



# Appendix B

## Test Data for SZEM1610009167RG



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# 1 Effective (Isotropic) Radiated Power Output Data

Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE BAND 7

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
BAND7	LTE/TM1	5M	LCH	RB1#0	23.54	24.03	33.00	PASS
				RB1#13	23.58	24.07	33.00	PASS
				RB1#24	23.58	24.07	33.00	PASS
				RB12#0	22.72	23.21	33.00	PASS
				RB12#6	22.74	23.23	33.00	PASS
				RB12#13	22.79	23.28	33.00	PASS
				RB25#0	22.71	23.20	33.00	PASS
			MCH	RB1#0	23.95	24.44	33.00	PASS
				RB1#13	23.94	24.43	33.00	PASS
				RB1#24	23.91	24.40	33.00	PASS
				RB12#0	23.10	23.59	33.00	PASS
				RB12#6	23.07	23.56	33.00	PASS
				RB12#13	23.11	23.60	33.00	PASS
				RB25#0	23.03	23.52	33.00	PASS
			HCH	RB1#0	23.68	24.17	33.00	PASS
				RB1#13	23.71	24.20	33.00	PASS
				RB1#24	23.65	24.14	33.00	PASS
				RB12#0	22.83	23.32	33.00	PASS
				RB12#6	22.85	23.34	33.00	PASS
				RB12#13	22.87	23.36	33.00	PASS
				RB25#0	22.81	23.30	33.00	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
BAND7	LTE/TM2	5M	LCH	RB1#0	22.43	22.92	33.00	PASS
				RB1#13	22.51	23.00	33.00	PASS
				RB1#24	22.50	22.99	33.00	PASS
				RB12#0	21.70	22.19	33.00	PASS
				RB12#6	21.72	22.21	33.00	PASS
				RB12#13	21.75	22.24	33.00	PASS
				RB25#0	21.66	22.15	33.00	PASS
			MCH	RB1#0	22.83	23.32	33.00	PASS
				RB1#13	22.82	23.31	33.00	PASS
				RB1#24	22.81	23.30	33.00	PASS
				RB12#0	22.10	22.59	33.00	PASS
				RB12#6	22.07	22.56	33.00	PASS
				RB12#13	22.07	22.56	33.00	PASS
				RB25#0	22.00	22.49	33.00	PASS
			HCH	RB1#0	22.83	23.32	33.00	PASS
				RB1#13	22.55	23.04	33.00	PASS
				RB1#24	22.58	23.07	33.00	PASS
				RB12#0	22.53	23.02	33.00	PASS
				RB12#6	21.81	22.30	33.00	PASS
				RB12#13	21.79	22.28	33.00	PASS
				RB25#0	21.81	22.30	33.00	PASS

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BAND7	LTE/TM1	10M	LCH	RB1#0	23.60	24.09	33.00	PASS
				RB1#25	23.73	24.22	33.00	PASS
				RB1#49	23.84	24.33	33.00	PASS
				RB25#0	22.84	23.33	33.00	PASS
				RB25#13	22.89	23.38	33.00	PASS
				RB25#25	22.95	23.44	33.00	PASS
				RB50#0	22.94	23.43	33.00	PASS
			MCH	RB1#0	24.01	24.50	33.00	PASS
				RB1#25	23.99	24.48	33.00	PASS
				RB1#49	24.01	24.50	33.00	PASS
				RB25#0	23.18	23.67	33.00	PASS
				RB25#13	23.15	23.64	33.00	PASS
				RB25#25	23.19	23.68	33.00	PASS
				RB50#0	23.30	23.79	33.00	PASS
			HCH	RB1#0	23.72	24.21	33.00	PASS
				RB1#25	23.72	24.21	33.00	PASS
				RB1#49	23.77	24.26	33.00	PASS
				RB25#0	22.88	23.37	33.00	PASS
				RB25#13	22.88	23.37	33.00	PASS
				RB25#25	22.91	23.40	33.00	PASS
				RB50#0	22.94	23.43	33.00	PASS

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BAND7	LTE/TM2	10M	LCH	RB1#0	22.61	23.10	33.00	PASS
				RB1#25	22.77	23.26	33.00	PASS
				RB1#49	22.91	23.40	33.00	PASS
				RB25#0	21.75	22.24	33.00	PASS
				RB25#13	21.83	22.32	33.00	PASS
				RB25#25	21.89	22.38	33.00	PASS
				RB50#0	21.85	22.34	33.00	PASS
			MCH	RB1#0	23.02	23.51	33.00	PASS
				RB1#25	23.02	23.51	33.00	PASS
				RB1#49	23.07	23.56	33.00	PASS
				RB25#0	22.10	22.59	33.00	PASS
				RB25#13	22.09	22.58	33.00	PASS
				RB25#25	22.11	22.60	33.00	PASS
				RB50#0	22.13	22.62	33.00	PASS
			HCH	RB1#0	22.75	23.24	33.00	PASS
				RB1#25	22.76	23.25	33.00	PASS
				RB1#49	22.78	23.27	33.00	PASS
				RB25#0	21.83	22.32	33.00	PASS
				RB25#13	21.80	22.29	33.00	PASS
				RB25#25	21.82	22.31	33.00	PASS
				RB50#0	21.81	22.30	33.00	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
BAND7	LTE/TM1	15M	LCH	RB1#0	23.65	24.14	33.00	PASS
				RB1#38	23.87	24.36	33.00	PASS
				RB1#74	24.08	24.57	33.00	PASS
				RB36#0	22.94	23.43	33.00	PASS
				RB36#18	23.02	23.51	33.00	PASS
				RB36#39	23.15	23.64	33.00	PASS
				RB75#0	23.08	23.57	33.00	PASS
			MCH	RB1#0	24.03	24.52	33.00	PASS
				RB1#38	23.97	24.46	33.00	PASS
				RB1#74	24.09	24.58	33.00	PASS
				RB36#0	23.17	23.66	33.00	PASS
				RB36#18	23.17	23.66	33.00	PASS
				RB36#39	23.20	23.69	33.00	PASS
				RB75#0	23.19	23.68	33.00	PASS
			HCH	RB1#0	23.75	24.24	33.00	PASS
				RB1#38	23.78	24.27	33.00	PASS
				RB1#74	23.87	24.36	33.00	PASS
				RB36#0	22.93	23.42	33.00	PASS
				RB36#18	22.97	23.46	33.00	PASS
				RB36#39	22.99	23.48	33.00	PASS
				RB75#0	22.98	23.47	33.00	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
BAND7	LTE/TM2	15M	LCH	RB1#0	22.56	23.05	33.00	PASS
				RB1#38	22.77	23.26	33.00	PASS
				RB1#74	22.99	23.48	33.00	PASS
				RB36#0	21.91	22.40	33.00	PASS
				RB36#18	21.99	22.48	33.00	PASS
				RB36#39	22.14	22.63	33.00	PASS
				RB75#0	22.02	22.51	33.00	PASS
			MCH	RB1#0	22.90	23.39	33.00	PASS
				RB1#38	22.85	23.34	33.00	PASS
				RB1#74	22.96	23.45	33.00	PASS
				RB36#0	22.13	22.62	33.00	PASS
				RB36#18	22.13	22.62	33.00	PASS
				RB36#39	22.18	22.67	33.00	PASS
				RB75#0	22.14	22.63	33.00	PASS
			HCH	RB1#0	22.68	23.17	33.00	PASS
				RB1#38	22.67	23.16	33.00	PASS
				RB1#74	22.74	23.23	33.00	PASS
				RB36#0	21.89	22.38	33.00	PASS
				RB36#18	21.92	22.41	33.00	PASS
				RB36#39	21.97	22.46	33.00	PASS
				RB75#0	21.93	22.42	33.00	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
BAND7	LTE/TM1	20M	LCH	RB1#0	23.53	24.02	33.00	PASS
				RB1#50	23.72	24.21	33.00	PASS
				RB1#99	23.69	24.18	33.00	PASS
				RB50#0	22.77	23.26	33.00	PASS
				RB50#25	22.81	23.30	33.00	PASS
				RB50#50	22.83	23.32	33.00	PASS
				RB100#0	22.79	23.28	33.00	PASS
			MCH	RB1#0	23.77	24.26	33.00	PASS
				RB1#50	23.64	24.13	33.00	PASS
				RB1#99	23.69	24.18	33.00	PASS
				RB50#0	22.84	23.33	33.00	PASS
				RB50#25	22.77	23.26	33.00	PASS
				RB50#50	22.78	23.27	33.00	PASS
				RB100#0	22.80	23.29	33.00	PASS
			HCH	RB1#0	23.42	23.91	33.00	PASS
				RB1#50	23.39	23.88	33.00	PASS
				RB1#99	23.52	24.01	33.00	PASS
				RB50#0	22.53	23.02	33.00	PASS
				RB50#25	22.60	23.09	33.00	PASS
				RB50#50	22.65	23.14	33.00	PASS
				RB100#0	22.55	23.04	33.00	PASS

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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	EIRP (dBm)	limit (dBm)	Verdict
BAND7	LTE/TM2	20M	LCH	RB1#0	22.73	23.22	33.00	PASS
				RB1#50	22.95	23.44	33.00	PASS
				RB1#99	23.11	23.60	33.00	PASS
				RB50#0	21.72	22.21	33.00	PASS
				RB50#25	21.79	22.28	33.00	PASS
				RB50#50	21.92	22.41	33.00	PASS
				RB100#0	21.77	22.26	33.00	PASS
			MCH	RB1#0	22.99	23.48	33.00	PASS
				RB1#50	22.88	23.37	33.00	PASS
				RB1#99	22.93	23.42	33.00	PASS
				RB50#0	21.79	22.28	33.00	PASS
				RB50#25	21.73	22.22	33.00	PASS
				RB50#50	21.76	22.25	33.00	PASS
				RB100#0	21.75	22.24	33.00	PASS
			HCH	RB1#0	22.67	23.16	33.00	PASS
				RB1#50	22.65	23.14	33.00	PASS
				RB1#99	22.72	23.21	33.00	PASS
				RB50#0	21.50	21.99	33.00	PASS
				RB50#25	21.48	21.97	33.00	PASS
				RB50#50	21.51	22.00	33.00	PASS
				RB100#0	21.48	21.97	33.00	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

c: RBW > emission bandwidth, VBW > 3 x RBW.

Detector: RMS

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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 7	TM1/20M	LCH	5.07	13	PASS
		MCH	4.99	13	PASS
		HCH	4.90	13	PASS
	TM2/20M	LCH	5.74	13	PASS
		MCH	5.57	13	PASS
		HCH	5.54	13	PASS



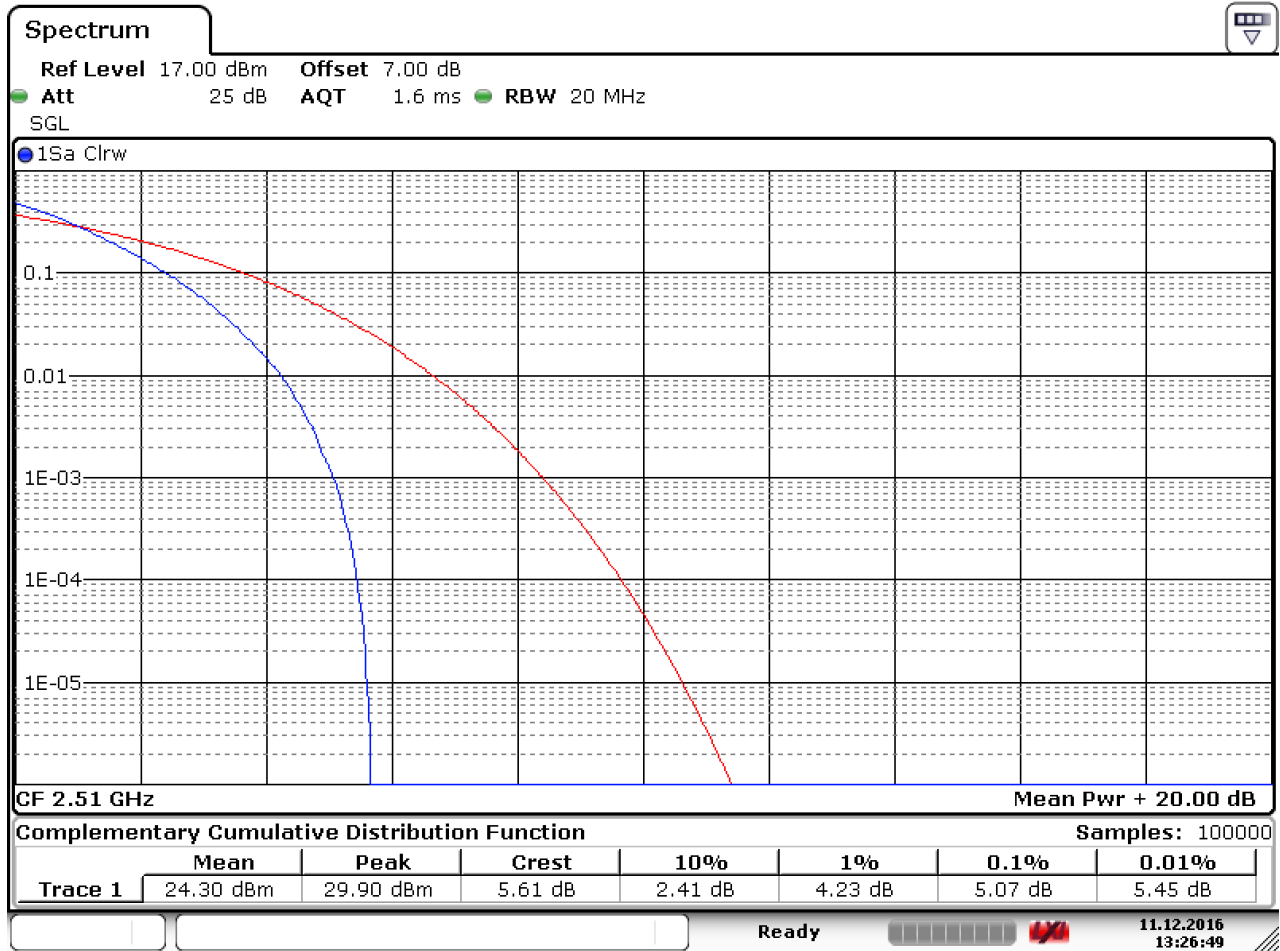
Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE band7

2.1.1.1 Test Mode = LTE/TM1.Bandwidth=20MHz

2.1.1.1.1 Test Channel = LCH

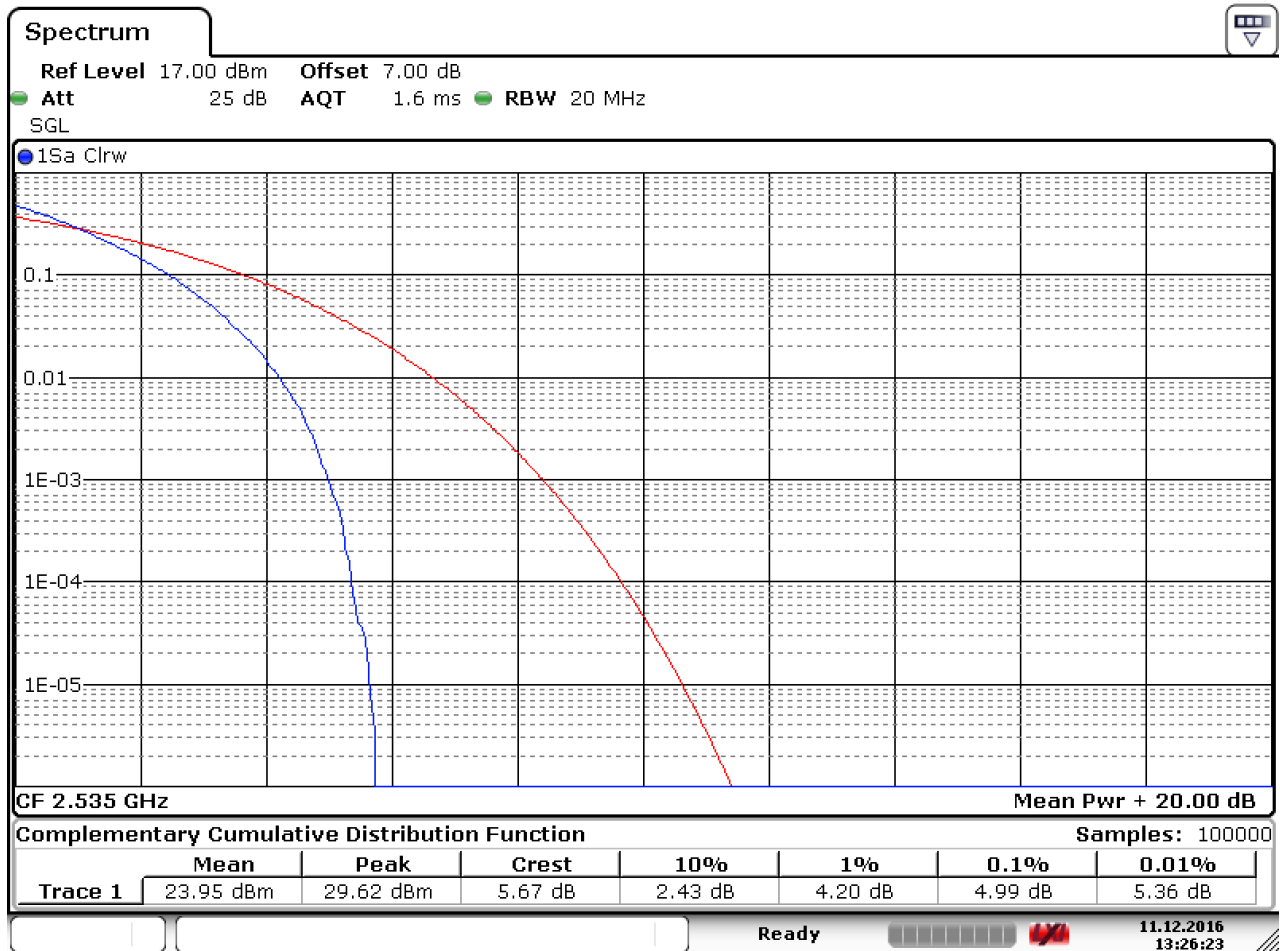


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2.1.1.1.2 Test Channel = MCH

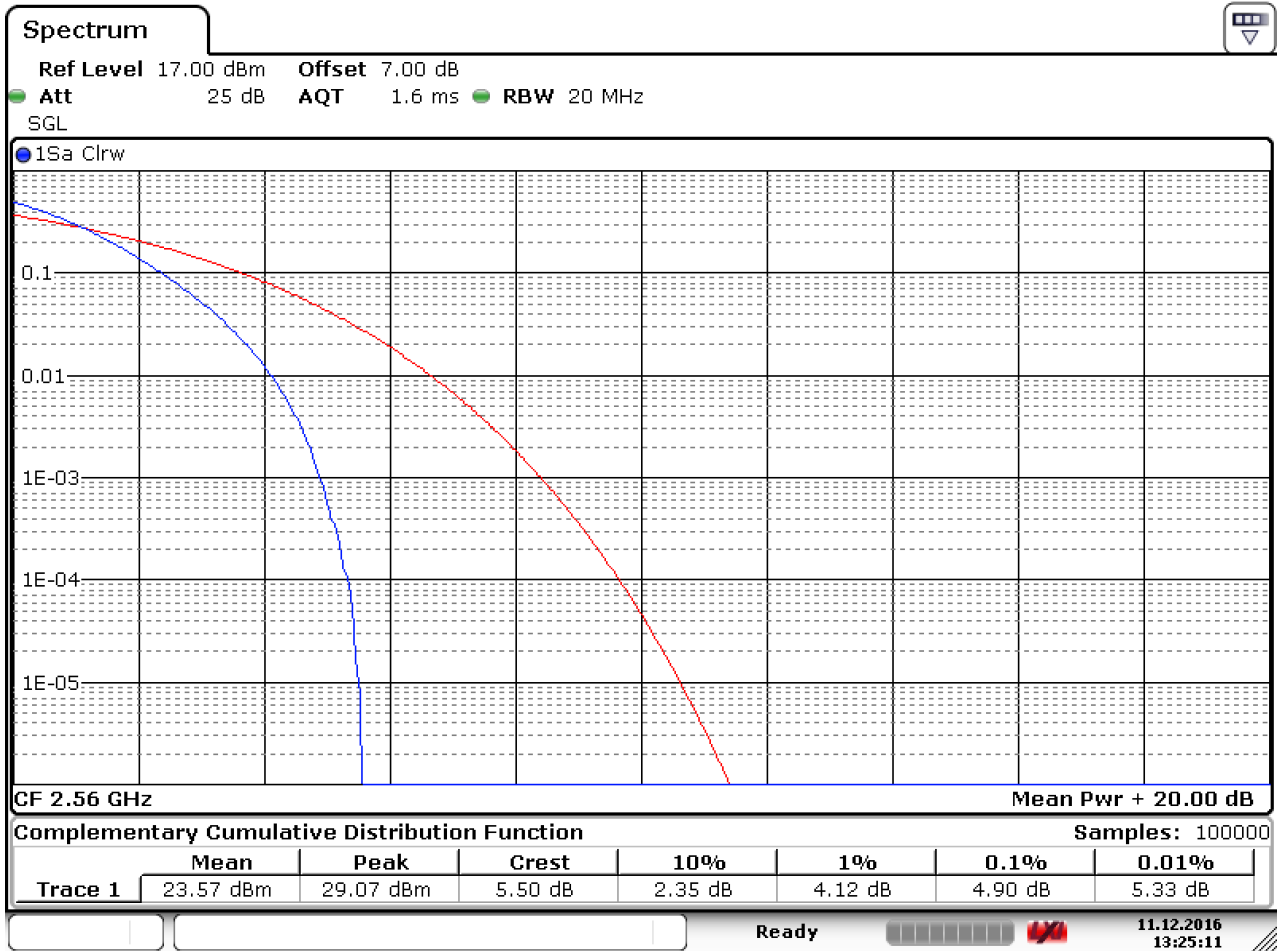


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2.1.1.1.3 Test Channel = HCH



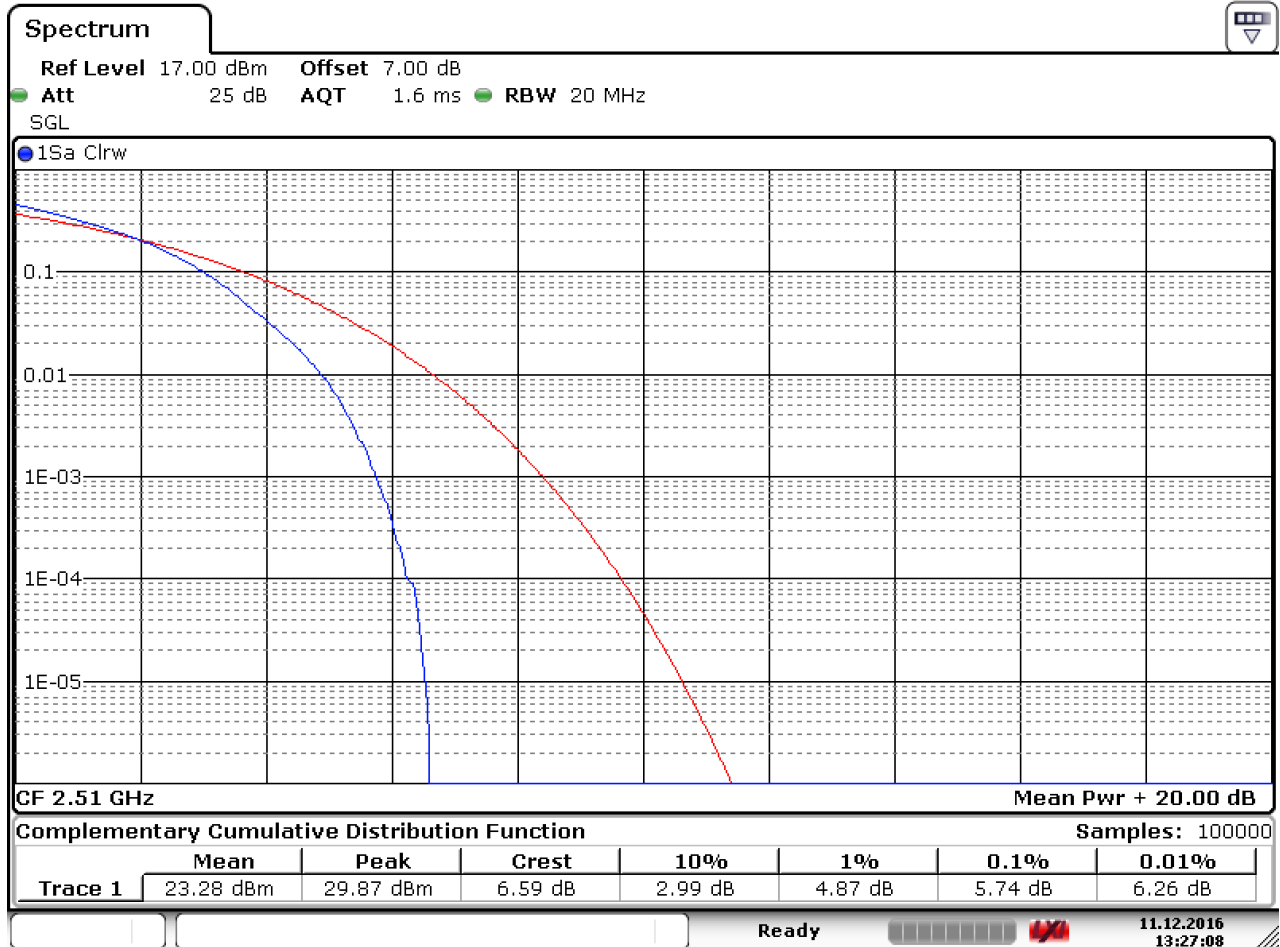
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**2.1.1.2 Test Mode = LTE/TM2.Bandwidth=20MHz**

**2.1.1.2.1 Test Channel = LCH**

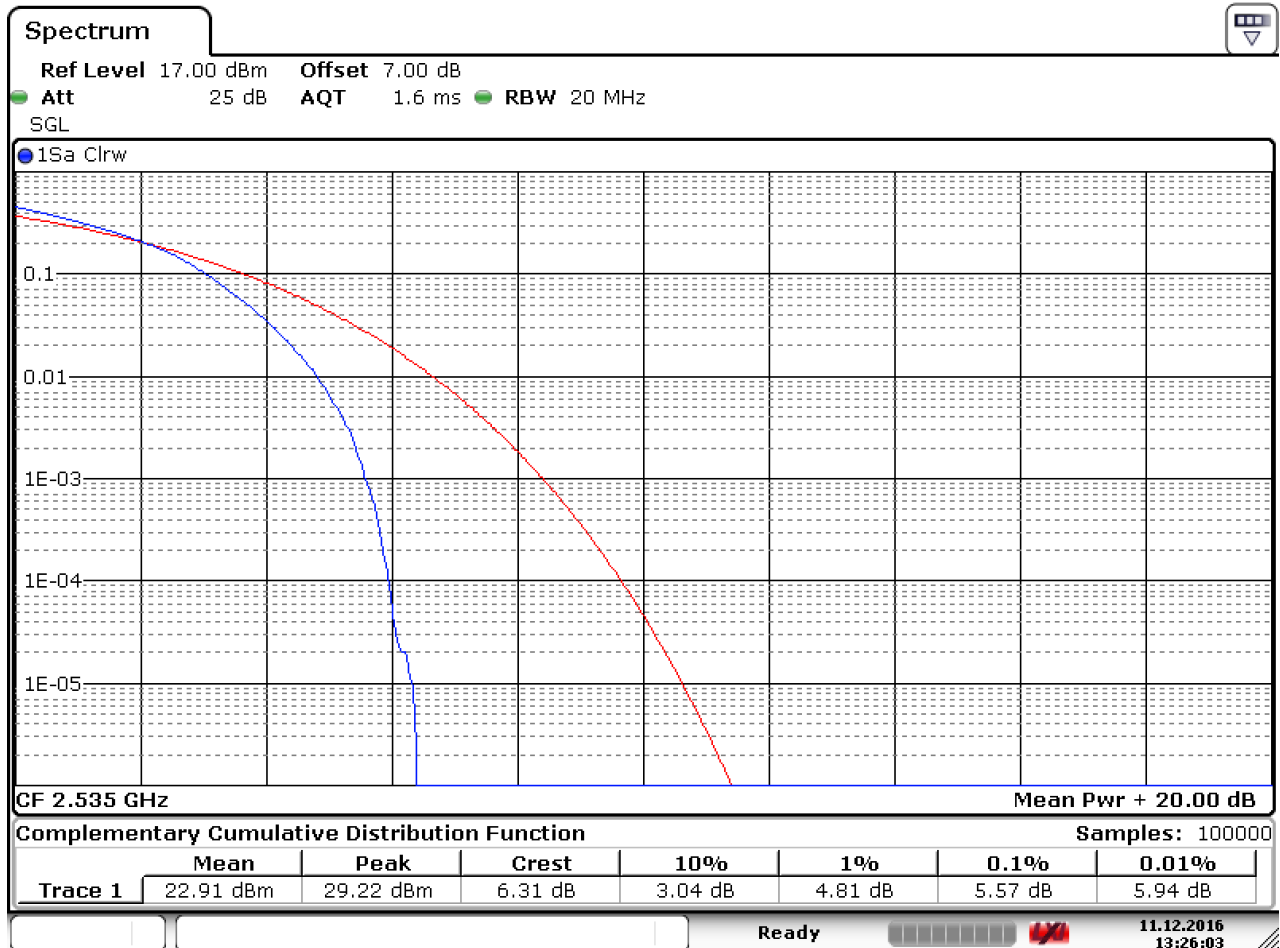


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2.1.1.2.2 Test Channel = MCH



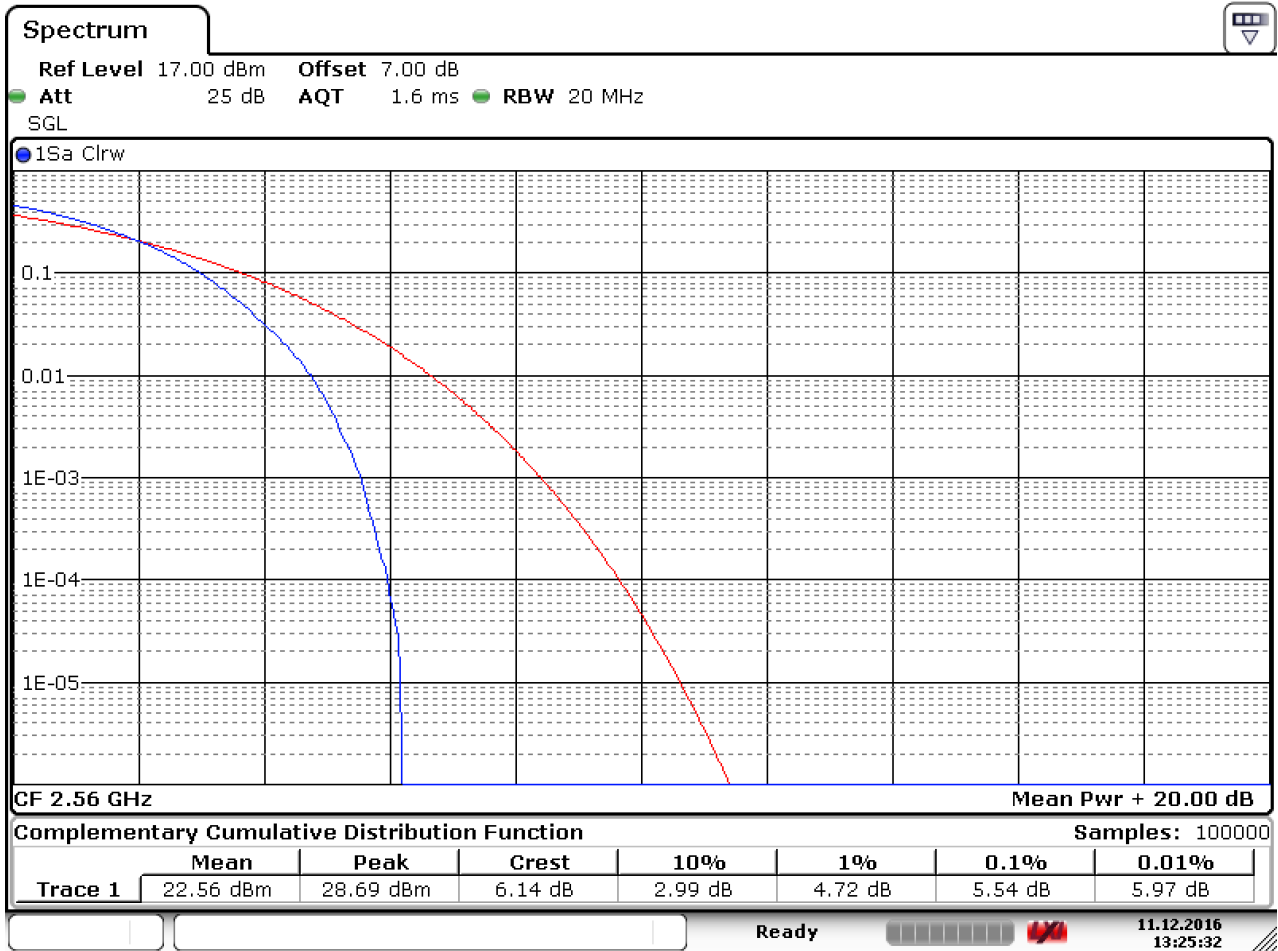
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2.1.1.2.3 Test Channel = HCH



