Appendix B

WCDMA Band 2&4&5

CONTENT

Page

1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured [dBm]	EIRP[dBm]	Limit[dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.29	25.29	33	PASS
		MCH	23.32	25.32	33	PASS
		HCH	23.29	25.29	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.34	25.34	30	PASS
		MCH	23.23	25.23	30	PASS
		HCH	23.17	25.17	30	PASS

Test Band	Test Mode	Test Channel	Measured [dBm]	ERP[dBm]	Limit[dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.36	24.21	38.45	PASS
		MCH	23.16	24.01	38.45	PASS
		HCH	23.26	24.11	38.45	PASS

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

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

ERP [dBm] = SGP [dBm] – Cable Loss [dB] + Gain [dBd]

b: SGP=Signal Generator Level

2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	2.78	13	PASS
		MCH	2.81	13	PASS
		HCH	2.38	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.55	13	PASS
		MCH	2.78	13	PASS
		HCH	2.78	13	PASS
WCDMA850	UMTS/TM1	LCH	2.81	13	PASS
		MCH	2.75	13	PASS
		HCH	2.61	13	PASS

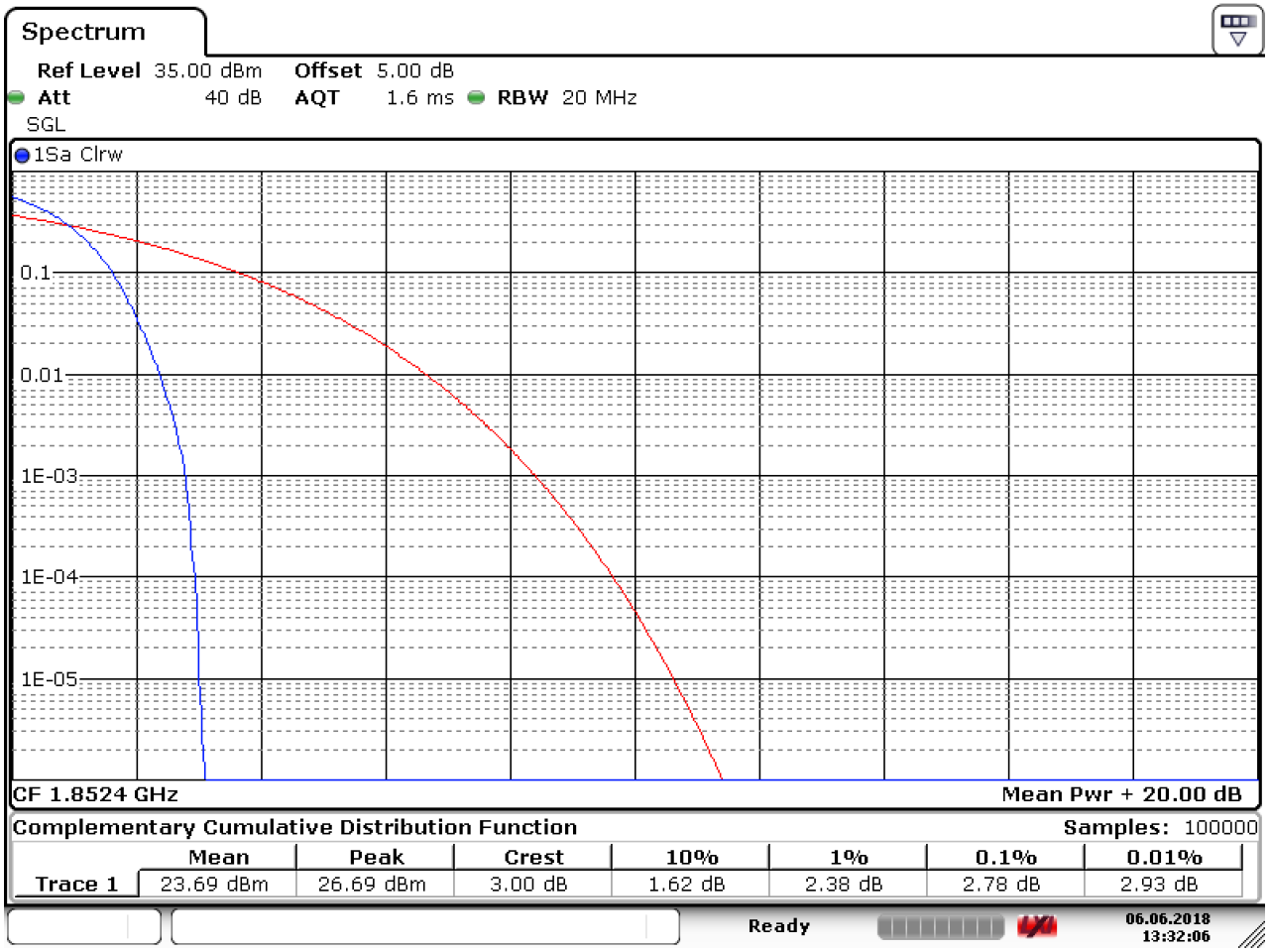
Part II - Test Plots

2.1 For WCDMA

2.1.1 Test Band = WCDMA 1900

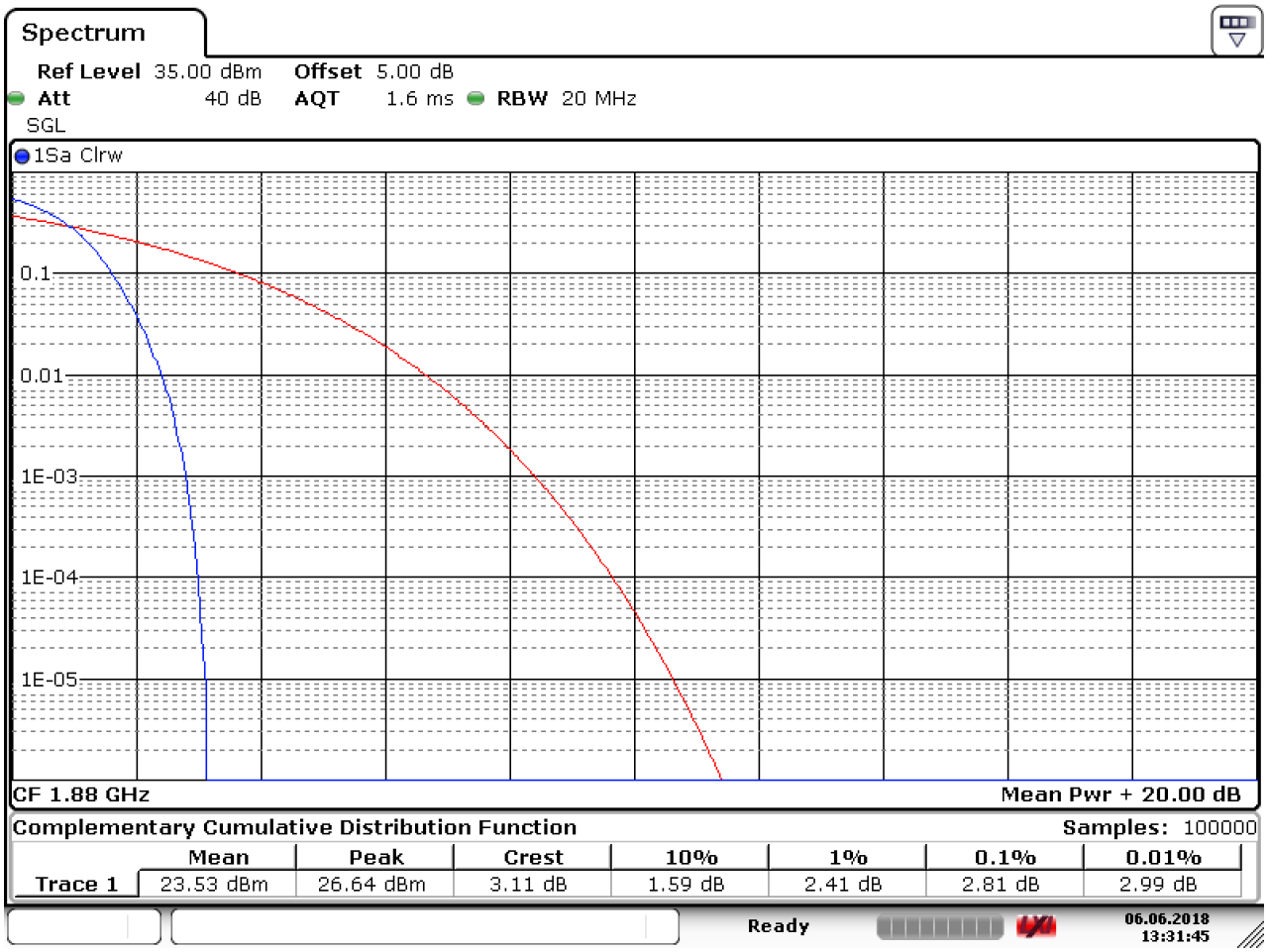
2.1.1.1 Test Mode = UMTS/TM1

2.1.1.1.1 Test Channel = LCH



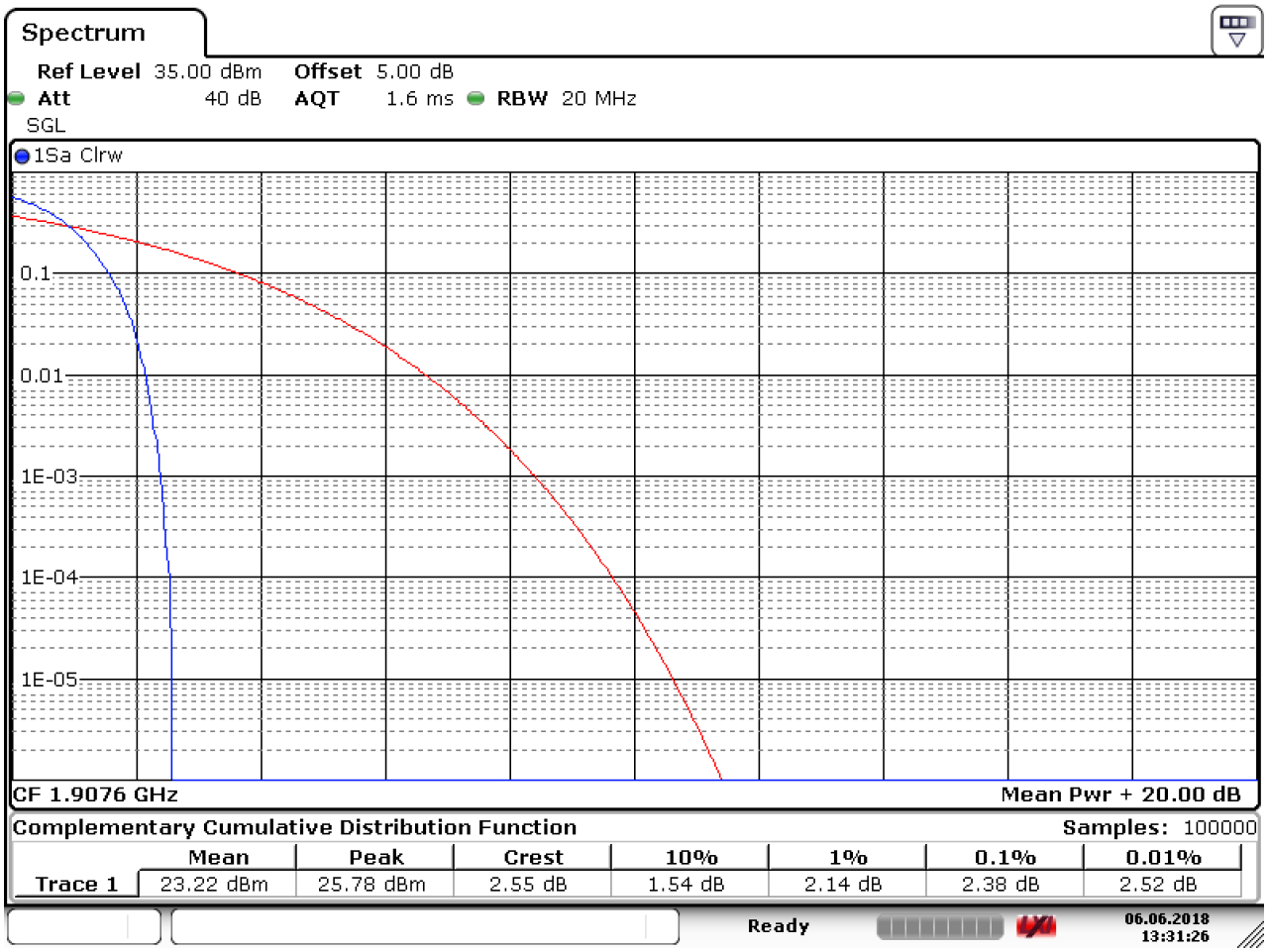
Date: 6.JUN.2018 13:32:06

2.1.1.1.2 Test Channel = MCH



Date: 6.JUN.2018 13:31:46

2.1.1.1.3 Test Channel = HCH

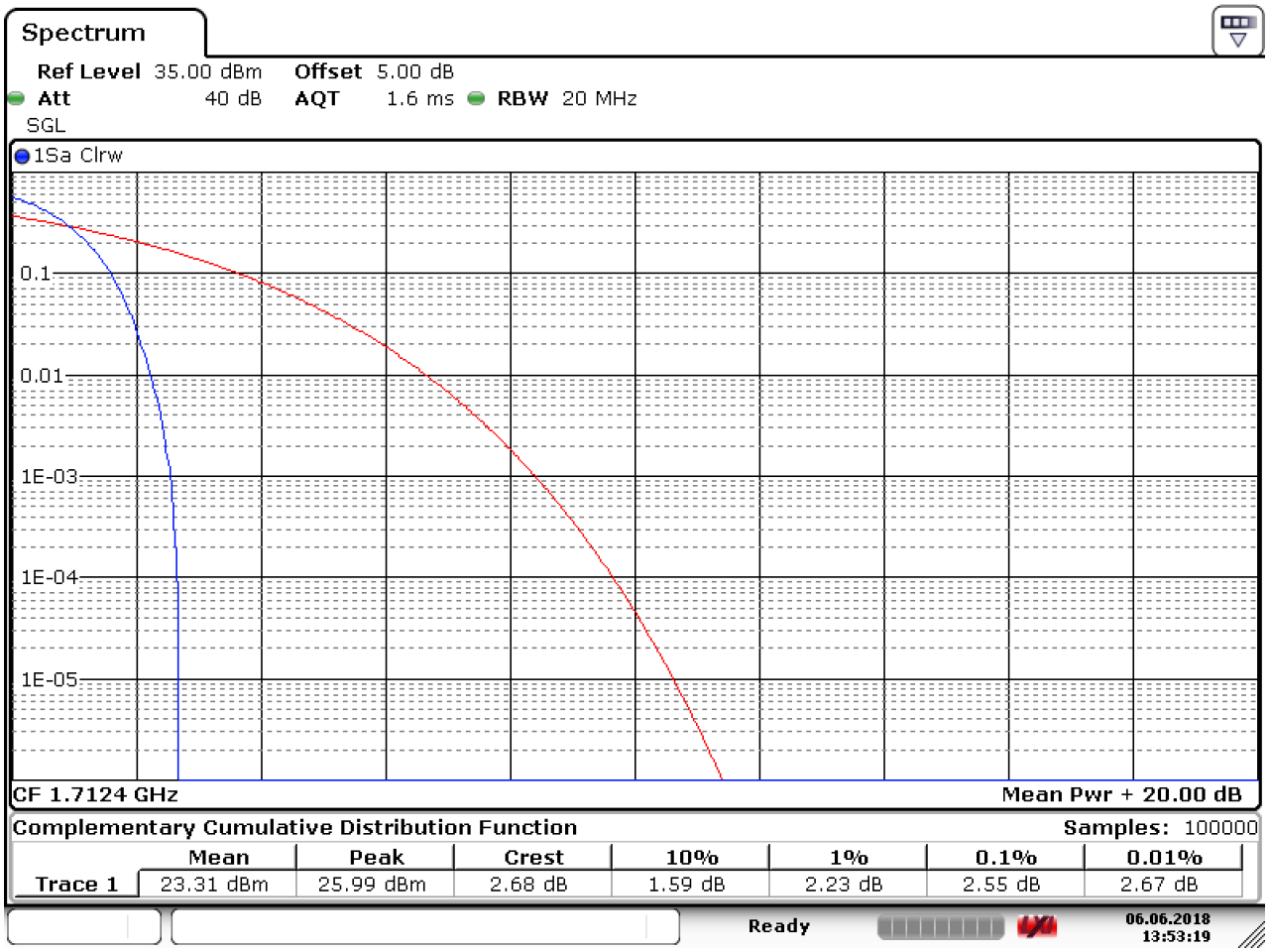


Date: 6.JUN.2018 13:31:26

2.1.2 Test Band = WCDMA 1700

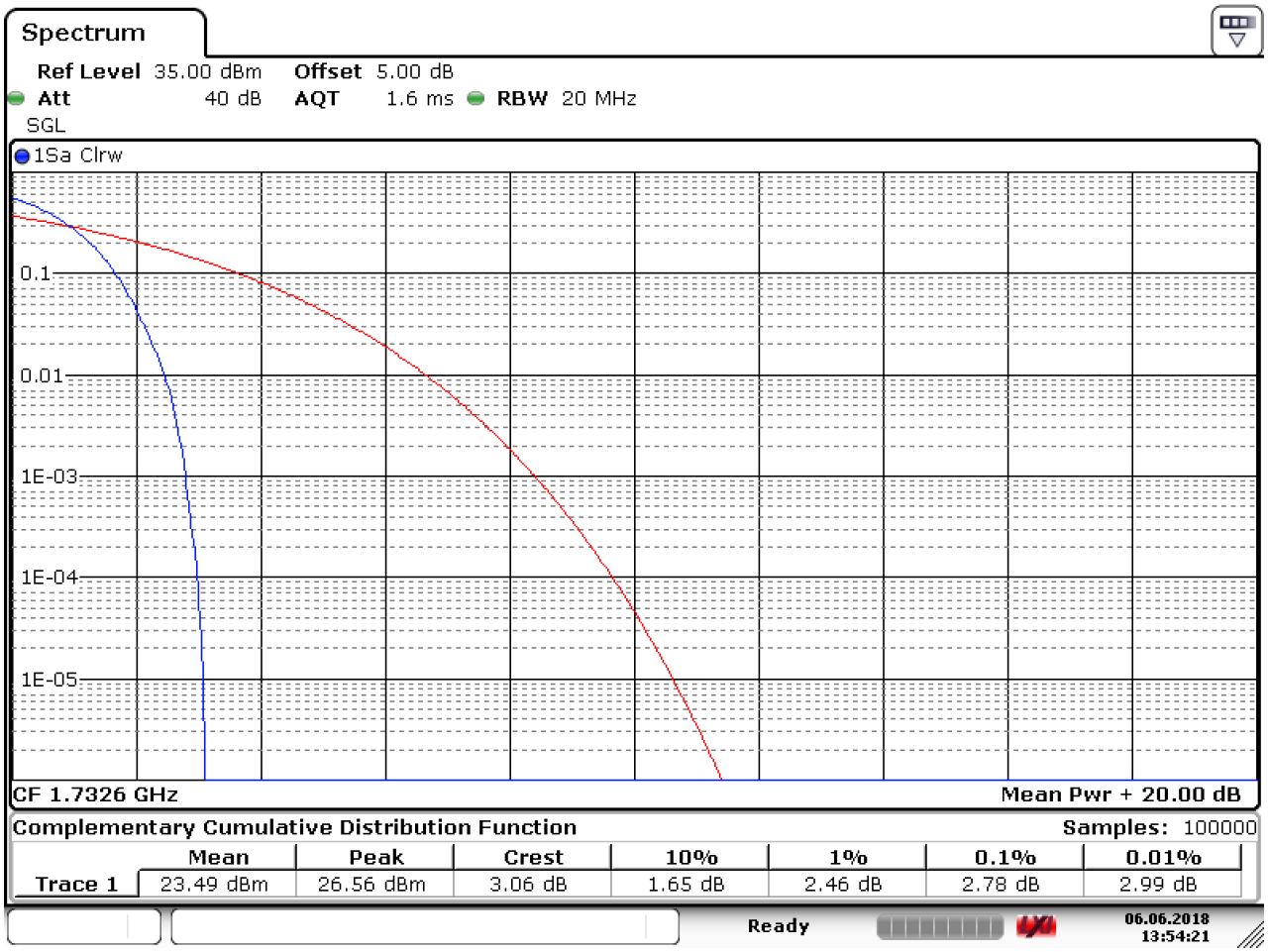
