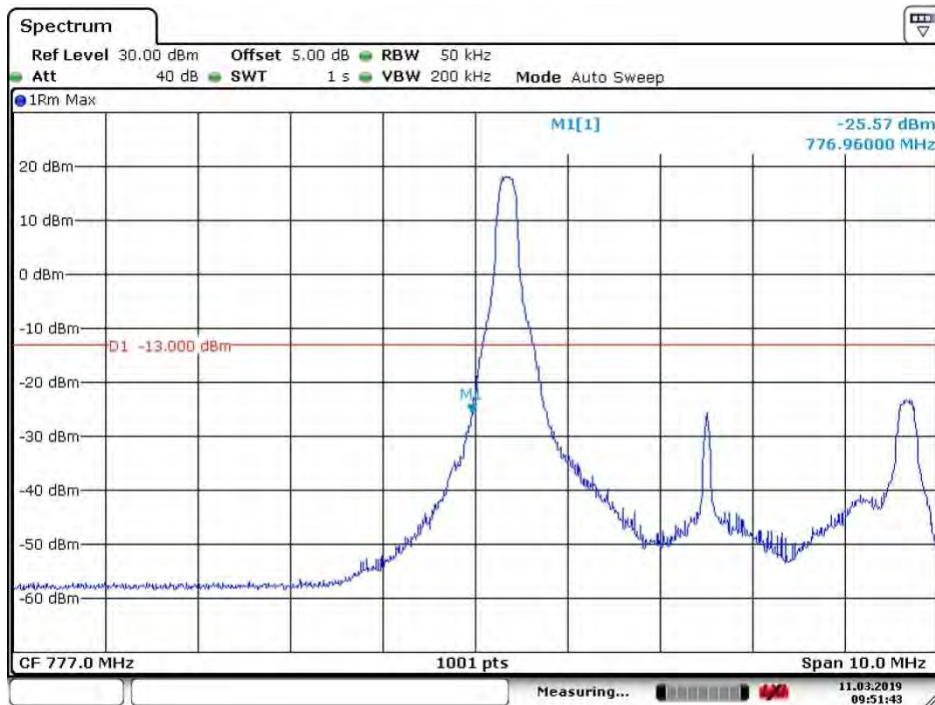
5.1 For LTE

5.1.1 Test Band = LTE BAND 13

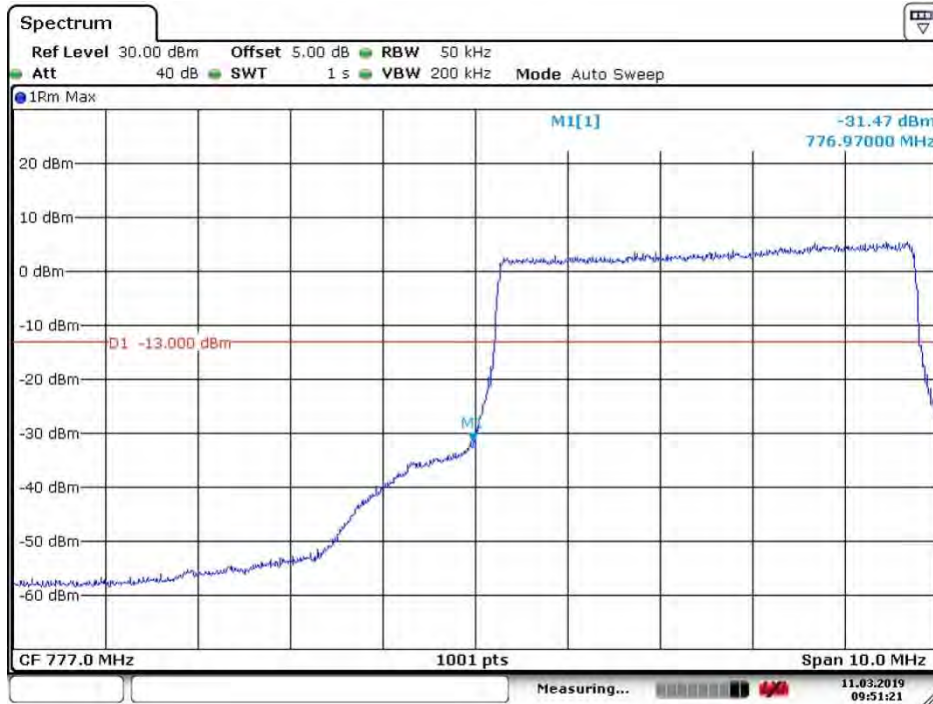
5.1.1.1 Test Mode = LTE/TM1 5MHz

5.1.1.1.1 Test Channel = LCH

5.1.1.1.1.1 Test RB=1RB

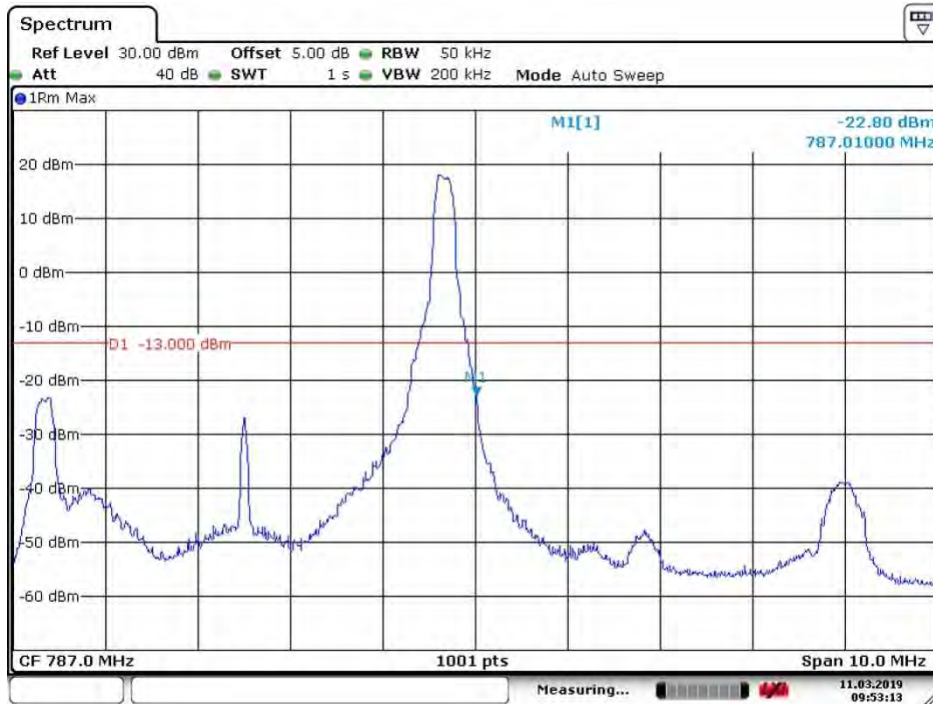


5.1.1.1.1.2 Test RB=25RB



