FCC CFR47 PART 22H, 24E, AND 27L
CERTIFICATION TEST REPORT

FOR

Dual band Cell phone with LTE +WIFI+BT 3.0; HOTSPOT Supports

MODEL NUMBER: LG-VS950

ADDITIONAL MODEL NUMBERS: VS950, LGVS950

FCC ID: ZNFVS950

REPORT NUMBER: 12U14390-3, Revision A

ISSUE DATE: MAY 24, 2012

Prepared for
LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS, NJ 07632

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

Rev.	Issue Date	Revisions	Revised By
---	05/10/12	Initial Issue	T. Chan
---	05/24/12	Updated Frequency Range on Section 5.2 Table	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVENUE
ENGLEWOOD CLIFFS, NEW JERSEY 07632

EUT DESCRIPTION: Dual band Cell phone with LTE +WIFI+BT 3.0; HOTSPOT Support.

MODEL: LG-VS950, VS950 and LGVS950

SERIAL NUMBER: 990001510000656

DATE TESTED: APRIL 24-MAY 04, 2012

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H, 24E, and 27L	Pass

Compliance Certification Services (UL CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:

THU CHAN
ENGINEERING MANAGER
UL CCS

Tested By:

CHIN PANG
EMC ENGINEER
UL CCS

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, FCC CFR Part 24, and FCC Part 27.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

UL CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Dual band Cell phone with LTE +WIFI+BT 3.0 HOTSPOT supported.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted and ERP / EIRP output powers as follows:

Part 22 Cellular Band

Frequency range (MHz)	Modulation	Conducted		ERP	
		dBm	mW	dBm	mW
824.2 – 848.8	GSM	32.90	1949.8	31.09	1285.3
824.2 – 848.8	GPRS	33.10	2041.7	30.57	1140.2
824.2 – 848.8	EGPRS	30.20	1047.1	27.96	625.2
824.7 – 848.31	1XRTT	28.13	650.1	27.10	512.9
824.7 – 848.31	EVDO	29.98	995.4	24.60	288.4

Part 24 PCS Band

Frequency range (MHz)	Modulation	Conducted		EIRP	
		dBm	mW	dBm	mW
1850.2-1909.8	GSM	29.70	933.3	29.82	959.4
1850.2-1909.8	GPRS	29.90	977.2	29.92	981.7
1850.2-1909.8	EGPRS	29.40	871.0	28.63	729.5
1851.25-1908.75	1xRTT	27.71	590.2	28.32	679.2
1851.25-1908.75	EVDO	29.12	816.6	24.03	252.9
1852.4-1907.6	REL 99	26.67	464.5	30.21	1049.5
1852.4-1907.6	HSDPA	28.50	707.9	30.87	1221.8

Part 27 LTE Band 13

Frequency range (MHz)	Modulation	Conducted		ERP	
		dBm	mW	dBm	mW
782	QPSK	27.50	562.3	25.12	325.1
782	16QAM	27.30	537.0	24.62	289.7

5.3. SOFTWARE AND FIRMWARE

The EUT driver software installed during testing was.VS9500Ca.

The EUT is linked with Agilent 8960 and CMW500 Communication Test Set.

5.4. MAXIMUM ANTENNA GAIN

The radio utilizes IFA antennas for the maximum peak gain as table show below:

Modulation Bands	Peak Gain (dBi)
GSM,CDMA Cell	-1.5
GSM, CDMA & UMTS, PCS	1.9
CDMA2000 EVDO, Cell	-6.1
CDMA200 EVDO, PCS	-5.1
LTE Band 13	-4.2

5.5. WORST-CASE CONFIGURATION AND MODE

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

Worst-case modes:
- GPRS (GMSK)
- EGPRS (8PSK)
- For Cellular and PCS band: 1xRTT (RC1 SO2), EVDO REV A.
- For PCS band UMTS REL 99, HSDPA
- LTE BAND 13

For the fundamental investigation, since the EUT is a portable device that has three orientations; therefore X, Y and Z orientations and the worst among X, Y, and Z with AC/DC adapter and headset have been investigated and the worst case was found to be at Z-position with AC/DC adapter and headset on GSM, WCDMA for PCS band and Y position for cell band. For CDMA, LTE bands, worst case was found to be at Y position and X position on EVDO Rev A PCS band.

5.6. DESCRIPTION OF TEST SETUP

RADIATED TESTS SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST			
Description	**Manufacturer**	**Model**	**Serial Number**
AC ADAPTER	LG ELECTRONICS	MCS-01WT	TA1Z0000455
HEADSET	LG ELECTRONICS	NA	N/A

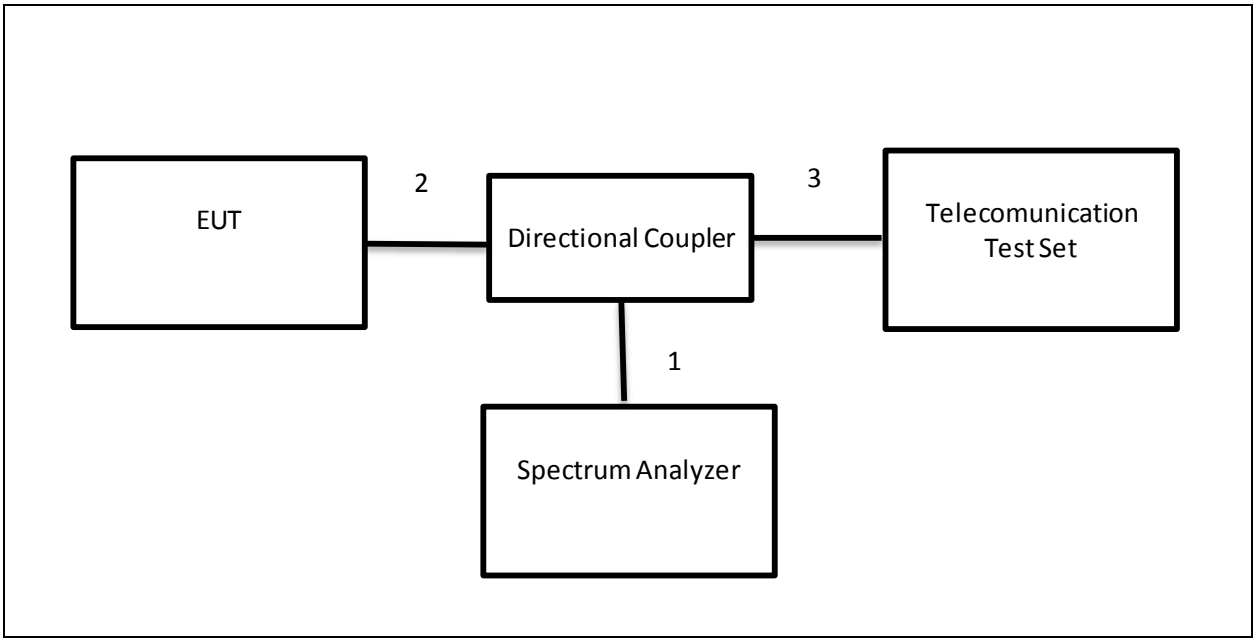
I/O CABLES (CONDUCTED TEST)

I/O CABLE LIST						
Cable No.	**Port**	**# of Identica Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	RF In/Out	1	Spectrum Analyzer	UN-SHELDED	None	N/A
2	RF out	1	Directional Coupler	UN-SHELDED	0.1m	N/A
3	RF In/Out	1	Communication Call box	UN-SHELDED	0.5m	N/A

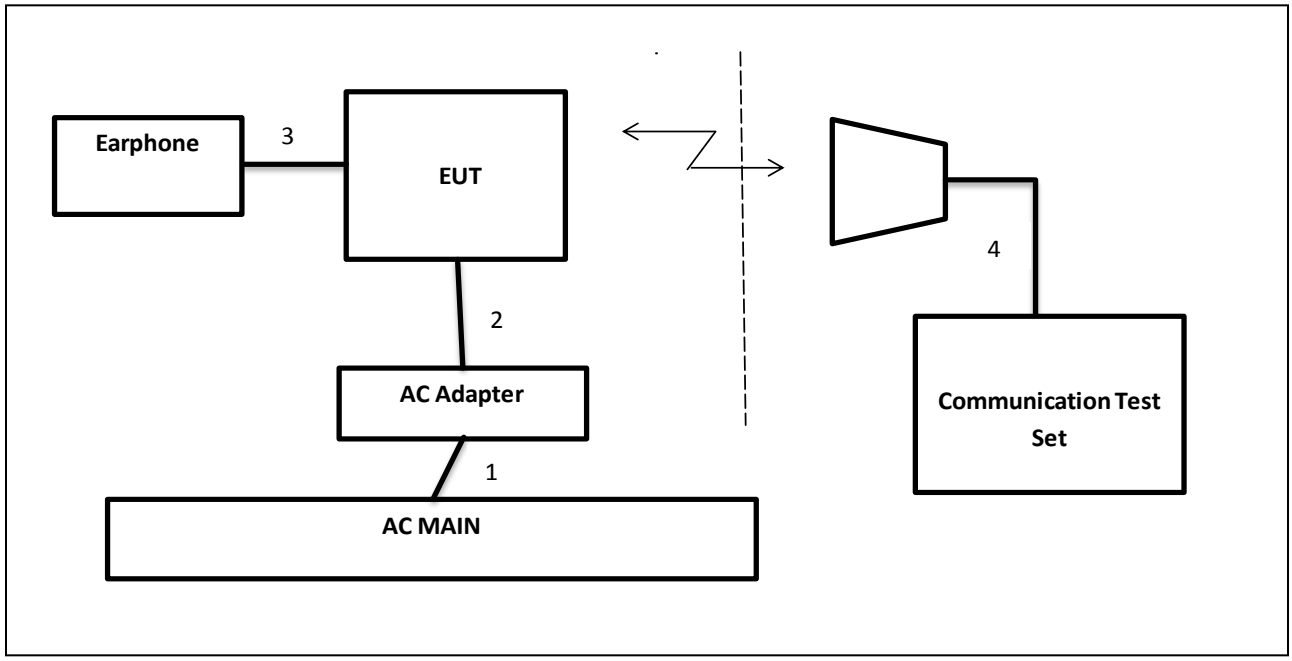
I/O CABLES (RADIATED TEST)

I/O CABLE LIST						
Cable No.	**Port**	**# of Identical Ports**	**Connector Type**	**Cable Type**	**Cable Length**	**Remarks**
1	AC	1	115VAC	UN-SHELDED	1.0m	N/A
2	DC	1	DC	UN-SHELDED	1.0m	Volume control on
3	Audio	1	Earphone	UN-SHELDED	1.0m	NA
4	RF In/Out	1	Horn	UN-SHELDED	5m	NA

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	**Manufacturer**	**Model**	**Asset**	**Cal Due**
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	02/16/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/15/12
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06/29/12
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/12
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	02/07/13
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/12/12
Communication Test Set	Agilent / HP	E5515C	C01086	06/17/12
Communication Test Set	R & S	CMW500	None	12/16/12
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	10/20/12
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689`	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Directional Coupler, 4.2 GHz, 40 dB	A-R	DC7144A	C00983	CNR
Sleeve Dipole 1730~2030 MHz	ETS	3126-1880	C01157	08/01/12
Signal Generator, 20 GHz	Agilent / HP	83732B	C00774	07/14/12
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121C DB4	C00993	07/16/12

7. RF POWER OUTPUT VERIFICATION

GSM MODE

GSM (GMSK) - Coding scheme: CS4

Band	Ch	Frequency	Conducted output power (dBm)	
			Peak	
			1 slot	2 slot
GSM850	128	824.2	32.90	32.90
	190	836.6	32.80	32.70
	251	848.8	32.80	32.70
GSM1900	512	1850.2	29.50	29.40
	661	1880.0	29.70	29.60
	810	1909.8	29.70	29.60

GPRS (GMSK) - Coding scheme: CS4

Band	Ch	Frequency	Conducted output power (dBm)	
			Peak	
			1 slot	2 slot
GSM850	128	824.2	33.10	32.00
	190	836.6	32.90	31.80
	251	848.8	32.90	31.80
GSM1900	512	1850.2	29.80	28.90
	661	1880.0	29.90	29.00
	810	1909.8	29.80	29.00

EGPRS (8PSK) - Coding scheme: MCS09

Band	Ch	Frequency	Conducted output power (dBm)	
			Peak	
			1 slot	2 slot
GSM850	128	824.2	30.20	28.80
	190	836.6	30.20	28.80
	251	848.8	30.20	28.90
GSM1900	512	1850.2	29.30	27.90
	661	1880.0	29.40	28.00
	810	1909.8	29.40	28.00

1xRTT

Maximum output power is verified on the Low, Middle and High channels according to procedures in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E for 1xRTT, section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rel. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A

This procedure assumes the Agilest 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
CDMA2000 Mobile Test	B.13.08, L

- Call Setup > Shift & Preset
- Cell Info > Cell Parameters > System ID (SID) > 7
  > Network ID (NID) > 1
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > Please see following table or details
- FCH Service Option (SO) Setup > Please see following table or details
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps
  > R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Rvs Power Ctrl > Active bits
  - Rvs Power Ctrl > All Up bits (Maximum TxPout)

CELLULAR BAND

Radio Configuration (RC)	Service Option (SO)	Conducted Output Power (dBm)		
		Ch. 1013 / 824.7 MHz	Ch. 384 / 836.52 MHz	Ch. 777 / 848.31 MHz
		Peak	Peak	Peak
RC1	2 (Loopback)	28.12	**28.13**	27.70
	55 (Loopback)	28.11	28.02	27.62
RC2	9 (Loopback)	28.09	28.02	27.60
	55 (Loopback)	28.08	27.95	27.58
RC3	2 (Loopback)	27.96	27.86	27.40
	55 (Loopback)	27.99	27.83	27.41
	32 (+ F-SCH)	27.85	27.77	27.33
	32 (+ SCH)	28.03	28.06	27.97
RC4	2 (Loopback)	27.94	27.84	27.44
	55 (Loopback)	27.92	27.83	27.35
	32 (+ F-SCH)	27.97	28.03	27.59
	32 (+ SCH)	27.84	27.87	27.51
RC5	9 (Loopback)	28.02	27.87	27.45
	55 (Loopback)	27.97	27.81	27.44
RC11	2 (Loopback)	27.91	27.84	27.40
	75 (Loopback)	27.92	27.81	27.36
	32 (+F-SCH)	27.96	27.86	27.33
	32 (+SCH)	27.80	27.71	27.26

PCS BAND

Radio Configuration (RC)	Service Option (SO)	Conducted Output Power (dBm)		
		Ch. 25/ 1851.25 MHz	Ch. 600/ 1880 MHz	Ch. 1175/ 1908.75 MHz
		Peak	Peak	Peak
RC1	2 (Loopback)	27.58	**27.71**	27.00
	55 (Loopback)	27.54	27.66	26.96
RC2	9 (Loopback)	27.50	27.63	26.99
	55 (Loopback)	27.56	27.60	26.98
RC3	2 (Loopback)	27.63	27.38	26.85
	55 (Loopback)	27.31	27.46	26.88
	32 (+ F-SCH)	27.43	27.57	26.95
	32 (+ SCH)	27.40	27.50	26.90
RC4	2 (Loopback)	27.59	27.42	26.95
	55 (Loopback)	27.33	27.45	26.82
	32 (+ F-SCH)	27.45	27.58	26.96
	32 (+ SCH)	27.31	27.56	26.90
RC5	9 (Loopback)	27.38	27.50	26.74
	55 (Loopback)	27.34	27.41	26.87
RC11	2 (Loopback)	27.18	27.38	26.85
	75 (Loopback)	27.29	27.58	6.75
	32 (+F-SCH)	27.27	27.43	26.92
	32 (+SCH)	27.40	27.57	26.96

1XEV-DO RELEASE 0 (REL. 0)

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
1xEV-DO Terminal Test	A.09.13

EVDO Release 0 - RTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Parms:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > RTAP
  - RTAP Rate > 153.6 kbps
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

EVDO Release 0 - FTAP

- Call Setup > Shift & Preset
- Call Control:
  - Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
  - Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots
- Call Parms:
  - Cell Power > -105.5 dBm/1.23 MHz
  - Cell Band > (Select US Cellular or US PCS)
  - Channel > (Enter channel number)
  - Application Config > Enhanced Test Application Protocol > FTAP (default)
  - FTAP Rate > 307.2 kbps (2 Slot, QPSK)
  - Rvs Power Ctrl > Active bits
  - Protocol Rel > 0 (1xEV-DO)
- Press “Start Data Connection” when “Session Open” appear in “Active Cell”
- Rvs Power Ctrl > All Up bits (Maximum TxPout)

CELL BAND

FTAP Rate	RTAP Rate	Channel	f (MHz)	Conducted power (dBm) Peak
307.2 kbps (2 slot, QPSK)	153.6 kbps	1013	824.70	**29.32**
		384	836.52	29.84
		777	848.31	28.58

PCS BAND

FTAP Rate	RTAP Rate	Channel	f (MHz)	Conducted power (dBm) Peak
307.2 kbps (2 slot, QPSK)	153.6 kbps	25	1851.25	28.35
		600	1880.00	28.97
		1175	1908.75	28.67

1XEV-DO REVISION A (REV. A)

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

Application	Rev, License
1xEV-DO Terminal Test	A.09.13

EVDO Release A – RETAP
- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

EVDO Release A - FETAP
- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration >16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

CELL BAND

FETAP-Traffic Format	RETAP-Data Payload Size	Channel	f (MHz)	Conducted power (dBm) Peak
307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	1013	824.70	**29.98**
		384	836.52	29.88
		777	848.31	29.34

PCS BAND

FETAP-Traffic Format	RETAP-Data Payload Size	Channel	f (MHz)	Conducted power (dBm) Peak
307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	25	1851.25	28.78
		600	1880.00	29.12
		1175	1908.75	28.80

UMTS REL99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V7.5.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7) 12.2kps RMC is used for this testing. Power control set to All bits up. A summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	Not Applicable

RESULTS

REL 99

Band	UL Ch	DL Ch	Frequency	Conducted output power (dBm)
				Peak
UMTS1900 (Band II)	9262	9662	1852.4	26.53
	9400	9800	1880.0	**26.67**
	9538	9938	1907.6	26.57

UMTS Rel 6 HSDPA

The following Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V7.5.0 specification. All TX RMS and Peak power requirements for Power Class 3 were met according to table 5.2AA.5 and achieved through the outlined test procedure in section 5.2AA.4.2. A summary of these settings are illustrated below:

	Mode	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA	Rel6 HSDPA
	Subtest	1	2	3	4
WCDMA General Settings	Loopback Mode	Test Mode 1			
	Rel99 RMC	12.2kbps RMC			
	HSDPA FRC	H-Set1			
	HSUPA Test	Not Applicable			
	Power Control Algorithm	Algorithm 2			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βec	-	-	-	-
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	βed	Not Applicable			
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs = βhs/βc	30/15			

Band	Subtest	UL Ch	DL Ch	Frequency	Conducted output power (dBm)
					Peak
UMTS1900 (Band II)	1	9262	9662	1852.4	26.71
		9400	9800	1880.0	26.79
		9538	9938	1907.6	26.48
	2	9262	9662	1852.4	27.15
		9400	9800	1880.0	**27.24**
		9538	9938	1907.6	26.91
	3	9262	9662	1852.4	26.95
		9400	9800	1880.0	26.69
		9538	9938	1907.6	27.03
	4	9262	9662	1852.4	26.82
		9400	9800	1880.0	27.06
		9538	9938	1907.6	26.89

UMTS Rel 6 HSPA (HSDPA & HSUPA)

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2B of the 3GPP TS34.121-1 V7.5.0 specification. All TX RMS and Peak power requirements were met according to table 5.2B.5 and achieved through the outlined test procedure in section 5.2B.4.2. A summary of these settings are illustrated below:

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	15/15
	βec	209/225	12/15	30/15	2/15	24/15
	βc/βd	11/15	6/15	15/9	2/15	15/15
	βhs	22/15	12/15	30/15	4/15	30/15
	βed	1309/225	94/75	47/15 47/15	56/75	134/15
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	21
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	81
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18	E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27	

Band	Subtest	UL Ch	DL Ch	Frequency	Conducted output power (dBm)
					Peak
UMTS1900 (Band II)	1	9262	9662	1852.4	28.38
		9400	9800	1880.0	28.39
		9538	9938	1907.6	28.11
	2	9262	9662	1852.4	28.44
		9400	9800	1880.0	**28.50**
		9538	9938	1907.6	28.15
	3	9262	9662	1852.4	27.34
		9400	9800	1880.0	27.45
		9538	9938	1907.6	27.13
	4	9262	9662	1852.4	28.44
		9400	9800	1880.0	28.49
		9538	9938	1907.6	28.14
	5	9262	9662	1852.4	28.42
		9400	9800	1880.0	28.49
		9538	9938	1907.6	28.14

LTE 10 MHz BAND 13

RB CONFIGURATION	START RB OFFSET	MODE	PEAK POWER (dBm)
1	0	QPSK	27.10
1	49		26.80
25	12		27.40
50	0		27.50
1	0	16QAM	26.77
1	49		26.40
25	12		27.21
50	0		27.30

8. CONDUCTED TEST RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

The transmitter output was connected to a calibrated coaxial cable and coupler, the other end of which was connected to a spectrum analyzer. The occupied bandwidth was measured with the spectrum analyzer at the low, middle and high channel in each band. The -26dB bandwidth was also measured and recorded.

MODES TESTED

- GSM, GPRS and EGPRS
- 1xRTT – RC1, SO2
- EVDO, REV A
- WCDMA REL. 99, HSDPA
- LTE BAND 13

RESULTS

Band	Mode	Channel	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
Cellular	GSM	128	824.2	242.0385	290.498
		190	836.6	242.3879	313.011
		251	848.8	247.6777	310.654
	GPRS	128	824.2	250.7085	291.038
		190	836.6	247.9895	314.566
		251	848.8	253.7473	313.012
	EGPRS	128	824.2	242.3729	279.659
		190	836.6	246.1097	292.933
		251	848.8	238.2607	306.409
PCS	GSM	512	1850.2	253.8157	310.200
		661	1880.0	252.1927	305.360
		810	1909.8	243.9594	303.215
	GPRS	512	1850.2	253.3175	310.258
		661	1880.0	253.5578	284.073
		810	1909.8	250.3211	306.696
	EGPRS	512	1850.2	241.0245	288.237
		661	1880.0	245.4398	310.288
		810	1909.8	247.8229	283.632

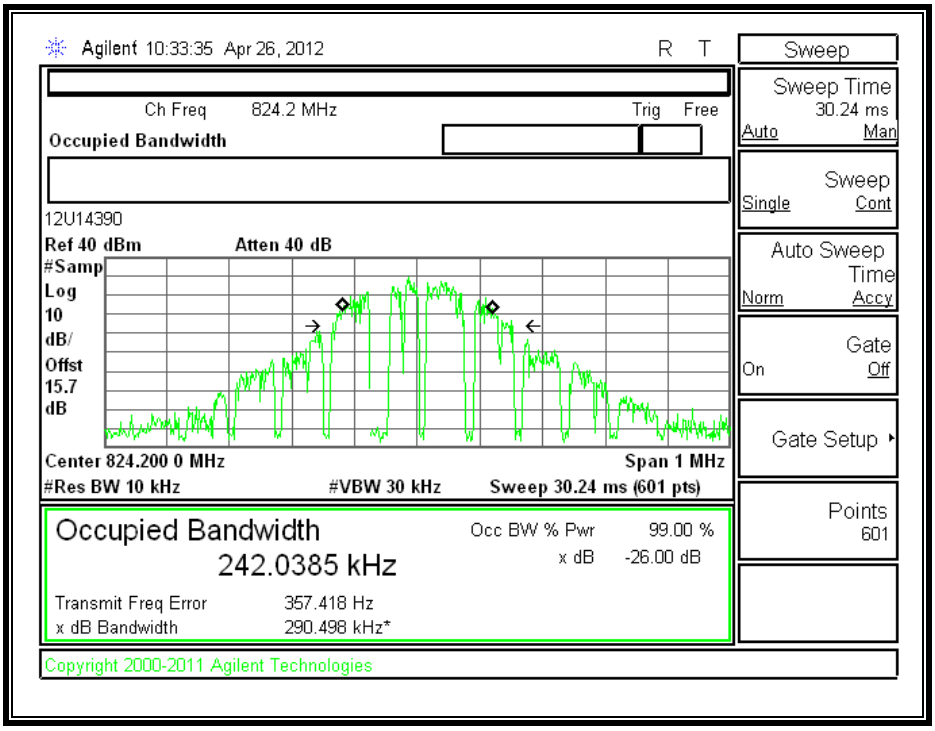
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
Cellular	1xRTT	1013	824.70	1.2709	1.424
		384	836.52	1.2897	1.431
		777	848.31	1.3203	1.413
	EVDO	1013	824.70	1.2770	1.388
		384	836.52	1.2736	1.371
		777	848.31	1.2813	1.401
PCS	1xRTT	25	1851.25	1.2774	1.423
		600	1880.00	1.2736	1.413
		1175	1908.75	1.2851	1.414
	EVDO	25	1851.25	1.2750	1.407
		600	1880.00	1.2784	1.376
		1175	1908.75	1.2703	1.408

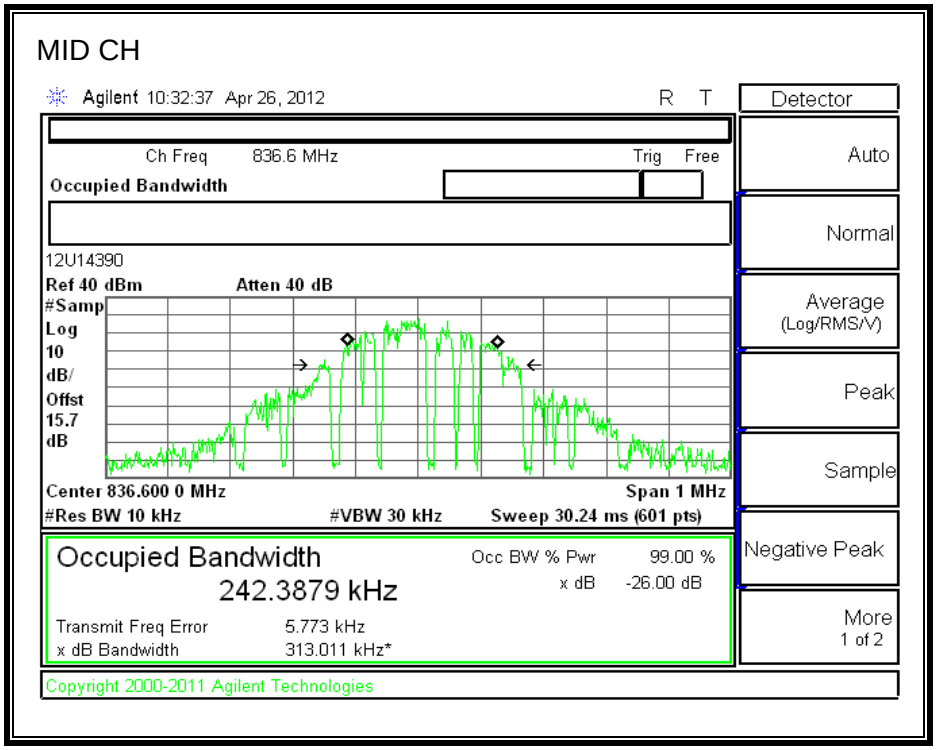
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
PCS	WCDMA, REL99	9662	1852.4	4.1406	4.580
		9800	1880.0	4.1462	4.571
		9938	1907.6	4.1307	4.522
	WCDMA, HSDPA	9662	1852.4	4.1402	4.571
		9800	1880.0	4.1737	4.553
		9938	1907.6	4.1633	4.525

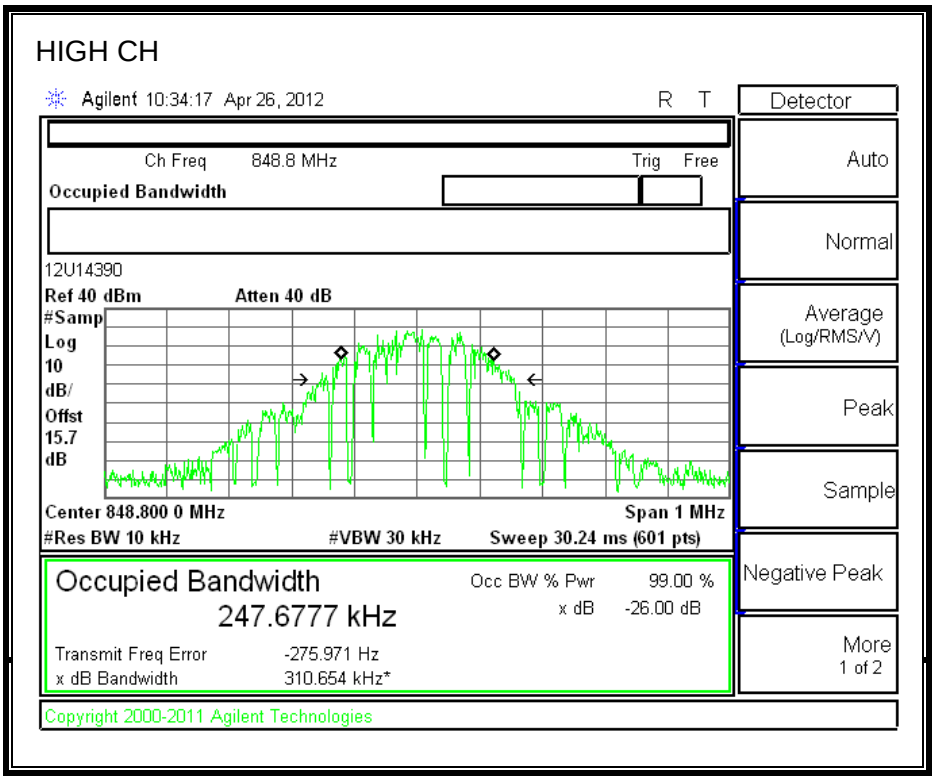
Band	Mode	RB/RB SIZE	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
LTE	10 MHz BAND QPSK	1/0	782.0	303.8837	4621.00
		1/49		261.1309	396.098
		25/12		4466.80	4730.00
		50/0		8928.80	9362.00
	10 MHz BAND 16QAM	1/0		269.7151	330.454
		1/49		308.8119	4653.00
		25/12		4491.90	4787.00
		50/0		8919.70	9265.00

