FCC CFR47 PART 22H, 24E AND 90S
CERTIFICATION TEST REPORT

FOR

LTE PHONE BLUETOOTH AND WLAN

MODEL NUMBER: LG870, LG-LG870, LGLG870

FCC ID: ZNFLG870

REPORT NUMBER: 13U14917-1

ISSUE DATE: MARCH 25, 2013

Prepared for
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Revision History

Rev.	Issue Date	Revisions	Revised By
--	3/25/13	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.
1000 SYLVAN AVE.
ENGLEWOODS CLIFFS, NJ 07632

EUT DESCRIPTION: LTE PHONE BLUETOOTH AND WLAN

MODEL: LG870, LG-LG870, LGLG870

SERIAL NUMBER: 256691464000002145

DATE TESTED: JANUARY 02 - MARCH 25, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 22H, 24E AND 90S	Pass

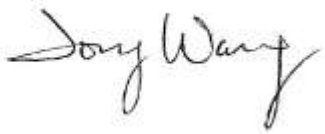
UL CCS tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and 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
WiSE OPERATIONS MANAGER
UL CCS

Tested By:



TONY WANG
WiSE LAB TECHNICIAN
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 90.

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 phone that also supports BLUETOOTH, WLAN and NFC

5.2. MAXIMUM OUTPUT POWER

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

Part 22/24/90					
Frequency Range (MHz)	Modulation	Conducted		ERP/EIRP	
		Peak	mW	Peak	mW
817.9-823.10	BC10, 1xRTT	29.74	941.9	25.06	320.6
824.7 - 848.31	BC0, 1xRTT	29.75	944.1	26.60	457.1
1851.25-1908.75	BC1, 1xRTT	28.65	732.8	26.53	449.8
817.9-823.10	BC10, EVDO A	30.04	1009.3	25.20	331.1
824.7 - 848.31	BC0, EVDO A	30.47	1114.3	26.26	422.7
1851.25-1908.75	BC1, EVDO A	29.20	831.8	26.16	413.0

Part 24 LTE Band 25 MODE (3.0 MHz BANDWIDTH)					
Frequency range (MHz)	Modulation	Conducted(Peak)		EIRP(PEAK)	
		dBm	mW	dBm	mW
1851.5 - 1913.5	QPSK RB1-0	28.90	776.2	25.11	324.3
1851.5 - 1913.5	16QAM, RB1-0	29.09	811.0	24.71	295.8

Part 24 LTE Band 25 MODE (5.0 MHz BANDWIDTH)					
Frequency range (MHz)	Modulation	Conducted(Peak)		EIRP(PEAK)	
		dBm	mW	dBm	mW
1852.5 - 1912.5	QPSK RB1-0	29.23	837.5	24.93	311.2
1852.5 - 1912.5	16QAM, RB1-0	29.22	835.6	24.35	272.3

Part 24 LTE Band 25 MODE (10.0 MHz BANDWIDTH)					
Frequency range (MHz)	Modulation	Conducted(Peak)		EIRP(PEAK)	
		dBm	mW	dBm	mW
1855 - 1910	QPSK RB1-0	29.20	831.8	24.38	274.2
1855 - 1910	16QAM, RB1-0	29.22	835.6	24.70	295.1

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the BC10, BC0, BC1 and LTE band 25 with a maximum peak gain as follow:

Frequency (MHz)	Peak Gain (dBi)
BC10, 817 – 824MHz	-2.13
BC0, Cell 824 – 849MHz	-2.40
BC1, PCS 1850 – 1910MHz	0.25
LTE Band 25, 1850-1915MHZ	-1.42

5.4. SOFTWARE AND FIRMWARE

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

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

Since the EUT is a portable device, in addition to the peak power measurements verification data shown below, the EUT also investigated on an X, Y and Z orientations and the worst-orientations among them with AC/DC adapter and headset. And results turned out to be the worst case for BC0 and BC10 and X position for BC1 and LTE band 25 were without AC Adapter and headset.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS-01WR	EAY62768913	DoC
Headset	LG	NA	NA	NA

I/O CABLES (CONDUCTED SETUP)

I/O Cable List						
Cable No	Port	# of identical ports	Connector Type	Cable Type	Cable Length (m)	Remarks
1	RF Out	1	Spectrum Analyzer	Shielded	None	NA
2	Antenna Port	1	EUT	Shielded	0.1m	NA
3	RF In/Out	1	Communication Test Set	Shielded	1m	NA

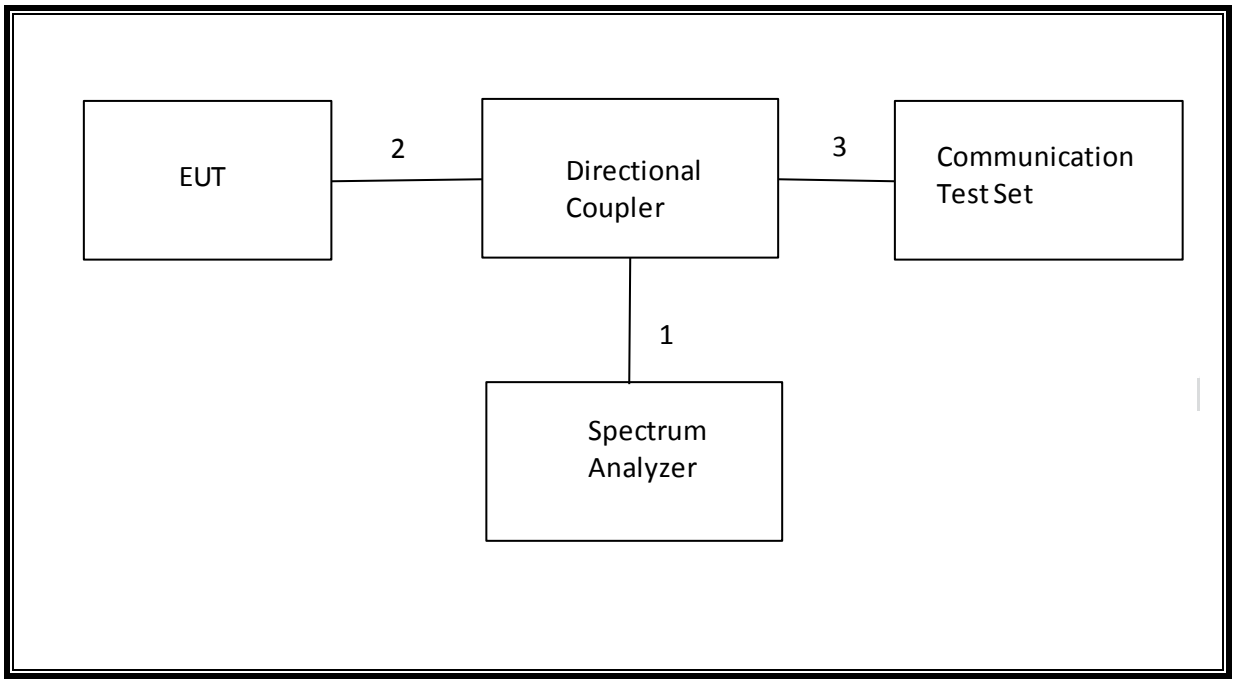
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	USB	1	AC Adapter	Un-shielded	1.2m	No
2	Jack	1	Headset	Shielded	1m	No
3	RF In/out	1	Communication Test Set	Un-shielded	2m	Yes

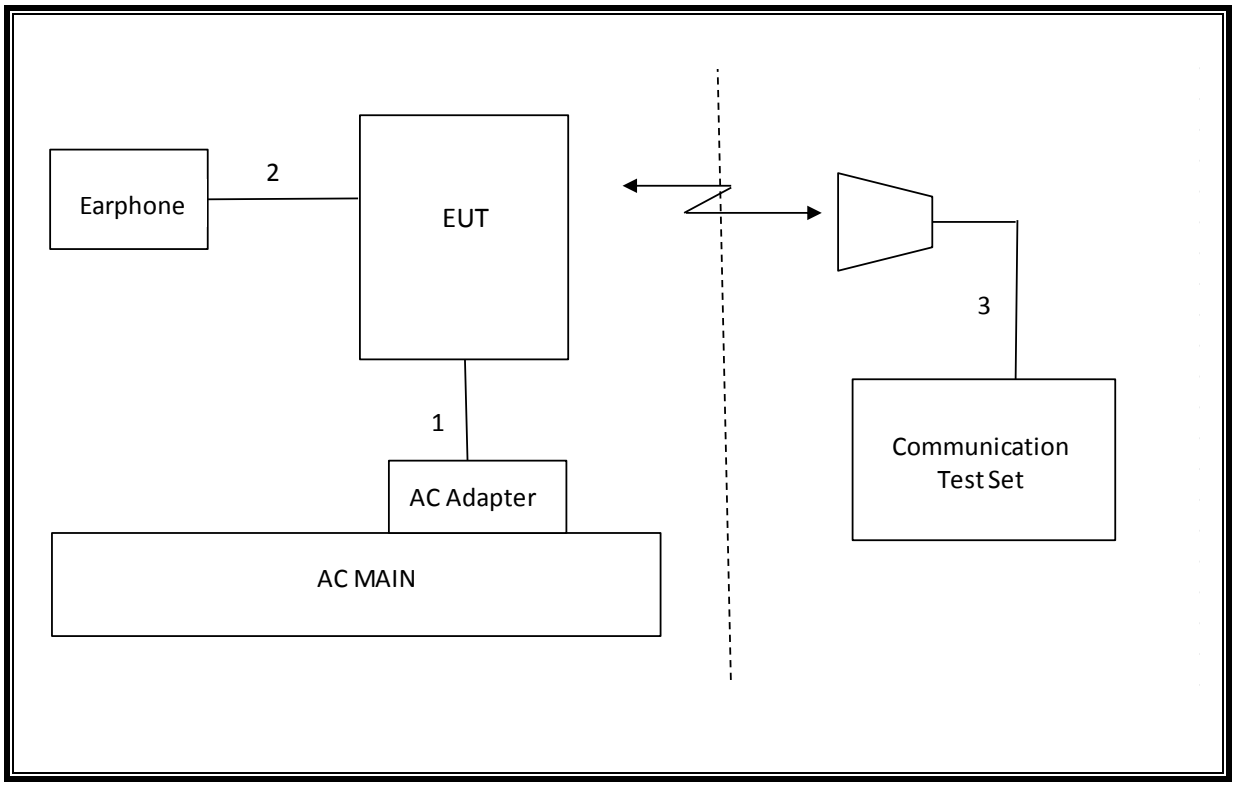
TEST SETUP

The EUT is continuously communicated to the call box during the tests.

SETUP DIAGRAM FOR TESTS (CONDUCTED TEST SETUP)



SETUP DIAGRAM FOR TESTS (RADIATED TEST SETUP)



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, 44 GHz	Agilent / HP	E4446A	C01179	02/26/14
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	12/13/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	12/20/13
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/13
Antenna, Bilog, 30MHz-1 GHz	Sunol Sciences	JB1	N/A	03/06/14
Antenna, Horn, 18 GHz	EMCO	3115	C00783	10/25/13
Antenna, Horn, 18 GHz	EMCO	3115	C00945	12/11/13
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/14
Antenna, Horn, 18 GHz	EMCO	3115	C00872	12/11/13
Communications Test Set	Agilent / HP	E5515C	C01086	06/20/13
Communication Test Set	R & S	CMW500	None	41453
DC power supply, 8 V @ 3 A or 15 V	Agilent / HP	E3610A	None	CNR
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	07/06/13
Antenna, Tuned Dipole 400~1000	ETS	3121C DB4	C00993	09/16/13
Directional Coupler	RF-Lambda	RFDC5M06G15	None	CNR

7. RF POWER OUTPUT VERIFICATION

7.1. CDMA2000 1xRTT

TEST PROCEDURE

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)

RESULT

BC10, 1xRTT, CELL BAND

Radio Configuration (RC)	Service Option (SO)	Conducted Output Power (dBm)					
		Ch.476 / 817.9 MHz		Ch.580 / 820.50 MHz		Ch. 684 /823.1 MHz	
		Peak	Average	Peak	Average	Peak	Average
RC1	2 (Loopback)	29.19	25.19	29.49	25.20	29.68	25.20
	55 (Loopback)	29.22	25.18	29.35	25.20	29.74	25.20
RC2	9 (Loopback)	29.18	25.18	29.51	25.20	29.64	25.20
	55 (Loopback)	29.08	25.19	29.43	25.19	29.65	25.19
RC3	2 (Loopback)	28.85	25.19	29.20	25.18	29.30	25.19
	55 (Loopback)	28.98	25.19	28.94	25.19	29.25	25.19
	32 (+ F-SCH)	28.58	25.18	29.06	25.19	29.34	25.18
	32 (+ SCH)	28.83	25.15	28.98	25.18	29.26	25.18
RC4	2 (Loopback)	29.00	25.17	28.93	25.18	29.43	25.19
	55 (Loopback)	28.86	25.18	29.17	25.18	29.22	25.19
	32 (+ F-SCH)	28.82	25.19	29.09	25.19	29.23	25.19
	32 (+ SCH)	28.96	25.19	29.15	25.18	29.44	25.17
RC5	9 (Loopback)	28.87	25.18	29.07	25.18	29.43	25.18
	55 (Loopback)	28.85	25.19	29.14	25.19	29.29	25.19
RC11	2 (Loopback)	28.04	25.18	28.55	25.17	29.09	25.16
	75 (Loopback)	29.08	25.19	29.14	25.18	29.14	25.19
	32 (+ F-SCH)	29.05	25.19	29.30	25.18	29.05	25.19
	32 (+ SCH)	28.94	25.19	29.14	25.19	29.40	25.19

BC0, 1xRTT CELL BAND

Radio Configuration (RC)	Service Option (SO)	Conducted Output Power (dBm)					
		Ch.1013/824.7 MHz		Ch384/836.52 MHz		Ch.777/848.31 MHz	
		Peak	Average	Peak	Average	Peak	Average
RC1	2 (Loopback)	29.74	25.19	29.74	25.18	29.11	25.20
	55 (Loopback)	29.75	25.20	29.60	25.15	29.12	25.20
RC2	9 (Loopback)	29.60	25.15	29.73	25.10	29.18	25.19
	55 (Loopback)	29.71	25.13	29.52	25.10	29.17	25.20
RC3	2 (Loopback)	29.34	25.12	29.17	25.07	28.92	25.16
	55 (Loopback)	29.51	25.11	29.38	25.07	28.81	25.18
	32 (+ F-SCH)	29.40	25.12	29.23	25.08	28.84	25.17
	32 (+ SCH)	29.48	25.15	29.27	25.10	29.42	25.18
RC4	2 (Loopback)	29.19	25.11	29.25	25.07	28.78	25.13
	55 (Loopback)	29.36	25.11	29.13	25.09	28.84	25.18
	32 (+ F-SCH)	29.40	25.12	29.25	25.07	28.84	25.19
	32 (+ SCH)	28.46	25.10	29.23	25.08	28.89	25.18
RC5	9 (Loopback)	29.39	25.12	29.29	25.06	28.80	25.14
	55 (Loopback)	29.30	25.11	29.31	25.07	28.78	25.17
RC11	2 (Loopback)	29.32	25.15	29.04	25.19	28.62	25.18
	75 (Loopback)	29.20	25.18	29.07	25.19	28.56	25.15
	32 (+ F-SCH)	29.11	25.19	29.22	25.19	28.47	25.18
	32 (+ SCH)	29.34	25.17	29.02	25.19	28.71	25.18

BC1, 1xRTT, 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	Average	Peak	Average	Peak	Average
RC1	2 (Loopback)	28.13	25.13	28.60	25.13	27.95	25.18
	55 (Loopback)	28.09	25.17	28.65	25.20	27.91	25.18
RC2	9 (Loopback)	28.12	25.14	28.63	25.12	27.82	25.16
	55 (Loopback)	28.11	25.11	28.20	25.13	27.75	25.16
RC3	2 (Loopback)	27.91	25.13	28.53	25.15	27.72	25.18
	55 (Loopback)	27.80	25.14	28.44	25.16	27.72	25.18
	32 (+ F-SCH)	27.96	25.15	28.51	25.16	27.75	25.19
	32 (+ SCH)	27.88	25.17	28.54	25.17	27.71	25.19
RC4	2 (Loopback)	27.91	25.17	28.53	25.16	27.73	25.19
	55 (Loopback)	27.86	25.15	28.53	25.16	27.72	25.18
	32 (+ F-SCH)	27.85	25.15	28.38	25.15	27.65	25.19
	32 (+ SCH)	27.86	25.17	28.40	25.16	27.73	25.20
RC5	9 (Loopback)	28.09	25.15	28.63	25.13	27.80	25.18
	55 (Loopback)	28.01	25.13	28.61	25.16	27.78	25.18
RC11	2 (Loopback)	27.62	25.17	28.24	25.14	27.47	25.16
	75 (Loopback)	27.70	25.17	28.28	25.14	27.56	25.17
	32 (+F-SCH)	27,71	25.18	28.21	25.14	27.67	25.19
	32 (+SCH)	27.79	25.18	28.38	25.19	27.60	25.19

7.2. CDMA2000 1xEV-DO Release 0

TEST PROCEDURE

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)

RESULTS

BC10, Cell Band, EV-DO REV 0

Radio Configuration	Service Option	Channel	f (MHz)	Conducted power (dBm)	
				Peak	Average
BC10	EVDO REV 0 (4096)	476	817.90	29.05	25.17
		580	819.15	29.67	25.15
		684	823.10	29.87	25.12

BC0, Cell Band, EV-DO REV 0

FTAP Rate	RTAP Rate	Channel	f (MHz)	Conducted power (dBm)	
				Peak	Average
307.2 kbps (2 slot, QPSK)	153.6 kbps	1013	824.70	29.95	25.18
		384	836.52	30.28	25.19
		777	848.31	29.47	25.19

BC1, PCS Band, EV-DO REV 0

FTAP Rate	RTAP Rate	Channel	f (MHz)	Conducted power (dBm)	
307.2 kbps (2 slot, QPSK)	153.6 kbps	25	1851.25	28.57	25.19
		600	1880.00	29.15	25.14
		1175	1908.75	28.41	25.19

7.3. CDMA2000 1xEV-DO Rev. A

TEST PROCEDURE

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)

RESULTS

BC10, Cell Band, EV-DO Rev A

Radio Configuration	Service Option	Channel	f (MHz)	Conducted power (dBm)	
				Peak	Average
BC10	EVDO REV A (4096)	476	817.90	29.07	25.15
		580	819.15	29.62	25.16
		684	823.10	30.04	25.13

BC0, Cell Band, EV-DO Rev A

FETAP-Traffic Format	RETAP-Data Payload Size	Channel	f (MHz)	Conducted power (dBm)	
				Peak	Average
307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	1013	824.70	30.47	25.16
		384	836.52	30.22	25.20
		777	848.31	29.49	25.16

BC1, PCS Band, EV-DO Rev A

FETAP-Traffic Format	RETAP-Data Payload Size	Channel	f (MHz)	Conducted power (dBm)	
				Peak	Average
307.2k, QPSK/ ACK channel is transmitted at all the slots	4096	25	1851.25	28.54	25.18
		600	1880.00	29.20	25.12
		1175	1908.75	28.33	25.18

7.4. LTE BAND 25

Output power for LTE Band 25 (3.0MHz)

Freq. (MHz)	UL Channel	Modulation	BW (MHz)	RB Size	RB Offset	Max Peak Power (dBm)	Average
1851.5	26055	QPSK	3	1	0	28.07	23.40
				1	7	28.14	23.52
				1	14	28.25	23.60
				8	0	28.55	22.58
				8	4	28.64	22.56
				8	7	28.62	22.62
				15	0	28.64	22.53
		16-QAM		1	0	28.38	22.42
				1	7	28.37	21.94
				1	14	28.45	22.03
				8	0	28.62	21.63
				8	4	28.64	21.66
				8	7	28.57	21.72
				15	0	28.82	21.52
1882.5	26365	QPSK		1	0	28.60	23.62
				1	7	28.24	23.55
				1	14	28.47	23.64
				8	0	28.75	22.59
				8	4	29.03	22.60
				8	7	28.86	22.57
				15	0	28.90	22.63
		16-QAM		1	0	29.09	22.33
				1	7	28.42	22.23
				1	14	28.72	22.28
				8	0	28.87	21.69
				8	4	28.89	21.62
				8	7	28.79	21.66
				15	0	28.31	2149
1913.5	26675	QPSK		1	0	27.97	23.56
				1	7	27.92	23.52
				1	14	27.86	23.09
				8	0	28.60	22.87
				8	4	28.61	22.81
				8	7	28.47	22.72
				15	0	28.63	22.74
		16-QAM		1	0	28.49	22.61
				1	7	28.42	22.61
				1	14	28.49	22.21
				8	0	28.89	21.95
				8	4	28.88	21.90
				8	7	28.85	21.93
				15	0	28.90	21.83

Output power for LTE Band 25 (5.0MHz)

Freq. (MHz)	UL Channel	Modulation	BW (MHz)	RB Size	RB Offset	Max Peak Power (dBm)	Average
1852.5	26065	QPSK	5	1	0	29.04	23.50
				1	12	28.51	23.67
				1	24	29.02	23.68
				12	0	28.52	22.54
				12	4	29.03	22,56
				12	7	28.50	22.57
				25	0	29.05	22.55
		16-QAM		1	0	28.77	22.56
				1	12	28.54	22.48
				1	24	28.75	22.66
				12	0	28.70	21.37
				12	4	28.50	21.63
				12	7	28.35	21.38
				25	0	28.70	21.42
1882.5	26365	QPSK		1	0	29.23	23.66
				1	12	28.91	23.70
				1	24	29.00	23.69
				12	0	28.77	22.46
				12	4	29.17	22.60
				12	7	28.72	22.52
				25	0	28.78	22.39
		16-QAM		1	0	29.22	22.45
				1	12	28.92	22.43
				1	24	28.92	22.45
				12	0	28.82	21.32
				12	4	28.50	21.41
				12	7	28.57	21.30
				25	0	28.65	21.32
1912.5	26675	QPSK		1	0	28.53	23.66
				1	12	28.36	23.68
				1	24	28.54	23.10
				12	0	28.39	22.75
				12	6	28.62	22.60
				12	11	28.36	22.46
				25	0	28.69	22.42
		16-QAM		1	0	28.24	22.19
				1	12	28.35	22.44
				1	24	28.27	21.68
				12	0	28.62	21.51
				12	6	28.66	21.52
				12	11	28.61	21.33
				25	0	28.67	21.42

Output power for LTE Band 25 (10.0MHz)

Freq. (MHz)	UL Channel	Modulation	BW (MHz)	RB Size	RB Offset	Max Peak Power (dBm)	Average
1855	26090	QPSK	10	1	0	29.00	23.64
				1	24	28.04	23.54
				1	49	28.93	23.65
				25	0	28.86	22.51
				25	12	28.58	22.47
				25	24	28.72	22.43
				50	0	28.60	22.49
		16-QAM		1	0	28.90	22.56
				1	24	28.27	21.83
				1	49	28.40	22.65
				25	0	28.77	21.55
				25	12	28.20	21.40
				25	24	28.72	21.40
				50	0	28.55	21.41
1882.5	26365	QPSK		1	0	29.20	23.70
				1	24	28.40	23.61
				1	49	28.83	23.70
				25	0	28.28	22.50
				25	12	29.01	22.40
				25	24	29.01	22.50
				50	0	29.10	22.40
		16-QAM		1	0	29.15	23.43
				1	24	28.32	22.20
				1	49	28.89	22.43
				25	0	28.82	21.38
				25	12	28.52	21.31
				25	24	28.48	21.41
				50	0	28.11	21.40
1910	26640	QPSK		1	0	28.90	23.63
				1	24	27.79	23.61
				1	49	28.85	23.54
				25	0	28.50	22.39
				25	12	28.52	22.45
				25	24	28.57	22.55
				50	0	28.77	22.42
		16-QAM		1	0	28.71	22.53
				1	24	28.10	22.14
				1	49	28.66	22.44
				25	0	28.80	21.38
				25	12	28.72	21.37
				25	24	28.70	21.53
				50	0	29.22	21.30

8. LIMITS AND CONDUCTED RESULTS

8.1. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049
IC: RSS-132, 4.5; RSS-133, 6.5

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

- CDMA BC10, BC0, BC1
- LTE Band 25

RESULTS

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC10	1xRTT	476	817.90	1.2734	1.424
		526	819.15	1.2754	1.384
		684	823.10	1.2422	1.390
BC10	EVDO	476	817.90	1.2715	1.378
		526	819.15	1.2736	1.409
		684	823.1	1.2679	1.413

Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC0, Cellular	1xRTT	1013	824.70	1.2529	1.397
		384	836.52	1.2727	1.387
		777	848.31	1.2457	1.387
	CDMA2000 1xEV-DO (Rev. A)	1013	824.70	1.2656	1.395
		384	836.52	1.2361	1.380
		777	848.31	1.2810	1.405

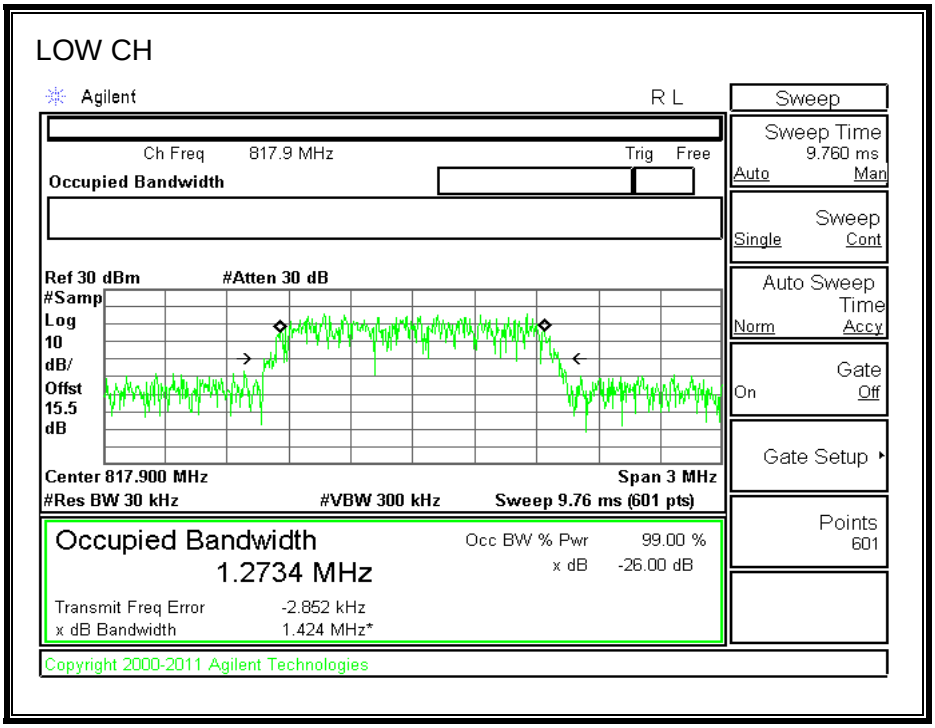
Band	Mode	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC1, PCS	1xRTT	25	1851.25	1.2794	1.505
		600	1880.0	1.2588	1.400
		1175	1908.75	1.2849	1.404
	CDMA2000 1xEV-DO (Rev. A)	25	1851.25	1.2638	1.407
		600	1880.0	1.2657	1.398
		1175	1908.75	1.2631	1.392

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
	3 MHz BAND QPSK	8/4	1851.5	1.4831	1.684
		15/0		2.6846	3.030
	3 MHz BAND 16QAM	8/4	1882.5	1.4878	1.778
		15/0		2.7343	3.010
	3 MHz BAND QPSK	8/4	1913.5	1.5446	1.895
		15/0		2.6797	2.897
	3 MHz BAND 16QAM	8/4	1851.5	1.4748	1.814
		15/0		2.7015	2.839
	3 MHz BAND 16QAM	8/4	1882.5	1.4919	2.016
		15/0		2.7165	2.951
	3 MHz BAND 16QAM	8/4	1913.5	1.5047	1.981
		15/0		2.6572	2.780
	5 MHz BAND QPSK	12/6	1852.5	2.1699	2.526
		25/0		4.4192	4.805
	5 MHz BAND QPSK	12/6	1882.5	2.2106	2.528
		25/0		4.2820	4.923
	5 MHz BAND QPSK	12/6	1912.5	2.1484	2.525
		25/0		4.4861	4.775
	5 MHz BAND 16QAM	12/6	1852.5	2.1756	2.355
		25/0		4.4953	4.738
	5 MHz BAND 16QAM	12/6	1882.5	2.1815	2.516
		25/0		4.4953	4.777
	5 MHz BAND 16QAM	12/6	1912.5	2.1988	3.262
		25/0		4.4686	4.704
	10MHz BAND QPSK	25/12	1855.0	4.5489	5.169
		50/0		8.8628	9.294
	10 MHz BAND QPSK	25/12	1882.5	4.4965	5.082
		50/0		8.9099	9.391
	10 MHz BAND QPSK	25/12	1910.0	4.5313	5.554
		50/0		8.9560	9.327
	10 MHz BAND 16QAM	25/12	1855.0	4.6265	5.094
		50/0		8.9159	9.436
	10 MHz BAND 16QAM	25/12	1882.5	4.5023	4.796
		50/0		8.9156	9.587
	10 MHz BAND 16QAM	25/12	1910.0	4.5467	4.813
		50/0		8.9355	9.413

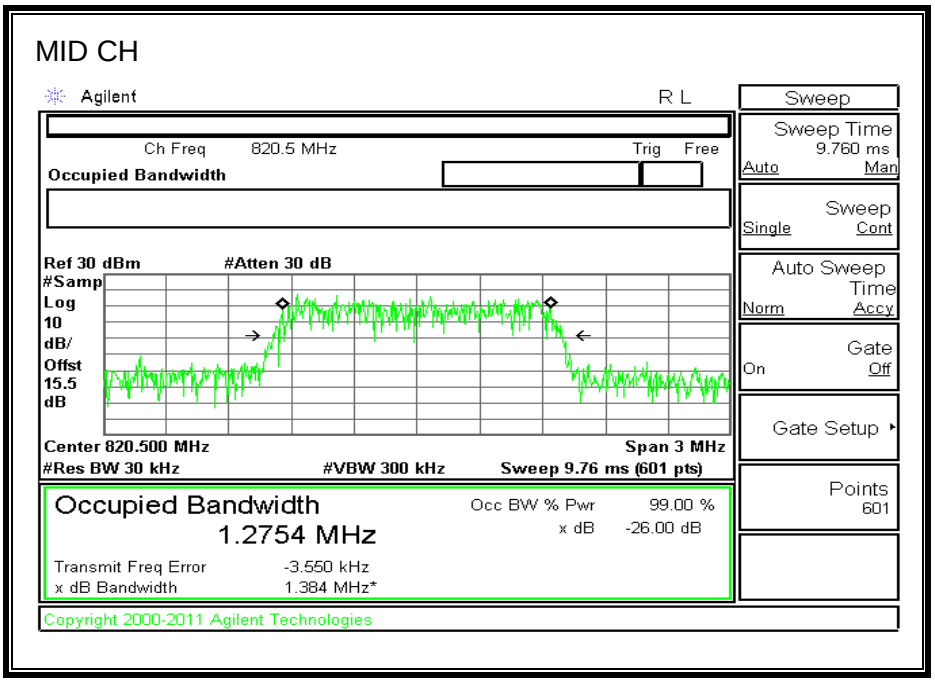
8.1.1. CDMA2000, BC10

1xRTT, 99% and 26dB Bandwidth

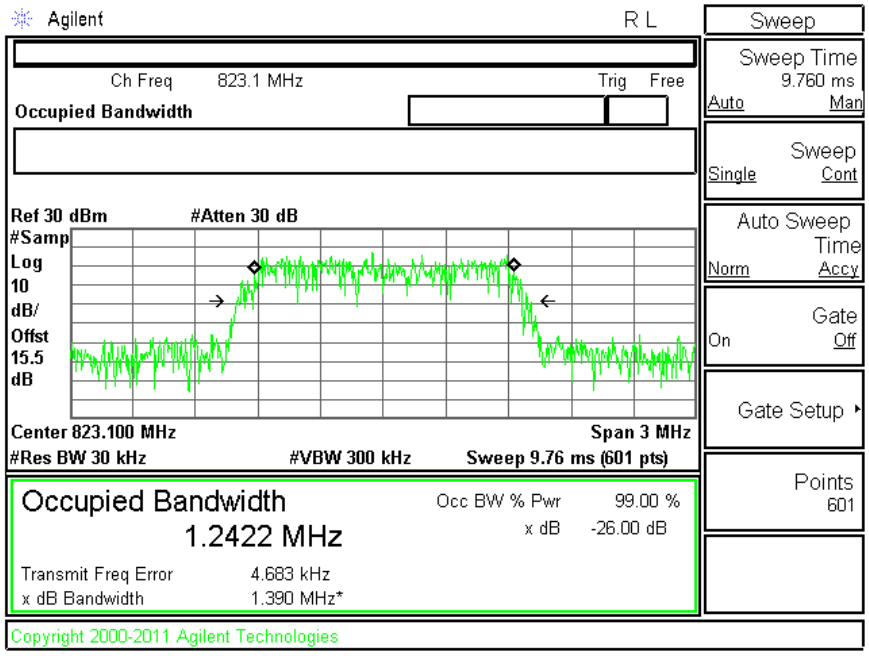
LOW CH



MID CH

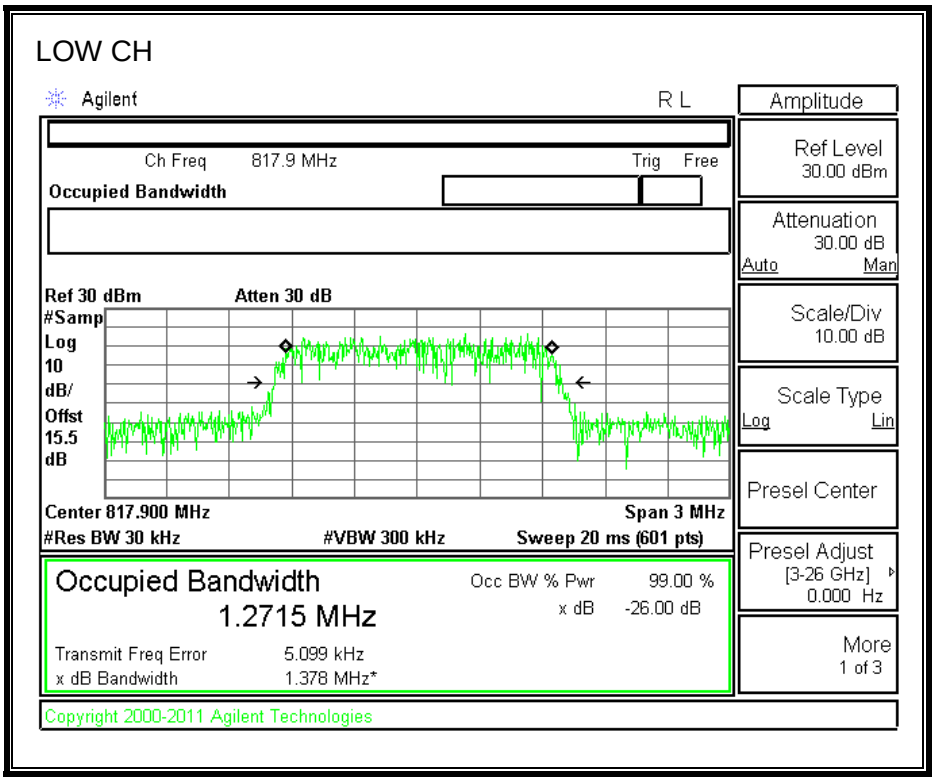


HIGH CH

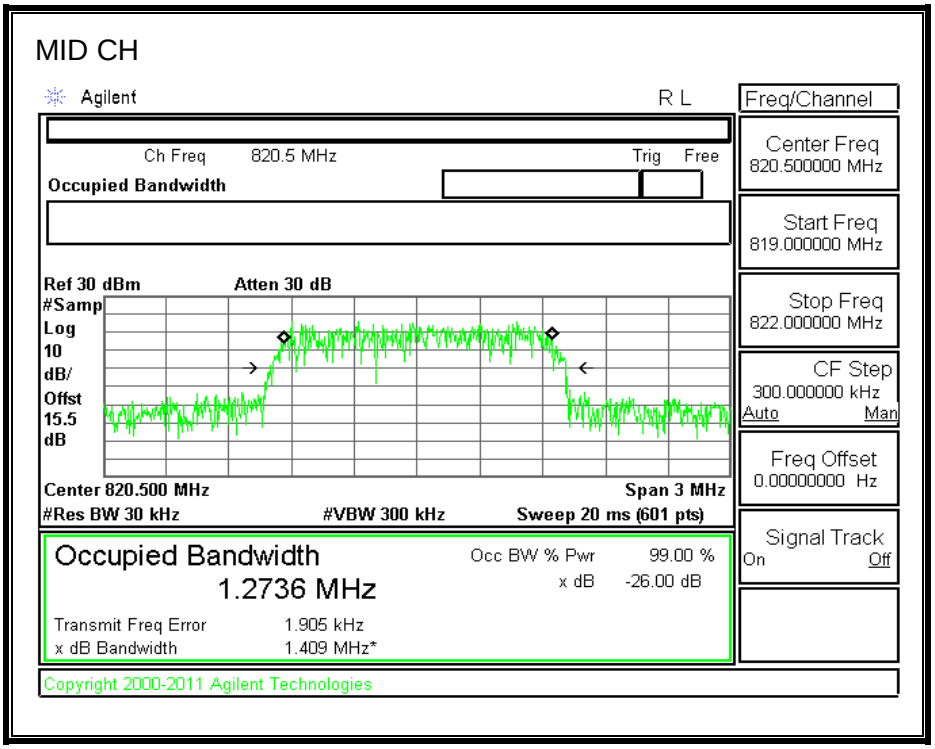


EVDO REV A

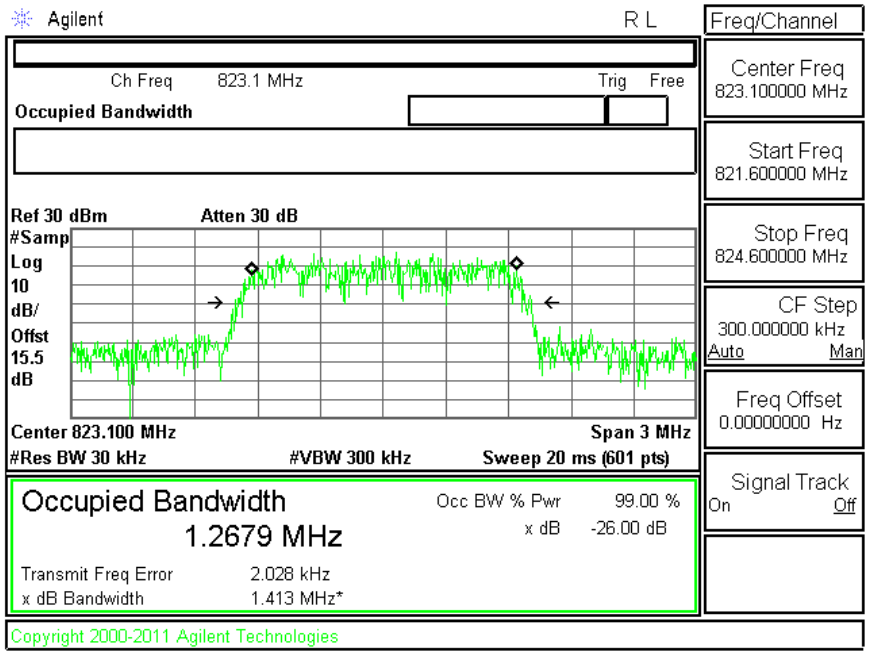
LOW CH



MID CH



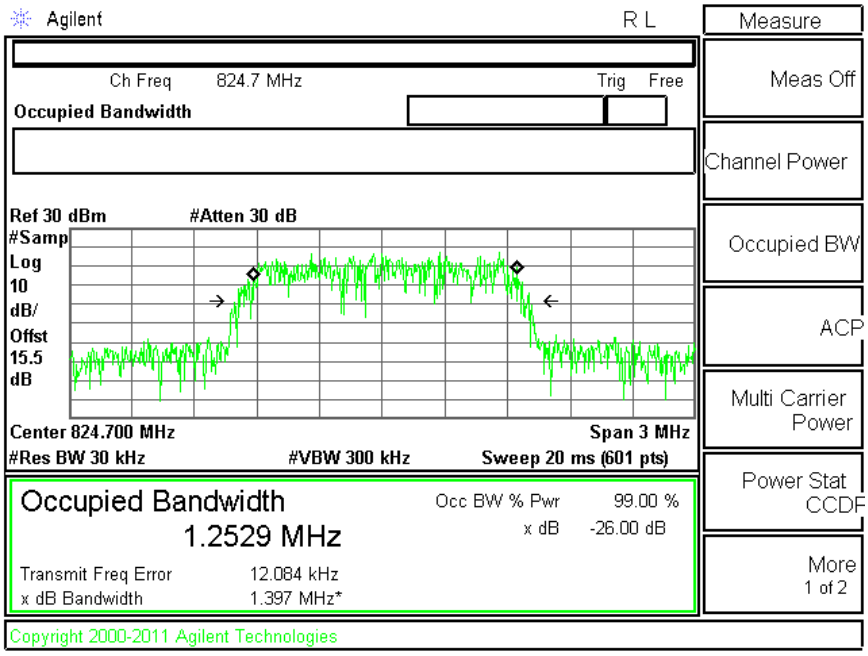
HIGH CH



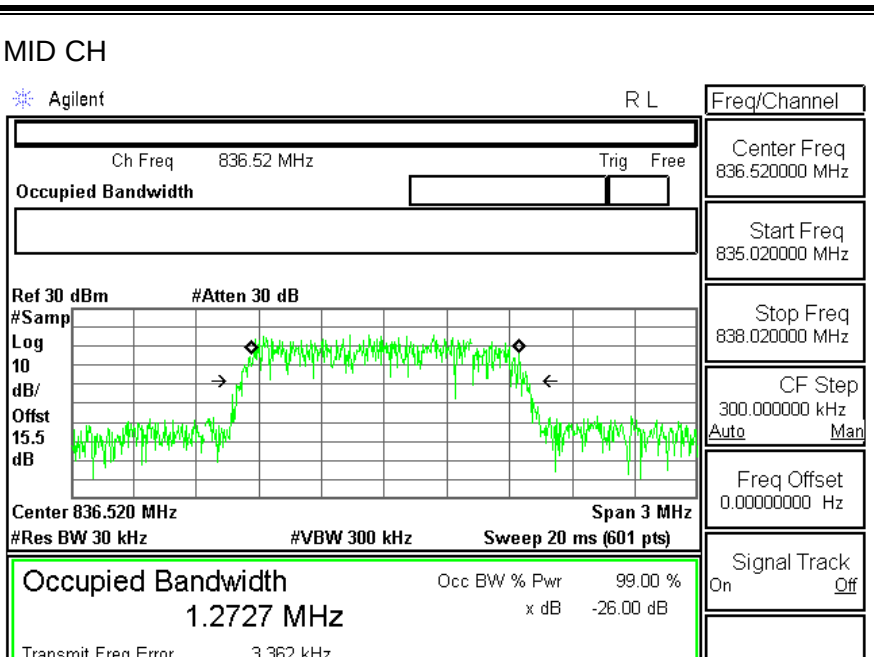
8.1.2. **CDMA2000, BC0**

1xRTT

LOW CH



MID CH



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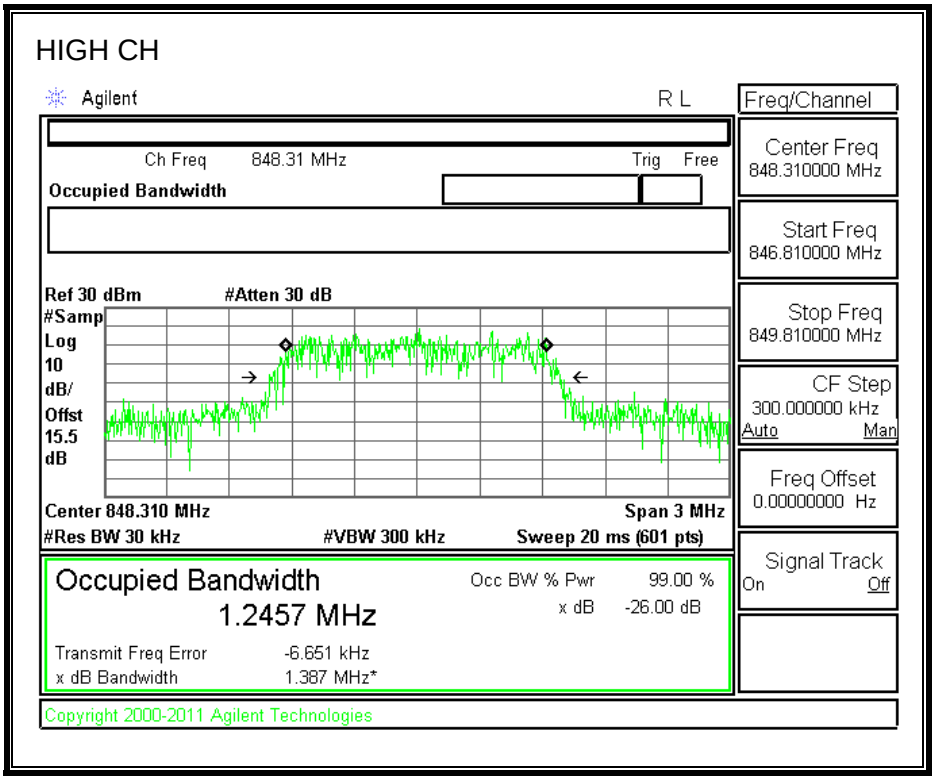
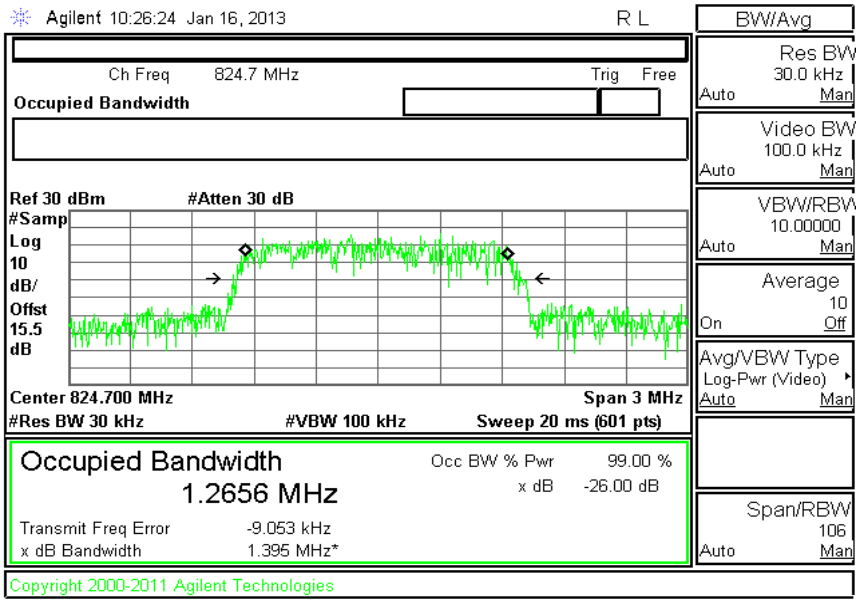
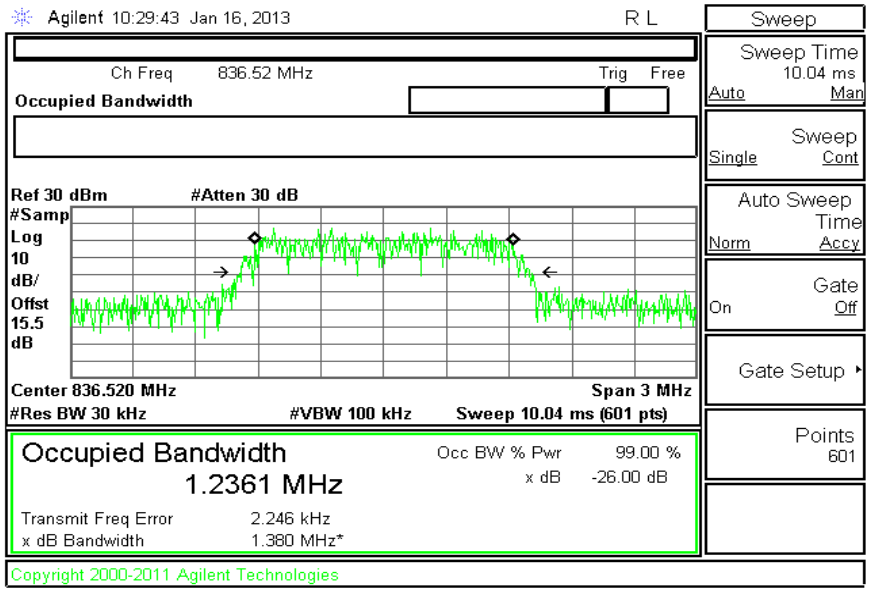