5.1.1.1.2 Test Channel = HCH

5.1.1.1.2.1 Test RB=1RB



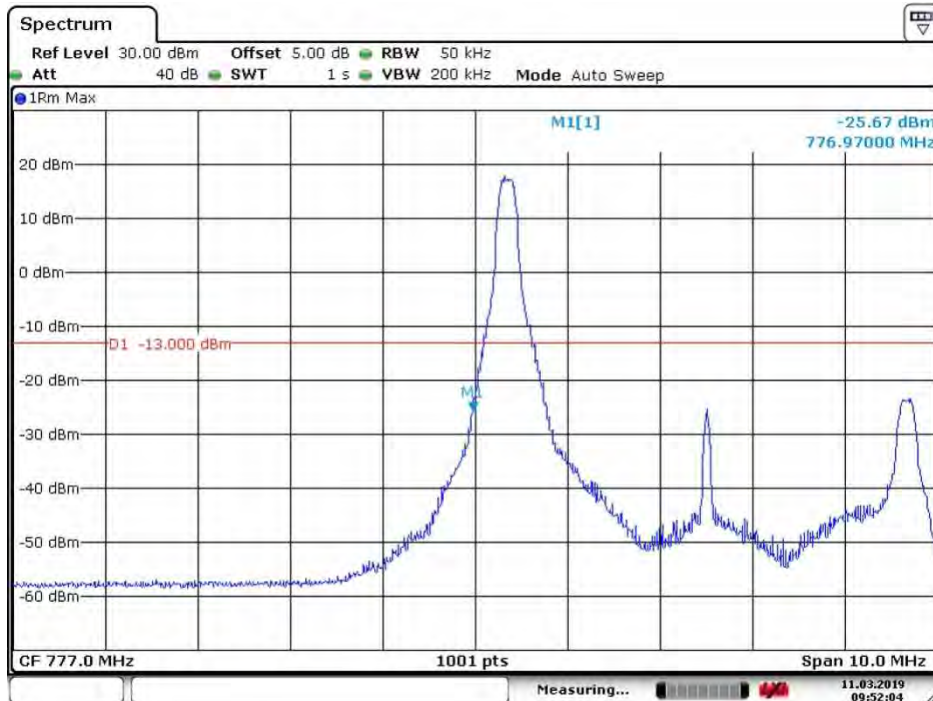
5.1.1.1.2.2 Test RB=25RB



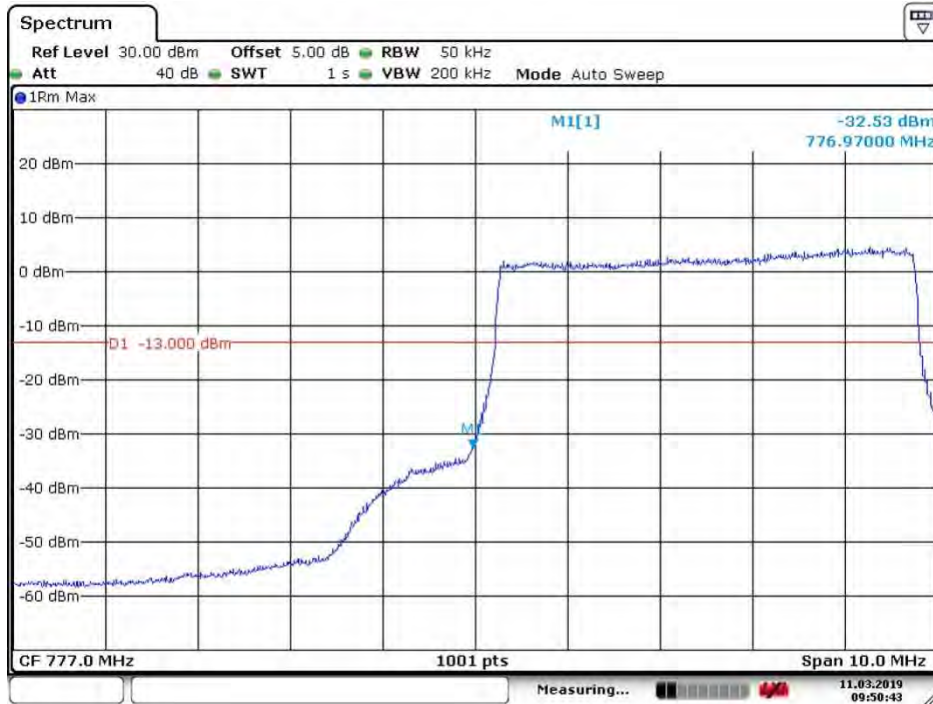
5.1.1.2 Test Mode = LTE/TM2 5MHz

5.1.1.2.1 Test Channel = LCH

5.1.1.2.1.1 Test RB=1RB

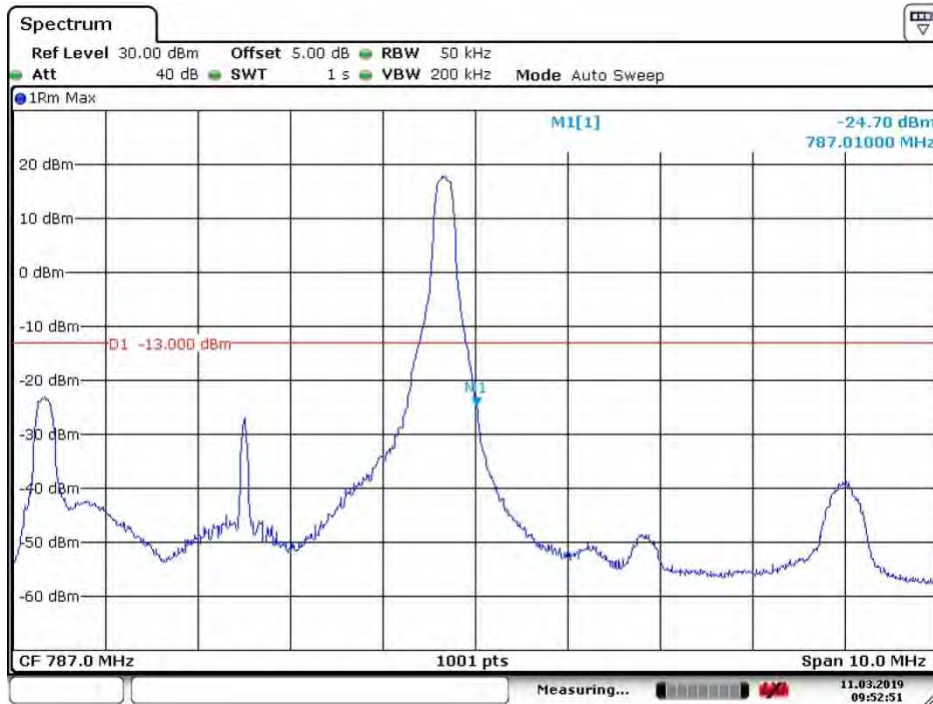


