



Appendix B

LTE-CatM1 Band 2



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1 Effective (Isotropic) Radiated Power Output Data

Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE-CatM1 Band 2

Test Band	Test Mode	Test Bandwidth	Test channel	Test RB	Conducted Power (dBm)	EIRP (dBm)	limit (dBm)	Verdict
CatM1 Band 2	QPSK	1.4M	LCH	1RB#0	21.15	22.05	33.00	PASS
CatM1 Band 2	QPSK	1.4M	LCH	5RB#0	20.08	20.98	33.00	PASS
CatM1 Band 2	QPSK	1.4M	LCH	6RB#0	19.06	19.96	33.00	PASS
CatM1 Band 2	QPSK	1.4M	MCH	1RB#0	21.06	21.96	33.00	PASS
CatM1 Band 2	QPSK	1.4M	MCH	5RB#0	20.01	20.91	33.00	PASS
CatM1 Band 2	QPSK	1.4M	MCH	6RB#0	19.02	19.92	33.00	PASS
CatM1 Band 2	QPSK	1.4M	HCH	1RB#0	21.15	22.05	33.00	PASS
CatM1 Band 2	QPSK	1.4M	HCH	5RB#0	19.96	20.86	33.00	PASS
CatM1 Band 2	QPSK	1.4M	HCH	6RB#0	19.05	19.95	33.00	PASS
CatM1 Band 2	16QAM	1.4M	LCH	1RB#0	20.19	21.09	33.00	PASS
CatM1 Band 2	16QAM	1.4M	LCH	5RB#0	19.18	20.08	33.00	PASS
CatM1 Band 2	16QAM	1.4M	MCH	1RB#0	19.87	20.77	33.00	PASS
CatM1 Band 2	16QAM	1.4M	MCH	5RB#0	19.04	19.94	33.00	PASS
CatM1 Band 2	16QAM	1.4M	HCH	1RB#0	19.94	20.84	33.00	PASS
CatM1 Band 2	16QAM	1.4M	HCH	5RB#0	19.04	19.94	33.00	PASS
CatM1 Band 2	QPSK	3M	LCH	1RB#0	21.18	22.08	33.00	PASS
CatM1 Band 2	QPSK	3M	LCH	5RB#0	19.99	20.89	33.00	PASS
CatM1 Band 2	QPSK	3M	LCH	6RB#0	19.08	19.98	33.00	PASS
CatM1 Band 2	QPSK	3M	MCH	1RB#0	21.14	22.04	33.00	PASS
CatM1 Band 2	QPSK	3M	MCH	5RB#0	19.96	20.86	33.00	PASS
CatM1 Band 2	QPSK	3M	MCH	6RB#0	18.96	19.86	33.00	PASS
CatM1 Band 2	QPSK	3M	HCH	1RB#0	21.12	22.02	33.00	PASS
CatM1 Band 2	QPSK	3M	HCH	5RB#0	19.99	20.89	33.00	PASS
CatM1 Band 2	QPSK	3M	HCH	6RB#0	18.89	19.79	33.00	PASS
CatM1 Band 2	16QAM	3M	LCH	1RB#0	19.93	20.83	33.00	PASS
CatM1 Band 2	16QAM	3M	LCH	5RB#0	19.09	19.99	33.00	PASS
CatM1 Band 2	16QAM	3M	MCH	1RB#0	19.87	20.77	33.00	PASS
CatM1 Band 2	16QAM	3M	MCH	5RB#0	18.88	19.78	33.00	PASS
CatM1 Band 2	16QAM	3M	HCH	1RB#0	19.7	20.60	33.00	PASS
CatM1 Band 2	16QAM	3M	HCH	5RB#0	18.97	19.87	33.00	PASS
CatM1 Band 2	QPSK	5M	LCH	1RB#0	21.13	22.03	33.00	PASS
CatM1 Band 2	QPSK	5M	LCH	5RB#0	20.1	21.00	33.00	PASS
CatM1 Band 2	QPSK	5M	LCH	6RB#0	20.15	21.05	33.00	PASS
CatM1 Band 2	QPSK	5M	MCH	1RB#0	20.95	21.85	33.00	PASS
CatM1 Band 2	QPSK	5M	MCH	5RB#0	19.84	20.74	33.00	PASS
CatM1 Band 2	QPSK	5M	MCH	6RB#0	19.91	20.81	33.00	PASS
CatM1 Band 2	QPSK	5M	HCH	1RB#0	21.12	22.02	33.00	PASS
CatM1 Band 2	QPSK	5M	HCH	5RB#0	19.89	20.79	33.00	PASS
CatM1 Band 2	QPSK	5M	HCH	6RB#0	19.94	20.84	33.00	PASS



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CatM1 Band 2	16QAM	5M	LCH	1RB#0	20.84	21.74	33.00	PASS
CatM1 Band 2	16QAM	5M	LCH	5RB#0	20.08	20.98	33.00	PASS
CatM1 Band 2	16QAM	5M	MCH	1RB#0	20.81	21.71	33.00	PASS
CatM1 Band 2	16QAM	5M	MCH	5RB#0	19.83	20.73	33.00	PASS
CatM1 Band 2	16QAM	5M	HCH	1RB#0	20.72	21.62	33.00	PASS
CatM1 Band 2	16QAM	5M	HCH	5RB#0	19.91	20.81	33.00	PASS
CatM1 Band 2	QPSK	10M	LCH	1RB#0	21.21	22.11	33.00	PASS
CatM1 Band 2	QPSK	10M	LCH	5RB#0	21.2	22.10	33.00	PASS
CatM1 Band 2	QPSK	10M	LCH	6RB#0	20.09	20.99	33.00	PASS
CatM1 Band 2	QPSK	10M	MCH	1RB#0	20.93	21.83	33.00	PASS
CatM1 Band 2	QPSK	10M	MCH	5RB#0	20.89	21.79	33.00	PASS
CatM1 Band 2	QPSK	10M	MCH	6RB#0	19.88	20.78	33.00	PASS
CatM1 Band 2	QPSK	10M	HCH	1RB#0	21.12	22.02	33.00	PASS
CatM1 Band 2	QPSK	10M	HCH	5RB#0	21.04	21.94	33.00	PASS
CatM1 Band 2	QPSK	10M	HCH	6RB#0	19.93	20.83	33.00	PASS
CatM1 Band 2	16QAM	10M	LCH	1RB#0	20.87	21.77	33.00	PASS
CatM1 Band 2	16QAM	10M	LCH	5RB#0	20.79	21.69	33.00	PASS
CatM1 Band 2	16QAM	10M	MCH	1RB#0	20.71	21.61	33.00	PASS
CatM1 Band 2	16QAM	10M	MCH	5RB#0	20.61	21.51	33.00	PASS
CatM1 Band 2	16QAM	10M	HCH	1RB#0	20.78	21.68	33.00	PASS
CatM1 Band 2	16QAM	10M	HCH	5RB#0	20.93	21.83	33.00	PASS
CatM1 Band 2	QPSK	15M	LCH	1RB#0	21.18	22.08	33.00	PASS
CatM1 Band 2	QPSK	15M	LCH	5RB#0	21.2	22.10	33.00	PASS
CatM1 Band 2	QPSK	15M	LCH	6RB#0	21.16	22.06	33.00	PASS
CatM1 Band 2	QPSK	15M	MCH	1RB#0	20.99	21.89	33.00	PASS
CatM1 Band 2	QPSK	15M	MCH	5RB#0	21.01	21.91	33.00	PASS
CatM1 Band 2	QPSK	15M	MCH	6RB#0	20.97	21.87	33.00	PASS
CatM1 Band 2	QPSK	15M	HCH	1RB#0	21.08	21.98	33.00	PASS
CatM1 Band 2	QPSK	15M	HCH	5RB#0	21.05	21.95	33.00	PASS
CatM1 Band 2	QPSK	15M	HCH	6RB#0	20.99	21.89	33.00	PASS
CatM1 Band 2	16QAM	15M	LCH	1RB#0	20.88	21.78	33.00	PASS
CatM1 Band 2	16QAM	15M	LCH	5RB#0	21.2	22.10	33.00	PASS
CatM1 Band 2	16QAM	15M	MCH	1RB#0	20.79	21.69	33.00	PASS
CatM1 Band 2	16QAM	15M	MCH	5RB#0	21.07	21.97	33.00	PASS
CatM1 Band 2	16QAM	15M	HCH	1RB#0	20.66	21.56	33.00	PASS
CatM1 Band 2	16QAM	15M	HCH	5RB#0	20.98	21.88	33.00	PASS
CatM1 Band 2	QPSK	20M	LCH	1RB#0	21.12	22.02	33.00	PASS
CatM1 Band 2	QPSK	20M	LCH	5RB#0	21.07	21.97	33.00	PASS
CatM1 Band 2	QPSK	20M	LCH	6RB#0	21.23	22.13	33.00	PASS
CatM1 Band 2	QPSK	20M	MCH	1RB#0	21.02	21.92	33.00	PASS
CatM1 Band 2	QPSK	20M	MCH	5RB#0	20.98	21.88	33.00	PASS
CatM1 Band 2	QPSK	20M	MCH	6RB#0	21.16	22.06	33.00	PASS
CatM1 Band 2	QPSK	20M	HCH	1RB#0	20.97	21.87	33.00	PASS
CatM1 Band 2	QPSK	20M	HCH	5RB#0	21.11	22.01	33.00	PASS
CatM1 Band 2	QPSK	20M	HCH	6RB#0	21.06	21.96	33.00	PASS
CatM1 Band 2	16QAM	20M	LCH	1RB#0	20.83	21.73	33.00	PASS
CatM1 Band 2	16QAM	20M	LCH	5RB#0	21.16	22.06	33.00	PASS



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CatM1 Band 2	16QAM	20M	MCH	1RB#0	20.71	21.61	33.00	PASS
CatM1 Band 2	16QAM	20M	MCH	5RB#0	21.06	21.96	33.00	PASS
CatM1 Band 2	16QAM	20M	HCH	1RB#0	20.77	21.67	33.00	PASS
CatM1 Band 2	16QAM	20M	HCH	5RB#0	21.03	21.93	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,

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

$ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi] - 2.15$



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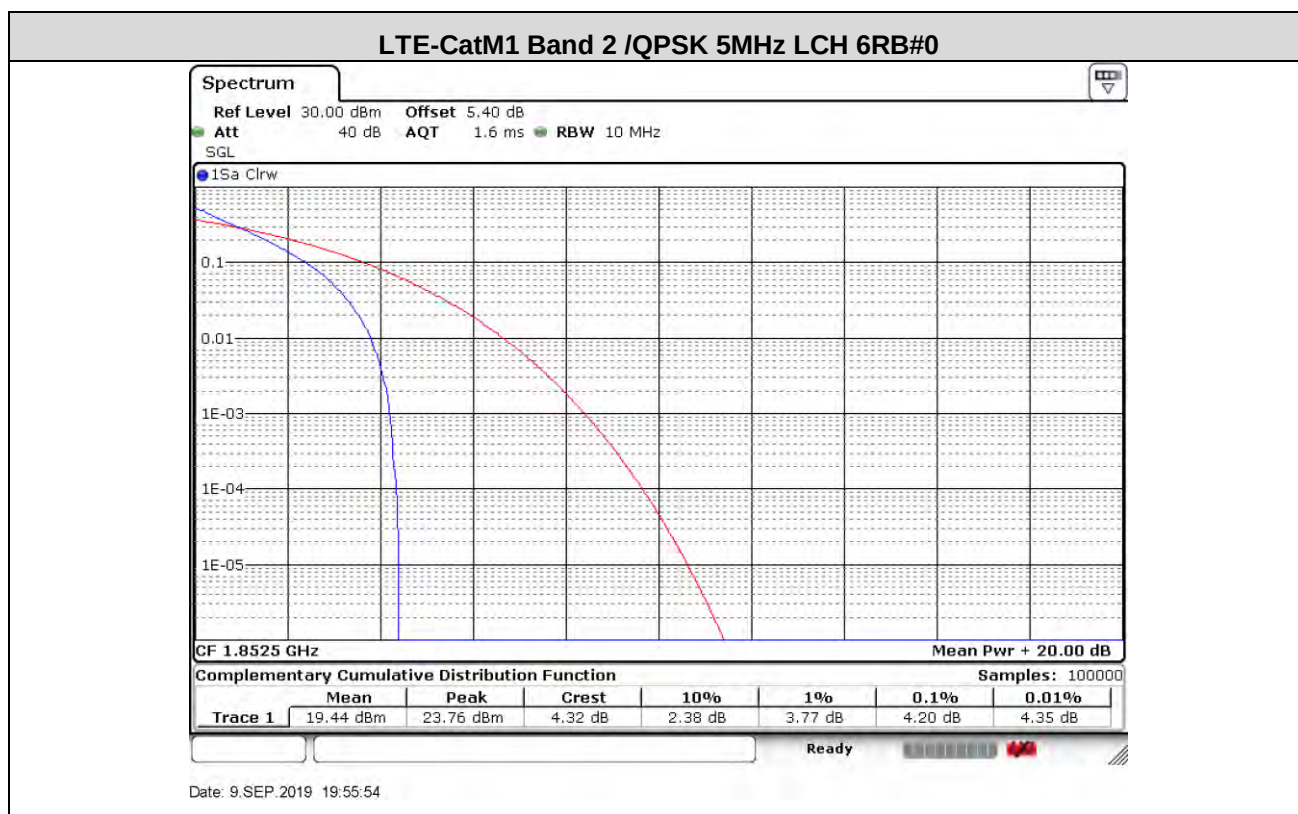


2 Peak-to-Average Ratio

2.1 Test Results

Test Band	Test Mode	RB Config	Test Channel	Measured [dB]	Limit [dB]	Verdict
CatM1 Band 2	QPSK/5M	6RB#0	LCH	4.20	13	PASS
CatM1 Band 2	QPSK/5M	6RB#0	MCH	4.52	13	PASS
CatM1 Band 2	QPSK/5M	6RB#0	HCH	4.20	13	PASS
CatM1 Band 2	16QAM/5M	5RB#0	LCH	4.72	13	PASS
CatM1 Band 2	16QAM/5M	5RB#0	MCH	5.94	13	PASS
CatM1 Band 2	16QAM/5M	5RB#0	HCH	5.39	13	PASS

2.2 Test Plots



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LTE-CatM1 Band 2 /QPSK 5MHz MCH 6RB#0



Date: 9.SEP.2019 19:56:35

LTE-CatM1 Band 2 /QPSK 5MHz HCH 6RB#0



Date: 9.SEP.2019 20:11:56

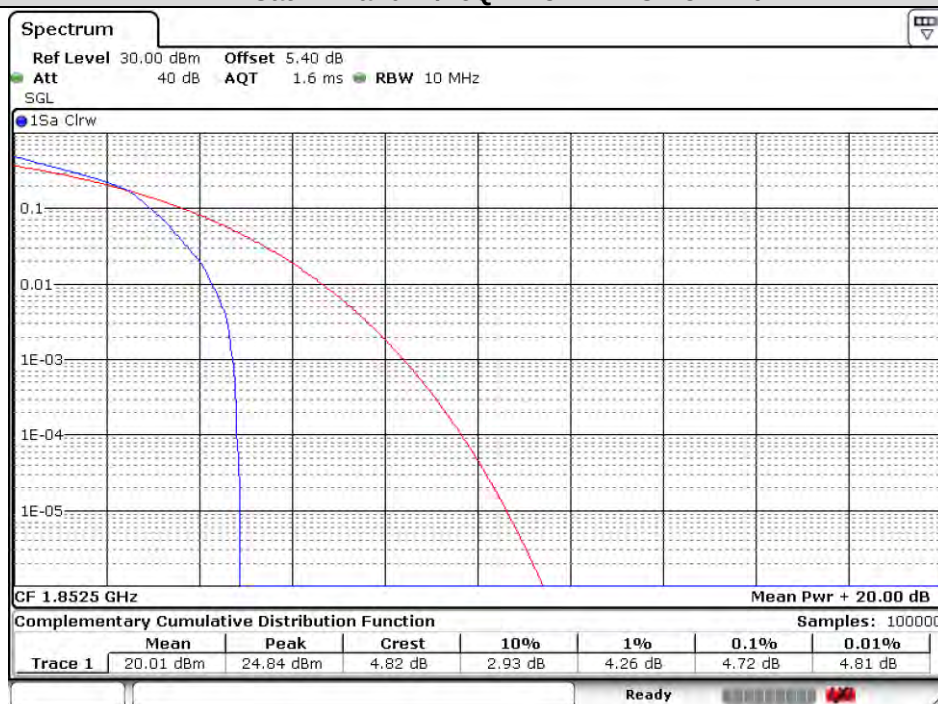


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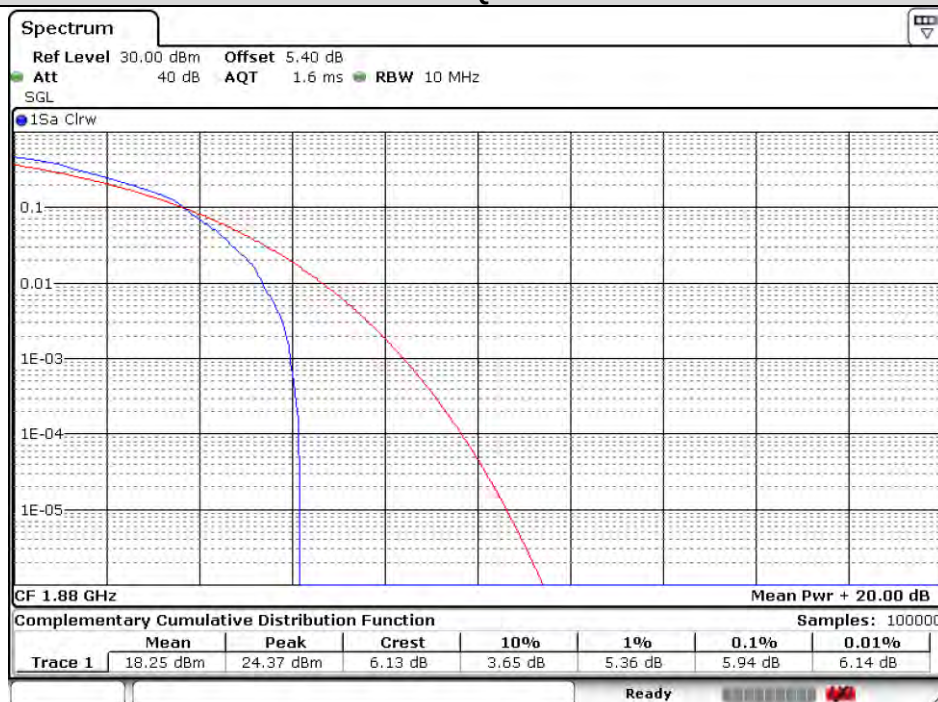


LTE-CatM1 Band 2 /16QAM 5MHz LCH 5RB#0



Date: 18.SEP.2019 15:42:59

LTE-CatM1 Band 2 /16QAM 5MHz MCH 5RB#0



Date: 18.SEP.2019 15:43:54

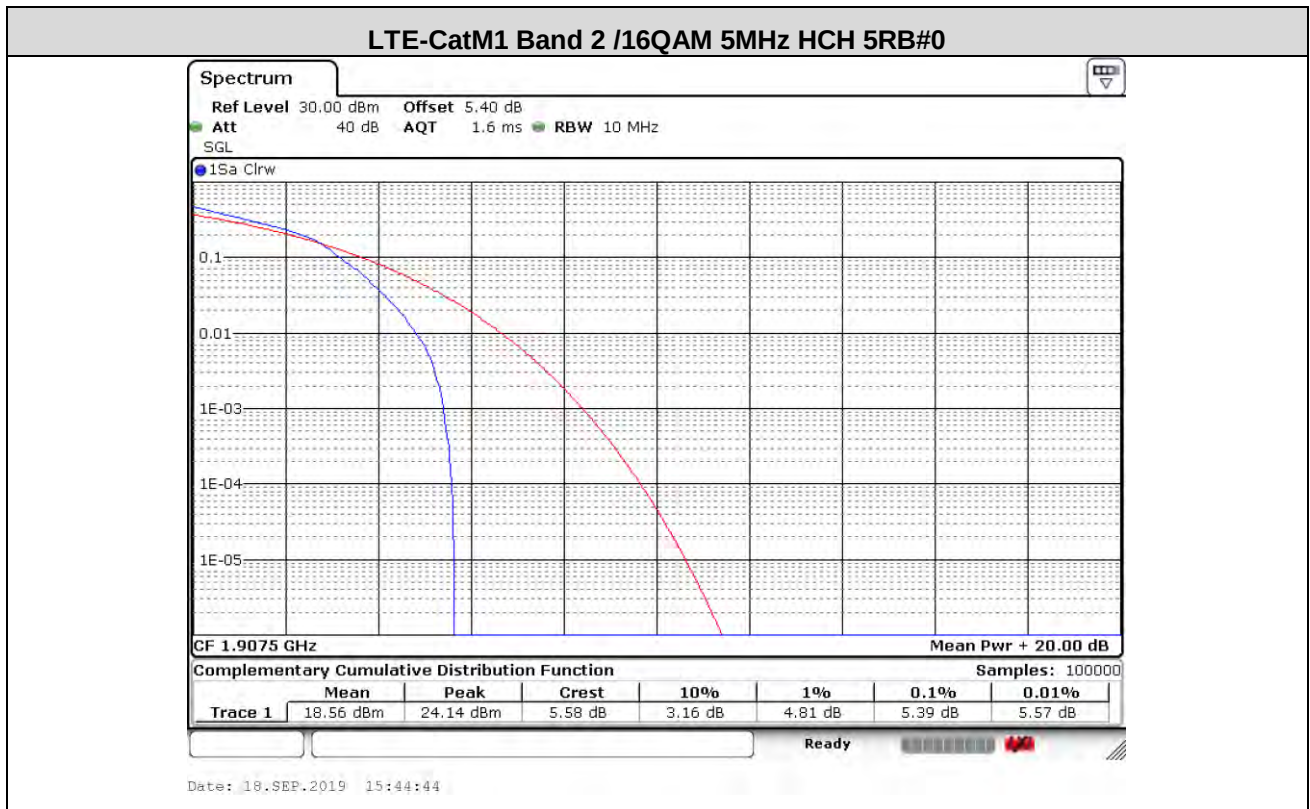


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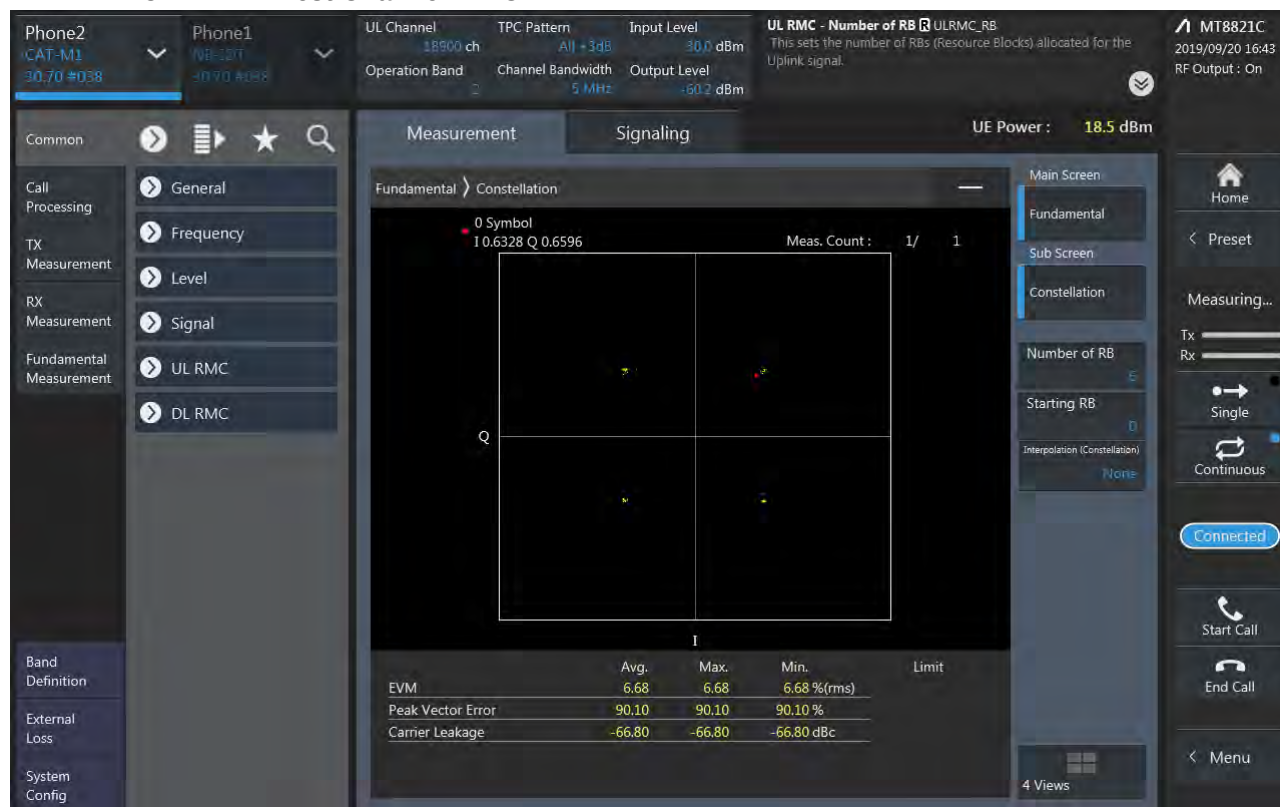
3 Modulation Characteristics

3.1 For LTE-CatM1

3.1.1 Test Band = LTE-CatM1 Band 2

3.1.1.1 Test Mode = LTE-CatM1 /QPSK 5MHz

3.1.1.1.1 Test Channel = MCH



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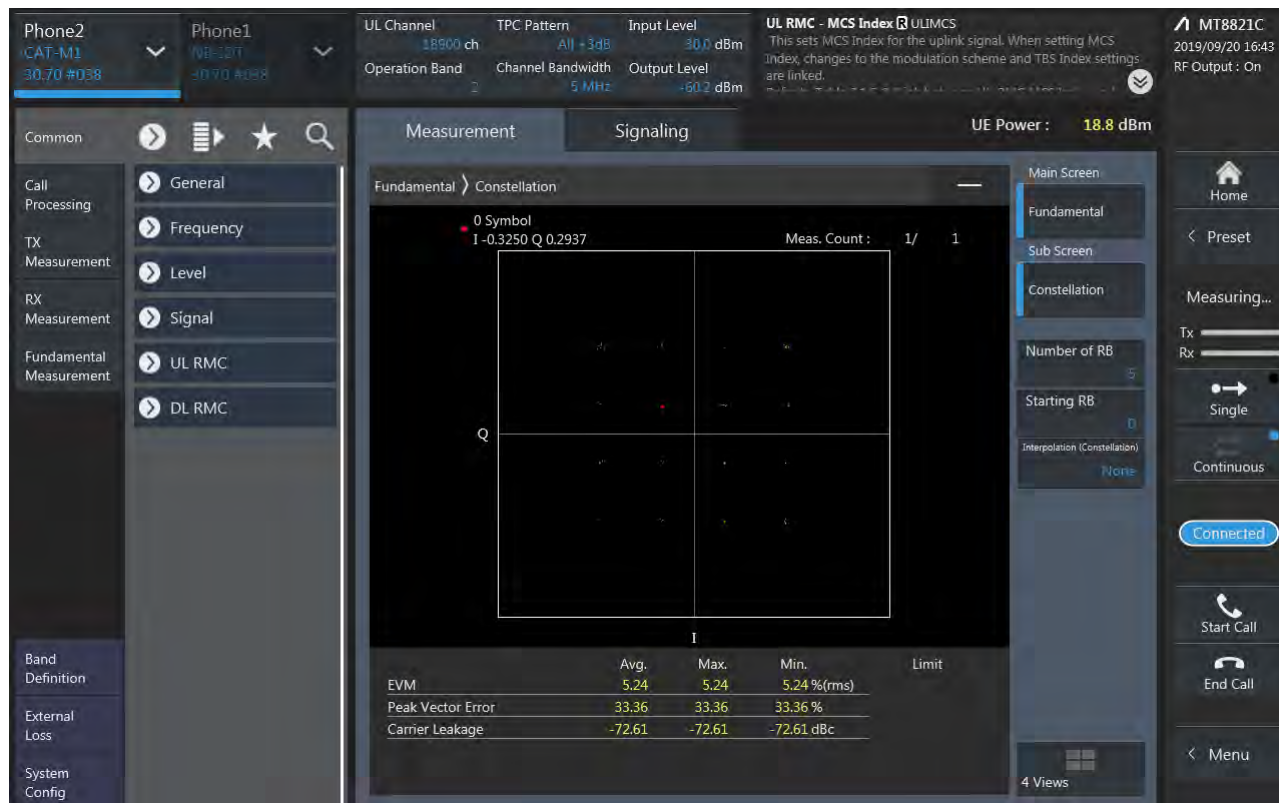
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3.1.1.2 Test Mode = LTE-CatM1 /16QAM 5MHz

3.1.1.2.1 Test Channel = MCH



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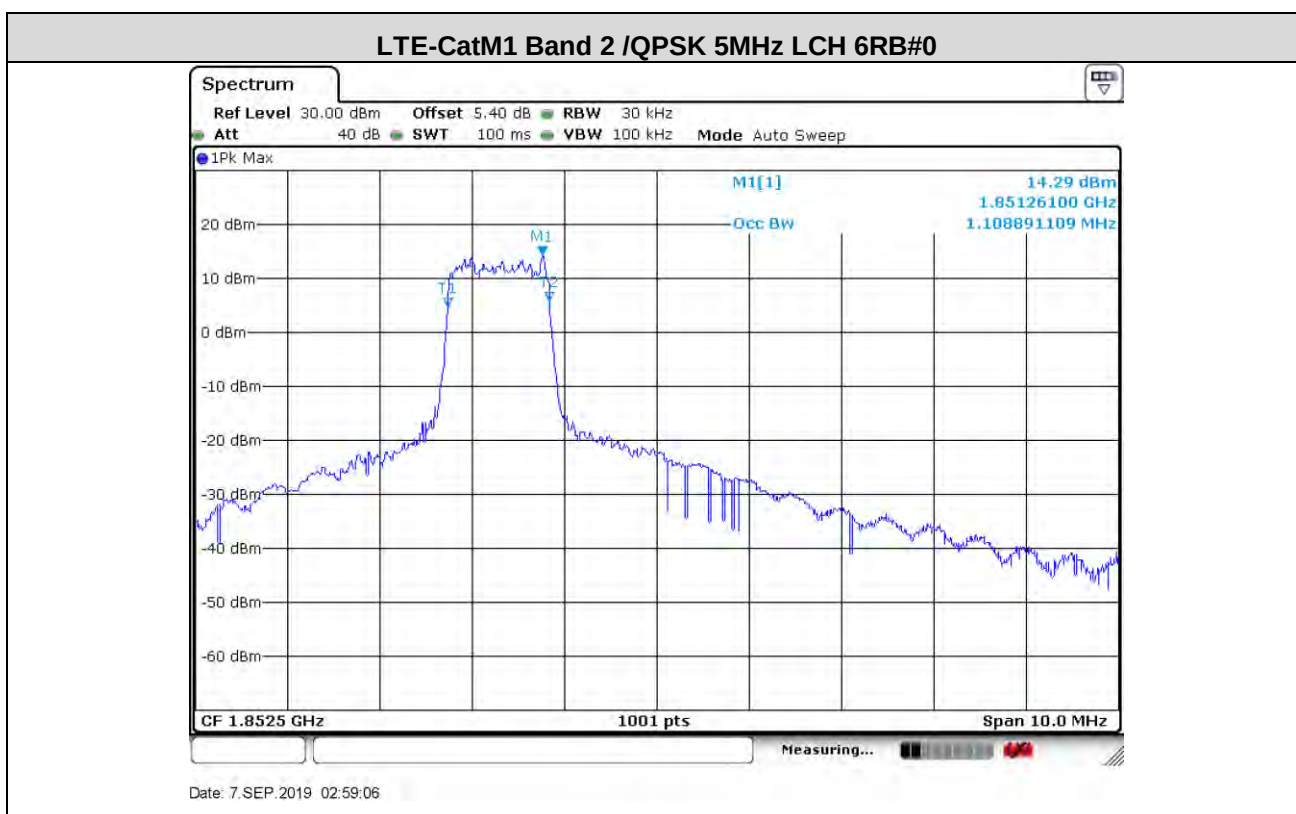