99% BANDWIDTH and 26dB

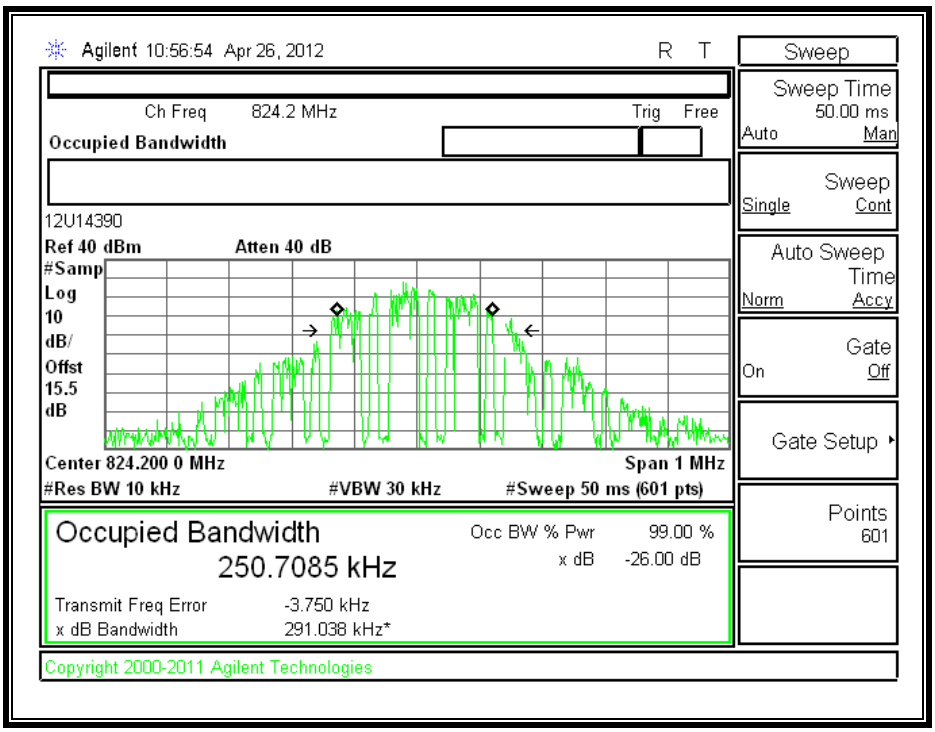
GSM850 BAND

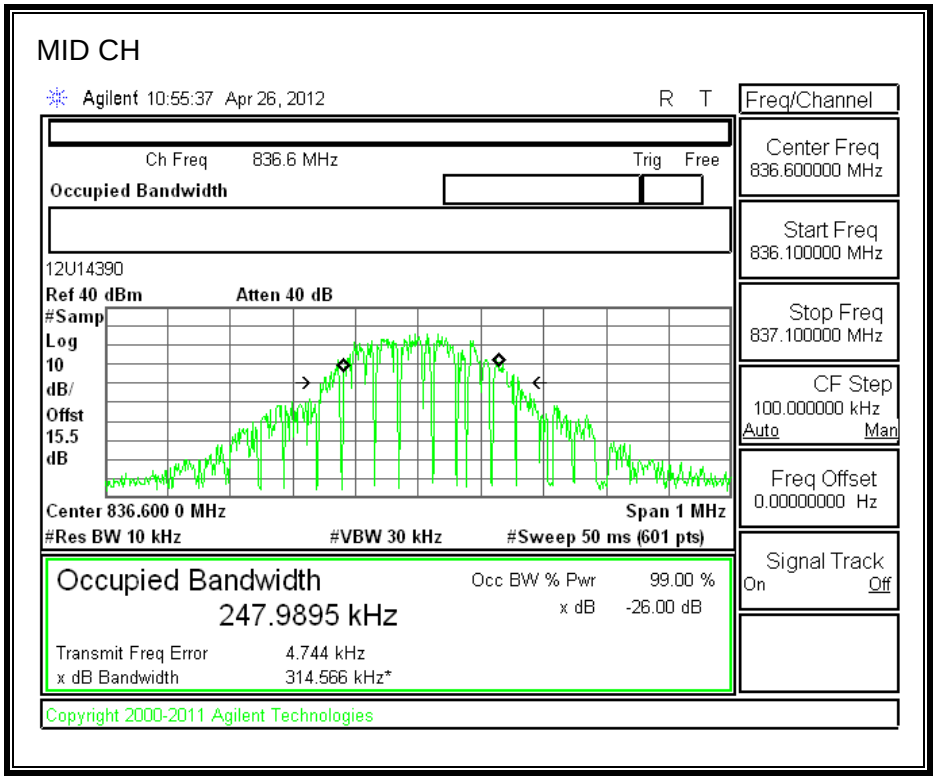


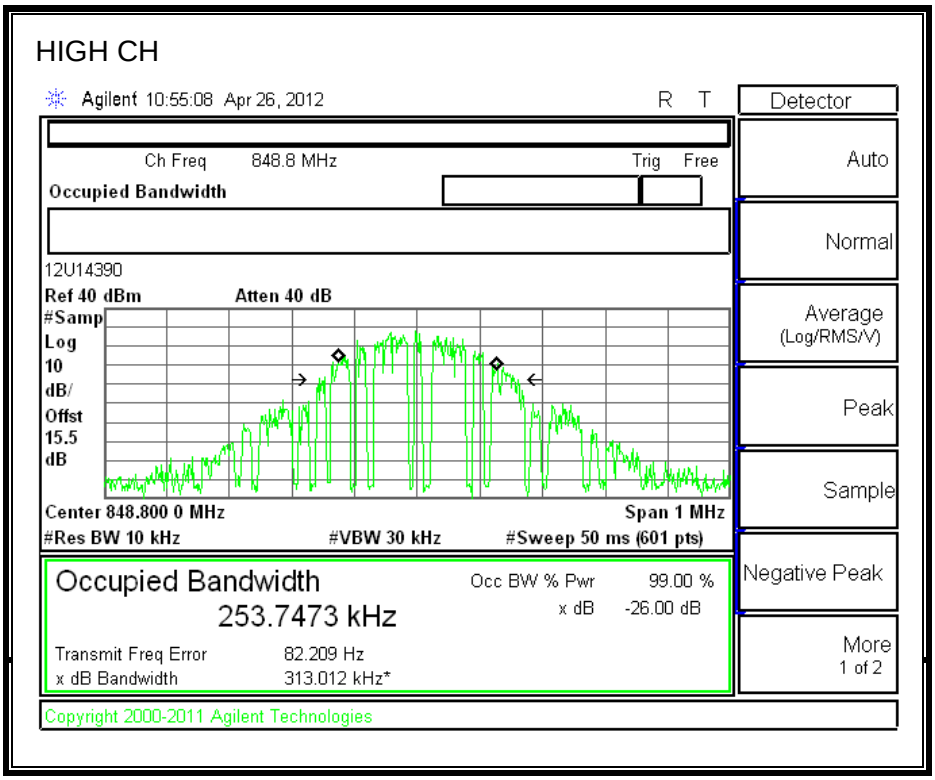




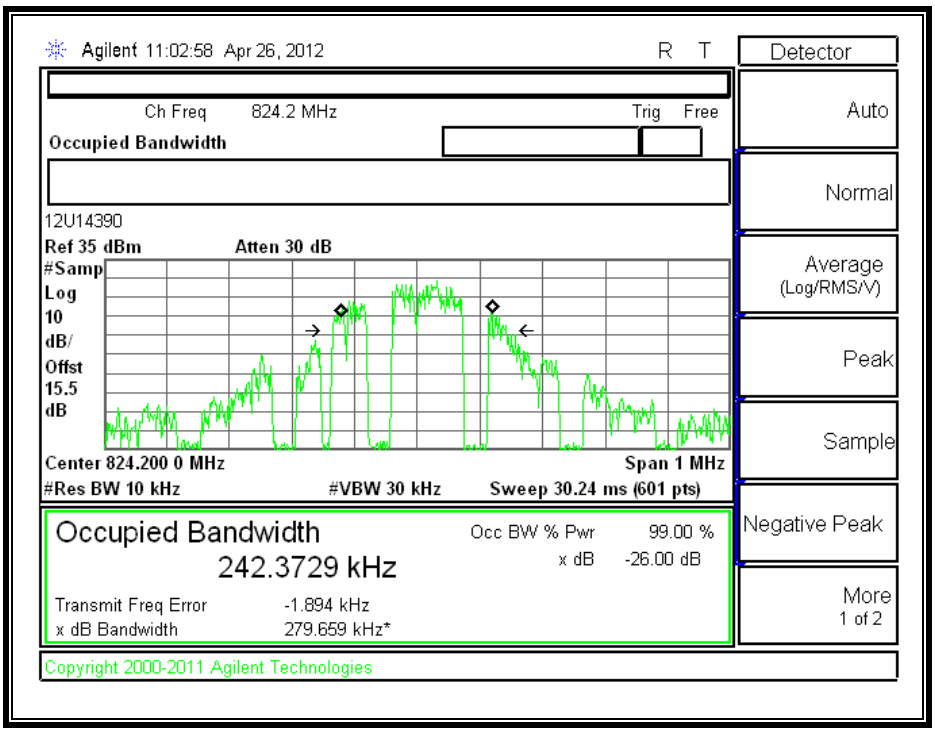
GPRS850 BAND

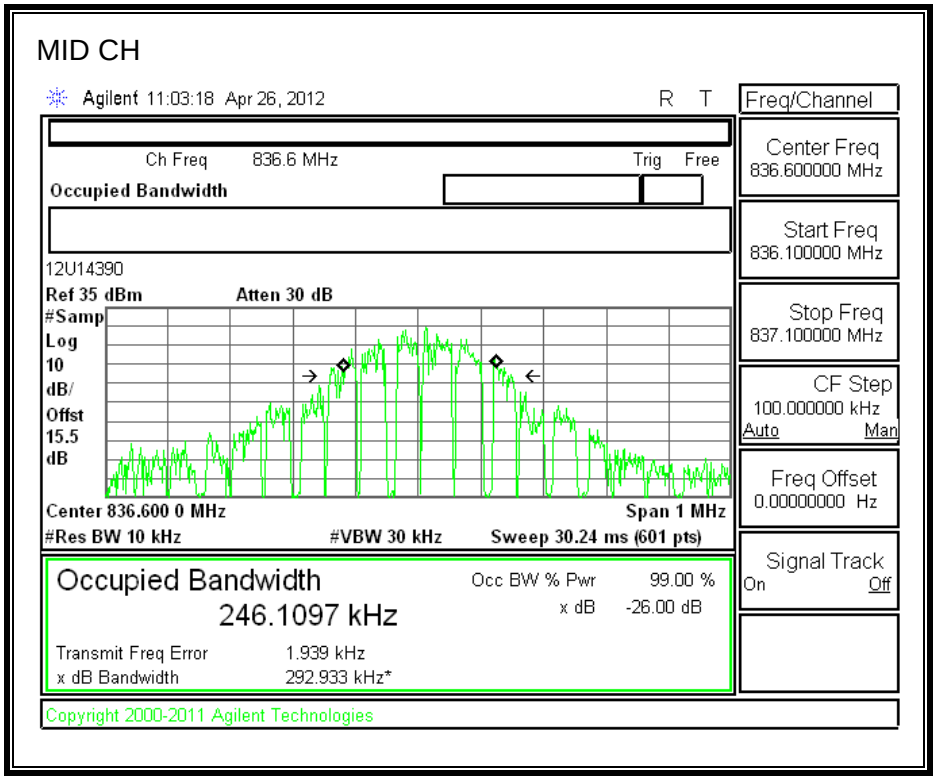




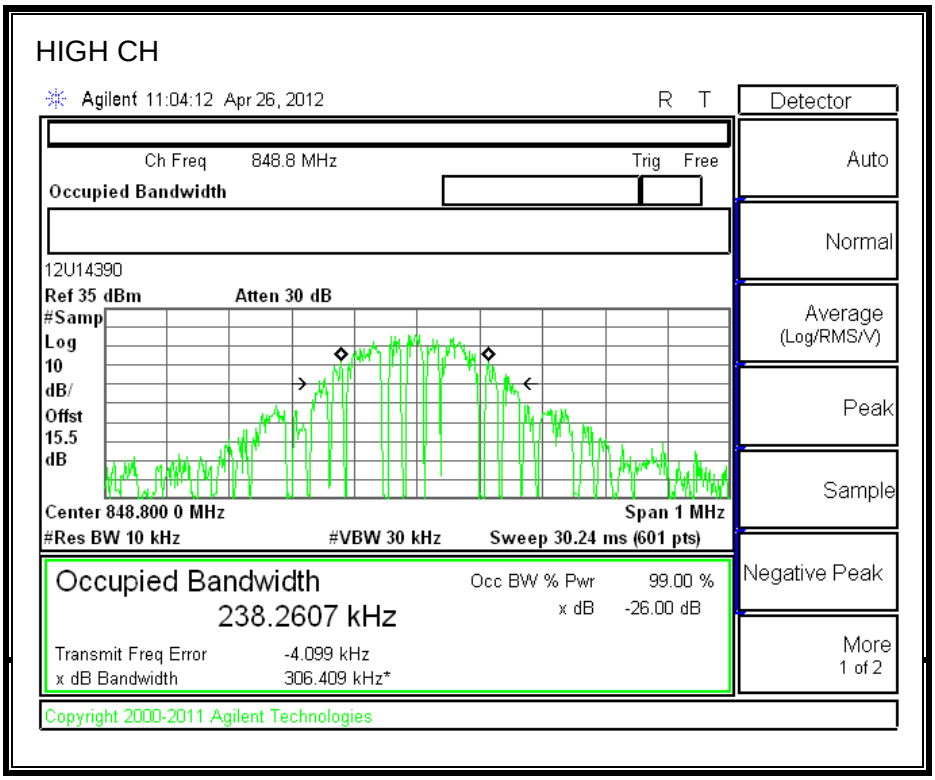


EGPRS850 BAND



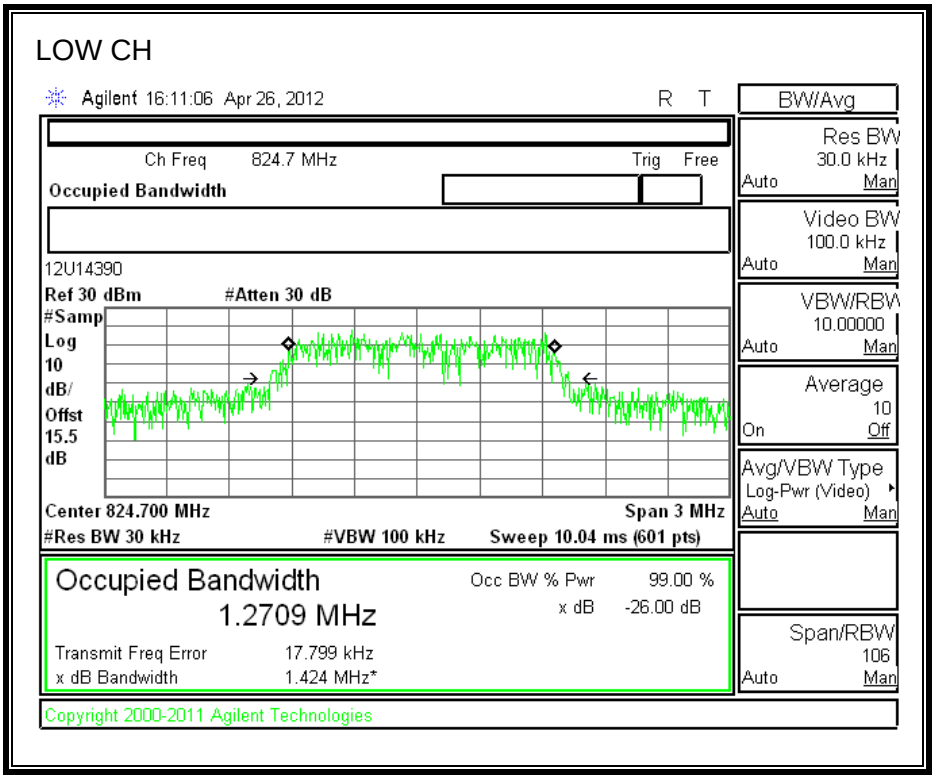


HIGH CH



CDMA2000 1xRTT Cellular Band

LOW CH



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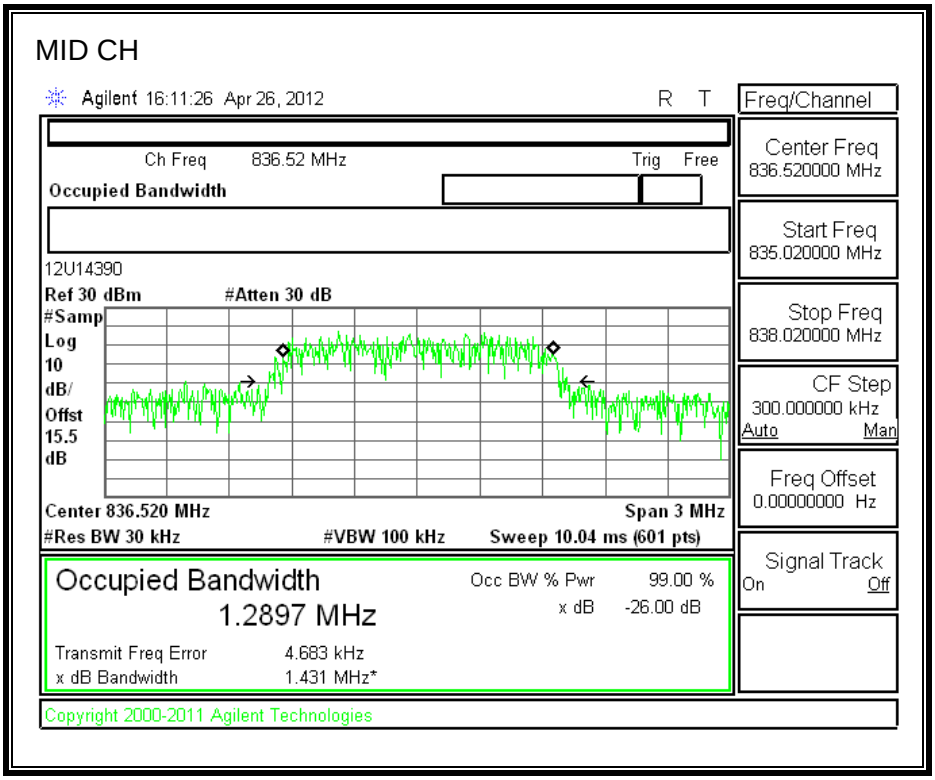
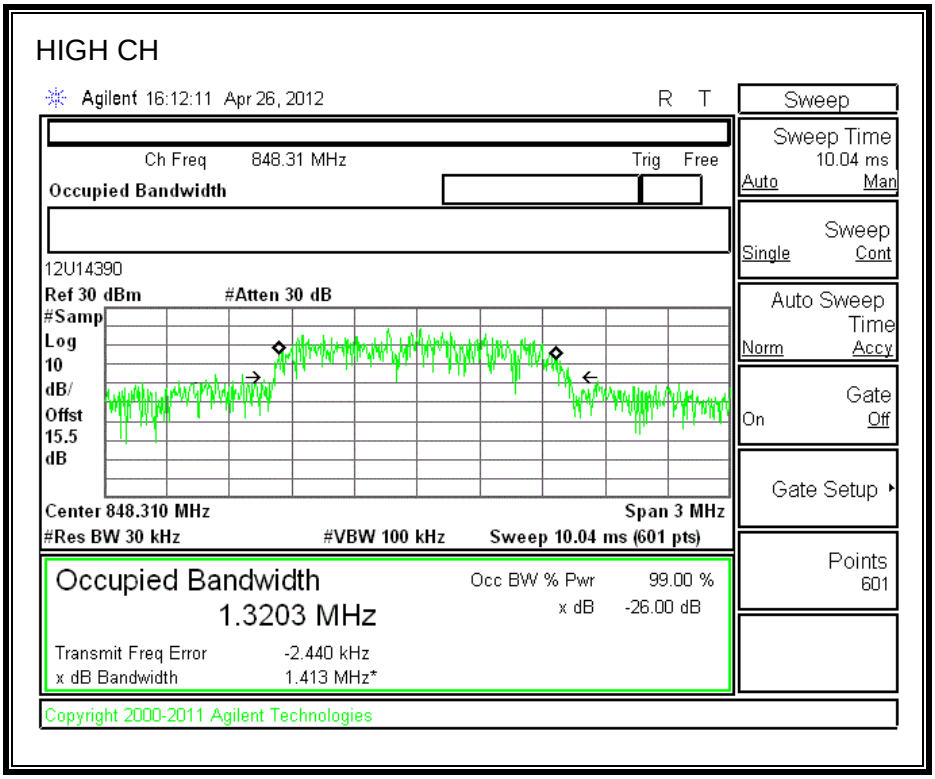
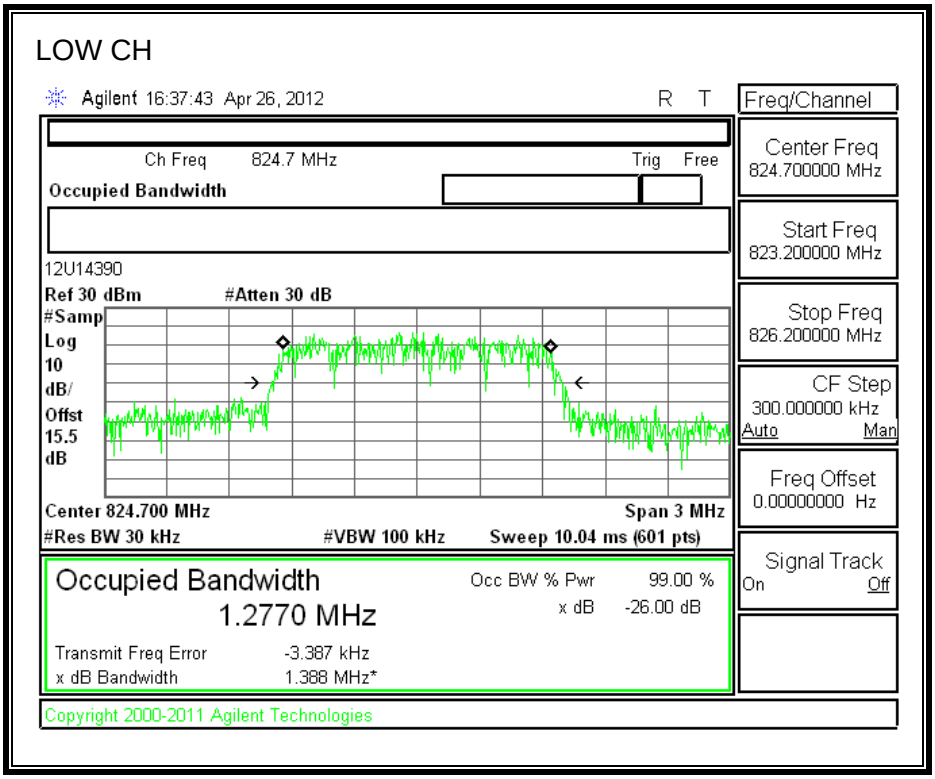




CDMA2000 EVDO REV A, Cellular Band

LOW CH



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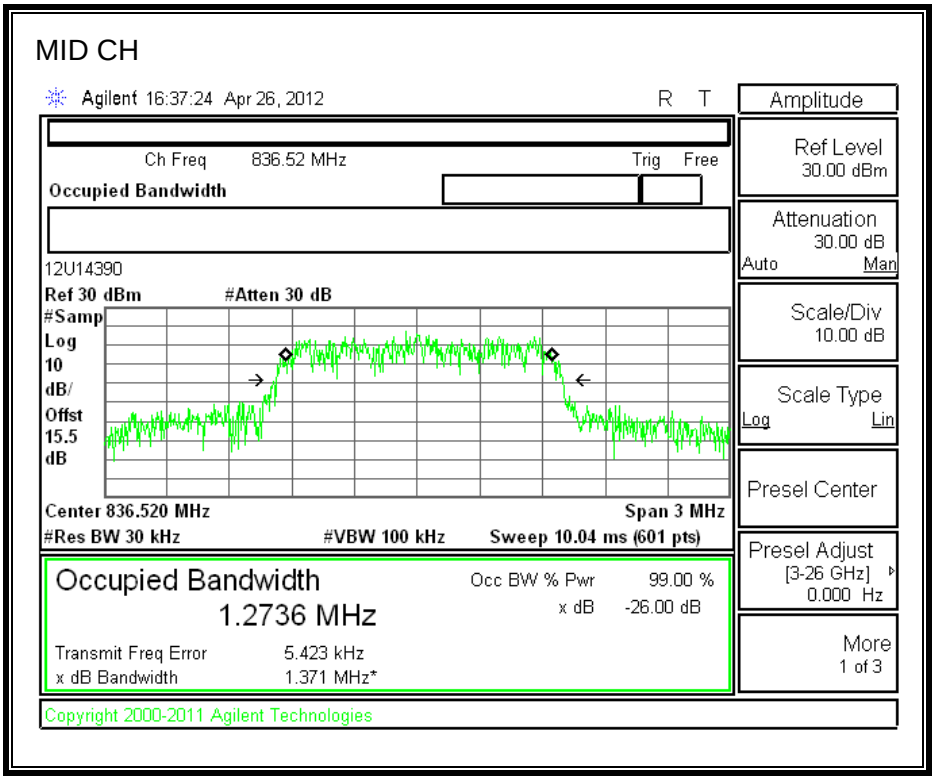

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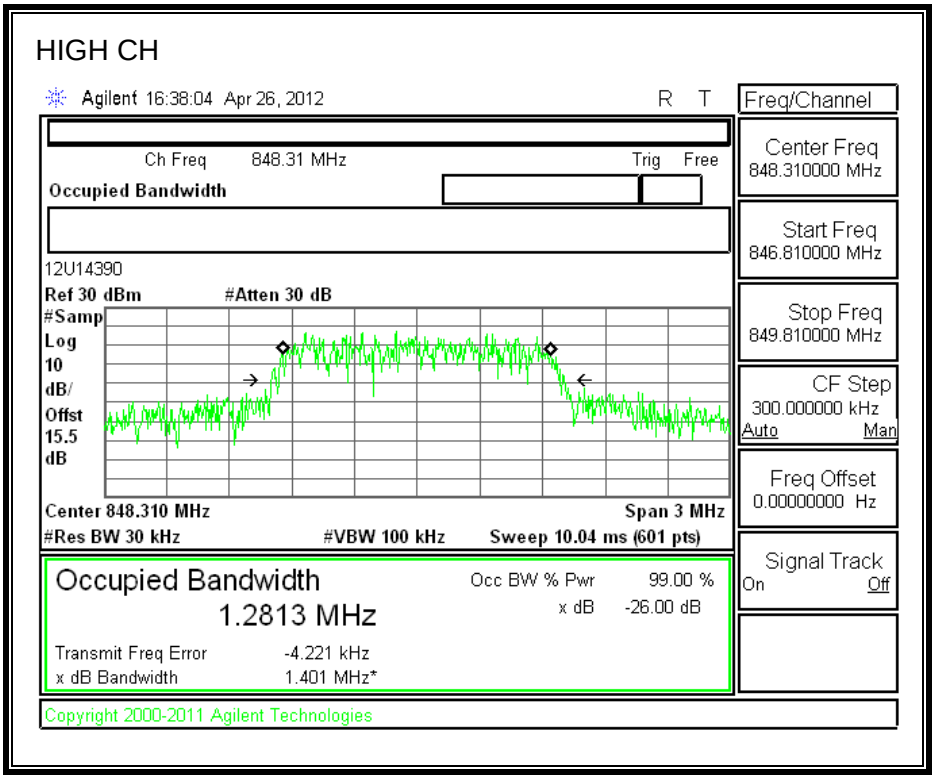
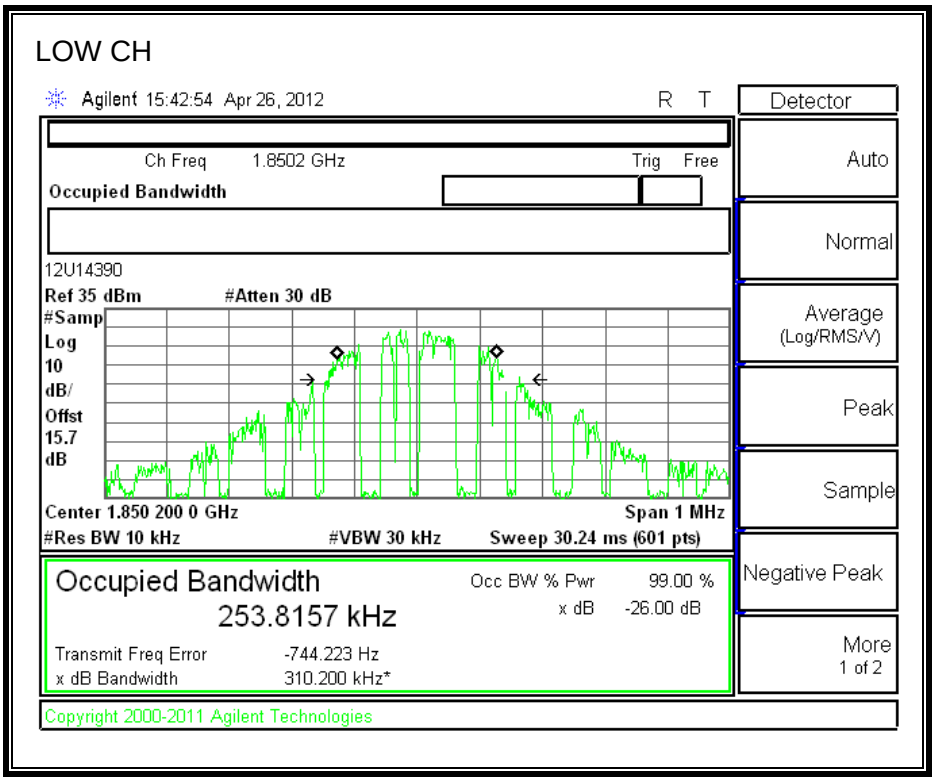


GSM1900 BAND

LOW CH



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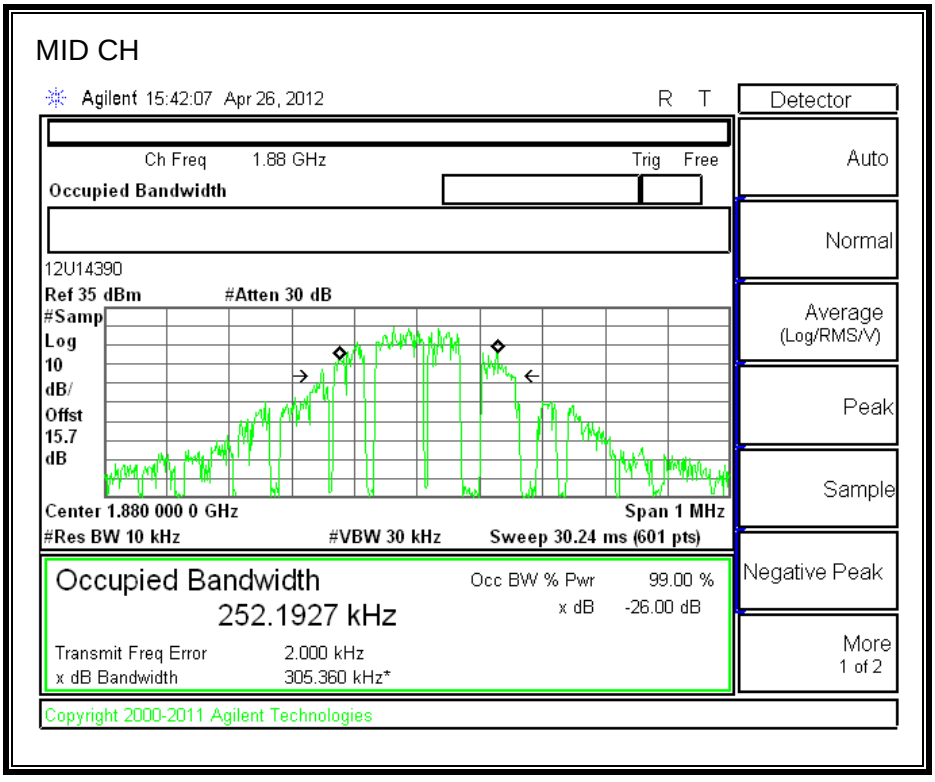

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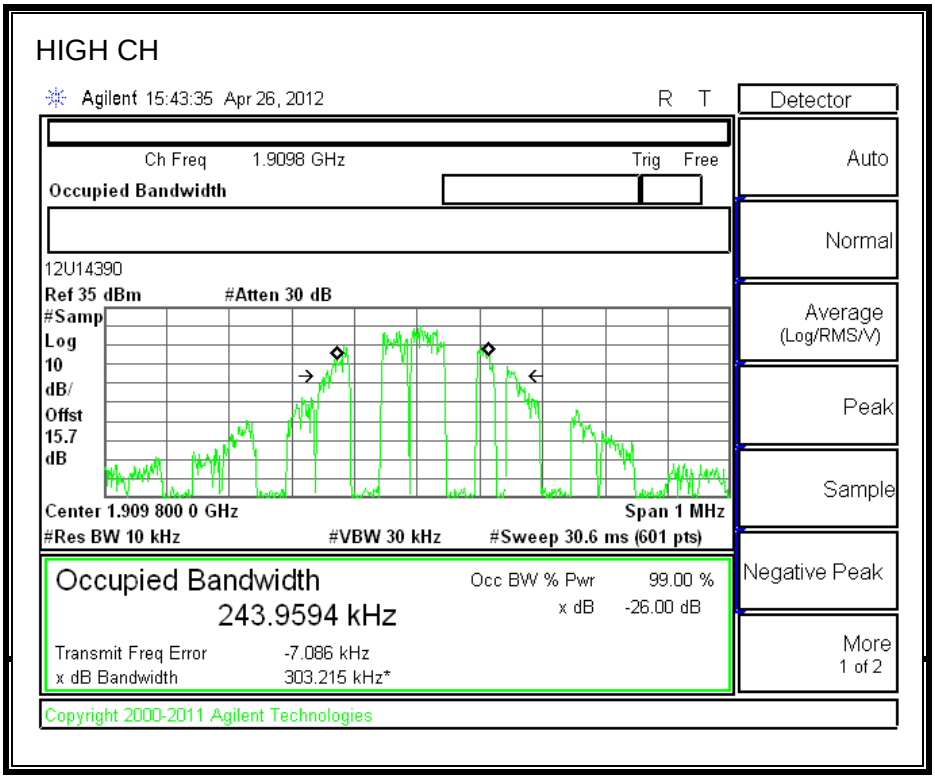
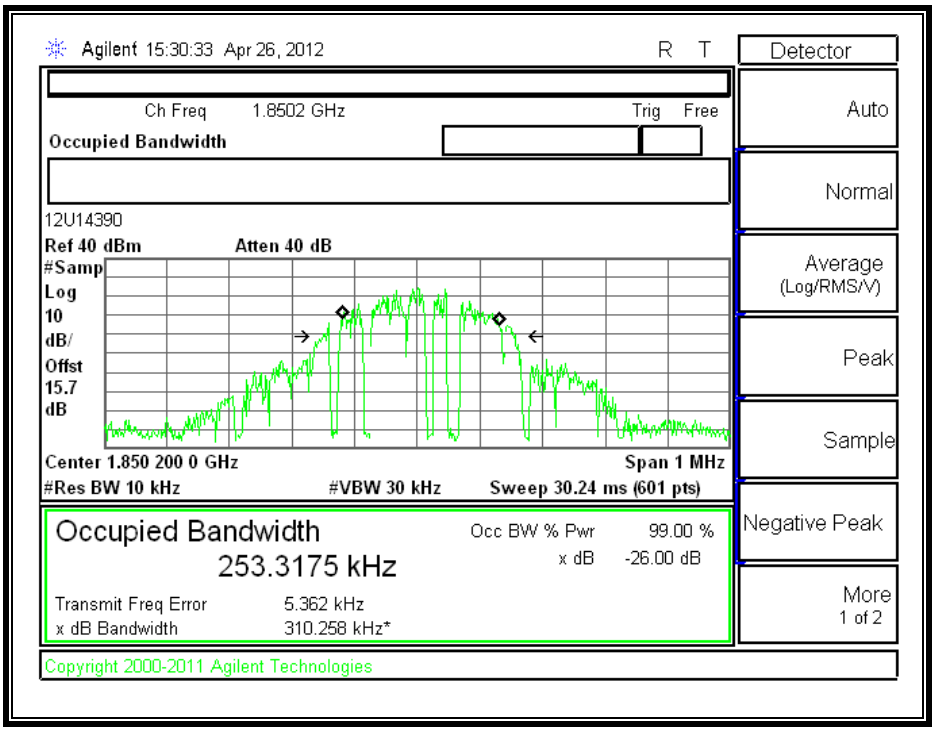
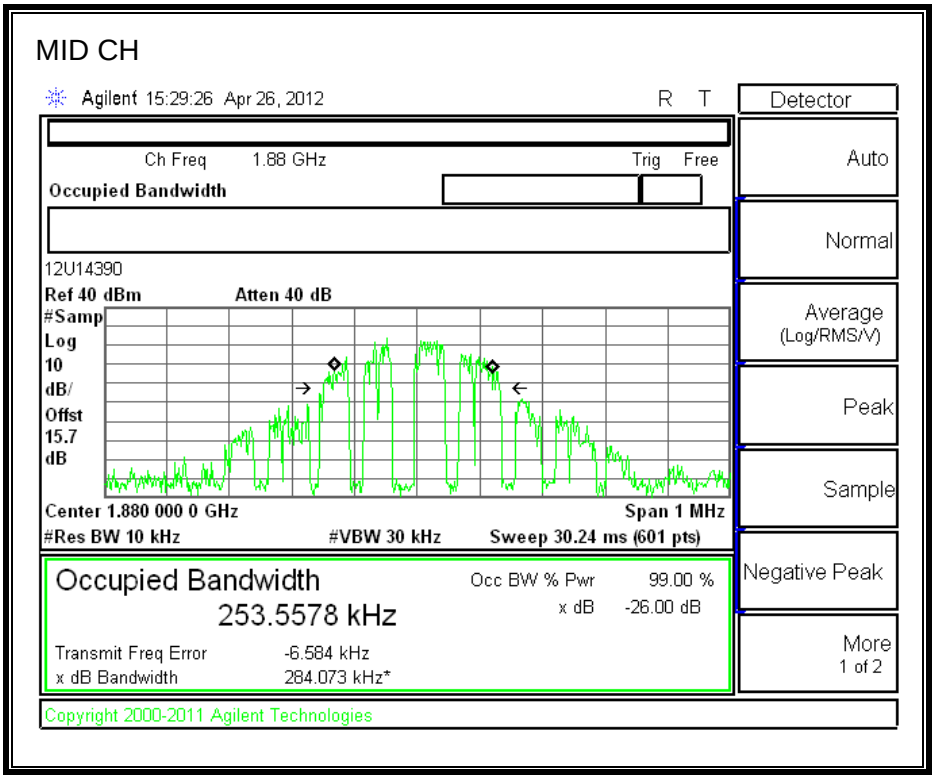
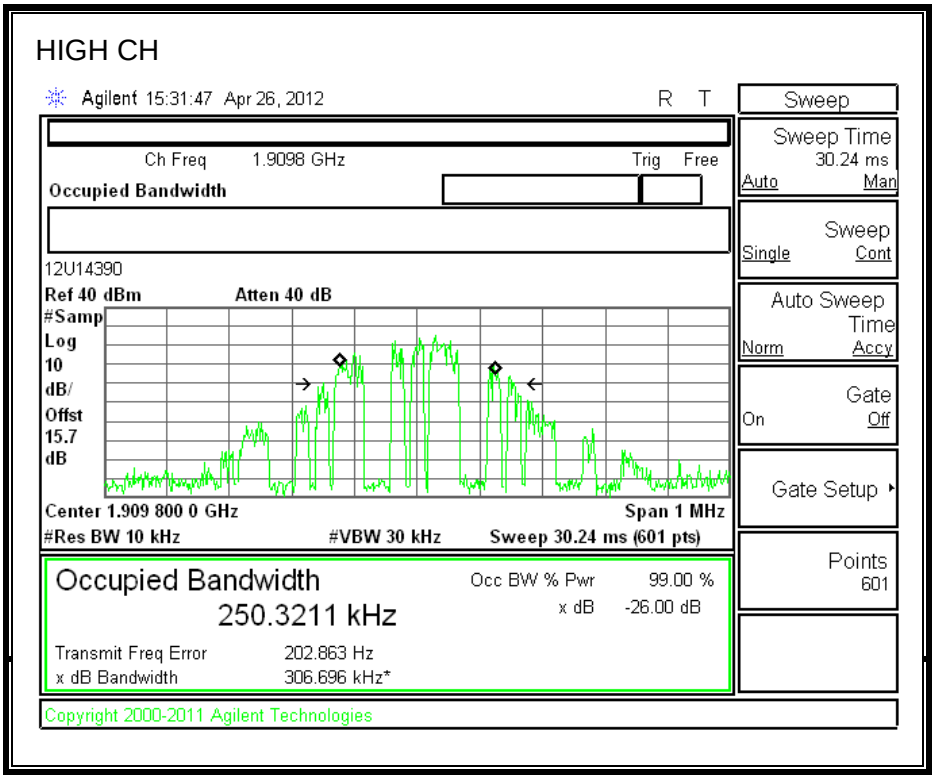


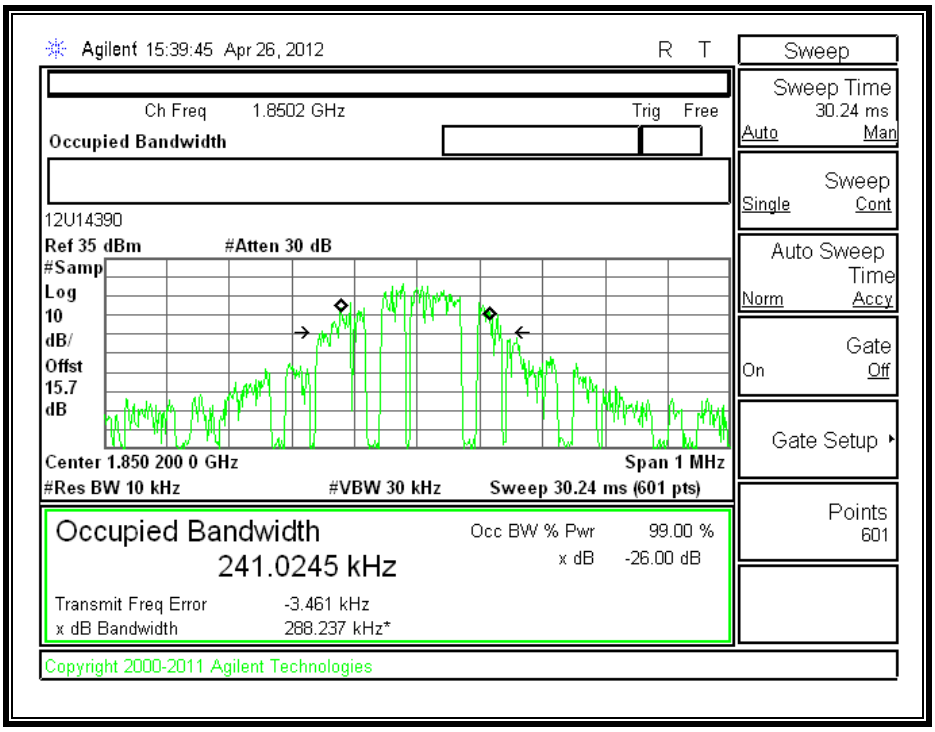
GPRS1900 BAND

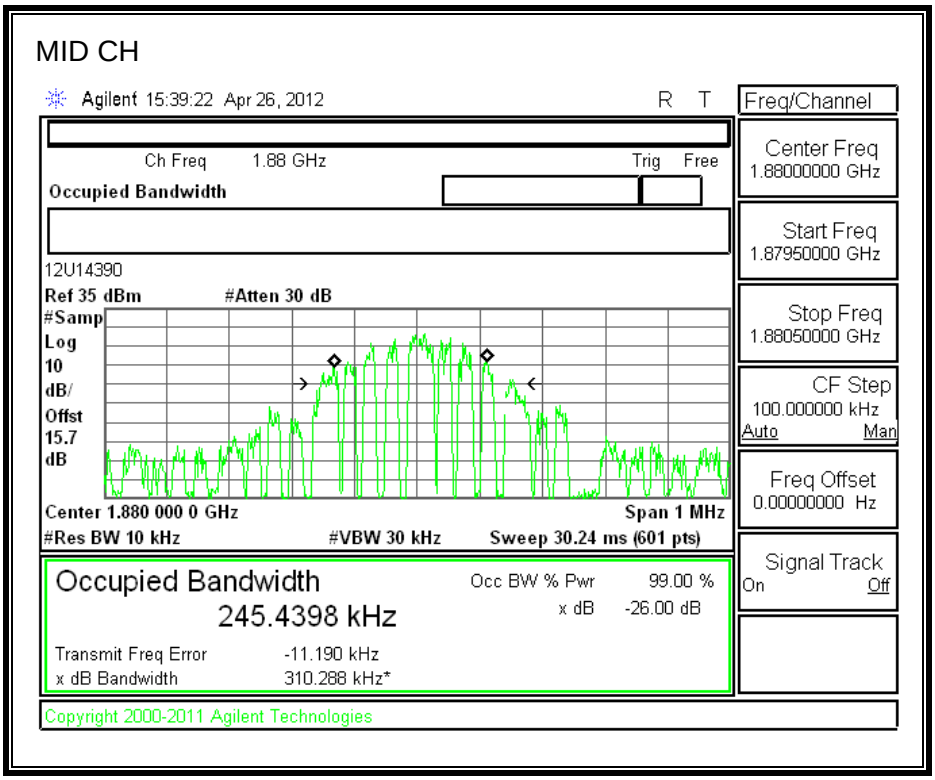






EGPRS1900 BAND





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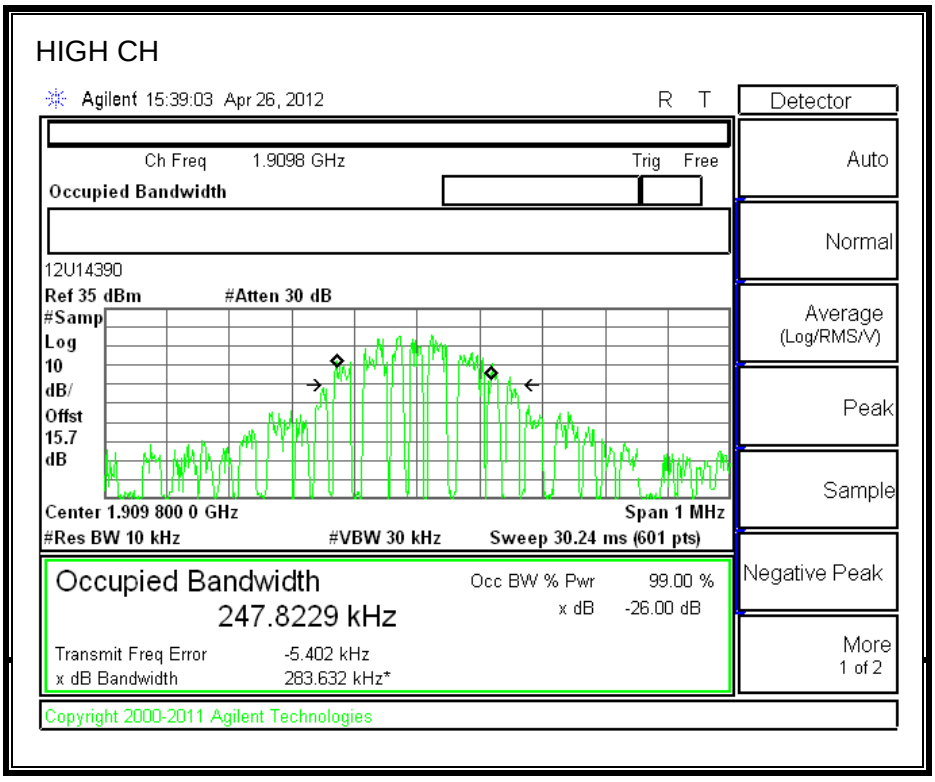
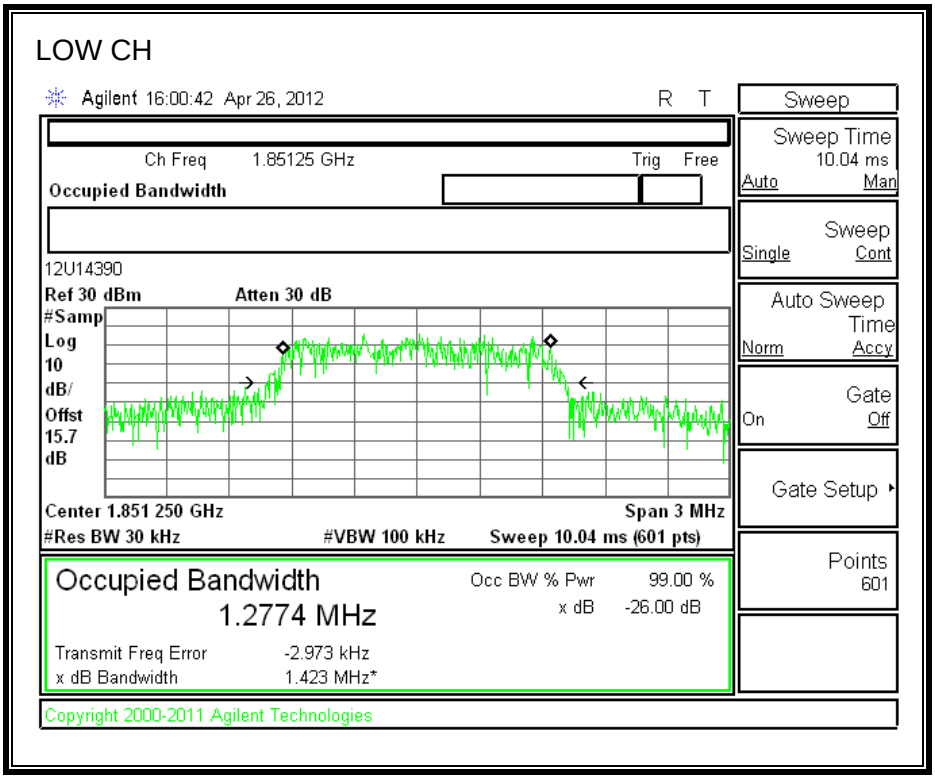