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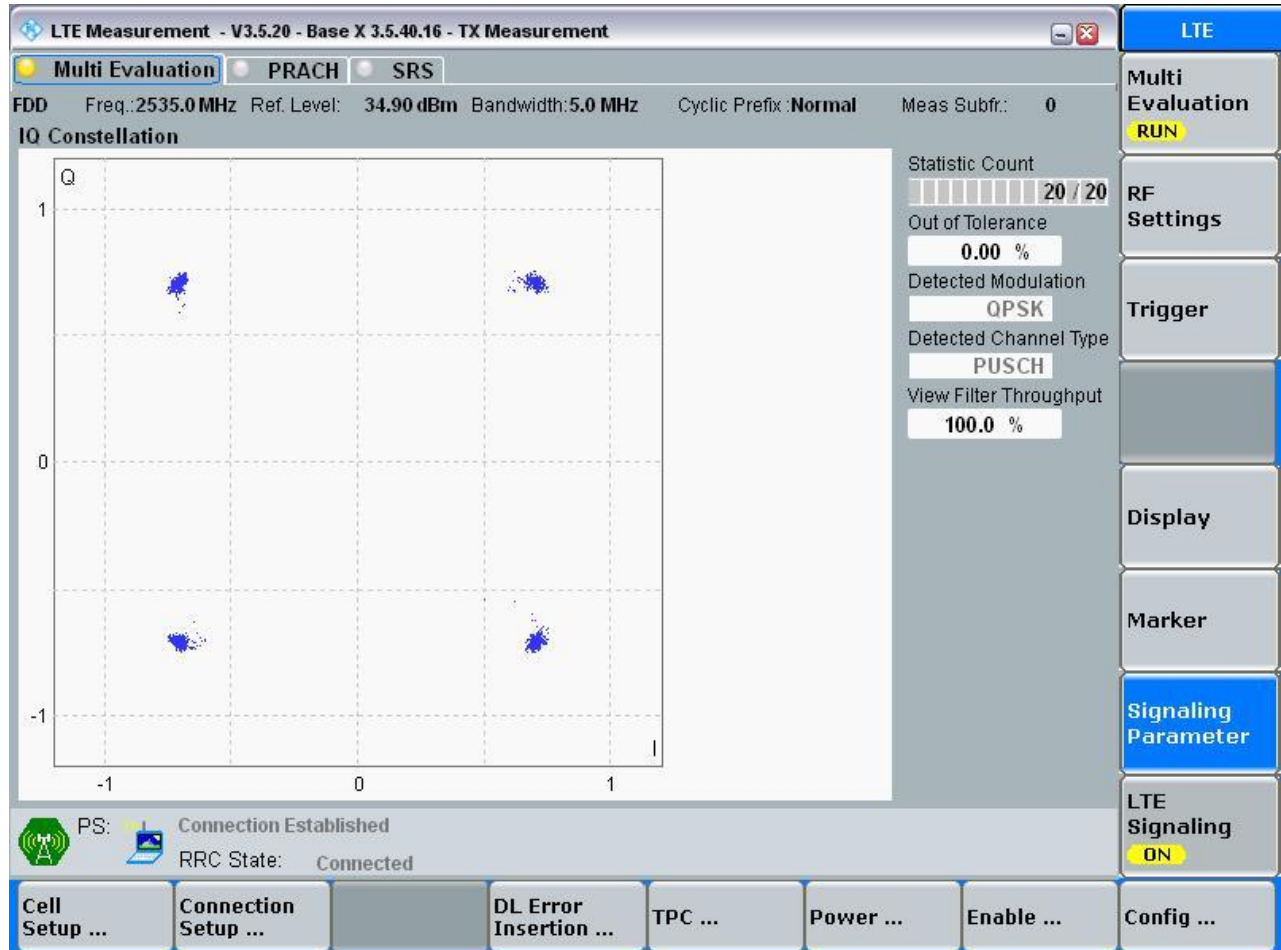
### 3 Modulation Characteristics

#### 3.1 For LTE

##### 3.1.1 Test Band = LTE band7

##### 3.1.1.1 Test Mode = LTE /TM1 5MHz

##### 3.1.1.1.1 Test Channel = MCH





3.1.1.2 Test Mode = LTE /TM1 10MHz

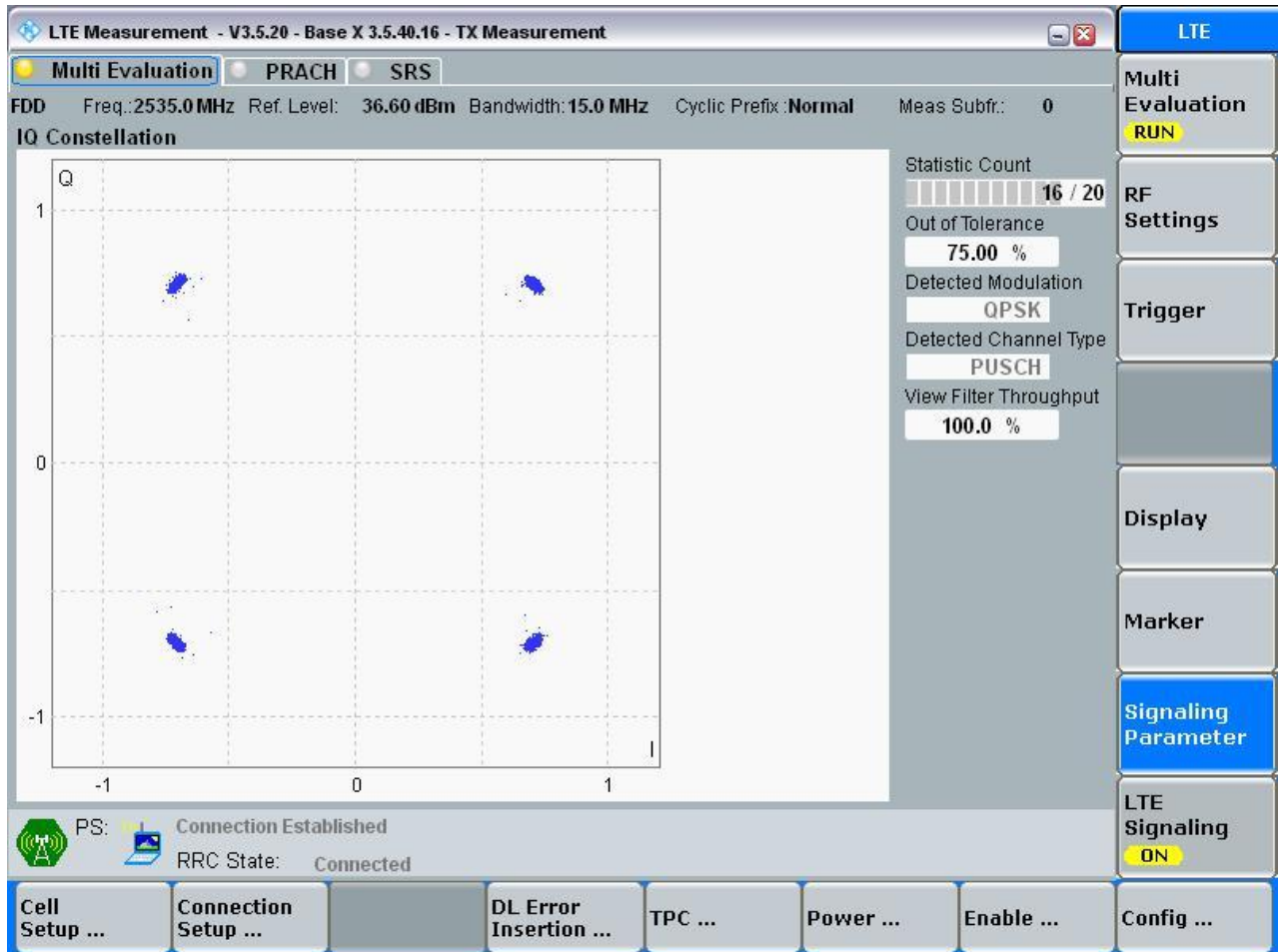
3.1.1.2.1 Test Channel = MCH

The screenshot displays the 'LTE Measurement - V3.5.20 - Base X 3.5.40.16 - TX Measurement' software interface. The main window is titled 'Multi Evaluation' and shows the following parameters: FDD, Freq.: 2535.0 MHz, Ref. Level: 36.60 dBm, Bandwidth: 10.0 MHz, Cyclic Prefix: Normal, and Meas Subfr.: 0. The 'IQ Constellation' plot shows four clusters of points in a square arrangement on a grid from -1 to 1 on both axes. The right-hand side of the interface contains a vertical toolbar with buttons for 'LTE', 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Marker', 'Signaling Parameter', and 'LTE Signaling ON'. Below the plot, the status bar shows 'PS: Connection Established' and 'RRC State: Connected'. At the bottom, there is a row of buttons: 'Cell Setup ...', 'Connection Setup ...', 'DL Error Insertion ...', 'TPC ...', 'Power ...', 'Enable ...', and 'Config ...'.



3.1.1.3 Test Mode = LTE /TM1 15MHz

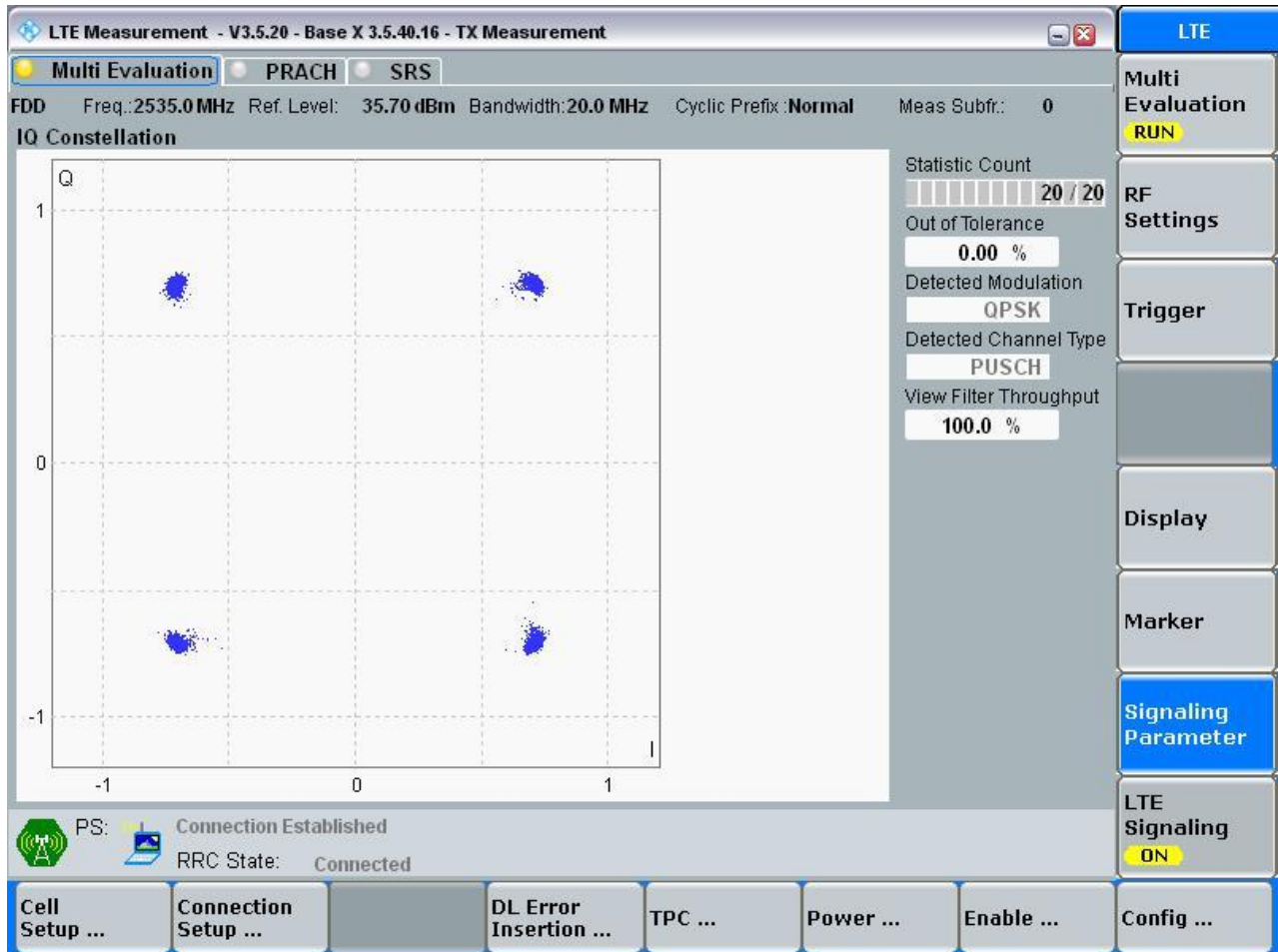
3.1.1.3.1 Test Channel = MCH



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**3.1.1.4 Test Mode = LTE /TM1 20MHz**

**3.1.1.4.1 Test Channel = MCH**

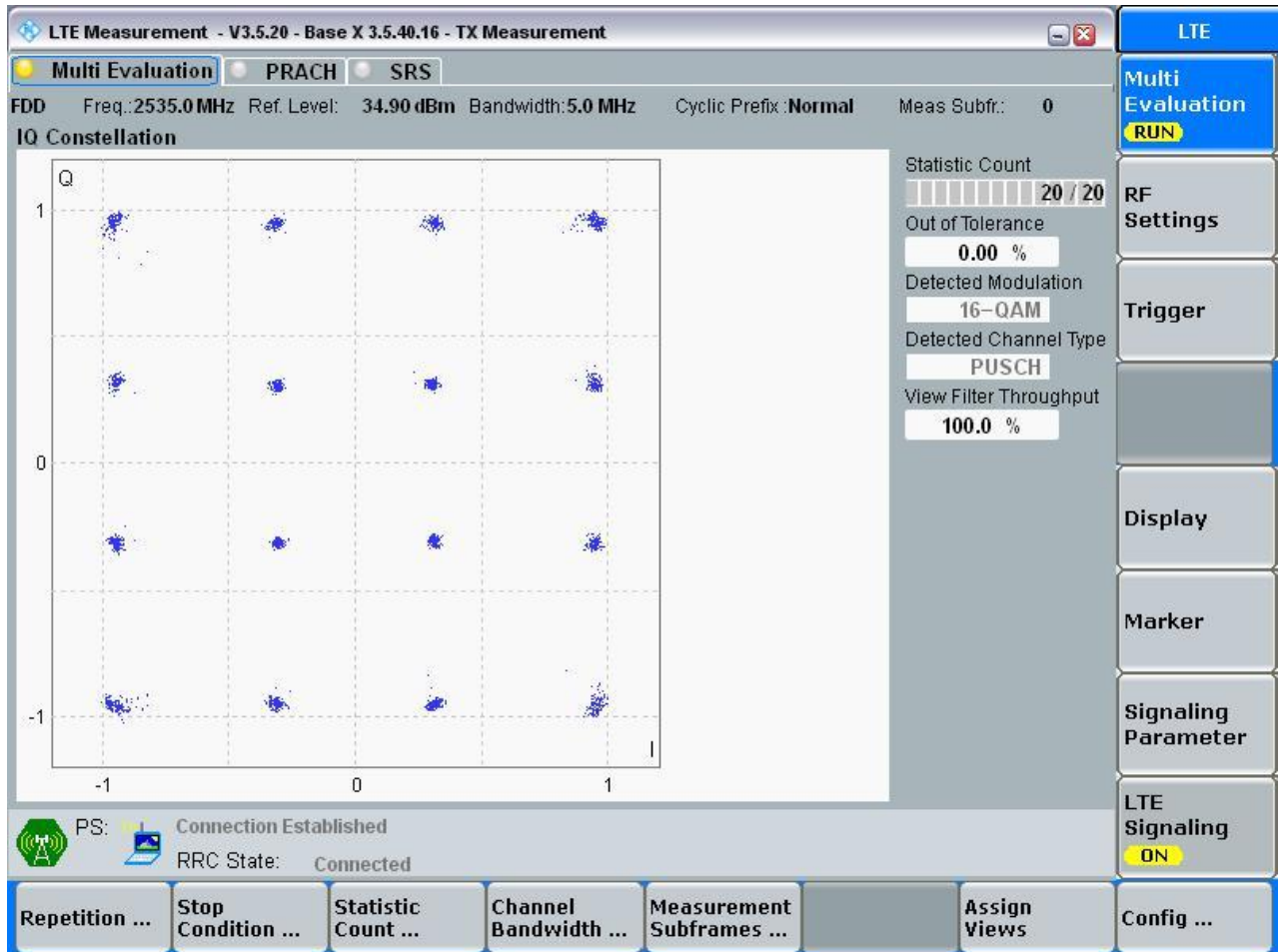






3.1.1.5 Test Mode = LTE /TM2 5MHz

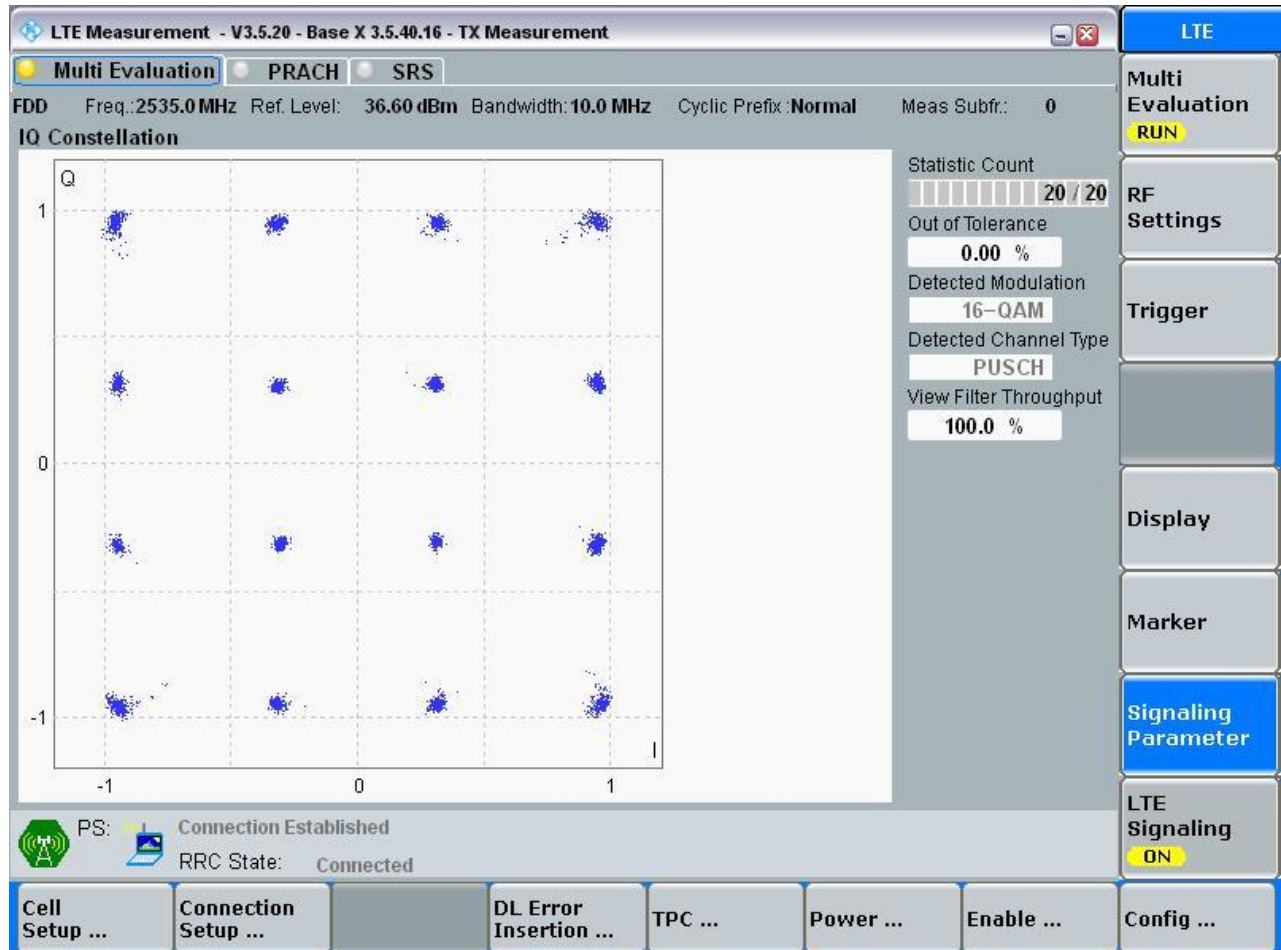
3.1.1.5.1 Test Channel = MCH





3.1.1.6 Test Mode = LTE /TM2 10MHz

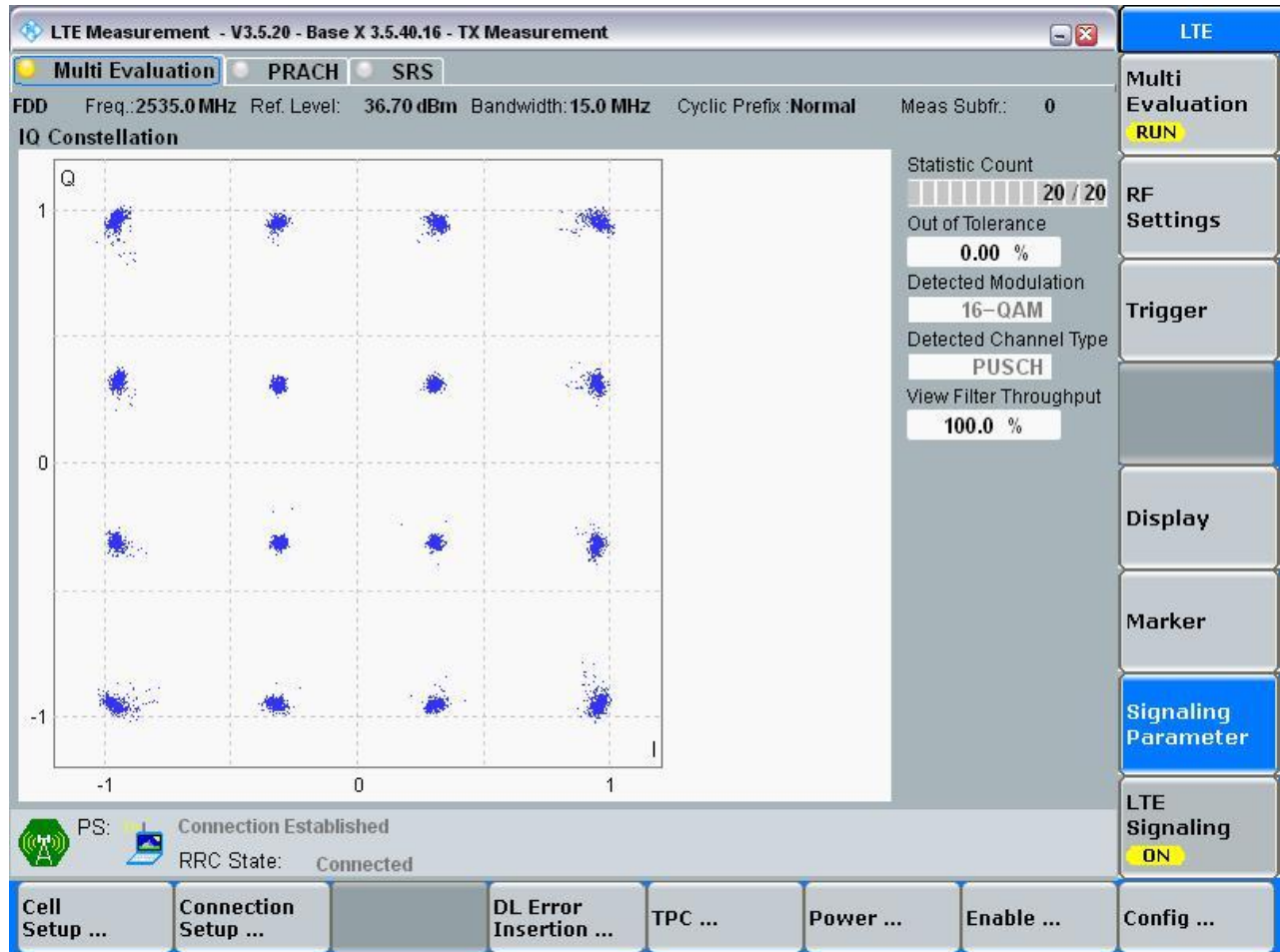
3.1.1.6.1 Test Channel = MCH





3.1.1.7 Test Mode = LTE /TM2 15MHz

3.1.1.7.1 Test Channel = MCH

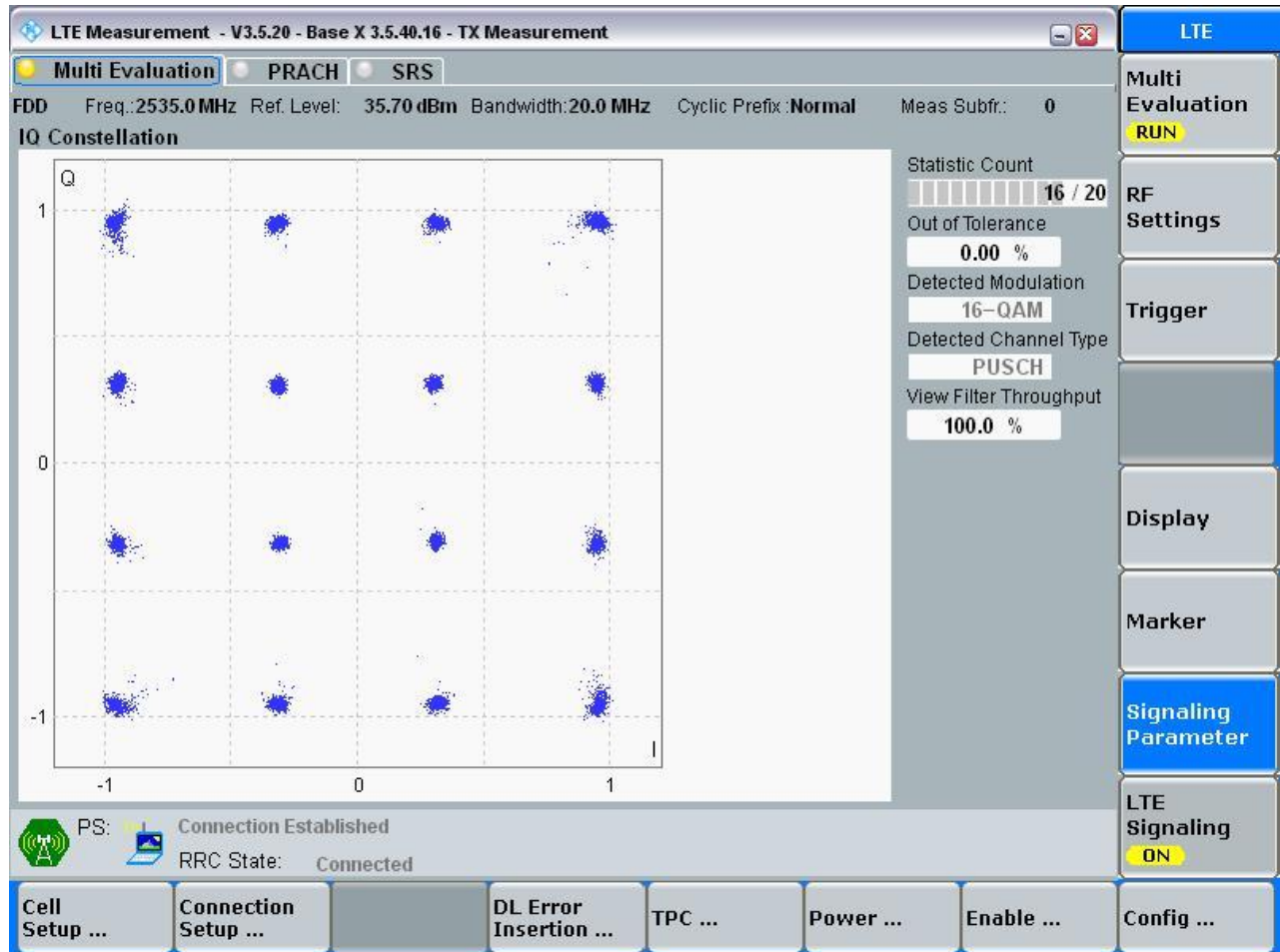






3.1.1.8 Test Mode = LTE /TM2 20MHz

3.1.1.8.1 Test Channel = MCH



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## 4 Bandwidth

### Part I - Test Results

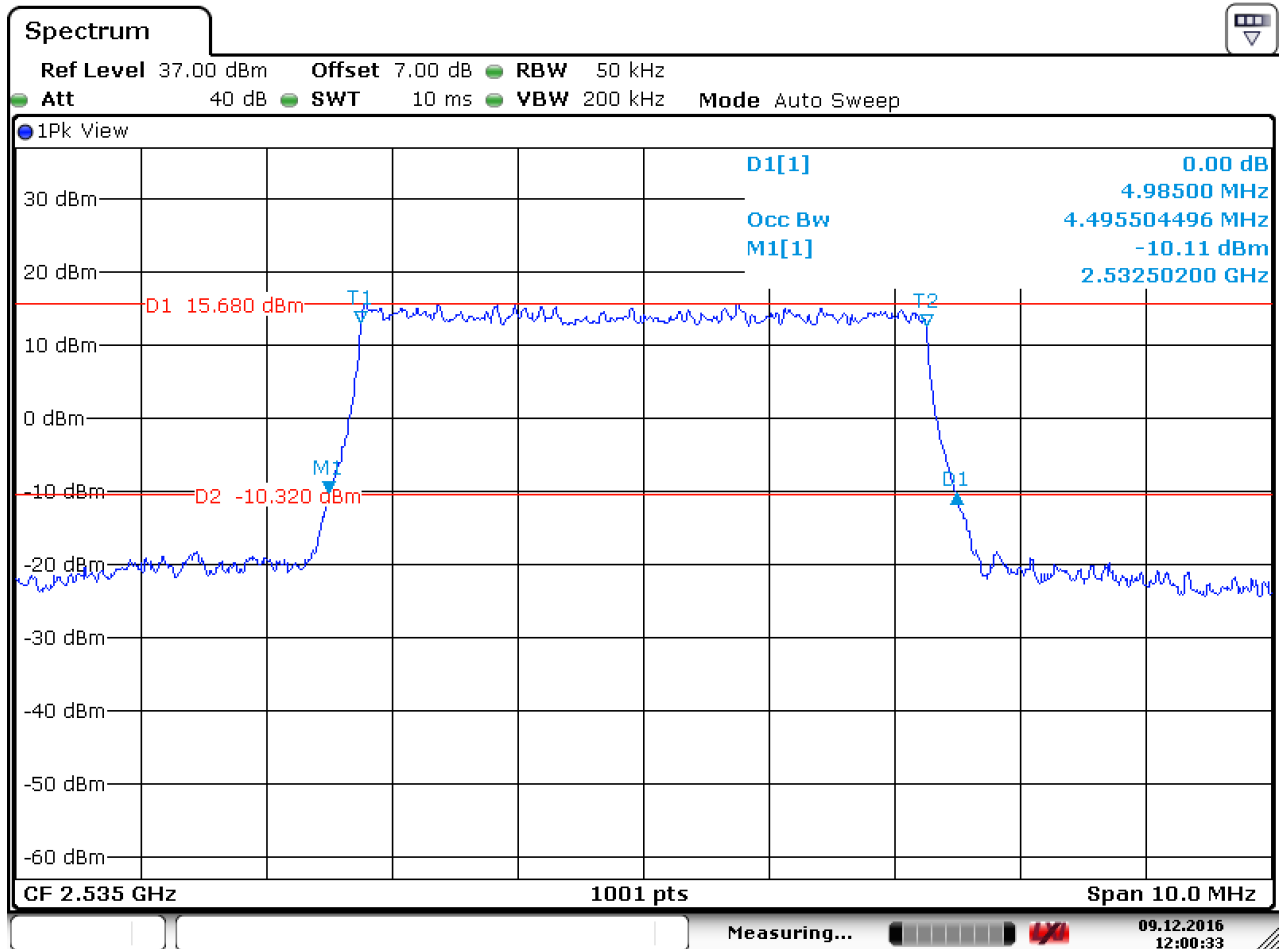
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 7	TM1/ 5MHz	LCH	4.50	4.98	PASS
		MCH	4.50	4.99	PASS
		HCH	4.48	4.95	PASS
	TM2/ 5MHz	LCH	4.50	4.99	PASS
		MCH	4.49	4.95	PASS
		HCH	4.50	5.00	PASS
	TM1/10MHz	LCH	8.93	9.71	PASS
		MCH	8.97	9.77	PASS
		HCH	8.95	9.77	PASS
	TM2/ 10MHz	LCH	8.95	9.79	PASS
		MCH	8.95	9.65	PASS
		HCH	8.95	9.75	PASS
	TM1/ 15MHz	LCH	13.49	14.87	PASS
		MCH	13.52	14.99	PASS
		HCH	13.43	14.84	PASS
	TM2/ 15MHz	LCH	13.55	14.96	PASS
		MCH	13.52	14.87	PASS
		HCH	13.49	14.81	PASS
	TM1/ 20MHz	LCH	17.94	19.42	PASS
		MCH	17.94	19.42	PASS
		HCH	17.94	19.62	PASS
	TM2/ 20MHz	LCH	18.02	19.62	PASS
		MCH	18.02	19.58	PASS
		HCH	17.94	19.42	PASS

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4.1.1.1.2 Test Channel = MCH