1xEV-DO Rev. A

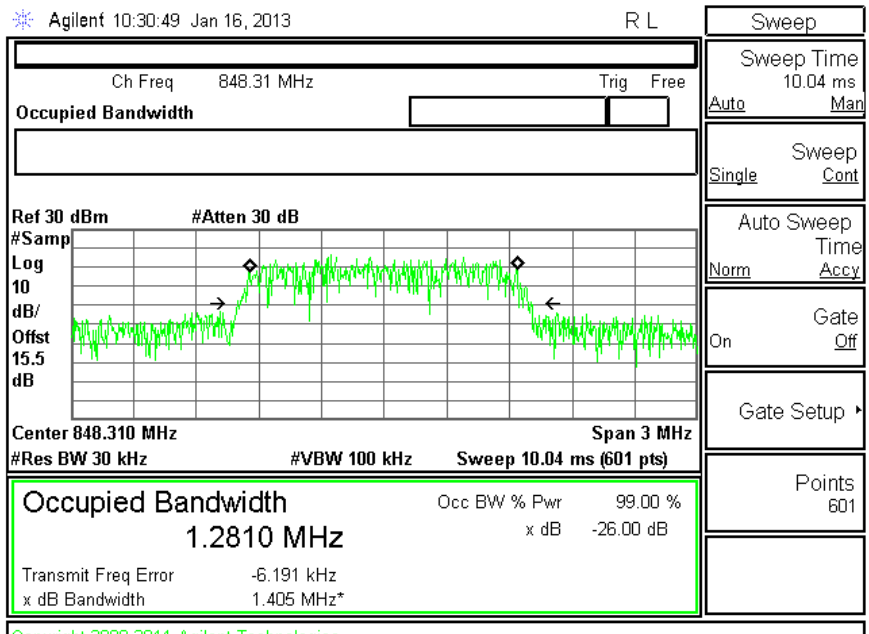
LOW CH



MID CH



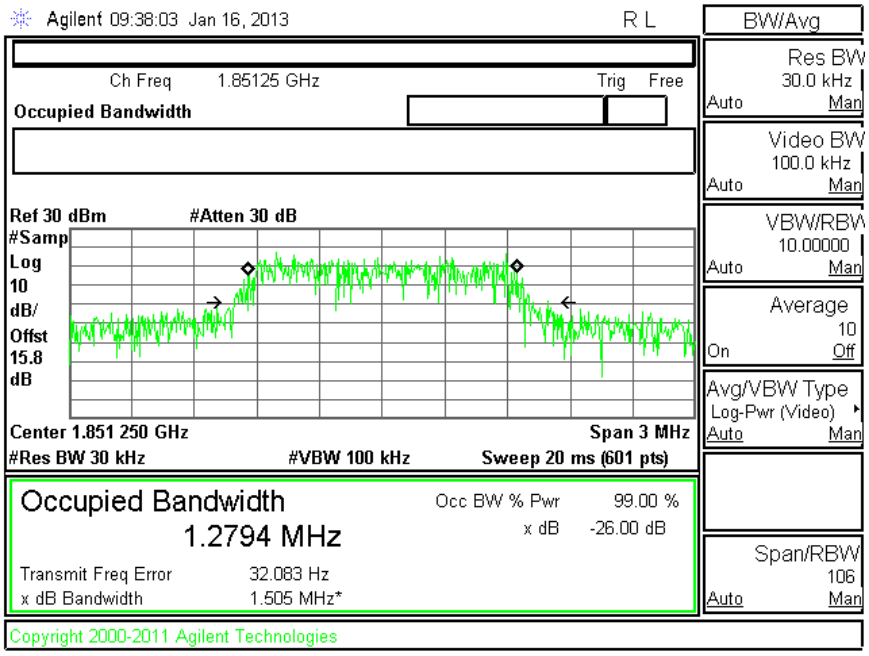
HIGH CH



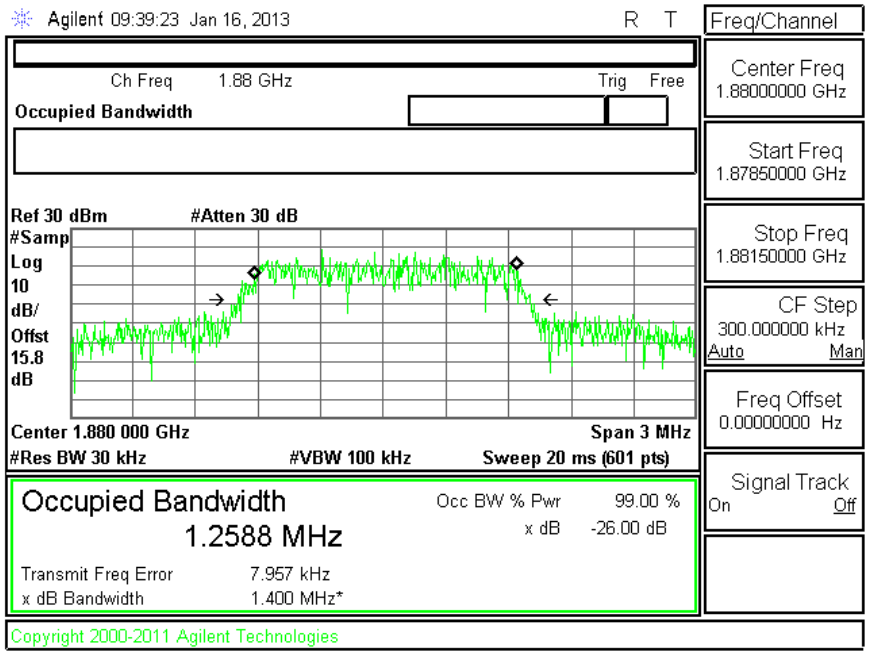
8.1.3. **CDMA2000, BC1,**

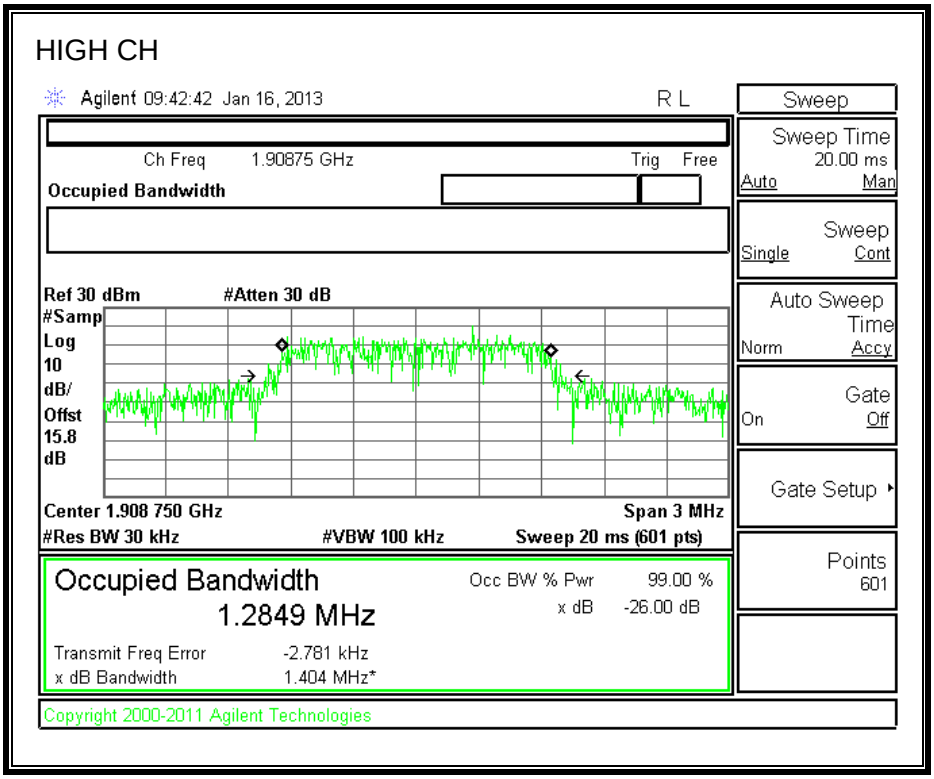
1xRTT Mode

LOW CH

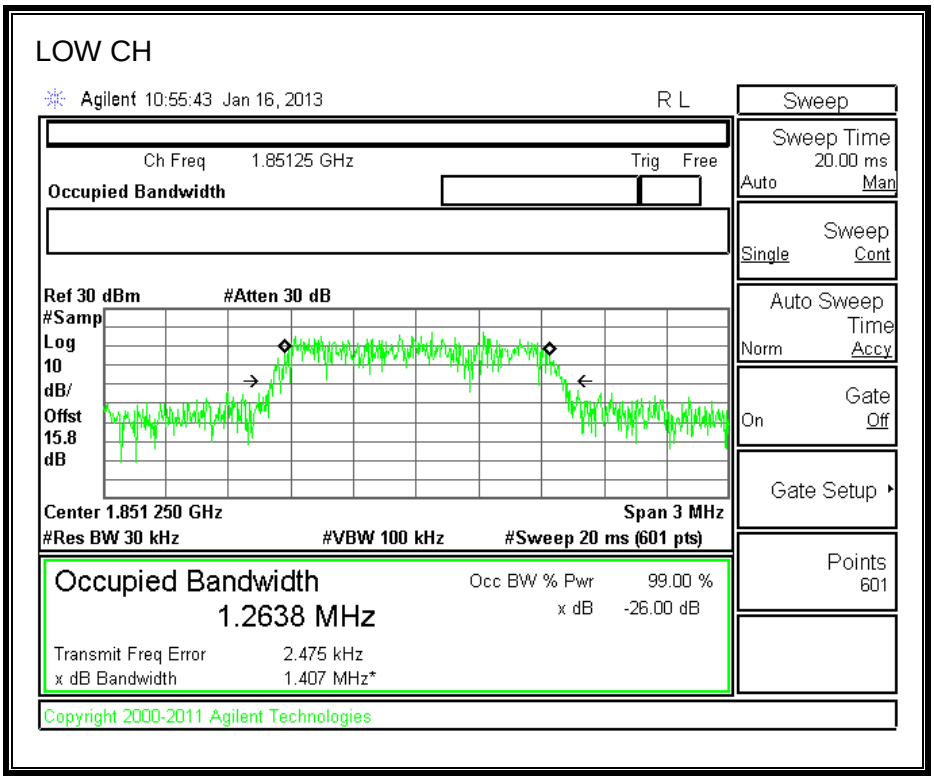


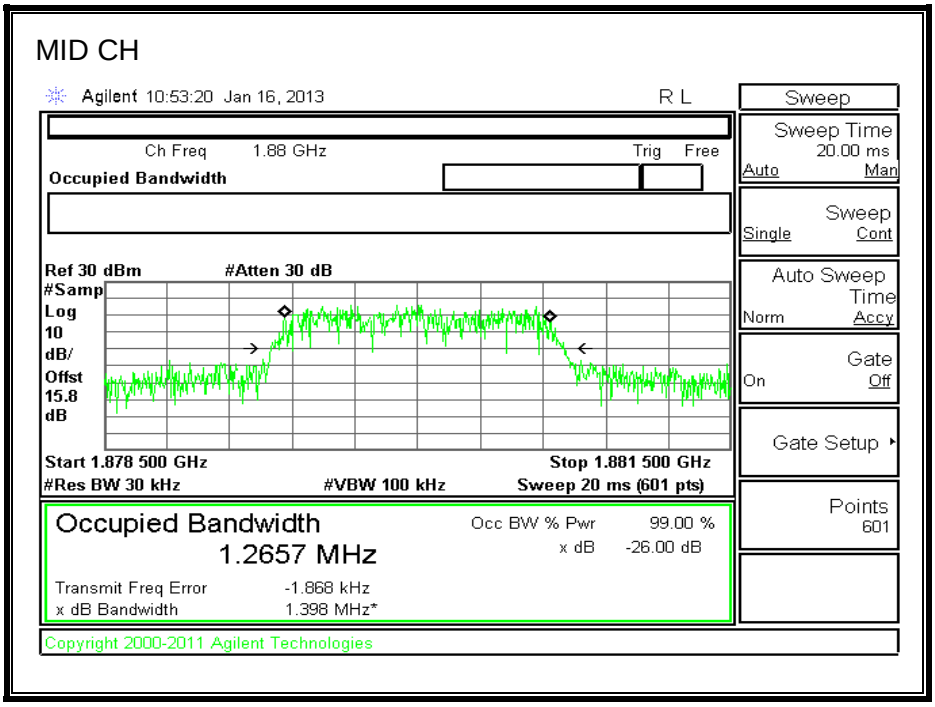
MID CH



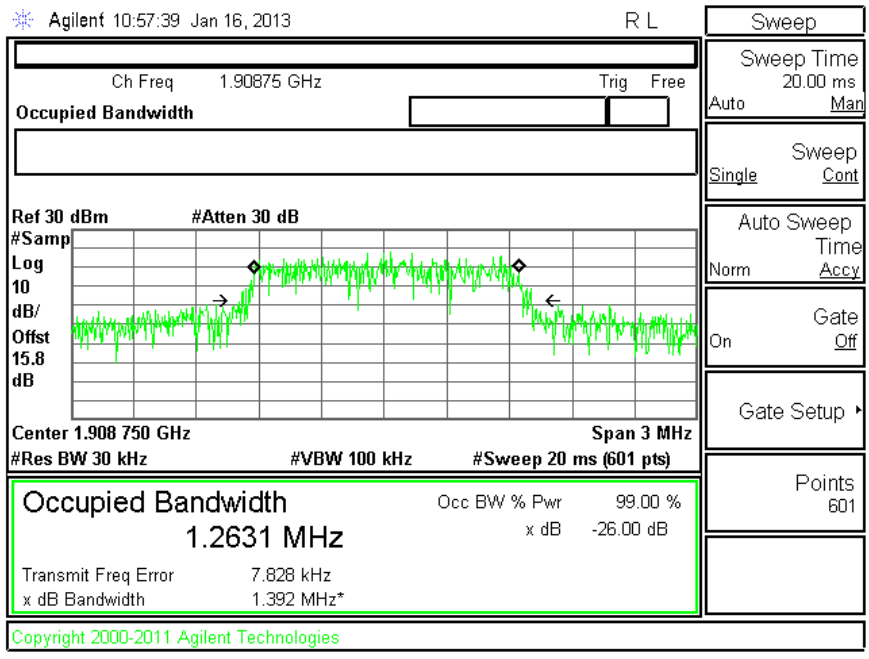


EV-DO Rev. A Mode



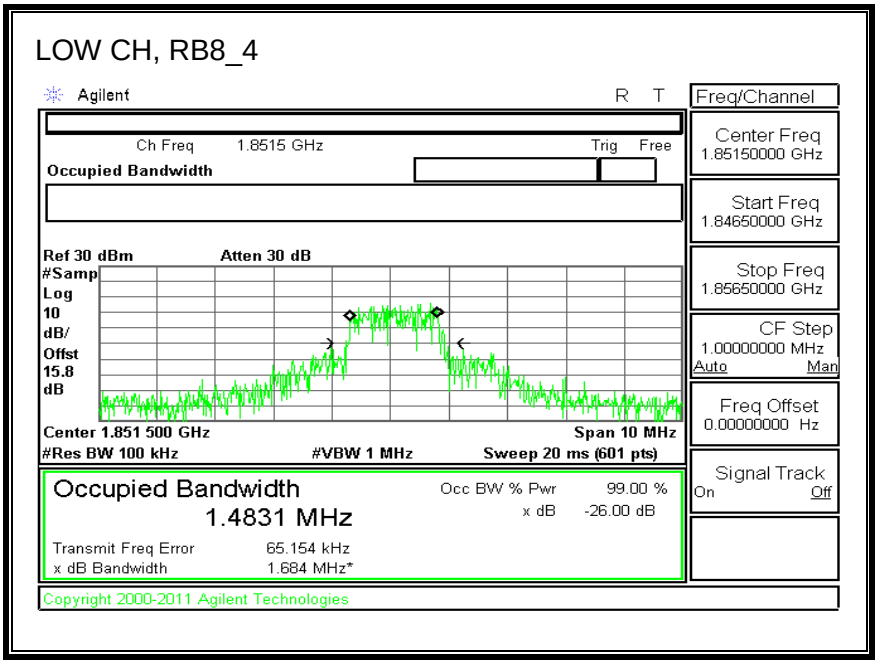


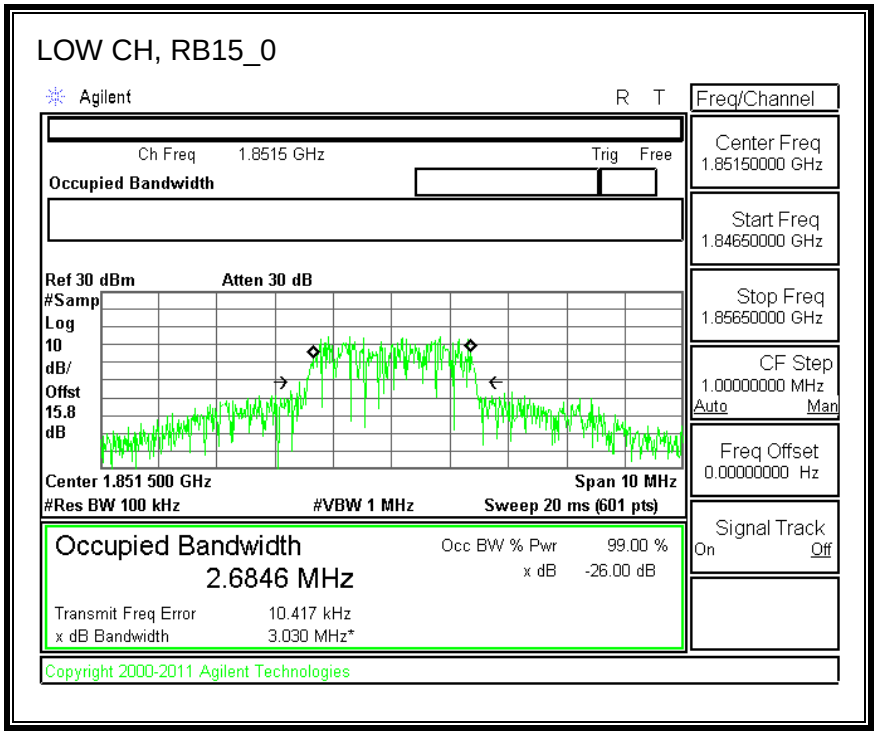
HIGH CH



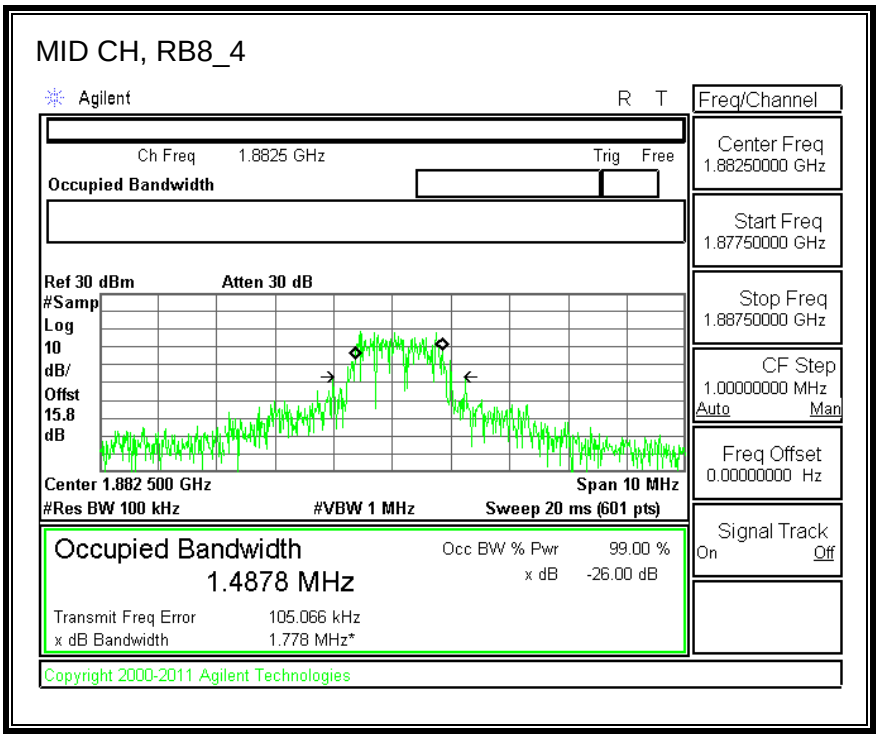
8.1.4. LTE Band 25

QPSK(3.0 MHz BAND WIDTH)

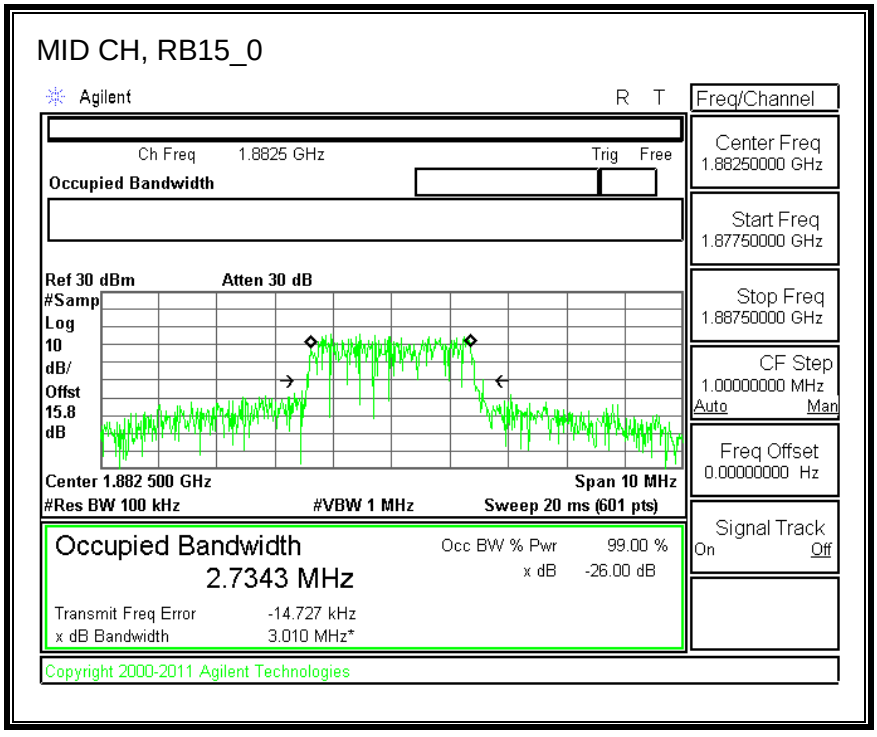




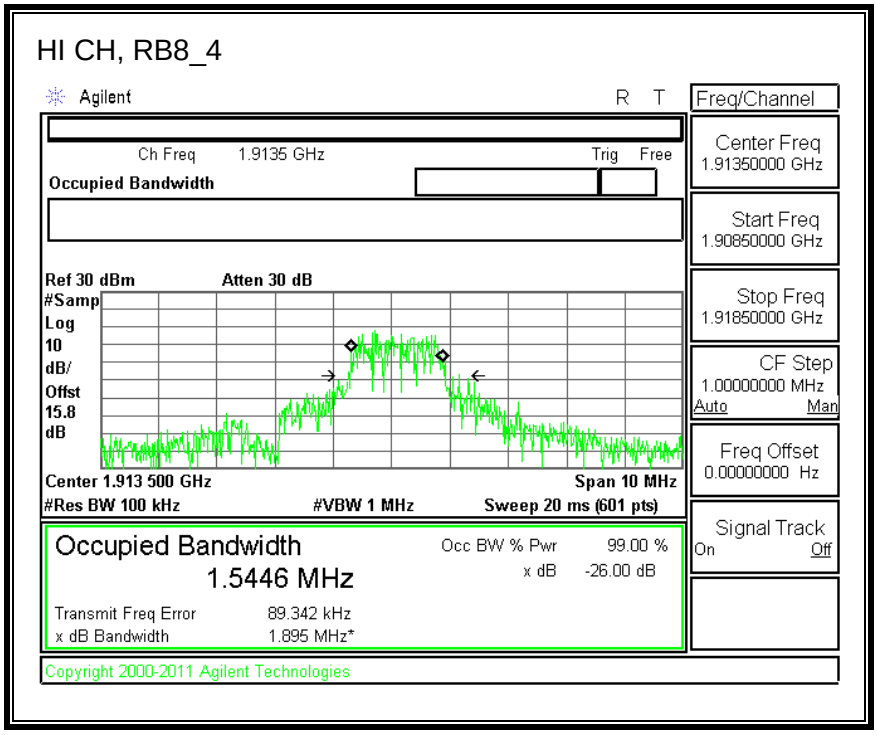
MID CH, RB8_4



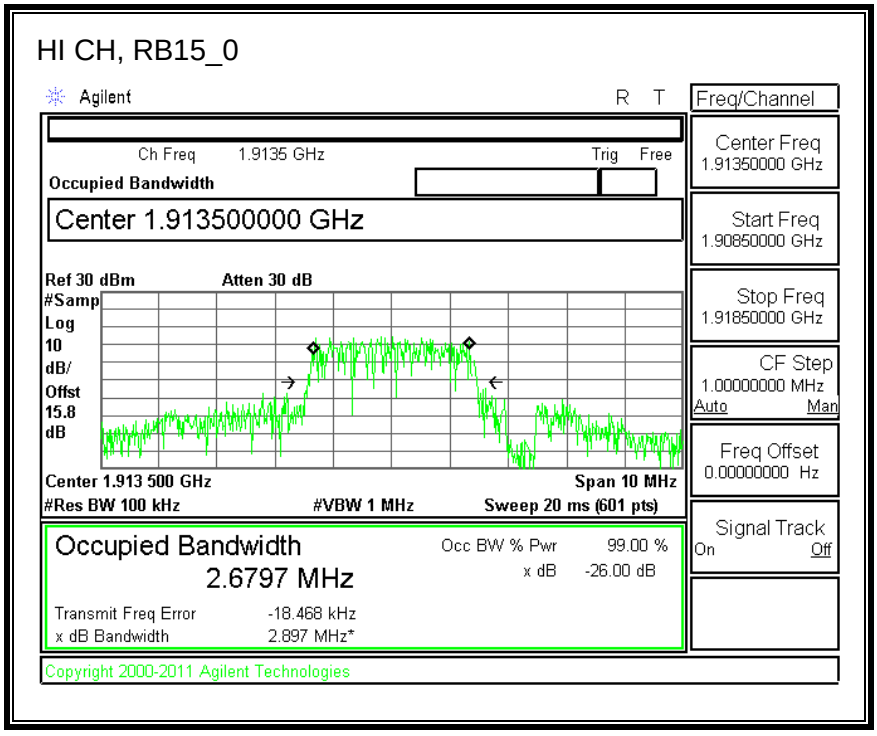
MID CH, RB15_0



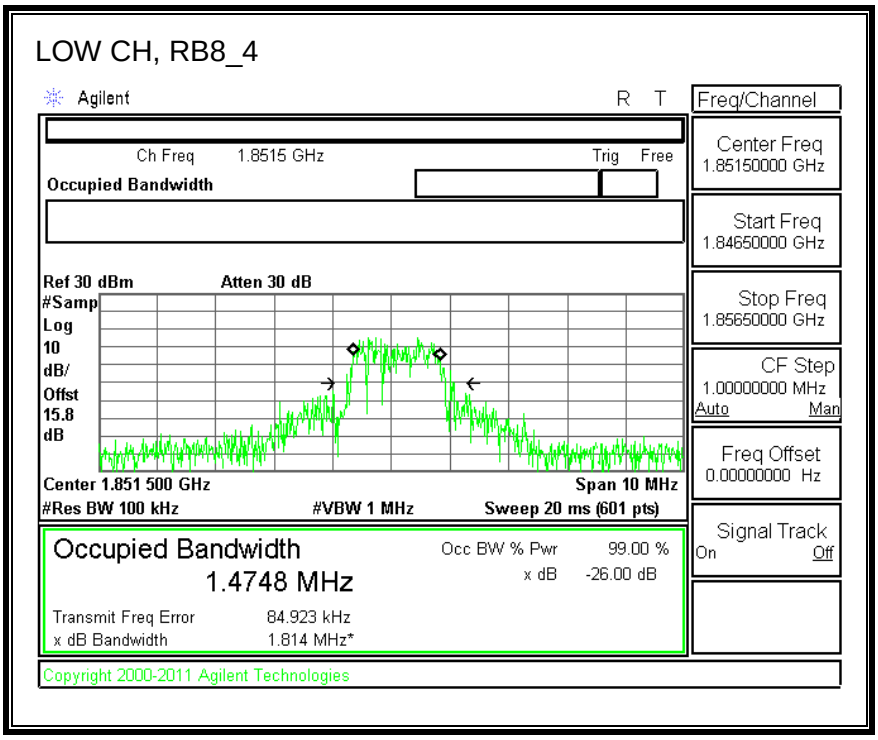
HI CH, RB8_4

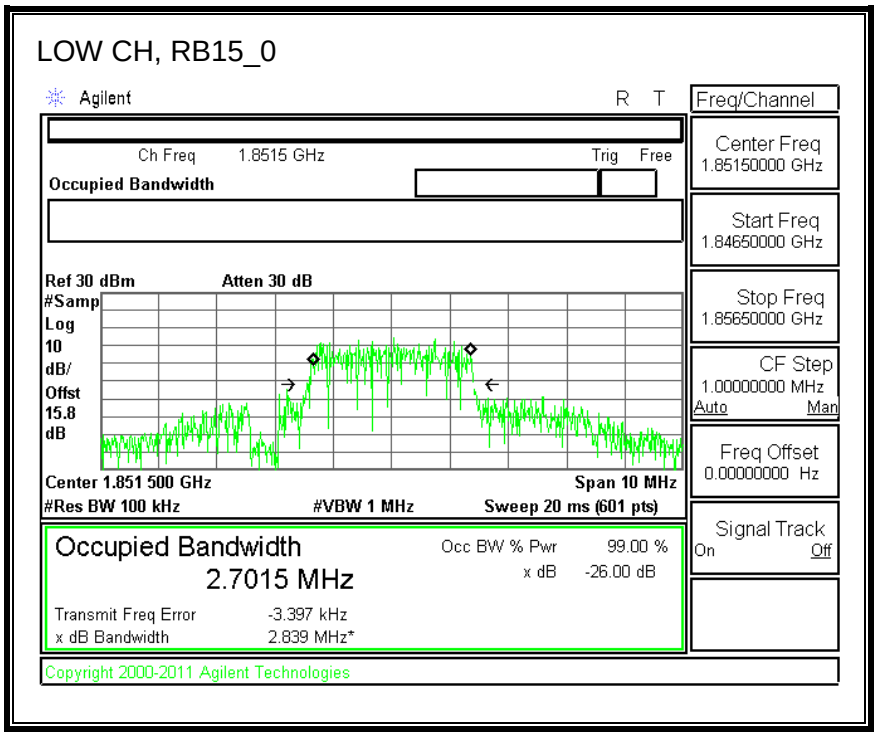


HI CH, RB15_0

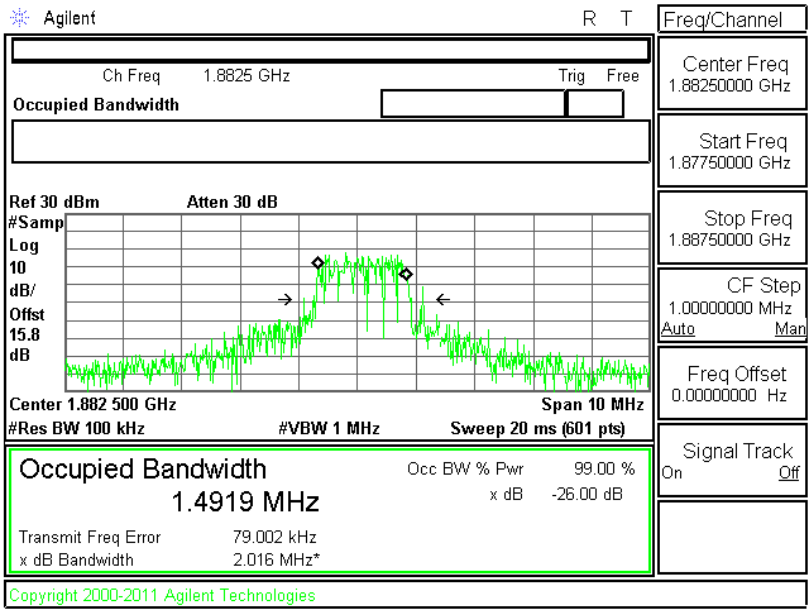


16QAM (3.0 MHz BAND WIDTH)

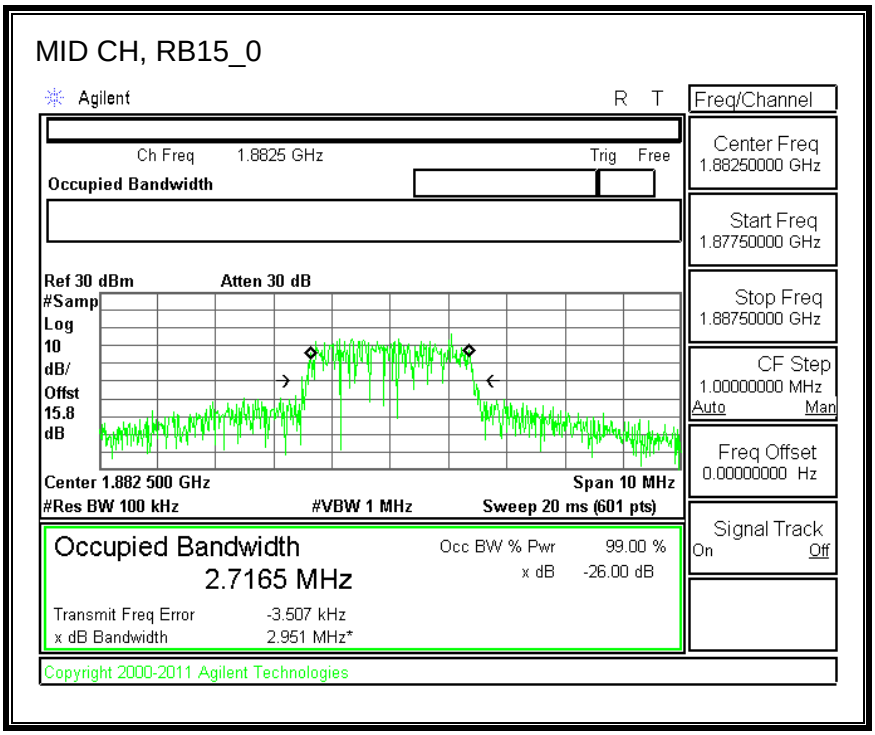




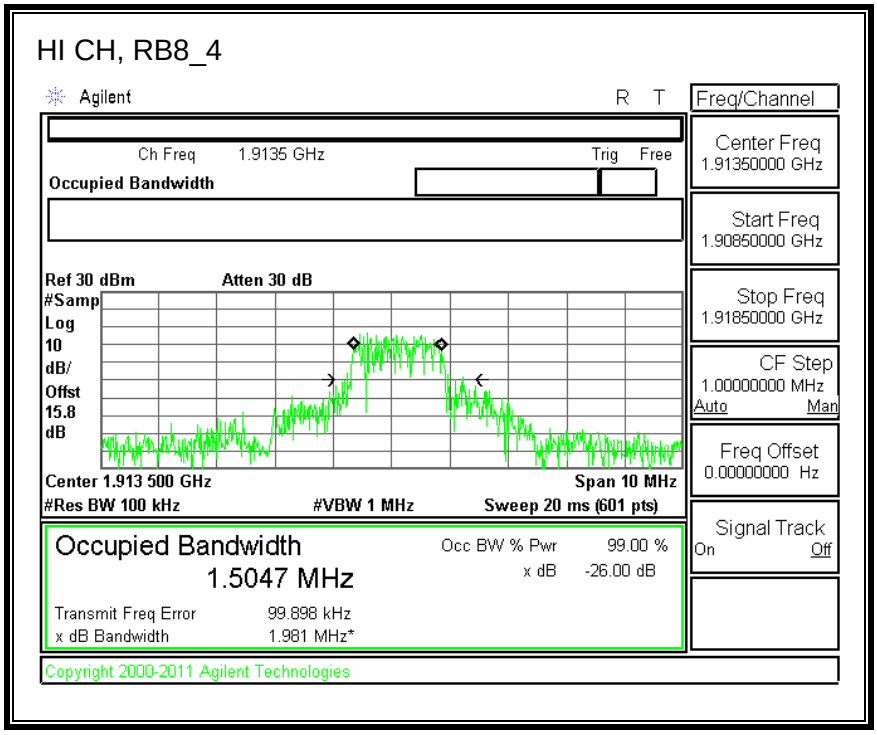
MID CH, RB8_4



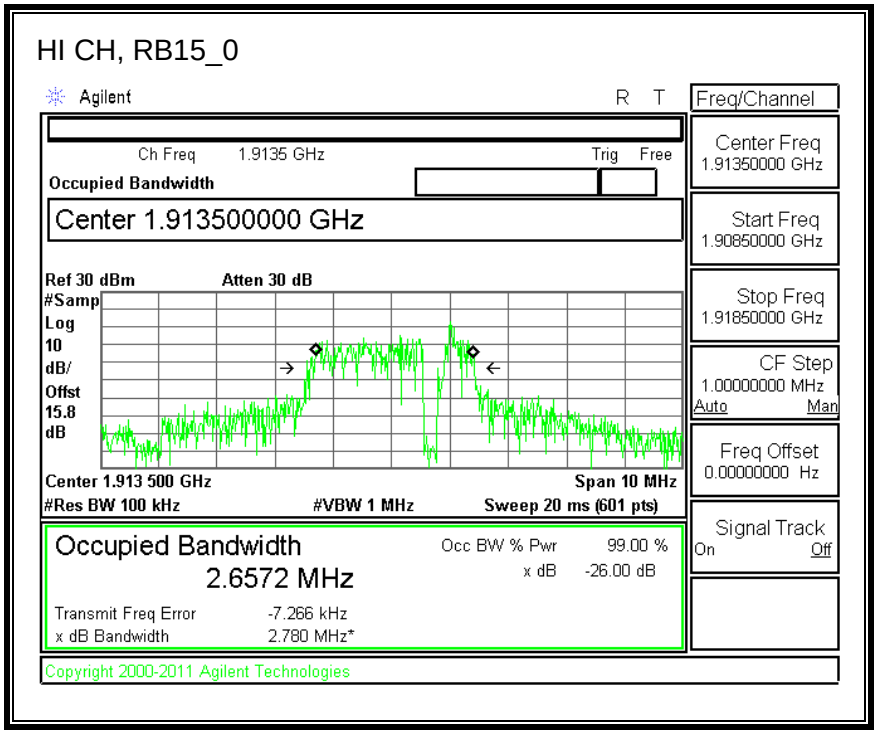
MID CH, RB15_0



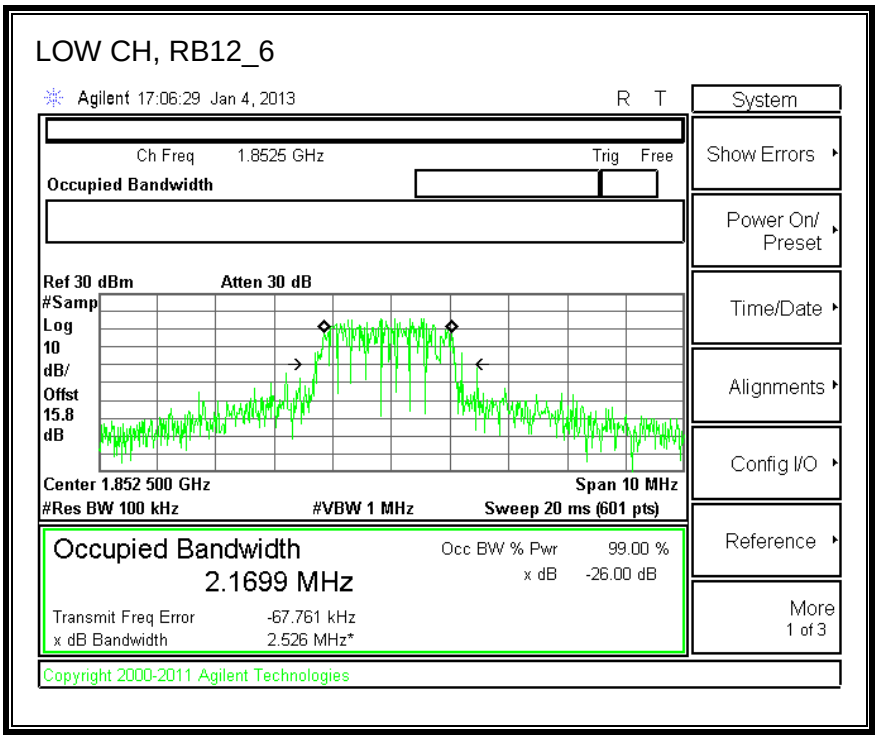
HI CH, RB8_4

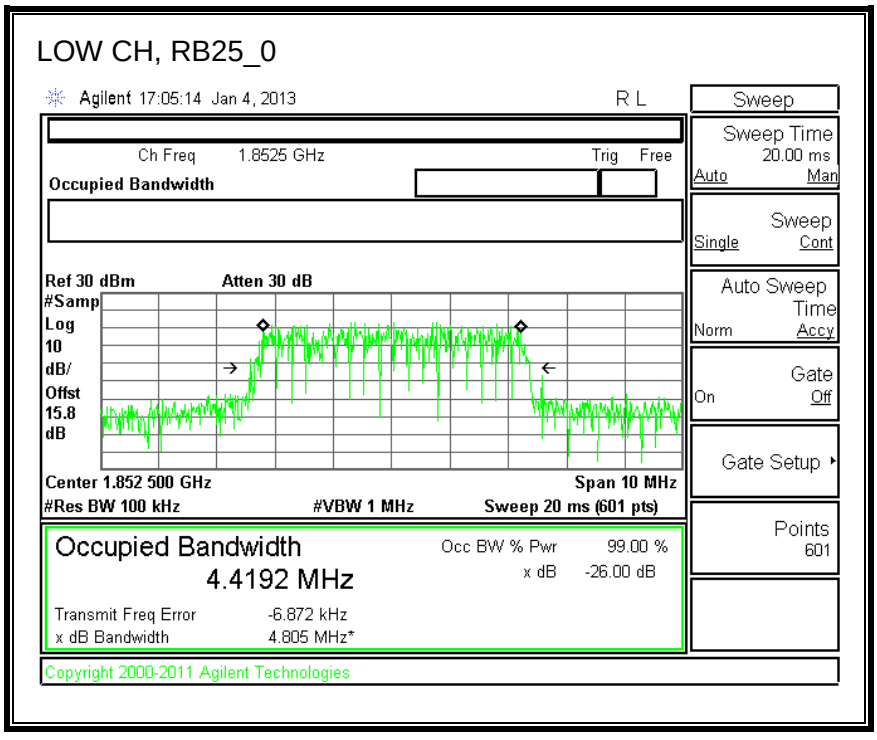


HI CH, RB15_0

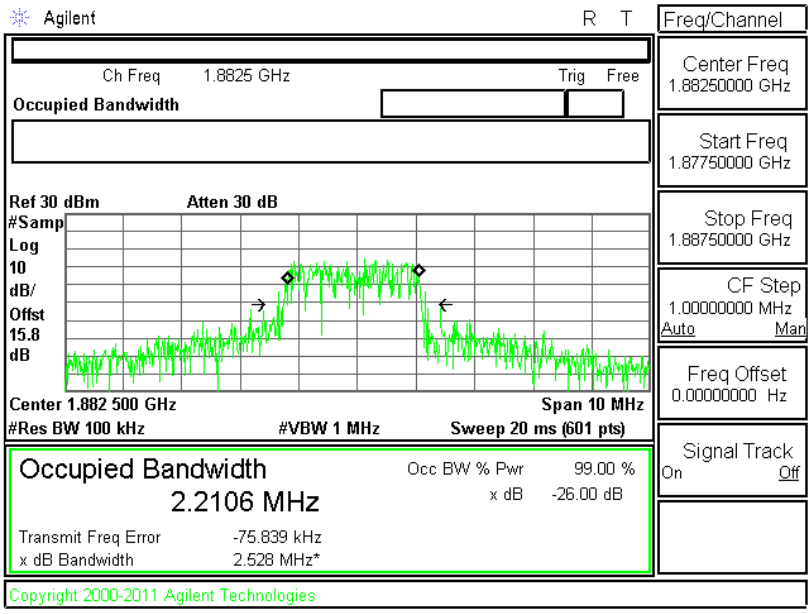


QPSK(5.0 MHz BAND WIDTH)