5.1.1.2.1.2 Test RB=25RB

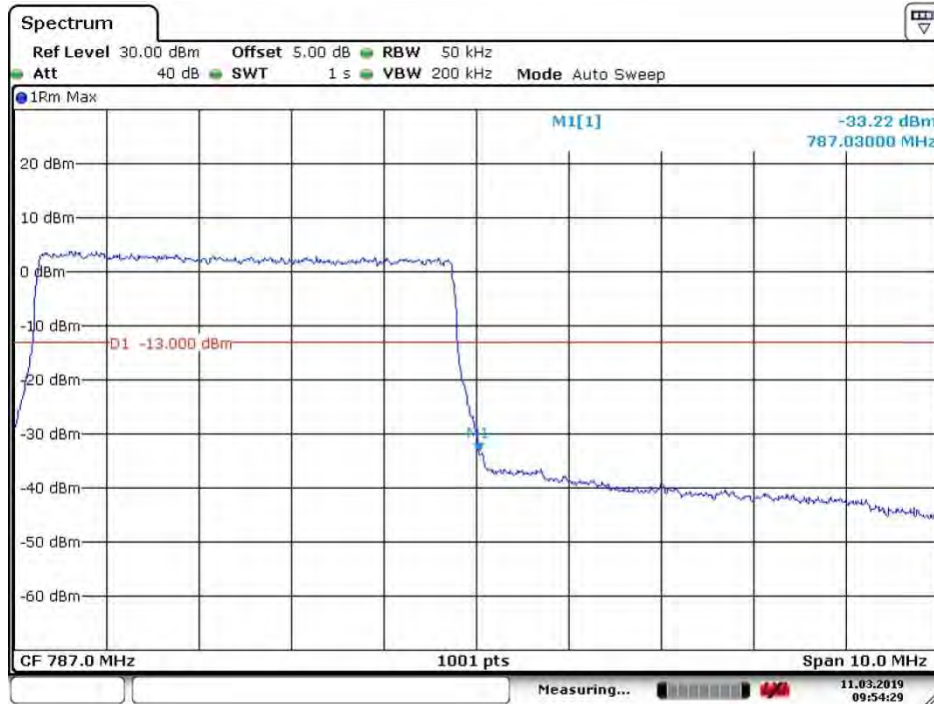


5.1.1.2.2 Test Channel = HCH

5.1.1.2.2.1 Test RB=1RB



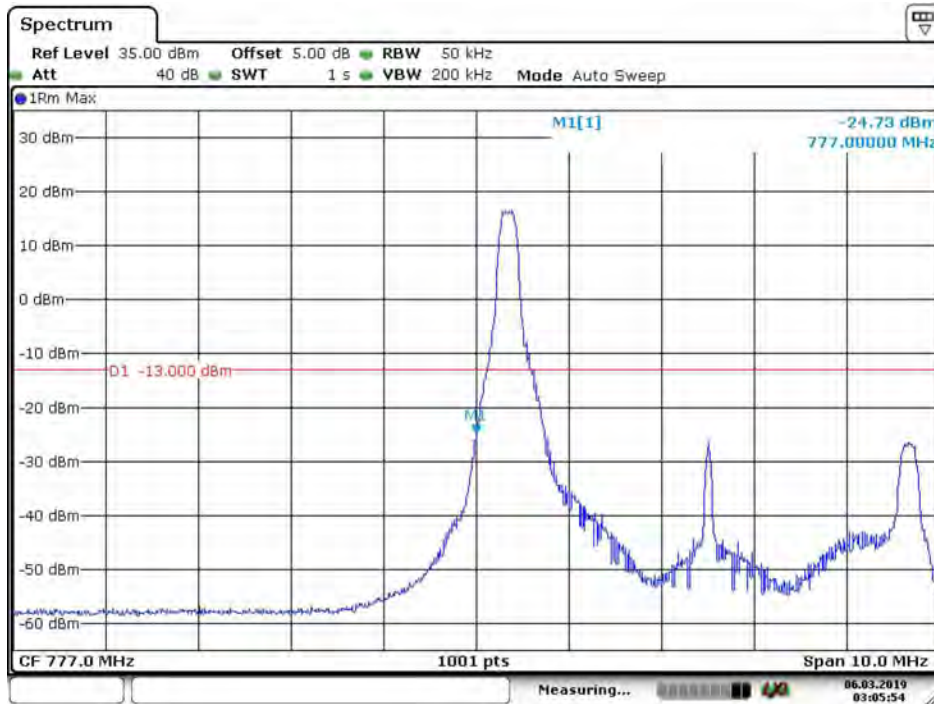
5.1.1.2.2.2 Test RB=25RB



5.1.1.3 Test Mode = LTE/TM3 5MHz

5.1.1.3.1 Test Channel = LCH

5.1.1.3.1.1 Test RB=1RB



