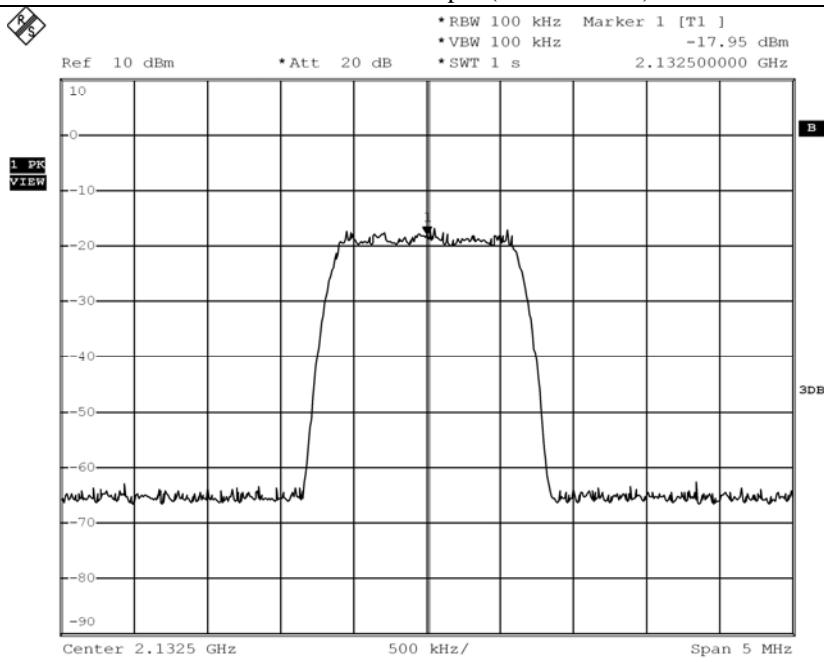
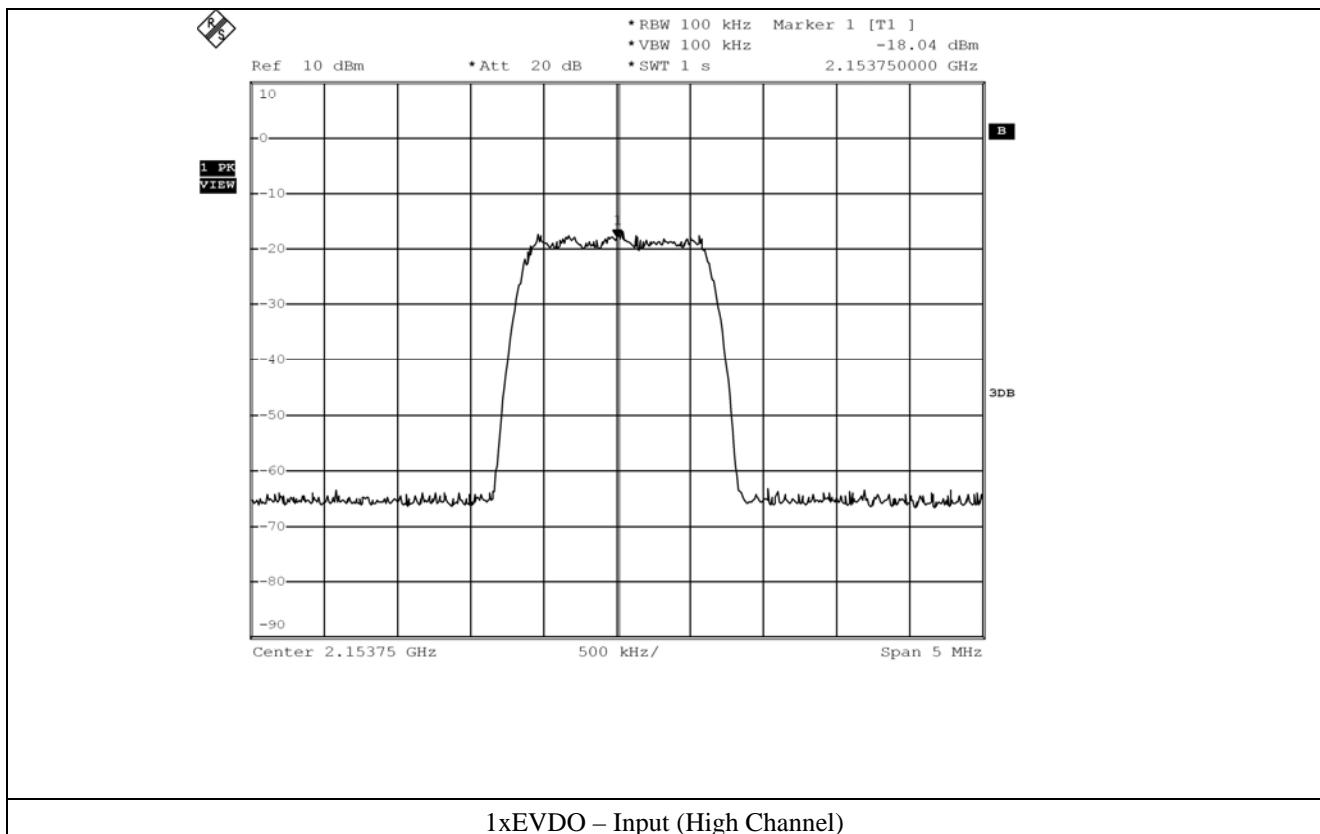
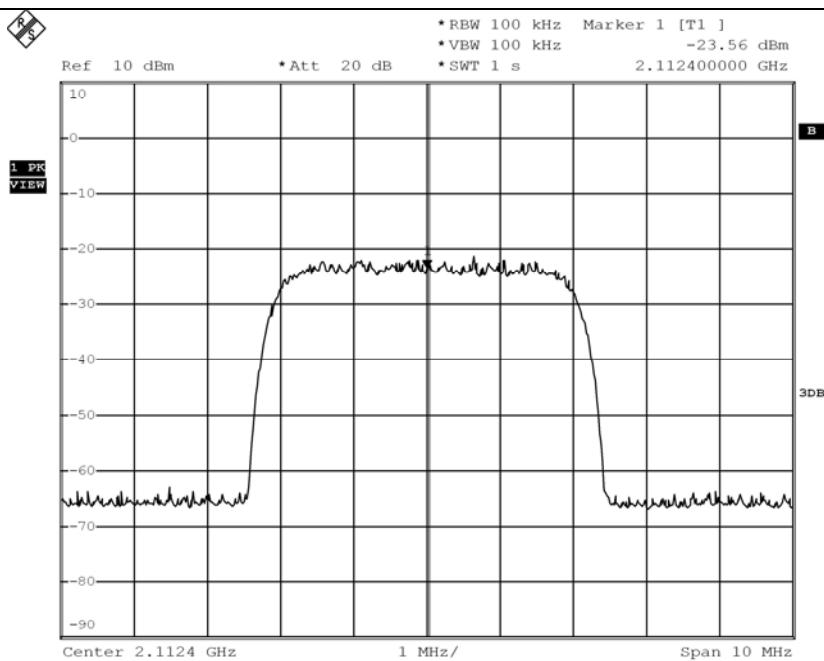


1xEVDO – Input (Low Channel)

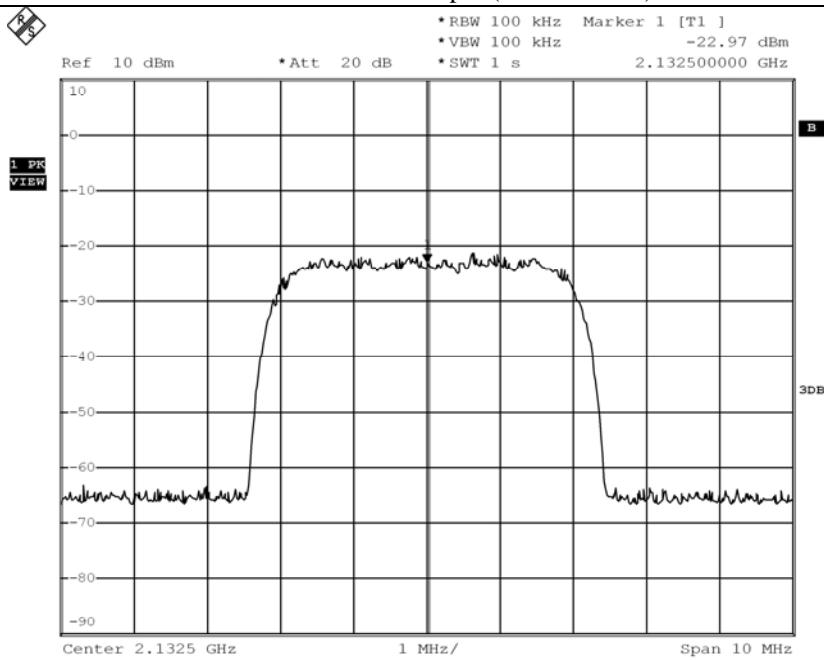


1xEVDO – Input (Middle Channel)

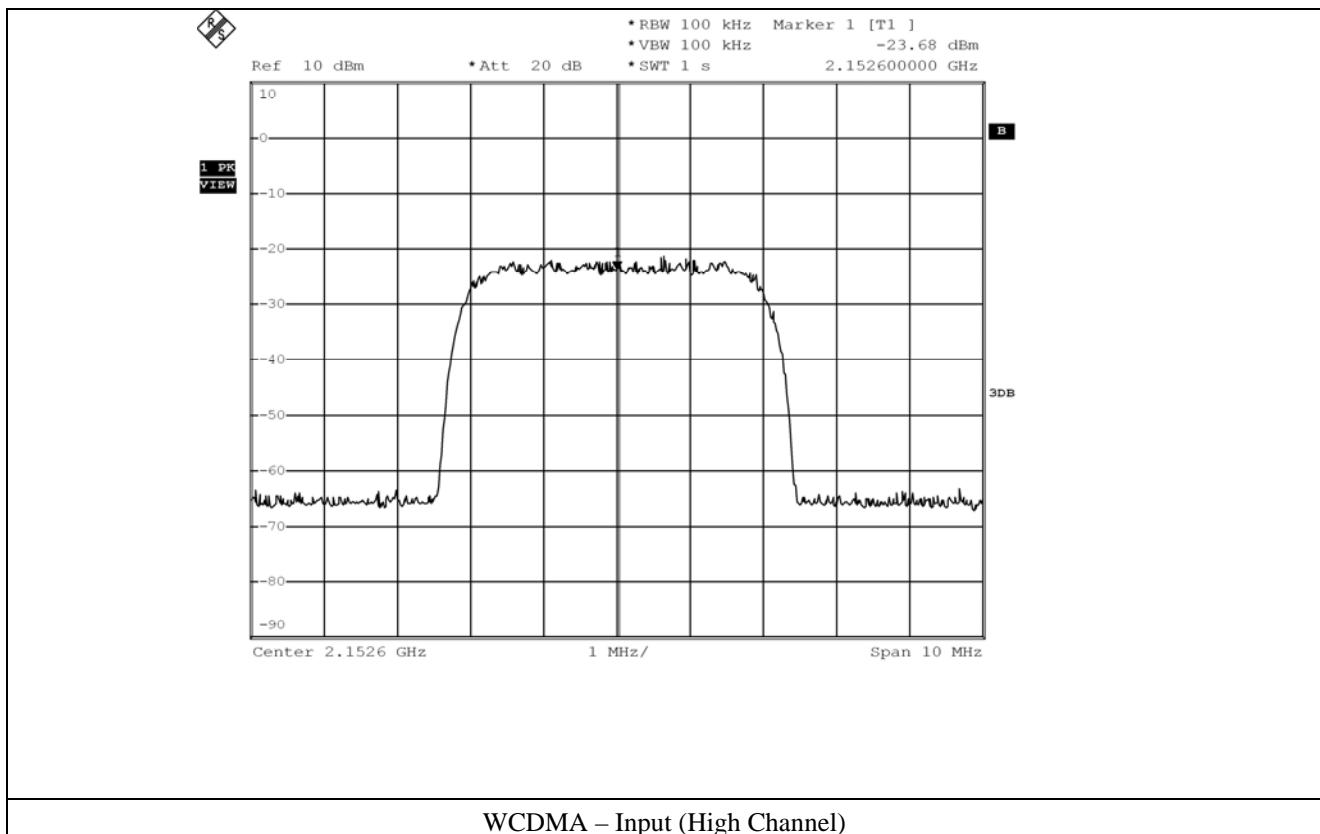


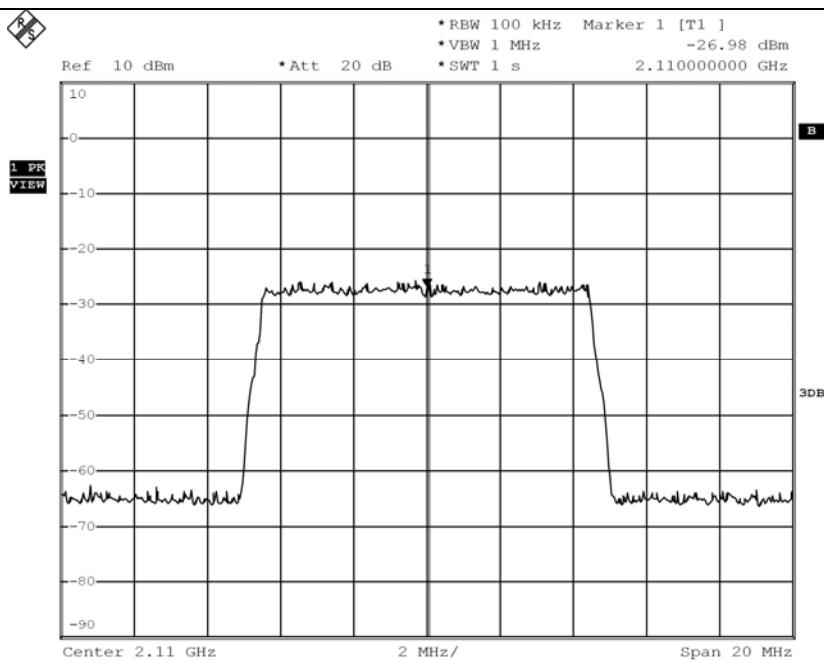


WCDMA – Input (Low Channel)

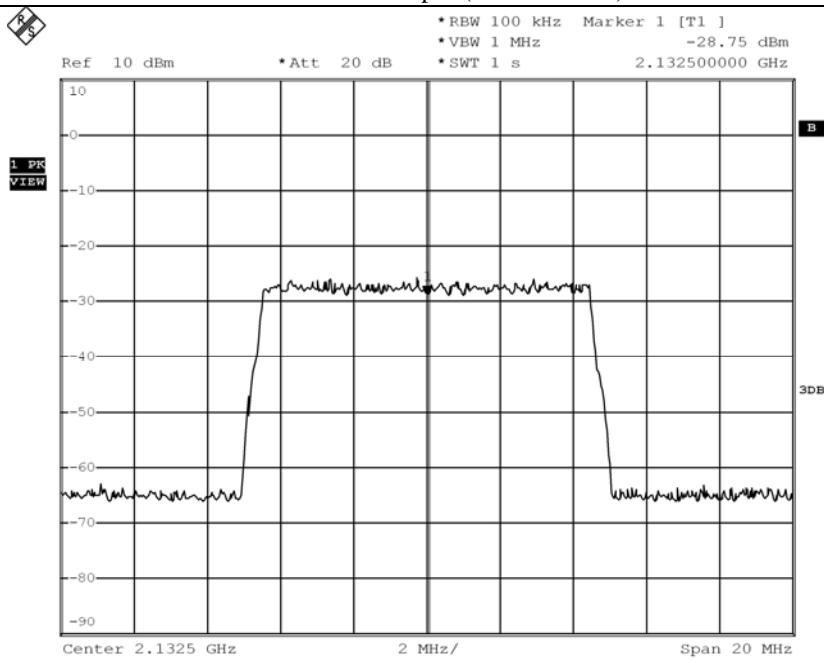


WCDMA – Input (Middle Channel)





LTE – Input (Low Channel)



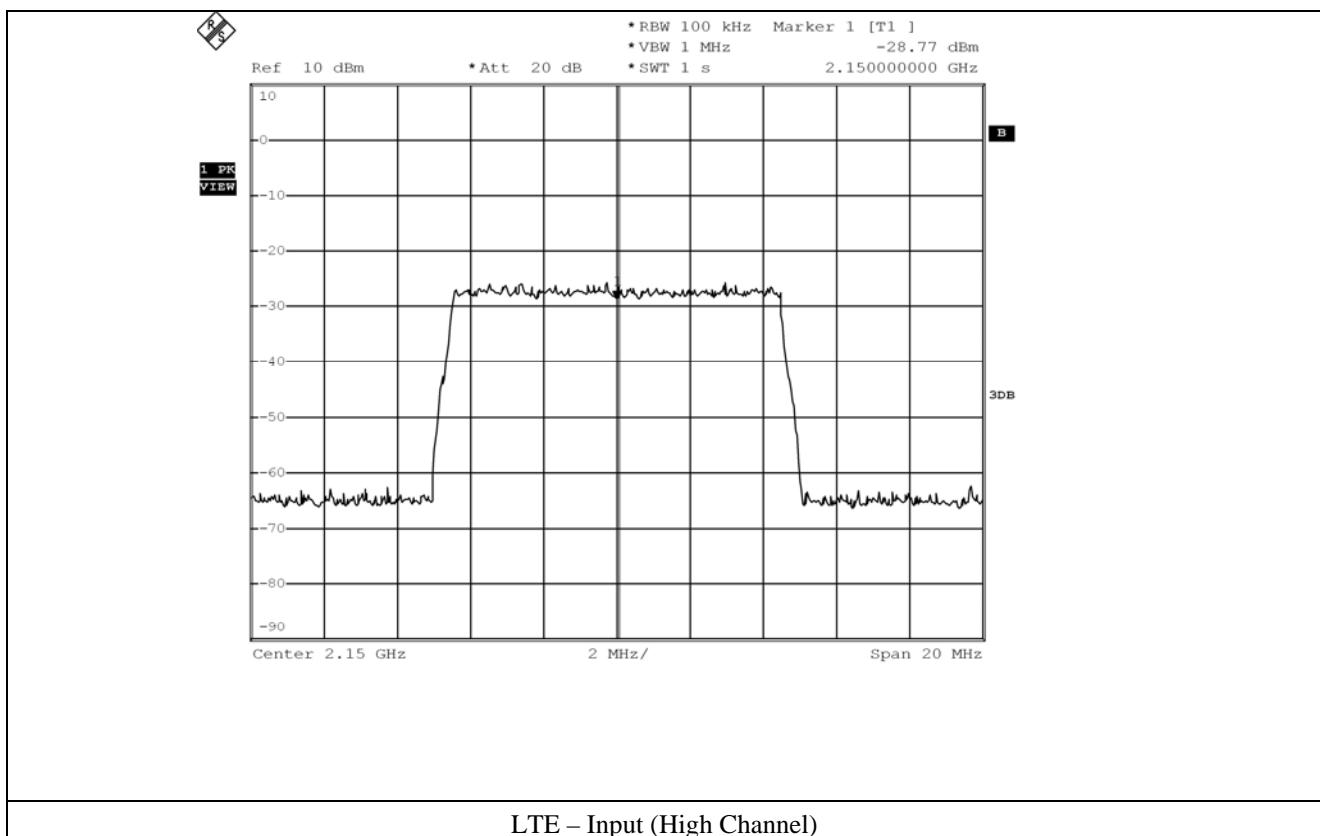
LTE – Input (Middle Channel)

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EMC-003 (Rev.2)

HEAD OFFICE : 301-14 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-799-9500, FAX: 82-31-799-9599)

EMC Testing Dept : 307-51 Daessangnyeong-ri, Chowol-eup, Gwangju-si, Gyeonggi-do 464-862 Korea (TEL: 82-31-765-8289, FAX: 82-31-766-2904)



7. SPURIOUS EMISSION AT ANTENNA TERMINAL

7.1 Operating environment

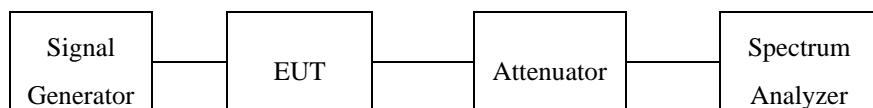
Temperature : 24.0 °C
Relative humidity : 52 %R.H.

