Appendix B

Test Data for SZEM1610008522RG

CONTENT

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1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	EIRP[dB]	Limit[dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	21.32	23.68	33	PASS
		MCH	21.21	23.57	33	PASS
		HCH	21.30	23.66	33	PASS
WCDMA1700	UMTS/TM1	LCH	22.02	23.51	30	PASS
		MCH	22.31	23.80	30	PASS
		HCH	22.24	23.73	30	PASS

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

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

b: SGP=Signal Generator Level
c: RBW > emission bandwidth, VBW > 3 x RBW.
Detector: RMS
c: RBW > emission bandwidth, VBW > 3 x RBW.

2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	3.10	13	PASS
		MCH	3.48	13	PASS
		HCH	3.33	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.13	13	PASS
		MCH	3.28	13	PASS
		HCH	3.45	13	PASS

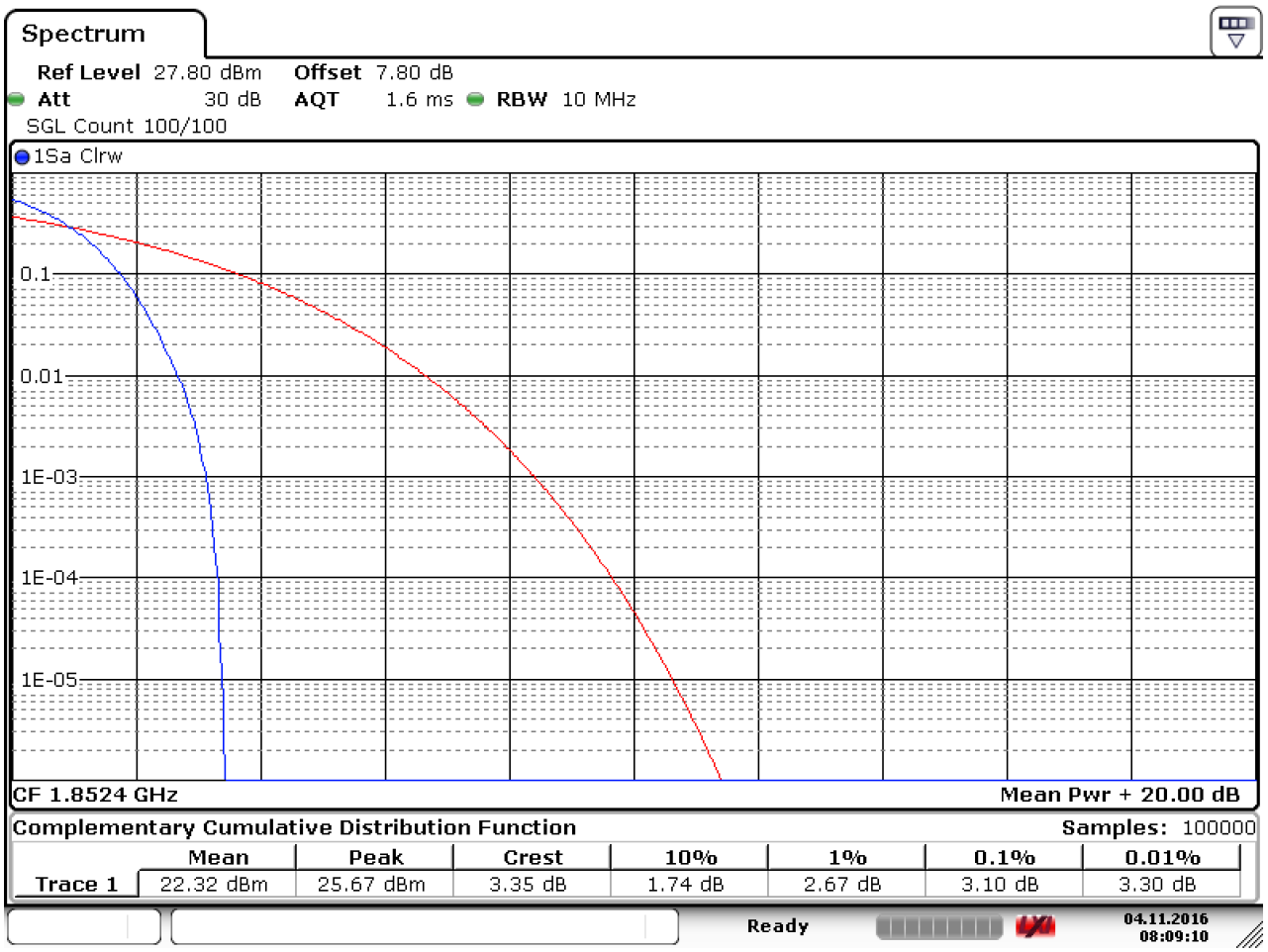
Part II - Test Plots

2.1 For WCDMA

2.1.1 Test Band = WCDMA1900

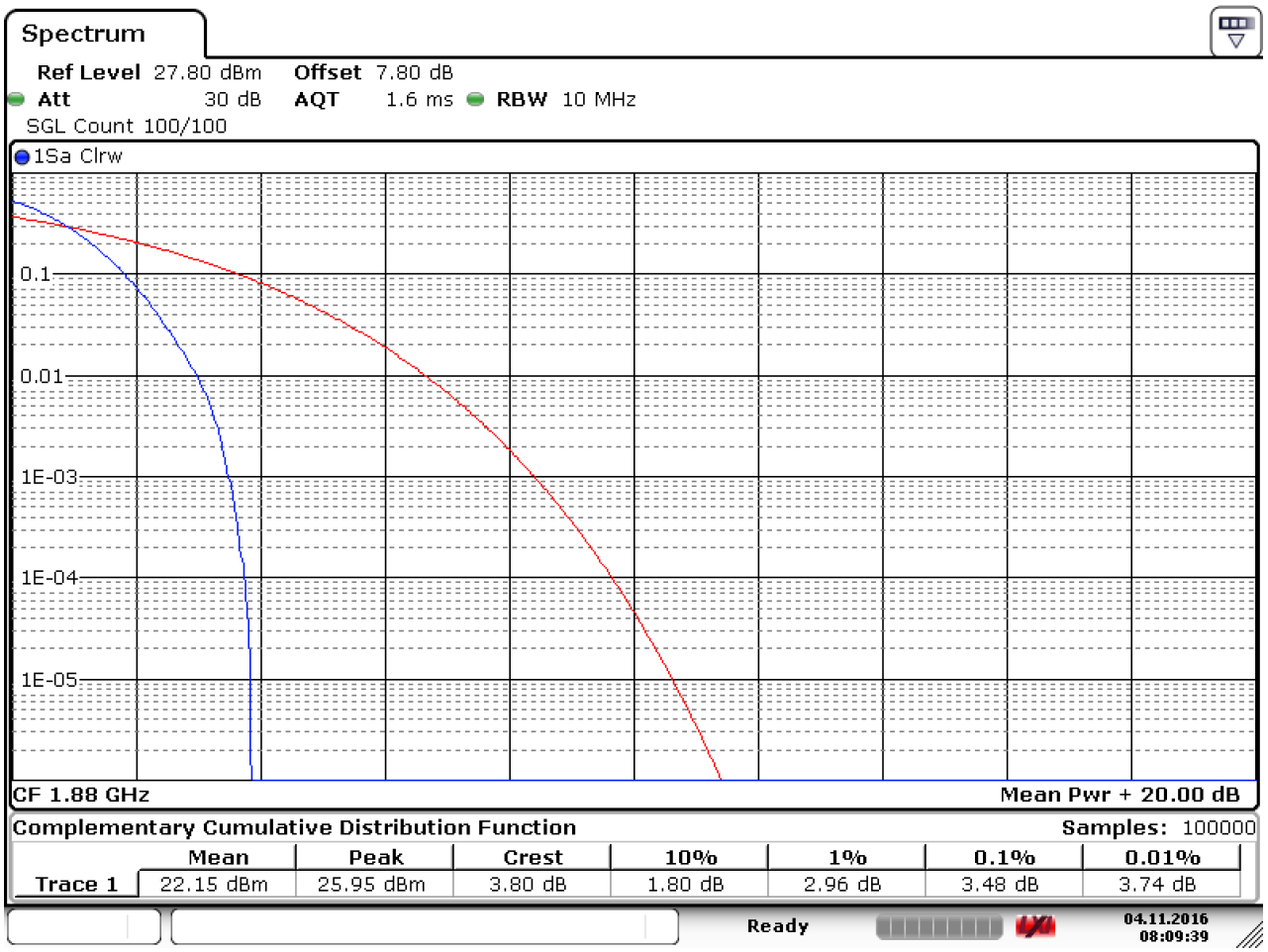
2.1.1.1 Test Mode = UMTS/TM1

2.1.1.1.1 Test Channel = LCH



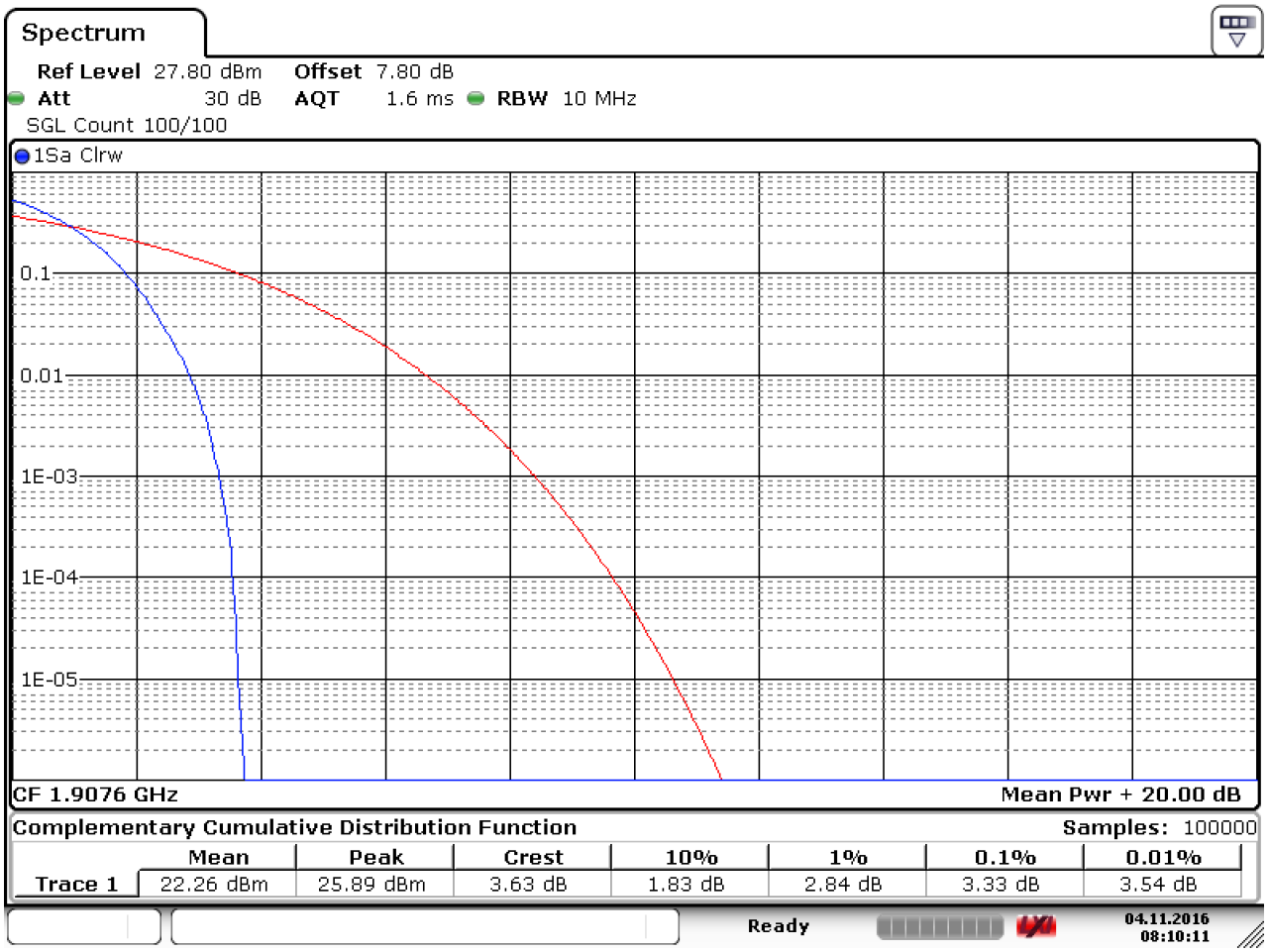
