Appendix B

Test Data of GSM & WCDMA

CONTENT

1 Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	ERP[dB]	Limit[dBm]	Verdict
GSM 850	GSM(CS)	LCH	32.58	32.83	38.45	PASS
		MCH	32.56	32.69	38.45	PASS
		HCH	32.55	32.78	38.45	PASS
	GPRS (GMSK) 1 Tx Slot	LCH	32.02	32.05	38.45	PASS
		MCH	32.05	32.01	38.45	PASS
		HCH	32.04	32.09	38.45	PASS
	GPRS (GMSK) 2 Tx Slots	LCH	31.18	31.12	38.45	PASS
		MCH	31.25	31.22	38.45	PASS
		HCH	31.34	31.36	38.45	PASS
	GPRS (GMSK) 3 Tx Slots	LCH	30.22	30.21	38.45	PASS
		MCH	30.28	30.26	38.45	PASS
		HCH	30.27	30.25	38.45	PASS
	GPRS (GMSK) 4 Tx Slots	LCH	29.63	29.64	38.45	PASS
		MCH	29.68	29.63	38.45	PASS
		HCH	29.70	29.31	38.45	PASS
	EGPRS (8-PSK) 1 Tx Slot	LCH	29.28	29.24	38.45	PASS
		MCH	29.25	29.23	38.45	PASS
		HCH	29.35	29.30	38.45	PASS
	EGPRS (8-PSK) 2 Tx Slots	LCH	28.15	28.08	38.45	PASS
		MCH	28.13	28.13	38.45	PASS
		HCH	28.12	28.10	38.45	PASS
	EGPRS (8-PSK) 3 Tx Slots	LCH	27.32	27.47	38.45	PASS
		MCH	27.37	27.23	38.45	PASS
		HCH	27.32	27.25	38.45	PASS
	EGPRS (8-PSK) 4 Tx Slots	LCH	26.32	26.24	38.45	PASS
		MCH	26.25	26.21	38.45	PASS
		HCH	26.34	26.38	38.45	PASS

Note:

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

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

b: SGP=Signal Generator Level

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

Test Band	Test Mode	Test Channel	Measured[dB]	EIRP[dB]	Limit[dBm]	Verdict
GSM 1900	GSM(CS)	LCH	29.43	30.02	33	PASS
		MCH	29.97	29.99	33	PASS
		HCH	29.87	29.93	33	PASS
	GPRS (GMSK) 1 Tx Slot	LCH	28.78	28.83	33	PASS
		MCH	29.32	29.35	33	PASS
		HCH	29.39	29.31	33	PASS
	GPRS (GMSK) 2 Tx Slots	LCH	27.56	27.73	33	PASS
		MCH	28.52	28.58	33	PASS
		HCH	28.26	28.29	33	PASS
	GPRS (GMSK) 3 Tx Slots	LCH	27.28	27.26	33	PASS
		MCH	27.39	27.38	33	PASS
		HCH	27.35	27.32	33	PASS
	GPRS (GMSK) 4 Tx Slots	LCH	26.81	26.88	33	PASS
		MCH	26.76	26.83	33	PASS
		HCH	26.73	26.72	33	PASS
	EGPRS (8-PSK) 1 Tx Slot	LCH	28.96	28.93	33	PASS
		MCH	28.94	28.99	33	PASS
		HCH	28.95	28.86	33	PASS
	EGPRS (8-PSK) 2 Tx Slots	LCH	27.68	27.74	33	PASS
		MCH	27.63	27.66	33	PASS
		HCH	27.61	27.62	33	PASS
	EGPRS (8-PSK) 3 Tx Slots	LCH	26.23	26.21	33	PASS
		MCH	26.28	26.29	33	PASS
		HCH	26.25	26.31	33	PASS
	EGPRS (8-PSK) 4 Tx Slots	LCH	25.18	25.23	33	PASS
		MCH	25.15	25.18	33	PASS
		HCH	25.22	25.29	33	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

WCDMA1900		Conducted Power (dBm)		
		LCH	MCH	HCH
WCDMA	12.2kbps RMC	22.45	22.33	22.35
HSDPA	Subtest 1	21.51	21.59	21.23
	Subtest 2	21.59	21.60	21.51
	Subtest 3	21.59	21.63	21.56
	Subtest 4	21.72	21.51	21.52
HSUPA	Subtest 1	21.70	21.71	21.73
	Subtest 2	21.66	21.62	21.82
	Subtest 3	21.62	21.75	21.83
	Subtest 4	21.60	21.58	21.62
	Subtest 5	21.62	21.69	21.73

WCDMA1900		EIRP[dBm]			Limit[dBm]	Verdict
		LCH	MCH	HCH		
WCDMA	12.2kbps RMC	22.41	22.28	22.31	33	PASS
HSDPA	Subtest 1	21.46	21.56	21.19	33	PASS
	Subtest 2	21.53	21.61	21.47	33	PASS
	Subtest 3	21.54	21.46	21.55	33	PASS
	Subtest 4	21.74	21.52	21.47	33	PASS
HSUPA	Subtest 1	21.42	21.76	21.70	33	PASS
	Subtest 2	21.62	21.54	21.76	33	PASS
	Subtest 3	21.56	21.72	21.81	33	PASS
	Subtest 4	21.61	21.52	21.54	33	PASS
	Subtest 5	21.46	21.63	21.69	33	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

WCDMA850		Conducted Power (dBm)		
		LCH	MCH	HCH
WCDMA	12.2kbps RMC	21.28	21.32	21.38
HSDPA	Subtest 1	21.13	21.20	21.25
	Subtest 2	21.32	21.20	21.35
	Subtest 3	21.32	21.31	21.23
	Subtest 4	20.57	20.64	20.66
HSUPA	Subtest 1	20.72	20.63	20.51
	Subtest 2	21.22	21.25	21.32
	Subtest 3	21.31	21.32	21.25
	Subtest 4	21.53	21.22	21.20
	Subtest 5	21.12	21.15	21.23

WCDMA850		ERP[dBm]			Limit[dBm]	Verdict
		LCH	MCH	HCH		
WCDMA	12.2kbps RMC	21.29	21.36	21.45	38.45	PASS
HSDPA	Subtest 1	21.15	21.22	21.29	38.45	PASS
	Subtest 2	21.37	21.21	21.36	38.45	PASS
	Subtest 3	21.38	21.33	21.27	38.45	PASS
	Subtest 4	20.59	20.67	20.71	38.45	PASS
HSUPA	Subtest 1	20.79	20.65	20.56	38.45	PASS
	Subtest 2	21.28	21.26	21.33	38.45	PASS
	Subtest 3	21.38	21.37	21.23	38.45	PASS
	Subtest 4	21.55	21.26	21.24	38.45	PASS
	Subtest 5	21.16	21.17	21.27	38.45	PASS

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

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

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

2 Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
GSM 850	GSM/TM1	LCH	0.31	13	PASS
		MCH	0.26	13	PASS
		HCH	0.45	13	PASS
	GSM/TM2	LCH	3.14	13	PASS
		MCH	3.12	13	PASS
		HCH	3.17	13	PASS
GSM 1900	GSM/TM1	LCH	0.23	13	PASS
		MCH	0.22	13	PASS
		HCH	0.22	13	PASS
	GSM/TM2	LCH	2.81	13	PASS
		MCH	2.80	13	PASS
		HCH	2.76	13	PASS

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	3.13	13	PASS
		MCH	2.67	13	PASS
		HCH	2.64	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.19	13	PASS
		MCH	3.10	13	PASS
		HCH	3.48	13	PASS

3 Modulation Characteristics

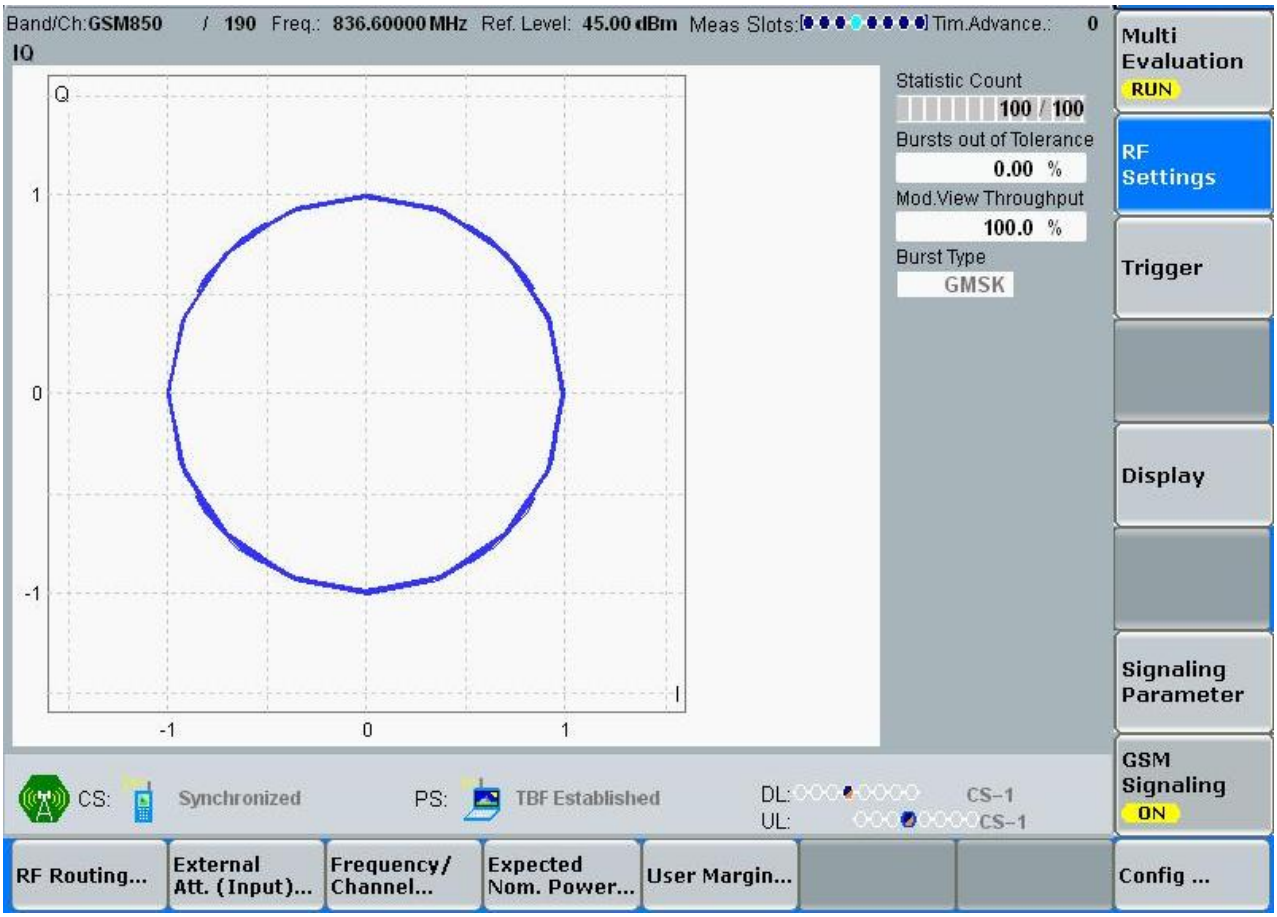
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

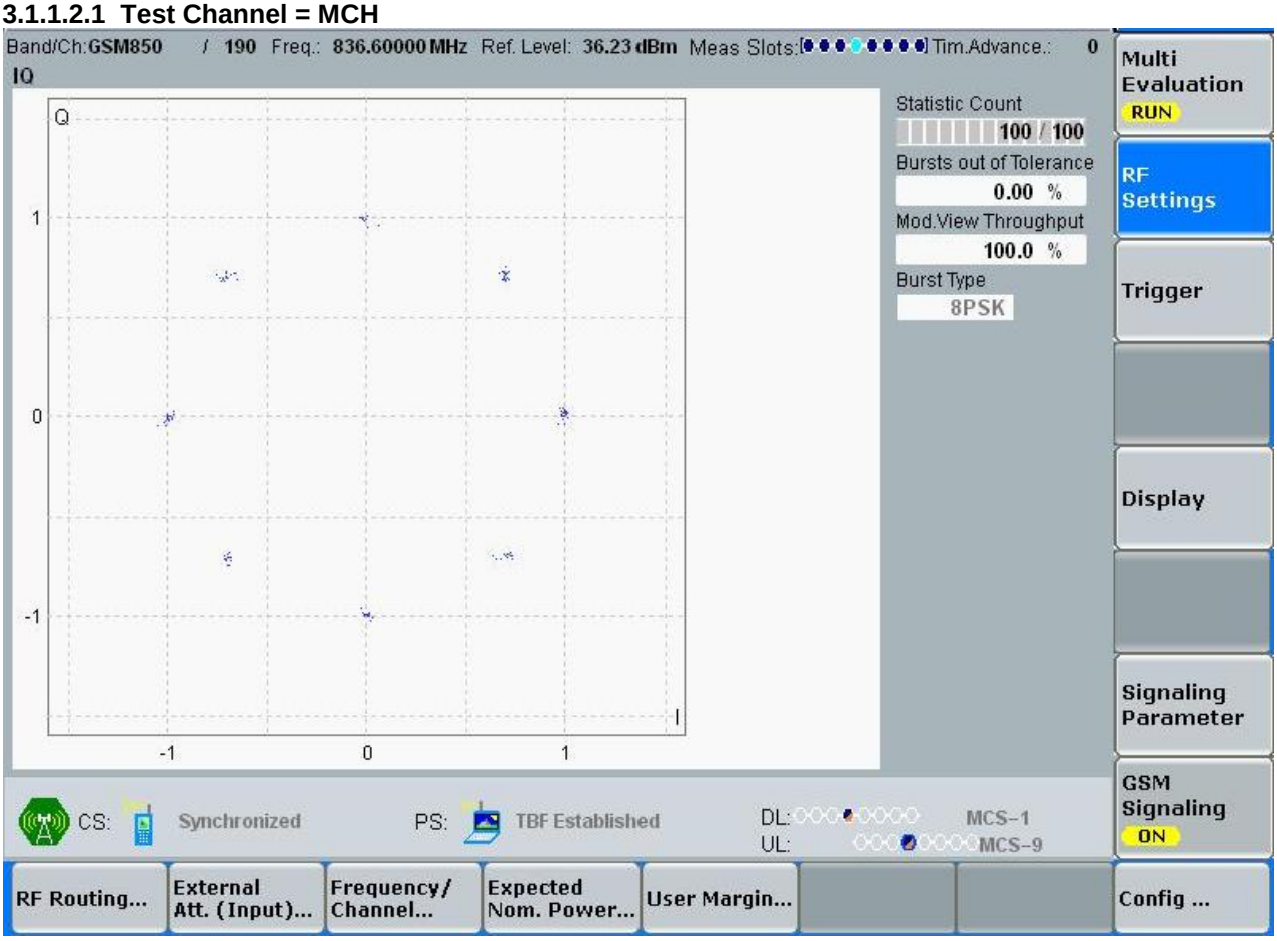
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

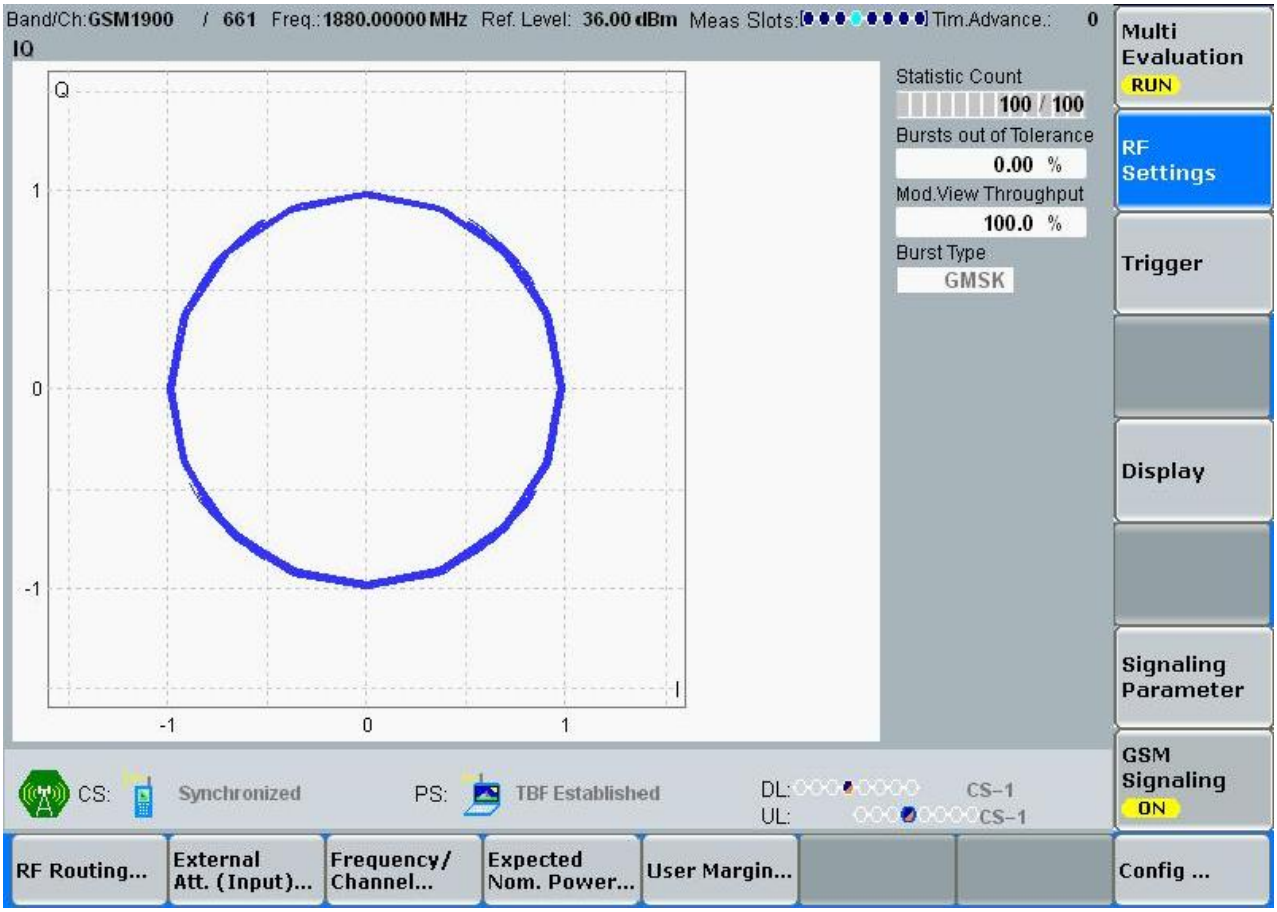
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

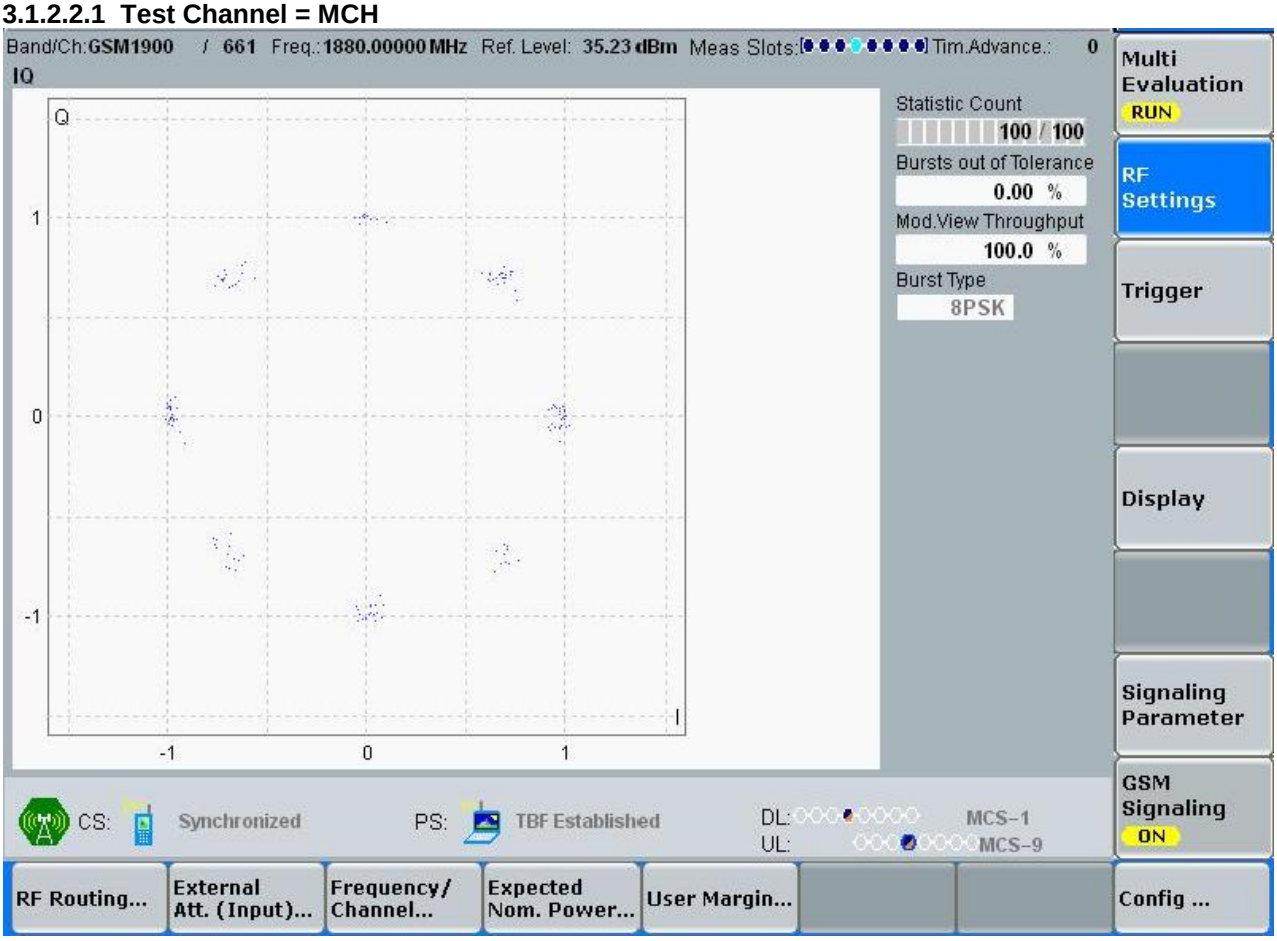
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH

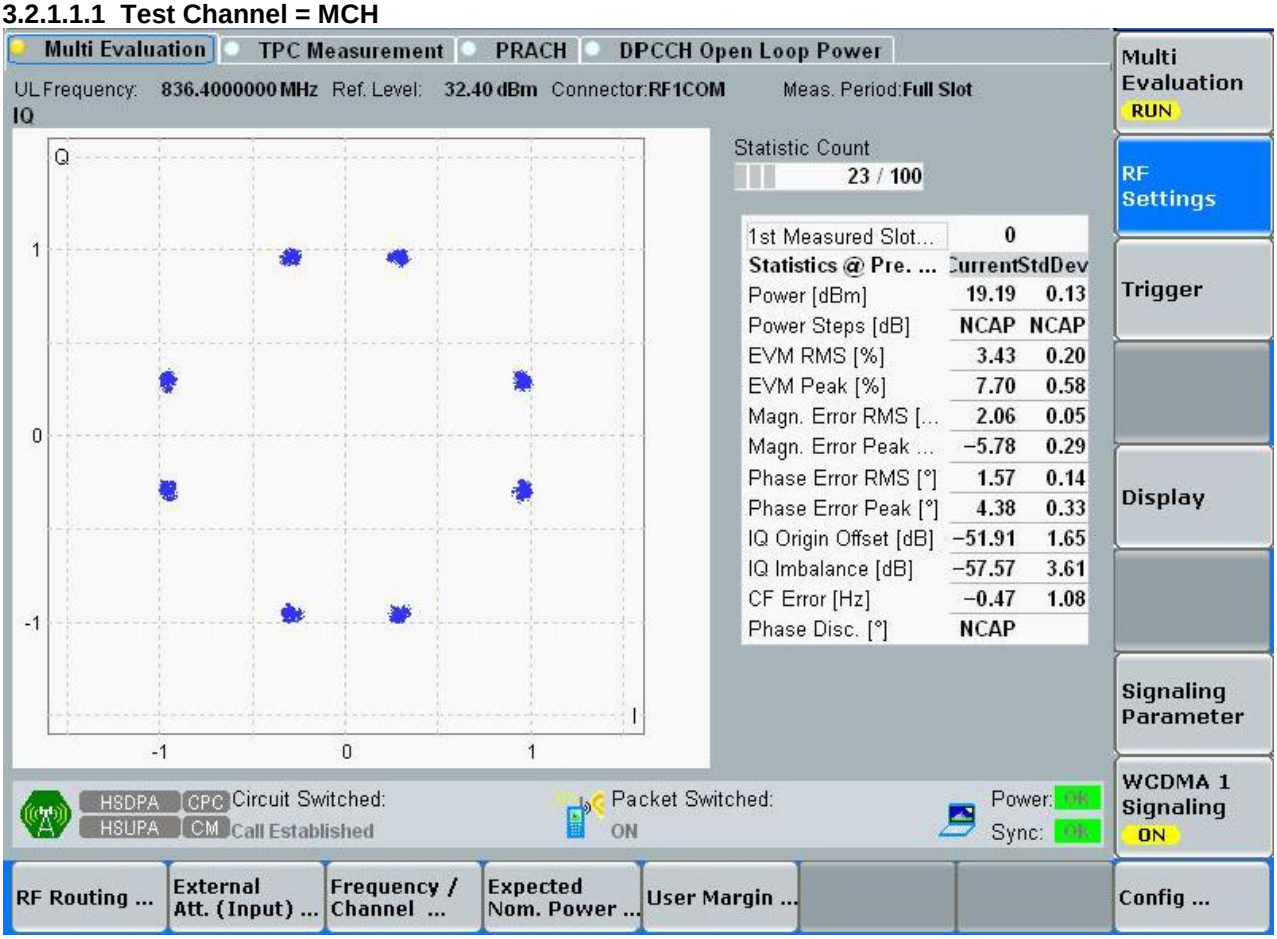


3.2 For WCDMA

3.2.1 Test Band = WCDMA 850

3.2.1.1 Test Mode = UMTS/TM1

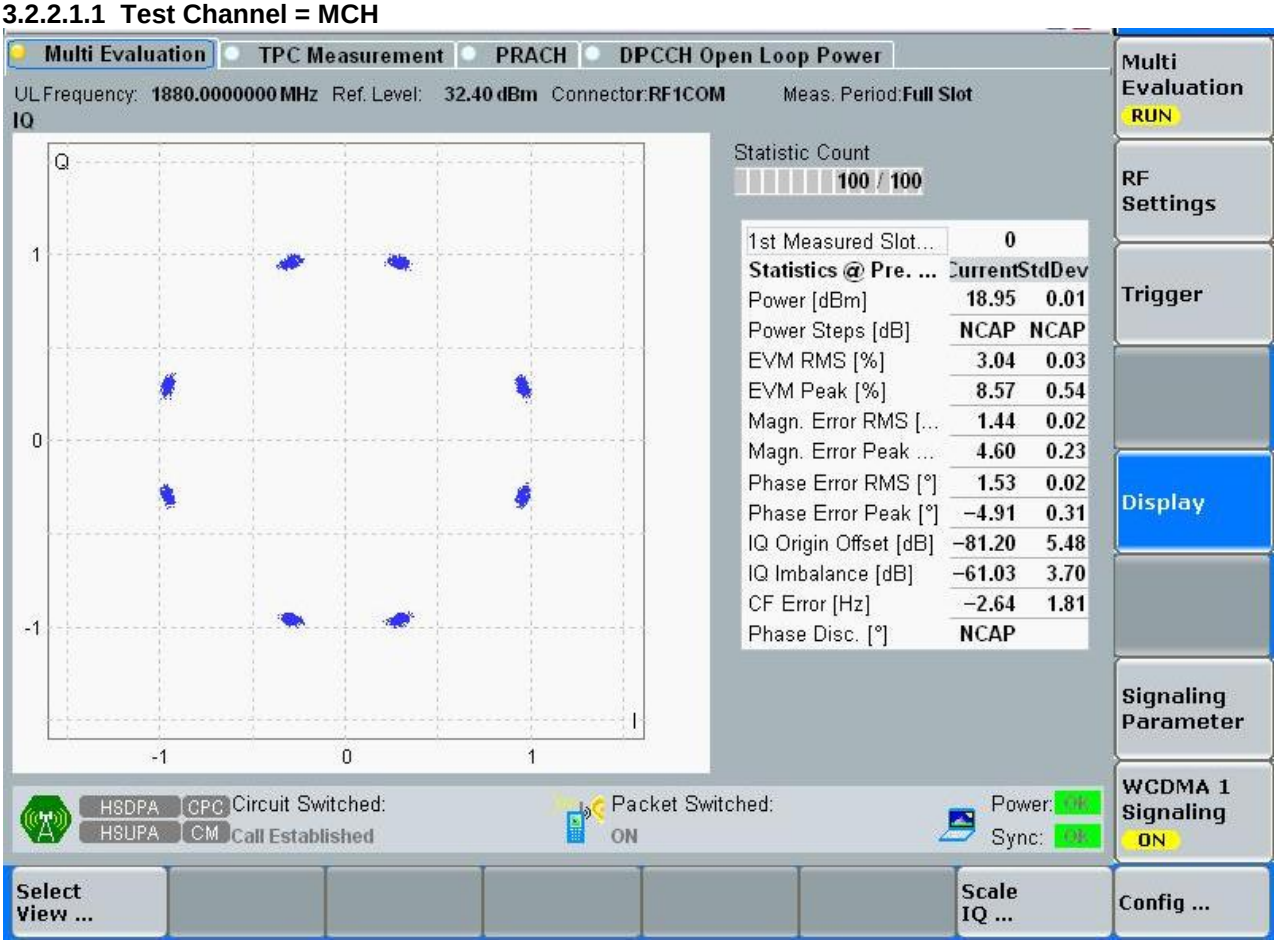
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA1900

3.2.2.1 Test Mode = UMTS/TM1

3.2.2.1.1 Test Channel = MCH



4 Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM 850	UMTS/TM1	LCH	242.8	317.7	PASS
		MCH	242.8	319.7	PASS
		HCH	240.8	317.7	PASS
	UMTS/TM2	LCH	245.8	314.7	PASS
		MCH	244.8	315.7	PASS
		HCH	245.8	313.7	PASS
GSM 1900	UMTS/TM1	LCH	242.8	318.7	PASS
		MCH	241.8	318.7	PASS
		HCH	243.8	317.7	PASS
	UMTS/TM2	LCH	243.8	314.7	PASS
		MCH	242.8	313.7	PASS
		HCH	244.8	313.7	PASS

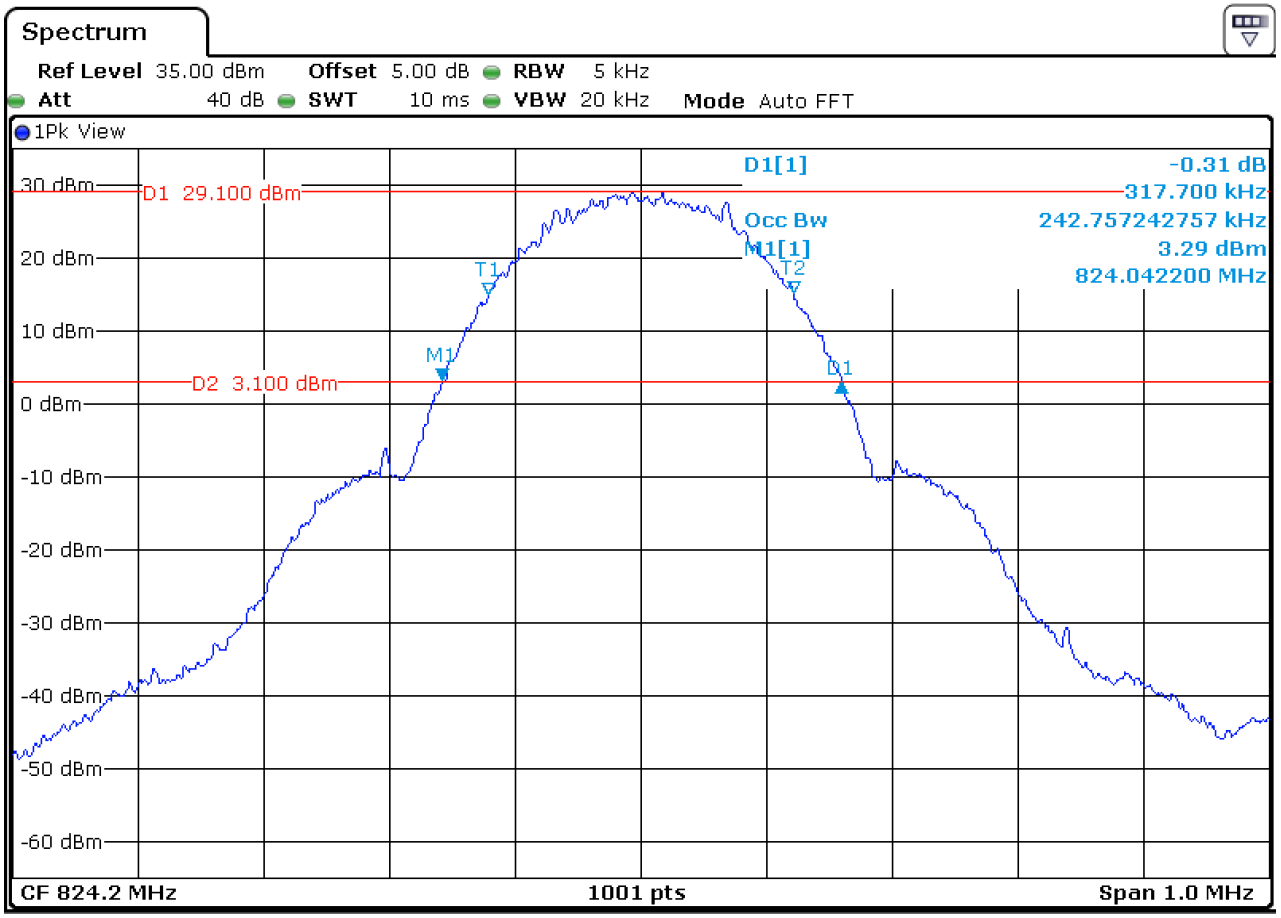
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.13	4.71	PASS
		MCH	4.12	4.71	PASS
		HCH	4.12	4.71	PASS
WCDMA1900	UMTS/TM1	LCH	4.13	4.71	PASS
		MCH	4.13	4.73	PASS
		HCH	4.14	4.73	PASS