7.2 Test set-up for conducted measurement

The RF signal from the signal generator(s) was injected to the EUT by cable. The amplified RF signal at the output of the EUT was connected to the power meter or spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

The amplified RF signal at the output of the EUT was connected to the spectrum analyzer. The test was performed at three frequencies (low, middle, and high channels) at each band using all applicable modulation.

The resolution bandwidth and video bandwidth of the spectrum analyzer was set at 1 MHz and sufficient scans were taken to show any out of band emissions up to 25 GHz.



7.3 Test equipment used

Model Number	Manufacturer	Description	Serial Number	Last Cal.
■ - E4432B	HP	Signal Generator	US38440950	June 10, 2011 (1Y)
■ - SMJ100A	R/S	Signal Generator	101038	Feb. 02, 2012 (1Y)
□ - FSP	R/S	Spectrum Analyzer	100017	Mar. 12, 2012 (1Y)
■ - 8564E	HP	Spectrum Analyzer	3650A00756	Jun. 10, 2011 (1Y)
□ - FSV30	R/S	Spectrum Analyzer	101372	Aug. 29, 2011 (1Y)
■ - 67-30-43	Aeroflex Weinschel Power Attenuator		CA5760	Nov. 30, 2011 (1Y)

All test equipment used is calibrated on a regular basis.

7.4 Test data

7.4.1 Test Result for Part 24E

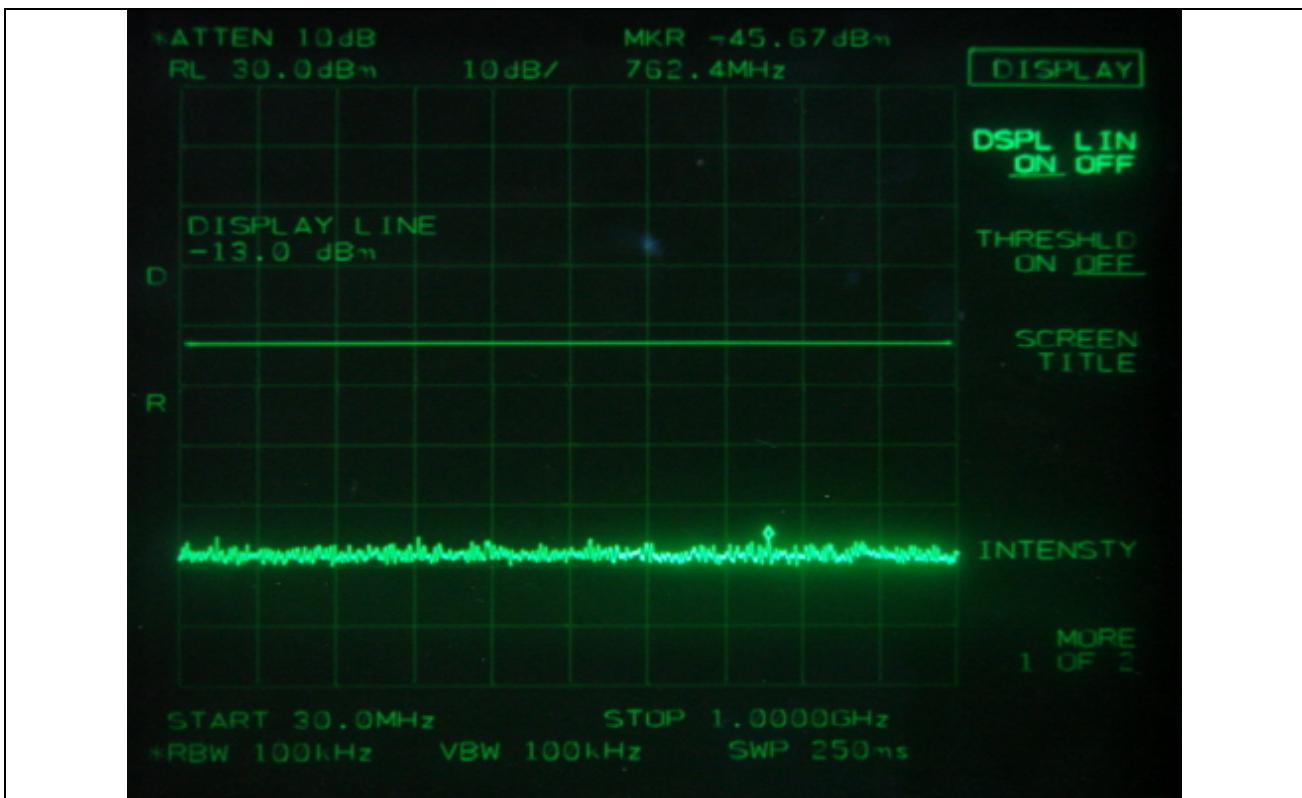
- . Test Date : May 31, 2012
- . Frequency range : 30 MHz ~ 25 GHz
- . Result : PASSED

Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
GSM	Low	762.40	-45.67	0.50	-45.17	-13.00	-32.17
		7 600.00	-31.50	3.50	-28.00		-15.00
	Middle	738.10	-46.50	0.50	-46.00		-33.00
		7 360.00	-31.83	3.50	-28.33		-15.33
	High	707.40	-46.50	0.50	-46.00		-33.00
		7 640.00	-32.67	3.50	-29.17		-16.17
EDGE	Low	759.10	-45.17	0.50	-44.67	-13.00	-31.67
		7 600.00	-32.50	3.50	-29.00		-16.00
	Middle	709.00	-45.67	0.50	-45.17		-32.17
		7 400.00	-32.00	3.50	-28.50		-15.50
	High	728.40	-46.17	0.50	-45.67		-32.67
		7 640.00	-32.33	3.50	-28.83		-15.83
CDMA	Low	793.10	-46.50	0.50	-46.00	-13.00	-33.00
		7 360.00	-32.50	3.50	-29.00		-16.00
	Middle	650.80	-45.67	0.50	-45.17		-32.17
		7 640.00	-31.33	3.50	-27.83		-14.83
	High	751.00	-45.50	0.50	-45.00		-32.00
		7 440.00	-32.83	3.50	-29.33		-16.33
1xEVDO	Low	741.30	-45.67	0.50	-45.17	-13.00	-32.17
		7 400.00	-32.67	3.50	-29.17		-16.17
	Middle	781.80	-46.00	0.50	-45.50		-32.50
		7 360.00	-32.33	3.50	-28.83		-15.83
	High	785.00	-45.83	0.50	-45.33		-32.33
		7 280.00	-32.33	3.50	-28.83		-15.83

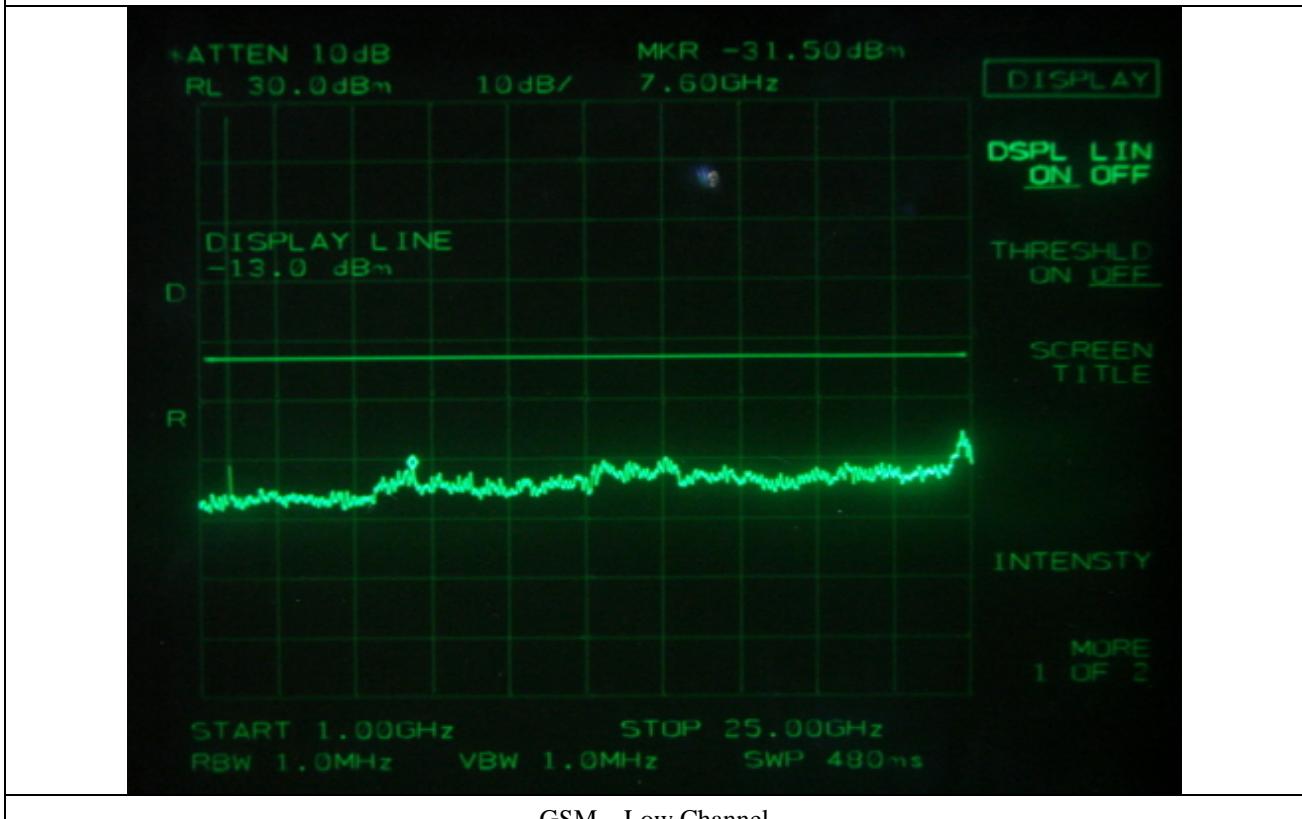
Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
WCDMA	Low	793.10	-45.50	0.50	-45.00	-13.00	-32.00
		7 320.00	-31.67	3.50	-28.17		-15.17
	Middle	836.70	-45.67	0.50	-45.17		-32.17
		7 480.00	-33.17	3.50	-29.67		-16.67
	High	765.60	-46.00	0.50	-45.50		-32.50
		7 400.00	-32.83	3.50	-29.33		-16.33
LTE	Low	785.00	-46.33	0.50	-45.83	-13.00	-32.83
		7 480.00	-32.17	3.50	-28.67		-15.67
	Middle	791.50	-45.33	0.50	-44.83		-31.83
		7 160.00	-32.83	3.50	-29.33		-16.33
	High	752.70	-46.50	0.50	-46.00		-33.00
		7 120.00	-31.67	3.50	-28.17		-15.17

According to Part 24E, out of band emission shall be attenuated by $43 + 10 \log (P)$ dBc, equates to -13.0 dBm.

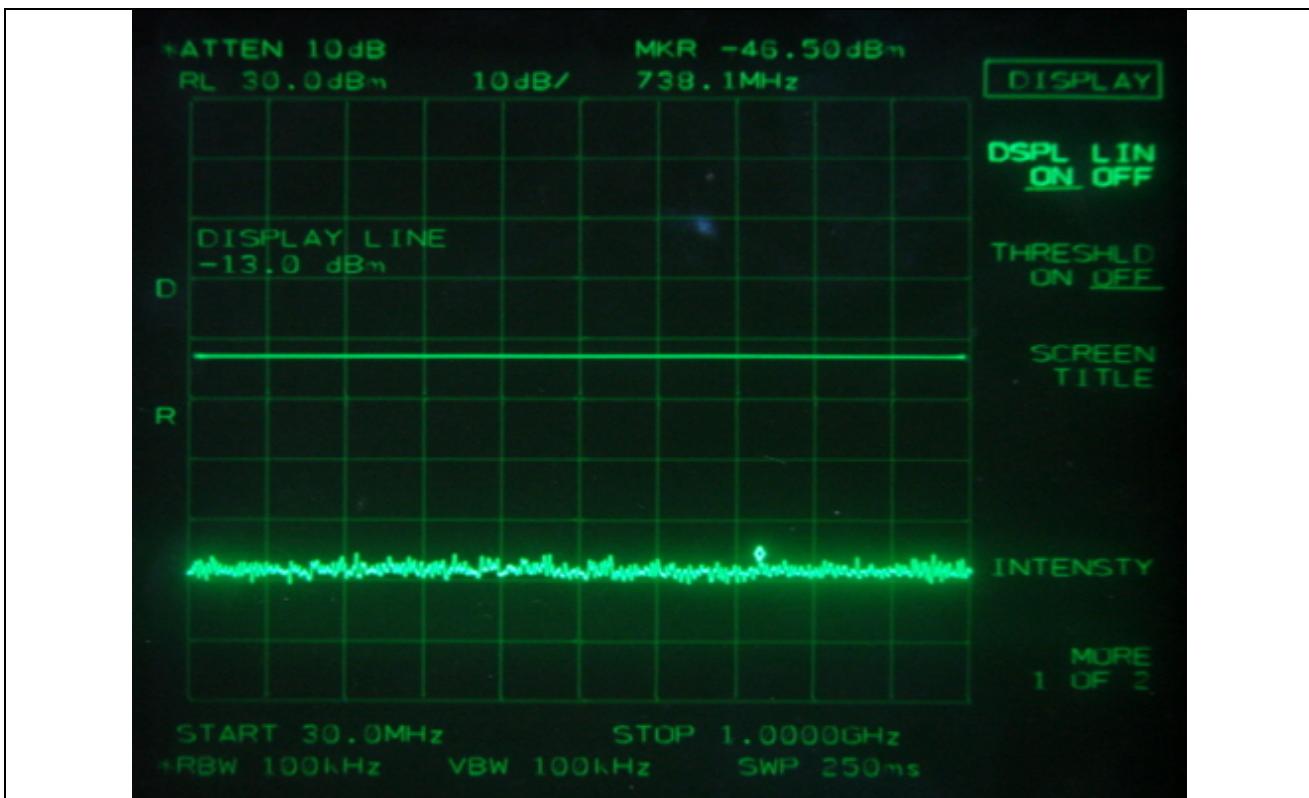
Tested by: Ki-Hong, Nam / Project Engineer



