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

**FOR**

**GSM/GPRS/EGPRS/WCDMA/HSPA+/DC-HSDPA/CDMA1xRTT/ EV-DO Rev 0, A, B / LTE radio, IEEE 802.11a/b/g/n radio and Bluetooth radio**

**MODEL NUMBER: A1460**

**FCC ID: BCGA1460**
**IC ID: 579C-A1460**

**REPORT NUMBER: 12U14507-5**

**ISSUE DATE: SEPTEMBER 26, 2012**

*Prepared for*

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## Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| --- | 09/26/12 | Initial Issue | T. Chan |

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** APPLE, INC.
1 INFINITE LOOP
CUPERTINO, CA 95014, U.S.A.

**EUT DESCRIPTION:** GSM/GPRS/EGPRS/WCDMA/HSPA+/DC-HSDPA/CDMA1xRTT/ EV-DO Rev 0, A, B / LTE radio, IEEE 802.11a/b/g/n radio and Bluetooth radio

**MODEL:** A1460

**SERIAL NUMBER:** DLXJ302KF730 (CONDUCTED UNIT), DLXJ800HF8L2 (RADIATED UNIT)

**DATE TESTED:** SEPTEMBER 3-26, 2012

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| FCC PART 22H, 24E, 27L 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.

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# 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 Apple iPad Model A1460 is a tablet device with multimedia functions (music, application support, and video), cellular GSM/GPRS/EGPRS/WCDMA/HSPA+/DC-HSDPA/CDMA 1xRTT/EV-DO Rev 0, A. B/ 1xAdvance/ LTE radio, IEEE 802.11a/b/g/n and Bluetooth radio. The rechargeable battery is not user accessible.

## 5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum conducted and ERP / EIRP output powers; average detector is used for UMTS/CDMA mode of Cellular band, while peak detector is used for GSM mode of Cellular and all GSM/CDMA/UMTS PCS bands as follows:

| Part 22/24/90 | | | | | | | |
|---|---|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted | | | ERP/EIRP | | |
| | | Peak | Average | mW | Peak | Average | mW |
| 824.2 - 848.8 | GPRS | 33.65 | | 2317.4 | 32.80 | | 1905.5 |
| 824.2 - 848.8 | EGPRS | 31.90 | | 1548.8 | 31.18 | | 1312.2 |
| 1850.2-1909.8 | GPRS | 30.80 | | 1202.3 | 32.65 | | 1840.8 |
| 1850.2-1909.8 | EGPRS | 30.90 | | 1230.3 | 32.00 | | 1584.9 |
| 826.4 - 846.0 | Rel 99 | | 24.50 | 281.8 | | 22.50 | 177.8 |
| 1852.4-1907.6 | Rel 99 | 25.96 | | 394.5 | 29.12 | | 816.6 |
| 826.4 - 846.0 | HSUPA | | 23.60 | 229.1 | | 21.70 | 147.9 |
| 1852.4-1907.6 | HSUPA | 27.70 | | 588.8 | 28.69 | | 739.6 |
| 817.9-823.10 | BC10, 1xRTT | | 24.97 | 314.1 | | 23.30 | 213.8 |
| 824.7 - 848.31 | BC0, 1xRTT | | 24.66 | 292.4 | | 23.10 | 204.2 |
| 1851.25-1908.75 | BC1, 1xRTT | 27.44 | | 554.6 | 30.12 | | 1028.0 |
| 817.9-823.11 | BC10, EVDO A | | 25.00 | 316.2 | | 23.40 | 218.8 |
| 824.7 - 848.31 | BC0, EVDO A | | 24.75 | 298.5 | | 22.90 | 195.0 |
| 1851.25-1908.75 | BC1, EVDO A | 27.75 | | 595.7 | 29.08 | | 809.1 |

| Part 22 Cellular Band | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted | | ERP | |
| | | dBm | mW | dBm | mW |
| 824.7 - 848.31 | EVDO Rev B, Two Carrier Min Sep | 21.50 | 141.3 | 22.20 | 166.0 |
| 824.7 - 848.31 | EVDO Rev B, Two Carrier Max Sep | 21.50 | 141.3 | 21.50 | 141.3 |
| 824.7 - 848.31 | EVDO Rev B, Three Carrier Min Sep | 21.00 | 125.9 | 22.20 | 166.0 |

**LTE BAND 5**

| Part 22 LTE Band 5 MODE (1.4 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Average) | | ERP(Average) | |
| | | dBm | mW | dBm | mW |
| 824.7 - 848.3 | QPSK RB1-0 | 23.95 | 248.3 | 23.01 | 200.0 |
| 824.7 - 848.3 | 16QAM, RB1-0 | 23.10 | 204.2 | 22.16 | 164.4 |

| Part 22 LTE Band 5 MODE (3 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Average) | | ERP(Average) | |
| | | dBm | mW | dBm | mW |
| 825.5 - 847.5 | QPSK RB1-0 | 23.82 | 241.0 | 22.95 | 197.2 |
| 824.7 - 848.3 | 16QAM, RB1-0 | 22.87 | 193.6 | 22.01 | 158.9 |

| Part 22 LTE Band 5 MODE (5 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Average) | | ERP(Average) | |
| | | dBm | mW | dBm | mW |
| 826.5 - 846.5 | QPSK RB1-0 | 23.97 | 249.5 | 22.43 | 175.0 |
| 826.5 - 846.5 | 16QAM, RB1-0 | 22.93 | 196.3 | 21.95 | 156.7 |

| Part 22 LTE Band 5 MODE (10 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Average) | | ERP(Average) | |
| | | dBm | mW | dBm | mW |
| 829 - 844 | QPSK RB1-0 | 23.90 | 245.5 | 22.49 | 177.4 |
| 829 - 844 | 16QAM, RB1-0 | 23.00 | 199.5 | 21.75 | 149.6 |

**LTE BAND 13**

| Part 27 LTE Band 13 MODE (5 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Average) | | ERP(Average) | |
| | | dBm | mW | dBm | mW |
| 779.5 - 784.5 | QPSK RB1-0 | 23.99 | 250.6 | 23.00 | 199.5 |
| 779.5 - 784.5 | 16QAM, RB1-0 | 23.02 | 200.4 | 22.30 | 169.8 |

| Part 27 LTE Band 13 MODE (10 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Average) | | ERP(AVERAGE) | |
| | | dBm | mW | dBm | mW |
| 782.00 | QPSK RB1-0 | 23.97 | 249.5 | 21.60 | 144.5 |
| 782.00 | 16QAM, RB1-0 | 22.90 | 195.0 | 20.90 | 123.0 |

**LTE BAND 25**

| Part 24 LTE Band 25 MODE (1.4 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Peak) | | EIRP(PEAK) | |
| | | dBm | mW | dBm | mW |
| 1850.7 - 1914.3 | QPSK RB6-0 | 28.10 | 645.7 | 29.39 | 869.0 |
| 1850.7 - 1914.3 | 16QAM, RB6-0 | 28.55 | 716.1 | 28.43 | 696.6 |

| 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 RB15-0 | 28.00 | 631.0 | 29.79 | 952.8 |
| 1851.5 - 1913.5 | 16QAM, RB15-0 | 28.20 | 660.7 | 28.86 | 769.1 |

| 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 RB25-0 | 28.10 | 645.7 | 29.78 | 950.6 |
| 1852.5 - 1912.5 | 16QAM, RB25-0 | 28.50 | 707.9 | 28.93 | 781.6 |

| Part 24 LTE Band 25 MODE (10.0 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Peak) | | EIRP(PEAK) | |
| | | dBm | mW | dBm | mW |
| 1857.5 - 1907.5 | QPSK RB50-0 | 28.24 | 666.8 | 29.65 | 922.6 |
| 1857.5 - 1907.5 | 16QAM, RB50-0 | 28.57 | 719.4 | 28.75 | 749.9 |

| Part 24 LTE Band 25 MODE (15.0 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Peak) | | EIRP(PEAK) | |
| | | dBm | mW | dBm | mW |
| 1855 - 1910 | QPSK RB50-0 | 28.42 | 695.0 | 30.11 | 1025.7 |
| 1855 - 1910 | 16QAM, RB50-0 | 28.57 | 719.4 | 29.14 | 820.4 |

| Part 24 LTE Band 25 MODE (20.0 MHz BANDWIDTH) | | | | | |
|---|---|---|---|---|---|
| Frequency range (MHz) | Modulation | Conducted(Peak) | | EIRP(PEAK) | |
| | | dBm | mW | dBm | mW |
| 1860 - 1905 | QPSK RB100-0 | 28.43 | 696.6 | 29.74 | 941.9 |
| 1860 - 1905 | 16QAM, RB100-0 | 28.20 | 660.7 | 28.78 | 755.1 |

## 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PIFA antenna for the maximum peak gain as follow:

| Modulation Bands | Antenna Gain (dBi) |
|---|---|
| GSM, Cell | -1.58 |
| GSM, PCS | 2.44 |
| CDMA2000, Cell | -1.58 |
| CDMA2000, PCS | 2.44 |
| UMTS, Cell | -1.58 |
| UMTD, PCS | 2.44 |

| LTE Bands | Antenna Gain (dBi) |
|---|---|
| LTE Band 5, 824-849MHz | -1.58 |
| LTE Band 13, 777-787MHz | -1.48 |
| LTE Band 25, 1850-1915MHz | 2.44 |
| CDMA BC10, 817-823MHz | -2.24 |

## 5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was 2.00.01_DEBUG

The EUT software installed during testing was 10A8396.

The EUT is linked with Agilent 8960 Communication, CMU200 and CMW500 Test Set.

## 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel for RF radiated emissions below 1GHz and AC conducted emissions are determined as the channel with the AC Power Adapter Source

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

Worst-case modes below:

- For Cellular and PCS band: 1xRTT (RC1 SO2)
- For Cellular and PCS band: CDMA2000 1xEV-DO Rev. A.
- For Cellular and PCS band: GPRS and EGPRS
- For Cellular and PCS band: UMTS, REL 99 and HSUPA.

Both conducted and radiated emissions measurement with all bands.

The EUT has been investigated on X, Y and Z position, the worst-case was determined on Y-position for CELL and Z position for PCS band by comparing the fundamental ERP / EIRP output power.

## 5.6. DESCRIPTION OF TEST SETUP

**I/O CABLES (RF CONDUCTED TEST)**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| Cable No | Port | # of identical | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | RF Out | 1 | Spectrum Analyzer | Un-shielded | 1m | N/A |
| 2 | RF In/Out | 1 | Directional Coupler | Un-shielded | 1m | N/A |
| 3 | RF In/Out | 1 | Communication Test Set | Un-shielded | None | N/A |

**I/O CABLES (RF RADIATED TEST)**

| I/O Cable List | | | | | | |
|---|---|---|---|---|---|---|
| Cable No | Port | # of identical | Connector Type | Cable Type | Cable Length (m) | Remarks |
| 1 | AC | 2 | US 115V | Un-shielded | 2m | NA |
| 2 | DC | 1 | DC | Un-shielded | 1m | NA |
| 3 | Jack | 1 | Earphone | Un-shielded | 0.5m | NA |
| 4 | RF In/Out | 1 | Horn | Un-shielded | 2m | NA |

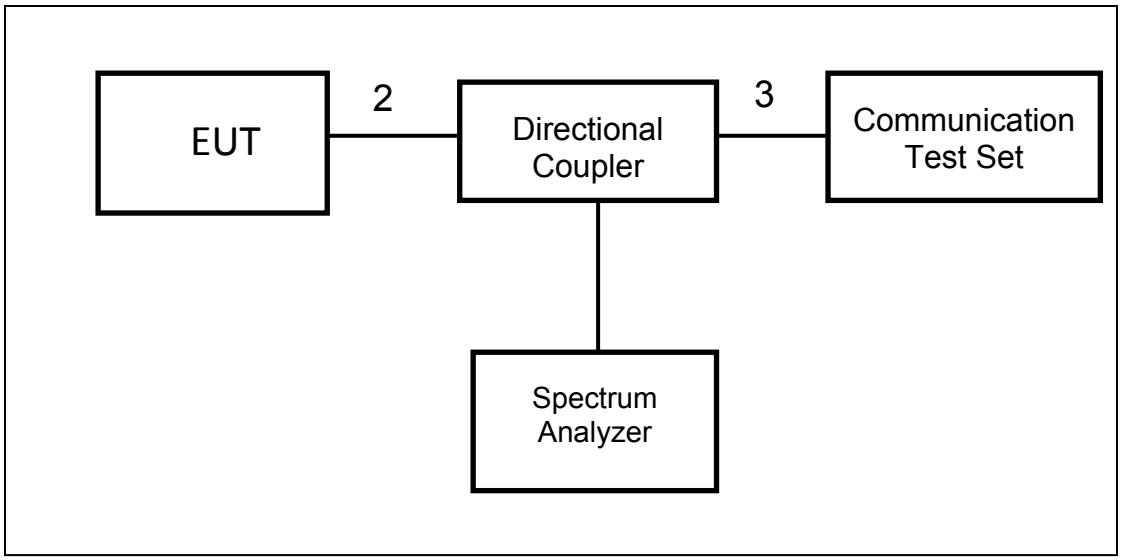
**SUPPORT EQUIPMENT**

| Support Equipment List | | | | |
|---|---|---|---|---|
| Description | Manufacturer | Model | Serial Number | FCC ID |
| AC Adapter | Apple | A1385 | D292066H2T2DHLHAC | DoC |
| DC Power Supply | Xantrex | XHR-60-18 | 27519 | NA |

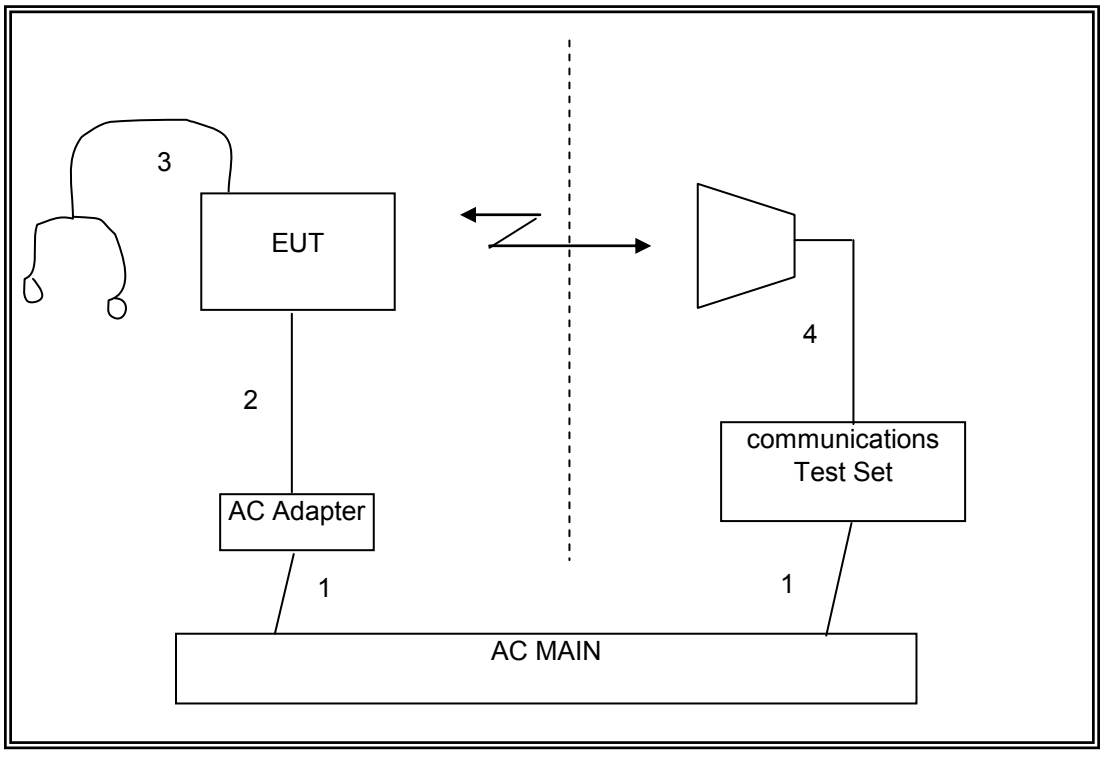
**TEST SETUP**

The EUT is a stand-alone device. The Communication test set exercised the EUT.

**SETUP DIAGRAM FOR RF CONDUCTED TESTS**




**SETUP DIAGRAM FOR RF RADIATED TESTS**



# 6. TEST AND MEASUREMENT EQUIPMENT

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

| TEST EQUIPMENT LIST | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Asset** | **Cal Due** |
| Antenna, Horn, 18 GHz | EMCO | 3115 | C00872 | 09/20/13 |
| Antenna, Bilog, 2 GHz | Sunol Sciences | JB1 | C01011 | 02/07/13 |
| Preamplifier, 26.5 GHz | Agilent / HP | 8449B | C01063 | 11/11/12 |
| Communication Test Set | R & S | CMU 200 | None | 06/06/13 |
| Wideband Communication Test Set | R & S | CMW 500 | None | 12/16/12 |
| Spectrum Analyzer, 44 GHz | Agilent / HP | E4446A | C01159 | 04/09/13 |
| Preamplifier, 1300 MHz | Agilent / HP | 8447D | C00885 | 11/11/12 |
| Highpass Filter, 1.5 GHz | Micro-Tronics | HPM13193 | N02689` | CNR |
| Highpass Filter, 2.7 GHz | Micro-Tronics | HPM13194 | N02687 | CNR |
| Temperature / Humidity Chamber | WATLOW Controls | SK-3102 | None | CNR |
| Dual Channel Thermometer | Tektronix | DTM920 | CCS-0048 | 05/21/13 |
| Directional Coupler | Krytar | 1817 | N02656 | CNR |
| Vector signal generator, 6 GHz | Agilent / HP | E4438C | None | 07/06/13 |
| Antenna, Tuned Dipole 400~1000 MHz | ETS | 3121C DB4 | C00993 | 07/16/13 |

# 7. RF POWER OUTPUT VERIFICATION

## 7.1. GSM

**TEST PROCEDURE**

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW ≥ RBW.≥ 26dB BW, typically 3MHz.
- Set a marker to point the corresponding peak value.

**PROCEDURE USED TO ESTABLISH TEST SIGNAL**

**GPRS/EGPRS**

Function: Menu select > GSM Mobile Station > GSM 850/900/1800/1900

Press Connection control to choose the different menus

Press RESET > choose all to reset all settings

Connection Press Signal Off to turn off the signal and change settings

Network Support > GSM+GPRS or GSM+EGPRS

Main Service > Packet Data

Service selection > Test Mode A – Auto Slot Config. off

MS Signal Press Slot Config bottom on the right twice to select and change the number of time slots and power setting

> Slot configuration > Uplink/Gamma

> 33 dBm for GPRS 850/900

> 27 dBm for EGPRS 850/900

> 30 dBm for GPRS1800/1900

> 26 dBm for EGPRS1800/1900

BS Signal Enter the same channel number for TCH channel (test channel) and BCCH channel

Frequency Offset > + 0 Hz

Mode > BCCH and TCH

BCCH Level > -85 dBm (May need to adjust if link is not stable)

BCCH Channel > choose desire test channel [Enter the same channel number for TCH channel (test channel) and BCCH channel]

Channel Type > Off

P0> 4 dB

Slot Config > Unchanged (if already set under MS Signal)

TCH > choose desired test channel

Hopping > Off

Main Timeslot > 3 (Default)

Network Coding Scheme > CS4 (GPRS) and MCS9 (EGPRS)

Bit Stream > 2E9-1PSR Bit Pattern

AF/RF Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input

Connection Press Signal On to turn on the signal and change settings

**RESULTS**

**GPRS/EGPRS**

| Mode | Ch. | f (MHz) | 1 time slots | | 2 time slots | |
|---|---|---|---|---|---|---|
| | | | Peak | Average | Peak | Average |
| GPRS | 128 | 824.2 | **33.65** | 33.46 | 32.80 | 32.70 |
| | 190 | 836.6 | 33.60 | 33.45 | 32.70 | 32.60 |
| | 251 | 848.8 | 33.45 | 33.40 | 32.70 | 32.60 |
| EGPRS | 128 | 824.2 | 31.80 | 28.75 | 31.70 | 28.85 |
| | 190 | 836.6 | **31.90** | 28.90 | 31.75 | 28.90 |
| | 251 | 848.8 | 31.85 | 28.80 | 31.70 | 28.80 |

| | Ch. | f (MHz) | 1 time slots | | 2 time slots | |
|---|---|---|---|---|---|---|
| | | | Peak | Average | Peak | Average |
| GPRS | 512 | 1850.2 | **30.80** | 30.46 | 29.30 | 29.20 |
| | 661 | 1880.0 | 30.75 | 30.45 | 29.35 | 29.25 |
| | 810 | 1909.8 | 30.50 | 30.30 | 29.40 | 29.25 |
| EGPRS | 512 | 1850.2 | 30.75 | 27.77 | 30.70 | 27.90 |
| | 661 | 1880.0 | 30.85 | 27.85 | 30.80 | 28.00 |
| | 810 | 1909.8 | **30.90** | 27.95 | 30.90 | 28.00 |

## 7.2. UMTS MODE

**TEST PROCEDURE**

The transmitter output was connected to the input terminal of Directional Coupler via calibrated coaxial cable. The output coupling terminal of the Directional Coupler was directly connected to a spectrum analyzer while the output through terminal connected to the communication test set via calibrated coaxial cable.

The output power was measured with the spectrum analyzer at the low, middle and high channel in each band.

- Set the spectrum analyzer span wide enough or greater than the modulated signal BW.
- Set a spectrum analyzer at peak detection mode with VBW ≥ RBW.≥ 26dB BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

### 7.2.1. REL99

**TEST PROCEDURE**

The following summary of these settings are illustrated below:

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

**RESULTS**

**UMTS REL99**

| Band | UL Ch | DL Ch | Frequency | Conducted output power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| UMTS 850 | 4132 | 4357 | 826.4 | 27.18 | **24.50** |
| | 4180 | 4405 | 836.0 | 27.15 | 24.45 |
| | 4230 | 4455 | 846.0 | 26.65 | 24.39 |

| Band | UL Ch | DL Ch | Frequency | Conducted output power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| UMTS 1900 | 9262 | 9662 | 1852.4 | 25.79 | 22.75 |
| | 9400 | 9800 | 1880.0 | **25.96** | 22.95 |
| | 9538 | 9938 | 1907.6 | 25.94 | 22.91 |

## 7.2.2. HSDPA REL 5

The following 4 Sub-tests were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121.

Summary of settings are illustrated below:

| | Mode | Rel5 HSDPA | | | |
|---|---|---|---|---|---|
| | Subtest | 1 | 2 | 3 | 4 |
| WCDMA General Settings | Loopback Mode | Test Mode 1 | | | |
| | Rel99 RMC | 12.2kbps RMC | | | |
| | HSDPA FRC | H-Set1 | | | |
| | Power Control Algorithm | Algorithm 2 | | | |
| | βc | 2/15 | 12/15 | 15/15 | 15/15 |
| | βd | 15/15 | 15/15 | 8/15 | 4/15 |
| | Bd (SF) | 64 | | | |
| | βc/βd | 2/15 | 12/15 | 15/8 | 15/4 |
| | βhs | 4/15 | 24/15 | 30/15 | 30/15 |
| | MPR (dB) | 0 | 0 | 0.5 | 0.5 |
| HSDPA Specific Settings | $D_{ACK}$ | 8 | | | |
| | $D_{NAK}$ | 8 | | | |
| | DCQI | 8 | | | |
| | Ack-Nack repetition factor | 3 | | | |
| | CQI Feedback (Table 5.2B.4) | 4ms | | | |
| | CQI Repetition Factor (Table 5.2B.4) | 2 | | | |
| | Ahs =βhs/βc | 30/15 | | | |

**Result**

| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) | Conducted output power (dBm) |
|---|---|---|---|---|---|---|
| | | | | | Peak | Average |
| UMTS850 (Band V) | 1 | 4132 | 4357 | 826.4 | 26.70 | 23.60 |
| | | 4180 | 4405 | 836.0 | 26.60 | 23.50 |
| | | 4230 | 4455 | 846.0 | 26.50 | 23.40 |
| | 2* | 4132 | 4357 | 826.4 | **27.30** | 23.65 |
| | | 4180 | 4405 | 836.0 | 27.20 | 23.50 |
| | | 4230 | 4455 | 846.0 | 27.29 | 23.45 |
| | 3 | 4132 | 4357 | 826.4 | 27.00 | 23.01 |
| | | 4180 | 4405 | 836.0 | 26.97 | 23.01 |
| | | 4230 | 4455 | 846.0 | 27.02 | 22.99 |
| | 4 | 4132 | 4357 | 826.4 | 27.10 | 23.10 |
| | | 4180 | 4405 | 836.0 | 27.04 | 23.00 |
| | | 4230 | 4455 | 846.0 | 27.08 | 22.90 |
| UMTS1900 (Band II) | 1 | 9262 | 9662 | 1852.4 | 26.20 | 22.80 |
| | | 9400 | 9800 | 1880.0 | 26.10 | 22.74 |
| | | 9538 | 9938 | 1907.6 | 26.20 | 22.80 |
| | 2* | 9262 | 9662 | 1852.4 | **26.90** | 22.80 |
| | | 9400 | 9800 | 1880.0 | 26.70 | 22.83 |
| | | 9538 | 9938 | 1907.6 | 26.80 | 22.89 |
| | 3 | 9262 | 9662 | 1852.4 | 26.70 | 22.46 |
| | | 9400 | 9800 | 1880.0 | 26.70 | 22.50 |
| | | 9538 | 9938 | 1907.6 | 26.80 | 22.50 |
| | 4 | 9262 | 9662 | 1852.4 | 26.70 | 22.48 |
| | | 9400 | 9800 | 1880.0 | 26.72 | 22.47 |
| | | 9538 | 9938 | 1907.6 | 26.80 | 22.50 |

Note 1: Asterisk (*) represents the worst case

Note 2: Maximum output power levels that are possible for all subtests reported.

### 7.2.3. HSPA REL 6 (HSDPA & HSUPA)

**TEST PROCEDURE**

The following summary of these settings are illustrated below:

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

**RESULTS**

| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) | |
|---|---|---|---|---|---|---|
| | | | | | Peak | Average |
| UMTS850 (Band V) | 1* | 4132 | 4357 | 826.4 | 27.80 | 23.50 |
| | | 4180 | 4405 | 836.0 | **28.10** | 23.60 |
| | | 4230 | 4455 | 846.0 | 27.95 | 23.47 |
| | 2 | 4132 | 4357 | 826.4 | 27.50 | 21.60 |
| | | 4180 | 4405 | 836.0 | 27.80 | 21.80 |
| | | 4230 | 4455 | 846.0 | 27.60 | 21.70 |
| | 3 | 4132 | 4357 | 826.4 | 27.71 | 22.70 |
| | | 4180 | 4405 | 836.0 | 28.05 | 22.80 |
| | | 4230 | 4455 | 846.0 | 27.96 | 22.70 |
| | 4 | 4132 | 4357 | 826.4 | 27.45 | 21.70 |
| | | 4180 | 4405 | 836.0 | 27.60 | 21.80 |
| | | 4230 | 4455 | 846.0 | 27.46 | 21.75 |
| | 5 | 4132 | 4357 | 826.4 | 26.90 | 23.40 |
| | | 4180 | 4405 | 836.0 | 27.10 | 23.50 |
| | | 4230 | 4455 | 846.0 | 26.95 | 23.50 |
| UMTS1900 (Band II) | 1* | 9262 | 9662 | 1852.4 | 27.67 | 22.80 |
| | | 9400 | 9800 | 1880.0 | **27.70** | 22.95 |
| | | 9538 | 9938 | 1907.6 | 27.60 | 22.90 |
| | 2 | 9262 | 9662 | 1852.4 | 26.60 | 20.60 |
| | | 9400 | 9800 | 1880.0 | 26.60 | 20.60 |
| | | 9538 | 9938 | 1907.6 | 26.80 | 20.63 |
| | 3 | 9262 | 9662 | 1852.4 | 27.60 | 22.10 |
| | | 9400 | 9800 | 1880.0 | 27.59 | 22.16 |
| | | 9538 | 9938 | 1907.6 | 27.62 | 22.20 |
| | 4 | 9262 | 9662 | 1852.4 | 26.50 | 20.60 |
| | | 9400 | 9800 | 1880.0 | 26.48 | 20.55 |
| | | 9538 | 9938 | 1907.6 | 26.70 | 20.68 |
| | 5 | 9262 | 9662 | 1852.4 | 26.70 | 22.95 |
| | | 9400 | 9800 | 1880.0 | 26.75 | 22.96 |
| | | 9538 | 9938 | 1907.6 | 26.80 | 22.90 |

Note 1: Asterisk (*) represents the worst case

Note 2: Maximum output power levels that are possible for all subtests reported.

## 7.2.4. DUAL CARRIER HSDPA

**DC-HSDPA (Rel 8, CAT 24)**

The following tests were completed according to procedures in section 7.3.13 of 3GPP TS34.108 v9.5.0. A summary of these settings are illustrated below:

Downlink Physical Channels are set as per 3GPP TS34.121-1 v9.0.0 E.5.0

**Table E.5.0: Levels for HSDPA connection setup**

| Parameter During Connection setup | Unit | Value |
|---|---|---|
| P-CPICH_Ec/Ior | dB | -10 |
| P-CCPCH and SCH_Ec/Ior | dB | -12 |
| PICH _Ec/Ior | dB | -15 |
| HS-PDSCH | dB | off |
| HS-SCCH_1 | dB | off |
| DPCH_Ec/Ior | dB | -5 |
| OCNS_Ec/Ior | dB | -3.1 |

Call is set up as per 3GPP TS34.108 v9.5.0 sub clause 7.3.13

The configurations of the fixed reference channels for HSDPA RF tests are described in 3GPP TS 34.121, annex C for FDD and 3GPP TS 34.122.

**Table C.8.1.12: Fixed Reference Channel H-Set 12**

| Parameter | Unit | Value |
|---|---|---|
| Nominal Avg. Inf. Bit Rate | kbps | 60 |
| Inter-TTI Distance | TTI's | 1 |
| Number of HARQ Processes | Proces ses | 6 |
| Information Bit Payload ( $N_{INF}$ ) | Bits | 120 |
| Number Code Blocks | Blocks | 1 |
| Binary Channel Bits Per TTI | Bits | 960 |
| Total Available SML's in UE | SML's | 19200 |
| Number of SML's per HARQ Proc. | SML's | 3200 |
| Coding Rate | | 0.15 |
| Number of Physical Channel Codes | Codes | 1 |
| Modulation | | QPSK |
| Note 1: The RMC is intended to be used for DC-HSDPA mode and both cells shall transmit with identical parameters as listed in the table. | | |
| Note 2: Maximum number of transmission is limited to 1, i.e., retransmission is not allowed. The redundancy and constellation version 0 shall be used. | | |

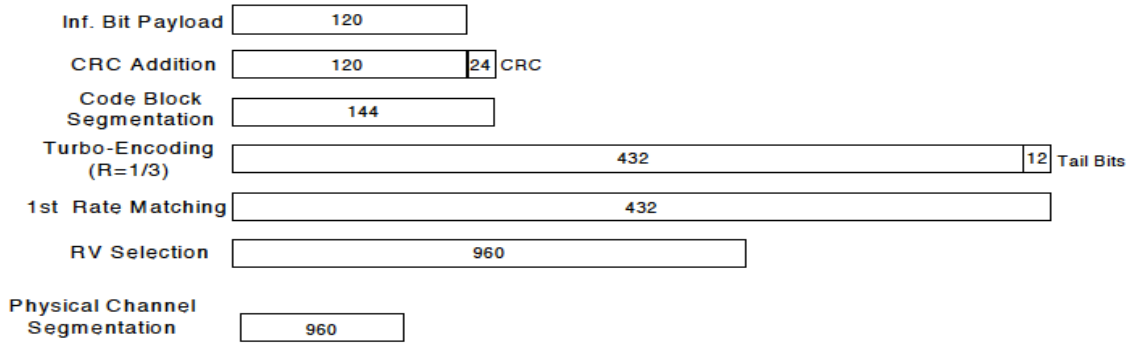



**Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)**

The following 4 Sub-tests for HSDPA were completed according to Release 6 procedures in section 5.2 of 3GPP TS34.121. A summary of subtest settings are illustrated below:

| | Mode | Rel6 HSDPA | Rel6 HSDPA | Rel6 HSDPA | Rel6 HSDPA |
|---|---|---|---|---|---|
| | Subtest | 1 | 2 | 3 | 4 |
| WCDMA General Settings | Loopback Mode | Test Mode 1 | | | |
| | Rel99 RMC | 12.2kbps RMC | | | |
| | HSDPA FRC | H-Set1 | | | |
| | Power Control Algorithm | Algorithm2 | | | |
| | βc | 2/15 | 12/15 | 15/15 | 15/15 |
| | βd | 15/15 | 15/15 | 8/15 | 4/15 |
| | βd (SF) | 64 | | | |
| | βc/βd | 2/15 | 12/15 | 15/8 | 15/4 |
| | βhs | 4/15 | 24/15 | 30/15 | 30/15 |
| | MPR | 0 | 0 | 0.5 | 0.5 |
| HSDPA Specific Settings | DACK | 8 | | | |
| | DNAK | 8 | | | |
| | DCQI | 8 | | | |
| | Ack-Nack Repetition factor | 3 | | | |
| | CQI Feedback | 4ms | | | |
| | CQI Repetition Factor | 2 | | | |
| | Ahs = βhs/ βc | 30/15 | | | |

**RESULT**

| Band | Subtest | UL Ch | DL Ch | Frequency | Conducted output power (dBm) | |
|---|---|---|---|---|---|---|
| | | | | | Peak | Average |
| UMTS850 (Band V) | 1 | 4132 | 4357 | 826.4 | 26.77 | 23.45 |
| | | 4180 | 4405 | 836.0 | 26.69 | 23.35 |
| | | 4230 | 4455 | 846.0 | 26.51 | 23.38 |
| | 2* | 4132 | 4357 | 826.4 | **26.93** | 23.33 |
| | | 4180 | 4405 | 836.0 | 26.90 | 23.35 |
| | | 4230 | 4455 | 846.0 | 26.75 | 23.40 |
| | 3 | 4132 | 4357 | 826.4 | 26.59 | 22.83 |
| | | 4180 | 4405 | 836.0 | 26.70 | 22.86 |
| | | 4230 | 4455 | 846.0 | 26.73 | 22.75 |
| | 4 | 4132 | 4357 | 826.4 | 26.64 | 22.84 |
| | | 4180 | 4405 | 836.0 | 26.73 | 22.87 |
| | | 4230 | 4455 | 846.0 | 26.70 | 22.76 |
| UMTS1900 (Band II) | 1 | 9262 | 9662 | 1852.4 | 26.35 | 23.00 |
| | | 9400 | 9800 | 1880.0 | 26.35 | 23.00 |
| | | 9538 | 9938 | 1907.6 | 26.52 | 22.90 |
| | 2* | 9262 | 9662 | 1852.4 | 26.46 | 23.00 |
| | | 9400 | 9800 | 1880.0 | **26.70** | 22.90 |
| | | 9538 | 9938 | 1907.6 | 26.70 | 22.90 |
| | 3 | 9262 | 9662 | 1852.4 | 26.41 | 22.70 |
| | | 9400 | 9800 | 1880.0 | 26.12 | 22.60 |
| | | 9538 | 9938 | 1907.6 | 26.39 | 22.60 |
| | 4 | 9262 | 9662 | 1852.4 | 26.42 | 22.65 |
| | | 9400 | 9800 | 1880.0 | 26.50 | 22.60 |
| | | 9538 | 9938 | 1907.6 | 26.68 | 22.65 |

Note 1: Asterisk (*) represents the worst case

Note 2: Maximum output power levels that are possible for all subtests reported.

## 7.3. CDMA2000

### 7.3.1. 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) > 18
  > Network ID (NID) > 65535
- 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**

| Radio Configuration (RC) | Service Option (SO) | Conducted Output Power (dBm) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Ch.476 / 817.9 MHz | | Ch.526 / 819.15 MHz | | Ch. 684 /823.1 MHz | |
| | | Peak | Average | Peak | Average | Peak | Average |
| RC1 | 2 (Loopback) | 29.22 | 24.56 | 29.21 | 24.85 | 29.86 | **24.97** |
| | 55 (Loopback) | 29.33 | 24.88 | 29.44 | 24.96 | 29.80 | 24.96 |
| RC2 | 9 (Loopback) | 29.44 | 24.90 | 29.35 | 24.91 | 29.69 | 24.95 |
| | 55 (Loopback) | 29.49 | 24.90 | 29.54 | 24.93 | 29.80 | 24.96 |
| RC3 | 2 (Loopback) | 29.30 | 24.93 | 28.91 | 24.90 | 29.38 | 24.95 |
| | 55 (Loopback) | 29.08 | 24.90 | 28.99 | 24.93 | 29.10 | 24.93 |
| | 32 (+ F-SCH) | 29.20 | 24.89 | 29.10 | 24.93 | 29.11 | 24.95 |
| | 32 (+ SCH) | 29.10 | 24.89 | 29.18 | 24.89 | 29.25 | 24.32 |
| RC4 | 2 (Loopback) | 29.30 | 24.90 | 29.20 | 24.90 | 29.32 | 24.94 |
| | 55 (Loopback) | 29.30 | 24.88 | 29.00 | 24.92 | 29.40 | 24.95 |
| | 32 (+ F-SCH) | 29.32 | 24.90 | 29.30 | 24.90 | 29.42 | 24.95 |
| | 32 (+ SCH) | 29.37 | 24.93 | 29.38 | 24.93 | 29.40 | 24.95 |
| RC5 | 9 (Loopback) | 29.10 | 24.92 | 29.25 | 24.90 | 29.46 | 24.96 |
| | 55 (Loopback) | 29.09 | 24.90 | 29.20 | 24.90 | 29.22 | 24.91 |

**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) | 29.07 | **24.66** | 28.73 | 24.63 | 28.36 | 24.60 |
| | 55 (Loopback) | 28.99 | 24.64 | 28.66 | 24.60 | 28.31 | 24.50 |
| RC2 | 9 (Loopback) | 28.81 | 24.65 | 28.79 | 24.56 | 28.45 | 24.40 |
| | 55 (Loopback) | 28.86 | 24.62 | 28.52 | 24.51 | 28.32 | 24.35 |
| RC3 | 2 (Loopback) | 28.66 | 24.59 | 28.60 | 24.51 | 28.40 | 24.40 |
| | 55 (Loopback) | 28.06 | 24.59 | 28.65 | 24.55 | 28.14 | 24.30 |
| | 32 (+ F-SCH) | 28.75 | 24.59 | 28.62 | 24.50 | 28.23 | 24.35 |
| | 32 (+ SCH) | 28.90 | 24.58 | 28.47 | 24.49 | 28.12 | 24.32 |
| RC4 | 2 (Loopback) | 28.61 | 24.65 | 28.50 | 24.51 | 28.04 | 24.40 |
| | 55 (Loopback) | 28.61 | 24.60 | 28.20 | 24.51 | 28.25 | 24.43 |
| | 32 (+ F-SCH) | 28.60 | 24.57 | 28.44 | 24.45 | 28.07 | 24.36 |
| | 32 (+ SCH) | 28.58 | 24.57 | 28.27 | 24.48 | 28.45 | 24.32 |
| RC5 | 9 (Loopback) | 28.76 | 24.62 | 28.24 | 24.46 | 28.21 | 24.30 |
| | 55 (Loopback) | 28.46 | 24.59 | 28.32 | 24.51 | 28.00 | 24.30 |

**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) | 27.10 | 22.89 | 27.44 | 22.95 | 26.96 | 22.85 |
| | 55 (Loopback) | 26.85 | 22.85 | 27.02 | 22.85 | 26.80 | 22.82 |
| RC2 | 9 (Loopback) | 27.01 | 22.88 | 27.32 | 22.93 | 26.74 | 22.85 |
| | 55 (Loopback) | 26.99 | 22.80 | 27.05 | 22.88 | 26.90 | 22.81 |
| RC3 | 2 (Loopback) | 26.47 | 22.75 | 26.63 | 22.88 | 26.33 | 22.80 |
| | 55 (Loopback) | 26.65 | 22.76 | 26.70 | 22.91 | 26.67 | 22.80 |
| | 32 (+ F-SCH) | 26.60 | 22.75 | 26.70 | 22.88 | 26.40 | 22.79 |
| | 32 (+ SCH) | 26.70 | 22.75 | 26.70 | 22.90 | 26.60 | 22.80 |
| RC4 | 2 (Loopback) | 26.60 | 22.75 | 26.59 | 22.90 | 26.44 | 22.83 |
| | 55 (Loopback) | 26.37 | 22.76 | 26.27 | 22.90 | 26.50 | 22.80 |
| | 32 (+ F-SCH) | 26.76 | 22.80 | 26.65 | 22.91 | 26.44 | 22.78 |
| | 32 (+ SCH) | 26.52 | 22.82 | 26.70 | 22.91 | 26.50 | 22.82 |
| RC5 | 9 (Loopback) | 26.67 | 22.75 | 26.80 | 22.87 | 26.39 | 22.83 |
| | 55 (Loopback) | 26.53 | 22.75 | 26.89 | 22.92 | 26.62 | 22.81 |

### 7.3.2. 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, EV-DO Rev 0

| Radio Configuration | Service Option | Channel | f (MHz) | Conducted power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| BC10 | EVDO REV A (4096) | 476 | 817.90 | 29.50 | 24.90 |
| | | 526 | 819.15 | 29.60 | 24.95 |
| | | 684 | 823.10 | 29.70 | **24.96** |

BC0, EV-DO Rev 0

| 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 | 29.80 | **24.70** |
| | | 384 | 836.52 | 29.75 | 24.70 |
| | | 777 | 848.31 | 28.60 | 24.**60** |

BC1, EV-DO Rev 0

| 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 | **27.70** | 22.80 |
| | | 600 | 1880.00 | 27.65 | 22.70 |
| | | 1175 | 1908.75 | 27.65 | 22.70 |

### 7.3.3. 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, EV-DO Rev A

| Radio Configuration | Service Option | Channel | f (MHz) | Conducted power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| BC10 | EVDO REV A (4096) | 476 | 817.90 | 29.95 | **25.00** |
| | | 526 | 819.15 | 29.80 | 24.95 |
| | | 684 | 823.10 | 29.92 | 24.90 |

BC0, 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 | 29.83 | **24.75** |
| | | 384 | 836.52 | 29.52 | 24.70 |
| | | 777 | 848.31 | 29.12 | 24.**65** |

BC1, 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 | 27.70 | 22.83 |
| | | 600 | 1880.00 | **27.75** | 22.87 |
| | | 1175 | 1908.75 | 27.72 | 22.85 |

### 7.3.4. 1xEV-DO Rev. B

**TEST PROCEDURE**

This procedure assumes the Rohde & Schwarz CMW 500 CDMA Rev. B Test Set has the following applications installed and with valid license.

| Application | Rev, License |
|---|---|
| 1xEV-DO Terminal Test | V.2.1.25 |

1xEV-DO Release B –

- CMW 500 Signal Generator > 1xEV-DO Taskbar Enable
- CMW 500 1xEV-DO Signaling Configuration Window >
- 1xEV-DO Signaling On Window:

  Under Access Network Control:

  Band Class: BC0: US Cellular

  RF Channel: 31

  1xEV-DP Power: -70 dBm

  Release B
- 1xEV-DO Signaling Configuration Window

  Under RF Frequency Band / Channel: Enter Ch. Frequency
  - Under Carrier Configuration: RF Frequency

    For Two Carriers: Low Channel (1013)

| | RF Channel | RF Channel Offset |
|---|---|---|
| Carrier [0] | 31 | 0 |
| Carrier [1] | 1013 | 982 |

  - Under Carrier Configuration: RF Pilot

| | Carrier Sector | Active on AN | Assigned to AT |
|---|---|---|---|
| Pilot [0] | C0/S0 | □ | □ |
| | CA/S1 | □ | □ |

    For Three Carriers: Low Channel (1013)

| | RF Channel | RF Channel Offset |
|---|---|---|
| Carrier [0] | 72 | 0 |
| Carrier [1] | 31 | -41 |
| Carrier [2] | 1013 | 941 |

  - Under Carrier Configuration: RF Pilot

| | Carrier Sector | Active on AN | Assigned to AT |
|---|---|---|---|
| Pilot [0] | C0/S0 | □ | □ |
| Pilot [1] | C1/S1 | □ | □ |
| Pilot [2] | C2/S2 | □ | □ |

- Rvs Power Ctrl > All Up bits (to get the maximum power)

## RESULTS

## EVDO REV B

Two Carrier Mini Separation

| | MODE | Channel | f (MHz) | Conducted power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| Rev B | CDMA | 1013+31 | 824.70+825.93 | 28.09 | 21.45 |
| | | 384+425 | 836.52+837.75 | 28.29 | 21.50 |
| | | 736+777 | 847.08+848.31 | 28.33 | **21.60** |

Two Carrier Max Separation

| | Mode | Channel | f (MHz) | Conducted power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| Rev B | CDMA | 1013+156 | 824.70+829.68 | 30.75 | **21.50** |
| | | 384+550 | 836.52+841.50 | 30.73 | 21.49 |
| | | 611+777 | 843.33+848.31 | 30.71 | 21.48 |

Three Carrier Min Separation

| | Mode | Channel | f (MHz) | Conducted power (dBm) | |
|---|---|---|---|---|---|
| | | | | Peak | Average |
| Rev B | CDMA | 1013+31+72 | 824.70+825.93+827.16 | 29.60 | **21.00** |
| | | 384+425+466 | 836.52+837.75+838.98 | 29.58 | 20.95 |
| | | 695+736+777 | 845.85+847.08+848.31 | 29.54 | 21.00 |

## 7.4. LTE BAND 5

**Output power for LTE Band 5 (1.4MHz)**

| Freq. (MHz) | UL Channel | Modulation | BW (MHz) | RB Size | RB Offset | Peak Power (dBm) | Average |
|---|---|---|---|---|---|---|---|
| 824.7 | 20407 | QPSK | 1.4 | 1 | 0 | 28.89 | **23.95** |
| | | | | 1 | 5 | 28.90 | 23.94 |
| | | | | 3 | 2 | 29.50 | 23.82 |
| | | | | 6 | 0 | 28.80 | 22.74 |
| | | 16-QAM | | 1 | 0 | 28.69 | 22.70 |
| | | | | 1 | 5 | 28.76 | 22.65 |
| | | | | 3 | 2 | 29.51 | 22.80 |
| | | | | 6 | 0 | 29.58 | 22.10 |
| 836.5 | 20525 | QPSK | | 1 | 0 | 28.74 | 23.93 |
| | | | | 1 | 5 | 28.78 | 23.90 |
| | | | | 3 | 2 | 29.22 | 23.75 |
| | | | | 6 | 0 | 28.73 | 22.76 |
| | | 16-QAM | | 1 | 0 | 29.45 | **23.10** |
| | | | | 1 | 5 | 29.10 | 22.90 |
| | | | | 3 | 2 | 29.25 | 22.77 |
| | | | | 6 | 0 | 29.58 | 22.02 |
| 848.3 | 20643 | QPSK | | 1 | 0 | 28.67 | 23.94 |
| | | | | 1 | 5 | 28.87 | 23.90 |
| | | | | 3 | 2 | 28.97 | 23.68 |
| | | | | 6 | 0 | 28.74 | 22.70 |
| | | 16-QAM | | 1 | 0 | 29.24 | 22.80 |
| | | | | 1 | 5 | 29.96 | 22.70 |
| | | | | 3 | 2 | 29.27 | 22.90 |
| | | | | 6 | 0 | 29.39 | 21.96 |

## Output power for LTE Band 5 (3 MHz)

| Freq. (MHz) | UL Channel | Modulation | BW (MHz) | RB Size | RB Offset | Max Peak Power (dBm) | Average |
|---|---|---|---|---|---|---|---|
| 825.5 | 20415 | QPSK | 3.0 | 1 | 0 | 28.65 | 23.76 |
| | | | | 1 | 14 | 28.29 | 23.75 |
| | | | | 8 | 4 | 28.86 | 22.86 |
| | | | | 15 | 0 | 28.76 | 22.90 |
| | | 16-QAM | | 1 | 0 | 28.58 | **22.87** |
| | | | | 1 | 14 | 28.60 | 22.81 |
| | | | | 8 | 4 | 28.30 | 22.28 |
| | | | | 15 | 0 | 28.86 | 22.00 |
| 836.5 | 20525 | QPSK | | 1 | 0 | 28.54 | 23.76 |
| | | | | 1 | 14 | 28.66 | 23.70 |
| | | | | 8 | 4 | 28.77 | 22.83 |
| | | | | 15 | 0 | 28.94 | 22.80 |
| | | 16-QAM | | 1 | 0 | 29.20 | 22.84 |
| | | | | 1 | 14 | 29.00 | 22.60 |
| | | | | 8 | 4 | 29.15 | 22.22 |
| | | | | 15 | 0 | 28.54 | 22.07 |
| 847.5 | 20635 | QPSK | | 1 | 0 | 28.32 | **23.82** |
| | | | | 1 | 14 | 28.36 | 23.75 |
| | | | | 8 | 4 | 28.76 | 22.91 |
| | | | | 15 | 0 | 28.77 | 22.90 |
| | | 16-QAM | | 1 | 0 | 28.79 | 22.76 |
| | | | | 1 | 14 | 28.77 | 22.65 |
| | | | | 8 | 4 | 28.65 | 22.24 |
| | | | | 15 | 0 | 28.76 | 22.19 |

**Output power for LTE Band 5 (5 MHz)**

| Freq. (MHz) | UL Channel | Modulation | BW (MHz) | RB Size | RB Offset | Peak Power (dBm) | Average |
|---|---|---|---|---|---|---|---|
| 826.5 | 20425 | QPSK | 5.0 | 1 | 0 | 29.13 | 23.96 |
| | | | | 1 | 24 | 28.95 | 23.91 |
| | | | | 12 | 6 | 28.90 | 22.90 |
| | | | | 25 | 0 | 29.00 | 22.94 |
| | | 16-QAM | | 1 | 0 | 29.30 | 22.91 |
| | | | | 1 | 24 | 28.94 | 22.90 |
| | | | | 12 | 6 | 29.08 | 21.74 |
| | | | | 25 | 0 | 29.20 | 21.91 |
| 836.5 | 20525 | QPSK | | 1 | 0 | 29.00 | 23.95 |
| | | | | 1 | 24 | 28.95 | 23.95 |
| | | | | 12 | 6 | 28.81 | 22.92 |
| | | | | 25 | 0 | 28.56 | 22.89 |
| | | 16-QAM | | 1 | 0 | 28.97 | 22.92 |
| | | | | 1 | 24 | 29.00 | 22.90 |
| | | | | 12 | 6 | 28.98 | 21.77 |
| | | | | 25 | 0 | 29.00 | 21.75 |
| 846.5 | 20625 | QPSK | | 1 | 0 | 29.06 | **23.97** |
| | | | | 1 | 24 | 28.55 | 23.90 |
| | | | | 12 | 6 | 28.87 | 22.89 |
| | | | | 25 | 0 | 29.00 | 22.92 |
| | | 16-QAM | | 1 | 0 | 29.09 | **22.93** |
| | | | | 1 | 24 | 28.86 | 22.90 |
| | | | | 12 | 6 | 28.90 | 21.80 |
| | | | | 25 | 0 | 28.91 | 21.86 |

**Output power for LTE Band 5 (10 MHz)**

| Freq. (MHz) | UL Channel | Modulation | BW (MHz) | RB Size | RB Offset | Max Peak Power (dBm) | Average |
|---|---|---|---|---|---|---|---|
| 829 | 20405 | QPSK | 10.0 | 1 | 0 | 28.70 | 23.73 |
| | | | | 1 | 49 | 28.40 | 23.72 |
| | | | | 25 | 12 | 29.20 | 23.00 |
| | | | | 50 | 0 | 28.95 | 22.97 |
| | | 16-QAM | | 1 | 0 | 29.20 | 22.80 |
| | | | | 1 | 49 | 28.90 | 22.70 |
| | | | | 25 | 12 | 29.00 | 22.00 |
| | | | | 50 | 0 | 29.20 | 22.00 |
| 836.5 | 20525 | QPSK | | 1 | 0 | 28.50 | **23.90** |
| | | | | 1 | 49 | 28.60 | 23.73 |
| | | | | 25 | 12 | 28.95 | 22.94 |
| | | | | 50 | 0 | 29.20 | 23.00 |
| | | 16-QAM | | 1 | 0 | 29.40 | **23.00** |
| | | | | 1 | 49 | 29.00 | 22.72 |
| | | | | 25 | 12 | 29.30 | 21.93 |
| | | | | 50 | 0 | 29.30 | 22.10 |
| 844 | 20600 | QPSK | | 1 | 0 | 28.67 | 23.90 |
| | | | | 1 | 49 | 28.30 | 23.67 |
| | | | | 25 | 12 | 29.00 | 22.95 |
| | | | | 50 | 0 | 29.20 | 22.97 |
| | | 16-QAM | | 1 | 0 | 29.30 | 23.00 |
| | | | | 1 | 49 | 28.70 | 22.70 |
| | | | | 25 | 12 | 29.20 | 22.00 |
| | | | | 50 | 0 | 29.20 | 22.00 |

## 7.5. LTE BAND 13

**5MHz Bandwidth**

| LTE 5MHz BAND 13 | | | | | |
|---|---|---|---|---|---|
| Frequency | RB CONFIGURATION | START RB OFFSET | MODE | Peak (dBm) | Average (dBm) |
| 779.5 | 1 | 0 | QPSK | 28.50 | **23.99** |
| | 1 | 24 | | 28.30 | 23.99 |
| | 12 | 6 | | 28.00 | 23.00 |
| | 25 | 0 | | 28.40 | 22.95 |
| | 1 | 0 | 16QAM | 27.80 | 22.87 |
| | 1 | 24 | | 28.40 | 22.80 |
| | 12 | 6 | | 28.30 | 22.00 |
| | 25 | 0 | | 28.70 | 21.99 |
| 782 | 1 | 0 | QPSK | 28.20 | 23.98 |
| | 1 | 24 | | 27.25 | 23.45 |
| | 12 | 6 | | 28.10 | 23.00 |
| | 25 | 0 | | 28.40 | 22.90 |
| | 1 | 0 | 16QAM | 28.40 | **23.02** |
| | 1 | 24 | | 27.50 | 22.50 |
| | 12 | 6 | | 28.42 | 22.00 |
| | 25 | 0 | | 28.40 | 21.90 |
| 784.5 | 1 | 0 | QPSK | 28.30 | 23.97 |
| | 1 | 24 | | 27.80 | 23.75 |
| | 12 | 6 | | 27.70 | 22.80 |
| | 25 | 0 | | 28.00 | 22.80 |
| | 1 | 0 | 16QAM | 28.40 | 22.86 |
| | 1 | 24 | | 27.70 | 22.80 |
| | 12 | 6 | | 27.80 | 21.70 |
| | 25 | 0 | | 28.70 | 21.90 |

**10MHz Bandwidth**

| LTE 10 MHz BAND 13 | | | | | |
|---|---|---|---|---|---|
| Frequency Range (MHz) | RB CONFIGURATION | START RB OFFSET | MODE | Peak (dBm) | Average (dBm) |
| 782 | 1 | 0 | QPSK | 28.36 | **23.97** |
| | 1 | 49 | | 27.90 | 23.60 |
| | 25 | 12 | | 28.20 | 23.00 |
| | 50 | 0 | | 28.25 | 22.90 |
| | 1 | 0 | 16QAM | 28.30 | **22.90** |
| | 1 | 49 | | 27.80 | 22.59 |
| | 25 | 12 | | 28.20 | 22.10 |
| | 50 | 0 | | 28.30 | 22.00 |

## 7.6. LTE BAND 25

**Output power for LTE Band 25 (1.4MHz)**

| Frequency | UL CH # | Bandwidth | Mode | UL RB Allocation | Peak(dBm) | Average(dBm) |
|---|---|---|---|---|---|---|
| 1850.7 | 26047.0 | 1.4 | QPSK | RB 1-0 | 28.07 | 23.00 |
| | | | | RB 1-5 | 28.05 | 22.98 |
| | | | | RB 3-2 | 28.00 | 22.82 |
| | | | | RB 6-0 | 28.10 | 22.10 |
| | | | 16QAM | RB 1-0 | 27.70 | 21.80 |
| | | | | RB 1-5 | 27.73 | 21.74 |
| | | | | RB 3-2 | 28.16 | 21.90 |
| | | | | RB 6-0 | 28.32 | 21.40 |
| 1882.5 | 26365.0 | | QPSK | RB 1-0 | 27.66 | 23.00 |
| | | | | RB 1-5 | 27.56 | 22.96 |
| | | | | RB 3-2 | 27.70 | 22.86 |
| | | | | RB 6-0 | 27.71 | 22.00 |
| | | | 16QAM | RB 1-0 | 27.87 | 22.00 |
| | | | | RB 1-5 | 27.74 | 21.88 |
| | | | | RB 3-2 | 28.23 | 21.90 |
| | | | | RB 6-0 | 28.36 | 21.40 |
| 1914.3 | 26683.0 | | QPSK | RB 1-0 | 28.00 | 23.00 |
| | | | | RB 1-5 | 27.70 | 22.98 |
| | | | | RB 3-2 | 27.70 | 22.99 |
| | | | | RB 6-0 | 28.05 | 22.10 |
| | | | 16QAM | RB 1-0 | 28.30 | 21.85 |
| | | | | RB 1-5 | 28.30 | 21.87 |
| | | | | RB 3-2 | 28.10 | 22.34 |
| | | | | RB 6-0 | **28.55** | 21.50 |

**Output power for LTE Band 25 (3.0MHz)**

| Freq (MHz) | UL CH # | Band | Mode | UL RB Allocation | Peak(dBm) | Average(dBm) |
|---|---|---|---|---|---|---|
| 1851.5 | 26055.0 | 3.0 | QPSK | RB 1-0 | 27.27 | 22.95 |
| | | | | RB 1-14 | 27.12 | 22.94 |
| | | | | RB 8-4 | 27.81 | 22.02 |
| | | | | RB 15-0 | 27.89 | 21.97 |
| | | | 16QAM | RB 1-0 | 27.35 | 21.80 |
| | | | | RB 1-14 | 27.83 | 21.76 |
| | | | | RB 8-4 | 28.00 | 21.20 |
| | | | | RB 15-0 | 28.05 | 21.00 |
| 1882.5 | 26365.0 | | QPSK | RB 1-0 | 27.56 | 22.99 |
| | | | | RB 1-14 | 27.30 | 22.80 |
| | | | | RB 8-4 | 27.99 | 22.05 |
| | | | | RB 15-0 | **28.00** | 22.00 |
| | | | 16QAM | RB 1-0 | 27.78 | 21.80 |
| | | | | RB 1-14 | 27.81 | 21.80 |
| | | | | RB 8-4 | 28.19 | 21.28 |
| | | | | RB 15-0 | **28.20** | 21.14 |
| 1913.5 | 26675.0 | | QPSK | RB 1-0 | 27.45 | 22.92 |
| | | | | RB 1-14 | 27.37 | 22.91 |
| | | | | RB 8-4 | 27.63 | 22.14 |
| | | | | RB 15-0 | 27.89 | 22.15 |
| | | | 16QAM | RB 1-0 | 27.88 | 21.95 |
| | | | | RB 1-14 | 27.91 | 21.90 |
| | | | | RB 8-4 | 28.00 | 21.47 |
| | | | | RB 15-0 | 28.10 | 21.26 |

**Output power for LTE Band 25 (5.0MHz)**

| Freq (MHz) | UL CH # | Band | Mode | UL RB Allocation | Peak(dBm) | Average(dBm) |
|---|---|---|---|---|---|---|
| 1852.5 | 26065.0 | 5.0 | QPSK | RB 1-0 | 27.94 | 22.97 |
| | | | | RB 1-24 | 27.80 | 22.93 |
| | | | | RB 12-6 | 27.61 | 21.98 |
| | | | | RB 25-0 | 28.10 | 21.98 |
| | | | 16QAM | RB 1-0 | 28.03 | 22.00 |
| | | | | RB 1-24 | 27.94 | 21.90 |
| | | | | RB 12-6 | 28.00 | 20.90 |
| | | | | RB 25-0 | 28.50 | 20.96 |
| 1882.5 | 26365.0 | | QPSK | RB 1-0 | 27.82 | 22.98 |
| | | | | RB 1-24 | 27.71 | 22.76 |
| | | | | RB 12-6 | 27.68 | 21.94 |
| | | | | RB 25-0 | 27.91 | 21.95 |
| | | | 16QAM | RB 1-0 | 28.15 | 22.00 |
| | | | | RB 1-24 | 28.07 | 21.74 |
| | | | | RB 12-6 | 28.00 | 20.89 |
| | | | | RB 25-0 | 28.08 | 20.93 |
| 1912.5 | 26665.0 | | QPSK | RB 1-0 | 27.82 | 23.00 |
| | | | | RB 1-24 | 27.66 | 22.98 |
| | | | | RB 12-6 | 27.58 | 22.28 |
| | | | | RB 25-0 | 27.86 | 22.16 |
| | | | 16QAM | RB 1-0 | 28.05 | 22.06 |
| | | | | RB 1-24 | 27.83 | 22.08 |
| | | | | RB 12-6 | 28.04 | 21.26 |
| | | | | RB 25-0 | 28.35 | 20.77 |

**Output power for LTE Band 25 (10.0MHz)**

| Band | UL CH # | Band | Mode | UL RB Allocation | | |
|---|---|---|---|---|---|---|
| 1855 | 26090.0 | 10.0 | QPSK | RB 1-0 | 27.56 | 22.94 |
| | | | | RB 1-49 | 27.55 | 22.94 |
| | | | | RB 25-12 | 28.03 | 22.13 |
| | | | | RB 50-0 | 28.05 | 22.08 |
| | | | 16QAM | RB 1-0 | 27.81 | 21.75 |
| | | | | RB 1-49 | 28.00 | 21.90 |
| | | | | RB 25-12 | 28.06 | 21.17 |
| | | | | RB 50-0 | 28.07 | 21.21 |
| 1882.5 | 26365.0 | | QPSK | RB 1-0 | 27.44 | 22.95 |
| | | | | RB 1-49 | 27.36 | 22.79 |
| | | | | RB 25-12 | 28.18 | 22.08 |
| | | | | RB 50-0 | **28.24** | 22.04 |
| | | | 16QAM | RB 1-0 | 27.89 | 21.85 |
| | | | | RB 1-49 | 27.71 | 21.75 |
| | | | | RB 25-12 | 28.03 | 21.11 |
| | | | | RB 50-0 | 28.37 | 20.97 |
| 1910 | 26640.0 | | QPSK | RB 1-0 | 27.46 | 23.00 |
| | | | | RB 1-49 | 27.44 | 22.97 |
| | | | | RB 25-12 | 27.76 | 22.10 |
| | | | | RB 50-0 | 28.00 | 22.10 |
| | | | 16QAM | RB 1-0 | 27.64 | 22.00 |
| | | | | RB 1-49 | 27.94 | 21.90 |
| | | | | RB 25-12 | 28.36 | 21.20 |
| | | | | RB 50-0 | **28.57** | 21.09 |

**Output power for LTE Band 25 (15 MHz)**

| Freq (MHz) | UL CH # | Band | Mode | UL RB Allocation | Peak | Average |
|---|---|---|---|---|---|---|
| 1857.5 | 26115.0 | 15.0 | QPSK | RB 1-0 | 27.85 | 22.95 |
| | | | | RB 1-74 | 27.79 | 22.94 |
| | | | | RB 36-18 | 28.15 | 22.14 |
| | | | | RB 75-0 | 28.35 | 22.08 |
| | | | 16QAM | RB 1-0 | 28.12 | 22.00 |
| | | | | RB 1-74 | 27.86 | 21.95 |
| | | | | RB 36-18 | 28.43 | 21.06 |
| | | | | RB 75-0 | 28.57 | 21.00 |
| 1882.5 | 26365.0 | | QPSK | RB 1-0 | 27.88 | 23.00 |
| | | | | RB 1-74 | 27.74 | 22.94 |
| | | | | RB 36-18 | 27.90 | 22.05 |
| | | | | RB 75-0 | 28.42 | 22.00 |
| | | | 16QAM | RB 1-0 | 28.00 | 22.00 |
| | | | | RB 1-74 | 28.05 | 21.90 |
| | | | | RB 36-18 | 28.44 | 21.05 |
| | | | | RB 75-0 | 28.45 | 21.00 |
| 1907.5 | 26615.0 | | QPSK | RB 1-0 | 27.71 | 23.00 |
| | | | | RB 1-74 | 27.66 | 22.95 |
| | | | | RB 36-18 | 27.80 | 22.05 |
| | | | | RB 75-0 | 28.33 | 22.05 |
| | | | 16QAM | RB 1-0 | 27.86 | 22.00 |
| | | | | RB 1-74 | 27.76 | 21.98 |
| | | | | RB 36-18 | 28.14 | 20.95 |
| | | | | RB 75-0 | 28.35 | 21.05 |

**Output power for LTE Band 25 (20 MHz)**

| Freq(MHz) | UL CH # | Band | Mode | UL RB Allocation | Peak(dBm) | Average(dBm) |
|---|---|---|---|---|---|---|
| 1860 | 26140.0 | 20.0 | QPSK | RB 1-0 | 27.60 | 22.96 |
| | | | | RB 1-99 | 27.45 | 22.84 |
| | | | | RB 50-24 | 27.60 | 22.10 |
| | | | | RB 100-0 | 28.00 | 22.15 |
| | | | 16QAM | RB 1-0 | 27.40 | 21.90 |
| | | | | RB 1-99 | 27.20 | 21.90 |
| | | | | RB 50-24 | 28.24 | 20.90 |
| | | | | RB 100-0 | 28.00 | 21.00 |
| 1882.5 | 26365.0 | | QPSK | RB 1-0 | 27.58 | 22.95 |
| | | | | RB 1-99 | 27.50 | 22.78 |
| | | | | RB 50-24 | 27.96 | 21.98 |
| | | | | RB 100-0 | 28.25 | 21.92 |
| | | | 16QAM | RB 1-0 | 27.95 | 22.10 |
| | | | | RB 1-99 | 28.00 | 21.70 |
| | | | | RB 50-24 | 28.01 | 20.93 |
| | | | | RB 100-0 | 28.00 | 20.96 |
| 1905 | 26590.0 | | QPSK | RB 1-0 | 27.72 | 22.99 |
| | | | | RB 1-99 | 27.79 | 22.97 |
| | | | | RB 50-24 | 28.30 | 22.16 |
| | | | | RB 100-0 | **28.43** | 22.22 |
| | | | 16QAM | RB 1-0 | 28.03 | 22.10 |
| | | | | RB 1-99 | 28.02 | 21.94 |
| | | | | RB 50-24 | 28.00 | 20.95 |
| | | | | RB 100-0 | **28.20** | 21.25 |

# 8. CONDUCTED TEST 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**

- GPRS and EGPRS
- UMTS, REL 99 and HSUPA
- CDMA BC10, BC0, BC1
- LTE BAND 5
- LTE BAND 13
- LTE BAND 25

**RESULTS**

| Band | Mode | Channel | f (MHz) | 99% BW (KHz) | -26dB BW (KHz) |
|---|---|---|---|---|---|
| GSM | CELL, GPRS | 128 | 824.20 | 243.7425 | 258.701 |
| | | 190 | 836.60 | 242.1586 | 284.541 |
| | | 251 | 848.80 | 245.0890 | 305.649 |
| | PCS, GPRS | 512 | 1852.4 | 246.4162 | 305.662 |
| | | 661 | 1880.0 | 252.7480 | 310.329 |
| | | 810 | 1909.8 | 246.9725 | 316.740 |

| Band | Mode | Channel | f (MHz) | 99% BW (KHz) | -26dB BW (KHz) |
|---|---|---|---|---|---|
| GSM | CELL, EGPRS | 128 | 824.20 | 248.2280 | 312.279 |
| | | 190 | 836.60 | 247.2882 | 297.477 |
| | | 251 | 848.80 | 243.3911 | 296.712 |
| | PCS, EGPRS | 512 | 1852.4 | 245.4781 | 312.167 |
| | | 661 | 1880.0 | 244.3561 | 271.675 |
| | | 810 | 1909.8 | 246.3571 | 258.580 |

| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---|---|---|---|---|---|
| UMTS | CELL, REL 99 | 4357 | 826.4 | 4.2158 | 4.519 |
| | | 4405 | 836.0 | 4.1997 | 4.621 |
| | | 4455 | 846.0 | 4.1875 | 4.570 |
| | PCS, HSUPA | 4357 | 826.4 | 4.2033 | 4.655 |
| | | 4405 | 836.0 | 4.2045 | 4.596 |
| | | 4455 | 846.0 | 4.1885 | 4.536 |

| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---|---|---|---|---|---|
| UMTS | CELL, REL 99 | 9662 | 1852.4 | 4.2308 | 4.603 |
| | | 9800 | 1880.0 | 4.2317 | 4.661 |
| | | 9938 | 1907.6 | 4.2136 | 4.644 |
| | PCS, HSUPA | 9662 | 1852.4 | 4.1731 | 4.562 |
| | | 9800 | 1880.0 | 4.1949 | 4.618 |
| | | 9938 | 1907.6 | 4.1808 | 4.565 |

| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW ( MHz) |
|---|---|---|---|---|---|
| BC10 | 1xRTT | 476 | 817.9 | 1.2707 | 1.406 |
| | | 526 | 819.15 | 1.2720 | 1.376 |
| | | 684 | 823.1 | 1.2720 | 1.379 |
| | EVDO | 476 | 817.9 | 1.2760 | 1.416 |
| | | 526 | 819.15 | 1.2746 | 1.392 |
| | | 684 | 823.1 | 1.2704 | 1.403 |

| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW ( MHz) |
|---|---|---|---|---|---|
| CDMA | CELL, 1xRTT | 1013 | 824.70 | 1.2664 | 1.420 |
| | | 384 | 836.52 | 1.2623 | 1.403 |
| | | 777 | 848.31 | 1.2624 | 1.411 |
| | PCS, 1xRTT | 25 | 1851.25 | 1.2699 | 1.410 |
| | | 600 | 1880.00 | 1.2644 | 1.406 |
| | | 1175 | 1908.25 | 1.2690 | 1.410 |

| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW ( MHz) |
|---|---|---|---|---|---|
| CDMA | CELL EV-DO A | 1013 | 824.70 | 1.2628 | 1.407 |
| | | 384 | 836.52 | 1.2666 | 1.352 |
| | | 777 | 848.31 | 1.2637 | 1.392 |
| | PCS EV-DO A | 25 | 1851.25 | 1.2733 | 1.391 |
| | | 600 | 1880.00 | 1.2678 | 1.391 |
| | | 1175 | 1908.25 | 1.2726 | 1.390 |

| Band | Mode | Channel | f (MHz) | 99% BW (MHz) | -26dB BW ( MHz) |
|---|---|---|---|---|---|
| EVDO, REV B | Two Carriers Min Sep | 1013+31 | 824.70+825.93 | 2.4832 | 2.610 |
| | | 384+425 | 836.52+837.75 | 2.5022 | 2.642 |
| | | 736+777 | 847.08+848.31 | 2.4728 | 2.741 |
| | Two Carriers Max. Sep | 1013+156 | 824.70+829.68 | 6.2988 | 6.617 |
| | | 384+550 | 836.52+841.50 | 6.3335 | 6.660 |
| | | 611+777 | 843.33+848.31 | 6.3478 | 6.576 |
| | Three Carriers Min. Sep | 1013+31+72 | 824.70+825.93+827.16 | 3.7219 | 4.908 |
| | | 384+425+466 | 836.52+837.75+838.98 | 3.7322 | 4.513 |
| | | 695+736+777 | 845.85+847.08+848.31 | 3.7304 | 4.221 |

| Band | Mode | RB/RB SIZE | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---|---|---|---|---|---|
| LTE BAND 5 | 1.4 MHz BAND QPSK | 3/2 | 824.7 | 0.5730456 | 0.773659 |
| | | 6/0 | | 1.0881 | 1.224 |
| | 1.4 MHz BAND QPSK | 3/2 | 836.5 | 0.5658735 | 0.826743 |
| | | 6/0 | | 1.0764 | 1.212 |
| | 1.4 MHz BAND QPSK | 3/2 | 848.3 | 0.5572539 | 0.776485 |
| | | 6/0 | | 1.0871 | 1.214 |
| | 1.4 MHz BAND 16QAM | 3/2 | 824.7 | 0.5608913 | 0.689262 |
| | | 6/0 | | 1.0845 | 1.223 |
| | 1.4 MHz BAND 16QAM | 3/2 | 836.5 | 0.5781615 | 0.753106 |
| | | 6/0 | | 1.0927 | 1.232 |
| | 1.4 MHz BAND 16QAM | 3/2 | 848.3 | 0.5593954 | 0.847808 |
| | | 6/0 | | 1.0956 | 1.290 |
| | 3.0 MHz BAND QPSK | 8/4 | 825.5 | 1.4394 | 1.731 |
| | | 15/0 | | 2.6614 | 2.791 |
| | 3.0 MHz BAND QPSK | 8/4 | 836.5 | 1.4353 | 1.729 |
| | | 15/0 | | 2.6808 | 2.877 |
| | 3.0 MHz BAND QPSK | 8/4 | 847.5 | 1.4262 | 1.598 |
| | | 15/0 | | 2.6829 | 2.866 |
| | 3.0 MHz BAND 16QAM | 8/4 | 825.5 | 1.4337 | 1.805 |
| | | 15/0 | | 2.6652 | 2.885 |
| | 3.0 MHz BAND 16QAM | 8/4 | 836.5 | 1.4397 | 1.708 |
| | | 15/0 | | 2.6836 | 2.898 |
| | 3.0 MHz BAND 16QAM | 8/4 | 847.5 | 1.4399 | 1.747 |
| | | 15/0 | | 2.6847 | 2.885 |
| | 5.0 MHz BAND QPSK | 12/6 | 826.5 | 2.1708 | 2.863 |
| | | 25/0 | | 4.4712 | 4.665 |
| | 5.0 MHz BAND QPSK | 12/6 | 836.5 | 2.1463 | 2.383 |
| | | 25/0 | | 4.4947 | 4.794 |
| | 5.0 MHz BAND QPSK | 12/6 | 846.5 | 2.1708 | 2.877 |
| | | 25/0 | | 4.4570 | 4.663 |
| | 5.0 MHz BAND 16QAM | 12/6 | 826.5 | 2.1522 | 2.387 |
| | | 25/0 | | 4.4749 | 4.687 |
| | 5.0 MHz BAND 16QAM | 12/6 | 836.5 | 2.1724 | 2.418 |
| | | 25/0 | | 4.4682 | 5.019 |
| | 5.0 MHz BAND 16QAM | 12/6 | 846.5 | 2.1274 | 2.628 |
| | | 25/0 | | 4.3520 | 4.771 |
| | 10.0 MHz AND QPSK | 25/12 | 829 | 4.4499 | 5.257 |
| | | 50/0 | | 8.8622 | 9.402 |
| | 10.0 MHz AND QPSK | 25/12 | 836.5 | 4.4651 | 5.261 |
| | | 50/0 | | 8.9257 | 9.372 |
| | 10.0 MHz AND QPSK | 25/12 | 844 | 4.5066 | 4.791 |
| | | 50/0 | | 8.954 | 9.382 |
| | 10.0 MHz AND 16QAM | 25/12 | 829 | 4.4734 | 5.257 |
| | | 50/0 | | 8.8847 | 9.264 |
| | 10.0 MHz AND 16QAM | 25/12 | 836.5 | 4.4810 | 4.899 |
| | | 50/0 | | 8.8552 | 9.348 |
| | 10.0 MHz AND 16QAM | 25/12 | 844 | 4.5102 | 5.509 |
| | | 50/0 | | 9.0078 | 9.532 |

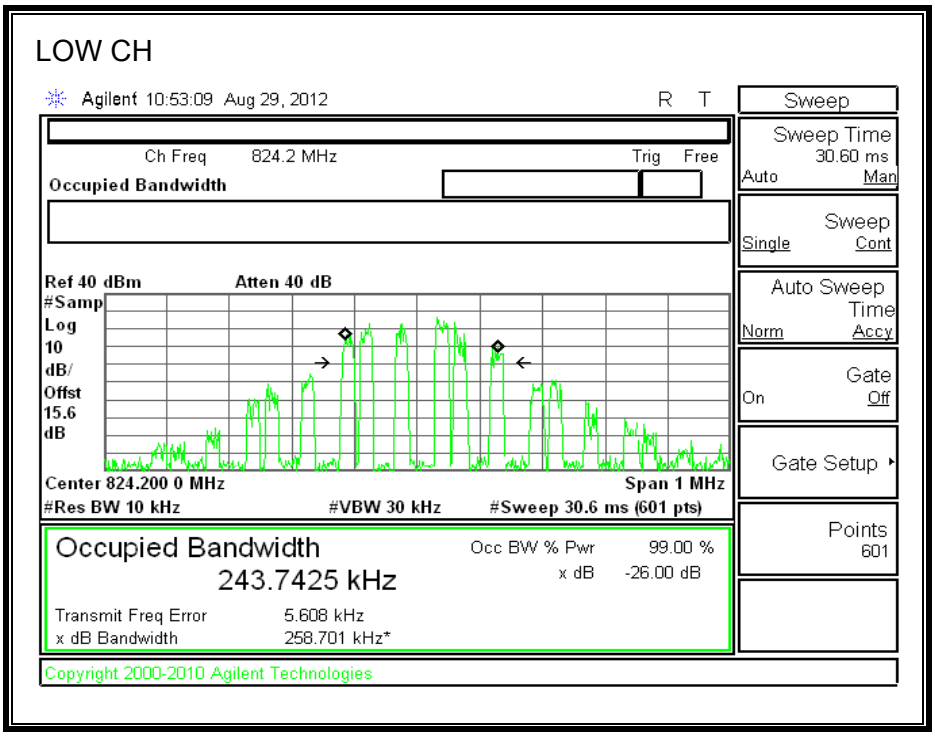
| Band | Mode | RB/RB SIZE | f (MHz) | 99% BW (kHz) | -26dB BW (kHz) |
|---|---|---|---|---|---|
| LTE BAND 13 | 5 MHz BAND QPSK | 12/6 | 779.5 | 2.1587 | 2.389 |
| | | 25/0 | | 4.4553 | 4.768 |
| | 5 MHz BAND QPSK | 12/6 | 782.0 | 2.1425 | 2.652 |
| | | 25/0 | | 4.4236 | 4.822 |
| | 5 MHz BAND QPSK | 12/6 | 784.5 | 2.1408 | 2.647 |
| | | 25/0 | | 4.4482 | 4.710 |
| | 5 MHz BAND 16QAM | 12/6 | 779.5 | 2.1320 | 2.540 |
| | | 25/0 | | 4.4269 | 4.774 |
| | 5 MHz BAND 16QAM | 12/6 | 782.0 | 2.1608 | 2.633 |
| | | 25/0 | | 4.5026 | 4.788 |
| | 5 MHz BAND 16QAM | 12/6 | 784.5 | 2.1780 | 2.521 |
| | | 25/0 | | 4.4305 | 4.777 |
| | 10 MHz BAND QPSK | 25/12 | 782.0 | 4.4576 | 4.689 |
| | | 50/0 | | 8.7926 | 9.306 |
| | 10 MHz BAND 16QAM | 25/12 | | 4.5055 | 5.018 |
| | | 50/0 | | 8.8928 | 9.341 |

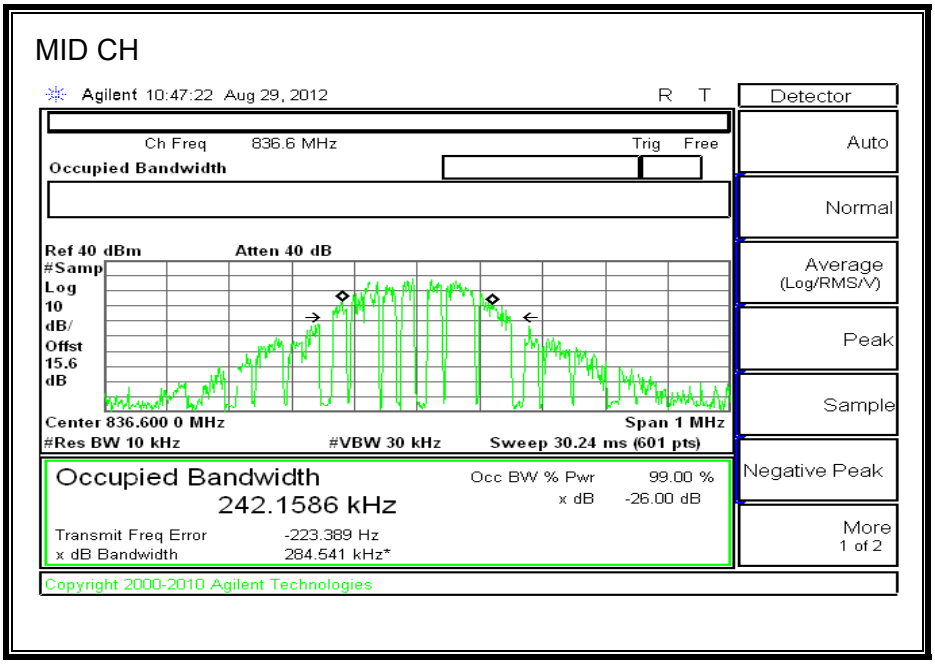
| Band | Mode | RB/RB SIZE | f (MHz) | 99% BW (MHz) | -26dB BW (MHz) |
|---|---|---|---|---|---|
| LTE BAND 25 | 1.4 MHz BAND QPSK | 3/2 | 1850.7 | 0.5562114 | 0.712099 |
| | | 6/0 | | 1.0932 | 1.198 |
| | 1.4 MHz BAND QPSK | 3/2 | 1882.5 | 0.5493071 | 0.828764 |
| | | 6/0 | | 1.0929 | 1.267 |
| | 1.4 MHz BAND QPSK | 3/2 | 1914.3 | 0.5601366 | 0.838465 |
| | | 6/0 | | 1.0706 | 1.195 |
| | 1.4 MHz BAND 16QAM | 3/2 | 1850.7 | 0.5621941 | 0.836307 |
| | | 6/0 | | 1.0875 | 1.225 |
| | 1.4 MHz BAND 16QAM | 3/2 | 1882.5 | 0.5582474 | 0.901359 |
| | | 6/0 | | 1.0983 | 1.206 |
| | 1.4 MHz BAND 16QAM | 3/2 | 1914.3 | 0.5406957 | 0.782422 |
| | | 6/0 | | 1.0861 | 1.169 |
| | 3.0 MHz BAND QPSK | 8/4 | 1851.5 | 1.4506 | 1.931 |
| | | 15/0 | | 2.6763 | 2.879 |
| | 3.0 MHz BAND QPSK | 8/4 | 1882.5 | 1.4403 | 1.590 |
| | | 15/0 | | 2.6918 | 2.804 |
| | 3.0 MHz BAND QPSK | 8/4 | 1913.5 | 1.4333 | 1.814 |
| | | 15/0 | | 2.6638 | 2.896 |
| | 3.0 MHz BAND 16QAM | 8/4 | 1851.5 | 1.4375 | 1.879 |
| | | 15/0 | | 2.6980 | 2.796 |
| | 3.0 MHz BAND 16QAM | 8/4 | 1882.5 | 1.441 | 1.812 |
| | | 15/0 | | 2.6734 | 2.852 |
| | 3.0 MHz BAND 16QAM | 8/4 | 1913.5 | 1.4390 | 1.868 |
| | | 15/0 | | 2.6658 | 2.860 |
| | 5.0 MHz BAND QPSK | 12/6 | 1852.5 | 2.1505 | 2.537 |
| | | 25/0 | | 4.5168 | 4.658 |
| | 5.0 MHz BAND QPSK | 12/6 | 1882.5 | 2.1286 | 2.486 |
| | | 25/0 | | 4.4824 | 4.781 |
| | 5.0 MHz BAND QPSK | 12/6 | 1912.5 | 2.1544 | 2.491 |
| | | 25/0 | | 4.4465 | 4.849 |
| | 5.0 MHz BAND 16QAM | 12/6 | 1852.5 | 2.1815 | 2.772 |
| | | 25/0 | | 4.4431 | 4.654 |
| | 5.0 MHz BAND 16QAM | 12/6 | 1882.5 | 2.1528 | 2.404 |
| | | 25/0 | | 4.4873 | 4.828 |
| | 5.0 MHz BAND 16QAM | 12/6 | 1912.5 | 2.1450 | 2.664 |
| | | 25/0 | | 4.4708 | 4.683 |

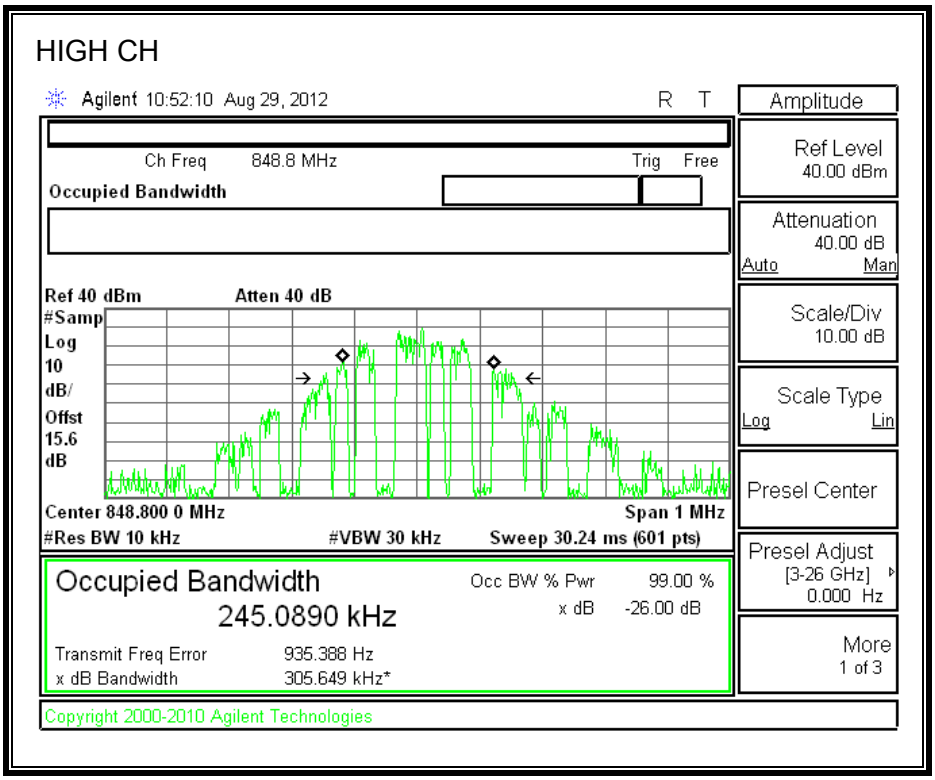
| Band | Mode | RB/RB SIZE | f (MHz) | 99% BW (kHz) | -26dB BW (kHz) |
|---|---|---|---|---|---|
| LTE BAND 25 | 10 MHz BAND QPSK | 25/12 | 1855 | 4.4538 | 5.269 |
| | | 50/0 | | 8.8146 | 9.517 |
| | 10 MHz BAND QPSK | 25/12 | 1882.5 | 4.4713 | 4.777 |
| | | 50/0 | | 9.0679 | 9.377 |
| | 10 MHz BAND QPSK | 25/12 | 1910 | 4.4416 | 4.673 |
| | | 50/0 | | 8.9162 | 9.556 |
| | 10 MHz BAND 16QAM | 25/12 | 1855 | 4.4841 | 4.982 |
| | | 50/0 | | 8.9156 | 9.323 |
| | 10 MHz BAND 16QAM | 25/12 | 1882.5 | 4.4907 | 5.229 |
| | | 50/0 | | 8.9353 | 9.379 |
| | 10 MHz BAND 16QAM | 25/12 | 1910 | 4.4691 | 4.816 |
| | | 50/0 | | 8.9453 | 9.391 |
| | 15 MHz BAND QPSK | 36/18 | 1857.5 | 6.3904 | 7.280 |
| | | 75/0 | | 13.3904 | 13.950 |
| | 15 MHz BAND QPSK | 36/18 | 1882.5 | 6.4817 | 6.773 |
| | | 75/0 | | 13.2650 | 13.951 |
| | 15 MHz BAND QPSK | 36/18 | 1907.5 | 6.4746 | 6.747 |
| | | 75/0 | | 13.4644 | 13.997 |
| | 15 MHz BAND 16QAM | 36/18 | 1857.5 | 6.4719 | 6.934 |
| | | 75/0 | | 13.3341 | 14.422 |
| | 15 MHz BAND 16QAM | 36/18 | 1882.5 | 6.4545 | 6.747 |
| | | 75/0 | | 13.3609 | 14.402 |
| | 15 MHz BAND 16QAM | 36/18 | 1907.5 | 6.5069 | 7.161 |
| | | 75/0 | | 13.3503 | 14.046 |
| | 20 MHz BAND QPSK | 50/24 | 1860 | 8.9331 | 9.474 |
| | | 100/0 | | 17.8494 | 18.888 |
| | 20 MHz BAND QPSK | 50/24 | 1882.5 | 8.9828 | 9.532 |
| | | 100/0 | | 17.7245 | 18.767 |
| | 20 MHz BAND QPSK | 50/24 | 1905 | 8.9051 | 9.566 |
| | | 100/0 | | 17.7229 | 18.743 |
| | 20 MHz BAND 16QAM | 50/24 | 1860 | 9.0498 | 9.436 |
| | | 100/0 | | 17.8922 | 18.796 |
| | 20 MHz BAND 16QAM | 50/24 | 1882.5 | 8.9612 | 9.520 |
| | | 100/0 | | 17.7704 | 18.753 |
| | 20 MHz BAND 16QAM | 50/24 | 1905 | 9.0121 | 9.470 |
| | | 100/0 | | 17.9377 | 18.852 |