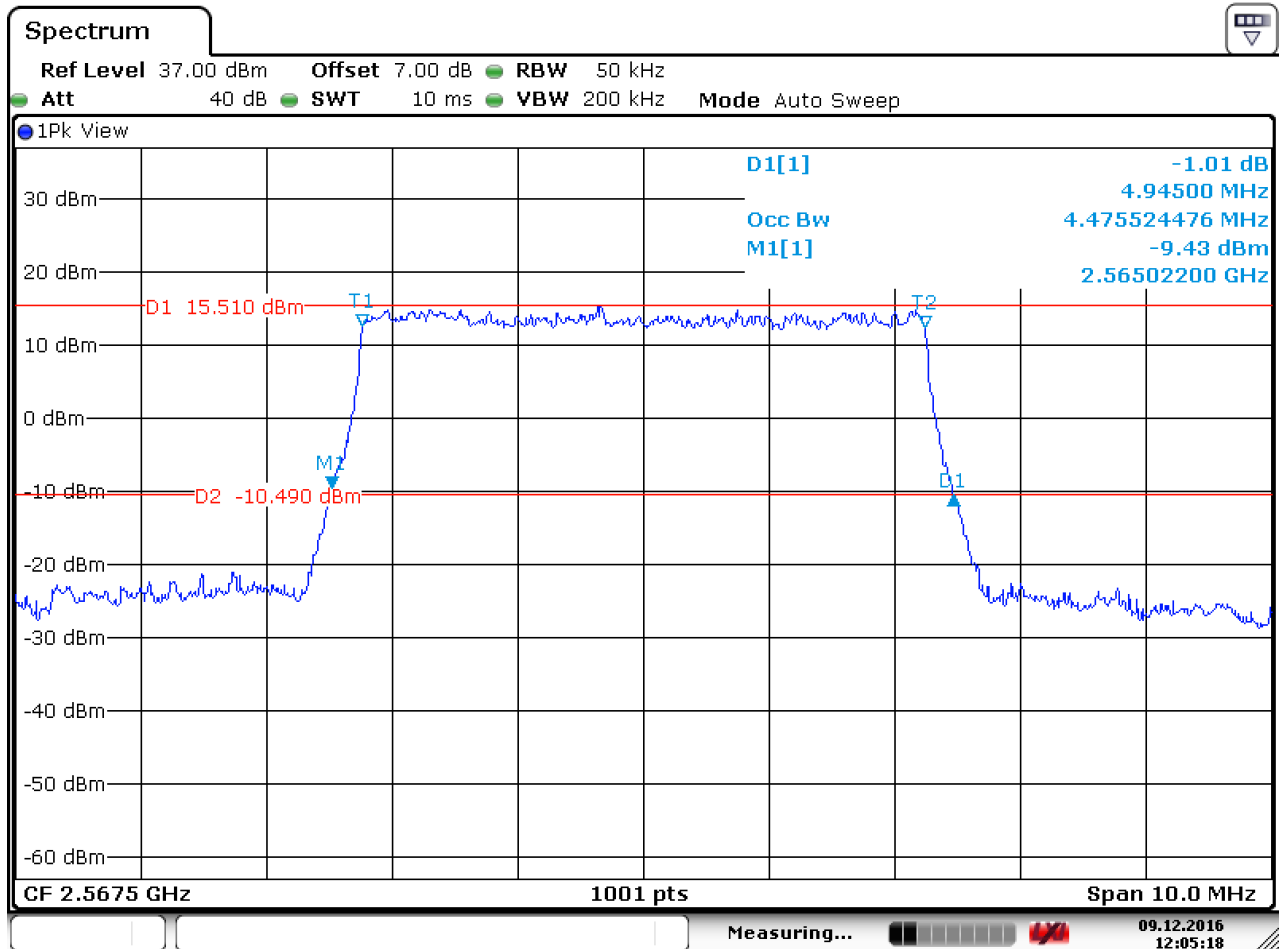


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4.1.1.1.3 Test Channel = HCH



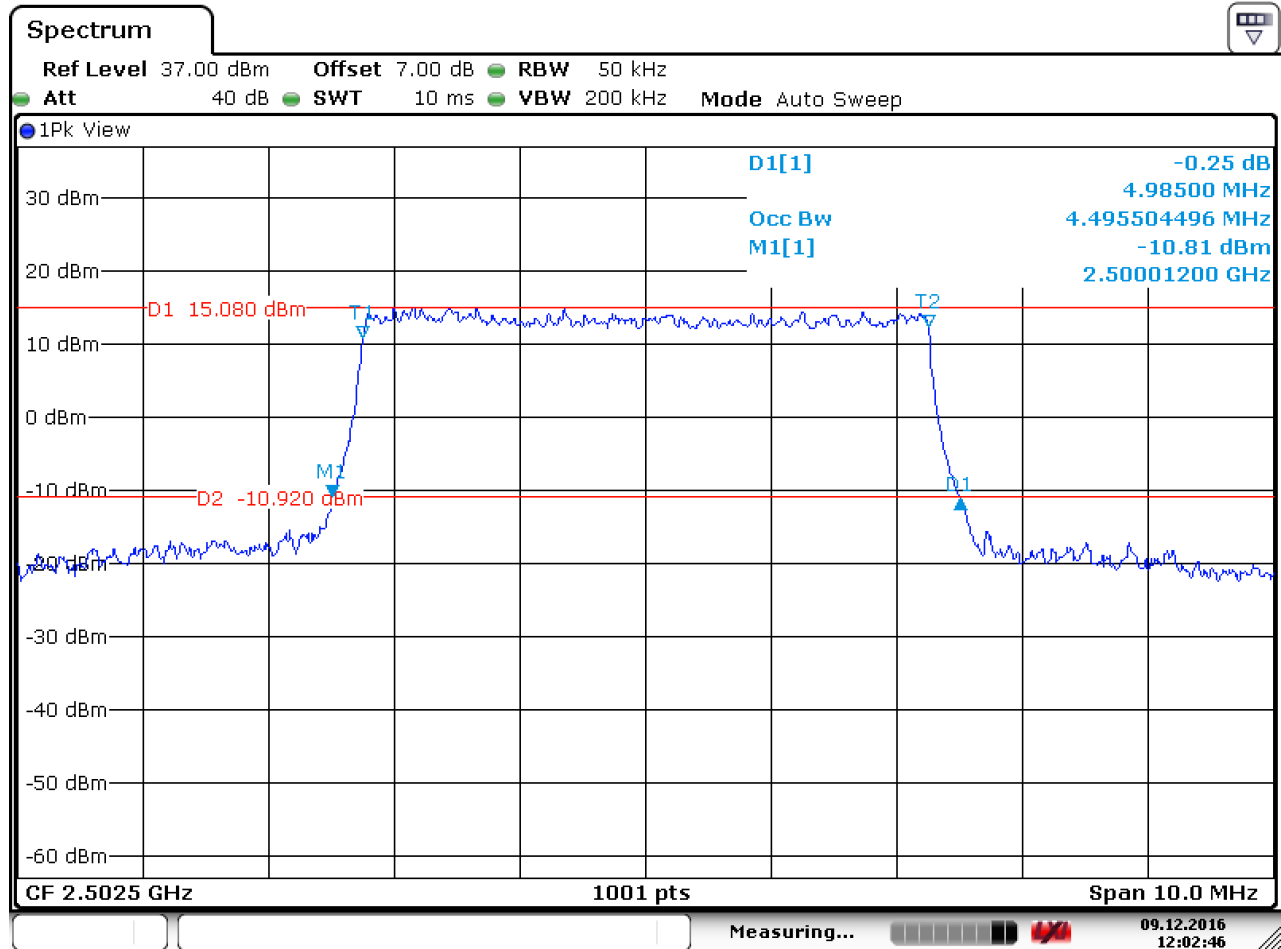
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4.1.1.2 Test Mode = LTE/TM2 5MHz

4.1.1.2.1 Test Channel = LCH

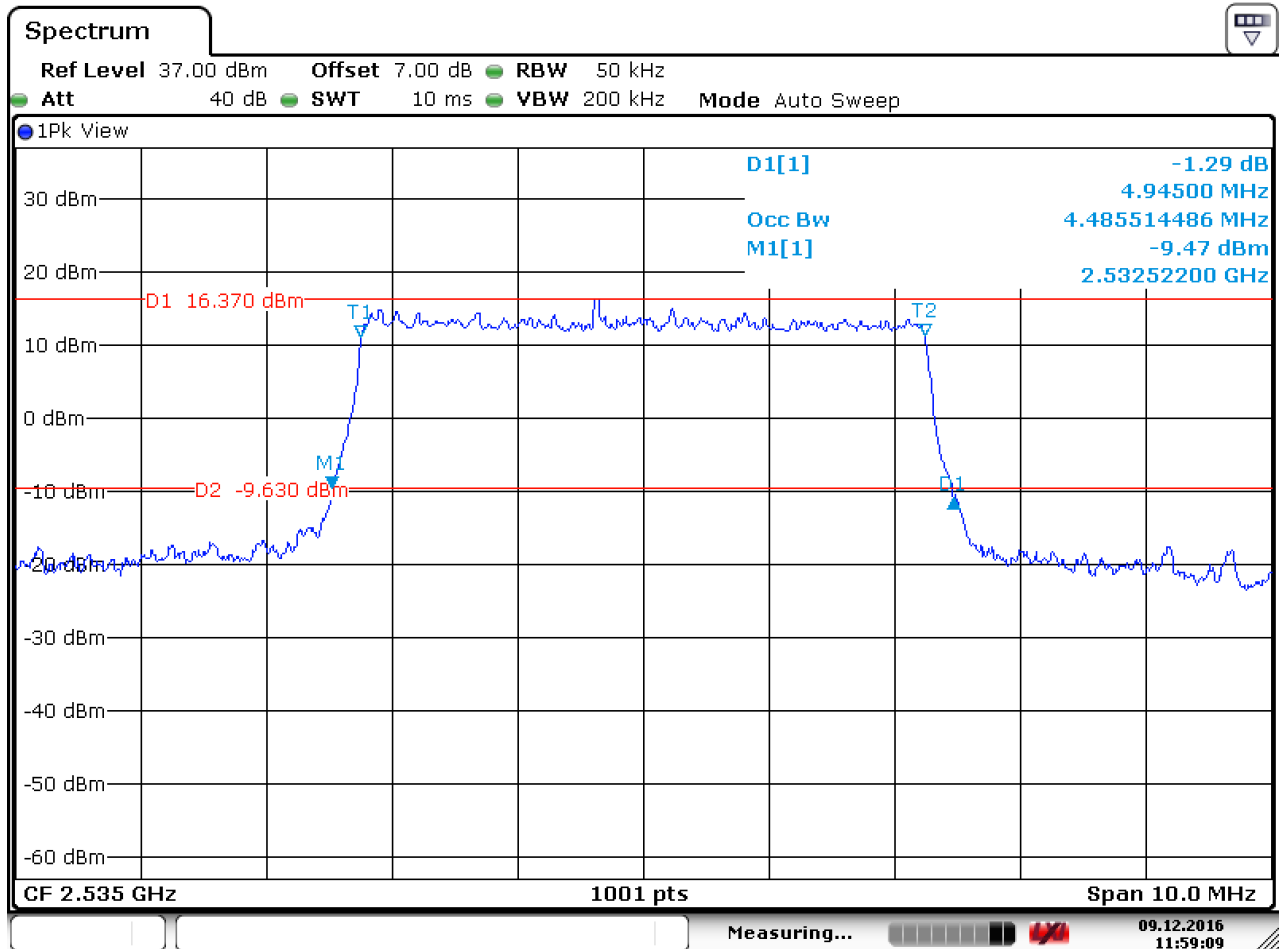


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4.1.1.2.2 Test Channel = MCH

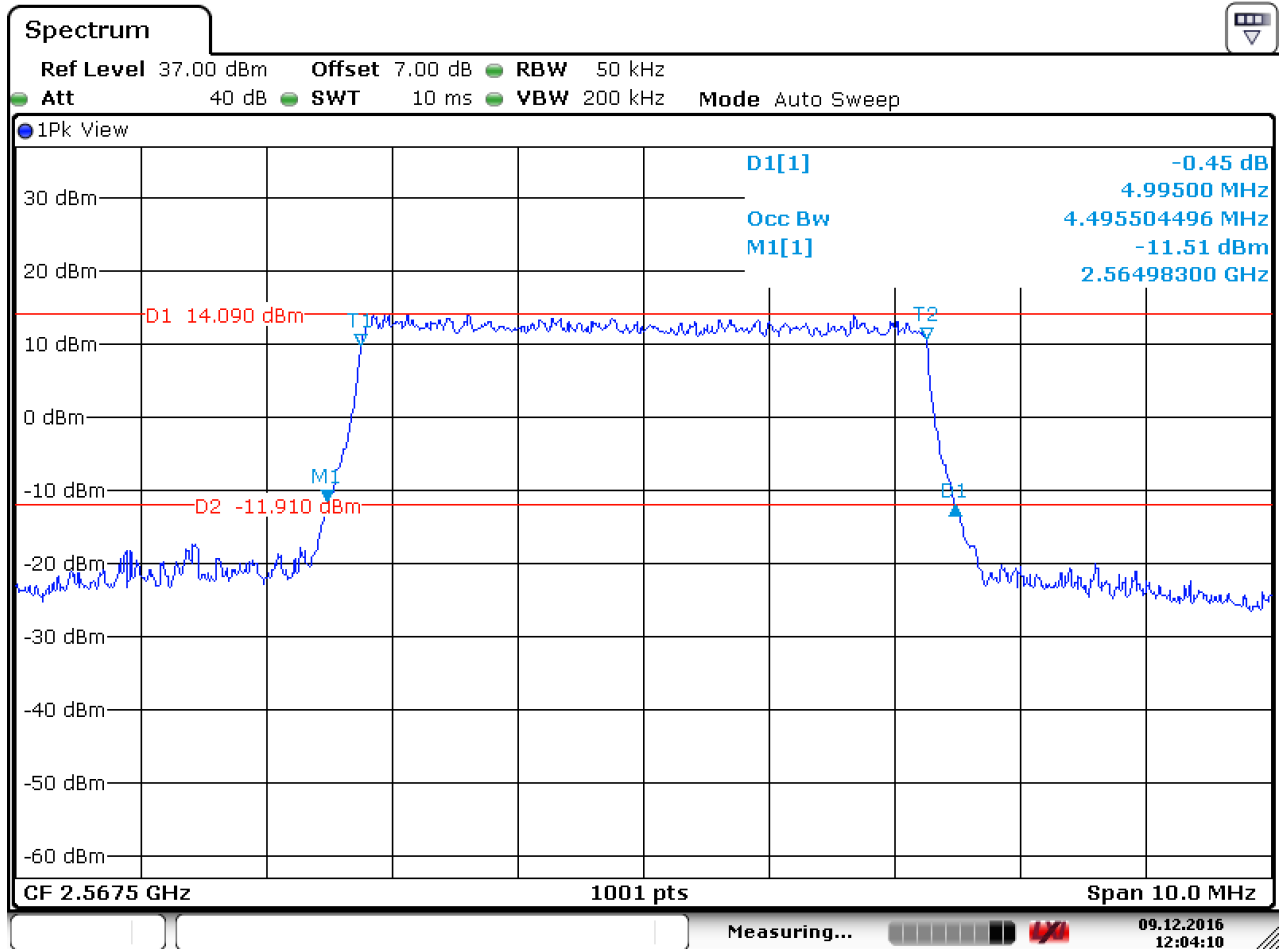


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4.1.1.2.3 Test Channel = HCH



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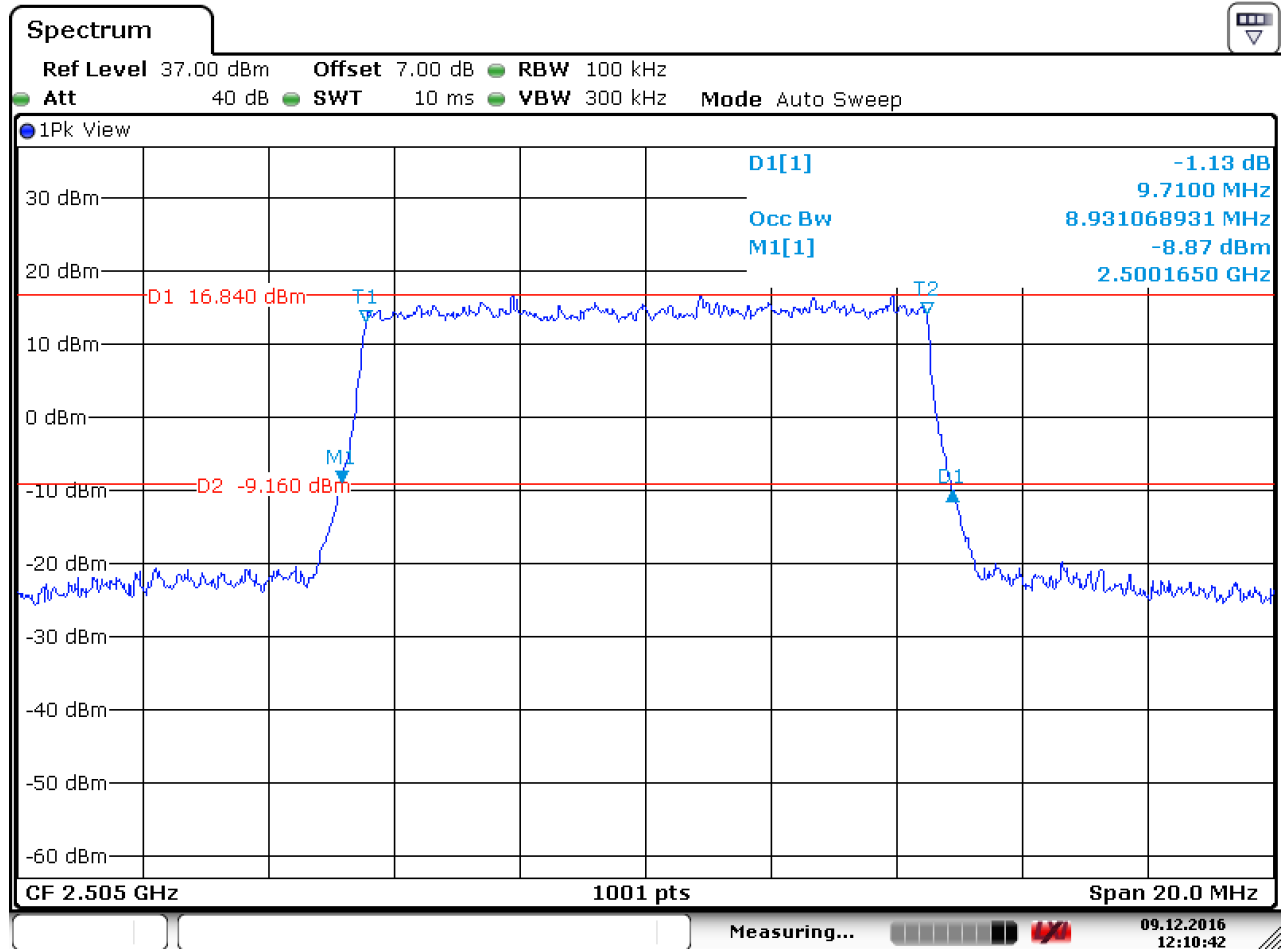
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4.1.1.3 Test Mode = LTE/TM1 10MHz

4.1.1.3.1 Test Channel = LCH

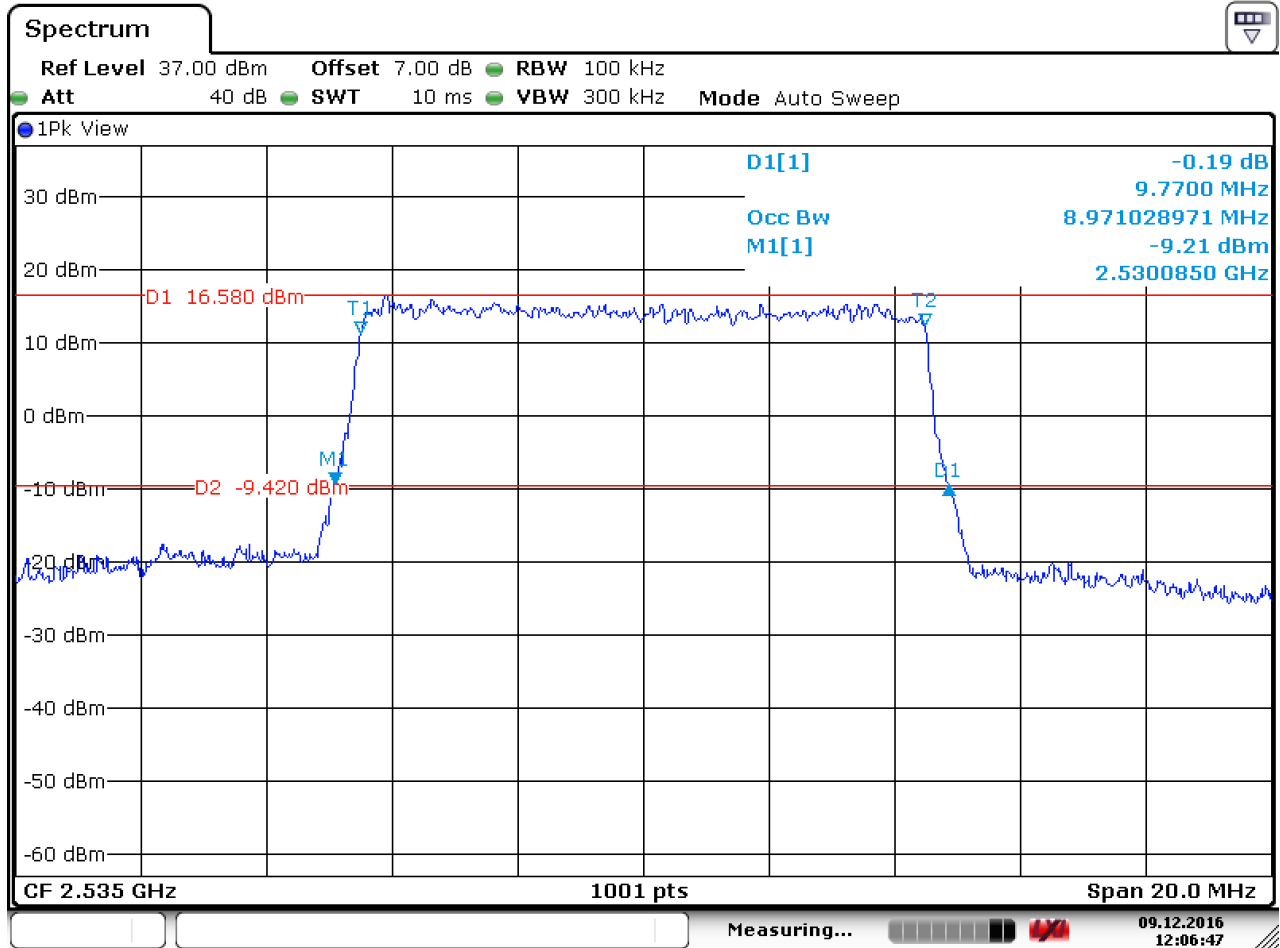


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4.1.1.3.2 Test Channel = MCH

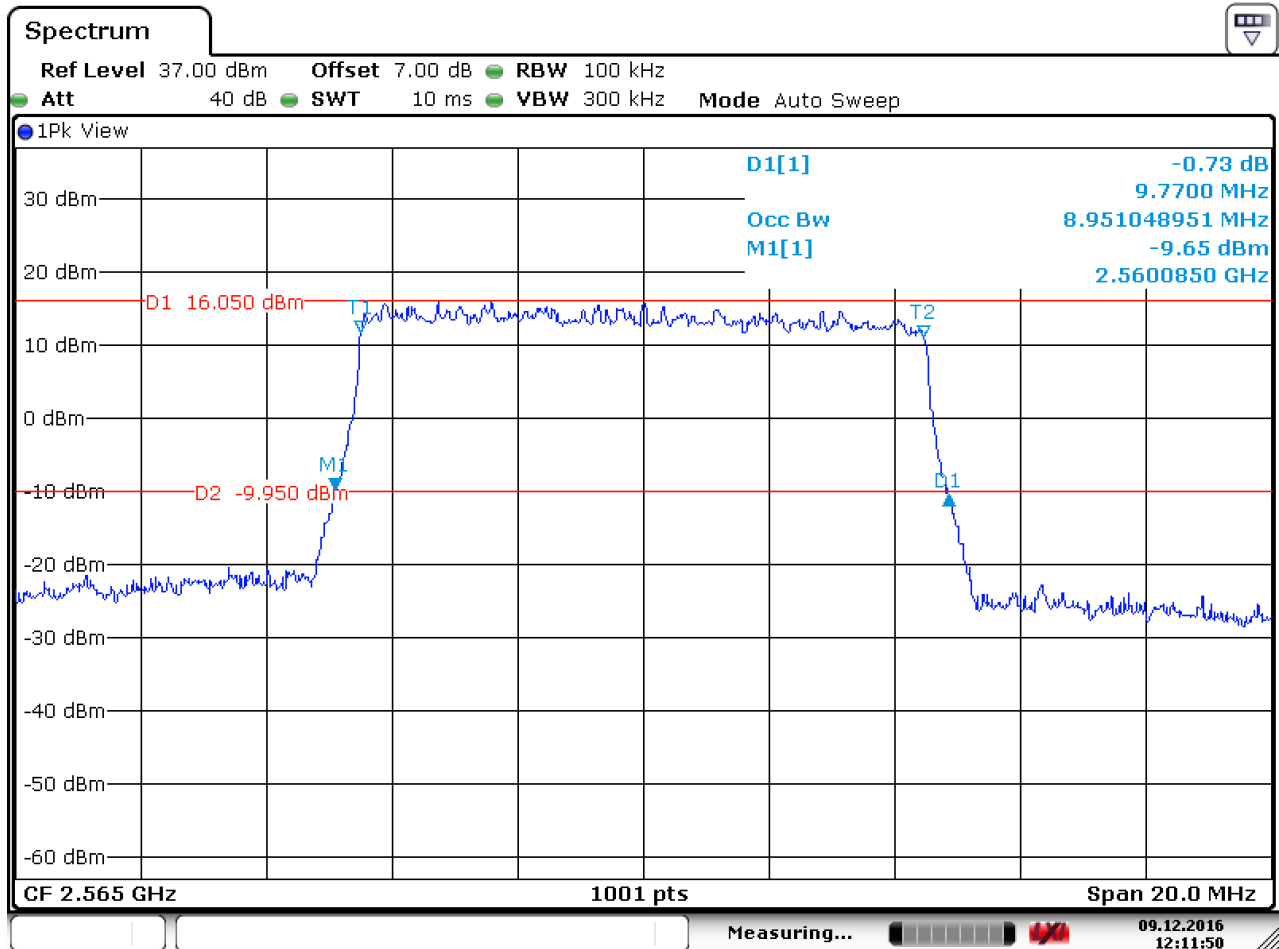


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4.1.1.3.3 Test Channel = HCH



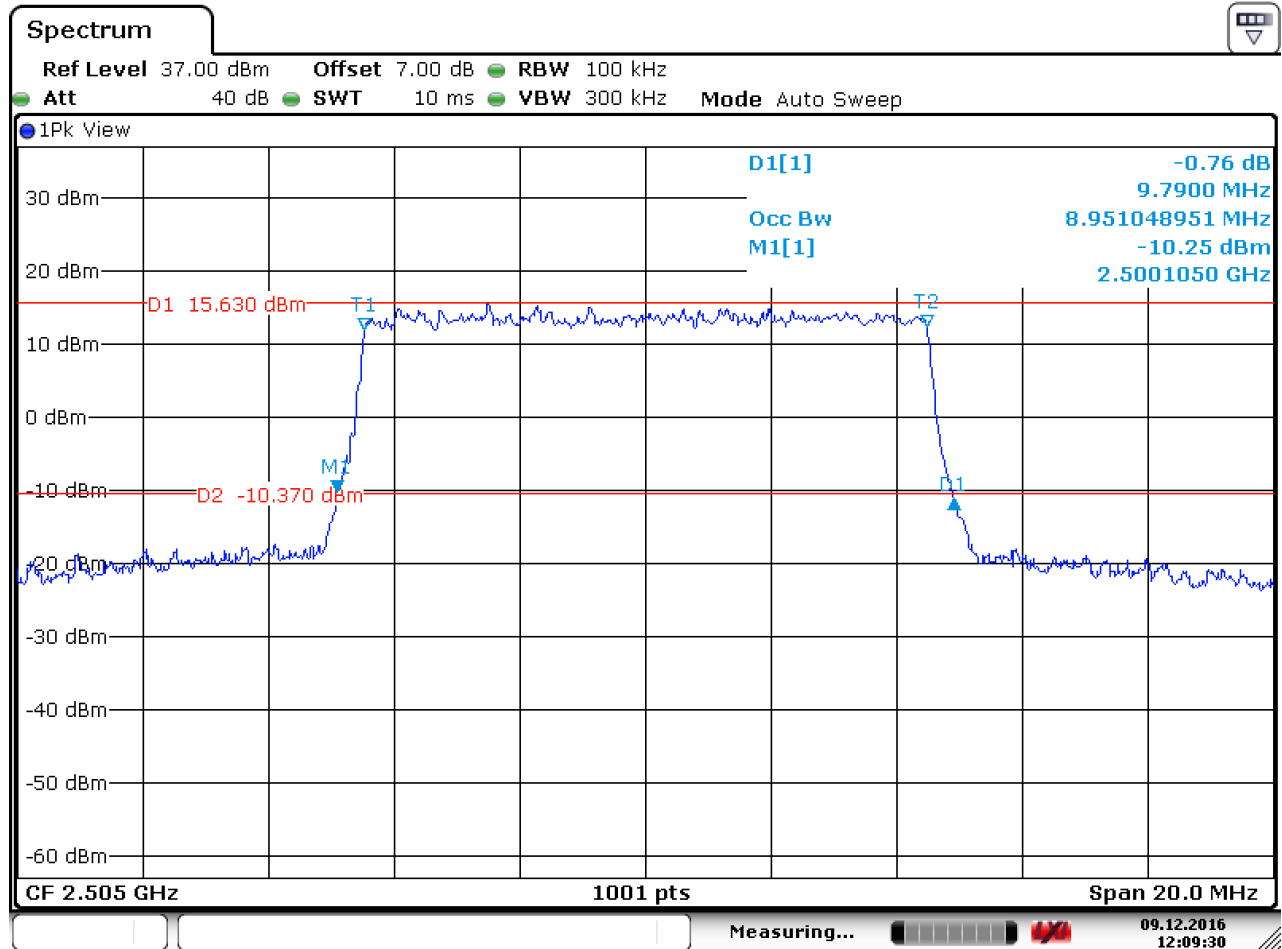
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4.1.1.4 Test Mode = LTE/TM2 10MHz

4.1.1.4.1 Test Channel = LCH

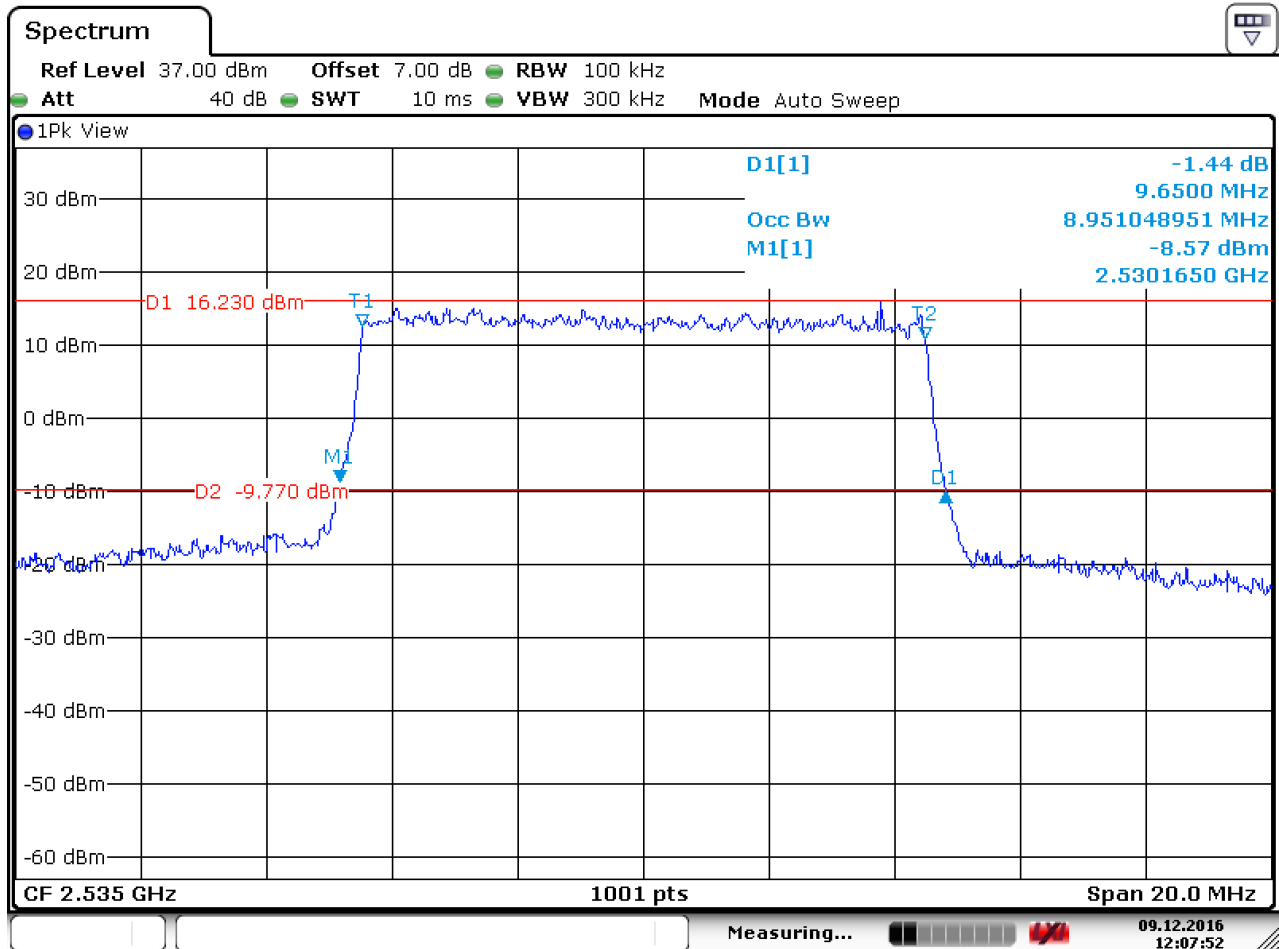


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4.1.1.4.2 Test Channel = MCH