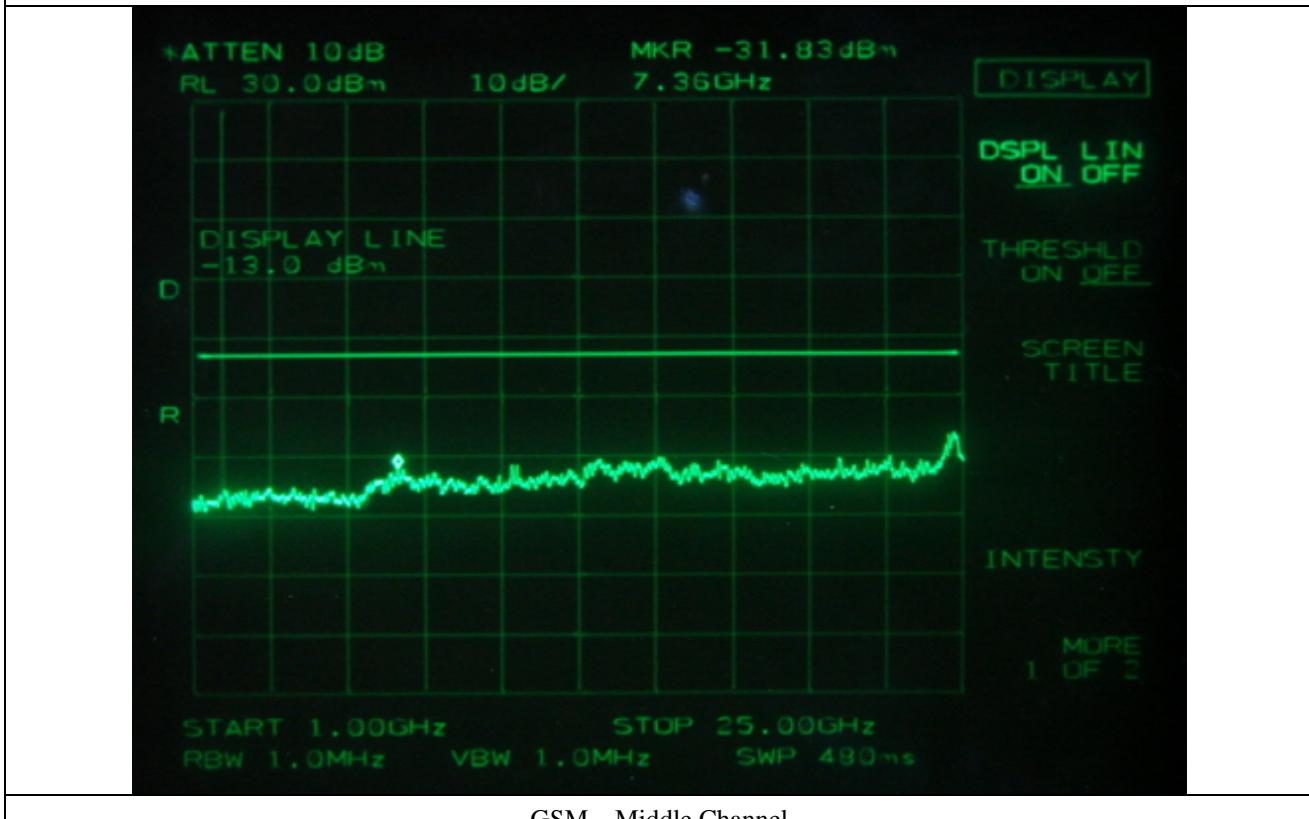
GSM – Low Channel



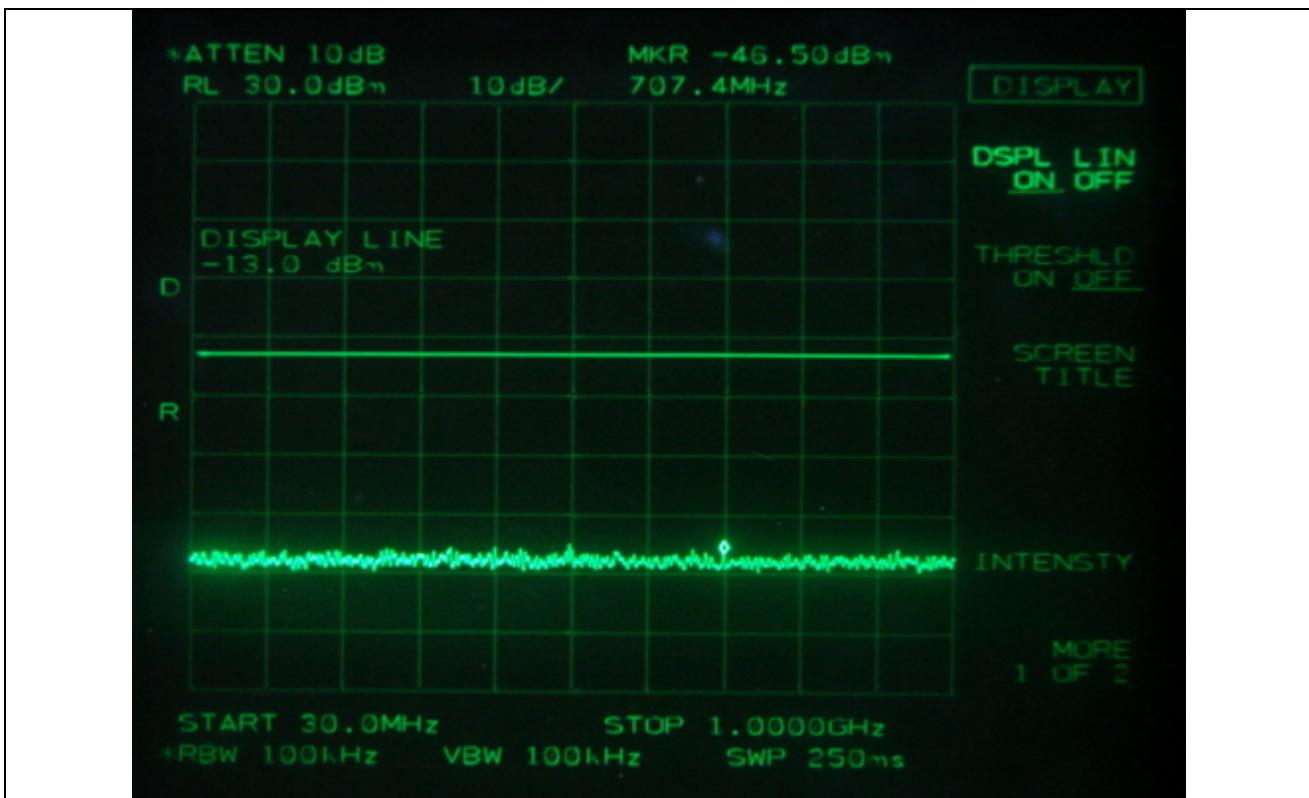
GSM – Low Channel



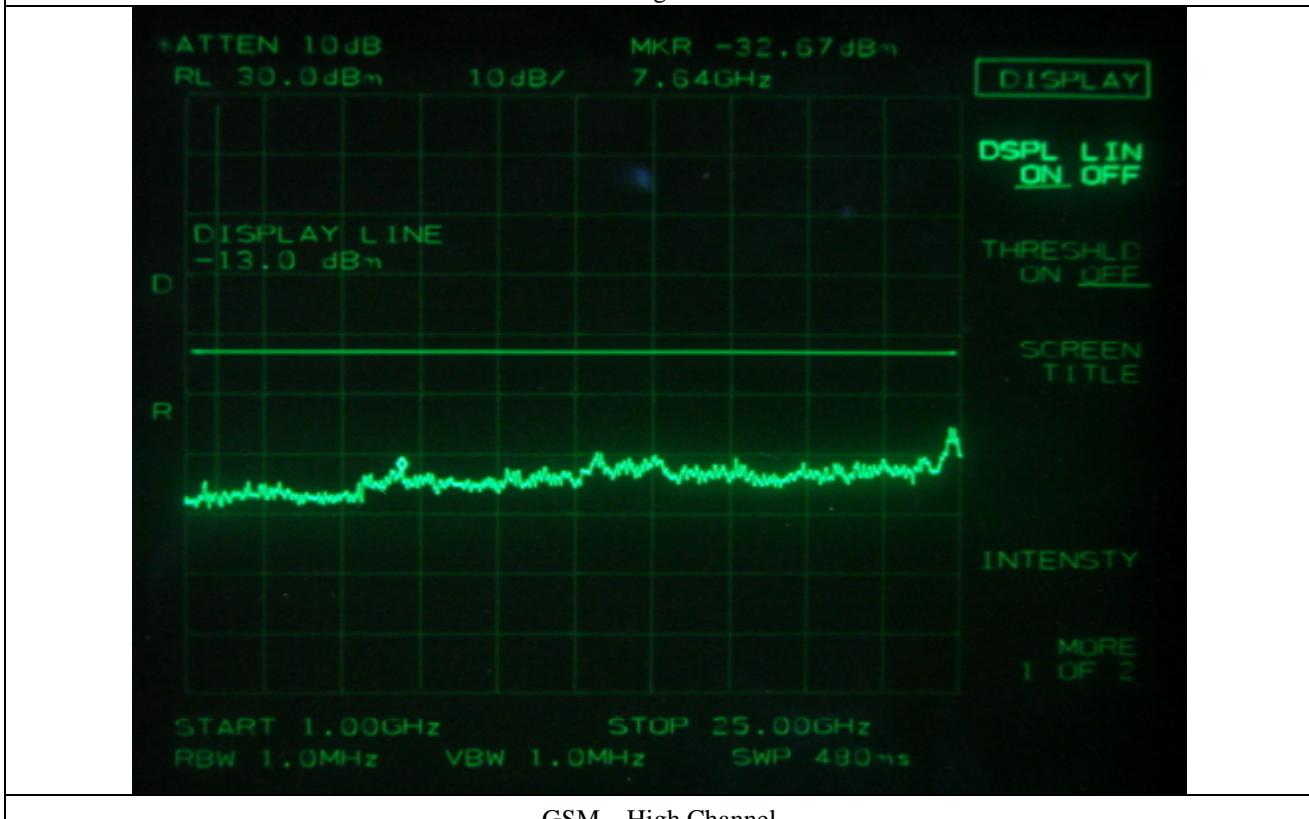
GSM – Middle Channel



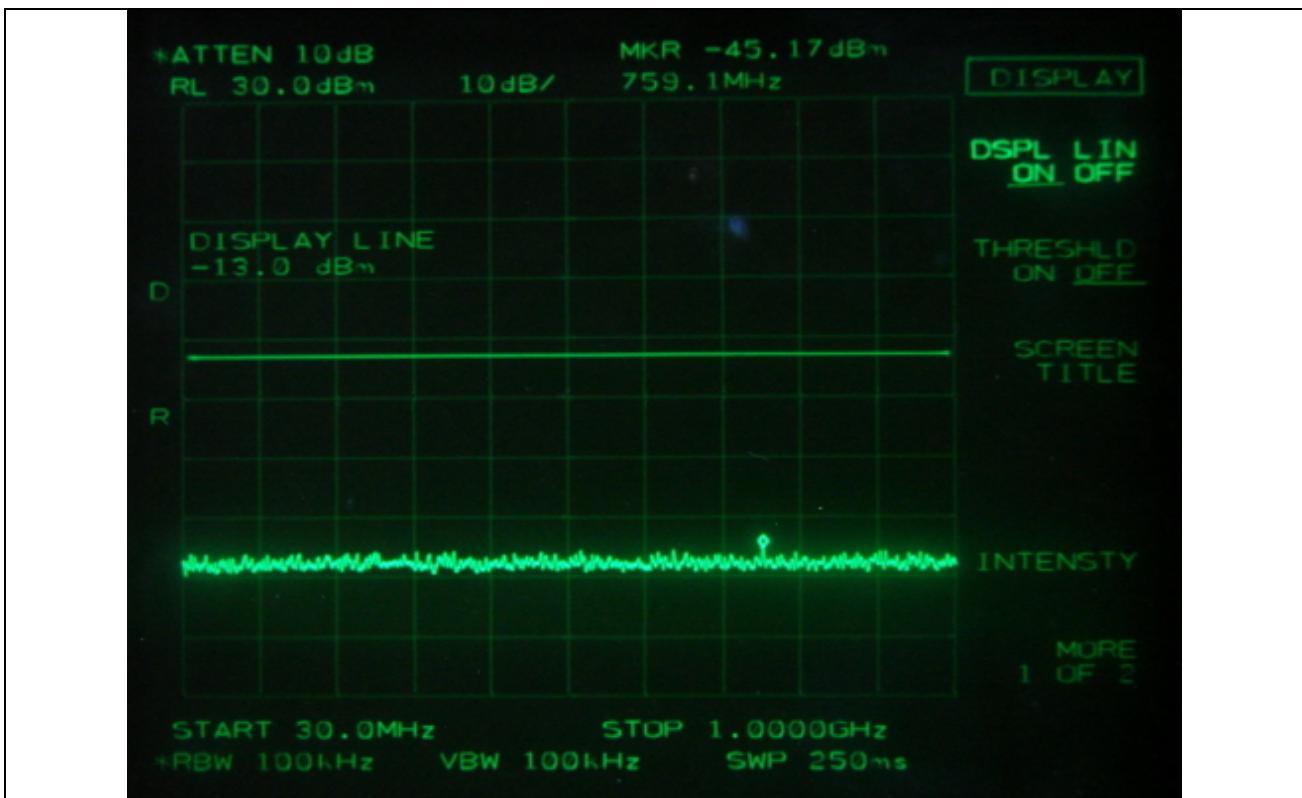
GSM – Middle Channel



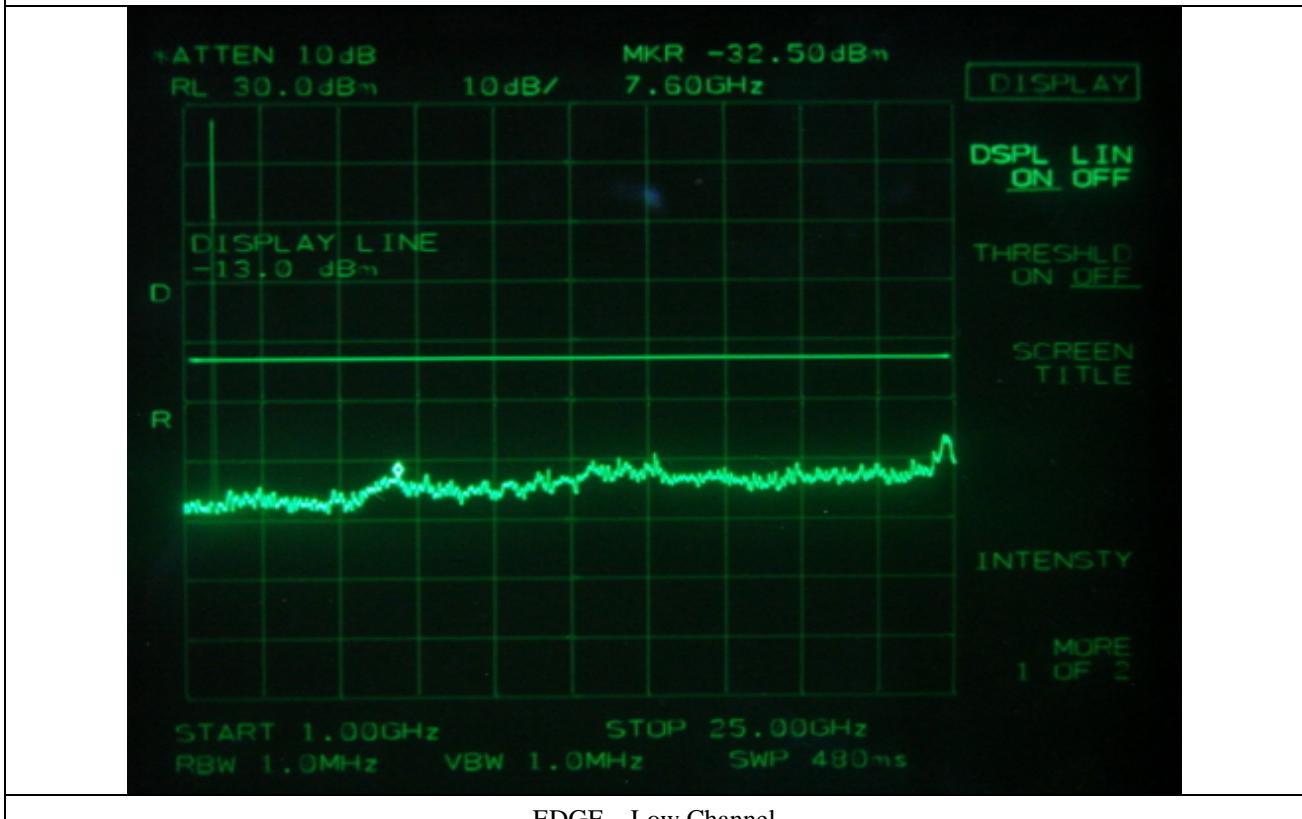
GSM – High Channel



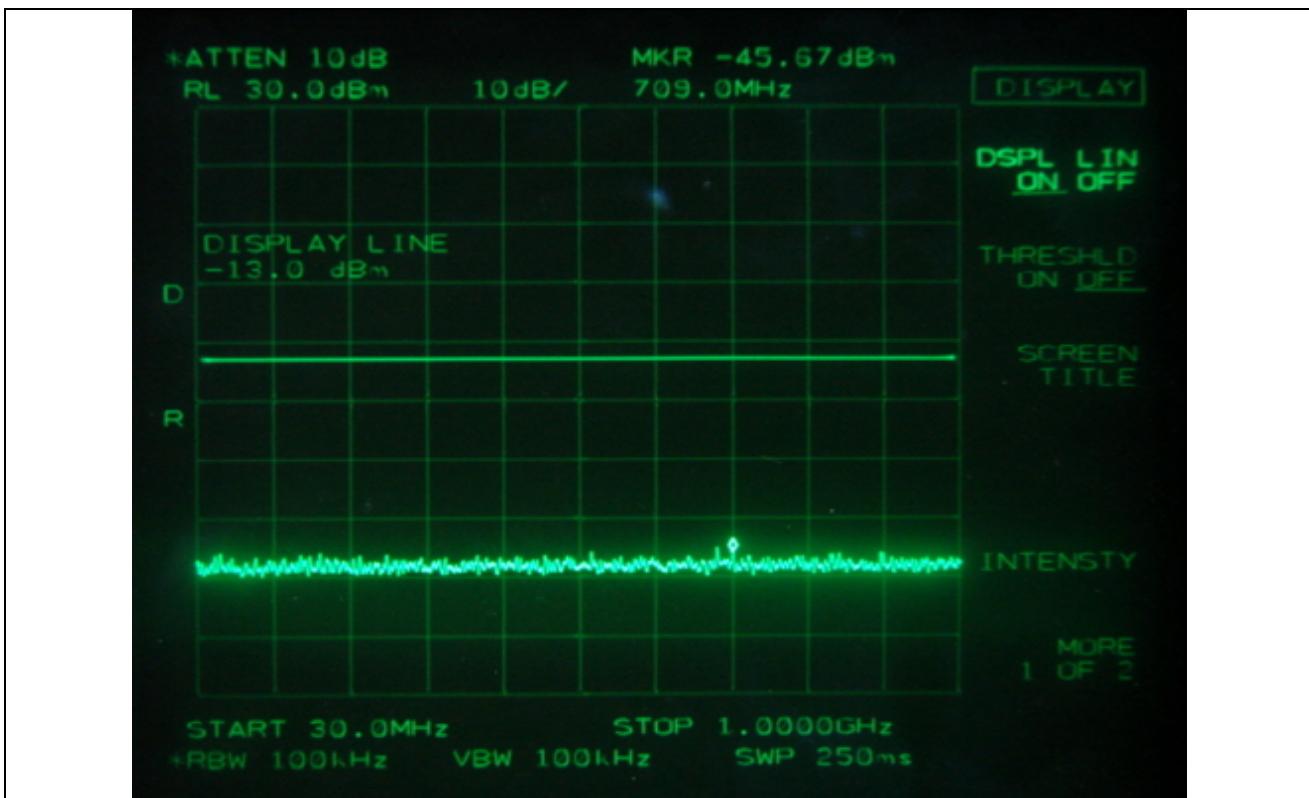
GSM – High Channel



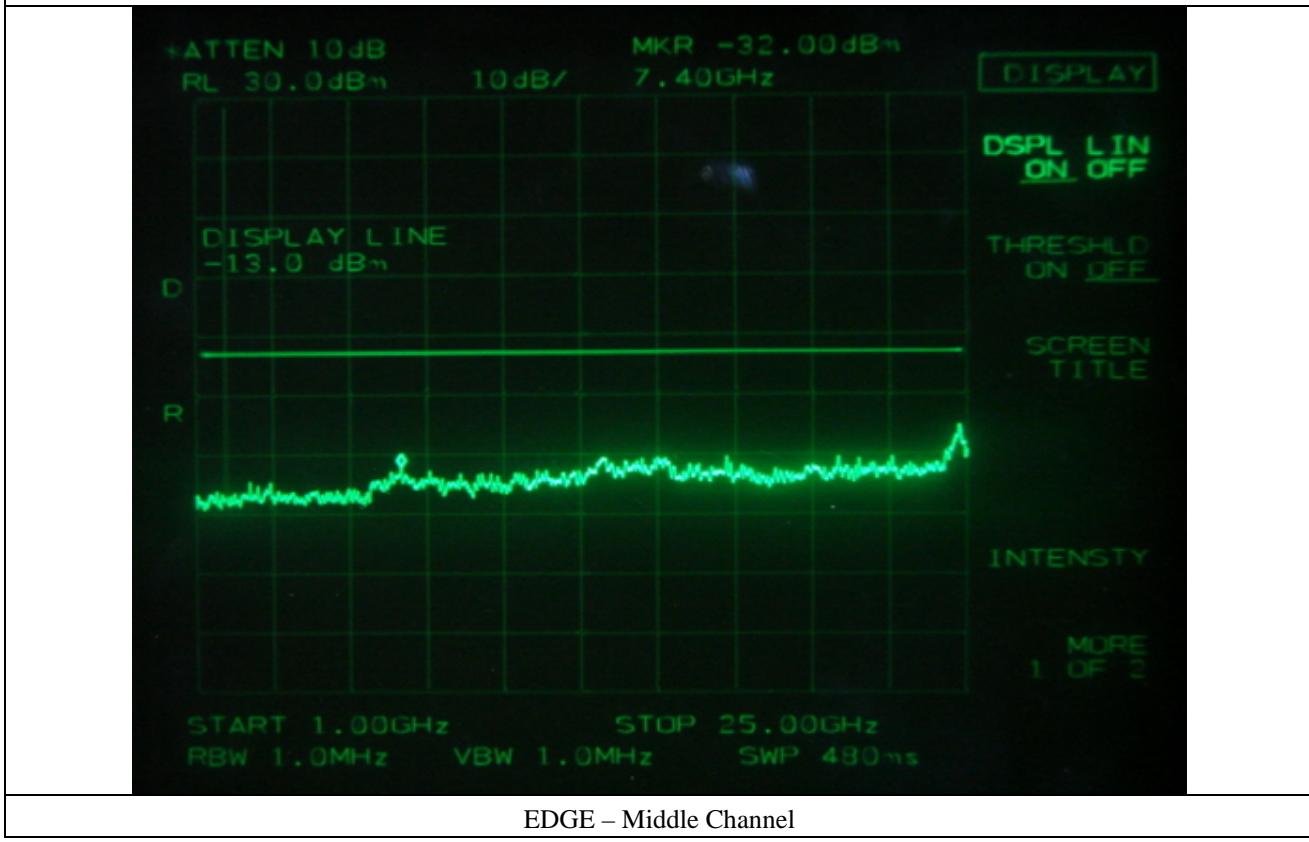
EDGE – Low Channel



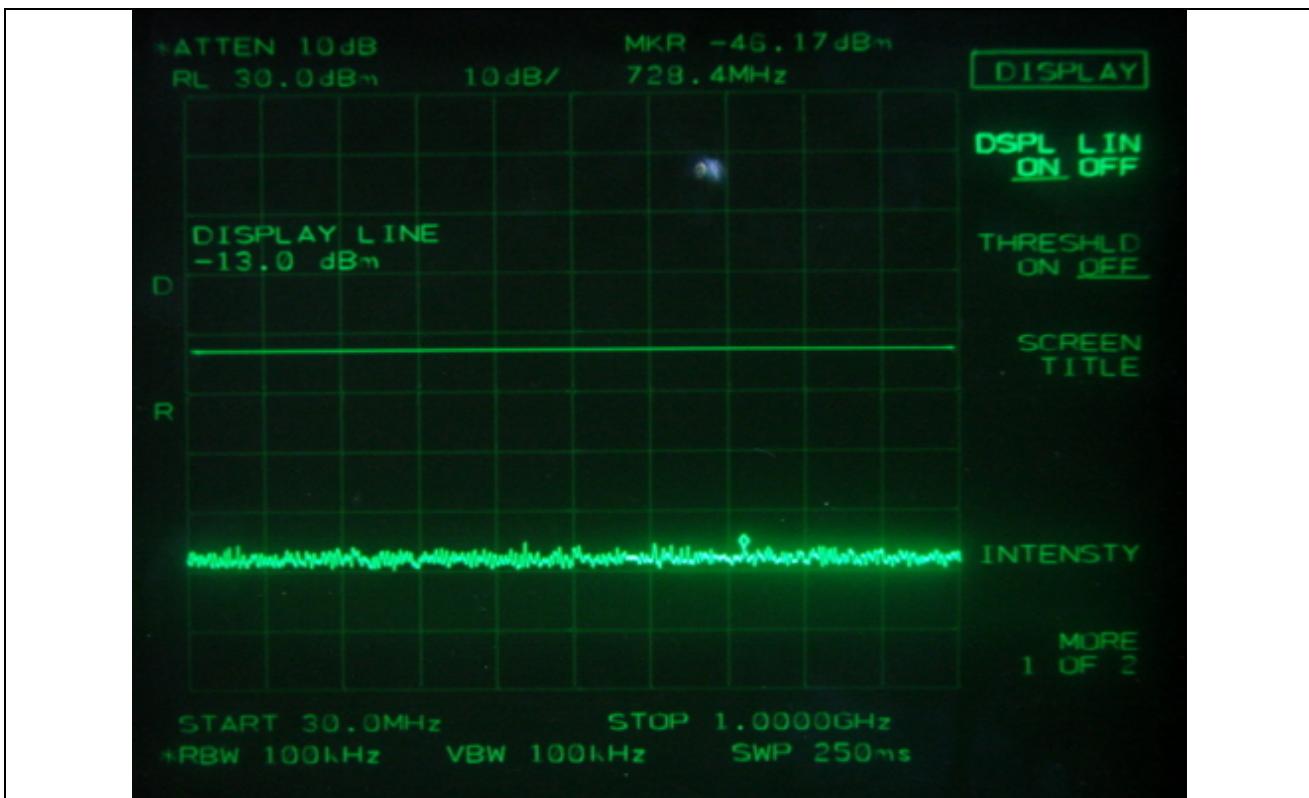
EDGE – Low Channel



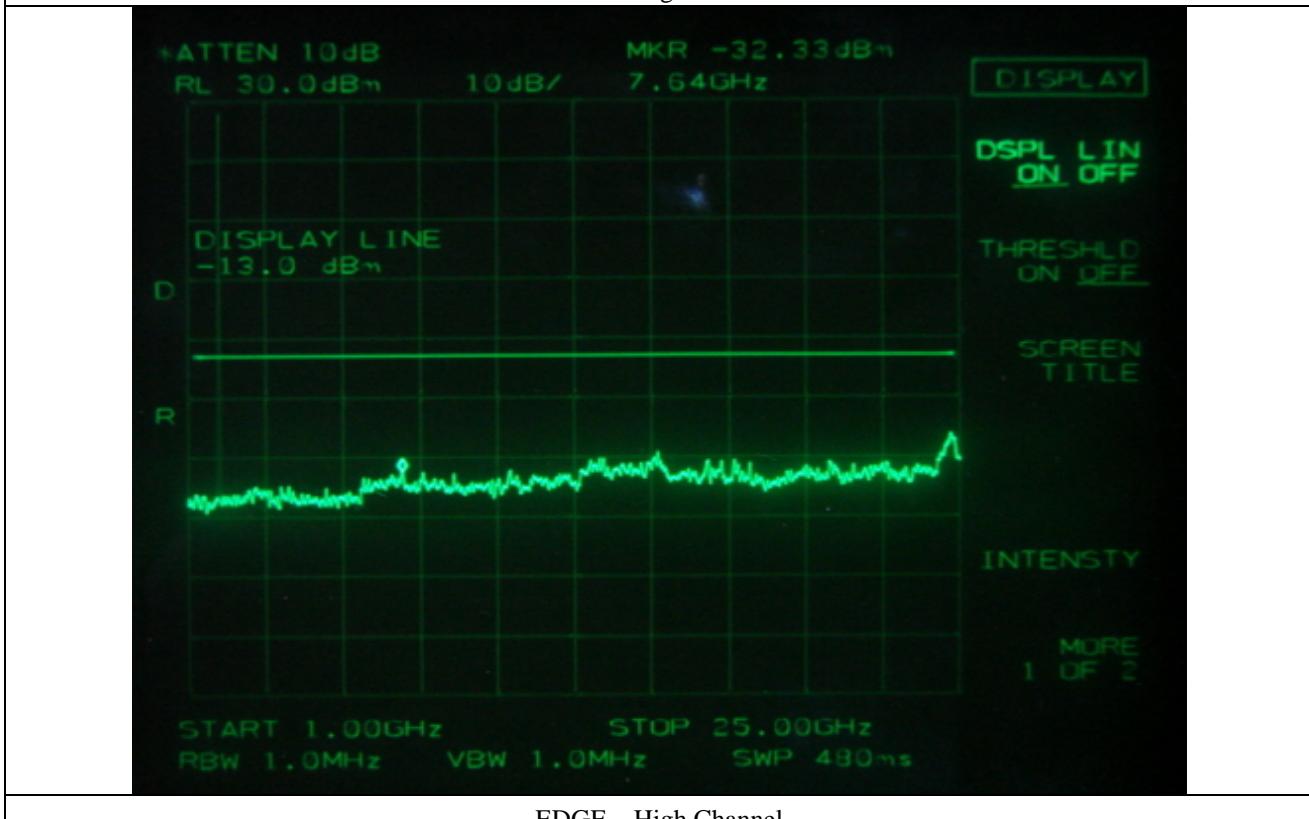
EDGE – Middle Channel



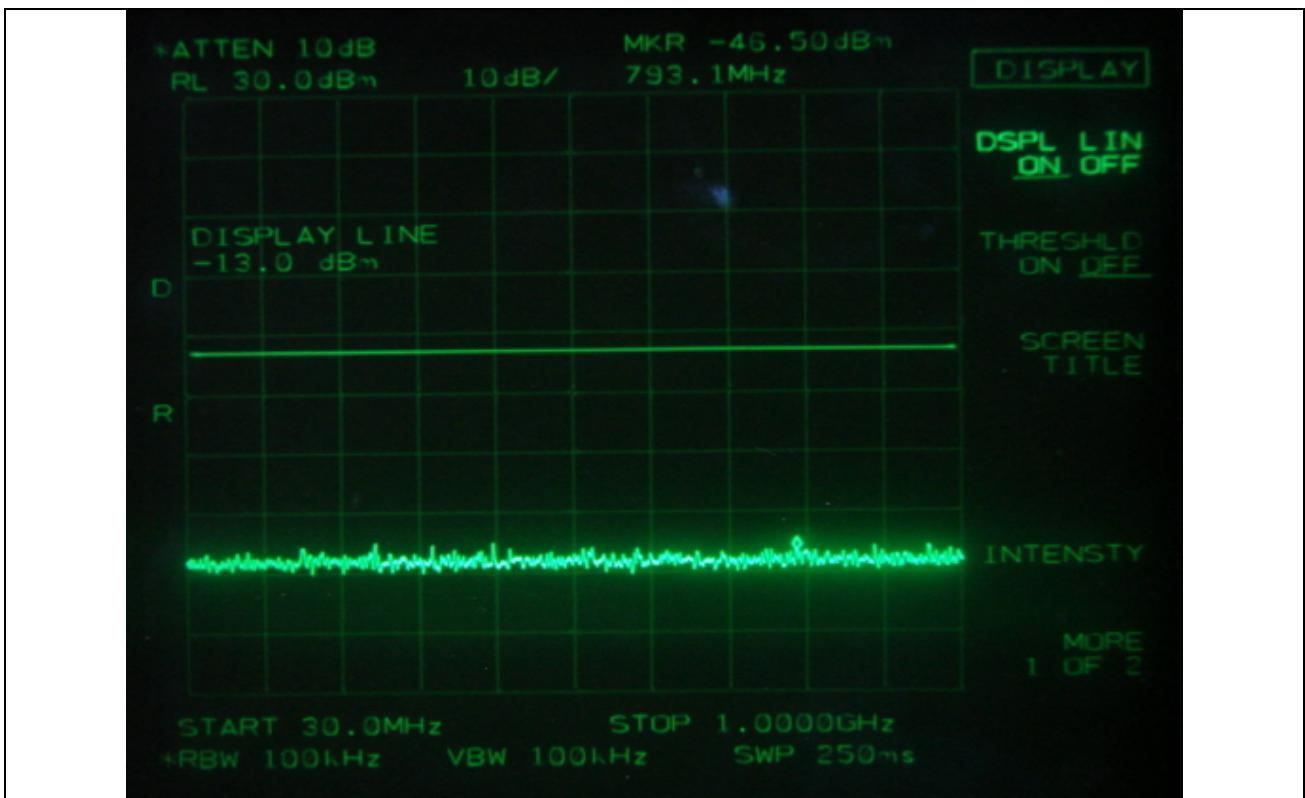
EDGE – Middle Channel



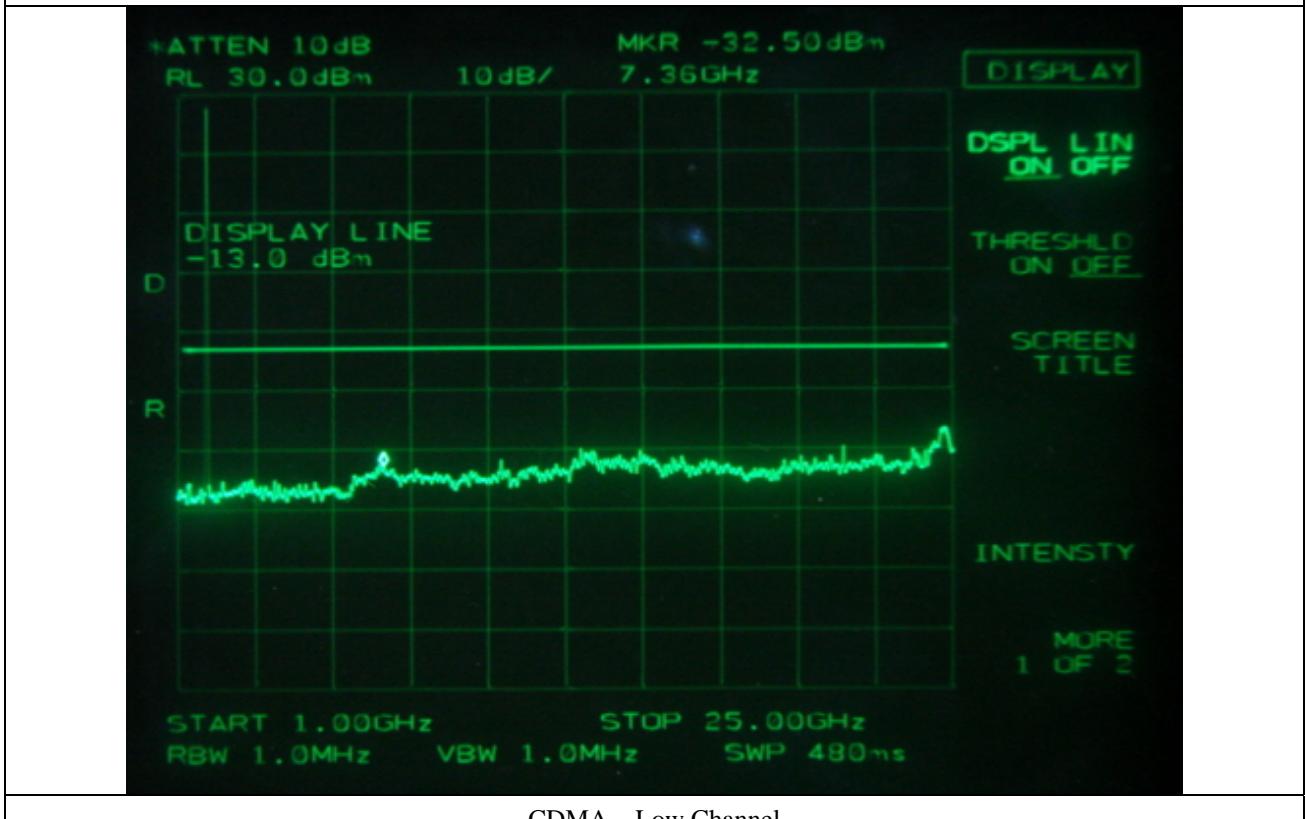