### 8.1.1. GSM

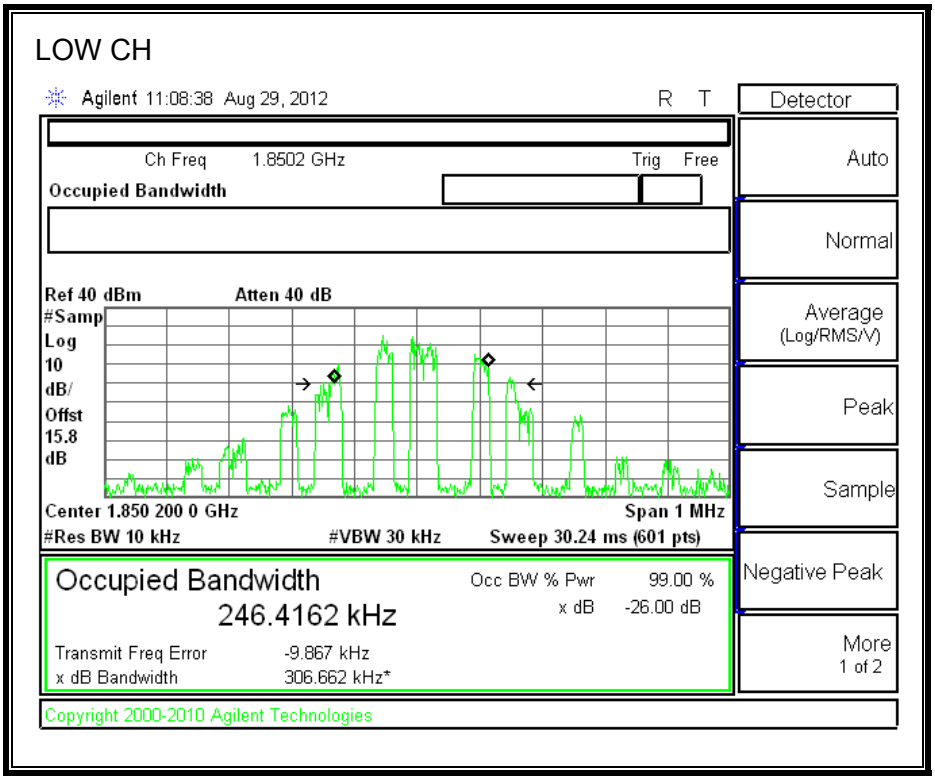
**GPRS Mode (Cellular Band)**

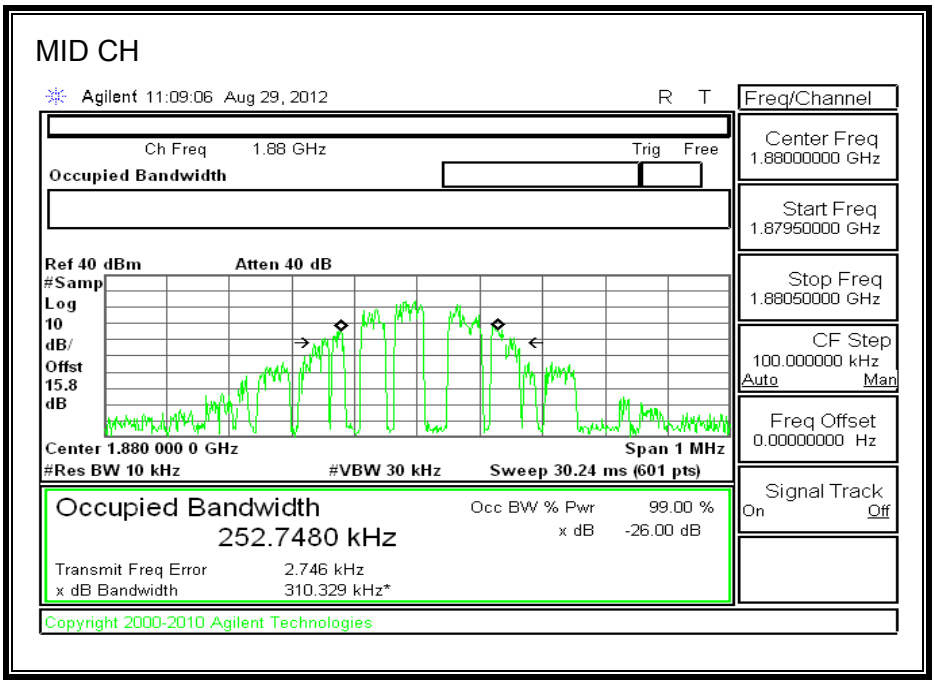


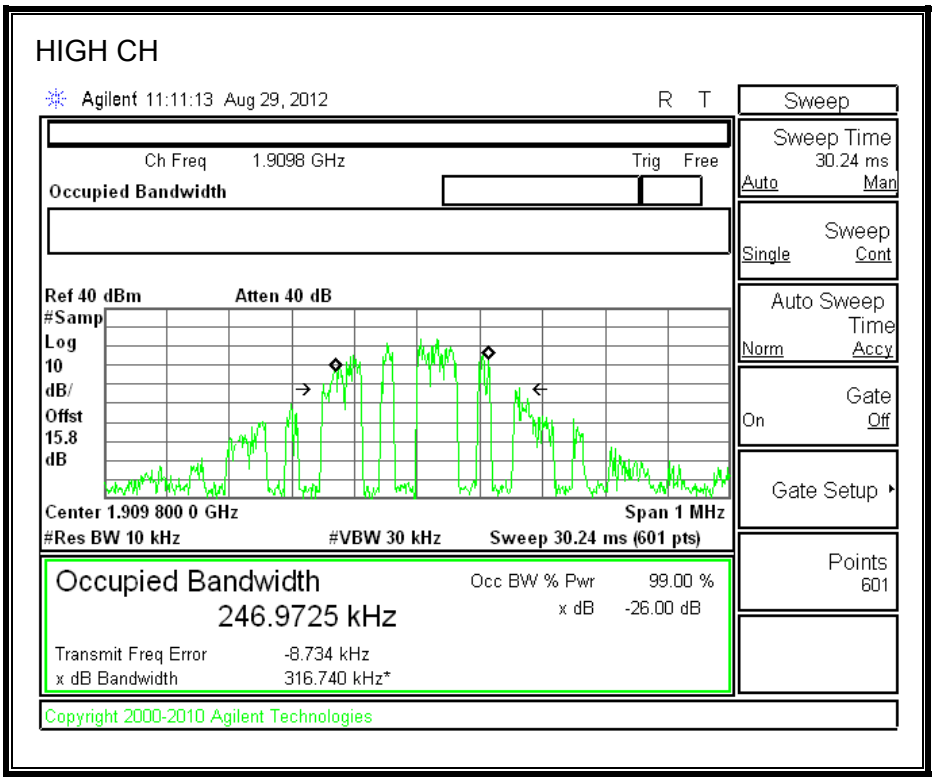





**GPRS 1900 Mode (PCS Band)**

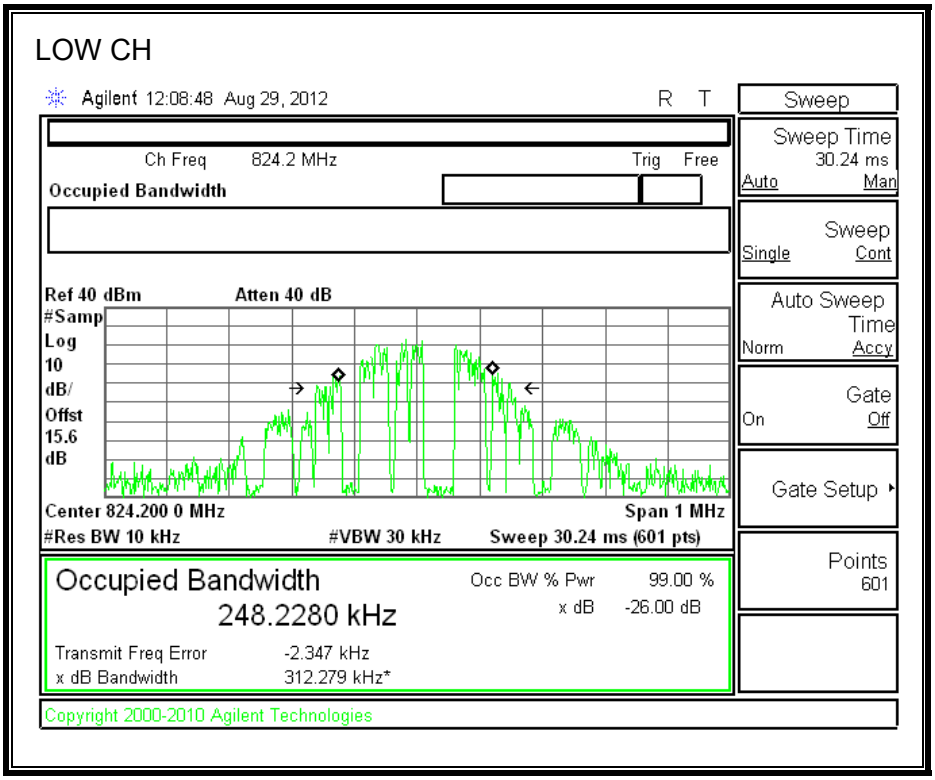


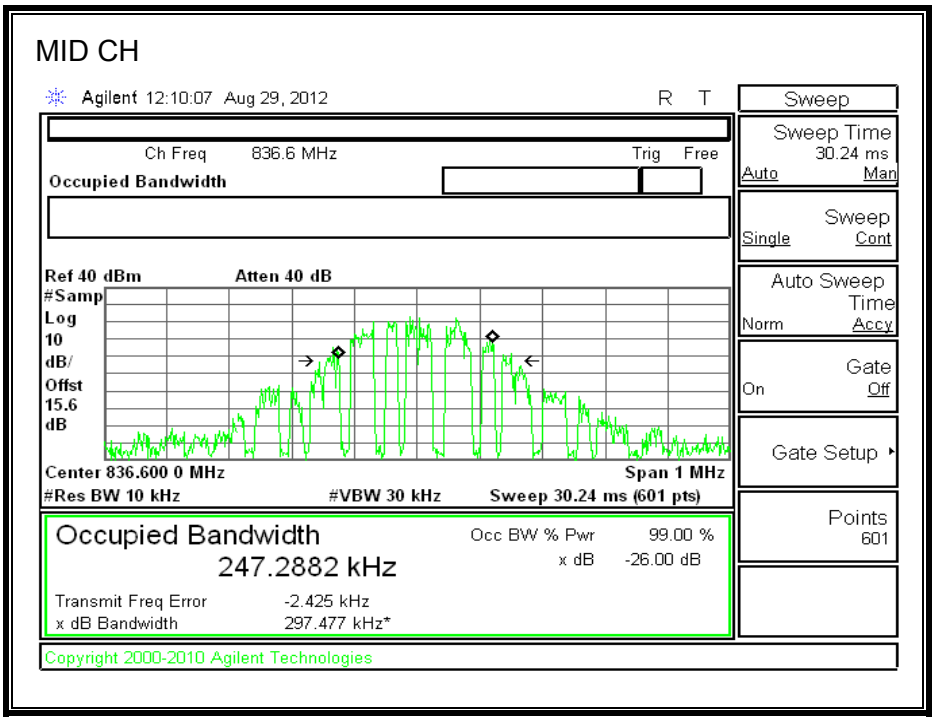


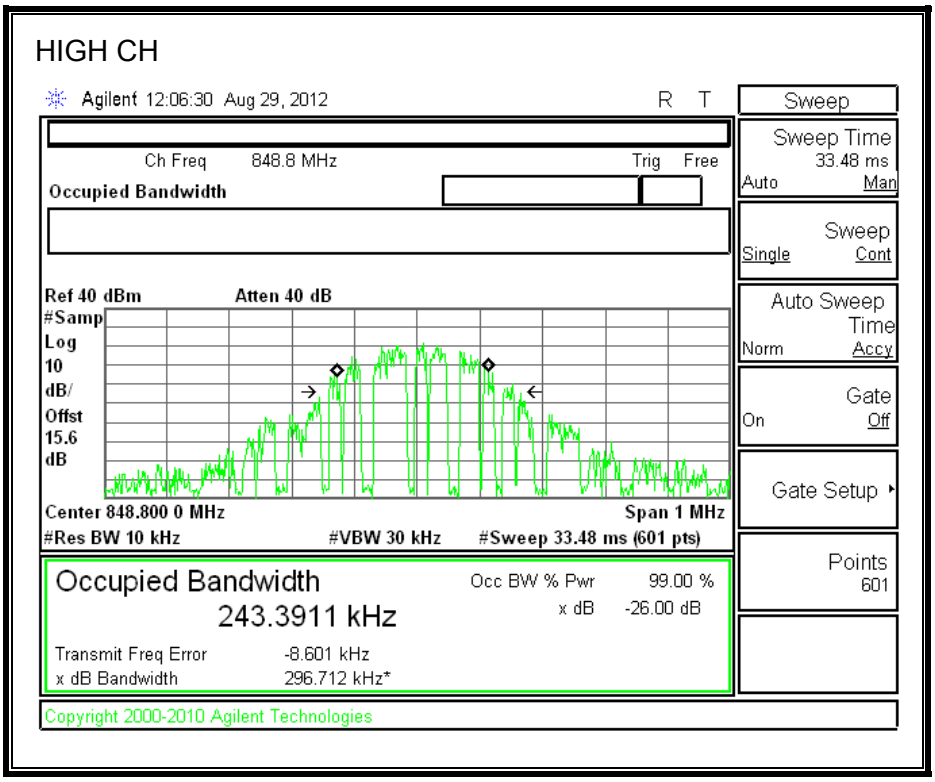
**EGPRS Cellular Band**

LOW CH

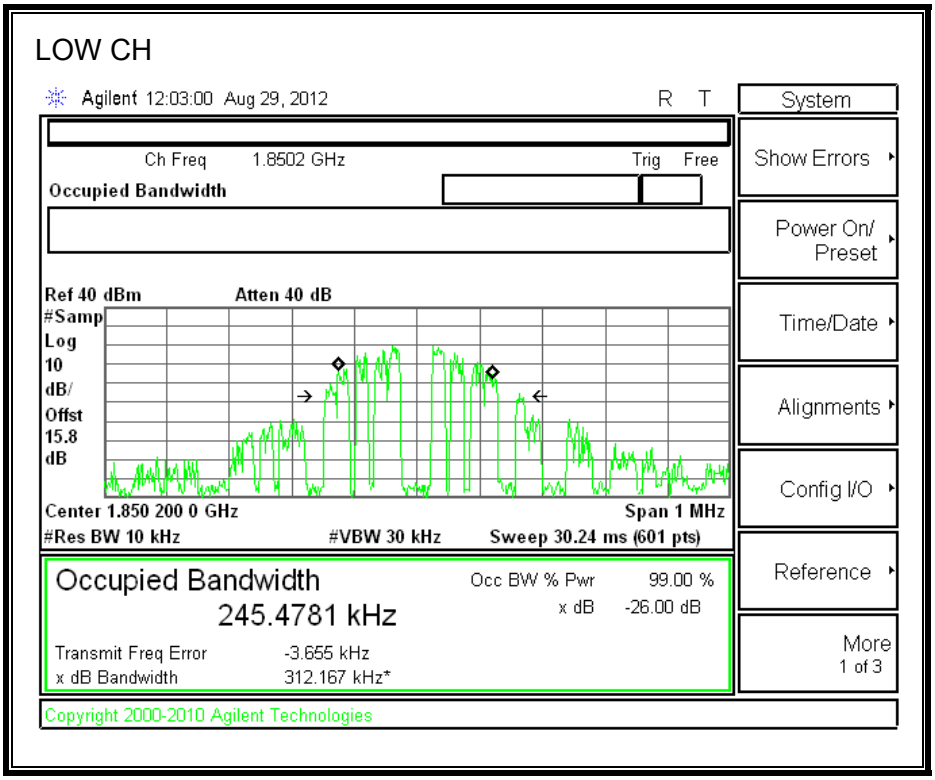


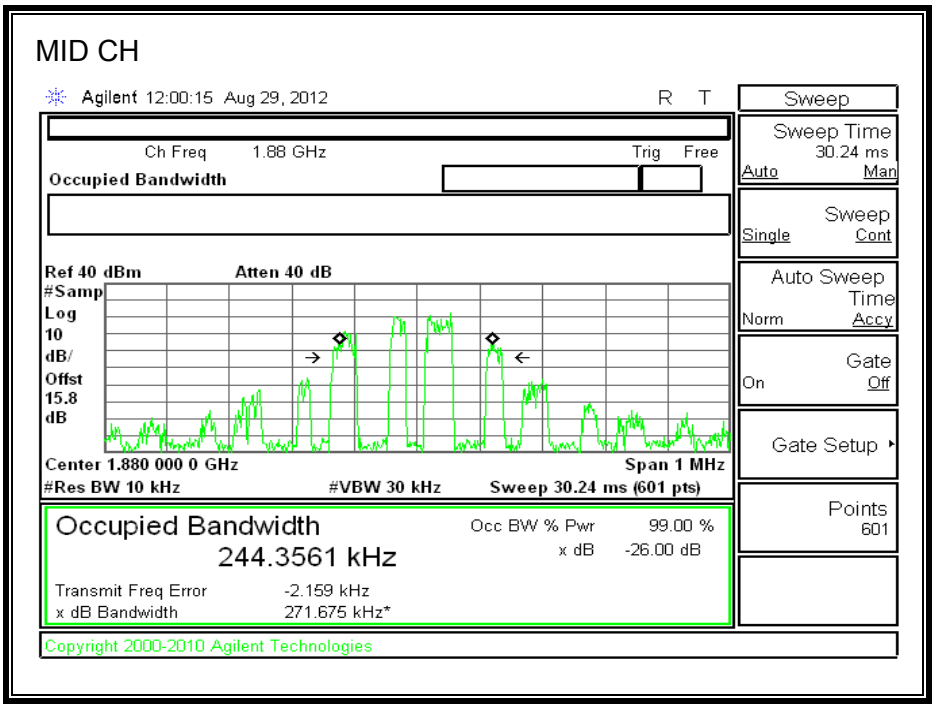

MID CH

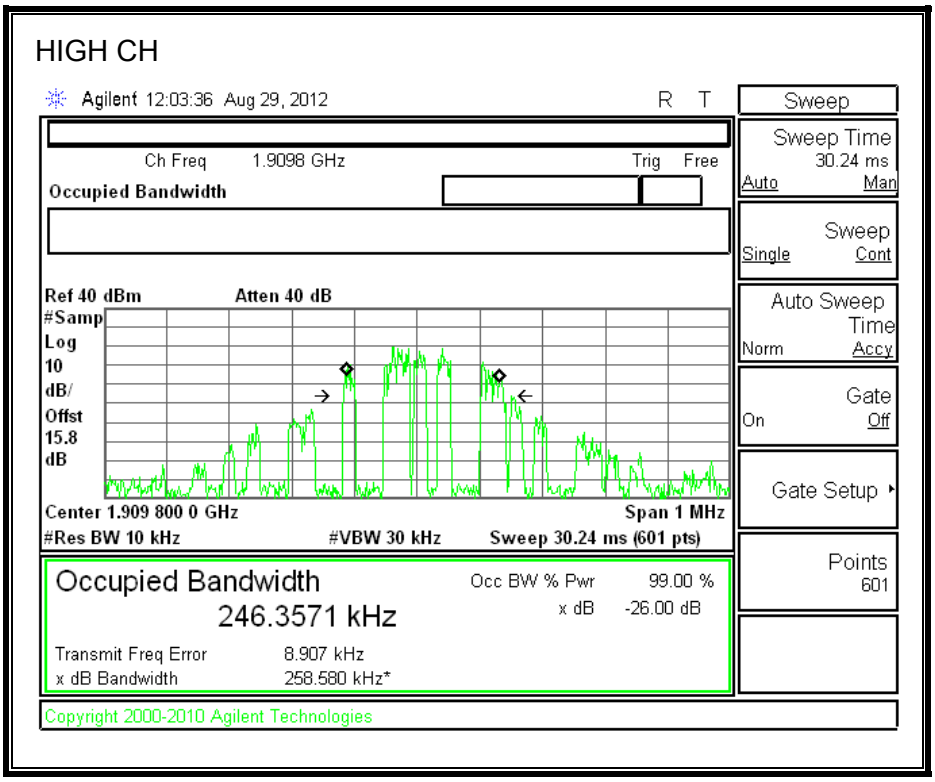




**EGPRS 1900 Mode (PCS Band)**



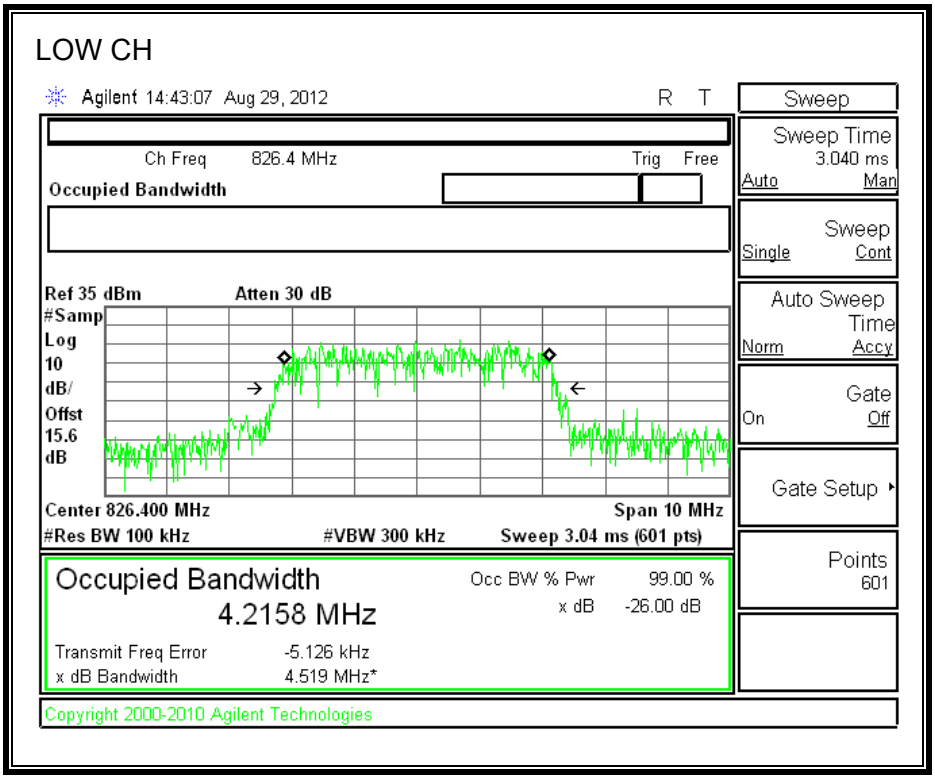





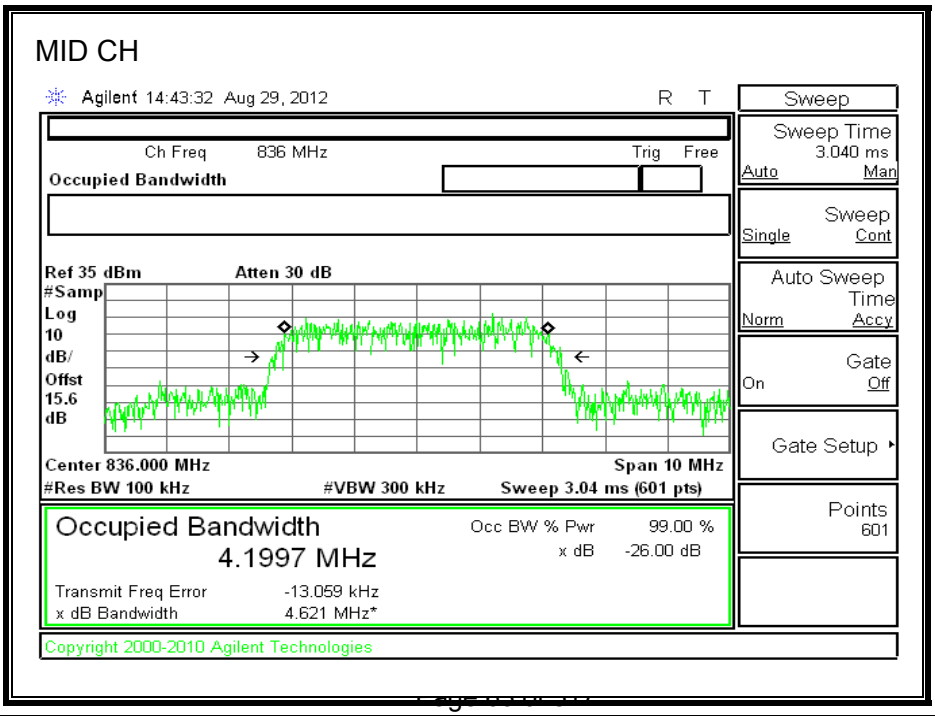
### 8.1.2. WCDMA

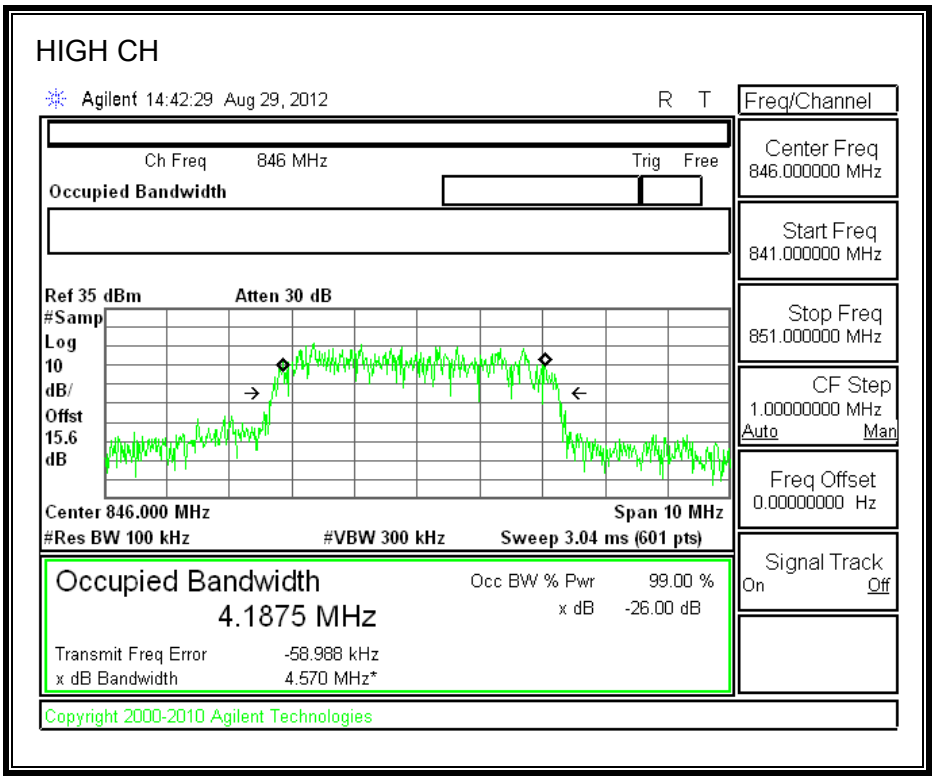
**Rel 99 (Cellular Band)**

LOW CH



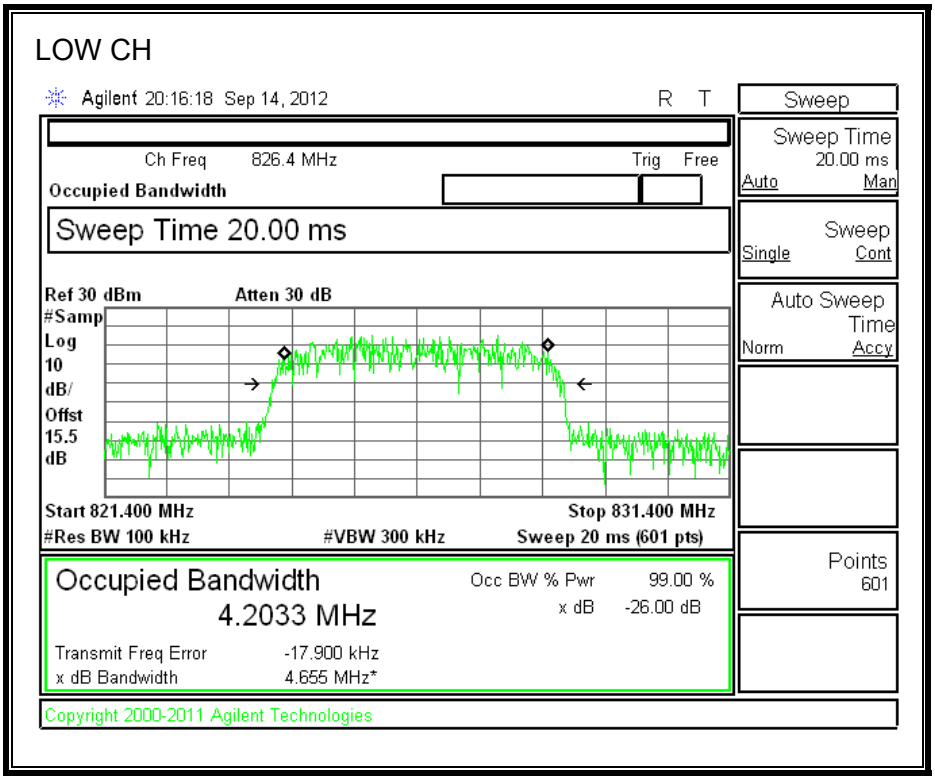

MID CH



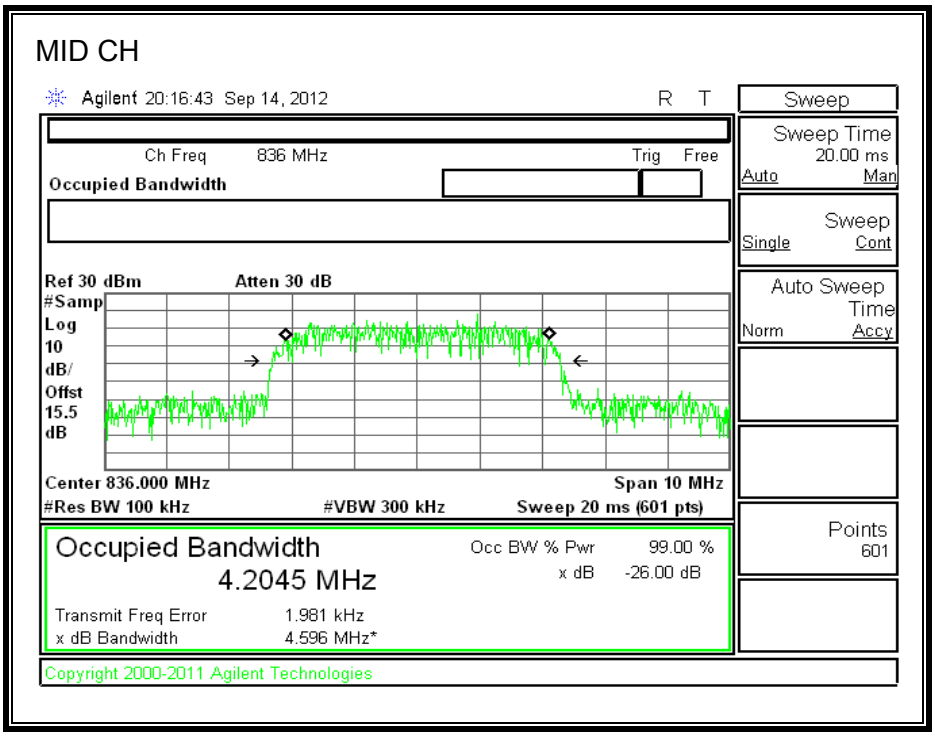


**WCDMA HSUPA (Cellular Band)**

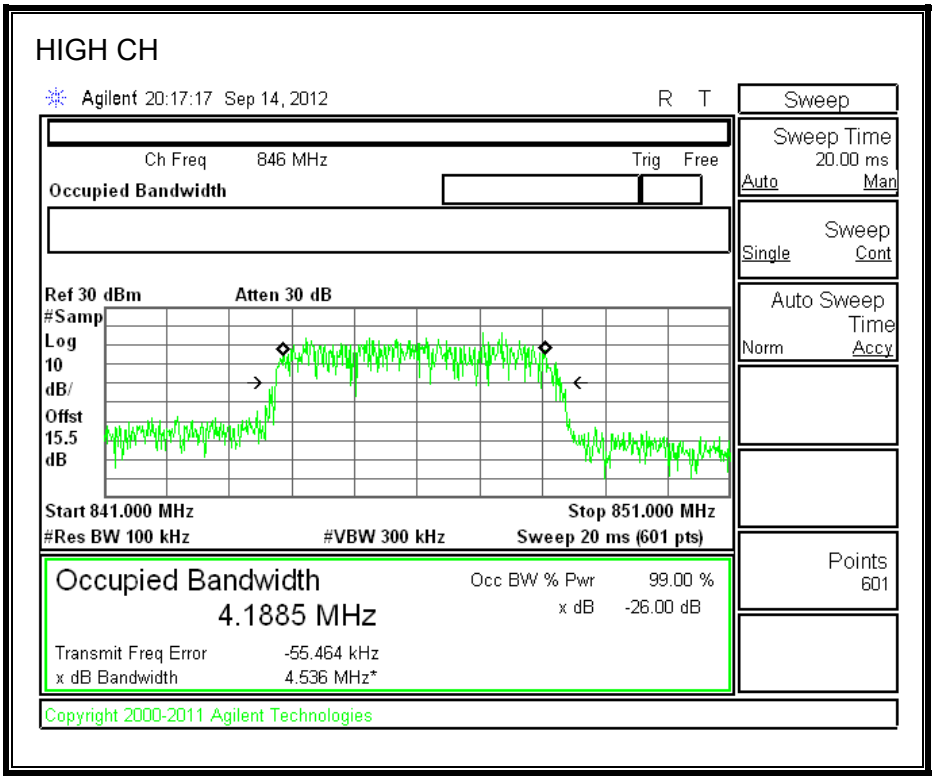
LOW CH




MID CH

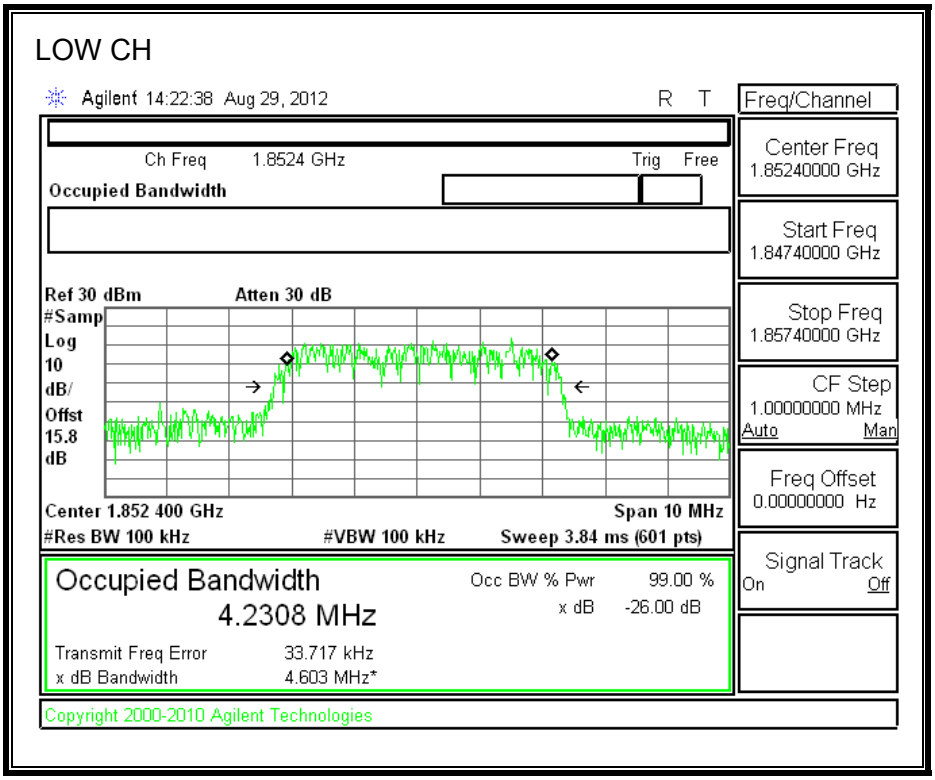


HIGH CH

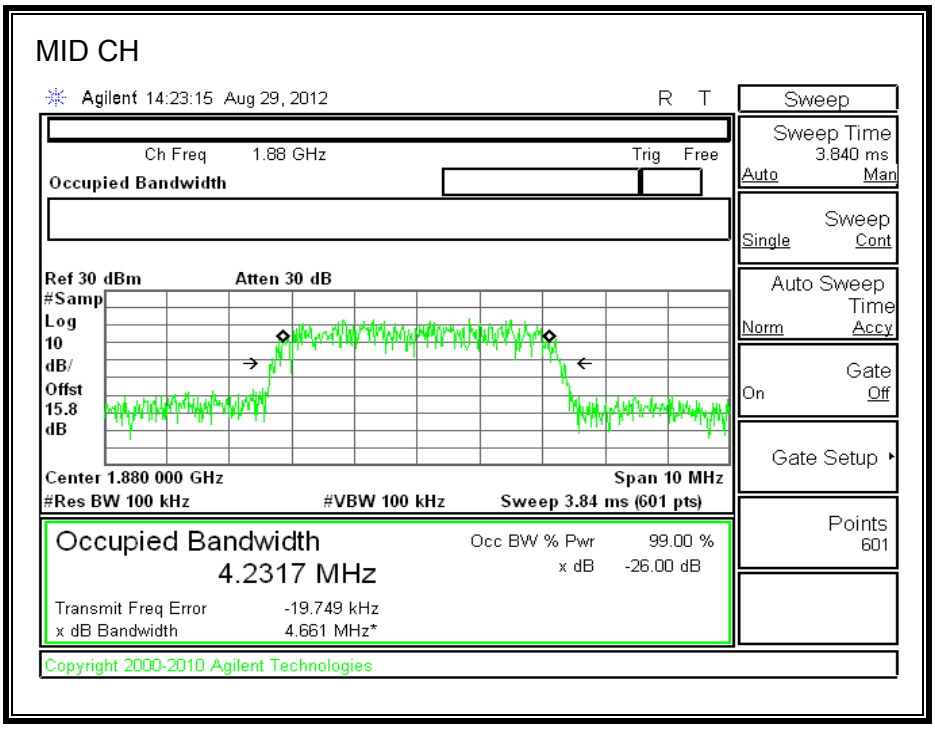


**WCDMA REL 99 Mode (PCS Band)**

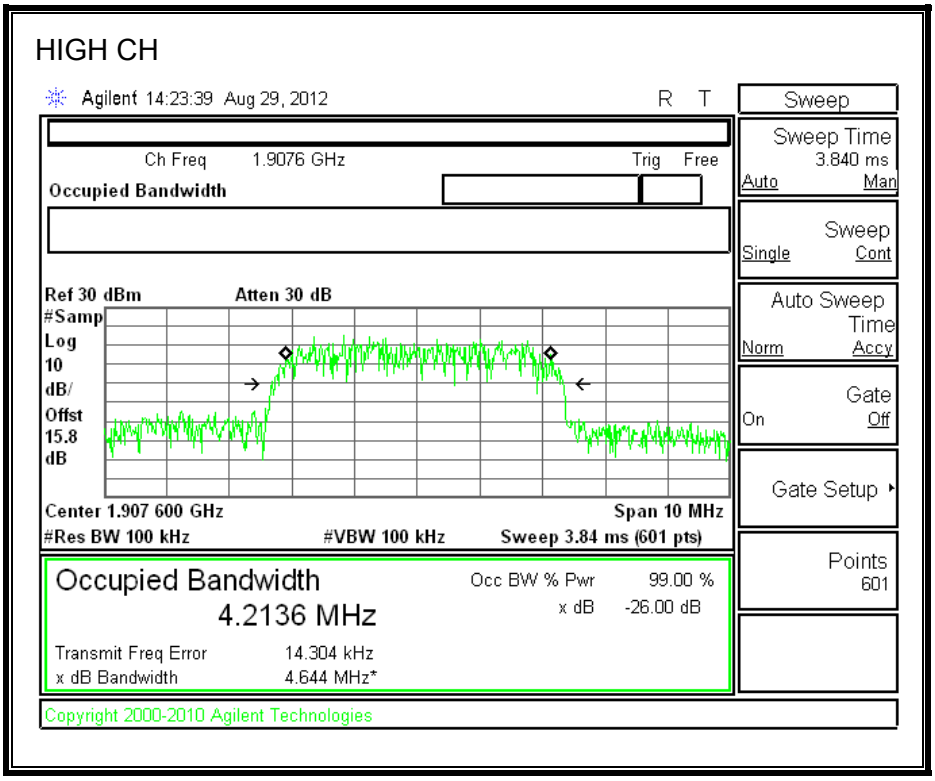
LOW CH



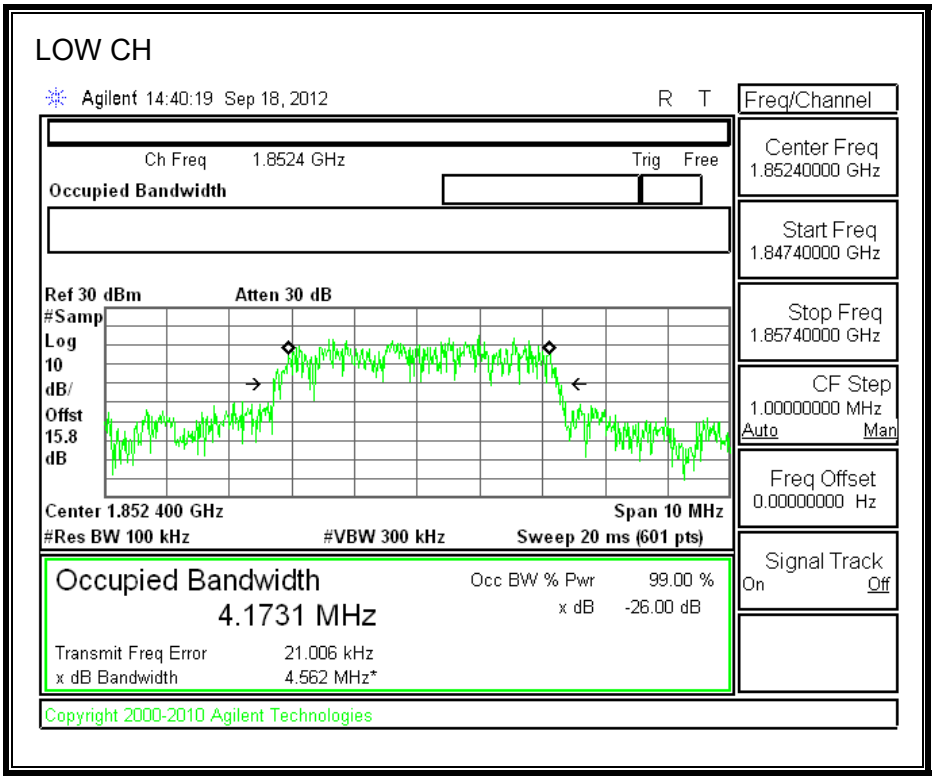

MID CH

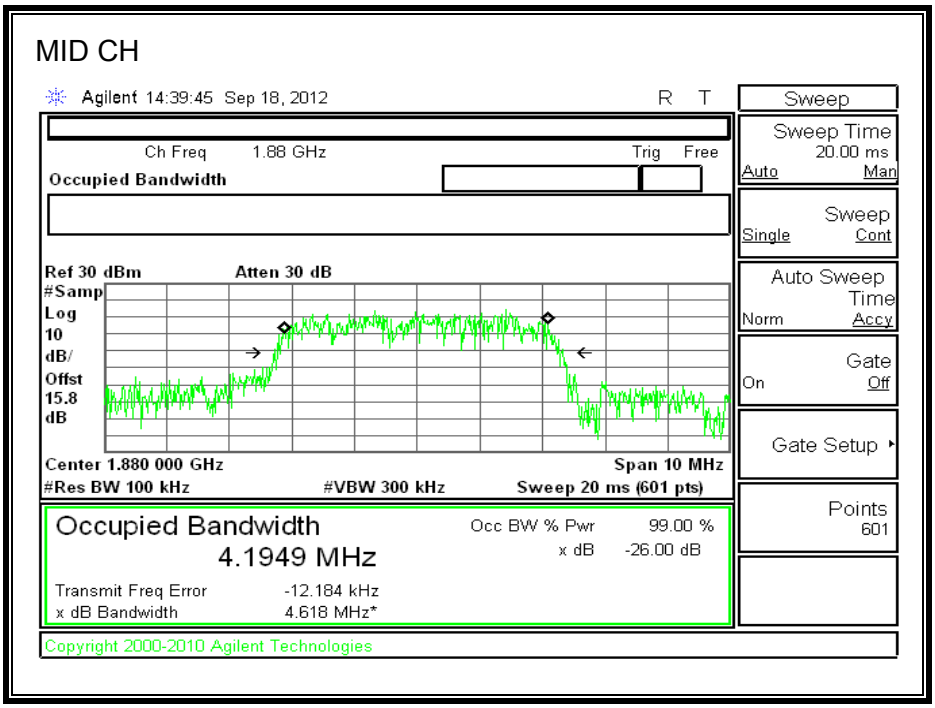


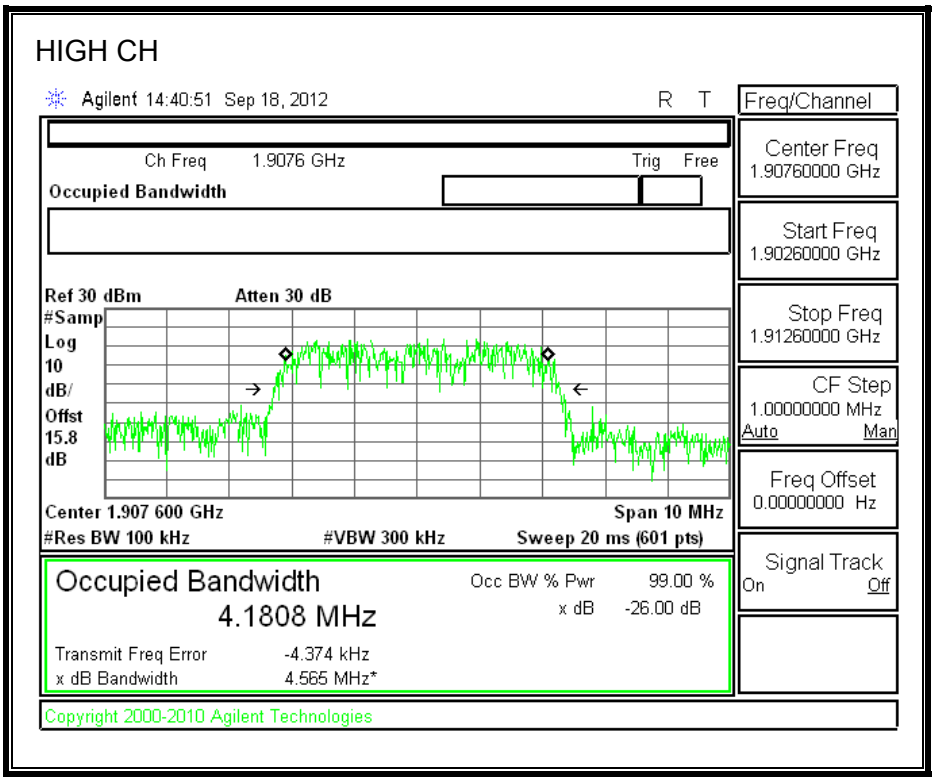
HIGH CH



**WCDMA HSUPA Mode (PCS Band)**



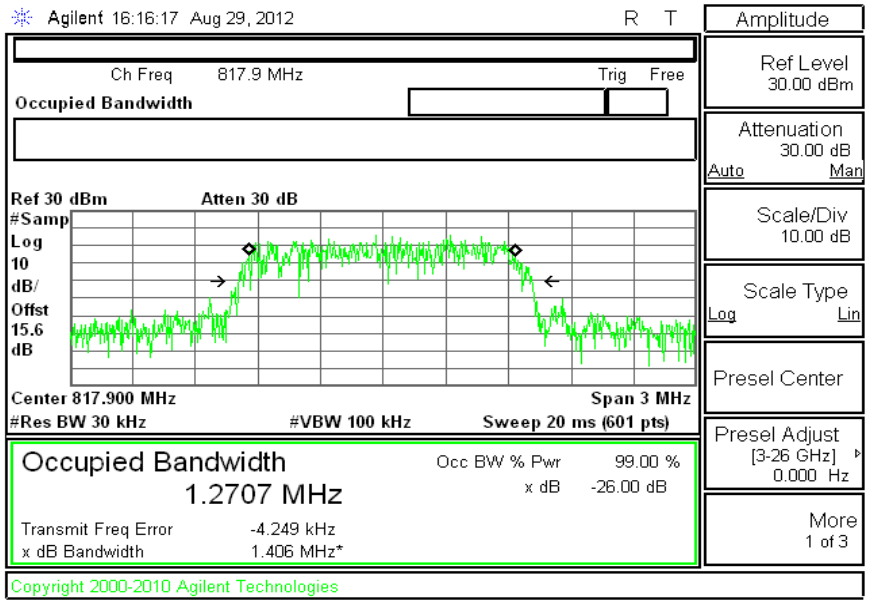





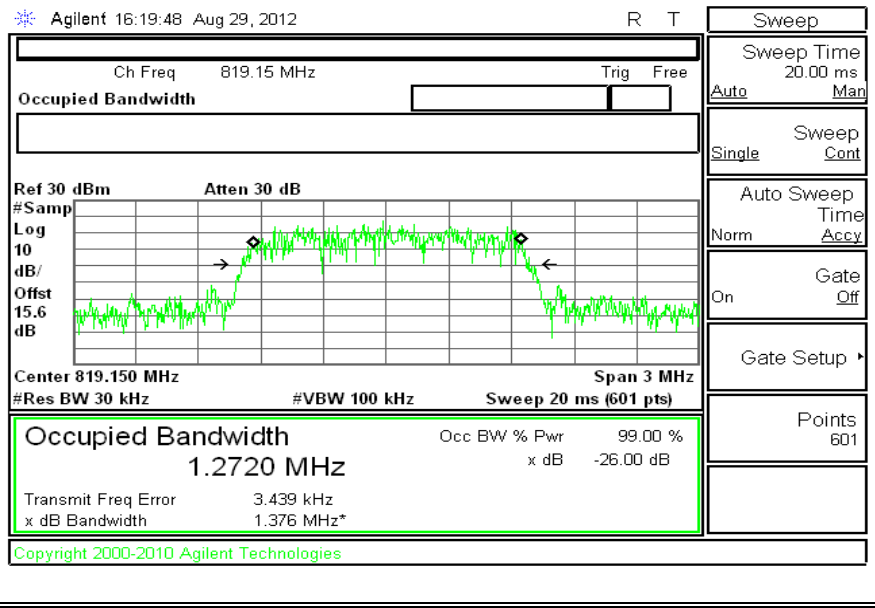
### 8.1.3. CDMA, BC10

**1xRTT**

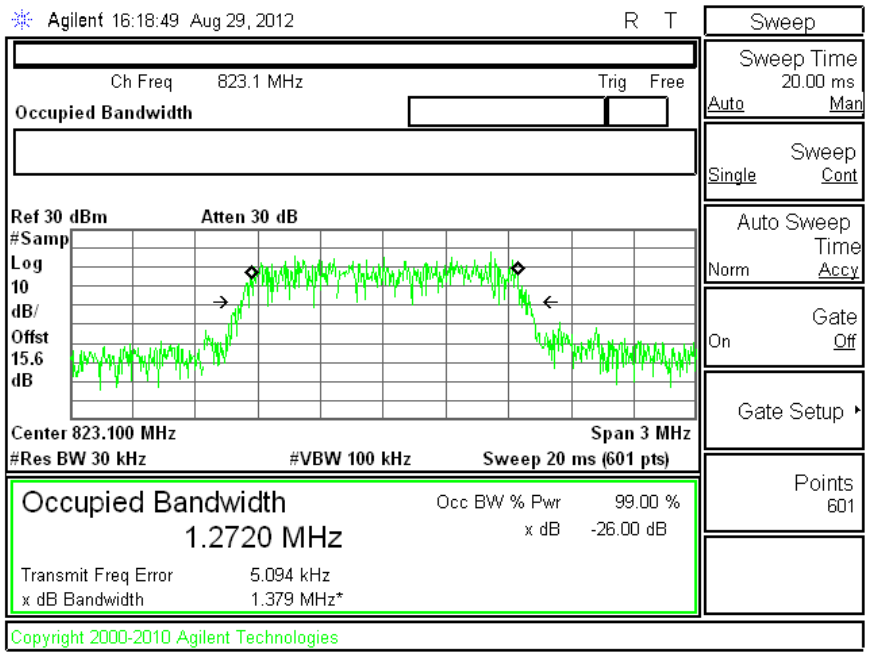
LOW CH




MID CH

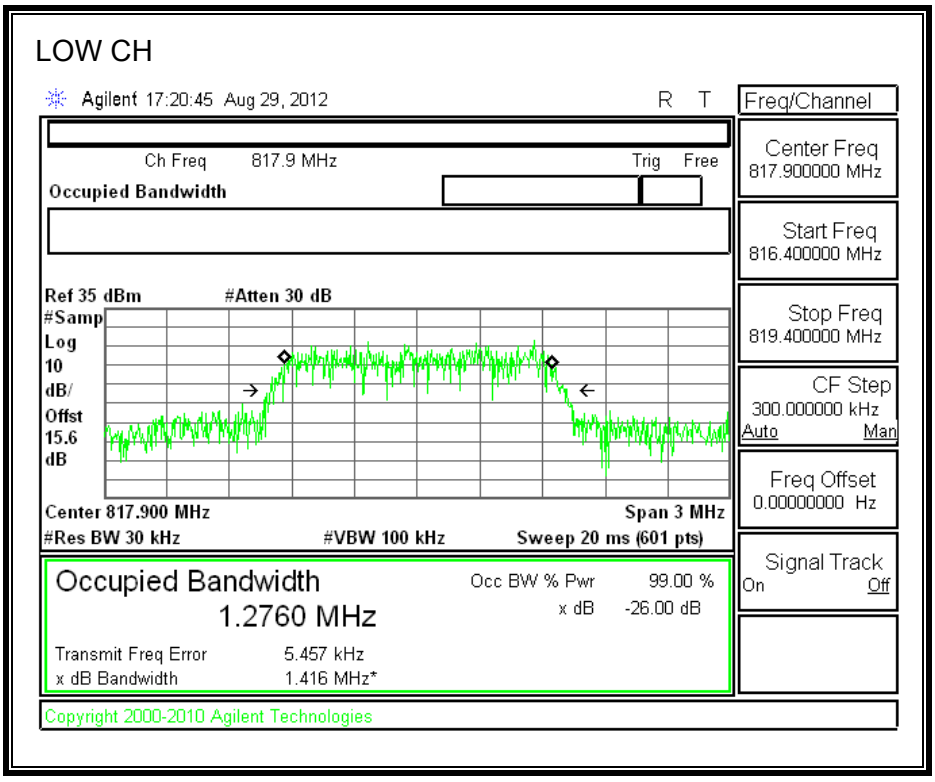


HIGH CH

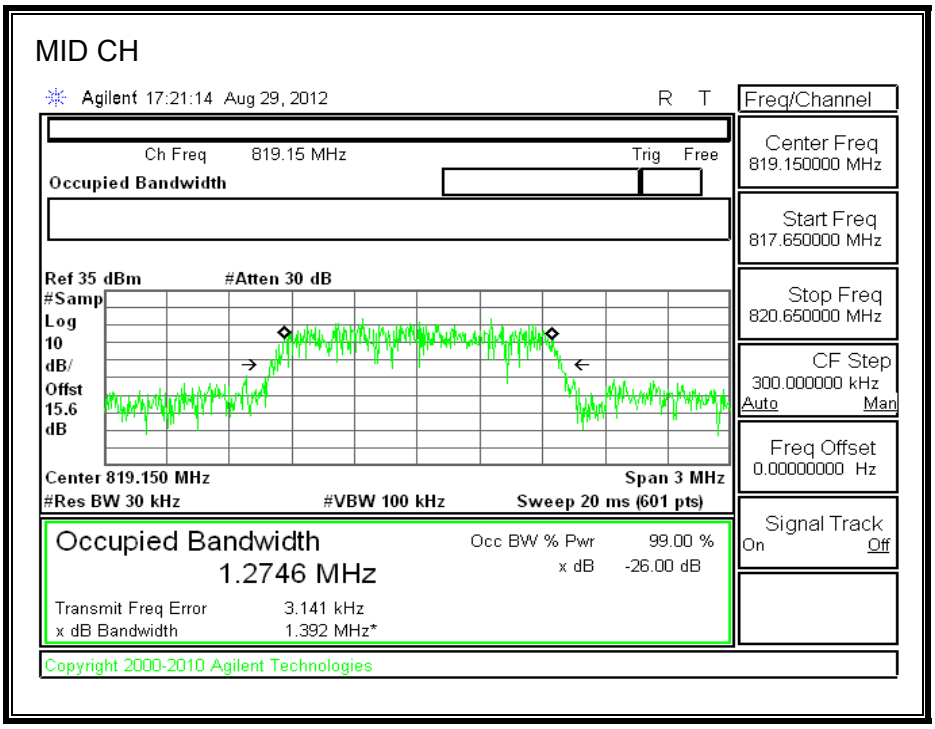


**EVDO, BC10**

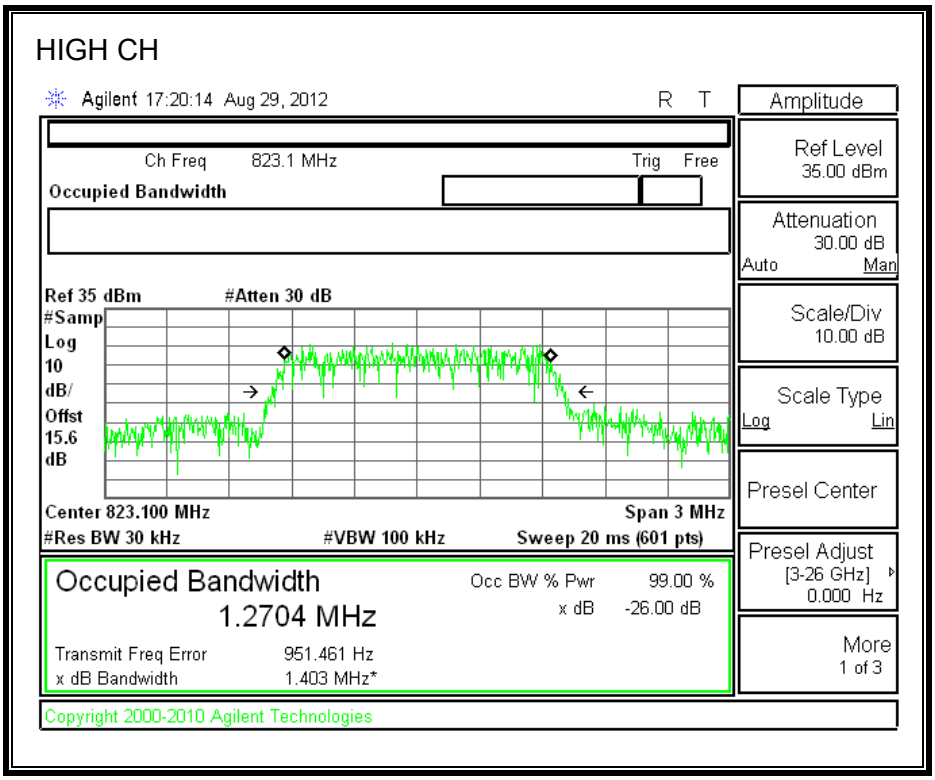
LOW CH




MID CH



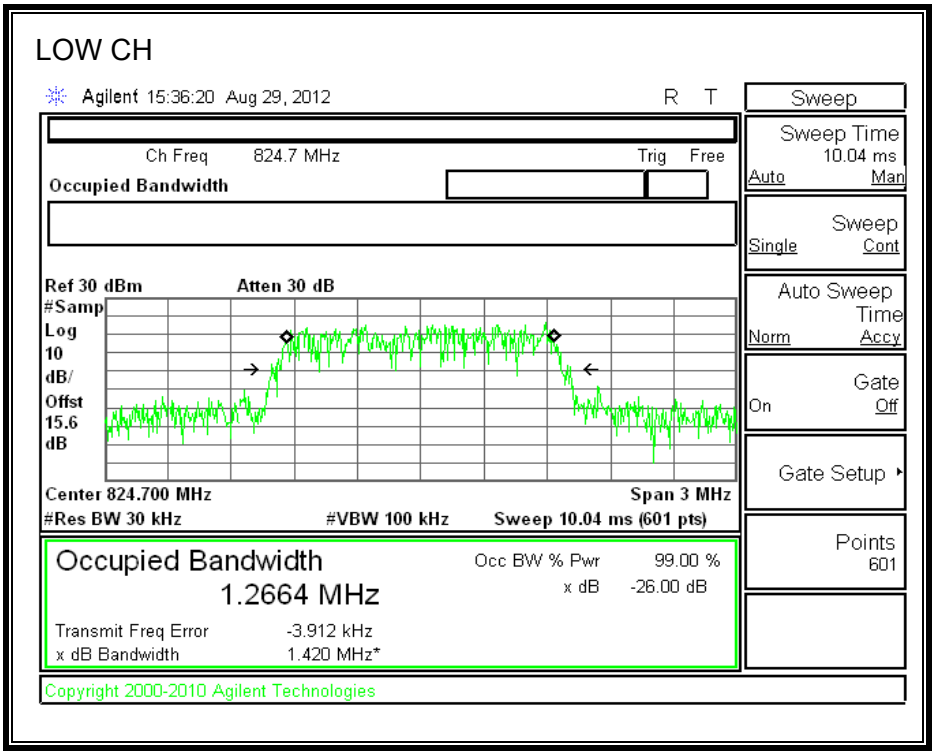
HIGH CH



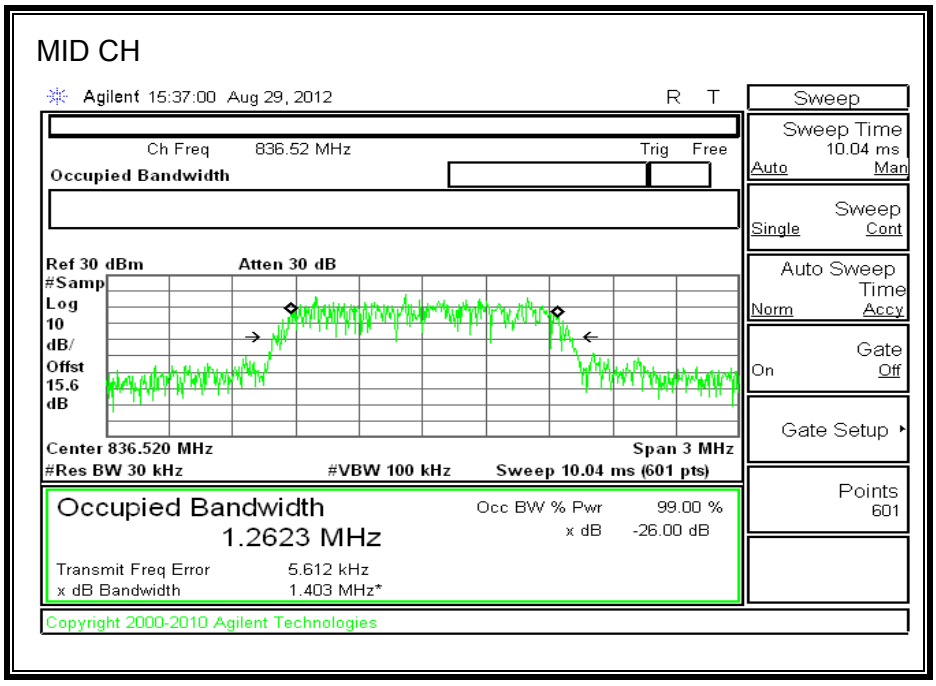
### 8.1.4. CDMA, BC0 and BC1

**1xRTT Mode (Cellular Band)**

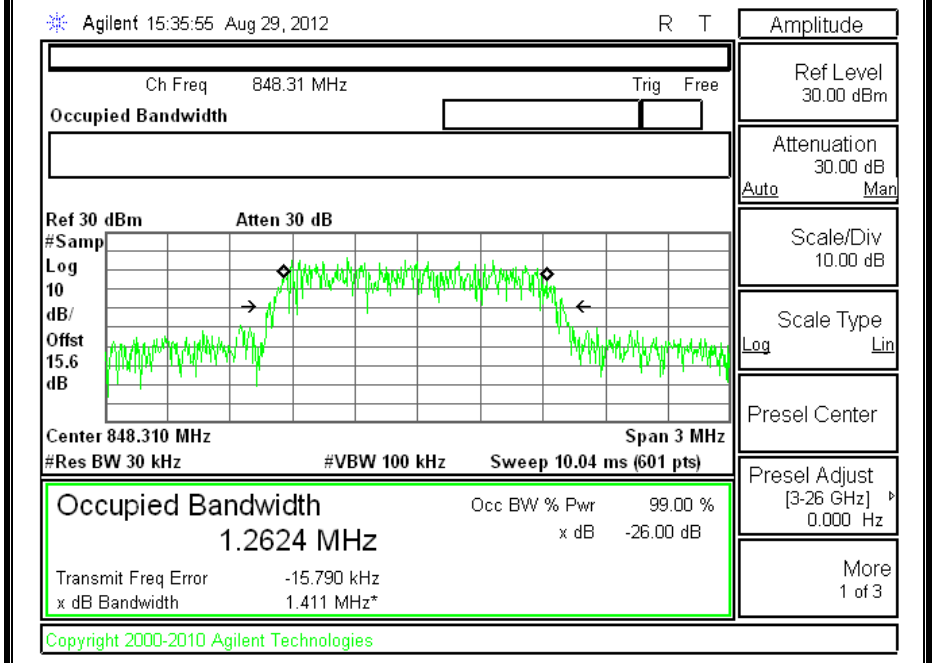
LOW CH



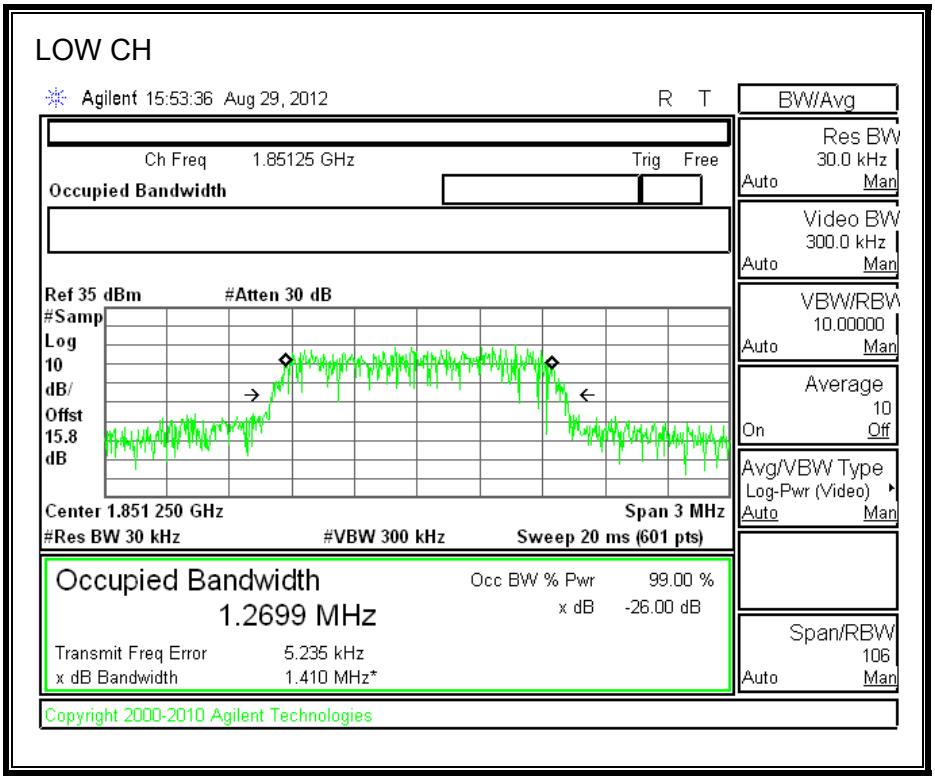

MID CH

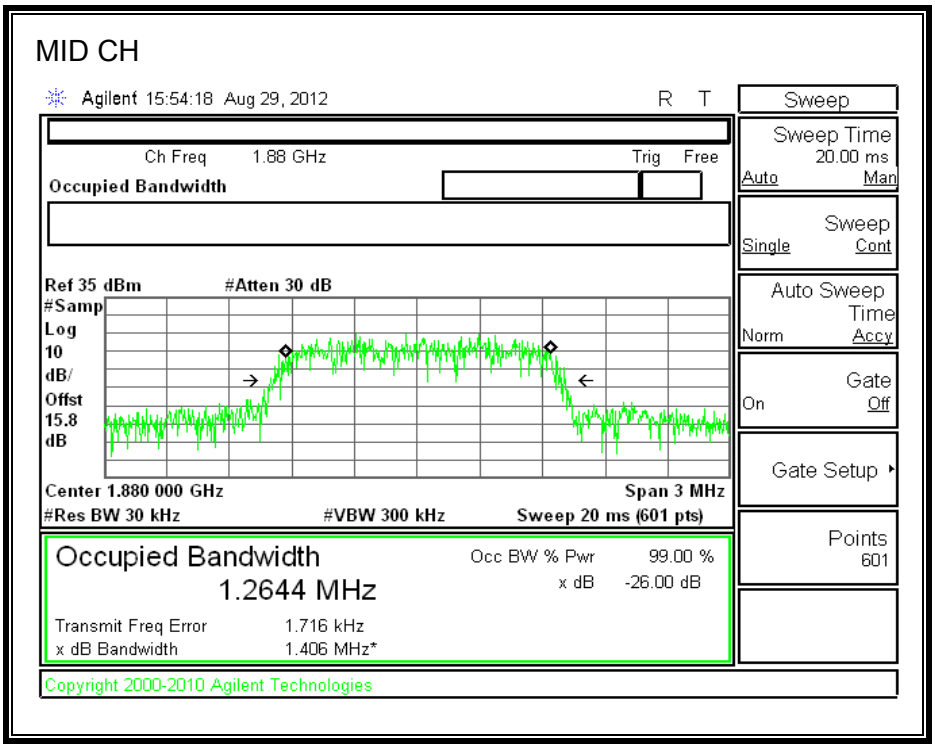


HIGH CH

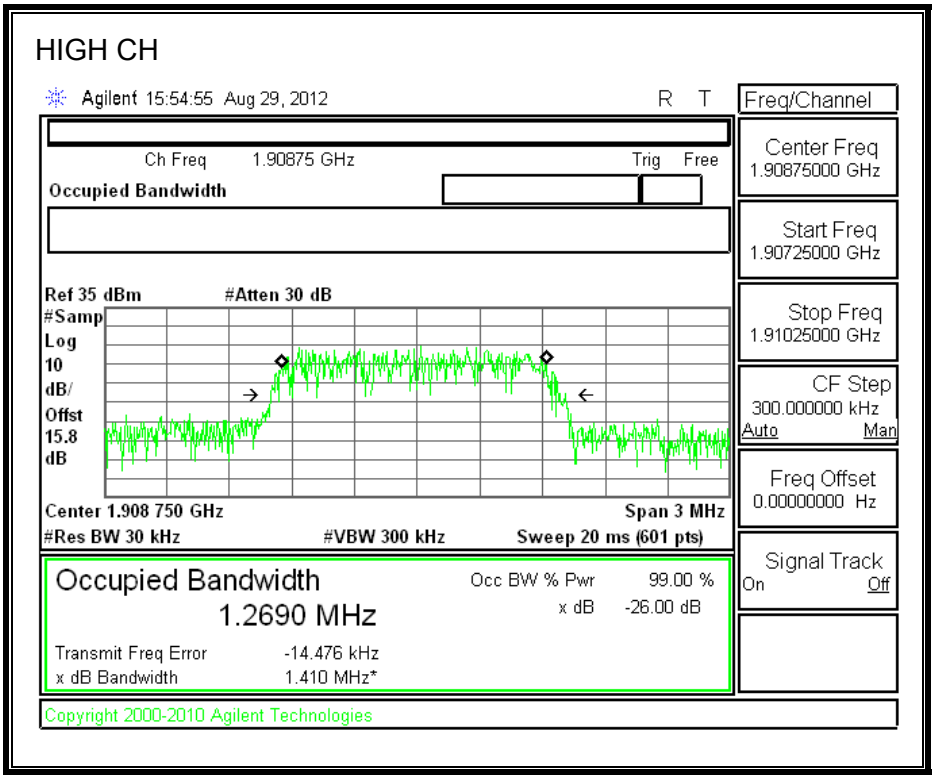


**1xRTT Mode (PCS Band)**



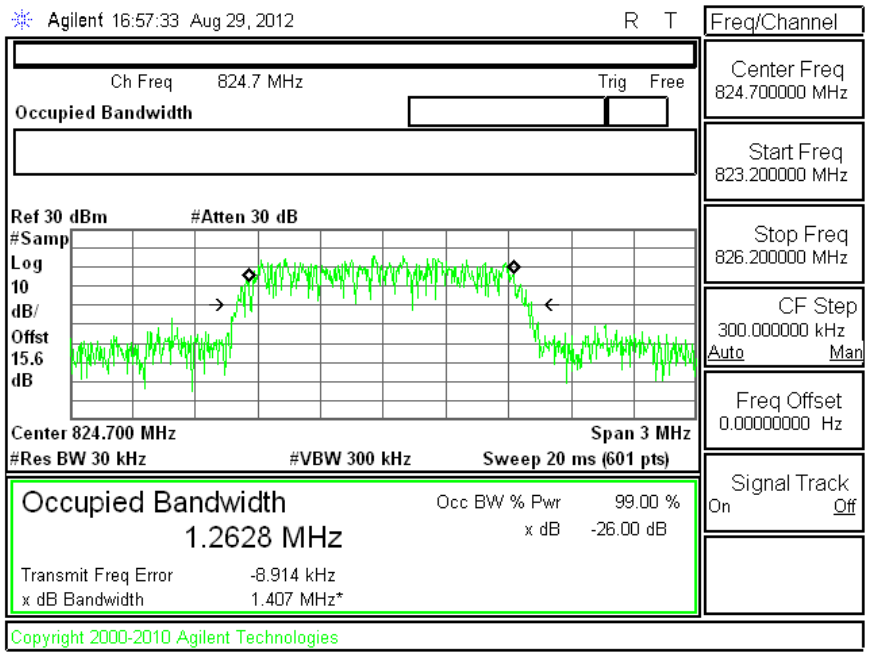



HIGH CH

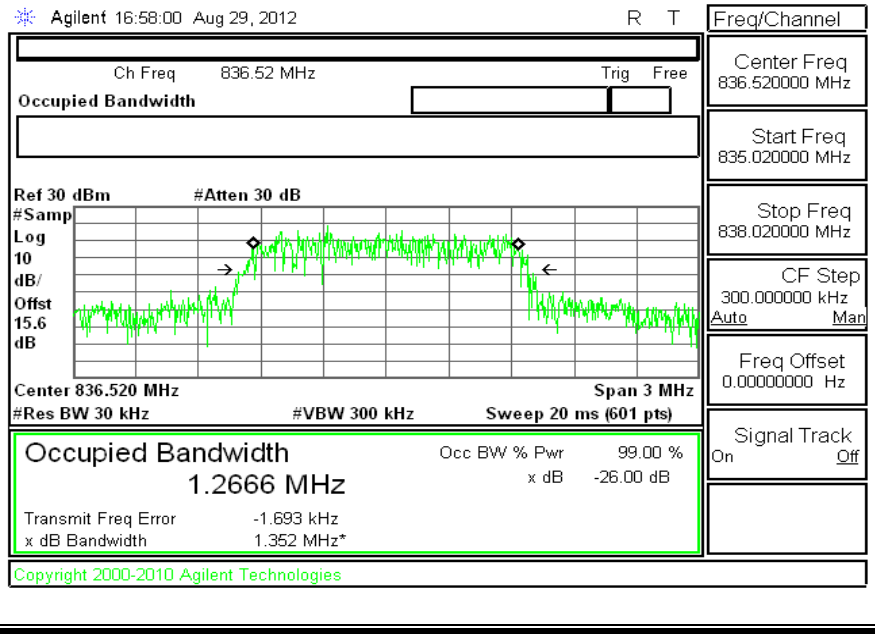


**1xEV-DO Rev. A Cellular Band**

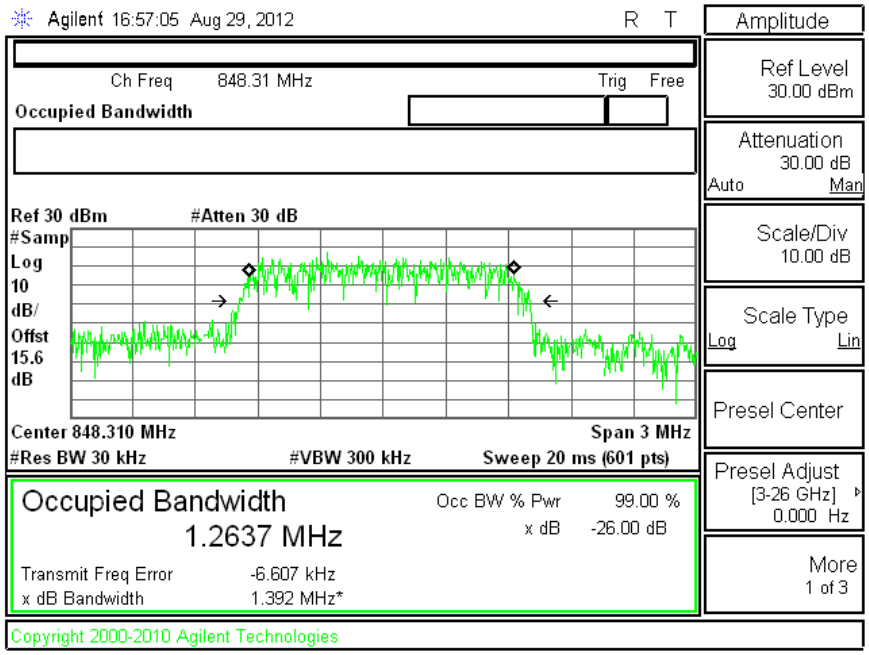
LOW CH



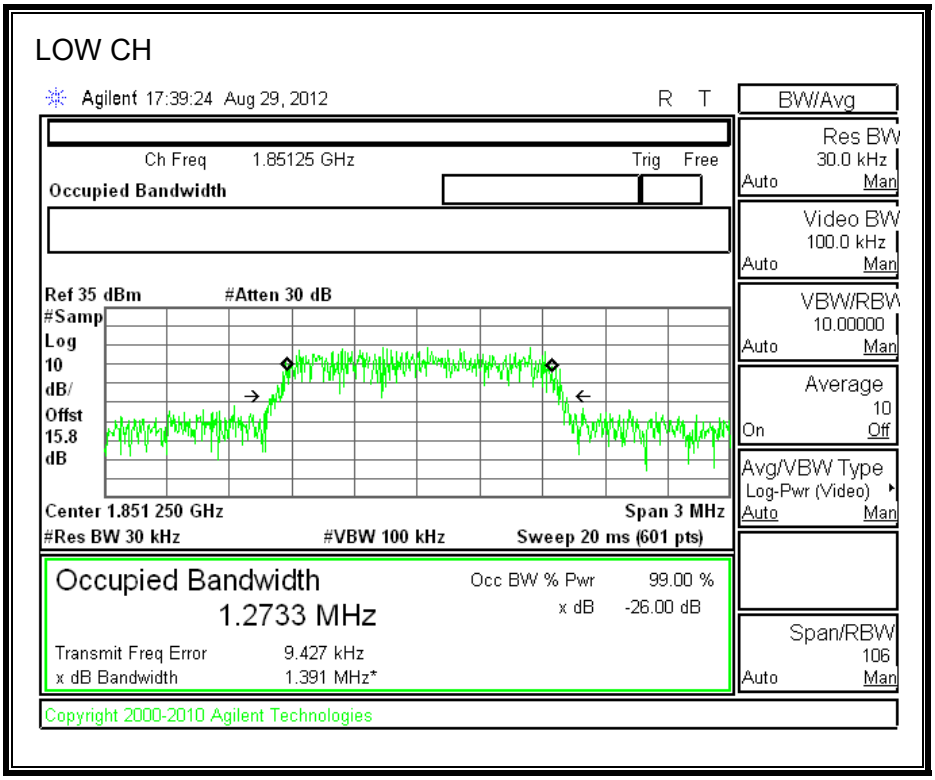

MID CH

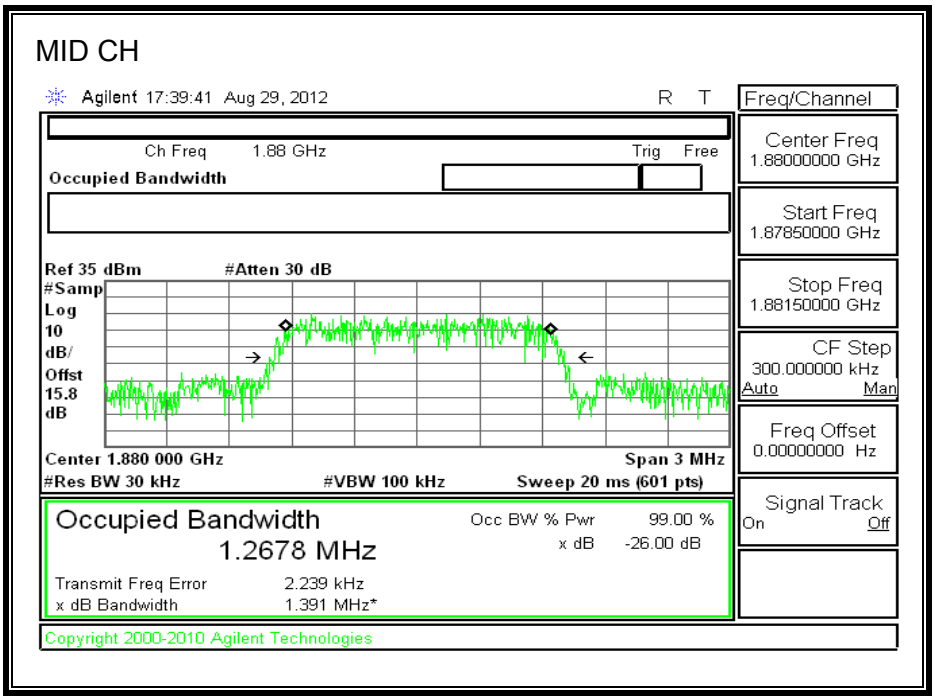


HIGH CH

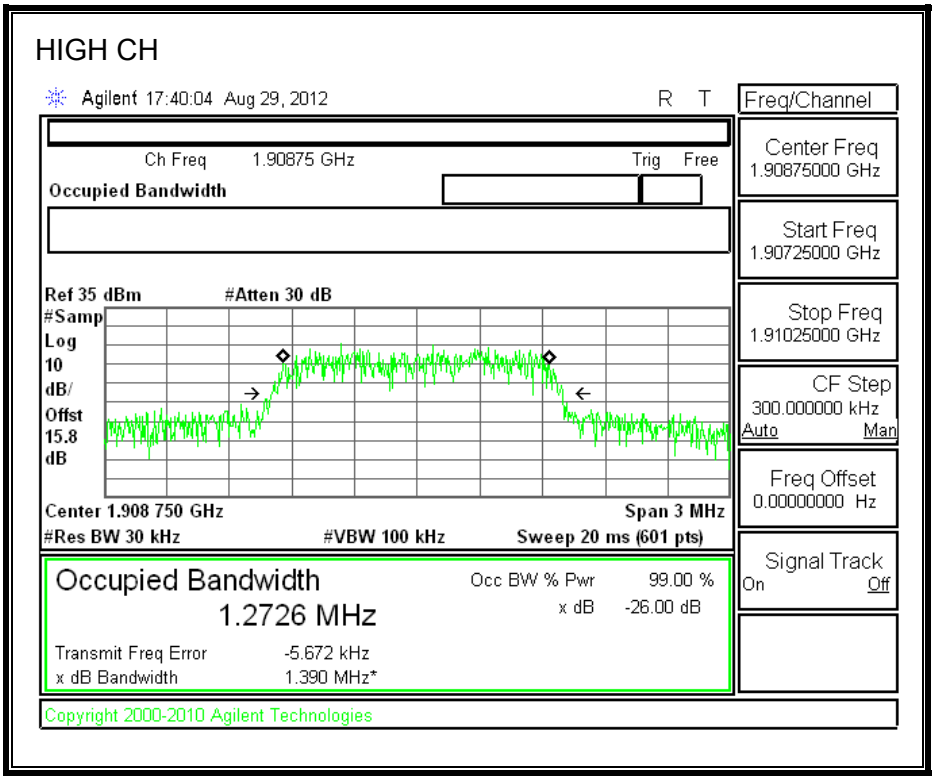


**1xEV-DO Rev. A Mode (PCS Band)**



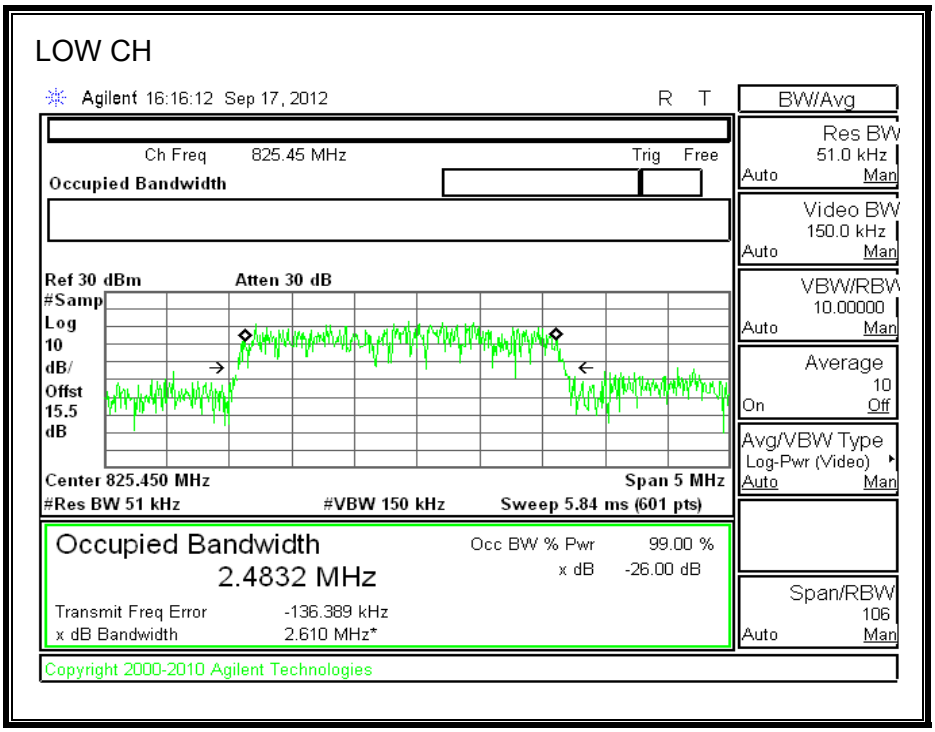



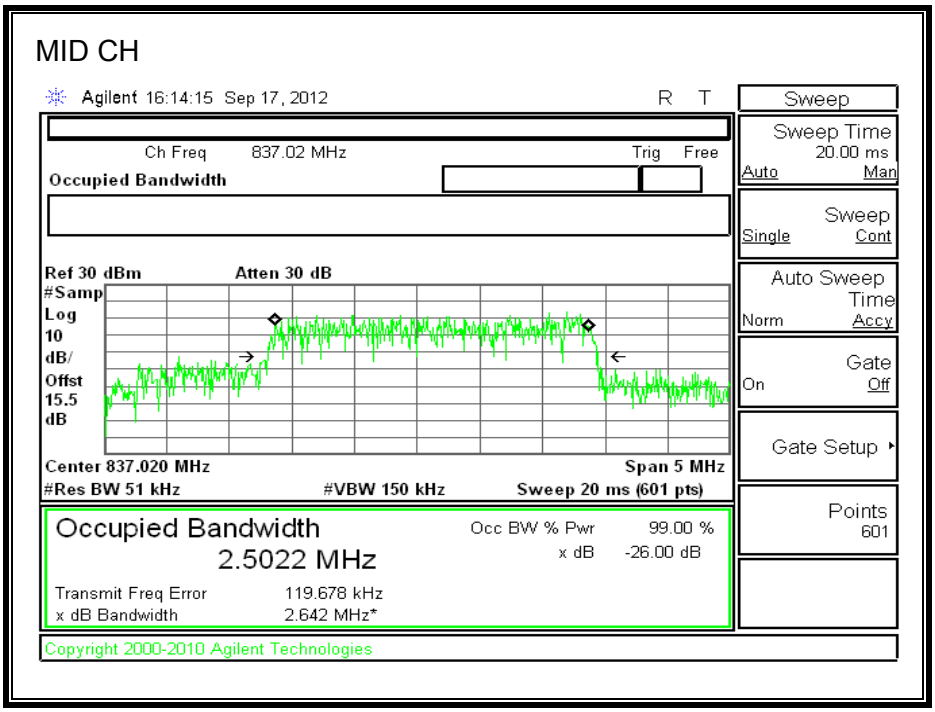
HIGH CH

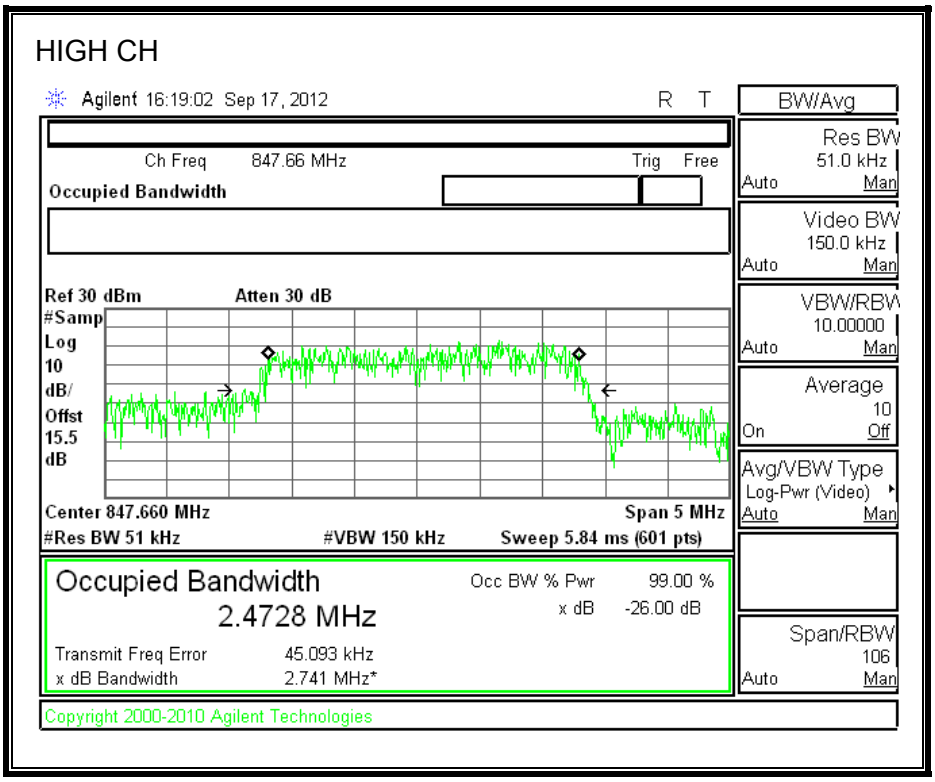


## 8.1.5. CDMA, BC0, EV-DO REV B

**TWO CARRIERS MIN SEPARATION**



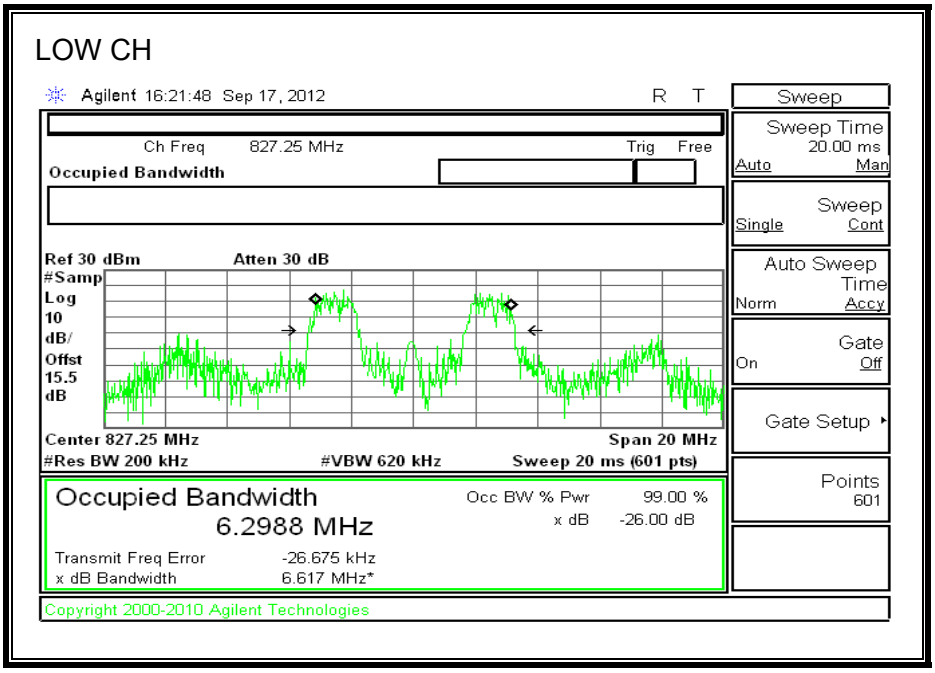





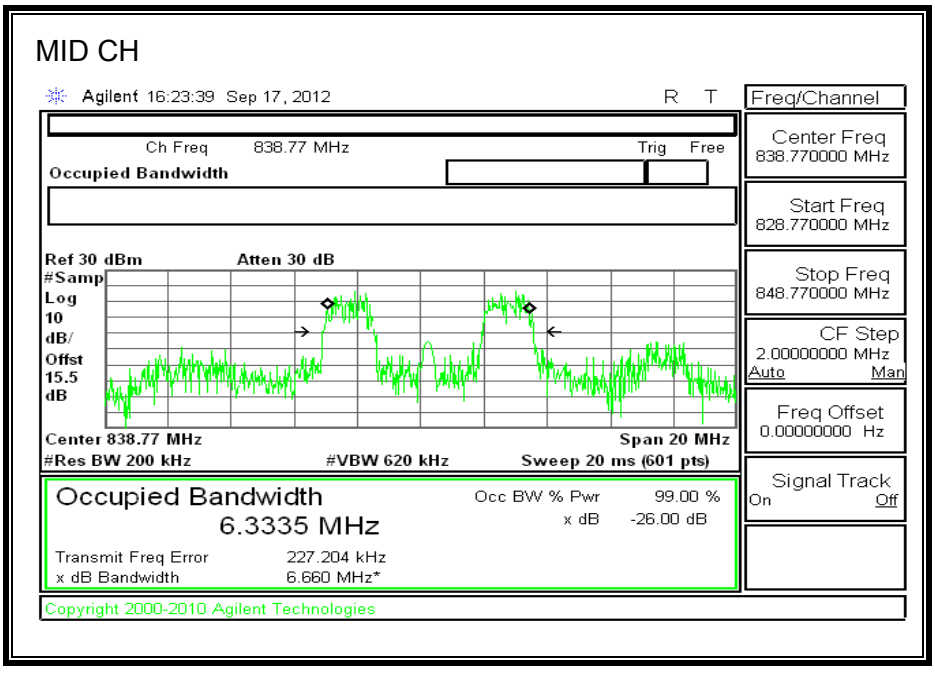
## EV-DO REV B CELLULAR BAND

### Two Carriers Maximum Separation

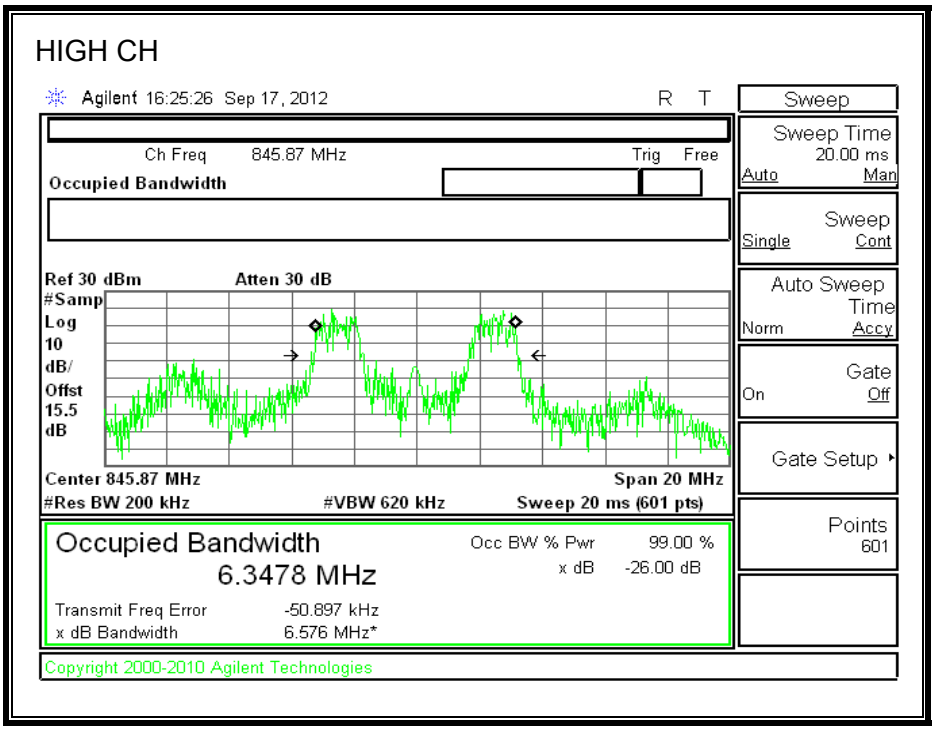
LOW CH




MID CH



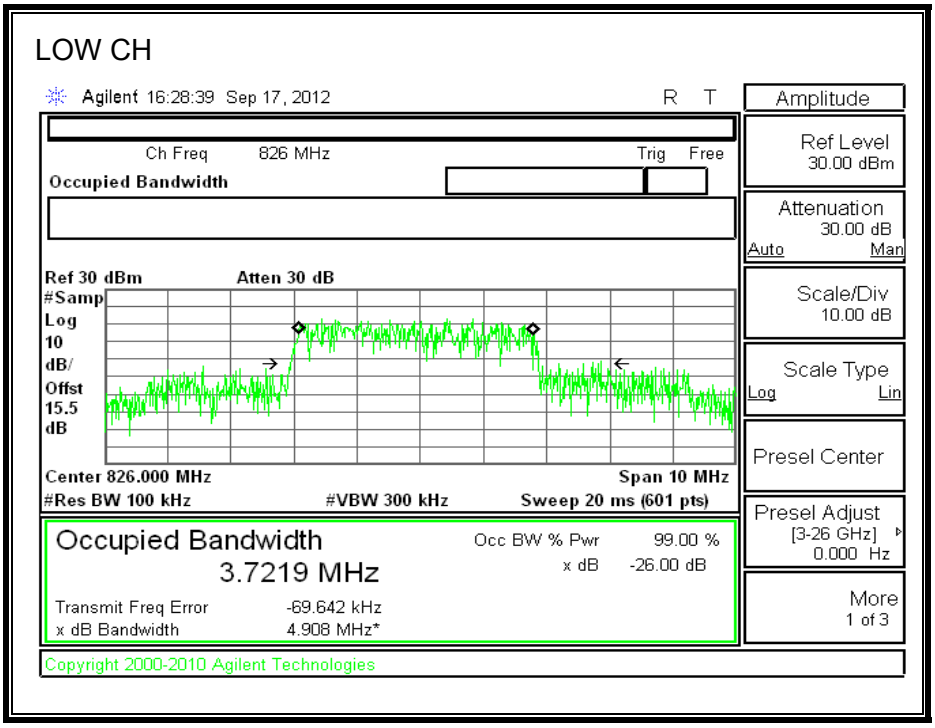
HIGH CH



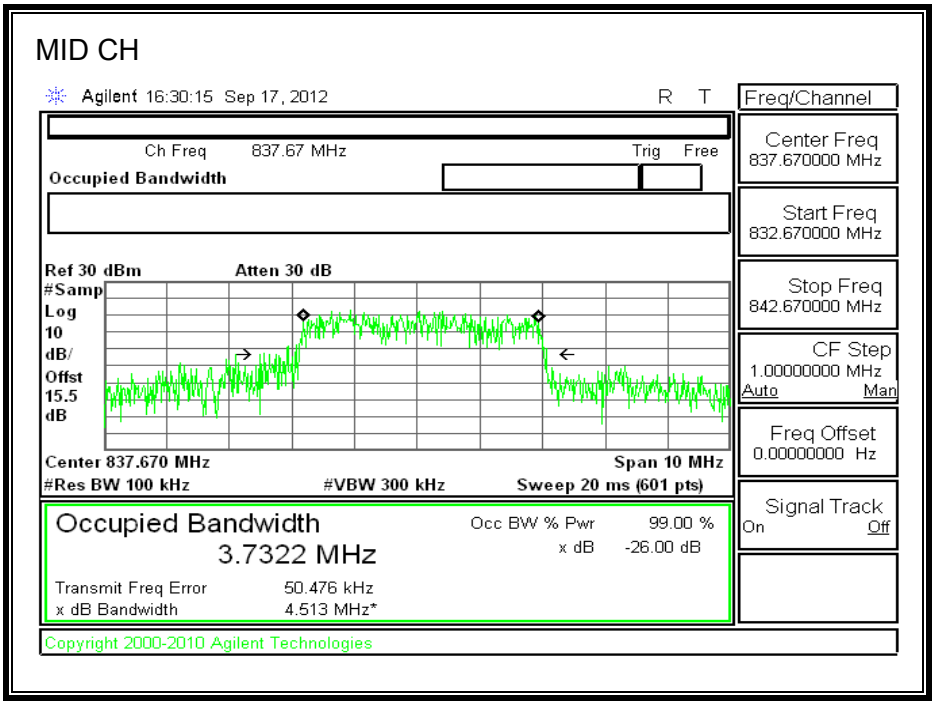
## EV-DO REV B CELLULAR BAND

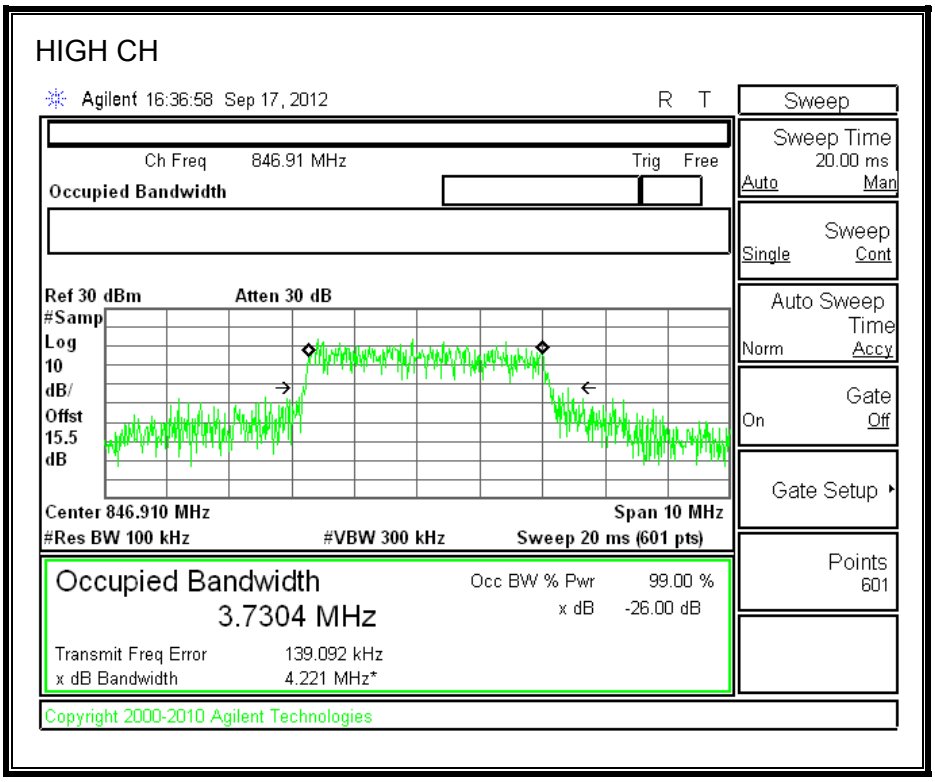
### Three Carriers Minimum Separation

LOW CH



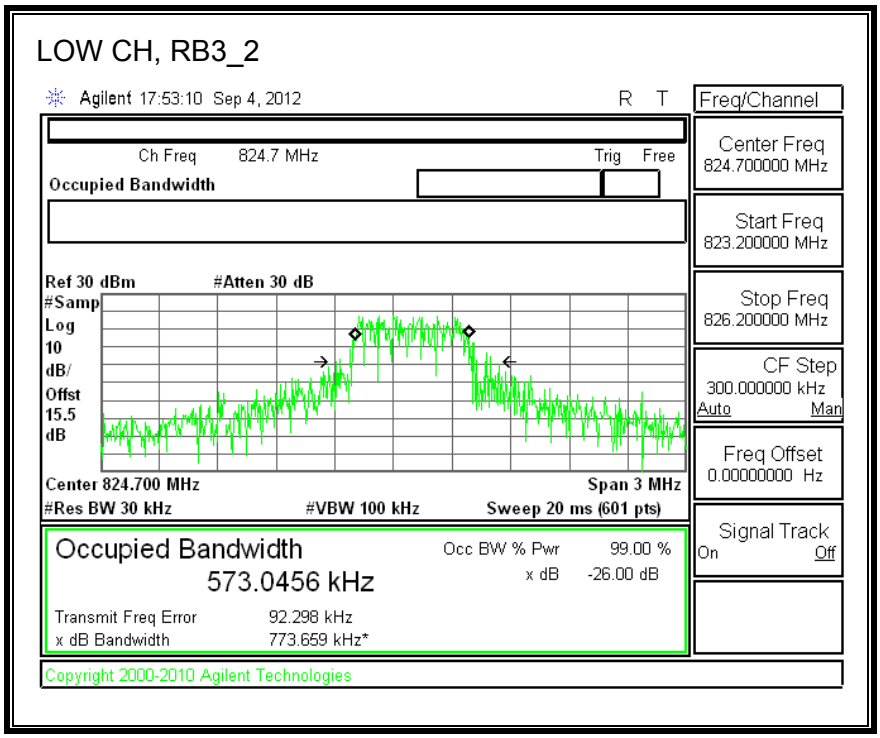

MID CH

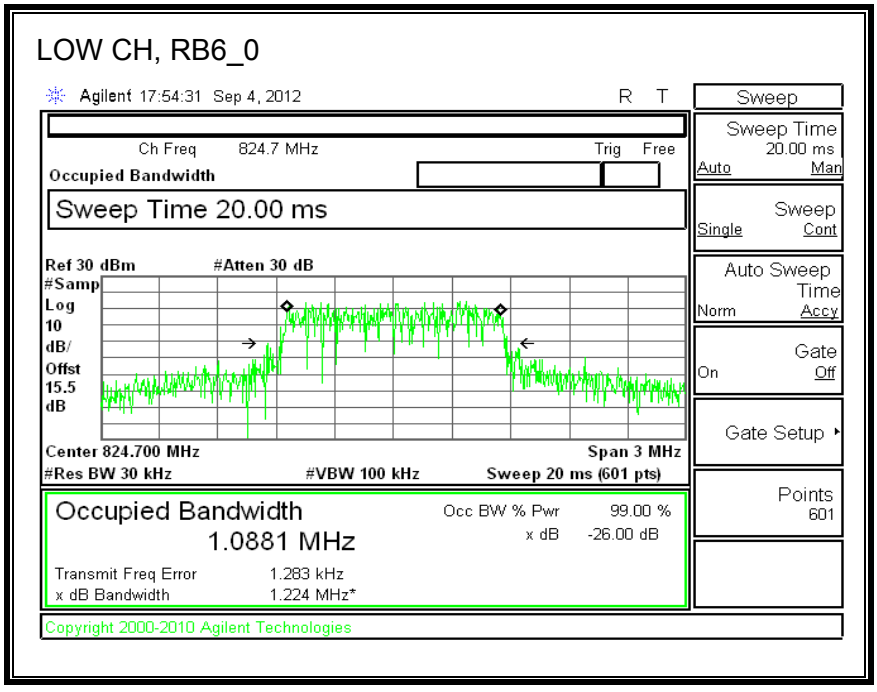




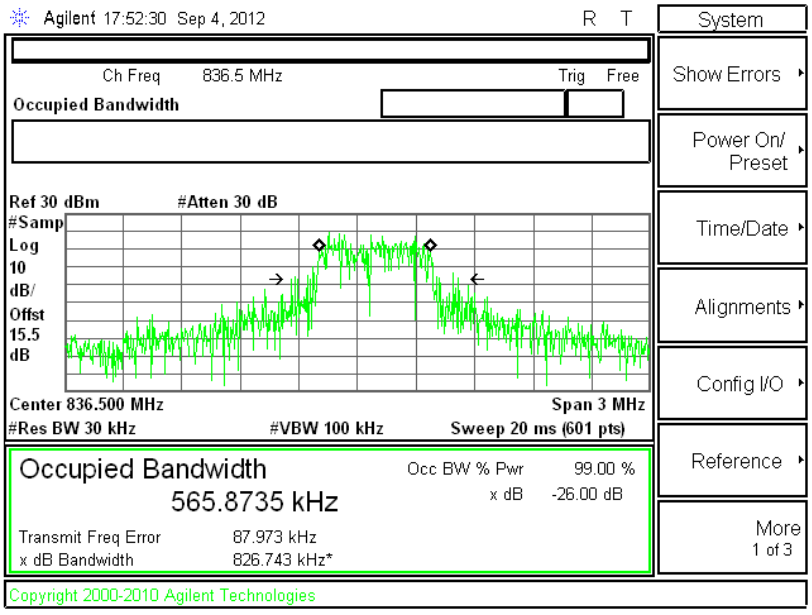
### 8.1.6. LTE Band 5

**QPSK(1.4 MHz BAND WIDTH)**

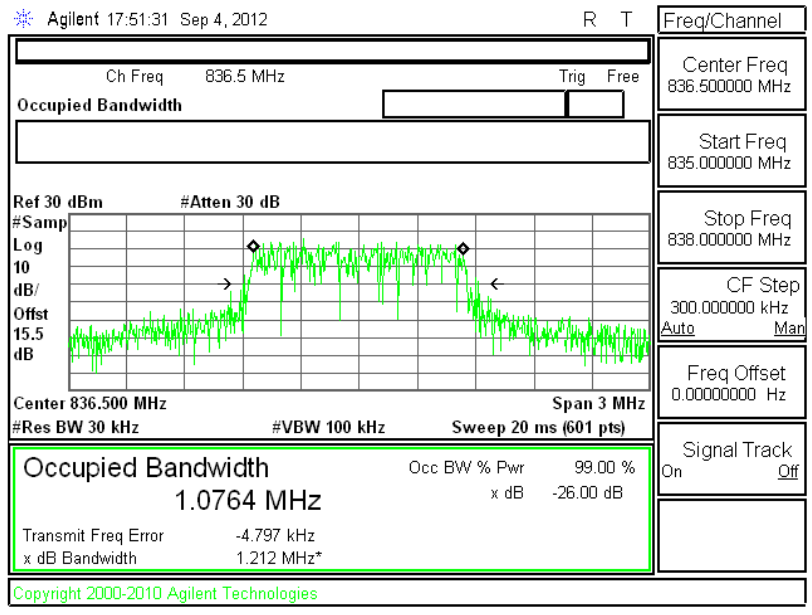


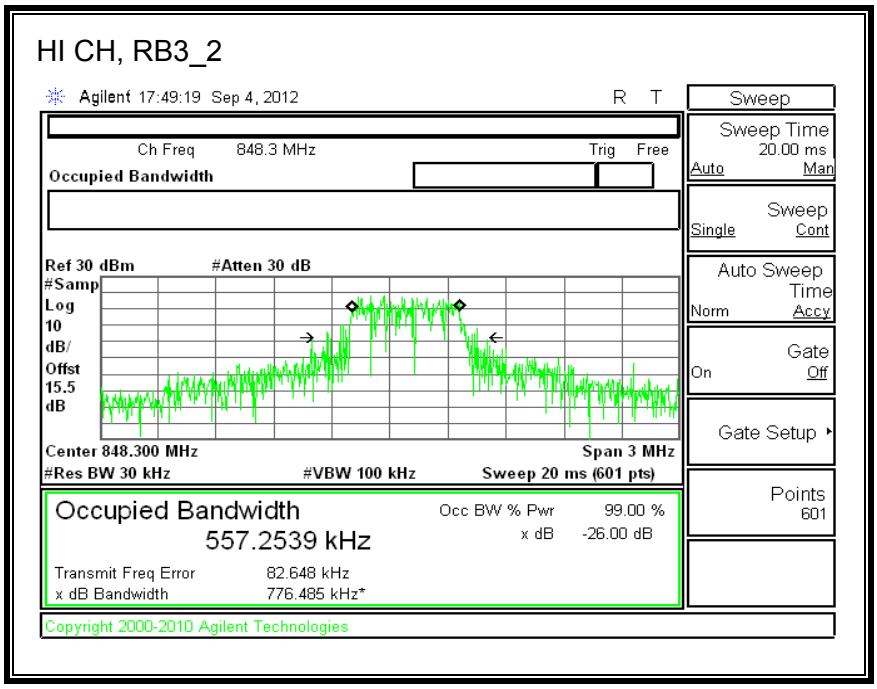
MID CH, RB3_2



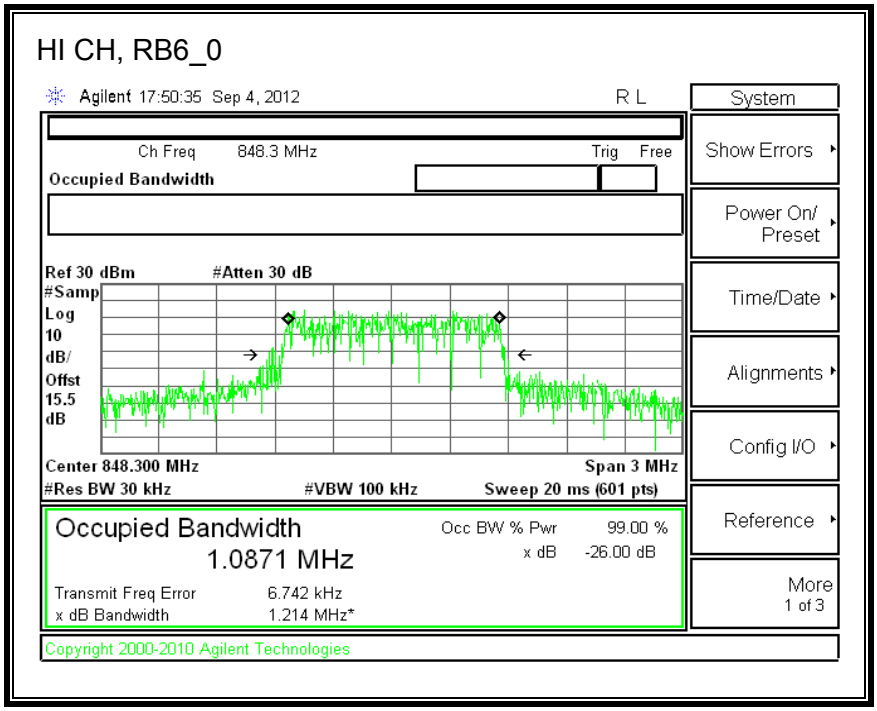

MID CH, RB6_0



HI CH, RB3_2

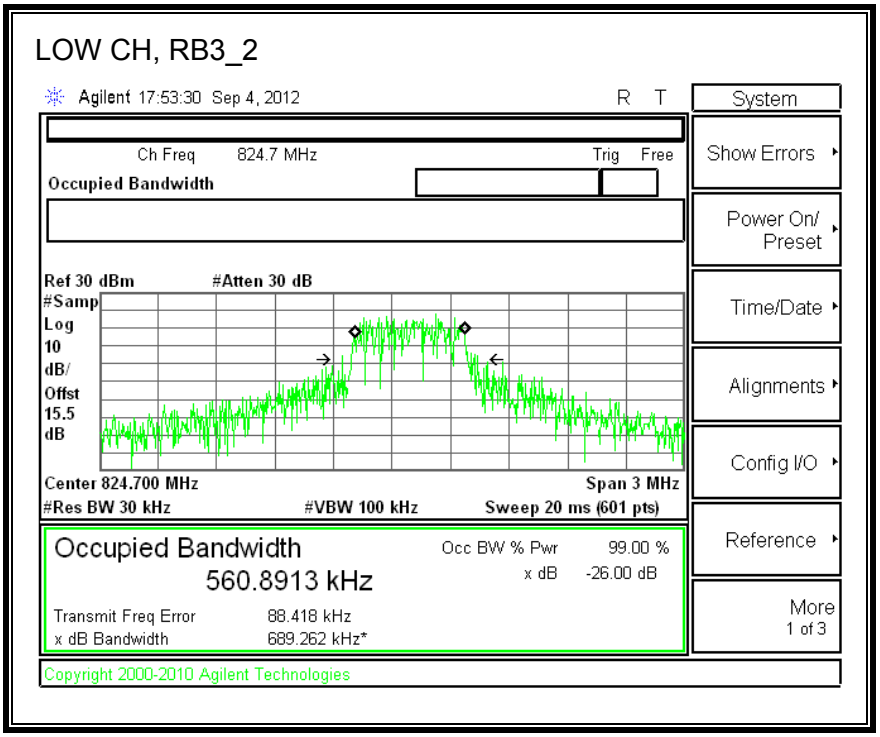


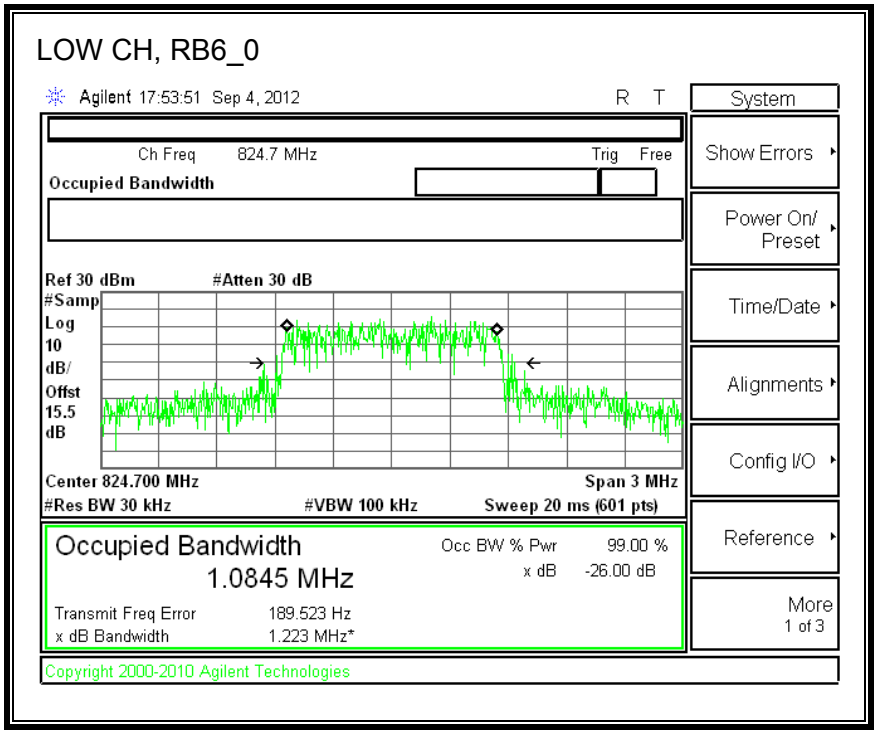

HI CH, RB6_0