4.1 For GSM

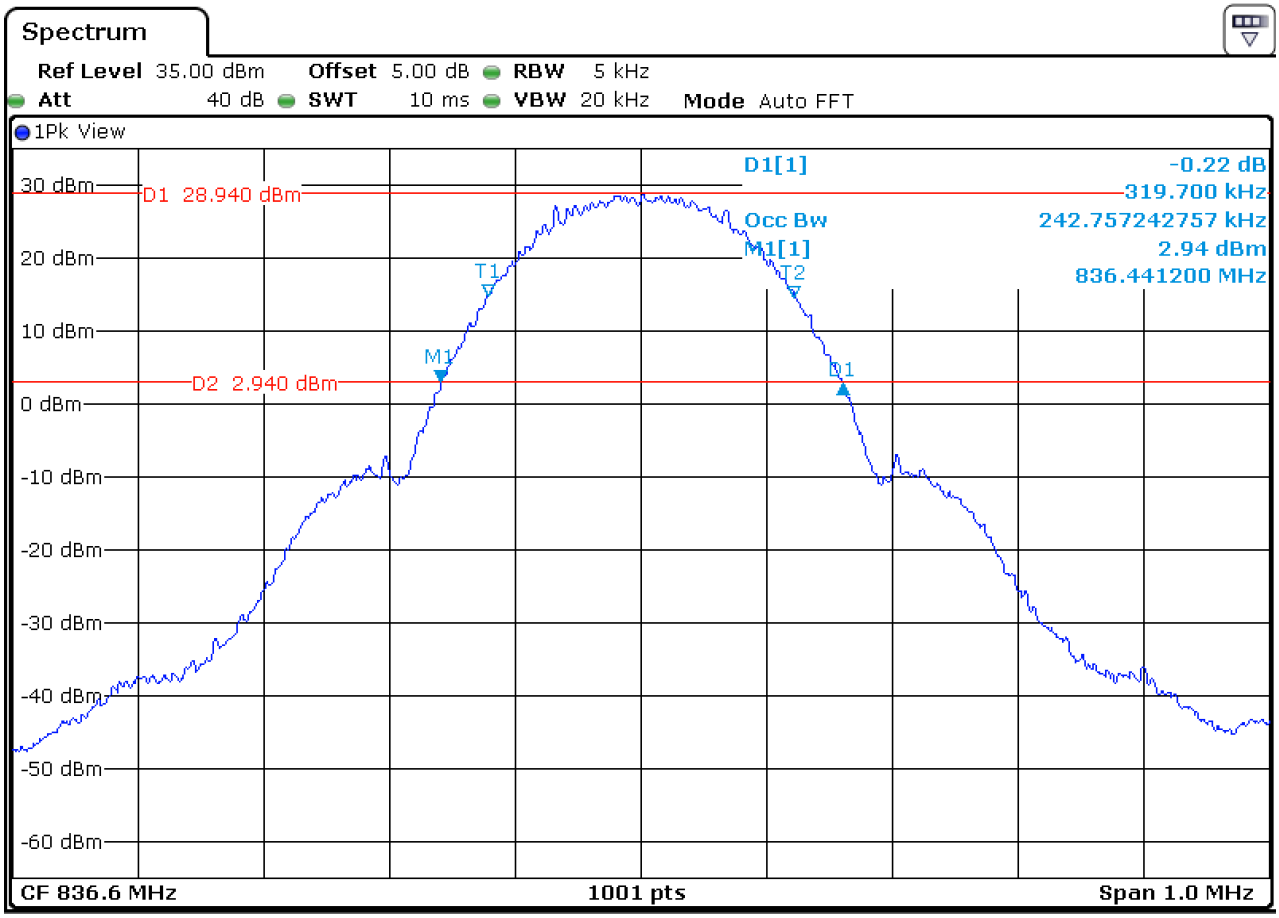
4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

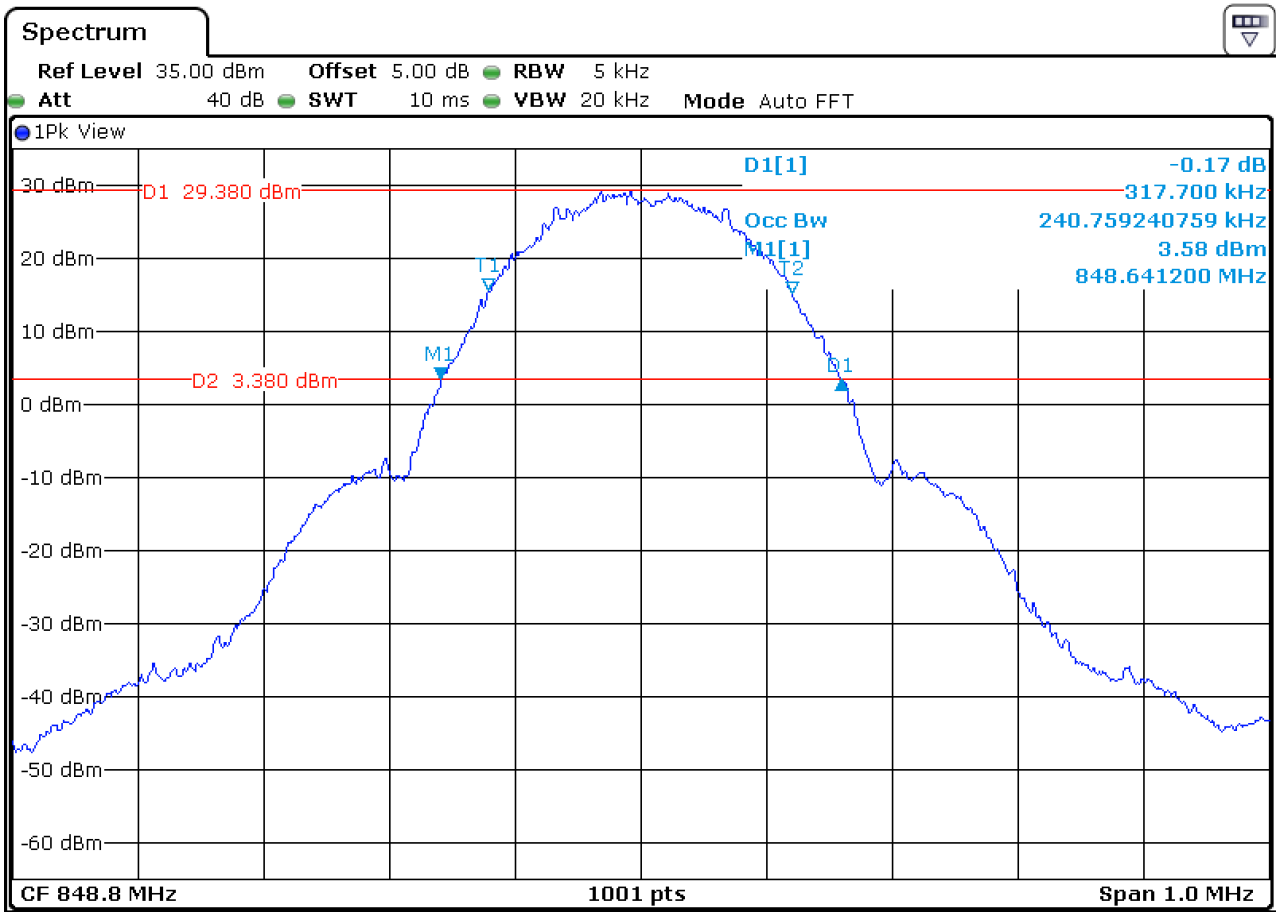
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH

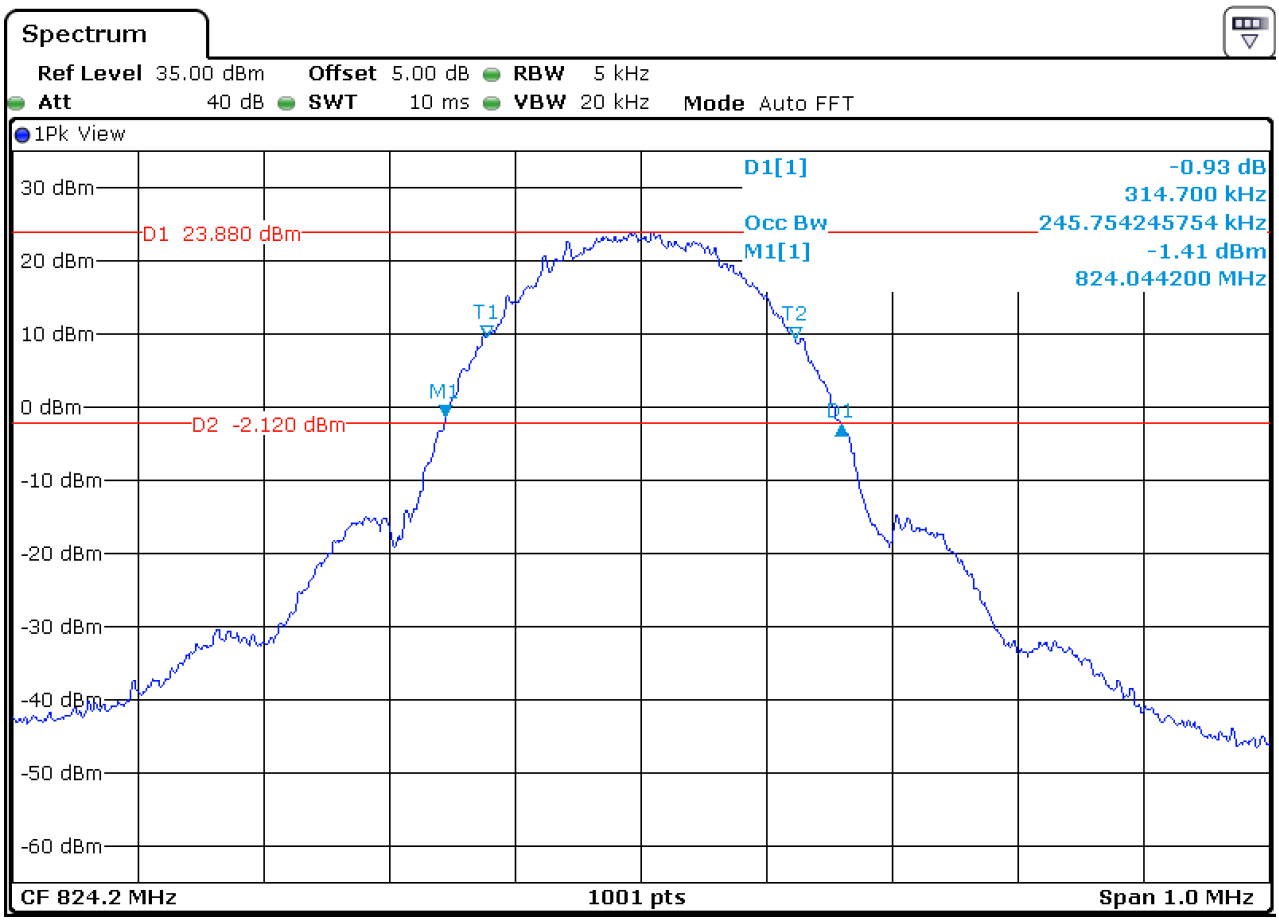


4.1.1.1.3 Test Channel = HCH

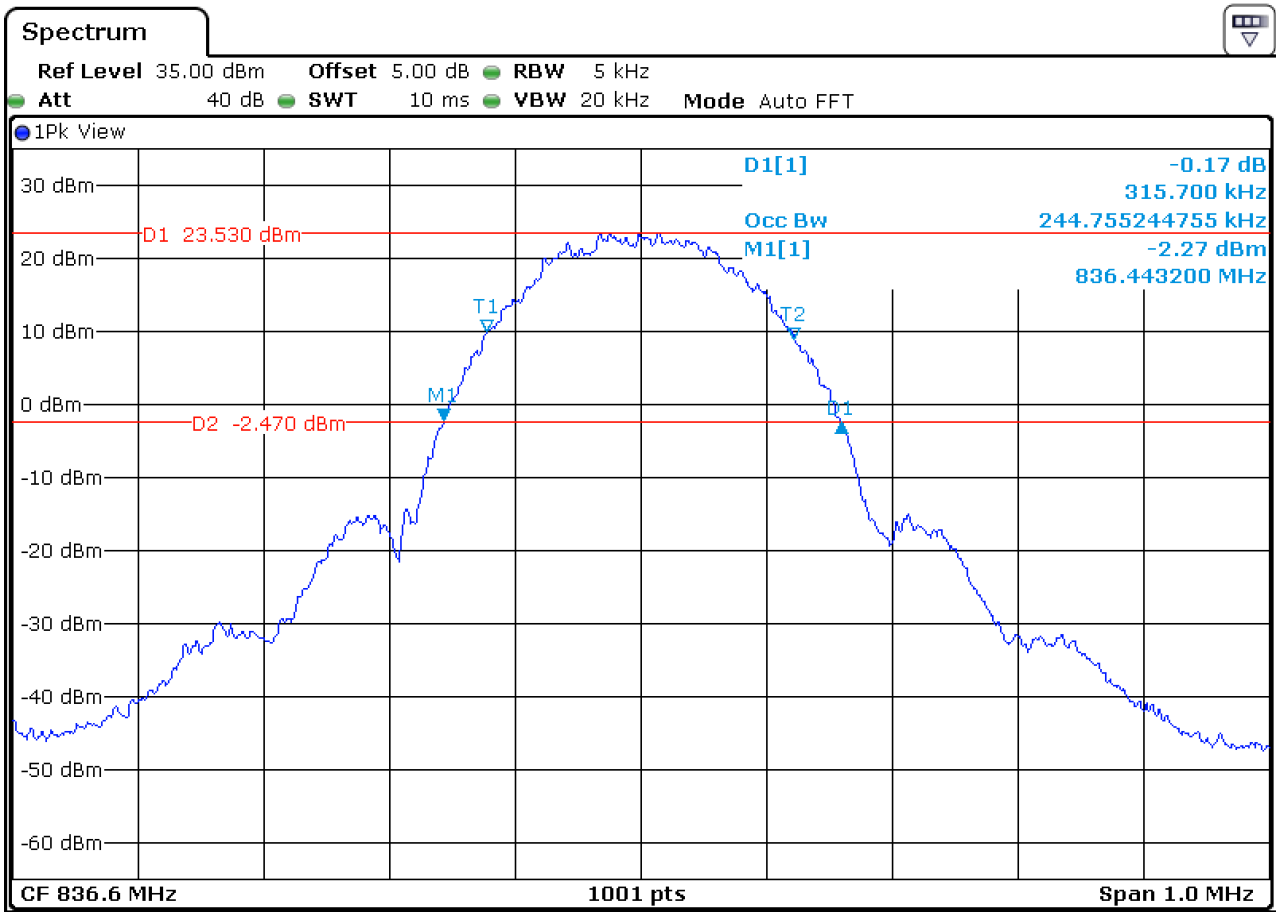


4.1.1.2 Test Mode = GSM/TM2

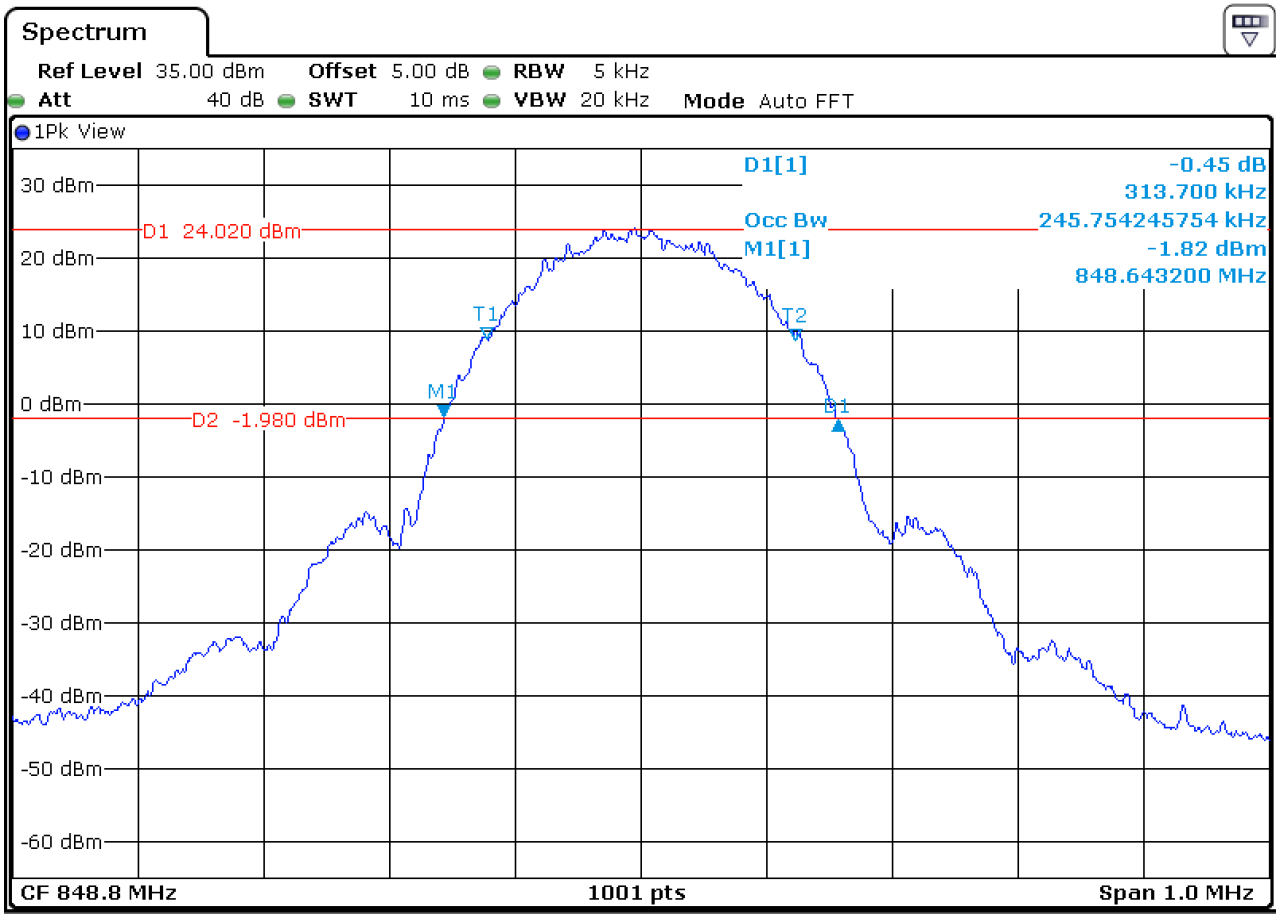
4.1.1.2.1 Test Channel = LCH



4.1.1.2.2 Test Channel = MCH



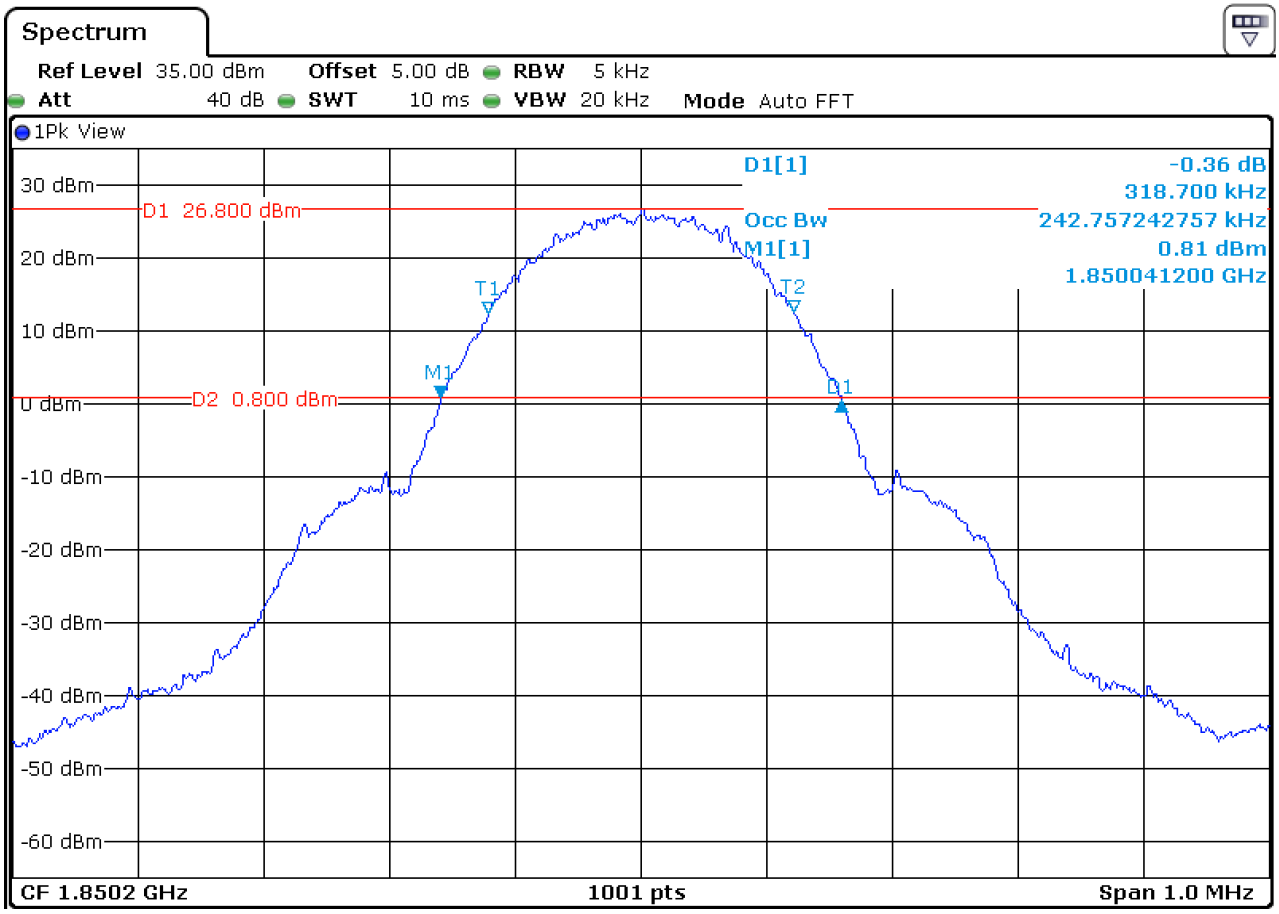
4.1.1.2.3 Test Channel = HCH



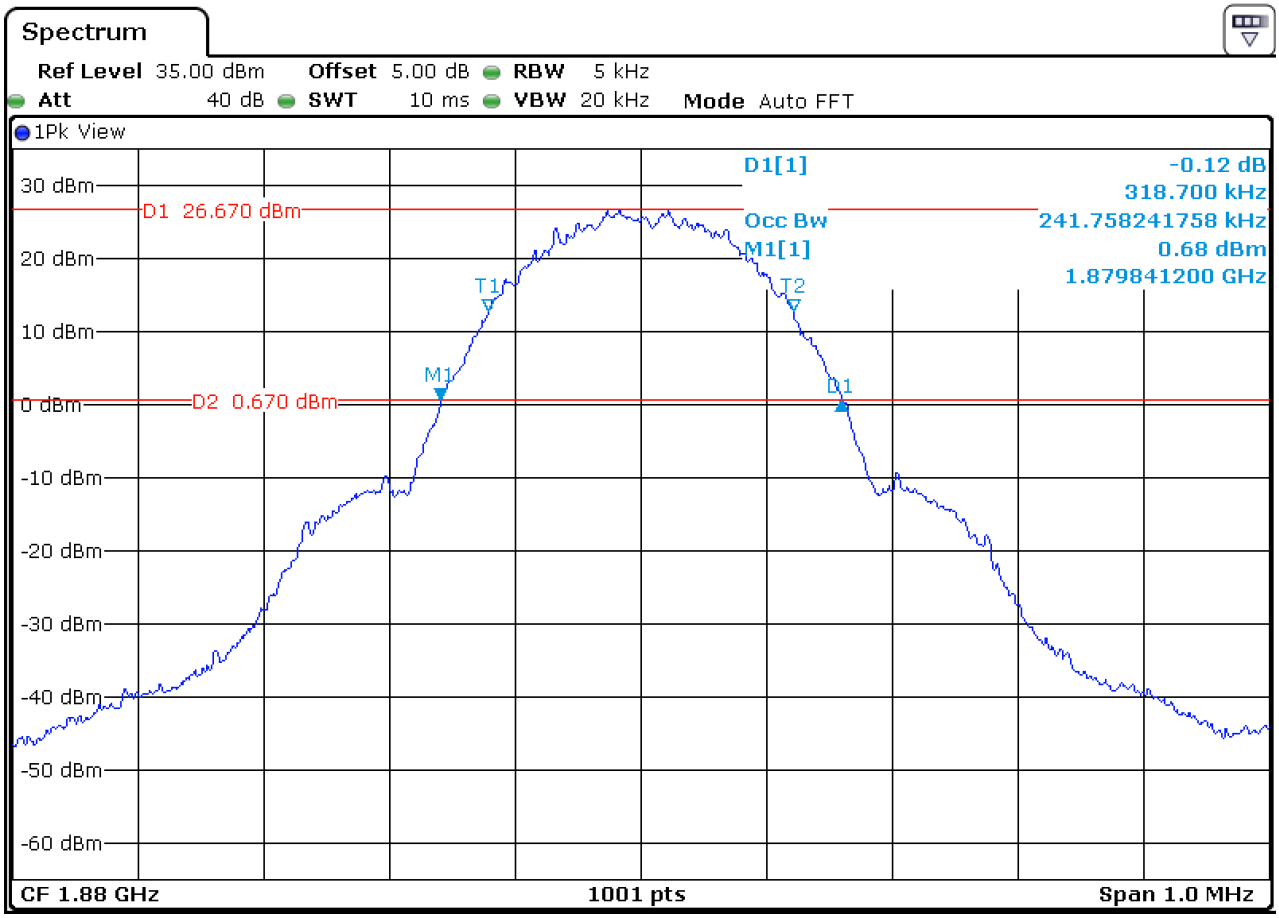
4.1.2 Test Band = GSM1900

4.1.2.1 Test Mode = GSM/TM1

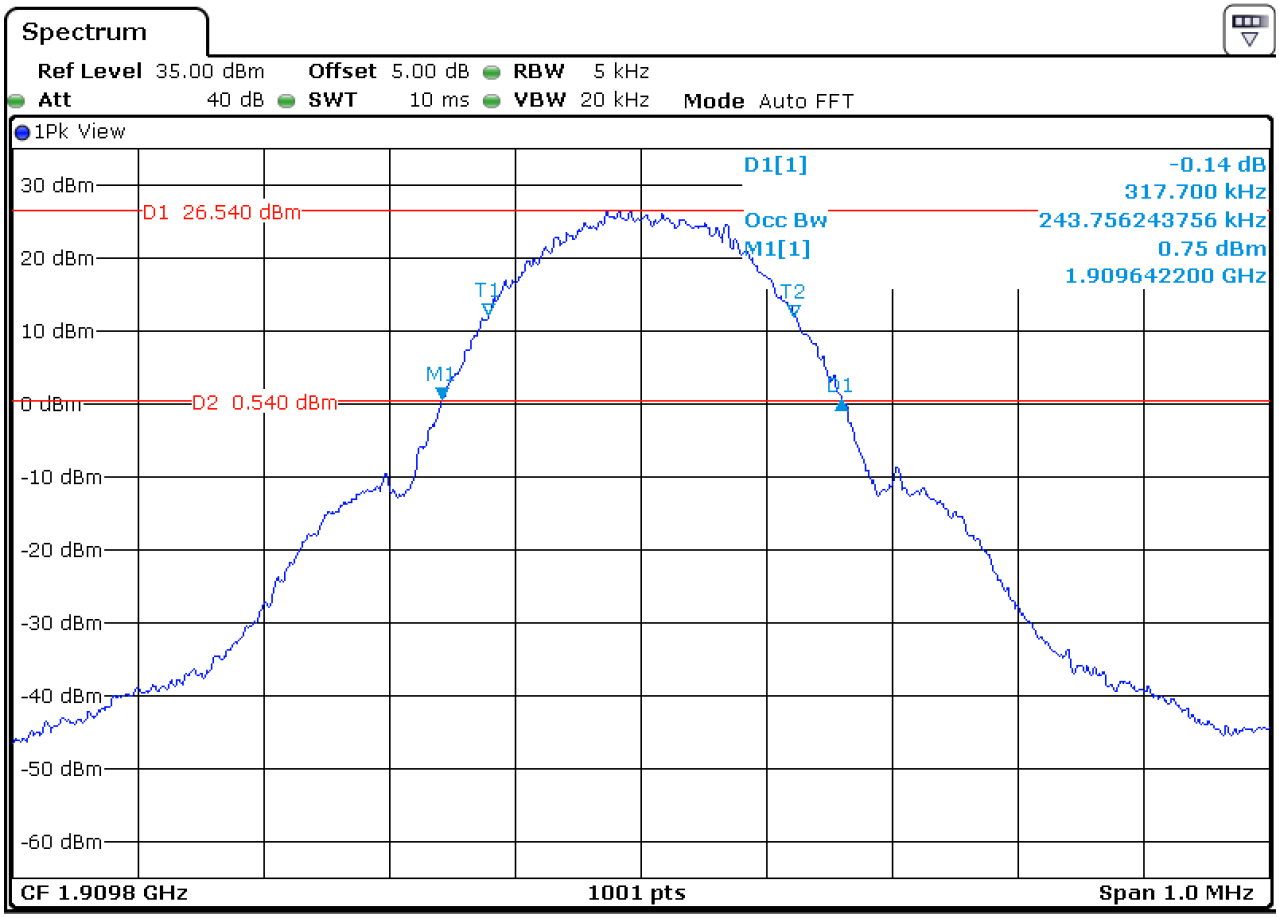
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH

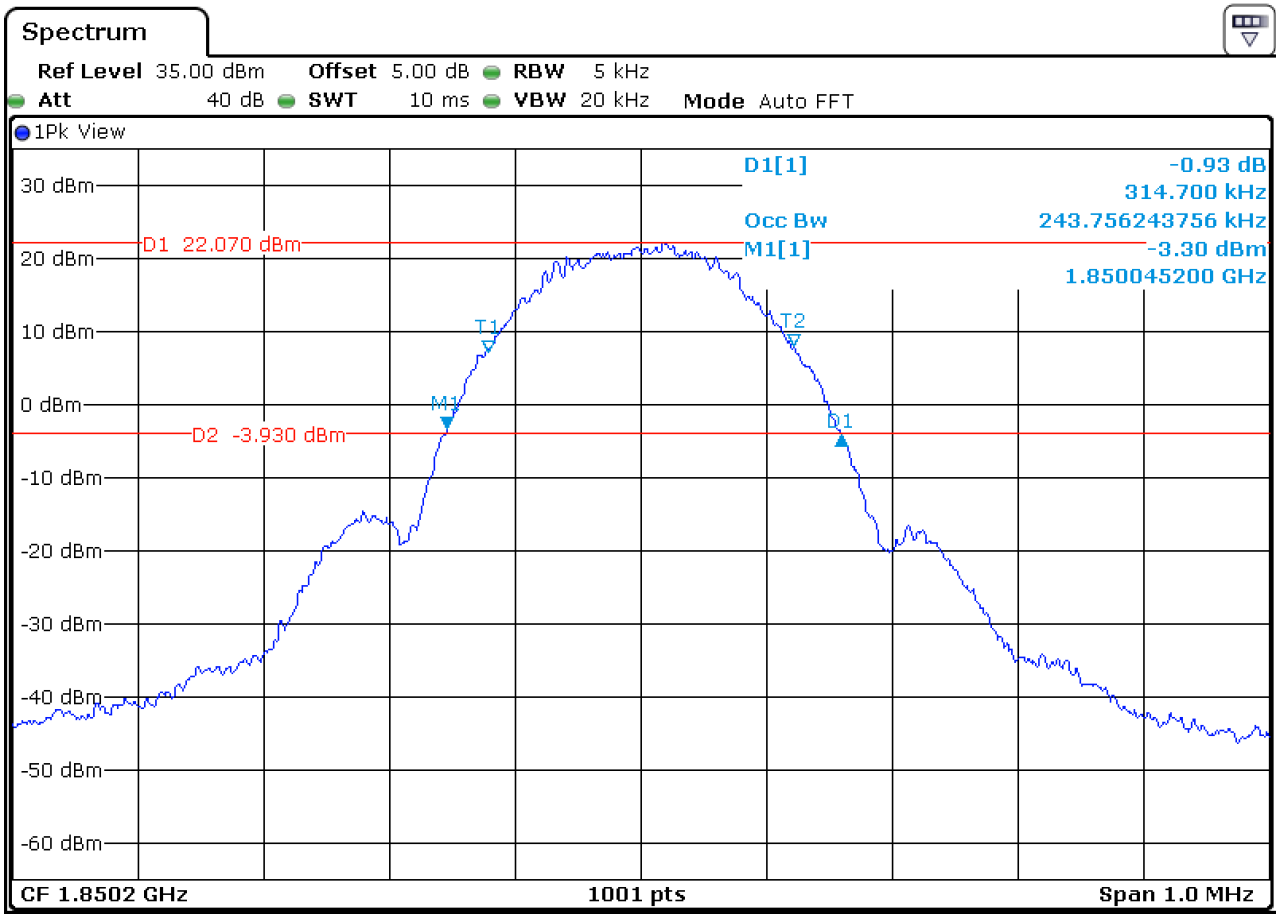


4.1.2.1.3 Test Channel = HCH

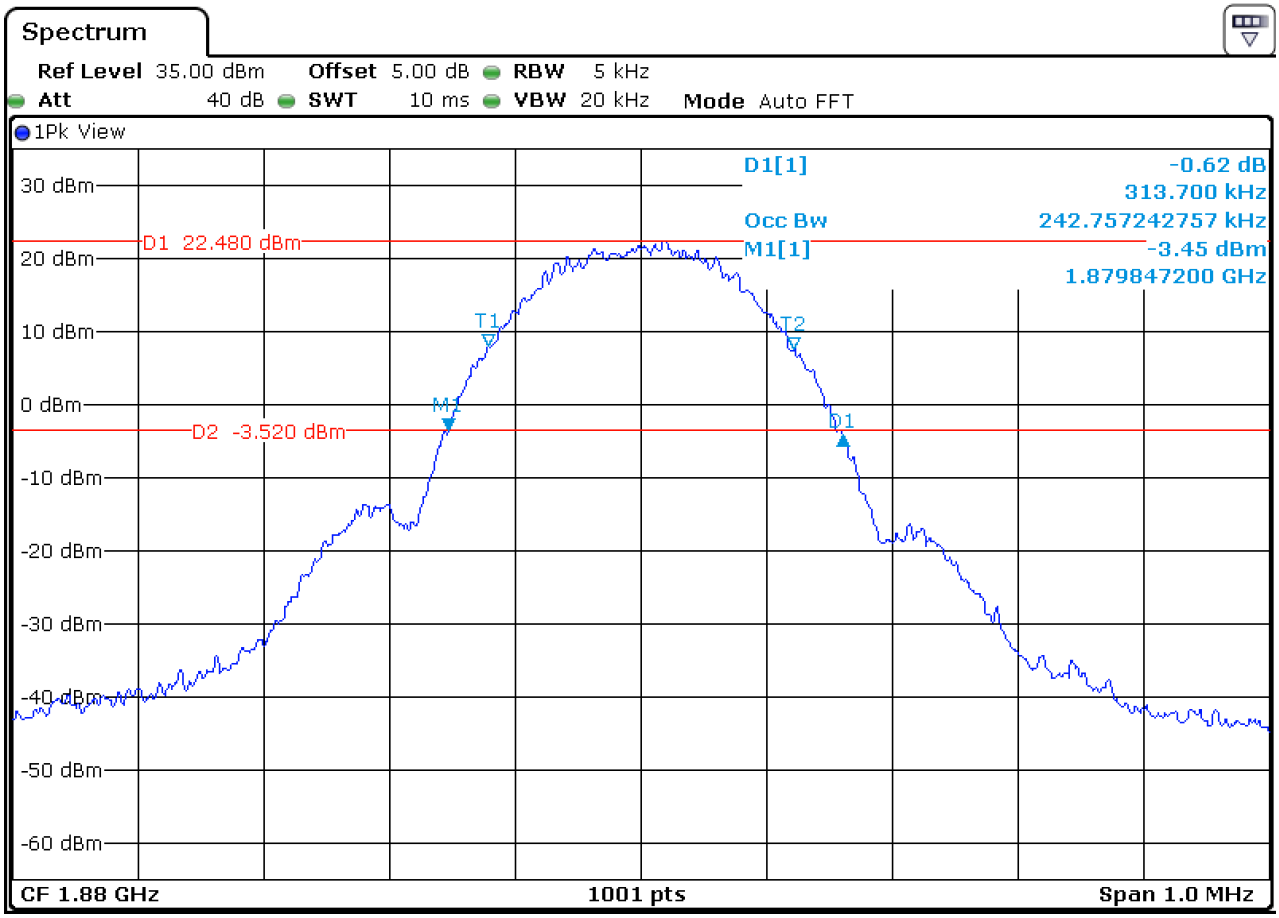


4.1.2.2 Test Mode = GSM/TM2

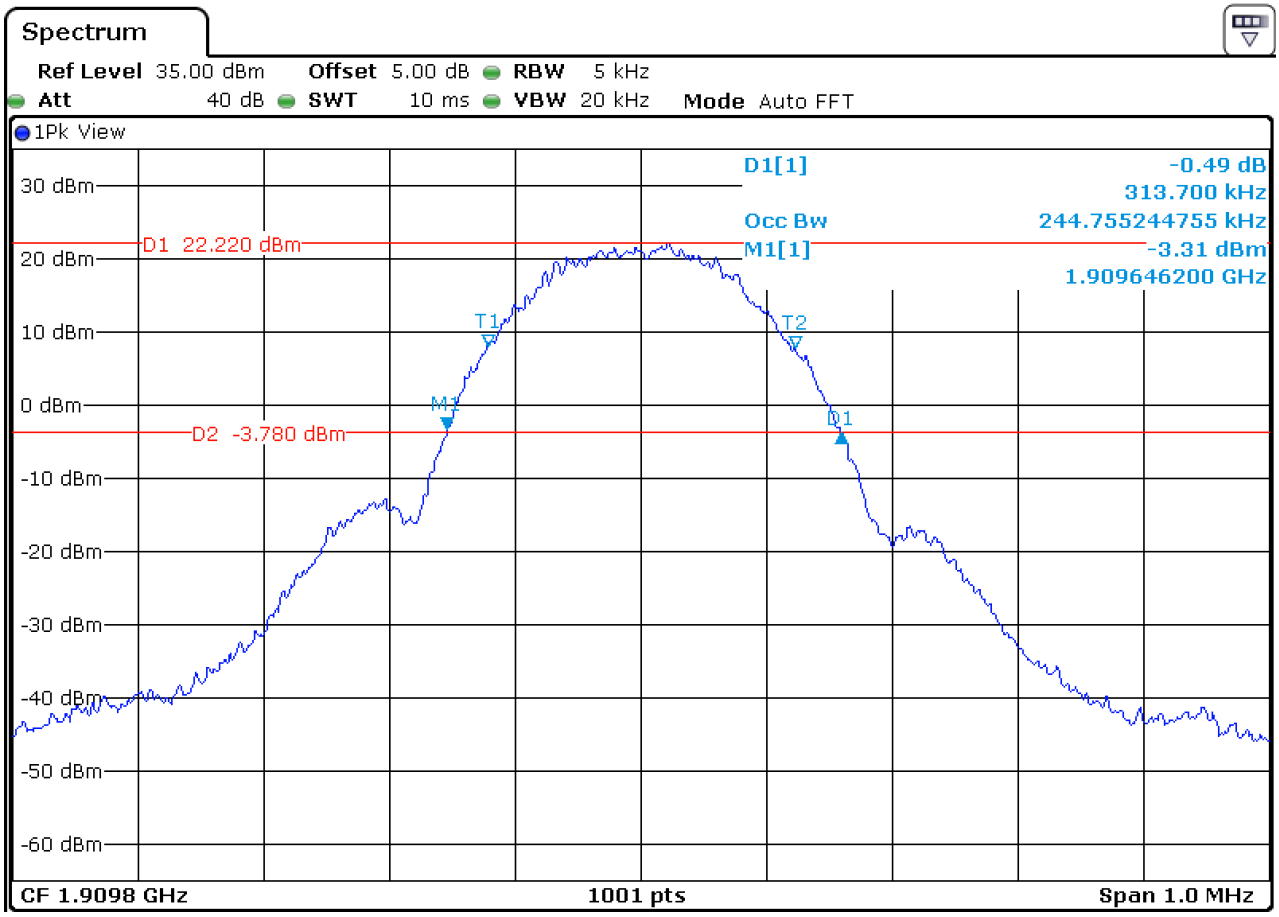
4.1.2.2.1 Test Channel = LCH



4.1.2.2.2 Test Channel = MCH



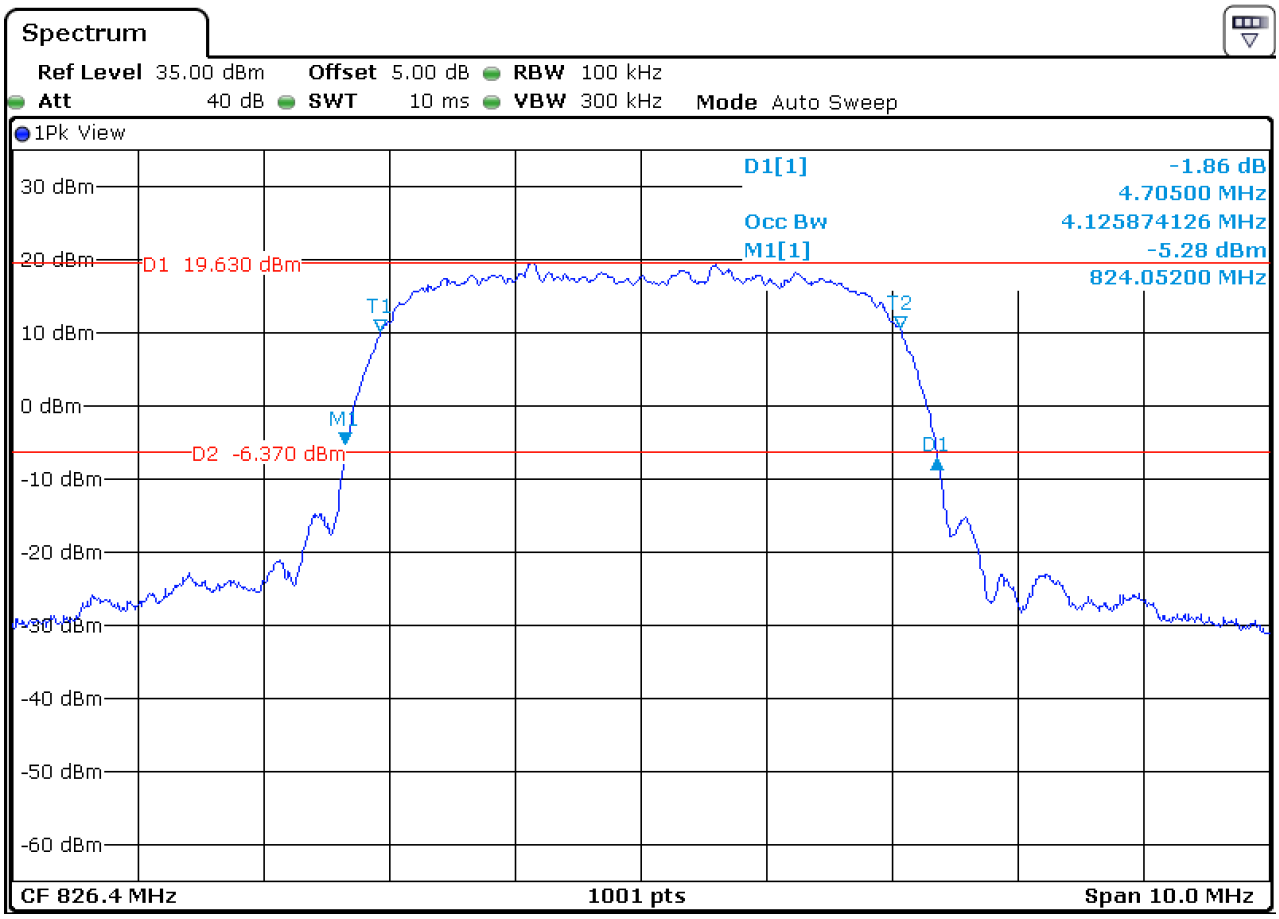
4.1.2.2.3 Test Channel = HCH



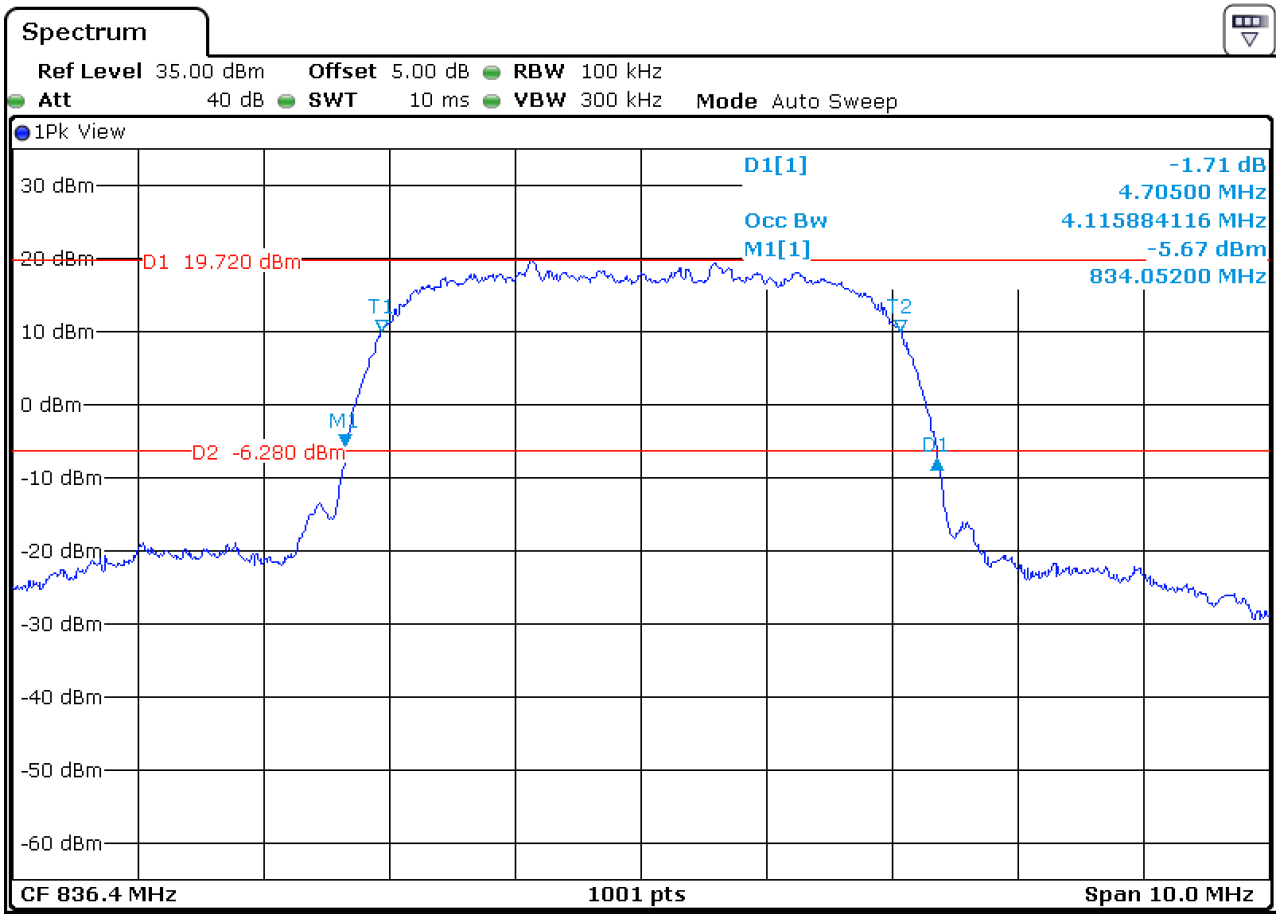
4.1.3 Test Band = WCDMA850

4.1.3.1 Test Mode = UMTS/TM1

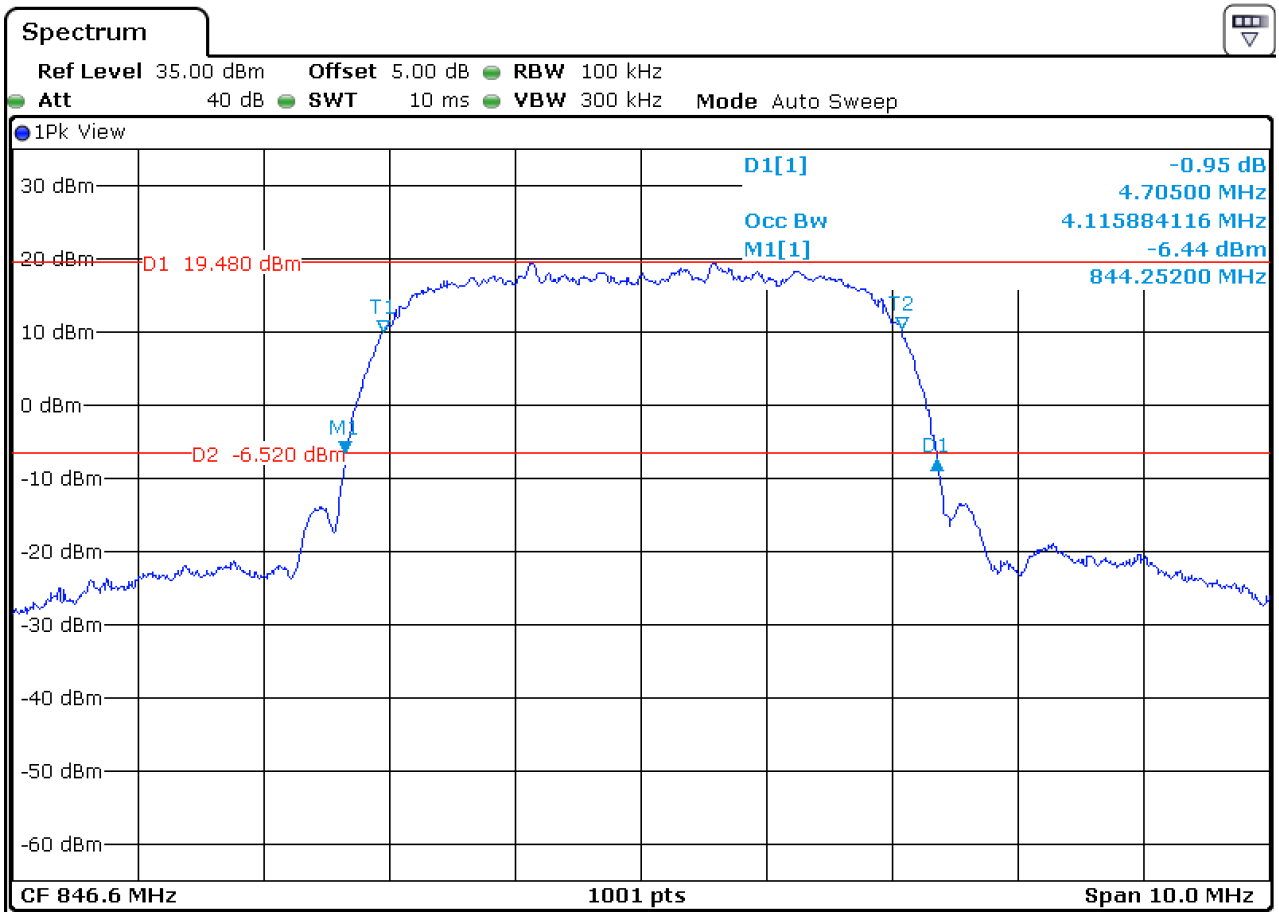
4.1.3.1.1 Test Channel = LCH



4.1.3.1.2 Test Channel = MCH



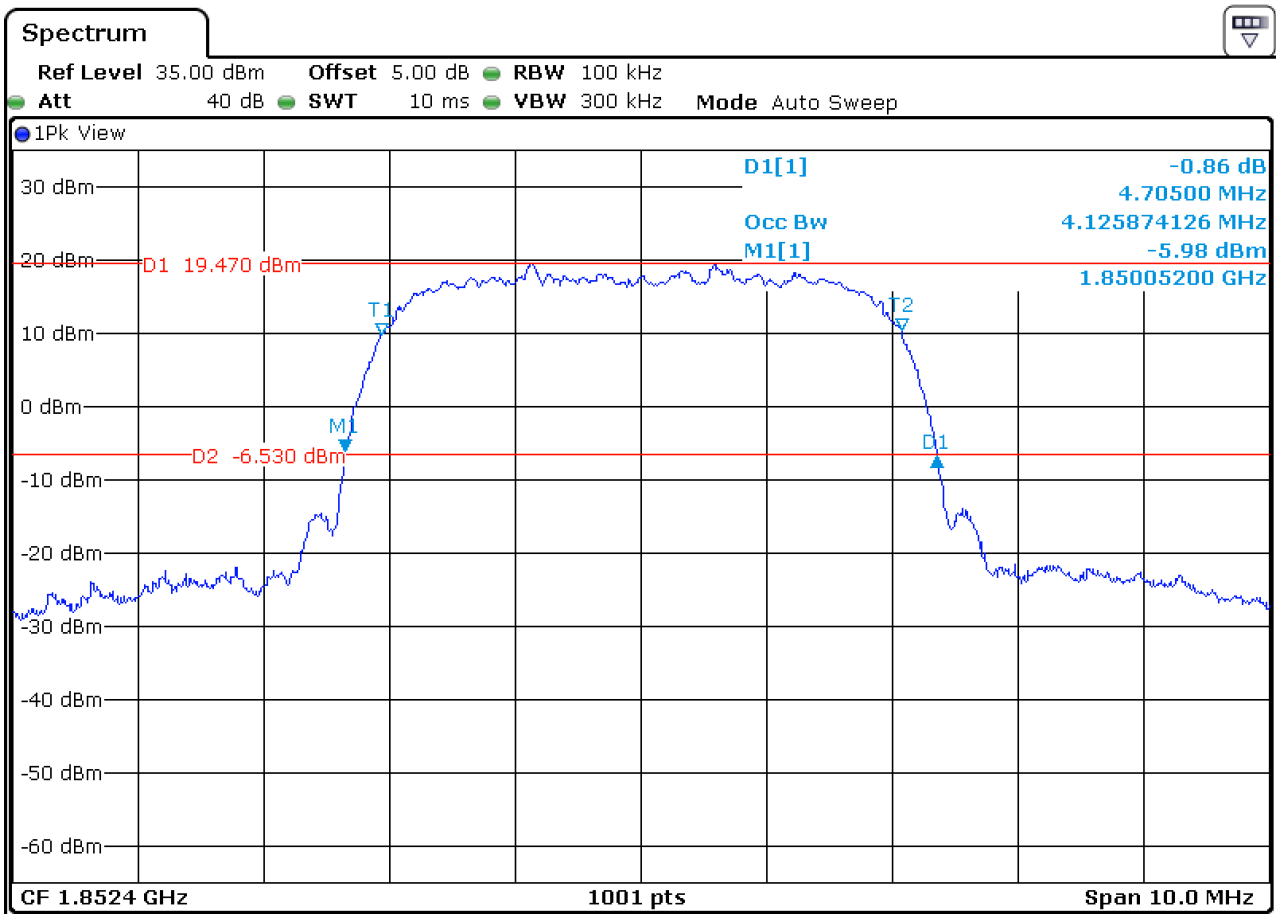
4.1.3.1.3 Test Channel = HCH



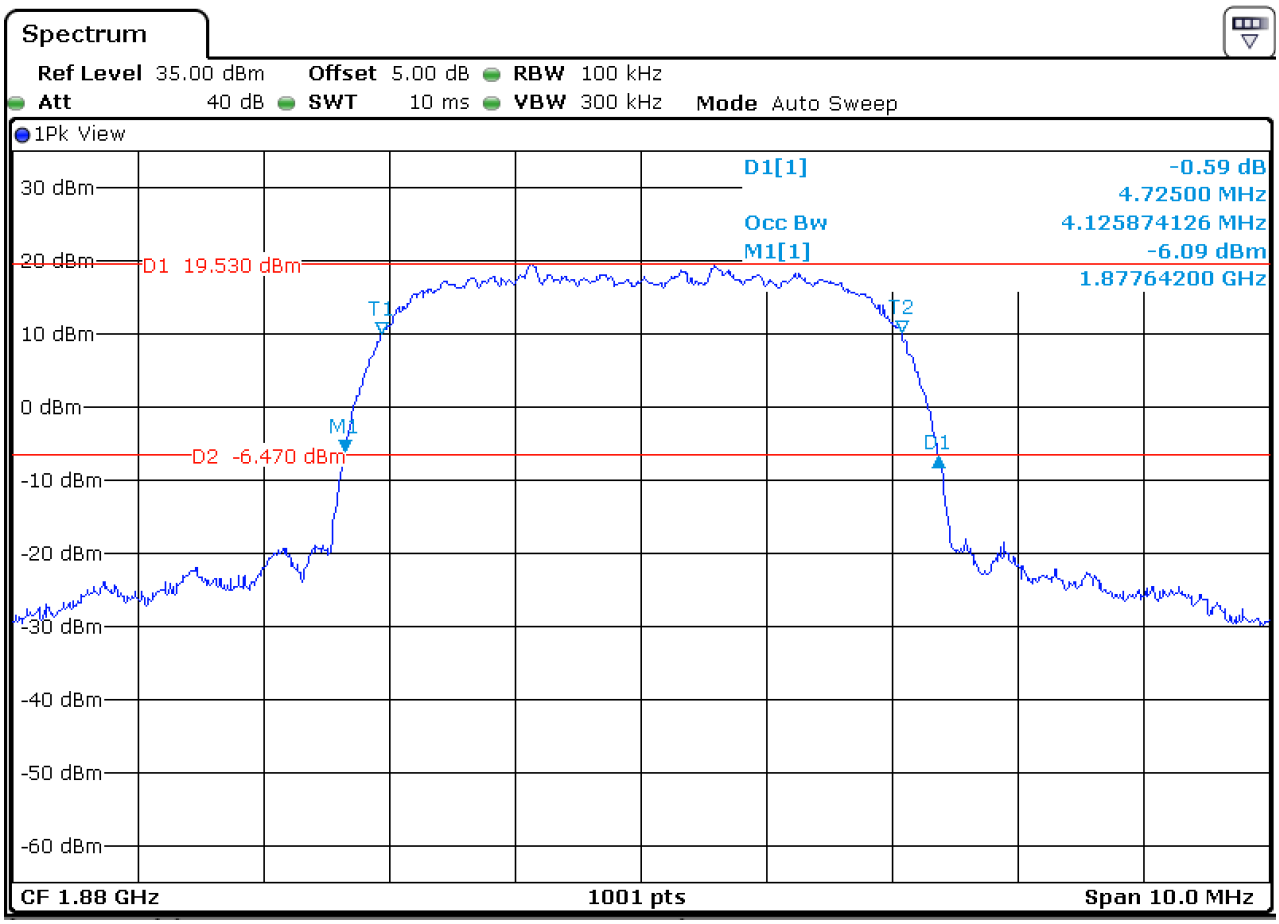
4.1.4 Test Band = WCDMA 1900

4.1.4.1 Test Mode = UMTS/TM1

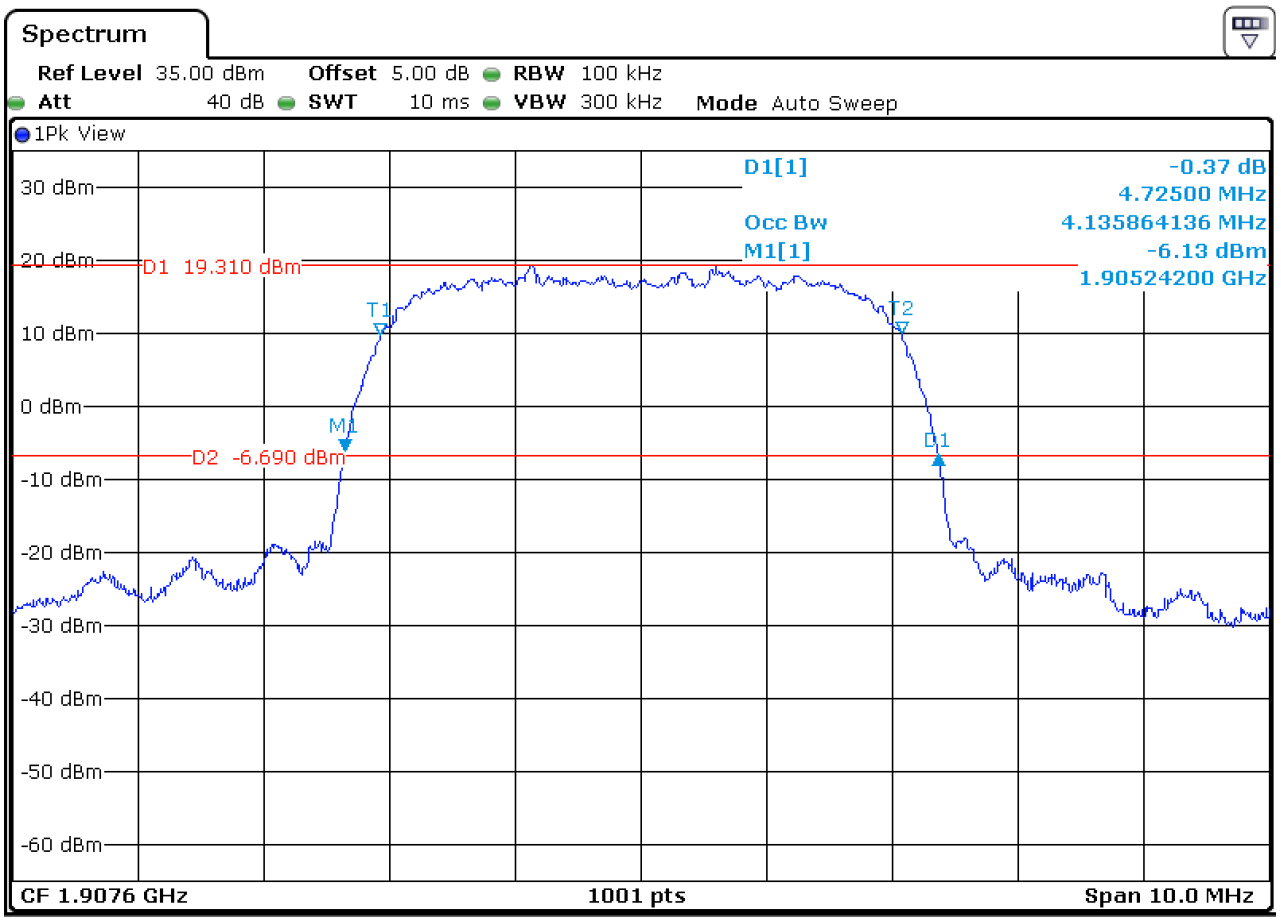
4.1.4.1.1 Test Channel = LCH



4.1.4.1.2 Test Channel = MCH



4.1.4.1.3 Test Channel = HCH



5 Band Edges Compliance

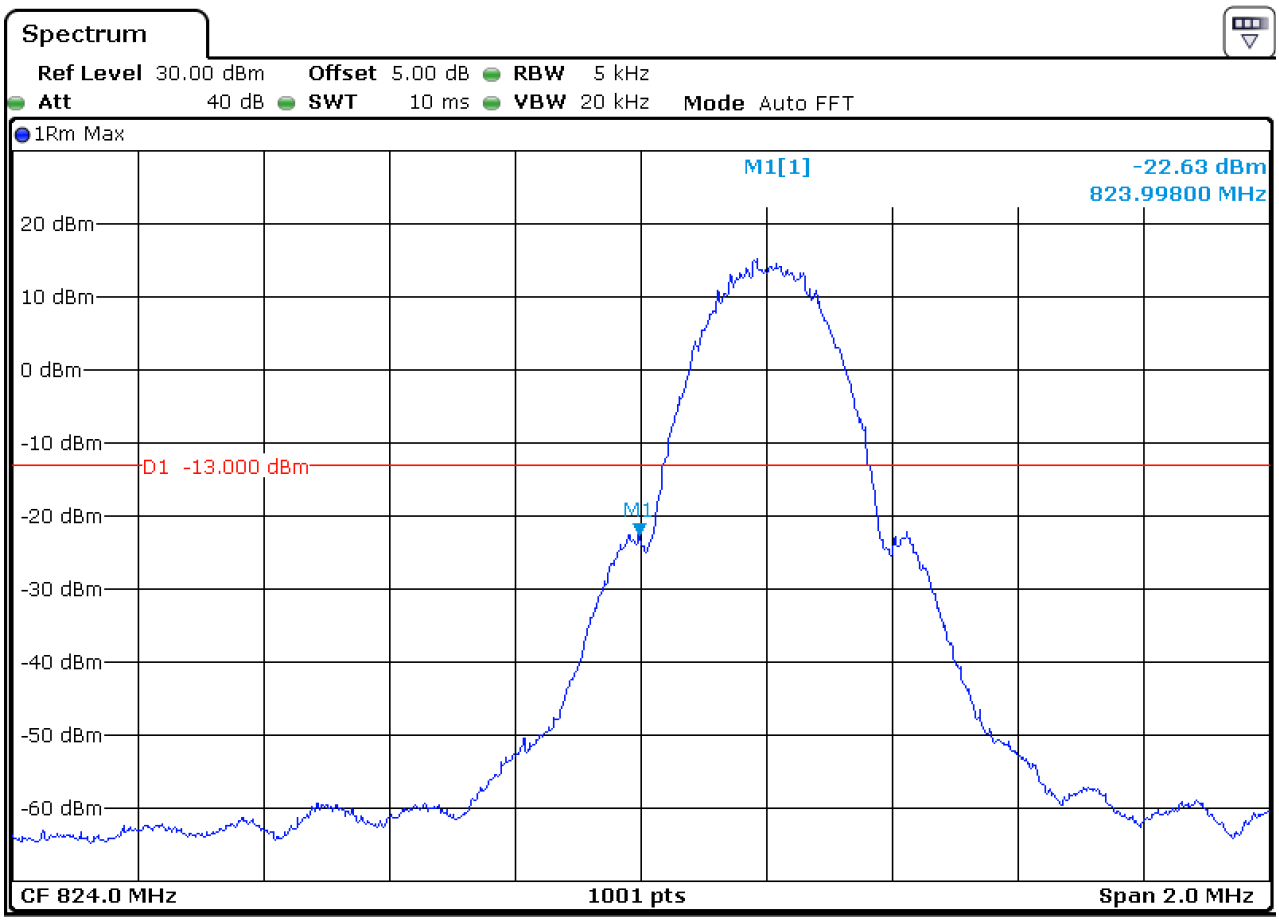
Part I - Test Plots

5.1 For GSM

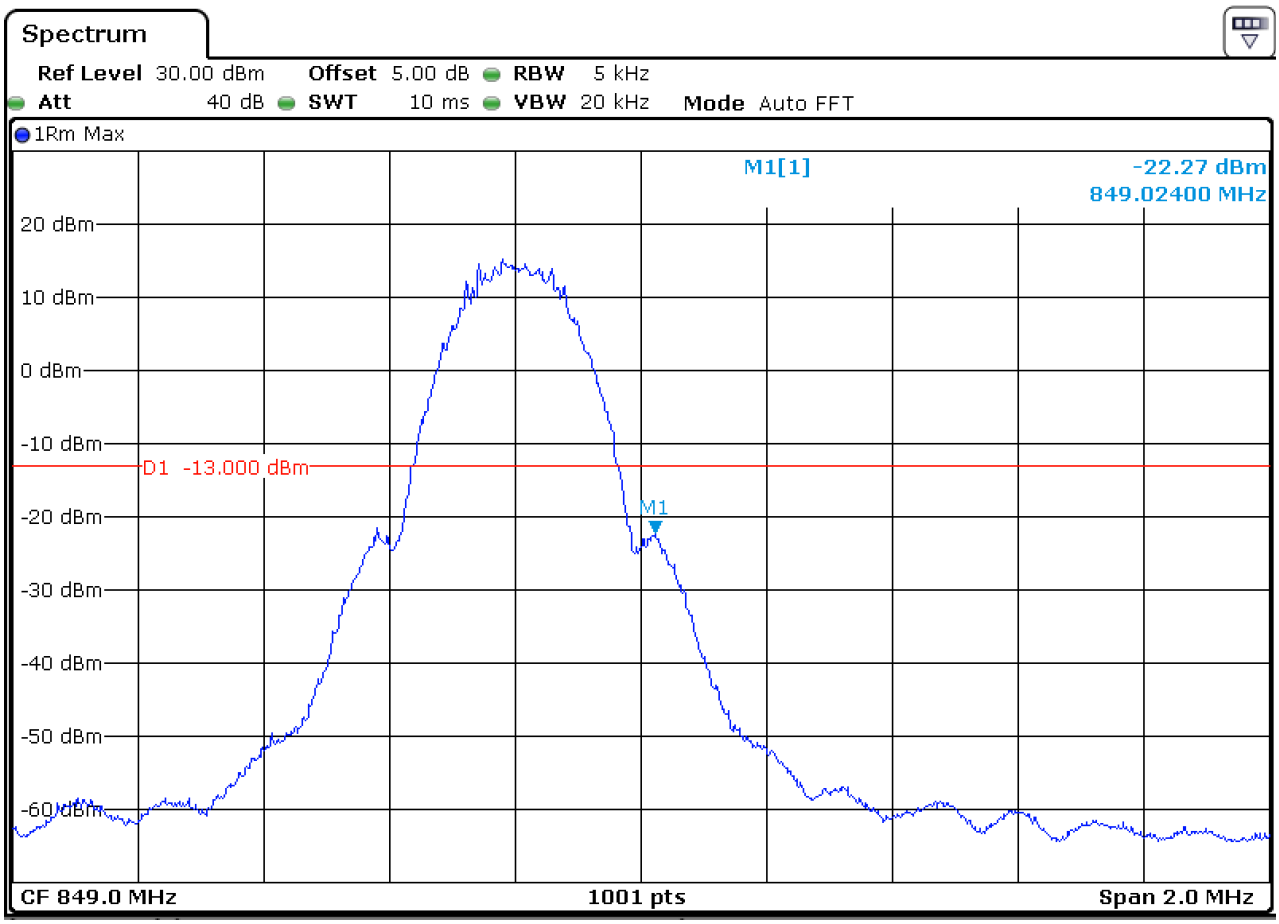
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