2.1.2.1 Test Mode = UMTS/TM1

2.1.2.1.1 Test Channel = LCH



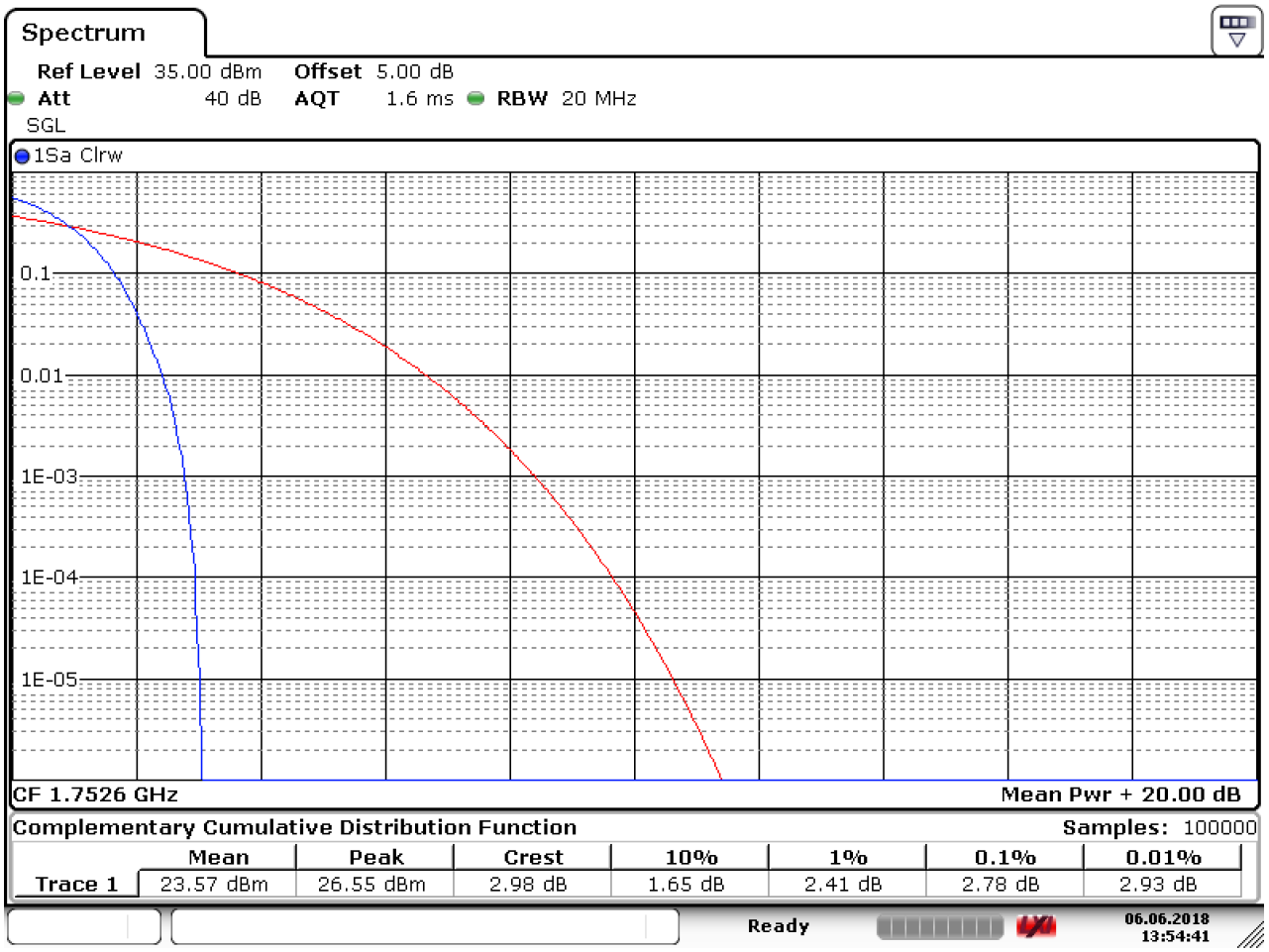
Date: 6.JUN.2018 13:53:19

2.1.2.1.2 Test Channel = MCH



Date: 6.JUN.2018 13:54:21

2.1.2.1.3 Test Channel = HCH

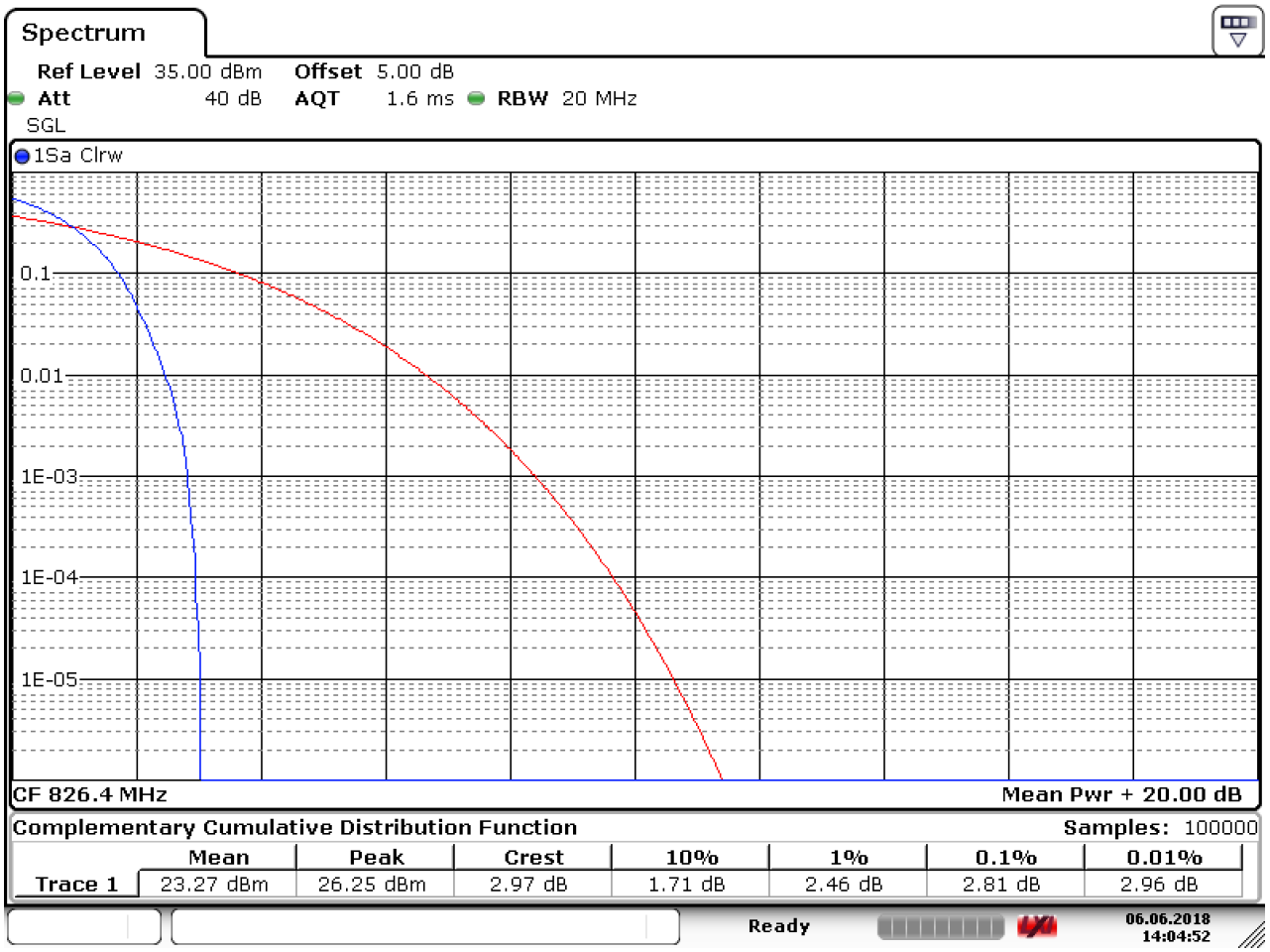


Date: 6.JUN.2018 13:54:41

2.1.3 Test Band = WCDMA 850

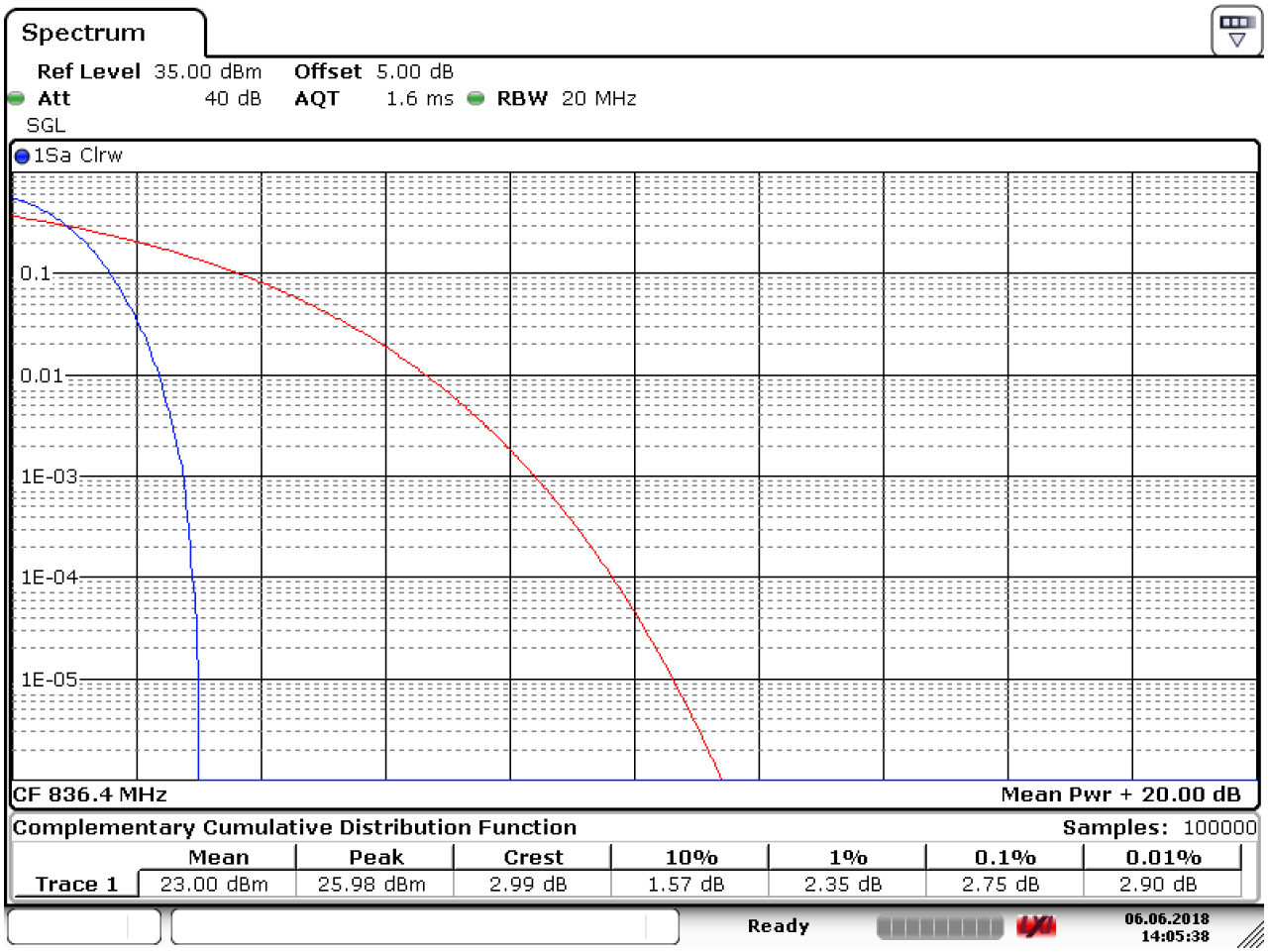
2.1.3.1 Test Mode = UMTS/TM1

2.1.3.1.1 Test Channel = LCH



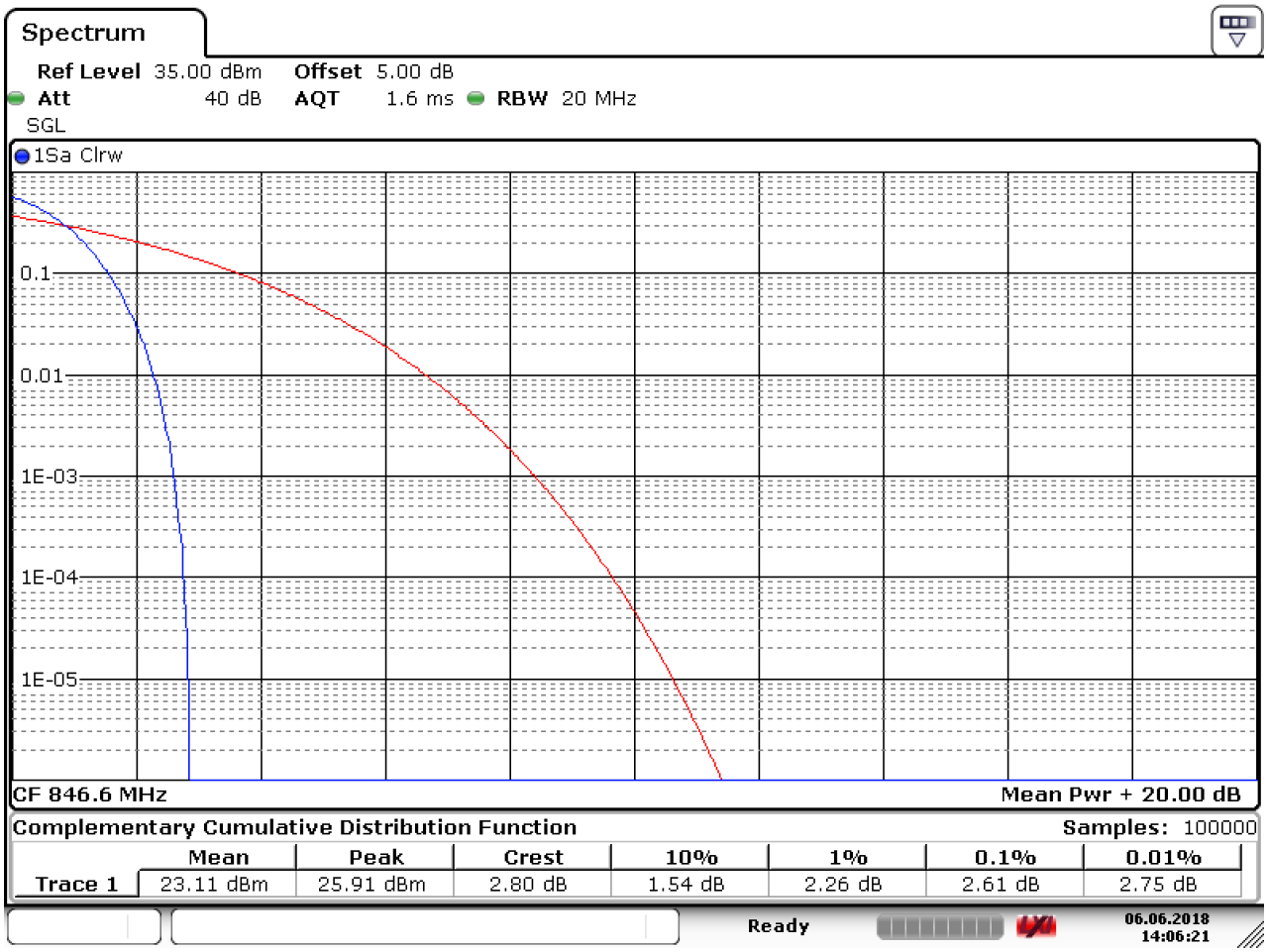
Date: 6.JUN.2018 14:04:53

2.1.3.1.2 Test Channel = MCH



Date: 6.JUN.2018 14:05:39

2.1.3.1.3 Test Channel = HCH



Date: 6.JUN.2018 14:06:21

3 Modulation Characteristics

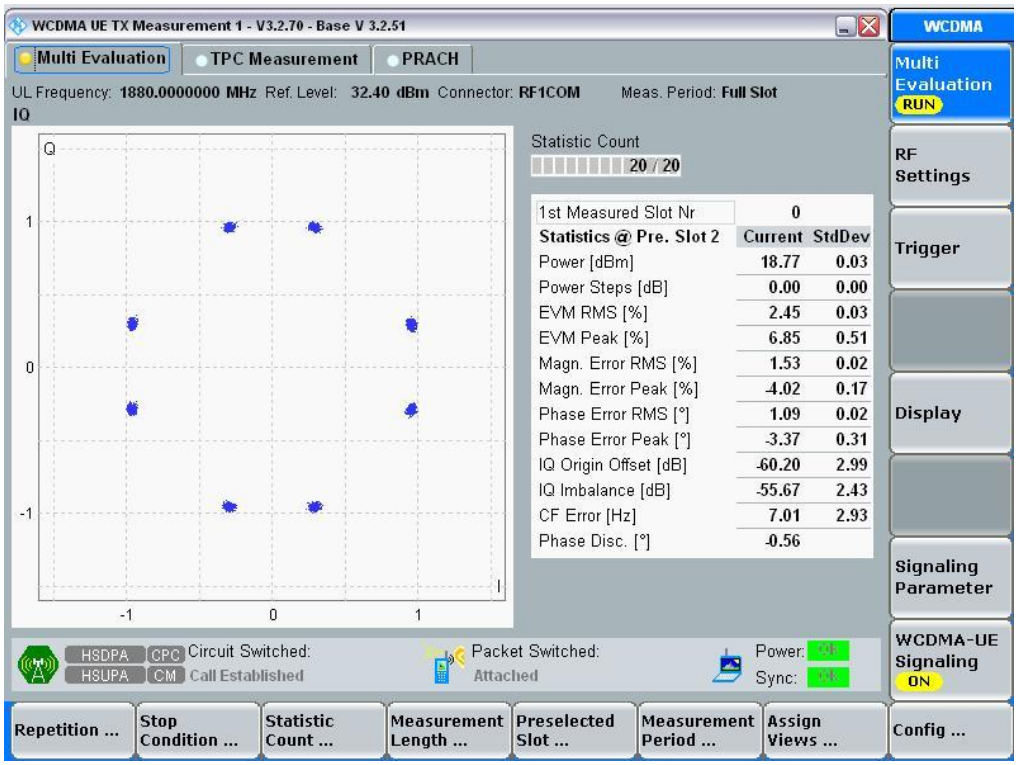
Part I - Test Plots

3.1 For WCDMA

3.1.1 Test Band = WCDMA 1900

3.1.1.1 Test Mode = UMTS/TM1

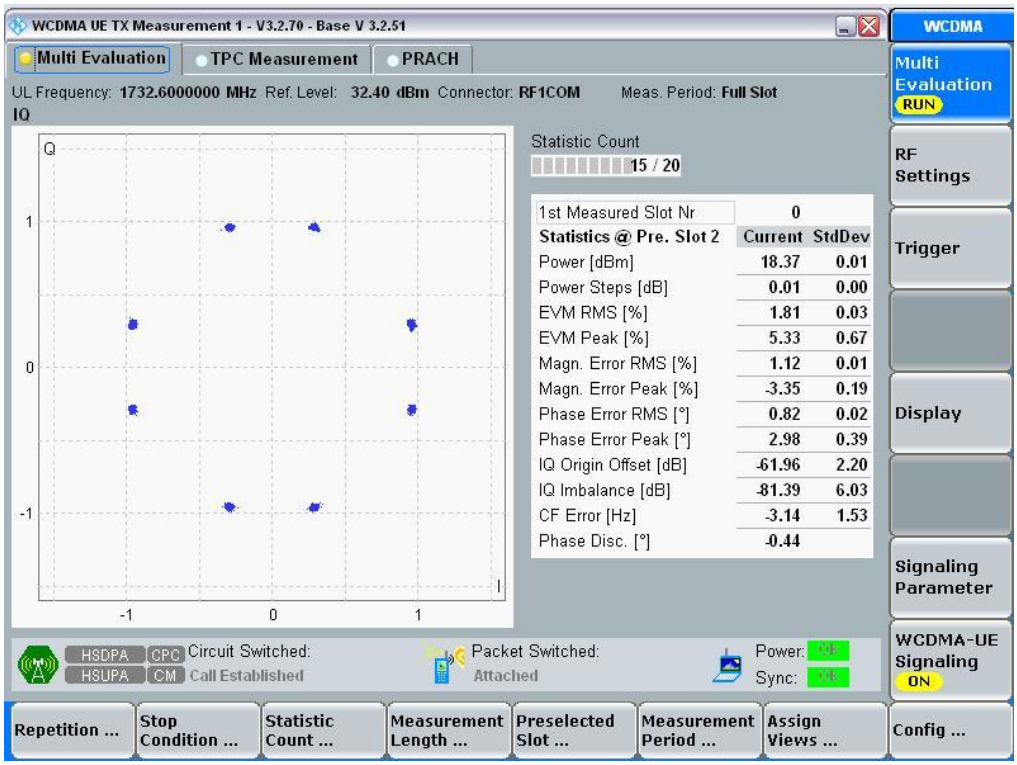
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA 1700

3.1.2.1 Test Mode = UMTS /TM1

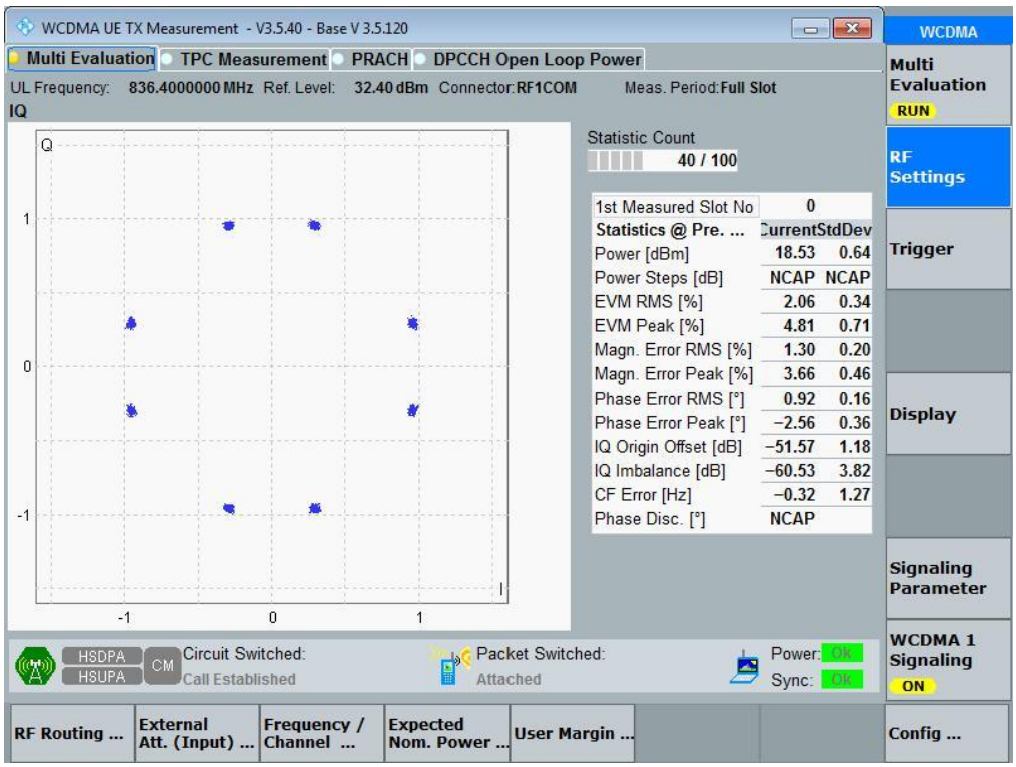
3.1.2.1.1 Test Channel = MCH



3.1.3 Test Band = WCDMA 850

3.1.3.1 Test Mode = UMTS /TM1

3.1.3.1.1 Test Channel = MCH



4 Bandwidth

Part I - Test Results

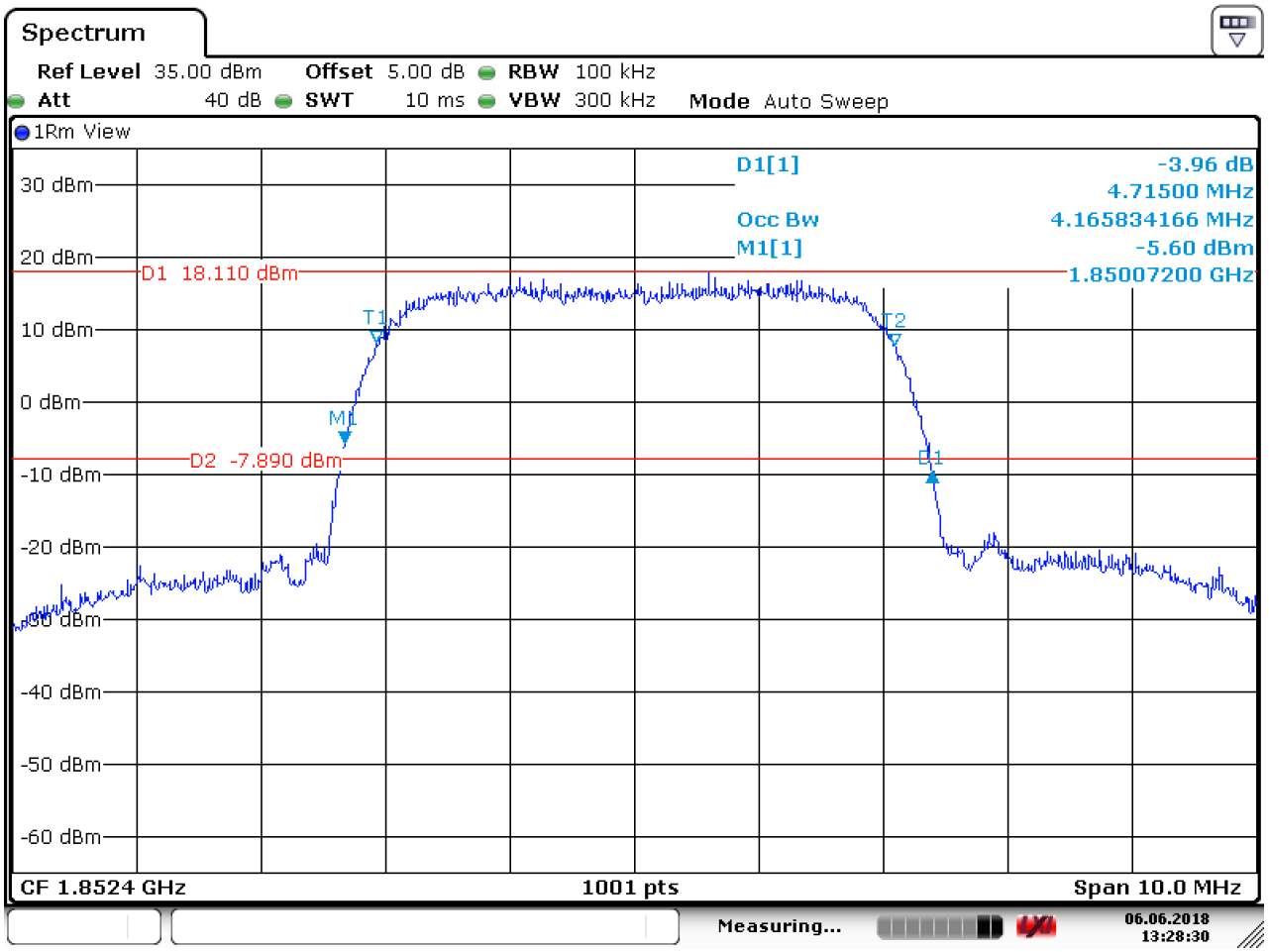
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.17	4.72	PASS
		MCH	4.15	4.72	PASS
		HCH	4.17	4.77	PASS
WCDMA1700	UMTS/TM1	LCH	4.15	4.73	PASS
		MCH	4.14	4.71	PASS
		HCH	4.13	4.71	PASS
WCDMA850	UMTS/TM1	LCH	4.14	4.71	PASS
		MCH	4.13	4.73	PASS
		HCH	4.13	4.72	PASS

4.1 For WCDMA

4.1.1 Test Band = WCDMA 1900

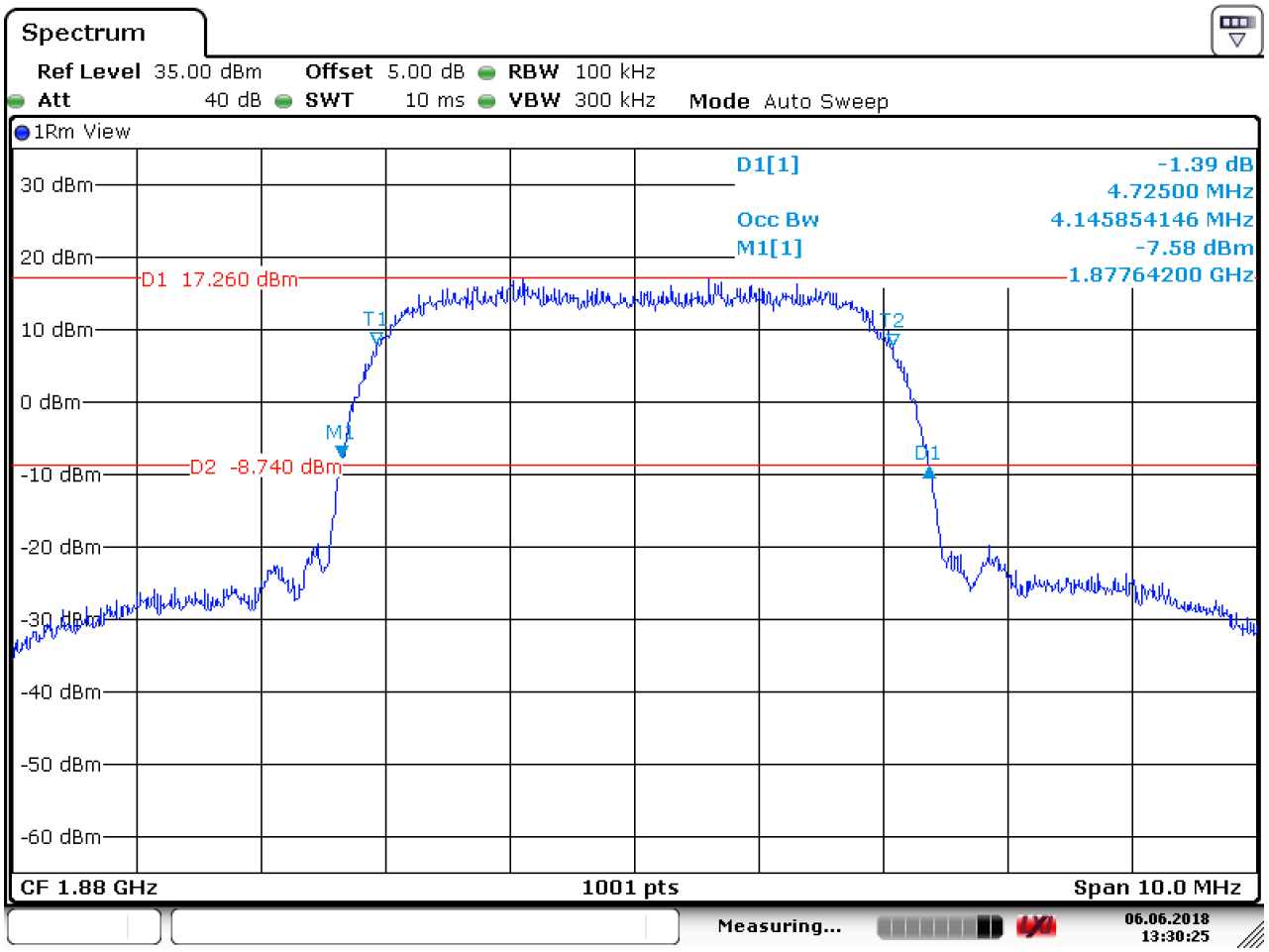
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