EDGE – High Channel



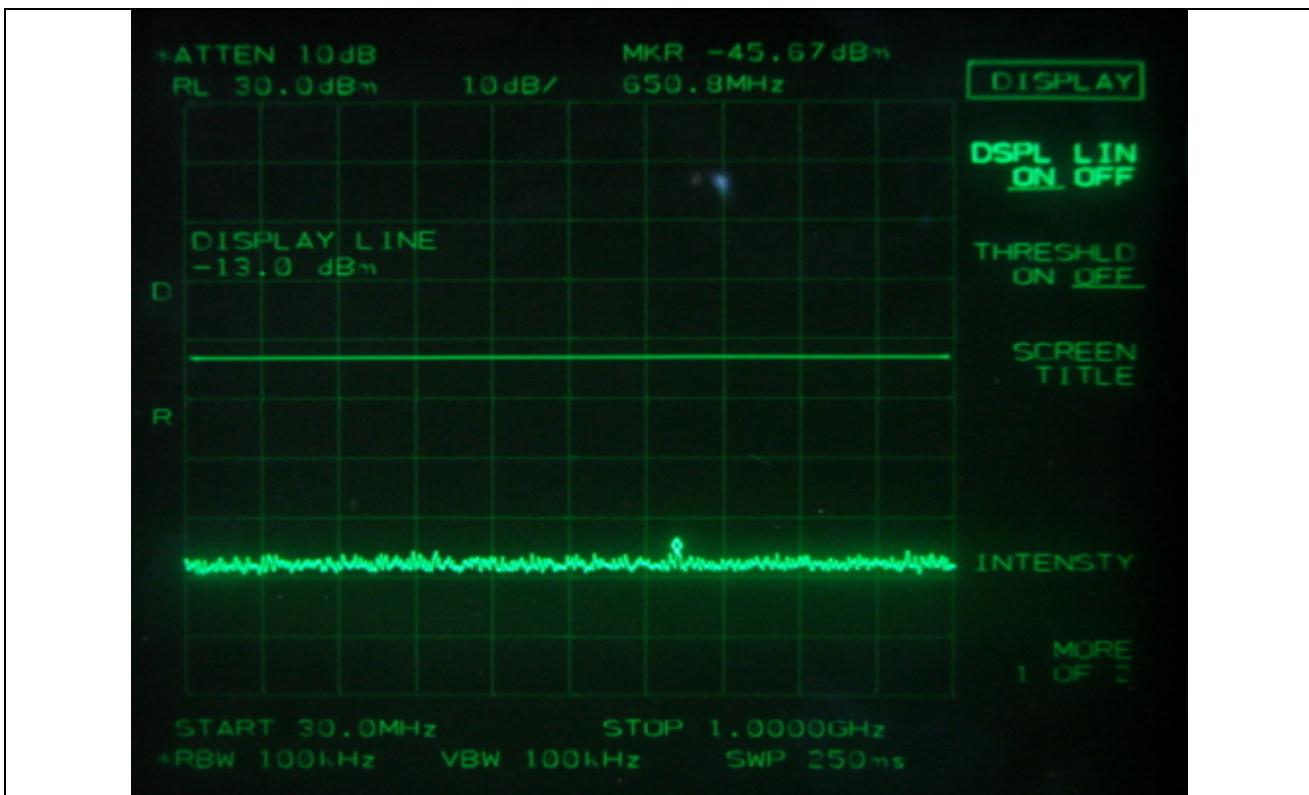
EDGE – High Channel



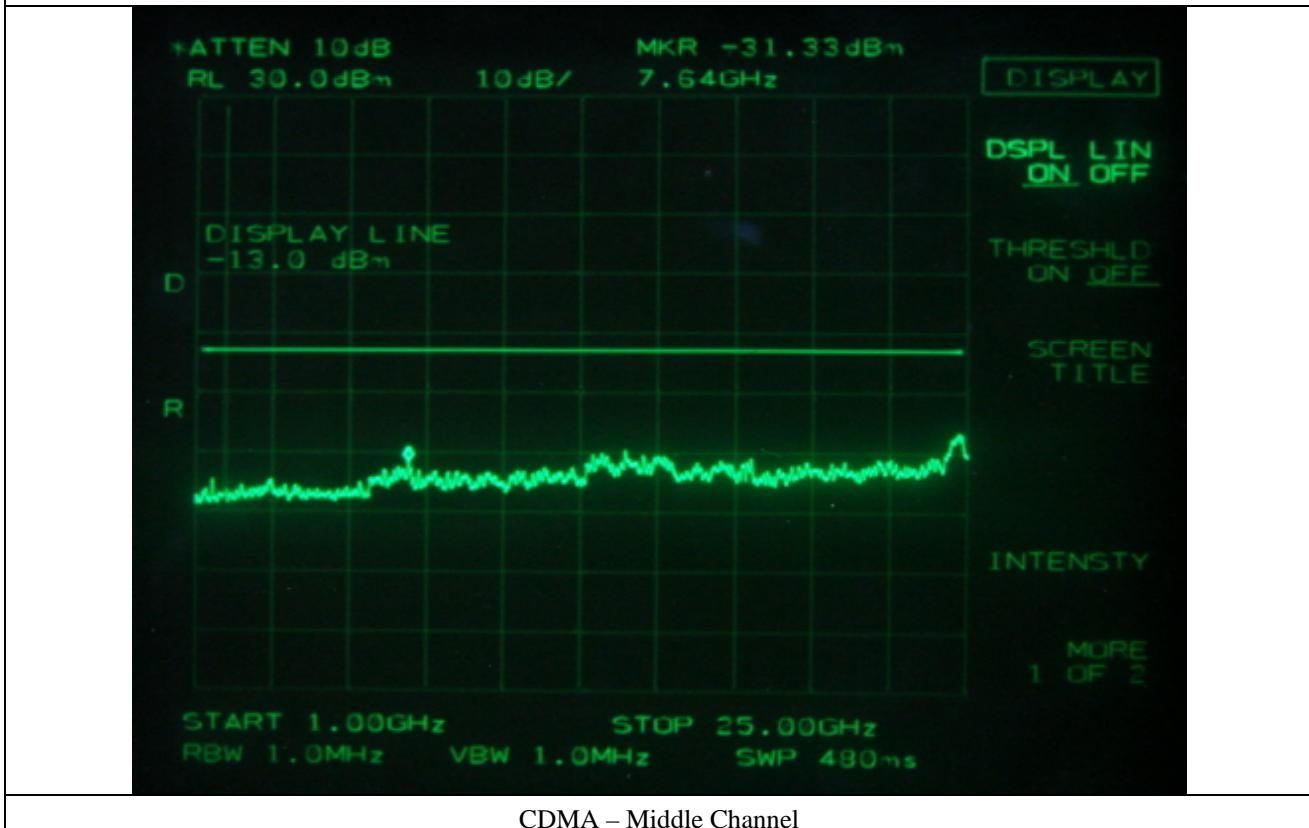
CDMA – Low Channel



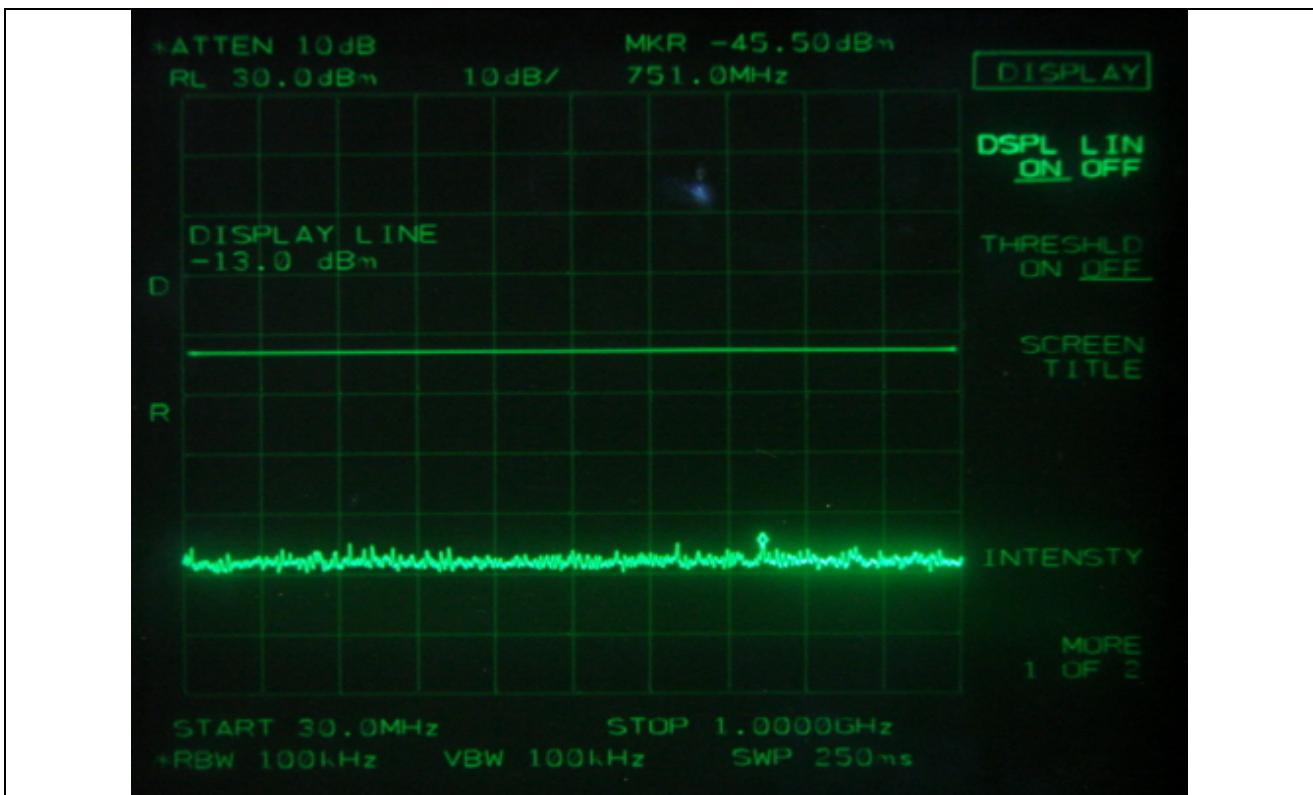
CDMA – Low Channel



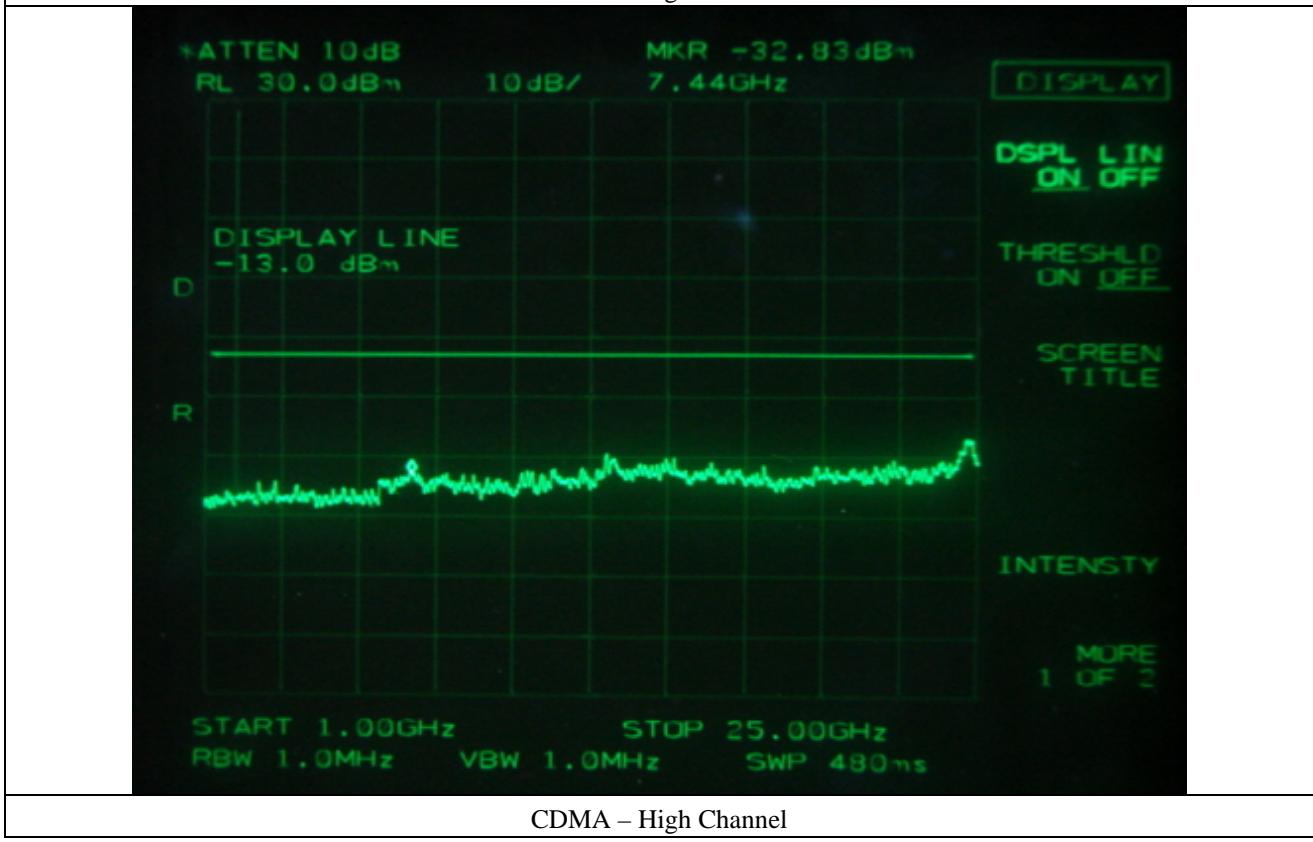
CDMA – Middle Channel



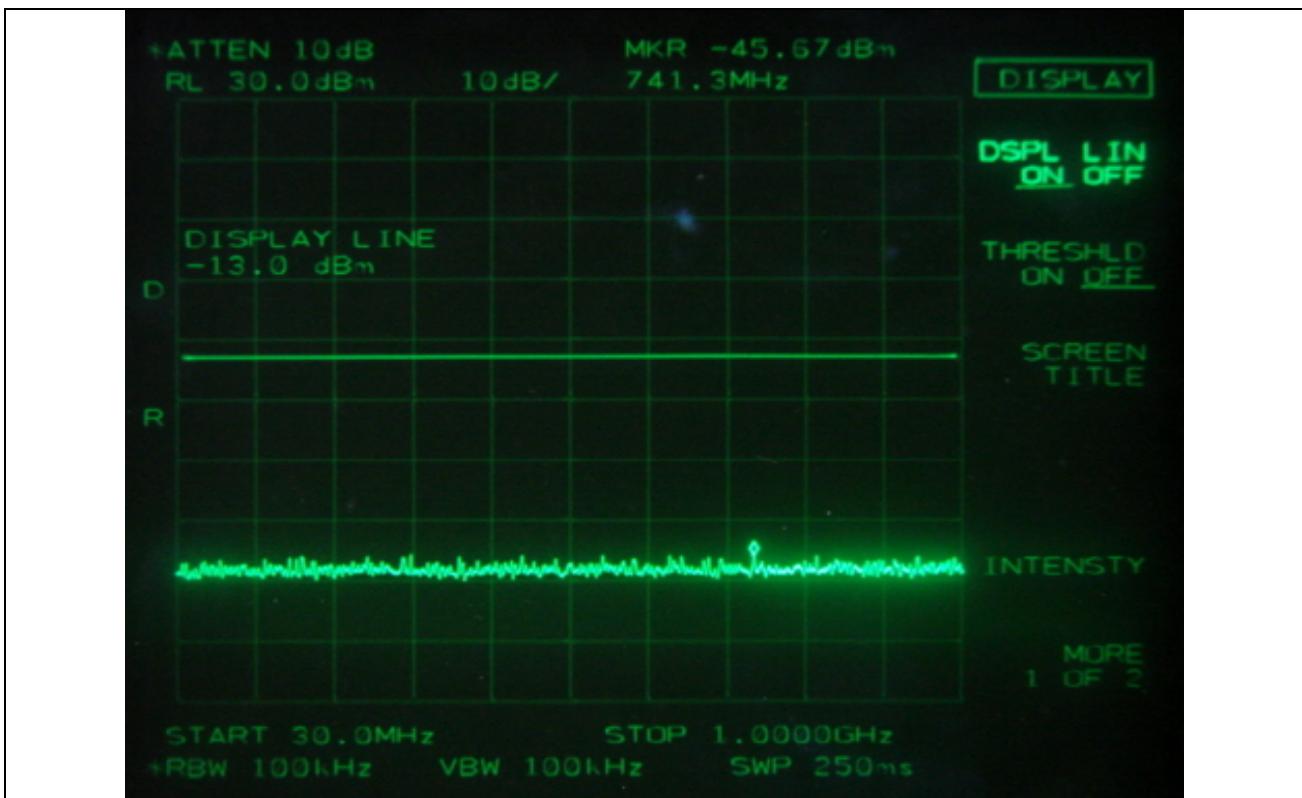
CDMA – Middle Channel



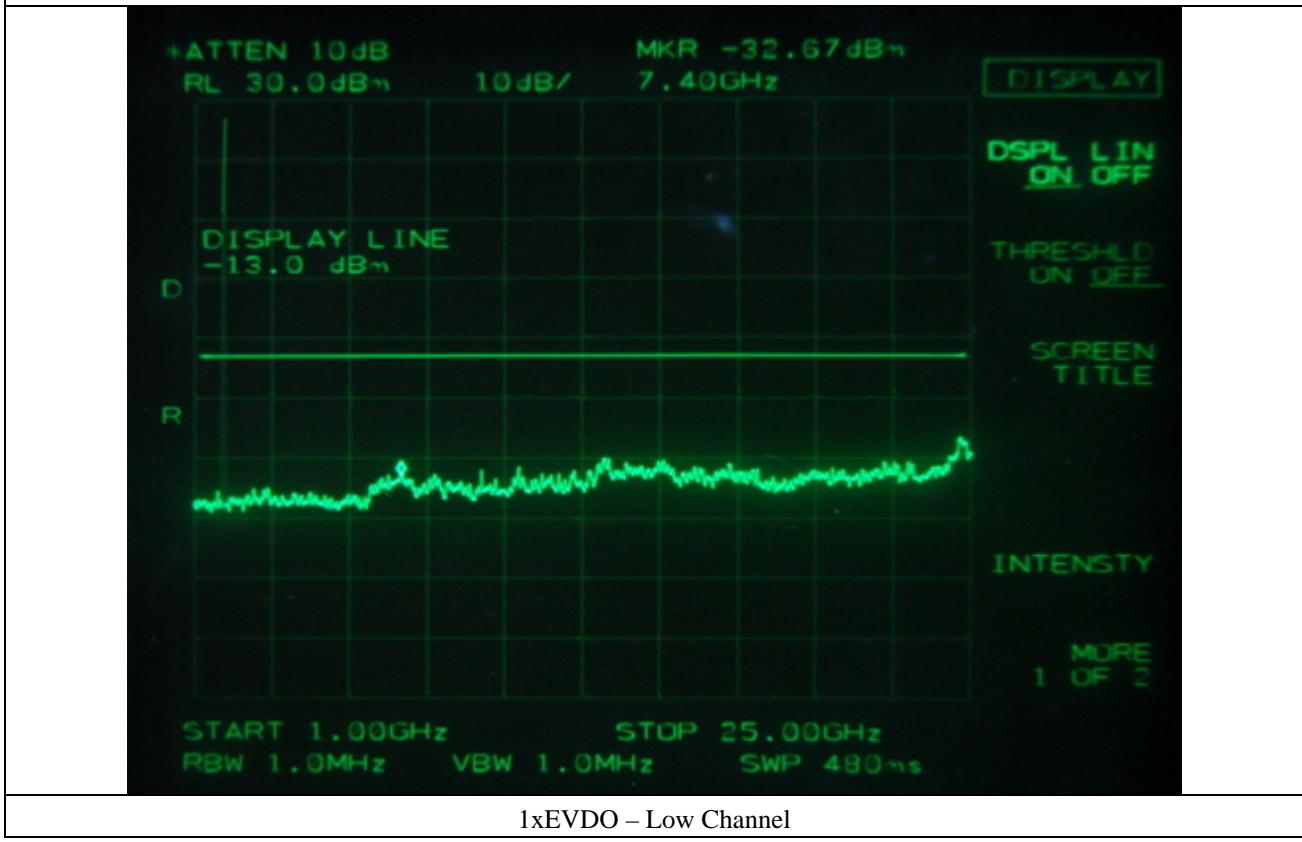
CDMA – High Channel



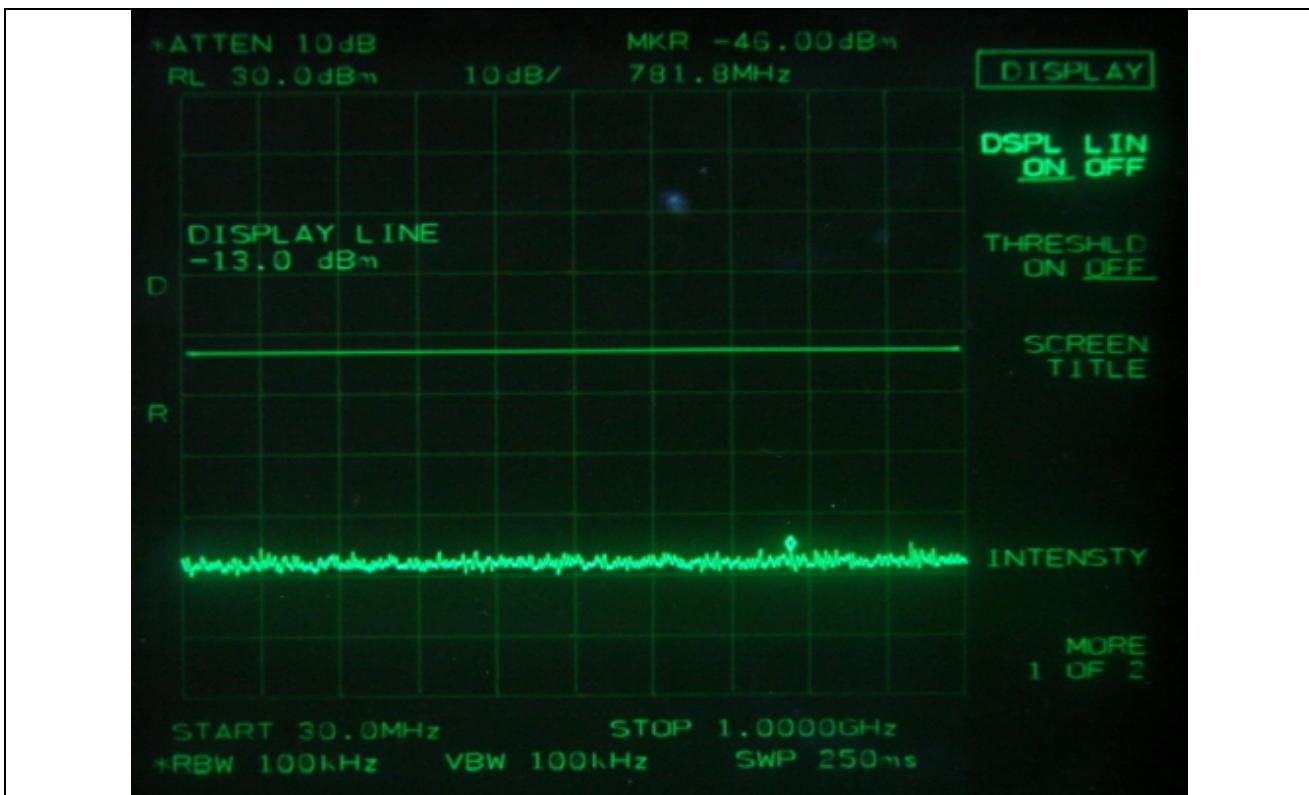
CDMA – High Channel



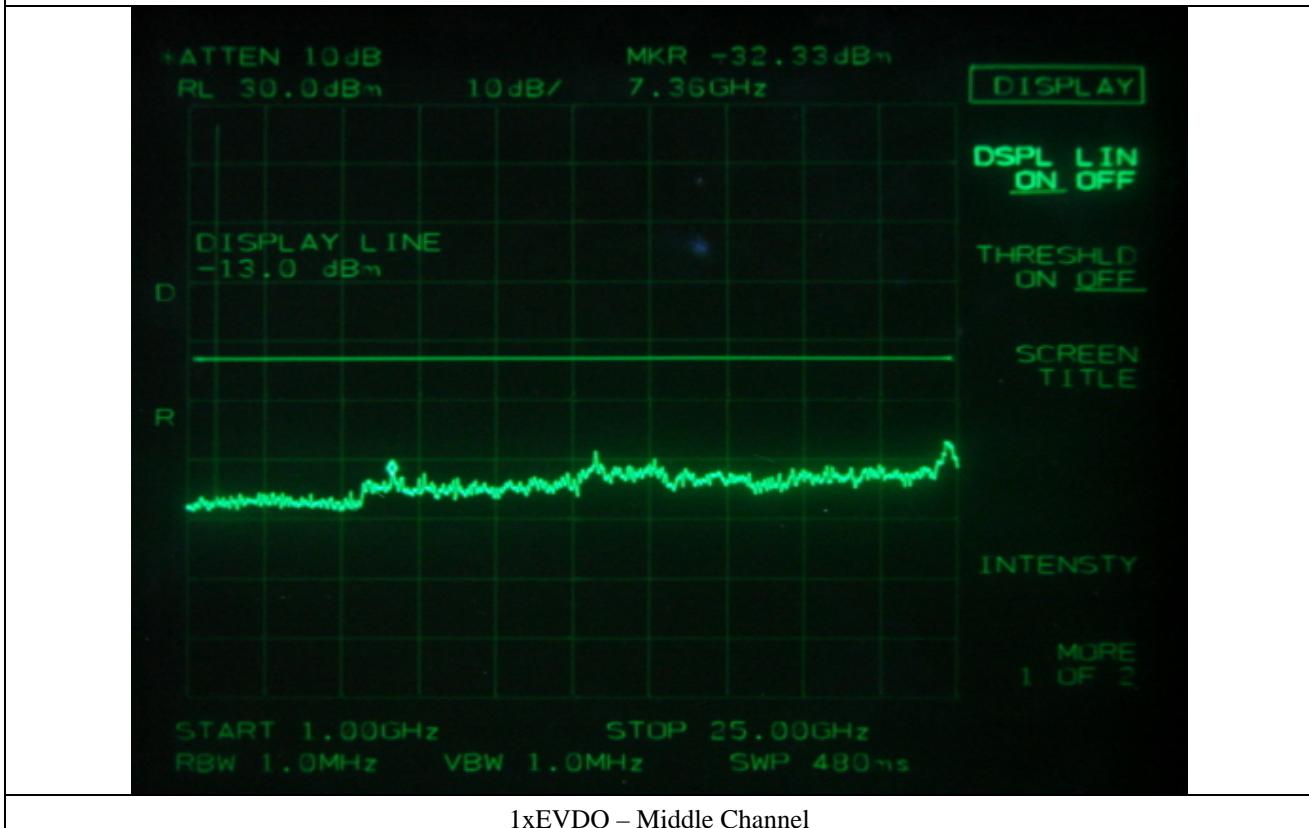
1xEVDO – Low Channel



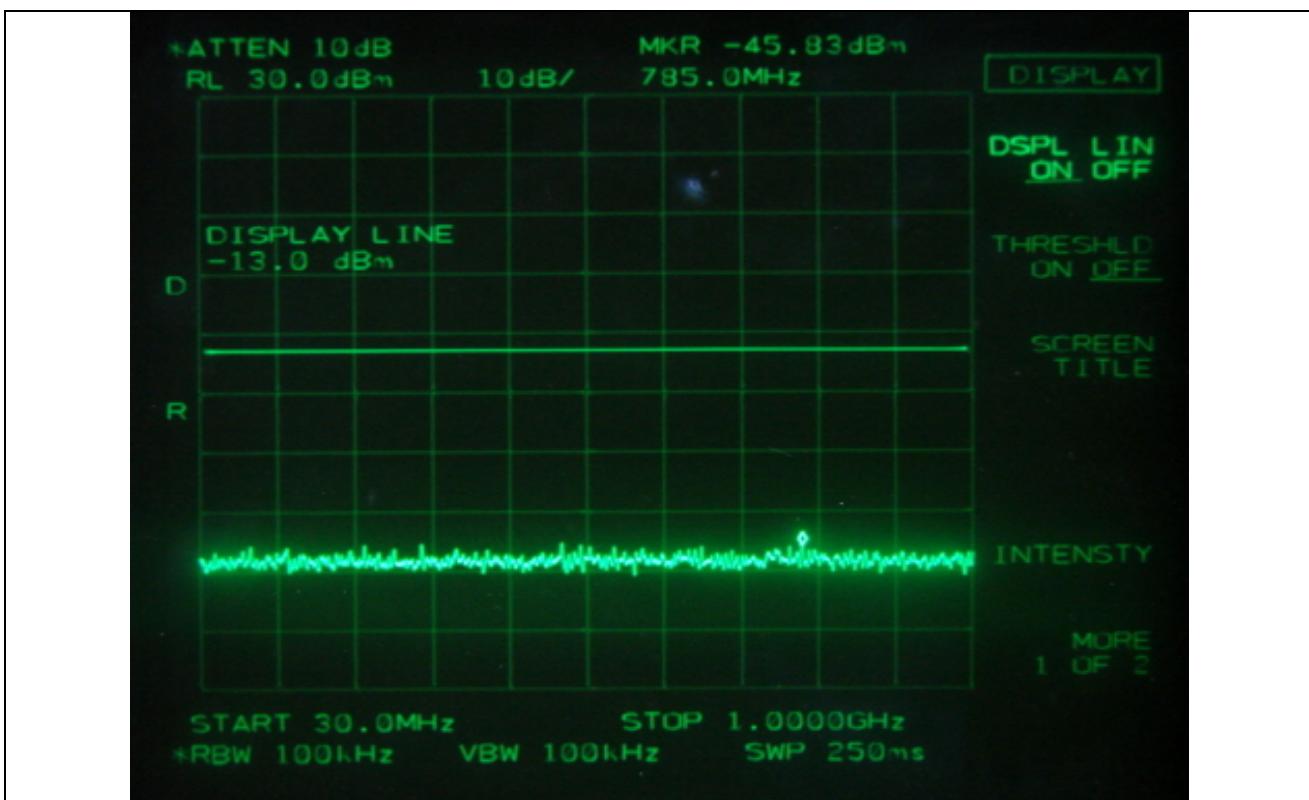
1xEVDO – Low Channel



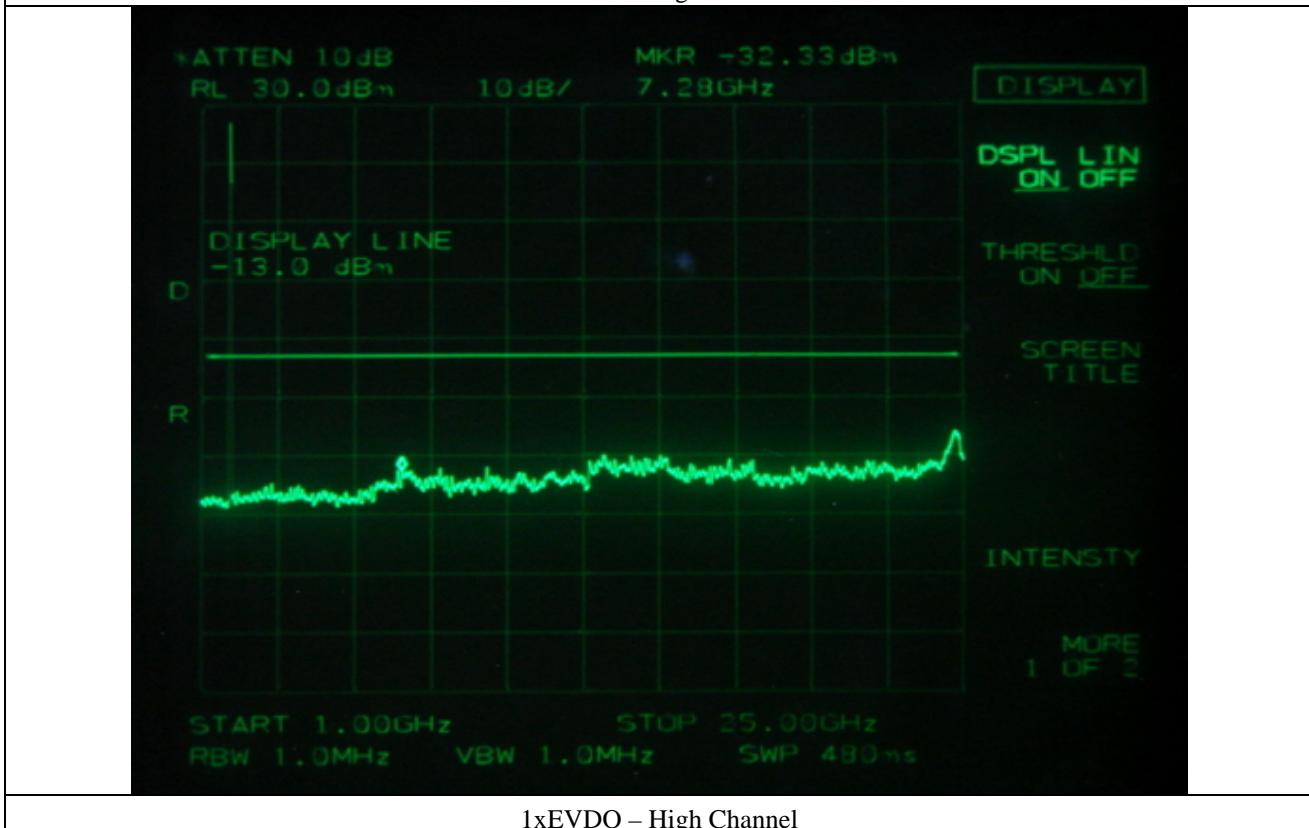
1xEVDO – Middle Channel