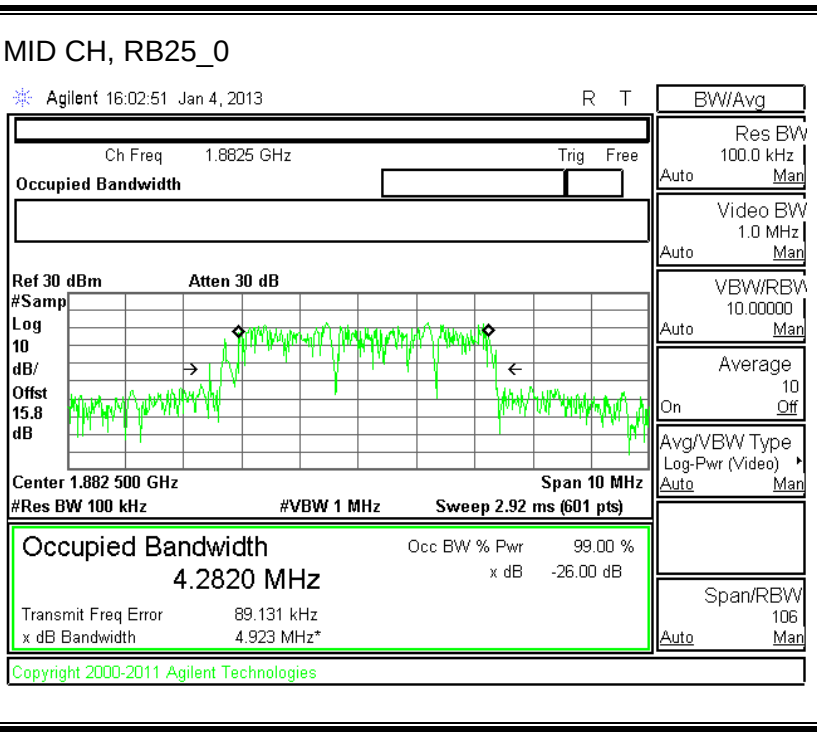




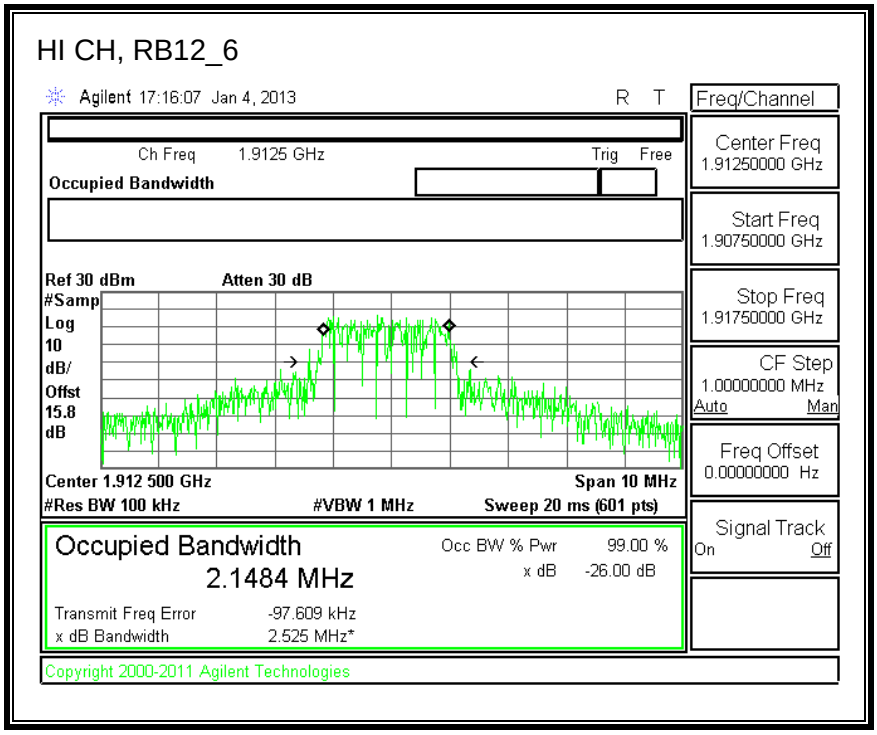
MID CH, RB12_6



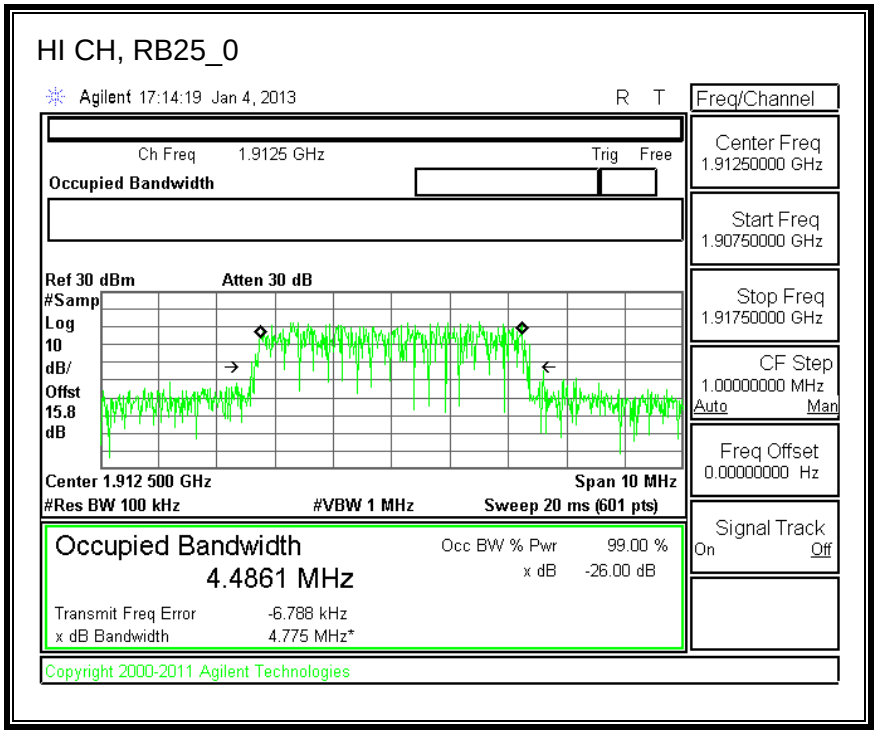
MID CH, RB25_0



HI CH, RB12_6

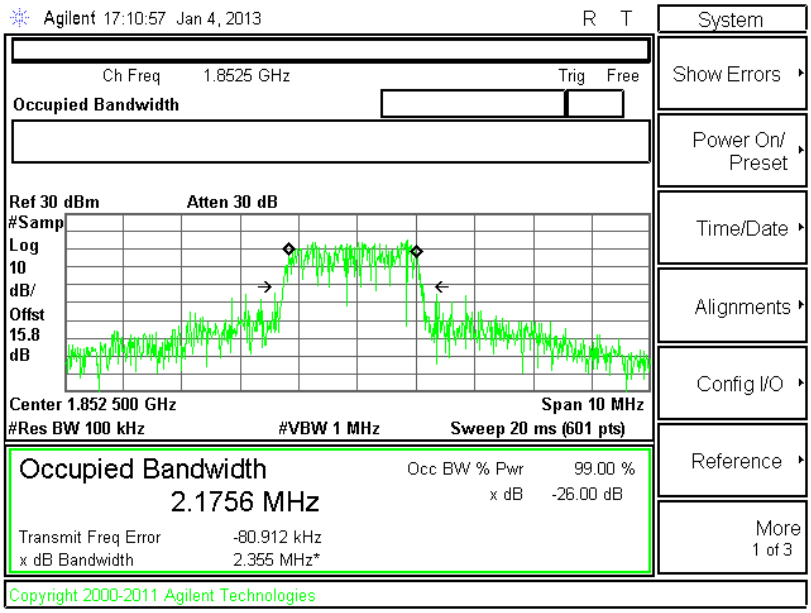


HI CH, RB25_0

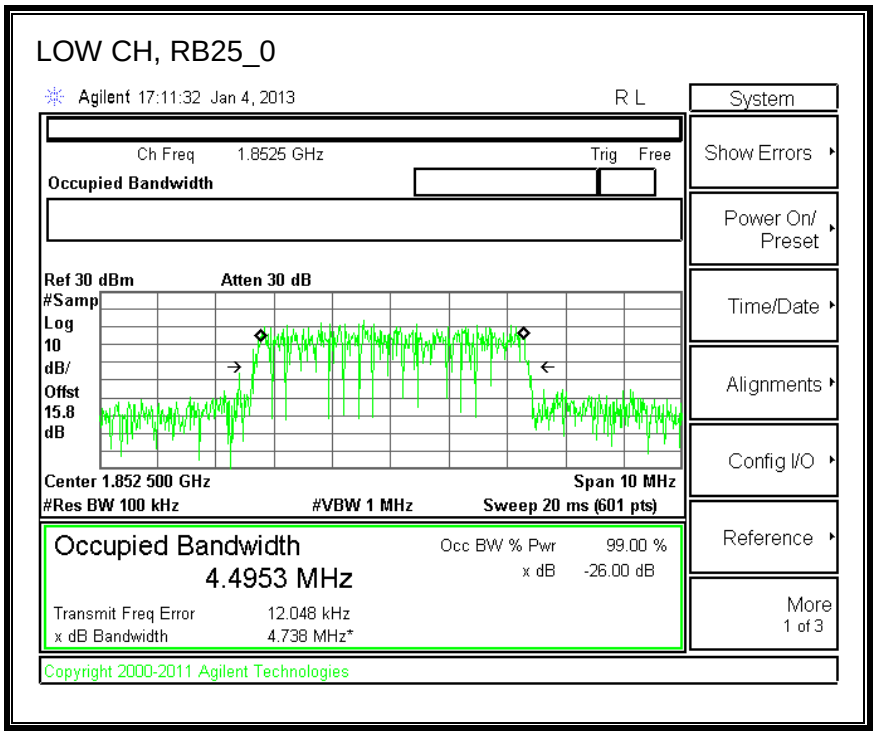


16QAM (5 MHz BAND WIDTH)

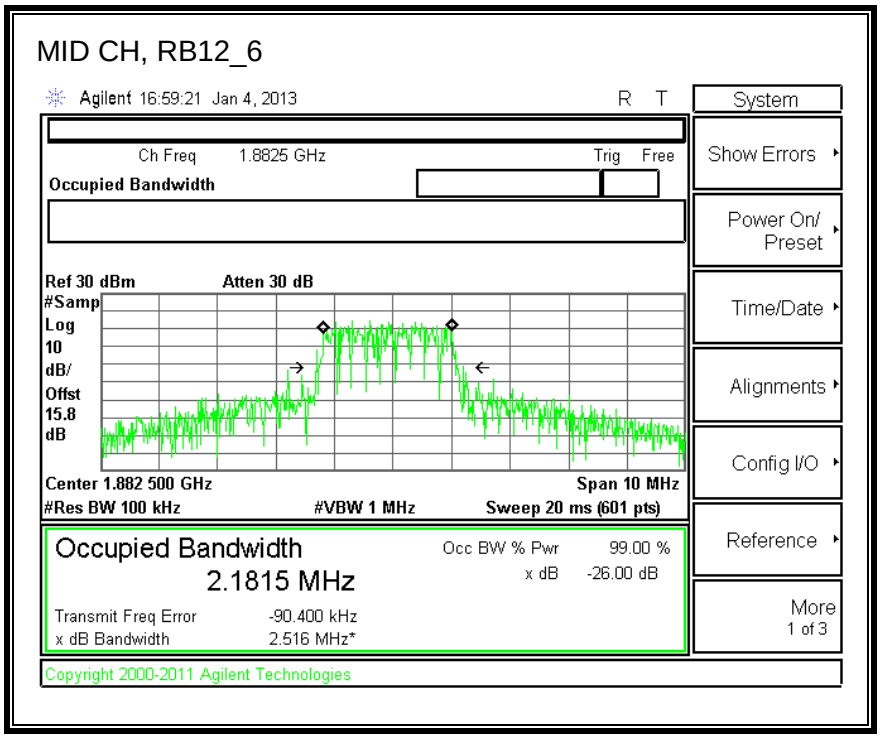
LOW CH, RB12_6



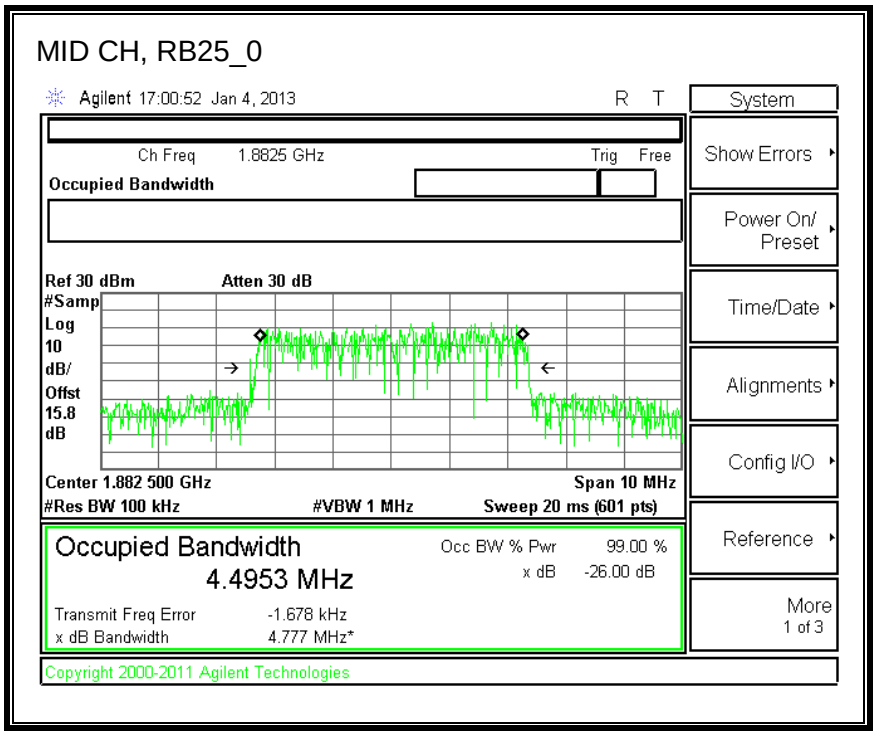
LOW CH, RB25_0



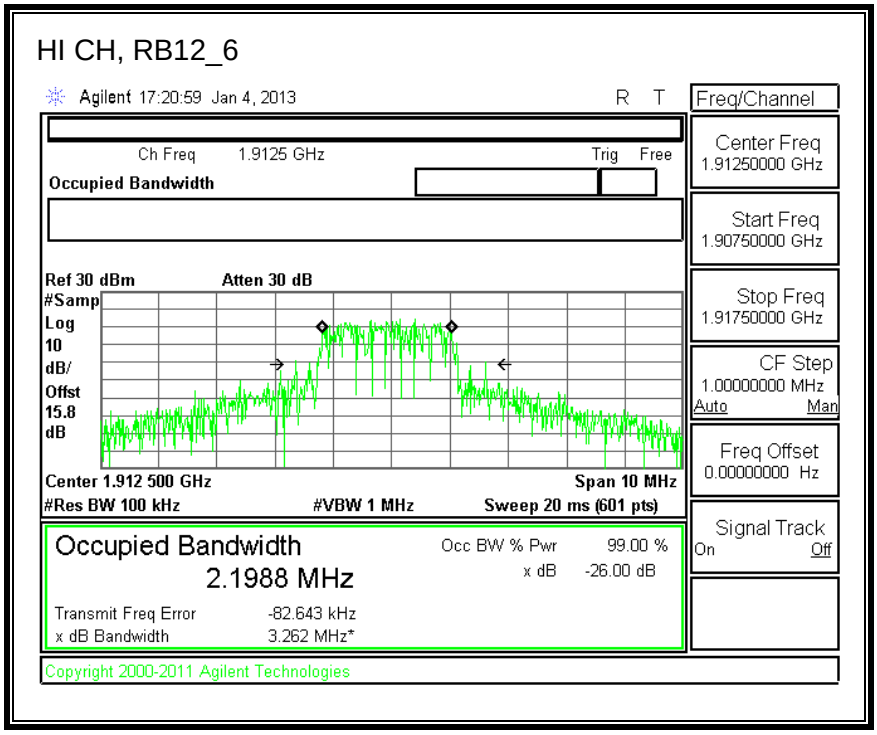
MID CH, RB12_6



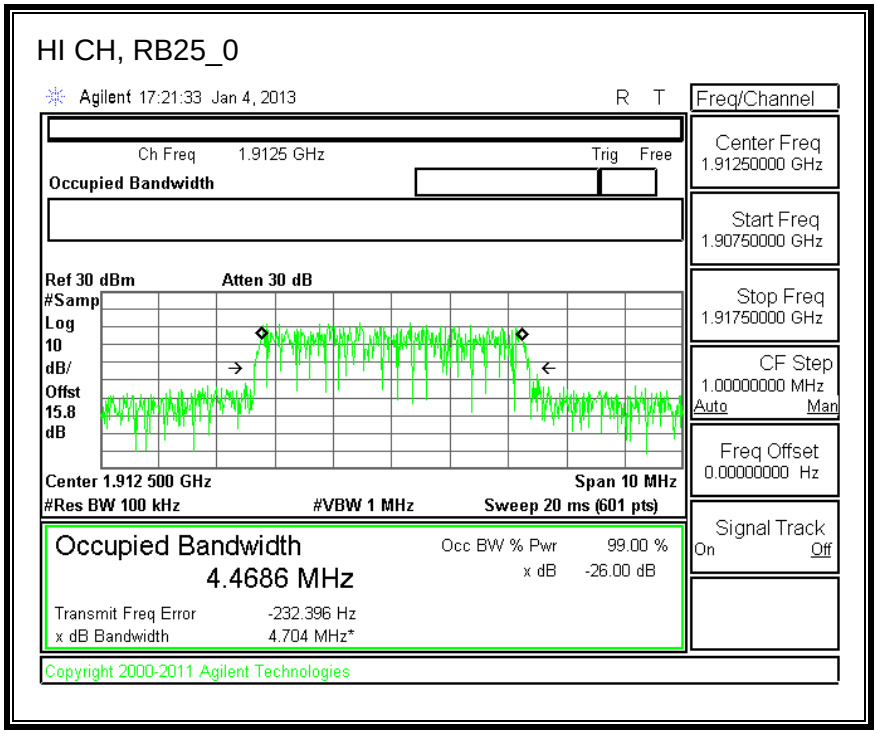
MID CH, RB25_0



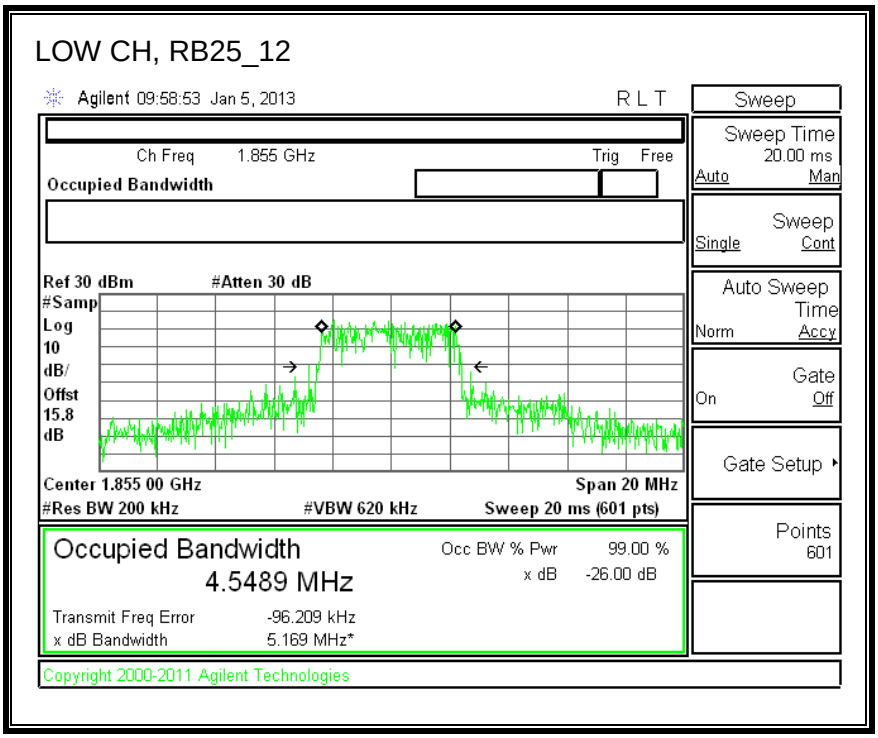
HI CH, RB12_6

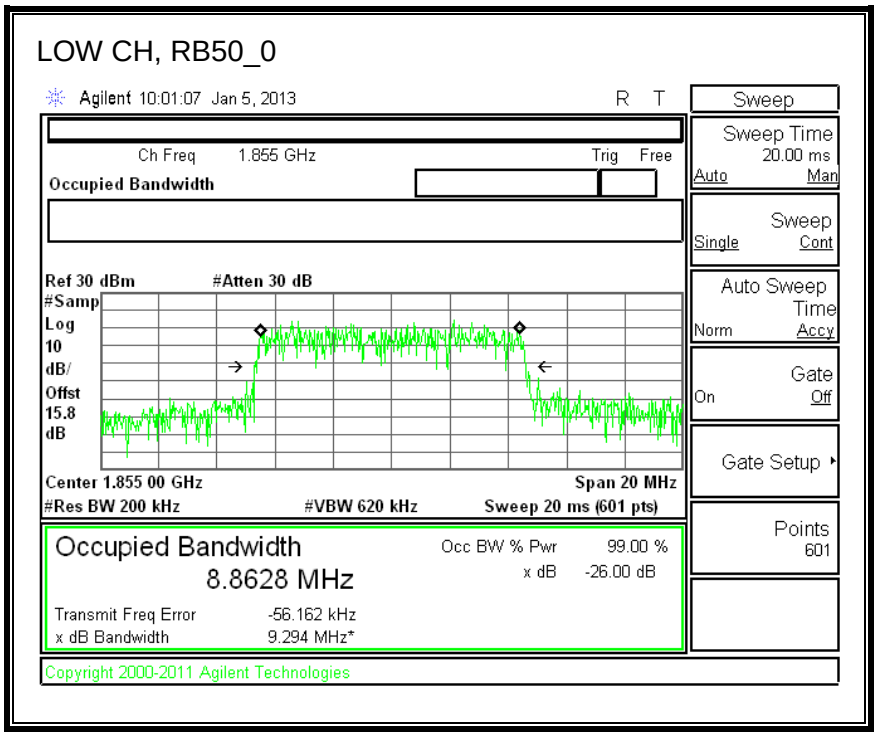


HI CH, RB25_0

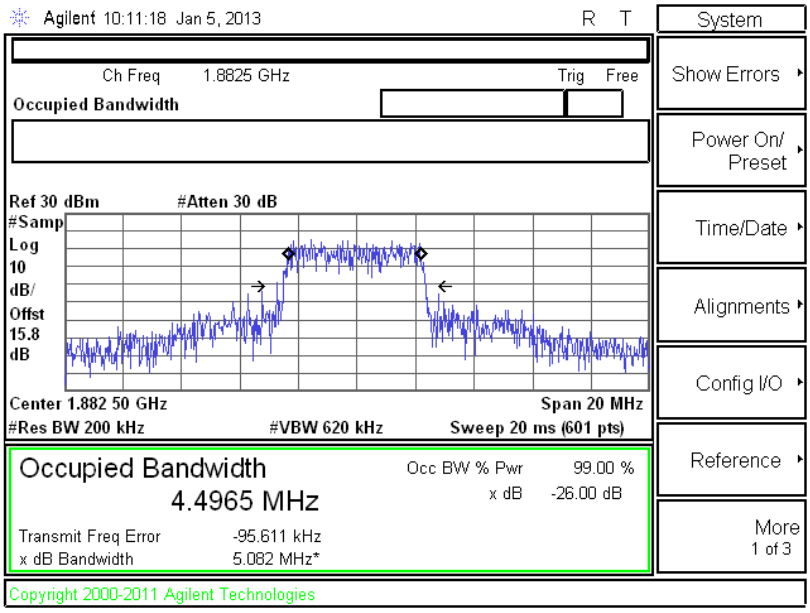


QPSK (10.0 MHz BAND WIDTH)

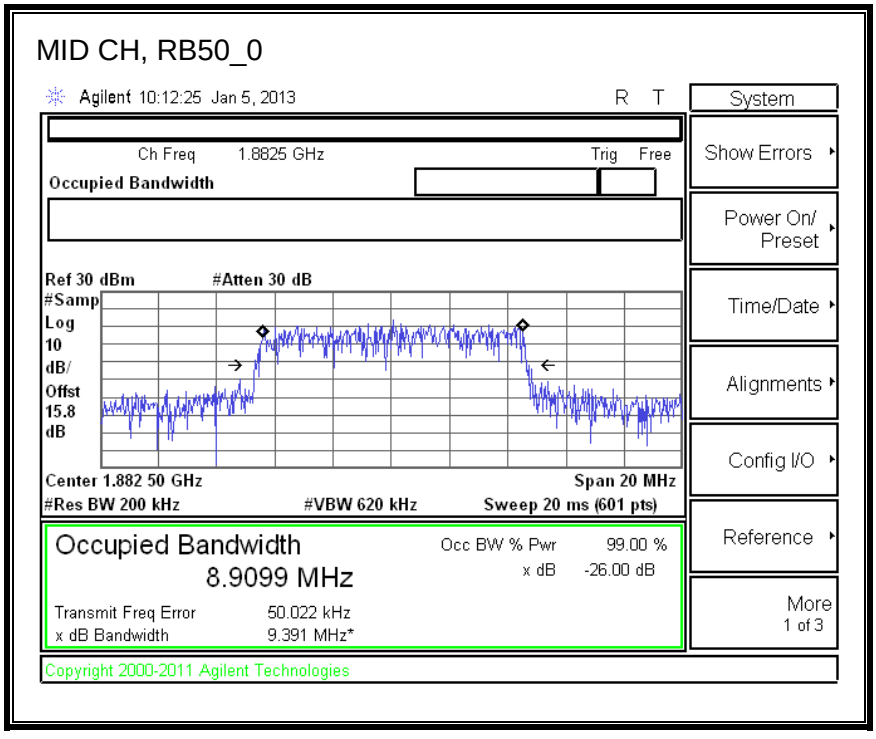




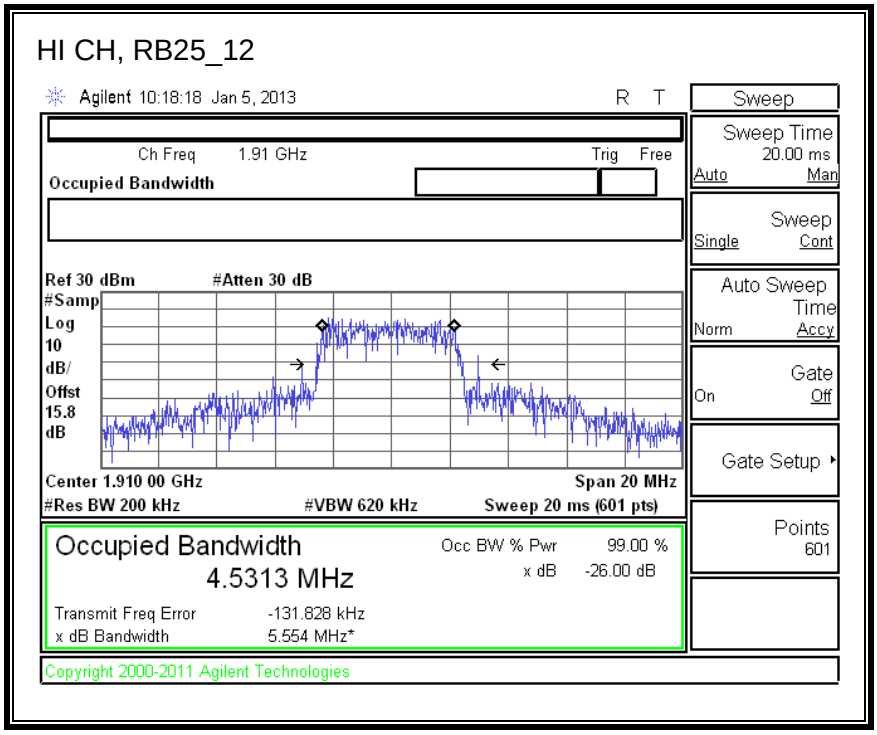
MID CH, RB25_12



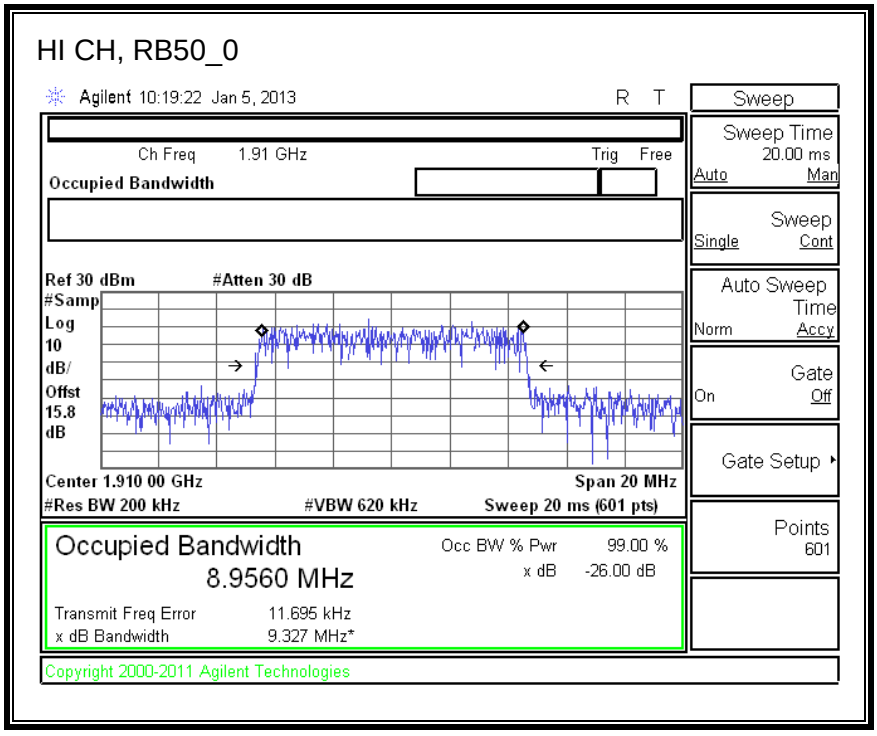
MID CH, RB50_0



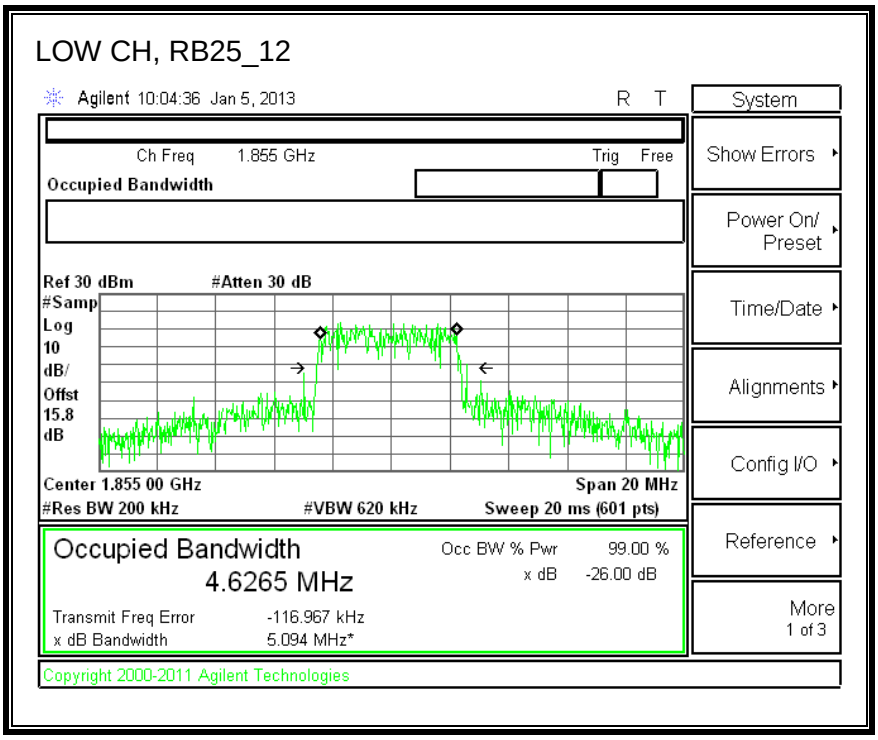
HI CH, RB25_12

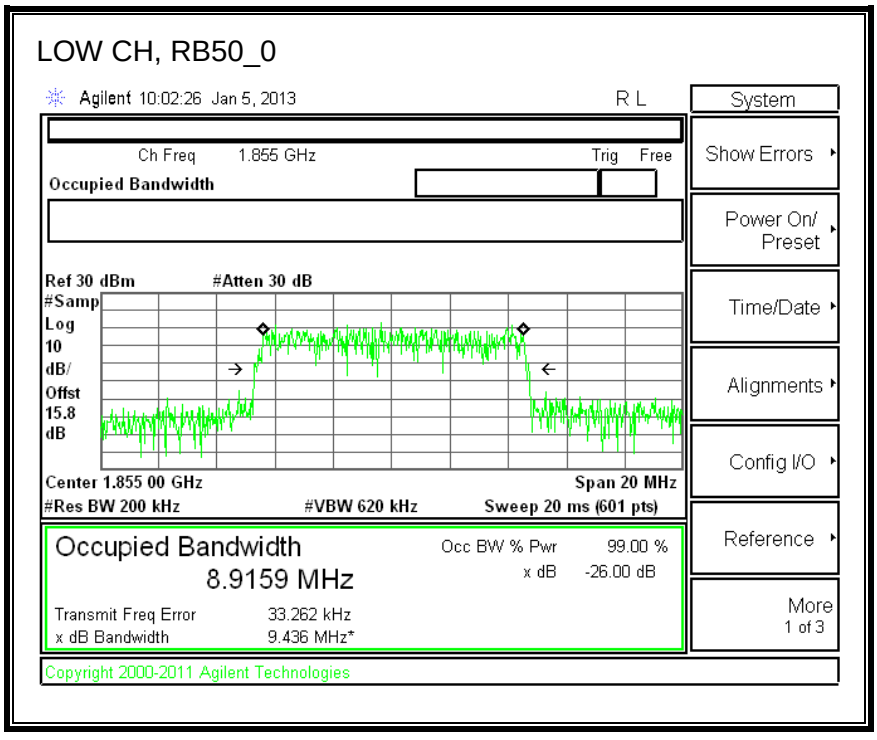


HI CH, RB50_0

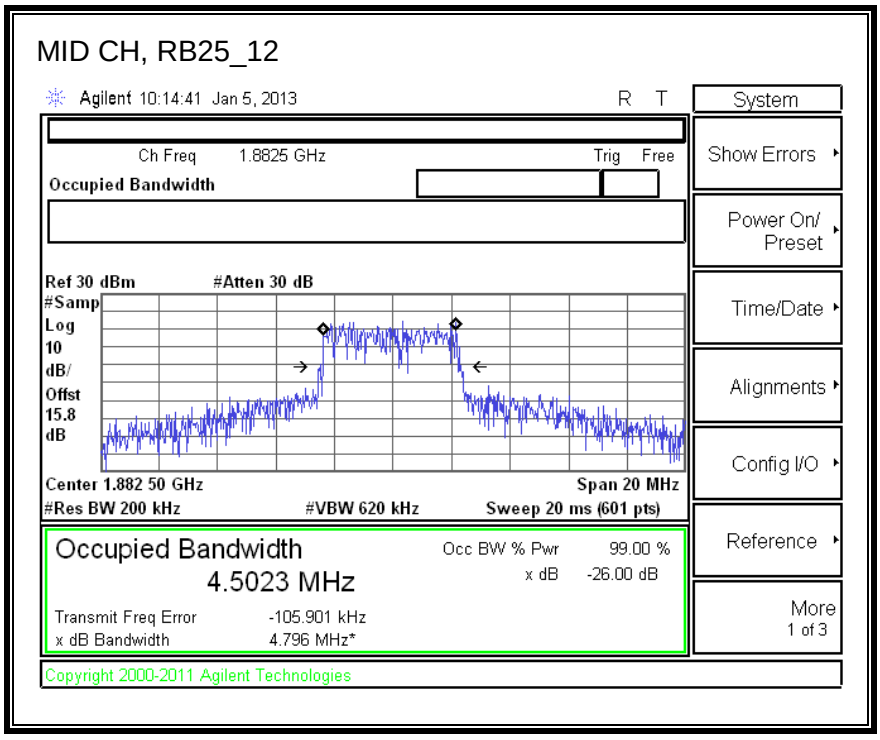


16QAM (10 MHz BAND WIDTH)

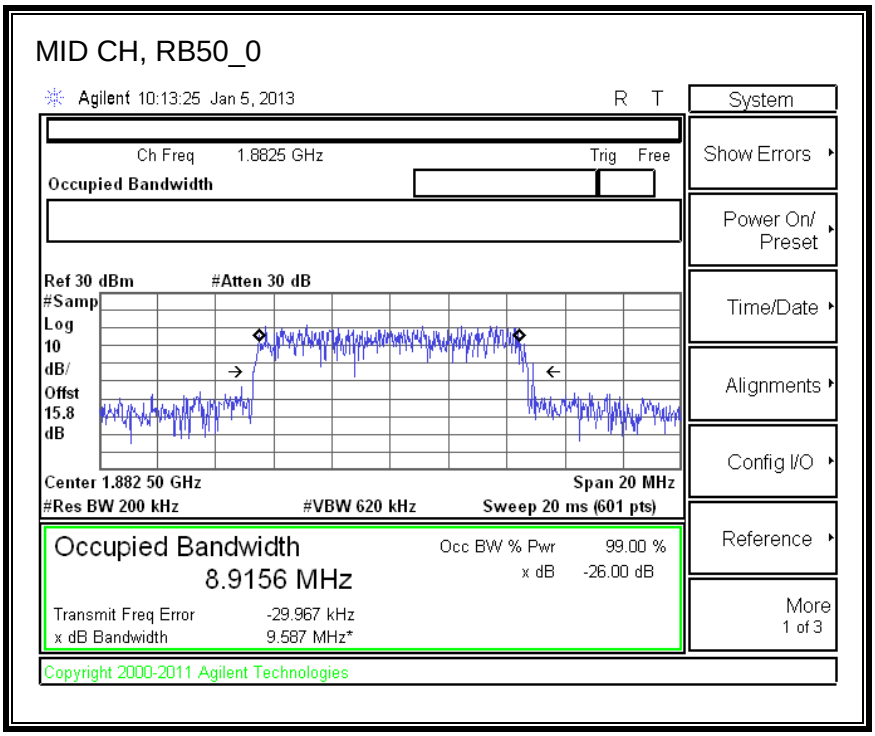




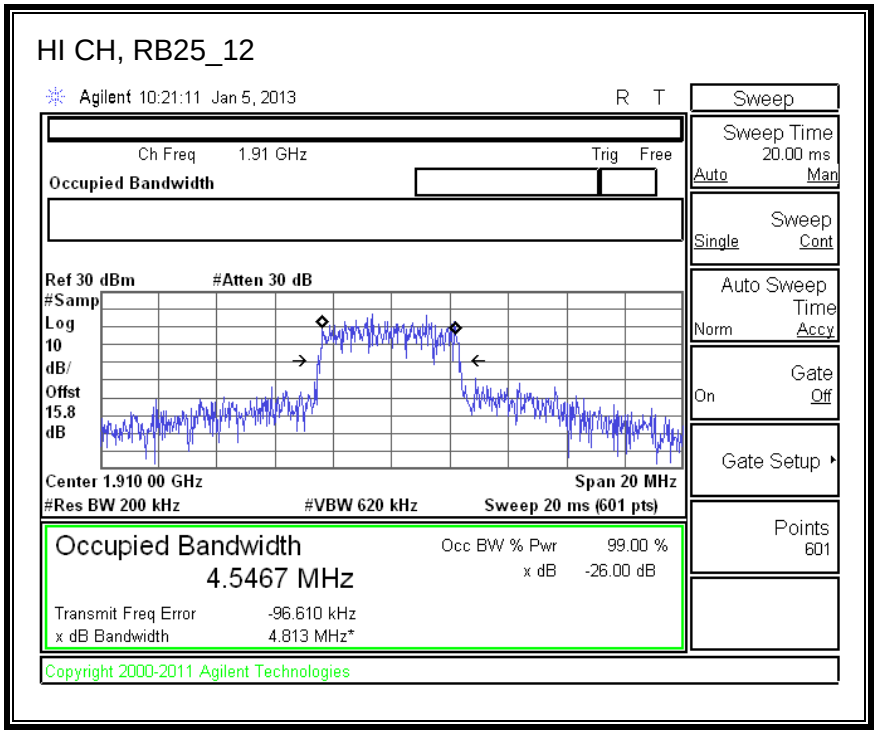
MID CH, RB25_12



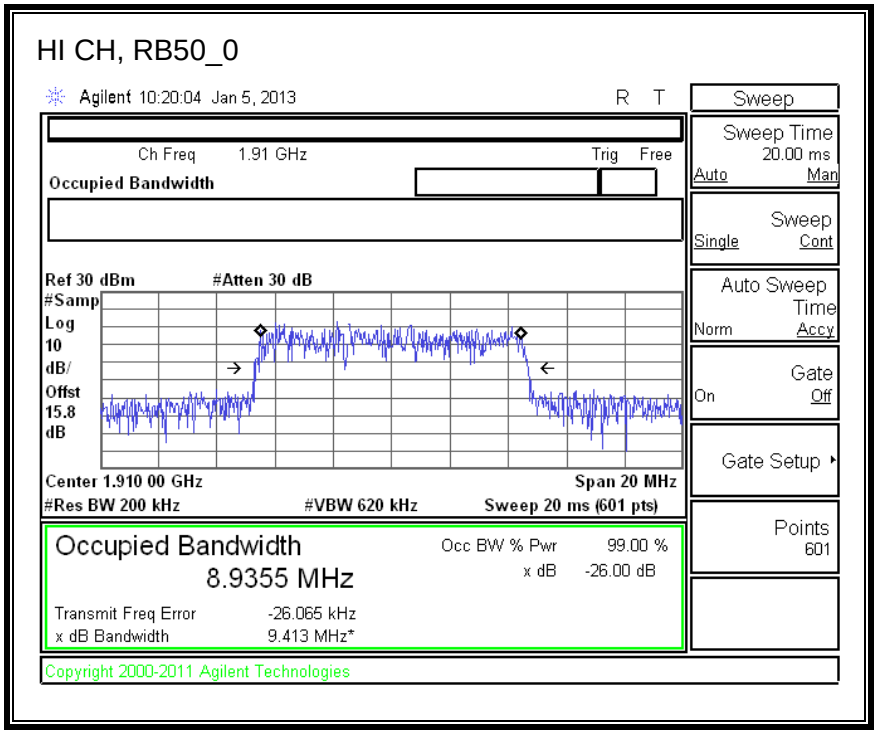
MID CH, RB50_0



HI CH, RB25_12



HI CH, RB50_0



8.2. BAND EDGE

RULE PART(S)

FCC: §22.359, §24.238 and § 90.691

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 an Agilent 8960 or 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 (824, 849, 1850, 1910 and 1915MHz)
- 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.