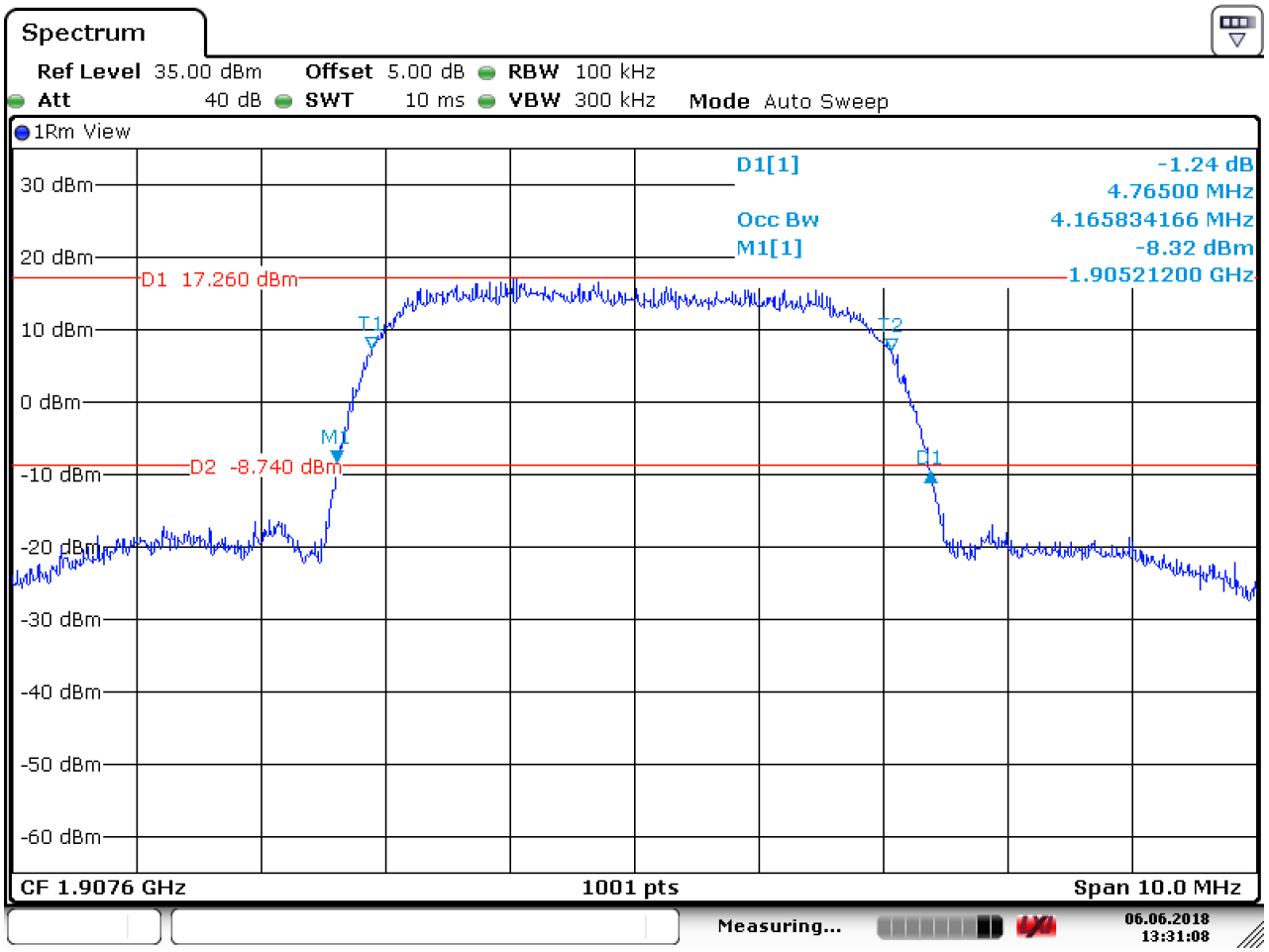
Date: 6.JUN.2018 13:28:31

4.1.1.1.2 Test Channel = MCH



Date: 6.JUN.2018 13:30:25

4.1.1.1.3 Test Channel = HCH

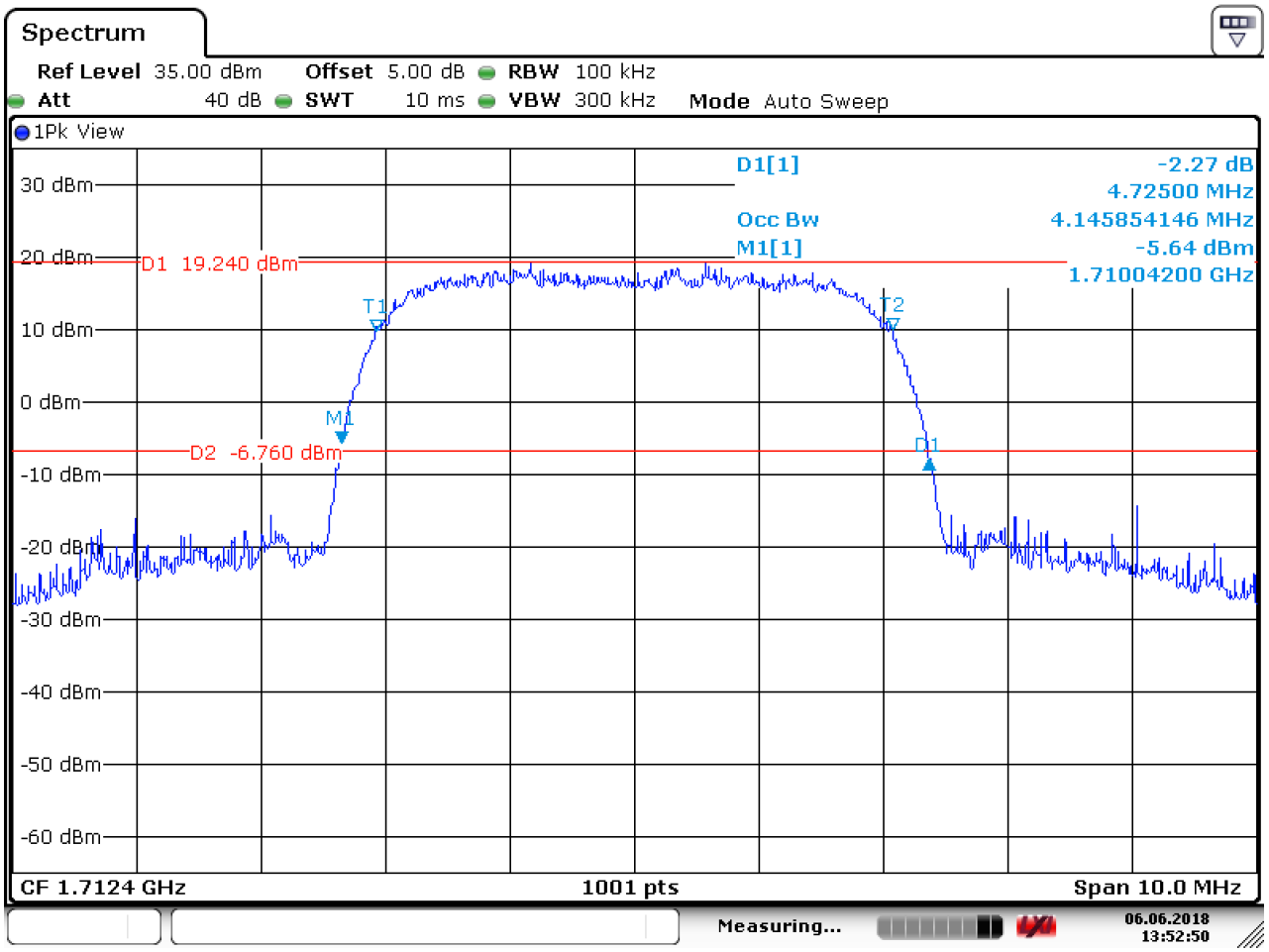


Date: 6.JUN.2018 13:31:08

4.1.2 Test Band = WCDMA 1700

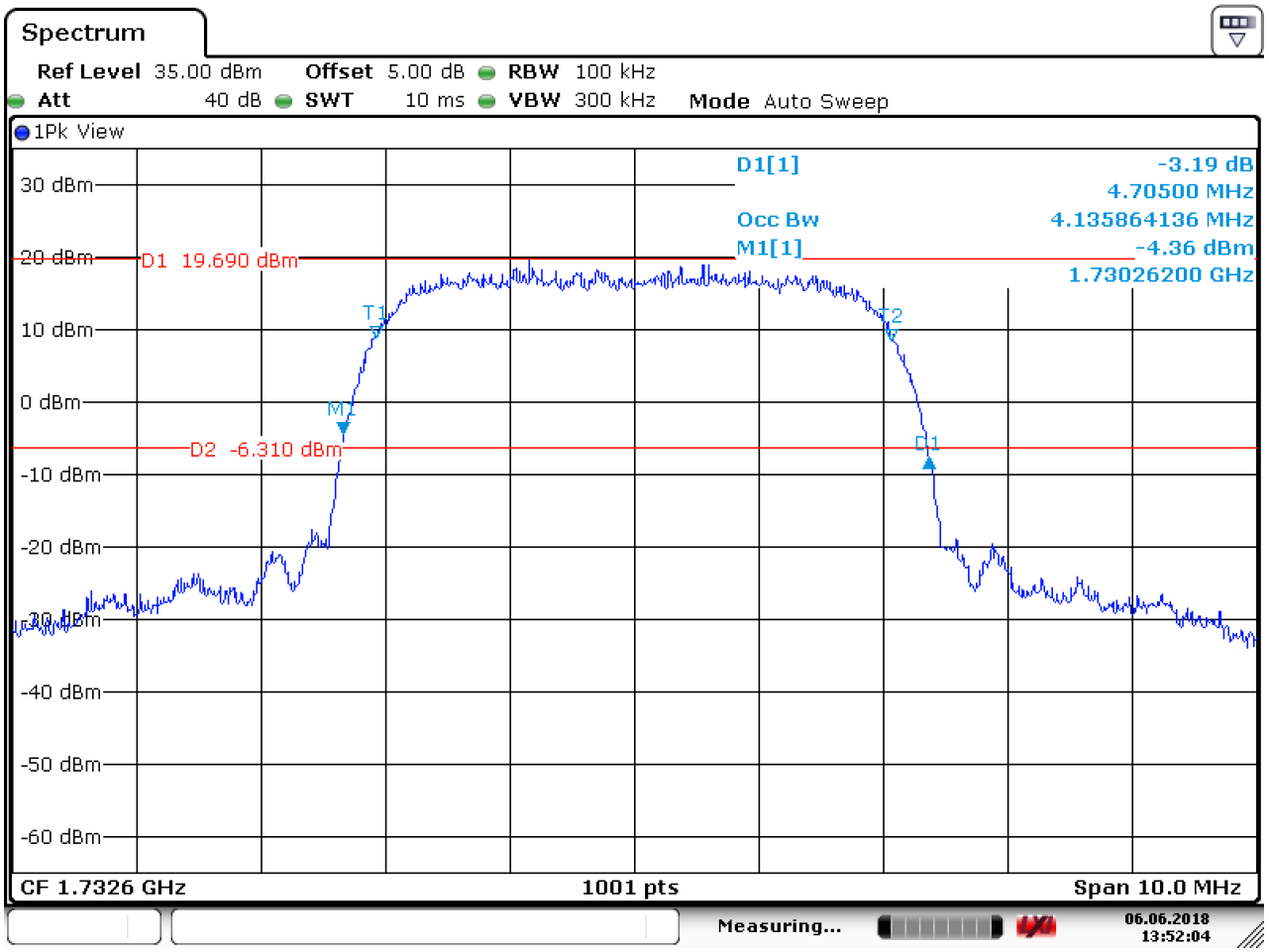
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



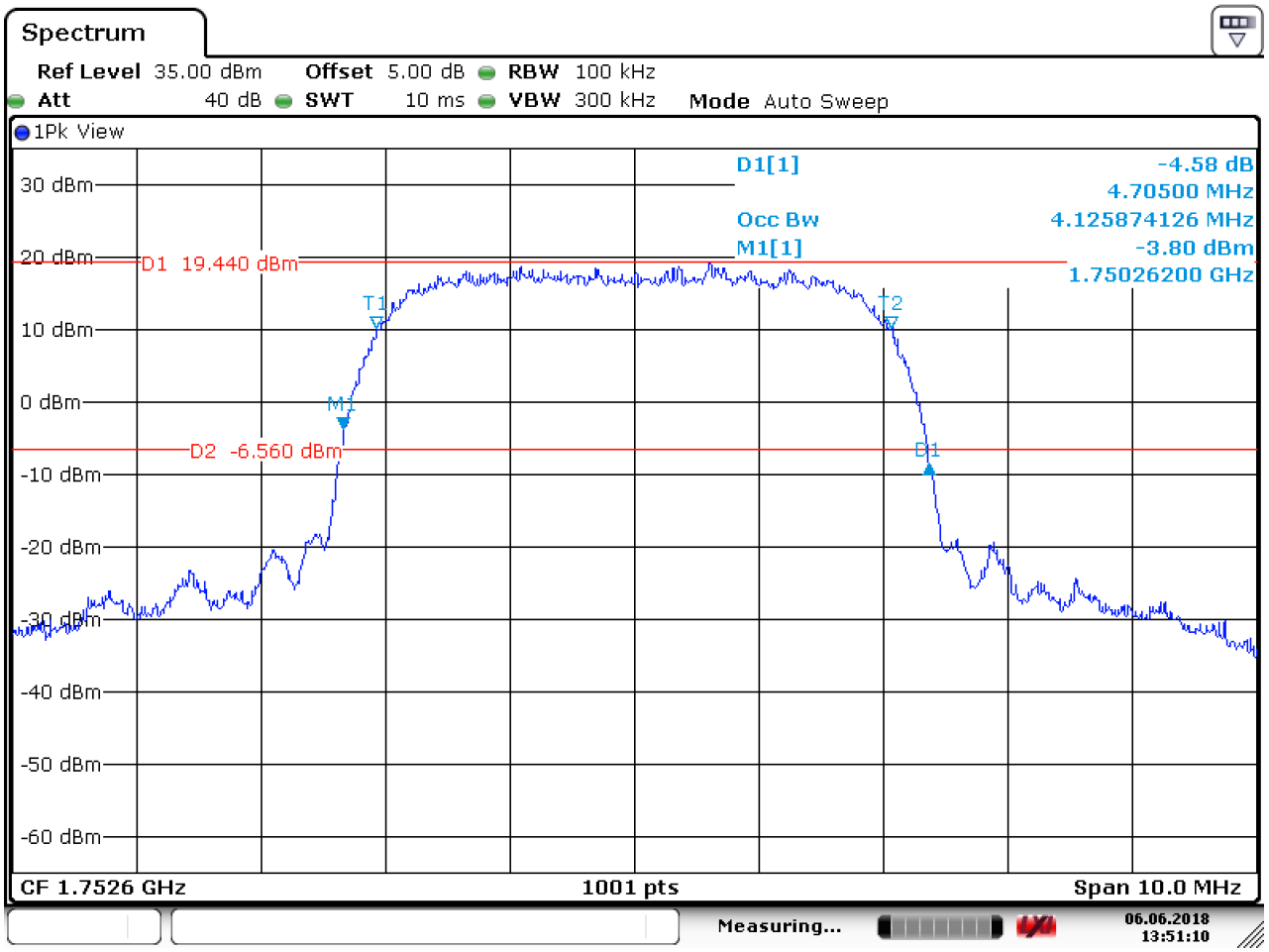
Date: 6.JUN.2018 13:52:51

4.1.2.1.2 Test Channel = MCH



Date: 6.JUN.2018 13:52:04

4.1.2.1.3 Test Channel = HCH

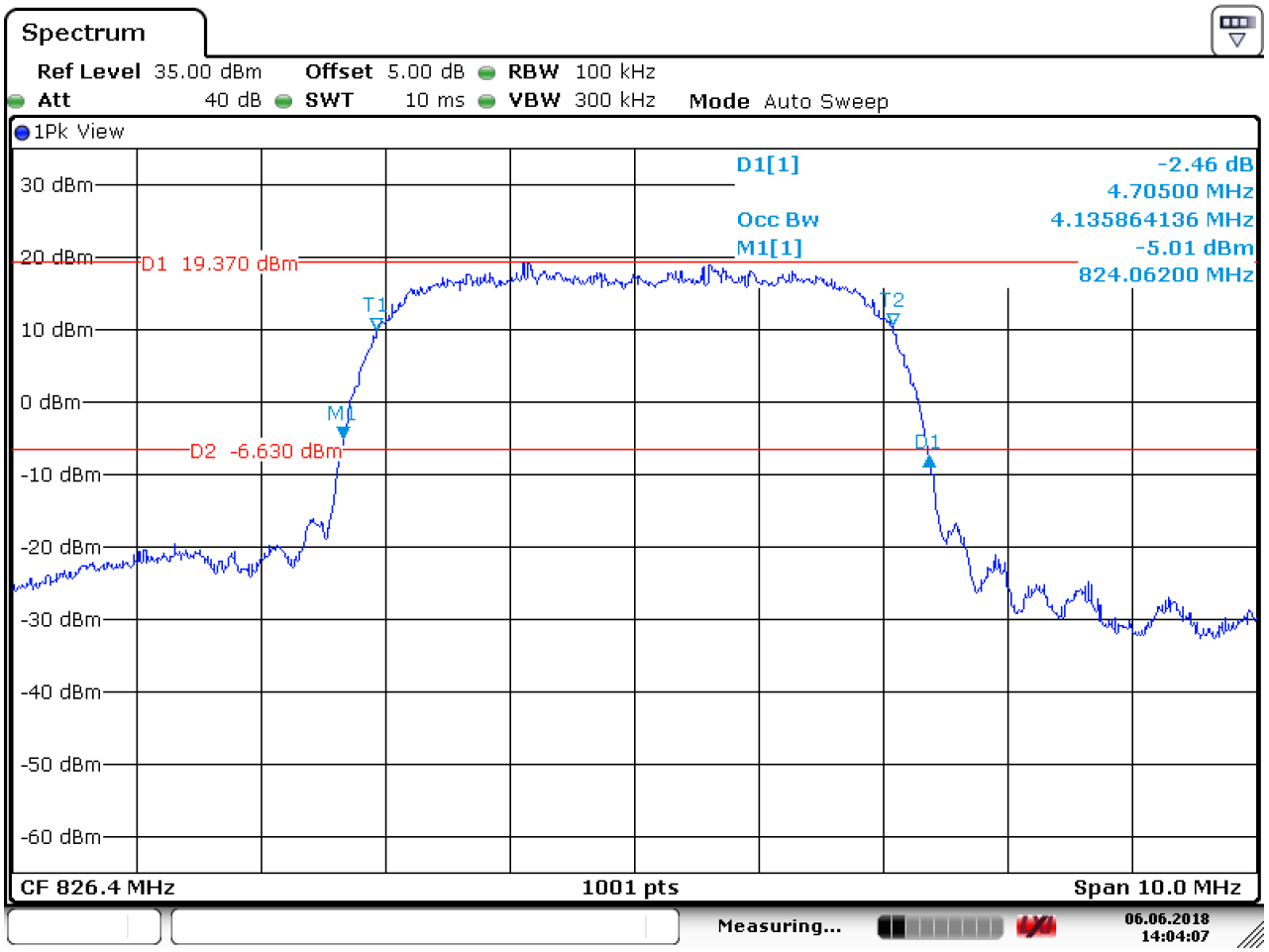


Date: 6.JUN.2018 13:51:11

4.1.3 Test Band = WCDMA 850

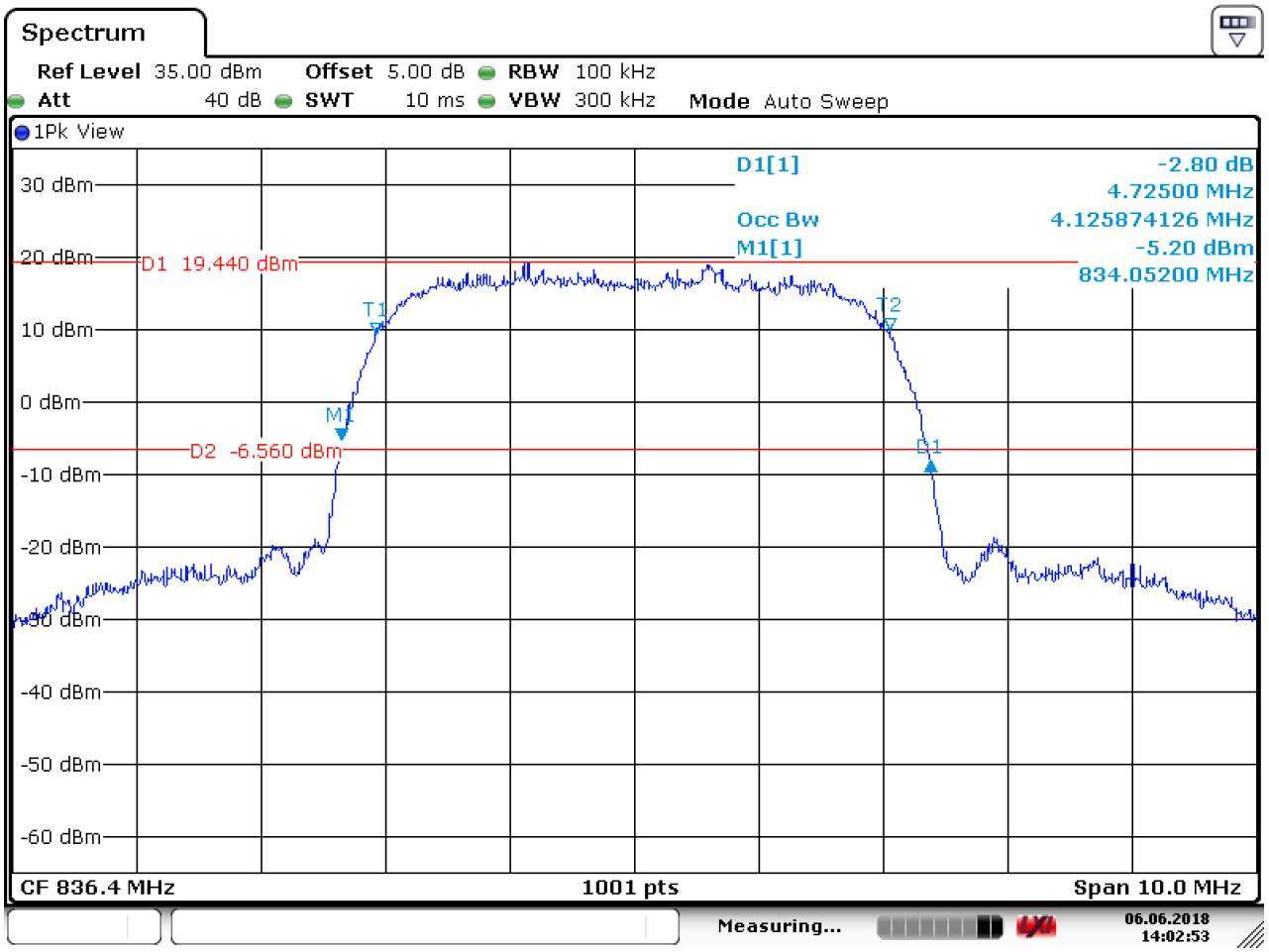
4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