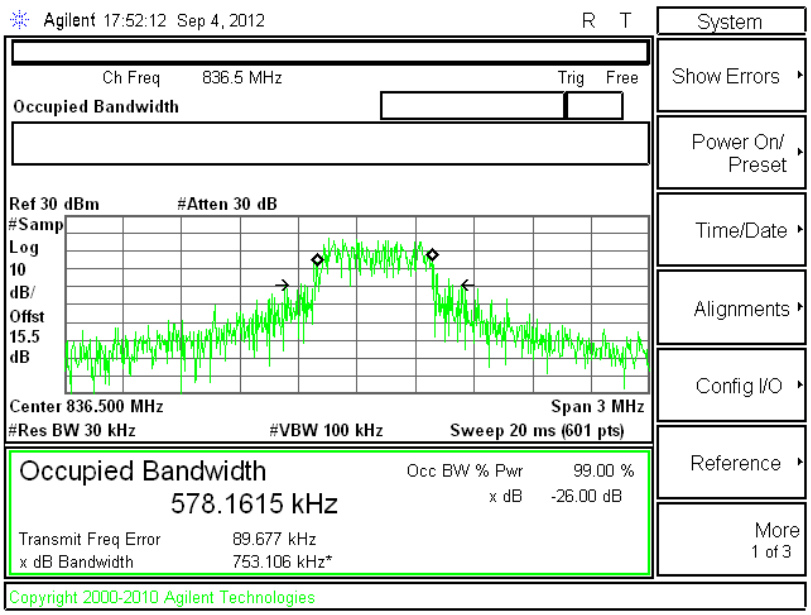
**Band 5 (1.4 MHz BAND WIDTH)**

**LTE 16QAM**

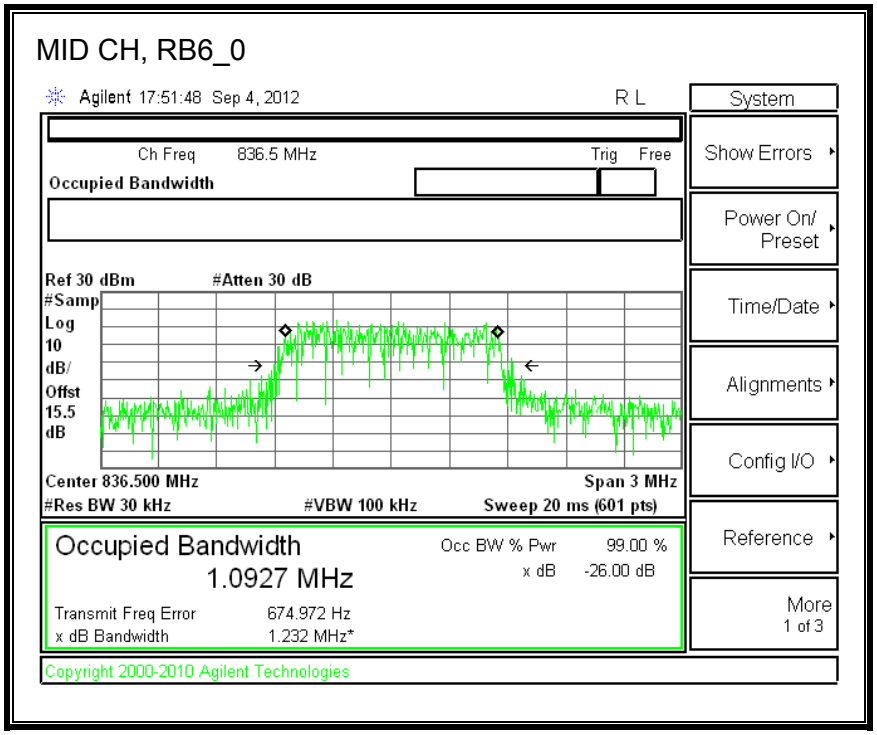


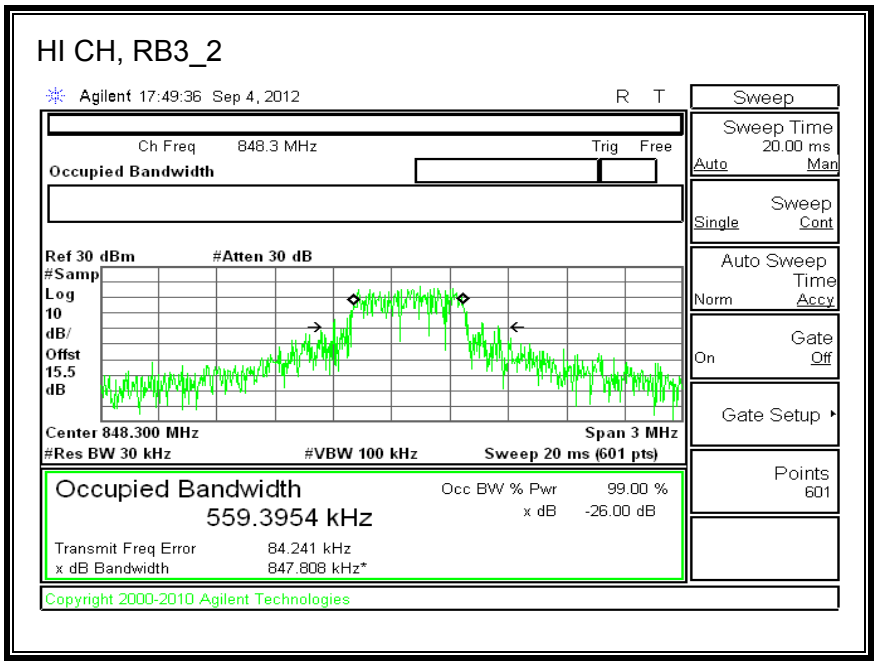
MID CH, RB3_2



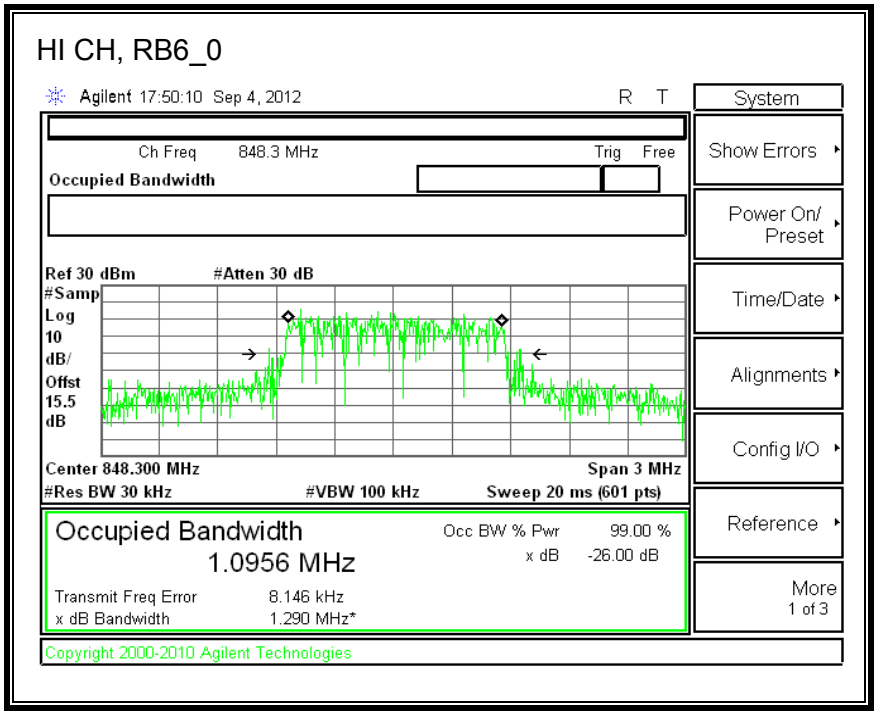

MID CH, RB6_0



HI CH, RB3_2

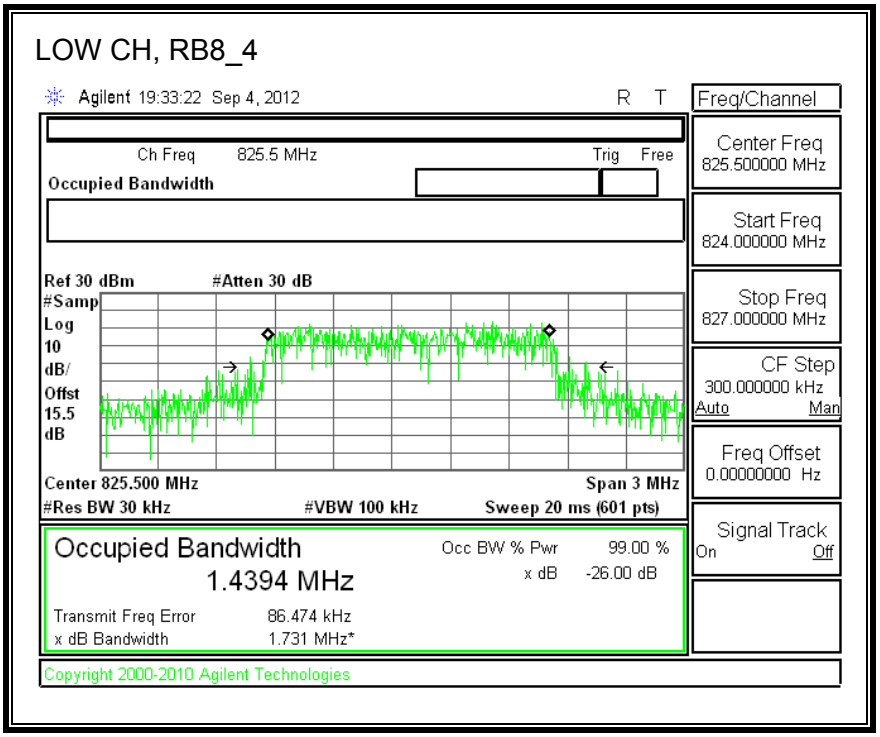


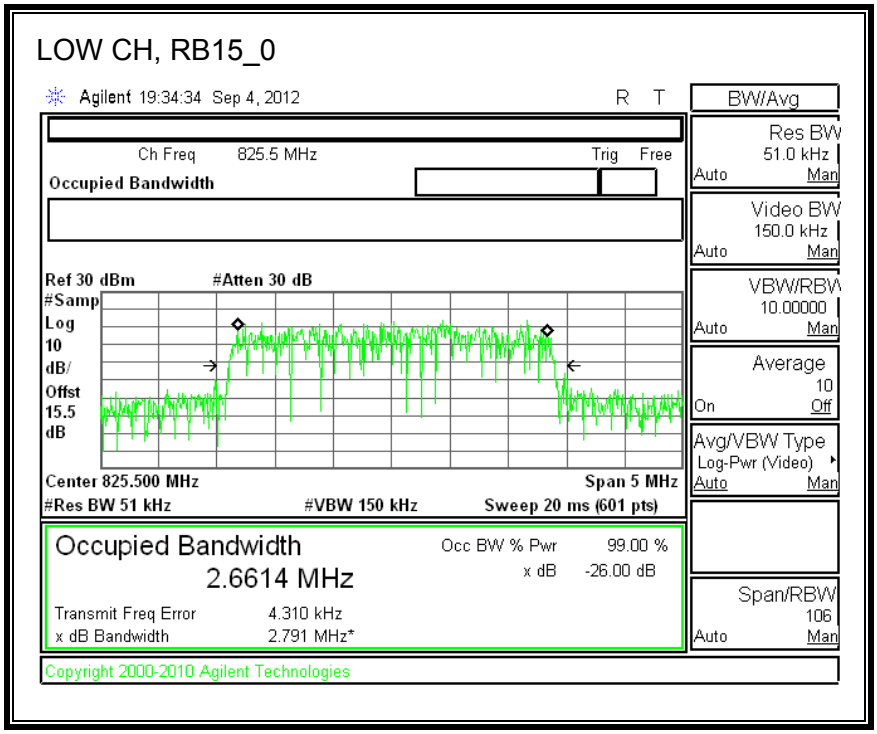

HI CH, RB6_0



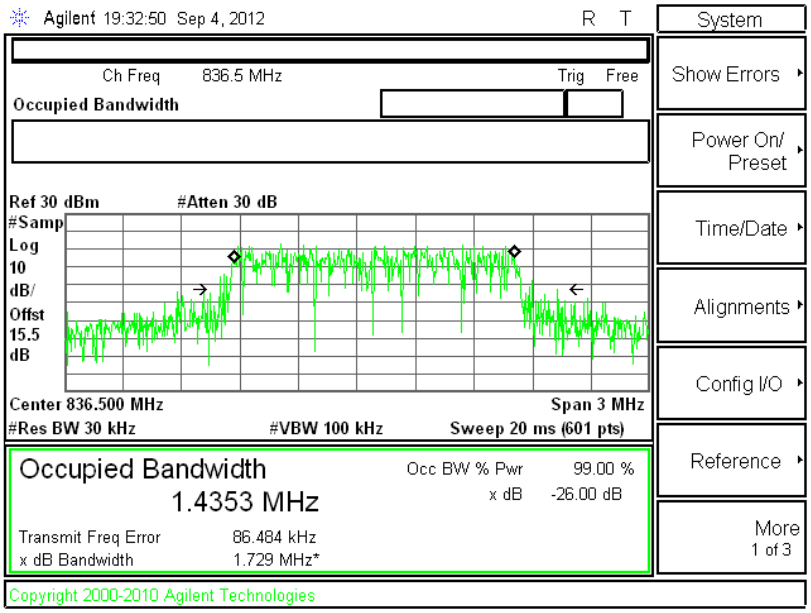
**Band 5 (3.0 MHz BAND WIDTH)**

**LTE QPSK**

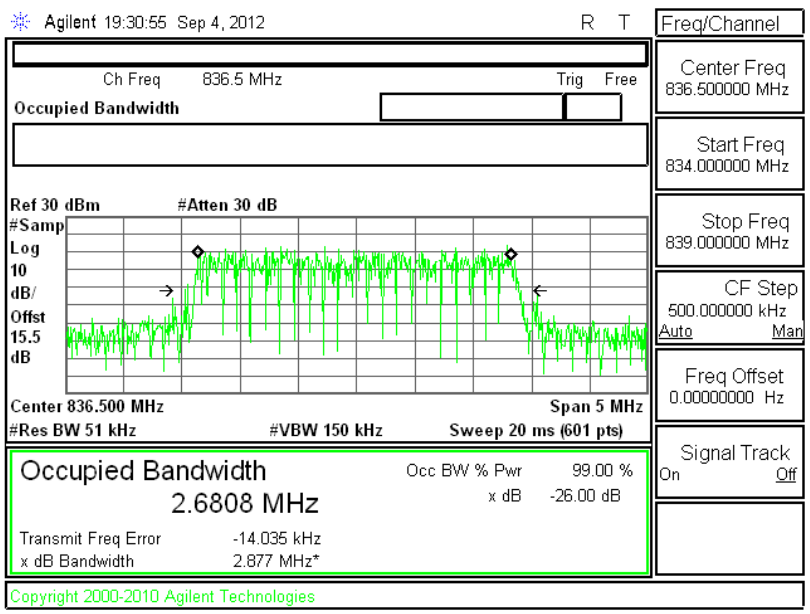


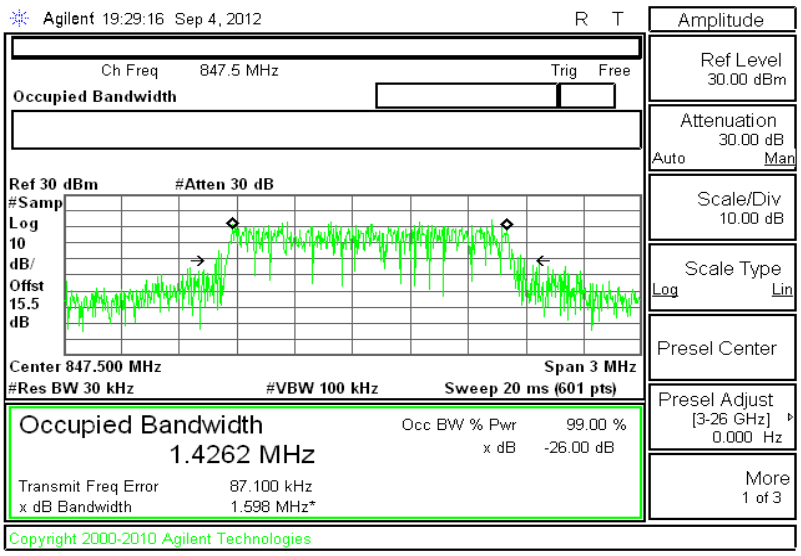
MID CH, RB8_4



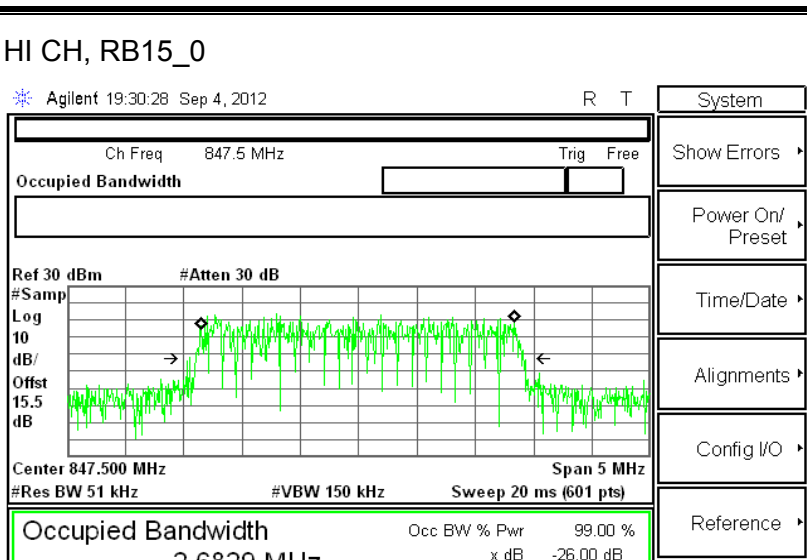

MID CH, RB15_0



HI CH, RB8_4

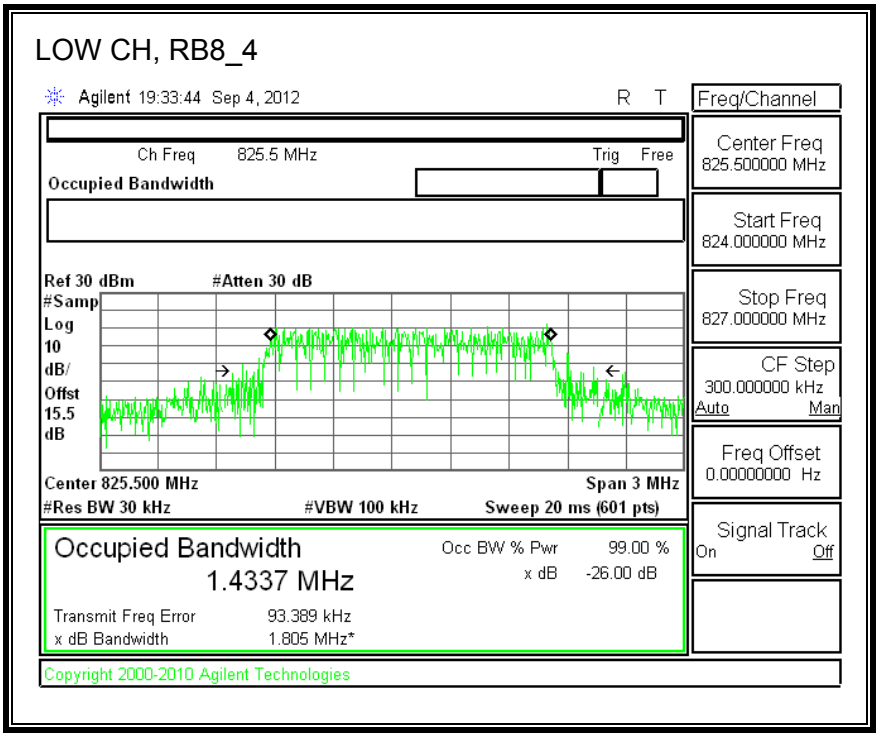


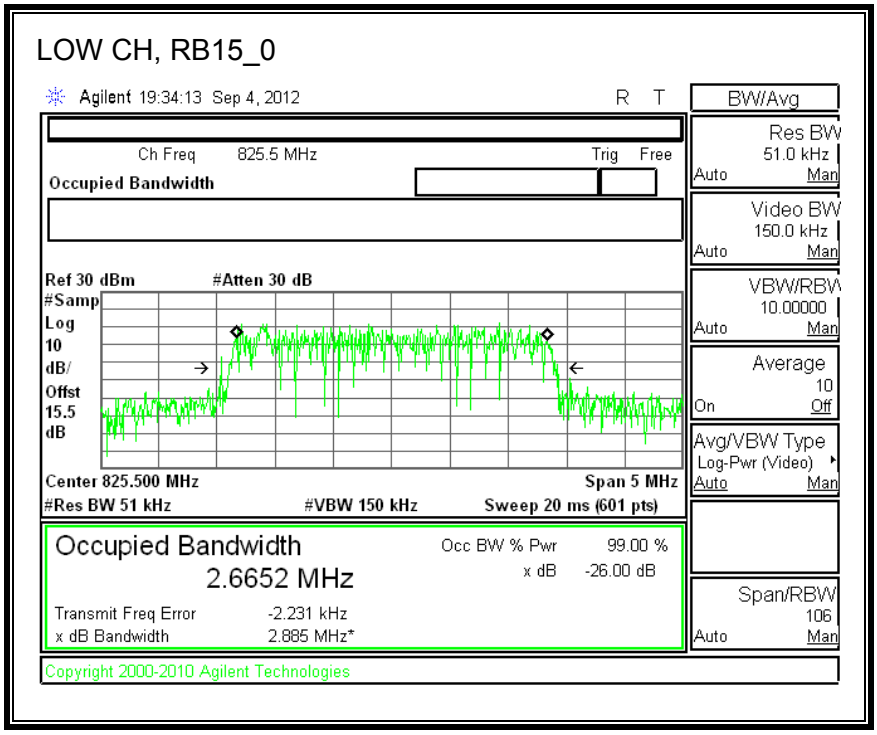

HI CH, RB15_0



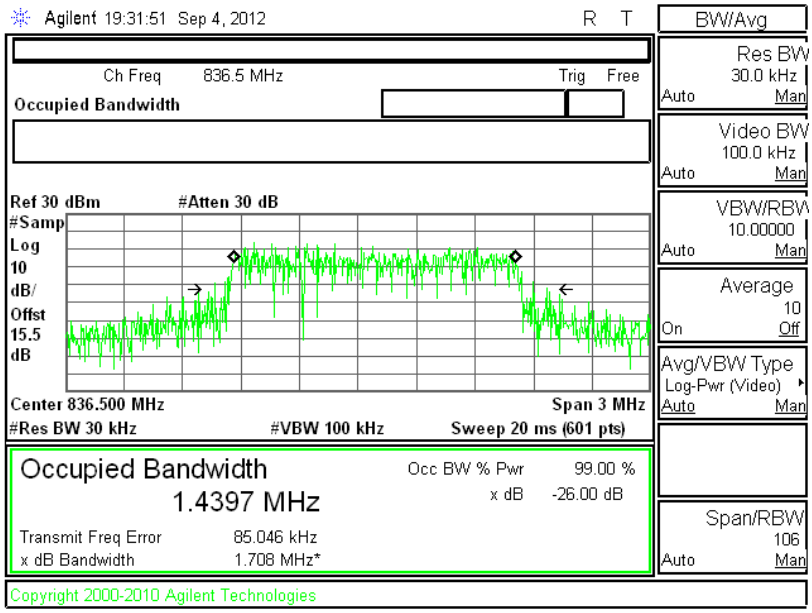
**Band 5 (3.0 MHz BAND WIDTH)**

**LTE 16QAM**

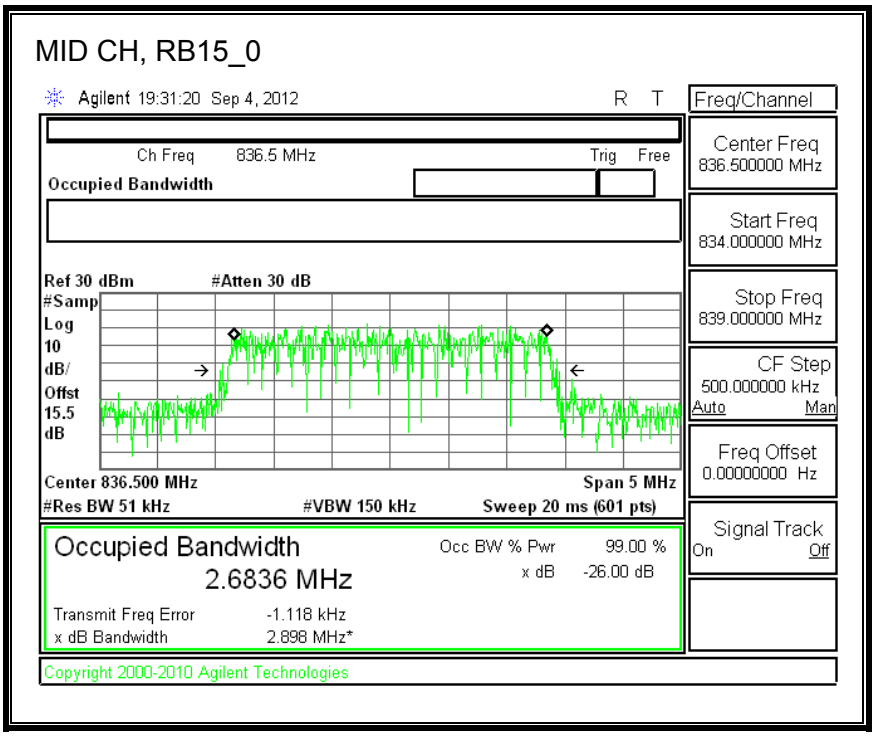


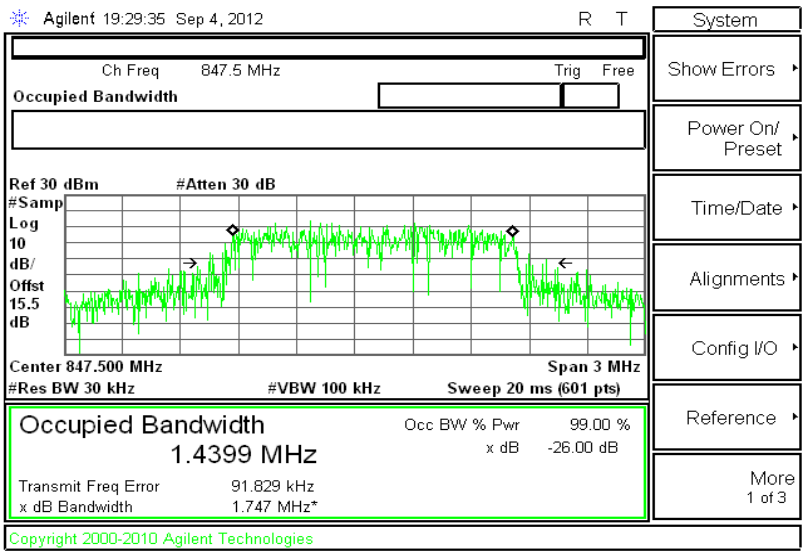
MID CH, RB8_4



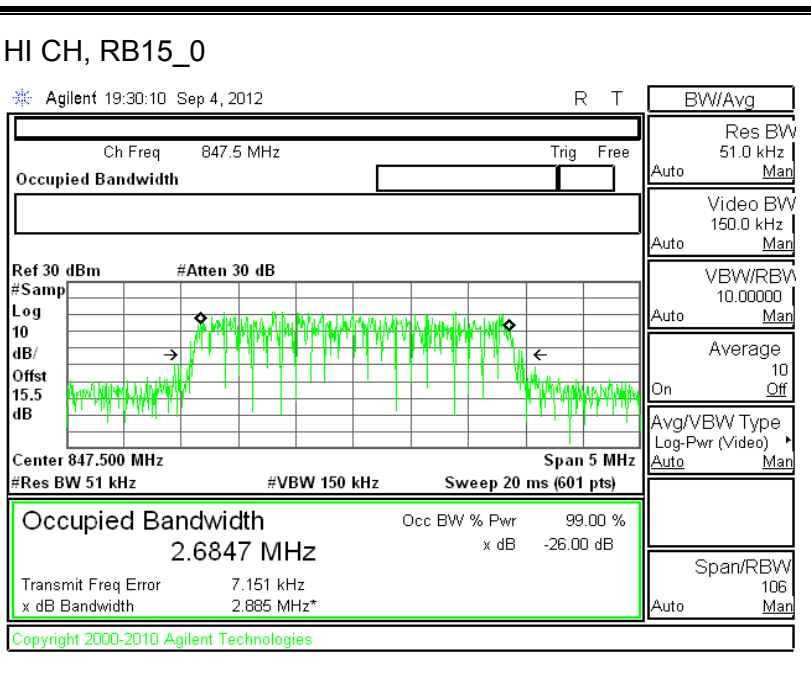

MID CH, RB15_0



HI CH, RB8_4

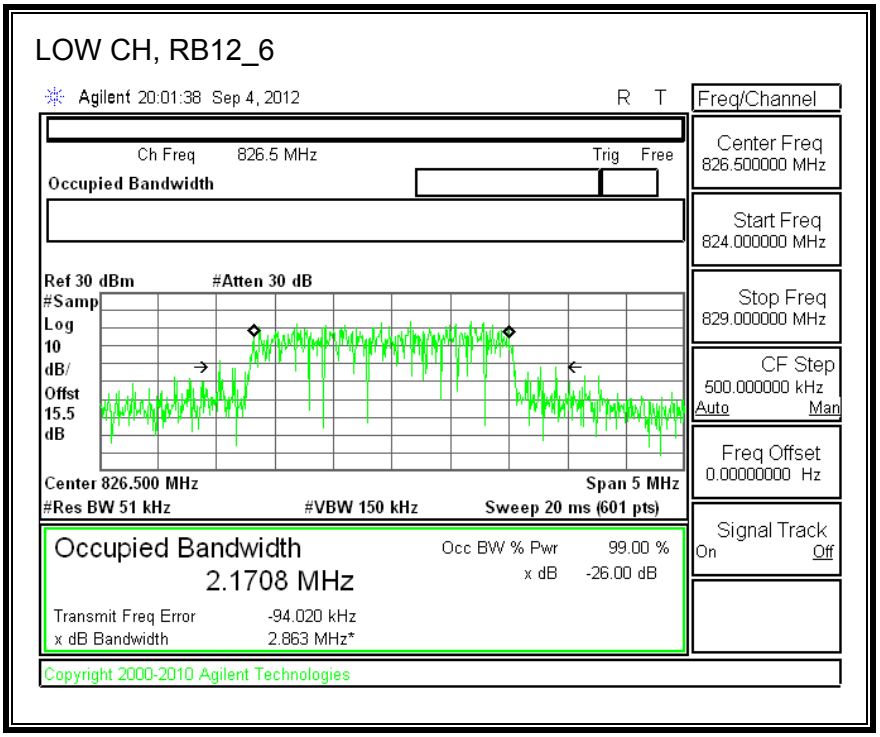


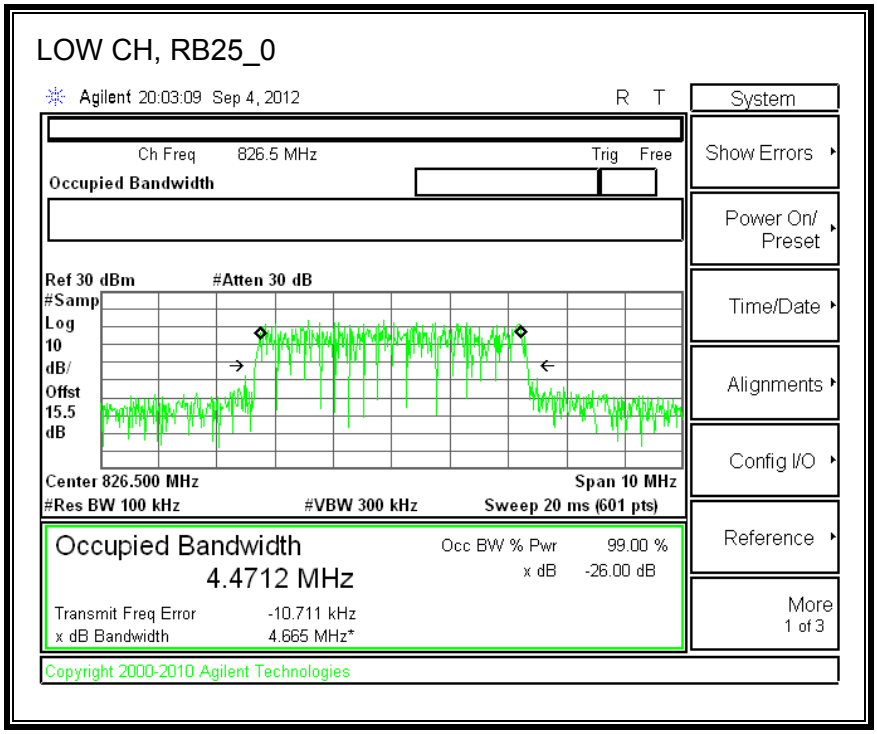

HI CH, RB15_0



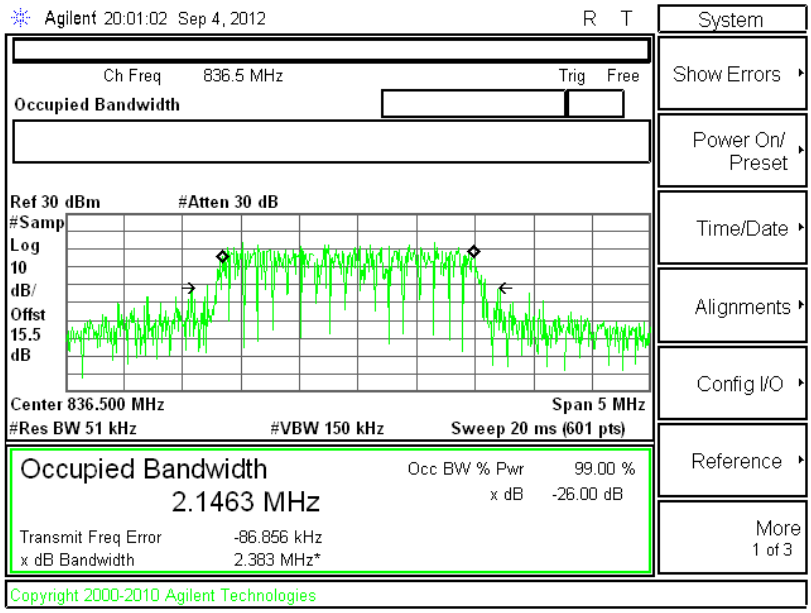
**Band 5 (5.0 MHz BAND WIDTH)**

**LTE QPSK**

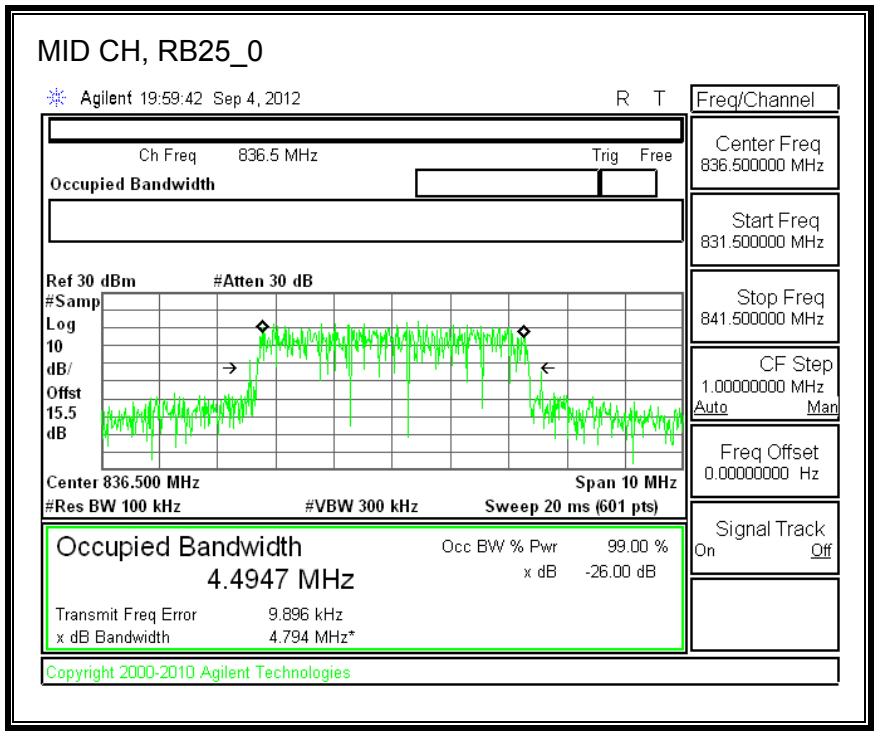


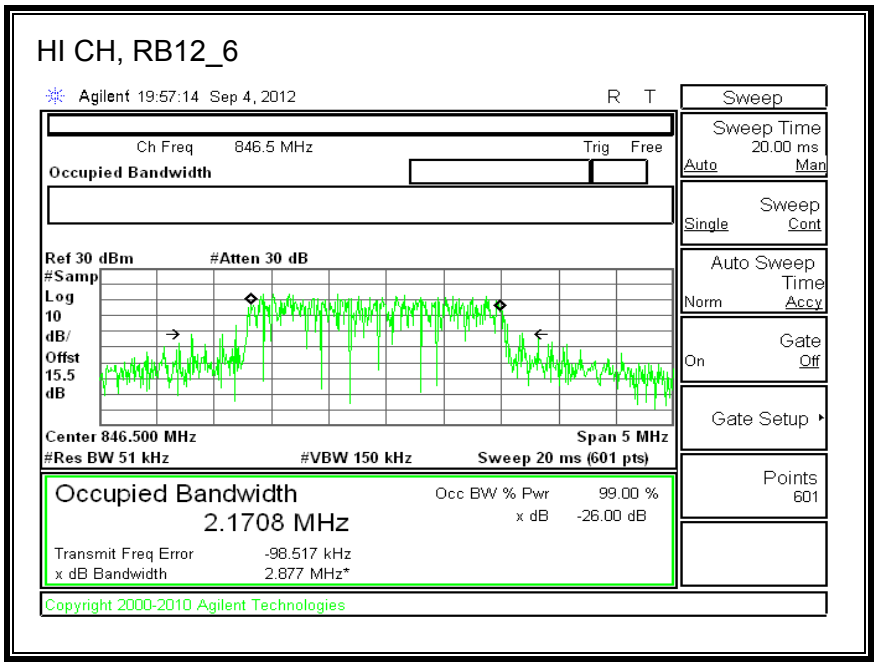
MID CH, RB12_6



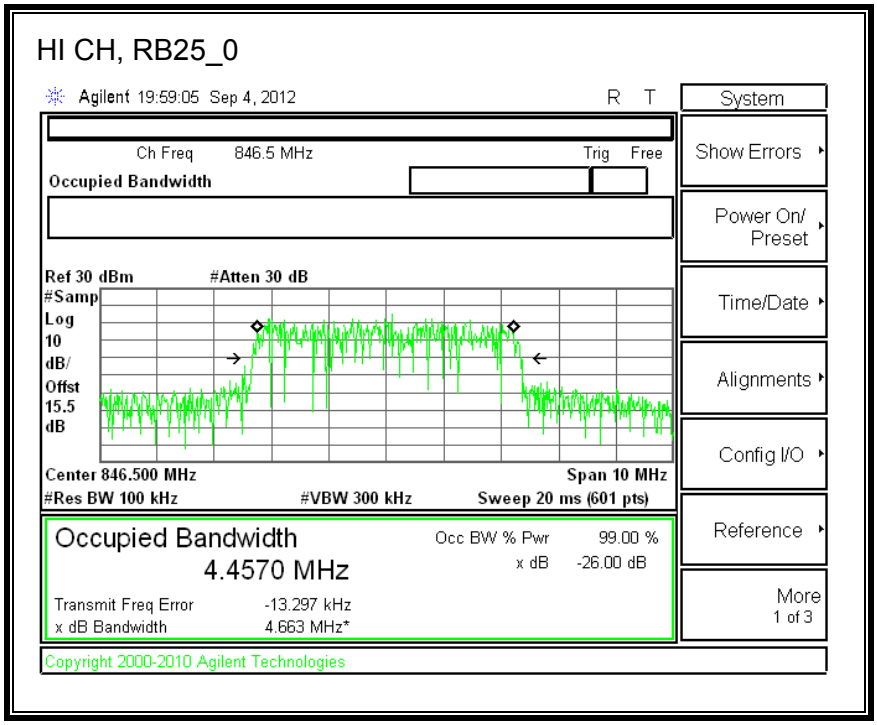

MID CH, RB25_0



HI CH, RB12_6

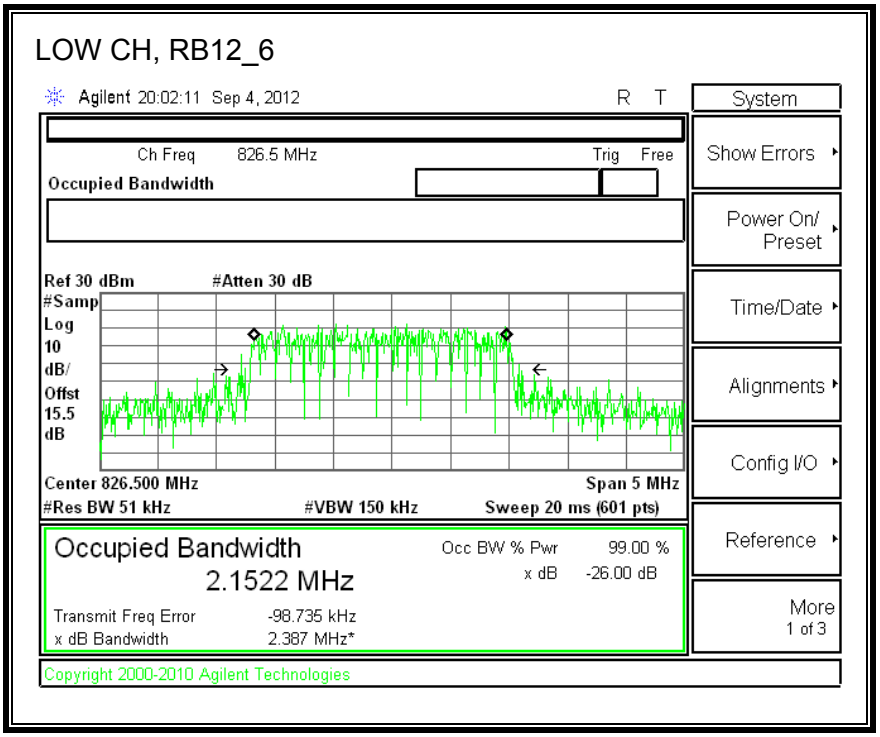


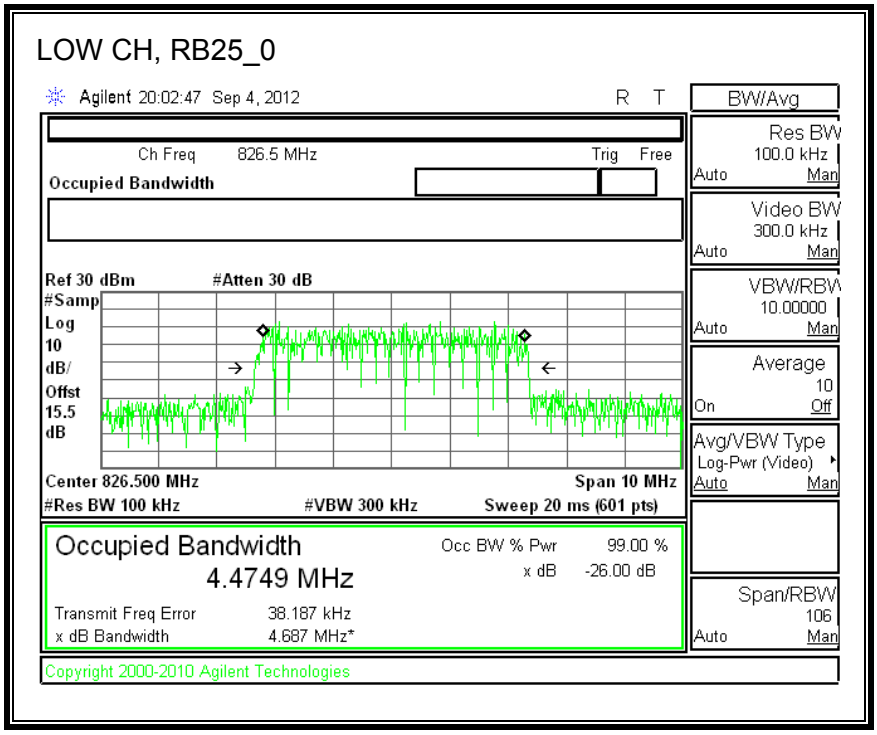

HI CH, RB25_0



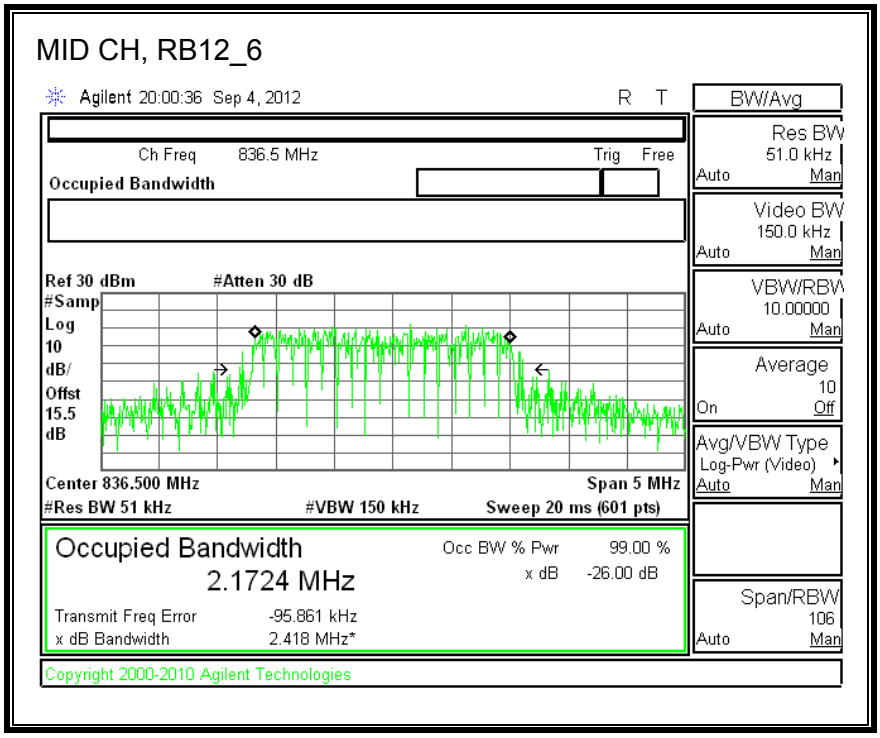
**Band 5 (5 MHz BAND WIDTH)**

**LTE 16QAM**

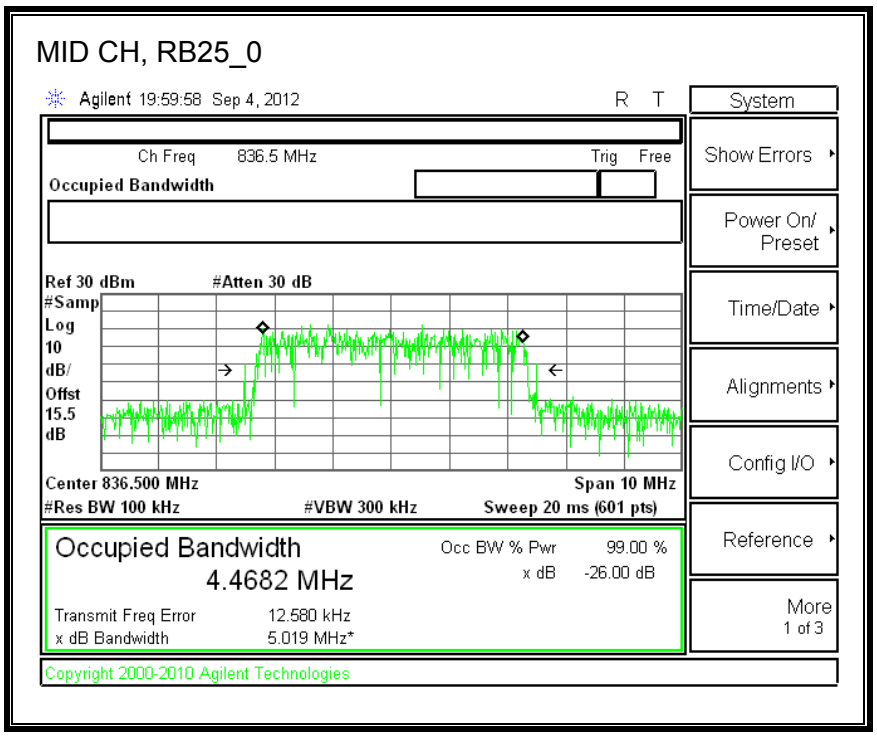


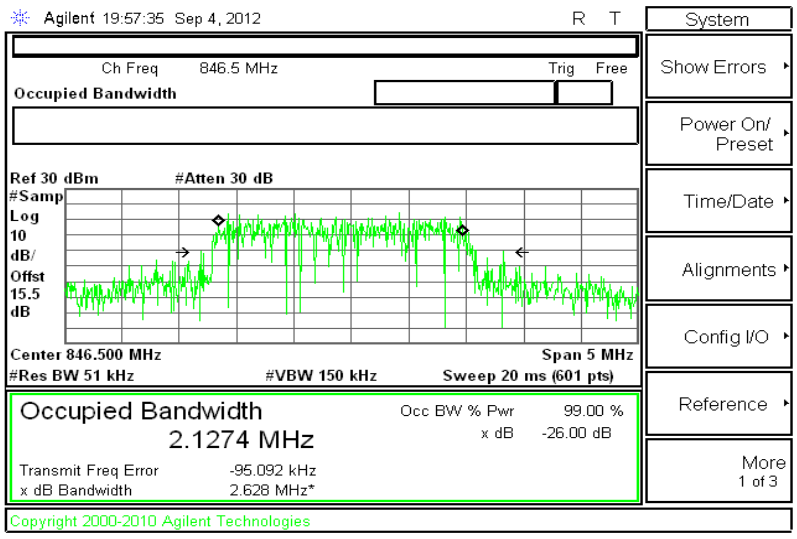
MID CH, RB12_6



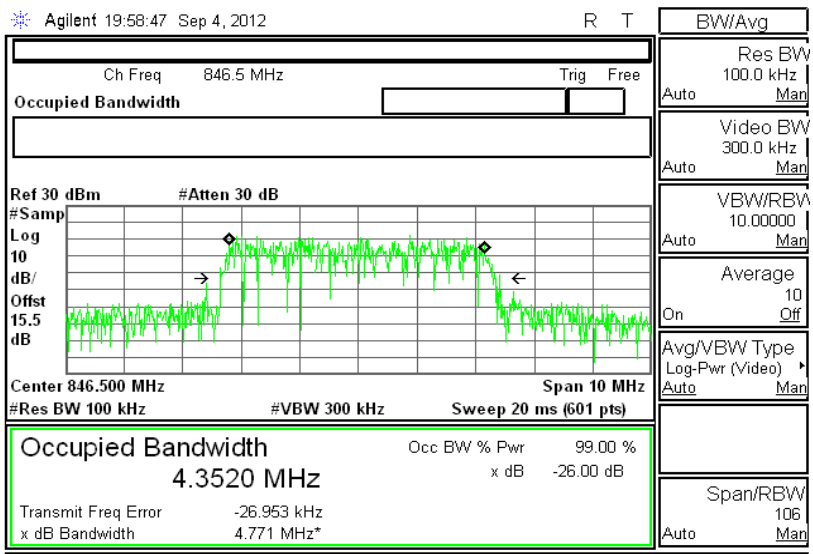

MID CH, RB25_0



HI CH, RB12_6

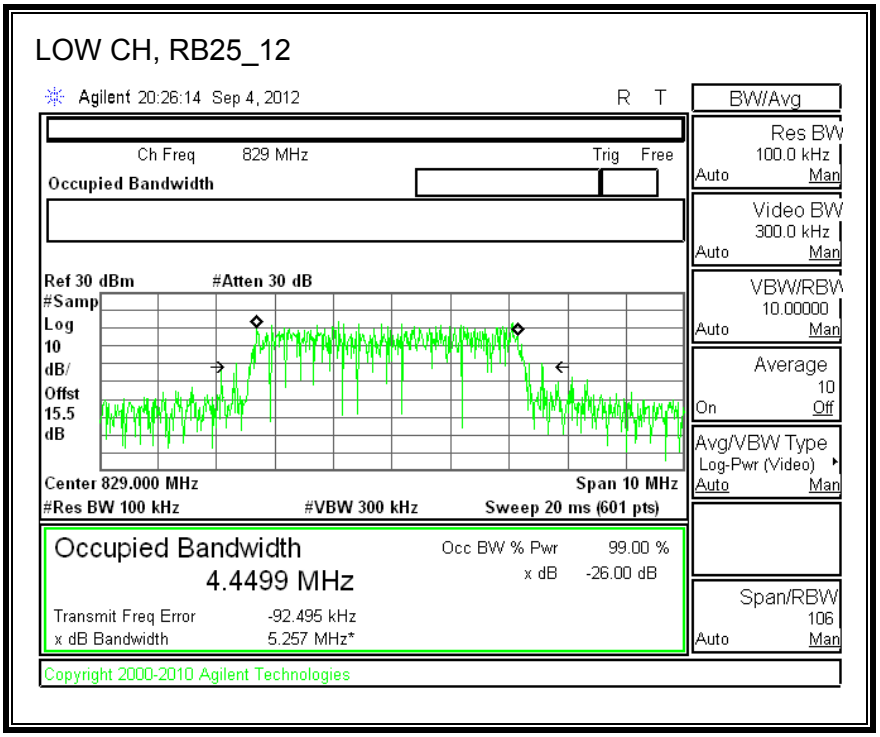


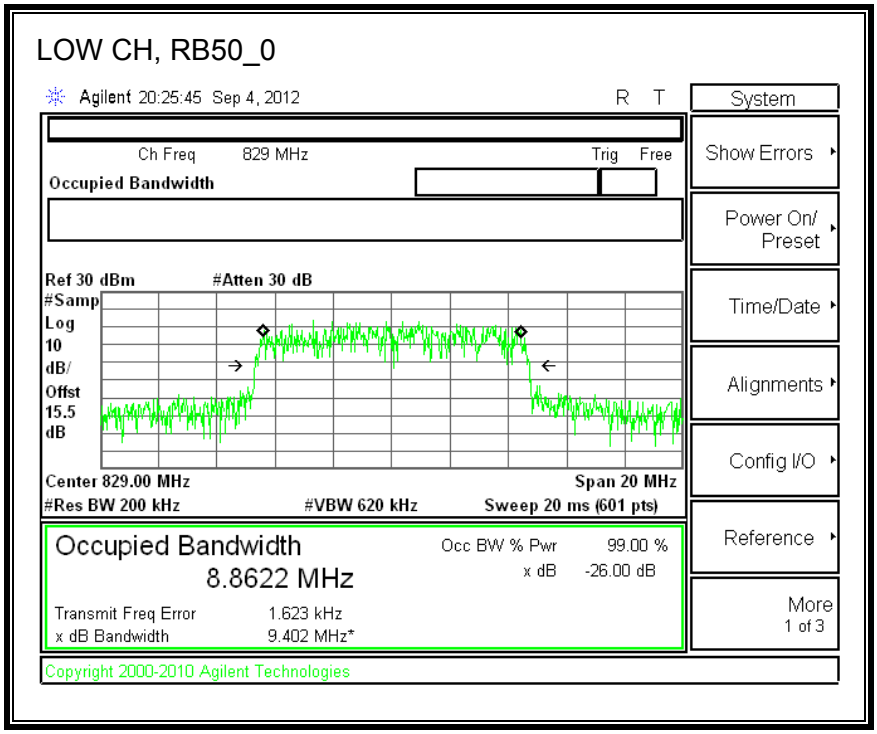

HI CH, RB25_0



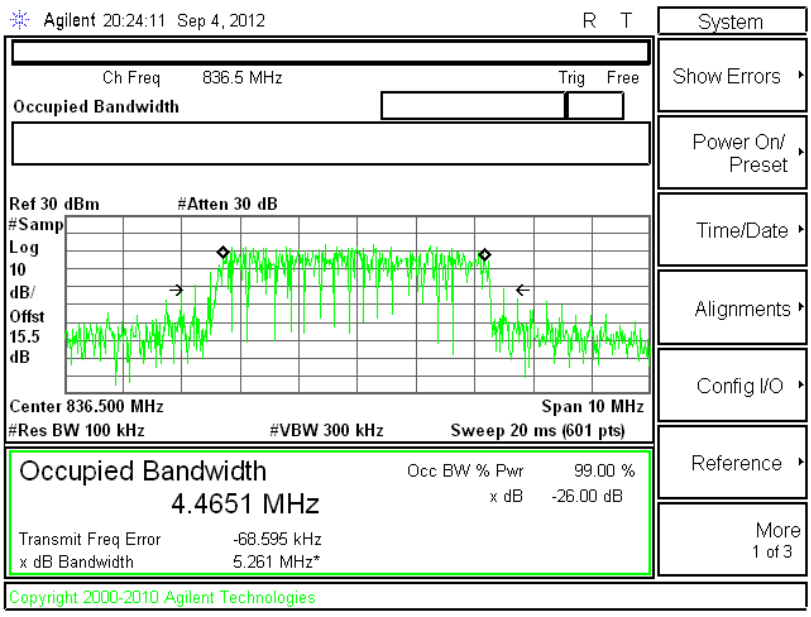
**Band 5 (10.0 MHz BAND WIDTH)**

**LTE QPSK**

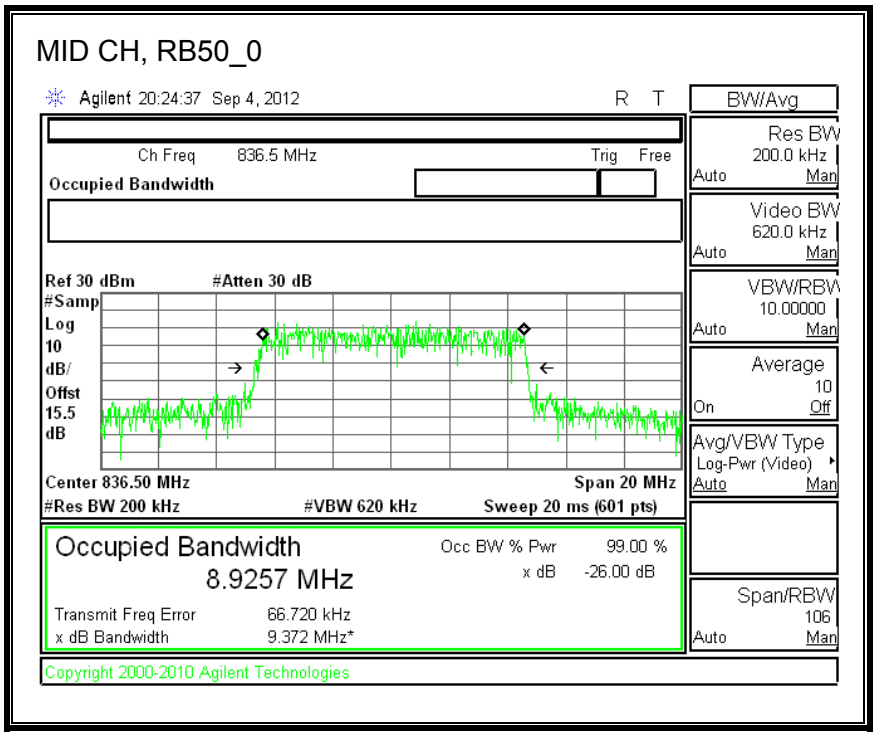


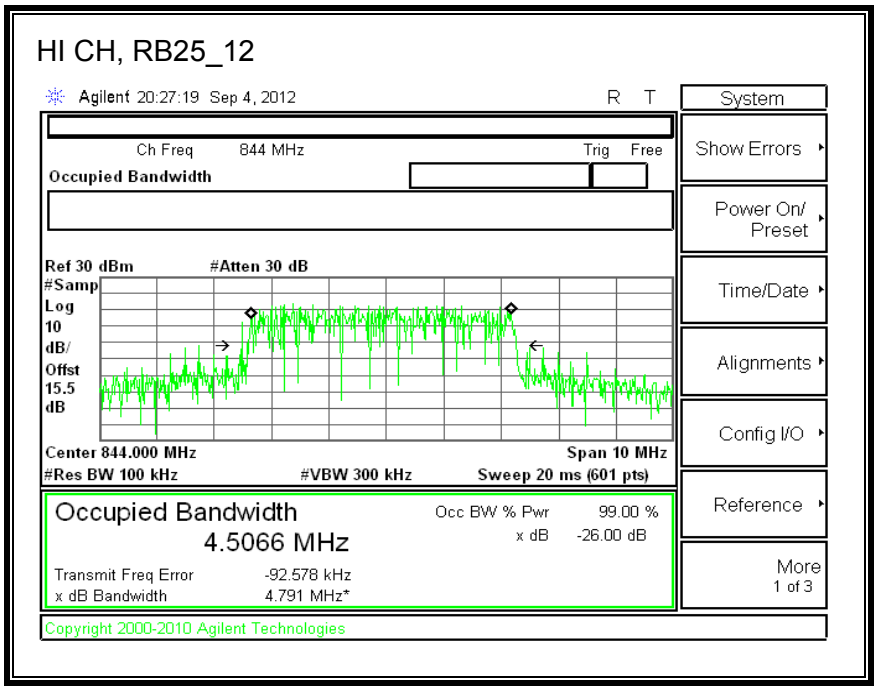
MID CH, RB25_12



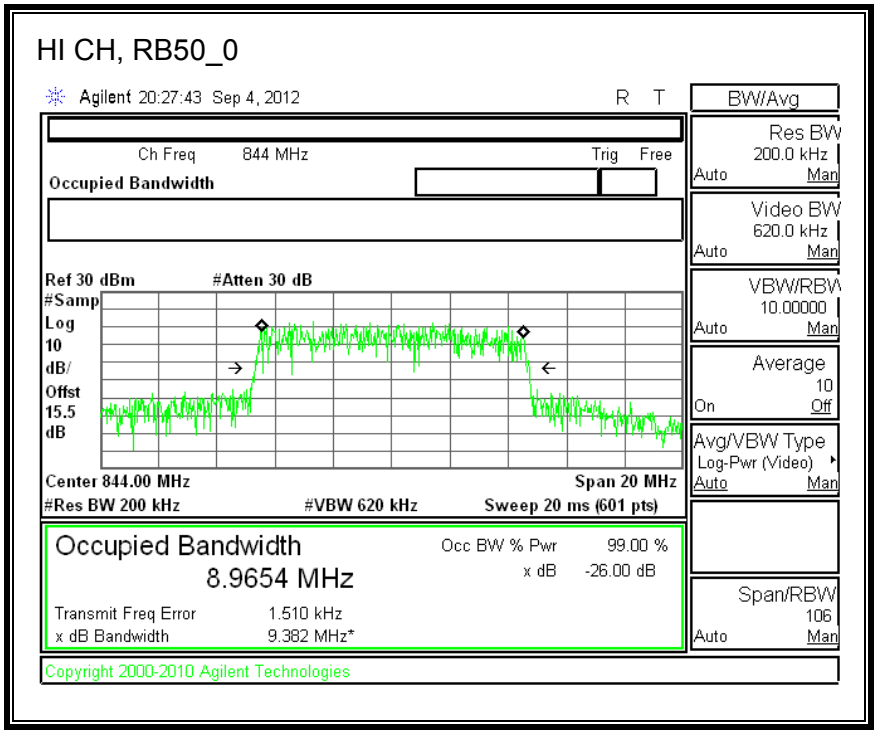

MID CH, RB50_0



HI CH, RB25_12

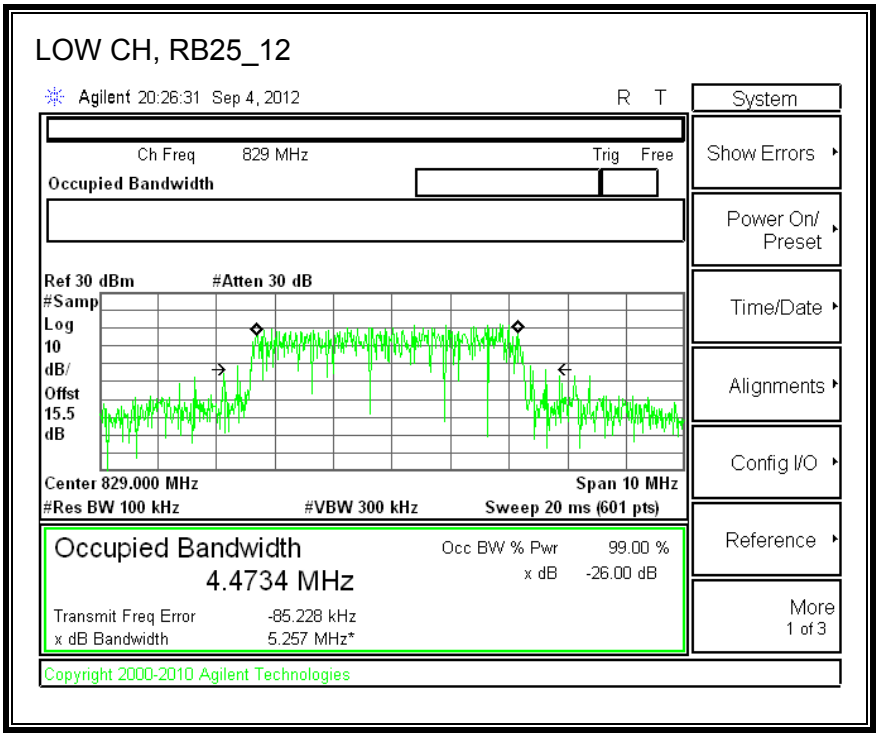


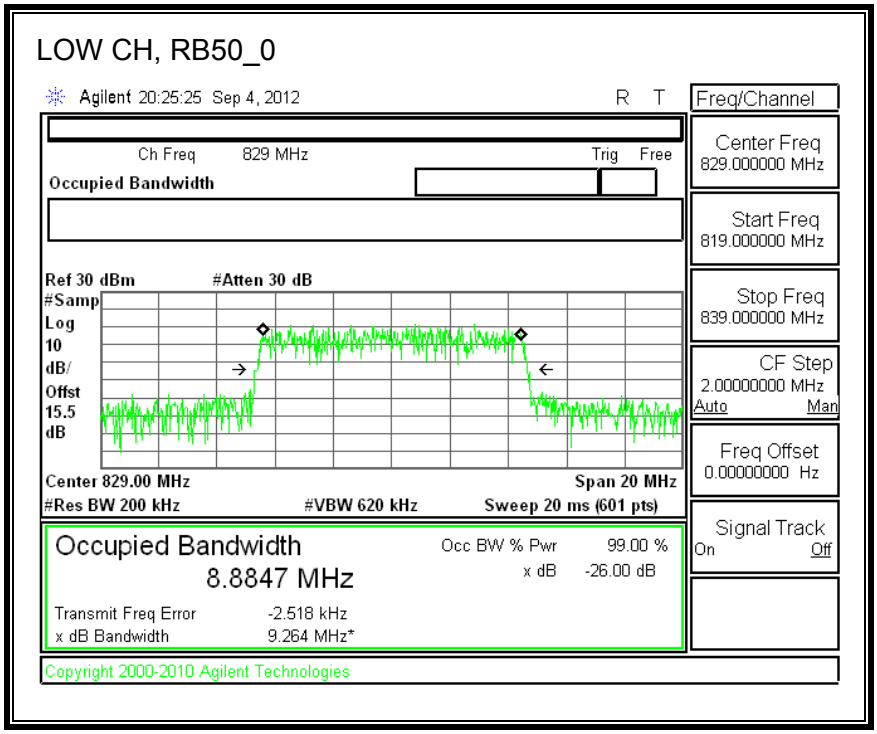

HI CH, RB50_0



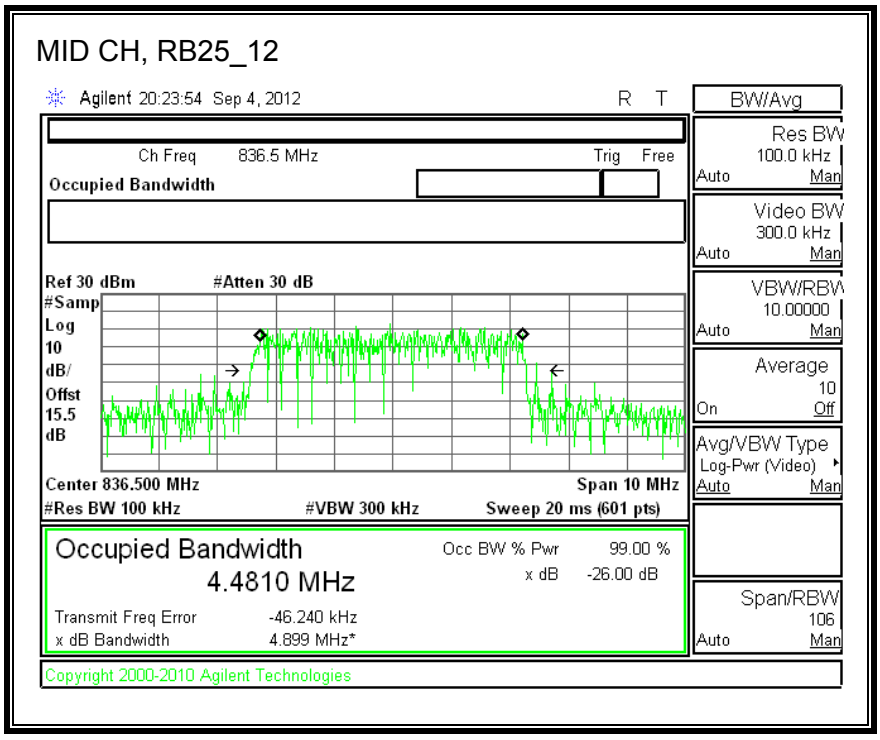
**Band 5 (10 MHz BAND WIDTH)**

**LTE 16QAM**

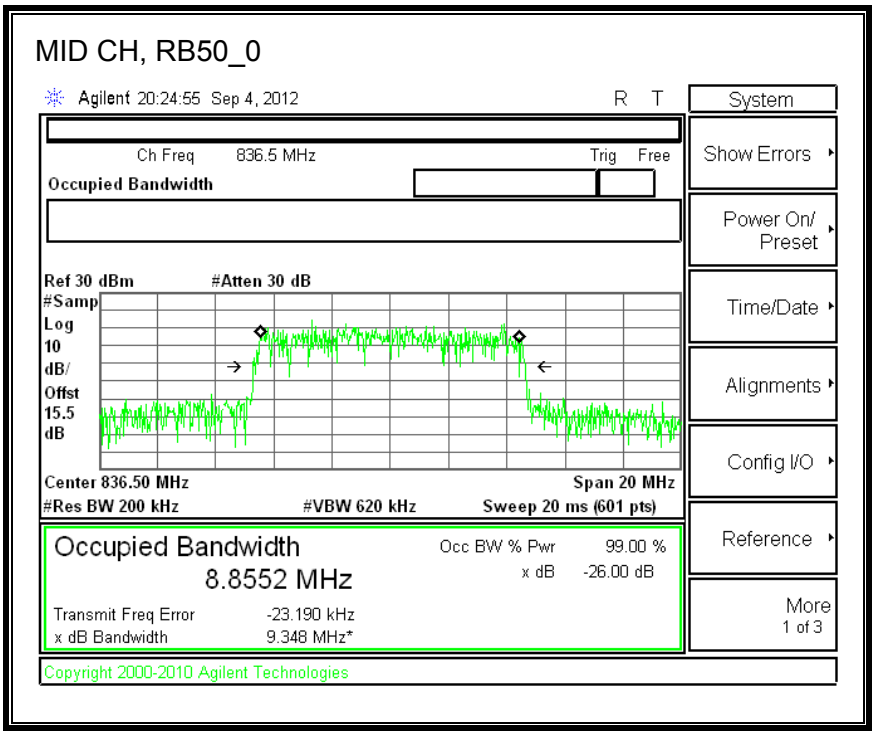


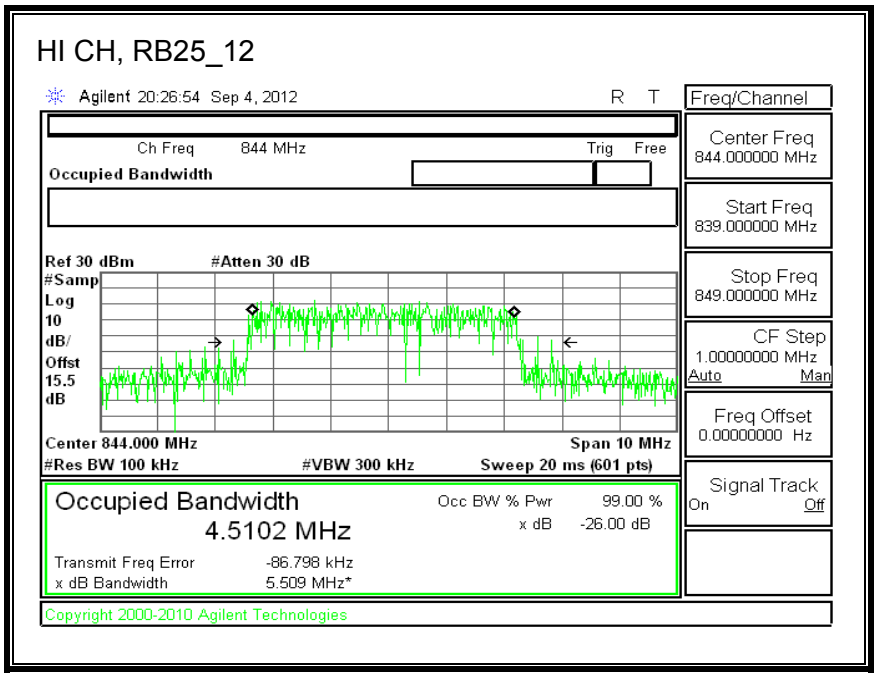
MID CH, RB25_12



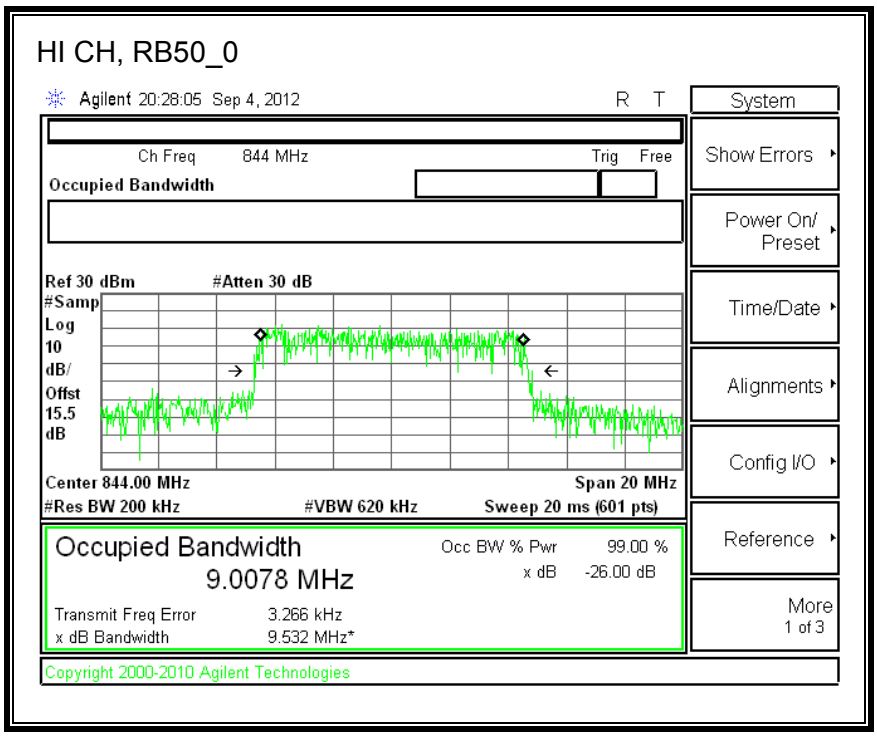

MID CH, RB50_0



HI CH, RB25_12

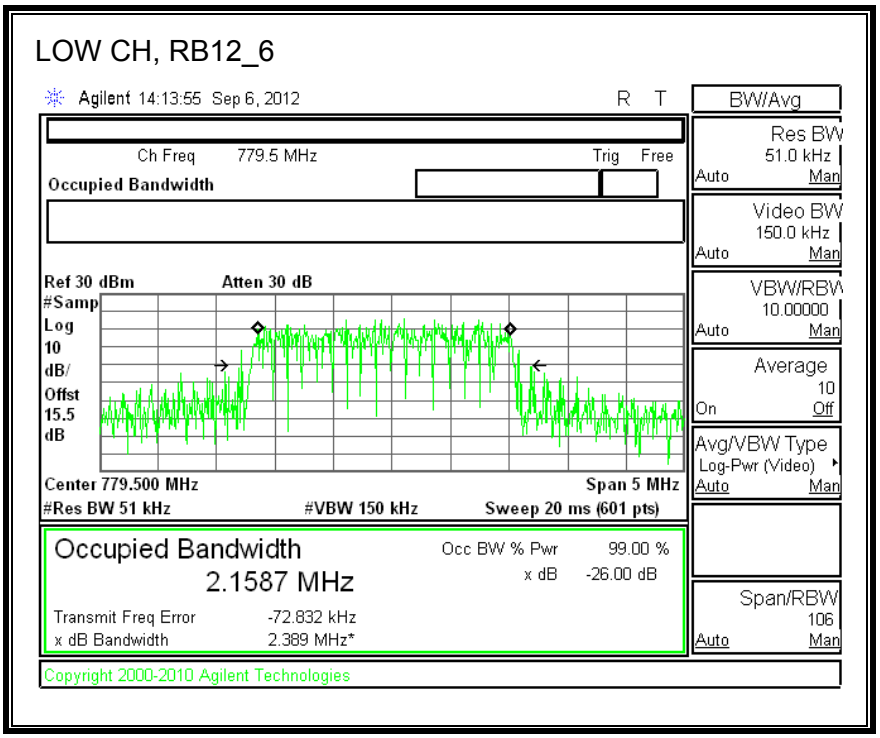


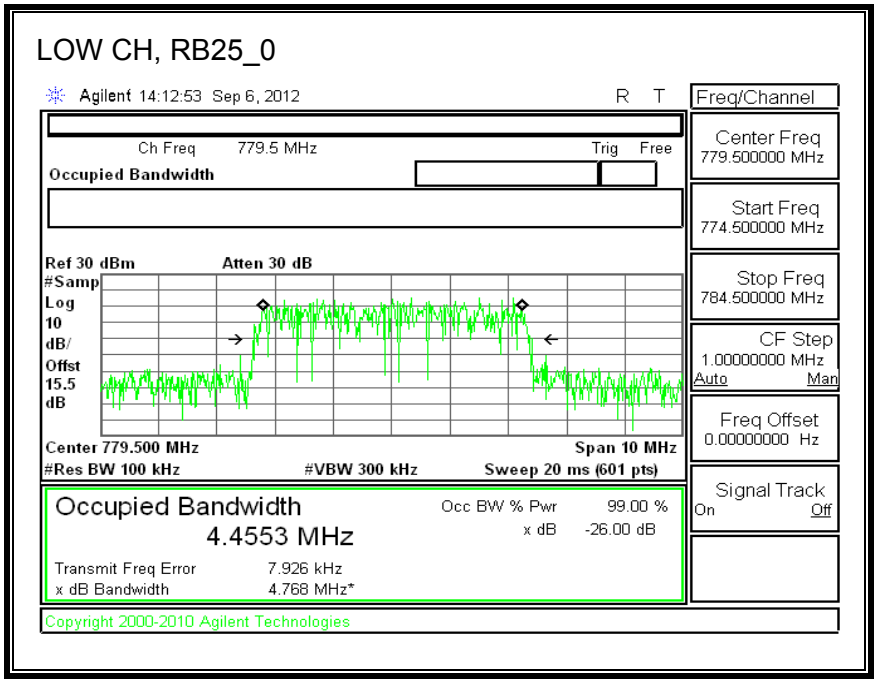

HI CH, RB50_0



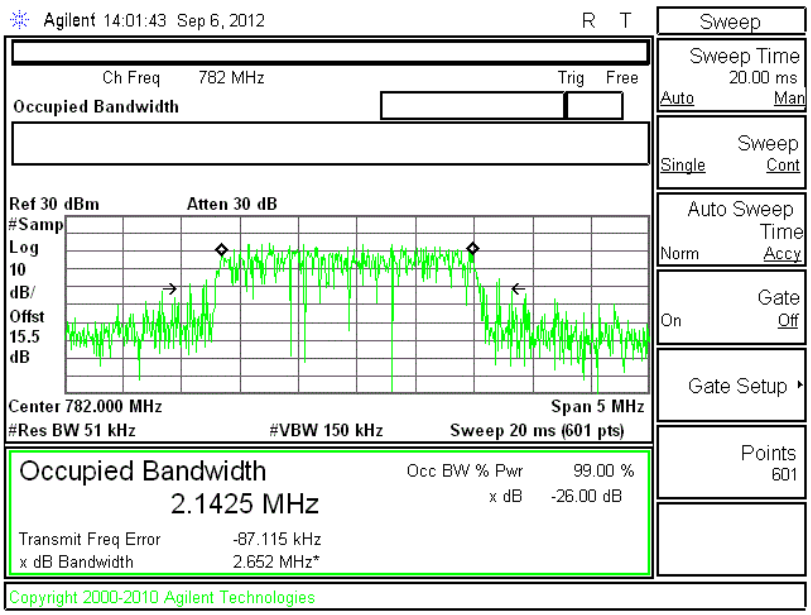
### 8.1.7. LTE Band 13

**QPSK Band 13 (5.0 MHz BAND WIDTH)**

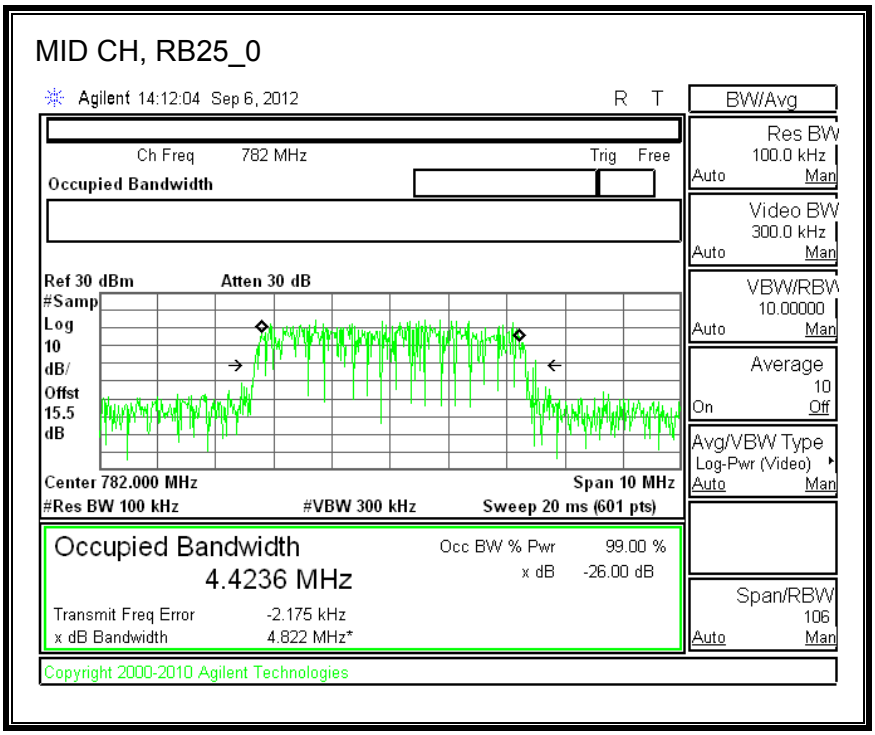


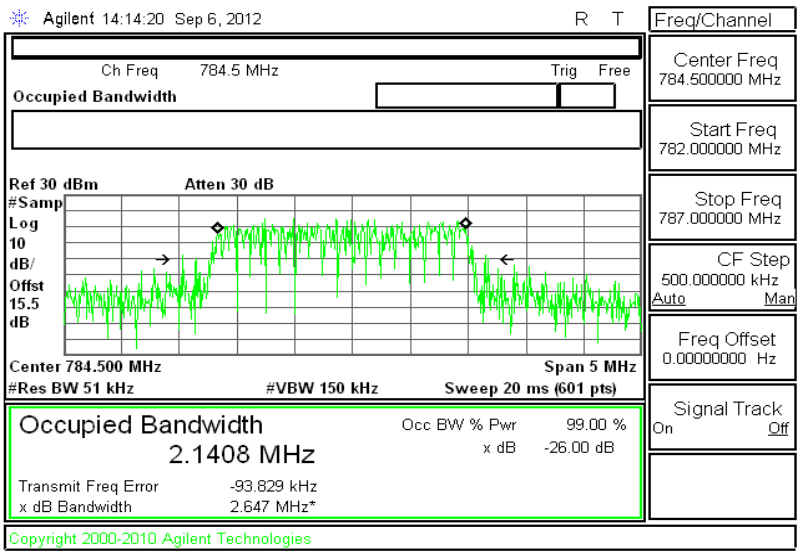
MID CH, RB12_6



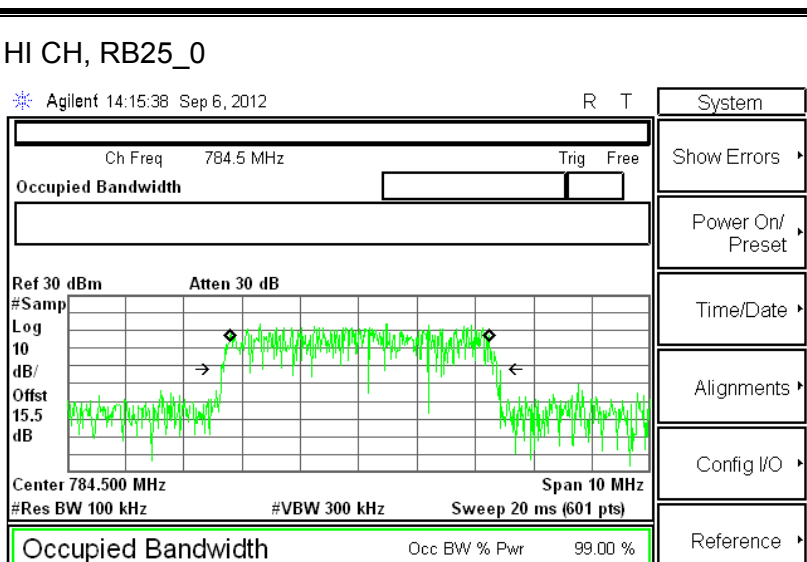

MID CH, RB25_0



HI CH, RB12_6

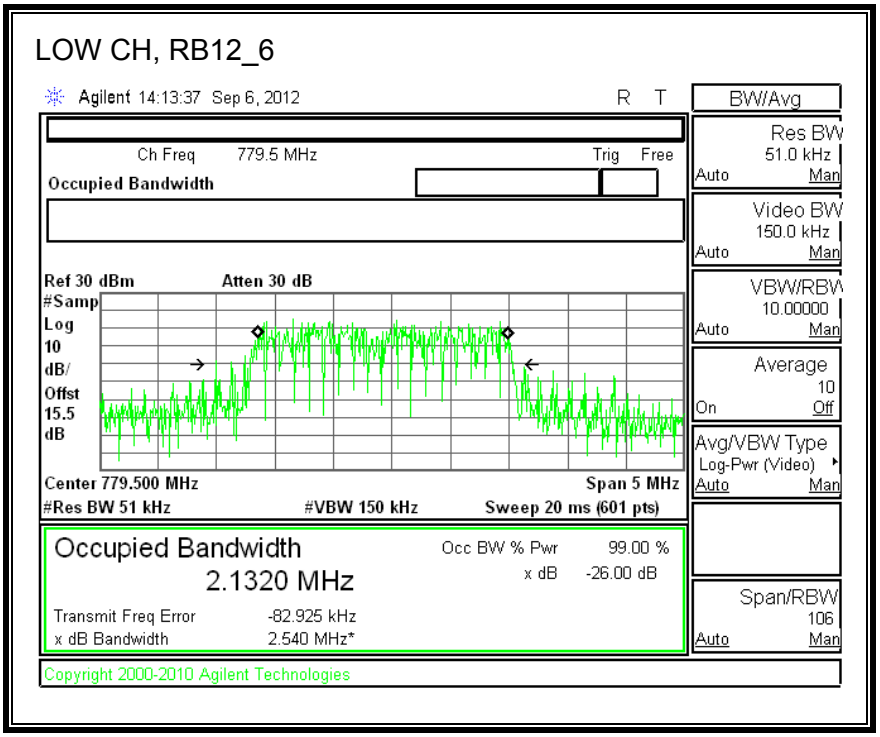


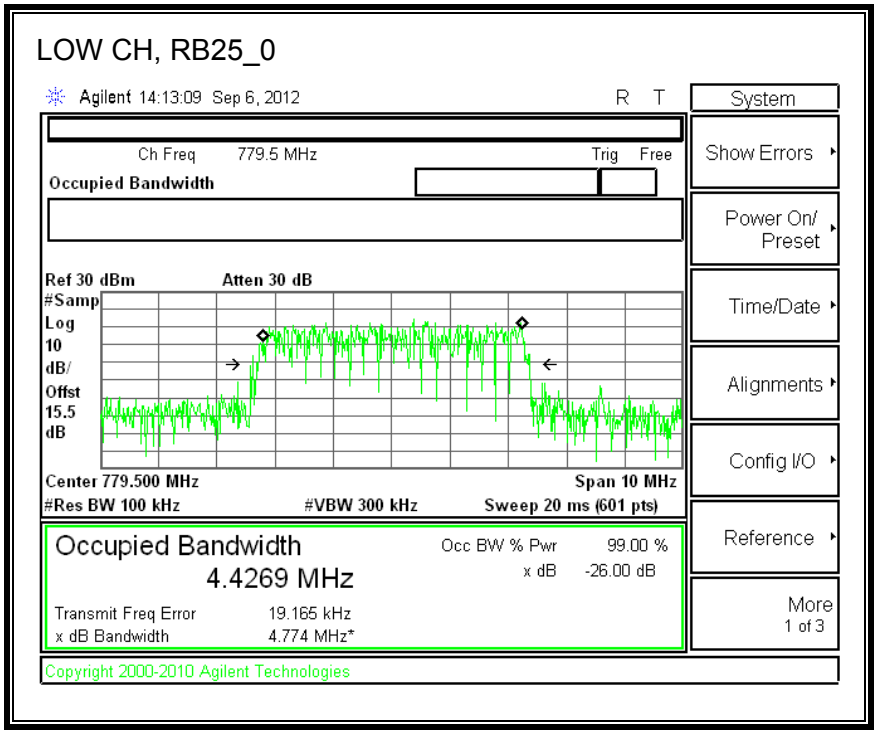

HI CH, RB25_0



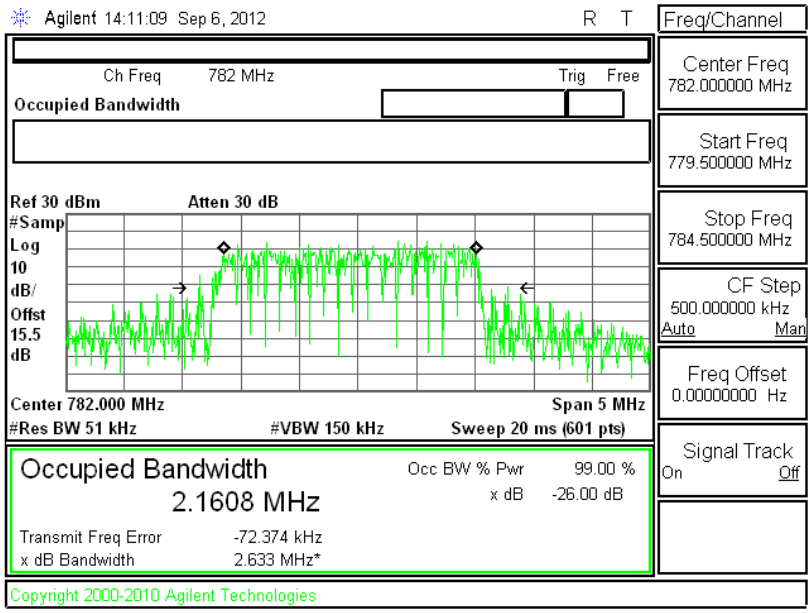
**Band 13 (5 MHz BAND WIDTH)**

**LTE 16QAM**

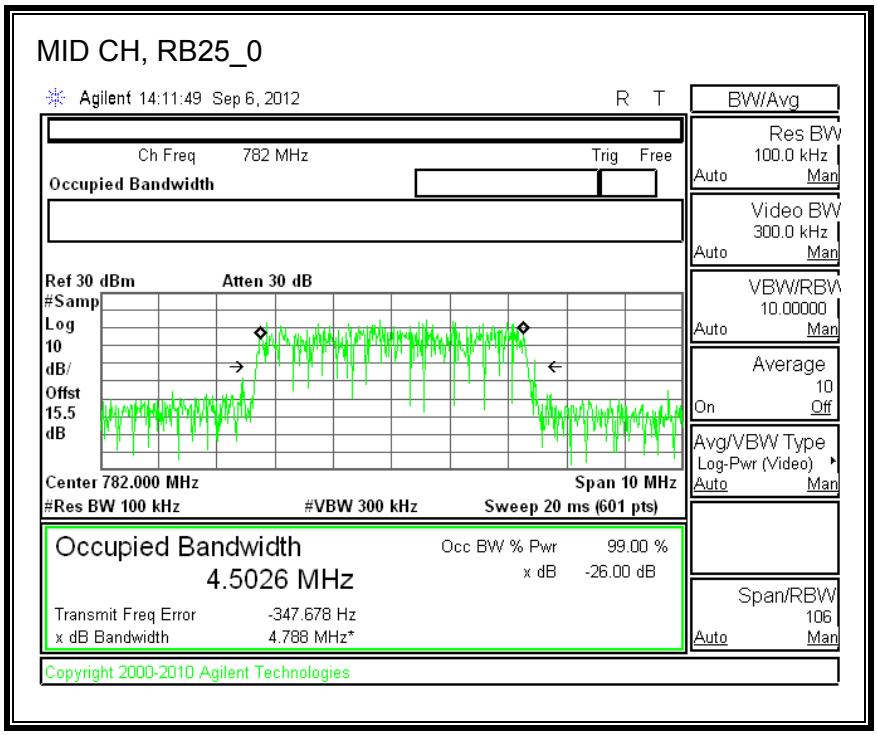


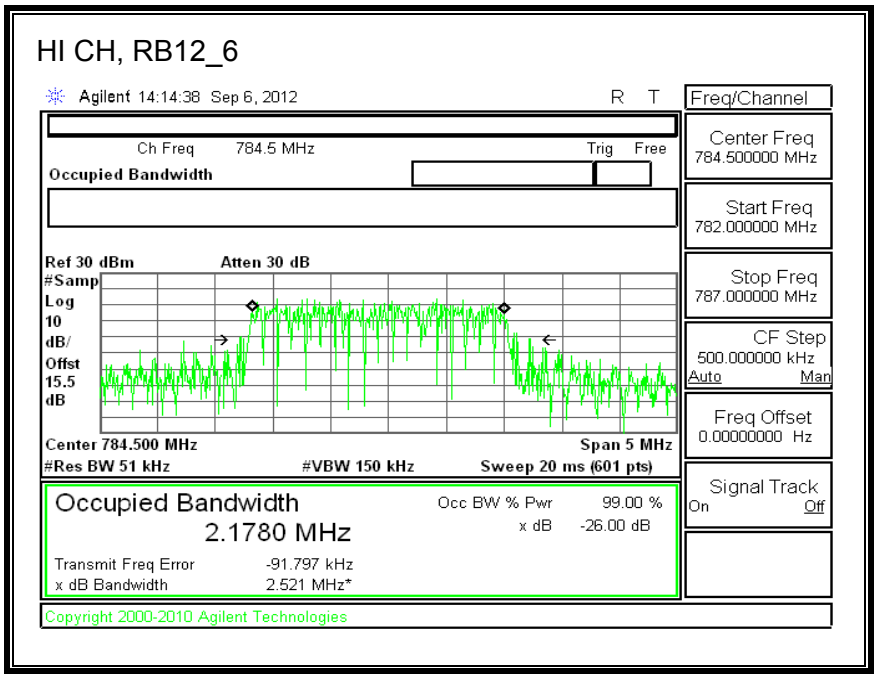
MID CH, RB12_6



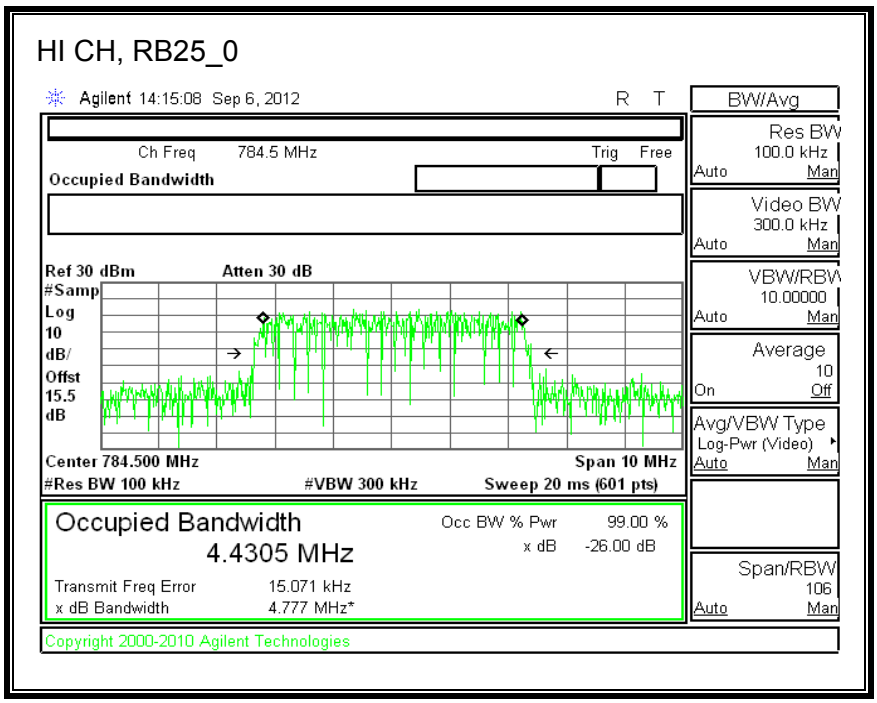

MID CH, RB25_0



HI CH, RB12_6

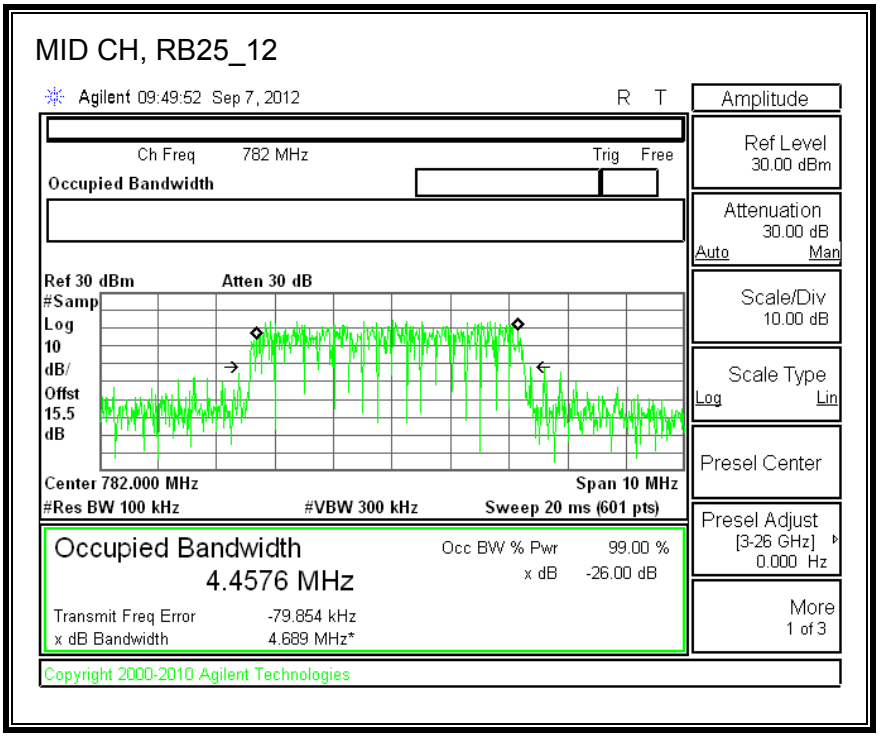


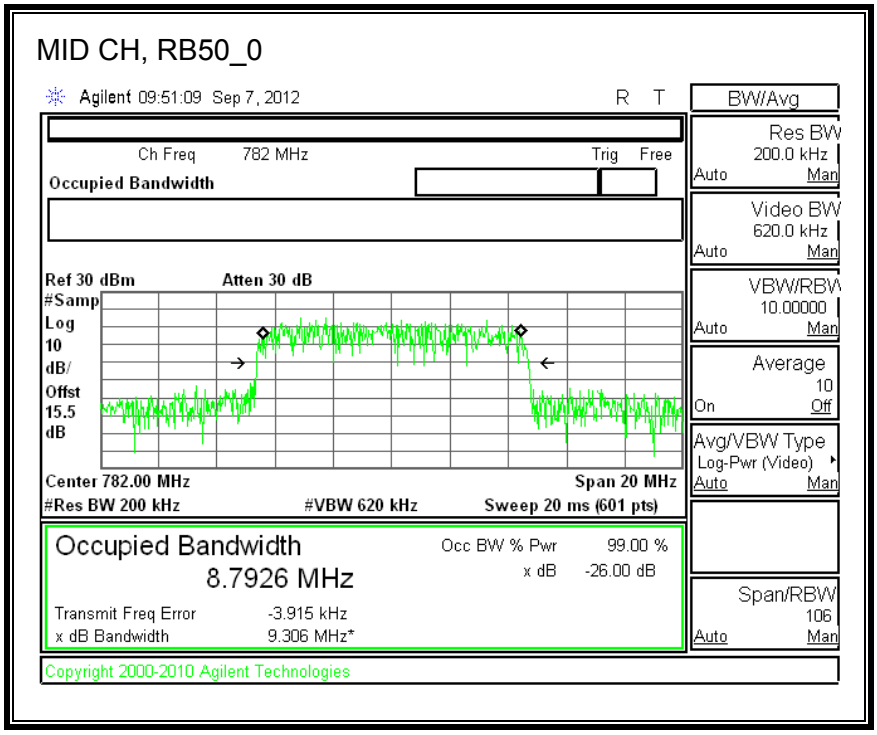

HI CH, RB25_0



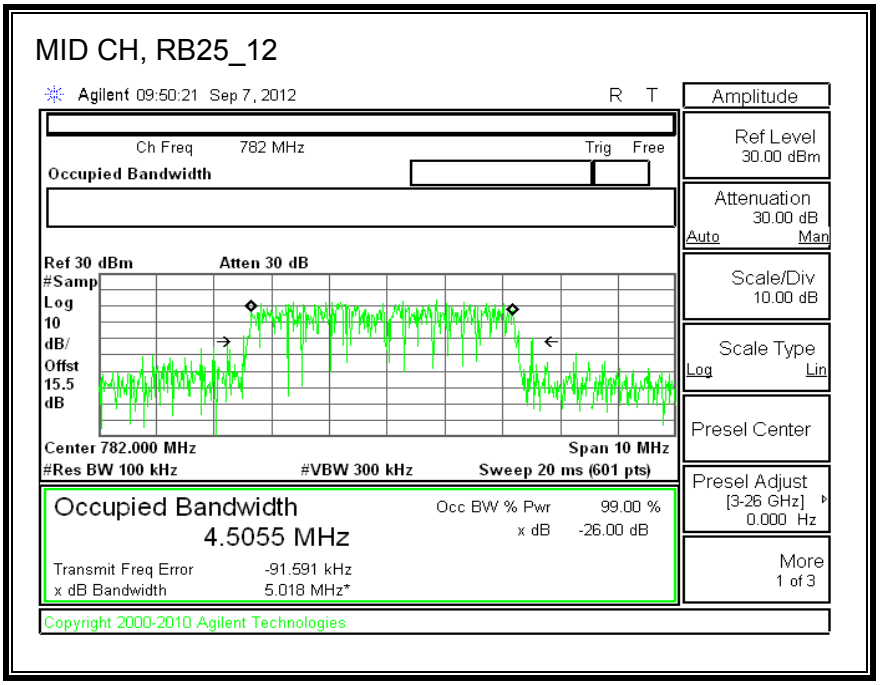
**Band 13 (10.0 MHz BAND WIDTH)**

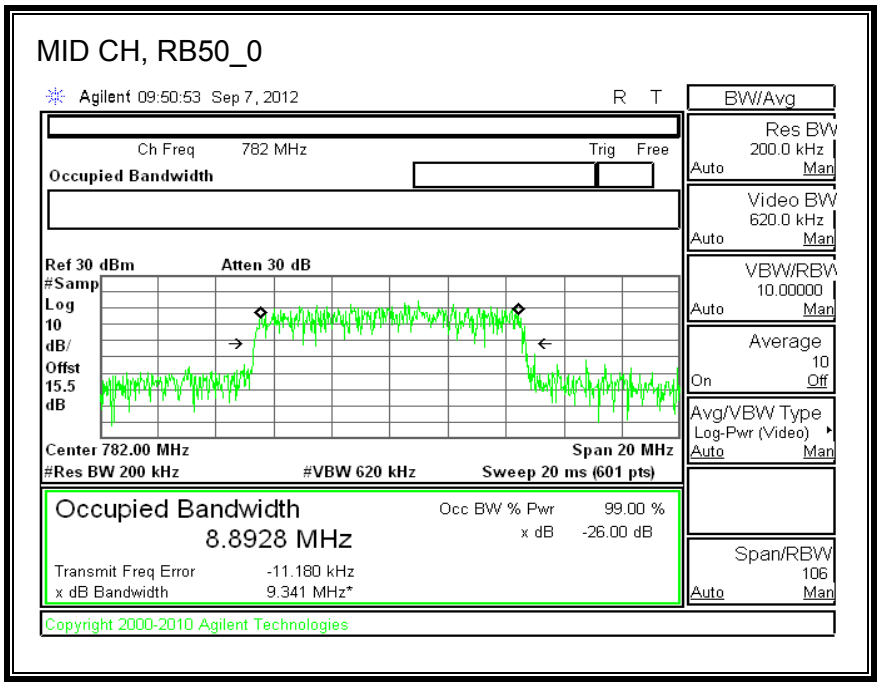
**LTE QPSK**



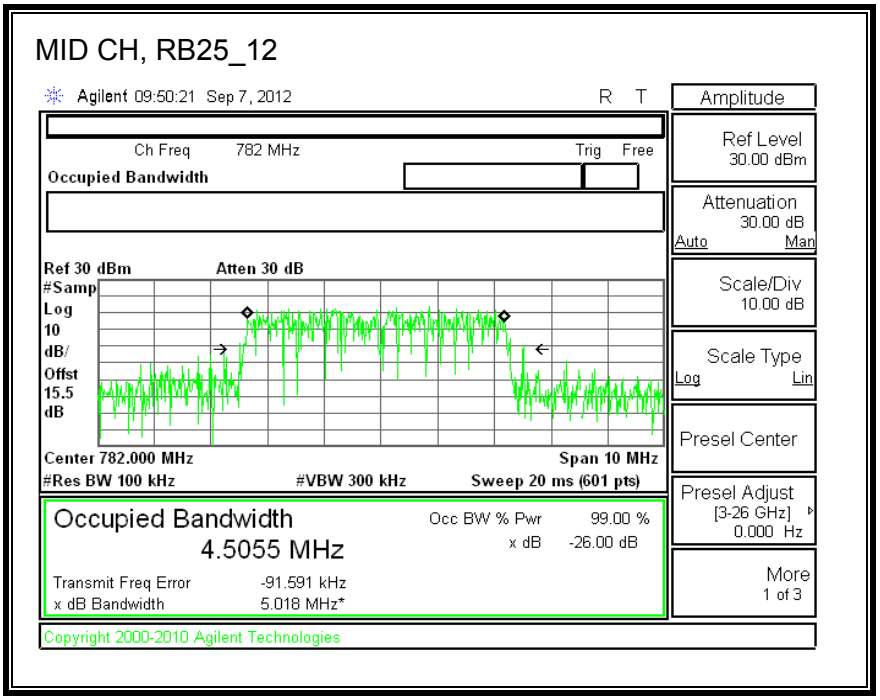