4 26dB Bandwidth and Occupied Bandwidth

4.1 Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	26dB Emission Bandwidth [MHz]	Verdict
CatM1 Band 2	QPSK/ 5MHz	LCH	1.11	1.28	PASS
CatM1 Band 2	QPSK/ 5MHz	MCH	1.10	1.28	PASS
CatM1 Band 2	QPSK/ 5MHz	HCH	1.10	1.28	PASS
CatM1 Band 2	16QAM/ 5MHz	LCH	0.93	1.10	PASS
CatM1 Band 2	16QAM/ 5MHz	MCH	0.93	1.09	PASS
CatM1 Band 2	16QAM/ 5MHz	HCH	0.92	1.09	PASS

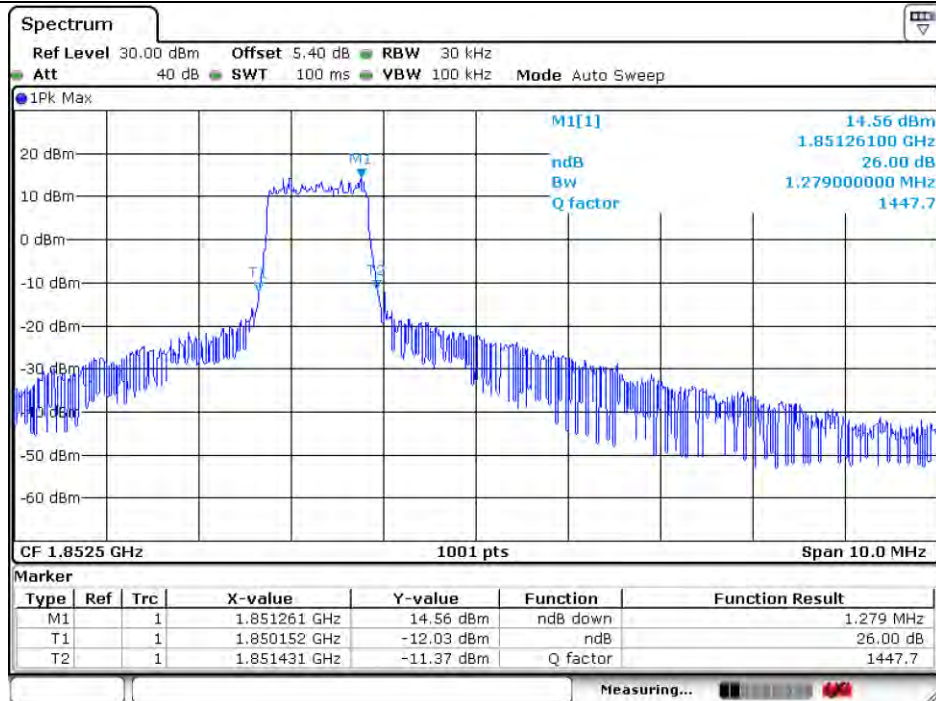
4.2 Test Plots



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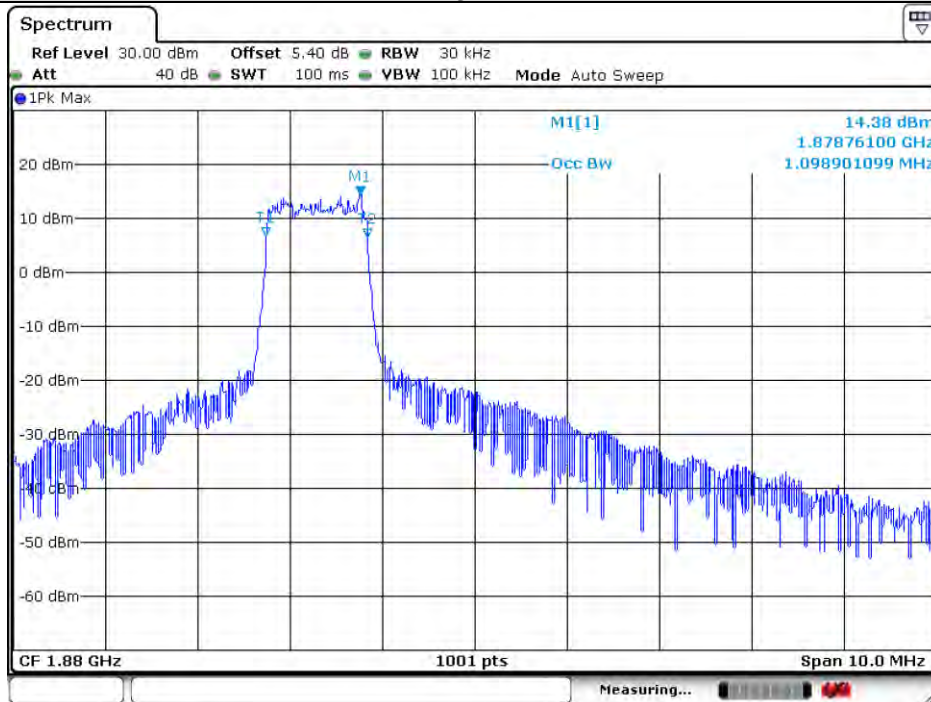
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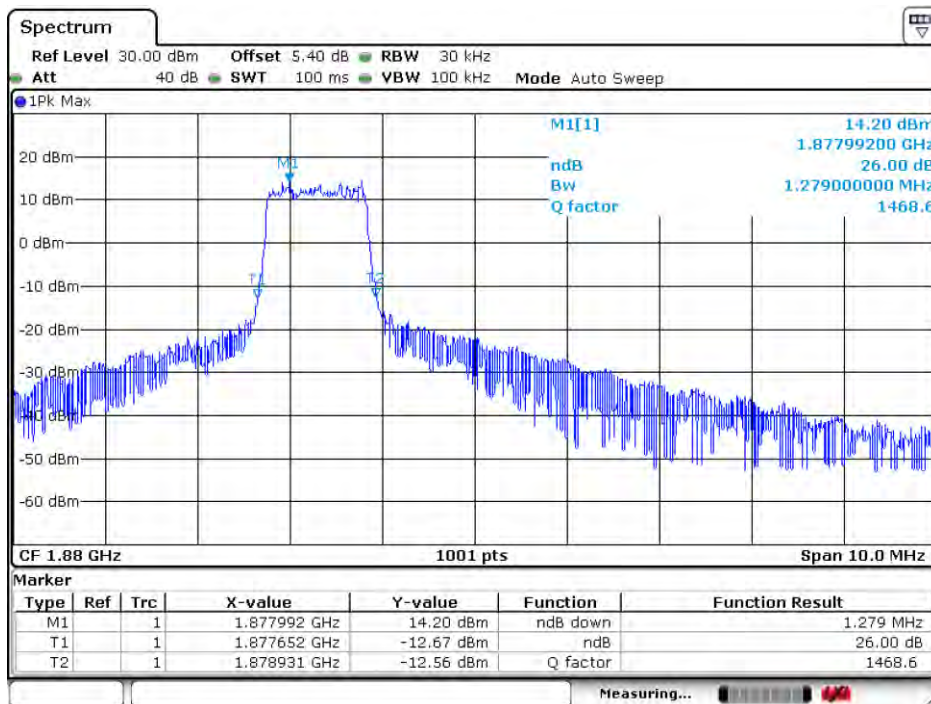
Date: 7.SEP.2019 03:33:10



LTE-CatM1 Band 2 /QPSK 5MHz MCH 6RB#0



Date: 7.SEP.2019 03:34:37



Date: 7.SEP.2019 03:34:15



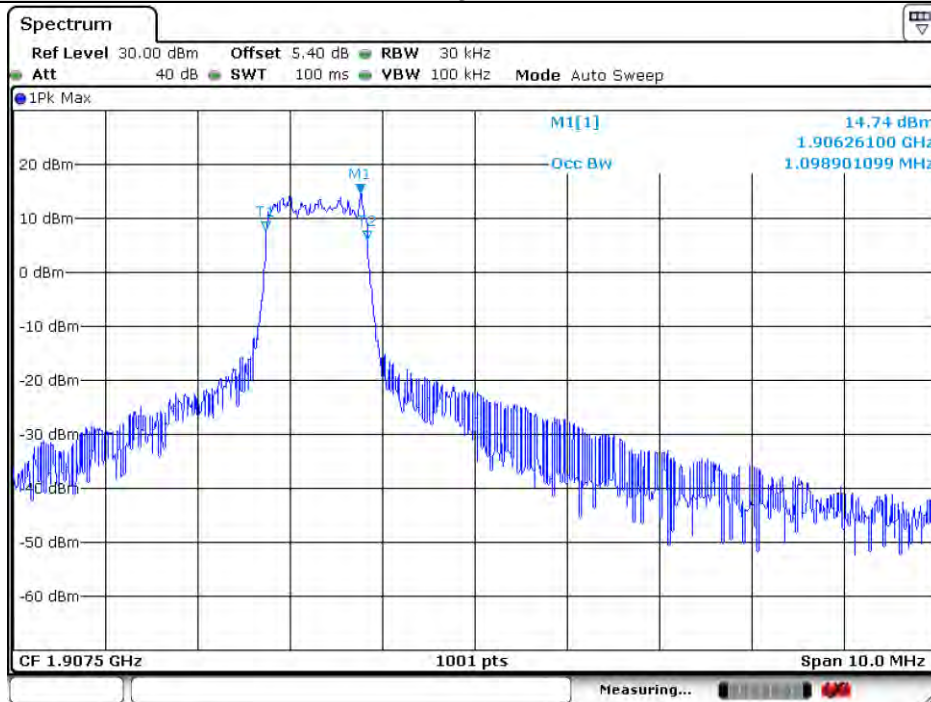
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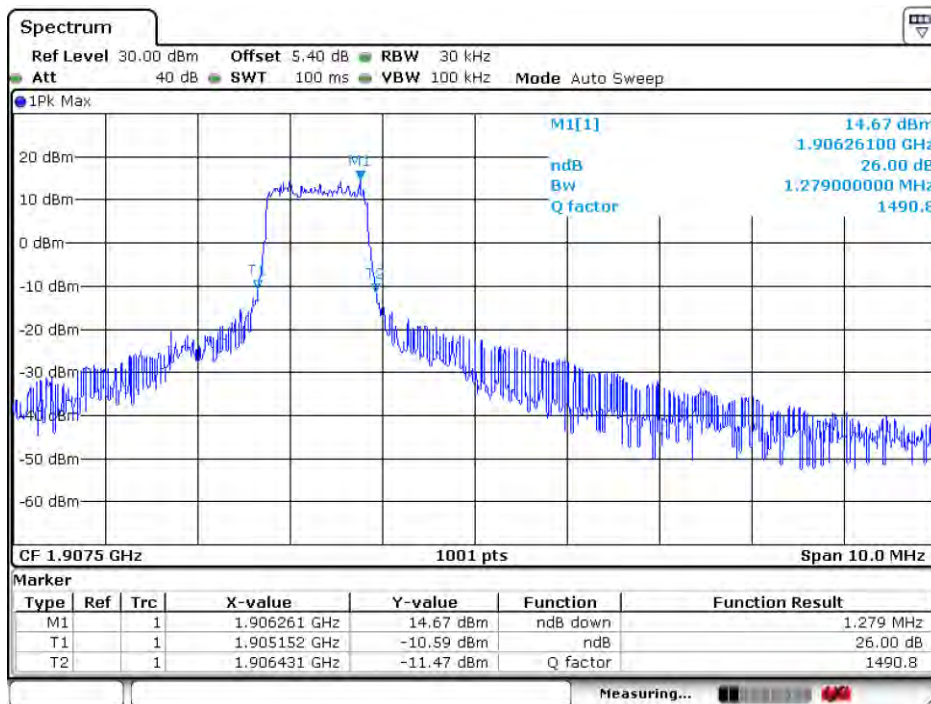
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LTE-CatM1 Band 2 /QPSK 5MHz HCH 6RB#0



Date: 9 SEP.2019 19:47:01



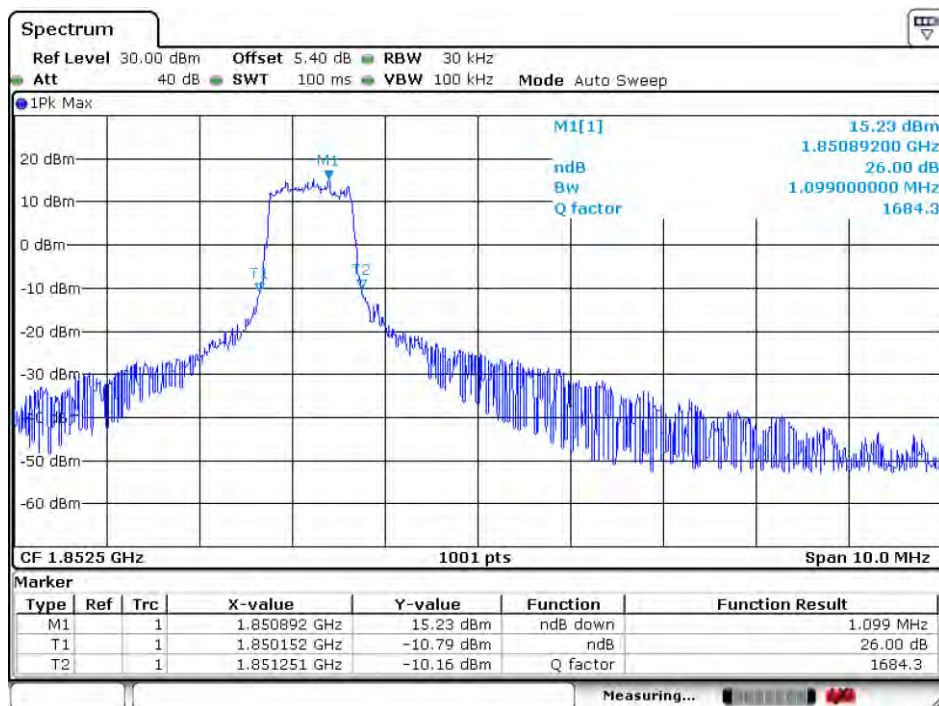
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LTE-CatM1 Band 2 /16QAM 5MHz LCH 5RB#0



Date: 10.SEP.2019 00:51:02



Date: 10.SEP.2019 00:51:40



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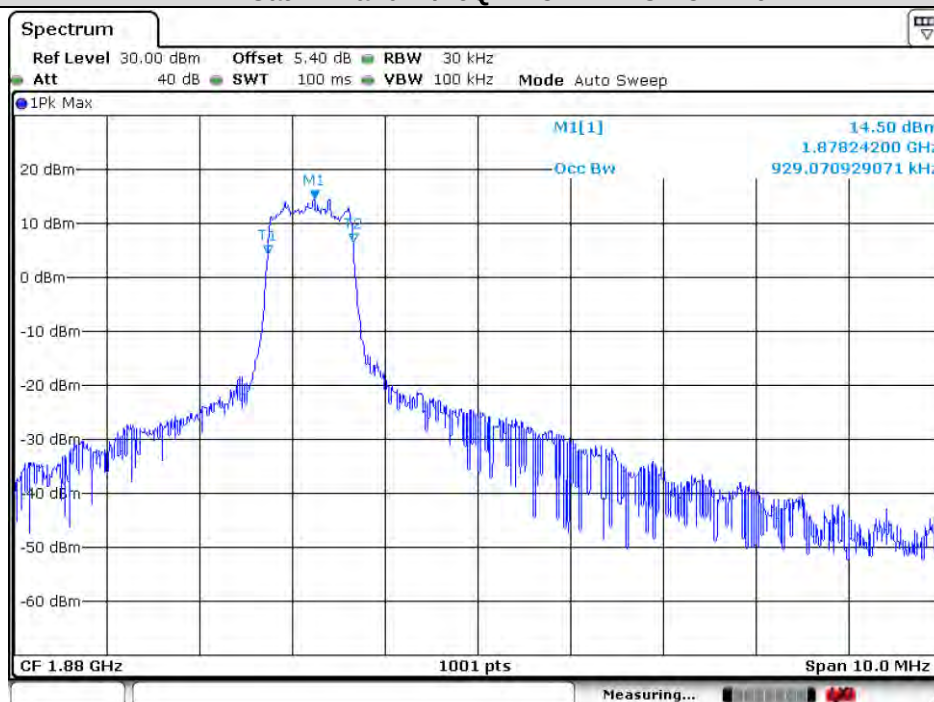
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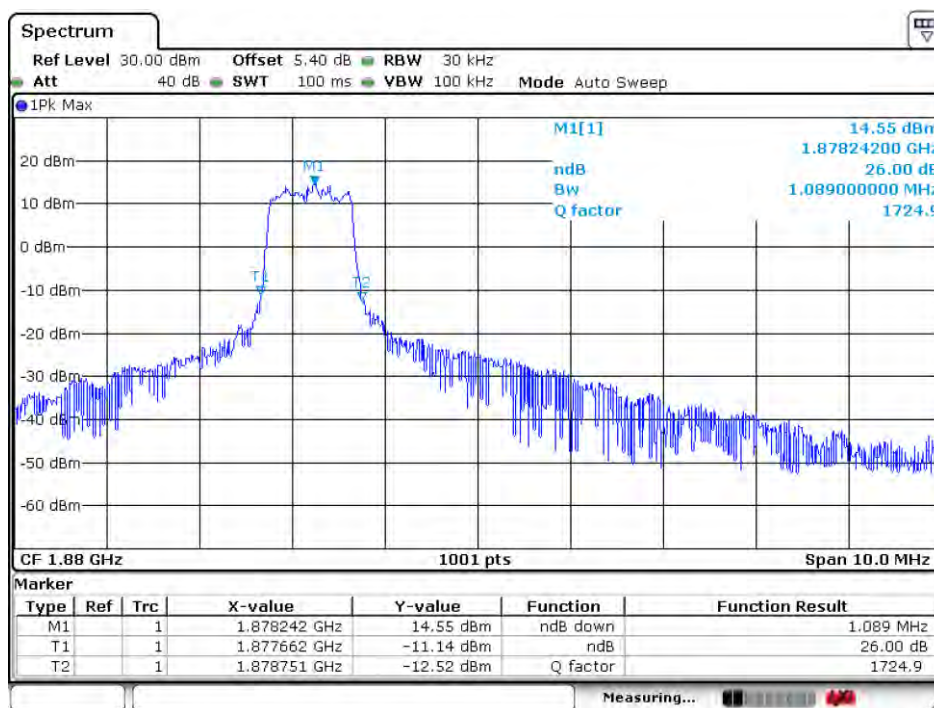
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Date: 10.SEP.2019 00:57:05



Date: 10.SEP.2019 00:56:27



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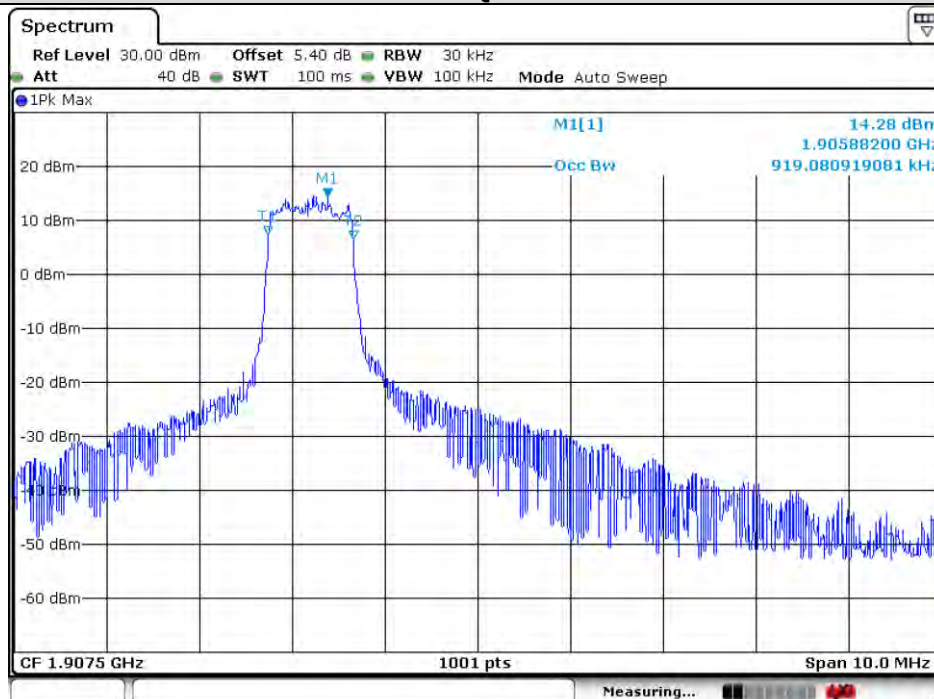
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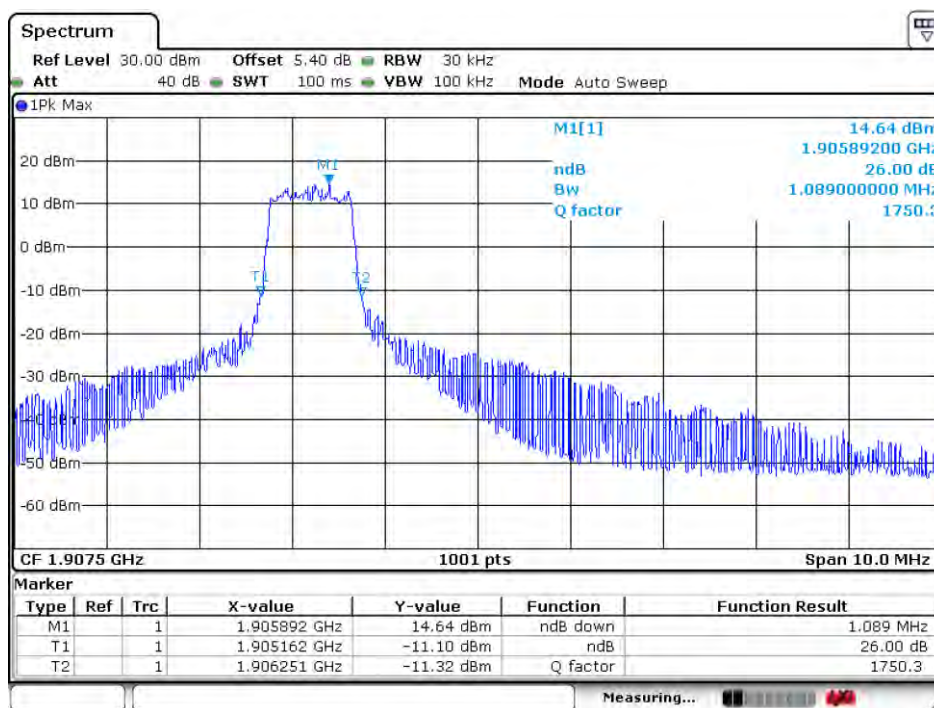
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Date: 10.SEP.2019 00:58:33



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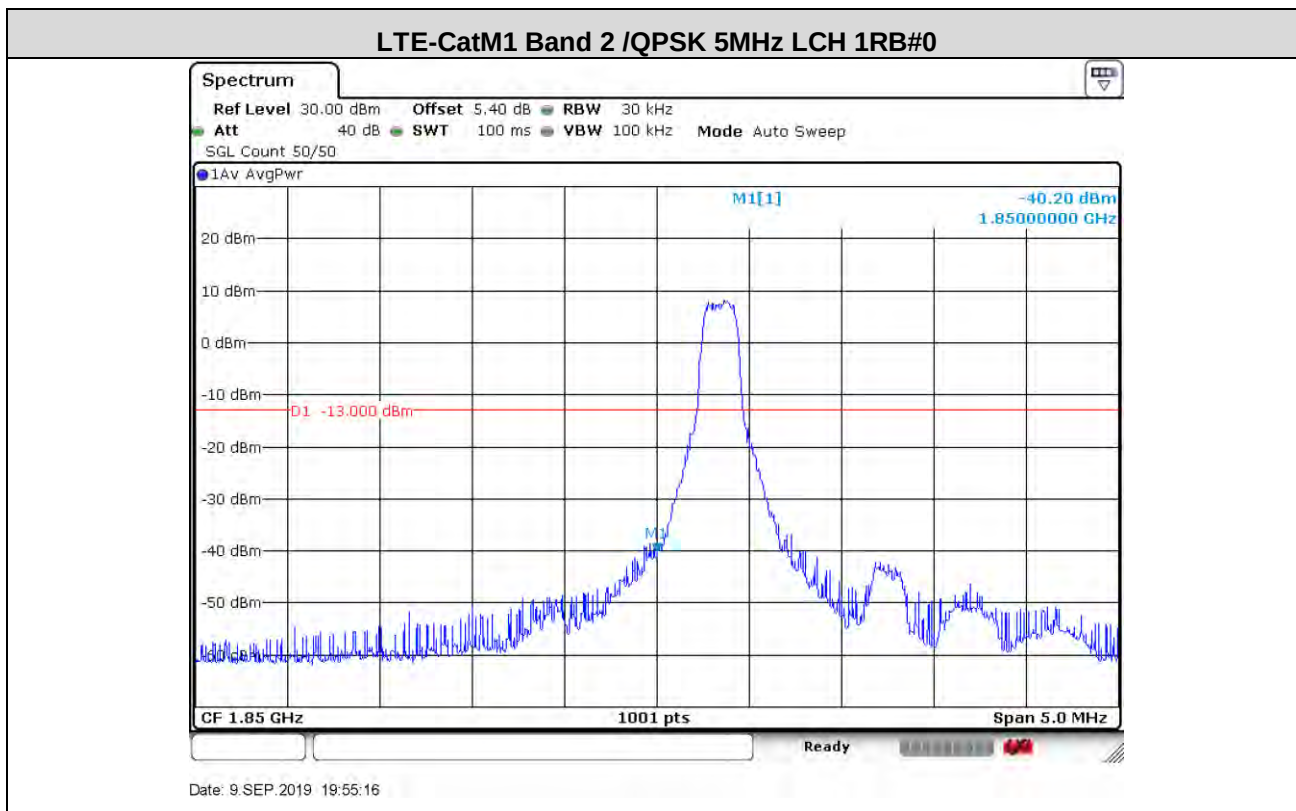
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5 Band Edges Compliance

5.1 Test Plots



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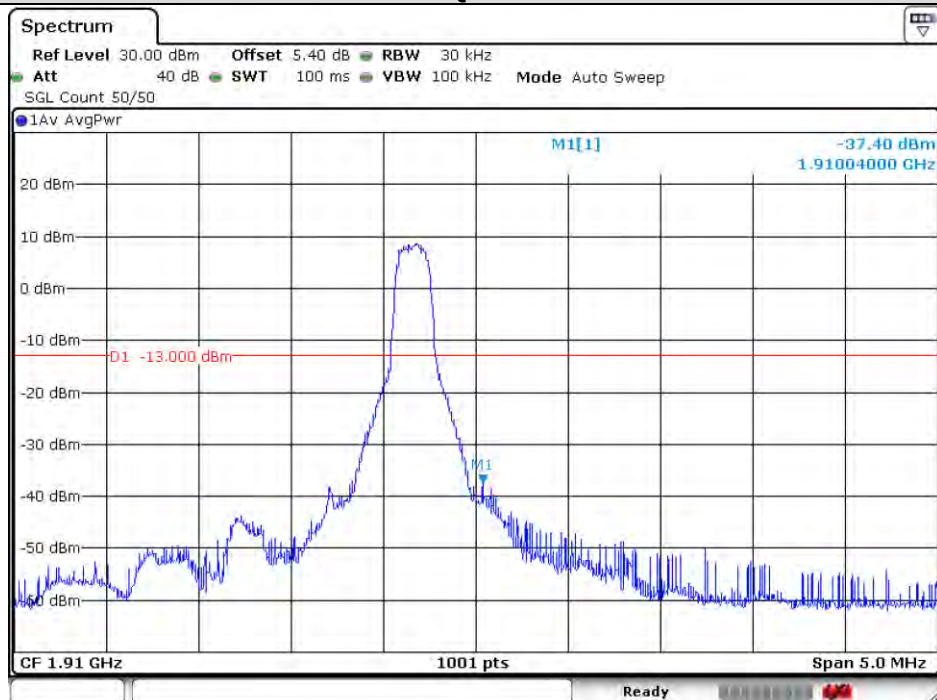
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LTE-CatM1 Band 2 /QPSK 5MHz HCH 1RB#0



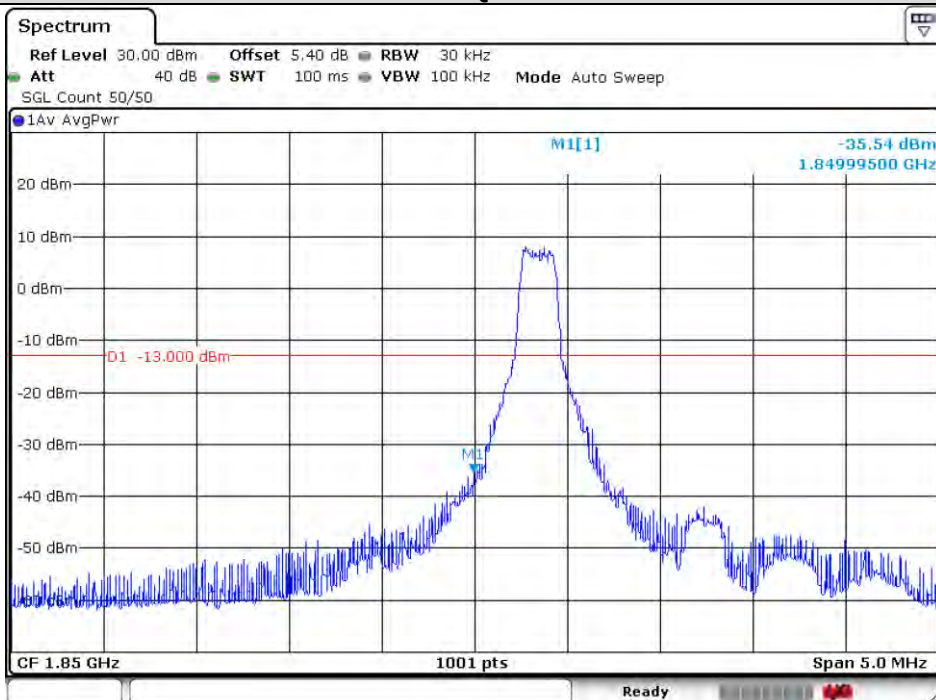
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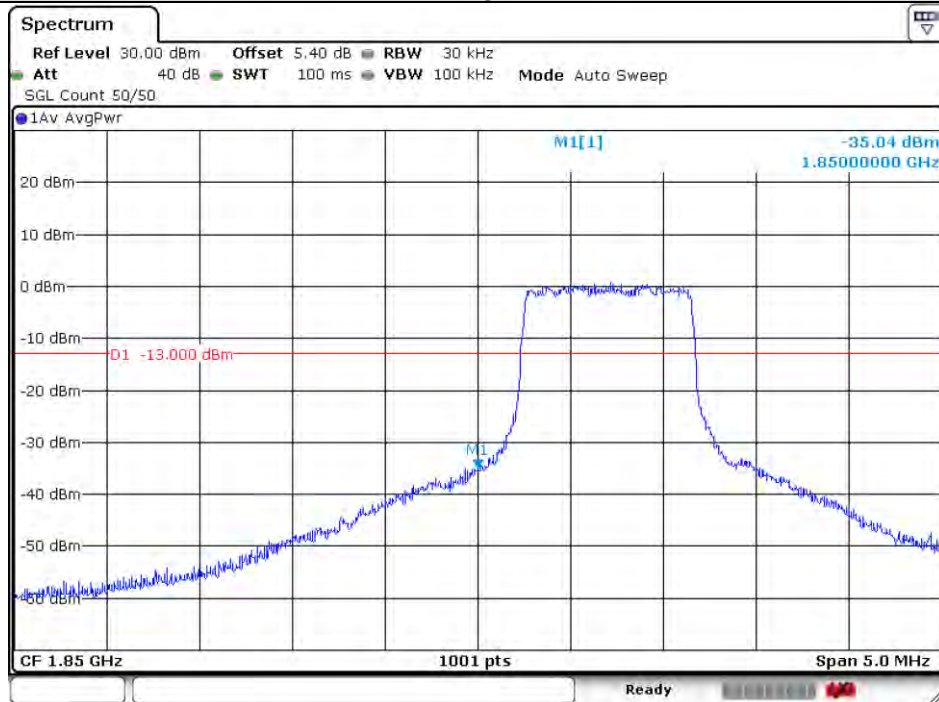
LTE-CatM1 Band 2 /QPSK 5MHz HCH 6RB#0