CDMA2000 1xRTT PCS Band

LOW CH



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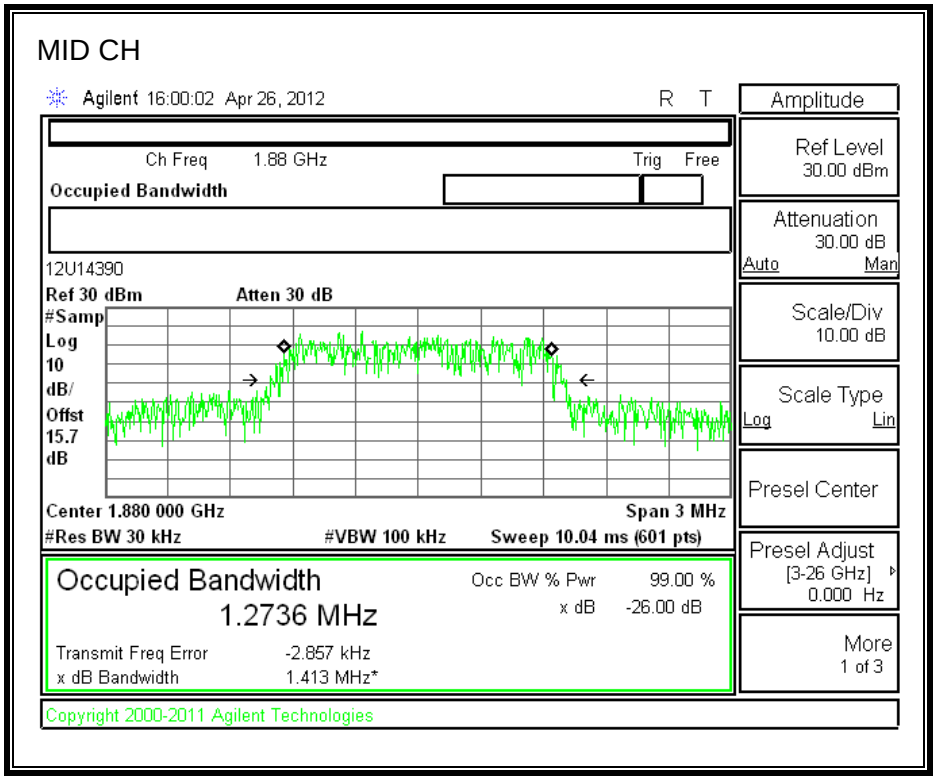
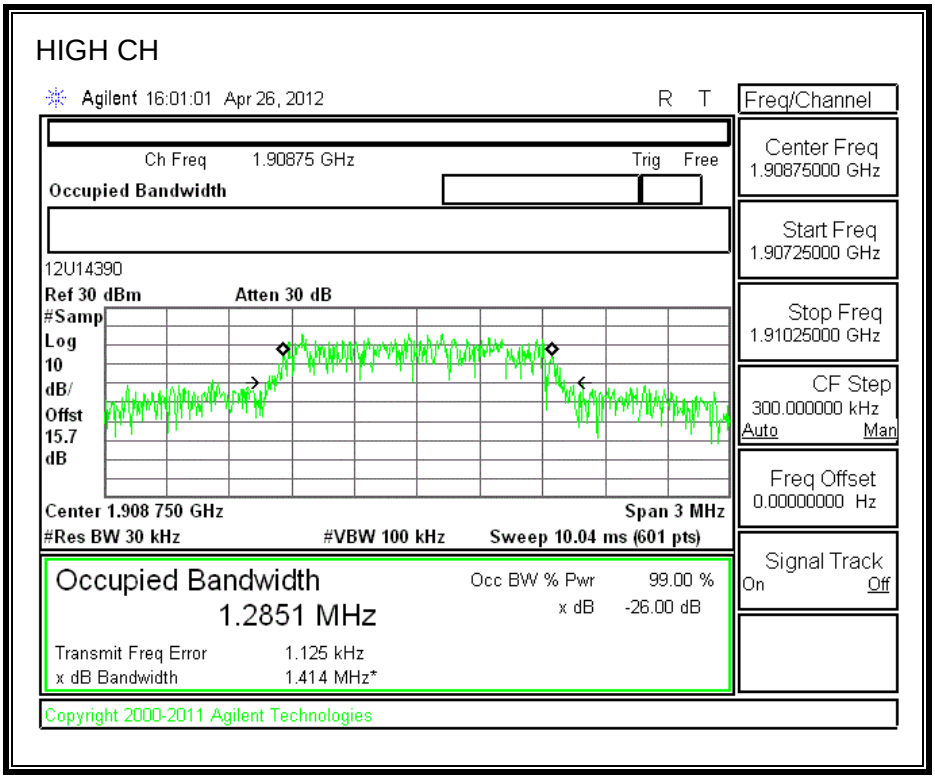
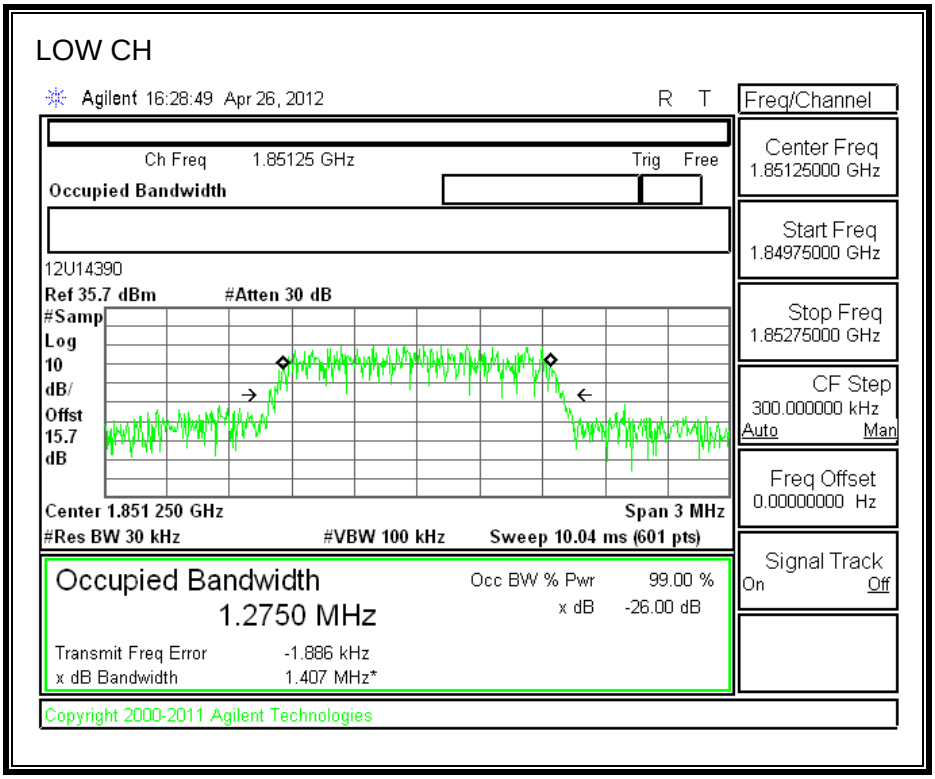


HIGH CH



CDMA2000 EVDO REV A, PCS Band

LOW CH



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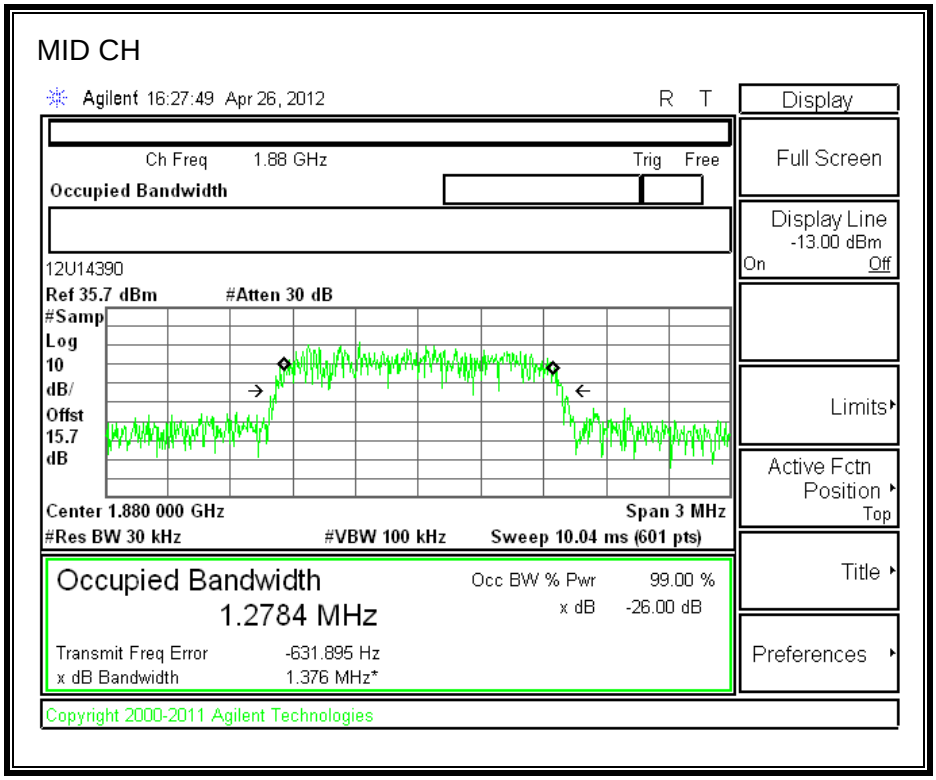

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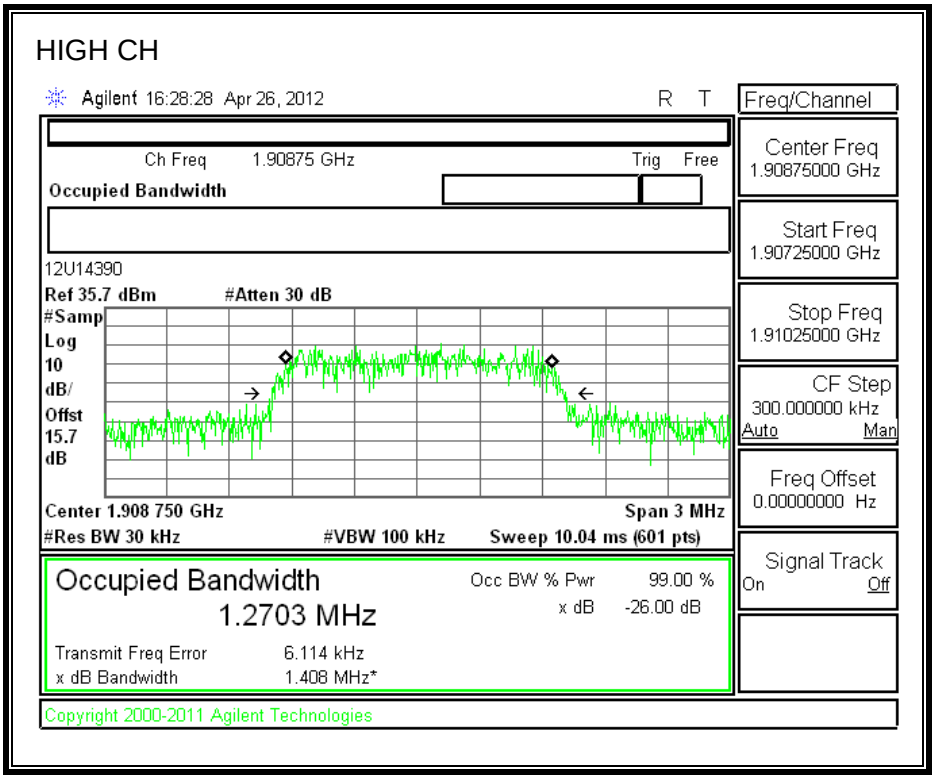
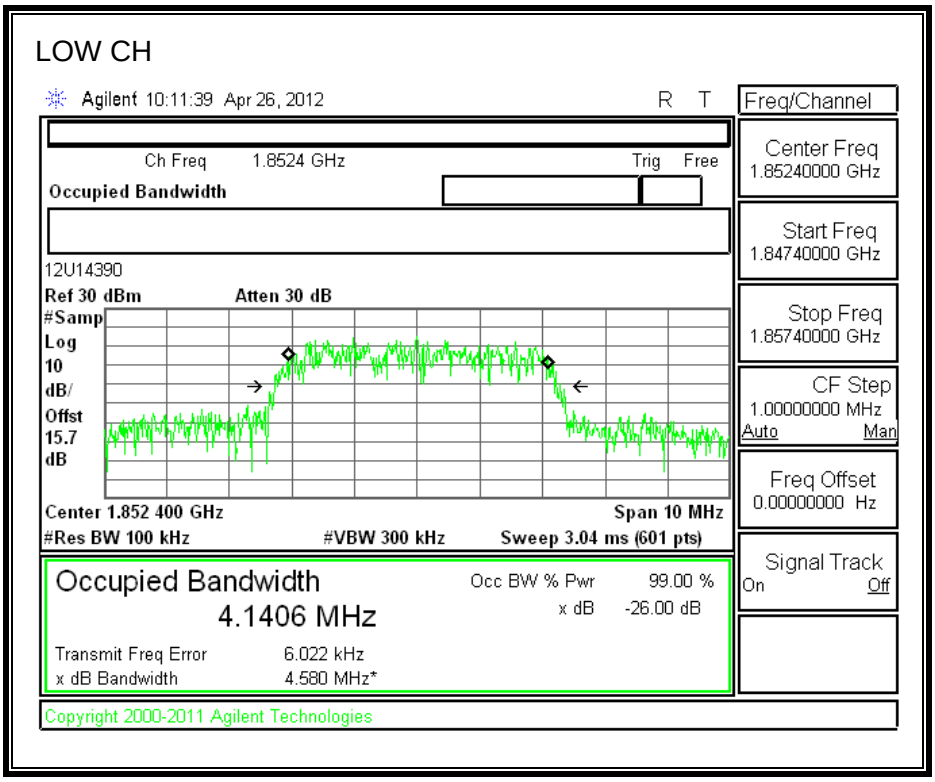


WCDMA REL 99. PCS Band

LOW CH



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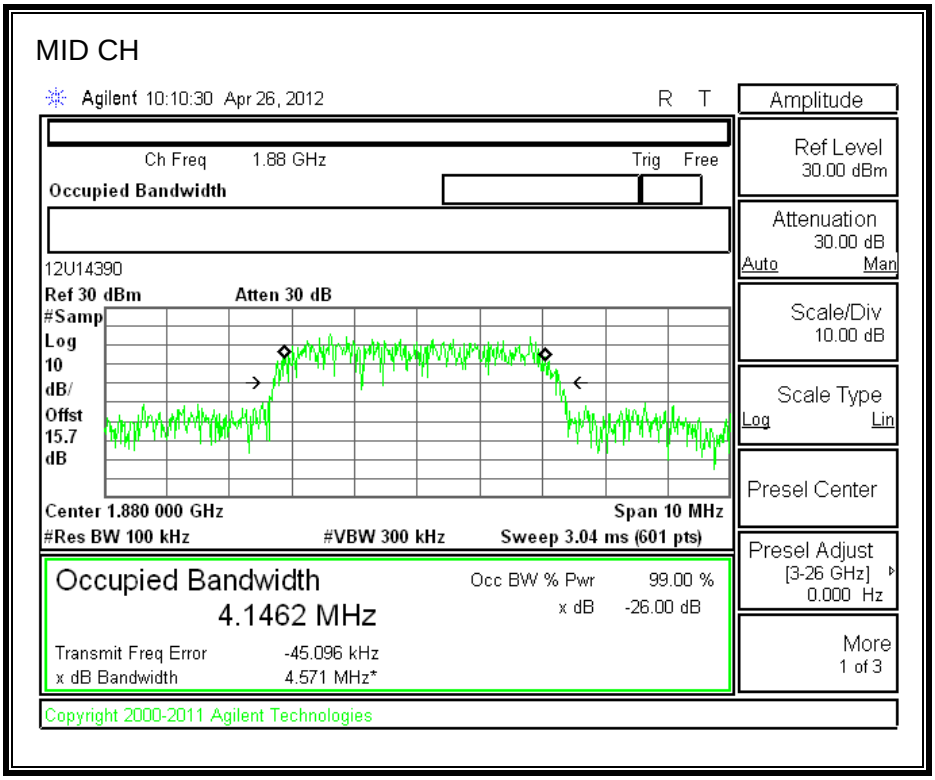
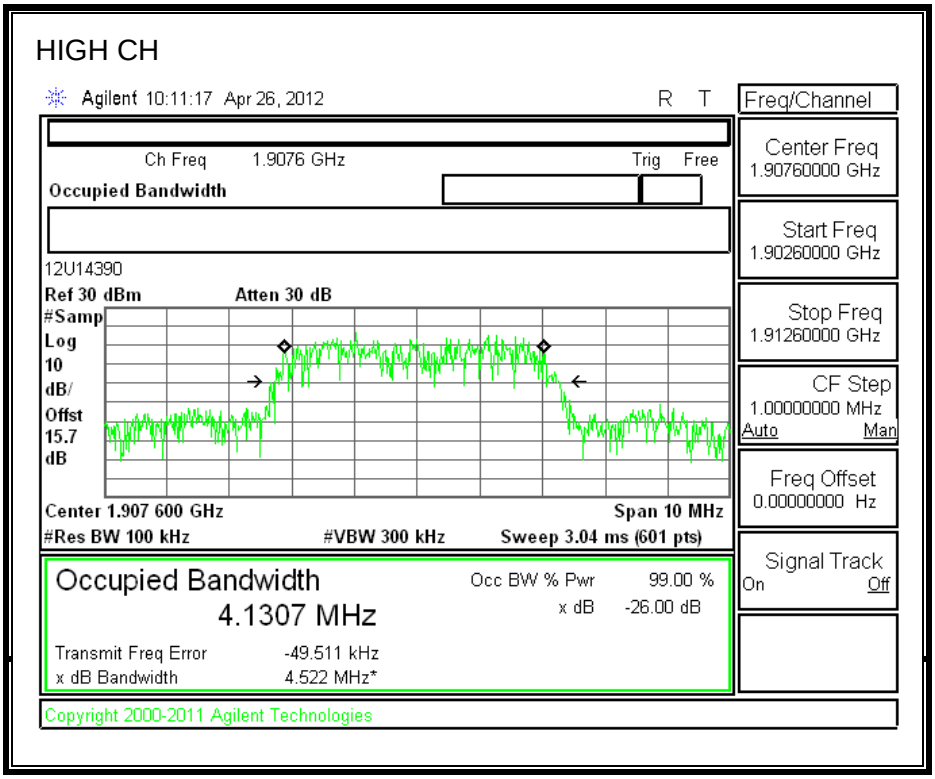
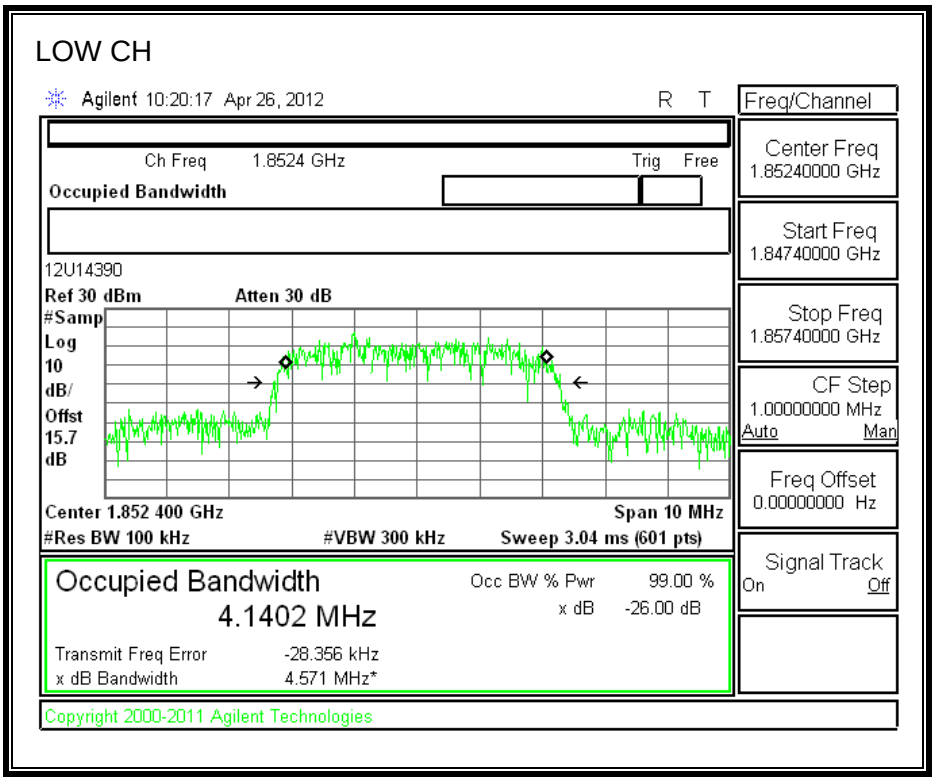


HIGH CH



WCDMA HSDPA. PCS Band

LOW CH



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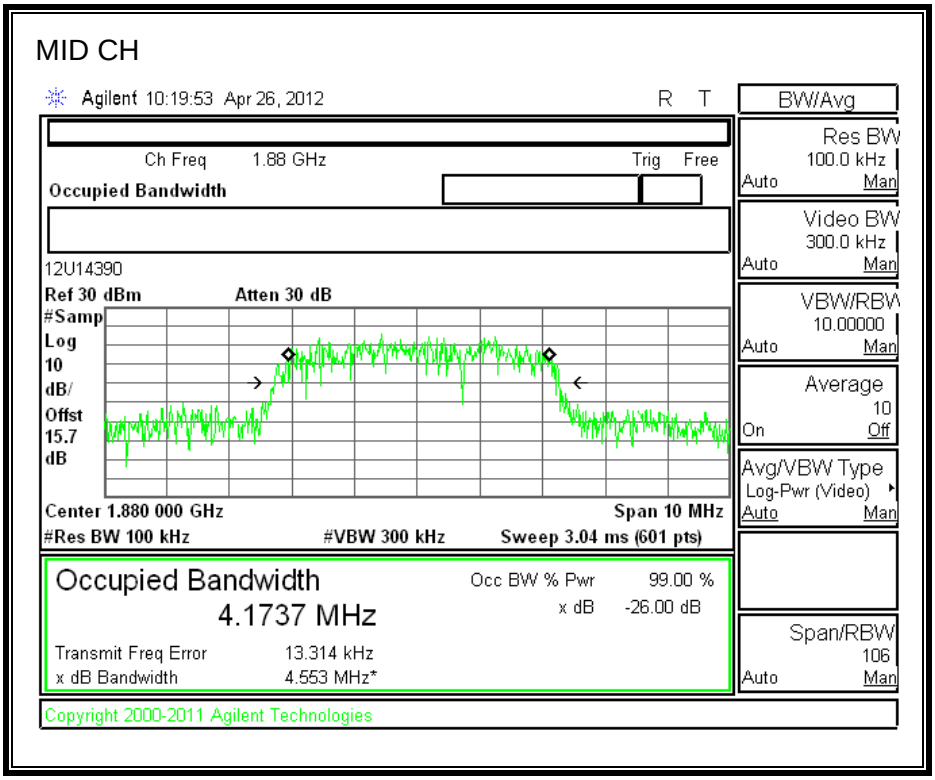

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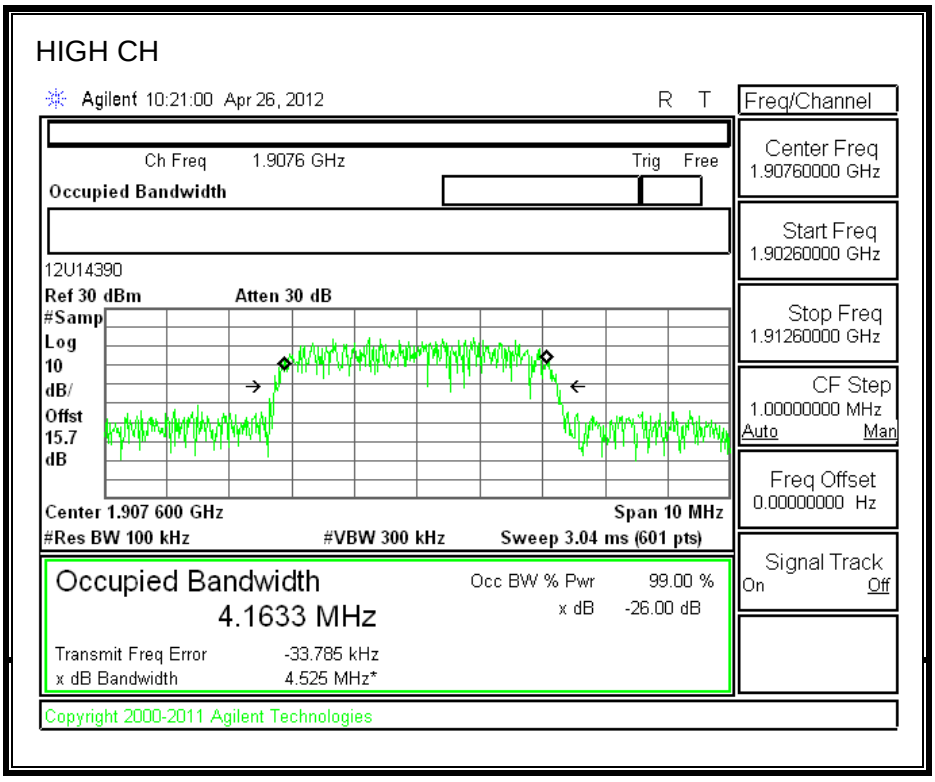
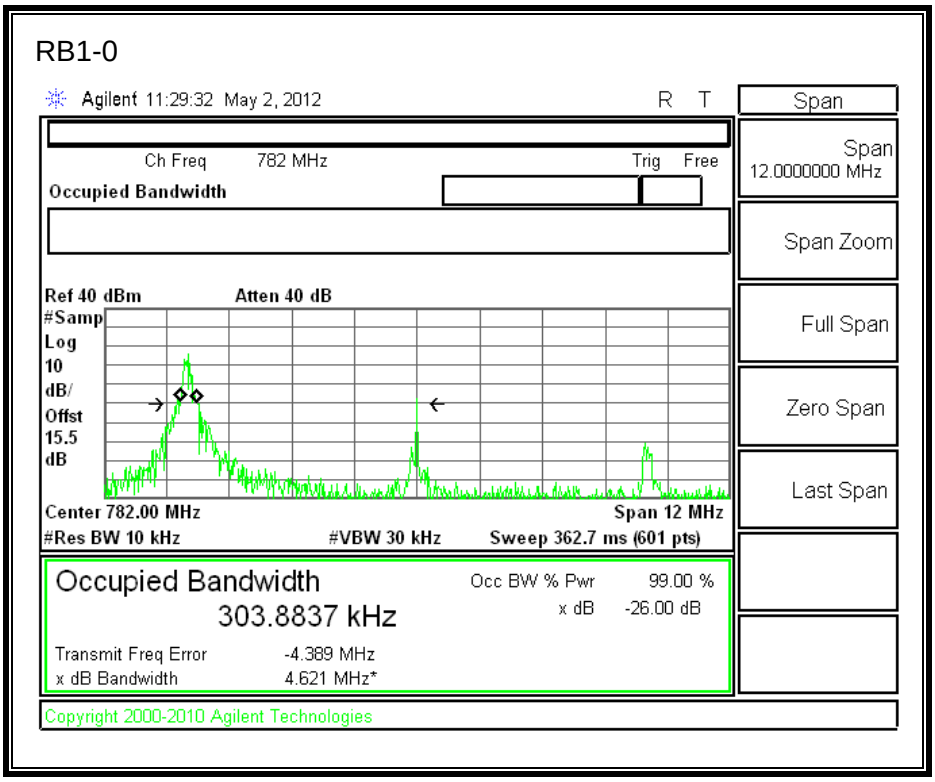
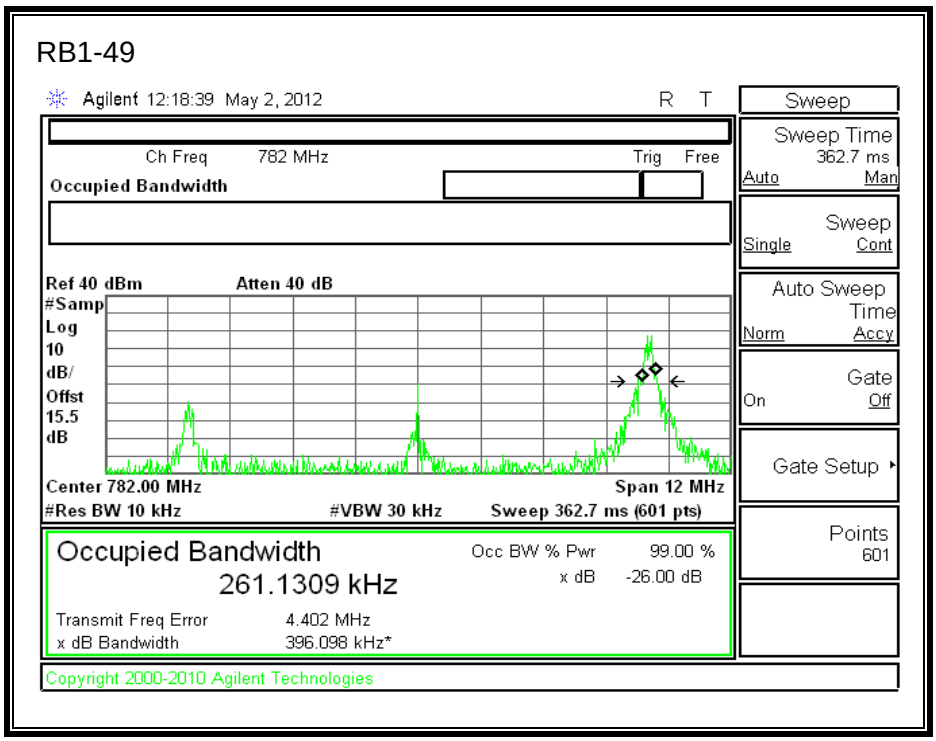


LTE QPSK Band 13

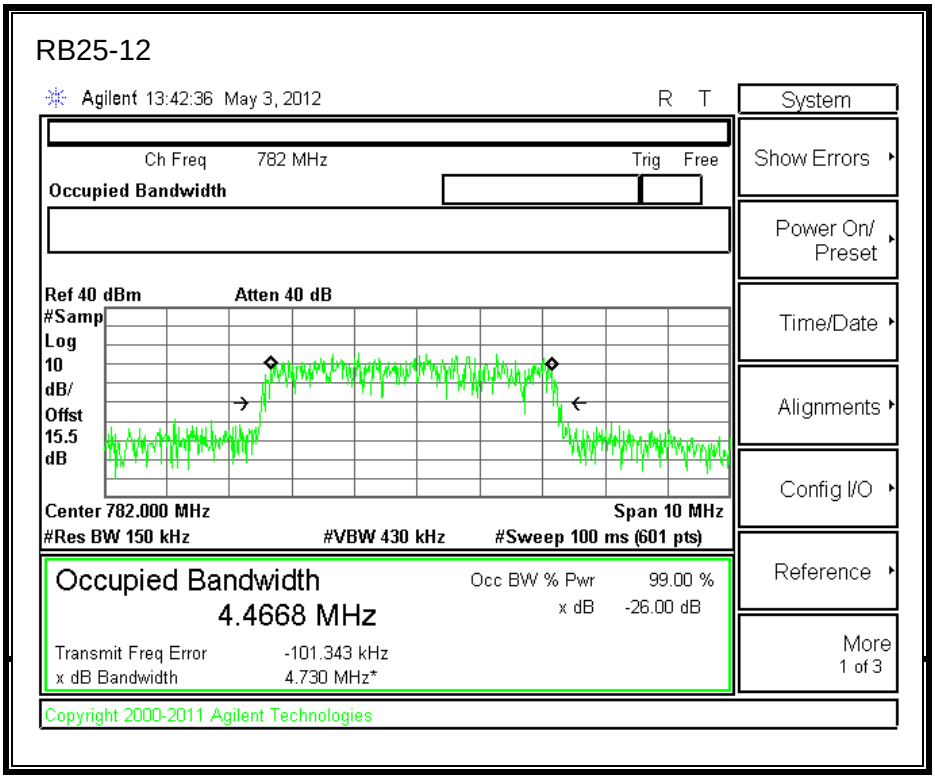
RB1-0



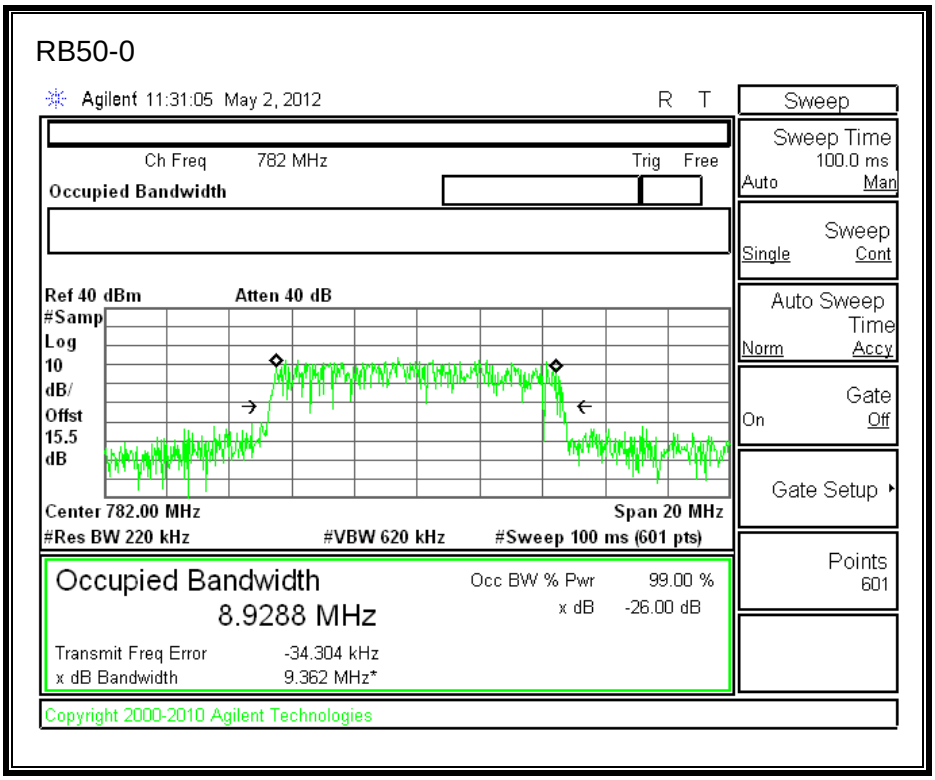
RB1-49



RB25-12

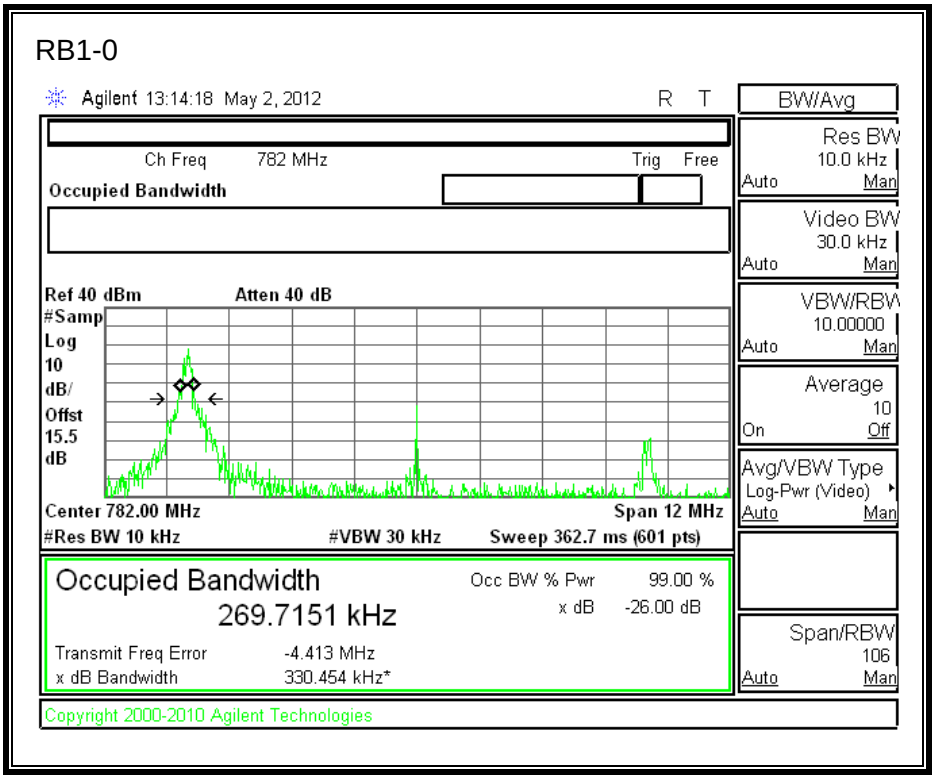


RB50-0

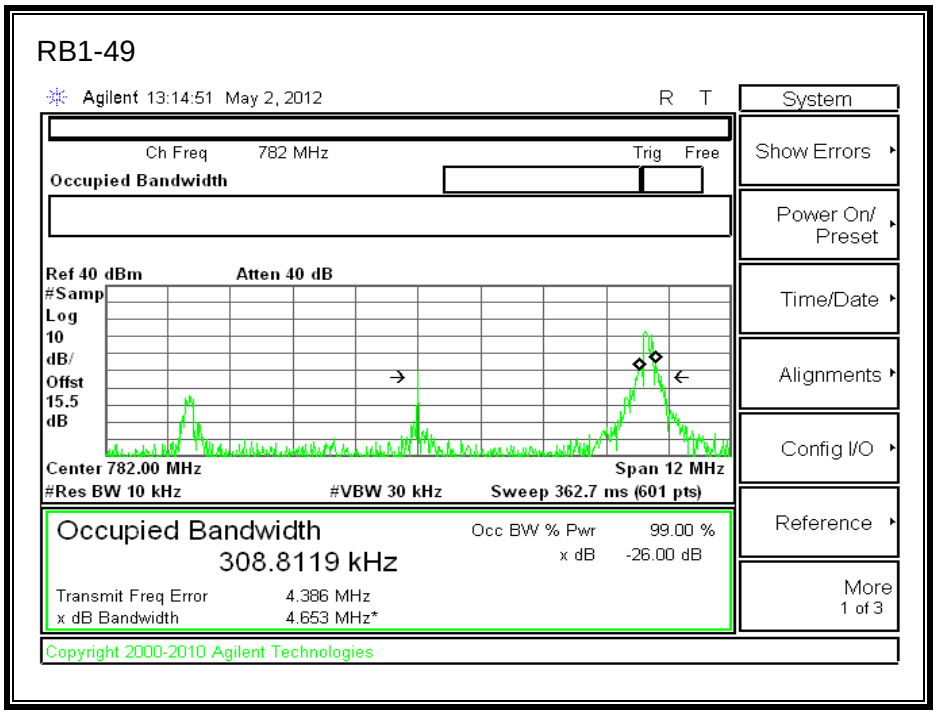


LTE 16QAM Band 13

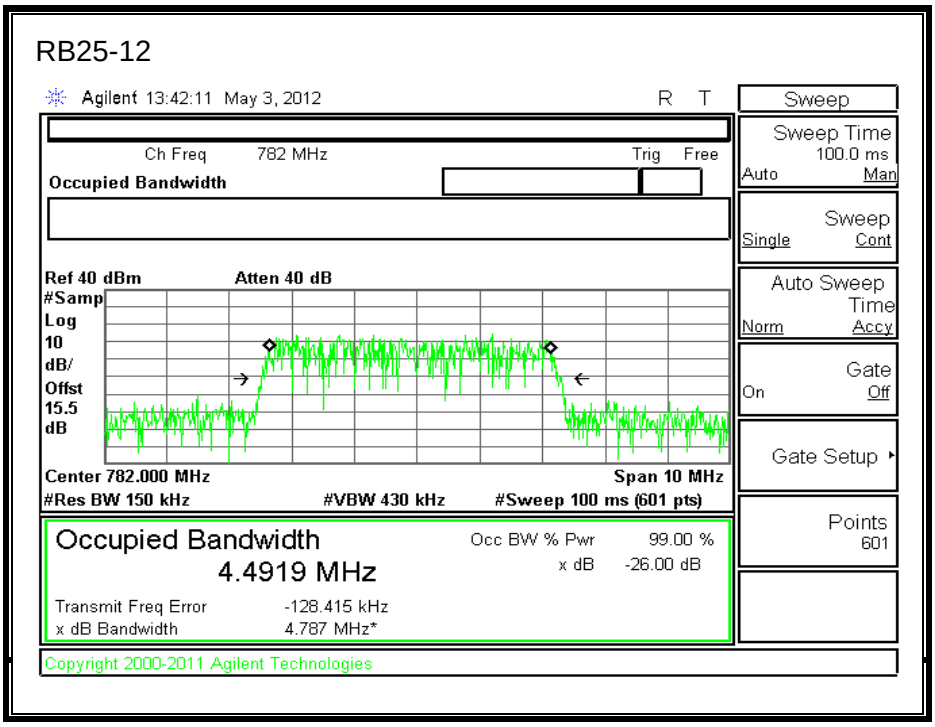
RB1-0



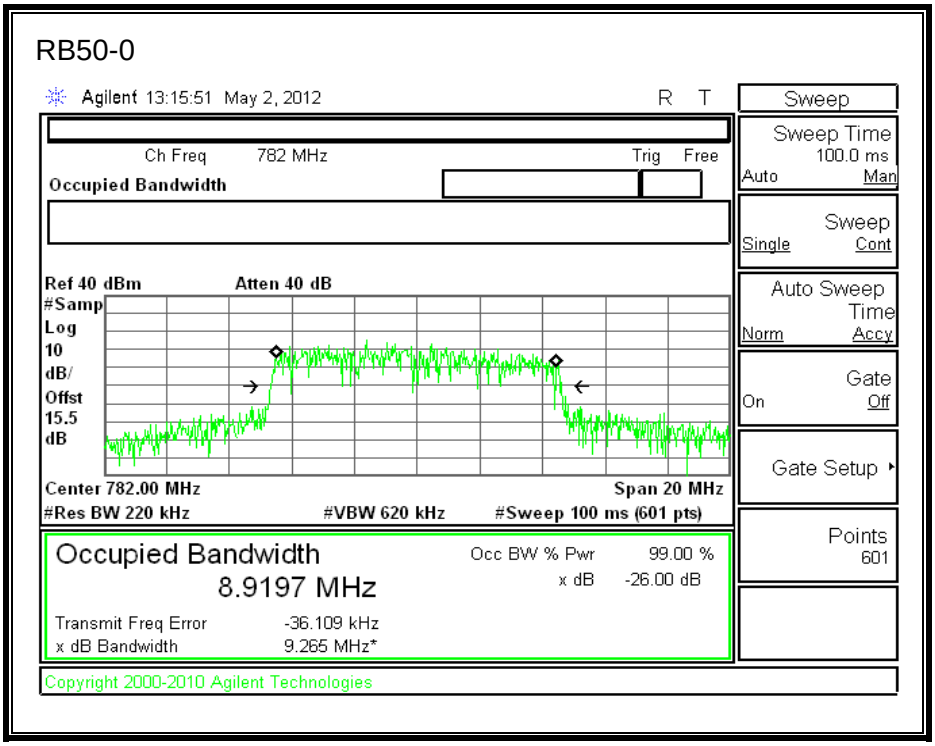
RB1-49



RB25-12



RB50-0



8.2. BAND EDGE

RULE PART(S)

FCC: §22.359, 24.238, FCC part 27.53(c)

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

TEST PROCEDURE

The transmitter output was connected to a Agilent 8960 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.
For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency (824, 849, 1850, 1910MHz)
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13 dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

LIMITS

On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

On all frequencies between 763–775 MHz and 793–805 MHz, by a factor not less than 65 + 10 log (P) dB in a 6.25 kHz band segment, for mobile and portable stations.

Compliance with the provisions of paragraphs above of this section is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. However, in the 100 kHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 30 kHz may be employed;

TEST PROCEDURE

The transmitter output was connected to a CMW500 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.
For each band edge measurement:

- Set the spectrum analyzer span to include the block edge frequency.
- Set a marker to point the corresponding band edge frequency in each test case.
- Set display line at -13dBm
- Set resolution bandwidth to at least 1% of emission bandwidth.

