



# Appendix B

## E-UTRA Band 5



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# 1 Effective (Isotropic) Radiated Power Output Data

**Effective Radiated Power of Transmitter (ERP) for LTE BAND 5**

Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM1	1.4M	LCH	RB1#0	22.94	21.92	38.45	PASS
				RB1#2	23.19	22.17	38.45	PASS
				RB1#5	22.94	21.92	38.45	PASS
				RB3#0	23.14	22.12	38.45	PASS
				RB3#2	23.12	22.10	38.45	PASS
				RB3#3	23.20	22.18	38.45	PASS
				RB6#0	22.23	21.21	38.45	PASS
			MCH	RB1#0	22.96	21.94	38.45	PASS
				RB1#2	23.16	22.14	38.45	PASS
				RB1#5	22.90	21.88	38.45	PASS
				RB3#0	23.13	22.11	38.45	PASS
				RB3#2	23.15	22.13	38.45	PASS
				RB3#3	23.09	22.07	38.45	PASS
				RB6#0	22.14	21.12	38.45	PASS
			HCH	RB1#0	23.05	22.03	38.45	PASS
				RB1#2	23.26	22.24	38.45	PASS
				RB1#5	23.13	22.11	38.45	PASS
				RB3#0	23.16	22.14	38.45	PASS
				RB3#2	23.15	22.13	38.45	PASS
				RB3#3	23.12	22.10	38.45	PASS
				RB6#0	22.24	21.22	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM2	1.4M	LCH	RB1#0	22.63	21.61	38.45	PASS
				RB1#2	22.08	21.06	38.45	PASS
				RB1#5	22.47	21.45	38.45	PASS
				RB3#0	22.04	21.02	38.45	PASS
				RB3#2	22.42	21.40	38.45	PASS
				RB3#3	22.42	21.40	38.45	PASS
				RB6#0	21.12	20.10	38.45	PASS
			MCH	RB1#0	22.22	21.20	38.45	PASS
				RB1#2	21.99	20.97	38.45	PASS
				RB1#5	22.03	21.01	38.45	PASS
				RB3#0	22.27	21.25	38.45	PASS
				RB3#2	22.34	21.32	38.45	PASS
				RB3#3	22.43	21.41	38.45	PASS
				RB6#0	21.01	19.99	38.45	PASS
			HCH	RB1#0	22.60	21.58	38.45	PASS
				RB1#2	22.49	21.47	38.45	PASS
				RB1#5	22.00	20.98	38.45	PASS
				RB3#0	22.30	21.28	38.45	PASS
				RB3#2	22.43	21.41	38.45	PASS
				RB3#3	22.25	21.23	38.45	PASS
				RB6#0	21.07	20.05	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM1	3M	LCH	RB1#0	23.30	22.28	38.45	PASS
				RB1#7	23.27	22.25	38.45	PASS
				RB1#14	23.39	22.37	38.45	PASS
				RB8#0	22.32	21.30	38.45	PASS
				RB8#4	22.26	21.24	38.45	PASS
				RB8#7	22.31	21.29	38.45	PASS
				RB15#0	22.37	21.35	38.45	PASS
			MCH	RB1#0	23.38	22.36	38.45	PASS
				RB1#7	23.32	22.30	38.45	PASS
				RB1#14	23.25	22.23	38.45	PASS
				RB8#0	22.25	21.23	38.45	PASS
				RB8#4	22.22	21.20	38.45	PASS
				RB8#7	22.20	21.18	38.45	PASS
				RB15#0	22.24	21.22	38.45	PASS
			HCH	RB1#0	23.34	22.32	38.45	PASS
				RB1#7	23.42	22.40	38.45	PASS
				RB1#14	23.21	22.19	38.45	PASS
				RB8#0	22.35	21.33	38.45	PASS
				RB8#4	22.28	21.26	38.45	PASS
				RB8#7	22.29	21.27	38.45	PASS
				RB15#0	22.27	21.25	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM2	3M	LCH	RB1#0	22.69	21.67	38.45	PASS
				RB1#7	22.51	21.49	38.45	PASS
				RB1#14	22.70	21.68	38.45	PASS
				RB8#0	21.54	20.52	38.45	PASS
				RB8#4	21.32	20.30	38.45	PASS
				RB8#7	21.37	20.35	38.45	PASS
				RB15#0	21.46	20.44	38.45	PASS
			MCH	RB1#0	22.45	21.43	38.45	PASS
				RB1#7	22.48	21.46	38.45	PASS
				RB1#14	22.56	21.54	38.45	PASS
				RB8#0	21.41	20.39	38.45	PASS
				RB8#4	21.29	20.27	38.45	PASS
				RB8#7	21.43	20.41	38.45	PASS
				RB15#0	21.35	20.33	38.45	PASS
			HCH	RB1#0	22.48	21.46	38.45	PASS
				RB1#7	22.55	21.53	38.45	PASS
				RB1#14	22.55	21.53	38.45	PASS
				RB8#0	21.44	20.42	38.45	PASS
				RB8#4	21.39	20.37	38.45	PASS
				RB8#7	21.47	20.45	38.45	PASS
				RB15#0	21.25	20.23	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM1	5M	LCH	RB1#0	22.99	21.97	38.45	PASS
				RB1#13	23.08	22.06	38.45	PASS
				RB1#24	22.94	21.92	38.45	PASS
				RB12#0	22.26	21.24	38.45	PASS
				RB12#6	22.18	21.16	38.45	PASS
				RB12#13	22.22	21.20	38.45	PASS
				RB25#0	22.33	21.31	38.45	PASS
			MCH	RB1#0	23.13	22.11	38.45	PASS
				RB1#13	22.93	21.91	38.45	PASS
				RB1#24	23.13	22.11	38.45	PASS
				RB12#0	22.16	21.14	38.45	PASS
				RB12#6	22.12	21.10	38.45	PASS
				RB12#13	22.15	21.13	38.45	PASS
				RB25#0	22.20	21.18	38.45	PASS
			HCH	RB1#0	23.16	22.14	38.45	PASS
				RB1#13	23.15	22.13	38.45	PASS
				RB1#24	23.13	22.11	38.45	PASS
				RB12#0	22.11	21.09	38.45	PASS
				RB12#6	22.22	21.20	38.45	PASS
				RB12#13	22.18	21.16	38.45	PASS
				RB25#0	22.09	21.07	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM2	5M	LCH	RB1#0	22.30	21.28	38.45	PASS
				RB1#13	22.56	21.54	38.45	PASS
				RB1#24	22.44	21.42	38.45	PASS
				RB12#0	21.49	20.47	38.45	PASS
				RB12#6	21.09	20.07	38.45	PASS
				RB12#13	21.15	20.13	38.45	PASS
				RB25#0	21.26	20.24	38.45	PASS
			MCH	RB1#0	22.75	21.73	38.45	PASS
				RB1#13	22.39	21.37	38.45	PASS
				RB1#24	22.37	21.35	38.45	PASS
				RB12#0	21.19	20.17	38.45	PASS
				RB12#6	21.06	20.04	38.45	PASS
				RB12#13	21.11	20.09	38.45	PASS
				RB25#0	21.31	20.29	38.45	PASS
			HCH	RB1#0	22.34	21.32	38.45	PASS
				RB1#13	22.00	20.98	38.45	PASS
				RB1#24	22.46	21.44	38.45	PASS
				RB12#0	21.32	20.30	38.45	PASS
				RB12#6	21.17	20.15	38.45	PASS
				RB12#13	21.13	20.11	38.45	PASS
				RB25#0	21.11	20.09	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM1	10M	LCH	RB1#0	23.23	22.21	38.45	PASS
				RB1#25	23.32	22.30	38.45	PASS
				RB1#49	23.21	22.19	38.45	PASS
				RB25#0	22.33	21.31	38.45	PASS
				RB25#13	22.25	21.23	38.45	PASS
				RB25#25	22.32	21.30	38.45	PASS
				RB50#0	22.39	21.37	38.45	PASS
			MCH	RB1#0	23.30	22.28	38.45	PASS
				RB1#25	23.19	22.17	38.45	PASS
				RB1#49	23.23	22.21	38.45	PASS
				RB25#0	22.36	21.34	38.45	PASS
				RB25#13	22.33	21.31	38.45	PASS
				RB25#25	22.34	21.32	38.45	PASS
				RB50#0	22.42	21.40	38.45	PASS
			HCH	RB1#0	23.48	22.46	38.45	PASS
				RB1#25	23.27	22.25	38.45	PASS
				RB1#49	23.25	22.23	38.45	PASS
				RB25#0	22.43	21.41	38.45	PASS
				RB25#13	22.36	21.34	38.45	PASS
				RB25#25	22.35	21.33	38.45	PASS
				RB50#0	22.44	21.42	38.45	PASS



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Test Band(LTE)	Test Mode	Test Bandwidth	Test channel	Test RB	Measured (dBm)	ERP (dBm)	limit (dBm)	Verdict
BAND5	LTE/TM2	10M	LCH	RB1#0	22.59	21.57	38.45	PASS
				RB1#25	22.31	21.29	38.45	PASS
				RB1#49	22.09	21.07	38.45	PASS
				RB25#0	21.4	20.38	38.45	PASS
				RB25#13	21.16	20.14	38.45	PASS
				RB25#25	21.26	20.24	38.45	PASS
				RB50#0	21.35	20.33	38.45	PASS
			MCH	RB1#0	22.52	21.50	38.45	PASS
				RB1#25	22.38	21.36	38.45	PASS
				RB1#49	22.14	21.12	38.45	PASS
				RB25#0	21.46	20.44	38.45	PASS
				RB25#13	21.28	20.26	38.45	PASS
				RB25#25	21.18	20.16	38.45	PASS
				RB50#0	21.34	20.32	38.45	PASS
			HCH	RB1#0	22.70	21.68	38.45	PASS
				RB1#25	22.47	21.45	38.45	PASS
				RB1#49	22.52	21.50	38.45	PASS
				RB25#0	21.56	20.54	38.45	PASS
				RB25#13	21.44	20.42	38.45	PASS
				RB25#25	21.23	20.21	38.45	PASS
				RB50#0	21.32	20.30	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

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

Detector: RMS



## 2 Peak-to-Average Ratio

### Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
Band 5	TM1/10M	LCH	4.87	13	PASS
		MCH	5.28	13	PASS
		HCH	4.84	13	PASS
	TM2/10M	LCH	5.51	13	PASS
		MCH	5.94	13	PASS
		HCH	5.59	13	PASS



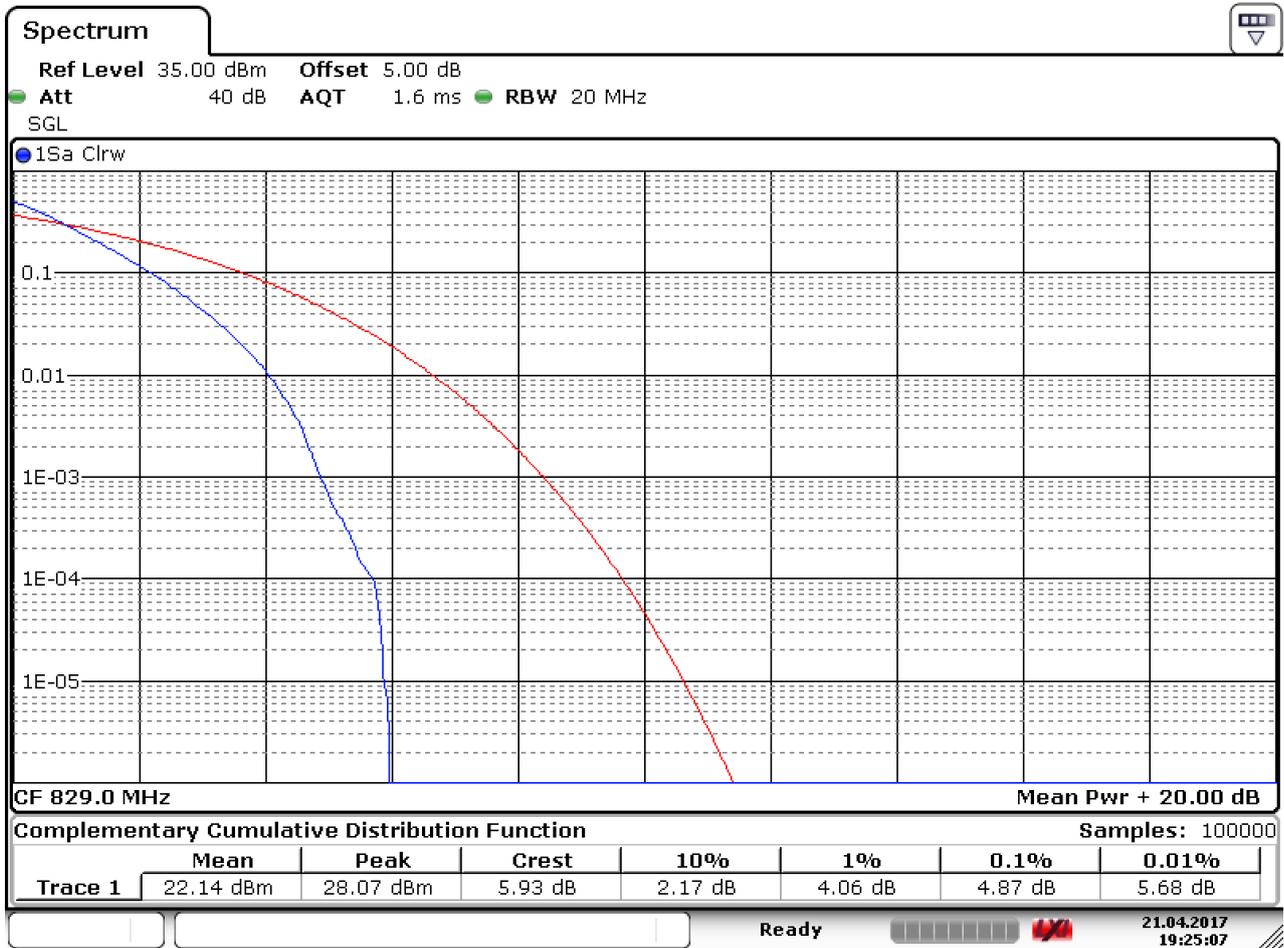
Part II - Test Plots

2.1 For LTE

2.1.1 Test Band = LTE band5

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

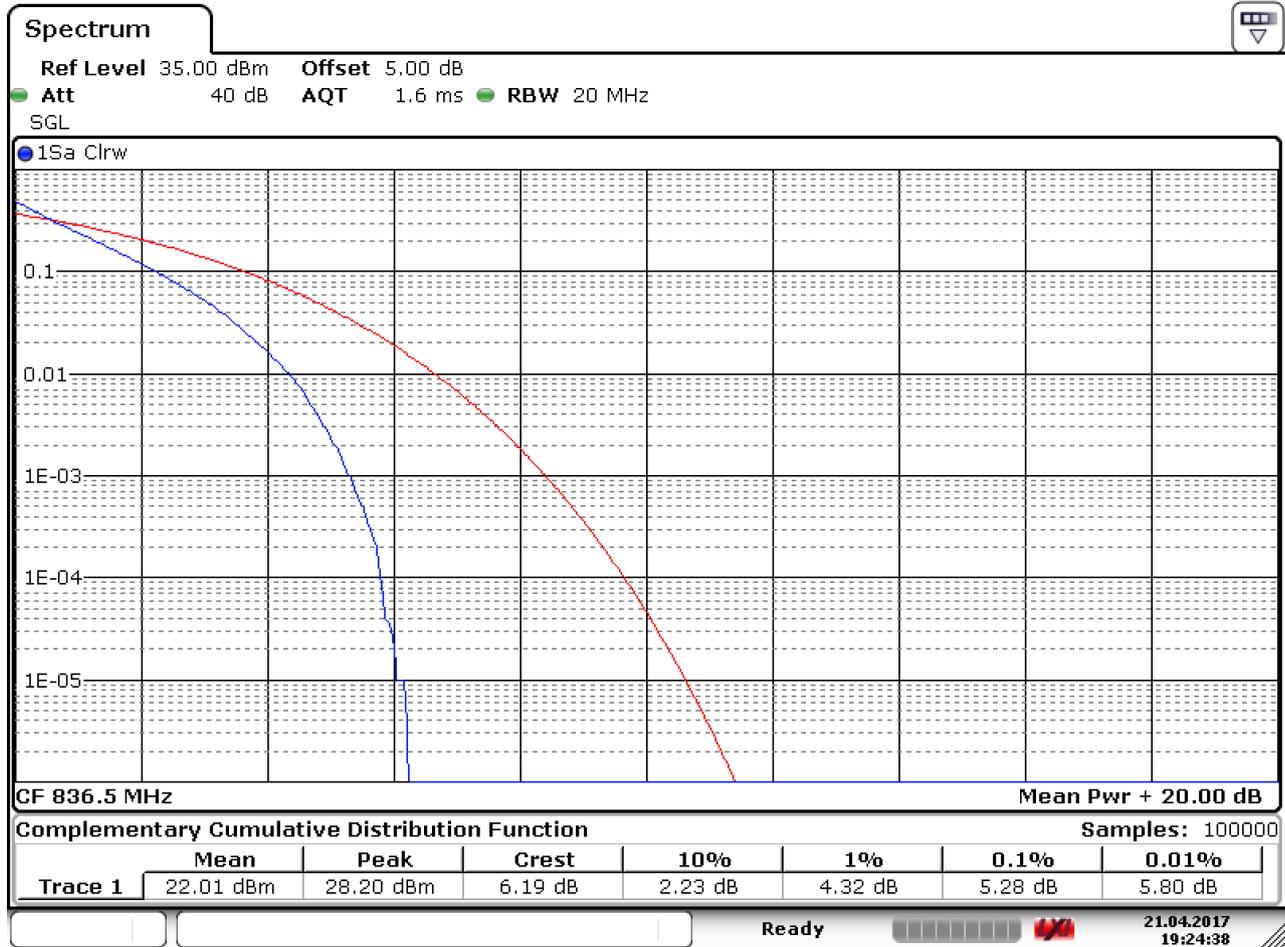
2.1.1.1.1 Test Channel = LCH



Date: 21.APR.2017 19:25:08



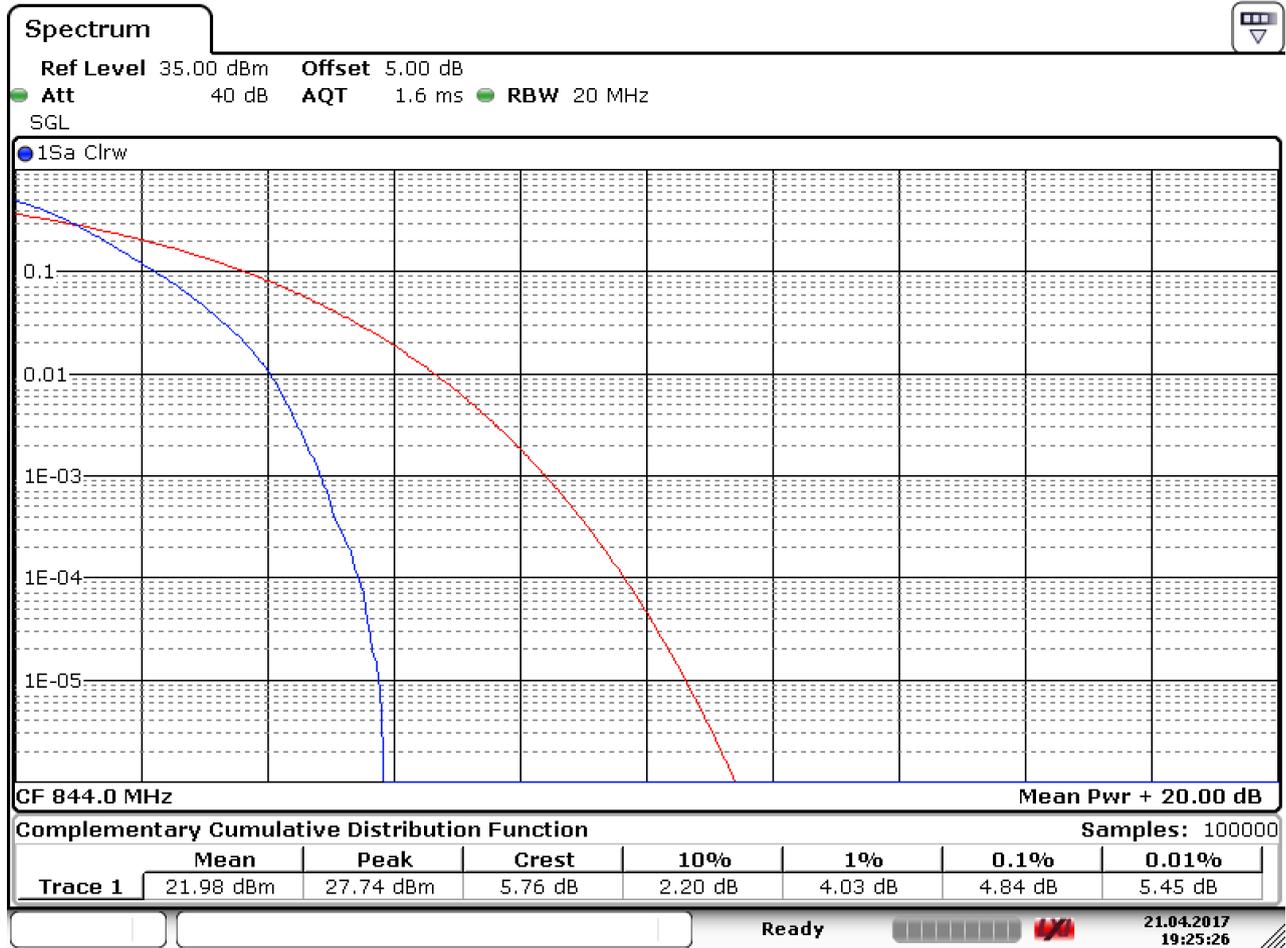
2.1.1.1.2 Test Channel = MCH



Date: 21.APR.2017 19:24:38



2.1.1.1.3 Test Channel = HCH

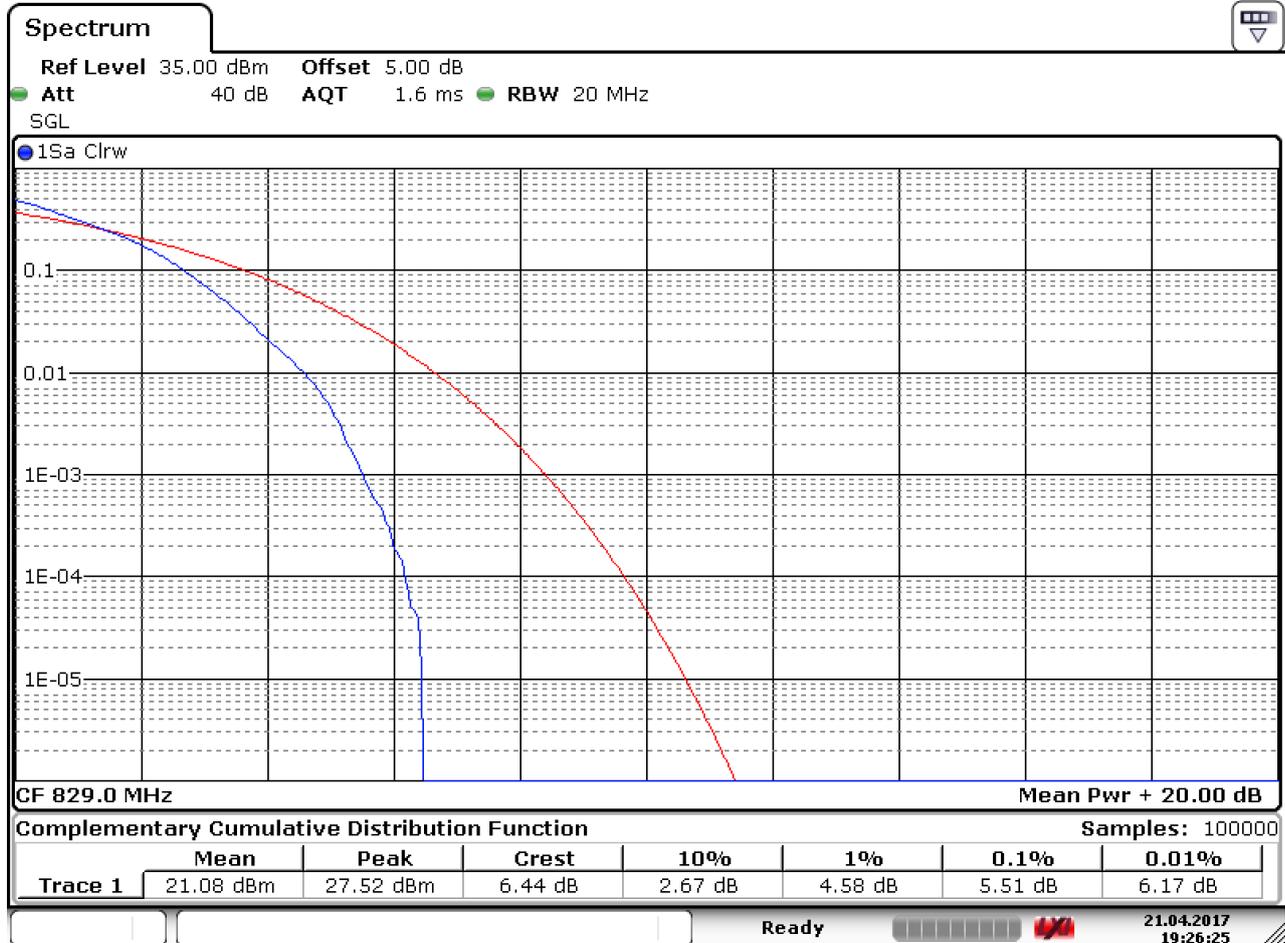


Date: 21.APR.2017 19:25:26



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

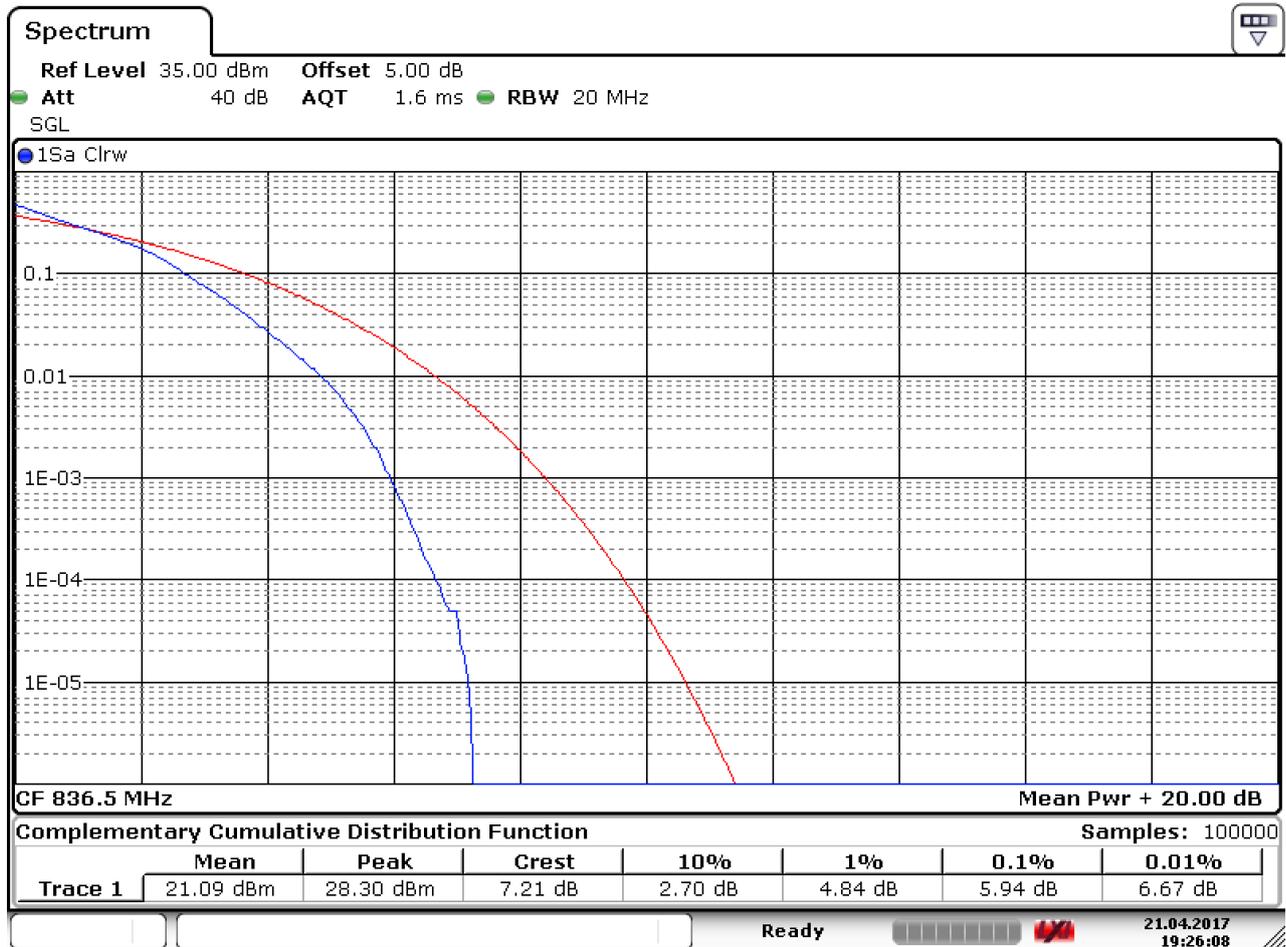
**2.1.1.2.1 Test Channel = LCH**



Date: 21.APR.2017 19:26:26



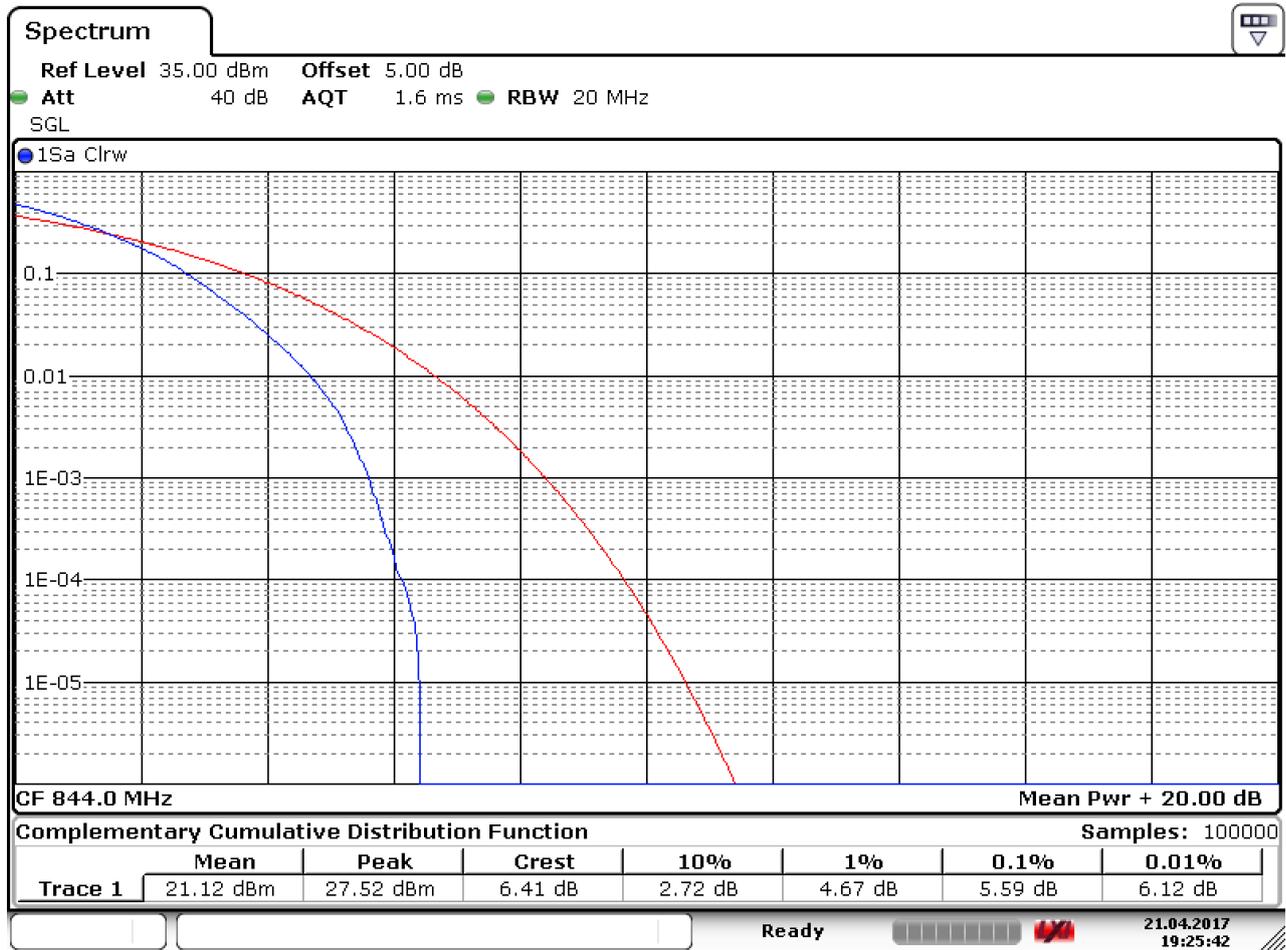
2.1.1.2.2 Test Channel = MCH



Date: 21.APR.2017 19:26:08



2.1.1.2.3 Test Channel = HCH



Date: 21.APR.2017 19:25:42

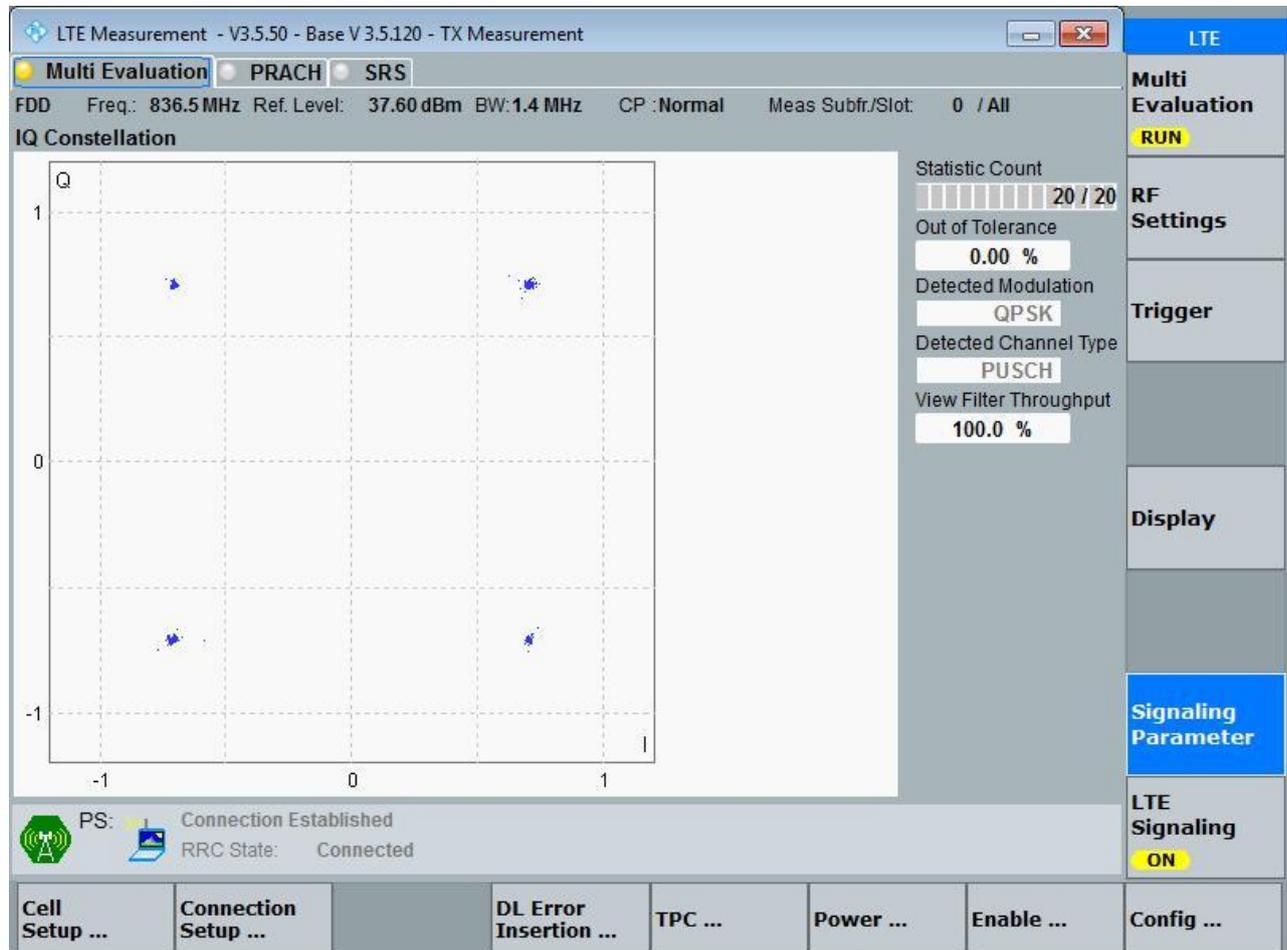
### 3 Modulation Characteristics

#### 3.1 For LTE

##### 3.1.1 Test Band = LTE band5

##### 3.1.1.1 Test Mode = LTE /TM1 1.4MHz

##### 3.1.1.1.1 Test Channel = MCH





3.1.1.2 Test Mode = LTE /TM1 3MHz

3.1.1.2.1 Test Channel = MCH

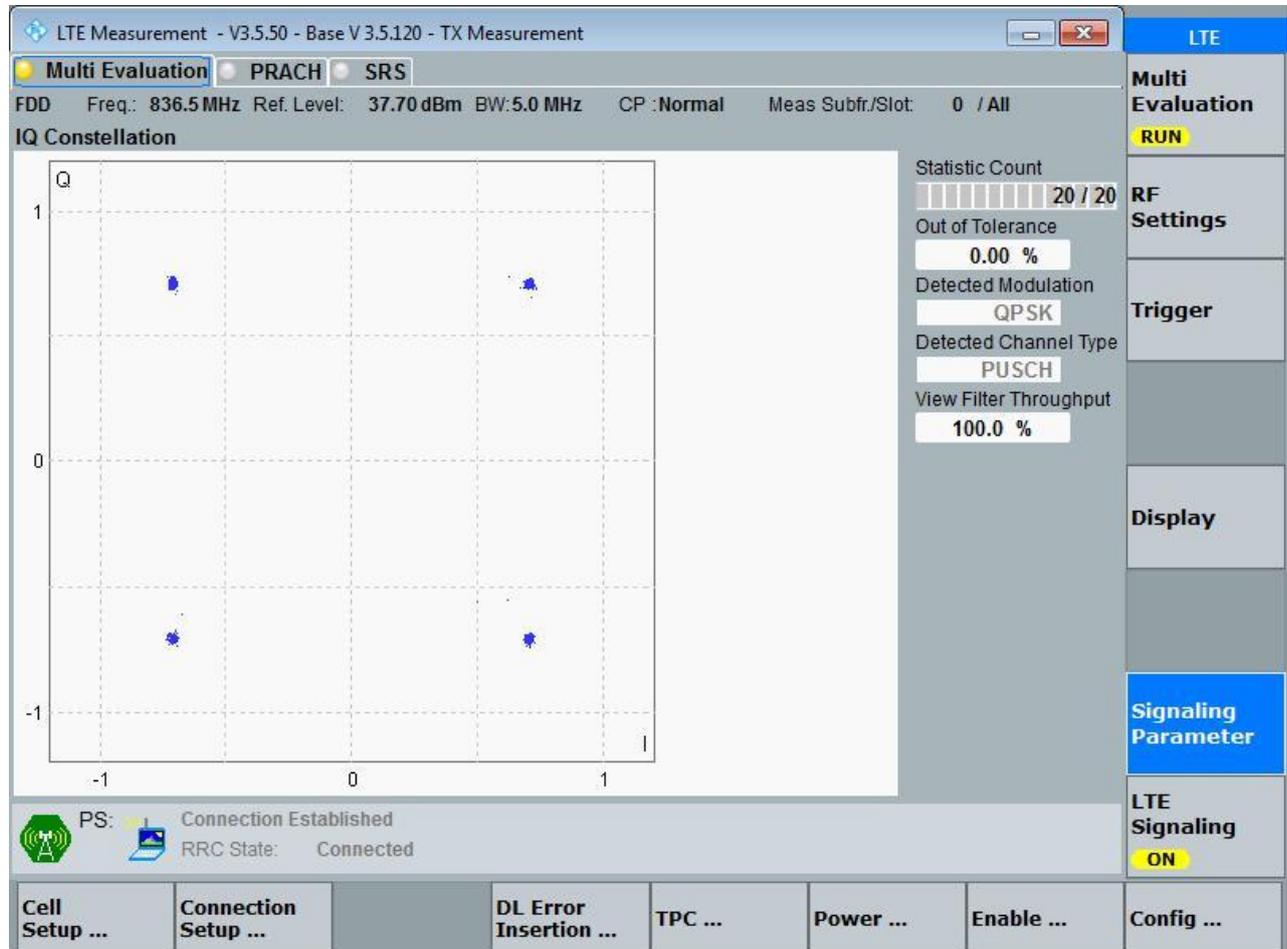
The screenshot displays the 'LTE Measurement' software interface. The main window shows an 'IQ Constellation' plot with a grid from -1 to 1 on both axes. Four distinct clusters of points are visible, representing the QPSK modulation scheme. The right-hand side of the interface contains a control panel with the following settings:

- Statistic Count: 20 / 20
- Out of Tolerance: 0.00 %
- Detected Modulation: QPSK
- Detected Channel Type: PUSCH
- View Filter Throughput: 100.0 %

Below the plot, the status bar indicates '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 ...'. On the far right, a vertical sidebar contains buttons for 'LTE', 'Multi Evaluation', 'RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', 'LTE Signaling', and 'ON'.

**3.1.1.3 Test Mode = LTE /TM1 5MHz**

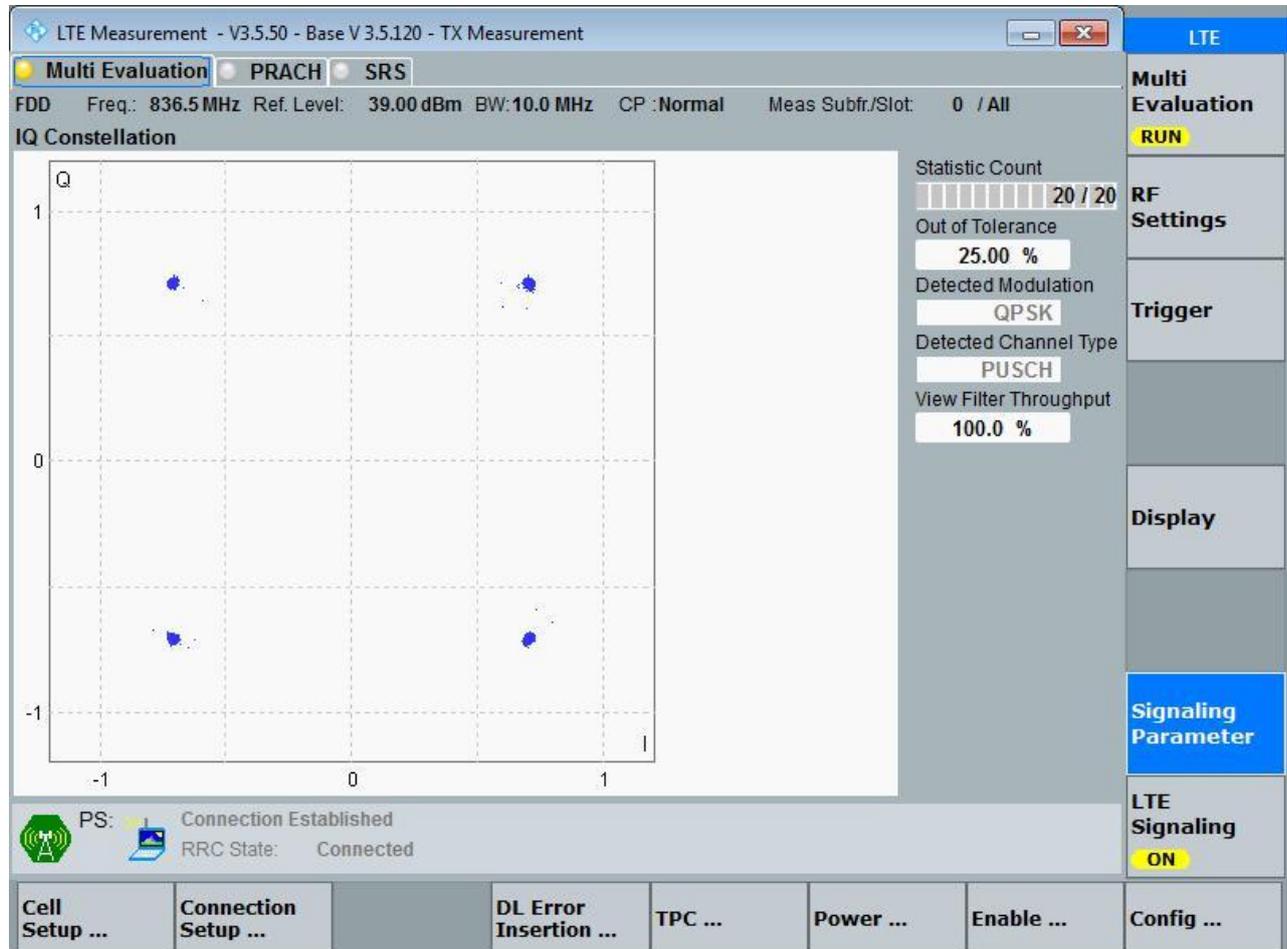
**3.1.1.3.1 Test Channel = MCH**



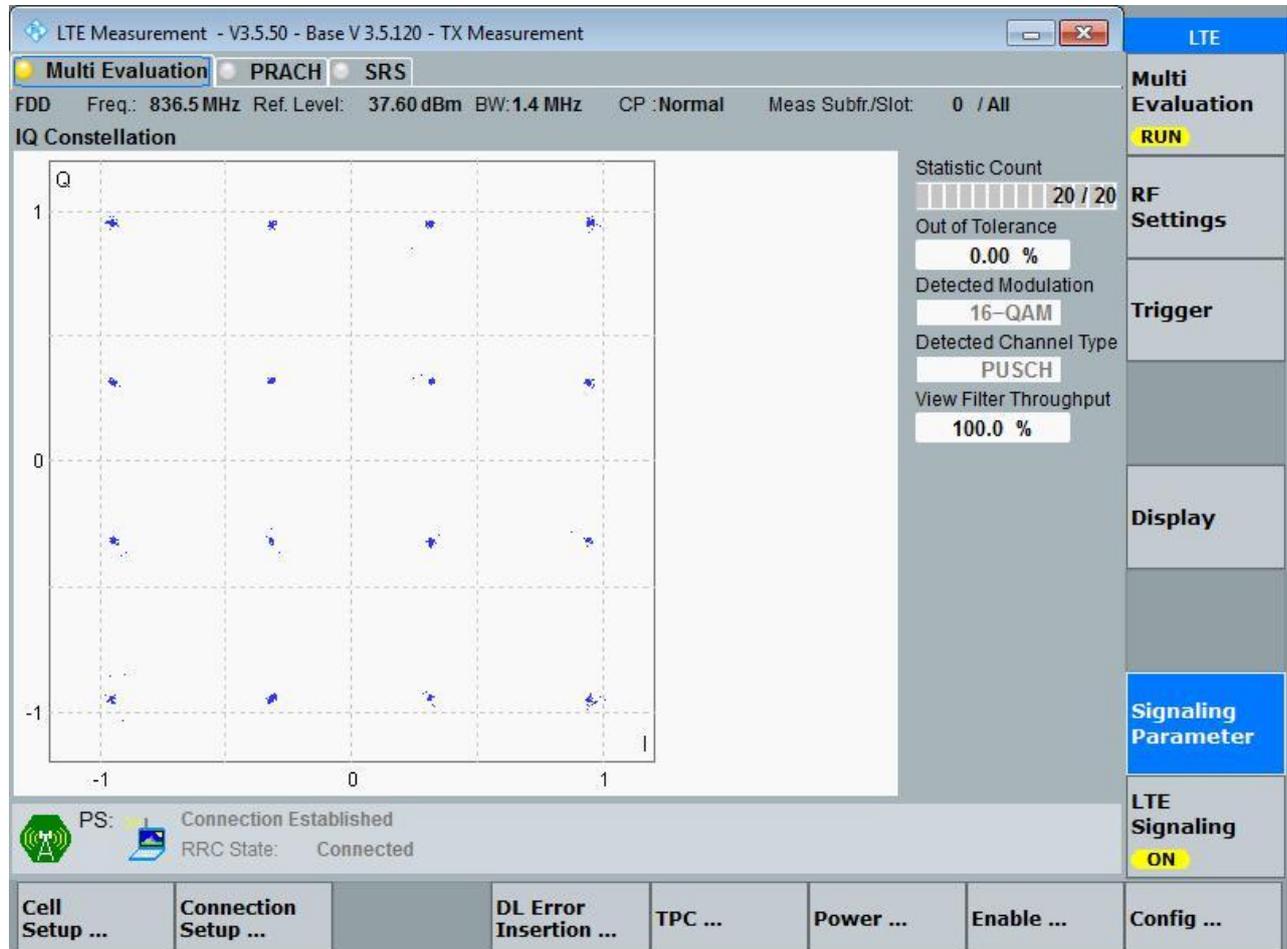
The screenshot displays the LTE Measurement software interface. The main window shows the 'IQ Constellation' plot with four data points forming a square on a grid from -1 to 1 on both axes. The plot is titled 'IQ Constellation' and has 'Q' on the vertical axis and 'I' on the horizontal axis. To the right of the plot, the 'Statistic Count' is shown as 20 / 20, 'Out of Tolerance' is 0.00 %, 'Detected Modulation' is QPSK, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0 %. The interface includes a top menu bar with 'Multi Evaluation', 'PRACH', and 'SRS' options. Below the plot, the status bar shows 'PS: Connection Established' and 'RRC State: Connected'. At the bottom, there are several buttons: 'Cell Setup ...', 'Connection Setup ...', 'DL Error Insertion ...', 'TPC ...', 'Power ...', 'Enable ...', and 'Config ...'. On the right side, there is a vertical toolbar with buttons for 'LTE', 'Multi Evaluation', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling'.