LTE-CatM1 Band 2 /16QAM 5MHz LCH 1RB#0

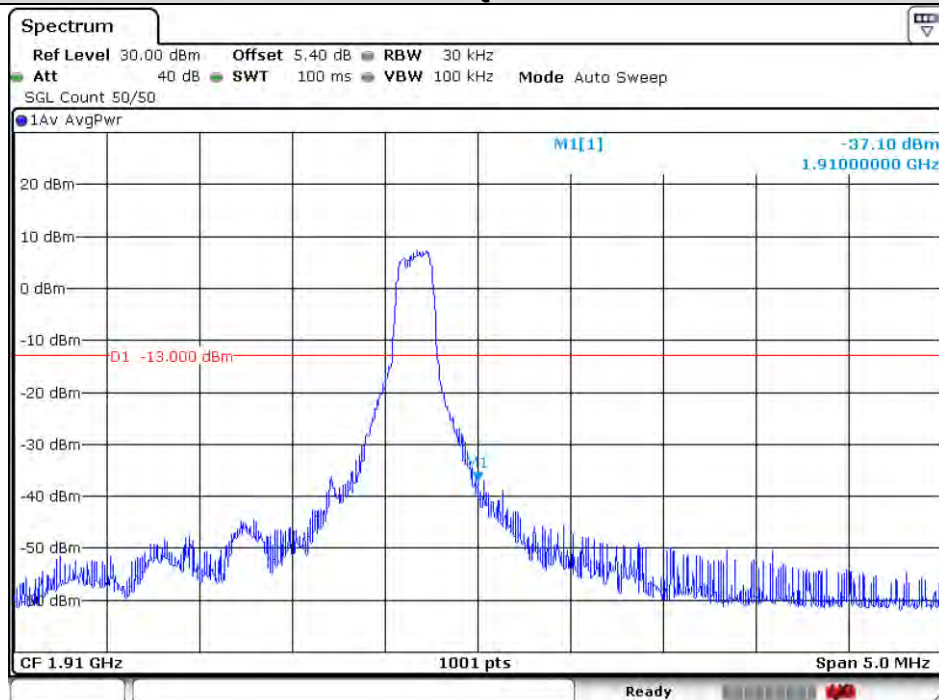


LTE-CatM1 Band 2 /16QAM 5MHz LCH 5RB#0



Date: 10.SEP.2019 01:01:47

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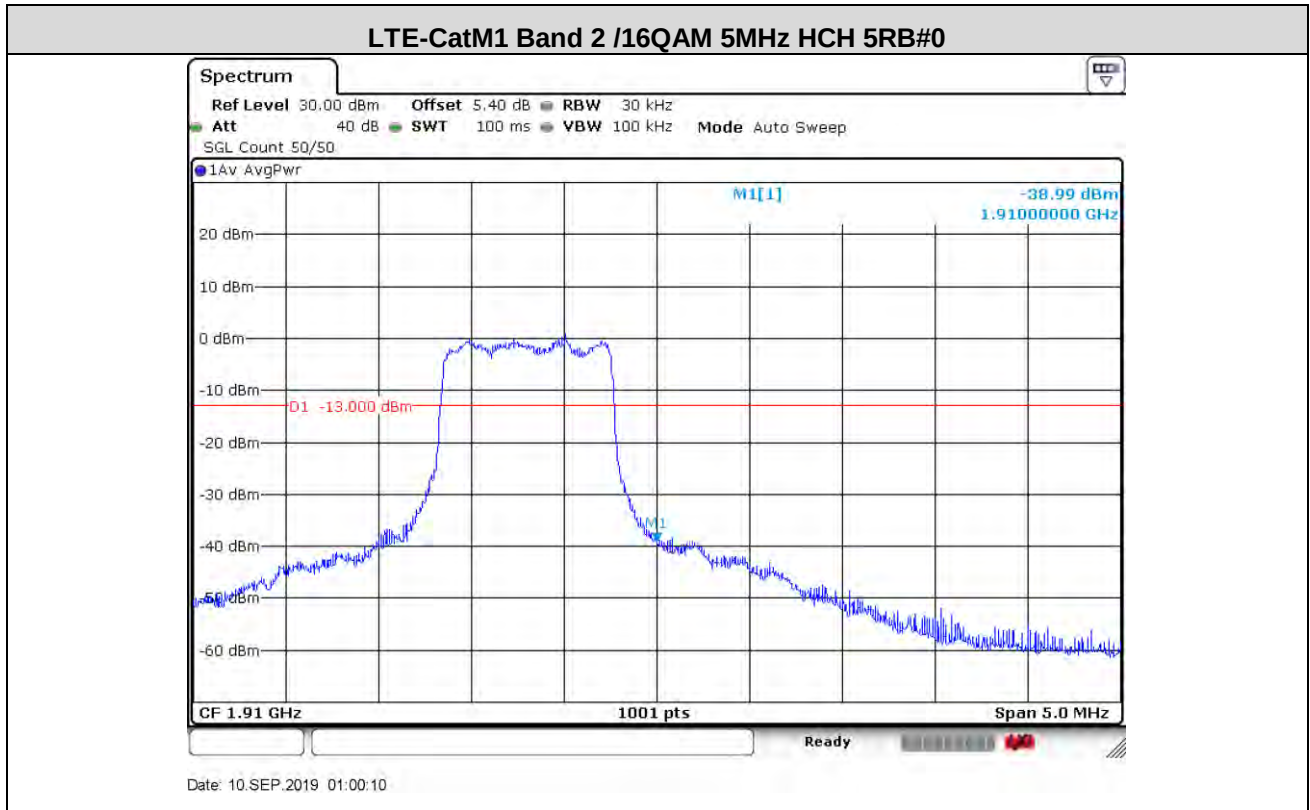


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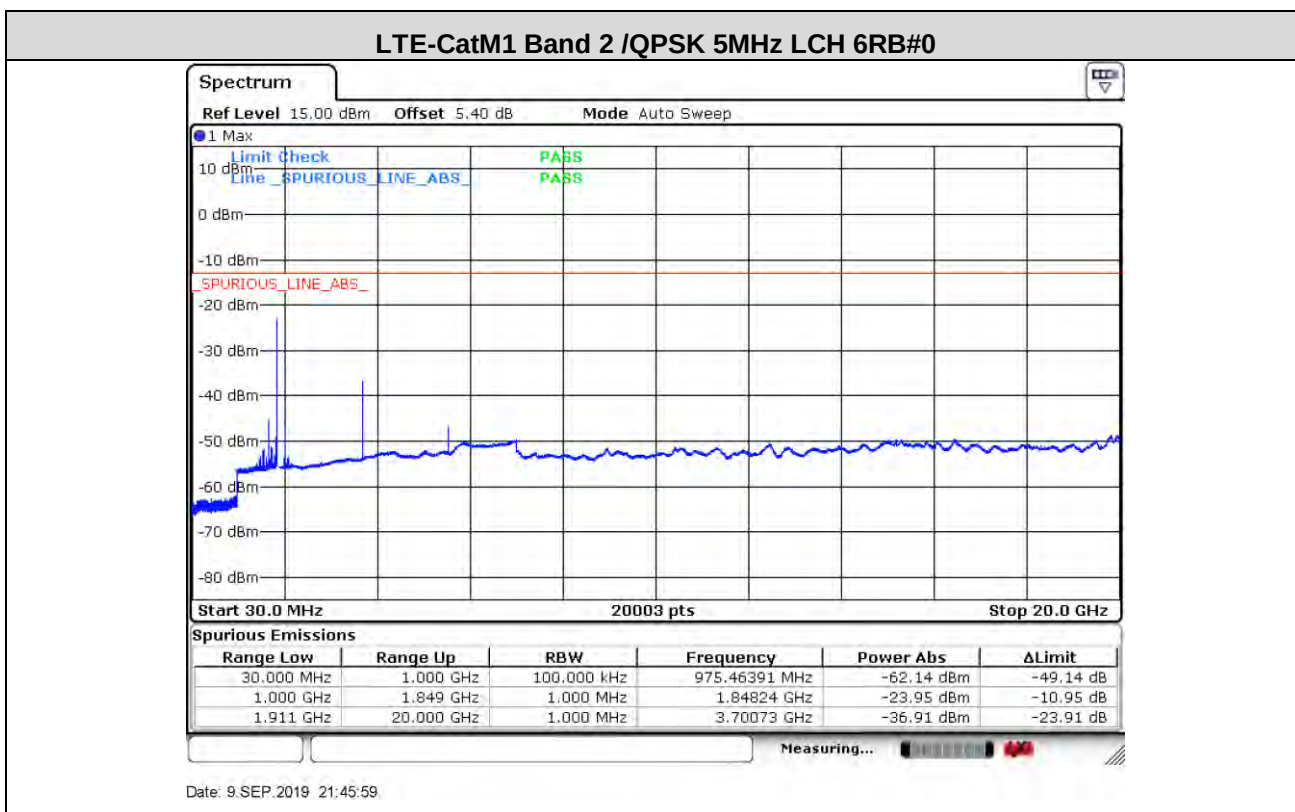


6 Spurious Emission at Antenna Terminal

NOTE1: 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 Test Plots



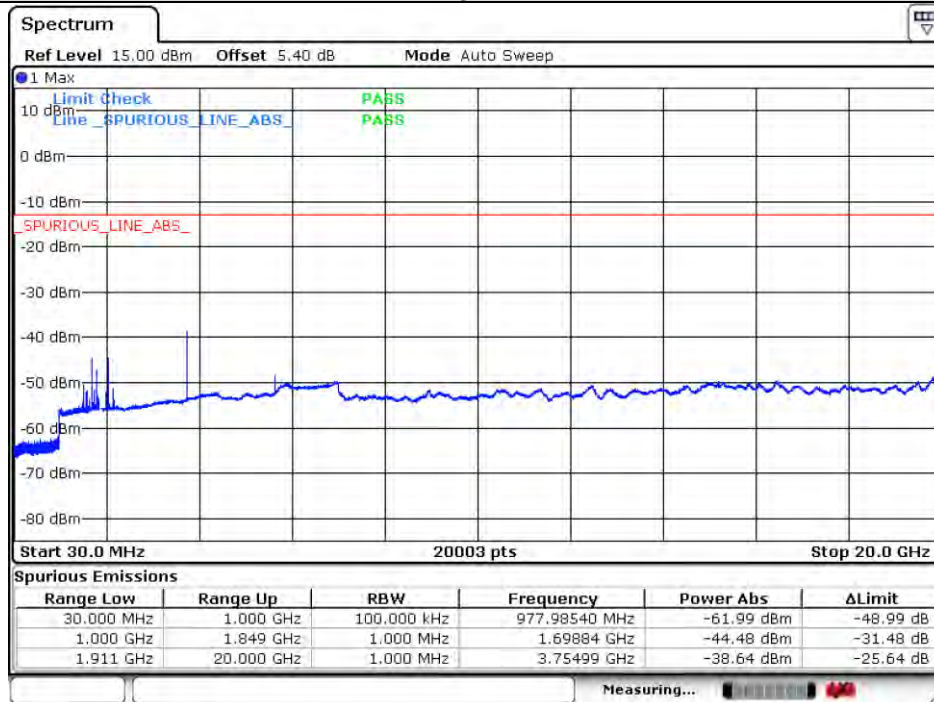
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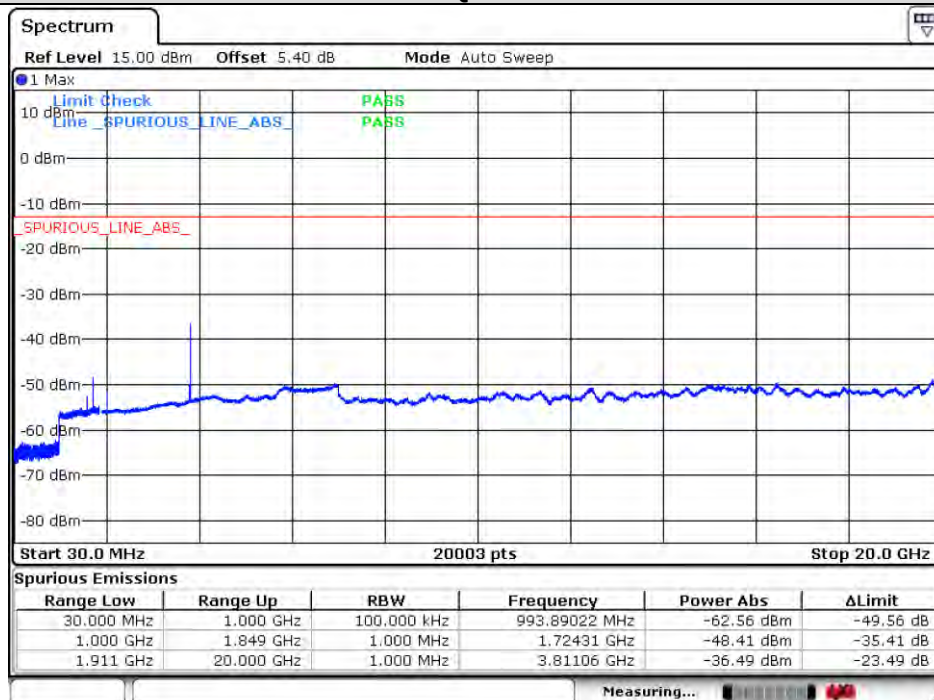
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LTE-CatM1 Band 2 /QPSK 5MHz MCH 6RB#0



Date: 9.SEP.2019 21:48:11

LTE-CatM1 Band 2 /QPSK 5MHz HCH 6RB#0



Date: 9.SEP.2019 21:49:20



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7 Field Strength of Spurious Radiation

7.1 For LTE-CatM1

7.1.1 Test Band = LTE-CatM1 Band 2

7.1.1.1 Test Mode =LTE-CatM1/QPSK

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
113.1332	-65.14	-13.00	52.14	Vertical
689.6330	-63.51	-13.00	50.51	Vertical
2700.7401	-37.62	-13.00	24.62	Vertical
7411.1470	-52.22	-13.00	39.22	Vertical
14708.8903	-43.12	-13.00	30.12	Vertical
17941.4981	-35.17	-13.00	22.17	Vertical
41.6406	-64.37	-13.00	51.37	Horizontal
244.0412	-68.45	-13.00	55.45	Horizontal
2697.5395	-36.43	-13.00	23.43	Horizontal
3700.5234	-38.15	-13.00	25.15	Horizontal
5551.0850	-49.68	-13.00	36.68	Horizontal
16990.4663	-38.92	-13.00	25.92	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
41.6406	-64.37	-13.00	51.37	Vertical
244.0412	-68.45	-13.00	55.45	Vertical
2697.5395	-36.43	-13.00	23.43	Vertical
3700.5234	-38.15	-13.00	25.15	Vertical
5551.0850	-49.68	-13.00	36.68	Vertical
16990.4663	-38.92	-13.00	25.92	Vertical
108.5254	-63.79	-13.00	50.79	Horizontal
2696.7393	-37.76	-13.00	24.76	Horizontal
3755.5252	-54.61	-13.00	41.61	Horizontal
7839.6613	-52.43	-13.00	39.43	Horizontal
14709.8903	-42.73	-13.00	29.73	Horizontal
17992.4998	-33.10	-13.00	20.10	Horizontal



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7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
110.6110	-64.34	-13.00	51.34	Vertical
819.1345	-61.66	-13.00	48.66	Vertical
2688.3377	-37.60	-13.00	24.60	Vertical
7950.1650	-50.63	-13.00	37.63	Vertical
14672.3891	-42.36	-13.00	29.36	Vertical
17989.4997	-34.79	-13.00	21.79	Vertical
41.5921	-63.85	-13.00	50.85	Horizontal
792.8461	-61.96	-13.00	48.96	Horizontal
2699.1398	-36.45	-13.00	23.45	Horizontal
3810.0270	-41.01	-13.00	28.01	Horizontal
5716.0905	-48.66	-13.00	35.66	Horizontal
16977.4659	-39.19	-13.00	26.19	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) 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	RB Config	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	TN	VL	14.33	0.007734	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	TN	VN	-3.76	-0.002031	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	TN	VH	12.27	0.006626	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	TN	VL	-13.73	-0.007306	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	TN	VN	-11.96	-0.006361	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	TN	VH	-11.92	-0.006338	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	TN	VL	-7.54	-0.003953	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	TN	VN	13.99	0.007332	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	TN	VH	-12.72	-0.006668	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	TN	VL	9.85	0.005317	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	TN	VN	5.47	0.002954	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	TN	VH	3.41	0.001842	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	TN	VL	0.06	0.000030	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	TN	VN	4.22	0.002243	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	TN	VH	-9.47	-0.005035	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	TN	VL	6.40	0.003356	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	TN	VN	3.67	0.001926	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	TN	VH	1.11	0.000583	±2.5	PASS



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8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	RB Config	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	-30	7.73	0.004172	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	-20	-3.06	-0.001651	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	-10	1.63	0.000881	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	0	-5.72	-0.003090	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	10	12.63	0.006818	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	20	-0.77	-0.000417	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	30	-13.11	-0.007076	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	40	-5.98	-0.003227	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	LCH	6RB#0	VN	50	7.95	0.004226	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	-30	6.49	0.003450	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	-20	6.16	0.003278	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	-10	1.12	0.000594	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	0	-14.92	-0.007934	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	10	10.42	0.005544	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	20	-0.96	-0.000512	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	30	-13.88	-0.007386	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	40	2.44	0.001281	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	MCH	6RB#0	VN	50	-13.19	-0.006917	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	-30	-7.83	-0.004105	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	-20	-5.65	-0.002960	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	-10	-3.80	-0.001990	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	0	-0.25	-0.000130	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	10	11.30	0.005925	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	20	-8.48	-0.004444	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	30	7.73	0.004172	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	40	-3.06	-0.001651	±2.5	PASS
CatM1 Band 2	QPSK 5MHz	HCH	6RB#0	VN	50	1.63	0.000881	±2.5	PASS



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Test Band	Test Mode	Test Channel	RB Config	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	-30	-14.76	-0.007966	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	-20	8.61	0.004647	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	-10	9.73	0.005251	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	0	6.67	0.003598	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	10	-5.16	-0.002787	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	20	7.31	0.003948	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	30	7.36	0.003972	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	40	14.07	0.007598	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	LCH	5RB#0	VN	50	-11.98	-0.006374	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	-30	-0.54	-0.000288	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	-20	-12.57	-0.006684	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	-10	-1.14	-0.000608	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	0	-11.23	-0.005974	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	10	7.46	0.003967	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	20	-14.16	-0.007534	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	30	-0.13	-0.000071	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	40	-5.77	-0.003027	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	MCH	5RB#0	VN	50	-2.45	-0.001284	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	-30	4.98	0.002608	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	-20	3.15	0.001650	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	-10	-3.98	-0.002087	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	0	-6.74	-0.003533	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	10	5.65	0.002962	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	20	-1.22	-0.000639	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	30	-14.76	-0.007966	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	40	8.61	0.004647	±2.5	PASS
CatM1 Band 2	16QAM 5MHz	HCH	5RB#0	VN	50	9.73	0.005251	±2.5	PASS

The End



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Appendix B

LTE-CatM1 Band 4



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1 Effective (Isotropic) Radiated Power Output Data

Effective Isotropic Radiated Power of Transmitter (EIRP) for LTE-CatM1 Band 4

Test Band	Test Mode	Test Bandwidth	Test channel	Test RB	Conducted Power (dBm)	EIRP (dBm)	limit (dBm)	Verdict
CatM1 Band 4	QPSK	1.4M	LCH	1RB#0	20.75	22.35	33.00	PASS
CatM1 Band 4	QPSK	1.4M	LCH	5RB#0	19.67	21.27	33.00	PASS
CatM1 Band 4	QPSK	1.4M	LCH	6RB#0	18.64	20.24	33.00	PASS
CatM1 Band 4	QPSK	1.4M	MCH	1RB#0	20.85	22.45	33.00	PASS
CatM1 Band 4	QPSK	1.4M	MCH	5RB#0	19.76	21.36	33.00	PASS
CatM1 Band 4	QPSK	1.4M	MCH	6RB#0	18.74	20.34	33.00	PASS
CatM1 Band 4	QPSK	1.4M	HCH	1RB#0	20.81	22.41	33.00	PASS
CatM1 Band 4	QPSK	1.4M	HCH	5RB#0	19.69	21.29	33.00	PASS
CatM1 Band 4	QPSK	1.4M	HCH	6RB#0	18.66	20.26	33.00	PASS
CatM1 Band 4	16QAM	1.4M	LCH	1RB#0	19.51	21.11	33.00	PASS
CatM1 Band 4	16QAM	1.4M	LCH	5RB#0	18.74	20.34	33.00	PASS
CatM1 Band 4	16QAM	1.4M	MCH	1RB#0	19.98	21.58	33.00	PASS
CatM1 Band 4	16QAM	1.4M	MCH	5RB#0	18.77	20.37	33.00	PASS
CatM1 Band 4	16QAM	1.4M	HCH	1RB#0	19.79	21.39	33.00	PASS
CatM1 Band 4	16QAM	1.4M	HCH	5RB#0	18.82	20.42	33.00	PASS
CatM1 Band 4	QPSK	3M	LCH	1RB#0	20.82	22.42	33.00	PASS
CatM1 Band 4	QPSK	3M	LCH	5RB#0	19.65	21.25	33.00	PASS
CatM1 Band 4	QPSK	3M	LCH	6RB#0	18.80	20.40	33.00	PASS
CatM1 Band 4	QPSK	3M	MCH	1RB#0	20.85	22.45	33.00	PASS
CatM1 Band 4	QPSK	3M	MCH	5RB#0	19.73	21.33	33.00	PASS
CatM1 Band 4	QPSK	3M	MCH	6RB#0	18.82	20.42	33.00	PASS
CatM1 Band 4	QPSK	3M	HCH	1RB#0	20.83	22.43	33.00	PASS
CatM1 Band 4	QPSK	3M	HCH	5RB#0	19.67	21.27	33.00	PASS
CatM1 Band 4	QPSK	3M	HCH	6RB#0	18.85	20.45	33.00	PASS
CatM1 Band 4	16QAM	3M	LCH	1RB#0	19.49	21.09	33.00	PASS
CatM1 Band 4	16QAM	3M	LCH	5RB#0	18.94	20.54	33.00	PASS
CatM1 Band 4	16QAM	3M	MCH	1RB#0	19.59	21.19	33.00	PASS
CatM1 Band 4	16QAM	3M	MCH	5RB#0	18.39	19.99	33.00	PASS
CatM1 Band 4	16QAM	3M	HCH	1RB#0	19.61	21.21	33.00	PASS
CatM1 Band 4	16QAM	3M	HCH	5RB#0	18.66	20.26	33.00	PASS
CatM1 Band 4	QPSK	5M	LCH	1RB#0	20.81	22.41	33.00	PASS
CatM1 Band 4	QPSK	5M	LCH	5RB#0	19.69	21.29	33.00	PASS
CatM1 Band 4	QPSK	5M	LCH	6RB#0	19.77	21.37	33.00	PASS
CatM1 Band 4	QPSK	5M	MCH	1RB#0	20.86	22.46	33.00	PASS
CatM1 Band 4	QPSK	5M	MCH	5RB#0	19.74	21.34	33.00	PASS
CatM1 Band 4	QPSK	5M	MCH	6RB#0	19.89	21.49	33.00	PASS
CatM1 Band 4	QPSK	5M	HCH	1RB#0	20.86	22.46	33.00	PASS
CatM1 Band 4	QPSK	5M	HCH	5RB#0	19.77	21.37	33.00	PASS
CatM1 Band 4	QPSK	5M	HCH	6RB#0	19.96	21.56	33.00	PASS



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CatM1 Band 4	16QAM	5M	LCH	1RB#0	20.46	22.06	33.00	PASS
CatM1 Band 4	16QAM	5M	LCH	5RB#0	19.73	21.33	33.00	PASS
CatM1 Band 4	16QAM	5M	MCH	1RB#0	20.57	22.17	33.00	PASS
CatM1 Band 4	16QAM	5M	MCH	5RB#0	19.75	21.35	33.00	PASS
CatM1 Band 4	16QAM	5M	HCH	1RB#0	20.58	22.18	33.00	PASS
CatM1 Band 4	16QAM	5M	HCH	5RB#0	19.88	21.48	33.00	PASS
CatM1 Band 4	QPSK	10M	LCH	1RB#0	20.88	22.48	33.00	PASS
CatM1 Band 4	QPSK	10M	LCH	5RB#0	20.75	22.35	33.00	PASS
CatM1 Band 4	QPSK	10M	LCH	6RB#0	19.81	21.41	33.00	PASS
CatM1 Band 4	QPSK	10M	MCH	1RB#0	20.88	22.48	33.00	PASS
CatM1 Band 4	QPSK	10M	MCH	5RB#0	20.77	22.37	33.00	PASS
CatM1 Band 4	QPSK	10M	MCH	6RB#0	19.75	21.35	33.00	PASS
CatM1 Band 4	QPSK	10M	HCH	1RB#0	20.90	22.50	33.00	PASS
CatM1 Band 4	QPSK	10M	HCH	5RB#0	20.79	22.39	33.00	PASS
CatM1 Band 4	QPSK	10M	HCH	6RB#0	19.83	21.43	33.00	PASS
CatM1 Band 4	16QAM	10M	LCH	1RB#0	20.55	22.15	33.00	PASS
CatM1 Band 4	16QAM	10M	LCH	5RB#0	20.86	22.46	33.00	PASS
CatM1 Band 4	16QAM	10M	MCH	1RB#0	20.57	22.17	33.00	PASS
CatM1 Band 4	16QAM	10M	MCH	5RB#0	20.47	22.07	33.00	PASS
CatM1 Band 4	16QAM	10M	HCH	1RB#0	20.60	22.20	33.00	PASS
CatM1 Band 4	16QAM	10M	HCH	5RB#0	20.63	22.23	33.00	PASS
CatM1 Band 4	QPSK	15M	LCH	1RB#0	20.91	22.51	33.00	PASS
CatM1 Band 4	QPSK	15M	LCH	5RB#0	20.79	22.39	33.00	PASS
CatM1 Band 4	QPSK	15M	LCH	6RB#0	20.69	22.29	33.00	PASS
CatM1 Band 4	QPSK	15M	MCH	1RB#0	20.92	22.52	33.00	PASS
CatM1 Band 4	QPSK	15M	MCH	5RB#0	20.81	22.41	33.00	PASS
CatM1 Band 4	QPSK	15M	MCH	6RB#0	20.78	22.38	33.00	PASS
CatM1 Band 4	QPSK	15M	HCH	1RB#0	20.92	22.52	33.00	PASS
CatM1 Band 4	QPSK	15M	HCH	5RB#0	20.77	22.37	33.00	PASS
CatM1 Band 4	QPSK	15M	HCH	6RB#0	20.76	22.36	33.00	PASS
CatM1 Band 4	16QAM	15M	LCH	1RB#0	20.47	22.07	33.00	PASS
CatM1 Band 4	16QAM	15M	LCH	5RB#0	20.71	22.31	33.00	PASS
CatM1 Band 4	16QAM	15M	MCH	1RB#0	20.53	22.13	33.00	PASS
CatM1 Band 4	16QAM	15M	MCH	5RB#0	20.68	22.28	33.00	PASS
CatM1 Band 4	16QAM	15M	HCH	1RB#0	20.56	22.16	33.00	PASS
CatM1 Band 4	16QAM	15M	HCH	5RB#0	20.77	22.37	33.00	PASS
CatM1 Band 4	QPSK	20M	LCH	1RB#0	20.95	22.55	33.00	PASS
CatM1 Band 4	QPSK	20M	LCH	5RB#0	20.85	22.45	33.00	PASS
CatM1 Band 4	QPSK	20M	LCH	6RB#0	20.77	22.37	33.00	PASS
CatM1 Band 4	QPSK	20M	MCH	1RB#0	20.97	22.57	33.00	PASS
CatM1 Band 4	QPSK	20M	MCH	5RB#0	20.81	22.41	33.00	PASS
CatM1 Band 4	QPSK	20M	MCH	6RB#0	20.79	22.39	33.00	PASS
CatM1 Band 4	QPSK	20M	HCH	1RB#0	20.96	22.56	33.00	PASS
CatM1 Band 4	QPSK	20M	HCH	5RB#0	20.91	22.51	33.00	PASS
CatM1 Band 4	QPSK	20M	HCH	6RB#0	20.87	22.47	33.00	PASS
CatM1 Band 4	16QAM	20M	LCH	1RB#0	20.56	22.16	33.00	PASS
CatM1 Band 4	16QAM	20M	LCH	5RB#0	20.31	21.91	33.00	PASS



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CatM1 Band 4	16QAM	20M	MCH	1RB#0	20.57	22.17	33.00	PASS
CatM1 Band 4	16QAM	20M	MCH	5RB#0	20.20	21.80	33.00	PASS
CatM1 Band 4	16QAM	20M	HCH	1RB#0	20.53	22.13	33.00	PASS
CatM1 Band 4	16QAM	20M	HCH	5RB#0	20.78	22.38	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,

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

$ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi] - 2.15$



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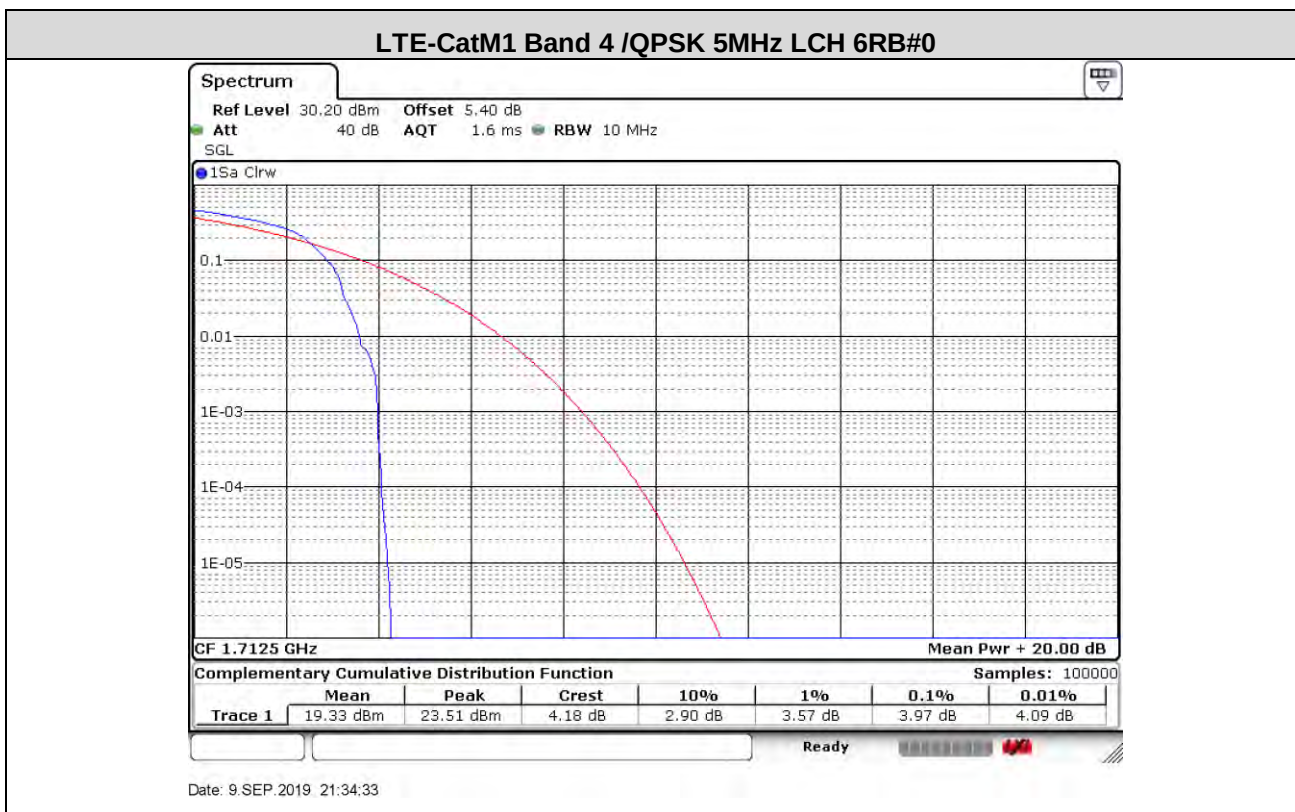