5.1.1.3.1.2 Test RB=25RB



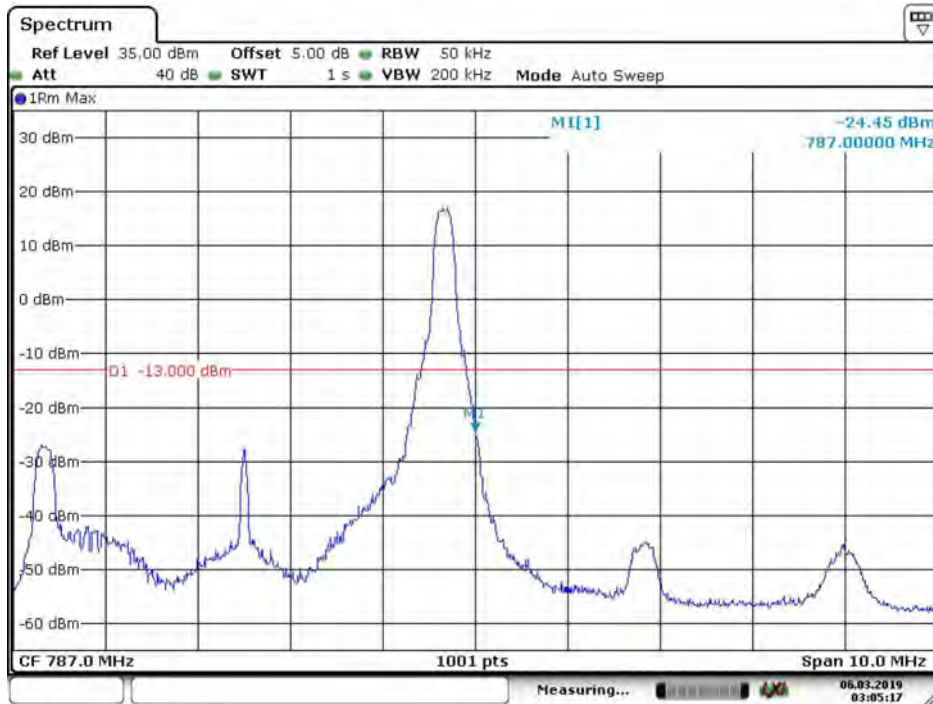
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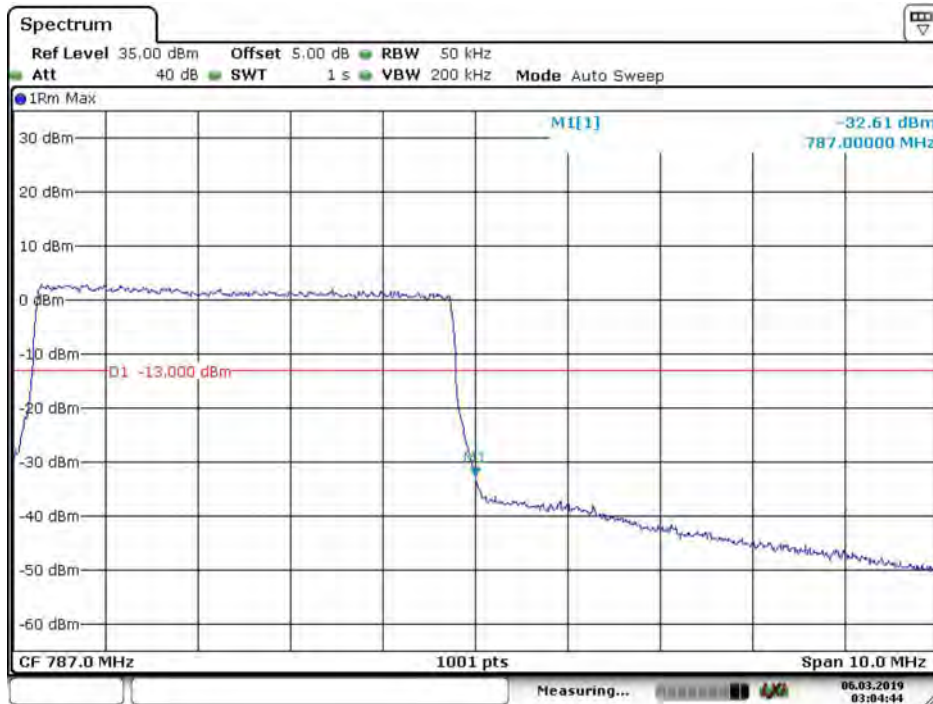
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 中国·深圳·科技园中区M-10栋一号厂房 邮编: 518057 t (86-755) 26012053 f (86-755) 26710594 sgs.china@sgs.com