**3.1.1.4 Test Mode = LTE /TM1 10MHz**

**3.1.1.4.1 Test Channel = MCH**



**3.1.1.5 Test Mode = LTE /TM2 1.4MHz**  
**3.1.1.5.1 Test Channel = MCH**



The screenshot displays the LTE Measurement software interface. The main window is titled "LTE Measurement - V3.5.50 - Base V 3.5.120 - TX Measurement". It features a "Multi Evaluation" tab and a "PRACH" radio button. The status bar shows "FDD Freq.: 836.5 MHz Ref. Level: 37.60 dBm BW: 1.4 MHz CP: Normal Meas Subfr/Slot: 0 / All".

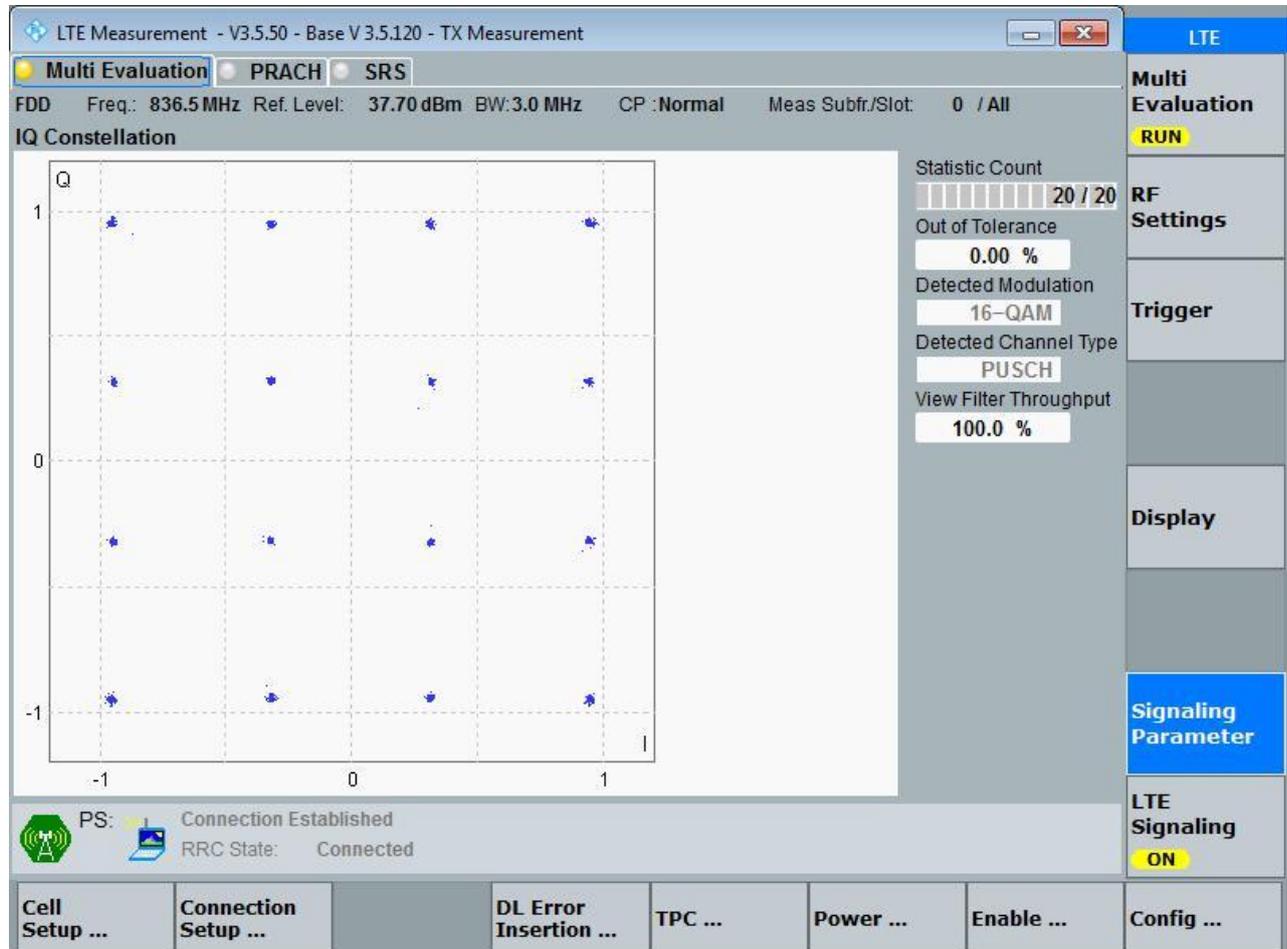
The "IQ Constellation" plot shows a 16-QAM constellation with points distributed in a grid. The axes range from -1 to 1. To the right of the plot, the "Statistic Count" is 20 / 20, "Out of Tolerance" is 0.00 %, "Detected Modulation" is 16-QAM, "Detected Channel Type" is PUSCH, and "View Filter Throughput" is 100.0 %.

The interface includes a sidebar with buttons for "LTE", "Multi Evaluation", "RF Settings", "Trigger", "Display", "Signaling Parameter", and "LTE Signaling". The "LTE Signaling" button is currently "ON".

At the bottom, there is a status bar showing "PS: Connection Established" and "RRC State: Connected". Below this are several configuration buttons: "Cell Setup ...", "Connection Setup ...", "DL Error Insertion ...", "TPC ...", "Power ...", "Enable ...", and "Config ...".

**3.1.1.6 Test Mode = LTE /TM2 3MHz**

**3.1.1.6.1 Test Channel = MCH**



The screenshot displays the LTE Measurement software interface. The main window is titled "LTE Measurement - V3.5.50 - Base V 3.5.120 - TX Measurement". It features a "Multi Evaluation" tab and a "PRACH" radio button. The status bar shows "FDD Freq.: 836.5 MHz Ref. Level: 37.70 dBm BW: 3.0 MHz CP: Normal Meas Subfr/Slot: 0 / All".

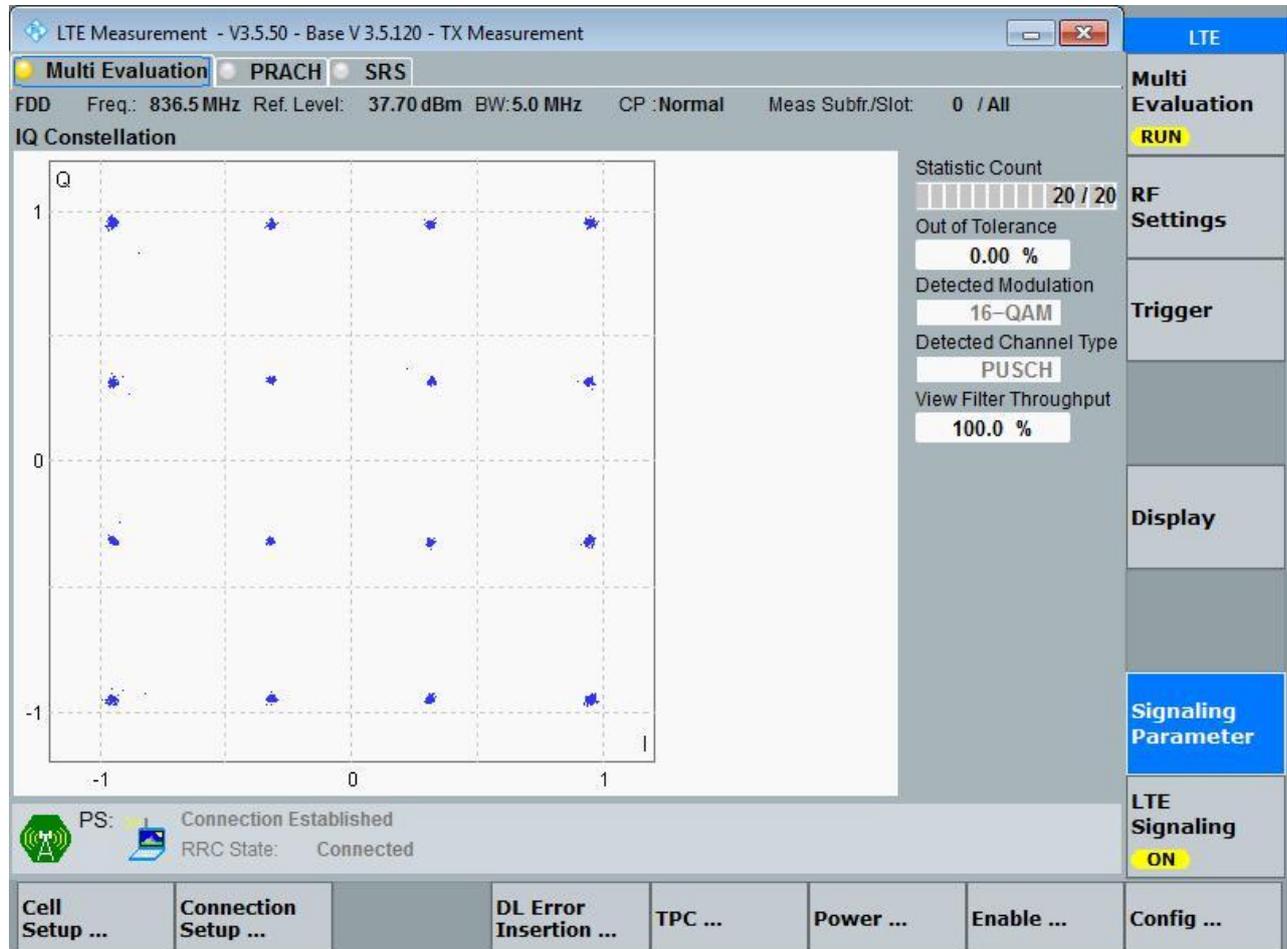
The "IQ Constellation" plot shows a 16-QAM constellation with 16 points arranged in a 4x4 grid. The axes range from -1 to 1. The "Statistic Count" is 20 / 20, and the "Out of Tolerance" percentage is 0.00%. The "Detected Modulation" is 16-QAM, and the "Detected Channel Type" is PUSCH. The "View Filter Throughput" is 100.0%.

The interface includes a sidebar with buttons for "LTE", "Multi Evaluation", "RF Settings", "Trigger", "Display", "Signaling Parameter", and "LTE Signaling". The "LTE Signaling" button is currently "ON".

At the bottom, there is a status bar showing "PS: Connection Established" and "RRC State: Connected". Below this are several configuration buttons: "Cell Setup ...", "Connection Setup ...", "DL Error Insertion ...", "TPC ...", "Power ...", "Enable ...", and "Config ...".

**3.1.1.7 Test Mode = LTE /TM2 5MHz**

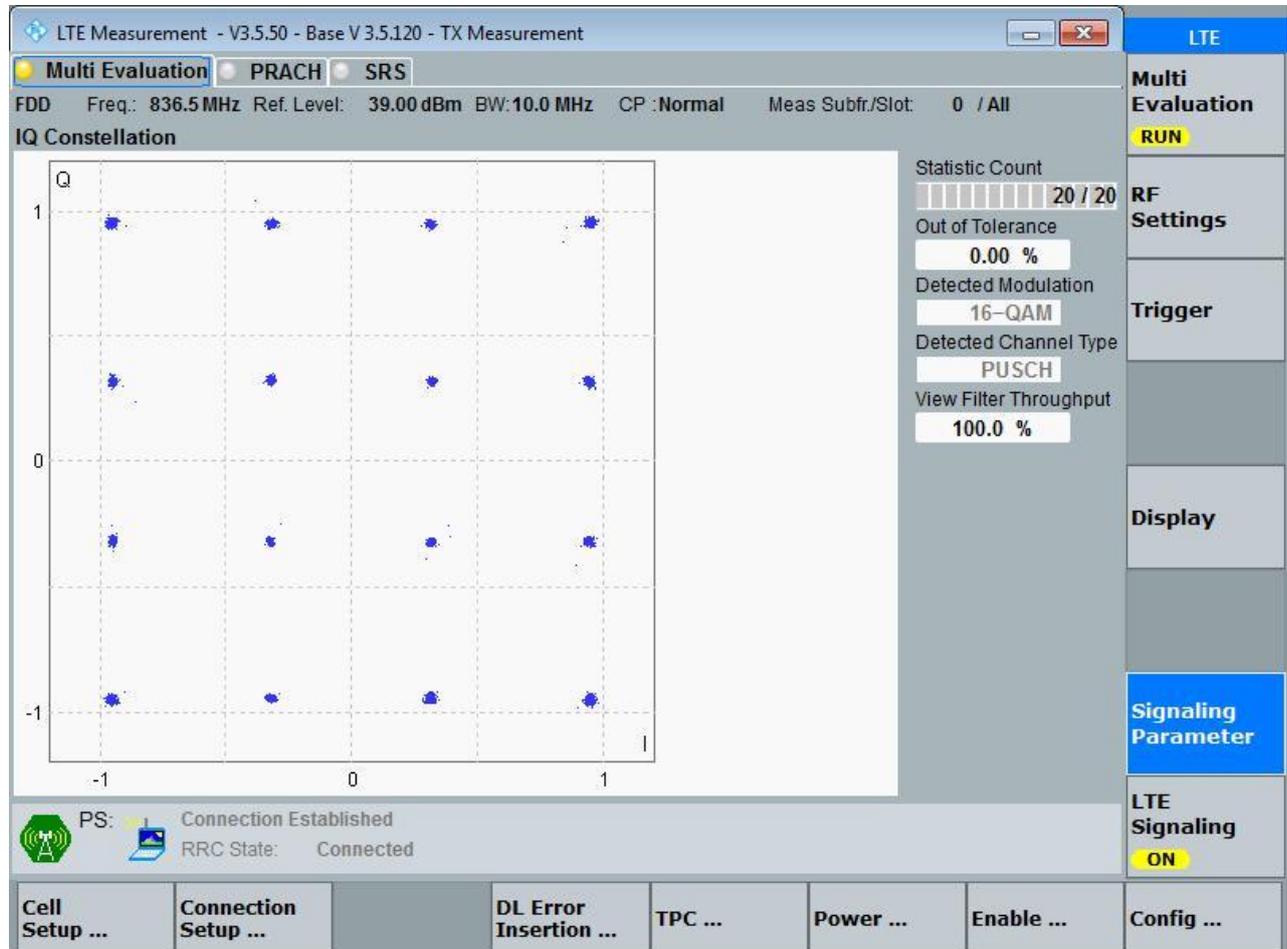
**3.1.1.7.1 Test Channel = MCH**



The screenshot displays the LTE Measurement software interface. At the top, it shows 'LTE Measurement - V3.5.50 - Base V 3.5.120 - TX Measurement'. The main window is titled 'Multi Evaluation' and shows 'PRACH' and 'SRS' options. Below this, it displays 'FDD Freq.: 836.5 MHz Ref. Level: 37.70 dBm BW: 5.0 MHz CP: Normal Meas Subfr/Slot: 0 / All'. The central part of the interface is an 'IQ Constellation' plot with a grid, showing a 16-QAM constellation with points clustered around the grid intersections. To the right of the plot, there are several statistics: 'Statistic Count' (20 / 20), 'Out of Tolerance' (0.00 %), 'Detected Modulation' (16-QAM), 'Detected Channel Type' (PUSCH), and 'View Filter Throughput' (100.0 %). On the far right, there is a vertical sidebar with buttons for 'LTE', 'Multi Evaluation', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling'. At the bottom of the interface, there is a status bar showing 'PS: Connection Established' and 'RRC State: Connected'. Below the status bar, there are several buttons: 'Cell Setup ...', 'Connection Setup ...', 'DL Error Insertion ...', 'TPC ...', 'Power ...', 'Enable ...', and 'Config ...'.

**3.1.1.8 Test Mode = LTE /TM2 10MHz**

**3.1.1.8.1 Test Channel = MCH**



The screenshot displays the LTE Measurement software interface. The main window is titled "LTE Measurement - V3.5.50 - Base V 3.5.120 - TX Measurement". It features a "Multi Evaluation" tab and a "PRACH" radio button. The status bar shows "FDD Freq.: 836.5 MHz Ref. Level: 39.00 dBm BW: 10.0 MHz CP: Normal Meas Subfr/Slot: 0 / All".

The "IQ Constellation" plot shows a 16-QAM constellation with points clustered around the center of the grid. The axes are labeled "Q" (vertical) and "I" (horizontal), ranging from -1 to 1. The "Statistic Count" is 20 / 20, and the "Out of Tolerance" percentage is 0.00%. The "Detected Modulation" is 16-QAM, and the "Detected Channel Type" is PUSCH. The "View Filter Throughput" is 100.0%.

The interface includes a sidebar with buttons for "LTE", "Multi Evaluation", "RF Settings", "Trigger", "Display", "Signaling Parameter", and "LTE Signaling". The "LTE Signaling" button is currently "ON". At the bottom, there are several tabs: "Cell Setup ...", "Connection Setup ...", "DL Error Insertion ...", "TPC ...", "Power ...", "Enable ...", and "Config ...".



## 4 Bandwidth

### Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
Band 5	TM1/1.4MHz	LCH	1.11	1.32	PASS
		MCH	1.10	1.32	PASS
		HCH	1.10	1.32	PASS
	TM2/1.4MHz	LCH	1.10	1.33	PASS
		MCH	1.10	1.30	PASS
		HCH	1.10	1.30	PASS
	TM1/ 3MHz	LCH	2.69	2.95	PASS
		MCH	2.69	2.94	PASS
		HCH	2.69	2.98	PASS
	TM2/3MHz	LCH	2.69	2.94	PASS
		MCH	2.69	2.98	PASS
		HCH	2.69	2.96	PASS
	TM1/ 5MHz	LCH	4.49	4.97	PASS
		MCH	4.50	4.99	PASS
		HCH	4.49	4.95	PASS
	TM2/ 5MHz	LCH	4.49	4.96	PASS
		MCH	4.49	4.96	PASS
		HCH	4.49	4.94	PASS
	TM1/10MHz	LCH	8.93	9.67	PASS
		MCH	8.97	9.91	PASS
		HCH	8.91	9.61	PASS
TM2/ 10MHz	LCH	8.93	9.69	9.61	
	MCH	8.95	9.69	PASS	
	HCH	8.91	9.61	PASS	