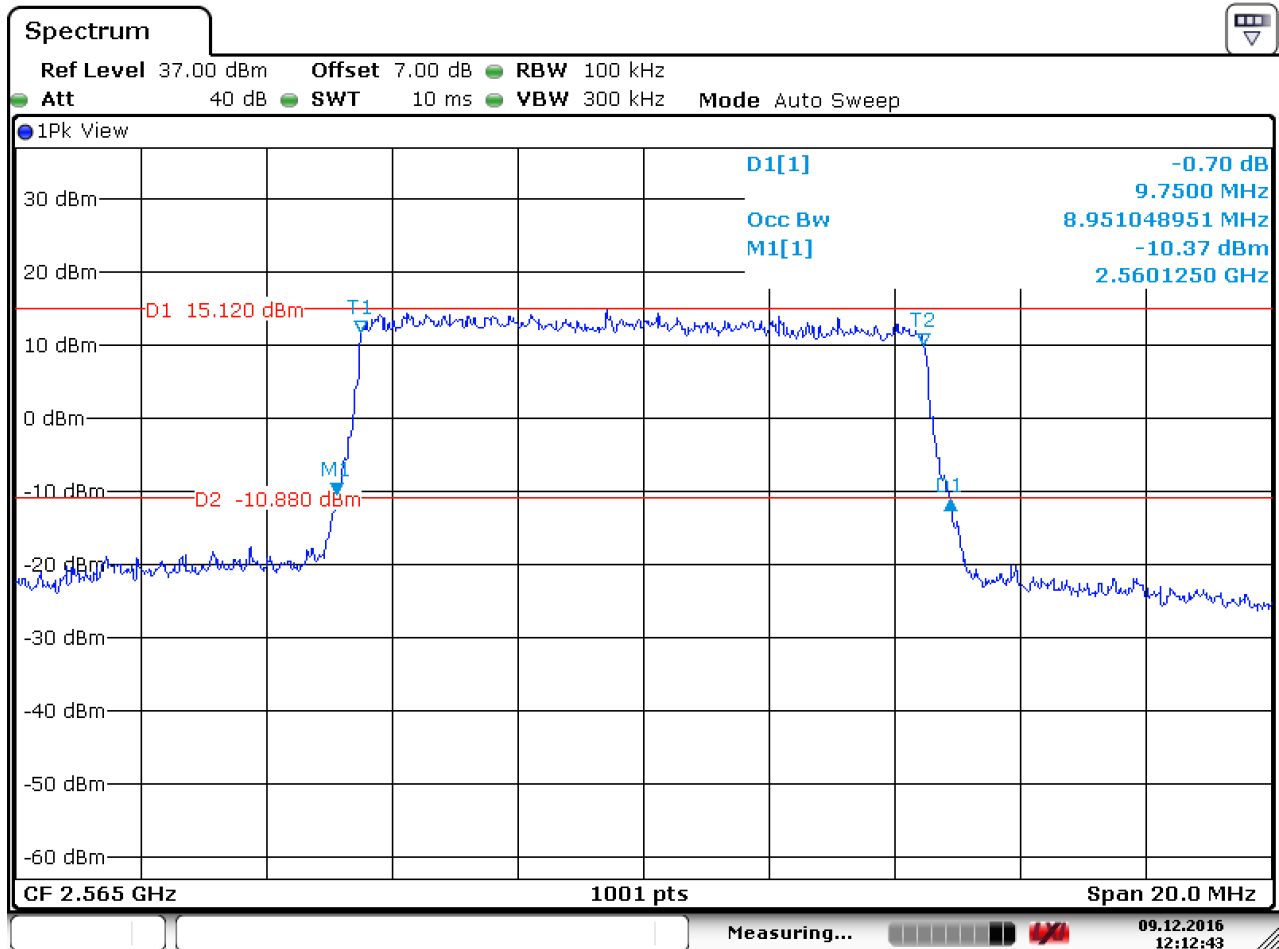


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4.1.1.4.3 Test Channel = HCH



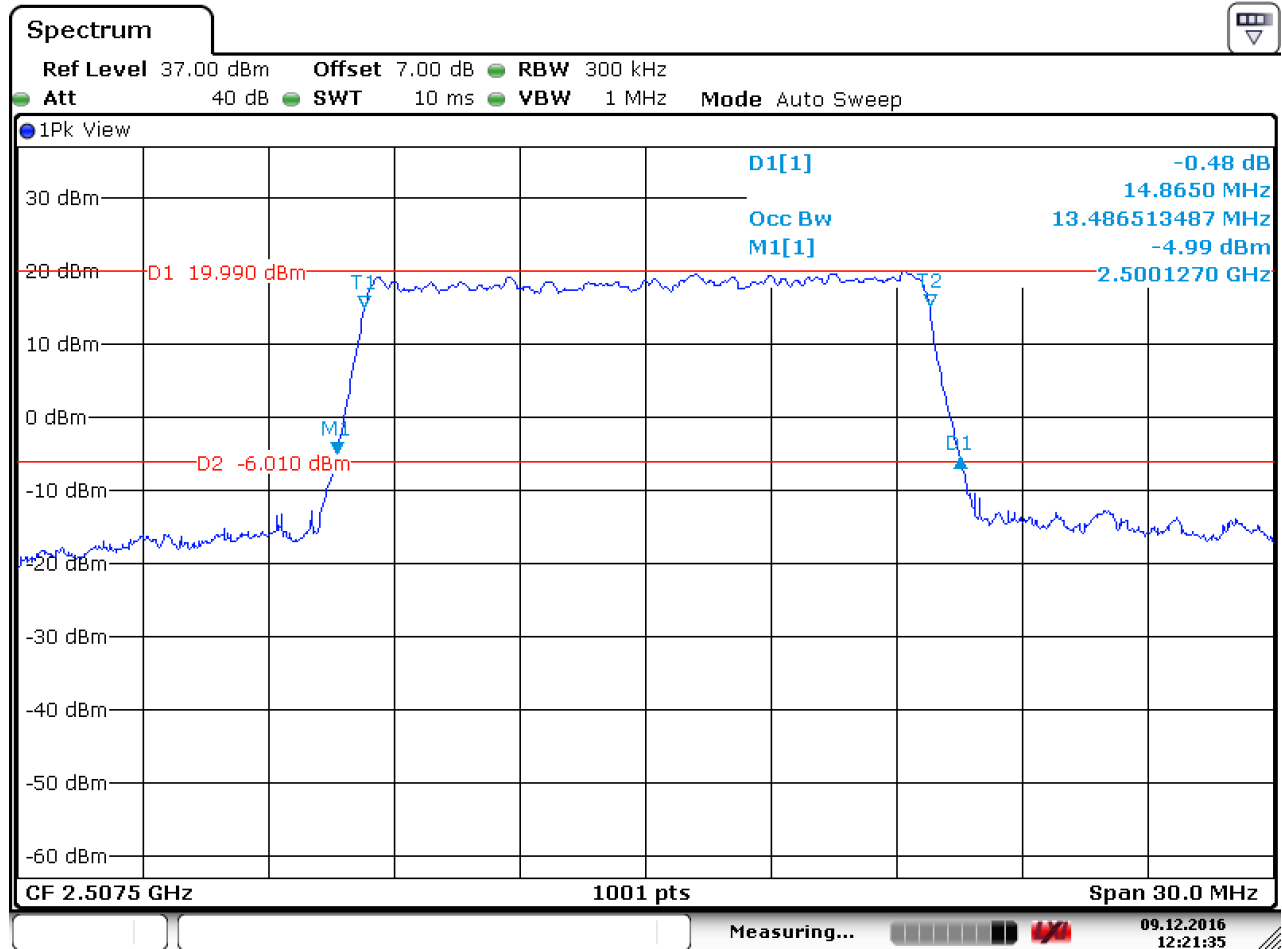
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4.1.1.5 Test Mode = LTE/TM1 15MHz

4.1.1.5.1 Test Channel = LCH

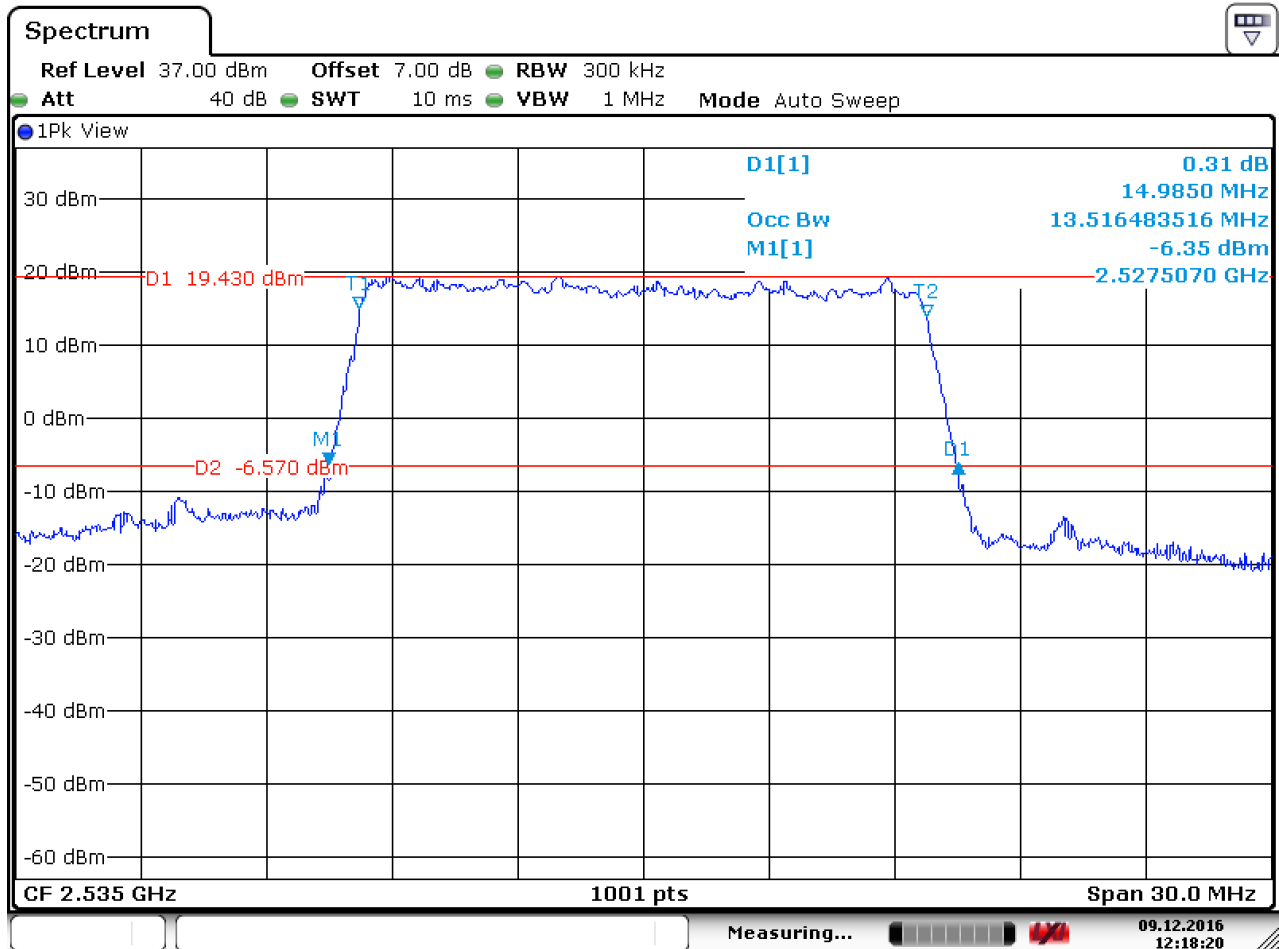


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4.1.1.5.2 Test Channel = MCH



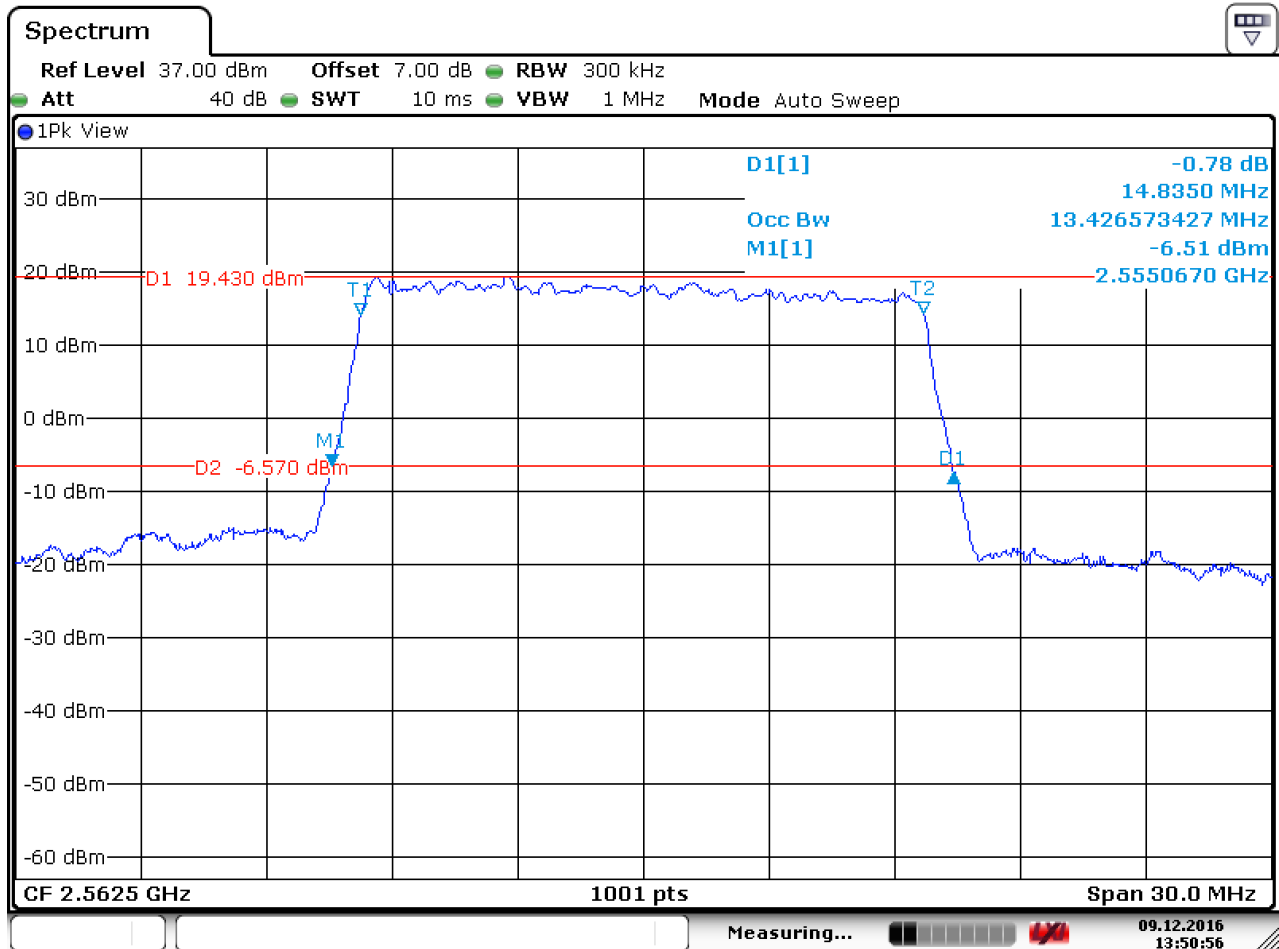
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4.1.1.5.3 Test Channel = HCH



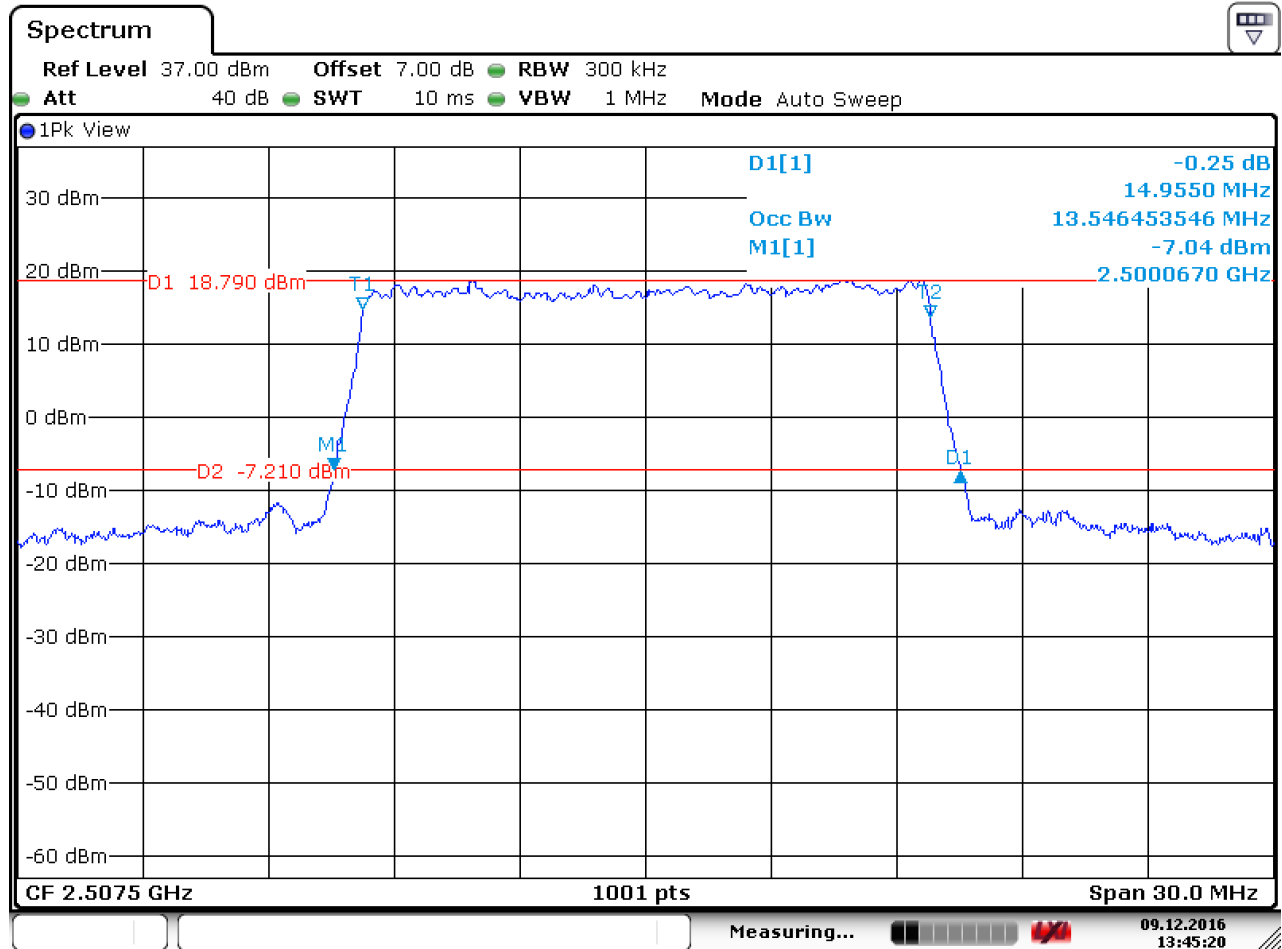
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4.1.1.6 Test Mode = LTE/TM2 15MHz

4.1.1.6.1 Test Channel = LCH

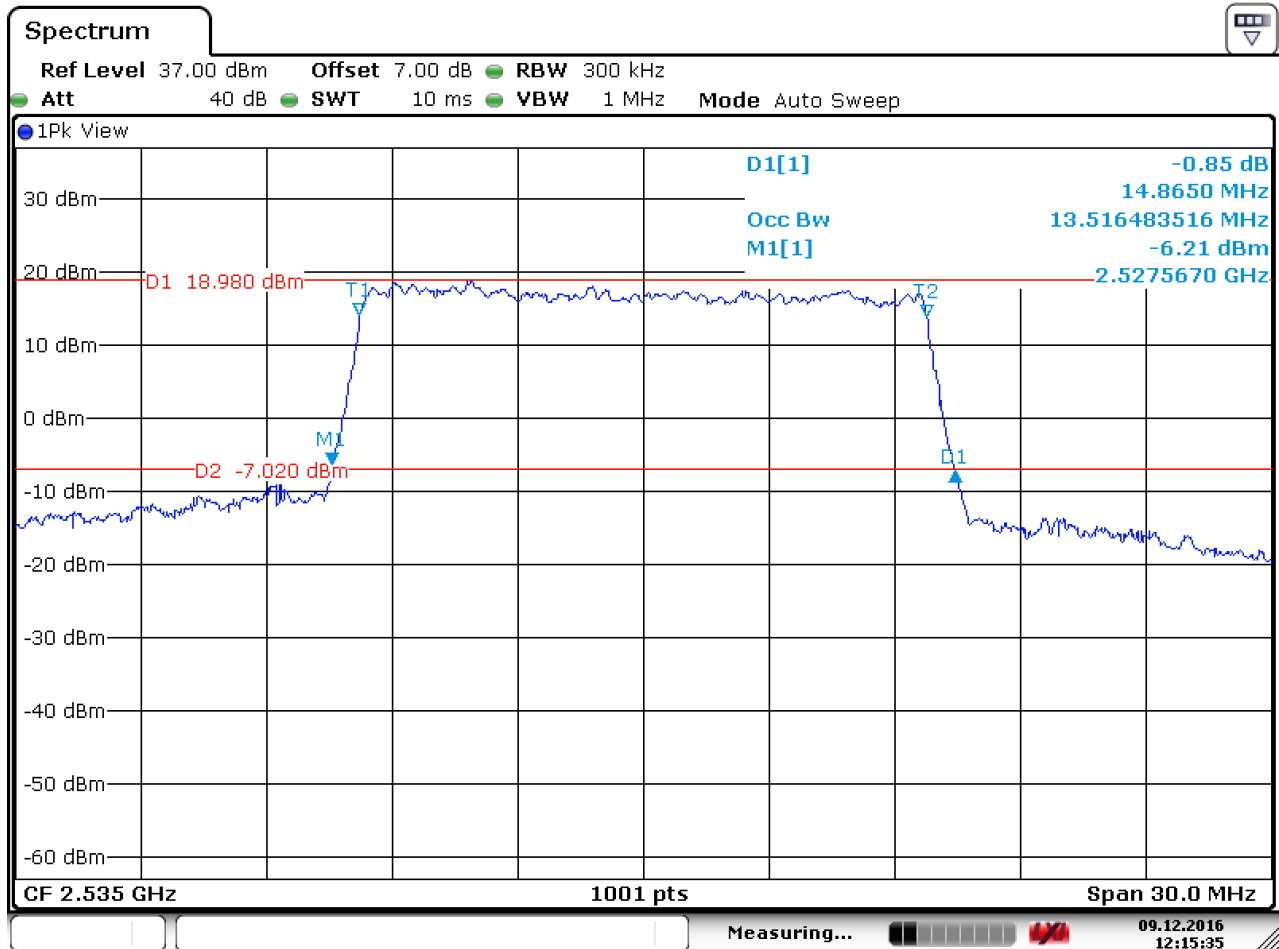


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4.1.1.6.2 Test Channel = MCH

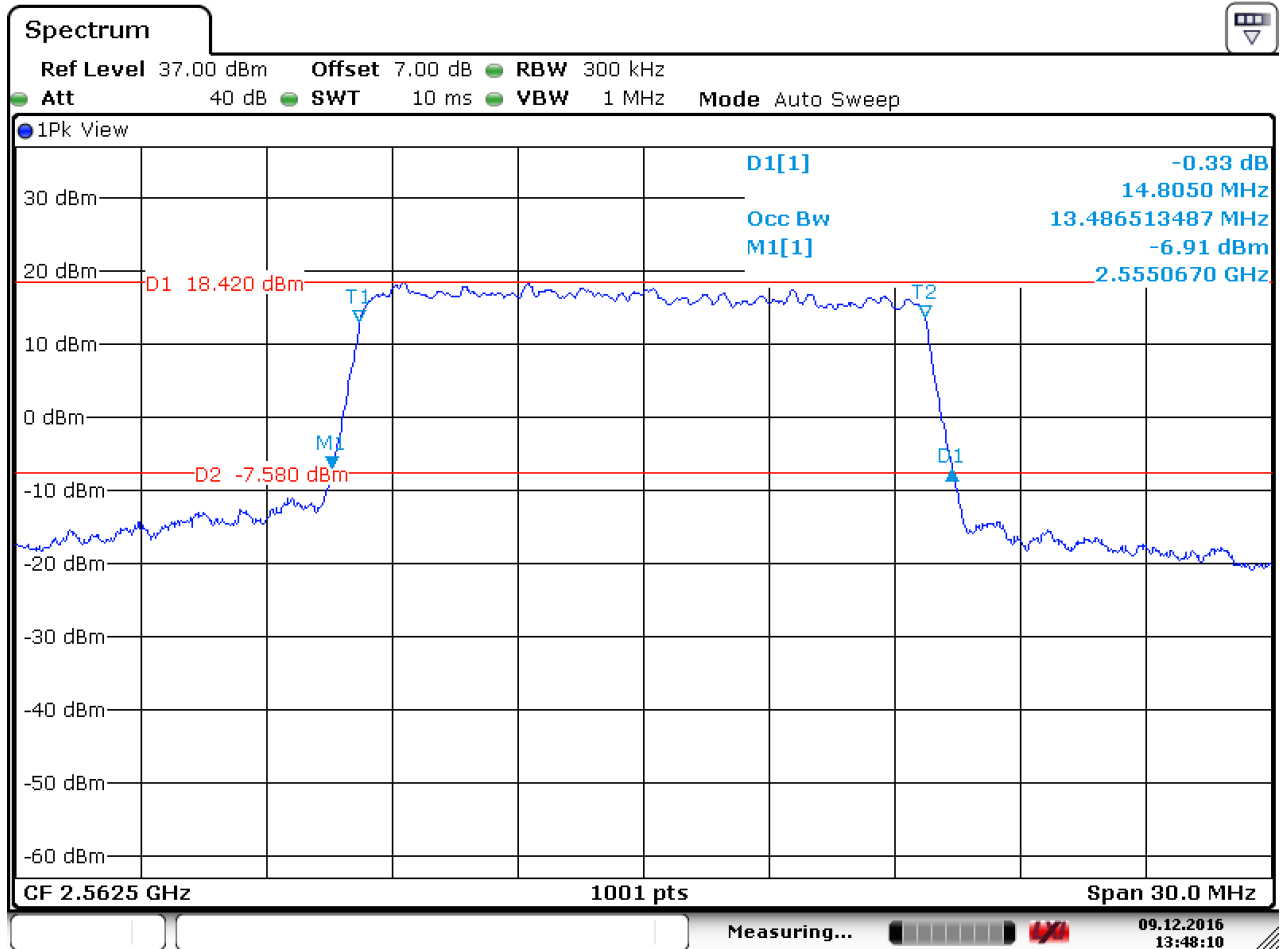


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4.1.1.6.3 Test Channel = HCH



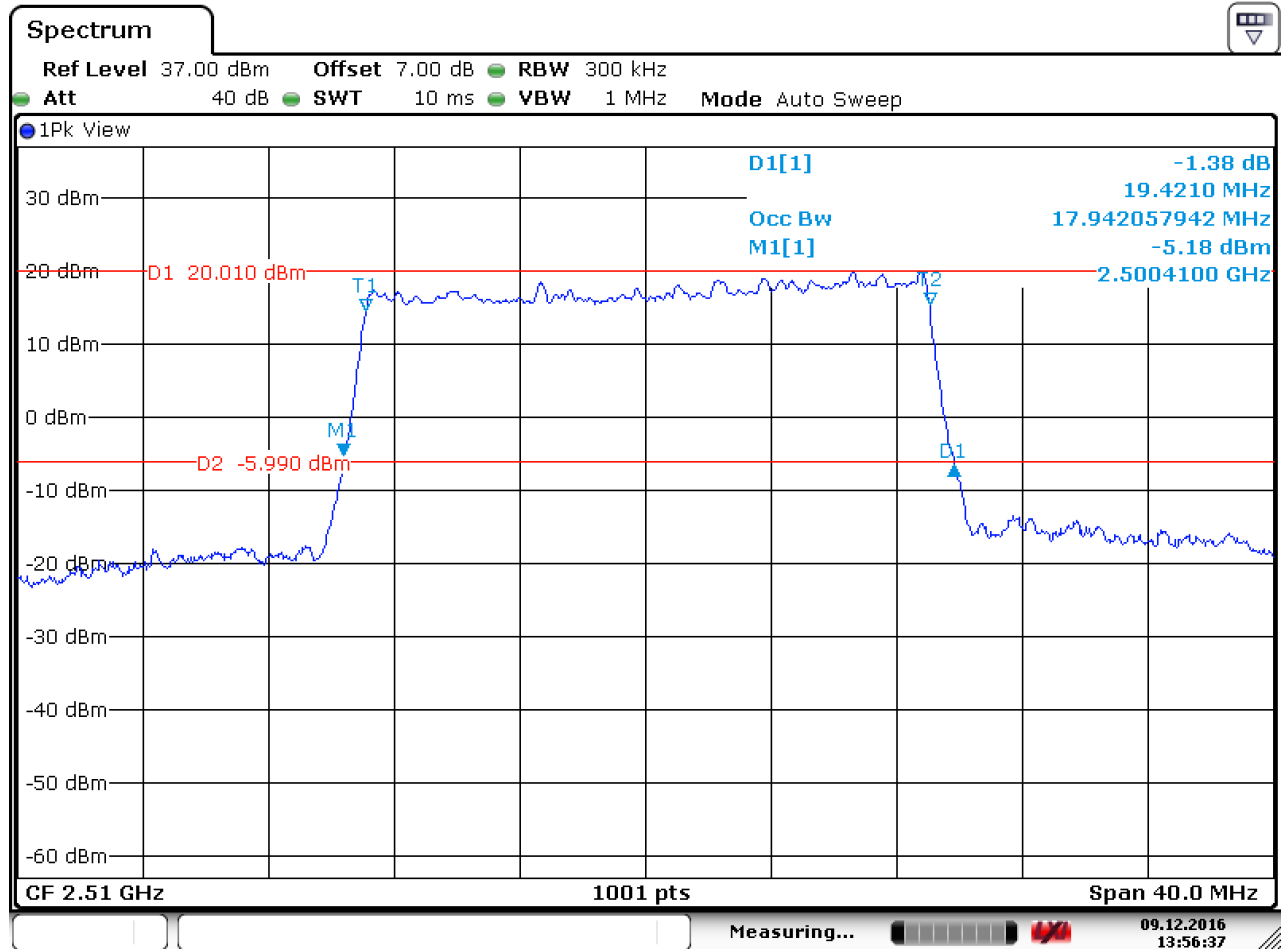
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4.1.1.7 Test Mode = LTE/TM1 20MHz

4.1.1.7.1 Test Channel = LCH

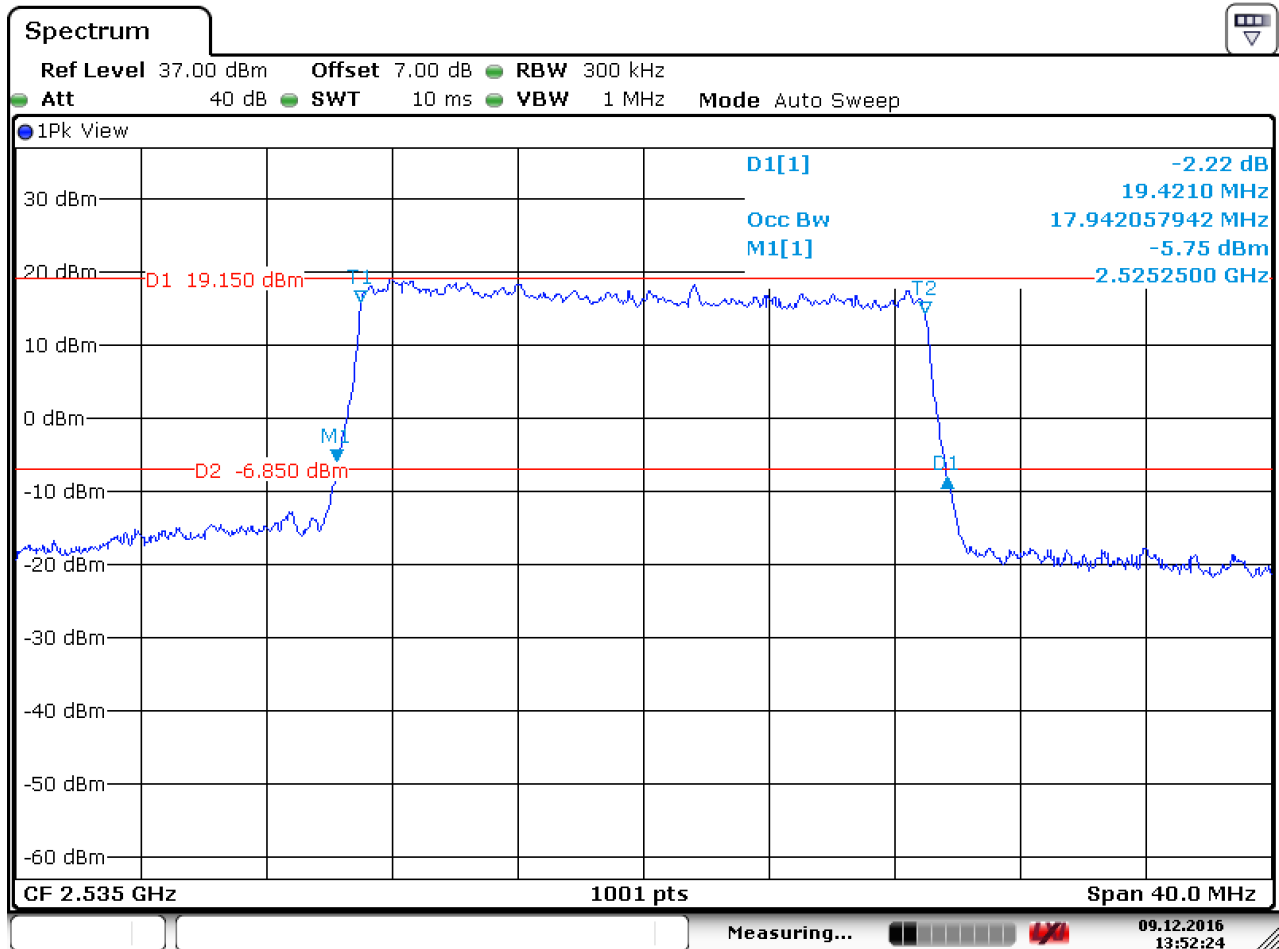


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4.1.1.7.2 Test Channel = MCH