**LTE 16QAM**

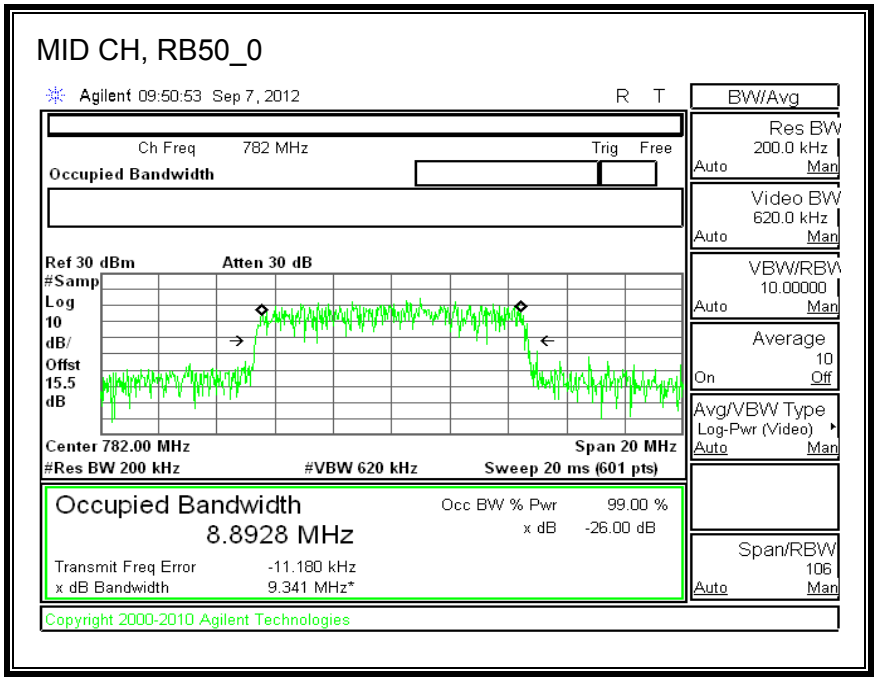


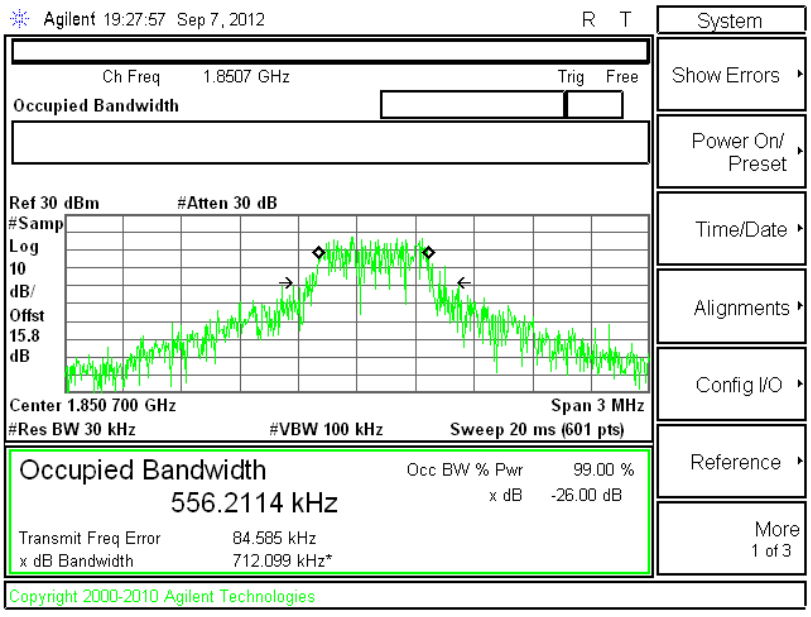
### 8.1.8. LTE Band 25

**QPSK (1.4 MHz BAND WIDTH**

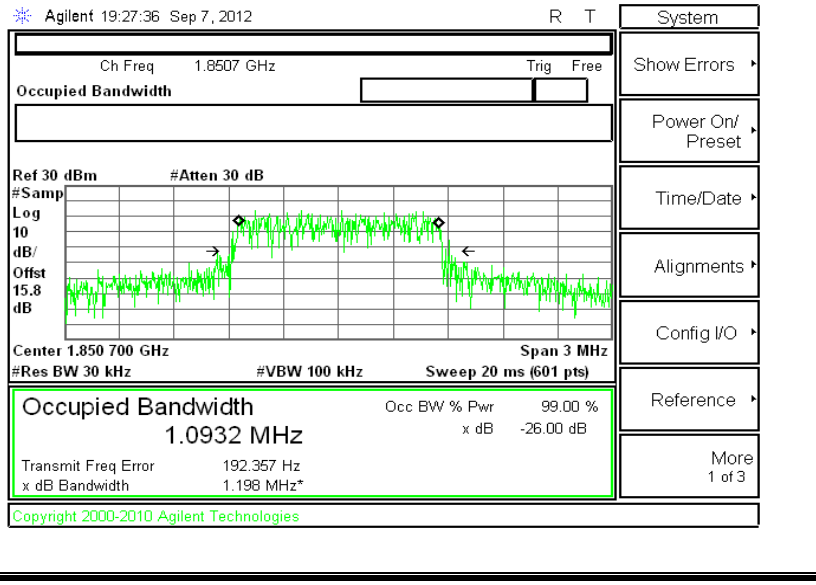


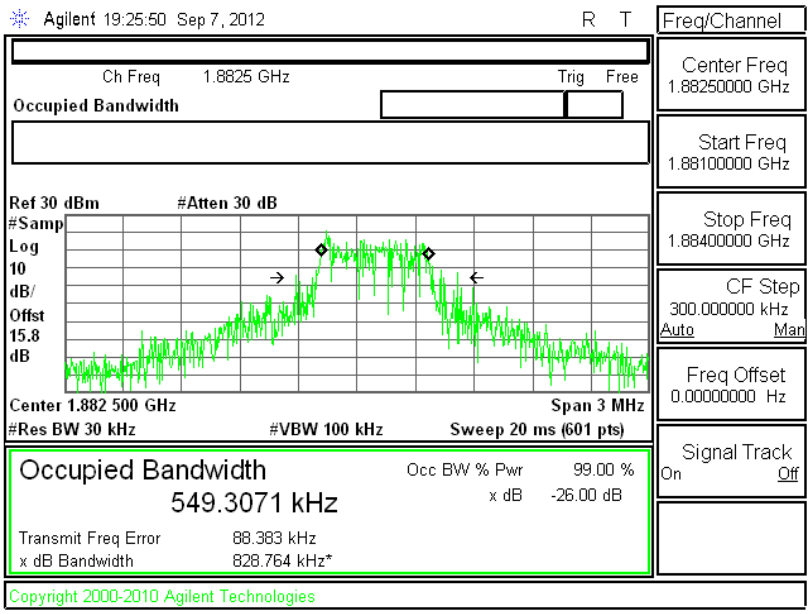
LOW CH, RB3_2



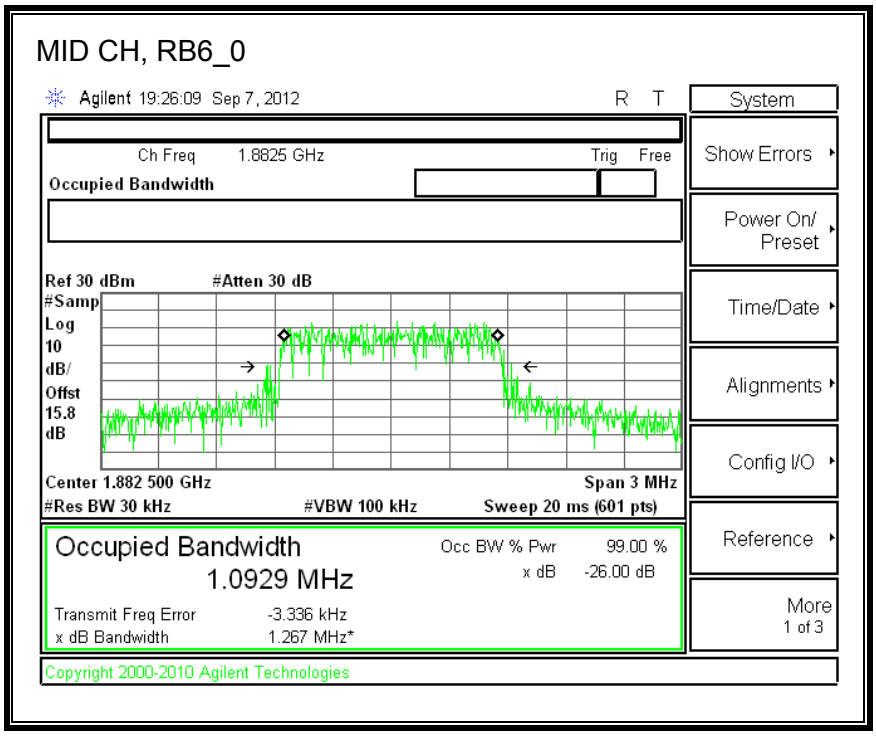

LOW CH, RB6_0



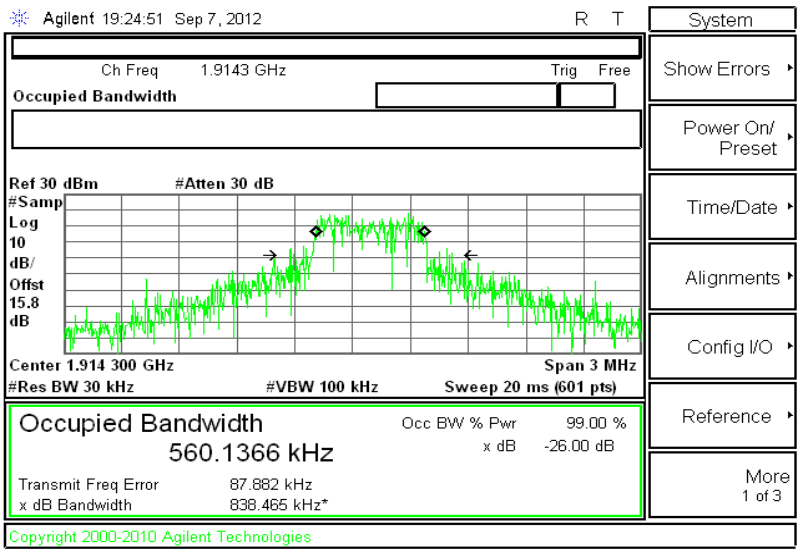
MID CH, RB3_2



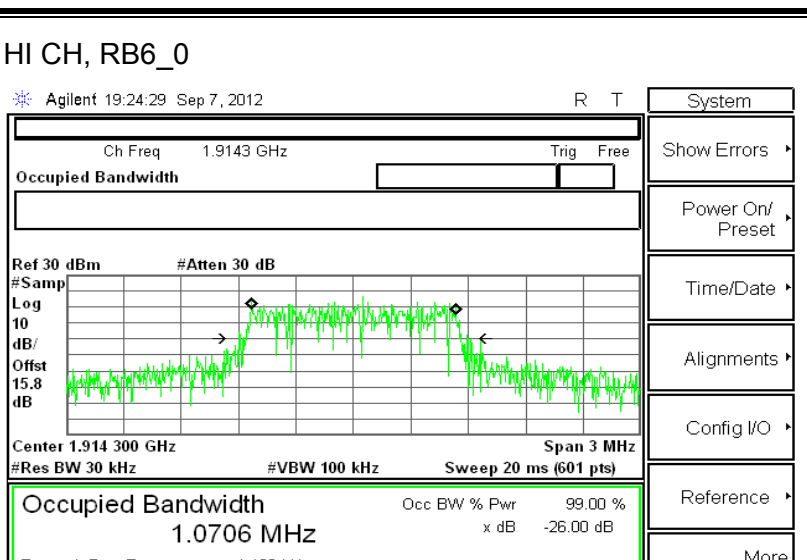

MID CH, RB6_0



HI CH, RB3_2

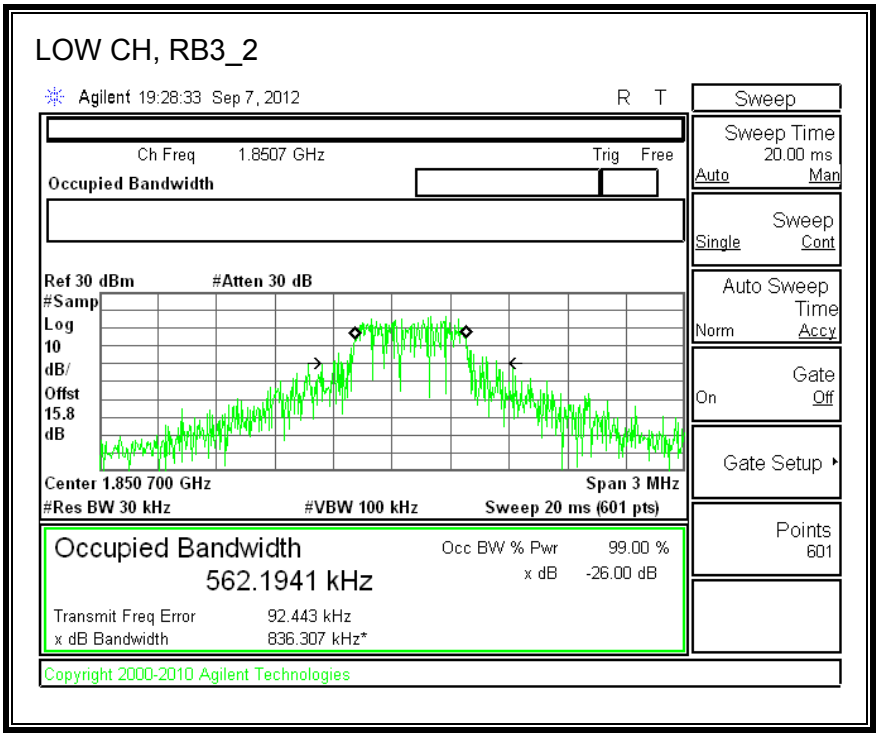


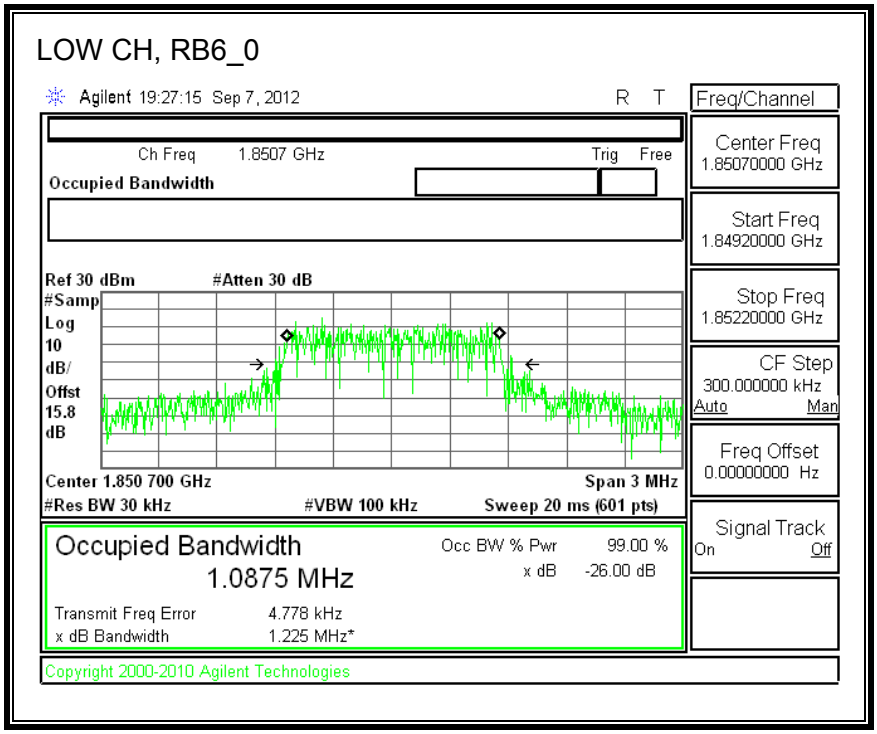

HI CH, RB6_0



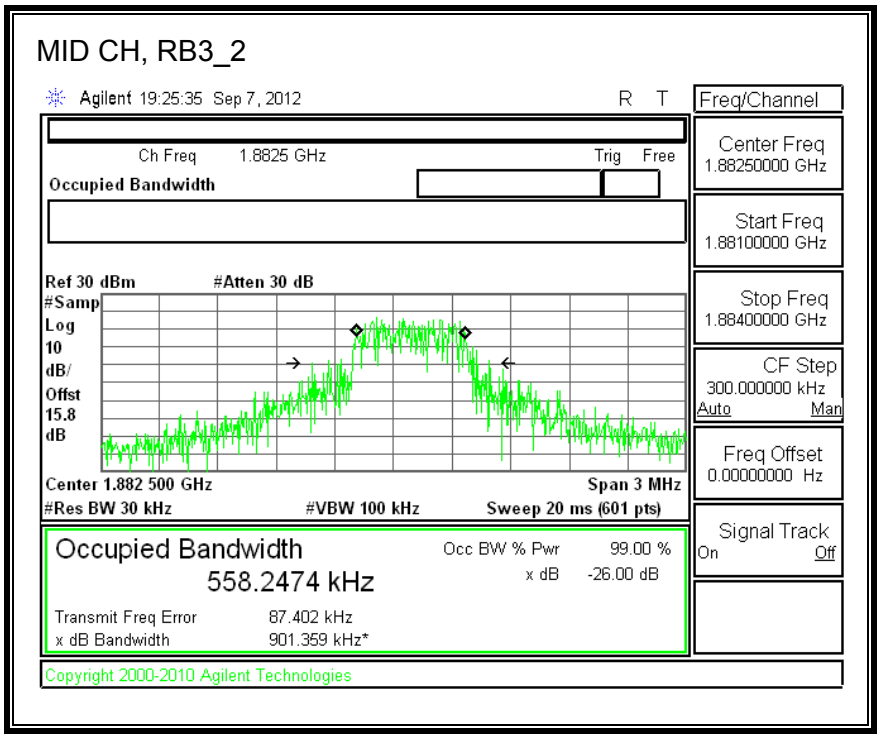
**Band 25 (1.4 MHz BAND WIDTH)**

**LTE 16QAM**

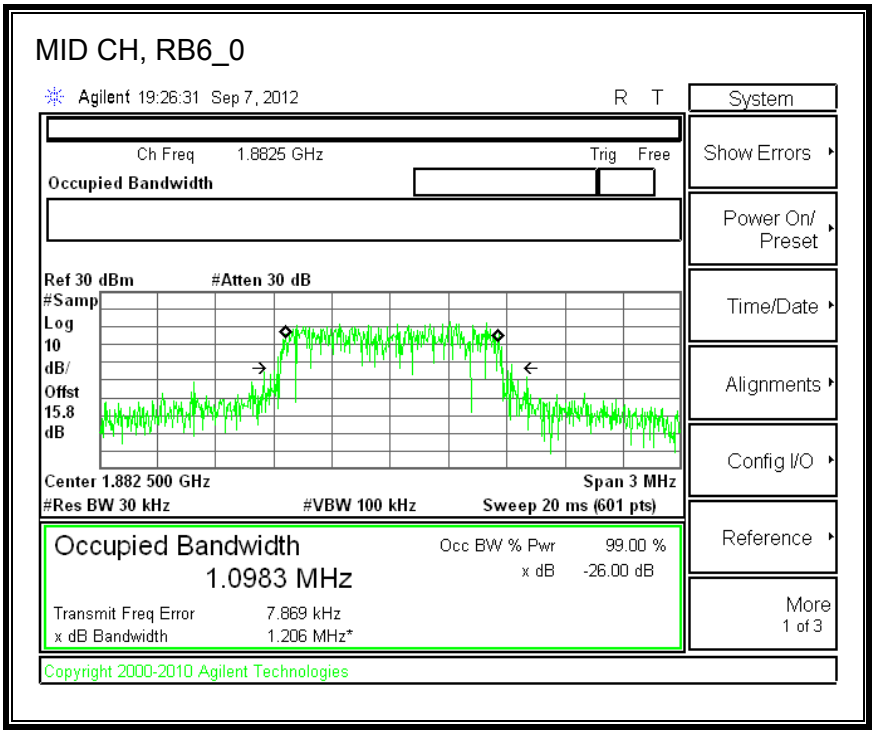


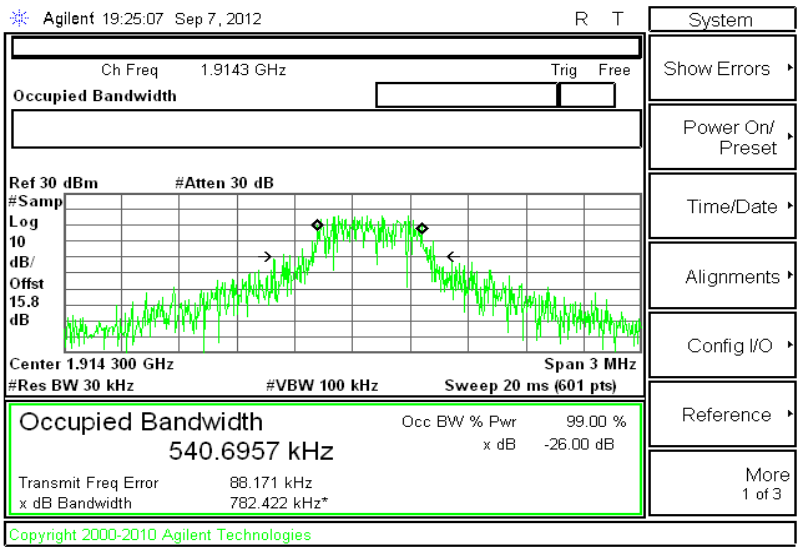
MID CH, RB3_2



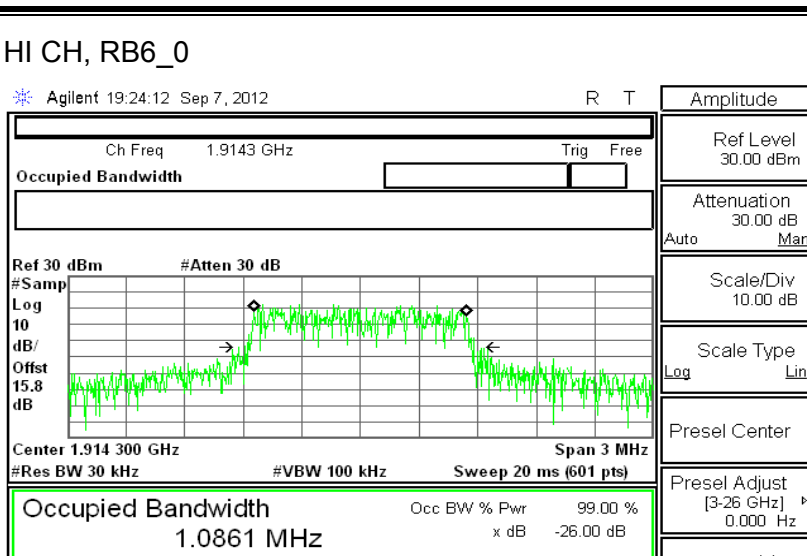

MID CH, RB6_0



HI CH, RB3_2

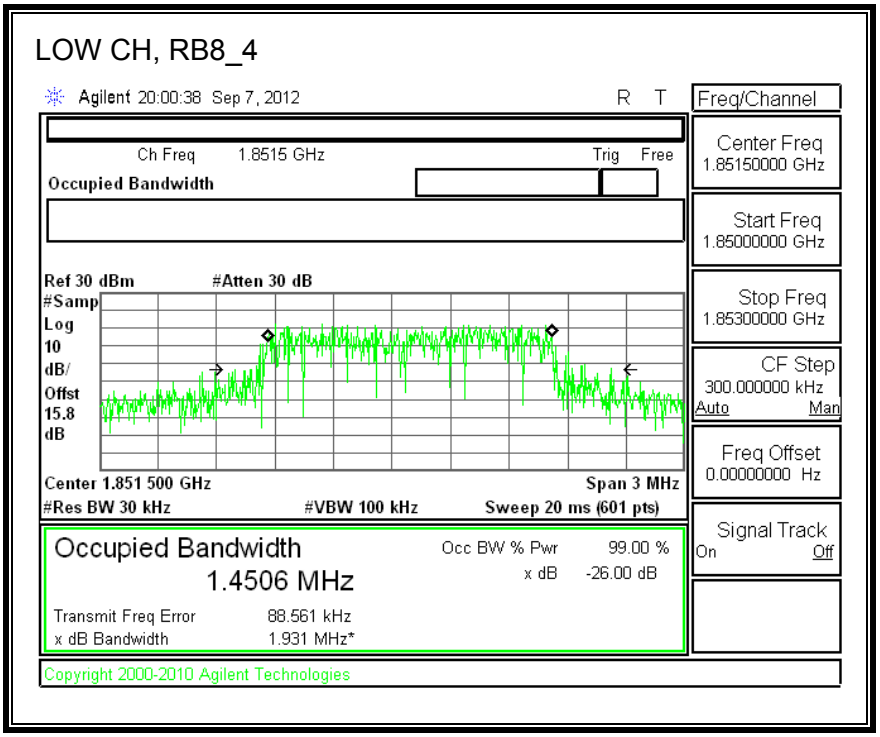


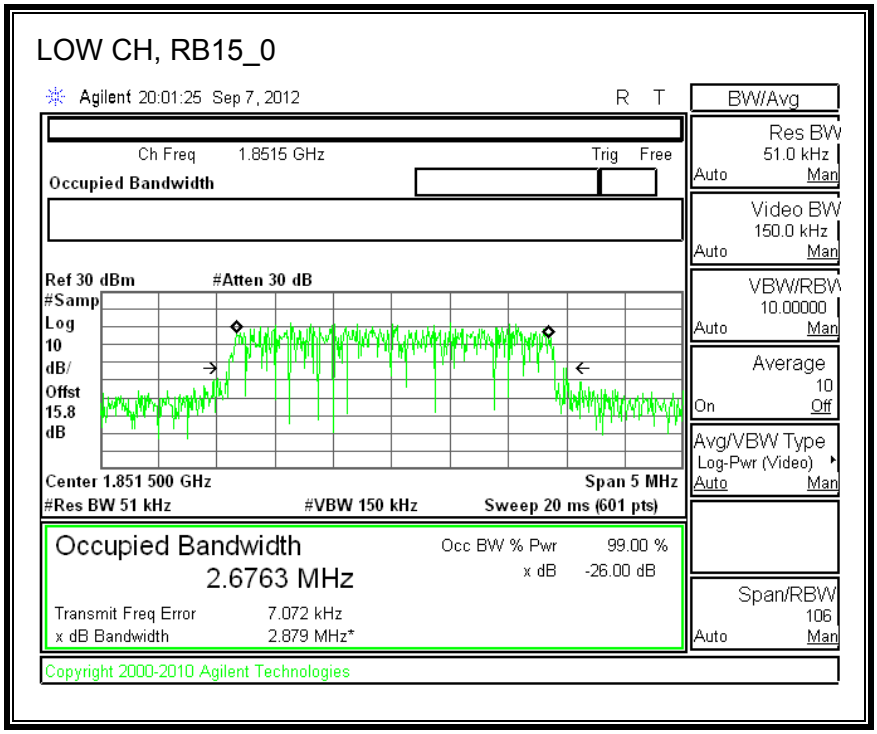

HI CH, RB6_0



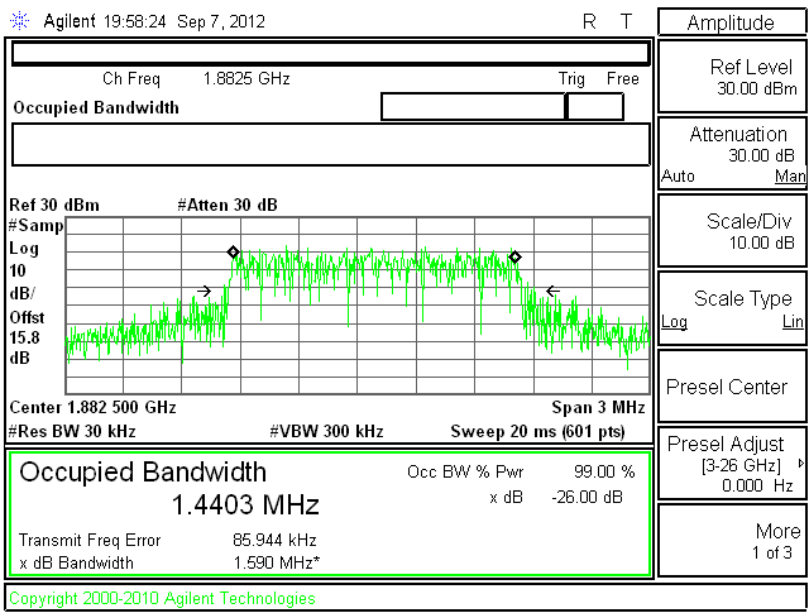
**Band 25 (3.0 MHz BAND WIDTH)**

**LTE QPSK**

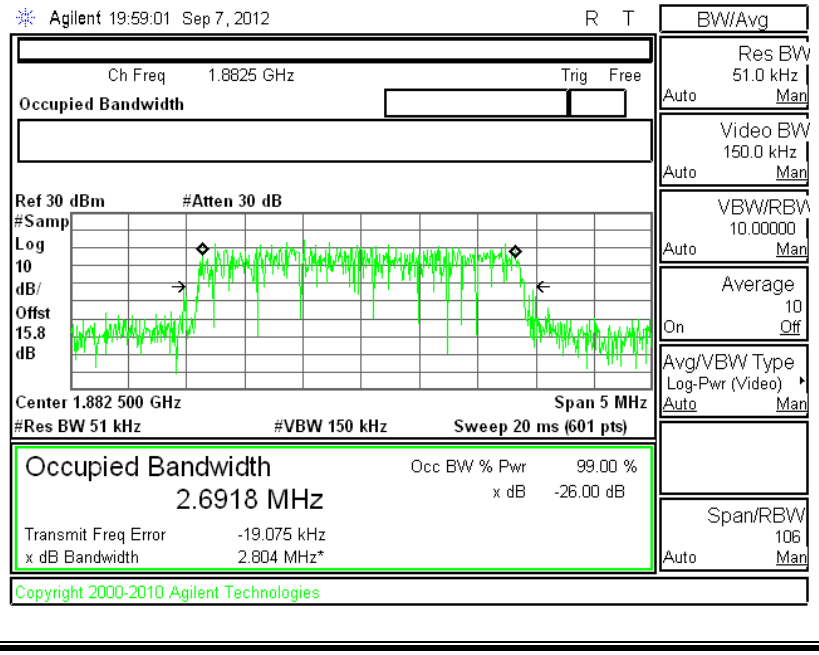


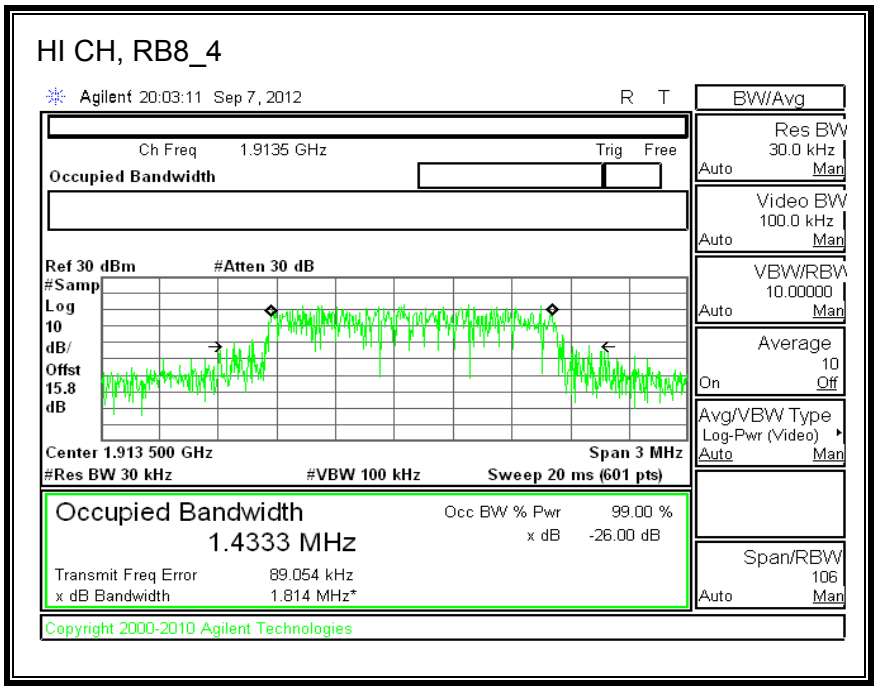
MID CH, RB8_4



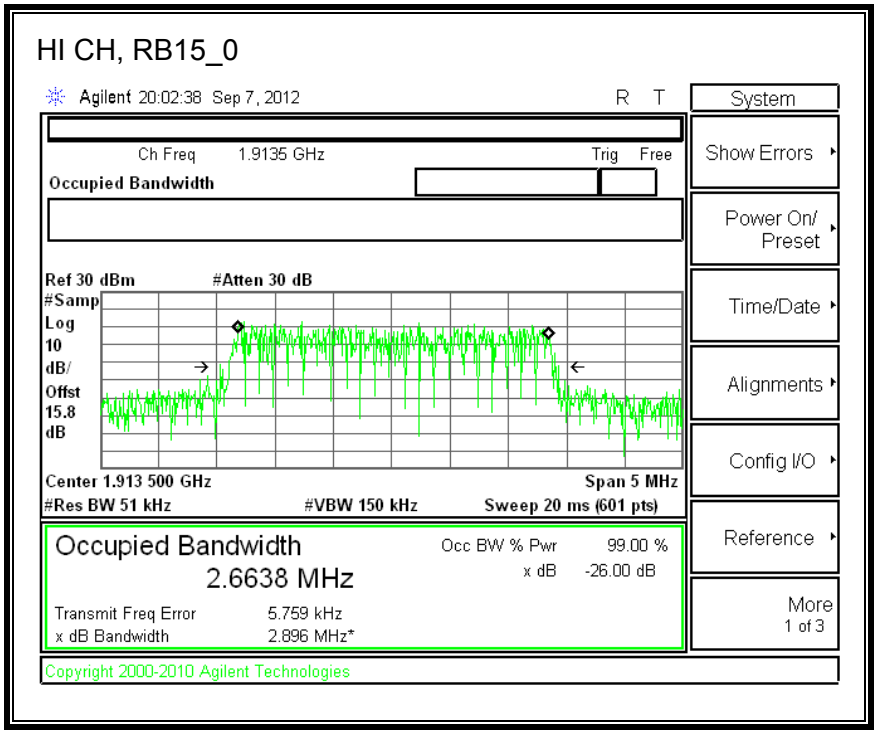

MID CH, RB15_0



HI CH, RB8_4

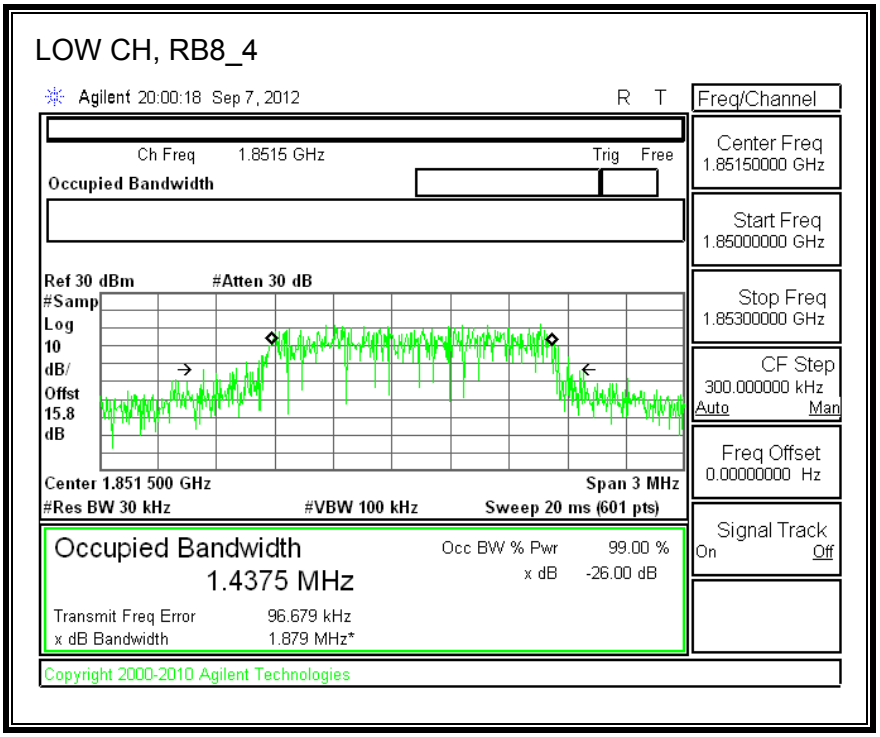


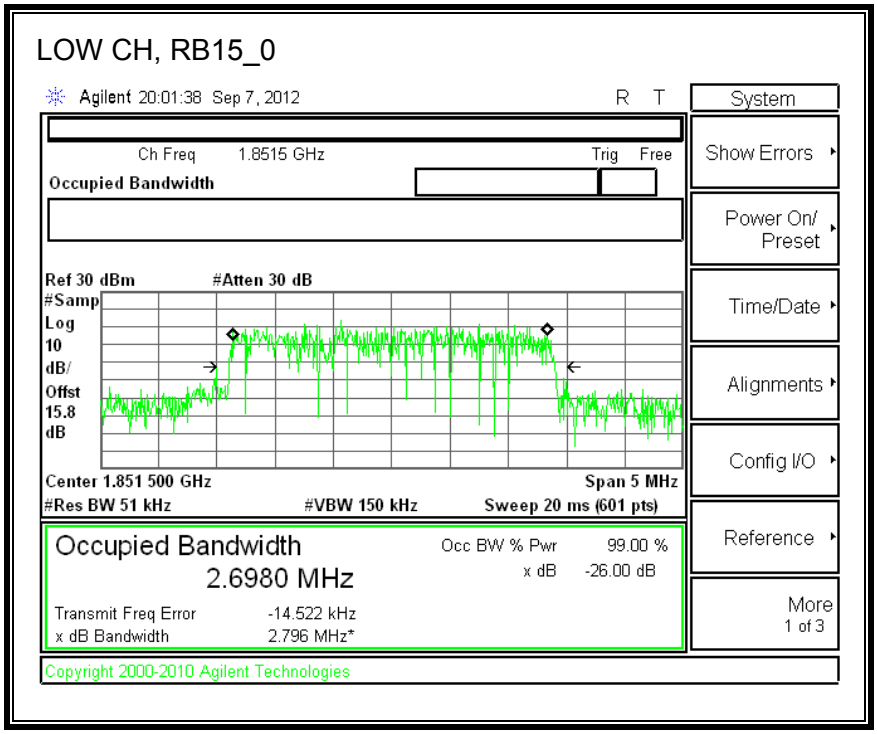

HI CH, RB15_0



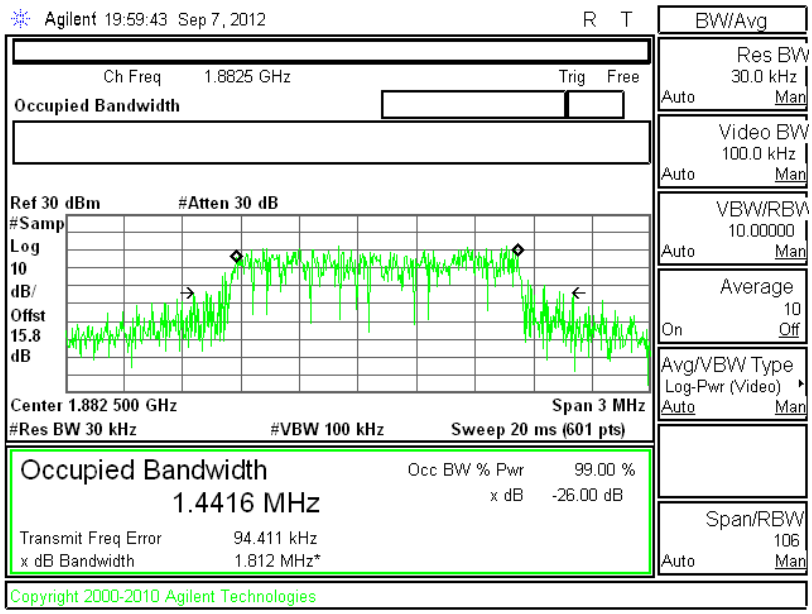
**Band 2 (3.0 MHz BAND WIDTH)**

**LTE 16QAM**

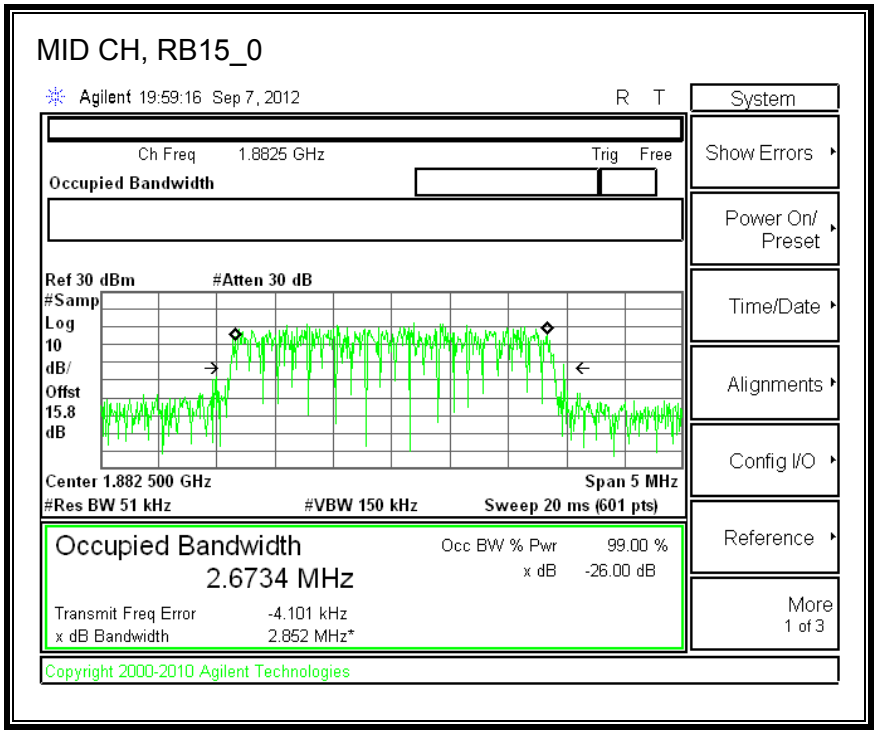


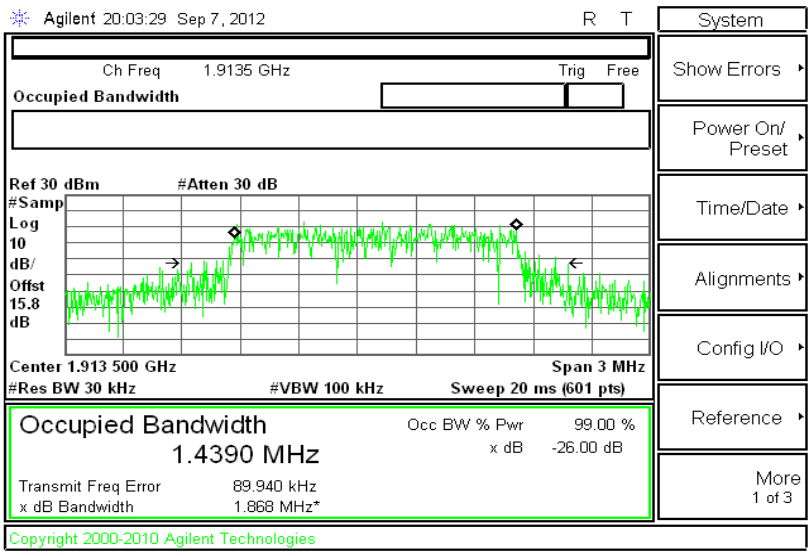
MID CH, RB8_4



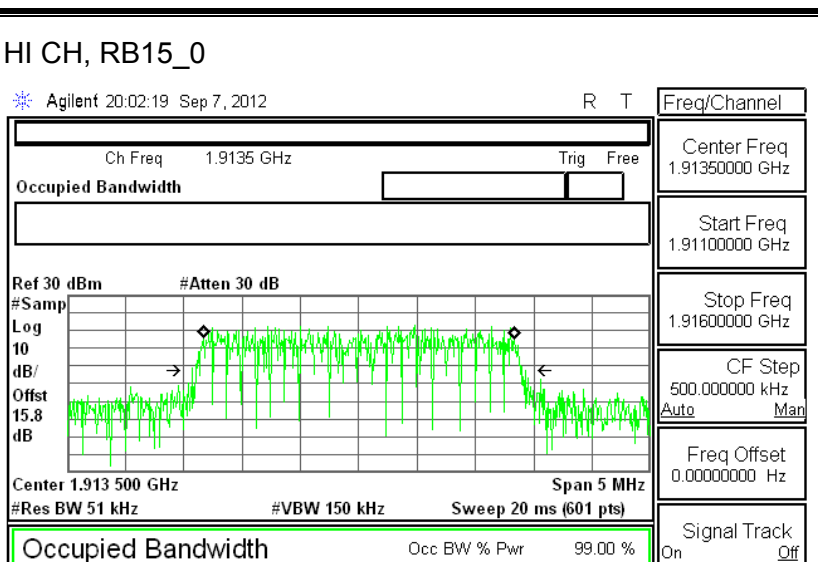

MID CH, RB15_0



HI CH, RB8_4

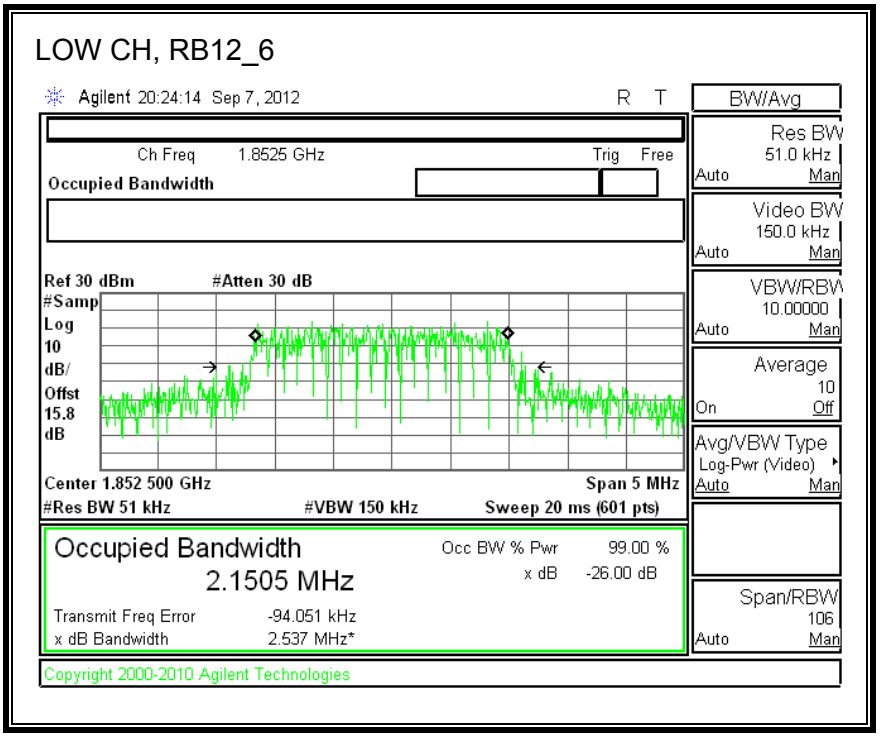


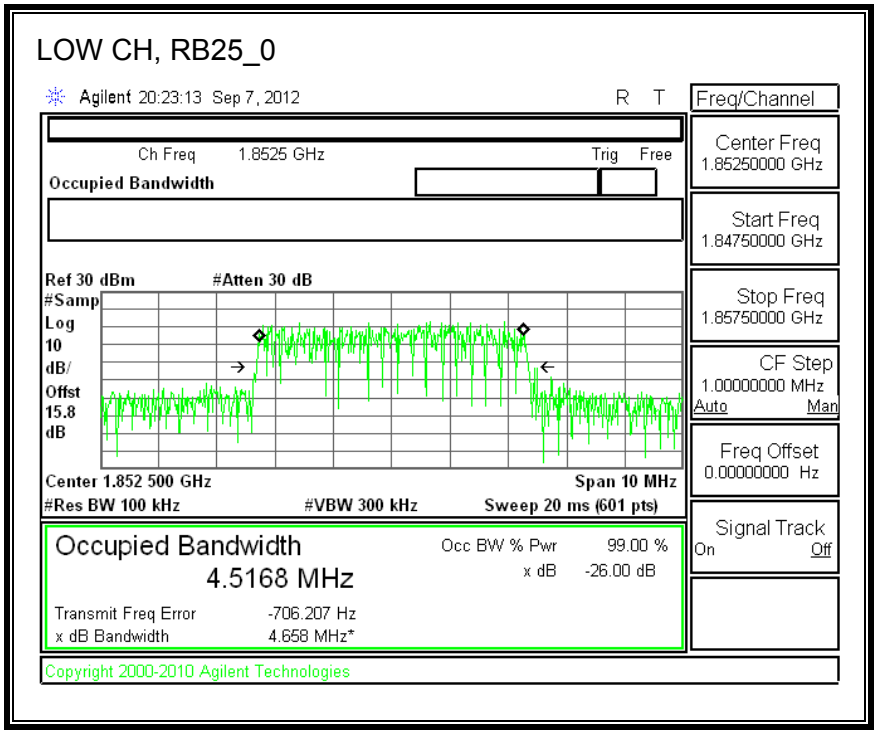

HI CH, RB15_0



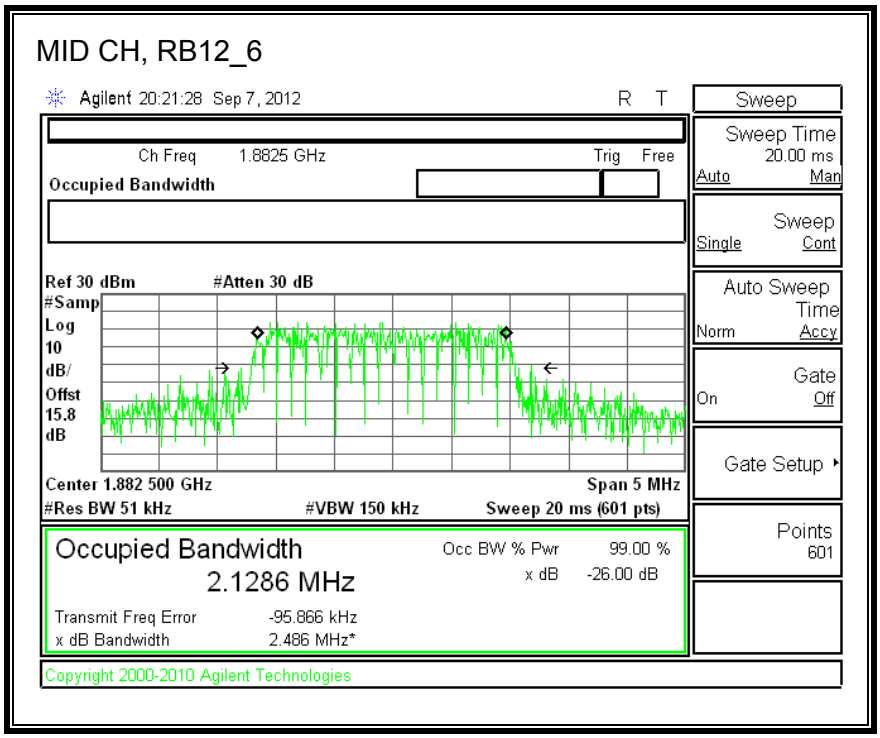
**Band 25 (5.0 MHz BAND WIDTH)**

**LTE QPSK**

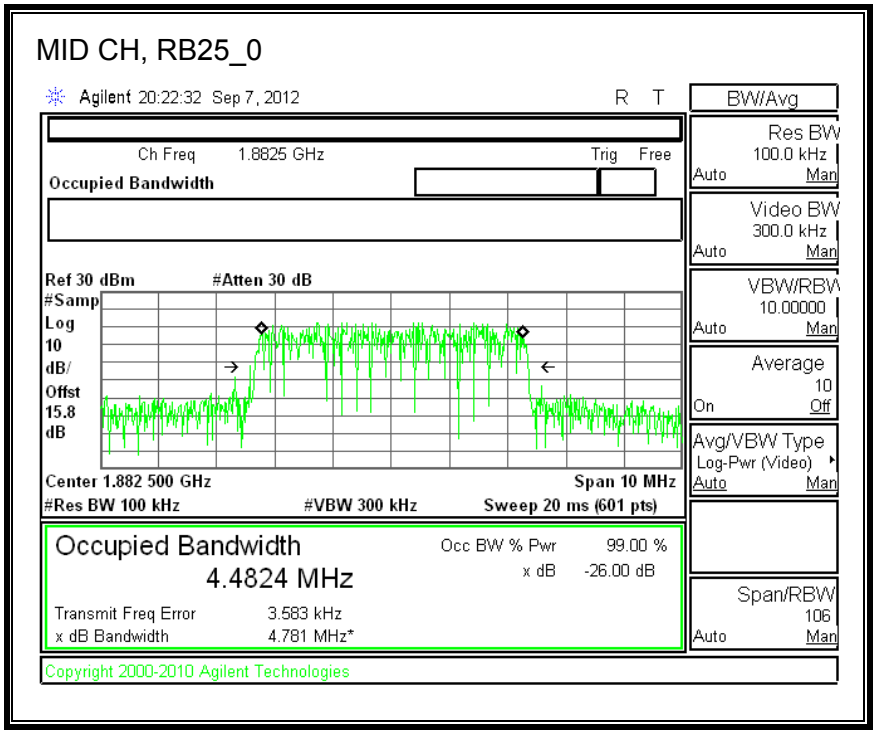


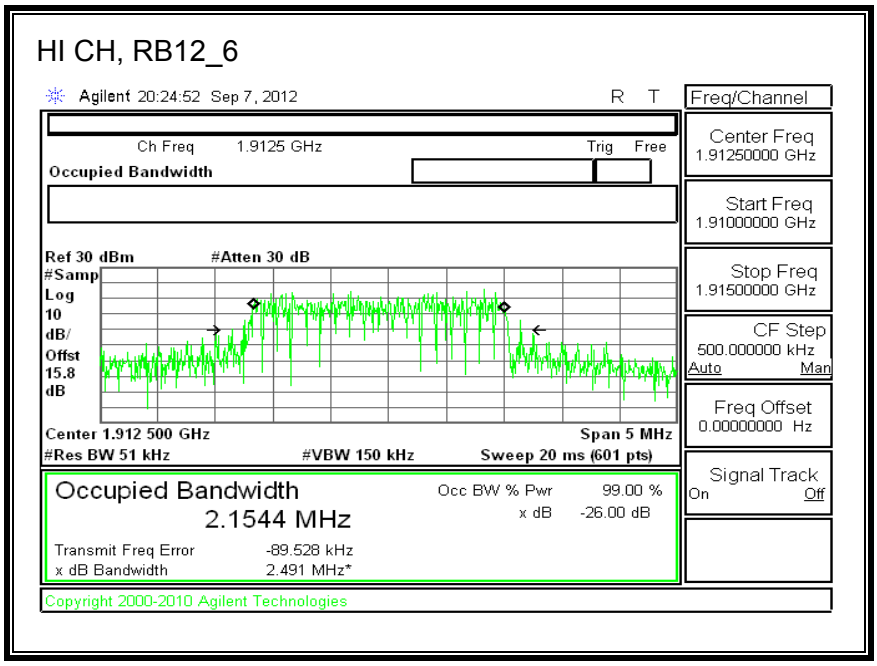
MID CH, RB12_6



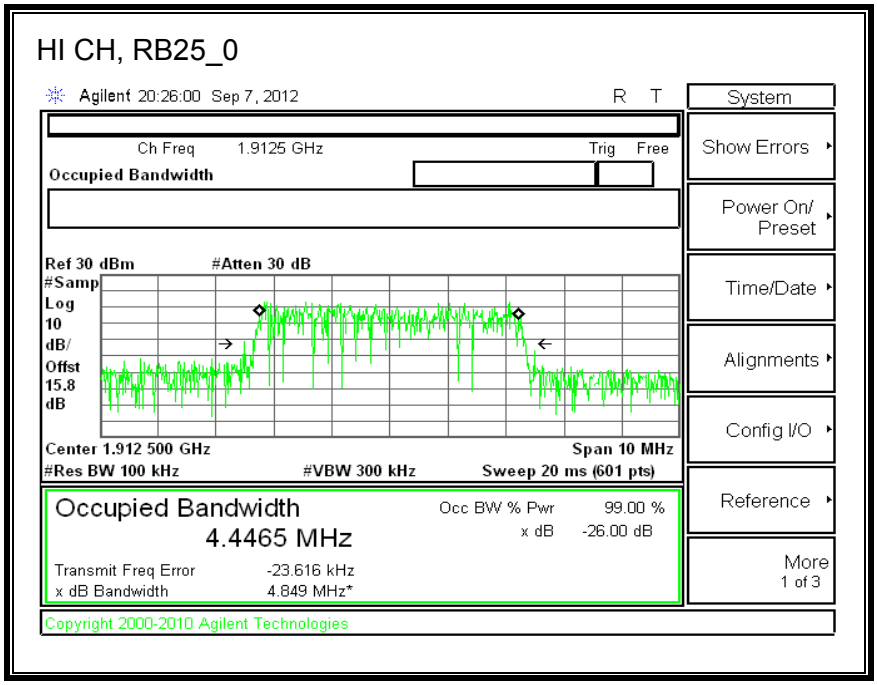

MID CH, RB25_0



HI CH, RB12_6

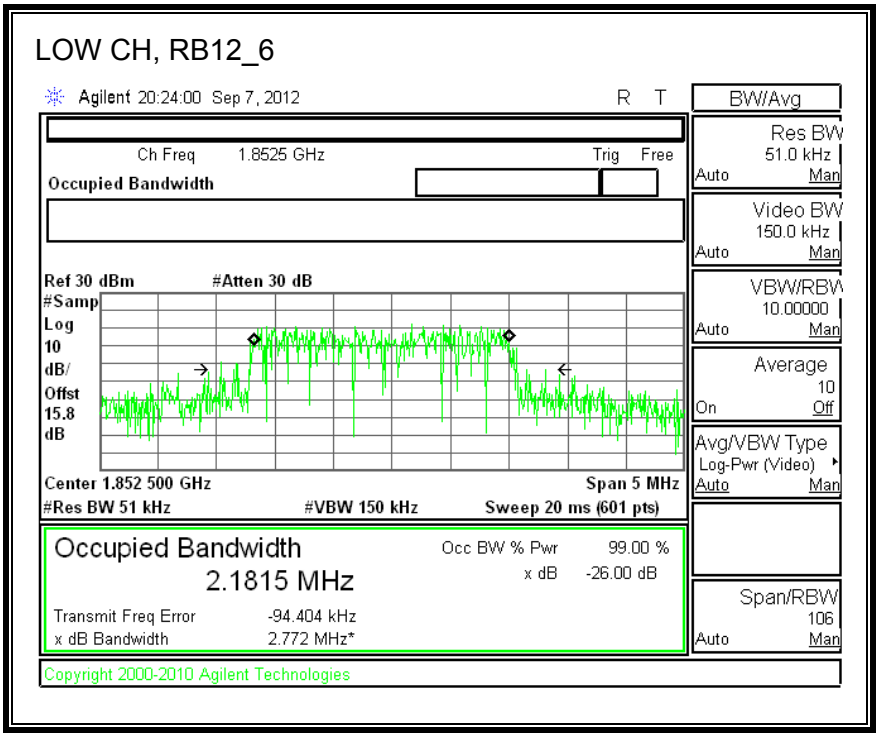


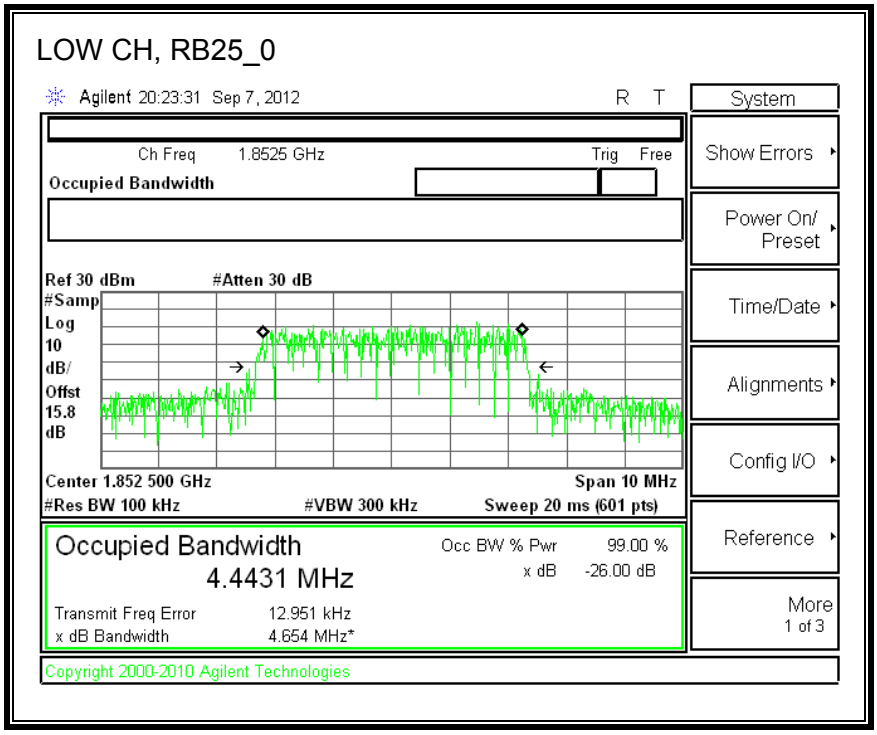

HI CH, RB25_0



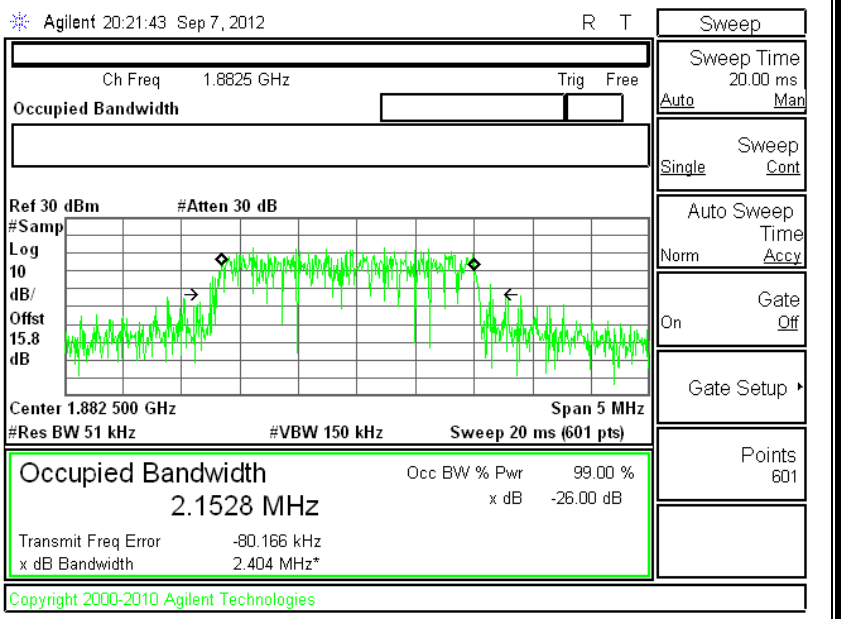
**Band 25 (5 MHz BAND WIDTH)**

**LTE 16QAM**

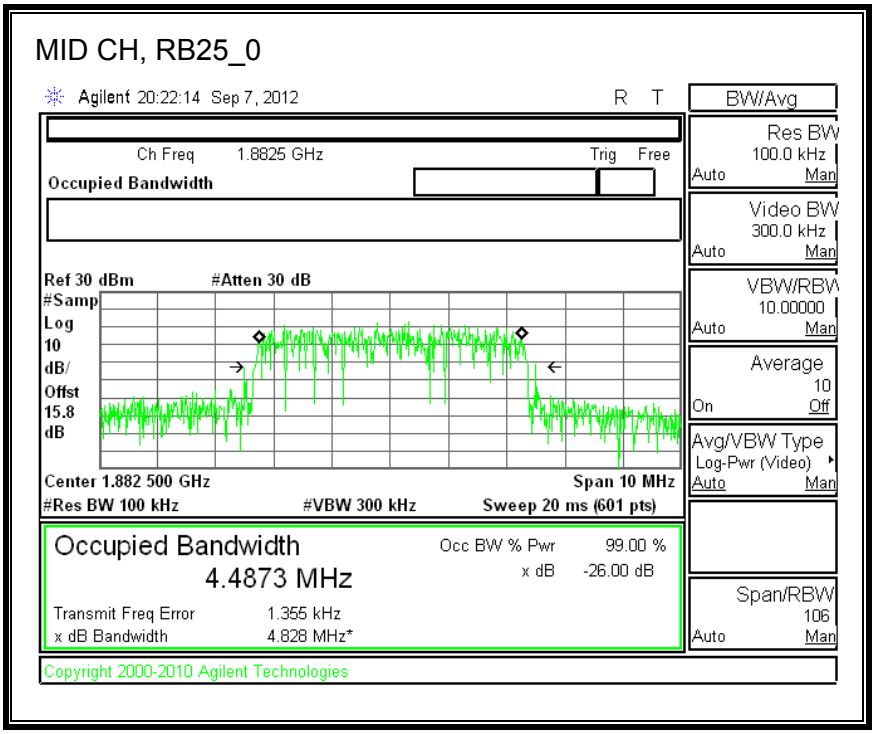


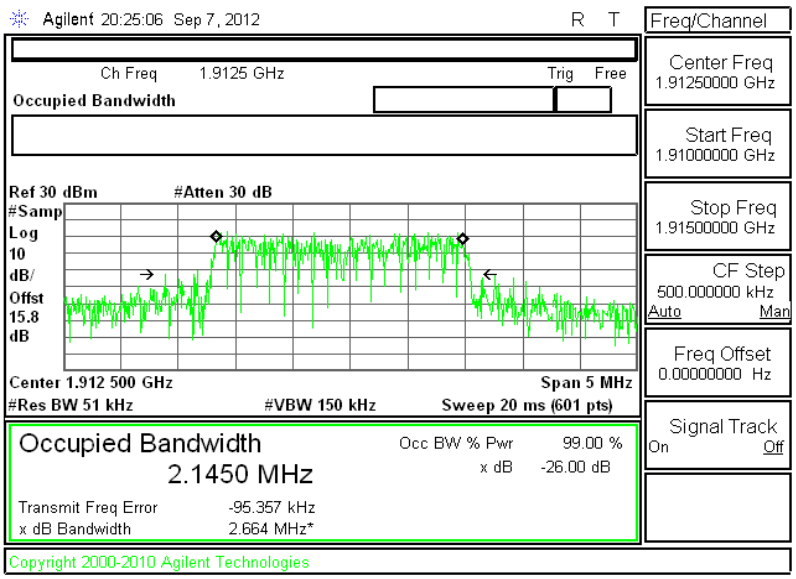
MID CH, RB12_6



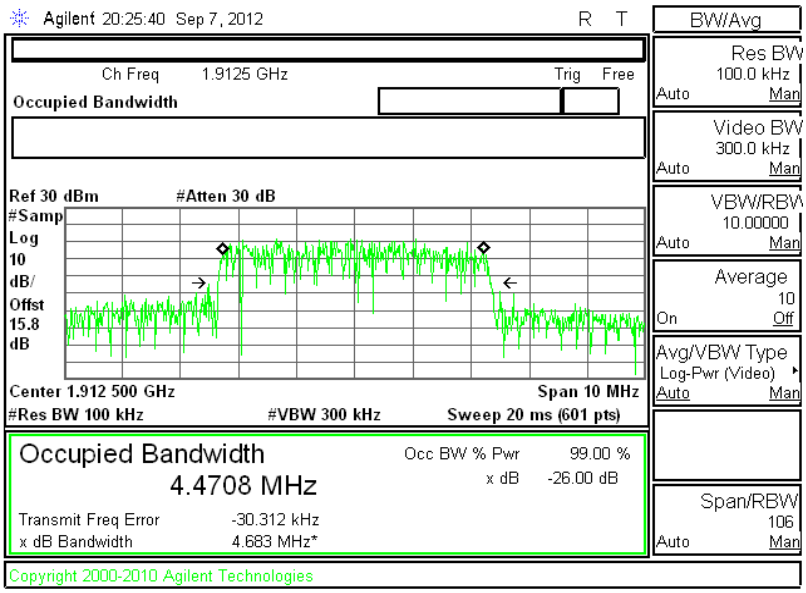

MID CH, RB25_0



HI CH, RB12_6

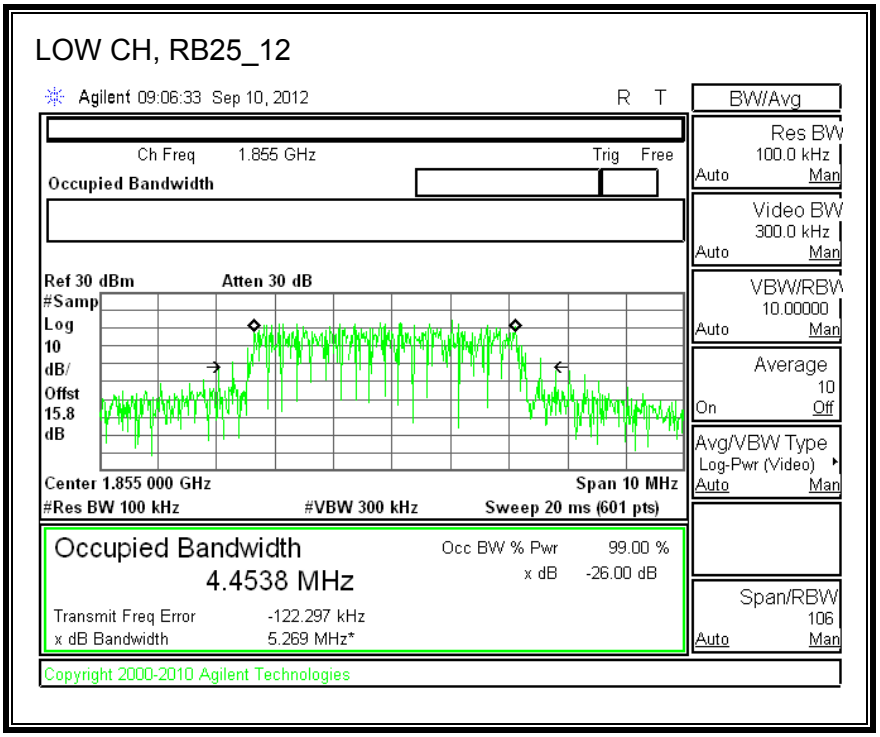


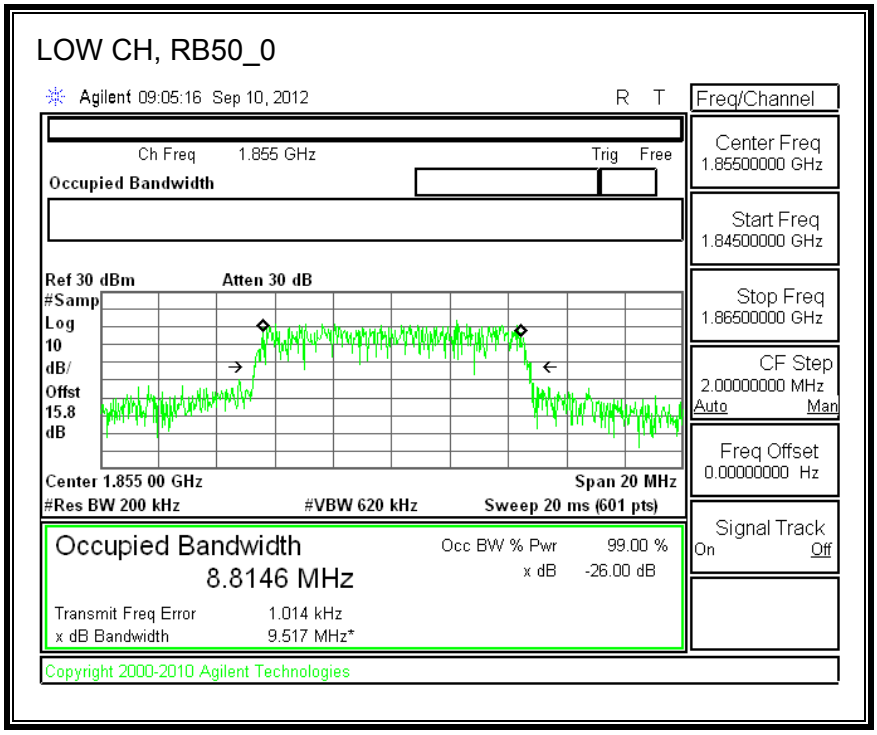

HI CH, RB25_0



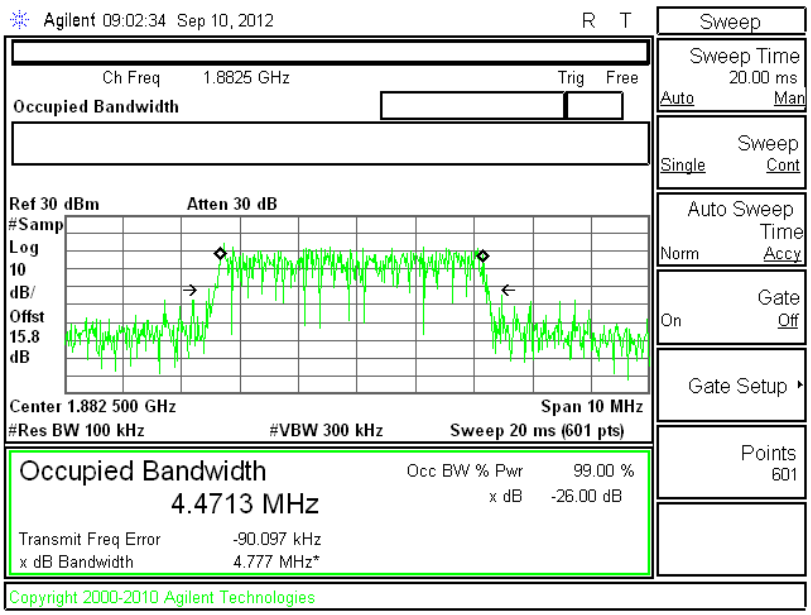
**Band 25 (10.0 MHz BAND WIDTH)**

**LTE QPSK**

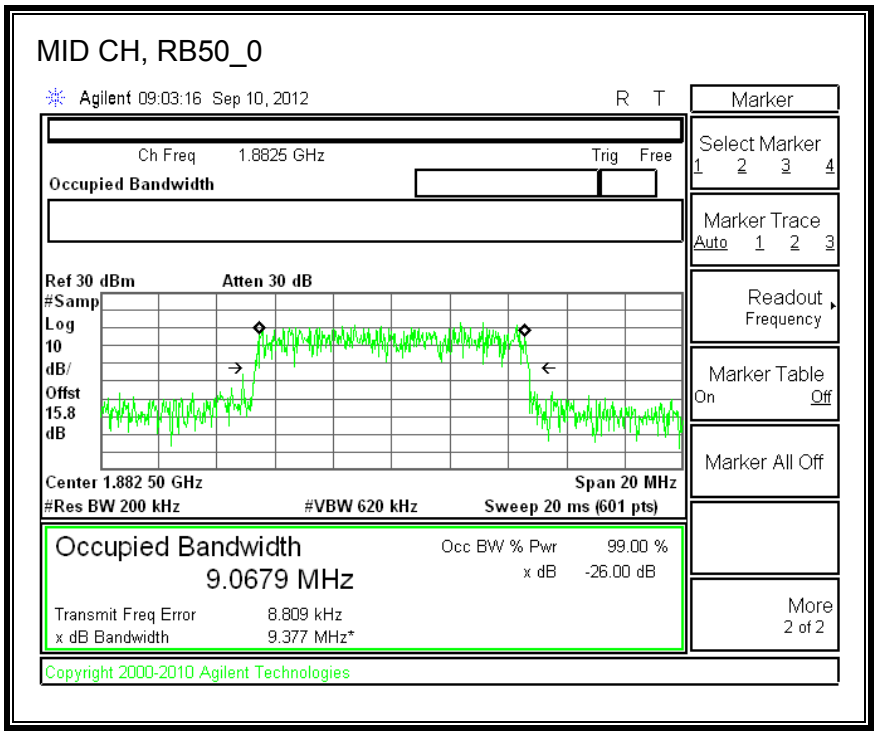


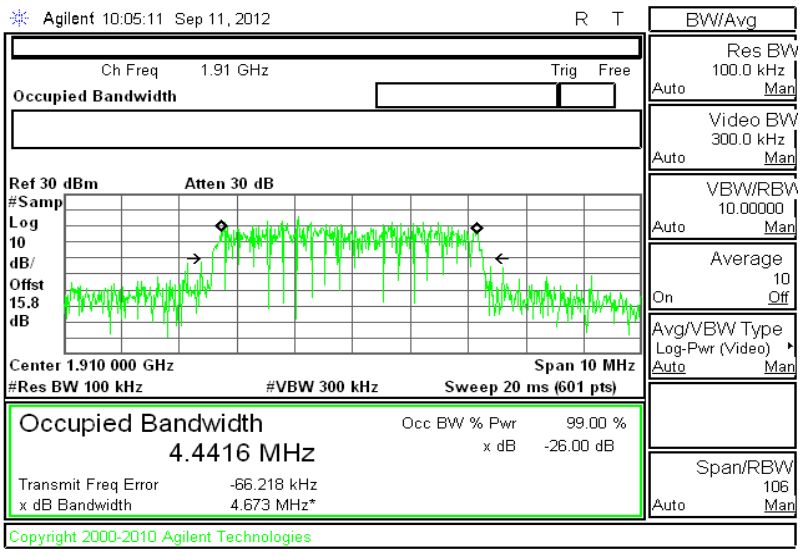
MID CH, RB25_12



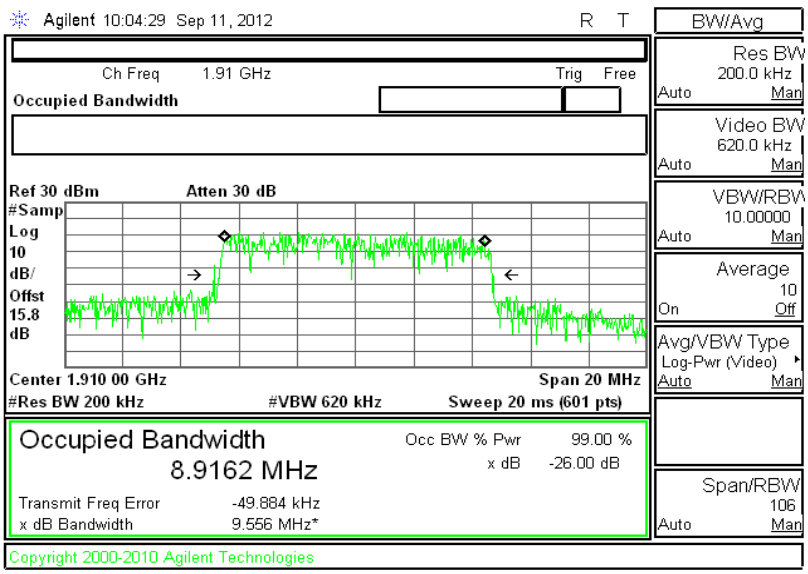

MID CH, RB50_0



HI CH, RB25_12

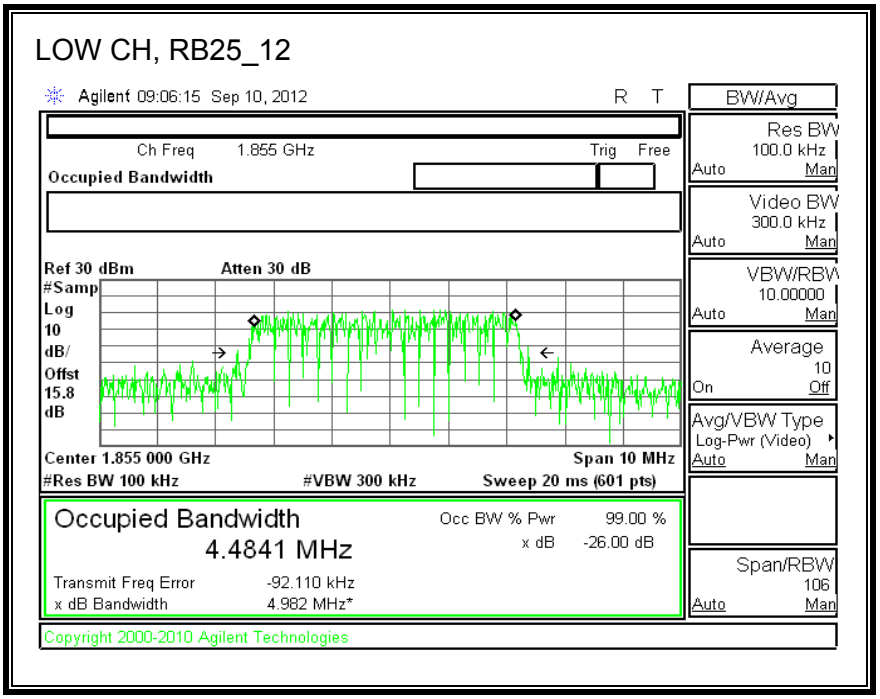


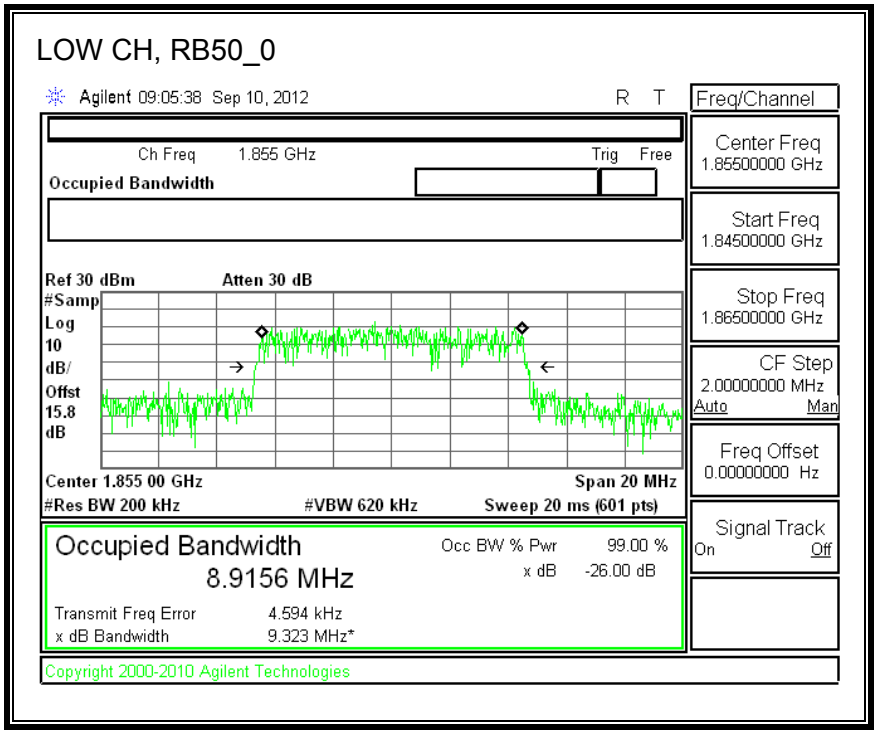

HI CH, RB50_0



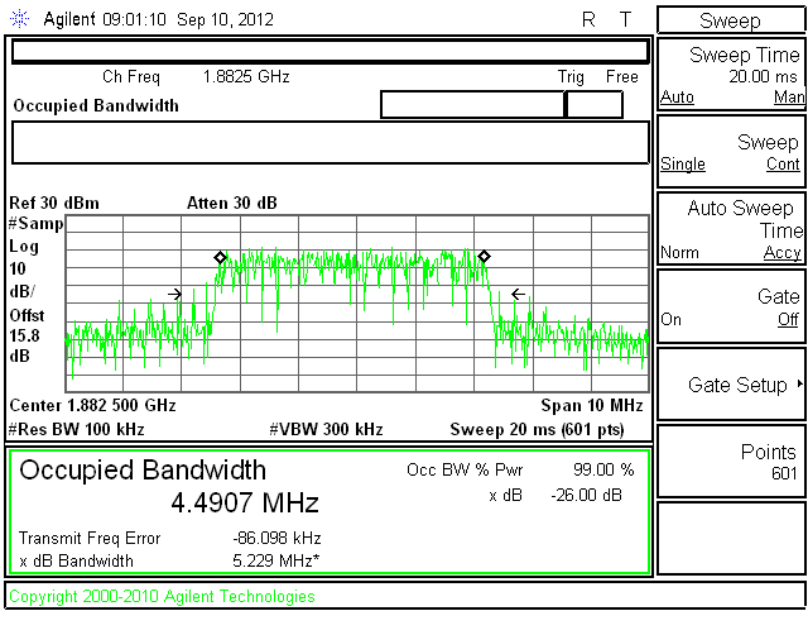
**Band 25 (10 MHz BAND WIDTH)**

**LTE 16QAM**

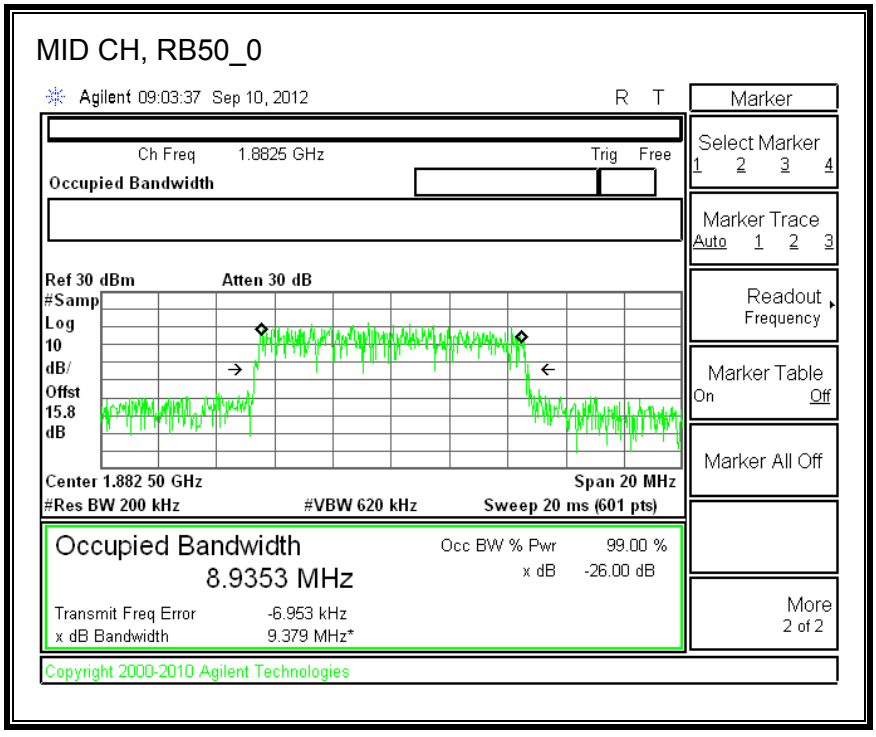


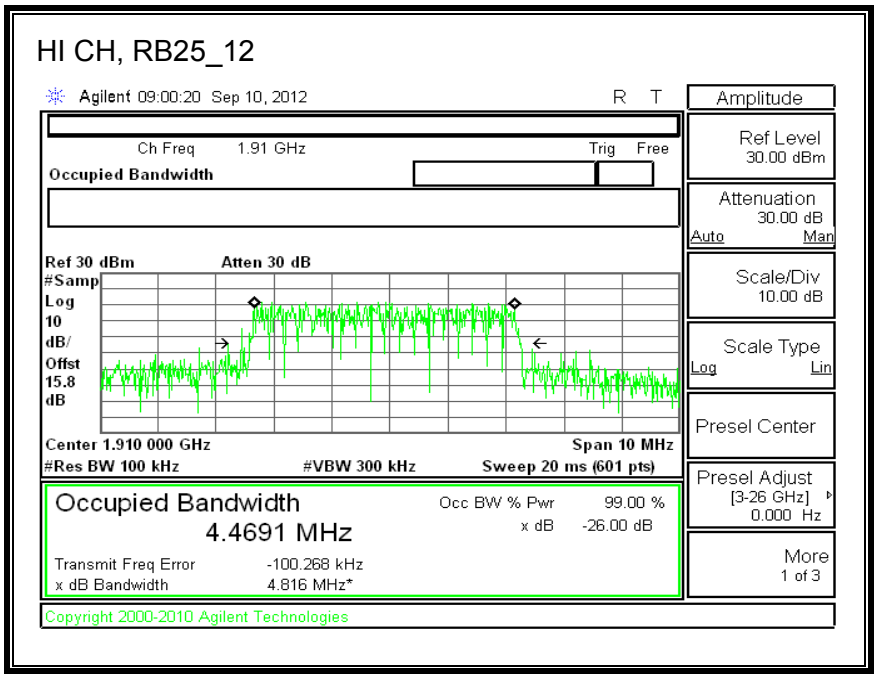
MID CH, RB25_12



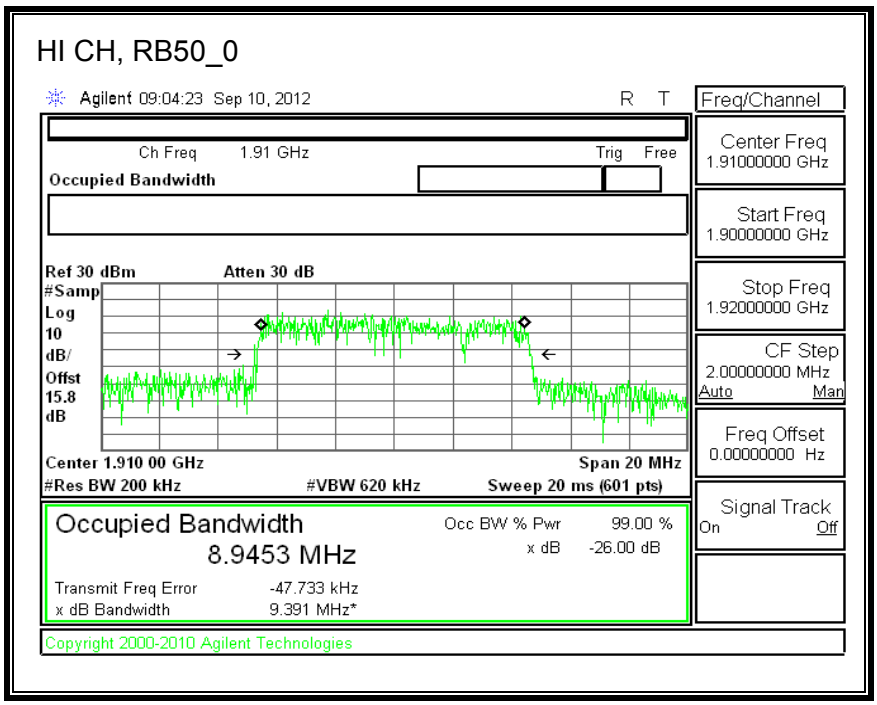

MID CH, RB50_0



HI CH, RB25_12

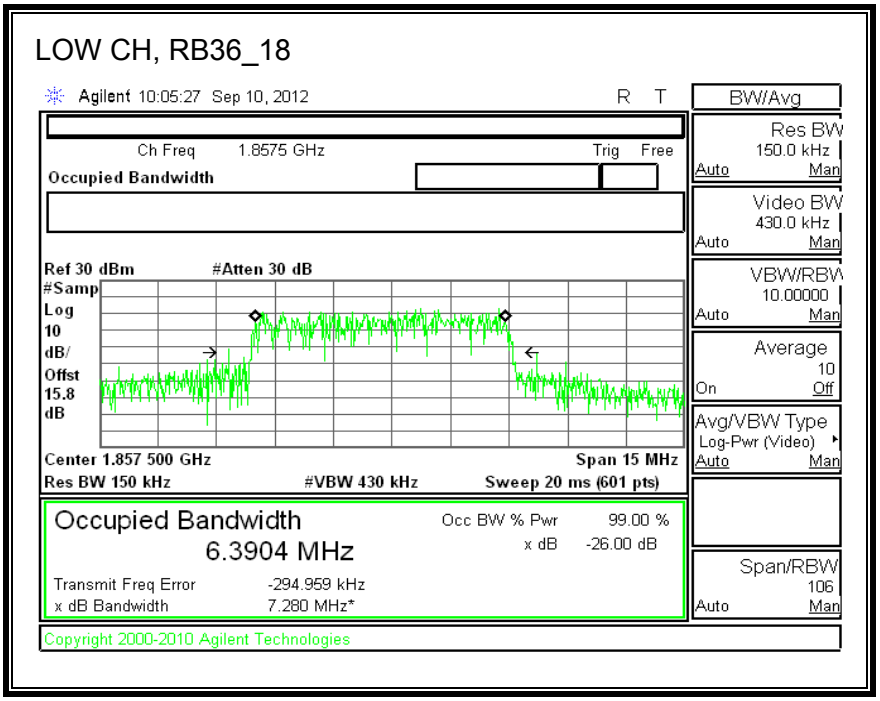


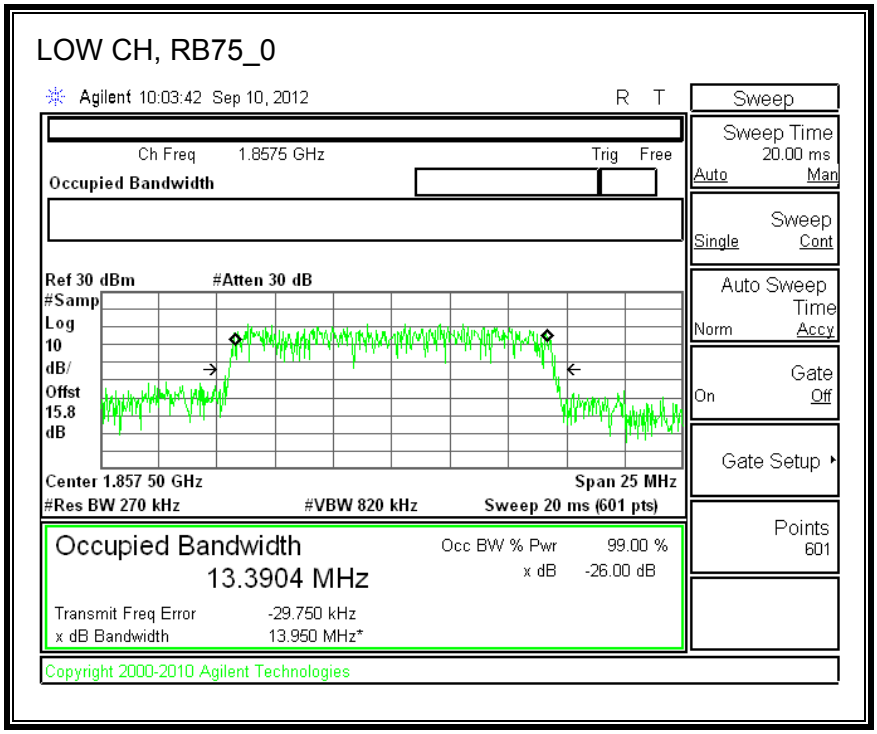

HI CH, RB50_0



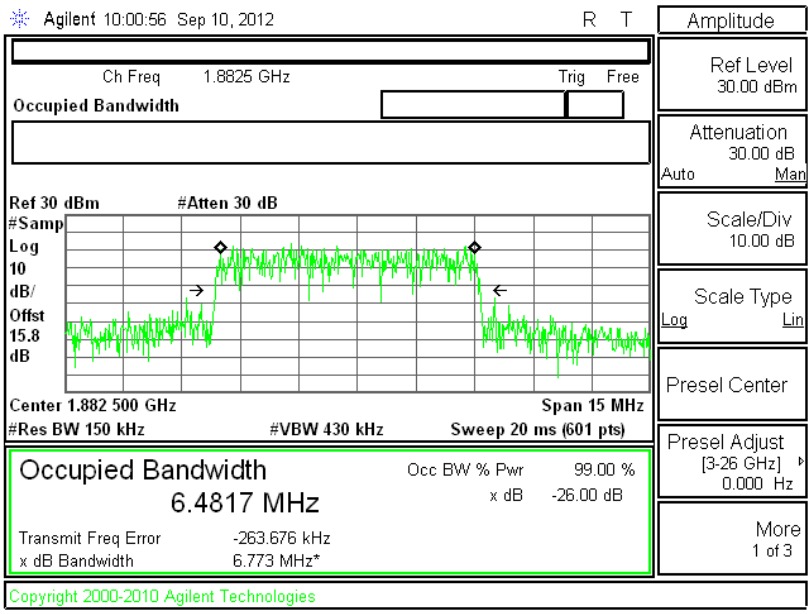
**Band 25 (15.0 MHz BAND WIDTH)**

**LTE QPSK**

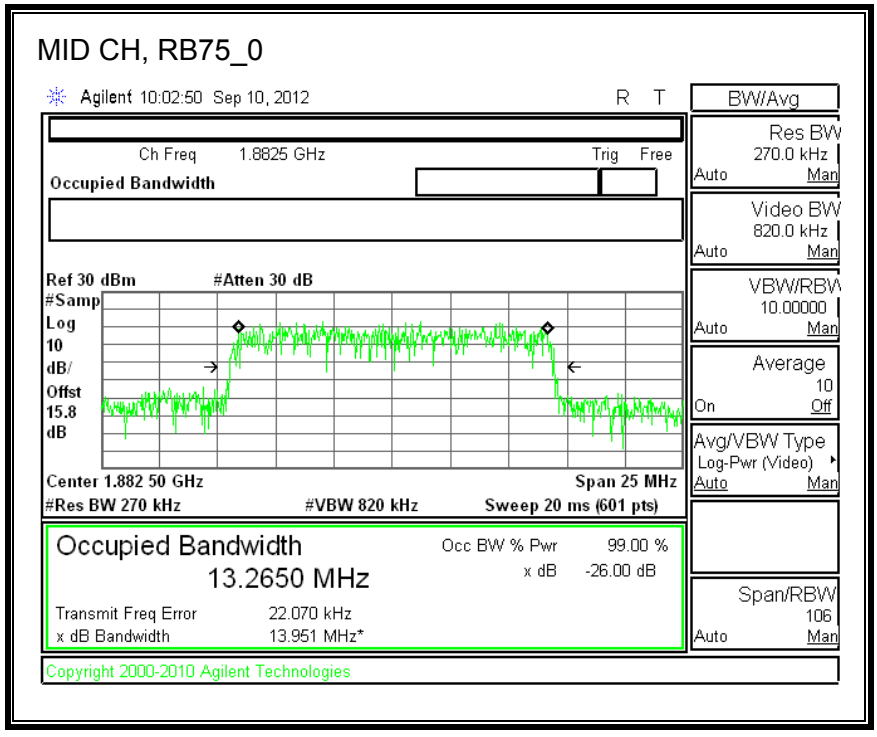


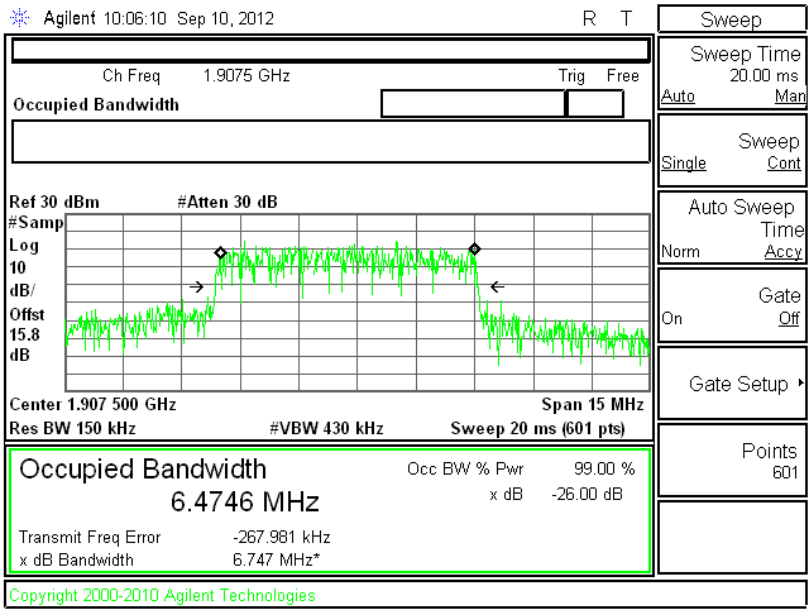
MID CH, RB36_18



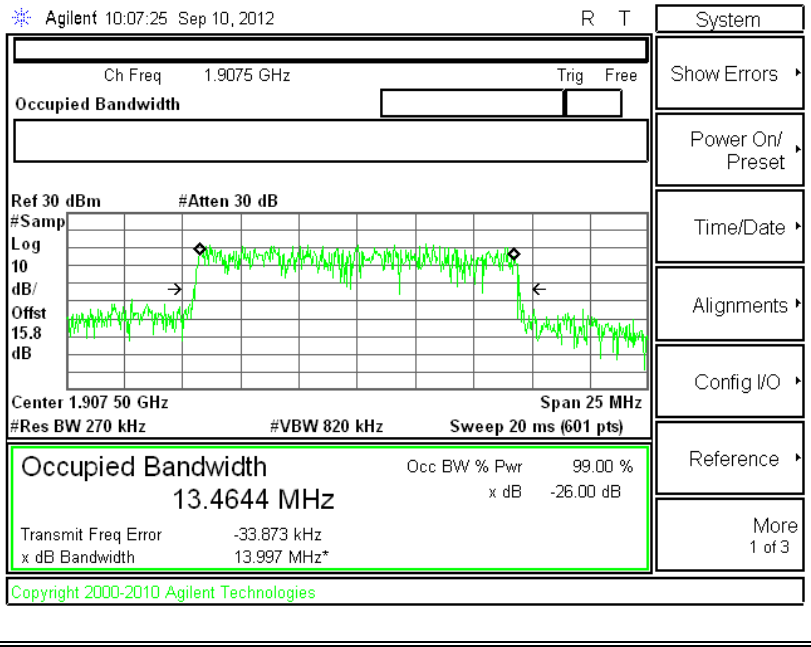

MID CH, RB75_0



HIGH CH, RB36_18

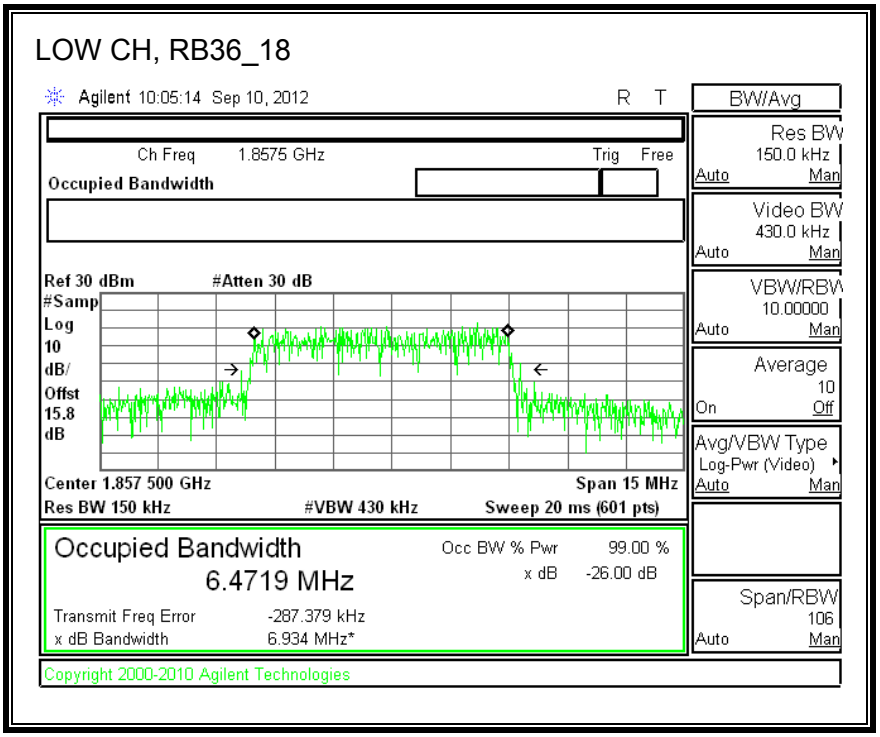


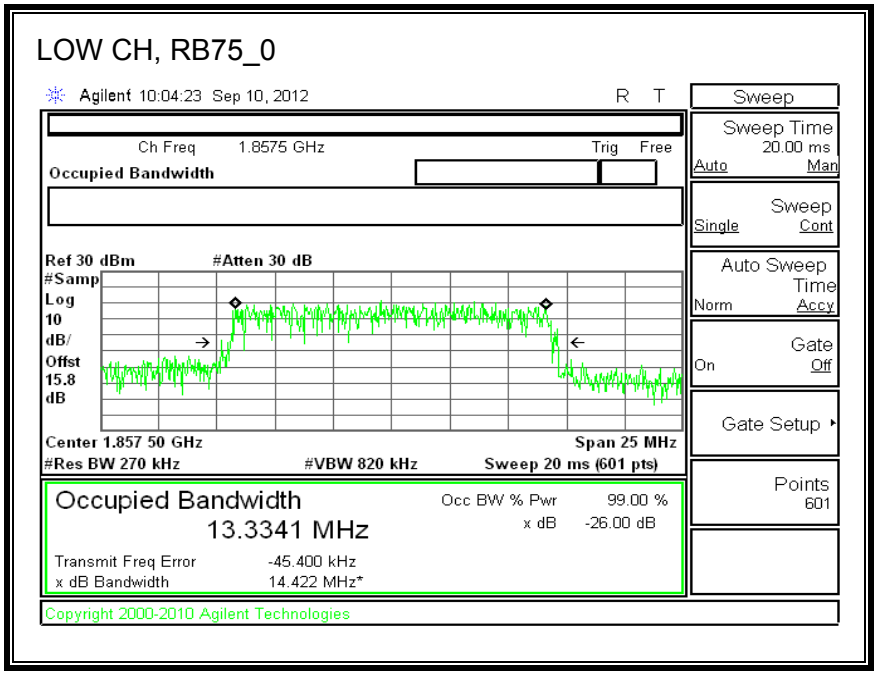

HIGH CH, RB75_0