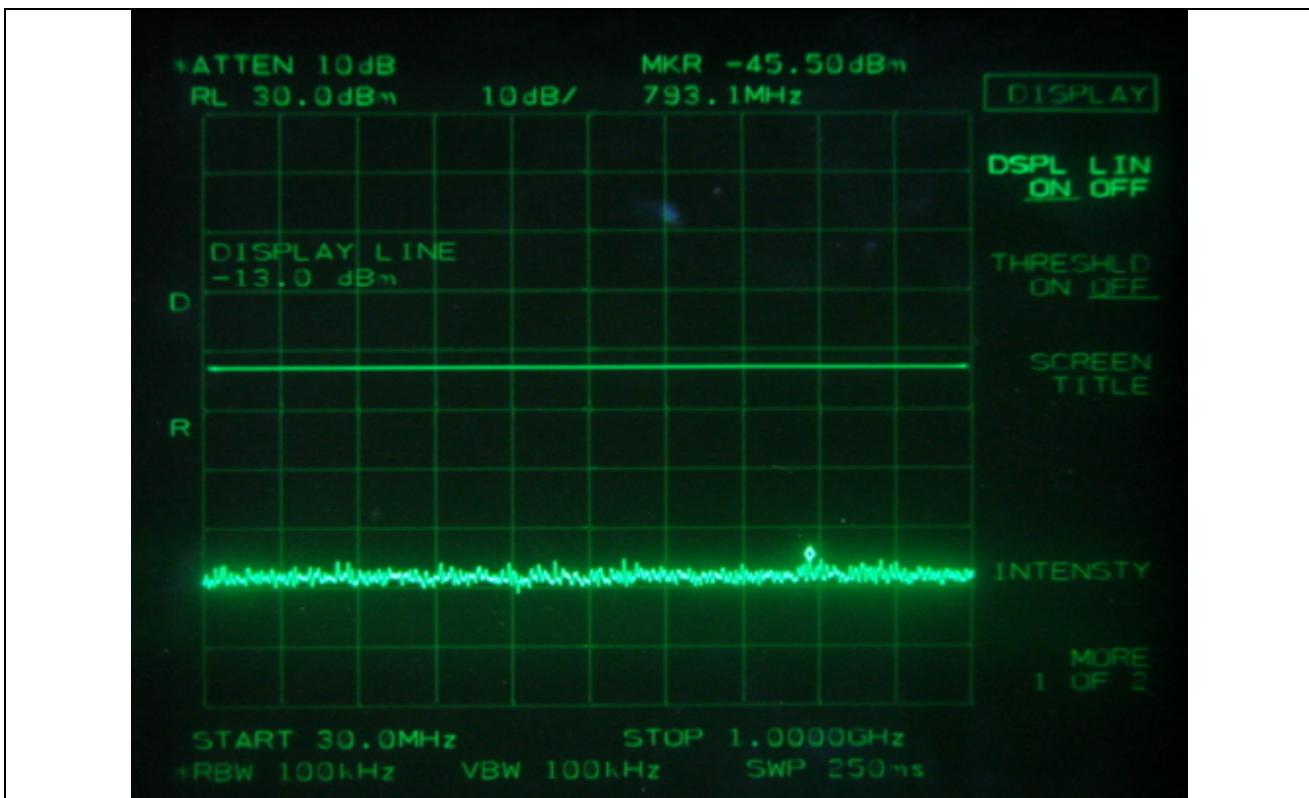
1xEVDO – Middle Channel



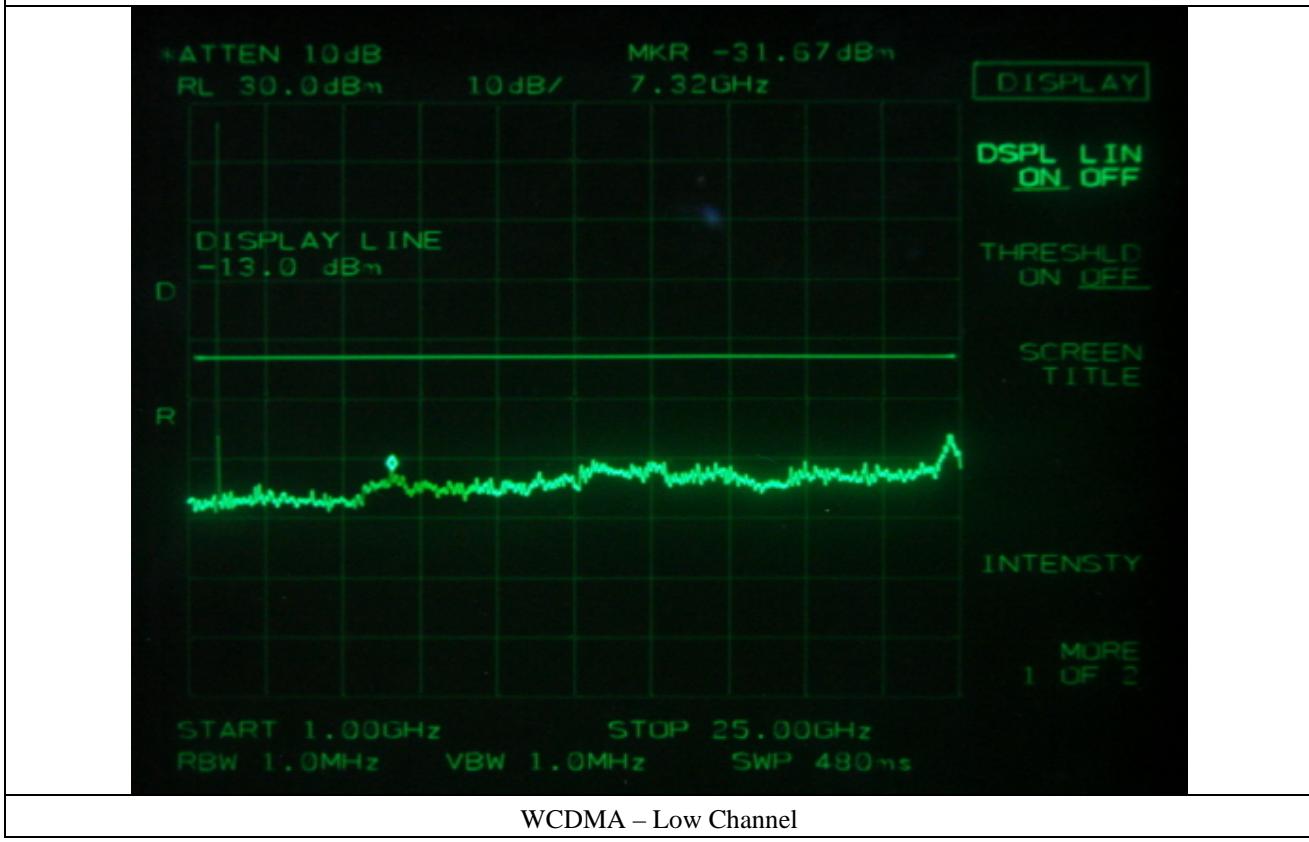
1xEVDO – High Channel



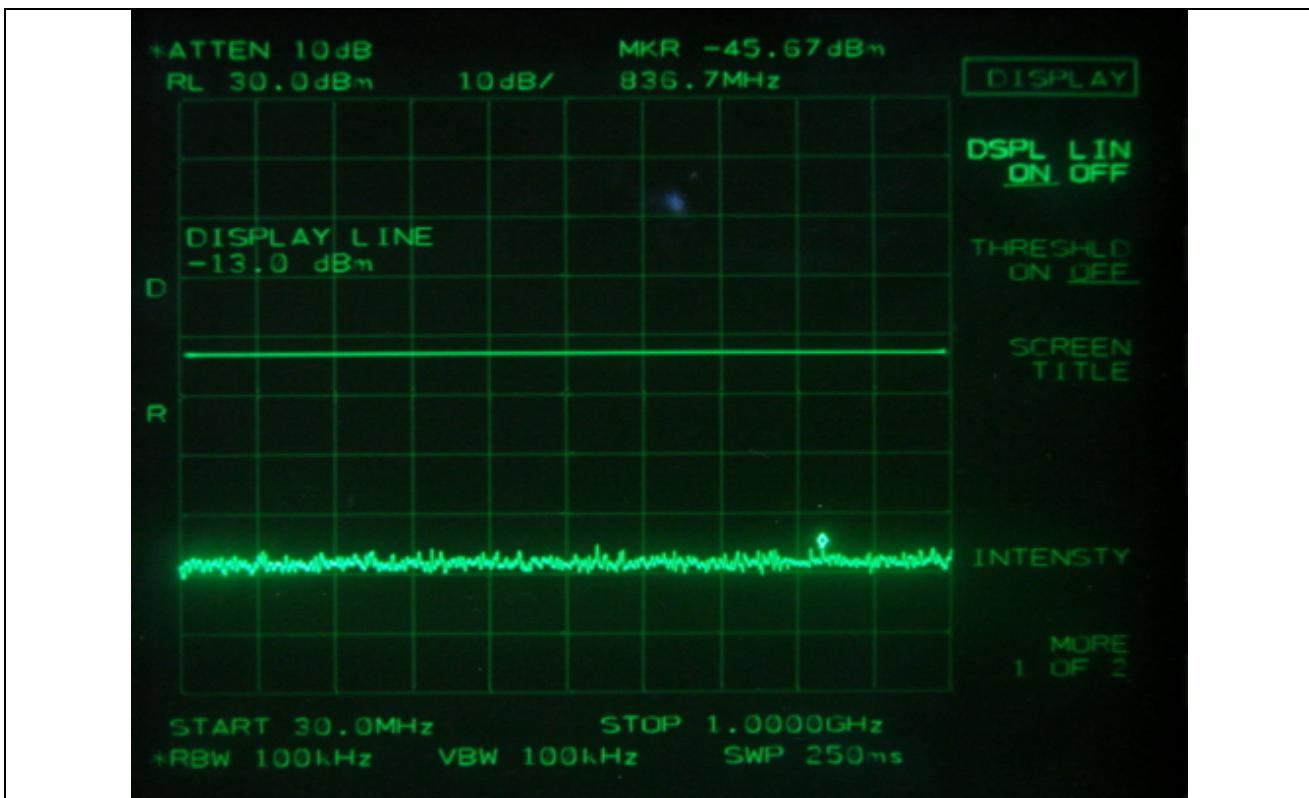
1xEVDO – High Channel



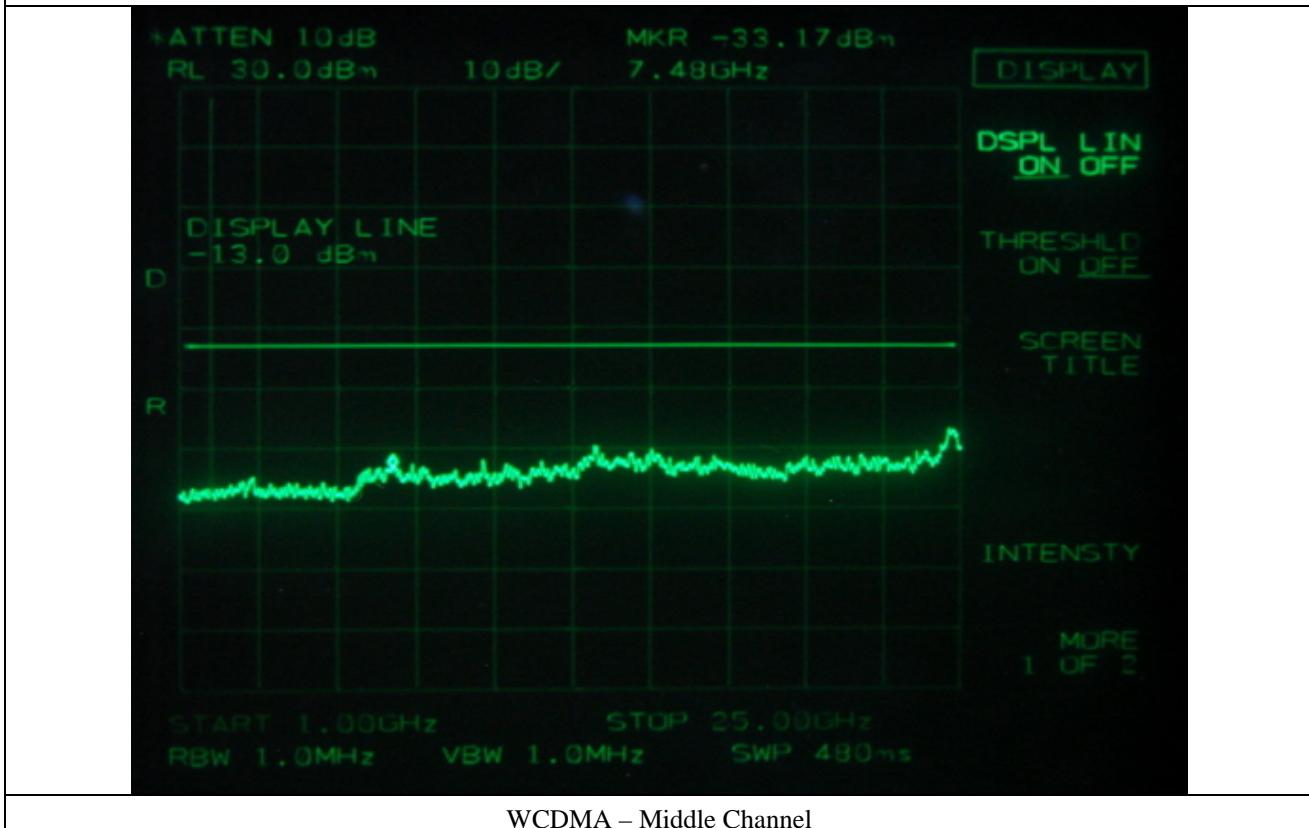
WCDMA – Low Channel



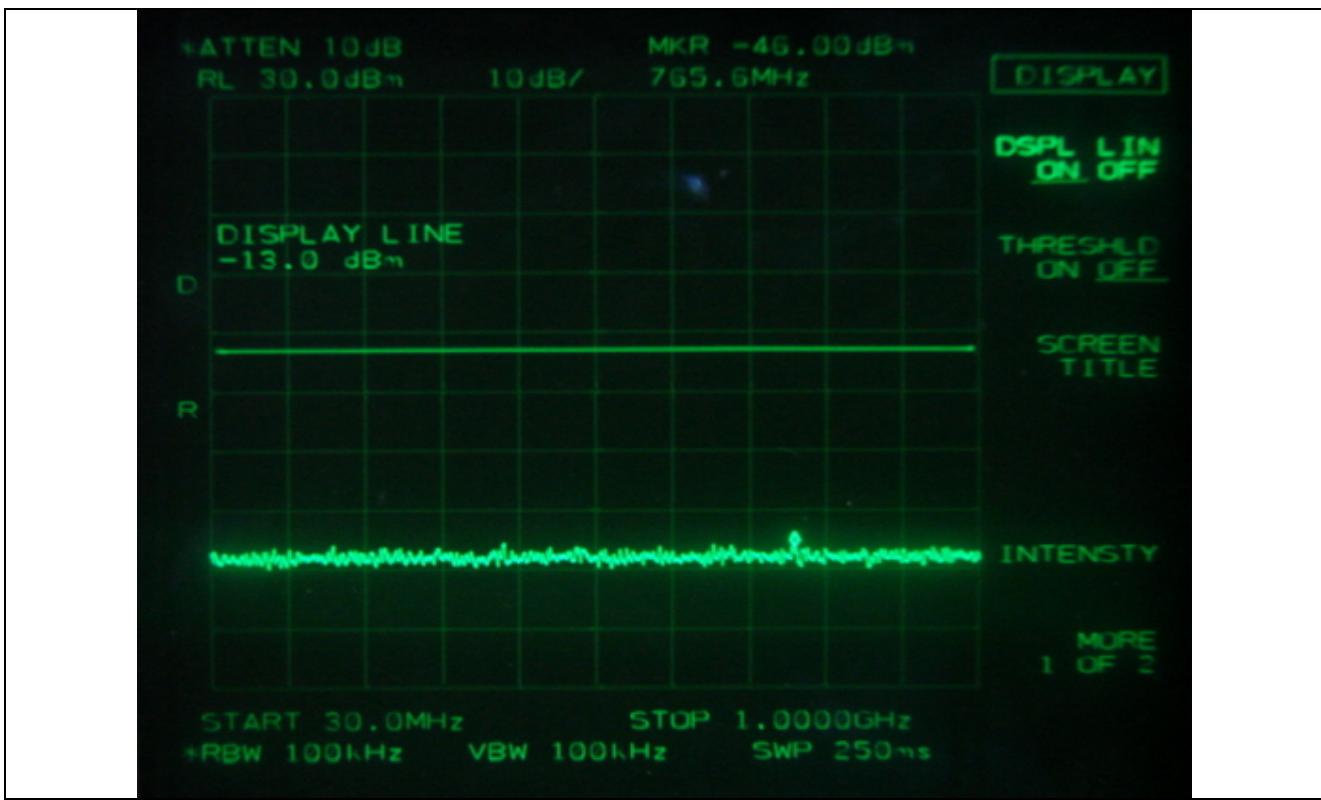
WCDMA – Low Channel



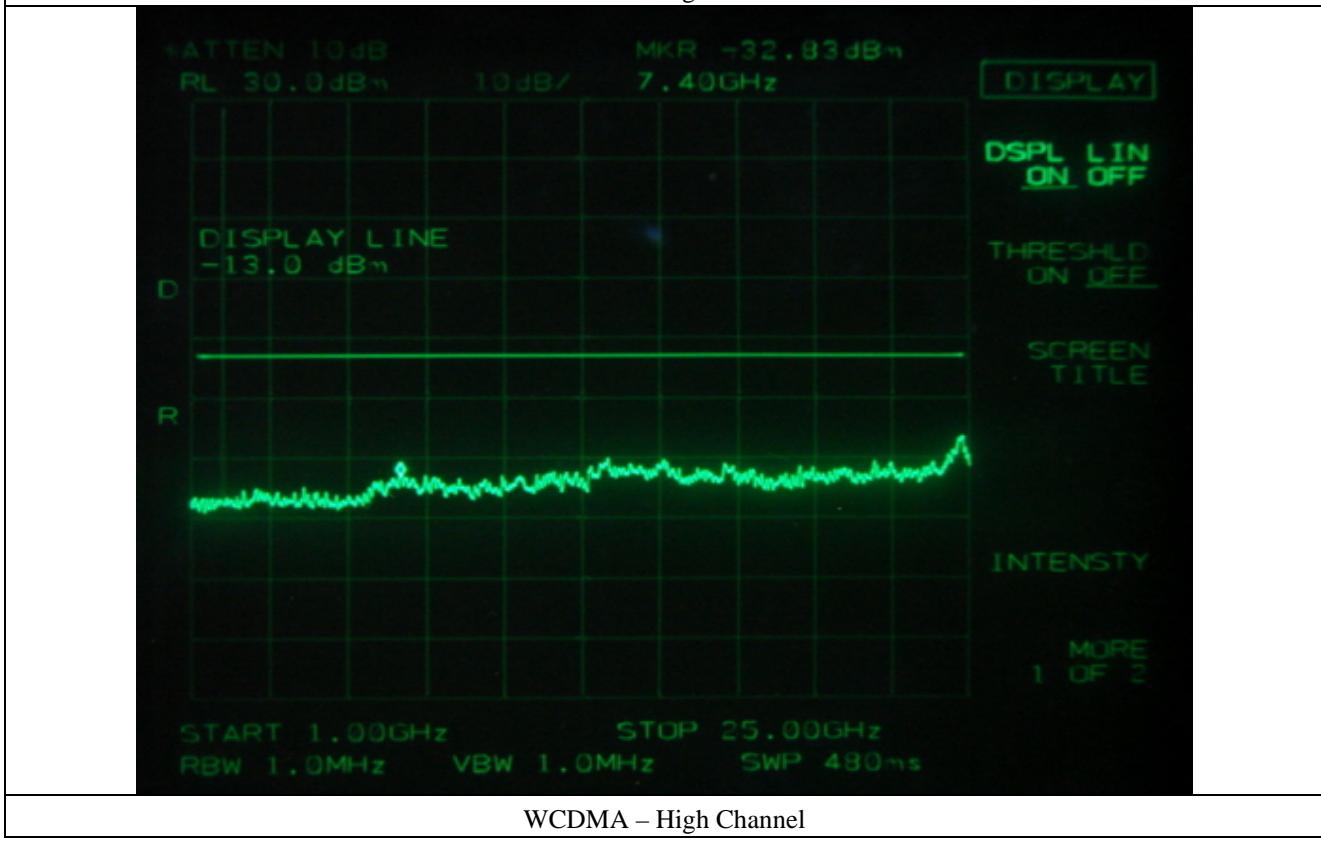
WCDMA – Middle Channel



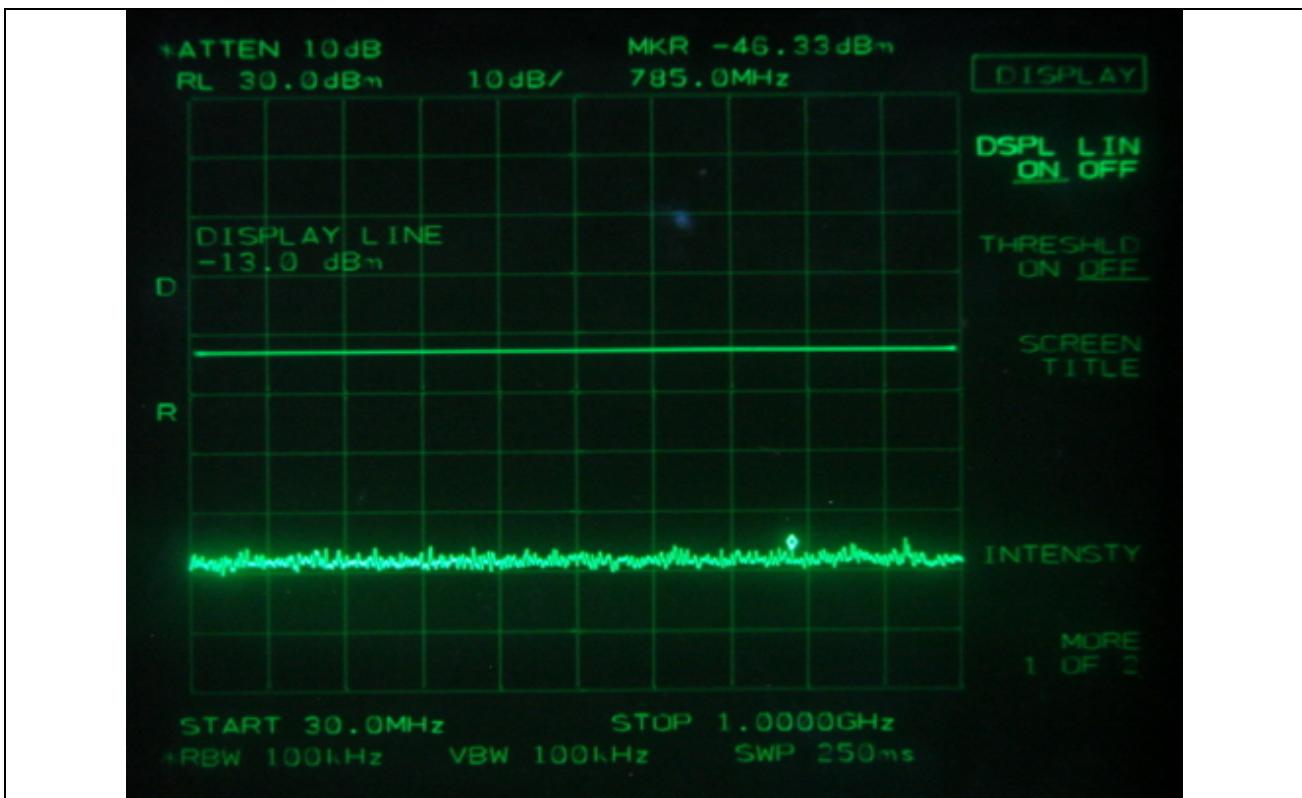
WCDMA – Middle Channel



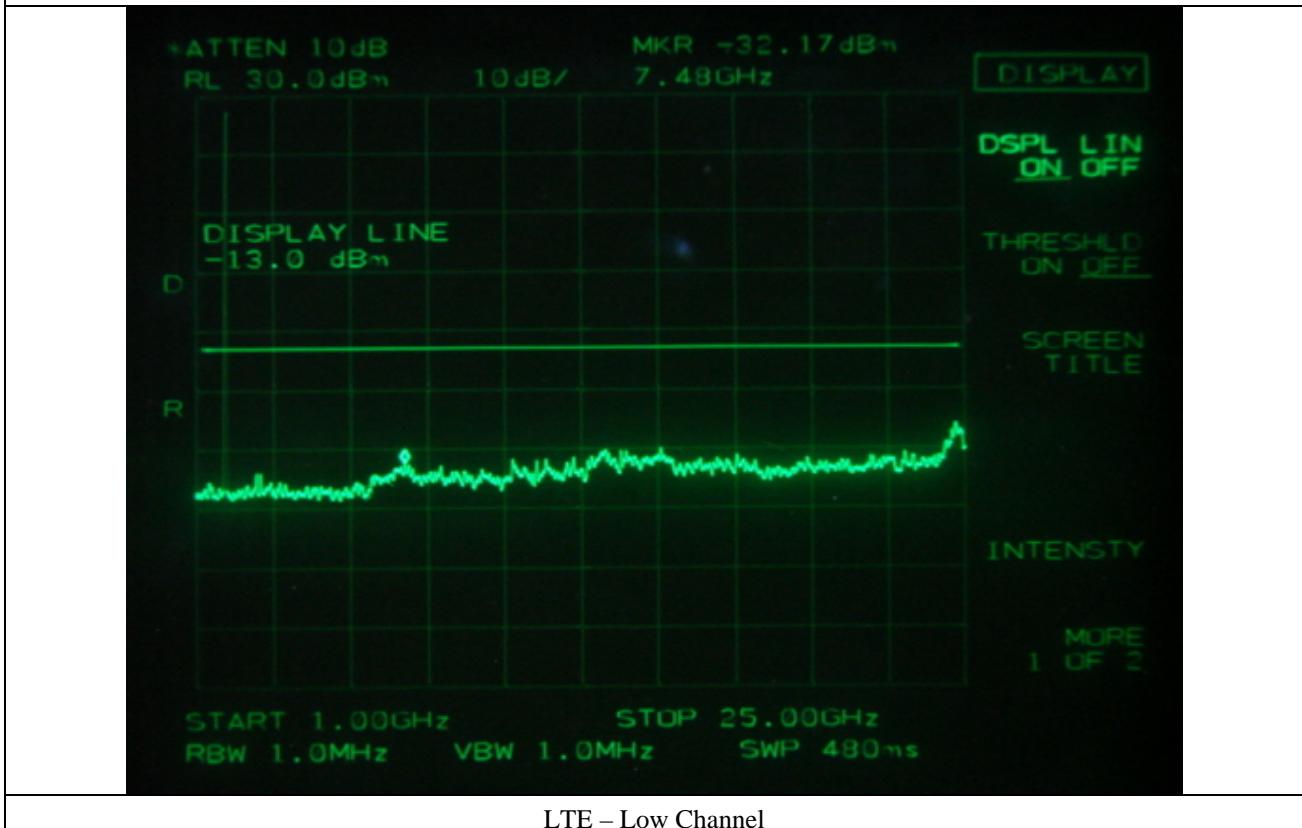
WCDMA – High Channel



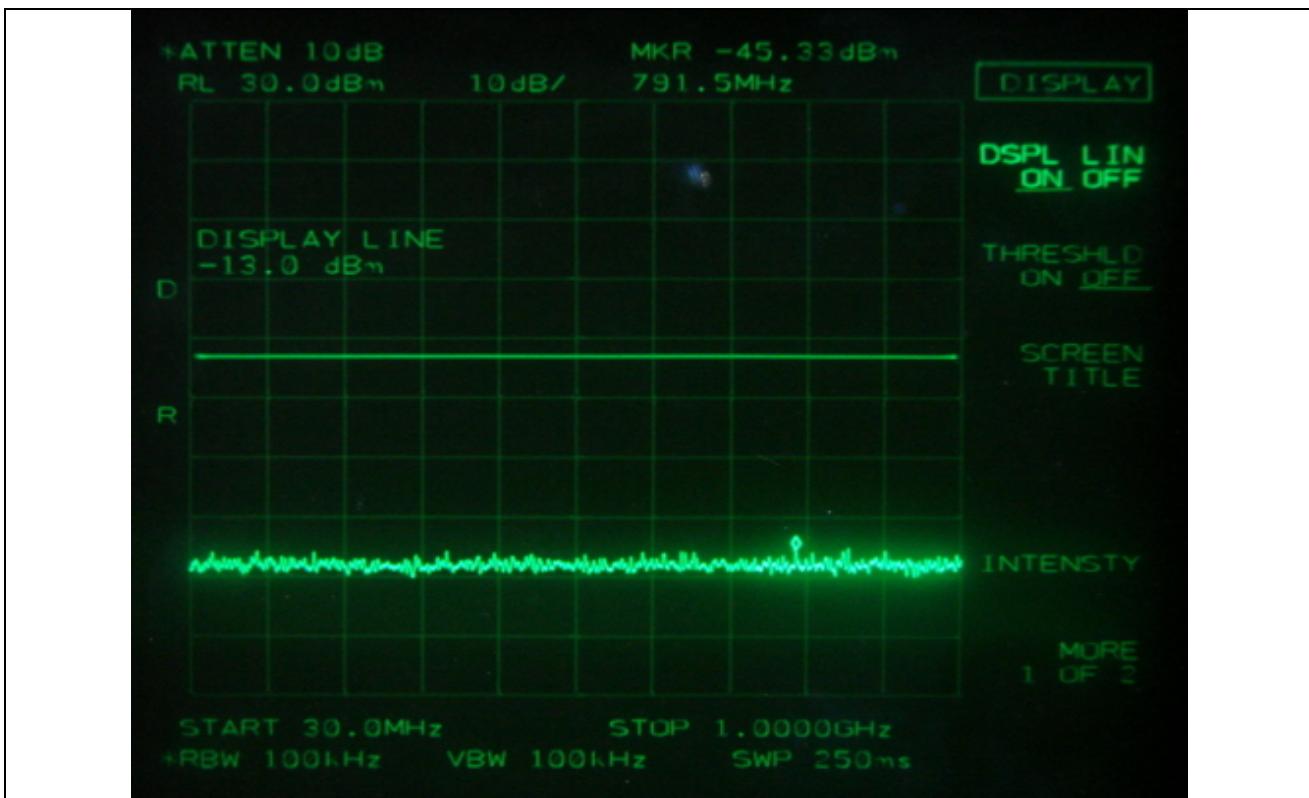
WCDMA – High Channel



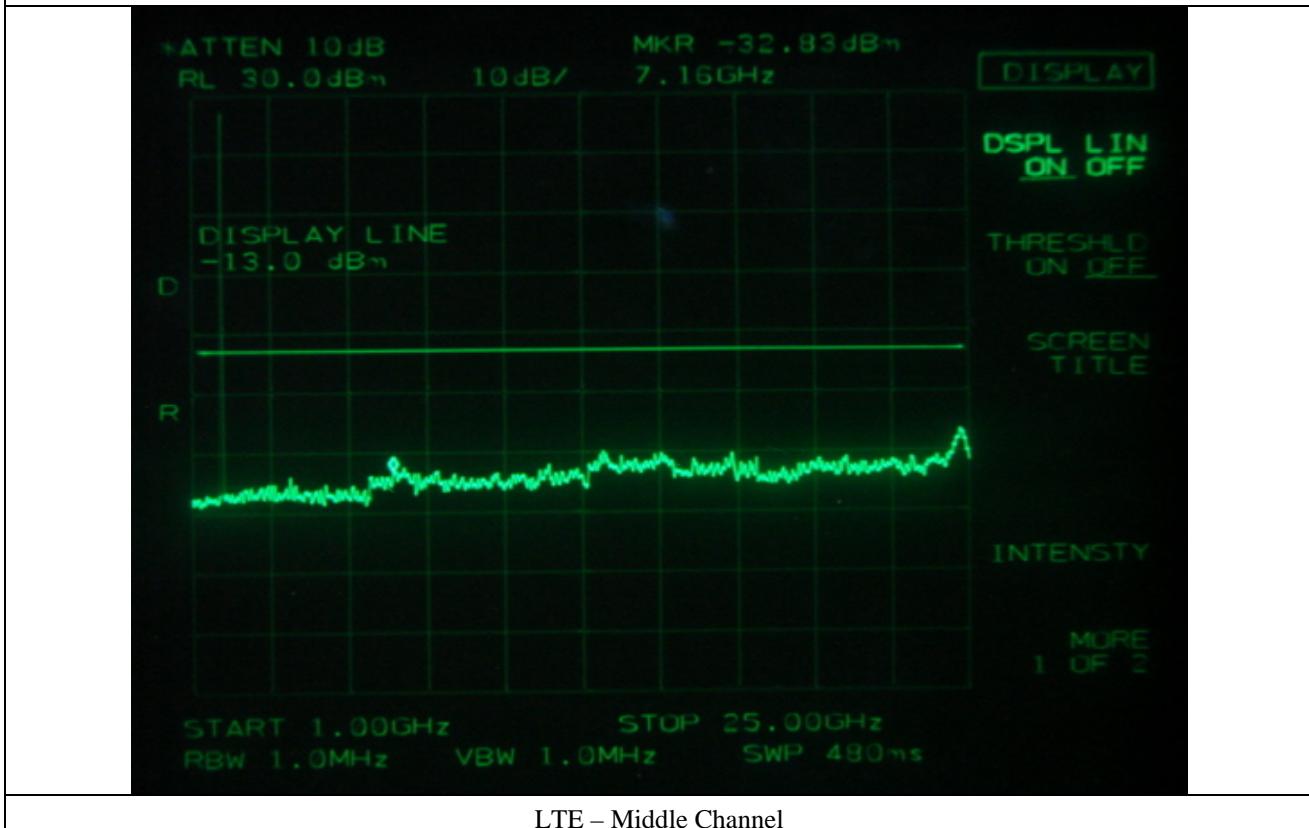
LTE – Low Channel



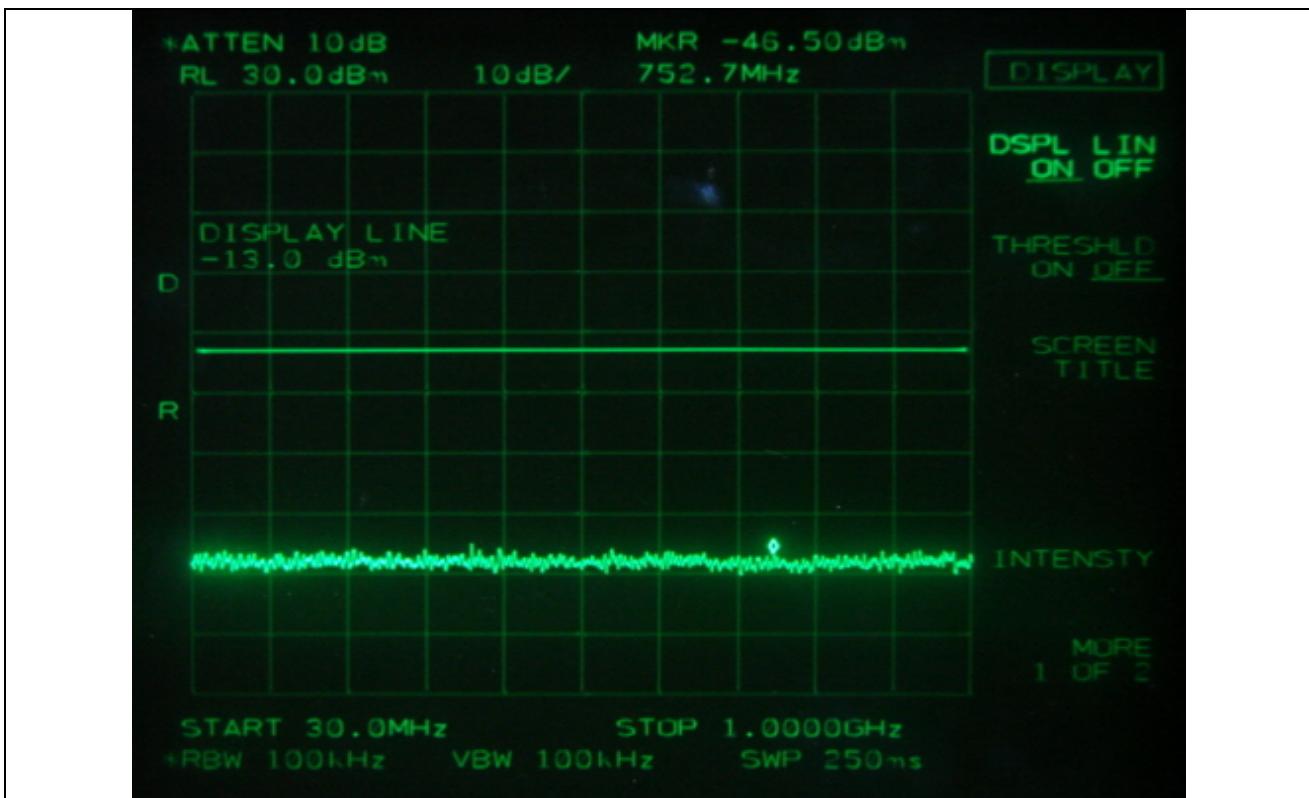