Date: 4.NOV.2016 08:09:11

2.1.1.1.2 Test Channel = MCH



Date: 4.NOV.2016 08:09:40

2.1.1.1.3 Test Channel = HCH

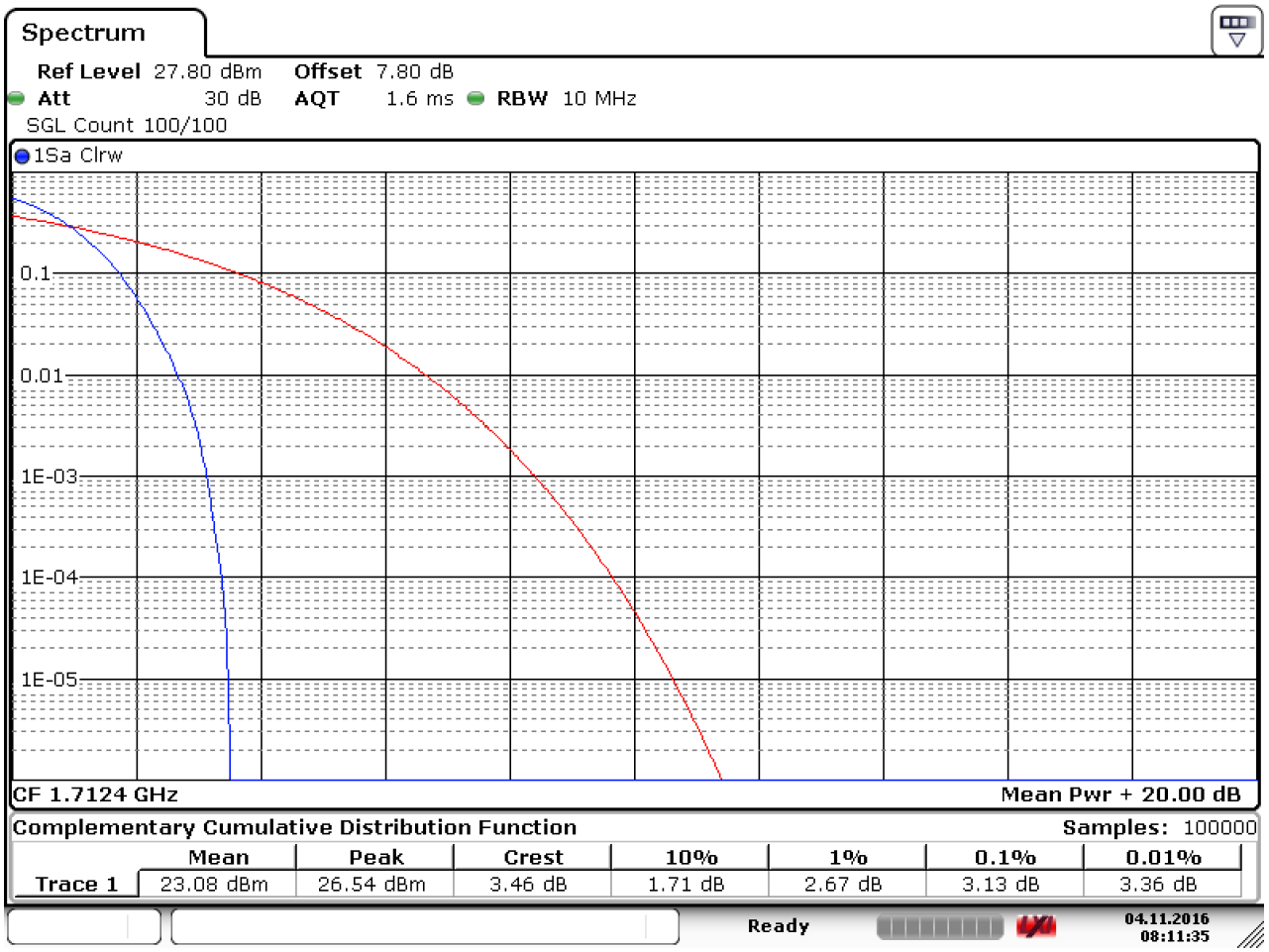


Date: 4.NOV.2016 08:10:11

2.1.2 Test Band = WCDMA1700

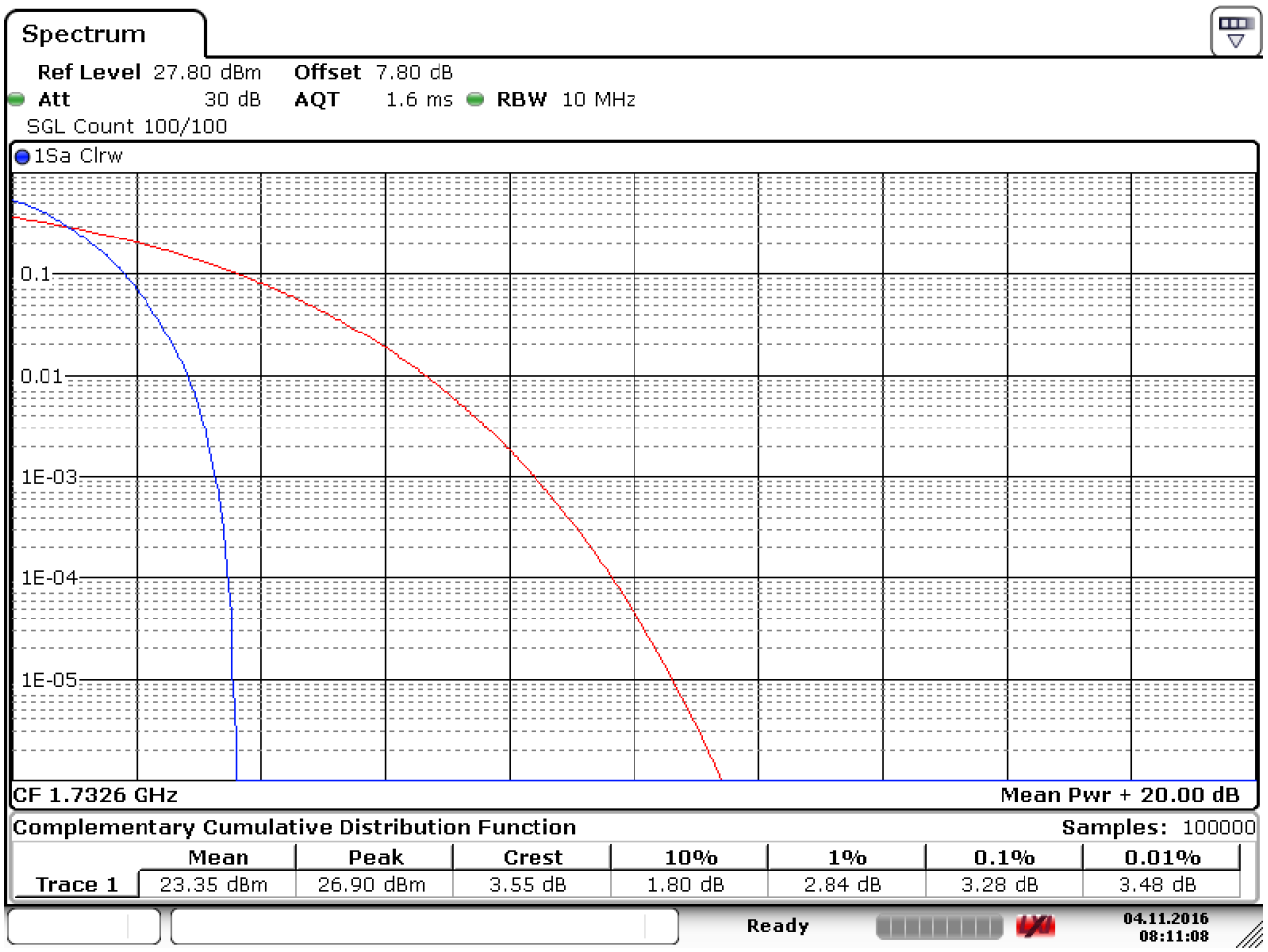
2.1.2.1 Test Mode = UMTS/TM1

2.1.2.1.1 Test Channel = LCH



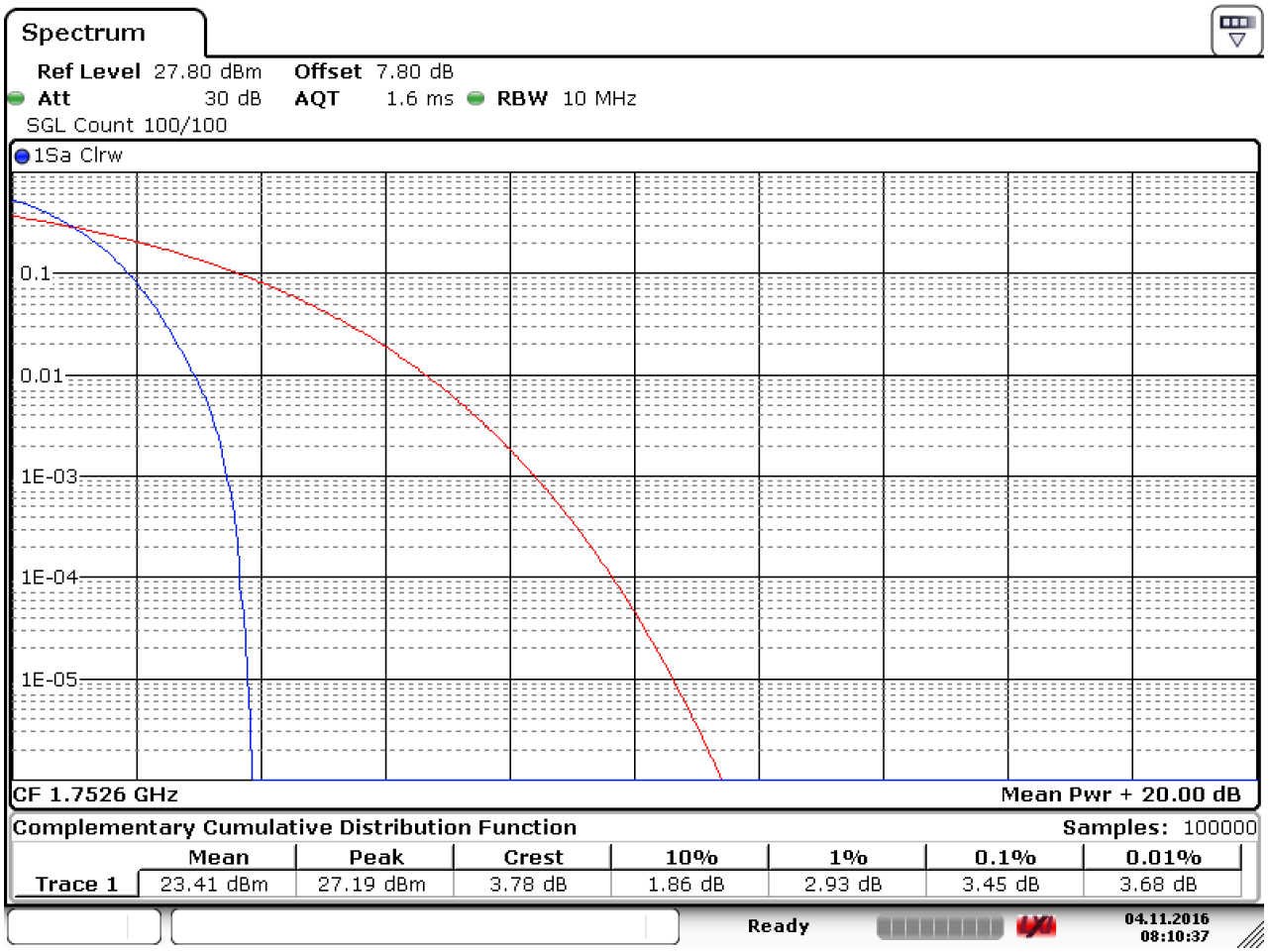
Date: 4.NOV.2016 08:11:35

2.1.2.1.2 Test Channel = MCH



Date: 4.NOV.2016 08:11:08

2.1.2.1.3 Test Channel = HCH



Date: 4.NOV.2016 08:10:38

3 Modulation Characteristics

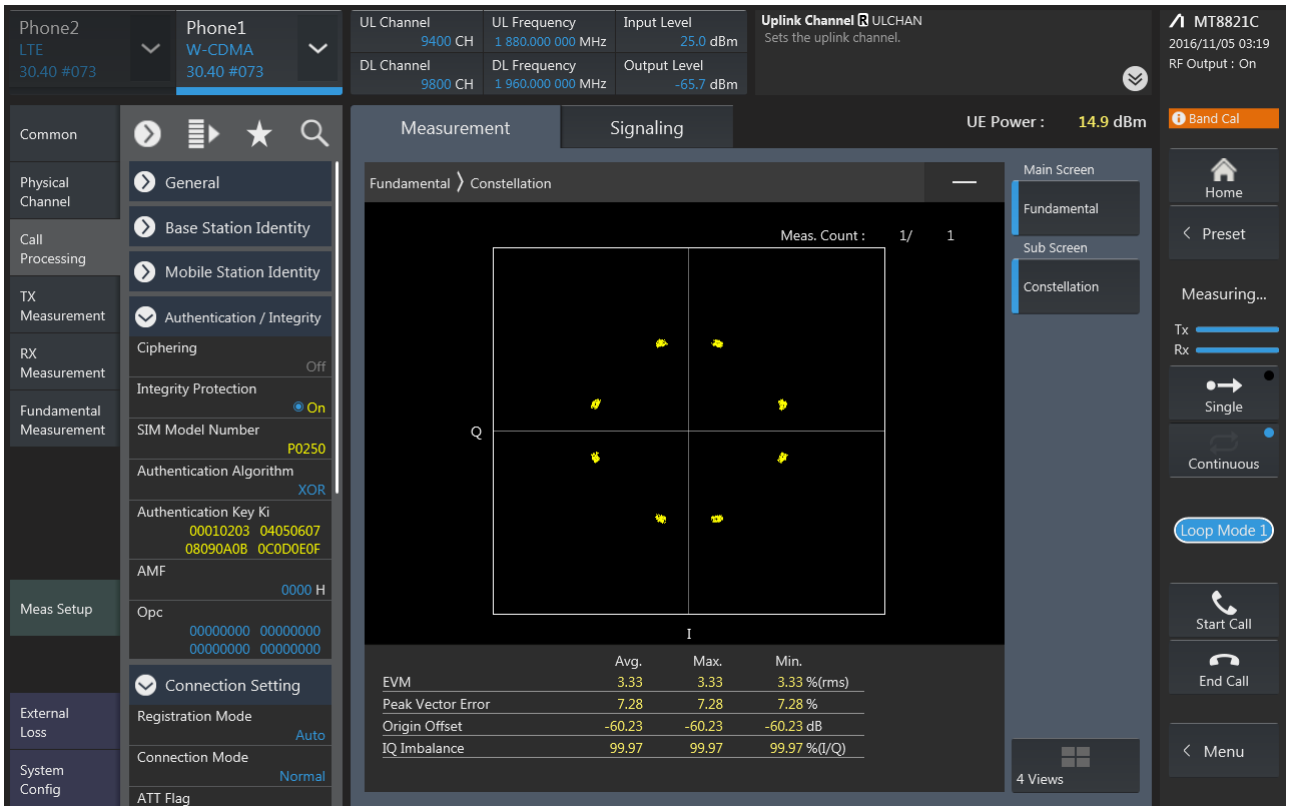
Part I - Test Plots

3.1 For WCDMA

3.1.1 Test Band = WCDMA1900

3.1.1.1 Test Mode = UMTS/TM1

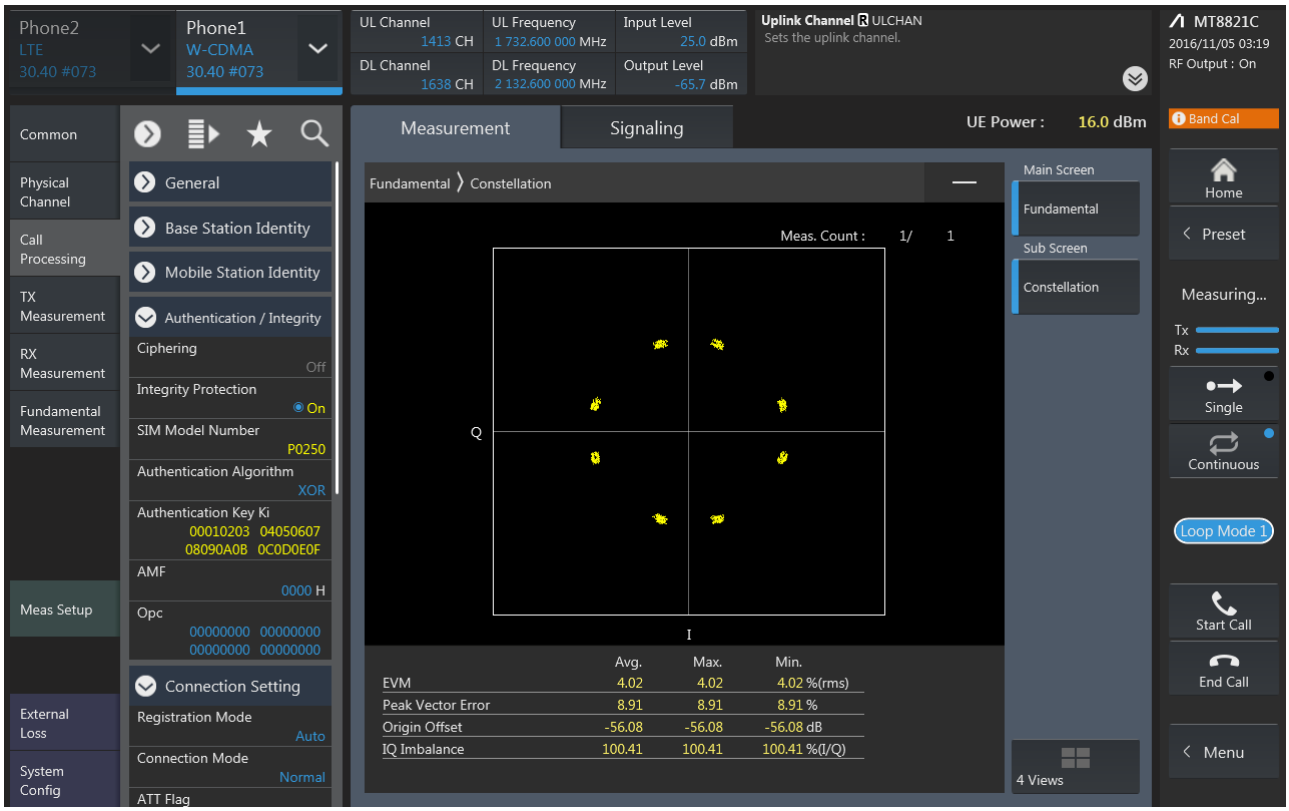
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA 1700

3.1.2.1 Test Mode = UMTS /TM1

3.1.2.1.1 Test Channel = MCH



4 Bandwidth

Part I - Test Results

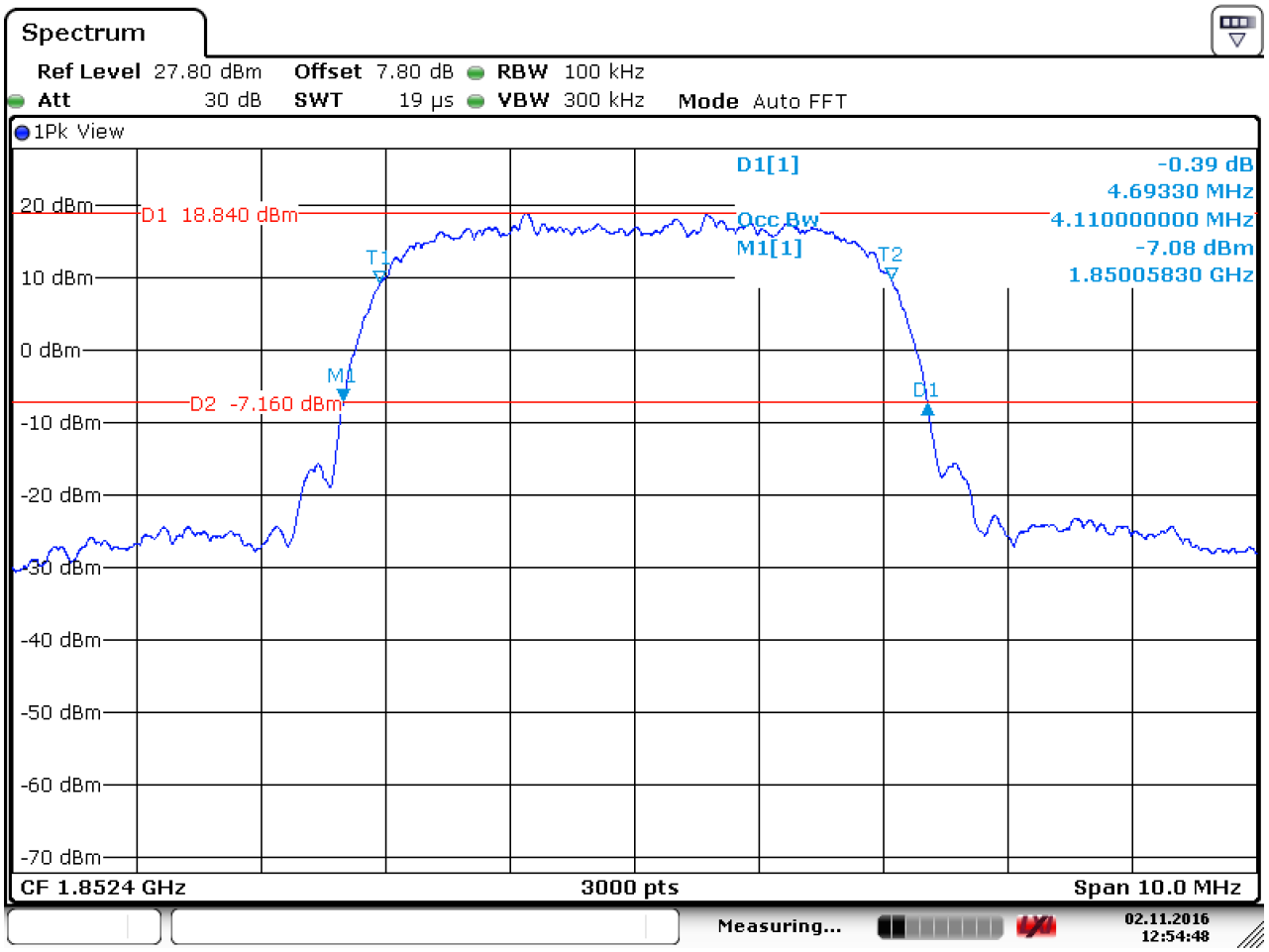
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.11	4.69	PASS
		MCH	4.10	4.68	PASS
		HCH	4.10	4.69	PASS
WCDMA1700	UMTS/TM1	LCH	4.11	4.71	PASS
		MCH	4.10	4.70	PASS
		HCH	4.11	4.68	PASS