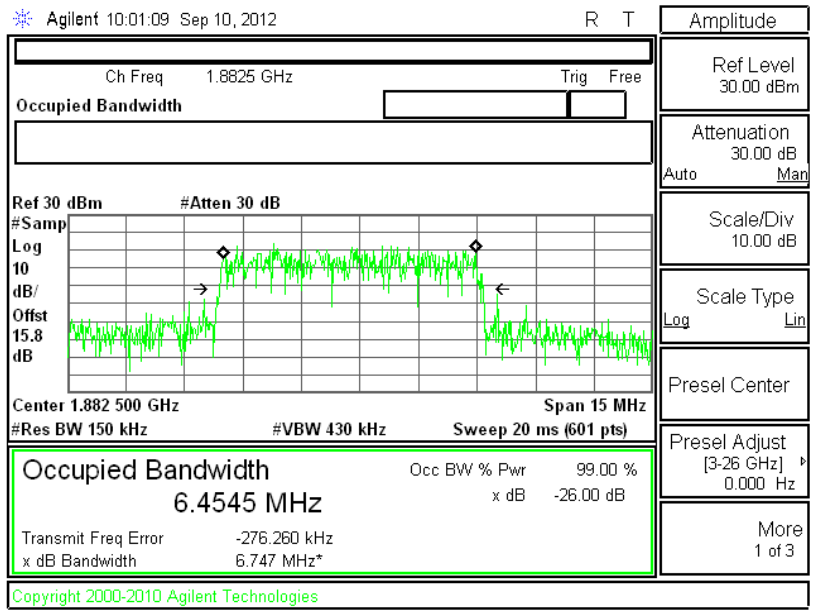
**Band 25 (15.0 MHz BAND WIDTH)**

**LTE 16QAM**

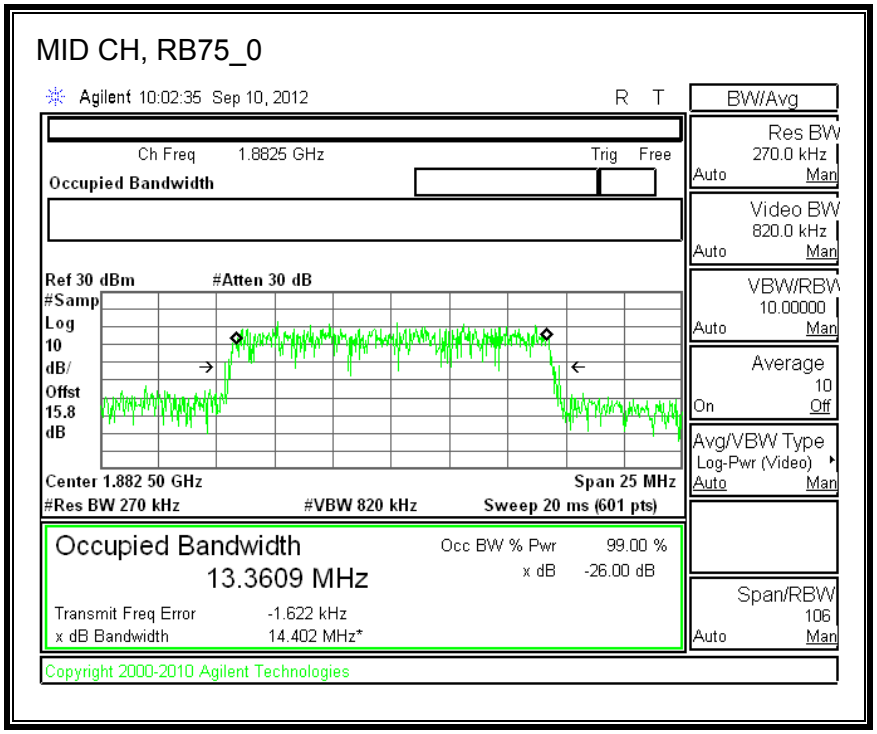


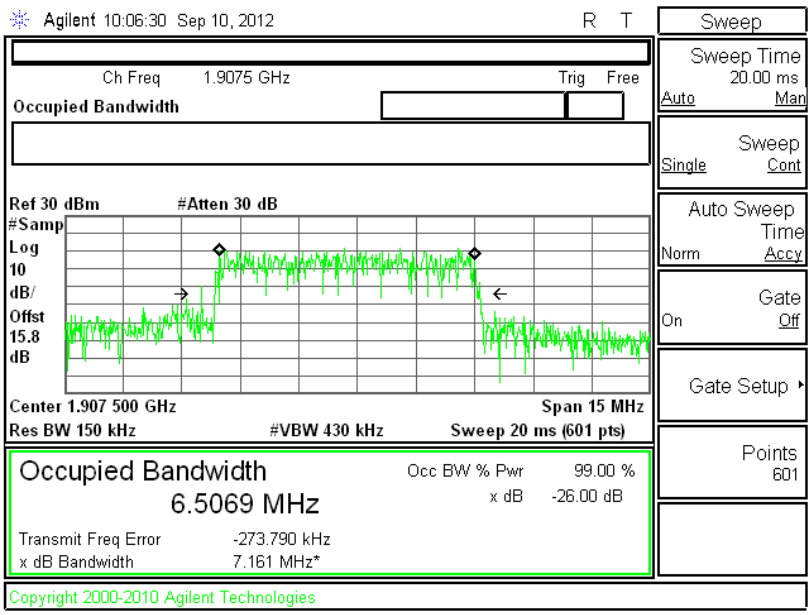
MID CH, RB36_18



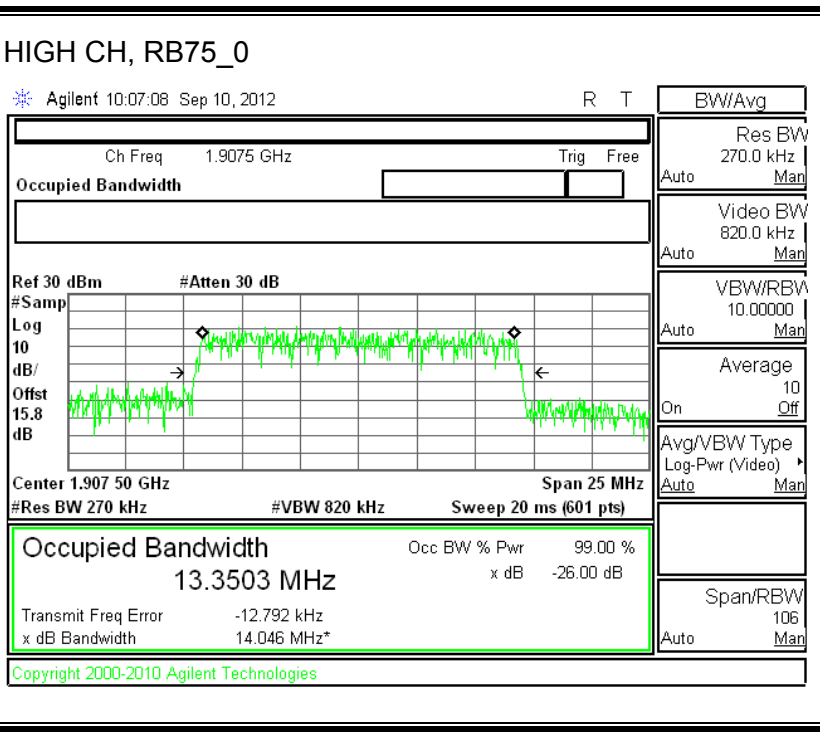

MID CH, RB75_0



HIGH CH, RB36_18

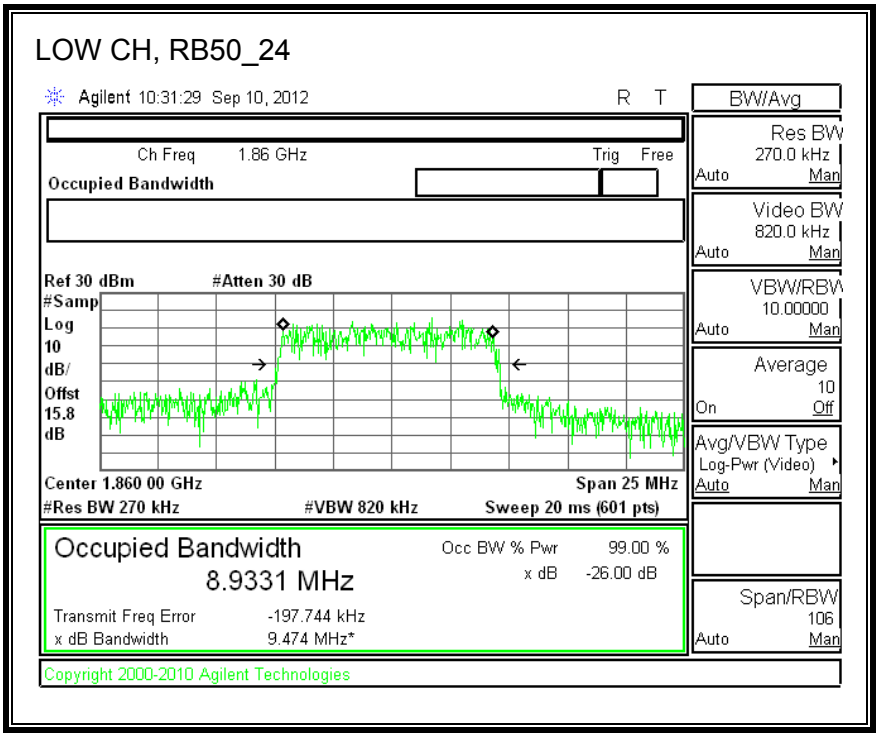


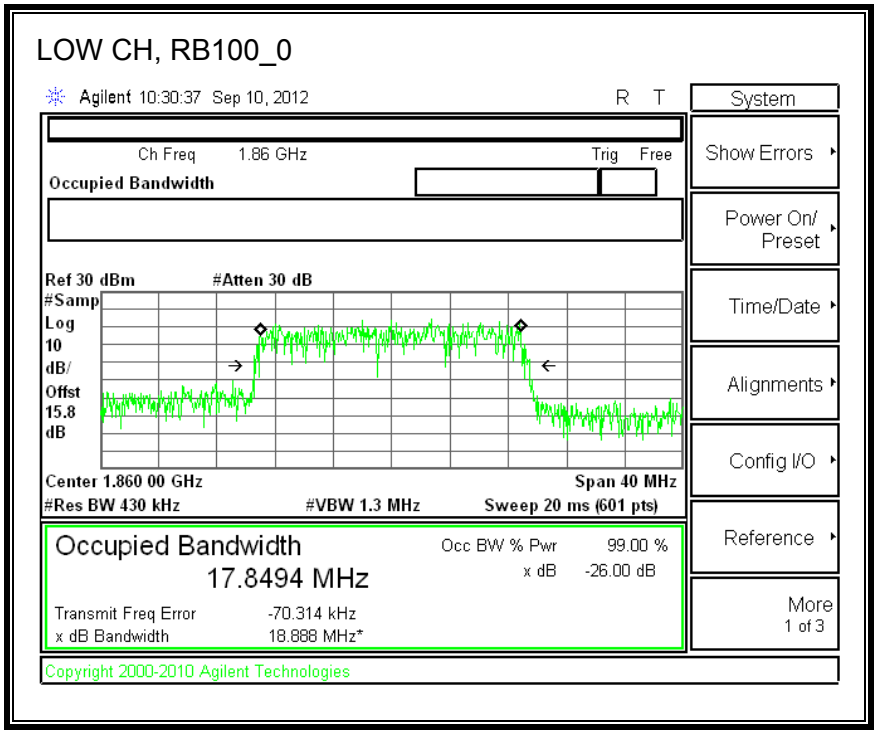

HIGH CH, RB75_0



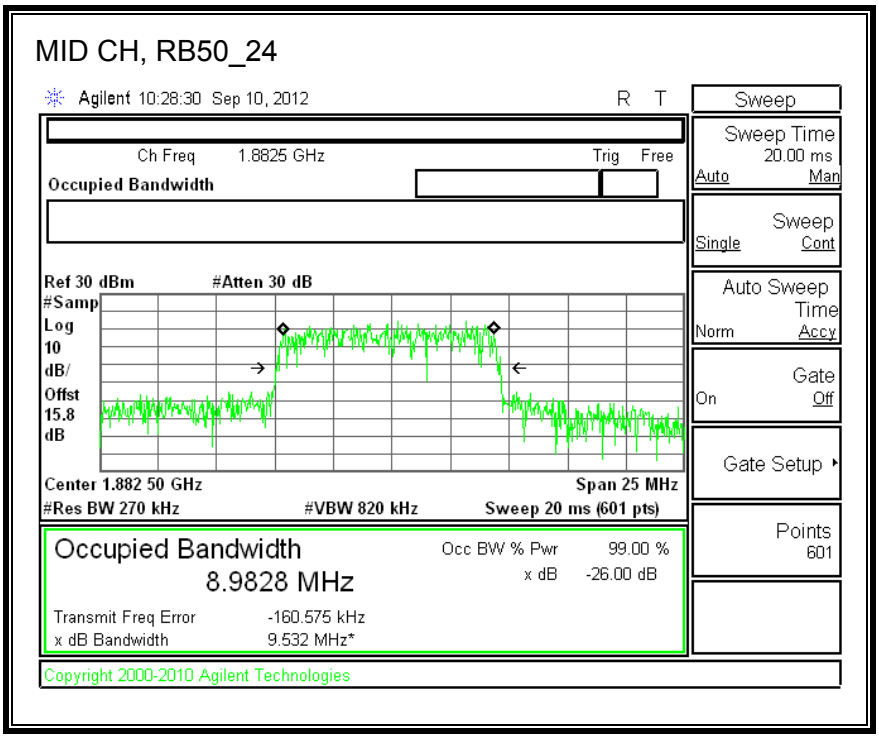
**Band 25 (20.0 MHz BAND WIDTH)**

**LTE QPSK**

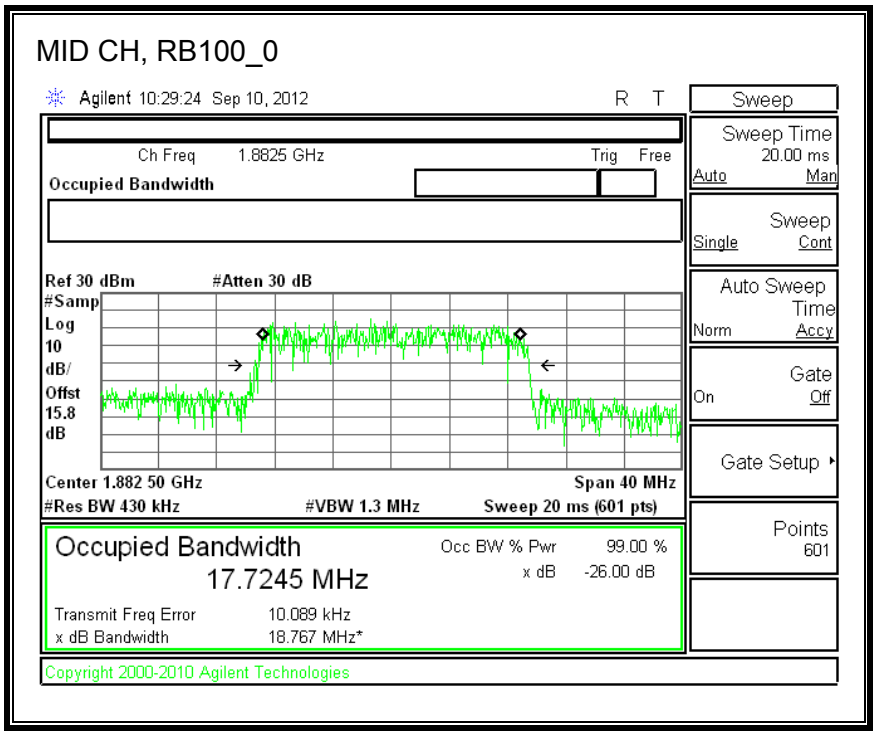


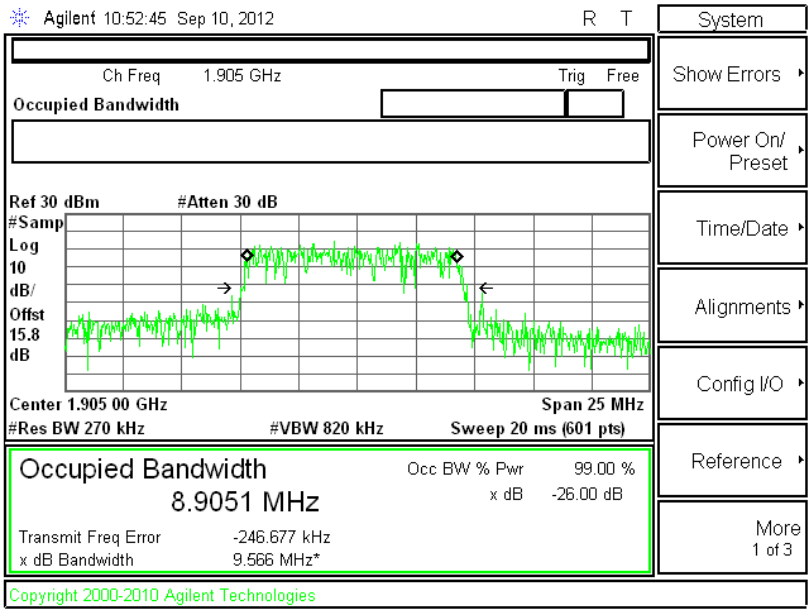
MID CH, RB50_24



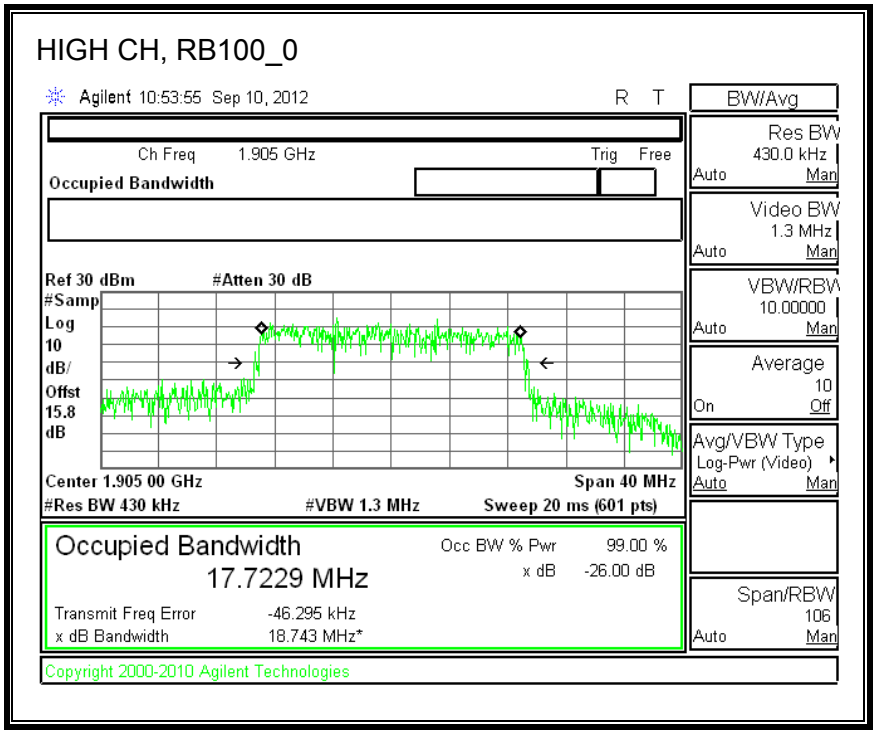

MID CH, RB100_0



HIGH CH, RB50_24

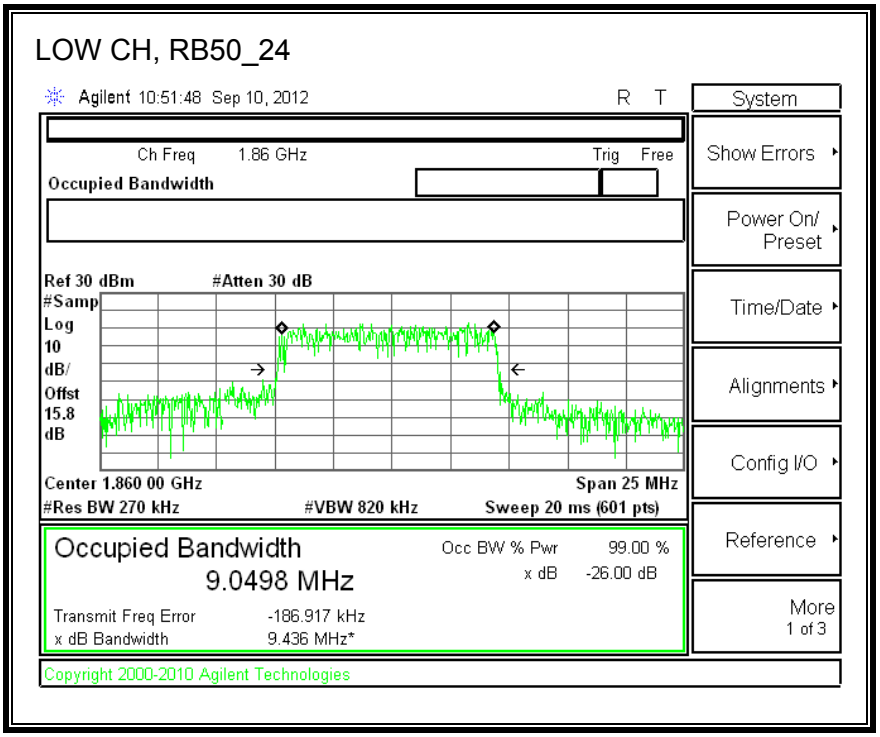


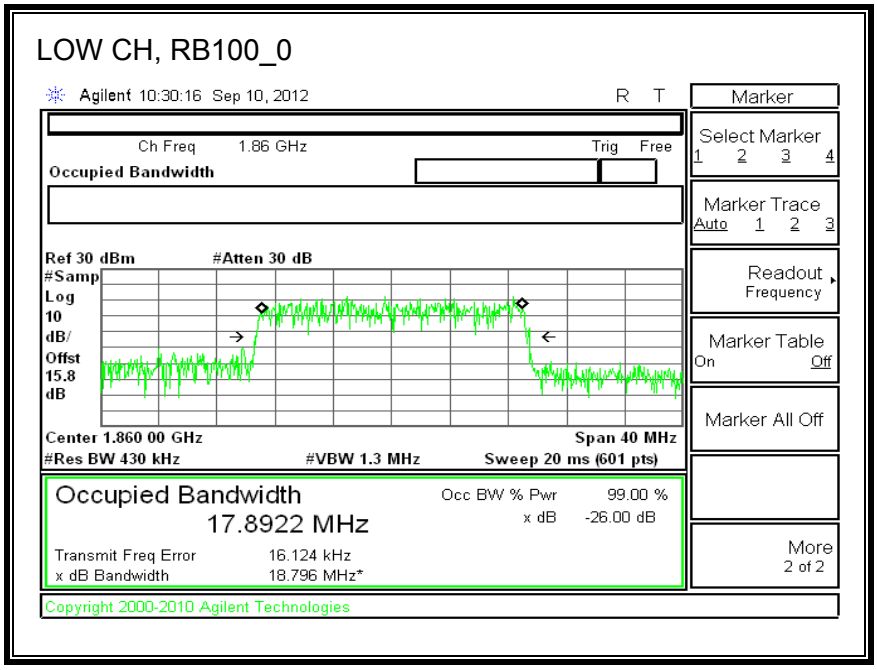

HIGH CH, RB100_0



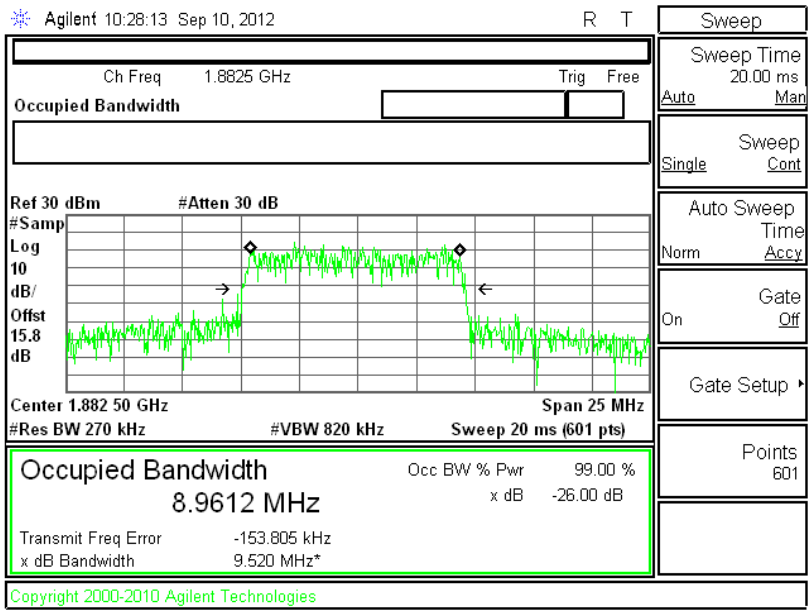
**Band 25 (20.0 MHz BAND WIDTH)**

**LTE 16QAM**

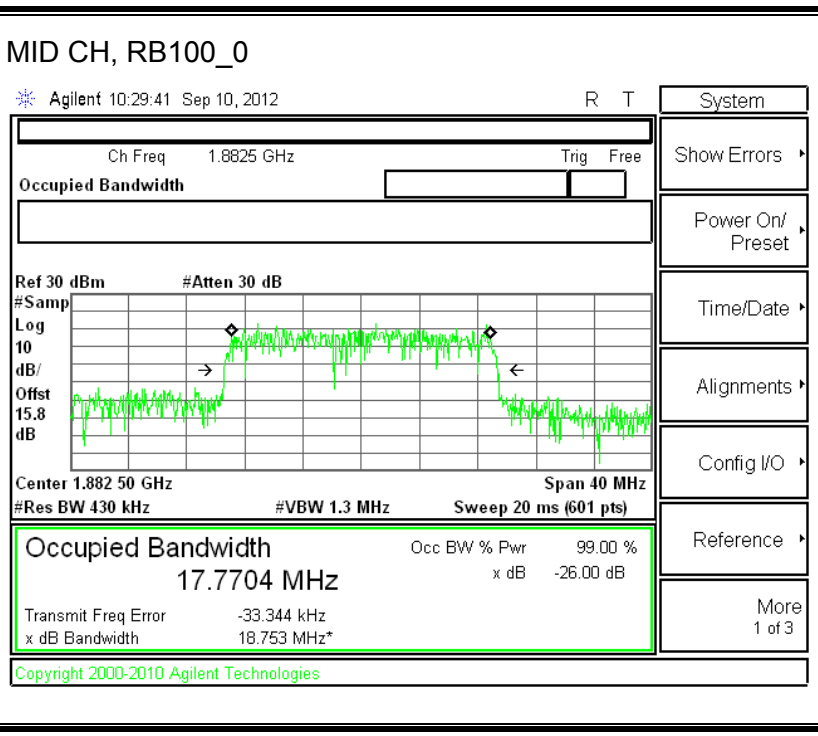


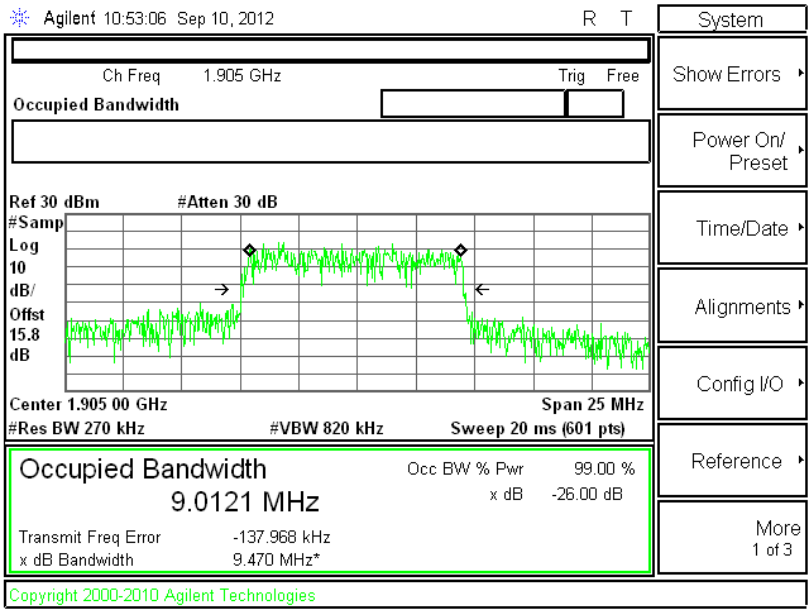
MID CH, RB50_24



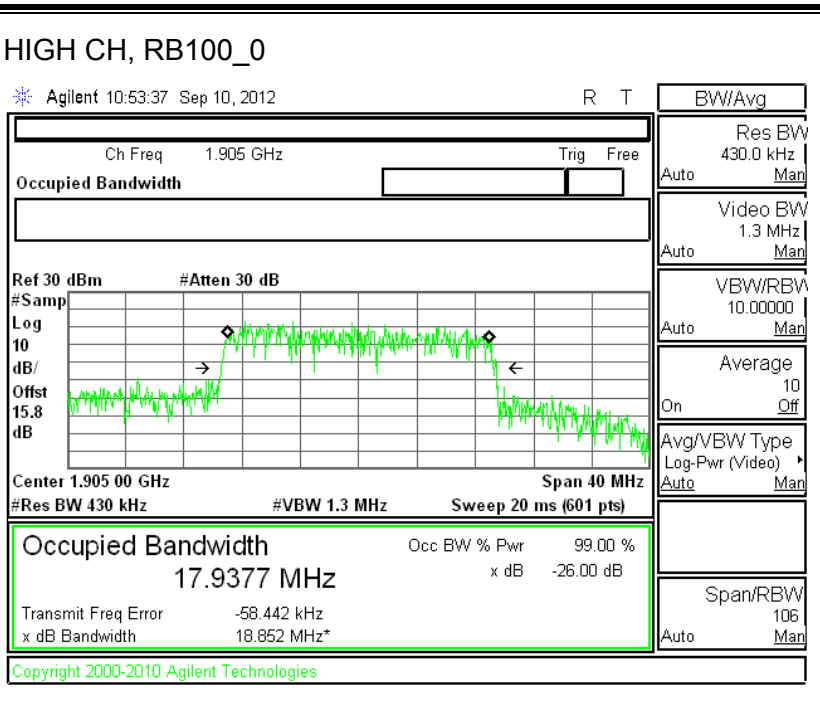

MID CH, RB100_0



HIGH CH, RB50_24




HIGH CH, RB100_0



## 8.2. BAND EDGE

**RULE PART(S)**

FCC: §22.359, 24.238, §27.53(c) 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 a Agilent 8960 Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.
For each band edge measurement:

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

**LIMITS**

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

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

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

**TEST PROCEDURE**

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

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

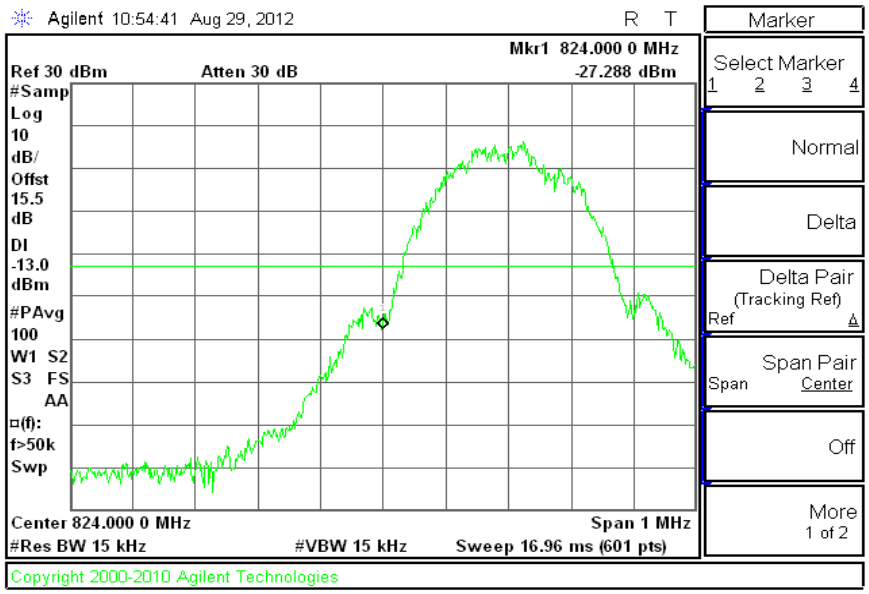
**MODES TESTED**

- GPRS and EGPRS
- UMTS, REL 99 and HSDPA
- CDMA2000, BC10
- CDMA2000, BC0, BC1
- LTE BAND 5, 13 and 25.

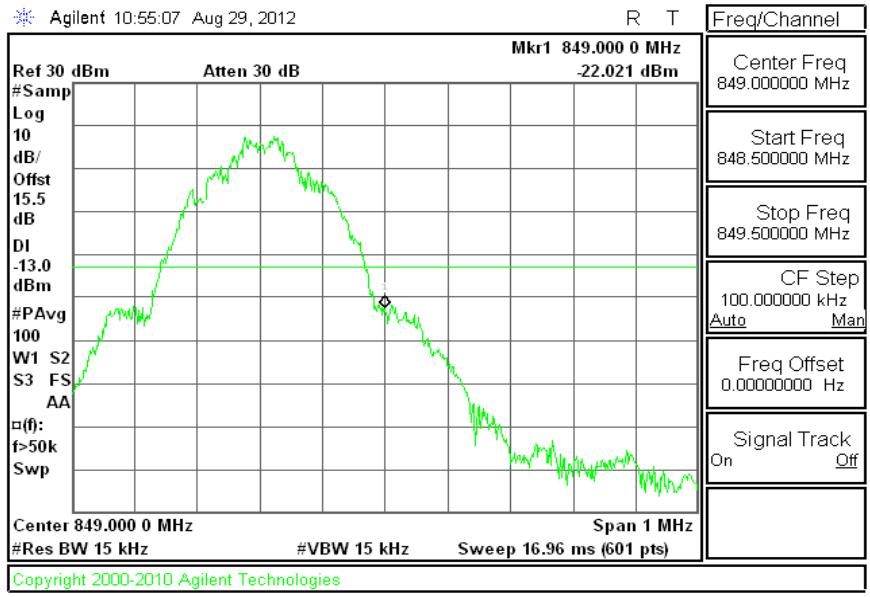
### 8.2.1. GSM

**GPRS (Cellular Band)**

LOW CH

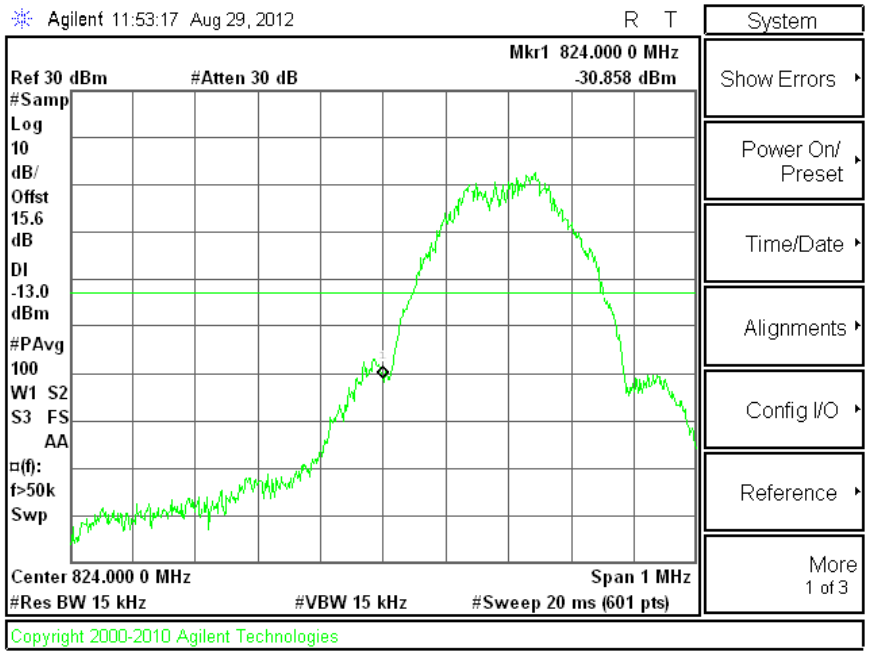



HIGH CH

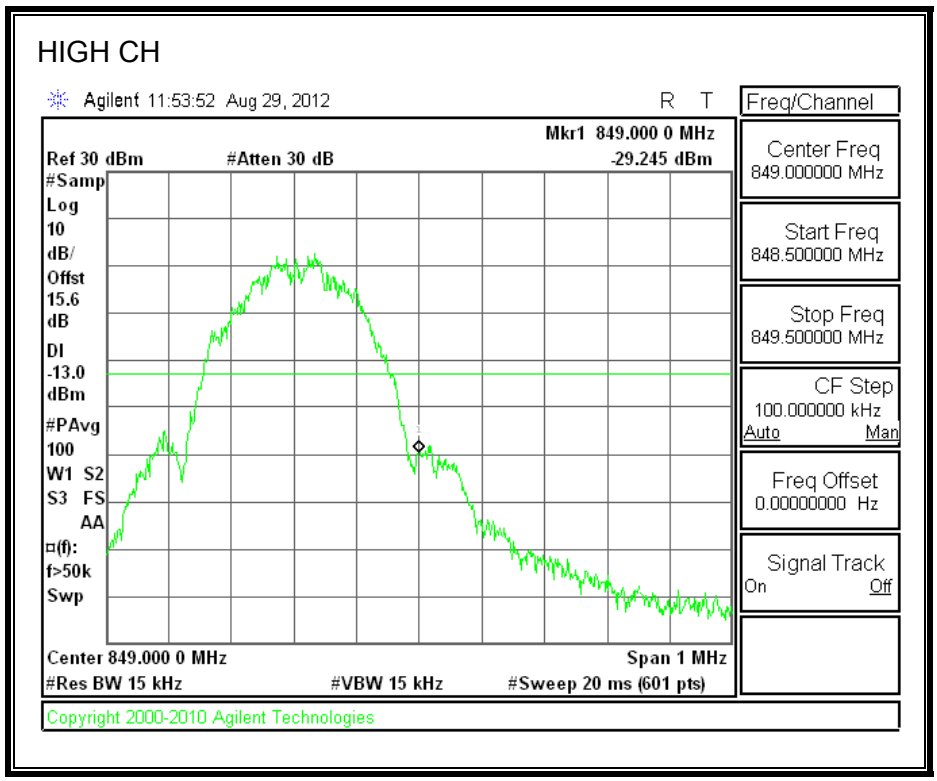


**EGPRS850**

LOW CH

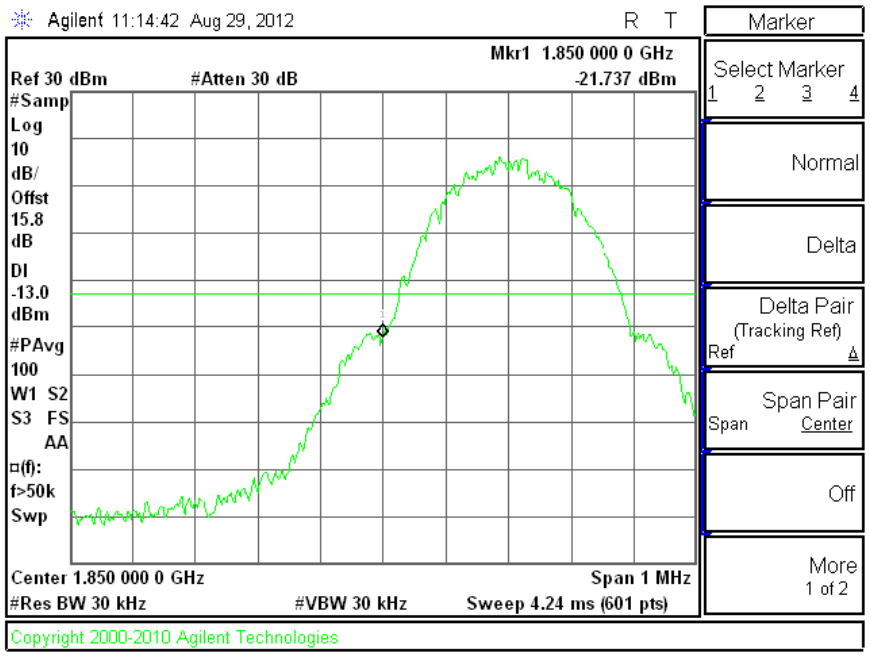



HIGH CH

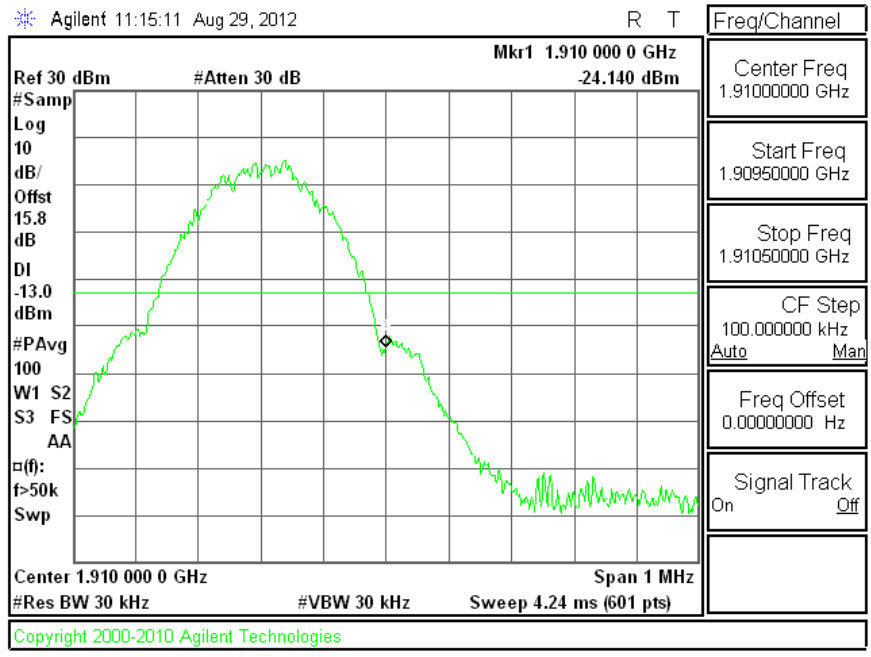


**GPRS1900**

LOW CH

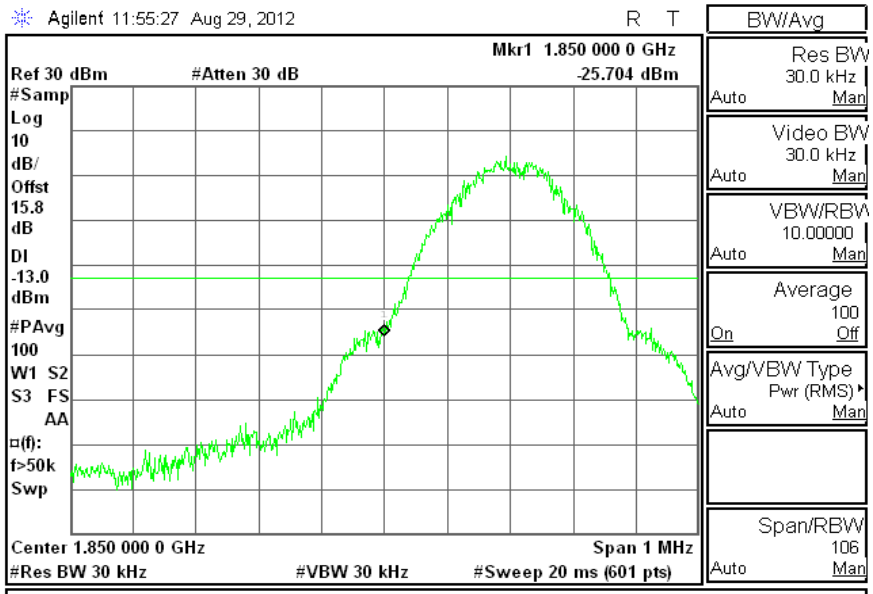



HIGH CH

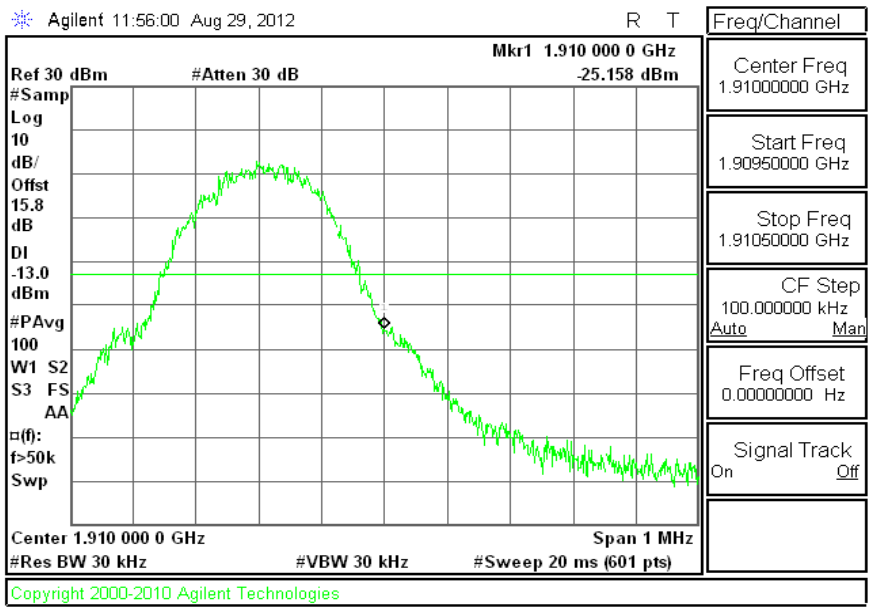


**EGPRS1900 BAND**

LOW CH



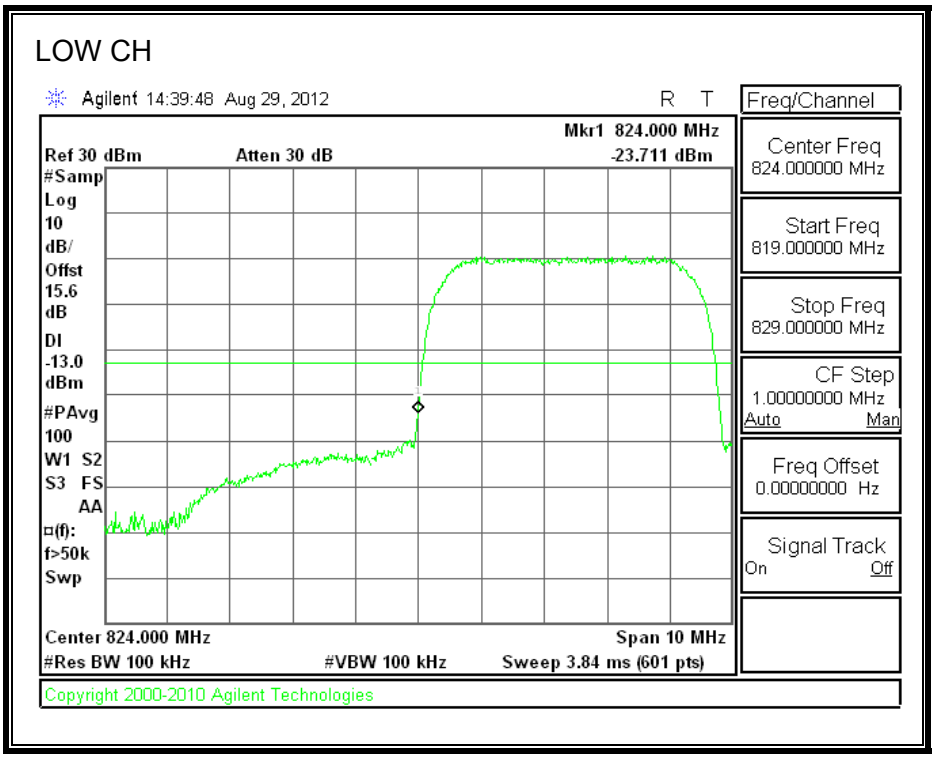

HIGH CH



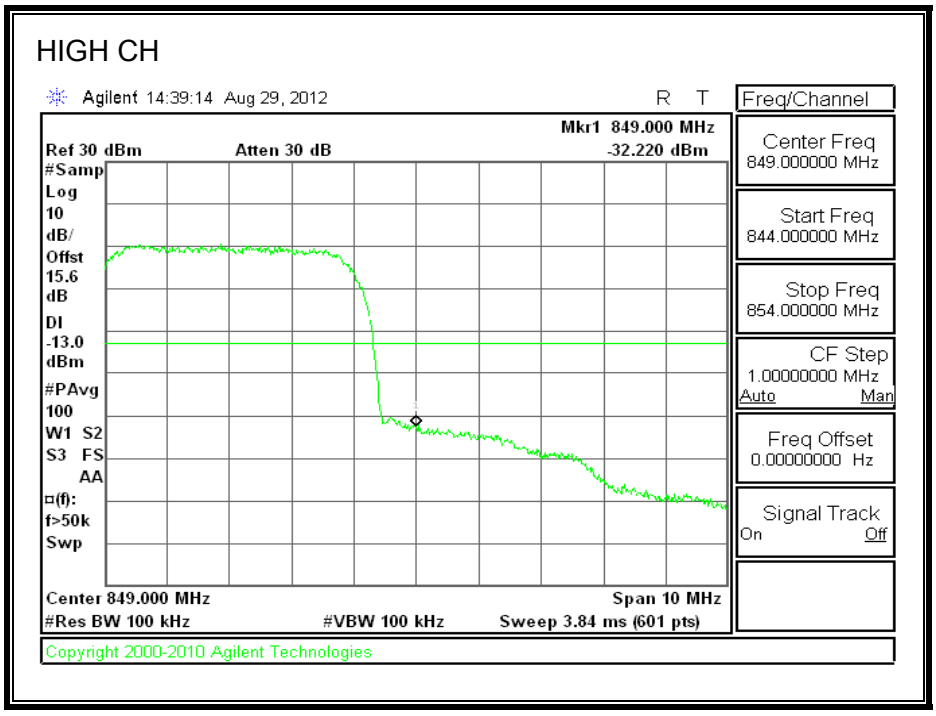
### 8.2.2. WCDMA

**CELL, REL99**

LOW CH

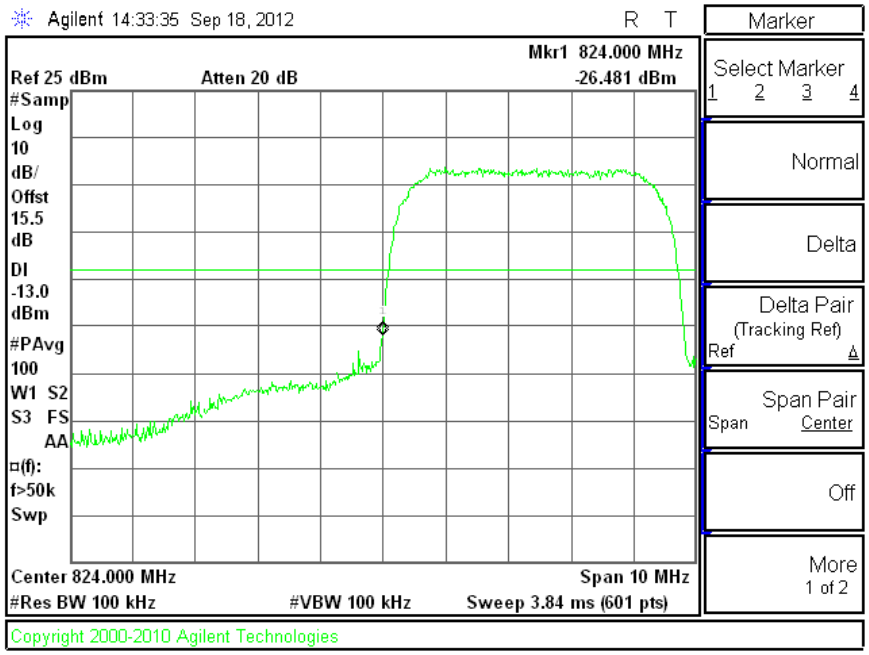



HIGH CH

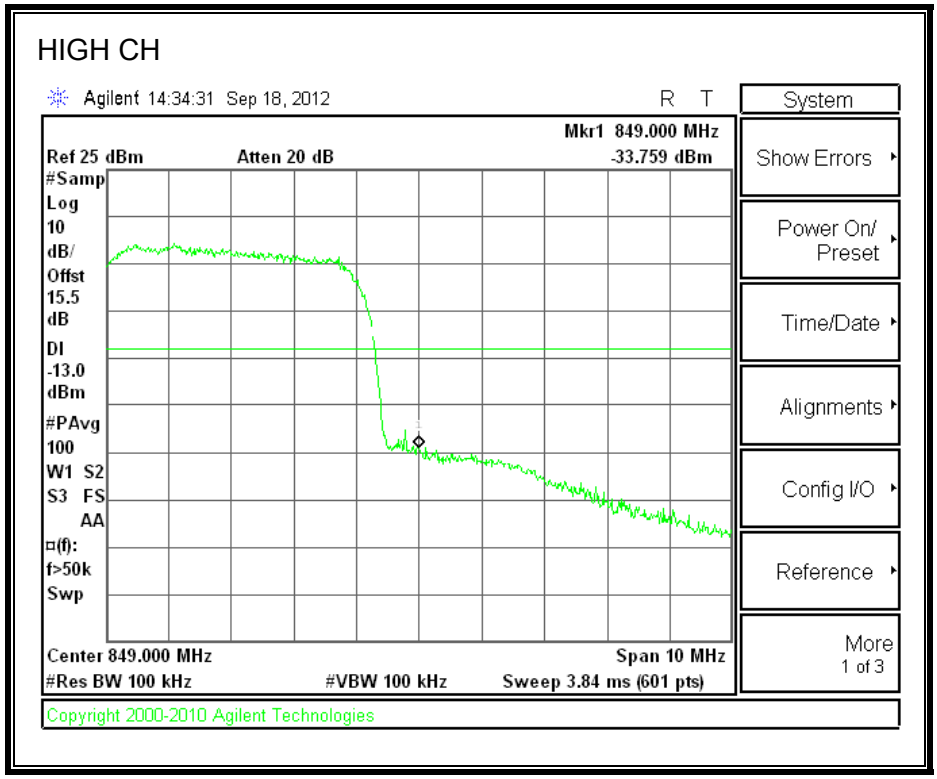


**UMTS 850, HSUPA**

LOW CH

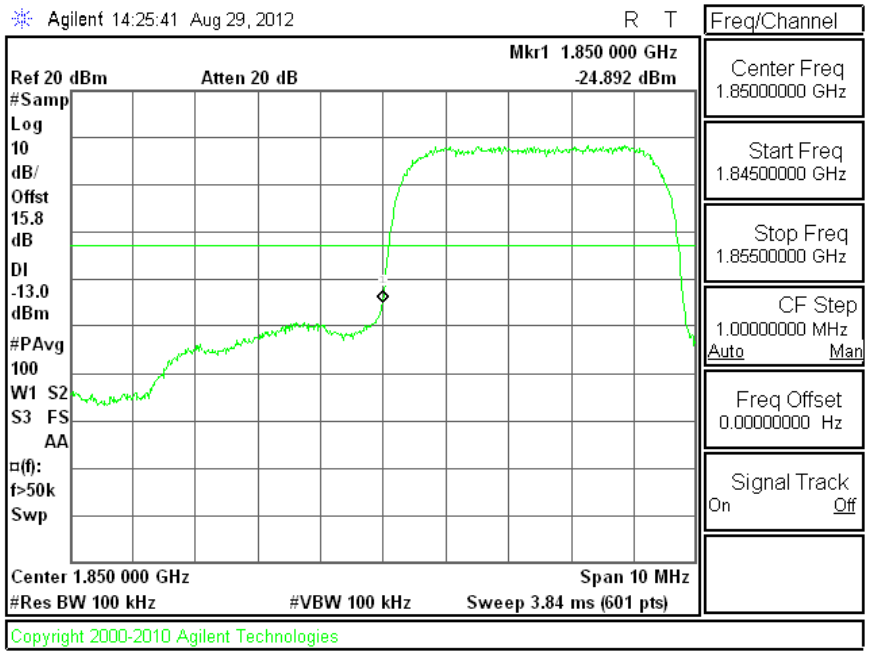



HIGH CH

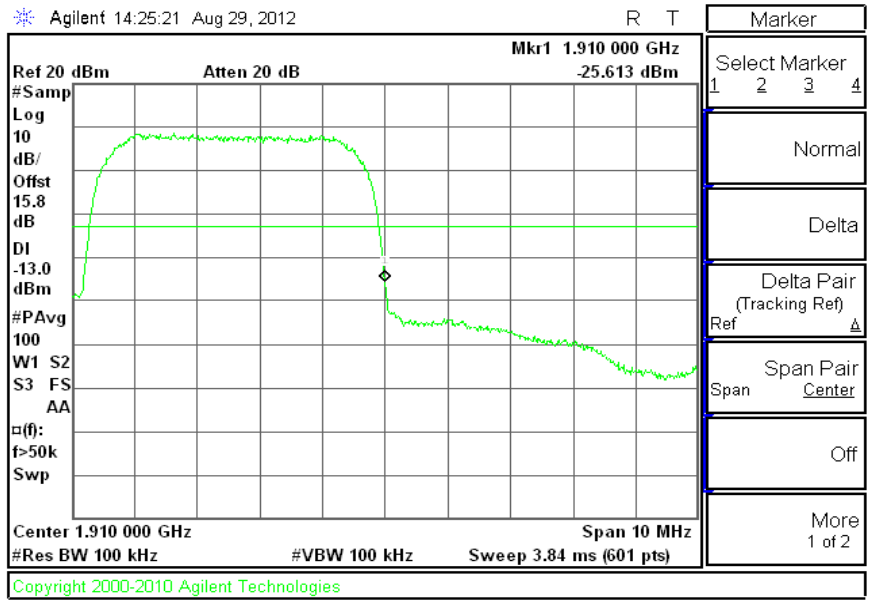


**UMTS1900, REL99**

LOW CH

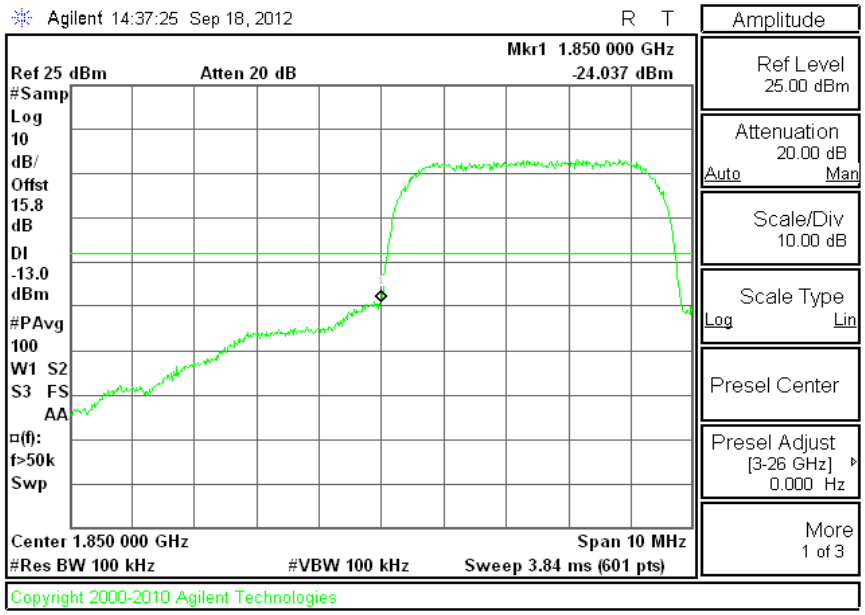



HIGH CH

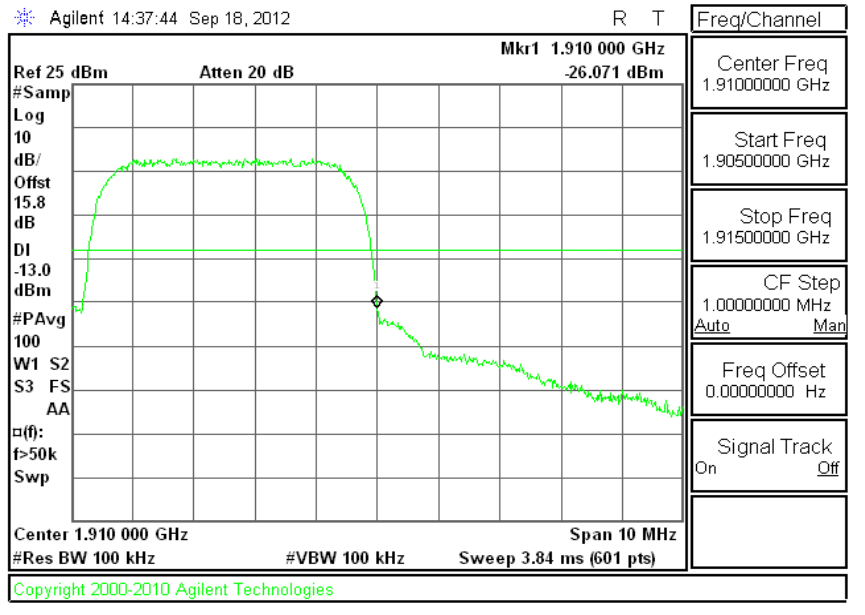


**UMTS1900, HSUPA**

LOW CH



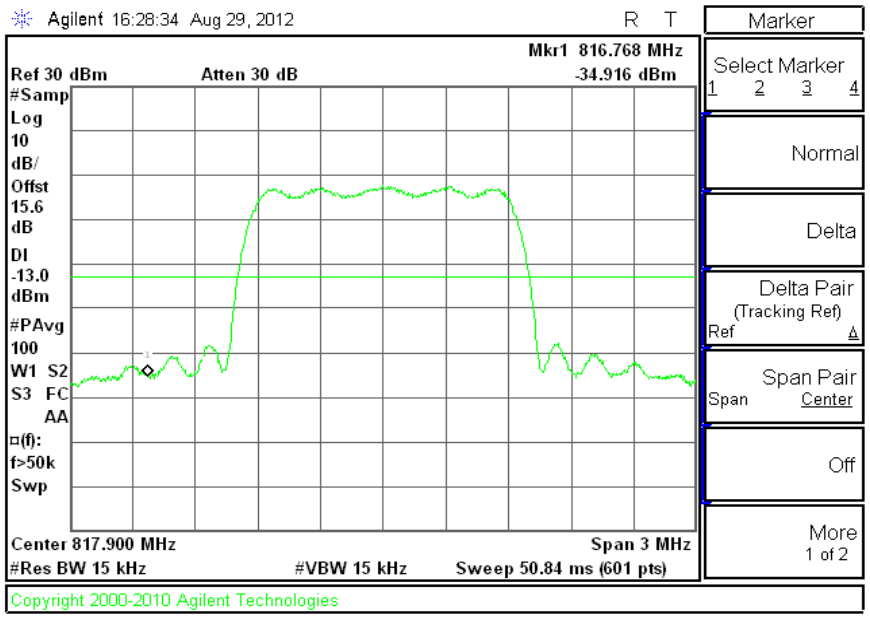

HIGH CH



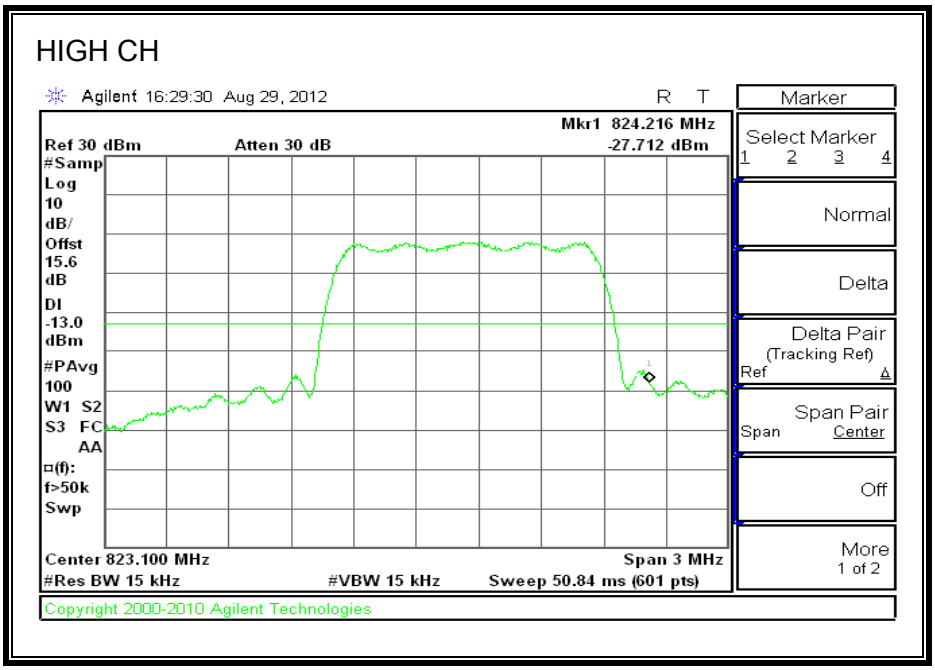
## 8.2.3. CDMA, BC10

**1xRTT**

LOW CH

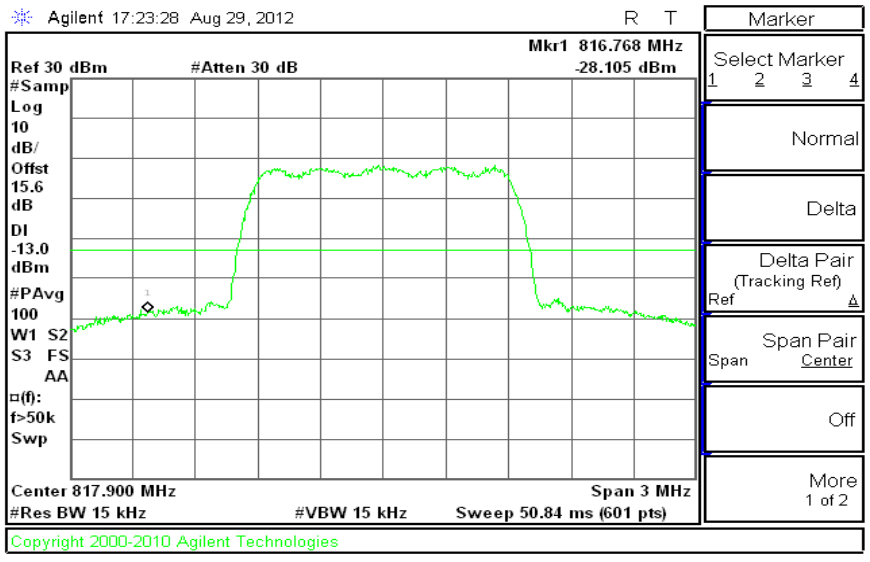



HIGH CH

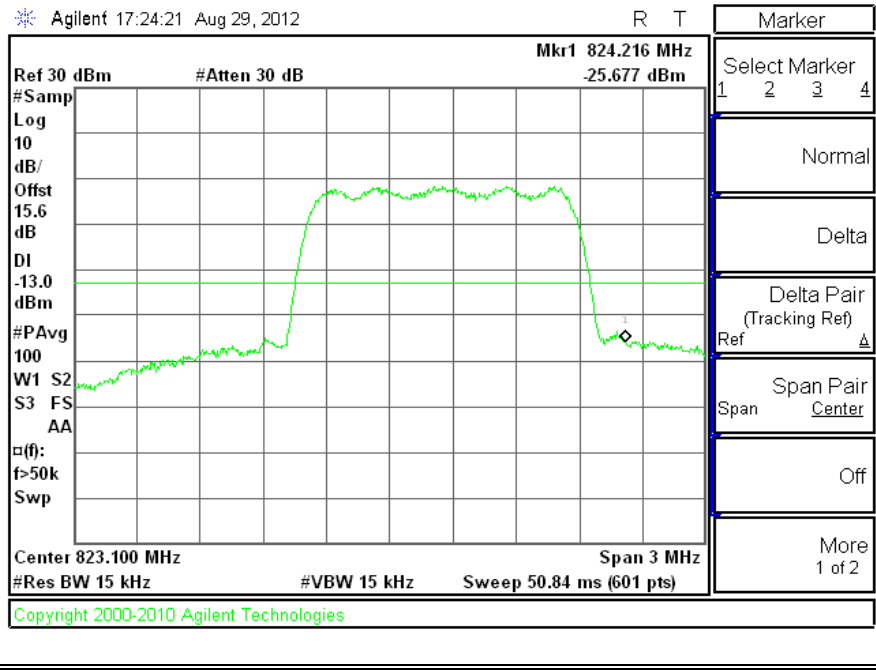


**EVDO**

LOW CH



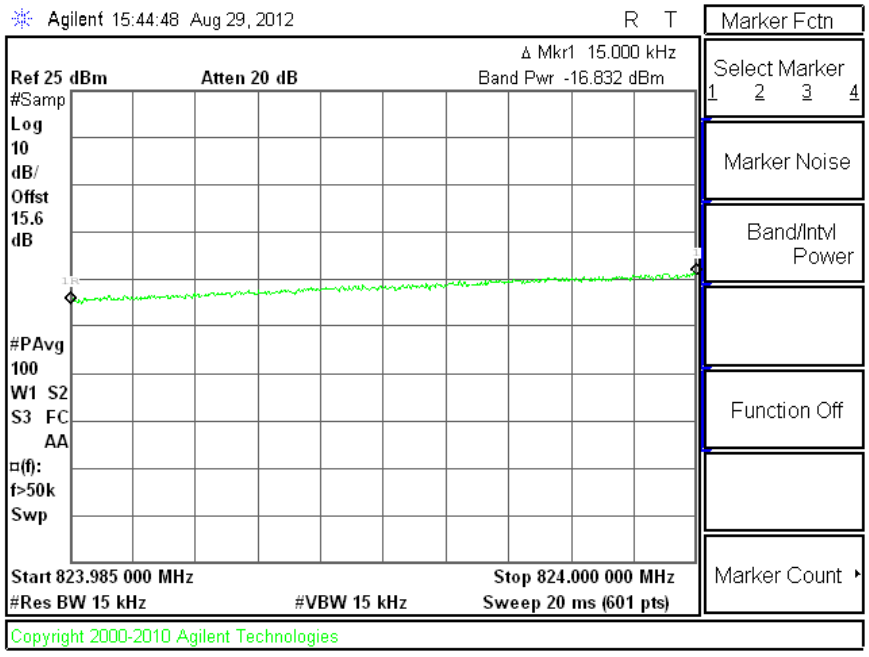

HIGH CH



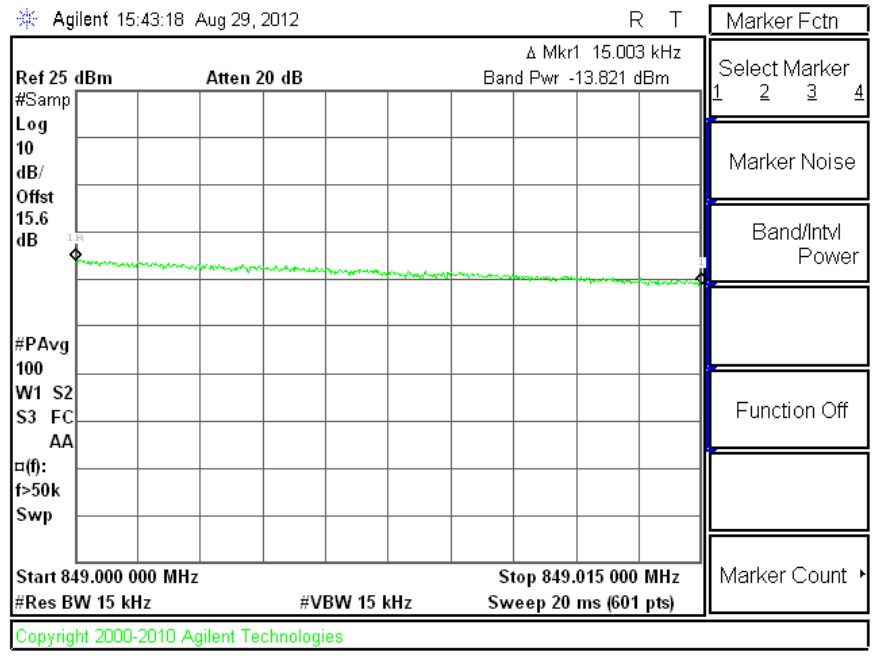
## 8.2.4. CDMA, BC0 and BC1

**CDMA2000 1xRTT mode (Cellular Band)**

LOW CH

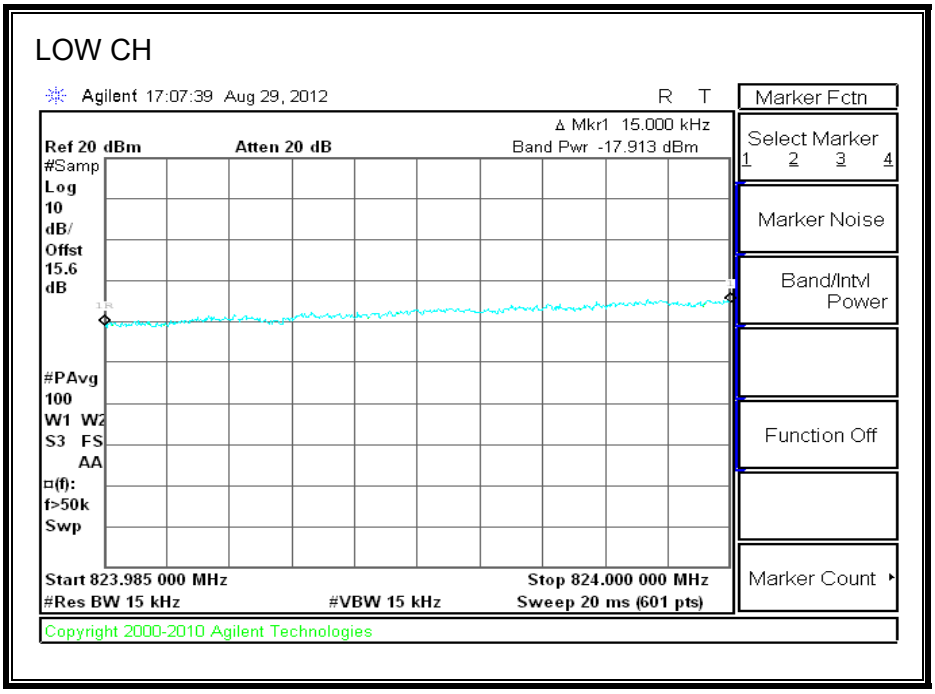



HIGH CH

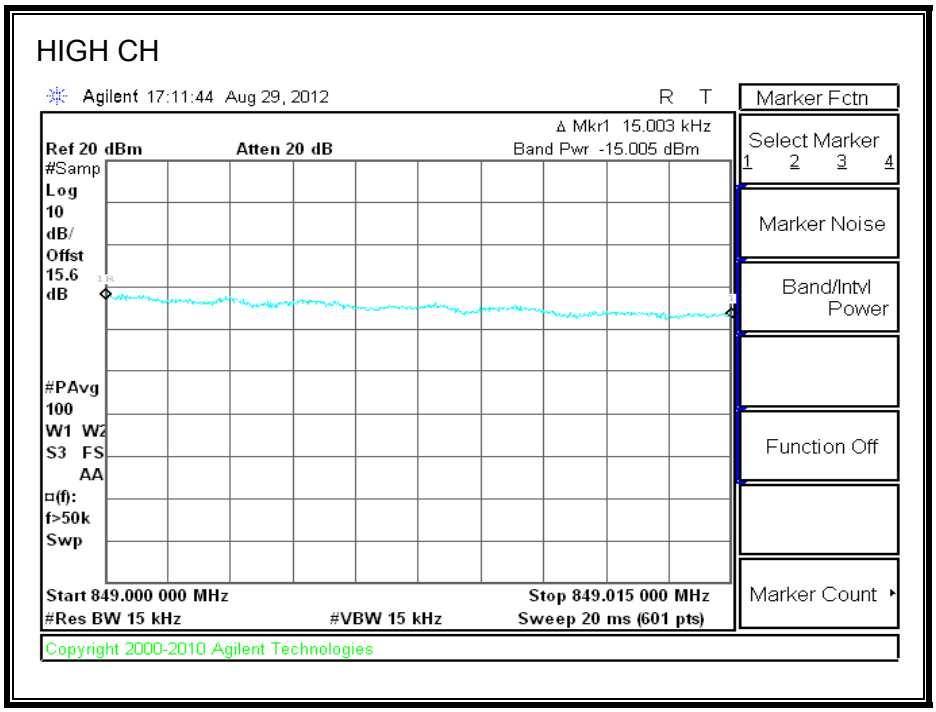


**CDMA2000 EVDO Rev A mode (Cellular Band)**

LOW CH



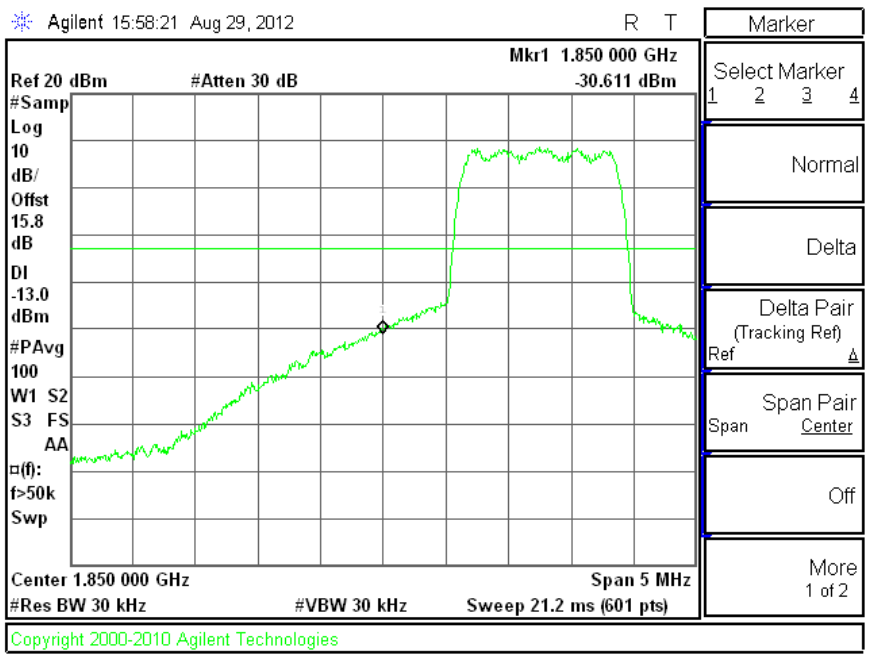

HIGH CH



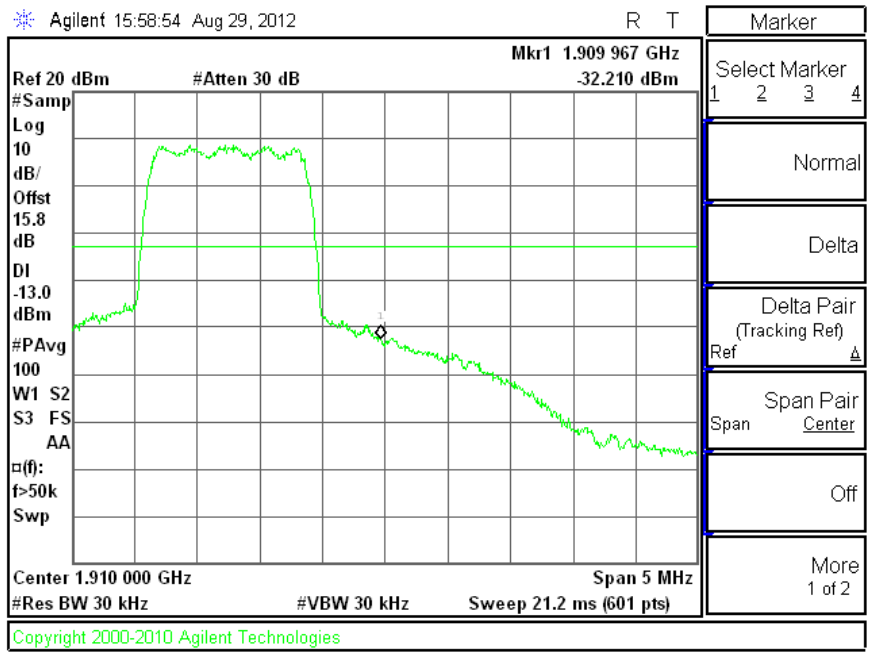

* Power is integrated over the 1 percent of emission bandwidth.