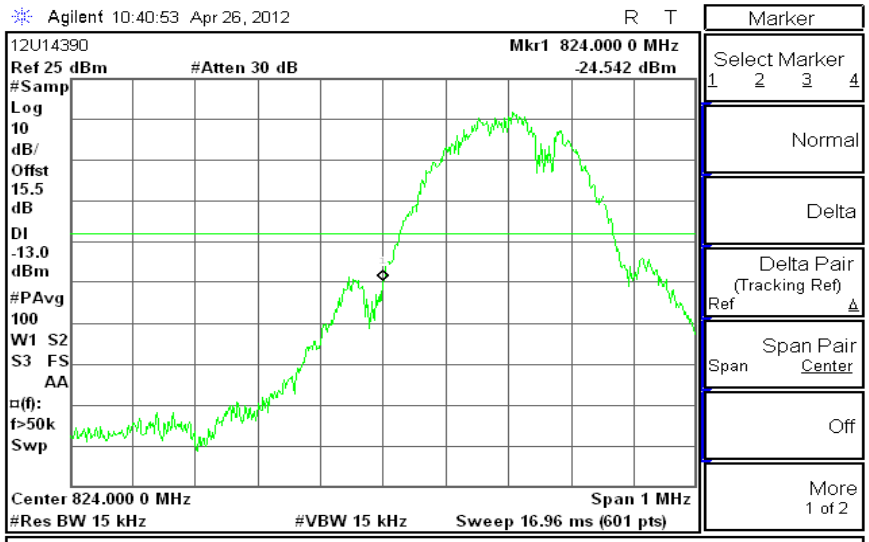
MODES TESTED

- GSM, GPRS & EGPRS
- 1xRTT – RC1, SO2
- EVDO, REV A
- WCDMA REL. 99
- WCDMA HSDPA
- LTE BAND 13

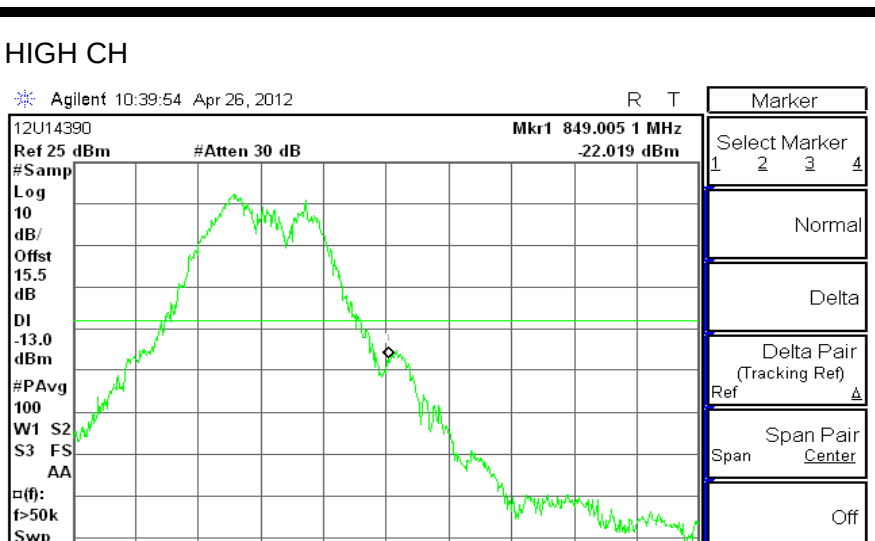
BANDEDGE

GSM850 BAND

LOW CH

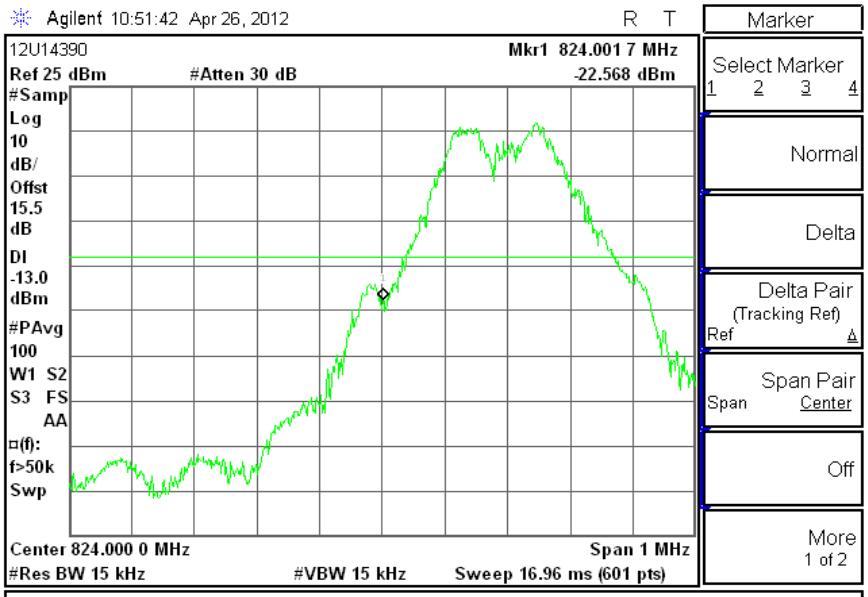


HIGH CH

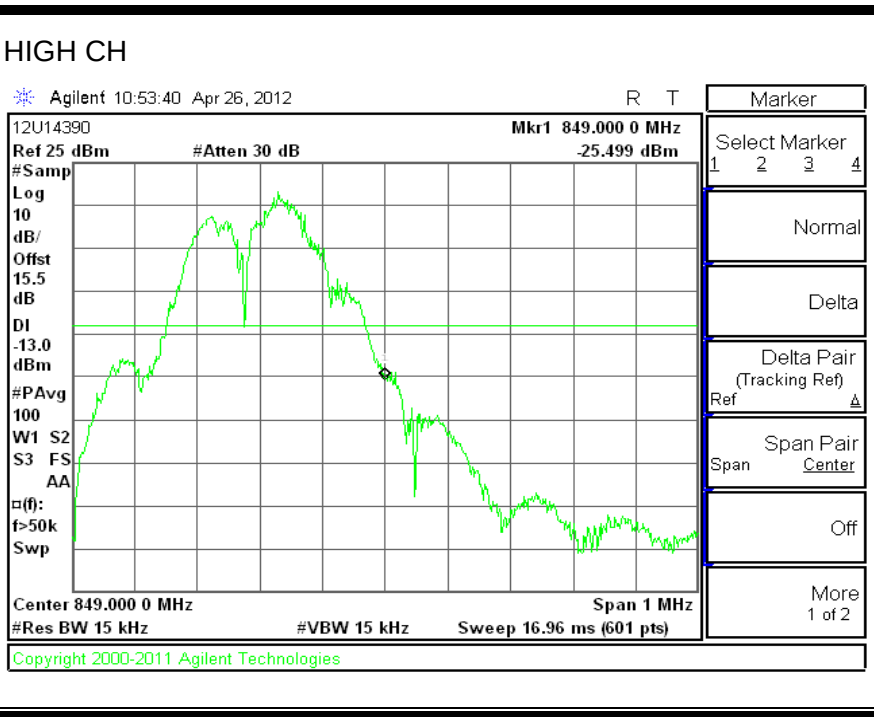


GPRS850 BAND

LOW CH

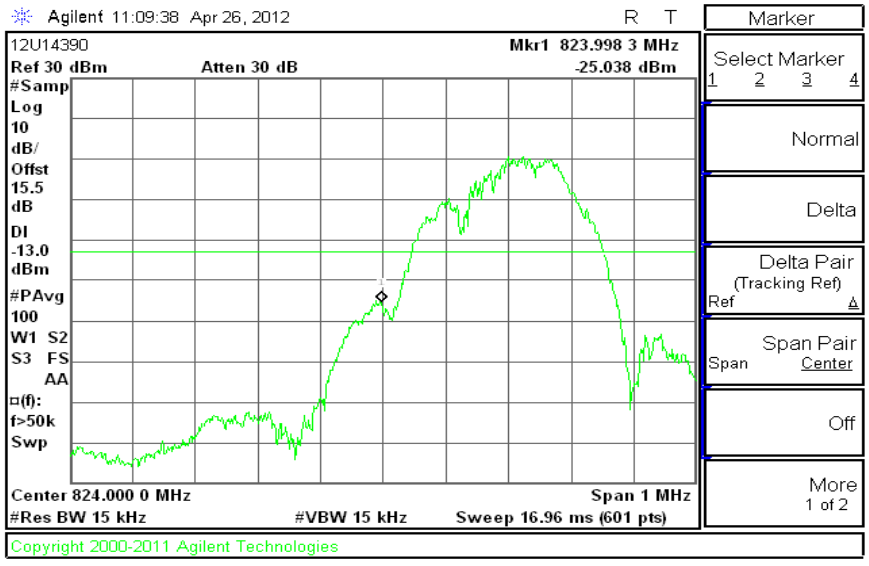


HIGH CH

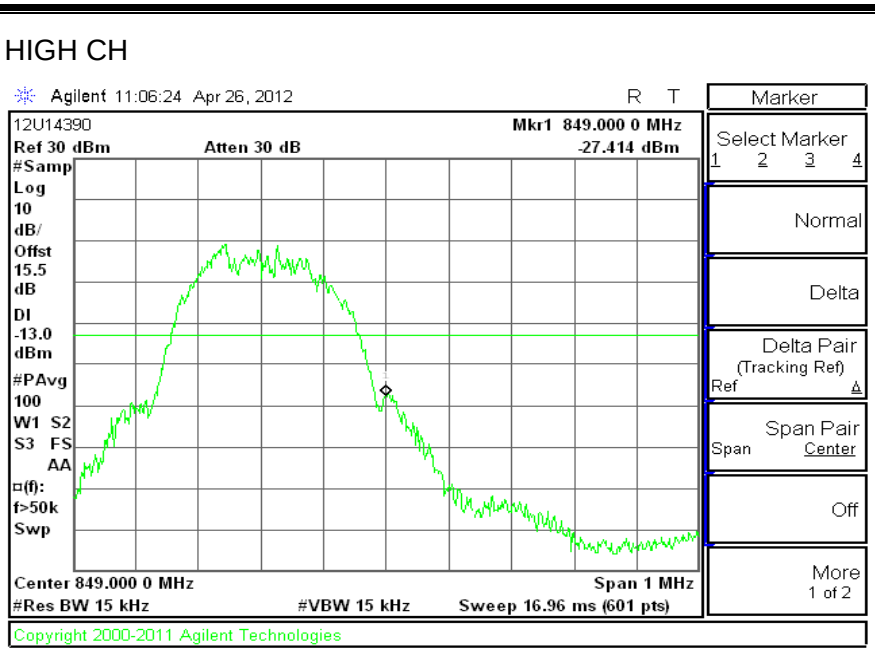


EGPRS850 BAND

LOW CH

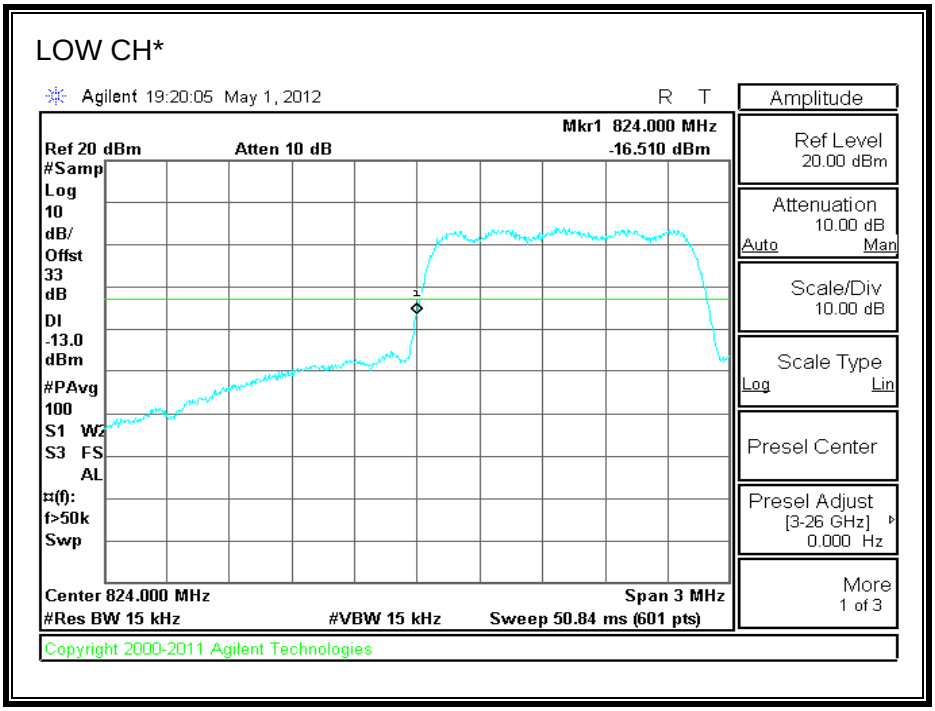


HIGH CH

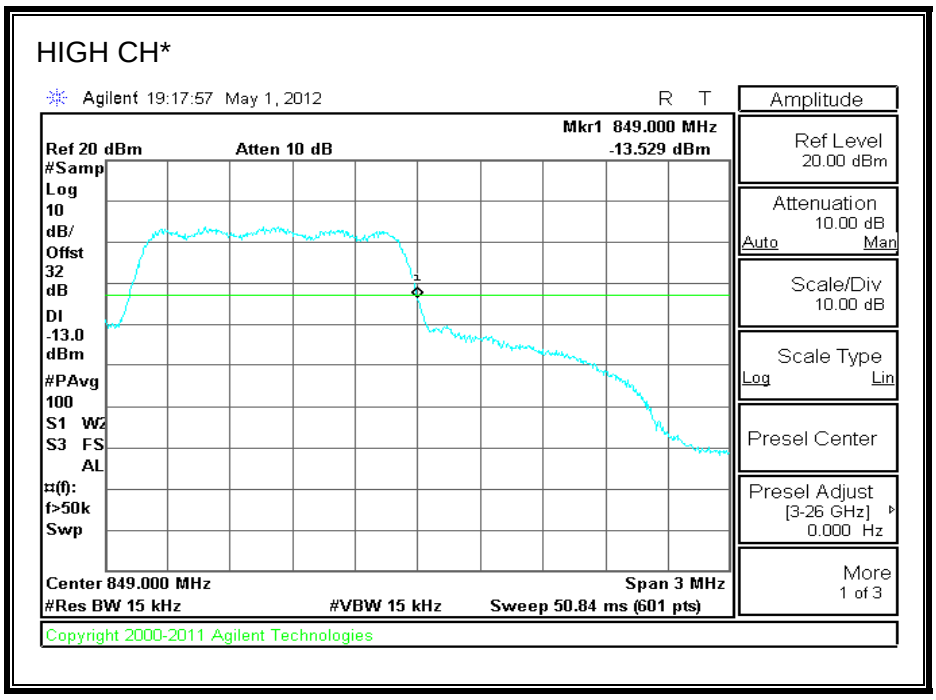


CDMA2000 1xRTT Cellular Band

LOW CH*



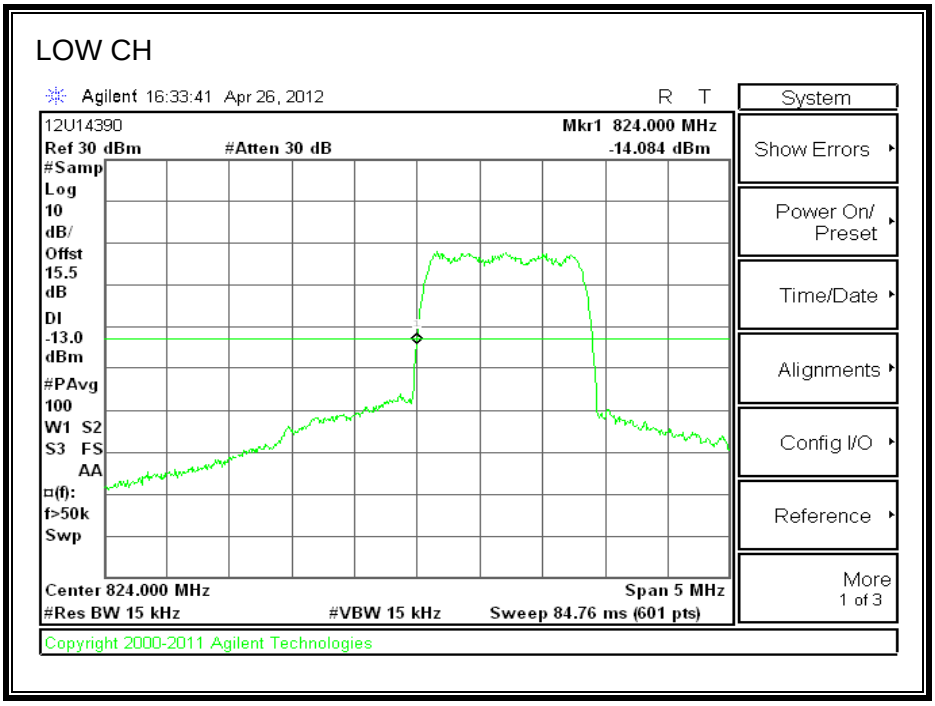
HIGH CH*



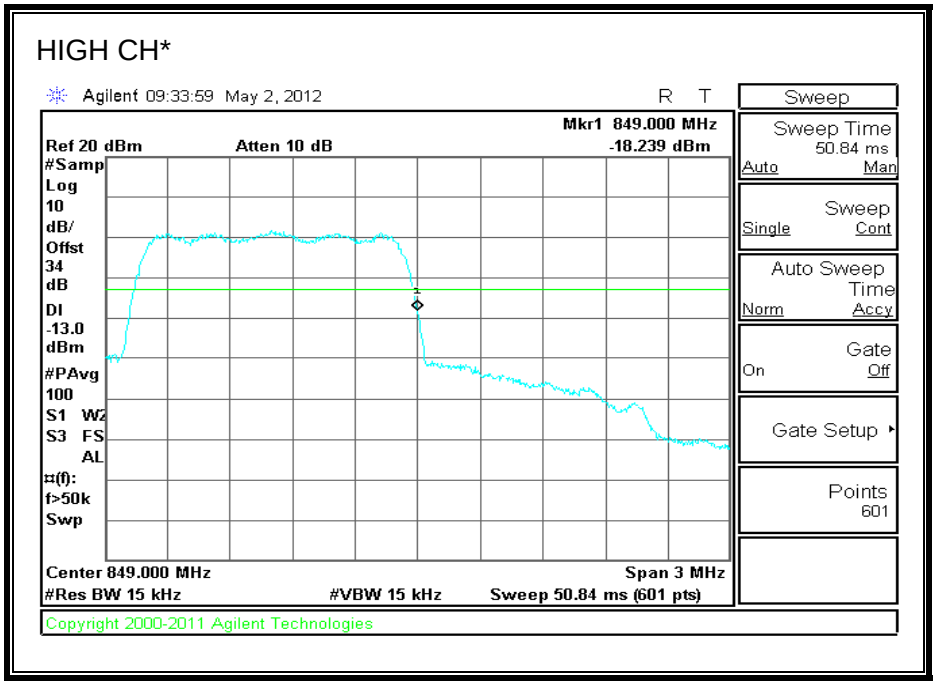
*Note: This particular test has made using radiated method with real substitution.

CDMA2000 EVDO REV A, Cellular Band

LOW CH



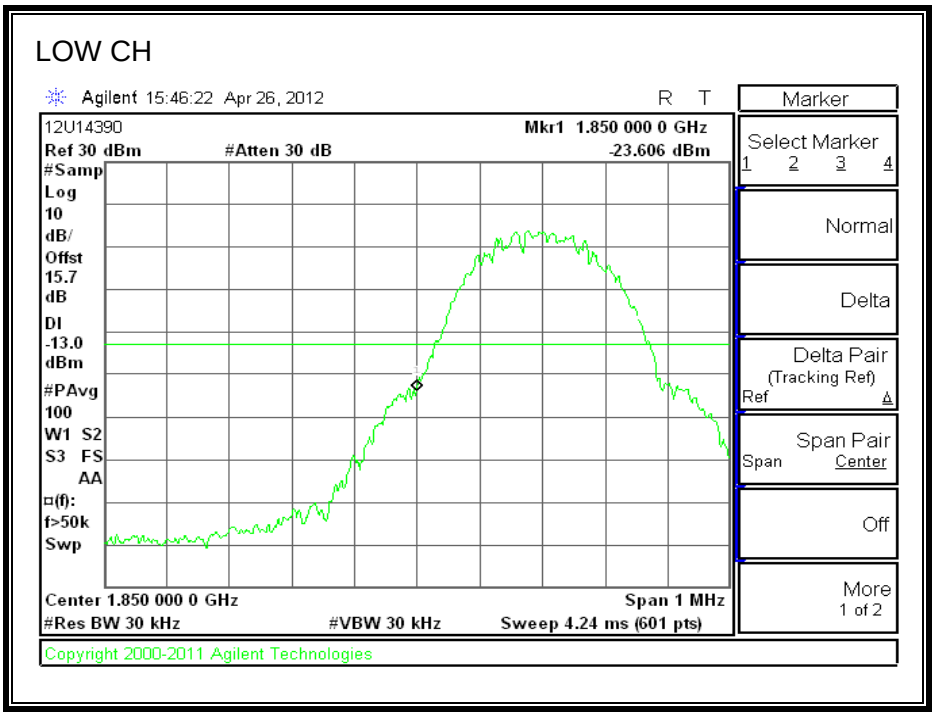
HIGH CH*



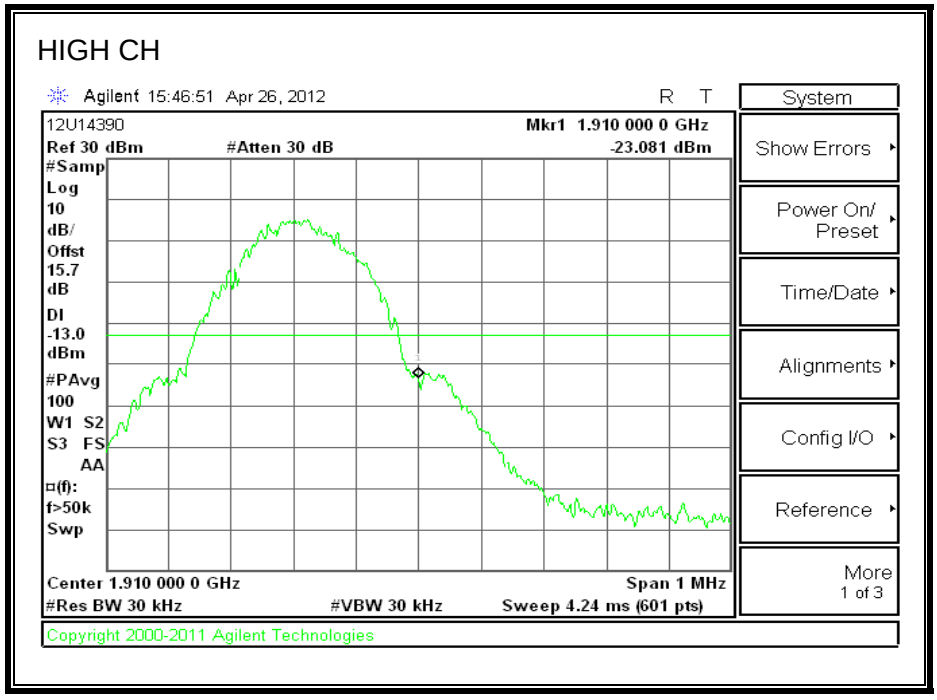
*Note: This particular test has made using radiated method with real substitution.

