



**FCC 47 CFR PART 22 SUBPART H
FCC 47 CFR PART 24 SUBPART E
FCC 47 CFR PART 27 SUBPART L
FCC 47 CFR PART 27 SUBPART F
FCC 47 CFR PART 90 SUBPART S**

**C2PC CERTIFICATION TEST REPORT
FOR**

**GSM/CDMA/WCDMA/LTE Phone + Bluetooth & WLAN (2.4GHz & 5GHz) and NFC
MODEL NUMBER: LG-D820, LGD820 and D820**

FCC ID: ZNFD820

**REPORT NUMBER: 13U15778-1, Revision B
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Prepared for

**LG ELECTRONICS MOBILECOMM U.S.A., INC
100 SYLVAN AVENUE
ENGWOOD CLIFFS,
NEW JERSEY, 07632, U.S.A.**

Prepared by

**UL VERIFICATION SERVICES INC.
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: LG ELECTRONICS MOBILECOMM U.S.A., INC.

EUT DESCRIPTION: GSM/CDMA/WCDMA/LTE Phone + Bluetooth & WLAN
(2.4GHz & 5GHz) and NFC

MODEL: LG-D820, LGD820 and D820

SERIAL NUMBER: (02EEC05B20C97D22) LTE CONDUCTED
(01EEBFDF20C97DA6) 2G,3G, CDMA, LTE CONDUCTED
(01EEB1D520C97F05) RADIATED #1
(01EEDDA220C97E4B) RADIATED #2

DATE TESTED: July 29 – August 9, 2013

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H AND 24E	PASS
FCC PART 27	PASS
FCC PART 90	PASS

UL Verification Services Inc. 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 Verification Services Inc. 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 Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For

UL Verification Services Inc. By:



PHILIP KIM
WiSE OPERATIONS MANAGER
UL Verification Services Inc.

Tested By:



STEVEN TRAN
WiSE LAB TECHNICIAN
UL Verification Services Inc.

2. TEST METHODOLOGY

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

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a LTE Phone Bluetooth, WLAN(2.4GHz & 5GHz) and NFC

5.1. MAXIMUM OUTPUT POWER

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

Part 22 Cellular Band			
Frequency range (MHz)	Modulation	ERP	
		dBm	mW
824.2 - 848.8	GPRS	28.00	631.0
824.2 - 848.8	EGPRS	24.90	309.0

Part 24 PCS Band			
Frequency range (MHz)	Modulation	EIRP	
		dBm	mW
1850.2-1909.8	GPRS	30.76	1191.2
1850.2-1909.8	EGPRS	31.69	1475.7

Part 22 Cellular Band			
Frequency range (MHz)	Modulation	ERP	
		dBm	mW
824.7 - 848.31	CDMA (1xRTT)	22.90	195.0
824.7 - 848.31	1xEVDO Rel 0	22.85	192.8

Part 90S Cellular Band			
Frequency range (MHz)	Modulation	ERP	
		dBm	mW
817.9-823.1	CDMA (1xRTT)	22.90	195.0
817.9-823.1	1xEVDO Rel 0	23.17	207.5

Part 24 PCS Band			
Frequency range (MHz)	Modulation	EIRP	
		dBm	mW
1851.25 - 1908.75	CDMA (1xRTT)	29.20	831.8
1851.25 - 1908.75	1xEVDO Rel 0	29.10	812.8

Part 22 Cellular Band			
Frequency range (MHz)	Modulation	ERP	
		dBm	mW
826.4 - 846.6	REL 99	19.10	81.3
826.4 - 846.6	HSDPA	19.80	95.5

Part 27L AWS Band			
Frequency range (MHz)	Modulation	EIRP	
		dBm	mW
1712.4-1752.6	AWS Rel 99	26.35	431.5
	AWS HSDPA	26.42	438.5

Part 24 PCS Band			
Frequency range (MHz)	Modulation	EIRP	
		dBm	mW
1852.4 – 1907.6	REL 99	26.13	410.2
1852.4 – 1907.6	HSDPA	26.28	424.6

Part 27L LTE Band 4 MODE (1.4 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1710.7-1754.3	QPSK	1/0	23.83	241.5
	16QAM		23.30	213.8
Part 27L LTE Band 4 MODE (3.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1711.5-1753.5	QPSK	1/0	23.13	205.6
	16QAM		22.33	171.0
Part 27L LTE Band 4 MODE (5 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1712.5-1752.5	QPSK	1/0	22.63	183.2
	16QAM		21.83	152.4
Part 27L LTE Band 4 MODE (10.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1715-1750	QPSK	1/0	23.43	220.3
	16QAM		22.53	179.1
Part 27L LTE Band 4 MODE (15.0 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1717.5-1747.5	QPSK	1/0	22.79	190.1
	16QAM		22.03	159.6
Part 27L LTE Band 4 MODE (20.0 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1720.0-1745	QPSK	100/0	23.73	236.0
	16QAM		22.93	196.3

Part 27F LTE Band 17 MODE (5 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
706.5-713.5	QPSK	1/0	16.50	44.7
	16QAM		15.80	38.0
Part 27FL LTE Band 17 MODE (10.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
709-711	QPSK	1/0	16.30	42.7
	16QAM		15.60	36.3

Part 24 LTE Band 25 MODE (1.4 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1850.7-1914.3	QPSK	1/0	24.26	266.7
	16QAM		23.46	221.8
Part 24 LTE Band 25 MODE (3- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1851.5-1913.5	QPSK	1/0	24.06	254.7
	16QAM		23.26	211.8
Part 24 LTE Band 25 MODE (5 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1852.5-1912.5	QPSK	1/0	24.06	254.7
	16QAM		23.16	207.0
Part 24 LTE Band 25 MODE (10.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1855-1910	QPSK	1/0	24.76	299.2
	16QAM		23.96	248.9
Part 24 LTE Band 25 MODE (15.0 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1857.5-1907.5	QPSK	1/0	24.86	306.2
	16QAM		24.16	260.6
Part 24 LTE Band 25 MODE (20.0 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
1860-1905	QPSK	1/0	24.96	313.3
	16QAM		24.06	254.7

Part 22 LTE Band 26 MODE (1.4 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
824.7-848.3	QPSK	1/0	21.10	128.8
	16QAM		20.80	120.2
Part 22 LTE Band 26 MODE (3- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
825.5-847.5	QPSK	1/0	21.10	128.8
	16QAM		20.30	107.2
Part 22 LTE Band 26 MODE (5 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
826.5-846.5	QPSK	1/0	20.20	104.7
	16QAM		19.50	89.1
Part 22 LTE Band 26 MODE (10- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
829-844	QPSK	1/0	19.60	91.2
	16QAM		18.70	74.1

Part 90S LTE Band 26 MODE (1.4 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
814.7-823.3	QPSK	1/0	21.20	131.8
	16QAM		20.40	109.6
Part 90S LTE Band 26 MODE (3- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
815.5-822.5	QPSK	1/0	21.10	128.8
	16QAM		20.20	104.7
Part 90S LTE Band 26 MODE (5 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	ERP	
			dBm	mW
816.5-821.5	QPSK	1/0	20.30	107.2
	16QAM		19.40	87.1
Part 90S LTE Band 26 MODE (10- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
814-824	QPSK	1/0	19.70	93.3
	16QAM		18.90	77.6

Part 27 LTE Band 41 MODE (10 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
2498.5-2687.5	QPSK	1/0	21.18	131.2
	16QAM		19.98	99.5
Part 27 LTE Band 41 MODE (15.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
2503.5-2682.5	QPSK	1/0	20.78	119.7
	16QAM		19.98	99.5
Part 27 LTE Band 41 MODE (20.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	EIRP	
			dBm	mW
2506.0-2680.0	QPSK	1/0	20.98	125.3
	16QAM		20.28	106.7

5.2. SOFTWARE AND FIRMWARE

Android OS Version: 3.40-gbab8bca-00002-gd1a7716.

Kernel Version: M8974A-0.0.19.0.05.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

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

Frequency (MHz)	Gain (dBi)
824 – 849	-3.02
1850 – 1915	-1.01
704 – 716	-3.73
1710 – 1755	-0.03
2490 – 2690	-0.13

5.4. WORST-CASE CONFIGURATION AND MODE

Since the EUT is a portable device, to determine the worst/highest emissions, the X, Y, and Z orientations of the EUT with respect to the turntable and the worst among them with wireless charger were investigated. After the investigations, X-Orientation with wireless charger was the worst case for all bands.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	LG	MCS.01WR	EAY62768913	N/A
Earphone	QuadBeat	LE 410	EAB62729001	N/A
Wireless Charger	LG	WCP-300	304HYN003615	N/A

I/O CABLES (CONDUCTED SETUP)

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Antenna, Horn, 18 GHz	EMCO	3115	C00872	10/25/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/11/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/13
Communication Test Set	Agilent / HP	E5515C	C01086	11/10/13
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/14
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	03/28/14
Vector signal generator, 6 GHz	Agilent / HP	E4438C	F00037	08/06/14
Antenna, Tuned Dipole 400-1000 MHz	ETS	3121C DB4	C00993	02/14/14

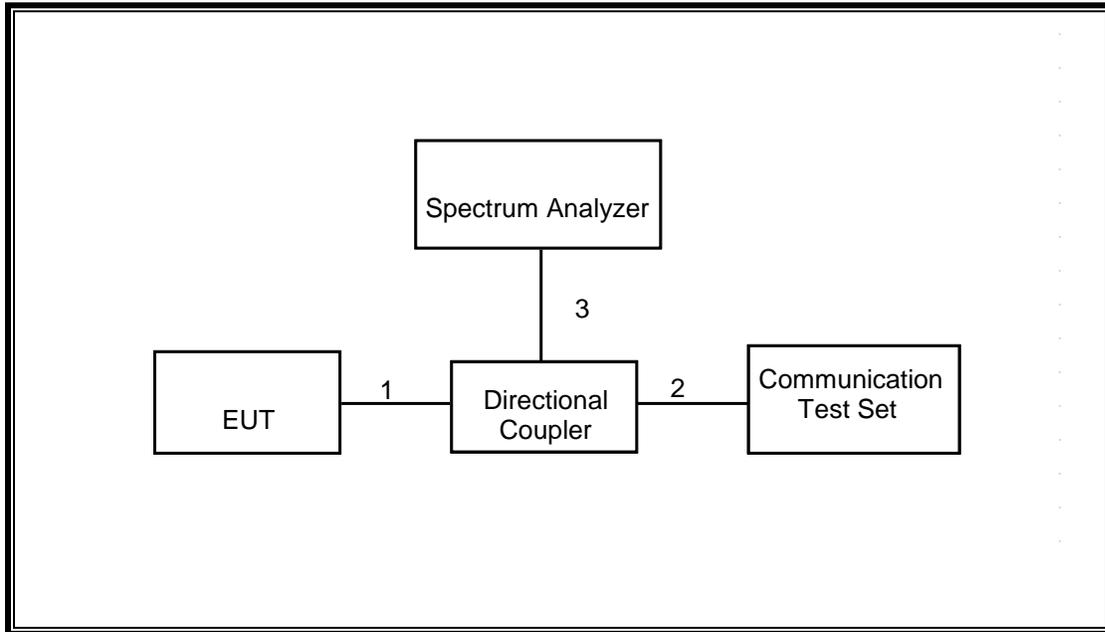
I/O CABLES (RADIATED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Un-shielded	1m	NA
2	Jack	1	Earphone	Un-shielded	1.2m	NA

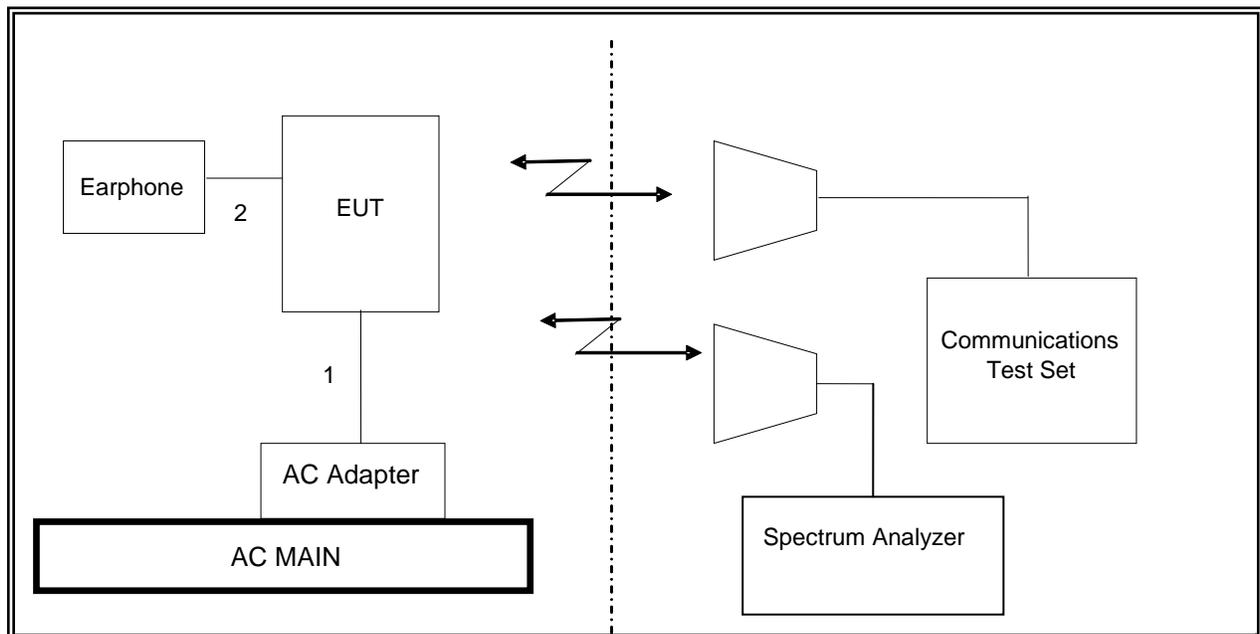
TEST SETUP

The EUT is a stand-alone device. A link is established between the EUT and the communications test set.

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	10/25/13
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/11/13
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01179	02/26/14
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	10/22/13
8960 Communication Test Set	Agilent / HP	E5515C	C01086	11/10/13
Temperature / Humidity Chamber	Thermotron	SE 600-10-10	C00930	01/09/14
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Antenna, Biconolog, 30MHz-1 GHz	Sunol Sciences	JB1	C01011	03/28/14
Vector signal generator, 6 GHz	Agilent / HP	E4438C	F00037	08/06/14
Antenna, Tuned Dipole 400~1000 MHz	ETS	3121C DB4	C00993	02/14/14

7. RF POWER OUTPUT VERIFICATION

7.1. GPRS 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 $VBW \geq RBW \geq 26dB$ BW, typically 3MHz.
- Set a marker to point the corresponding peak value.

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

RESULTS

GPRS (CELL)

Mode	Ch.	f (MHz)	1 Slot
			Burst Power
GSM	128	824.2	33.0
	190	836.6	33.0
	251	848.8	33.0

Mode	Ch.	f (MHz)	1 Slot	2 Slots	3 Slots	4 Slots
			Burst Power	Burst Power	Burst Power	Burst Power
GPRS	128	824.2	33.0	31.9	29.8	28.0
	190	836.6	33.0	31.9	30.0	27.8
	251	848.8	33.0	31.8	29.8	27.7

Mode	Ch.	f (MHz)	1 Slot	2 Slots	3 Slots	4 Slots
			Burst Power	Burst Power	Burst Power	Burst Power
EDGE	128	824.2	27.2	26.4	25.6	24.3
	190	836.6	27.1	26.2	25.3	24.2
	251	848.8	27.0	26.1	25.3	24.1

GPRS (PCS)

Mode	Ch.	f (MHz)	1 Slot
			Burst Power
GSM	512	1850.2	30.6
	661	1880.0	30.6
	810	1909.8	30.7

Mode	Ch.	f (MHz)	1 Slot	2 Slots	3 Slots	4 Slots
			Burst Power	Burst Power	Burst Power	Burst Power
GPRS	512	1850.2	30.6	29.5	27.4	25.3
	661	1880.0	30.6	29.4	27.4	25.4
	810	1909.8	30.7	29.4	27.4	25.3

Mode	Ch.	f (MHz)	1 Slots	2 Slots	3 Slots	4 Slots
			Burst Power	Burst Power	Burst Power	Burst Power
EDGE	512	1850.2	25.5	24.9	23.8	22.9
	661	1880.0	25.4	24.8	23.7	22.9
	810	1909.8	25.3	24.8	23.7	22.9

7.2.2. CDMA2000 OUTPUT POWER RESULT

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC 0	RC1 SO55 (Loopback)	1013	824.70	24.4
		384	836.52	24.5
		777	848.31	24.4
	RC3 SO55 (Loopback)	1013	824.70	24.3
		384	836.52	24.5
		777	848.31	24.4
	RC3 SO32 (+F-SCH)	1013	824.70	24.4
		384	836.52	24.5
		777	848.31	24.4

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC 1	RC1 SO55 (Loopback)	25	1851.25	24.6
		600	1880.00	24.5
		1175	1908.75	24.6
	RC3 SO55 (Loopback)	25	1851.25	24.6
		600	1880.00	24.6
		1175	1908.75	24.6
	RC3 SO32 (+F-SCH)	25	1851.25	24.6
		600	1880.00	24.6
		1175	1908.75	24.6

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC 10	RC1 SO55 (Loopback)	476	817.90	24.4
		580	820.50	24.4
		684	823.10	24.5
	RC3 SO55 (Loopback)	476	817.90	24.4
		580	820.50	24.4
		684	823.10	24.4
	RC3 SO32 (+F-SCH)	476	817.90	24.4
		580	820.50	24.4
		684	823.10	24.5

7.2.3. 1xEV-DO Release 0

TEST PROCEDURE

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

<u>Application</u>	<u>Rev, License</u>
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 Parm:
 - 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 Parm:
 - 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)

7.2.4. 1XEVD0 REL 0 OUTPUT POWER RESULT

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2 kbps (2 slot, QPSK)	1013	824.70	24.4
		384	836.52	24.5
		777	848.31	24.5

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC 1	307.2 kbps (2 slot, QPSK)	25	1851.25	24.6
		600	1880.00	24.5
		1175	1908.75	24.7

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC 10	307.2 kbps (2 slot, QPSK)	476	817.90	24.5
		580	820.50	24.4
		684	823.10	24.5

7.2.5. 1xEV-DO Rev. A

TEST PROCEDURE

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

<u>Application</u>	<u>Rev, License</u>
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)

7.2.6. 1xEVDO REV A OUTPUT RESULT

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2k, QPSK/ ACK channel is transmitted at all the slots	1013	824.70	24.3
		384	836.52	24.5
		777	848.31	24.4

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC 1pcs	307.2k, QPSK/ ACK channel is transmitted at all the slots	25	1851.25	24.6
		600	1880.00	24.5
		1175	1908.75	24.7

Band	FETAP Traffic Format	Channel	f (MHz)	Avg Pwr (dBm)
BC 10	307.2k, QPSK/ ACK channel is transmitted at all the slots	476	817.90	24.5
		580	820.50	24.5
		684	823.10	24.6

7.3. REL 99 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 $VBW \geq RBW \geq 26dB$ BW, typically 5MHz.
- Set a marker to point the corresponding peak value.

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
	β_c	Not Applicable
	β_d	Not Applicable
	β_{ec}	Not Applicable
	β_c/β_d	8/15
	β_{hs}	Not Applicable
	β_{ed}	Not Applicable

RESULTS

UMTS REL99

Band	Mode	Ch.	f(MHz)	Conducted Power
				Avg (dBm)
Band V	REL 99	4132	826.4	24.1
		4180	836.0	24.2
		4230	846.0	24.1
Band IV	REL 99	1312	1712.4	24.7
		1413	1732.6	24.7
		1513	1752.6	24.7
Band II	REL 99	9262	1852.4	24.7
		9400	1880	24.7
		9538	1907.6	24.6

7.4. HSDPA

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			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
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			
	$A_{hs} = \beta_{hs}/\beta_c$	30/15			

RESULT

Band	Subset	Ch.	f(MHz)	Conducted Power
				Avg (dBm)
Band V	1	4132	826.4	23.6
		4180	836.0	23.8
		4230	846.0	23.7
	2	4132	826.4	23.6
		4180	836.0	23.7
		4230	846.0	23.7
	3	4132	826.4	23.5
		4180	836.0	23.7
		4230	846.0	23.6
	4	4132	826.4	23.6
		4180	836.0	23.7
		4230	846.0	23.7

Band IV	1	1312	1712.4	24.6
		1413	1732.6	24.6
		1513	1752.6	24.7
	2	1312	1712.4	24.6
		1413	1732.6	24.5
		1513	1752.6	24.6
	3	1312	1712.4	24.1
		1413	1732.6	24.0
		1513	1752.6	24.1
	4	1312	1712.4	24.0
		1413	1732.6	24.0
		1513	1752.6	24.1
Band II	1	9262	1852.4	24.7
		9400	1880	24.7
		9538	1907.6	24.7
	2	9262	1852.4	24.6
		9400	1880	24.6
		9538	1907.6	24.6
	3	9262	1852.4	24.1
		9400	1880	24.2
		9538	1907.6	24.1
	4	9262	1851.4	24.2
		9400	1880	24.2
		9538	1907.6	24.0

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

7.5. 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				
	β_c	11/15	6/15	15/15	2/15	15/15
	β_d	15/15	15/15	9/15	15/15	0
	β_{ec}	209/225	12/15	30/15	2/15	5/15
	β_c/β_d	11/15	6/15	15/9	2/15	-
	β_{hs}	22/15	12/15	30/15	4/15	5/15
β_{ed}	1309/225	94/75	47/15 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				
	$A_{hs} = \beta_{hs}/\beta_c$	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 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27		E-TFCI 11 E-TFCI PO 4 E-TFCI 92 E-TFCI PO 18		E-TFCI 11 E-TFCI PO 4 E-TFCI 67 E-TFCI PO 18 E-TFCI 71 E-TFCI PO 23 E-TFCI 75 E-TFCI PO 26 E-TFCI 81 E-TFCI PO 27

RESULTS

Band	Subset	Ch.	f(MHz)	Conducted Power
				Avg (dBm)
Band V	1	4132	826.4	23.7
		4180	836.0	23.7
		4230	846.0	23.2
	2	4132	826.4	22.2
		4180	836.0	22.2
		4230	846.0	22.5
	3	4132	826.4	22.5
		4180	836.0	22.7
		4230	846.0	22.8
	4	4132	826.4	22.7
		4180	836.0	22.5
		4230	846.0	22.6
	5	4132	826.4	24.1
		4180	836.0	24.2
		4230	846.0	24.1

Band IV	1	1312	1712.4	23.9
		1413	1732.6	24.0
		1513	1752.6	24.1
	2	1312	1712.4	22.6
		1413	1732.6	22.7
		1513	1752.6	23.0
	3	1312	1712.4	23.3
		1413	1732.6	23.4
		1513	1752.6	23.4
	4	1312	1712.4	22.9
		1413	1732.6	23.0
		1513	1752.6	23.2
	5	1312	1712.4	24.7
		1413	1732.6	24.7
		1513	1752.6	24.6
Band II	1	9262	1852.4	24.7
		9400	1880	24.7
		9538	1907.6	24.7
	2	9262	1852.4	24.6
		9400	1880	24.6
		9538	1907.6	24.6
	3	9262	1851.4	24.1
		9400	1880	24.2
		9538	1907.6	24.1
	4	9262	1852.4	24.2
		9400	1880	24.2
		9538	1907.6	24.0
	5	9262	1852.4	24.7
		9400	1880	24.7
		9538	1907.6	24.7

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

7.6. DC-HSDPA

TEST PROCEDURE

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	Processes	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.		

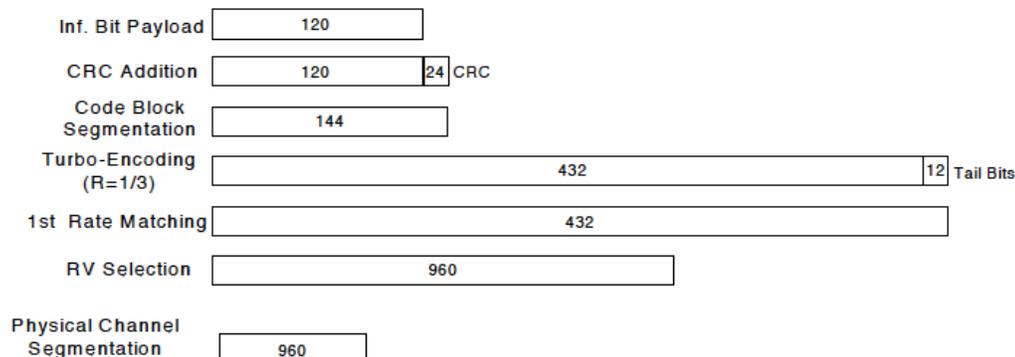


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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			
	β_c	2/15	12/15	15/15	15/15
	β_d	15/15	15/15	8/15	4/15
	β_d (SF)	64			
	β_c/β_d	2/15	12/15	15/8	15/4
	β_{hs}	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			
	$A_{hs} = \beta_{hs} / \beta_c$	30/15			

Up commands are set continuously to set the UE to Max power.

RESULTS

Band	Subset	Ch.	f(MHz)	Conducted Power
				Avg (dBm)
Band V	1	4132	826.4	23.96
		4180	836.0	24.01
		4230	846.0	23.97
	2	4132	826.4	23.98
		4180	836.0	24.07
		4230	846.0	23.93
	3	4132	826.4	24.03
		4180	836.0	24.09
		4230	846.0	23.98
	4	4132	826.4	23.99
		4180	836.0	24.13
		4230	846.0	24.04
Band IV	1	1312	1712.4	24.34
		1413	1732.6	24.33
		1513	1752.6	24.43
	2	1312	1712.4	24.34
		1413	1732.6	24.43
		1513	1752.6	24.36
	3	1312	1712.4	24.35
		1413	1732.6	24.3
		1513	1752.6	24.47
	4	1312	1712.4	24.37
		1413	1732.6	24.41
		1513	1752.6	24.40

Band II	1	9262	1851.4	24.29
		9400	1880	24.23
		9538	1907.6	24.26
	2	9262	1851.4	23.86
		9400	1880	23.92
		9538	1907.6	23.81
	3	9262	1851.4	23.79
		9400	1880	23.82
		9538	1907.6	23.71
	4	9262	1851.4	23.72
		9400	1880	23.80
		9538	1907.6	23.7

7.7. LTE BAND 2

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
20	18700	1860.0	QPSK	1	0	0	23.6
				1	50	0	23.5
				1	99	0	23.7
				50	0	1	22.2
				50	25	1	22.3
				50	50	1	22.3
				100	0	1	22.3
			16QAM	1	0	1	22.1
				1	50	1	22.1
				1	99	1	22.2
				50	0	2	21.2
				50	25	2	21.1
				50	50	2	21.2
				100	0	2	21.2
	18900	1880.0	QPSK	1	0	0	23.7
				1	50	0	23.6
				1	99	0	23.7
				50	0	1	22.3
				50	25	1	22.2
				50	50	1	22.2
				100	0	1	22.3
			16QAM	1	0	1	22.4
				1	50	1	22.4
				1	99	1	22.5
				50	0	2	21.2
				50	25	2	21.3
				50	50	2	21.2
100				0	2	21.3	
19100	1900.0	QPSK	1	0	0	23.5	
			1	50	0	23.6	
			1	99	0	23.6	
			50	0	1	22.3	
			50	25	1	22.3	
			50	50	1	22.3	
			100	0	1	22.4	
		16QAM	1	0	1	22.5	
			1	50	1	22.4	
			1	99	1	22.4	
			50	0	2	21.2	
			50	25	2	21.2	
			50	50	2	21.4	
			100	0	2	21.3	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	18675	1857.5	QPSK	1	0	0	23.6
				1	36	0	23.6
				1	74	0	23.6
				36	0	1	22.4
				36	18	1	22.3
				36	37	1	22.4
			75	0	1	22.3	
			16QAM	1	0	1	22.2
				1	36	1	22.3
				1	74	1	22.3
				36	0	2	21.3
				36	18	2	21.3
	36	37		2	21.3		
	75	0	2	21.2			
	18900	1880.0	QPSK	1	0	0	23.6
				1	36	0	23.6
				1	74	0	23.5
				36	0	1	22.3
				36	18	1	22.3
				36	37	1	22.4
			75	0	1	22.3	
			16QAM	1	0	1	22.2
				1	36	1	22.2
				1	74	1	22.2
36				0	2	21.1	
36				18	2	21.2	
36	37	2		21.2			
75	0	2	21.1				
19125	1902.5	QPSK	1	0	0	23.7	
			1	36	0	23.7	
			1	74	0	23.6	
			36	0	1	22.4	
			36	18	1	22.4	
			36	37	1	22.4	
		75	0	1	22.4		
		16QAM	1	0	1	22.2	
			1	36	1	22.4	
			1	74	1	22.2	
			36	0	2	21.2	
			36	18	2	21.3	
36	37		2	21.3			
75	0	2	21.2				

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	18650	1855.0	QPSK	1	0	0	23.6
				1	25	0	23.6
				1	49	0	23.6
				25	0	1	22.5
				25	12	1	22.5
				25	25	1	22.4
			16QAM	50	0	1	22.3
				1	0	1	22.2
				1	25	1	22.2
				1	49	1	22.2
				25	0	2	21.3
				25	12	2	21.3
	18900	1880.0	QPSK	25	25	2	21.3
				25	25	2	21.3
				50	0	2	21.2
				1	0	0	23.5
				1	25	0	23.6
				1	49	0	23.6
			16QAM	25	0	1	22.3
				25	12	1	22.3
				25	25	1	22.4
				50	0	1	22.3
				1	0	1	22.2
				1	25	1	22.2
19150	1905.0	QPSK	1	49	1	22.3	
			25	0	2	21.3	
			25	12	2	21.2	
			25	25	2	21.3	
			50	0	2	21.1	
			1	0	0	23.6	
		16QAM	1	25	0	23.6	
			1	49	0	23.5	
			25	0	1	22.5	
			25	12	1	22.5	
			25	25	1	22.5	
			50	0	1	22.4	
16QAM	1	0	1	22.3			
	1	25	1	22.4			
	1	49	1	22.4			
	25	0	2	21.3			
	25	12	2	21.4			
	25	25	2	21.4			
50	0	2	21.4				

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	18625	1855.0	QPSK	1	0	0	23.5
				1	12	0	23.6
				1	24	0	23.6
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.6
				25	0	1	22.4
			16QAM	1	0	1	22.2
				1	12	1	22.2
				1	24	1	22.2
				12	0	2	21.5
				12	6	2	21.5
				12	13	2	21.6
				25	0	2	21.3
	18900	1880.0	QPSK	1	0	0	23.5
				1	12	0	23.5
				1	24	0	23.7
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.5
				25	0	1	22.4
			16QAM	1	0	1	22.2
				1	12	1	22.2
				1	24	1	22.3
				12	0	2	21.5
				12	6	2	21.5
				12	13	2	21.5
25				0	2	21.3	
19175	1907.5	QPSK	1	0	0	23.6	
			1	12	0	23.6	
			1	24	0	23.5	
			12	0	1	22.7	
			12	6	1	22.6	
			12	13	1	22.5	
			25	0	1	22.5	
		16QAM	1	0	1	22.0	
			1	12	1	22.1	
			1	24	1	22.0	
			12	0	2	21.5	
			12	6	2	21.5	
			12	13	2	21.4	
			25	0	2	21.4	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)		
3	18615	1851.5	QPSK	1	0	0	23.5		
				1	7	0	23.6		
				1	14	0	23.6		
				8	0	1	22.5		
				8	4	1	22.6		
				8	7	1	22.5		
			16QAM	15	0	1	22.5		
				1	0	1	22.2		
				1	7	1	22.2		
				1	14	1	22.3		
				8	0	2	21.4		
				8	4	2	21.5		
			18900	1880.0	QPSK	8	7	2	21.5
						15	0	2	21.4
						1	0	0	23.6
	1	7				0	23.6		
	1	14				0	23.6		
	8	0				1	22.5		
	16QAM	8			4	1	22.5		
		8			7	1	22.6		
		15			0	1	22.5		
		1			0	1	22.2		
		1			7	1	22.2		
		1			14	1	22.3		
	19185	1908.5			QPSK	8	0	2	21.4
						8	4	2	21.4
						8	7	2	21.4
			15	0		2	21.4		
			1	0		0	23.7		
			1	7		0	23.6		
16QAM			1	14	0	23.5			
			8	0	1	22.7			
			8	4	1	22.6			
			8	7	1	22.6			
			15	0	1	22.6			
			1	0	1	22.3			
16QAM			1	7	1	22.3			
			1	14	1	22.2			
			8	0	2	21.5			
	8	4	2	21.4					
	8	7	2	21.4					
	15	0	2	21.4					