5.1.1.3.1 Test Channel = HCH

5.1.1.3.1.1 Test RB=1RB



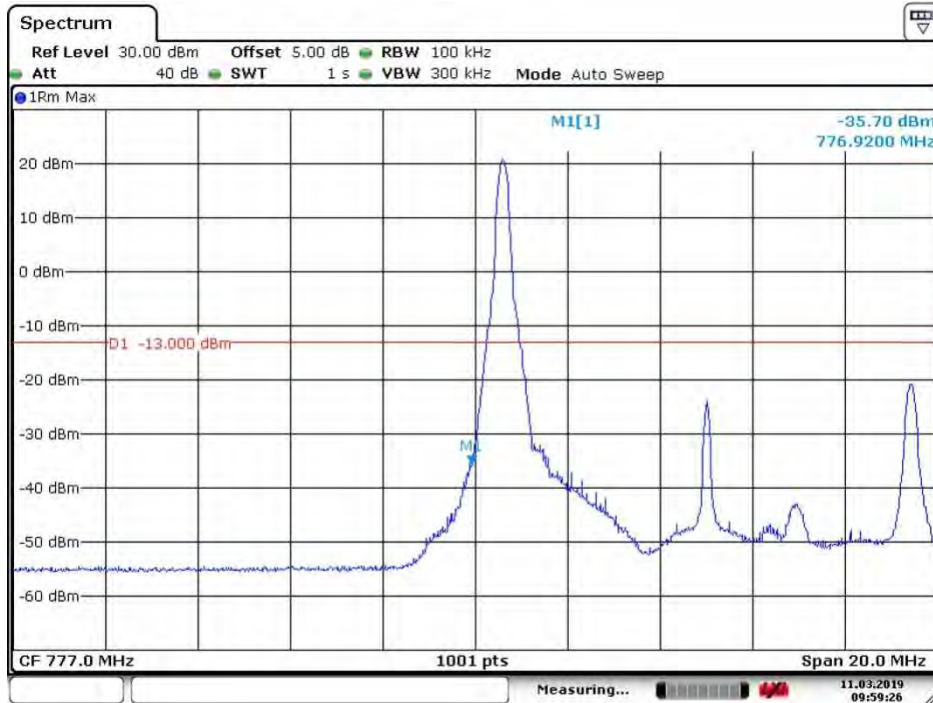
5.1.1.3.1.2 Test RB=25RB



5.1.1.4 Test Mode = LTE/TM1 10MHz

5.1.1.4.1 Test Channel = LCH

5.1.1.4.1.1 Test RB=1RB

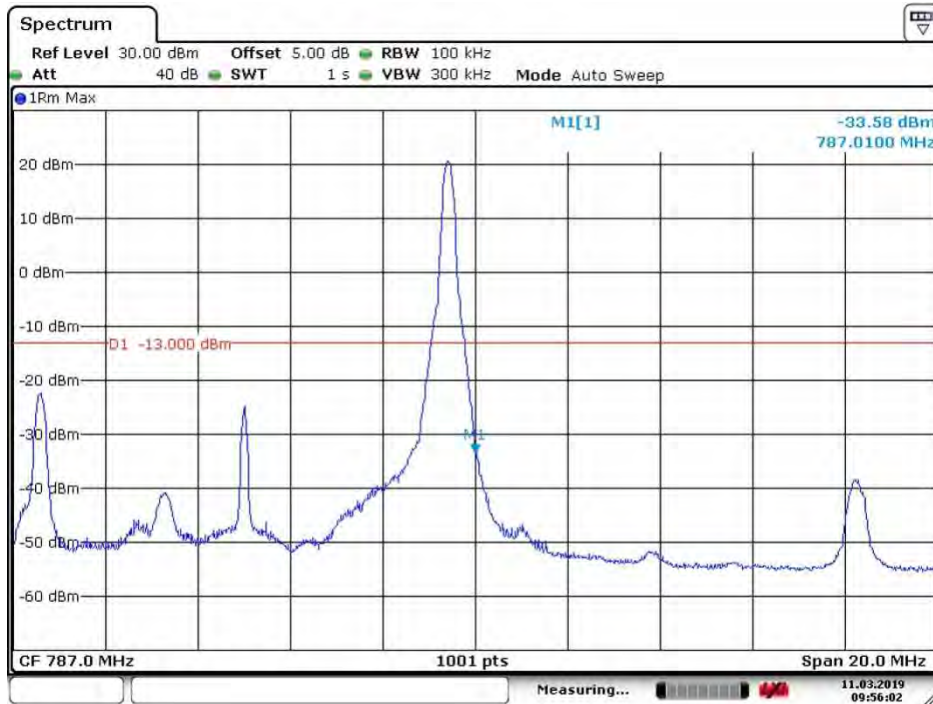