GSM1900 BAND

LOW CH



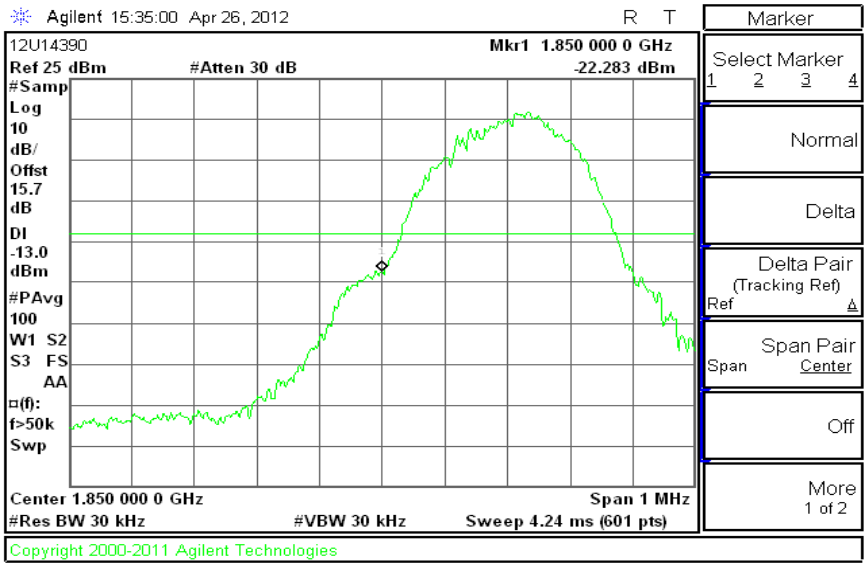
HIGH CH



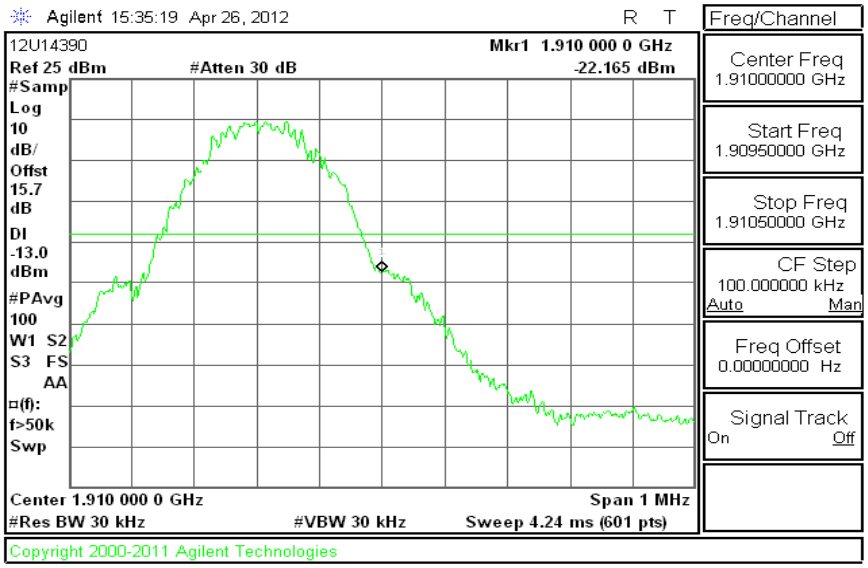
HIGH CH

GPRS1900 BAND

LOW CH

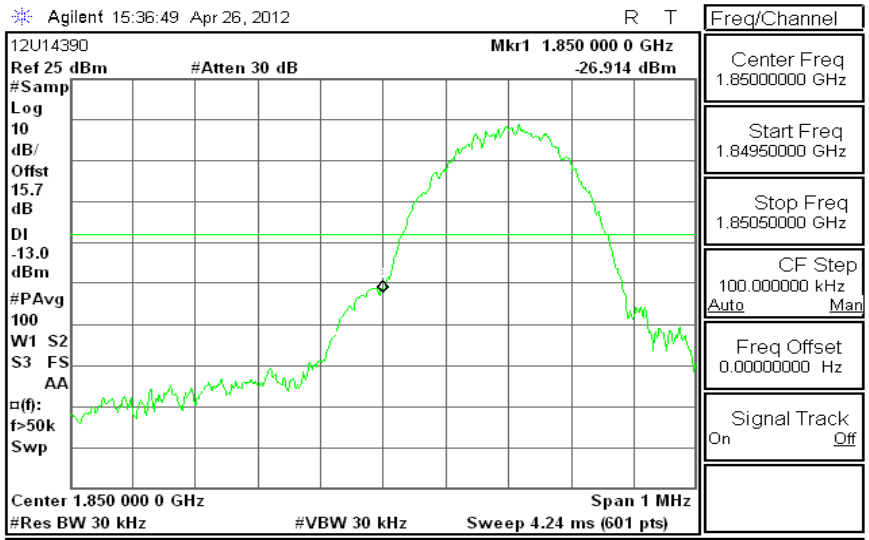


HIGH CH

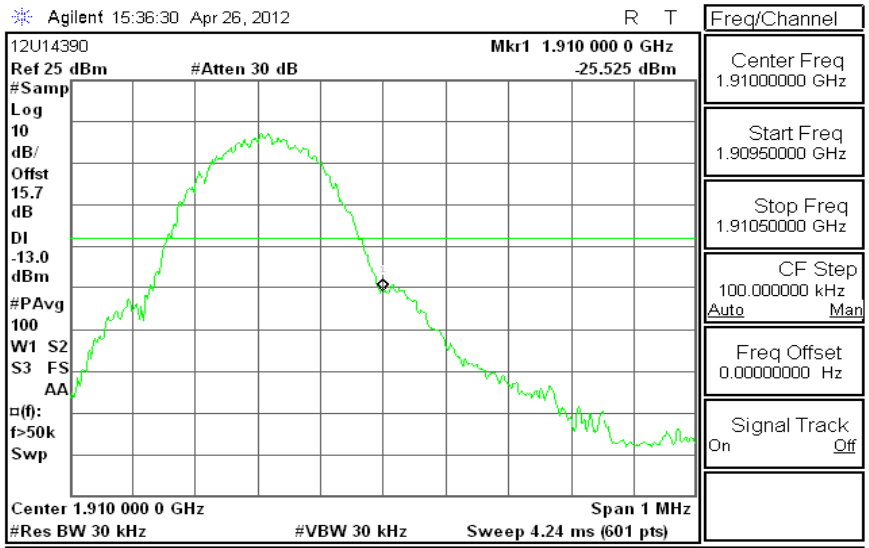


EGPRS1900 BAND

LOW CH

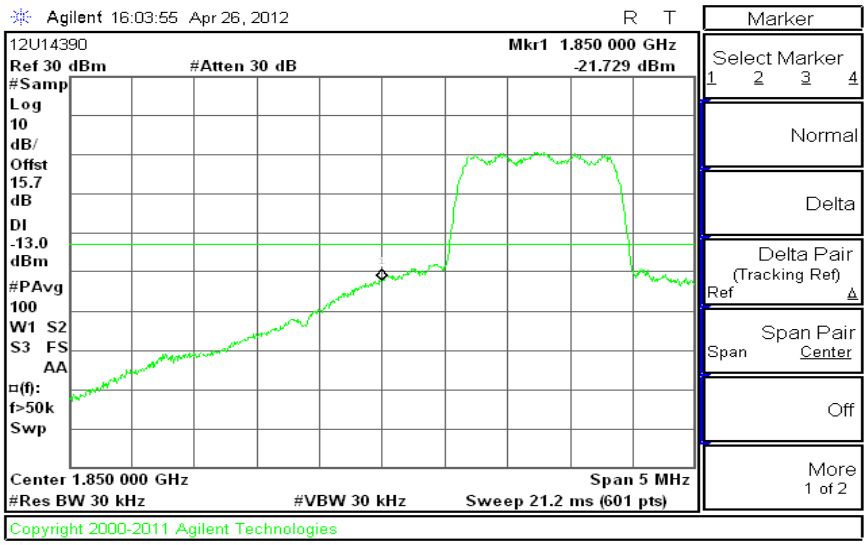


HIGH CH

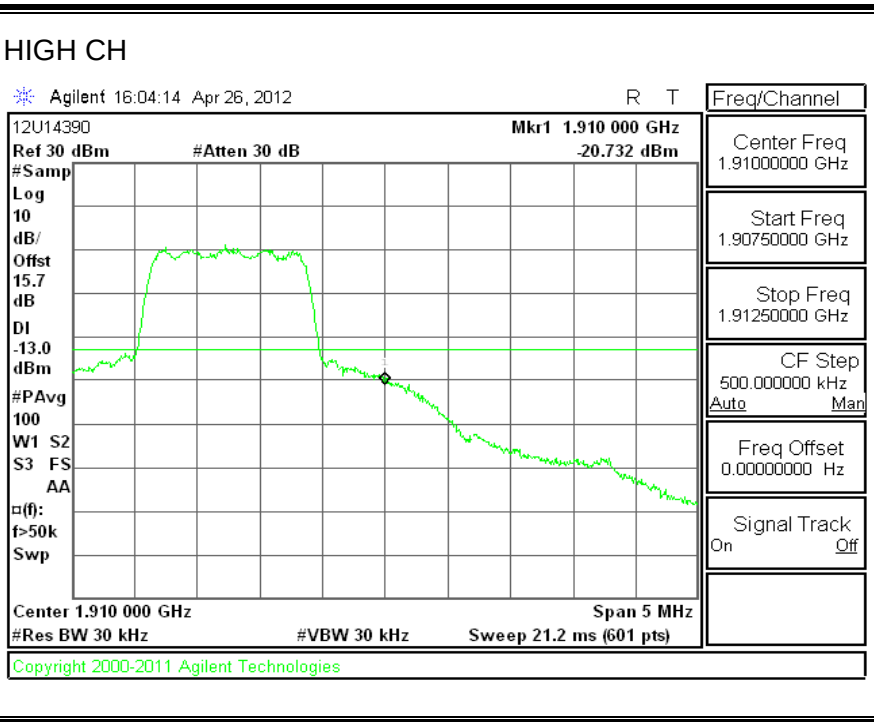


CDMA2000 1xRTT PCS Band

LOW CH

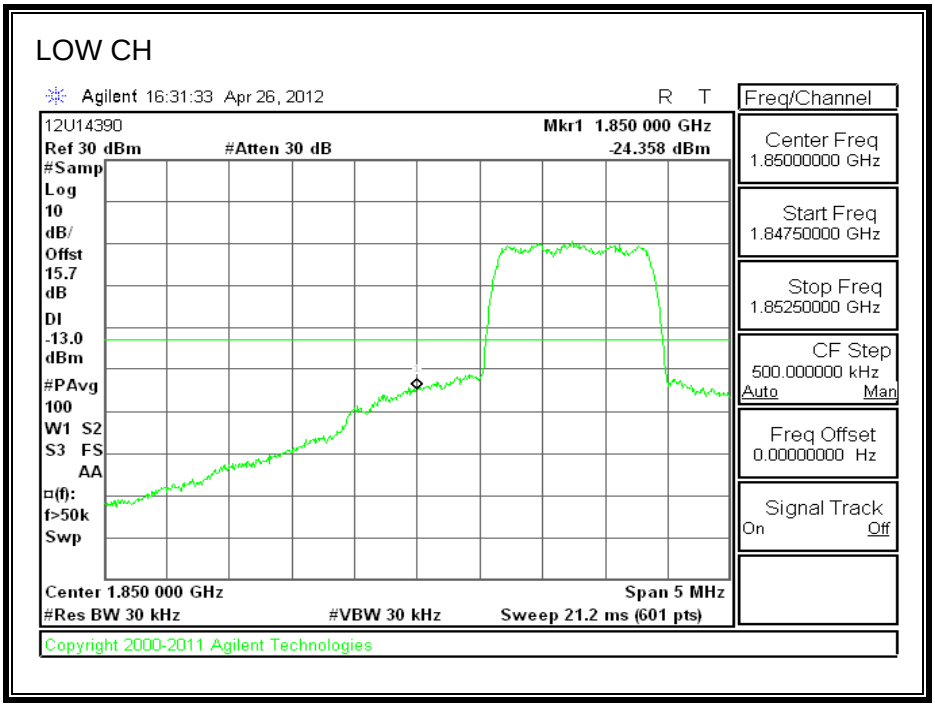


HIGH CH

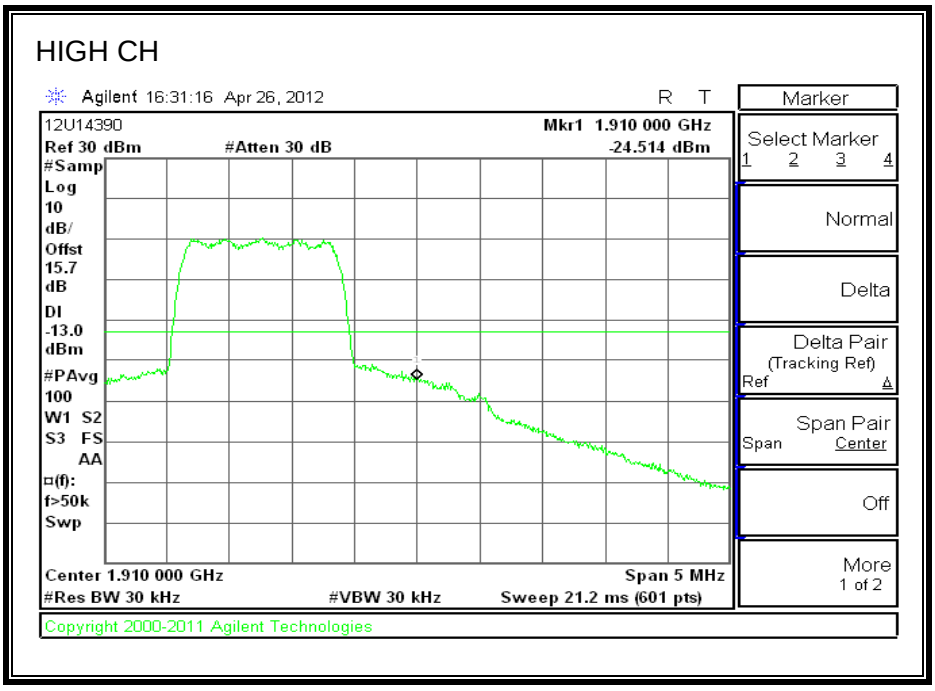


CDMA2000 EVDO REV A, PCS Band

LOW CH

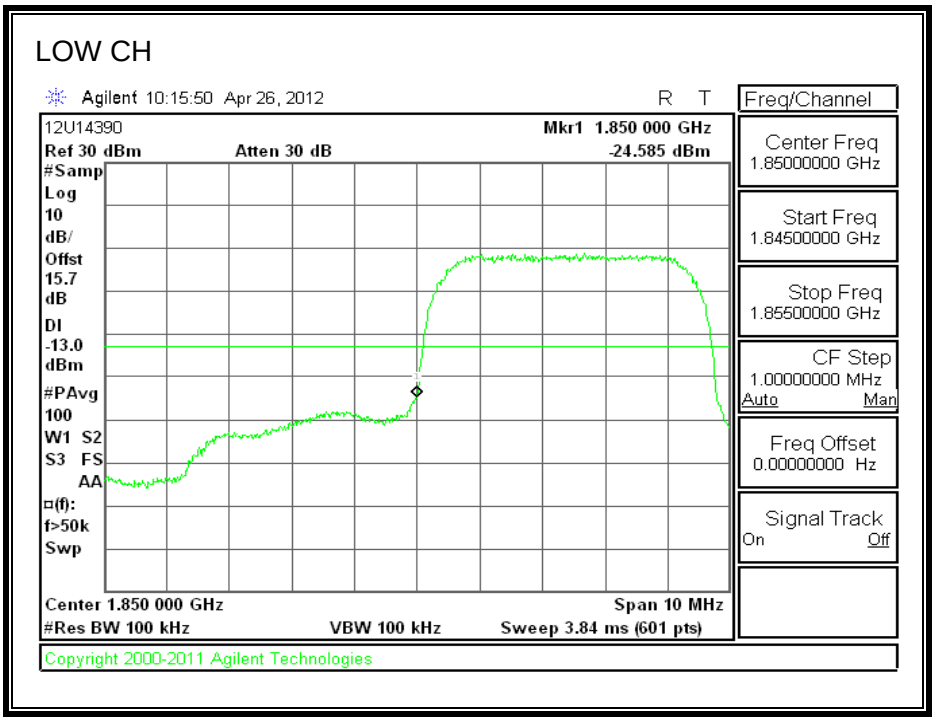


HIGH CH

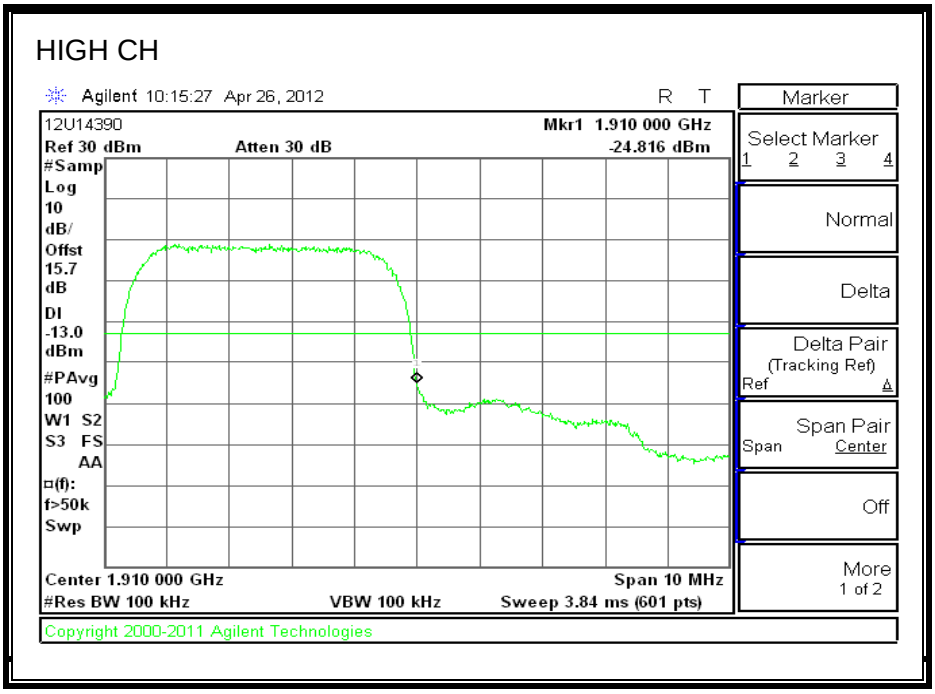


WCDMA REL 99. PCS Band

LOW CH

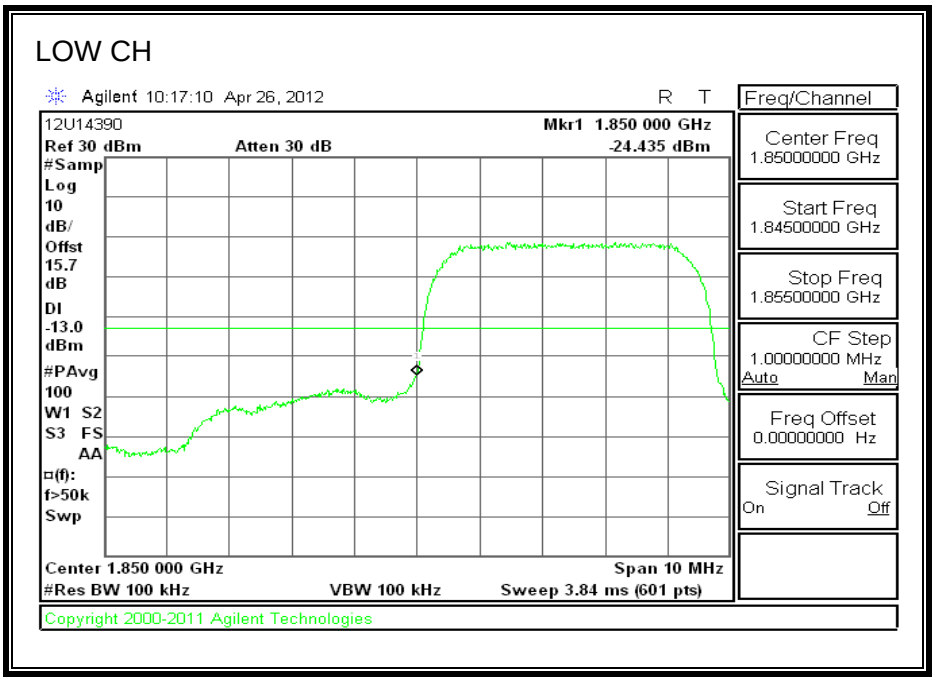


HIGH CH

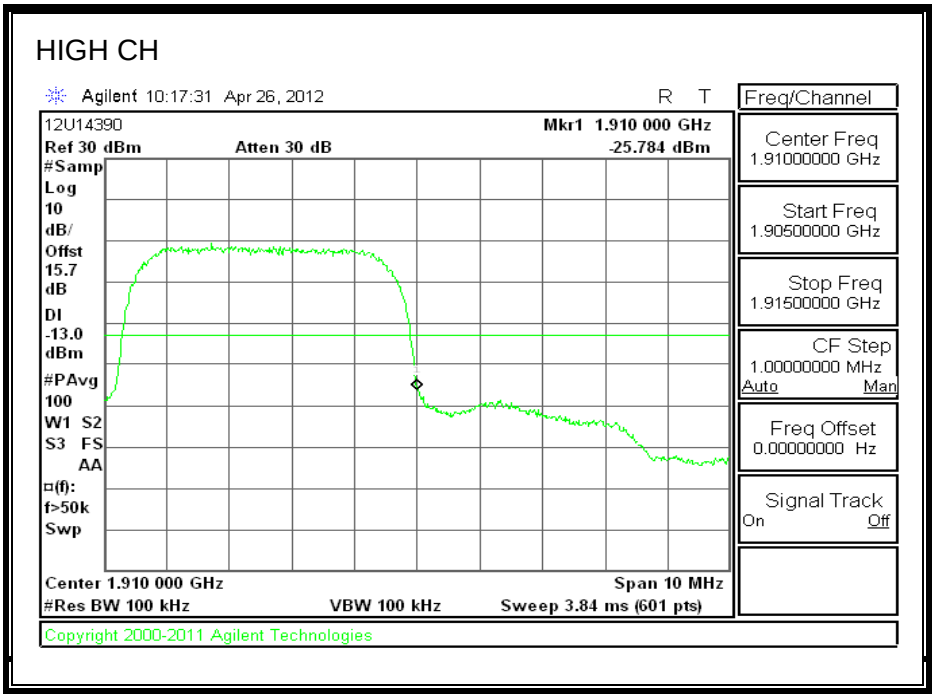


WCDMA HSDPA. PCS Band

LOW CH

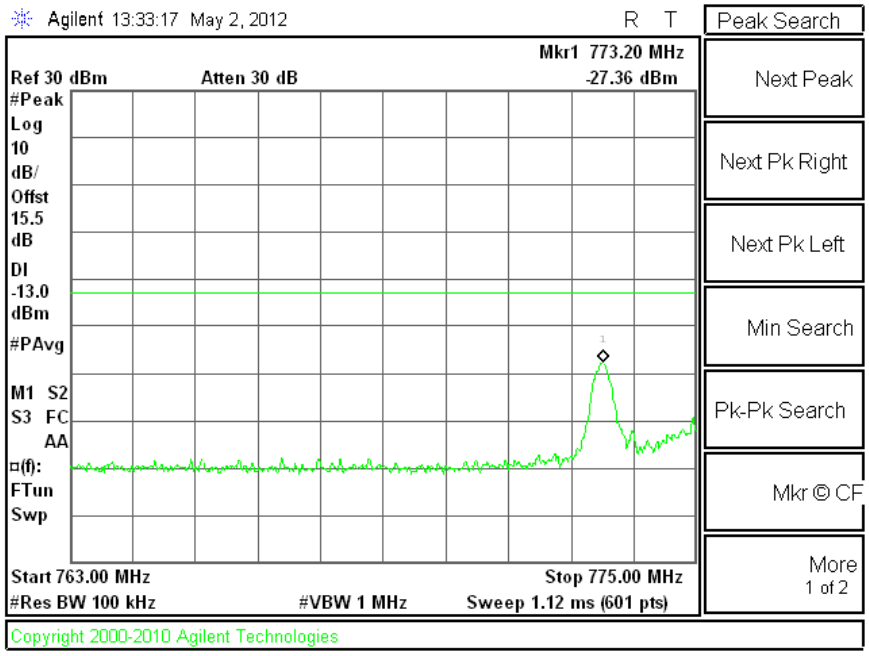


HIGH CH

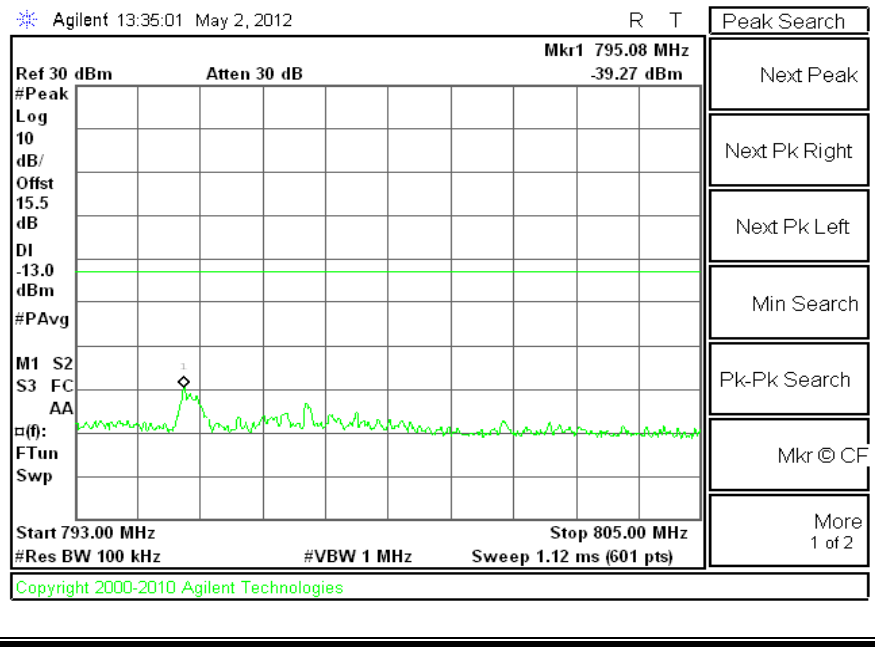


LTE QPSK Band 13

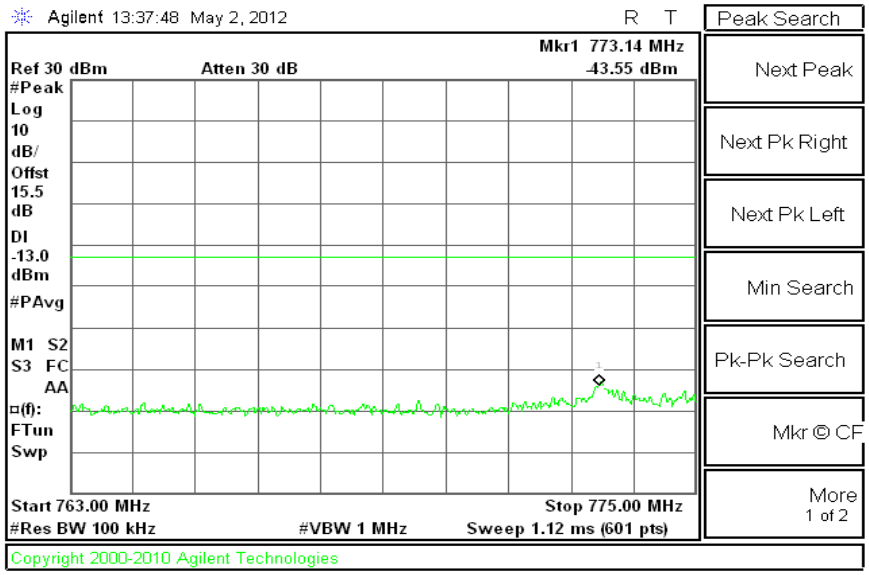
RB1-0 LOW



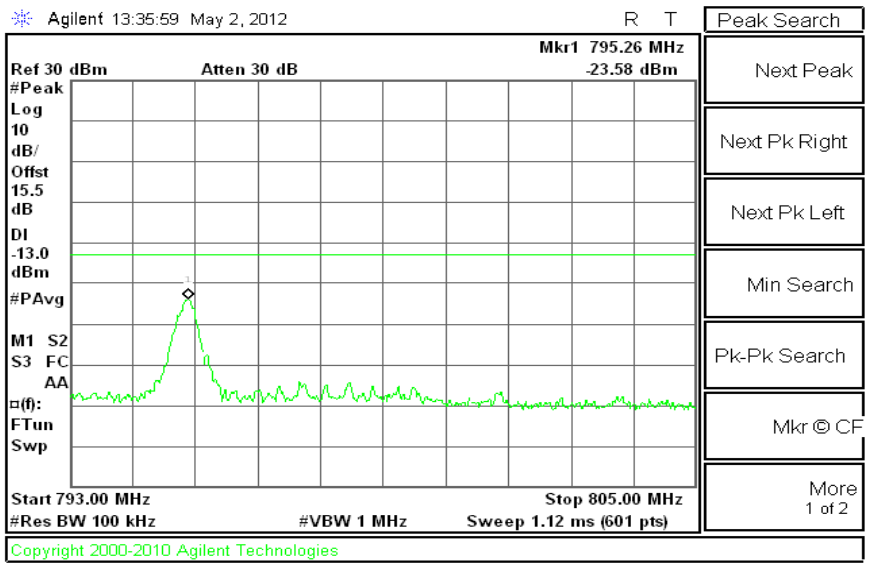
RB1-0 HIGH



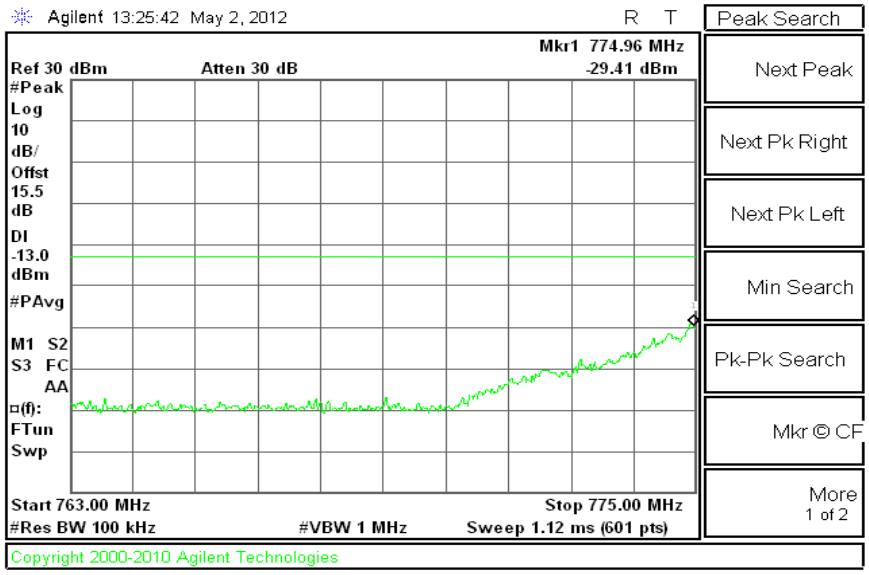
RB1-49 LOW



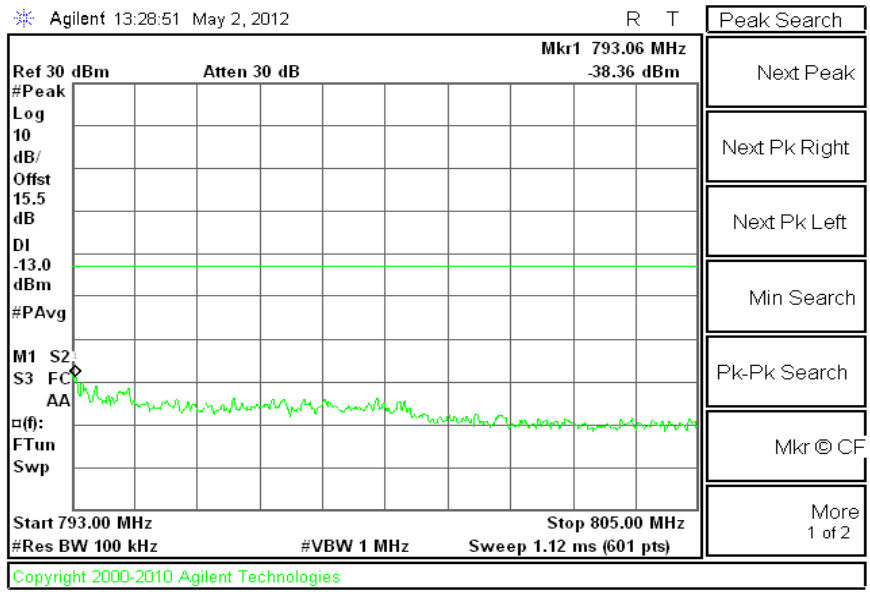
RB1-49 HIGH



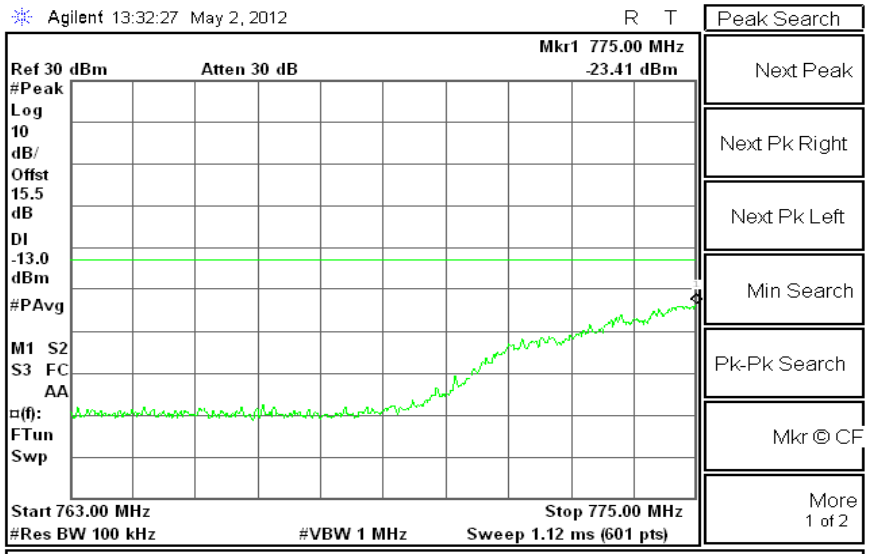
RB25-12 LOW



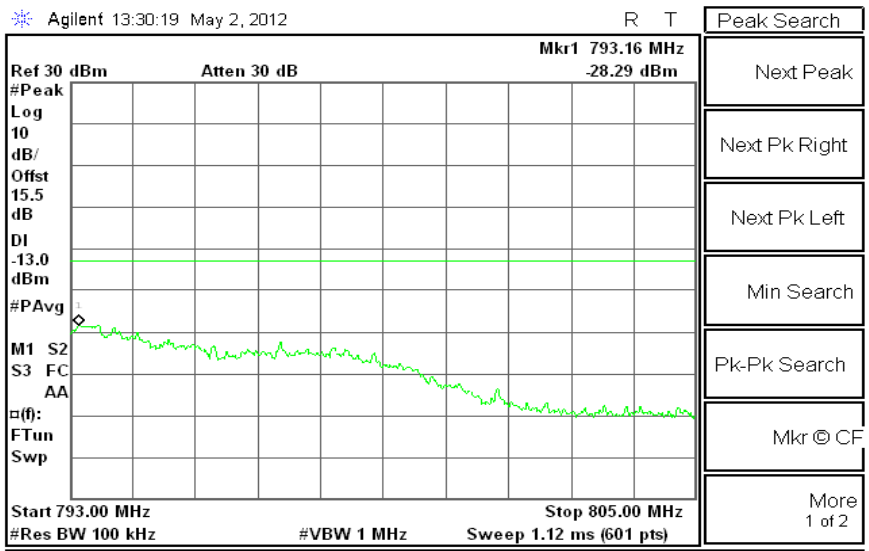
RB25-12 HIGH



RB50-0 LOW

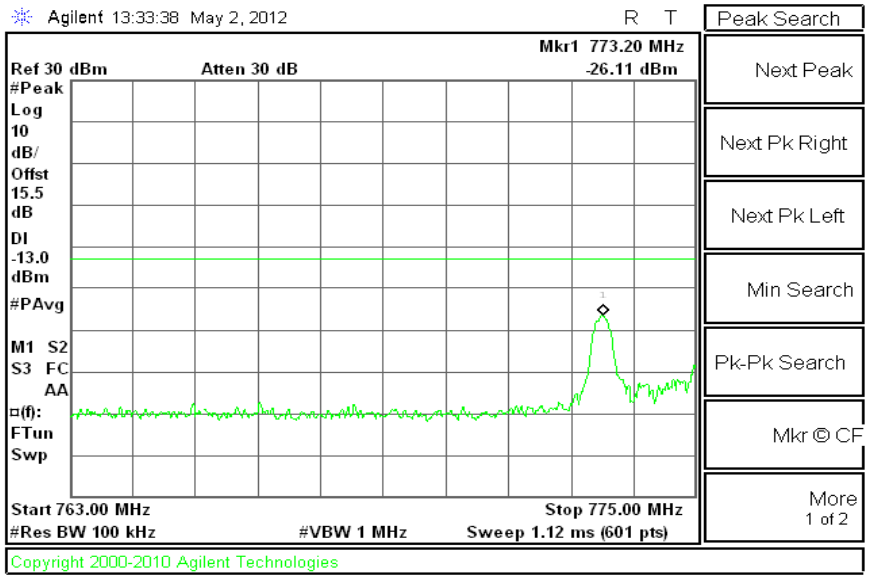


RB50-0 HIGH

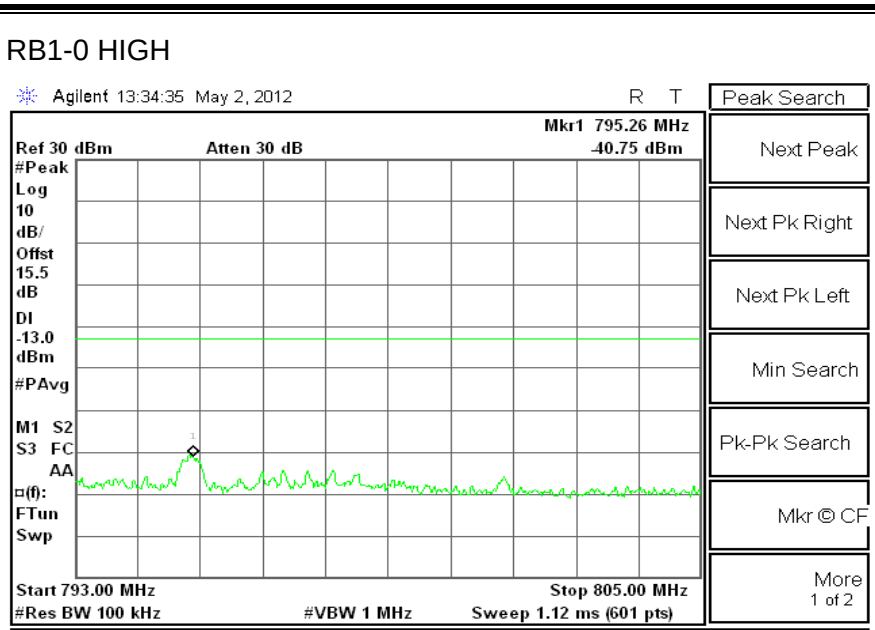


LTE 16QAM Band 13

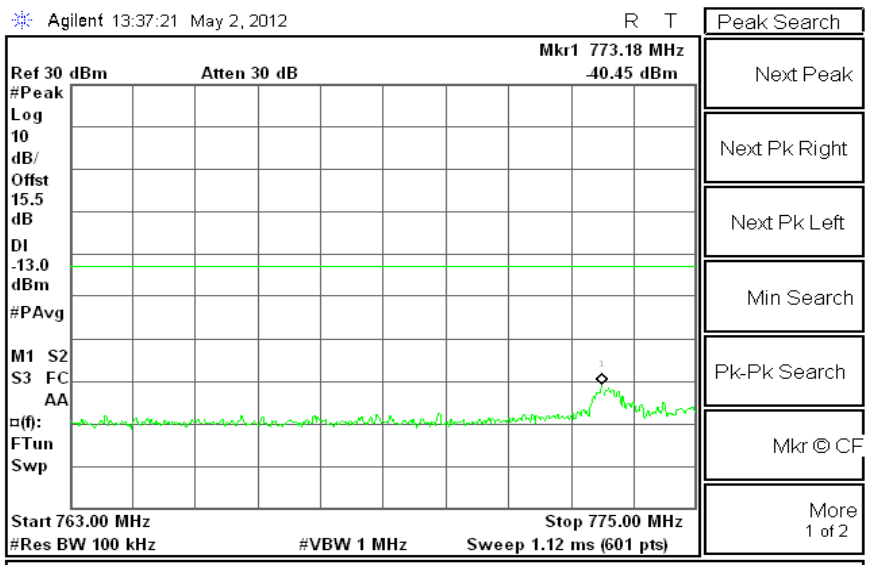
RB1-0 LOW



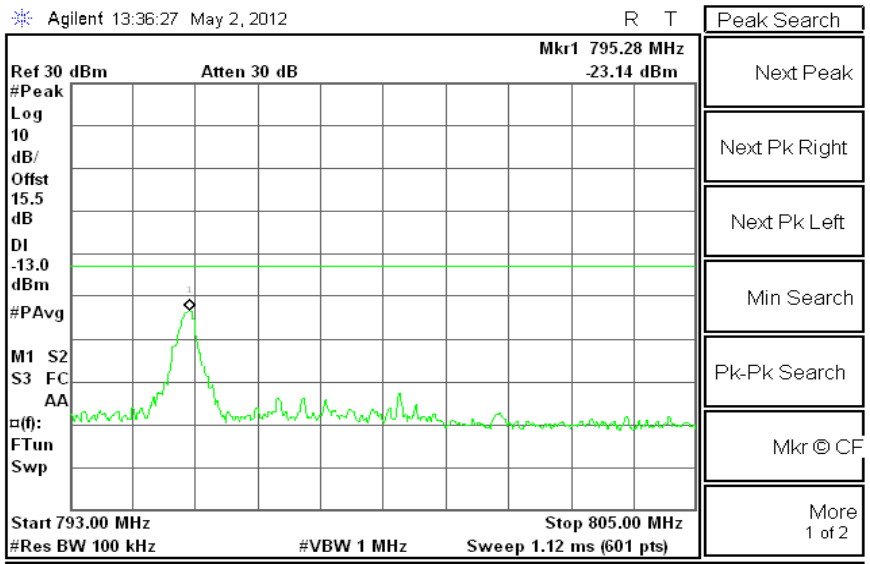
RB1-0 HIGH



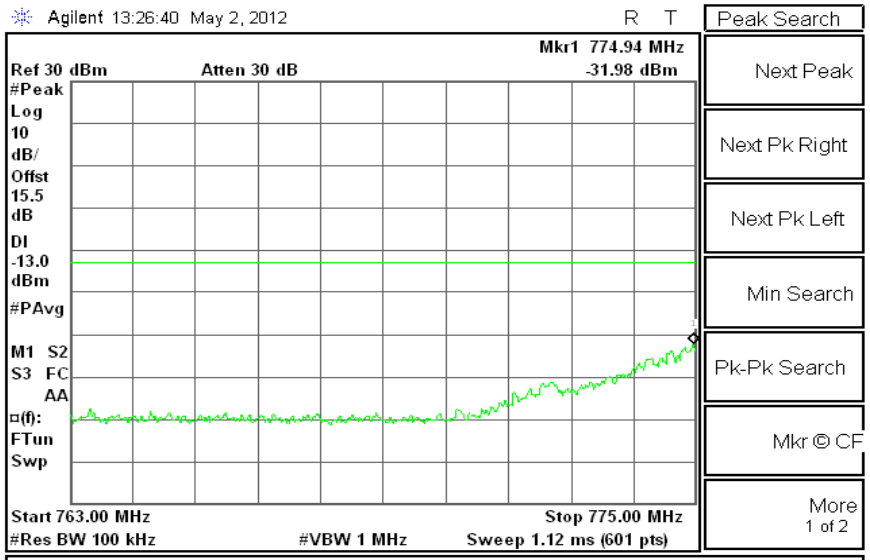
RB1-49 LOW



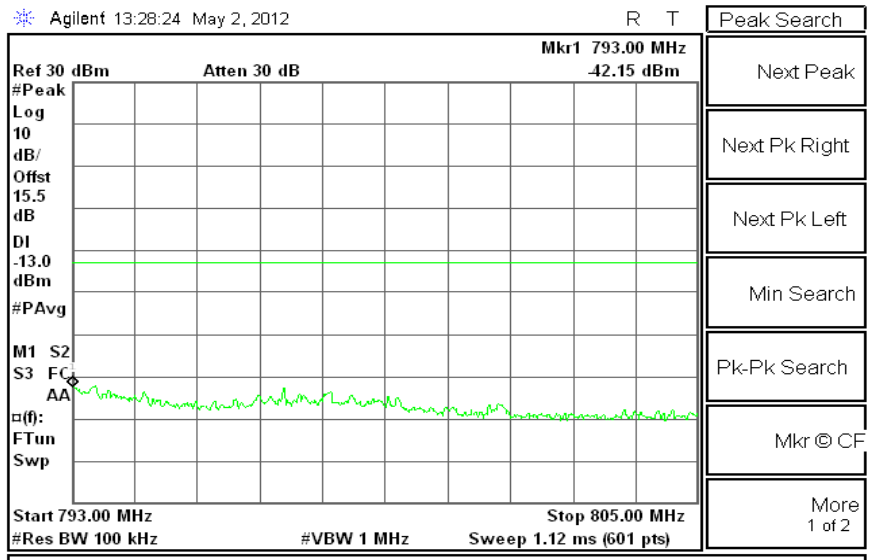
RB1-49 HIGH



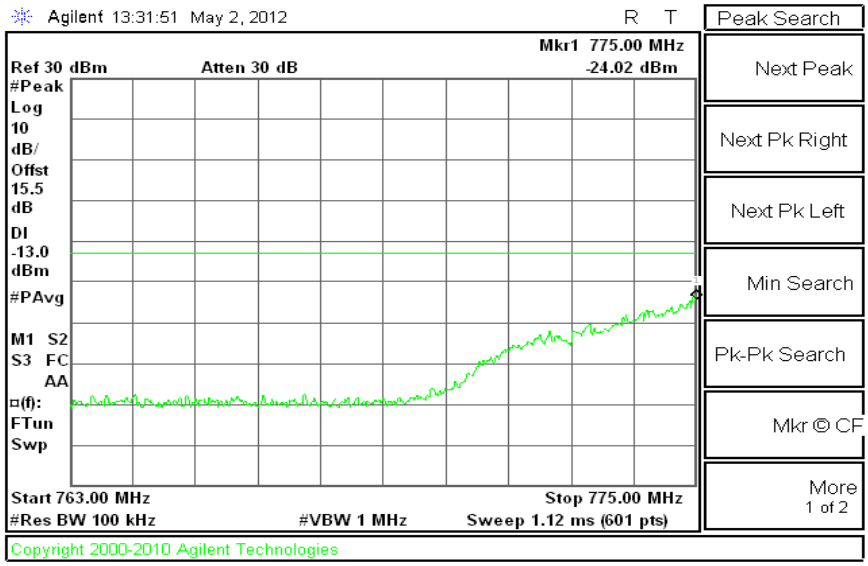
RB25-12 LOW



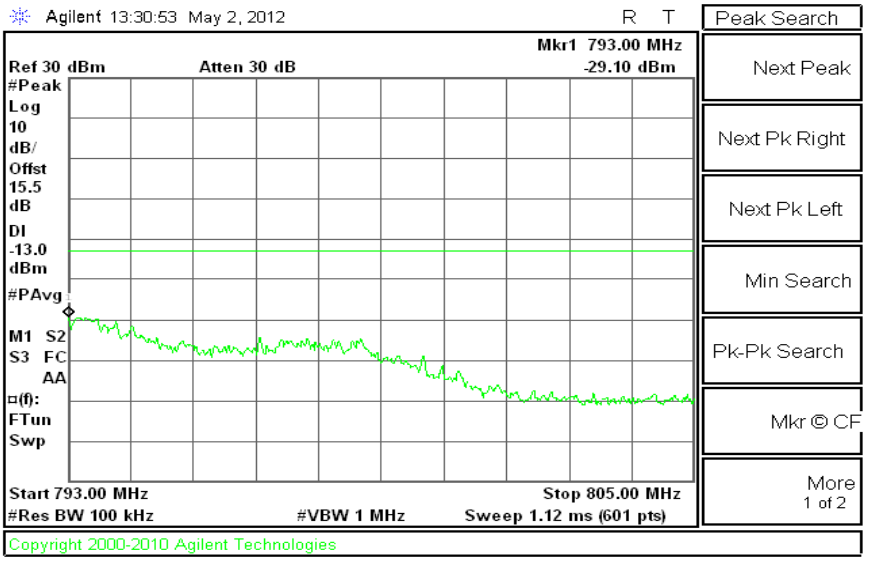
RB25-12 HIGH



RB50-0 LOW



RB50-0 HIGH



8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238

LIMITS

The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

TEST PROCEDURE

The RF output of the transmitter was connected to a spectrum analyzer through a calibrated coaxial cable. Sufficient scans were taken to show the out-of-band Emissions, if any, up to 10th harmonic. Multiple sweeps were recorded in maximum hold mode using a peak detector to ensure that the worst-case emissions were caught.

For each out of band emissions measurement:

- Set display line at -13 dBm
- Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