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
1.4	18607	1850.7	QPSK	1	0	0	23.5
				1	2	0	23.5
				1	5	0	23.5
				3	0	0	23.5
				3	2	0	23.6
				3	3	0	23.6
			16QAM	6	0	1	22.5
				1	0	1	22.3
				1	2	1	22.3
				1	5	1	22.3
				3	0	1	22.4
				3	2	1	22.4
	18900	1880.0	QPSK	3	3	1	22.3
				6	0	2	21.3
				1	0	0	23.6
				1	2	0	23.6
				1	5	0	23.6
				3	0	0	23.7
			16QAM	3	2	0	23.6
				3	3	0	23.6
				6	0	1	22.6
				1	0	1	22.4
				1	2	1	22.3
				1	5	1	22.3
	19193	1909.3	QPSK	3	0	1	22.5
				3	2	1	22.4
				3	3	1	22.4
				6	0	2	21.4
				1	0	0	23.6
				1	2	0	23.5
16QAM			1	5	0	23.5	
			3	0	0	23.6	
			3	2	0	23.6	
			3	3	0	23.6	
			6	0	1	22.6	
			1	0	1	22.4	
16QAM	1	2	1	22.3			
	1	5	1	22.2			
	3	0	1	22.4			
	3	2	1	22.4			
	3	3	1	22.4			
	6	0	2	21.4			

7.8. LTE BAND 4

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
20	20050	1720.0	QPSK	1	0	0	23.5
				1	50	0	23.5
				1	99	0	23.6
				50	0	1	22.2
				50	25	1	22.2
				50	50	1	22.2
				100	0	1	22.3
			16QAM	1	0	1	22.1
				1	50	1	22.2
				1	99	1	22.3
				50	0	2	21.1
				50	25	2	21.2
				50	50	2	21.3
				100	0	2	21.3
	20175	1732.5	QPSK	1	0	0	23.5
				1	50	0	23.5
				1	99	0	23.6
				50	0	1	22.2
				50	25	1	22.2
				50	50	1	22.2
				100	0	1	22.3
			16QAM	1	0	1	22.2
				1	50	1	22.3
				1	99	1	22.4
				50	0	2	21.3
				50	25	2	21.3
				50	50	2	21.3
				100	0	2	21.3
	20300	1745.0	QPSK	1	0	0	23.4
				1	50	0	23.4
1				99	0	23.5	
50				0	1	22.2	
50				25	1	22.3	
50				50	1	22.2	
100				0	1	22.3	
16QAM			1	0	1	22.7	
			1	50	1	22.4	
			1	99	1	22.6	
			50	0	2	21.3	
			50	25	2	21.3	
			50	50	2	21.4	
			100	0	2	21.3	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	20025	1717.5	QPSK	1	0	0	23.5
				1	36	0	23.5
				1	74	0	23.6
				36	0	1	22.2
				36	18	1	22.2
				36	37	1	22.3
				75	0	1	22.2
			16QAM	1	0	1	22.2
				1	36	1	22.2
				1	74	1	22.3
				36	0	2	21.2
				36	18	2	21.3
				36	37	2	21.3
				75	0	2	21.2
	20175	1732.5	QPSK	1	0	0	23.6
				1	36	0	23.6
				1	74	0	23.4
				36	0	1	22.4
				36	18	1	22.3
				36	37	1	22.4
				75	0	1	22.4
			16QAM	1	0	1	22.4
				1	36	1	22.3
				1	74	1	22.1
				36	0	2	21.4
				36	18	2	21.3
				36	37	2	21.4
				75	0	2	21.3
	20325	1747.5	QPSK	1	0	0	23.6
				1	36	0	23.6
1				74	0	23.6	
36				0	1	22.2	
36				18	1	22.3	
36				37	1	22.3	
75				0	1	22.2	
16QAM			1	0	1	22.3	
			1	36	1	22.4	
			1	74	1	22.3	
			36	0	2	21.3	
			36	18	2	21.4	
			36	37	2	21.3	
			75	0	2	21.3	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	20000	1715.0	QPSK	1	0	0	23.5
				1	25	0	23.5
				1	49	0	23.7
				25	0	1	22.3
				25	12	1	22.3
				25	25	1	22.3
				50	0	1	22.2
			16QAM	1	0	1	22.2
				1	25	1	22.2
				1	49	1	22.3
				25	0	2	21.3
				25	12	2	21.3
				25	25	2	21.3
				50	0	2	21.2
	20175	1732.5	QPSK	1	0	0	23.7
				1	25	0	23.6
				1	49	0	23.7
				25	0	1	22.5
				25	12	1	22.4
				25	25	1	22.5
				50	0	1	22.5
			16QAM	1	0	1	22.4
				1	25	1	22.3
				1	49	1	22.4
				25	0	2	21.5
				25	12	2	21.4
				25	25	2	21.5
50				0	2	21.4	
20350	1750.0	QPSK	1	0	0	23.5	
			1	25	0	23.5	
			1	49	0	23.5	
			25	0	1	22.5	
			25	12	1	22.4	
			25	25	1	22.4	
			50	0	1	22.3	
		16QAM	1	0	1	22.5	
			1	25	1	22.4	
			1	49	1	22.4	
			25	0	2	21.4	
			25	12	2	21.4	
			25	25	2	21.4	
			50	0	2	21.4	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	19975	1712.5	QPSK	1	0	0	23.4
				1	12	0	23.5
				1	24	0	23.5
				12	0	1	22.5
				12	6	1	22.4
				12	13	1	22.5
				25	0	1	22.3
			16QAM	1	0	1	22.1
				1	12	1	22.2
				1	24	1	22.2
				12	0	2	21.5
				12	6	2	21.6
				12	13	2	21.5
				25	0	2	21.3
	20175	1732.5	QPSK	1	0	0	23.5
				1	12	0	23.5
				1	24	0	23.6
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.6
				25	0	1	22.4
			16QAM	1	0	1	22.3
				1	12	1	22.3
				1	24	1	22.2
				12	0	2	21.6
				12	6	2	21.7
				12	13	2	21.6
				25	0	2	21.4
	20375	1752.5	QPSK	1	0	0	23.5
				1	12	0	23.6
1				24	0	23.5	
12				0	1	22.6	
12				6	1	22.6	
12				13	1	22.6	
25				0	1	22.4	
16QAM			1	0	1	22.0	
			1	12	1	22.1	
			1	24	1	22.0	
			12	0	2	21.7	
			12	6	2	21.6	
			12	13	2	21.5	
			25	0	2	21.4	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	19965	1711.5	QPSK	1	0	0	23.5
				1	7	0	23.5
				1	14	0	23.5
				8	0	1	22.5
				8	4	1	22.5
				8	7	1	22.5
				15	0	1	22.4
			16QAM	1	0	1	22.2
				1	7	1	22.2
				1	14	1	22.2
				8	0	2	21.5
				8	4	2	21.5
				8	7	2	21.5
				15	0	2	21.4
	20175	1732.5	QPSK	1	0	0	23.6
				1	7	0	23.5
				1	14	0	23.6
				8	0	1	22.5
				8	4	1	22.5
				8	7	1	22.6
				15	0	1	22.5
			16QAM	1	0	1	22.3
				1	7	1	22.2
				1	14	1	22.3
				8	0	2	21.6
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.4
	20385	1753.5	QPSK	1	0	0	23.7
				1	7	0	23.5
1				14	0	23.5	
8				0	1	22.7	
8				4	1	22.6	
8				7	1	22.5	
15				0	1	22.5	
16QAM			1	0	1	22.3	
			1	7	1	22.2	
			1	14	1	22.2	
			8	0	2	21.6	
			8	4	2	21.5	
			8	7	2	21.5	
			15	0	2	21.5	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
1.4	19957	1710.7	QPSK	1	0	0	23.5
				1	2	0	23.5
				1	5	0	23.4
				3	0	0	22.4
				3	2	0	22.5
				3	3	0	22.3
				6	0	1	22.5
			16QAM	1	0	1	22.3
				1	2	1	22.2
				1	5	1	22.4
				3	0	1	22.4
				3	2	1	22.3
				3	3	1	22.4
				6	0	2	21.4
	20175	1732.5	QPSK	1	0	0	23.6
				1	2	0	23.5
				1	5	0	23.6
				3	0	0	23.6
				3	2	0	23.6
				3	3	0	23.6
				6	0	1	22.6
			16QAM	1	0	1	22.4
				1	2	1	22.2
				1	5	1	22.4
				3	0	1	22.4
				3	2	1	22.4
				3	3	1	22.4
6				0	2	21.5	
20393	1754.3	QPSK	1	0	0	23.6	
			1	2	0	23.5	
			1	5	0	23.5	
			3	0	0	23.6	
			3	2	0	23.6	
			3	3	0	23.6	
			6	0	1	22.6	
		16QAM	1	0	1	22.3	
			1	2	1	22.4	
			1	5	1	22.4	
			3	0	1	22.5	
			3	2	1	22.4	
			3	3	1	22.4	
			6	0	2	21.4	

LTE BAND 5

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	20450	829.0	QPSK	1	0	0	23.5
				1	25	0	23.5
				1	49	0	23.6
				25	0	1	22.4
				25	12	1	22.5
				25	25	1	22.5
			16QAM	50	0	1	22.3
				1	0	1	22.3
				1	25	1	22.3
				1	49	1	22.4
				25	0	2	21.3
				25	12	2	21.3
				25	25	2	21.4
				50	0	2	21.2
	20525	836.5	QPSK	1	0	0	23.6
				1	25	0	23.7
				1	49	0	23.7
				25	0	1	22.6
				25	12	1	22.6
				25	25	1	22.5
			16QAM	50	0	1	22.4
				1	0	1	22.3
				1	25	1	22.3
				1	49	1	22.4
				25	0	2	21.4
				25	12	2	21.4
				25	25	2	21.4
				50	0	2	21.4
	20600	844.0	QPSK	1	0	0	23.5
				1	25	0	23.7
1				49	0	23.6	
25				0	1	22.6	
25				12	1	22.6	
25				25	1	22.5	
16QAM			50	0	1	22.5	
			1	0	1	22.5	
			1	25	1	22.5	
			1	49	1	22.6	
			25	0	2	21.4	
			25	12	2	21.4	
			25	25	2	21.5	
			50	0	2	21.3	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	20425	826.5	QPSK	1	0	0	23.7
				1	12	0	23.5
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.6
				12	13	1	22.5
				25	0	1	22.4
			16QAM	1	0	1	22.4
				1	12	1	22.2
				1	24	1	22.3
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.6
				25	0	2	21.4
	20525	836.5	QPSK	1	0	0	23.7
				1	12	0	23.6
				1	24	0	23.5
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.6
				25	0	1	22.4
			16QAM	1	0	1	22.4
				1	12	1	22.3
				1	24	1	22.2
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
25				0	2	21.4	
20625	846.5	QPSK	1	0	0	23.5	
			1	12	0	23.6	
			1	24	0	23.6	
			12	0	1	22.6	
			12	6	1	22.6	
			12	13	1	22.5	
			25	0	1	22.5	
		16QAM	1	0	1	22.0	
			1	12	1	22.1	
			1	24	1	22.0	
			12	0	2	21.7	
			12	6	2	21.6	
			12	13	2	21.6	
			25	0	2	21.5	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	20415	825.5	QPSK	1	0	0	23.7
				1	7	0	23.7
				1	14	0	23.6
				8	0	1	22.6
				8	4	1	22.5
				8	7	1	22.6
				15	0	1	22.6
			16QAM	1	0	1	22.4
				1	7	1	22.4
				1	14	1	22.2
				8	0	2	21.6
				8	4	2	21.7
				8	7	2	21.7
				15	0	2	21.6
	20525	836.5	QPSK	1	0	0	23.6
				1	7	0	23.7
				1	14	0	23.5
				8	0	1	22.6
				8	4	1	22.6
				8	7	1	22.6
				15	0	1	22.6
			16QAM	1	0	1	22.3
				1	7	1	22.3
				1	14	1	22.2
				8	0	2	21.6
				8	4	2	21.6
				8	7	2	21.7
				15	0	2	21.5
	20635	847.5	QPSK	1	0	0	23.7
				1	7	0	23.6
				1	14	0	23.6
				8	0	1	22.6
				8	4	1	22.6
				8	7	1	22.5
				15	0	1	22.6
			16QAM	1	0	1	22.3
1				7	1	22.3	
1				14	1	22.3	
8				0	2	21.6	
8				4	2	21.5	
8				7	2	21.6	
15				0	2	21.5	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
1.4	20407	824.7	QPSK	1	0	0	23.7
				1	2	0	23.6
				1	5	0	23.7
				3	0	0	23.7
				3	2	0	23.7
				3	3	0	23.7
				6	0	1	22.7
			16QAM	1	0	1	22.6
				1	2	1	22.4
				1	5	1	22.4
				3	0	1	22.6
				3	2	1	22.5
				3	3	1	22.5
				6	0	2	21.5
	20525	836.5	QPSK	1	0	0	23.5
				1	2	0	23.5
				1	5	0	23.5
				3	0	0	23.6
				3	2	0	23.6
				3	3	0	23.5
				6	0	1	22.6
			16QAM	1	0	1	22.6
				1	2	1	22.3
				1	5	1	22.3
				3	0	1	22.5
				3	2	1	22.4
				3	3	1	22.4
				6	0	2	21.3
	20643	848.3	QPSK	1	0	0	23.7
				1	2	0	23.6
				1	5	0	23.6
				3	0	0	23.6
				3	2	0	23.6
				3	3	0	23.6
				6	0	1	22.6
			16QAM	1	0	1	22.4
1				2	1	22.3	
1				5	1	22.4	
3				0	1	22.5	
3				2	1	22.5	
3				3	1	22.5	
6				0	2	21.5	

7.9. LTE BAND 17

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)	Avg Pwr (dBm)
10	23790	710.0	QPSK	1	0	0	23.5	23.6
				1	25	0	23.5	23.5
				1	49	0	23.6	23.6
				25	0	1	22.3	22.4
				25	12	1	22.4	22.5
				25	25	1	22.3	22.4
			16QAM	50	0	1	22.3	22.4
				1	0	1		22.4
				1	25	1		22.3
				1	49	1		22.3
				25	0	2		21.4
				25	12	2		21.4
				25	25	2		21.4
				50	0	2		21.3
5	23790	710.0	QPSK	1	0	0		23.5
				1	12	0		23.5
				1	24	0		23.6
				12	0	1		22.6
				12	6	1		22.5
				12	13	1		22.6
				25	0	1		22.5
			16QAM	1	0	1		22.3
				1	12	1		22.3
				1	24	1		22.3
				12	0	2		21.6
				12	6	2		21.6
				12	13	2		21.6
				25	0	2		21.5

LTE BAND 25 (B2)

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
20	26140	1860.0	QPSK	1	0	0	23.6
				1	59	0	23.4
				1	99	0	23.4
				50	0	1	22.3
				50	25	1	22.3
				50	50	1	22.3
				100	0	1	22.3
			16QAM	1	0	1	22.2
				1	59	1	22.2
				1	99	1	22.2
				50	0	2	21.3
				50	25	2	21.2
				50	50	2	21.4
				100	0	2	21.3
	26365	1882.5	QPSK	1	0	0	23.6
				1	59	0	23.7
				1	99	0	23.7
				50	0	1	22.3
				50	25	1	22.3
				50	50	1	22.4
				100	0	1	22.3
			16QAM	1	0	1	22.5
				1	59	1	22.5
				1	99	1	22.4
				50	0	2	21.3
				50	25	2	21.4
				50	50	2	21.3
				100	0	2	21.2
	26590	1905.0	QPSK	1	0	0	23.5
				1	59	0	23.5
1				99	0	23.5	
50				0	1	22.3	
50				25	1	22.3	
50				50	1	22.3	
100				0	1	22.4	
16QAM			1	0	1	22.5	
			1	59	1	22.4	
			1	99	1	22.5	
			50	0	2	21.3	
			50	25	2	21.2	
			50	50	2	21.2	
			100	0	2	21.2	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	26115	1857.5	QPSK	1	0	0	23.4
				1	36	0	23.5
				1	74	0	23.5
				36	0	1	22.3
				36	18	1	22.2
				36	37	1	22.4
				75	0	1	22.2
			16QAM	1	0	1	22.3
				1	36	1	22.2
				1	74	1	22.4
				36	0	2	21.3
				36	18	2	21.1
				36	37	2	21.3
				75	0	2	21.5
	26365	1882.5	QPSK	1	0	0	23.4
				1	36	0	23.5
				1	74	0	23.4
				36	0	1	22.2
				36	18	1	22.2
				36	37	1	22.2
				75	0	1	22.1
			16QAM	1	0	1	22.2
				1	36	1	22.3
				1	74	1	22.5
				36	0	2	21.3
				36	18	2	21.3
				36	37	2	21.4
75				0	2	21.5	
26615	1907.5	QPSK	1	0	0	23.6	
			1	36	0	23.6	
			1	74	0	23.5	
			36	0	1	22.2	
			36	18	1	22.2	
			36	37	1	22.3	
			75	0	1	22.3	
		16QAM	1	0	1	22.2	
			1	36	1	22.3	
			1	74	1	22.3	
			36	0	2	21.2	
			36	18	2	21.3	
			36	37	2	21.2	
			75	0	2	21.2	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	26090	1855.0	QPSK	1	0	0	23.4
				1	25	0	23.5
				1	49	0	23.5
				25	0	1	22.3
				25	12	1	22.3
				25	25	1	22.3
				50	0	1	22.2
			16QAM	1	0	1	22.2
				1	25	1	22.2
				1	49	1	22.2
				25	0	2	21.2
				25	12	2	21.2
				25	25	2	21.2
				50	0	2	21.1
	26365	1882.5	QPSK	1	0	0	23.4
				1	25	0	23.4
				1	49	0	23.5
				25	0	1	22.3
				25	12	1	22.3
				25	25	1	22.3
				50	0	1	22.2
			16QAM	1	0	1	22.3
				1	25	1	22.2
				1	49	1	22.2
				25	0	2	21.5
				25	12	2	21.3
				25	25	2	21.2
50				0	2	21.2	
26640	1910.0	QPSK	1	0	0	23.5	
			1	25	0	23.5	
			1	49	0	23.4	
			25	0	1	22.2	
			25	12	1	22.4	
			25	25	1	22.2	
			50	0	1	22.2	
		16QAM	1	0	1	22.7	
			1	25	1	22.6	
			1	49	1	22.5	
			25	0	2	21.3	
			25	12	2	21.3	
			25	25	2	21.1	
			50	0	2	21.2	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	26065	1852.5	QPSK	1	0	0	23.3
				1	12	0	23.4
				1	24	0	23.5
				12	0	1	22.4
				12	6	1	22.4
				12	13	1	22.5
				25	0	1	22.3
			16QAM	1	0	1	22.2
				1	12	1	22.2
				1	24	1	22.3
				12	0	2	21.4
				12	6	2	21.4
				12	13	2	21.4
				25	0	2	21.2
	26365	1882.5	QPSK	1	0	0	23.4
				1	12	0	23.4
				1	24	0	23.5
				12	0	1	22.4
				12	6	1	22.4
				12	13	1	22.4
				25	0	1	22.3
			16QAM	1	0	1	22.3
				1	12	1	22.4
				1	24	1	22.1
				12	0	2	21.4
				12	6	2	21.4
				12	13	2	21.3
				25	0	2	21.2
	26665	1912.5	QPSK	1	0	0	23.5
				1	12	0	23.5
1				24	0	23.4	
12				0	1	22.4	
12				6	1	22.5	
12				13	1	22.5	
25				0	1	22.2	
16QAM			1	0	1	22.1	
			1	12	1	22.2	
			1	24	1	22.4	
			12	0	2	21.4	
			12	6	2	21.6	
			12	13	2	21.2	
			25	0	2	21.3	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	26055	1851.5	QPSK	1	0	0	23.4
				1	7	0	23.4
				1	14	0	23.5
				8	0	1	22.4
				8	4	1	22.4
				8	7	1	22.3
				15	0	1	22.4
			16QAM	1	0	1	22.2
				1	7	1	22.2
				1	14	1	22.2
				8	0	2	21.3
				8	4	2	21.3
				8	7	2	21.4
				15	0	2	21.3
	26365	1882.5	QPSK	1	0	0	23.6
				1	7	0	23.4
				1	14	0	23.4
				8	0	1	22.4
				8	4	1	22.4
				8	7	1	22.3
				15	0	1	22.4
			16QAM	1	0	1	22.5
				1	7	1	22.4
				1	14	1	22.2
				8	0	2	21.3
				8	4	2	21.3
				8	7	2	21.3
15				0	2	21.2	
26675	1913.5	QPSK	1	0	0	23.5	
			1	7	0	23.5	
			1	14	0	23.4	
			8	0	1	22.5	
			8	4	1	22.4	
			8	7	1	22.4	
			15	0	1	22.4	
		16QAM	1	0	1	22.2	
			1	7	1	22.2	
			1	14	1	22.4	
			8	0	2	21.3	
			8	4	2	21.2	
			8	7	2	21.2	
			15	0	2	21.2	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
1.4	26047	1850.7	QPSK	1	0	0	23.4
				1	2	0	23.3
				1	5	0	23.4
				3	0	0	23.4
				3	2	0	23.5
				3	3	0	23.5
				6	0	1	22.4
			16QAM	1	0	1	22.3
				1	2	1	22.2
				1	5	1	22.2
				3	0	1	22.5
				3	2	1	22.5
				3	3	1	22.5
				6	0	2	21.2
	26365	1882.5	QPSK	1	0	0	23.4
				1	2	0	23.5
				1	5	0	23.4
				3	0	0	23.5
				3	2	0	23.5
				3	3	0	23.4
				6	0	1	22.5
			16QAM	1	0	1	22.2
				1	2	1	22.2
				1	5	1	22.5
				3	0	1	22.4
				3	2	1	22.6
				3	3	1	22.5
				6	0	2	21.2
	26683	1914.3	QPSK	1	0	0	23.5
				1	2	0	23.4
1				5	0	23.4	
3				0	0	23.5	
3				2	0	23.5	
3				3	0	23.5	
6				0	1	22.4	
16QAM			1	0	1	22.3	
			1	2	1	22.2	
			1	5	1	22.3	
			3	0	1	22.4	
			3	2	1	22.4	
			3	3	1	22.3	
			6	0	2	21.2	

7.10. LTE BAND 26

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	26740	819.0	QPSK	1	0	0	23.5
				1	25	0	23.5
				1	49	0	23.5
				25	0	1	22.5
				25	12	1	22.5
				25	25	1	22.5
				50	0	1	22.3
			16QAM	1	0	1	22.4
				1	25	1	22.2
				1	49	1	22.2
				25	0	2	21.4
				25	12	2	21.4
				25	25	2	21.4
				50	0	2	21.4
	26865	831.5	QPSK	1	0	0	23.5
				1	25	0	23.3
				1	49	0	23.5
				25	0	1	22.4
				25	12	1	22.3
				25	25	1	22.4
				50	0	1	22.2
			16QAM	1	0	1	22.4
				1	25	1	22.2
				1	49	1	22.4
				25	0	2	21.4
				25	12	2	21.3
				25	25	2	21.4
				50	0	2	21.3
	26990	844.0	QPSK	1	0	0	23.5
				1	25	0	23.4
1				49	0	23.4	
25				0	1	22.4	
25				12	1	22.3	
25				25	1	22.4	
50				0	1	22.2	
16QAM			1	0	1	22.2	
			1	25	1	22.3	
			1	49	1	22.3	
			25	0	2	21.3	
			25	12	2	21.4	
			25	25	2	21.4	
			50	0	2	21.4	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	26715	816.5	QPSK	1	0	0	23.7
				1	12	0	23.7
				1	24	0	23.5
				12	0	1	22.7
				12	6	1	22.6
				12	13	1	22.5
				25	0	1	22.4
			16QAM	1	0	1	22.4
				1	12	1	22.4
				1	24	1	22.2
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.6
				25	0	2	21.5
	26865	831.5	QPSK	1	0	0	23.6
				1	12	0	23.5
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.6
				12	13	1	22.4
				25	0	1	22.4
			16QAM	1	0	1	22.3
				1	12	1	22.2
				1	24	1	22.3
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.5
25				0	2	21.3	
27015	846.5	QPSK	1	0	0	23.5	
			1	12	0	23.6	
			1	24	0	23.5	
			12	0	1	22.6	
			12	6	1	22.5	
			12	13	1	22.4	
			25	0	1	22.4	
		16QAM	1	0	1	22.4	
			1	12	1	22.4	
			1	24	1	22.3	
			12	0	2	21.6	
			12	6	2	21.6	
			12	13	2	21.5	
			25	0	2	21.5	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	26705	815.5	QPSK	1	0	0	23.7
				1	7	0	23.7
				1	14	0	23.7
				8	0	1	22.7
				8	4	1	22.7
				8	7	1	22.7
				15	0	1	22.7
			16QAM	1	0	1	22.4
				1	7	1	22.4
				1	14	1	22.4
				8	0	2	21.6
				8	4	2	21.7
				8	7	2	21.7
				15	0	2	21.7
	26865	831.5	QPSK	1	0	0	23.6
				1	7	0	23.5
				1	14	0	23.5
				8	0	1	22.6
				8	4	1	22.5
				8	7	1	22.5
				15	0	1	22.5
			16QAM	1	0	1	22.3
				1	7	1	22.3
				1	14	1	22.2
				8	0	2	21.7
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.5
	27025	847.5	QPSK	1	0	0	23.6
				1	7	0	23.5
				1	14	0	23.5
				8	0	1	22.5
				8	4	1	22.5
				8	7	1	22.5
				15	0	1	22.5
			16QAM	1	0	1	22.6
1				7	1	22.5	
1				14	1	22.4	
8				0	2	21.4	
8				4	2	21.4	
8				7	2	21.4	
15				0	2	21.5	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
1.4	26697	814.7	QPSK	1	0	0	23.6
				1	2	0	23.6
				1	5	0	23.7
				3	0	1	23.7
				3	2	1	23.7
				3	3	1	23.6
				6	0	1	22.7
			16QAM	1	0	1	22.6
				1	2	1	22.4
				1	5	1	22.5
				3	0	2	22.6
				3	2	2	22.5
				3	3	2	22.5
				6	0	2	21.5
	26865	831.5	QPSK	1	0	0	23.5
				1	2	0	23.4
				1	5	0	23.5
				3	0	1	23.6
				3	2	1	23.5
				3	3	1	23.5
				6	0	1	22.5
			16QAM	1	0	1	22.5
				1	2	1	22.2
				1	5	1	22.2
				3	0	2	22.5
				3	2	2	22.3
				3	3	2	22.3
				6	0	2	21.4
	27033	848.3	QPSK	1	0	0	23.5
				1	2	0	23.4
1				5	0	23.5	
3				0	1	23.6	
3				2	1	23.5	
3				3	1	23.5	
6				0	1	22.5	
16QAM			1	0	1	22.5	
			1	2	1	22.6	
			1	5	1	22.5	
			3	0	2	22.5	
			3	2	2	22.5	
			3	3	2	22.6	
			6	0	2	21.4	

LTE BAND 41

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)		
20	39750	2506.0	QPSK	1	0	0	21.5		
				1	59	0	21.4		
				1	99	0	21.4		
				50	0	1	20.5		
				50	25	1	20.4		
				50	50	1	20.4		
			16QAM	100	0	1	20.5		
				1	0	1	20.6		
				1	59	1	20.5		
				1	99	1	20.5		
				50	0	2	19.4		
				50	25	2	19.3		
			40185	2543.5	QPSK	50	50	1	20.4
						100	0	2	19.4
						1	0	0	21.4
						1	59	0	21.5
						1	99	0	21.6
						50	0	1	20.5
	16QAM	50			25	1	20.5		
		50			50	1	20.5		
		100			0	1	20.5		
		1			0	1	20.6		
		1			59	1	20.6		
		1			99	1	20.6		
	40620	2593.0			QPSK	50	0	2	19.5
						50	25	2	19.5
						50	50	2	19.5
						100	0	2	19.5
						1	0	0	21.4
						1	59	0	21.4
			16QAM	1	99	0	21.5		
				50	0	1	20.6		
				50	25	1	20.6		
				50	50	1	20.6		
				100	0	1	20.6		
				1	0	1	20.3		
			41055	2636.5	QPSK	1	59	1	20.3
						1	99	1	20.4
						50	0	2	19.5
						50	25	2	19.4
						50	50	2	19.4
						100	0	2	19.4
	16QAM	1			0	0	21.5		
		1			59	0	21.6		
		1			99	0	21.7		
		50			0	1	20.5		
		50			25	1	20.6		
		50			50	1	20.6		
41490	2680.0	QPSK			100	0	1	20.5	
					1	0	1	20.6	
					1	59	1	20.5	
					1	99	1	20.5	
					50	0	2	19.3	
					50	25	2	19.4	
		16QAM	50	50	2	19.4			
			100	0	2	19.4			
			1	0	0	21.5			
			1	59	0	21.6			
			1	99	0	21.5			
			50	0	1	20.5			
					QPSK	50	25	1	20.5
						50	50	1	20.4
						100	0	1	20.5
						1	0	1	20.4
						1	59	1	20.5
						1	99	1	20.3
16QAM	50				0	2	19.5		
	50				25	2	19.4		
	50				50	2	19.4		
	100				0	2	19.5		

Bw (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	39725	2503.5	QPSK	1	0	0	21.5
				1	36	0	21.5
				1	74	0	21.6
				36	0	1	20.5
				36	18	1	20.5
				36	37	1	20.5
			75	0	1	20.5	
			1	0	1	20.4	
			1	36	1	20.3	
			1	74	1	20.4	
			36	0	2	19.5	
			36	18	2	19.5	
			36	37	2	19.5	
			75	0	2	19.5	
			1	0	0	21.6	
			1	36	0	21.6	
			1	74	0	21.5	
			36	0	1	20.5	
	36	18	1	20.6			
	36	37	1	20.5			
	75	0	1	20.5			
	1	0	1	20.4			
	1	36	1	20.4			
	1	74	1	20.4			
	36	0	2	19.5			
	36	18	2	19.5			
	36	37	2	19.5			
	75	0	2	19.5			
	1	0	0	21.5			
	1	36	0	21.5			
	1	74	0	21.5			
	36	0	1	20.5			
	36	18	1	20.4			
	36	37	1	20.5			
	75	0	1	20.5			
	1	0	1	20.3			
	1	36	1	20.3			
	1	74	1	20.3			
	36	0	2	19.5			
	36	18	2	19.5			
	36	37	2	19.5			
	75	0	2	19.4			
	1	0	0	21.5			
	1	36	0	21.5			
	1	74	0	21.5			
	36	0	1	20.5			
	36	18	1	20.5			
	36	37	1	20.6			
	75	0	1	20.5			
	1	0	1	20.4			
	1	36	1	20.3			
	1	74	1	20.3			
	36	0	2	19.6			
	36	18	2	19.5			
	36	37	2	19.6			
	75	0	2	19.5			
	1	0	0	21.7			
	1	36	0	21.7			
	1	74	0	21.6			
	36	0	1	20.4			
	36	18	1	20.4			
	36	37	1	20.3			
	75	0	1	20.3			
	1	0	1	20.6			
	1	36	1	20.6			
	1	74	1	20.5			
	36	0	2	19.5			
	36	18	2	19.4			
	36	37	2	19.4			
	75	0	2	19.4			

Bw (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	39675	2498.5	QPSK	1	0	0	21.5
				1	25	0	21.6
				1	49	0	21.6
				25	0	1	20.5
				25	12	1	20.5
				25	25	1	20.6
			50	0	1	20.5	
			1	0	1	20.3	
			1	25	1	20.3	
			1	49	1	20.4	
			25	0	2	19.4	
			25	12	2	19.4	
			25	25	2	19.3	
			50	0	2	19.4	
			1	0	0	21.6	
			1	25	0	21.6	
			1	49	0	21.7	
			25	0	1	20.6	
			25	12	1	20.6	
			25	25	1	20.5	
	50	0	1	20.5			
	1	0	1	20.3			
	1	25	1	20.4			
	1	49	1	20.4			
	25	0	2	19.4			
	25	12	2	19.4			
	25	25	2	19.5			
	50	0	2	19.4			
	1	0	0	21.7			
	1	25	0	21.6			
	1	49	0	21.6			
	25	0	1	20.5			
	25	12	1	20.6			
	25	25	1	20.5			
	50	0	1	20.5			
	1	0	1	20.3			
	1	25	1	20.3			
	1	49	1	20.3			
	25	0	2	19.5			
	25	12	2	19.5			
	25	25	2	19.5			
	50	0	2	19.5			
	1	0	0	21.5			
	1	25	0	21.5			
	1	49	0	21.4			
	25	0	1	20.5			
	25	12	1	20.4			
	25	25	1	20.4			
	50	0	1	20.5			
	1	0	1	20.5			
	1	25	1	20.5			
	1	49	1	20.4			
	25	0	2	19.4			
	25	12	2	19.3			
	25	25	2	19.4			
	50	0	2	19.4			
	1	0	0	21.5			
	1	25	0	21.4			
	1	49	0	21.3			
	25	0	1	20.4			
	25	12	1	20.4			
	25	25	1	20.3			
	50	0	1	20.4			
	1	0	1	20.2			
	1	25	1	20.2			
	1	49	1	20.2			
	25	0	2	19.3			
	25	12	2	19.3			
	25	25	2	19.2			
	50	0	2	19.3			

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	39675	2498.5	QPSK	1	0	0	21.6
				1	12	0	21.7
				1	24	0	21.7
				12	0	1	20.5
				12	6	1	20.5
				12	13	1	20.6
			16QAM	25	0	1	20.5
				1	0	1	20.3
				1	12	1	20.3
				1	24	1	20.3
				12	0	2	19.6
				12	6	2	19.5
	40148	2545.8	QPSK	12	13	2	19.6
				25	0	2	19.4
				1	0	0	21.7
				1	12	0	21.7
				1	24	0	21.7
				12	0	1	20.6
			16QAM	12	6	1	20.5
				12	13	1	20.5
				25	0	1	20.5
				1	0	1	20.3
				1	12	1	20.3
				1	24	1	20.3
	40620	2593.0	QPSK	12	0	2	19.5
				12	6	2	19.5
				12	13	2	19.6
				25	0	2	19.6
				1	0	0	21.6
				1	12	0	21.7
			16QAM	1	24	0	21.6
				12	0	1	20.5
				12	6	1	20.5
				12	13	1	20.5
				25	0	1	20.5
				1	0	1	20.3
	41092.5	2640.25	QPSK	1	12	1	20.3
				1	24	1	20.2
				12	0	2	19.5
				12	6	2	19.6
				12	13	2	19.6
				25	0	2	19.4
			16QAM	1	0	0	21.6
				1	12	0	21.6
				1	24	0	21.6
				12	0	1	20.5
				12	6	1	20.5
				12	13	1	20.5
41565	2687.5	QPSK	25	0	1	20.5	
			1	0	1	20.3	
			1	12	1	20.3	
			1	24	1	20.3	
			12	0	2	19.5	
			12	6	2	19.6	
		16QAM	12	13	2	19.7	
			25	0	2	19.5	
			1	0	0	23.7	
			1	12	0	21.5	
			1	24	0	21.5	
			12	0	1	21.4	
41565	2687.5	QPSK	12	6	1	20.4	
			12	13	1	20.3	
			25	0	1	20.3	
			1	0	1	20.5	
			1	12	1	20.3	
			1	24	1	20.3	
		16QAM	12	0	2	19.7	
			12	6	2	19.7	
			12	13	2	19.6	
			25	0	2	19.6	
			25	0	2	19.6	
			25	0	2	19.6	

8. CONDUCTED TEST RESULTS

8.1. PEAK TO AVERAGE POWER RATIO

RULE PART(S)

FCC: §27.50

LIMITS

The peak-to-average power ratio (PAPR) is mentioned in Part 27, but not Part 22 and Part 24.