4.1 For WCDMA

4.1.1 Test Band = WCDMA1900

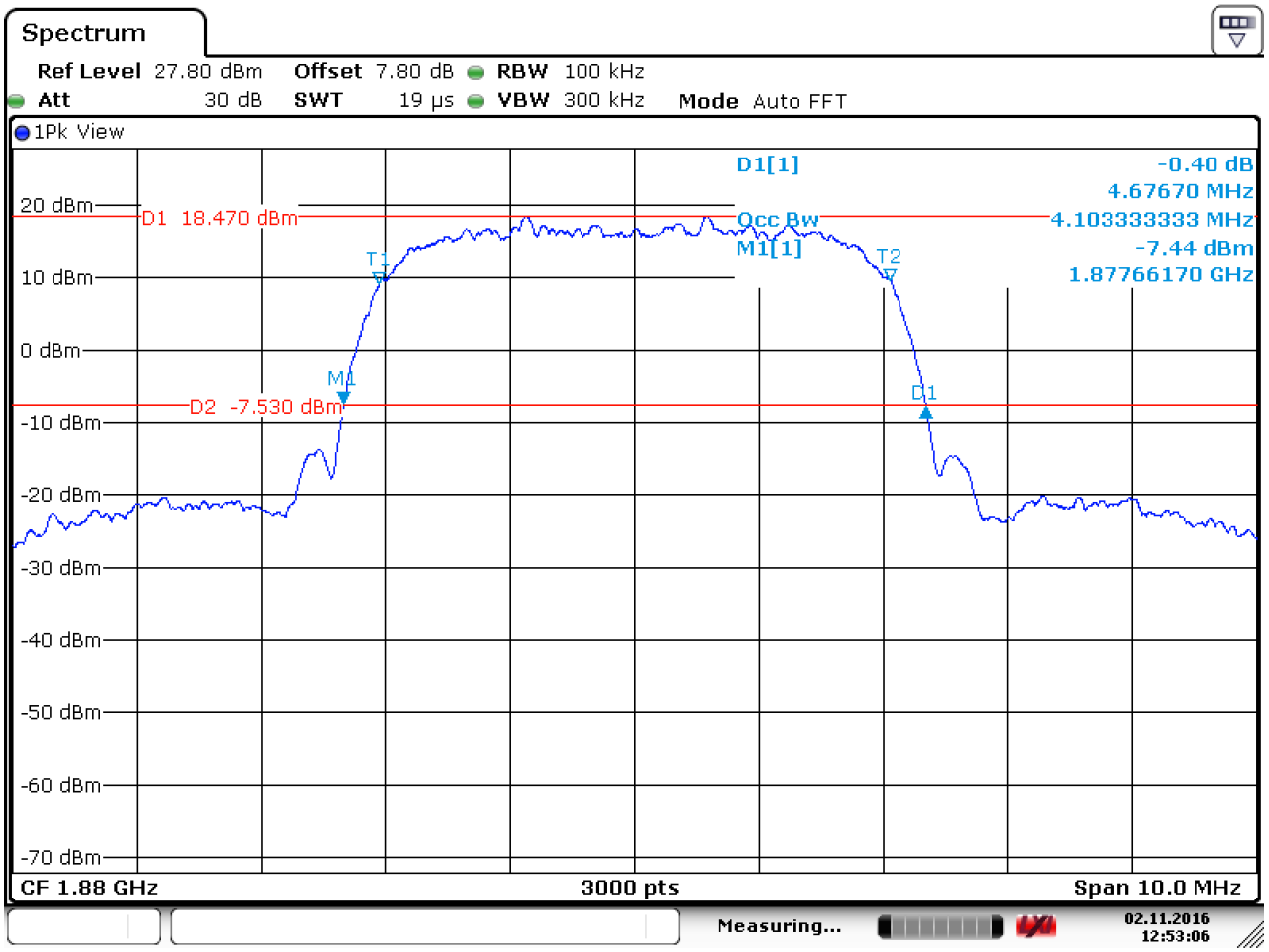
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



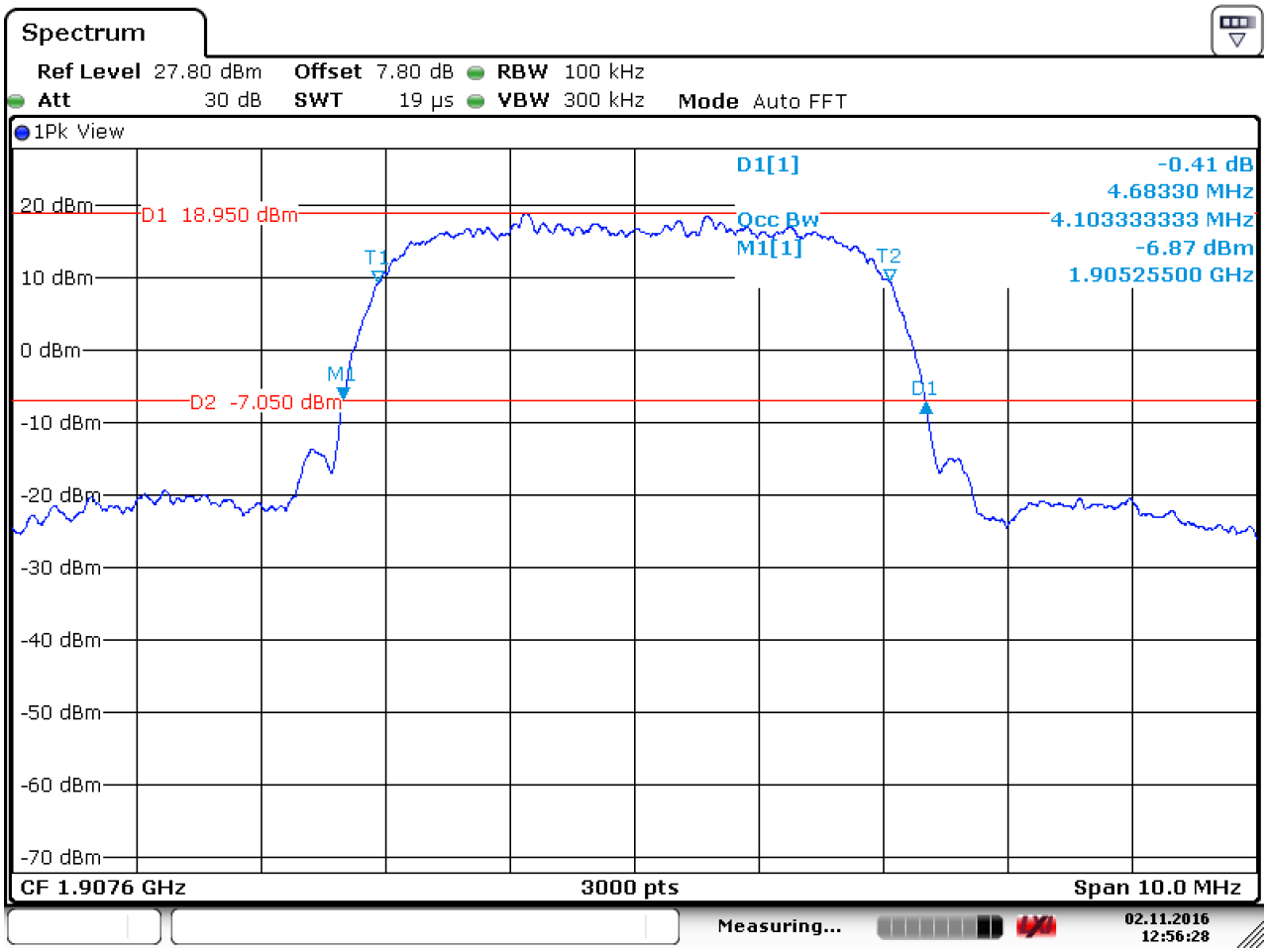
Date: 2.NOV.2016 12:54:48

4.1.1.1.2 Test Channel = MCH



Date: 2.NOV.2016 12:53:07

4.1.1.1.3 Test Channel = HCH

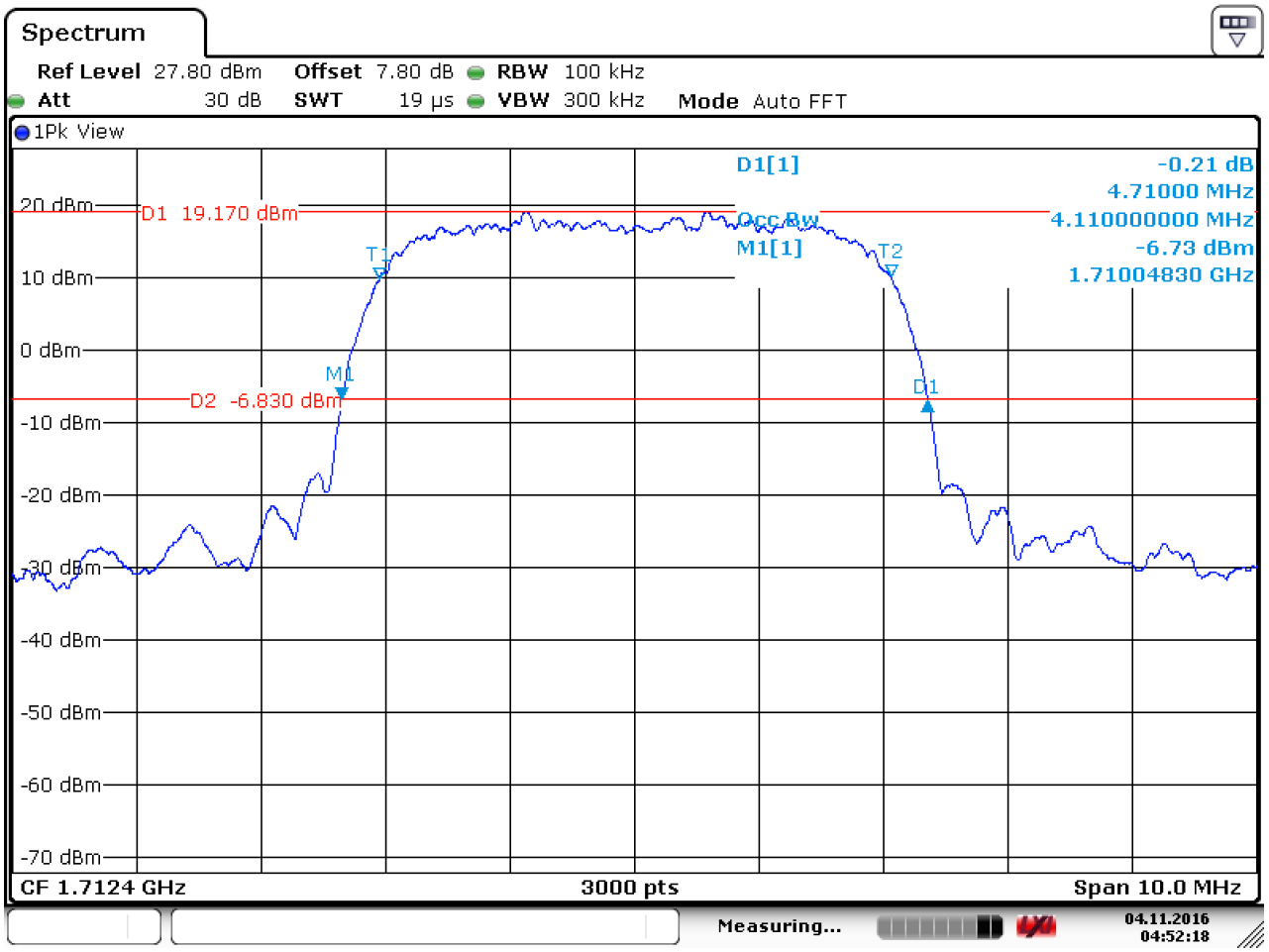


Date: 2.NOV.2016 12:56:29

4.1.2 Test Band = WCDMA1700

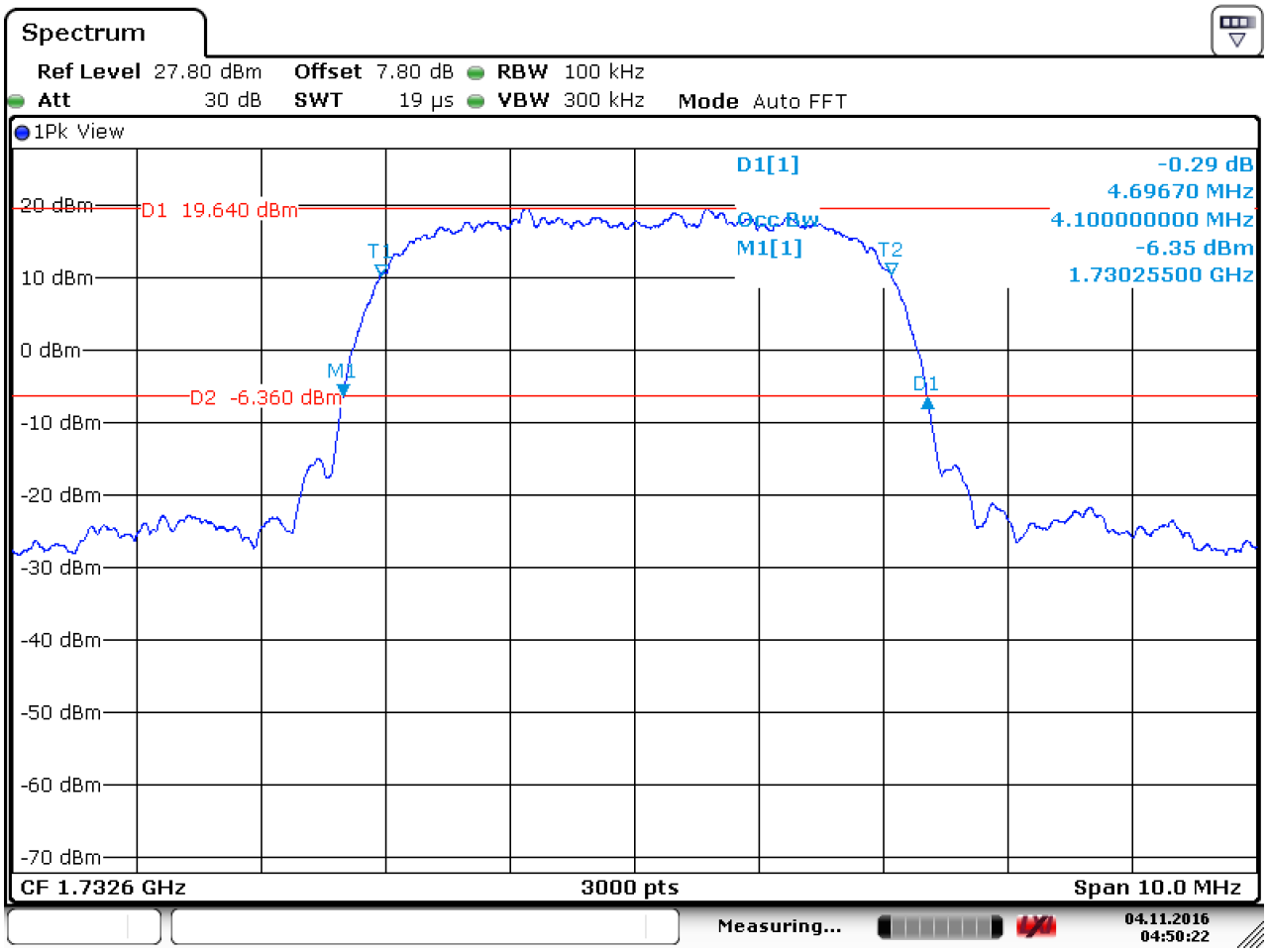
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