5.1.1.4.1.2 Test RB=50RB



5.1.1.4.2 Test Channel = HCH

5.1.1.4.2.1 Test RB=1RB



5.1.1.4.2.2 Test RB=50RB

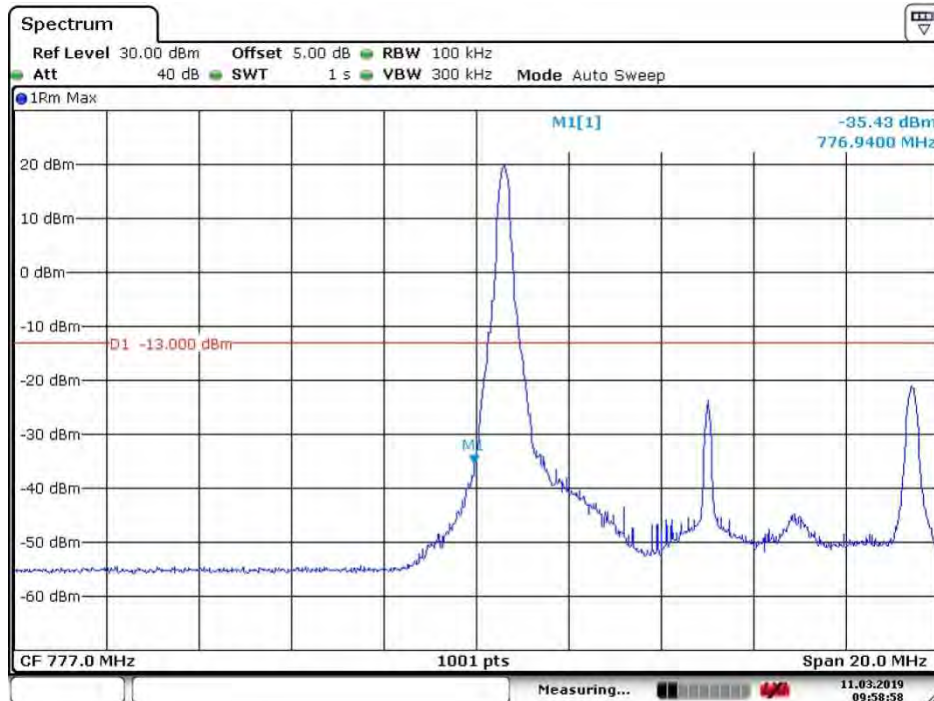


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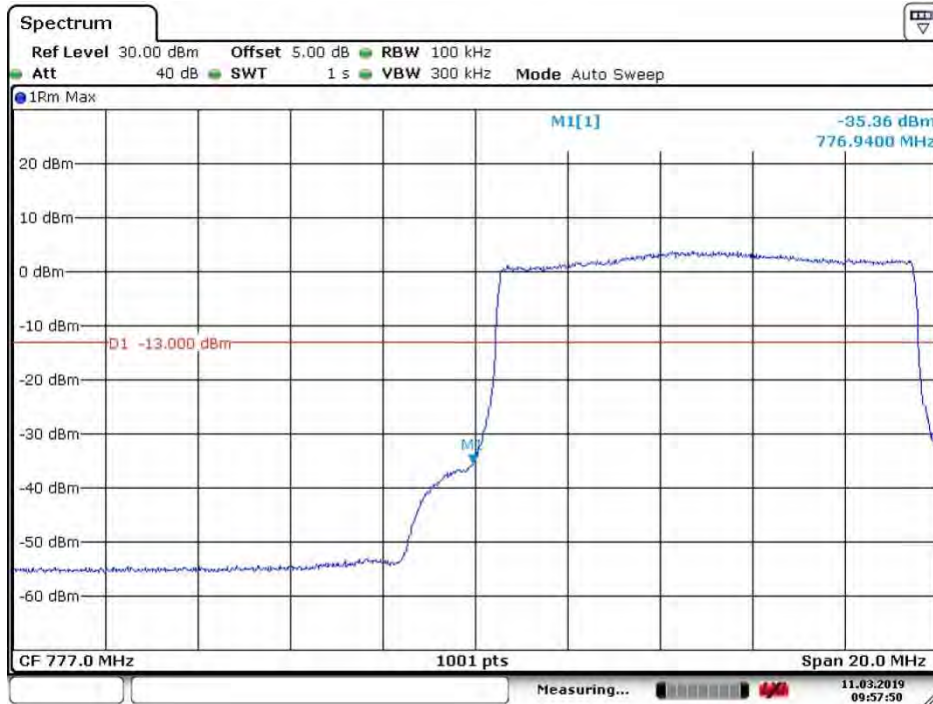
5.1.1.5 Test Mode = LTE/TM2 10MHz