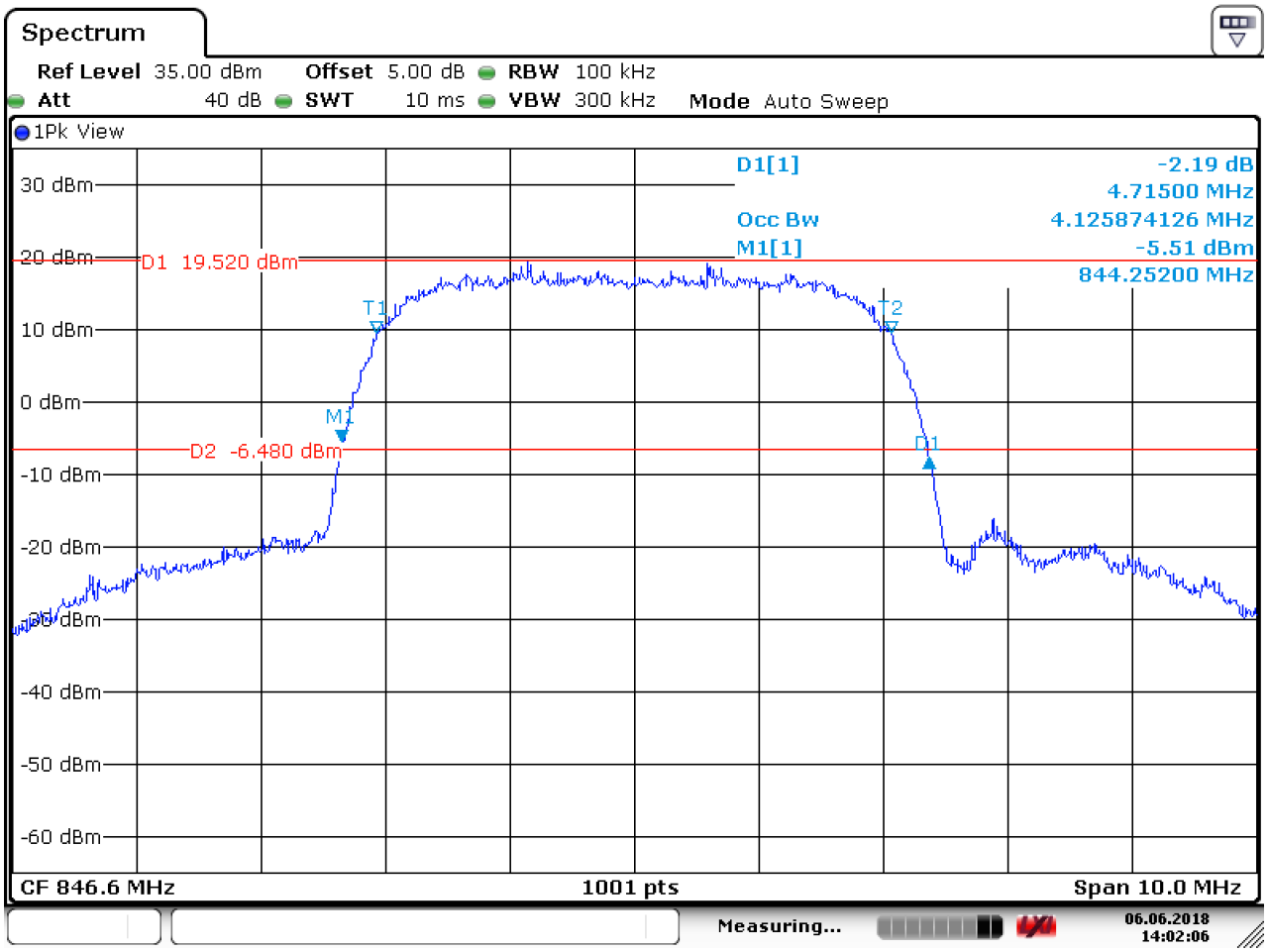
Date: 6.JUN.2018 14:04:07

4.1.3.1.2 Test Channel = MCH



Date: 6.JUN.2018 14:02:53

4.1.3.1.3 Test Channel = HCH



Date: 6.JUN.2018 14:02:06

5 Band Edges Compliance

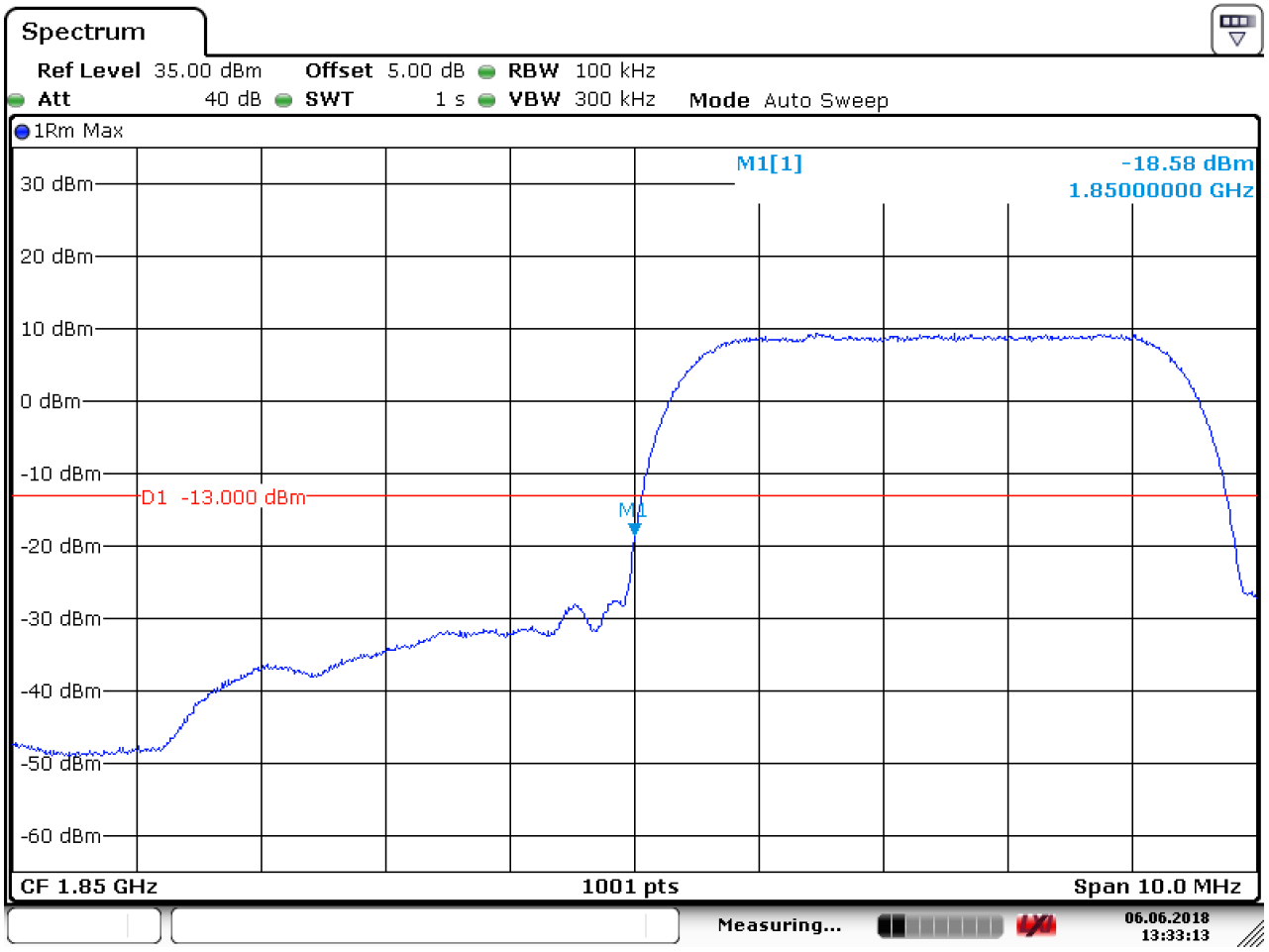
Part I - Test Plots

5.1 For WCDMA

5.1.1 Test Band = WCDMA 1900

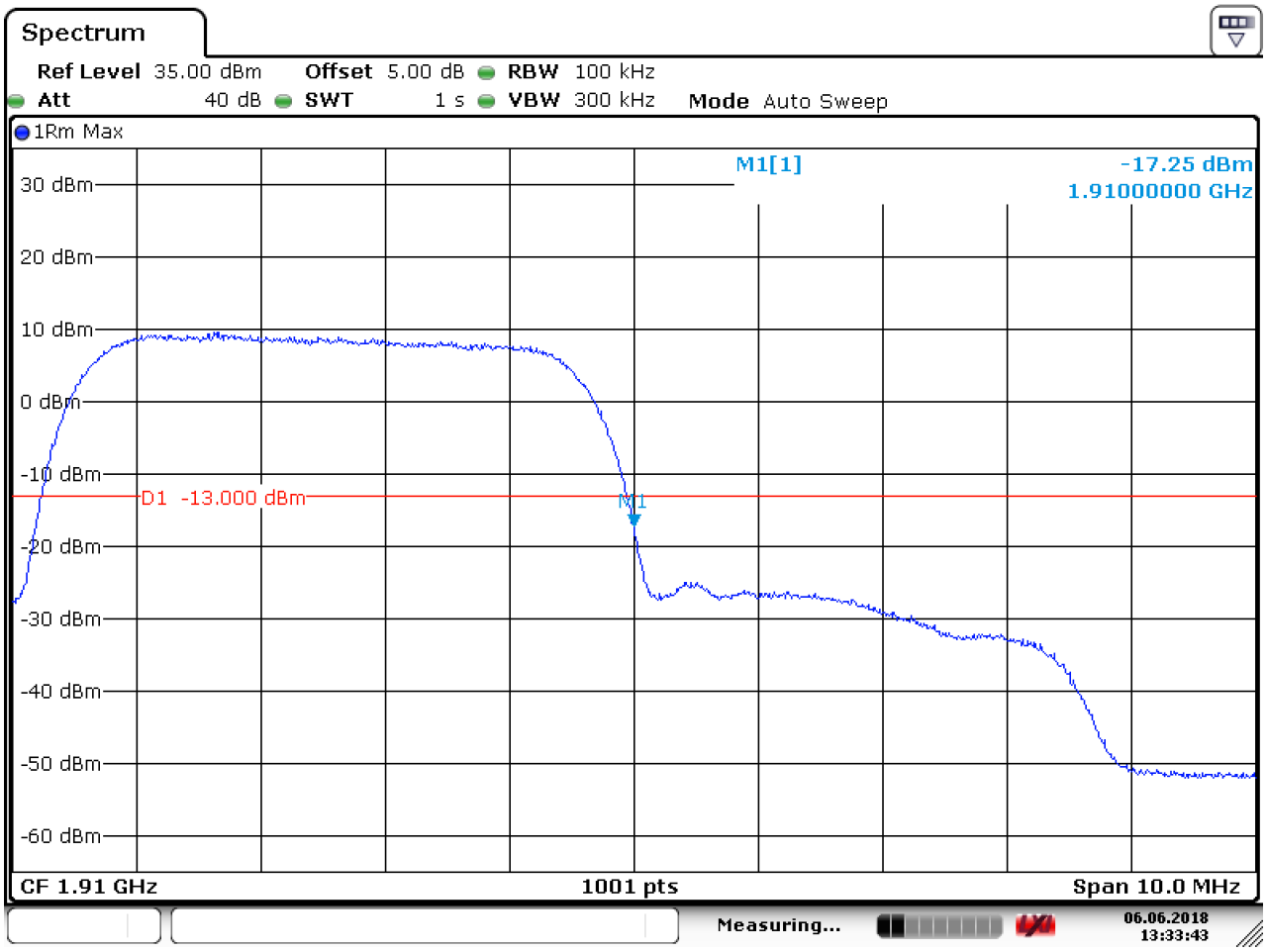
5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



Date: 6.JUN.2018 13:33:13

5.1.1.1.2 Test Channel = HCH

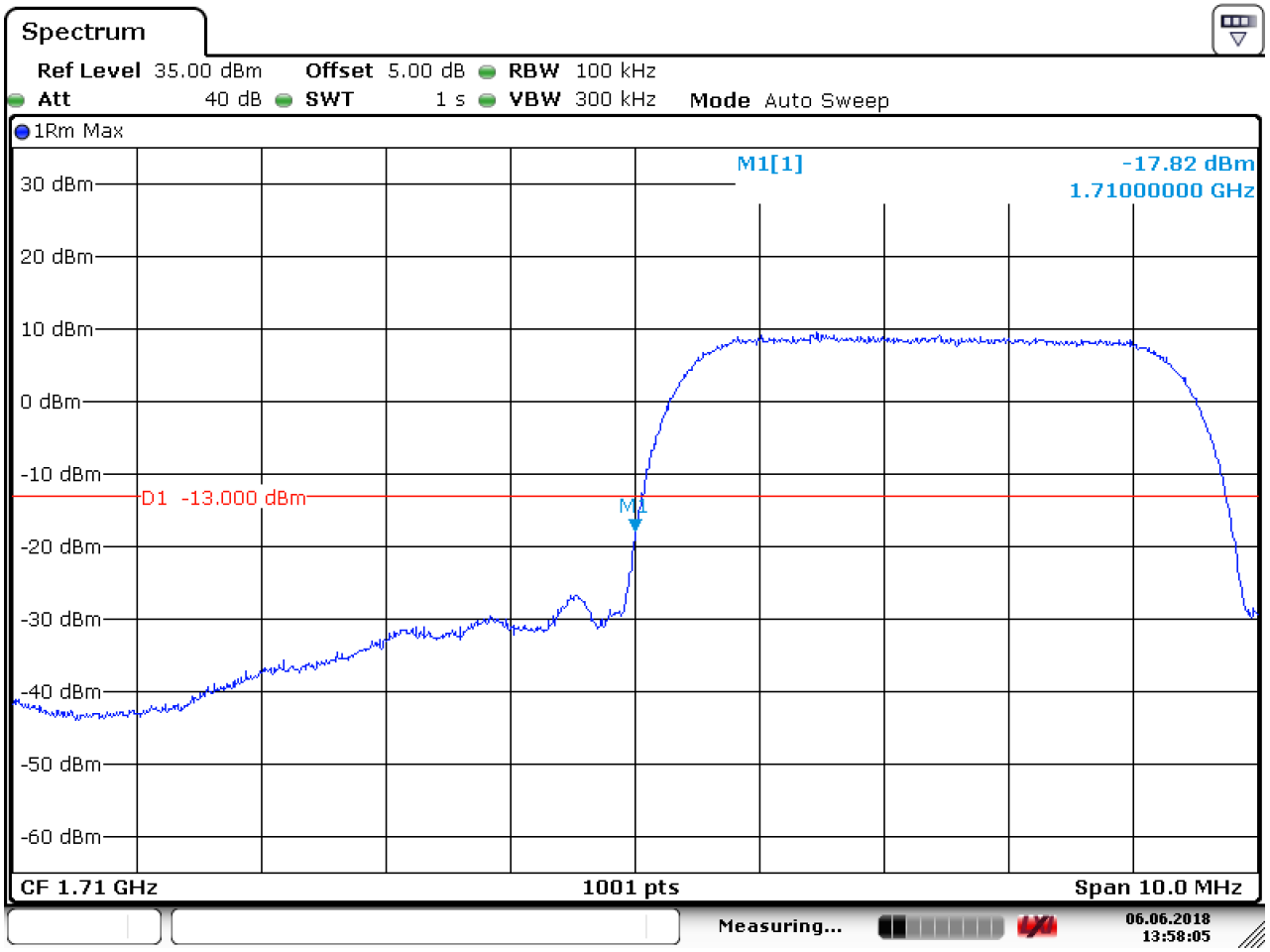


Date: 6.JUN.2018 13:33:43

5.1.2 Test Band = WCDMA 1700

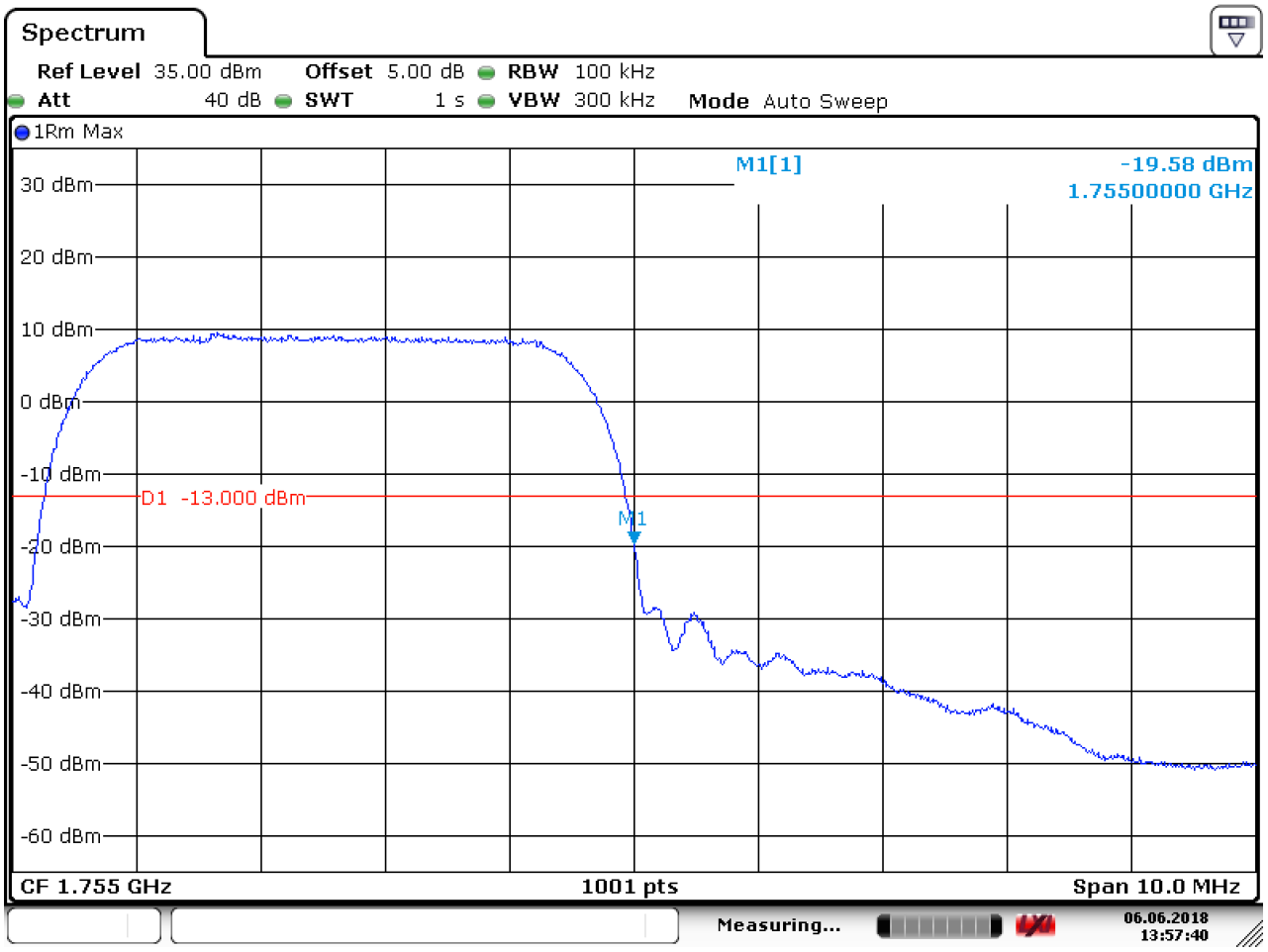
5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



Date: 6.JUN.2018 13:58:05

5.1.2.1.2 Test Channel = HCH

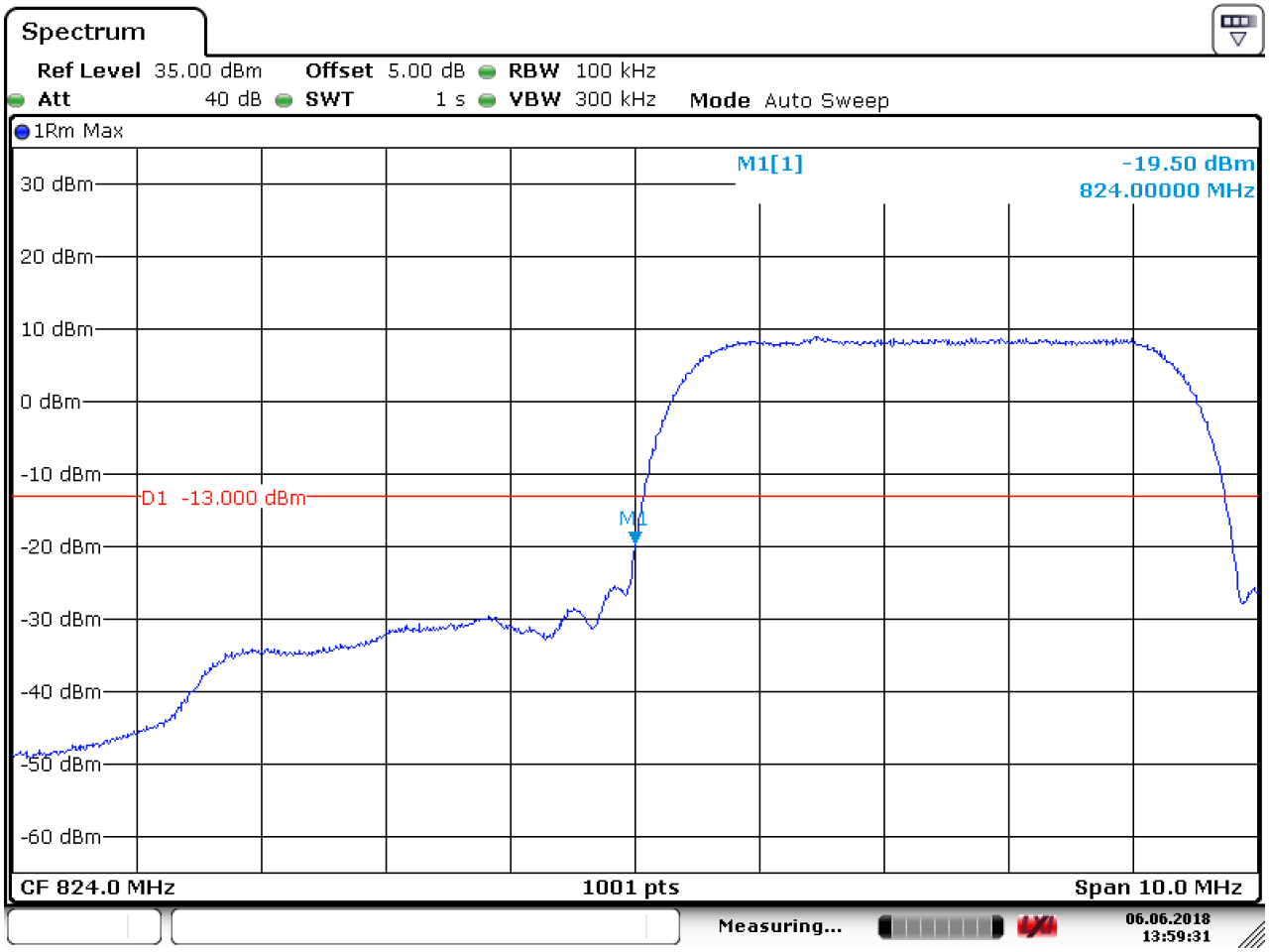


Date: 6.JUN.2018 13:57:41

5.1.3 Test Band = WCDMA 850

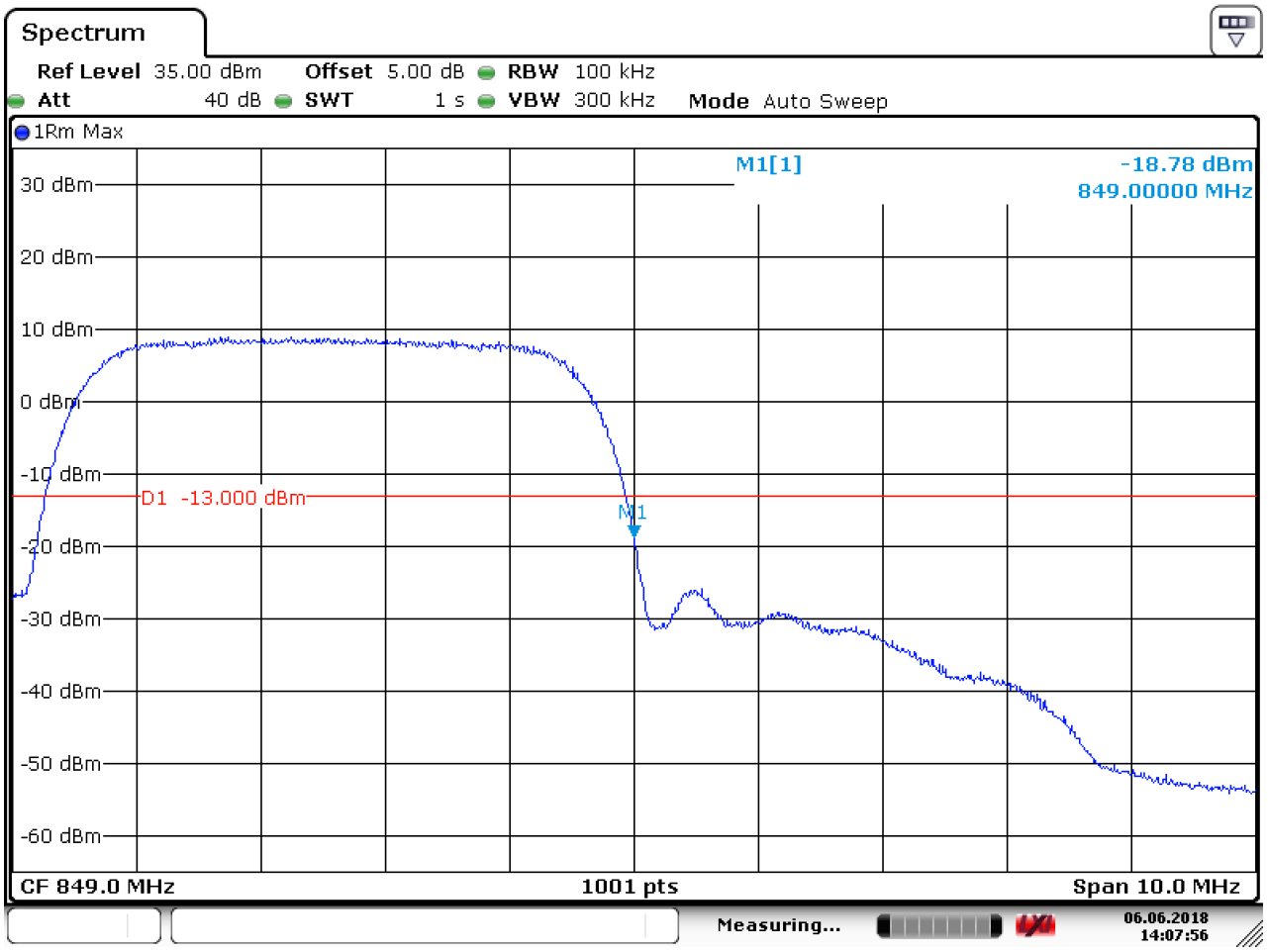
5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH



Date: 6.JUN.2018 13:59:32

5.1.3.1.2 Test Channel = HCH



Date: 6.JUN.2018 14:07:56

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.