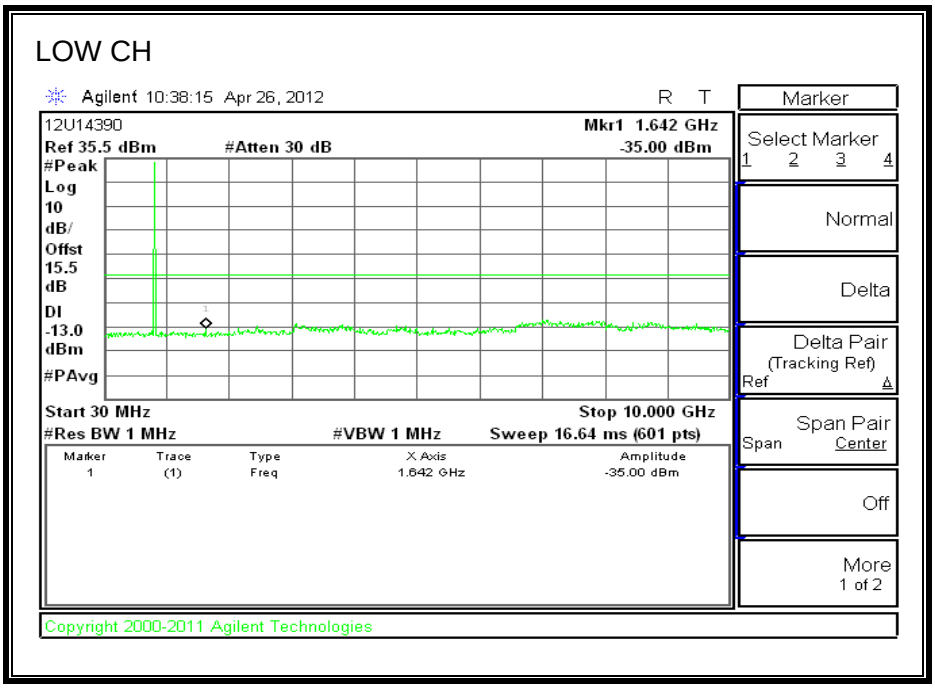
MODES TESTED

- GSM, GPRS and EGPRS
- 1xRTT – RC1, SO2
- WCDMA REL. 99, HSDPA
- LTE BAND 13

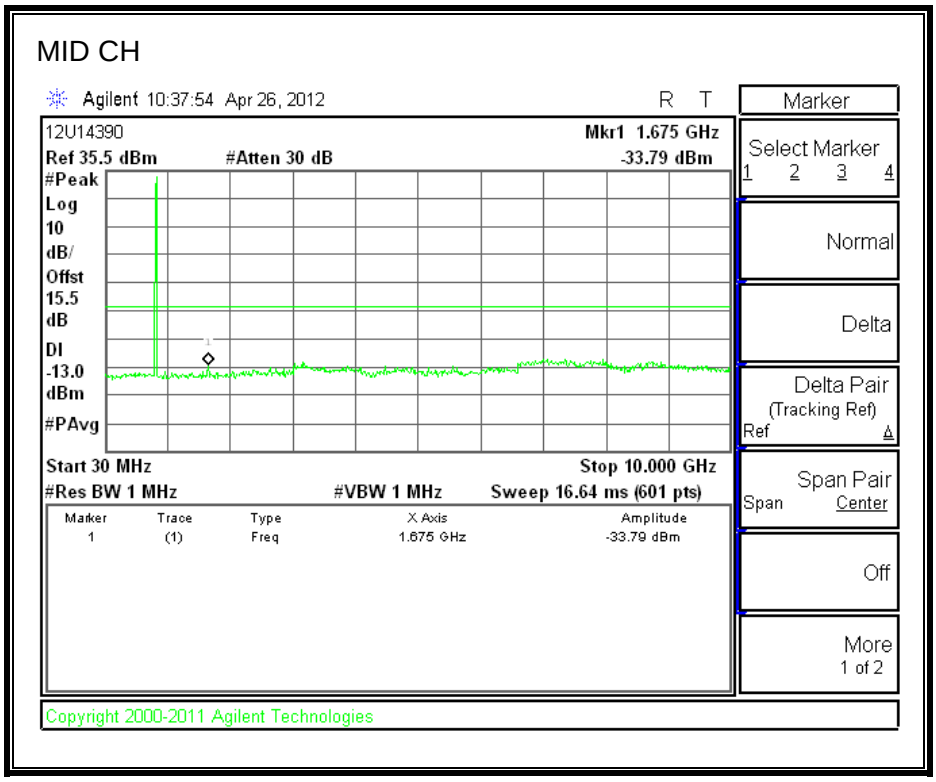
RESULTS

GSM850 BAND

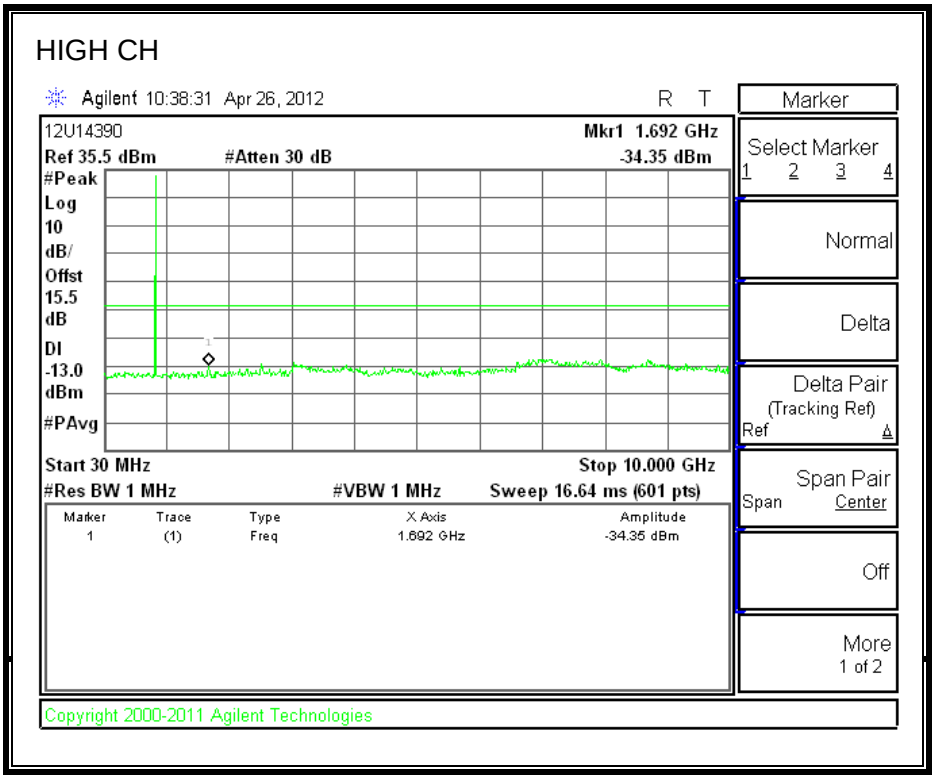
LOW CH



MID CH

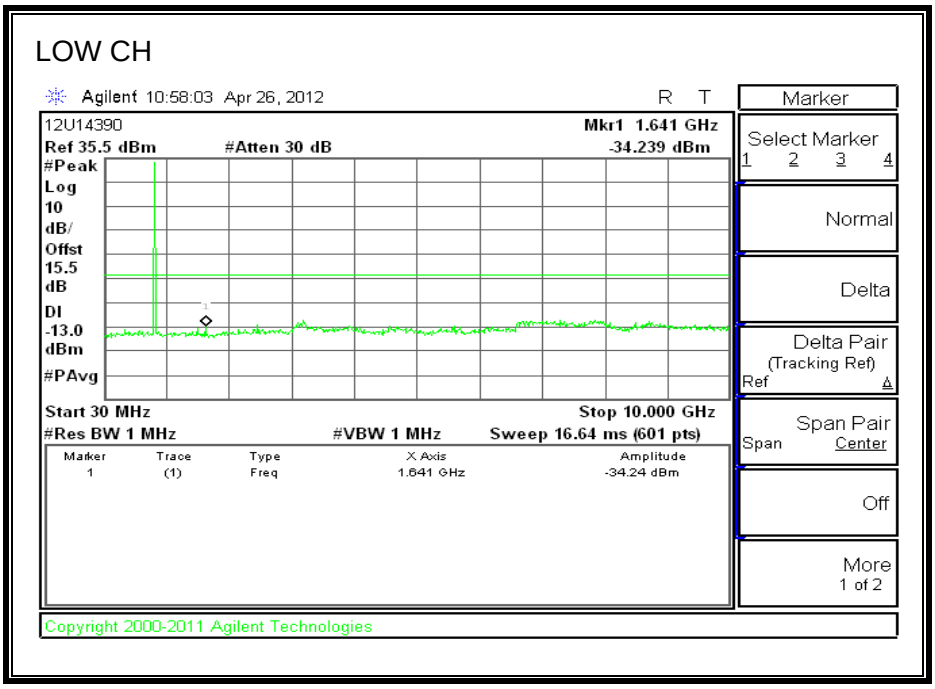


HIGH CH

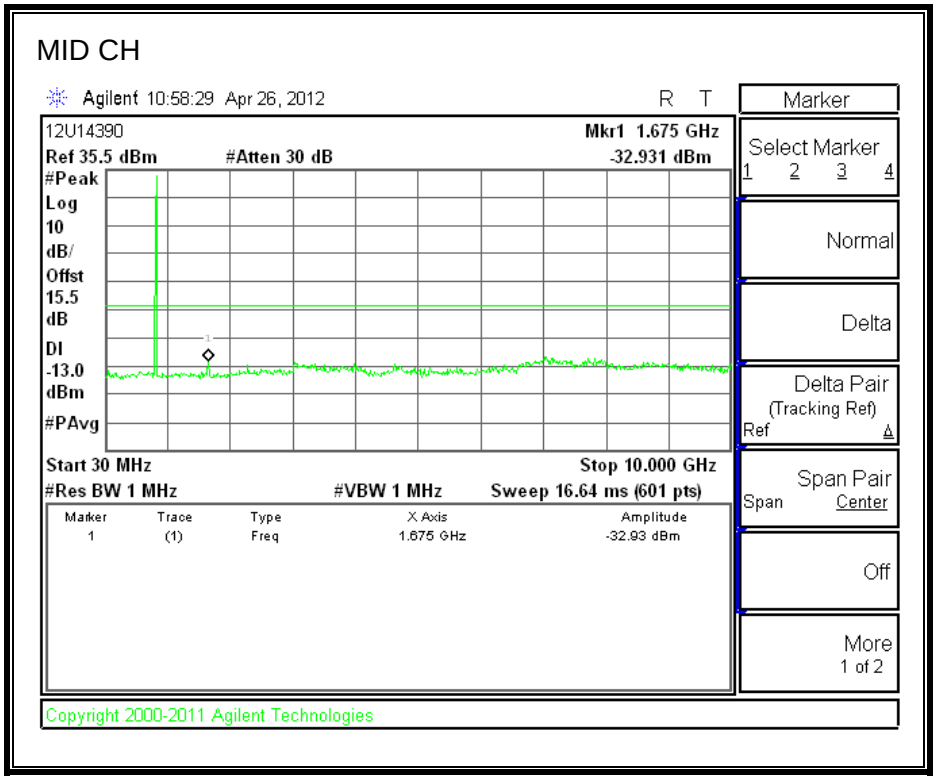


GPRS850 BAND

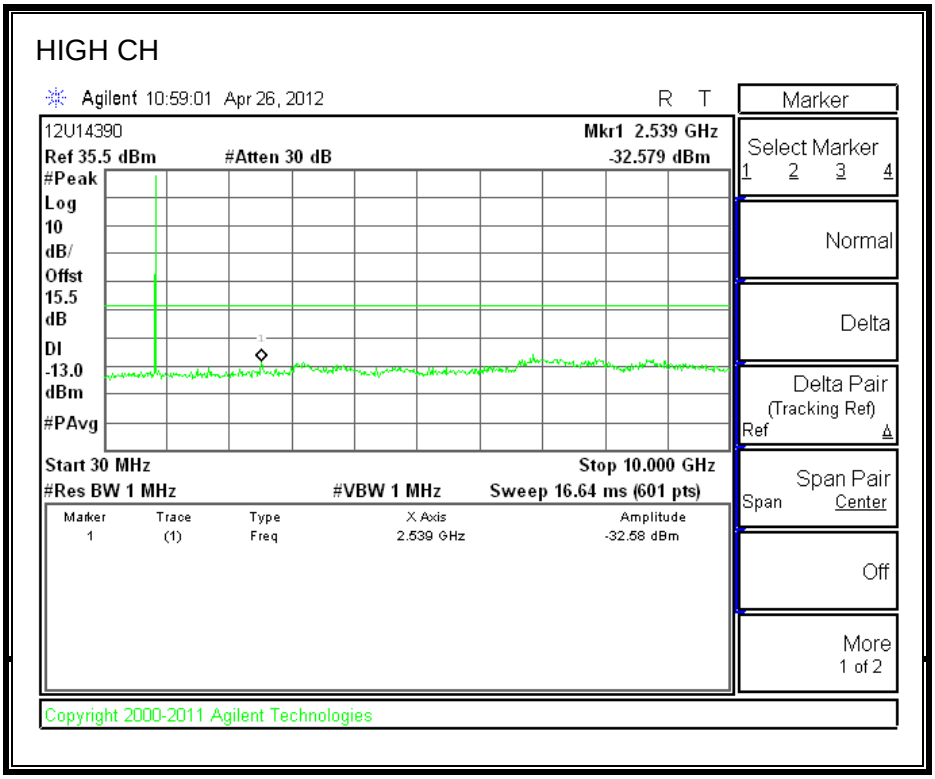
LOW CH



MID CH

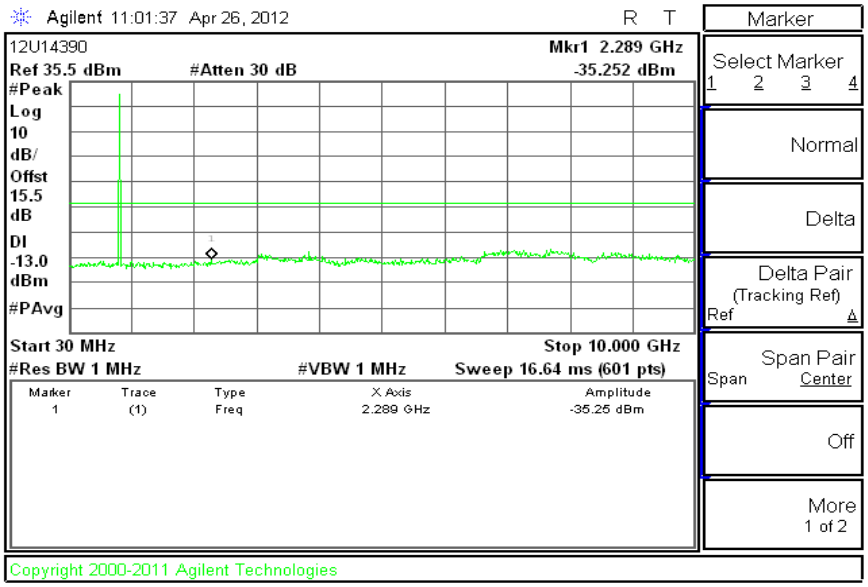


HIGH CH

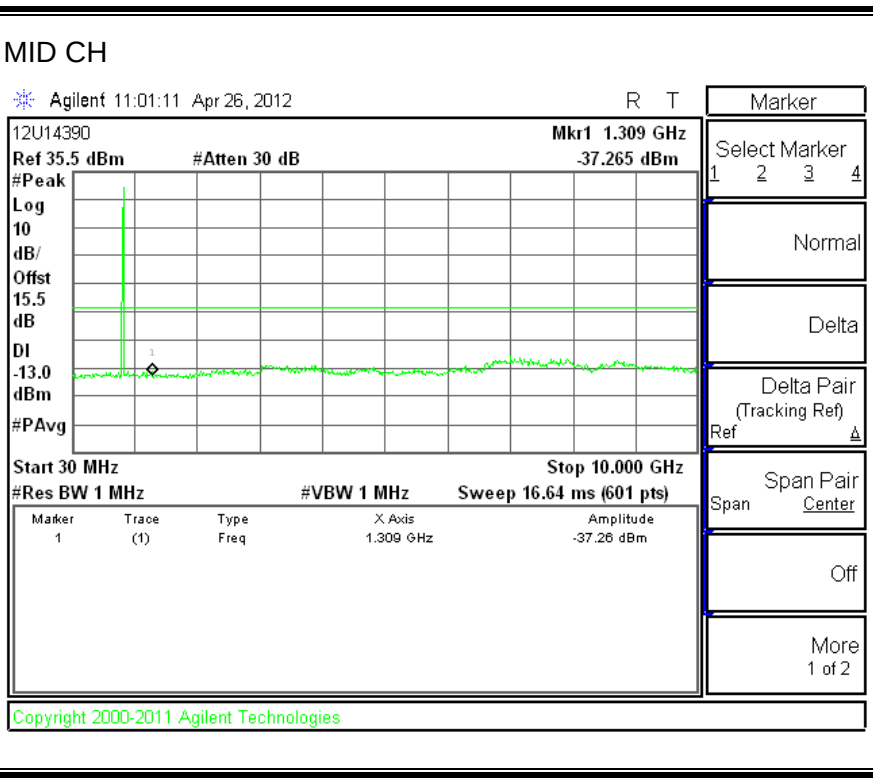


EGPRS850 BAND

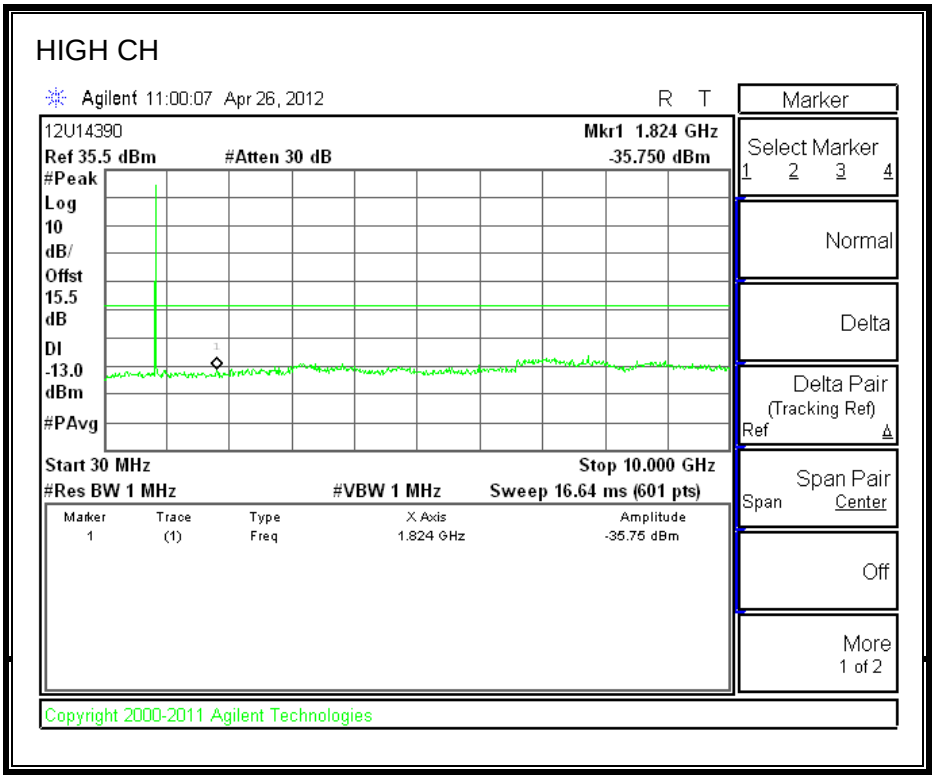
LOW CH



MID CH

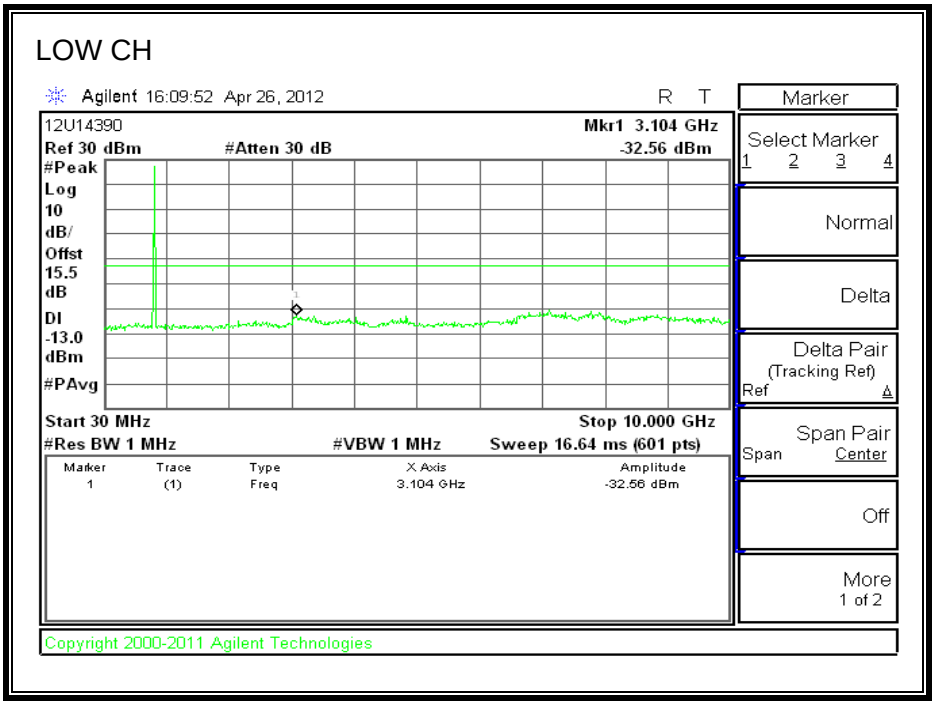


HIGH CH

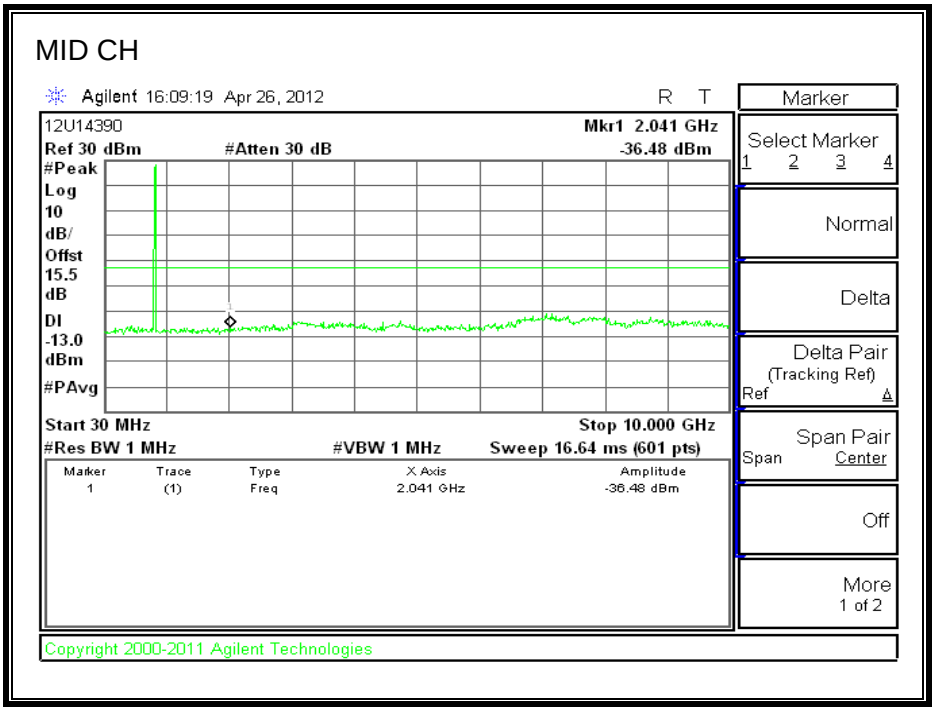


CDMA2000 1xRTT Cellular Band

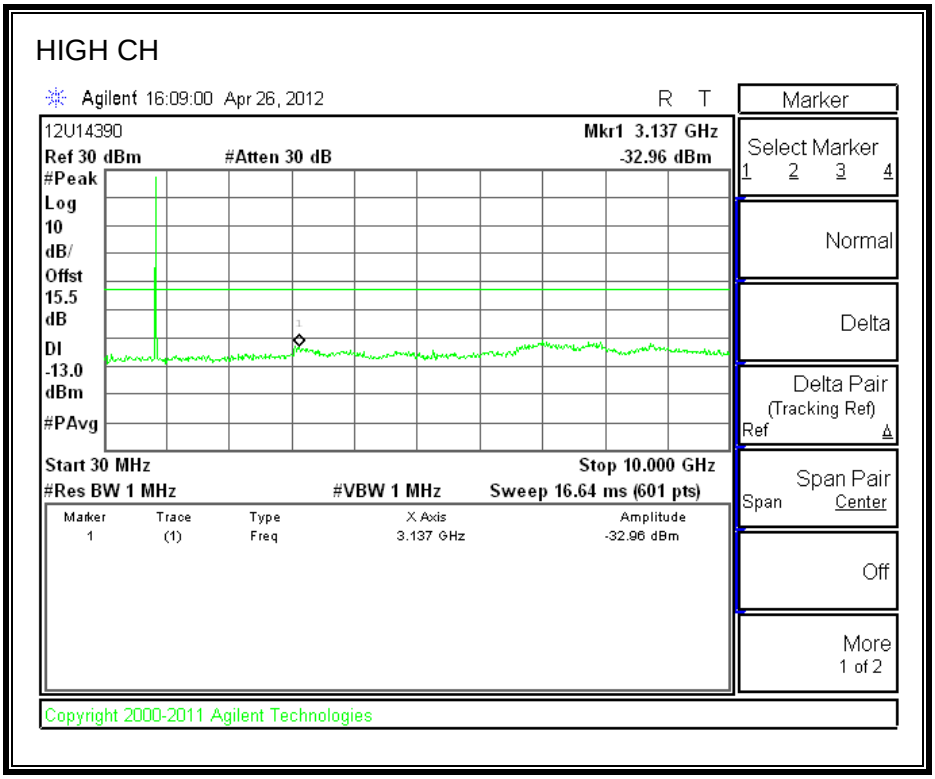
LOW CH



MID CH

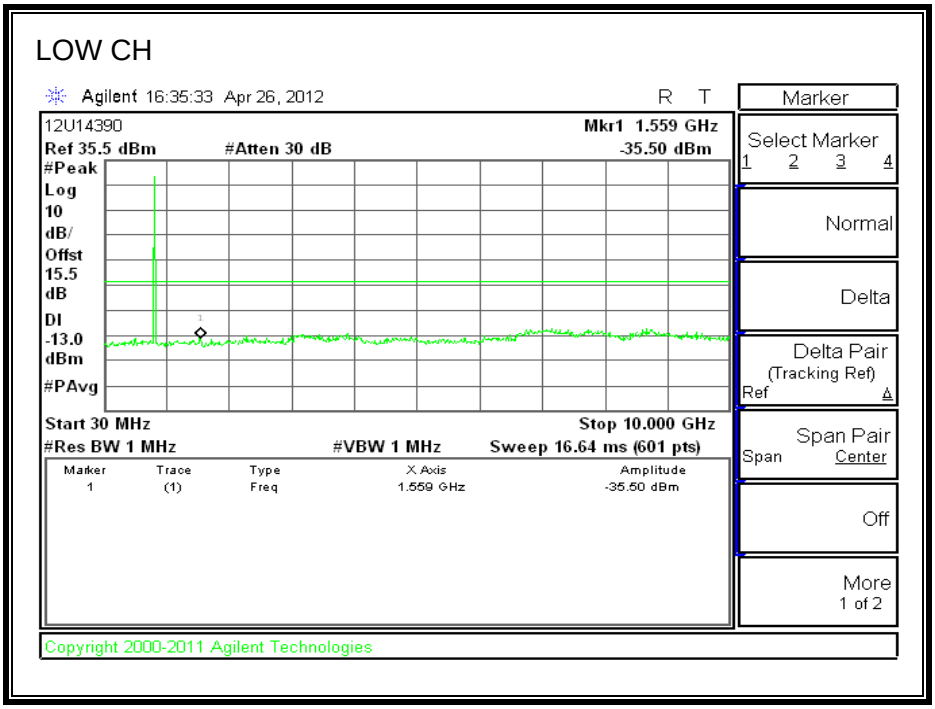


HIGH CH

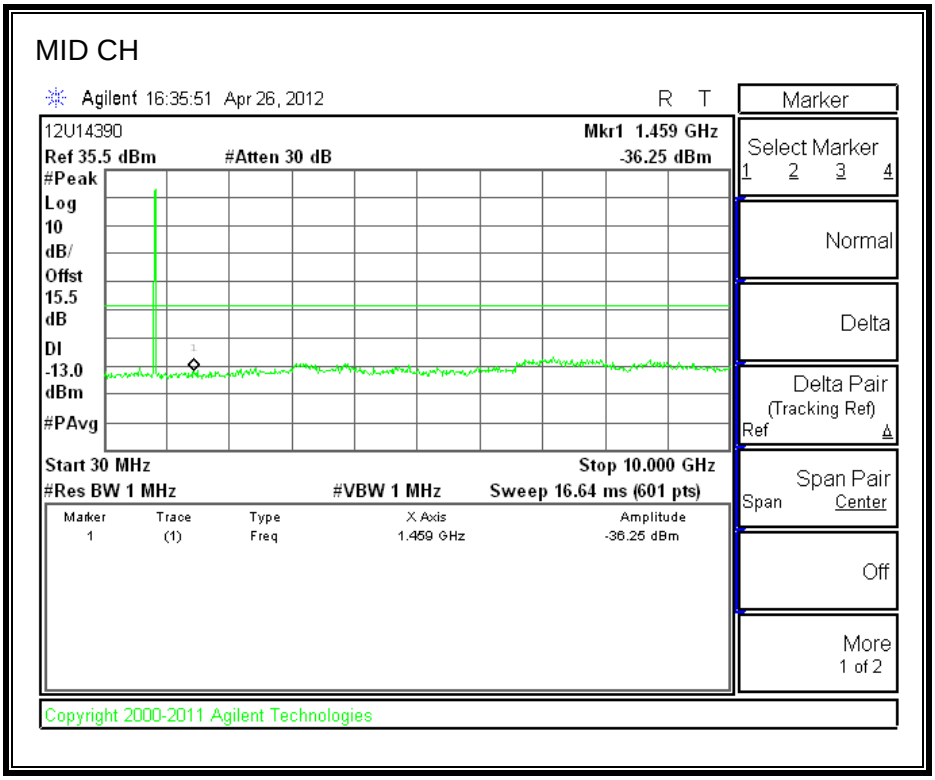


CDMA2000 EVDO REV A, Cellular Band

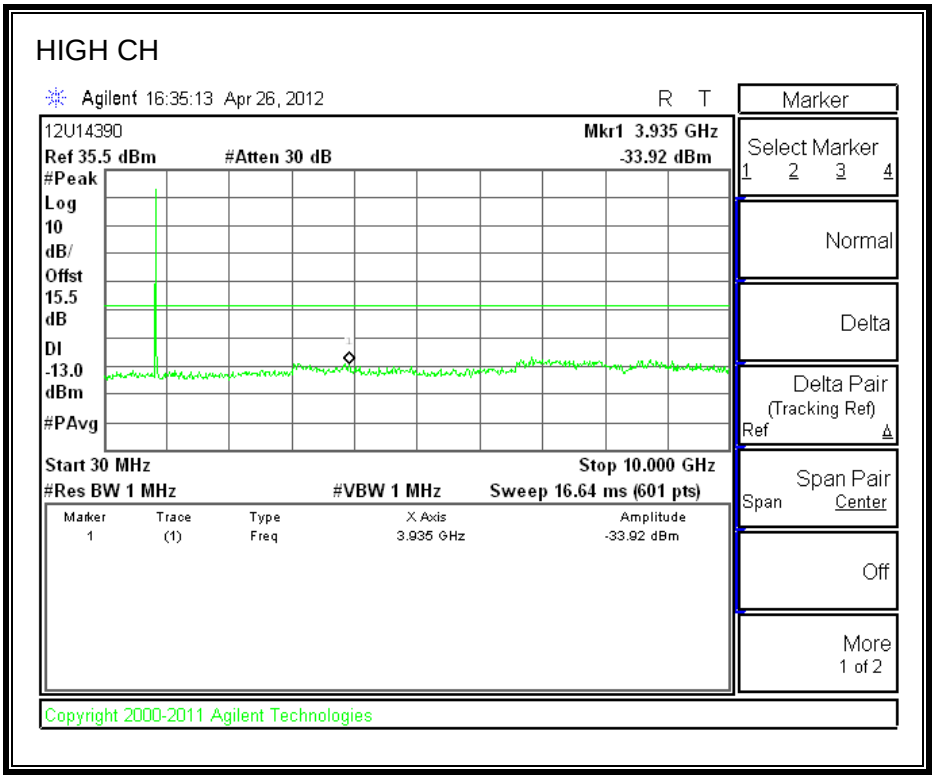
LOW CH



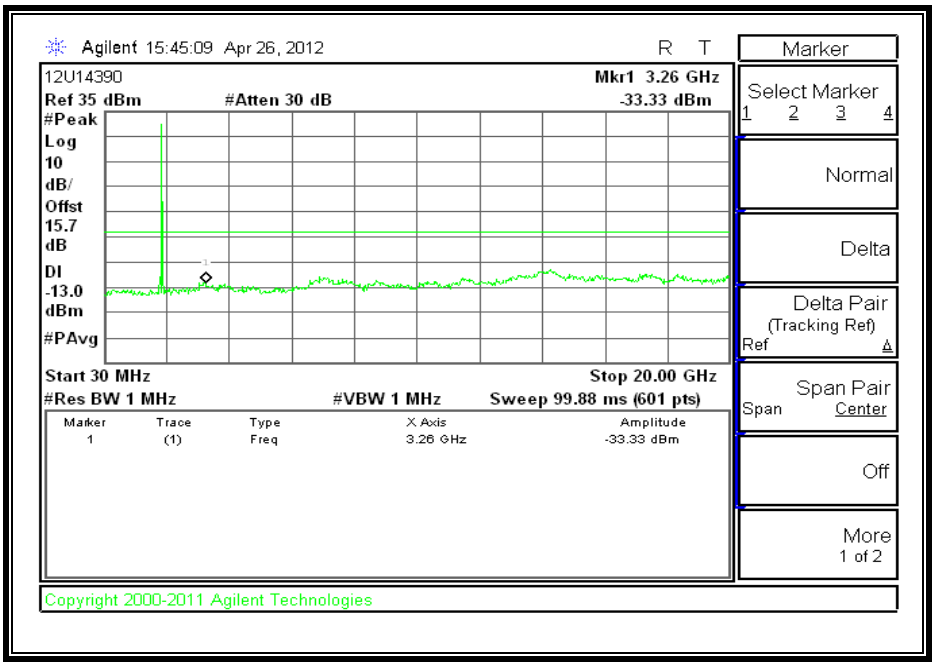
MID CH

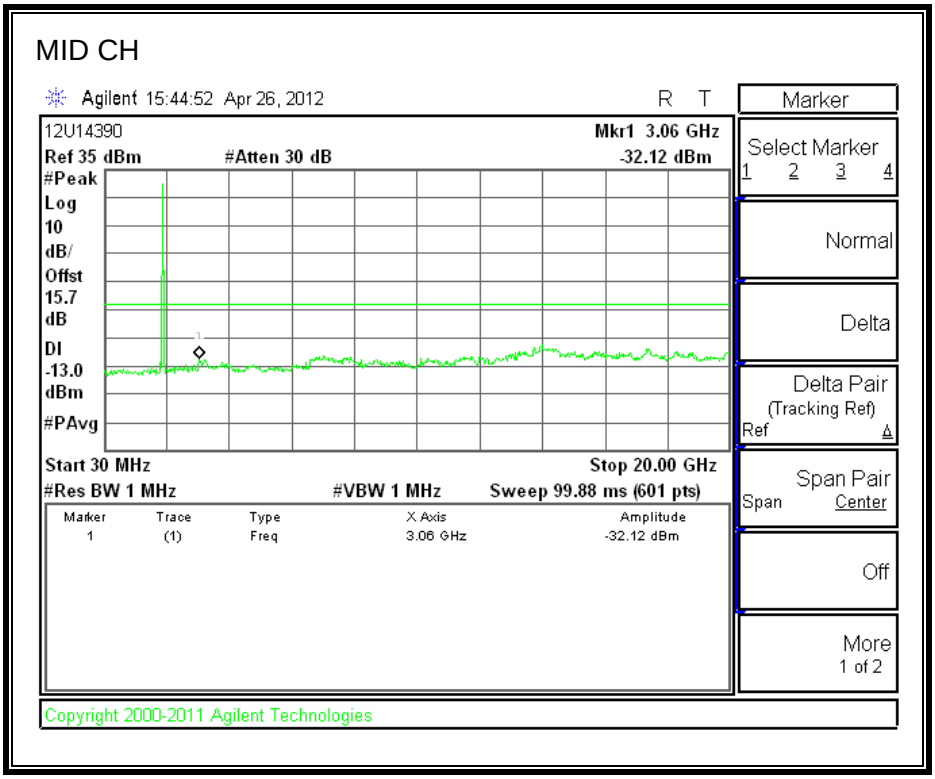


HIGH CH

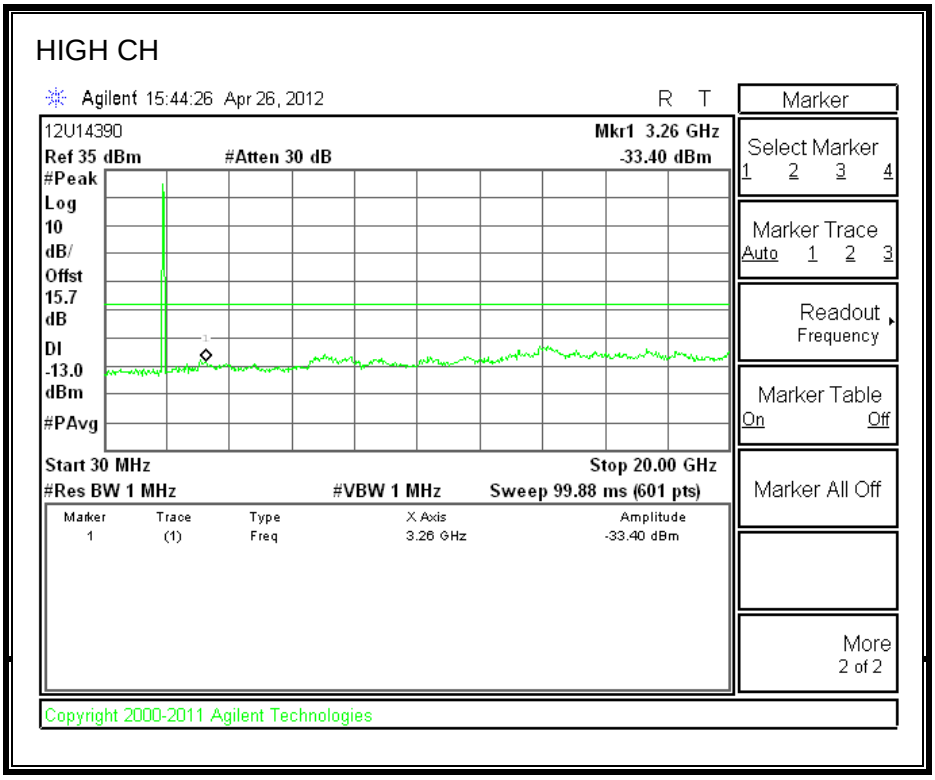


GSM1900 BAND

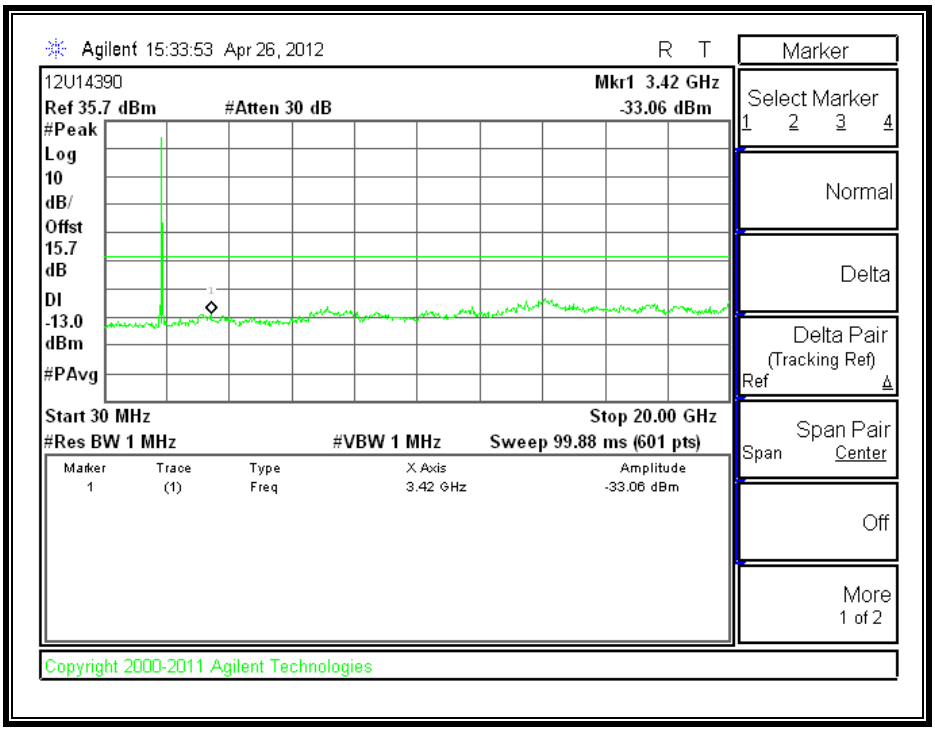


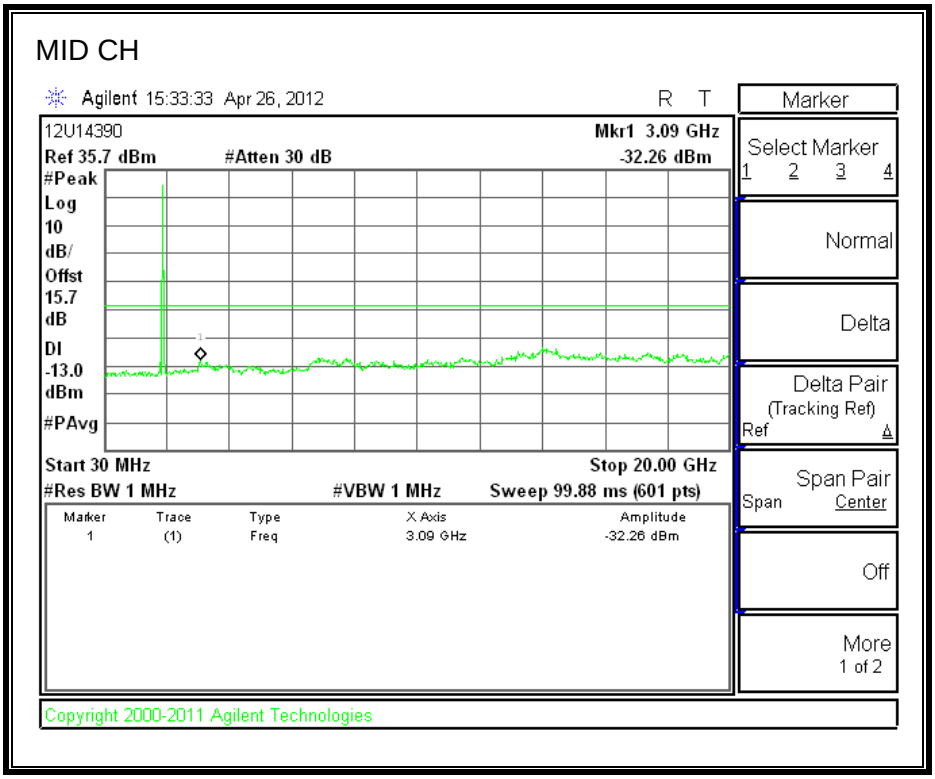


HIGH CH

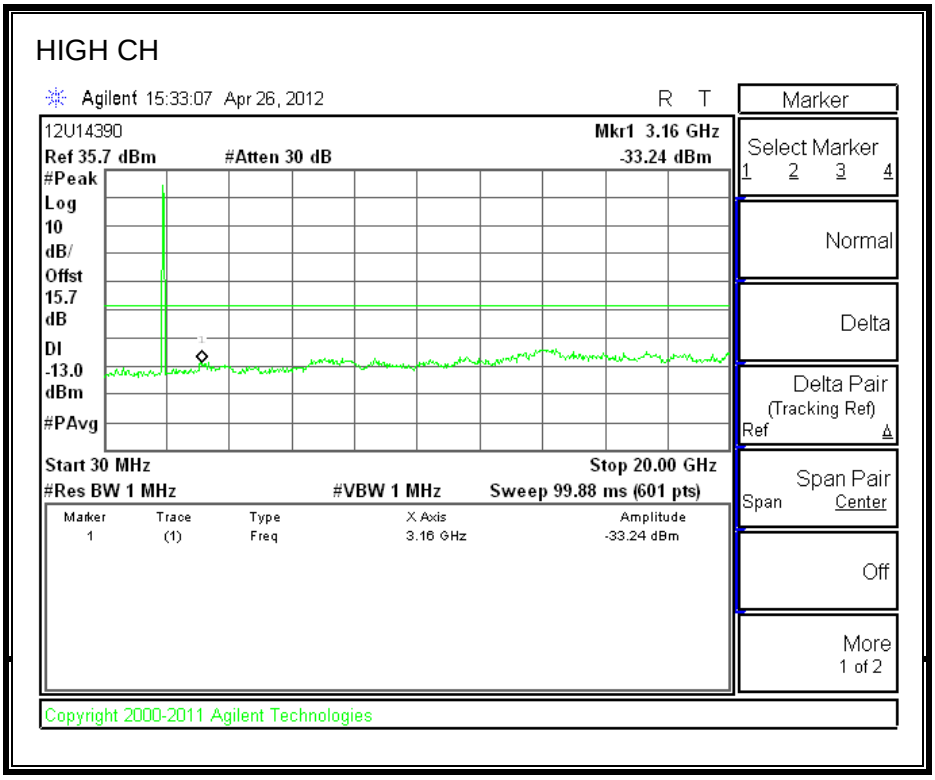


GPRS1900 BAND



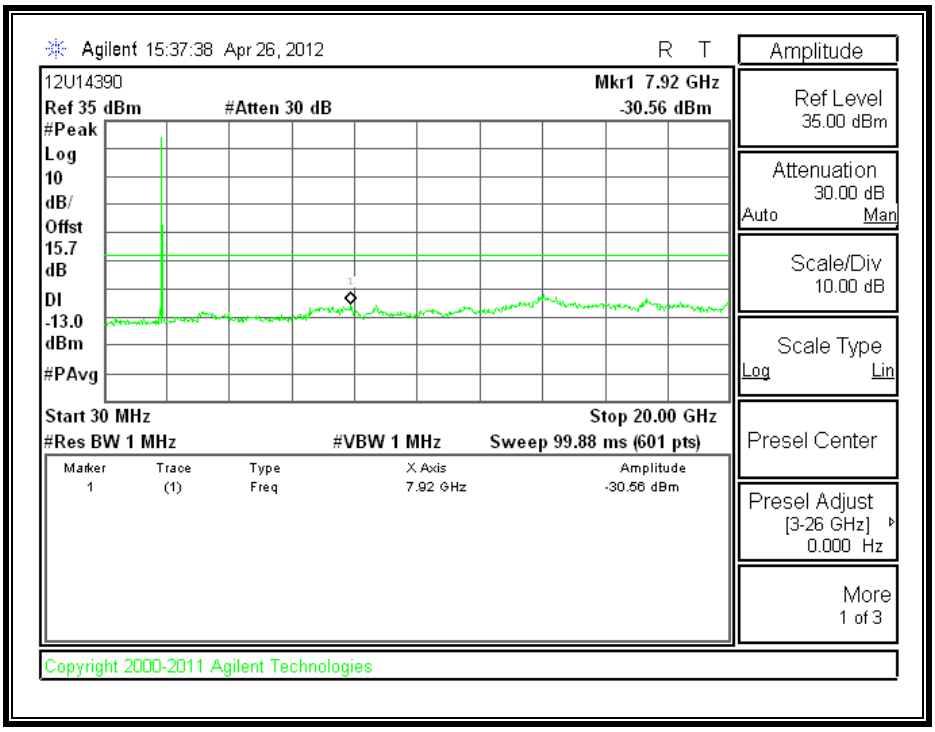


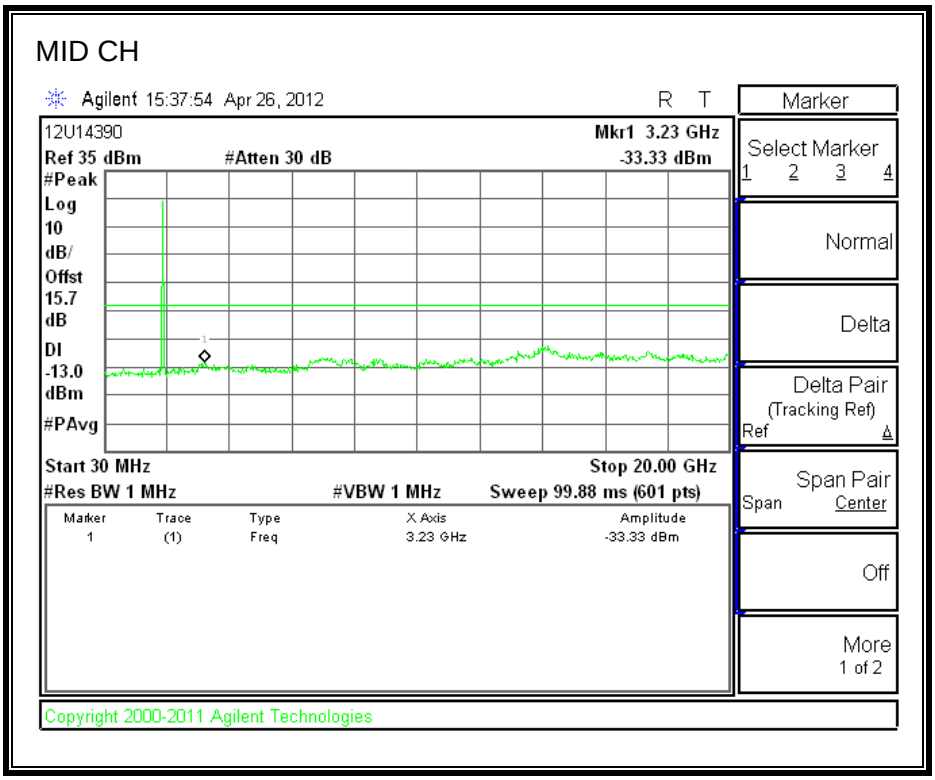
HIGH CH



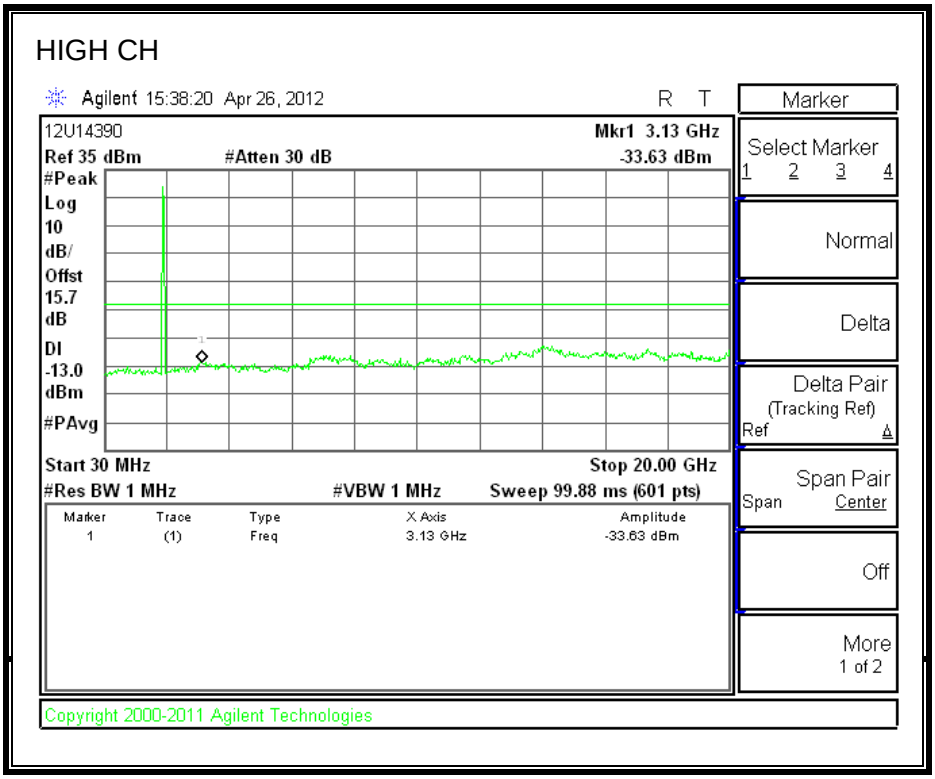