5.1.1.5.1 Test Channel = LCH

5.1.1.5.1.1 Test RB=1RB

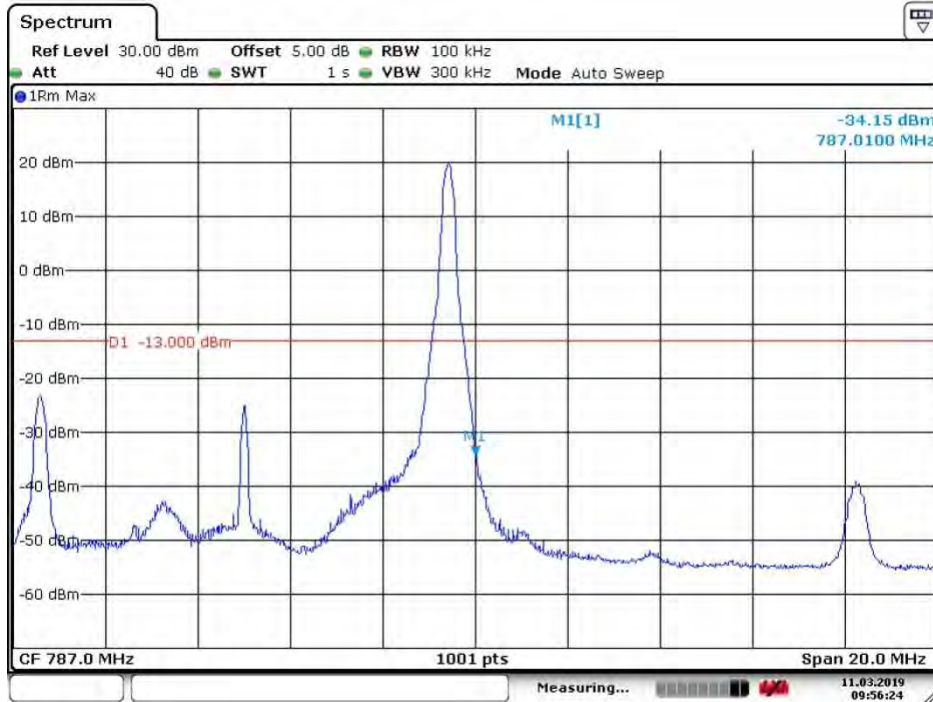


5.1.1.5.1.2 Test RB=50RB



5.1.1.5.2 Test Channel = HCH

5.1.1.5.2.1 Test RB=1RB



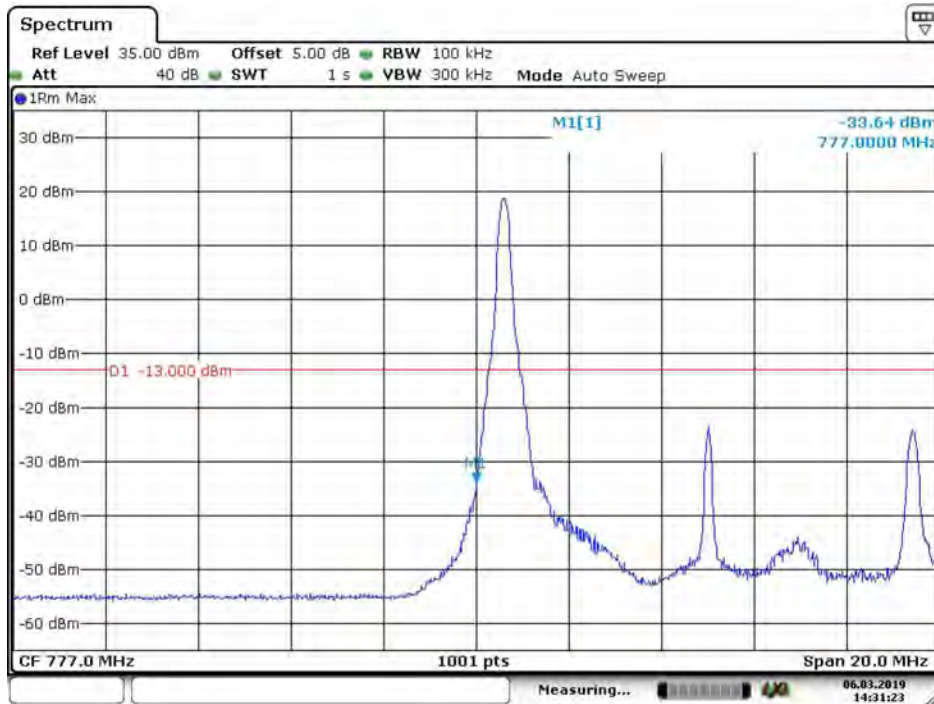
5.1.1.5.2.2 Test RB=50RB



5.1.1.6 Test Mode = LTE/TM3 10MHz

5.1.1.6.1 Test Channel = LCH

5.1.1.6.1.1 Test RB=1RB

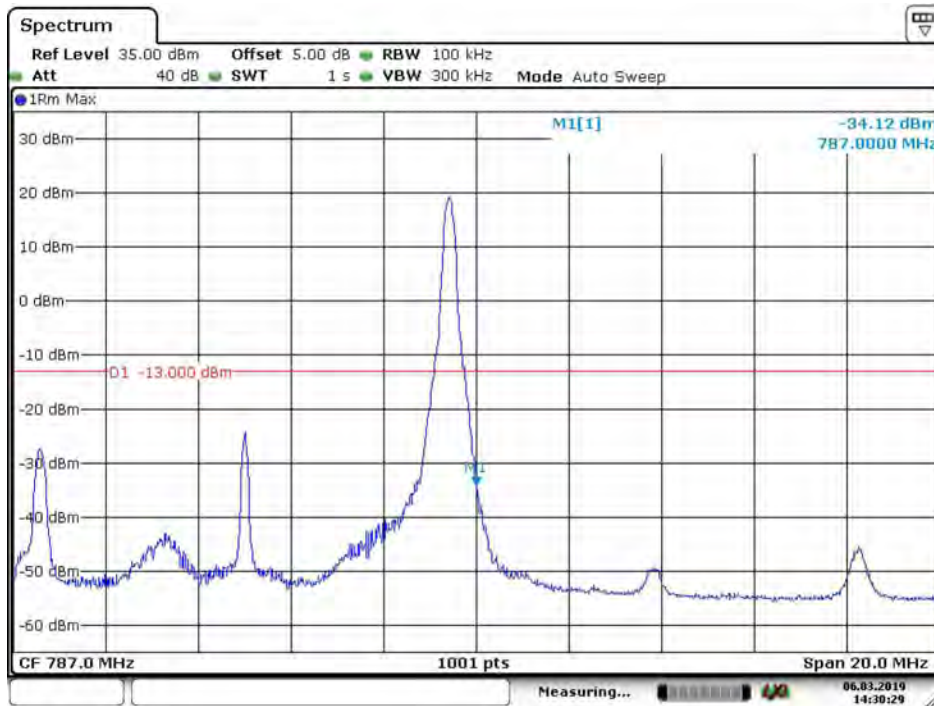


5.1.1.6.1.2 Test RB=50RB



5.1.1.6.1 Test Channel = HCH

5.1.1.6.1.1 Test RB=1RB



5.1.1.6.1.2 Test RB=50RB



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.