2 Peak-to-Average Ratio

2.1 Test Results

Test Band	Test Mode	RB Config	Test Channel	Measured [dB]	Limit [dB]	Verdict
CatM1 Band 4	QPSK/5M	6RB#0	LCH	3.97	13	PASS
CatM1 Band 4	QPSK/5M	6RB#0	MCH	4.52	13	PASS
CatM1 Band 4	QPSK/5M	6RB#0	HCH	4.55	13	PASS
CatM1 Band 4	16QAM/5M	5RB#0	LCH	5.19	13	PASS
CatM1 Band 4	16QAM/5M	5RB#0	MCH	4.99	13	PASS
CatM1 Band 4	16QAM/5M	5RB#0	HCH	4.96	13	PASS

2.2 Test Plots



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LTE-CatM1 Band 4 /QPSK 5MHz MCH 6RB#0



Date: 9 SEP. 2019 21:25:53

LTE-CatM1 Band 4 /QPSK 5MHz HCH 6RB#0



Date: 9 SEP. 2019 20:57:13

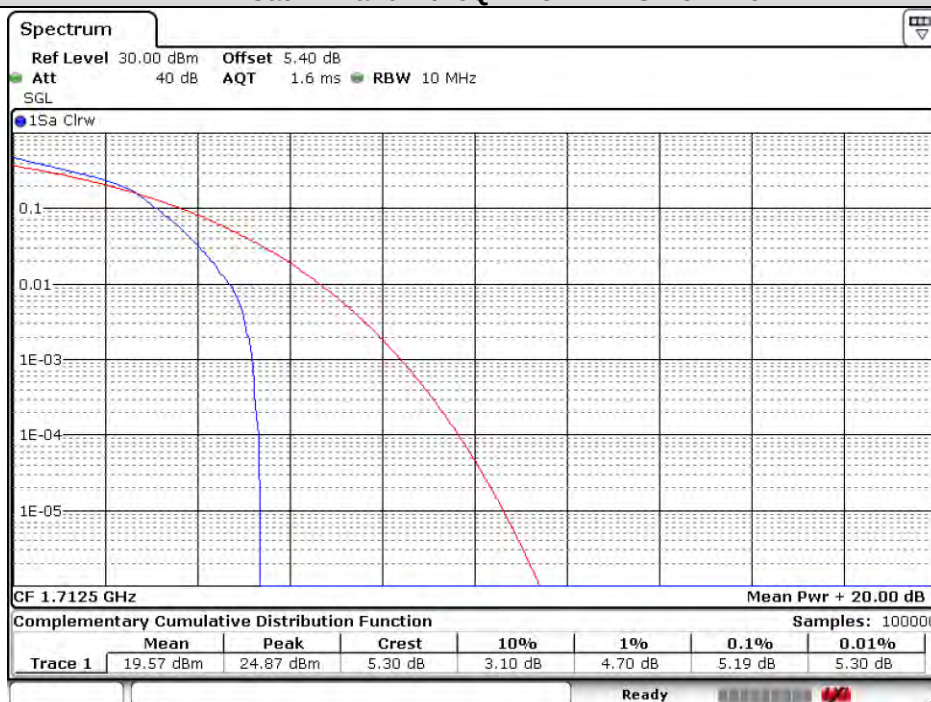


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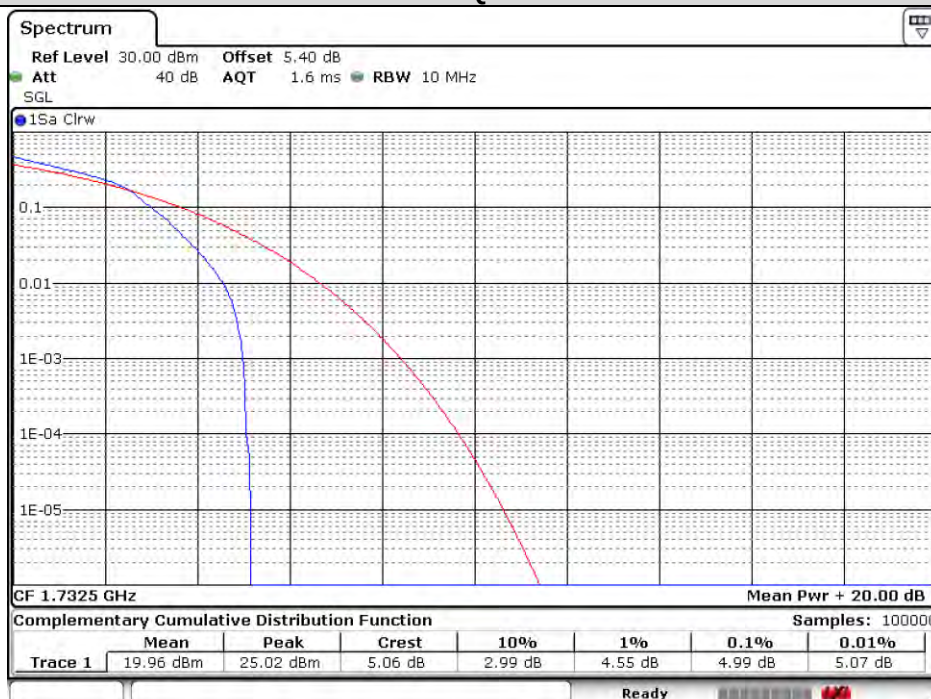


LTE-CatM1 Band 4 /16QAM 5MHz LCH 5RB#0



Date: 18.SEP.2019 16:36:31

LTE-CatM1 Band 4 /16QAM 5MHz MCH 5RB#0



Date: 18.SEP.2019 16:38:13

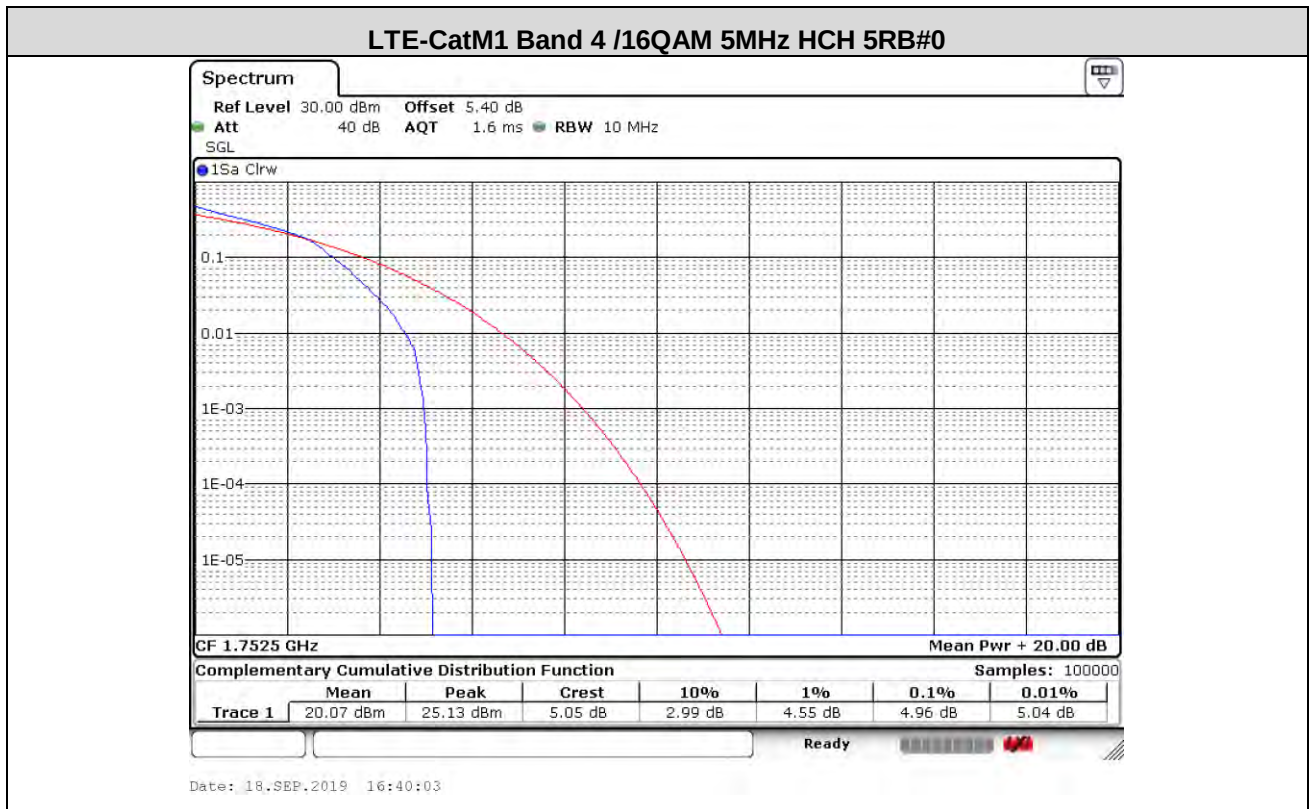


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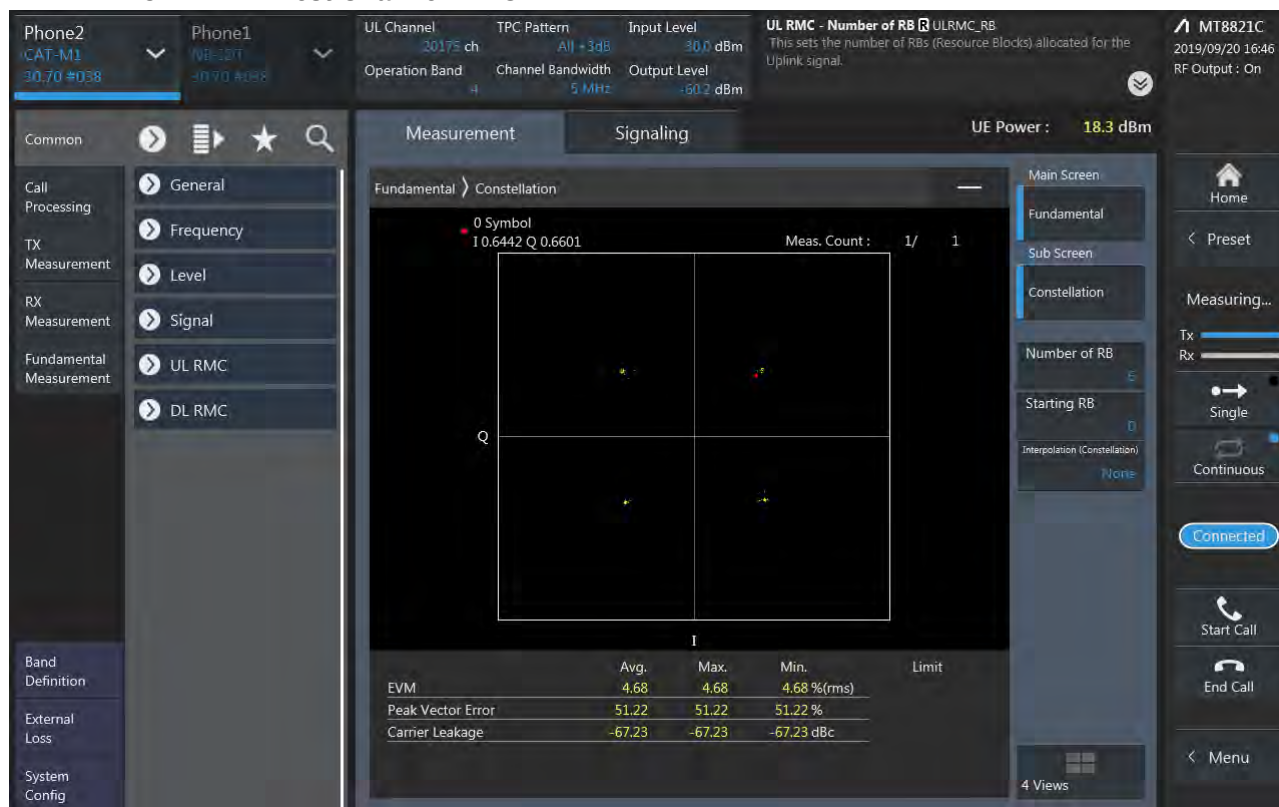
3 Modulation Characteristics

3.1 For LTE-CatM1

3.1.1 Test Band = LTE-CatM1 Band 4

3.1.1.1 Test Mode = LTE-CatM1 /QPSK 5MHz

3.1.1.1.1 Test Channel = MCH



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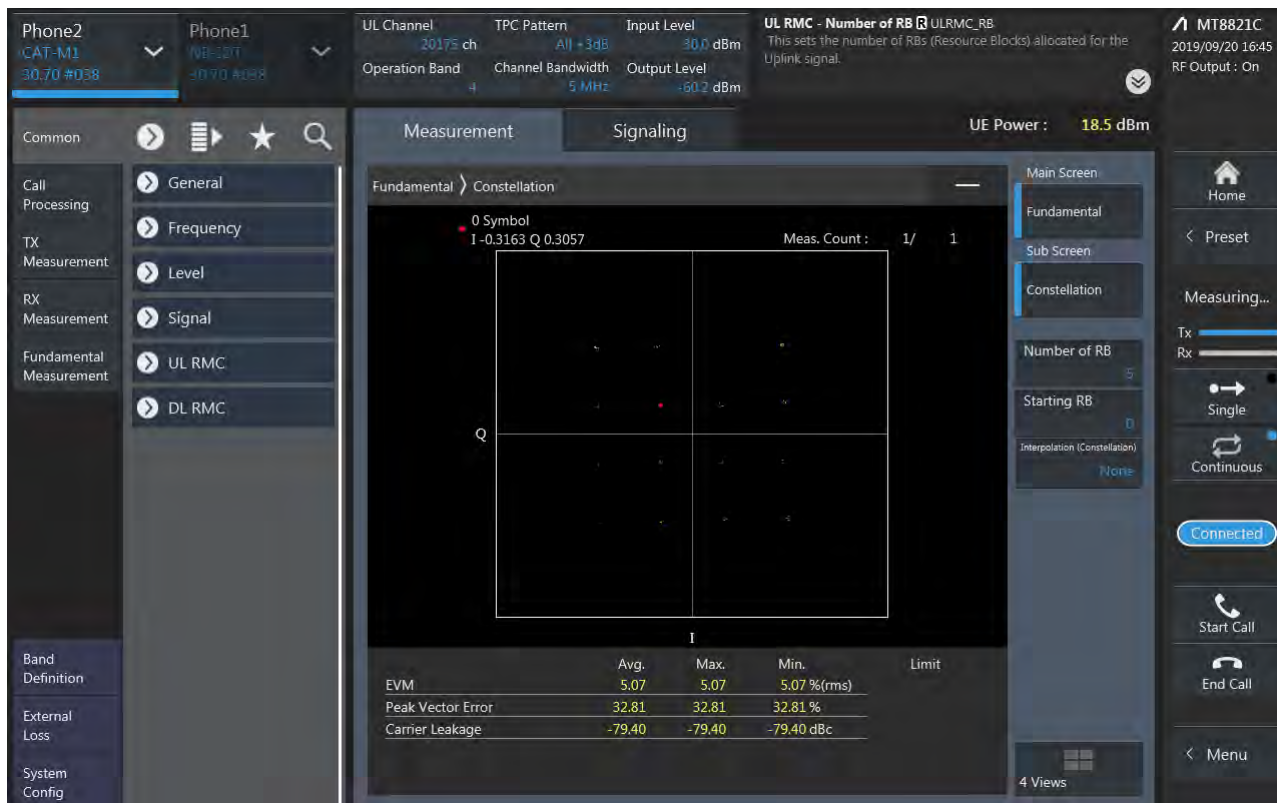
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3.1.1.2 Test Mode = LTE-CatM1 /16QAM 5MHz

3.1.1.2.1 Test Channel = MCH

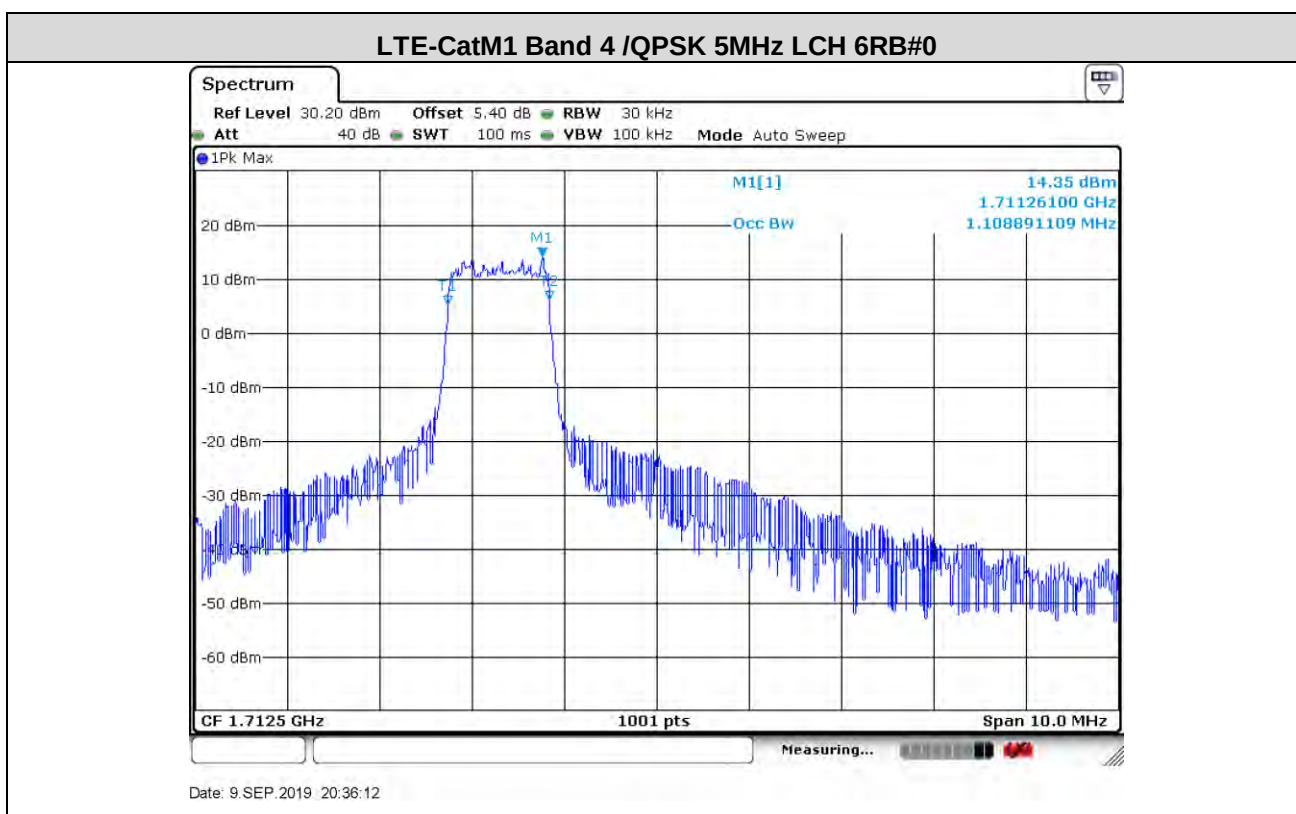


4 26dB Bandwidth and Occupied Bandwidth

4.1 Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	26dB Emission Bandwidth [MHz]	Verdict
CatM1 Band 4	QPSK/ 5MHz	LCH	1.11	1.29	PASS
CatM1 Band 4	QPSK/ 5MHz	MCH	1.08	1.27	PASS
CatM1 Band 4	QPSK/ 5MHz	HCH	1.10	1.27	PASS
CatM1 Band 4	16QAM/ 5MHz	LCH	0.92	1.09	PASS
CatM1 Band 4	16QAM/ 5MHz	MCH	0.92	1.08	PASS
CatM1 Band 4	16QAM/ 5MHz	HCH	0.92	1.07	PASS

4.2 Test Plots

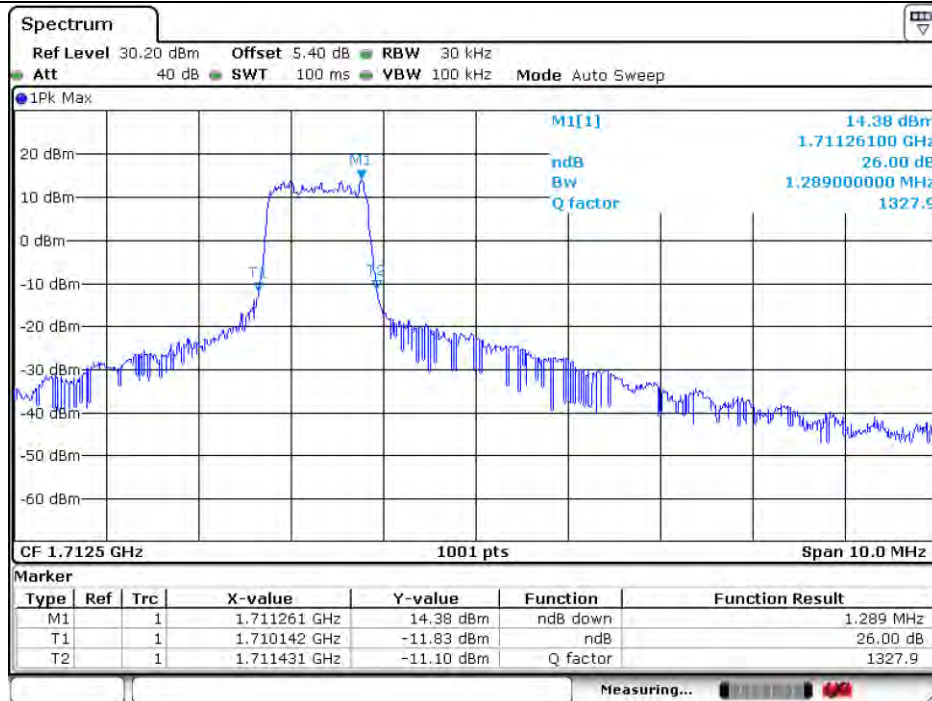


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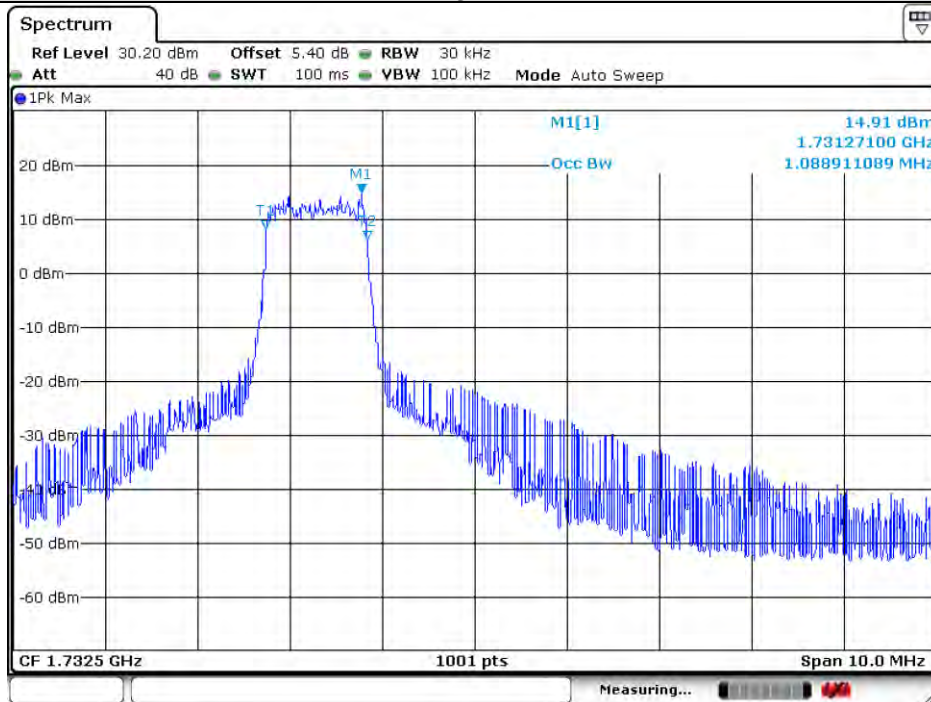
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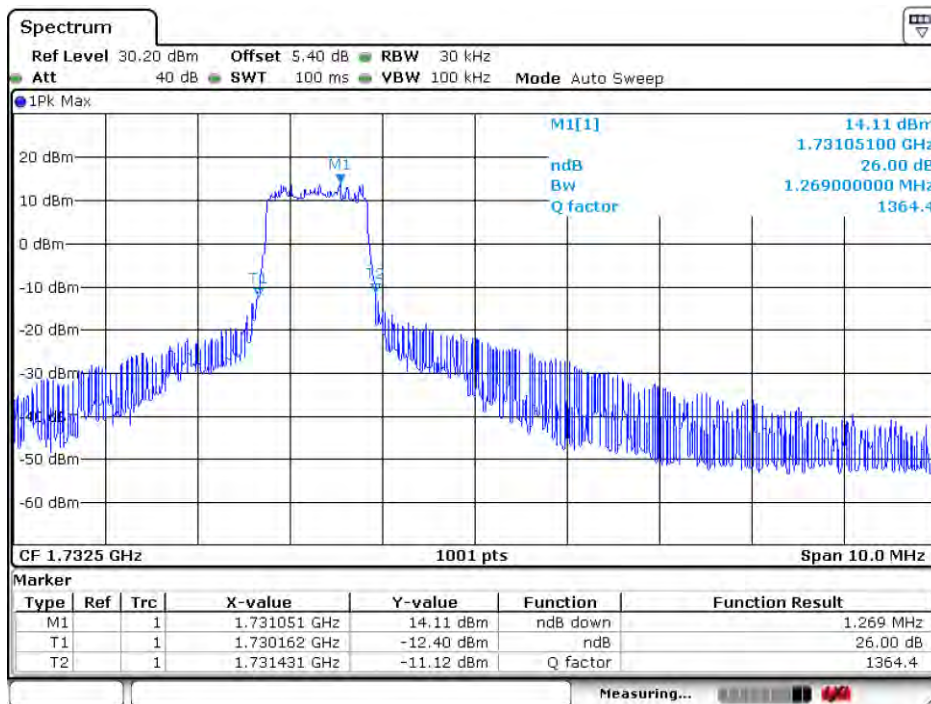
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LTE-CatM1 Band 4 /QPSK 5MHz MCH 6RB#0



Date: 9 SEP.2019 20:54:27



Date: 9 SEP.2019 20:54:13



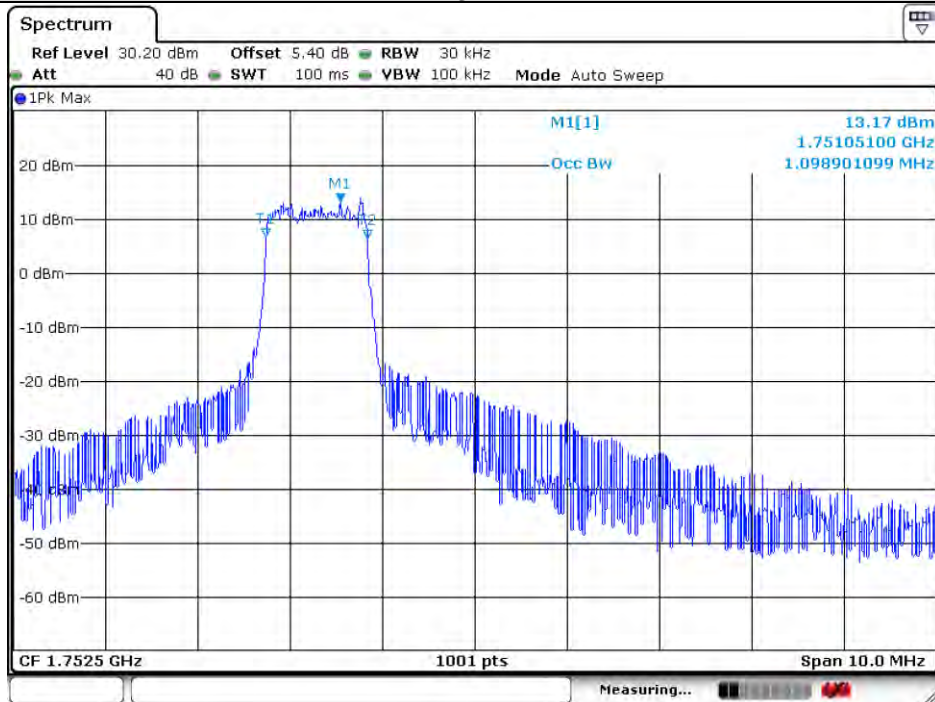
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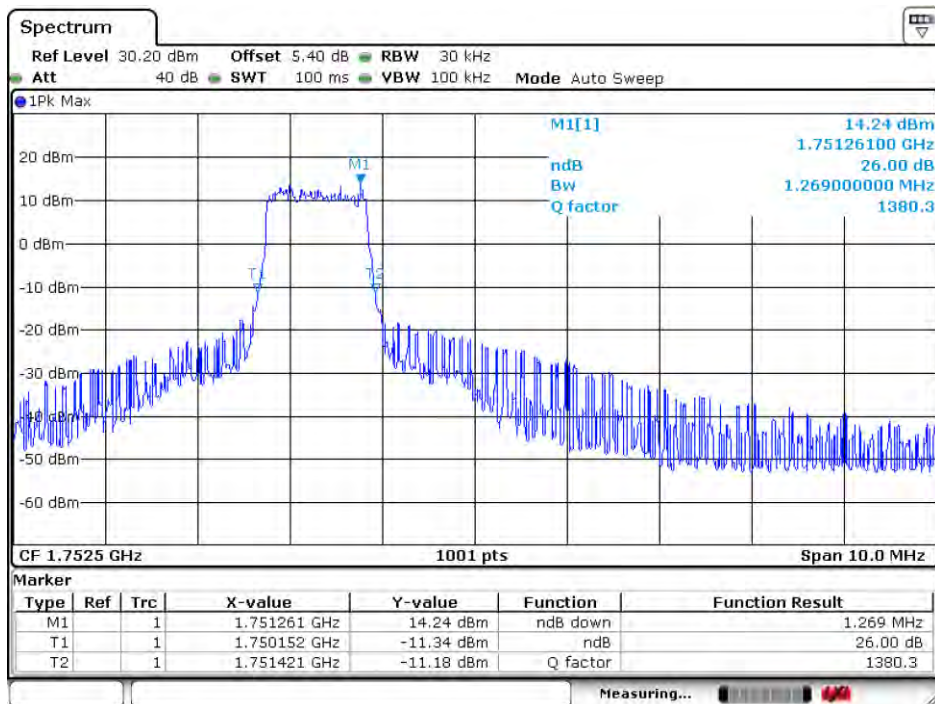
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LTE-CatM1 Band 4 /QPSK 5MHz HCH 6RB#0