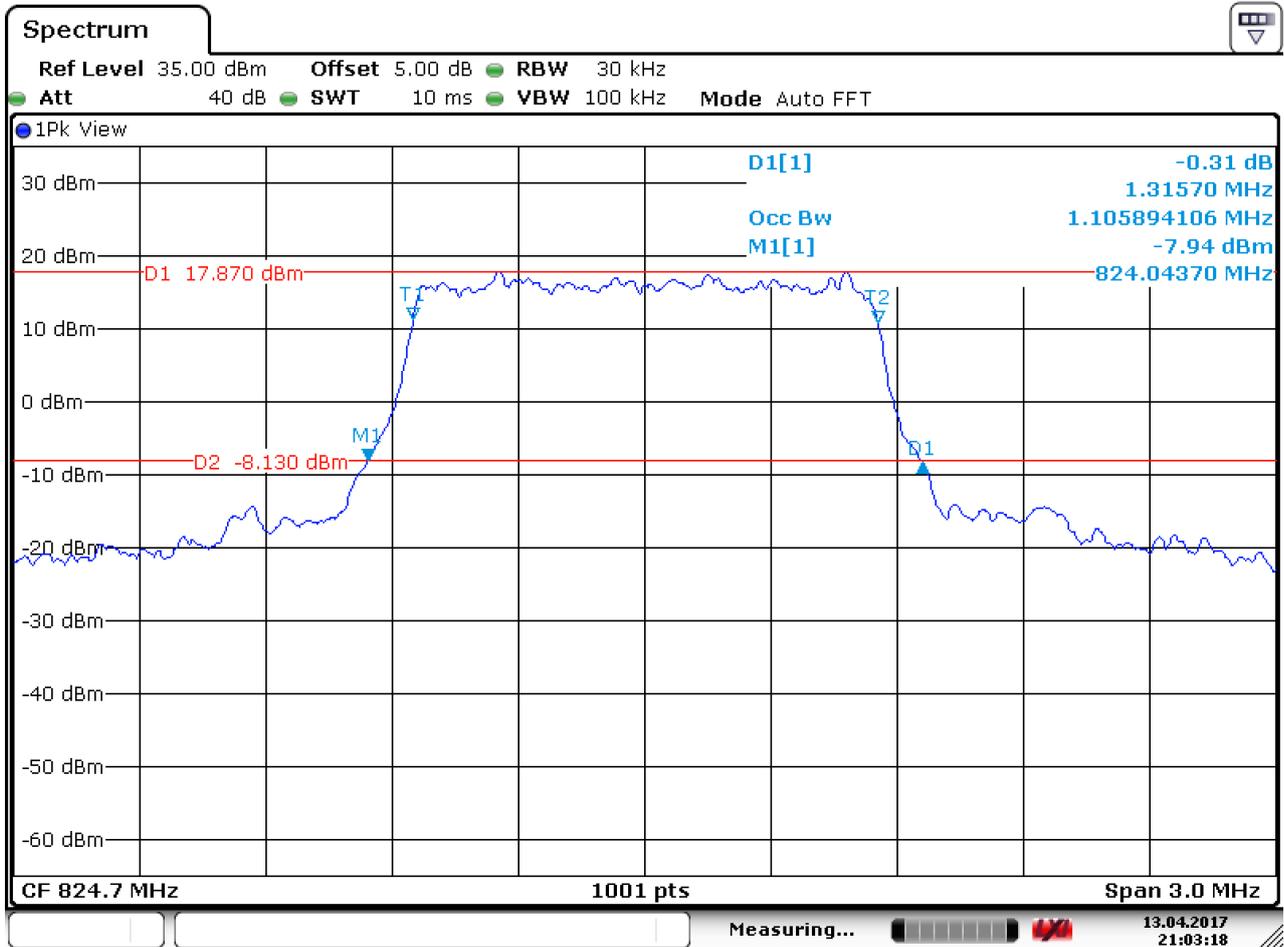
**Part II –Test Plots**

**4.1 For LTE**

**4.1.1 Test Band = LTE band5**

**4.1.1.1 Test Mode = LTE/TM1 1.4MHz**

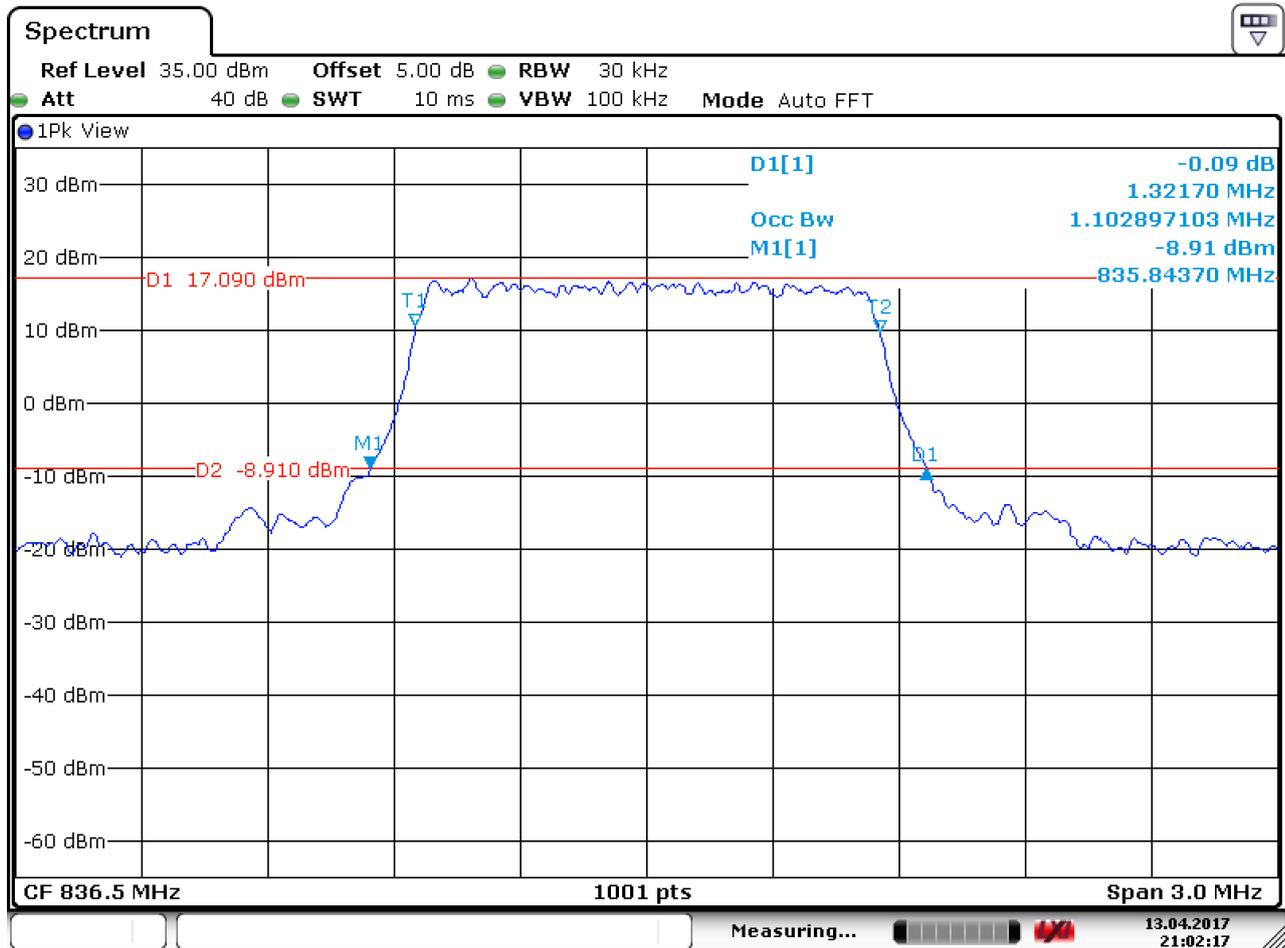
**4.1.1.1.1 Test Channel = LCH**



Date: 13.APR.2017 21:03:19



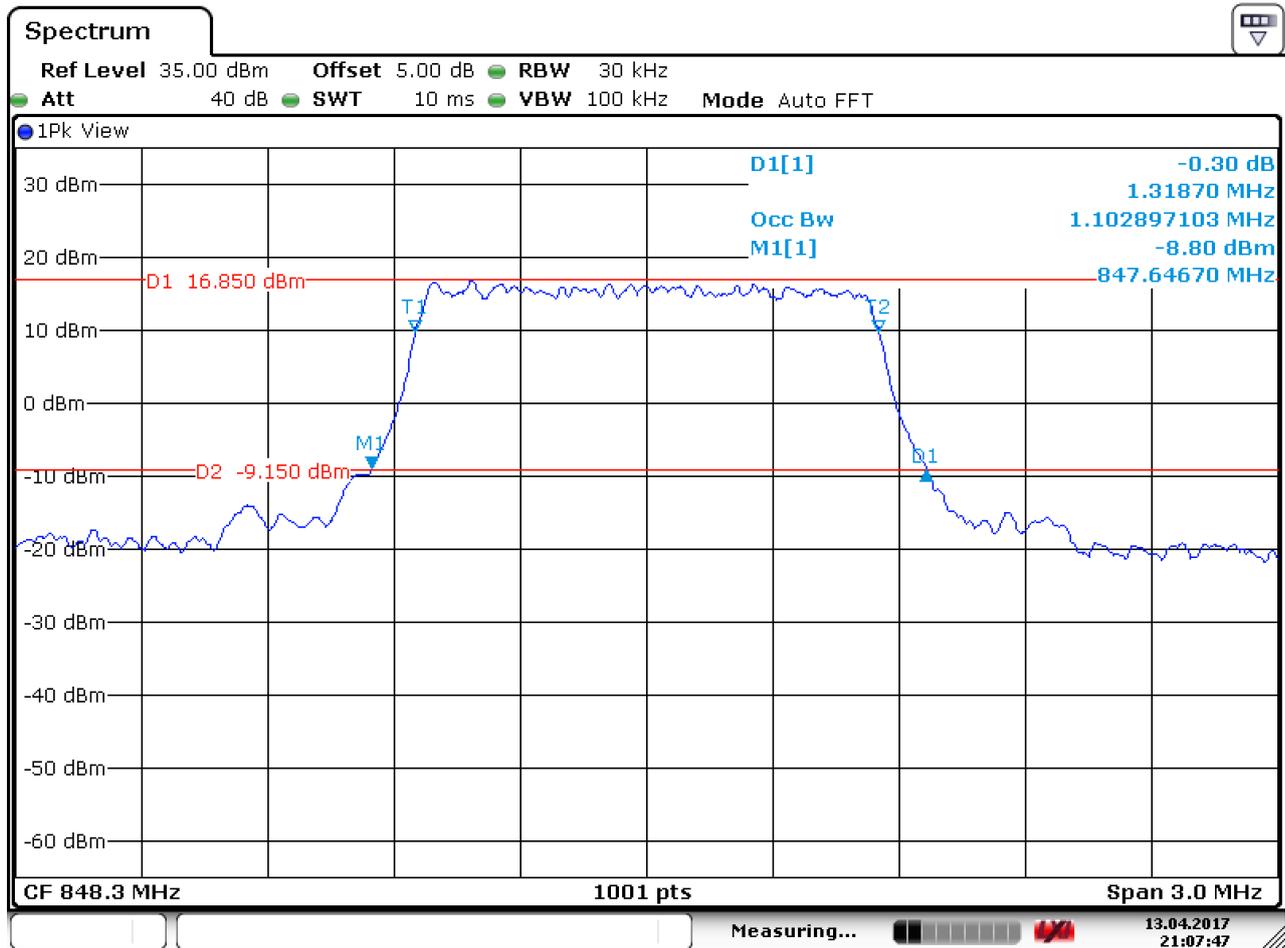
4.1.1.1.2 Test Channel = MCH



Date: 13.APR.2017 21:02:18



4.1.1.1.3 Test Channel = HCH

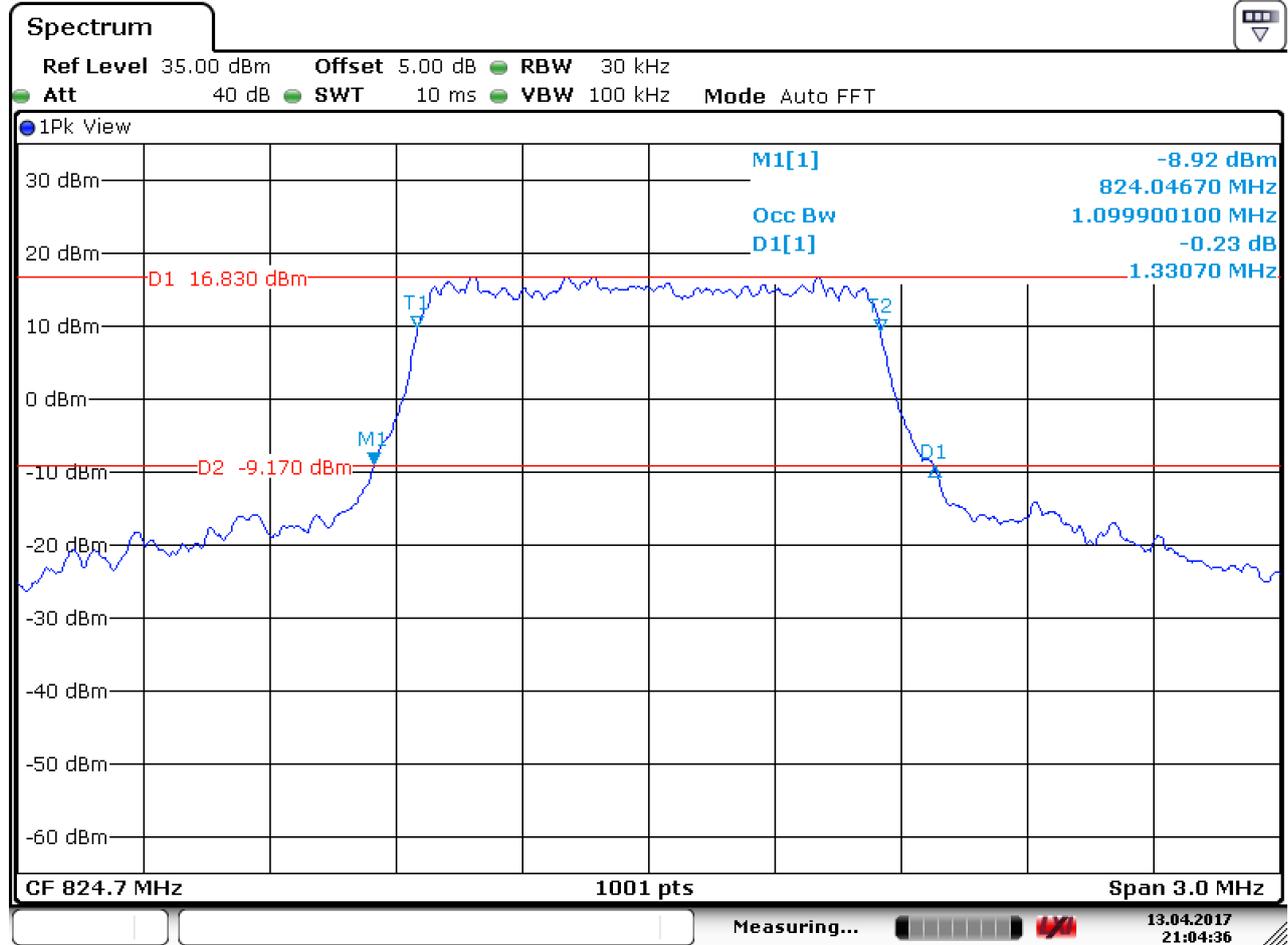


Date: 13.APR.2017 21:07:48



4.1.1.2 Test Mode = LTE/TM2 1.4MHz

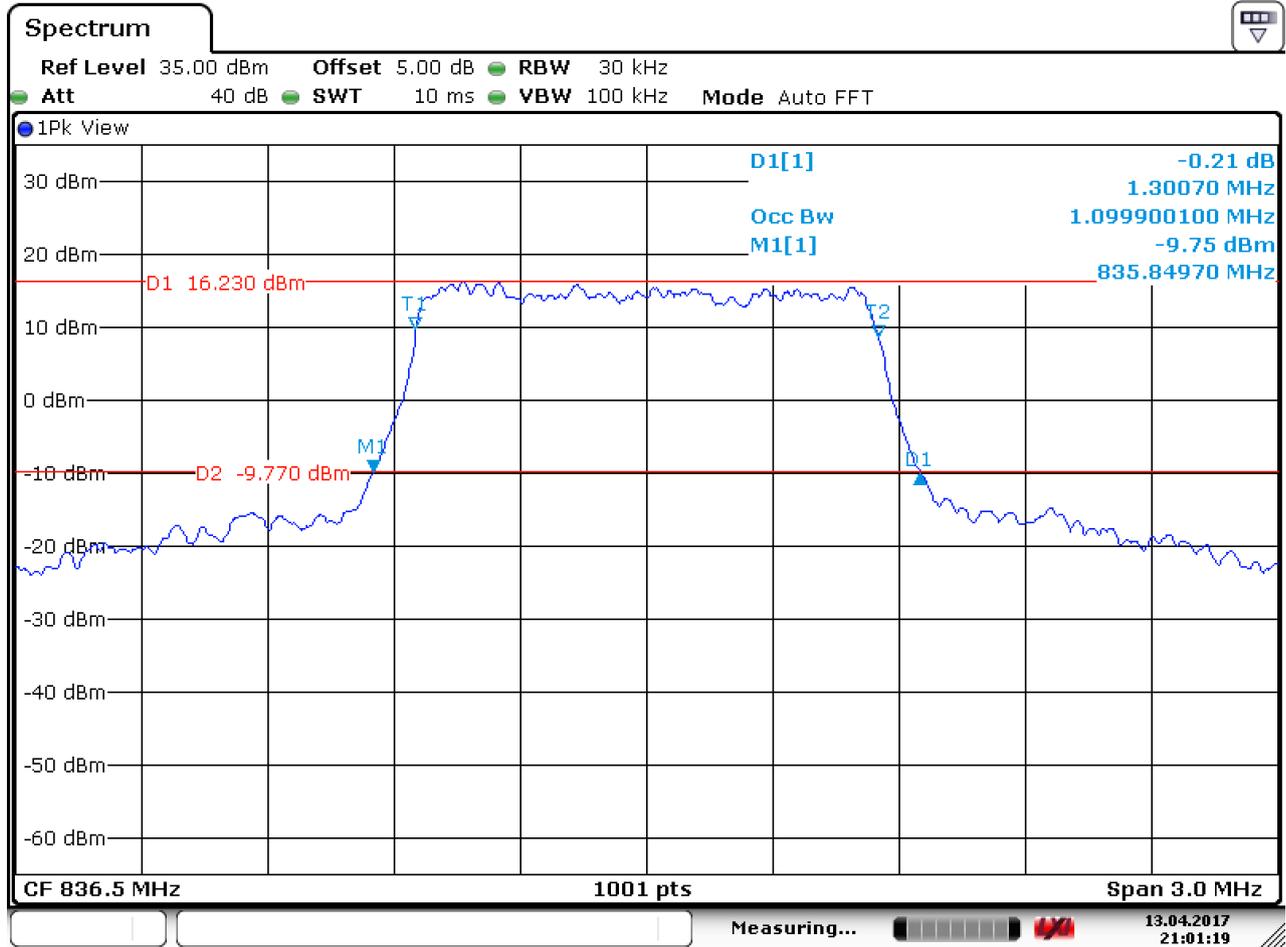
4.1.1.2.1 Test Channel = LCH



Date: 13.APR.2017 21:04:37



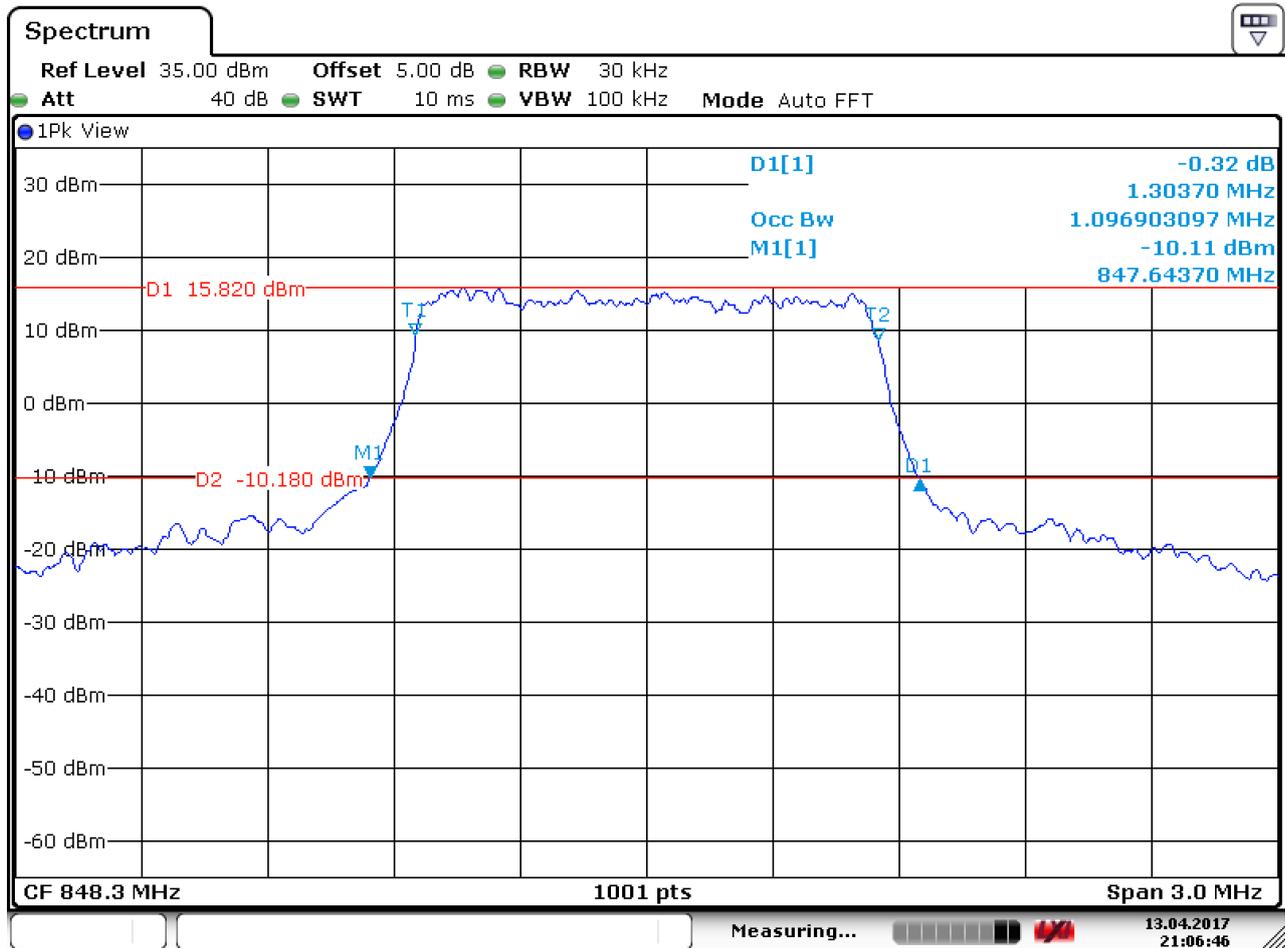
4.1.1.2.2 Test Channel = MCH



Date: 13.APR.2017 21:01:19



4.1.1.2.3 Test Channel = HCH

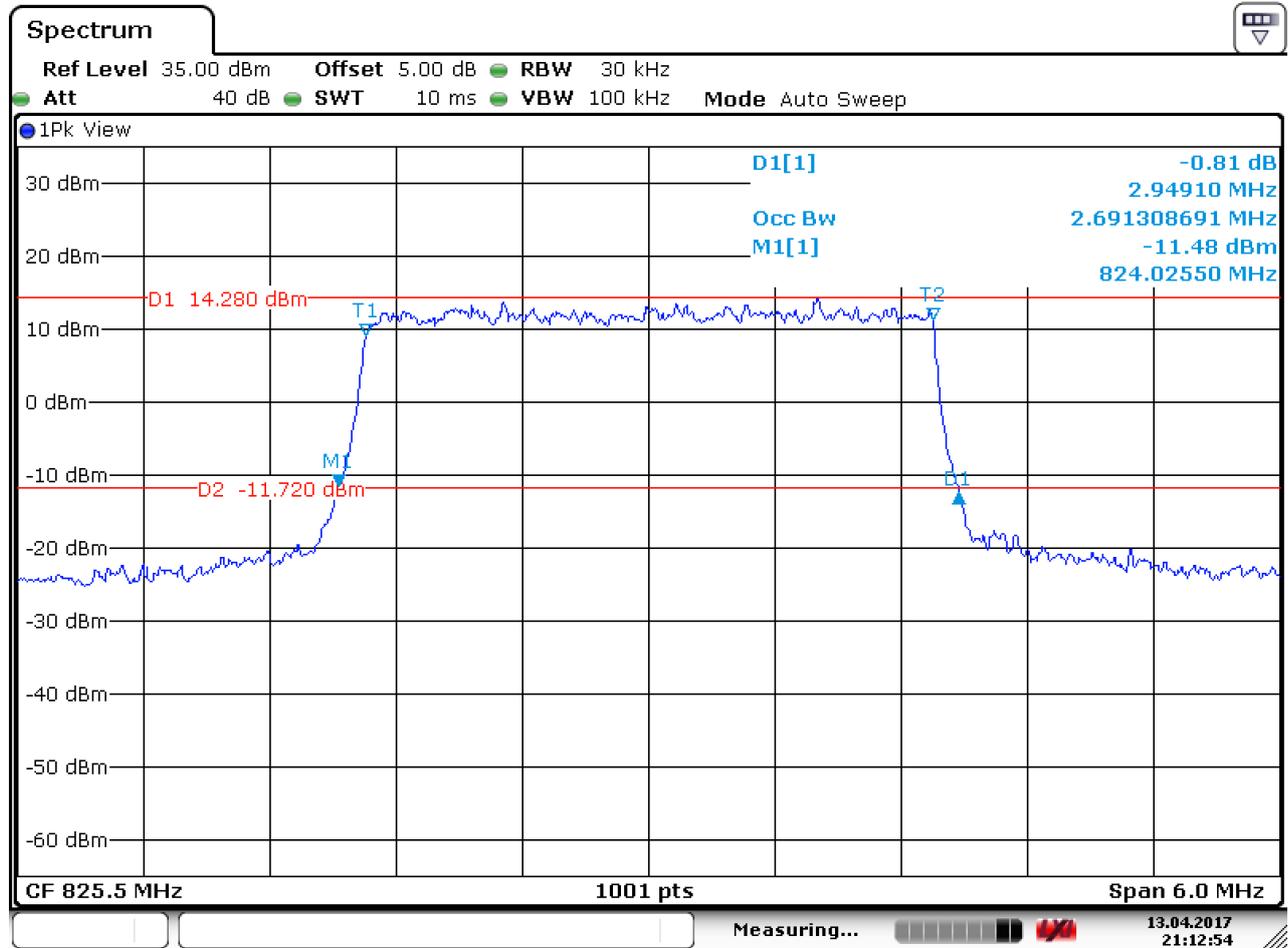


Date: 13.APR.2017 21:06:47



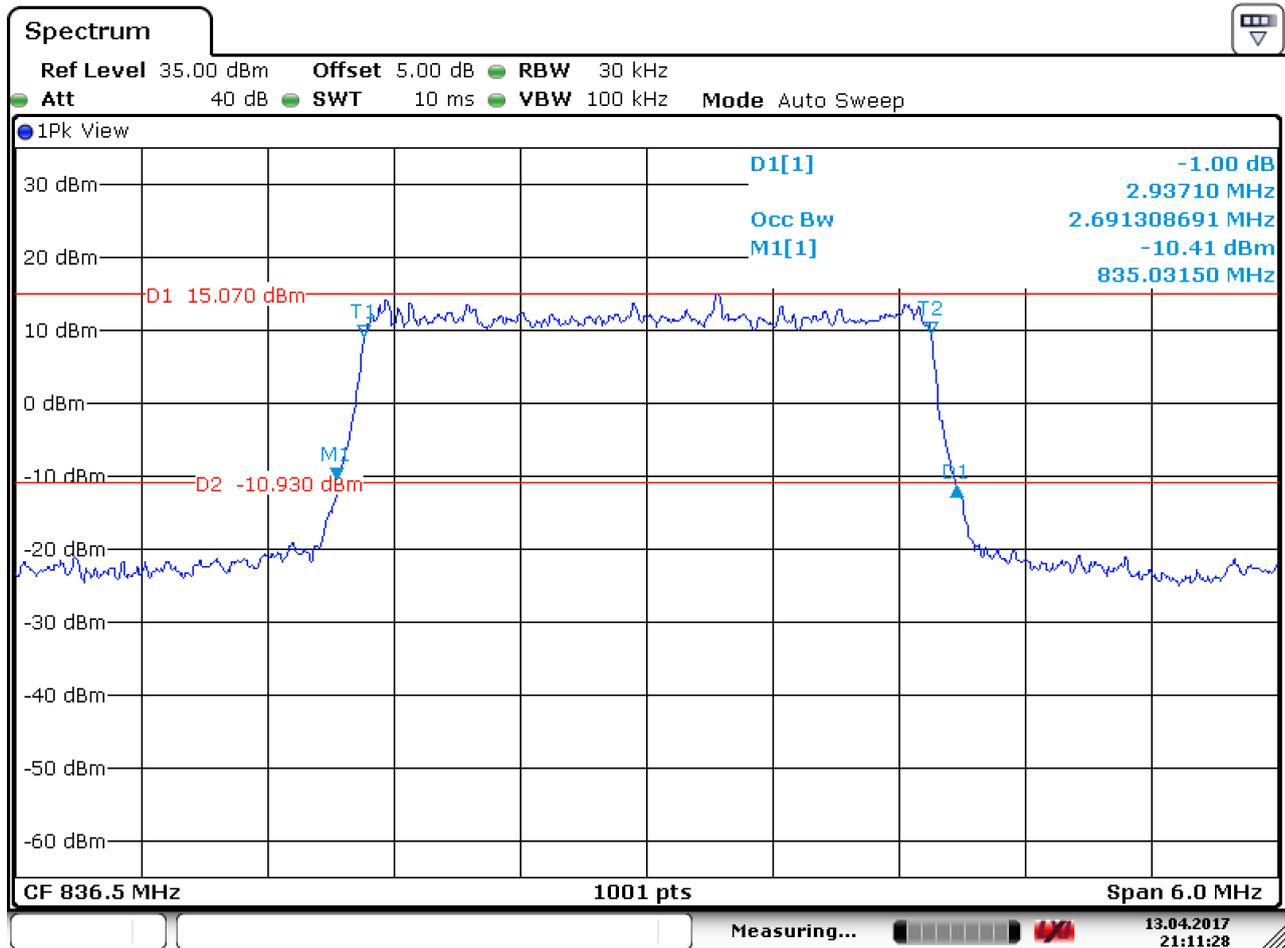
4.1.1.3 Test Mode = LTE/TM1 3MHz

4.1.1.3.1 Test Channel = LCH



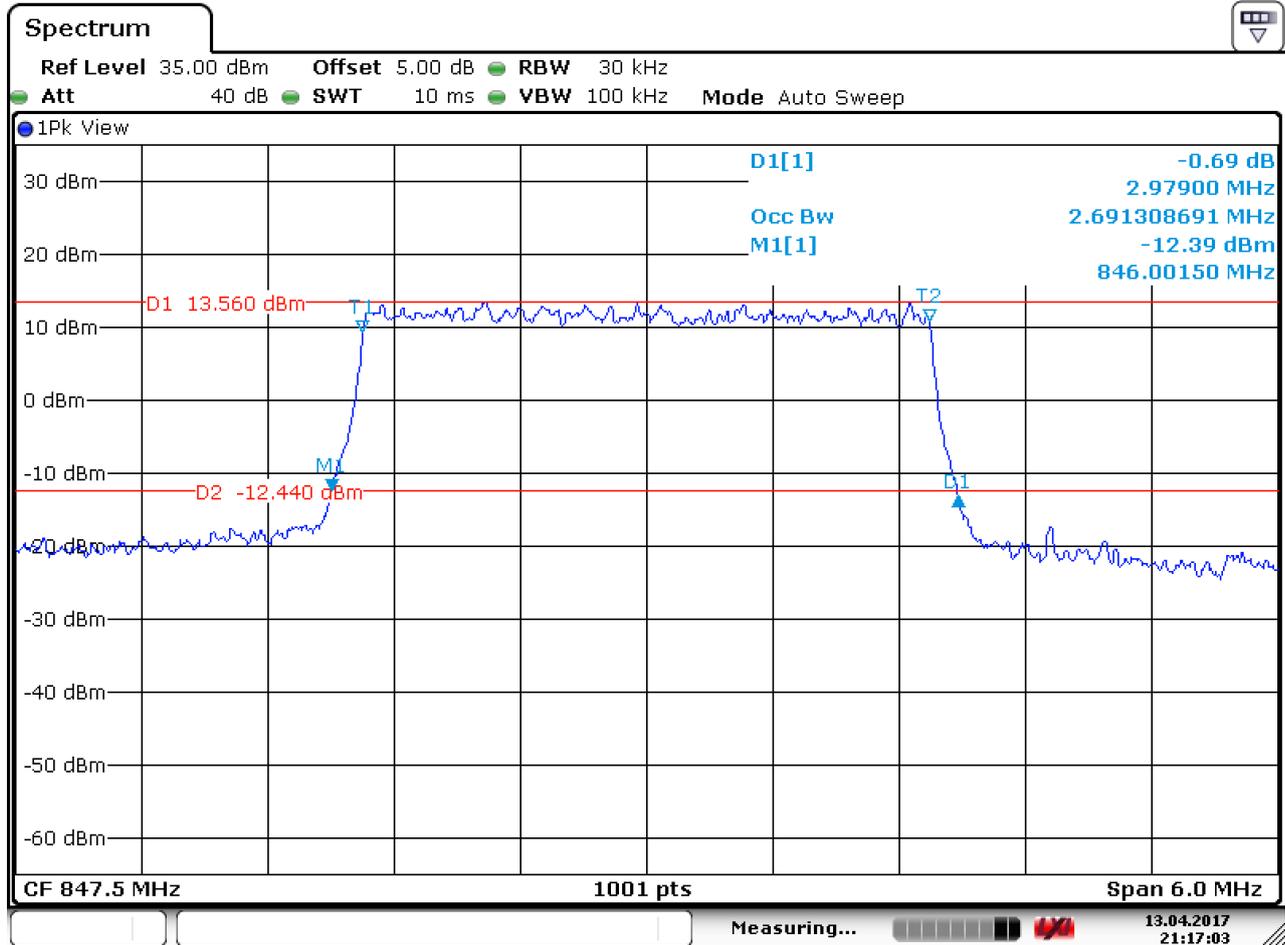
Date: 13.APR.2017 21:12:54

4.1.1.3.2 Test Channel = MCH



Date: 13.APR.2017 21:11:28

4.1.1.3.3 Test Channel = HCH

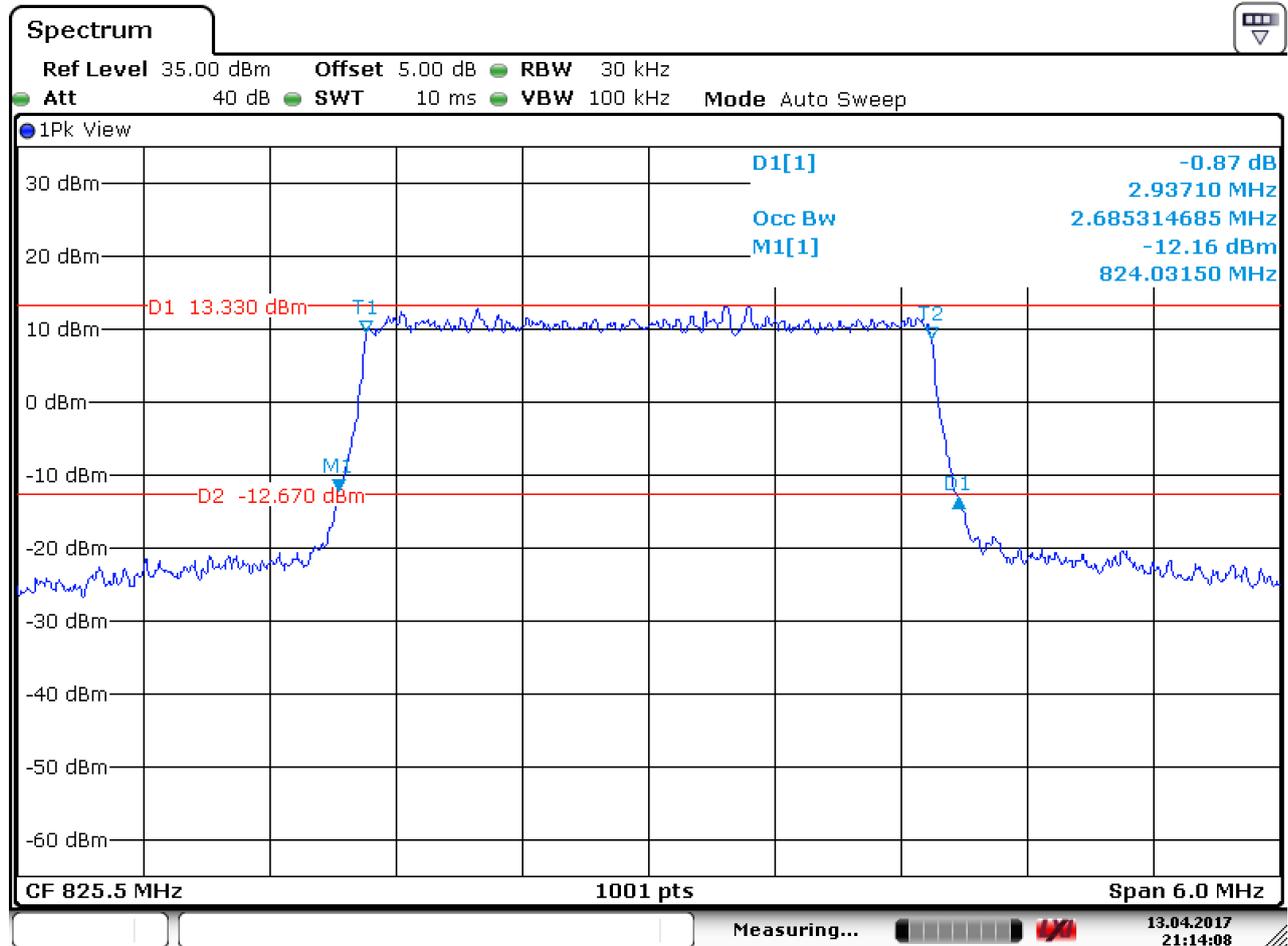


Date: 13.APR.2017 21:17:04



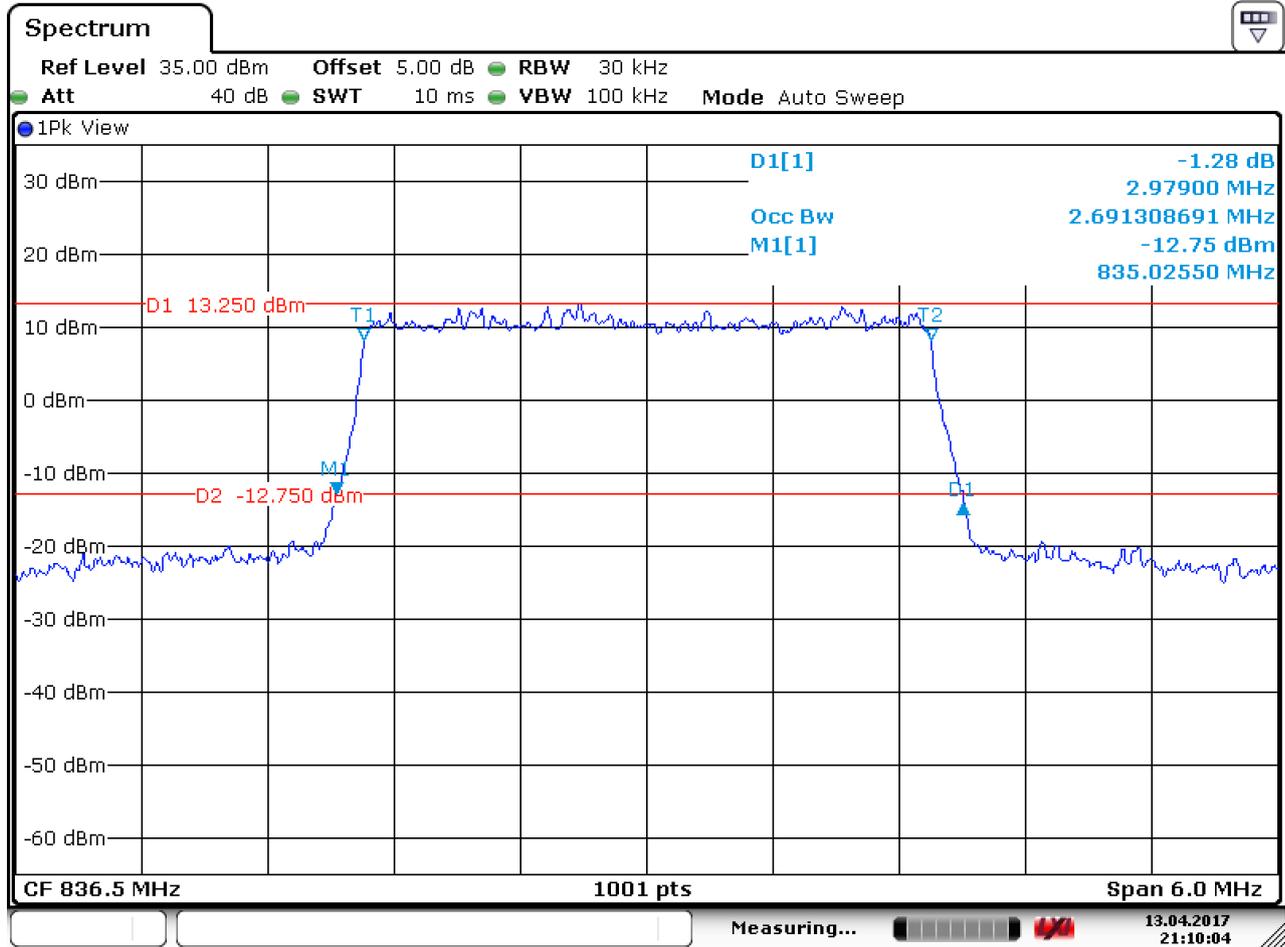
4.1.1.4 Test Mode = LTE/TM2 3MHz

4.1.1.4.1 Test Channel = LCH



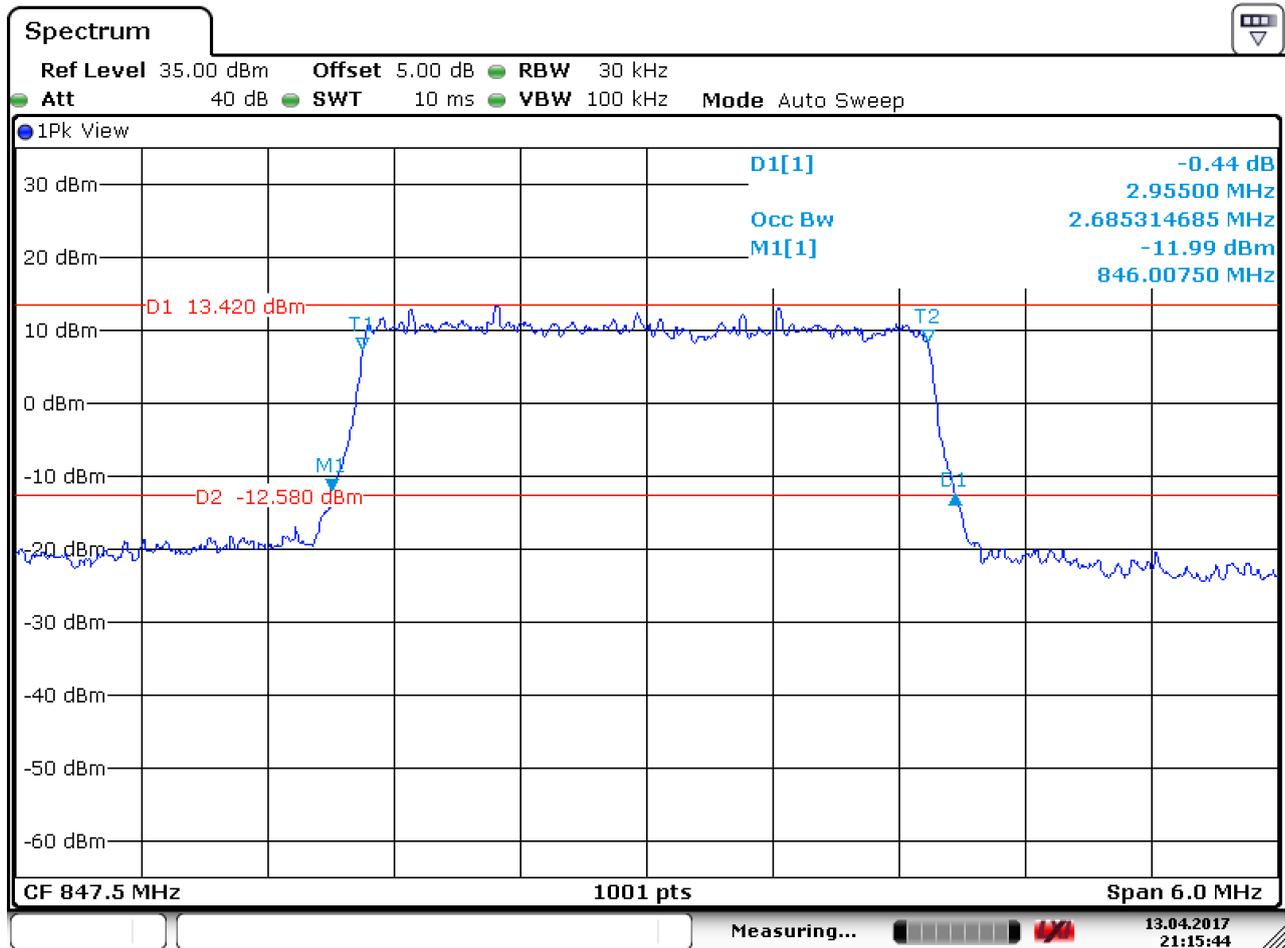
Date: 13.APR.2017 21:14:09

4.1.1.4.2 Test Channel = MCH



Date: 13.APR.2017 21:10:04

4.1.1.4.3 Test Channel = HCH

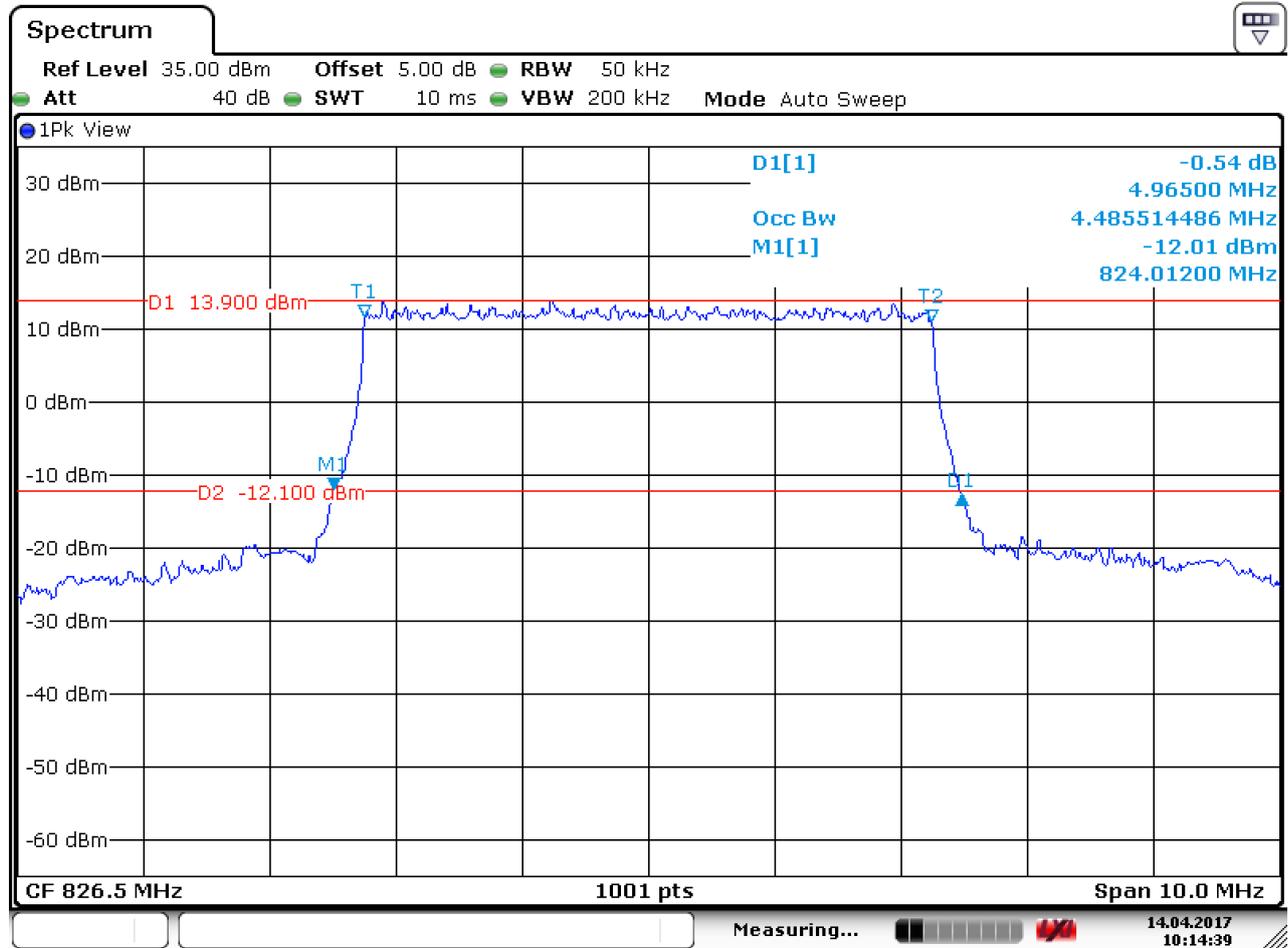


Date: 13.APR.2017 21:15:44



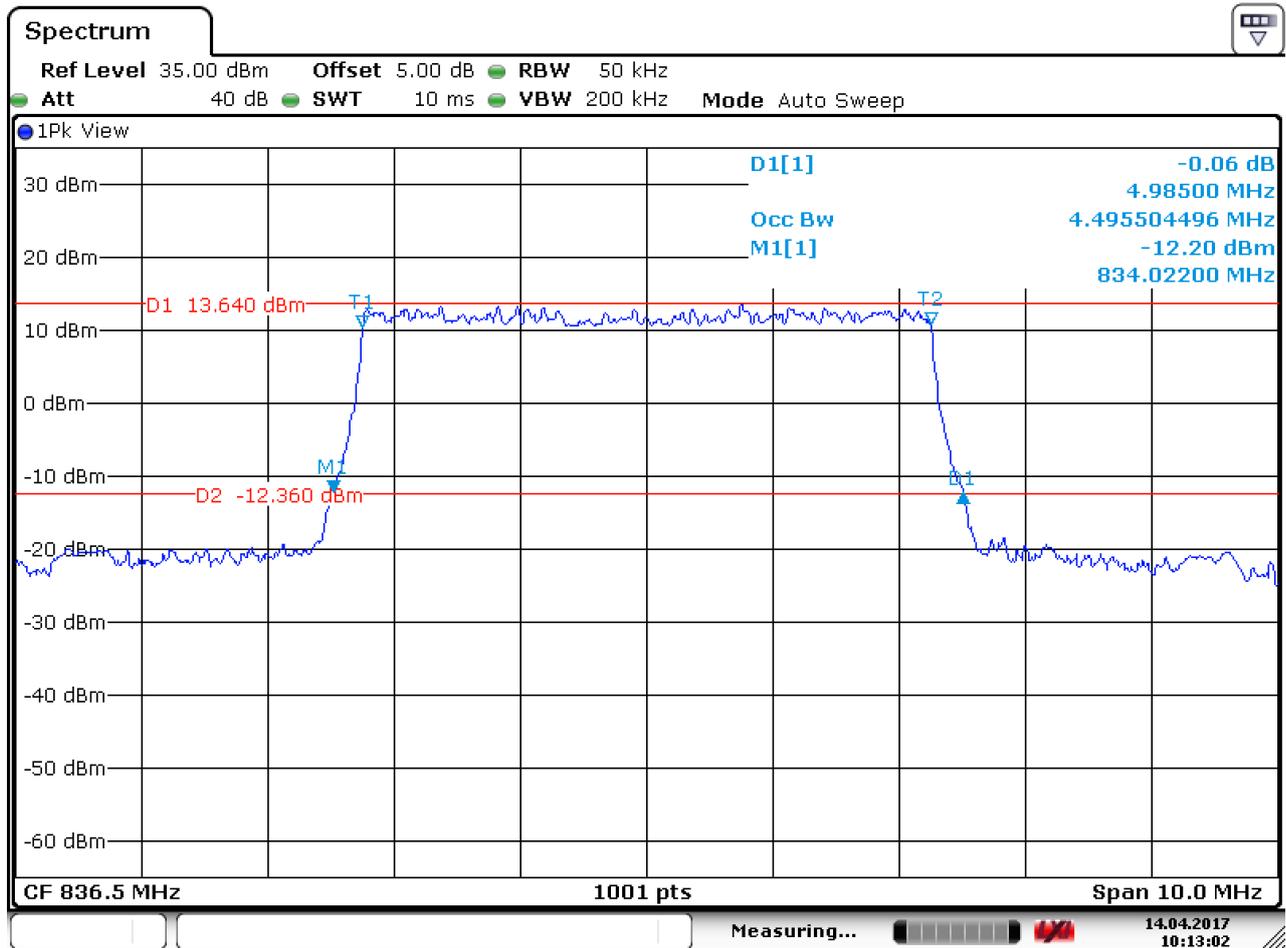
4.1.1.5 Test Mode = LTE/TM1 5MHz

4.1.1.5.1 Test Channel = LCH



Date: 14.APR.2017 10:14:39

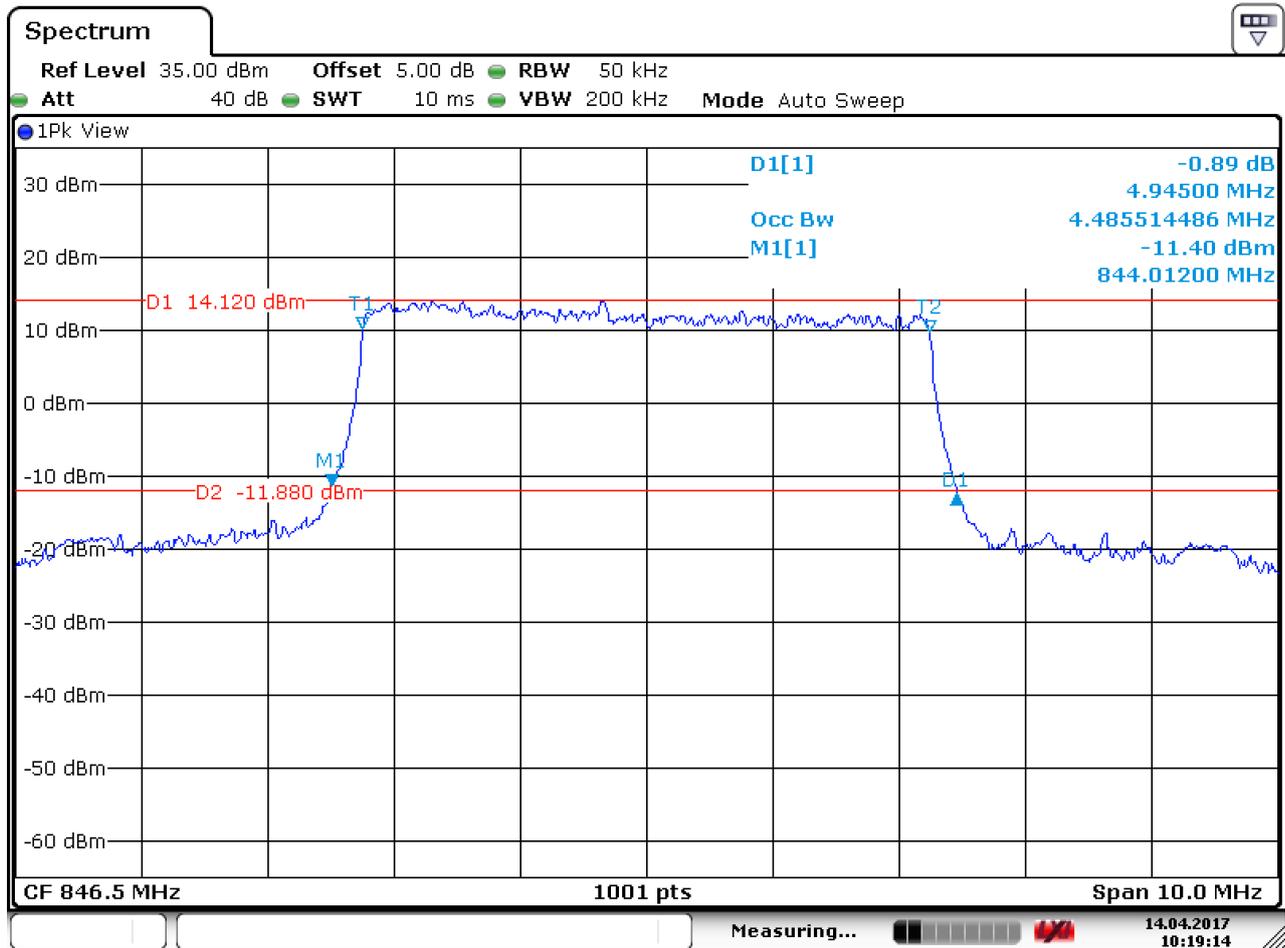
4.1.1.5.2 Test Channel = MCH



Date: 14.APR.2017 10:13:02



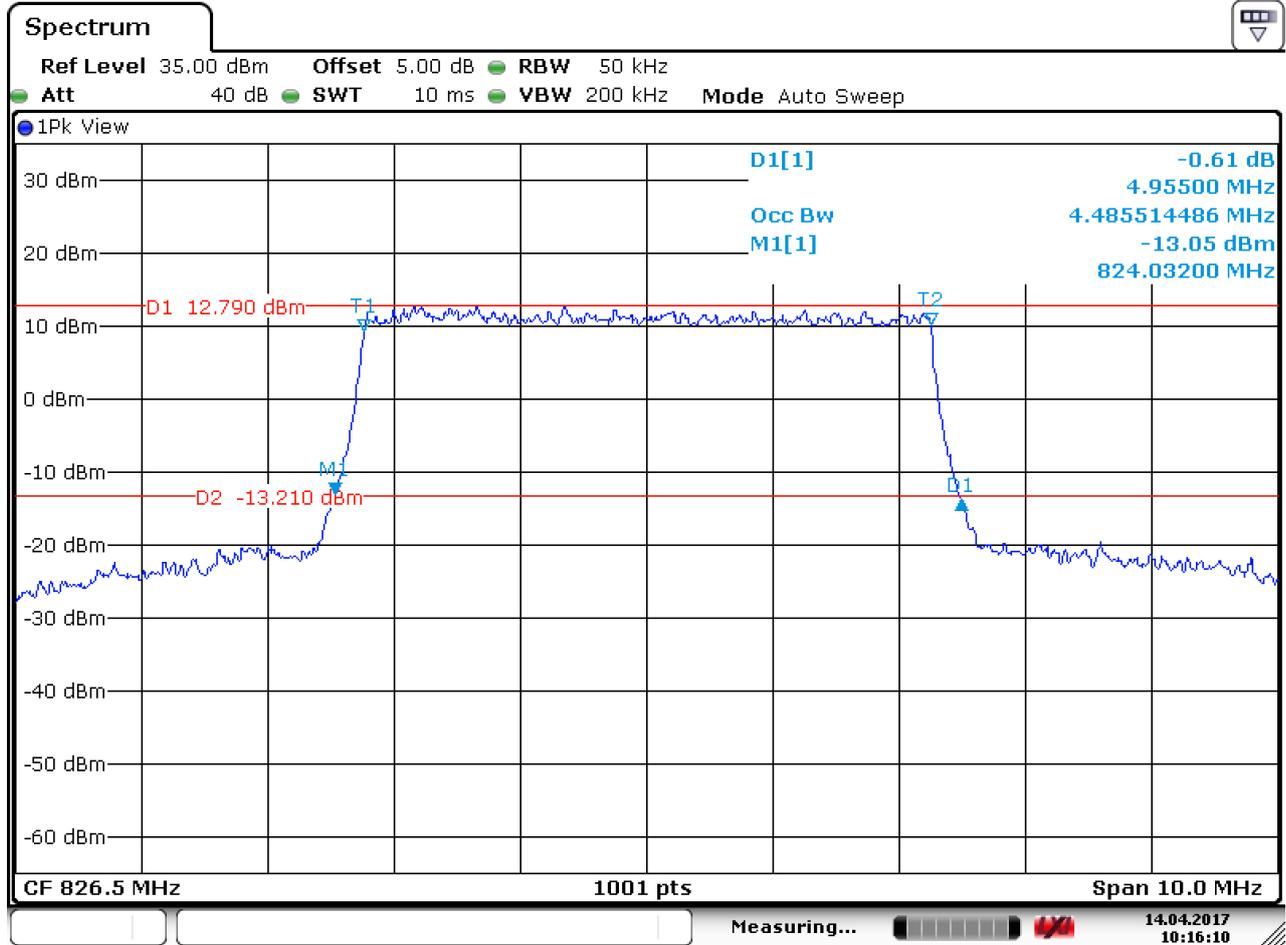
4.1.1.5.3 Test Channel = HCH



Date: 14.APR.2017 10:19:14

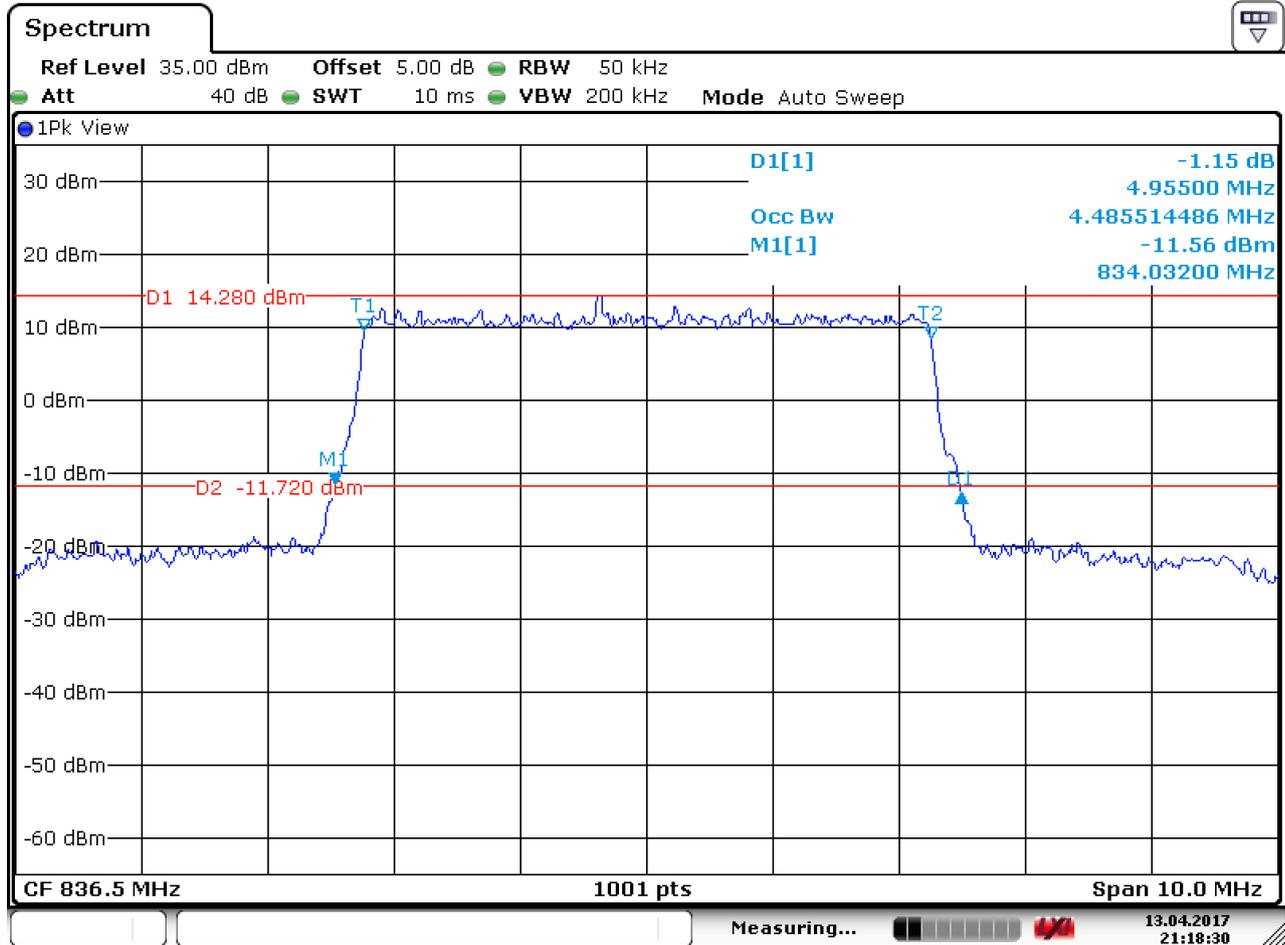
**4.1.1.6 Test Mode = LTE/TM2 5MHz**

**4.1.1.6.1 Test Channel = LCH**



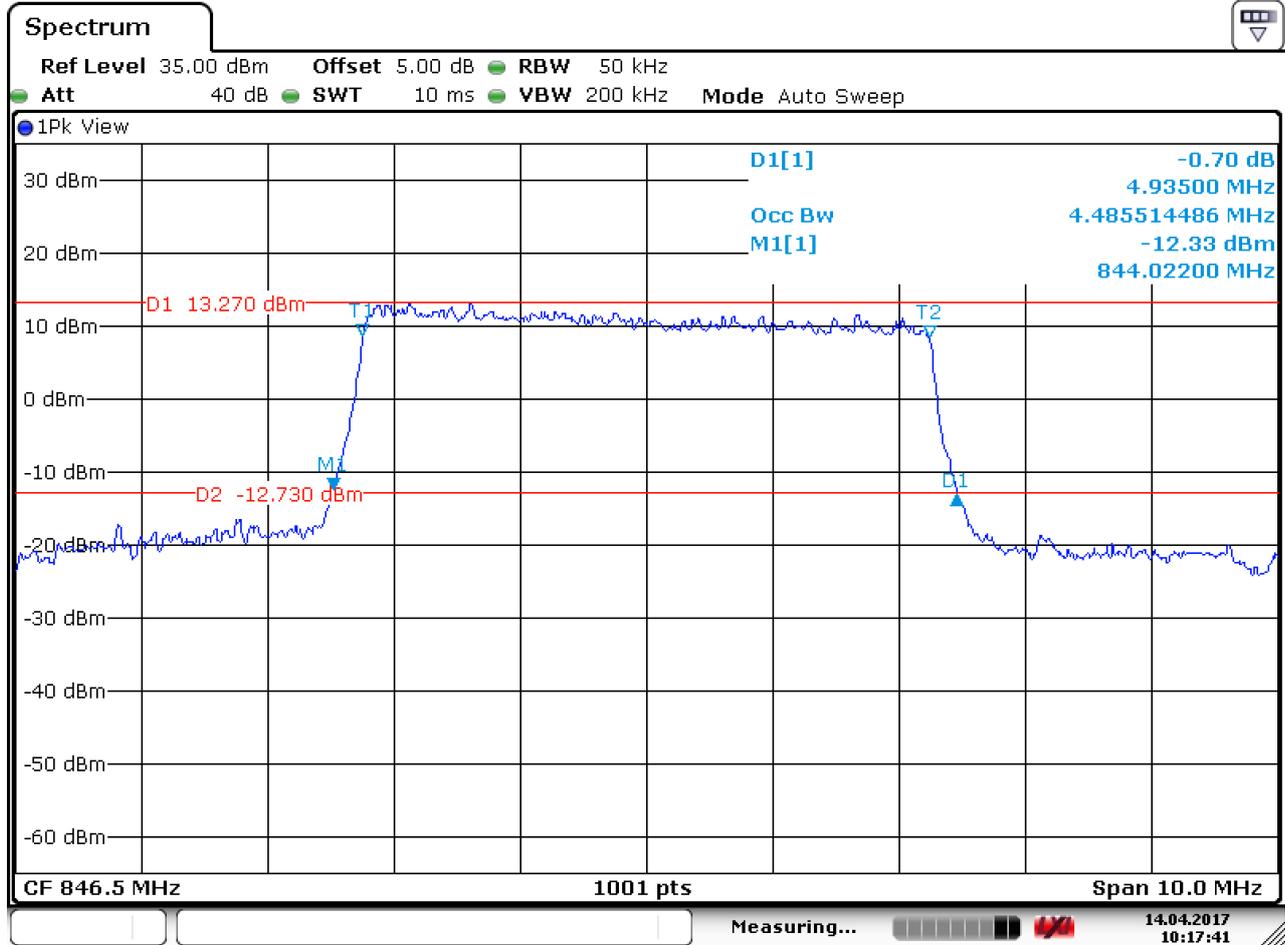
Date: 14.APR.2017 10:16:10

4.1.1.6.2 Test Channel = MCH



Date: 13.APR.2017 21:18:30