MODES TESTED

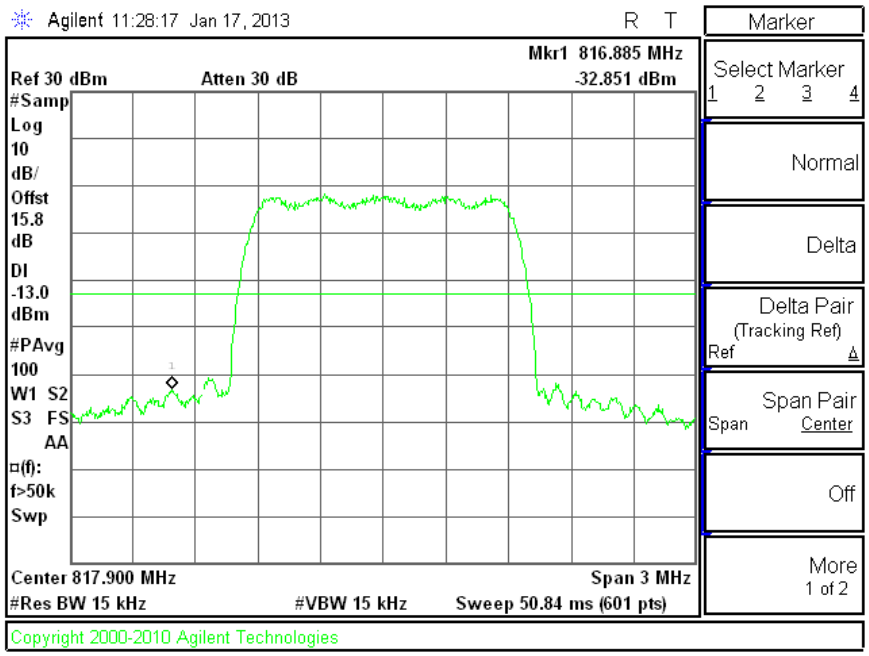
- CDMA2000, BC10
- CDMA2000, BC0, BC1
- LTE BAND 25

RESULTS

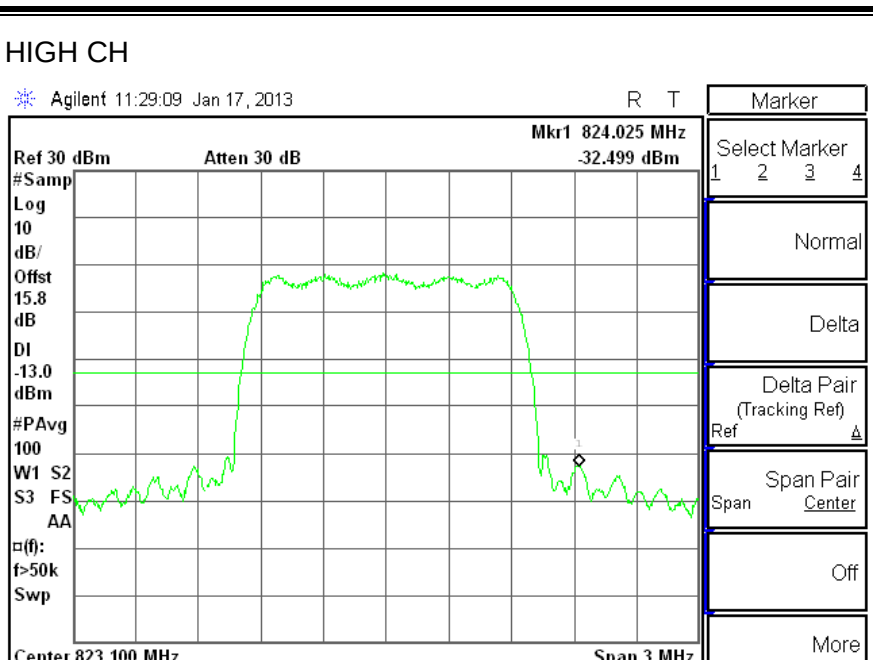
8.2.1. **CDMA, BC10**

1xRTT

LOW CH

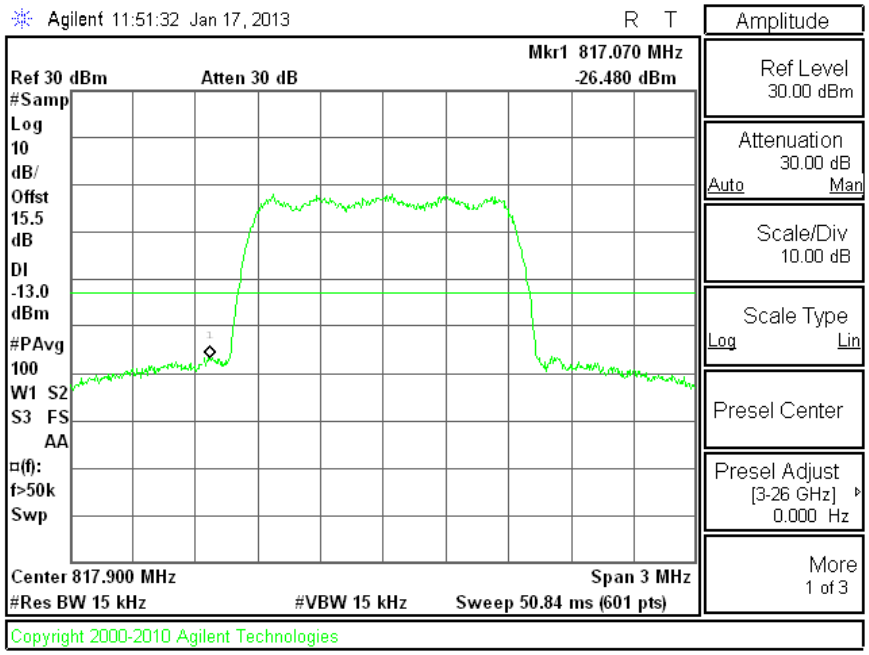


HIGH CH

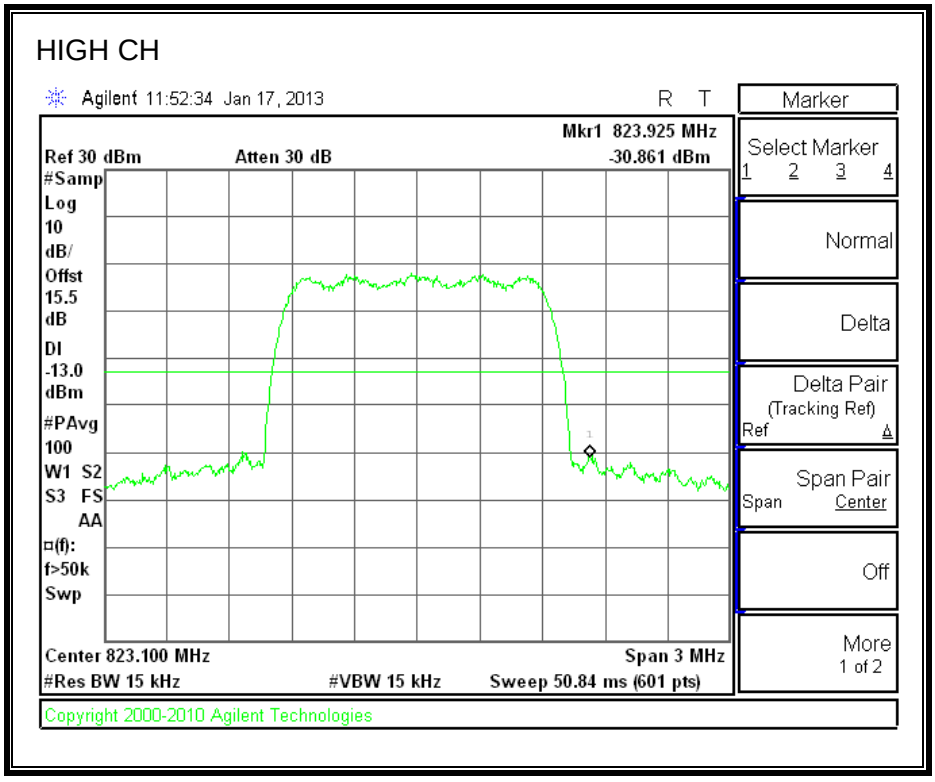


EVDO

LOW CH



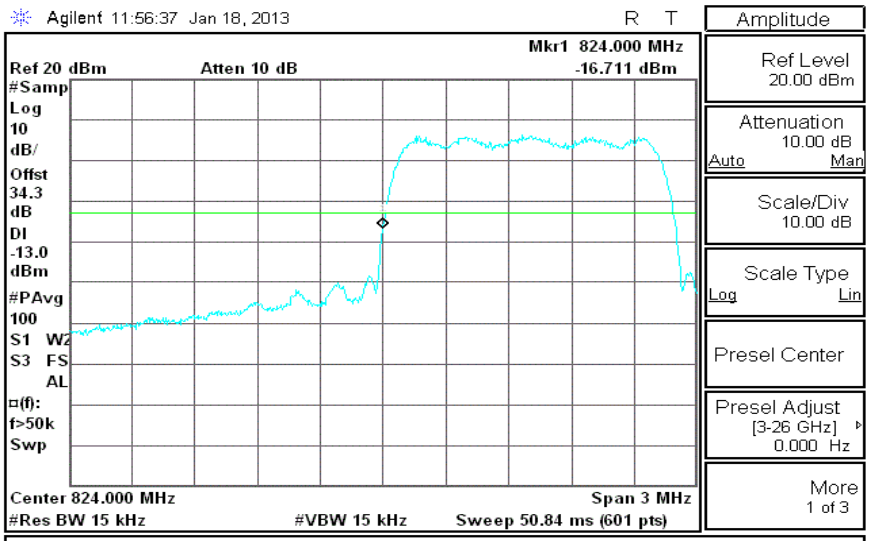
HIGH CH



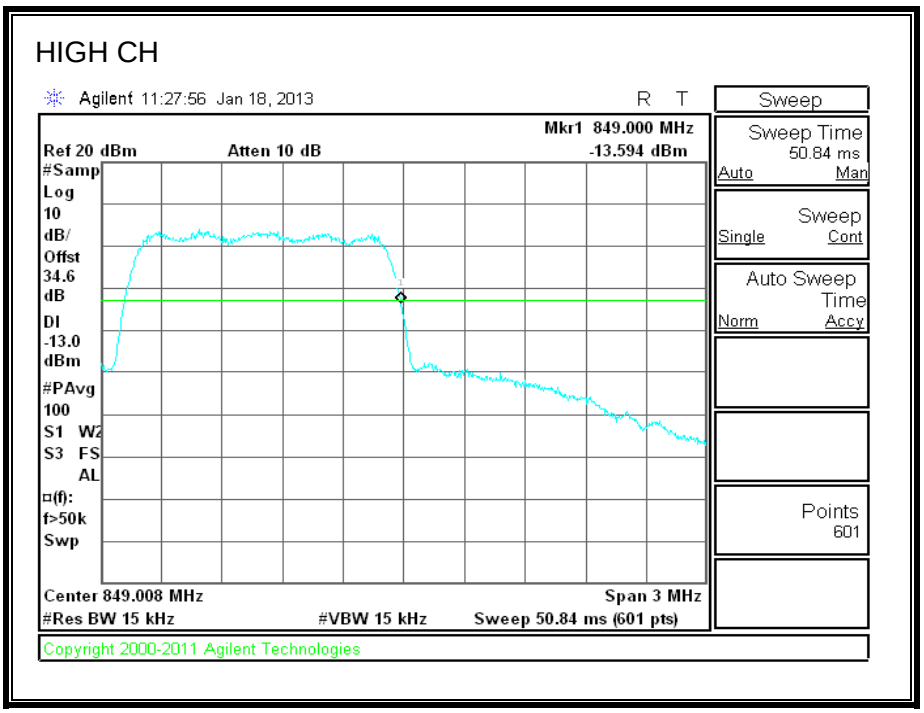
8.2.2. **CDMA, BC0**

CDMA2000 1xRTT mode (Cellular Band)

LOW CH



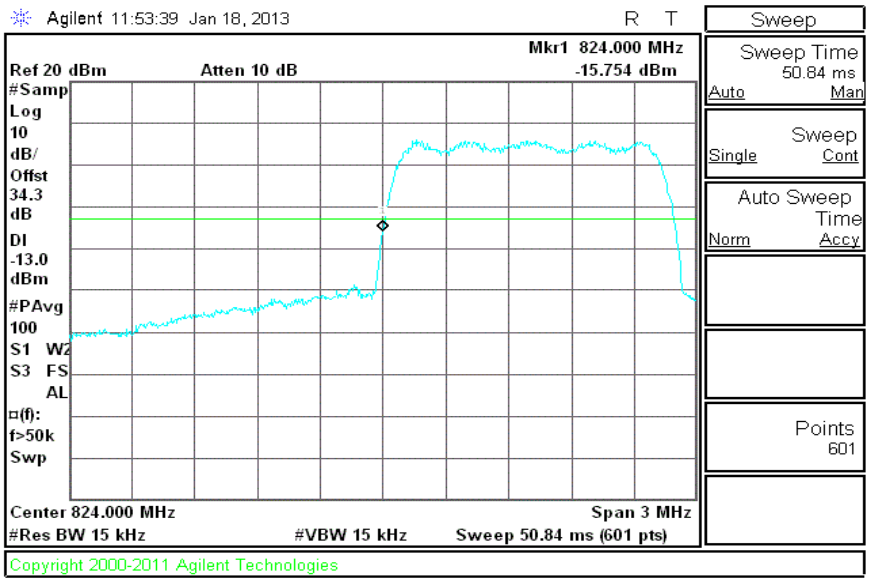
HIGH CH



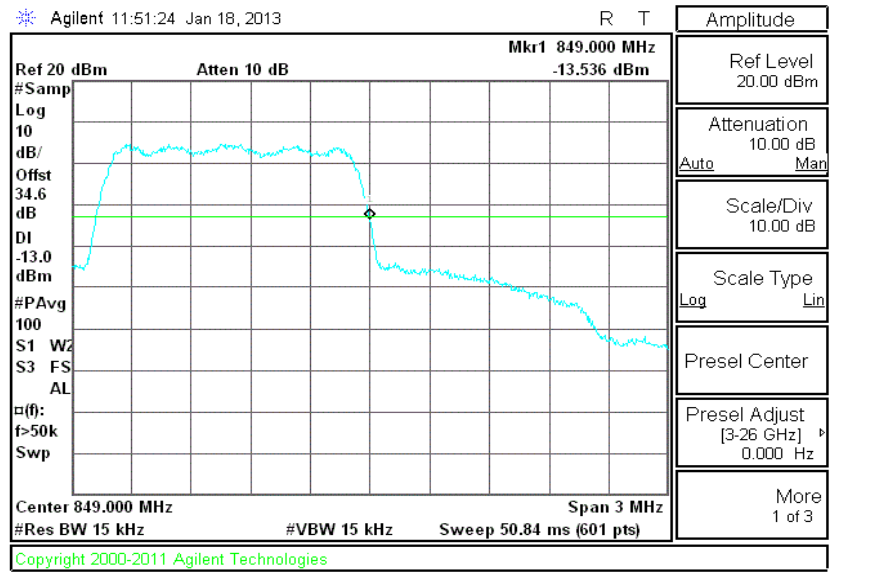
*Note: This particular test has made using radiated method with real substitution.

CDMA2000 EVDO Rev A mode (Cellular Band)

LOW CH



HIGH CH

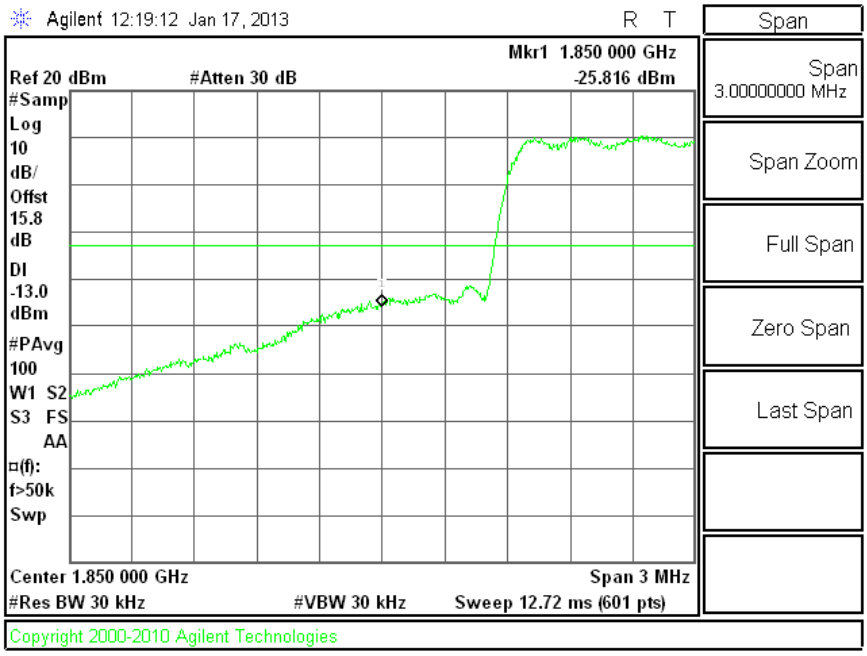


*Note: This particular test has made using radiated method with real substitution.

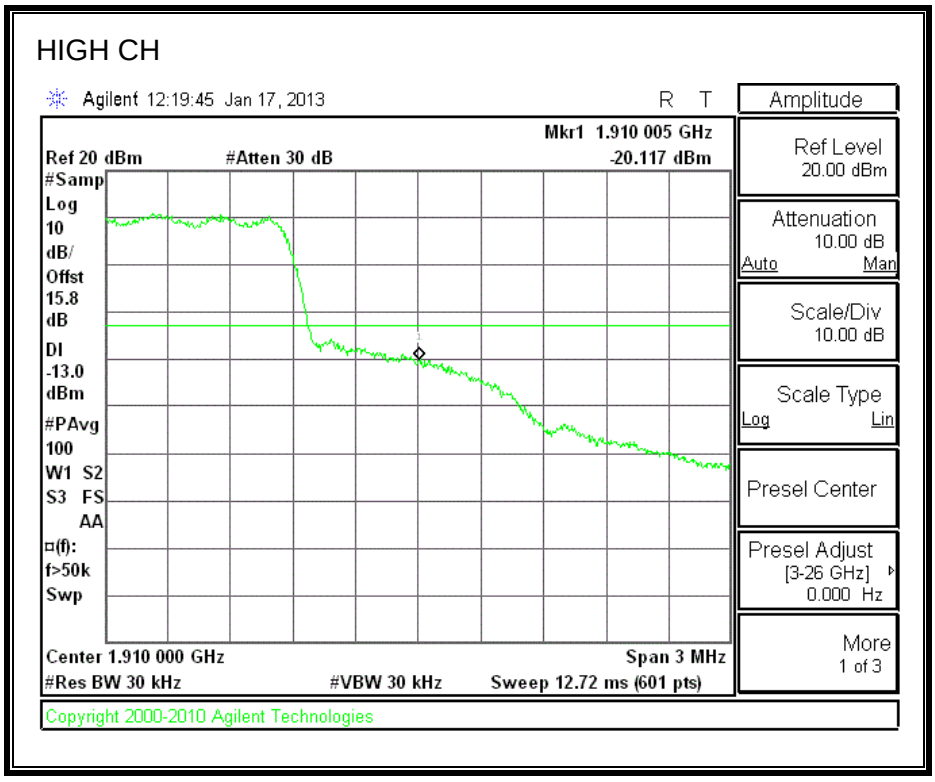
8.2.3. CDMA, BC1

1xRTT mode (PCS Band)

LOW CH

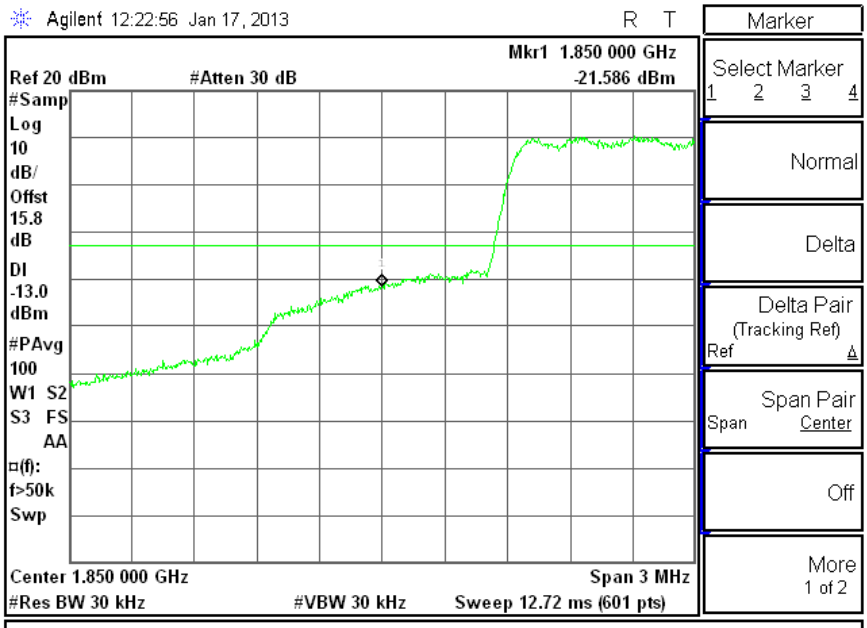


HIGH CH

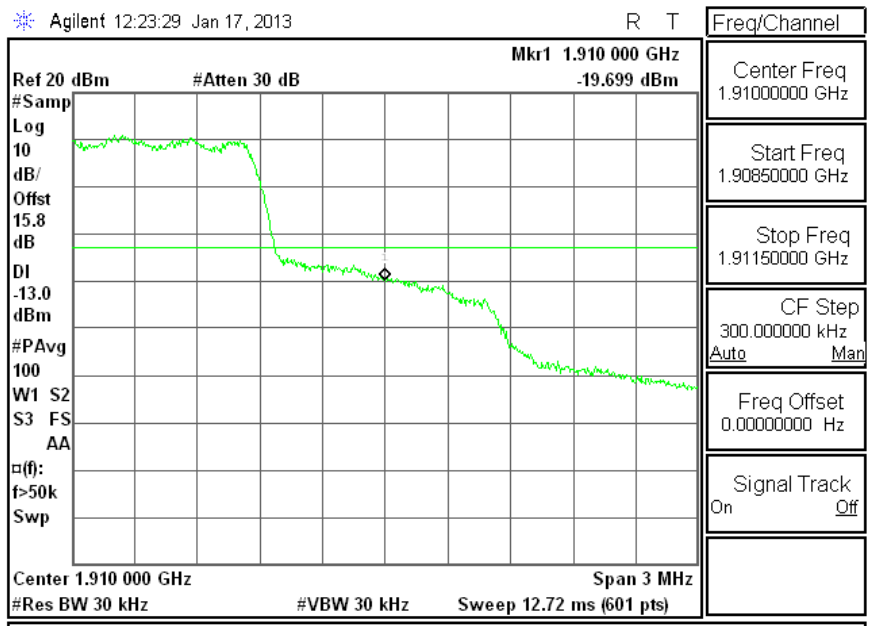


EVDO Rev A mode (PCS Band)

LOW CH



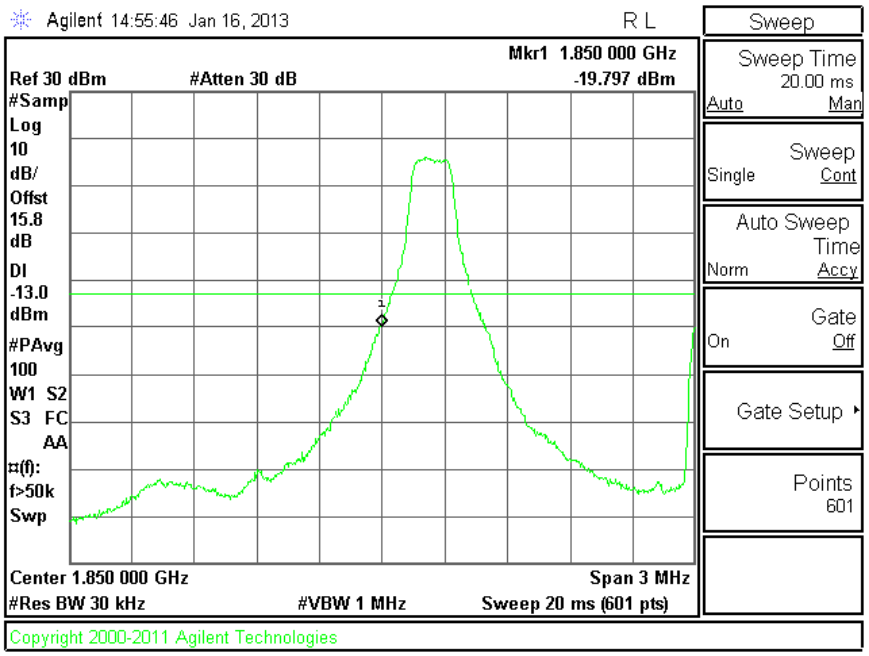
HIGH CH



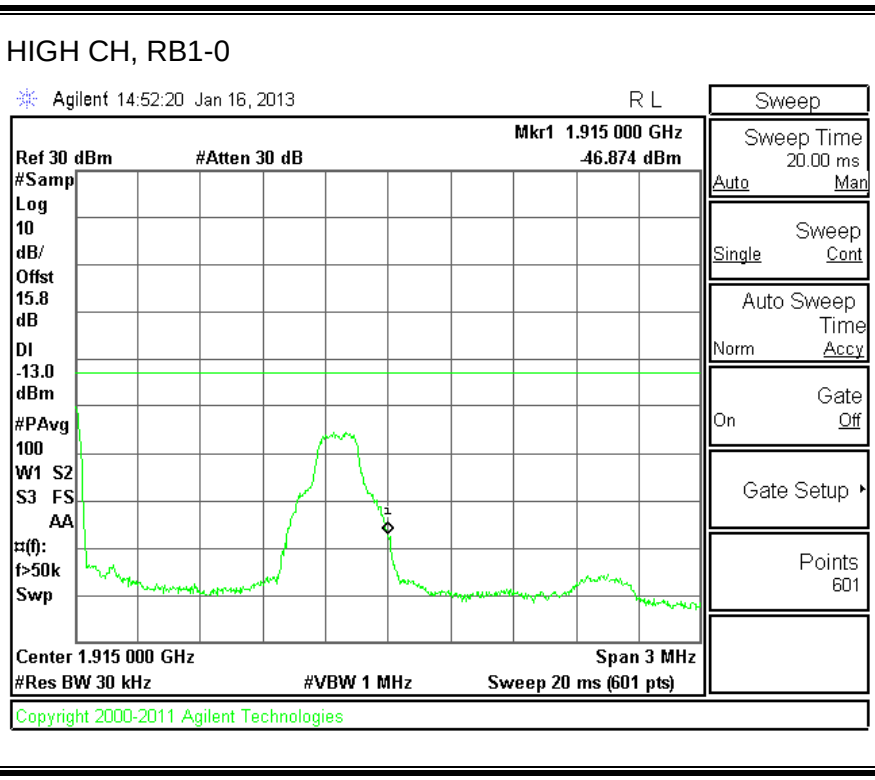
8.2.4. LTE Band 25

QPSK (3 MHz BAND WIDTH)

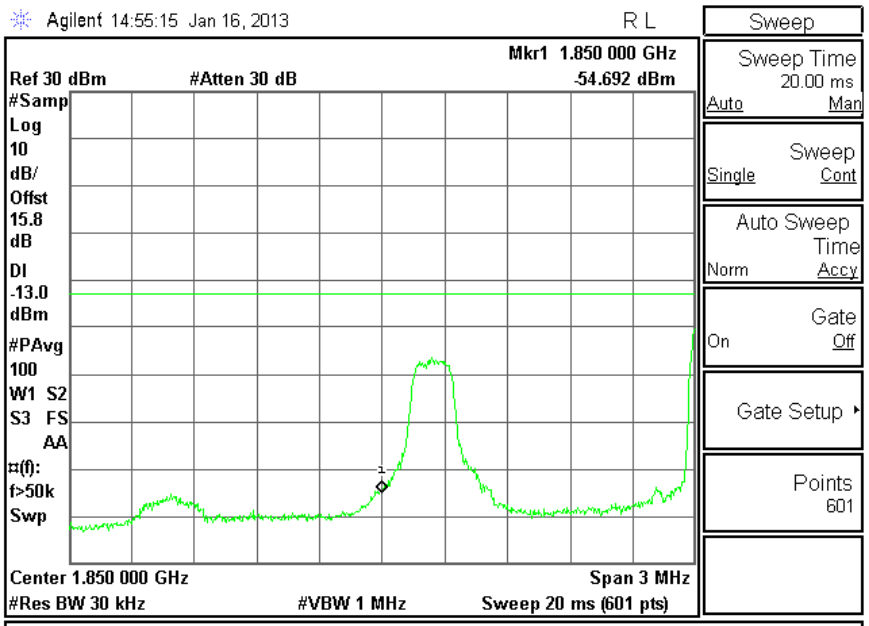
LOW CH, RB1-0



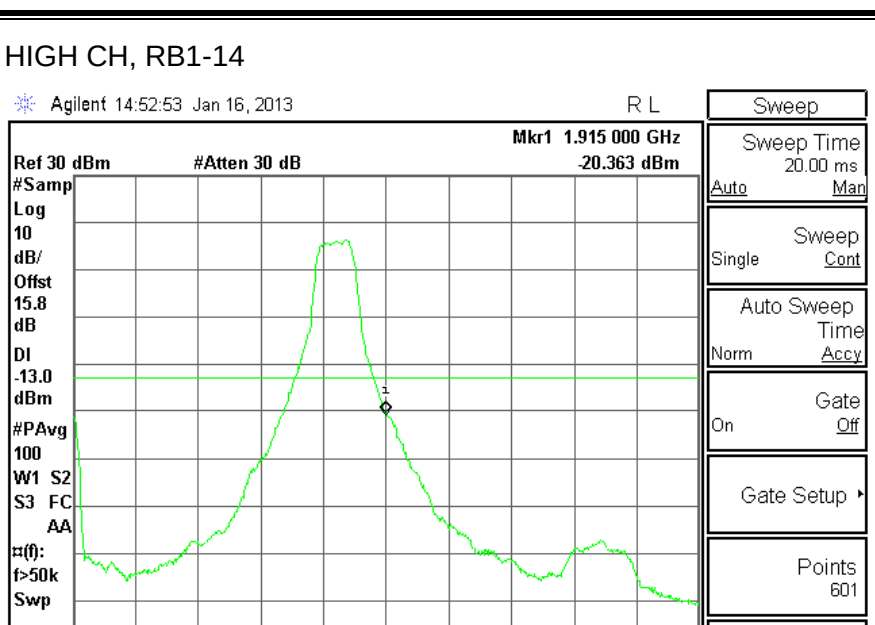
HIGH CH, RB1-0



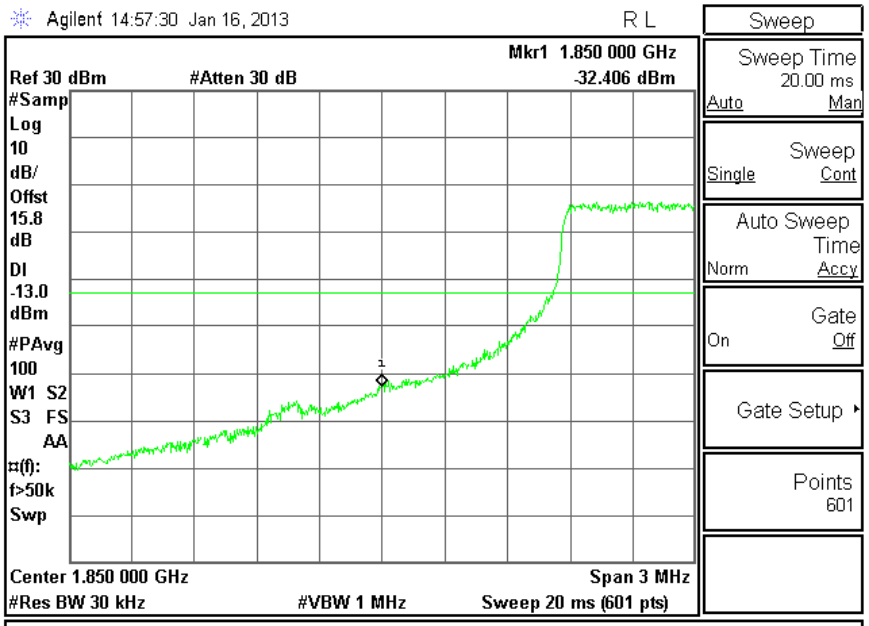
LOW CH, RB1-14



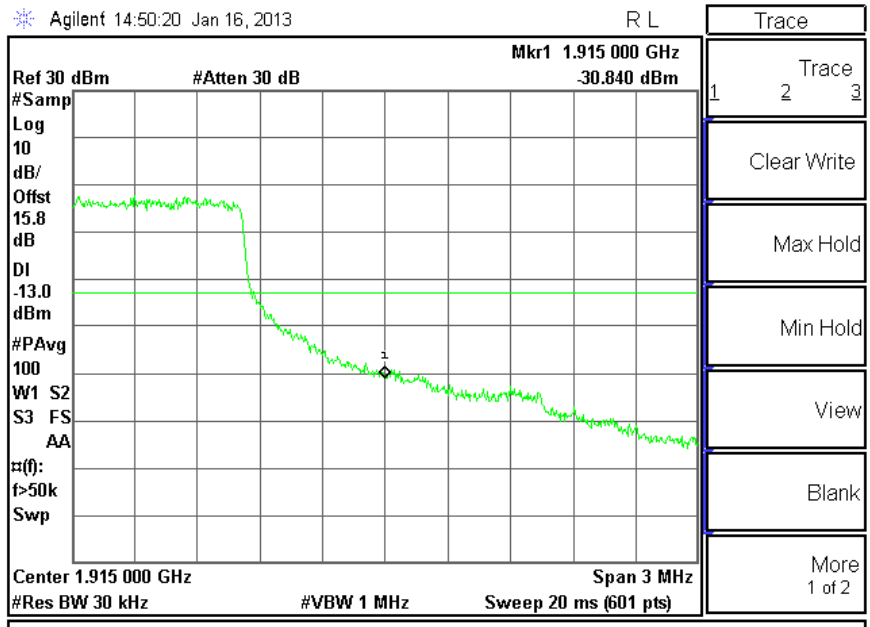
HIGH CH, RB1-14



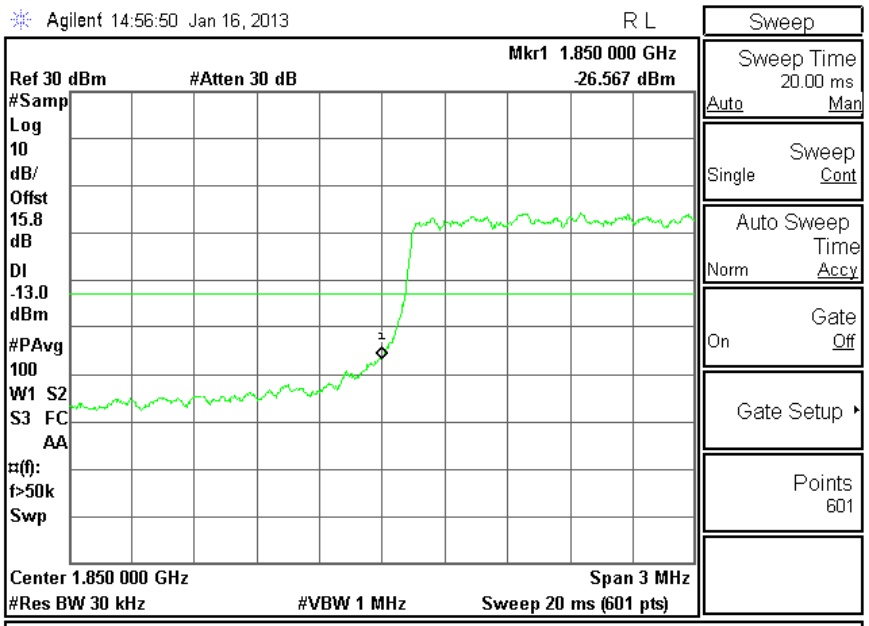
LOW CH, RB8-4



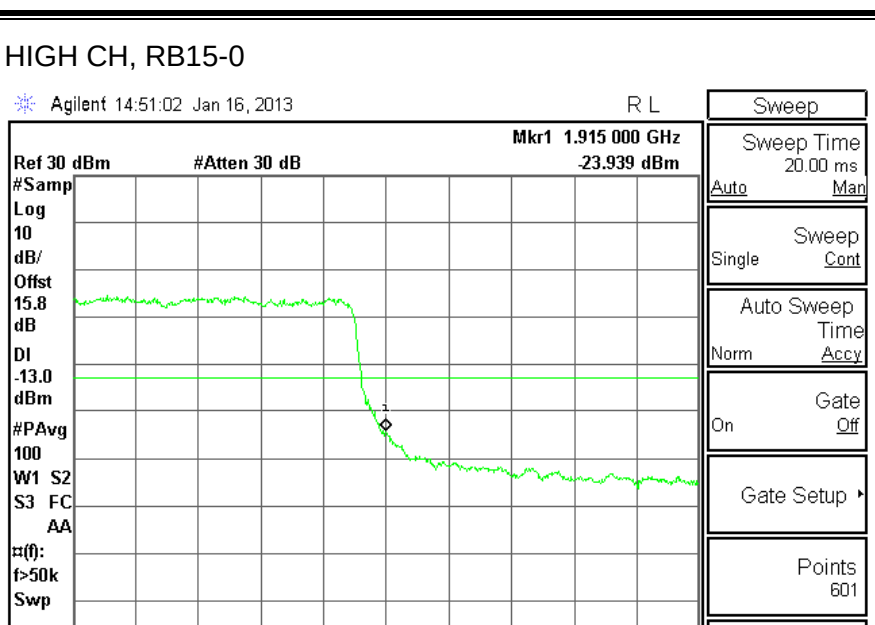
HIGH CH, RB8-4



LOW CH, RB15-0

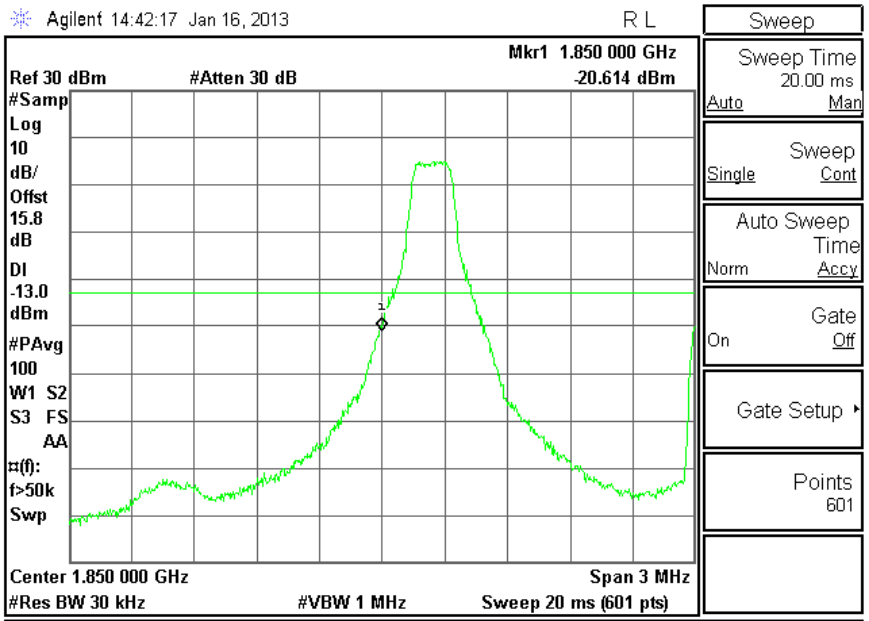


HIGH CH, RB15-0

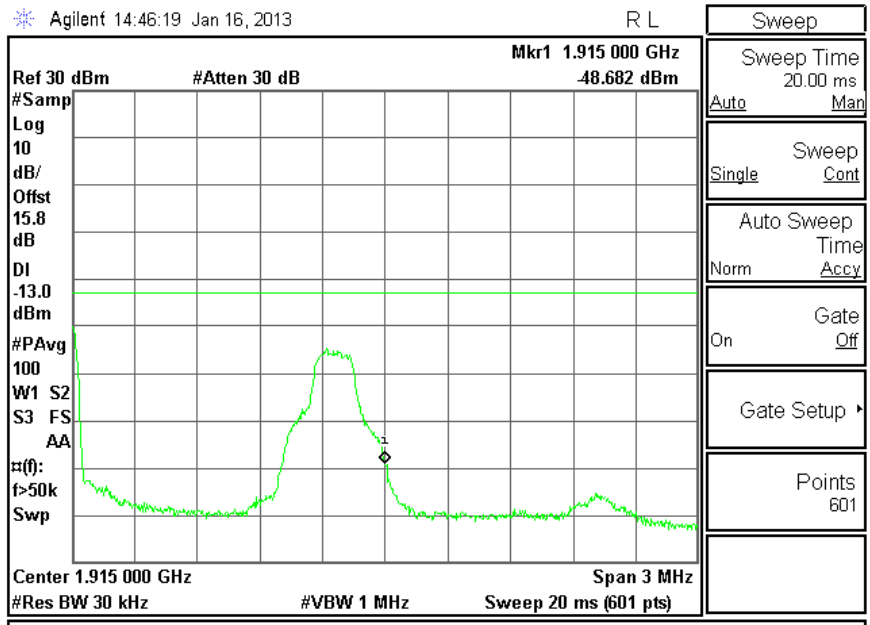


LTE 16QAM (3 MHz BAND WIDTH)