Date: 9 SEP.2019 20:56:03

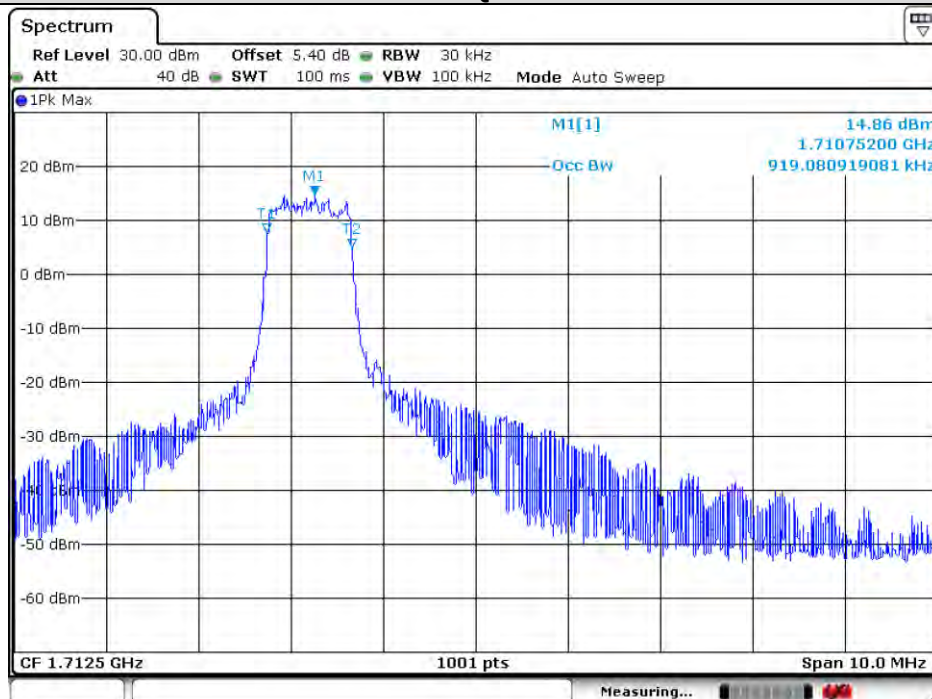


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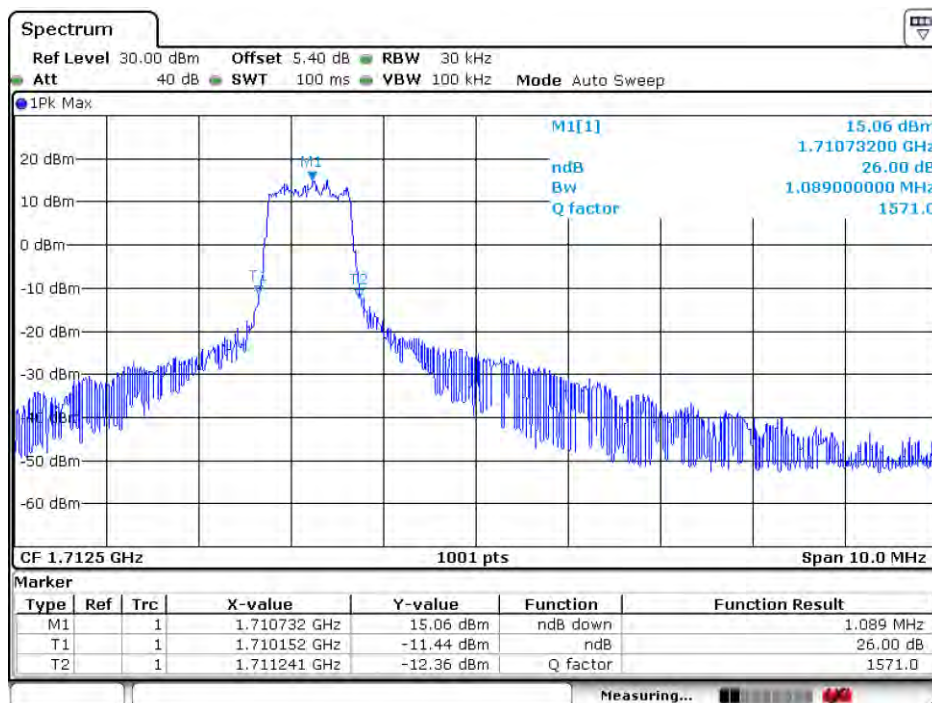




LTE-CatM1 Band 4 /16QAM 5MHz LCH 5RB#0



Date: 10.SEP.2019 01:33:56



Date: 10.SEP.2019 01:34:36



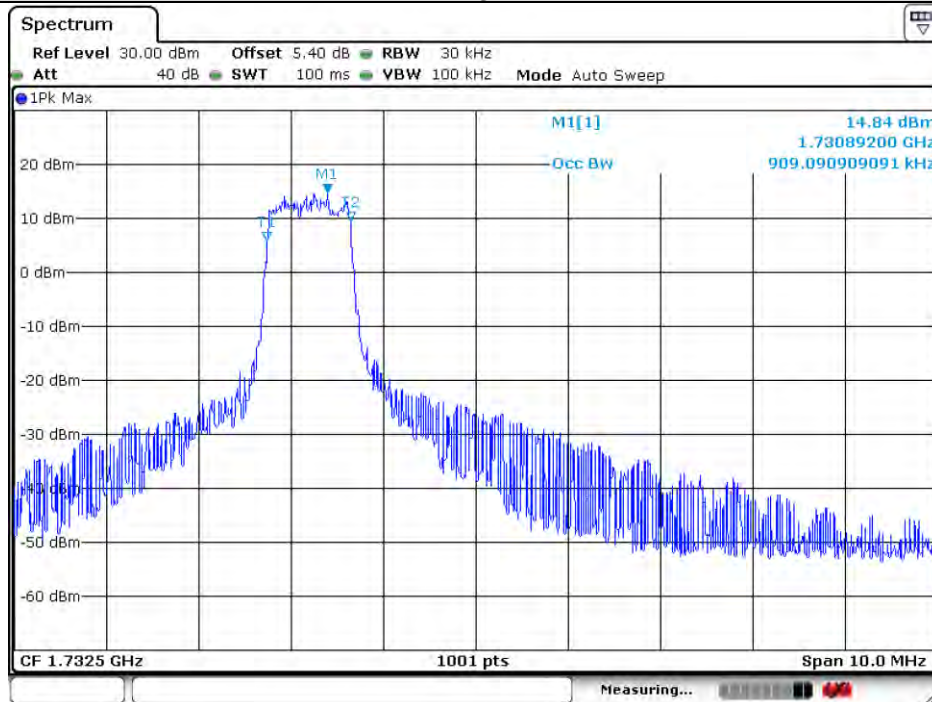
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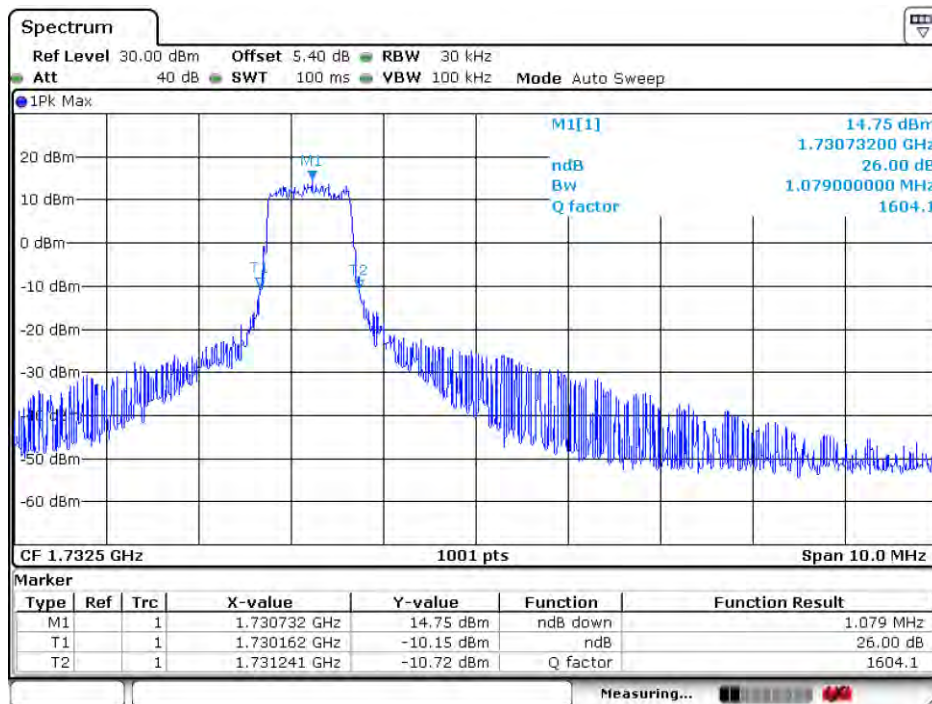
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LTE-CatM1 Band 4 /16QAM 5MHz MCH 5RB#0



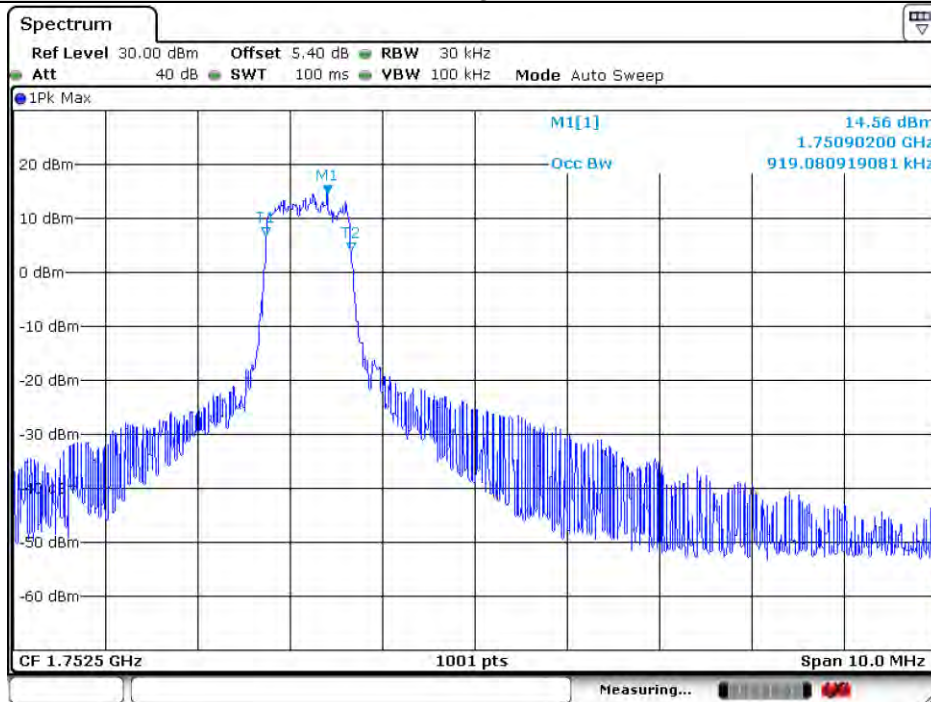
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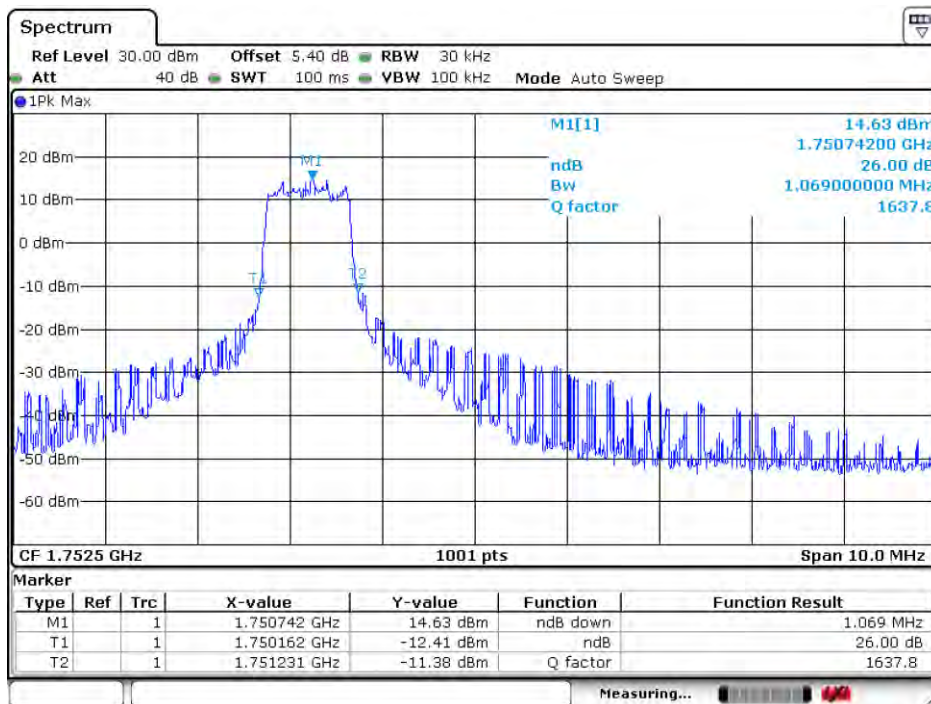
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LTE-CatM1 Band 4 /16QAM 5MHz HCH 5RB#0



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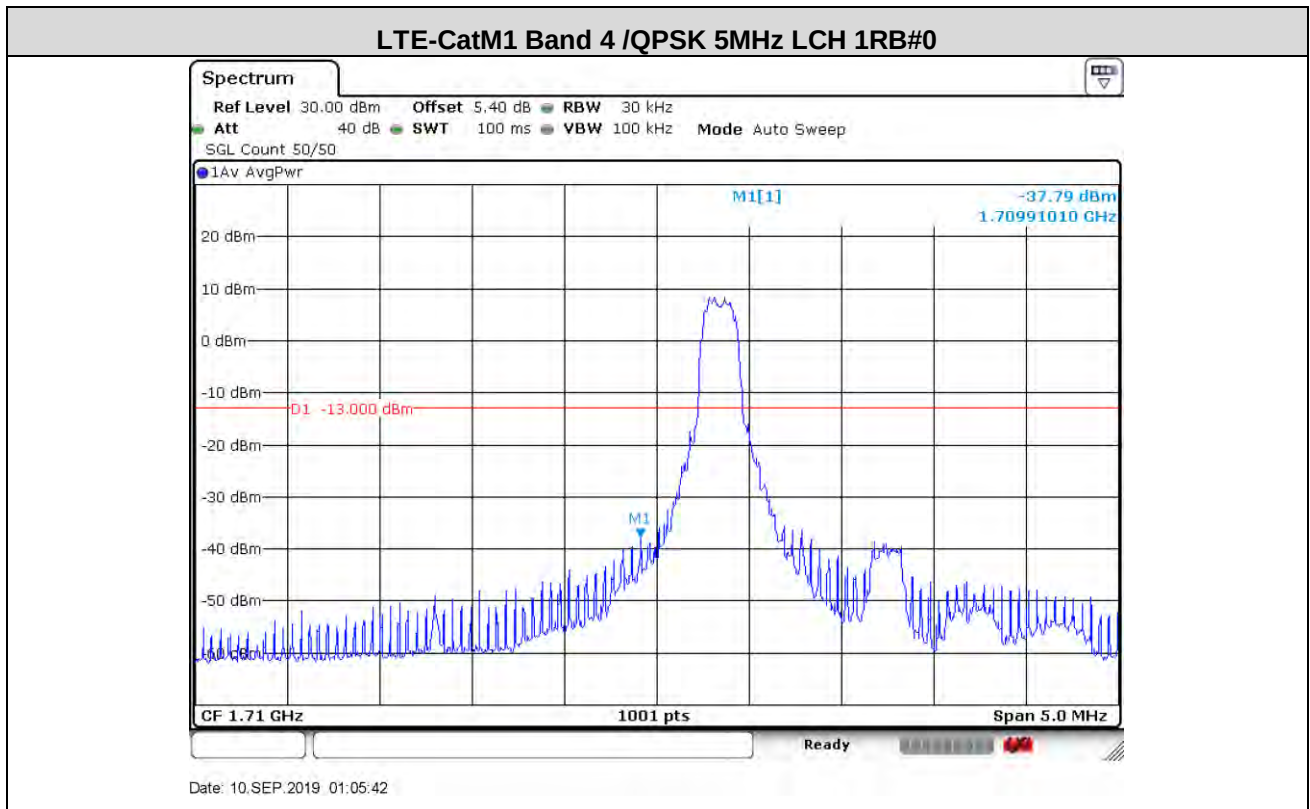
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5 Band Edges Compliance

5.1 Test Plots



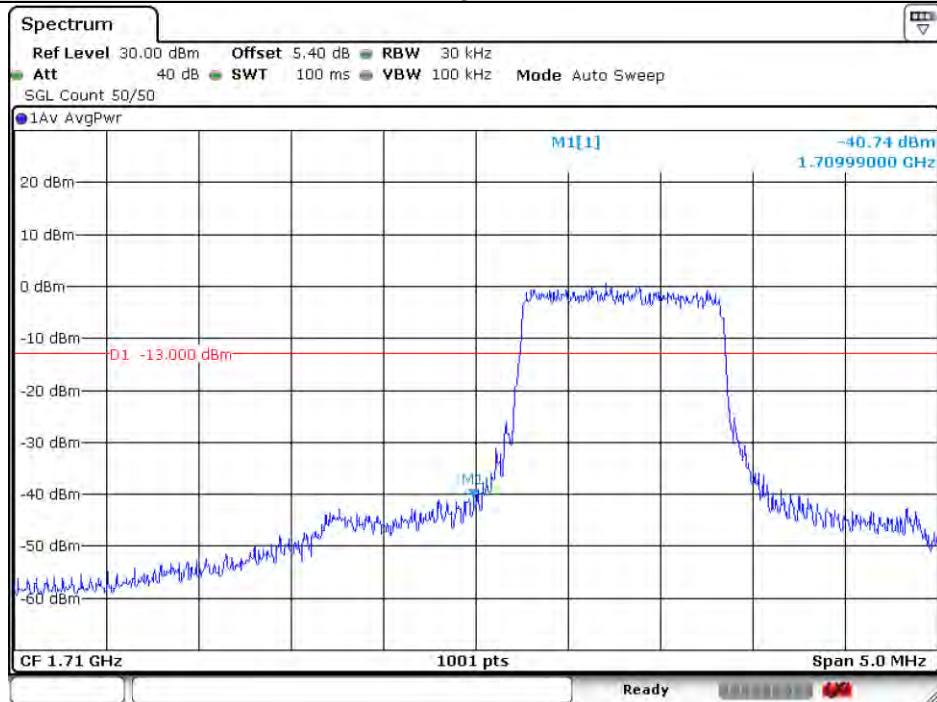
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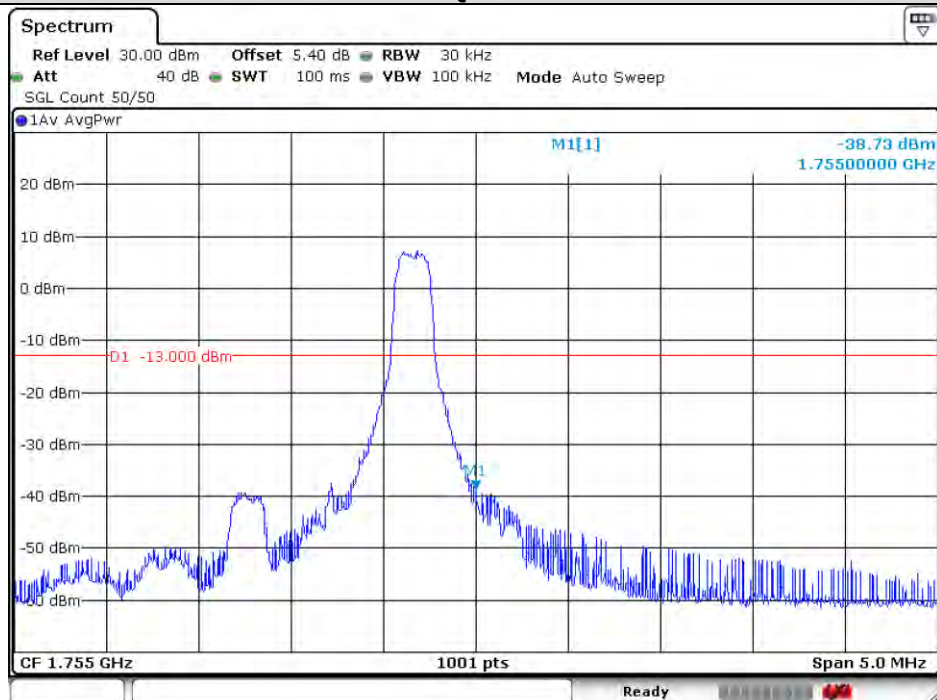
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LTE-CatM1 Band 4 /QPSK 5MHz HCH 1RB#0



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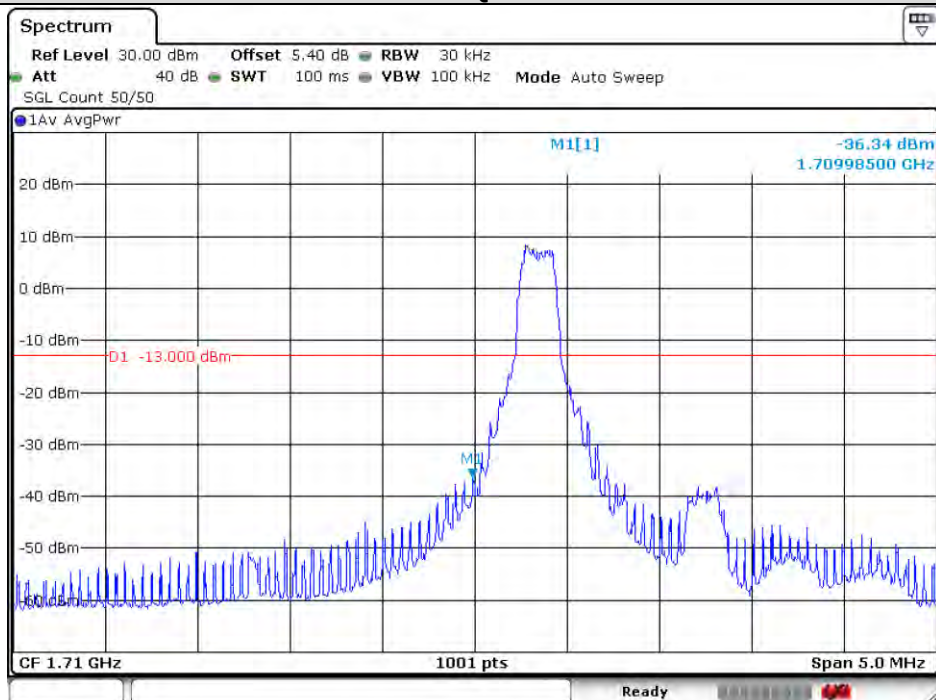


LTE-CatM1 Band 4 /QPSK 5MHz HCH 6RB#0



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LTE-CatM1 Band 4 /16QAM 5MHz LCH 1RB#0



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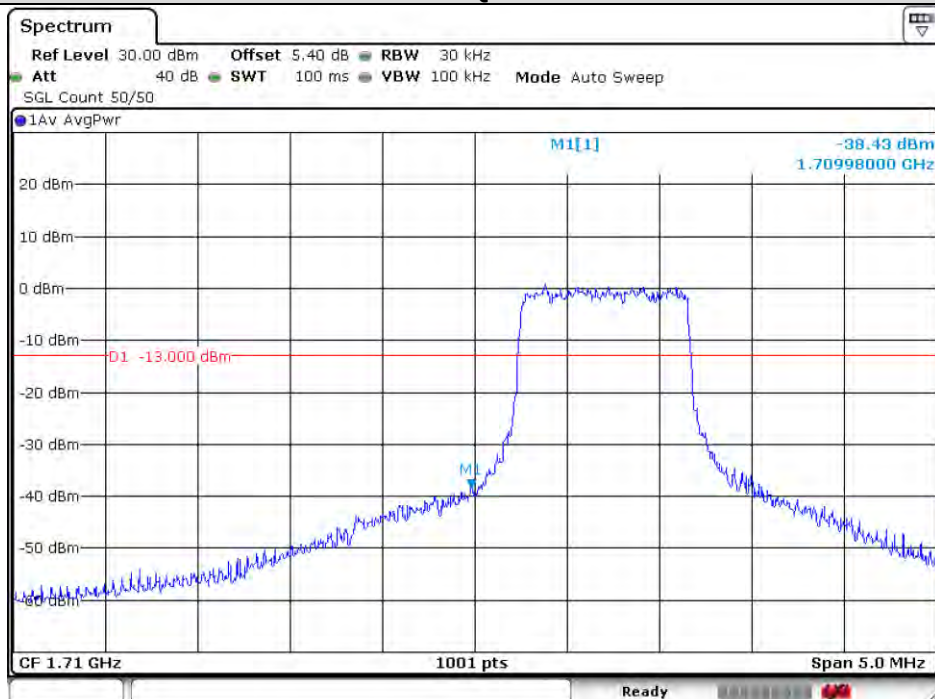
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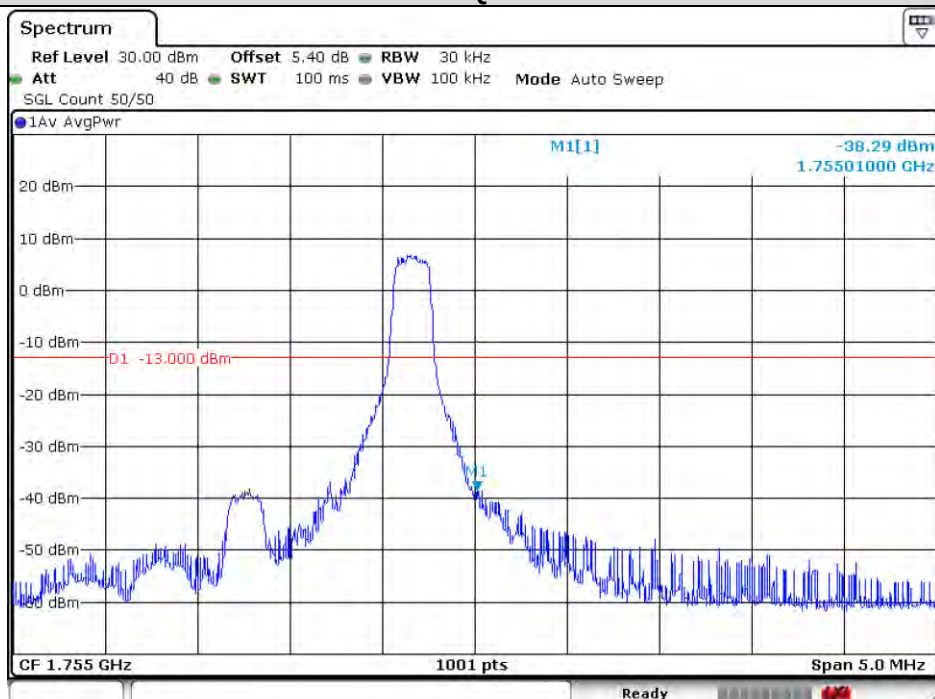


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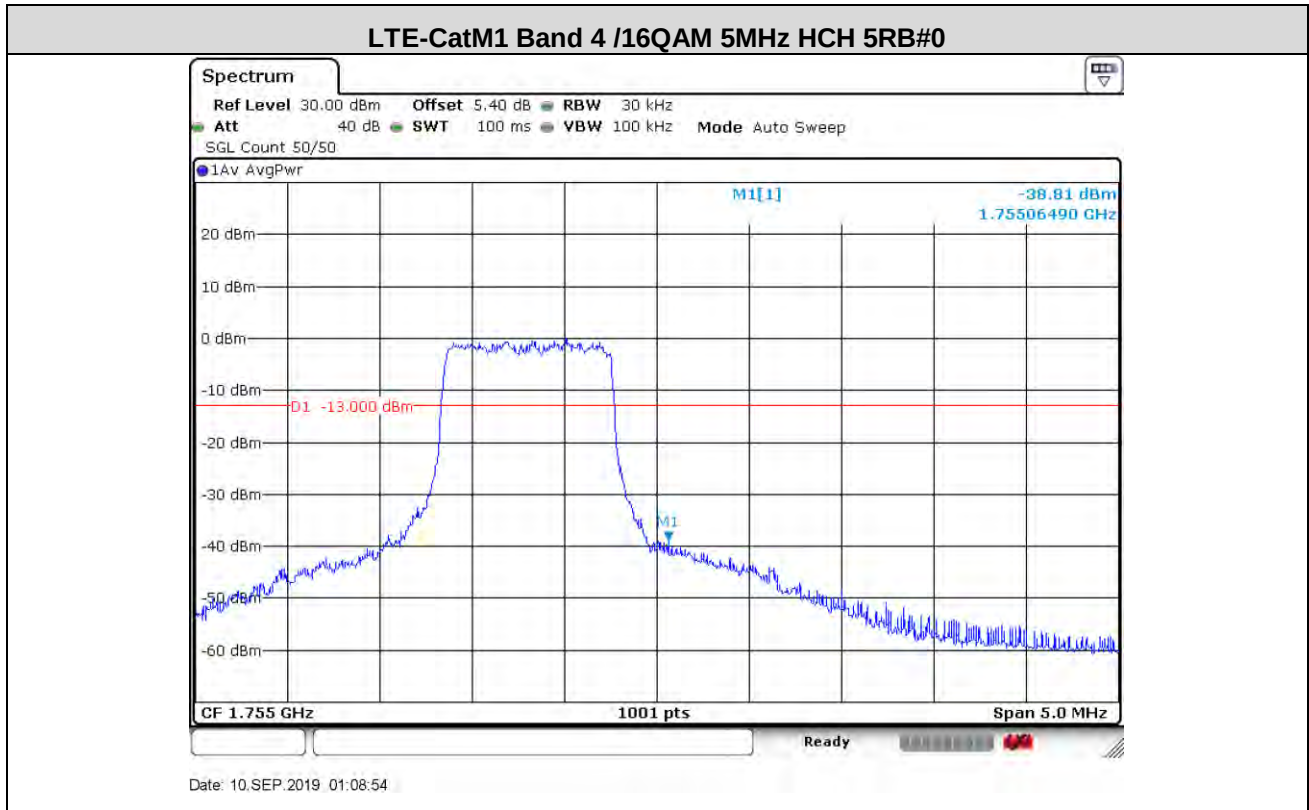


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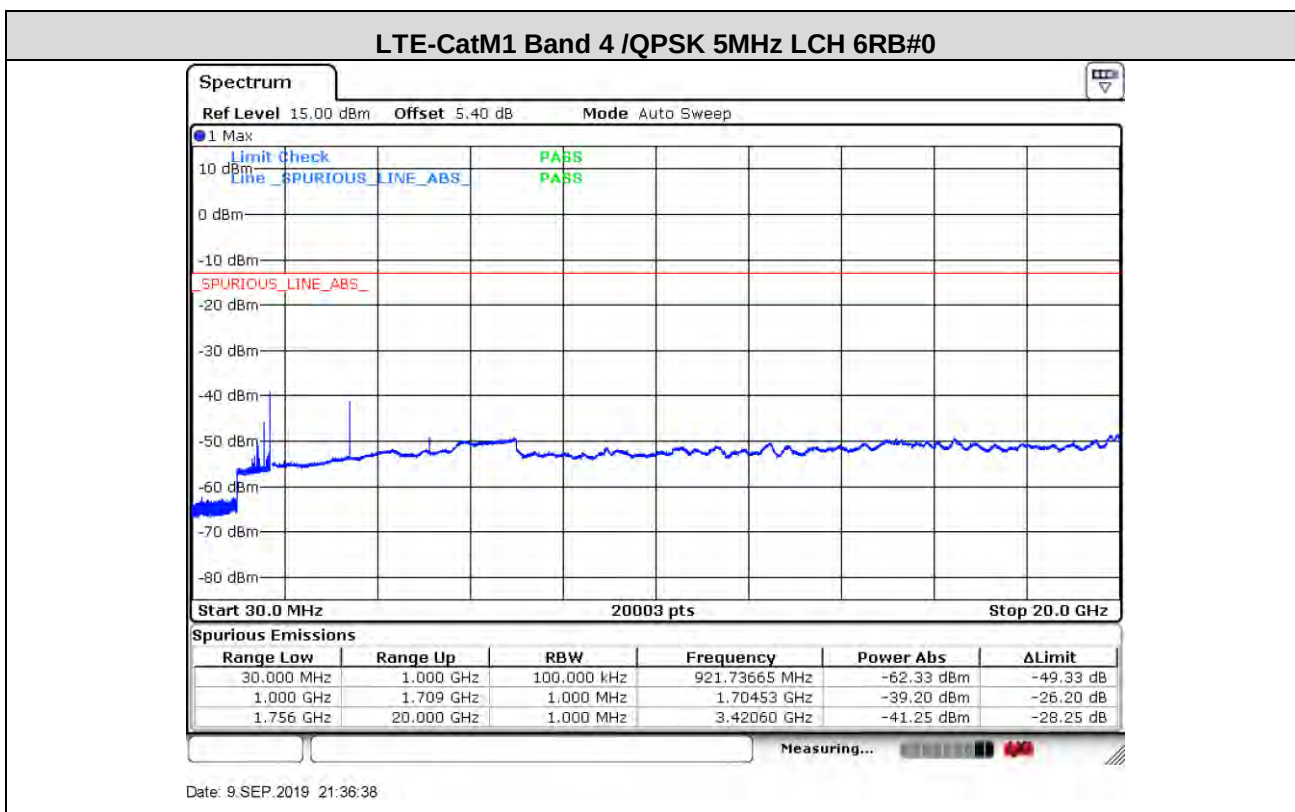