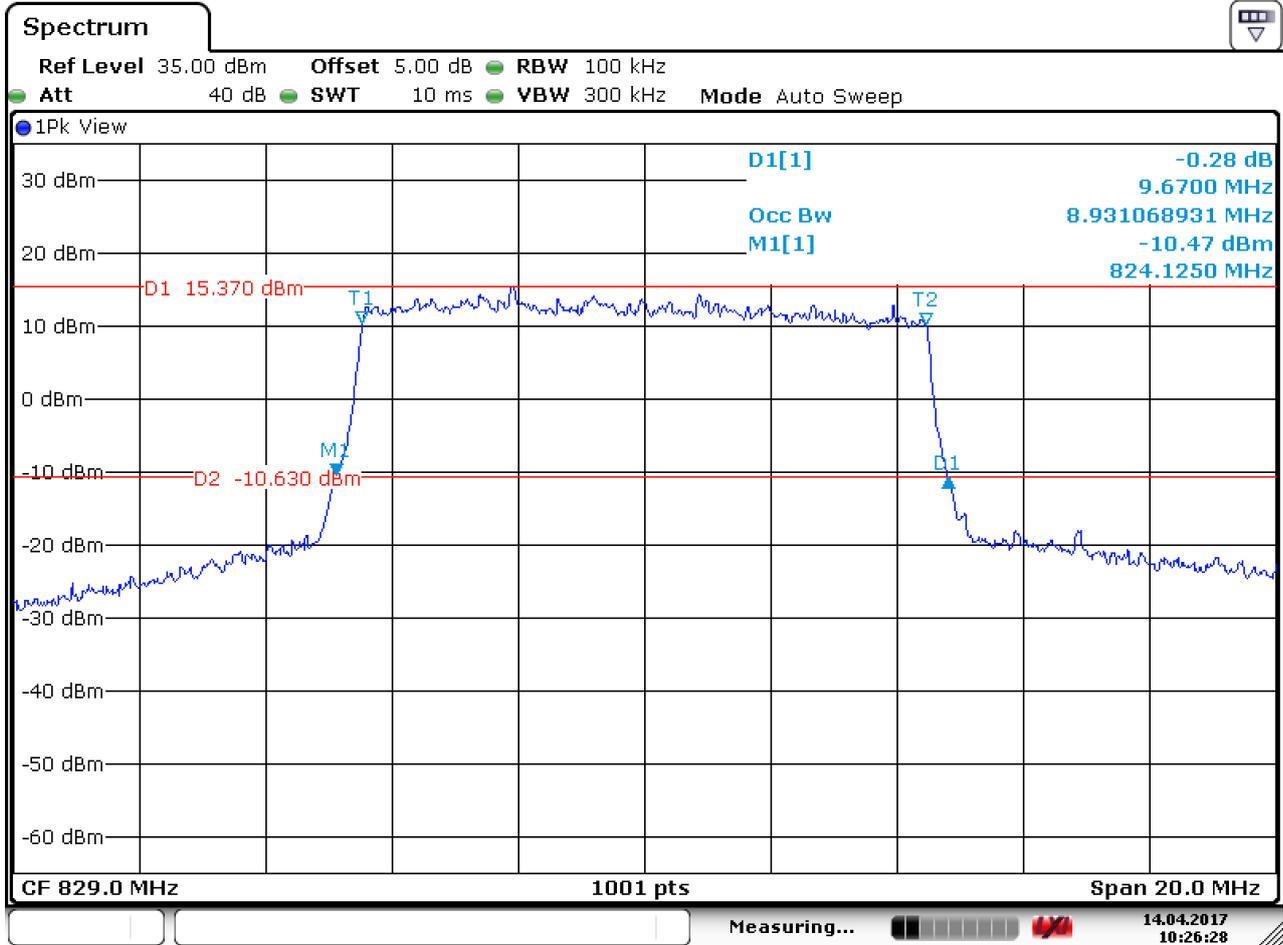
**4.1.1.6.3 Test Channel = HCH**



Date: 14.APR.2017 10:17:41

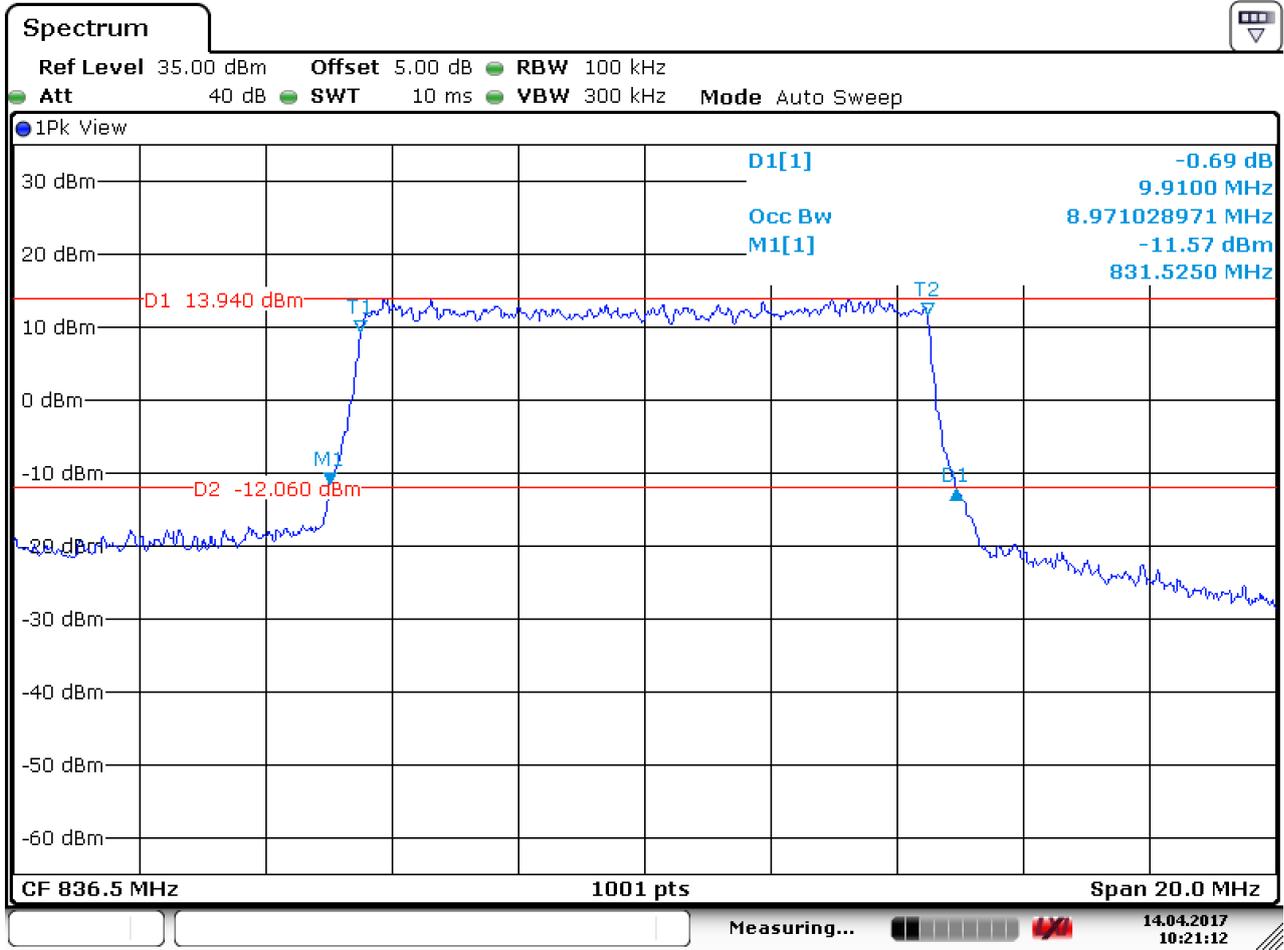
**4.1.1.7 Test Mode = LTE/TM1 10MHz**

**4.1.1.7.1 Test Channel = LCH**



Date: 14.APR.2017 10:26:29

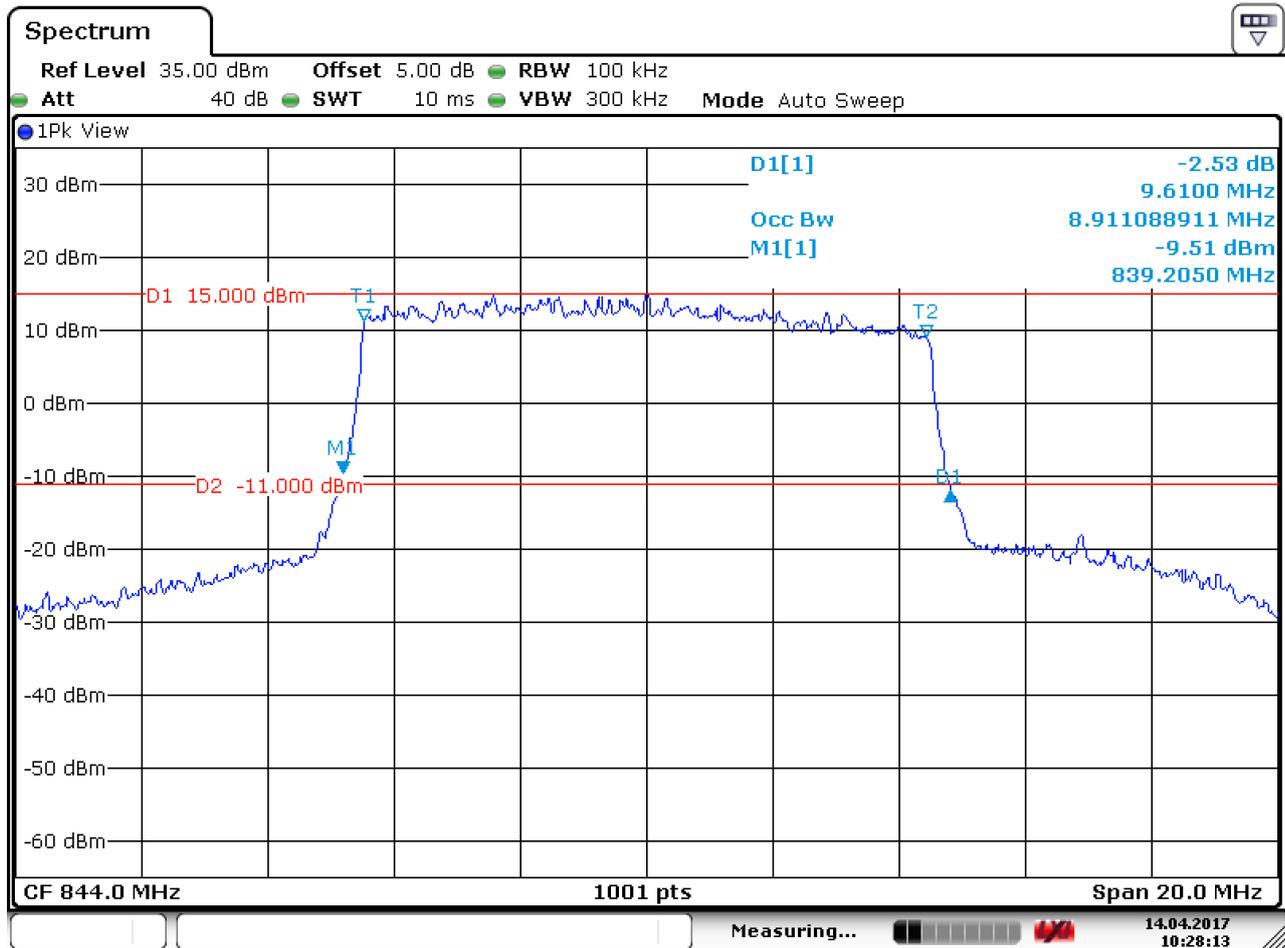
4.1.1.7.2 Test Channel = MCH



Date: 14.APR.2017 10:21:12



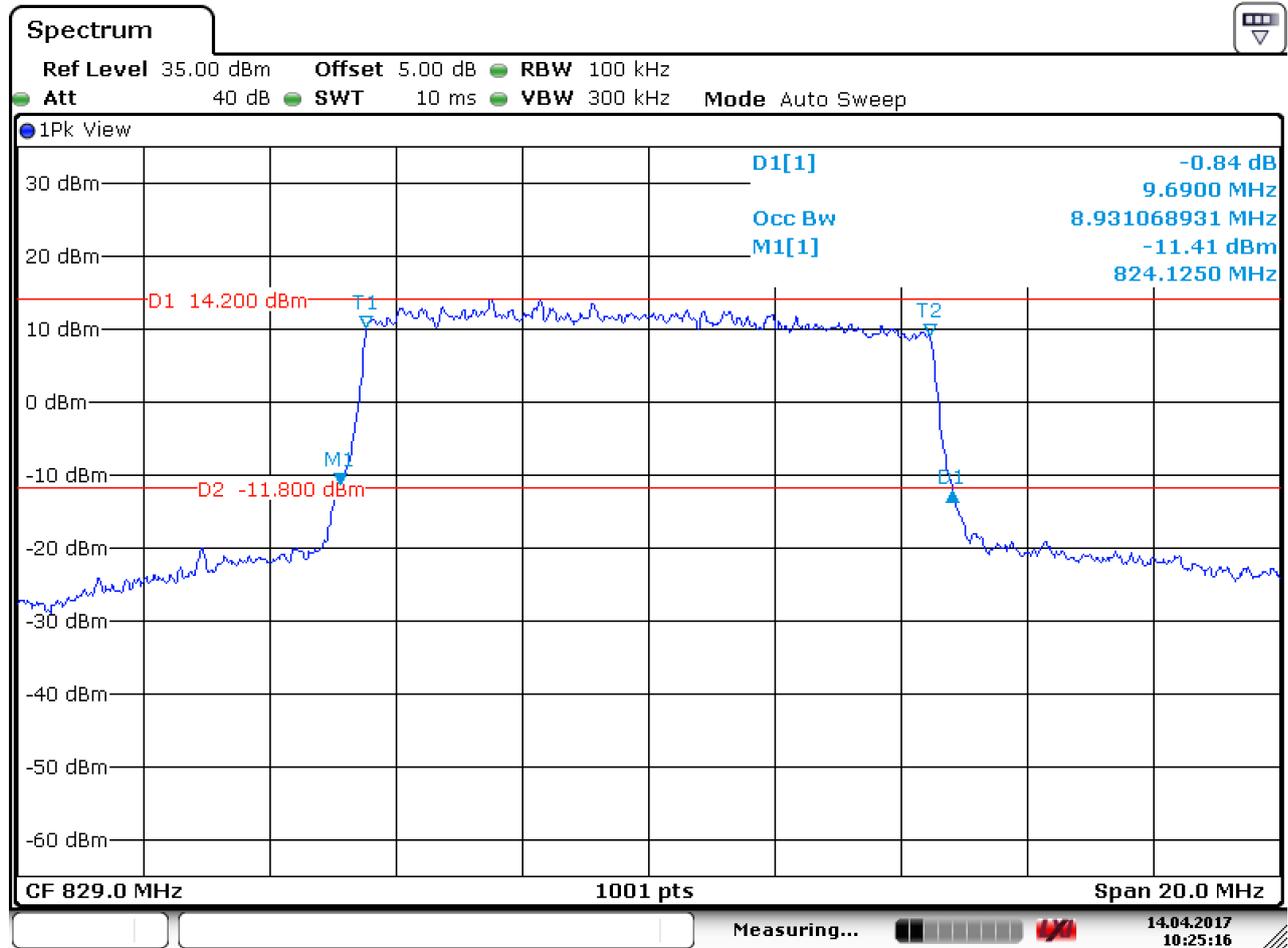
4.1.1.7.3 Test Channel = HCH



Date: 14.APR.2017 10:28:14

**4.1.1.8 Test Mode = LTE/TM2 10MHz**

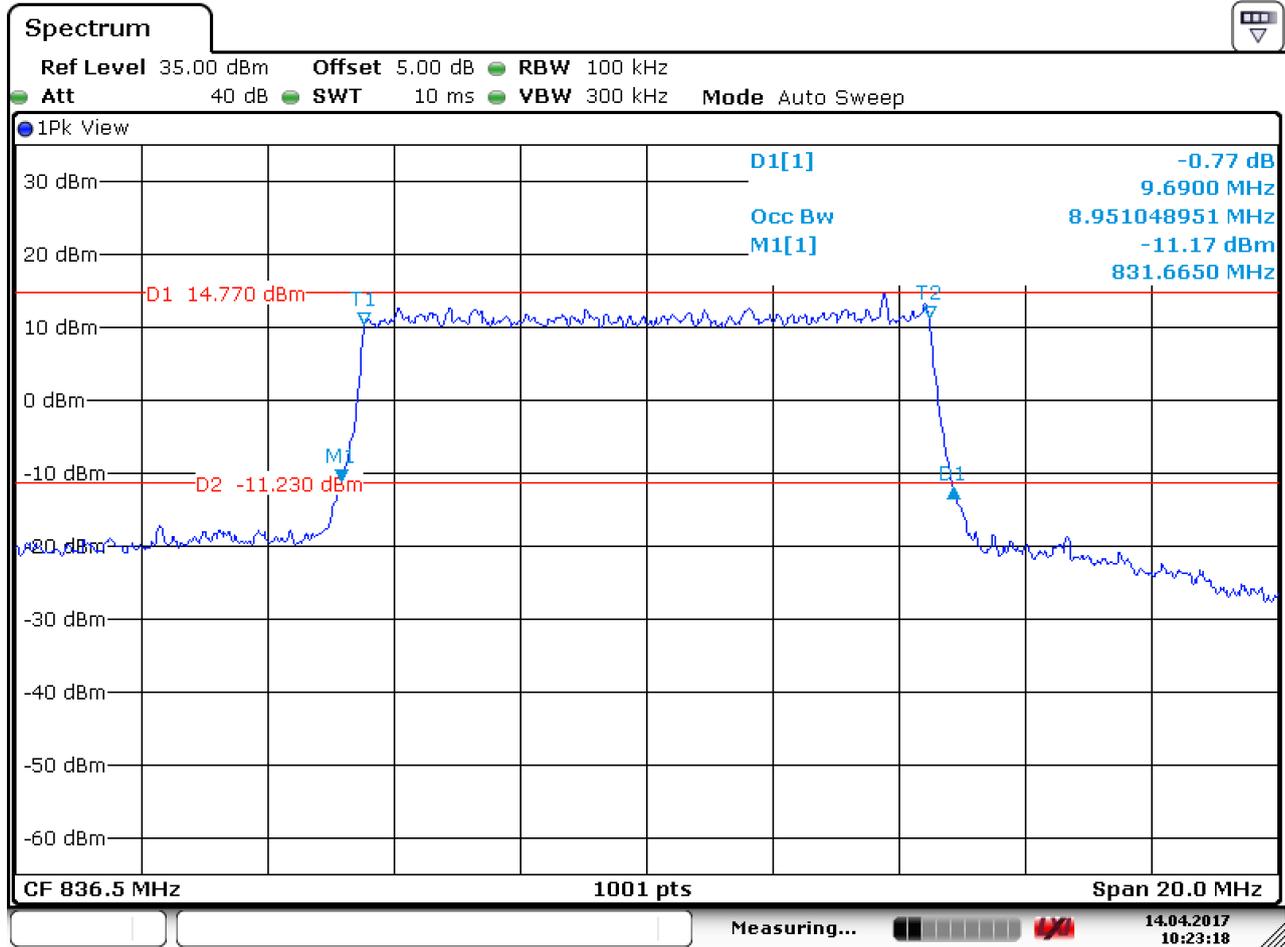
**4.1.1.8.1 Test Channel = LCH**



Date: 14.APR.2017 10:25:17

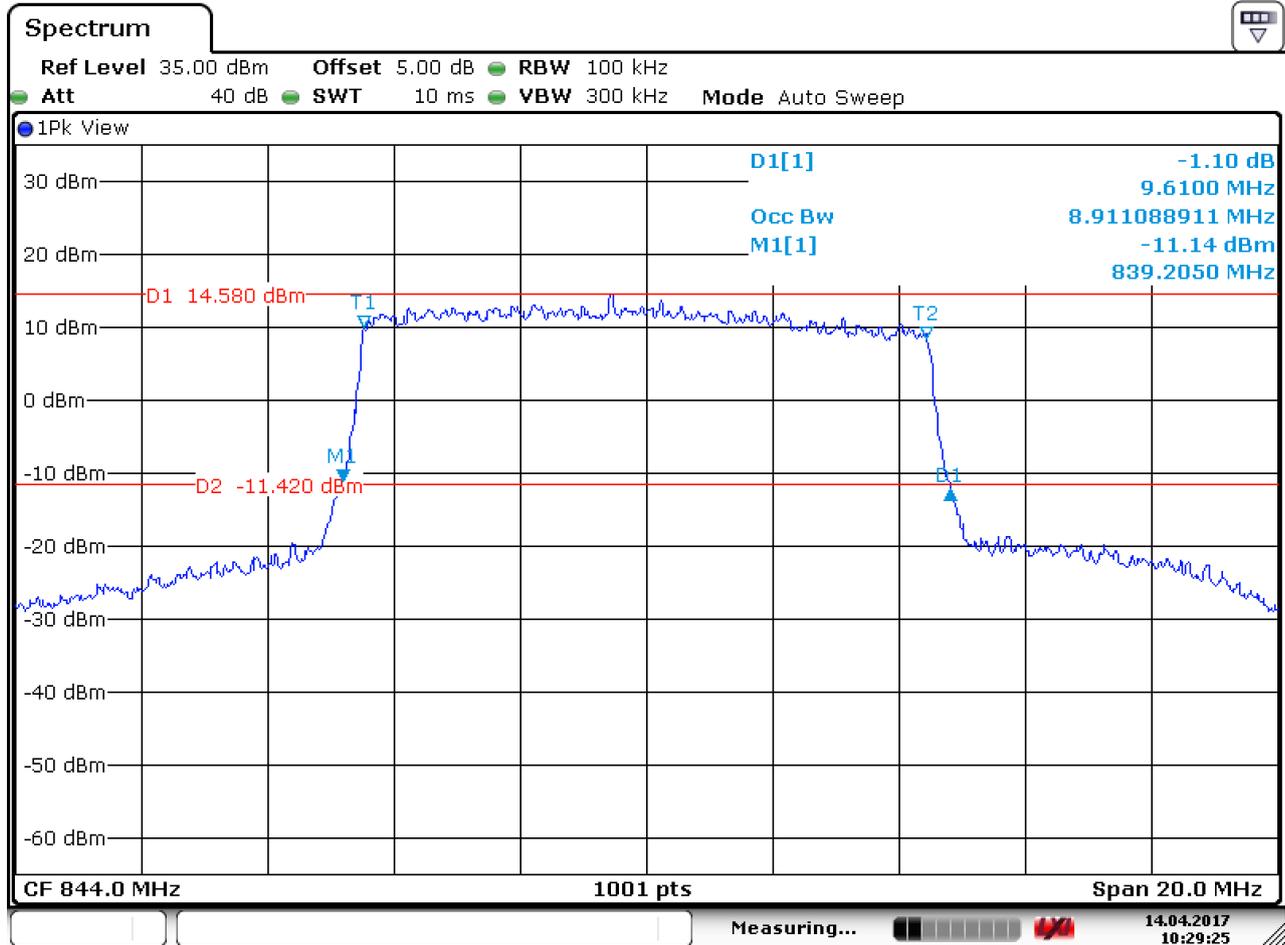


4.1.1.8.2 Test Channel = MCH



Date: 14.APR.2017 10:23:19

4.1.1.8.3 Test Channel = HCH



Date: 14.APR.2017 10:29:26

## 5 Band Edges Compliance

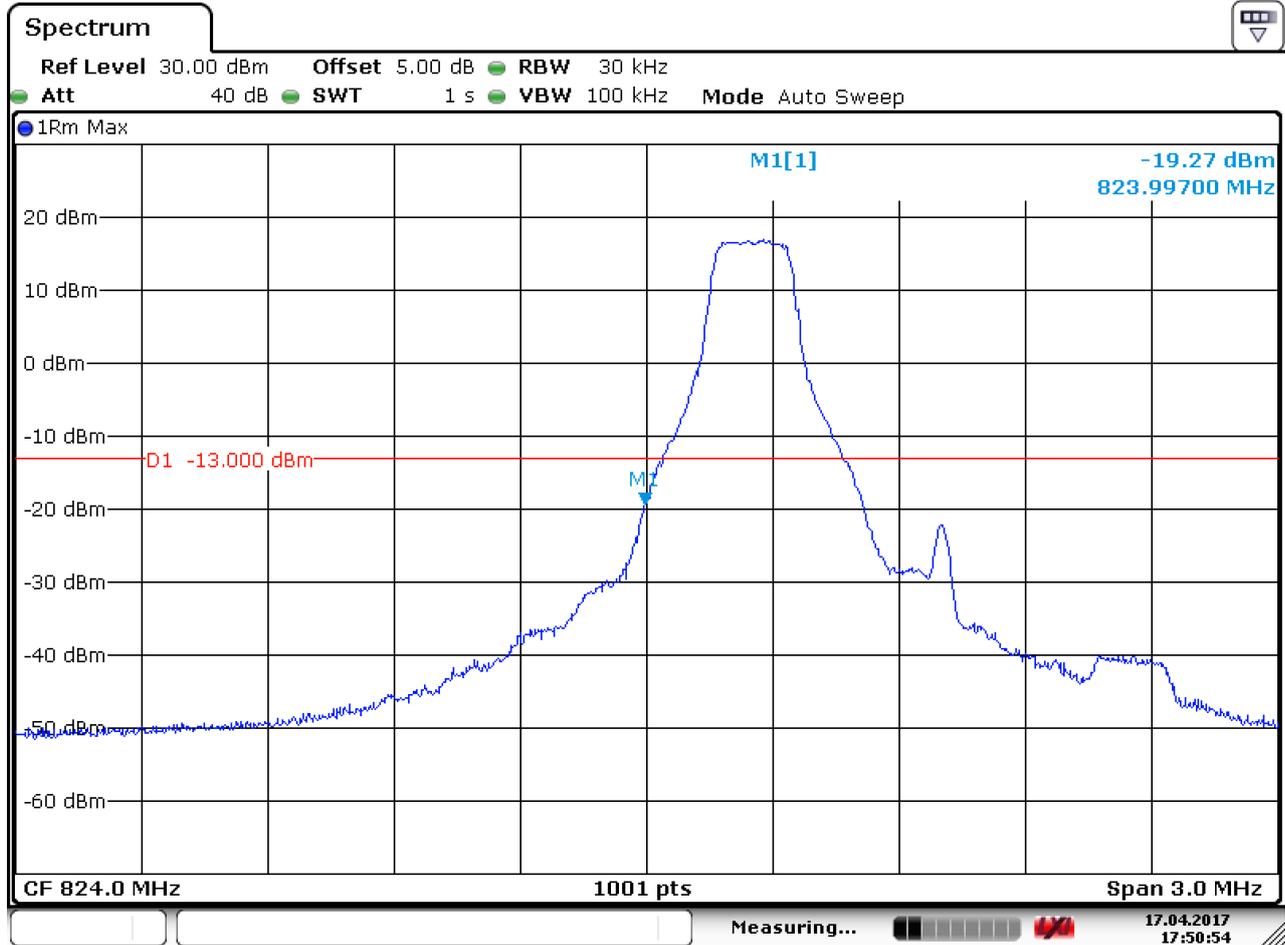
### 5.1 For LTE

#### 5.1.1 Test Band = LTE band5

##### 5.1.1.1 Test Mode = LTE/TM1 1.4MHz

##### 5.1.1.1.1 Test Channel = LCH

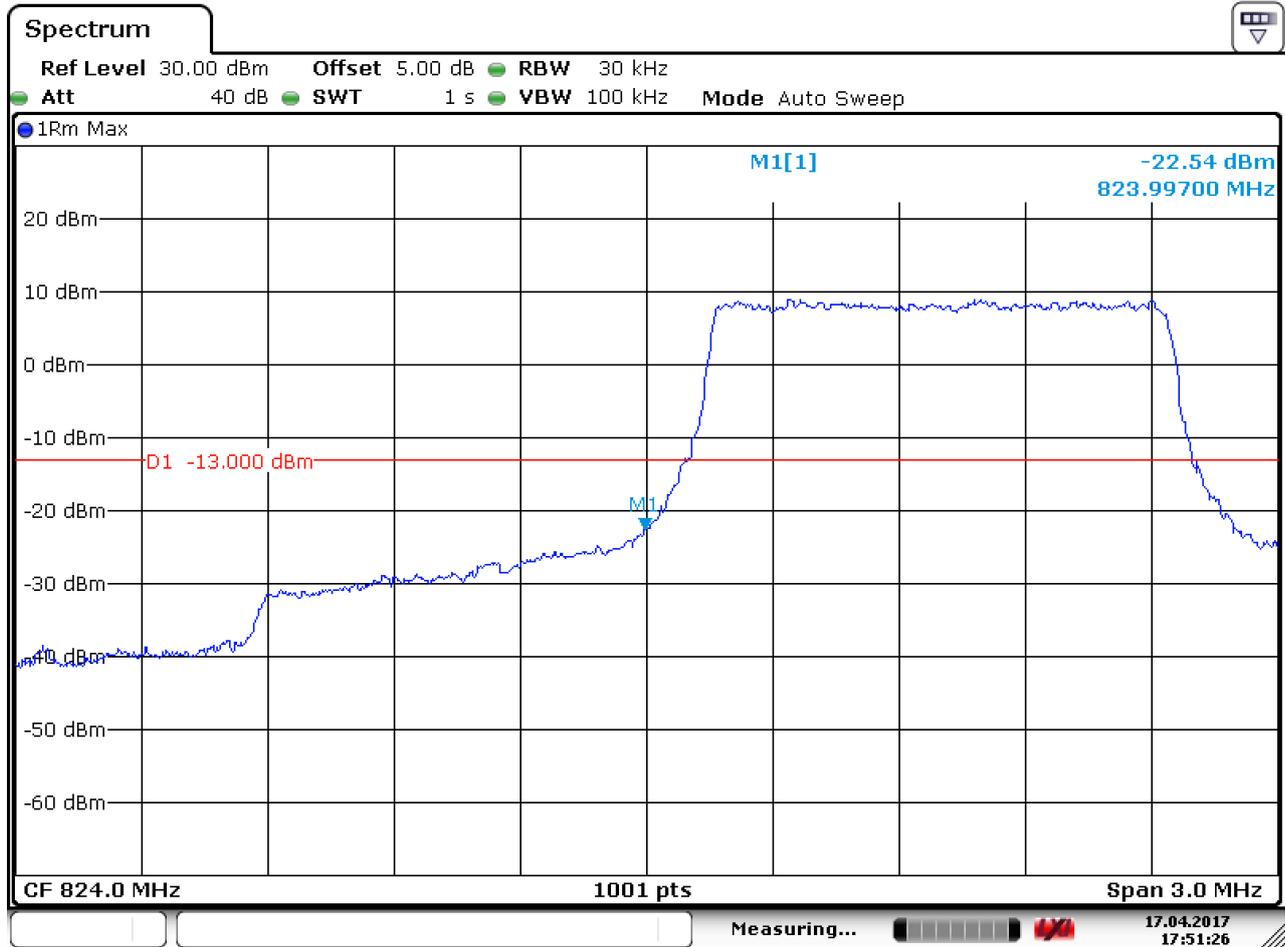
##### 5.1.1.1.1.1 Test RB=1RB



Date: 17.APR.2017 17:50:54



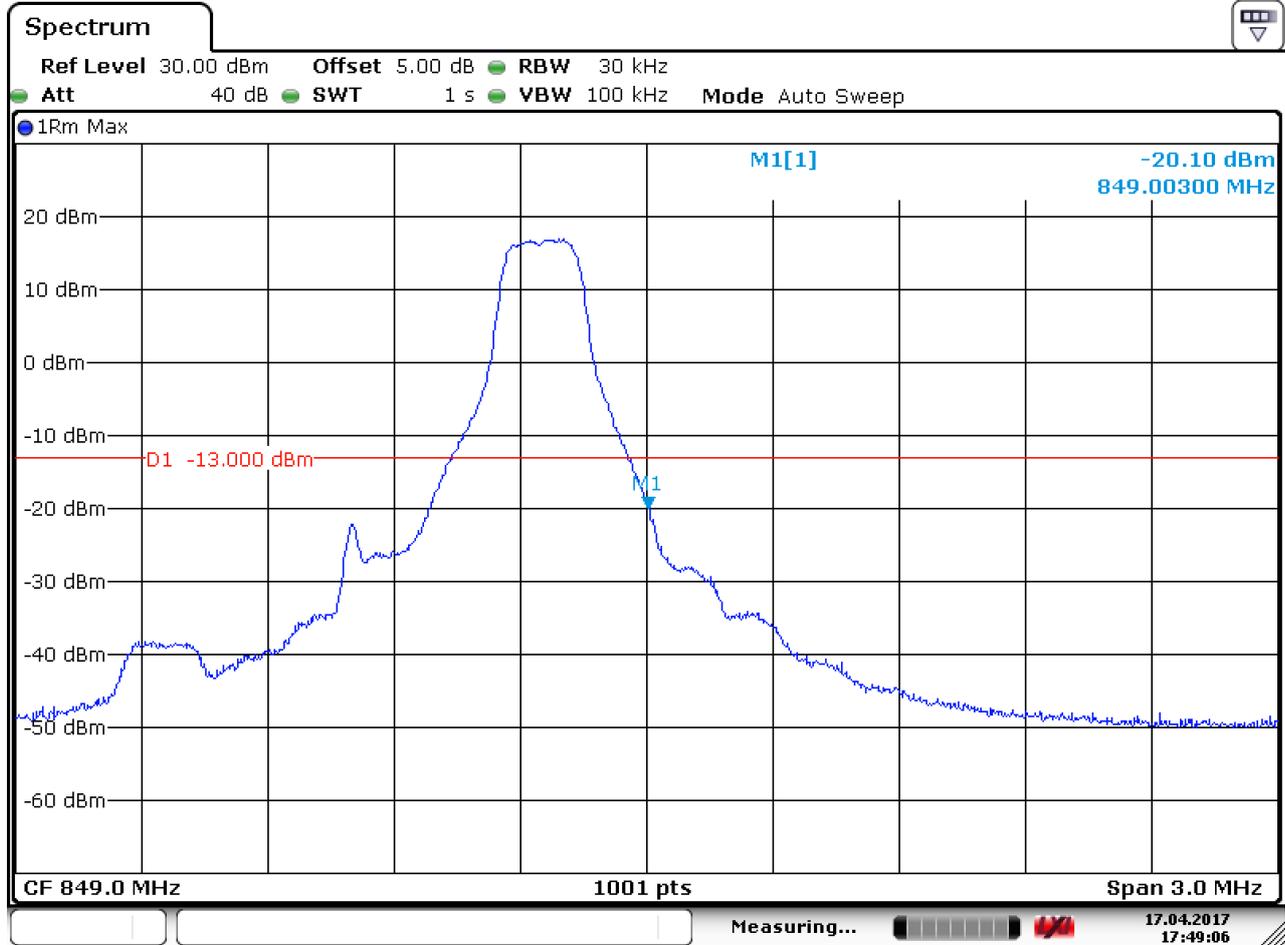
5.1.1.1.2 Test RB=6RB



Date: 17.APR.2017 17:51:26

5.1.1.1.2 Test Channel = HCH

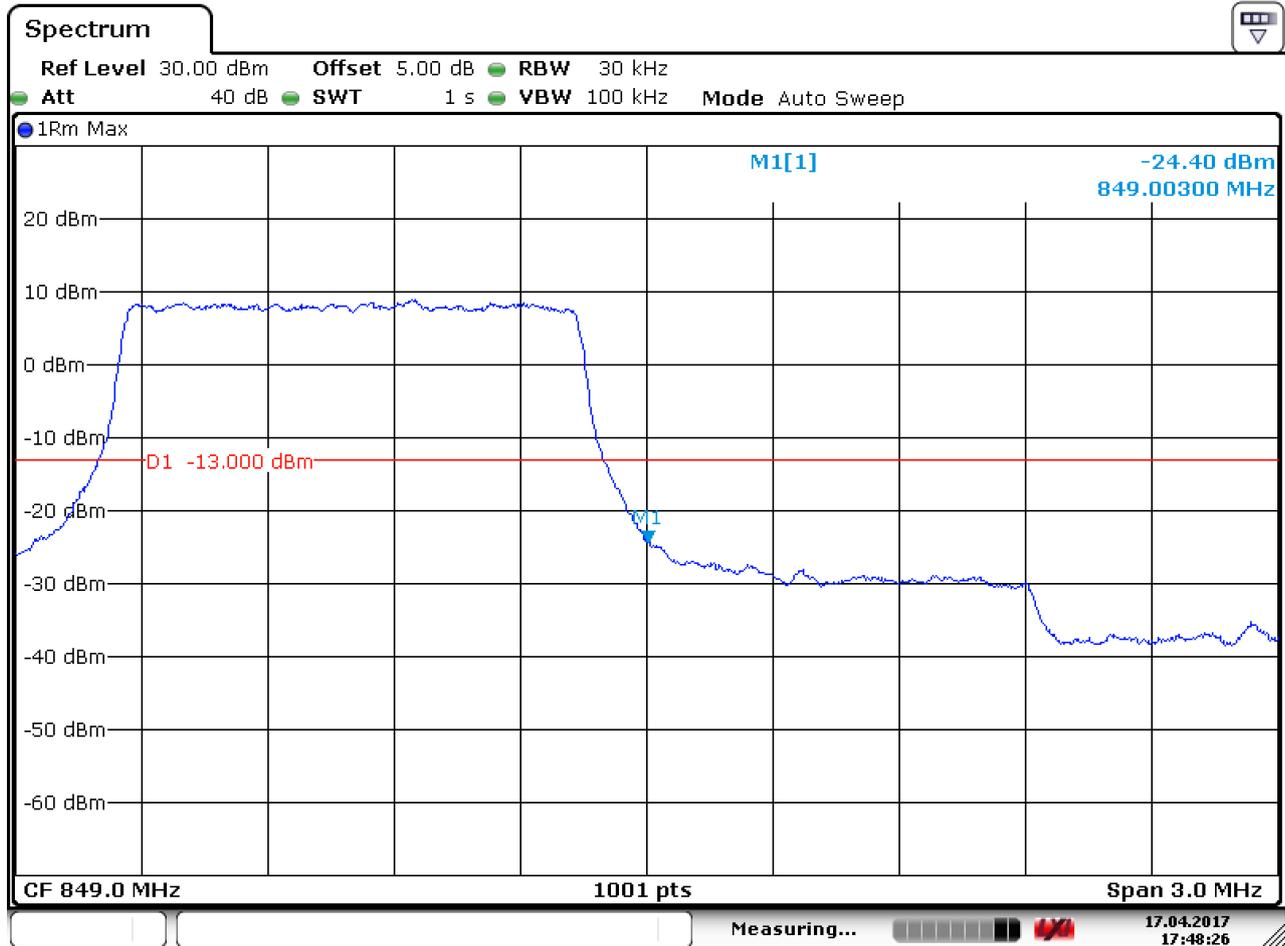
5.1.1.1.2.1 Test RB=1RB



Date: 17.APR.2017 17:49:07



5.1.1.1.2.2 Test RB=6RB



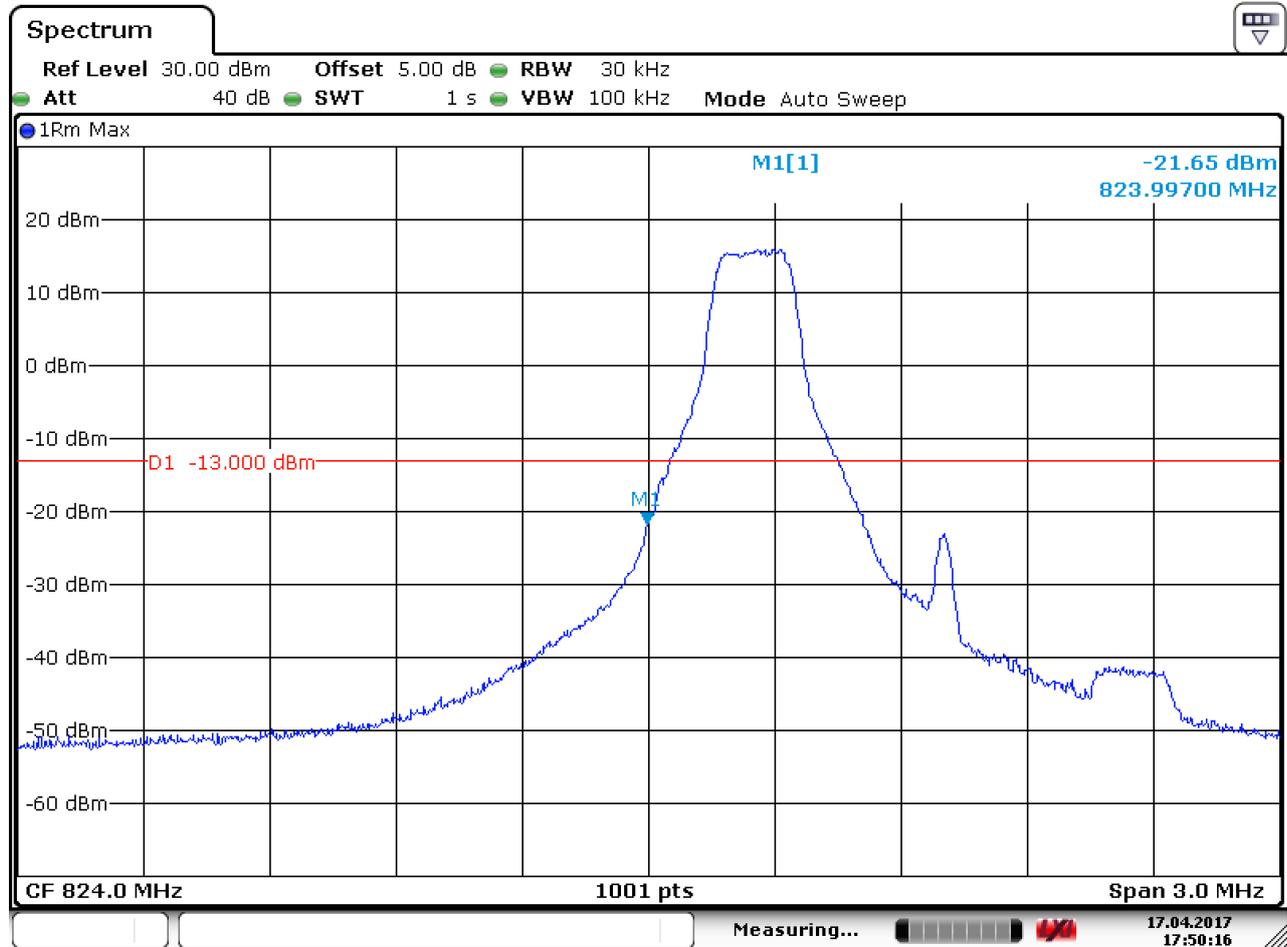
Date: 17.APR.2017 17:48:27



5.1.1.2 Test Mode = LTE/TM2 1.4MHz

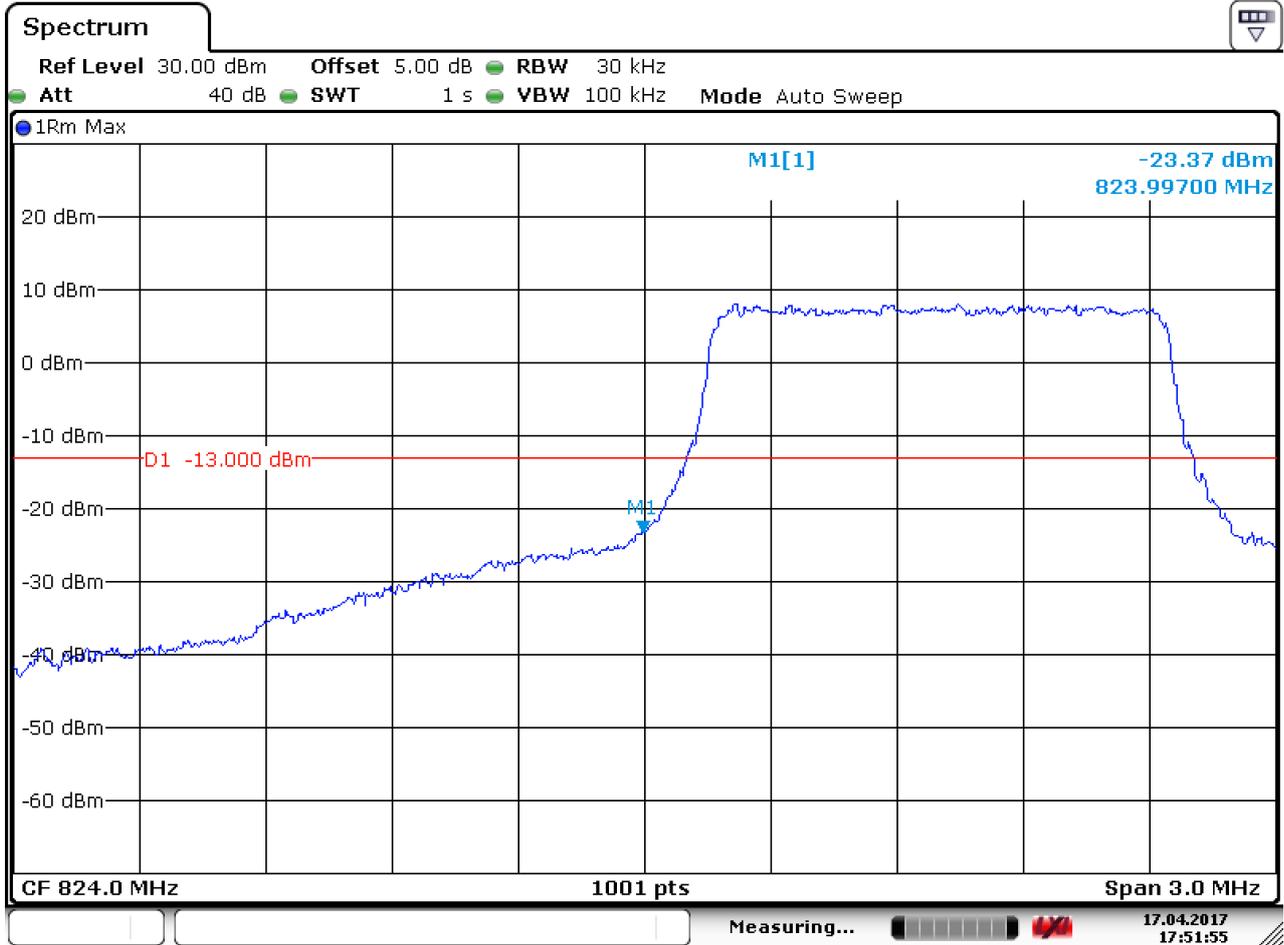
5.1.1.2.1 Test Channel = LCH

5.1.1.2.1.1 Test RB=1RB



Date: 17.APR.2017 17:50:17

**5.1.1.2.1.2 Test RB=6RB**

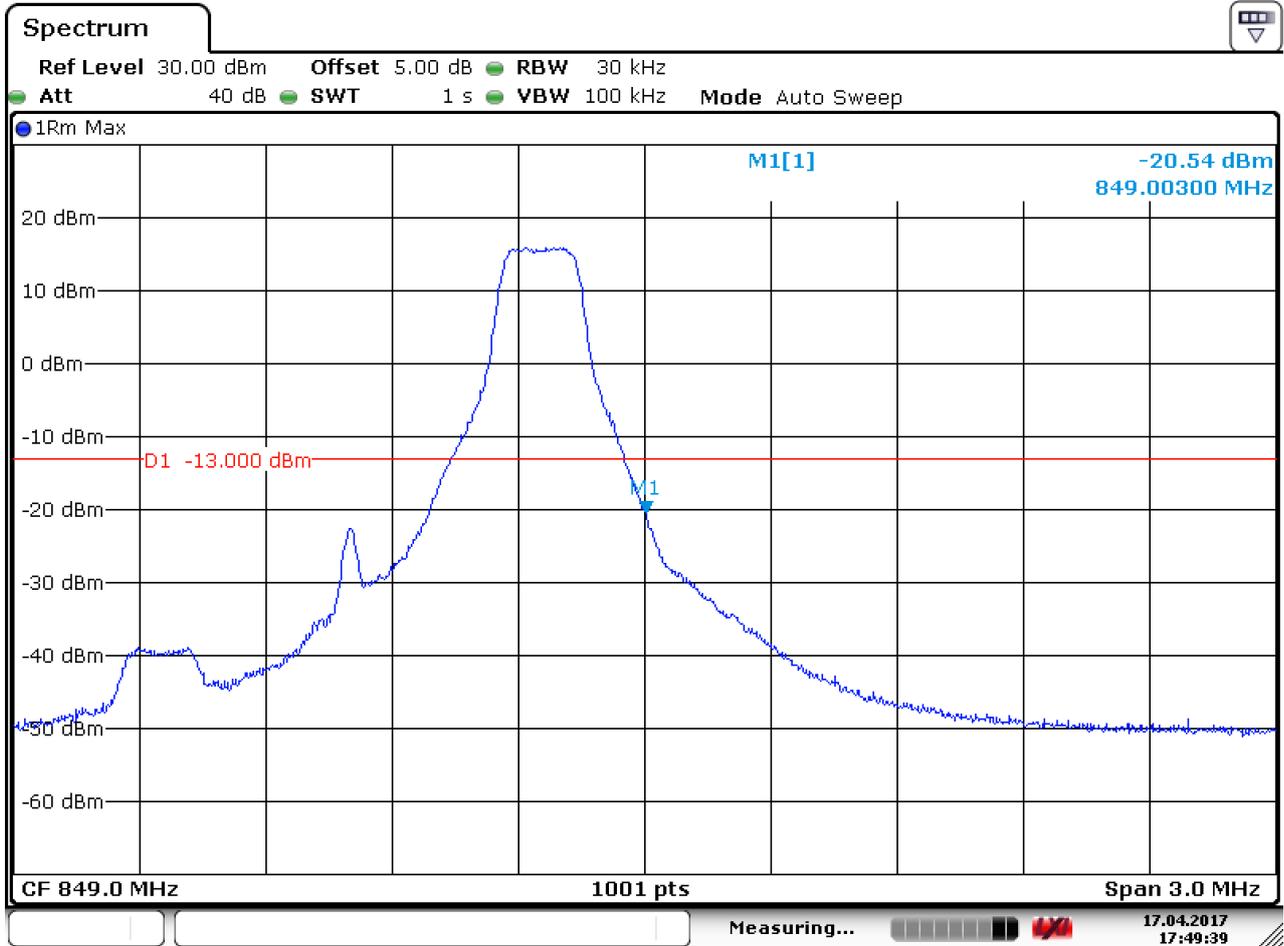


Date: 17.APR.2017 17:51:55



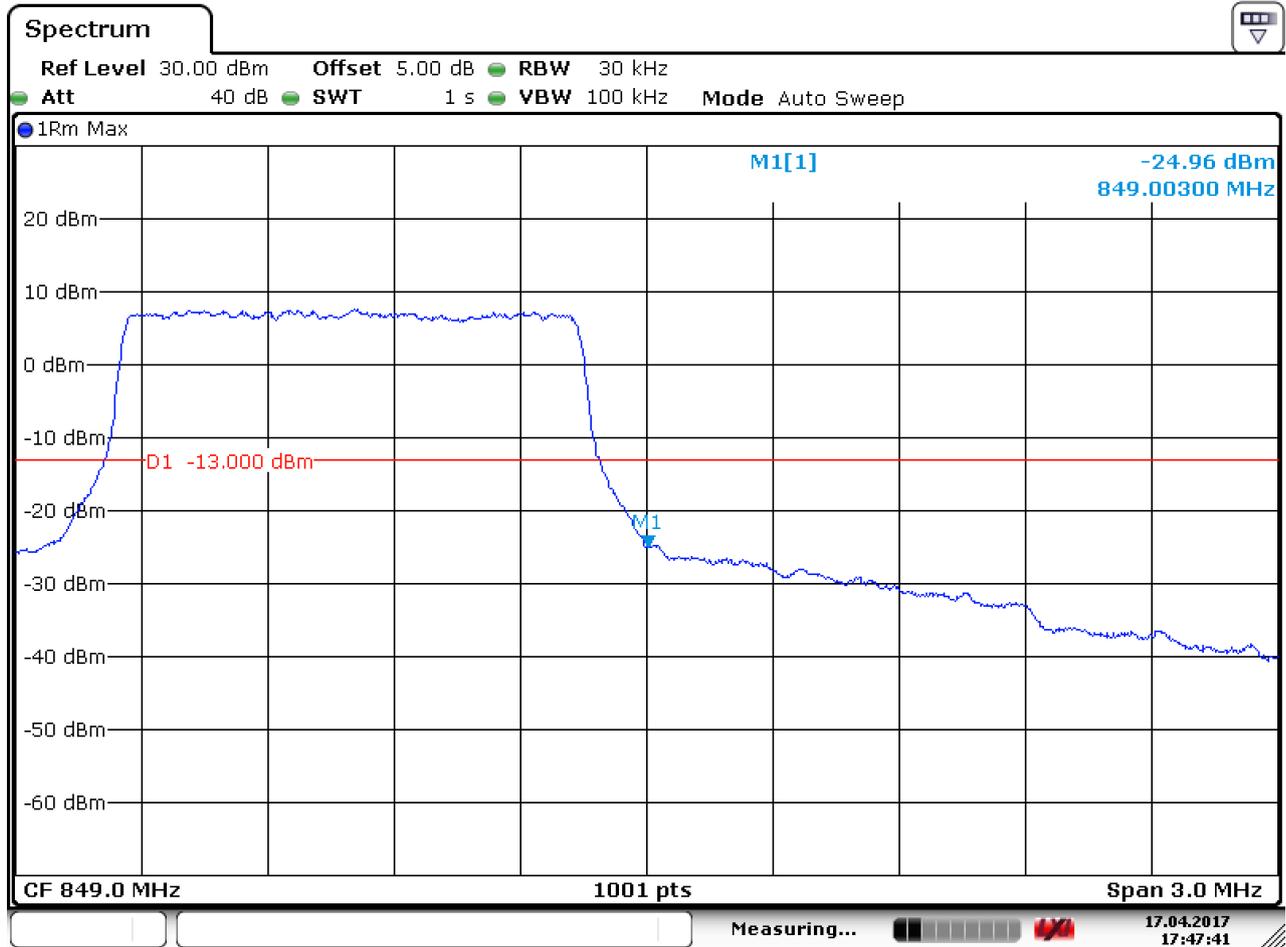
5.1.1.2.2 Test Channel = HCH

5.1.1.2.2.1 Test RB=1RB



Date: 17.APR.2017 17:49:39

5.1.1.2.2.2 Test RB=6RB



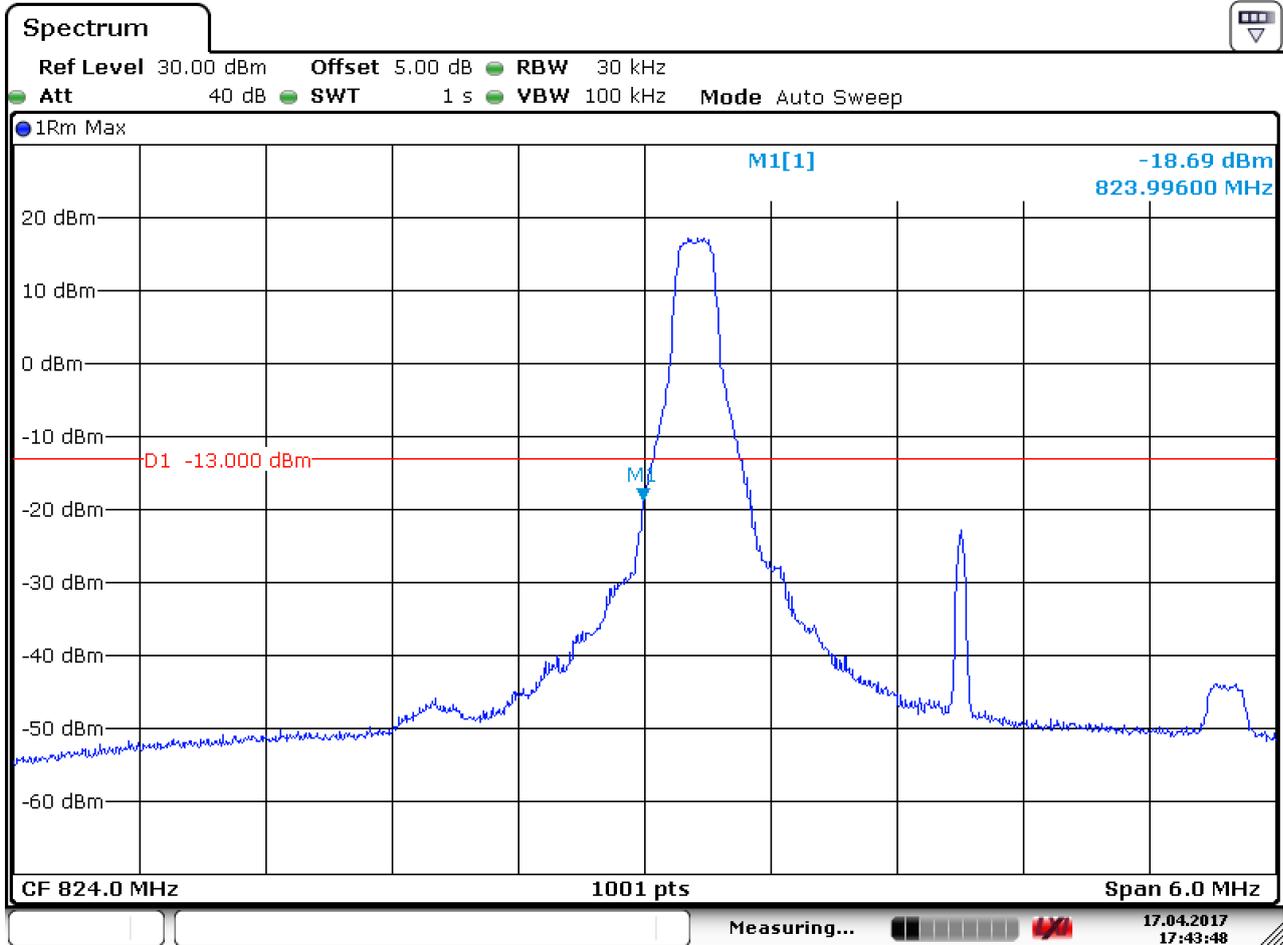
Date: 17.APR.2017 17:47:42



5.1.1.3 Test Mode = LTE/TM1 3MHz

5.1.1.3.1 Test Channel = LCH

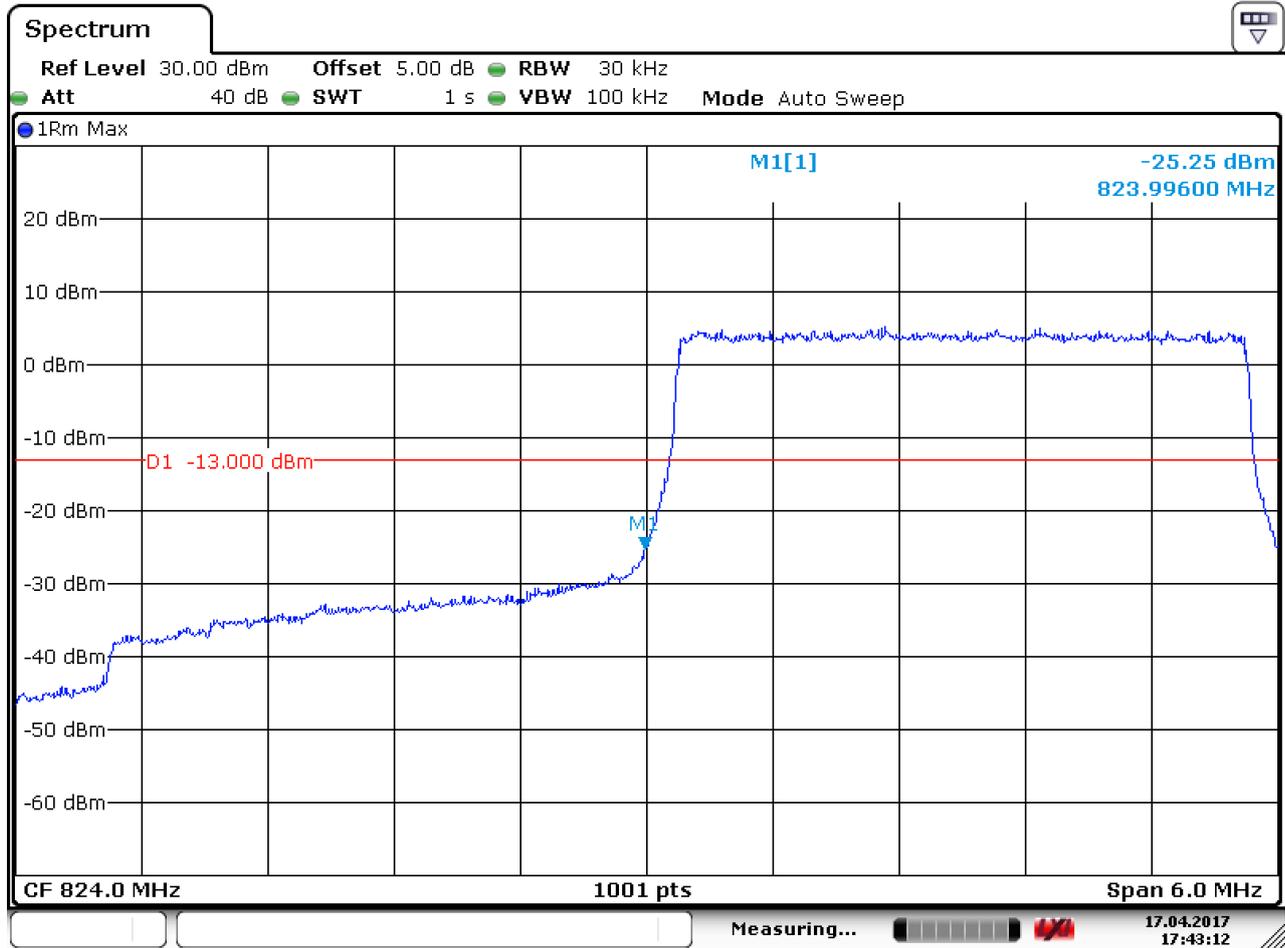
5.1.1.3.1.1 Test RB=1RB



Date: 17.APR.2017 17:43:48



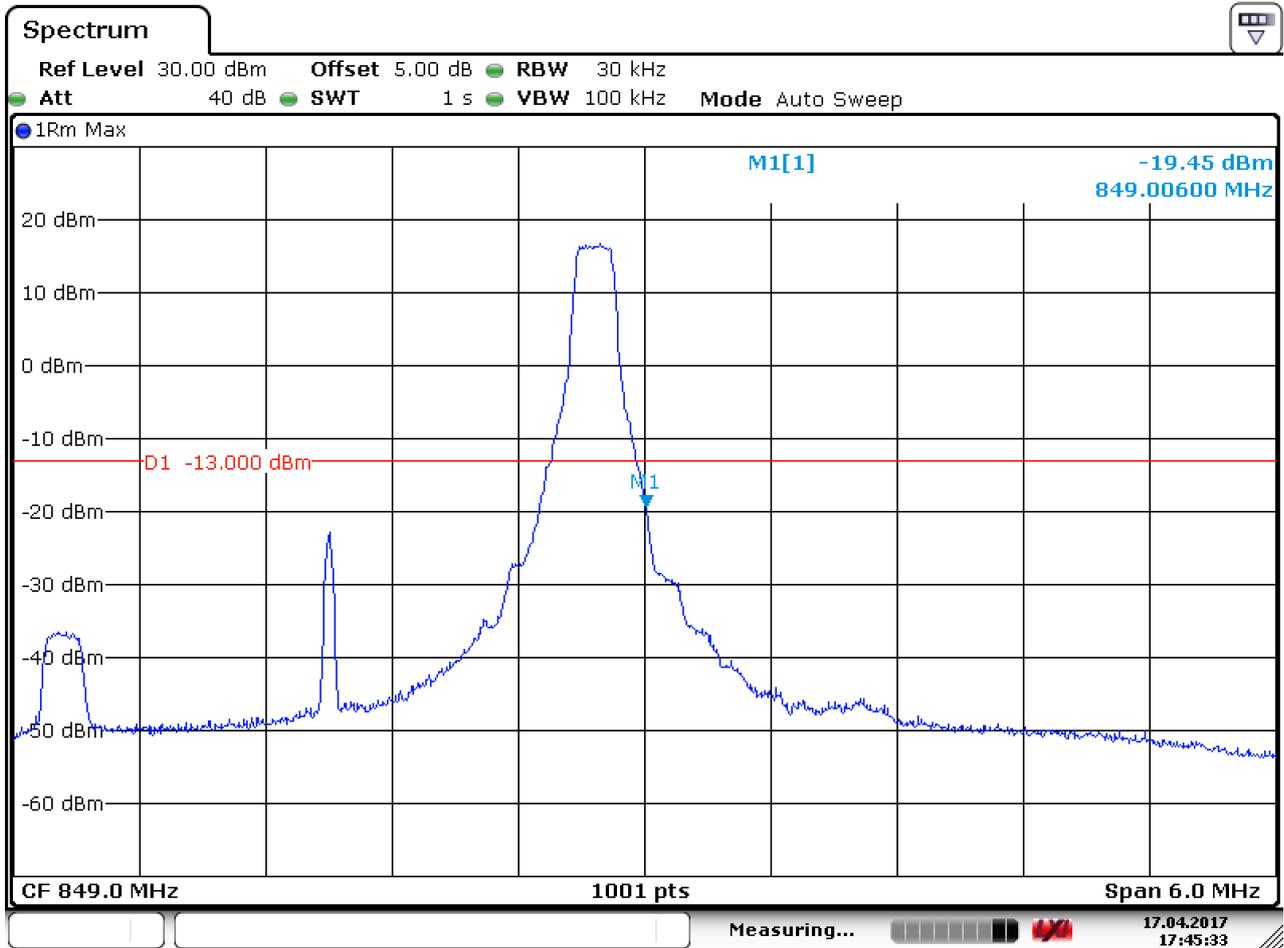
5.1.1.3.1.2 Test RB=15RB