Date: 9.DEC.2016 13:52:25

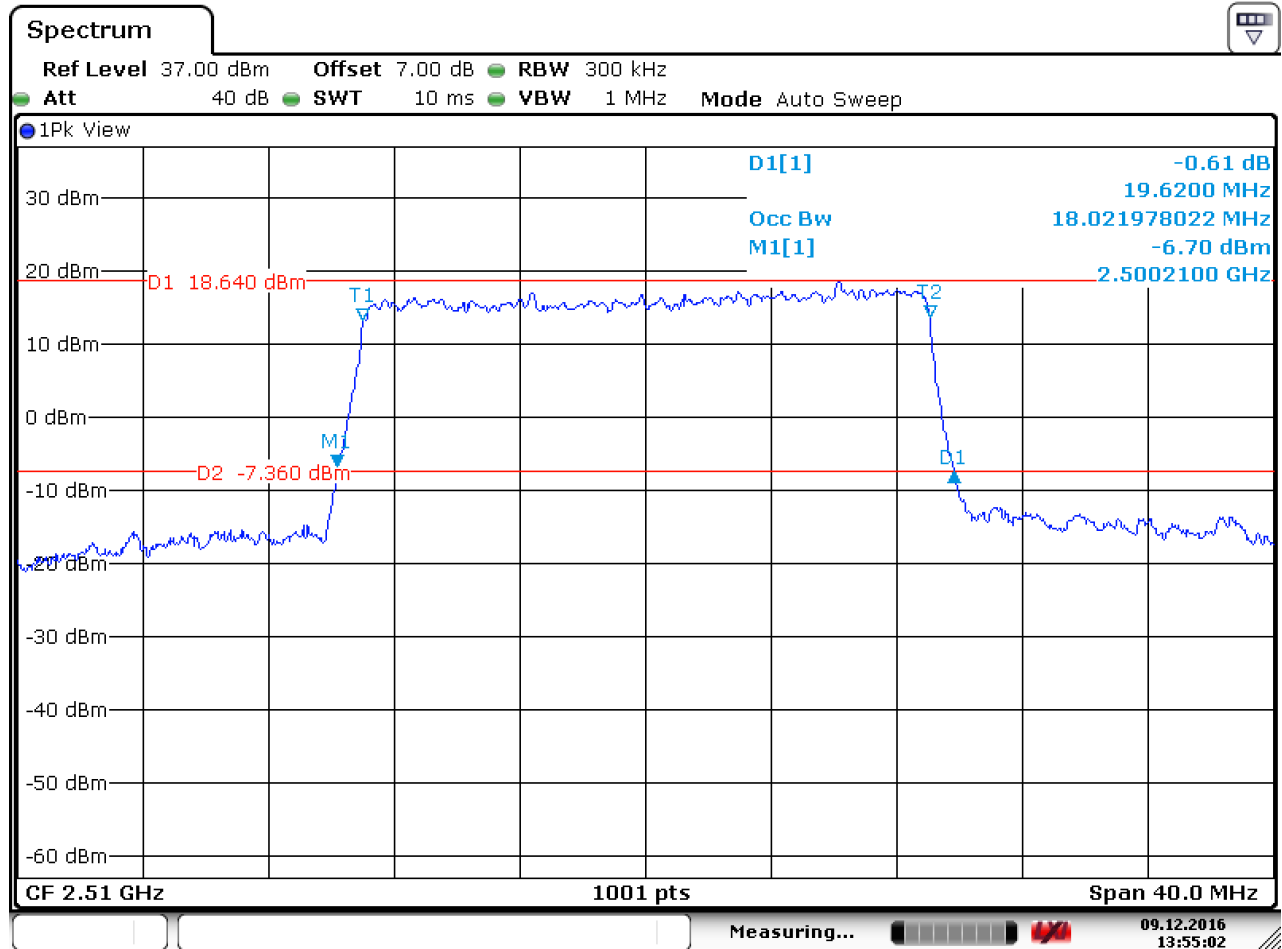
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4.1.1.8 Test Mode = LTE/TM2 20MHz

4.1.1.8.1 Test Channel = LCH



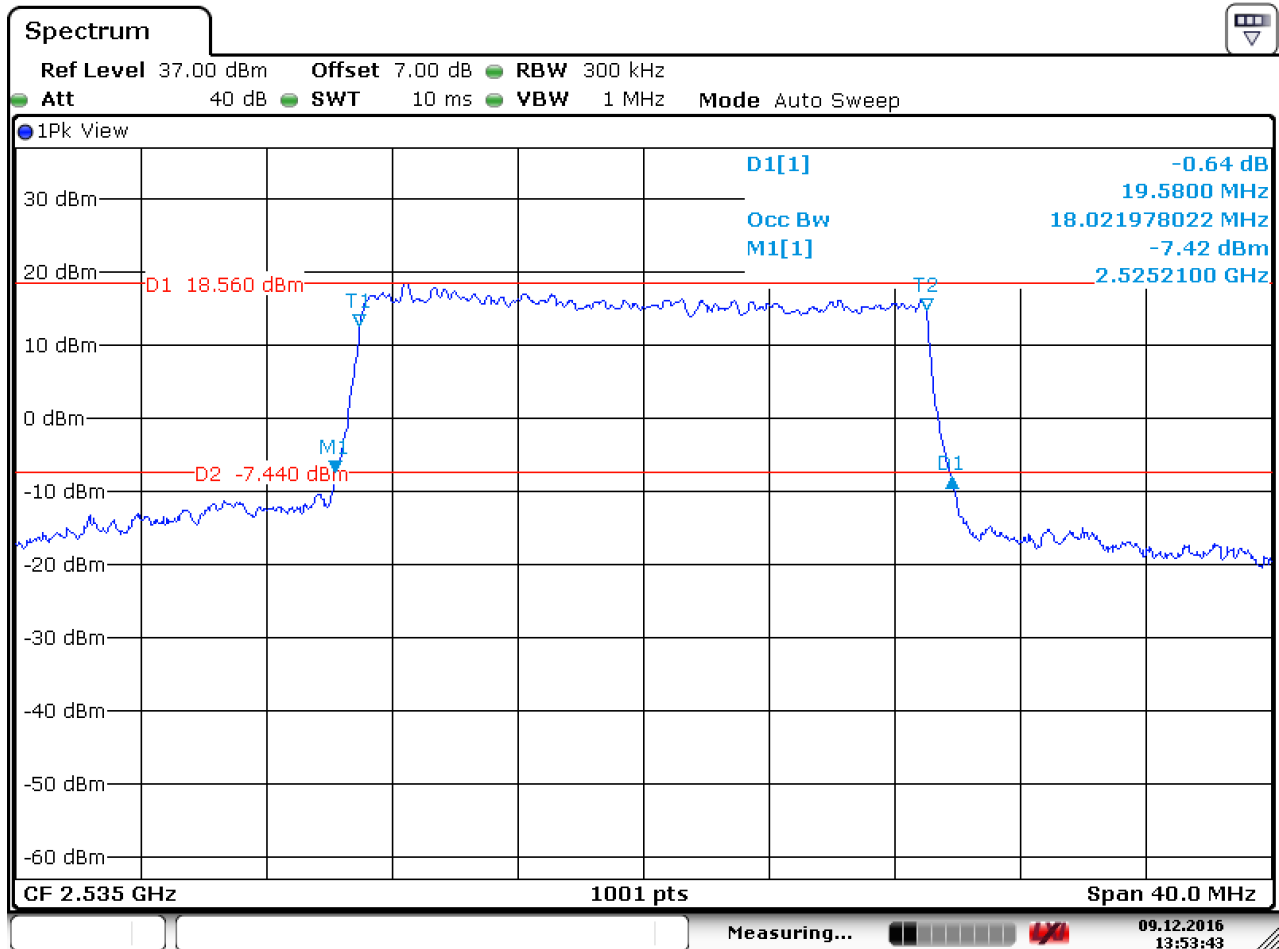
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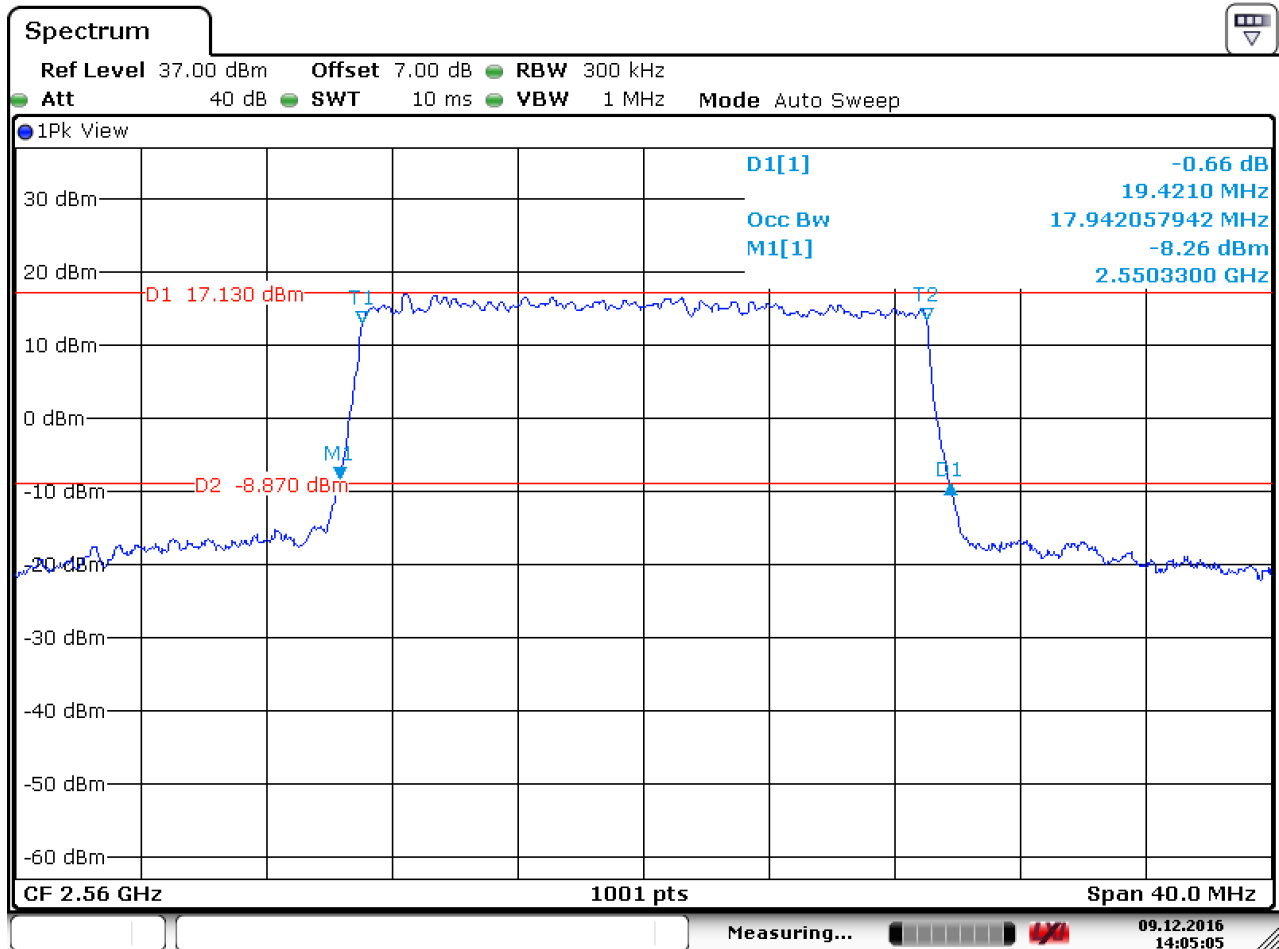
4.1.1.8.2 Test Channel = MCH



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4.1.1.8.3 Test Channel = HCH



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## 5 Band Edges Compliance

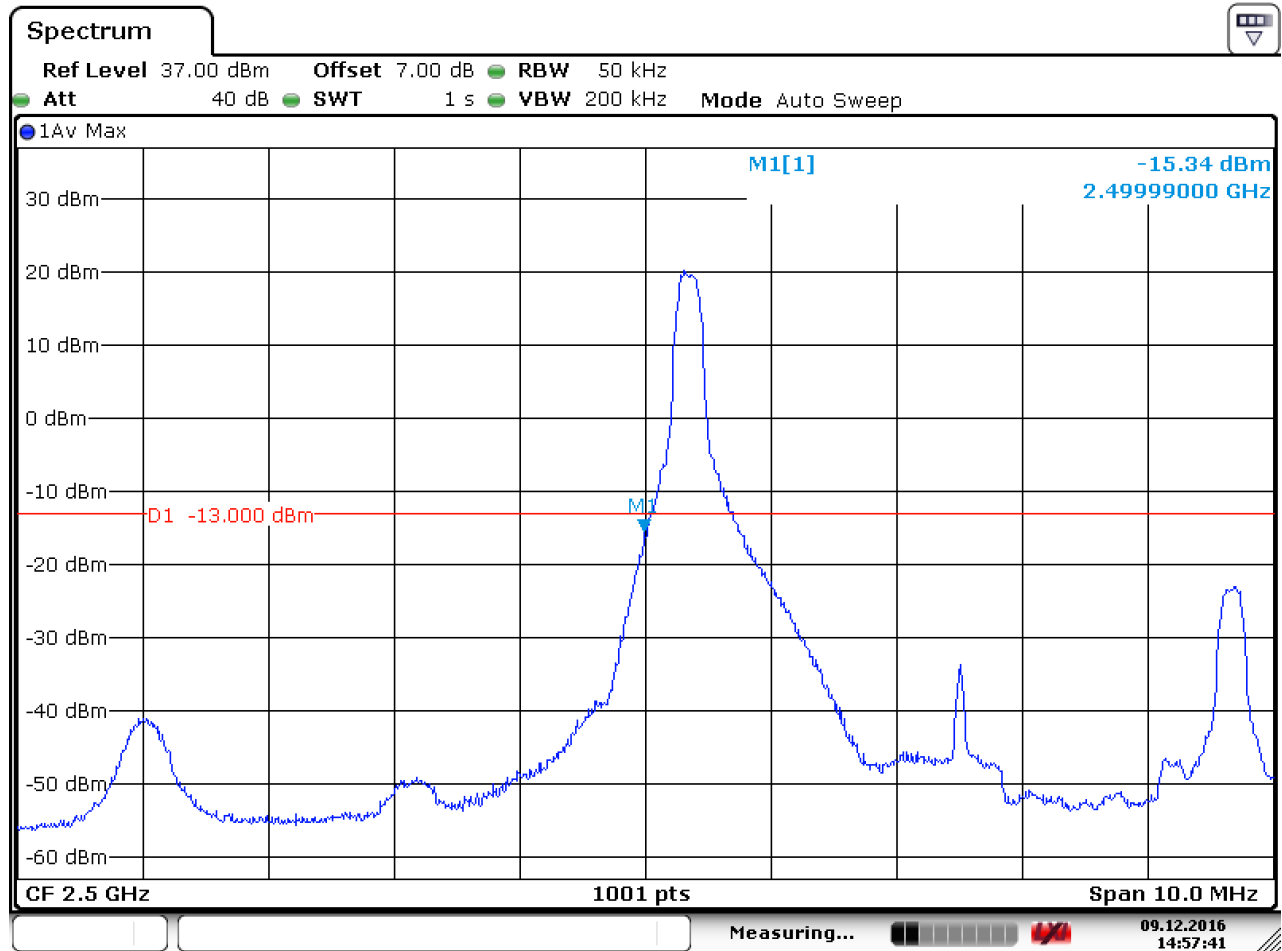
### 5.1 For LTE

#### 5.1.1 Test Band = LTE band7

##### 5.1.1.1 Test Mode = LTE/TM1 5MHz

##### 5.1.1.1.1 Test Channel = LCH

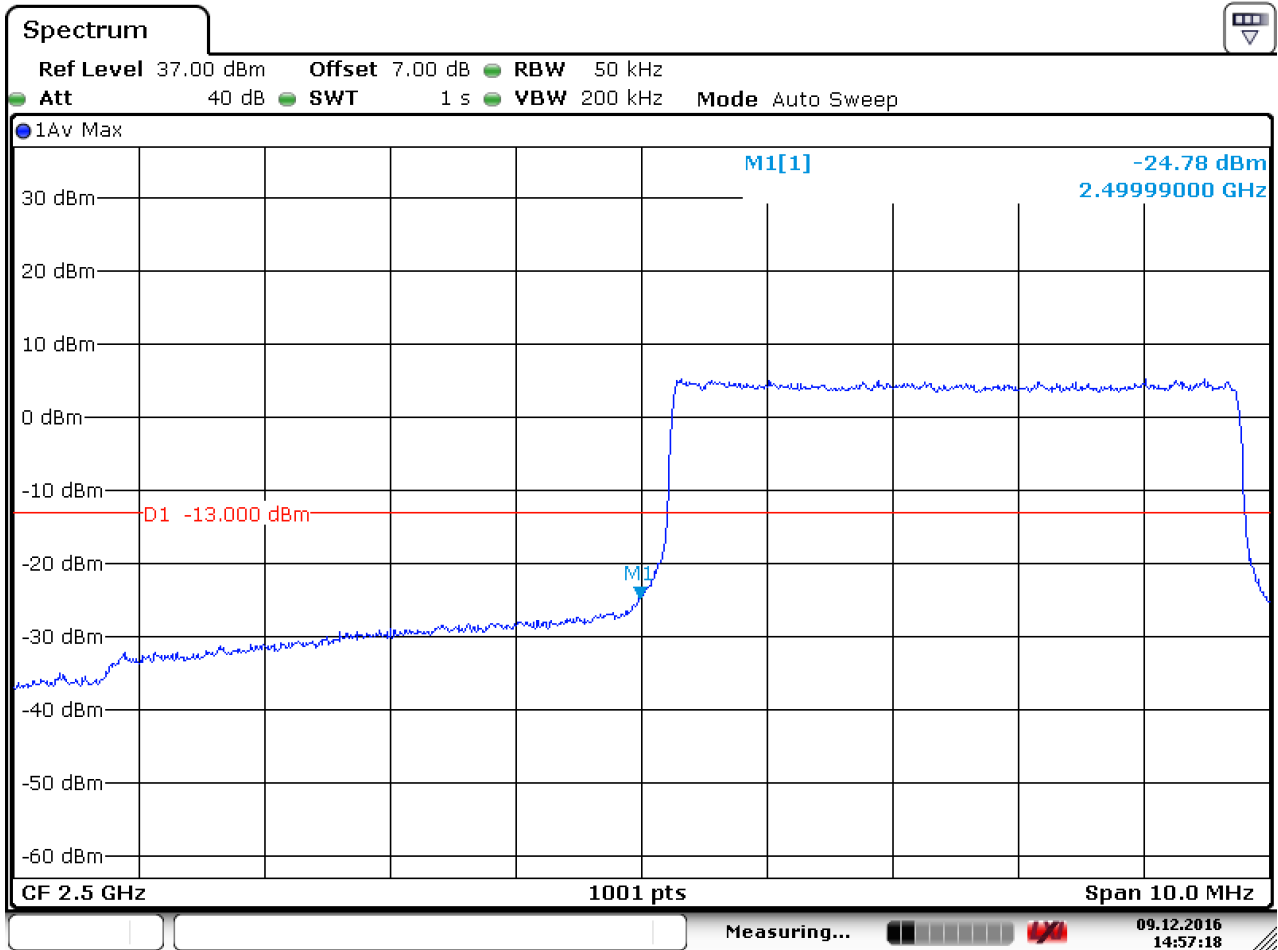
##### 5.1.1.1.1.1 Test RB=1RB



Date: 9.DEC.2016 14:57:41



5.1.1.1.2 Test RB=25RB



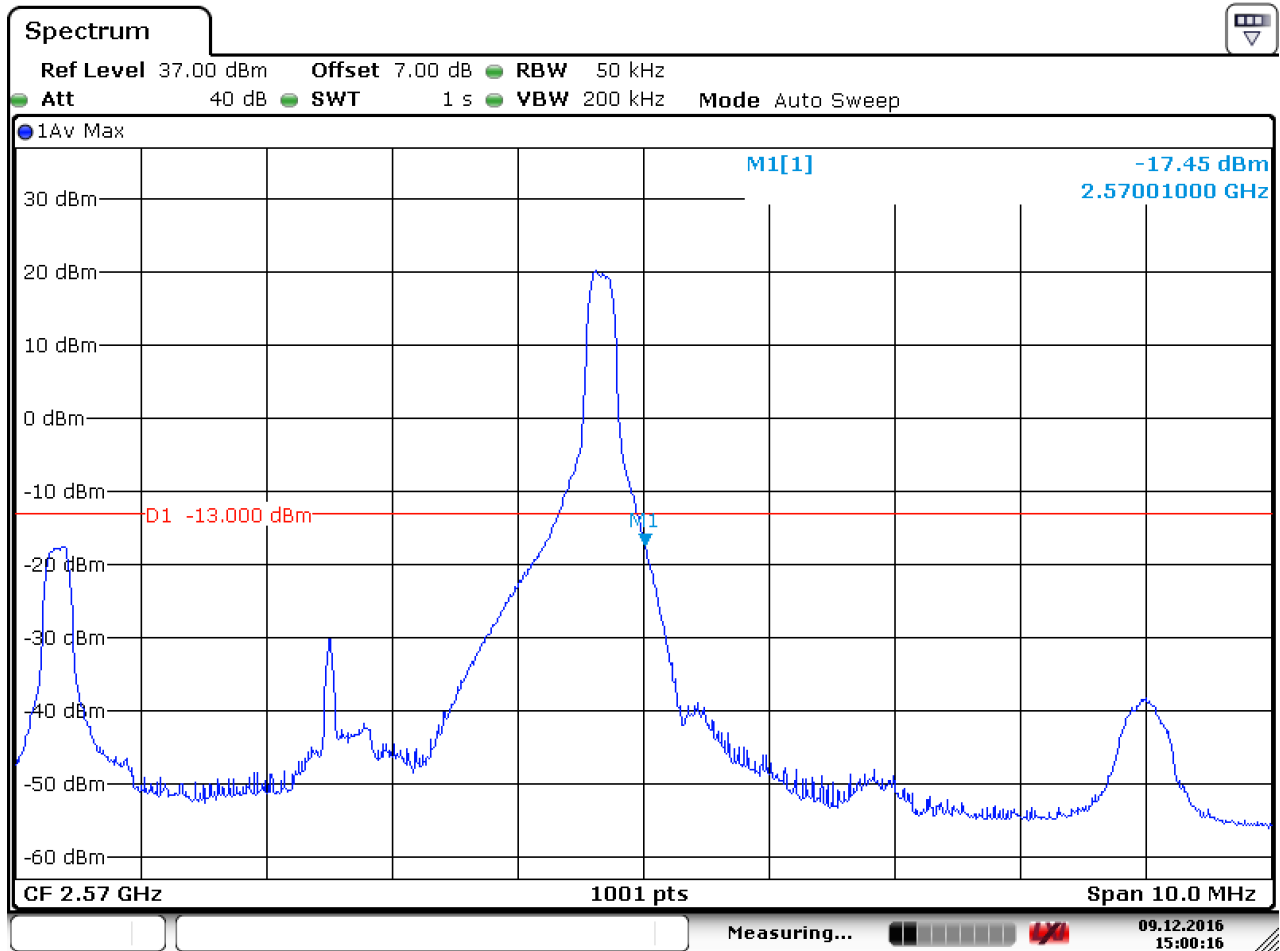
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5.1.1.1.2 Test Channel = HCH

5.1.1.1.2.1 Test RB=1RB

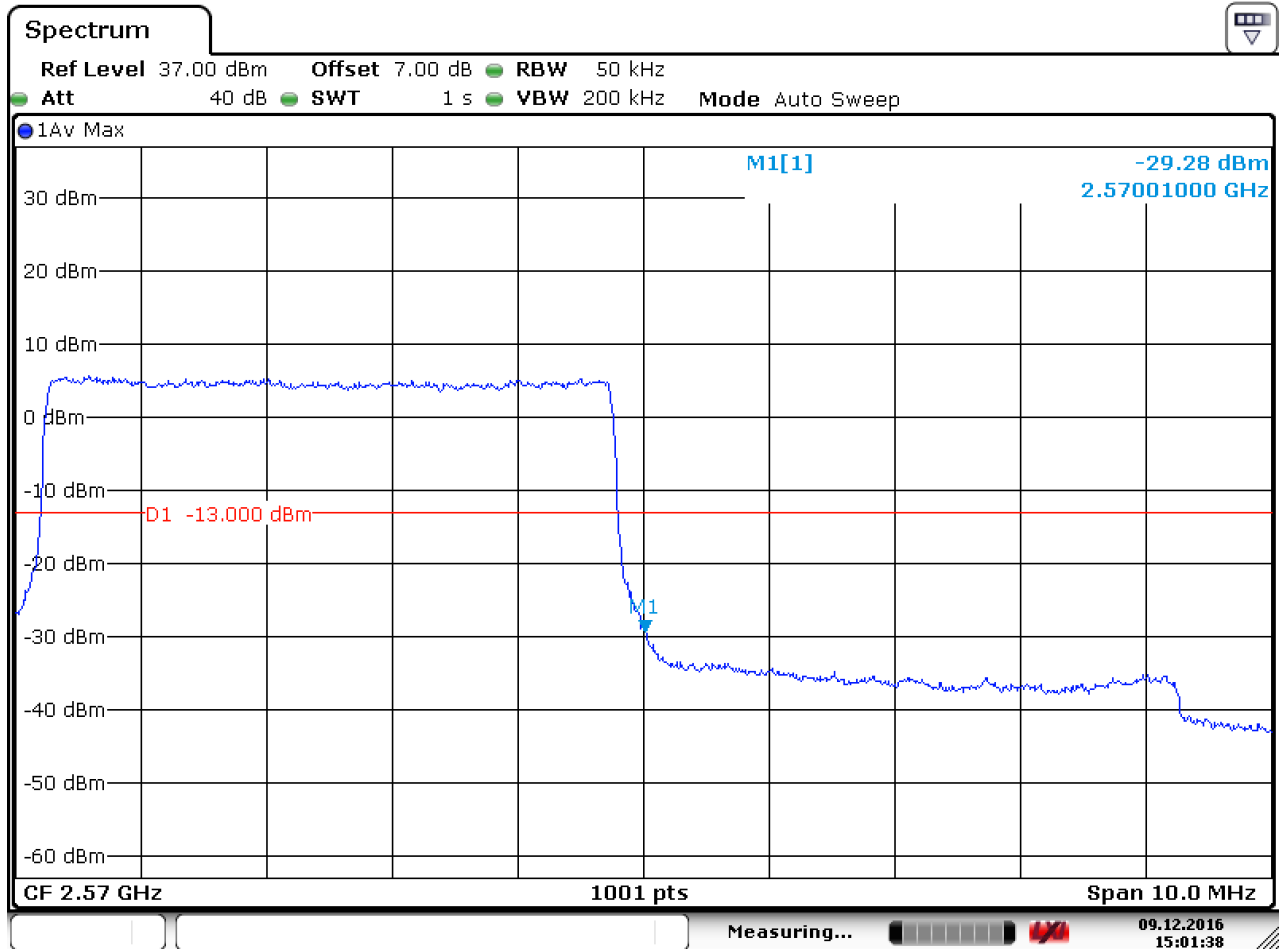


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5.1.1.1.2.2 Test RB=25RB



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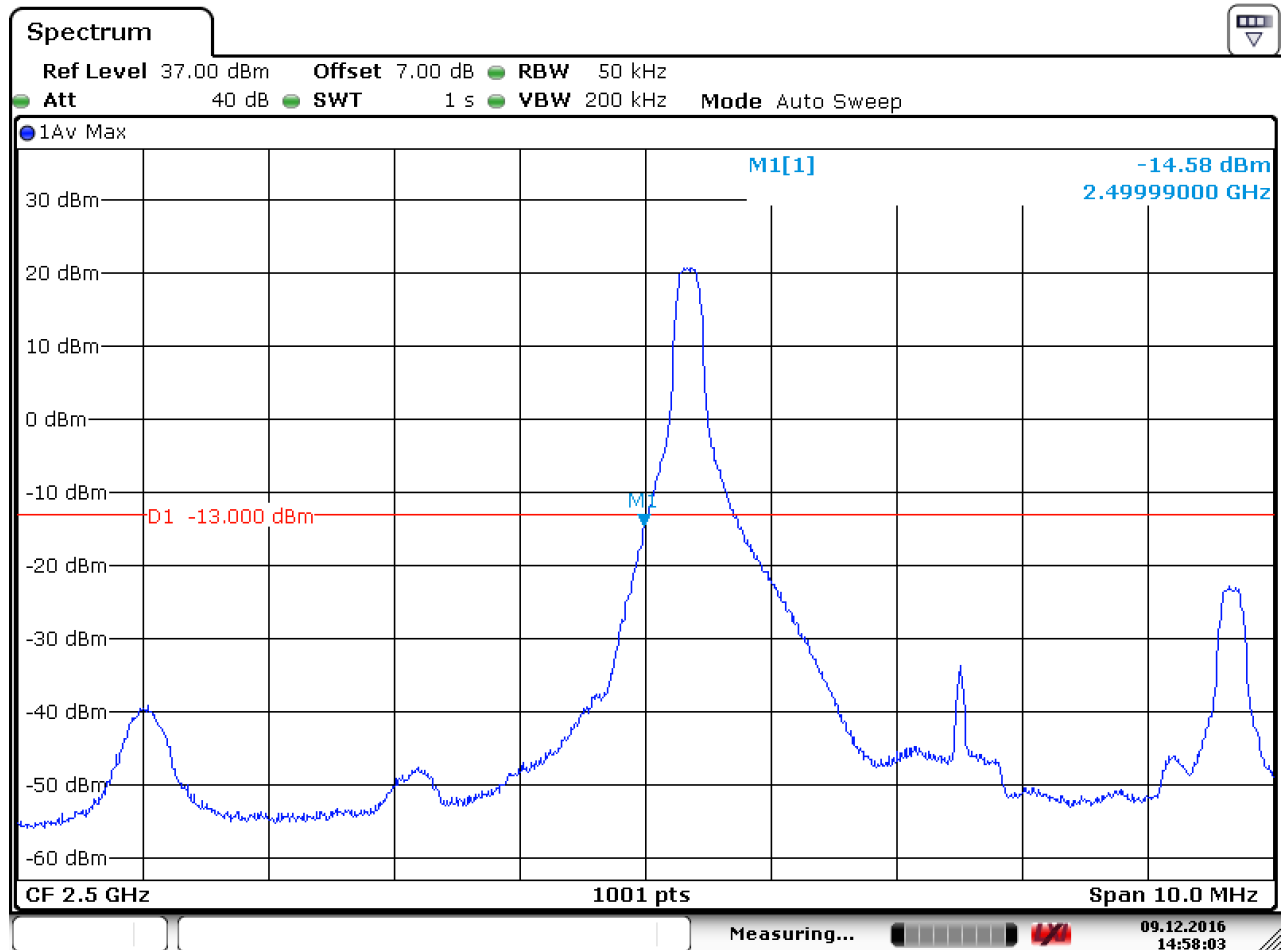
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5.1.1.2 Test Mode = LTE/TM2 5MHz

5.1.1.2.1 Test Channel = LCH

5.1.1.2.1.1 Test RB=1RB



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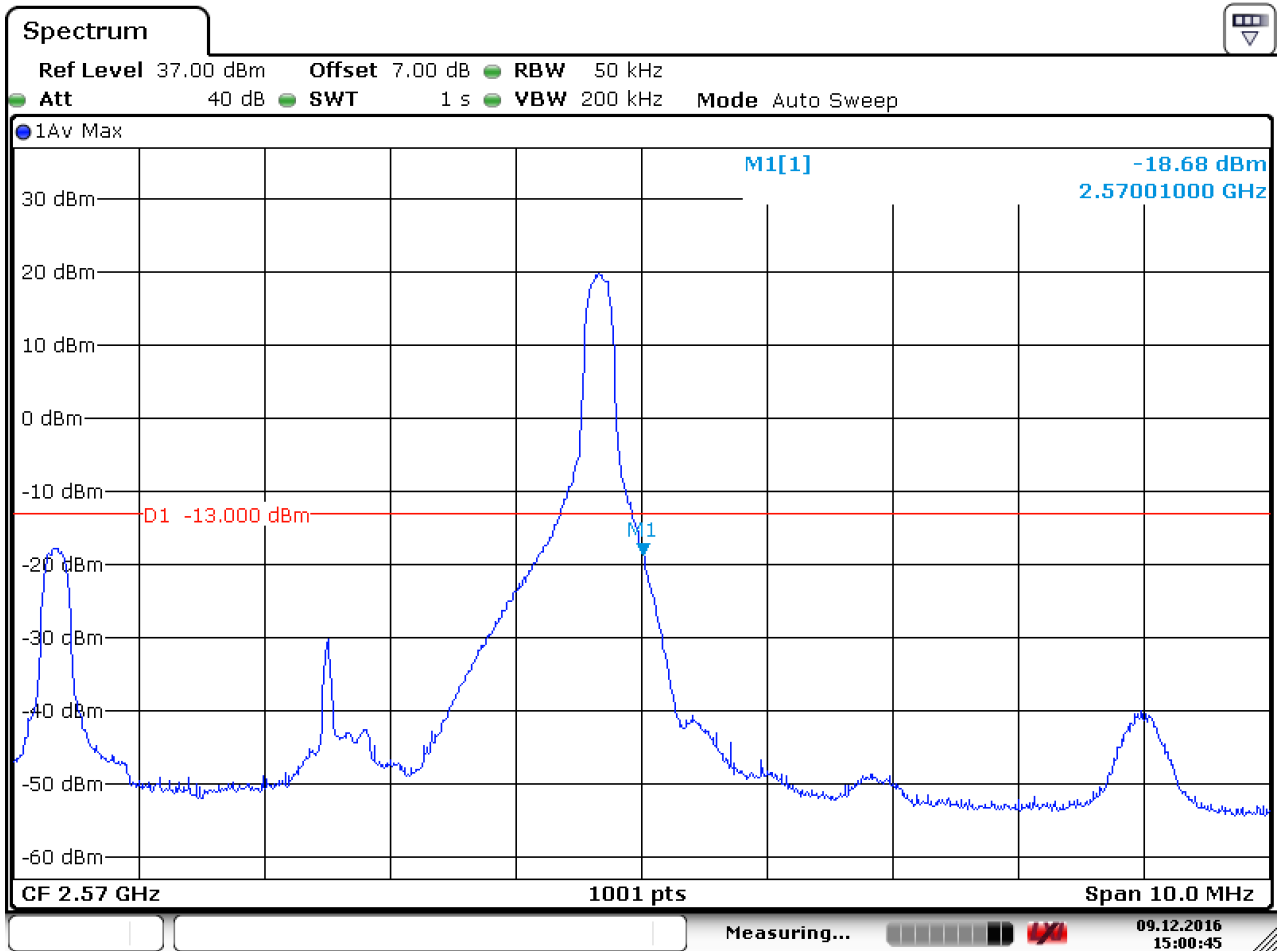