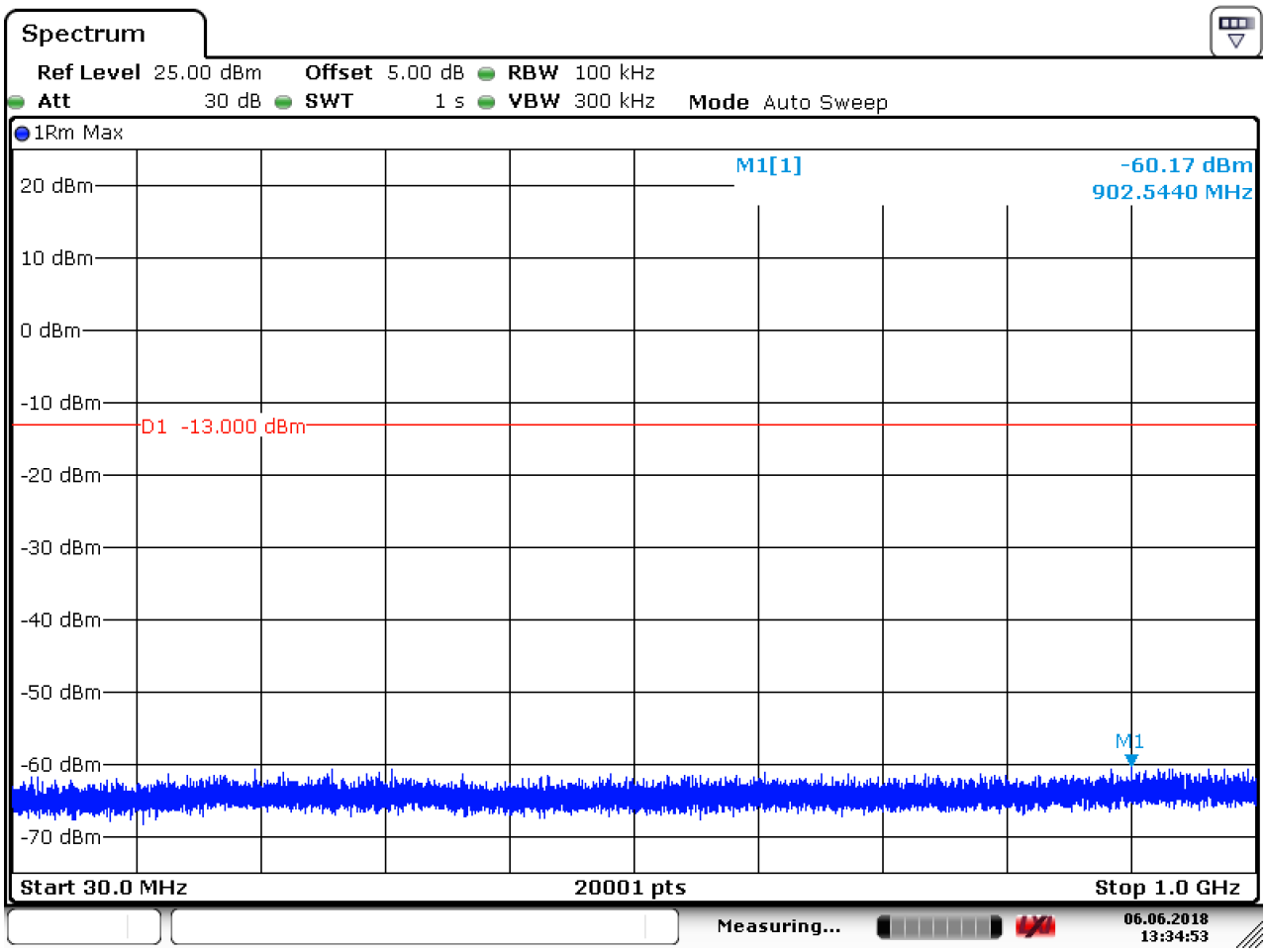
Part I - Test Plots

6.1 For WCDMA

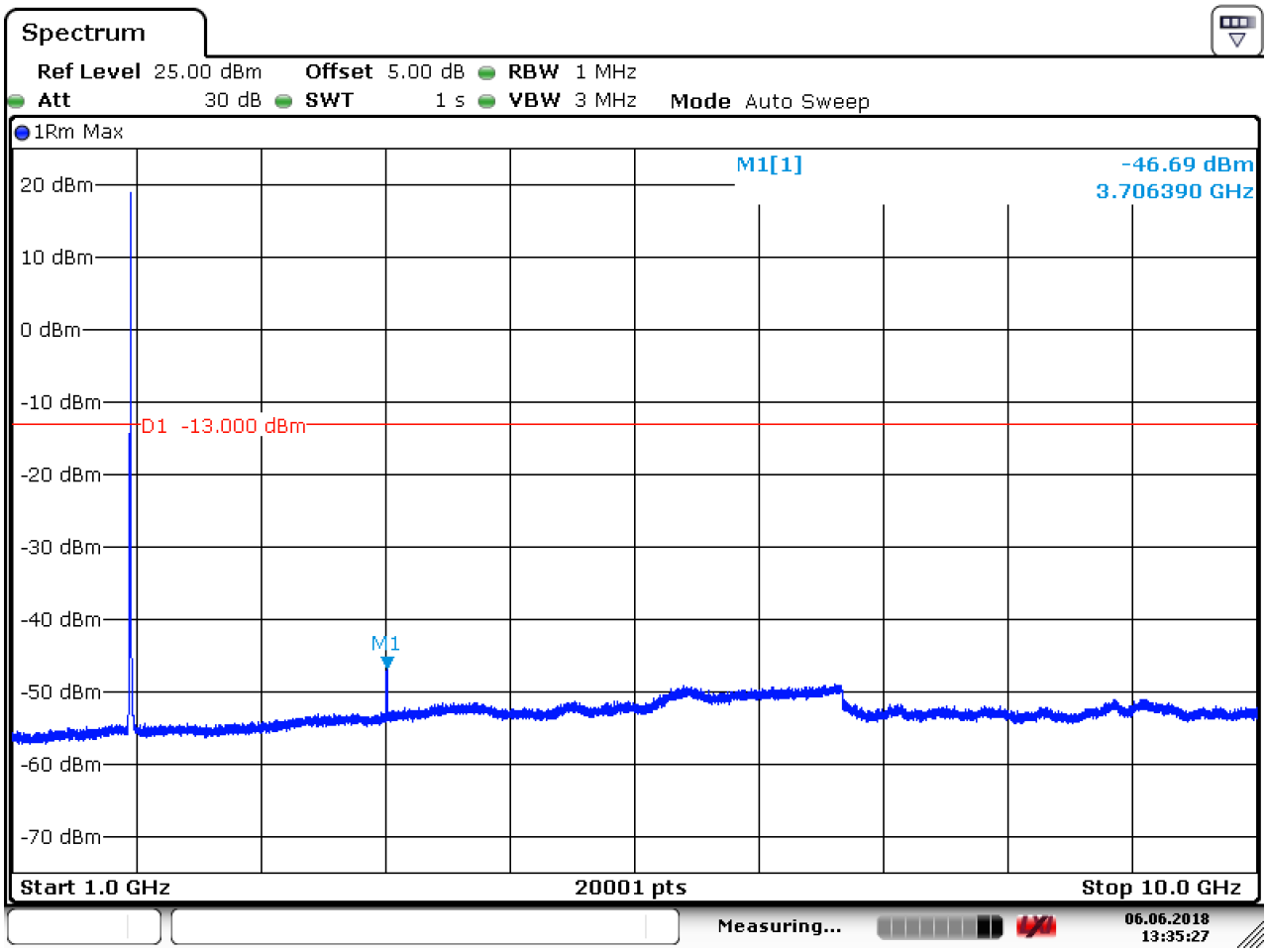
6.1.1 Test Band = WCDMA 1900

6.1.1.1 Test Mode = UMTS/TM1

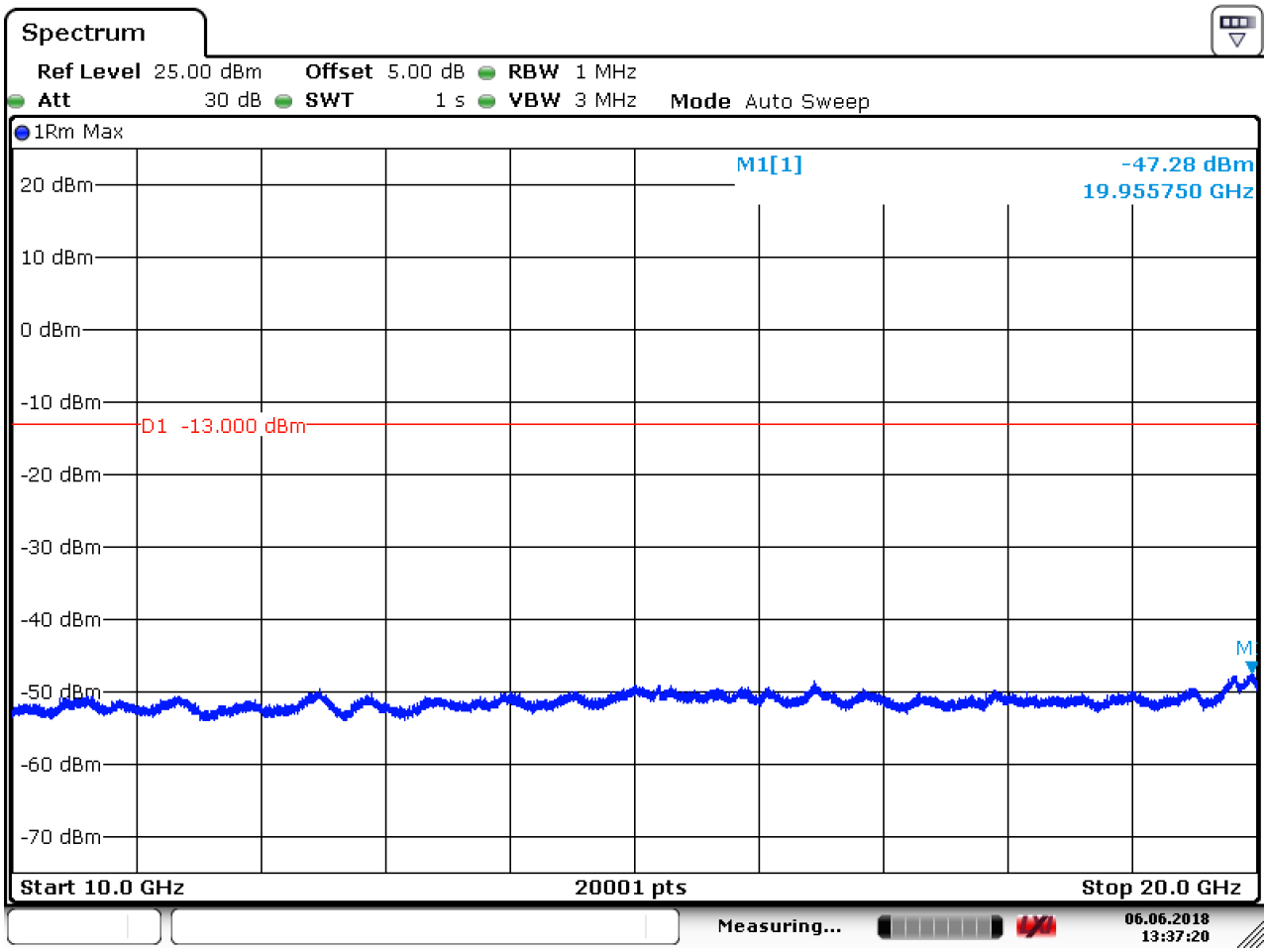
6.1.1.1.1 Test Channel = LCH



Date: 6.JUN.2018 13:34:53

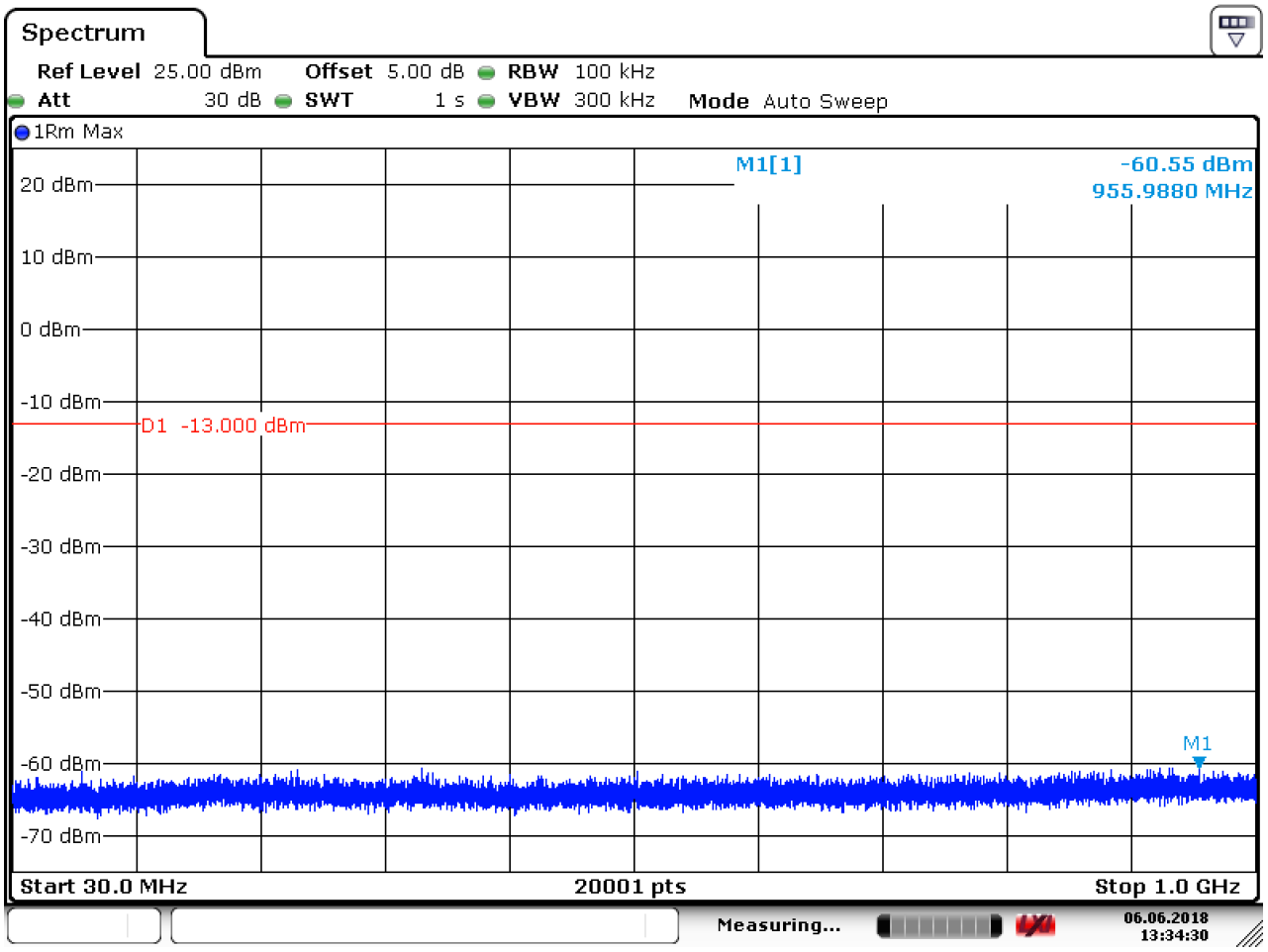


Date: 6.JUN.2018 13:35:27

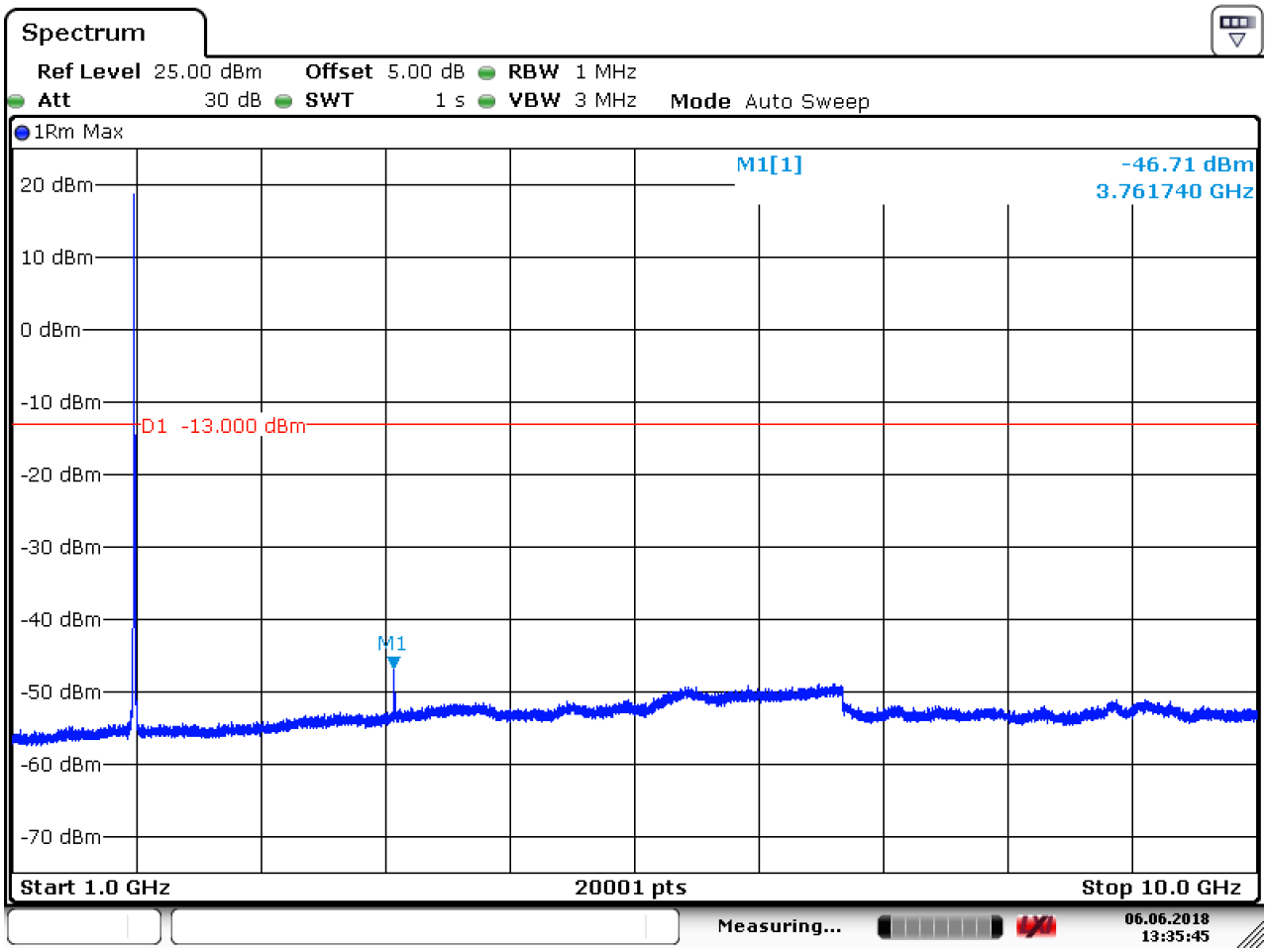


Date: 6.JUN.2018 13:37:20

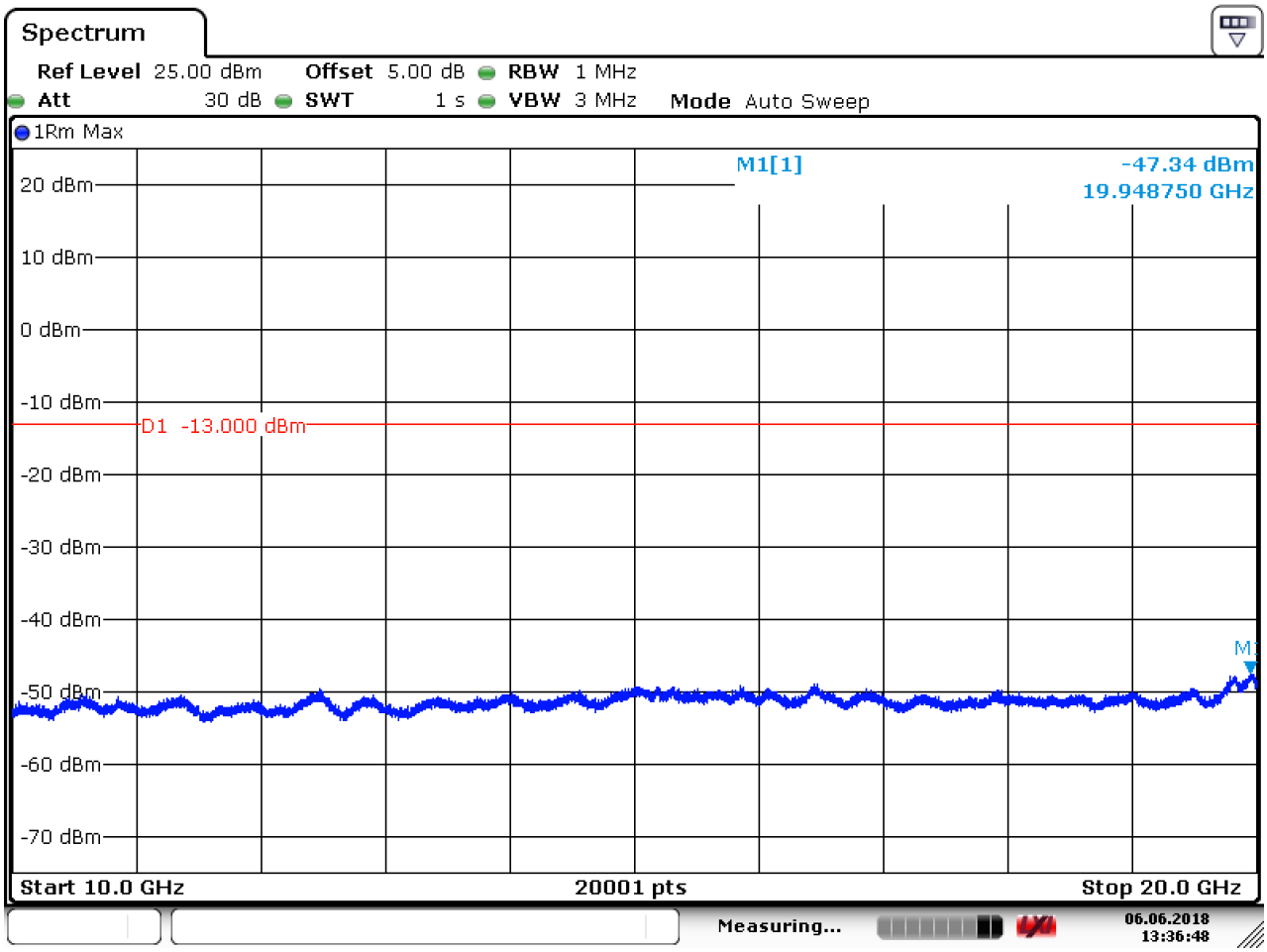
6.1.1.1.2 Test Channel = MCH



Date: 6.JUN.2018 13:34:30

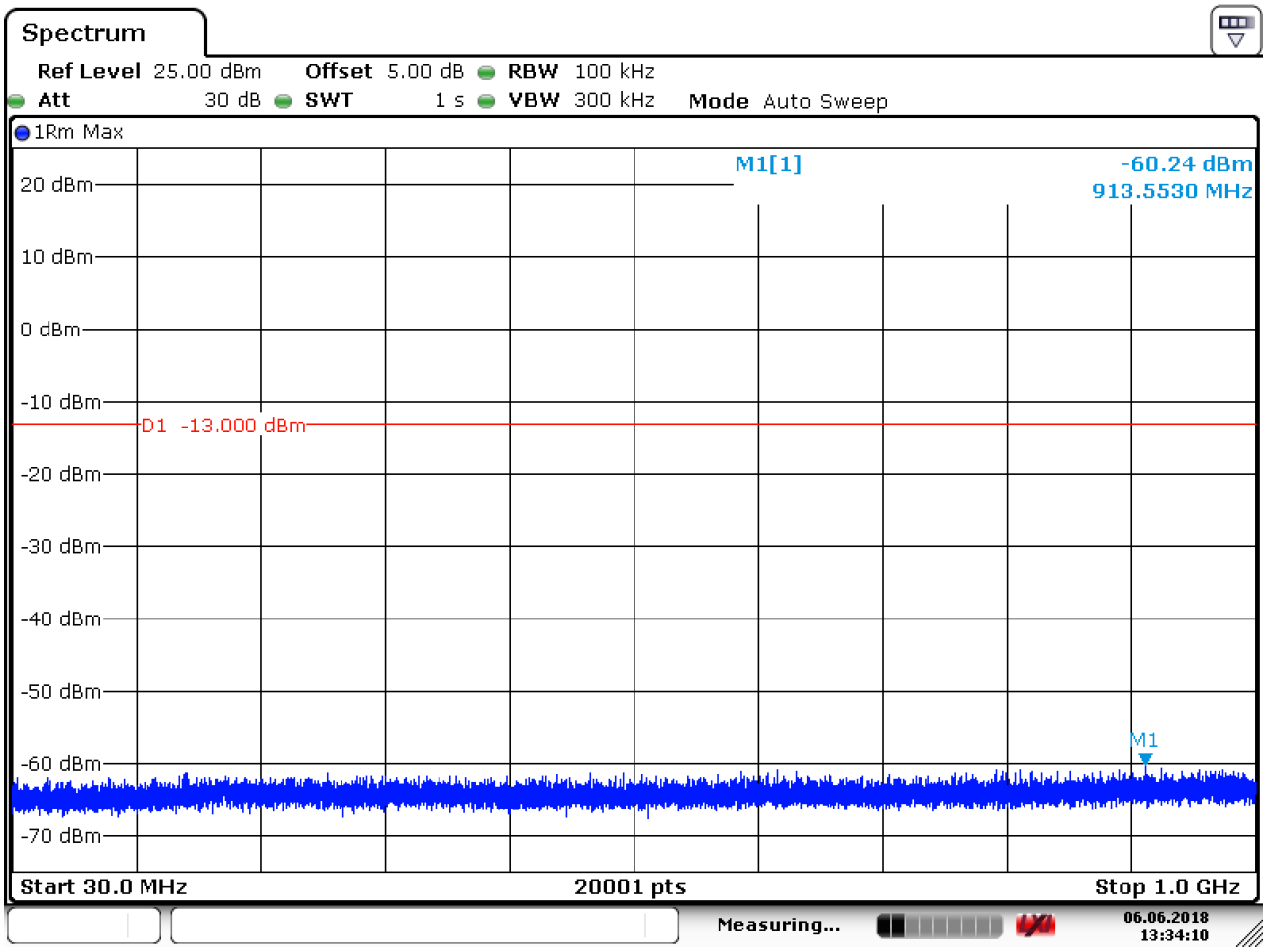


Date: 6.JUN.2018 13:35:46

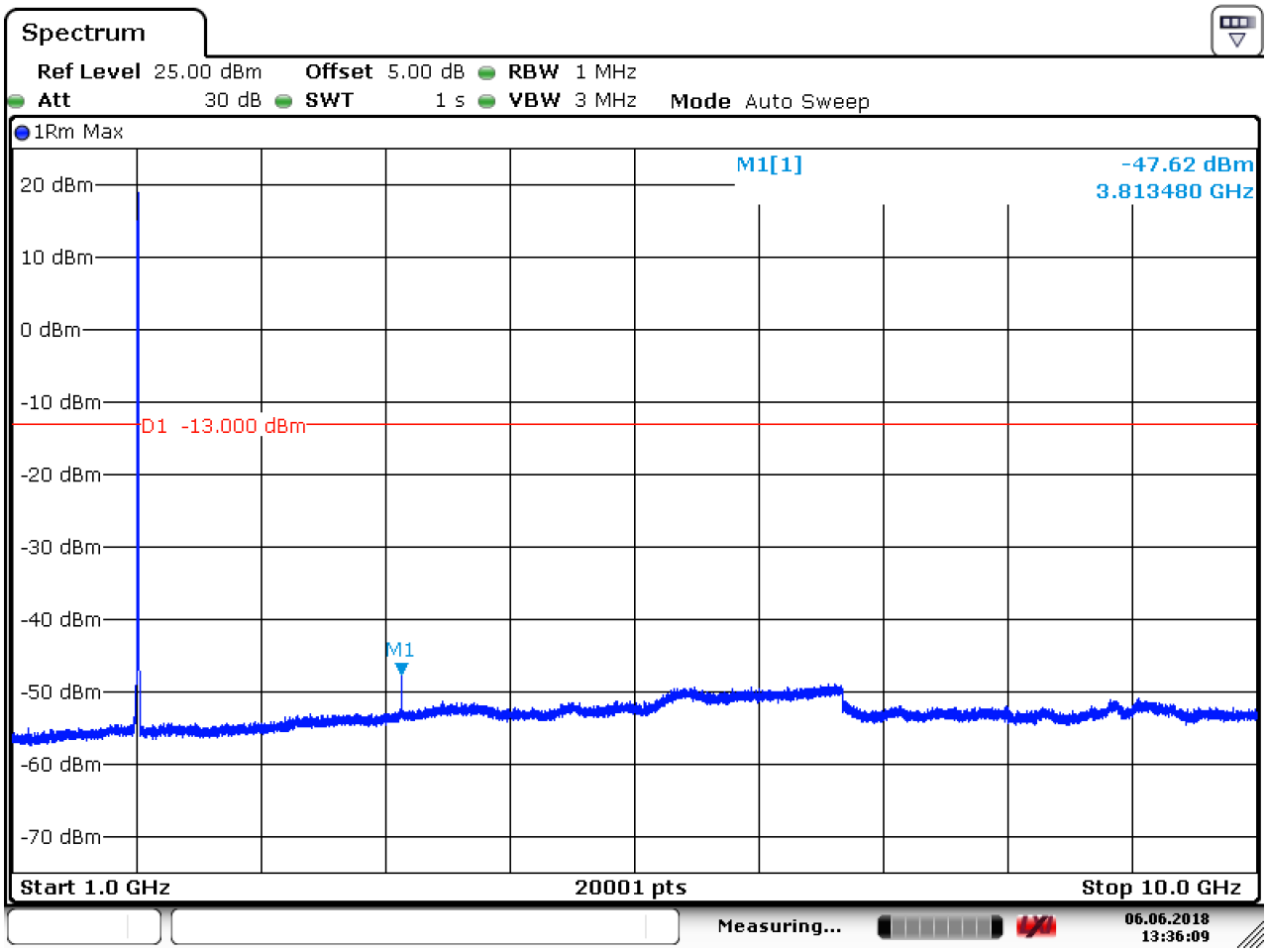


Date: 6.JUN.2018 13:36:49

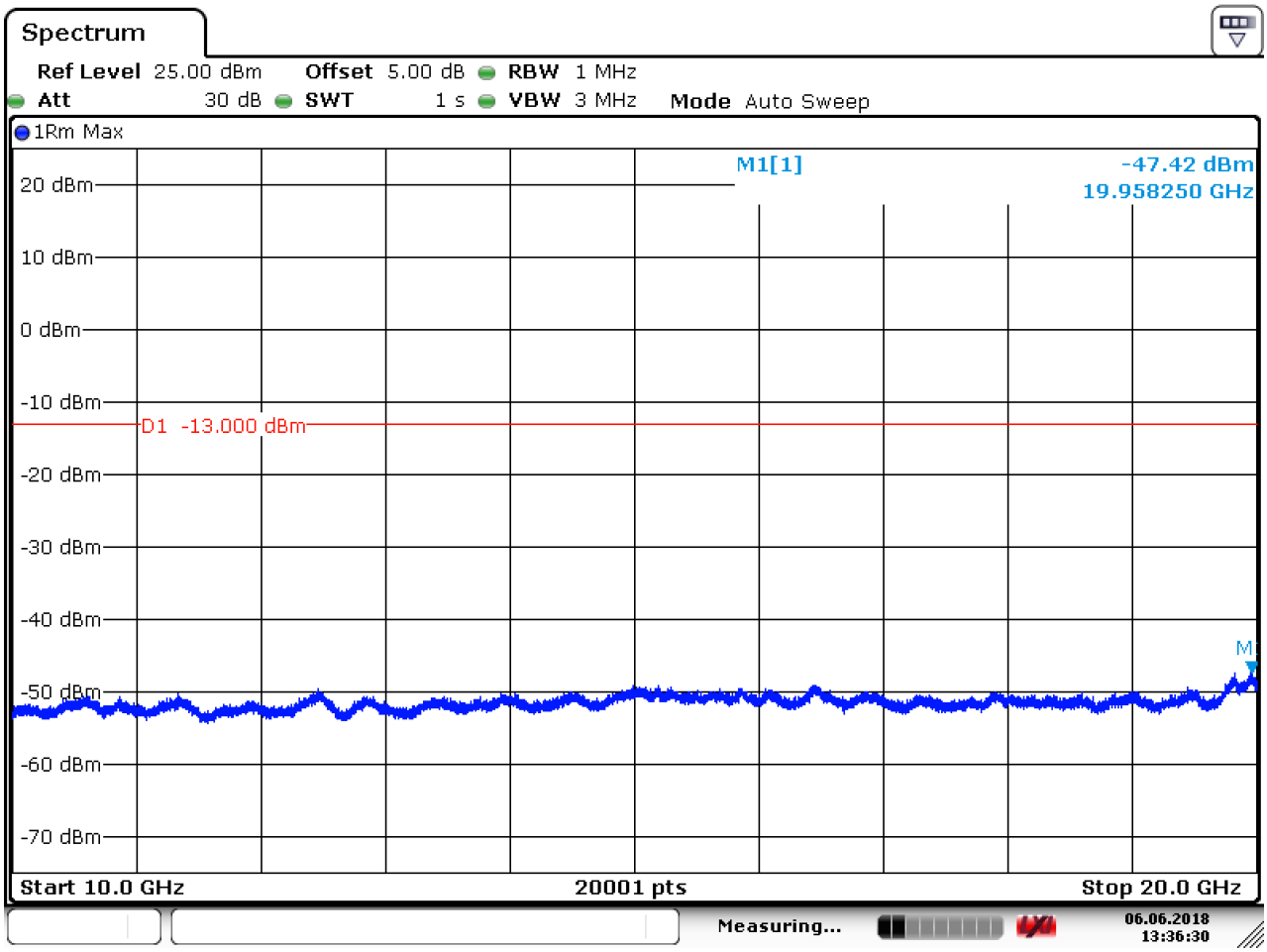
6.1.1.1.3 Test Channel = HCH



Date: 6.JUN.2018 13:34:11



Date: 6.JUN.2018 13:36:09

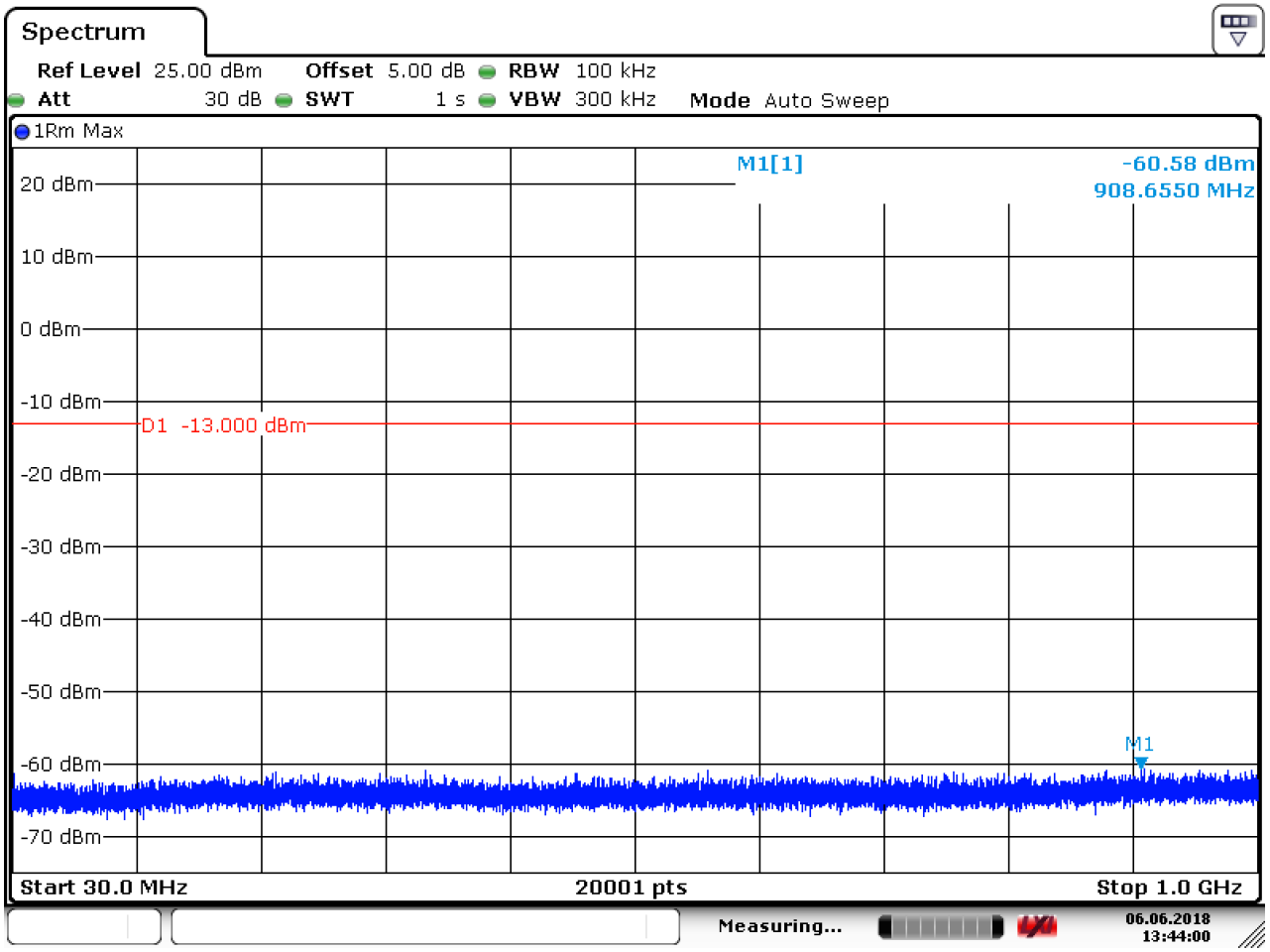


Date: 6.JUN.2018 13:36:30

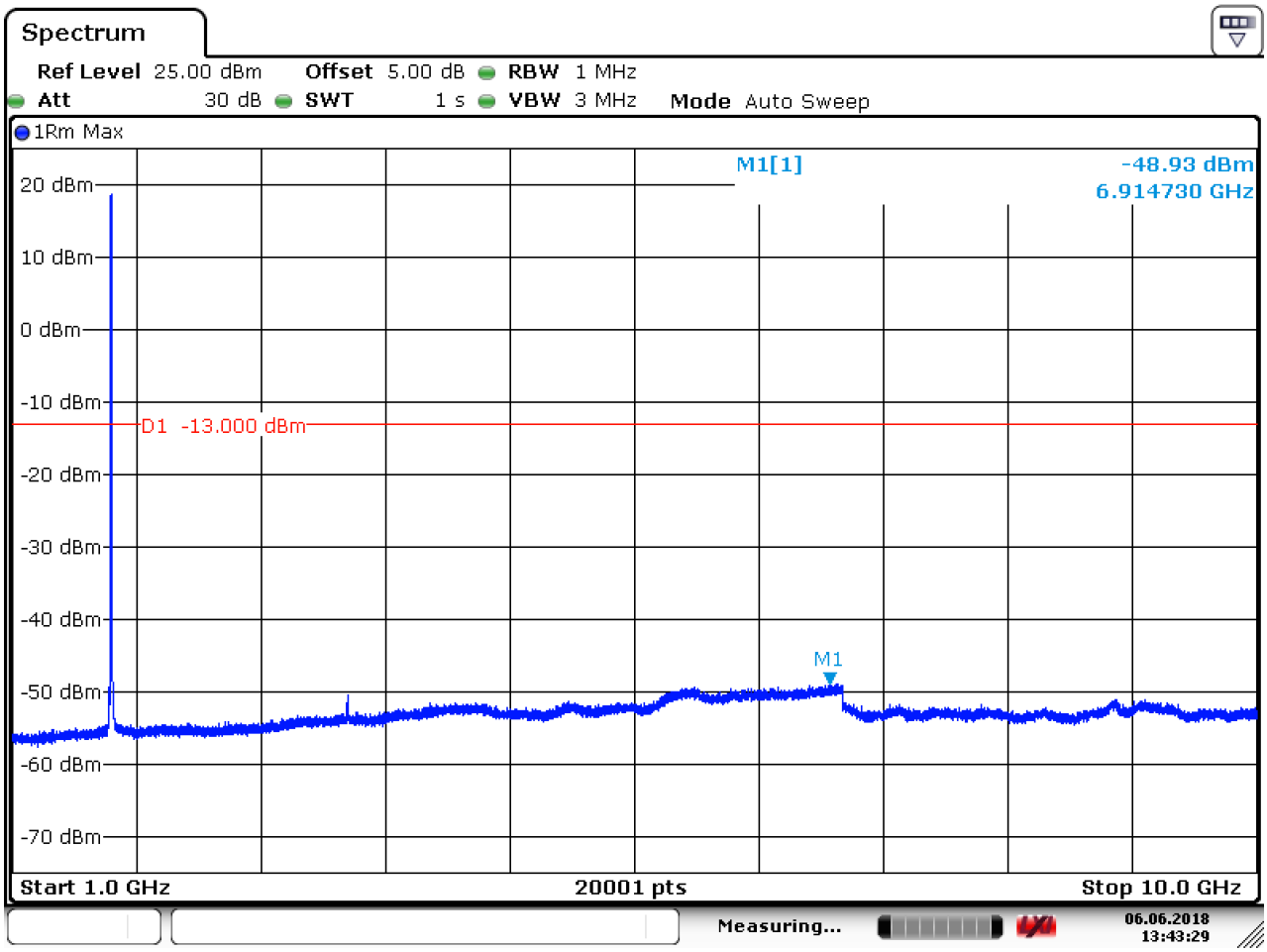
6.1.2 Test Band = WCDMA 1700

6.1.2.1 Test Mode = UMTS/TM1

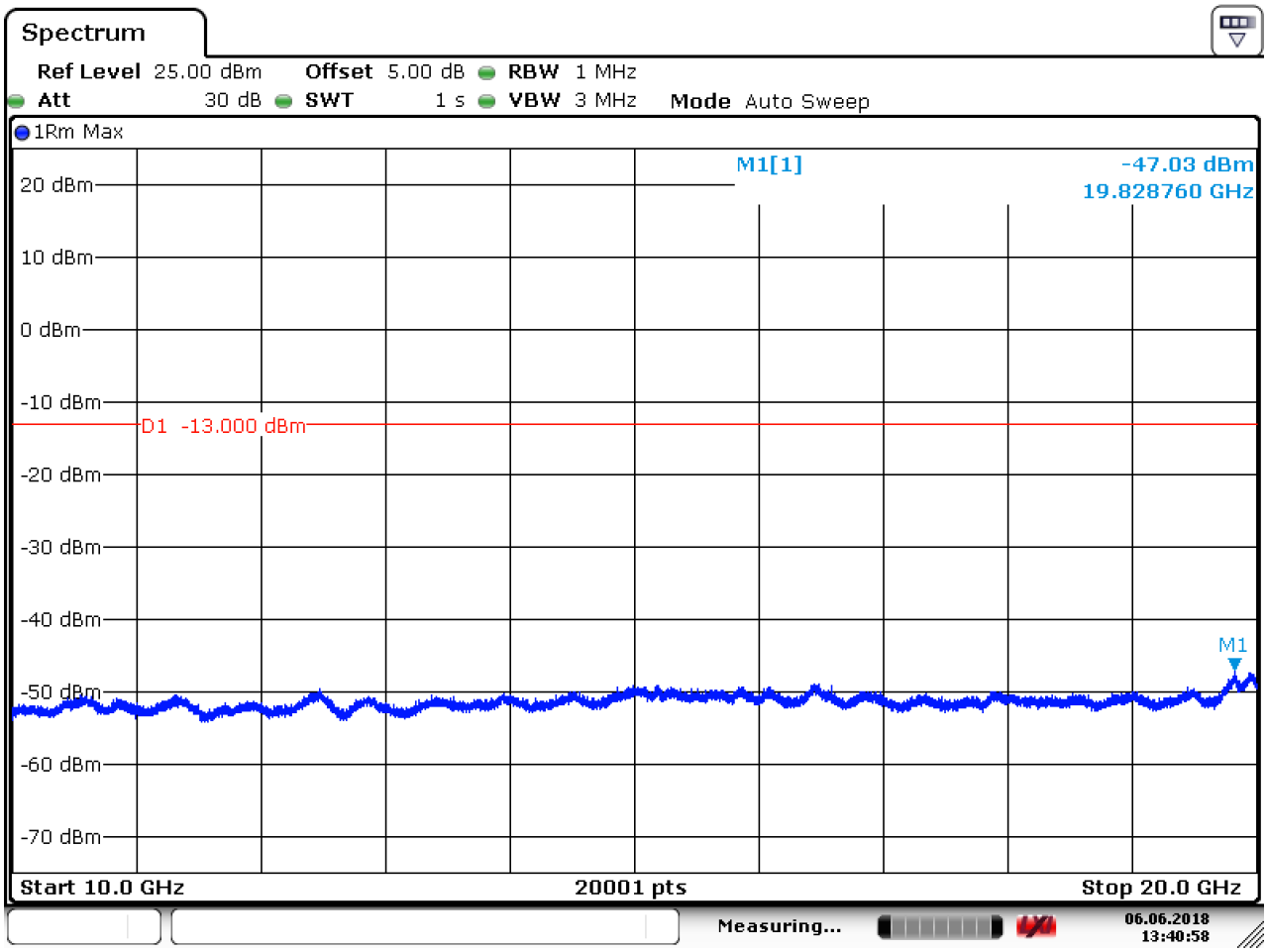
6.1.2.1.1 Test Channel = LCH



Date: 6.JUN.2018 13:44:00

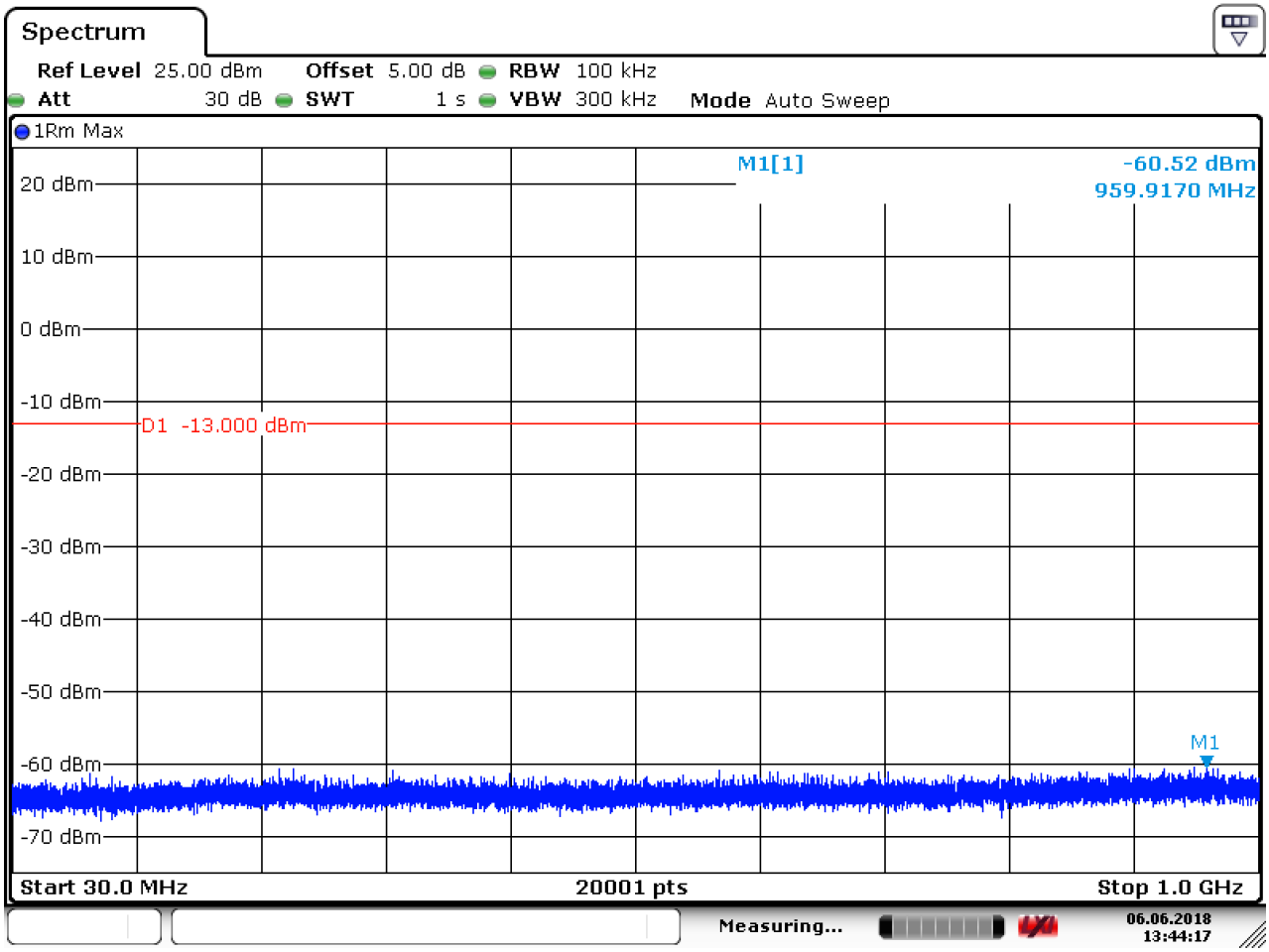


Date: 6.JUN.2018 13:43:29

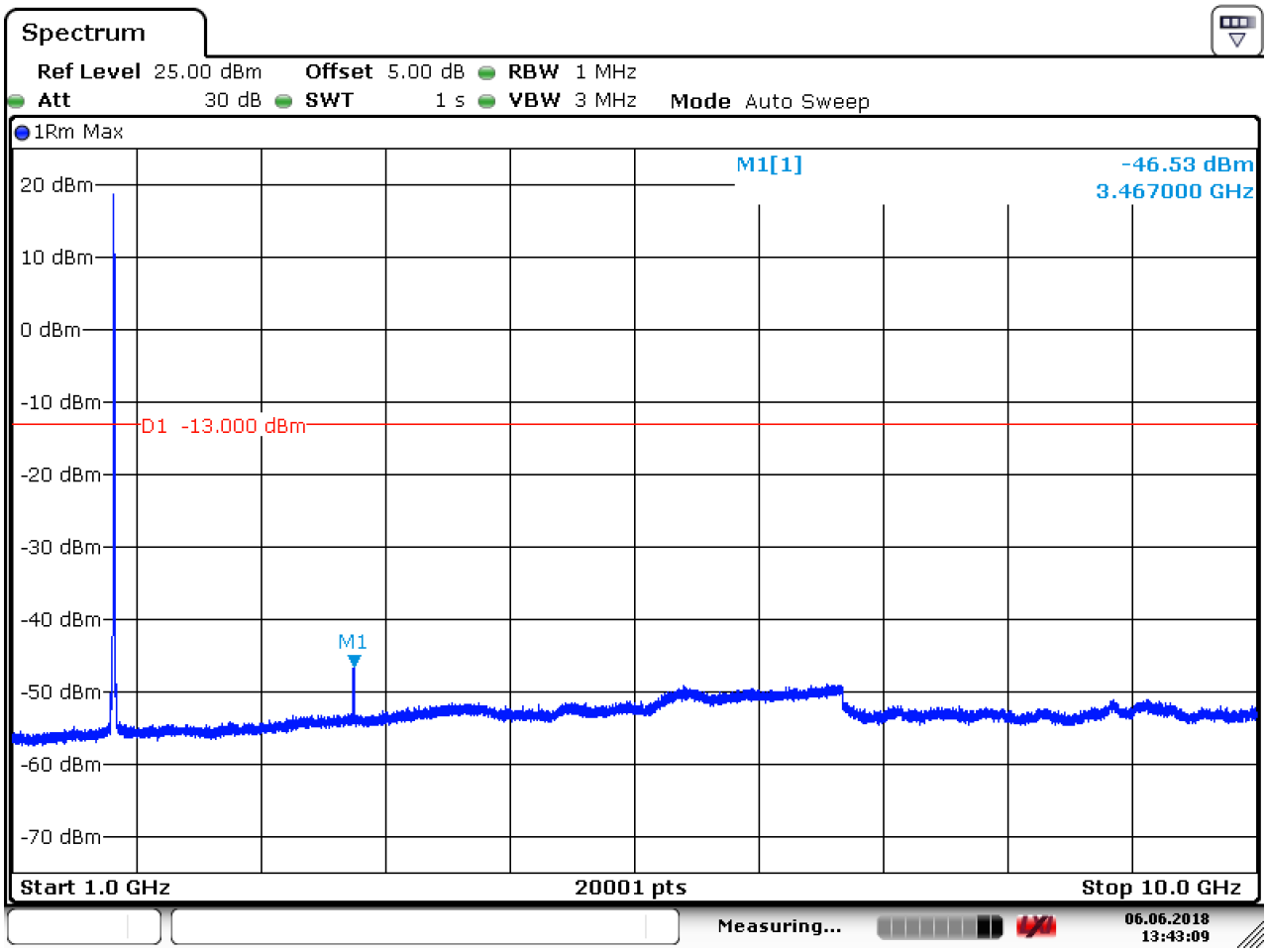


Date: 6.JUN.2018 13:40:58

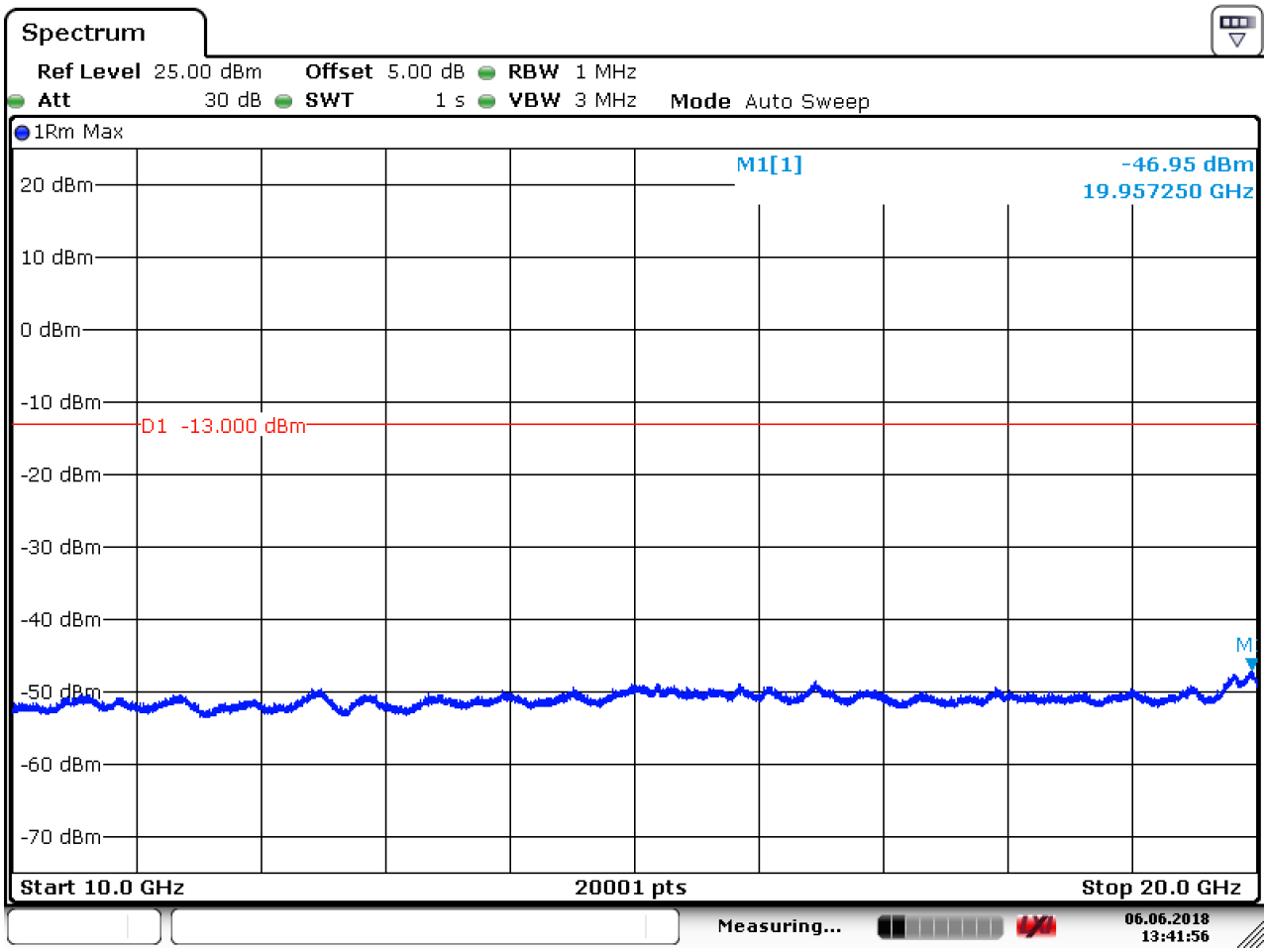
6.1.2.1.2 Test Channel = MCH



Date: 6.JUN.2018 13:44:18

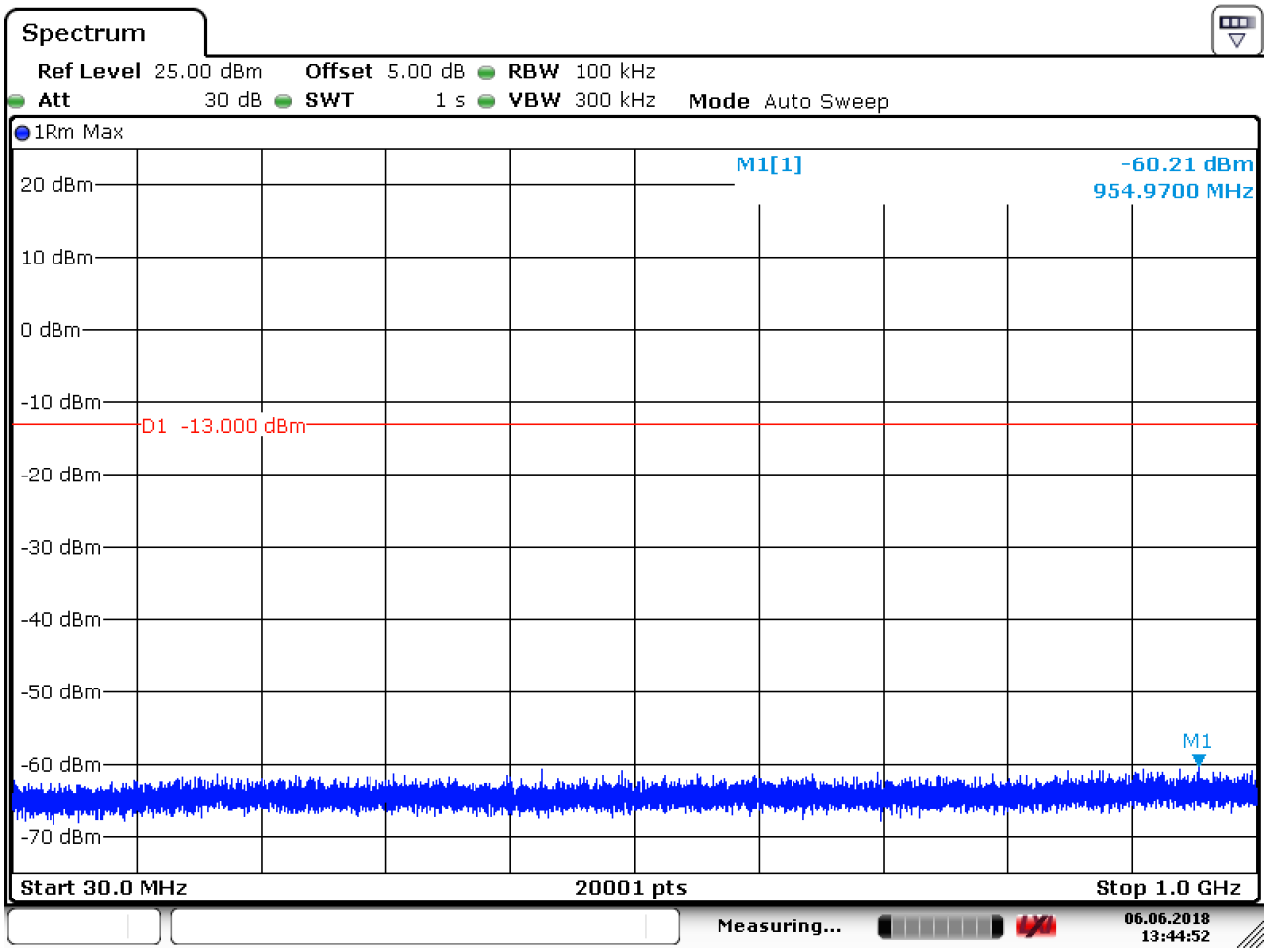


Date: 6.JUN.2018 13:43:09

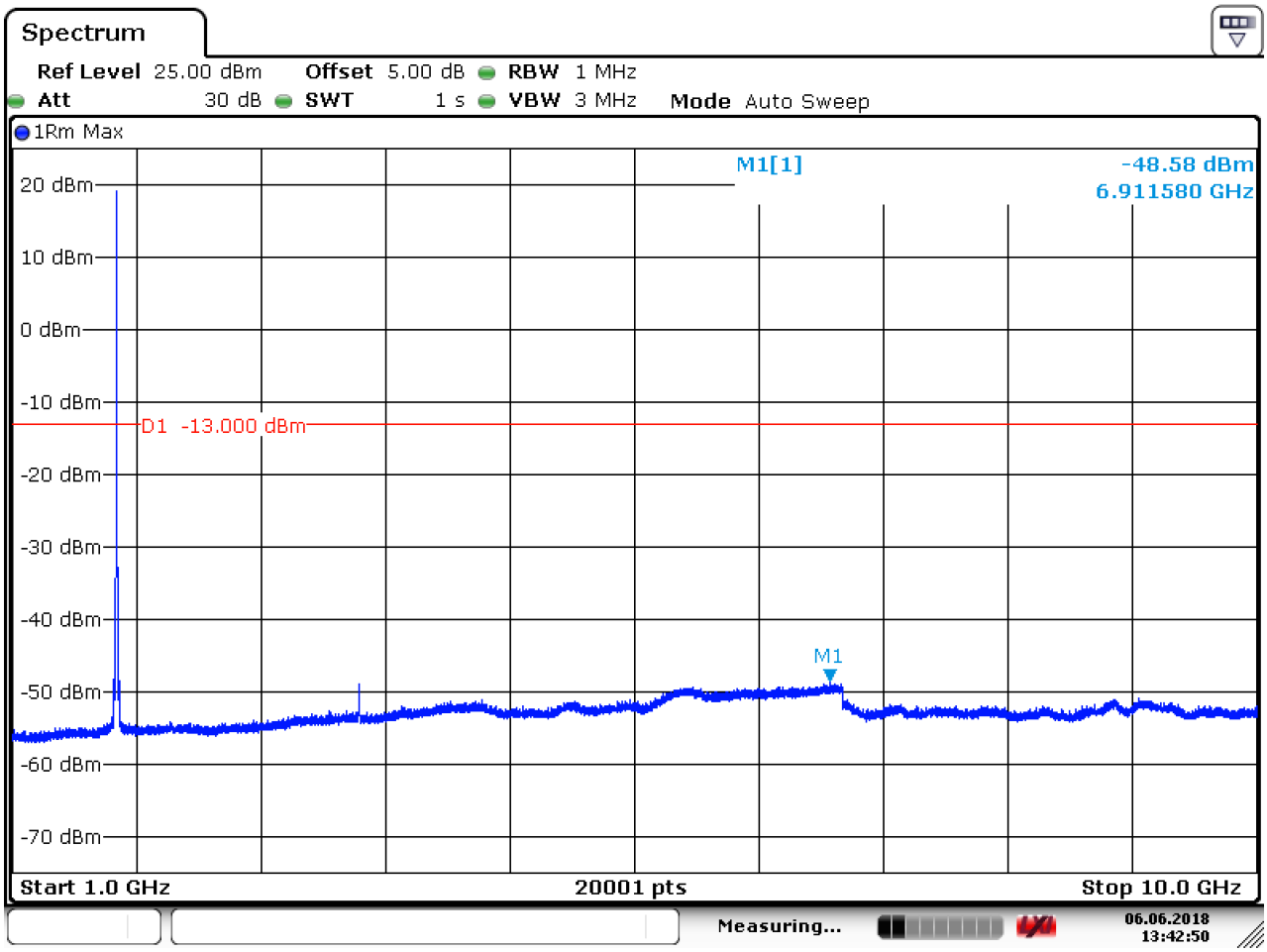


Date: 6.JUN.2018 13:41:56

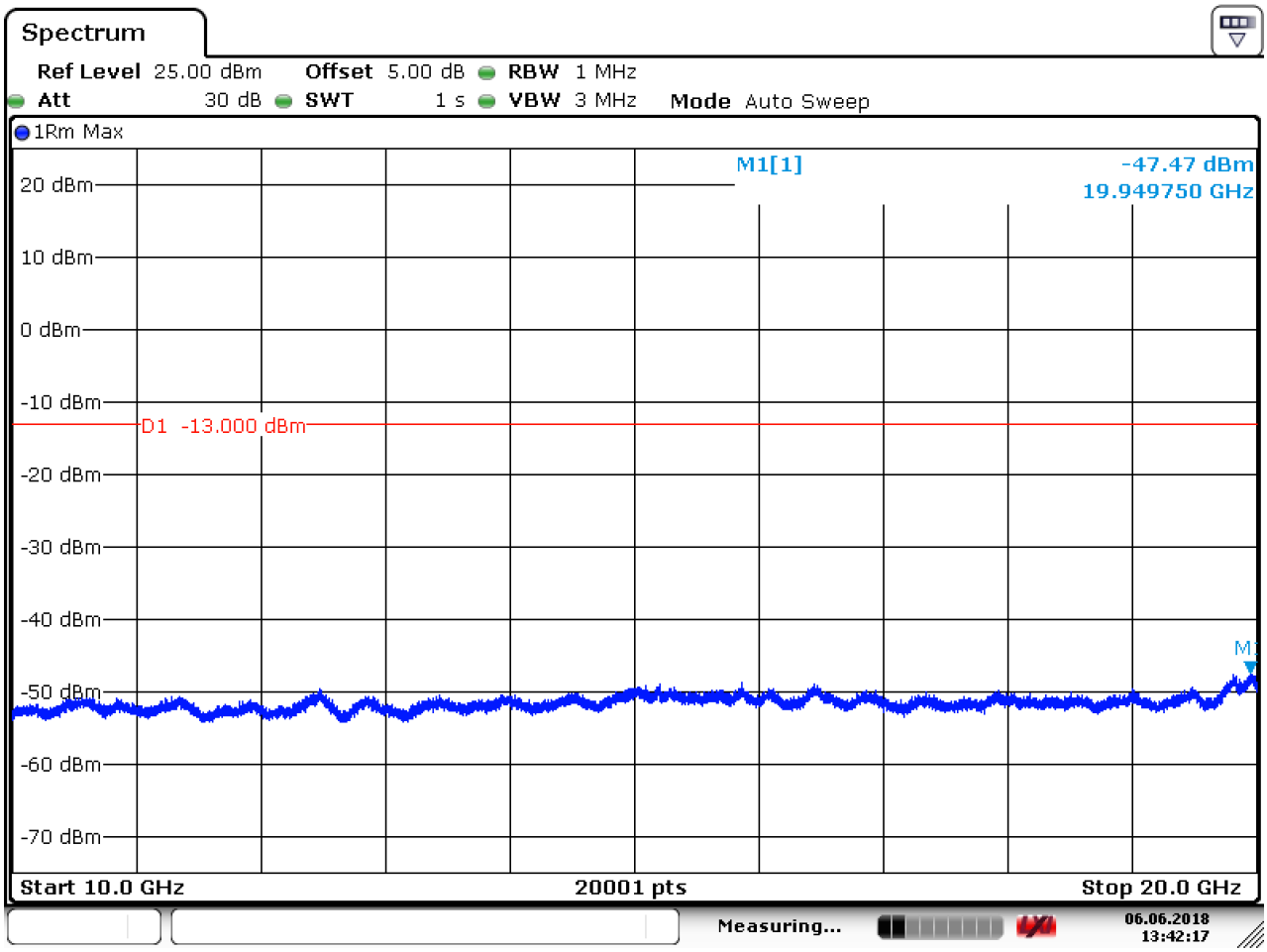
6.1.2.1.3 Test Channel = HCH



Date: 6.JUN.2018 13:44:53



Date: 6.JUN.2018 13:42:51

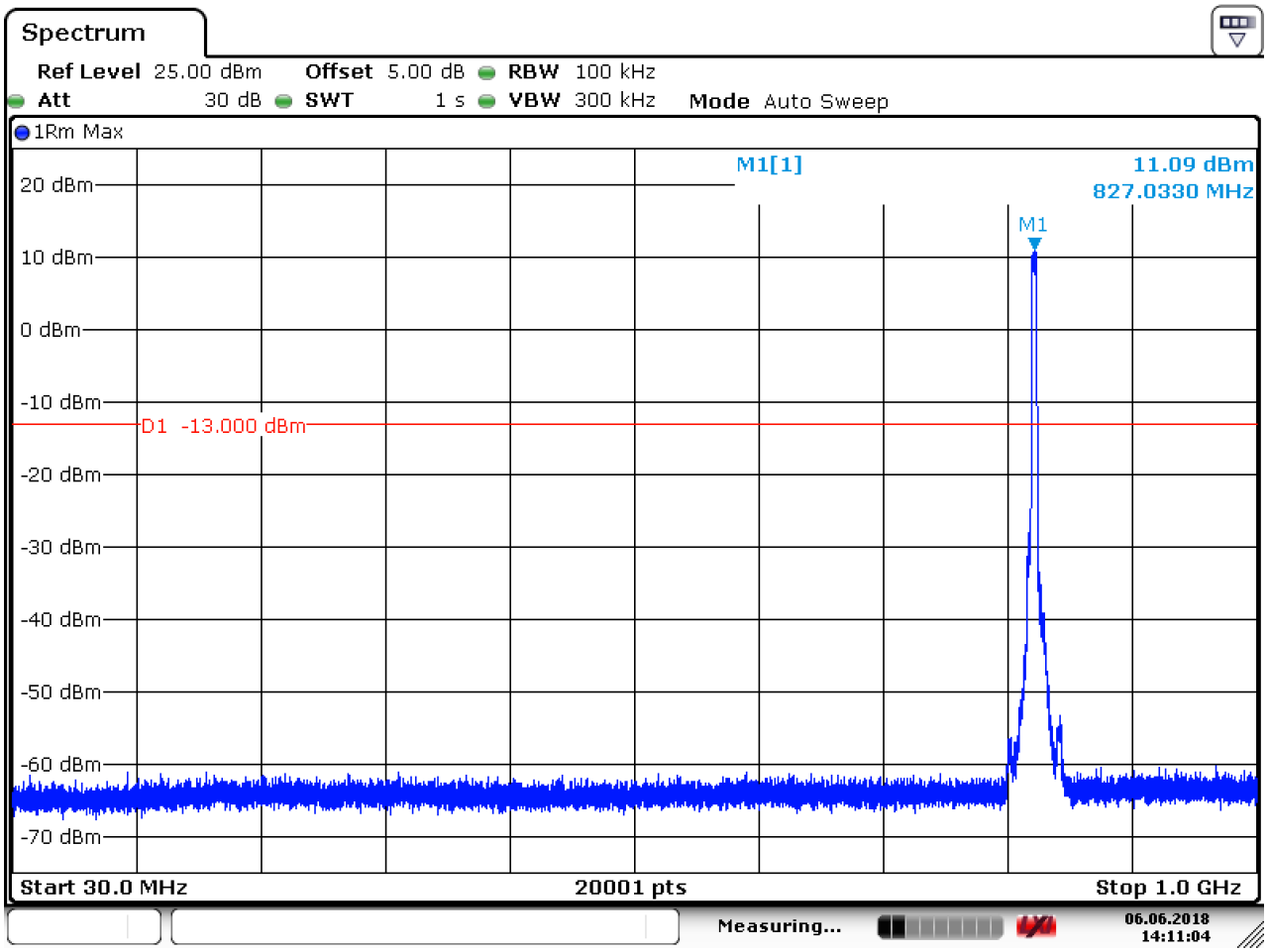


Date: 6.JUN.2018 13:42:17

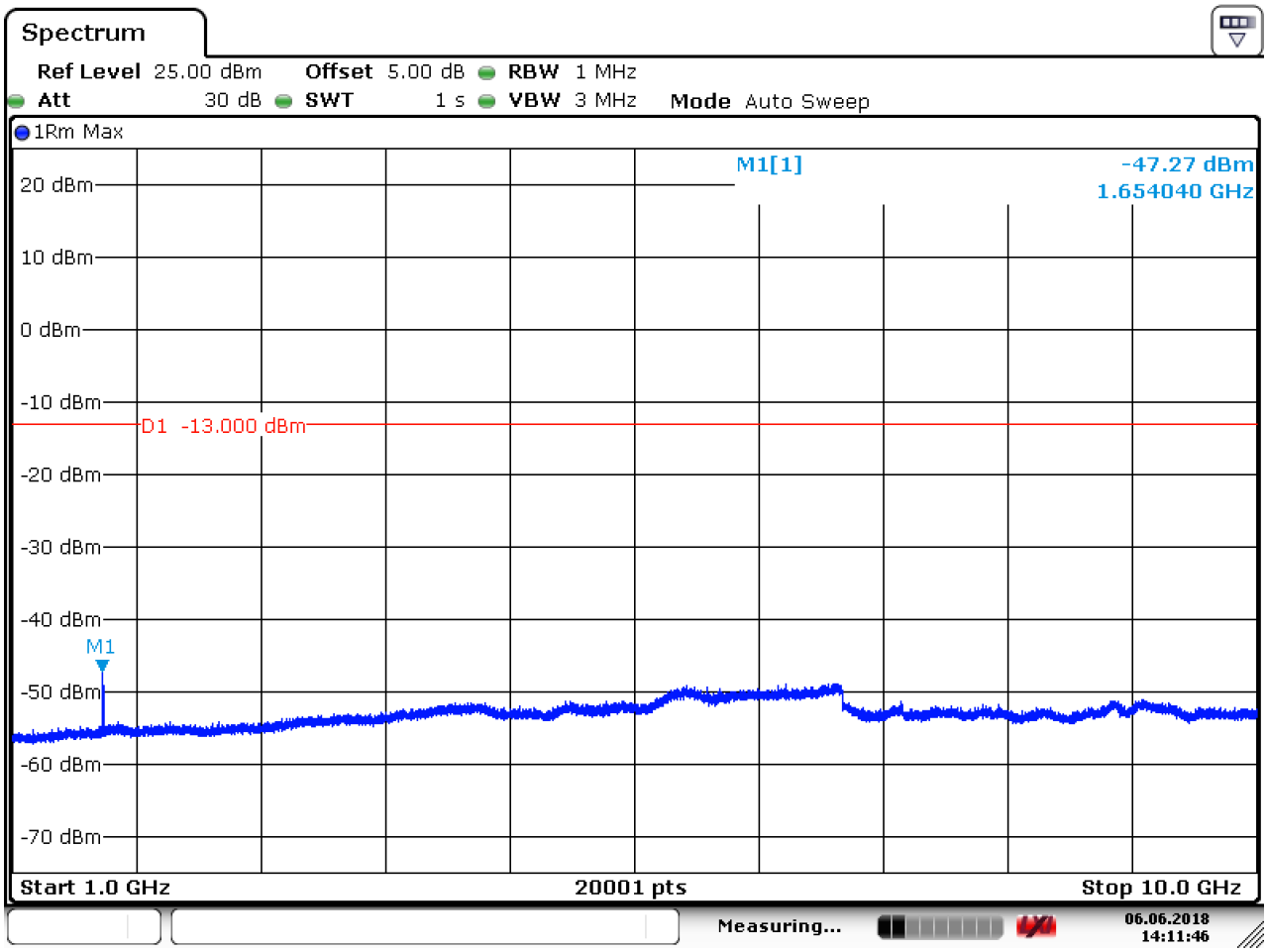
6.1.3 Test Band = WCDMA 850

6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH

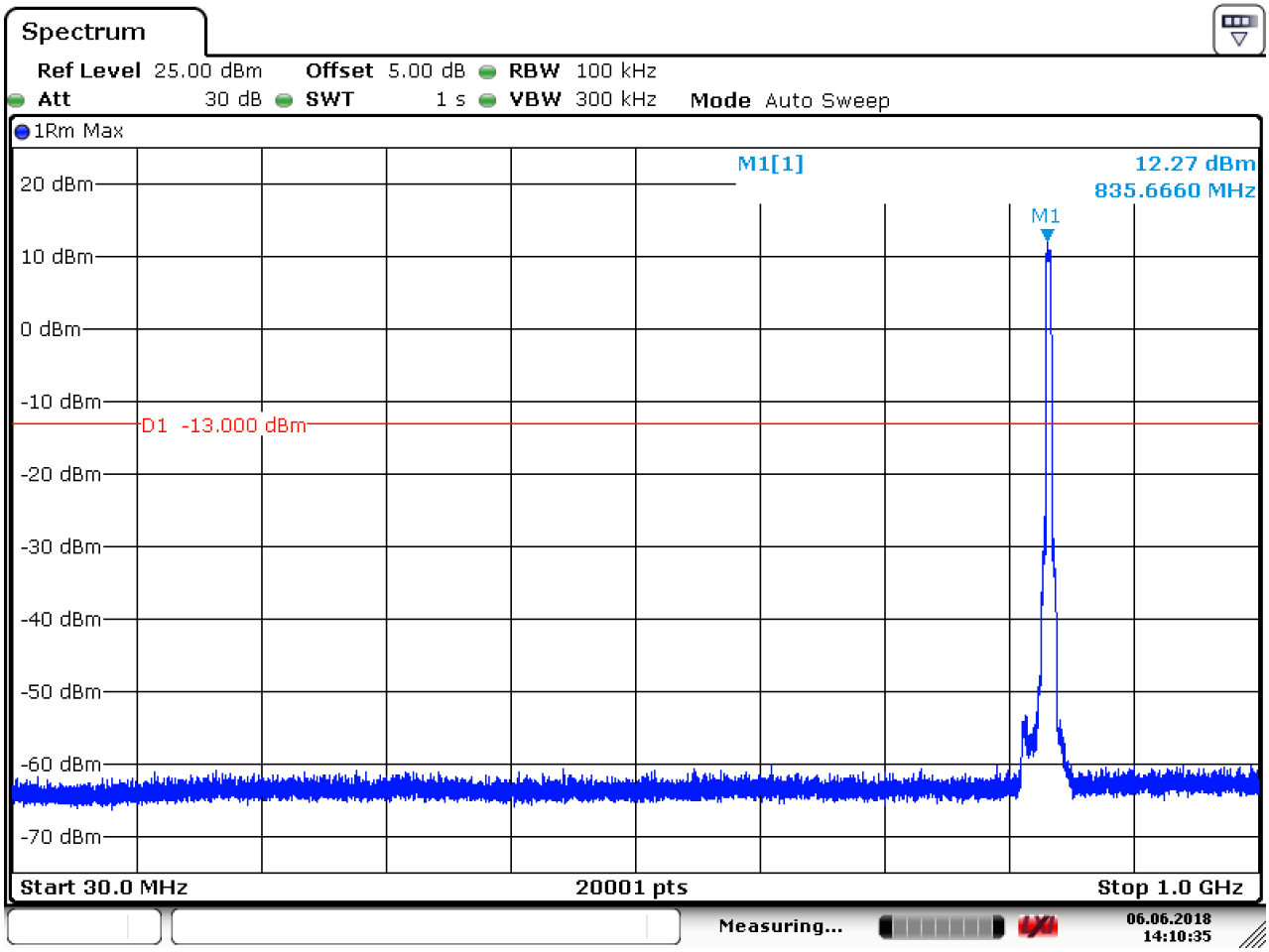


Date: 6.JUN.2018 14:11:04

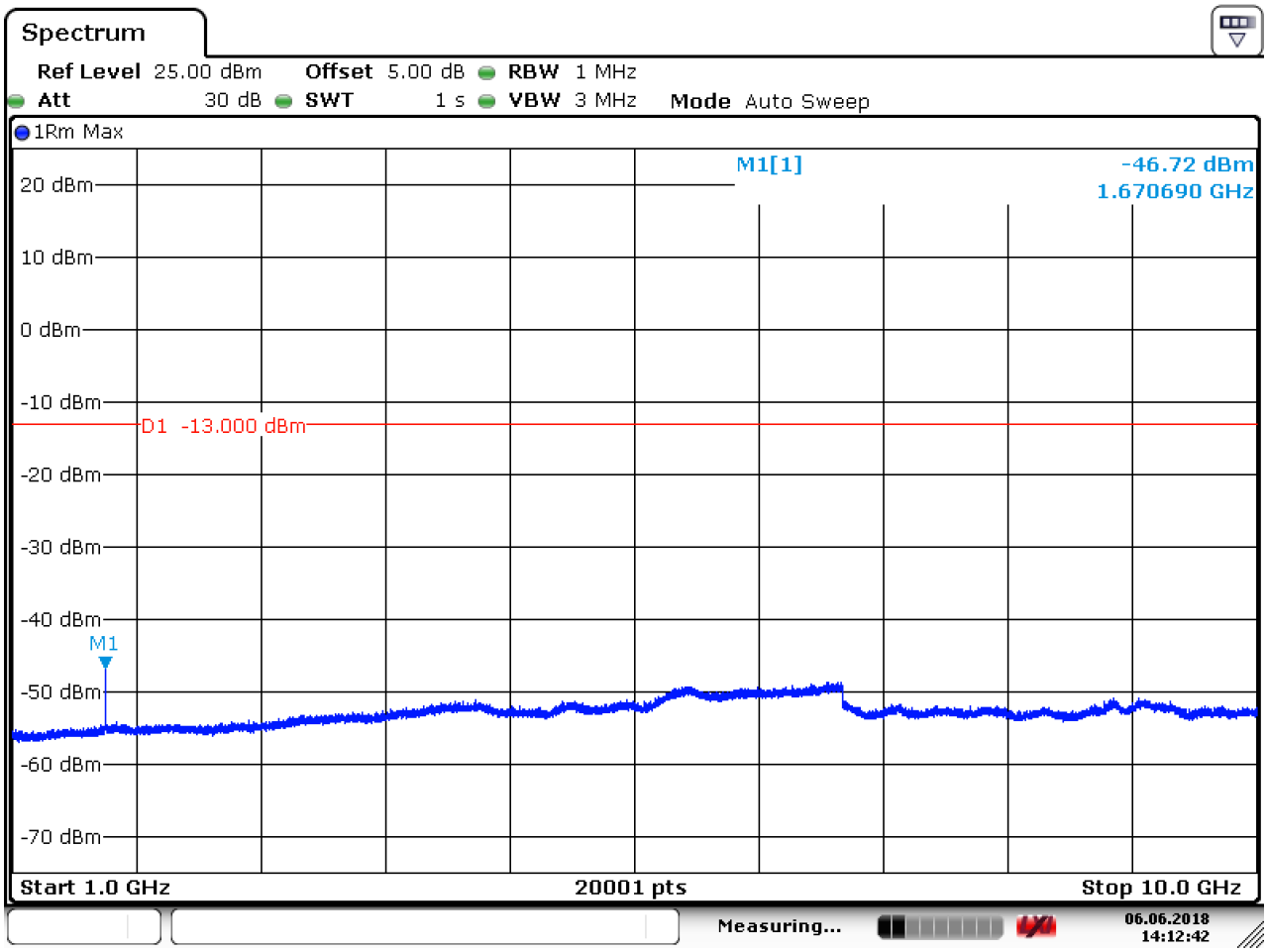


Date: 6.JUN.2018 14:11:47

6.1.3.1.2 Test Channel = MCH

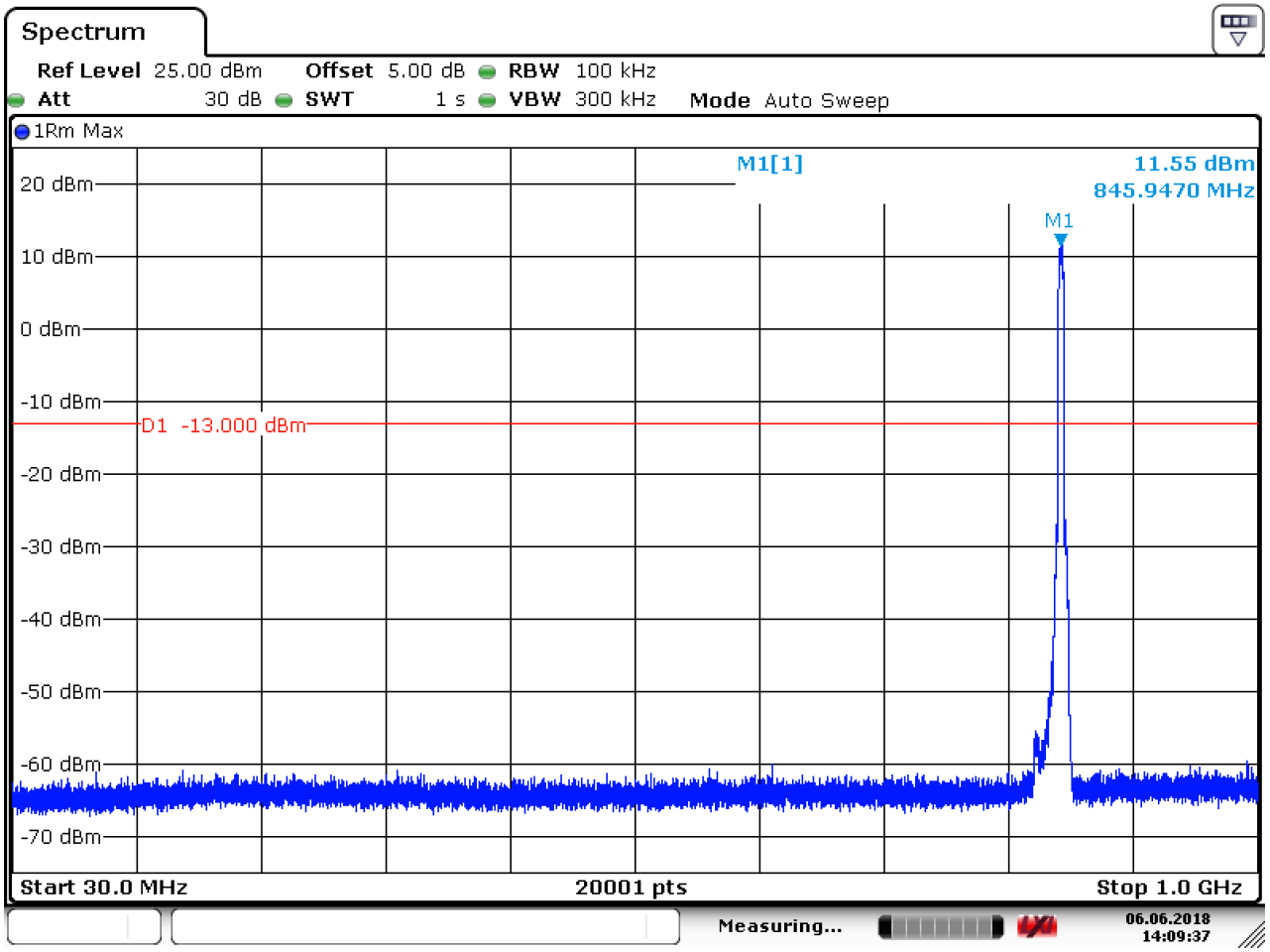


Date: 6.JUN.2018 14:10:36



Date: 6.JUN.2018 14:12:42

6.1.3.1.3 Test Channel = HCH



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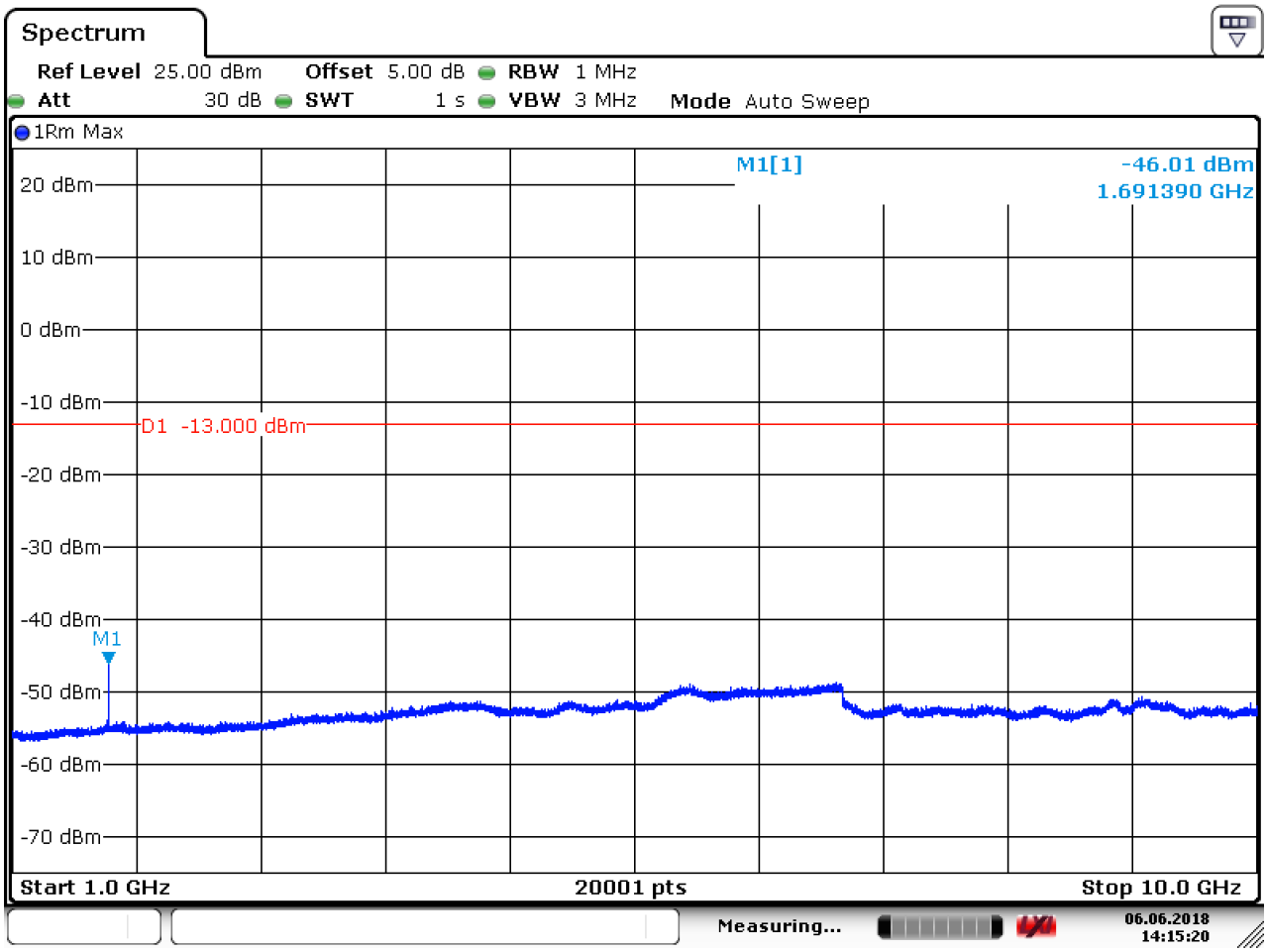

Date: 6.JUN.2018 14:15:21

7 Field Strength of Spurious Radiation

Part I - Test Plots

7.1 For WCDMA

7.1.1 Test Band = WCDMA 1900

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.300000	-81.71	-13.00	68.71	Vertical
142.750000	-83.30	-13.00	70.30	Vertical
180.550000	-80.39	-13.00	67.39	Vertical
2653.500000	-57.58	-13.00	44.58	Vertical
3704.437500	-66.28	-13.00	53.28	Vertical
6055.650000	-64.97	-13.00	51.97	Vertical
62.400000	-77.72	-13.00	64.72	Horizontal
179.750000	-71.85	-13.00	58.85	Horizontal