Date: 17.APR.2017 17:43:12

5.1.1.3.2 Test Channel = HCH

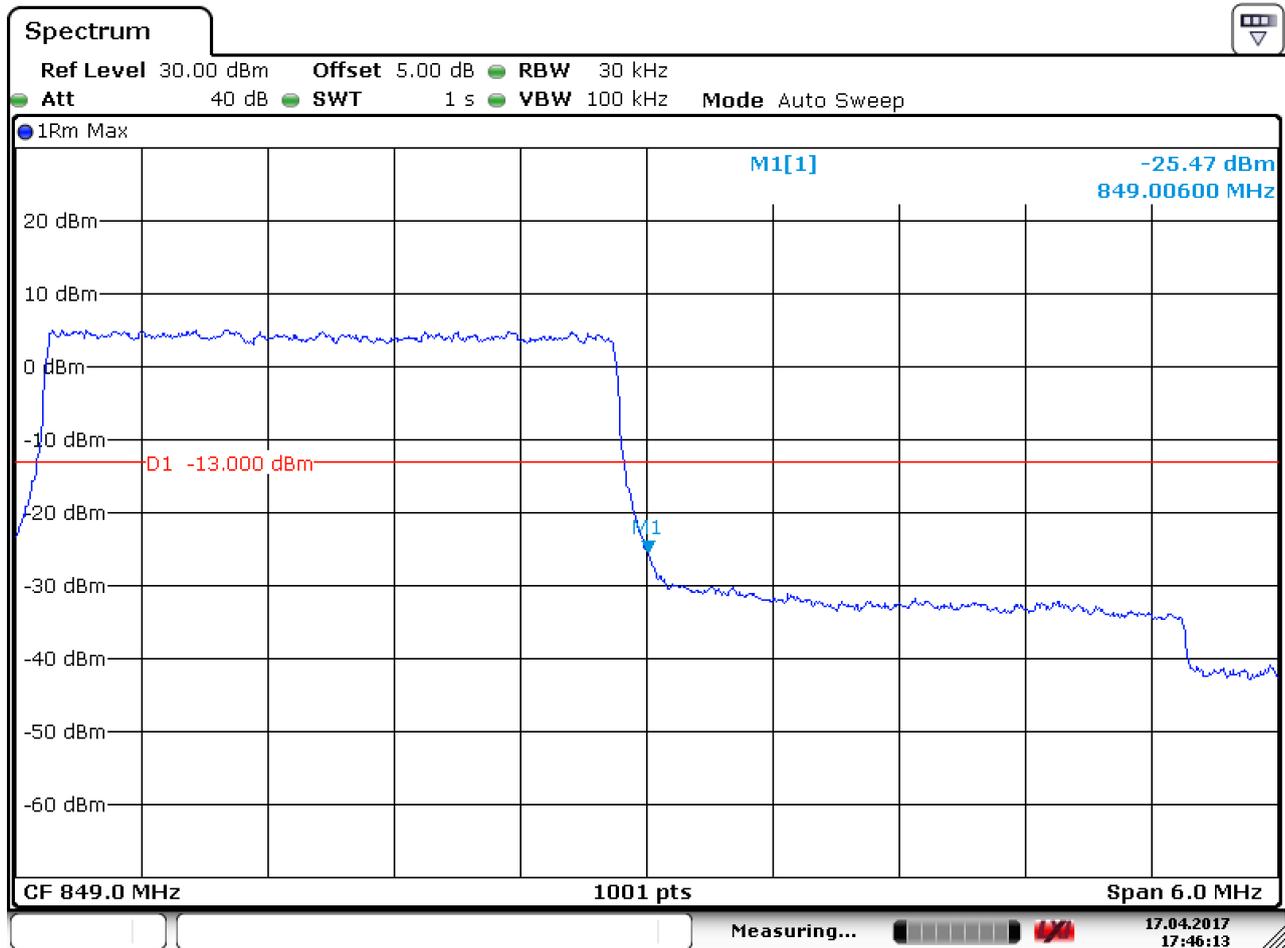
5.1.1.3.2.1 Test RB=1RB



Date: 17.APR.2017 17:45:34



5.1.1.3.2.2 Test RB=15RB

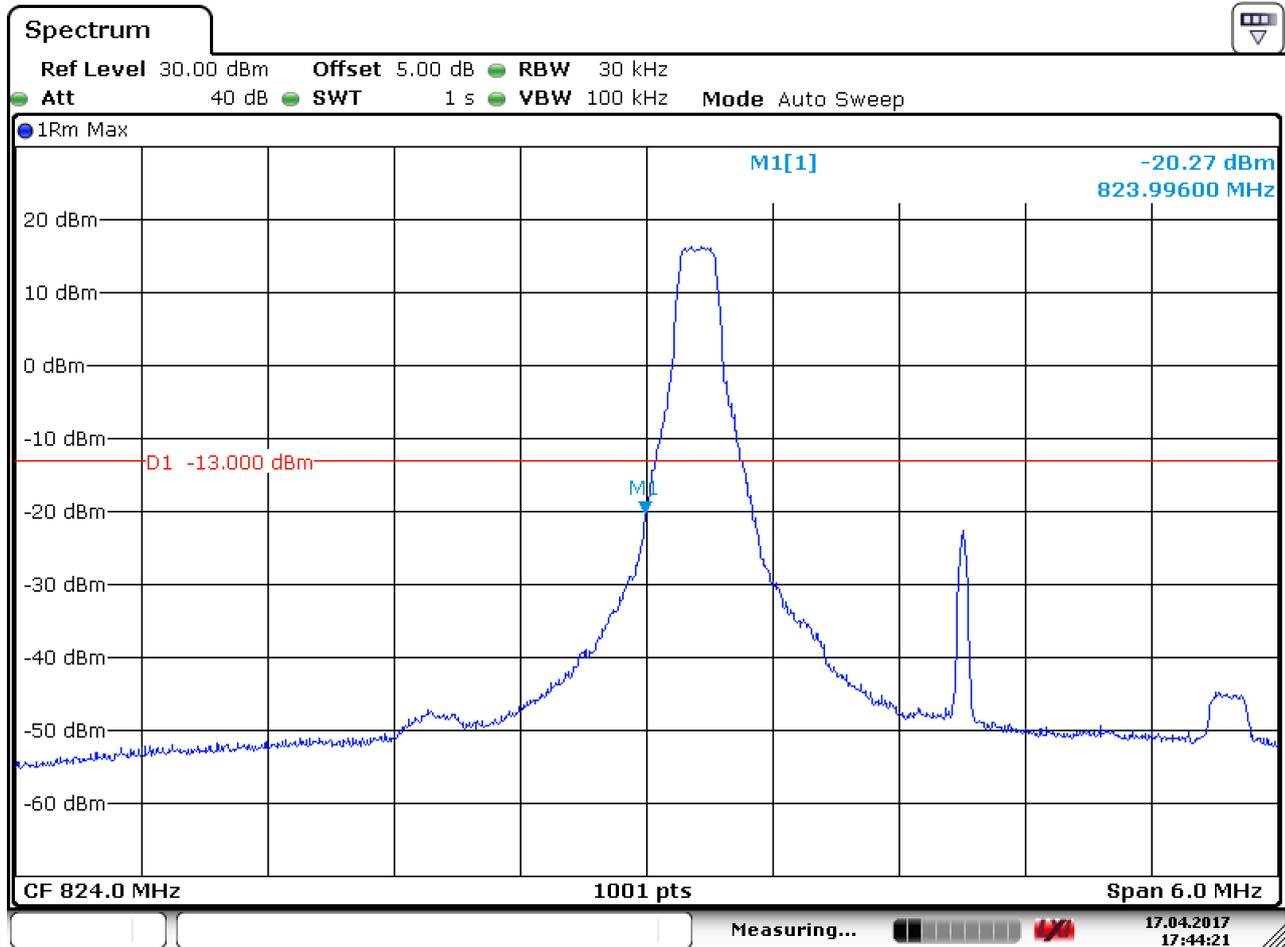


Date: 17.APR.2017 17:46:13

5.1.1.4 Test Mode = LTE/TM2 3MHz

5.1.1.4.1 Test Channel = LCH

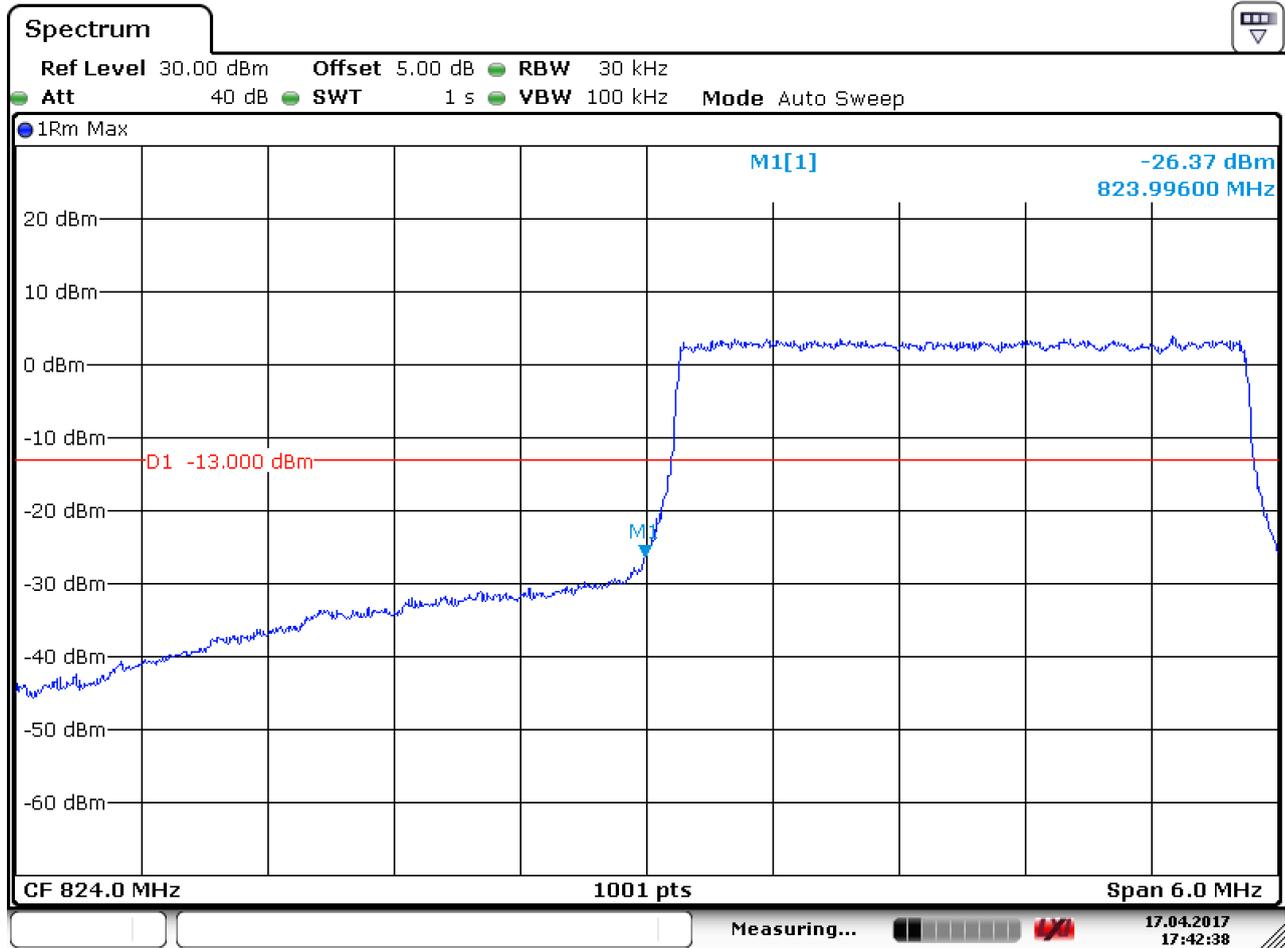
5.1.1.4.1.1 Test RB=1RB



Date: 17.APR.2017 17:44:22



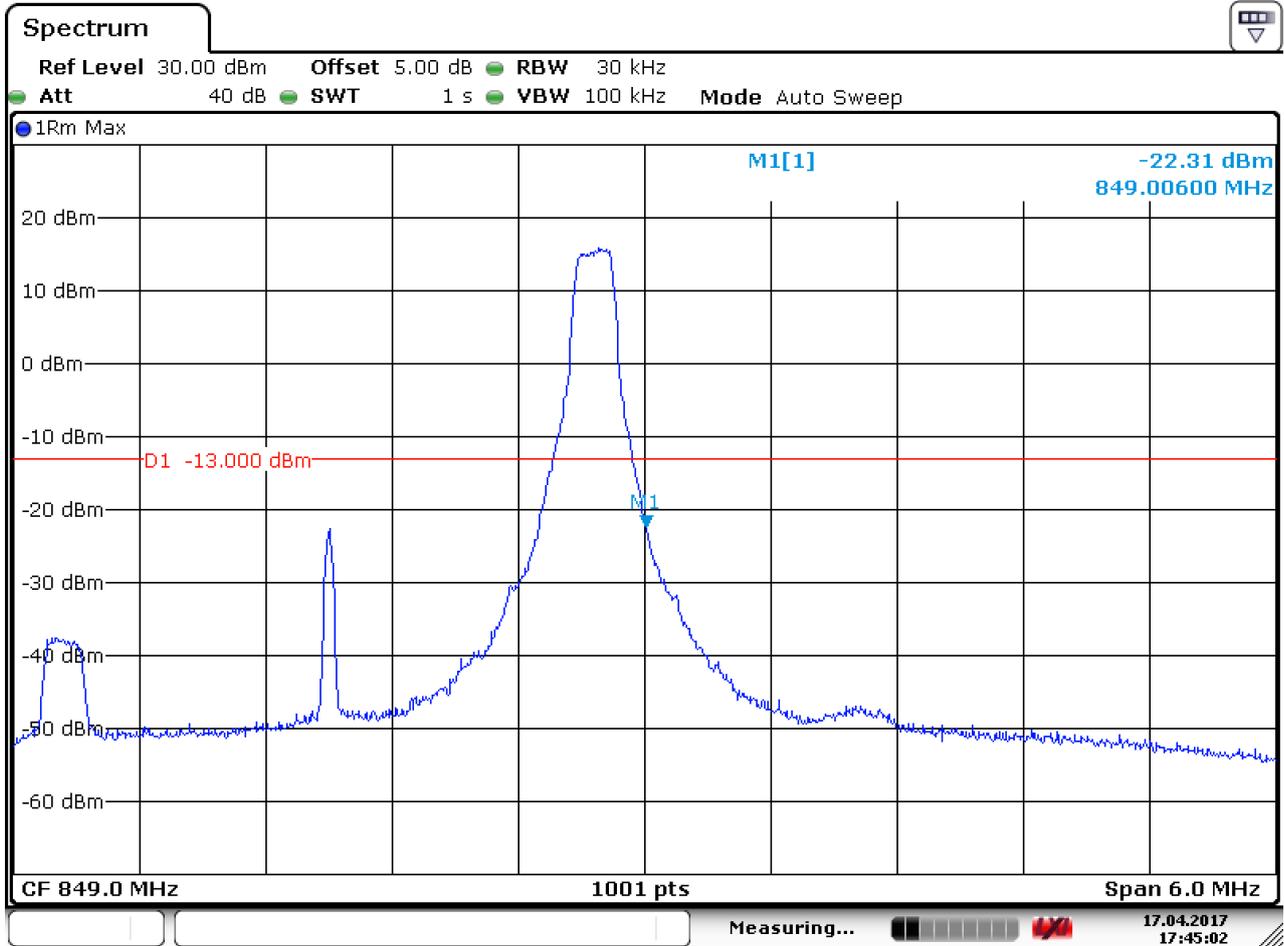
5.1.1.4.1.2 Test RB=15RB



Date: 17.APR.2017 17:42:38

5.1.1.4.2 Test Channel = HCH

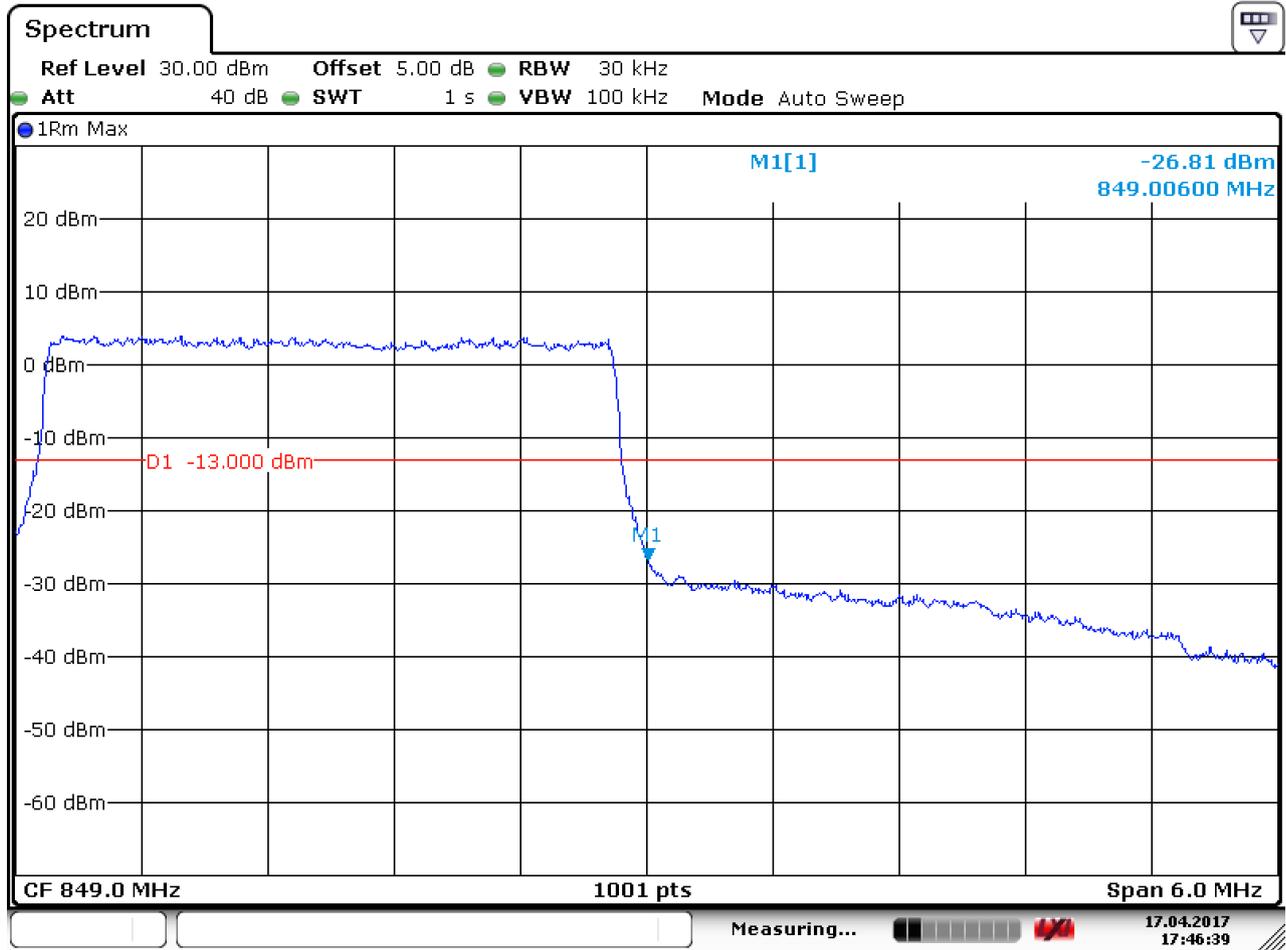
5.1.1.4.2.1 Test RB=1RB



Date: 17.APR.2017 17:45:02



5.1.1.4.3 Test RB=15RB

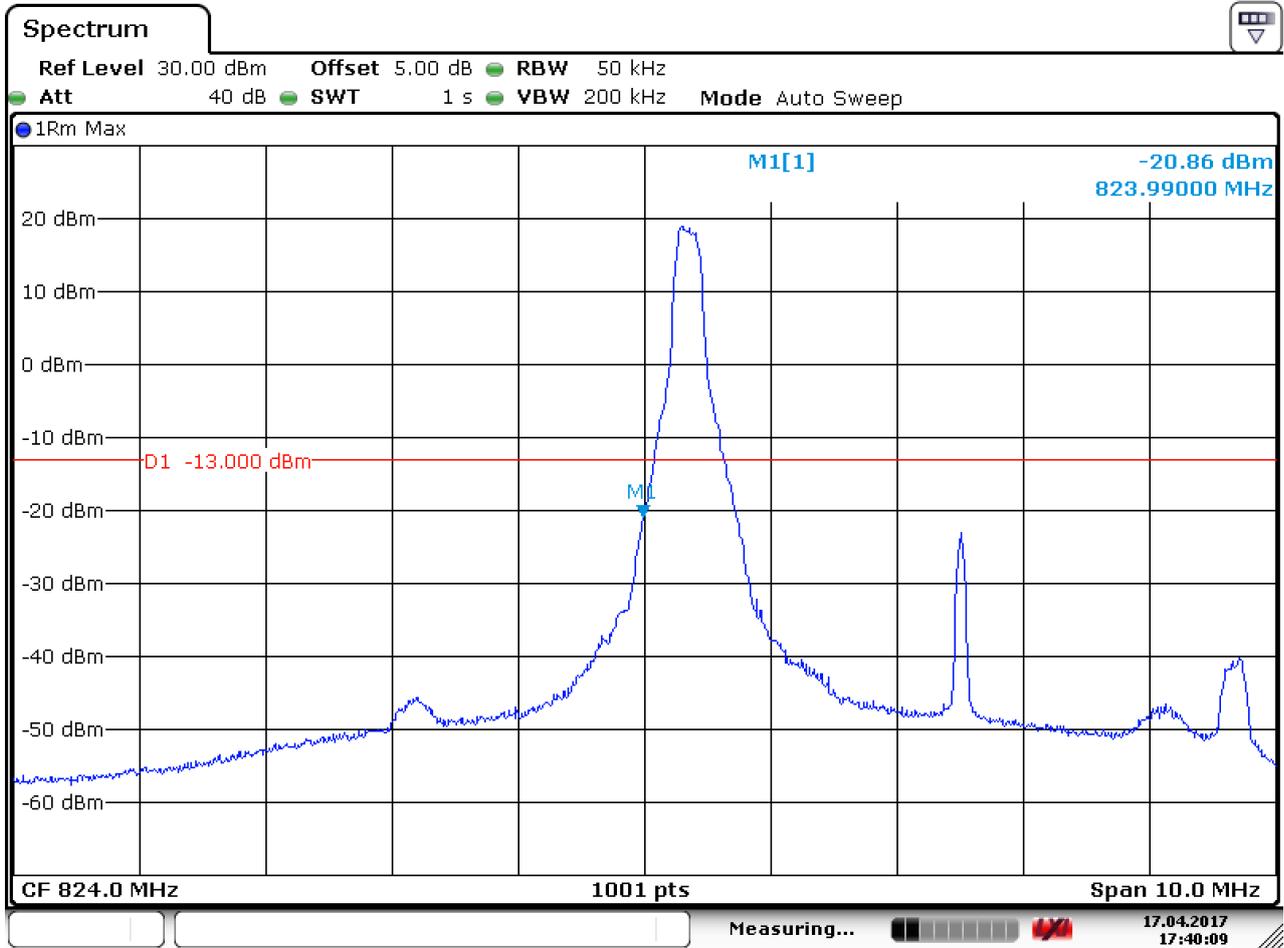


Date: 17.APR.2017 17:46:39

5.1.1.5 Test Mode = LTE/TM1 5MHz

5.1.1.5.1 Test Channel = LCH

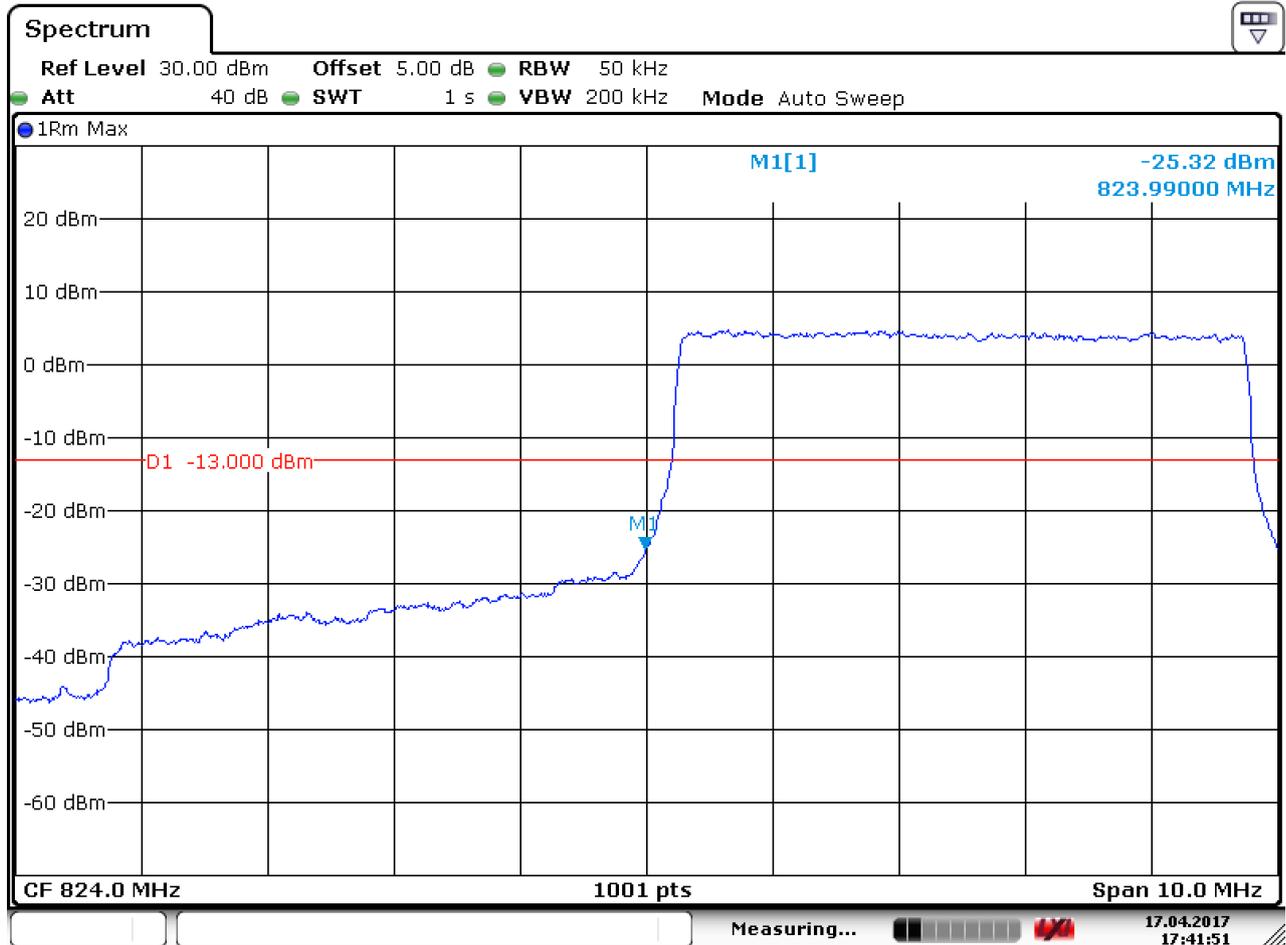
5.1.1.5.1.1 Test RB=1RB



Date: 17.APR.2017 17:40:10



5.1.1.5.1.2 Test RB=25RB

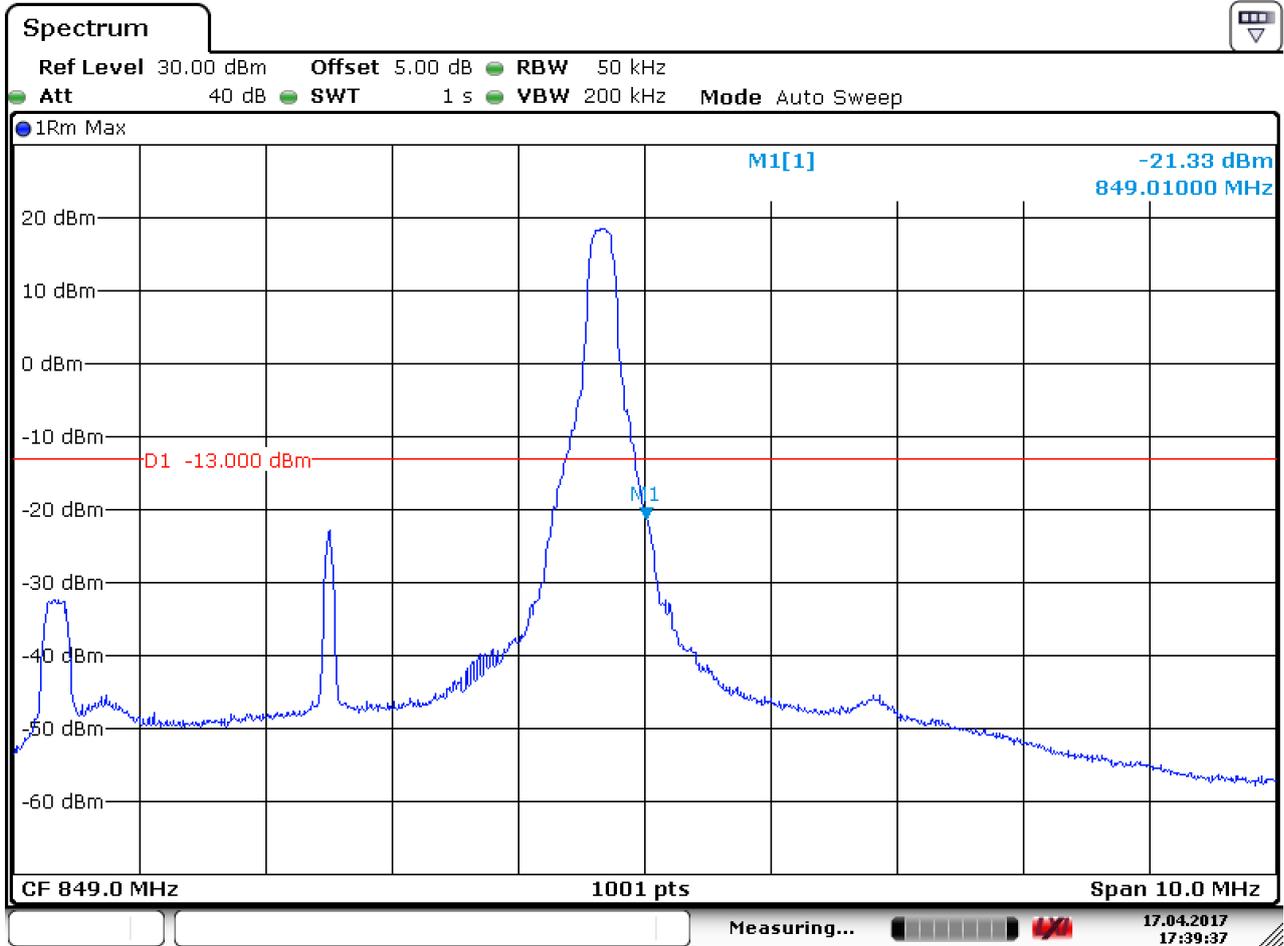


Date: 17.APR.2017 17:41:52



5.1.1.5.2 Test Channel = HCH

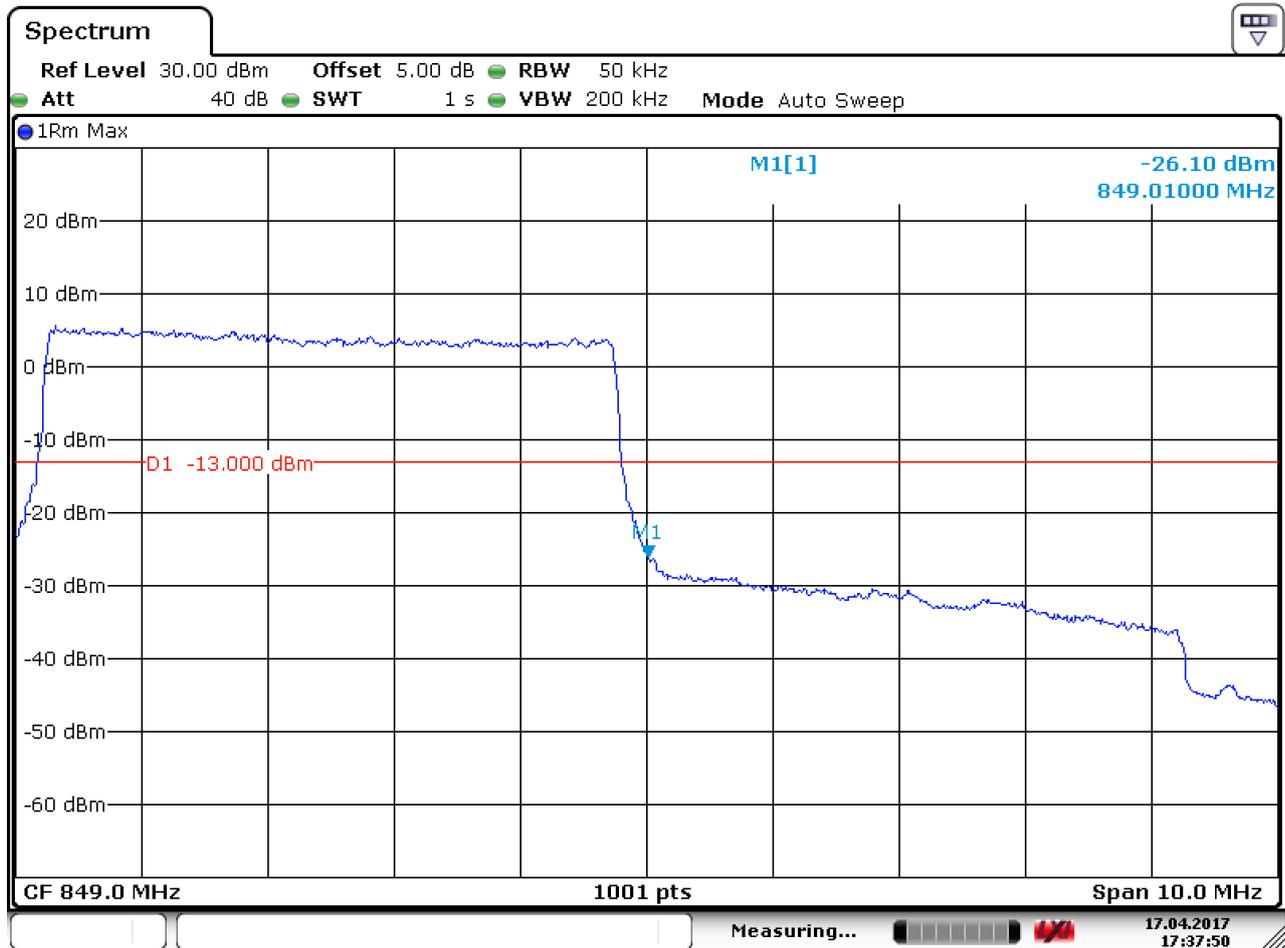
5.1.1.5.2.1 Test RB=1RB



Date: 17.APR.2017 17:39:37



5.1.1.5.2.2 Test RB=25RB



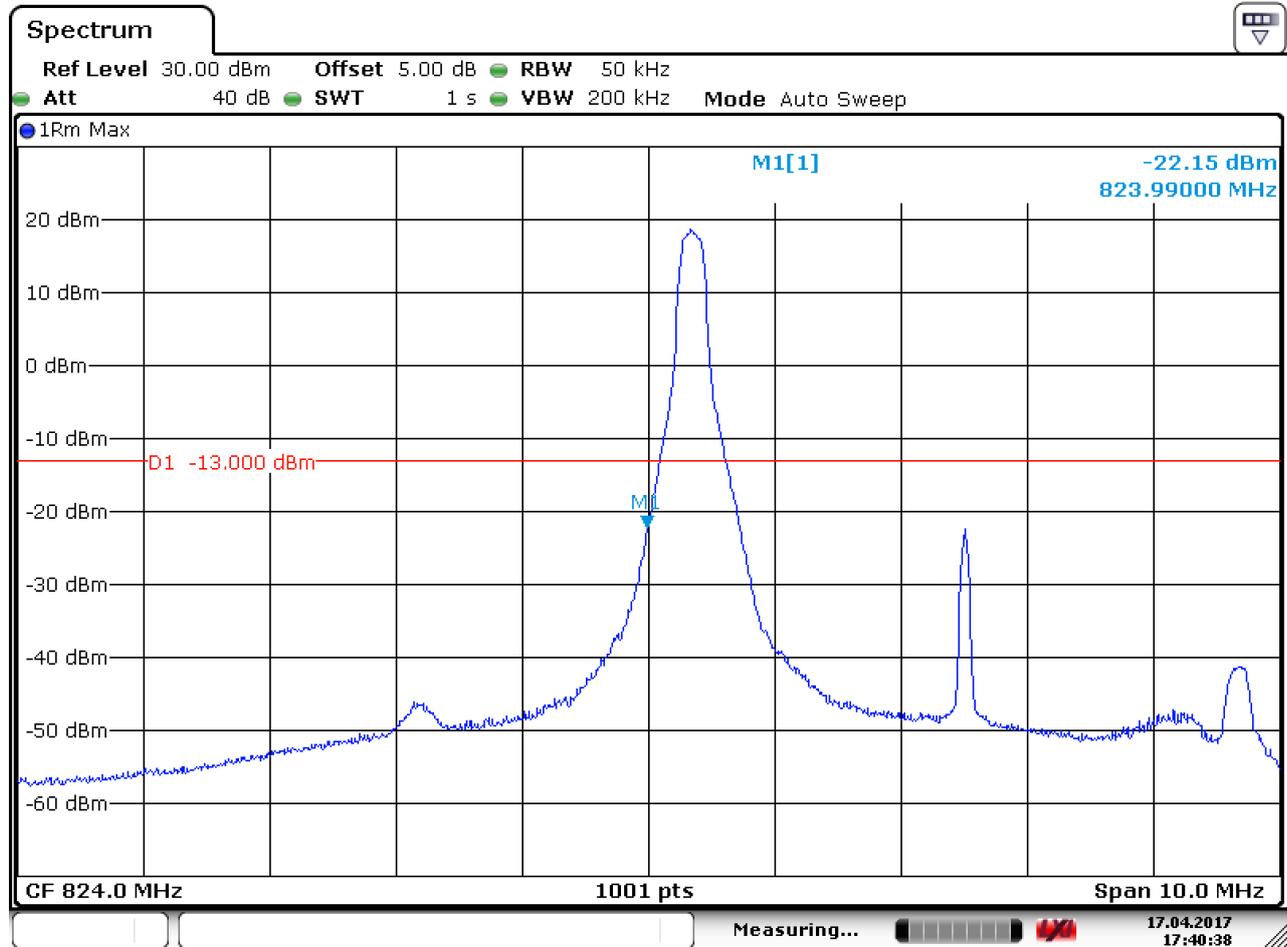
Date: 17.APR.2017 17:37:51



5.1.1.6 Test Mode = LTE/TM2 5MHz

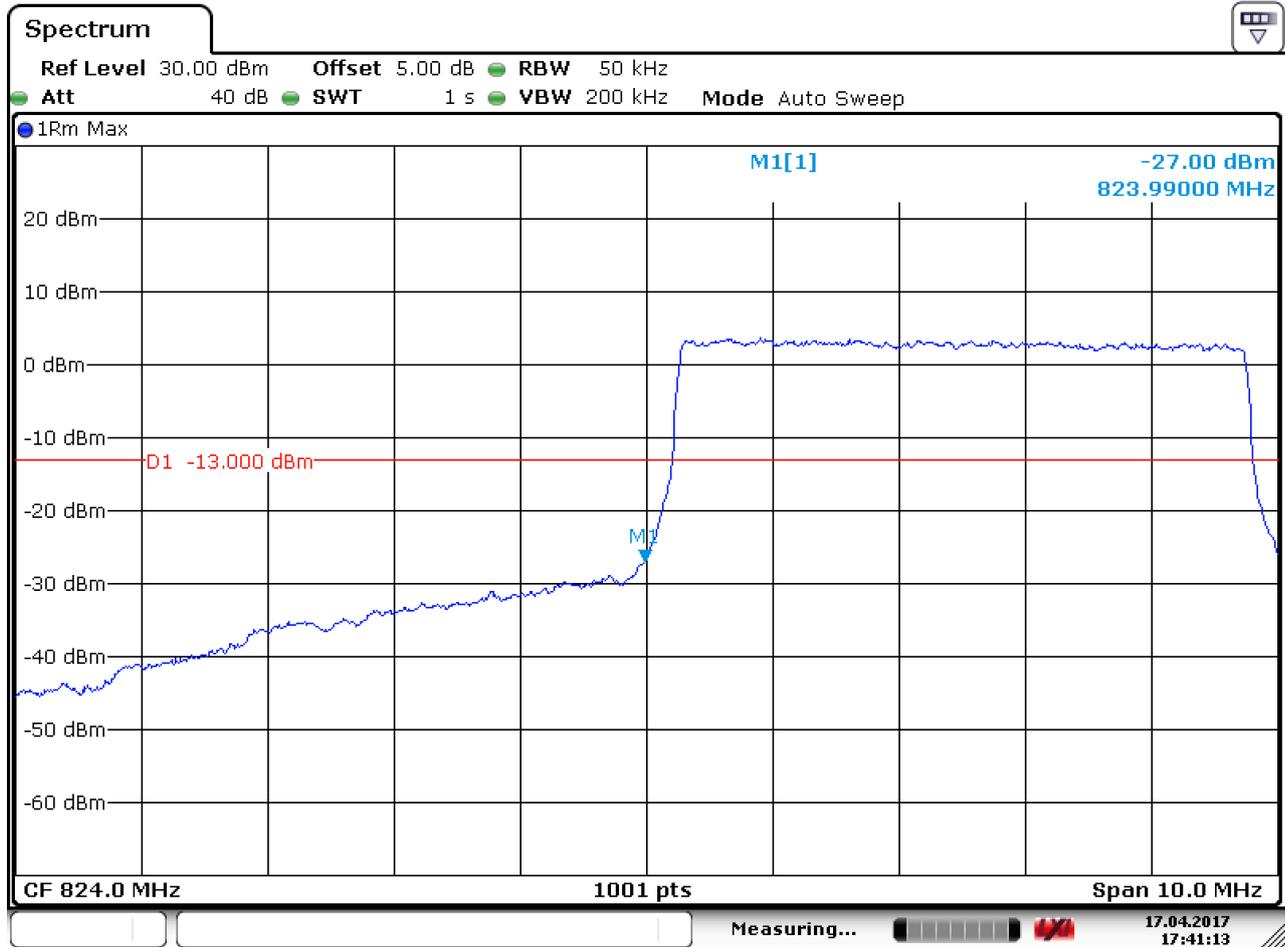
5.1.1.6.1 Test Channel = LCH

5.1.1.6.1.1 Test RB=1RB



Date: 17.APR.2017 17:40:39

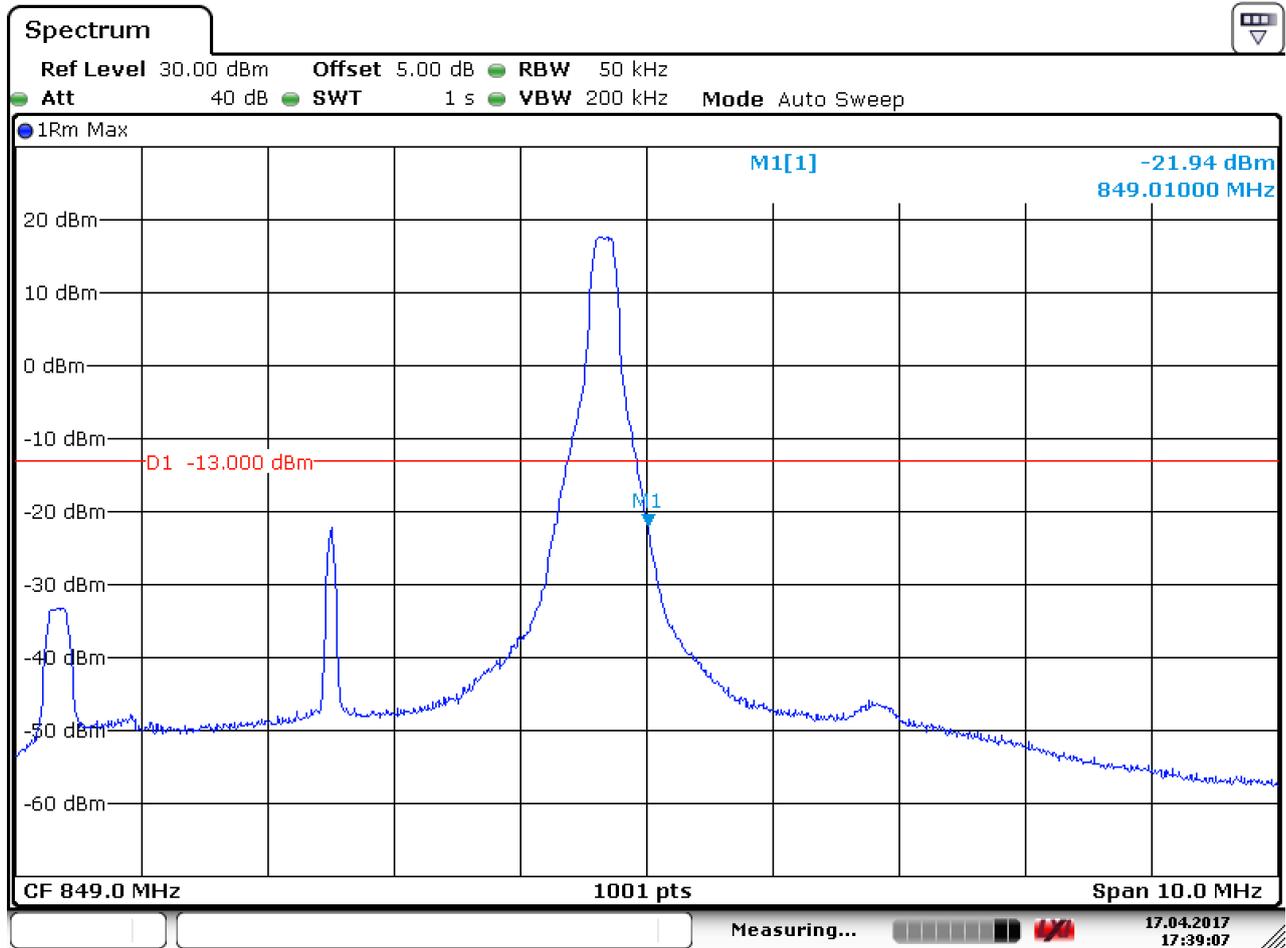
5.1.1.6.1.2 Test RB=25RB



Date: 17.APR.2017 17:41:14

5.1.1.6.2 Test Channel = HCH

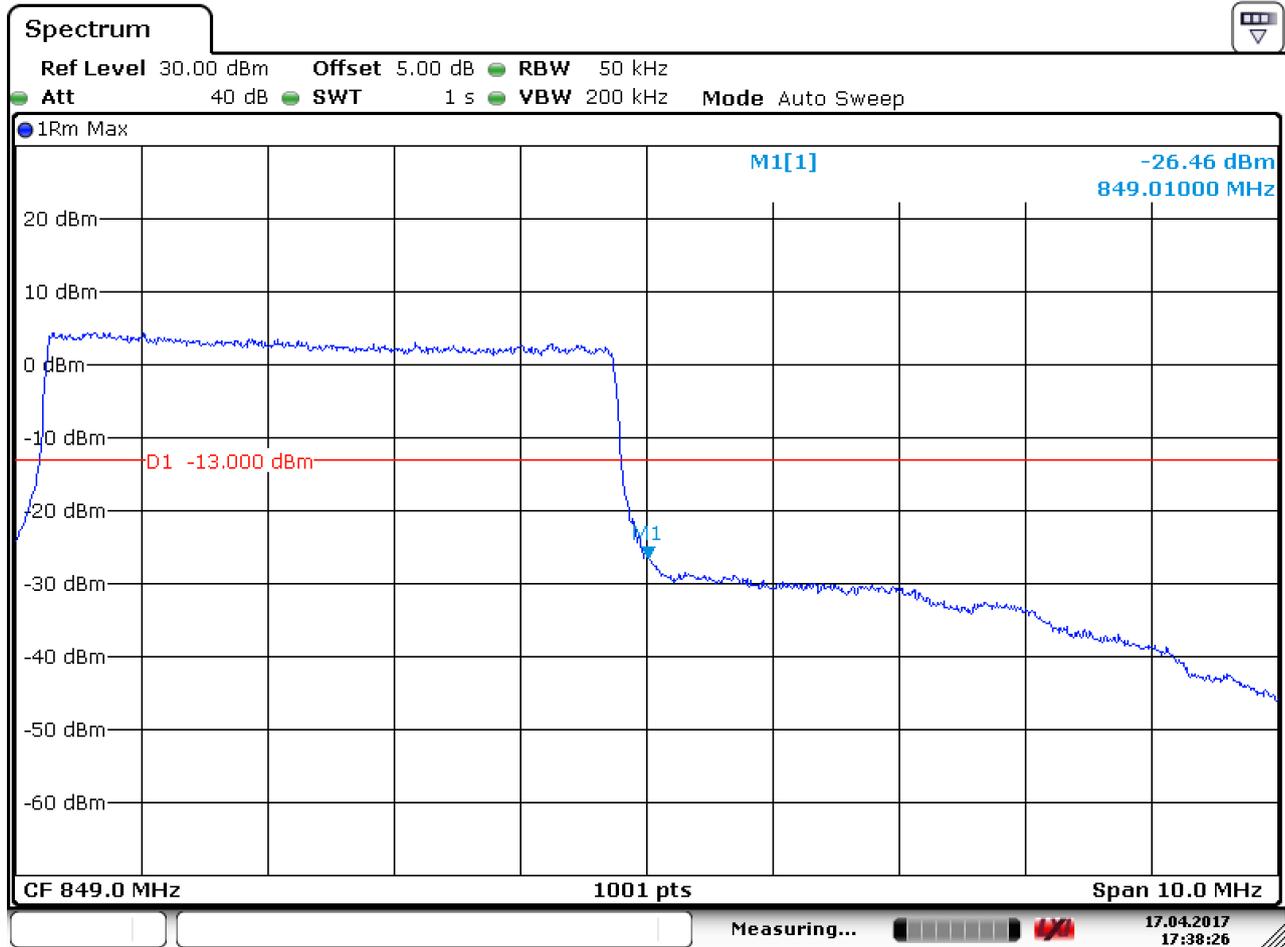
5.1.1.6.2.1 Test RB=1RB



Date: 17.APR.2017 17:39:08



5.1.1.6.2.2 Test RB=25RB



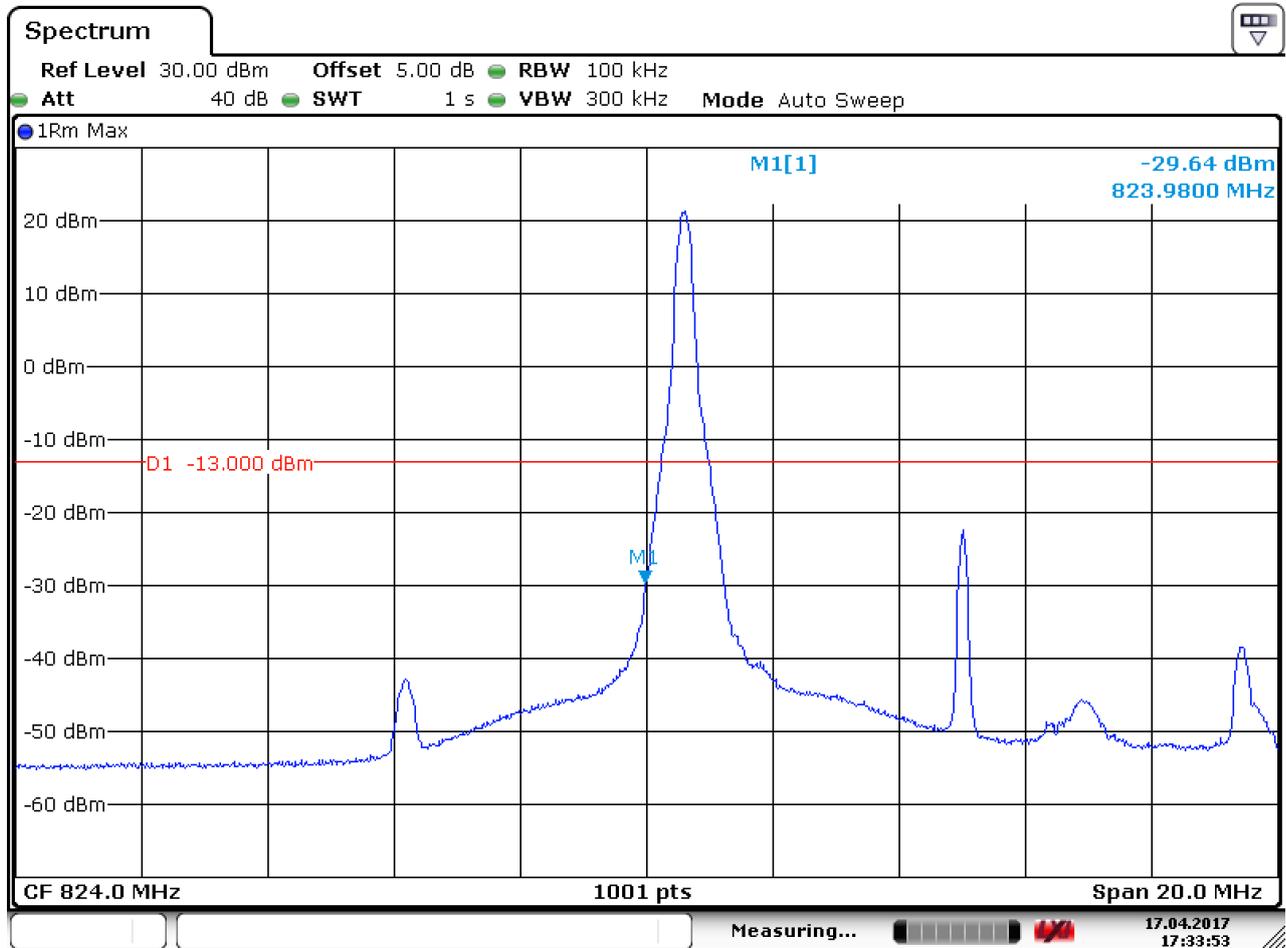
Date: 17.APR.2017 17:38:27



5.1.1.7 Test Mode = LTE/TM1 10MHz

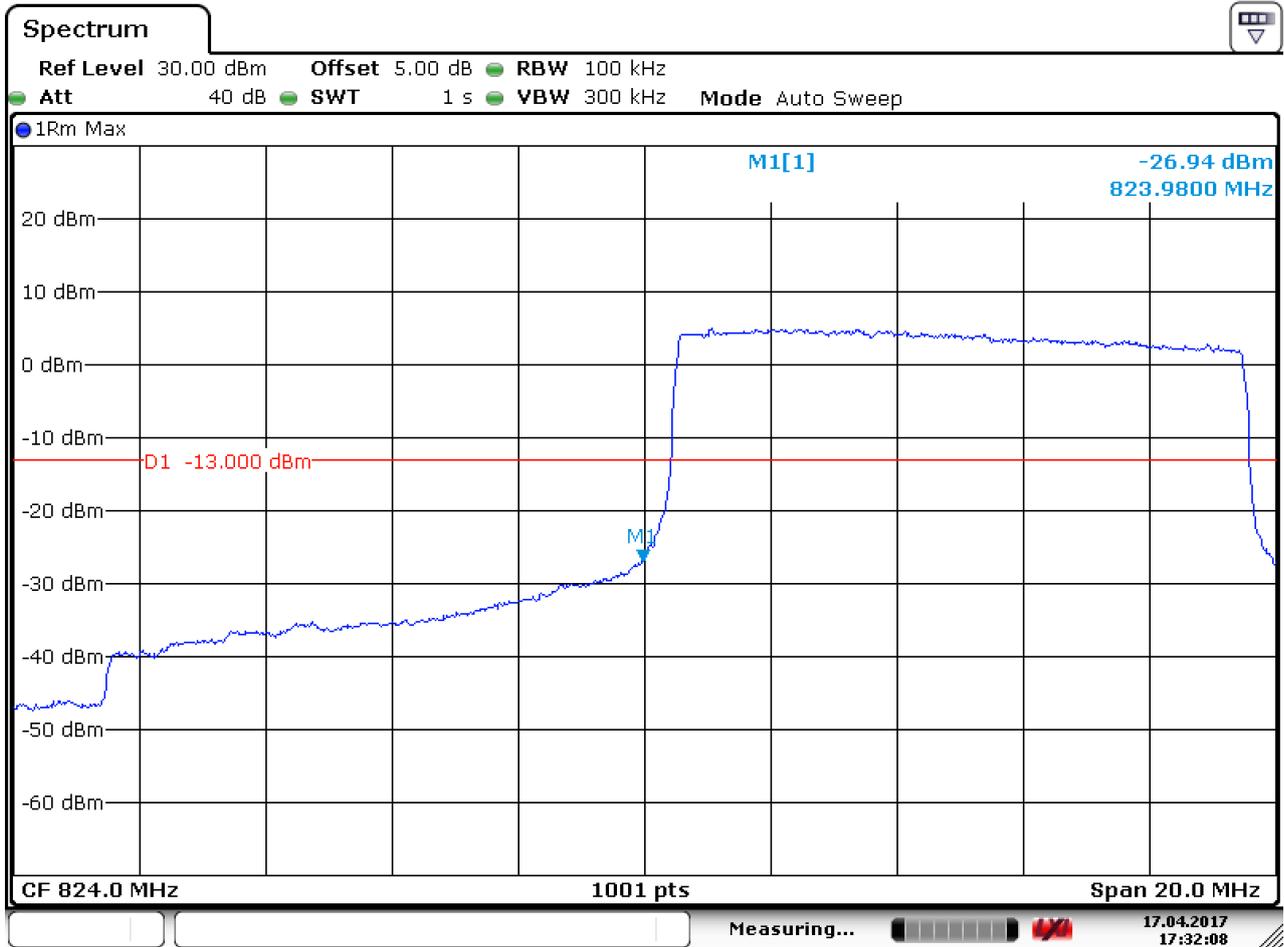
5.1.1.7.1 Test Channel = LCH

5.1.1.7.1.1 Test RB=1RB



Date: 17.APR.2017 17:33:53

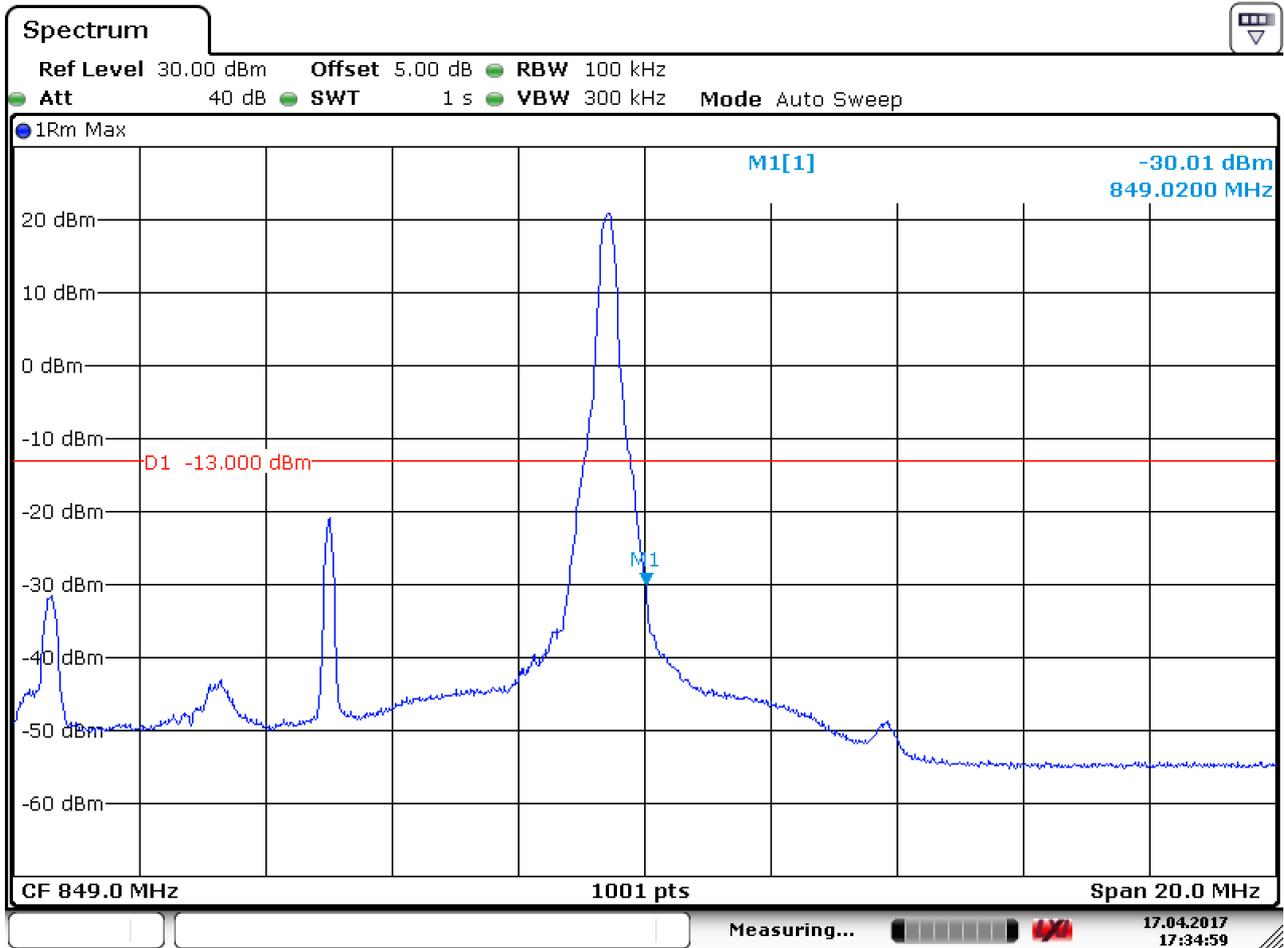
5.1.1.7.1.2 Test RB=50RB



Date: 17.APR.2017 17:32:08

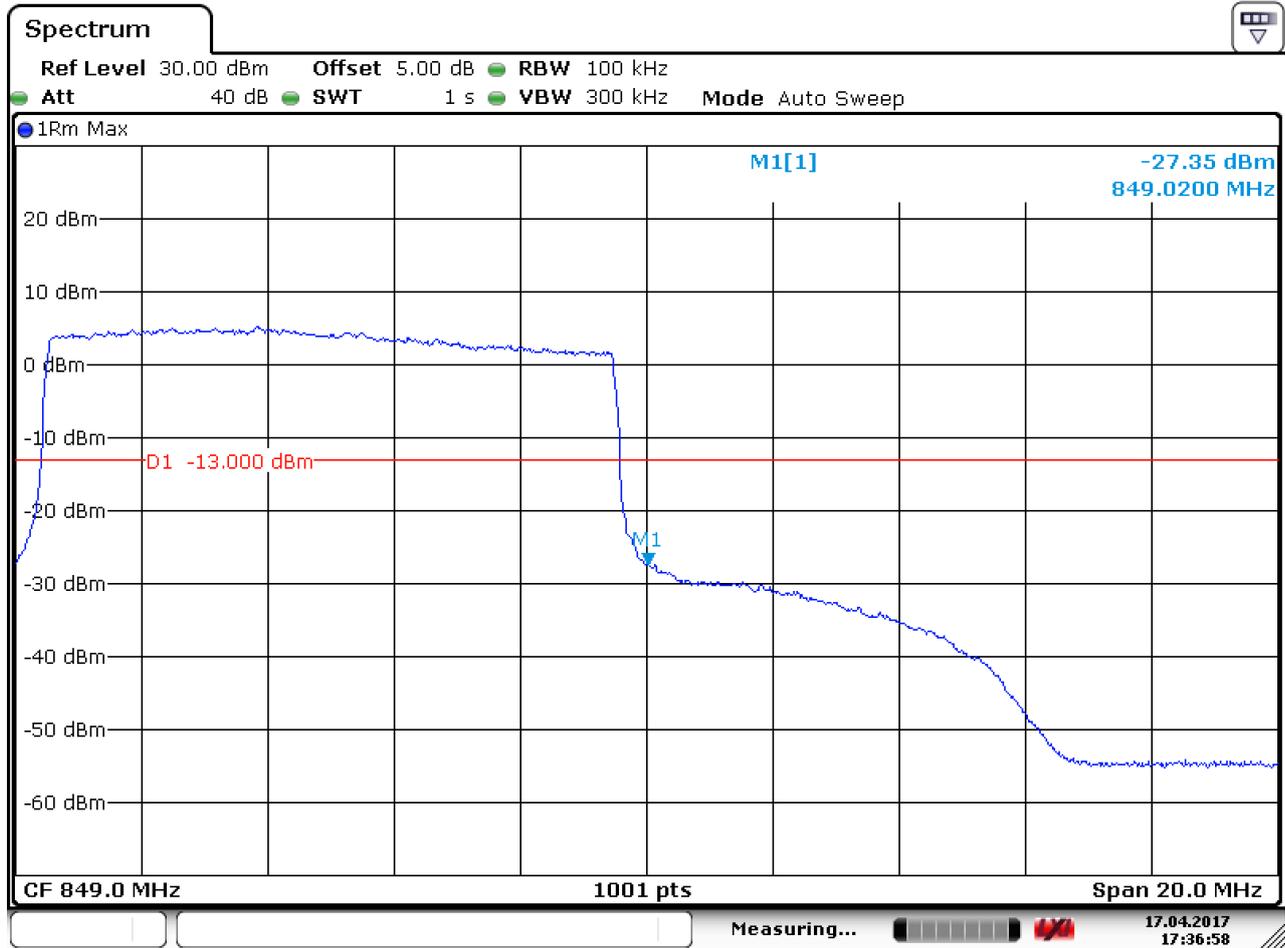
5.1.1.7.2 Test Channel = HCH

5.1.1.7.2.1 Test RB=1RB



Date: 17.APR.2017 17:34:59