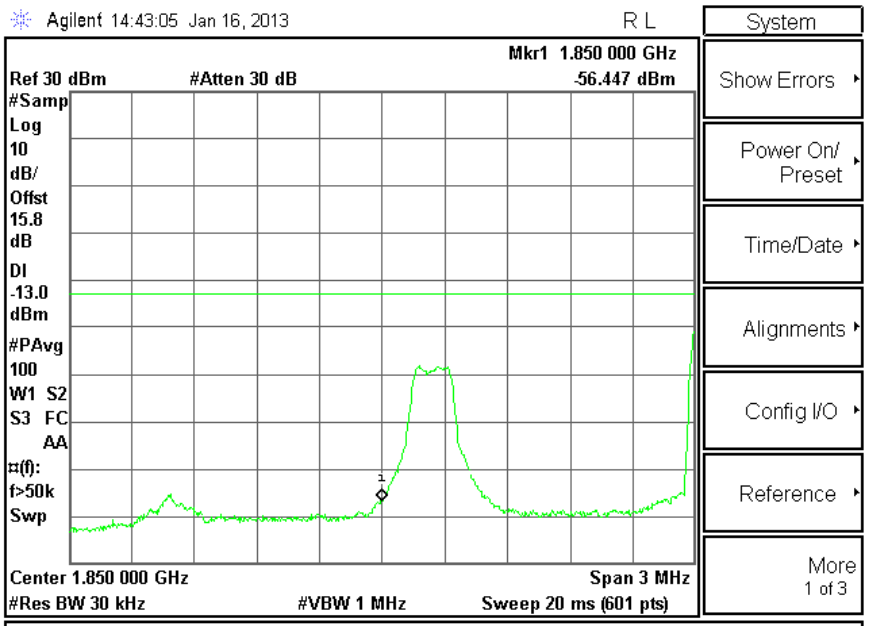
LOW CH, RB1-0



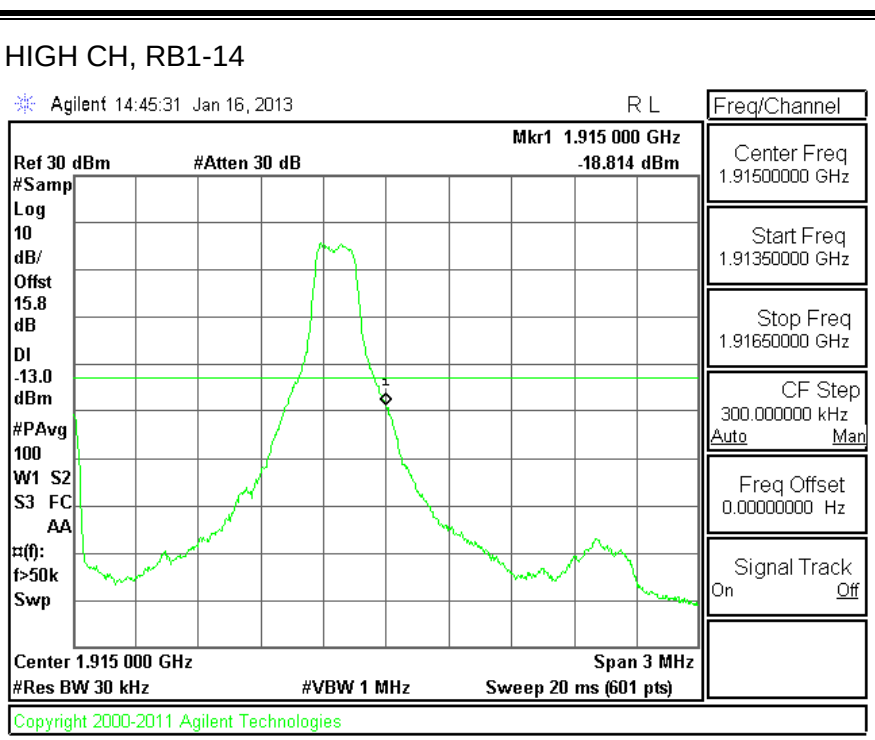
HIGH CH, RB1-0



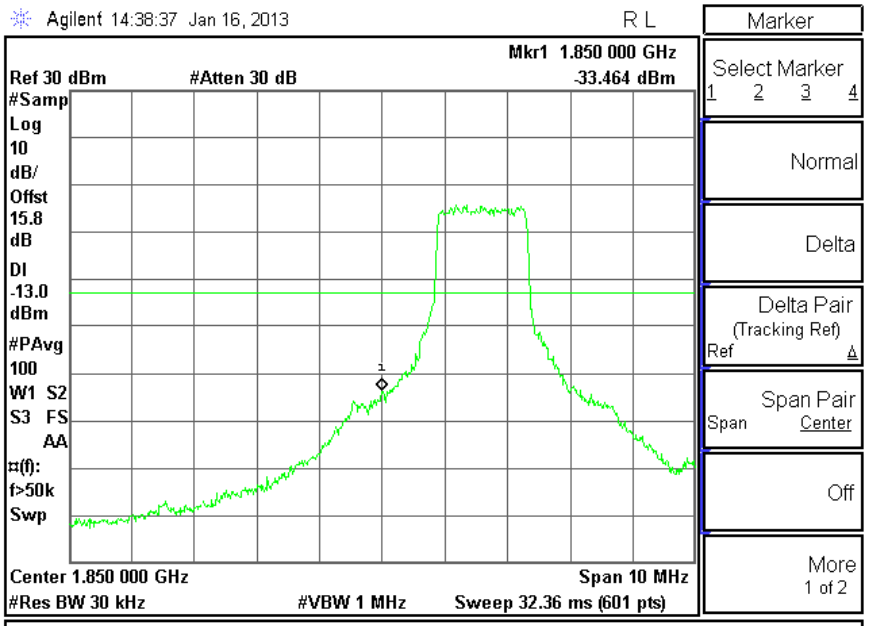
LOW CH, RB1-14



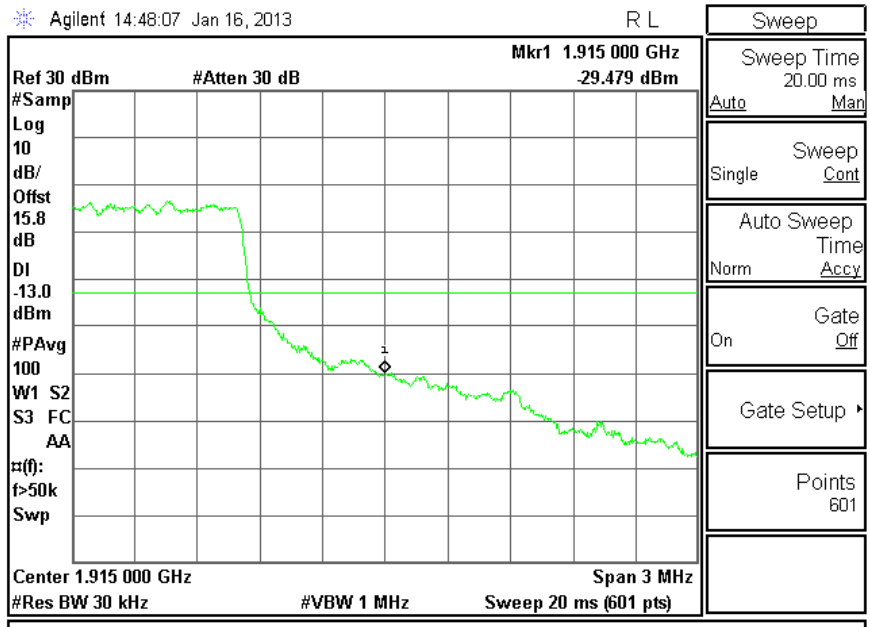
HIGH CH, RB1-14



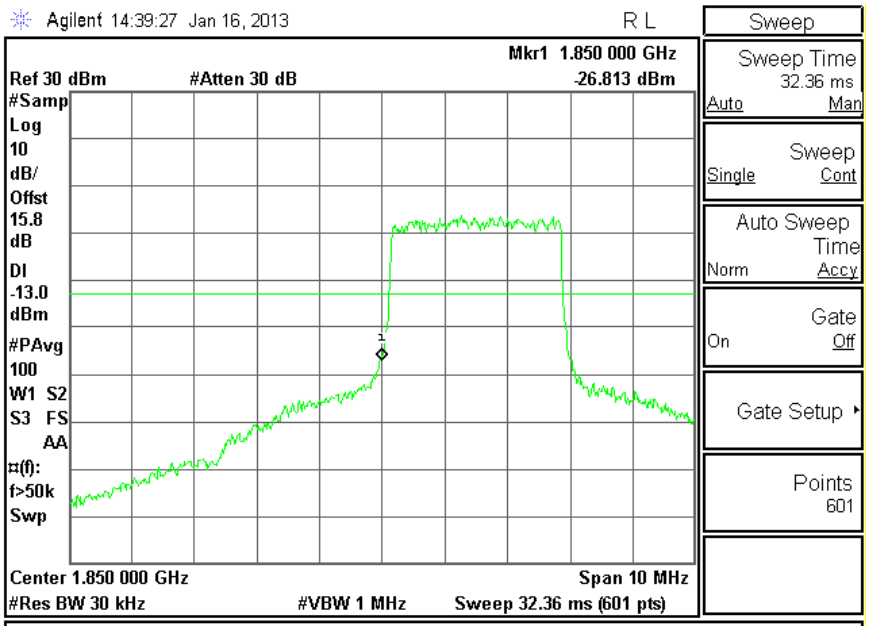
LOW CH, RB8-4



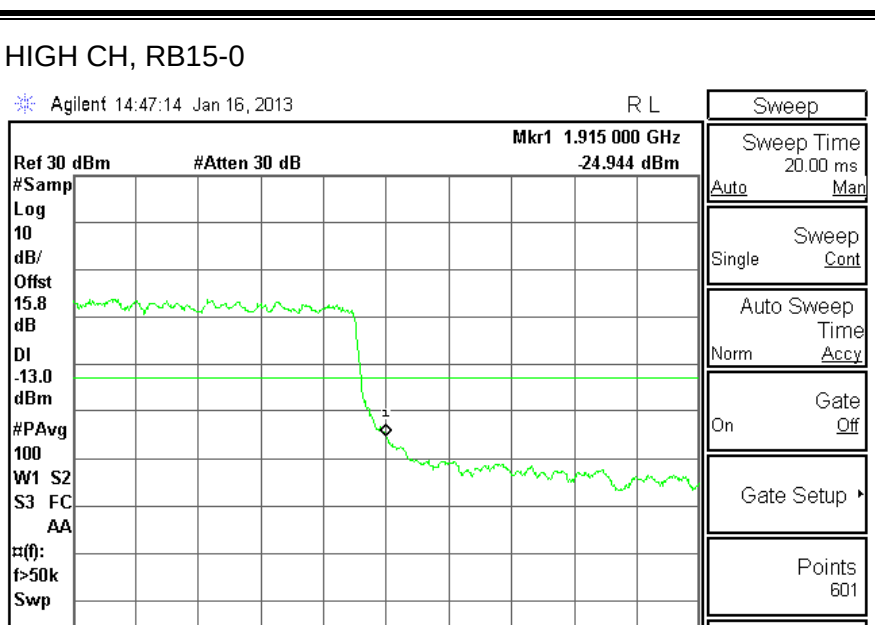
HIGH CH, RB8-4



LOW CH, RB15-0

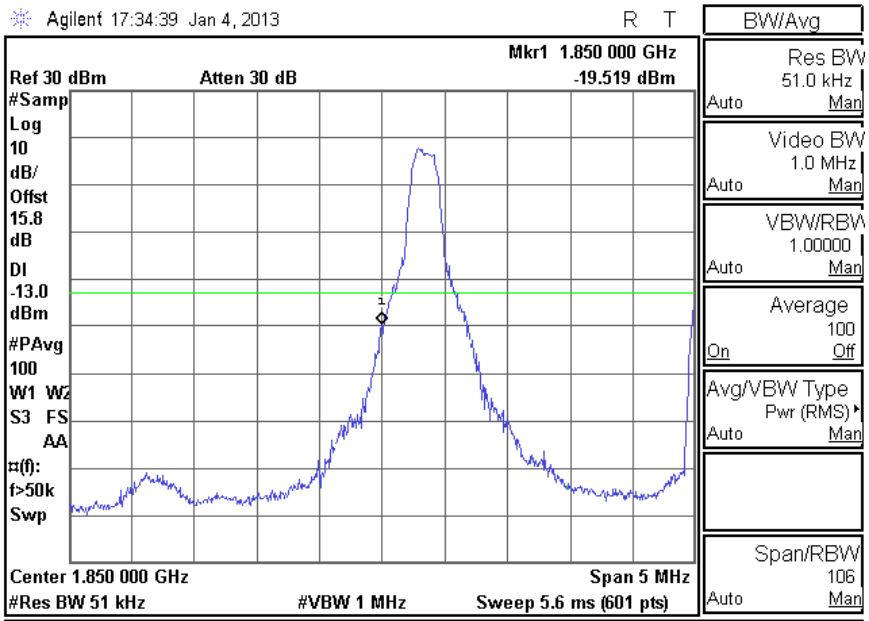


HIGH CH, RB15-0

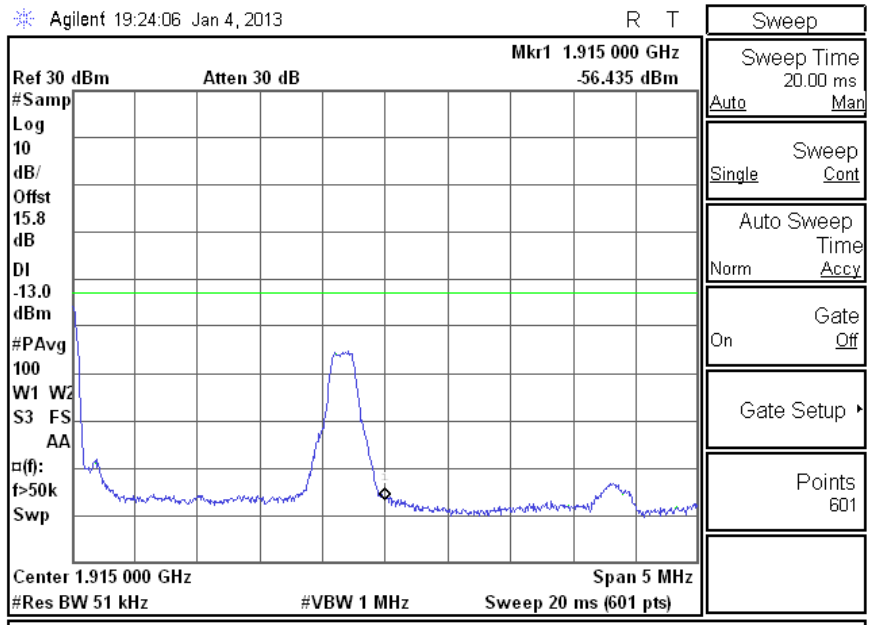


LTE QPSK (5 MHz BAND WIDTH)

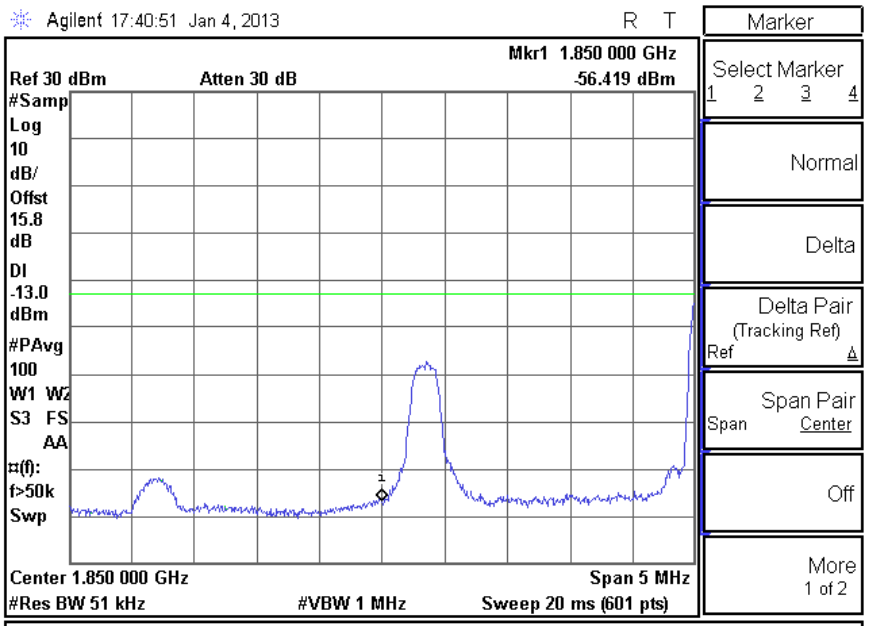
LOW CH, RB1-0



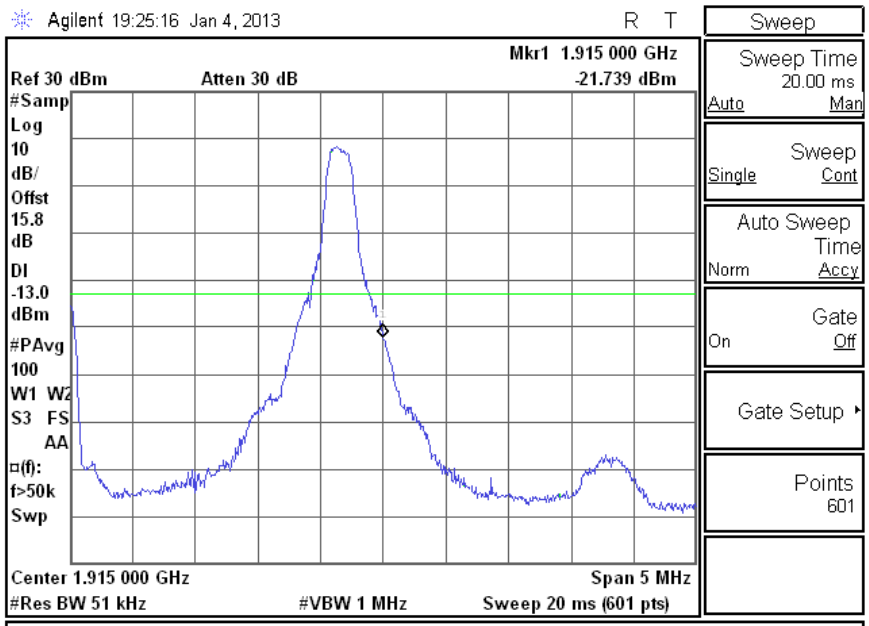
HIGH CH, RB1-0



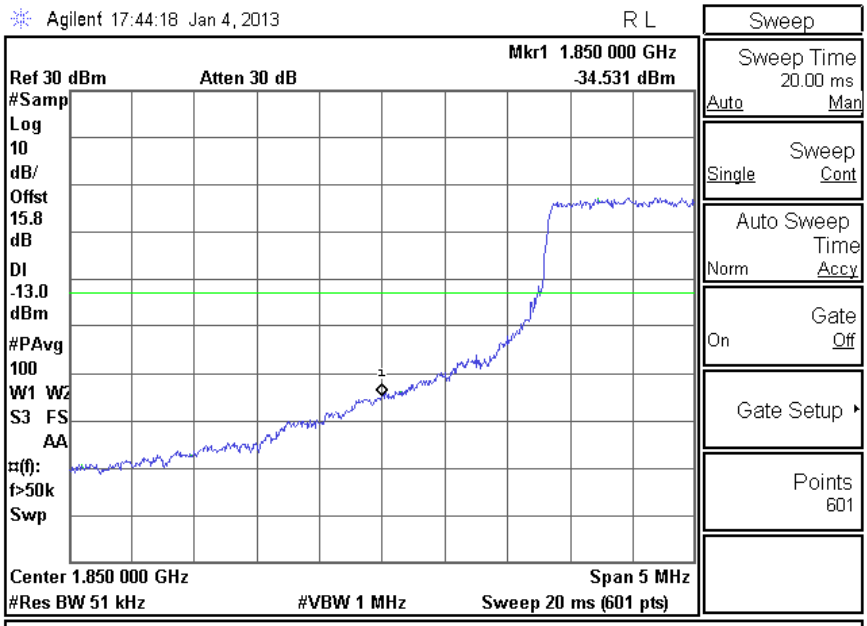
LOW CH, RB1-24



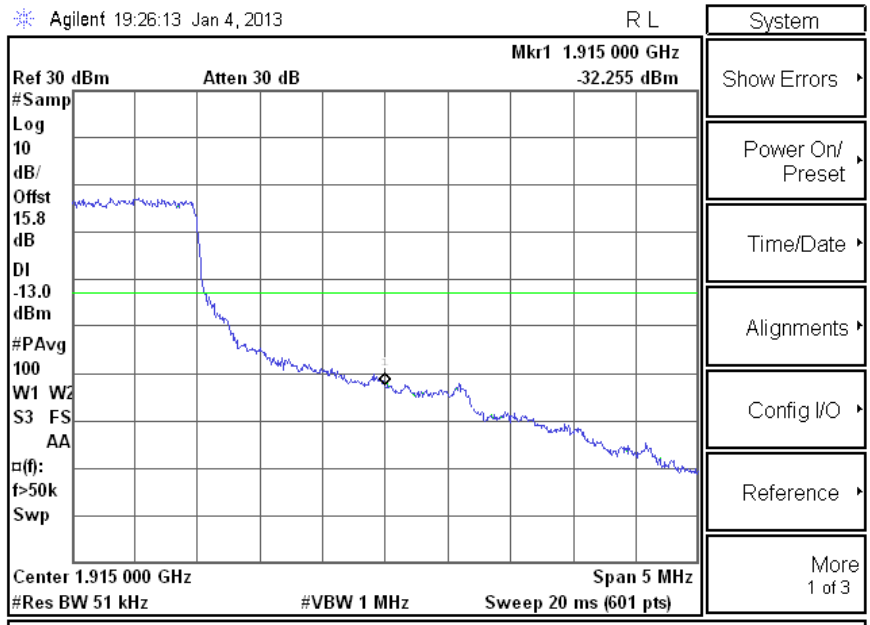
HIGH CH, RB1-24



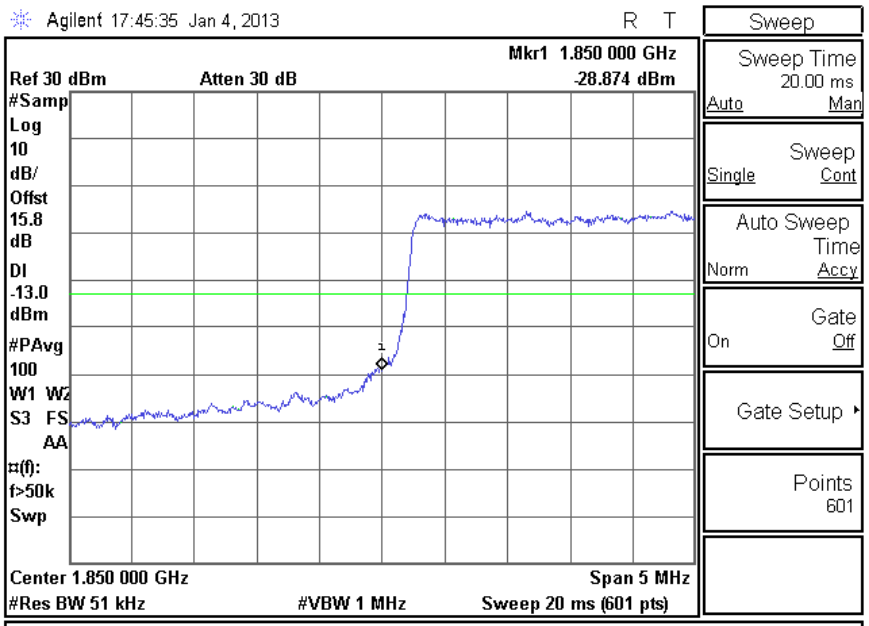
LOW CH, RB12-6



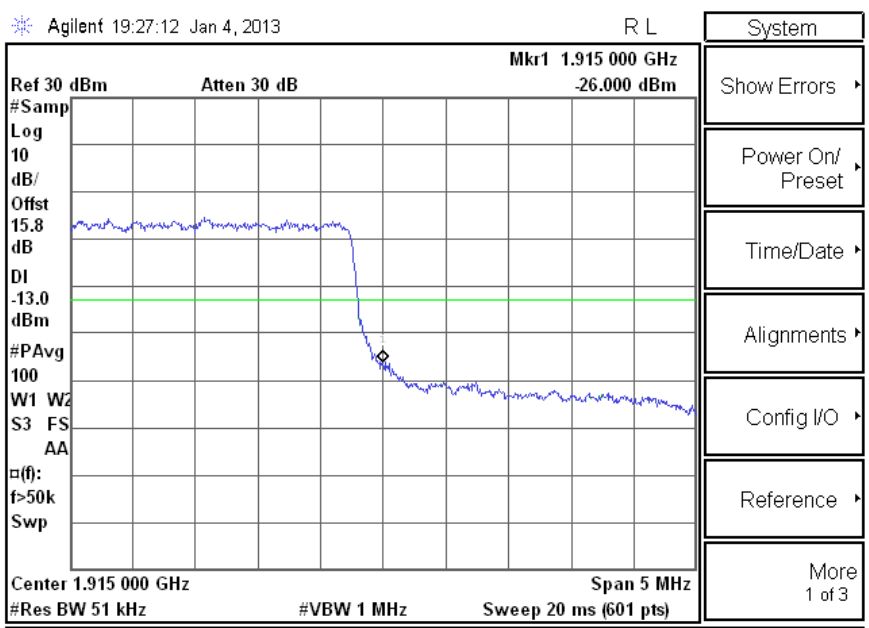
HIGH CH, RB12-6



LOW CH, RB25-0

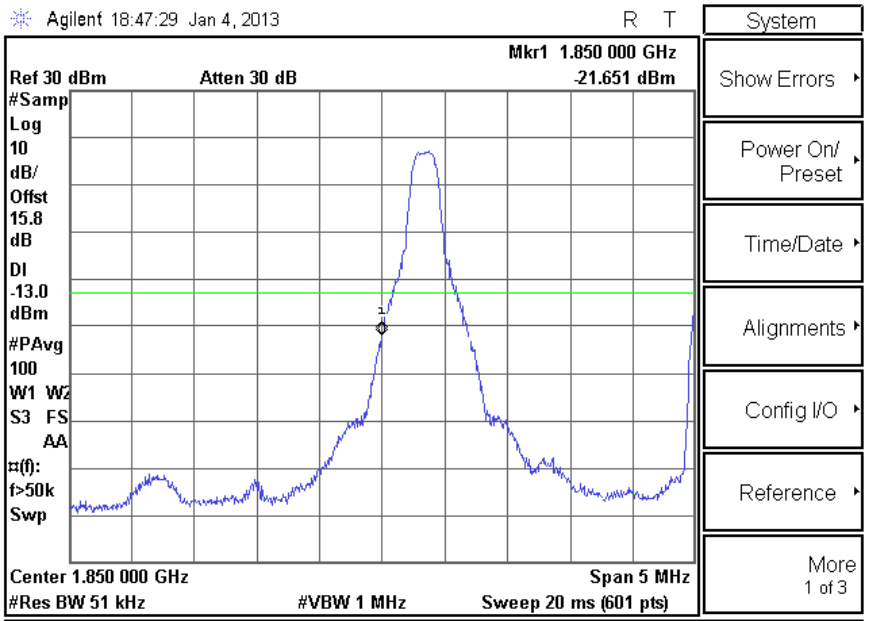


HIGH CH, RB25-0

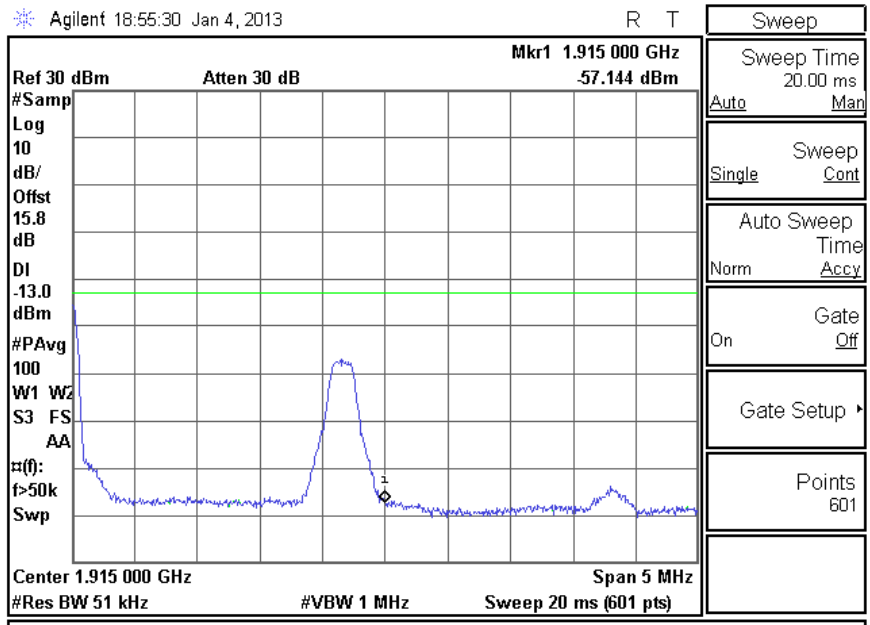


LTE 16QAM (5 MHz BAND WIDTH)

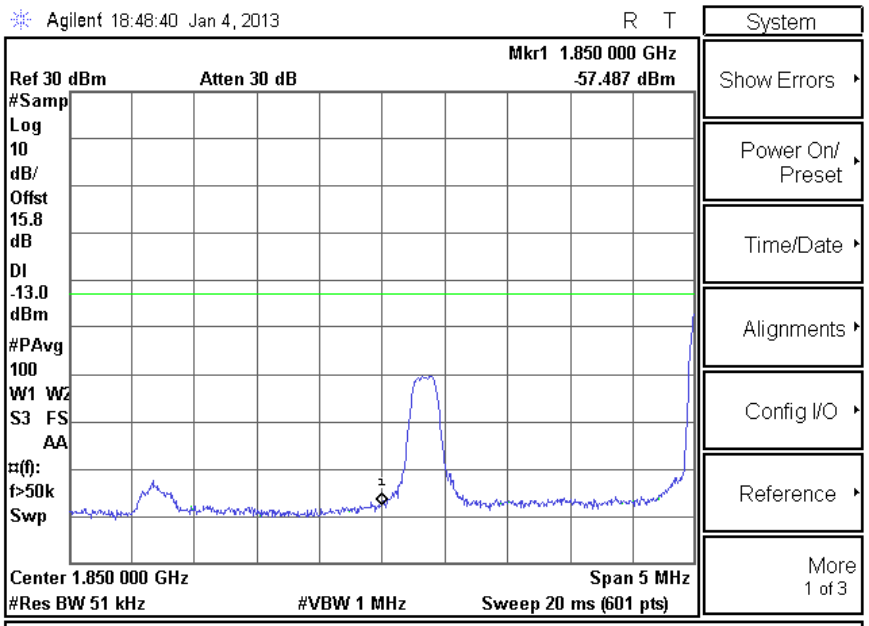
LOW CH, RB1-0



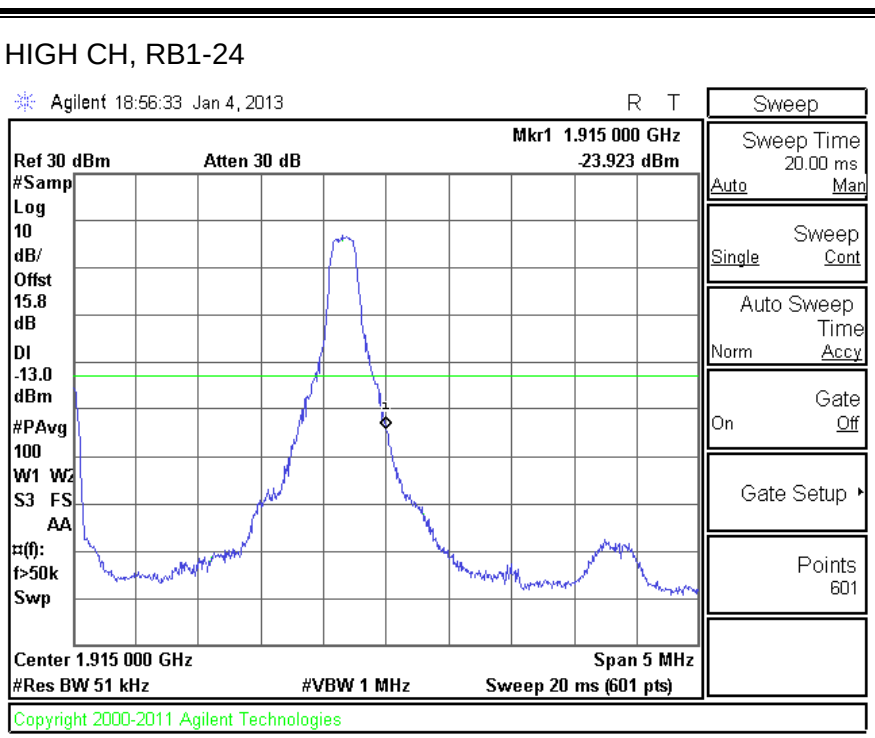
HIGH CH, RB1-0



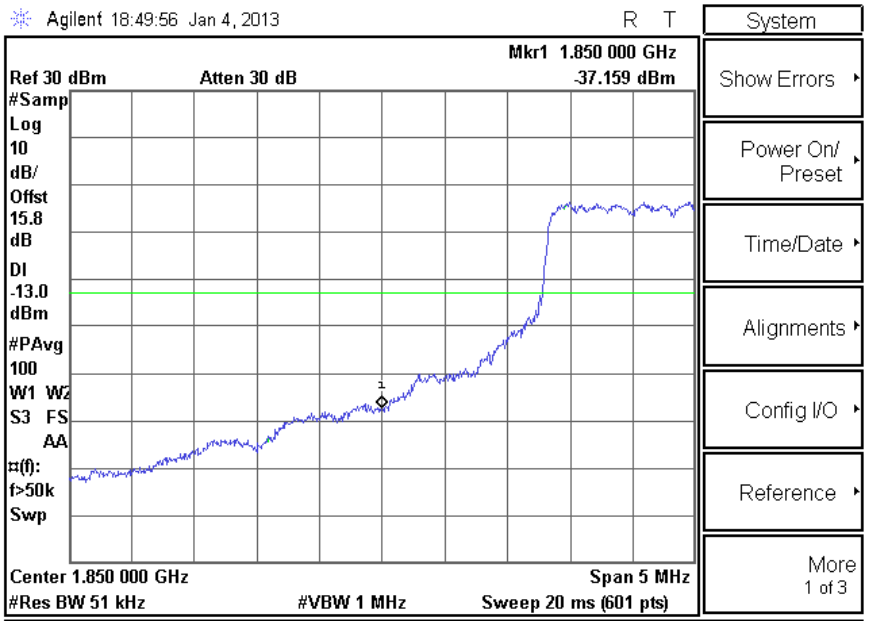
LOW CH, RB1-24



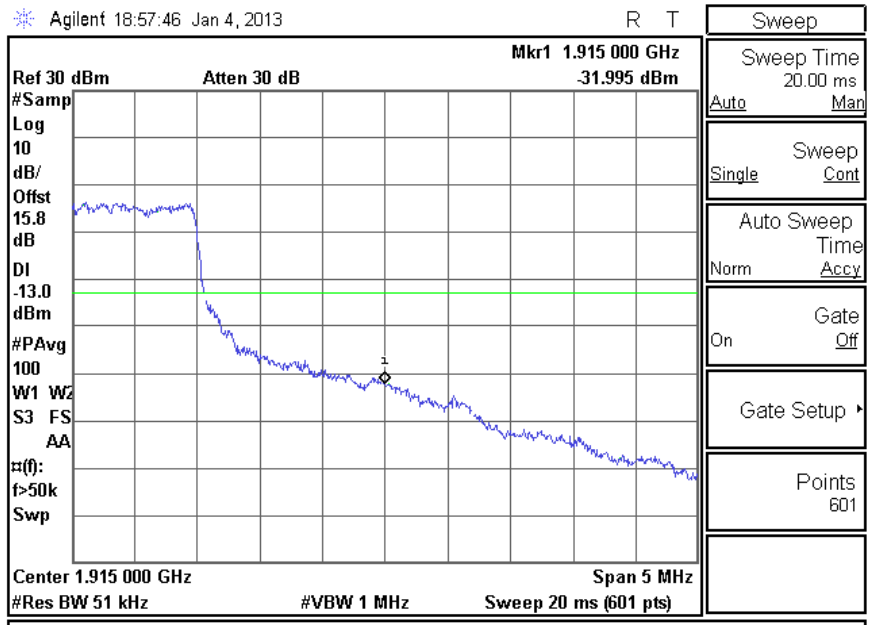
HIGH CH, RB1-24



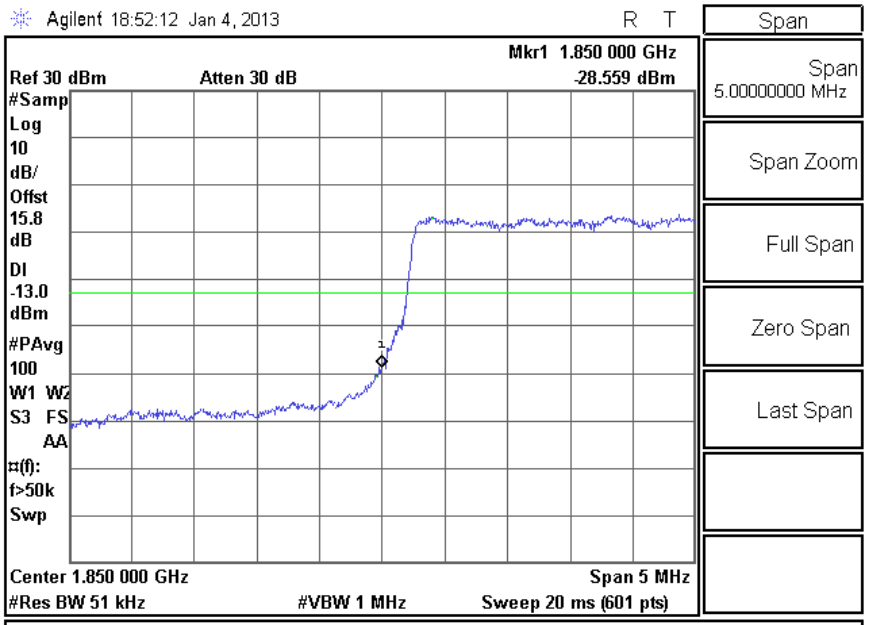
LOW CH, RB12-6



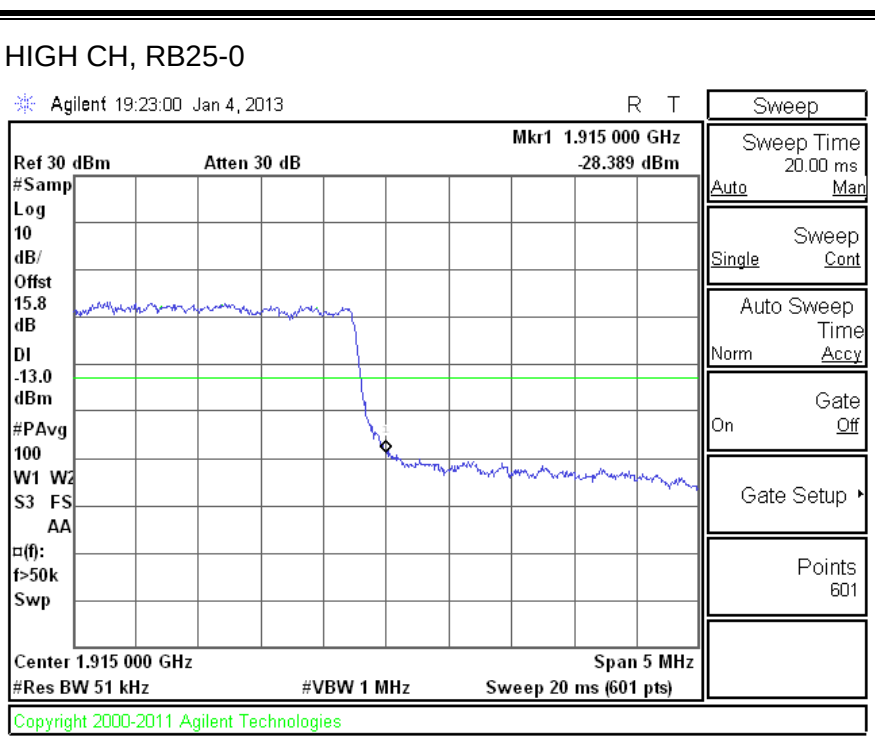
HIGH CH, RB12-6



LOW CH, RB25-0

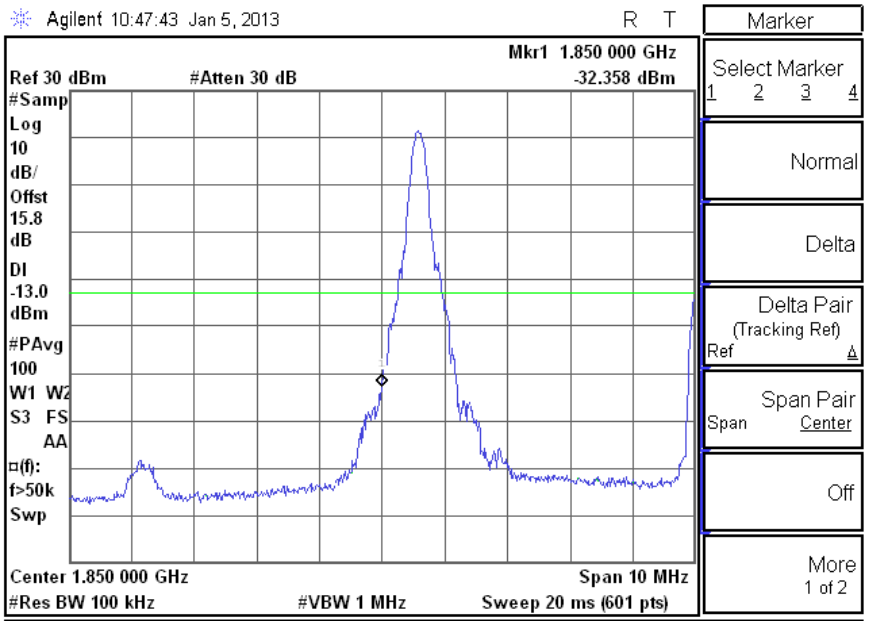


HIGH CH, RB25-0

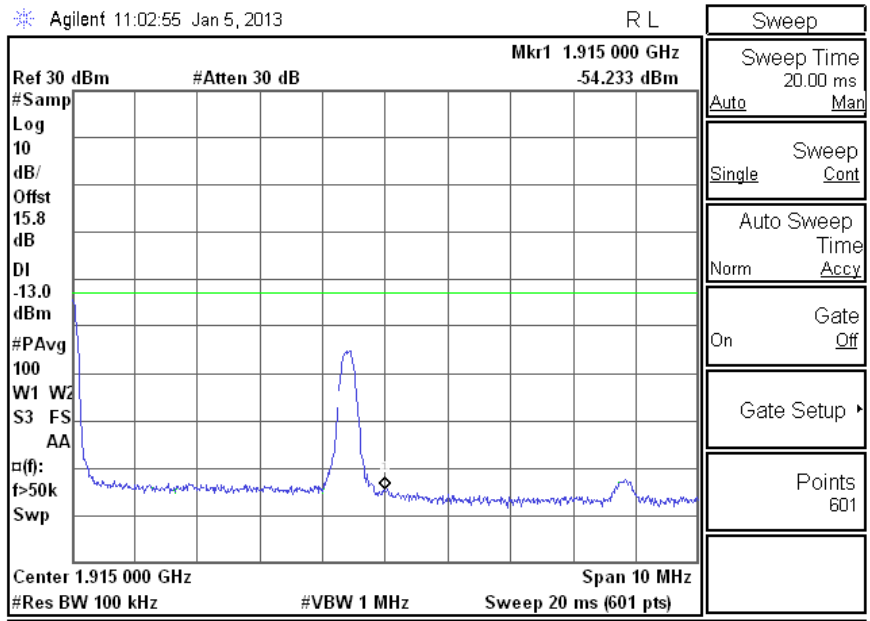


LTE QPSK (10 MHz BAND WIDTH)