EGPRS1900 BAND

LOW CH



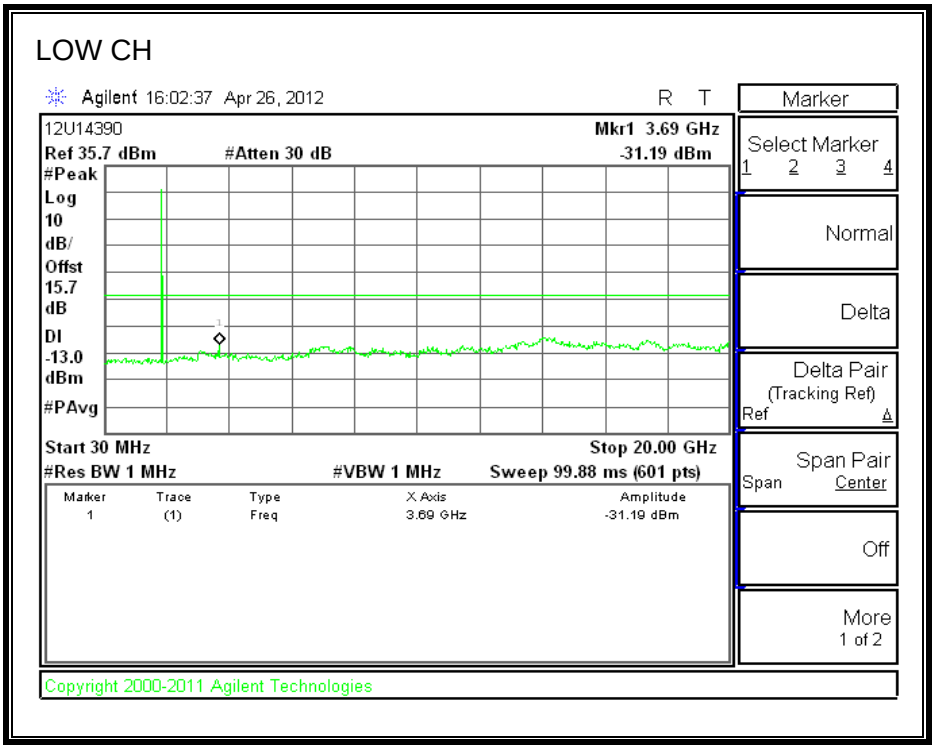


HIGH CH

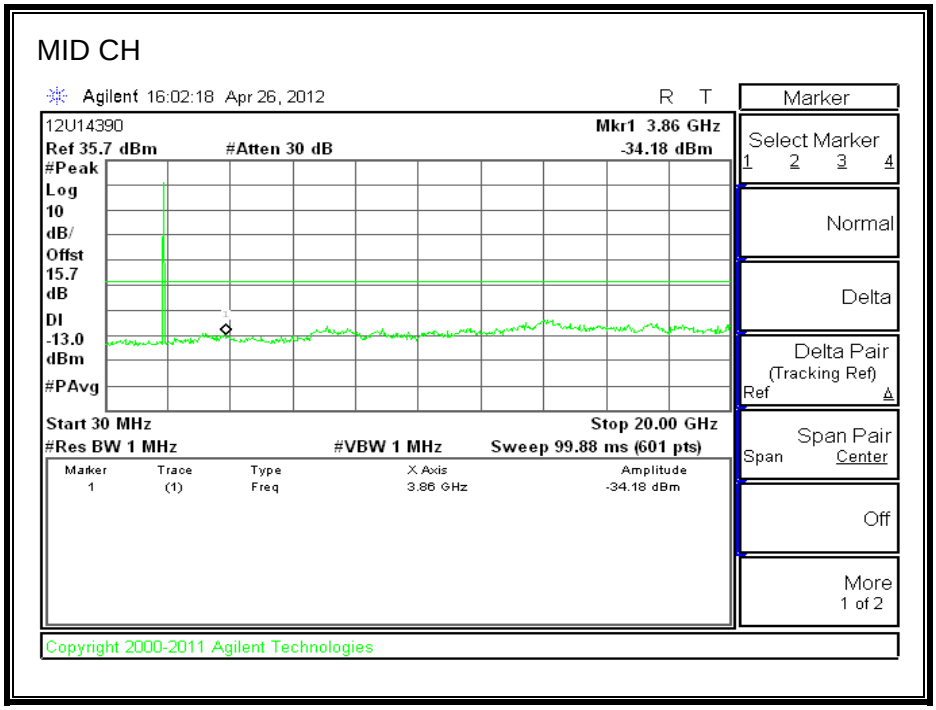


CDMA2000 1xRTT PCS Band

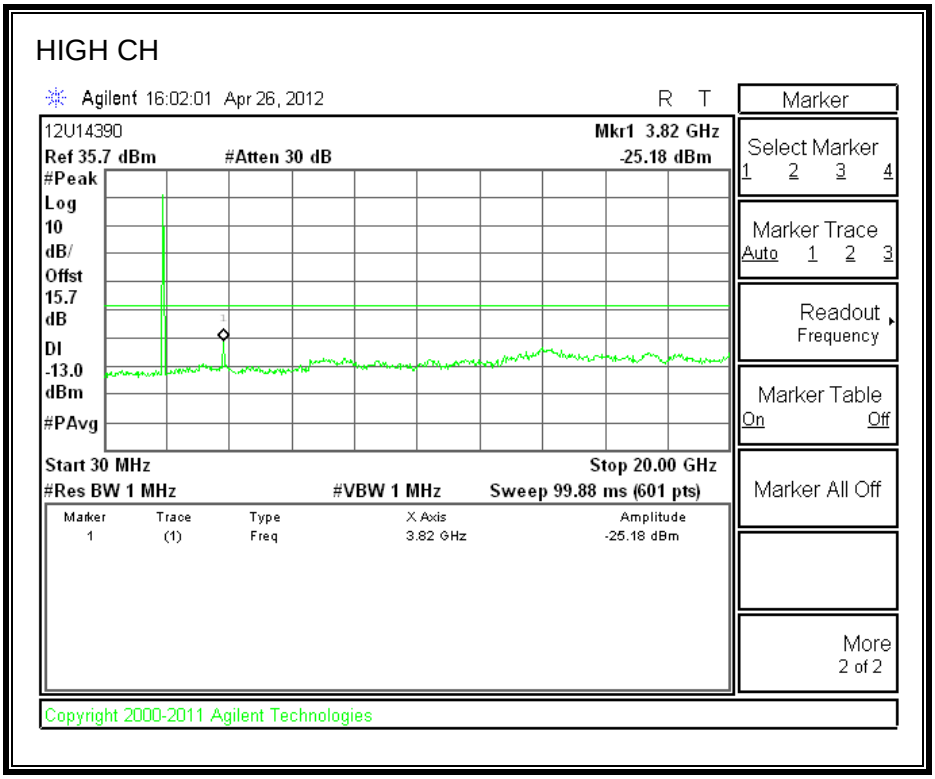
LOW CH



MID CH

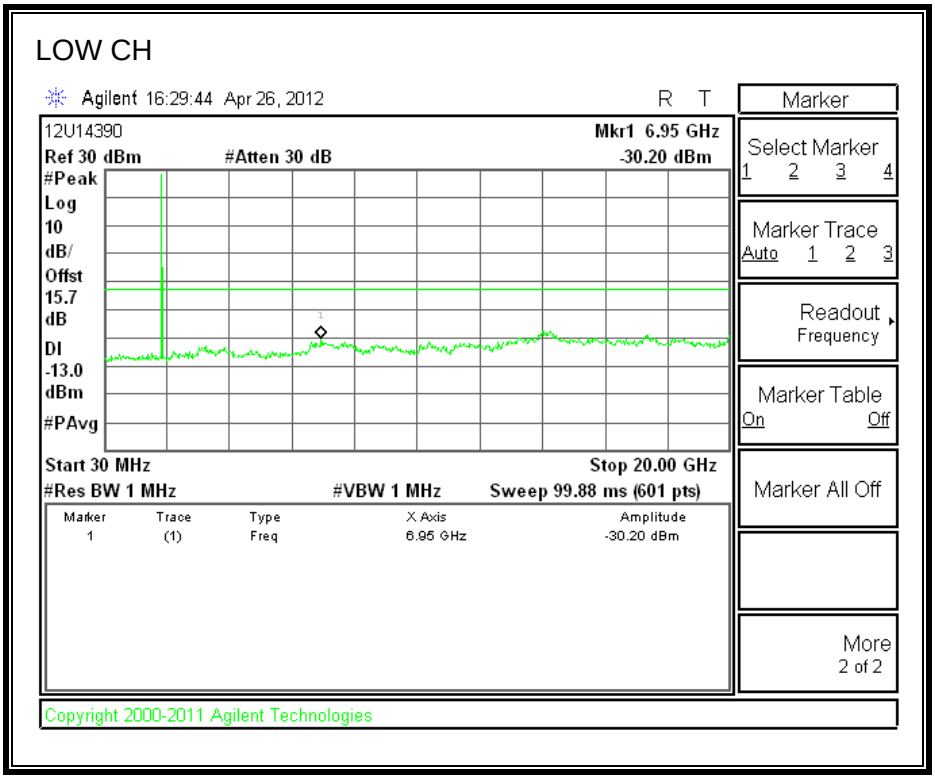


HIGH CH

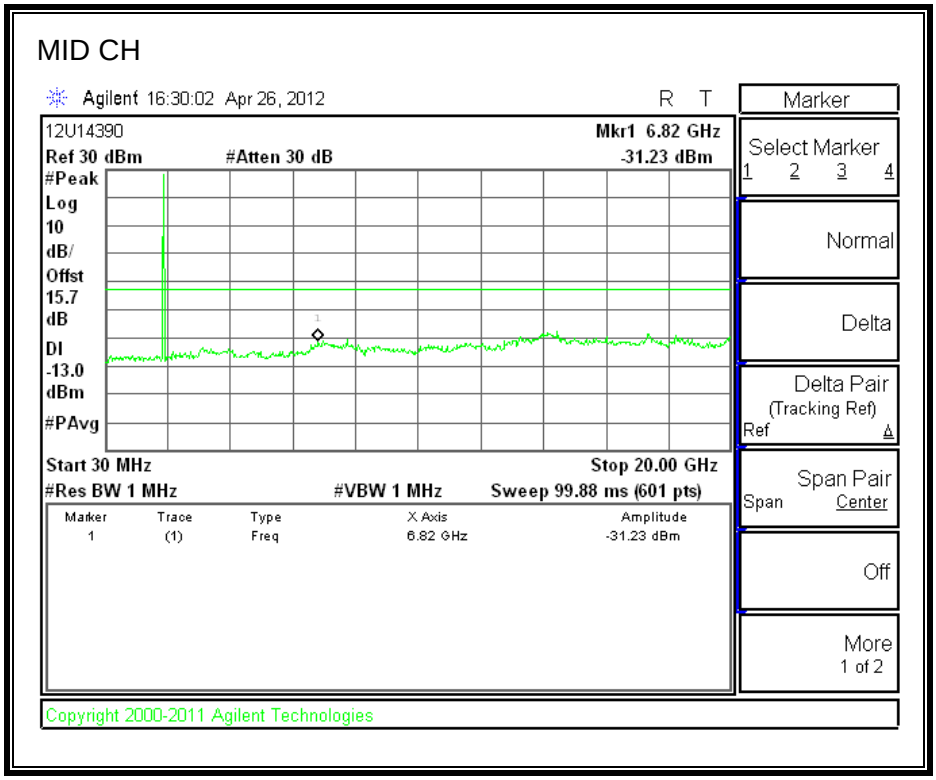


CDMA2000 EVDO REV A, PCS Band

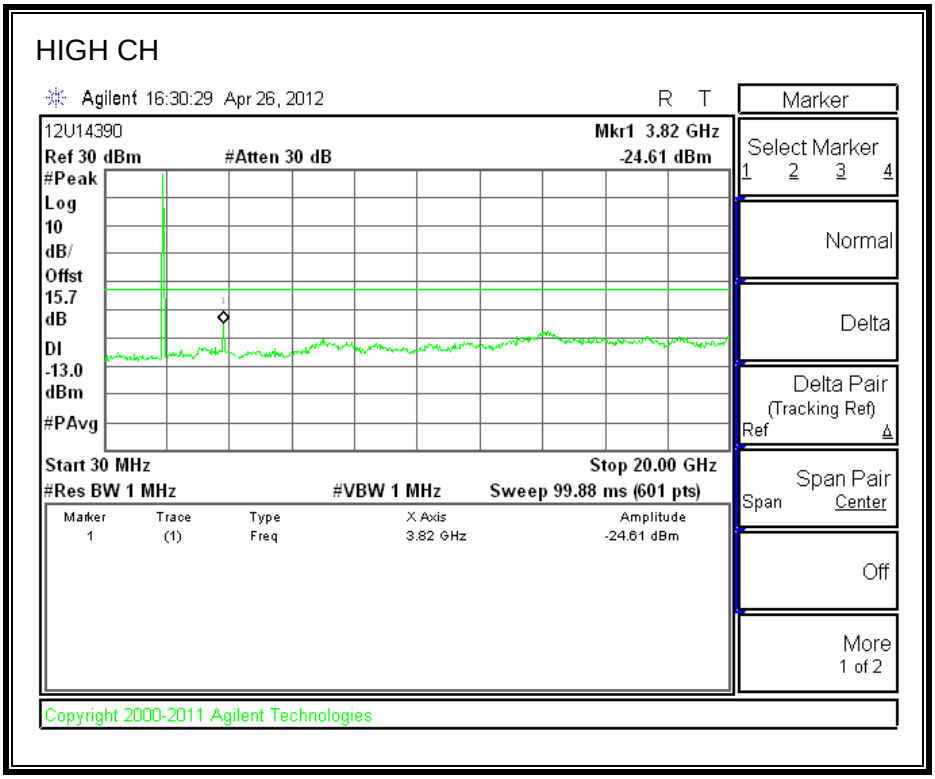
LOW CH



MID CH

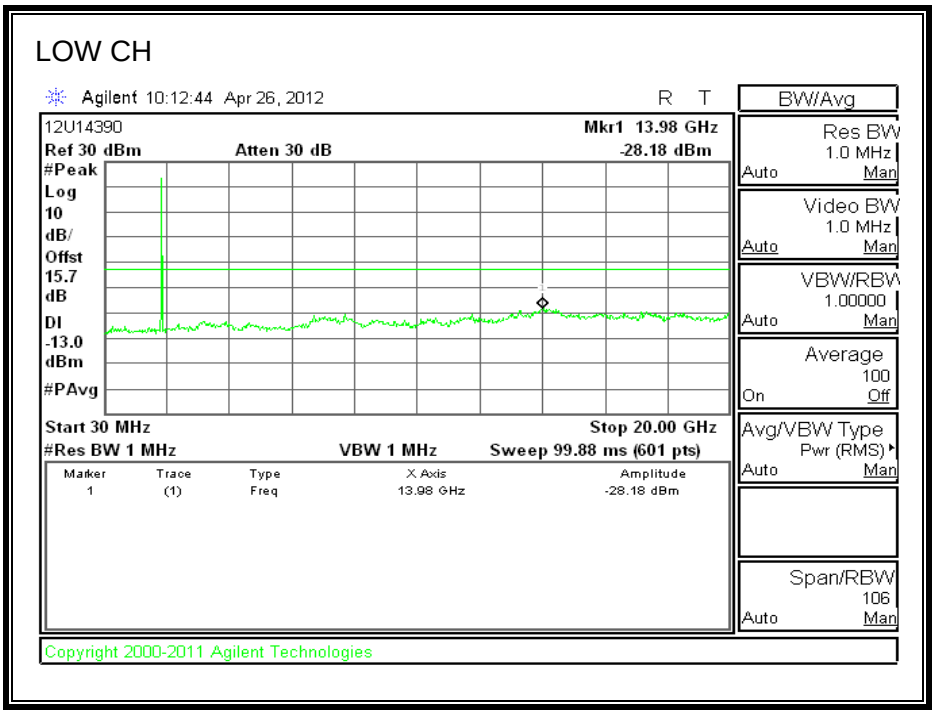


HIGH CH

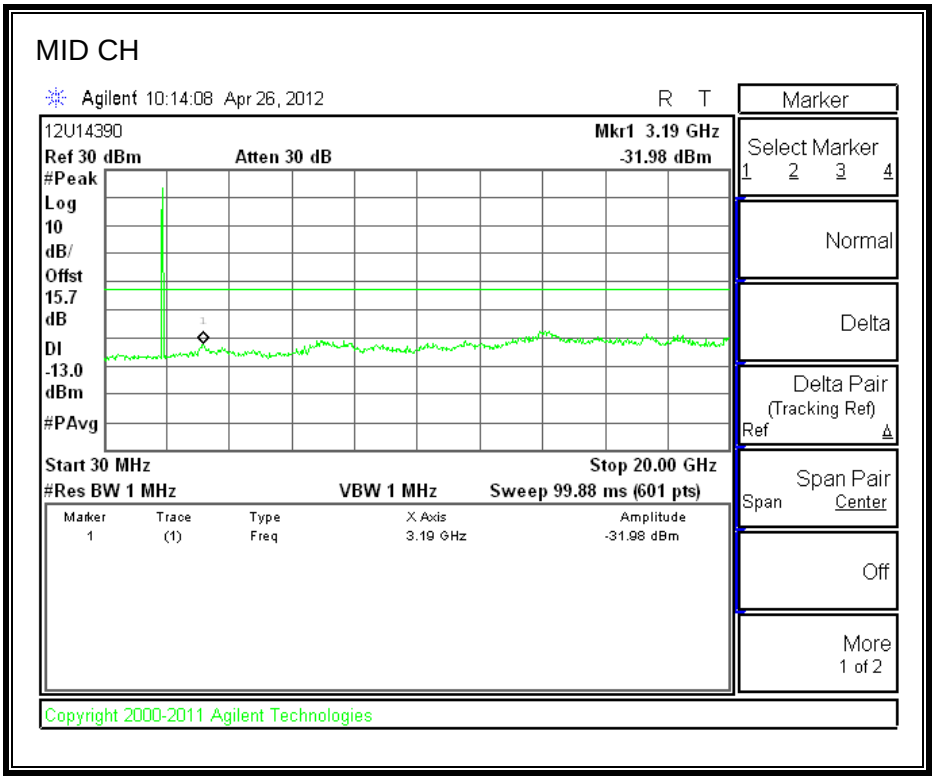


WCDMA REL 99. PCS Band

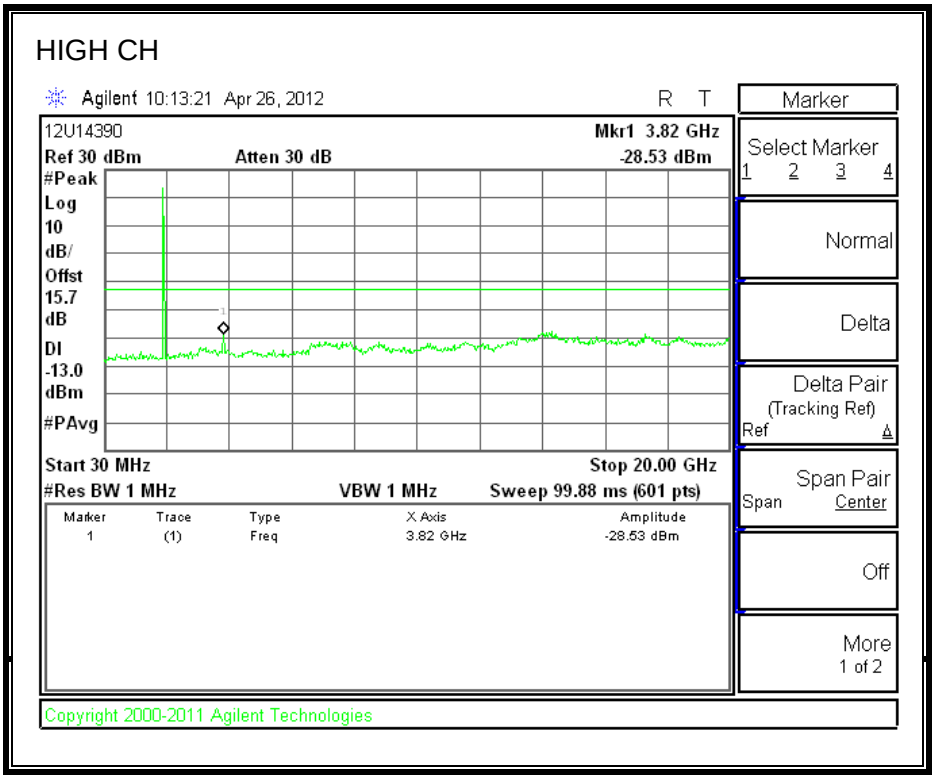
LOW CH



MID CH

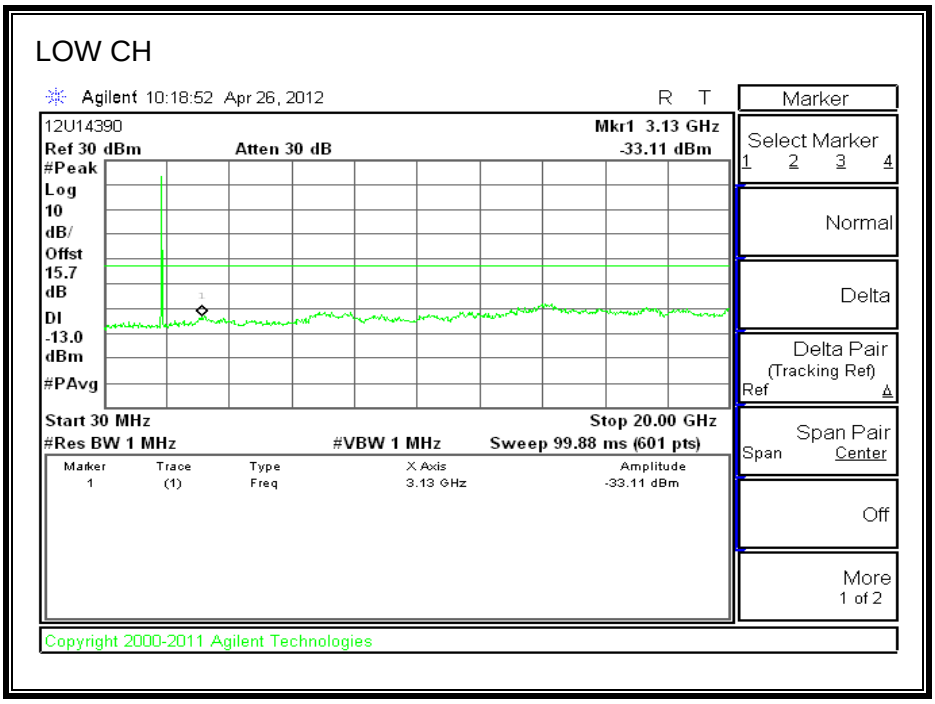


HIGH CH

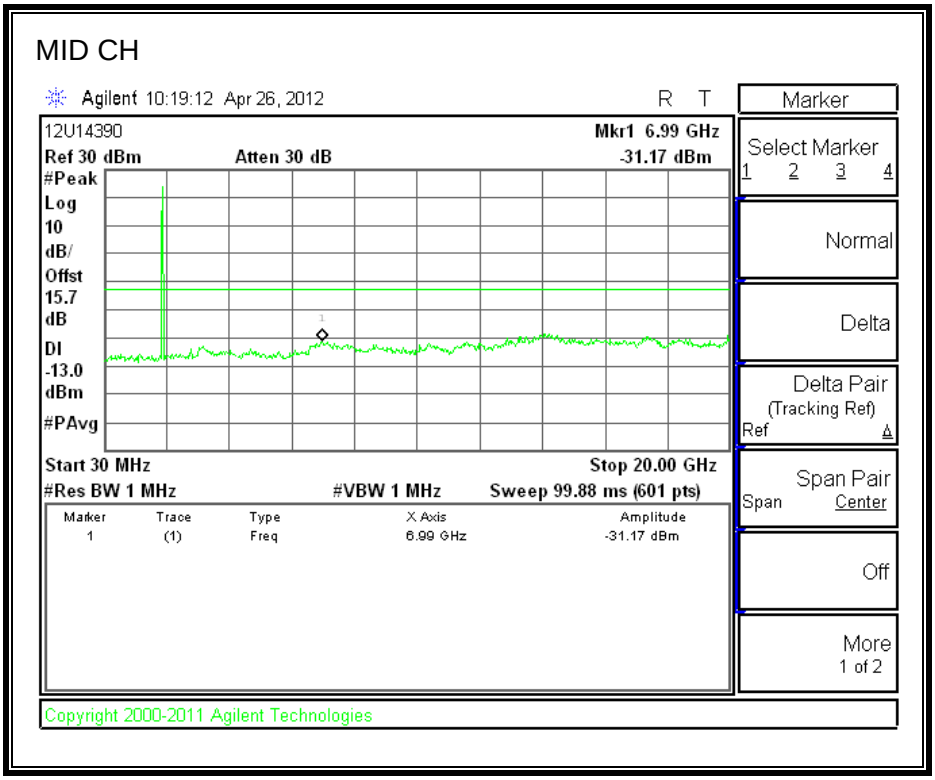


WCDMA HSDPA. PCS Band

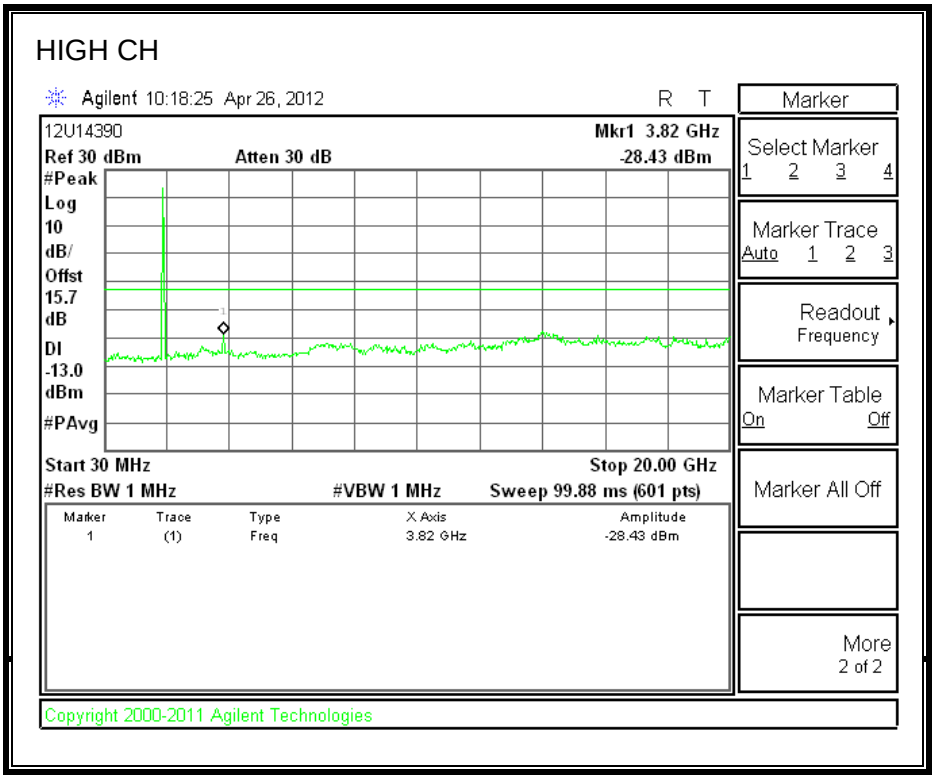
LOW CH



MID CH

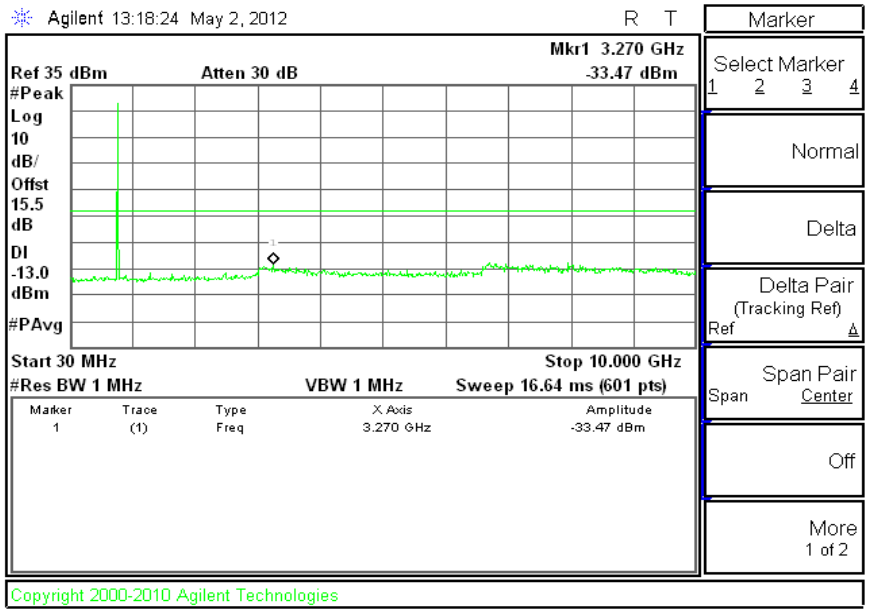


HIGH CH

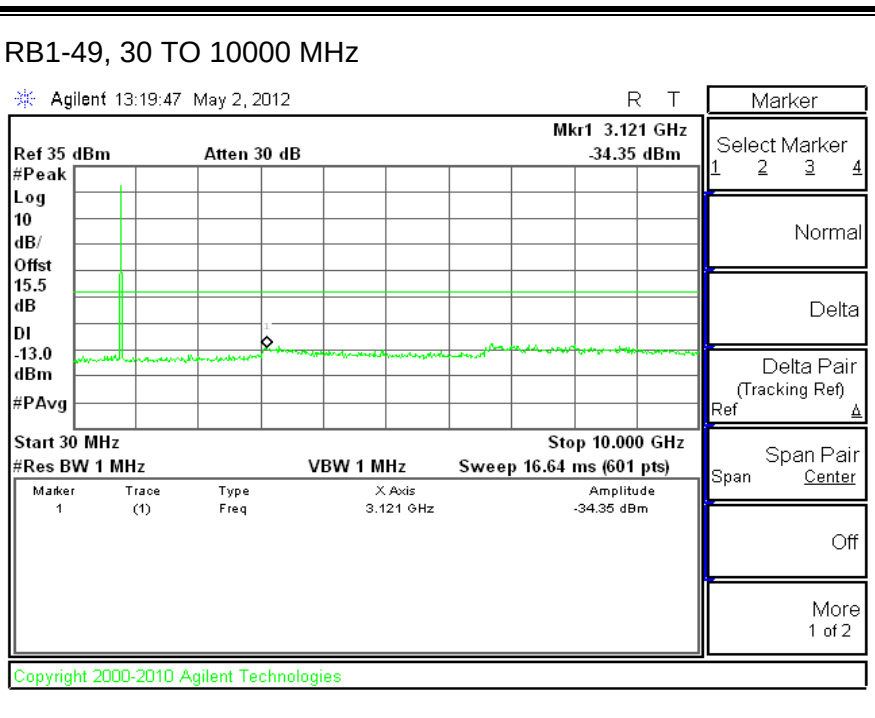


LTE QPSK Band 13

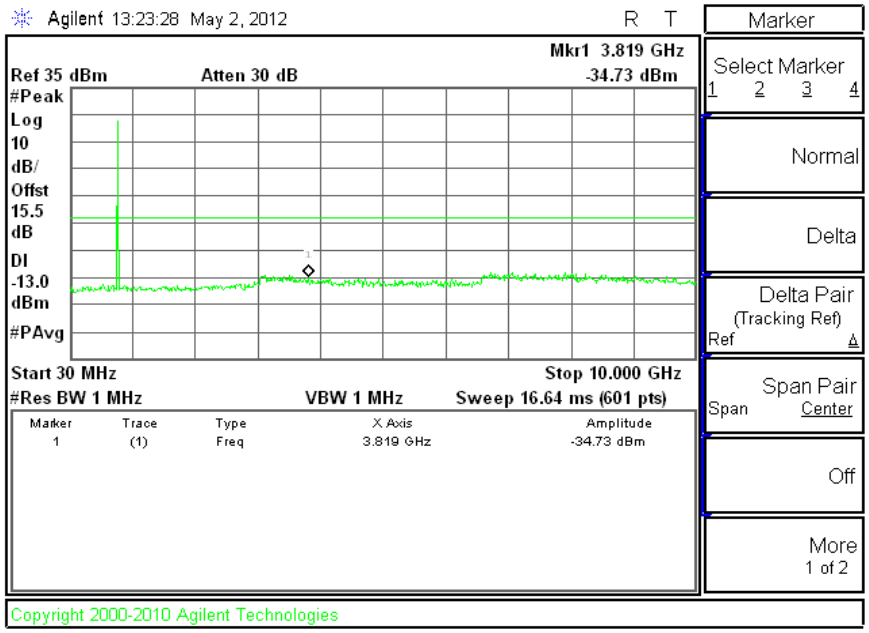
RB1-0, 30 TO 10000 MHz



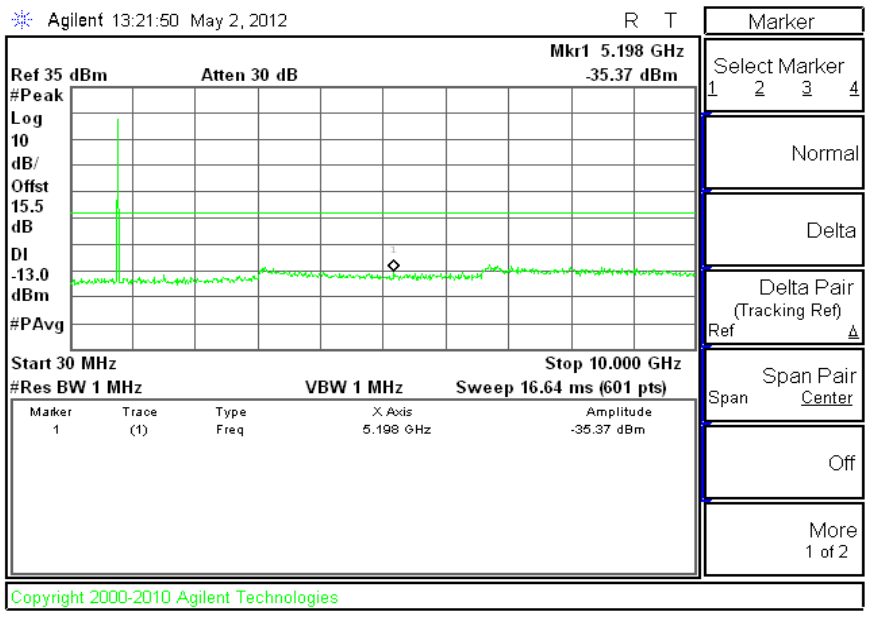
RB1-49, 30 TO 10000 MHz



RB25-12, 30 TO 10000 MHz

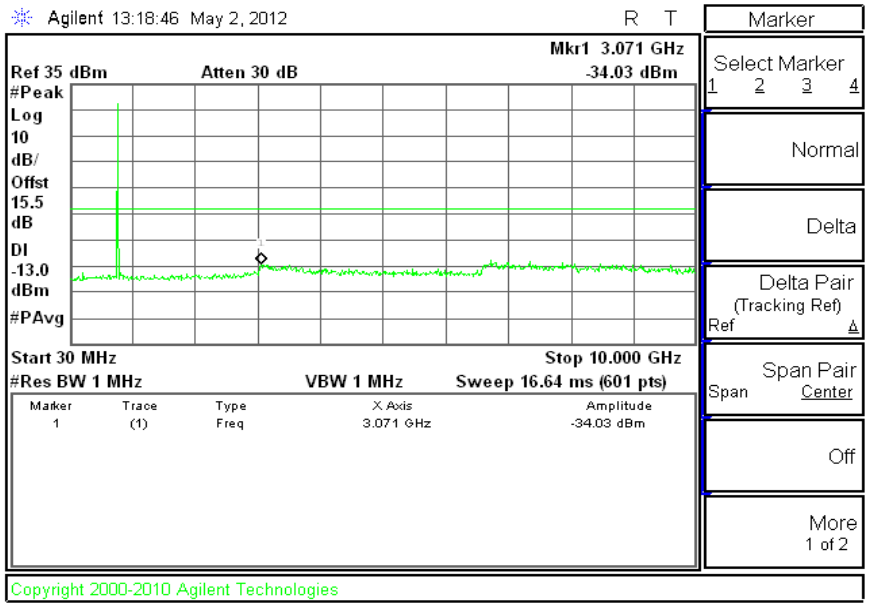


RB50 - 0, 30 TO 10000 MHz

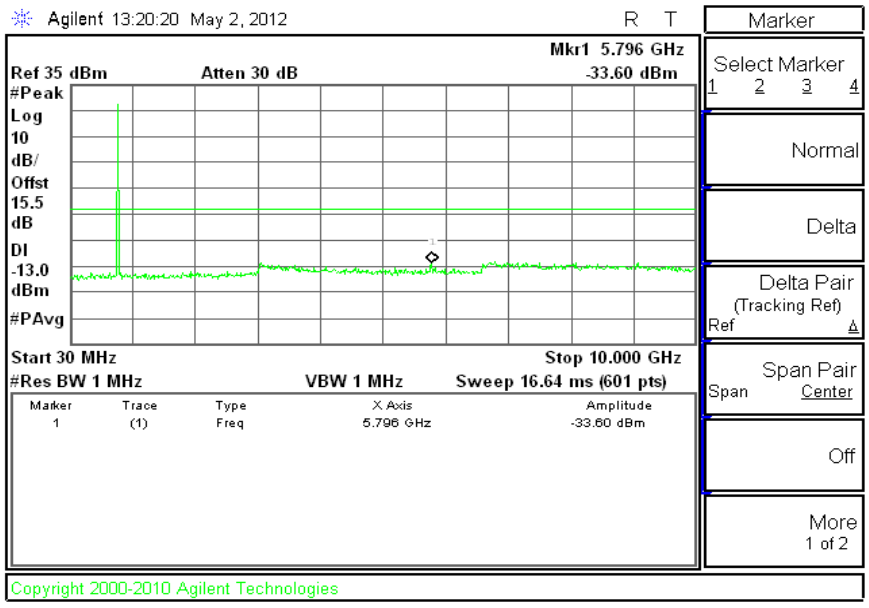


LTE 16QAM Band 13

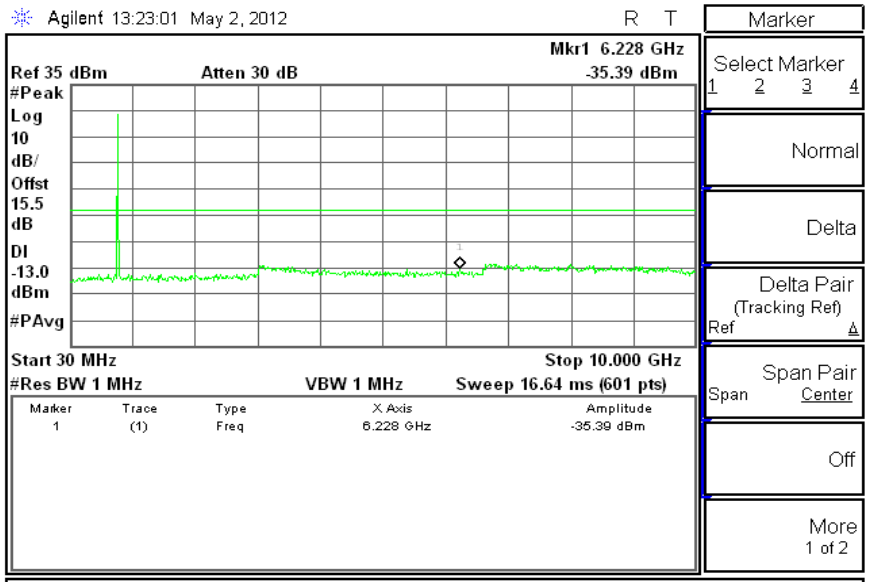
RB1-0, 30 TO 10000 MHz



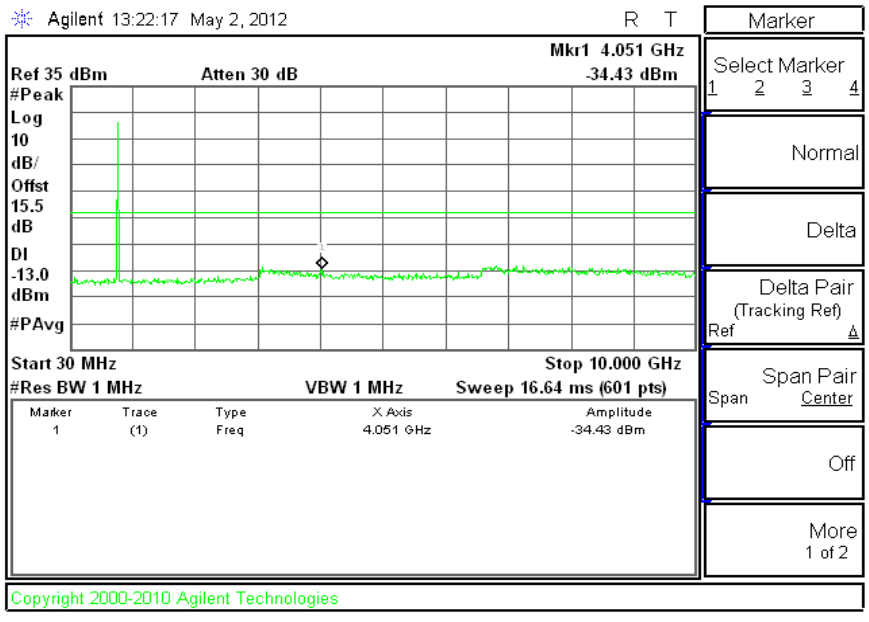
RB1-49, 30 TO 10000 MHz



RB25-12, 30 TO 10000 MHz



RB50 - 0, 30 TO 10000 MHz



8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, §27.