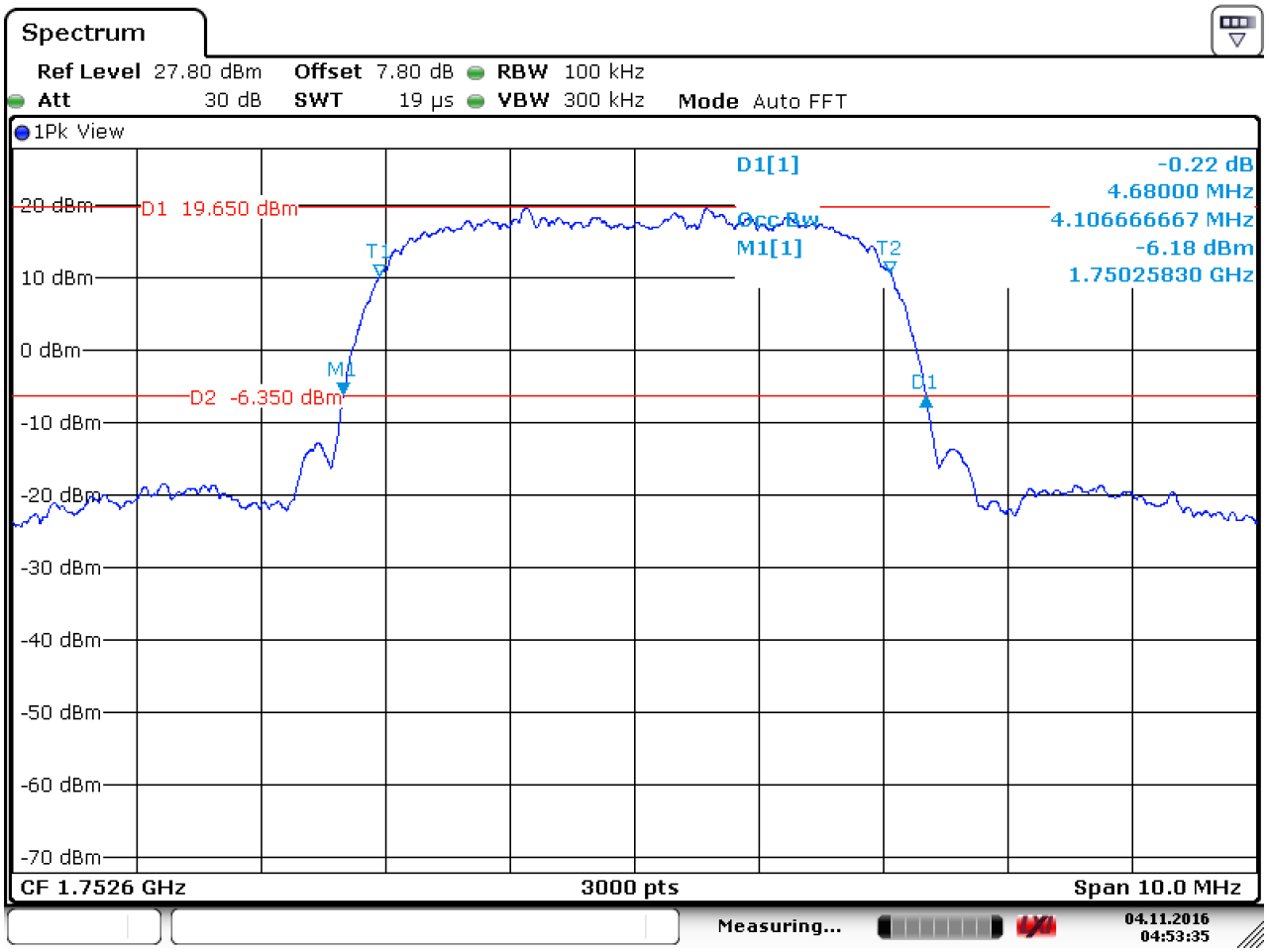
Date: 4.NOV.2016 04:52:18

4.1.2.1.2 Test Channel = MCH



Date: 4.NOV.2016 04:50:22

4.1.2.1.3 Test Channel = HCH



Date: 4.NOV.2016 04:53:35

5 Band Edges Compliance

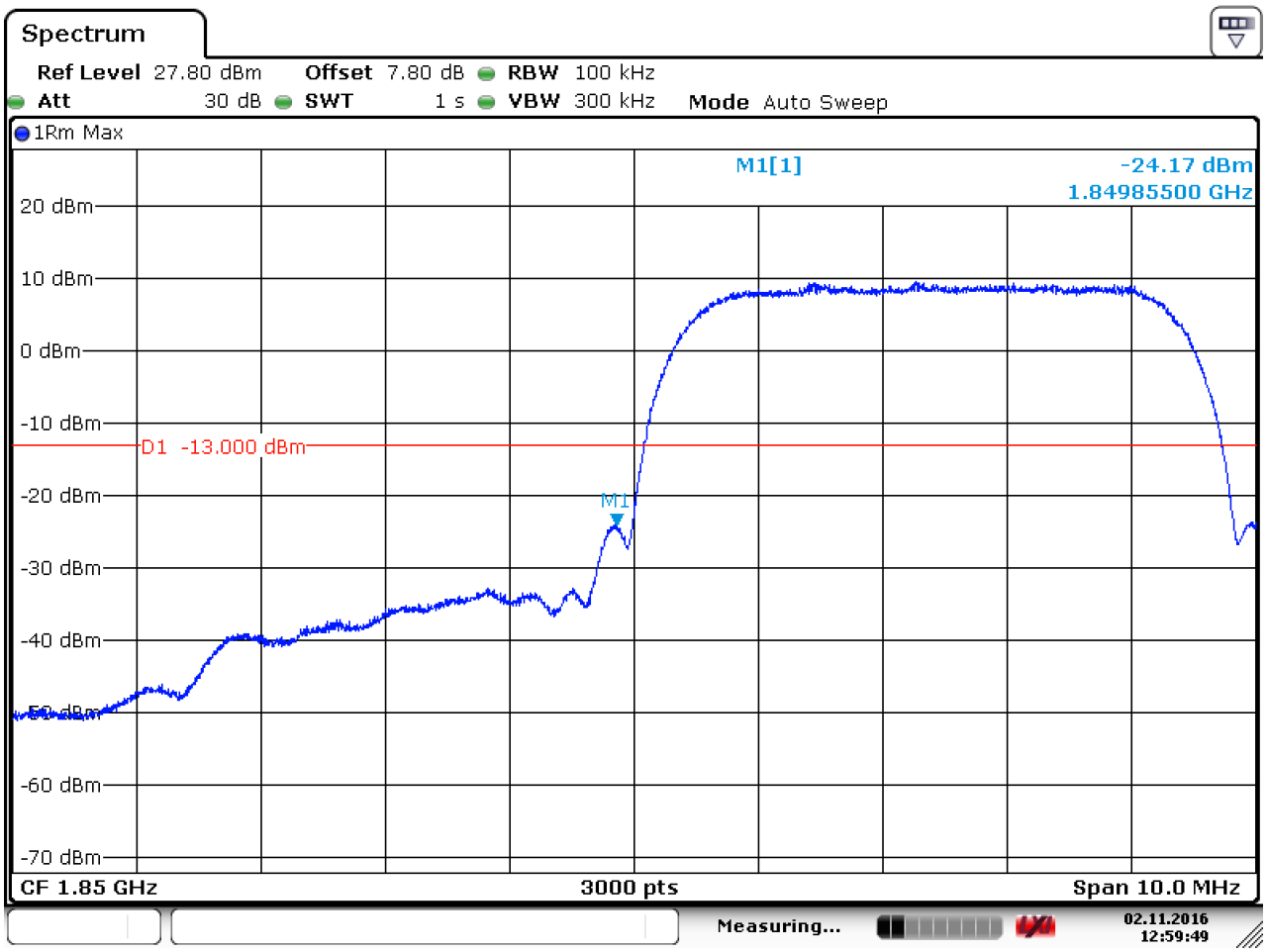
Part I - Test Plots

5.1 For WCDMA

5.1.1 Test Band = WCDMA1900

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



Date: 2.NOV.2016 12:59:49

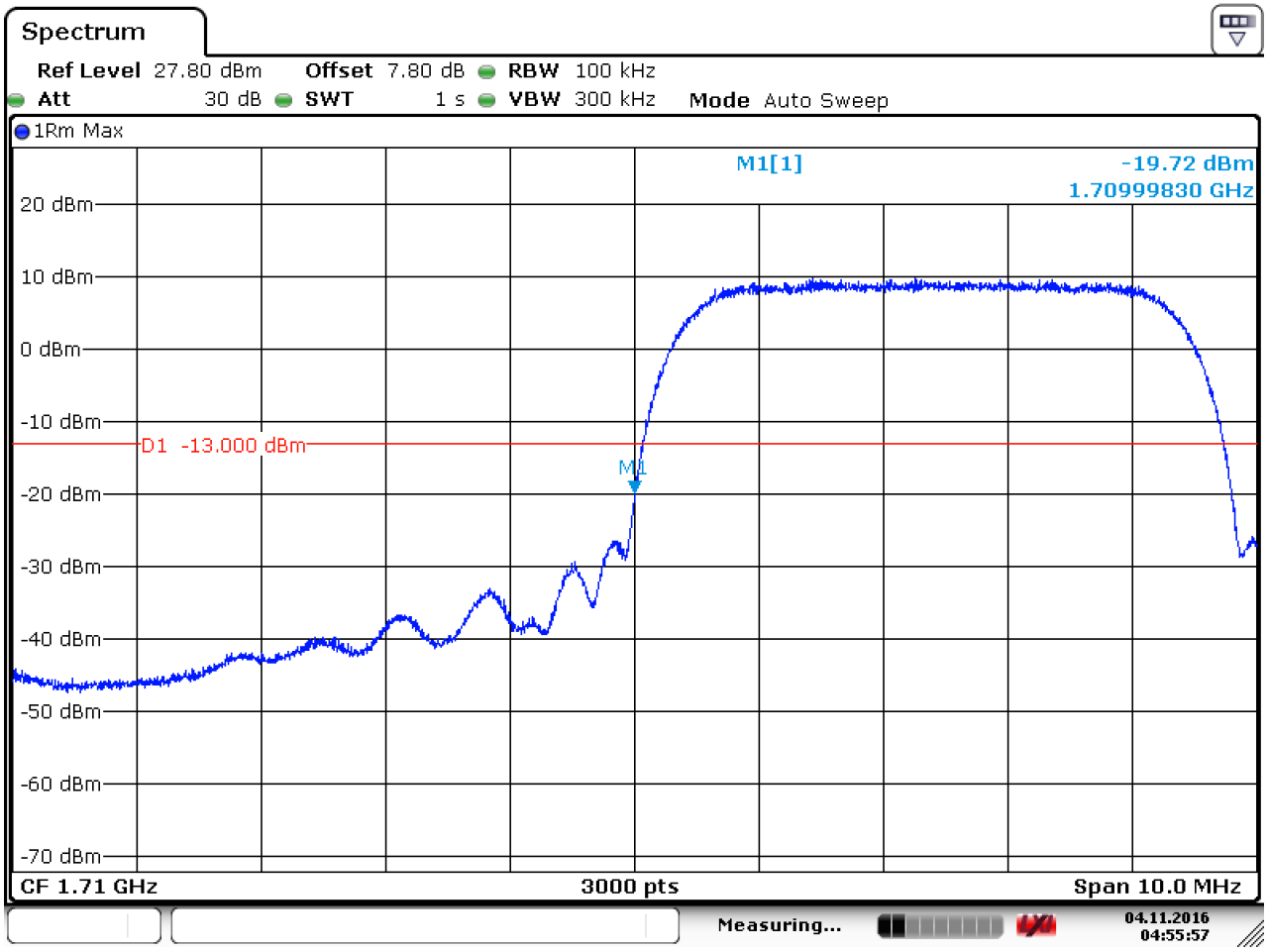
5.1.1.1.2 Test Channel = HCH

Date: 2.NOV.2016 13:00:46

5.1.2 Test Band = WCDMA1700

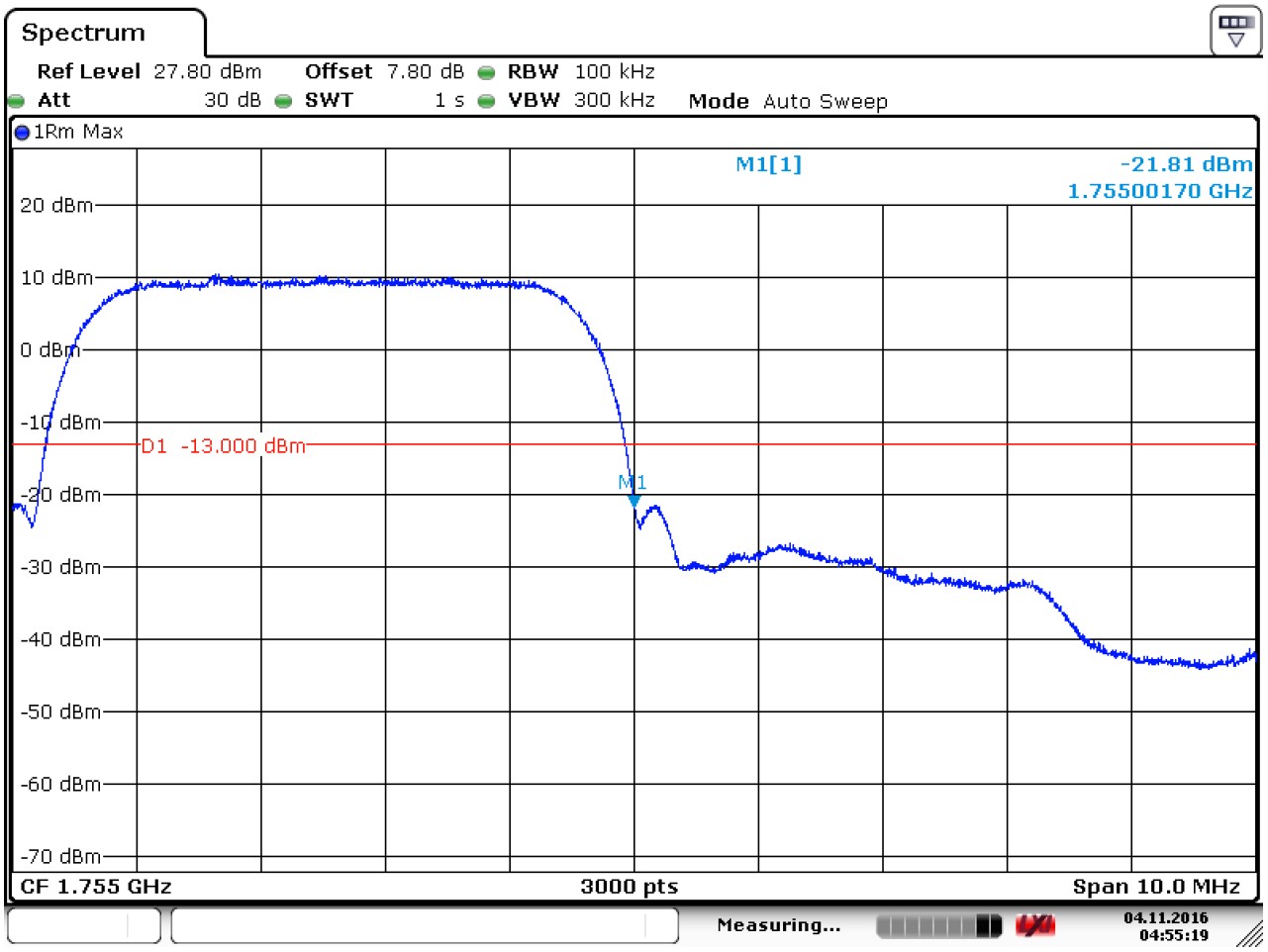
5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



Date: 4.NOV.2016 04:55:57

5.1.2.1.2 Test Channel = HCH



Date: 4.NOV.2016 04:55:19

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.