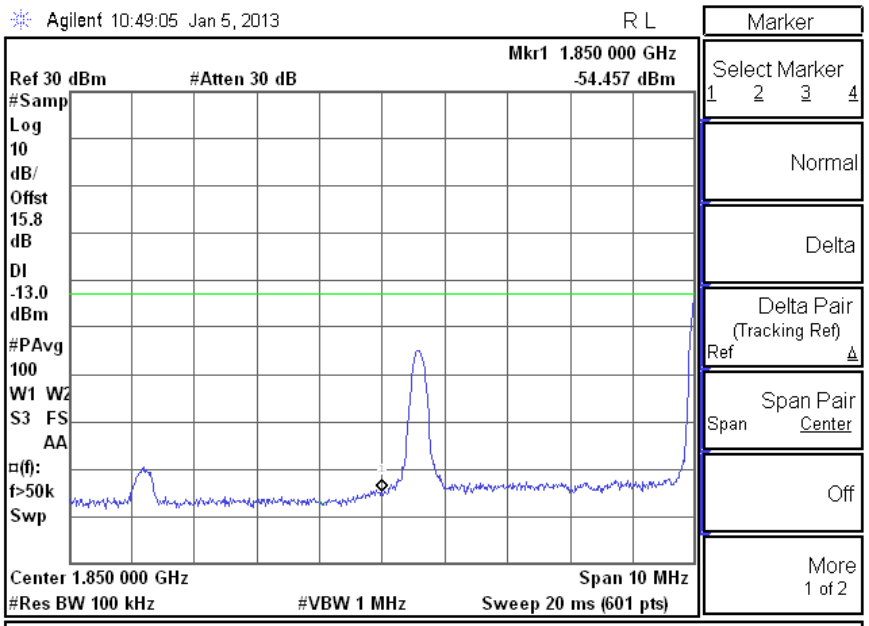
LOW CH, RB1-0



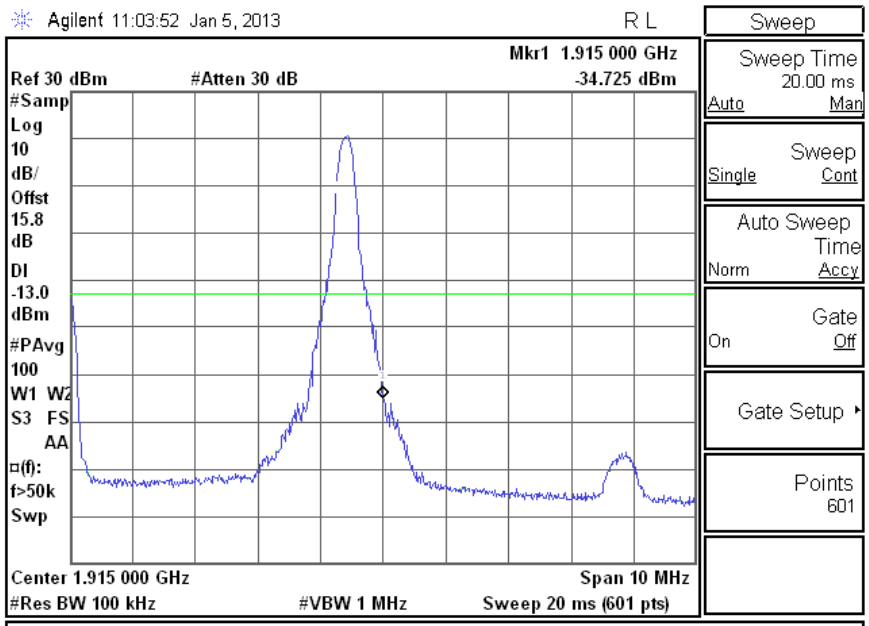
HIGH CH, RB1-0



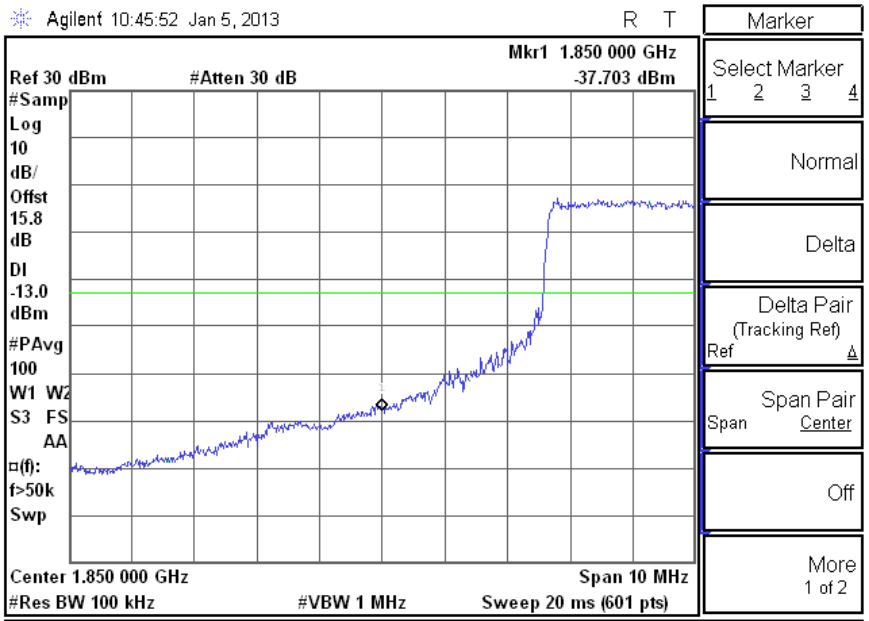
LOW CH, RB1-49



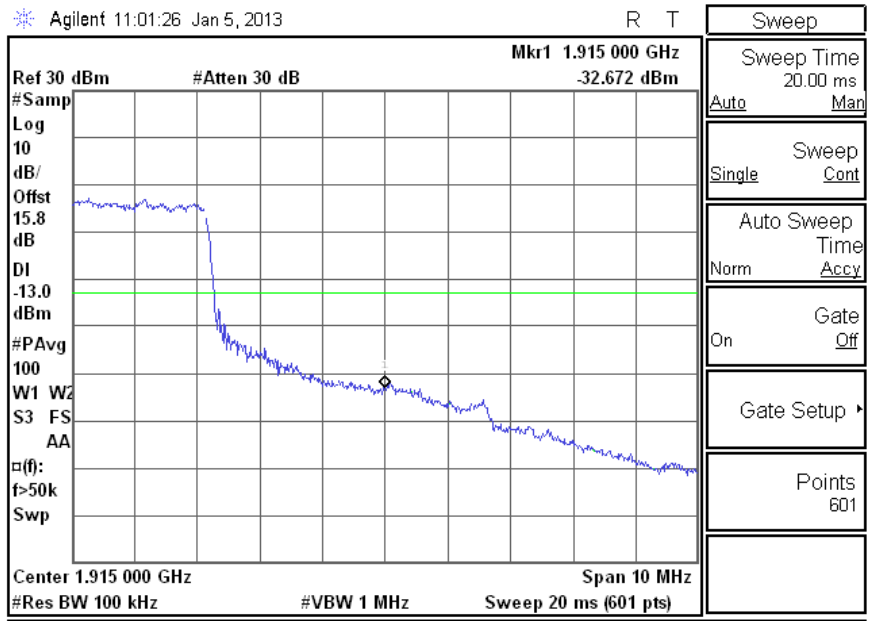
HIGH CH, RB1-49



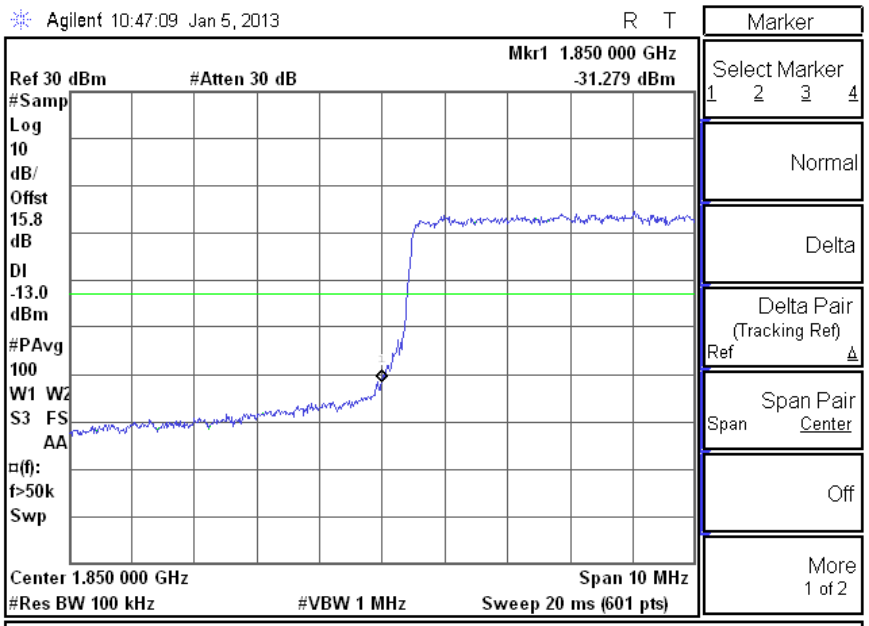
LOW CH, RB25-12



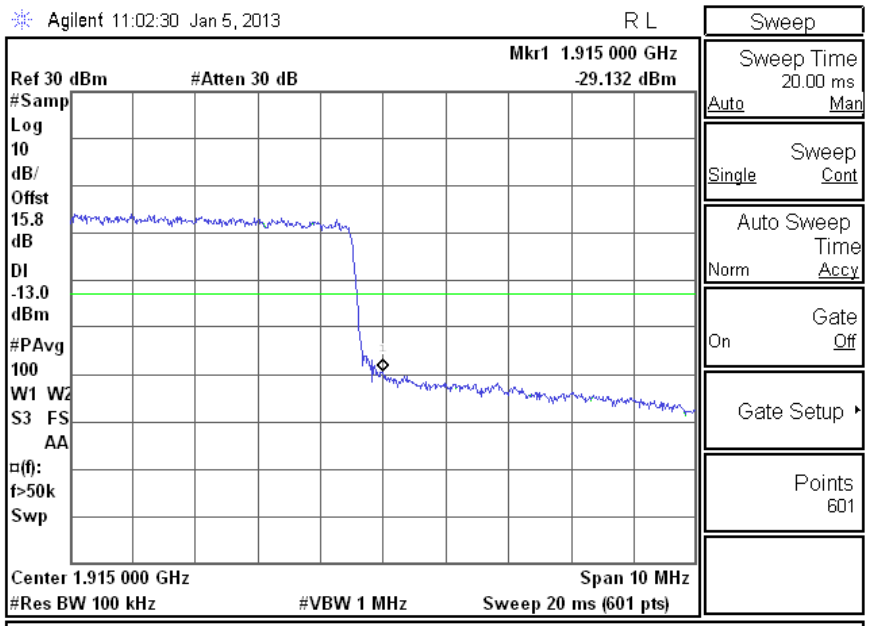
HIGH CH, RB25-12



LOW CH, RB50-0

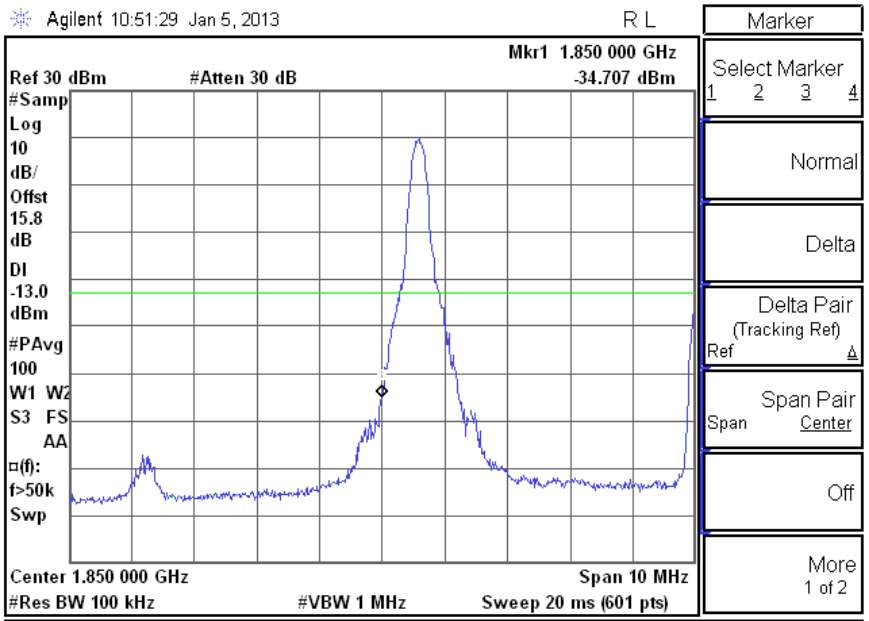


HIGH CH, RB50-0

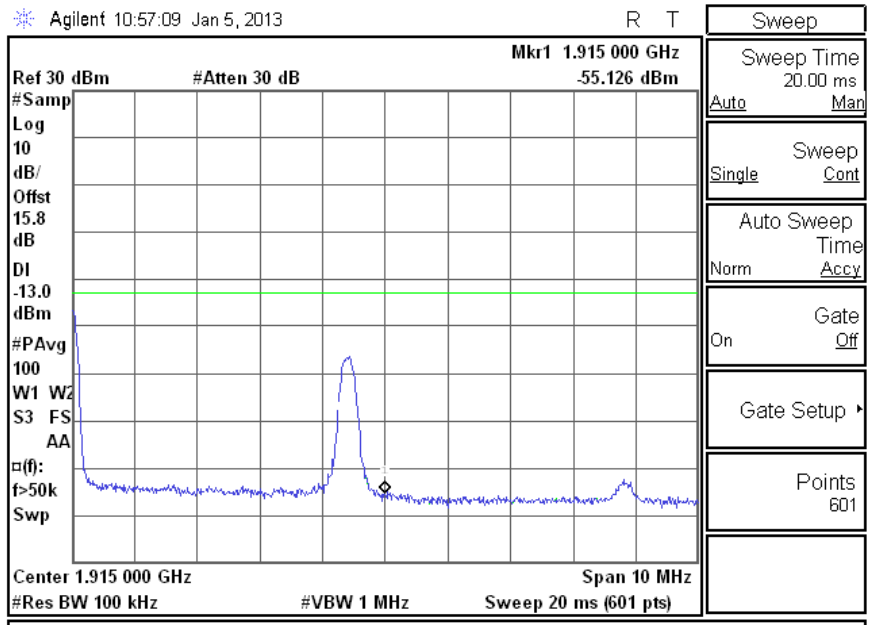


LTE 16QAM (10.0 MHz BAND WIDTH)