**1xRTT mode (PCS Band)**

LOW CH

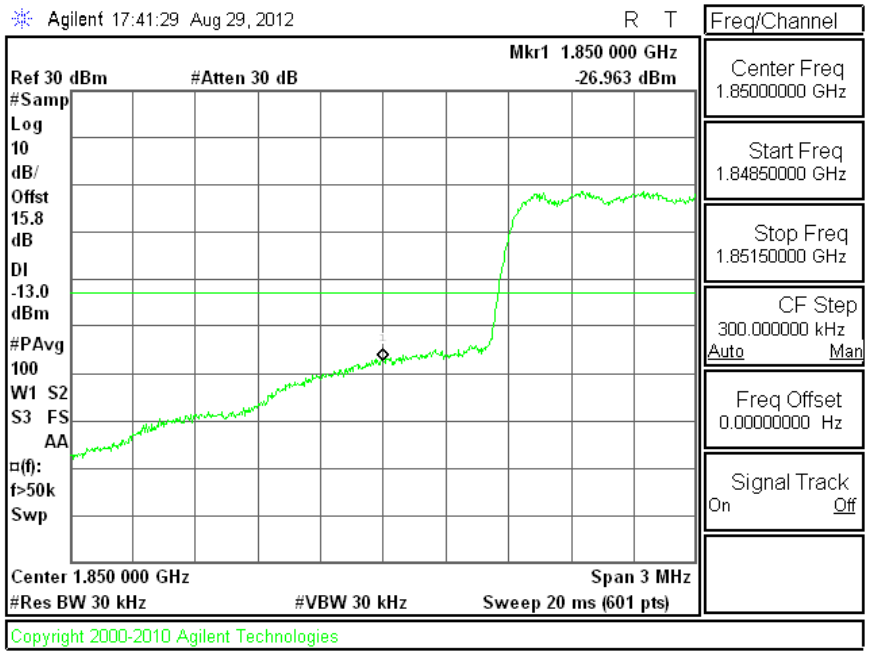



HIGH CH

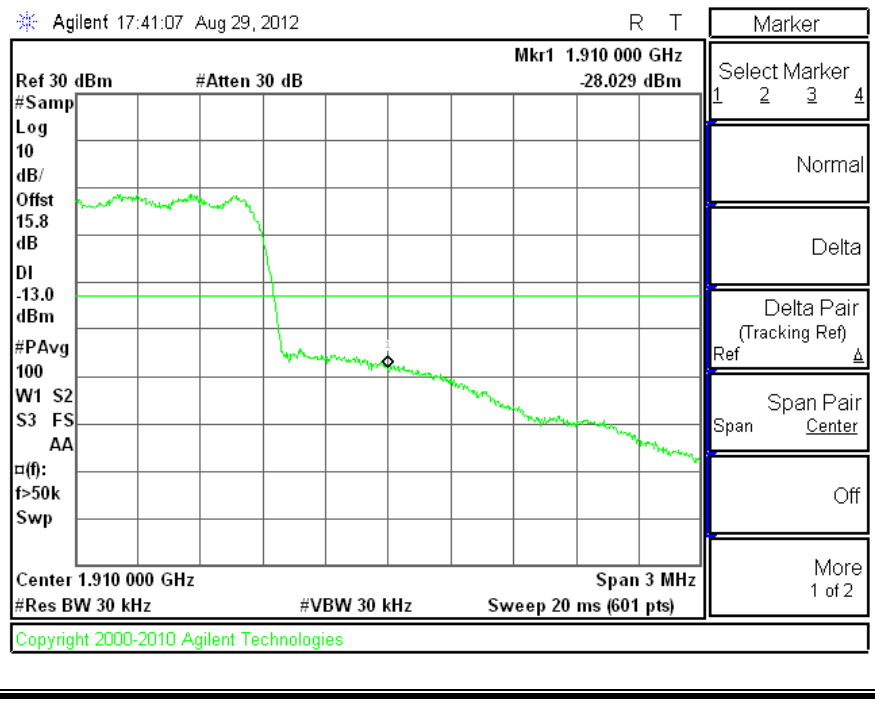


**EVDO Rev A mode (PCS Band)**

LOW CH



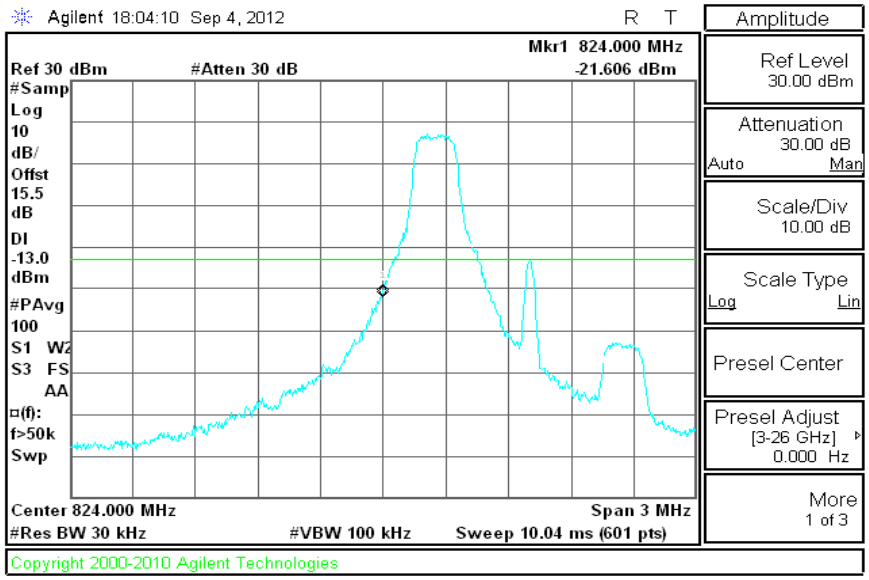

HIGH CH



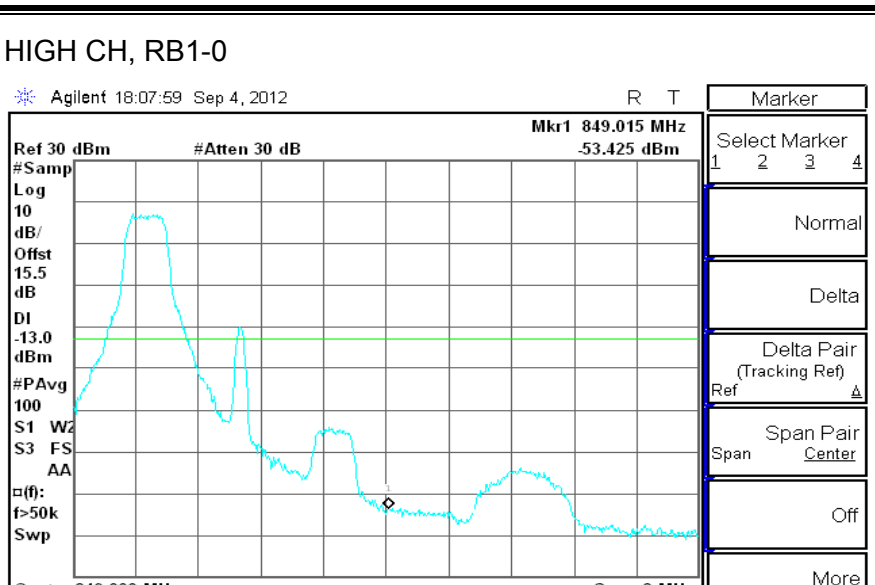
## 8.2.5. LTE BAND 5

**QPSK Band 5 (1.4 MHz BANDWIDTH)**

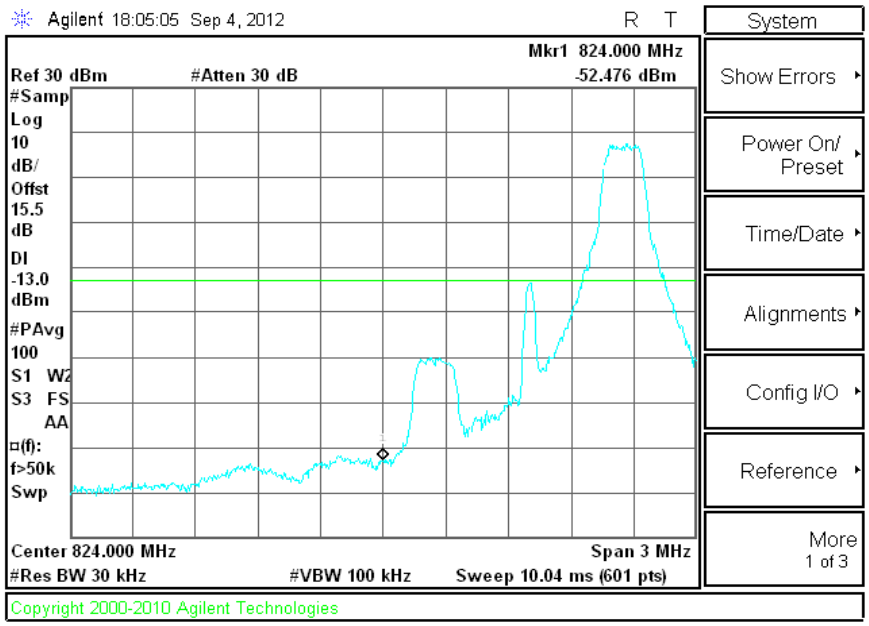
LOW CH, RB1-0



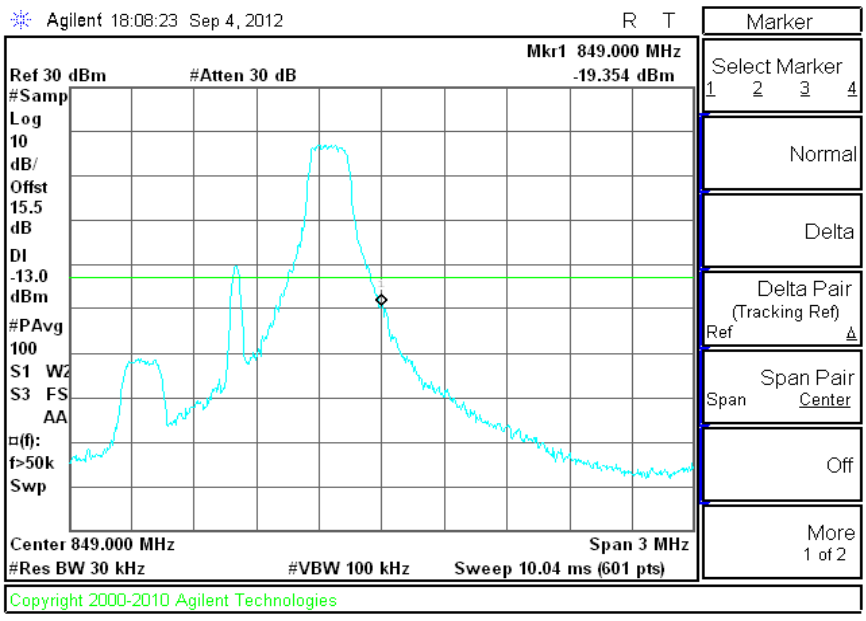

HIGH CH, RB1-0



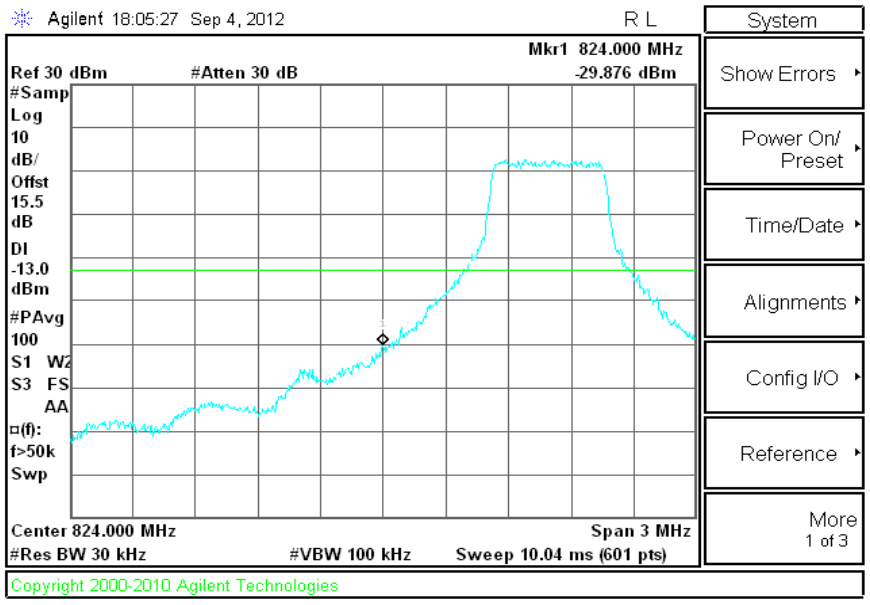
LOW CH, RB1-5



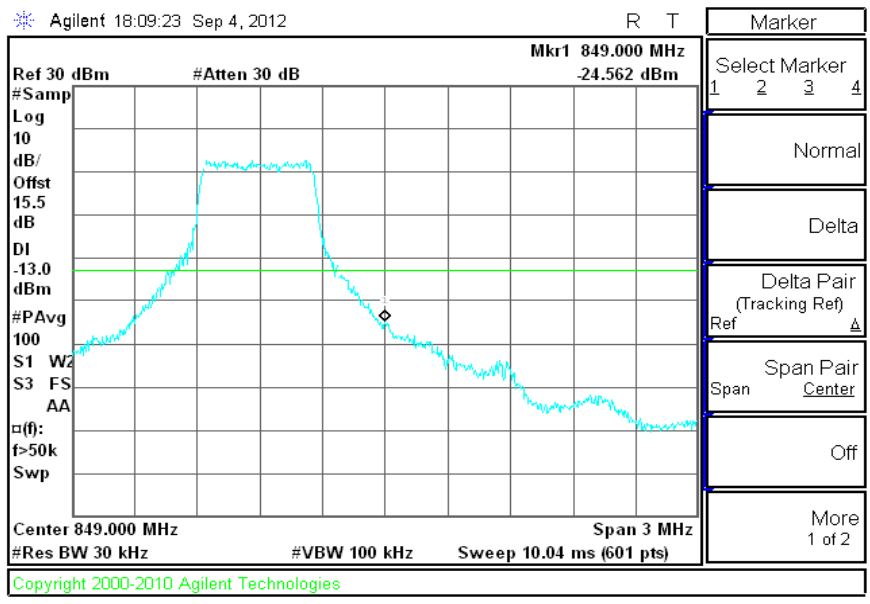

HIGH CH, RB1-5



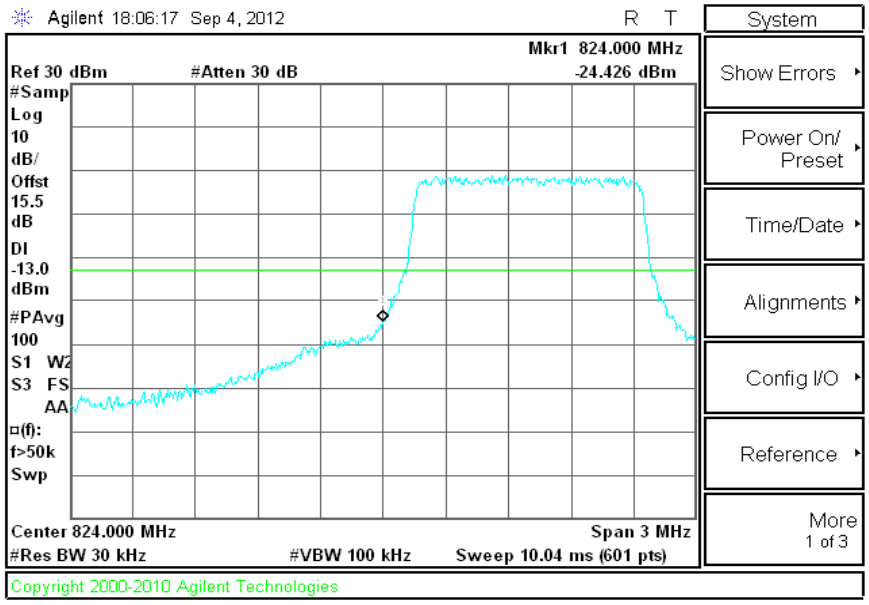
LOW CH, RB3-2



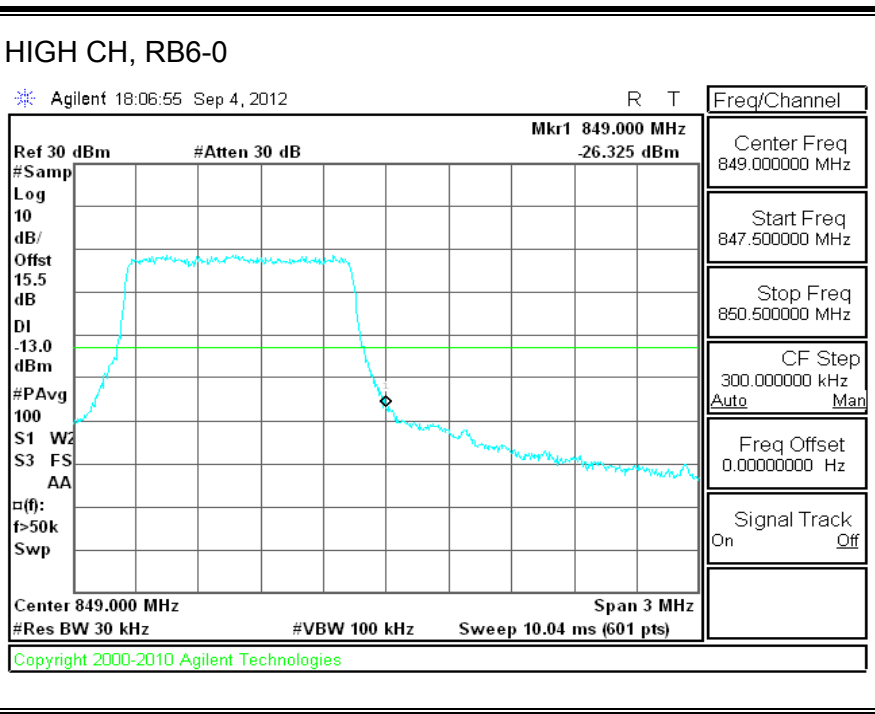

HIGH CH, RB3-2



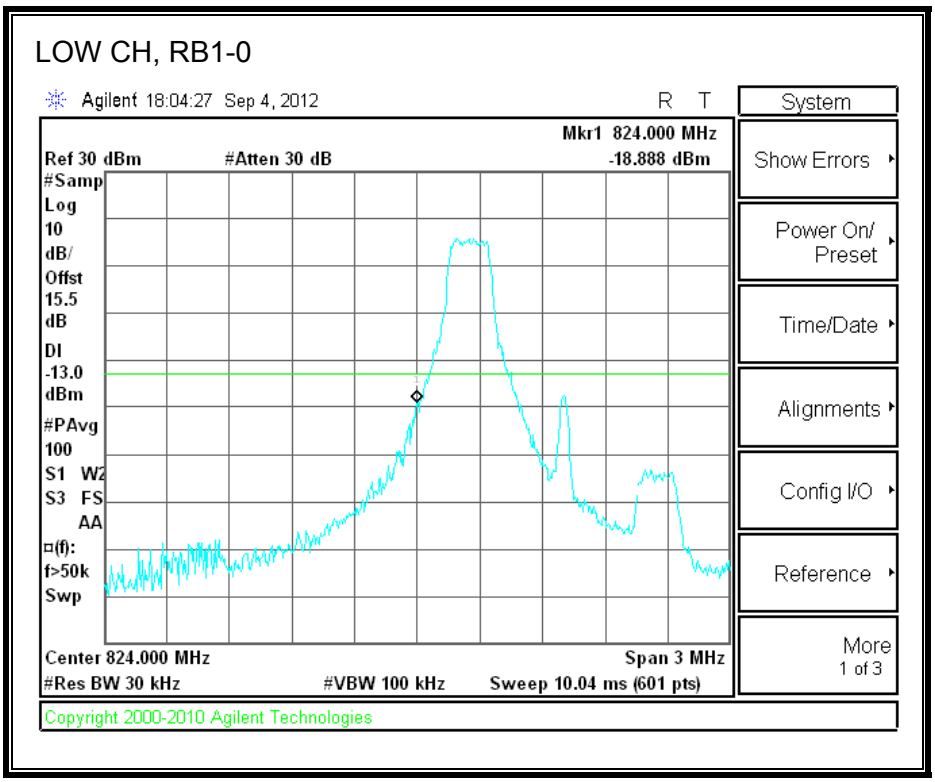
LOW CH, RB6-0

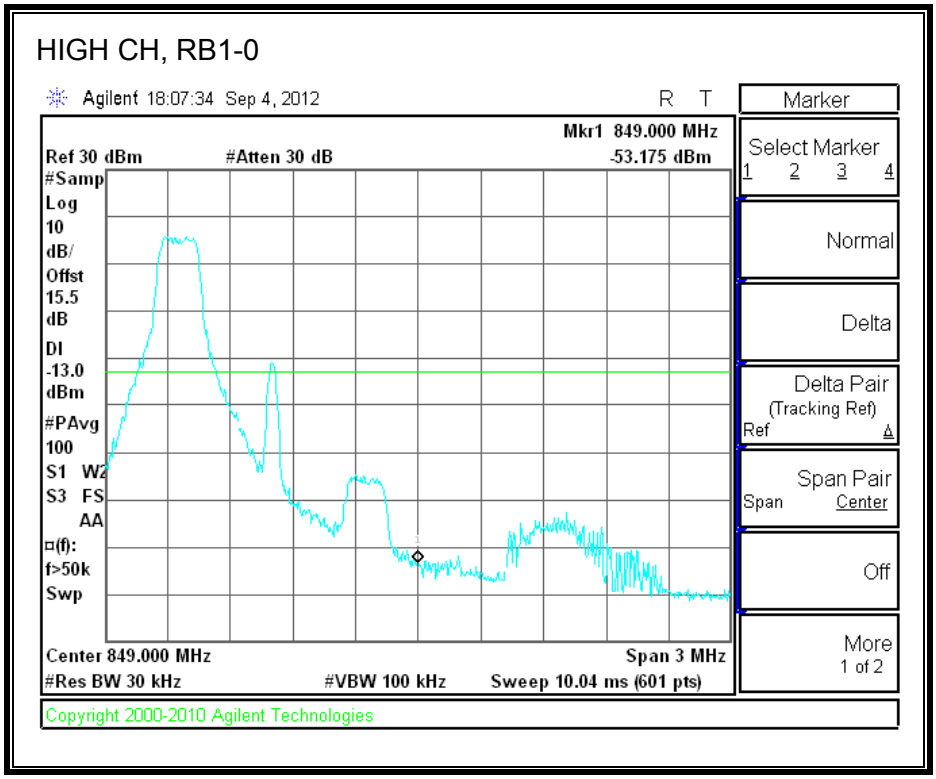



HIGH CH, RB6-0

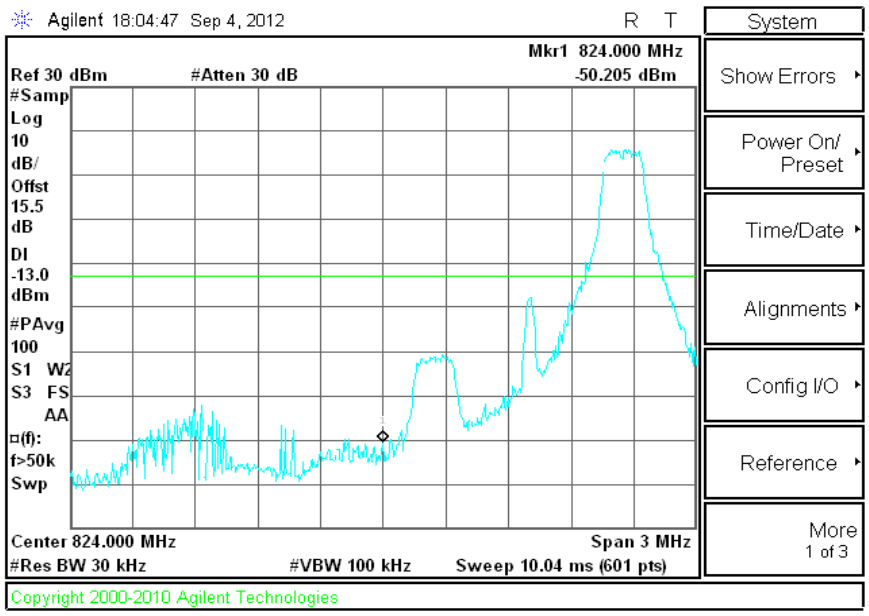


**16QAM Band 5 (1.4 MHz BANDWIDTH)**

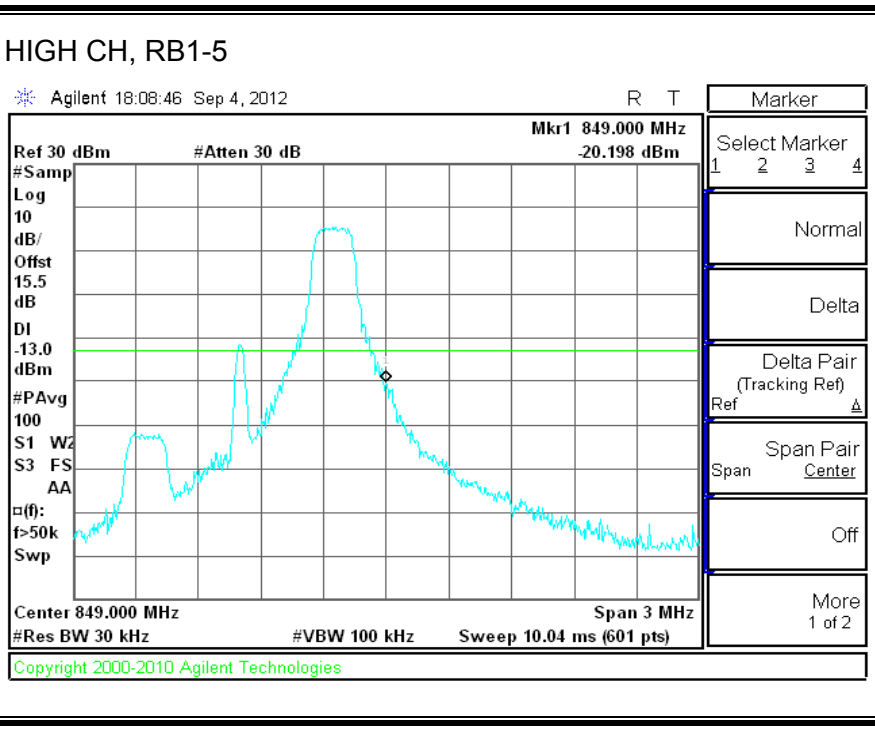


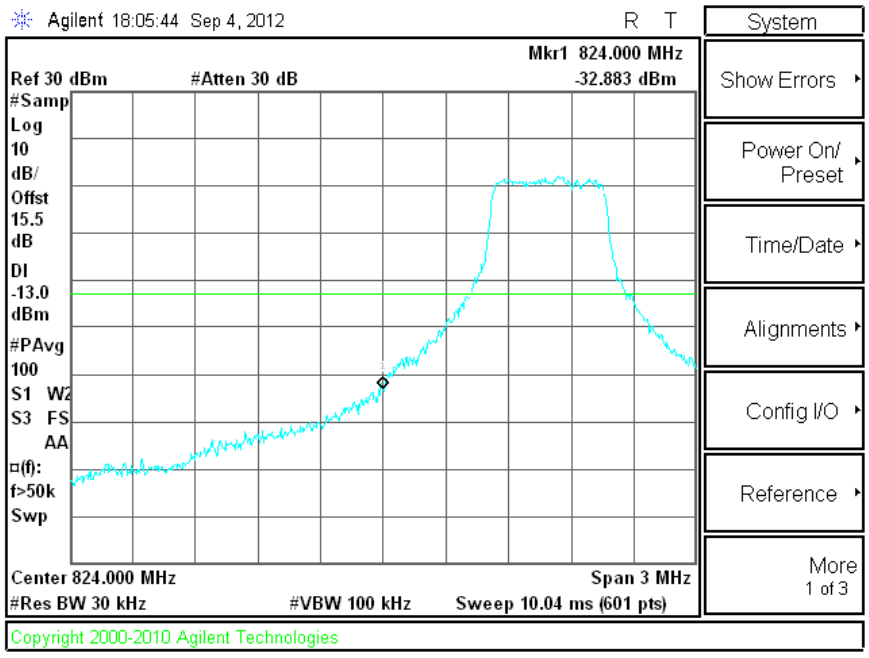
LOW CH, RB1-5



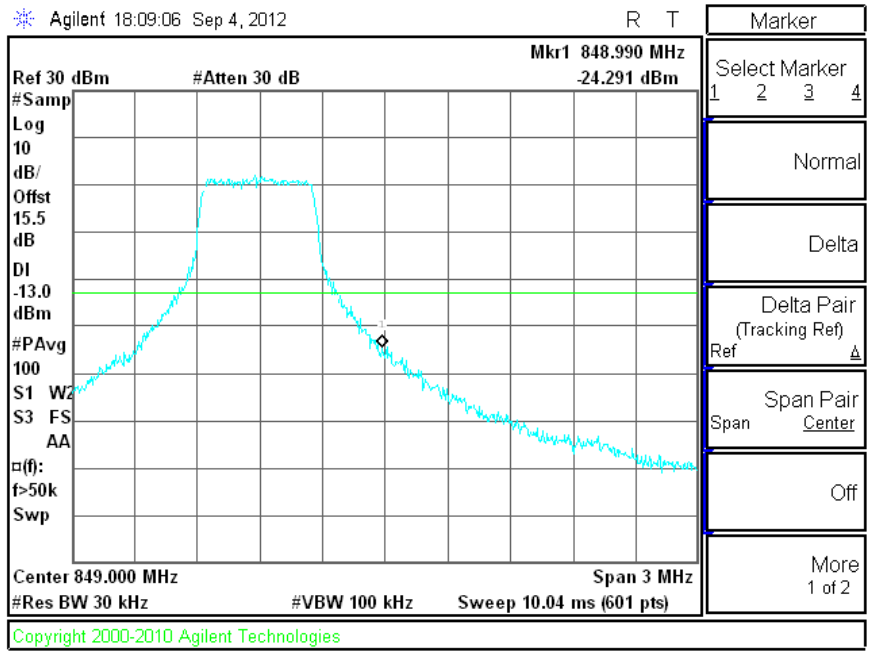

HIGH CH, RB1-5



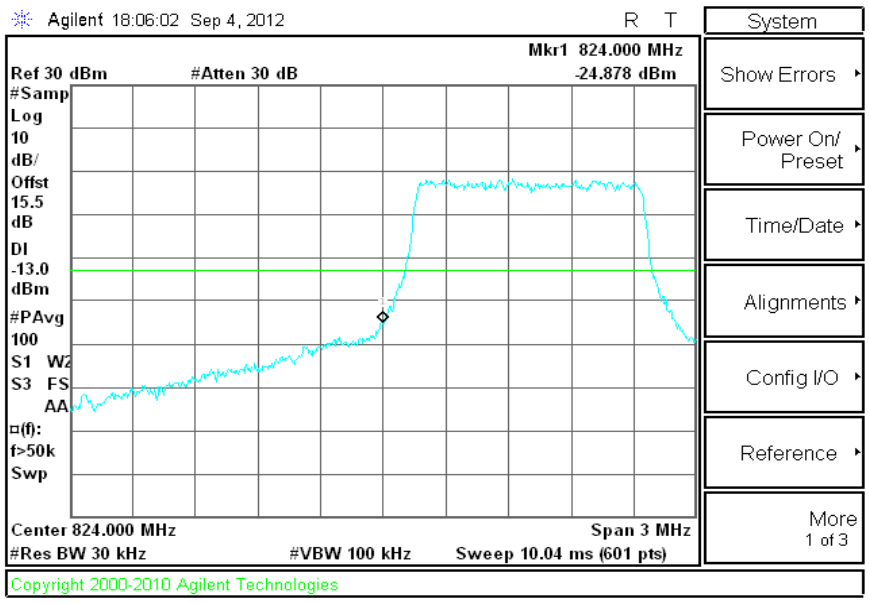
LOW CH, RB3-2



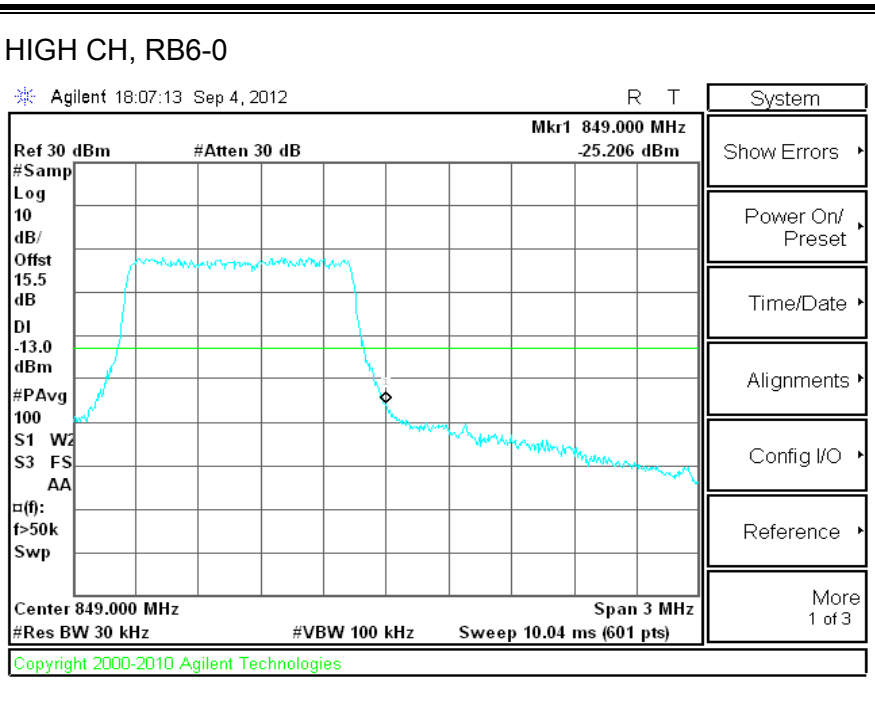

HIGH CH, RB3-2



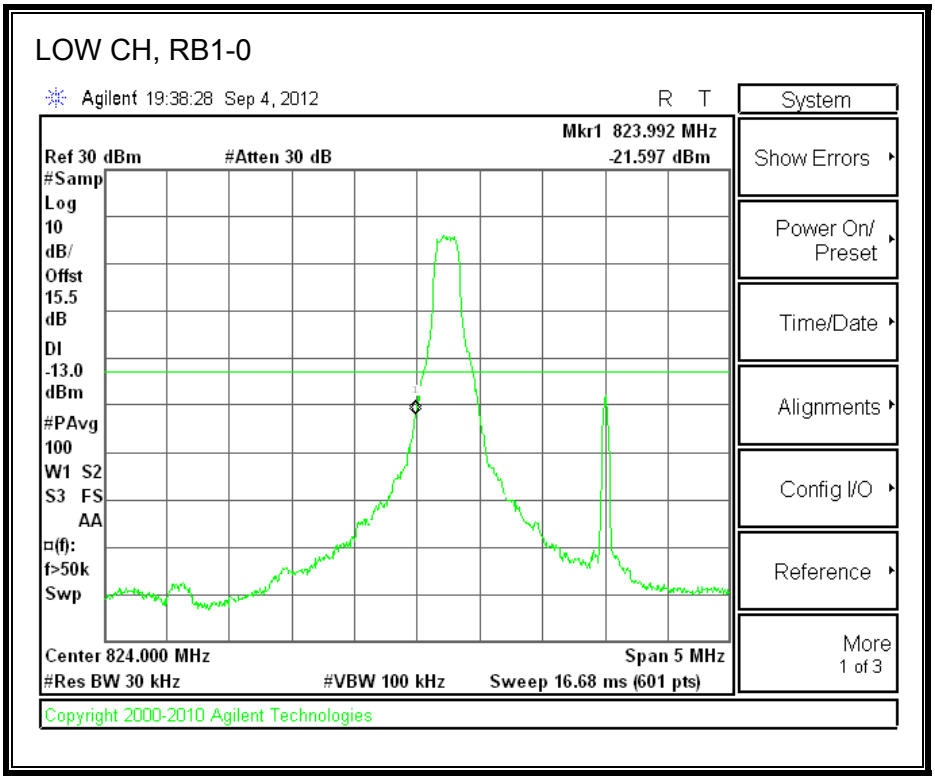
LOW CH, RB6-0

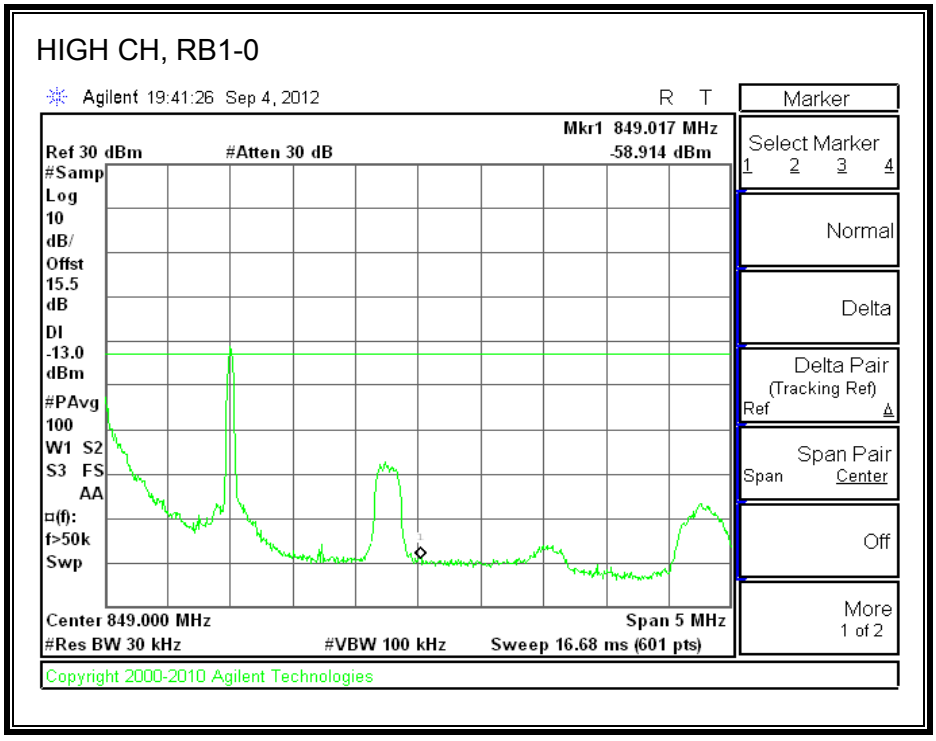



HIGH CH, RB6-0

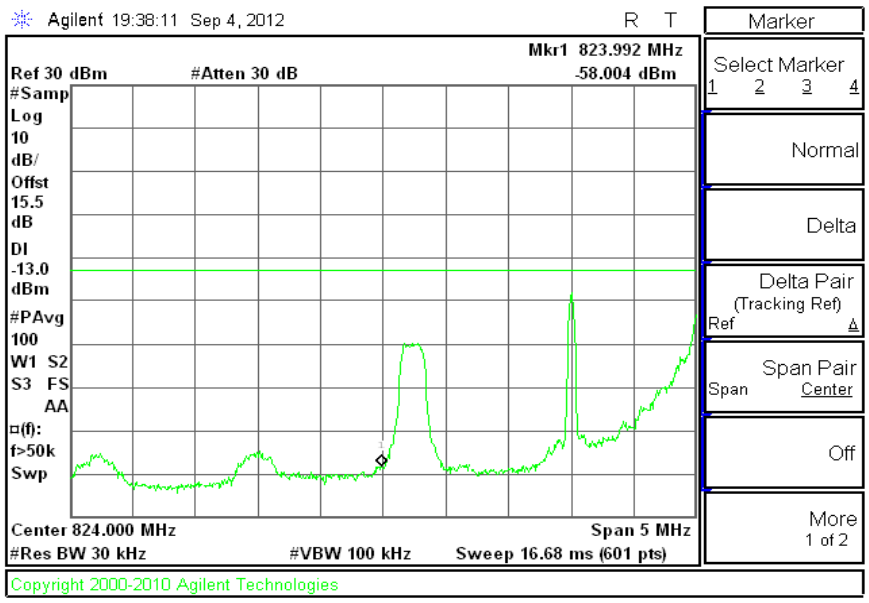


**QPSK Band 5 (3 MHz BANDWIDTH)**

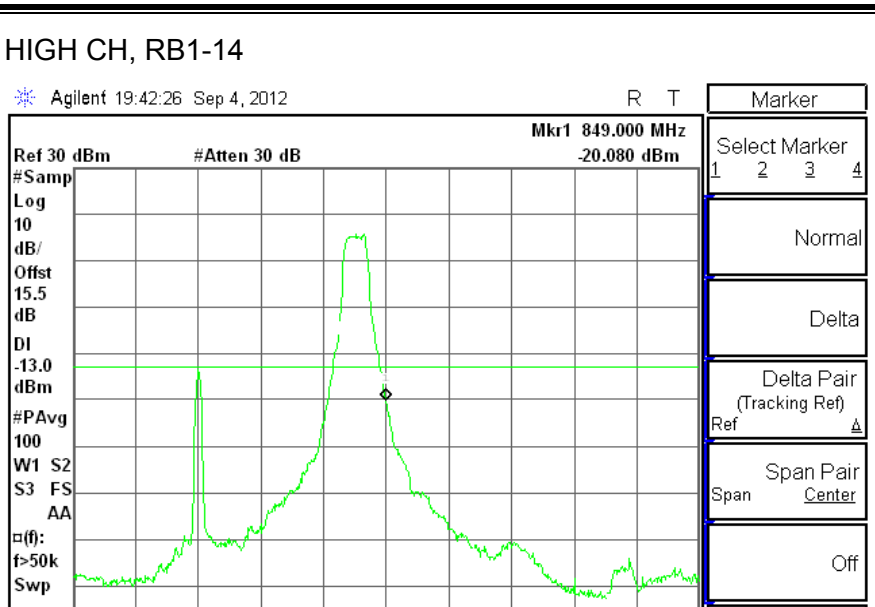


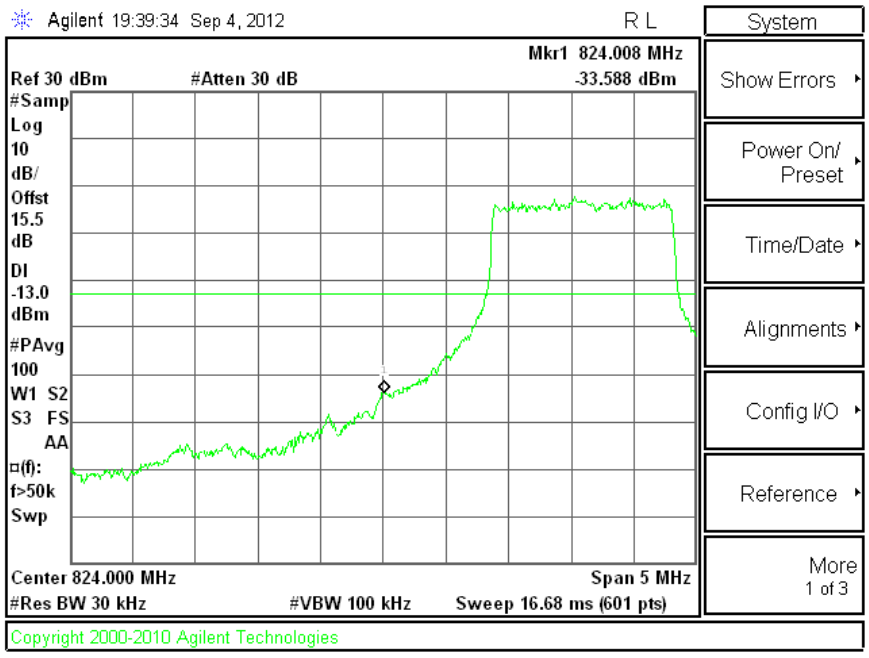
LOW CH, RB1-14



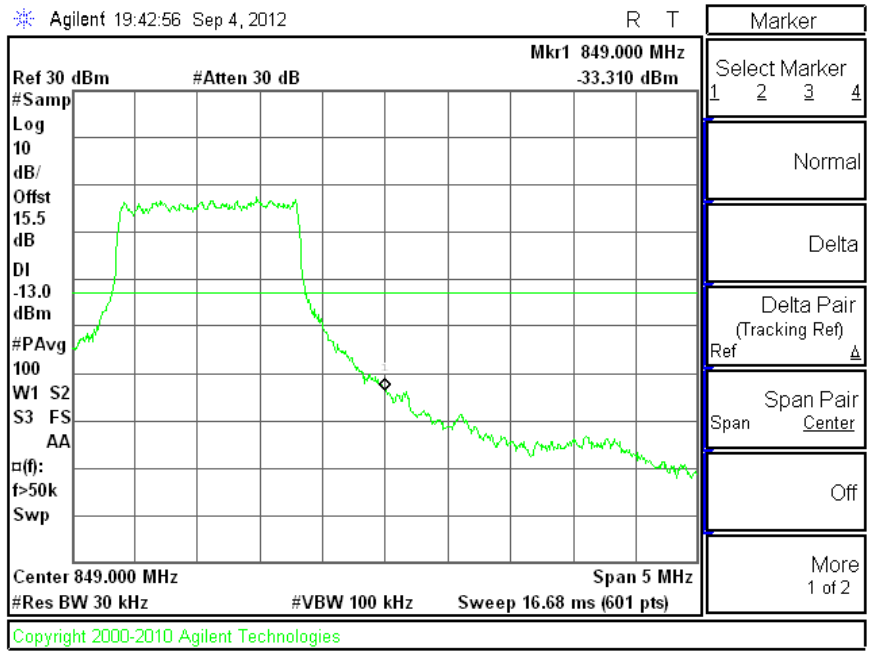

HIGH CH, RB1-14



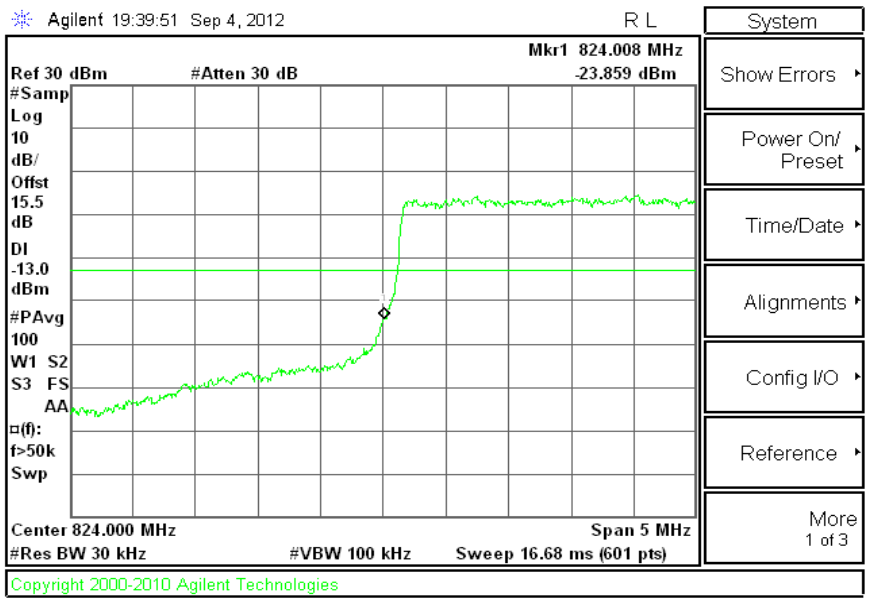
LOW CH, RB8-4



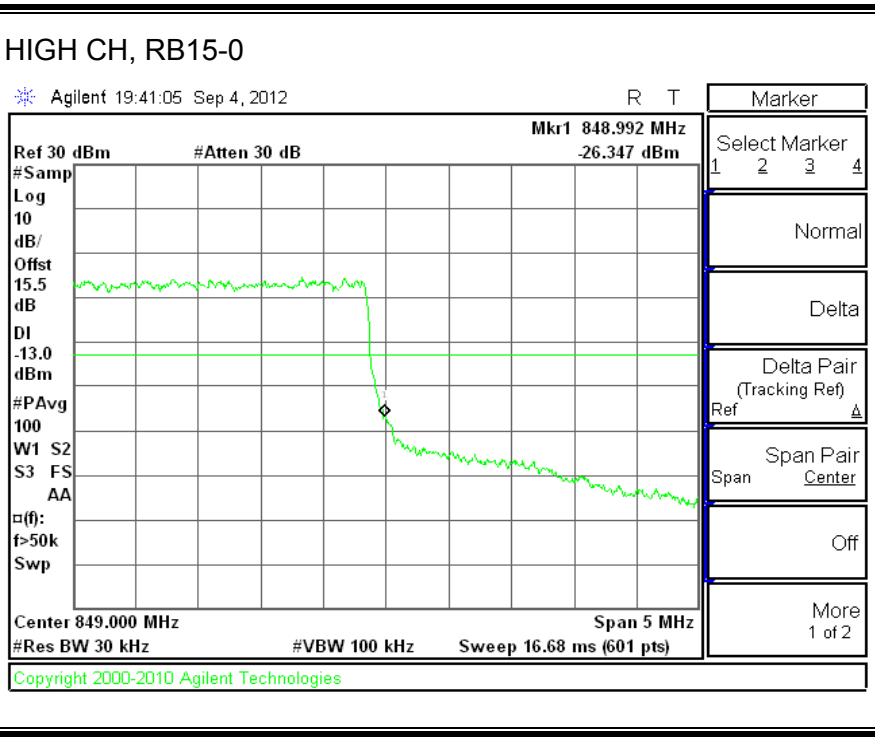

HIGH CH, RB8-4



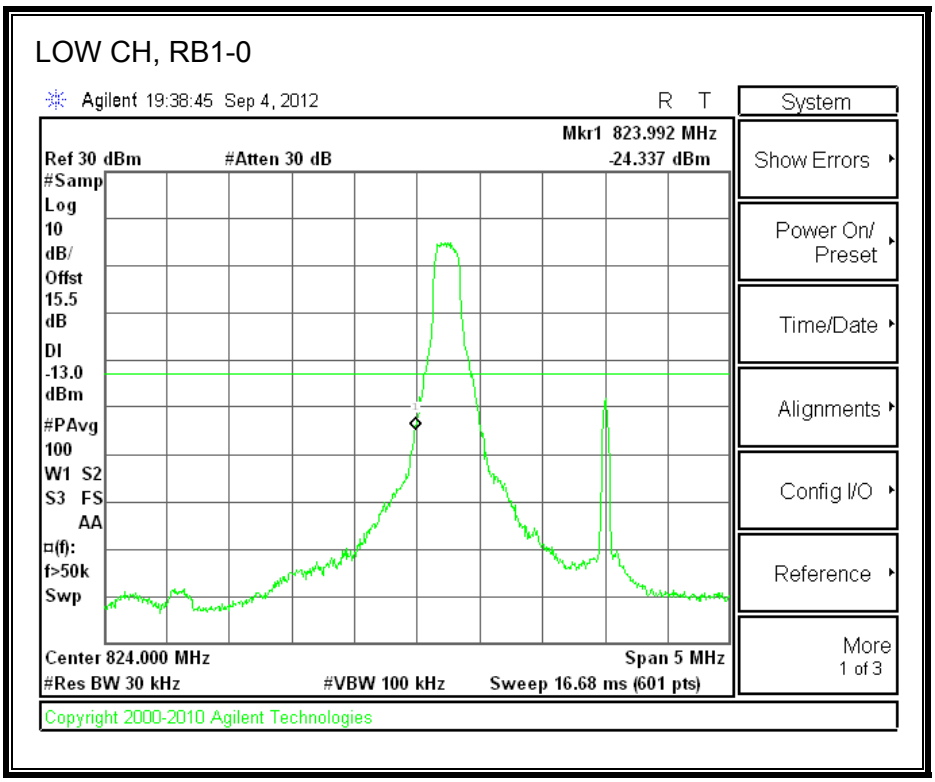
LOW CH, RB15-0

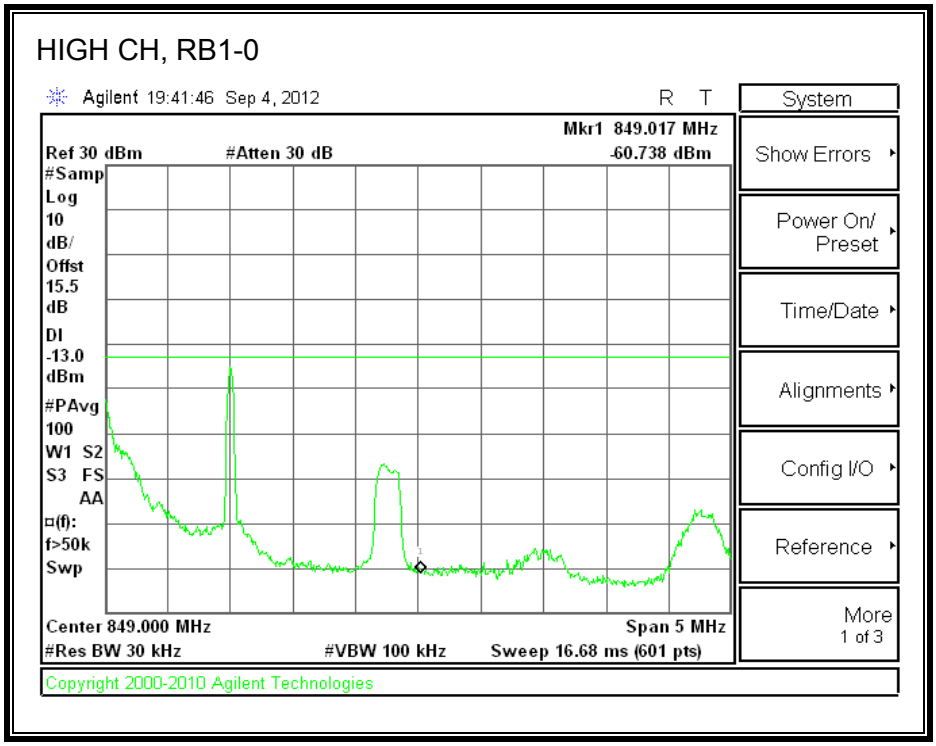



HIGH CH, RB15-0

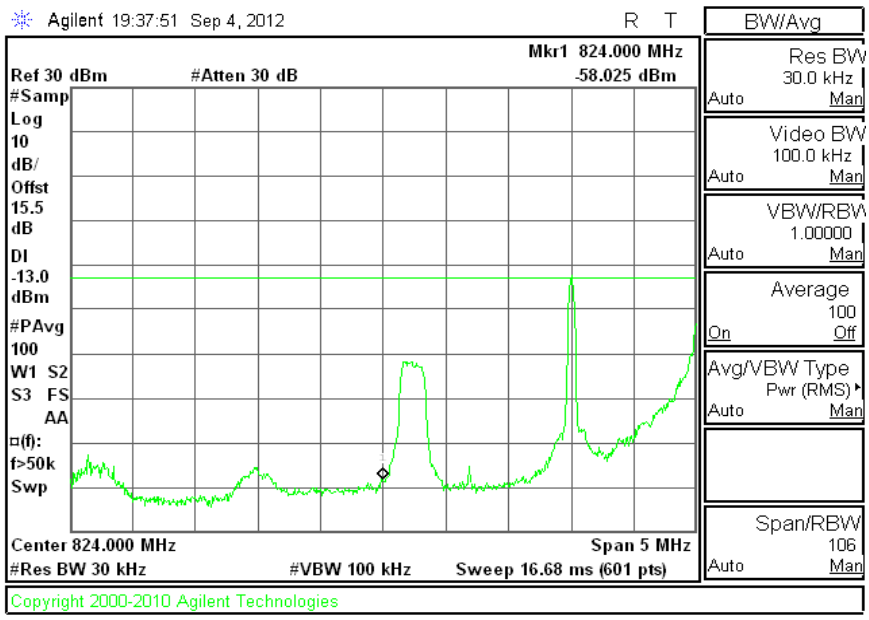


**16QAM Band 5 (3 MHz BANDWIDTH)**

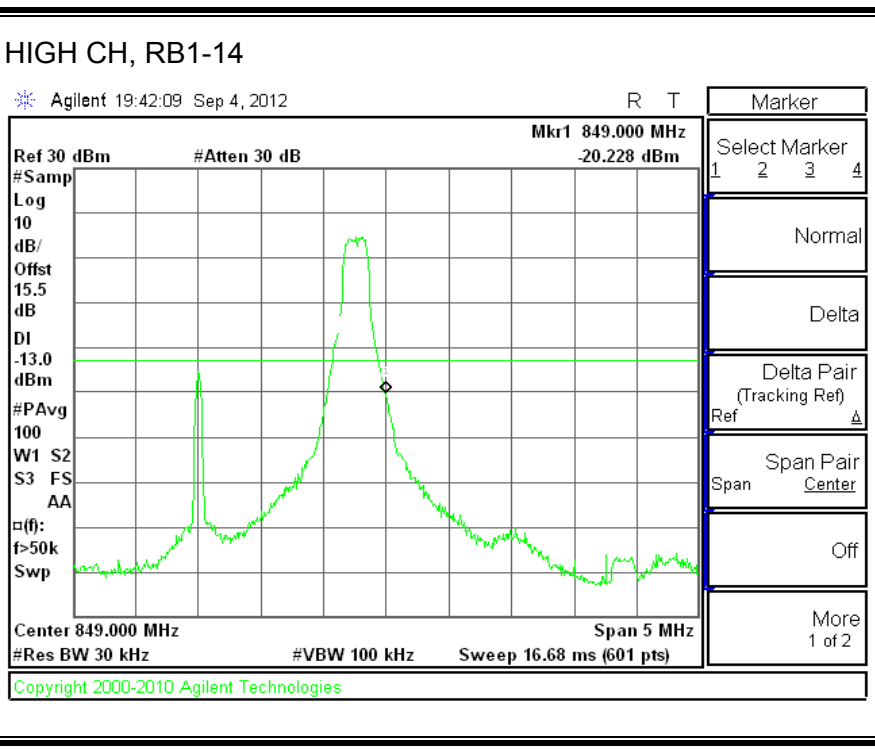


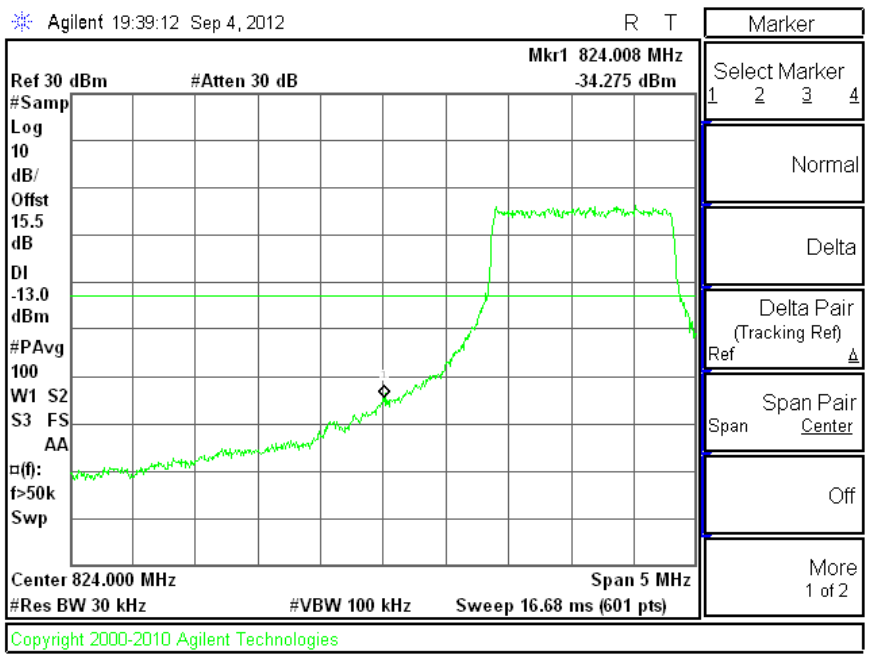
LOW CH, RB1-14



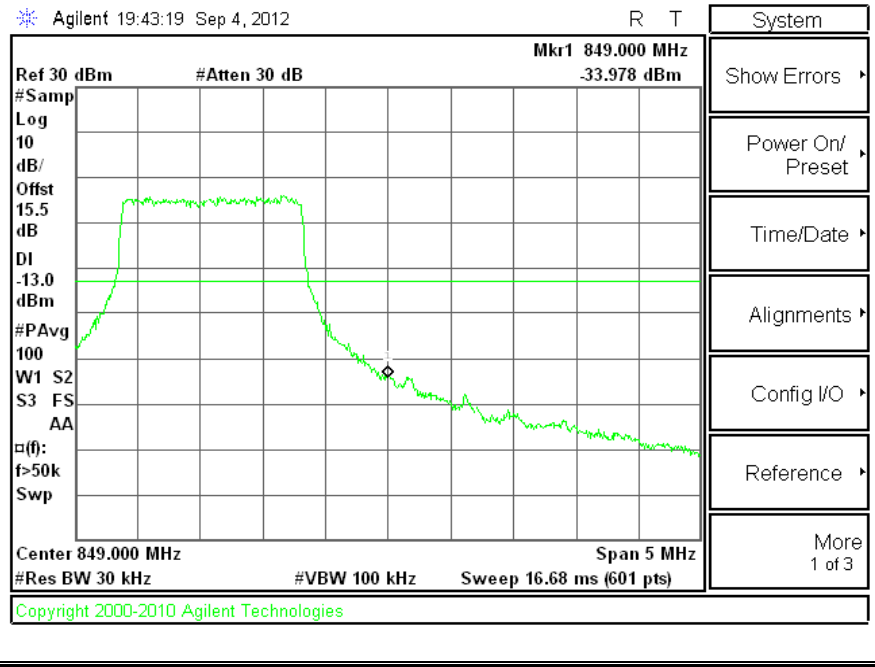

HIGH CH, RB1-14



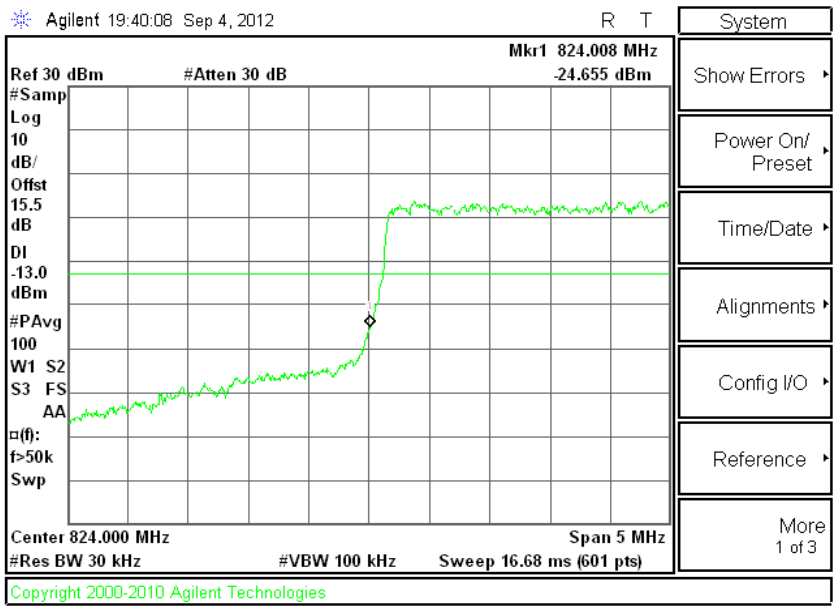
LOW CH, RB8-4



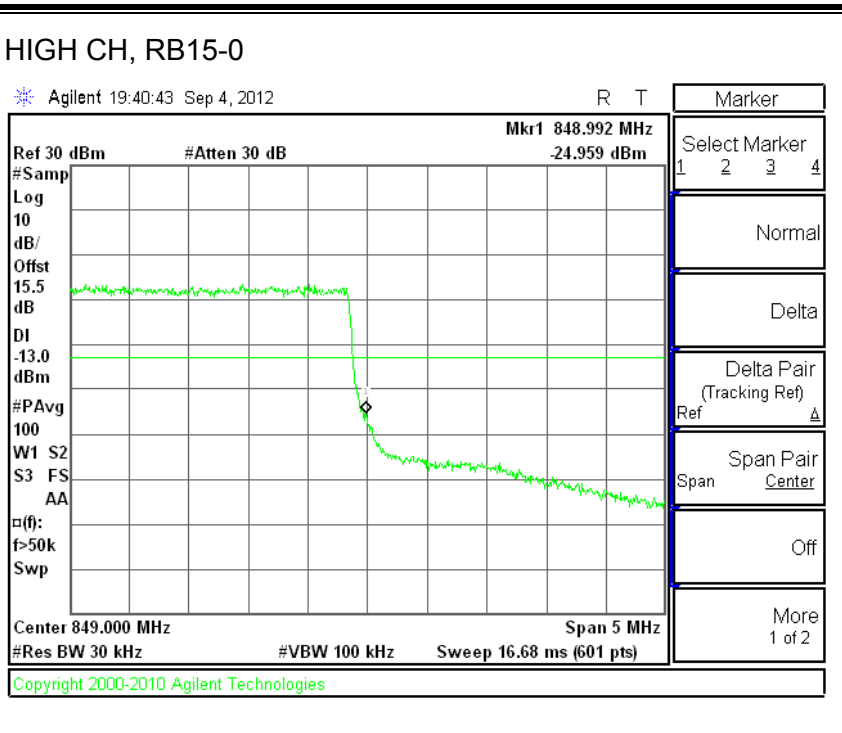

HIGH CH, RB8-4



LOW CH, RB15-0

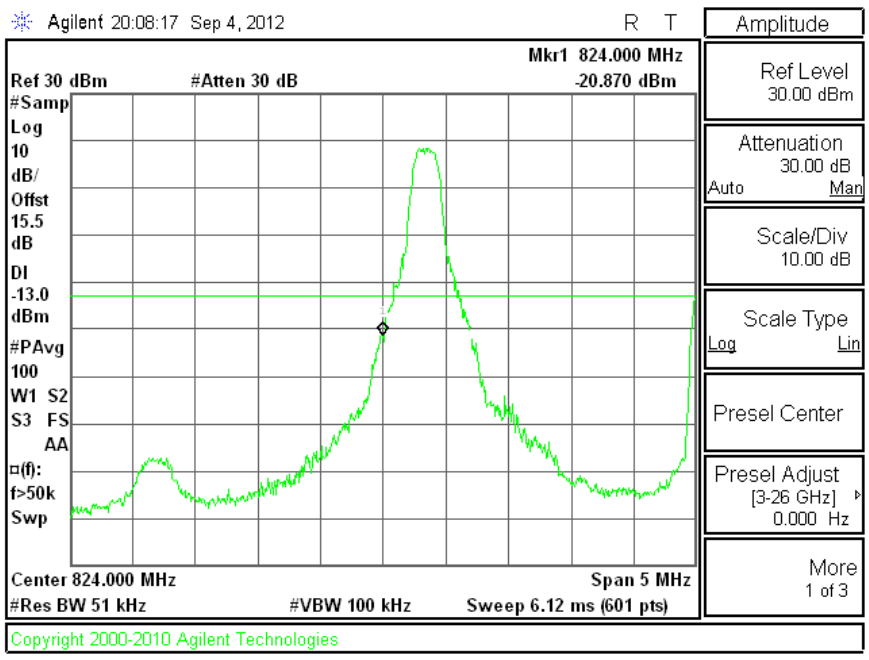



HIGH CH, RB15-0

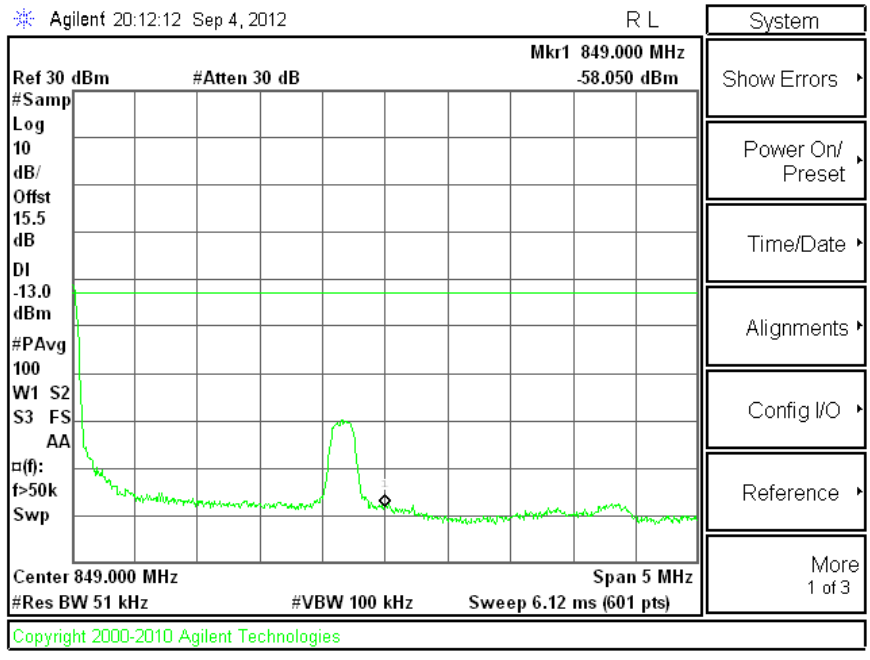


**QPSK Band 5 (5 MHz BANDWIDTH)**

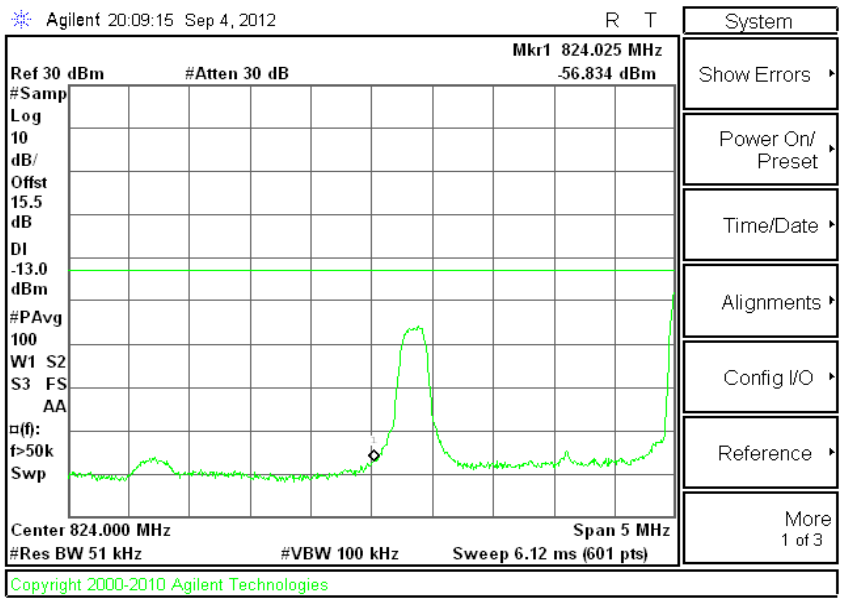
LOW CH, RB1-0



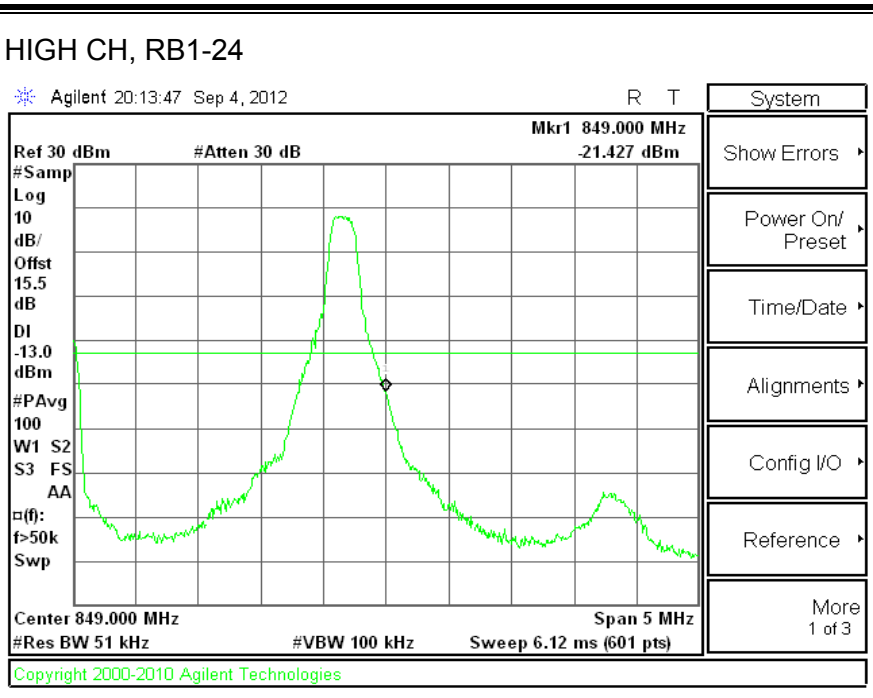

HIGH CH, RB1-0



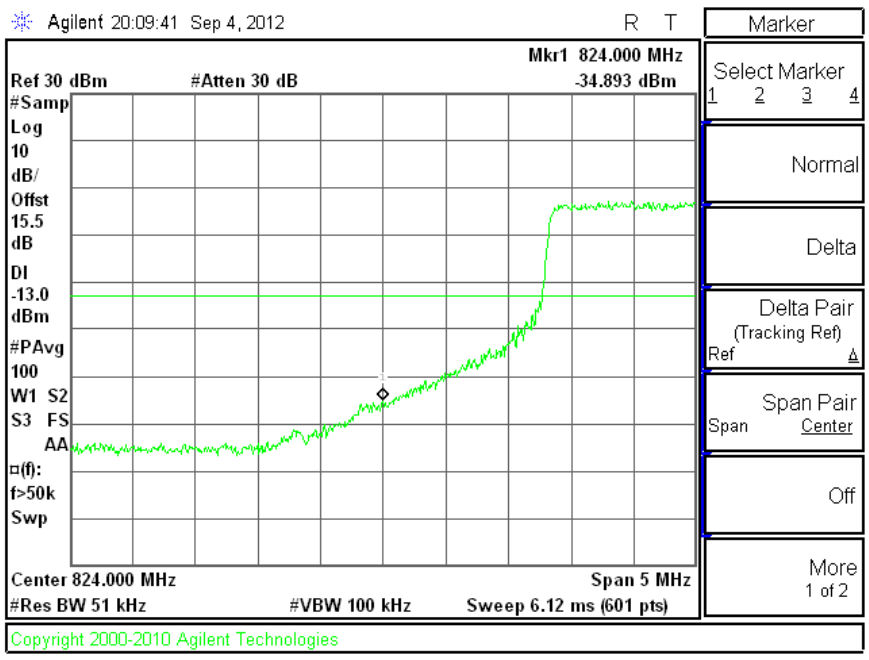
LOW CH, RB1-24



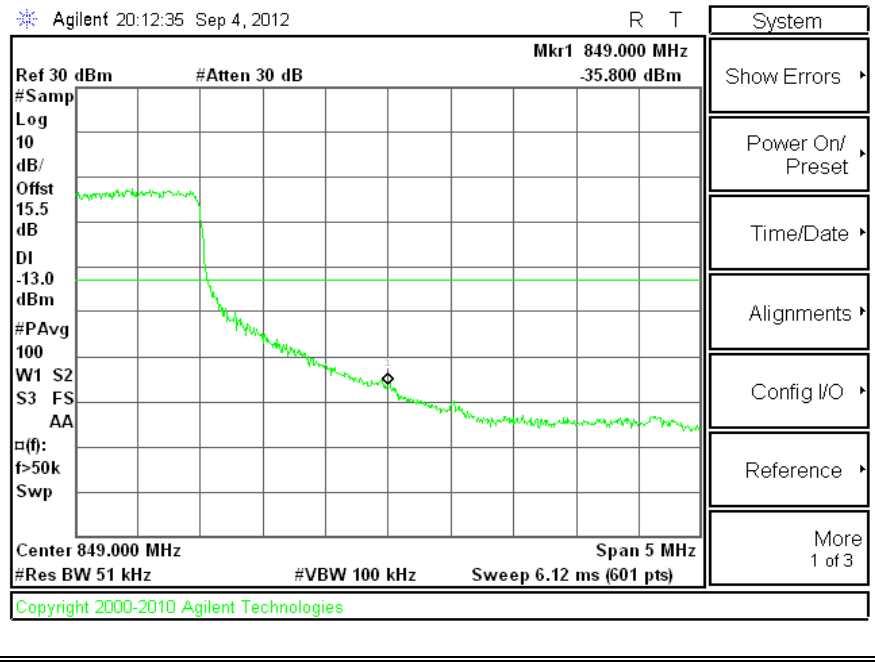

HIGH CH, RB1-24



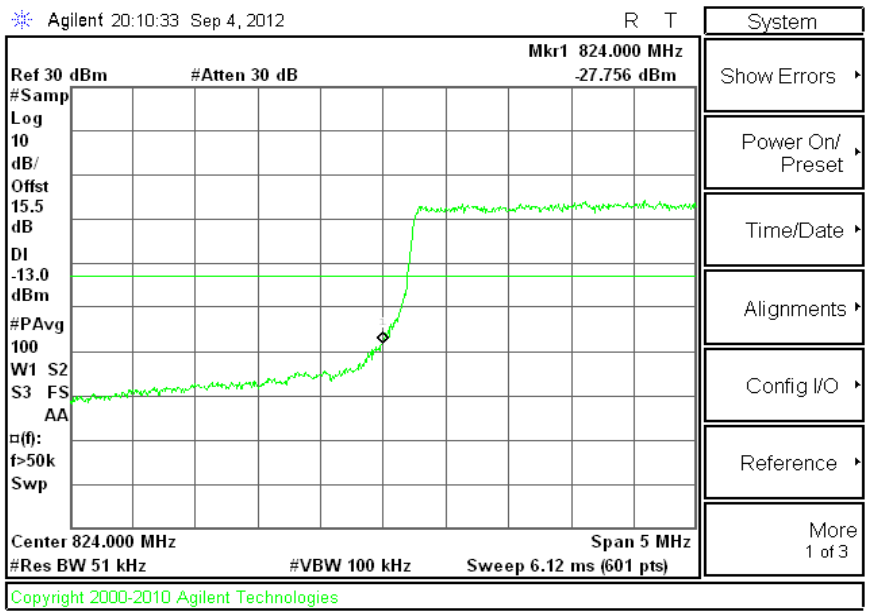
LOW CH, RB12-6



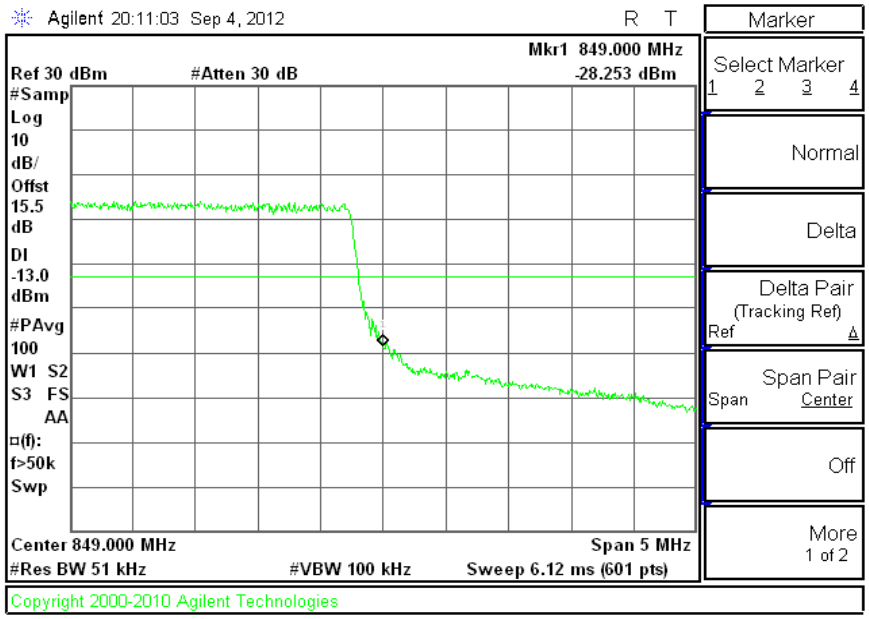

HIGH CH, RB12-6



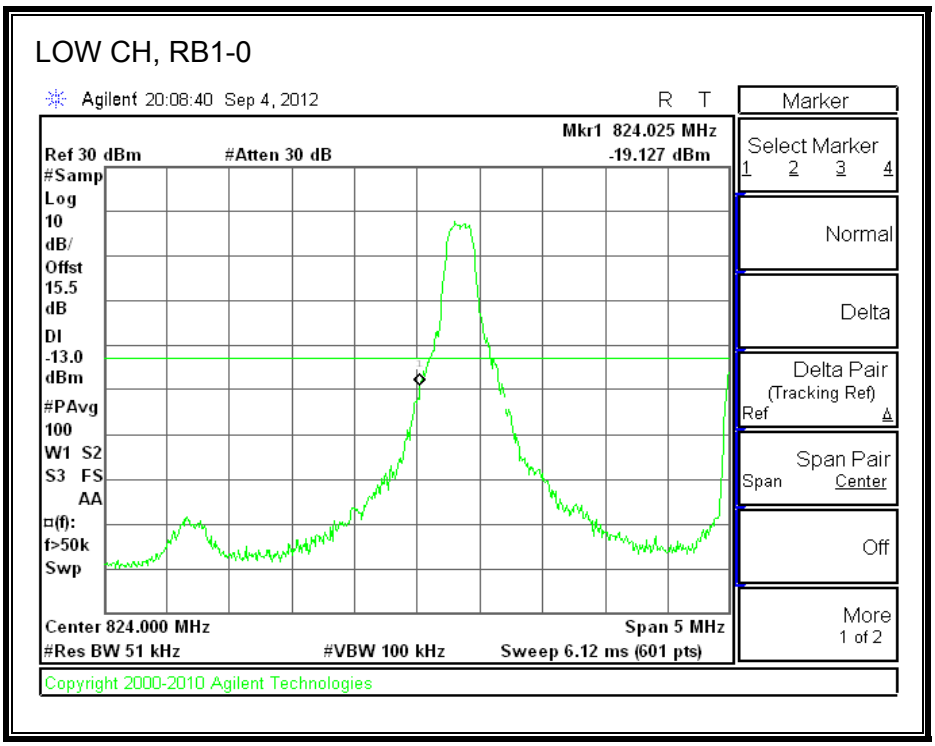
LOW CH, RB25-0

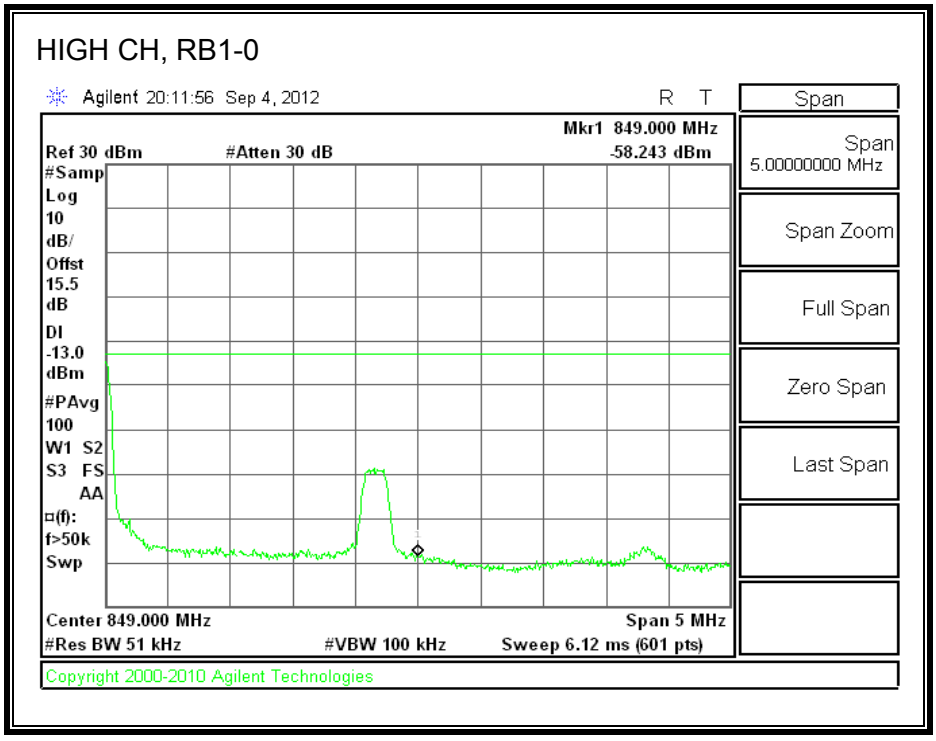



HIGH CH, RB25-0

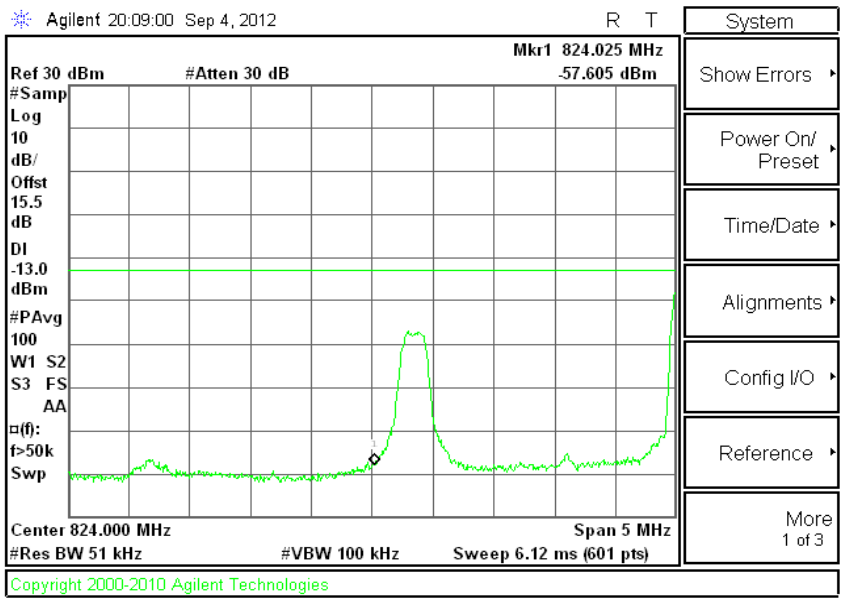


**16QAM Band 5 (5 MHz BANDWIDTH)**

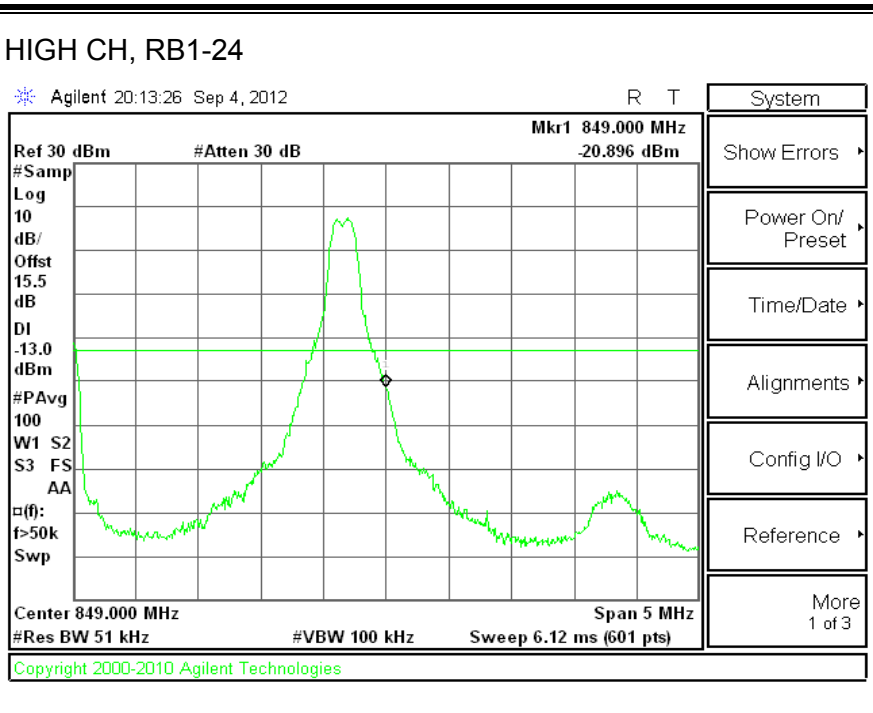


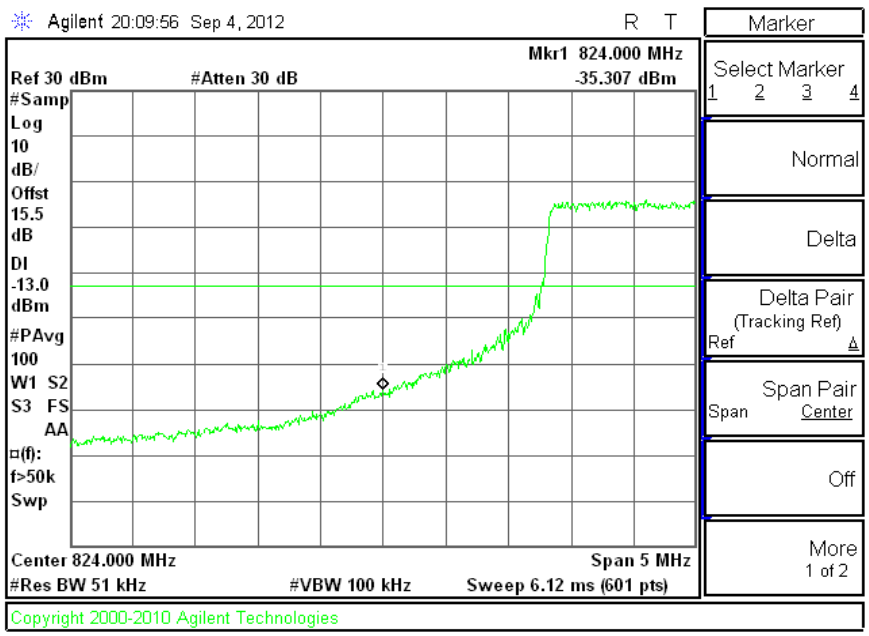
LOW CH, RB1-24



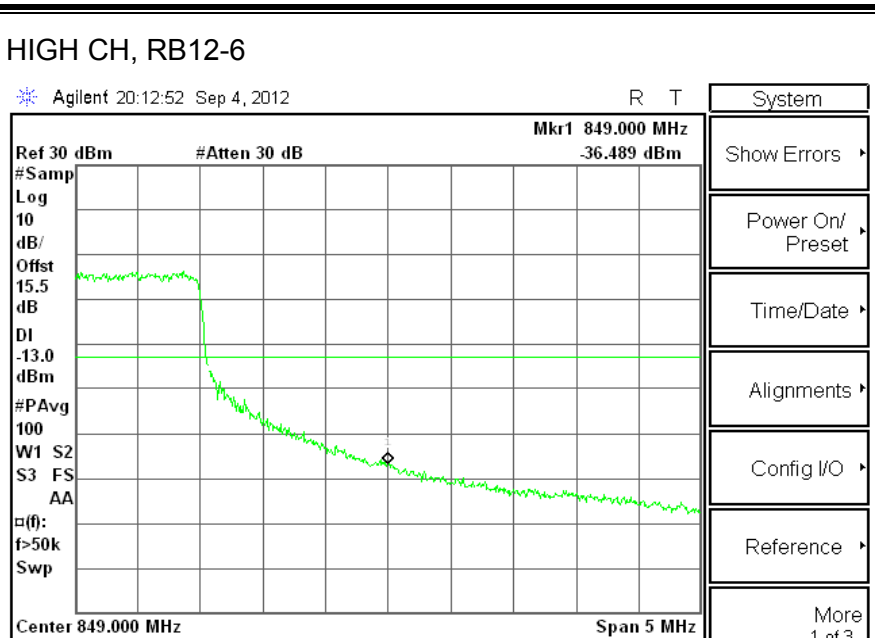

HIGH CH, RB1-24



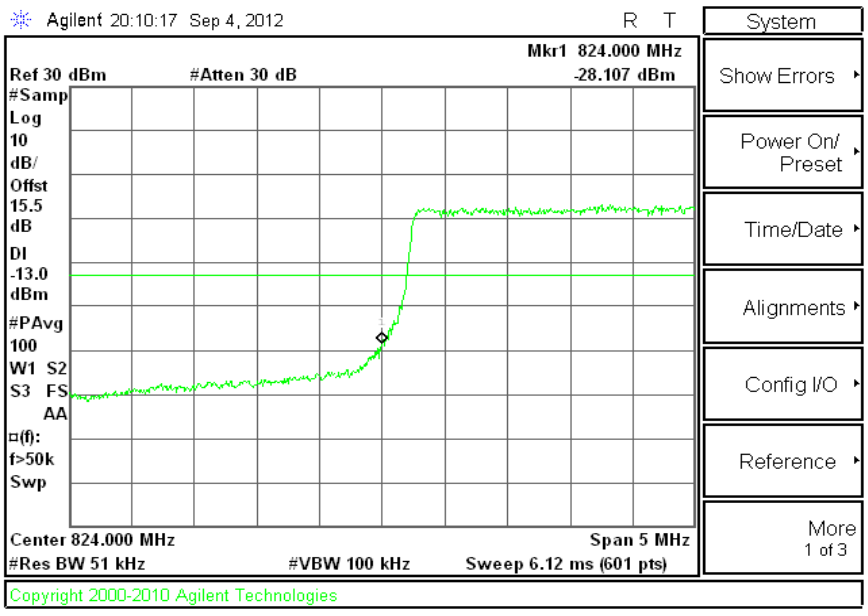
LOW CH, RB12-6



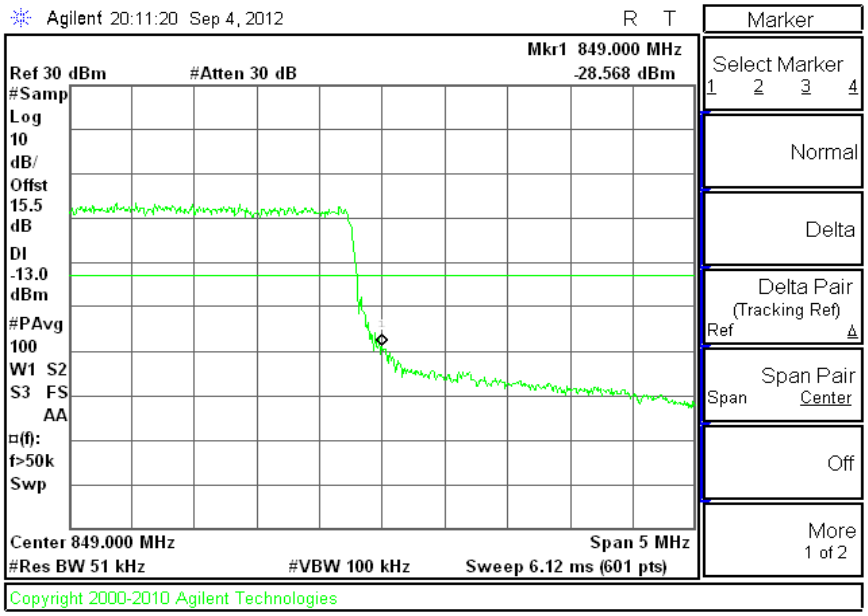

HIGH CH, RB12-6



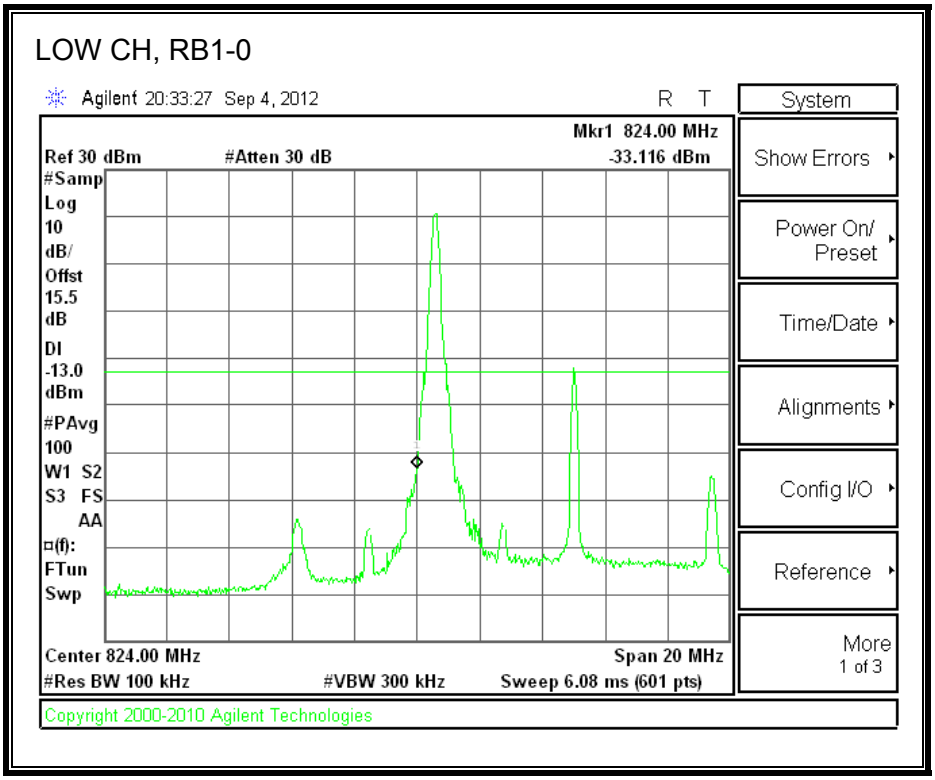
LOW CH, RB25-0

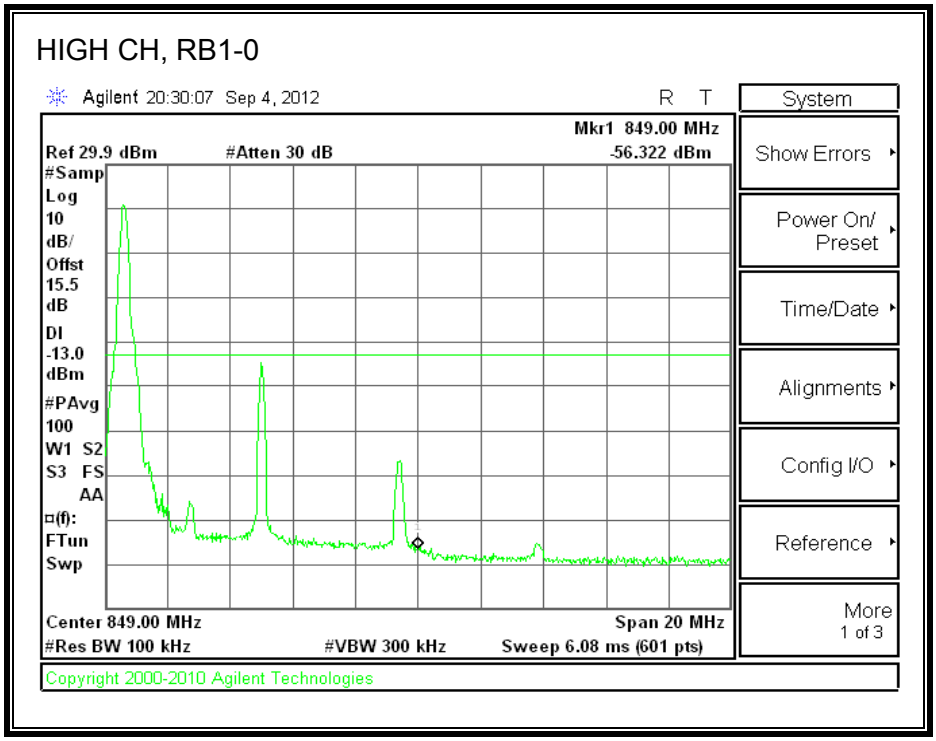



HIGH CH, RB25-0

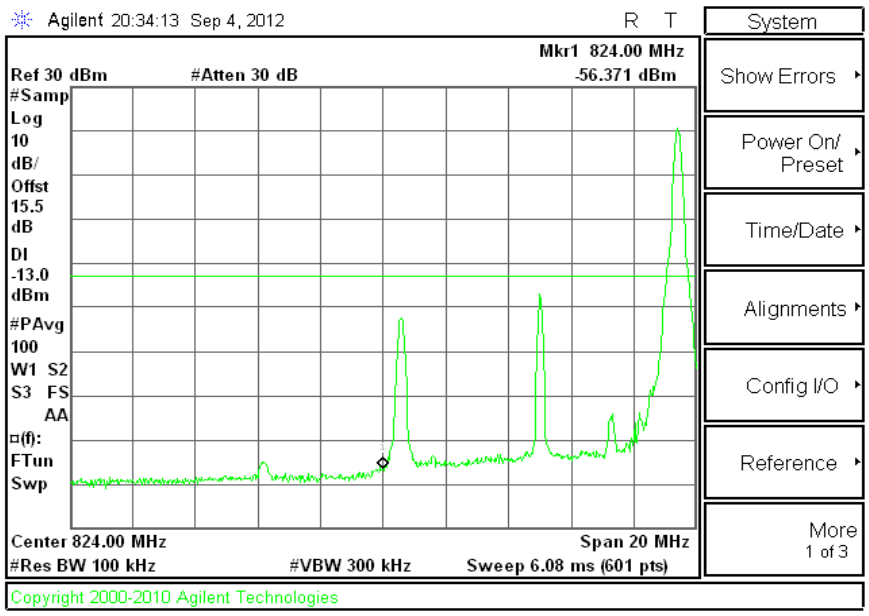


**QPSK Band 5 (10 MHz BANDWIDTH)**

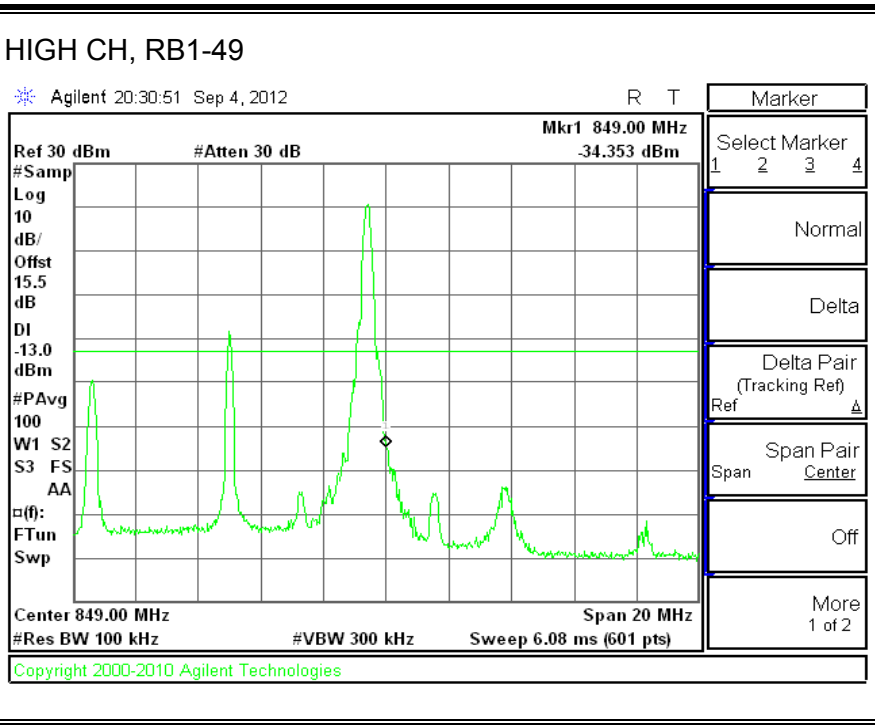


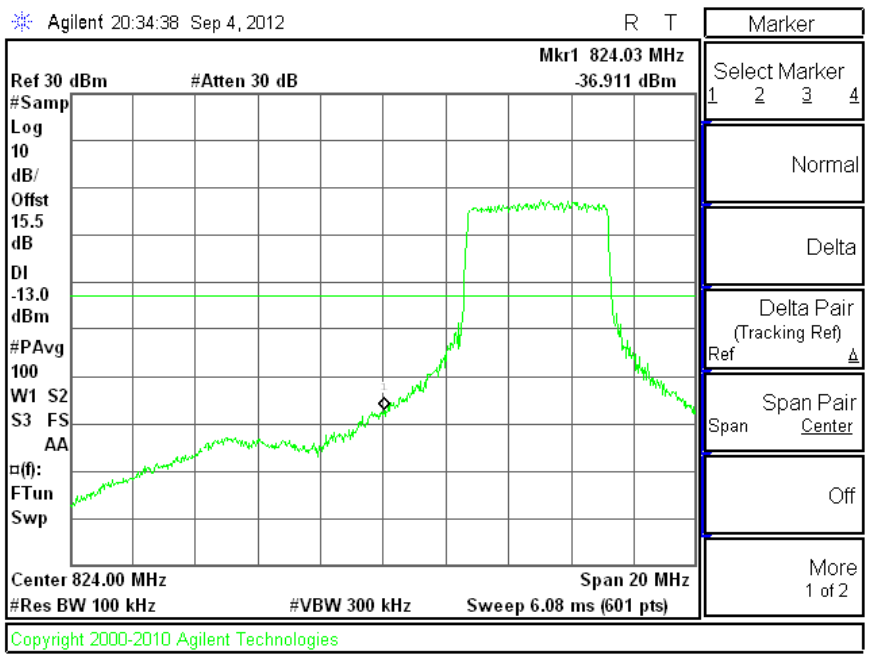