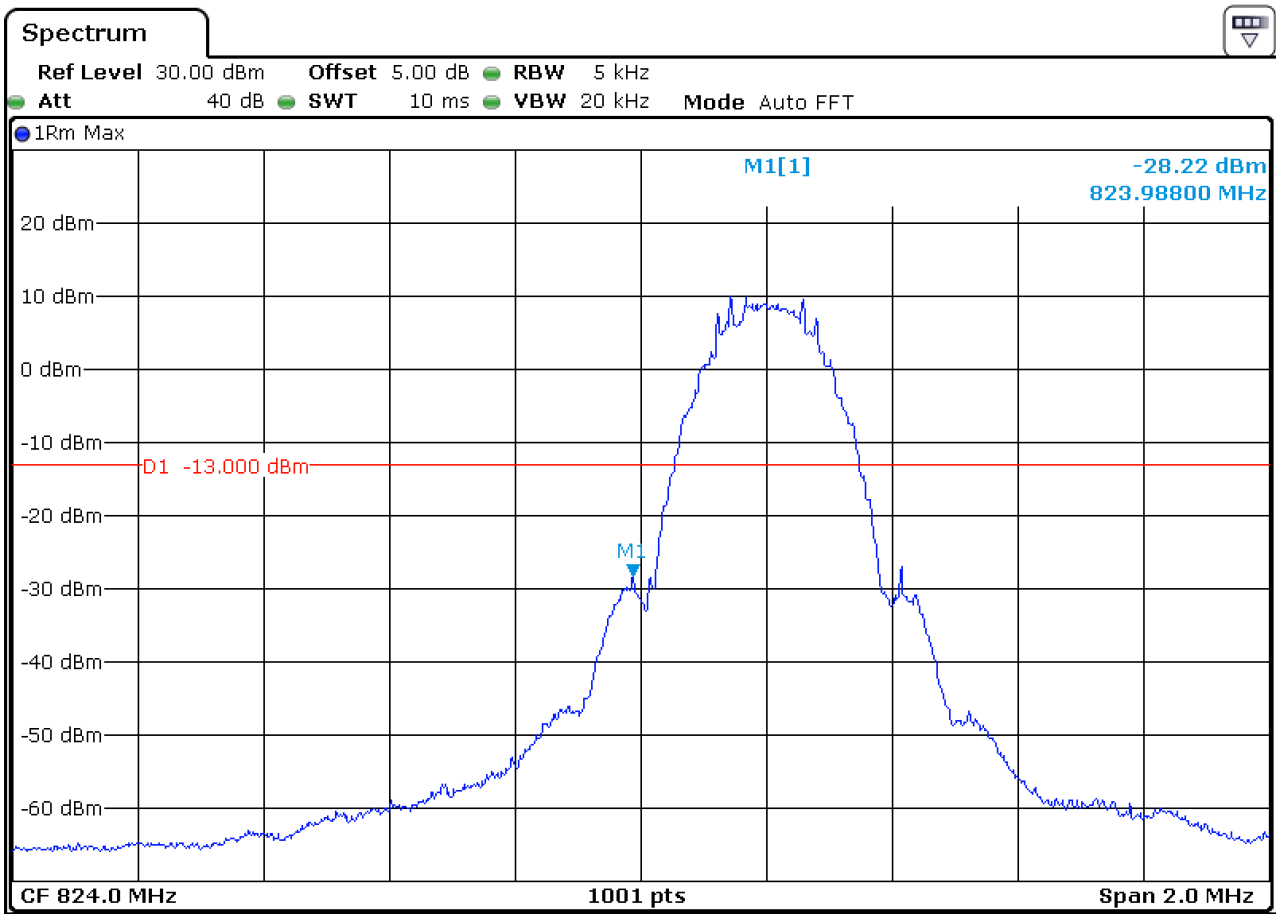


5.1.1.1.2 Test Channel = HCH

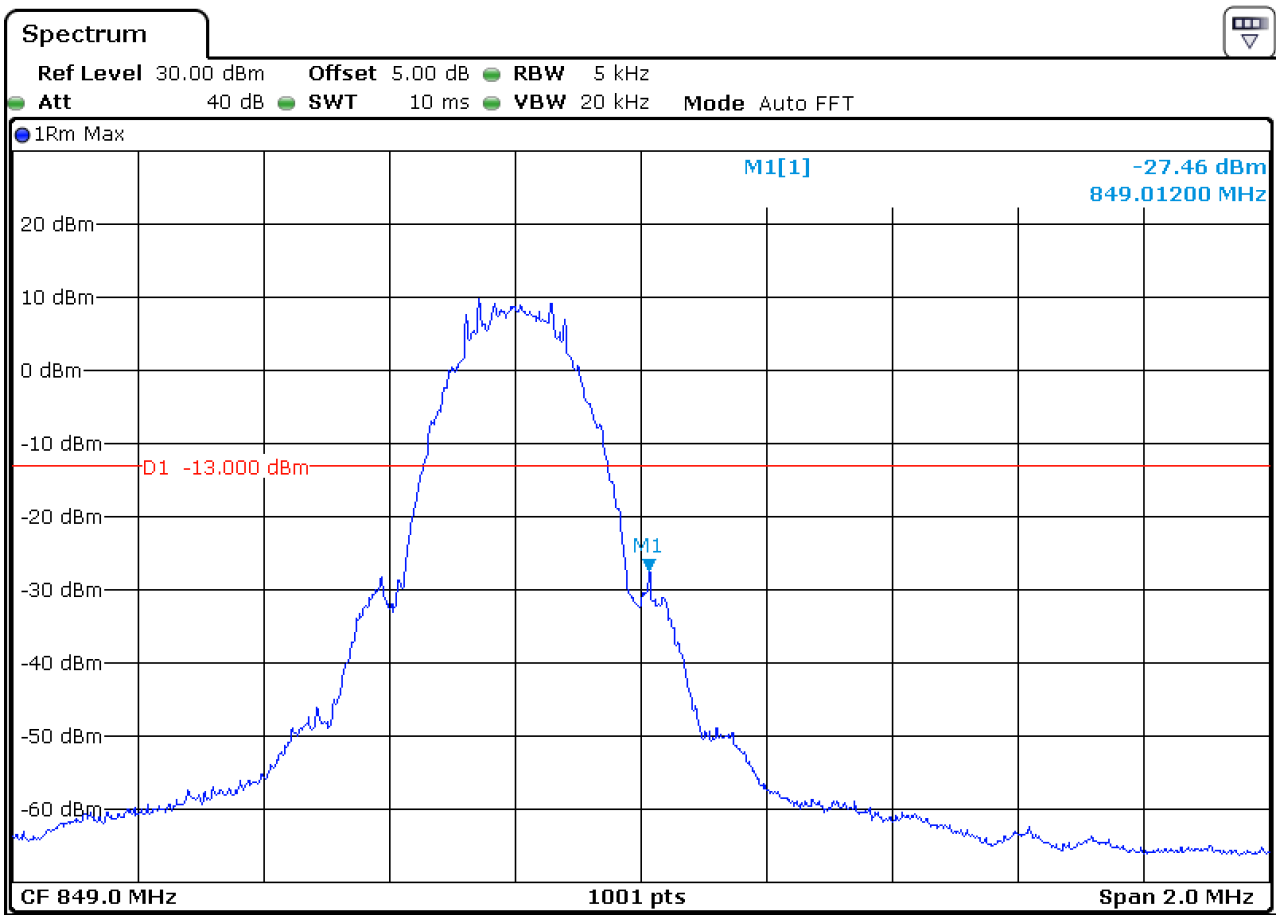


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



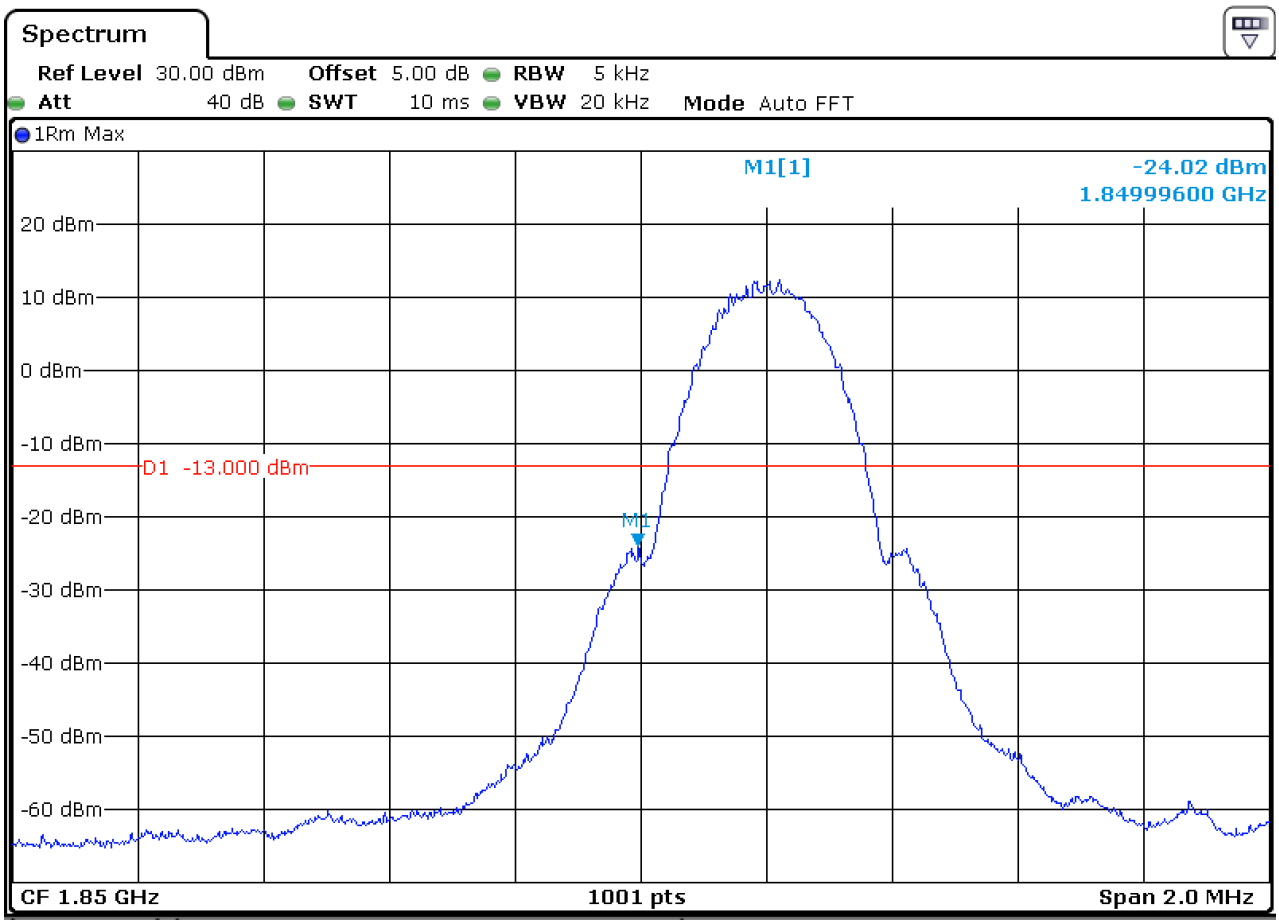
5.1.1.2.2 Test Channel = HCH



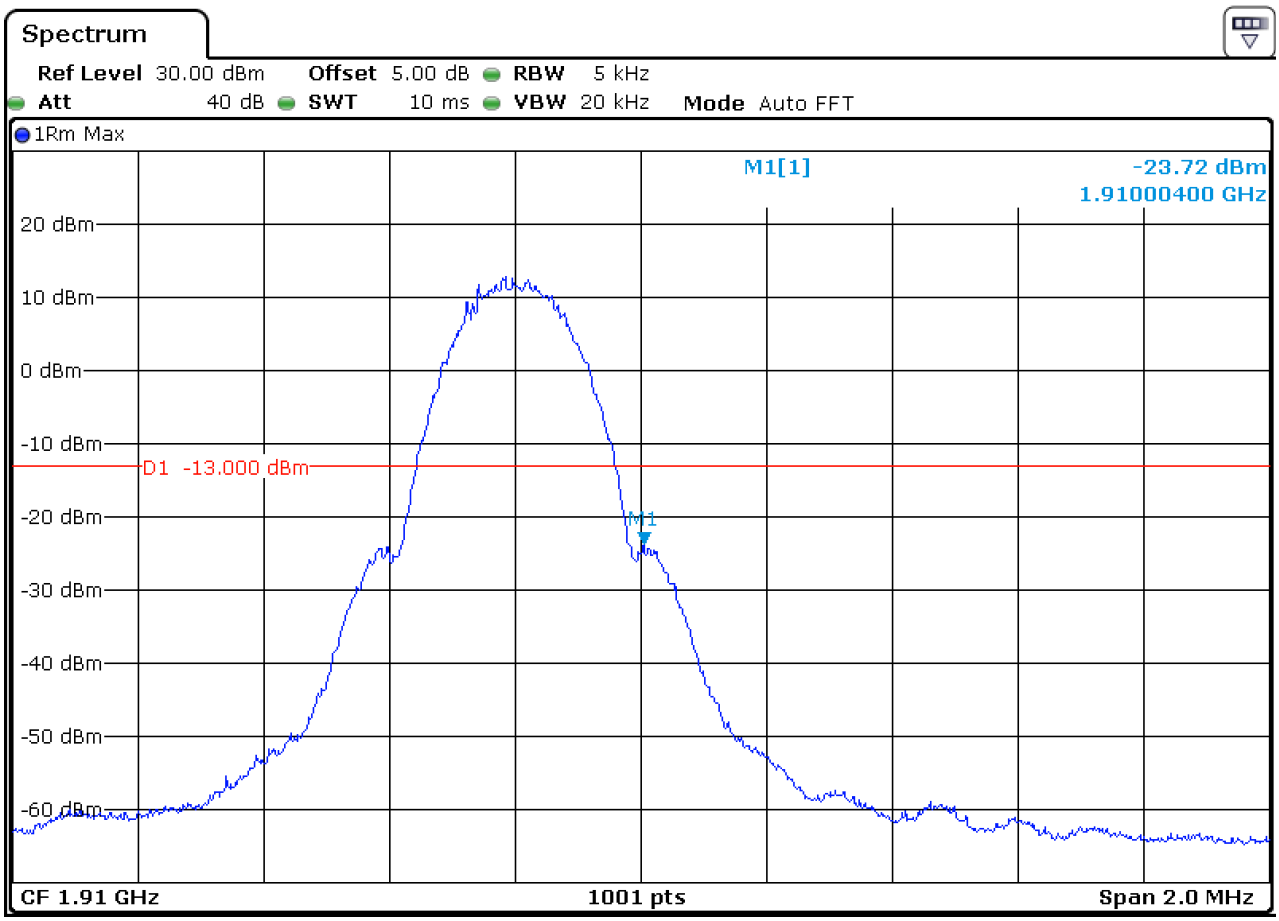
5.1.2 Test Band = GSM1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