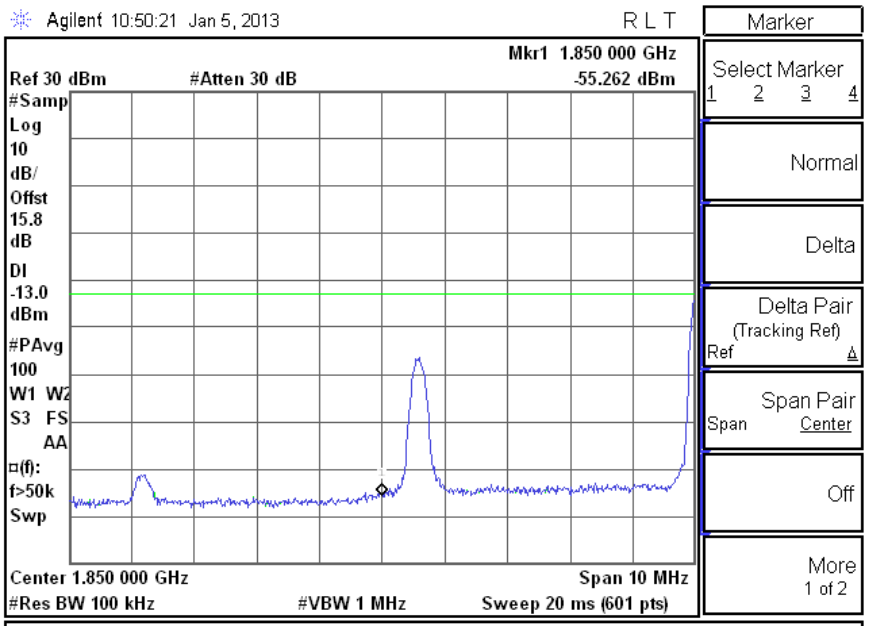
LOW CH, RB1-0



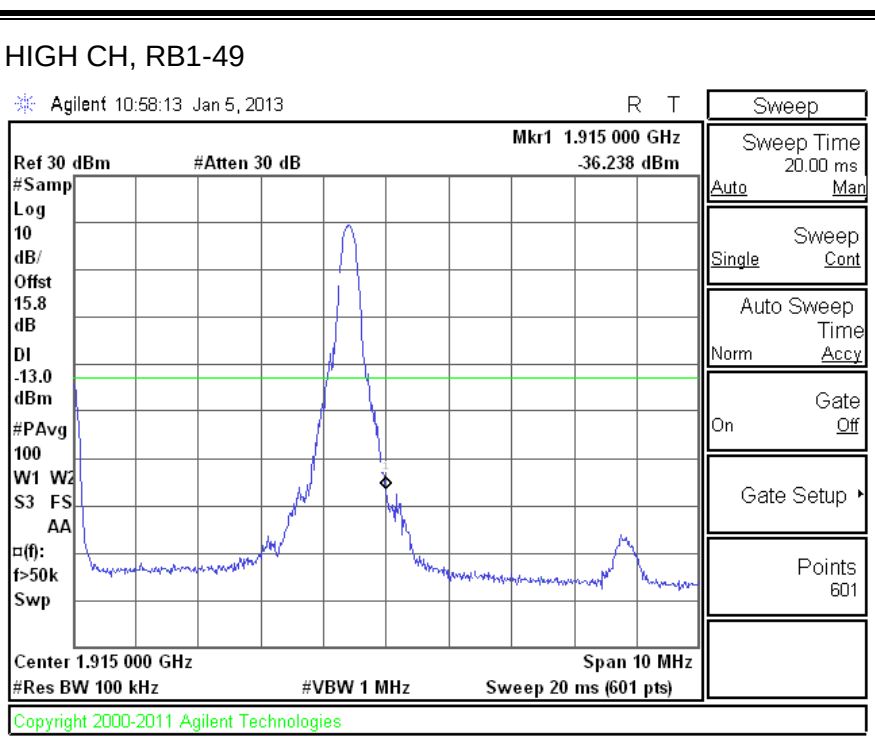
HIGH CH, RB1-0



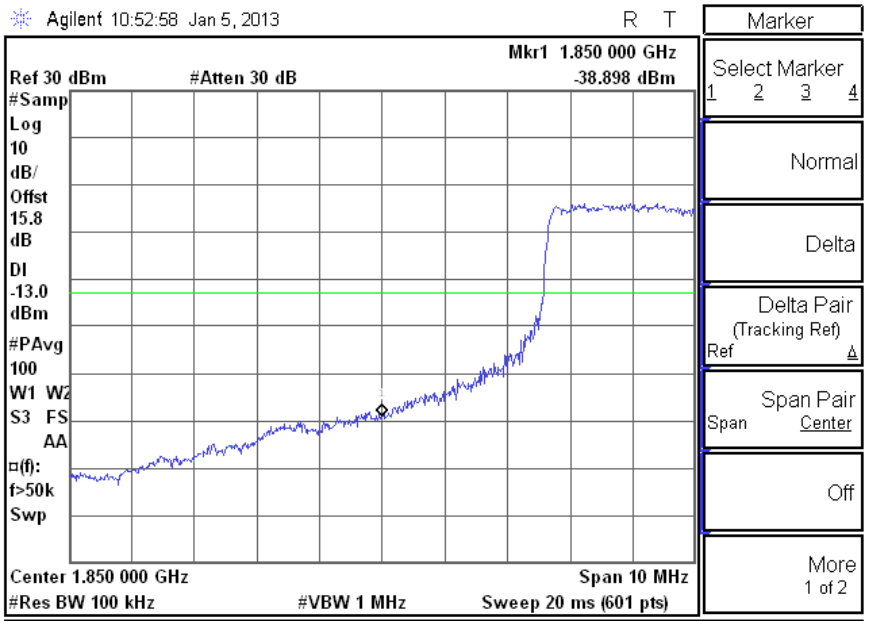
LOW CH, RB1-49



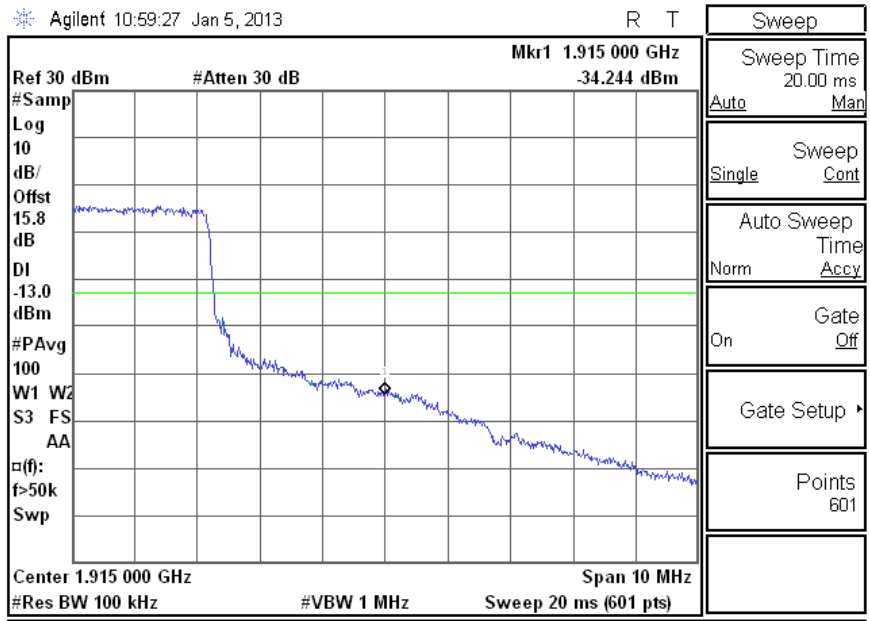
HIGH CH, RB1-49



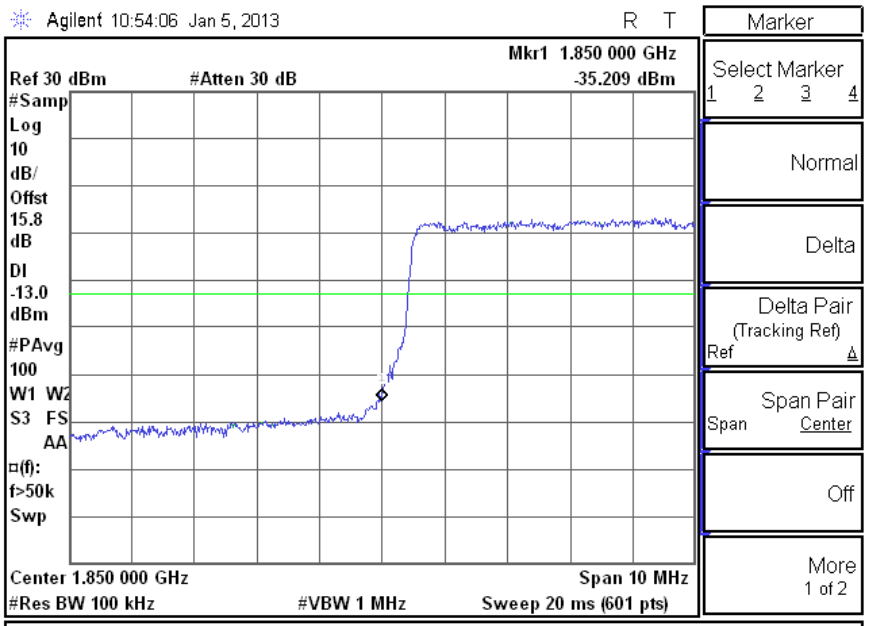
LOW CH, RB25-12



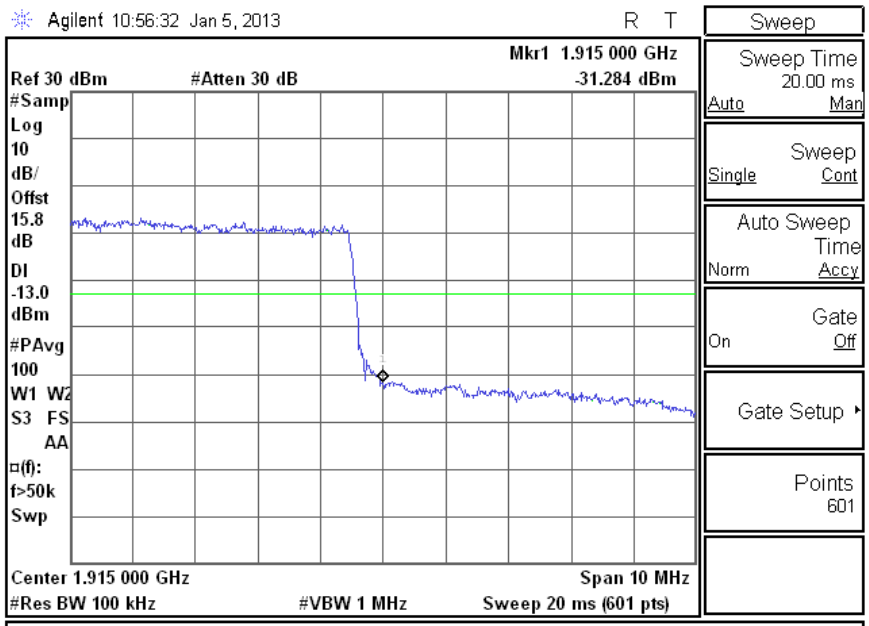
HIGH CH, RB25-12



LOW CH, RB50-0



HIGH CH, RB50-0



8.3. OUT OF BAND EMISSIONS

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238 and §90.691

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

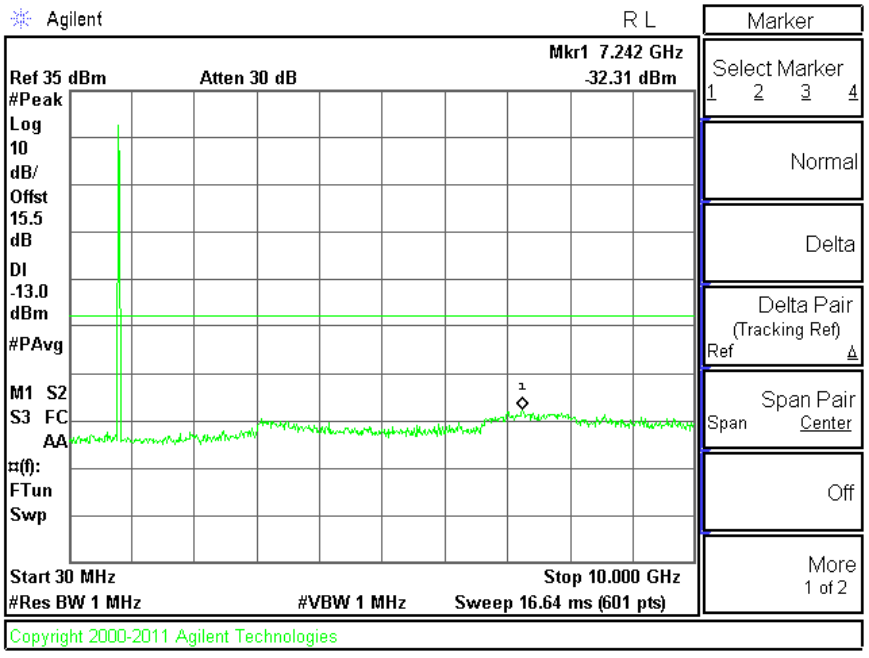
- BC10
- BC0 and BC1
- LTE BAND 25

RESULTS

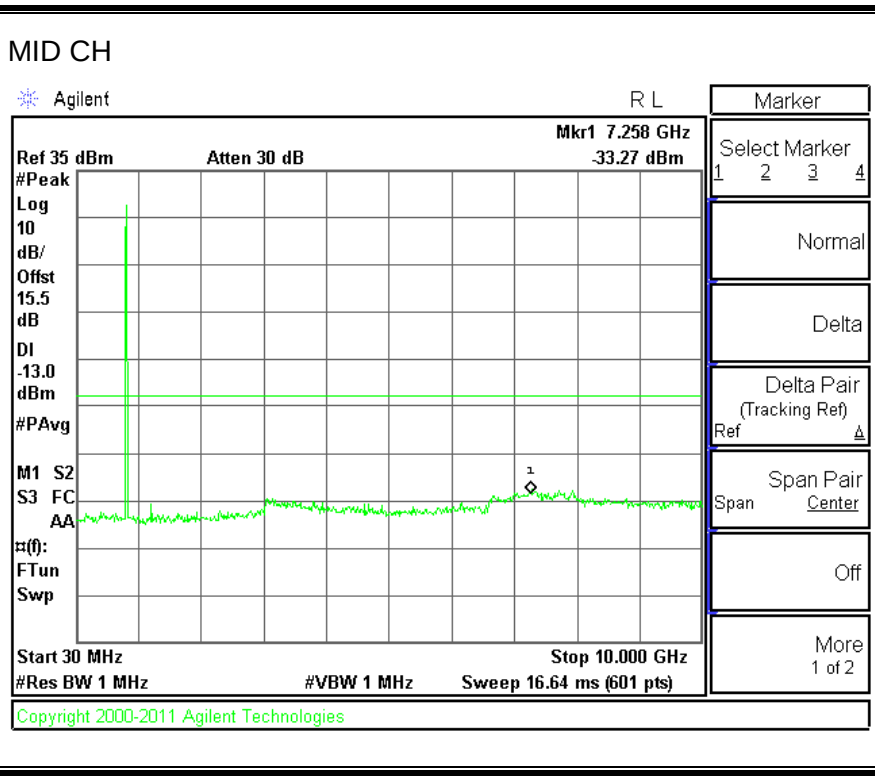
8.3.1. **CDMA, BC10**

1xRTT

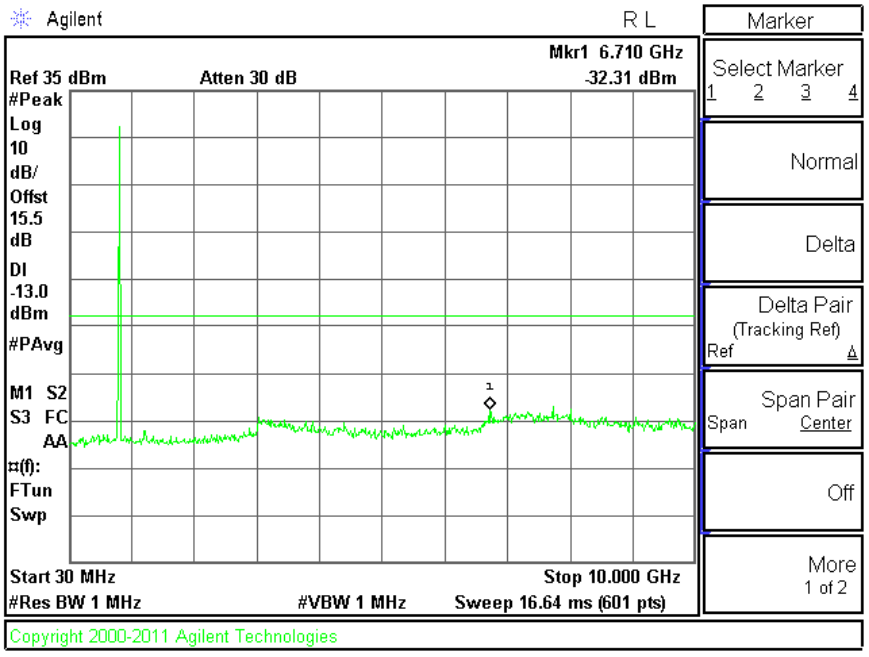
LOW CH



MID CH

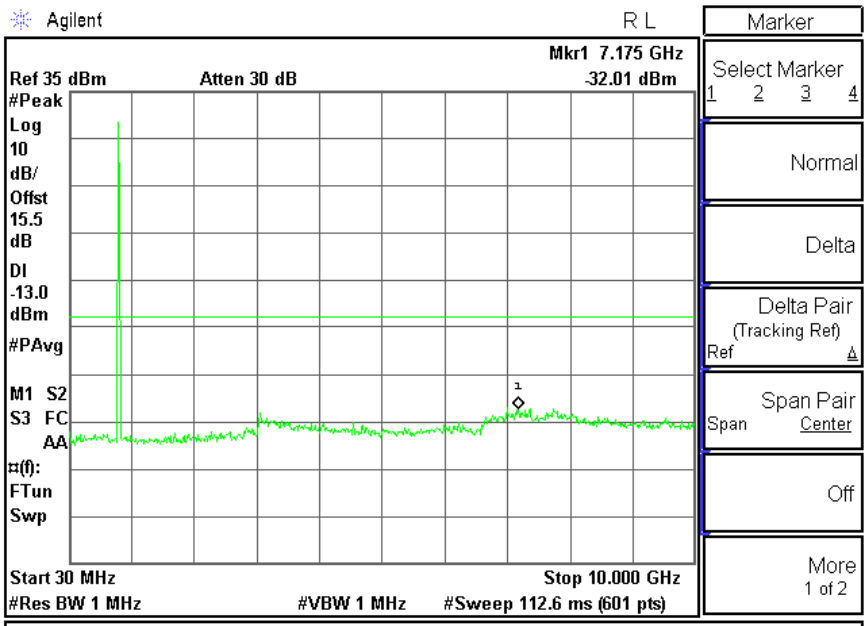


HIGH CH

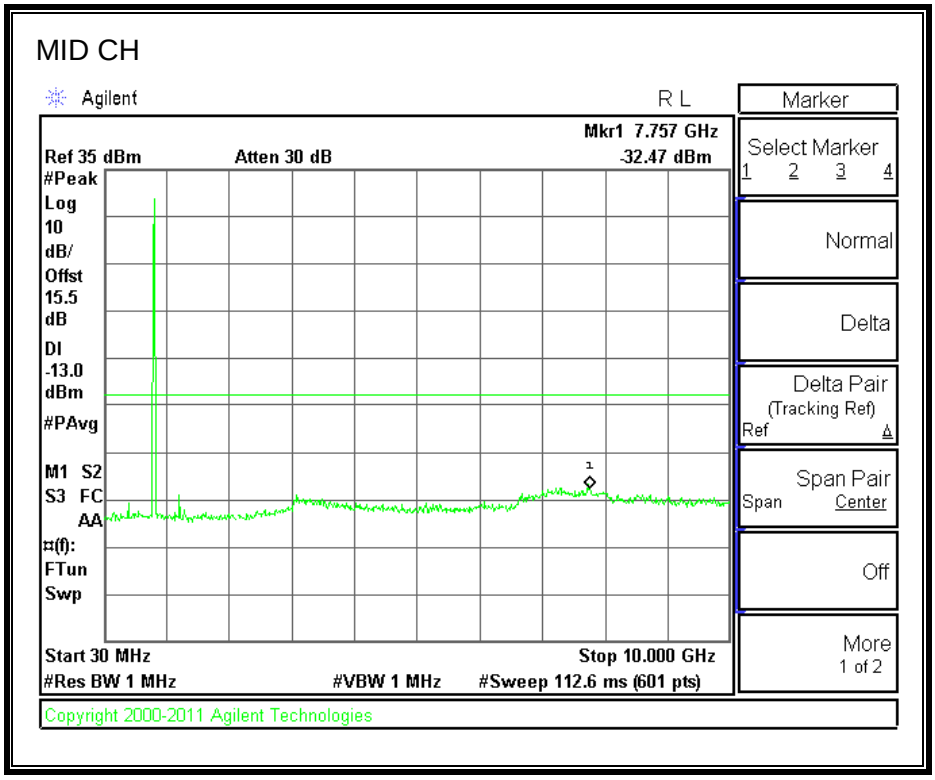


EVDO

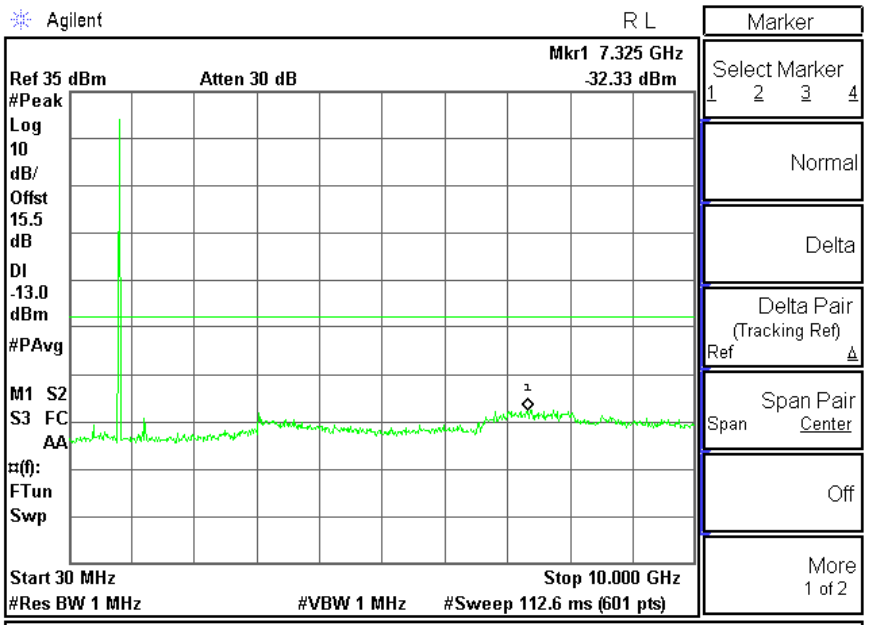
LOW CH



MID CH



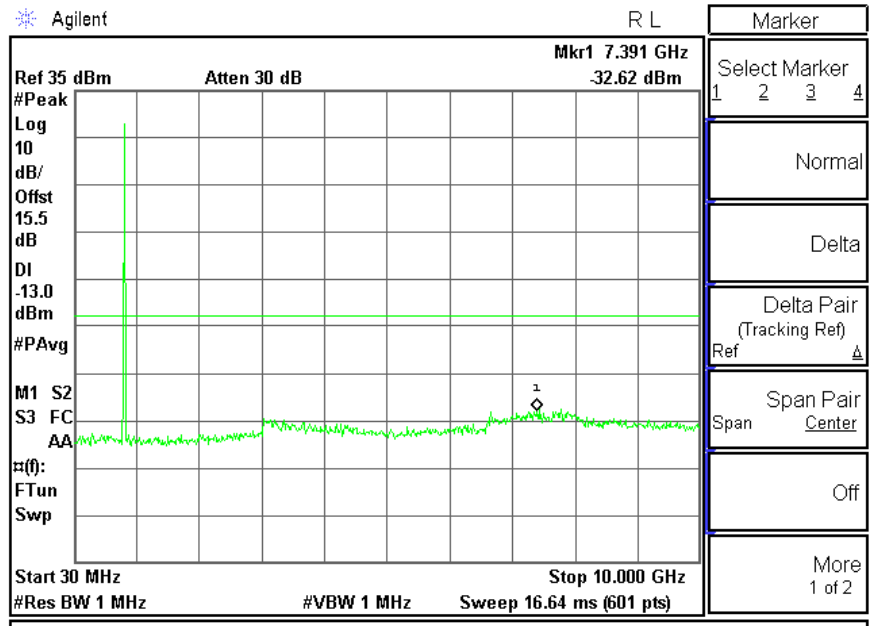
HIGH CH



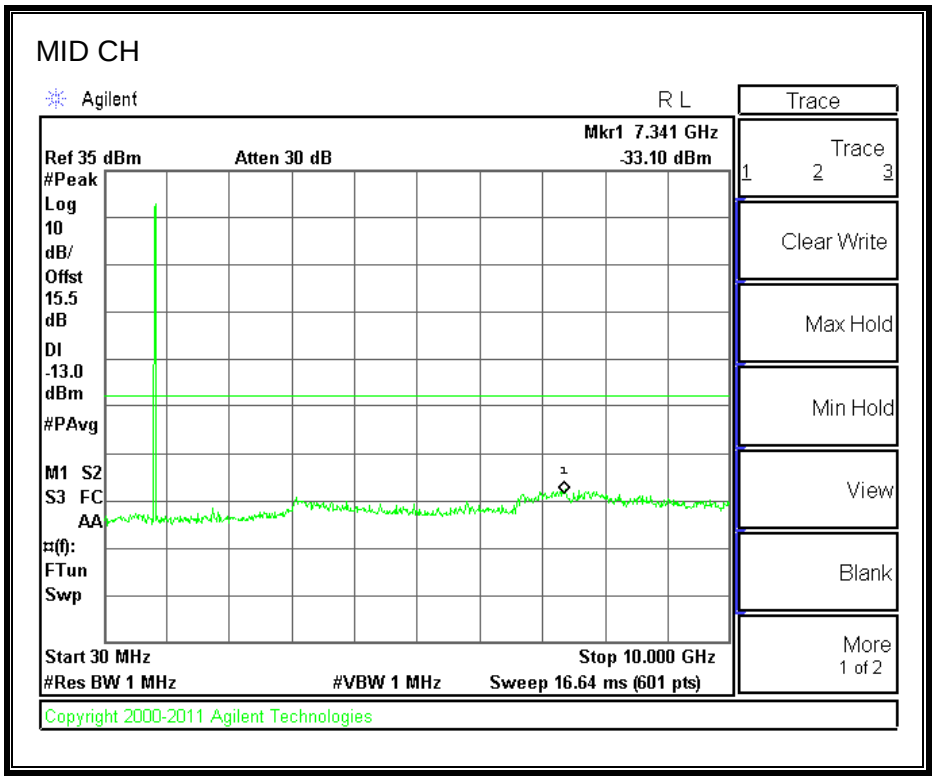
8.3.2. CDMA, BC0

CELL BAND, 1xRTT

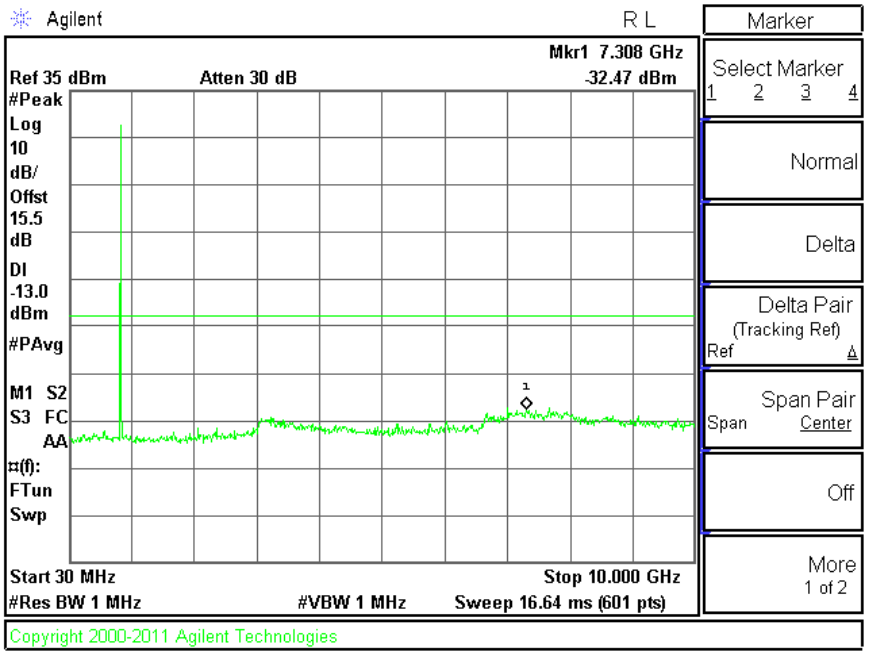
LOW CH



MID CH

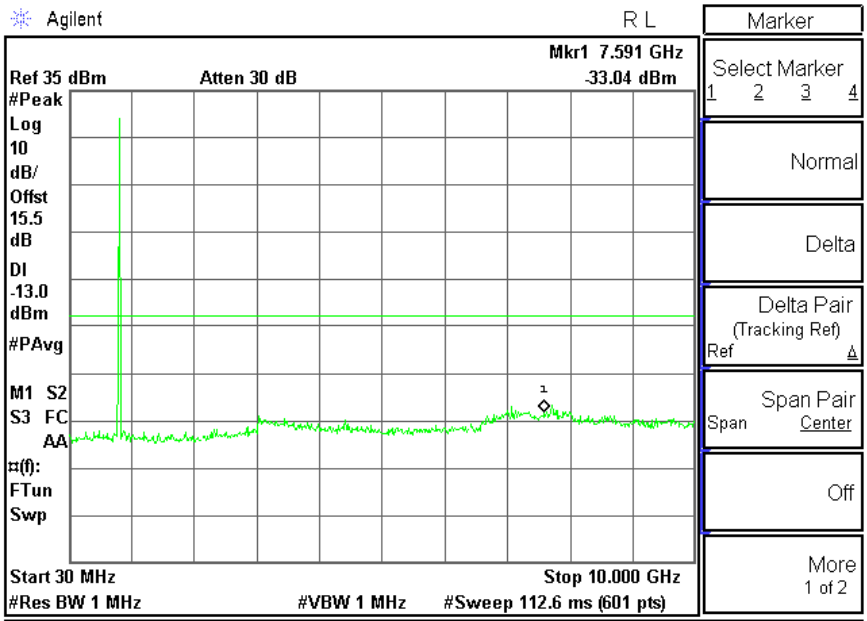


HIGH CH

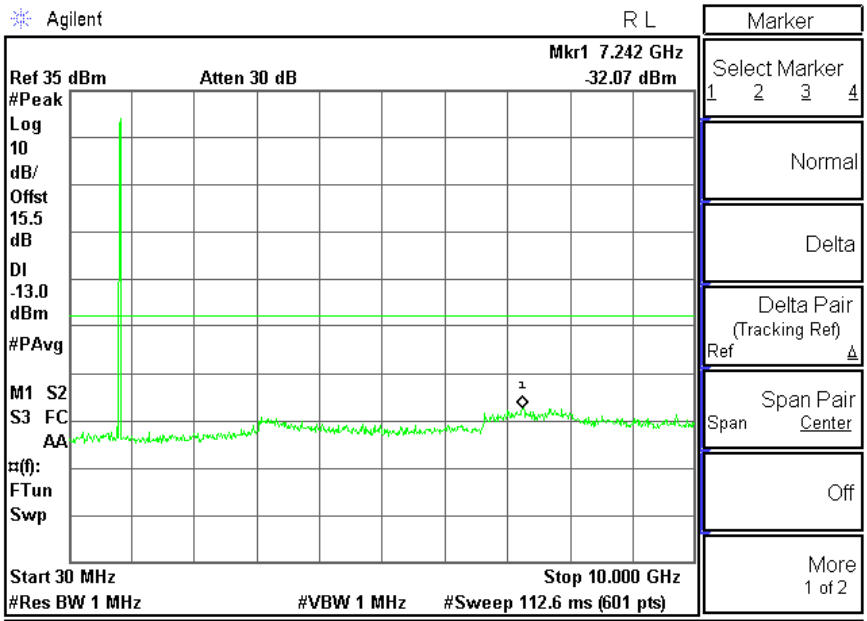


Cell BAND, EVDO, Rev A

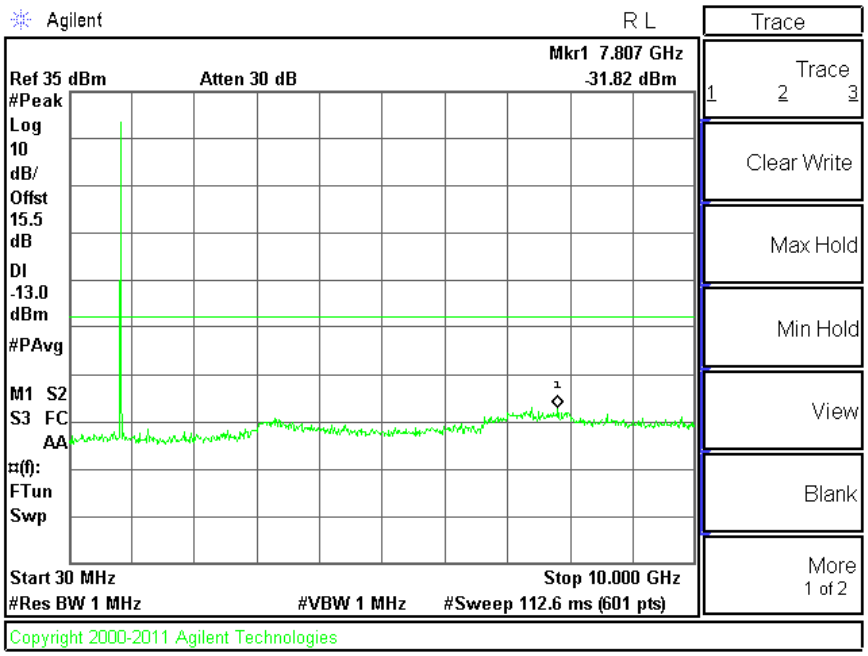
LOW CH



MID CH



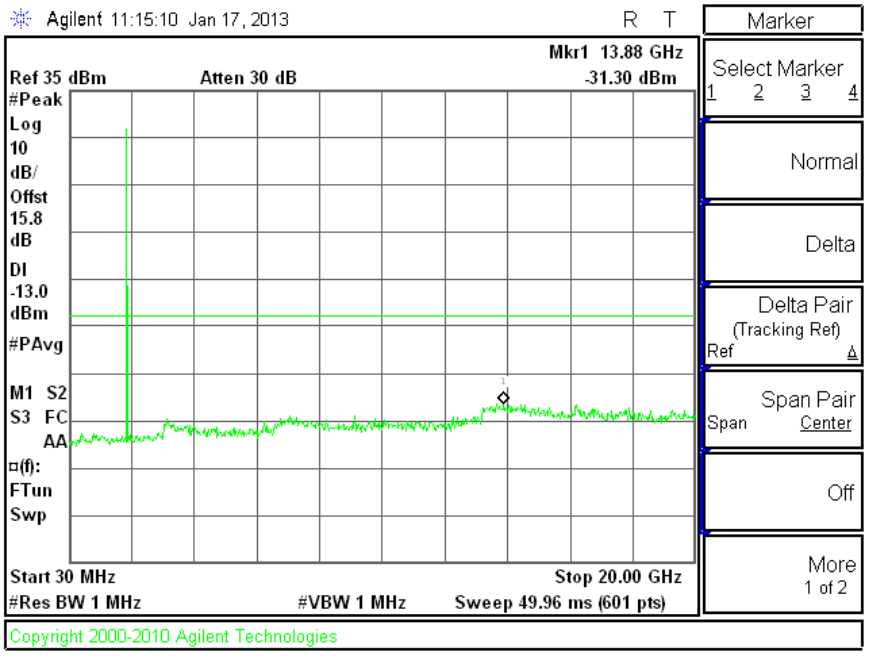
HIGH CH



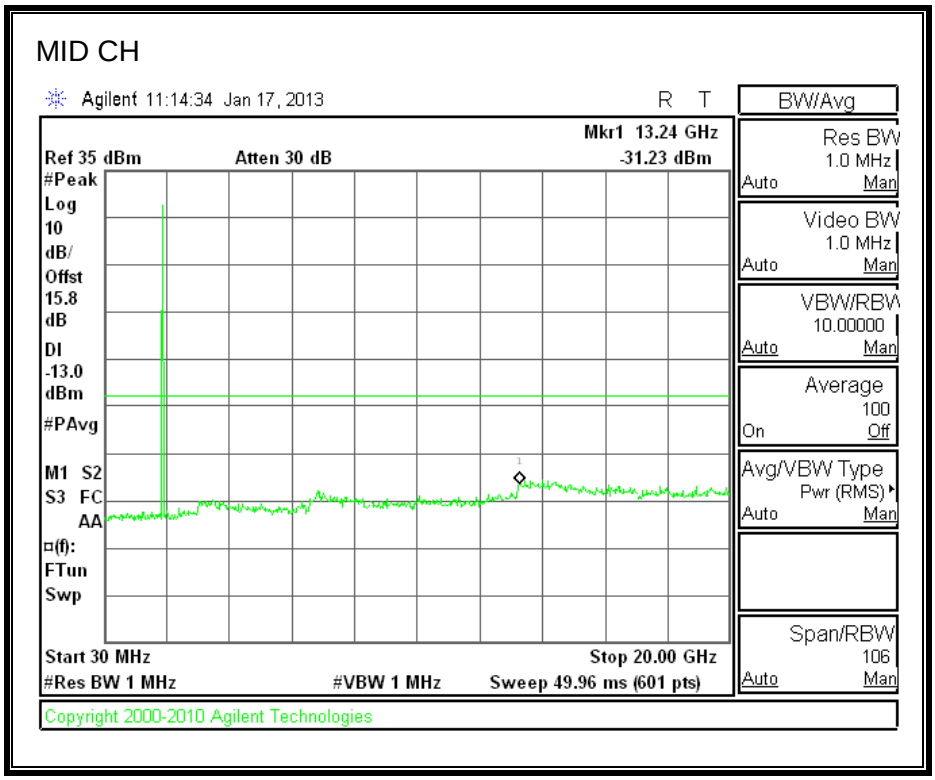
8.3.3. CDMA, BC1

1xRTT, PCS BAND

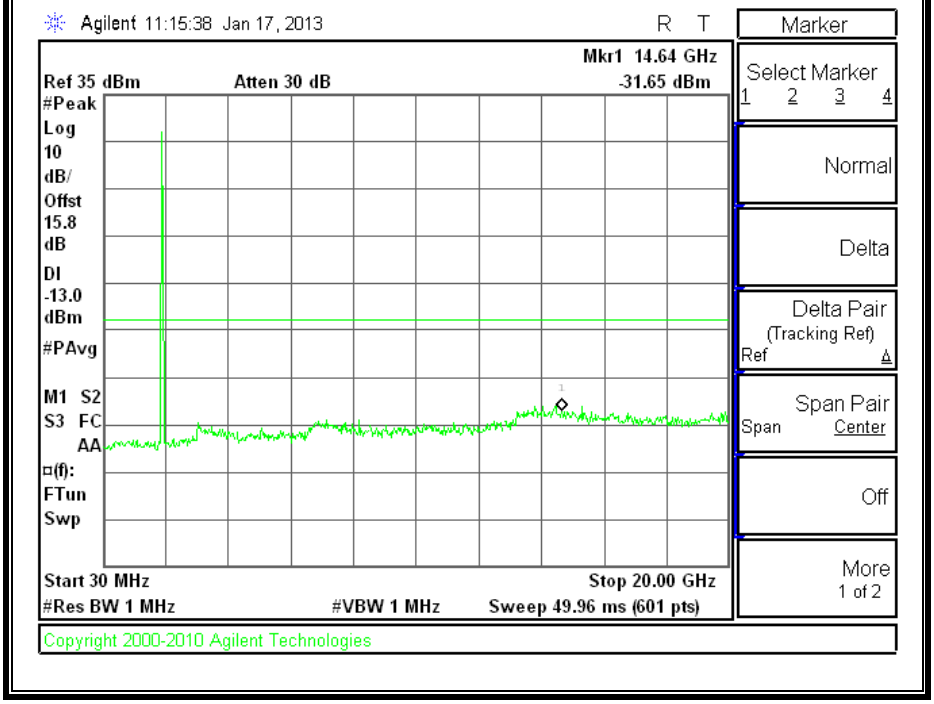
LOW CH



MID CH

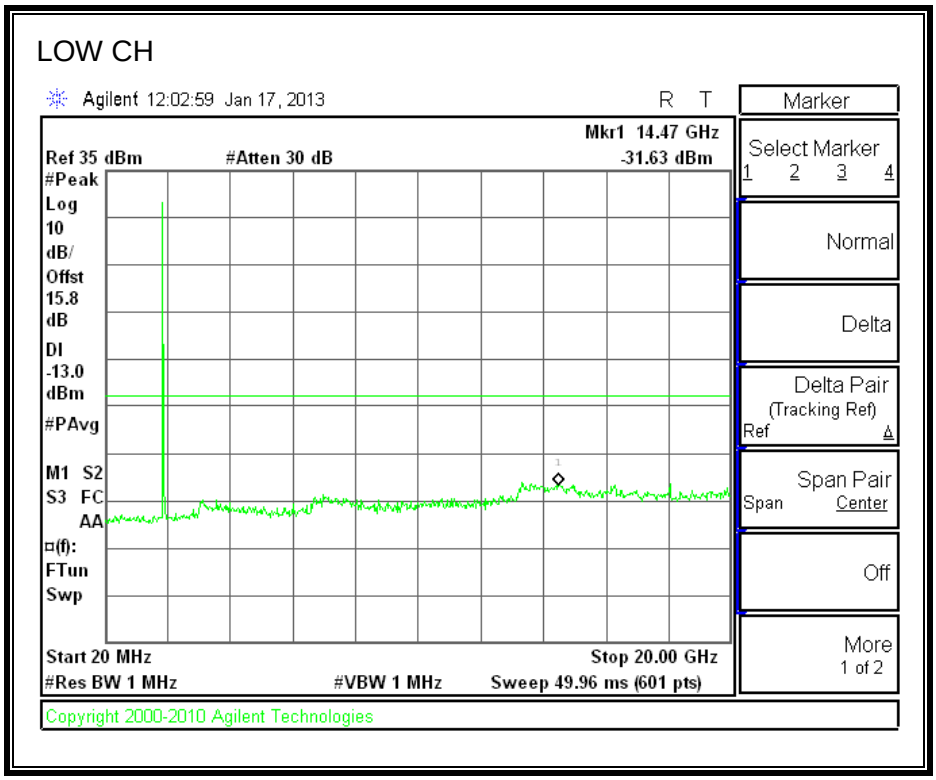


HIGH CH

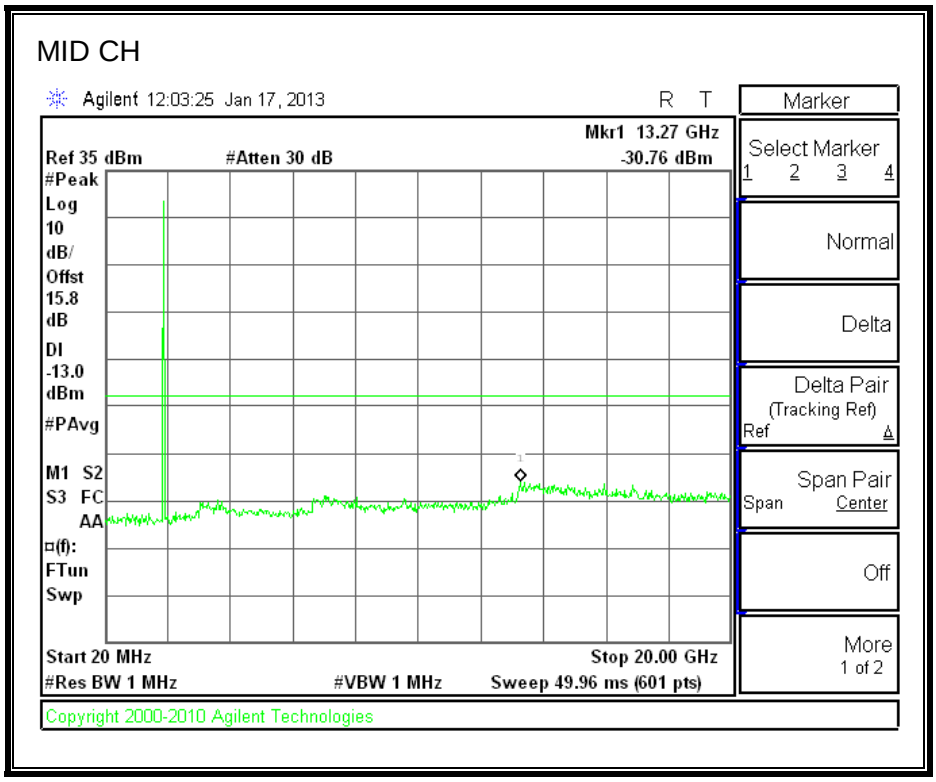


PCS BAND, EVDO Rev A

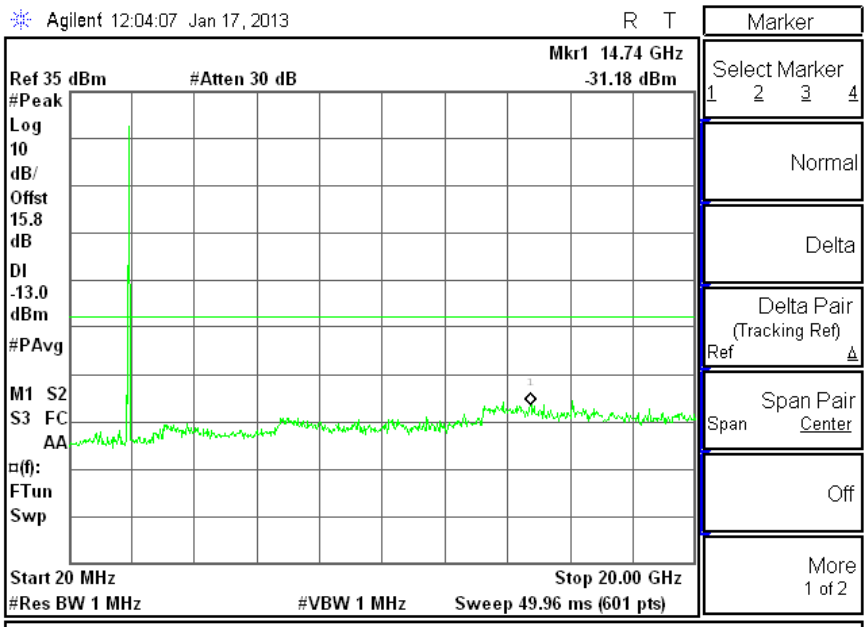
LOW CH



MID CH



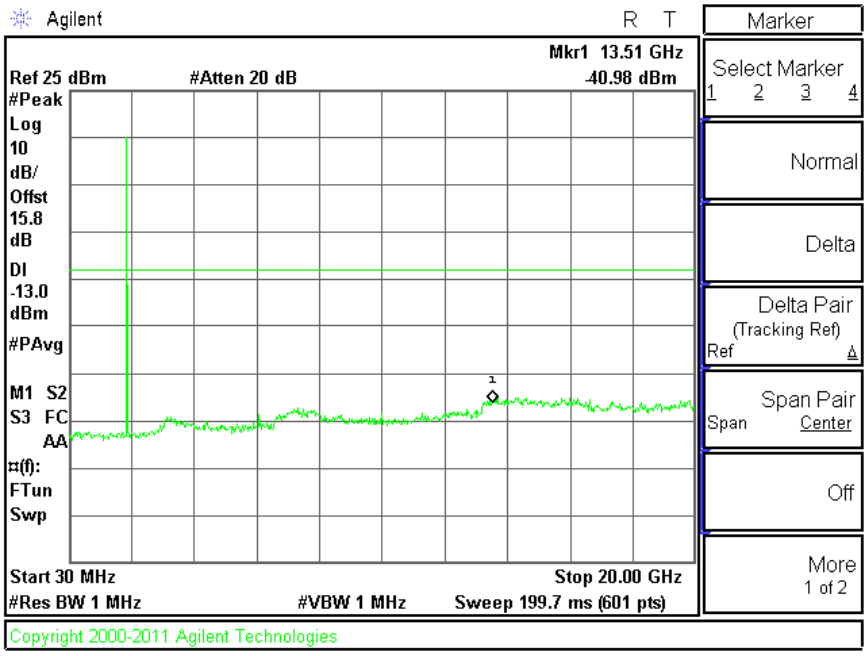
HIGH CH



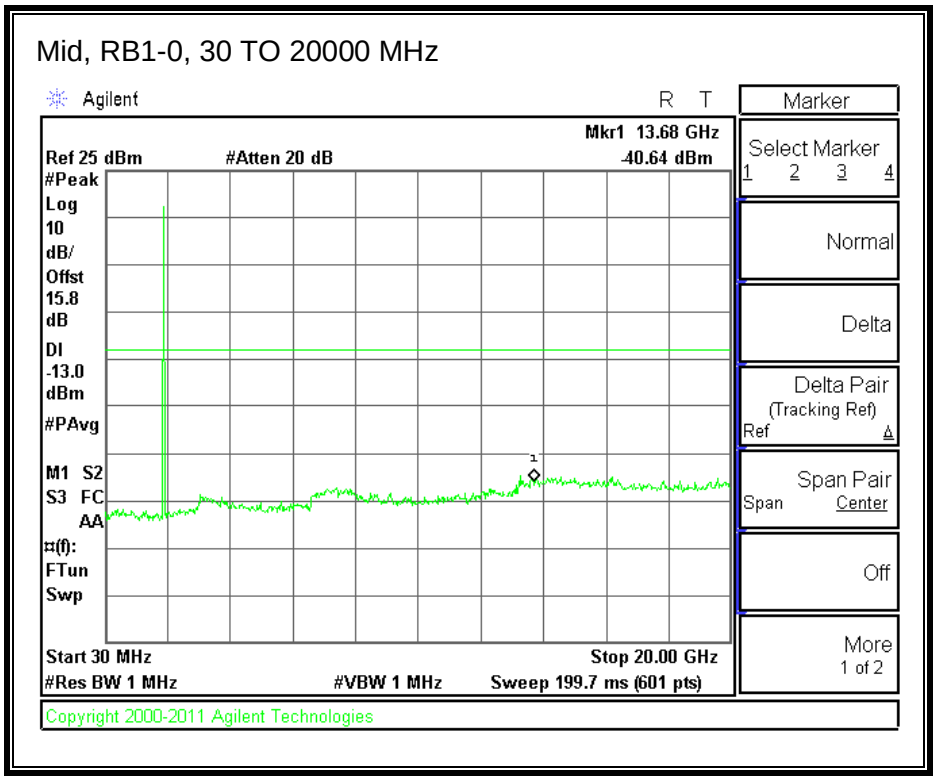
8.3.4. LTE Band 25

QPSK (3 MHz BANDWIDTH)

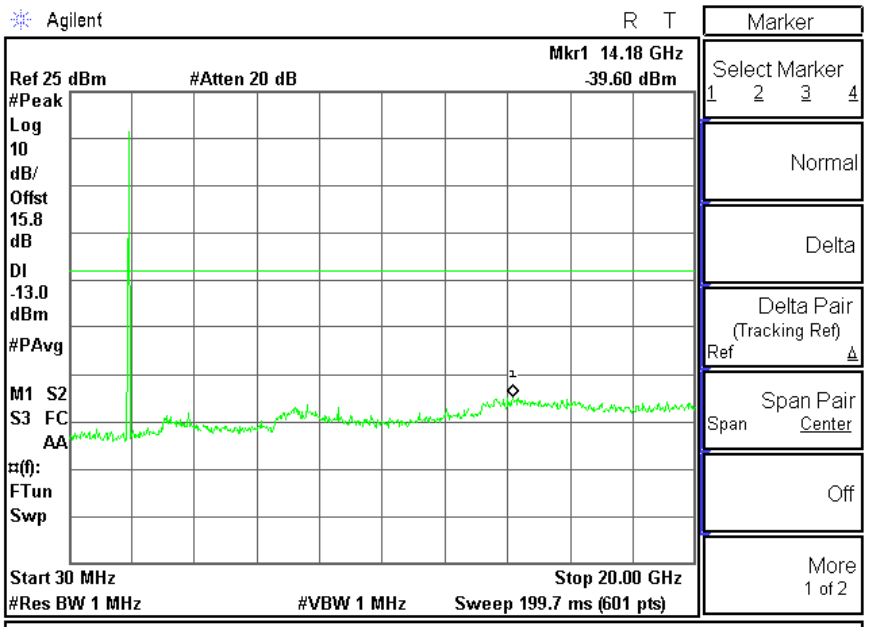
LOW, RB1-0, 30 TO 20000 MHz



Mid, RB1-0, 30 TO 20000 MHz

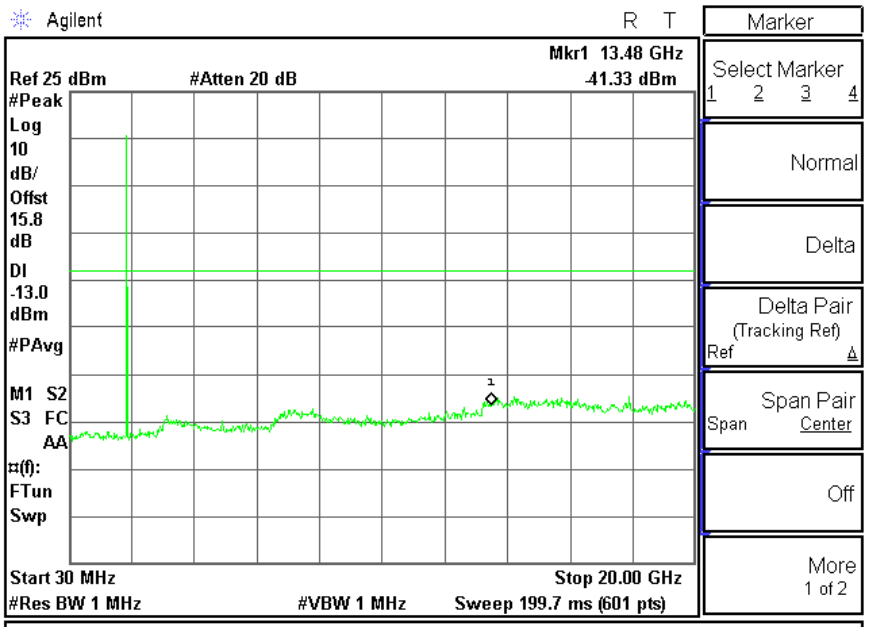


High, RB1-0, 30 TO 20000 MHz

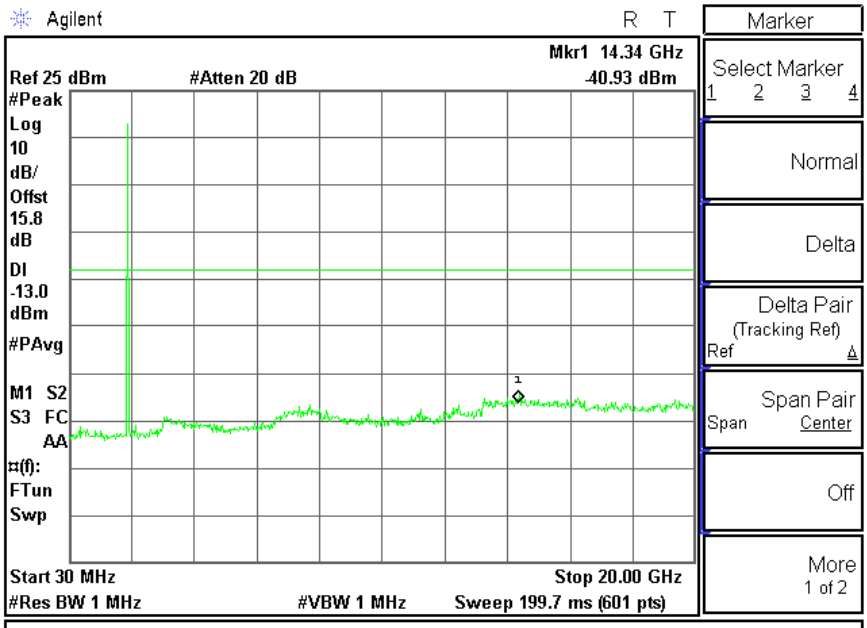


LTE 16QAM

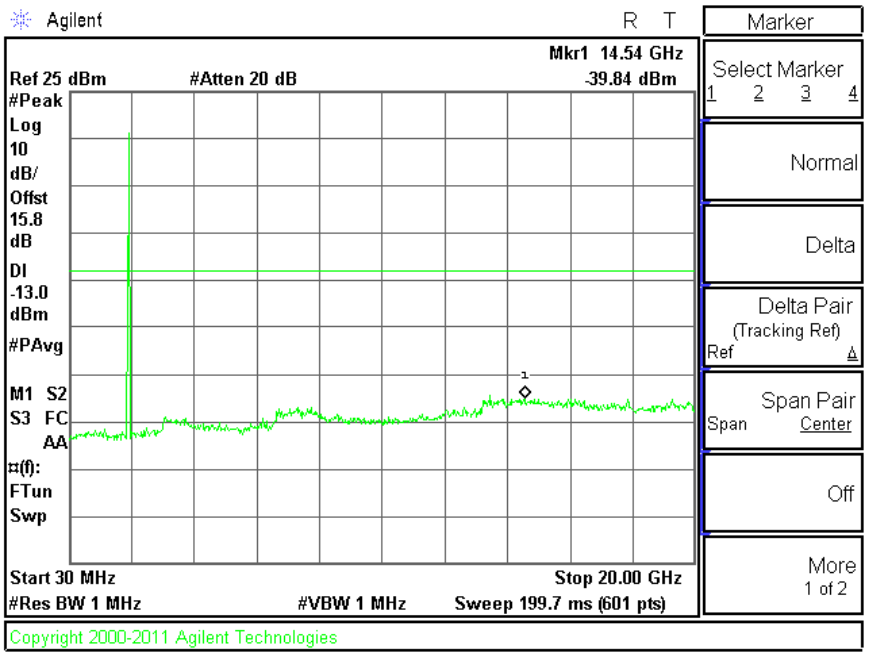
LOW, RB1-0, 30 TO 20000 MHz



MID RB1-0, 30 TO 20000 MHz

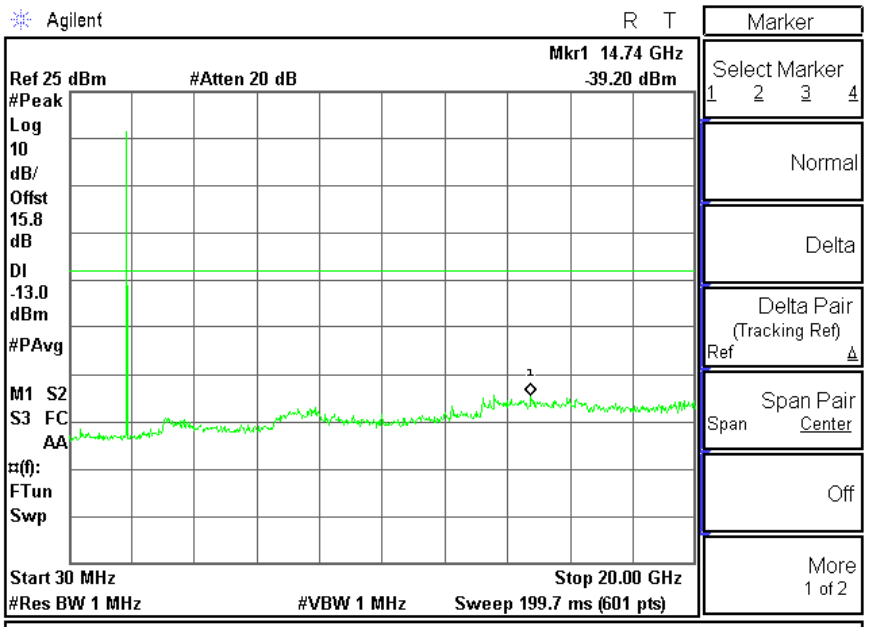


HIGH, RB1-0, 30 TO 20000 MHz

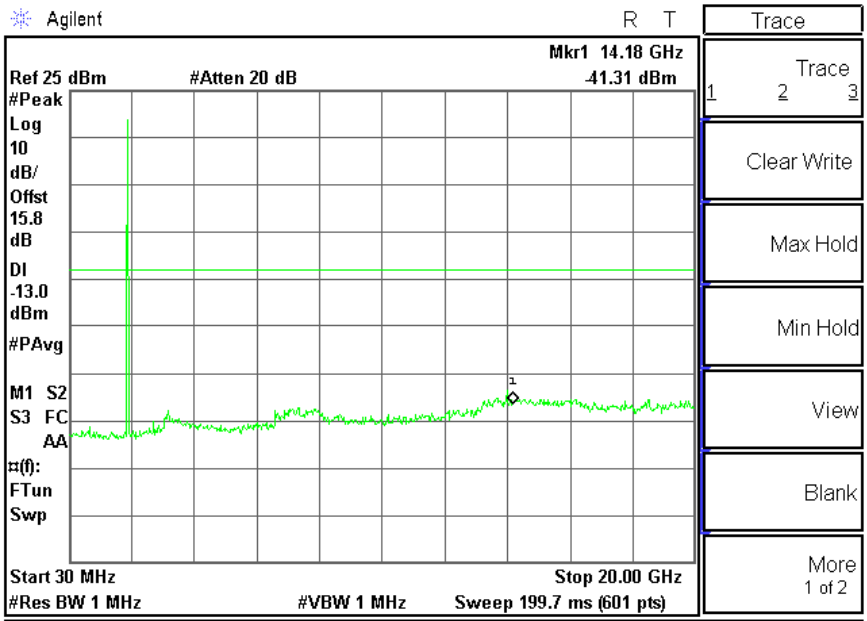


QPSK(5 MHz BANDWIDTH)

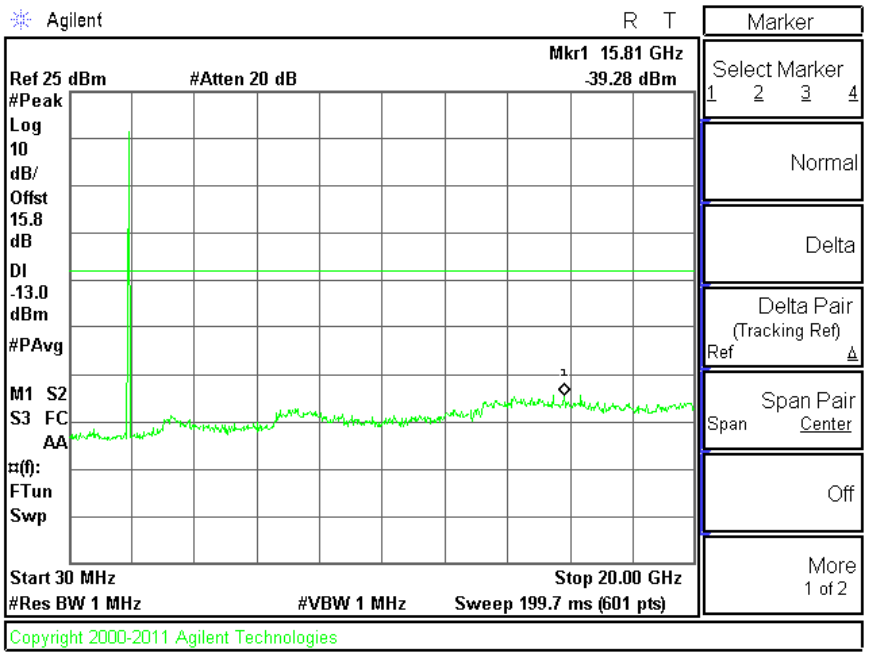
LOW, RB1-0, 30 TO 20000 MHz



Mid, RB1-0, 30 TO 20000 MHz

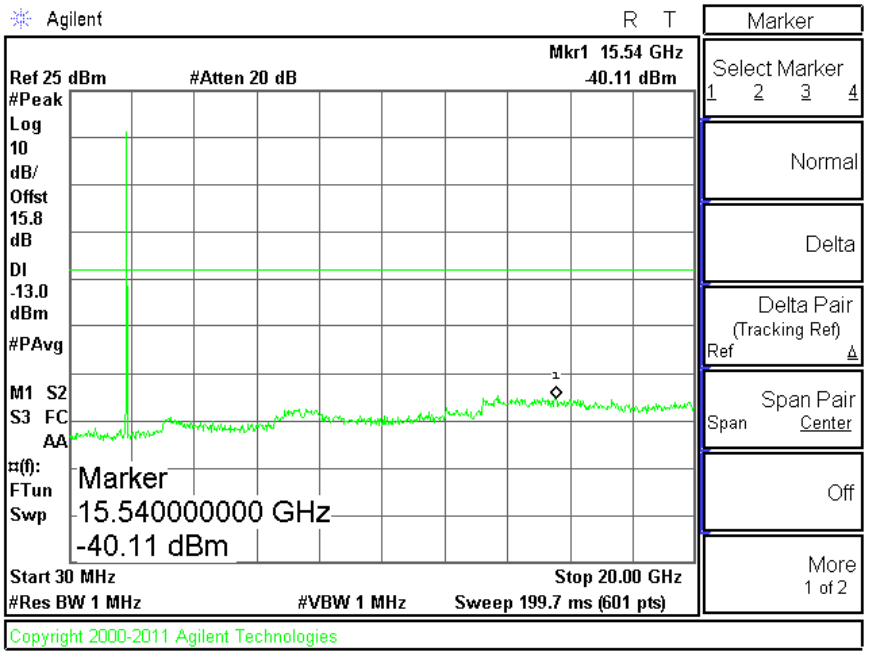


High, RB1-0, 30 TO 20000 MHz

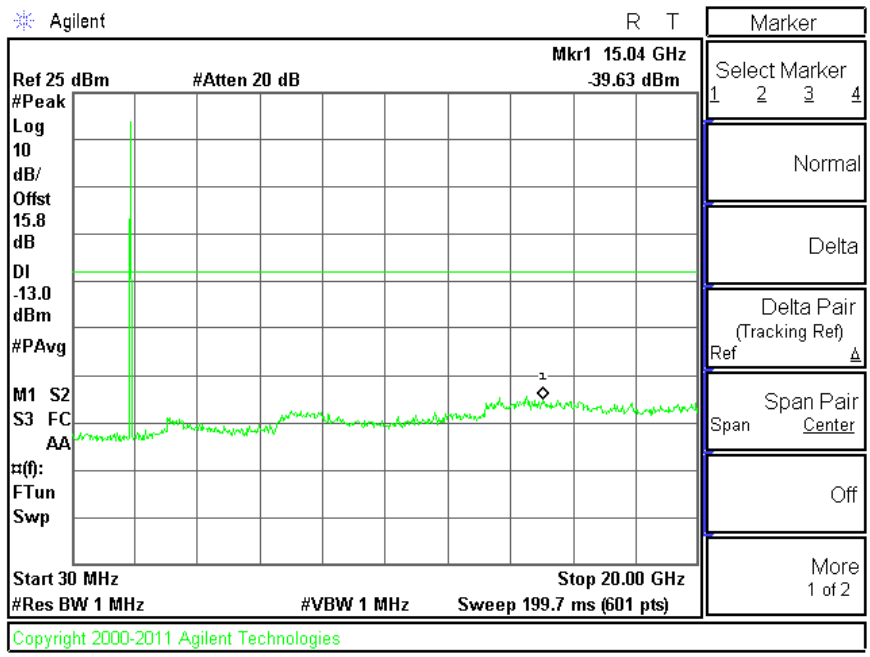


LTE 16QAM

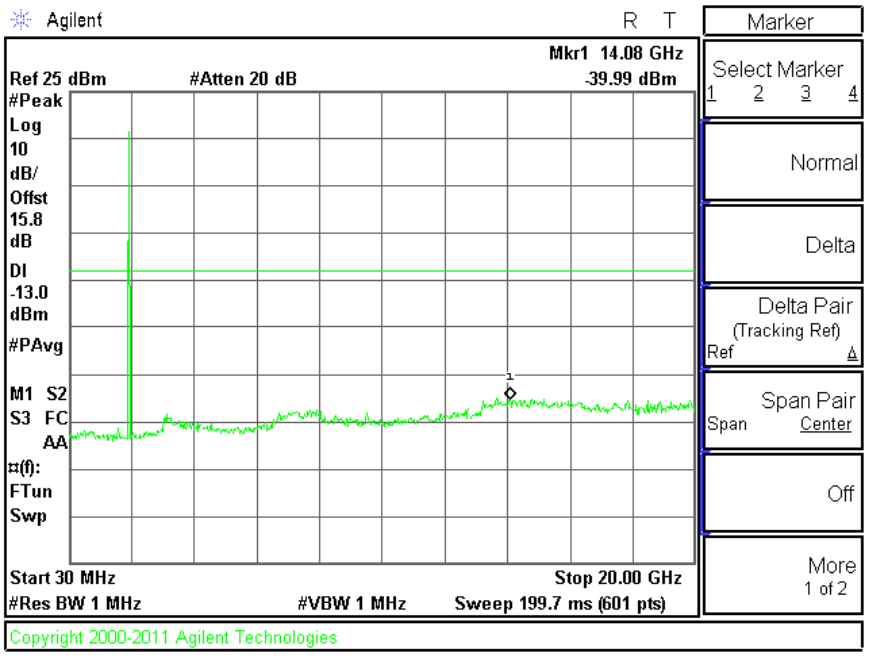
LOW, RB1-0, 30 TO 20000 MHz



MID RB1-0, 30 TO 20000 MHz

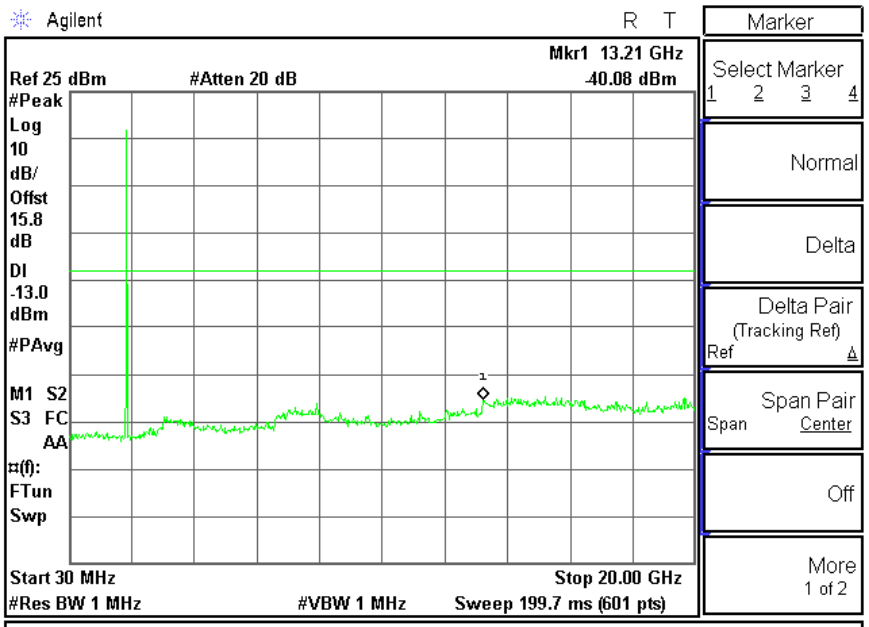


HIGH, RB1-0, 30 TO 20000 MHz

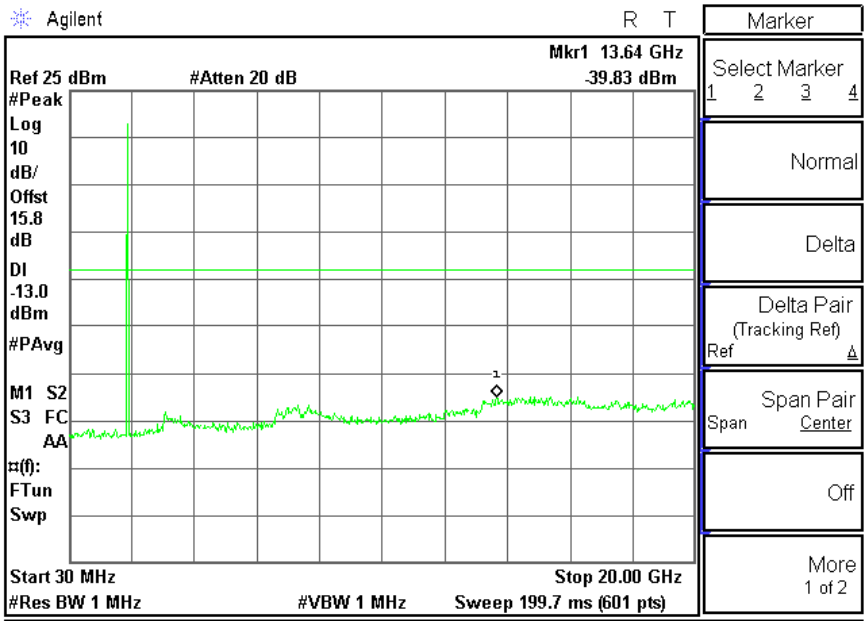


QPSK (10 MHz BANDWIDTH)