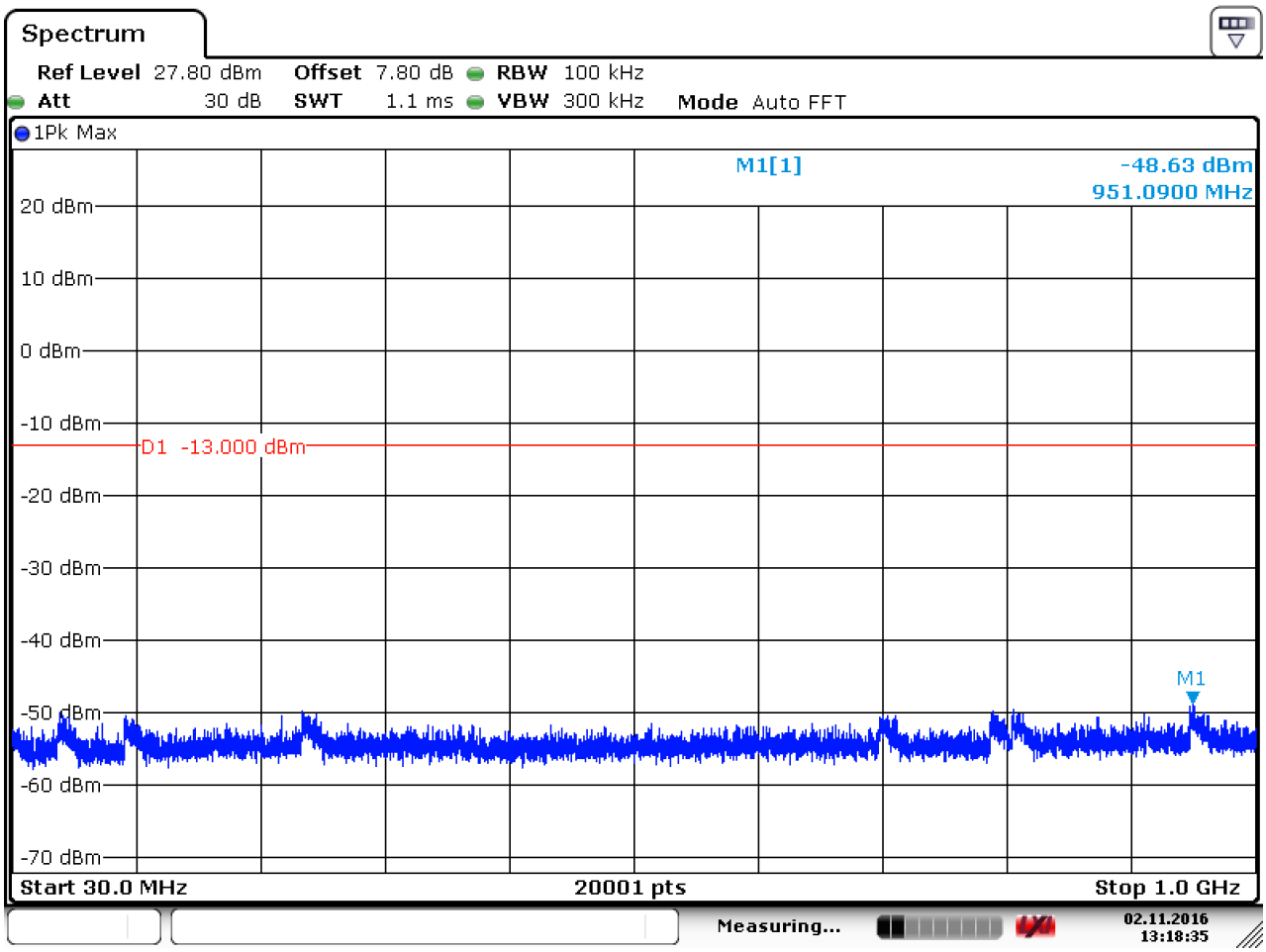
Part I - Test Plots

6.1 For WCDMA

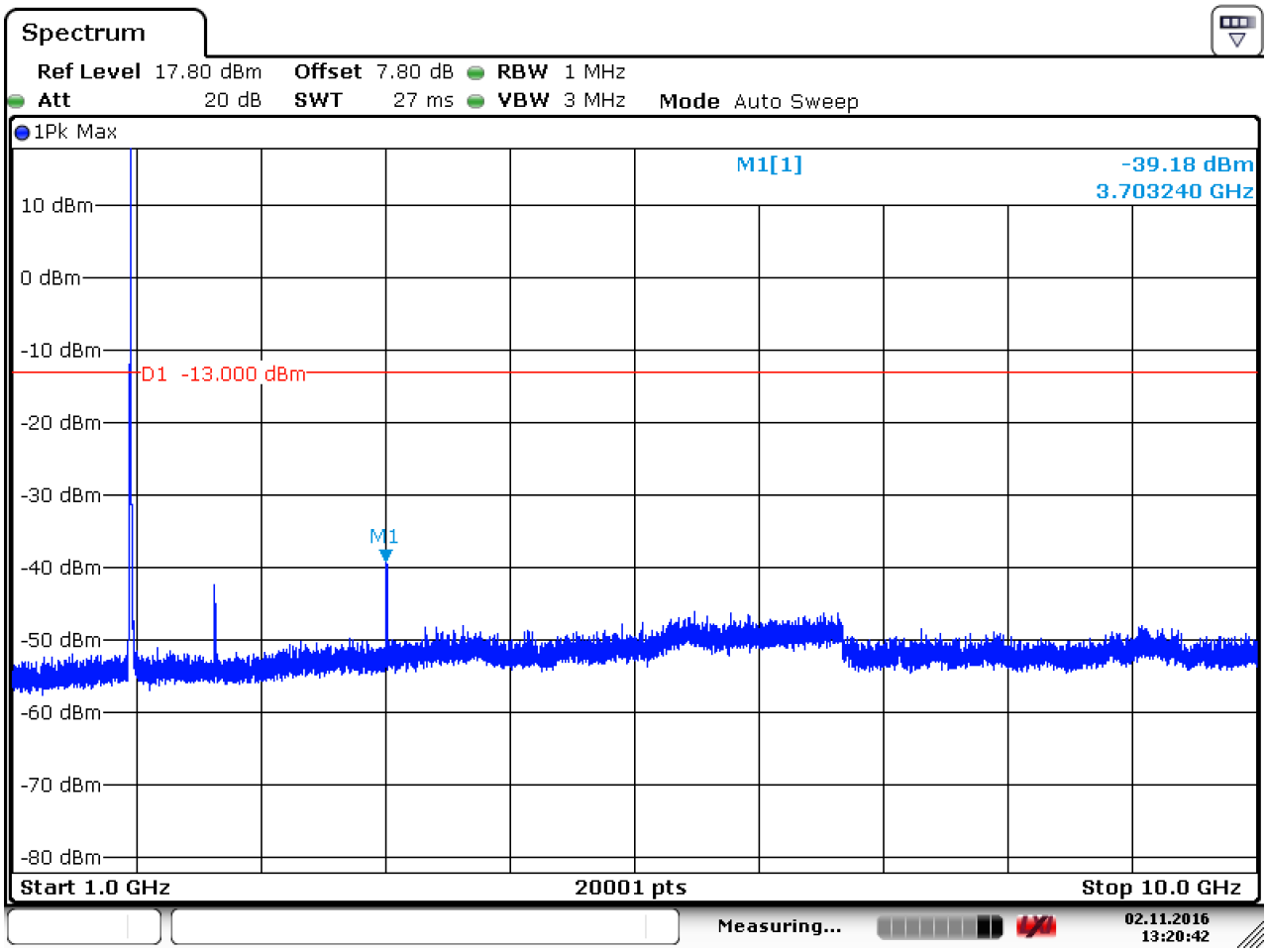
6.1.1 Test Band = WCDMA1900

6.1.1.1 Test Mode = UMTS/TM1

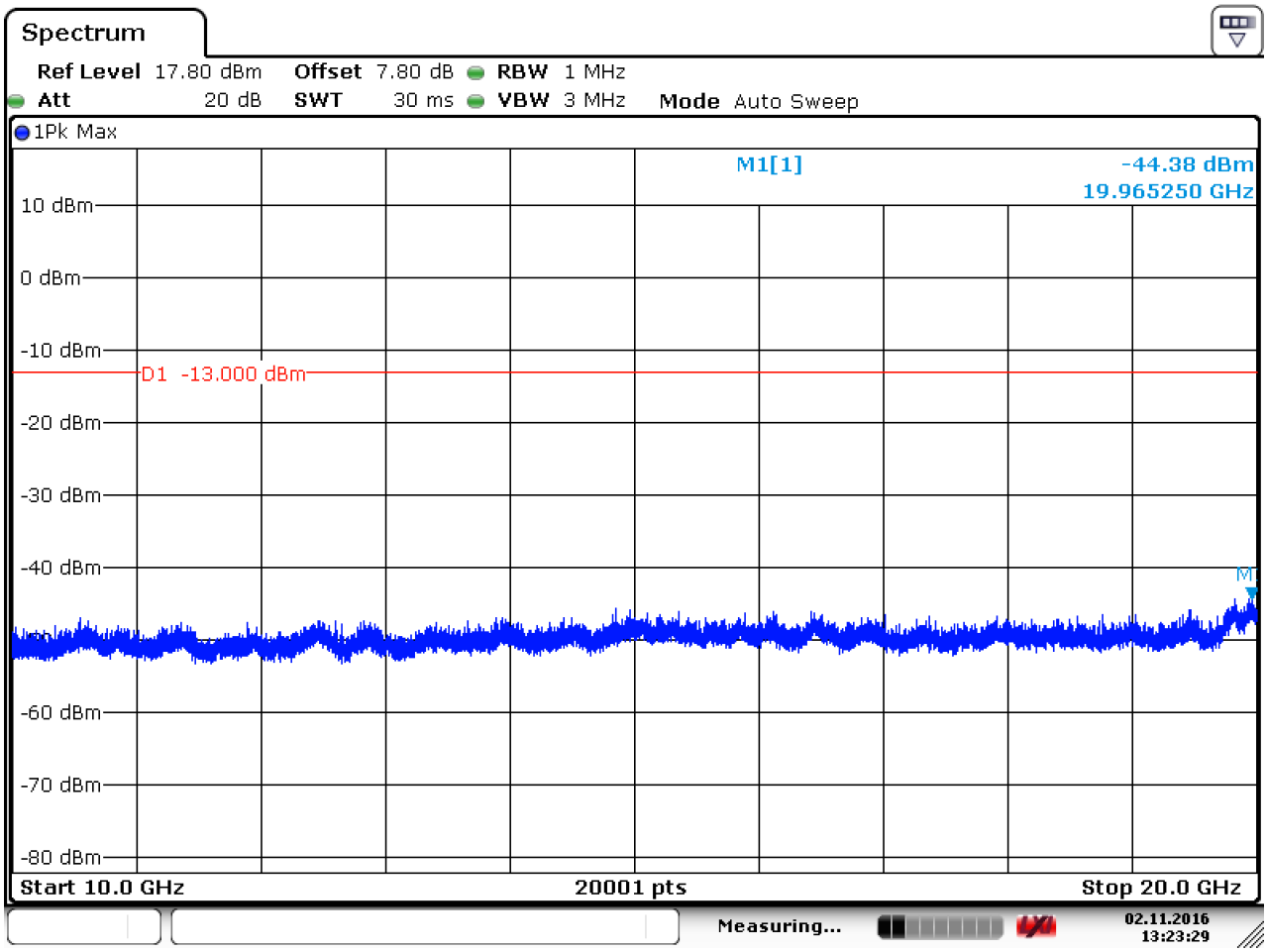
6.1.1.1.1 Test Channel = LCH



Date: 2.NOV.2016 13:18:35

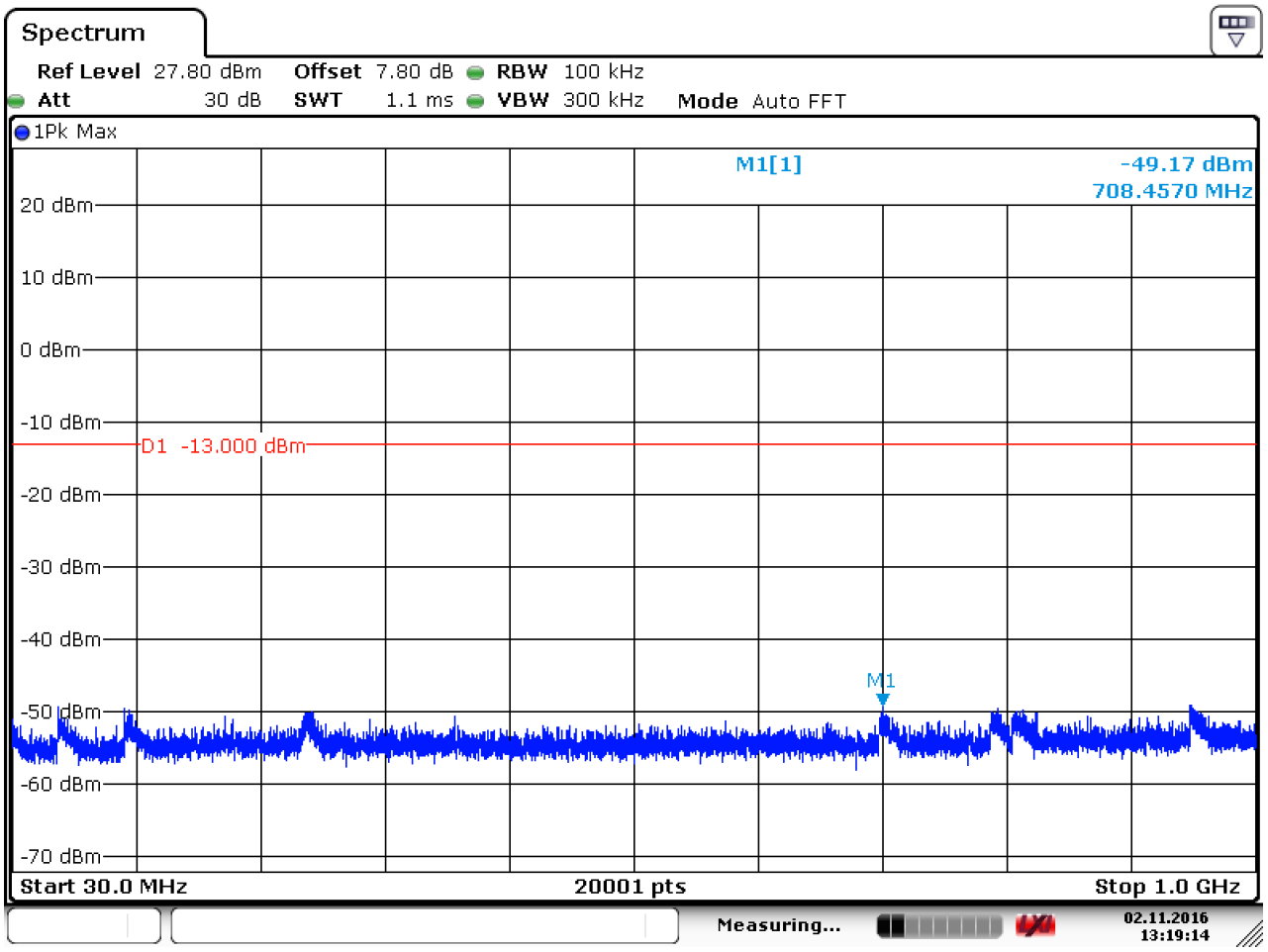


Date: 2.NOV.2016 13:20:43

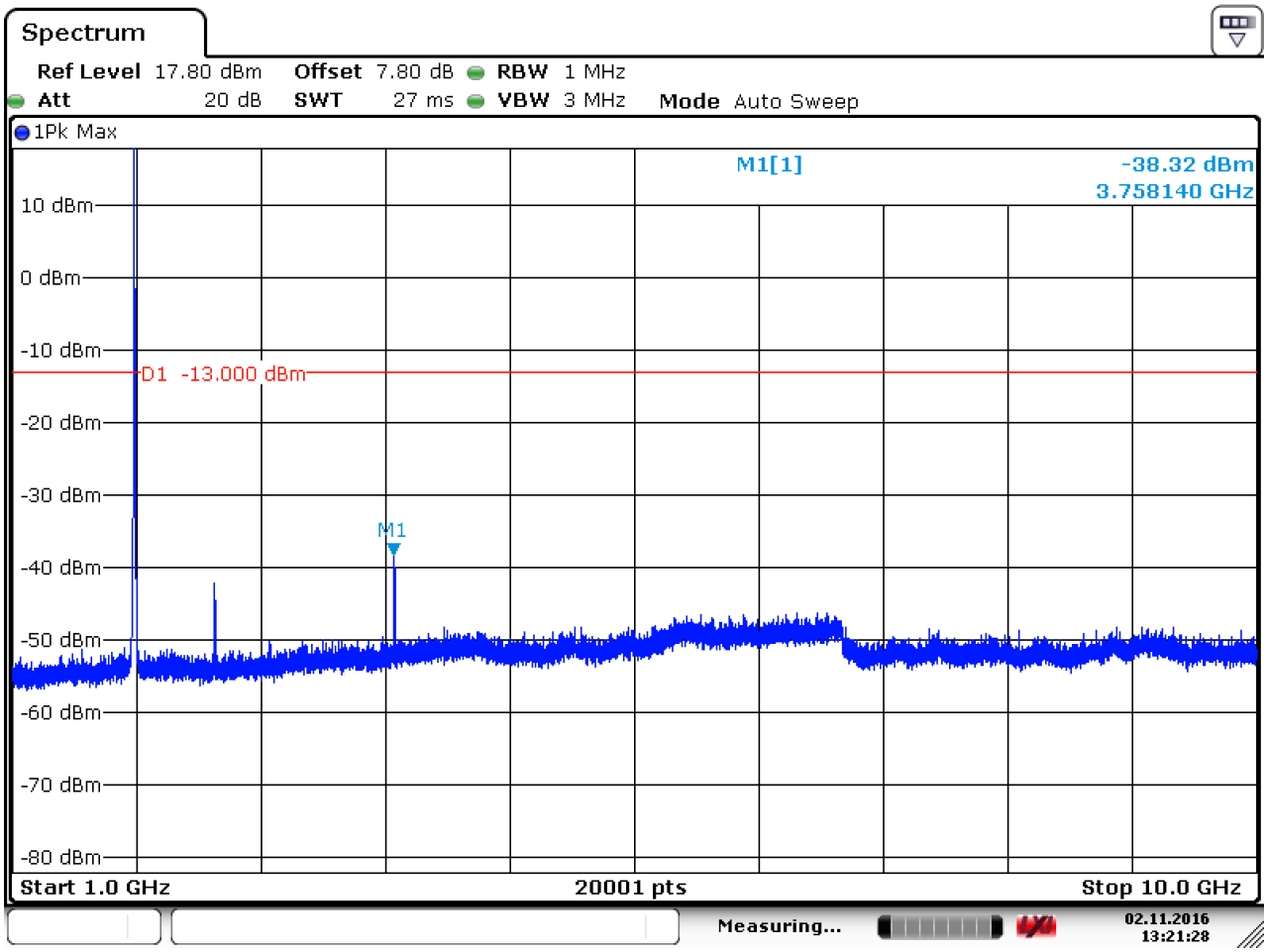


Date: 2.NOV.2016 13:23:29

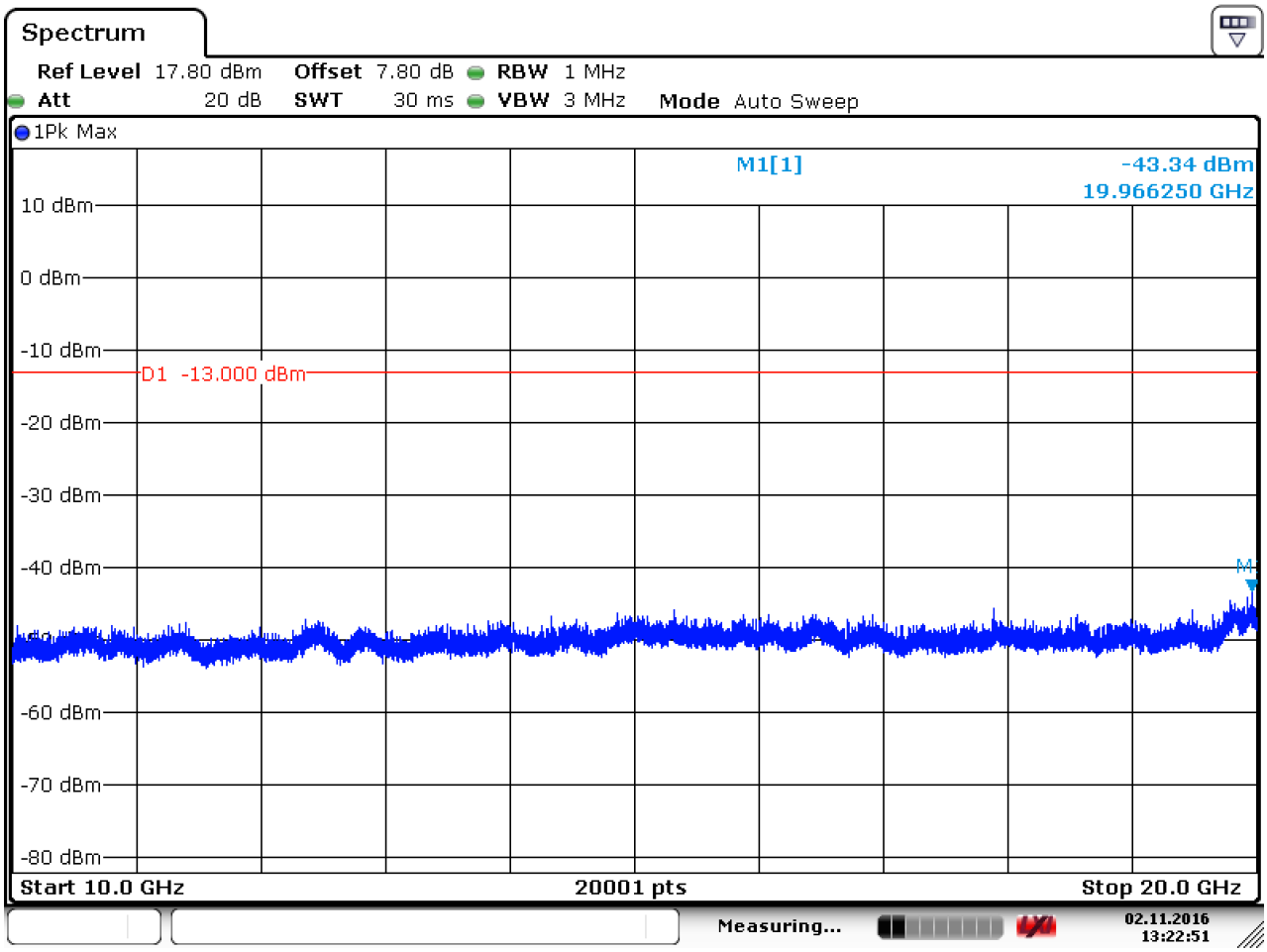
6.1.1.1.2 Test Channel = MCH