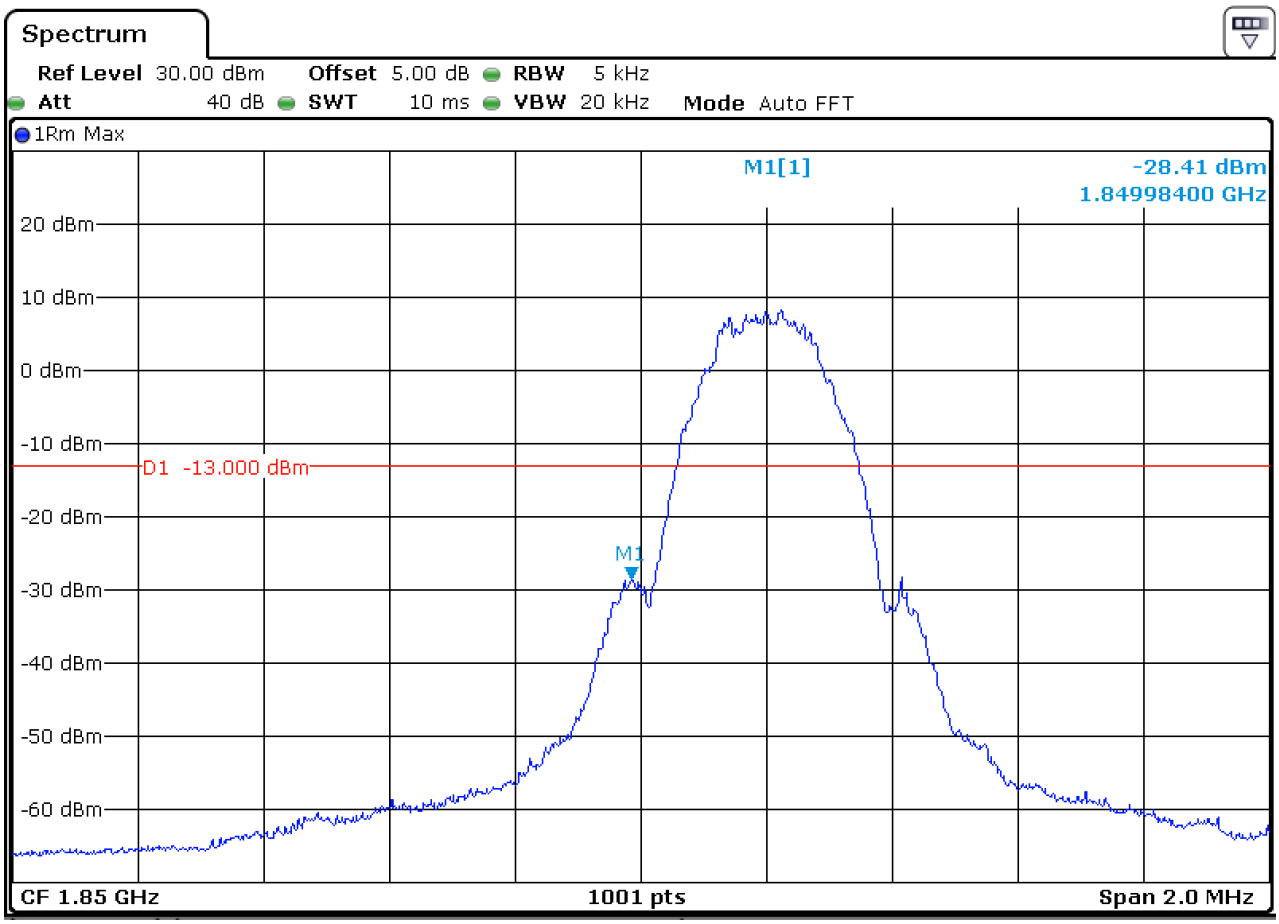


5.1.2.1.2 Test Channel = HCH

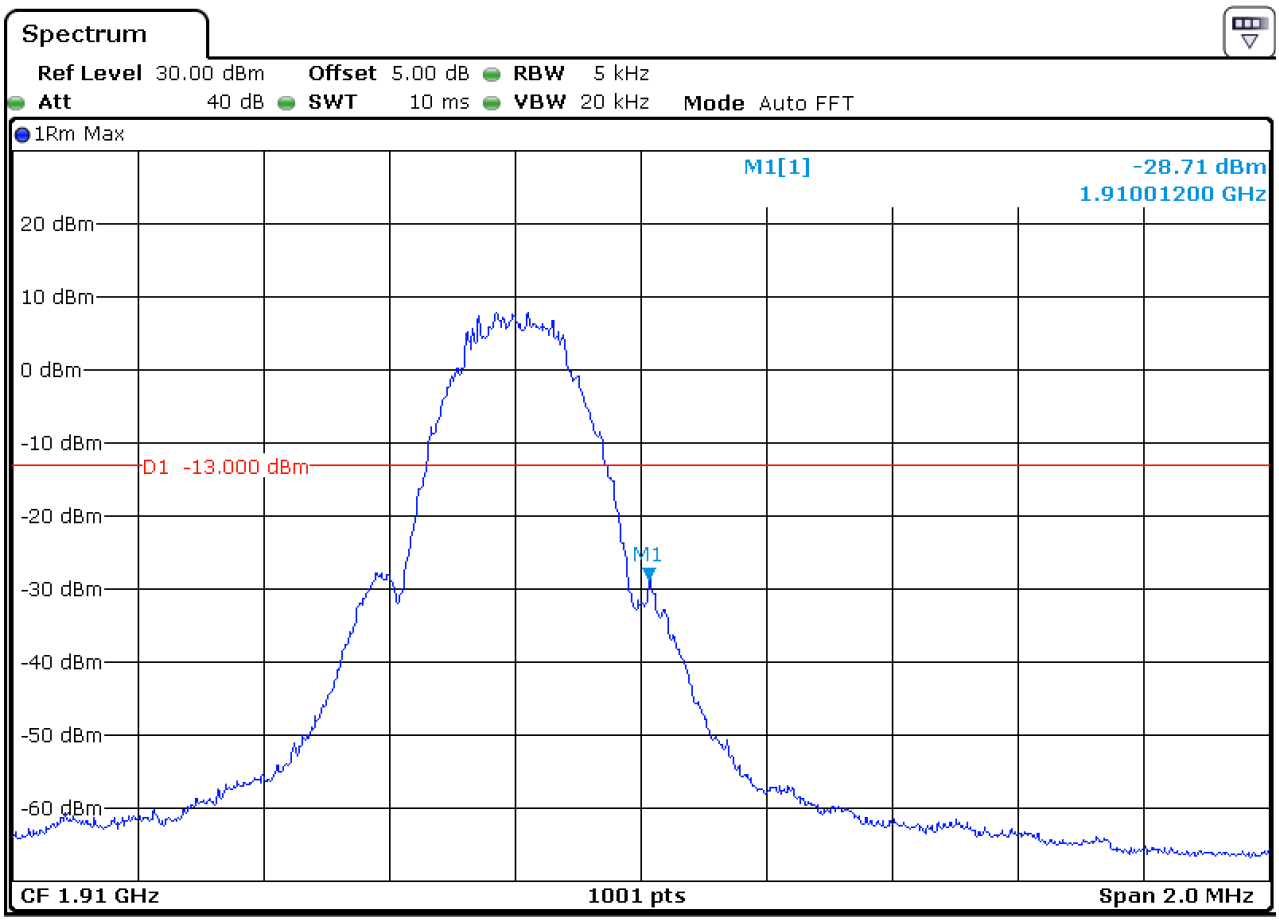


5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH



5.1.2.2.2 Test Channel = HCH

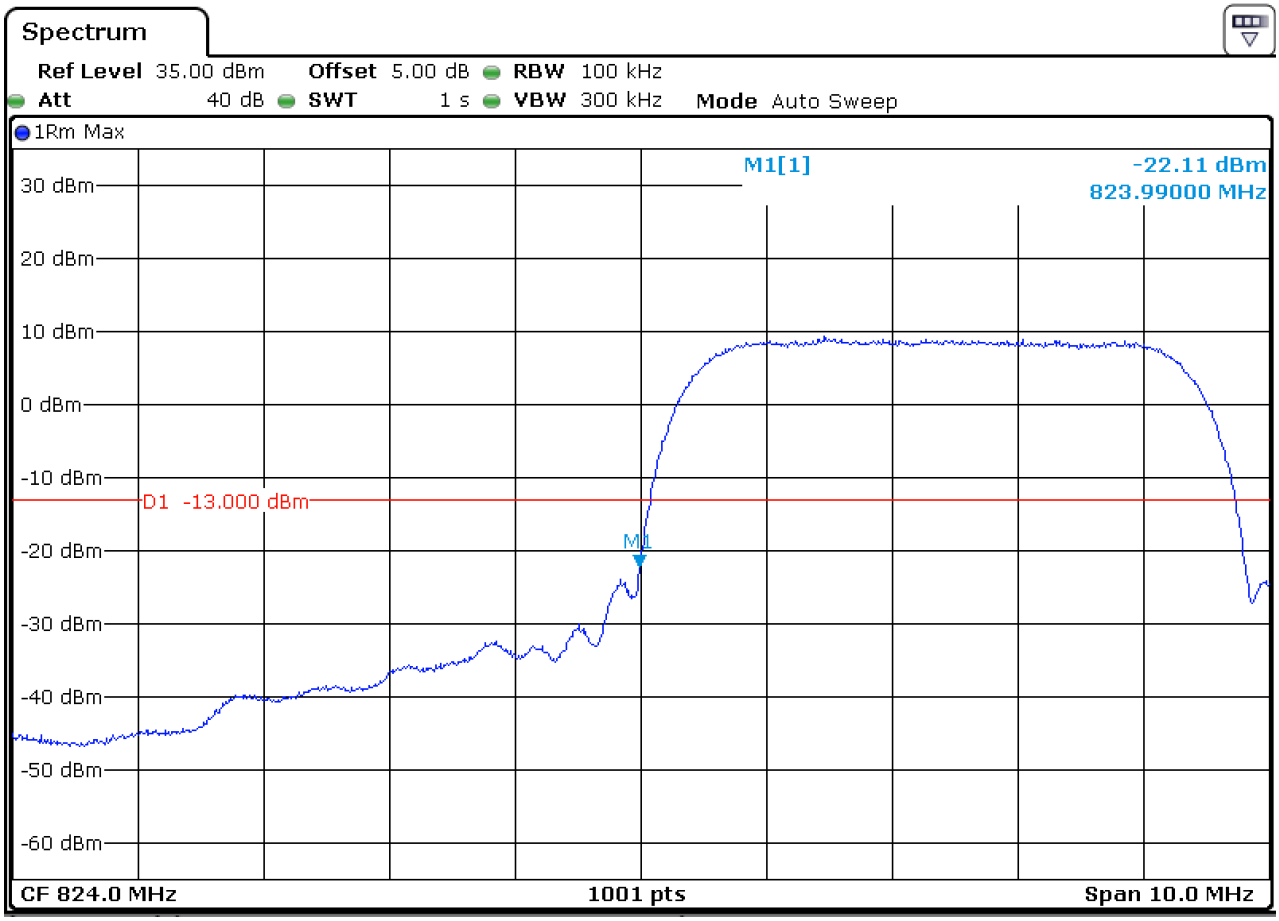


5.2 For WCDMA

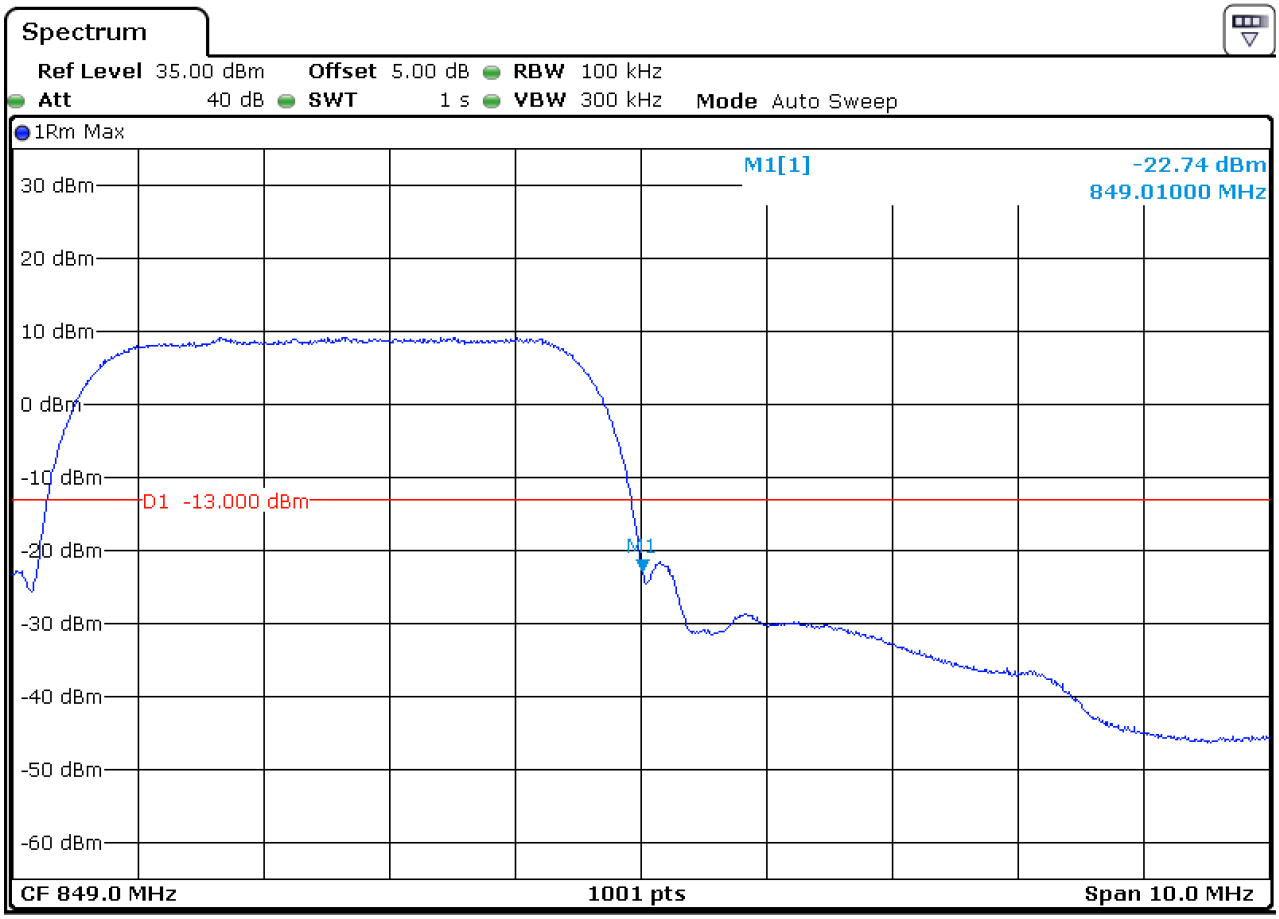
5.2.1 Test Band = WCDMA 850

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH



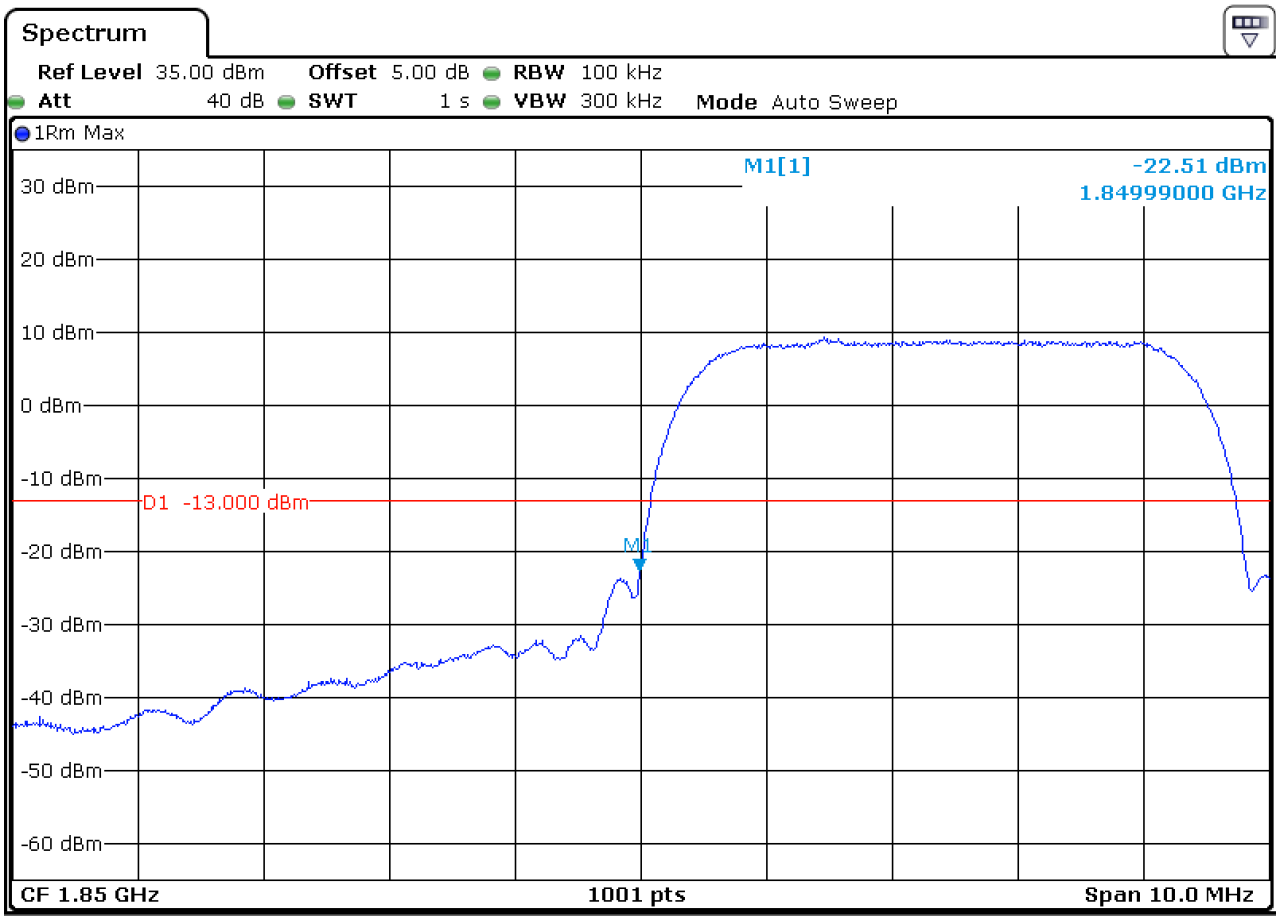
5.2.1.1.2 Test Channel = HCH



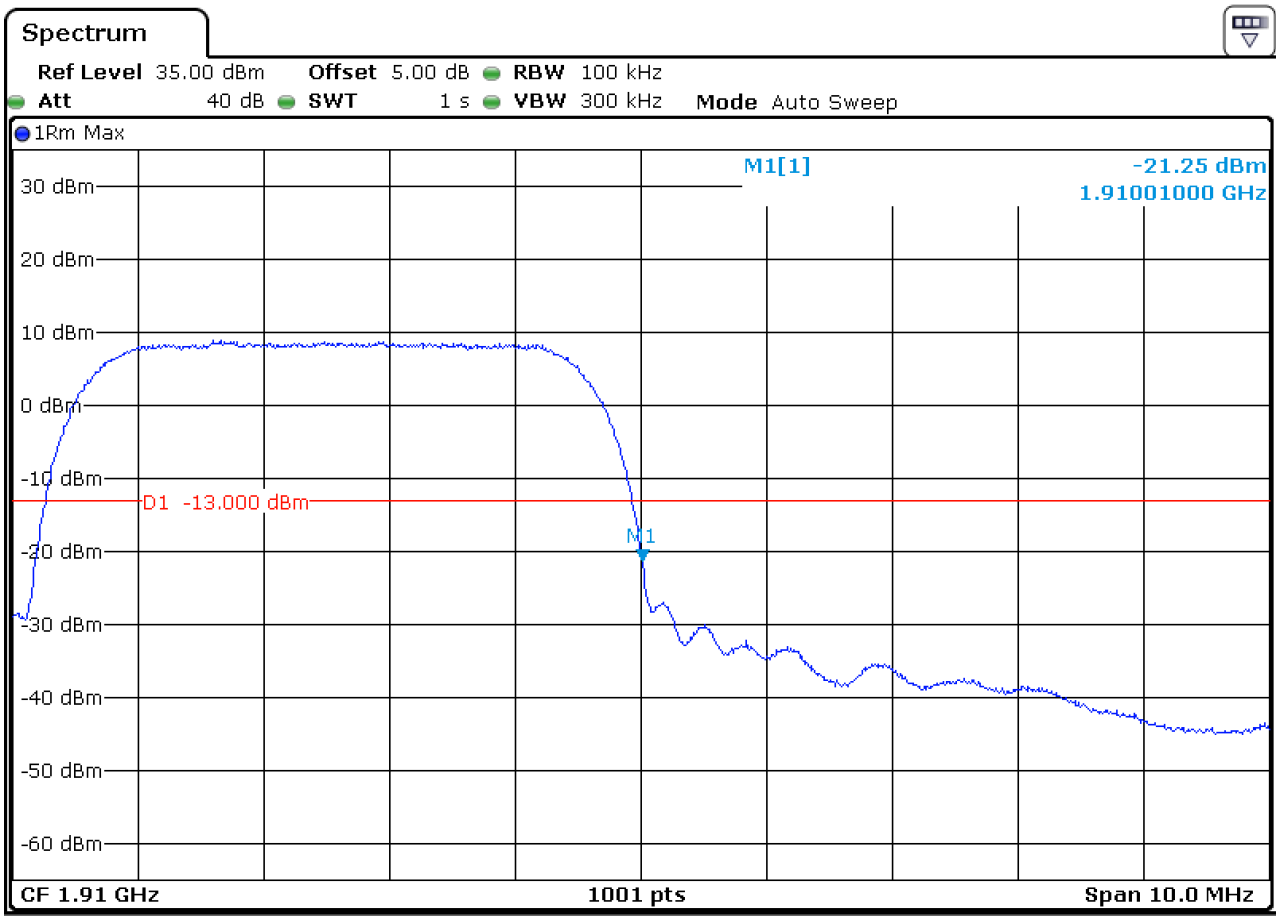
5.2.2 Test Band = WCDMA 1900

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH



5.2.2.1.2 Test Channel = HCH



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.

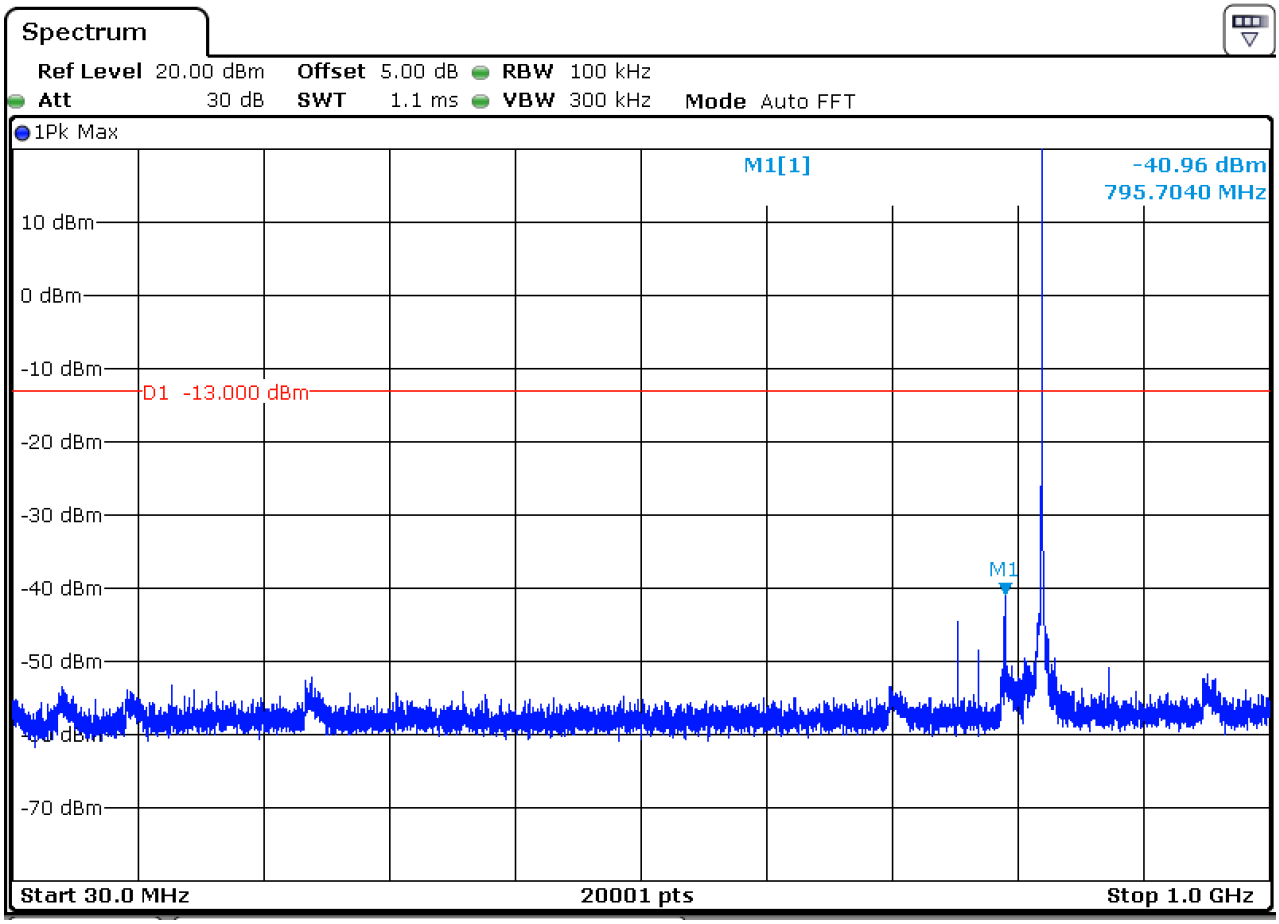
Part I - Test Plots

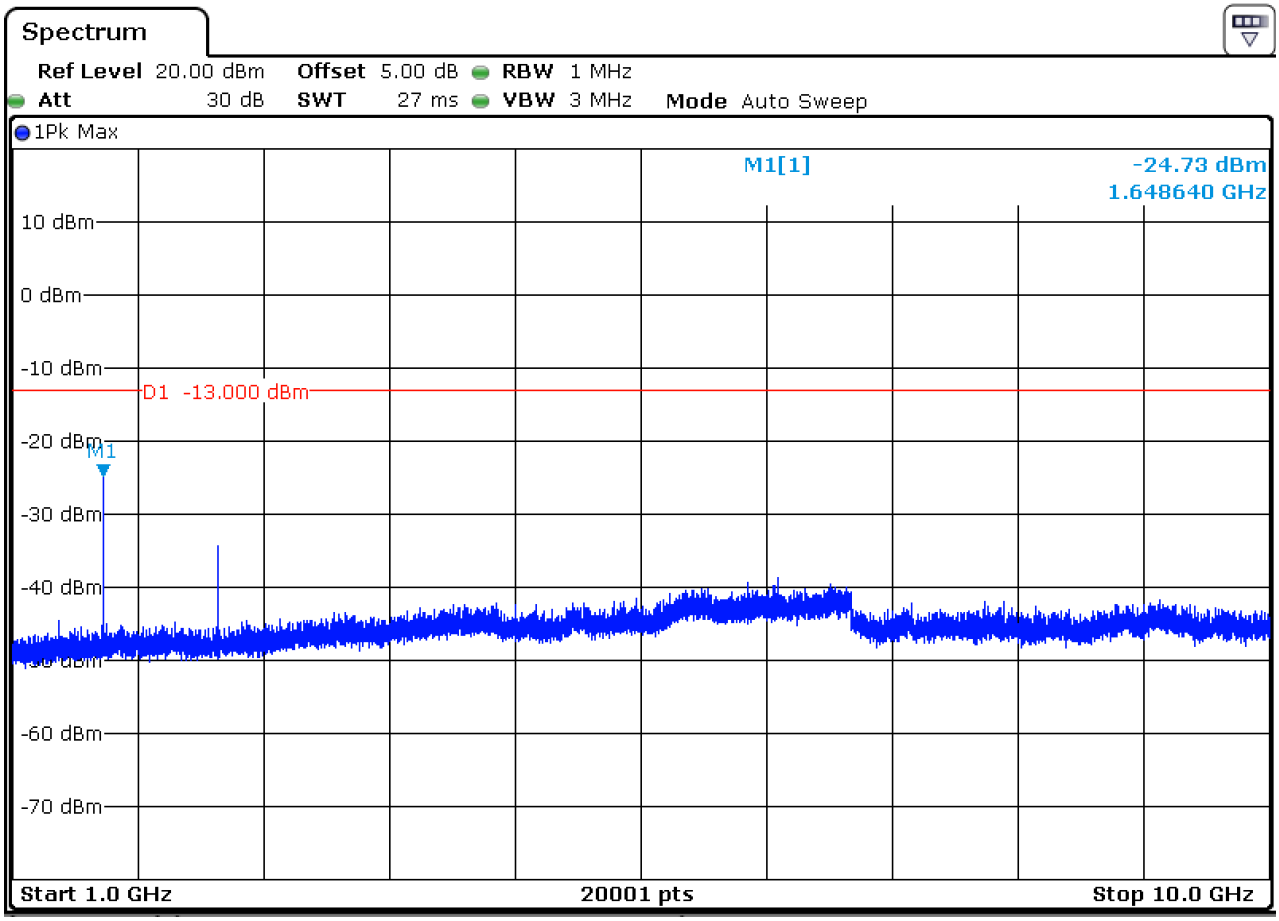
6.1 For GSM

6.1.1 Test Band = GSM850

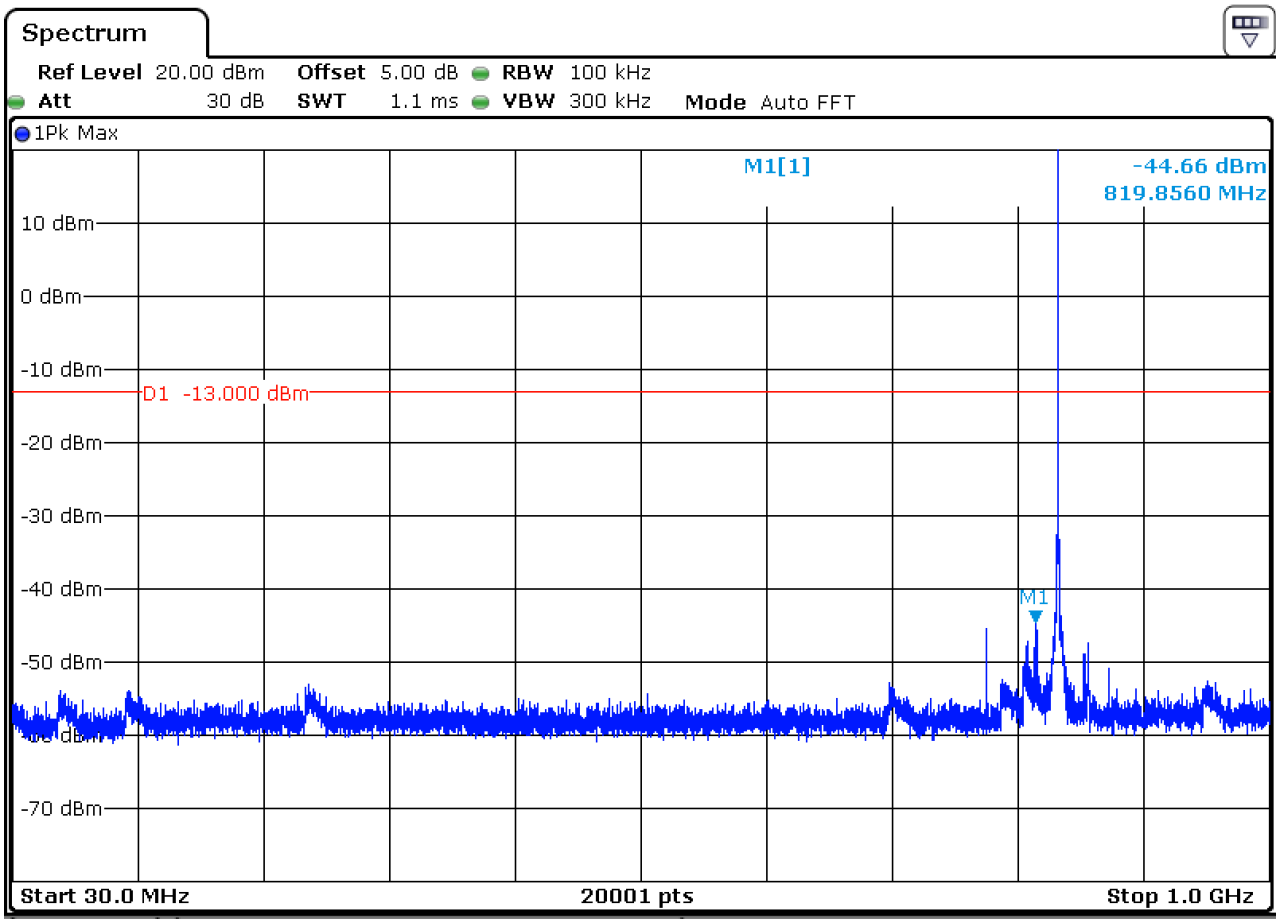
6.1.1.1 Test Mode = GSM/TM1

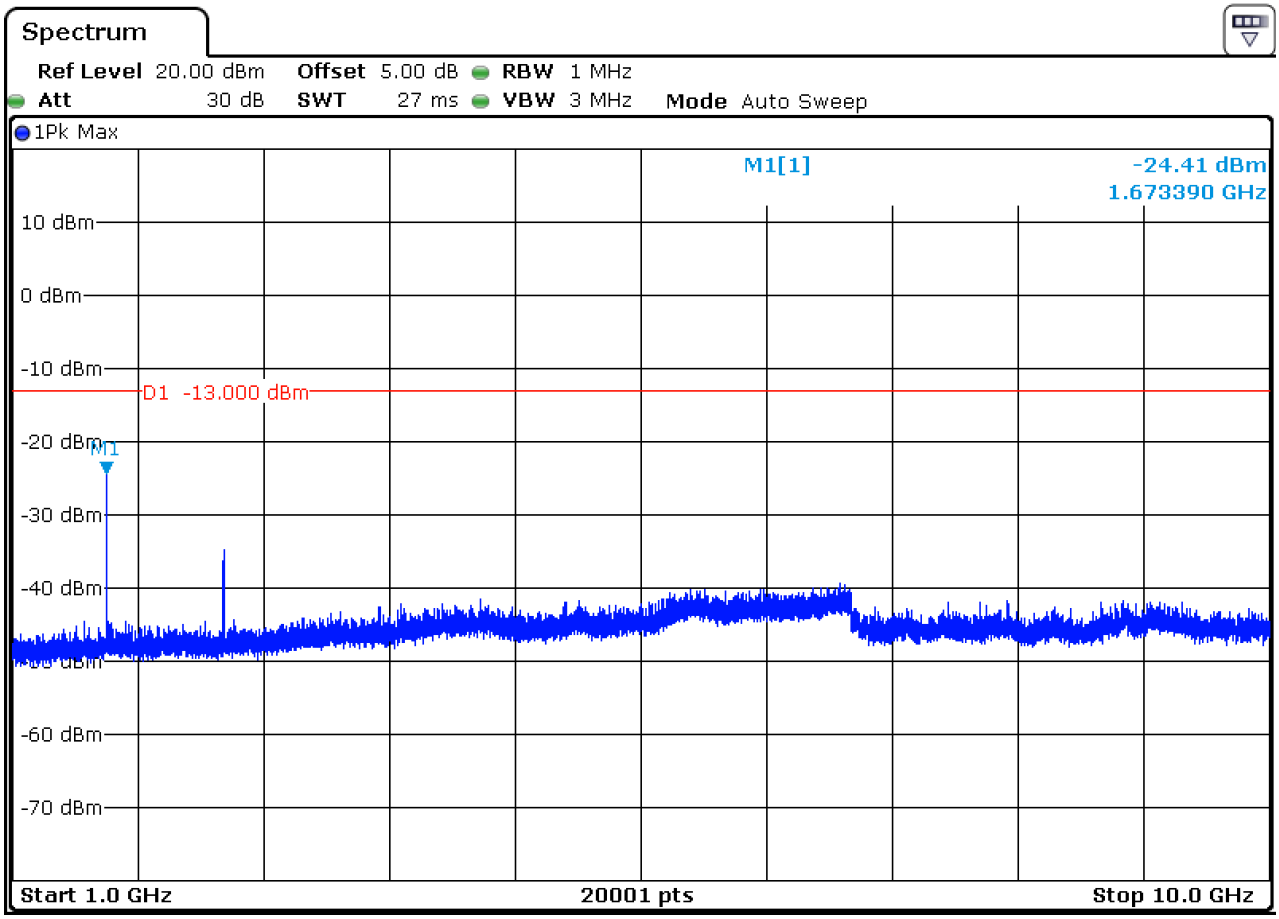
6.1.1.1.1 Test Channel = LCH



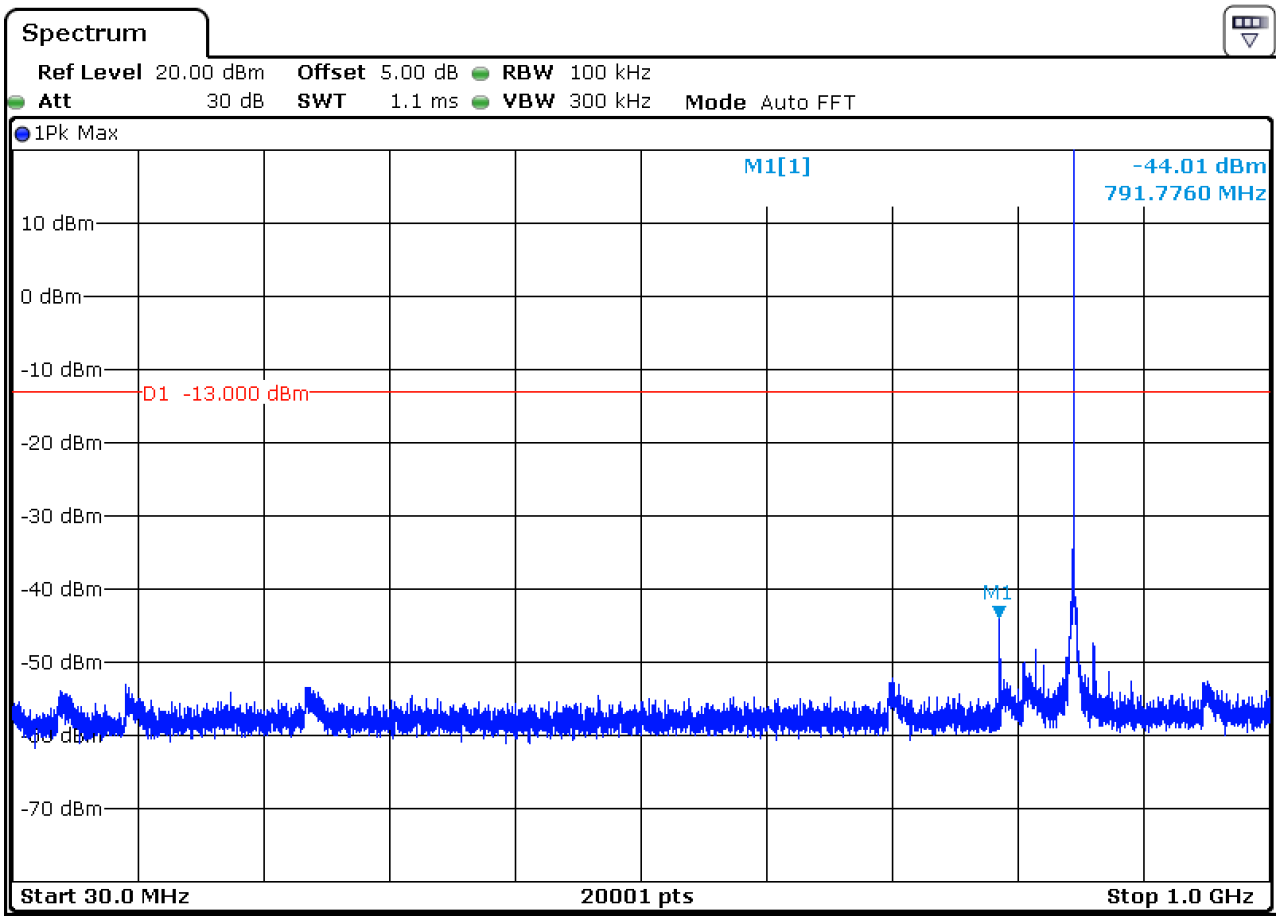

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-24.73 dBm
1.648640 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

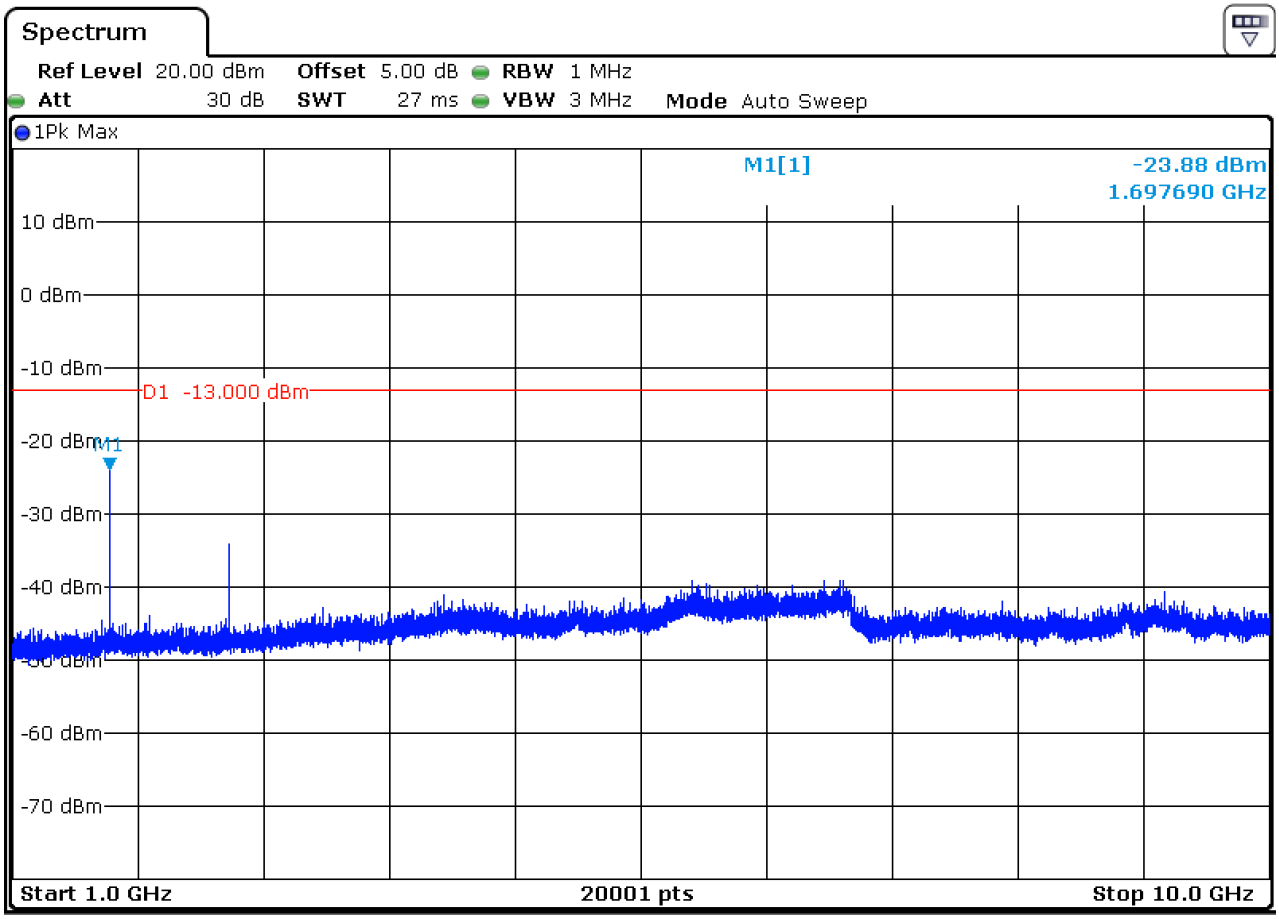
6.1.1.1.2 Test Channel = MCH




Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-24.41 dBm
1.673390 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