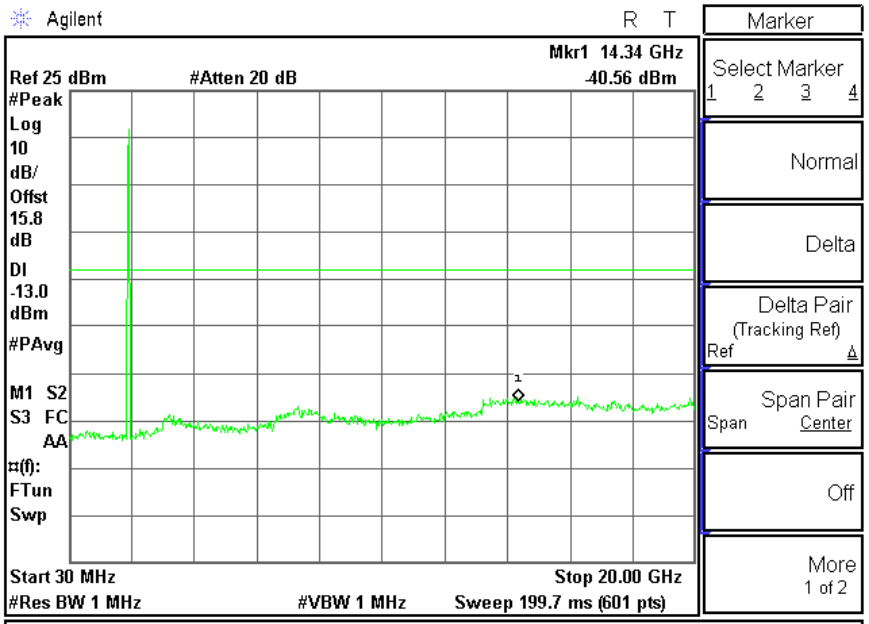
LOW, RB1-0, 30 TO 20000 MHz



Mid, RB1-0, 30 TO 20000 MHz

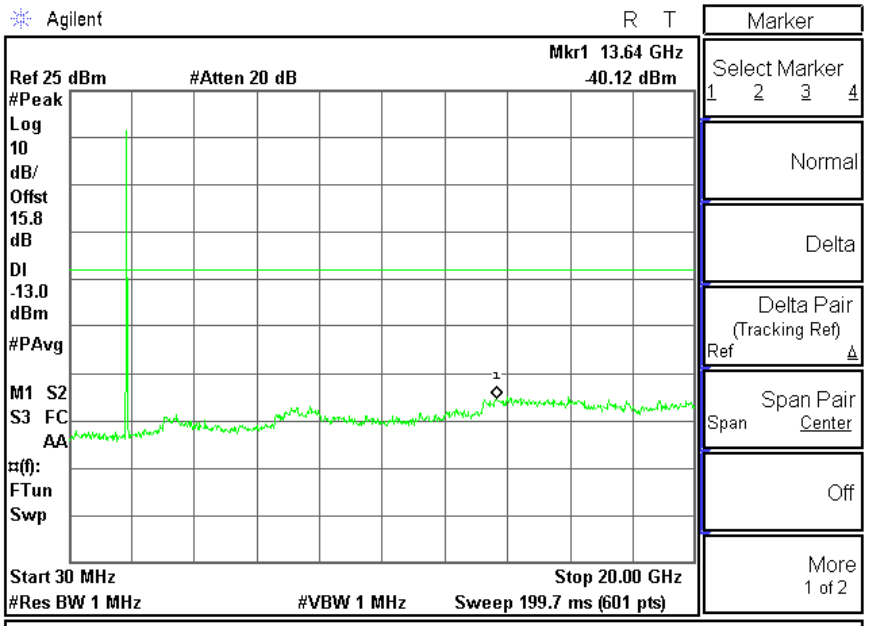


High, RB1-0, 30 TO 20000 MHz

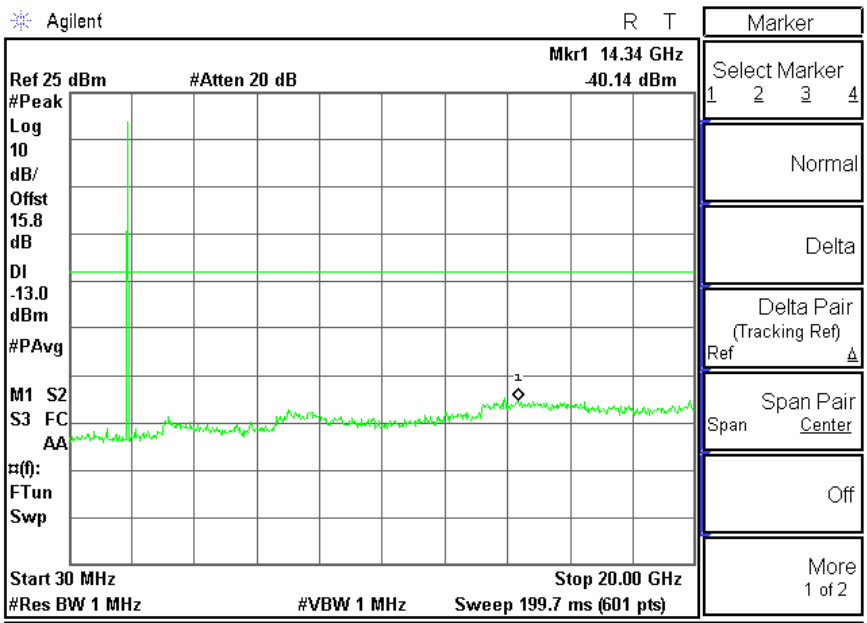


LTE 16QAM

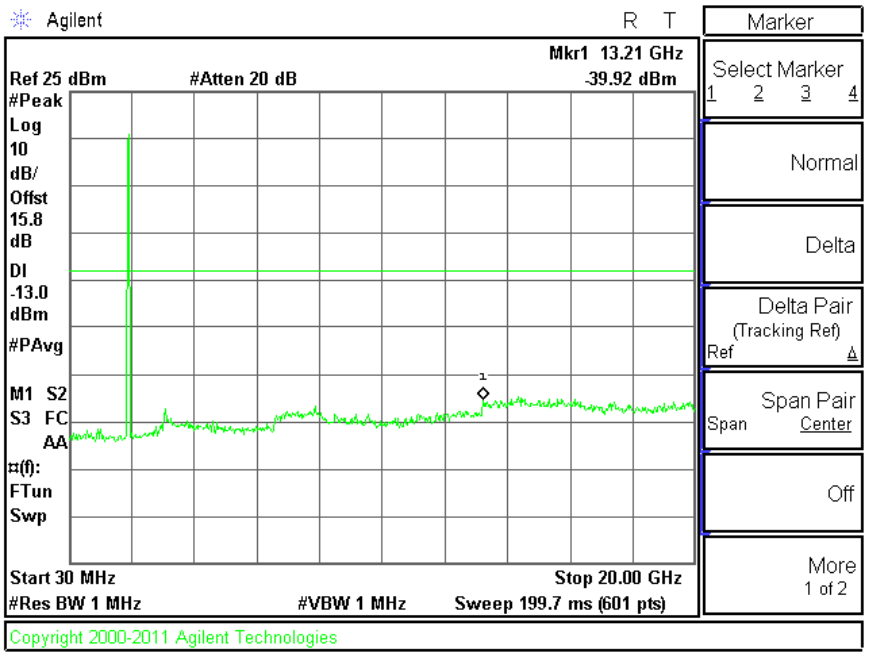
LOW, RB1-0, 30 TO 20000 MHz



MID RB1-0, 30 TO 20000 MHz



HIGH, RB1-0, 30 TO 20000 MHz



8.4. FREQUENCY STABILITY

RULE PART(S)

FCC: §2.1055, §22.355, §24.235, and §27.54

LIMITS

§22.355 - 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.

§27.54 - The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

TEST PROCEDURE

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. Reference power supply voltage for these tests is 3.7Vdc.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case). The test voltage ranges from 3.50 to 4.26 VDC.

MODES TESTED

- CDMA2000, BC10, BC0 and BC1
- LTE BAND 25

RESULTS

See the following pages.

800 MHz SECONDARY – MID CHANNEL

Reference Frequency: BC10_Mid Channe 820.499989 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2051.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	820.499895	0.115	2.5
3.80	40	820.499987	0.002	2.5
3.80	30	820.499993	-0.005	2.5
3.80	***20***	***820.499989***	***0***	2.5
3.80	10	820.499990	-0.001	2.5
3.80	0	820.499896	0.113	2.5
3.80	-10	820.499893	0.117	2.5
3.80	-20	820.499882	0.130	2.5
3.80	-30	820.499880	0.133	2.5

Reference Frequency: BC10_Mid channel 820.499989 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2051.250 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***820.499989***	***0***	***2.5***
4.30	20	820.499991	-0.002	2.5
3.30	20	820.499994	-0.006	2.5
End Volt(3.2)	20	820.499990	-0.001	2.5

CELL – MID CHANNEL

Reference Frequency: CDMA2000_Mid Channe 836.520000 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.300 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	50	836.519990	0.002	2.5
3.80	40	836.519990	0.002	2.5
3.80	30	836.519989	0.004	2.5
3.80	***20***	***836.519992***	***0***	2.5
3.80	10	836.519991	0.001	2.5
3.80	0	836.519990	0.002	2.5
3.80	-10	836.519990	0.002	2.5
3.80	-20	836.519991	0.001	2.5
3.80	-30	836.519990	0.002	2.5

Reference Frequency: CDMA2000_Mid channel 836.520000 MHz @ 20°C Limit: to stay +- 2.5 ppm = 2091.300 Hz				
Power Supply (Vdc)	Environment Temperature (°C)	Frequency Deviation Measureed with Time Elapse (MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***836.519992***	***0***	***2.5***
4.30	20	836.519990	0.002	2.5
3.30	20	836.519990	0.002	2.5
End Voltage(3.2)	20	836.519990	0.002	2.5

PCS – MID CHANNEL

Reference Frequency: CDMA2000_Mid Channel 1880 MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1880.000012	-0.002	2.5
3.80	40	1880.000009	-0.001	2.5
3.80	30	1880.000007	0.001	2.5
3.80	***20***	***1880.000008***	***0***	2.5
3.80	10	1880.000009	-0.001	2.5
3.80	0	1880.000009	-0.001	2.5
3.80	-10	1880.000011	-0.002	2.5
3.80	-20	1880.000010	-0.001	2.5
3.80	-30	1880.000009	-0.001	2.5

Reference Frequency: CDMA2000_Mid Channel 1880.000000 MHz @ 20°C Limit: to stay +- 2.5 ppm = 4700.000 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vac)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1880.000008***	***0***	***2.5***
4.30	20	1880.000010	*-0.001*	2.5
3.30	20	1880.000009	*-0.001*	2.5
End Voltage(3.2)	20	1880.000010	*-0.001*	2.5

QPSK, LTE BAND 25 – 1882.500 MHz

Reference Frequency: LTE Band 1882.500000 MHz @ 20°C Limit: to stay +- 2.5 ppm = 4706.250 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	50	1882.500014	-0.001	2.5
3.80	40	1882.500014	-0.001	2.5
3.80	30	1882.500015	-0.002	2.5
3.80	***20***	***1882.500012***	***0***	2.5
3.80	10	1882.500014	-0.001	2.5
3.80	0	1882.500015	-0.002	2.5
3.80	-10	1882.500016	-0.002	2.5
3.80	-20	1882.500016	-0.002	2.5
3.80	-30	1882.500014	-0.001	2.5

Reference Frequency: Cellular Mid Channel 1882.499993 MHz @ 20°C Limit: to stay +- 2.5 ppm = 4706.250 Hz				
Power Supply	Environment	Frequency Deviation Measureed with Time Elapse		
(Vdc)	Temperature (°C)	(MHz)	Delta (ppm)	Limit (ppm)
3.80	***20***	***1882.500012***	***0***	***2.5***
4.30	20	1882.500014	*-0.001*	2.5
3.40	20	1882.500017	*-0.003*	2.5
End Voltage(3.2)	20	1882.500022	*-0.005*	2.5

9. RADIATED TEST RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232, §90.635.

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.

§ 90.635 Limitations on power and antenna height.

(a) The effective radiated power and antenna height for base stations may not exceed 1 kilowatt (30 dBw) and 304 m. (1,000 ft.) above average terrain (AAT), respectively, or the equivalent thereof as determined from the Table. These are maximum values, and applicants will be required to justify power levels and antenna heights requested.

(b) The maximum output power of the transmitter for mobile stations is 100 watts (20 dBw).

Table—Equivalent Power and Antenna Heights for Base Stations in the 851–869 MHz and 935–940 MHz Bands Which Have a Requirement for a 32 km (20 mi) Service Area Radius

Antenna height (ATT) meters (feet)	Effective radiated power (watts)[1,2,4]
Above 1,372 (4,500)	65
Above 1,220 (4,000) to 1,372 (4,500)	70
Above 1,067 (3,500) to 1,220 (4,000)	75
Above 915 (3,000) to 1,067 (3,500)	100
Above 763 (2,500) to 915 (3,000)	140
Above 610 (2,000) to 763 (2,500)	200
Above 458 (1,500) to 610 (2,000)	350
Above 305 (1,000) to 458 (1,500)	600
Up to 305 (1,000)	31,000

1. Power is given in terms of effective radiated power (ERP).

2. 2Applicants in the Los Angeles, CA, area who demonstrate a need to serve both the downtown and fringe areas will be permitted to utilize an ERP of 1 kw at the following mountaintop sites: Santiago Park, Sierra Peak, Mount Lukens, and Mount Wilson.

3. 3Stations with antennas below 305 m (1,000 ft) (AAT) will be restricted to a maximum power of 1 kw (ERP).

In addition, when the transmitter power is measured in terms of average value, the peak-to-average ratio of the power shall not exceed 13dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17

MODES TESTED

- CDMA 2000 1xRTT, RC1 S02.
- CDMA 2000 EVDO REV. A
- LTE Band 25.

RESULTS

CELLULAR BAND (ERP)

Mode	Channel	f (MHz)	ERP	
			dBm	mW
1xRTT	1013	824.70	25.84	383.71
	384	836.60	**26.60**	457.09
	777	848.31	25.77	377.57
EVDO REV A	1013	824.70	25.24	334.20
	384	836.60	**26.26**	422.67
	777	848.31	24.67	293.09

PCS BAND (EIRP)

Mode	Channel	f (MHz)	EIRP	
			dBm	mW
1xRTT	25	1851.25	25.85	384.59
	600	1880.00	26.29	425.60
	1175	1908.75	**26.53**	449.78
EVDO REV. A	25	1851.25	**26.16**	413.05
	600	1880.00	25.95	393.55
	1175	1908.75	25.88	387.26

BC 10 BAND (EIRP)

Mode	Channel	f (MHz)	ERP	
			dBm	mW
1xRTT	476	817.90	**25.06**	320.63
	580	820.50	24.70	295.12
	684	823.10	24.72	296.48
EVDO REV. A	476	817.90	**25.20**	331.13
	580	820.50	25.17	328.85
	684	823.10	24.13	258.82

EIRP LTE BAND 25

Mode	RB/RB SIZE	f (MHz)	EIRP	
			dBm	mW
3.0 MHZ BAND QPSK	1/0	1851.50	25.02	317.69
		1882.50	**25.11**	324.34
		1913.50	24.30	269.15
3.0 MHZ BAND 16QAM		1851.50	24.32	270.40
		1882.50	**24.71**	295.80
		1913.50	23.80	239.88
5.0 MHZ BAND QPSK	1/0	1852.50	24.85	305.49
		1882.50	**24.93**	311.17
		1912.50	24.93	311.17
5.0 MHZ BAND 16QAM		1852.50	**24.35**	272.27
		1882.50	23.73	236.05
		1912.50	24.23	264.85
10.0 MHZ BAND QPSK	1/0	1855.00	22.54	179.47
		1882.50	23.76	237.68
		1910.00	**24.38**	274.16
10.0 MHZ BAND 16QAM		1855.00	24.12	258.23
		1882.50	24.51	282.49
		1910.00	**24.70**	295.12

1xRTT BC 0 BAND (ERP)

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 04/04/13
Test Engineer: Mona Hua
Configuration: EUT only
Mode: TX Cell Band 1XRTT BC 0

Test Equipment:
Receiving: Sunol T243, and Chamber B N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft 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	26.44	V	0.6	0.0	25.84	38.5	-12.6	
824.70	13.70	H	0.6	0.0	13.10	38.5	-25.3	
Mid ch								
836.52	27.20	V	0.6	0.0	26.60	38.5	-11.8	
836.52	10.99	H	0.6	0.0	10.39	38.5	-28.1	
High ch								
848.31	26.37	V	0.6	0.0	25.77	38.5	-12.7	
848.31	9.00	H	0.6	0.0	8.40	38.5	-30.0	

Rev. 3.17.11

EVDO REV A BC 0 BAND (ERP)

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 04/04/13
Test Engineer: Mona Hua
Configuration: EUT Only
Mode: TX Cell Band EVDO A BC 0

Test Equipment:
Receiving: Sunol T243, and Chamber B N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft 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	25.84	V	0.6	0.0	25.24	38.5	-13.2	
824.70	17.70	H	0.6	0.0	17.10	38.5	-21.3	
Mid ch								
836.52	26.86	V	0.6	0.0	26.26	38.5	-12.2	
836.52	16.50	H	0.6	0.0	15.90	38.5	-22.5	
High ch								
848.31	25.27	V	0.6	0.0	24.67	38.5	-13.8	
848.31	12.53	H	0.6	0.0	11.93	38.5	-26.5	

Rev. 3.17.11

1xRTT BC 1 PCS BAND (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 04/04/13
Test Engineer: Mona Hua
Configuration: EUT with AC Adapter
Mode: CDMA, 1xRTT, BC1 PCS

Test Equipment:
Receiving: Horn T59, and Chamber 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								
1851.25	18.5	V	0.85	8.05	25.65	33.0	-7.4	
1851.25	18.8	H	0.85	7.89	25.85	33.0	-7.2	
Mid Ch								
1880.00	18.0	V	0.85	8.10	25.28	33.0	-7.7	
1880.00	19.3	H	0.85	7.88	26.29	33.0	-6.7	
High Ch								
1908.75	18.9	V	0.85	8.19	26.24	33.0	-6.8	
1908.75	19.4	H	0.85	7.95	26.53	33.0	-6.5	

Rev. 3.17.11

EVDO REV A BC 1 PCS BAND (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 04/04/13
Test Engineer: Mona Hua
Configuration: EUT with AC Adapter
Mode: CDMA, EVDO A, BC1 PCS

Test Equipment:
Receiving: Horn T59, and Chamber 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								
1851.25	19.0	V	0.85	8.05	26.16	33.0	-6.8	
1851.25	18.4	H	0.85	7.89	25.40	33.0	-7.6	
Mid Ch								
1880.00	17.9	V	0.85	8.10	25.14	33.0	-7.9	
1880.00	18.9	H	0.85	7.88	25.95	33.0	-7.1	
High Ch								
1908.75	17.8	V	0.85	8.19	25.13	33.0	-7.9	
1908.75	18.8	H	0.85	7.95	25.88	33.0	-7.1	

Rev. 3.17.11

1xRTT BC 10 BAND (EIRP)

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 04/04/13
Test Engineer: Mona Hua
Configuration: EUT only
Mode: TX, CDMA2000, 1xRTT BC 10

Test Equipment:
Receiving: Sunol T243, and Chamber B N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft 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								
817.90	25.66	V	0.6	0.0	25.06	38.5	-13.4	
817.90	9.90	H	0.6	0.0	9.30	38.5	-29.1	
Mid Ch								
820.50	25.30	V	0.6	0.0	24.70	38.5	-13.7	
820.50	11.28	H	0.6	0.0	10.68	38.5	-27.8	
High Ch								
823.10	25.32	V	0.6	0.0	24.72	38.5	-13.7	
823.10	11.80	H	0.6	0.0	11.20	38.5	-27.2	

Rev. 3.17.11

EVDO REV A, BC 10 BAND (EIRP)

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 04/04/13
Test Engineer: Mona Hua
Configuration: EUT Only
Mode: TX, CDMA2000, EVDO A BC 10

Test Equipment:
Receiving: Sunol T243, and Chamber B N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, 4ft 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								
817.90	25.80	V	0.6	0.0	25.20	38.5	-13.2	
817.90	8.90	H	0.6	0.0	8.30	38.5	-30.1	
Mid Ch								
820.50	25.77	V	0.6	0.0	25.17	38.5	-13.3	
820.50	11.24	H	0.6	0.0	10.64	38.5	-27.8	
High Ch								
823.10	24.73	V	0.6	0.0	24.13	38.5	-14.3	
823.10	12.00	H	0.6	0.0	11.40	38.5	-27.0	

Rev. 3.17.11

3.0MHz BAND WIDTH QPSK (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 03/12/13
Test Engineer: Tony Wang
Configuration: EUT w/ac adapter
Mode: LTE band 25, 3MHz BW
QPSK, Peak

Test Equipment:
Receiving: Horn T73, and Chamber 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								
1.8525	16.6	V	0.85	8.62	24.37	33.0	-8.6	
1.8525	17.4	H	0.85	8.47	25.02	33.0	-8.0	
Mid Ch								
1882.5	15.9	V	0.85	8.46	23.47	33.0	-9.5	
1882.5	17.6	H	0.85	8.36	25.11	33.0	-7.9	
High Ch								
1.9125	16.3	V	0.85	8.30	23.79	33.0	-9.2	
1.9125	16.9	H	0.85	8.25	24.30	33.0	-8.7	

3.0MHz BAND WIDTH 16QAM (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 03/12/13
Test Engineer: Tony Wang
Configuration: EUT w/ac adapter
Mode: LTE band 25, 3MHz BW
16QAM RB 1 0

Test Equipment:
Receiving: Horn T73, and Chamber 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								
1.8525	16.1	V	0.85	8.62	23.87	33.0	-9.1	
1.8525	16.7	H	0.85	8.47	24.32	33.0	-8.7	
Mid Ch								
1882.5	15.9	V	0.85	8.46	23.51	33.0	-9.5	
1882.5	17.2	H	0.85	8.36	24.71	33.0	-8.3	
High Ch								
1.9125	15.7	V	0.85	8.30	23.15	33.0	-9.9	
1.9125	16.4	H	0.85	8.25	23.80	33.0	-9.2	

5.0MHz BAND WIDTH QPSK (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 03/12/13
Test Engineer: Tony Wang
Configuration: EUT w/AC Adapter
Mode: LTE band 25, 5MHz BW QPSK,

Test Equipment:
Receiving: Horn T59, and Chamber 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								
1.853	16.8	V	0.85	8.04	23.99	33.0	-9.0	
1.853	17.8	H	0.85	7.90	24.85	33.0	-8.2	
Mid Ch								
1882.5	17.5	V	0.85	8.10	24.75	33.0	-8.3	
1882.5	17.9	H	0.85	7.88	24.93	33.0	-8.1	
High Ch								
1.913	17.2	V	0.85	8.21	24.56	33.0	-8.4	
1.913	17.8	H	0.85	7.98	24.93	33.0	-8.1	

5.0MHz BAND WIDTH 16QAM (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917
Date: 03/12/13
Test Engineer: Tony Wang
Configuration: EUT w/AC Adapter
Mode: LTE band 25, 5MHz BW
16QAM RB 1 0

Test Equipment:
Receiving: Horn T59, and Chamber 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								
1.853	16.1	V	0.85	8.04	23.29	33.0	-9.7	
1.853	17.3	H	0.85	7.90	24.35	33.0	-8.7	
Mid Ch								
1882.5	16.3	V	0.85	8.10	23.55	33.0	-9.5	
1882.5	16.7	H	0.85	7.88	23.73	33.0	-9.3	
High Ch								
1.913	16.2	V	0.85	8.21	23.56	33.0	-9.4	
1.913	17.1	H	0.85	7.98	24.23	33.0	-8.8	

10.0MHz BAND WIDTH QPSK (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917 C2PC
Date: 03/12/13
Test Engineer: Tony Wang
Configuration: EUT with AC adapter
Mode: LTE band 25, 10MHz BW
QPSK, Peak

Test Equipment:
Receiving: Horn T59, and Chamber 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								
1.855	14.0	V	0.85	8.62	21.77	33.0	-11.2	
1.855	14.9	H	0.85	8.47	22.54	33.0	-10.5	
Mid Ch								
1.8825	14.7	V	0.85	8.46	22.29	33.0	-10.7	
1.8825	16.3	H	0.85	8.36	23.76	33.0	-9.2	
High Ch								
1.910	14.4	V	0.85	8.30	21.85	33.0	-11.2	
1.910	17.0	H	0.85	8.25	24.38	33.0	-8.6	

10.0MHz BAND WIDTH 16QAM (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

Company: LG
Project #: 13U14917 C2PC
Date: 03/12/13
Test Engineer: Tony Wang
Configuration: EUT w/AC Adapter
Mode: LTE band 25, 10MHz BW
16QAM , Peak RB 1 0

Test Equipment:
Receiving: Horn T59, and Chamber 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								
1.855	15.4	V	0.85	8.62	23.17	33.0	-9.8	
1.855	16.5	H	0.85	8.47	24.12	33.0	-8.9	
Mid Ch								
1.8825	15.2	V	0.85	8.46	22.81	33.0	-10.2	
1.8825	17.0	H	0.85	8.36	24.51	33.0	-8.5	
High Ch								
1.910	15.9	V	0.85	8.30	23.35	33.0	-9.7	
1.910	17.3	H	0.85	8.25	24.70	33.0	-8.3	

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238, & §90.691

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.

§ 90.691 Emission mask requirements for EA-based systems.

(a) Out-of-band emission requirement shall apply only to the “outer” channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees. The emission limits are as follows:

(1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 116 Log10 (f/6.1) decibels or 50 + 10 Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 12.5 kHz.

(2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power (P) in watts by at least 43 + 10Log10 (P) decibels or 80 decibels, whichever is the lesser attenuation, where f is the frequency removed from the center of the outer channel in the block in kilohertz and where f is greater than 37.5 kHz.

(b) When an emission outside of the authorized bandwidth causes harmful interference, the Commission may, at its discretion, require greater attenuation than specified in this section.

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

- CDMA 2000 1xRTT
- CDMA 2000 EVDO REV. A
- LTE Band 25

RESULTS

1xRTT BC 0 BAND (ERP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/15/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter, headset
Mode:	TX, BC0, Cell Band 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)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1.649	-12.8	V	3.0	35.5	1.0	-47.3	-13.0	-34.3	
2.474	-7.0	V	3.0	35.4	1.0	-41.4	-13.0	-28.4	
1.649	-12.5	H	3.0	35.5	1.0	-47.0	-13.0	-34.0	
2.474	-6.0	H	3.0	35.4	1.0	-40.4	-13.0	-27.4	
Mid Ch, 836.52MHz									
1.673	-12.3	V	3.0	35.5	1.0	-46.8	-13.0	-33.8	
2.510	-8.8	V	3.0	35.4	1.0	-43.2	-13.0	-30.2	
3.346	-5.5	V	3.0	35.5	1.0	-40.1	-13.0	-27.1	
1.673	-11.3	H	3.0	35.5	1.0	-45.9	-13.0	-32.9	
High Ch, 848.31MHz									
1.697	-11.7	V	3.0	35.5	1.0	-46.2	-13.0	-33.2	
2.545	-11.1	V	3.0	35.4	1.0	-45.6	-13.0	-32.6	
1.697	-12.8	H	3.0	35.5	1.0	-47.3	-13.0	-34.3	
2.545	-13.7	H	3.0	35.4	1.0	-48.1	-13.0	-35.1	

EVDO REV A BC 0 BAND (ERP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/15/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter, headset
Mode:	TX, BC0, Cell Band EVDO 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)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 824.7MHz									
1.649	-10.2	V	3.0	35.5	1.0	-44.7	-13.0	-31.7	
2.474	-10.5	V	3.0	35.4	1.0	-44.9	-13.0	-31.9	
1.649	-10.3	H	3.0	35.5	1.0	-44.8	-13.0	-31.8	
2.474	-11.8	H	3.0	35.4	1.0	-46.2	-13.0	-33.2	
Mid Ch, 836.52MHz									
1.673	-12.6	V	3.0	35.5	1.0	-47.1	-13.0	-34.1	
2.510	-13.7	V	3.0	35.4	1.0	-48.1	-13.0	-35.1	
3.346	-4.0	V	3.0	35.5	1.0	-38.6	-13.0	-25.6	
1.673	-17.6	H	3.0	35.5	1.0	-52.2	-13.0	-39.2	
High Ch, 848.31MHz									
1.697	-11.7	V	3.0	35.5	1.0	-46.2	-13.0	-33.2	
2.545	-11.1	V	3.0	35.4	1.0	-45.6	-13.0	-32.6	
1.697	-10.8	H	3.0	35.5	1.0	-45.3	-13.0	-32.3	
2.545	-12.5	H	3.0	35.4	1.0	-46.9	-13.0	-33.9	

1xRTT BC 1 PCS BAND (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/15/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter, HEADSET
Mode:	TX, BC1, PCS Band

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	-11.4	V	3.0	35.4	1.0	-45.7	-13.0	-32.7	
5.554	-17.5	V	3.0	35.4	1.0	-51.9	-13.0	-38.9	
3.703	-10.1	H	3.0	35.4	1.0	-44.4	-13.0	-31.4	
5.554	-15.6	H	3.0	35.4	1.0	-50.0	-13.0	-37.0	
Mid Ch, 1880MHz									
3.760	-10.9	V	3.0	35.3	1.0	-45.3	-13.0	-32.3	
5.640	-13.9	V	3.0	35.4	1.0	-48.3	-13.0	-35.3	
3.760	-11.2	H	3.0	35.3	1.0	-45.6	-13.0	-32.6	
5.640	-14.3	H	3.0	35.4	1.0	-48.7	-13.0	-35.7	
High Ch, 1908.75MHz									
3.818	-7.7	V	3.0	35.3	1.0	-42.0	-13.0	-29.0	
5.726	-13.6	V	3.0	35.4	1.0	-48.1	-13.0	-35.1	
3.818	-9.1	H	3.0	35.3	1.0	-43.4	-13.0	-30.4	
5.726	-15.1	H	3.0	35.4	1.0	-49.5	-13.0	-36.5	

EVDO REV A, BC 1 PCS BAND (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/15/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter, HEADSET
Mode:	TX, BC1, PCS EVDO 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									
3.703	-10.1	V	3.0	35.4	1.0	-44.4	-13.0	-31.4	
5.554	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
3.703	-9.2	H	3.0	35.4	1.0	-43.5	-13.0	-30.5	
5.554	-14.7	H	3.0	35.4	1.0	-49.1	-13.0	-36.1	
Mid Ch, 1880MHz									
3.760	-9.3	V	3.0	35.3	1.0	-43.7	-13.0	-30.7	
5.640	-14.3	V	3.0	35.4	1.0	-48.7	-13.0	-35.7	
3.760	-9.6	H	3.0	35.3	1.0	-43.9	-13.0	-30.9	
5.640	-13.6	H	3.0	35.4	1.0	-48.1	-13.0	-35.1	
High Ch, 1908.75MHz									
3.818	-7.7	V	3.0	35.3	1.0	-42.0	-13.0	-29.0	
5.726	-13.1	V	3.0	35.4	1.0	-47.6	-13.0	-34.6	
3.818	-8.4	H	3.0	35.3	1.0	-42.7	-13.0	-29.7	
5.726	-14.1	H	3.0	35.4	1.0	-48.5	-13.0	-35.5	

1xRTT BC 10 BAND (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/15/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter, Headset
Mode:	TX, CELL Band CDMA 1xRTT BC 10

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, 817.90MHz									
1.636	-13.5	V	3.0	35.6	1.0	-48.0	-13.0	-35.0	
2.454	-16.2	V	3.0	35.4	1.0	-50.7	-13.0	-37.7	
1.636	-11.1	H	3.0	35.6	1.0	-45.6	-13.0	-32.6	
2.454	-17.5	H	3.0	35.4	1.0	-51.9	-13.0	-38.9	
Mid Ch, 820.5MHz									
1.641	-14.0	V	3.0	35.5	1.0	-48.6	-13.0	-35.6	
2.462	-10.4	V	3.0	35.4	1.0	-44.8	-13.0	-31.8	
1.461	-13.2	H	3.0	35.7	1.0	-47.9	-13.0	-34.9	
2.462	-7.6	H	3.0	35.4	1.0	-42.0	-13.0	-29.0	
High Ch, 823.1MHz									
1.646	-13.3	V	3.0	35.5	1.0	-47.9	-13.0	-34.9	
2.469	-17.5	V	3.0	35.4	1.0	-52.0	-13.0	-39.0	
1.646	-10.2	H	3.0	35.5	1.0	-44.7	-13.0	-31.7	
2.469	-14.5	H	3.0	35.4	1.0	-48.9	-13.0	-35.9	

EVDO REV A, BC 10 BAND (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/15/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter, Headset
Mode:	TX, CELL Band CDMA EVDO A BC 10

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, 817.90MHz									
1.636	-10.9	V	3.0	35.6	1.0	-45.4	-13.0	-32.4	
2.454	-15.0	V	3.0	35.4	1.0	-49.5	-13.0	-36.5	
1.636	-8.6	H	3.0	35.6	1.0	-43.1	-13.0	-30.1	
2.454	-6.4	H	3.0	35.4	1.0	-40.8	-13.0	-27.8	
Mid Ch, 820.5MHz									
1.641	-13.7	V	3.0	35.5	1.0	-48.3	-13.0	-35.3	
2.462	-16.2	V	3.0	35.4	1.0	-50.6	-13.0	-37.6	
1.461	-12.2	H	3.0	35.7	1.0	-46.9	-13.0	-33.9	
2.462	-16.7	H	3.0	35.4	1.0	-51.1	-13.0	-38.1	
High Ch, 823.1MHz									
1.646	-12.9	V	3.0	35.5	1.0	-47.5	-13.0	-34.5	
2.469	-16.4	V	3.0	35.4	1.0	-50.9	-13.0	-37.9	
1.646	-11.2	H	3.0	35.5	1.0	-45.7	-13.0	-32.7	
2.469	-17.5	H	3.0	35.4	1.0	-51.9	-13.0	-38.9	

3.0MHz BAND WIDTH QPSK (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/13/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter
Mode:	LTE Band 25, 3MHz QPSK

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, (1851.5MHz)									
3.698	2.9	V	3.0	35.4	1.0	-31.4	-13.0	-18.4	
5.548	-0.6	V	3.0	35.4	1.0	-35.0	-13.0	-22.0	
3.698	5.8	H	3.0	35.4	1.0	-28.5	-13.0	-15.5	
5.548	-0.1	H	3.0	35.4	1.0	-34.5	-13.0	-21.5	
Mid Ch, (1882.5MHz)									
3.760	0.4	V	3.0	35.3	1.0	-34.0	-13.0	-21.0	
5.640	-0.4	V	3.0	35.4	1.0	-34.8	-13.0	-21.8	
3.760	3.8	H	3.0	35.3	1.0	-30.5	-13.0	-17.5	
5.640	0.9	H	3.0	35.4	1.0	-33.6	-13.0	-20.6	
High Ch, (1913.5MHz)									
3.822	-0.1	V	3.0	35.3	1.0	-34.4	-13.0	-21.4	
5.733	-1.3	V	3.0	35.4	1.0	-35.7	-13.0	-22.7	
3.822	2.5	H	3.0	35.3	1.0	-31.8	-13.0	-18.8	
5.733	0.6	H	3.0	35.4	1.0	-33.8	-13.0	-20.8	

3.0MHz BAND WIDTH 16QAM (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: LG
Project #: 13U14917
Date: 03/13/13
Test Engineer: Tony Wang
Configuration: EUT and AC Adapter
Mode: LTE Band 25, 3MHz 16QAM

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, (1851.5MHz)									
3.698	2.2	V	3.0	35.4	1.0	-32.1	-13.0	-19.1	
5.548	-1.2	V	3.0	35.4	1.0	-35.6	-13.0	-22.6	
3.698	5.1	H	3.0	35.4	1.0	-29.2	-13.0	-16.2	
5.548	-0.8	H	3.0	35.4	1.0	-35.2	-13.0	-22.2	
Mid Ch, (1882.5MHz)									
3.760	-0.2	V	3.0	35.3	1.0	-34.6	-13.0	-21.6	
5.640	-1.0	V	3.0	35.4	1.0	-35.4	-13.0	-22.4	
3.760	3.3	H	3.0	35.3	1.0	-31.0	-13.0	-18.0	
5.640	0.3	H	3.0	35.4	1.0	-34.2	-13.0	-21.2	
High Ch, (1913.5MHz)									
3.822	-0.4	V	3.0	35.3	1.0	-34.7	-13.0	-21.7	
5.733	-1.6	V	3.0	35.4	1.0	-36.1	-13.0	-23.1	
3.822	2.0	H	3.0	35.3	1.0	-32.3	-13.0	-19.3	
5.733	-0.1	H	3.0	35.4	1.0	-34.5	-13.0	-21.5	

5.0MHz BAND WIDTH QPSK (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/13/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter
Mode:	LTE Band 25, 5MHz QPSK

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, (1852.5MHz)									
3.701	3.5	V	3.0	35.4	1.0	-30.9	-13.0	-17.9	
5.551	-0.9	V	3.0	35.4	1.0	-35.3	-13.0	-22.3	
3.700	6.9	H	3.0	35.4	1.0	-27.5	-13.0	-14.5	
5.550	-0.6	H	3.0	35.4	1.0	-35.0	-13.0	-22.0	
Mid Ch, (1882.5MHz)									
3.760	1.8	V	3.0	35.3	1.0	-32.6	-13.0	-19.6	
5.641	-2.7	V	3.0	35.4	1.0	-37.1	-13.0	-24.1	
3.760	5.3	H	3.0	35.3	1.0	-29.0	-13.0	-16.0	
5.641	0.5	H	3.0	35.4	1.0	-34.0	-13.0	-21.0	
High Ch, (1912.5MHz)									
3.819	1.0	V	3.0	35.3	1.0	-33.3	-13.0	-20.3	
5.730	-0.6	V	3.0	35.4	1.0	-35.1	-13.0	-22.1	
3.820	4.3	H	3.0	35.3	1.0	-30.0	-13.0	-17.0	
5.731	0.7	H	3.0	35.4	1.0	-33.7	-13.0	-20.7	

5.0MHz BAND WIDTH 16QAM (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/13/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter
Mode:	LTE Band 25, 5MHz 16QAM

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, (1852.5MHz)									
3.701	2.7	V	3.0	35.4	1.0	-31.6	-13.0	-18.6	
5.551	-2.4	V	3.0	35.4	1.0	-36.8	-13.0	-23.8	
3.700	6.1	H	3.0	35.4	1.0	-28.2	-13.0	-15.2	
5.550	-0.1	H	3.0	35.4	1.0	-34.5	-13.0	-21.5	
Mid Ch, (1882.5MHz)									
3.760	0.6	V	3.0	35.3	1.0	-33.8	-13.0	-20.8	
5.641	-3.0	V	3.0	35.4	1.0	-37.4	-13.0	-24.4	
3.760	3.9	H	3.0	35.3	1.0	-30.4	-13.0	-17.4	
5.641	-0.1	H	3.0	35.4	1.0	-34.6	-13.0	-21.6	
High Ch, (1912.5MHz)									
3.819	90.3	V	3.0	35.3	1.0	56.0	-13.0	69.0	
5.730	-1.2	V	3.0	35.4	1.0	-35.7	-13.0	-22.7	
3.820	3.6	H	3.0	35.3	1.0	-30.7	-13.0	-17.7	
5.731	0.2	H	3.0	35.4	1.0	-34.2	-13.0	-21.2	

10.0MHz BAND WIDTH QPSK (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/13/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter
Mode:	LTE Band 25, 10MHz QPSK

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, (1855MHz)									
3.701	3.8	V	3.0	35.4	1.0	-30.5	-13.0	-17.5	
5.552	-0.5	V	3.0	35.4	1.0	-34.9	-13.0	-21.9	
3.701	3.9	H	3.0	35.4	1.0	-30.4	-13.0	-17.4	
5.551	0.0	H	3.0	35.4	1.0	-34.4	-13.0	-21.4	
Mid Ch, (1882.5MHz)									
3.756	2.7	V	3.0	35.3	1.0	-31.7	-13.0	-18.7	
5.634	-0.6	V	3.0	35.4	1.0	-35.1	-13.0	-22.1	
3.755	5.7	H	3.0	35.3	1.0	-28.6	-13.0	-15.6	
5.634	-0.2	H	3.0	35.4	1.0	-34.6	-13.0	-21.6	
High Ch, (1910MHz)									
3.811	1.3	V	3.0	35.3	1.0	-33.0	-13.0	-20.0	
5.716	-0.8	V	3.0	35.4	1.0	-35.3	-13.0	-22.3	
3.811	4.0	H	3.0	35.3	1.0	-30.3	-13.0	-17.3	
5.716	0.0	H	3.0	35.4	1.0	-34.5	-13.0	-21.5	

10.0MHz BAND WIDTH 16QAM (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company:	LG
Project #:	13U14917
Date:	03/13/13
Test Engineer:	Tony Wang
Configuration:	EUT and AC Adapter
Mode:	LTE Band 25, 10MHz 16QAM

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, (1855MHz)									
3.701	3.1	V	3.0	35.4	1.0	-31.2	-13.0	-18.2	
5.552	-1.0	V	3.0	35.4	1.0	-35.4	-13.0	-22.4	
3.701	3.4	H	3.0	35.4	1.0	-30.9	-13.0	-17.9	
5.551	-0.6	H	3.0	35.4	1.0	-35.0	-13.0	-22.0	
Mid Ch, (1882.5MHz)									
3.756	2.5	V	3.0	35.3	1.0	-31.9	-13.0	-18.9	
5.634	-0.8	V	3.0	35.4	1.0	-35.3	-13.0	-22.3	
3.755	5.0	H	3.0	35.3	1.0	-29.3	-13.0	-16.3	
5.634	-0.6	H	3.0	35.4	1.0	-35.1	-13.0	-22.1	
High Ch, (1910MHz)									
3.811	0.7	V	3.0	35.3	1.0	-33.6	-13.0	-20.6	
5.716	-1.1	V	3.0	35.4	1.0	-35.6	-13.0	-22.6	
3.811	3.5	H	3.0	35.3	1.0	-30.8	-13.0	-17.8	
5.716	-0.3	H	3.0	35.4	1.0	-34.8	-13.0	-21.8	