**5.1.1.7.2.2 Test RB=50RB**



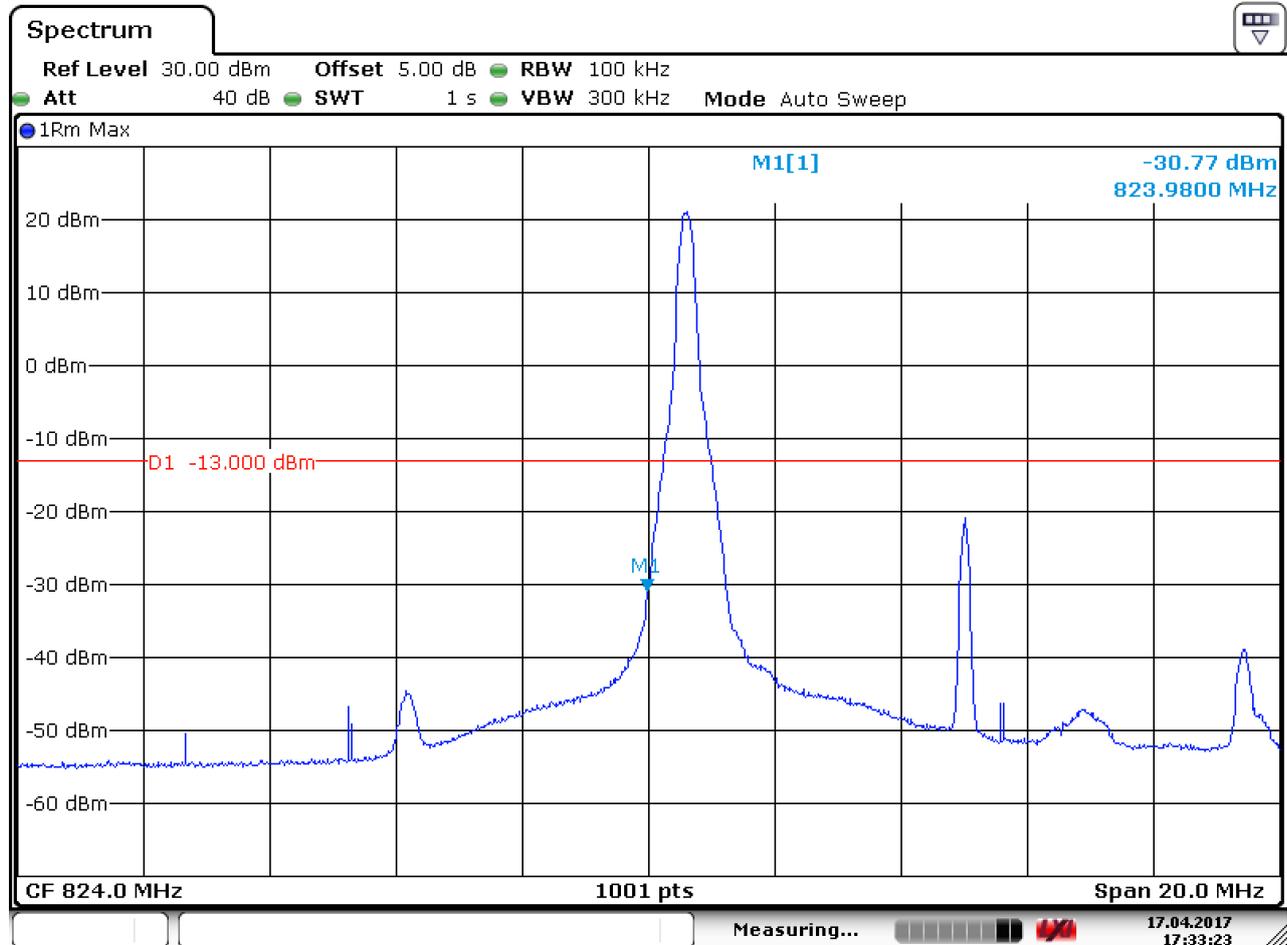
Date: 17.APR.2017 17:36:58



5.1.1.8 Test Mode = LTE/TM2 10MHz

5.1.1.8.1 Test Channel = LCH

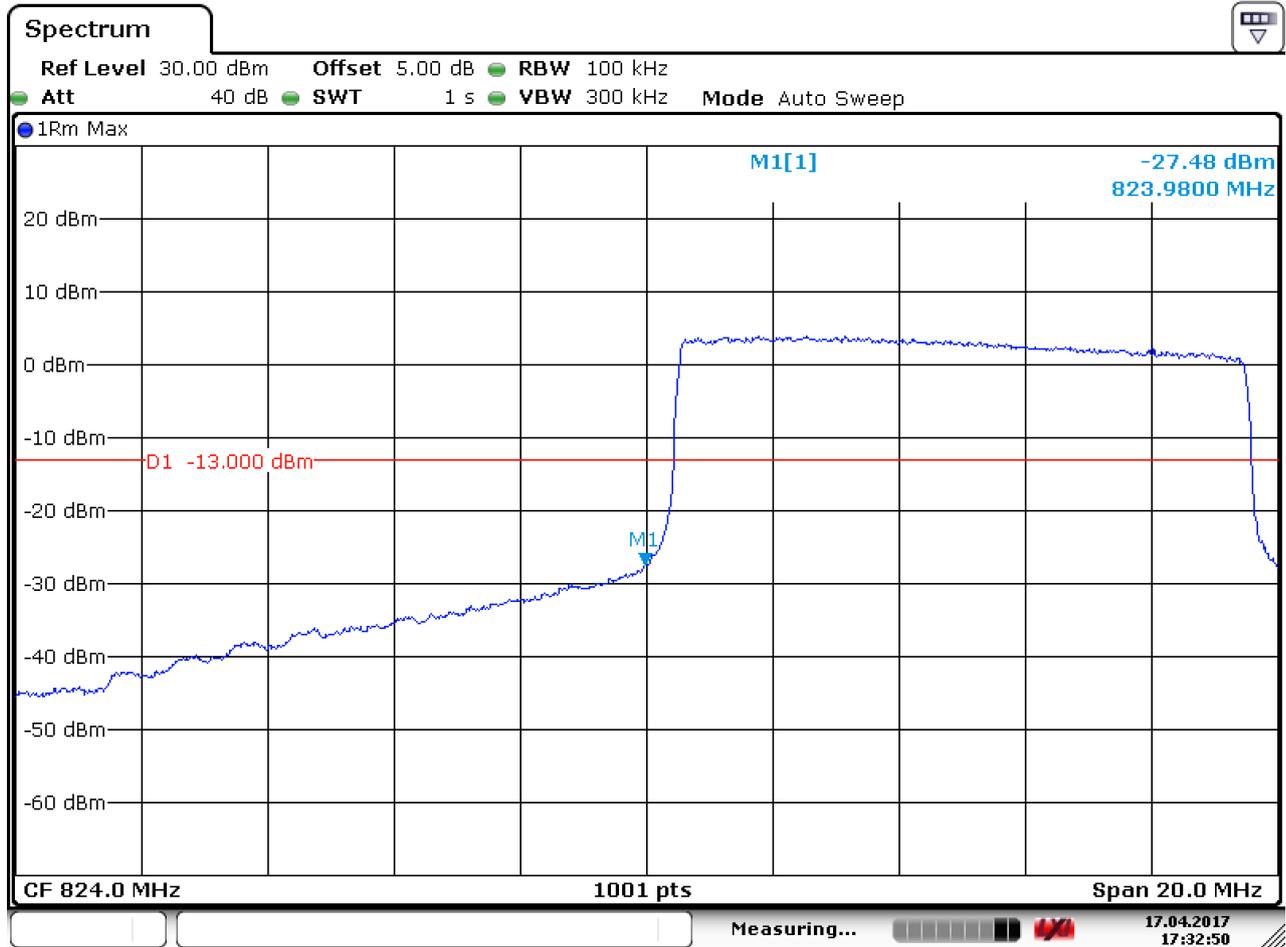
5.1.1.8.1.1 Test RB=1RB



Date: 17.APR.2017 17:33:24



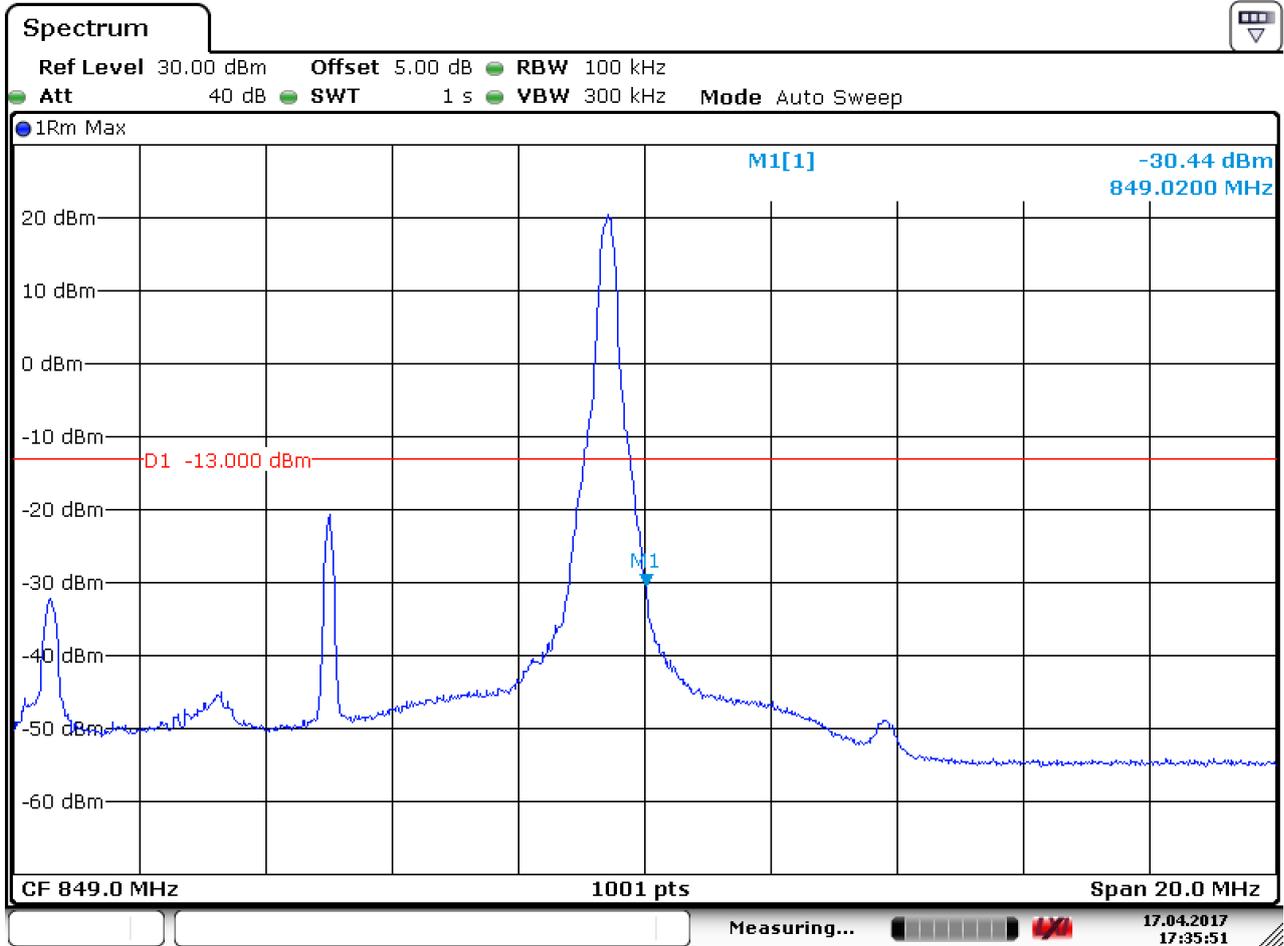
5.1.1.8.1.2 Test RB=50RB



Date: 17.APR.2017 17:32:51

5.1.1.8.2 Test Channel = HCH

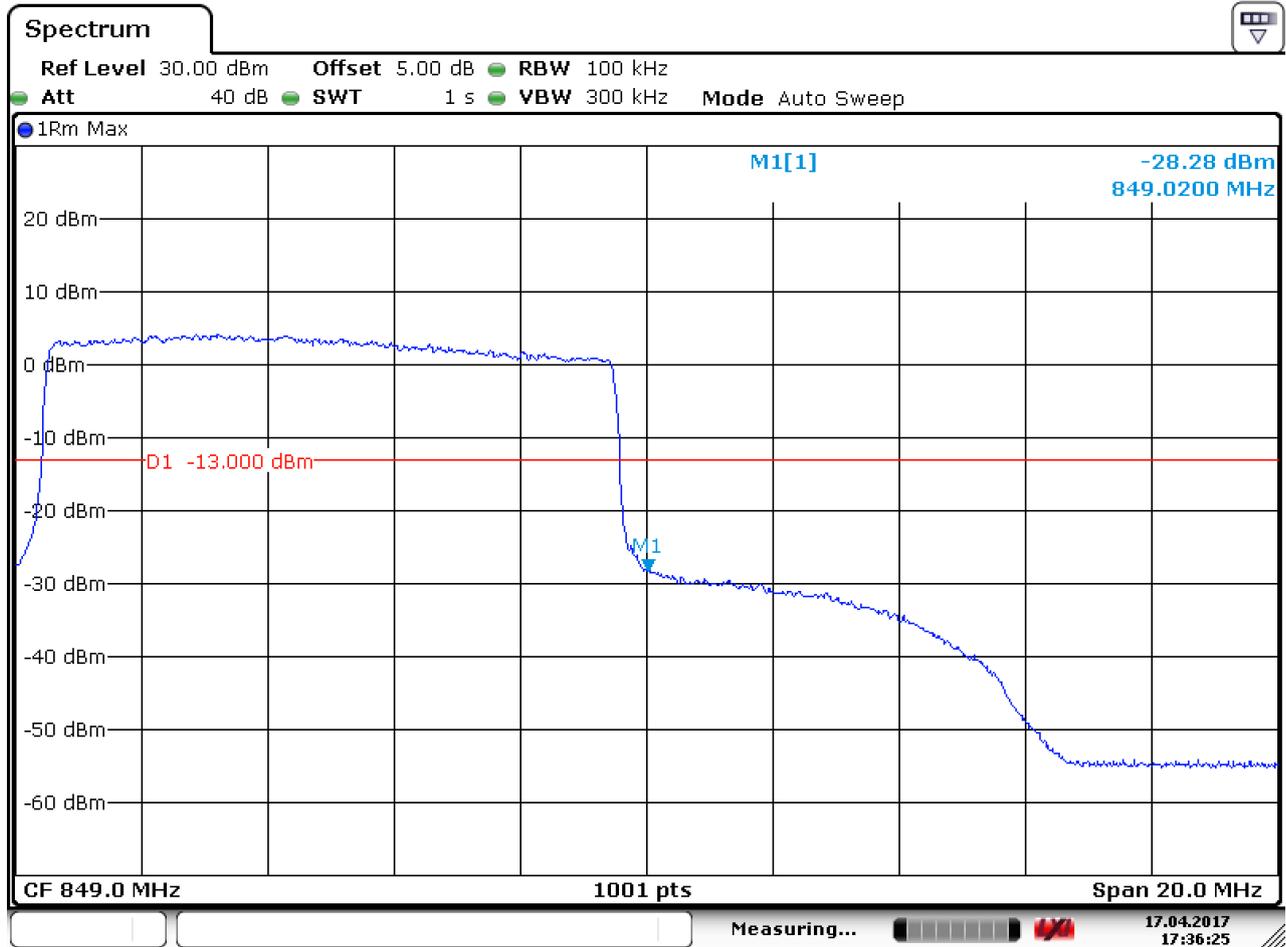
5.1.1.8.2.1 Test RB=1RB



Date: 17.APR.2017 17:35:52



5.1.1.8.2.2 Test RB=50RB



Date: 17.APR.2017 17:36:25

## 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.

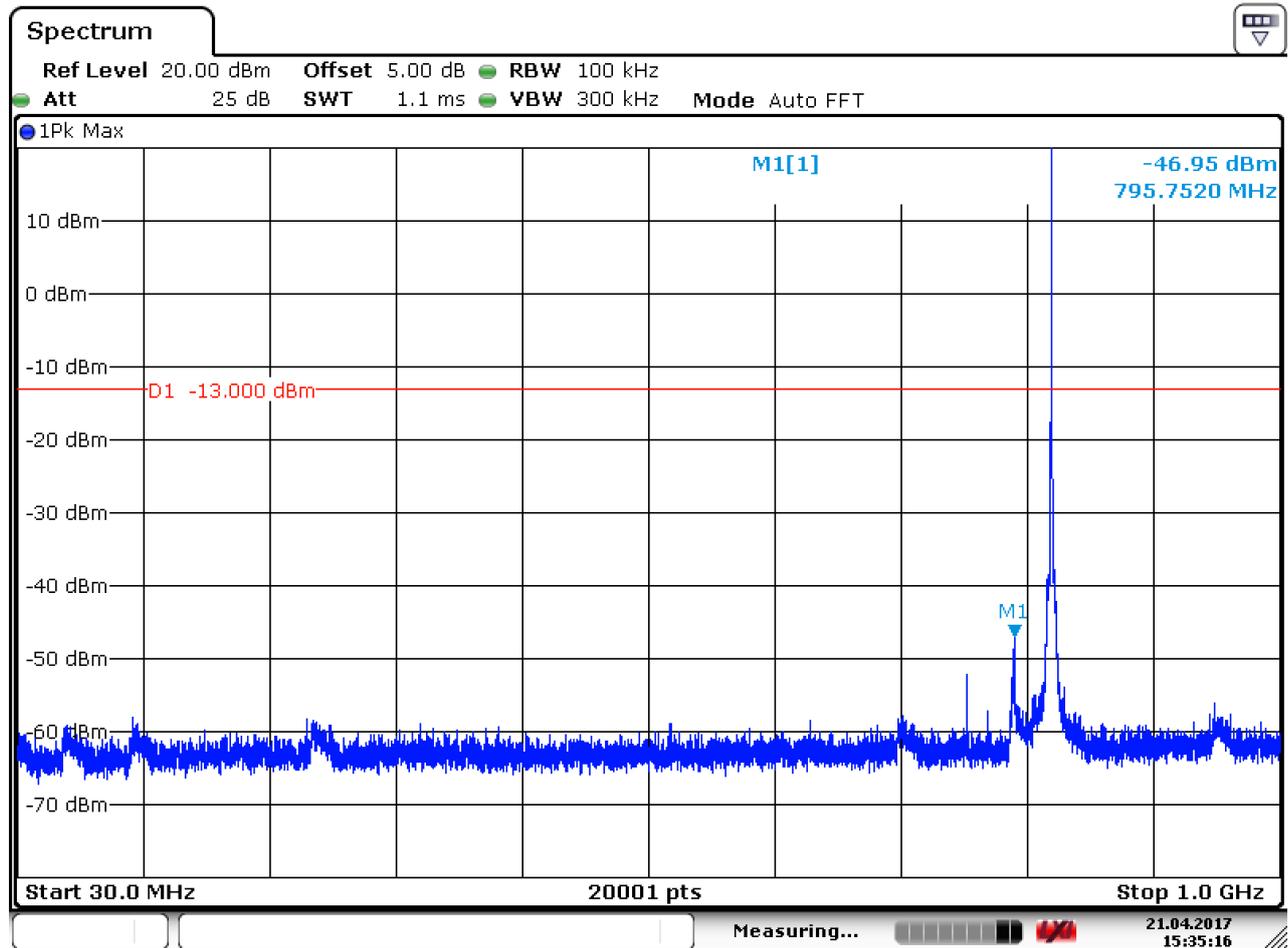
Part I - Test Plots

### 6.1 For LTE

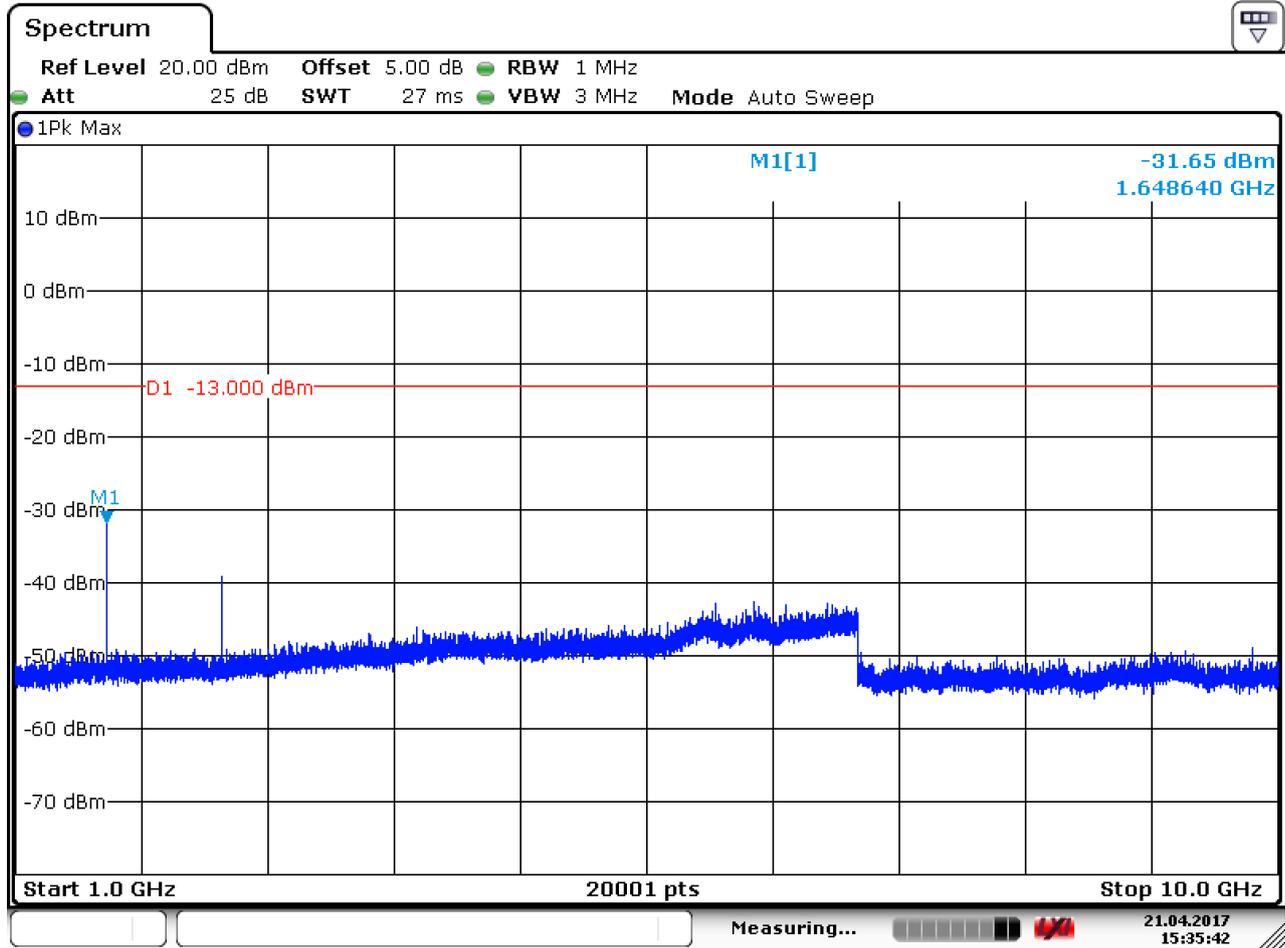
#### 6.1.1 Test Band = LTE band5

##### 6.1.1.1 Test Mode = LTE / TM1 1.4MHz RB1#0

##### 6.1.1.1.1 Test Channel = LCH



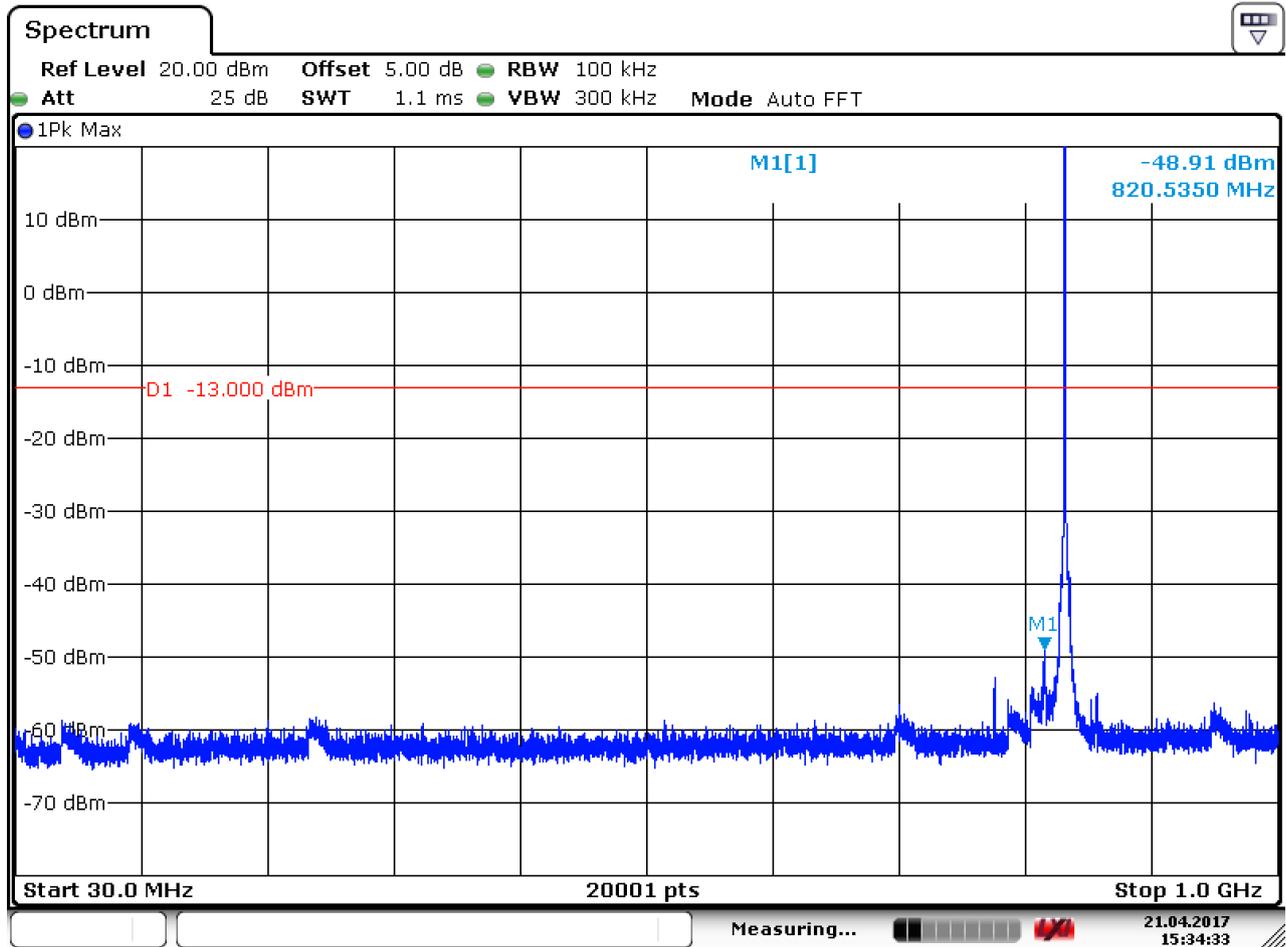
Date: 21.APR.2017 15:35:16



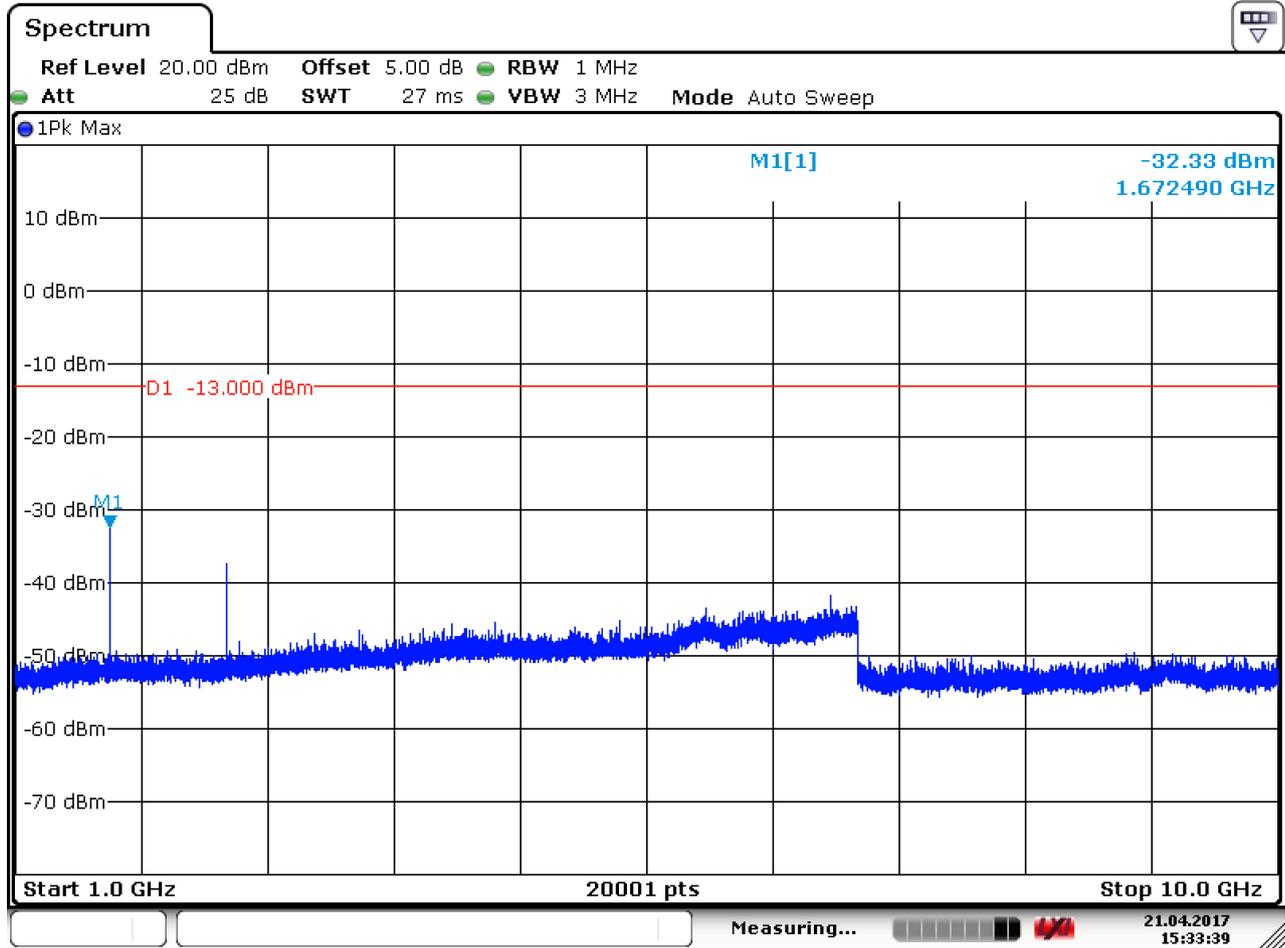
Date: 21.APR.2017 15:35:43



6.1.1.1.2 Test Channel = MCH



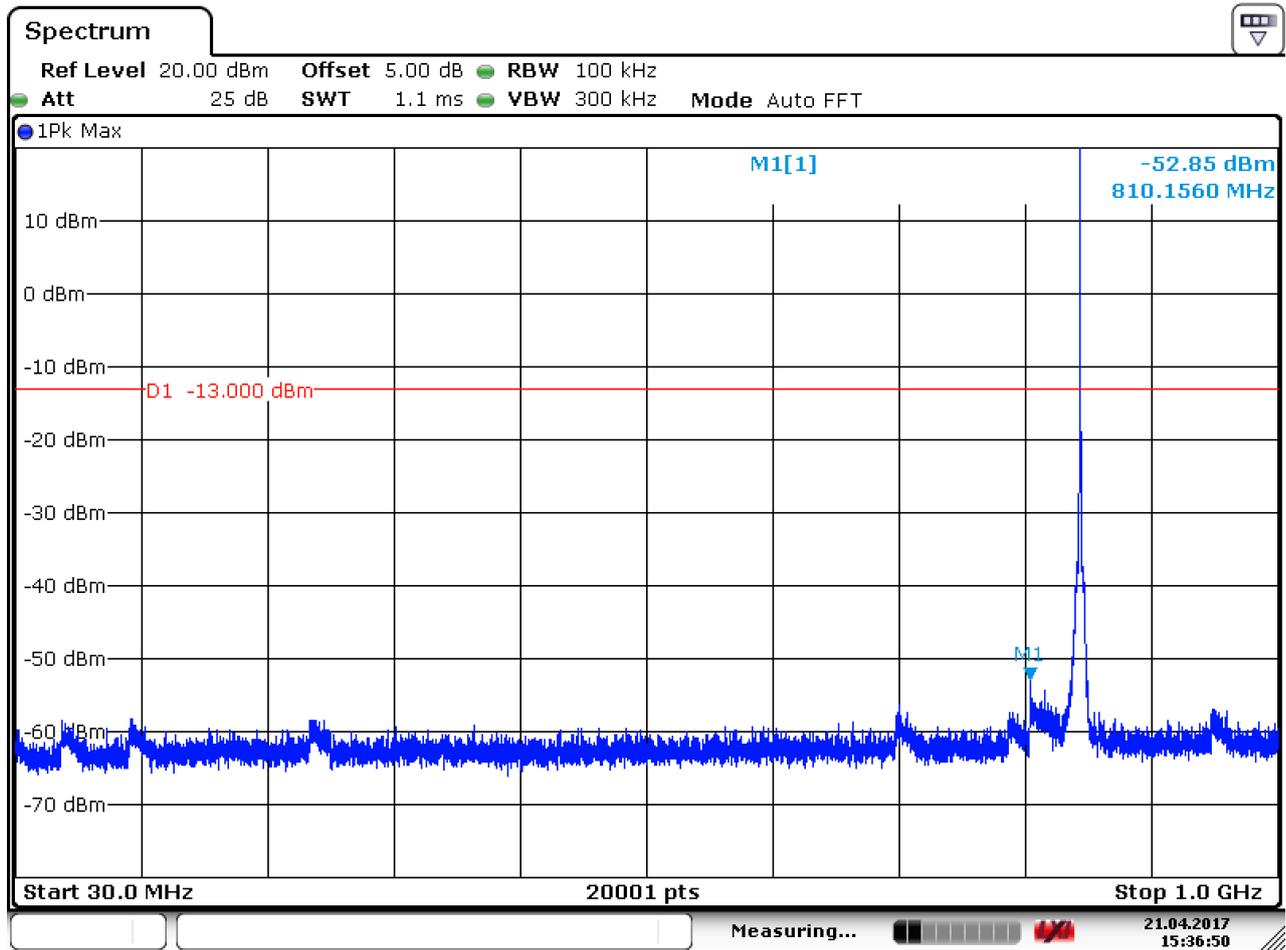
Date: 21.APR.2017 15:34:34



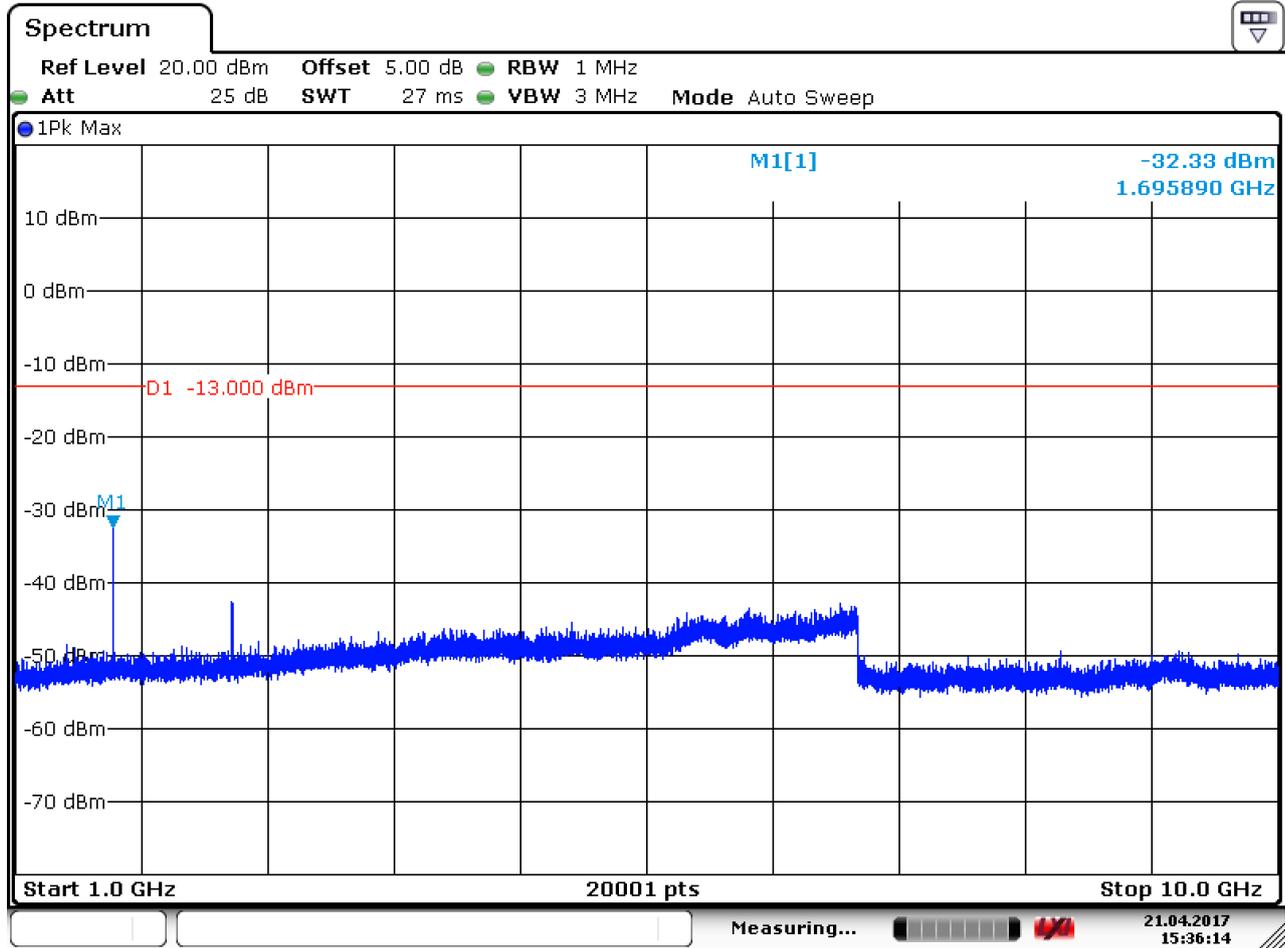
Date: 21.APR.2017 15:33:40



6.1.1.1.3 Test Channel = HCH



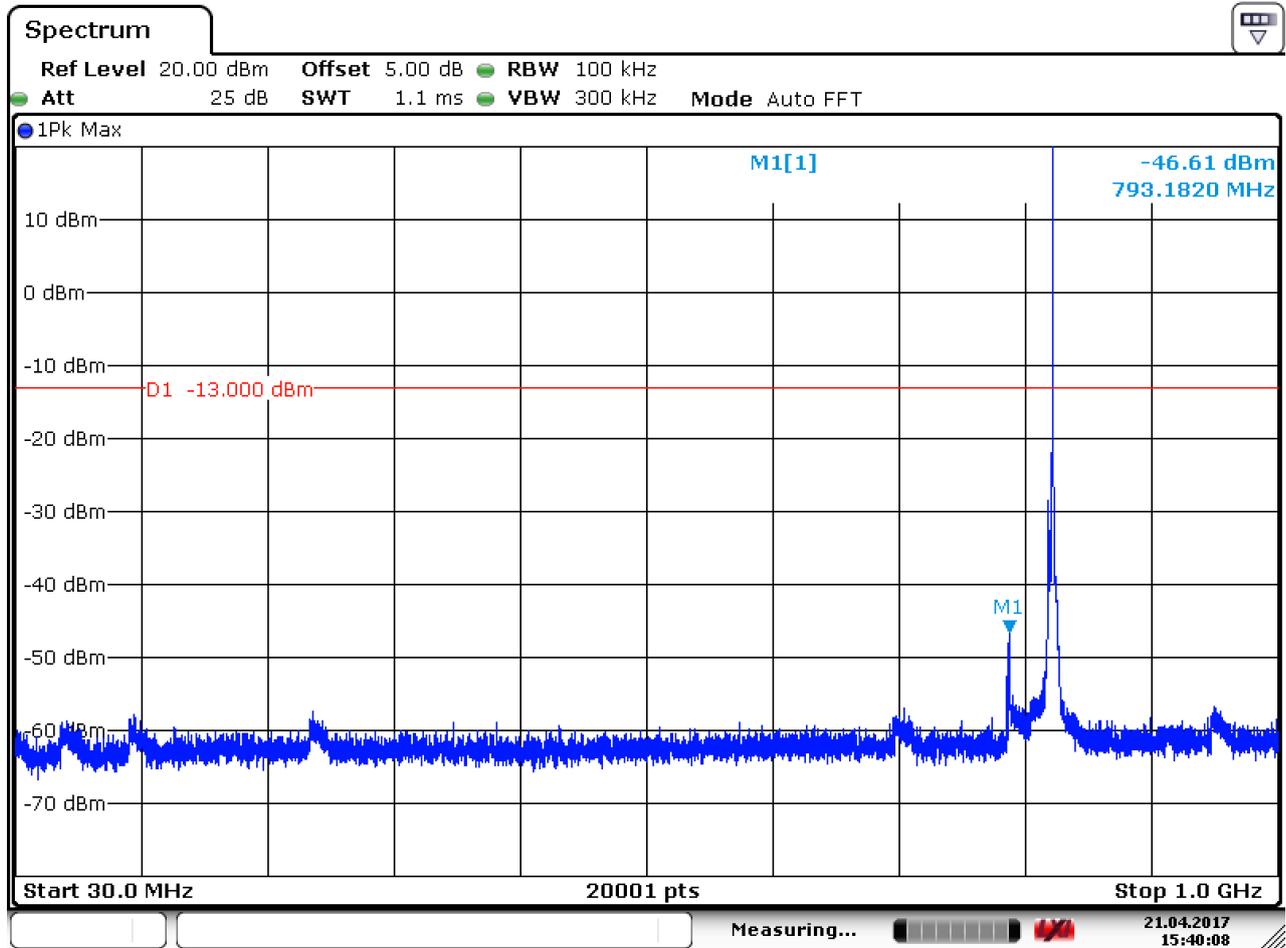
Date: 21.APR.2017 15:36:51



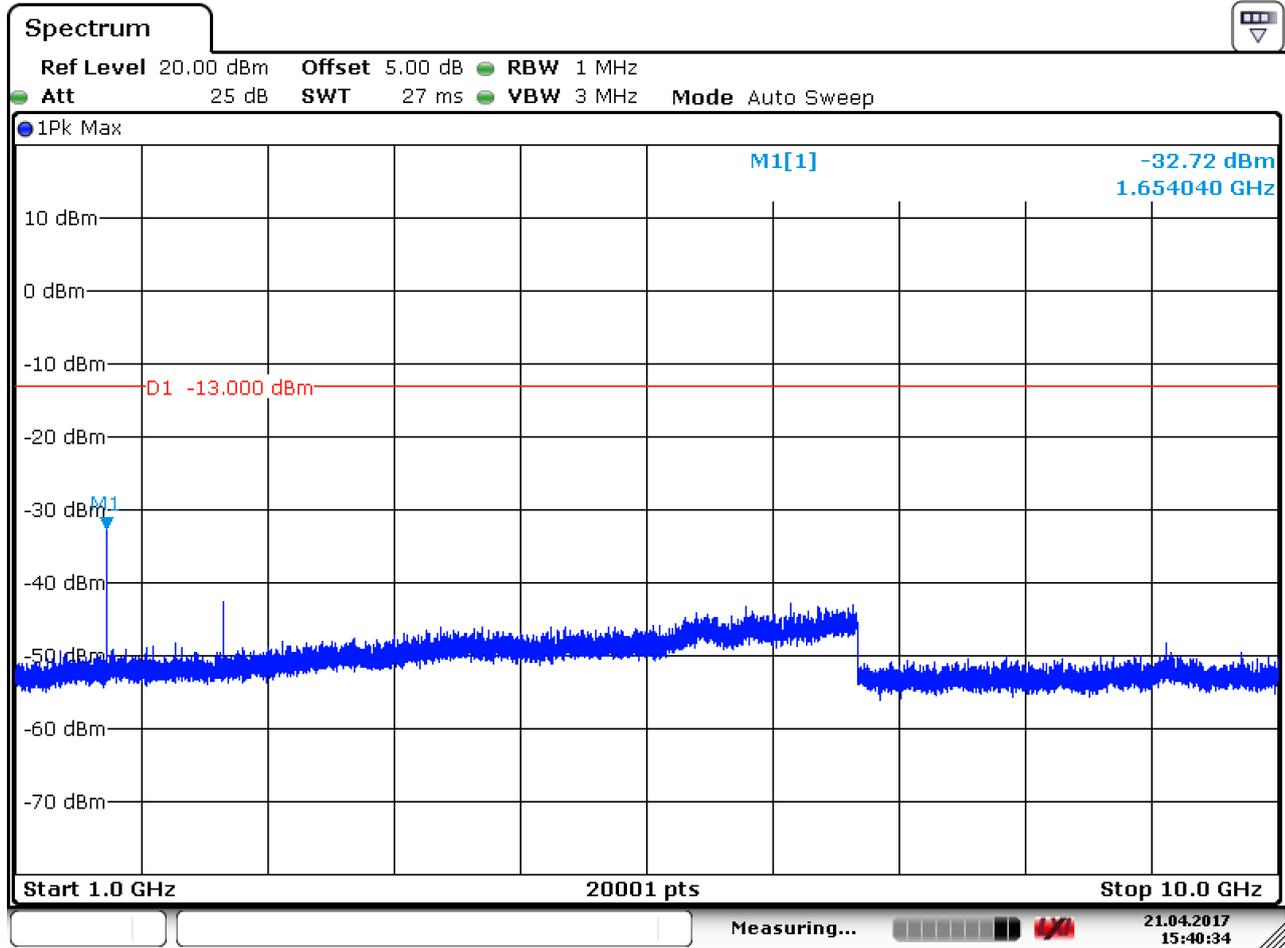
Date: 21.APR.2017 15:36:13

**6.1.1.2 Test Mode = LTE / TM1 3MHz RB1#0**

**6.1.1.2.1 Test Channel = LCH**



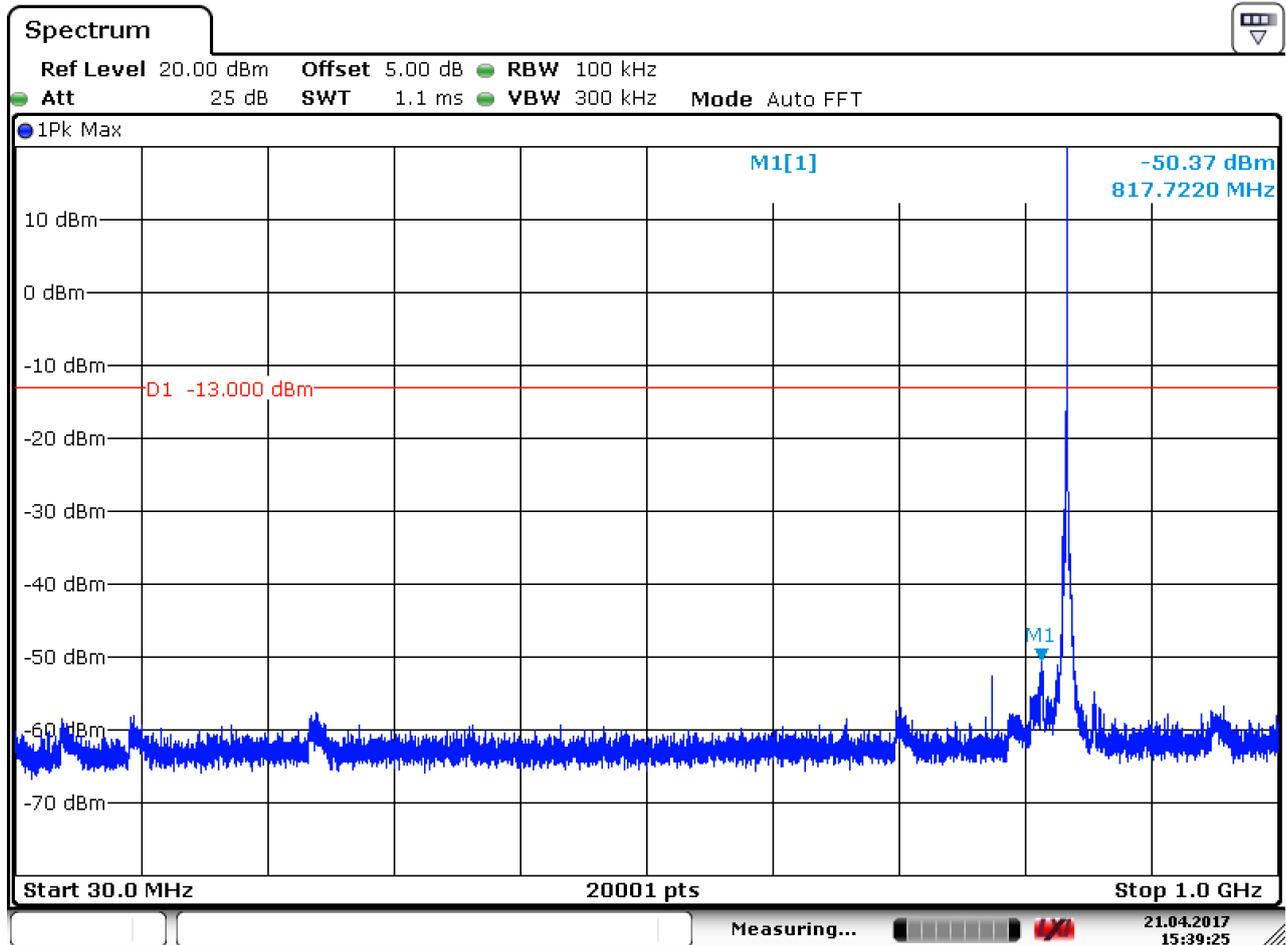
Date: 21.APR.2017 15:40:08



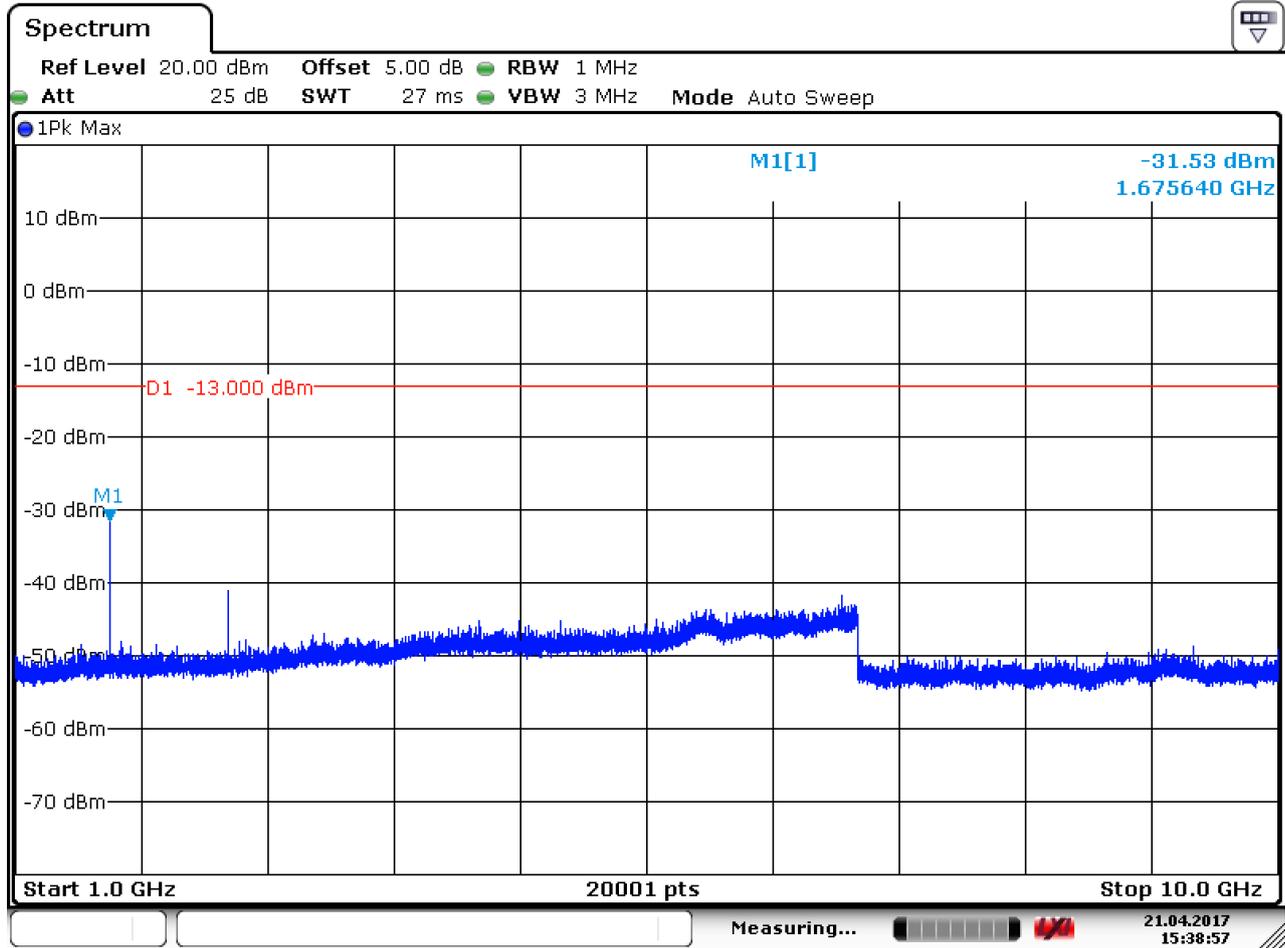
Date: 21.APR.2017 15:40:35



6.1.1.2.2 Test Channel = MCH



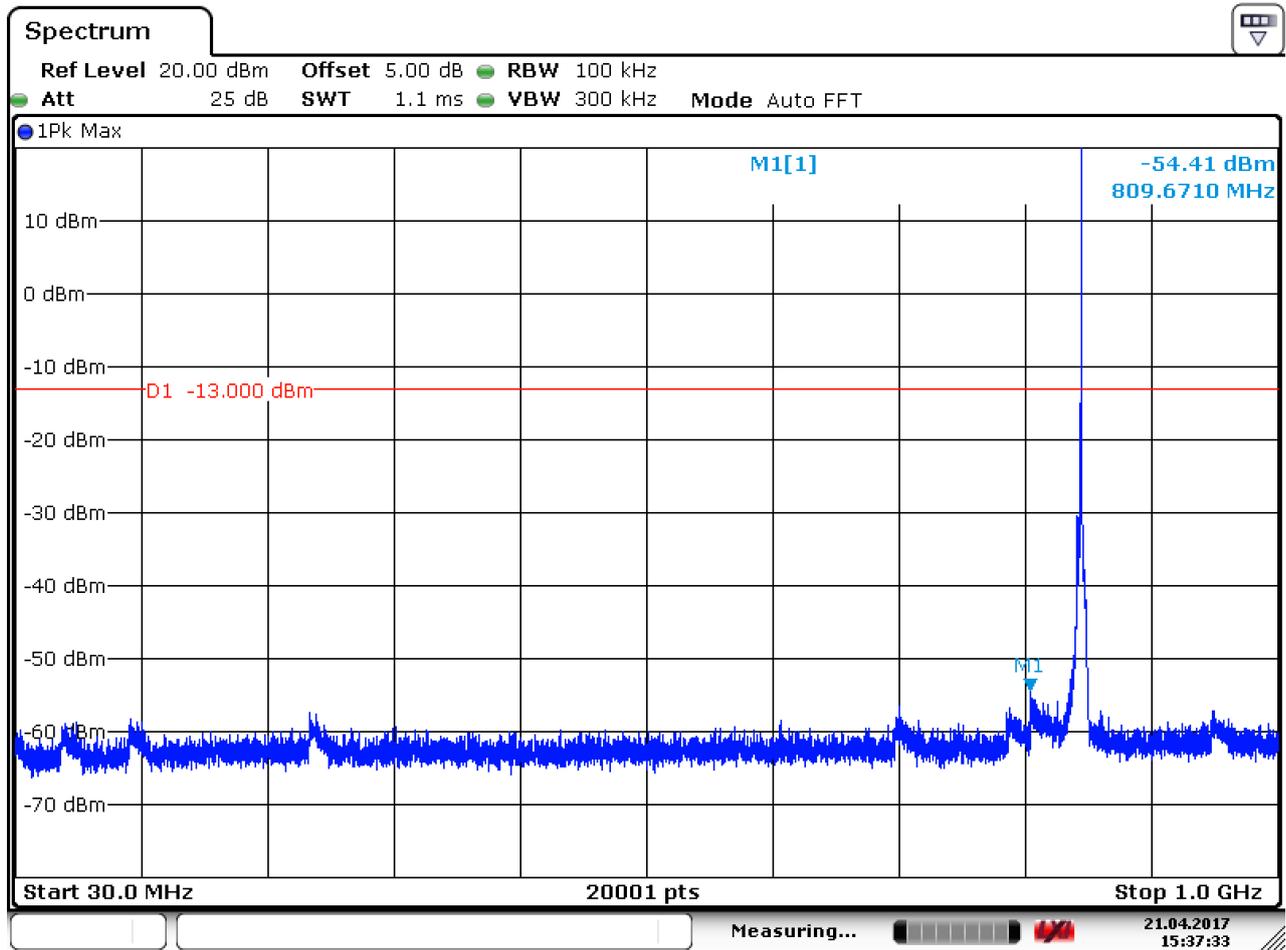
Date: 21.APR.2017 15:39:26



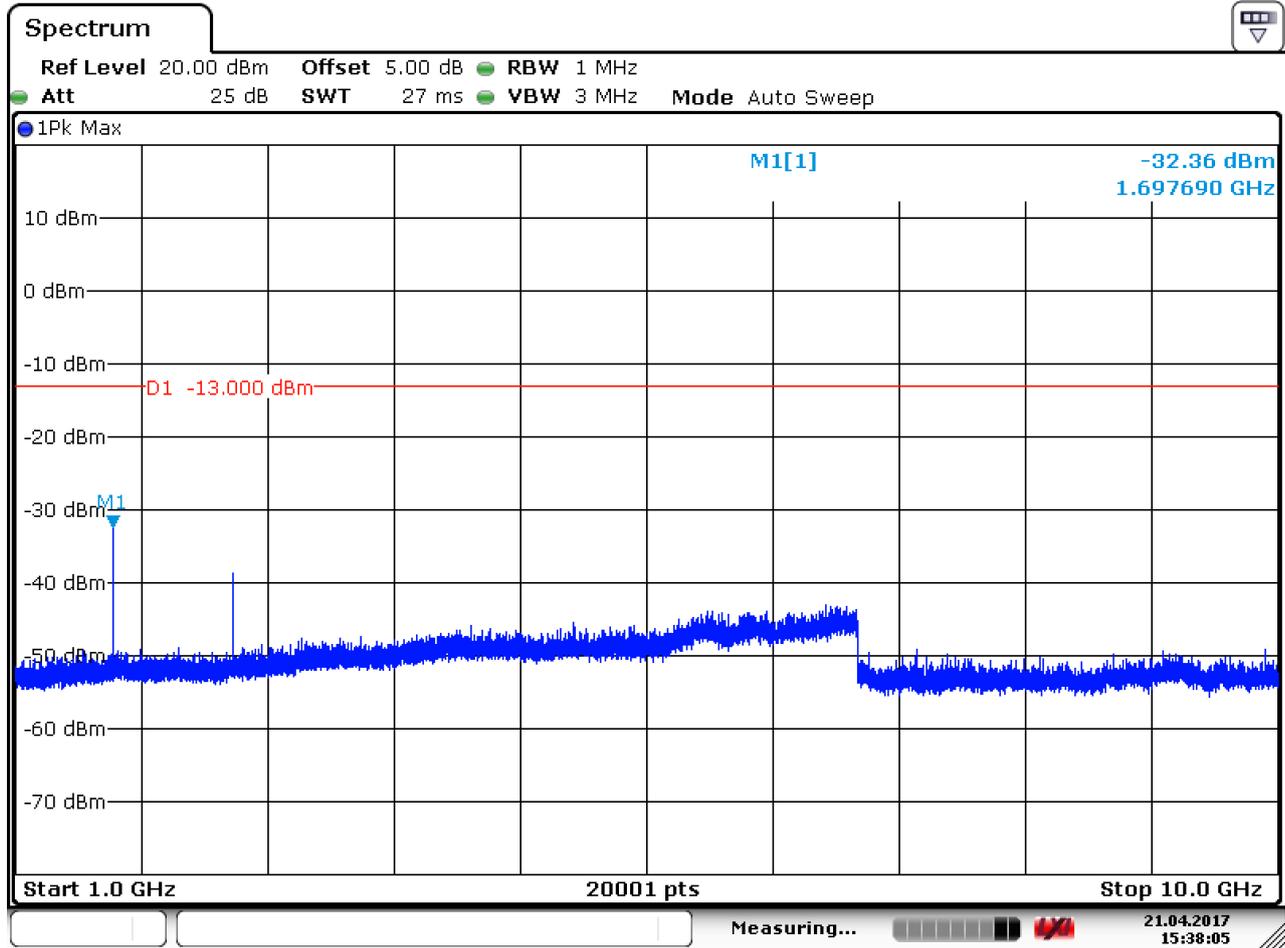
Date: 21.APR.2017 15:38:58



6.1.1.2.3 Test Channel = HCH



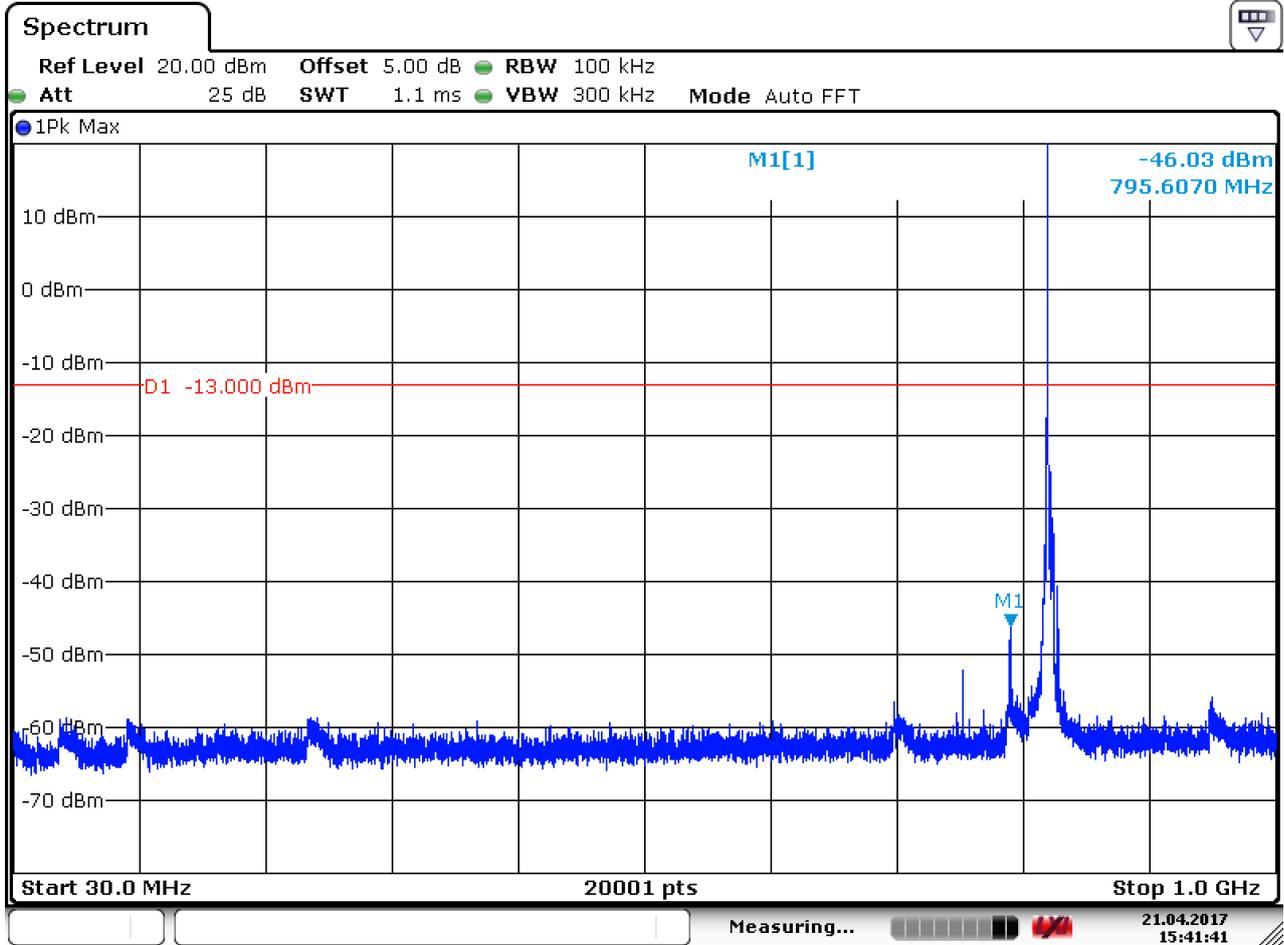
Date: 21.APR.2017 15:37:33



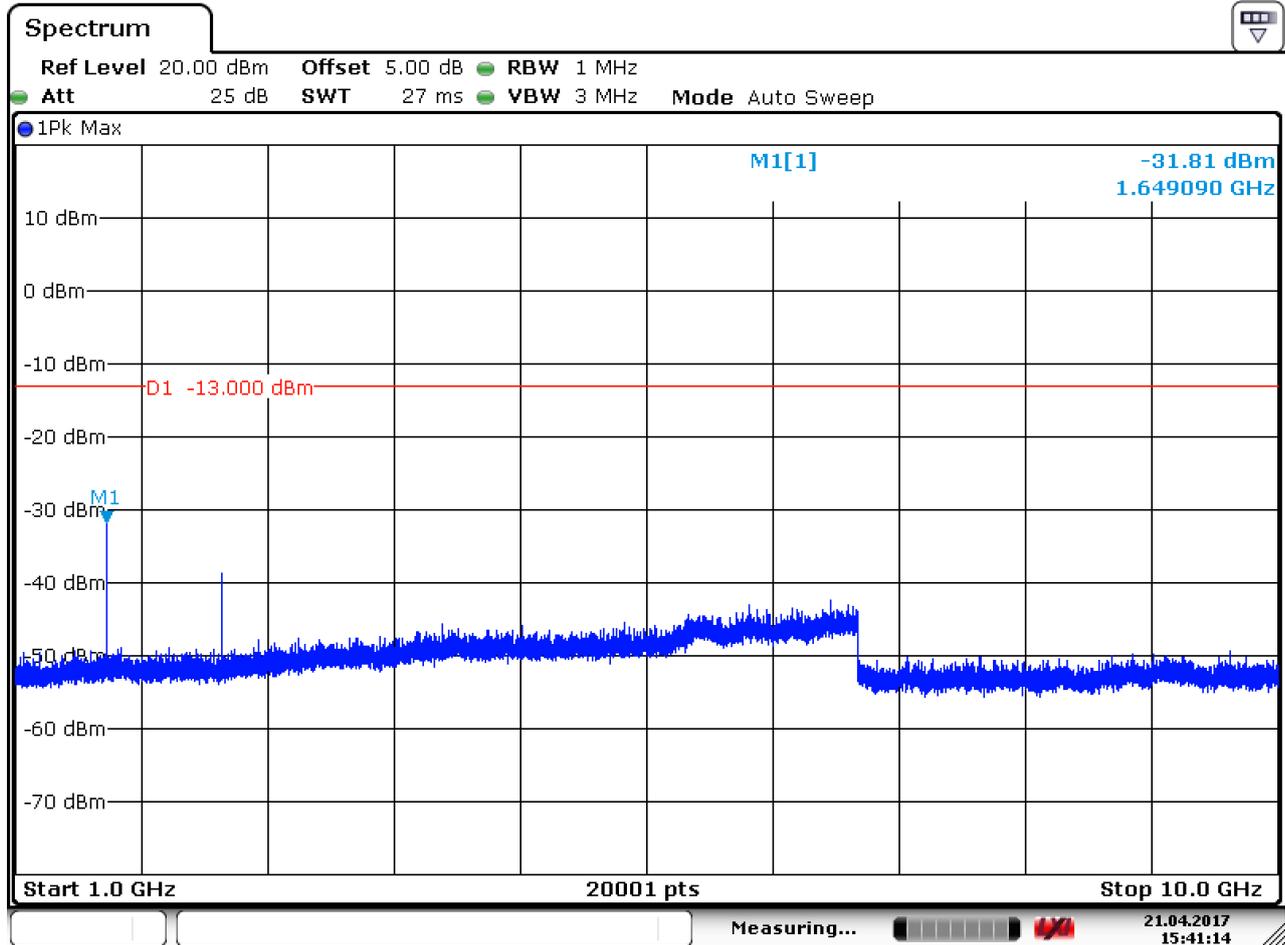
Date: 21.APR.2017 15:38:06

**6.1.1.3 Test Mode = LTE / TM1 5MHz RB1#0**

**6.1.1.3.1 Test Channel = LCH**



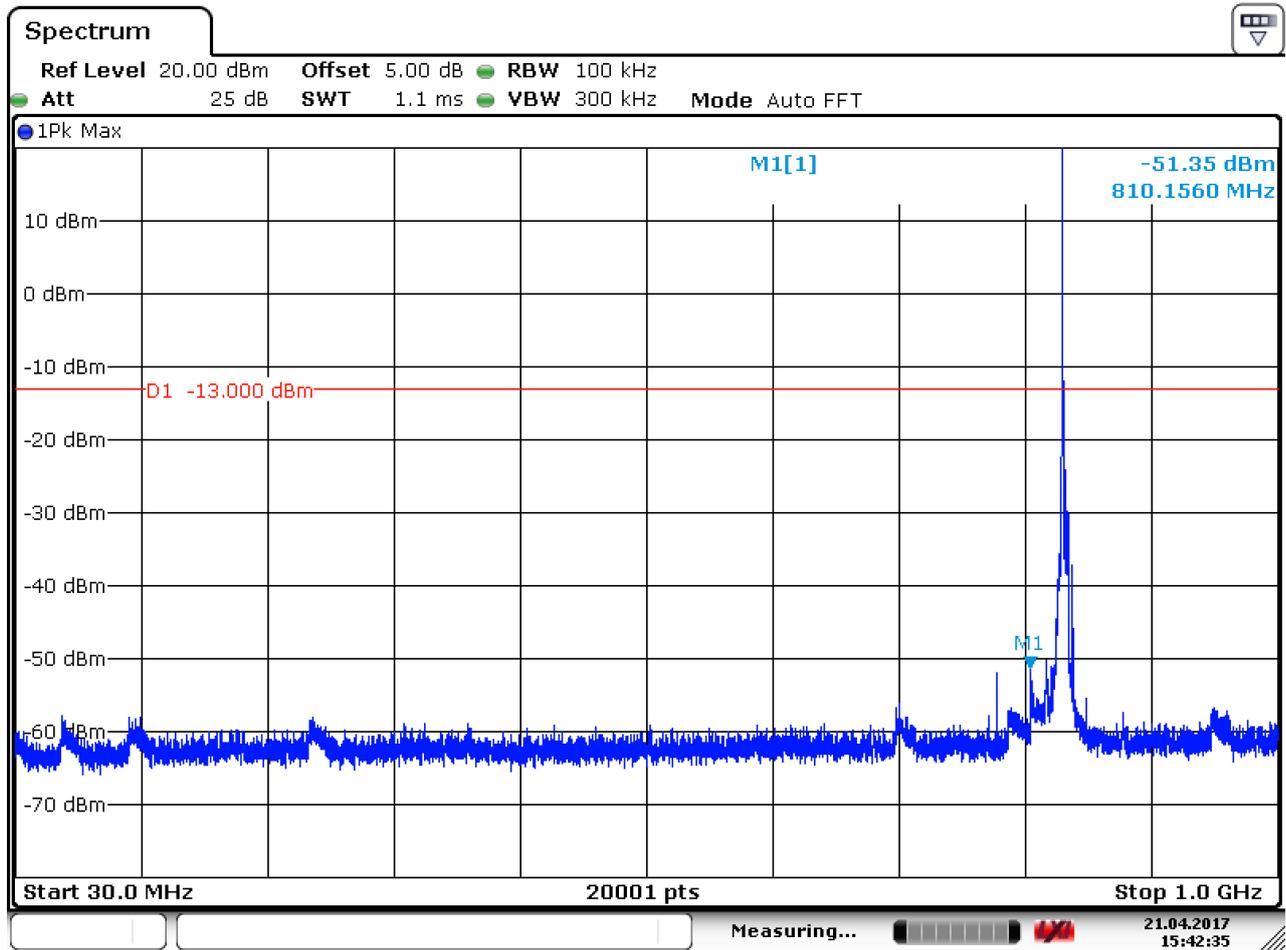
Date: 21.APR.2017 15:41:42



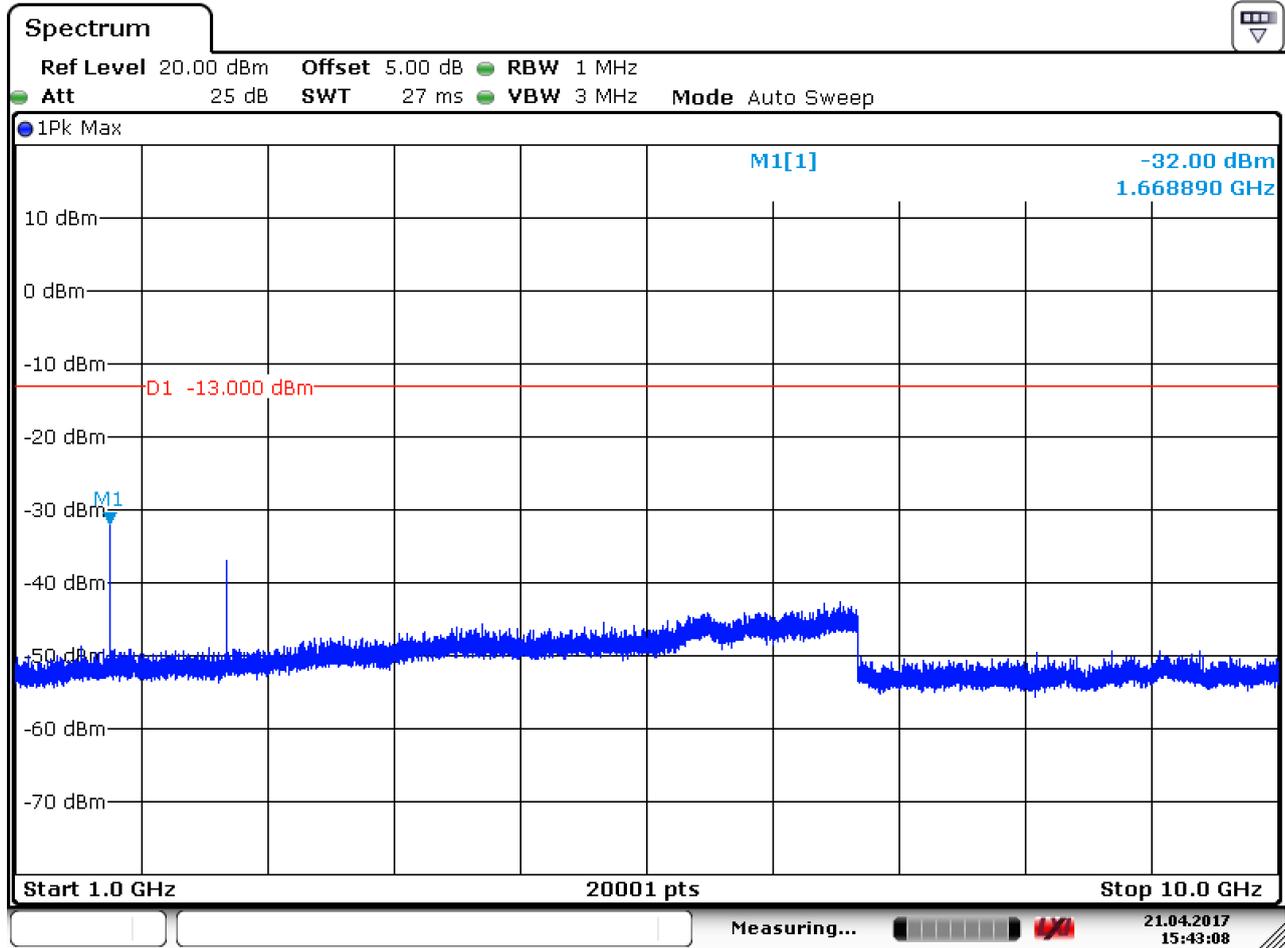