KDB 971168 "D01 Power Meas License Digital Systems v02r01" states when the power measurement was done using average technique then PAPR needs to be done. However, if peak power or power density was used then PAPR measurement is not required.

Under Part 27, the PAPR of the transmitter output power must not exceed 13 dB.

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 Peak to Average Power Ratio was measured with the spectrum analyzer at the middle channel in each band.

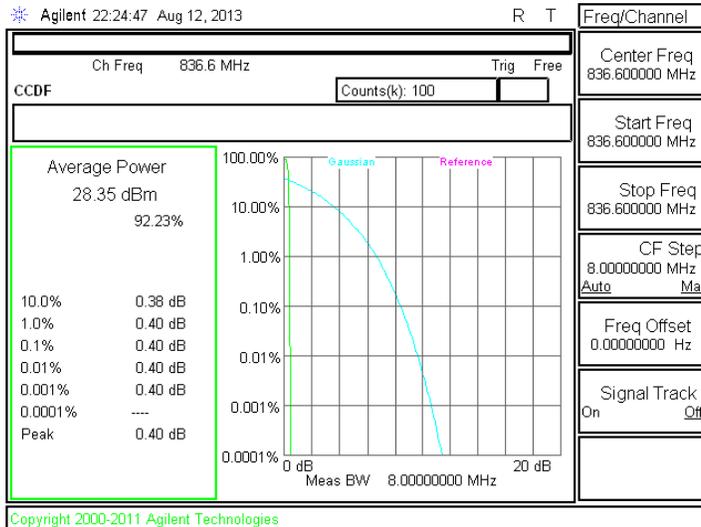
MODES TESTED

- GPRS, EGPRS
- CDMA RTT, CDMA EVDO
- UMTS REL 99, and HSDPA
- LTE BAND 4,17,25,26,41

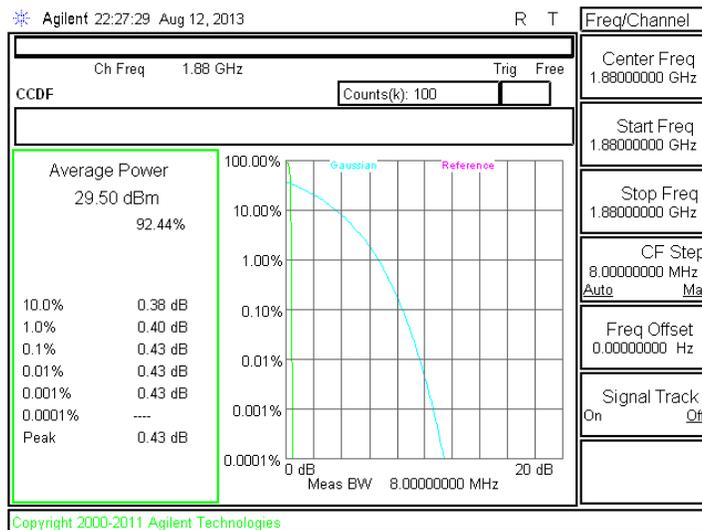
RESULTS

8.1.1. GPRS

CELL

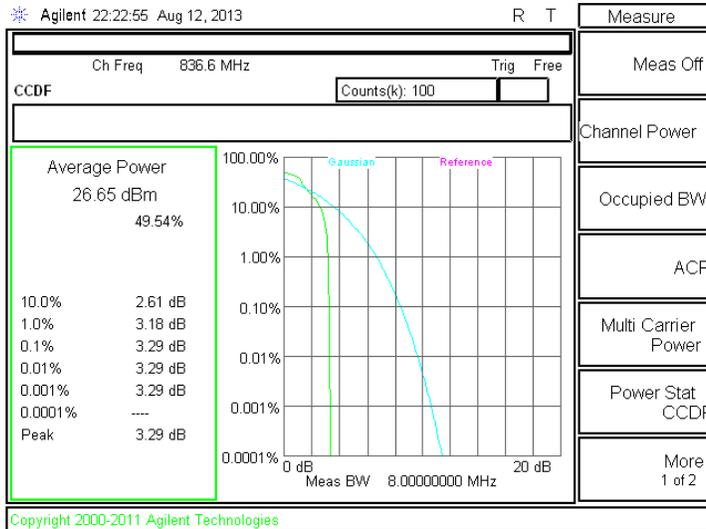


PCS

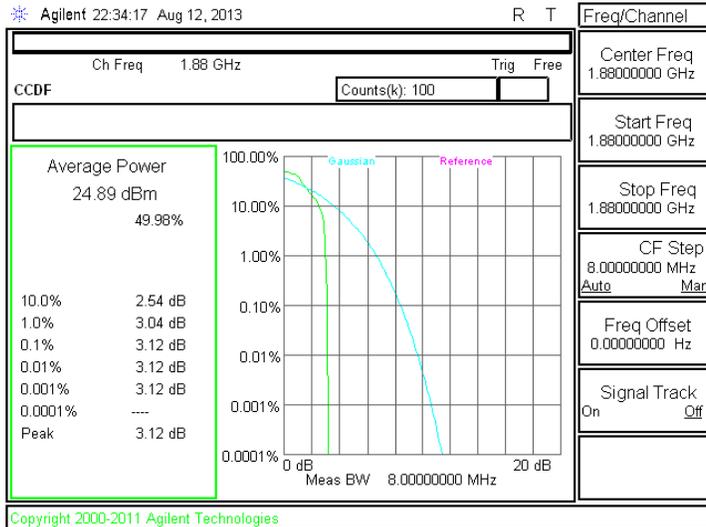


8.1.2. EGPRS

CELL

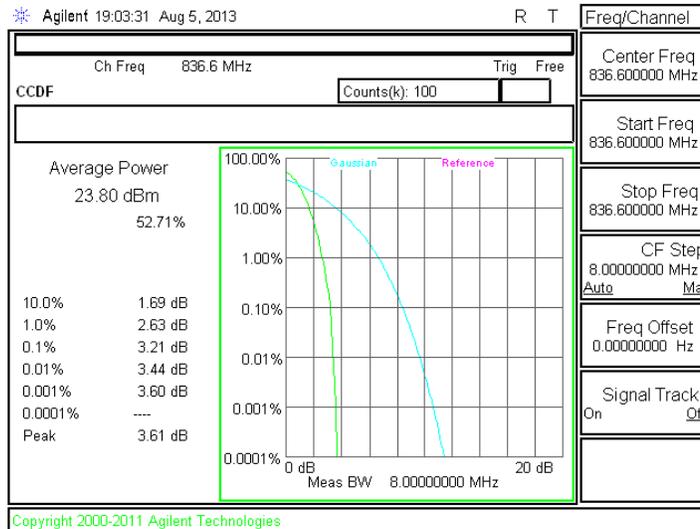


PCS

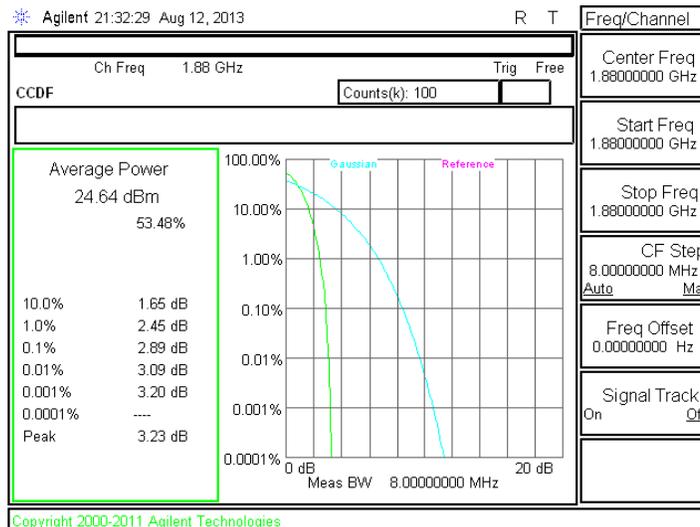


8.1.3. WCDMA REL 99

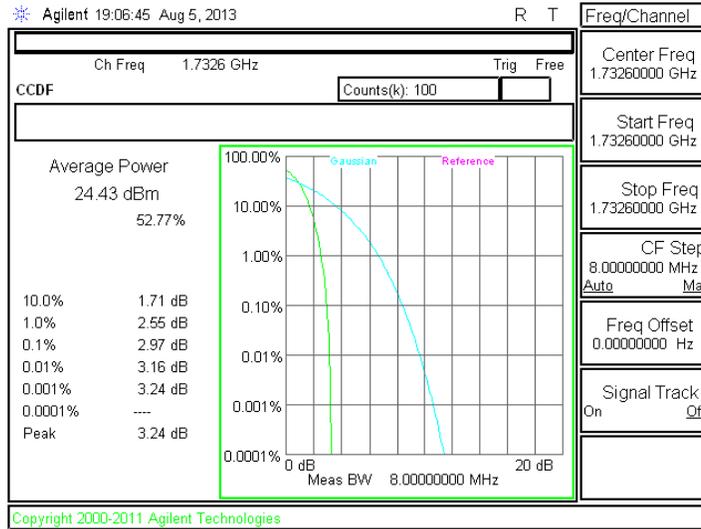
BAND 5



BAND 2

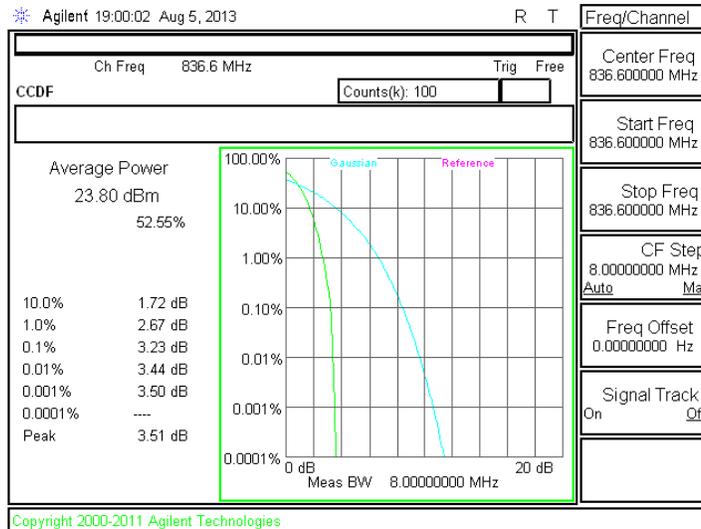


BAND 4

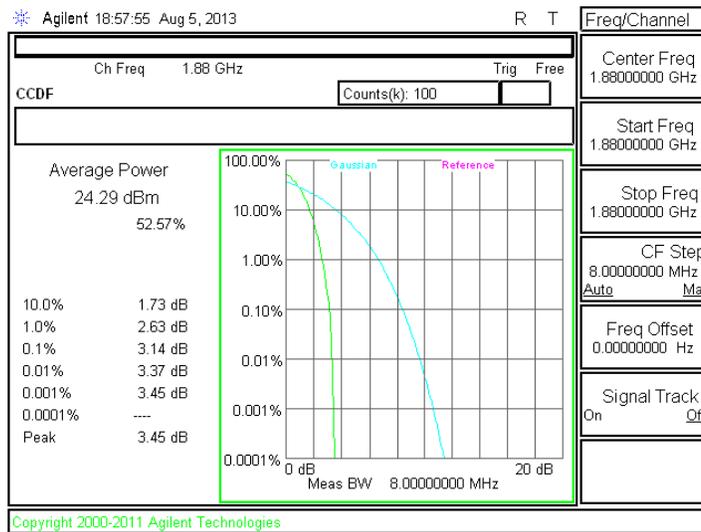


8.1.4. WCDMA HSDPA

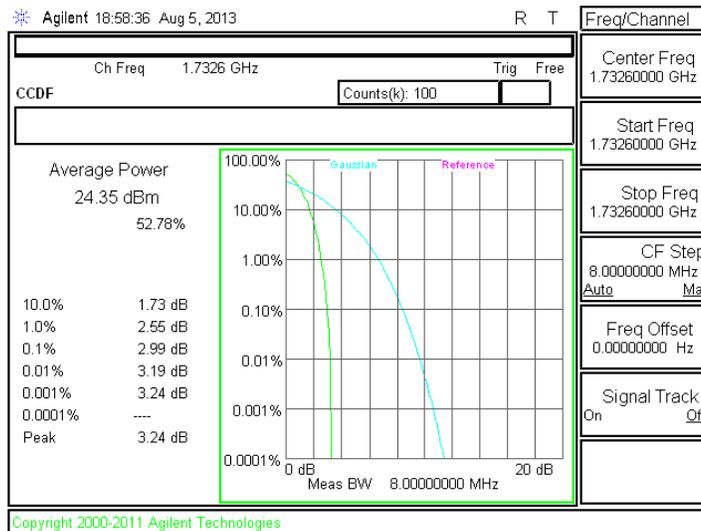
BAND 5



BAND 2

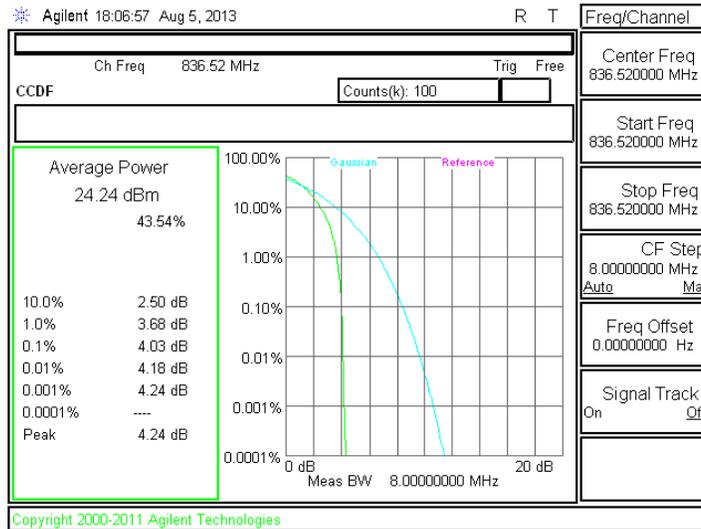


BAND 4

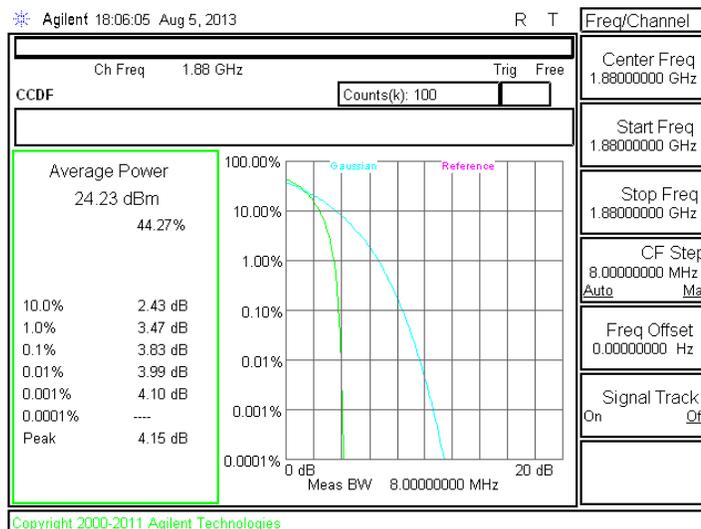


8.1.5. CDMA RTT

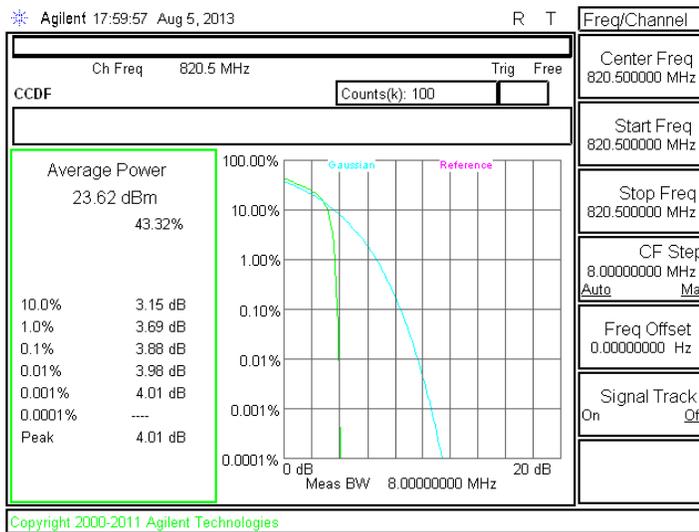
BC0



BC1

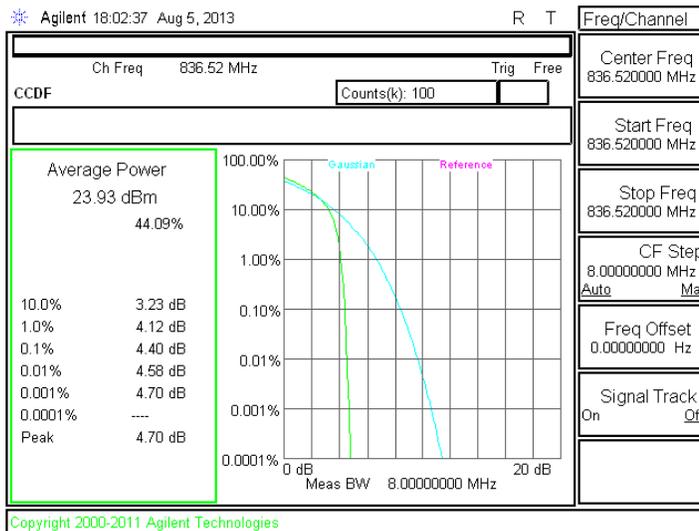


BC10

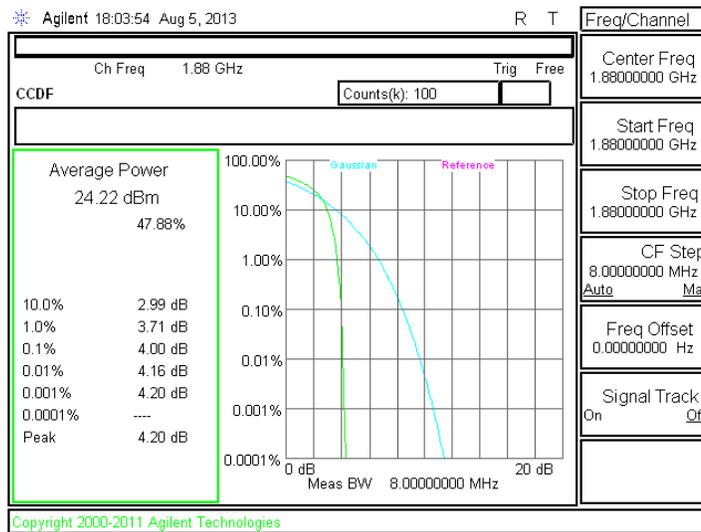


8.1.6. CDMA EV-DO

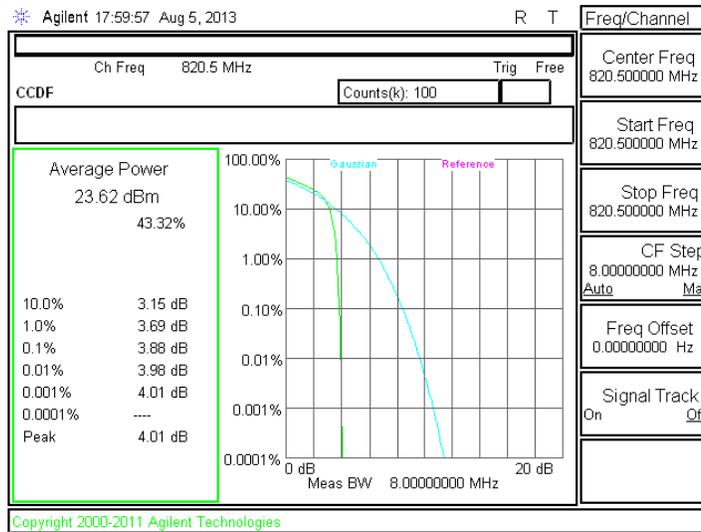
BC0



BC1



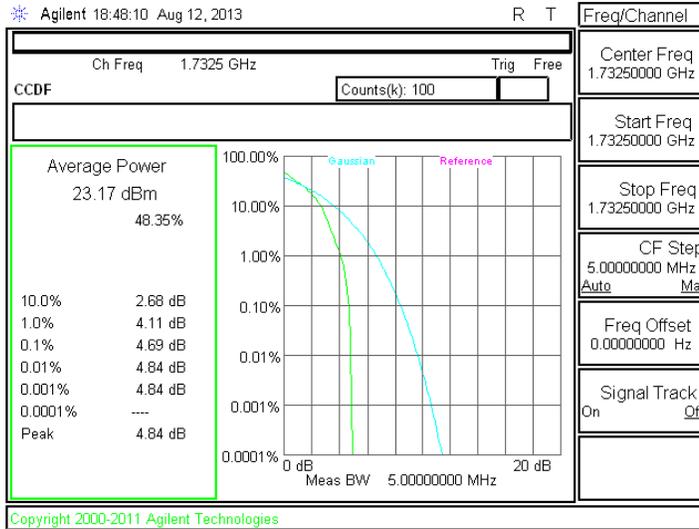
BC10



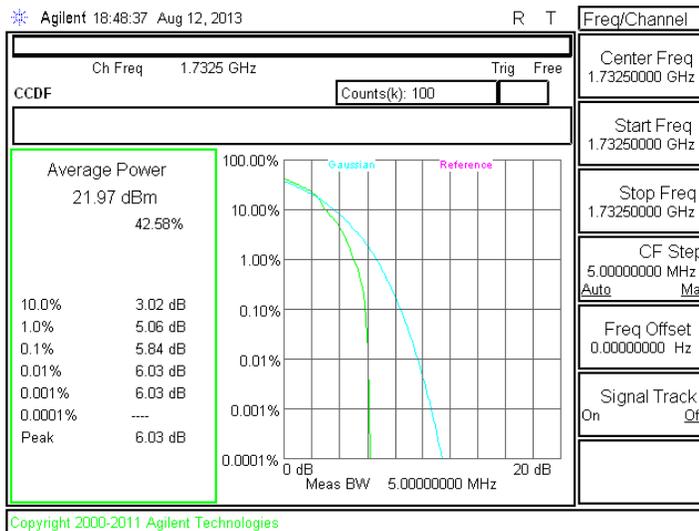
8.1.7. LTE BAND 4

1.4 MHz

QPSK

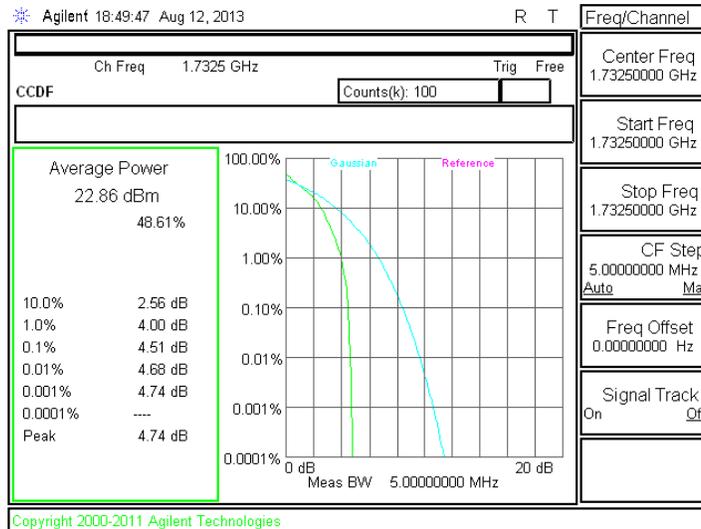


16QAM

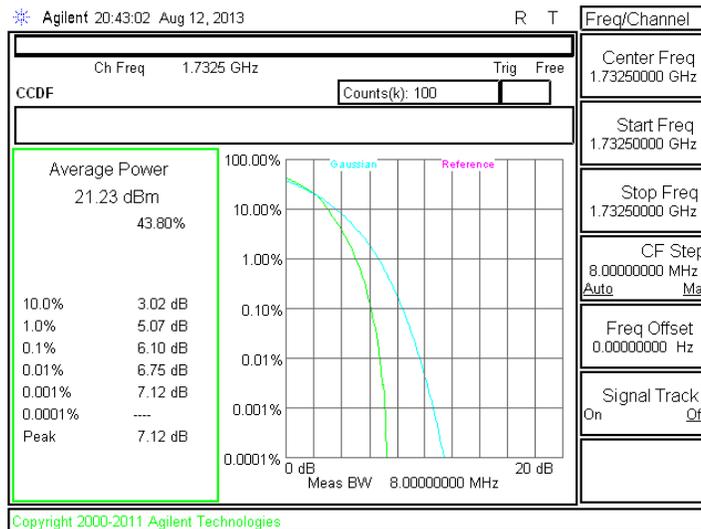


3 MHz

QPSK

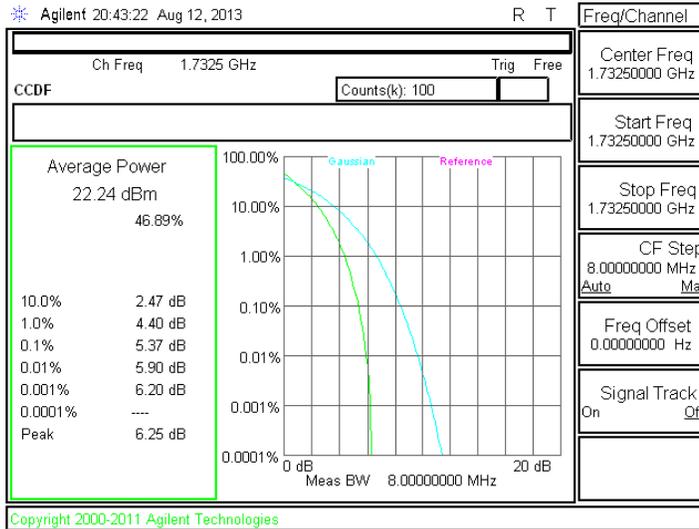


16QAM

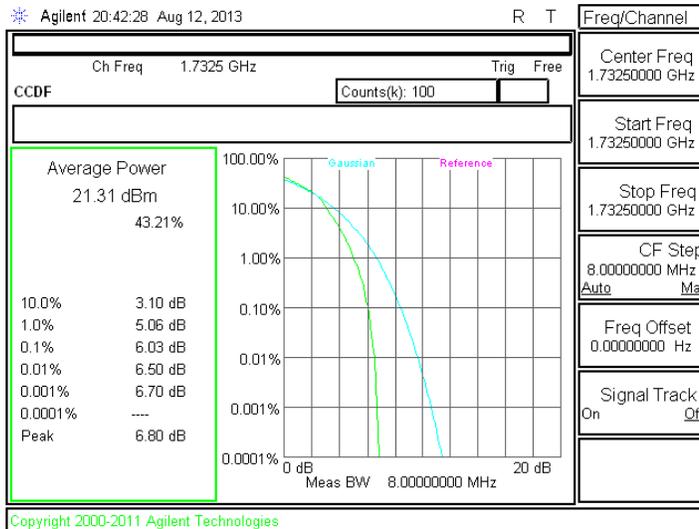


5 MHz

QPSK

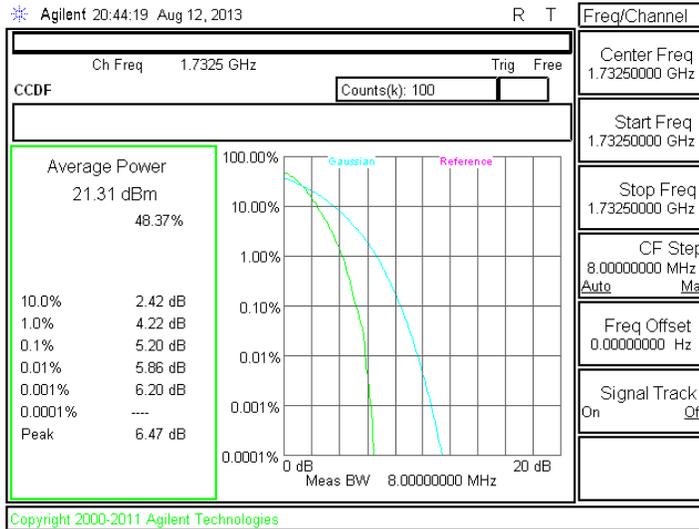


16QAM

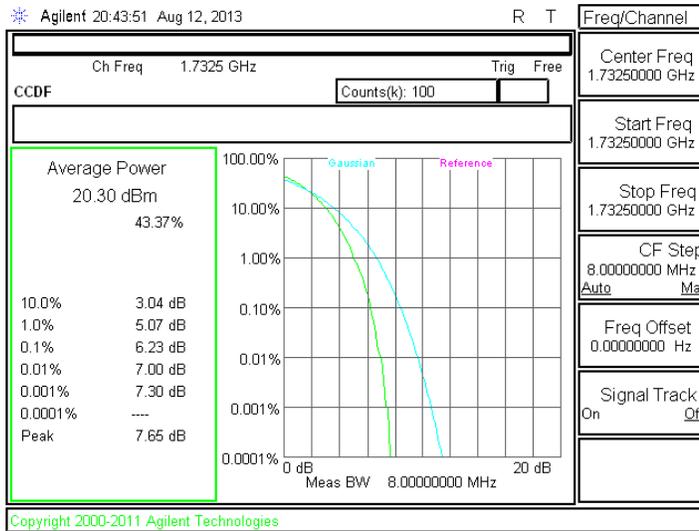


10 MHz

QPSK

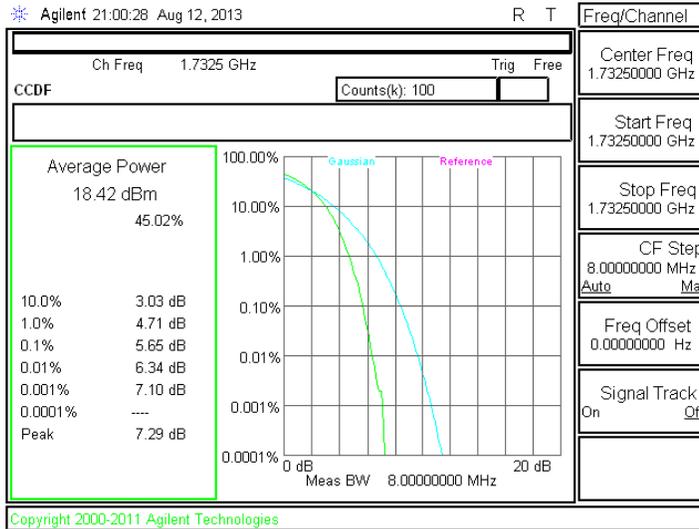


16QAM

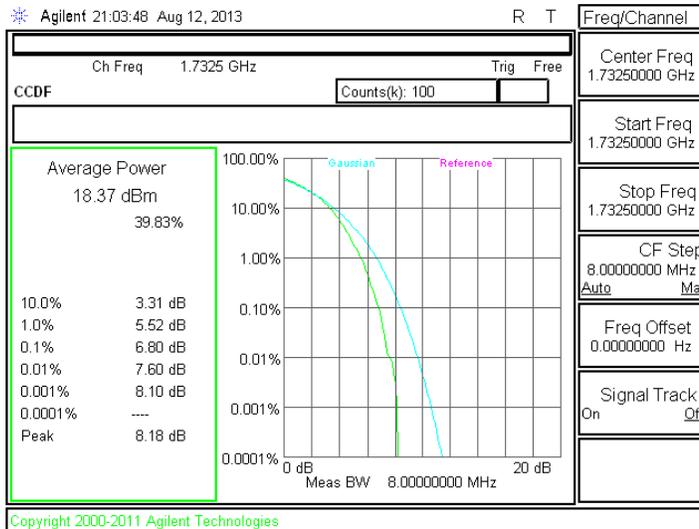


15 MHz

QPSK

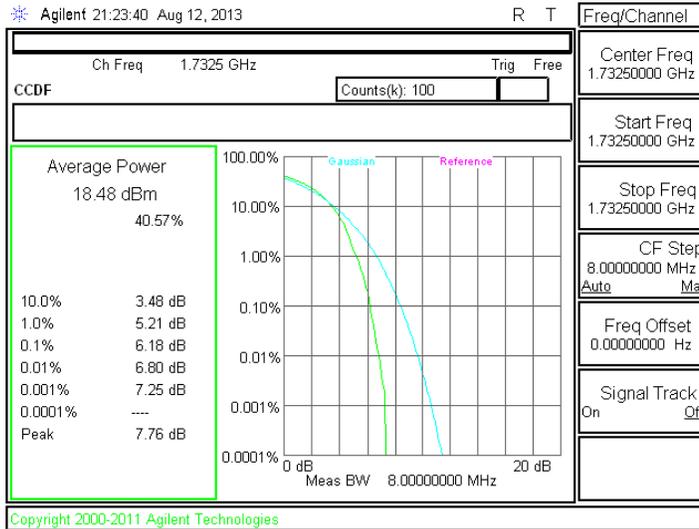


16QAM

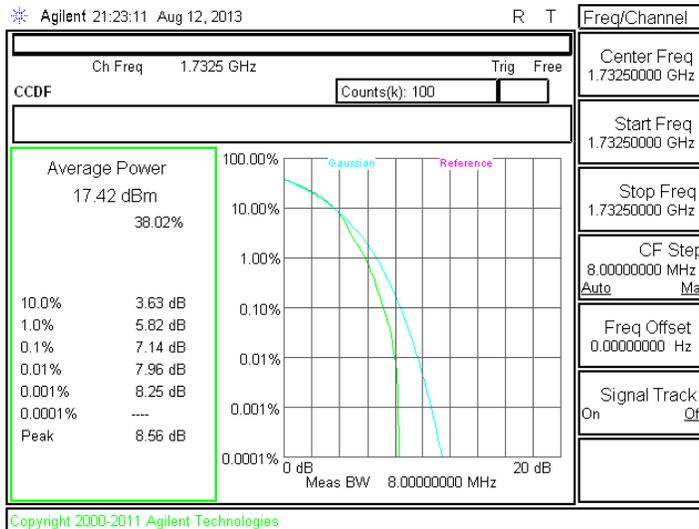


20 MHz

QPSK



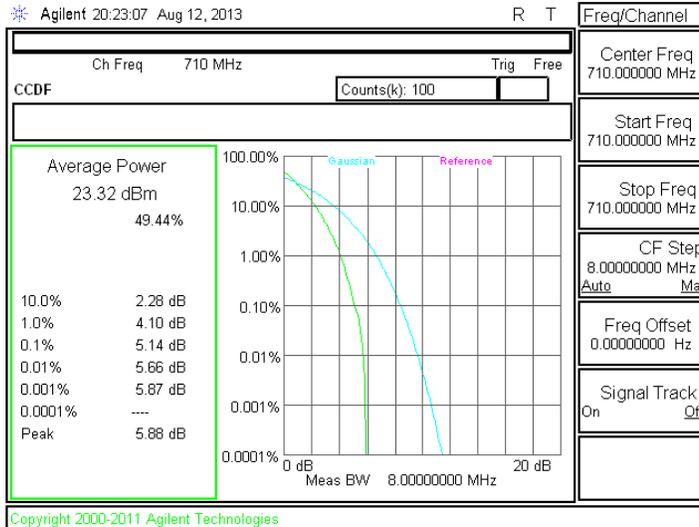
16QAM



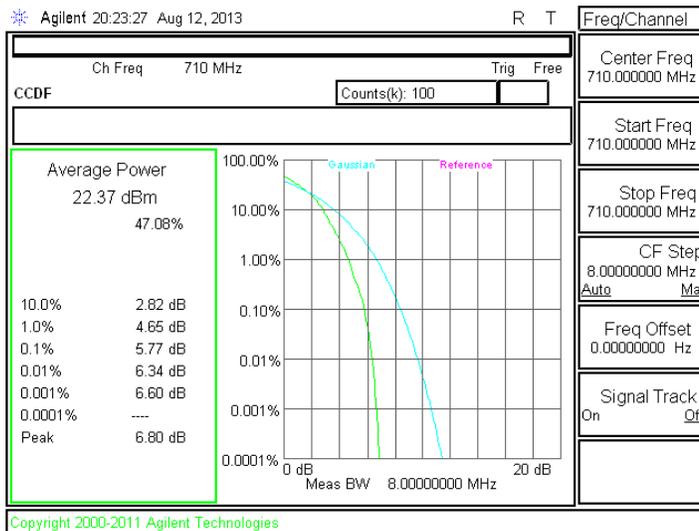
8.1.8. LTE BAND 17

5 MHz

QPSK

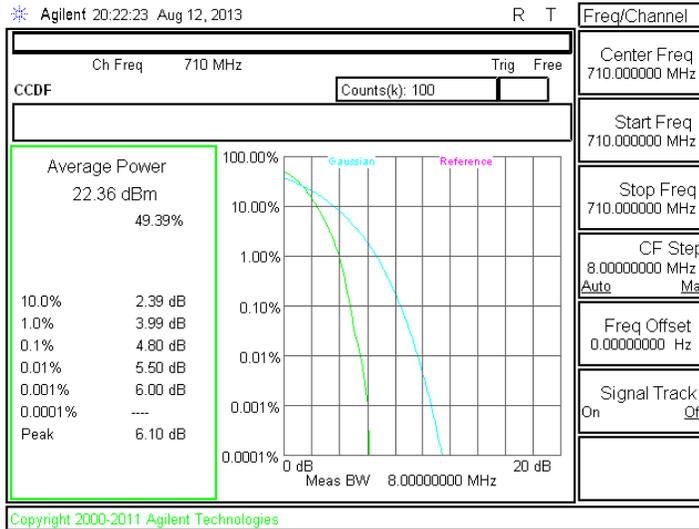


16QAM

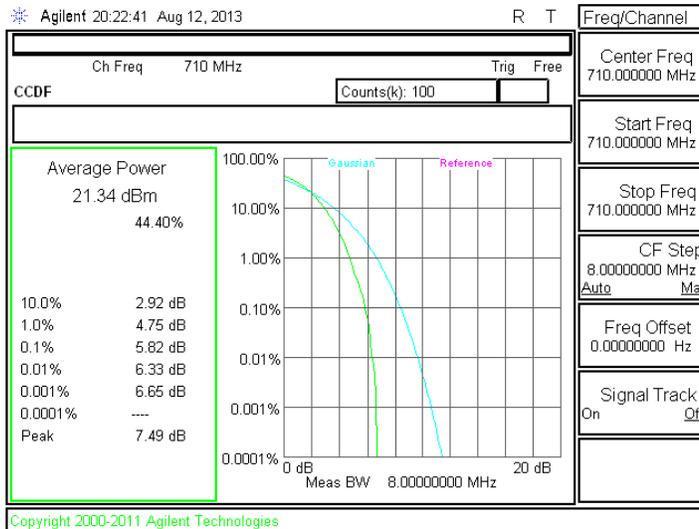


10 MHz

QPSK



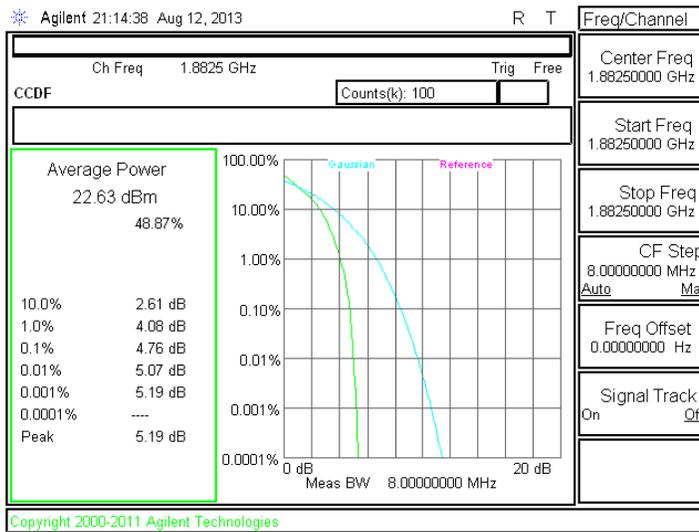
16QAM



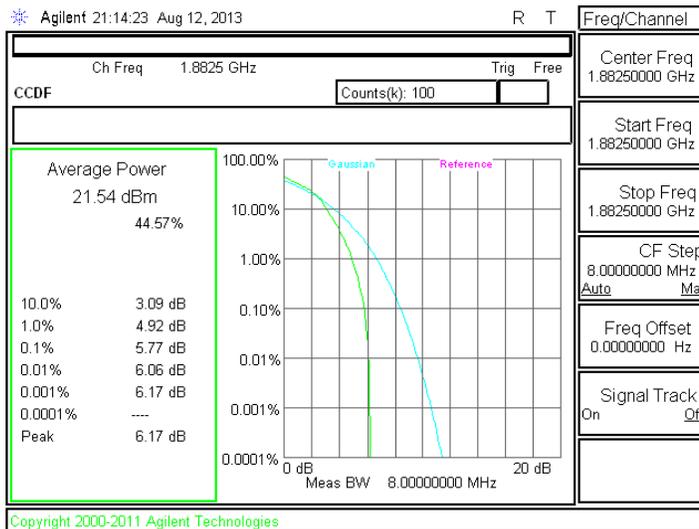
8.1.9. LTE BAND 25

1.4 MHz

QPSK

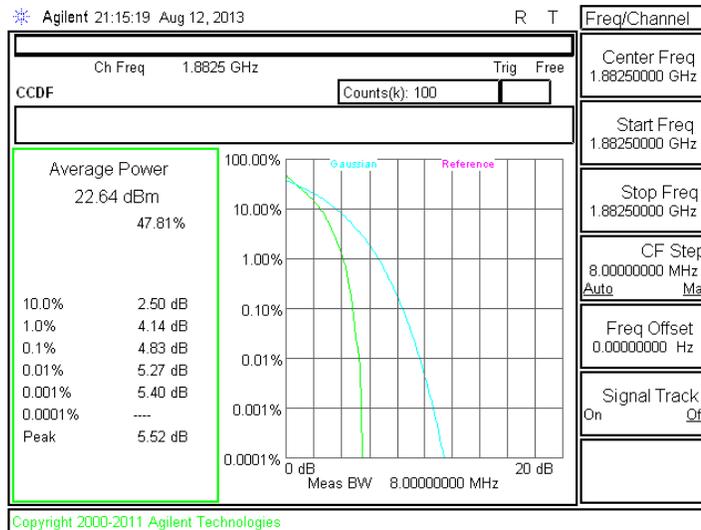


16QAM

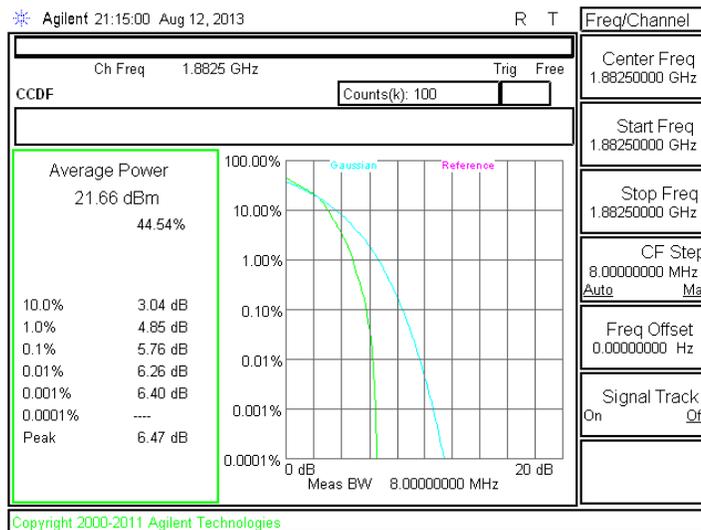


3 MHz

QPSK

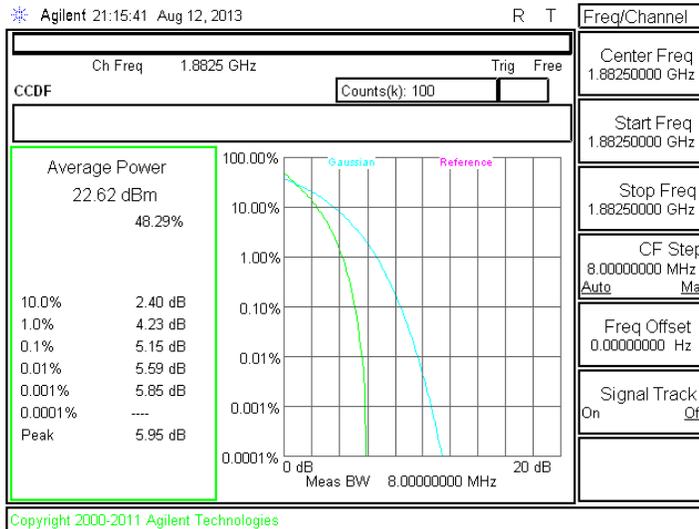


16QAM

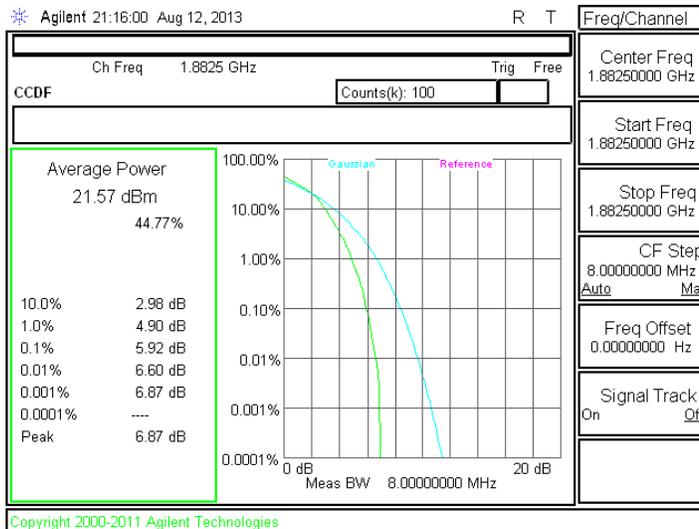


5 MHz

QPSK

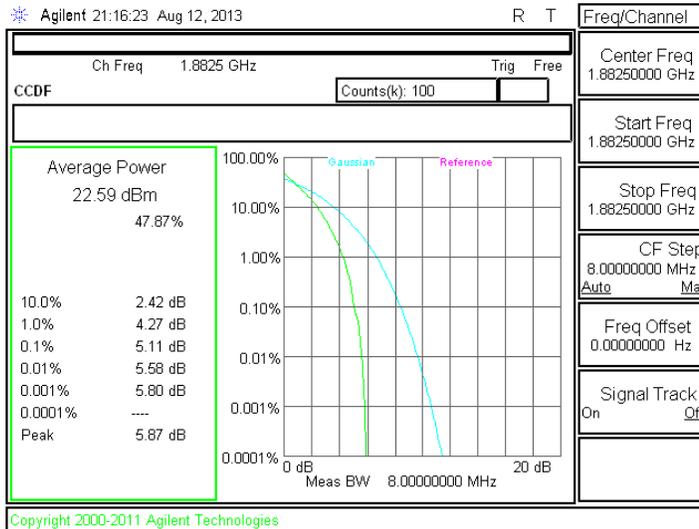


16QAM

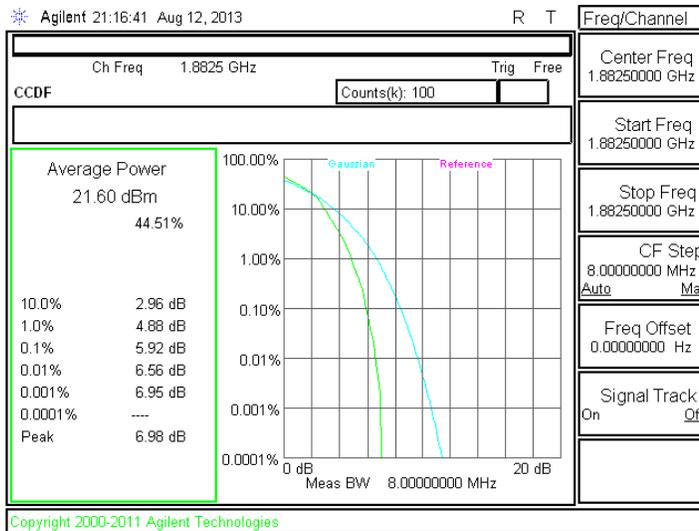


10 MHz

QPSK

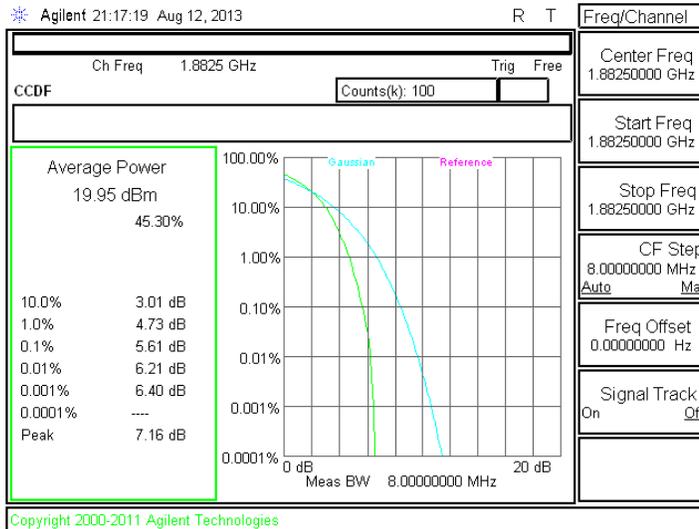


16QAM

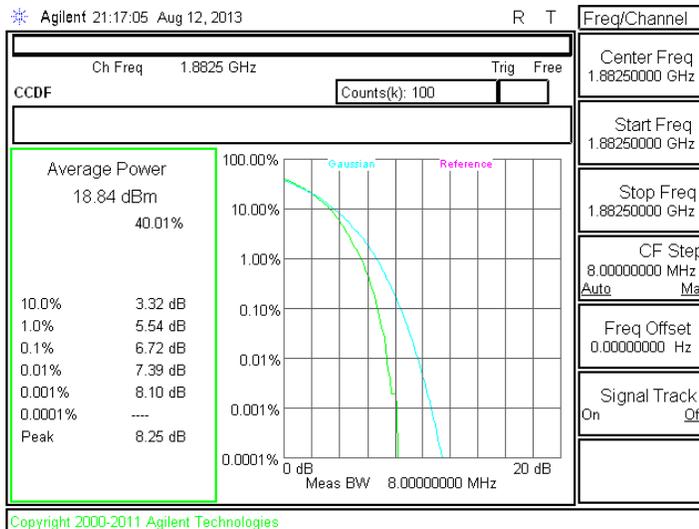


15 MHz

QPSK

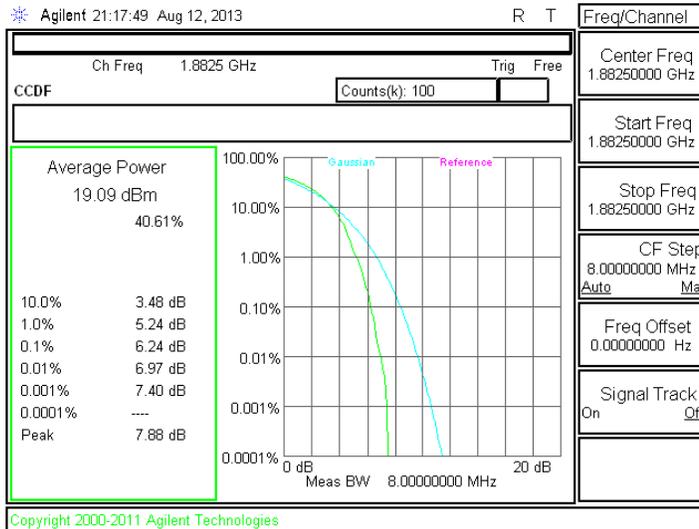


16QAM

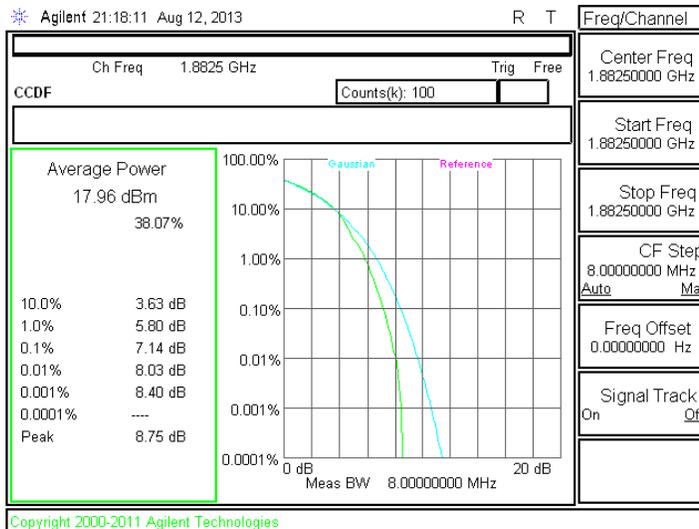


20 MHz

QPSK



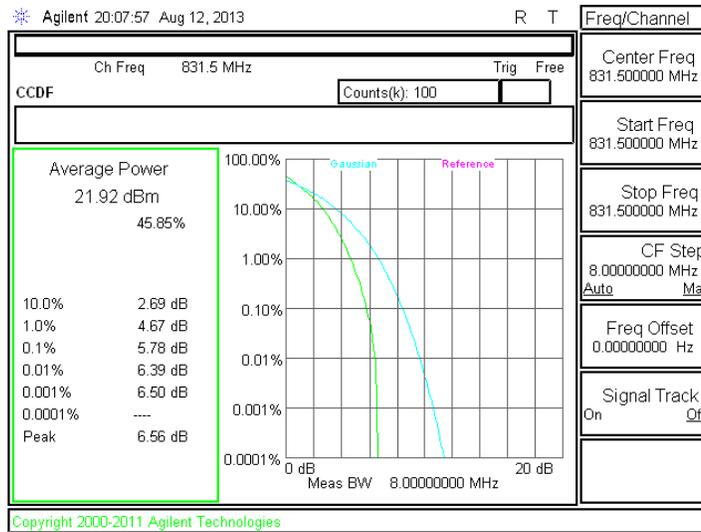
16QAM



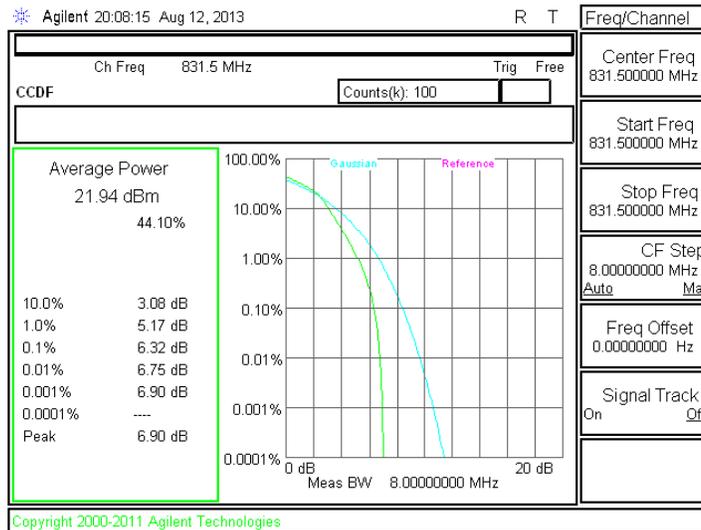
8.1.10. LTE BAND 26

1.4 MHz

QPSK

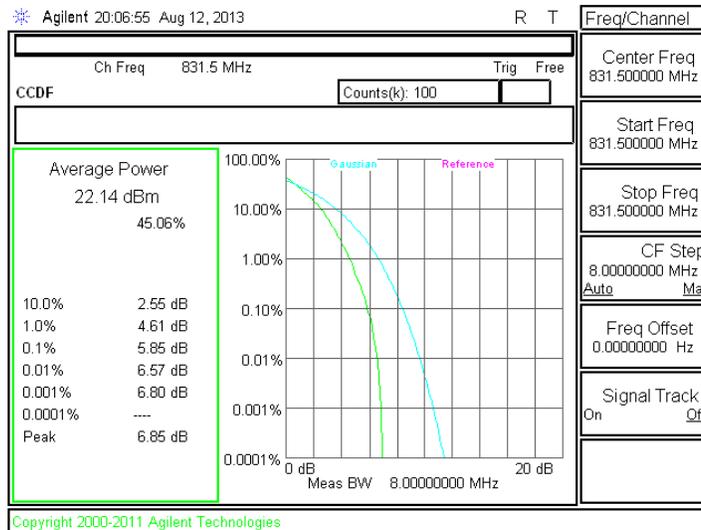


16QAM

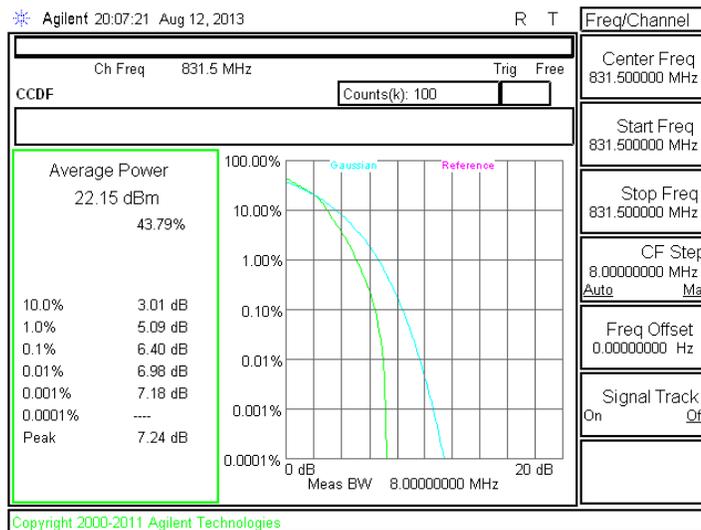


3 MHz

QPSK

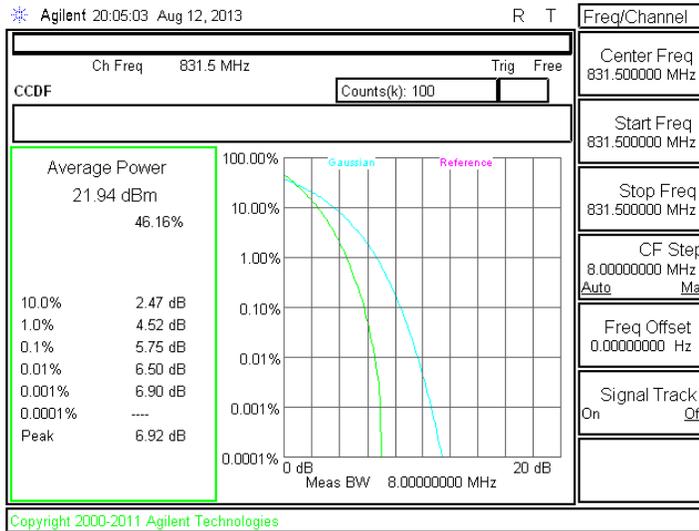


16QAM

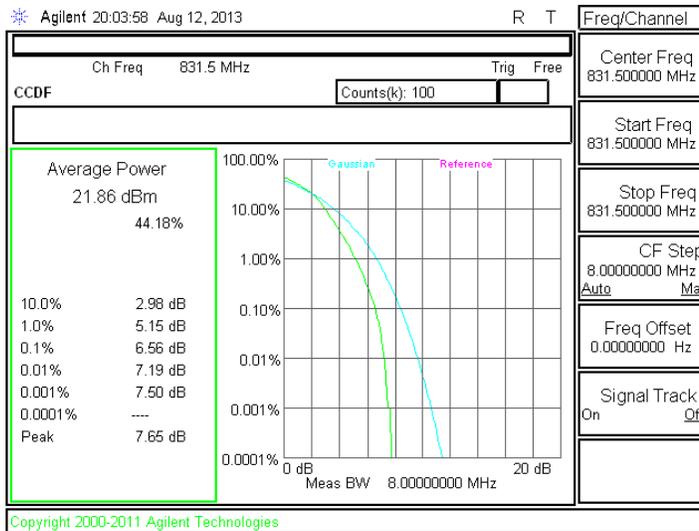


5 MHz

QPSK

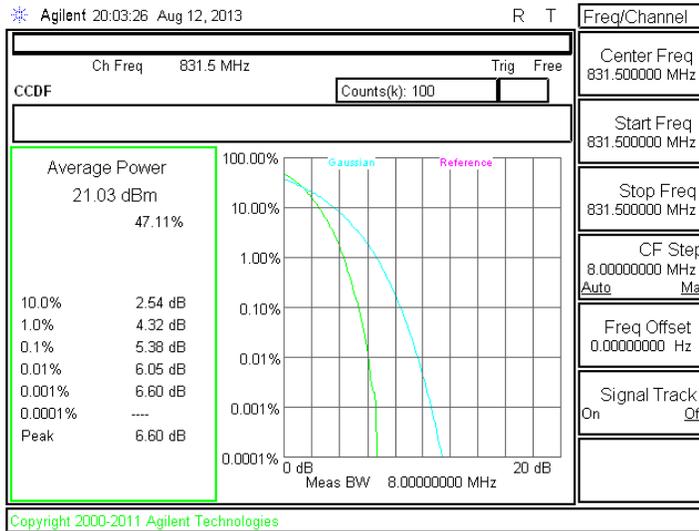


16QAM

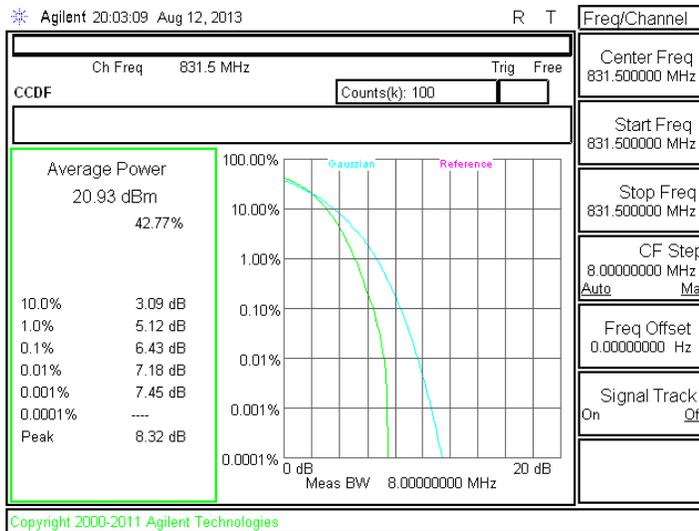


10 MHz

QPSK



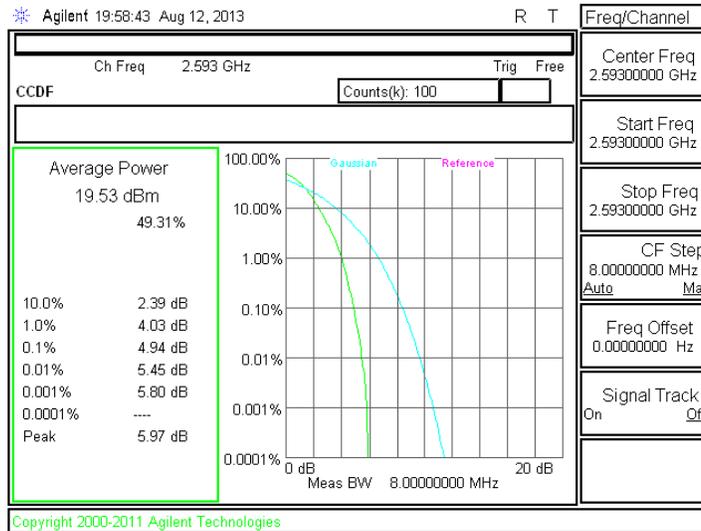
16QAM



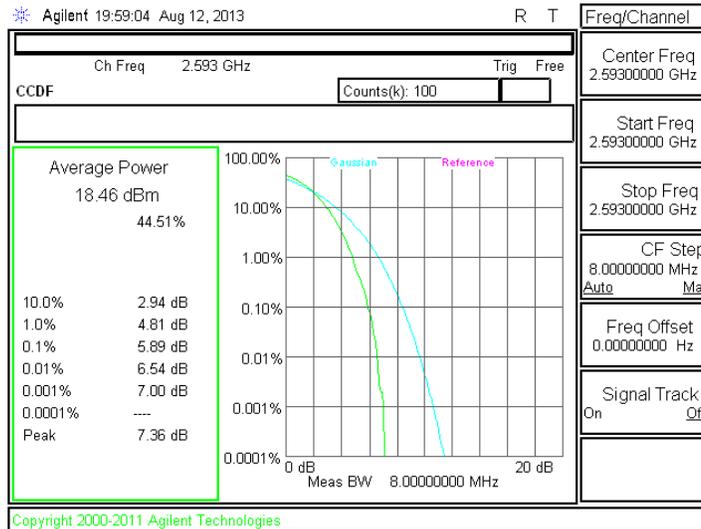
8.1.1. LTE BAND 41

10 MHz

QPSK

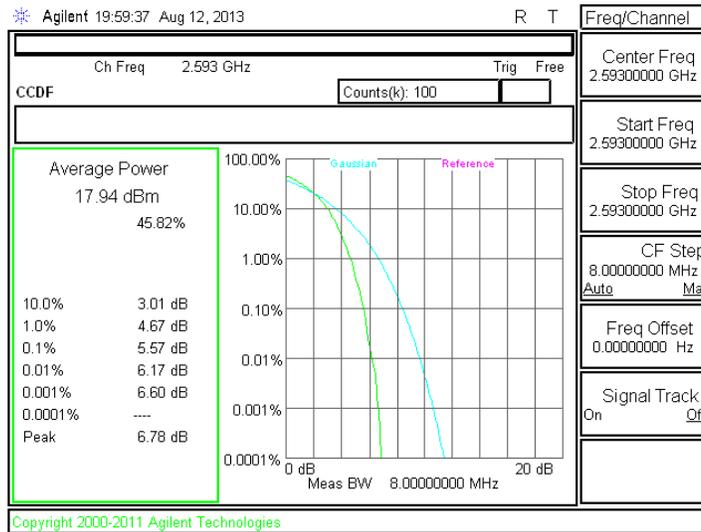


16QAM

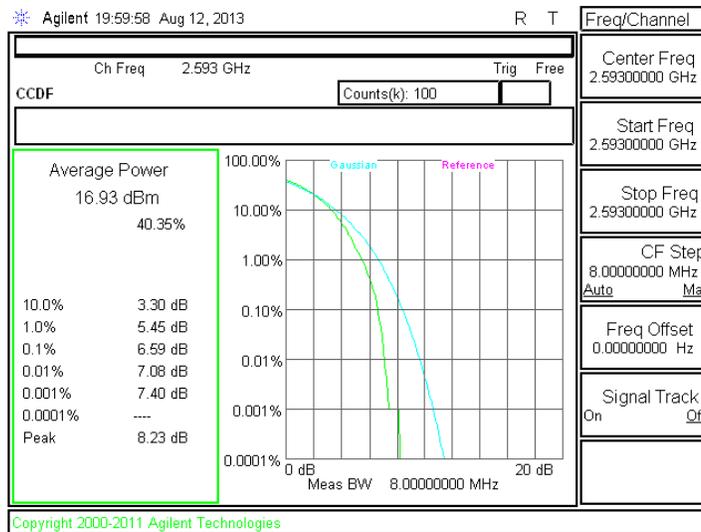


15 MHz

QPSK

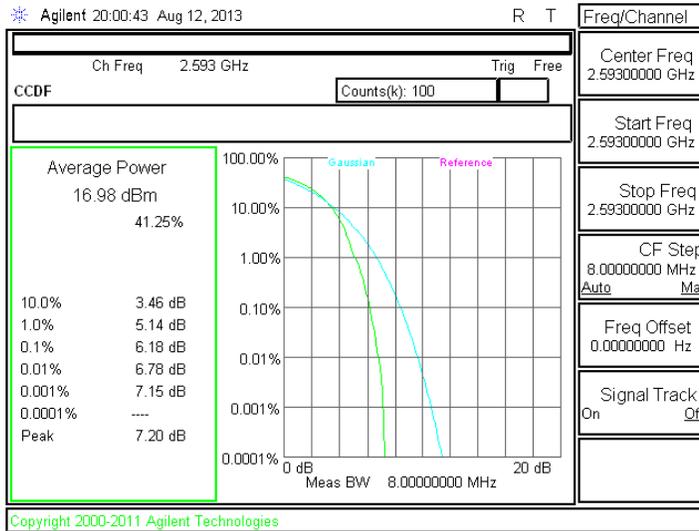


16QAM

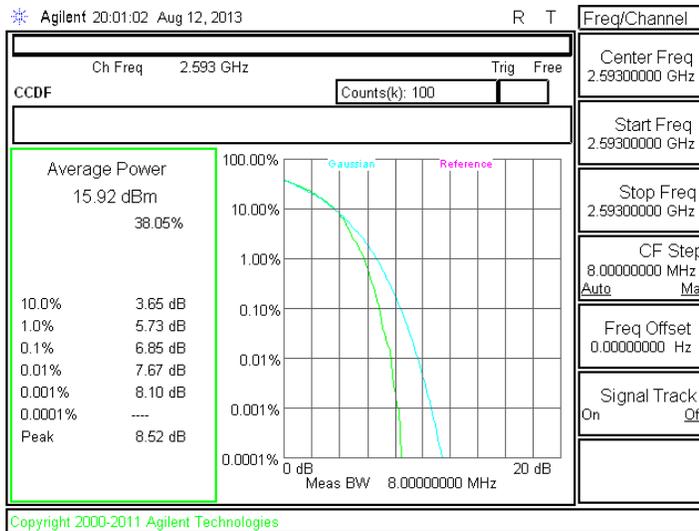


20 MHz

QPSK



16QAM



8.2. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049

LIMITS

For reporting purposes only

TEST PROCEDURE

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

MODES TESTED

- GPRS, EGPRS
- CDMA RTT, CDMA EVDO
- UMTS REL 99, and HSDPA
- LTE BAND 4,17,25,26,41

RESULTS

GPRS

Band	Channel	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
Cellular	128	824.20	244.3967	310.447
	190	836.60	244.6173	320.109
	251	848.80	238.4089	316.241
PCS	512	1850.2	239.4457	317.997
	661	1880.0	242.5700	317.921
	810	1909.8	245.1624	319.425

EGPRS

Band	Channel	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
Cellular	128	824.20	239.2665	303.603
	190	836.60	243.5350	323.632
	251	848.80	243.7758	311.235
PCS	512	1850.2	242.1338	308.1388
	661	1880.0	245.9393	311.927
	810	1909.8	240.7664	299.256

REL 99

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	4357	826.4	4.1385	4.544
	4408	836.6	4.1670	4.553
	4458	846.6	4.1873	4.530
BAND 2	9662	1852.4	4.1019	4.628
	9800	1880	4.1896	4.547
	9938	1907.6	4.1283	4.589
BAND 4	1312	1712.4	4.1830	4.583
	1413	1732.6	4.0963	4.502
	1513	1752.6	4.1648	4.585

HSDPA