620.454167	-79.43	-13.00	66.43	Horizontal
1504.000000	-57.29	-13.00	44.29	Horizontal
3704.437500	-63.59	-13.00	50.59	Horizontal
7820.400000	-63.95	-13.00	50.95	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
63.350000	-81.88	-13.00	68.88	Vertical
131.400000	-82.87	-13.00	69.87	Vertical
178.650000	-81.35	-13.00	68.35	Vertical
1210.000000	-61.51	-13.00	48.51	Vertical
3759.525000	-65.54	-13.00	52.54	Vertical
9287.287500	-63.43	-13.00	50.43	Vertical
63.300000	-78.06	-13.00	65.06	Horizontal
182.500000	-71.53	-13.00	58.53	Horizontal
620.270833	-80.17	-13.00	67.17	Horizontal
1210.000000	-62.26	-13.00	49.26	Horizontal
3759.525000	-62.32	-13.00	49.32	Horizontal
9258.525000	-63.39	-13.00	50.39	Horizontal

7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.250000	-81.61	-13.00	68.61	Vertical
141.900000	-83.91	-13.00	70.91	Vertical
181.700000	-82.45	-13.00	69.45	Vertical
1279.500000	-61.56	-13.00	48.56	Vertical
3815.100000	-63.90	-13.00	50.90	Vertical
6480.262500	-64.72	-13.00	51.72	Vertical
62.150000	-77.62	-13.00	64.62	Horizontal
181.600000	-72.68	-13.00	59.68	Horizontal
621.554167	-79.85	-13.00	66.85	Horizontal
1462.500000	-61.03	-13.00	48.03	Horizontal
3815.100000	-65.57	-13.00	52.57	Horizontal
7852.575000	-63.69	-13.00	50.69	Horizontal

7.1.2 Test Band = WCDMAband 1700

7.1.2.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.700000	-81.66	-13.00	68.66	Vertical
141.850000	-82.89	-13.00	69.89	Vertical
176.850000	-82.06	-13.00	69.06	Vertical
3426.562500	-66.24	-13.00	53.24	Vertical
6053.212500	-64.99	-13.00	51.99	Vertical
9277.537500	-63.38	-13.00	50.38	Vertical
61.900000	-78.51	-13.00	65.51	Horizontal
185.400000	-72.14	-13.00	59.14	Horizontal
621.554167	-79.47	-13.00	66.47	Horizontal
1364.500000	-52.79	-13.00	39.79	Horizontal
3426.562500	-59.65	-13.00	46.65	Horizontal
5140.125000	-66.00	-13.00	53.00	Horizontal

7.1.2.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.200000	-81.73	-13.00	68.73	Vertical
139.050000	-82.21	-13.00	69.21	Vertical
179.700000	-80.70	-13.00	67.70	Vertical
1383.500000	-61.78	-13.00	48.78	Vertical
3463.125000	-64.95	-13.00	51.95	Vertical
7803.825000	-63.91	-13.00	50.91	Vertical
63.350000	-77.75	-13.00	64.75	Horizontal
183.500000	-71.28	-13.00	58.28	Horizontal
1384.000000	-53.14	-13.00	40.14	Horizontal
3463.125000	-55.99	-13.00	42.99	Horizontal
5007.037500	-66.34	-13.00	53.34	Horizontal
7939.837500	-63.61	-13.00	50.61	Horizontal

7.1.2.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.650000	-81.40	-13.00	68.40	Vertical
132.500000	-83.41	-13.00	70.41	Vertical
178.900000	-82.21	-13.00	69.21	Vertical
1403.000000	-61.73	-13.00	48.73	Vertical
3505.050000	-65.38	-13.00	52.38	Vertical
7866.225000	-63.61	-13.00	50.61	Vertical