LOW CH, RB1-49



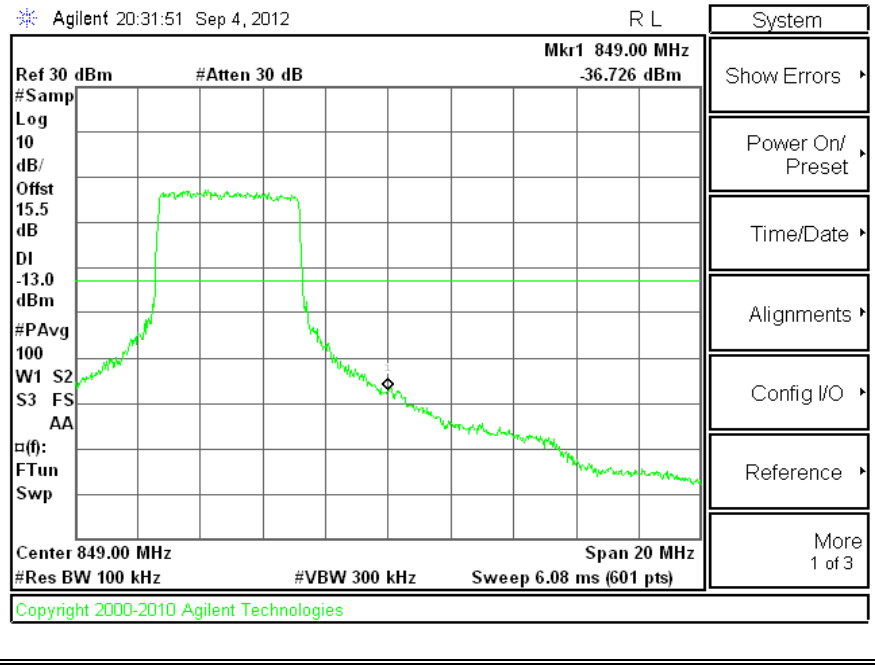

HIGH CH, RB1-49



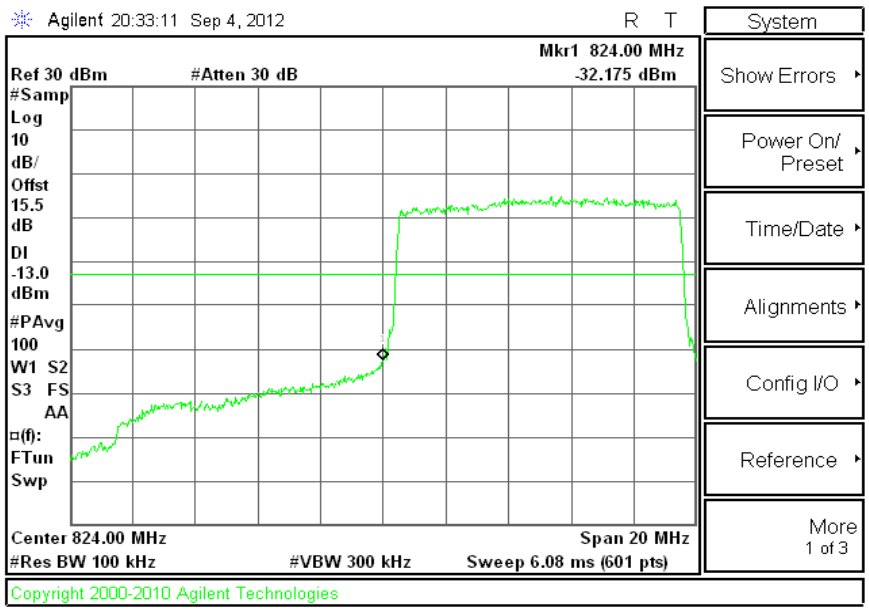
LOW CH, RB25-12



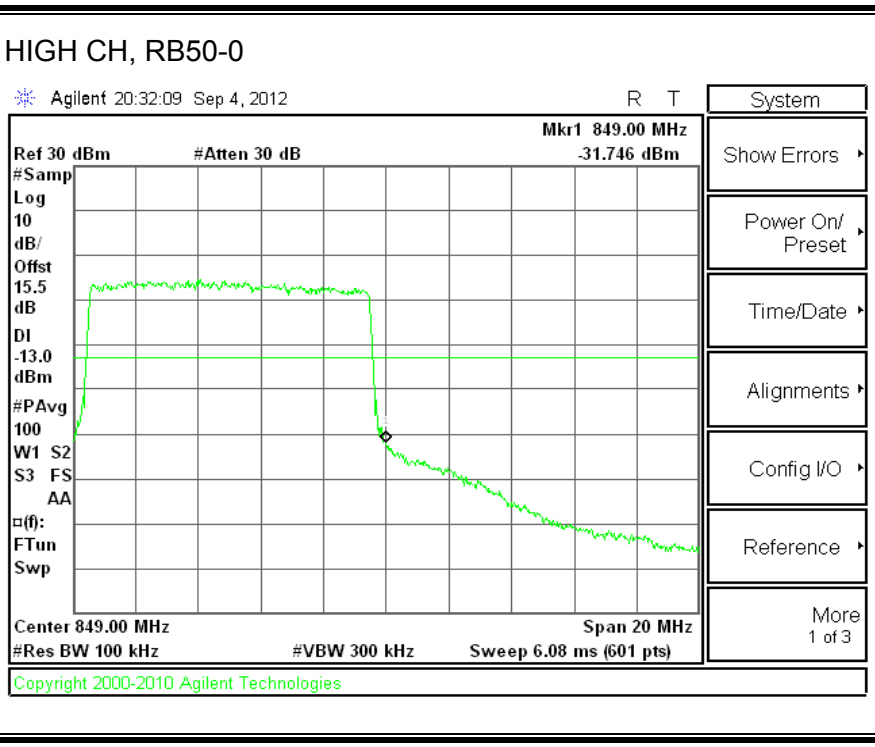

HIGH CH, RB25-12



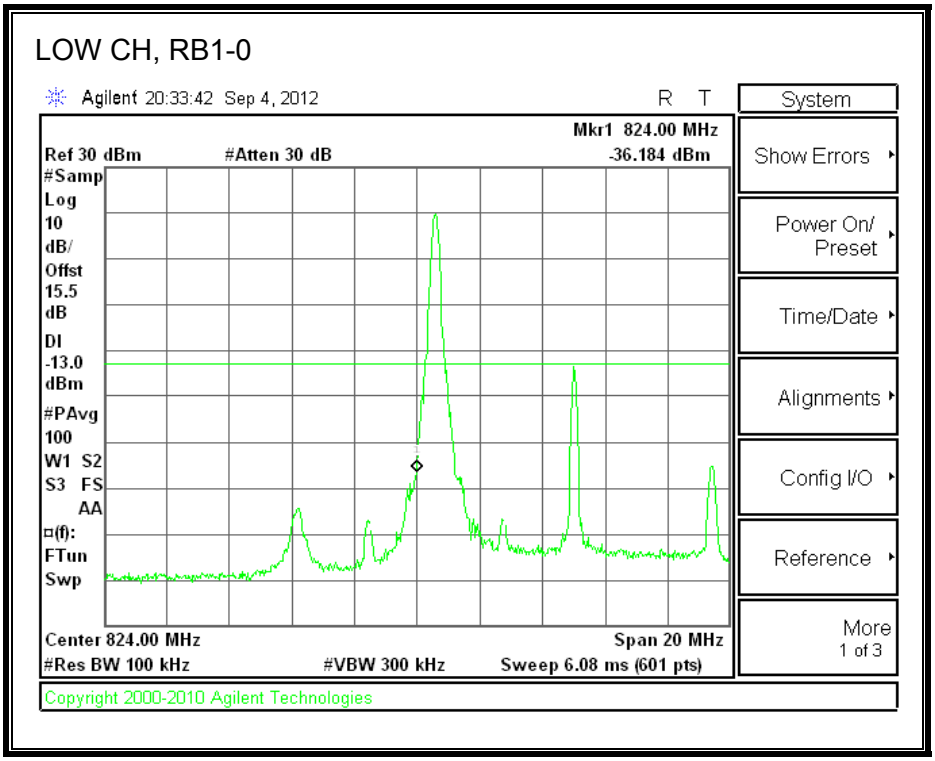
LOW CH, RB50-0

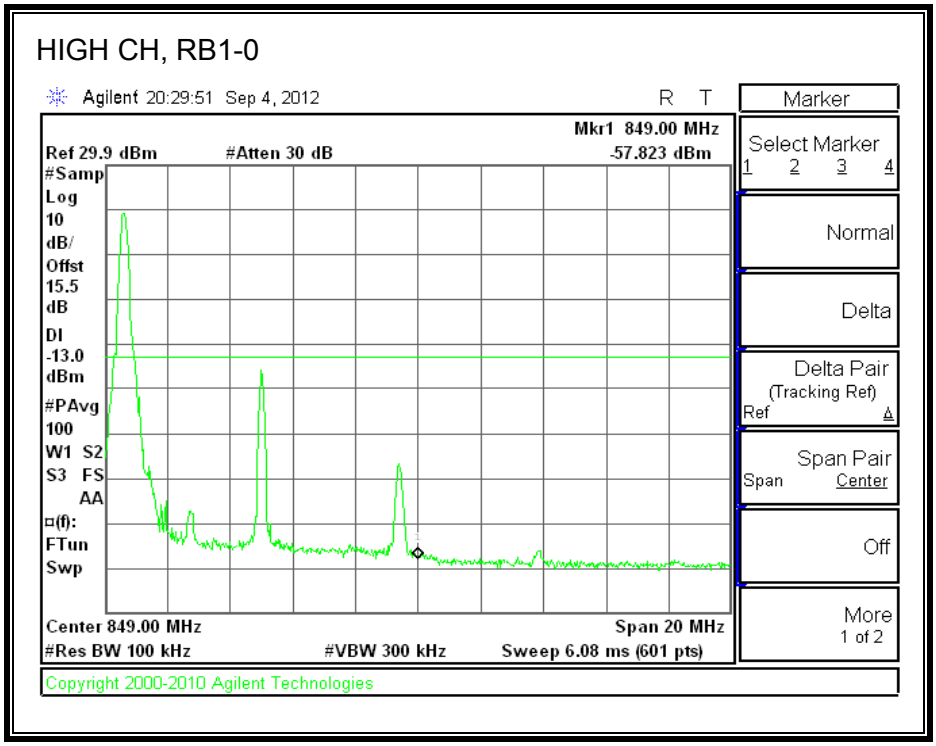



HIGH CH, RB50-0

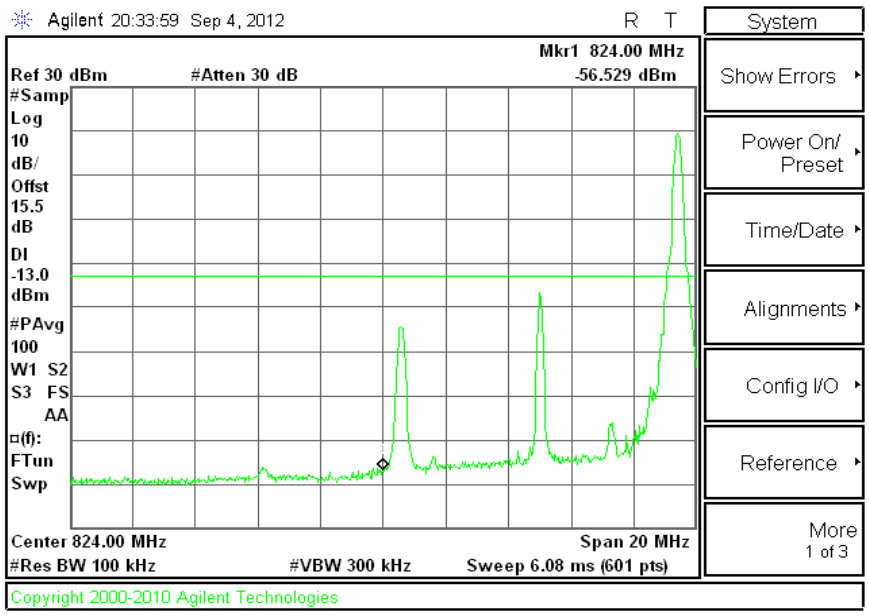


**16QAM Band 5 (10 MHz BANDWIDTH)**

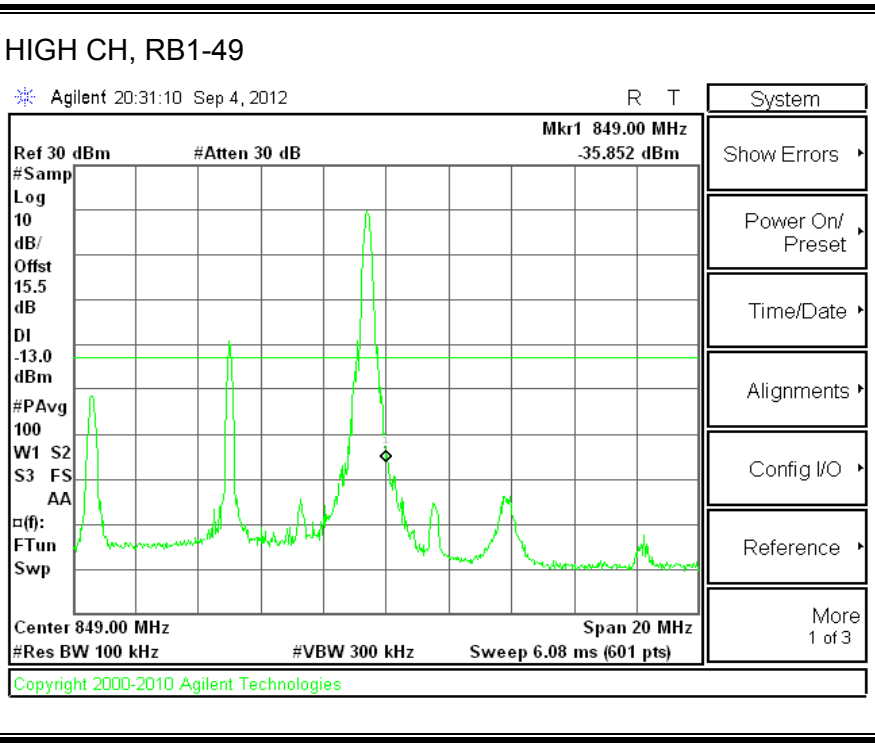


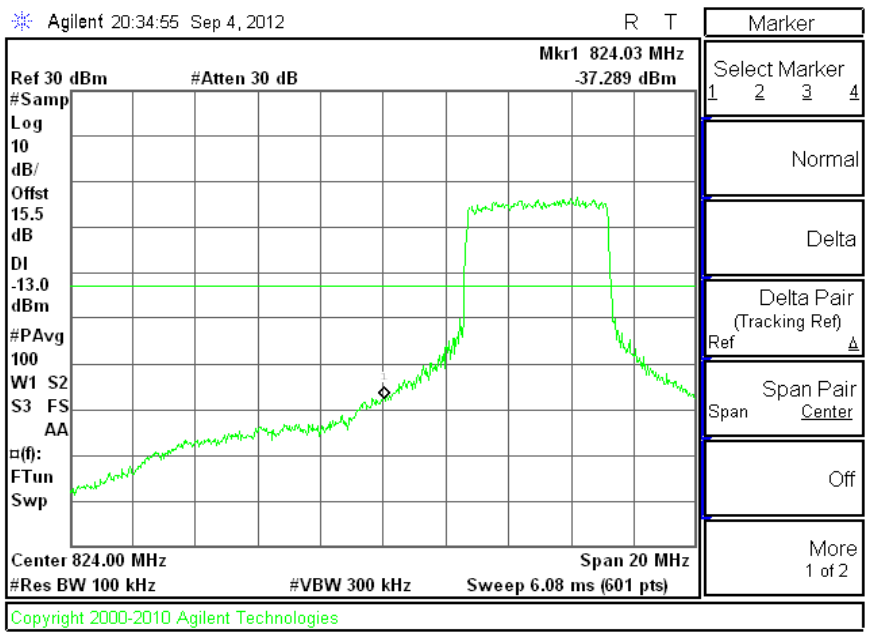
LOW CH, RB1-49



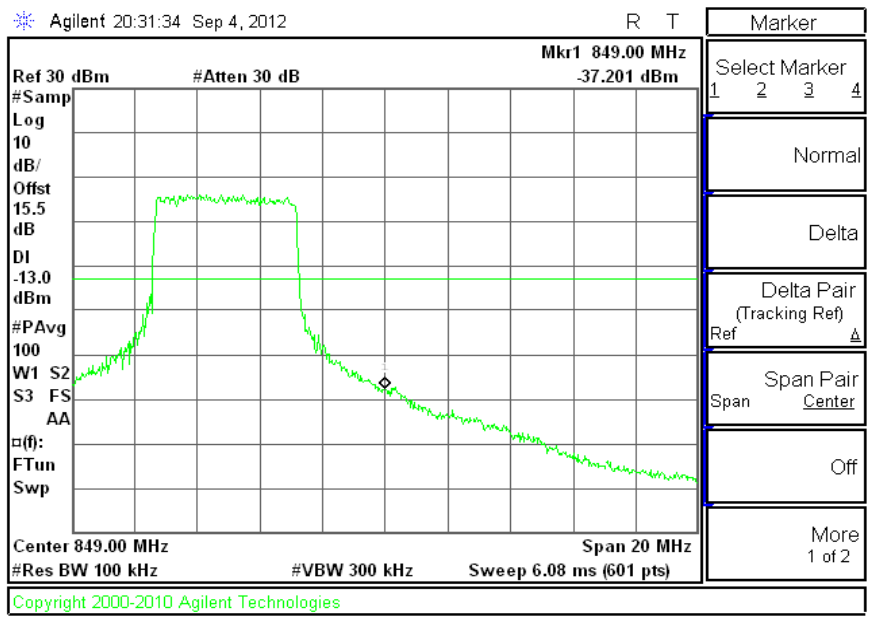

HIGH CH, RB1-49



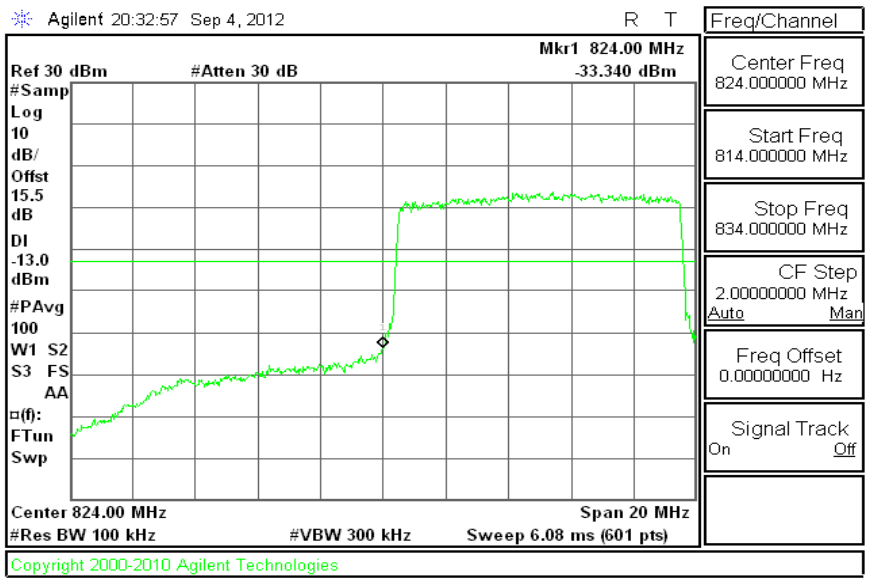
LOW CH, RB25-12



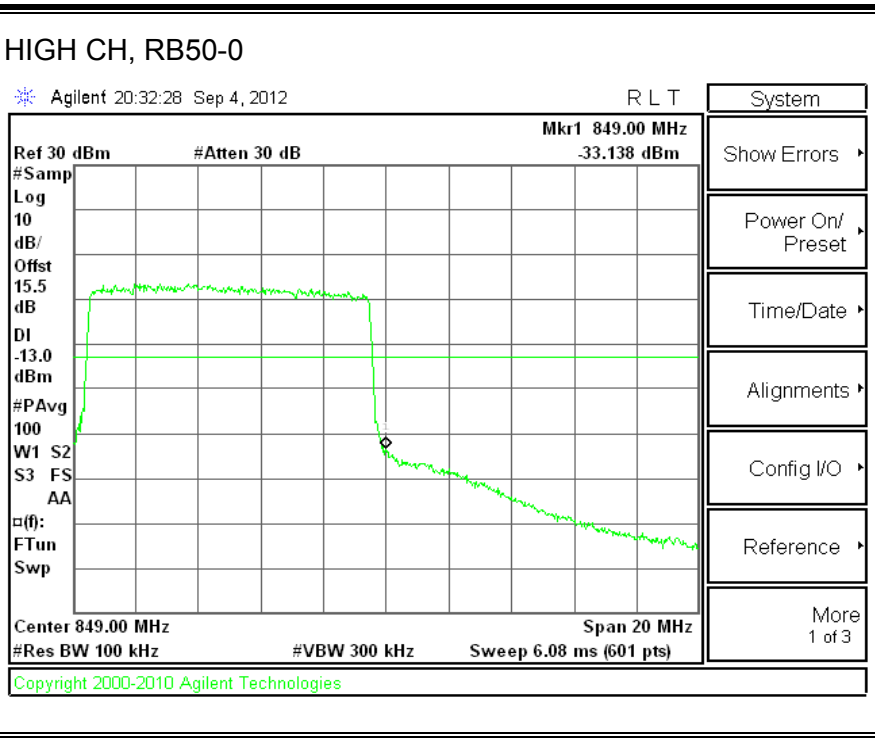

HIGH CH, RB25-12



LOW CH, RB50-0



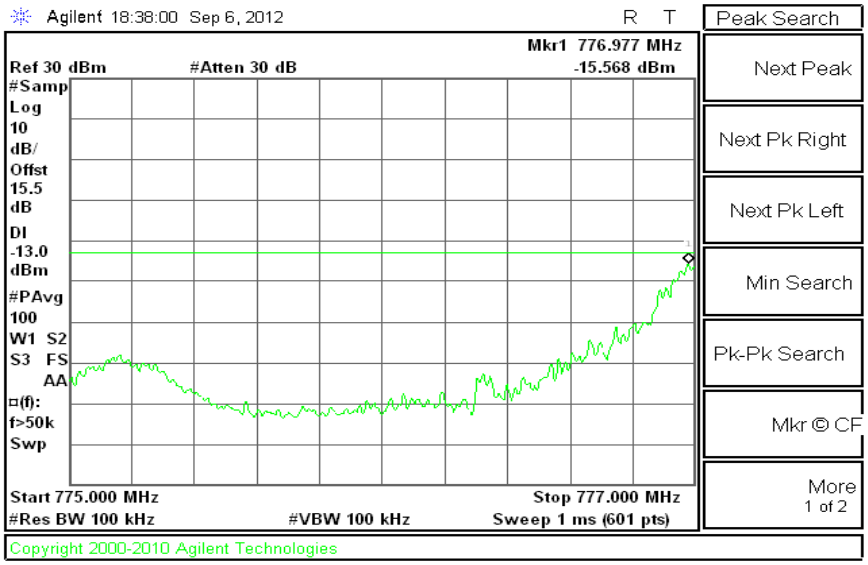

HIGH CH, RB50-0



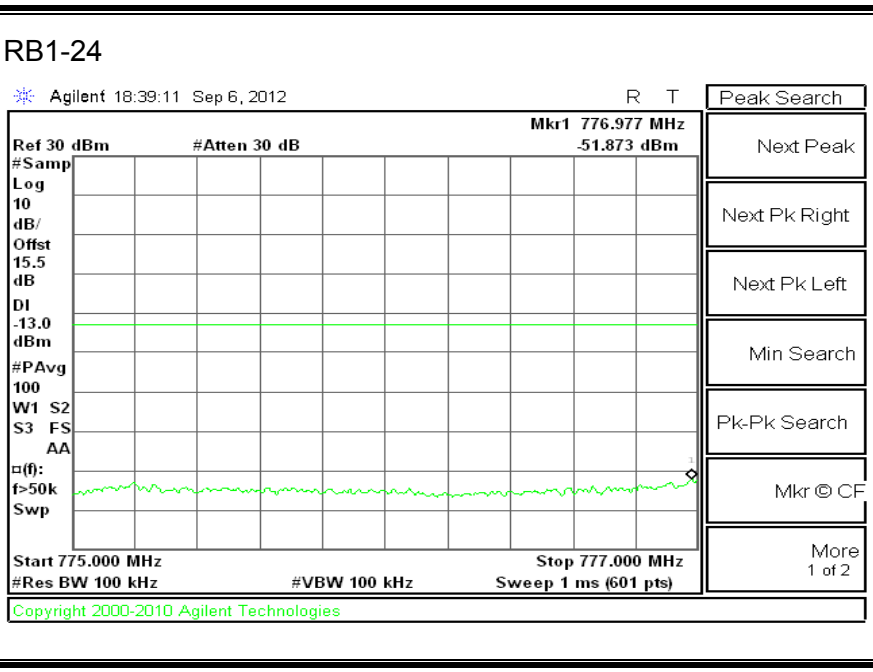
## 8.2.6. LTE BAND 13

**LTE QPSK 779.5 MHz Band 13, 775 – 777MHz (5MHz Bandwidth)**

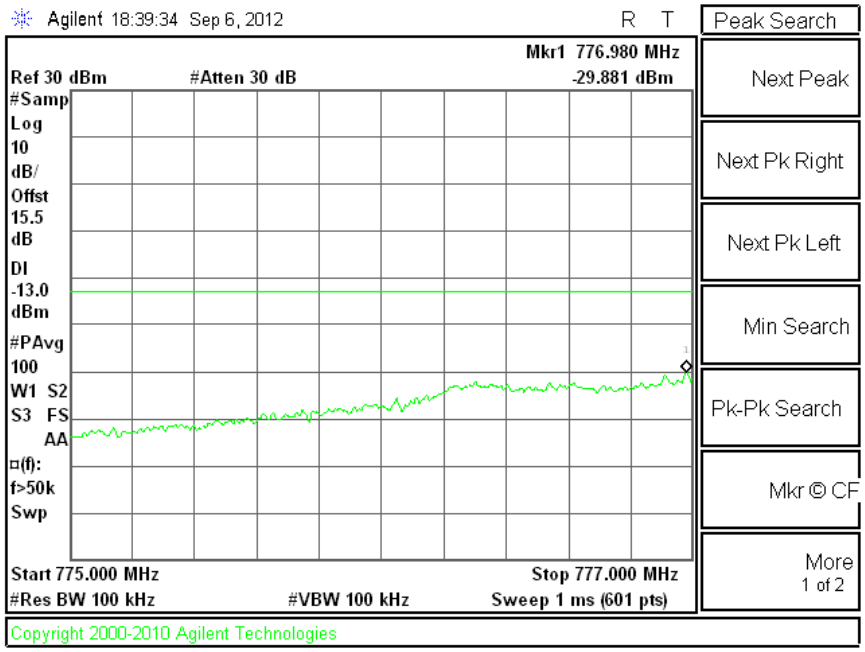
RB1-0,



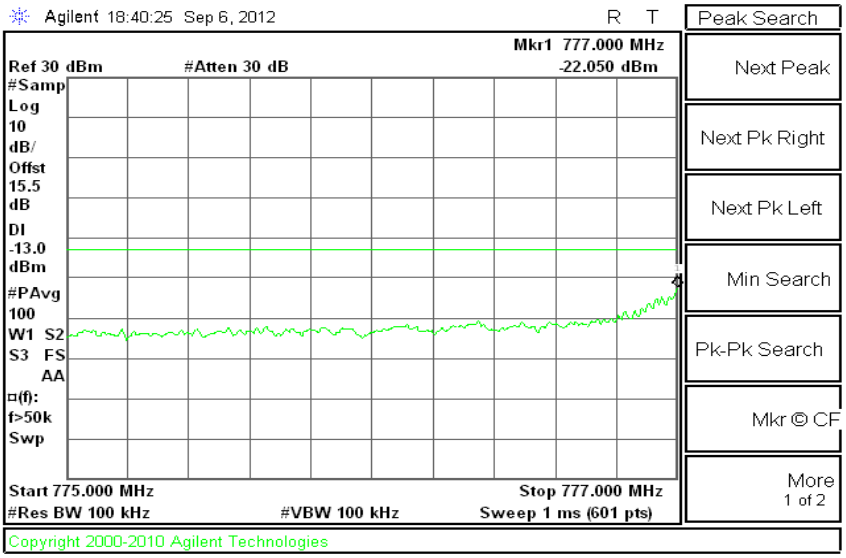

RB1-24



RB12-6

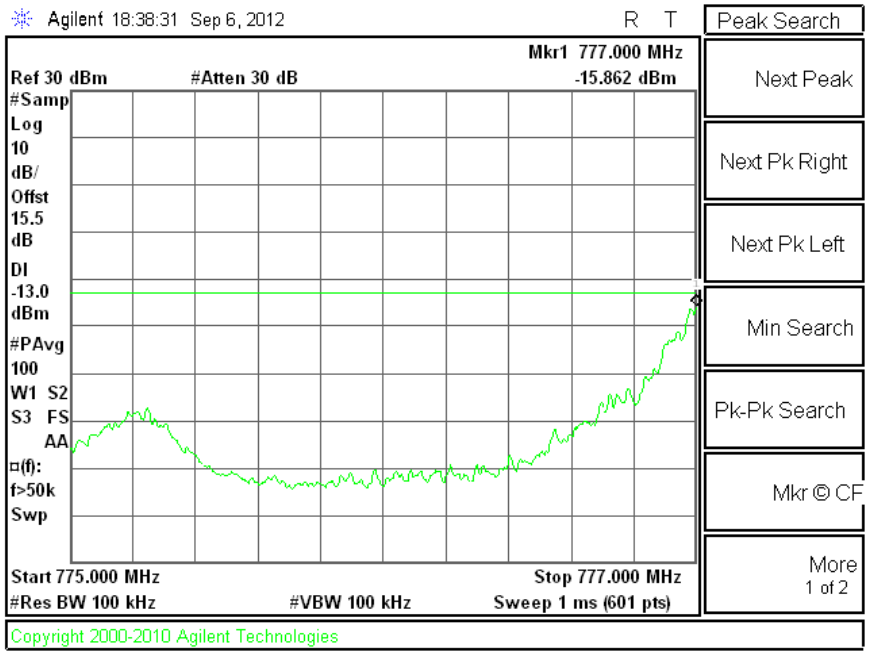



RB25-0

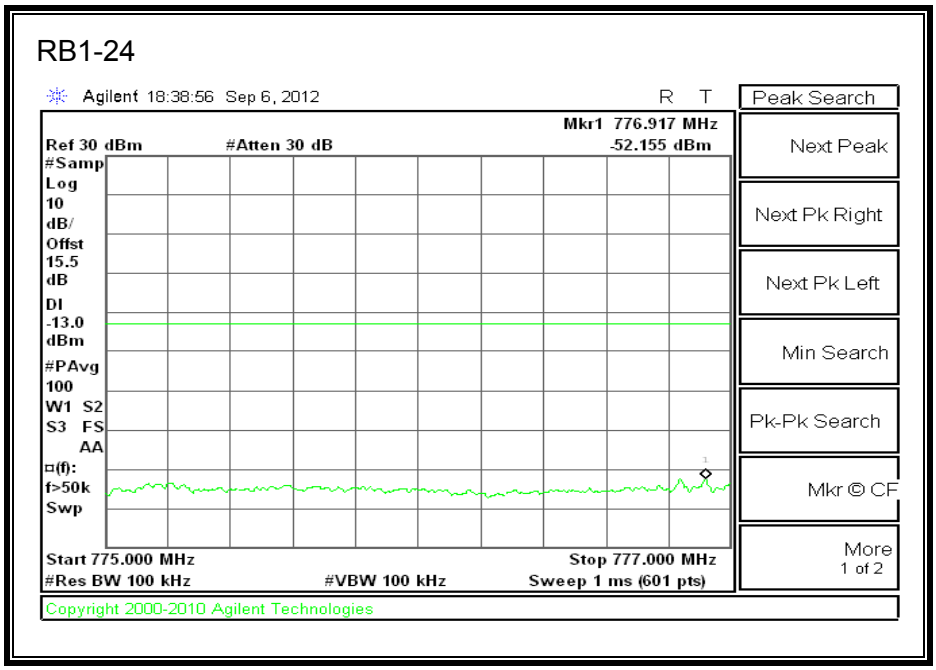


**16QAM 779.5MHz Band 13, 775 - 777MHz (5MHz Bandwidth)**

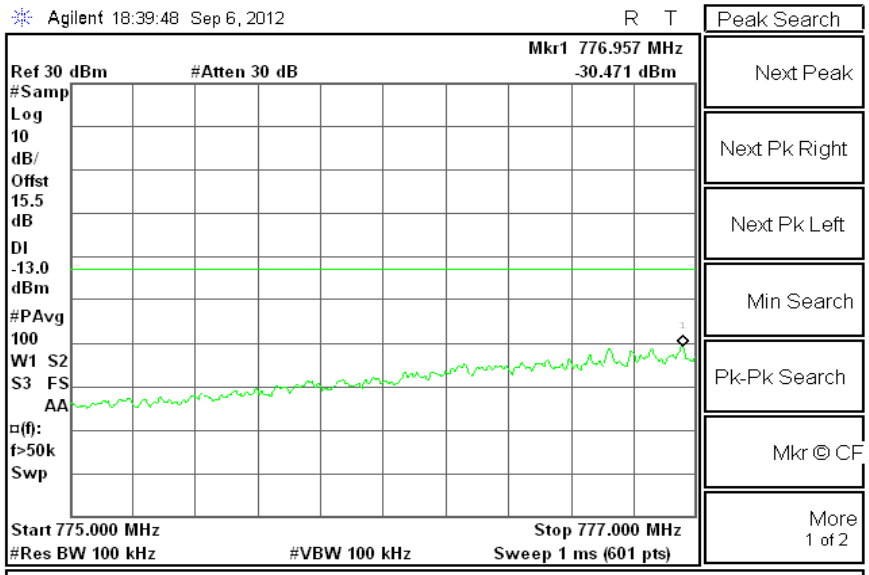
RB1-0



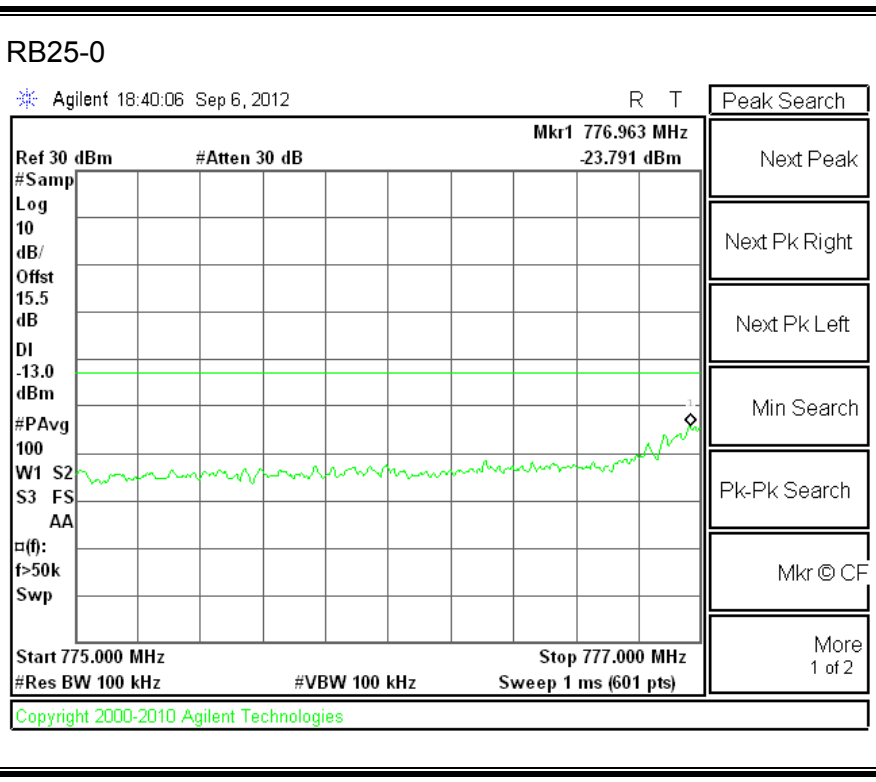

RB1-24



RB12-6

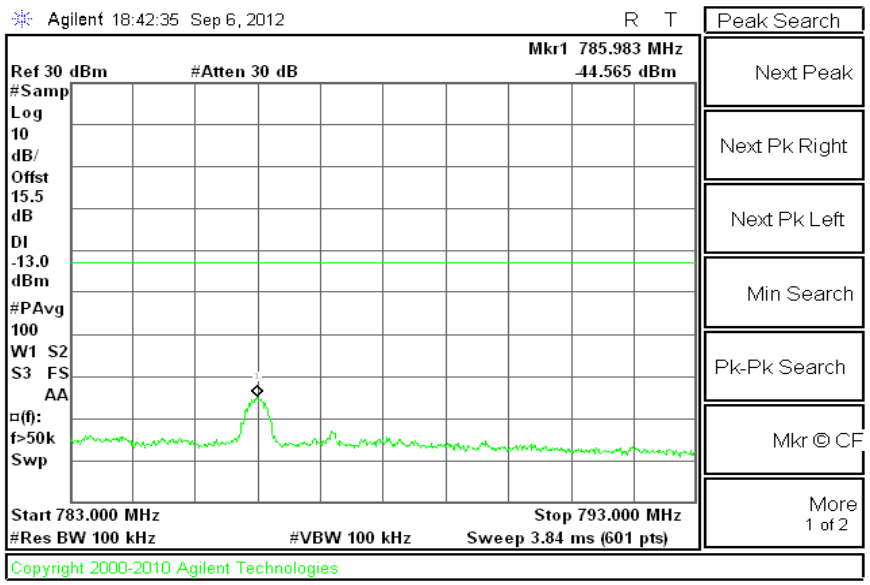



RB25-0

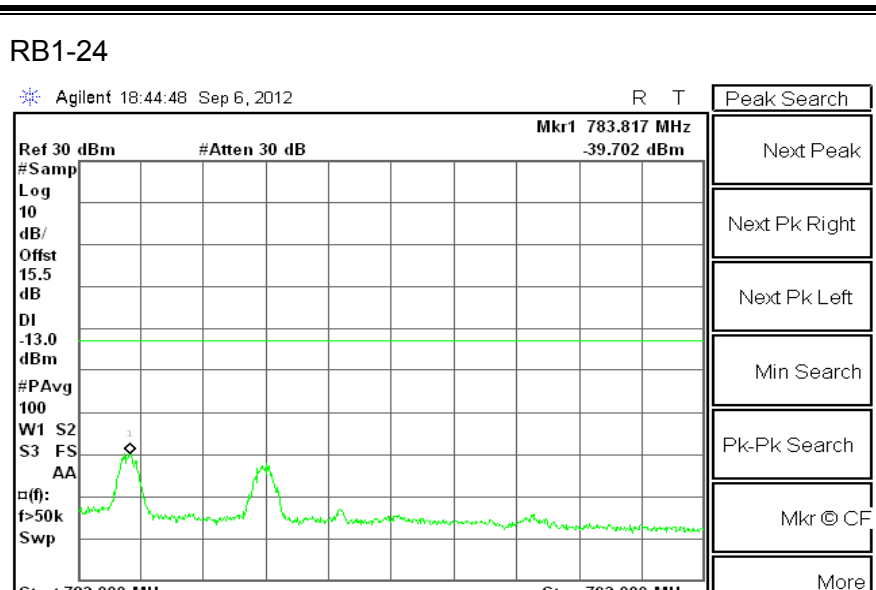


LTE **QPSK 779.5MHz Band 13, 783 - 793MHz (5MHz Bandwidth)**

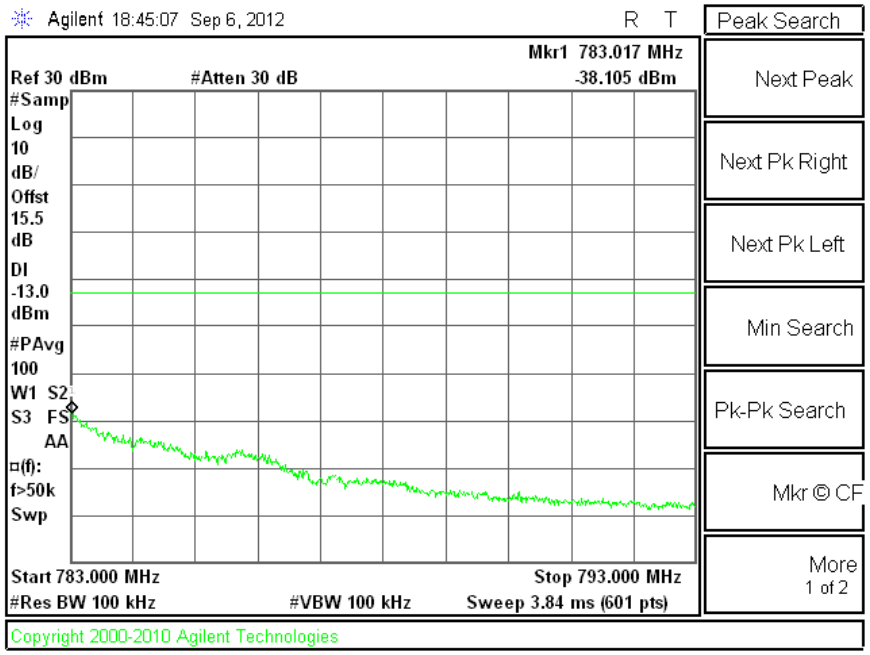
RB1-0



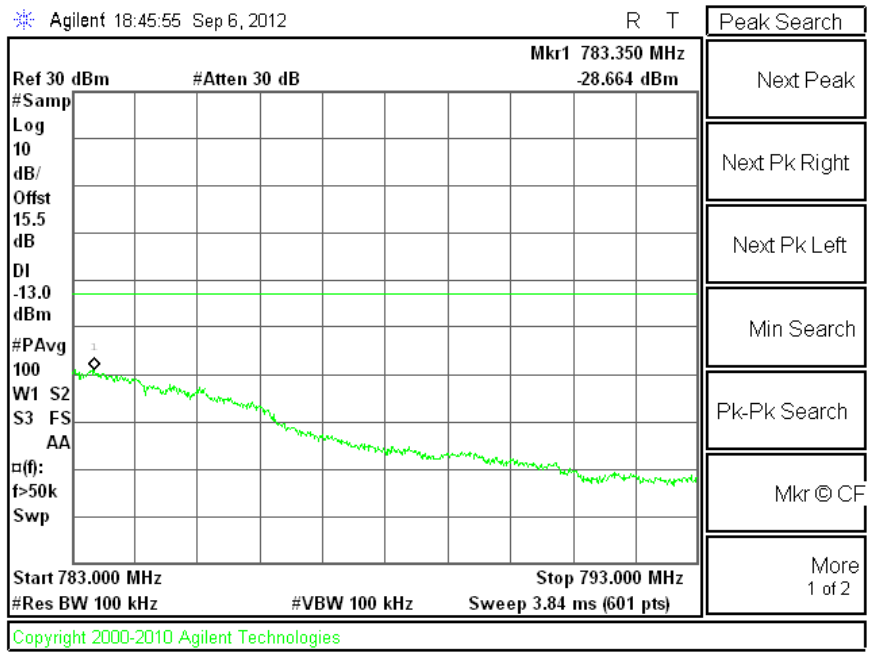

RB1-24



RB12-6

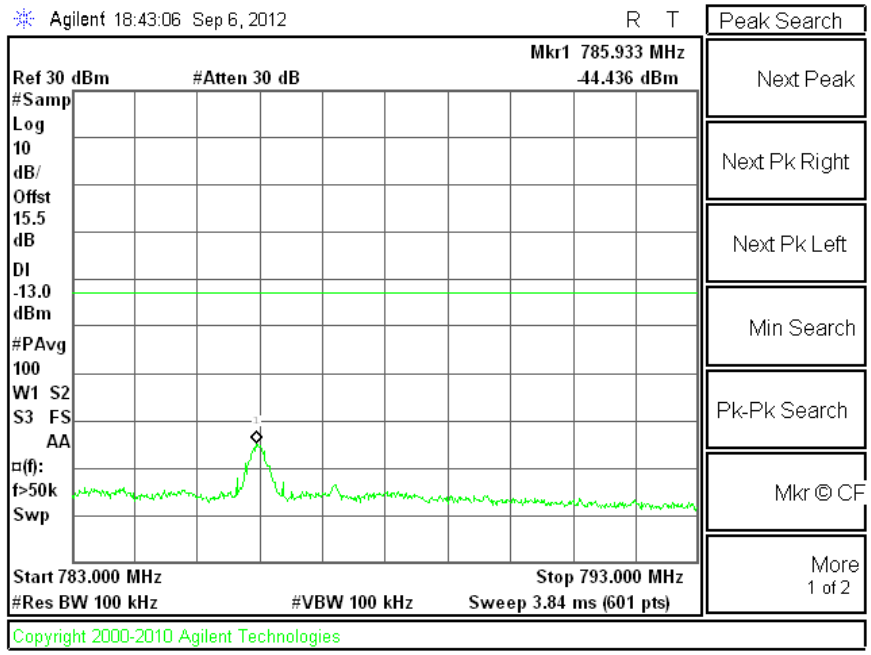



RB25-0

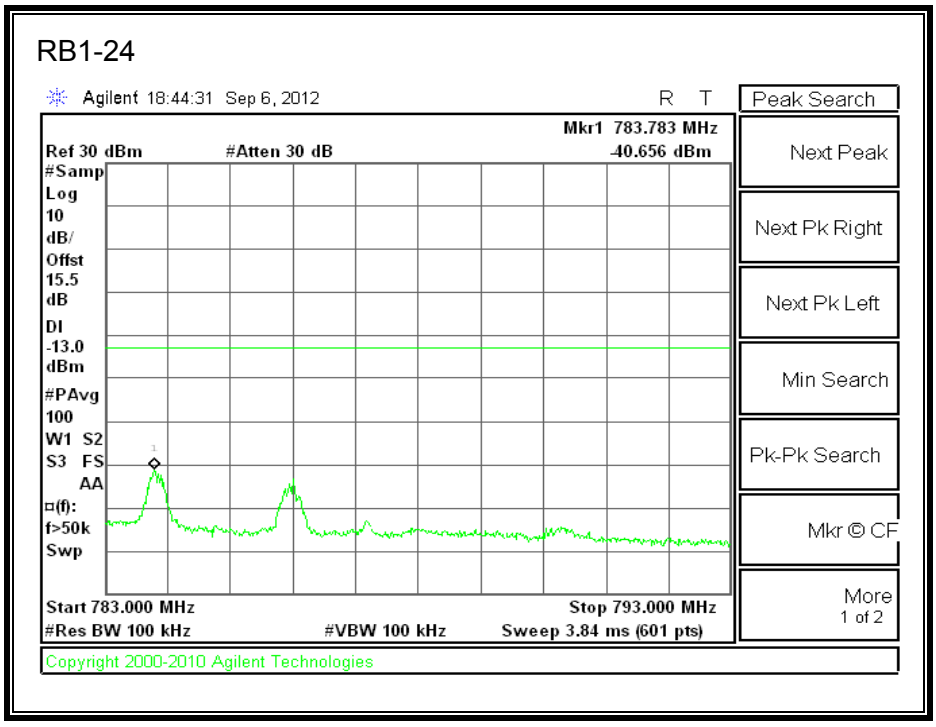


LTE **16QAM 779.5MHz Band 13, 783 - 793MHz (5MHz Bandwidth)**

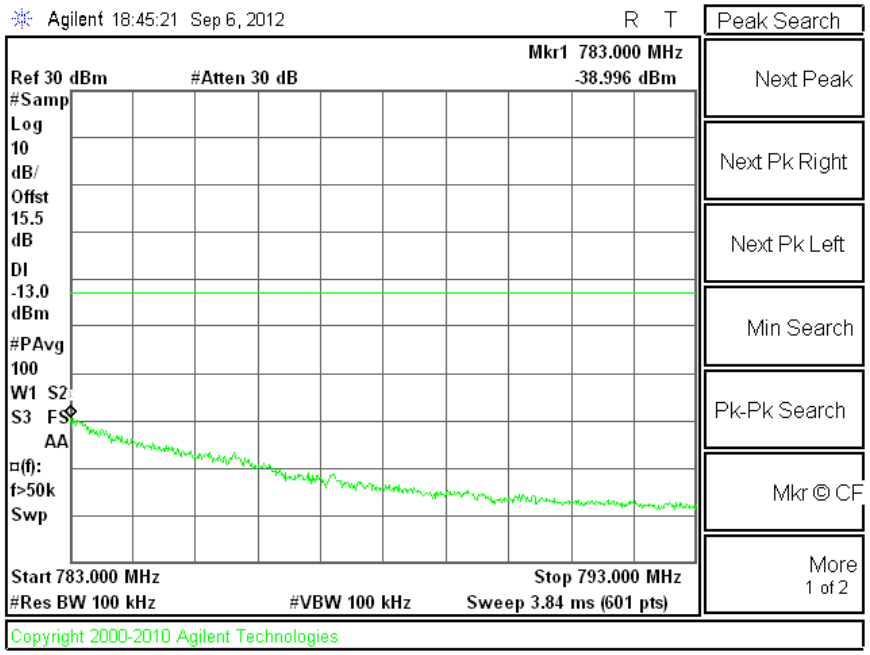
RB1-0



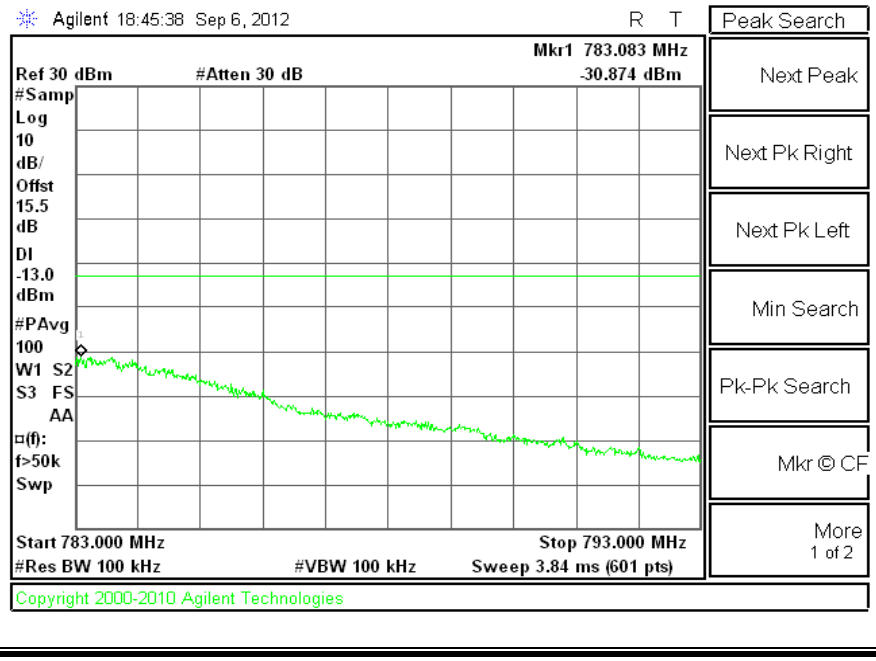

RB1-24



RB12-6

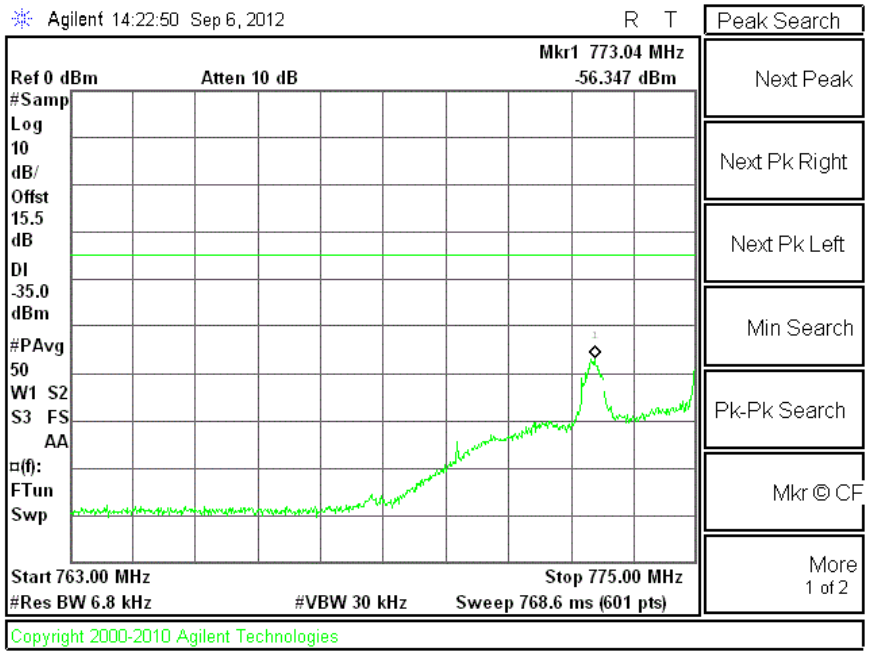



RB25-0

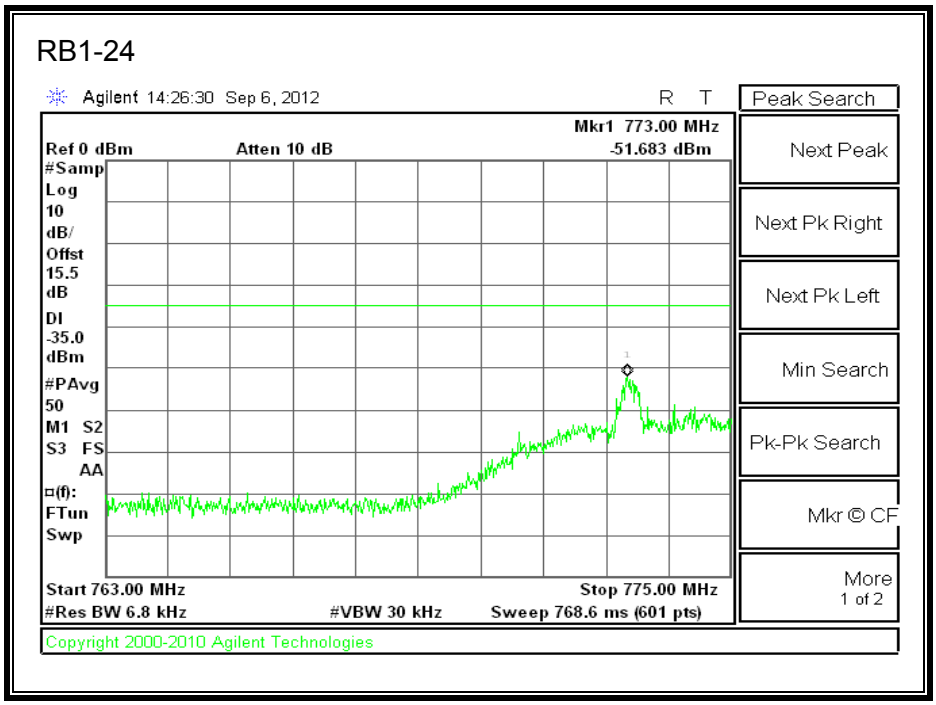


LTE **QPSK 779.5MHz Band 13, 763 - 775MHz (5MHz Bandwidth)**

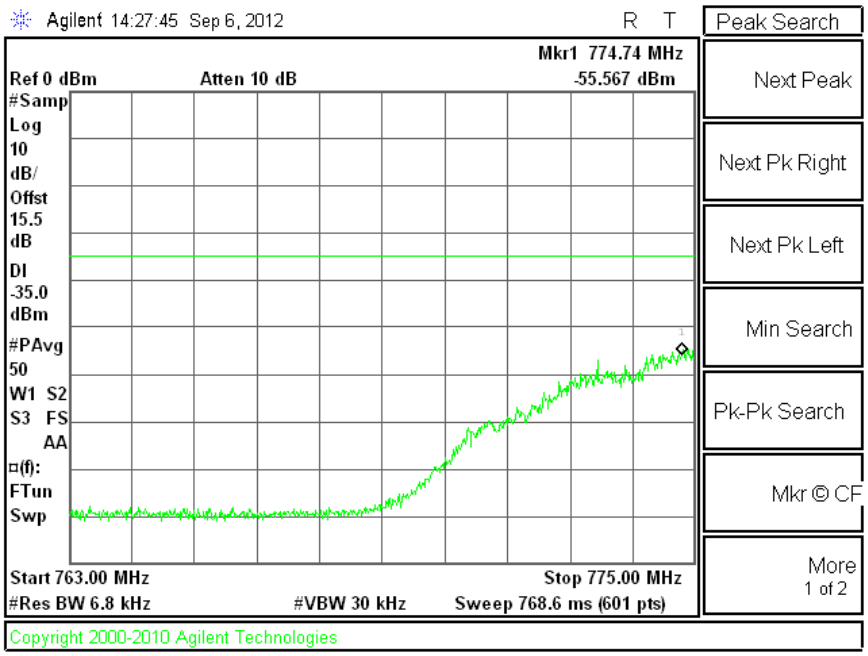
RB1-0



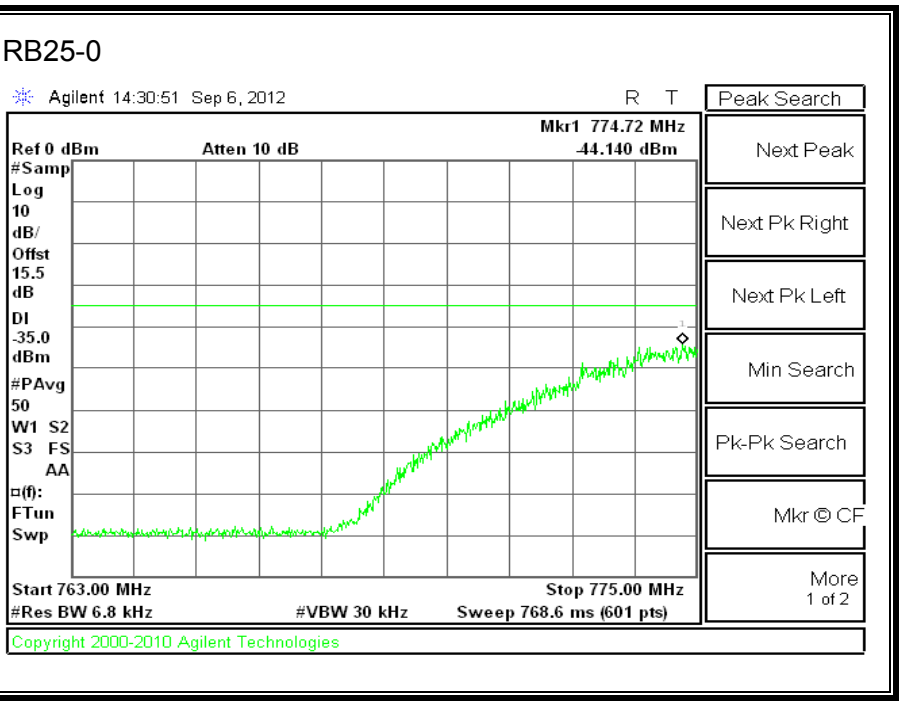

RB1-24



RB12-6

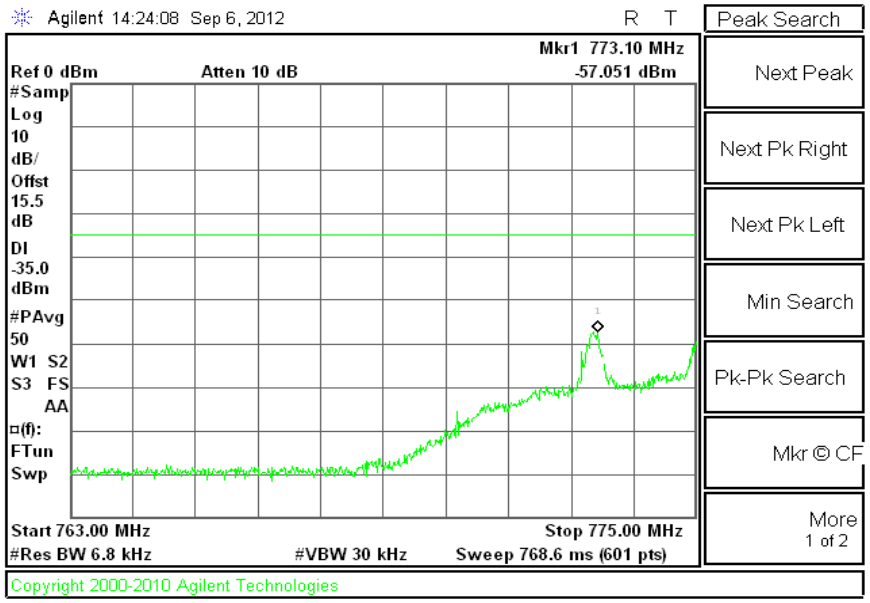



RB25-0

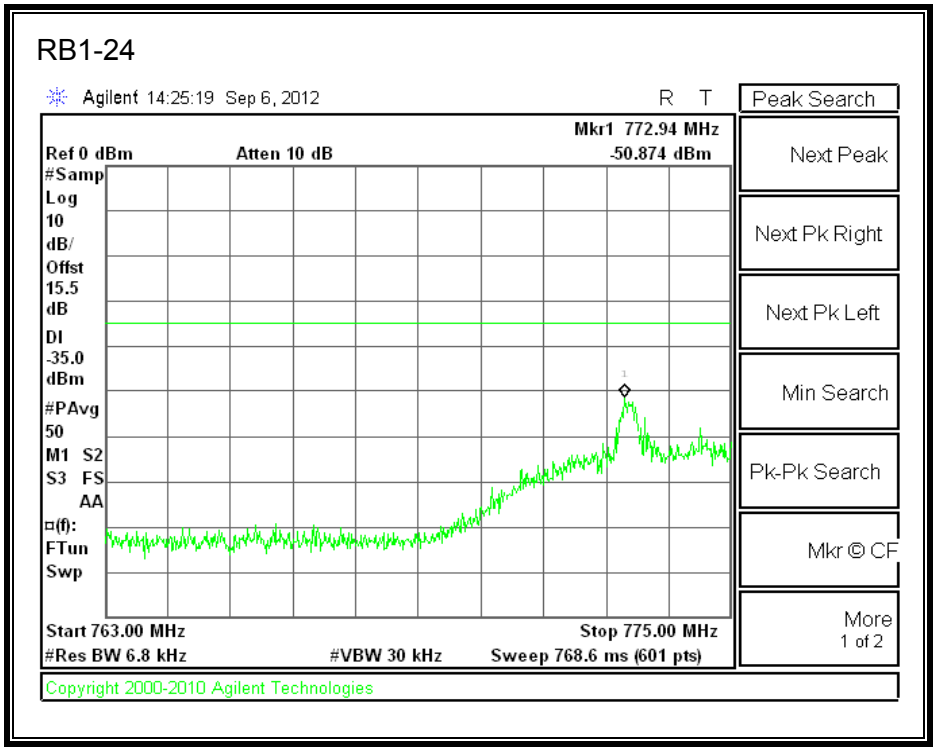


**LTE 16QAM 779.5MHz Band 13, 763-775MHz (5MHz Bandwidth)**

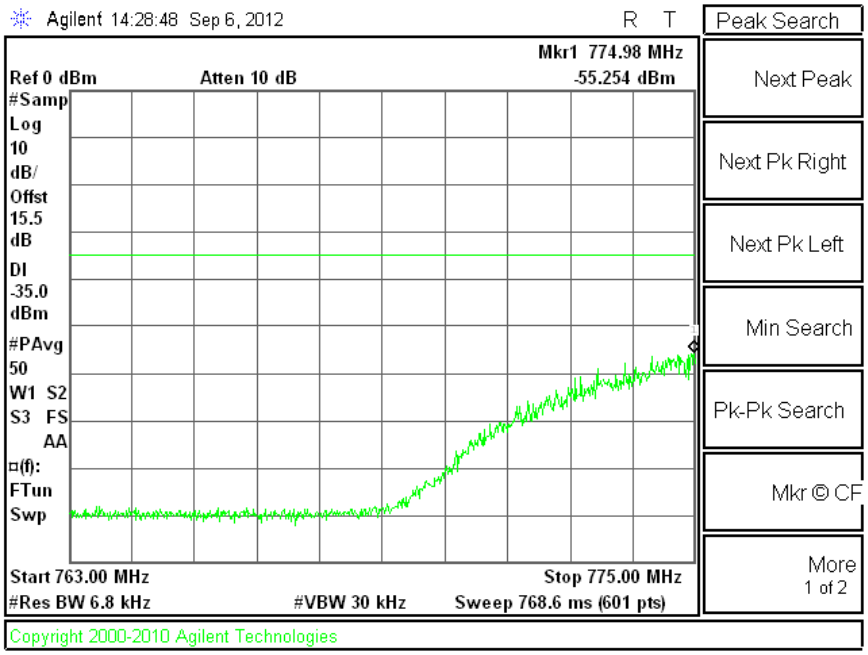
RB1-0



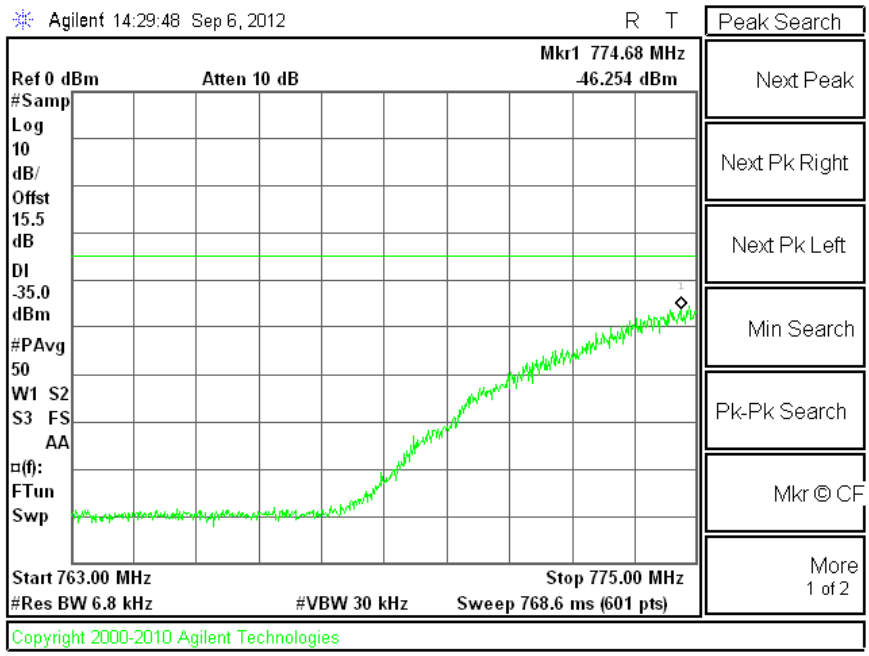

RB1-24



RB12-6

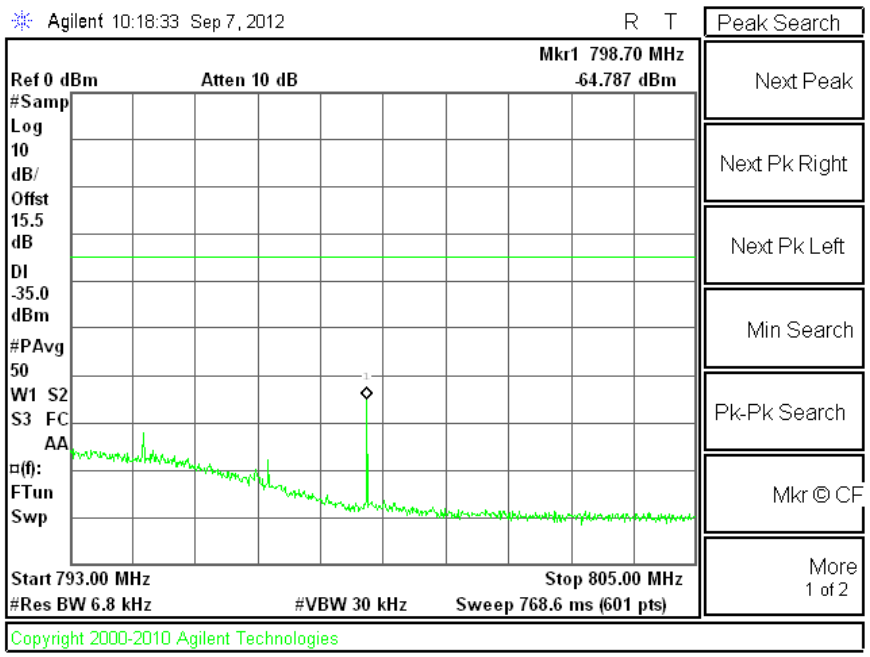



RB25-0

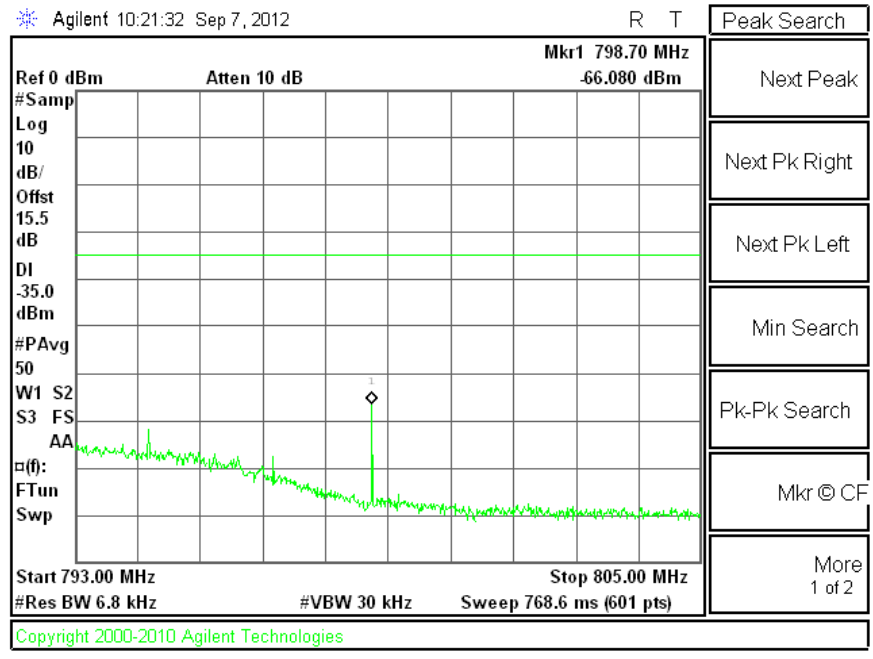


LTE **QPSK 779.5MHz Band 13, 793 - 805MHz (5MHz Bandwidth)**

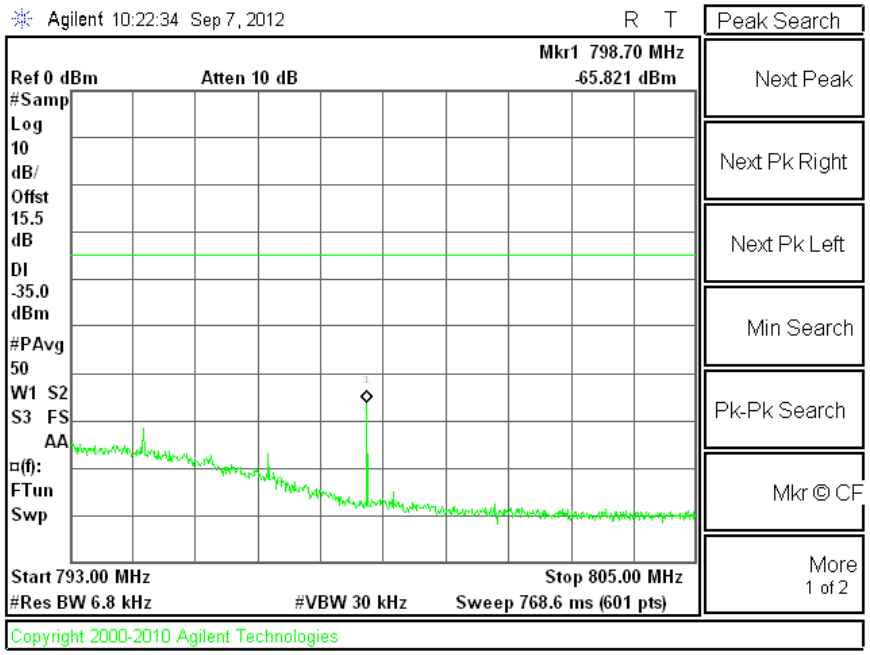
RB1-0



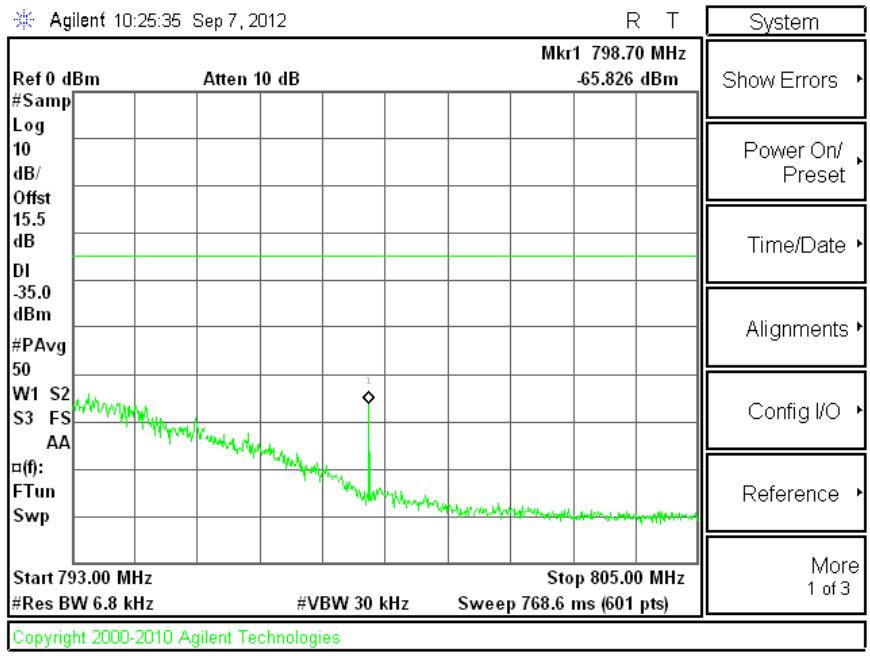

RB1-24



RB12-6

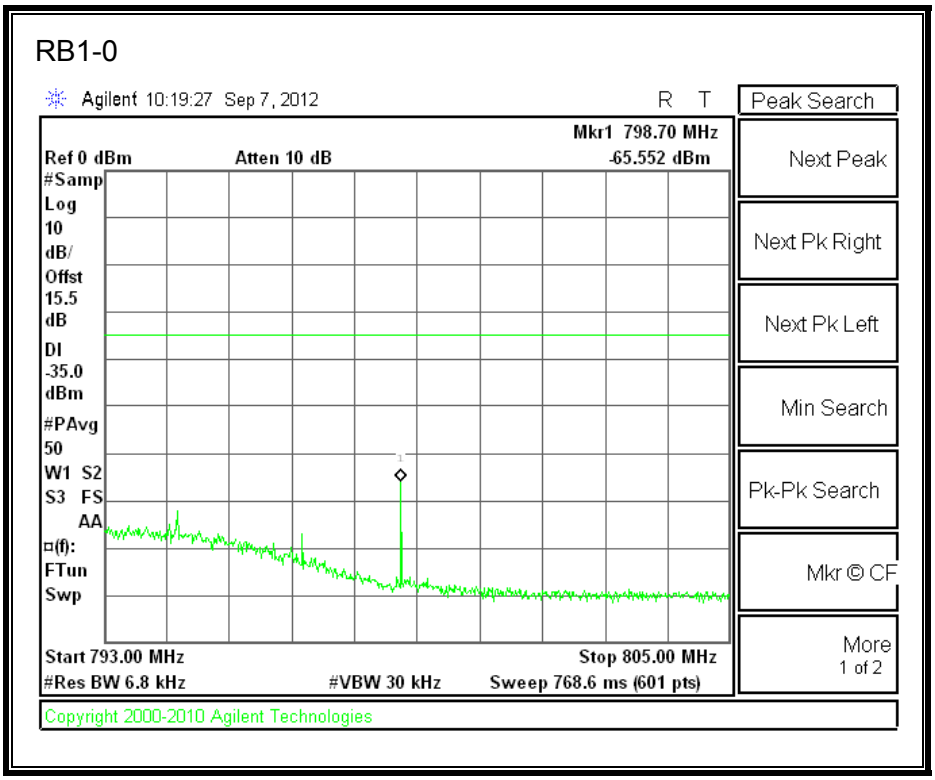



RB25-0

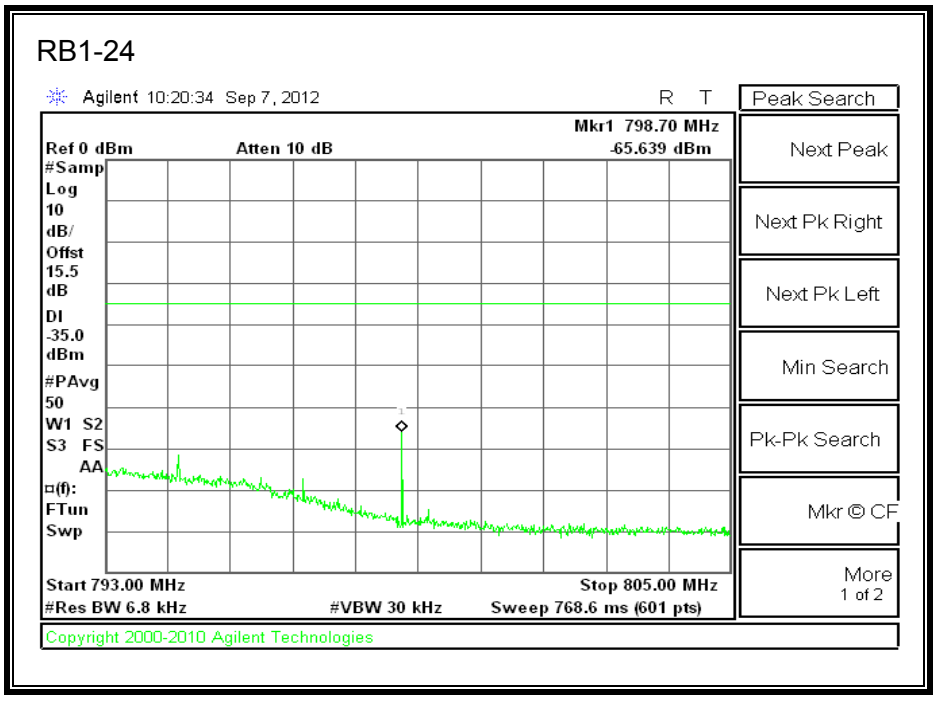


LTE **16QAM 779.5MHZ Band 13, 793 - 805MHz (5MHz Bandwidth)**

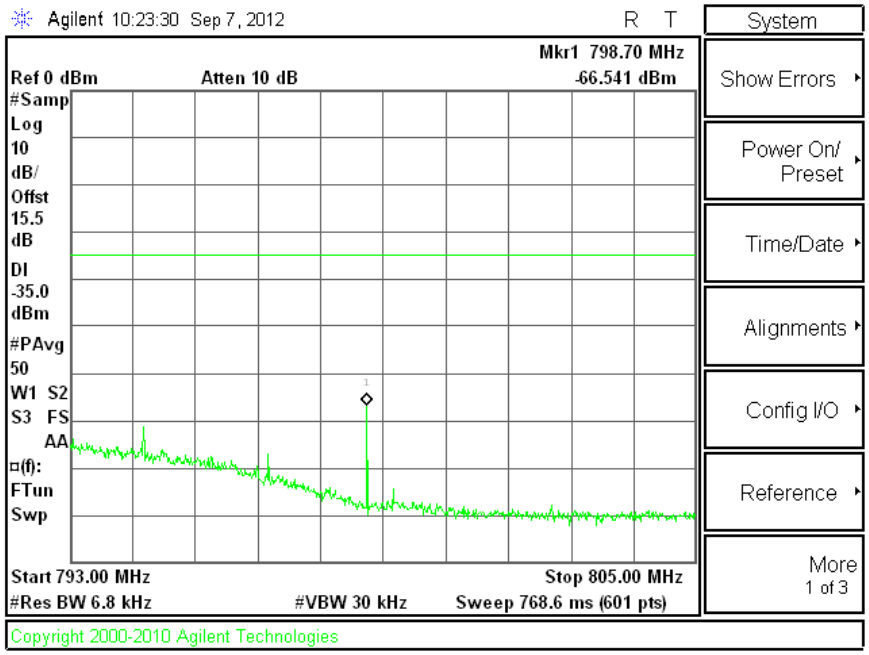
RB1-0



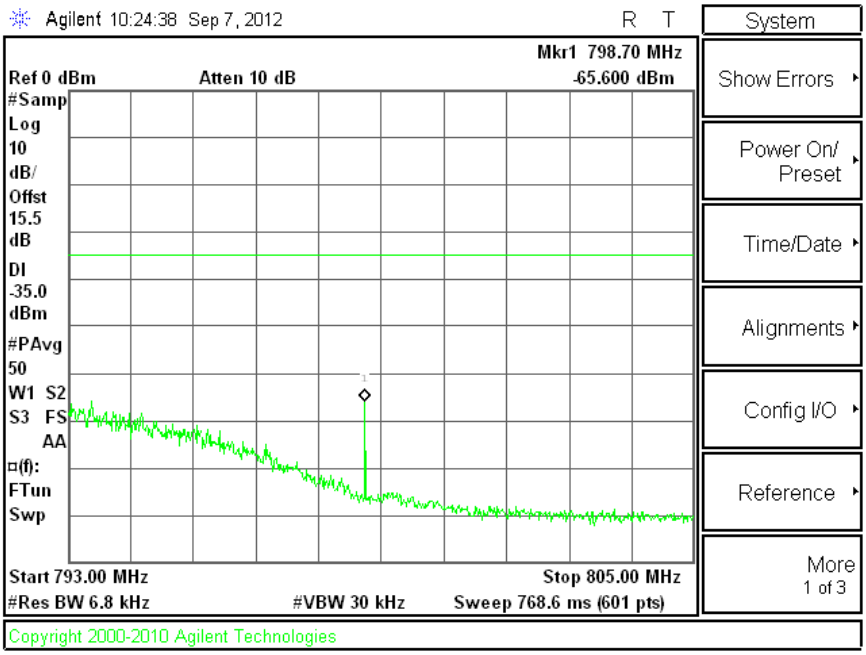

RB1-24



RB12-6

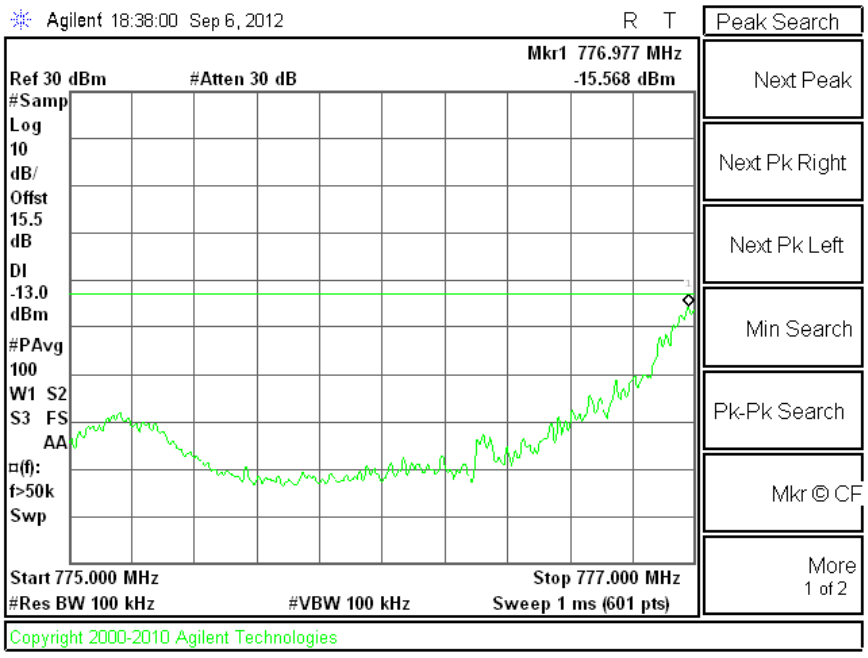



RB25-0

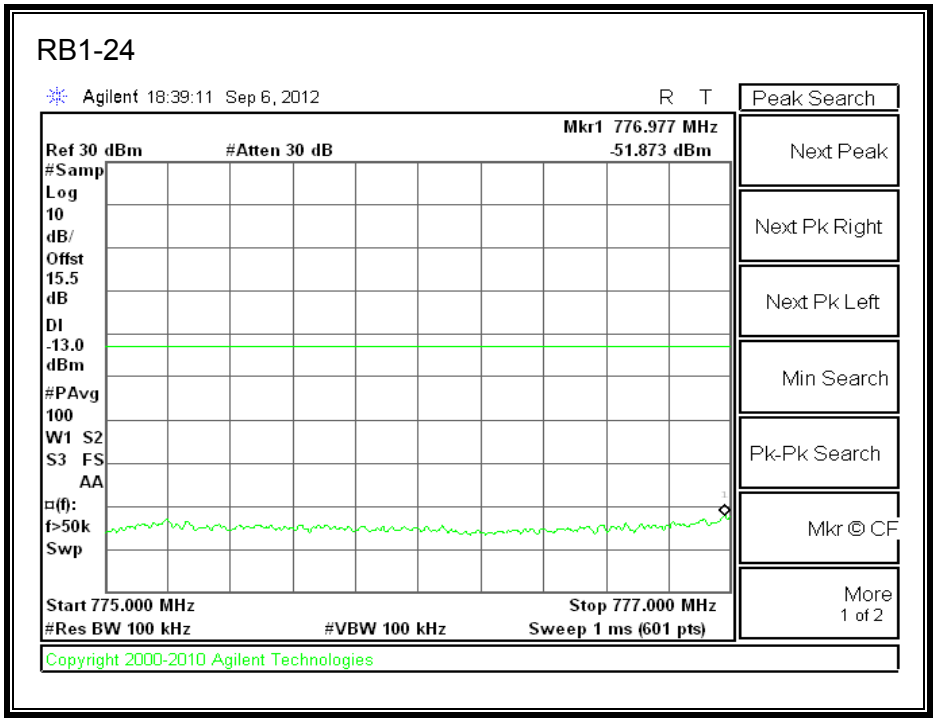


**LTE QPSK 782 MHz Band 13, 775 - 777MHz (5MHz Bandwidth)**

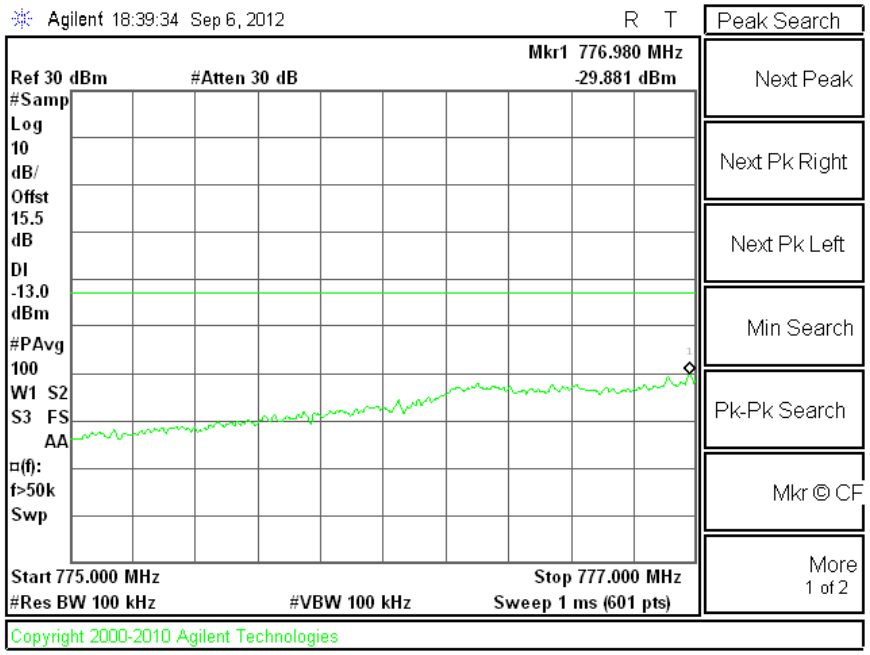
RB1-0,



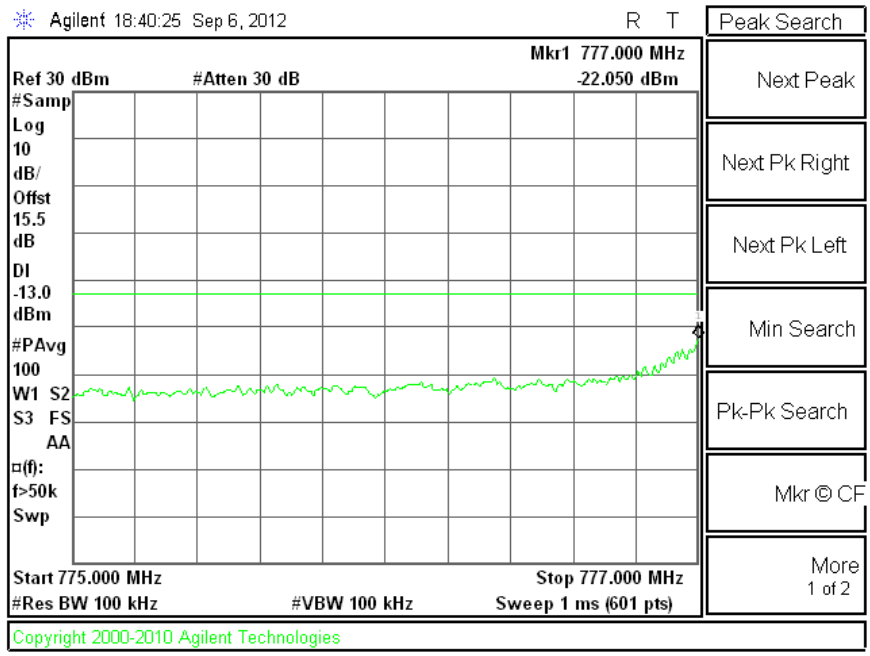

RB1-24



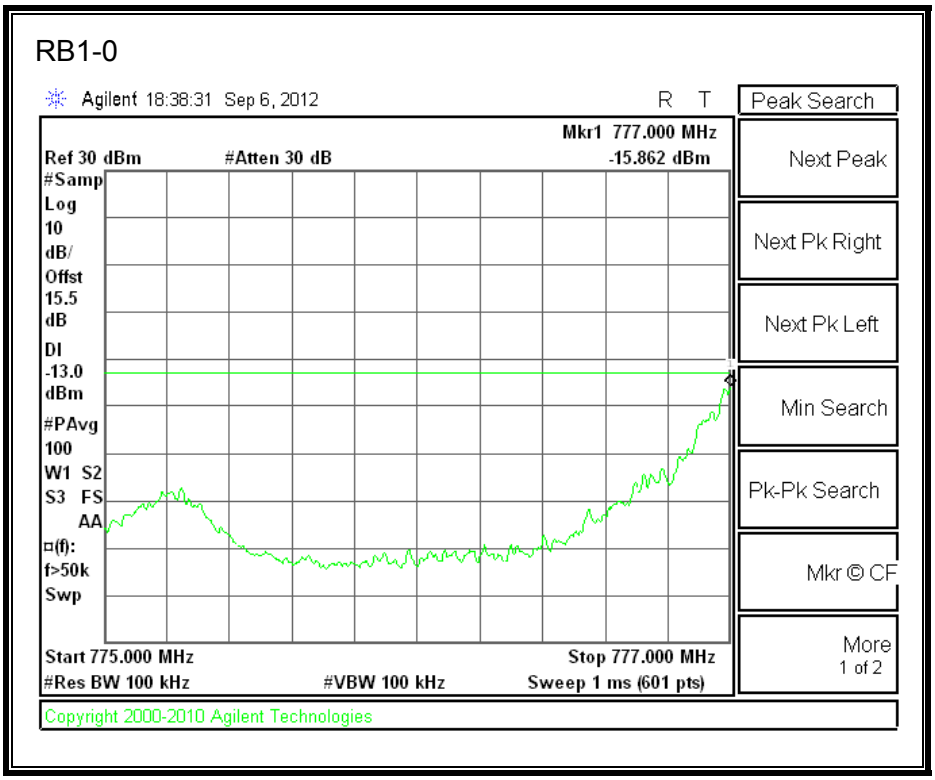
RB12-6

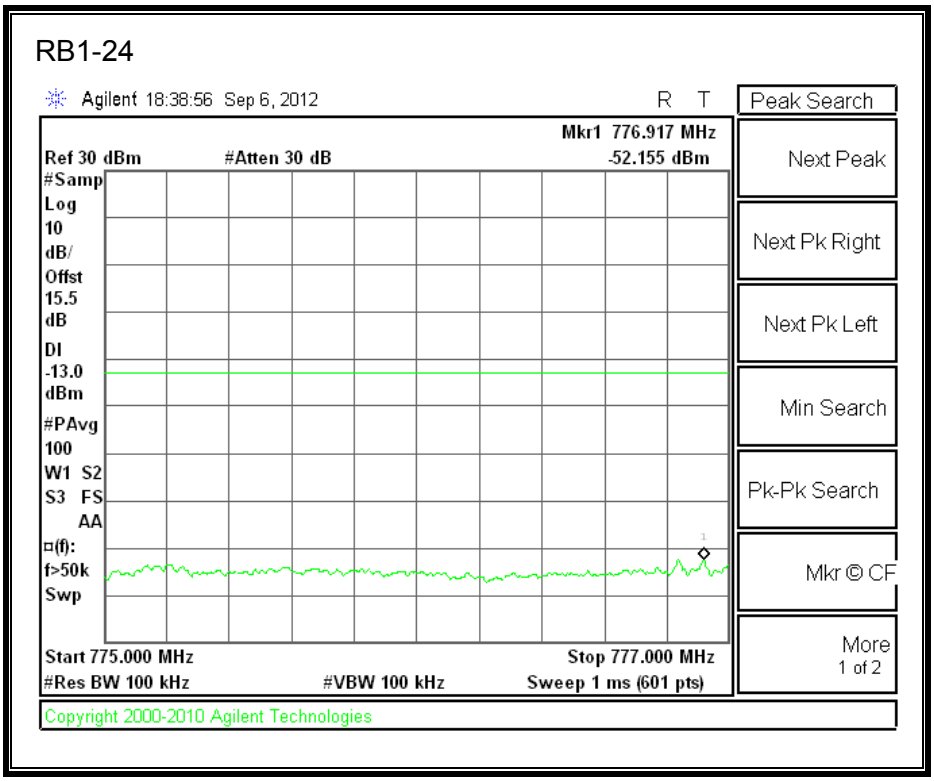



RB25-0

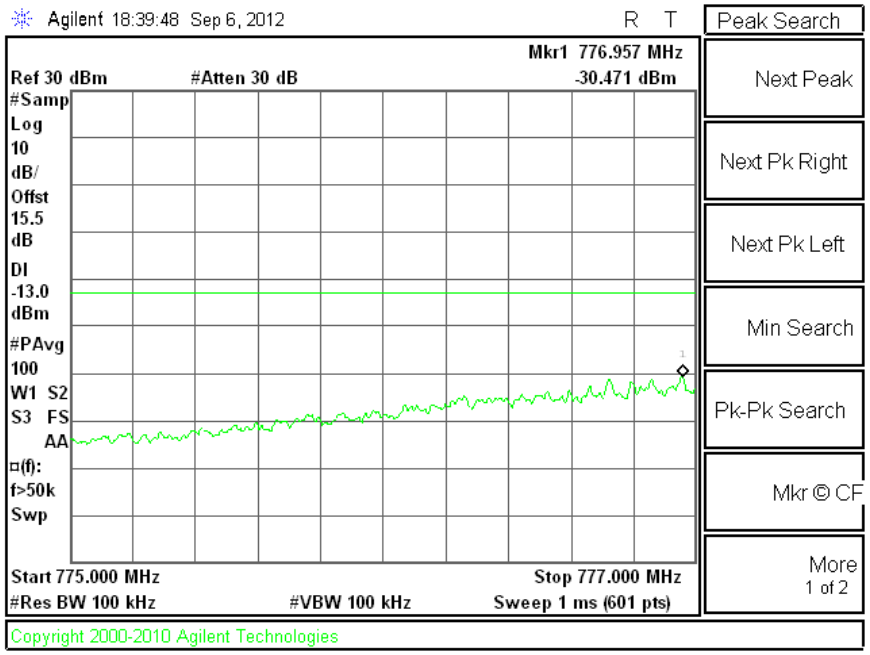


LTE **16QAM 782MHz Band 13, 775 - 777MHz (5MHz Bandwidth)**

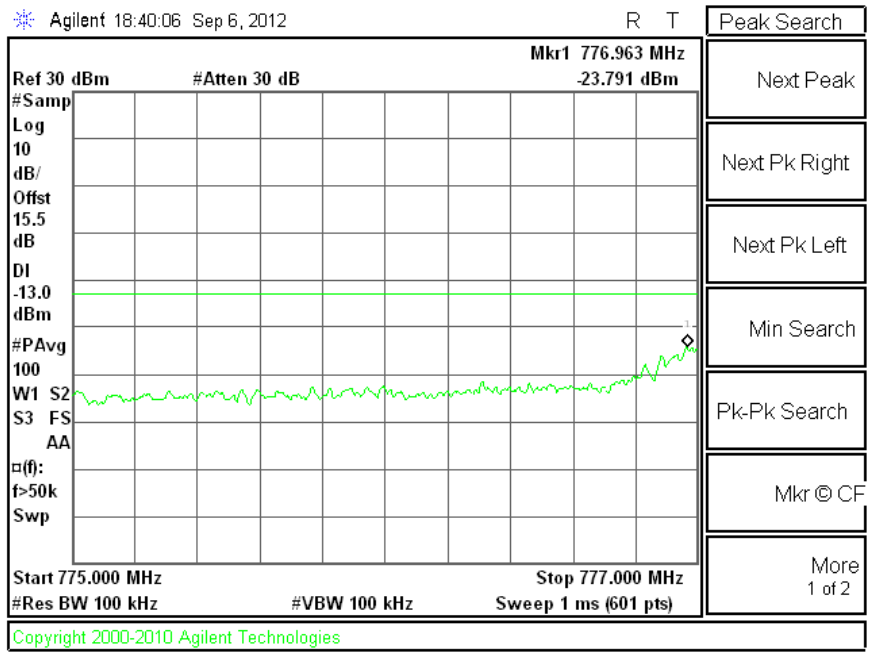