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	4357	826.4	4.1637	4.473
	4408	836.6	4.1523	4.569
	4458	846.6	4.1443	4.662
BAND 2	9662	1852.4	4.1209	4.596
	9800	1880	4.1874	4.522
	9938	1907.6	4.2424	4.623
BAND 4	1312	1712.4	4.1365	4.526
	1413	1732.6	4.1050	4.587
	1513	1752.6	4.0921	4.540

CDMA RTT

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC0	1013	824.7	1.2738	1.410
	384	836.52	1.2666	1.416
	777	848.31	1.2723	1.420
BC1	25	1851.25	1.2817	1.433
	600	1880	1.2768	1.426
	1175	1908.75	1.2731	1.434
BC10	476	817.9	1.2694	1.432
	580	820.5	1.2767	1.423
	684	823.1	1.2720	1.425

CDMA EVDO

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC0	1013	824.7	1.2735	1.427
	384	836.52	1.2724	1.417
	777	848.31	1.2686	1.420
BC1	25	1851.25	1.2769	1.566
	600	1880	1.2745	1.427
	1175	1908.75	1.2804	1.437
BC10	476	817.9	1.2711	1.427
	580	820.5	1.2733	1.431
	684	823.1	1.2740	1.421

LTE Band 4

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (kHz)	-26dB BW (kHz)	
LTE Band 4	1,4 MHz BAND	4/2	1710.7	717.2911	853.611	
	QPSK	6/0		1.0741	1.157	
	1.4 MHz BAND	4/2		729.0100	918.636	
	16QAM	6/0		1.0733	1.217	
	1,4 MHz BAND	4/2	1732.5	720.5193	896.115	
	QPSK	6/0		1.0690	1.186	
	1.4 MHz BAND	4/2		717.3806	899.496	
	16QAM	6/0		1.0719	1.213	
	1,4 MHz BAND	4/2	1754.5	718.3994	895.643	
	QPSK	6/0		1.0719	1.232	
	1.4 MHz BAND	4/2		718.3994	895.643	
	16QAM	6/0		1.0612	1.175	
		Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
		3 MHz BAND	8/4	1711.5	1.4285	1.705
		QPSK	15/0		2.6598	2.869
		3 MHz BAND	8/4		1.4374	1.698
		16QAM	15/0		2.6702	2.807
		3 MHz BAND	8/4	1732.5	1.4061	1.621
		QPSK	15/0		2.6735	2.827
		3 MHz BAND	8/4		1.4082	1.520
		16QAM	15/0		2.9989	2.834
		3 MHz BAND	8/4	1753.5	1.4298	1.693
		QPSK	15/0		2.6704	2.769
		3 MHz BAND	8/4		1.4227	1.723
	16QAM	15/0	2.6704		2.769	

LTE Band 4

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 4	5.0 MHz BAND	12/6	1712.5	2.1409	2.592
	QPSK	25/0		4.4263	4.793
	5.0 MHz BAND	12/6		2.1458	2.511
	16QAM	25/0		4.4587	4.657
	5.0 MHz BAND	12/6	1732.5	2.1406	2.450
	QPSK	25/0		4.4590	4.741
	5.0 MHz BAND	12/6		2.1507	2.429
	16QAM	25/0		4.235	4.571
	5.0 MHz BAND	12/6	1752.5	2.1397	2.570
	QPSK	25/0		4.4251	4.596
	5.0 MHz BAND	12/6		2.1370	2.449
	16QAM	25/0		4.4593	4.640
	10 MHz BAND	25/12	1715.0	4.4428	4.768
	QPSK	50/0		8.8270	9.264
	10 MHz BAND	25/12		4.4735	7.979
	16QAM	50/0		8.8562	9.188
	10 MHz BAND	25/12	1732.5	4.4373	4.770
	QPSK	50/0		8.7495	9.126
	10 MHz BAND	25/12		4.4634	4.939
	16QAM	50/0		8.9289	9.150
	10 MHz BAND	25/12	1750.0	4.4435	4.737
	QPSK	50/0		8.8814	9.248
	10 MHz BAND	25/12		4.4585	5.014
	16QAM	50/0		8.8123	9.373

LTE Band 4

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 4	15 MHz BAND	36/18	1717.5	6.4431	7.059
	QPSK	75/0		13.3716	13.755
	15 MHz BAND	36/18		6.4248	7.415
	16QAM	75/0		13.2498	13.729
	15 MHz BAND	36/18	1732.5	6.3165	7.237
	QPSK	75/0		13.4355	13.902
	15 MHz BAND	36/18		6.3953	6.798
	16QAM	75/0		13.4132	13.650
	15 MHz BAND	36/18	1747.5	6.3831	6.672
	QPSK	75/0		13.1975	13.767
	15 MHz BAND	36/18		6.3878	6.855
	16QAM	75/0		13.3638	13.760
	20 MHz BAND	100/0	1720.0	8.8449	9.543
	QPSK	50/25		17.6631	18.220
	20 MHz BAND	100/0		8.8365	9.884
	16QAM	50/25		17.6344	18.296
	20 MHz BAND	50/25	1732.5	8.8746	9.406
	QPSK	100/0		17.3985	18.435
	20 MHz BAND	50/25		8.9139	9.8789
	16QAM	100/0		17.8126	18.488
	20 MHz BAND	50/25	1745.0	8.9127	9.865
	QPSK	100/0		17.6193	18.344
	20 MHz BAND	50/25		8.9066	9.156
	16QAM	100/0		17.5848	18.100

LTE Band 17

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 17	5.0 MHz BAND	12/6	706.5	2.5124	2.734
	QPSK	25/0		4.4608	4.896
	5.0 MHz BAND	12/6		2.1616	2.646
	16QAM	25/0		4.4505	4.821
	5.0 MHz BAND	12/6	710	2.1516	2.627
	QPSK	25/0		4.4386	4.811
	5.0 MHz BAND	12/6		2.1571	2.532
	16QAM	25/0		4.4500	4.882
	5.0 MHz BAND	12/6	713.5	2.1520	2.618
	QPSK	25/0		4.4450	4.852
	5.0 MHz BAND	12/6		2.1595	2.893
	16QAM	25/0		4.4628	4.758
	10 MHz BAND	25/12	709	4.4580	5.309
	QPSK	50/0		8.9237	9.739
	10 MHz BAND	25/12		4.4529	5.193
	16QAM	50/0		8.9410	9.735
	10 MHz BAND	25/12	710	4.4589	5.006
	QPSK	50/0		8.9312	9.726
	10 MHz BAND	25/12		4.4747	5.469
	16QAM	50/0		8.9160	9.685
	10 MHz BAND	25/12	711	4.4613	5.172
	QPSK	50/0		8.9053	9.675
	10 MHz BAND	25/12		4.4648	5.104
	16QAM	50/0		8.8912	9.545

LTE Band 25

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (kHz)	-26dB BW (kHz)	
LTE Band 25	1,4 MHz BAND	4/2	1850.7	721.9954	974.858	
	QPSK	6/0		1.0721	1.239	
	1.4 MHz BAND	4/2		718.3739	982.885	
	16QAM	6/0		1.0723	1.227	
	1,4 MHz BAND	4/2	1882.5	722.0293	930.327	
	QPSK	6/0		1.0746	1.223	
	1.4 MHz BAND	4/2		720.1662	956.990	
	16QAM	6/0		1.0755	1.253	
	1,4 MHz BAND	4/2	1914.3	727.3808	1.112	
	QPSK	6/0		1.0733	1.249	
	1.4 MHz BAND	4/2		725.5432	1.061	
	16QAM	6/0		1.0732	1.241	
		Mode	RB/RB SIZE	f (MHz)		
		3 MHz BAND	8/4	1851.5	1.4719	2.003
		QPSK	15/0		2.6731	2.960
		3 MHz BAND	8/4		1.4340	1.824
		16QAM	15/0		2.6777	2.923
		3 MHz BAND	8/4	1882.5	1.4284	1.749
		QPSK	15/0		2.6718	2.941