5.1.1.2.2 Test Channel = HCH

5.1.1.2.2.1 Test RB=1RB

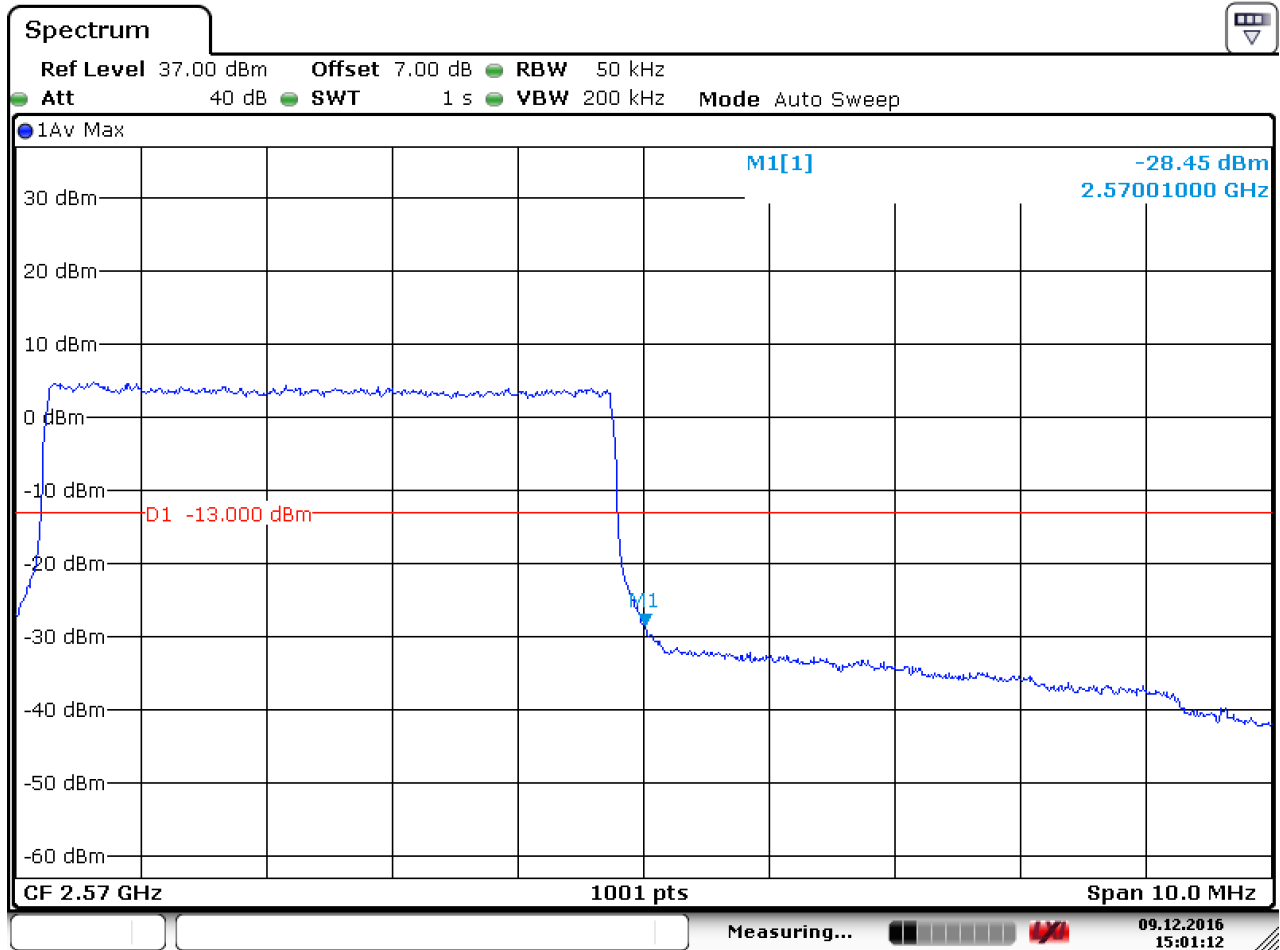


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5.1.1.2.2.2 Test RB=25RB



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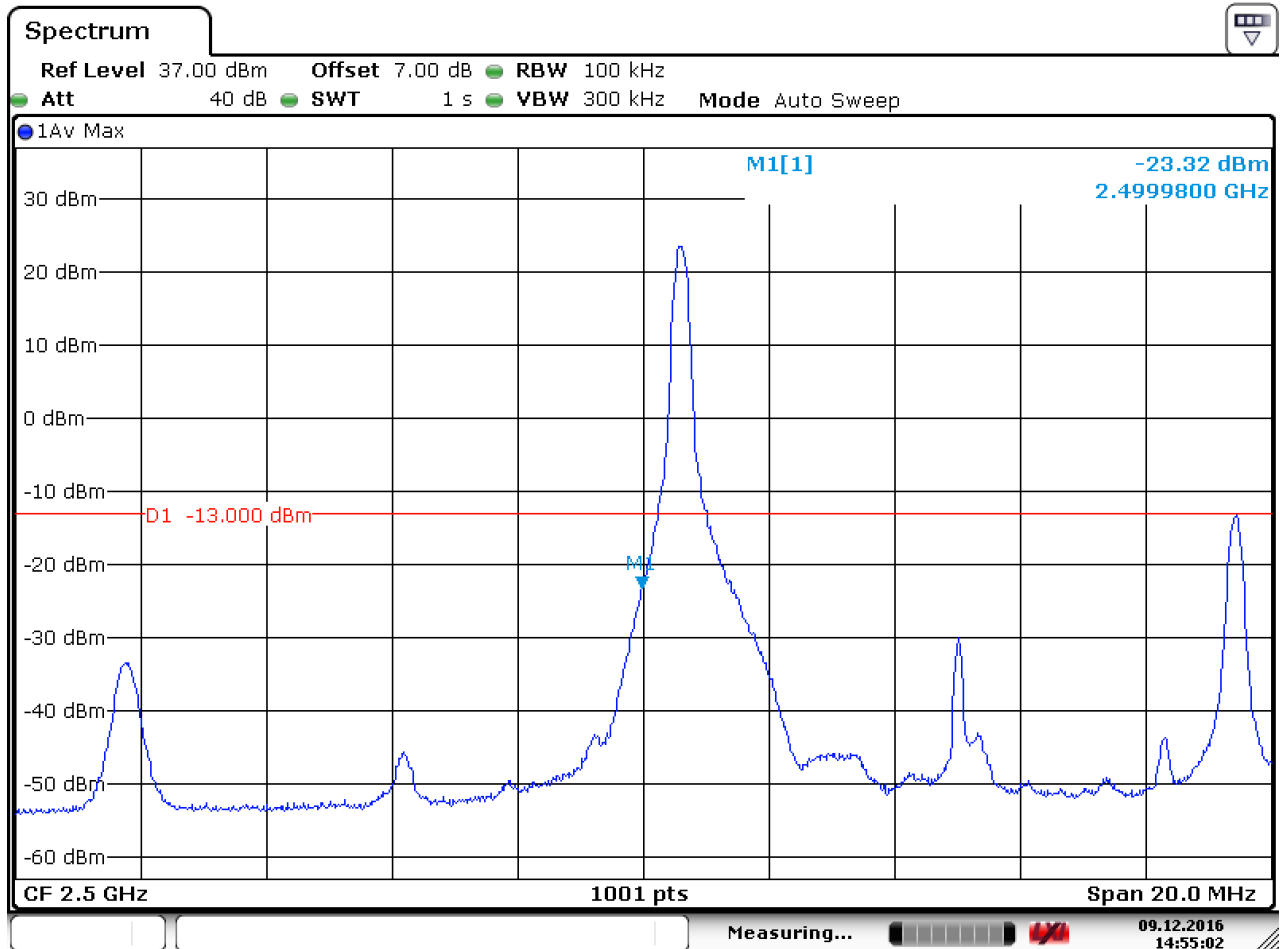
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5.1.1.3 Test Mode = LTE/TM1 10MHz

5.1.1.3.1 Test Channel = LCH

5.1.1.3.1.1 Test RB=1RB

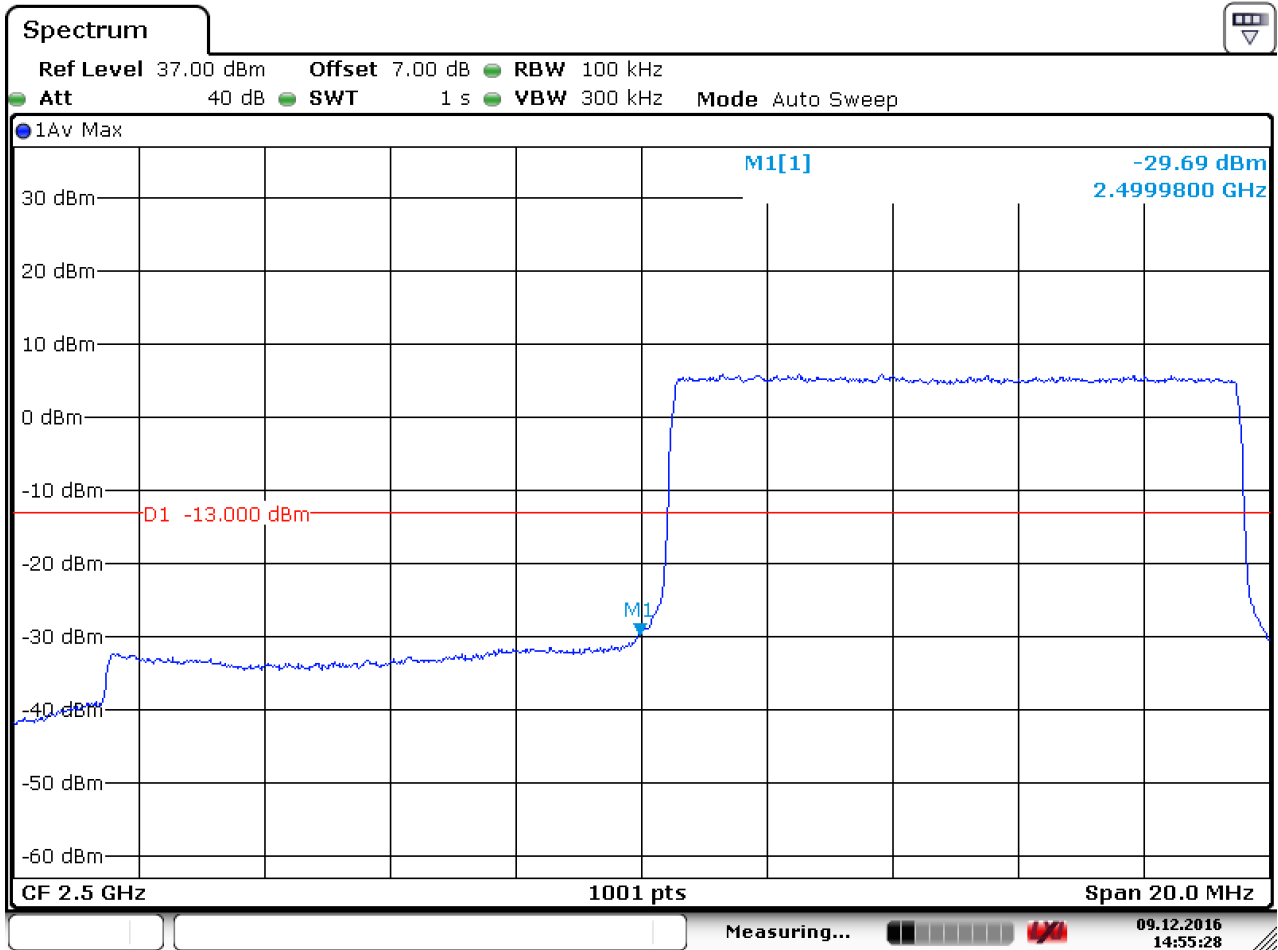


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5.1.1.3.1.2 Test RB=50RB



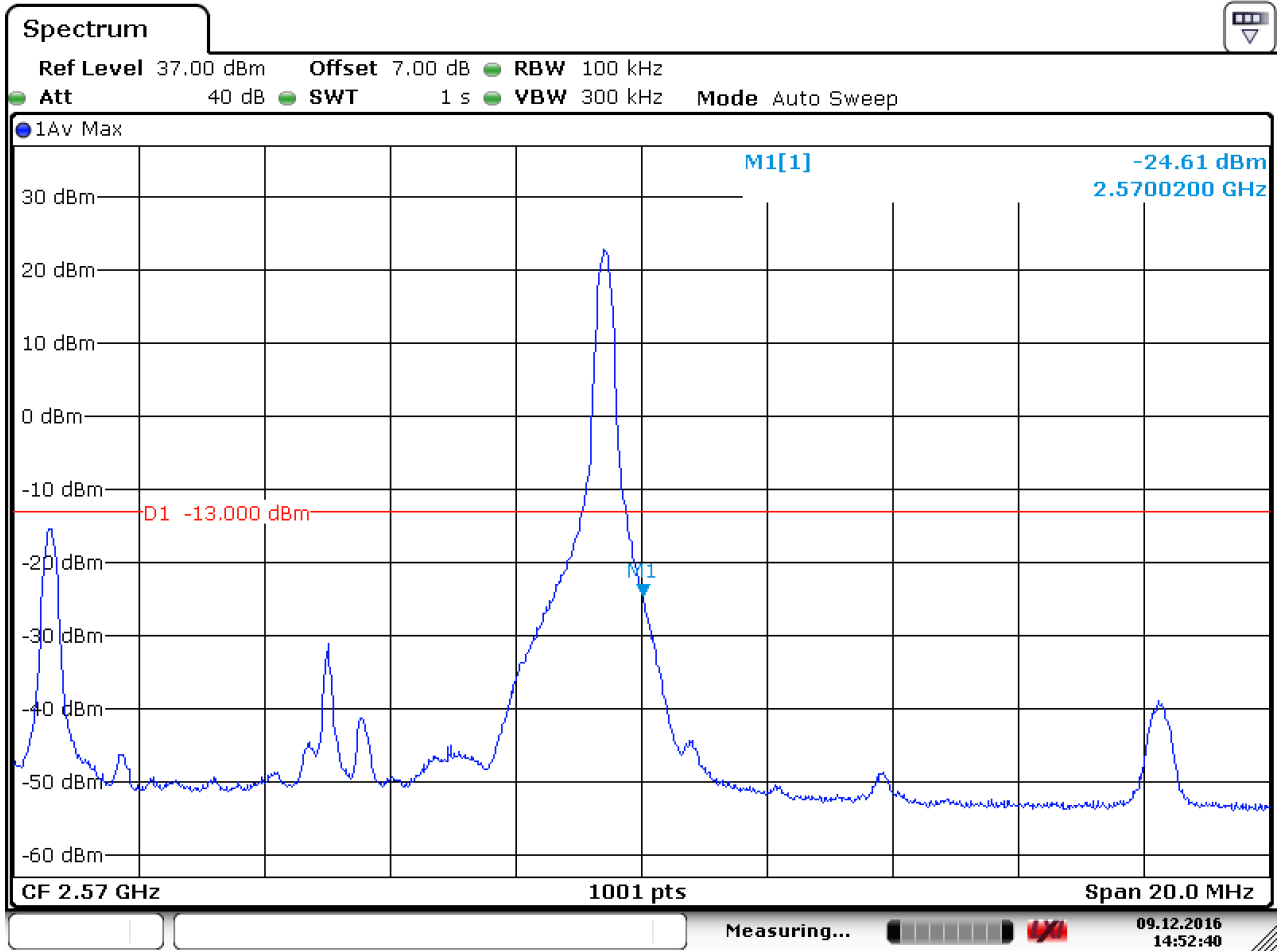
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5.1.1.3.2 Test Channel = HCH

5.1.1.3.2.1 Test RB=1RB

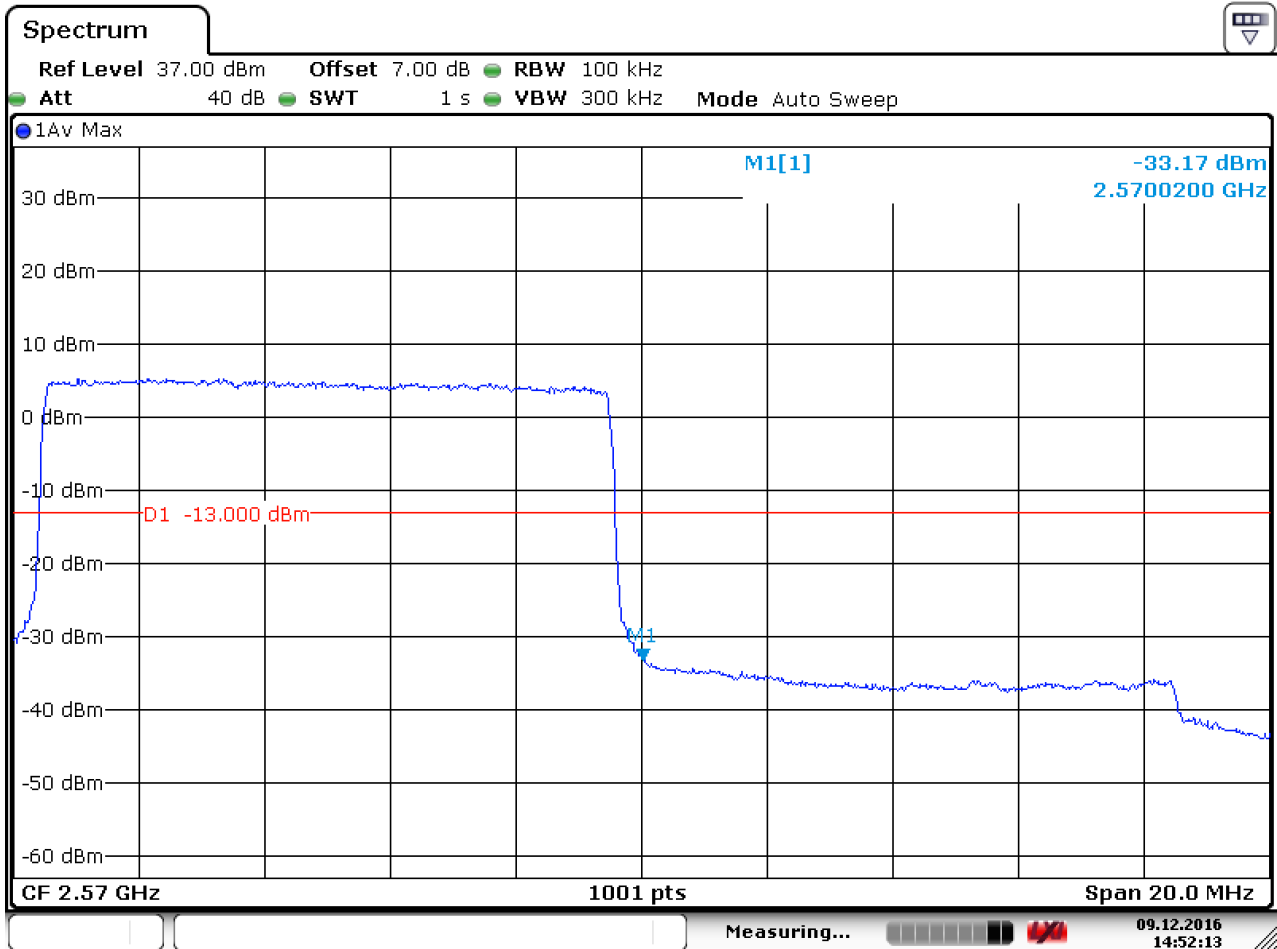


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5.1.1.3.2.2 Test RB=50RB



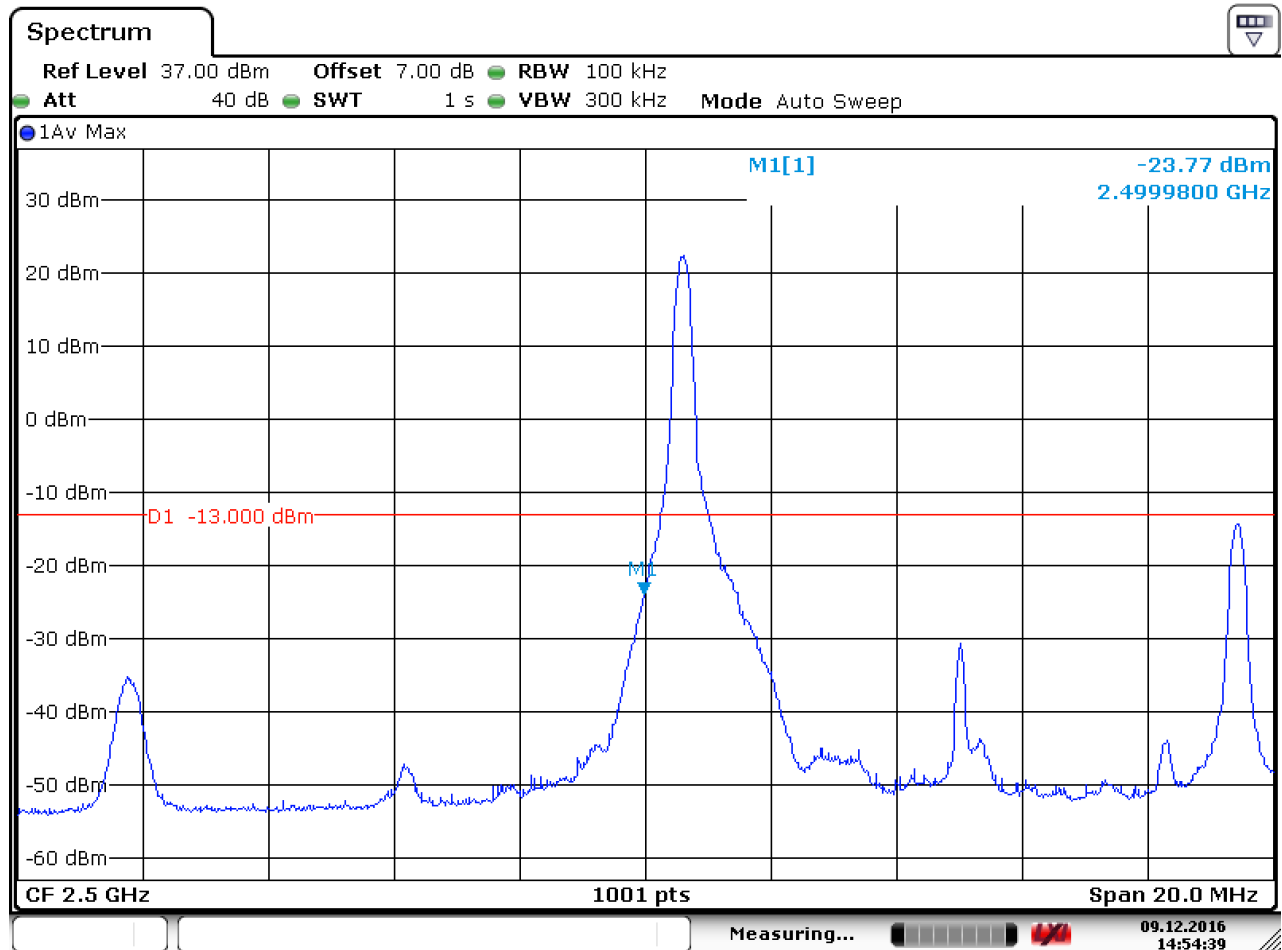
Date: 9. DEC. 2016 14:52:14



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

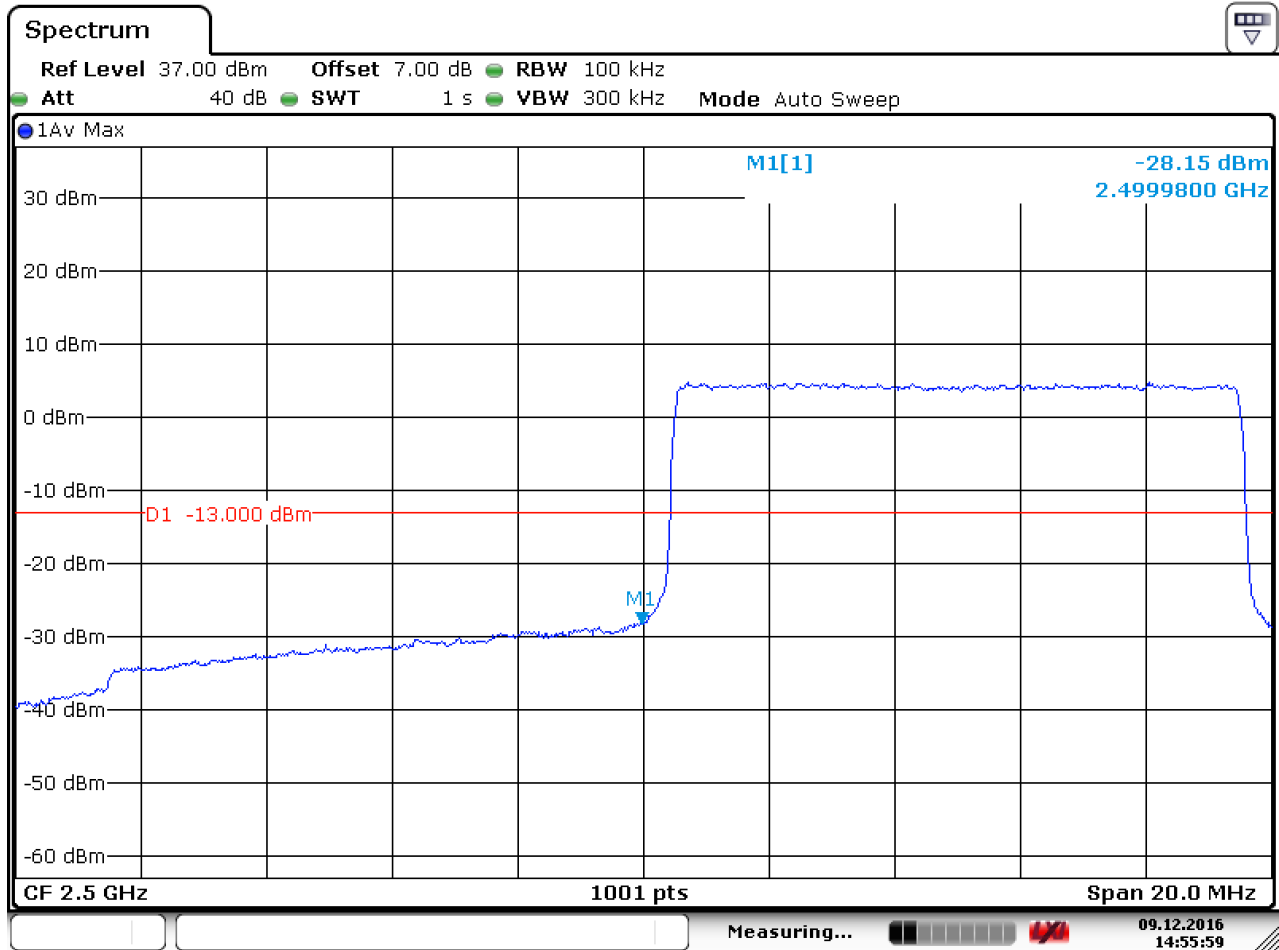


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5.1.1.4.1.2 Test RB=50RB



Date: 9.DEC.2016 14:55:58

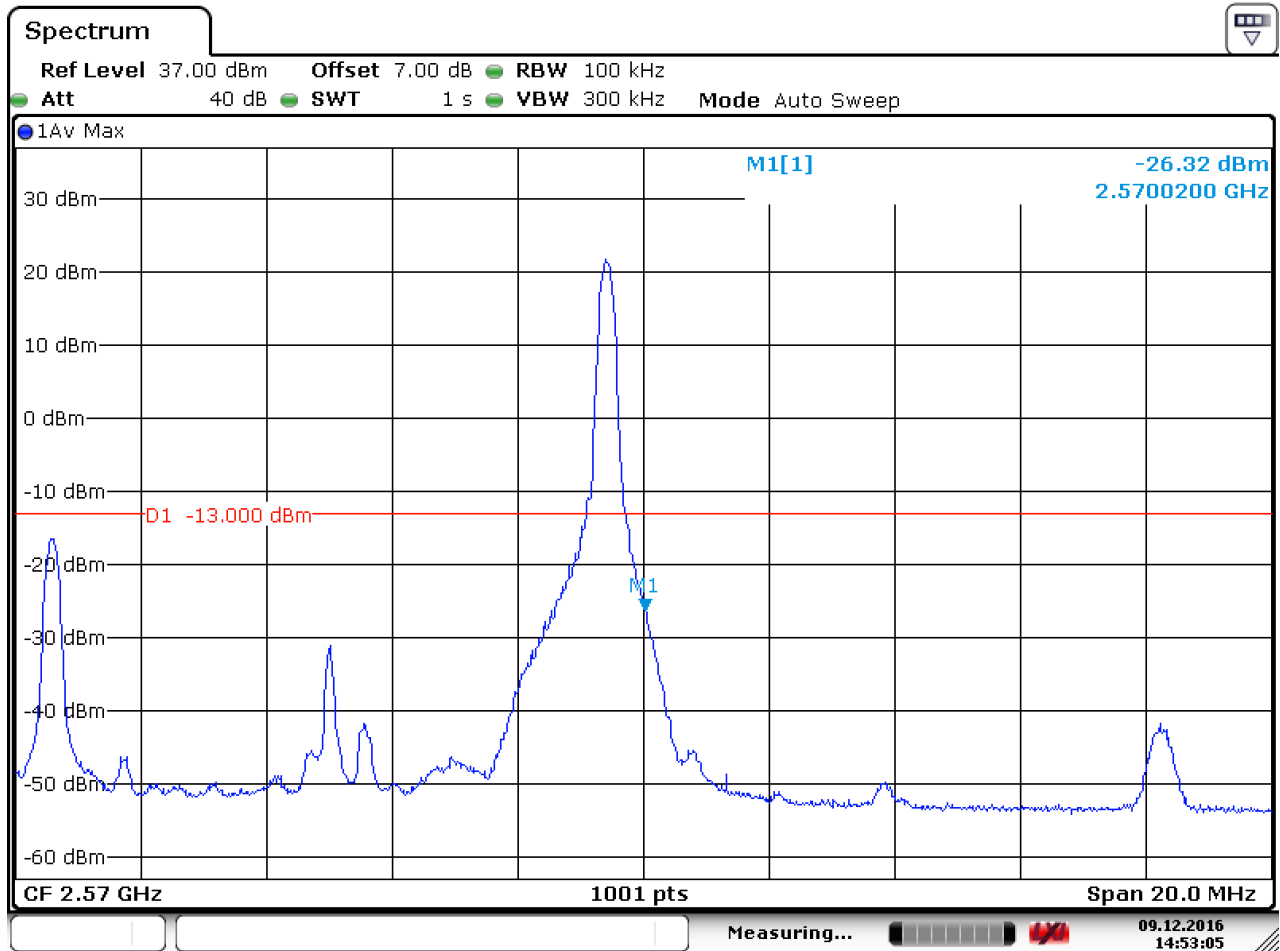
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5.1.1.4.2 Test Channel = HCH