6 Spurious Emission at Antenna Terminal

NOTE1: 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 Test Plots



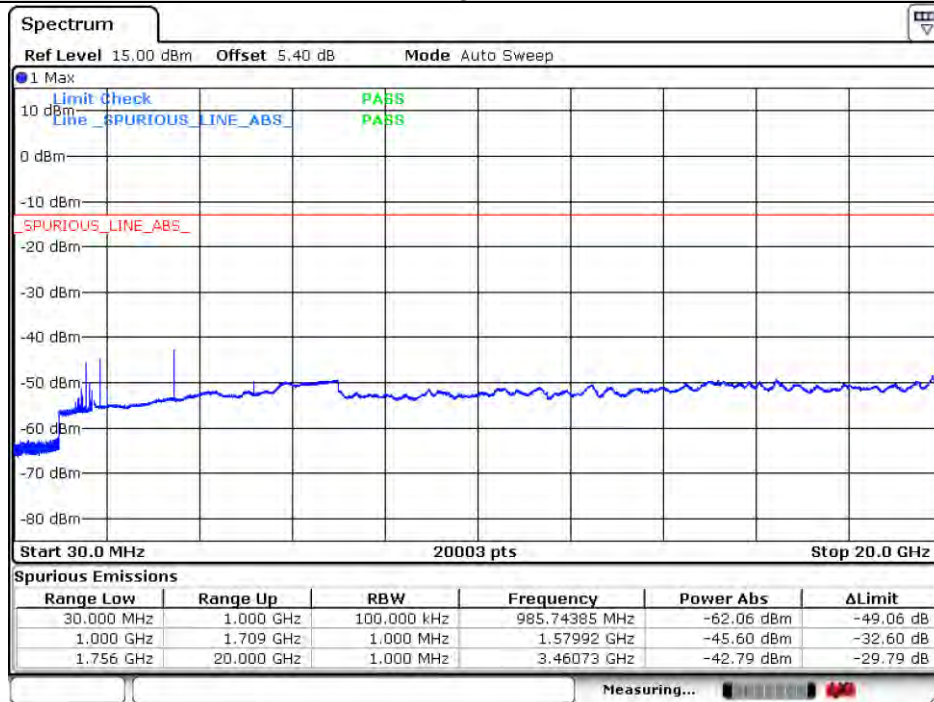
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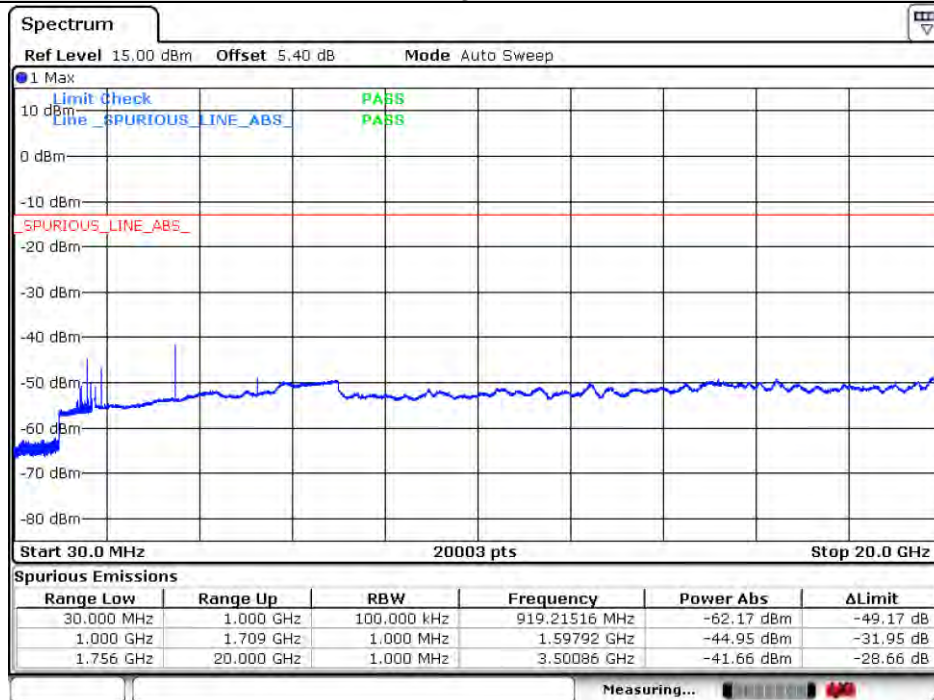
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LTE-CatM1 Band 4 /QPSK 5MHz MCH 6RB#0



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LTE-CatM1 Band 4 /QPSK 5MHz HCH 6RB#0



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7 Field Strength of Spurious Radiation

7.1 For LTE-CatM1

7.1.1 Test Band = LTE-CatM1 Band 4

7.1.1.1 Test Mode =LTE-CatM1/QPSK

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
107.9919	-64.78	-13.00	51.78	Vertical
746.3323	-62.48	-13.00	49.48	Vertical
2695.9392	-37.31	-13.00	24.31	Vertical
8008.6670	-51.16	-13.00	38.16	Vertical
14647.3882	-42.72	-13.00	29.72	Vertical
17996.4999	-35.13	-13.00	22.13	Vertical
42.6591	-64.88	-13.00	51.88	Horizontal
742.6461	-62.04	-13.00	49.04	Horizontal
2698.3397	-36.42	-13.00	23.42	Horizontal
3420.5140	-40.17	-13.00	27.17	Horizontal
5130.5710	-50.28	-13.00	37.28	Horizontal
17002.4667	-38.77	-13.00	25.77	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
112.7451	-65.03	-13.00	52.03	Vertical
779.2655	-62.57	-13.00	49.57	Vertical
2686.7373	-37.51	-13.00	24.51	Vertical
7381.6461	-53.70	-13.00	40.70	Vertical
14680.3893	-42.74	-13.00	29.74	Vertical
17987.4996	-33.44	-13.00	20.44	Vertical
41.6406	-65.01	-13.00	52.01	Horizontal
2703.5407	-36.45	-13.00	23.45	Horizontal
3461.0154	-44.54	-13.00	31.54	Horizontal
5190.5730	-44.97	-13.00	31.97	Horizontal
16402.9468	-38.67	-13.00	25.67	Horizontal
17984.9995	-37.97	-13.00	24.97	Horizontal



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7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
116.0433	-62.18	-13.00	49.18	Vertical
875.9793	-61.20	-13.00	48.20	Vertical
2695.5391	-37.66	-13.00	24.66	Vertical
7383.1461	-52.87	-13.00	39.87	Vertical
14526.3842	-42.66	-13.00	29.66	Vertical
17991.4997	-34.75	-13.00	21.75	Vertical
110.9991	-63.25	-13.00	50.25	Horizontal
754.6262	-62.80	-13.00	49.80	Horizontal
2695.5391	-36.40	-13.00	23.40	Horizontal
3500.5167	-41.63	-13.00	28.63	Horizontal
5251.0750	-47.08	-13.00	34.08	Horizontal
16946.4649	-39.98	-13.00	26.98	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) 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	RB Config	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	TN	VL	3.06	0.001789	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	TN	VN	-1.16	-0.000674	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	TN	VH	-4.48	-0.002619	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	TN	VL	-7.02	-0.004049	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	TN	VN	10.91	0.006297	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	TN	VH	8.65	0.004994	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	TN	VL	11.45	0.006531	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	TN	VN	10.88	0.006208	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	TN	VH	-2.27	-0.001293	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	TN	VL	-12.31	-0.007190	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	TN	VN	-3.96	-0.002311	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	TN	VH	2.28	0.001329	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	TN	VL	-2.30	-0.001329	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	TN	VN	2.55	0.001473	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	TN	VH	-2.53	-0.001460	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	TN	VL	7.71	0.004401	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	TN	VN	-7.84	-0.004475	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	TN	VH	11.82	0.006742	±2.5	PASS



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8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	RB Config	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	-30	-3.41	-0.001992	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	-20	14.26	0.008327	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	-10	4.73	0.002762	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	0	7.72	0.004506	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	10	1.38	0.000805	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	20	9.17	0.005356	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	30	-4.66	-0.002724	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	40	-6.76	-0.003950	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	LCH	6RB#0	VN	50	3.73	0.002178	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	-30	-8.09	-0.004667	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	-20	-9.00	-0.005194	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	-10	5.38	0.003106	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	0	14.62	0.008441	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	10	-12.28	-0.007088	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	20	3.81	0.002200	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	30	-12.60	-0.007272	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	40	-3.89	-0.002245	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	MCH	6RB#0	VN	50	12.14	0.007007	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	-30	-6.07	-0.003461	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	-20	13.85	0.007903	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	-10	-6.50	-0.003711	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	0	-7.25	-0.004137	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	10	11.23	0.006411	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	20	-13.71	-0.007823	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	30	9.56	0.005453	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	40	-0.14	-0.000078	±2.5	PASS
CatM1 Band 4	QPSK 5MHz	HCH	6RB#0	VN	50	3.69	0.002103	±2.5	PASS



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Test Band	Test Mode	Test Channel	RB Config	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	-30	2.72	0.001591	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	-20	5.17	0.003017	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	-10	4.05	0.002363	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	0	2.12	0.001240	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	10	7.24	0.004227	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	20	-2.12	-0.001239	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	30	-6.12	-0.003573	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	40	-3.61	-0.002108	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	LCH	5RB#0	VN	50	-4.90	-0.002863	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	-30	-10.40	-0.006002	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	-20	-8.70	-0.005024	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	-10	9.22	0.005322	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	0	8.77	0.005063	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	10	-7.84	-0.004524	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	20	9.43	0.005443	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	30	-8.53	-0.004922	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	40	1.86	0.001076	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	MCH	5RB#0	VN	50	10.87	0.006274	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	-30	-2.75	-0.001572	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	-20	13.07	0.007458	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	-10	0.78	0.000446	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	0	-6.88	-0.003925	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	10	7.04	0.004019	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	20	11.98	0.006836	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	30	0.97	0.000555	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	40	14.39	0.008210	±2.5	PASS
CatM1 Band 4	16QAM 5MHz	HCH	5RB#0	VN	50	3.49	0.001990	±2.5	PASS

The End



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Appendix B

LTE-CatM1 Band 5



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1 Effective Radiated Power Output Data

Effective Radiated Power of Transmitter (ERP) for LTE-CatM1 Band 5

Test Band	Test Mode	Test Bandwidth	Test channel	Test RB	Conducted Power (dBm)	ERP (dBm)	limit (dBm)	Verdict
CatM1 Band 5	QPSK	1.4M	LCH	1RB#0	20.18	17.03	38.45	PASS
CatM1 Band 5	QPSK	1.4M	LCH	5RB#0	19.34	16.19	38.45	PASS
CatM1 Band 5	QPSK	1.4M	LCH	6RB#0	18.25	15.10	38.45	PASS
CatM1 Band 5	QPSK	1.4M	MCH	1RB#0	20.53	17.38	38.45	PASS
CatM1 Band 5	QPSK	1.4M	MCH	5RB#0	19.54	16.39	38.45	PASS
CatM1 Band 5	QPSK	1.4M	MCH	6RB#0	18.43	15.28	38.45	PASS
CatM1 Band 5	QPSK	1.4M	HCH	1RB#0	20.46	17.31	38.45	PASS
CatM1 Band 5	QPSK	1.4M	HCH	5RB#0	19.44	16.29	38.45	PASS
CatM1 Band 5	QPSK	1.4M	HCH	6RB#0	18.37	15.22	38.45	PASS
CatM1 Band 5	16QAM	1.4M	LCH	1RB#0	19.23	16.08	38.45	PASS
CatM1 Band 5	16QAM	1.4M	LCH	5RB#0	18.13	14.98	38.45	PASS
CatM1 Band 5	16QAM	1.4M	MCH	1RB#0	19.60	16.45	38.45	PASS
CatM1 Band 5	16QAM	1.4M	MCH	5RB#0	18.58	15.43	38.45	PASS
CatM1 Band 5	16QAM	1.4M	HCH	1RB#0	19.55	16.40	38.45	PASS
CatM1 Band 5	16QAM	1.4M	HCH	5RB#0	18.39	15.24	38.45	PASS
CatM1 Band 5	QPSK	3M	LCH	1RB#0	20.55	17.40	38.45	PASS
CatM1 Band 5	QPSK	3M	LCH	5RB#0	19.34	16.19	38.45	PASS
CatM1 Band 5	QPSK	3M	LCH	6RB#0	18.37	15.22	38.45	PASS
CatM1 Band 5	QPSK	3M	MCH	1RB#0	20.77	17.62	38.45	PASS
CatM1 Band 5	QPSK	3M	MCH	5RB#0	19.57	16.42	38.45	PASS
CatM1 Band 5	QPSK	3M	MCH	6RB#0	18.45	15.30	38.45	PASS
CatM1 Band 5	QPSK	3M	HCH	1RB#0	20.81	17.66	38.45	PASS
CatM1 Band 5	QPSK	3M	HCH	5RB#0	19.61	16.46	38.45	PASS
CatM1 Band 5	QPSK	3M	HCH	6RB#0	18.41	15.26	38.45	PASS
CatM1 Band 5	16QAM	3M	LCH	1RB#0	19.34	16.19	38.45	PASS
CatM1 Band 5	16QAM	3M	LCH	5RB#0	18.37	15.22	38.45	PASS
CatM1 Band 5	16QAM	3M	MCH	1RB#0	19.50	16.35	38.45	PASS
CatM1 Band 5	16QAM	3M	MCH	5RB#0	18.53	15.38	38.45	PASS
CatM1 Band 5	16QAM	3M	HCH	1RB#0	19.54	16.39	38.45	PASS
CatM1 Band 5	16QAM	3M	HCH	5RB#0	18.60	15.45	38.45	PASS
CatM1 Band 5	QPSK	5M	LCH	1RB#0	20.67	17.52	38.45	PASS
CatM1 Band 5	QPSK	5M	LCH	5RB#0	19.44	16.29	38.45	PASS
CatM1 Band 5	QPSK	5M	LCH	6RB#0	19.37	16.22	38.45	PASS
CatM1 Band 5	QPSK	5M	MCH	1RB#0	20.79	17.64	38.45	PASS
CatM1 Band 5	QPSK	5M	MCH	5RB#0	19.47	16.32	38.45	PASS
CatM1 Band 5	QPSK	5M	MCH	6RB#0	19.54	16.39	38.45	PASS
CatM1 Band 5	QPSK	5M	HCH	1RB#0	20.93	17.78	38.45	PASS
CatM1 Band 5	QPSK	5M	HCH	5RB#0	19.35	16.20	38.45	PASS
CatM1 Band 5	QPSK	5M	HCH	6RB#0	19.35	16.20	38.45	PASS



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CatM1 Band 5	16QAM	5M	LCH	1RB#0	20.11	16.96	38.45	PASS
CatM1 Band 5	16QAM	5M	LCH	5RB#0	19.44	16.29	38.45	PASS
CatM1 Band 5	16QAM	5M	MCH	1RB#0	20.19	17.04	38.45	PASS
CatM1 Band 5	16QAM	5M	MCH	5RB#0	19.49	16.34	38.45	PASS
CatM1 Band 5	16QAM	5M	HCH	1RB#0	20.35	17.20	38.45	PASS
CatM1 Band 5	16QAM	5M	HCH	5RB#0	19.35	16.20	38.45	PASS
CatM1 Band 5	QPSK	10M	LCH	1RB#0	20.64	17.49	38.45	PASS
CatM1 Band 5	QPSK	10M	LCH	5RB#0	20.32	17.17	38.45	PASS
CatM1 Band 5	QPSK	10M	LCH	6RB#0	19.24	16.09	38.45	PASS
CatM1 Band 5	QPSK	10M	MCH	1RB#0	20.84	17.69	38.45	PASS
CatM1 Band 5	QPSK	10M	MCH	5RB#0	20.54	17.39	38.45	PASS
CatM1 Band 5	QPSK	10M	MCH	6RB#0	19.47	16.32	38.45	PASS
CatM1 Band 5	QPSK	10M	HCH	1RB#0	20.77	17.62	38.45	PASS
CatM1 Band 5	QPSK	10M	HCH	5RB#0	20.43	17.28	38.45	PASS
CatM1 Band 5	QPSK	10M	HCH	6RB#0	19.44	16.29	38.45	PASS
CatM1 Band 5	16QAM	10M	LCH	1RB#0	20.05	16.90	38.45	PASS
CatM1 Band 5	16QAM	10M	LCH	5RB#0	20.34	17.19	38.45	PASS
CatM1 Band 5	16QAM	10M	MCH	1RB#0	20.25	17.10	38.45	PASS
CatM1 Band 5	16QAM	10M	MCH	5RB#0	20.47	17.32	38.45	PASS
CatM1 Band 5	16QAM	10M	HCH	1RB#0	20.14	16.99	38.45	PASS
CatM1 Band 5	16QAM	10M	HCH	5RB#0	20.44	17.29	38.45	PASS

Note:

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

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

$ERP [dBm] = \text{Conducted Power} [dBm] + \text{Gain} [dBi] - 2.15$



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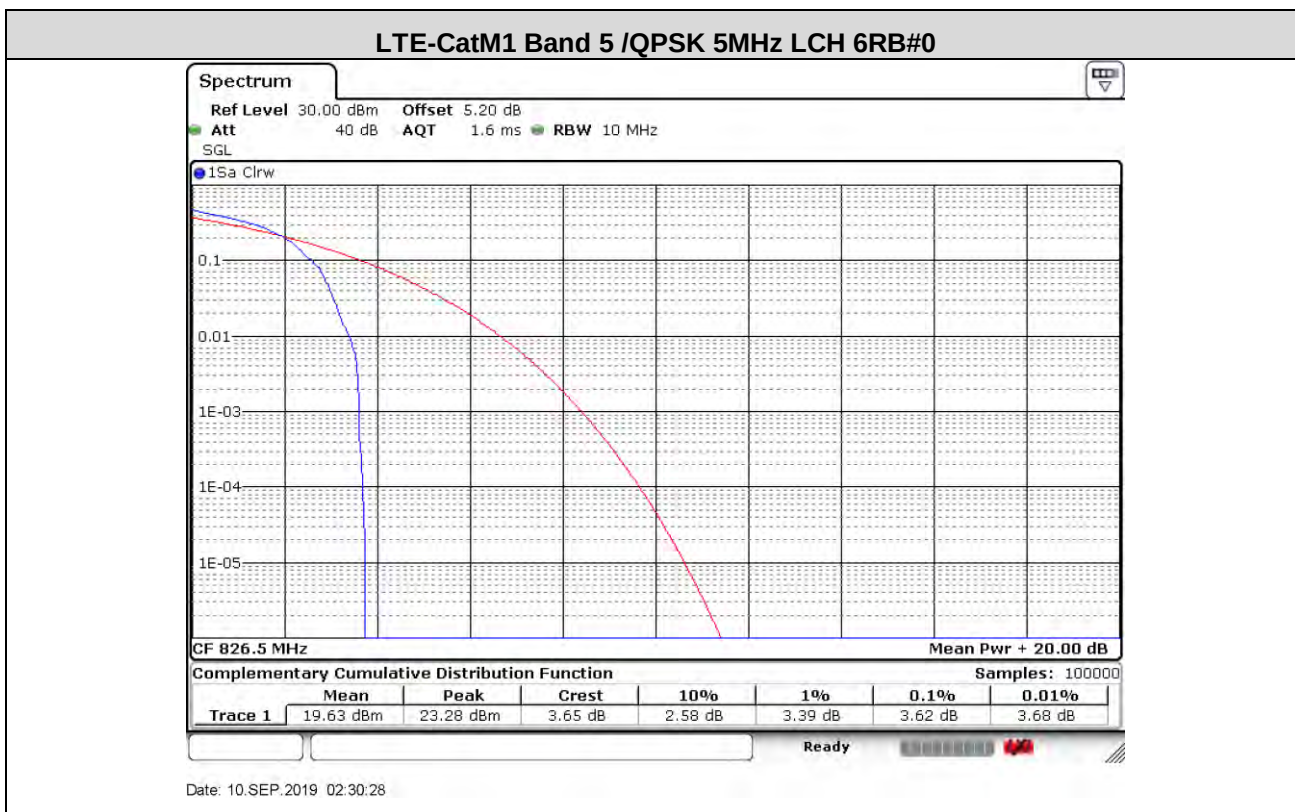


2 Peak-to-Average Ratio

2.1 Test Results

Test Band	Test Mode	RB Config	Test Channel	Measured [dB]	Limit [dB]	Verdict
CatM1 Band 5	QPSK/5M	6RB#0	LCH	3.62	13	PASS
CatM1 Band 5	QPSK/5M	6RB#0	MCH	6.12	13	PASS
CatM1 Band 5	QPSK/5M	6RB#0	HCH	5.07	13	PASS
CatM1 Band 5	16QAM/5M	5RB#0	LCH	5.33	13	PASS
CatM1 Band 5	16QAM/5M	5RB#0	MCH	5.71	13	PASS
CatM1 Band 5	16QAM/5M	5RB#0	HCH	5.59	13	PASS

2.2 Test Plots



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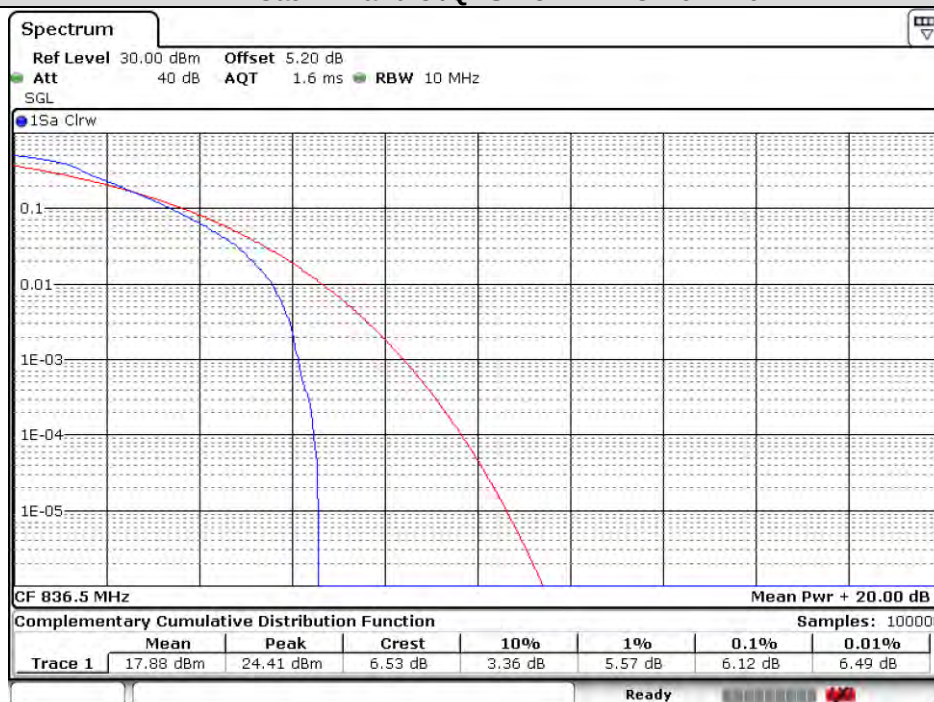
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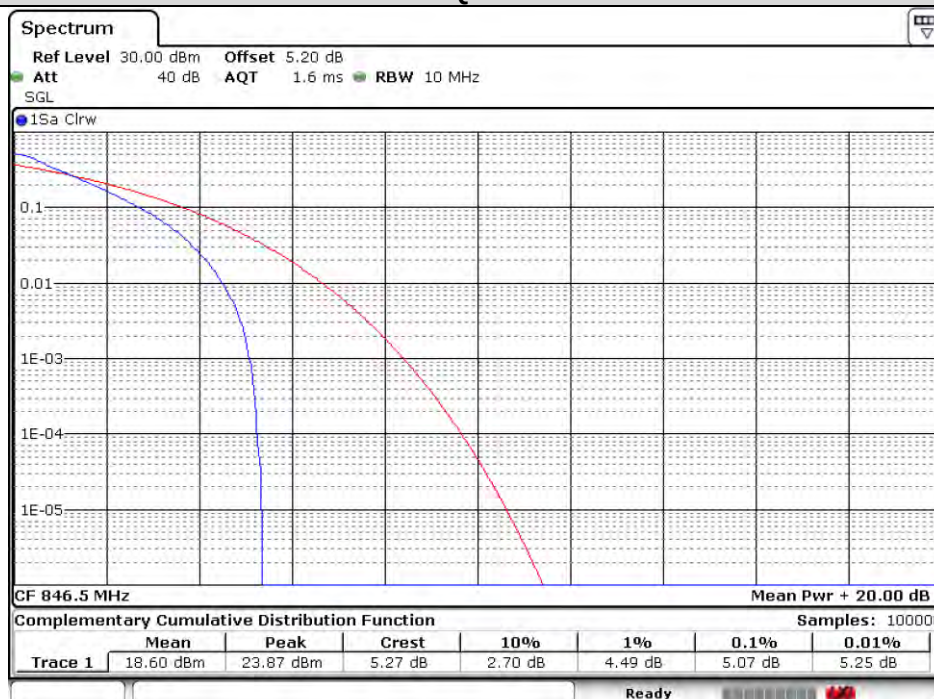


LTE-CatM1 Band 5 /QPSK 5MHz MCH 6RB#0



Date: 10.SEP.2019 02:31:06

LTE-CatM1 Band 5 /QPSK 5MHz HCH 6RB#0



Date: 10.SEP.2019 02:22:00



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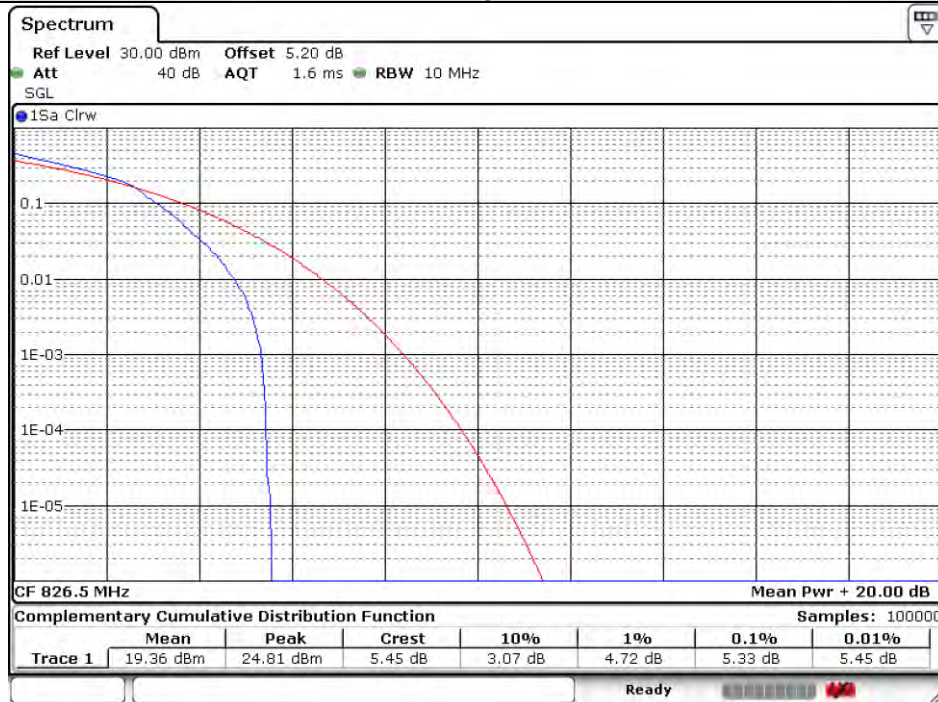
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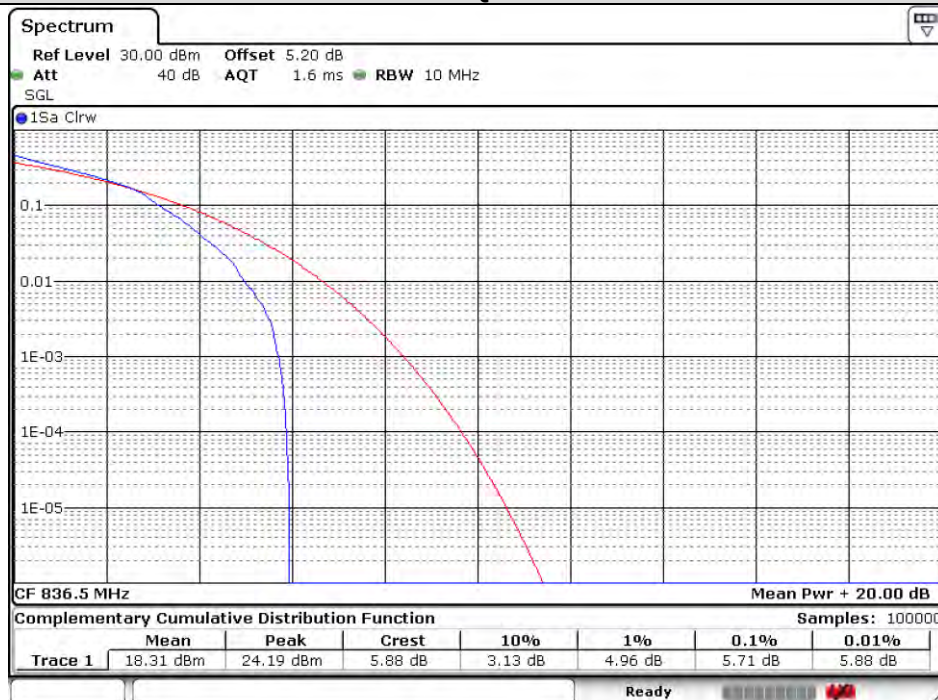