		3 MHz BAND	8/4		1.4391	1.847
		16QAM	15/0		2.6674	2.917
		3 MHz BAND	8/4	1913.5	1.4370	1.834
		QPSK	15/0		2.6732	2.891
		3 MHz BAND	8/4		1.4402	1.823
	16QAM	15/0	2.6805		2.965	

LTE Band 25

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 25	5.0 MHz BAND	12/6	1852.5	2.1465	2.642
	QPSK	25/0		4.4503	4.847
	5.0 MHz BAND	12/6		2.1485	2.592
	16QAM	25/0		4.4680	4.826
	5.0 MHz BAND	12/6	1882.5	2.1546	2.588
	QPSK	25/0		4.4628	4.853
	5.0 MHz BAND	12/6		2.1596	2.565
	16QAM	25/0		4.4516	4.831
	5.0 MHz BAND	12/6	1912.5	2.1570	2.696
	QPSK	25/0		4.4527	4.841
	5.0 MHz BAND	12/6		2.1516	2.845
	16QAM	25/0		4.4695	4.879
	10 MHz BAND	25/12	1855	4.4593	4.976
	QPSK	50/0		8.9230	9.611
	10 MHz BAND	25/12		4.4550	5.037
	16QAM	50/0		8.9338	9.578
	10 MHz BAND	25/12	1882.5	4.4560	5.117
	QPSK	50/0		8.9207	9.696
	10 MHz BAND	25/12		4.4519	5.305
	16QAM	50/0		8.9180	9.583
	10 MHz BAND	25/12	1910	4.4612	5.115
	QPSK	50/0		8.9374	9.718
	10 MHz BAND	25/12		4.4715	5.121
	16QAM	50/0		8.9355	9.636

LTE Band 25

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 25	15 MHz BAND	36/18	1857.5	6.4381	7.443
	QPSK	75/0		13.3733	14.301
	15 MHz BAND	36/18		6.4372	7.736
	16QAM	75/0		13.3615	14.093
	15 MHz BAND	36/18	1882.5	6.4257	7.988
	QPSK	75/0		13.3632	14.562
	15 MHz BAND	36/18		6.4466	7.685
	16QAM	75/0		13.3687	14.440
	15 MHz BAND	36/18	1907.5	6.4239	7.715
	QPSK	75/0		13.4044	14.303
	15 MHz BAND	36/18		6.4472	7.881
	16QAM	75/0		13.3839	14.289
	20 MHz BAND	50/25	1860	8.9150	10.001
	QPSK	100/0		17.7919	18.791
	20 MHz BAND	50/25		8.9279	10.211
	16QAM	100/0		17.7743	18.816
	20 MHz BAND	50/25	1882.5	8.9316	10.380
	QPSK	100/0		17.7985	18.971
	20 MHz BAND	50/25		8.9279	10.476
	16QAM	100/0		17.7719	18.990
	20 MHz BAND	50/25	1905	8.9329	10.252
	QPSK	100/0		17.7771	18.908
	20 MHz BAND	50/25		8.9145	9.906
	16QAM	100/0		17.8147	18.896

LTE Band 26

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)	
LTE Band 26	1,4 MHz BAND	4/2	814.7	722.8201	878.472	
	QPSK	6/0		1.0777	1.216	
	1.4 MHz BAND	4/2		716.9848	868.268	
	16QAM	6/0		1.0747	1.232	
	1,4 MHz BAND	4/2	831.5	1.0729	1.214	
	QPSK	6/0		1.0753	1.216	
	1.4 MHz BAND	4/2		717.0462	878.703	
	16QAM	6/0		1.0785	1.245	
	1,4 MHz BAND	4/2	848.3	719.5649	867.5649	
	QPSK	6/0		1.0708	1.219	
	1.4 MHz BAND	4/2		719.4942	878.968	
	16QAM	6/0		1.0775	1.240	
		Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
		3 MHz BAND	8/4	815.5	1.4429	1.737
		QPSK	15/0		2.6732	2.899
		3 MHz BAND	8/4		1.4361	1.789
		16QAM	15/0		2.6773	2.902
		3 MHz BAND	8/4	831.5	1.4452	1.803
		QPSK	15/0		2.6795	2.920
		3 MHz BAND	8/4		1.4404	1.822
		16QAM	15/0		2.6708	2.912
		3 MHz BAND	8/4	847.5	1.4487	1.847
		QPSK	15/0		2.6950	2.917
		3 MHz BAND	8/4		1.4352	1.704
	16QAM	15/0	2.6739		2.880	

LTE Band 26

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 26	5 MHz BAND QPSK	12/6	816.5	4.4407	4.795
		25/0		2.1419	2.603
	5 MHz BAND 16QAM	12/6		4.4465	4.789
		25/0		2.1446	2.469
	5 MHz BAND QPSK	12/6	831.5	4.4533	4.846
		25/0		2.1427	2.502
	5 MHz BAND 16QAM	12/6		4.5597	5.095
		25/0		2.1491	2.622
	5 MHz BAND QPSK	12/6	846.5	4.4412	4.636
		25/0		2.1478	2.570
	5 MHz BAND 16QAM	12/6		4.4438	4.814
		25/0		2.1747	2.999
	10 MHz BAND QPSK	25/12	819.0	4.4537	5.054
		50/0		8.9012	9.455
	10 MHz BAND 16QAM	25/12		4.4636	5.313
		50/0		8.8982	9.580
	10 MHz BAND QPSK	25/12	831.5	4.4661	5.132
		50/0		8.9390	9.384
	10 MHz BAND 16QAM	25/12		4.4741	5.128
		50/0		8.9023	9.349
10 MHz BAND QPSK	25/12	844.0	4.4583	5.095	
	50/0		8.9188	9.436	
10 MHz BAND 16QAM	25/12		4.4368	5.117	
	50/0		8.9131	9.623	

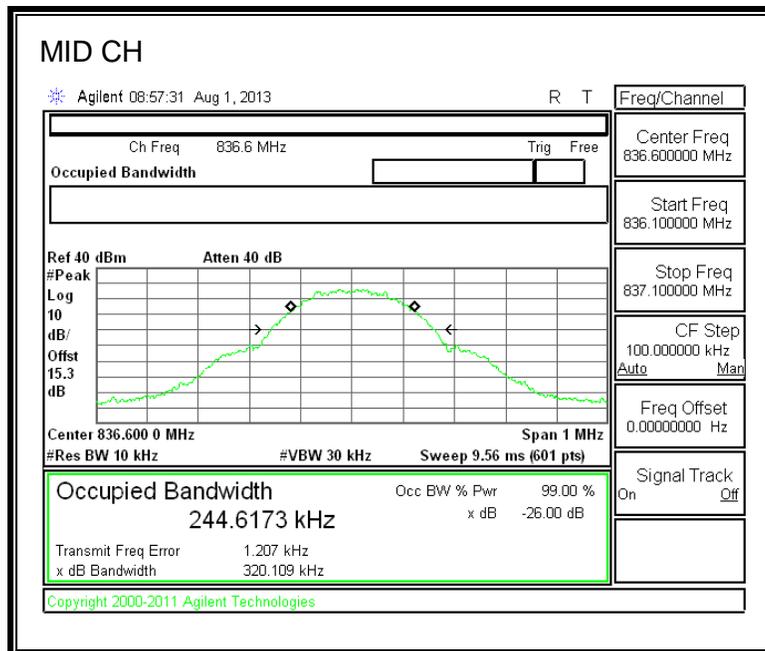
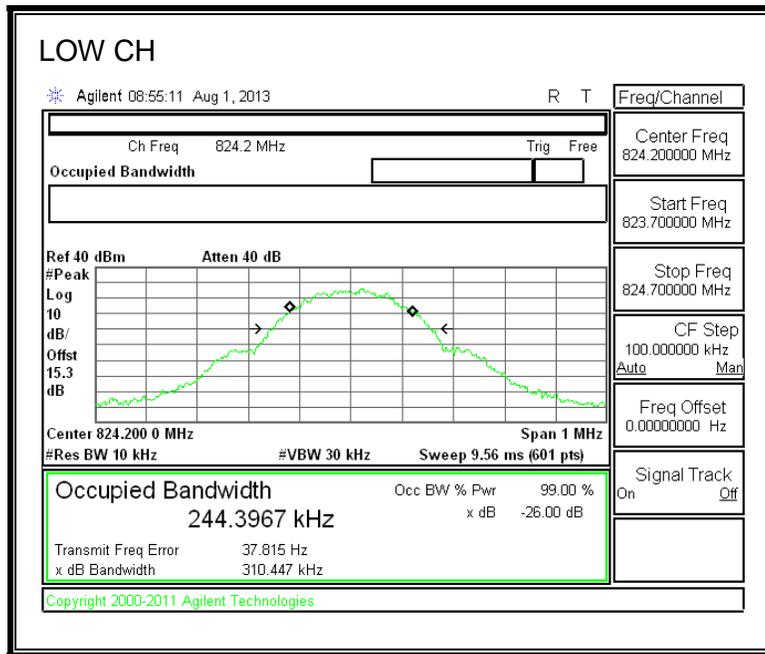
LTE Band 41

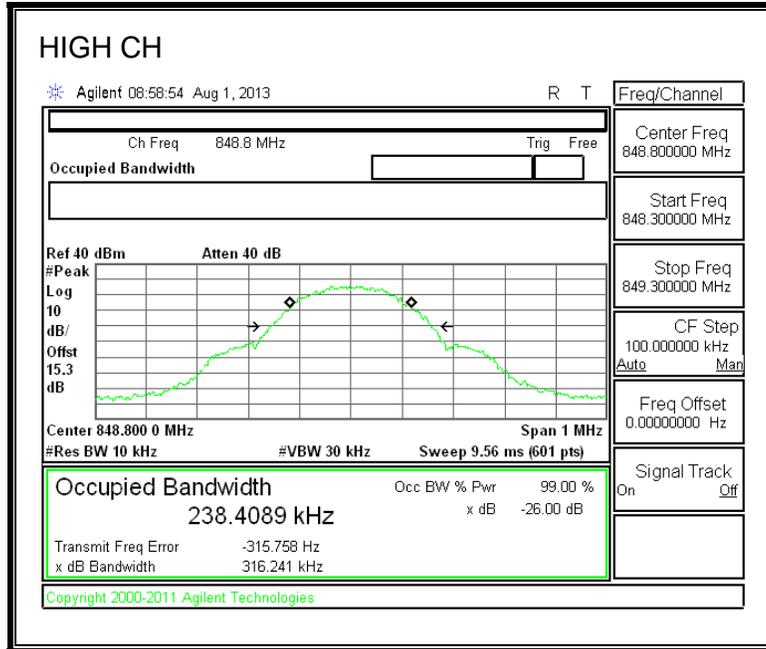
Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 41	10 MHz BAND	25/12	2498.5	4.4579	4.4579
	QPSK	50/0		8.8967	11.146
	10 MHz BAND	25/12		4.4504	5.964
	16QAM	50/0		8.8681	9.262
	10 MHz BAND	25/12	2593	4.4366	5.127
	QPSK	50/0		8.8775	9.619
	10 MHz BAND	25/12		4.4645	5.069
	16QAM	50/0		8.9059	9.541
	10 MHz BAND	25/12	2687.5	4.4585	4.854
	QPSK	50/0		8.9016	9.441
	10 MHz BAND	25/12		4.4415	5.077
	16QAM	50/0		8.8779	9.290
	15 MHz BAND	36/18	2503.5	6.4319	7.422
	QPSK	75/0		13.3394	14.009
	15 MHz BAND	36/18		6.4130	7.206
	16QAM	75/0		13.3573	14.020
	15 MHz BAND	36/18	2583	6.4258	7.423
	QPSK	75/0		13.3301	13.951
	15 MHz BAND	36/18		6.4027	7.177
	16QAM	75/0		13.3248	14.036
	15 MHz BAND	36/18	2682.5	6.4169	7.440
	QPSK	75/0		13.3718	14.231
	15 MHz BAND	36/18		6.4386	7.667
	16QAM	75/0		13.3671	14.196
20 MHz BAND	100/0	2506	8.9398	10.081	
QPSK	50/25		17.7669	18.704	
20 MHz BAND	100/0		8.8821	10.005	
16QAM	50/25		17.7938	18.495	
20 MHz BAND	50/25	2593	8.8997	10.106	
QPSK	100/0		17.7106	18.729	
20 MHz BAND	50/25		8.9041	9.639	
16QAM	100/0		17.7585	18.529	
20 MHz BAND	50/25	2680	8.9243	10.524	

	QPSK	100/0		17.7688	18.393
	20 MHz BAND	50/25		8.9728	10.551
	16QAM	100/0		17.7919	18.447

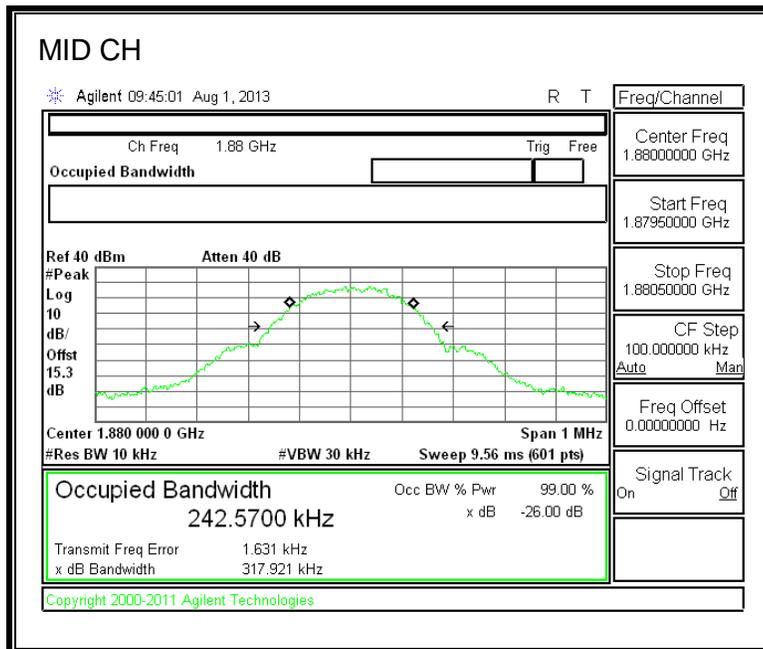
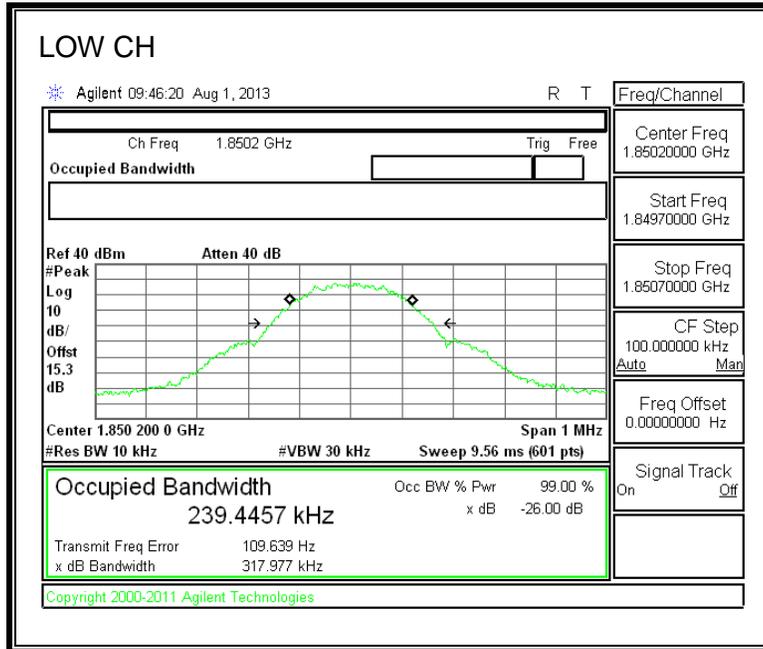
8.2.1. GPRS MODE