6.1.1.1.3 Test Channel = HCH

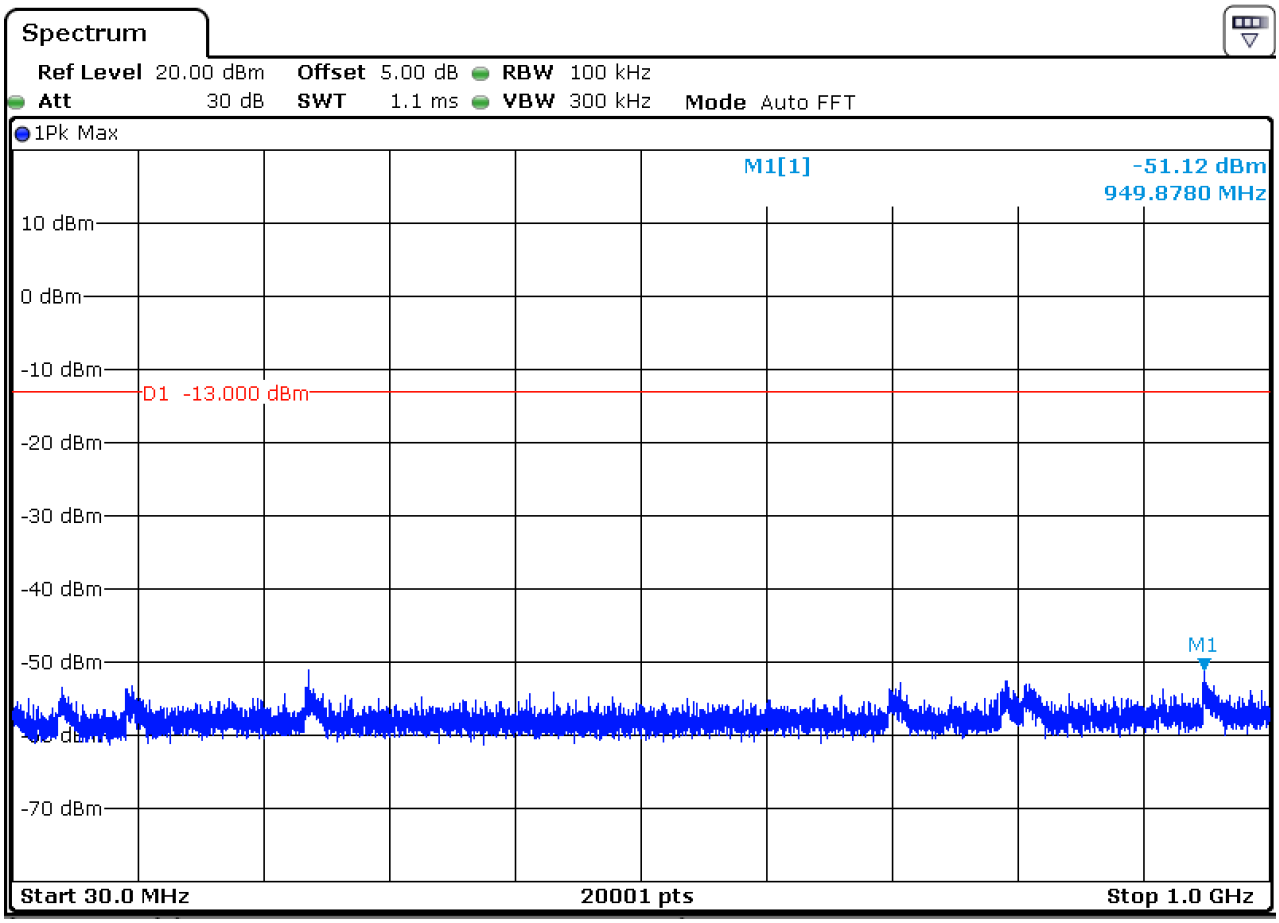


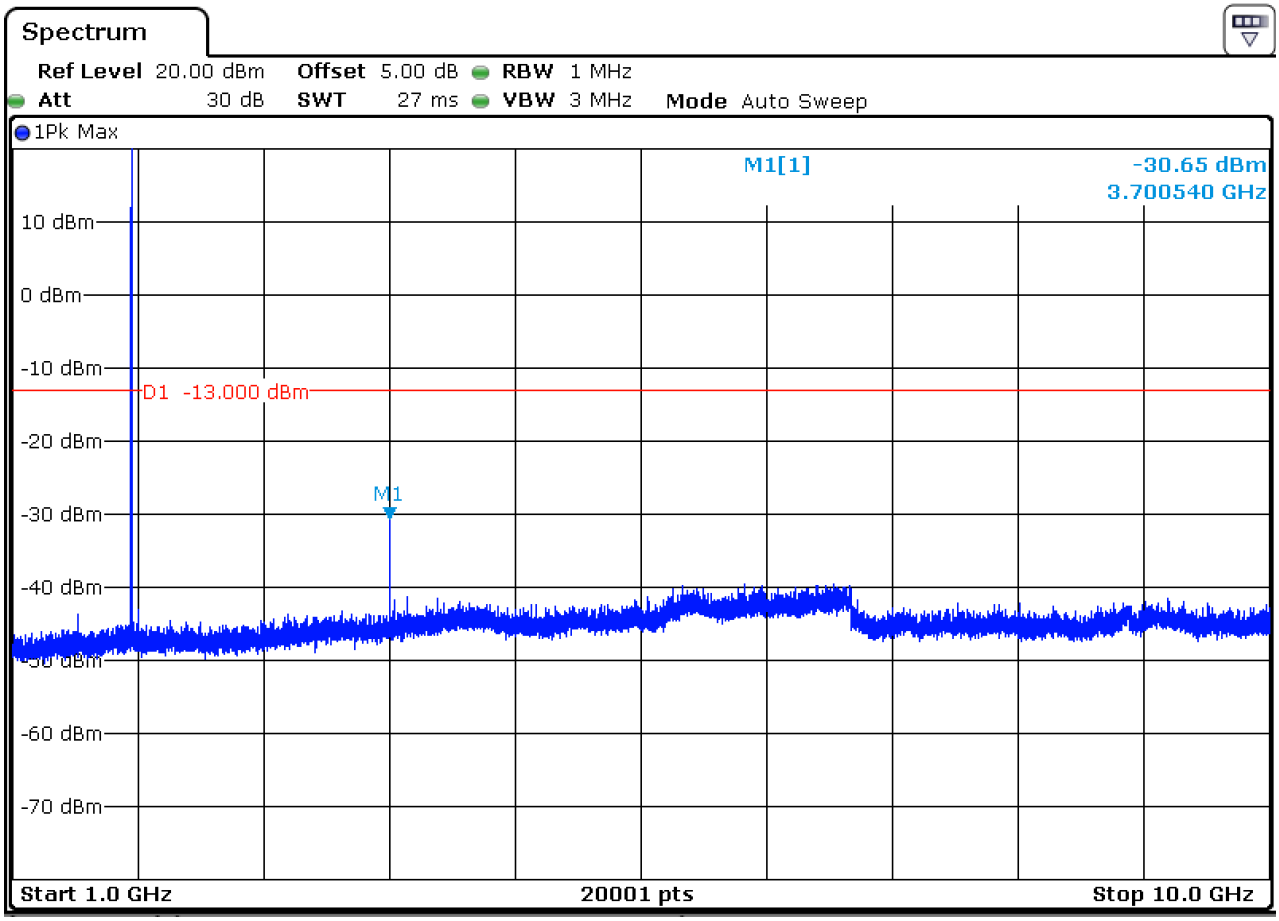

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-23.88 dBm
1.697690 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

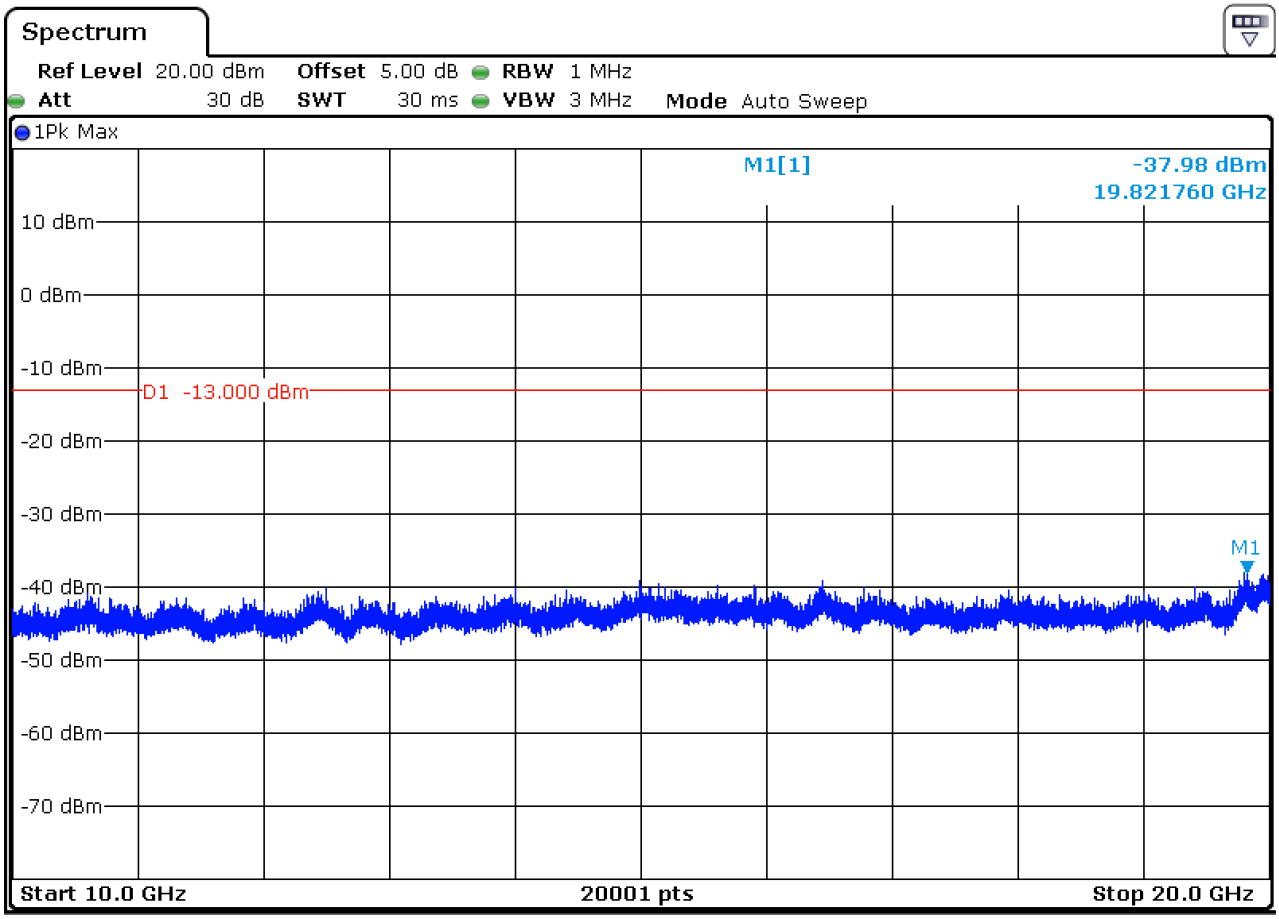
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

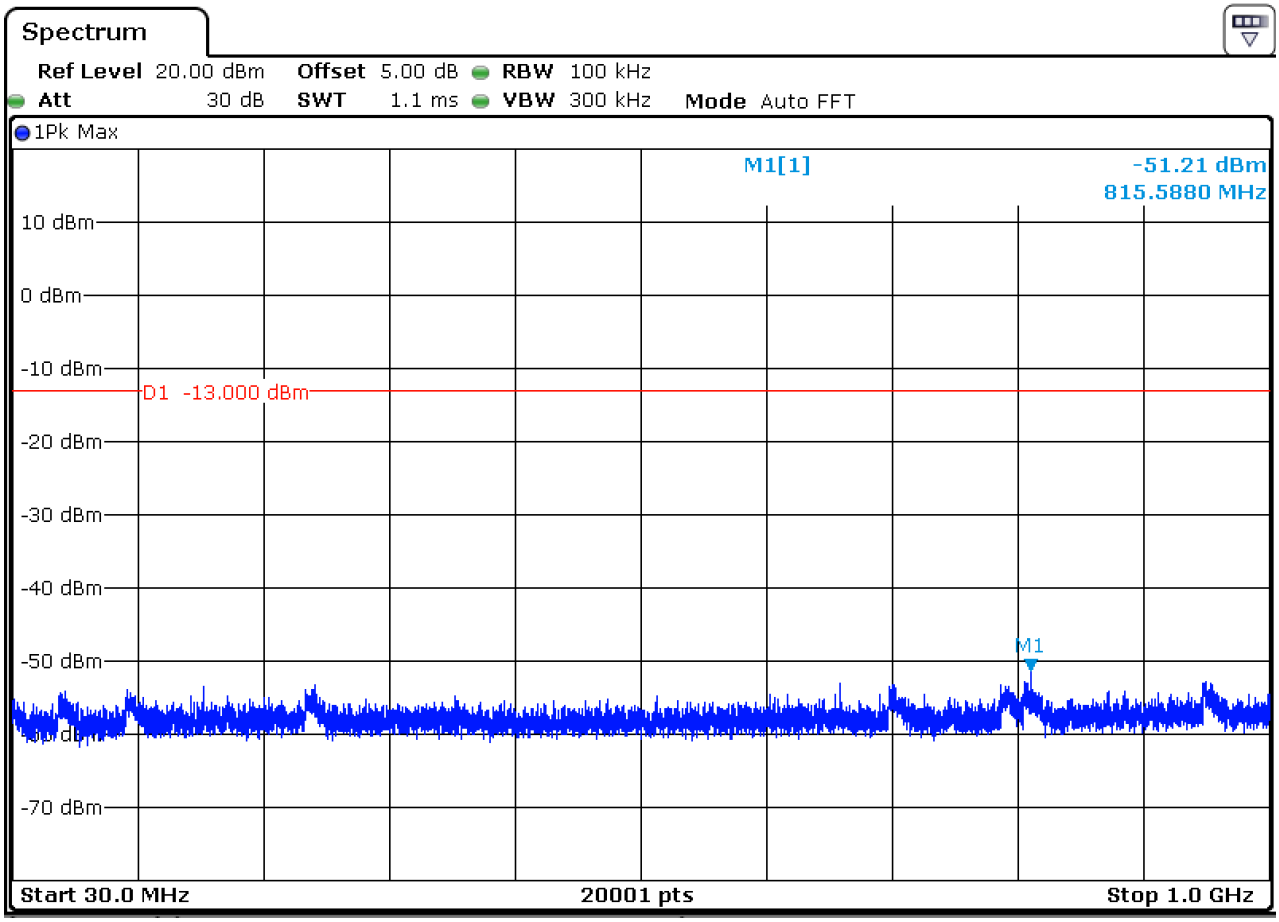
6.1.2.1.1 Test Channel = LCH

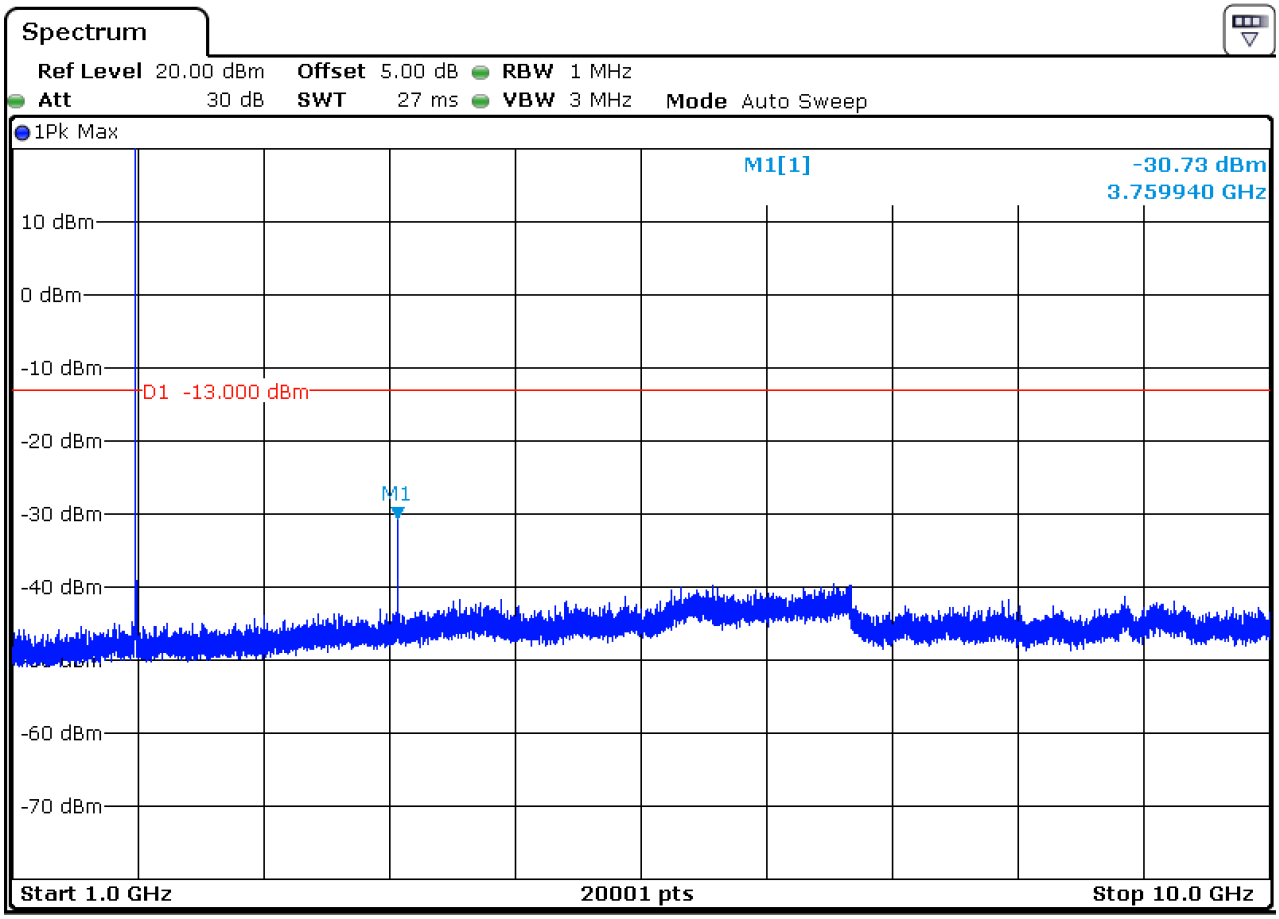


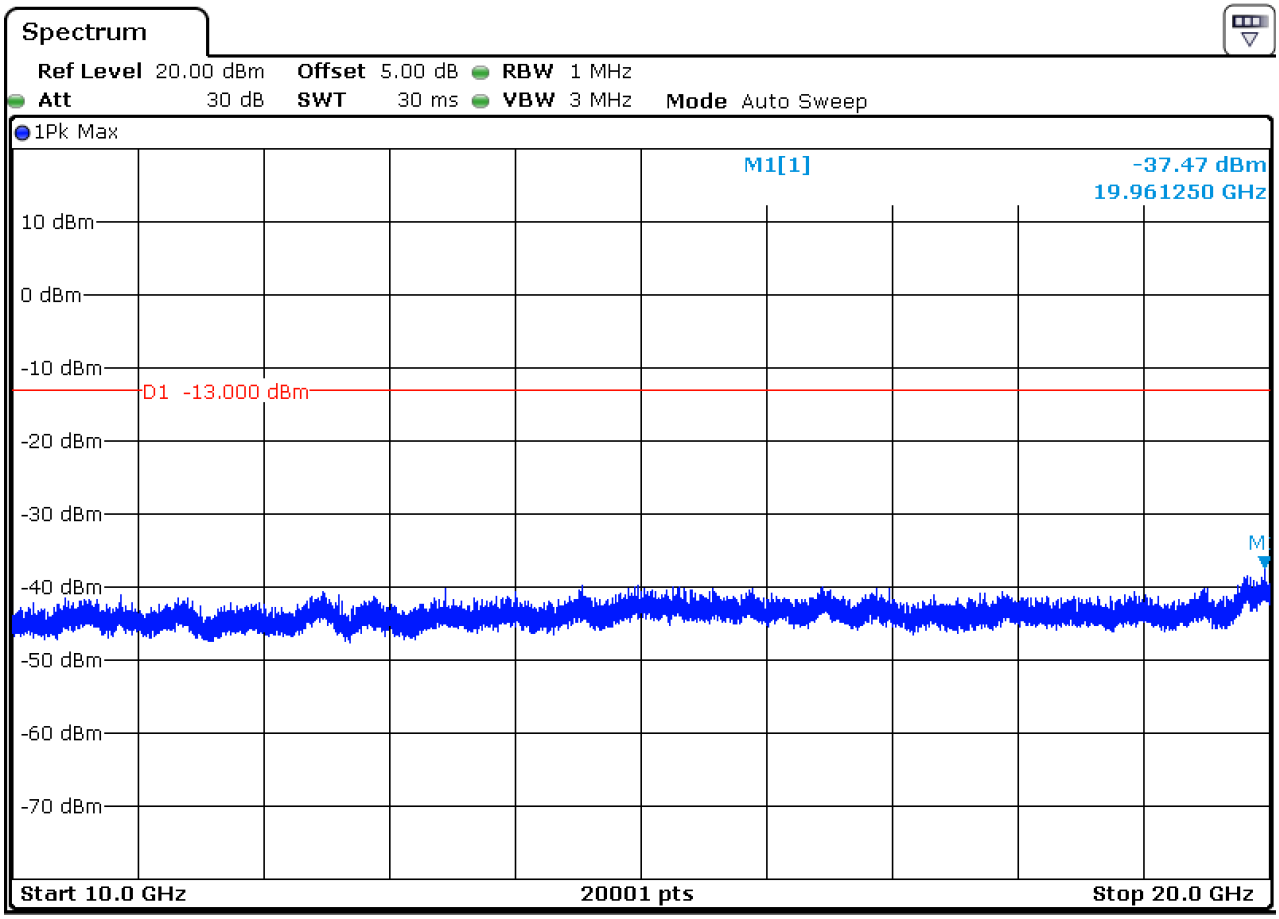

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-30.65 dBm
3.700540 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz


Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-37.98 dBm
19.821760 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 10.0 GHz
20001 pts
Stop 20.0 GHz

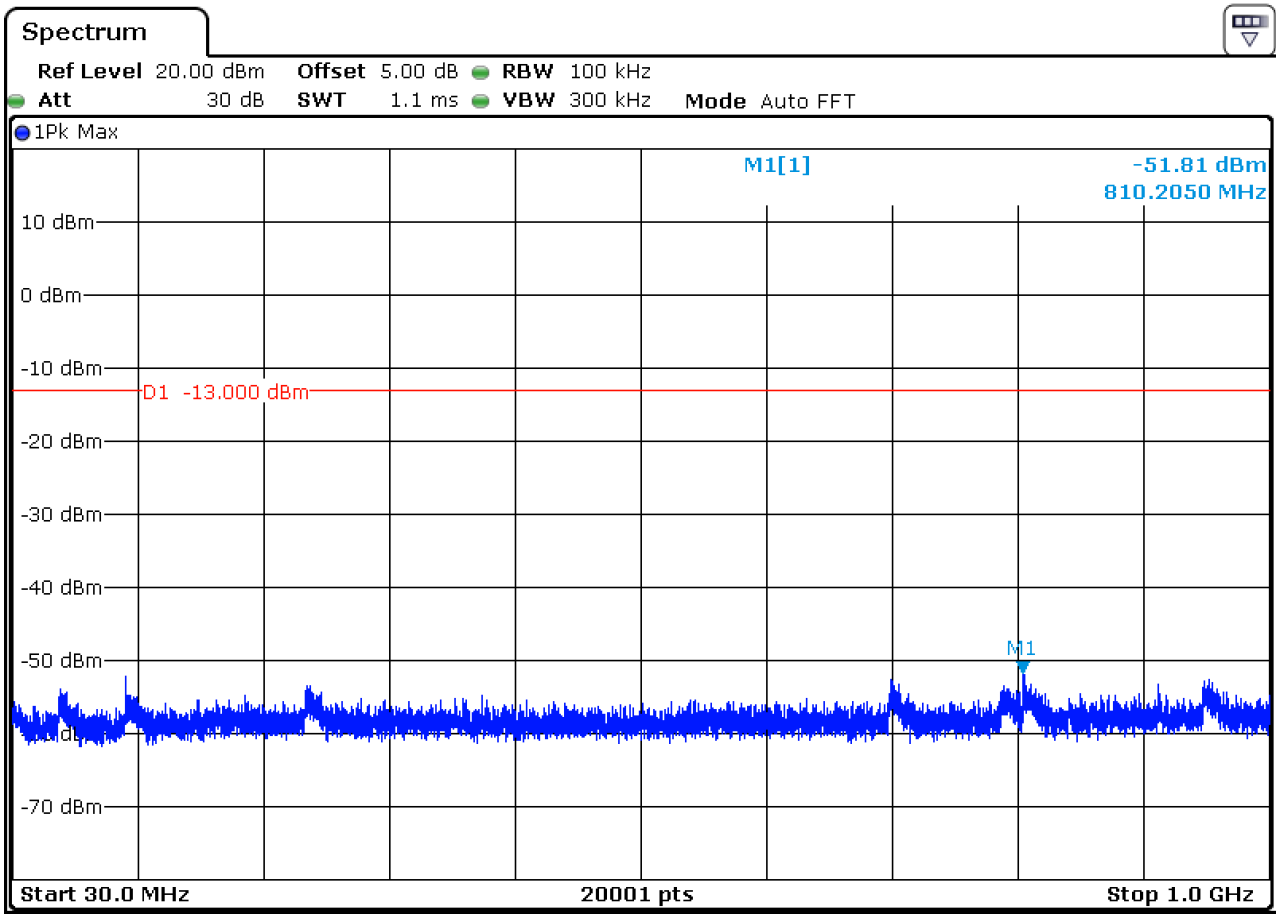
6.1.2.1.2 Test Channel = MCH

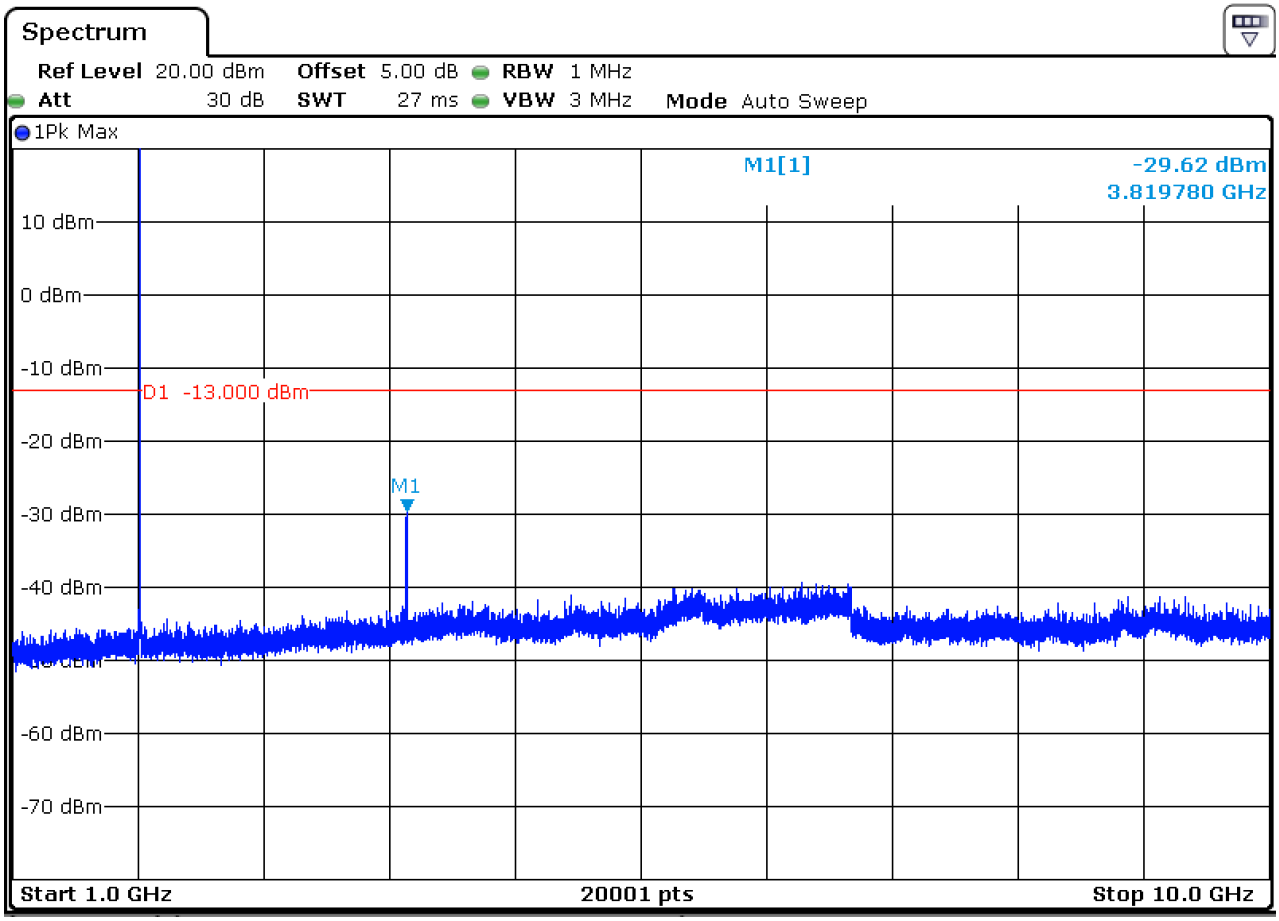


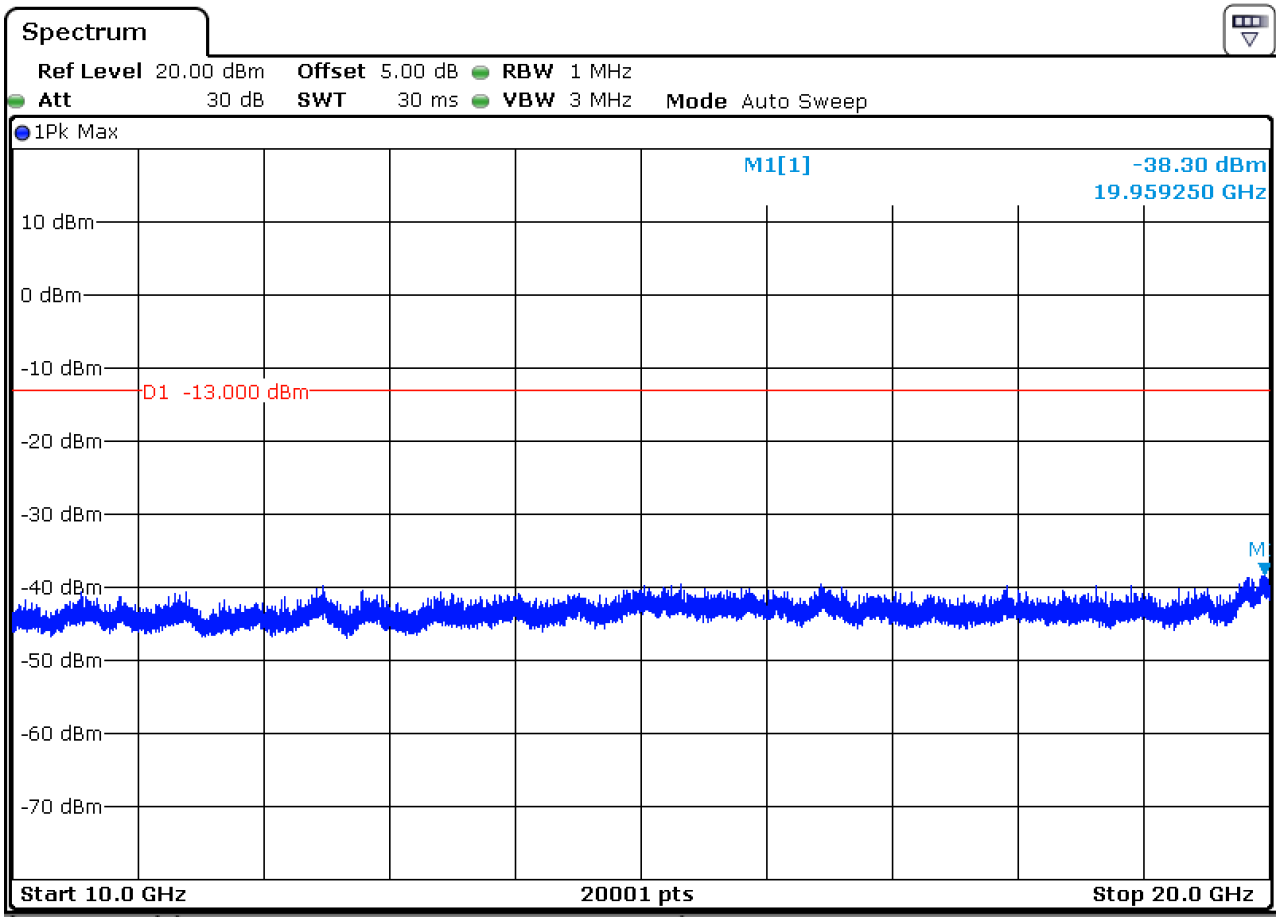

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-30.73 dBm
3.759940 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz


Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-37.47 dBm
19.961250 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 10.0 GHz
20001 pts
Stop 20.0 GHz

6.1.2.1.3 Test Channel = HCH




Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-29.62 dBm
3.819780 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
M1
-30 dBm
-40 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

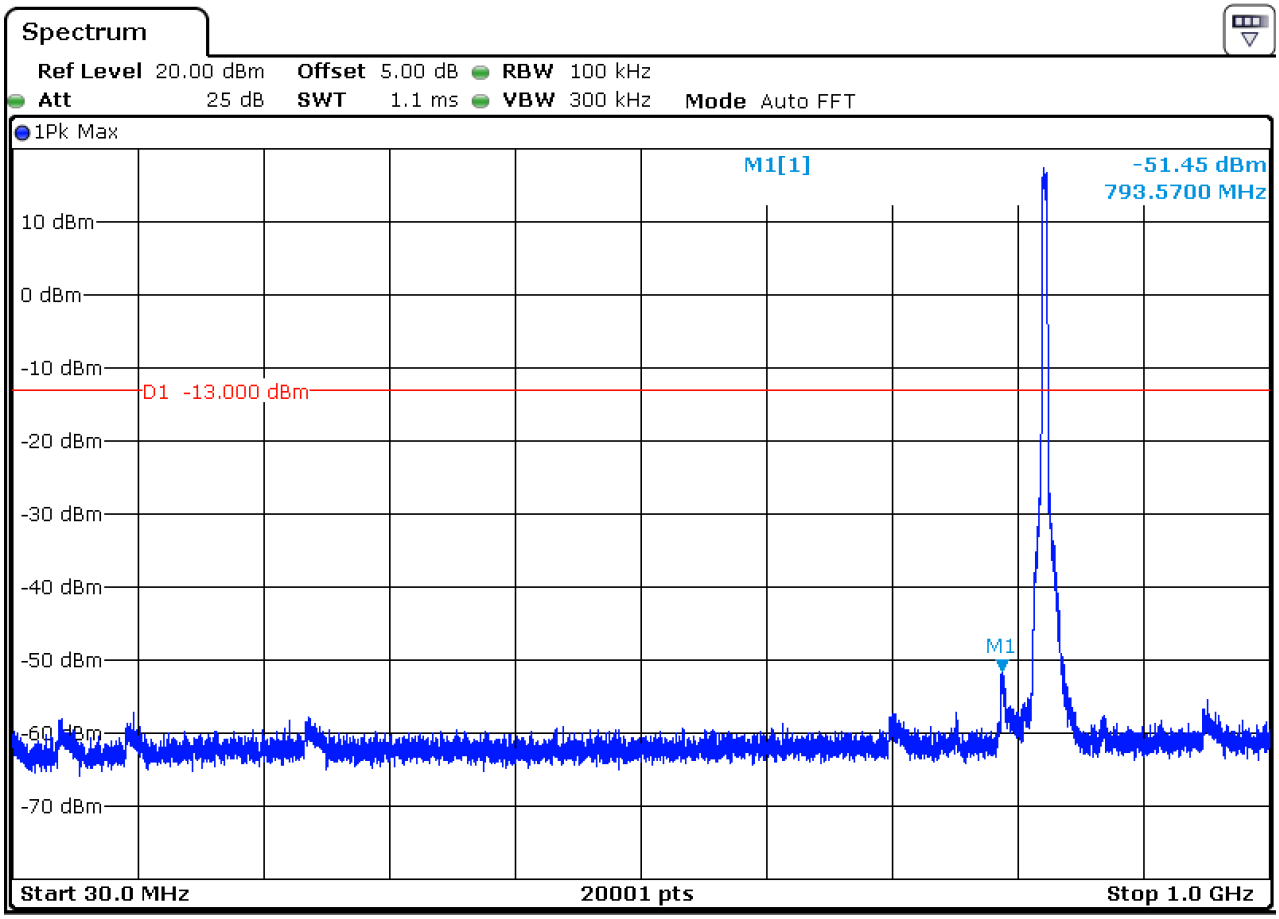

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 30 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-38.30 dBm
19.959250 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 10.0 GHz
20001 pts
Stop 20.0 GHz