Date: 2.NOV.2016 13:19:15

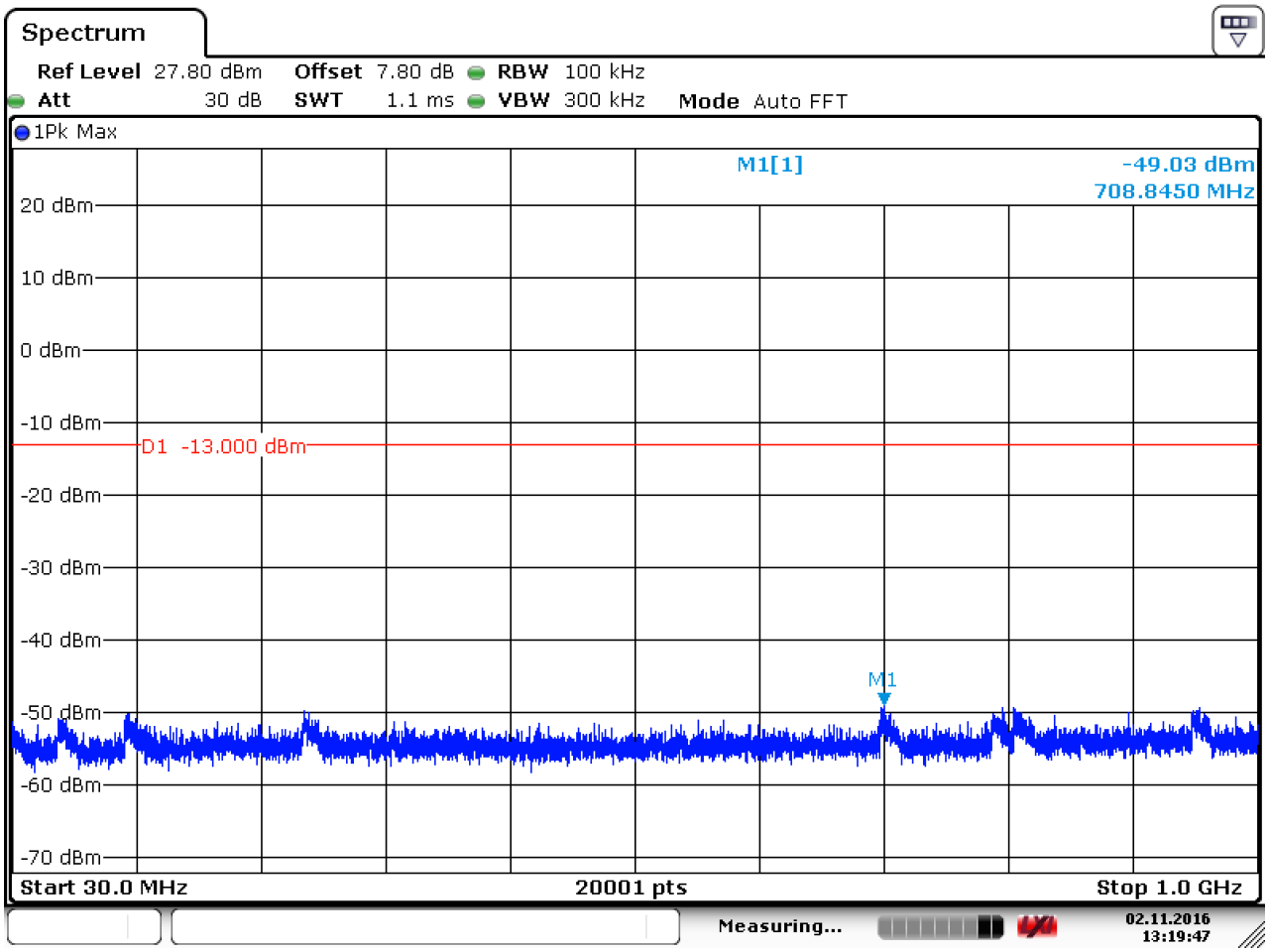


Date: 2.NOV.2016 13:21:28

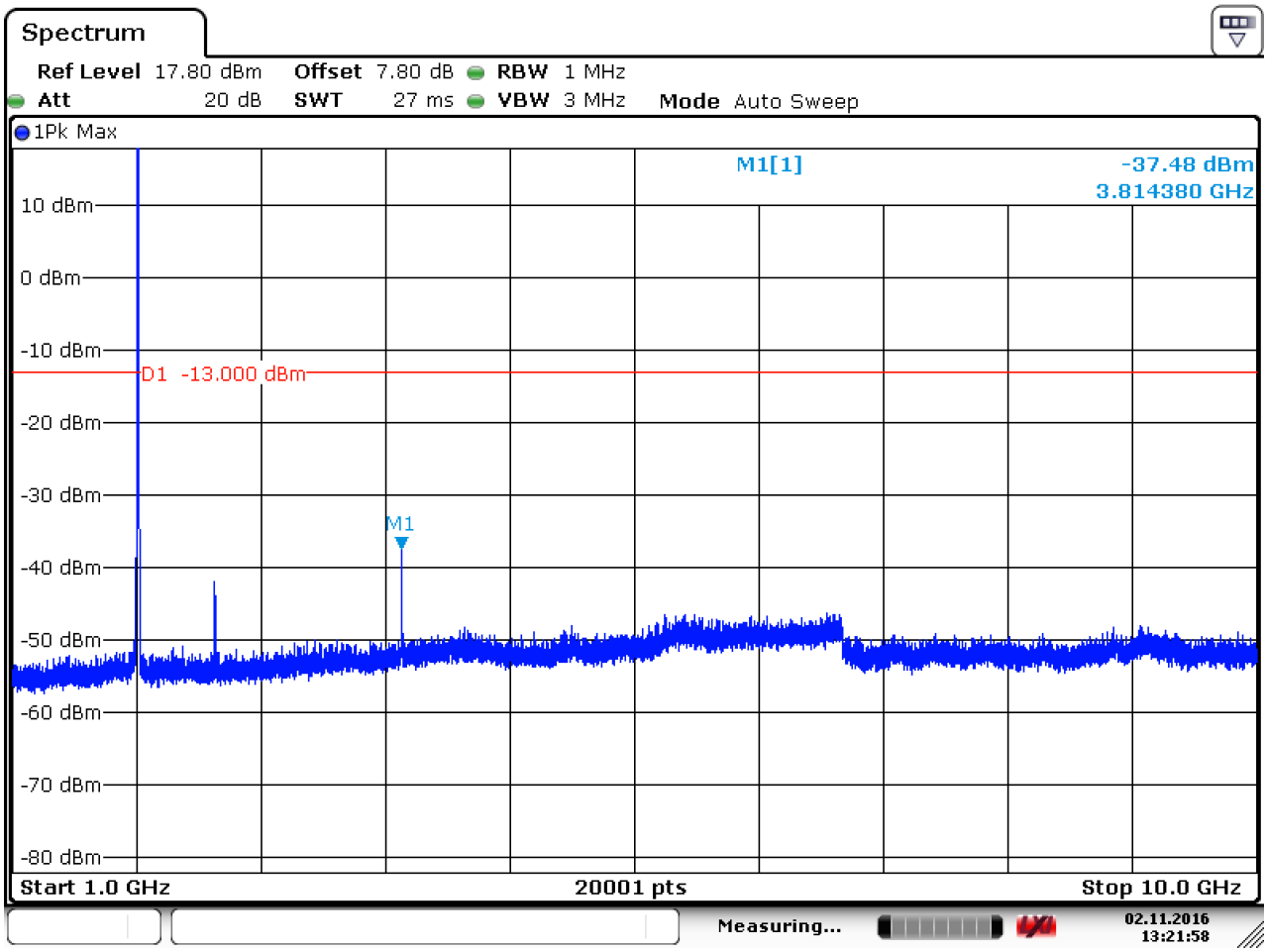


Date: 2.NOV.2016 13:22:52

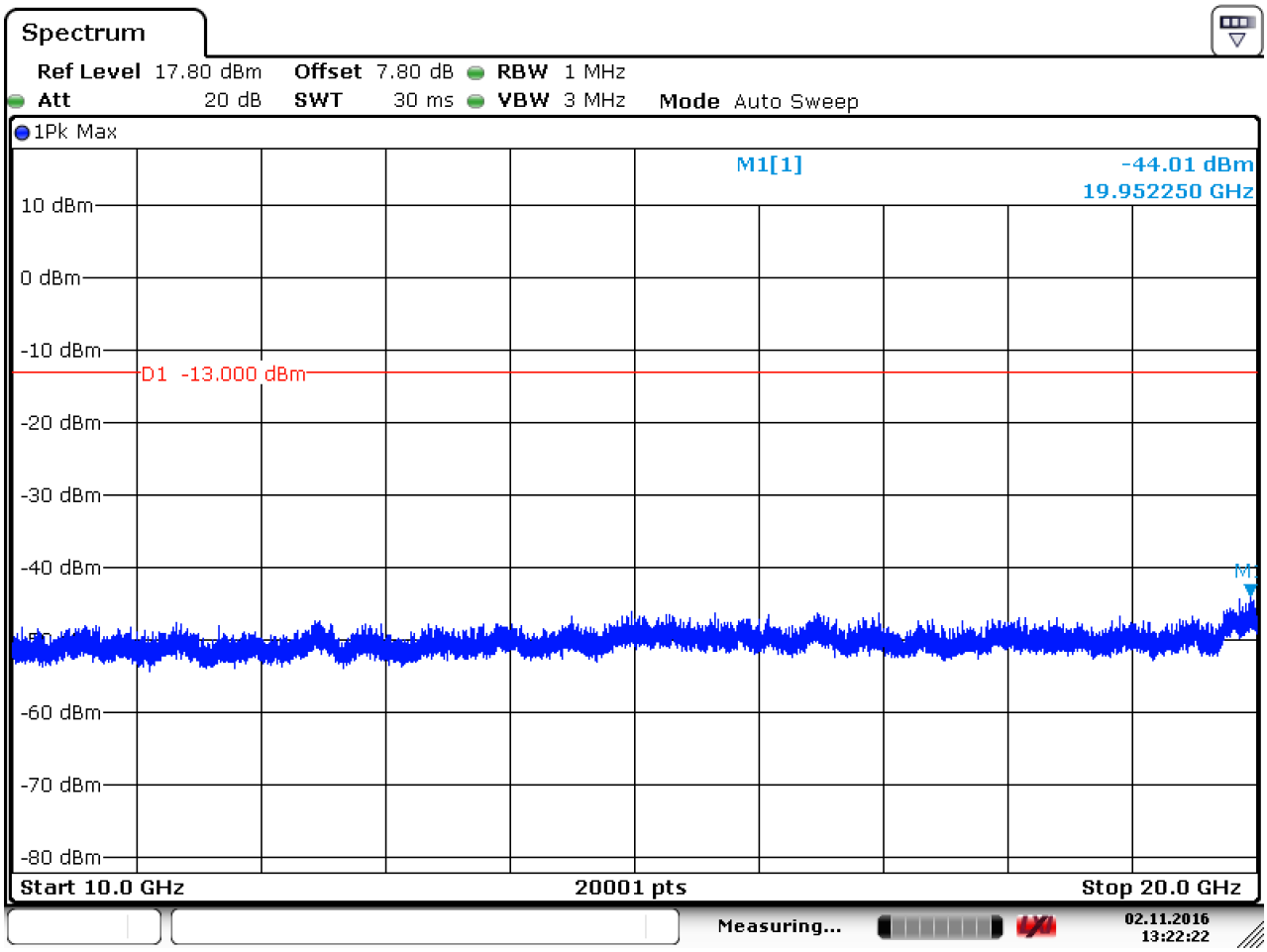
6.1.1.1.3 Test Channel = HCH



Date: 2.NOV.2016 13:19:47



Date: 2.NOV.2016 13:21:59

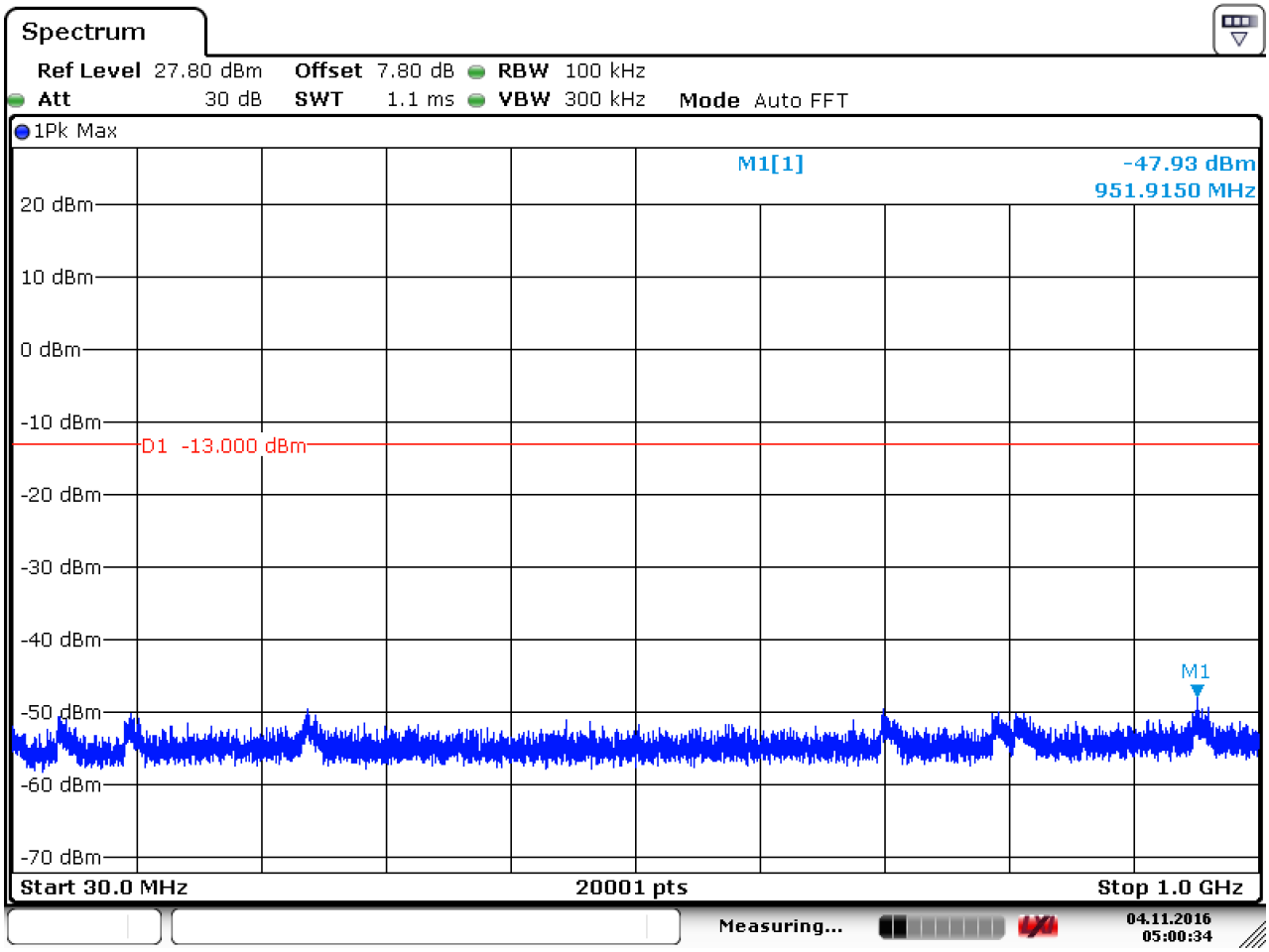


Date: 2.NOV.2016 13:22:23

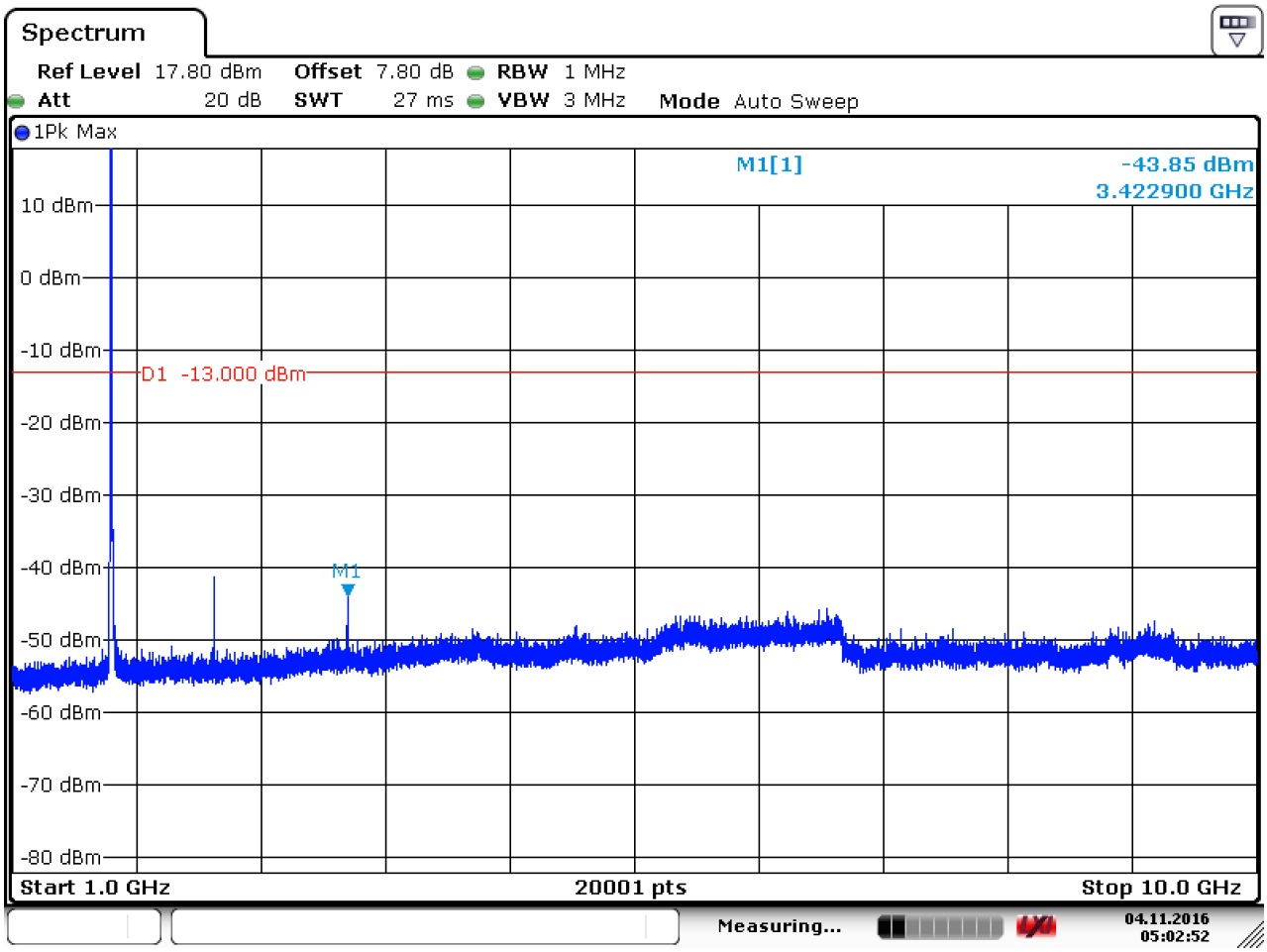
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