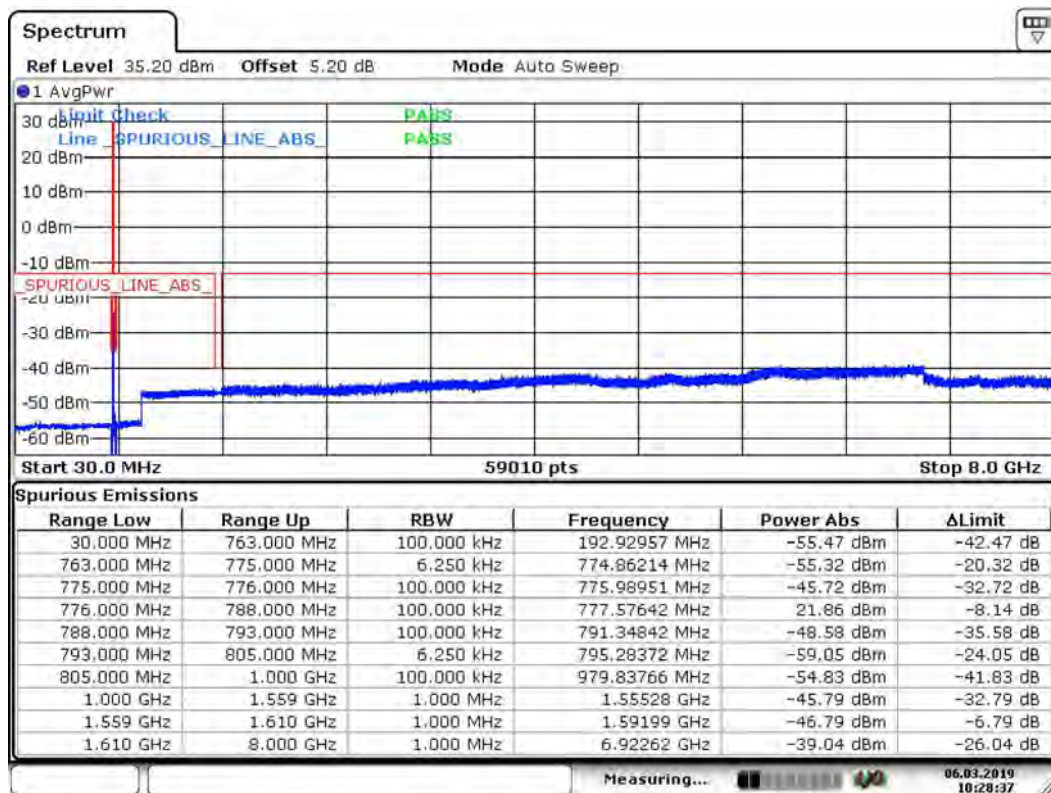
Part I - Test Plots

6.1 For LTE

6.1.1 Test Band = LTE BAND 13

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

6.1.1.1.1 Test Channel = MCH



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7 Field Strength of Spurious Radiation

7.1 For LTE

7.1.1 Test Band = LTE BAND 13

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
65.093333	-81.55	-13.00	68.55	Vertical
128.606667	-85.32	-13.00	72.32	Vertical
179.706667	-81.85	-13.00	68.85	Vertical
1560.000000	-66.60	-40.00	26.60	Vertical
2780.000000	-57.83	-13.00	44.83	Vertical
4270.912500	-66.79	-13.00	53.79	Vertical
63.460000	-77.76	-13.00	64.76	Horizontal
183.486667	-72.38	-13.00	59.38	Horizontal
364.786667	-84.97	-13.00	71.97	Horizontal
1605.000000	-65.36	-40.00	25.36	Horizontal
2486.500000	-59.02	-13.00	46.02	Horizontal
3869.700000	-68.22	-13.00	55.22	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
LTEBAND 13	LTE/TM1 10MHz	LCH/MCH/HCH	TN	VL	-1.89	-0.00242	PASS
				VN	-8.66	-0.01107	PASS
				VH	10.00	0.01279	PASS
	LTE/TM2 10MHz	LCH/MCH/HCH	TN	VL	7.45	0.00952	PASS
				VN	-2.41	-0.00308	PASS
				VH	4.91	0.00627	PASS
	LTE/TM3 10MHz	LCH/MCH/HCH	TN	VL	9.46	0.012101	PASS
				VN	-1.41	-0.001803	PASS
				VH	2.38	0.003047	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
LTEBAND 13	LTE/TM1 10MHz	LCH/MCH/HCH	VN	-30	5.39	0.00690	PASS
				-20	-0.23	-0.00029	PASS
				-10	9.07	0.01159	PASS
				0	-4.44	-0.00567	PASS
				10	3.78	0.00483	PASS
				20	-6.89	-0.00881	PASS
				30	6.99	0.00894	PASS
				40	-9.79	-0.01252	PASS
				50	8.76	0.01120	PASS
	LTE/TM2 10MHz	LCH/MCH/HCH	VN	-30	2.74	0.00351	PASS
				-20	-0.49	-0.00063	PASS
				-10	-4.67	-0.00597	PASS
				0	1.26	0.00162	PASS
				10	-9.56	-0.01222	PASS
				20	-1.33	-0.00171	PASS
				30	-5.52	-0.00705	PASS
				40	-7.52	-0.00961	PASS
				50	-6.77	-0.00866	PASS
	LTE/TM3 10MHz	LCH/MCH/HCH	VN	-30	6.85	0.008760	PASS
				-20	-0.59	-0.000757	PASS
				-10	8.77	0.011212	PASS
				0	-3.64	-0.004655	PASS
				10	-7.05	-0.009019	PASS
				20	9.59	0.012269	PASS
				30	7.21	0.009221	PASS
				40	-6.11	-0.007816	PASS
				50	7.61	0.009734	PASS

The End



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