Date: 21.APR.2017 15:41:14



6.1.1.3.2 Test Channel = MCH



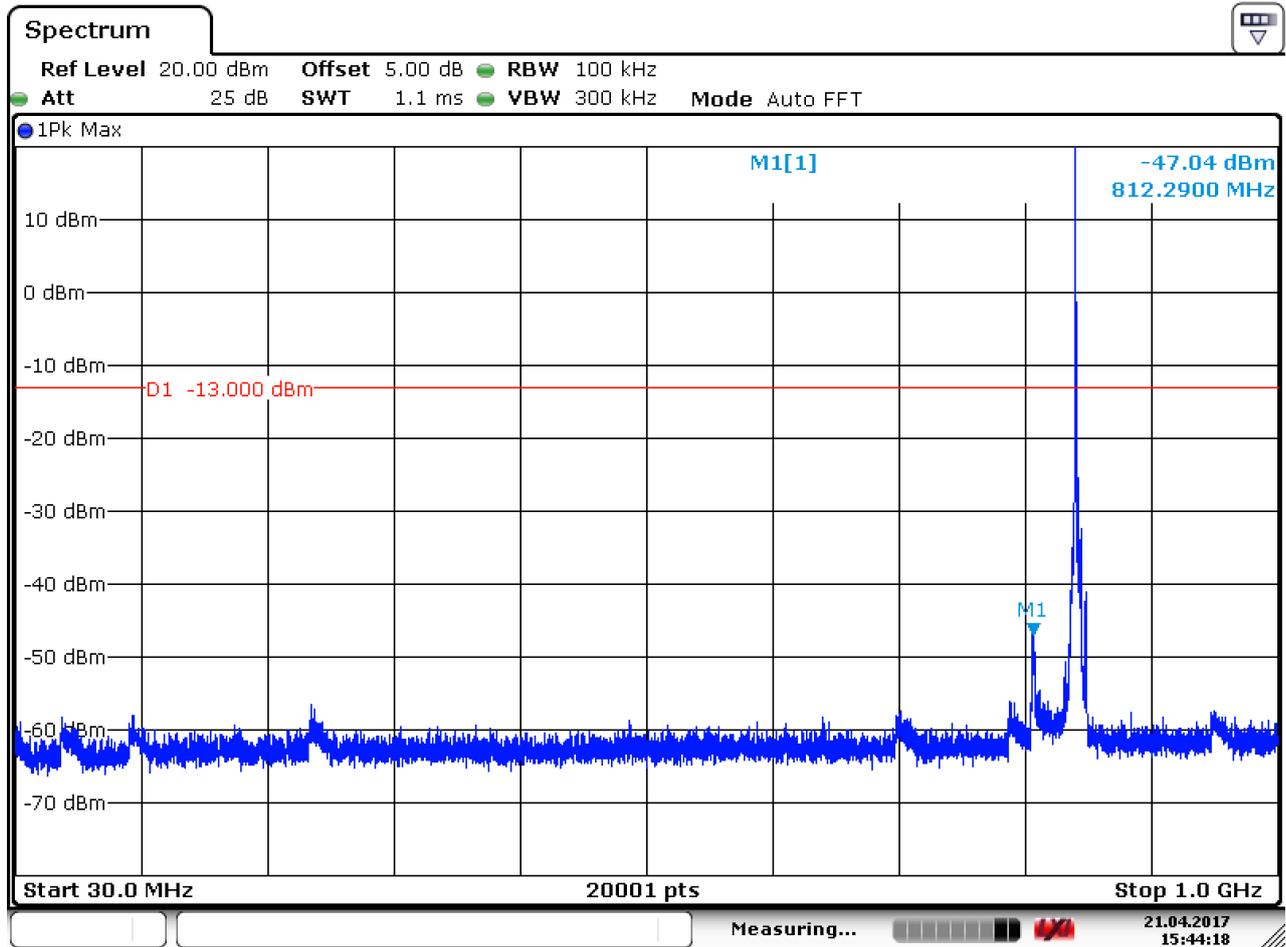
Date: 21.APR.2017 15:42:35



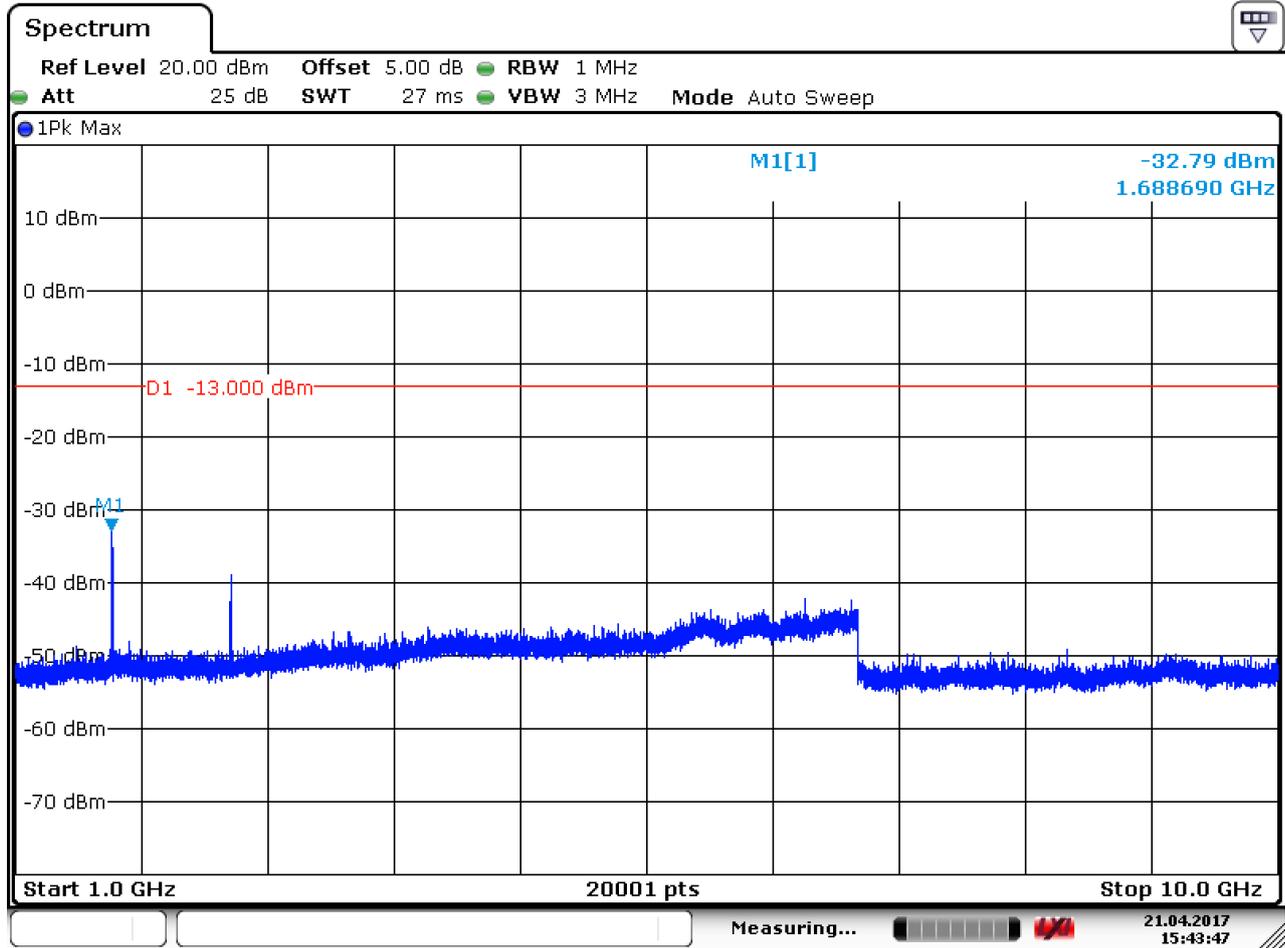
Date: 21.APR.2017 15:43:09



6.1.1.3.3 Test Channel = HCH



Date: 21.APR.2017 15:44:18

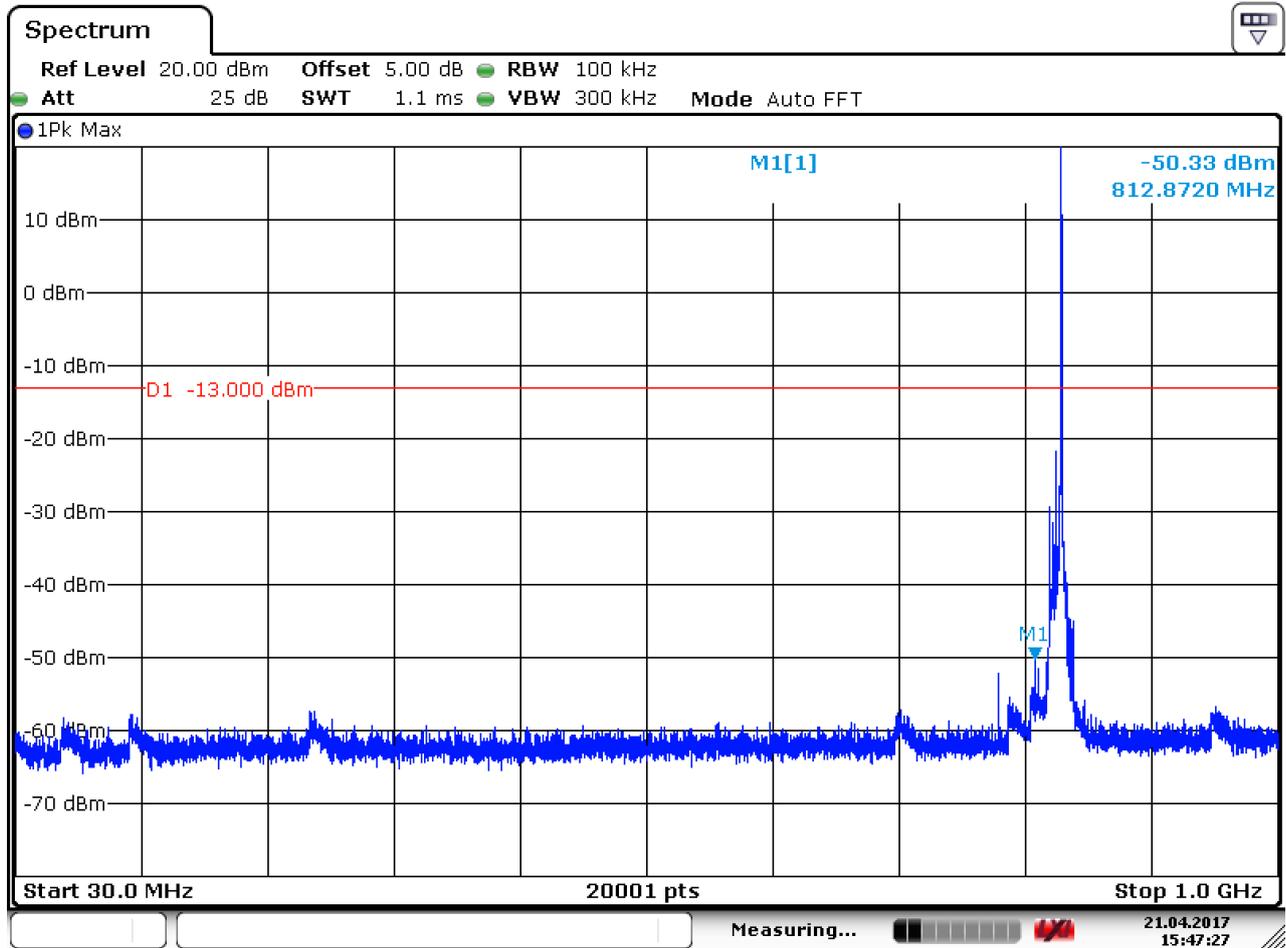


Date: 21.APR.2017 15:43:47

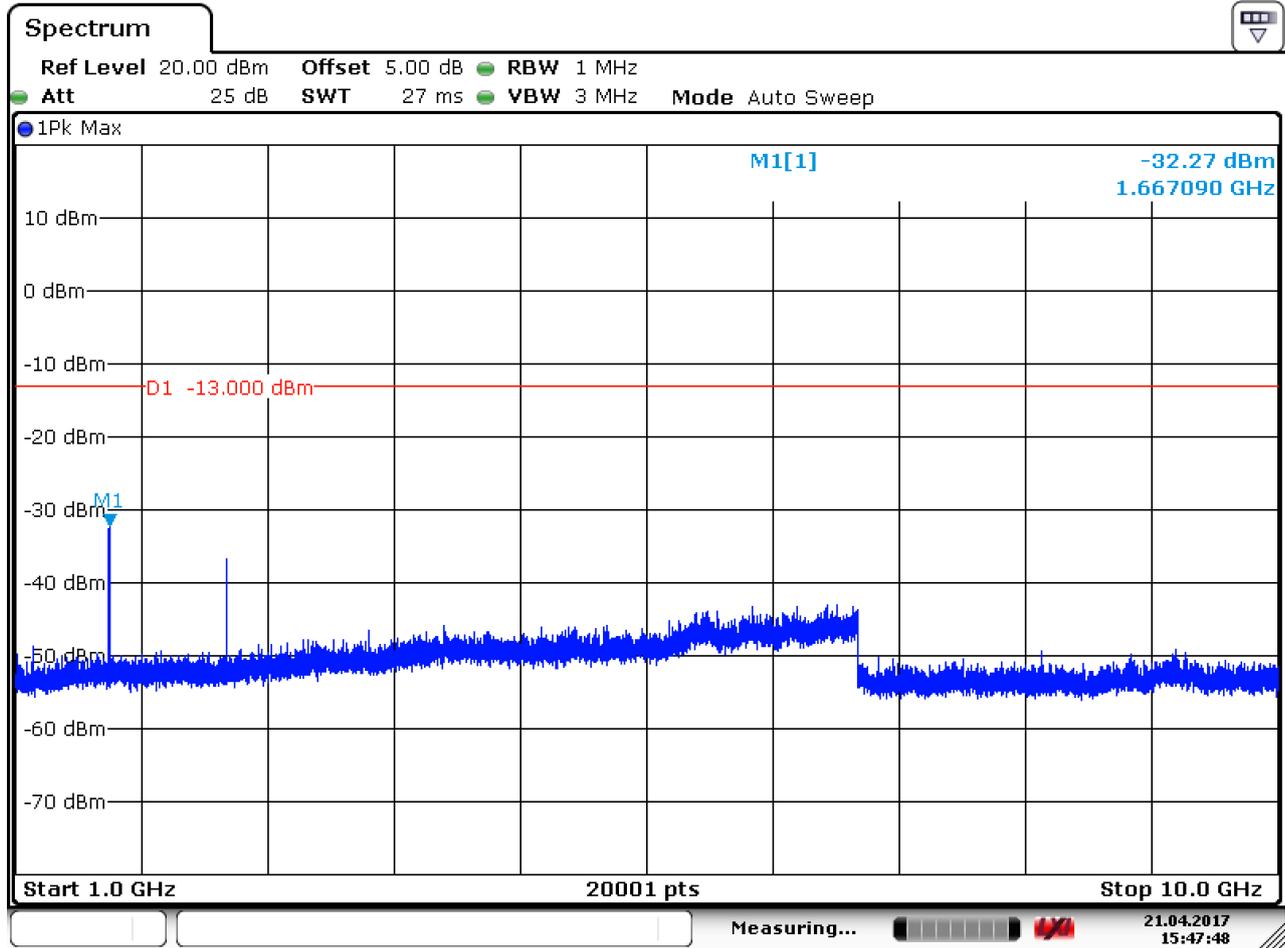


6.1.1.4 Test Mode = LTE / TM1 10MHz RB1#0

6.1.1.4.1 Test Channel = LCH



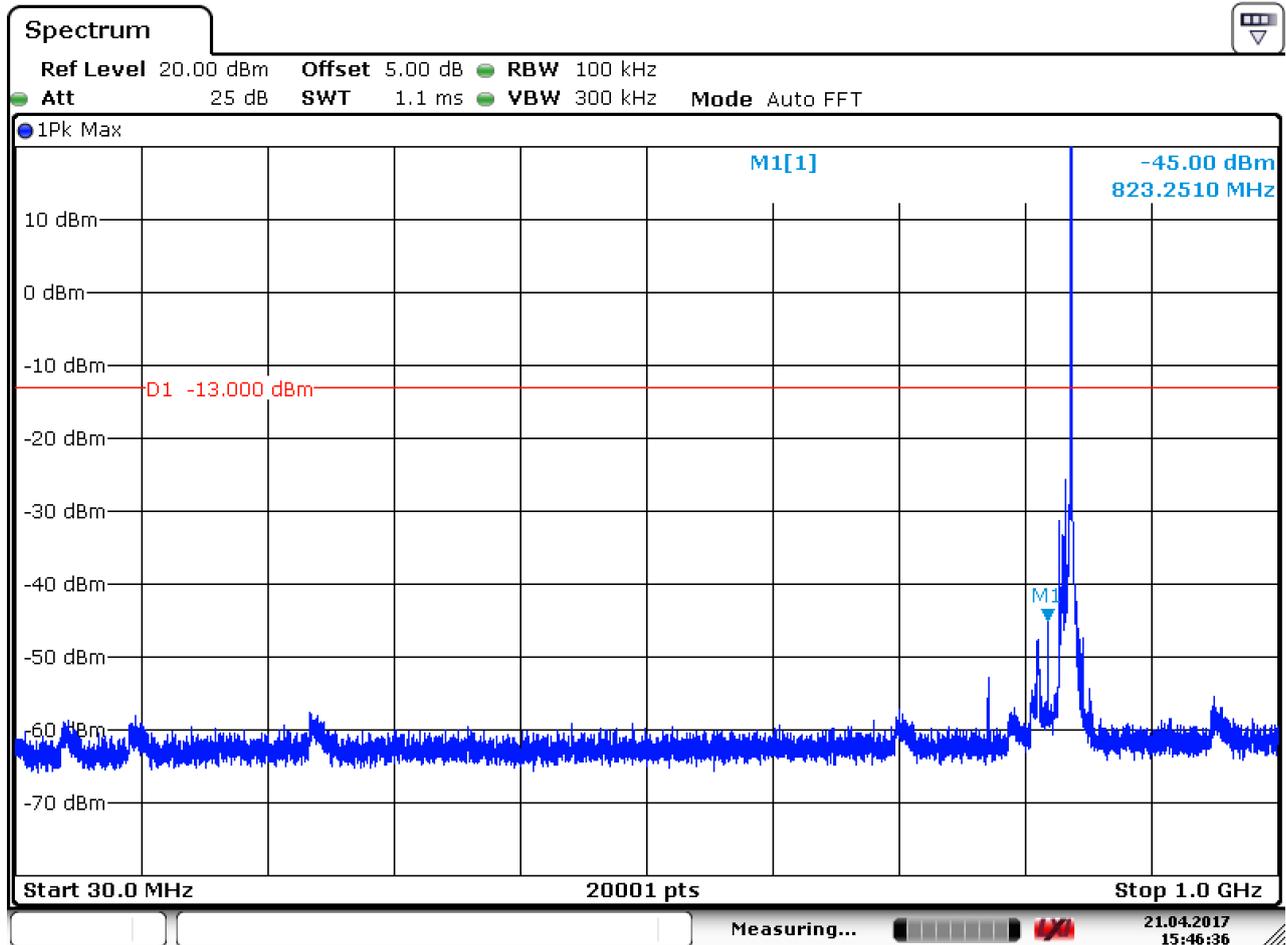
Date: 21.APR.2017 15:47:27



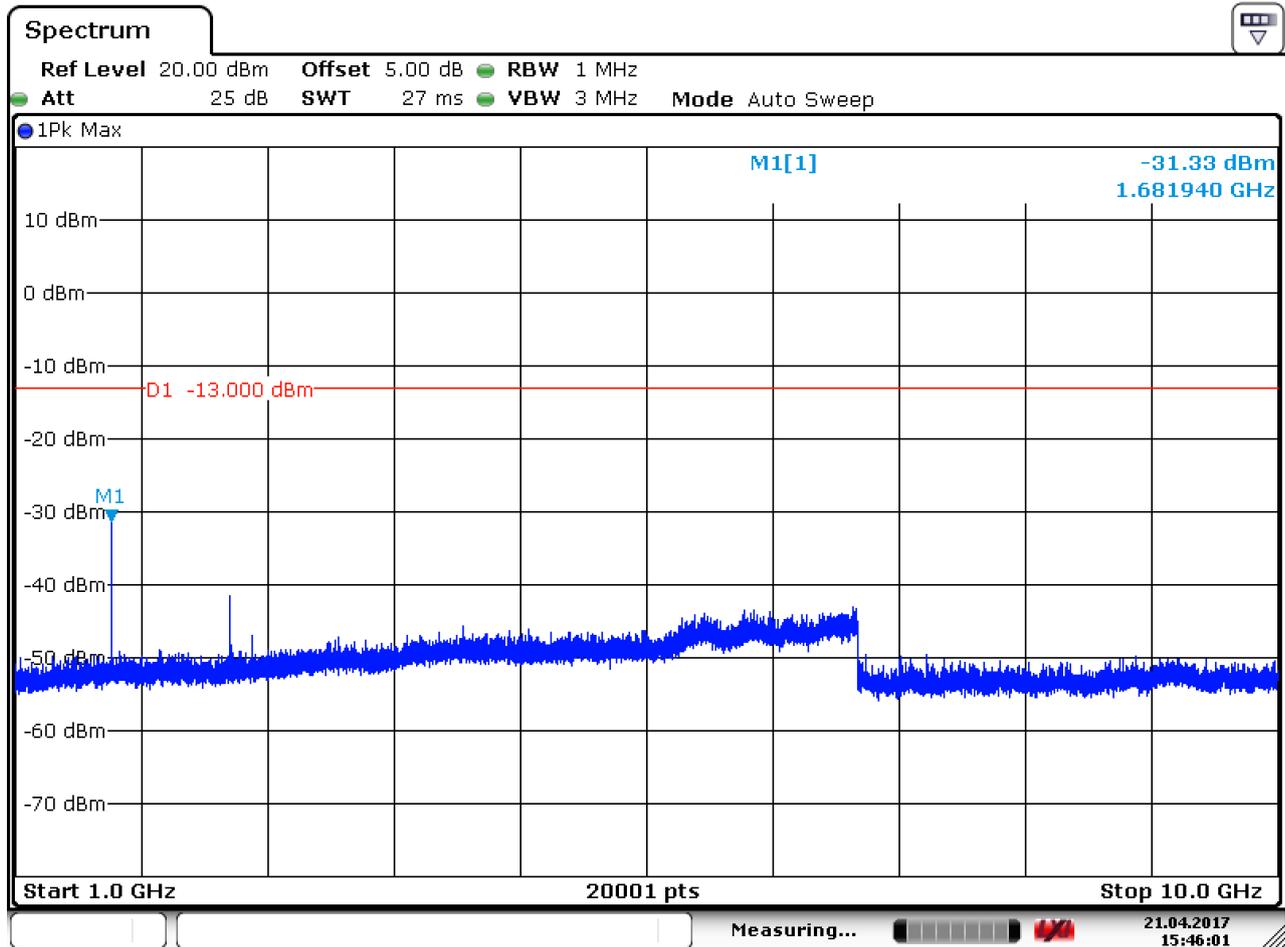
Date: 21.APR.2017 15:47:48



6.1.1.4.2 Test Channel = MCH



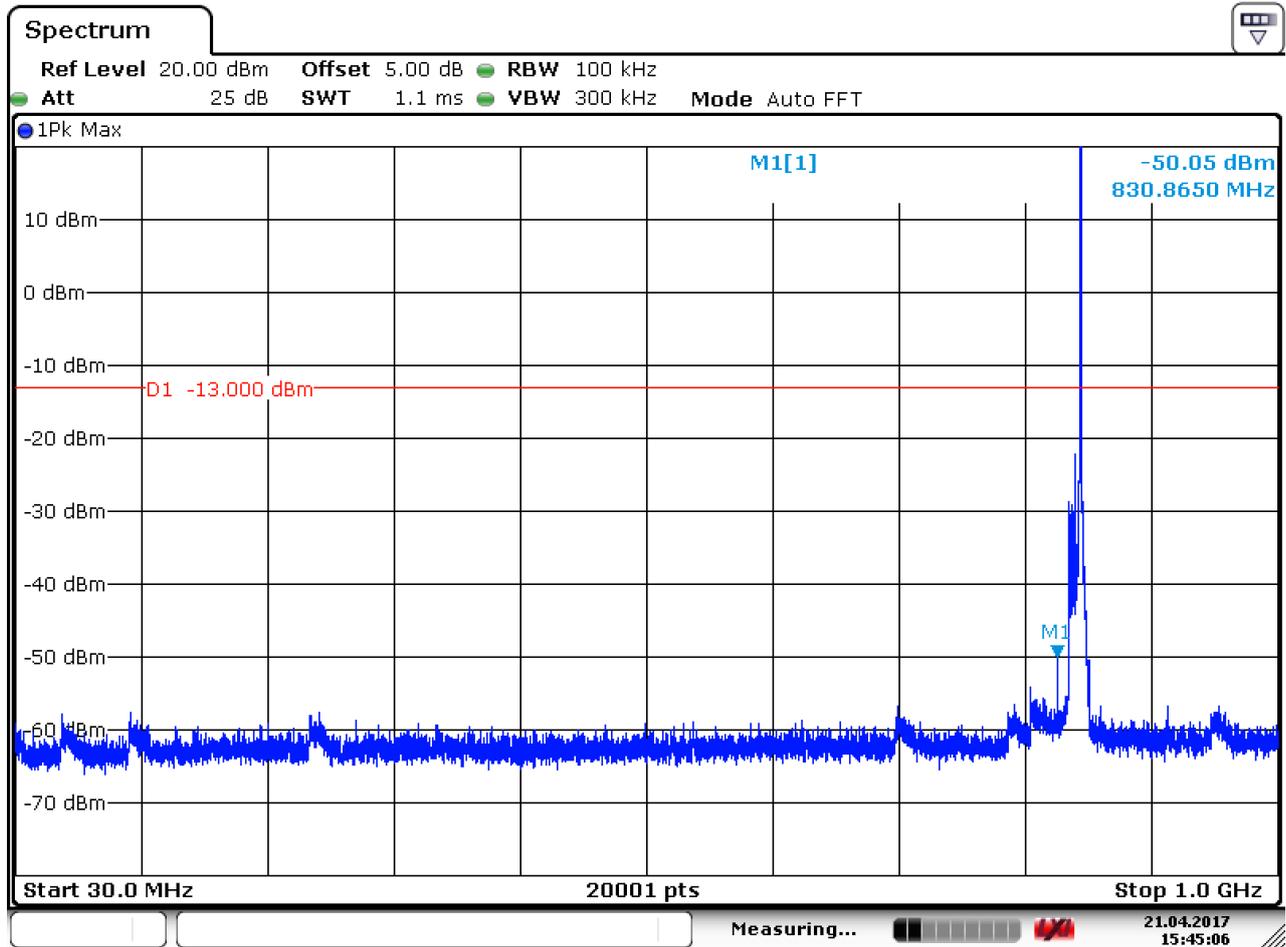
Date: 21.APR.2017 15:46:36



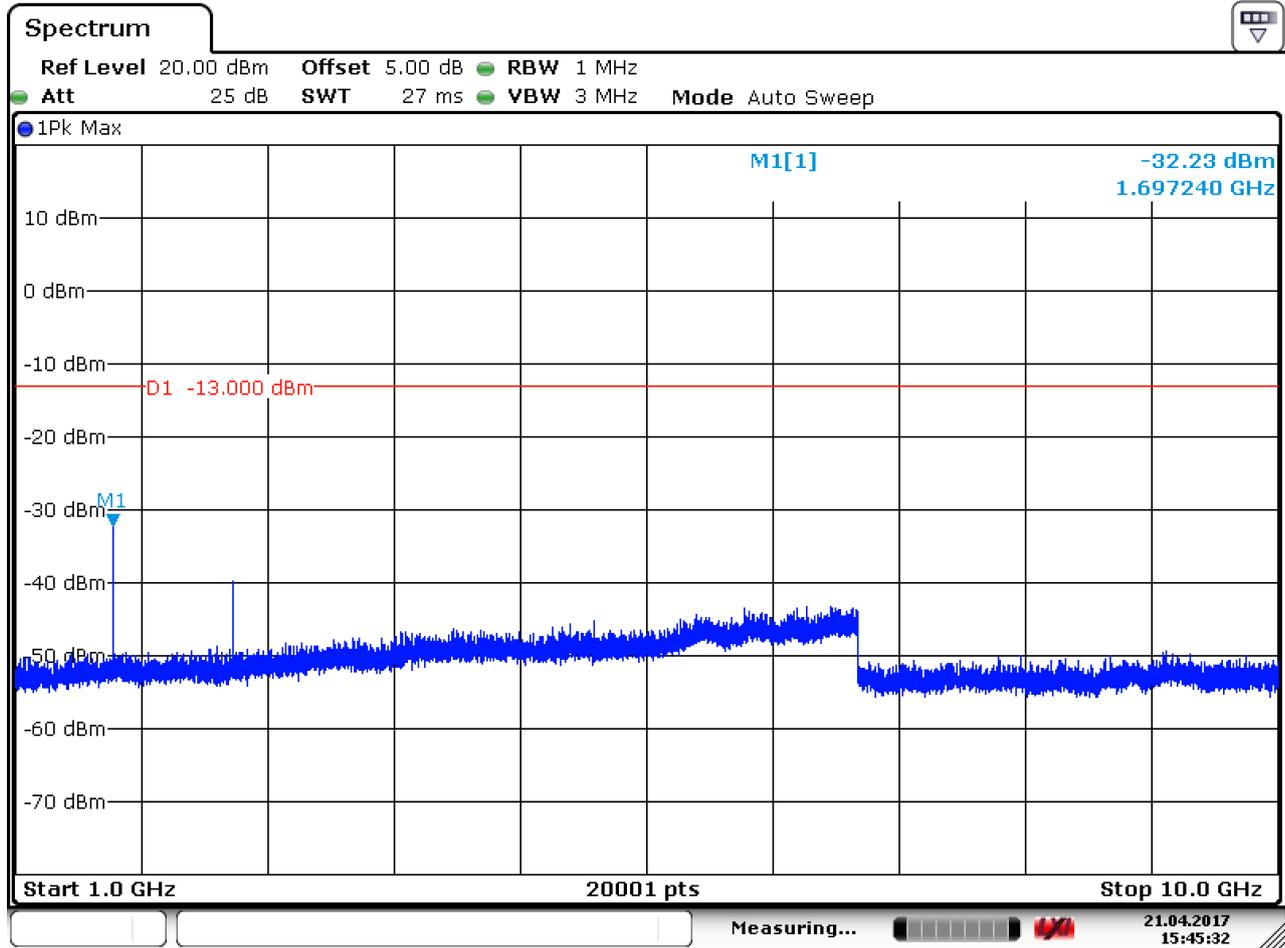
Date: 21.APR.2017 15:46:02



6.1.1.4.3 Test Channel = HCH



Date: 21.APR.2017 15:45:07



Date: 21.APR.2017 15:45:33



## 7 Field Strength of Spurious Radiation

### 7.1 For LTE

#### 7.1.1 Test Band = LTE band5

##### 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
670.000	-85.68	-13.00	72.68	Vertical
1177.000	-66.67	-13.00	53.67	Vertical
3682.500	-69.22	-13.00	56.22	Vertical
2035.000	-62.93	-13.00	49.93	Horizontal
2872.000	-56.61	-13.00	43.61	Horizontal
4170.000	-67.82	-13.00	54.82	Horizontal

###### 7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1111.000	-66.67	-13.00	-53.67	Vertical
4560.000	-68.21	-13.00	-55.21	Vertical
7095.000	-66.18	-13.00	-53.18	Vertical
1100.000	-66.49	-13.00	-53.49	Horizontal
2856.000	-56.62	-13.00	-43.62	Horizontal
6022.500	-66.60	-13.00	-53.60	Horizontal

###### 7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1133.000	-66.73	-13.00	-53.73	Vertical
2712.000	-57.22	-13.00	-44.22	Vertical
6120.000	-66.61	-13.00	-53.61	Vertical
1188.000	-67.31	-13.00	-54.31	Horizontal
4365.000	-67.92	-13.00	-54.92	Horizontal
6217.500	-66.69	-13.00	-53.69	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.



## 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 band5	LTE/TM1 10MHz	LCH	TN	VL	3.38	0.00408	PASS
				VN	-2.15	-0.00259	PASS
				VH	1.02	0.00123	PASS
		MCH	TN	VL	0.81	0.00097	PASS