5.1.1.4.2.1 Test RB=1RB

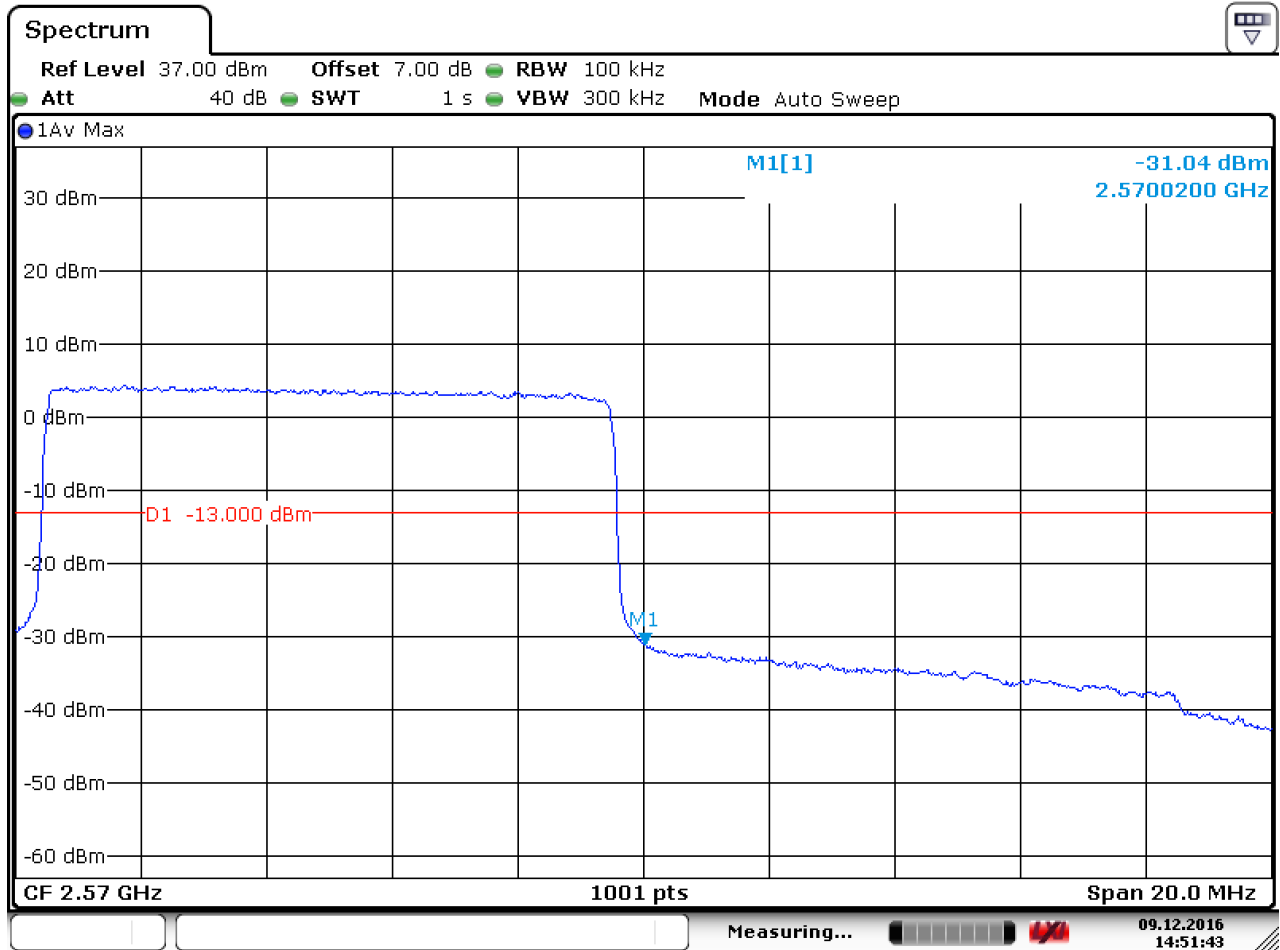


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5.1.1.4.2.2 Test RB=50RB



Date: 9.DEC.2016 14:51:43

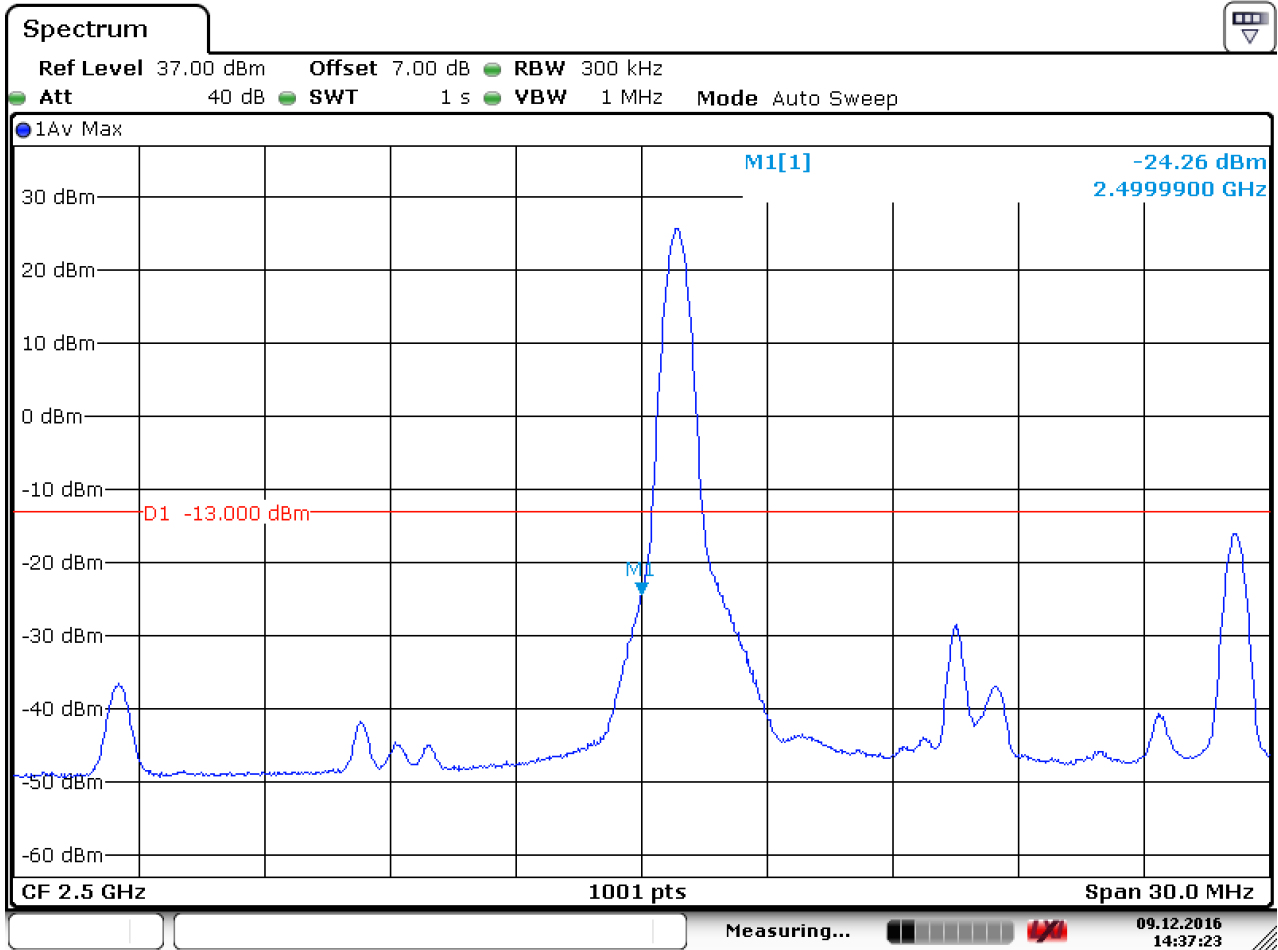
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5.1.1.5 Test Mode = LTE/TM1 15MHz

5.1.1.5.1 Test Channel = LCH

5.1.1.5.1.1 Test RB=1RB

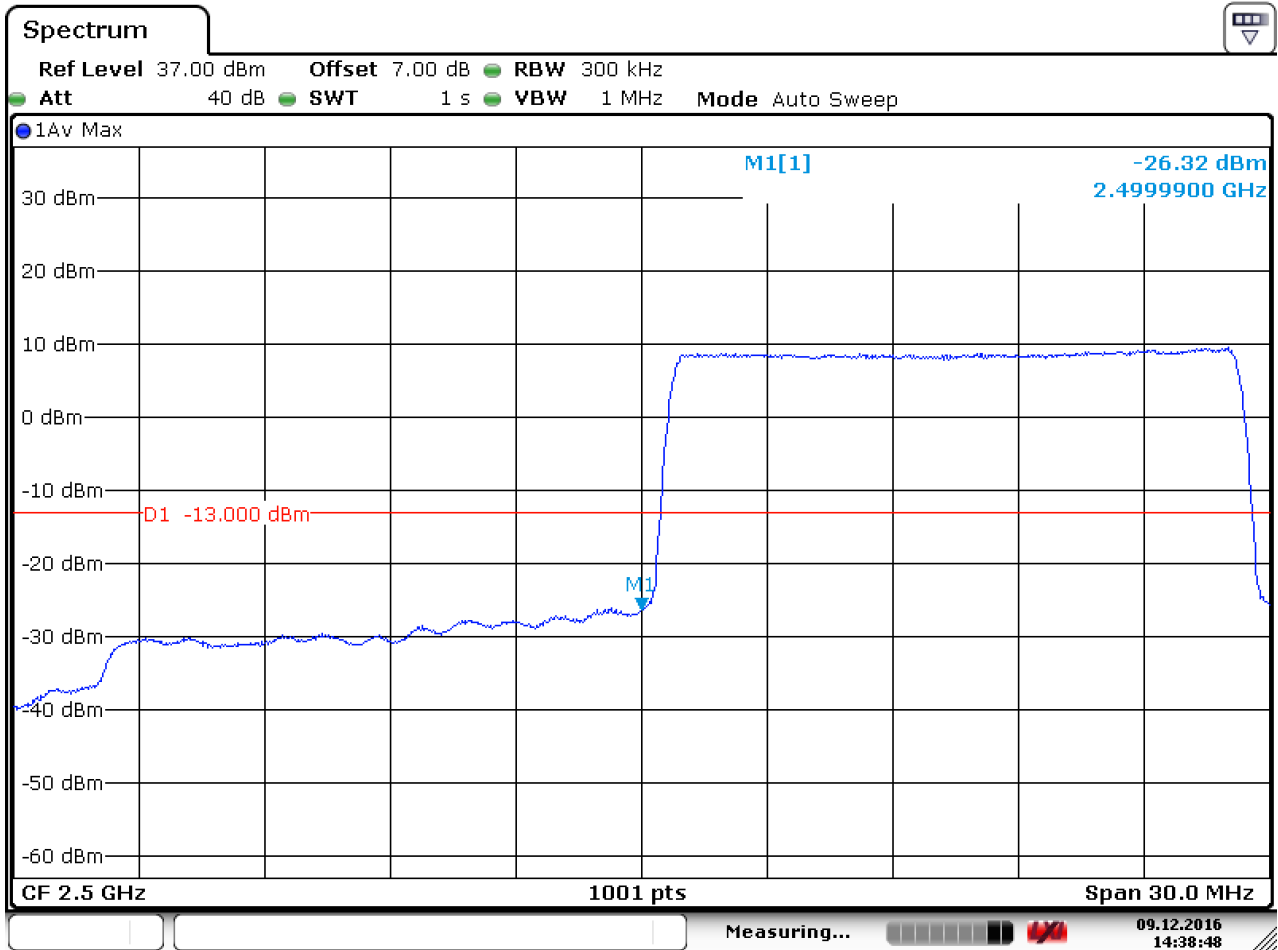


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5.1.1.5.1.2 Test RB=75RB



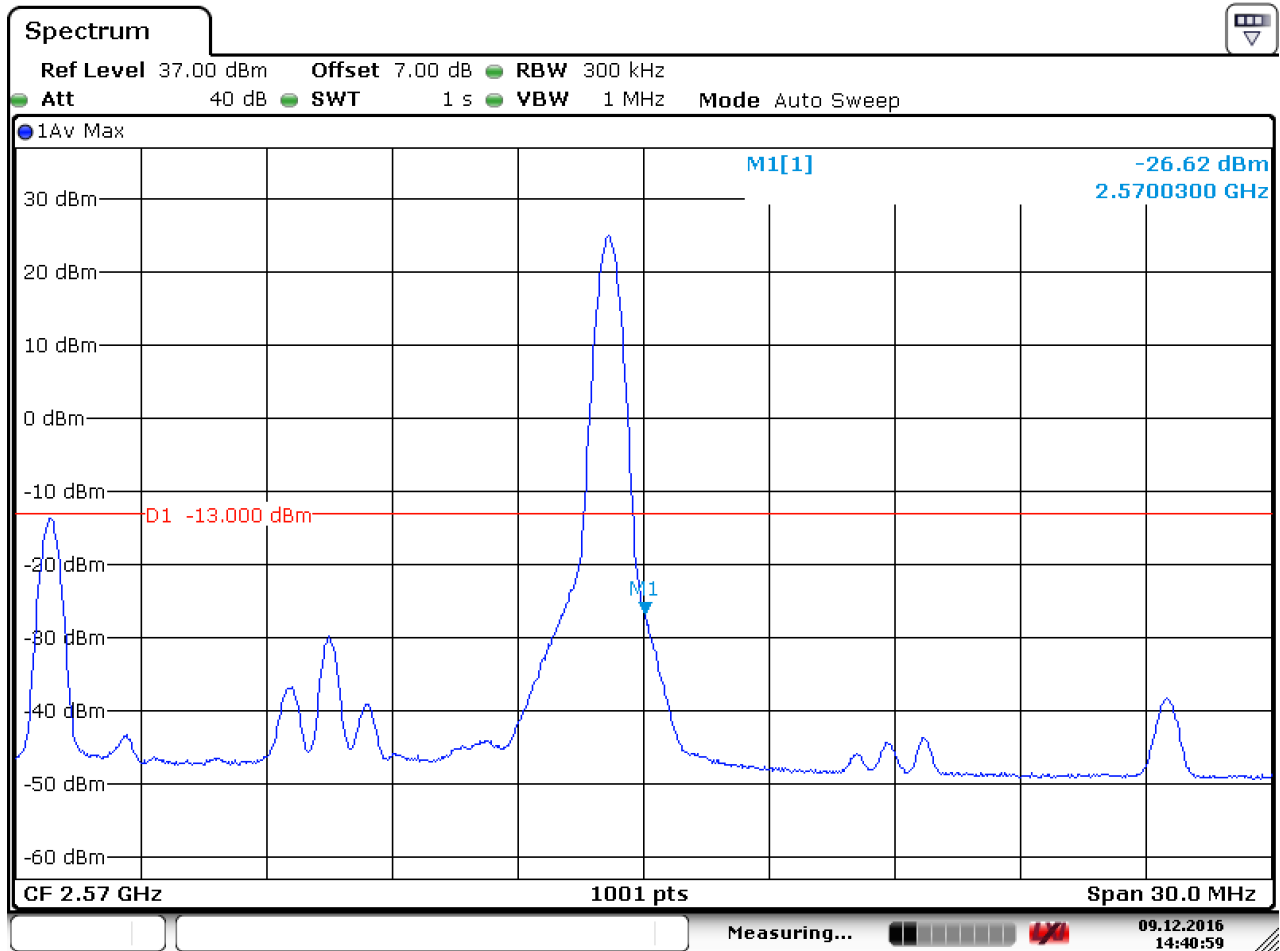
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5.1.1.5.2 Test Channel = HCH

5.1.1.5.2.1 Test RB=1RB

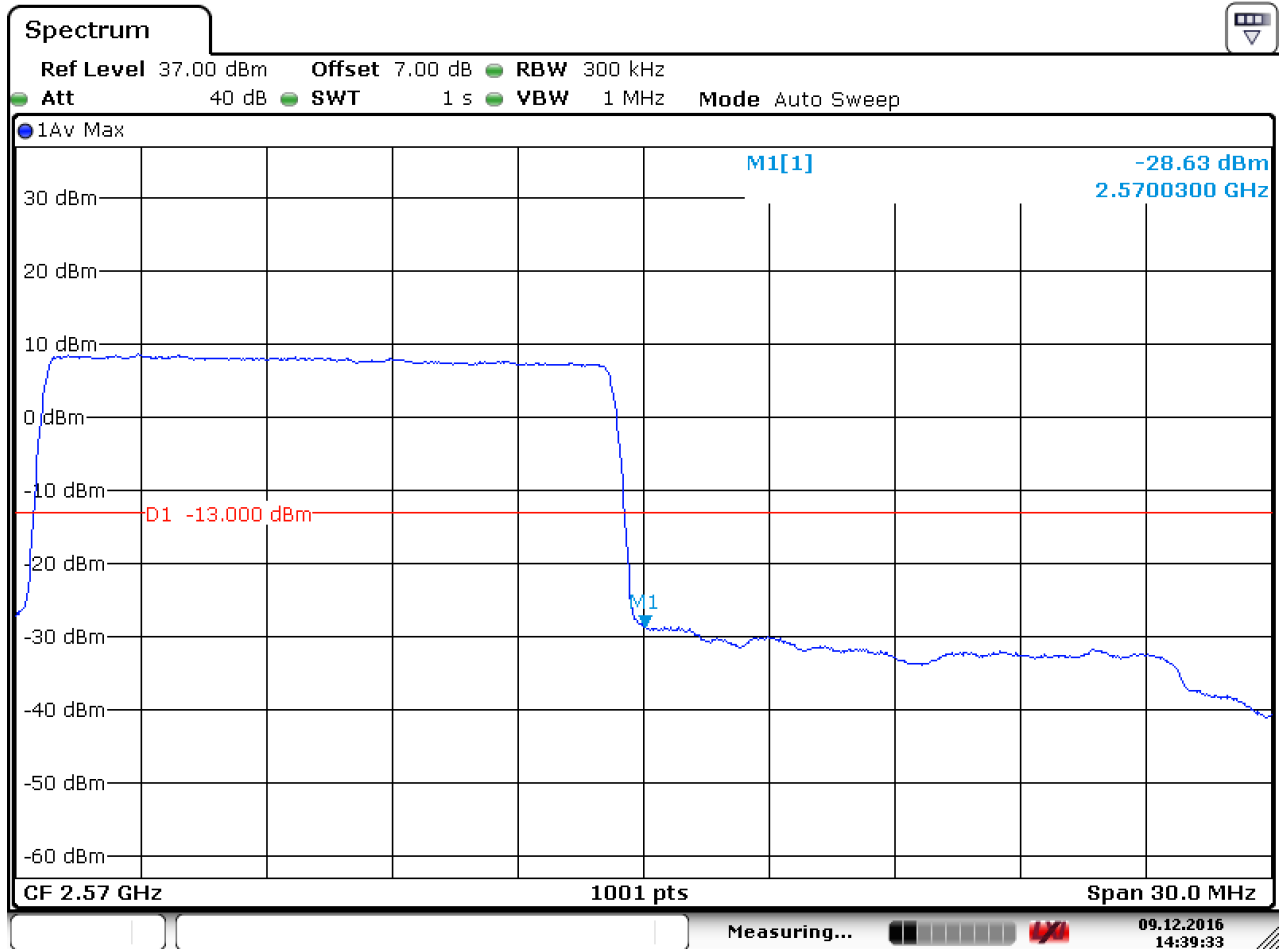


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5.1.1.5.2.2 Test RB=75RB



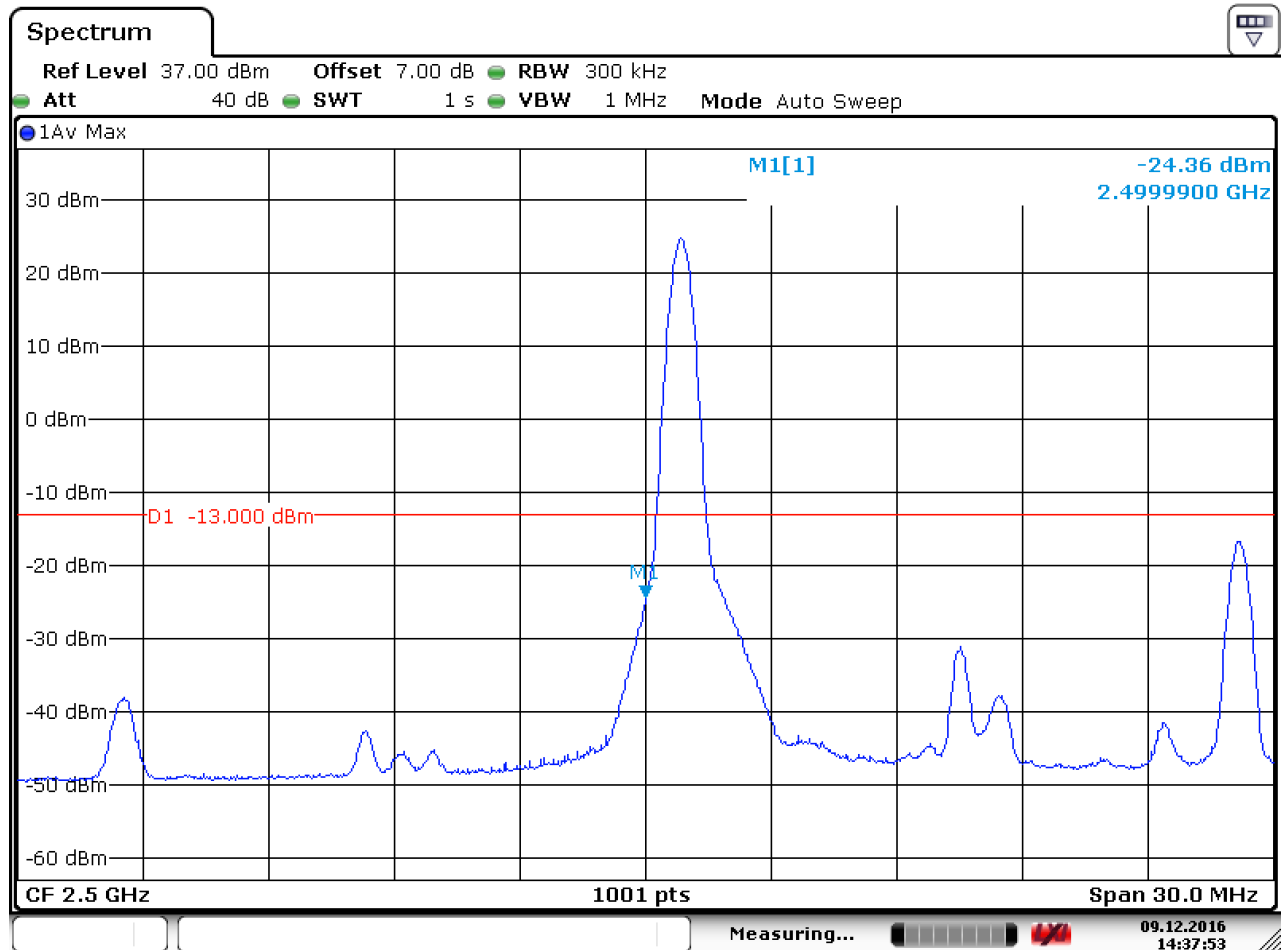
Date: 9. DEC. 2016 14:39:34



5.1.1.6 Test Mode = LTE/TM2 15MHz

5.1.1.6.1 Test Channel = LCH

5.1.1.6.1.1 Test RB=1RB

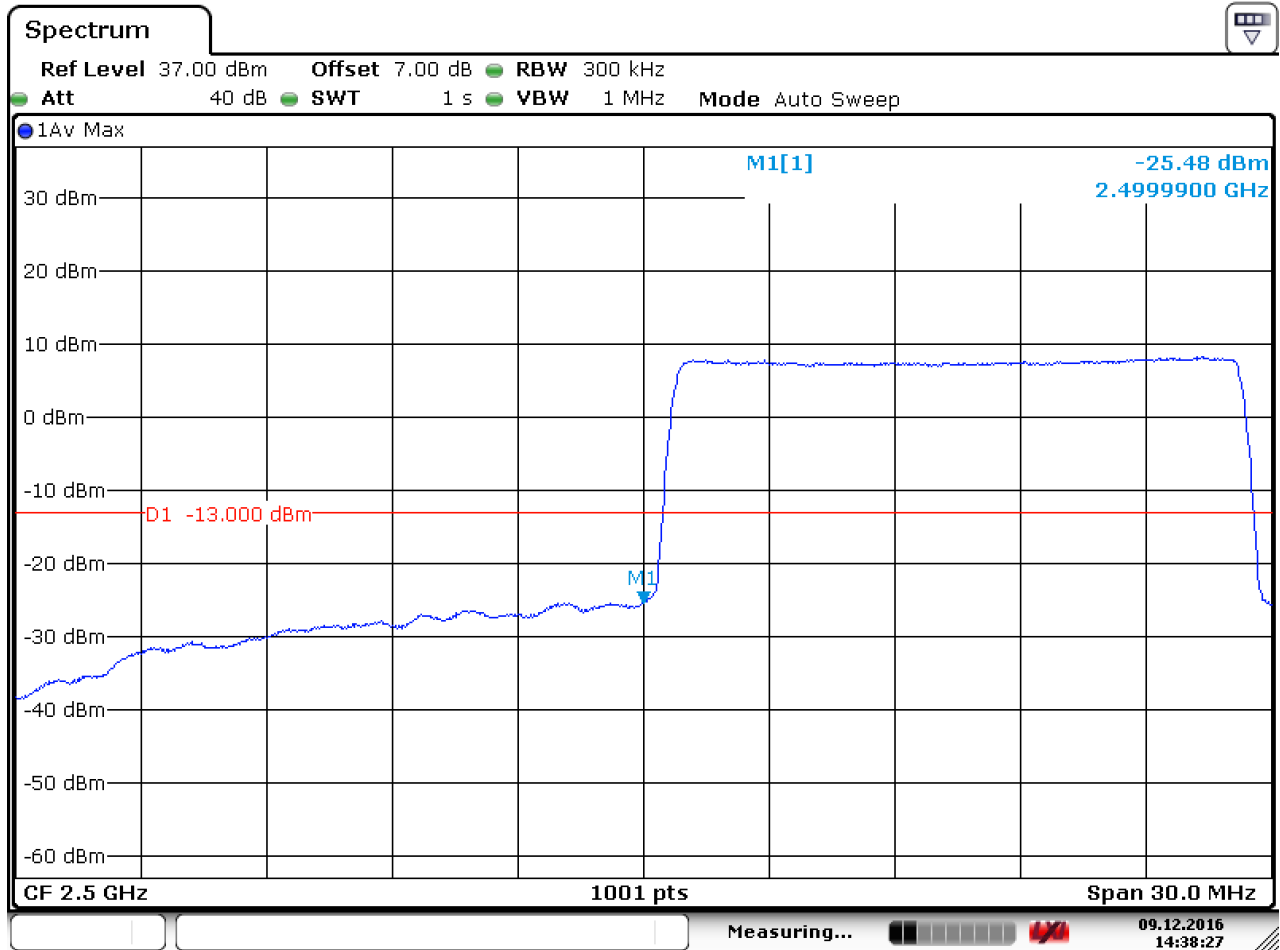


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5.1.1.6.1.2 Test RB=75RB



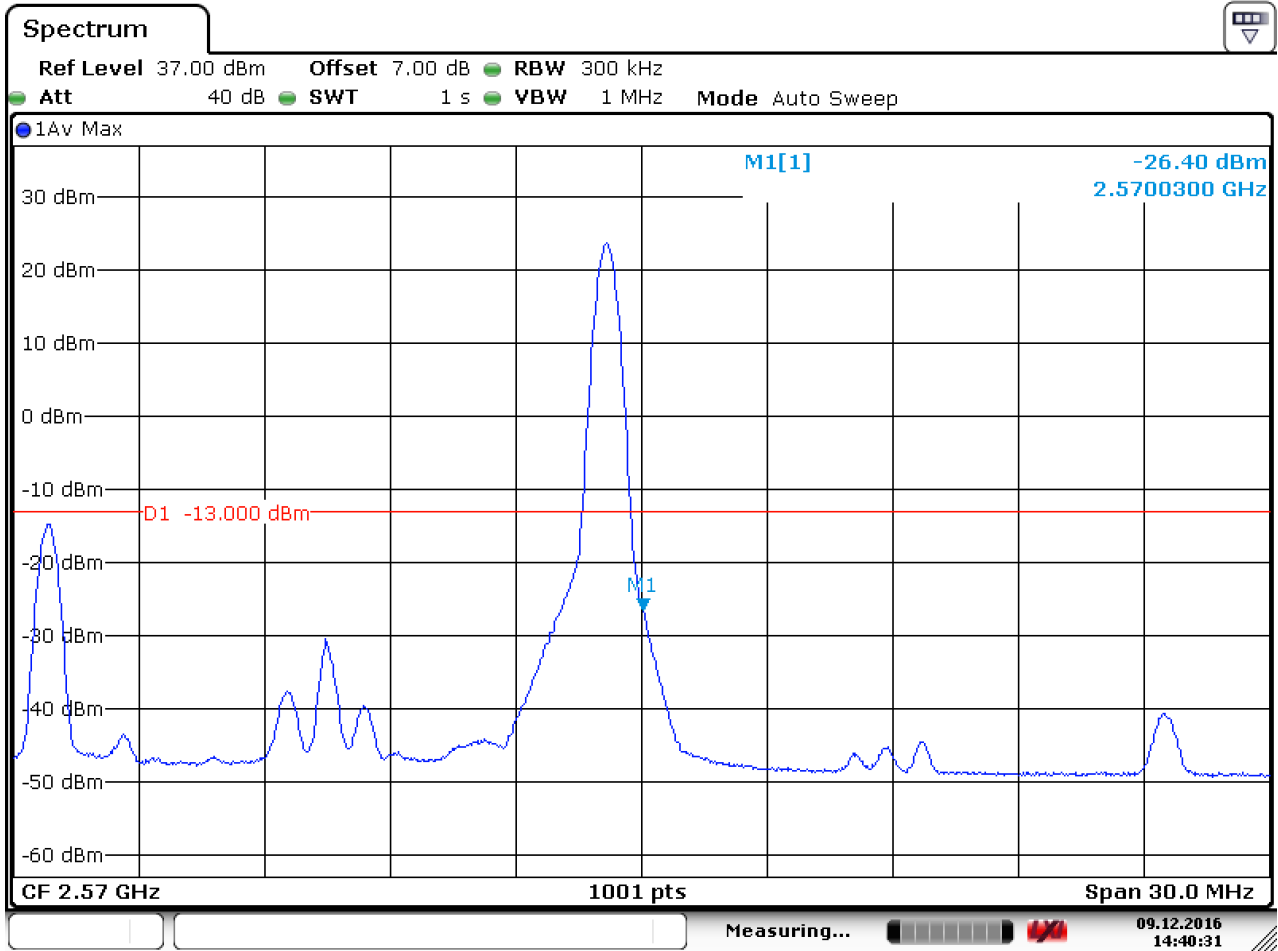
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5.1.1.6.2 Test Channel = HCH

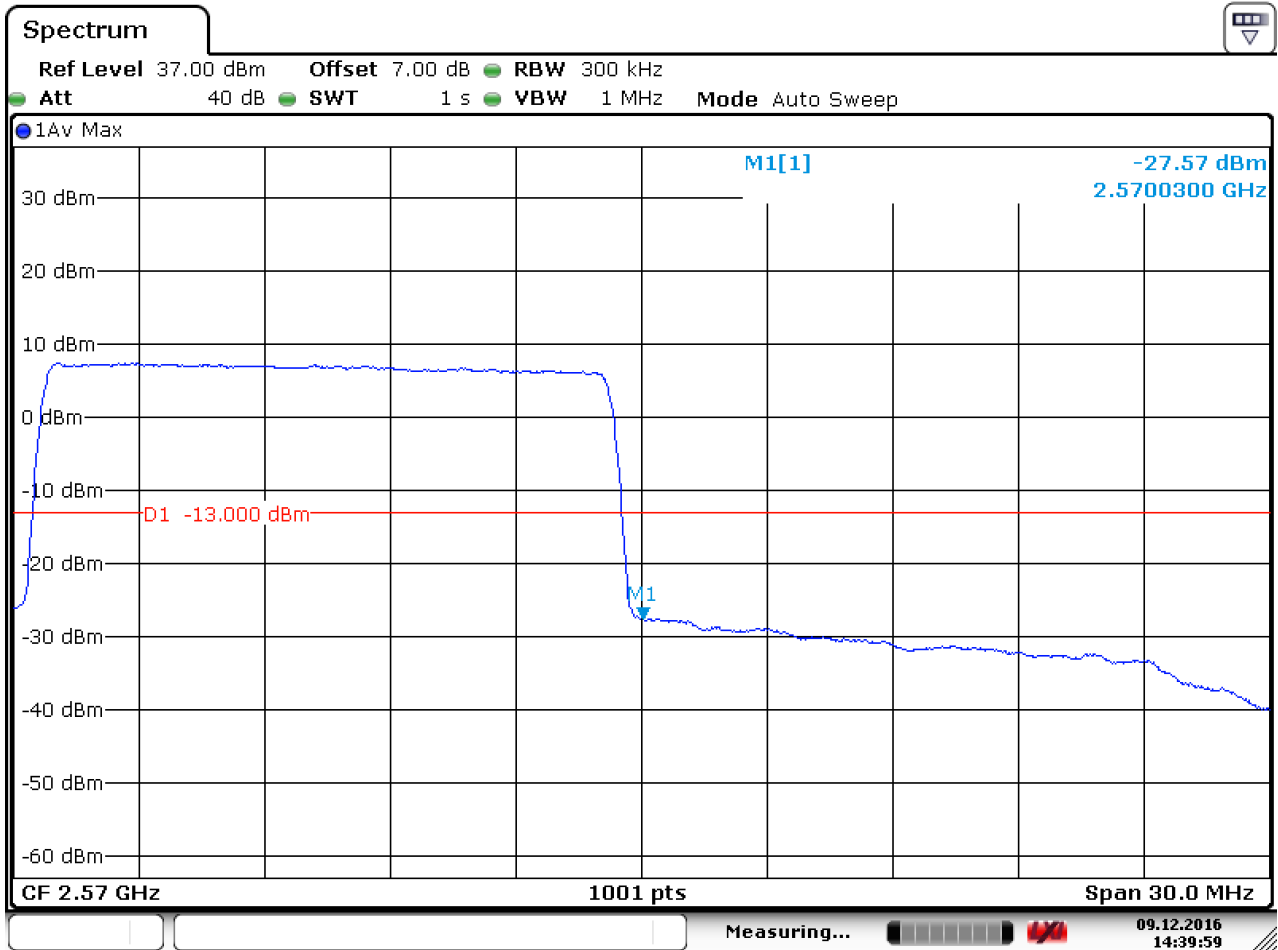
5.1.1.6.2.1 Test RB=1RB



Date: 9.DEC.2016 14:40:31



5.1.1.6.2.2 Test RB=75RB



Date: 9.DEC.2016 14:40:00

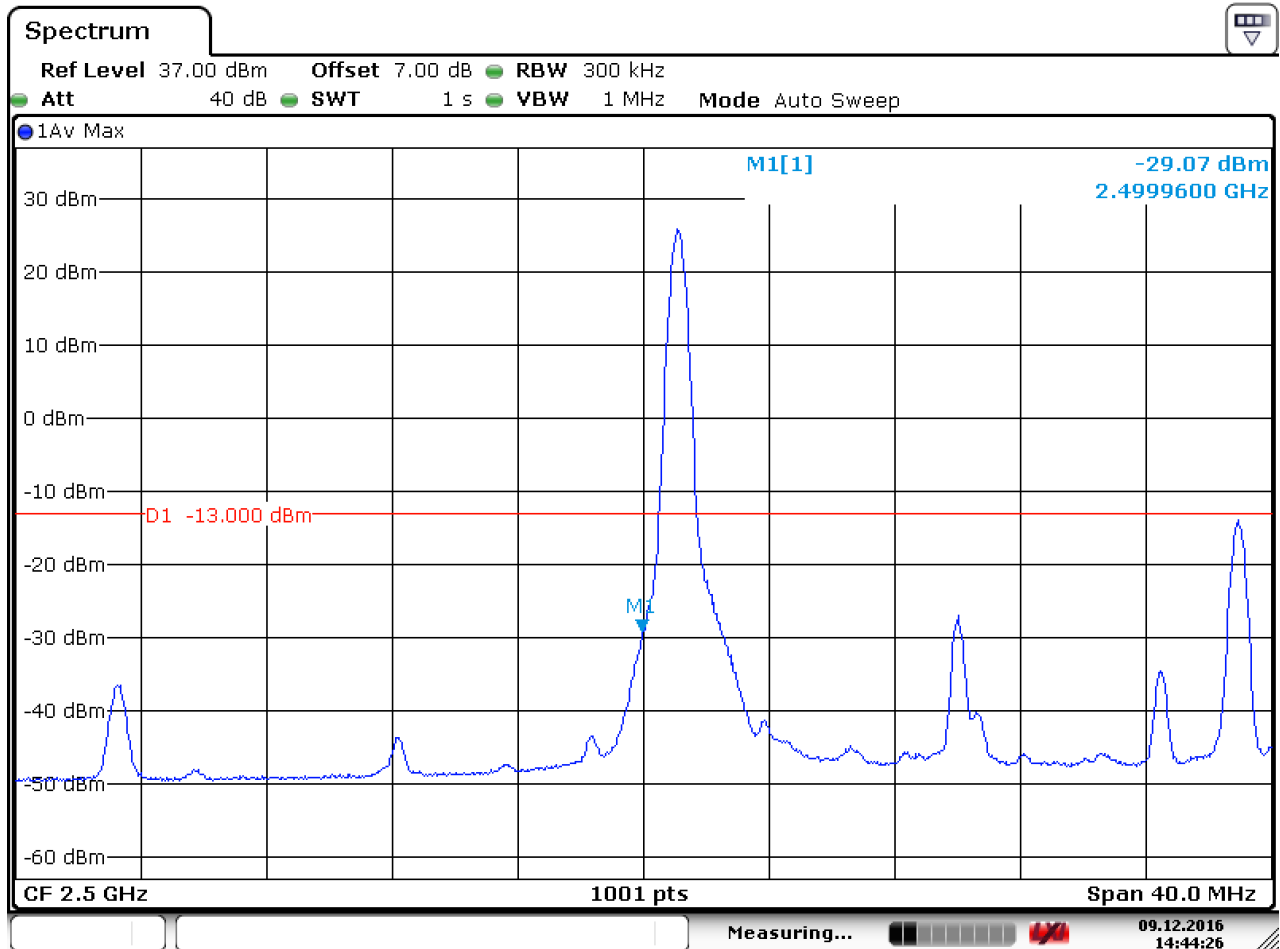
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5.1.1.7 Test Mode = LTE/TM1 20MHz