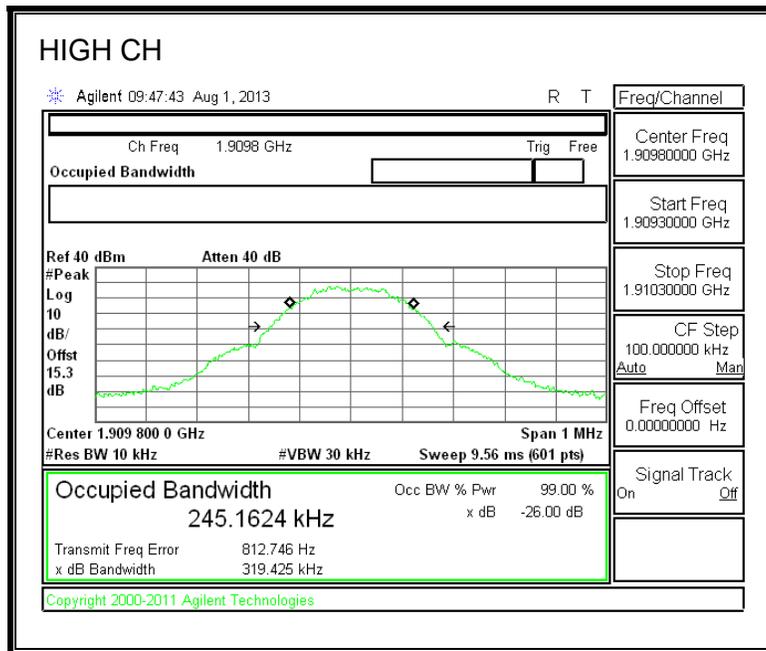
CELL BAND





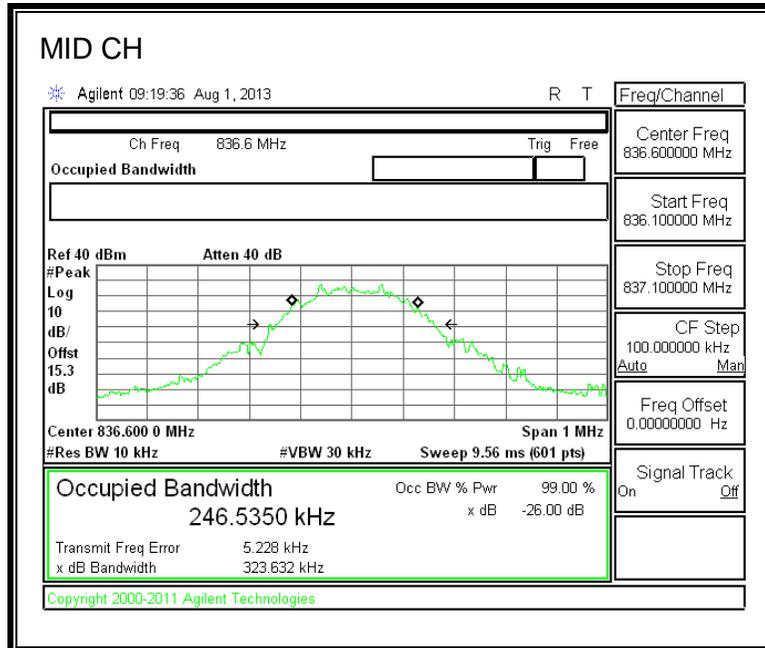
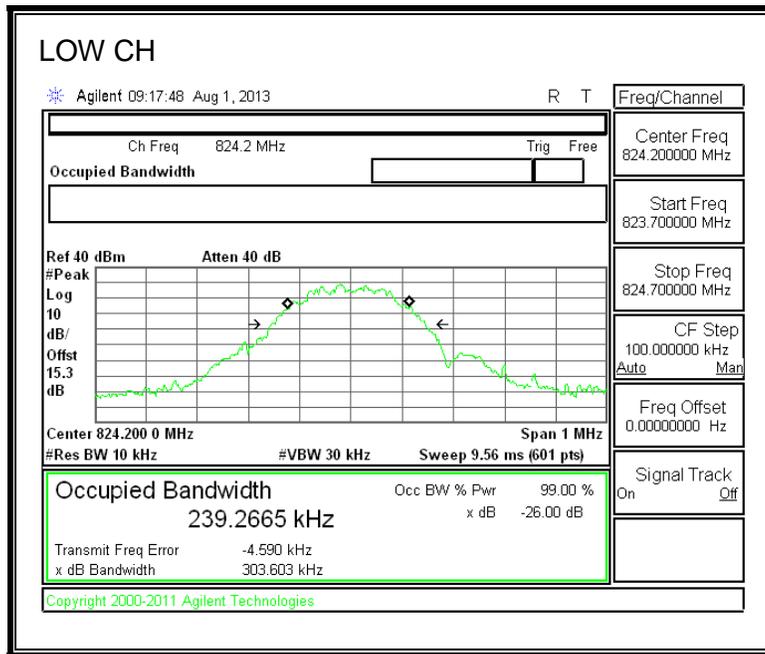
PCS Band