RB12-6

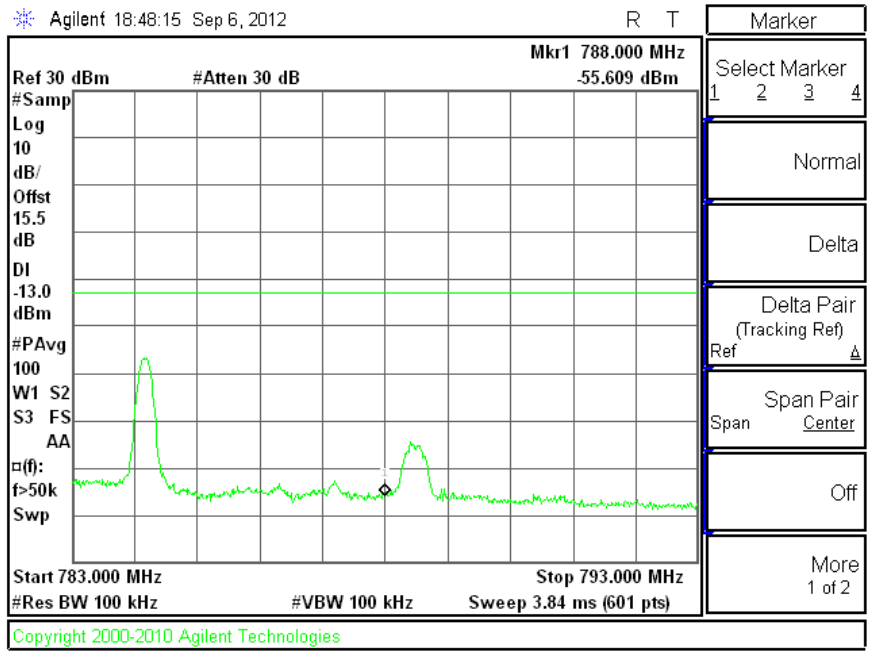



RB25-0

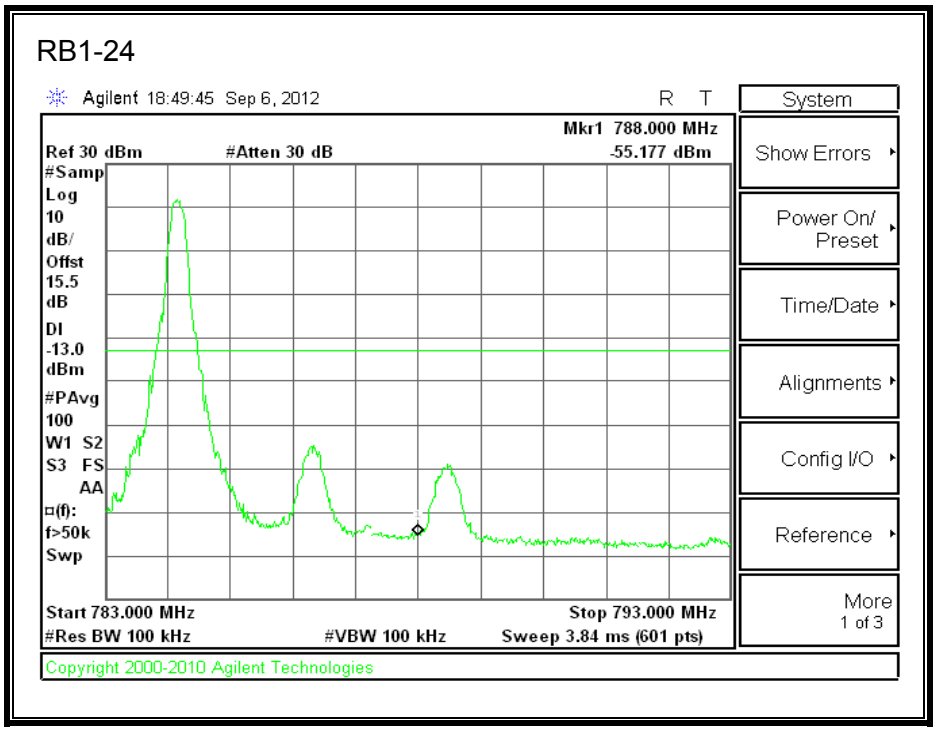


**LTE QPSK 782MHz Band 13, 783 - 793MHz (5MHz Bandwidth)**

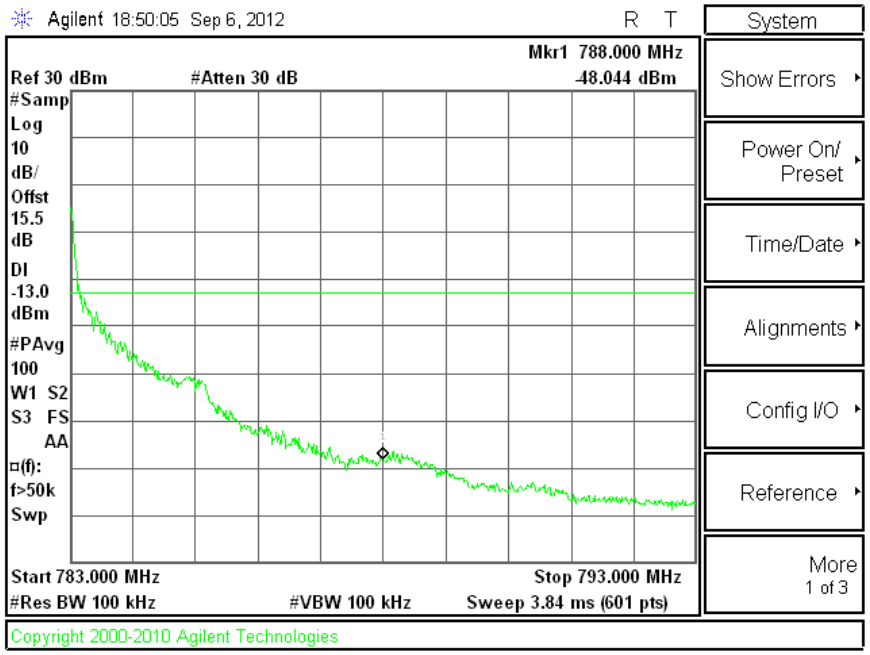
RB1-0



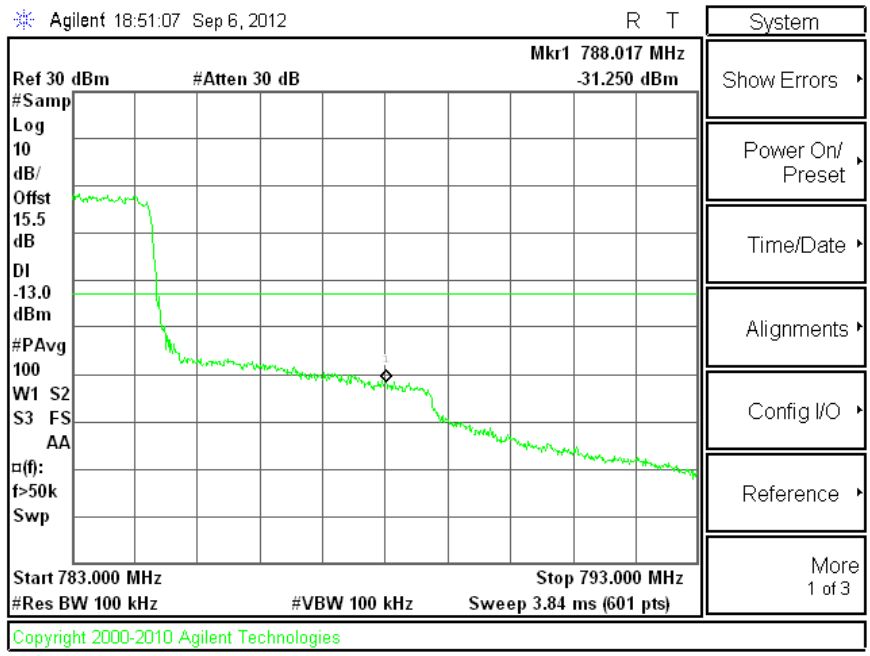

RB1-24



RB12-6

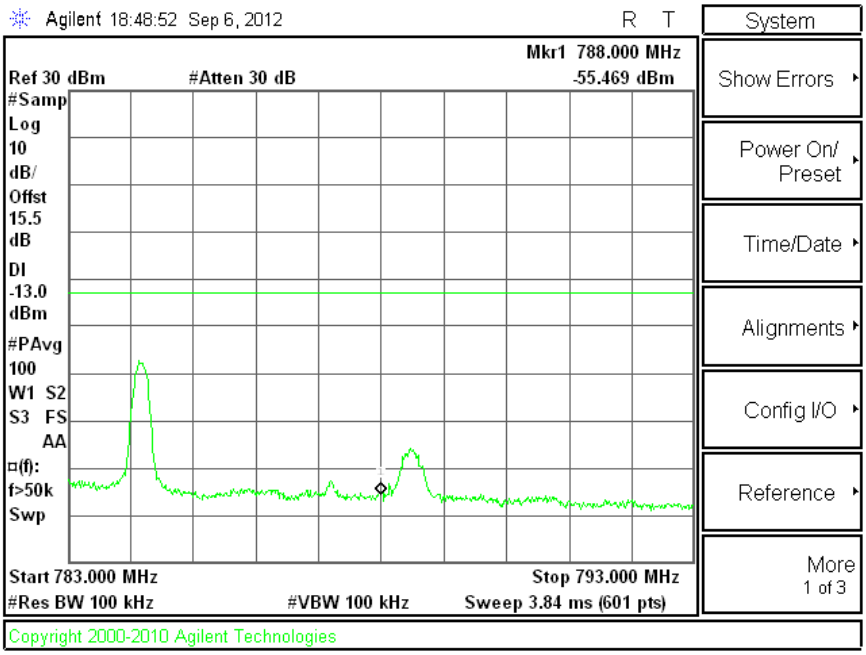



RB25-0

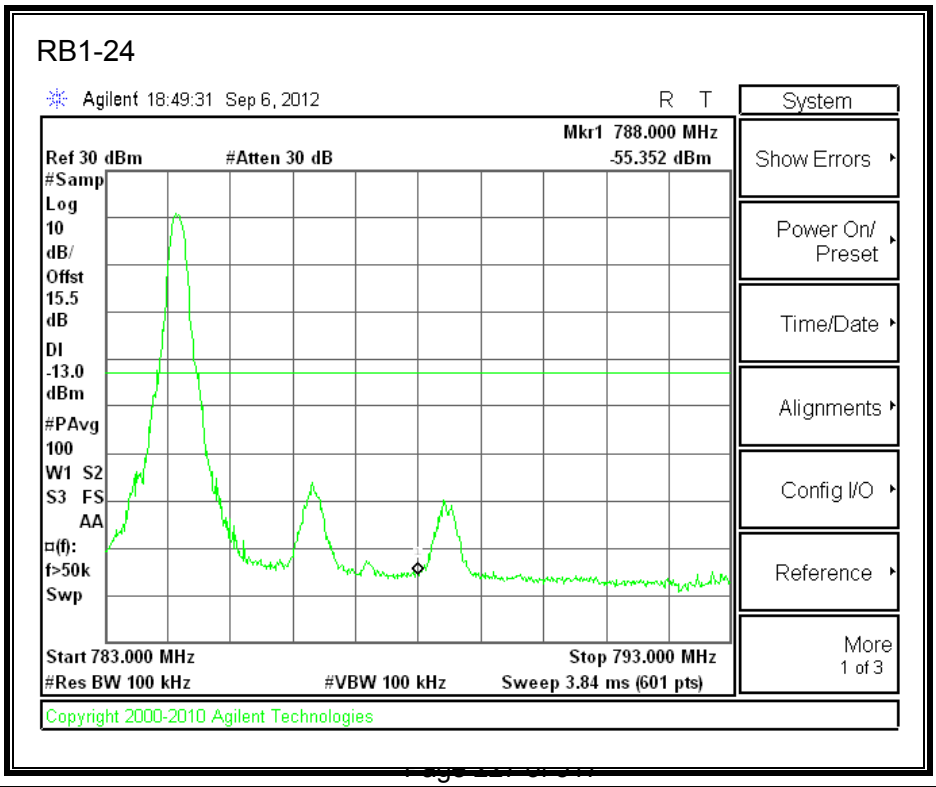


**LTE 16QAM 782MHz Band 13, 783 - 793MHz (5MHz Bandwidth)**

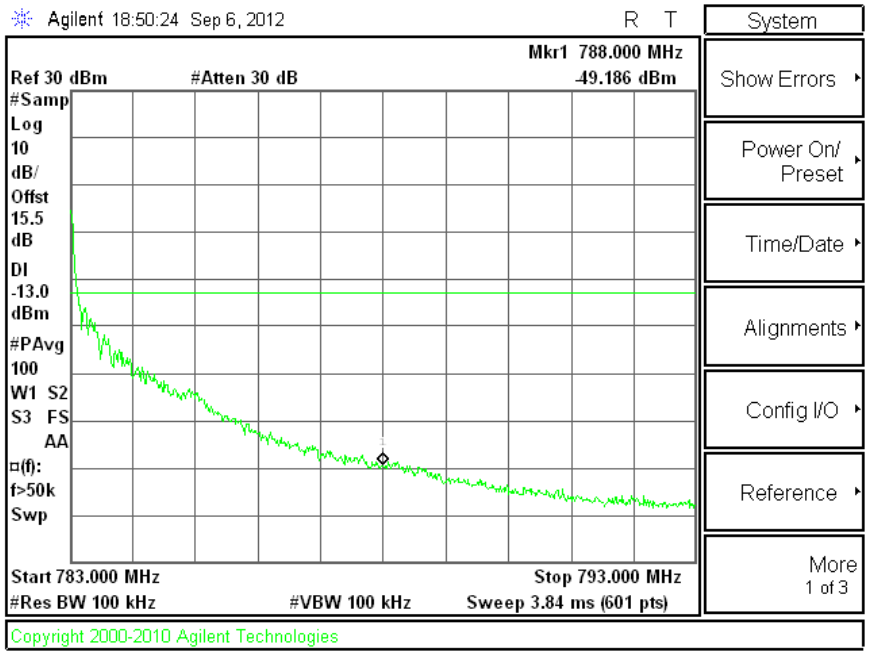
RB1-0



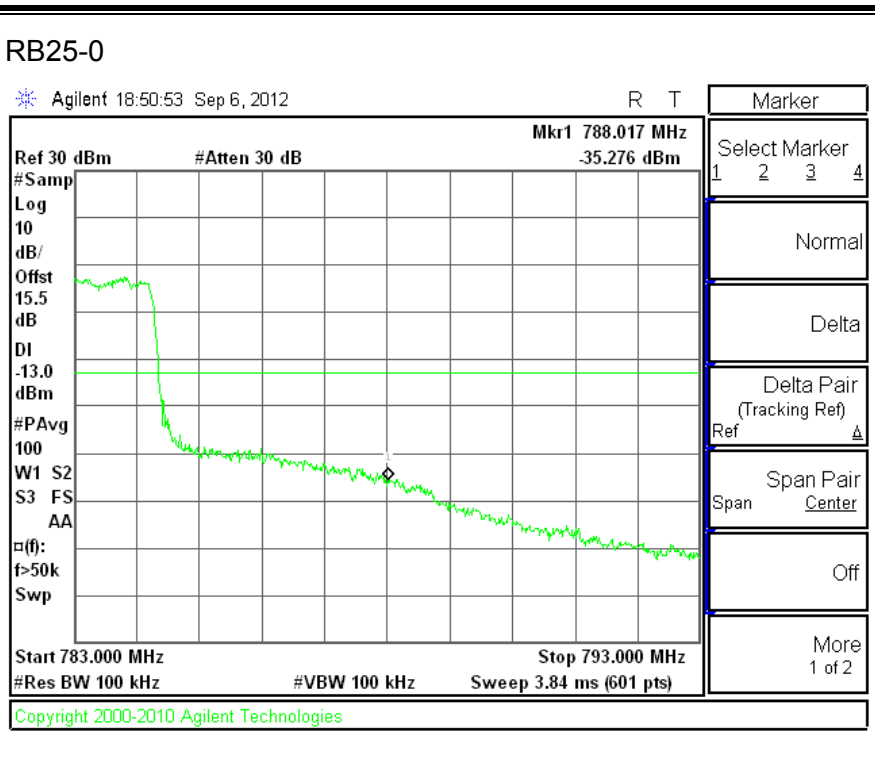

RB1-24



RB12-6

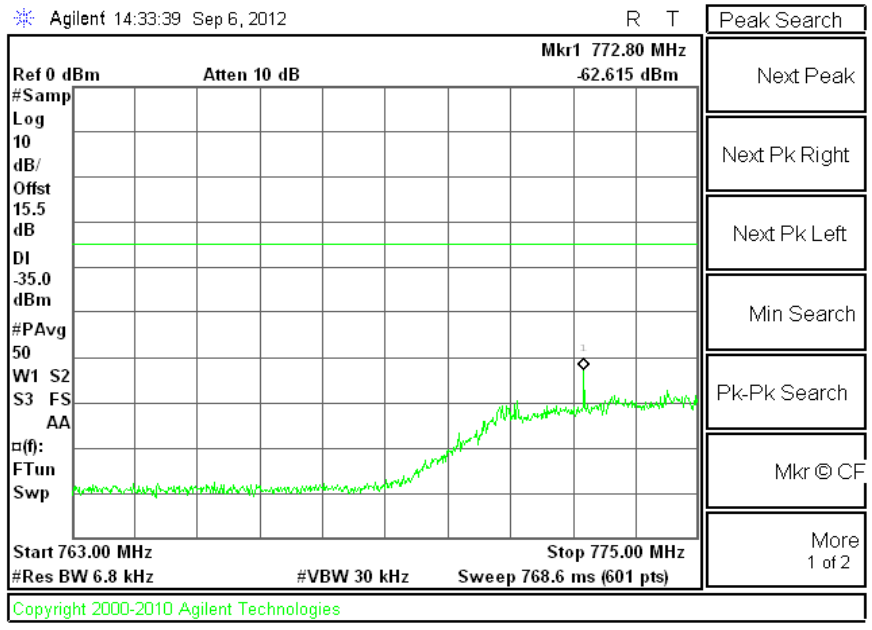



RB25-0

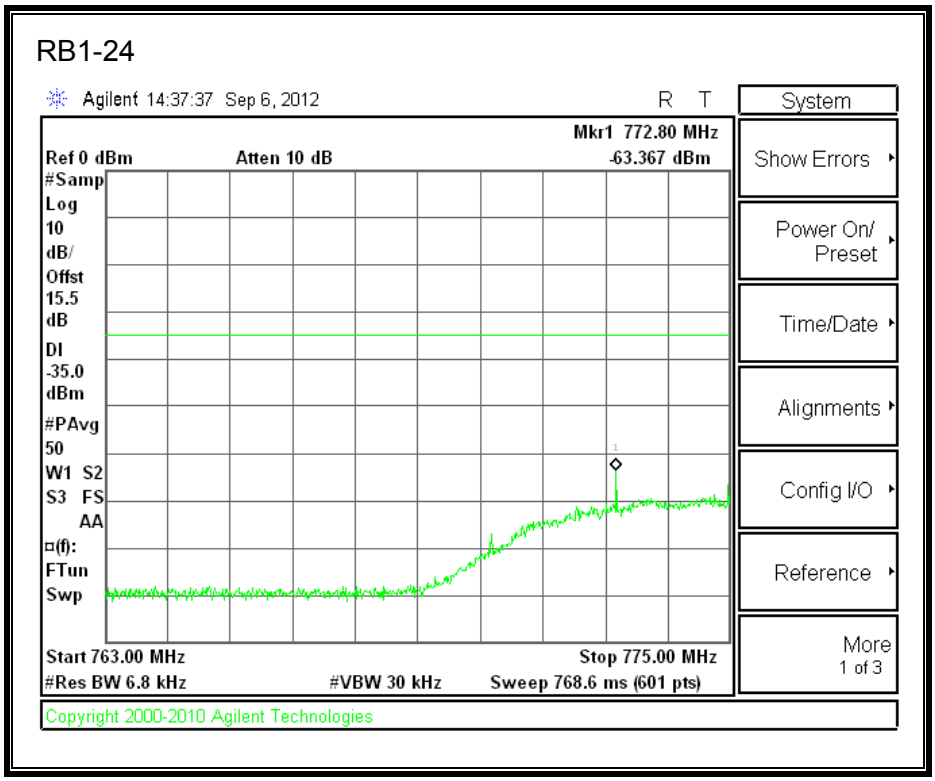


LTE **QPSK 782MHz Band 13, 763 - 775MHz (5MHz Bandwidth)**

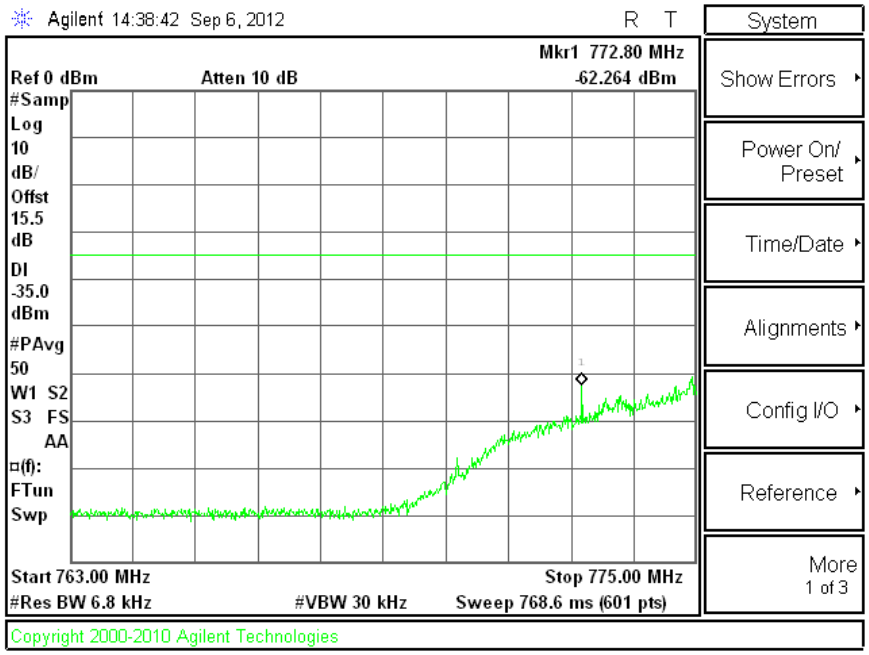
RB1-0



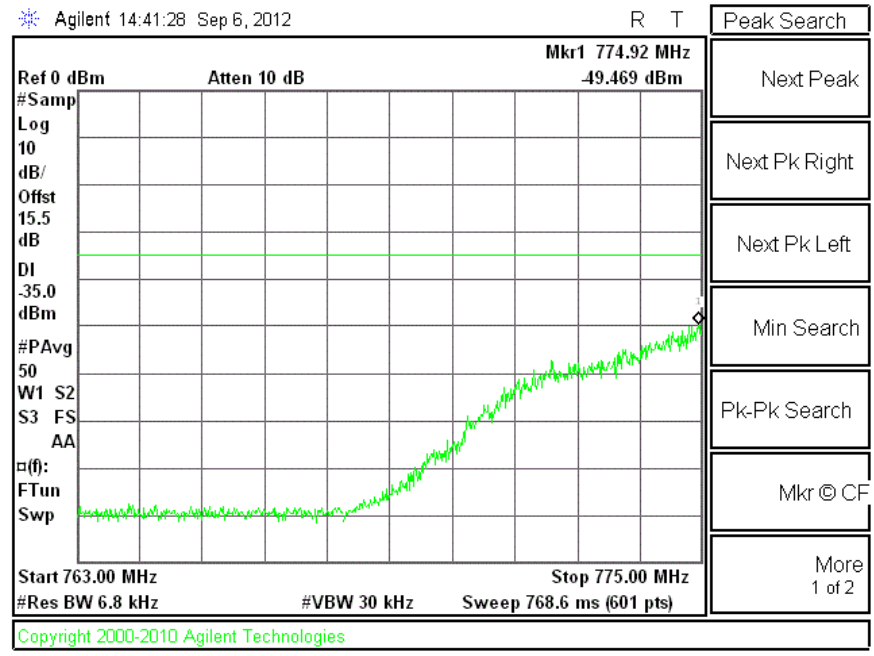

RB1-24



RB12-6

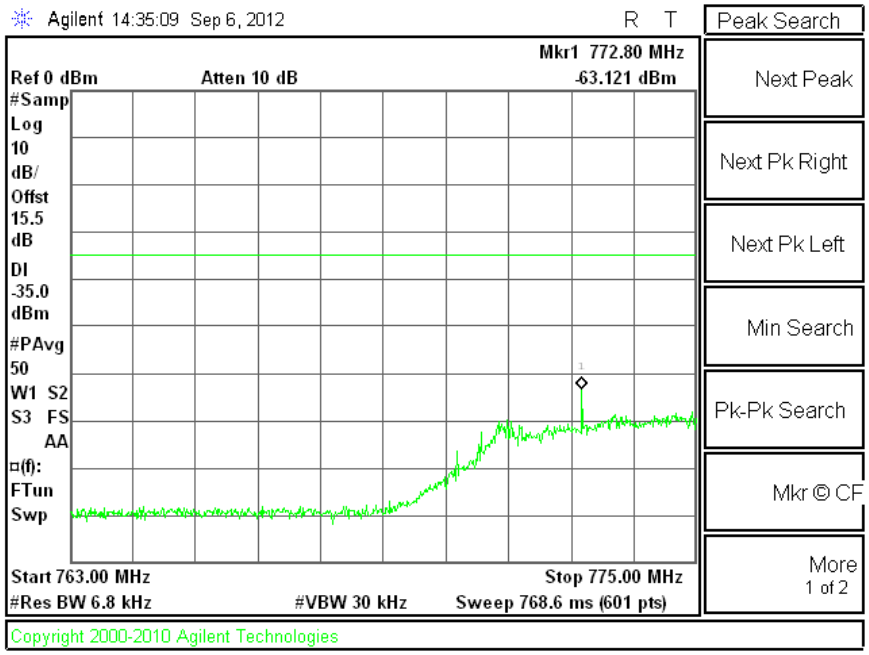



RB25-0

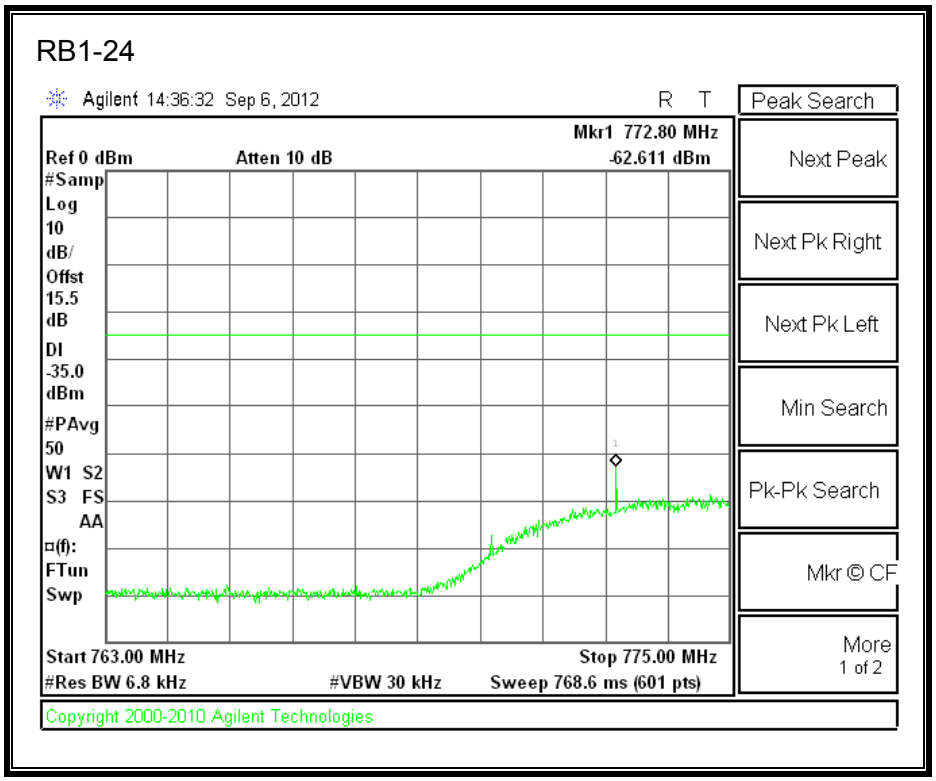


LTE **16QAM 782MHz Band 13, 763-775MHz (5MHz Bandwidth)**

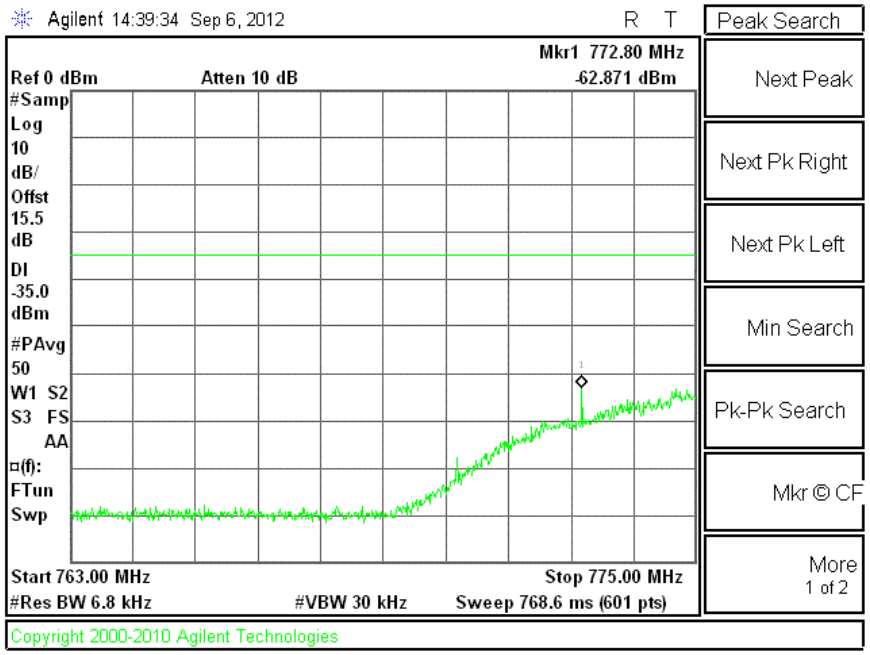
RB1-0



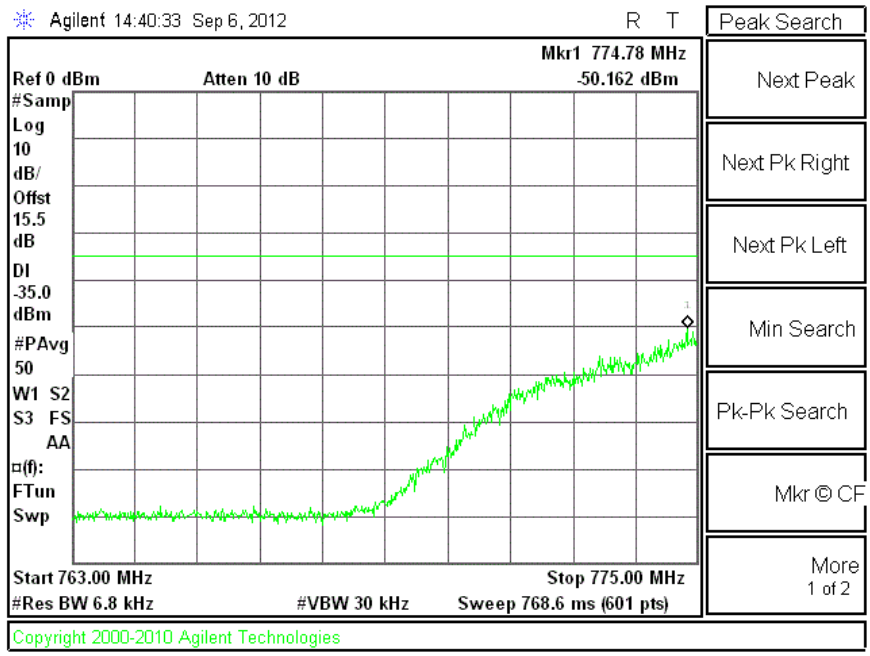

RB1-24



RB12-6

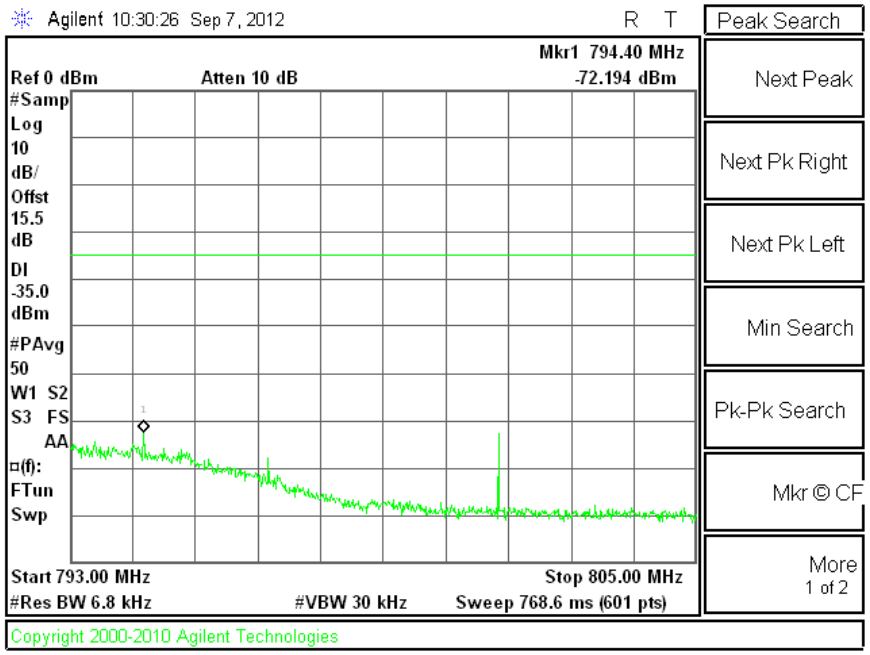



RB25-0

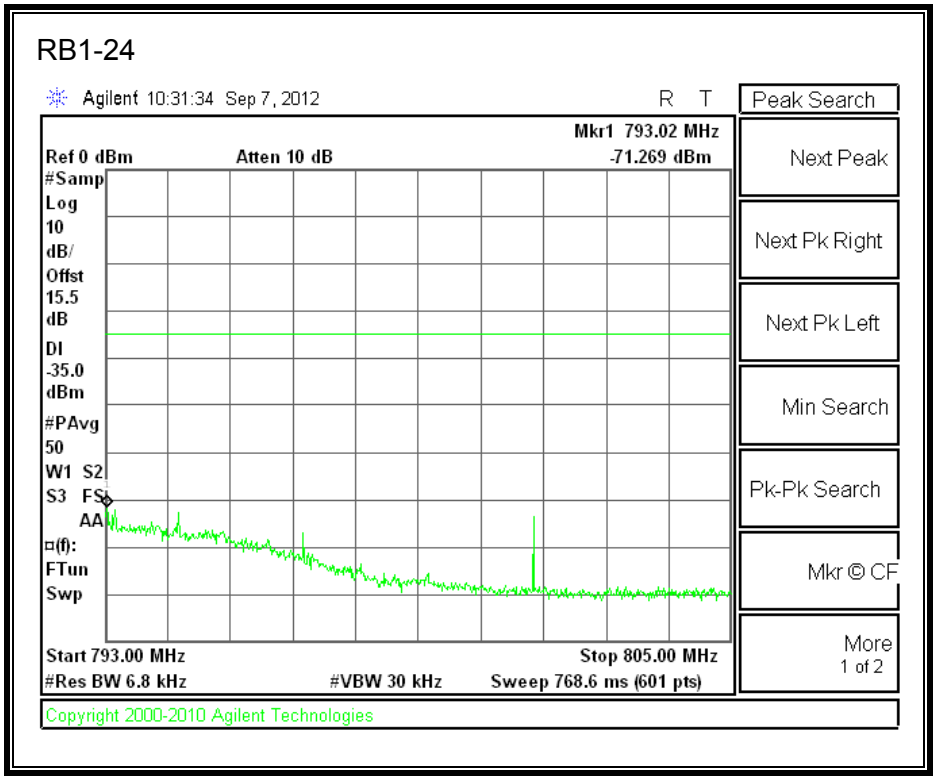


LTE **QPSK 782MHz Band 13, 793 - 805MHz (5MHz Bandwidth)**

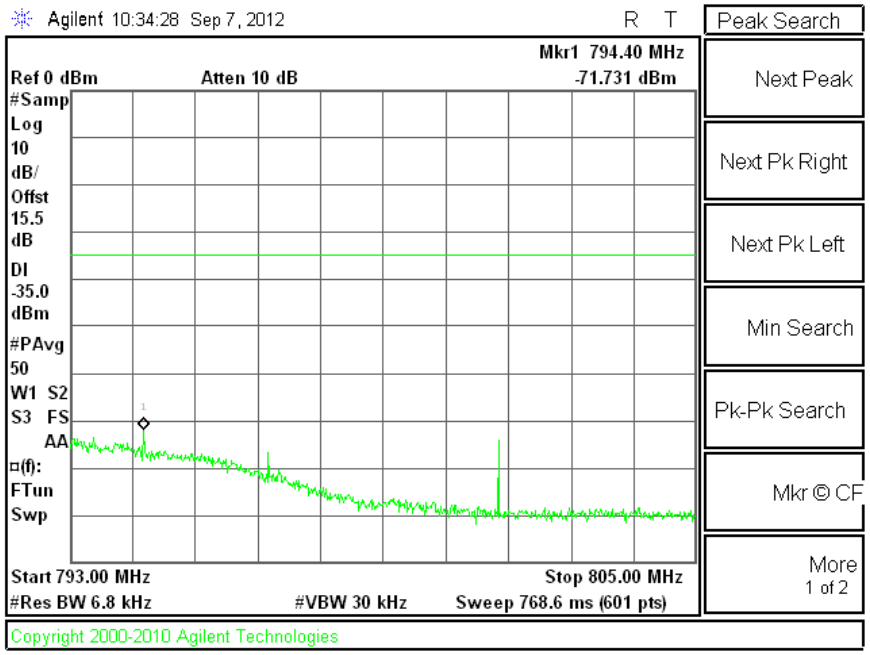
RB1-0



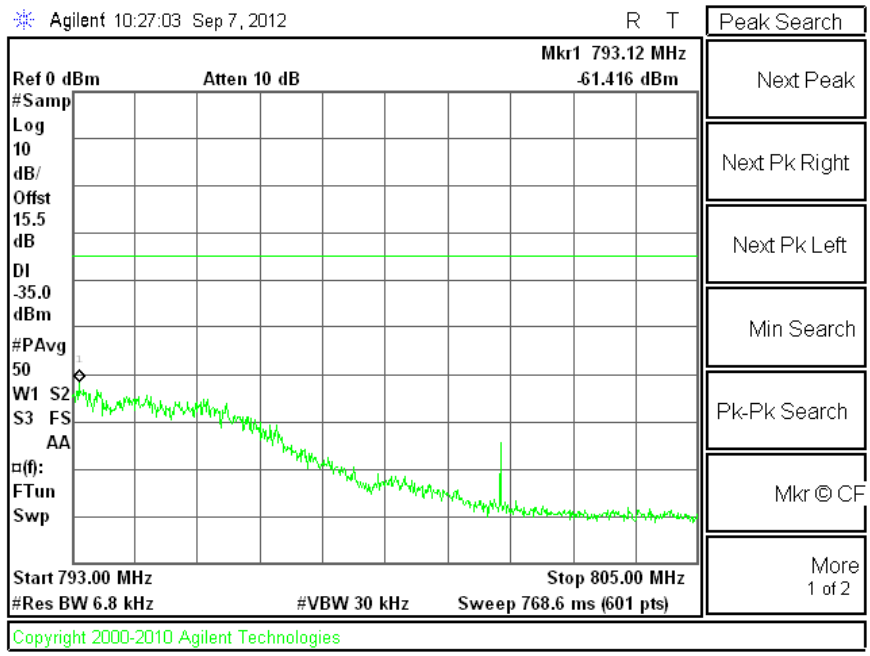

RB1-24



RB12-6

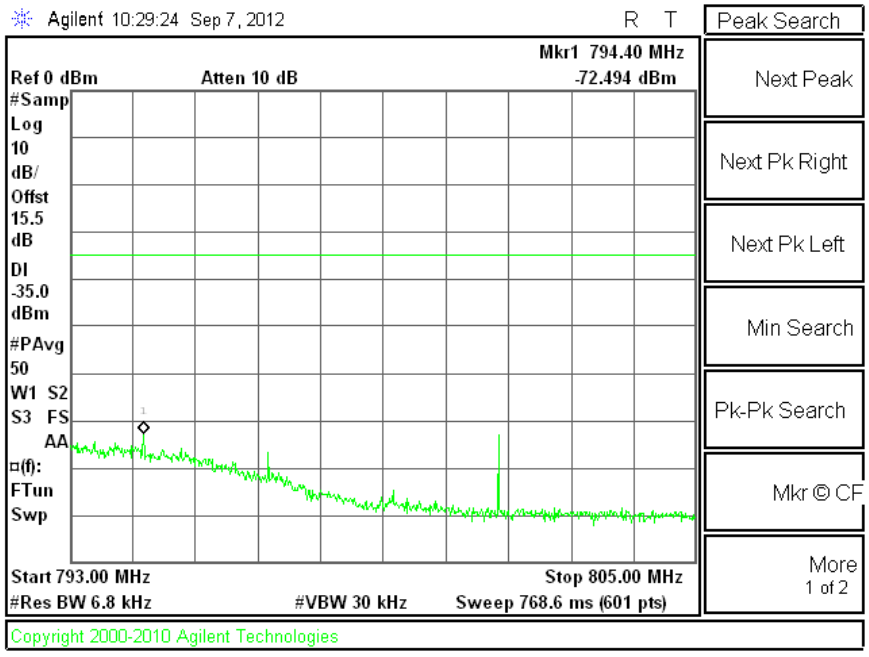



RB25-0

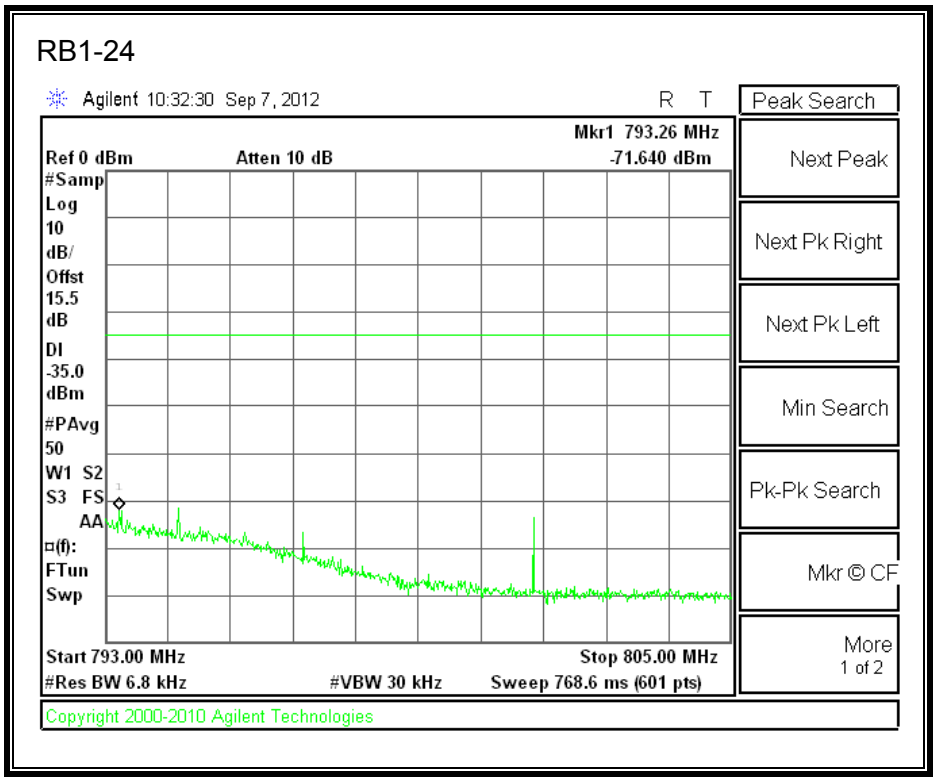


LTE **16QAM 7825MhZ Band 13, 793 - 805MHz (5MHz Bandwidth)**

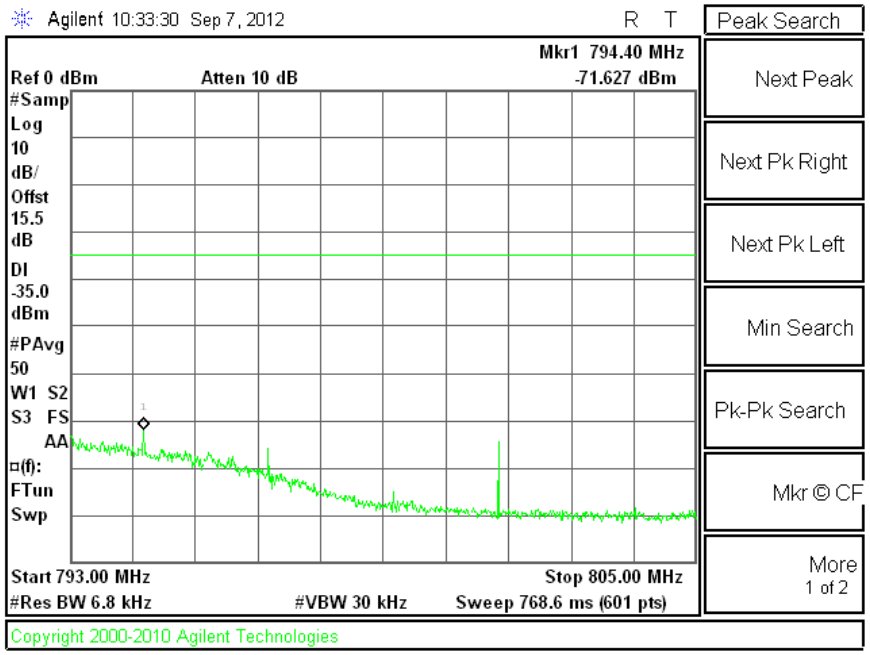
RB1-0



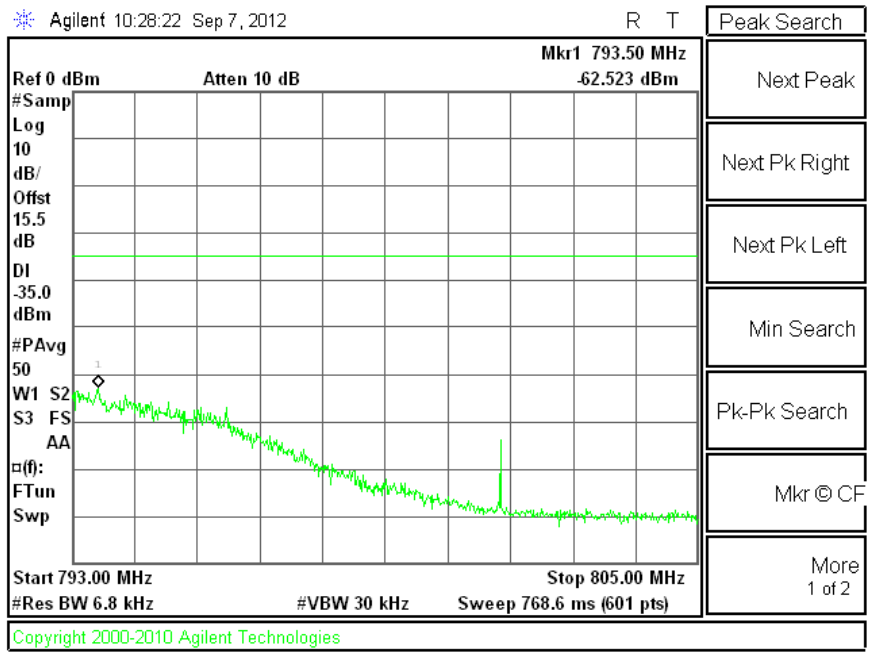

RB1-24



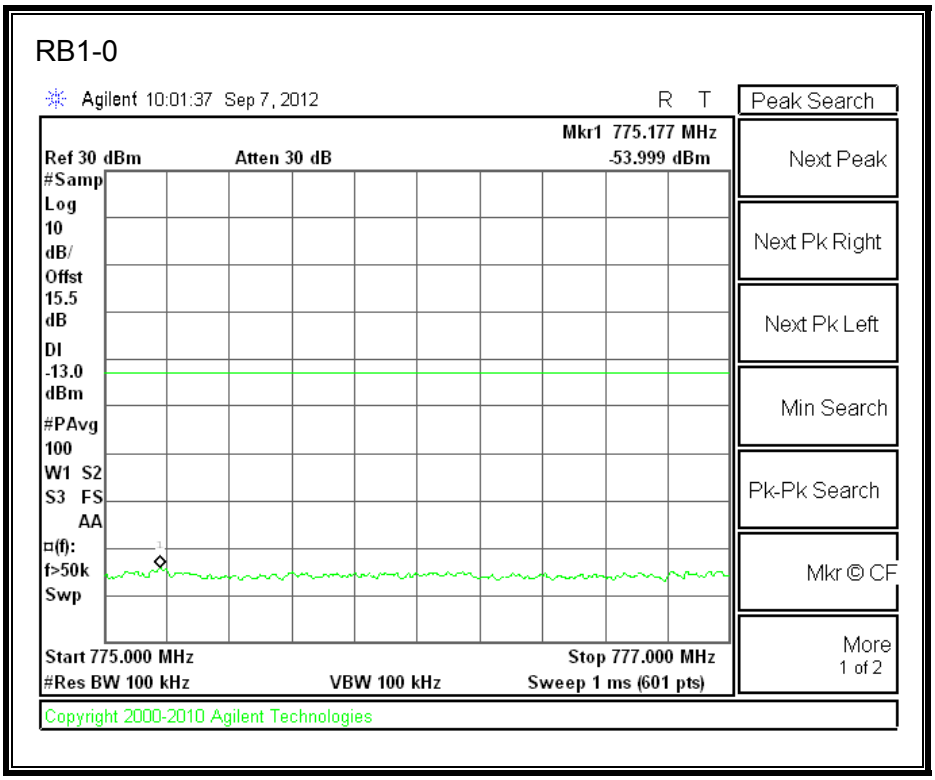
RB12-6

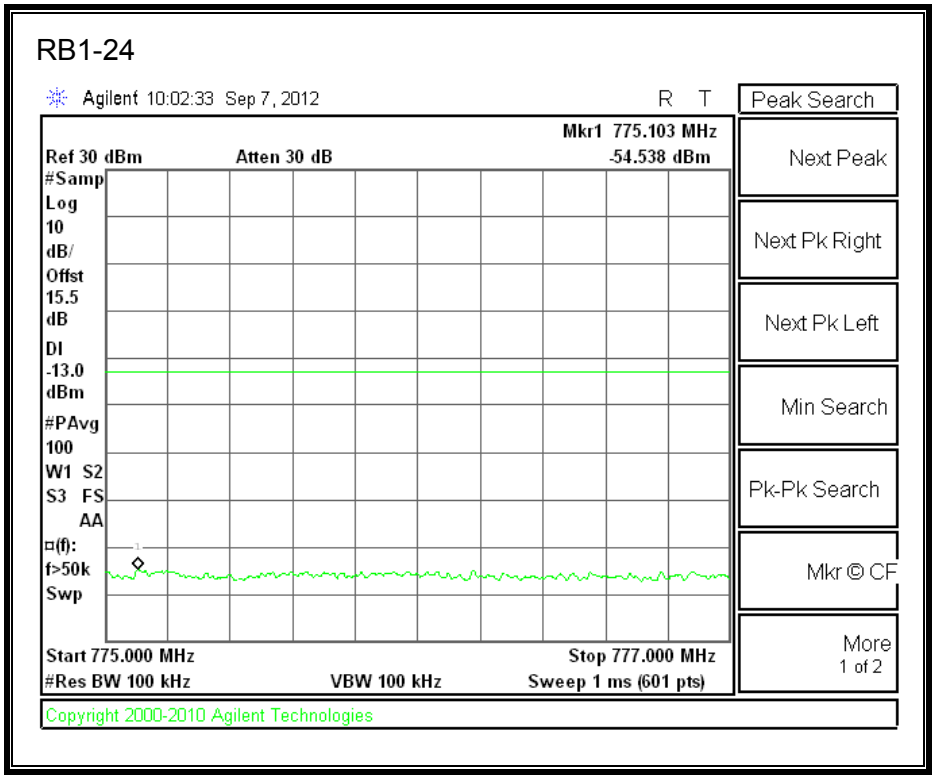



RB25-0

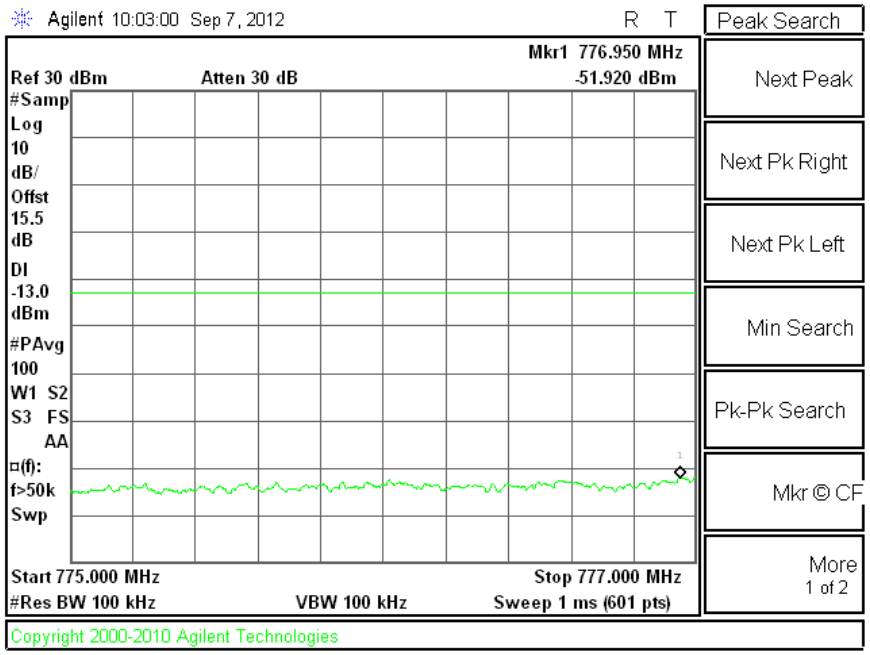


**LTE QPSK 784.5 MHz Band 13, 775 - 777MHz (5MHz Bandwidth)**

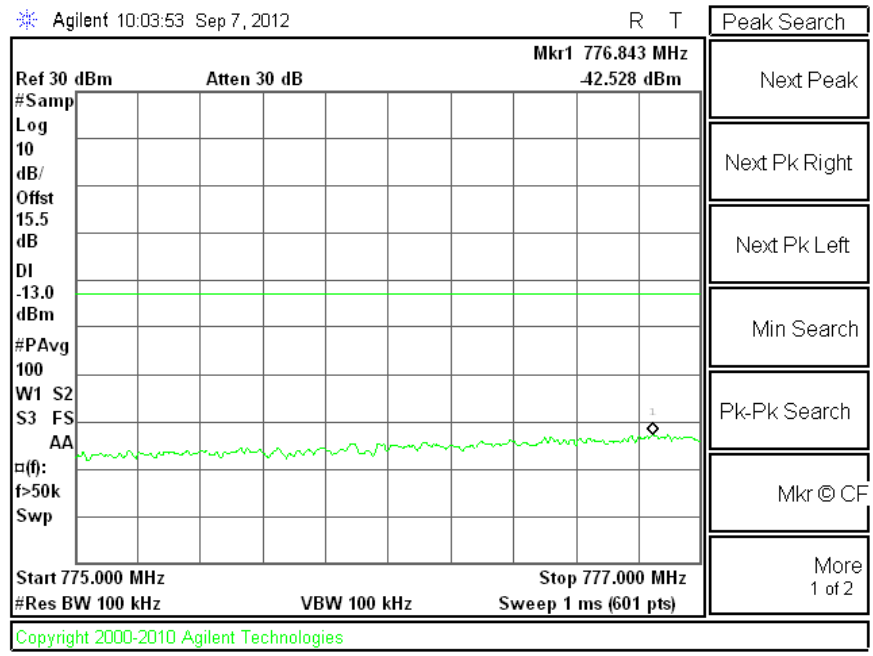


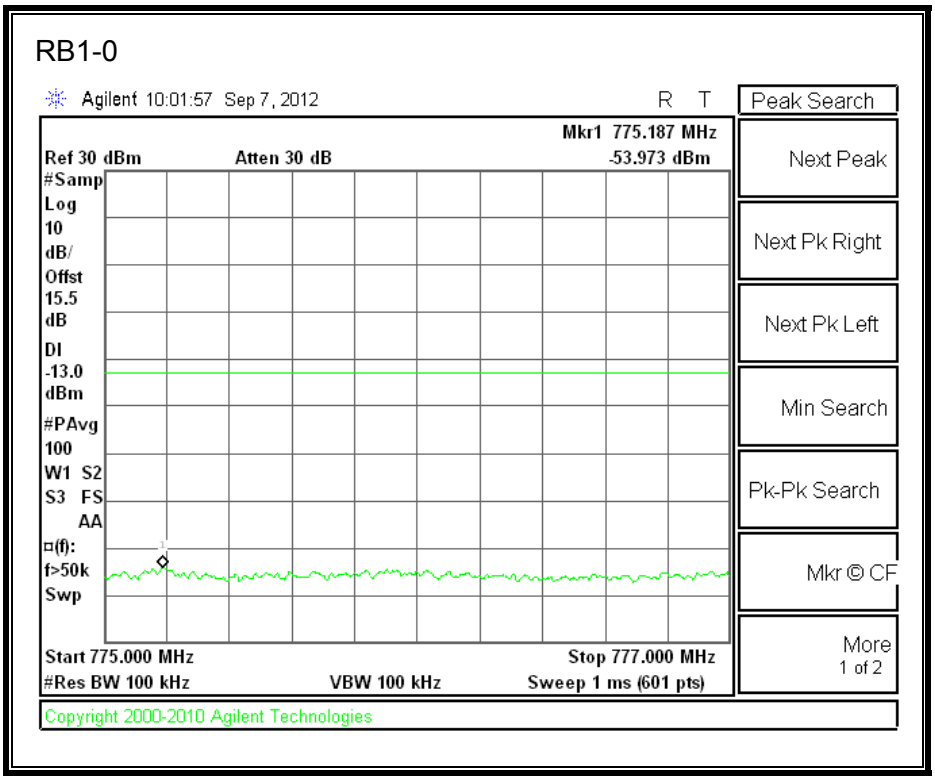
RB12-6

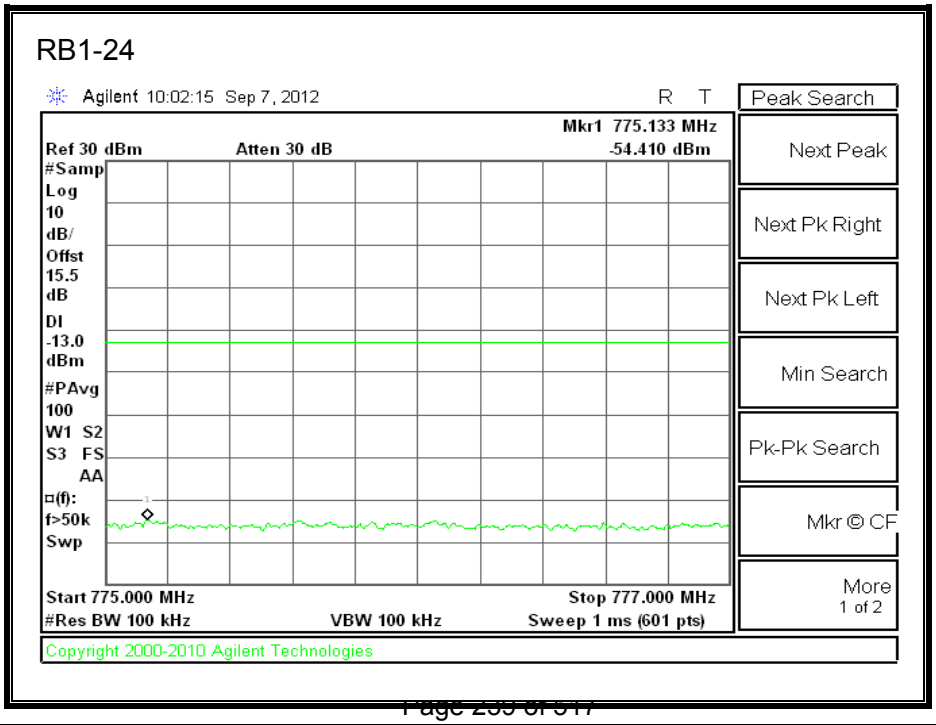



RB25-0

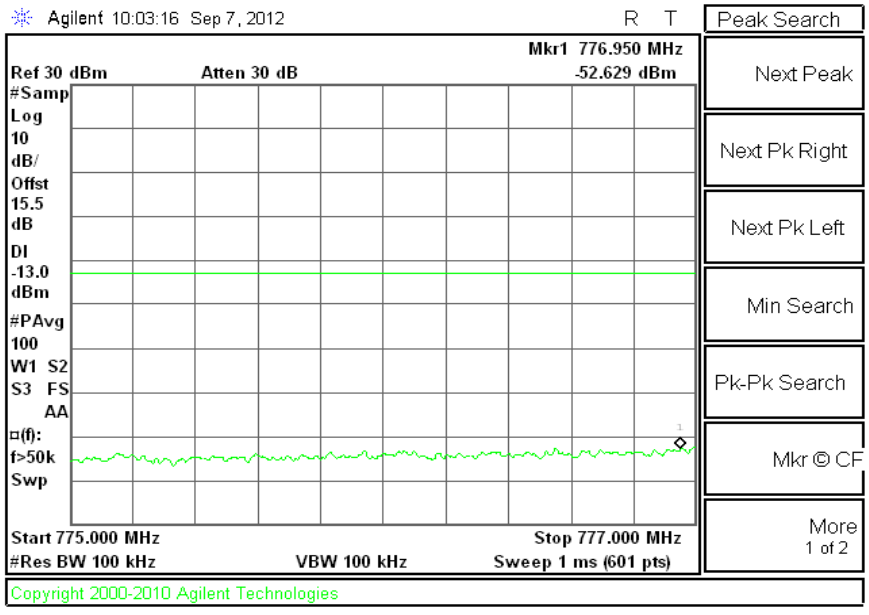


**LTE 16QAM 784.5MHz Band 13, 775 - 777MHz (5MHz Bandwidth)**

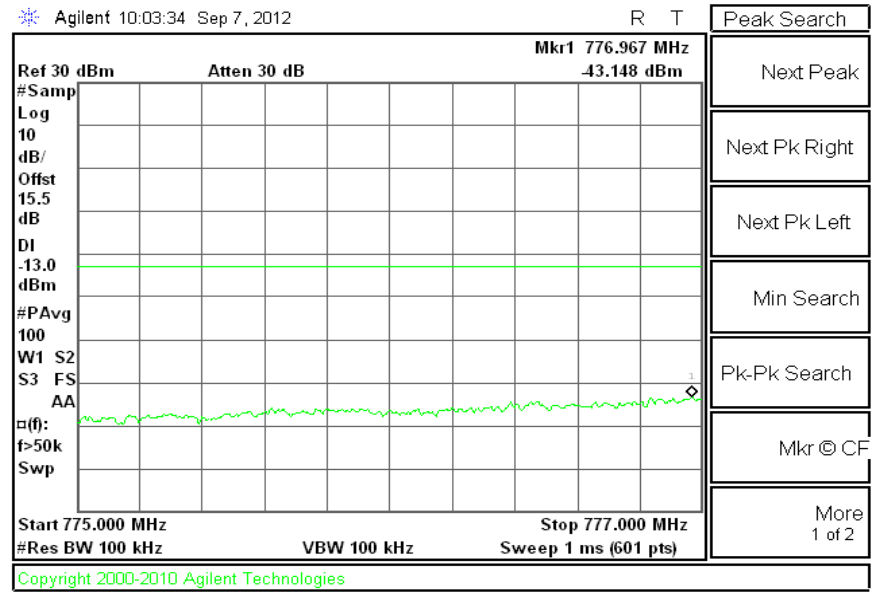


RB12-6

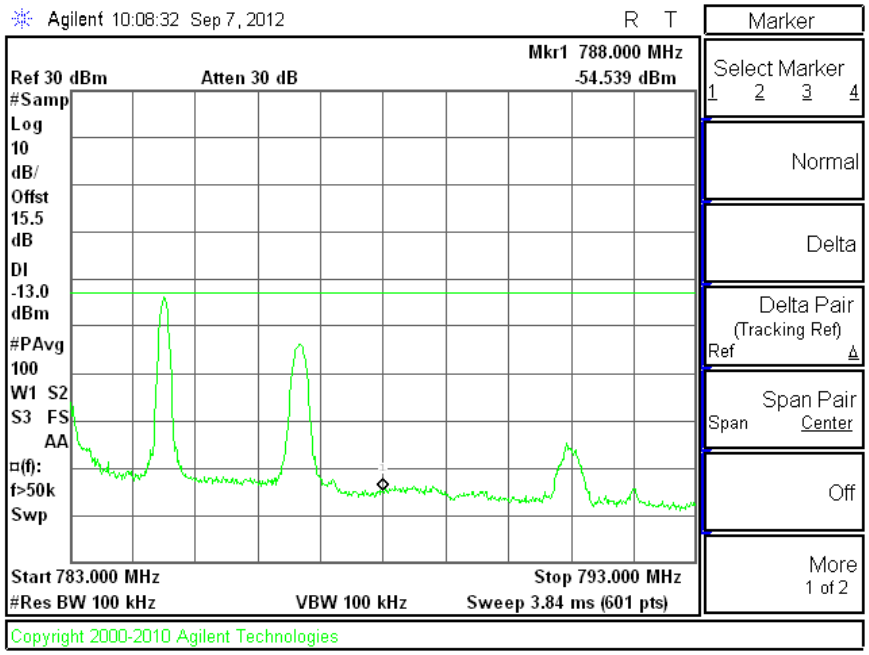



RB25-0

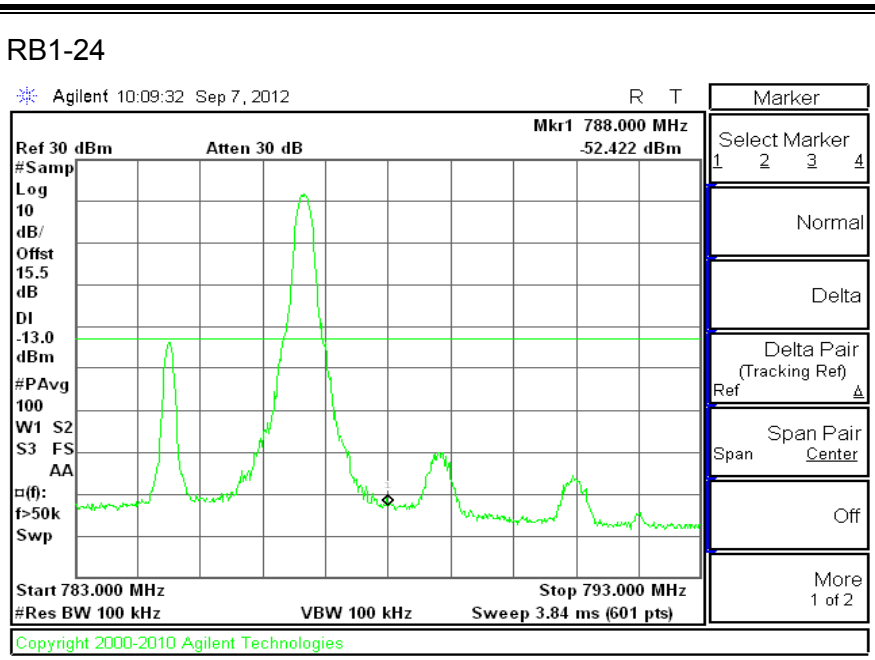


**LTE QPSK 784.5MHz Band 13, 783 - 793MHz (5MHz Bandwidth)**

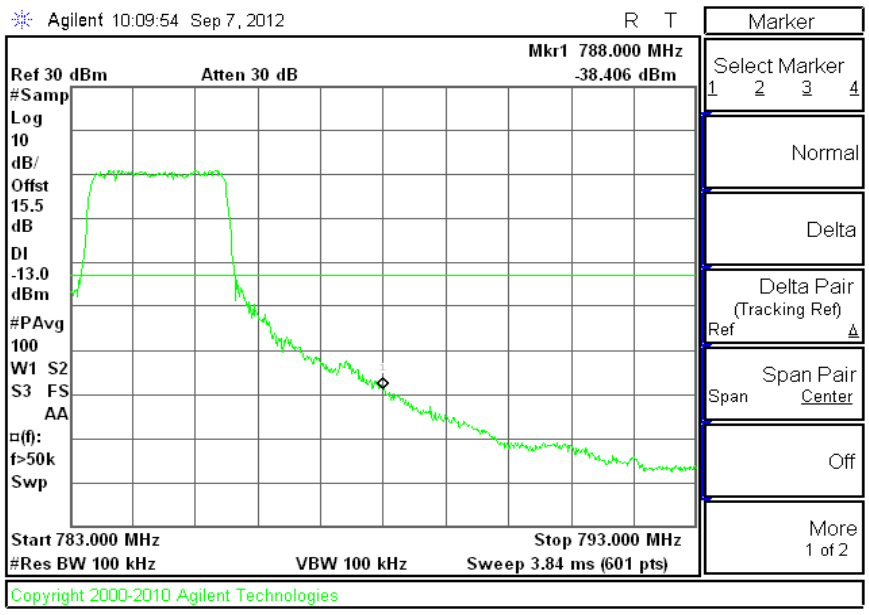
RB1-0



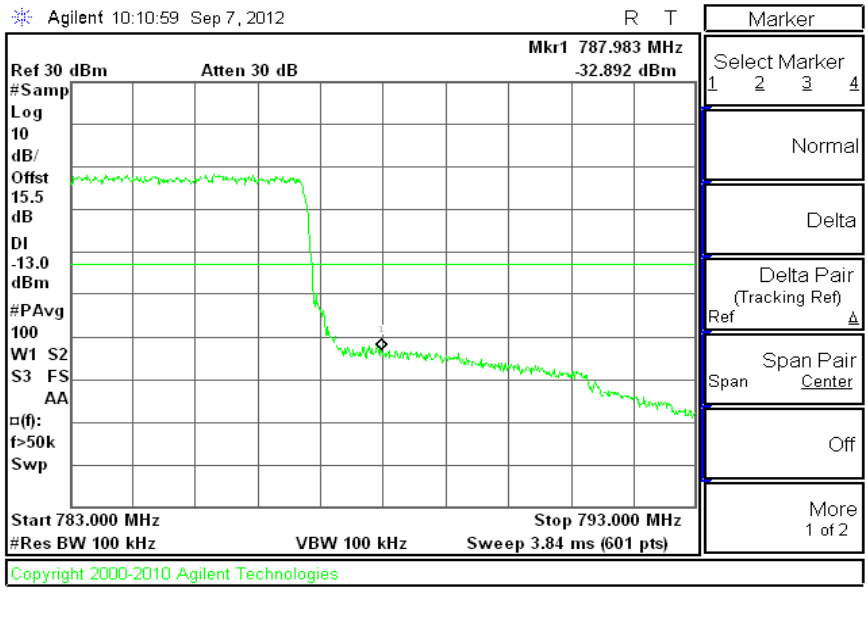

RB1-24



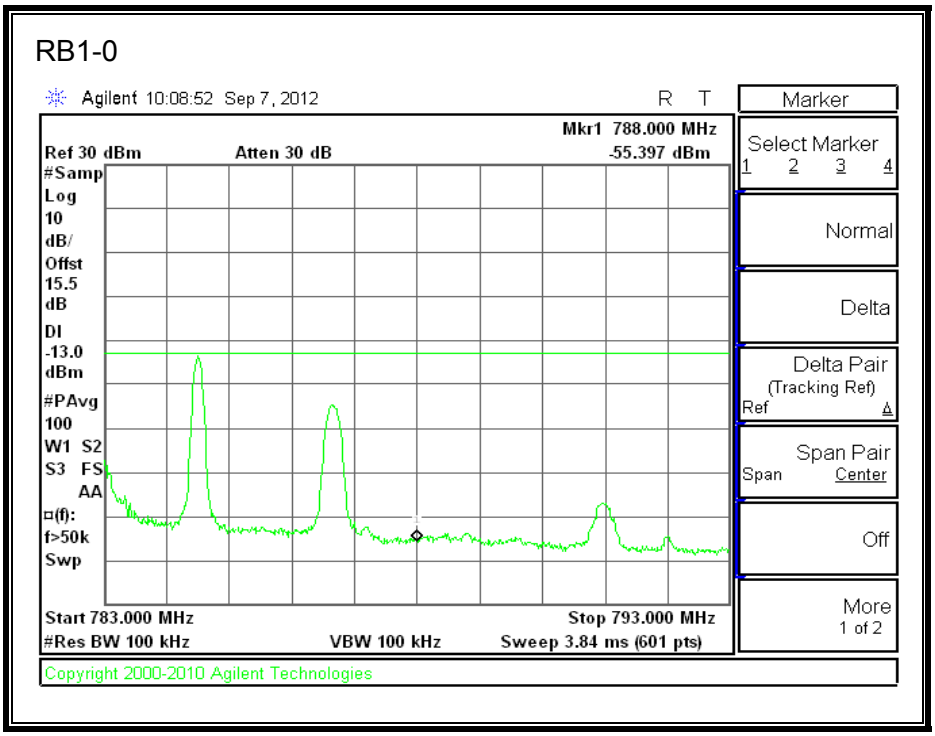
RB12-6

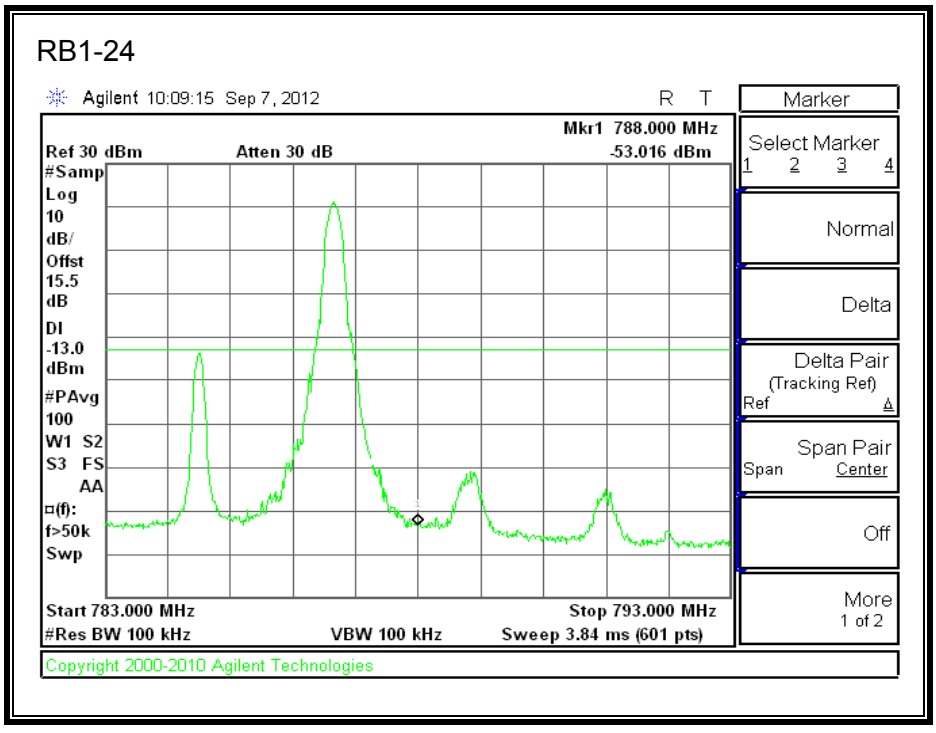



RB25-0

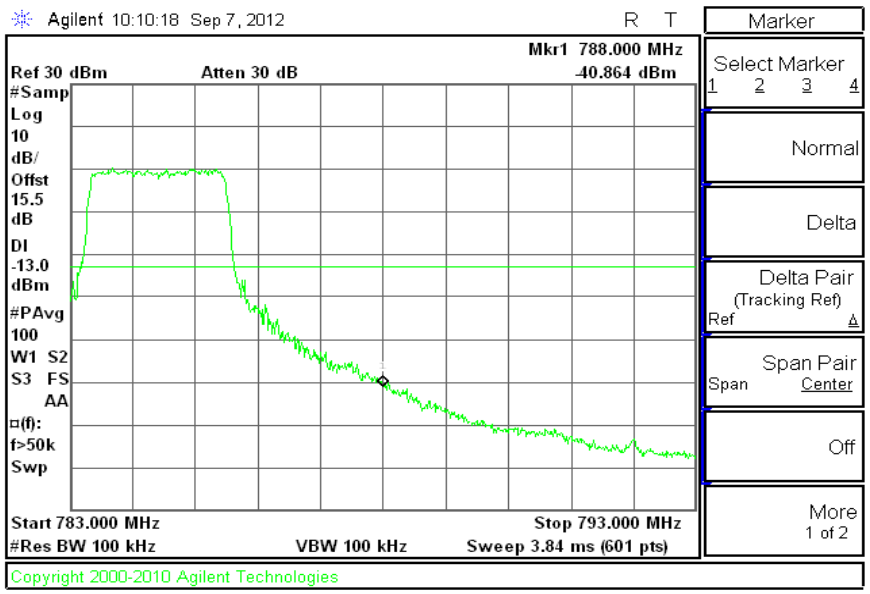


**LTE 16QAM 784.5MHz Band 13, 783 - 793MHz (5MHz Bandwidth)**

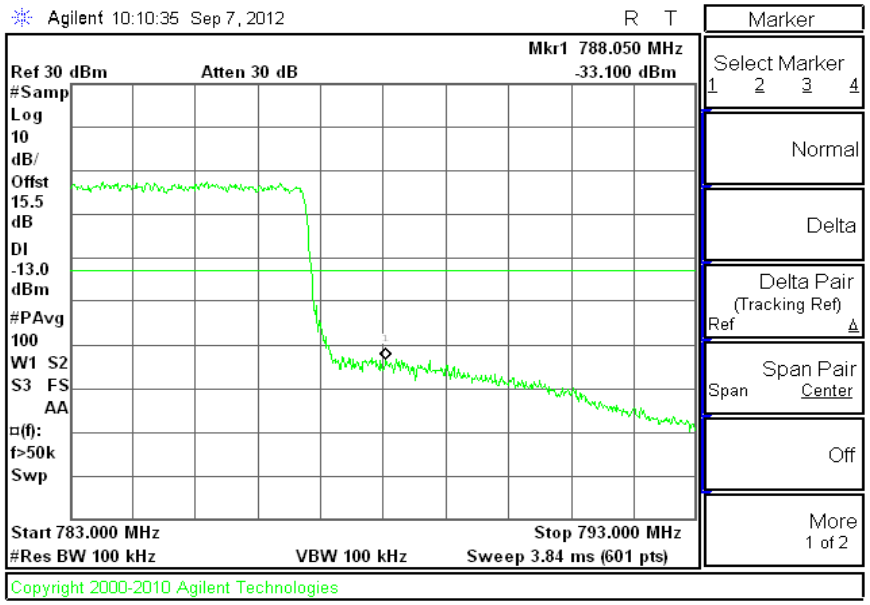


RB12-6

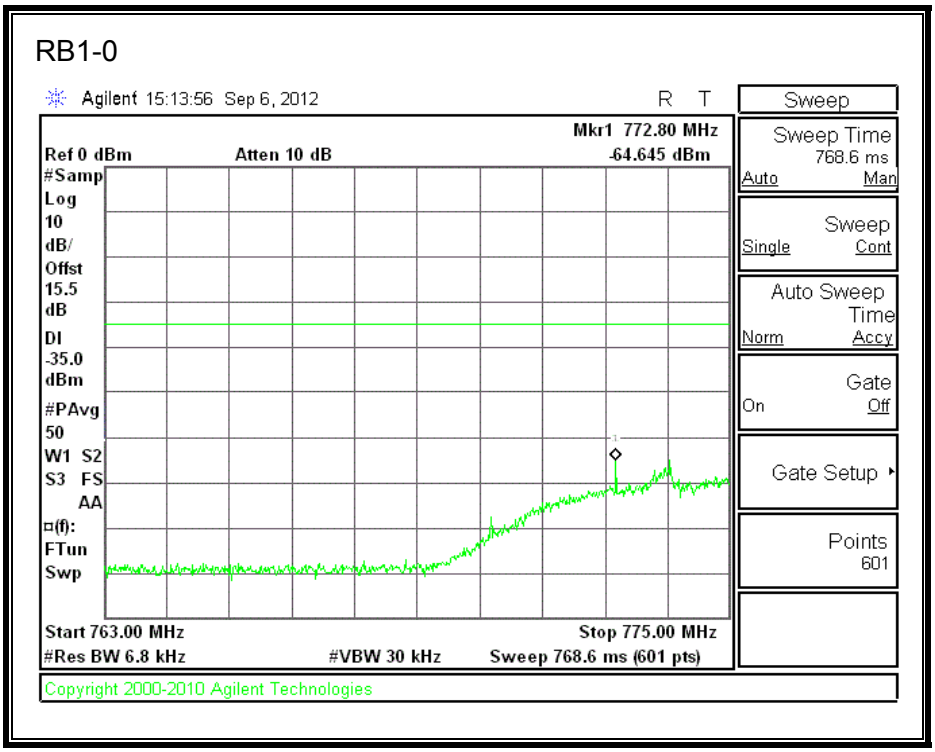



RB25-0

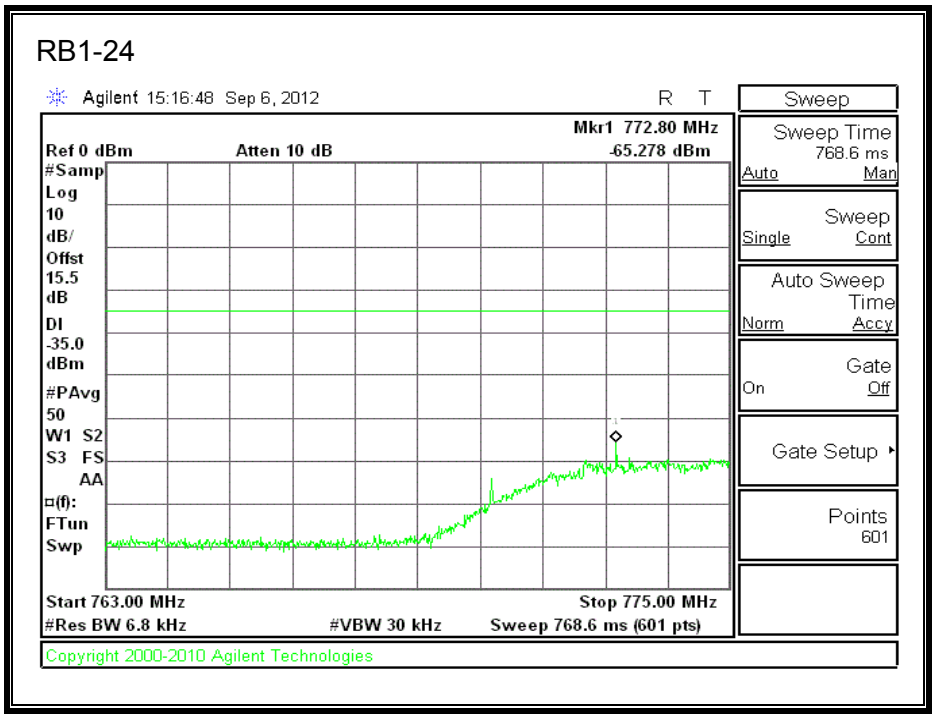


**LTE QPSK 784.5MHz Band 13, 763 - 775MHz (5MHz Bandwidth)**

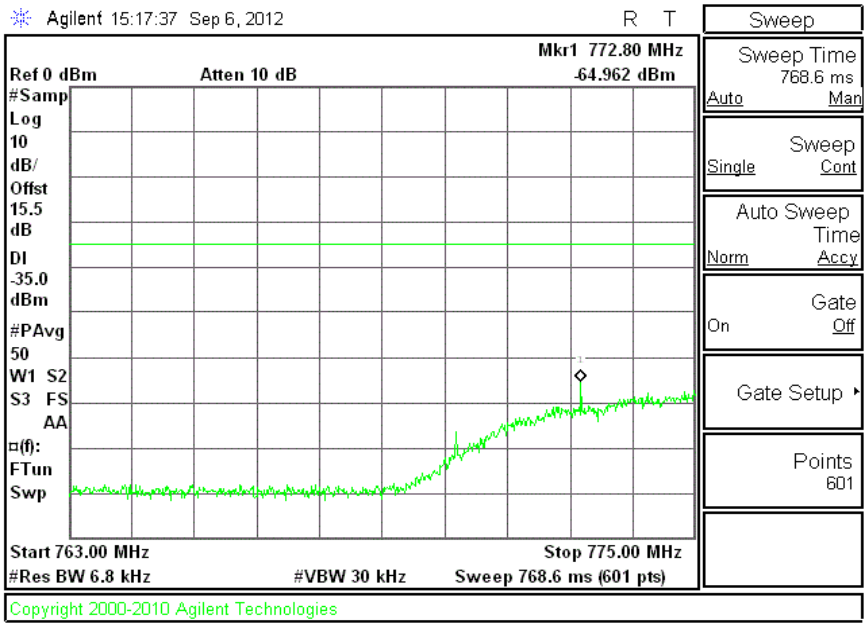
RB1-0



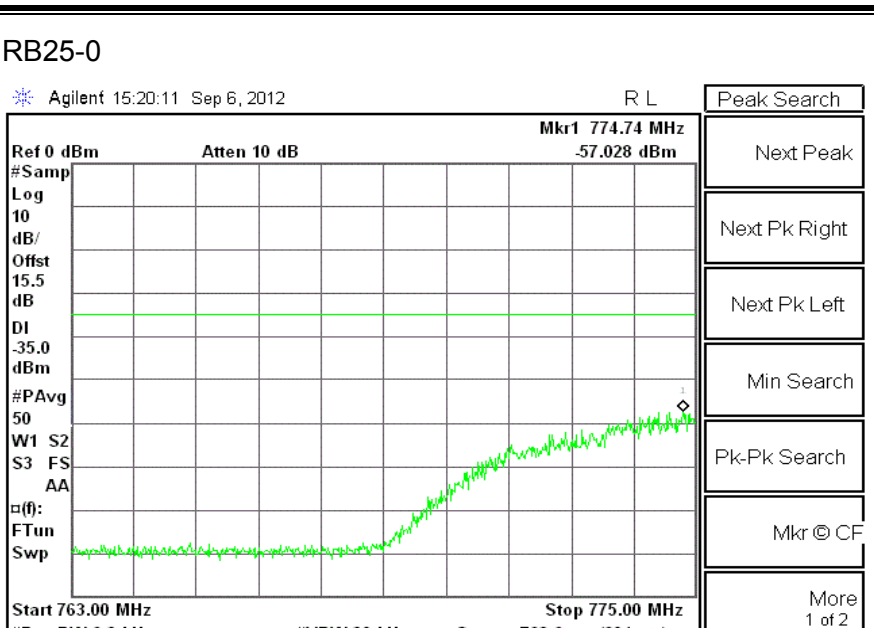

RB1-24



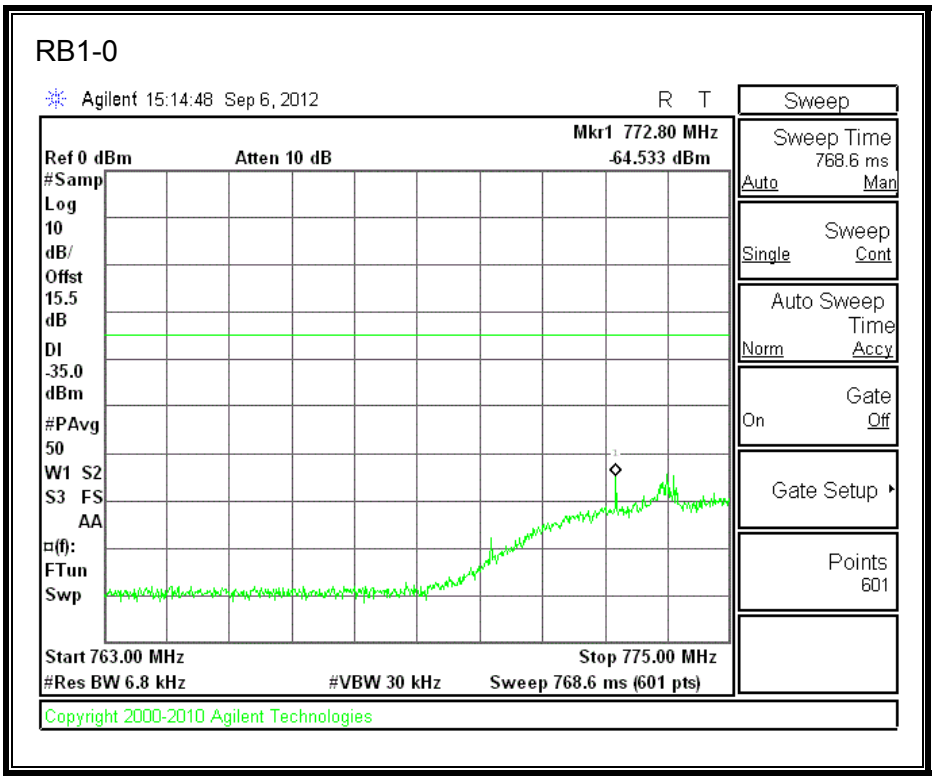
RB12-6

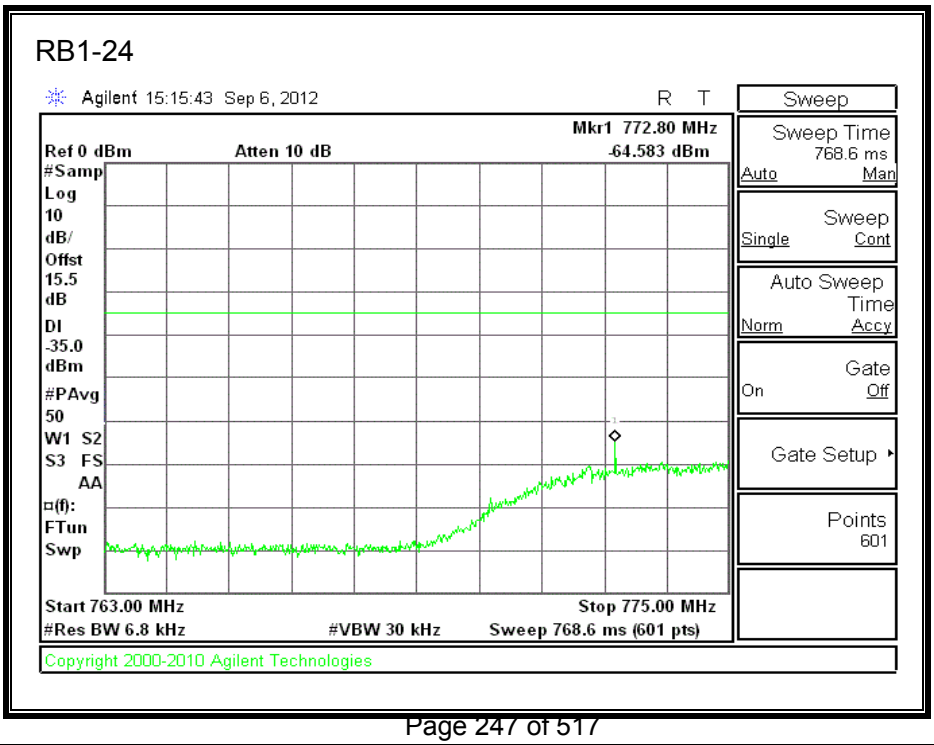



RB25-0

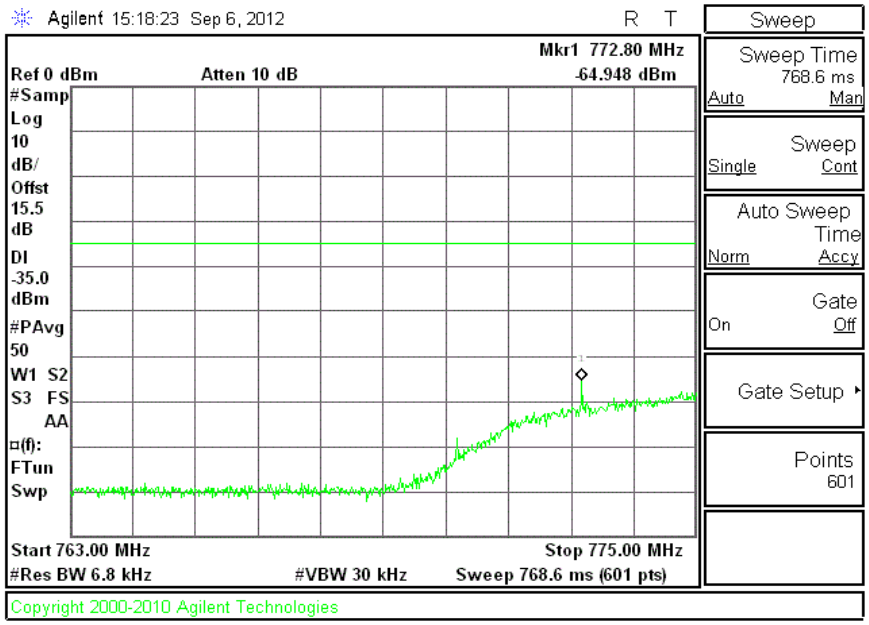


**LTE 16QAM 784.5MHz Band 13, 763-775MHz (5MHz Bandwidth)**

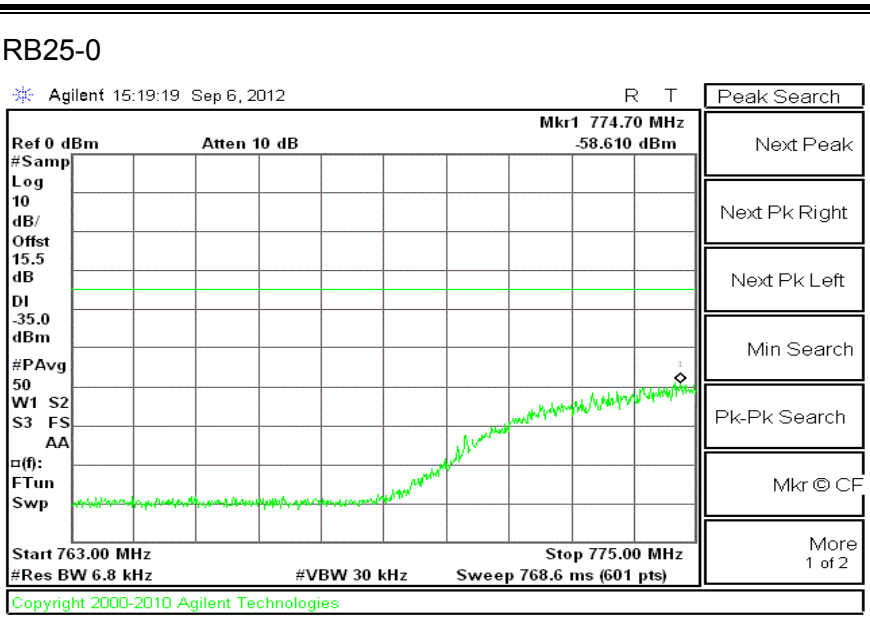


RB12-6

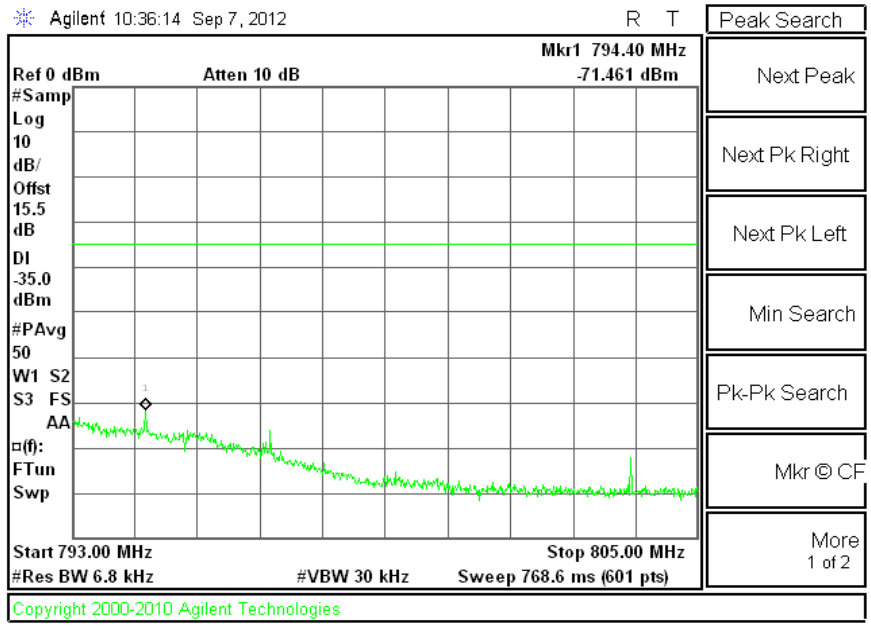



RB25-0

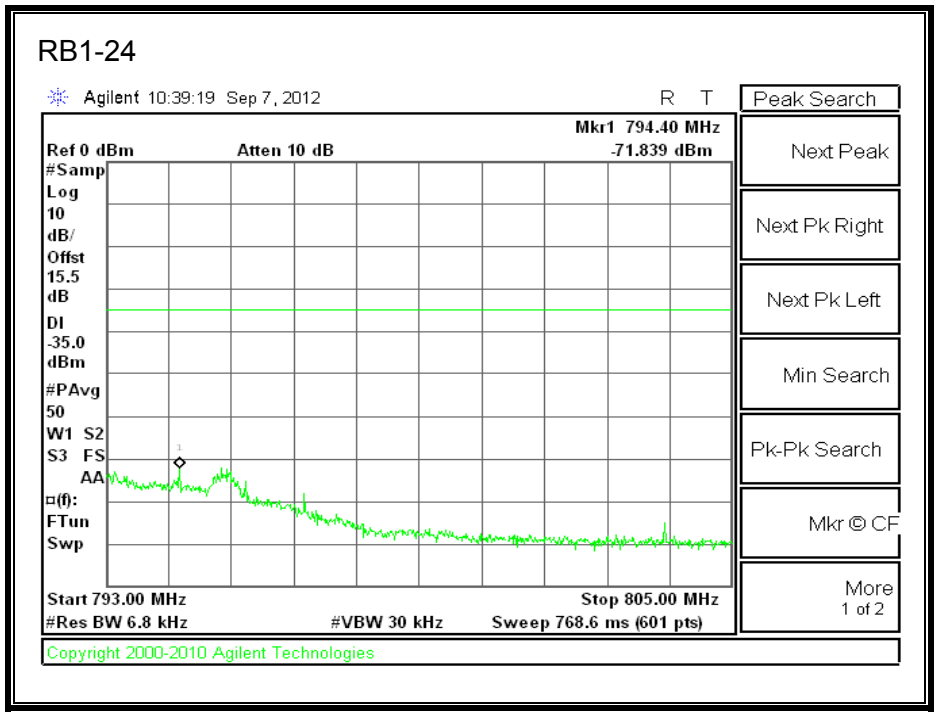


**LTE QPSK 784.5MHz Band 13, 793 - 805MHz (5MHz Bandwidth)**

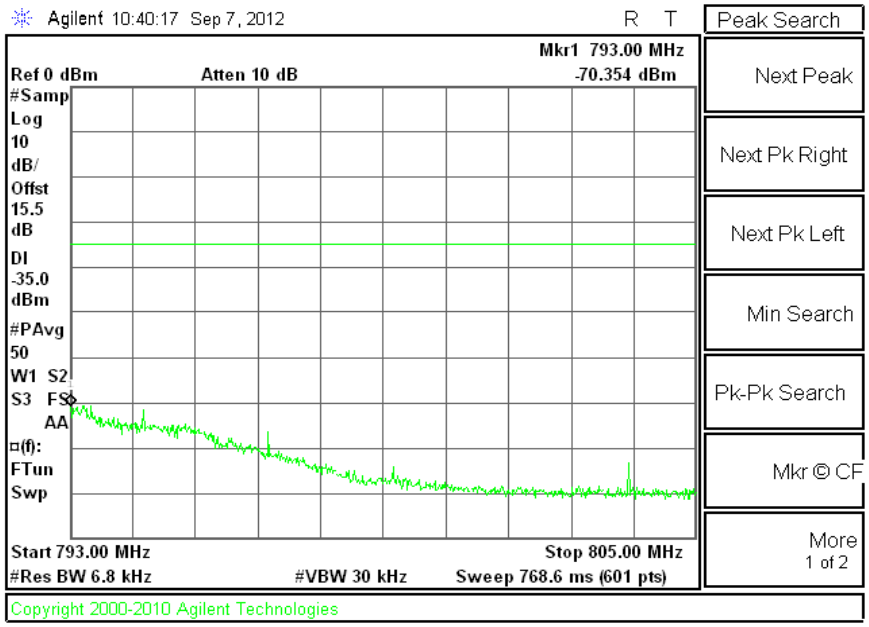
RB1-0




RB1-24



RB12-6




RB25-0