5.1.1.7.1 Test Channel = LCH

5.1.1.7.1.1 Test RB=1RB

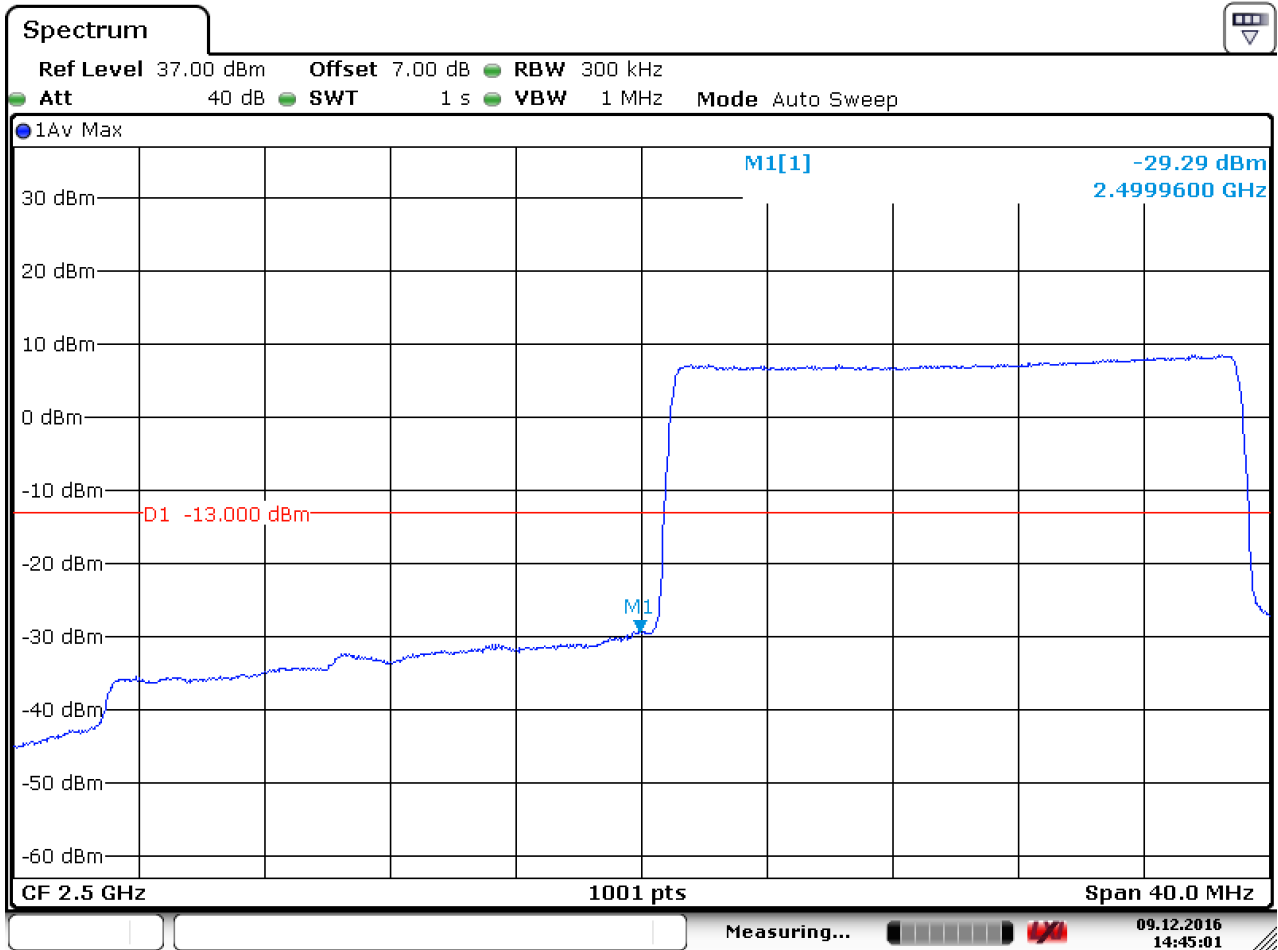


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5.1.1.7.1.2 Test RB=100RB



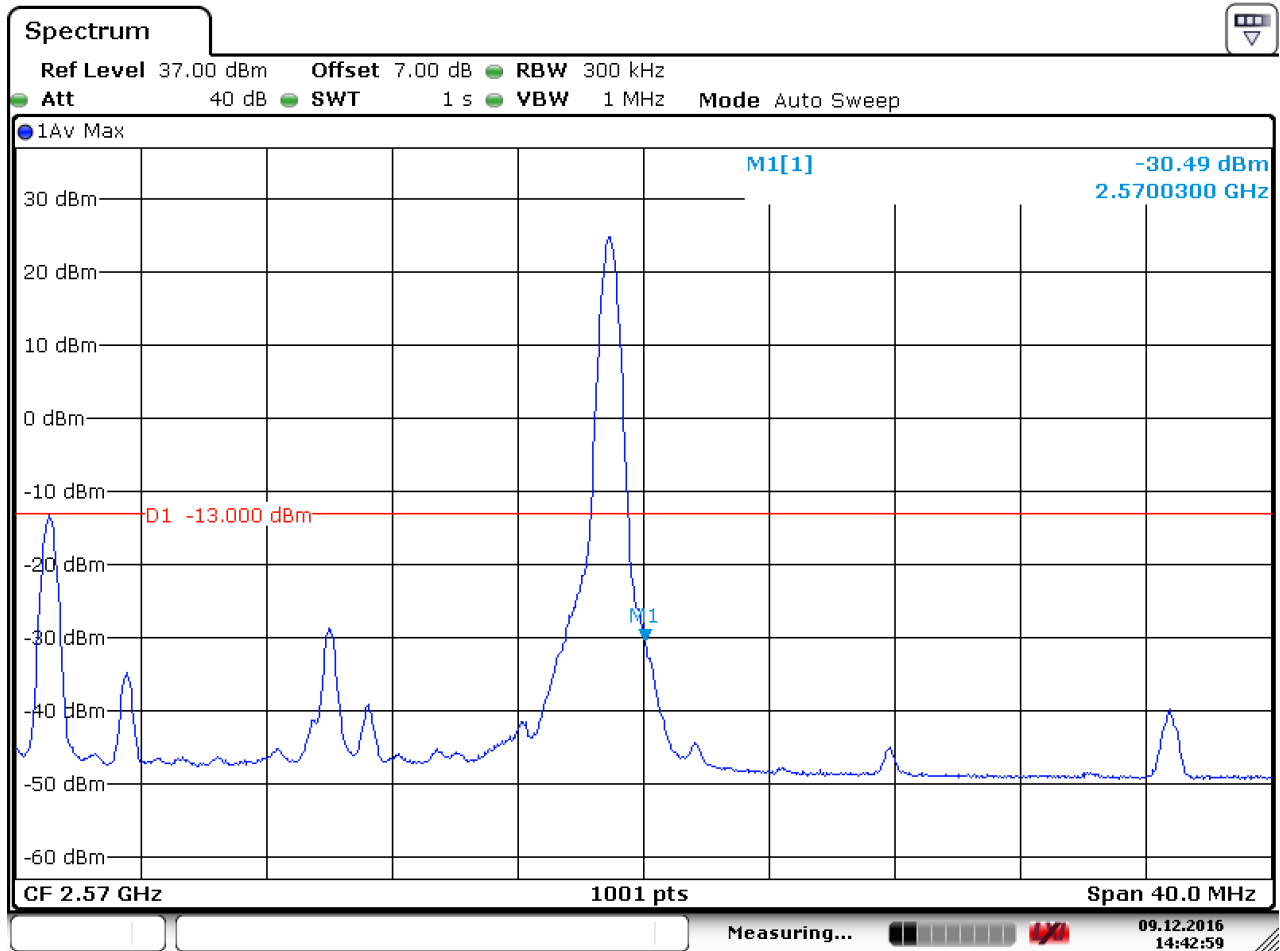
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5.1.1.7.2 Test Channel = HCH

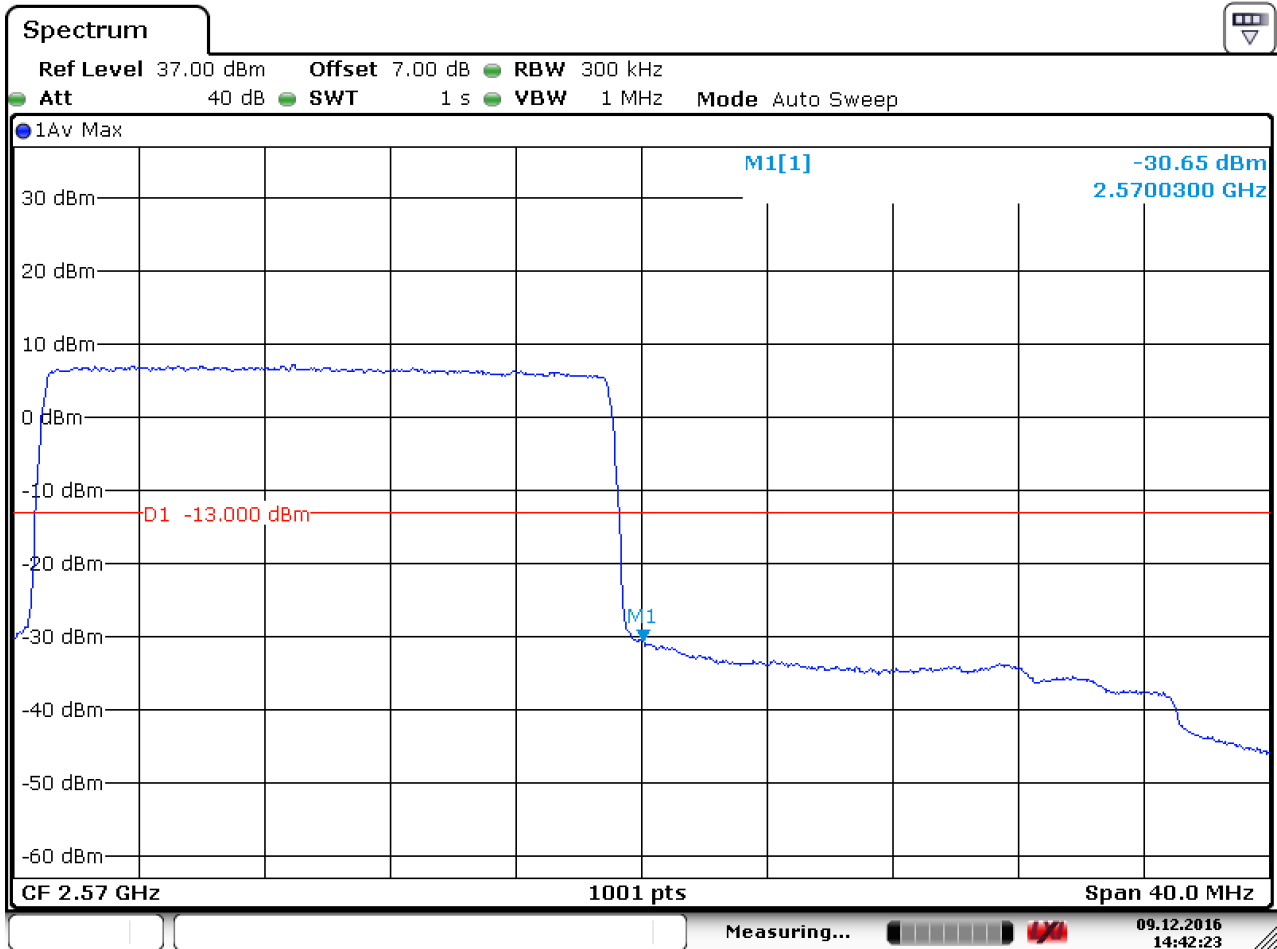
5.1.1.7.2.1 Test RB=1RB



Date: 9. DEC.2016 14:42:59



5.1.1.7.2.2 Test RB=100RB



Date: 9. DEC. 2016 14:42:23

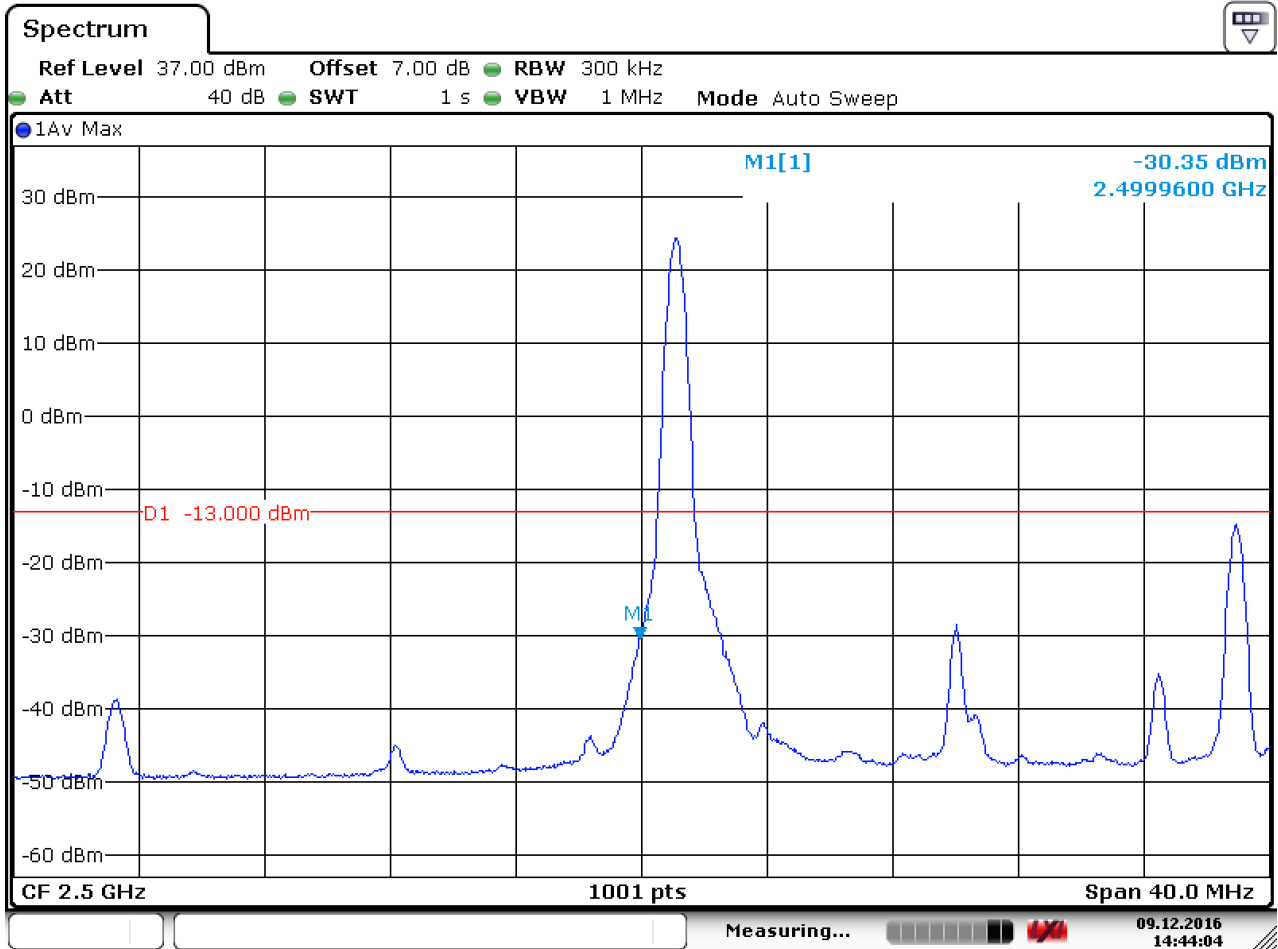
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5.1.1.8 Test Mode = LTE/TM2 20MHz

5.1.1.8.1 Test Channel = LCH

5.1.1.8.1.1 Test RB=1RB

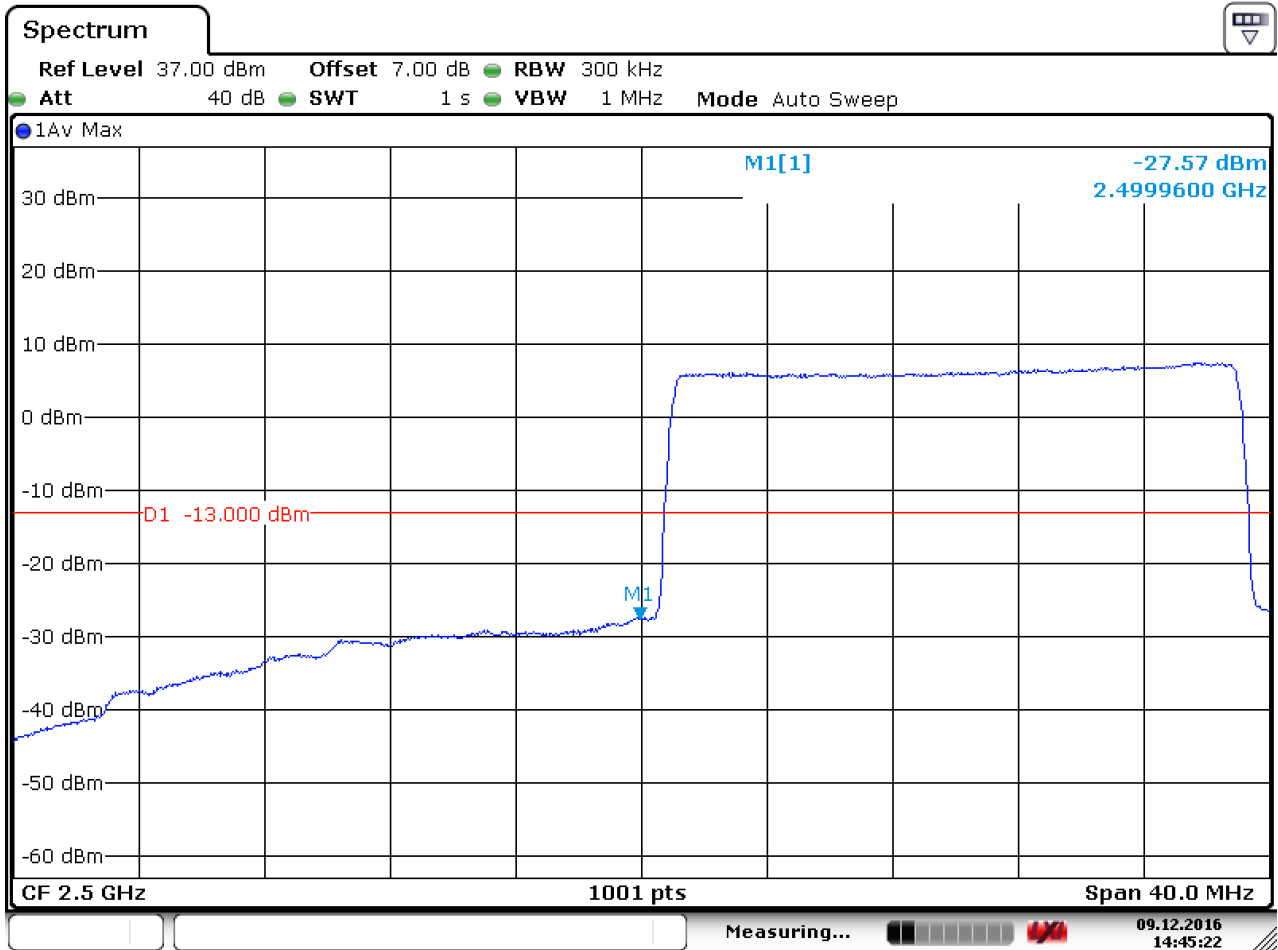


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5.1.1.8.1.2 Test RB=100RB



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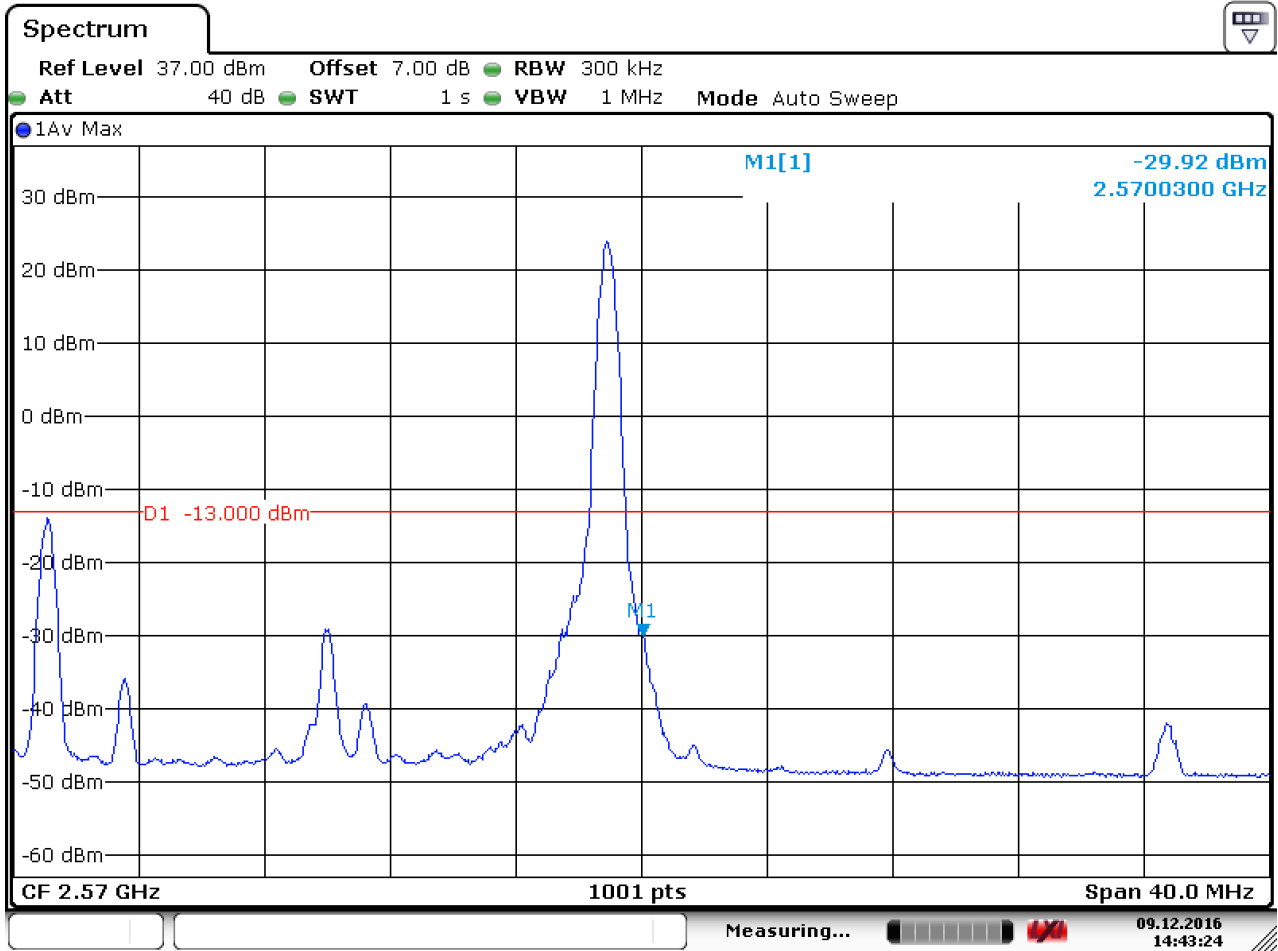
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5.1.1.8.2 Test Channel = HCH

5.1.1.8.2.1 Test RB=1RB

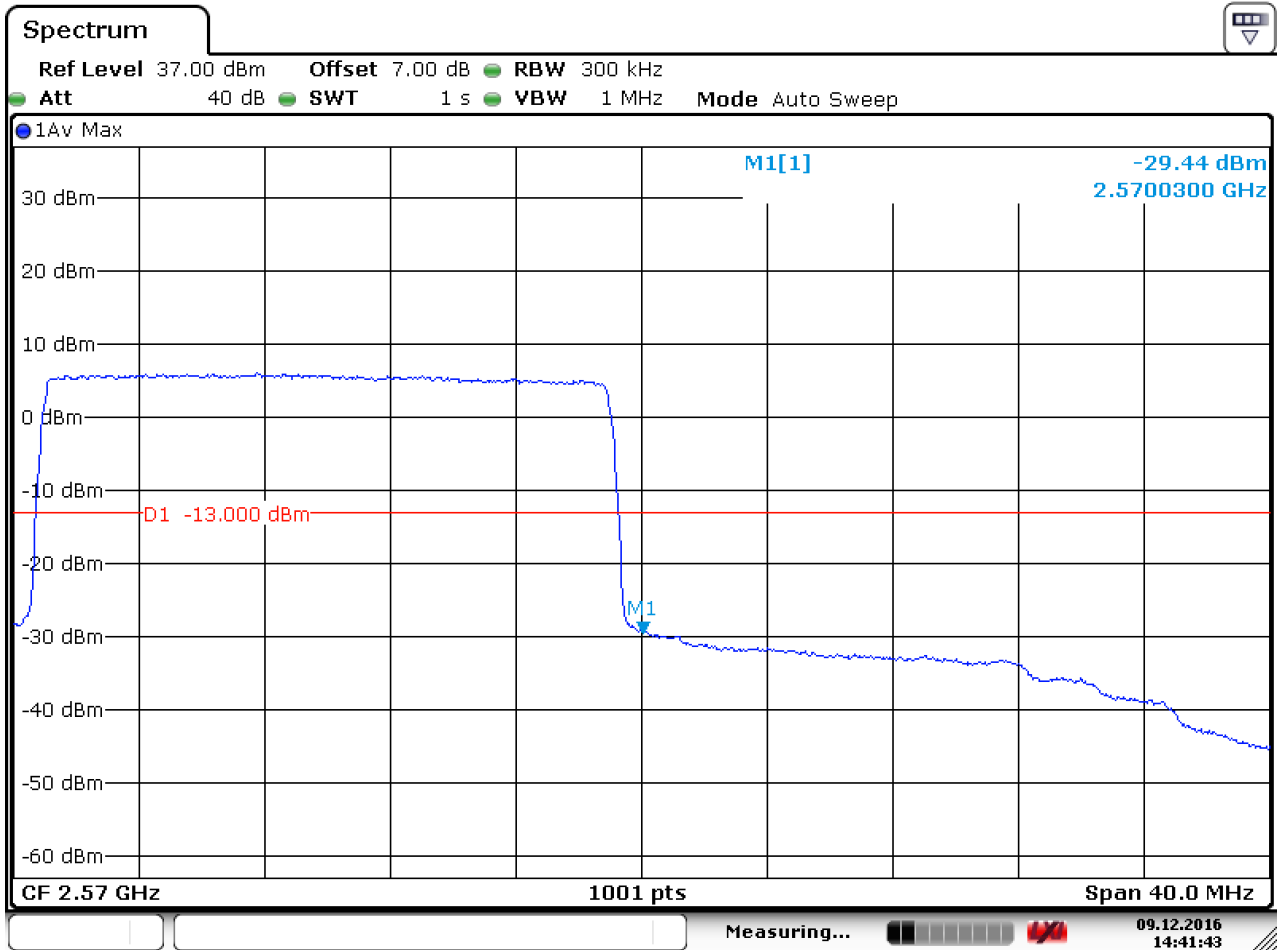


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5.1.1.8.2.2 Test RB=100RB



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## 6 Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep are 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.

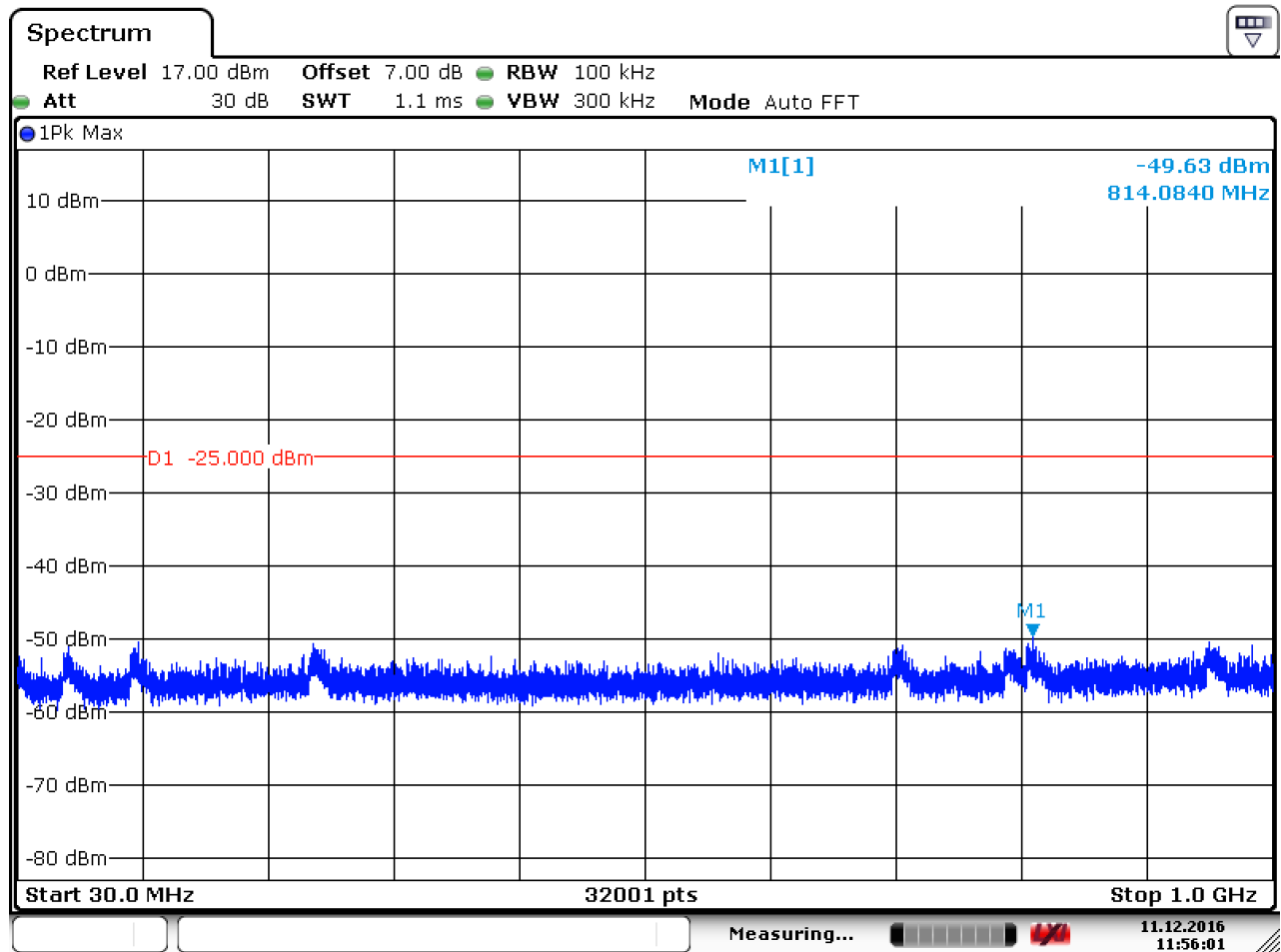
Part I - Test Plots

### 6.1 For LTE

#### 6.1.1 Test Band = LTE band7

##### 6.1.1.1 Test Mode = LTE / TM1 5MHz RB1#0

##### 6.1.1.1.1 Test Channel = LCH



Date: 11.DEC.2016 11:56:01