62.900000	-77.95	-13.00	64.95	Horizontal
182.700000	-73.89	-13.00	60.89	Horizontal
620.958333	-79.87	-13.00	66.87	Horizontal
1403.500000	-55.25	-13.00	42.25	Horizontal
3507.000000	-58.66	-13.00	45.66	Horizontal
7962.262500	-63.57	-13.00	50.57	Horizontal

7.1.3 Test Band = WCDMA band 850

7.1.3.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
64.100000	-81.76	-13.00	68.76	Vertical
179.000000	-83.22	-13.00	70.22	Vertical
1654.500000	-64.83	-13.00	51.83	Vertical
3305.175000	-67.96	-13.00	54.96	Vertical
3485.550000	-63.30	-13.00	50.30	Vertical
7833.562500	-63.86	-13.00	50.86	Vertical
62.150000	-77.98	-13.00	64.98	Horizontal
185.600000	-74.11	-13.00	61.11	Horizontal
1651.000000	-64.37	-13.00	51.37	Horizontal
3305.175000	-66.90	-13.00	53.90	Horizontal
3485.550000	-60.14	-13.00	47.14	Horizontal
7950.562500	-63.62	-13.00	50.62	Horizontal

7.1.3.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
65.150000	-80.97	-13.00	67.97	Vertical
141.050000	-83.89	-13.00	70.89	Vertical
178.000000	-82.95	-13.00	69.95	Vertical
1671.000000	-64.84	-13.00	51.84	Vertical
3525.525000	-66.09	-13.00	53.09	Vertical
8000.287500	-63.62	-13.00	50.62	Vertical
62.900000	-77.56	-13.00	64.56	Horizontal
184.600000	-73.09	-13.00	60.09	Horizontal
1671.000000	-64.28	-13.00	51.28	Horizontal
3345.637500	-68.64	-13.00	55.64	Horizontal
3525.525000	-66.66	-13.00	53.66	Horizontal
7937.887500	-63.60	-13.00	50.60	Horizontal

7.1.3.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
65.350000	-82.02	-13.00	69.02	Vertical
139.100000	-83.31	-13.00	70.31	Vertical
185.500000	-82.59	-13.00	69.59	Vertical
1695.000000	-64.25	-13.00	51.25	Vertical
3565.987500	-66.38	-13.00	53.38	Vertical
7819.912500	-63.92	-13.00	50.92	Vertical
62.300000	-77.85	-13.00	64.85	Horizontal
182.700000	-73.17	-13.00	60.17	Horizontal
1691.500000	-63.90	-13.00	50.90	Horizontal
3386.100000	-68.94	-13.00	55.94	Horizontal
3565.987500	-67.68	-13.00	54.68	Horizontal
7962.262500	-63.59	-13.00	50.59	Horizontal

NOTE:

1) The disturbance above 13GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

2) We have tested all modulation and channels, but only the worst case data was displayed in this report.

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	3.81	0.00205	PASS
				VN	-9.18	-0.00495	PASS
				VH	6.75	0.00365	PASS
		MCH	TN	VL	-8.53	-0.00453	PASS
				VN	-1.83	-0.00097	PASS
				VH	-9.38	-0.00499	PASS
		HCH	TN	VL	2.95	0.00155	PASS
				VN	-7.44	-0.00390	PASS
				VH	5.09	0.00267	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	1.58	0.00092	PASS
				VN	-8.12	-0.00472	PASS
				VH	-9.00	-0.00523	PASS
		MCH	TN	VL	-6.35	-0.00366	PASS
				VN	5.45	0.00315	PASS
				VH	8.84	0.00510	PASS
		HCH	TN	VL	5.47	0.00313	PASS