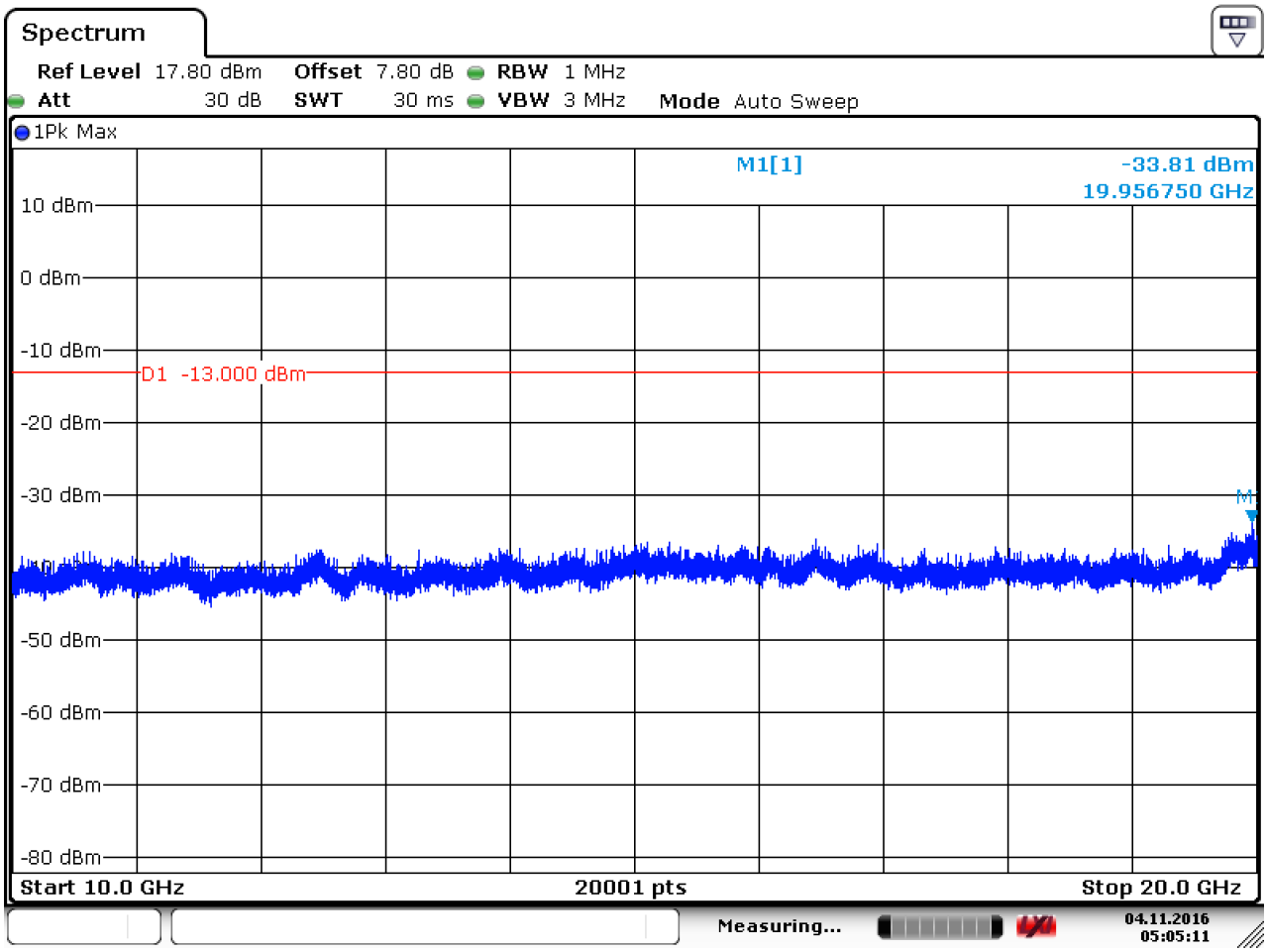
6.1.2.1.1 Test Channel = LCH



Date: 4.NOV.2016 05:00:34

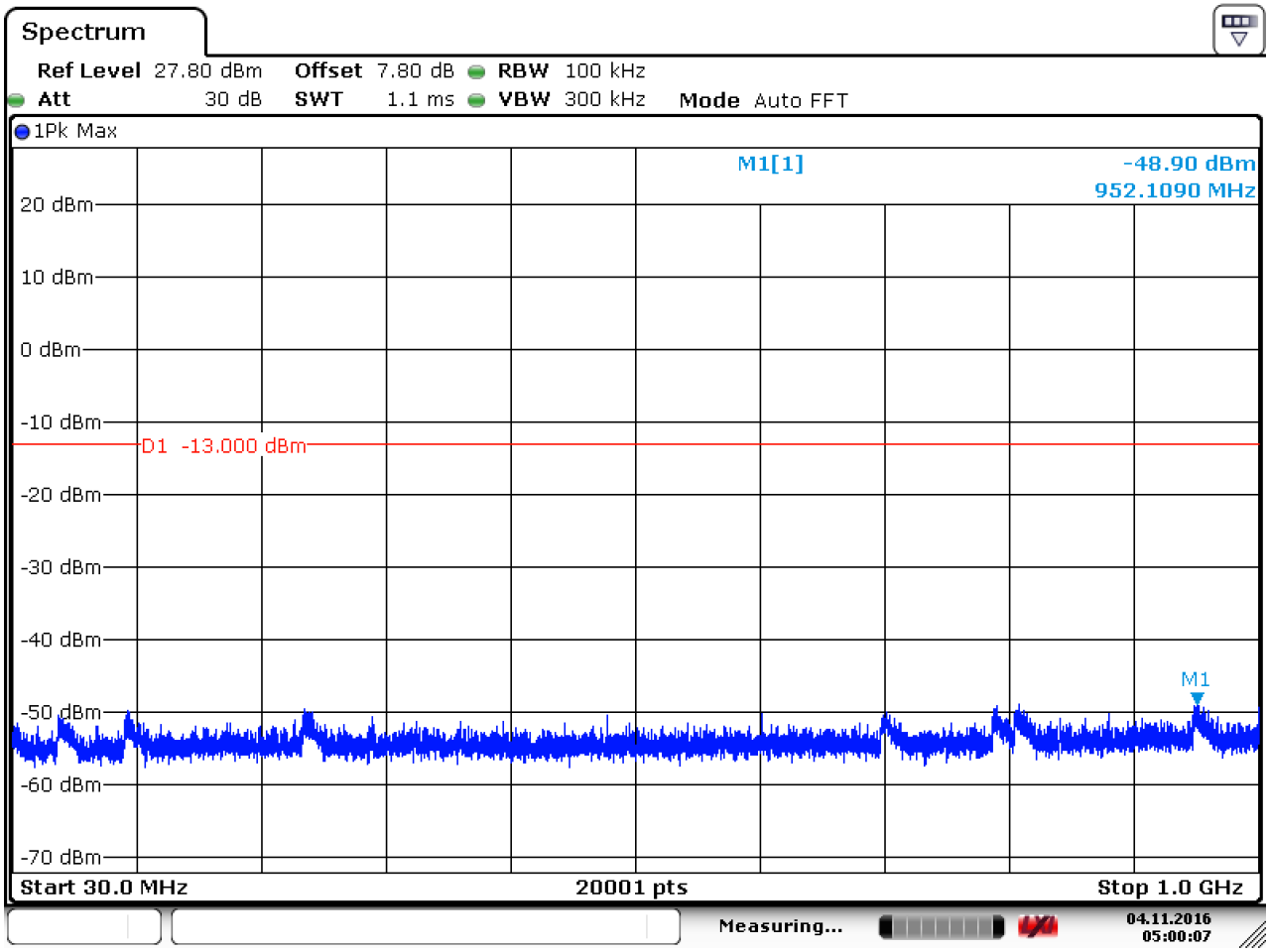


Date: 4.NOV.2016 05:02:52

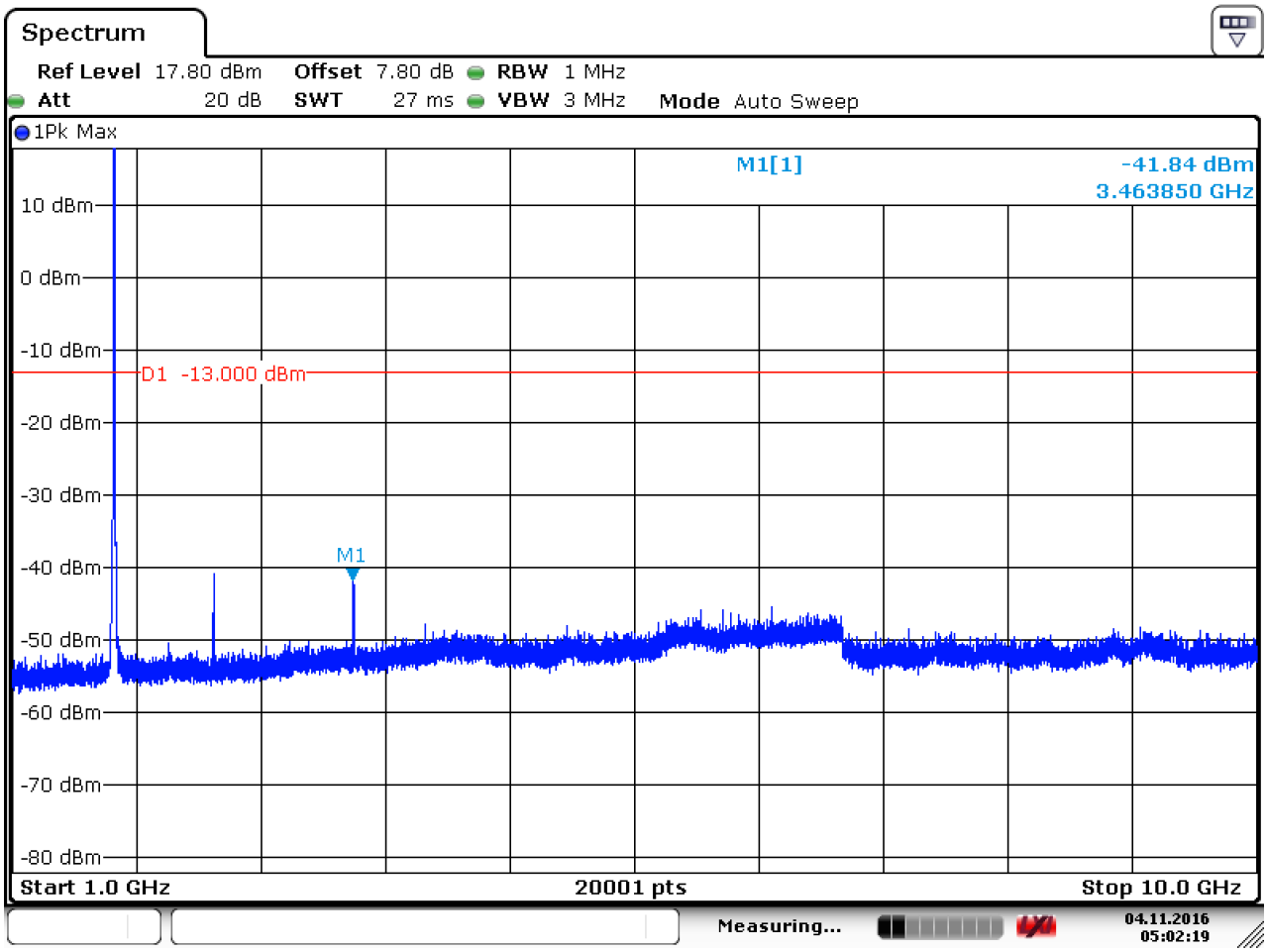


Date: 4.NOV.2016 05:05:12

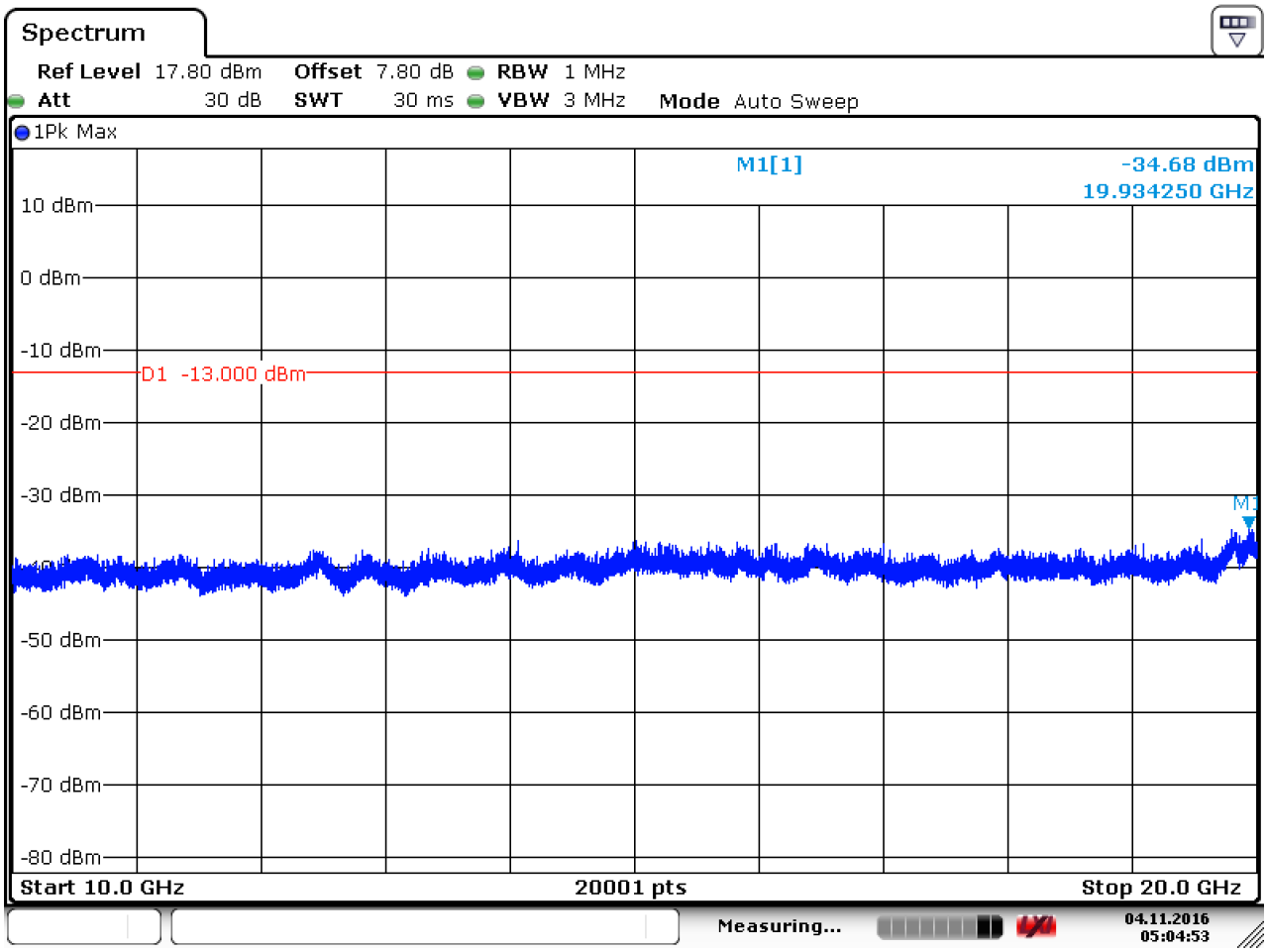
6.1.2.1.2 Test Channel = MCH



Date: 4.NOV.2016 05:00:08

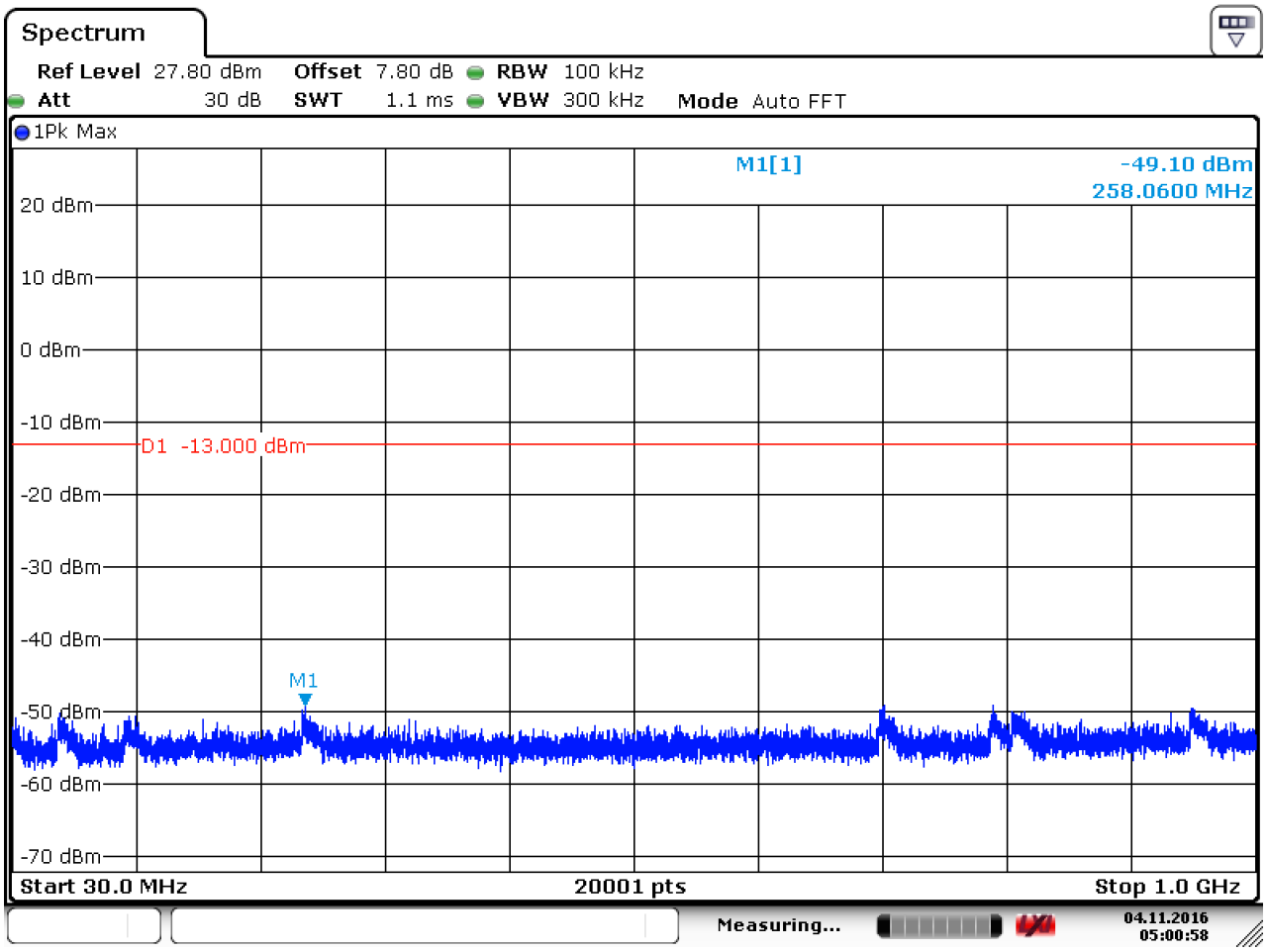


Date: 4.NOV.2016 05:02:19

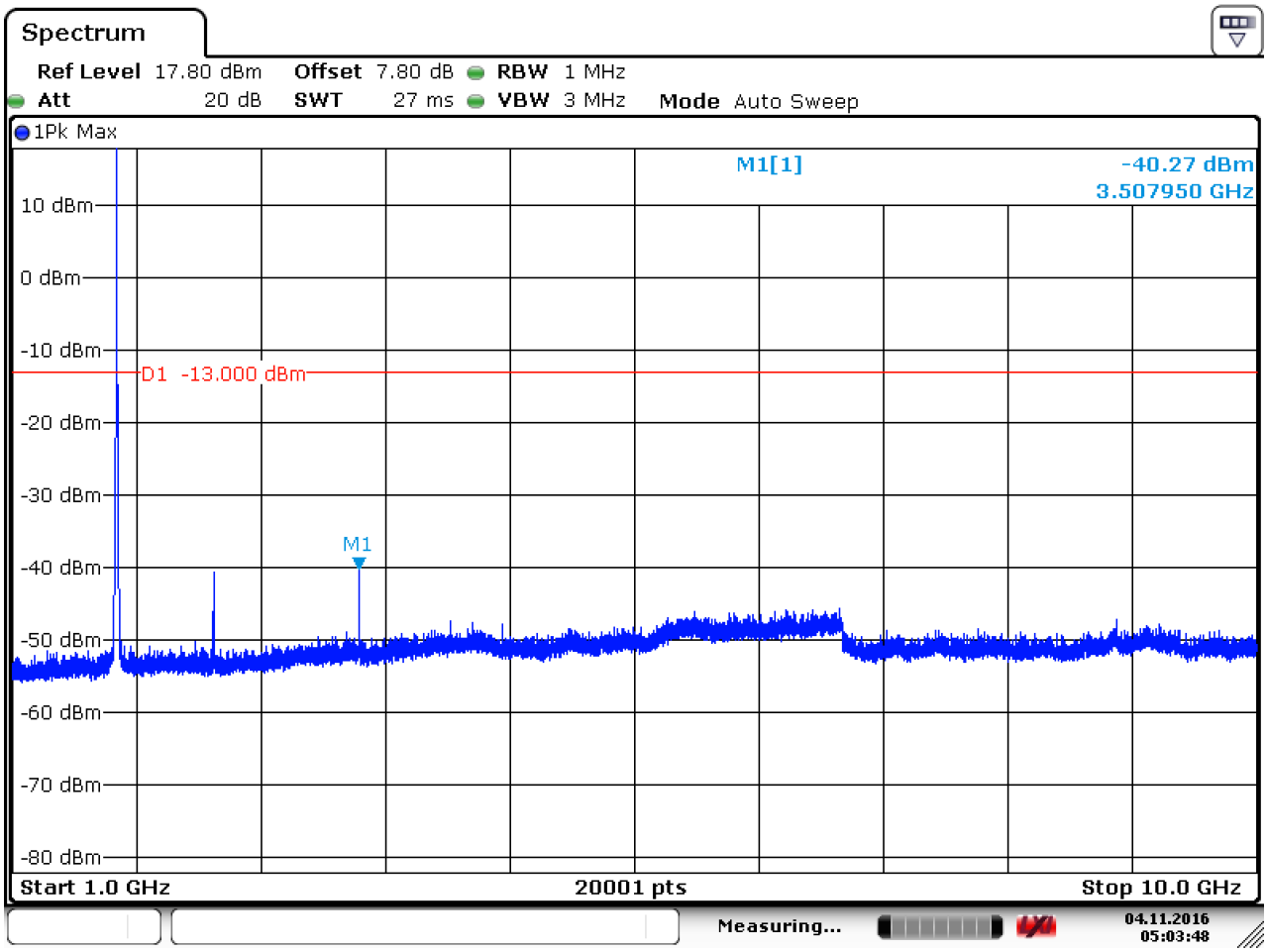


Date: 4.NOV.2016 05:04:53

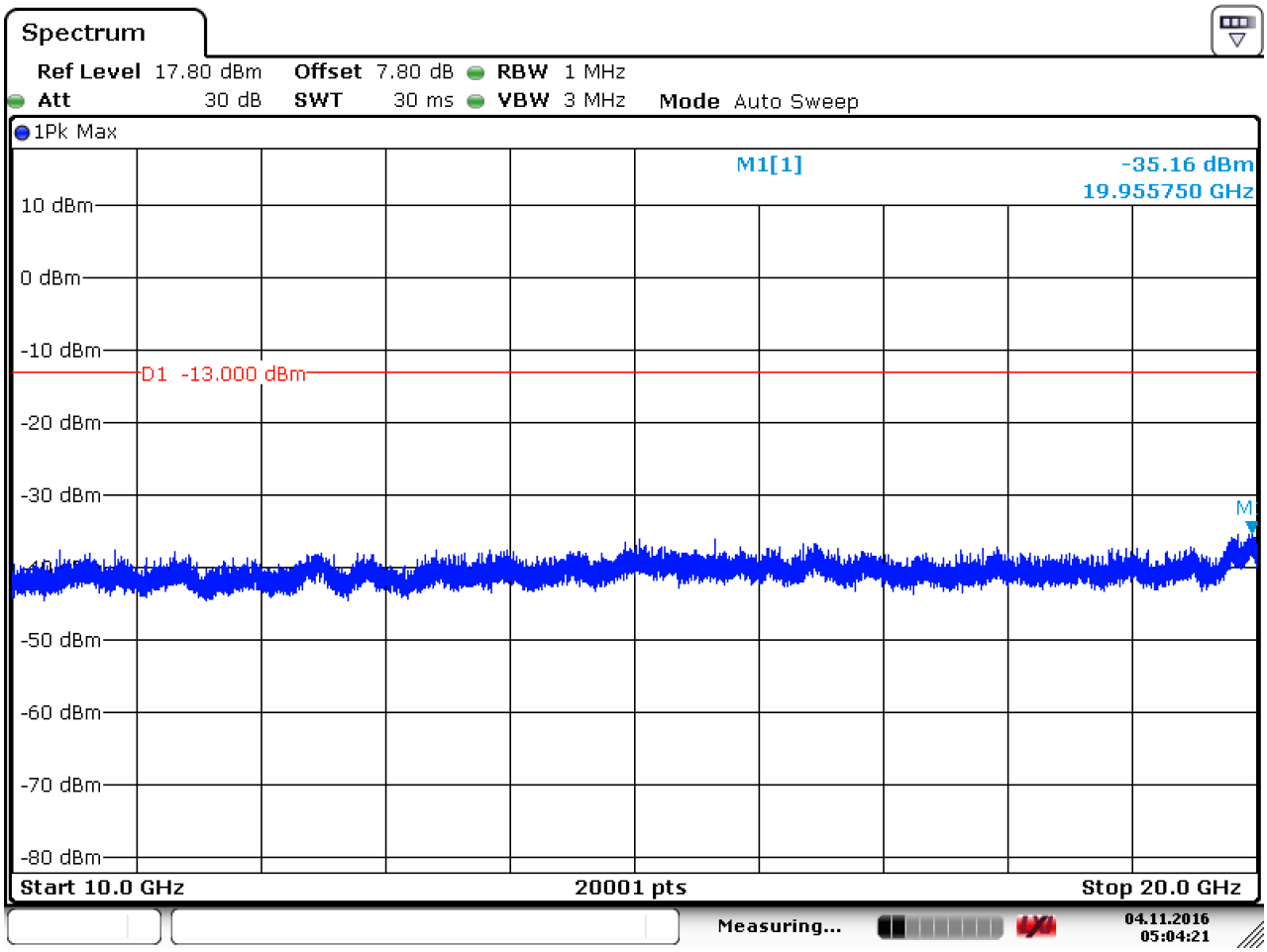
6.1.2.1.3 Test Channel = HCH



Date: 4.NOV.2016 05:00:58



Date: 4.NOV.2016 05:03:48



Date: 4.NOV.2016 05:04:21

7 Field Strength of Spurious Radiation

Part I - Test Plots

7.1 For WCDMA

7.1.1 Test Band = WCDMA1900

7.1.1.1 Test Mode = UMTS/TM1

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
98.000	-89.21	-13.00	-76.21	Vertical
312.000	-84.73	-13.00	-71.73	Vertical
430.500	-83.99	-13.00	-70.99	Vertical
621.500	-83.35	-13.00	-70.35	Vertical
815.000	-80.22	-13.00	-67.22	Vertical
1212.000	-44.51	-13.00	-31.51	Vertical
2142.000	-35.42	-13.00	-22.42	Vertical
4939.765	-50.43	-13.00	-37.43	Vertical
6568.000	-65.25	-13.00	-52.25	Vertical
9064.500	-64.32	-13.00	-51.32	Vertical
10606.500	-63.66	-13.00	-50.66	Vertical
11899.000	-63.37	-13.00	-50.37	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
97.000	-92.10	-13.00	-79.10	Horizontal
312.000	-86.29	-13.00	-73.29	Horizontal
421.500	-86.32	-13.00	-73.32	Horizontal
611.500	-83.30	-13.00	-70.30	Horizontal
907.500	-78.43	-13.00	-65.43	Horizontal
1597.500	-43.92	-13.00	-30.92	Horizontal
2140.000	-36.93	-13.00	-23.93	Horizontal
4868.500	-50.42	-13.00	-37.42	Horizontal
6174.000	-65.55	-13.00	-52.55	Horizontal
7862.500	-64.28	-13.00	-51.28	Horizontal
9240.000	-63.36	-13.00	-50.36	Horizontal
11886.500	-63.25	-13.00	-50.25	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
74.000	-89.55	-13.00	-76.55	Vertical
194.500	-94.23	-13.00	-81.23	Vertical
312.000	-85.47	-13.00	-72.47	Vertical
454.500	-86.3	-13.00	-73.30	Vertical
781.500	-80.35	-13.00	-67.35	Vertical
1653.000	-42.95	-13.00	-29.95	Vertical
3463.000	-66.43	-13.00	-53.43	Vertical
4647.500	-51.04	-13.00	-38.04	Vertical
6128.000	-66.84	-13.00	-53.84	Vertical
7990.500	-48.25	-13.00	-35.25	Vertical
9267.500	-63.43	-13.00	-50.43	Vertical
11887.500	-63.57	-13.00	-50.57	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
74.000	-90.49	-13.00	-77.49	Horizontal
203.500	-91.41	-13.00	-78.41	Horizontal
312.000	-86.24	-13.00	-73.24	Horizontal
460.500	-85.24	-13.00	-72.24	Horizontal
619.033	-83.13	-13.00	-70.13	Horizontal
933.954	-78.03	-13.00	-65.03	Horizontal
1901.500	-40.74	-13.00	-27.74	Horizontal
4938.000	-51.05	-13.00	-38.05	Horizontal
6182.500	-65.75	-13.00	-52.75	Horizontal
7247.500	-49.13	-13.00	-36.13	Horizontal
9265.500	-63.24	-13.00	-50.24	Horizontal
11896.500	-63.61	-13.00	-50.61	Horizontal

7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
68.500	-89.41	-13.00	-76.41	Vertical
149.500	-91.23	-13.00	-78.23	Vertical
312.000	-84.36	-13.00	-71.36	Vertical
575.500	-84.32	-13.00	-71.32	Vertical
889.500	-79.74	-13.00	-66.74	Vertical
1137.500	-50.06	-13.00	-37.06	Vertical
1364.500	-50.79	-13.00	-37.79	Vertical
5224.000	-49.06	-13.00	-36.06	Vertical
6218.000	-65.45	-13.00	-52.45	Vertical
7981.500	-64.64	-13.00	-51.64	Vertical
9247.000	-63.91	-13.00	-50.91	Vertical
11693.000	-64.01	-13.00	-51.01	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
71.700	-87.16	-13.00	-74.16	Horizontal
134.500	-85.07	-13.00	-72.07	Horizontal
312.000	-85.28	-13.00	-72.28	Horizontal
582.500	-58.59	-13.00	-45.59	Horizontal
788.000	-78.43	-13.00	-65.43	Horizontal
1364.500	-50.87	-13.00	-37.87	Horizontal
2200.000	-42.40	-13.00	-29.40	Horizontal
3503.100	-63.34	-13.00	-50.34	Horizontal
5225.00	-66.06	-13.00	-53.06	Horizontal
7240.763	-65.20	-13.00	-52.20	Horizontal
9859.613	-64.23	-13.00	-51.23	Horizontal
11887.613	-63.33	-13.00	-50.33	Horizontal

7.1.2 Test Band = WCDMAband1700

7.1.2.1 Test Mode = UMTS/TM1

7.1.2.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
121.500	-93.60	-13.00	-80.60	Vertical
221.500	-91.51	-13.00	-78.51	Vertical
312.000	-84.89	-13.00	-71.89	Vertical
459.000	-87.05	-13.00	-74.05	Vertical
612.000	-84.18	-13.00	-71.18	Vertical
789.000	-80.16	-13.00	-67.16	Vertical
1279.500	-49.48	-13.00	-36.48	Vertical
2274.500	-42.32	-13.00	-29.32	Vertical
4271.500	-51.04	-13.00	-38.04	Vertical
7939.500	-64.46	-13.00	-51.46	Vertical
10256.000	-64.63	-13.00	-51.63	Vertical
11865.000	-63.39	-13.00	-50.39	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
63.500	-92.09	-13.00	-79.09	Horizontal
123.000	-89.65	-13.00	-76.65	Horizontal
364.000	-85.73	-13.00	-72.73	Horizontal
479.000	-85.81	-13.00	-72.81	Horizontal