				VN	1.73	0.00207	PASS
				VH	-4.35	-0.00520	PASS
		HCH	TN	VL	3.74	0.00443	PASS
				VN	-2.64	-0.00313	PASS
				VH	1.84	0.00218	PASS
	LTE/TM2 10MHz	LCH	TN	VL	-2.15	-0.00259	PASS
				VN	-7.18	-0.00866	PASS
				VH	-3.01	-0.00363	PASS
		MCH	TN	VL	-1.24	-0.00148	PASS
				VN	-3.12	-0.00373	PASS
				VH	-7.23	-0.00864	PASS
		HCH	TN	VL	3.38	0.00400	PASS
				VN	-0.45	-0.00053	PASS
				VH	5.02	0.00595	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 band5	LTE/TM1 10MHz	LCH	VN	-30	-4.05	-0.00489	PASS
				-20	-1.41	-0.00170	PASS
				-10	-1.69	-0.00204	PASS
				0	-3.21	-0.00387	PASS
				10	2.22	0.00268	PASS
				20	2.48	0.00299	PASS
				30	4.51	0.00544	PASS
				40	-2.34	-0.00282	PASS
				50	5.10	0.00615	PASS
		MCH	VN	-30	-2.21	-0.00264	PASS
				-20	2.91	0.00348	PASS
				-10	-0.75	-0.00090	PASS
				0	-4.03	-0.00482	PASS
				10	0.39	0.00047	PASS
				20	-1.85	-0.00221	PASS
				30	2.93	0.00350	PASS
				40	-4.67	-0.00558	PASS
				50	-7.22	-0.00863	PASS
		HCH	VN	-30	3.33	0.00395	PASS
				-20	4.16	0.00493	PASS
				-10	-0.62	-0.00073	PASS
				0	-1.23	-0.00146	PASS
				10	-0.86	-0.00102	PASS
				20	-3.12	-0.00370	PASS
				30	-1.32	-0.00156	PASS
				40	-4.11	-0.00487	PASS
				50	-6.19	-0.00733	PASS



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**Shenzhen Branch**

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
LTE band5	LTE/TM2 10MHz	LCH	VN	-30	-5.11	-0.00616	PASS
				-20	-8.87	-0.01070	PASS
				-10	-4.09	-0.00493	PASS
				0	-2.25	-0.00271	PASS
				10	1.62	0.00195	PASS
				20	-5.01	-0.00604	PASS
				30	-4.86	-0.00586	PASS
				40	-2.37	-0.00286	PASS
		MCH	VN	50	1.34	0.00162	PASS
				-30	-5.81	-0.00695	PASS
				-20	-7.35	-0.00879	PASS
				-10	-1.13	-0.00135	PASS
				0	-0.63	-0.00075	PASS
				10	-2.33	-0.00279	PASS
				20	-3.62	-0.00433	PASS
				30	2.45	0.00293	PASS
		HCH	VN	40	-4.84	-0.00579	PASS
				50	-7.95	-0.00950	PASS
				-30	-3.62	-0.00429	PASS
				-20	-5.18	-0.00614	PASS
				-10	-2.68	-0.00318	PASS
				0	-3.26	-0.00386	PASS
				10	1.57	0.00186	PASS
				20	2.40	0.00284	PASS
30	-6.23	-0.00738	PASS				
40	-4.16	-0.00493	PASS				
50	-5.21	-0.00617	PASS				

The End