LTE – Low Channel



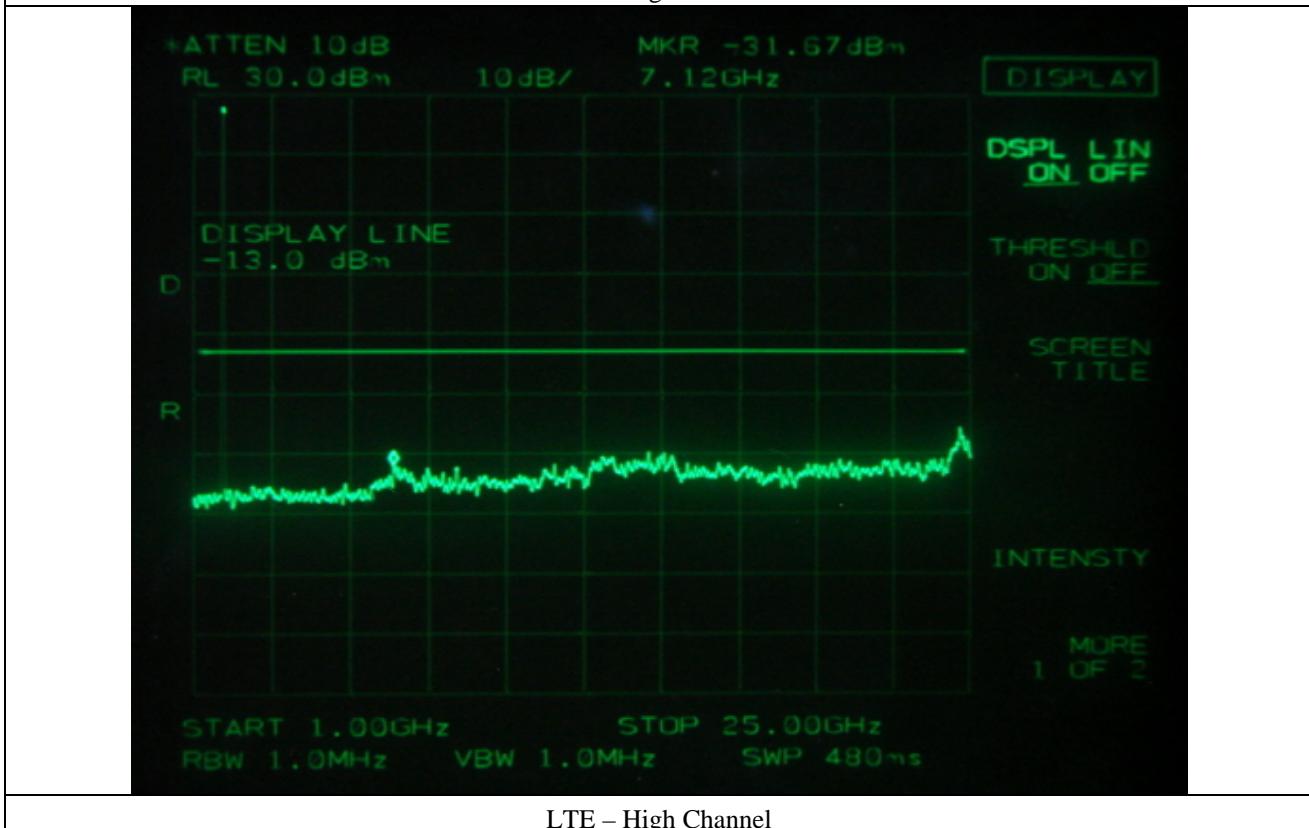
LTE – Middle Channel



LTE – Middle Channel



LTE – High Channel



LTE – High Channel

7.4.2 Test Result for Part 27

- . Test Date : May 31, 2012
- . Frequency range : 30 MHz ~ 25 GHz
- . Result : PASSED

Modulation	Harmonic Frequency (MHz)	Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
GSM	Low	762.40	-46.00	0.50	-45.50	-32.50
		8 440.00	-32.33	3.50	-28.83	-15.83
	Middle	796.30	-45.83	0.50	-45.33	-32.33
		7 280.00	-31.83	3.50	-28.33	-15.33
	High	807.60	-46.00	0.50	-45.50	-32.50
		7 520.00	-32.33	3.50	-28.83	-15.83
EDGE	Low	802.80	-46.50	0.50	-46.00	-33.00
		7 320.00	-30.83	3.50	-27.33	-14.33