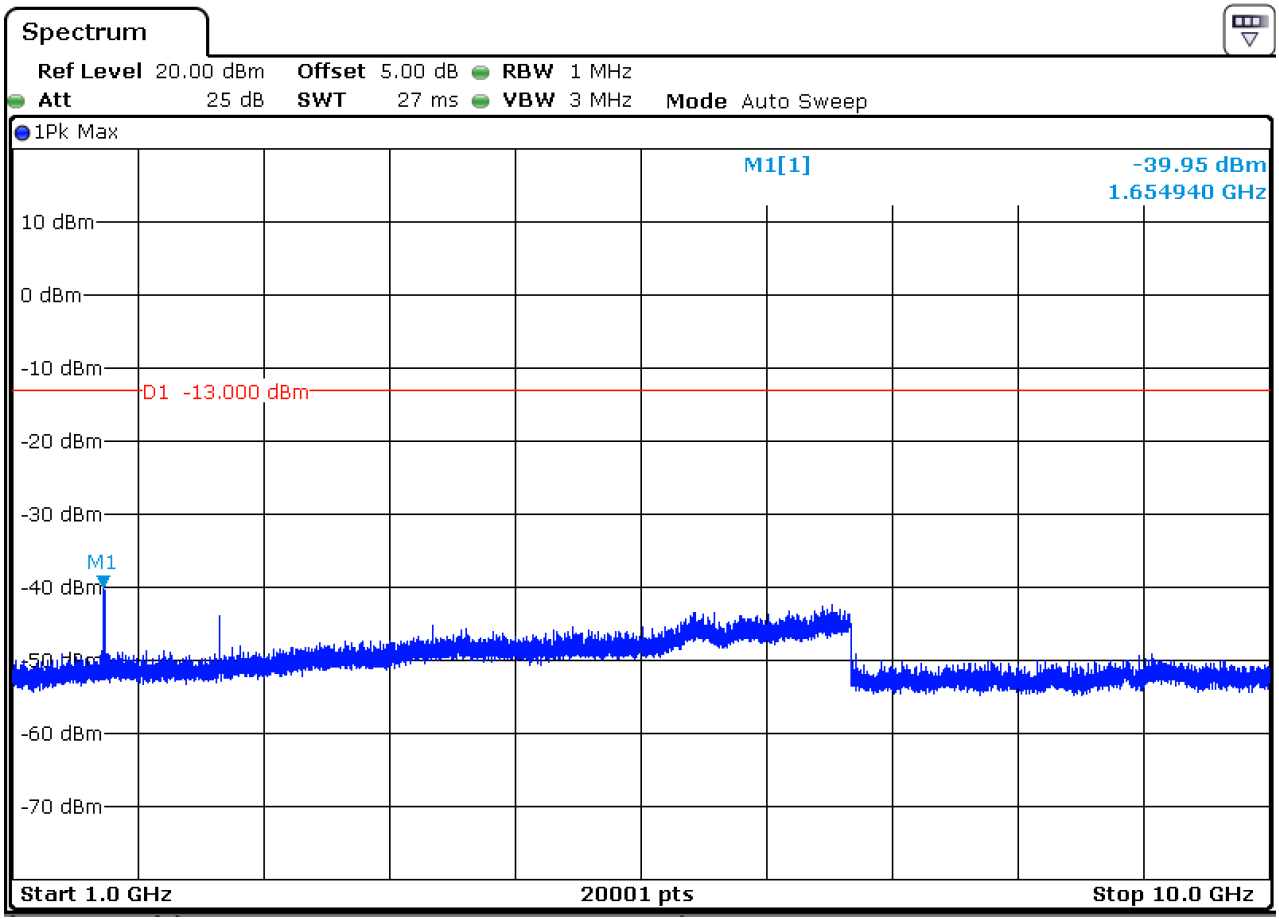
6.2 For WCDMA

6.2.1 Test Band = WCDMA 850

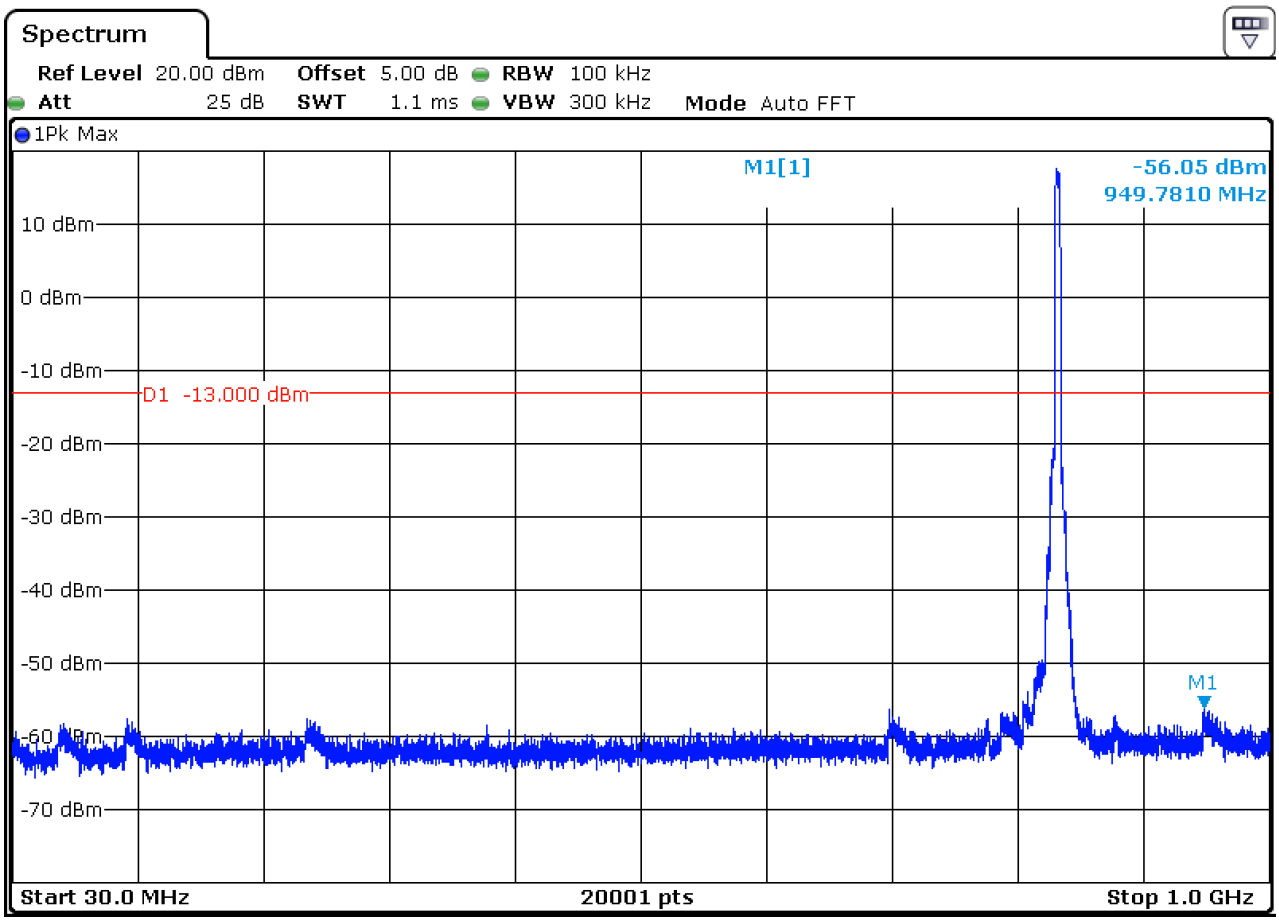
6.2.1.1 Test Mode = UMTS/TM1

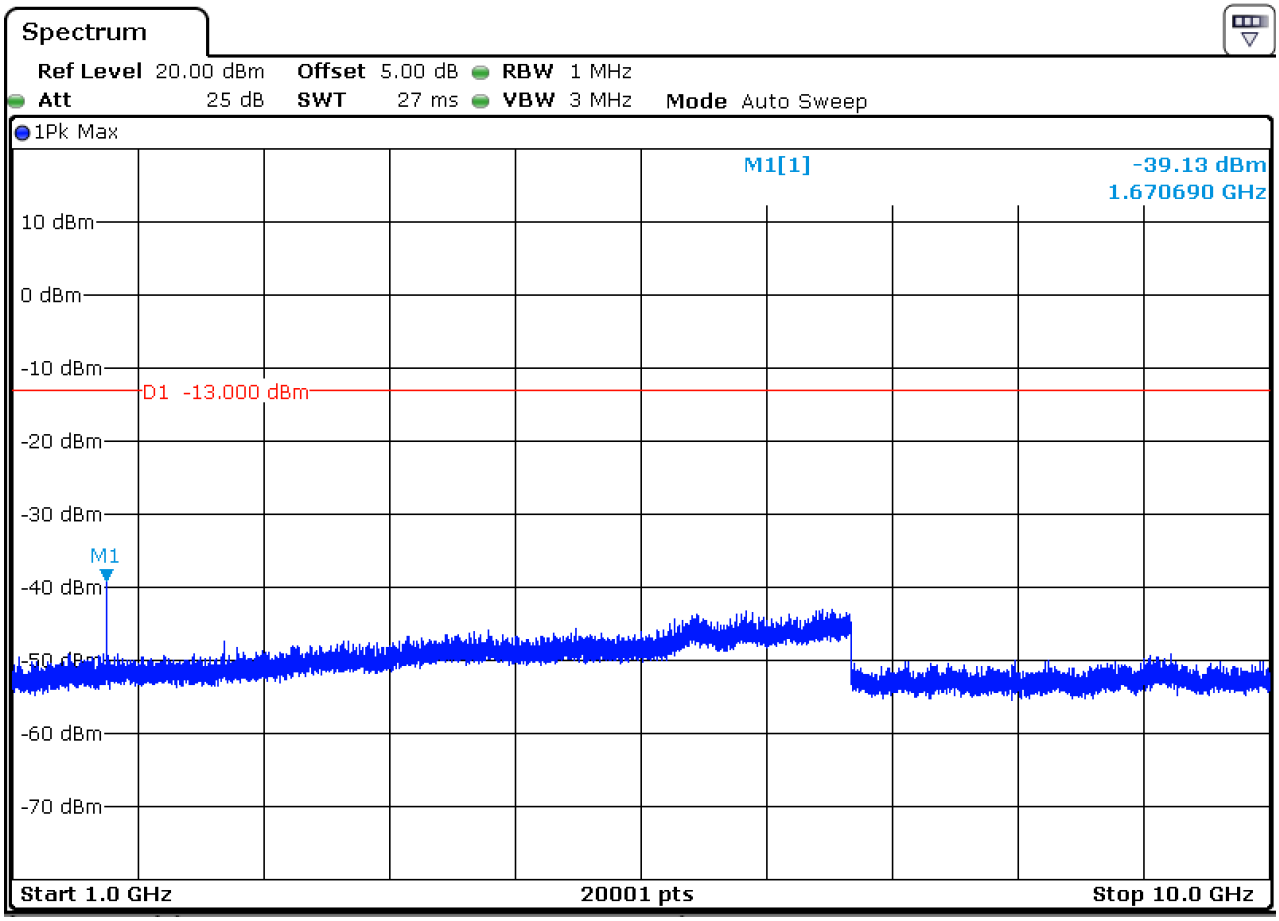
6.2.1.1.1 Test Channel = LCH



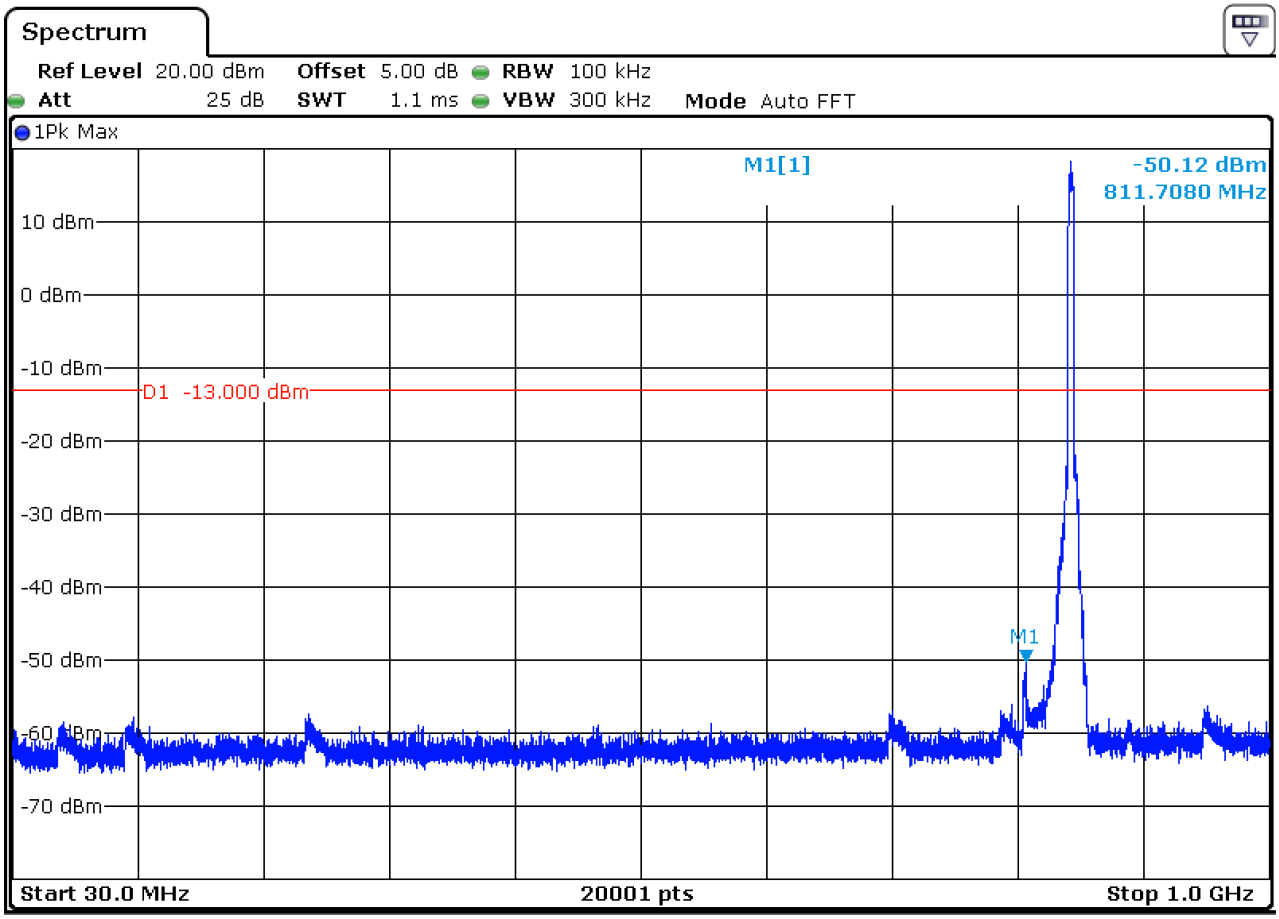

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-39.95 dBm
1.654940 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
M1
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

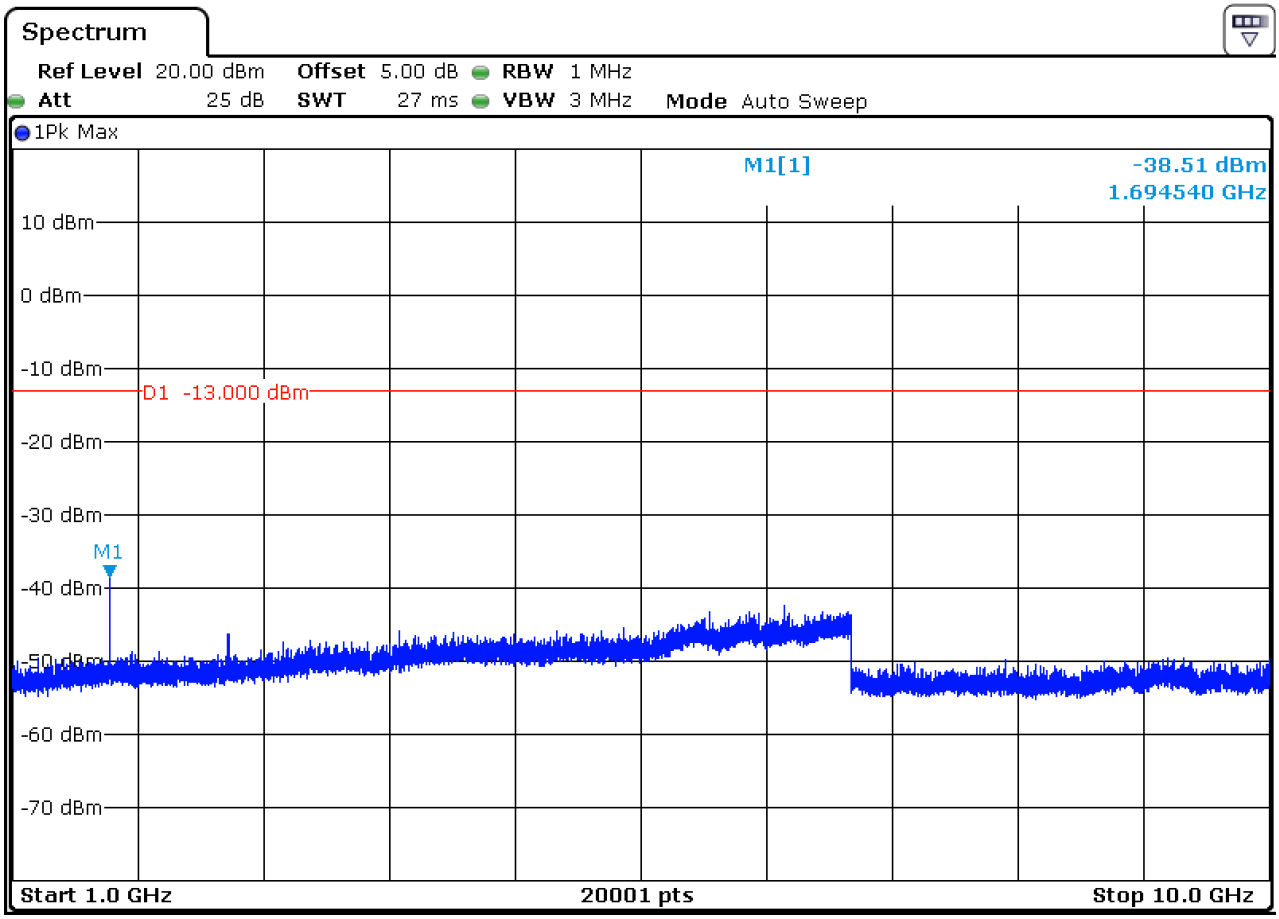
6.2.1.1.2 Test Channel = MCH




Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-39.13 dBm
1.670690 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
M1
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

6.2.1.1.3 Test Channel = HCH

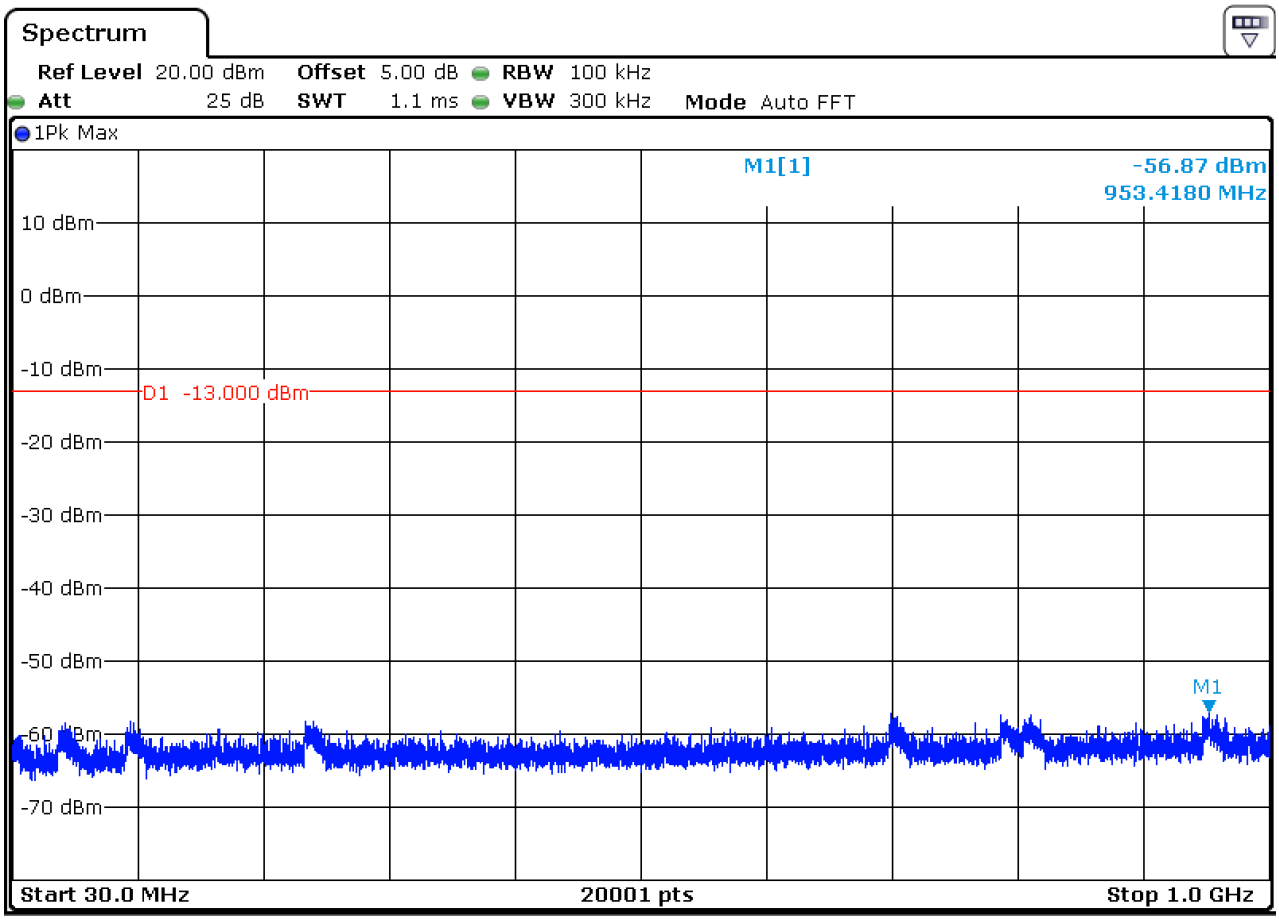


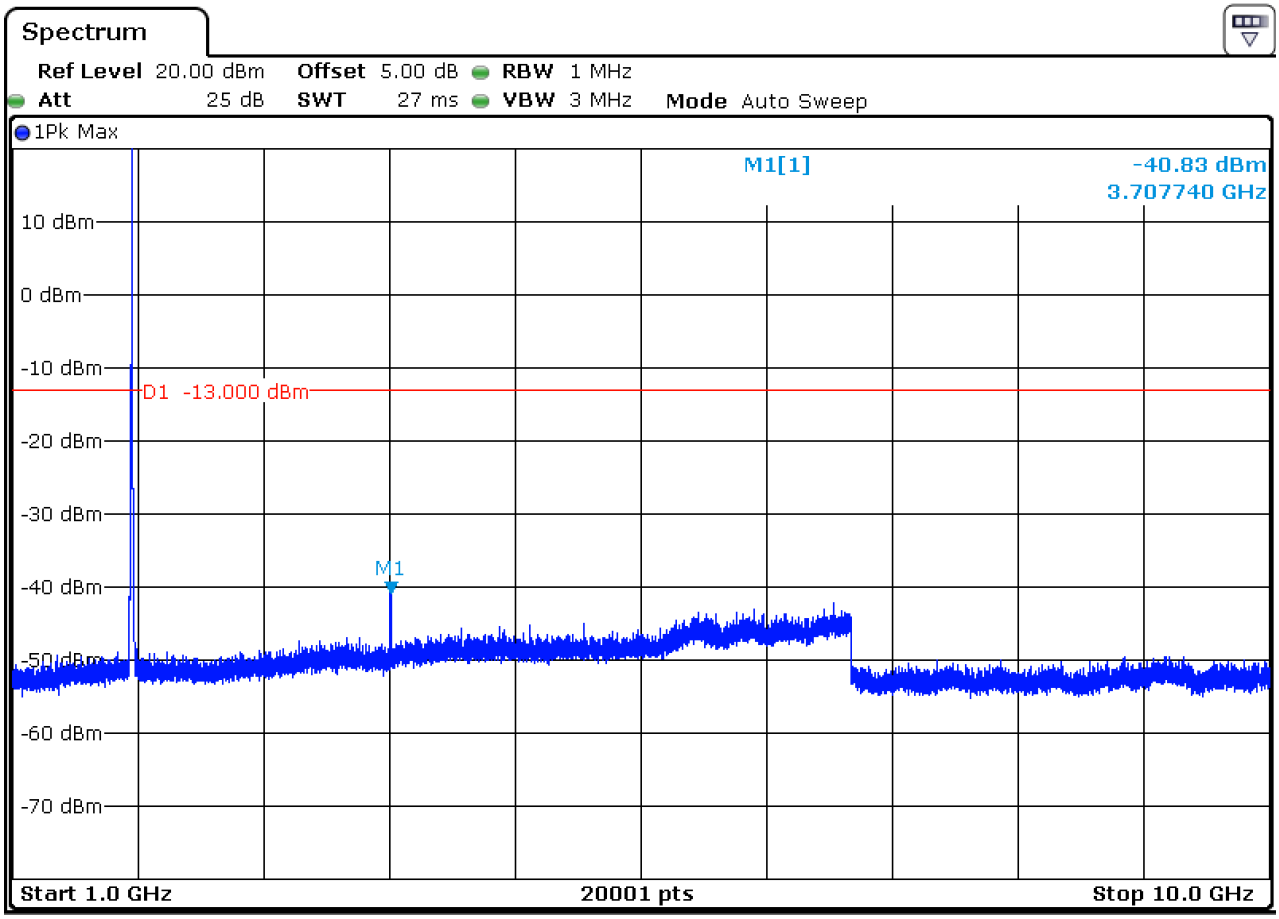

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1]
-38.51 dBm
1.694540 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
M1
-40 dBm
-50 dBm
-60 dBm
-70 dBm
Start 1.0 GHz
20001 pts
Stop 10.0 GHz