616.500	-83.31	-13.00	-70.31	Horizontal
805.000	-80.84	-13.00	-67.84	Horizontal
1201.000	-50.12	-13.00	-37.12	Horizontal
1885.500	-46.07	-13.00	-33.07	Horizontal
5574.000	-62.60	-13.00	-49.60	Horizontal
7847.000	-48.59	-13.00	-35.59	Horizontal
9275.500	-63.89	-13.00	-50.89	Horizontal
10645.000	-63.58	-13.00	-50.58	Horizontal

7.1.2.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
122.000	-89.40	-13.00	-76.40	Vertical
221.500	-91.72	-13.00	-78.72	Vertical
312.000	-83.80	-13.00	-70.80	Vertical
456.000	-86.97	-13.00	-73.97	Vertical
636.000	-84.23	-13.00	-71.23	Vertical
916.000	-78.57	-13.00	-65.57	Vertical
1826.500	-46.38	-13.00	-33.38	Vertical
2367.500	-42.31	-13.00	-29.31	Vertical
6502.500	-49.48	-13.00	-36.48	Vertical
7991.000	-64.47	-13.00	-51.47	Vertical
9118.000	-64.15	-13.00	-51.15	Vertical
10745.000	-63.57	-13.00	-50.57	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
71.500	-88.87	-13.00	-75.87	Horizontal
195.000	-91.01	-13.00	-78.01	Horizontal
364.000	-86.04	-13.00	-73.04	Horizontal
611.000	-82.94	-13.00	-69.94	Horizontal
789.500	-80.32	-13.00	-67.32	Horizontal
958.500	-77.26	-13.00	-64.26	Horizontal
1442.500	-49.82	-13.00	-36.82	Horizontal
1900.500	-40.82	-13.00	-27.82	Horizontal
4938.500	-50.41	-13.00	-37.41	Horizontal
9249.500	-63.95	-13.00	-50.95	Horizontal
10587.000	-63.25	-13.00	-50.25	Horizontal
12276.000	-63.69	-13.00	-50.69	Horizontal

7.1.2.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
86.000	-90.64	-13.00	-77.64	Vertical
212.000	-92.31	-13.00	-79.31	Vertical
312.000	-83.89	-13.00	-70.89	Vertical
427.500	-86.82	-13.00	-73.82	Vertical
599.500	-84.53	-13.00	-71.53	Vertical
924.008	-78.62	-13.00	-65.62	Vertical
1259.000	-44.52	-13.00	-31.52	Vertical
1583.500	-44.20	-13.00	-31.20	Vertical
4716.000	-51.39	-13.00	-38.39	Vertical
9265.000	-64.19	-13.00	-51.19	Vertical
10675.000	-63.59	-13.00	-50.59	Vertical
11864.000	-63.69	-13.00	-50.69	Vertical

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
81.500	-91.33	-13.00	-78.33	Horizontal
174.000	-92.37	-13.00	-79.37	Horizontal
297.000	-87.59	-13.00	-74.59	Horizontal
458.000	-86.15	-13.00	-73.15	Horizontal
625.000	-83.24	-13.00	-70.24	Horizontal
937.000	-77.64	-13.00	-64.64	Horizontal
1545.000	-44.21	-13.00	-31.21	Horizontal
2583.500	-41.70	-13.00	-28.70	Horizontal
4244.500	-50.11	-13.00	-37.11	Horizontal
7982.000	-64.30	-13.00	-51.30	Horizontal
9265.500	-63.77	-13.00	-50.77	Horizontal
10645.500	-63.44	-13.00	-50.44	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.

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
WCDMA 1900	UMTS/TM1	LCH	TN	VL	2.28	0.00123	PASS
				VN	-0.38	-0.00021	PASS
				VH	0.02	0.00001	PASS
		MCH	TN	VL	1.83	0.00097	PASS
				VN	0.75	0.00040	PASS
				VH	-1.37	-0.00073	PASS
		HCH	TN	VL	1.64	0.00086	PASS
				VN	-2.64	-0.00138	PASS
				VH	-4.34	-0.00228	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA 1700	UMTS/TM1	LCH	TN	VL	-3.38	-0.00197	PASS
				VN	-0.48	-0.00028	PASS
				VH	2.32	0.00135	PASS
		MCH	TN	VL	-3.84	-0.00222	PASS
				VN	0.34	0.00020	PASS
				VH	-2.45	-0.00141	PASS
		HCH	TN	VL	1.75	0.00100	PASS
				VN	-4.61	-0.00263	PASS
				VH	2.80	0.00160	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
WCDMA 1900	UMTS/TM1	LCH	VN	-30	-4.73	-0.00255	PASS
				-20	1.60	0.00086	PASS
				-10	0.67	0.00036	PASS
				0	-2.68	-0.00145	PASS
				10	0.56	0.00030	PASS
				20	-4.80	-0.00259	PASS
				30	1.60	0.00086	PASS
				40	-0.04	-0.00002	PASS
				50	-6.01	-0.00324	PASS
		MCH	VN	-30	-3.80	-0.00202	PASS
				-20	-5.08	-0.00270	PASS
				-10	-0.39	-0.00021	PASS
				0	-3.38	-0.00180	PASS
				10	1.31	0.00070	PASS
				20	2.72	0.00145	PASS
				30	1.61	0.00086	PASS
				40	0.13	0.00007	PASS
				50	-4.35	-0.00231	PASS
		HCH	VN	-30	-0.17	-0.00009	PASS
				-20	3.68	0.00193	PASS
				-10	2.55	0.00134	PASS
				0	-5.52	-0.00289	PASS
				10	1.57	0.00082	PASS
				20	-2.78	-0.00146	PASS
				30	3.64	0.00191	PASS
				40	-0.63	-0.00033	PASS
				50	-4.60	-0.00241	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA 1700	UMTS/TM1	LCH	VN	-30	-3.43	-0.00200	PASS
				-20	-4.95	-0.00289	PASS
				-10	1.98	0.00116	PASS
				0	-3.45	-0.00201	PASS
				10	-0.58	-0.00034	PASS
				20	1.08	0.00063	PASS
				30	-3.89	-0.00227	PASS
				40	-5.30	-0.00310	PASS
				50	-4.34	-0.00253	PASS
		MCH	VN	-30	-4.92	-0.00284	PASS
				-20	1.27	0.00073	PASS
				-10	-2.43	-0.00140	PASS
				0	4.84	0.00279	PASS
				10	-3.25	-0.00188	PASS
				20	-6.59	-0.00380	PASS
				30	-3.27	-0.00189	PASS
				40	-8.13	-0.00469	PASS
				50	-5.11	-0.00295	PASS
		HCH	VN	-30	-3.35	-0.00191	PASS
				-20	3.63	0.00207	PASS
				-10	1.85	0.00106	PASS
				0	-0.37	-0.00021	PASS
				10	-3.18	-0.00181	PASS
				20	-4.16	-0.00237	PASS
				30	1.31	0.00075	PASS
				40	-2.92	-0.00167	PASS
				50	-4.24	-0.00242	PASS

The End