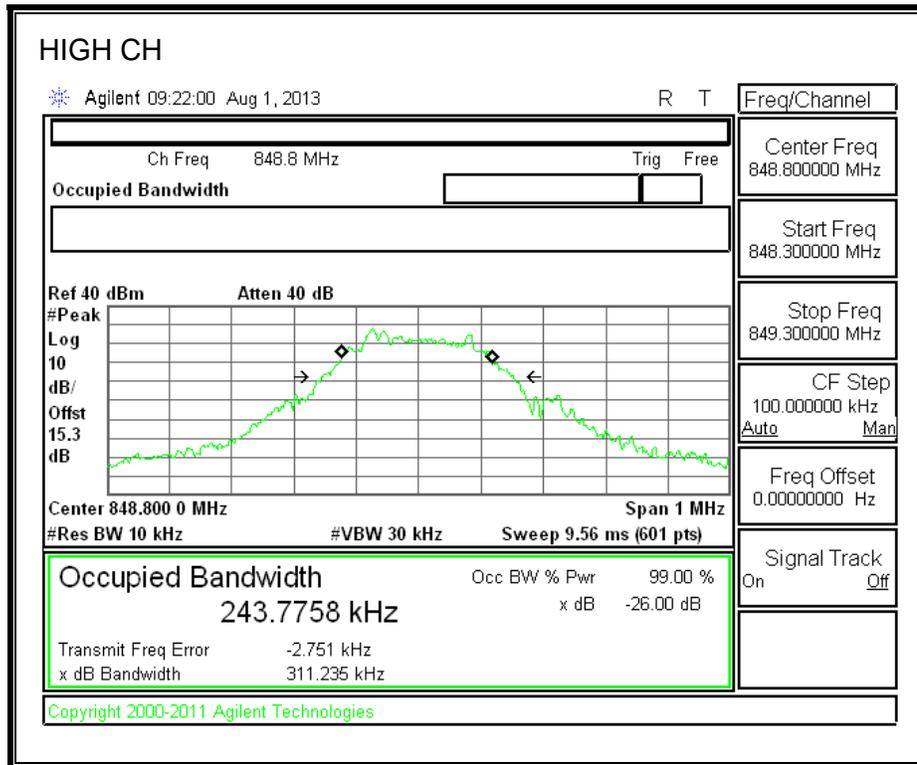




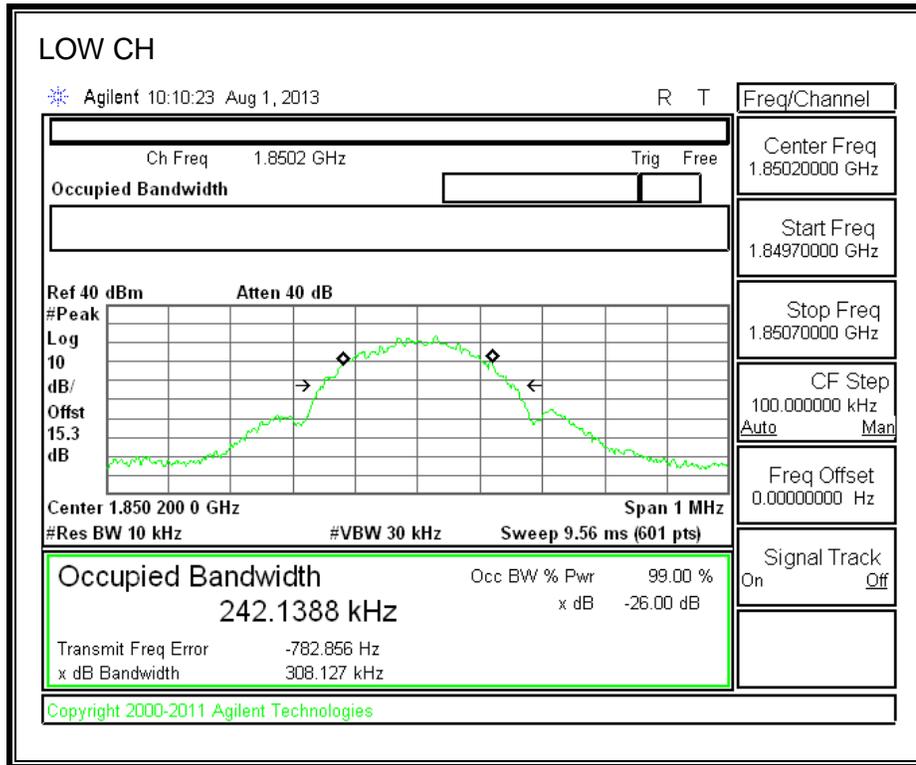
8.2.2. EGPRS MODE

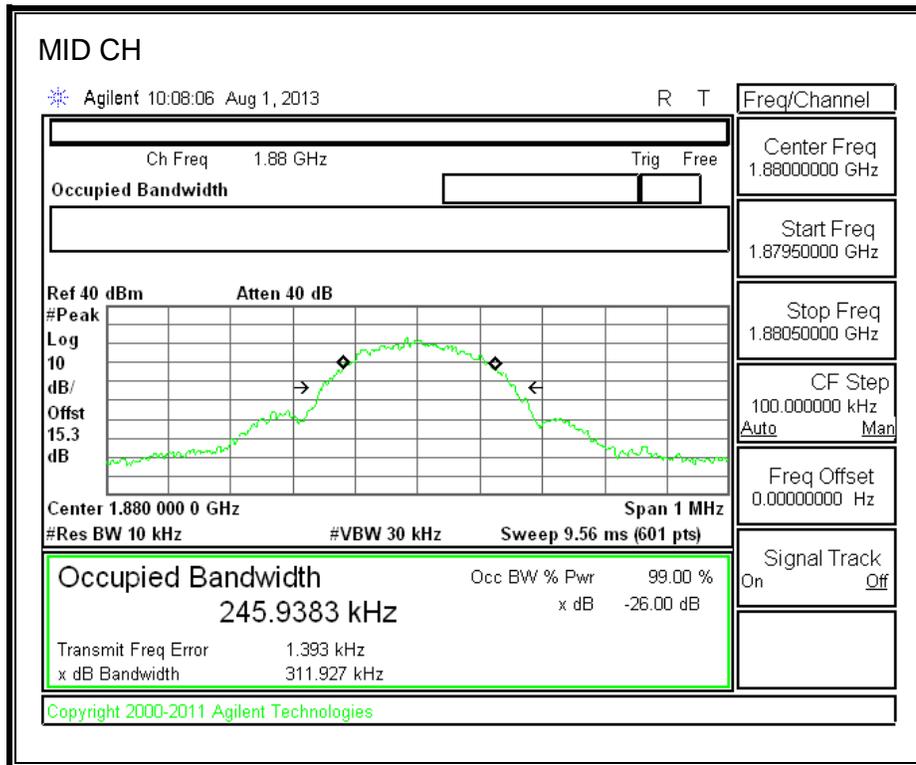
CELL BAND

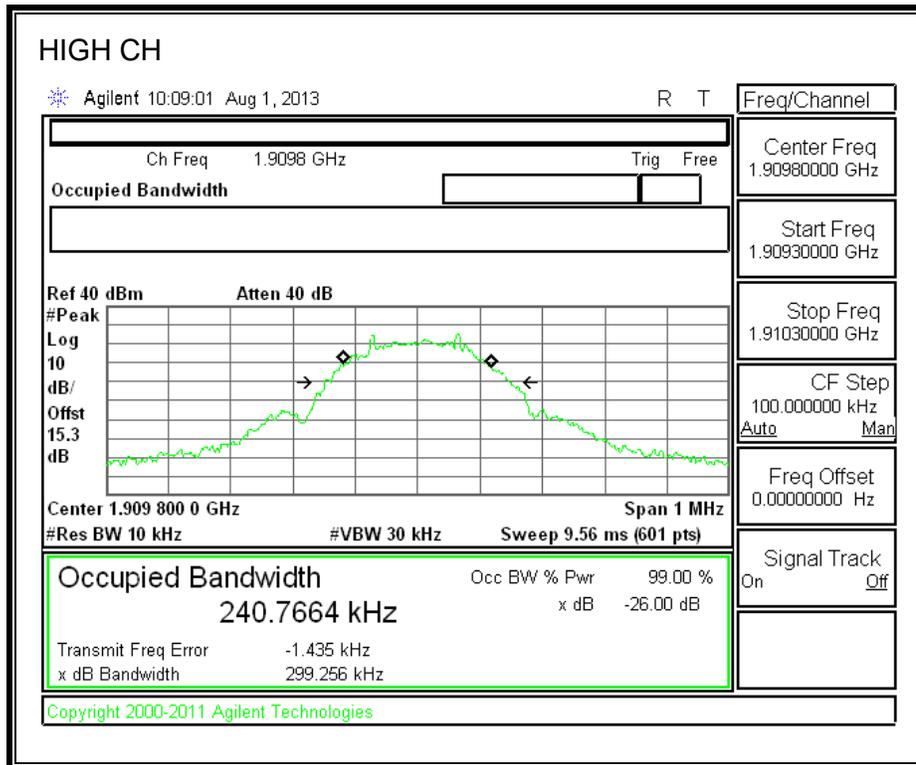




PCS Band

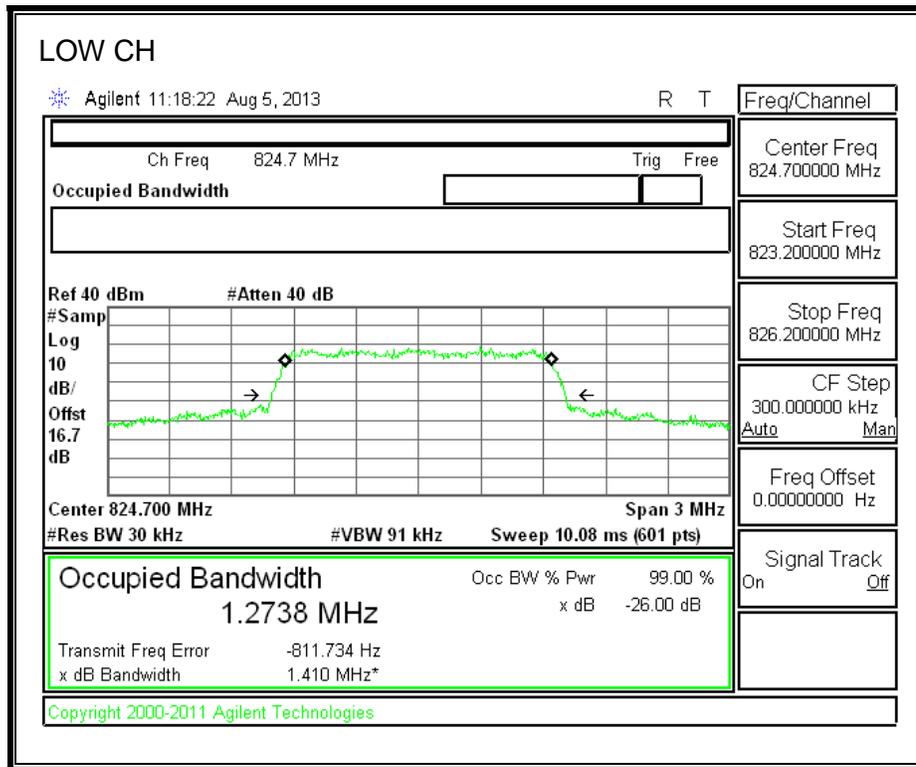


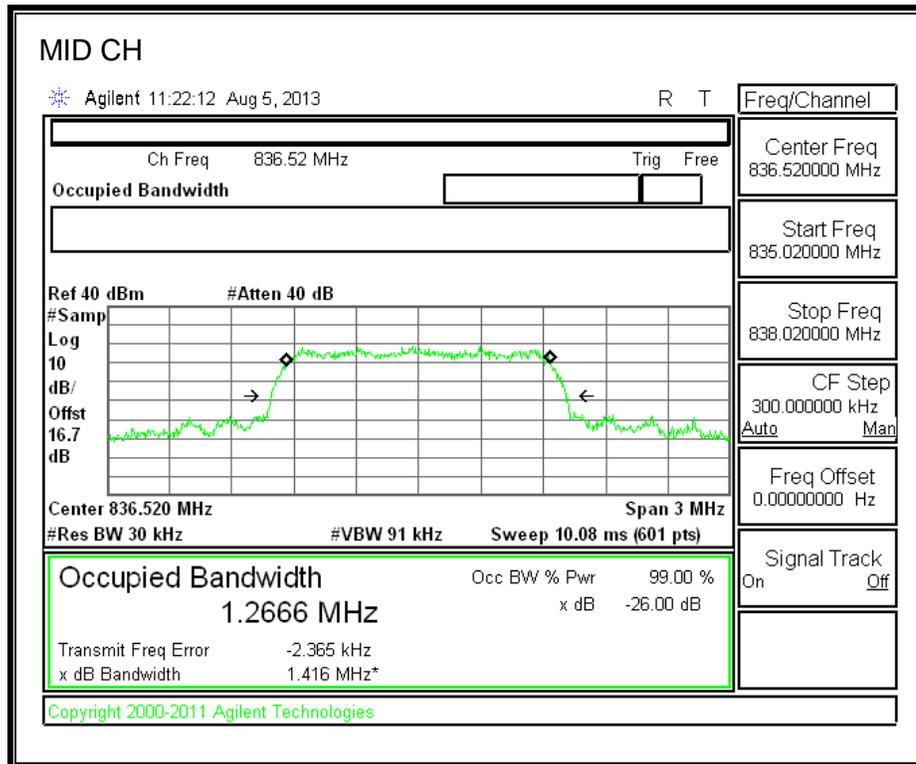


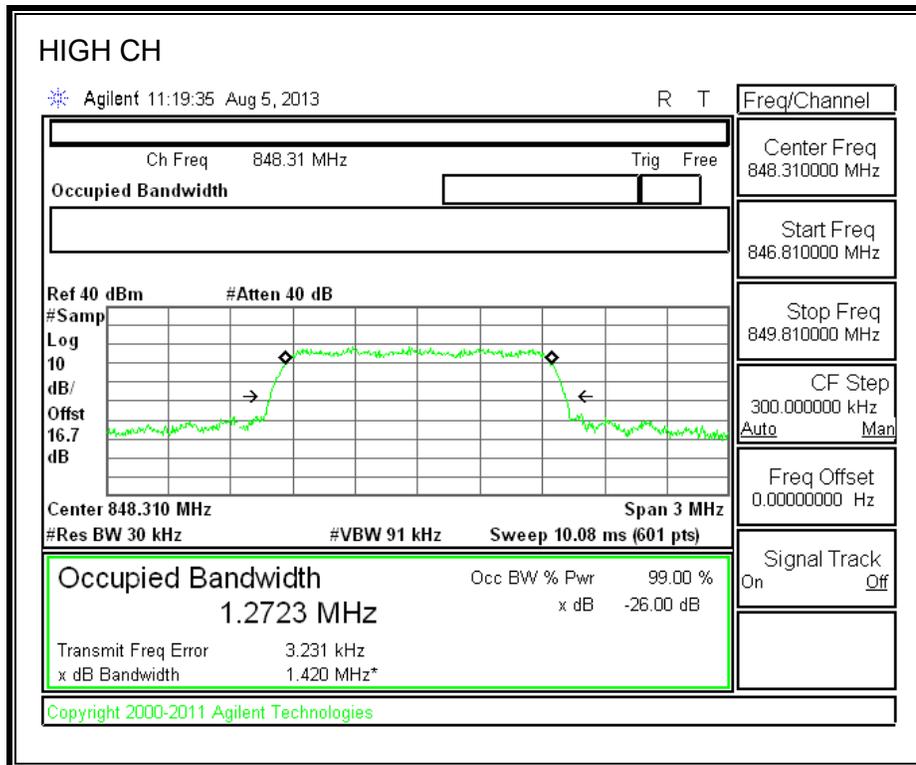


8.2.3. CDMA 1xRTT

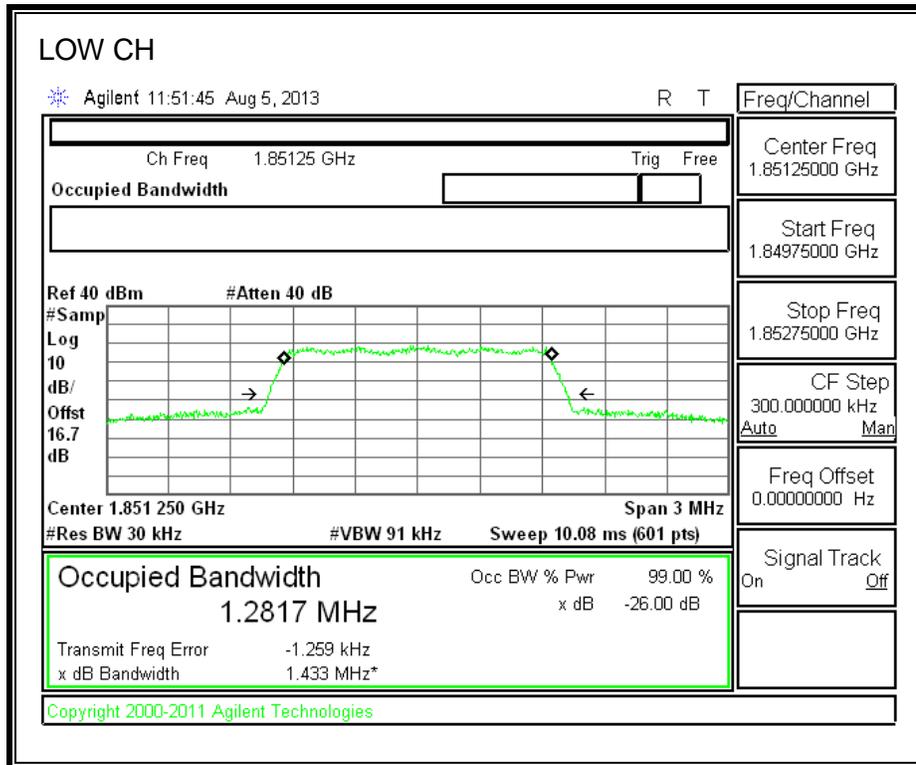
BCO BAND

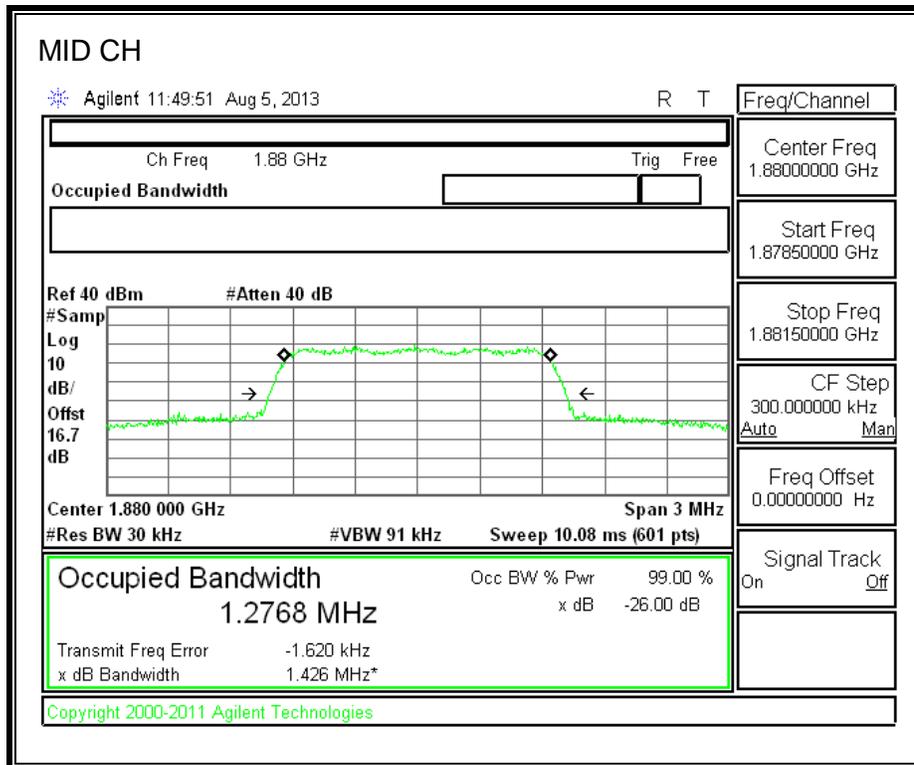


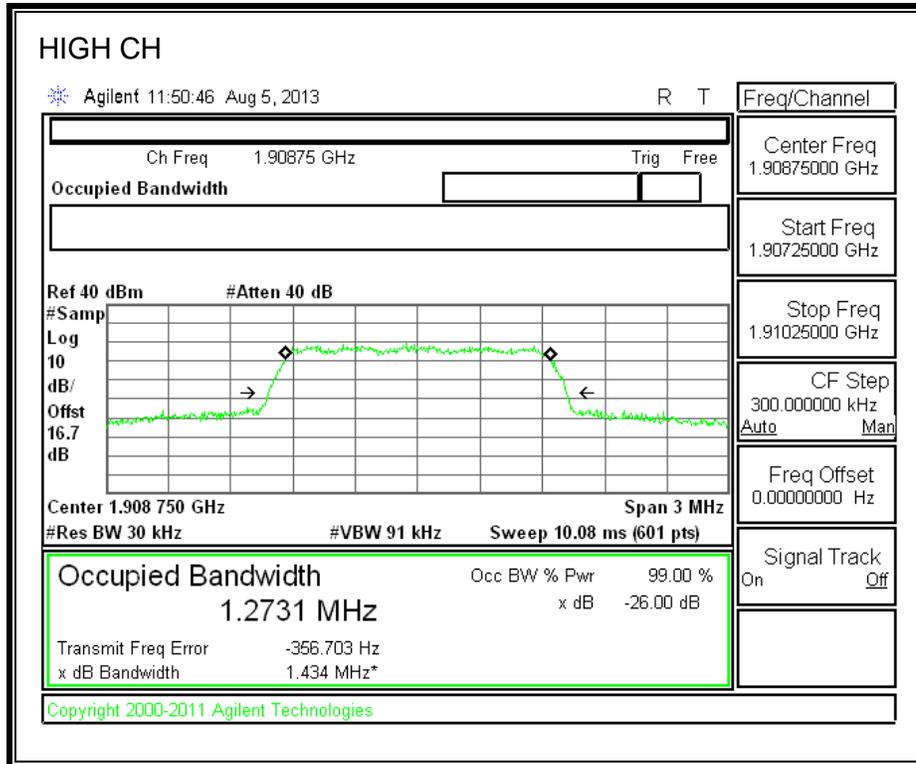




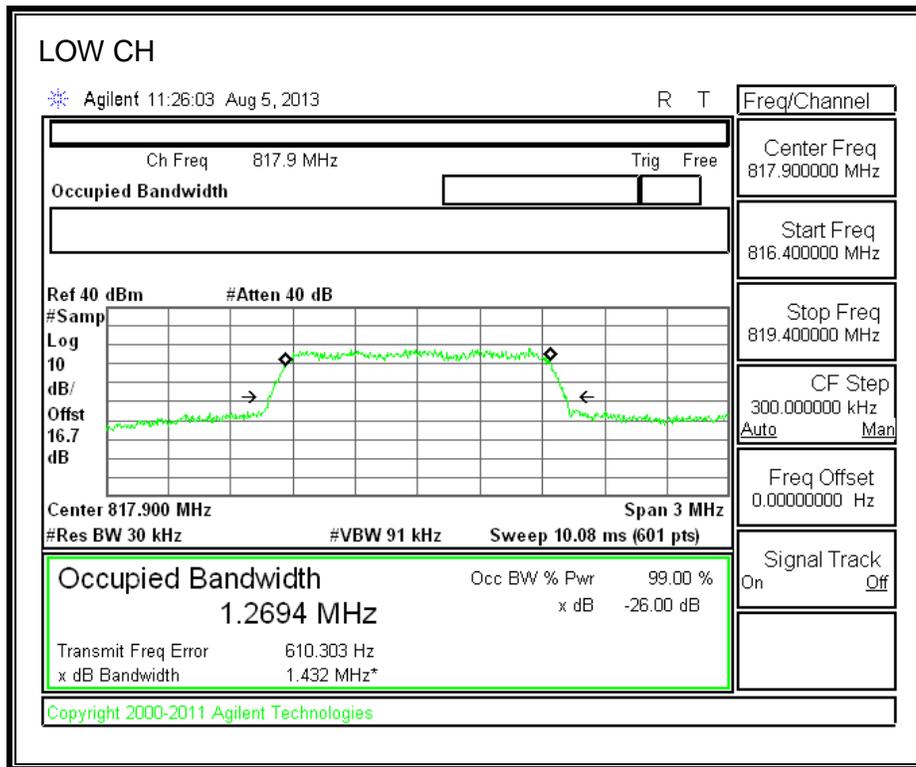
BC1 Band

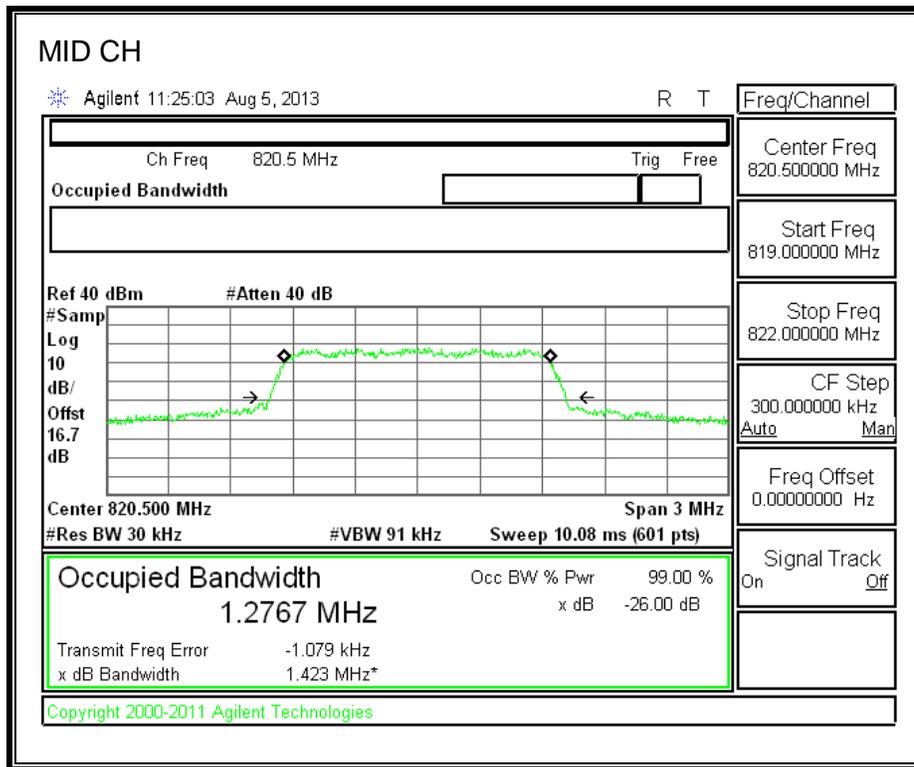


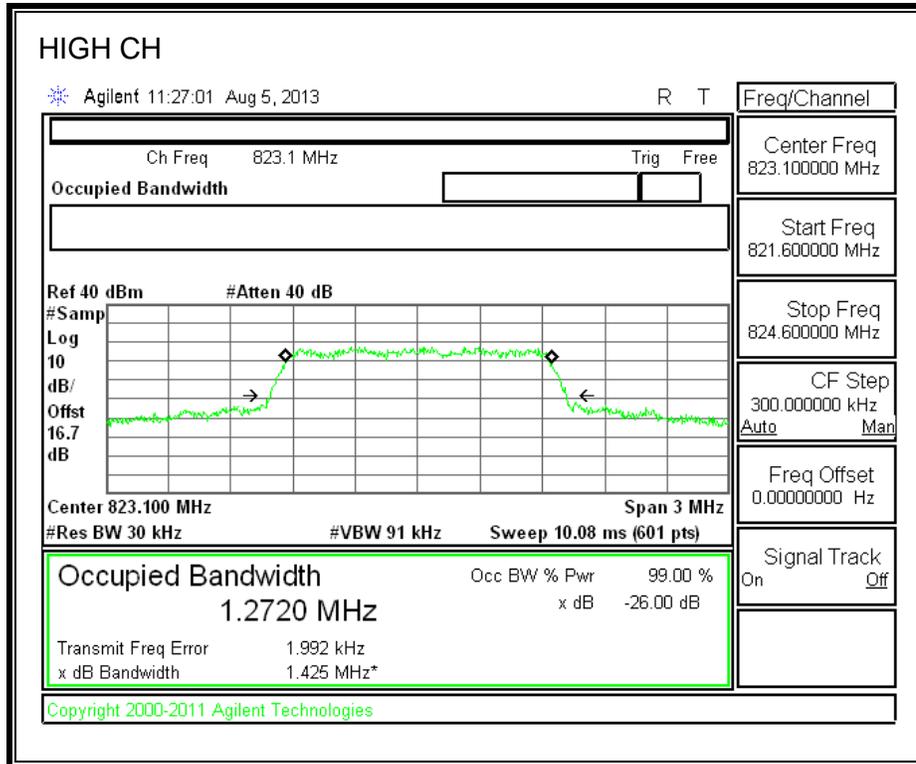




BC10 Band

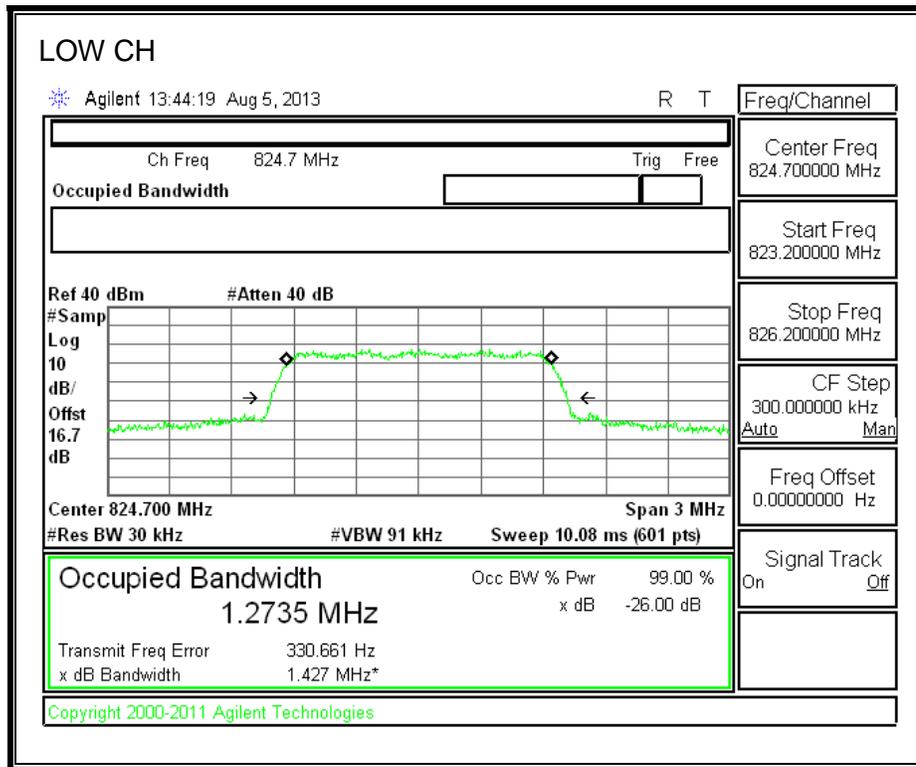


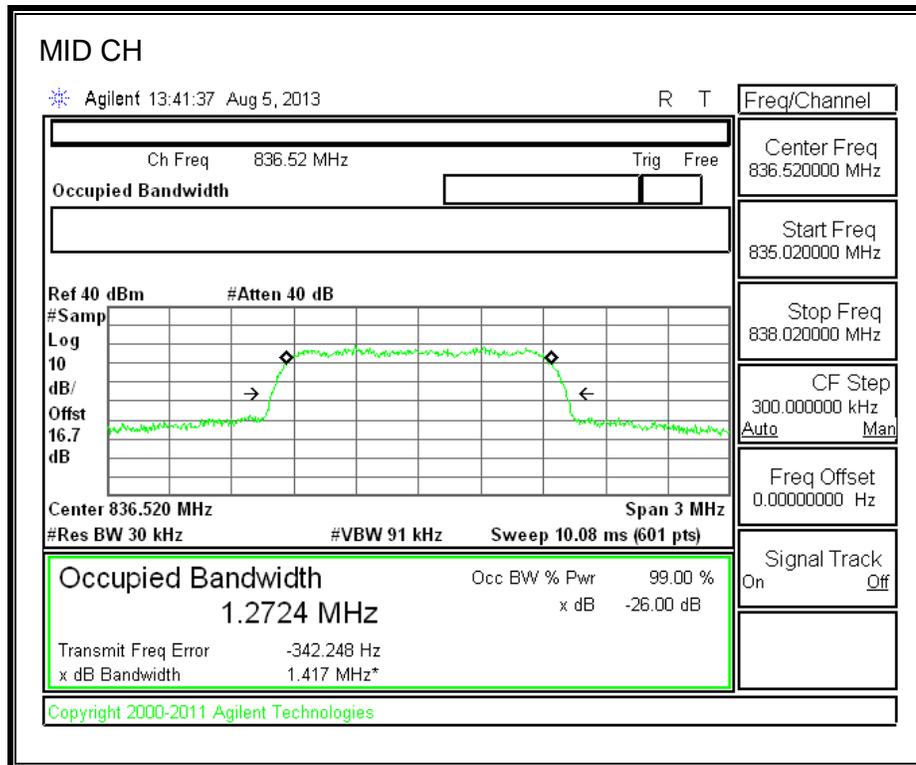


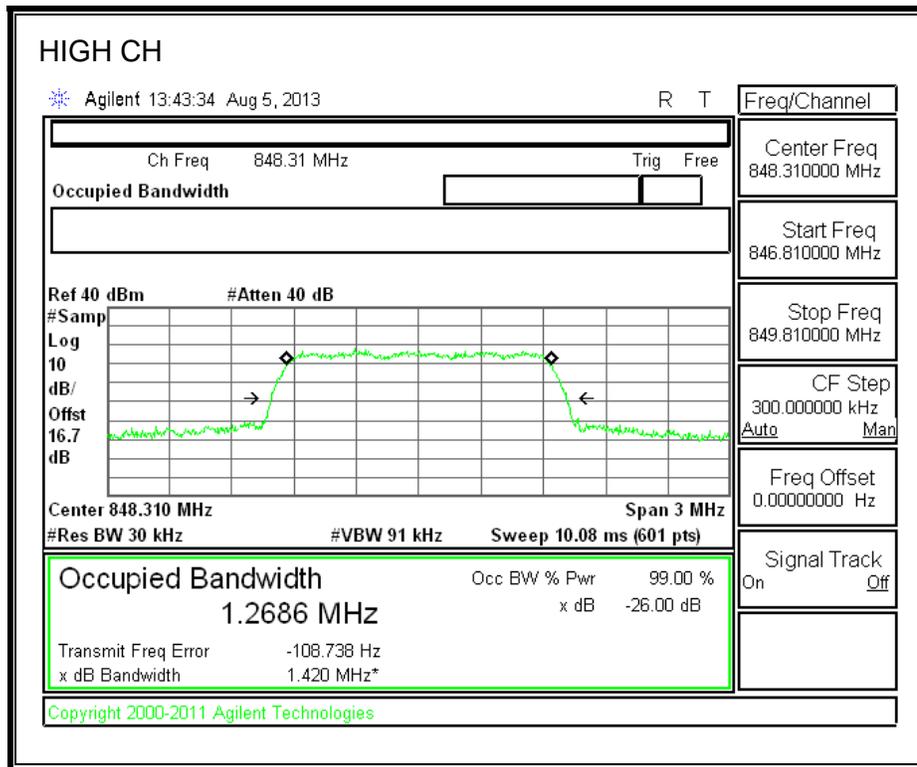


8.2.4. CDMA EV-DO

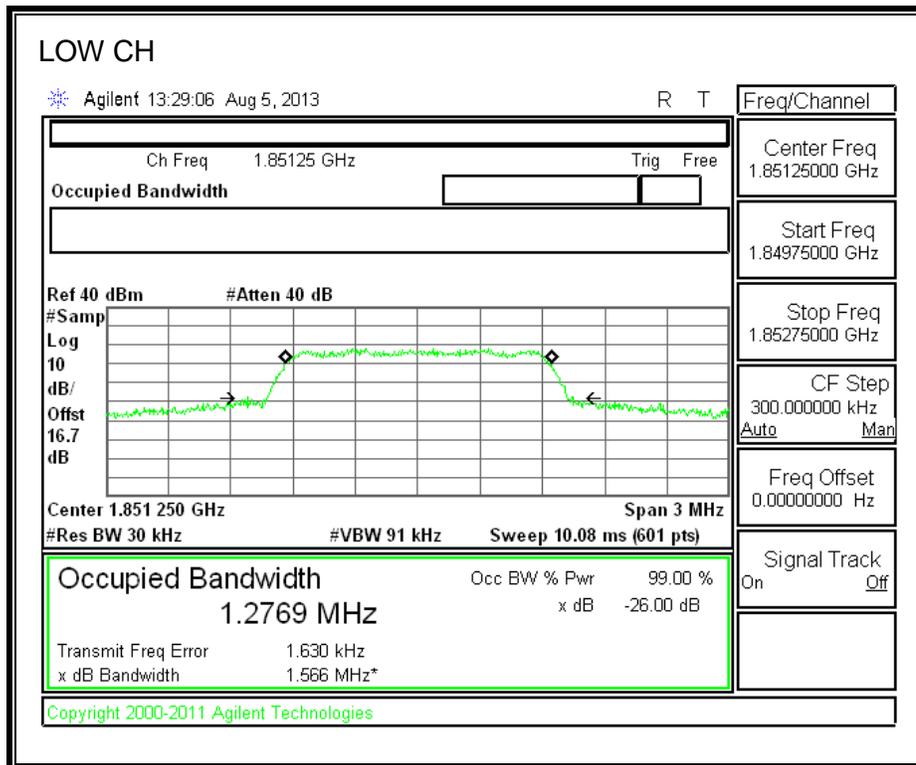
BC0 BAND

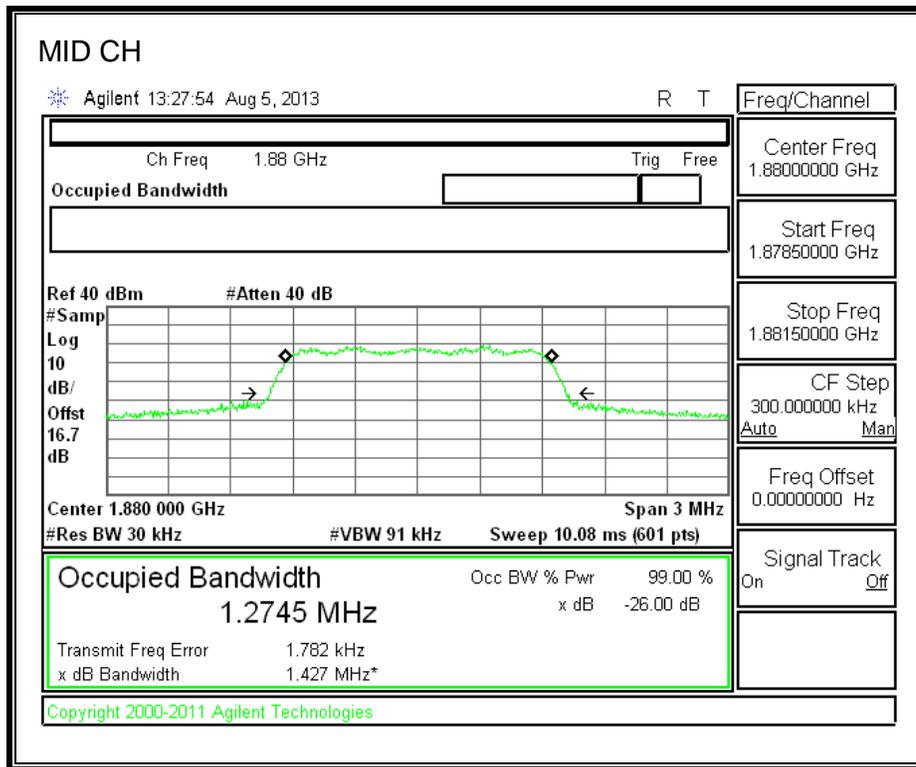


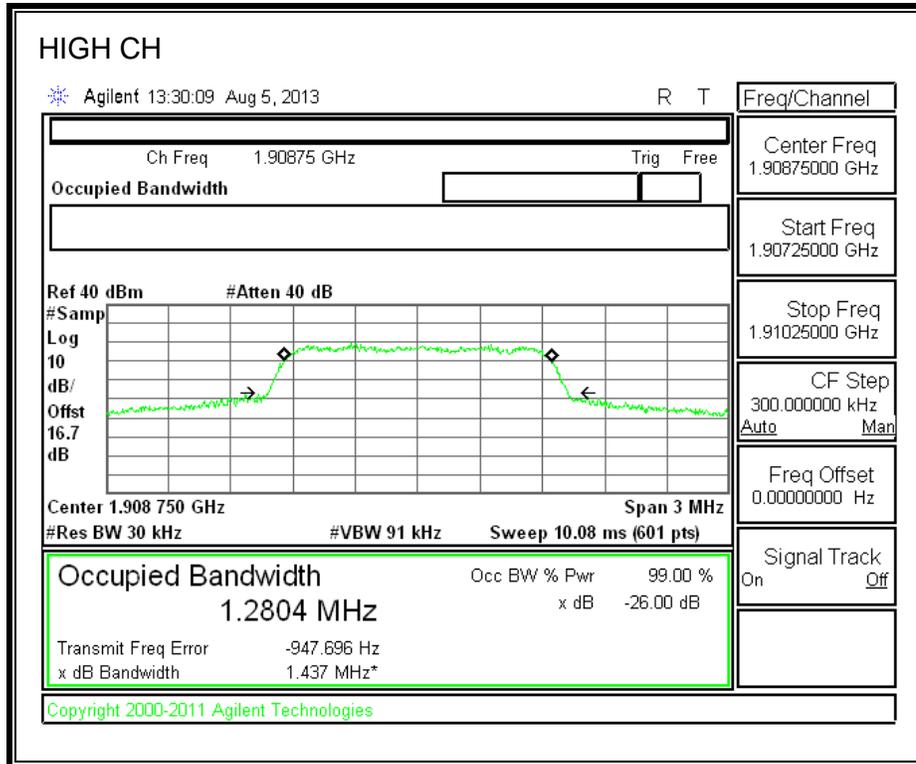




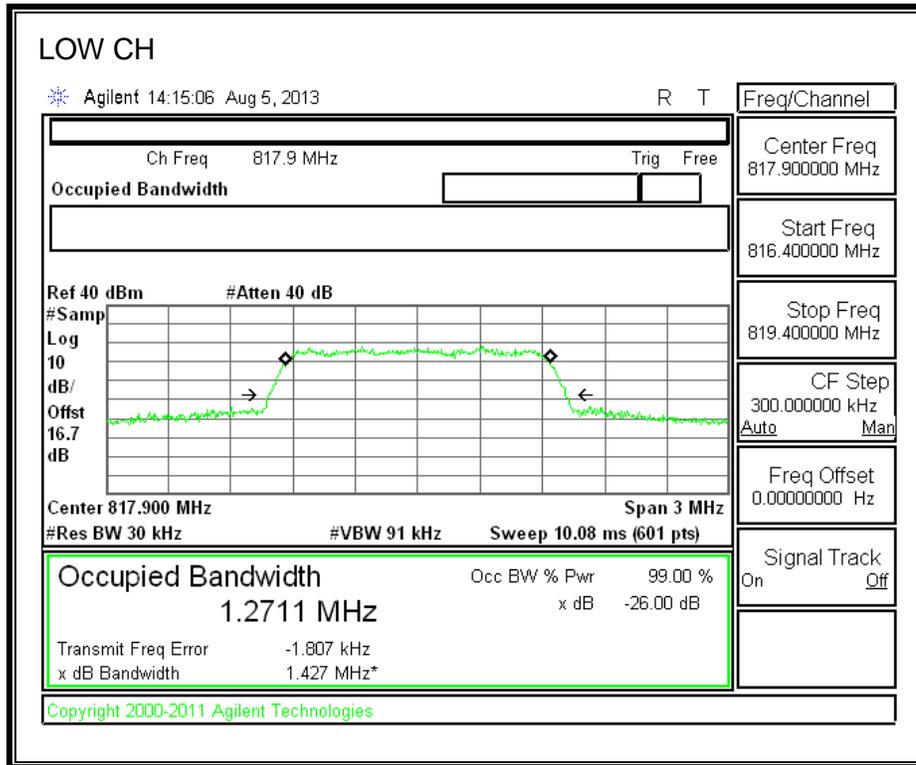
BC1 Band

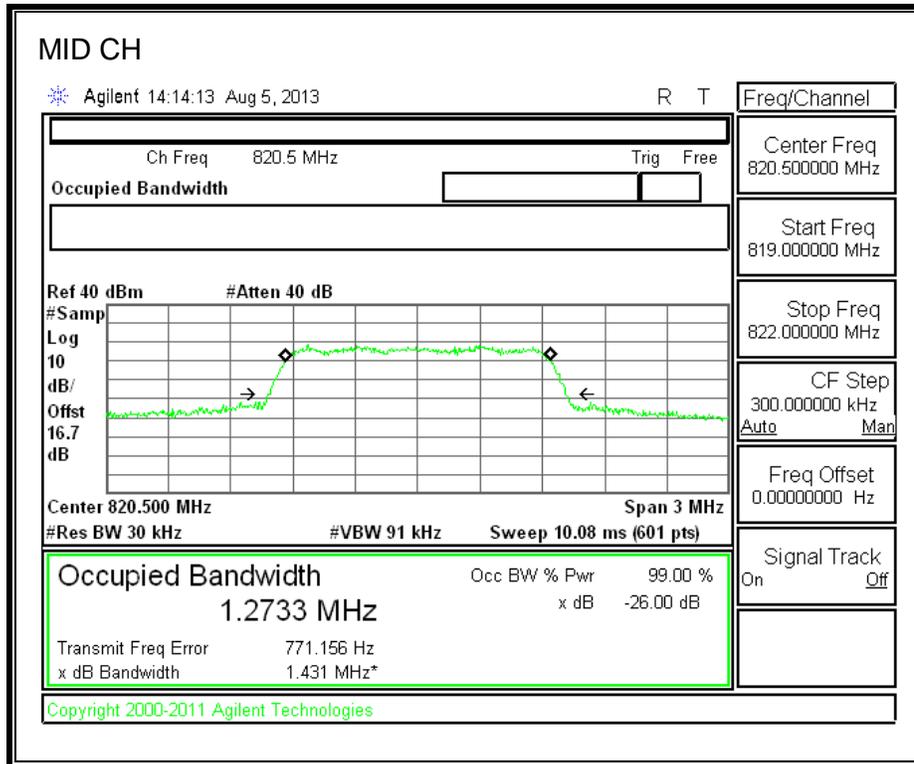