				VN	4.56	0.00261	PASS
				VH	-5.61	-0.00322	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA 850	UMTS/TM1	LCH	TN	VL	-7.77	-0.00940	PASS
				VN	5.32	0.00644	PASS
				VH	8.44	0.01022	PASS
		MCH	TN	VL	3.26	0.00390	PASS
				VN	-9.62	-0.01150	PASS
				VH	-9.94	-0.01188	PASS
		HCH	TN	VL	7.68	0.00907	PASS
				VN	-5.27	-0.00623	PASS
				VH	-0.42	-0.00049	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	-3.76	-0.00203	PASS
				-20	-6.69	-0.00361	PASS
				-10	-4.32	-0.00233	PASS
				0	9.76	0.00527	PASS
				10	1.90	0.00103	PASS
				20	7.99	0.00431	PASS
				30	7.08	0.00382	PASS
				40	0.41	0.00022	PASS
				50	-3.86	-0.00209	PASS
		MCH	VN	-30	-0.14	-0.00007	PASS
				-20	0.92	0.00049	PASS
				-10	-4.38	-0.00233	PASS
				0	-5.02	-0.00267	PASS
				10	-9.51	-0.00506	PASS
				20	-8.78	-0.00467	PASS
				30	3.22	0.00172	PASS
				40	5.27	0.00280	PASS
				50	-6.59	-0.00351	PASS
		HCH	VN	-30	2.00	0.00105	PASS
				-20	7.95	0.00417	PASS
				-10	0.70	0.00036	PASS
				0	-4.75	-0.00249	PASS
				10	5.29	0.00277	PASS
				20	-2.17	-0.00114	PASS
				30	-2.47	-0.00129	PASS
				40	-1.19	-0.00062	PASS
				50	-6.31	-0.00331	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	4.22	0.00245	PASS
				-20	-8.58	-0.00499	PASS
				-10	3.74	0.00217	PASS
				0	-1.96	-0.00114	PASS
				10	-7.04	-0.00409	PASS
				20	-1.48	-0.00086	PASS
				30	-8.04	-0.00467	PASS
				40	2.30	0.00133	PASS
				50	-8.05	-0.00468	PASS
		MCH	VN	-30	5.32	0.00307	PASS
				-20	7.47	0.00431	PASS
				-10	0.87	0.00050	PASS
				0	-7.98	-0.00460	PASS
				10	-3.09	-0.00178	PASS
				20	-4.19	-0.00242	PASS
				30	-7.75	-0.00447	PASS
				40	8.58	0.00495	PASS
				50	-7.53	-0.00434	PASS
		HCH	VN	-30	8.05	0.00461	PASS
				-20	-3.13	-0.00179	PASS
				-10	-9.62	-0.00551	PASS
				0	4.41	0.00253	PASS
				10	0.91	0.00052	PASS
				20	5.84	0.00335	PASS
				30	9.95	0.00570	PASS
				40	4.71	0.00270	PASS
				50	-0.27	-0.00016	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA 850	UMTS/TM1	LCH	VN	-30	6.07	0.00734	PASS
				-20	2.99	0.00362	PASS
				-10	-6.73	-0.00815	PASS
				0	-7.42	-0.00898	PASS
				10	-4.43	-0.00536	PASS
				20	-3.23	-0.00391	PASS
				30	-1.81	-0.00219	PASS
				40	-9.81	-0.01187	PASS
				50	-0.71	-0.00086	PASS
		MCH	VN	-30	8.58	0.01026	PASS
				-20	-5.81	-0.00695	PASS
				-10	-0.88	-0.00106	PASS
				0	-1.79	-0.00214	PASS
				10	-0.48	-0.00057	PASS
				20	5.70	0.00681	PASS
				30	9.50	0.01136	PASS
				40	-5.78	-0.00691	PASS
				50	3.89	0.00466	PASS
		HCH	VN	-30	9.96	0.01177	PASS
				-20	8.15	0.00962	PASS
				-10	1.49	0.00176	PASS
				0	-5.63	-0.00666	PASS
				10	-8.00	-0.00945	PASS
				20	-4.71	-0.00556	PASS
				30	-4.24	-0.00500	PASS
				40	0.61	0.00072	PASS
				50	9.99	0.01180	PASS

The End