LTE-CatM1 Band 5 /16QAM 5MHz LCH 5RB#0



Date: 18.SEP.2019 16:30:05

LTE-CatM1 Band 5 /16QAM 5MHz MCH 5RB#0



Date: 18.SEP.2019 16:30:40

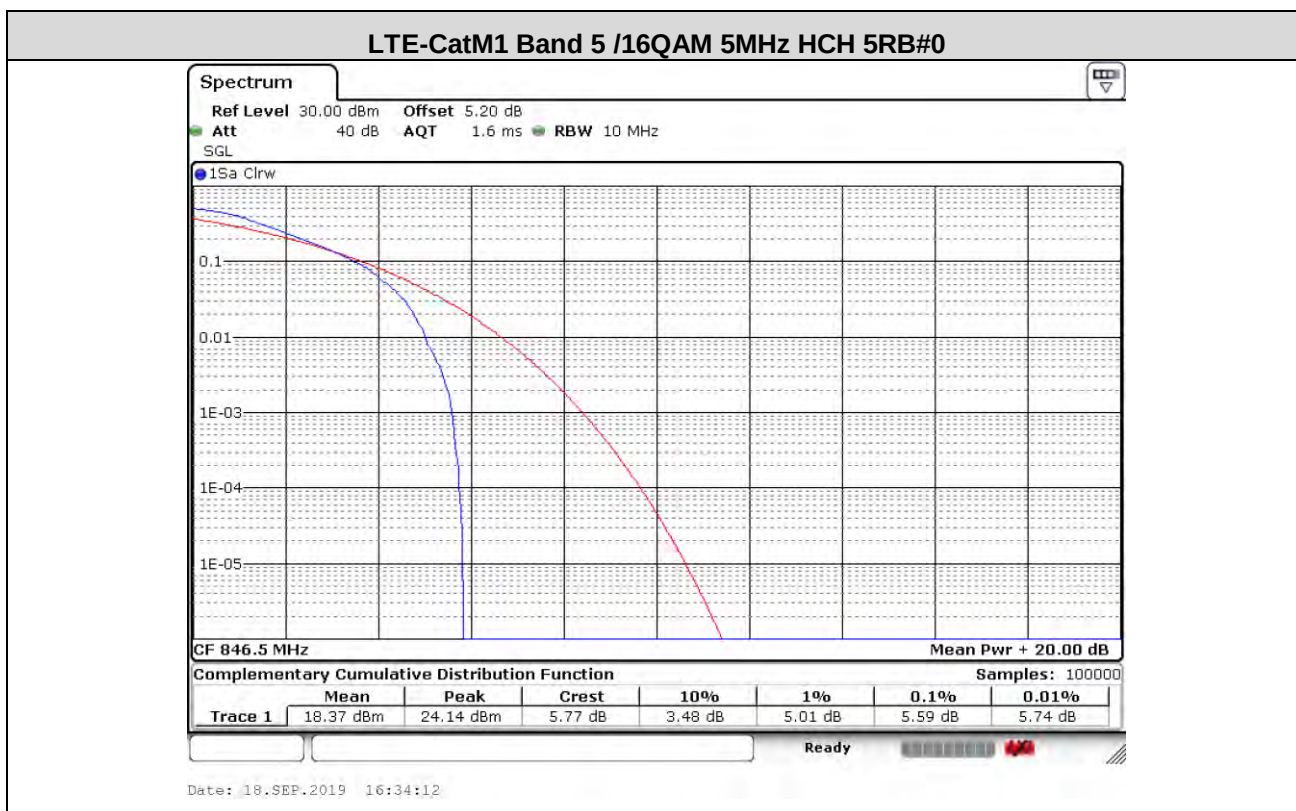


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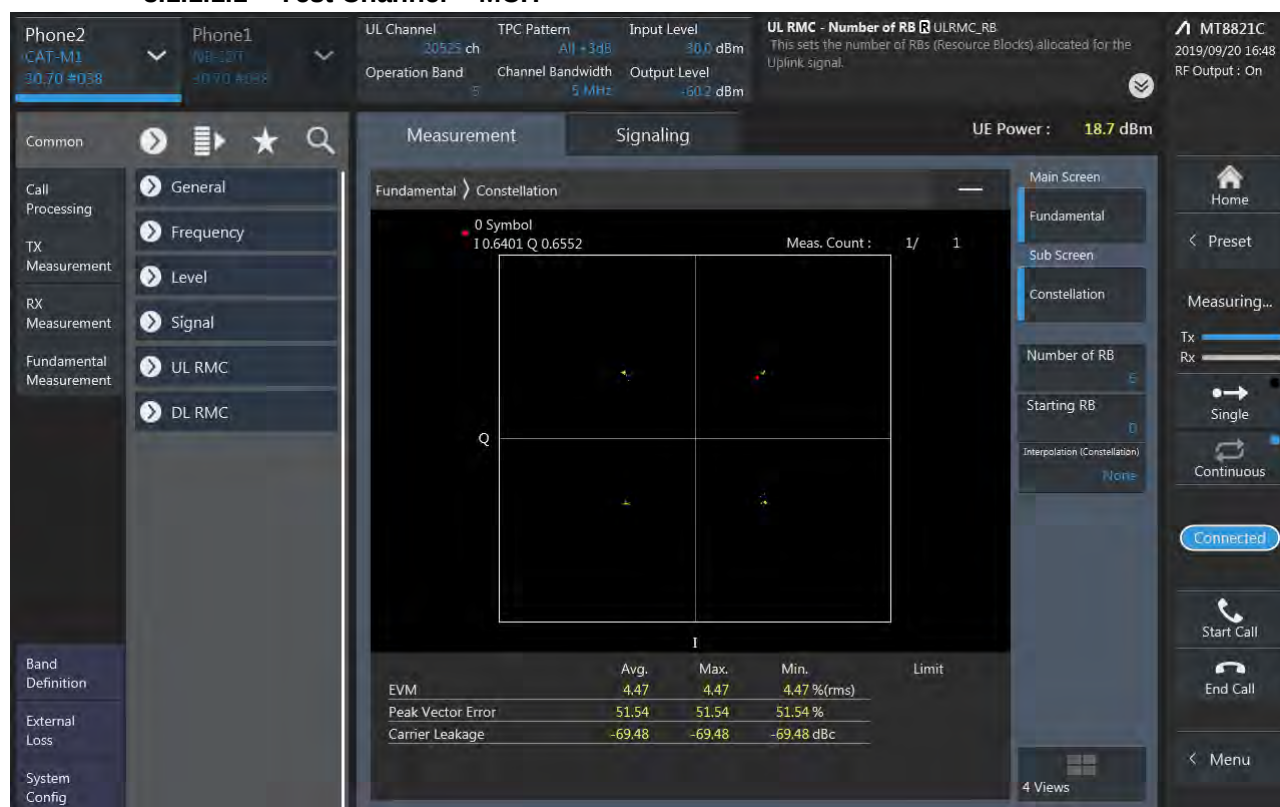
3 Modulation Characteristics

3.1 For LTE-CatM1

3.1.1 Test Band = LTE-CatM1 Band 5

3.1.1.1 Test Mode = LTE-CatM1 /QPSK 5MHz

3.1.1.1.1 Test Channel = MCH



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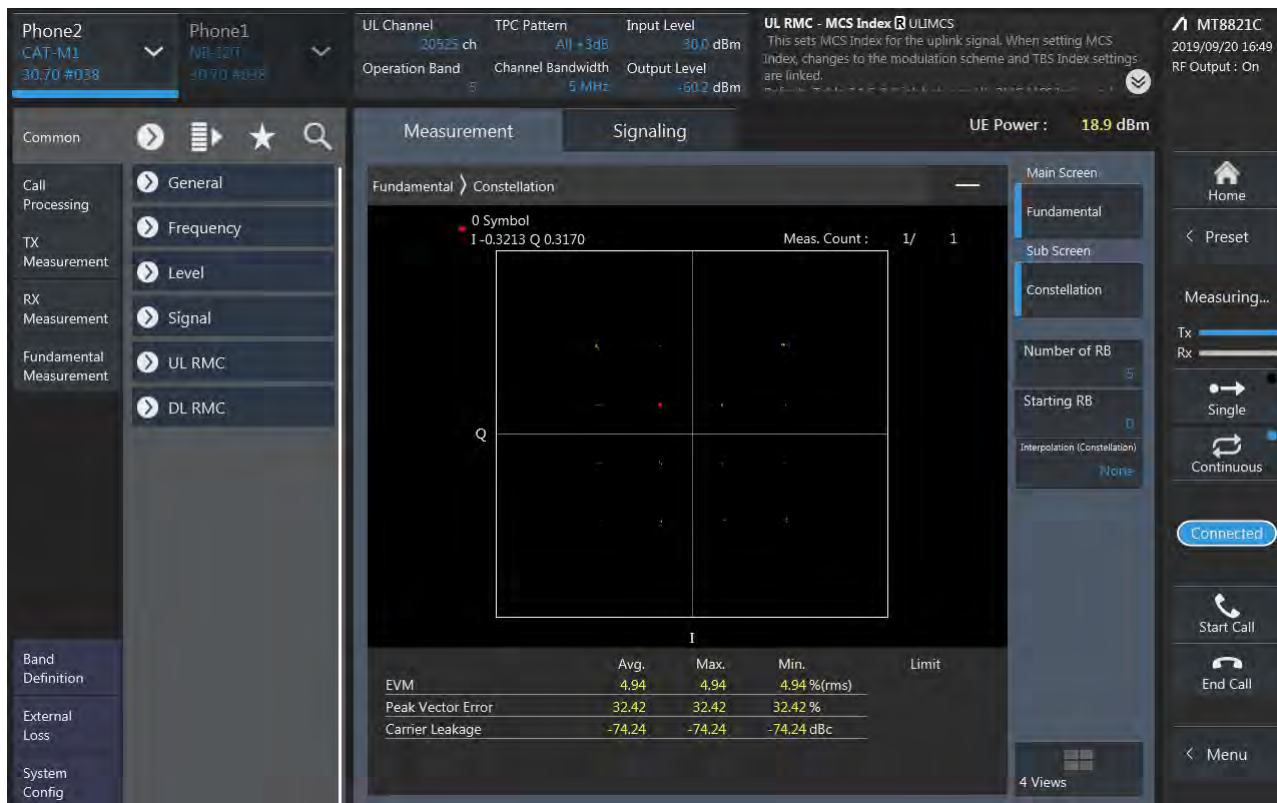
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3.1.1.2 Test Mode = LTE-CatM1 /16QAM 5MHz

3.1.1.2.1 Test Channel = MCH



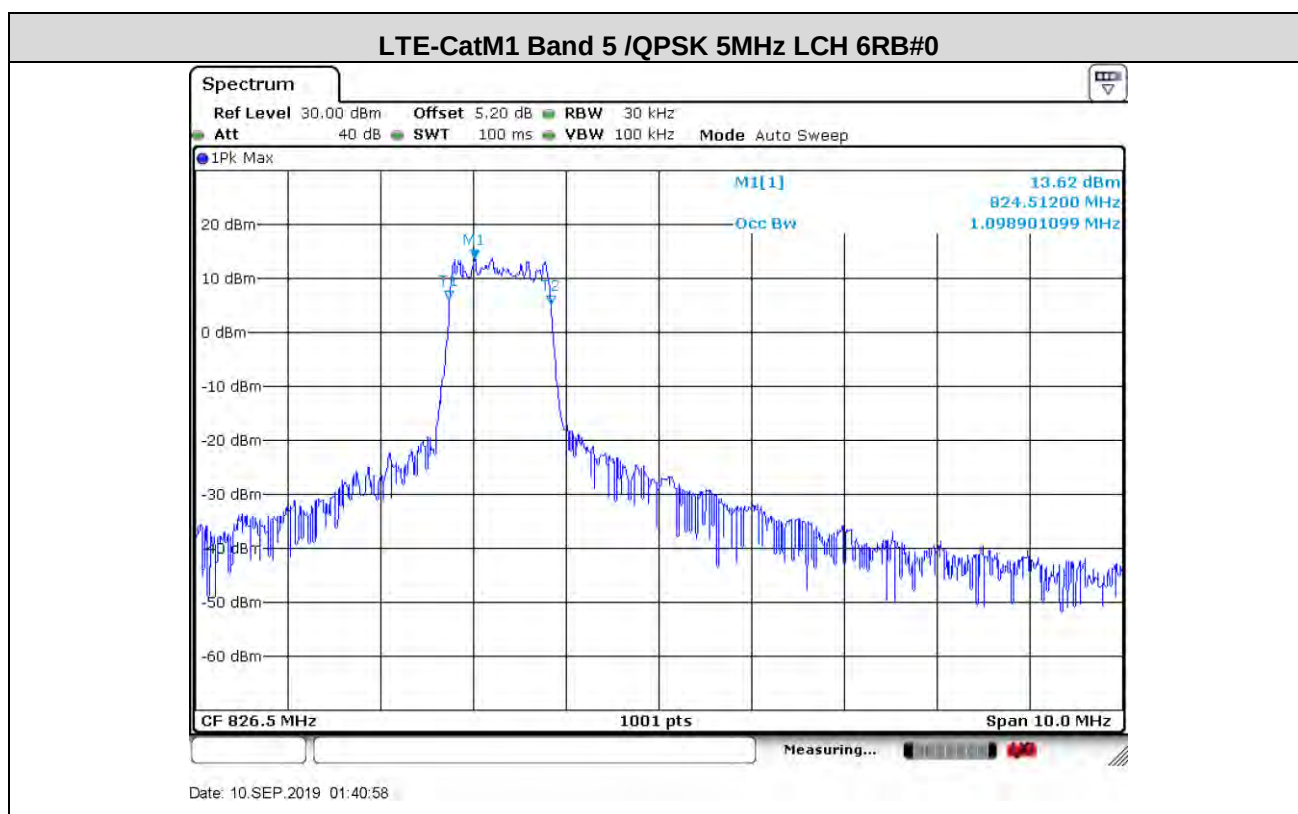


4 26dB Bandwidth and Occupied Bandwidth

4.1 Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	26dB Emission Bandwidth [MHz]	Verdict
CatM1 Band 5	QPSK/ 5MHz	LCH	1.10	1.29	PASS
CatM1 Band 5	QPSK/ 5MHz	MCH	1.11	1.29	PASS
CatM1 Band 5	QPSK/ 5MHz	HCH	1.11	1.28	PASS
CatM1 Band 5	16QAM/ 5MHz	LCH	0.91	1.11	PASS
CatM1 Band 5	16QAM/ 5MHz	MCH	0.92	1.10	PASS
CatM1 Band 5	16QAM/ 5MHz	HCH	0.92	1.08	PASS

4.2 Test Plots

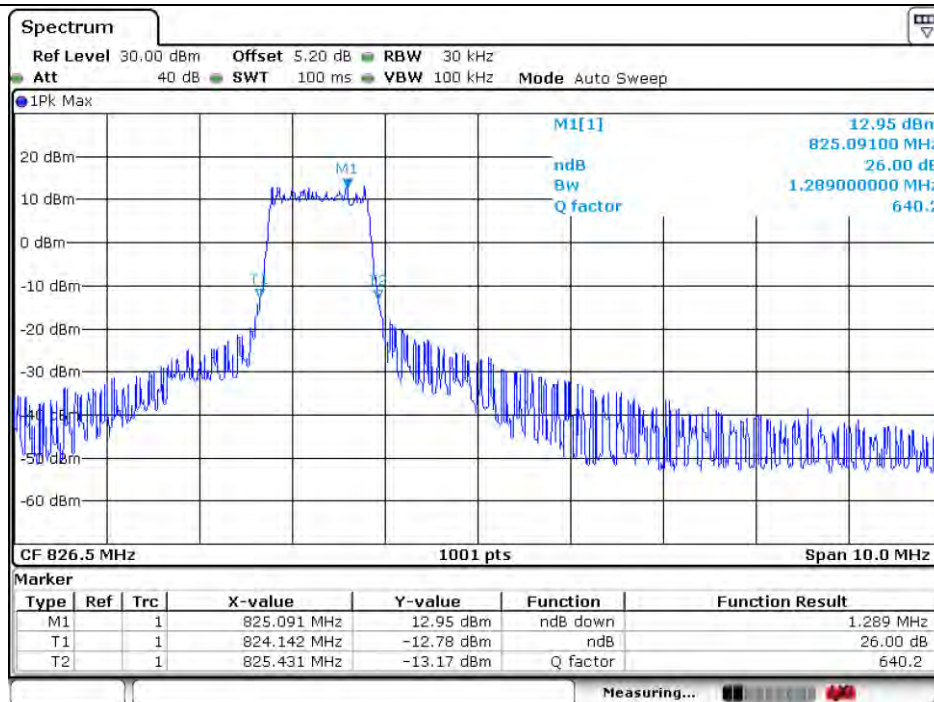


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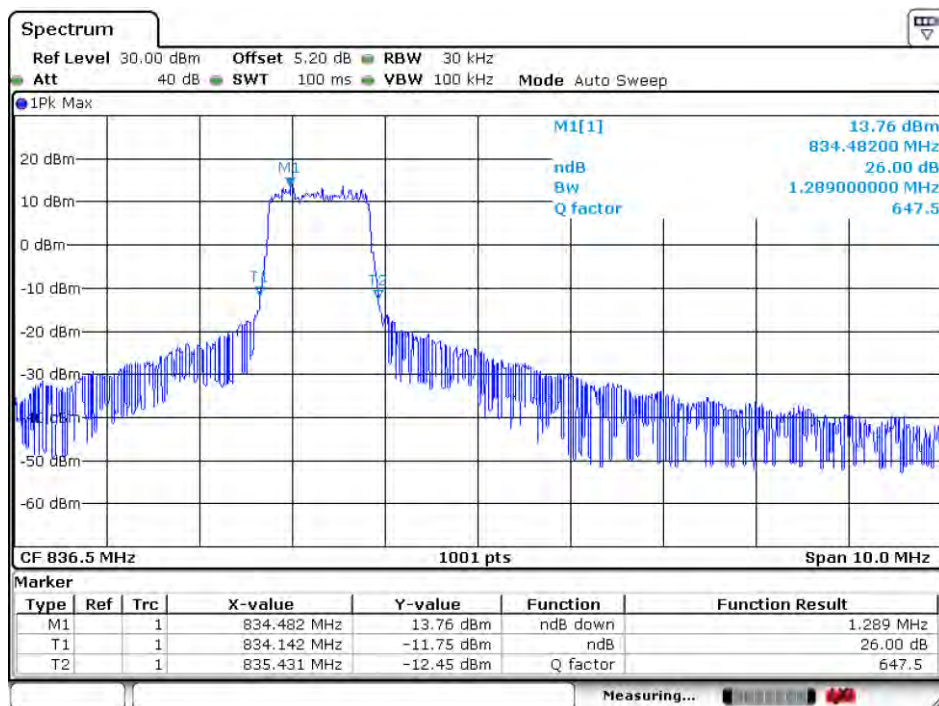
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LTE-CatM1 Band 5 /QPSK 5MHz MCH 6RB#0



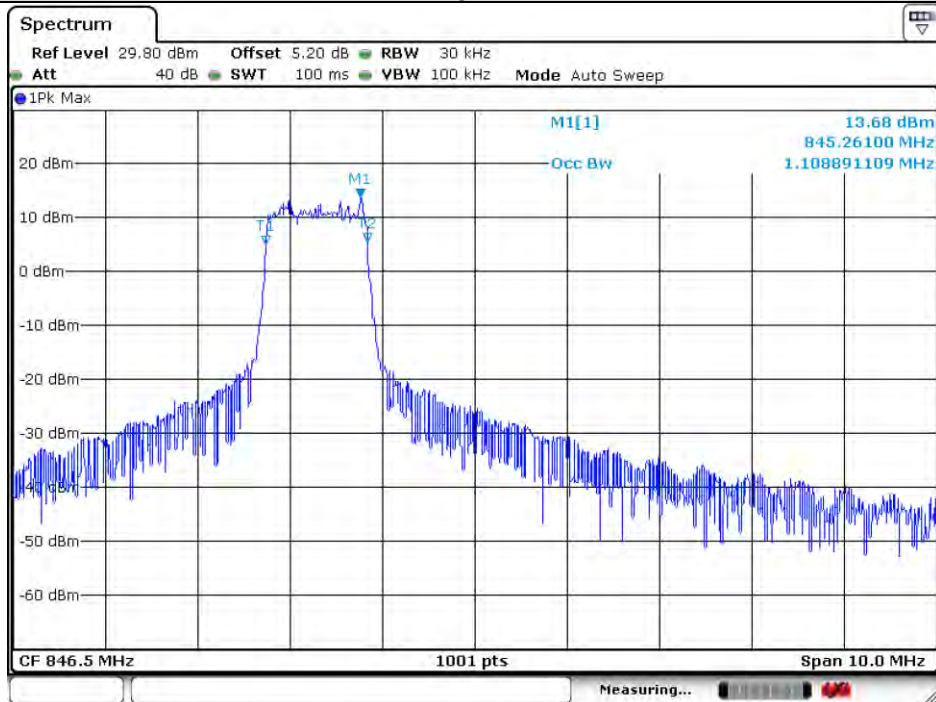
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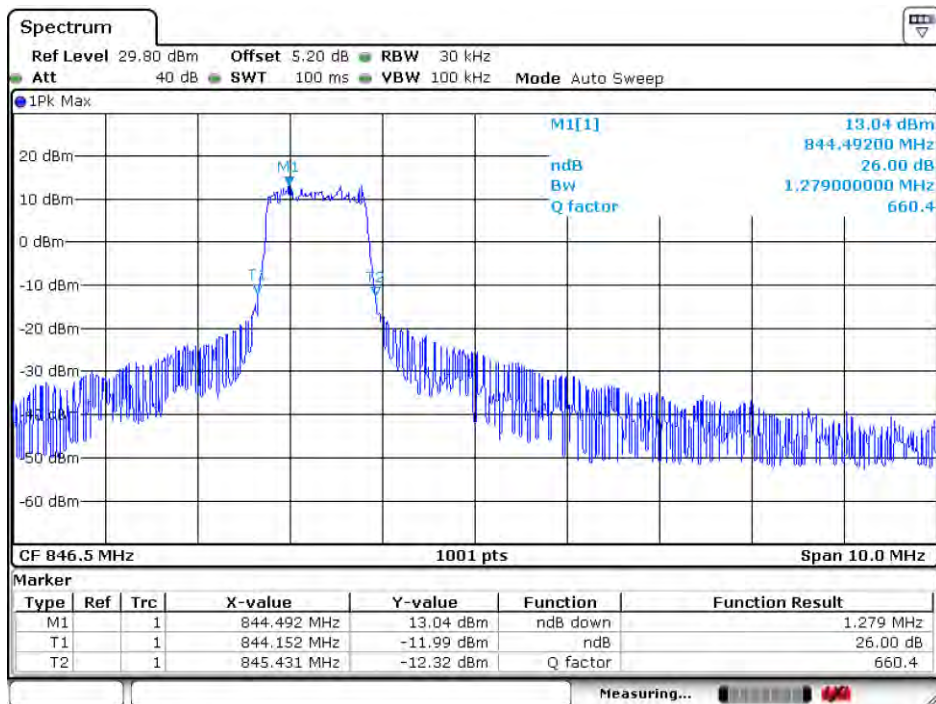
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LTE-CatM1 Band 5 /QPSK 5MHz HCH 6RB#0



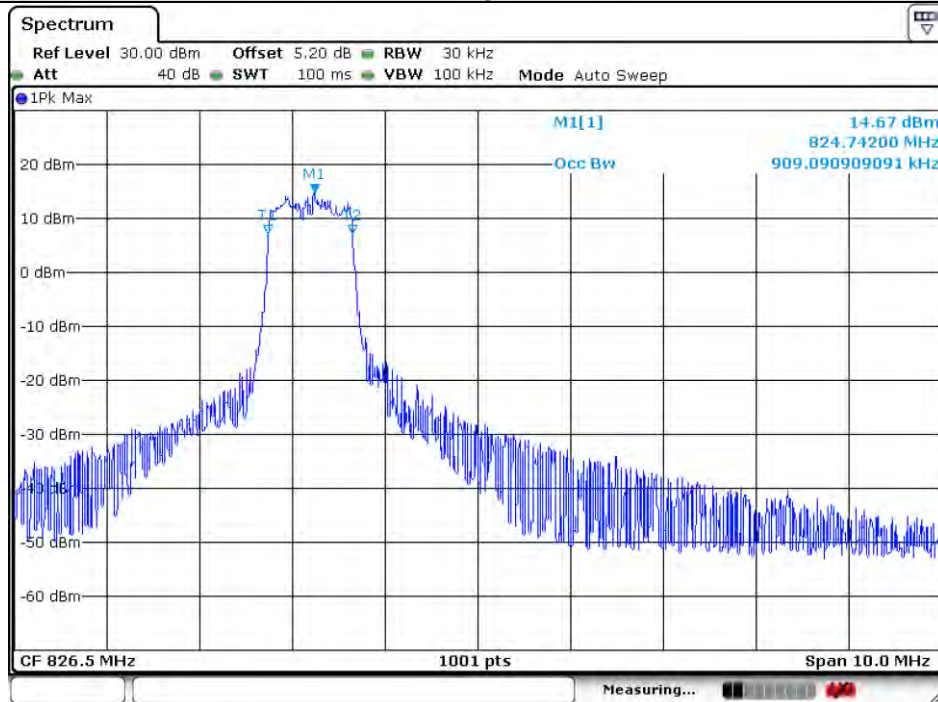
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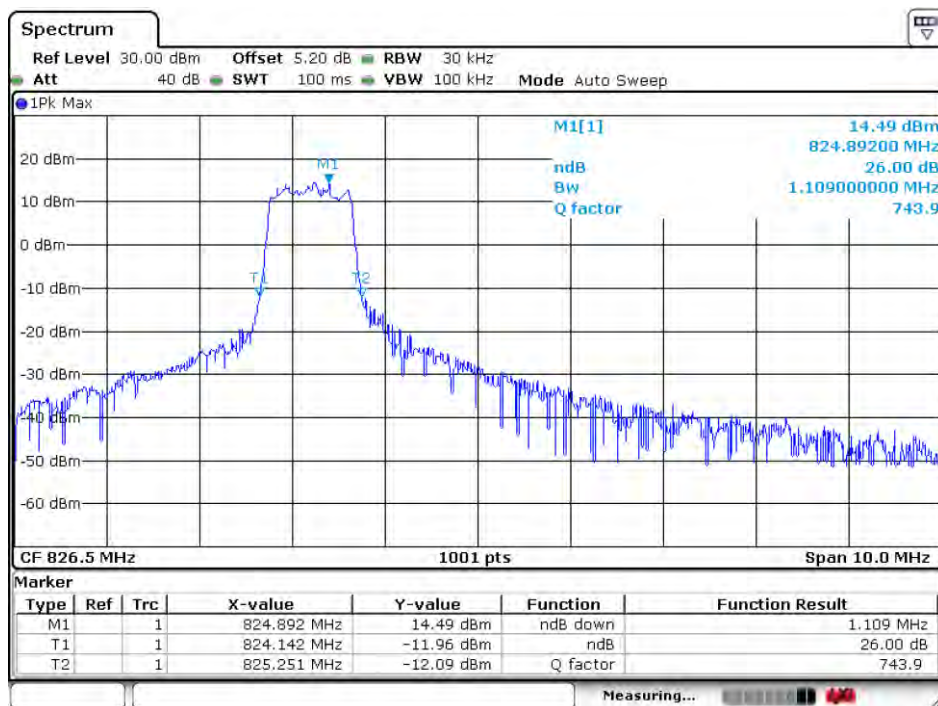
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LTE-CatM1 Band 5 /16QAM 5MHz LCH 5RB#0



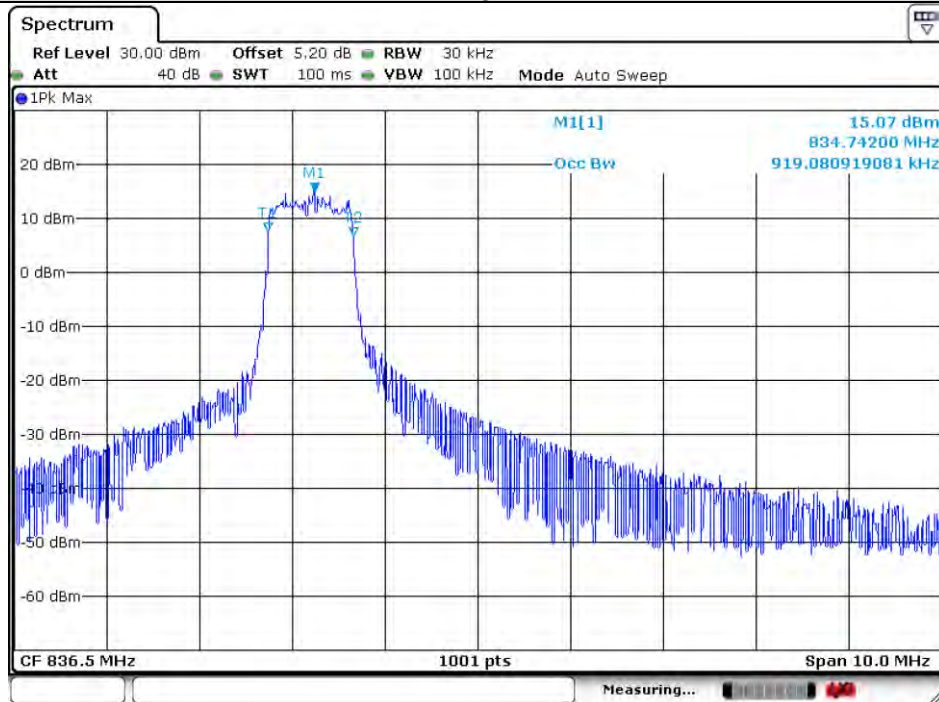
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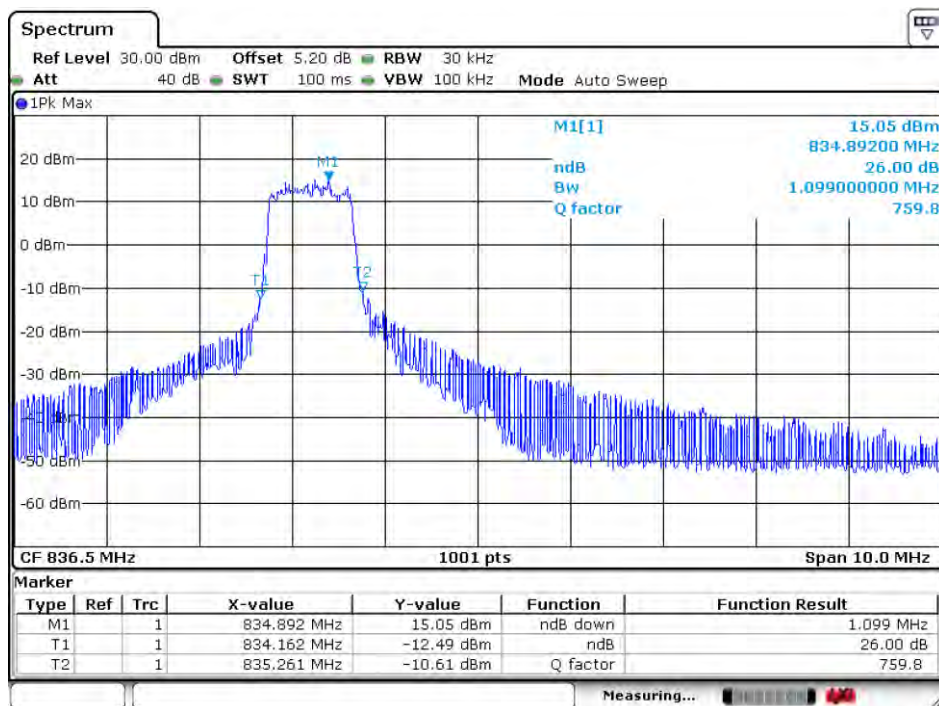
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LTE-CatM1 Band 5 /16QAM 5MHz MCH 5RB#0



Date: 10.SEP.2019 02:16:58



Date: 10.SEP.2019 02:16:32



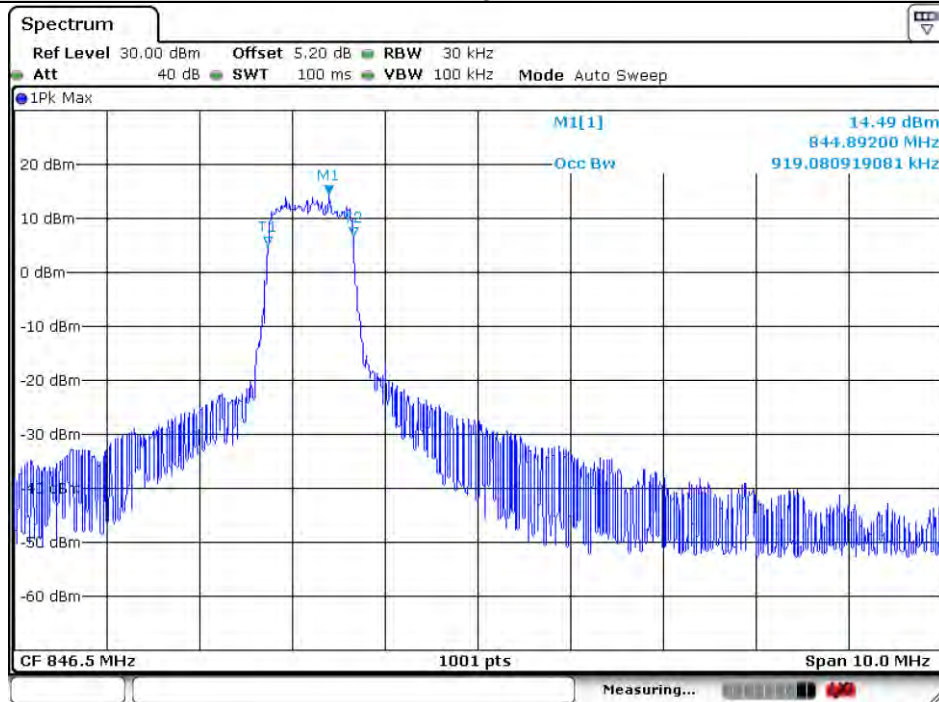
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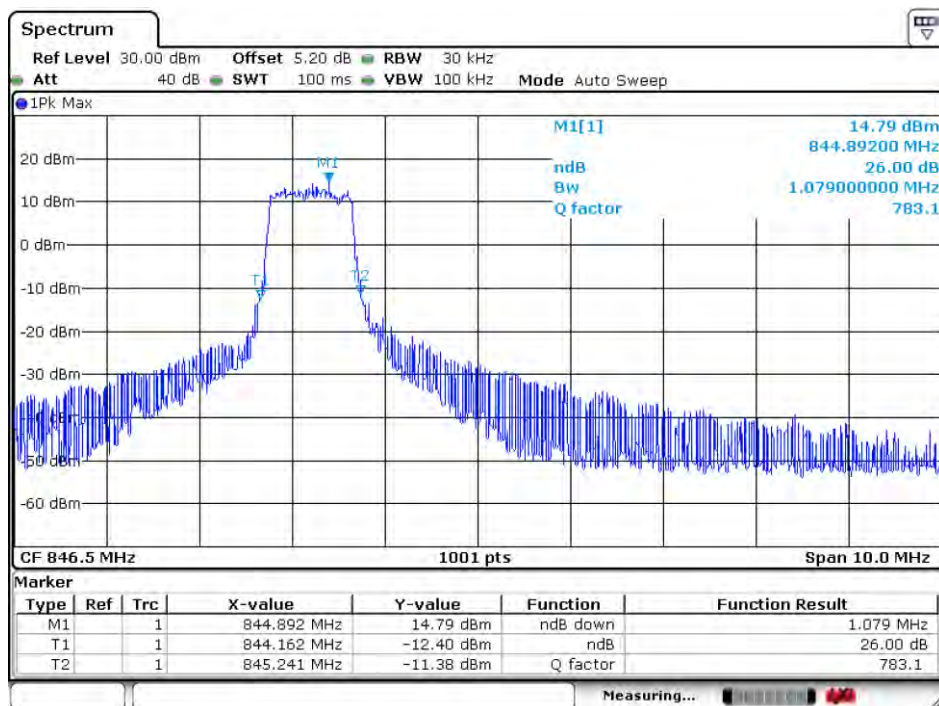
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LTE-CatM1 Band 5 /16QAM 5MHz HCH 5RB#0