LIMITS

§22.355 & RSS-132 4.3 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

RSS-133 6.3 - The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations.

§24.235 - The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

TEST PROCEDURE

Use Agilent 8960 and CMW 500 with Frequency Error measurement capability.

- Temp. = −20° to +50°C
- Voltage = Normal, 3.7Vdc, Low, 3.50Vdc and High, 4.26Vdc.

Frequency Stability vs Temperature:
The EUT is place inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.
Frequency Stability vs Voltage:
The peak frequency error is recorded (worst-case).

MODES TESTED

- GPRS
- 1xRTT – RC1, SO2
- UMTS, HSDPA
- LTE BAND 13

RESULTS

See the following pages.

CELL, GSM MODULATION – MID CHANNEL

Reference Frequency: Cellular Mid Channel 836.599994MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.500 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	836.599999	-0.006	2.5
3.70	40	836.600003	-0.011	2.5
3.70	30	836.599995	-0.001	2.5
3.70	***20***	***836.599994***	***0***	2.5
3.70	10	836.599987	0.008	2.5
3.70	0	836.599992	0.002	2.5
3.70	-10	836.599960	0.041	2.5
3.70	-20	836.599992	0.002	2.5
3.70	-30	836.600000	-0.007	2.5

Reference Frequency: Cellular Mid Channel 836.599994MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.500 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	***20***	***836.599994***	***0***	***2.5***
4.26	20	836.599985	*0.011*	2.5
3.50	20	836.599983	*0.013*	2.5
End Voltage(3.4)	20	836.599975	*0.023*	2.5

PCS, GSM MODULATION – MID CHANNEL

Reference Frequency: PCS Mid Channel 1879.99753MHz @ 20ºC Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	1879.999978	-0.010	2.5
3.70	40	1879.999971	-0.006	2.5
3.70	30	1879.999967	-0.004	2.5
3.70	***20***	***1879.999960***	***0***	***2.5***
3.70	10	1880.000010	-0.027	2.5
3.70	0	1880.000013	-0.028	2.5
3.70	-10	1880.000006	-0.024	2.5
3.70	-20	1880.000014	-0.029	2.5
3.70	-30	1880.000018	-0.031	2.5

Reference Frequency: PCS Mid Channel 1880.00000MHz @ 20ºC Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (*C)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	***20***	***1879.999960***	***0***	***2.5***
4.26	20	1879.999956	*0.002*	2.5
3.50	20	1879.999951	*0.005*	2.5
End Voltage(3.4)	20	1879.999945	*0.008*	2.5

CELL CDMA2000 1xRTT – MID CHANNEL

Reference Frequency: Cellular Mid Channel 836.519982MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.300 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	836.520007	-0.030	2.5
3.70	40	836.520003	-0.025	2.5
3.70	30	836.519995	-0.016	2.5
3.70	***20***	***836.519982***	***0***	2.5
3.70	10	836.519986	-0.005	2.5
3.70	0	836.519987	-0.006	2.5
3.70	-10	836.519992	-0.012	2.5
3.70	-20	836.519988	-0.007	2.5
3.70	-30	836.519992	-0.012	2.5

Reference Frequency: Cellular Mid Channel 836.519982MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.300 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	***20***	***836.519982***	***0***	***2.5***
4.26	20	836.519985	*-0.004*	2.5
3.50	20	836.519993	*-0.013*	2.5
End Votage(3.4)	20	836.519997	*-0.018*	2.5

PCS, CDMA2000 1xRTT – MID CHANNEL

Reference Frequency: PCS Mid Channel 1880.000044MHz @ 20ºC Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (ºC)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	50	1880.000052	-0.004	2.5
3.70	40	1880.000048	-0.002	2.5
3.70	30	1880.000046	-0.001	2.5
3.70	***20***	***1880.000044***	***0***	***2.5***
3.70	10	1880.000035	0.005	2.5
3.70	0	1880.000028	0.009	2.5
3.70	-10	1880.000032	0.006	2.5
3.70	-20	1880.000030	0.007	2.5
3.70	-30	1880.000370	-0.173	2.5

Reference Frequency: PCS Mid Channel 1880.000044MHz @ 20ºC Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (ºC)	(MHz)	Delta (ppm)	Limit (ppm)
3.70	*20*	***1880.000044***	***0***	***2.5***
4.26	20	1880.000048	-0.002	2.5
3.50	20	1880.000036	0.004	2.5
End Voltage(3.4)	20	1880.000033	0.006	2.5

PCS, WCDMA MODULATION – MID CHANNEL

Reference Frequency: PCS Mid Channel 1879.999957MHz @ 20ºC Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz				
Power Supply	**Environment**	**Frequency Deviation Measureed with Time Elapse**		
(Vac)	**Temperature (*C)**	**(MHz)**	**Delta (ppm)**	**Limit (ppm)**
3.70	50	1879.999978	-0.011	2.5
3.70	40	1879.999971	-0.007	2.5
3.70	30	1879.999967	-0.005	2.5
3.70	***20***	***1879.999957***	***0***	***2.5***
3.70	10	1880.000010	-0.028	2.5
3.70	0	1880.000038	-0.043	2.5
3.70	-10	1880.000037	-0.043	2.5
3.70	-20	1880.000035	-0.042	2.5
3.70	-30	1880.000033	-0.041	2.5

Reference Frequency: PCS Mid Channel 1879.999957MHz @ 20ºC Limit: within the authorized block or +- 2.5 ppm = 4700.000 Hz				
Power Supply	**Environment**	**Frequency Deviation Measureed with Time Elapse**		
(Vac)	**Temperature (*C)**	**(MHz)**	**Delta (ppm)**	**Limit (ppm)**
3.70	***20***	***1879.999957***	***0***	***2.5***
4.26	20	1880.000038	*-0.043*	2.5
3.50	20	1880.000035	*-0.041*	2.5
End Voltage(3.4V)	20	1880.000033	*-0.040*	2.5

LTE BAND 13 – 782 MHZ

Reference Frequency: LTE Band 781.999991MHz @ 20°C Limit: to stay +- 2.5 ppm = 1955.000 Hz				
Power Supply (Vac)	**Environment Temperature (°C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.70	50	781.999987	0.005	2.5
3.70	40	781.999986	0.006	2.5
3.70	30	781.999988	0.004	2.5
3.70	***20***	***781.999991***	***0***	2.5
3.70	10	782.000002	-0.014	2.5
3.70	0	782.000004	-0.017	2.5
3.70	-10	782.000003	-0.015	2.5
3.70	-20	782.000001	-0.013	2.5
3.70	-30	782.000005	-0.018	2.5
Reference Frequency: Cellular Mid Channel781.999991MHz @ 20°C Limit: to stay +- 2.5 ppm = 1955.000 Hz				
Power Supply (Vac)	**Environment Temperature (°C)**	**Frequency Deviation Measureed with Time Elapse**		
		(MHz)	**Delta (ppm)**	**Limit (ppm)**
3.70	*20*	***781.999991***	***0***	***2.5***
4.26	20	781.999995	*-0.005*	2.5
3.50	20	781.999994	*-0.004*	2.5
End Voltage(3.4)	20	781.999998	*-0.009*	2.5

9. RADIATED TEST RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

27.50 (c)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17.

MODES TESTED

- GSM, GPRS and EGPRS
- 1xRTT – RC1, SO2
- WCDMA REL. 99, HSDPA
- LTE BAND 13

RESULTS

CELLULAR BAND (ERP)

Mode	Channel	f (MHz)	ERP	
			dBm	mW
GSM	128	824.20	29.37	864.97
	192	836.60	31.09	1285.29
	251	848.80	29.48	887.16
GPRS	128	824.20	29.97	993.12
	192	836.60	30.57	1140.25
	251	848.80	29.27	845.28
EGPRS	128	824.20	26.87	486.41
	192	836.60	27.96	625.17
	251	848.80	26.15	412.10
1xRTT	1013	824.70	27.10	512.86
	384	836.52	26.24	420.73
	777	848.31	24.50	281.84
EVDO, REV A	1013	824.70	24.60	288.40
	384	836.52	24.50	281.84
	777	848.31	23.80	239.88

PCS BAND (EIRP)

Mode	Channel	f (MHz)	EIRP	
			dBm	mW
GSM	512	1850.20	29.82	959.40
	661	1880.00	29.61	914.11
	810	1909.80	28.33	680.77
GPRS	512	1850.20	29.92	981.75
	661	1880.00	29.51	893.31
	810	1909.80	28.63	729.46
EGPRS	512	1850.20	28.42	695.02
	661	1880.00	28.31	677.64
	810	1909.80	28.63	729.46
1xRTT	25	1851.25	28.32	679.20
	600	1880.00	27.51	563.64
	1175	1908.75	25.63	365.59
EVDO, REV A	25	1851.25	22.88	194.09
	600	1880.00	24.03	252.93
	1175	1908.75	23.16	207.01
REL 99	9662	1852.40	30.17	1039.92
	9800	1880.00	30.21	1049.54
	9938	1906.80	30.15	1035.14
HSDPA	9662	1852.40	30.87	1221.80
	9800	1880.00	30.51	1124.60
	9938	1906.80	30.45	1109.17

LTE BAND 13 (ERP)

Mode	RB/RB SIZE	f (MHz)	ERP	
			dBm	mW
10 MHZ BAND QPSK	1/0	782.0	21.72	148.59
	1/49		24.52	283.14
	25/12		23.52	224.91
	50/0		25.12	325.09
10 MHz BAND 16QAM	1/0		21.52	141.91
	1/49		24.52	283.14
	25/12		23.42	219.79
	50/0		24.62	289.73

GSM850 BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850MHz BAND GSM MODE

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	29.87	V	0.5	0.0	29.37	38.5	-9.1	
824.20	24.30	H	0.5	0.0	23.80	38.5	-14.6	
Mid Ch								
836.60	31.59	V	0.5	0.0	31.09	38.5	-7.4	
836.60	24.40	H	0.5	0.0	23.90	38.5	-14.6	
High Ch								
848.80	29.98	V	0.5	0.0	29.48	38.5	-9.0	
848.80	24.30	H	0.5	0.0	23.80	38.5	-14.6	

Rev. 3.17.11

GPRS850 BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850MHz BAND GPRS MODE

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	30.47	V	0.5	0.0	29.97	38.5	-8.5	
824.20	27.00	H	0.5	0.0	26.50	38.5	-11.9	
Mid Ch								
836.60	31.07	V	0.5	0.0	30.57	38.5	-7.9	
836.60	26.20	H	0.5	0.0	25.70	38.5	-12.8	
High Ch								
848.80	29.77	V	0.5	0.0	29.27	38.5	-9.2	
848.80	26.20	H	0.5	0.0	25.70	38.5	-12.7	

Rev. 3.17.11

EGPRS850 BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 850MHz band, EGPRS

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.20	27.37	V	0.5	0.0	26.87	38.5	-11.6	
824.20	22.20	H	0.5	0.0	21.70	38.5	-16.7	
Mid Ch								
836.60	28.46	V	0.5	0.0	27.96	38.5	-10.5	
836.60	21.50	H	0.5	0.0	21.00	38.5	-17.5	
High Ch								
848.80	26.65	V	0.5	0.0	26.15	38.5	-12.3	
848.80	21.10	H	0.5	0.0	20.60	38.5	-17.8	

Rev. 3.17.11

CDMA2000 1xRTT CELL BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Headset
Mode: TX, 850 MHz BAND, CDMA 1xRTT MODE

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	20.17	V	0.5	0.0	19.67	38.5	-18.8	
824.70	27.60	H	0.5	0.0	27.10	38.5	-11.3	
Mid Ch								
836.52	20.94	V	0.5	0.0	20.44	38.5	-18.0	
836.52	26.74	H	0.5	0.0	26.24	38.5	-12.2	
High Ch								
848.31	18.81	V	0.5	0.0	18.31	38.5	-20.1	
848.31	25.00	H	0.5	0.0	24.50	38.5	-13.9	

Rev. 3.17.11

CDMA2000 EVDO Rev A, CELL BAND

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Headset
Mode: TX, 850 MHz BAND, CDMA EVDO MODE
Worst cast at Z position.

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch								
824.70	23.47	V	0.5	0.0	22.97	38.5	-15.5	
824.70	25.10	H	0.5	0.0	24.60	38.5	-13.8	
Mid Ch								
836.52	23.34	V	0.5	0.0	22.84	38.5	-15.6	
836.52	25.00	H	0.5	0.0	24.50	38.5	-14.0	
High Ch								
848.31	22.11	V	0.5	0.0	21.61	38.5	-16.8	
848.31	24.30	H	0.5	0.0	23.80	38.5	-14.6	

Rev. 3.17.11

GSM1900 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, GSM

Test Equipment:
Receiving: Horn T59, and Camber B SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.850	22.1	V	0.85	8.62	29.82	33.0	-3.2	
1.850	18.5	H	0.85	8.47	26.08	33.0	-6.9	
Mid Ch								
1.880	22.0	V	0.85	8.46	29.61	33.0	-3.4	
1.880	18.5	H	0.85	8.36	26.00	33.0	-7.0	
High Ch								
1.910	20.9	V	0.85	8.30	28.33	33.0	-4.7	
1.910	19.0	H	0.85	8.25	26.36	33.0	-6.6	

Rev. 3.17.11

GPRS1900 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, GPRS

Test Equipment:
Receiving: Horn T59, and Camber B SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.850	22.2	V	0.85	8.62	29.92	33.0	-3.1	
1.850	16.8	H	0.85	8.47	24.38	33.0	-8.6	
Mid Ch								
1.880	21.9	V	0.85	8.46	29.51	33.0	-3.5	
1.880	16.7	H	0.85	8.36	24.23	33.0	-8.8	
High Ch								
1.910	21.2	V	0.85	8.30	28.63	33.0	-4.4	
1.910	16.8	H	0.85	8.25	24.16	33.0	-8.8	

Rev. 3.17.11

EGPRS1900 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, EGPRS

Test Equipment:
Receiving: Horn T59, and Camber B SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.850	20.7	V	0.85	8.62	28.42	33.0	-4.6	
1.850	18.5	H	0.85	8.47	26.08	33.0	-6.9	
Mid Ch								
1.880	20.7	V	0.85	8.46	28.31	33.0	-4.7	
1.880	18.5	H	0.85	8.36	26.00	33.0	-7.0	
High Ch								
1.910	21.2	V	0.85	8.30	28.63	33.0	-4.4	
1.910	19.0	H	0.85	8.25	26.36	33.0	-6.6	

Rev. 3.17.11

CDMA2000 1xRTT PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/27/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, 1xRTT

Test Equipment:
Receiving: Horn T59, and Camber B SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.851	20.6	V	0.85	8.62	28.32	33.0	-4.7	
1.851	16.0	H	0.85	8.47	23.58	33.0	-9.4	
Mid Ch								
1.880	19.9	V	0.85	8.46	27.51	33.0	-5.5	
1.880	15.8	H	0.85	8.36	23.33	33.0	-9.7	
High Ch								
1.909	18.2	V	0.85	8.30	25.63	33.0	-7.4	
1.909	14.8	H	0.85	8.25	22.16	33.0	-10.8	

Rev. 3.17.11

CDMA2000 EVDO REV A, PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, EVDO Rev A
Worst cast case X position

Test Equipment:
Receiving: Horn T59, and Camber B SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.851	7.5	V	0.85	8.62	15.22	33.0	-17.8	
1.851	15.3	H	0.85	8.47	22.88	33.0	-10.1	
Mid Ch								
1.880	8.7	V	0.85	8.46	16.31	33.0	-16.7	
1.880	16.5	H	0.85	8.36	24.03	33.0	-9.0	
High Ch								
1.909	8.2	V	0.85	8.30	15.63	33.0	-17.4	
1.909	15.8	H	0.85	8.25	23.16	33.0	-9.8	

Rev. 3.17.11

WCDMA REL. 99 PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 12U14353
Date: 03/29/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, WCDMA1900, Rel 99
Worst case at Z pos

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T60 Substitution, 4ft SMA Cable (SN # 245182002) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.852	22.4	V	0.85	8.62	30.17	33.0	-2.8	
1.852	17.2	H	0.85	8.47	24.82	33.0	-8.2	
Mid Ch								
1.880	22.6	V	0.85	8.46	30.21	33.0	-2.8	
1.880	15.8	H	0.85	8.36	23.31	33.0	-9.7	
High Ch								
1.908	22.7	V	0.85	8.30	30.15	33.0	-2.9	
1.908	14.5	H	0.85	8.25	21.90	33.0	-11.1	

Rev. 3.17.11

WCDMA HSDPA, PCS BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 12U14353
Date: 03/29/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, WCDMA1900, HSDPA
Worst case at Z pos

Test Equipment:
Receiving: Horn T73, and Camber A SMA Cables
Substitution: Horn T60 Substitution, 4ft SMA Cable (SN # 245182002) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.852	23.1	V	0.85	8.62	30.87	33.0	-2.1	
1.852	14.4	H	0.85	8.47	22.02	33.0	-11.0	
Mid Ch								
1.880	22.9	V	0.85	8.46	30.51	33.0	-2.5	
1.880	13.3	H	0.85	8.36	20.81	33.0	-12.2	
High Ch								
1.908	23.0	V	0.85	8.30	30.45	33.0	-2.6	
1.908	12.8	H	0.85	8.25	20.20	33.0	-12.8	

Rev. 3.17.11

LTE BAND 13 QPSK

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 12U14390
Date: 05/03/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, LTE BAND 13
10MHz BW
Worst Case at Y position

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
RB=1 & SRB=0, QPSK								
782.00	22.22	V	0.5	0.0	21.72	34.8	-13.1	
782.00	21.35	H	0.5	0.0	20.85	34.8	-14.0	
RB=1 & SRB=49, QPSK								
782.00	25.02	V	0.5	0.0	24.52	34.8	-10.3	
782.00	20.35	H	0.5	0.0	19.85	34.8	-15.0	
RB=25 & SRB=12, QPSK								
782.00	24.02	V	0.5	0.0	23.52	34.8	-11.3	
782.00	22.60	H	0.5	0.0	22.10	34.8	-12.7	
RB=50 & SRB=0 QPSK								
782.00	25.62	V	0.5	0.0	25.12	34.8	-9.7	
782.00	22.35	H	0.5	0.0	21.85	34.8	-13.0	

Rev. 3.17.11

LTE BAND 13 16QAM

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 12U14390
Date: 05/03/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, LTE BAND 13
10MHz BW
Worst Case at Y position

Test Equipment:
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f MHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
RB=1 & SRB=0, 16QAM								
782.00	22.02	V	0.5	0.0	21.52	34.8	-13.3	
782.00	21.05	H	0.5	0.0	20.55	34.8	-14.3	
RB=1 & SRB=49, 16QAM								
782.00	25.02	V	0.5	0.0	24.52	34.8	-10.3	
782.00	20.25	H	0.5	0.0	19.75	34.8	-15.1	
RB=25 & SRB=12, 16QAM								
782.00	23.92	V	0.5	0.0	23.42	34.8	-11.4	
782.00	22.45	H	0.5	0.0	21.95	34.8	-12.9	
RB=50 & SRB=0 16QAM								
782.00	25.12	V	0.5	0.0	24.62	34.8	-10.2	
782.00	21.85	H	0.5	0.0	21.35	34.8	-13.5	

Rev. 3.17.11

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, & §27.53

LIMIT

§22.917 (e) and §24.238 (a): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

(c) For operations in the 746–758 MHz band and the 776–788 MHz band, the power of any emission outside the licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, in accordance with the following:

(2) On any frequency outside the 776–788 MHz band, the power of any emission shall be attenuated outside the band below the transmitter power (P) by at least 43 + 10 log (P) dB;

(f) For operations in the 746–763 MHz, 775–793 MHz, and 805–806 MHz bands, emissions in the band 1559–1610 MHz shall be limited to −70 dBW/MHz equivalent isotropically radiated power (EIRP) for wideband signals, and −80 dBW EIRP for discrete emissions of less than 700 Hz bandwidth. For the purpose of equipment authorization, a transmitter shall be tested with an antenna that is representative of the type that will be used with the equipment in normal operation.

TEST PROCEDURE

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- GSM, GPRS and EGPRS
- 1xRTT – RC1, SO2
- EVDO, Rev A.
- WCDMA REL. 99 and HSDPA
- LTE BAND 13

RESULTS

GSM850 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, CELL BAND GSM MODE

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (824.2MHz)									
1.648	-16.2	V	3.0	35.5	1.0	-50.8	-13.0	-37.8	
2.473	-8.3	V	3.0	35.4	1.0	-42.7	-13.0	-29.7	
1.648	-17.8	H	3.0	35.5	1.0	-52.3	-13.0	-39.3	
2.473	-10.2	H	3.0	35.4	1.0	-44.6	-13.0	-31.6	
Mid Ch, (836.6MHz)									
1.673	-5.9	V	3.0	35.5	1.0	-40.4	-13.0	-27.4	
2.510	-13.2	V	3.0	35.4	1.0	-47.6	-13.0	-34.6	
1.673	-16.5	H	3.0	35.5	1.0	-51.1	-13.0	-38.1	
2.510	-10.1	H	3.0	35.4	1.0	-44.5	-13.0	-31.5	
High Ch, (848.8MHz)									
1.698	-7.6	V	3.0	35.5	1.0	-42.1	-13.0	-29.1	
2.546	-13.0	V	3.0	35.4	1.0	-47.5	-13.0	-34.5	
1.698	-17.3	H	3.0	35.5	1.0	-51.8	-13.0	-38.8	
2.546	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GPRS850 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 5/1/12012
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, CELL BAND GPRS

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (824.2MHz)									
1.648	-8.2	V	3.0	35.5	1.0	-42.8	-13.0	-29.8	
2.473	-7.3	V	3.0	35.4	1.0	-41.7	-13.0	-28.7	
1.648	-17.8	H	3.0	35.5	1.0	-52.3	-13.0	-39.3	
2.473	-10.2	H	3.0	35.4	1.0	-44.6	-13.0	-31.6	
Mid Ch, (836.6MHz)									
1.673	-2.9	V	3.0	35.5	1.0	-37.4	-13.0	-24.4	
2.510	-10.2	V	3.0	35.4	1.0	-44.6	-13.0	-31.6	
1.673	-11.5	H	3.0	35.5	1.0	-46.1	-13.0	-33.1	
2.510	-13.1	H	3.0	35.4	1.0	-47.5	-13.0	-34.5	
High Ch, (848.8MHz)									
1.698	-4.6	V	3.0	35.5	1.0	-39.1	-13.0	-26.1	
2.546	-14.0	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
1.698	-12.3	H	3.0	35.5	1.0	-46.8	-13.0	-33.8	
2.546	-16.9	H	3.0	35.4	1.0	-51.3	-13.0	-38.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

EGPRS850 BAND

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG ELECTRONICS
Project #: 12U14390
Date: 04/28/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter and Earphone
Mode: TX, 1900 MHz BAND, EGPRS

Test Equipment:
Receiving: Horn T59, and Camber B SMA Cables
Substitution: Horn T217 Substitution, 4ft SMA Cable (244639001) Warehouse

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch								
1.850	21.0	V	0.85	8.62	28.72	33.0	-4.3	
1.850	18.5	H	0.85	8.47	26.08	33.0	-6.9	
Mid Ch								
1.880	21.9	V	0.85	8.46	29.51	33.0	-3.5	
1.880	18.5	H	0.85	8.36	26.00	33.0	-7.0	
High Ch								
1.910	22.7	V	0.85	8.30	30.13	33.0	-2.9	
1.910	19.0	H	0.85	8.25	26.36	33.0	-6.6	

Rev. 3.17.11

CDMA2000 1xRTT CELL BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, CELL Band CDMA 1xRTT

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.70MHz									
1.649	-23.2	V	3.0	35.5	1.0	-57.7	-13.0	-44.7	
2.474	-15.3	V	3.0	35.4	1.0	-49.7	-13.0	-36.7	
1.649	-23.8	H	3.0	35.5	1.0	-58.3	-13.0	-45.3	
2.474	-19.2	H	3.0	35.4	1.0	-53.6	-13.0	-40.6	
Mid Ch, 836.52MHz									
1.672	-22.9	V	3.0	35.5	1.0	-57.4	-13.0	-44.4	
2.510	-14.2	V	3.0	35.4	1.0	-48.6	-13.0	-35.6	
1.672	-23.5	H	3.0	35.5	1.0	-58.1	-13.0	-45.1	
2.510	-18.1	H	3.0	35.4	1.0	-52.5	-13.0	-39.5	
High Ch, 848.31MHz									
1.697	-19.6	V	3.0	35.5	1.0	-54.1	-13.0	-41.1	
2.545	-14.0	V	3.0	35.4	1.0	-48.5	-13.0	-35.5	
1.697	-21.3	H	3.0	35.5	1.0	-55.8	-13.0	-42.8	
2.545	-18.9	H	3.0	35.4	1.0	-53.3	-13.0	-40.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 EVDO REV A, CELL BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS INC
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter
Mode: TX, Cell Band EVDO, Rev A

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 22

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
1.649	-24.2	V	3.0	35.5	1.0	-58.7	-13.0	-45.7	
2.474	-18.3	V	3.0	35.4	1.0	-52.7	-13.0	-39.7	
1.649	-23.8	H	3.0	35.5	1.0	-58.3	-13.0	-45.3	
2.474	-20.2	H	3.0	35.4	1.0	-54.6	-13.0	-41.6	
Mid Ch, 836.52MHz									
1.672	-23.9	V	3.0	35.5	1.0	-58.4	-13.0	-45.4	
2.510	-18.2	V	3.0	35.4	1.0	-52.6	-13.0	-39.6	
1.672	-22.5	H	3.0	35.5	1.0	-57.1	-13.0	-44.1	
2.510	-20.1	H	3.0	35.4	1.0	-54.5	-13.0	-41.5	
High Ch, 1908.75MHz									
1.697	-23.6	V	3.0	35.5	1.0	-58.1	-13.0	-45.1	
2.545	-19.0	V	3.0	35.4	1.0	-53.5	-13.0	-40.5	
1.697	-22.3	H	3.0	35.5	1.0	-56.8	-13.0	-43.8	
2.545	-20.9	H	3.0	35.4	1.0	-55.3	-13.0	-42.3	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GSM1900 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, PCS BAND, GSM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1850.2MHz)									
3.700	-14.9	V	3.0	35.4	1.0	-49.2	-13.0	-36.2	
5.551	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.700	-16.7	H	3.0	35.4	1.0	-51.0	-13.0	-38.0	
5.551	-12.0	H	3.0	35.4	1.0	-46.4	-13.0	-33.4	
Mid Ch, (1880.0MHz)									
3.760	-16.7	V	3.0	35.3	1.0	-51.1	-13.0	-38.1	
5.640	-11.7	V	3.0	35.4	1.0	-46.1	-13.0	-33.1	
3.760	-17.5	H	3.0	35.3	1.0	-51.8	-13.0	-38.8	
5.640	-11.8	H	3.0	35.4	1.0	-46.3	-13.0	-33.3	
High Ch, (1909.8MHz)									
3.820	-14.6	V	3.0	35.3	1.0	-48.9	-13.0	-35.9	
5.729	-11.6	V	3.0	35.4	1.0	-46.1	-13.0	-33.1	
3.820	-16.3	H	3.0	35.3	1.0	-50.6	-13.0	-37.6	
5.729	-12.7	H	3.0	35.4	1.0	-47.1	-13.0	-34.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

GPRS1900 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, PCS BAND, GPRS

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1850.2MHz)									
3.700	-14.4	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
5.551	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.700	-14.7	H	3.0	35.4	1.0	-49.0	-13.0	-36.0	
5.551	-11.0	H	3.0	35.4	1.0	-45.4	-13.0	-32.4	
Mid Ch, (1880.0MHz)									
3.760	-14.7	V	3.0	35.3	1.0	-49.1	-13.0	-36.1	
5.640	-10.7	V	3.0	35.4	1.0	-45.1	-13.0	-32.1	
3.760	-15.5	H	3.0	35.3	1.0	-49.8	-13.0	-36.8	
5.640	-11.8	H	3.0	35.4	1.0	-46.3	-13.0	-33.3	
High Ch, (1909.8MHz)									
3.820	-12.6	V	3.0	35.3	1.0	-46.9	-13.0	-33.9	
5.729	-10.6	V	3.0	35.4	1.0	-45.1	-13.0	-32.1	
3.820	-14.3	H	3.0	35.3	1.0	-48.6	-13.0	-35.6	
5.729	-11.7	H	3.0	35.4	1.0	-46.1	-13.0	-33.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

EGPRS1900 BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, PCS BAND, EGPRS

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T144 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, (1850.2MHz)									
3.700	-14.9	V	3.0	36.8	1.0	-50.7	-13.0	-37.7	
5.551	-11.8	V	3.0	36.3	1.0	-47.1	-13.0	-34.1	
3.700	-17.7	H	3.0	36.8	1.0	-53.5	-13.0	-40.5	
5.551	-13.0	H	3.0	36.3	1.0	-48.3	-13.0	-35.3	
Mid Ch, (1880.0MHz)									
3.760	-17.7	V	3.0	36.8	1.0	-53.5	-13.0	-40.5	
5.640	-13.7	V	3.0	36.3	1.0	-49.0	-13.0	-36.0	
3.760	-18.5	H	3.0	36.8	1.0	-54.2	-13.0	-41.2	
5.640	-11.8	H	3.0	36.3	1.0	-47.1	-13.0	-34.1	
High Ch, (1909.8MHz)									
3.820	-13.6	V	3.0	36.7	1.0	-49.3	-13.0	-36.3	
5.729	-11.6	V	3.0	36.3	1.0	-46.9	-13.0	-33.9	
3.820	-14.3	H	3.0	36.7	1.0	-50.0	-13.0	-37.0	
5.729	-10.7	H	3.0	36.3	1.0	-46.0	-13.0	-33.0	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 1xRTT PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, PCS Band CDMA 1xRTT Mode

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
3.703	-8.9	V	3.0	35.4	1.0	-43.2	-13.0	-30.2	
5.554	-9.8	V	3.0	35.4	1.0	-44.2	-13.0	-31.2	
3.703	-11.7	H	3.0	35.4	1.0	-46.0	-13.0	-33.0	
5.554	-11.0	H	3.0	35.4	1.0	-45.4	-13.0	-32.4	
Mid Ch, 1880.00MHz									
3.760	-10.7	V	3.0	35.3	1.0	-45.1	-13.0	-32.1	
5.640	-12.7	V	3.0	35.4	1.0	-47.1	-13.0	-34.1	
3.760	-11.5	H	3.0	35.3	1.0	-45.8	-13.0	-32.8	
5.640	-11.8	H	3.0	35.4	1.0	-46.3	-13.0	-33.3	
High Ch, 1908.75MHz									
3.818	-4.6	V	3.0	35.3	1.0	-38.9	-13.0	-25.9	
5.726	-10.6	V	3.0	35.4	1.0	-45.1	-13.0	-32.1	
3.818	-7.3	H	3.0	35.3	1.0	-41.6	-13.0	-28.6	
5.726	-9.7	H	3.0	35.4	1.0	-44.1	-13.0	-31.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

CDMA2000 EVDO Rev A, PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG ELECTRONICS INC
Project #: 12U14
Date: 04/24/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter
Mode: TX, PCS Band EVDO Rev A

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
3.702	-14.9	V	3.0	35.4	1.0	-49.2	-13.0	-36.2	
5.554	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.702	-15.7	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
5.554	-11.0	H	3.0	35.4	1.0	-45.4	-13.0	-32.4	
Mid Ch, 1880MHz									
3.760	-12.7	V	3.0	35.3	1.0	-47.1	-13.0	-34.1	
5.640	-11.7	V	3.0	35.4	1.0	-46.1	-13.0	-33.1	
3.760	-14.5	H	3.0	35.3	1.0	-48.8	-13.0	-35.8	
5.640	-9.8	H	3.0	35.4	1.0	-44.3	-13.0	-31.3	
High Ch, 1908.75MHz									
3.818	-13.6	V	3.0	35.3	1.0	-47.9	-13.0	-34.9	
5.726	-10.6	V	3.0	35.4	1.0	-45.1	-13.0	-32.1	
3.818	-14.3	H	3.0	35.3	1.0	-48.6	-13.0	-35.6	
5.726	-11.7	H	3.0	35.4	1.0	-46.1	-13.0	-33.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

WCDMA REL 99, PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, PCS BAND WCDMA, Rel 99

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.704	-11.9	V	3.0	35.4	1.0	-46.2	-13.0	-33.2	
5.557	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.704	-14.7	H	3.0	35.4	1.0	-49.0	-13.0	-36.0	
5.557	-11.0	H	3.0	35.4	1.0	-45.4	-13.0	-32.4	
Mid Ch, 1880.0MHz									
3.760	-14.7	V	3.0	35.3	1.0	-49.1	-13.0	-36.1	
5.640	-11.7	V	3.0	35.4	1.0	-46.1	-13.0	-33.1	
3.760	-15.5	H	3.0	35.3	1.0	-49.8	-13.0	-36.8	
5.640	-12.8	H	3.0	35.4	1.0	-47.3	-13.0	-34.3	
High Ch, 1907.6MHz									
3.815	-7.6	V	3.0	35.3	1.0	-41.9	-13.0	-28.9	
5.723	-8.6	V	3.0	35.4	1.0	-43.1	-13.0	-30.1	
3.815	-9.3	H	3.0	35.3	1.0	-43.6	-13.0	-30.6	
5.723	-8.7	H	3.0	35.4	1.0	-43.1	-13.0	-30.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

WCDMA HSDPA, PCS BAND

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/01/12
Test Engineer: Chin Pang
Configuration: EUT and AC Adapter
Mode: TX, PCS BAND WCDMA, HSDPA

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 24

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1852.4MHz									
3.704	-12.9	V	3.0	35.4	1.0	-47.2	-13.0	-34.2	
5.557	-10.8	V	3.0	35.4	1.0	-45.2	-13.0	-32.2	
3.704	-15.7	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
5.557	-12.0	H	3.0	35.4	1.0	-46.4	-13.0	-33.4	
Mid Ch, 1880.0MHz									
3.760	-14.7	V	3.0	35.3	1.0	-49.1	-13.0	-36.1	
5.640	-12.7	V	3.0	35.4	1.0	-47.1	-13.0	-34.1	
3.760	-16.5	H	3.0	35.3	1.0	-50.8	-13.0	-37.8	
5.640	-12.8	H	3.0	35.4	1.0	-47.3	-13.0	-34.3	
High Ch, 1907.6MHz									
3.815	-7.6	V	3.0	35.3	1.0	-41.9	-13.0	-28.9	
5.723	-8.6	V	3.0	35.4	1.0	-43.1	-13.0	-30.1	
3.815	-9.3	H	3.0	35.3	1.0	-43.6	-13.0	-30.6	
5.723	-9.7	H	3.0	35.4	1.0	-44.1	-13.0	-31.1	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE BAND 13 QPSK

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/03/12
Test Engineer: Chin Pang
Configuration: EUT only
Mode: TX, LTE BAND MODE, 10MHz BW QPSK

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
BAND 13 (782.0 MHz)									
RB1 0									
1.555	-26.0	V	3.0	35.6	1.0	-60.6	-13.0	-47.6	
2.333	-20.7	V	3.0	35.4	1.0	-55.1	-13.0	-42.1	
1.555	-23.7	H	3.0	35.6	1.0	-58.3	-13.0	-45.3	
2.333	-22.0	H	3.0	35.4	1.0	-56.5	-13.0	-43.5	
RB 1 49									
1.573	-24.7	V	3.0	35.6	1.0	-59.3	-13.0	-46.3	
2.359	-20.7	V	3.0	35.4	1.0	-55.1	-13.0	-42.1	
1.573	-26.0	H	3.0	35.6	1.0	-60.6	-13.0	-47.6	
2.358	-23.1	H	3.0	35.4	1.0	-57.5	-13.0	-44.5	
RB 25 12									
1.565	-26.3	V	3.0	35.6	1.0	-60.9	-13.0	-47.9	
2.347	-20.7	V	3.0	35.4	1.0	-55.1	-13.0	-42.1	
1.565	-26.6	H	3.0	35.6	1.0	-61.2	-13.0	-48.2	
2.347	-23.1	H	3.0	35.4	1.0	-57.5	-13.0	-44.5	
RB 50 0									
1.564	-25.7	V	3.0	35.6	1.0	-60.2	-13.0	-47.2	
2.346	-20.7	V	3.0	35.4	1.0	-55.1	-13.0	-42.1	
1.564	-26.6	H	3.0	35.6	1.0	-61.2	-13.0	-48.2	
2.346	-23.1	H	3.0	35.4	1.0	-57.5	-13.0	-44.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE QPSK Radiated Measurement in 1559-1610MHz Band

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/03/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter
Mode: TX, LTE Band 13
782MHz, QPSK, 10MHz

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
(782MHz), RB1 0, QPSK									
1.559	-24.4	V	3.0	35.6	1.0	-59.0	-40.0	-19.0	
1.559	-25.6	H	3.0	35.6	1.0	-60.2	-40.0	-20.2	
(782MHz), RB1 49, QPSK									
1.600	-26.9	V	3.0	35.6	1.0	-61.4	-40.0	-21.4	
1.600	-26.4	H	3.0	35.6	1.0	-61.0	-40.0	-21.0	
(782MHz), RB25 12, QPSK									
1.564	-26.7	V	3.0	35.6	1.0	-61.3	-40.0	-21.3	
1.564	-22.6	H	3.0	35.6	1.0	-57.2	-40.0	-17.2	
(782MHz), RB50 0, QPSK									
1.596	-26.9	V	3.0	35.6	1.0	-61.5	-40.0	-21.5	
1.596	-26.3	H	3.0	35.6	1.0	-60.9	-40.0	-20.9	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE BAND 13 16QAM

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/03/12
Test Engineer: Chin Pang
Configuration: EUT only
Mode: TX, LTE BAND MODE, 10MHz BW
16QAM

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
BAND 13 (782.0 MHz)									
RB1 0									
1.564	-26.9	V	3.0	35.6	1.0	-61.4	-13.0	-48.4	
2.333	-21.7	V	3.0	35.4	1.0	-56.1	-13.0	-43.1	
1.564	-26.6	H	3.0	35.6	1.0	-61.2	-13.0	-48.2	
2.333	-23.0	H	3.0	35.4	1.0	-57.5	-13.0	-44.5	
RB 1 49									
1.555	-25.5	V	3.0	35.6	1.0	-60.1	-13.0	-47.1	
2.335	-20.7	V	3.0	35.4	1.0	-55.1	-13.0	-42.1	
1.555	-25.7	H	3.0	35.6	1.0	-60.3	-13.0	-47.3	
2.335	-22.0	H	3.0	35.4	1.0	-56.5	-13.0	-43.5	
RB 25 12									
1.565	-26.5	V	3.0	35.6	1.0	-61.1	-13.0	-48.1	
2.347	-21.7	V	3.0	35.4	1.0	-56.1	-13.0	-43.1	
1.565	-26.6	H	3.0	35.6	1.0	-61.2	-13.0	-48.2	
2.347	-22.1	H	3.0	35.4	1.0	-56.5	-13.0	-43.5	
RB 50 0									
1.564	-26.4	V	3.0	35.6	1.0	-60.9	-13.0	-47.9	
2.346	-21.2	V	3.0	35.4	1.0	-55.6	-13.0	-42.6	
1.564	-26.6	H	3.0	35.6	1.0	-61.2	-13.0	-48.2	
2.346	-23.1	H	3.0	35.4	1.0	-57.5	-13.0	-44.5	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.

LTE 16QAM Radiated Measurement in 1559-1610MHz Band

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 12U14390
Date: 05/03/12
Test Engineer: Chin Pang
Configuration: EUT with AC Adapter
Mode: TX, LTE Band 13
782MHz, 16QAM, 10MHz

Chamber	Pre-amplifer	Filter	Limit
5m Chamber B	T145 8449B	Filter 1	Part 27

f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
(782MHz), RB1 0, QPSK									
1.596	-26.9	V	3.0	35.6	1.0	-61.5	-40.0	-21.5	
1.596	-26.3	H	3.0	35.6	1.0	-60.9	-40.0	-20.9	
(782MHz), RB1 49, QPSK									
1.560	-27.0	V	3.0	35.6	1.0	-61.6	-40.0	-21.6	
1.560	-26.1	H	3.0	35.6	1.0	-60.7	-40.0	-20.7	
(782MHz), RB25 12, QPSK									
1.580	-26.6	V	3.0	35.6	1.0	-61.2	-40.0	-21.2	
1.580	-25.4	H	3.0	35.6	1.0	-60.0	-40.0	-20.0	
(782MHz), RB50 0, QPSK									
1.599	-26.9	V	3.0	35.6	1.0	-61.5	-40.0	-21.5	
1.599	-26.2	H	3.0	35.6	1.0	-60.8	-40.0	-20.8	

Rev. 03.03.09
Note: No other emissions were detected above the system noise floor.