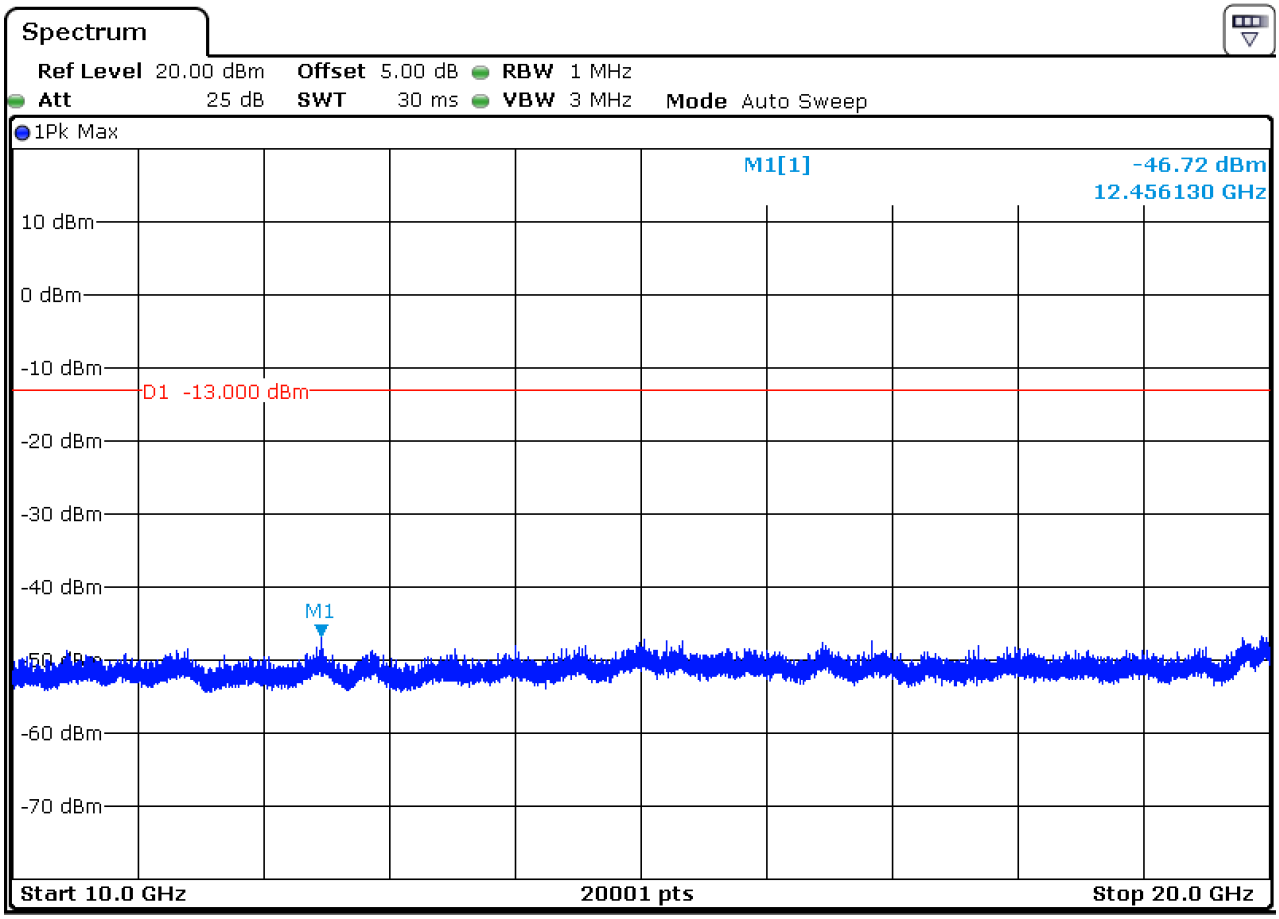
6.2.2 Test Band = WCDMA 1900

6.2.2.1 Test Mode = UMTS/TM1

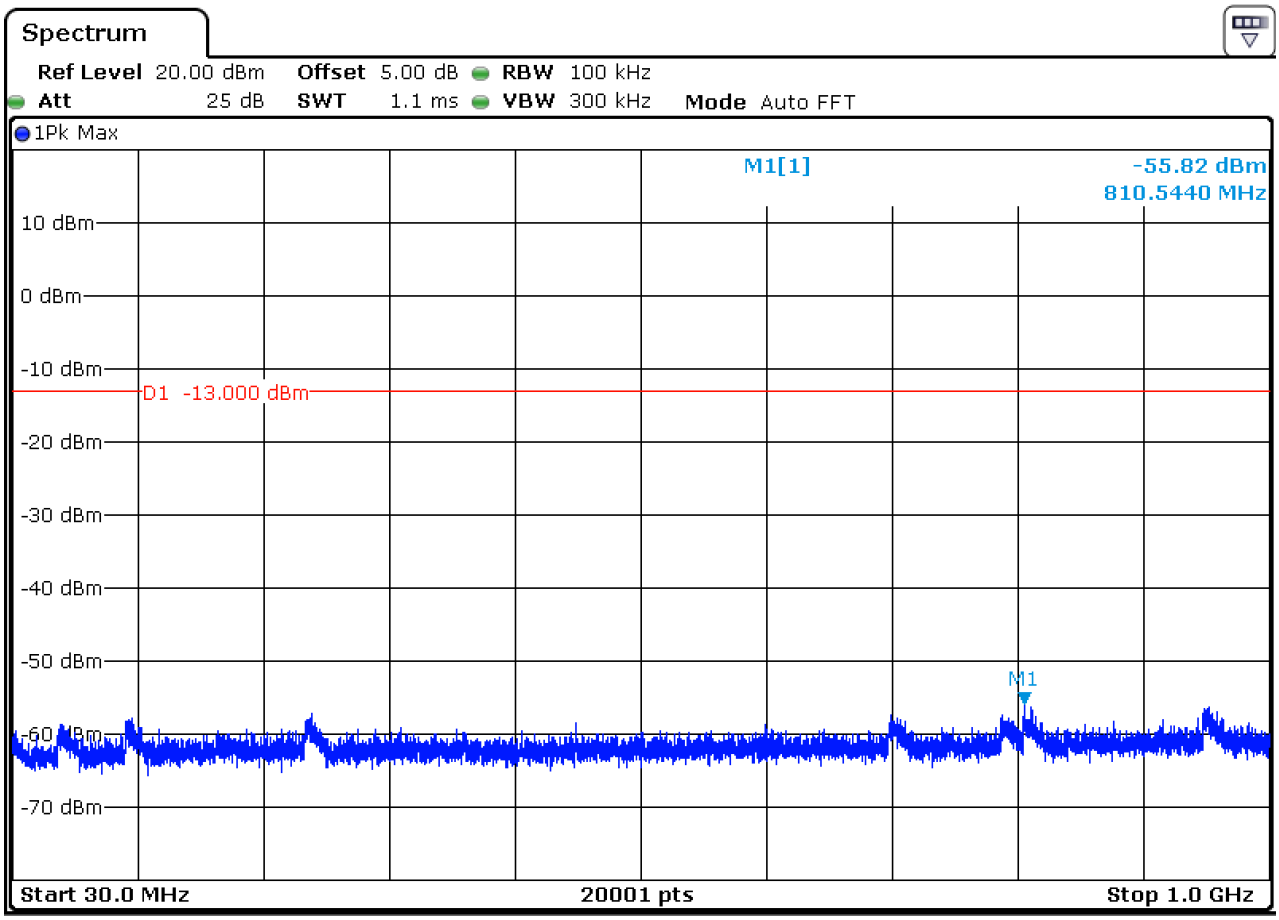
6.2.2.1.1 Test Channel = LCH

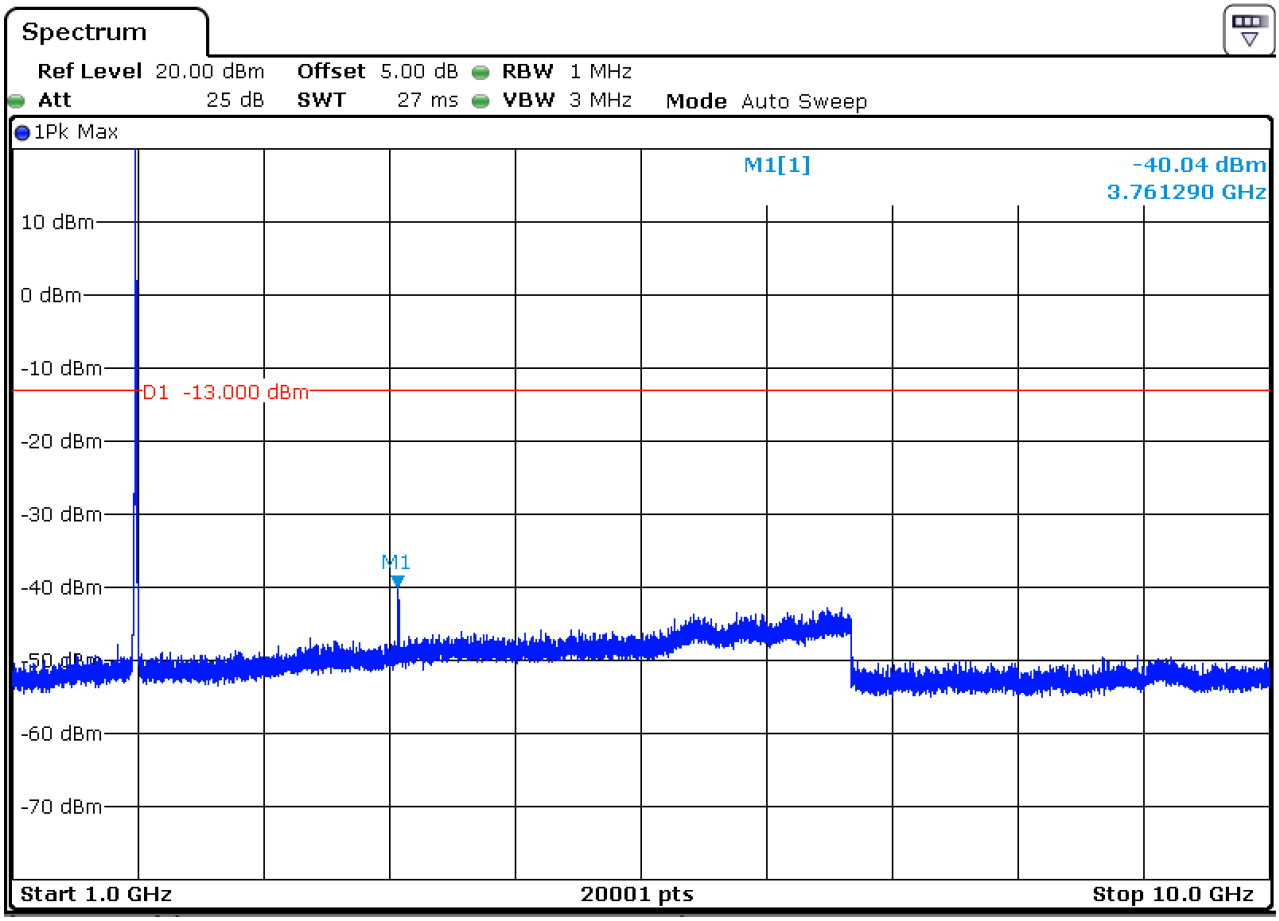


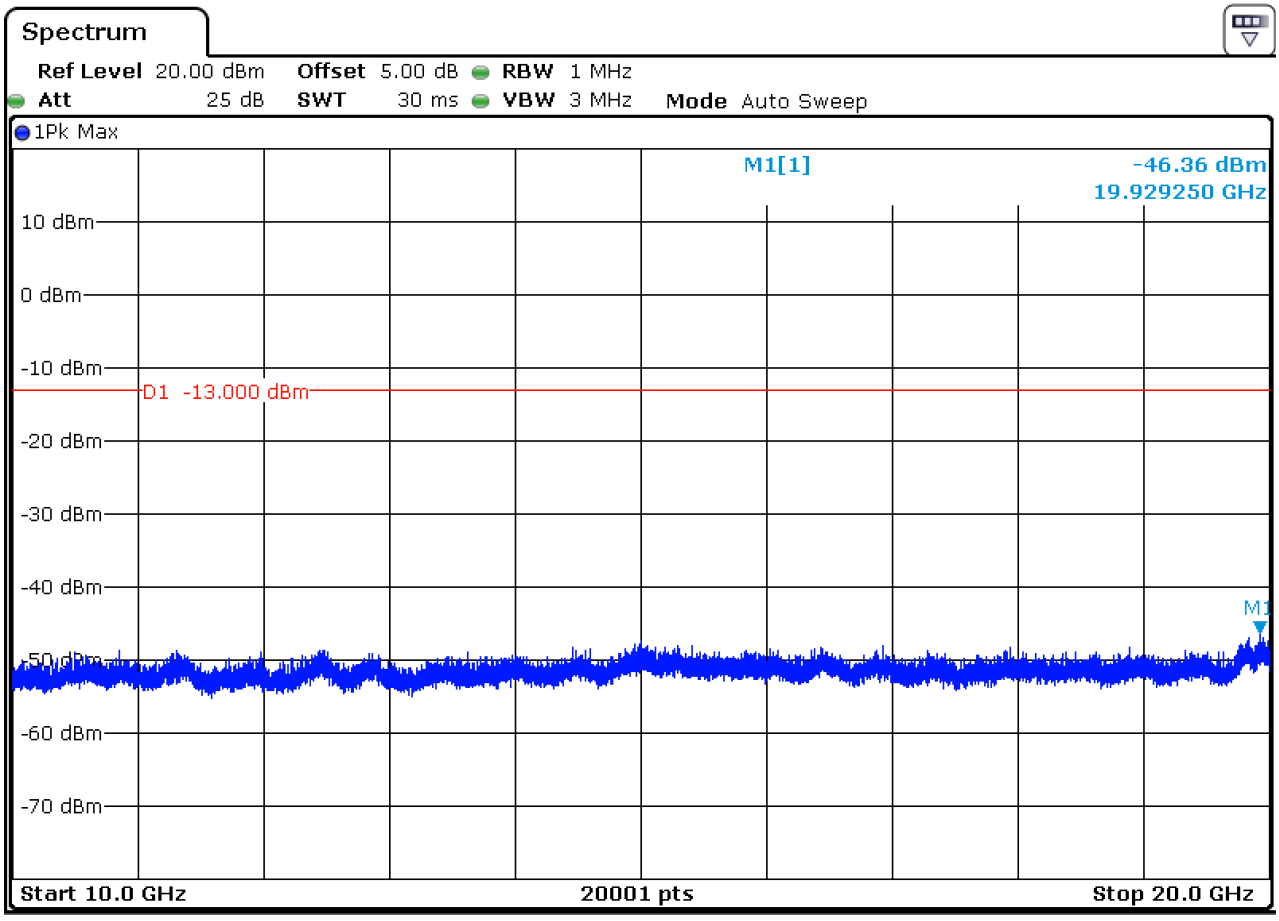

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1] -40.83 dBm
3.707740 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 1.0 GHz
20001 pts
Stop 10.0 GHz


Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1] -46.72 dBm
12.456130 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 10.0 GHz
20001 pts
Stop 20.0 GHz

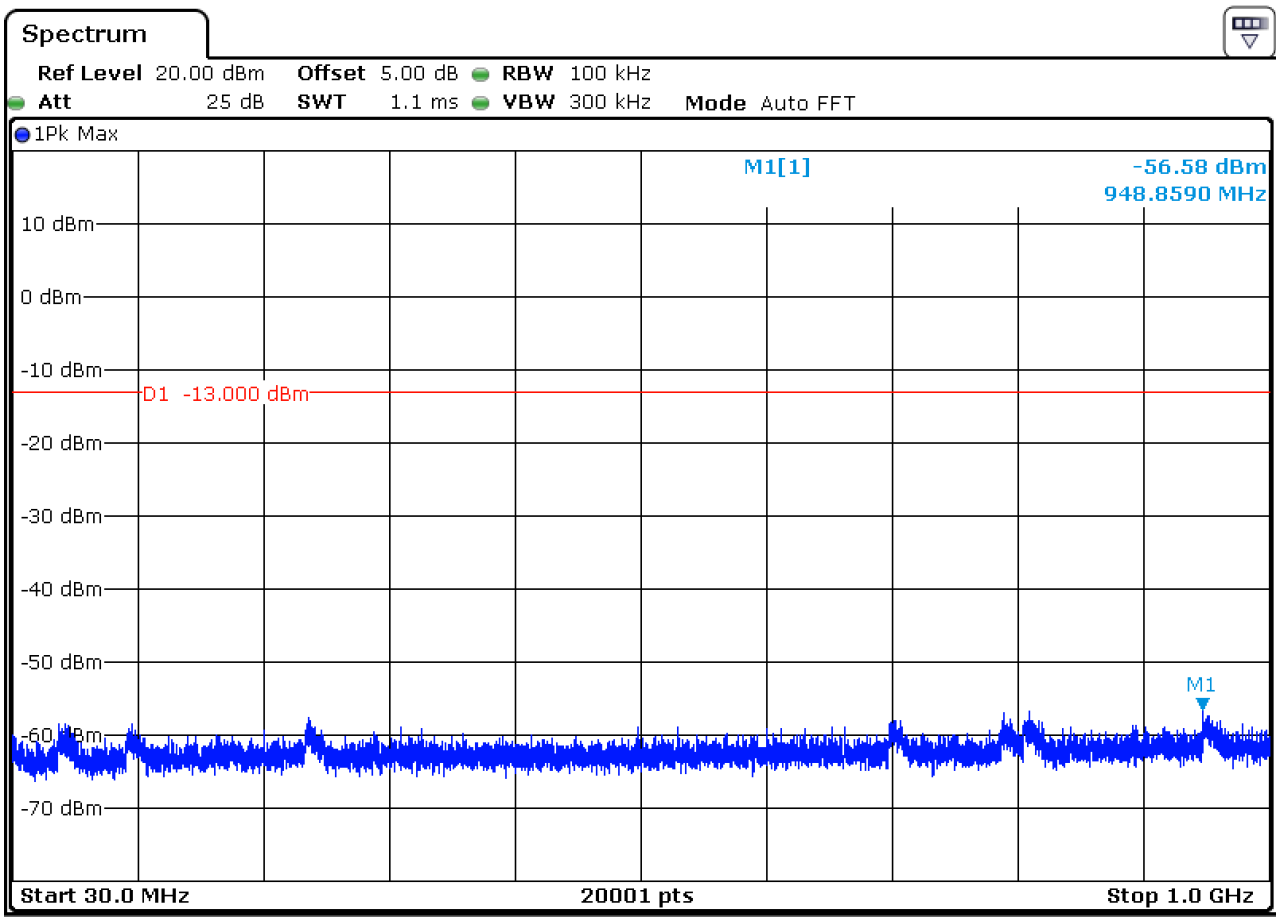
6.2.2.1.2 Test Channel = MCH

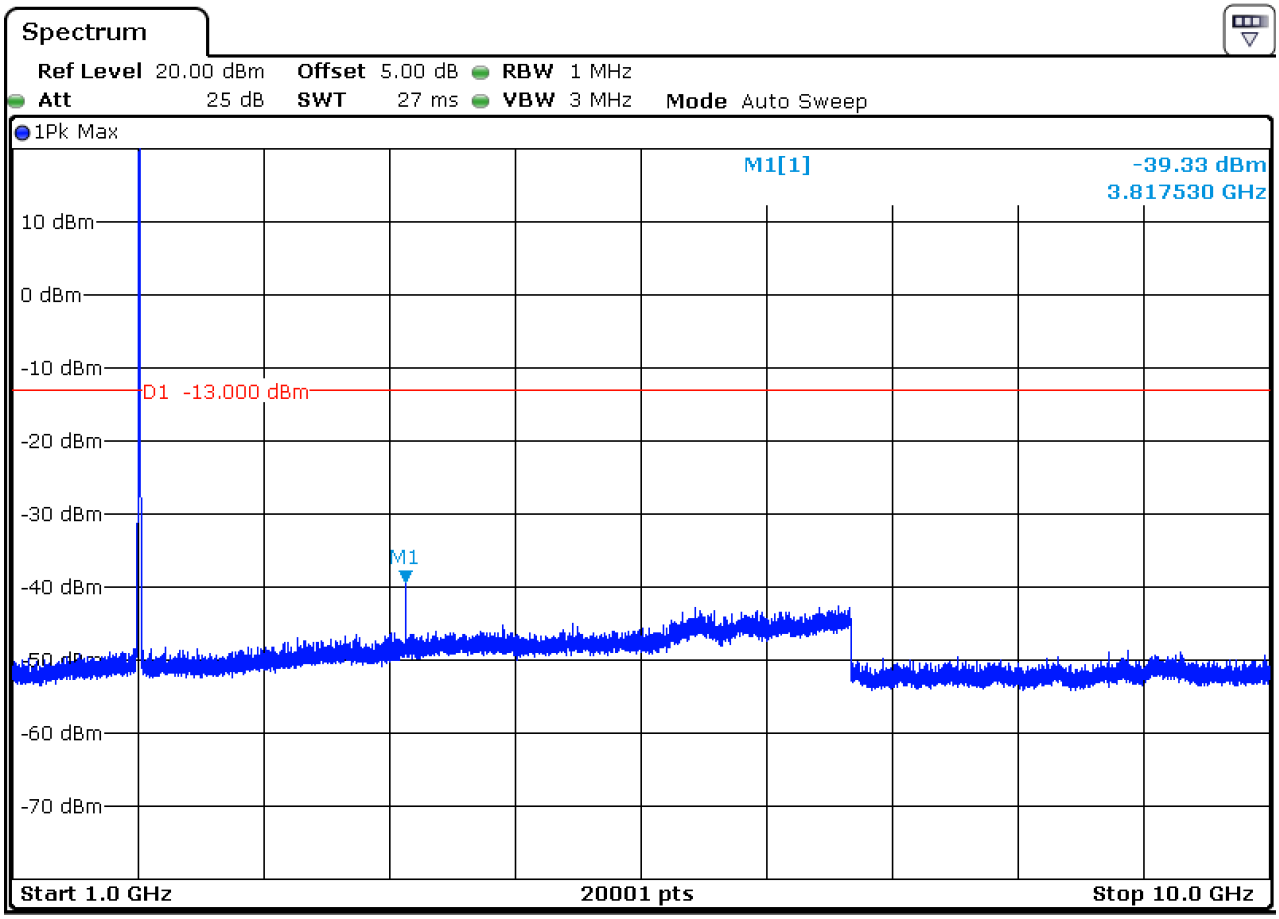


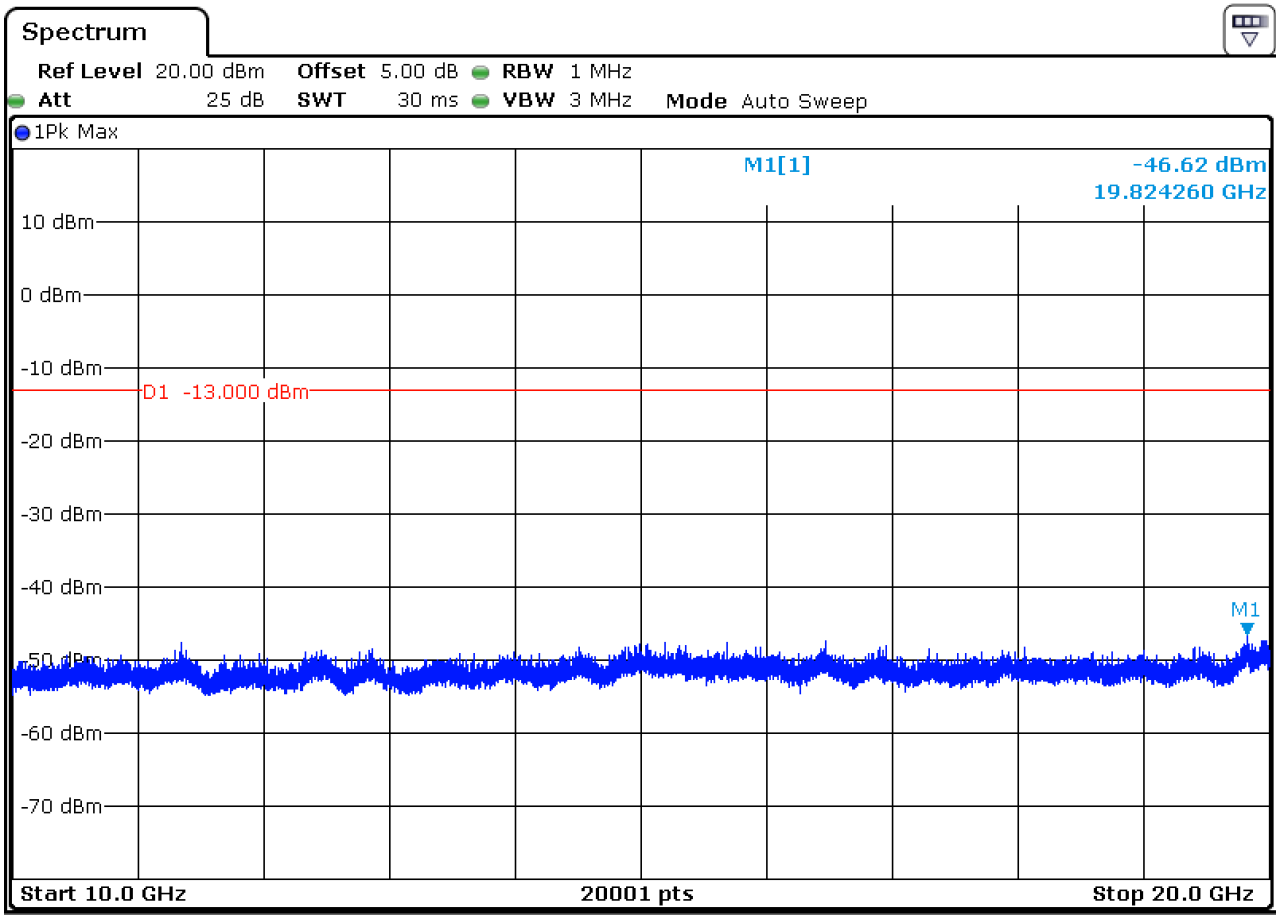

Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1] -40.04 dBm
3.761290 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 1.0 GHz
20001 pts
Stop 10.0 GHz


Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1] -46.36 dBm
19.929250 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 10.0 GHz
20001 pts
Stop 20.0 GHz

6.2.2.1.3 Test Channel = HCH




Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 27 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1] -39.33 dBm
3.817530 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 1.0 GHz
20001 pts
Stop 10.0 GHz


Spectrum
Ref Level 20.00 dBm Offset 5.00 dB RBW 1 MHz
Att 25 dB SWT 30 ms VBW 3 MHz Mode Auto Sweep
1Pk Max
M1[1] -46.62 dBm
19.824260 GHz
10 dBm
0 dBm
-10 dBm
D1 -13.000 dBm
-20 dBm
-30 dBm
-40 dBm
-50 dBm
-60 dBm
-70 dBm
M1
Start 10.0 GHz
20001 pts
Stop 20.0 GHz

7 Field Strength of Spurious Radiation

Part I - Test Plots

7.1 For GSM

7.1.1 Test Band = GSM850

7.1.1.1 Test Mode = GSM/TM1

7.1.1.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1648.400	-39.70	-13	-26.70	Vertical
2472.600	-43.43	-13	-30.43	Vertical
3296.800	-49.04	-13	-36.04	Vertical
1648.400	-42.77	-13	-29.77	Horizontal
2472.600	-45.22	-13	-32.22	Horizontal
3296.800	-49.62	-13	-36.62	Horizontal

7.1.1.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1673.200	-43.45	-13	-30.45	Vertical
2509.800	-44.63	-13	-31.63	Vertical
3346.400	-48.75	-13	-35.75	Vertical
1673.200	-43.28	-13	-30.28	Horizontal
2509.800	-45.44	-13	-32.44	Horizontal
3346.400	-50.33	-13	-37.33	Horizontal

7.1.1.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1697.600	-40.05	-13	-27.05	Vertical
2546.400	-43.03	-13	-30.03	Vertical
3395.200	-49.96	-13	-36.96	Vertical
1697.600	-42.59	-13	-29.59	Horizontal
2546.400	-45.70	-13	-32.70	Horizontal
3395.200	-51.05	-13	-38.05	Horizontal

7.1.2 Test Band = GSM1900

7.1.2.1 Test Mode = GSM/TM1

7.1.2.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3700.400	-40.42	-13	-27.42	Vertical
5550.600	-41.79	-13	-28.79	Vertical
7400.800	-49.60	-13	-36.60	Vertical
3700.400	-41.93	-13	-28.93	Horizontal
5550.600	-45.79	-13	-32.79	Horizontal
7400.800	-51.16	-13	-38.16	Horizontal

7.1.2.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3760.000	-42.13	-13	-29.13	Vertical
5640.000	-41.66	-13	-28.66	Vertical
7520.000	-50.14	-13	-37.14	Vertical
3760.000	-43.02	-13	-30.02	Horizontal
5640.000	-44.60	-13	-31.60	Horizontal
7520.000	-50.40	-13	-37.40	Horizontal

7.1.2.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3819.600	-39.62	-13	-26.62	Vertical
5729.400	-41.44	-13	-28.44	Vertical
7639.200	-49.14	-13	-36.14	Vertical
3819.600	-43.07	-13	-30.07	Horizontal
5729.400	-45.22	-13	-32.22	Horizontal
7639.200	-51.02	-13	-38.02	Horizontal

NOTE:

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

For WCDMA

7.1.3 Test Band = WCDMA850

7.1.3.1 Test Mode = UMTS/TM1

7.1.3.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1652.800	-39.82	-13	-26.82	Vertical
2479.200	-42.01	-13	-29.01	Vertical
3305.600	-49.86	-13	-36.86	Vertical
1652.800	-43.55	-13	-30.55	Horizontal
2479.200	-46.05	-13	-33.05	Horizontal
3305.600	-49.71	-13	-36.71	Horizontal

7.1.3.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1672.800	-41.89	-13	-28.89	Vertical
2509.200	-45.17	-13	-32.17	Vertical
3345.600	-48.85	-13	-35.85	Vertical
1672.800	-41.66	-13	-28.66	Horizontal
2509.200	-45.53	-13	-32.53	Horizontal
3345.600	-50.62	-13	-37.62	Horizontal

7.1.3.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
1693.200	-41.87	-13	-28.87	Vertical
2539.800	-42.71	-13	-29.71	Vertical
3386.400	-48.76	-13	-35.76	Vertical
1693.200	-42.00	-13	-29.00	Horizontal
2539.800	-45.78	-13	-32.78	Horizontal
3386.400	-50.55	-13	-37.55	Horizontal

7.1.4 Test Band = WCDMA 1900

7.1.4.1 Test Mode = UMTS/TM1

7.1.4.1.1 Test Channel = LCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3704.800	-43.66	-13	-30.66	Vertical
5557.200	-46.89	-13	-33.89	Vertical
7409.600	-50.50	-13	-37.50	Vertical
3704.800	-43.10	-13	-30.10	Horizontal
5557.200	-45.68	-13	-32.68	Horizontal
7409.600	-50.16	-13	-37.16	Horizontal

7.1.4.1.2 Test Channel = MCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3760.000	-40.26	-13	-27.26	Vertical
5640.000	-42.79	-13	-29.79	Vertical
7520.000	-50.09	-13	-37.09	Vertical
3760.000	-43.48	-13	-30.48	Horizontal
5640.000	-44.74	-13	-31.74	Horizontal
7520.000	-50.87	-13	-37.87	Horizontal

7.1.4.1.3 Test Channel = HCH

Frequency (MHz)	Level (dBm)	Limit Line (dBm)	Over Limit (dB)	Polarization
3815.200	-41.50	-13	-28.50	Vertical
5722.800	-41.74	-13	-28.74	Vertical
7630.400	-50.12	-13	-37.12	Vertical
3815.200	-42.17	-13	-29.17	Horizontal
5722.800	-44.77	-13	-31.77	Horizontal
7630.400	-49.93	-13	-36.93	Horizontal

NOTE:

1) The disturbance above 13GHz and below 1GHz 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 For GSM

8.1.1 Frequency Error VS. Voltage

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	TN	VL	3.04	0.00369	PASS
				VN	1.97	0.00239	PASS
				VH	-2.64	-0.00320	PASS
		MCH	TN	VL	5.32	0.00636	PASS
				VN	3.00	0.00359	PASS
				VH	-0.45	-0.00054	PASS
		HCH	TN	VL	1.44	0.00170	PASS
				VN	4.33	0.00510	PASS
				VH	-2.08	-0.00245	PASS
GSM850	GSM/TM2	LCH	TN	VL	1.54	0.00187	PASS
				VN	3.65	0.00443	PASS
				VH	0.43	0.00052	PASS
		MCH	TN	VL	-5.43	-0.00649	PASS
				VN	4.23	0.00506	PASS
				VH	3.44	0.00411	PASS
		HCH	TN	VL	-4.32	-0.00509	PASS
				VN	1.87	0.00220	PASS
				VH	2.04	0.00240	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM1900	GSM/TM1	LCH	TN	VL	0.44	0.00024	PASS
				VN	4.25	0.00230	PASS
				VH	2.75	0.00149	PASS
		MCH	TN	VL	-2.87	-0.00153	PASS
				VN	5.32	0.00283	PASS
				VH	1.74	0.00093	PASS
		HCH	TN	VL	-5.39	-0.00282	PASS
				VN	2.45	0.00128	PASS
				VH	3.69	0.00193	PASS
GSM1900	GSM/TM2	LCH	TN	VL	1.94	0.00105	PASS
				VN	5.23	0.00283	PASS
				VH	-2.44	-0.00132	PASS
		MCH	TN	VL	4.38	0.00233	PASS
				VN	1.34	0.00071	PASS
				VH	2.37	0.00126	PASS
		HCH	TN	VL	-4.45	-0.00233	PASS
				VN	-2.43	-0.00127	PASS
				VH	1.99	0.00104	PASS

8.1.2 Frequency Error VS. Temperature

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	VN	-30	-2.73	-0.00331	PASS
				-20	1.60	0.00194	PASS
				-10	3.67	0.00445	PASS
				0	-2.18	-0.00264	PASS
				10	3.56	0.00432	PASS
				20	-4.80	-0.00582	PASS
				30	1.40	0.00170	PASS
				40	-0.74	-0.00090	PASS
				50	-5.01	-0.00608	PASS
		MCH	VN	-30	-3.80	-0.00454	PASS
				-20	-5.08	-0.00607	PASS
				-10	-0.89	-0.00106	PASS
				0	-3.38	-0.00404	PASS
				10	1.37	0.00164	PASS
				20	2.52	0.00301	PASS
				30	4.61	0.00551	PASS
				40	0.73	0.00087	PASS
				50	-4.35	-0.00520	PASS
		HCH	VN	-30	-2.17	-0.00256	PASS
				-20	3.68	0.00434	PASS
				-10	2.25	0.00265	PASS
				0	-5.42	-0.00639	PASS
				10	1.59	0.00187	PASS
				20	-2.58	-0.00304	PASS
				30	3.64	0.00429	PASS
				40	-2.63	-0.00310	PASS
				50	-4.27	-0.00503	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM1900	GSM/TM1	LCH	VN	-30	-5.49	-0.00666	PASS
				-20	2.96	0.00359	PASS
				-10	-4.37	-0.00530	PASS
				0	0.70	0.00085	PASS
				10	-4.65	-0.00564	PASS
				20	-4.71	-0.00571	PASS
				30	-3.58	-0.00434	PASS
				40	-5.66	-0.00687	PASS
				50	-2.74	-0.00332	PASS
		MCH	VN	-30	-1.94	-0.00232	PASS
				-20	3.29	0.00393	PASS
				-10	-4.34	-0.00519	PASS
				0	1.78	0.00213	PASS
				10	-5.10	-0.00610	PASS
				20	-3.33	-0.00398	PASS
				30	-2.13	-0.00255	PASS
				40	-3.09	-0.00369	PASS
				50	-1.50	-0.00179	PASS
		HCH	VN	-30	-2.25	-0.00265	PASS
				-20	-6.34	-0.00747	PASS
				-10	-2.73	-0.00322	PASS
				0	-5.88	-0.00693	PASS
				10	1.07	0.00126	PASS
				20	-4.03	-0.00475	PASS
				30	-3.12	-0.00368	PASS
				40	-2.84	-0.00335	PASS
				50	-5.07	-0.00597	PASS

8.2 For WCDMA

8.2.1 Frequency Error VS. Voltage

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	-3.38	-0.00409	PASS
				VN	-0.58	-0.00070	PASS
				VH	2.32	0.00281	PASS
		MCH	TN	VL	-4.84	-0.00579	PASS
				VN	0.37	0.00044	PASS
				VH	-3.45	-0.00412	PASS
		HCH	TN	VL	1.66	0.00196	PASS
				VN	-4.31	-0.00509	PASS
				VH	2.90	0.00343	PASS

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	2.68	0.00145	PASS
				VN	-0.38	-0.00021	PASS
				VH	4.02	0.00217	PASS
		MCH	TN	VL	1.83	0.00097	PASS
				VN	0.75	0.00040	PASS
				VH	-4.37	-0.00232	PASS
		HCH	TN	VL	1.77	0.00093	PASS
				VN	-2.64	-0.00138	PASS
				VH	-4.84	-0.00254	PASS

8.2.2 Frequency Error VS. Temperature

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	-3.73	-0.00451	PASS
				-20	-4.75	-0.00575	PASS
				-10	1.94	0.00235	PASS
				0	-3.45	-0.00417	PASS
				10	-2.58	-0.00312	PASS
				20	1.08	0.00131	PASS
				30	-3.89	-0.00471	PASS
				40	-5.30	-0.00641	PASS
				50	-4.14	-0.00501	PASS
		MCH	VN	-30	-4.92	-0.00588	PASS
				-20	1.27	0.00152	PASS
				-10	-2.48	-0.00297	PASS
				0	4.34	0.00519	PASS
				10	-3.75	-0.00448	PASS
				20	-6.59	-0.00788	PASS
				30	-3.17	-0.00379	PASS
				40	-6.13	-0.00733	PASS
				50	-5.11	-0.00611	PASS
		HCH	VN	-30	-4.35	-0.00514	PASS
				-20	3.33	0.00393	PASS
				-10	1.85	0.00219	PASS
				0	-0.37	-0.00044	PASS
				10	-2.18	-0.00258	PASS
				20	-4.10	-0.00484	PASS
				30	1.31	0.00155	PASS
				40	-2.42	-0.00286	PASS
				50	-4.34	-0.00513	PASS

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	-4.43	-0.00239	PASS
				-20	1.60	0.00086	PASS
				-10	2.87	0.00155	PASS
				0	-2.68	-0.00145	PASS
				10	0.56	0.00030	PASS
				20	-4.40	-0.00238	PASS
				30	1.62	0.00087	PASS
				40	-2.04	-0.00110	PASS
				50	-6.01	-0.00324	PASS
		MCH	VN	-30	-3.70	-0.00197	PASS
				-20	-5.18	-0.00276	PASS
				-10	-0.79	-0.00042	PASS
				0	-3.58	-0.00190	PASS
				10	1.34	0.00071	PASS
				20	2.72	0.00145	PASS
				30	1.51	0.00080	PASS
				40	2.43	0.00129	PASS
				50	-4.35	-0.00231	PASS
		HCH	VN	-30	-6.17	-0.00323	PASS
				-20	3.68	0.00193	PASS
				-10	2.45	0.00128	PASS
				0	-5.52	-0.00289	PASS
				10	1.87	0.00098	PASS
				20	-2.78	-0.00146	PASS
				30	3.77	0.00198	PASS
				40	-1.65	-0.00086	PASS
				50	-4.60	-0.00241	PASS

The End