	Middle	836.70	-46.33	0.50	-45.83	-32.83
		7 560.00	-32.83	3.50	-29.33	-16.33
	High	789.80	-46.33	0.50	-45.83	-32.83
		7 320.00	-32.33	3.50	-28.83	-15.83
CDMA	Low	683.10	-45.83	0.50	-45.33	-32.33
		7 400.00	-31.67	3.50	-28.17	-15.17
	Middle	764.00	-45.67	0.50	-45.17	-32.17
		7 600.00	-32.33	3.50	-28.83	-15.83
	High	812.50	-46.00	0.50	-45.50	-32.50
		7 640.00	-32.17	3.50	-28.67	-15.67
1xEVDO	Low	810.90	-46.33	0.50	-45.83	-32.83
		7 240.00	-32.17	3.50	-28.67	-15.67
	Middle	775.30	-45.83	0.50	-45.33	-32.33
		7 280.00	-33.17	3.50	-29.67	-16.67
	High	799.50	-46.50	0.50	-46.00	-33.00
		7 280.00	-31.50	3.50	-28.00	-15.00

Modulation	Harmonic Frequency (MHz)		Measured Value (dBm)	Cable Loss (dB)	Total (dBm)	Limit (dBm)	Margin (dB)
WCDMA	Low	820.60	-45.17	0.50	-44.67	-13.00	-31.67
		7 240.00	-31.83	3.50	-28.33		-15.33
	Middle	791.50	-46.33	0.50	-45.83		-32.83
		7 560.00	-32.33	3.50	-28.83		-15.83
	High	773.70	-45.67	0.50	-45.17		-32.17
		7 480.00	-32.33	3.50	-28.83		-15.83
	Low	870.70	-45.67	0.50	-45.17	-13.00	-32.17
		7 400.00	-32.50	3.50	-29.00		-16.00
	Middle	848.00	-46.17	0.50	-45.67		-32.67
		7 720.00	-33.17	3.50	-29.67		-16.67
	High	877.10	-46.17	0.50	-45.67		-32.67
		7 080.00	-31.83	3.50	-28.33		-15.33

According to Part 27, out of band emission shall be attenuated by $43 + 10 \log (P)$ dBc, equates to -13.0 dBm.

Tested by: Ki-Hong, Nam / Project Engineer