Date: 10.SEP.2019 02:18:31



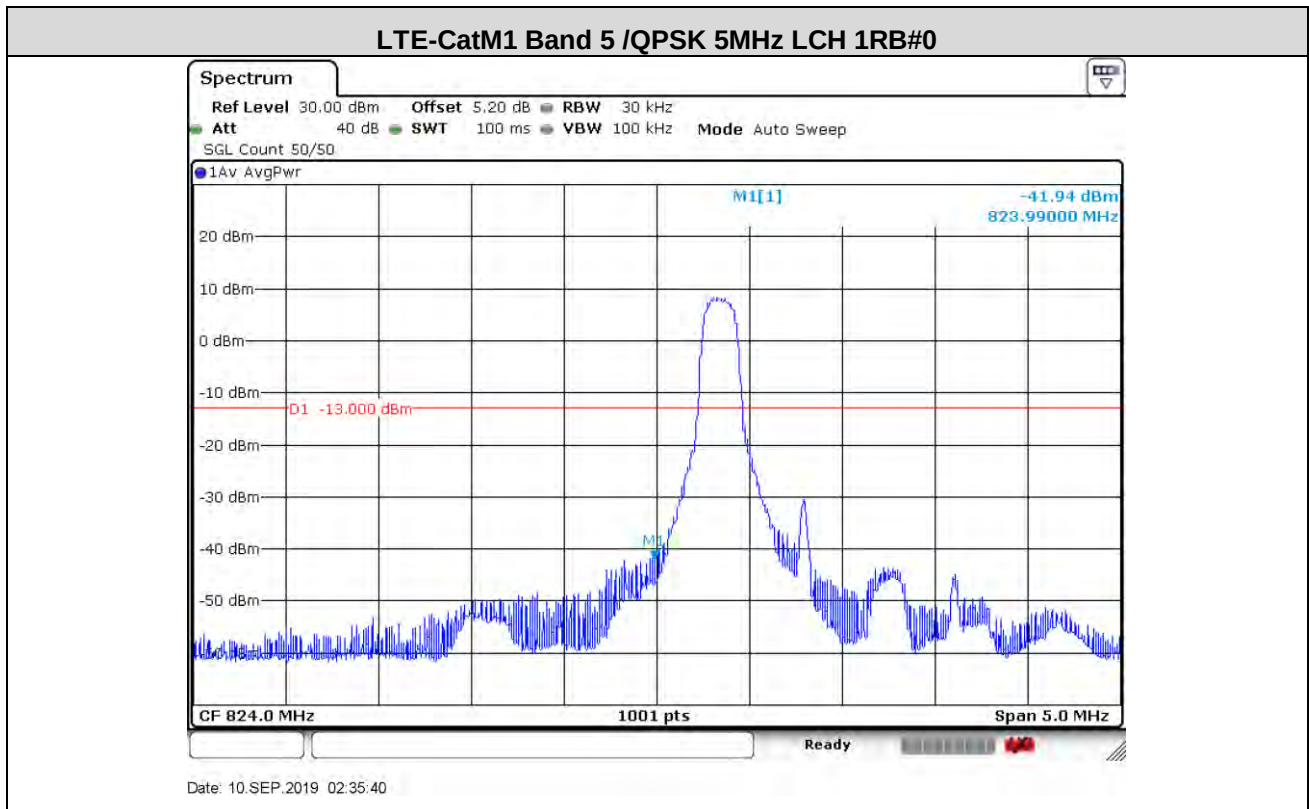
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5 Band Edges Compliance

5.1 Test Plots



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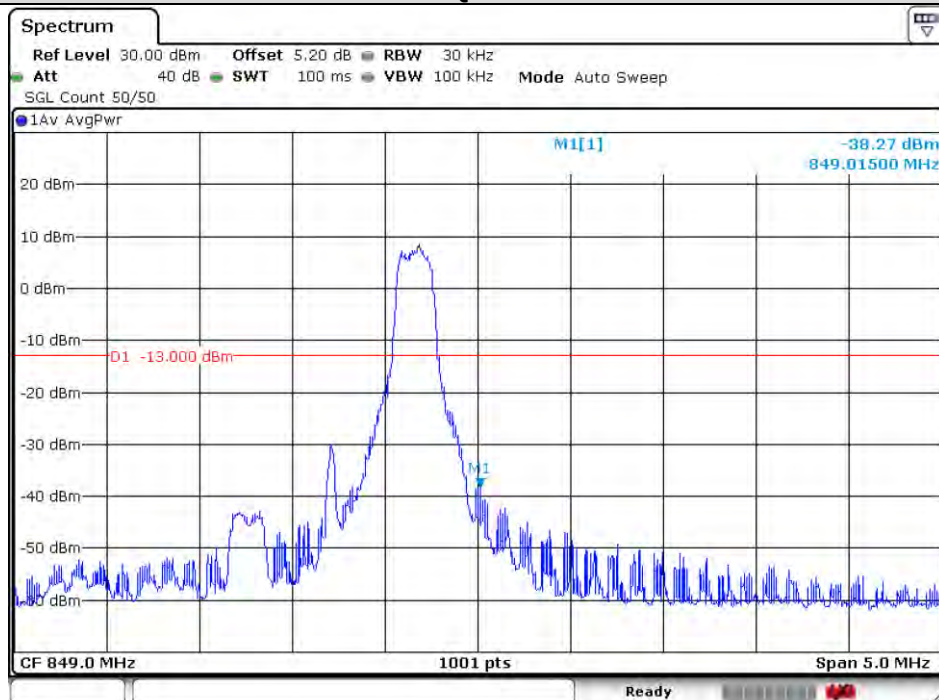
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LTE-CatM1 Band 5 /QPSK 5MHz LCH 6RB#0



Date: 10.SEP.2019 02:34:13

LTE-CatM1 Band 5 /QPSK 5MHz HCH 1RB#0



Date: 10.SEP.2019 02:45:49



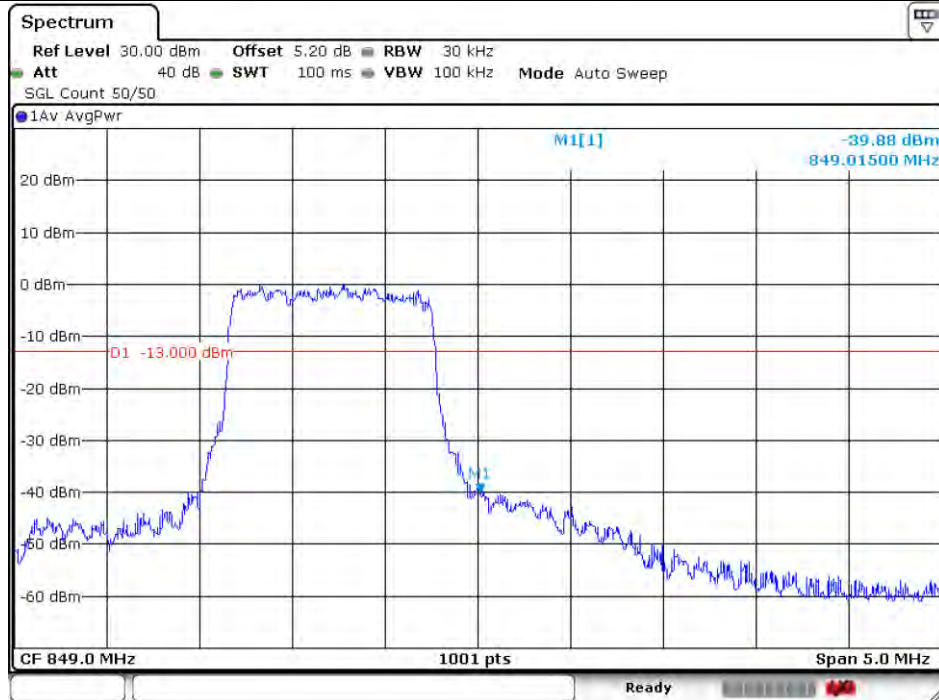
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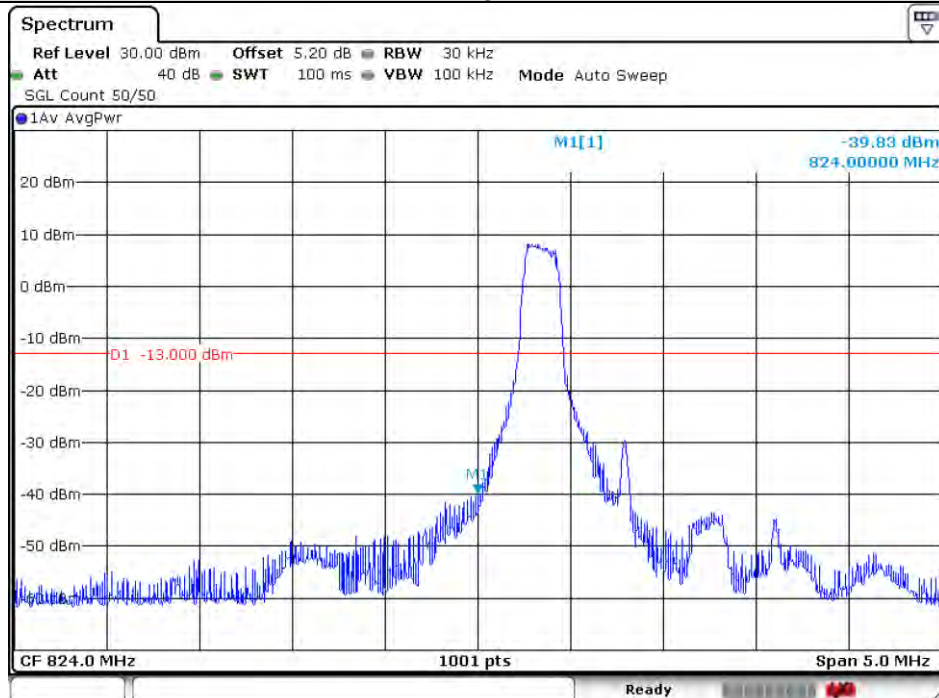
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LTE-CatM1 Band 5 /QPSK 5MHz HCH 6RB#0



Date: 10.SEP.2019 02:46:40

LTE-CatM1 Band 5 /16QAM 5MHz LCH 1RB#0



Date: 10.SEP.2019 02:36:08



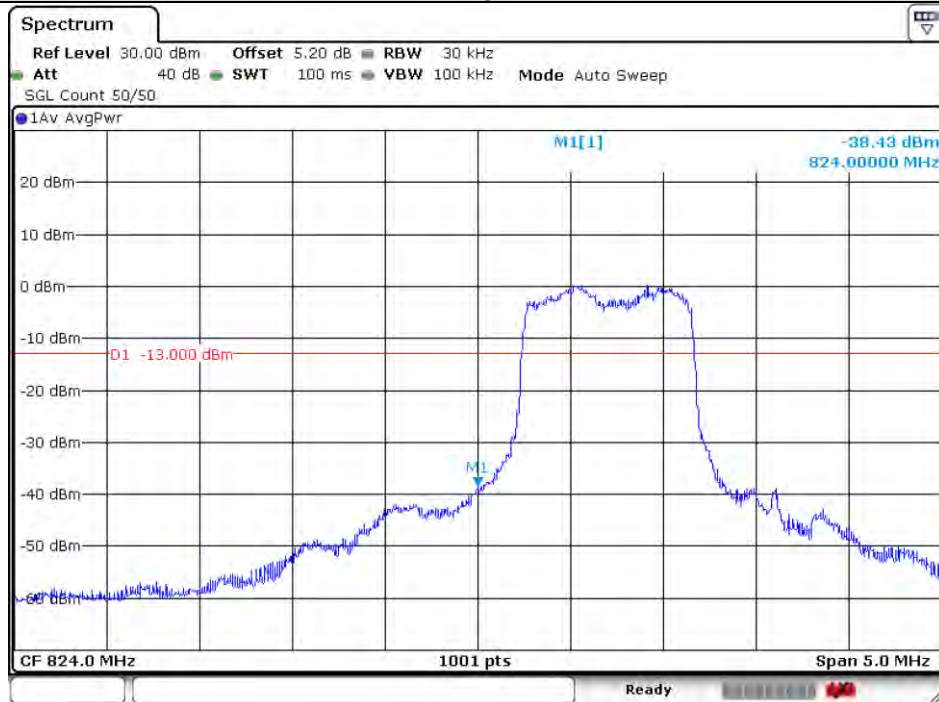
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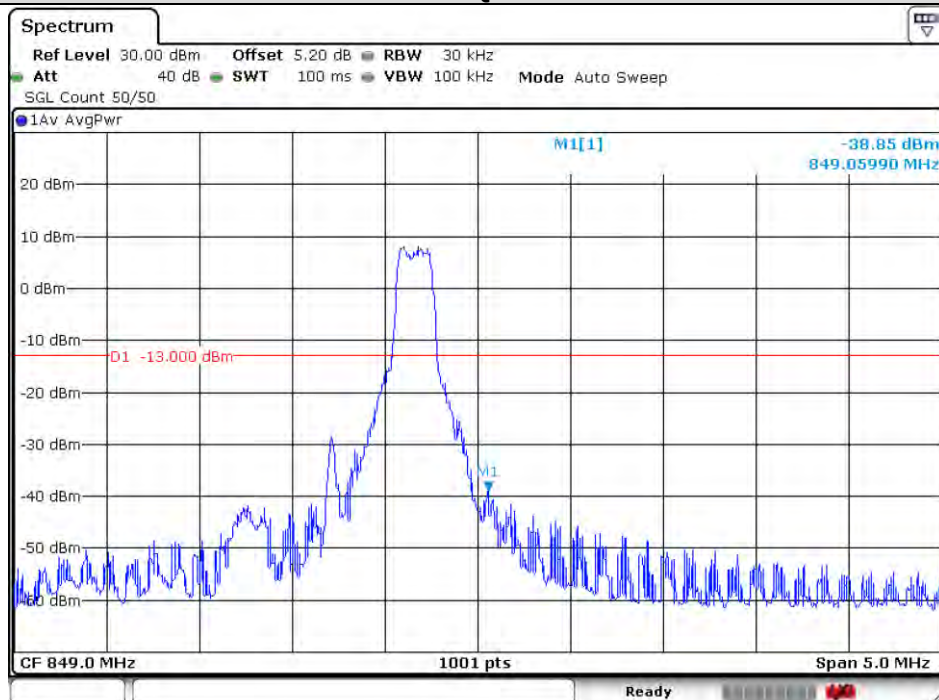
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LTE-CatM1 Band 5 /16QAM 5MHz LCH 5RB#0



Date: 10.SEP.2019 02:36:33

LTE-CatM1 Band 5 /16QAM 5MHz HCH 1RB#0



Date: 10.SEP.2019 02:43:52

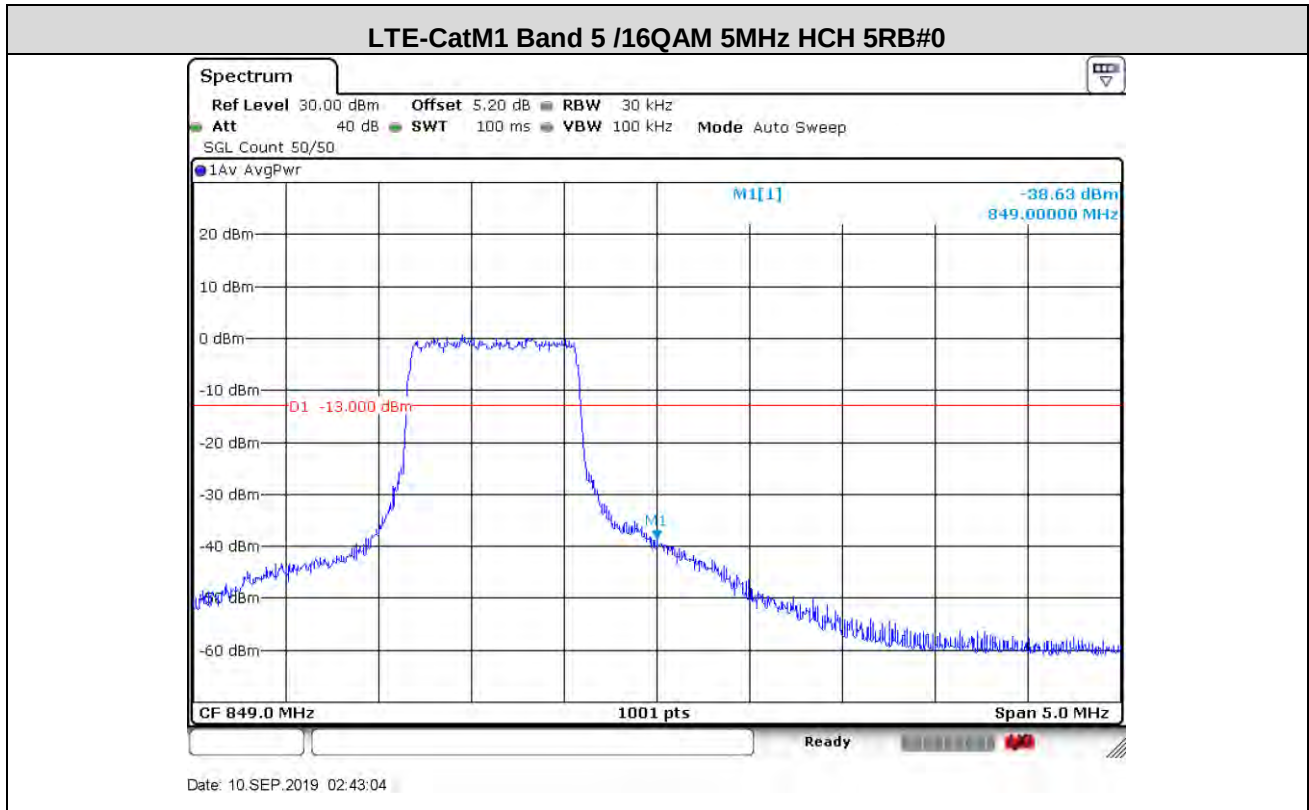


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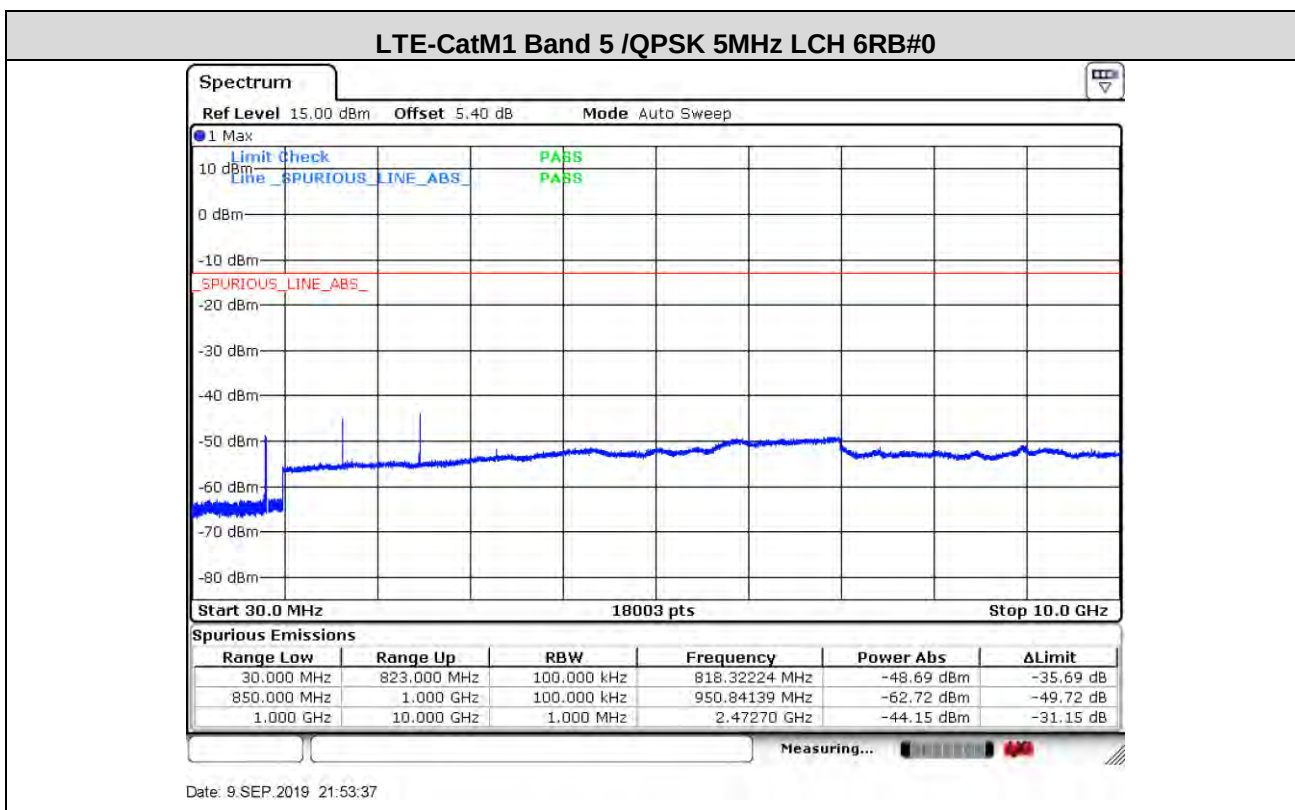


6 Spurious Emission at Antenna Terminal

NOTE1: 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 Test Plots



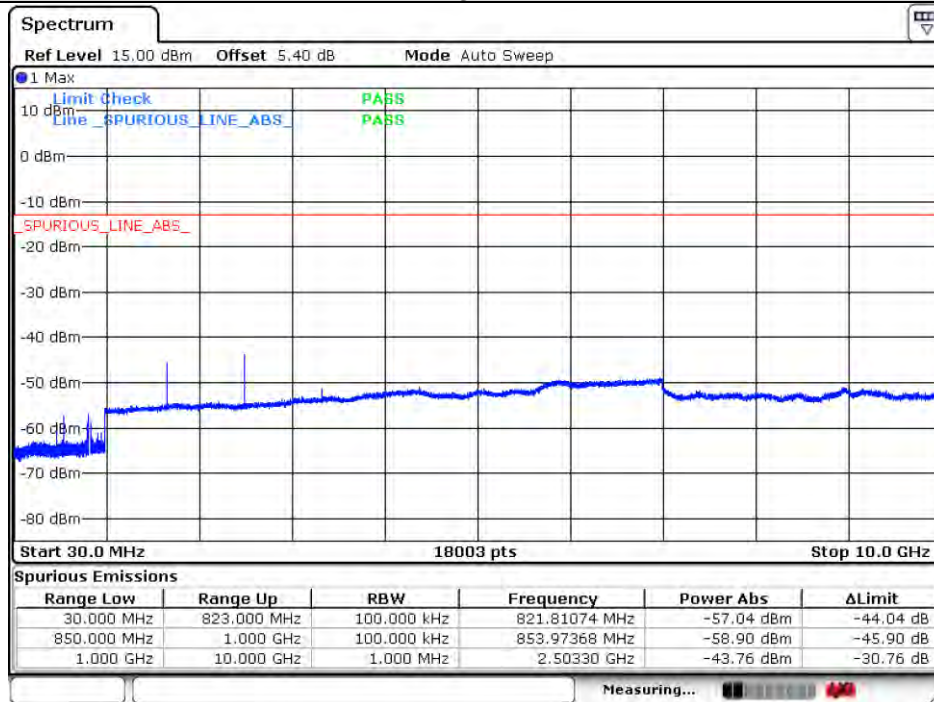
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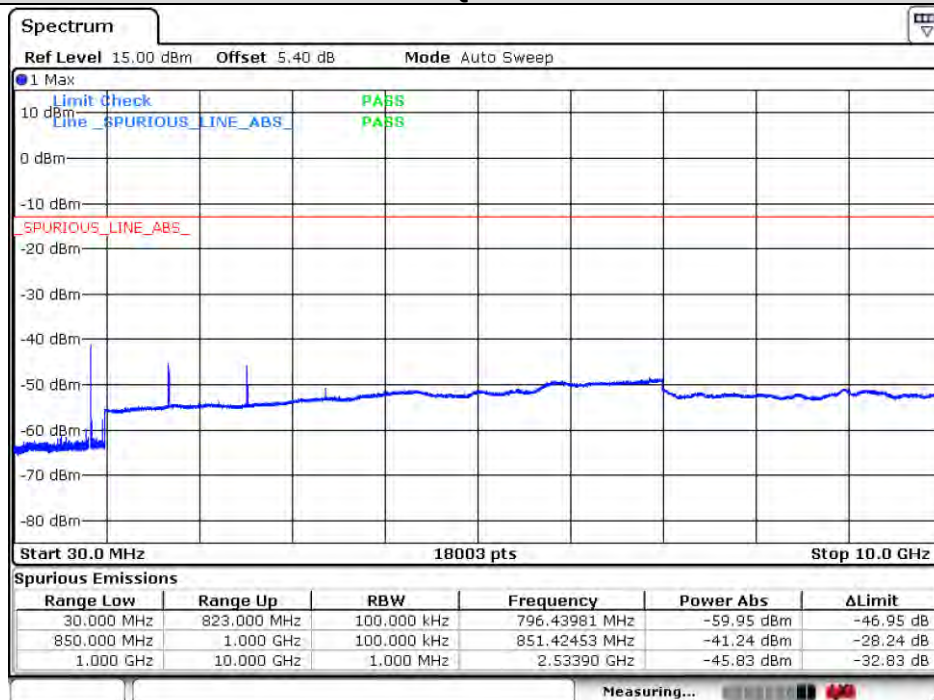
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LTE-CatM1 Band 5 /QPSK 5MHz MCH 6RB#0



Date: 9.SEP.2019 21:55:02

LTE-CatM1 Band 5 /QPSK 5MHz HCH 6RB#0



Date: 9.SEP.2019 22:00:06



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7 Field Strength of Spurious Radiation

7.1 For LTE-CatM1

7.1.1 Test Band = LTE-CatM1 Band 5

7.1.1.1 Test Mode =LTE-CatM1/QPSK

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
109.6895	-62.42	-13.00	49.42	Vertical
593.9862	-61.10	-13.00	48.10	Vertical
1166.4333	-64.18	-13.00	51.18	Vertical
1648.5297	-60.85	-13.00	47.85	Vertical
2465.8932	-41.78	-13.00	28.78	Vertical
8717.9906	-50.50	-13.00	37.50	Vertical
41.1556	-62.37	-13.00	49.37	Horizontal
241.4221	-64.67	-13.00	51.67	Horizontal
1648.5297	-55.62	-13.00	42.62	Horizontal
2465.4931	-40.15	-13.00	27.15	Horizontal
3297.6099	-53.16	-13.00	40.16	Horizontal
8737.1912	-50.62	-13.00	37.62	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
112.6481	-62.78	-13.00	49.78	Vertical
622.5056	-60.84	-13.00	47.84	Vertical
1668.5337	-56.63	-13.00	43.63	Vertical
2463.0926	-48.26	-13.00	35.26	Vertical
7354.5452	-53.20	-13.00	40.20	Vertical
8756.3919	-51.59	-13.00	38.59	Vertical
41.3981	-61.90	-13.00	48.90	Horizontal
229.0055	-65.65	-13.00	52.65	Horizontal
1668.5337	-48.64	-13.00	35.64	Horizontal
2463.8928	-46.80	-13.00	33.80	Horizontal
3337.6113	-50.76	-13.00	37.76	Horizontal
8827.5943	-52.14	-13.00	39.14	Horizontal



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7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
107.4584	-62.09	-13.00	49.09	Vertical
667.7584	-60.03	-13.00	47.03	Vertical
1166.4333	-64.18	-13.00	51.18	Vertical
1688.5377	-60.58	-13.00	47.58	Vertical
2466.2933	-42.71	-13.00	29.71	Vertical
8616.9872	-50.36	-13.00	37.36	Vertical
45.7633	-63.03	-13.00	50.03	Horizontal
606.8878	-60.21	-13.00	47.21	Horizontal
1688.5377	-57.85	-13.00	44.85	Horizontal
2465.8932	-41.14	-13.00	28.14	Horizontal
3377.4126	-51.82	-13.00	38.82	Horizontal
8668.3889	-50.32	-13.00	37.32	Horizontal

NOTE:

- 1) The disturbance 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) 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	RB Config	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	TN	VL	9.43	0.011404	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	TN	VN	-14.58	-0.017641	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	TN	VH	3.54	0.004282	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	TN	VL	1.35	0.001613	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	TN	VN	-11.31	-0.013523	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	TN	VH	10.15	0.012136	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	TN	VL	-0.83	-0.000985	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	TN	VN	-1.44	-0.001703	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	TN	VH	-2.36	-0.002782	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	TN	VL	11.83	0.014314	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	TN	VN	2.87	0.003468	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	TN	VH	-3.80	-0.004603	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	TN	VL	-8.72	-0.010424	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	TN	VN	7.42	0.008872	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	TN	VH	-14.34	-0.017148	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	TN	VL	13.97	0.016503	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	TN	VN	14.80	0.017487	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	TN	VH	-1.63	-0.001931	±2.5	PASS



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8.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	RB Config	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	-30	-3.13	-0.003784	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	-20	-11.24	-0.013604	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	-10	-13.71	-0.016587	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	0	-3.40	-0.004109	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	10	-12.76	-0.015444	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	20	1.22	0.001476	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	30	1.67	0.002024	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	40	-13.38	-0.016183	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	LCH	6RB#0	VN	50	-12.19	-0.014745	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	-30	13.61	0.016271	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	-20	14.17	0.016941	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	-10	-7.59	-0.009079	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	0	-10.35	-0.012378	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	10	-0.84	-0.001003	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	20	-11.07	-0.013235	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	30	-6.41	-0.007658	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	40	12.63	0.015102	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	MCH	6RB#0	VN	50	9.61	0.011483	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	-30	-6.66	-0.007865	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	-20	-2.43	-0.002876	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	-10	0.35	0.000409	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	0	1.11	0.001310	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	10	-9.84	-0.011628	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	20	11.88	0.014030	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	30	10.30	0.012167	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	40	7.05	0.008326	±2.5	PASS
CatM1 Band 5	QPSK 5MHz	HCH	6RB#0	VN	50	13.38	0.015805	±2.5	PASS



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Test Band	Test Mode	Test Channel	RB Config	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Limit (ppm)	Verdict
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	-30	-9.26	-0.011206	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	-20	14.69	0.017768	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	-10	-6.35	-0.007688	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	0	12.52	0.015150	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	10	-4.82	-0.005837	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	20	4.73	0.005729	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	30	2.58	0.003124	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	40	9.27	0.011213	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	LCH	5RB#0	VN	50	10.96	0.013255	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	-30	8.54	0.010205	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	-20	-6.35	-0.007592	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	-10	3.74	0.004475	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	0	4.63	0.005530	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	10	1.51	0.001804	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	20	-3.43	-0.004095	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	30	-10.12	-0.012094	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	40	-10.69	-0.012776	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	MCH	5RB#0	VN	50	-14.56	-0.017404	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	-30	12.57	0.014853	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	-20	-0.32	-0.000374	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	-10	14.99	0.017711	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	0	9.96	0.011768	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	10	-4.42	-0.005226	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	20	-13.52	-0.015972	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	30	-11.12	-0.013139	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	40	-5.82	-0.006877	±2.5	PASS
CatM1 Band 5	16QAM 5MHz	HCH	5RB#0	VN	50	12.56	0.014839	±2.5	PASS

The End



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