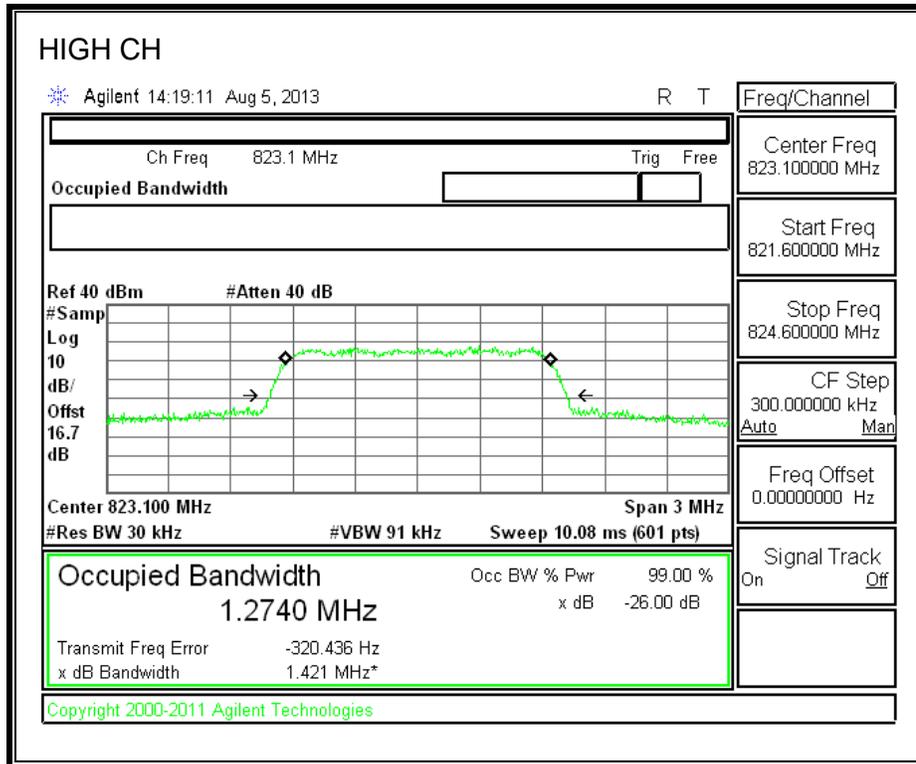




BC10 Band

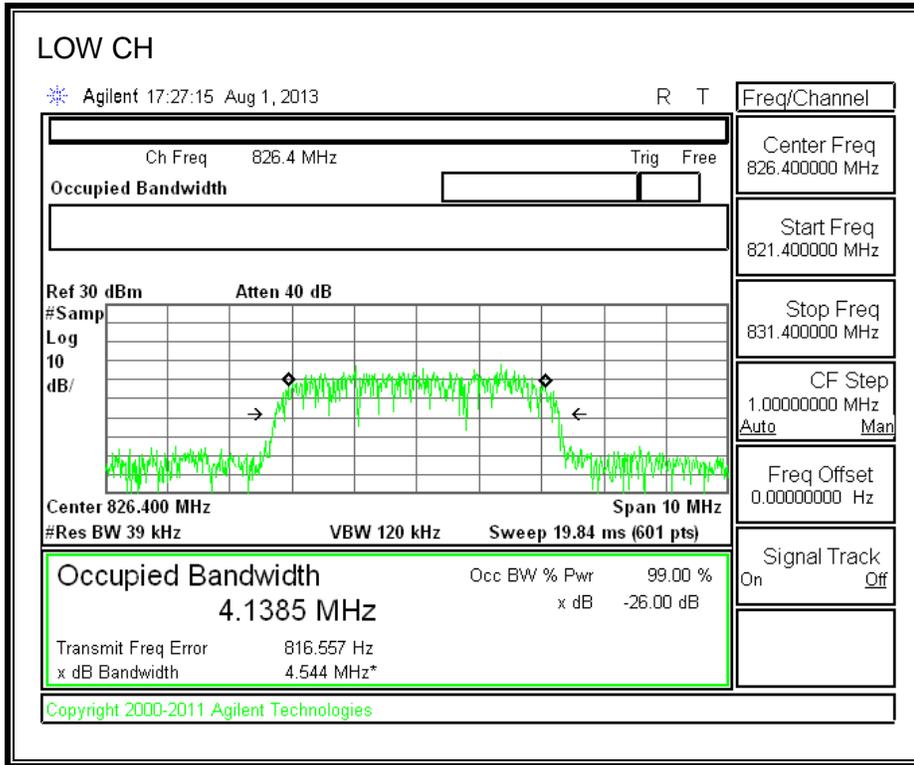


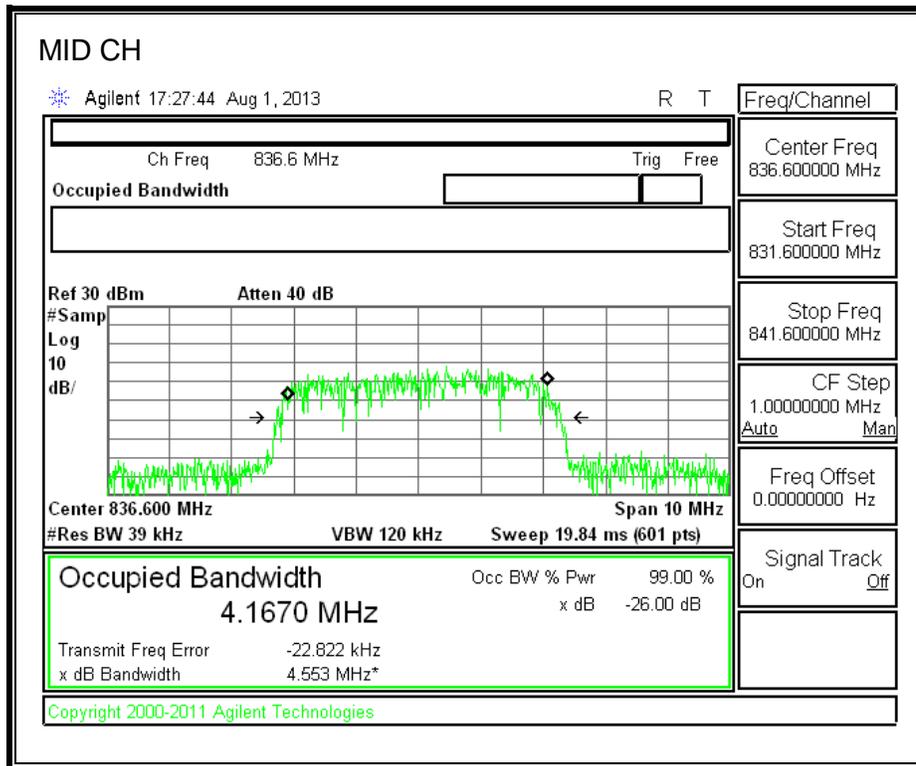


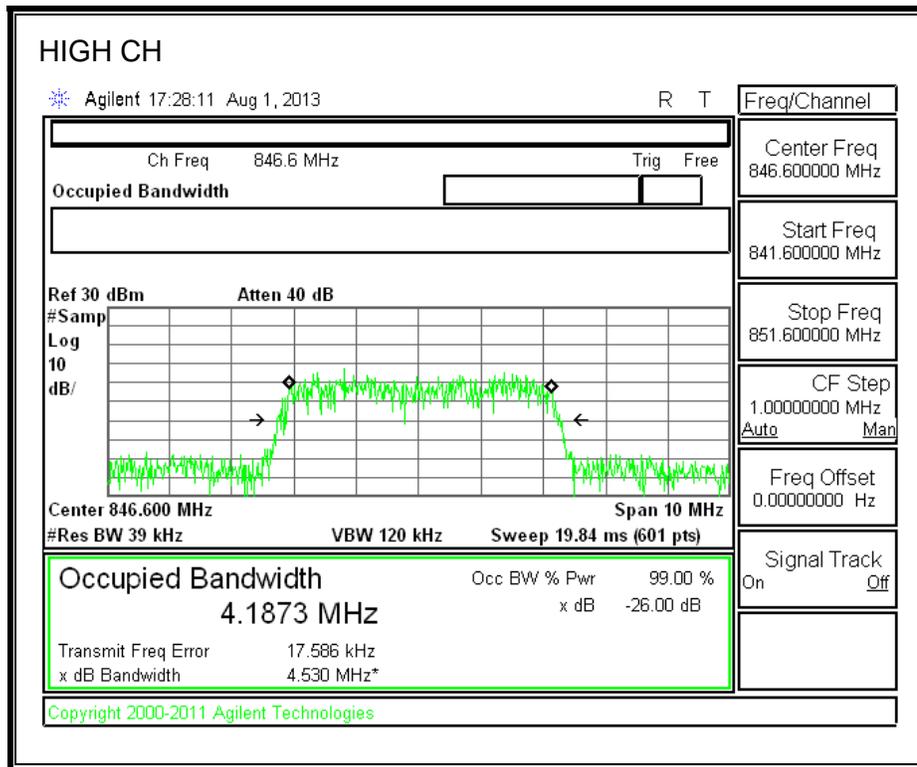


8.2.5. UMTS REL 99 MODE

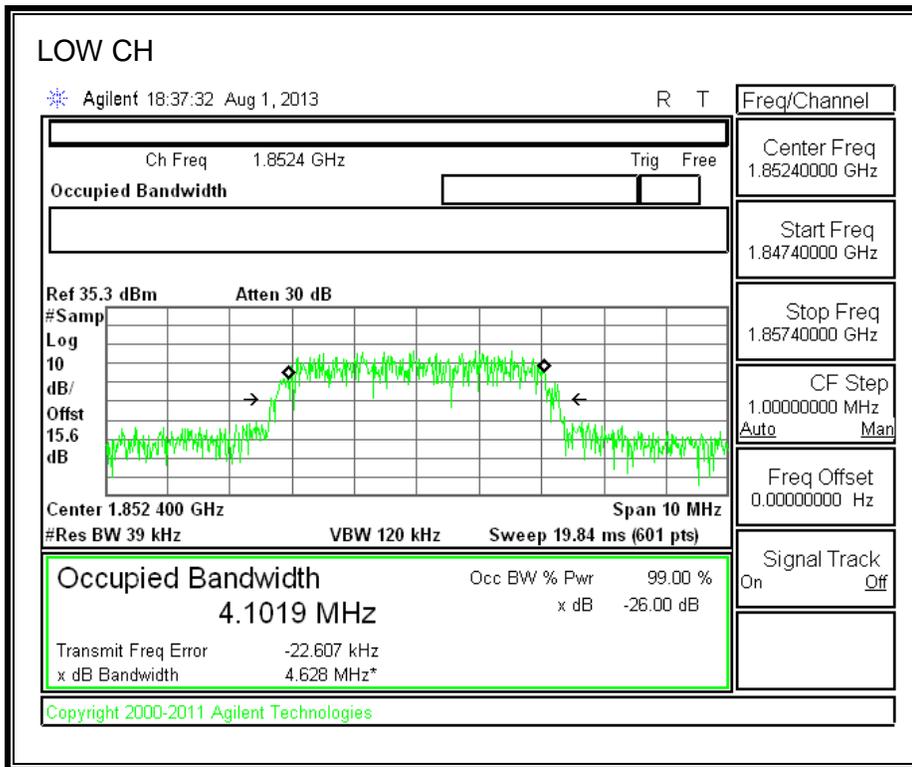
Band 5

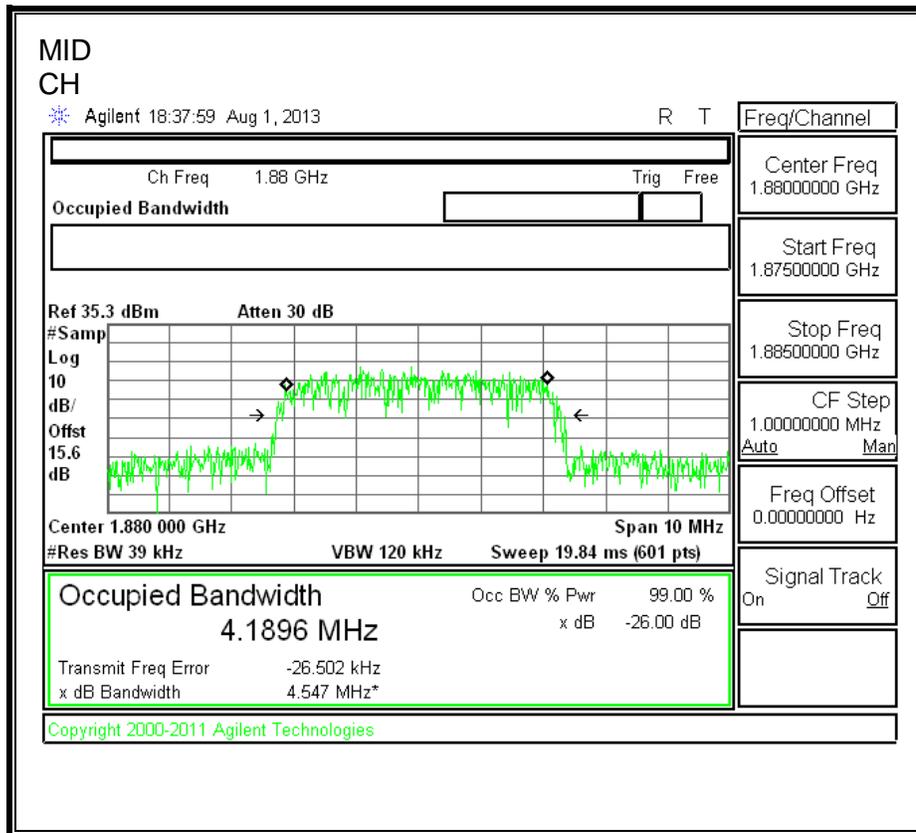


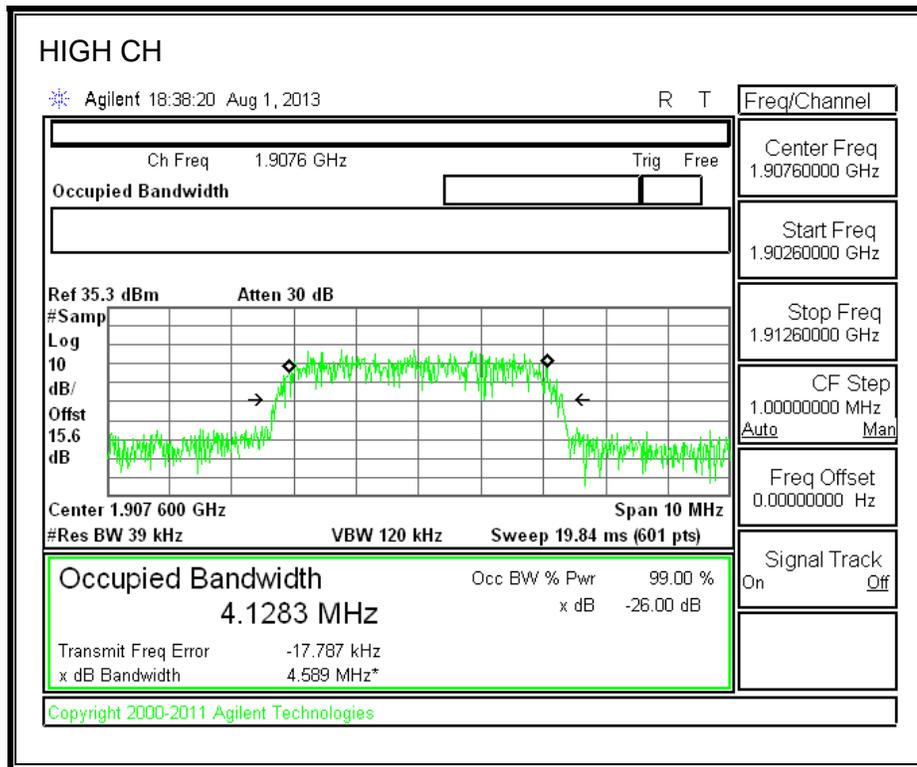




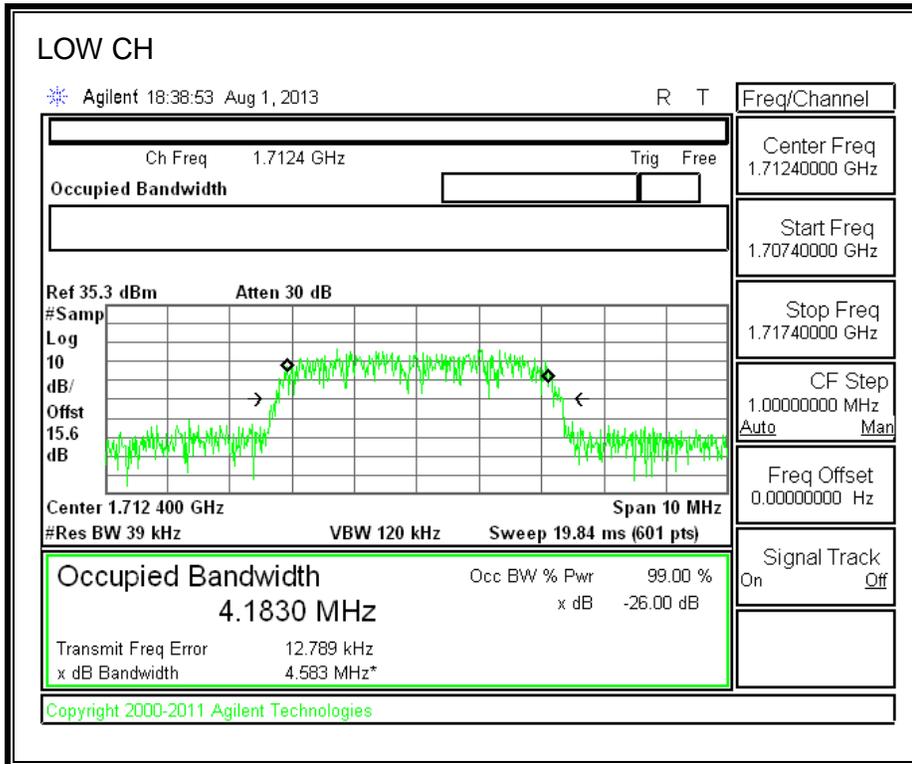
Band 2

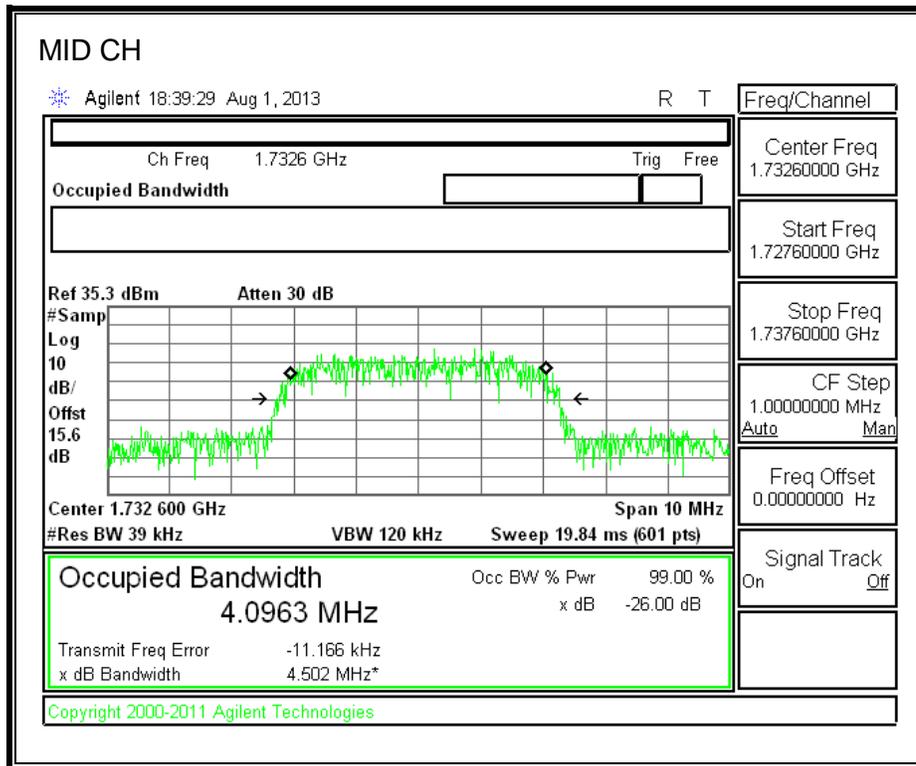


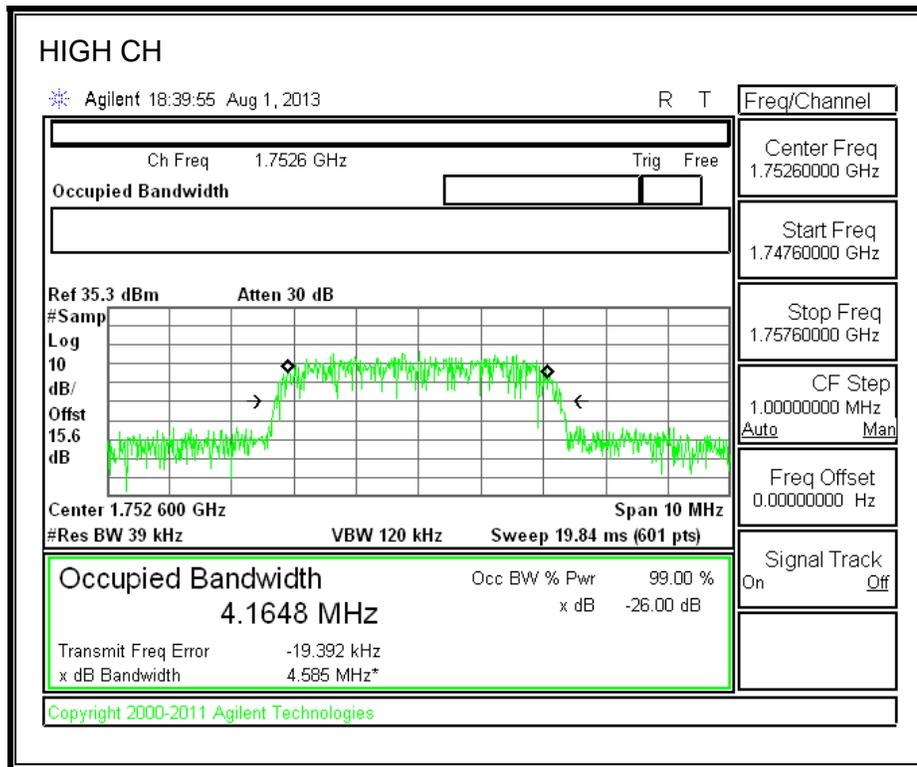




Band 4

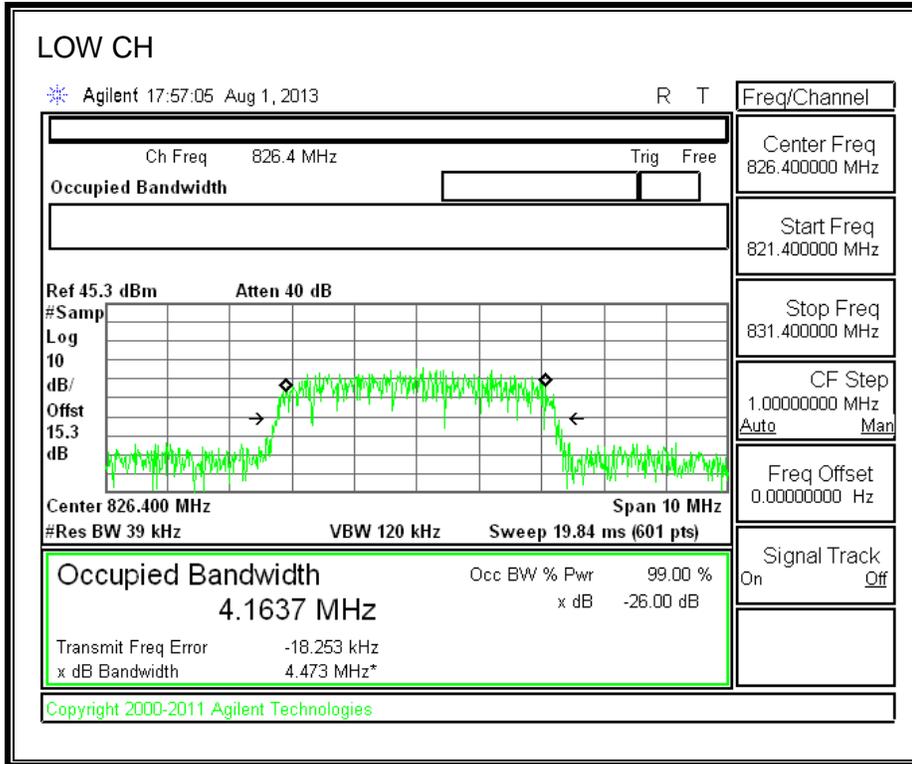


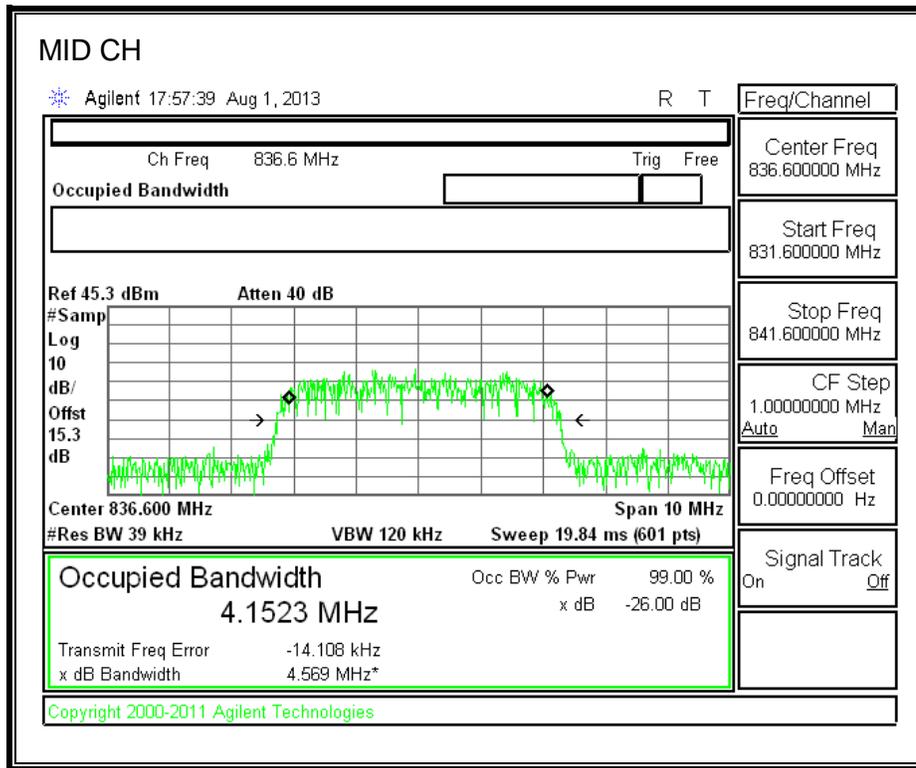


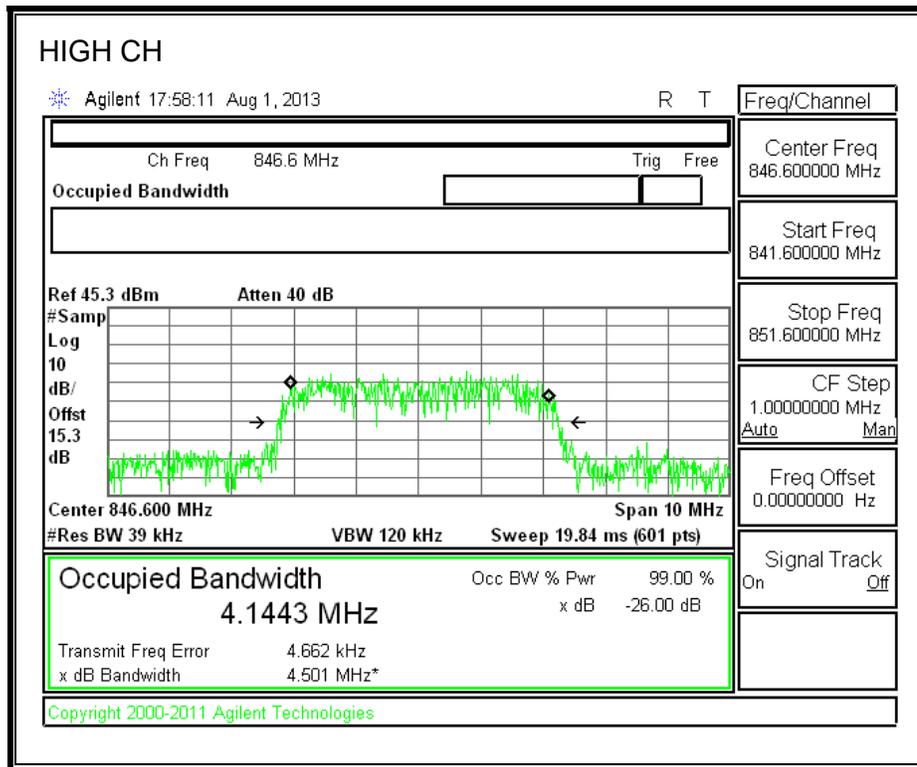


8.2.6. WCDMA HSDPA

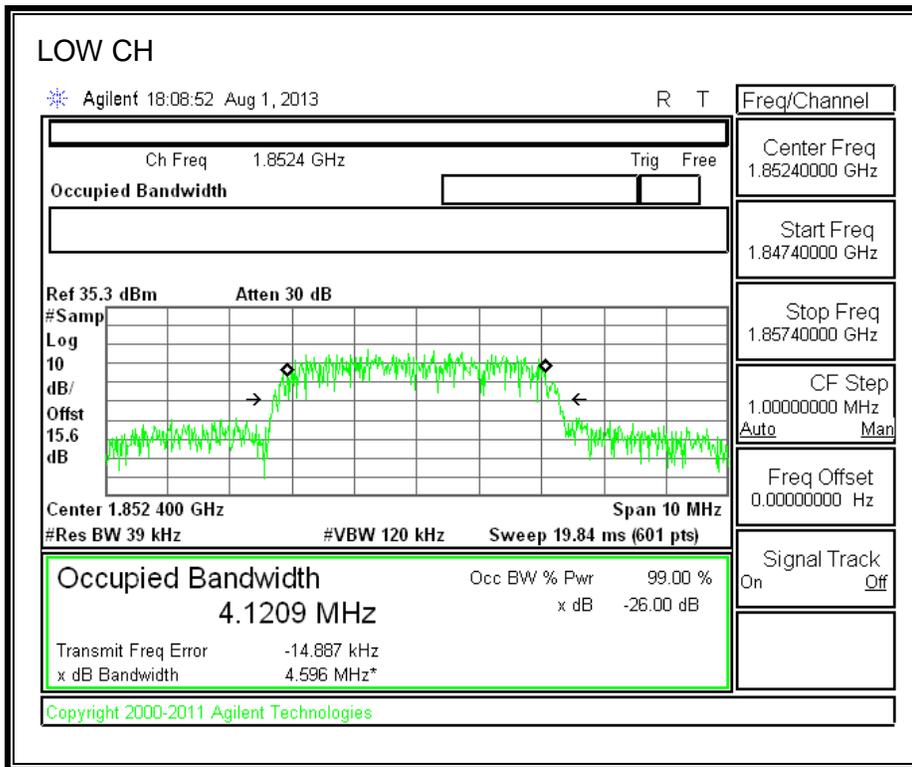
Band 5

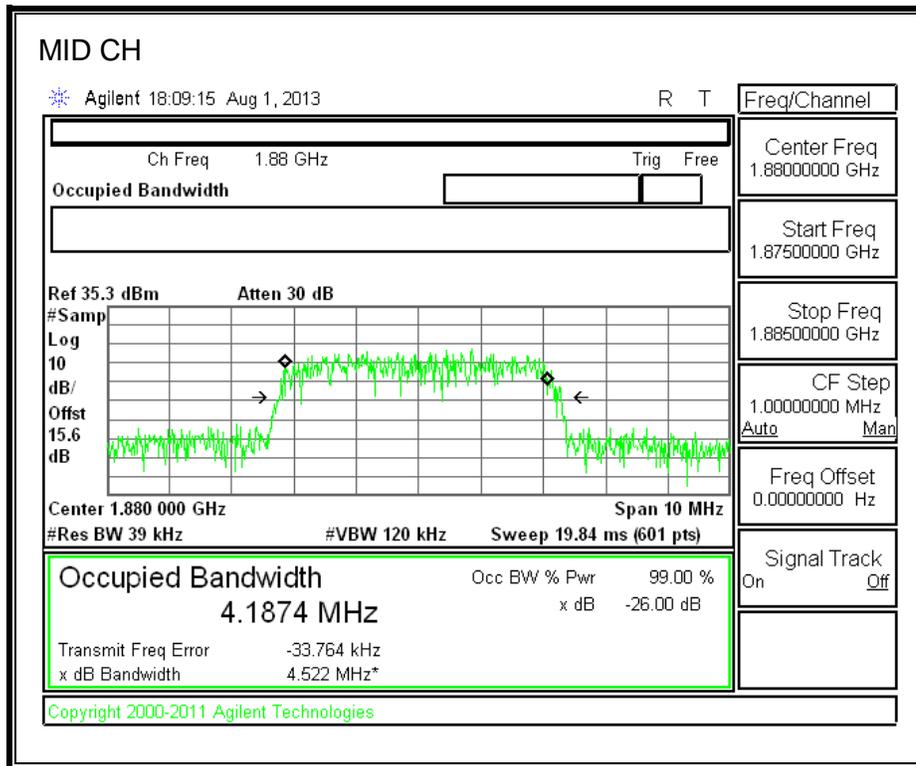


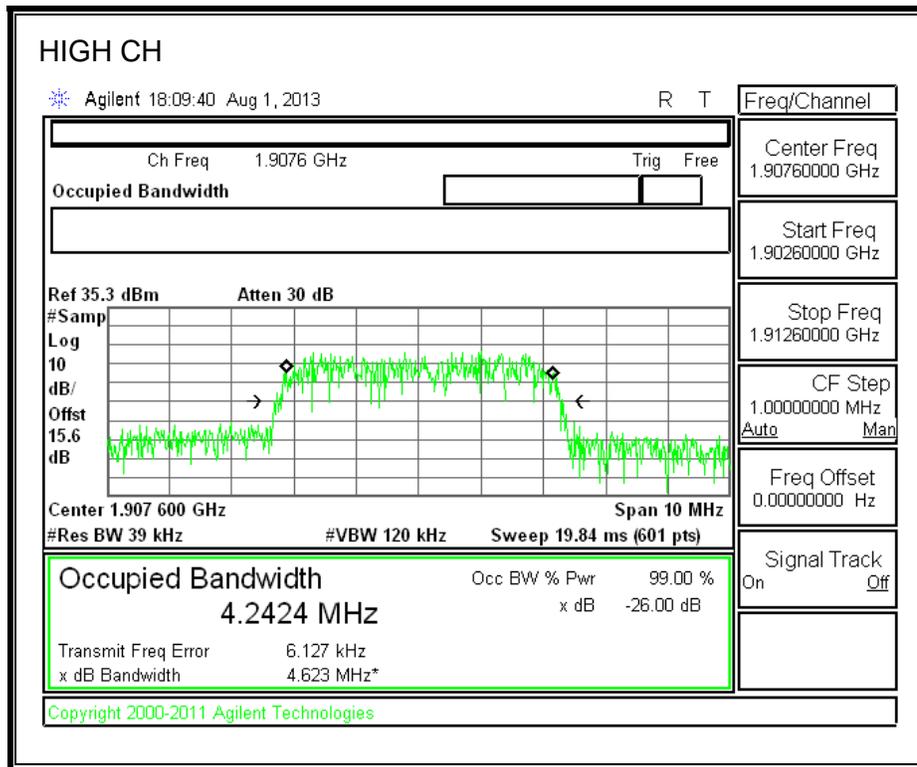




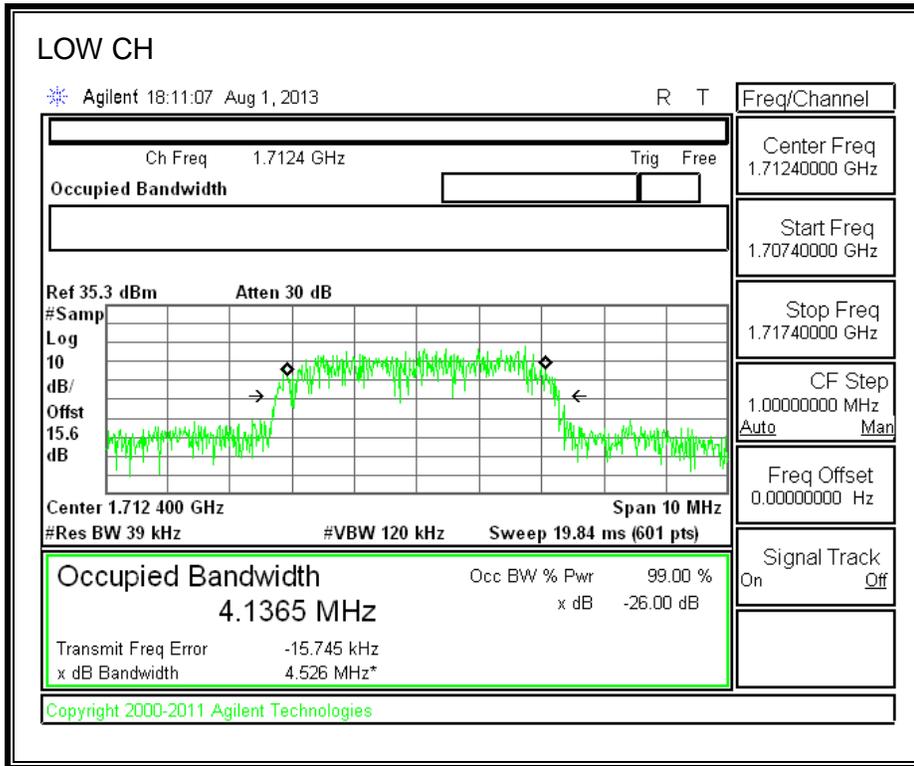
Band 2

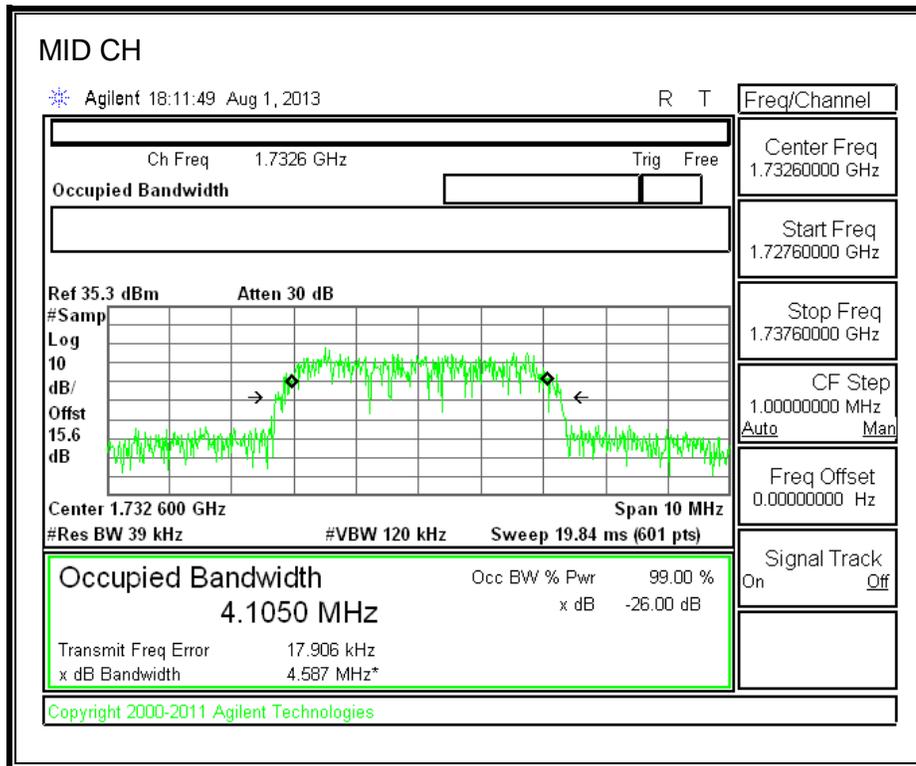


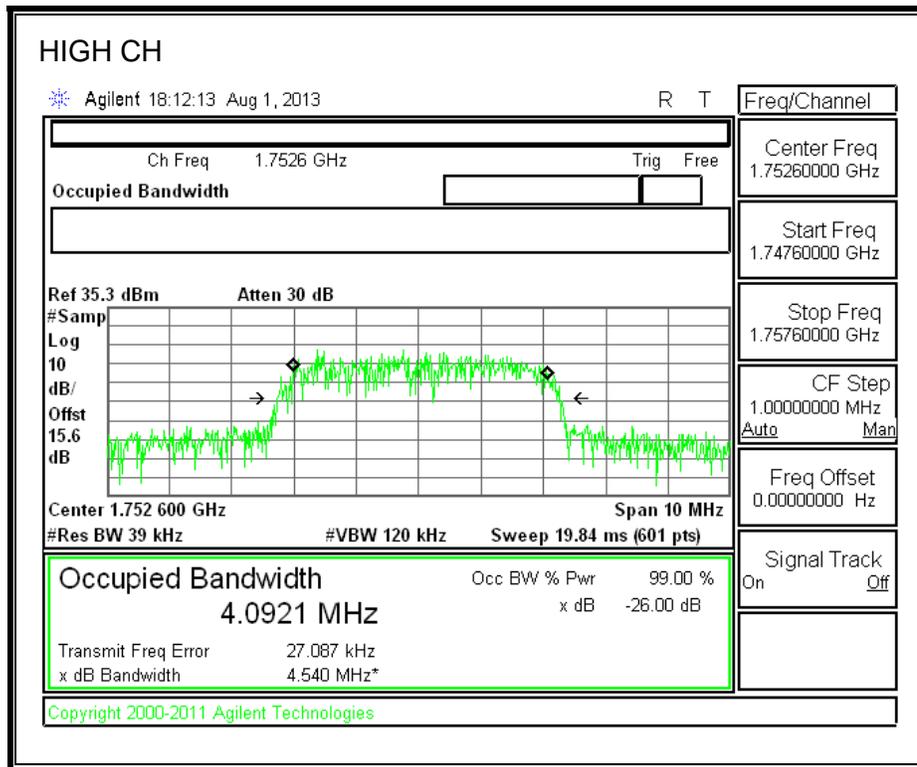




Band 4



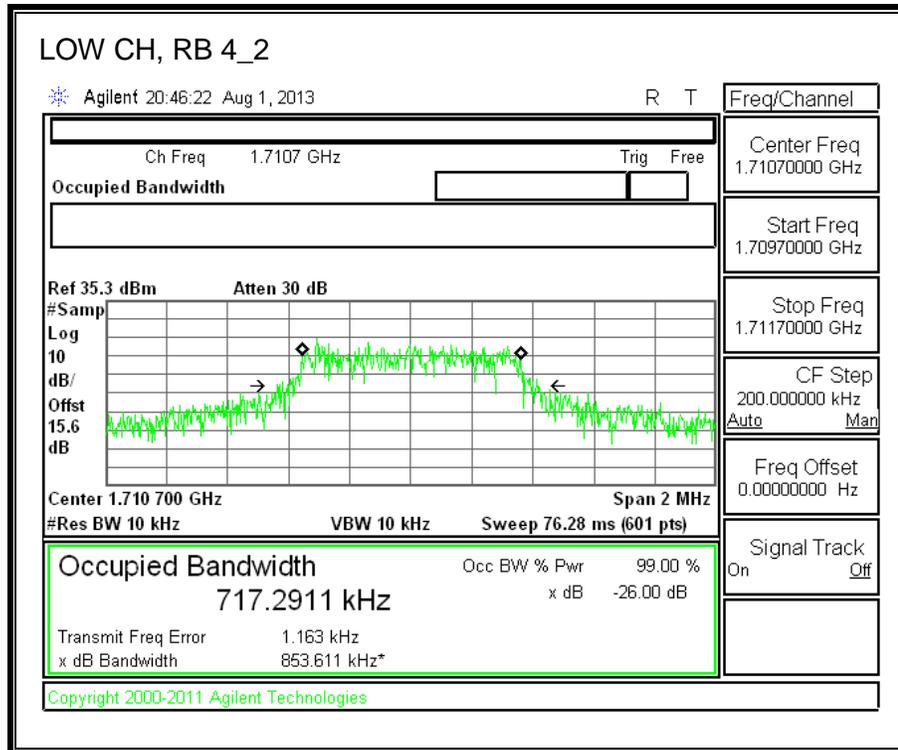


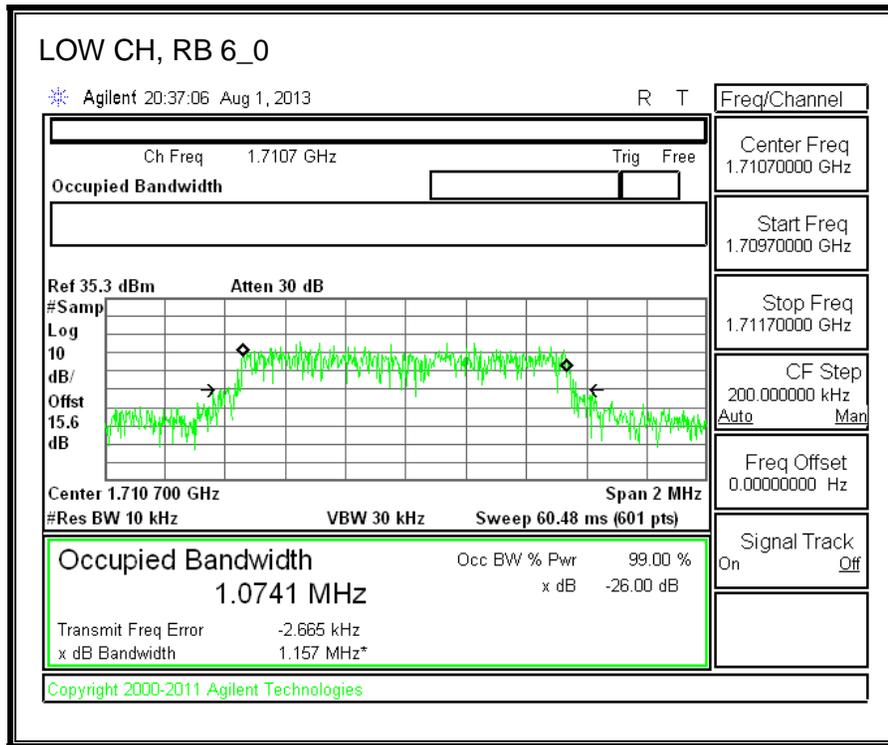


8.2.7. LTE Band 4

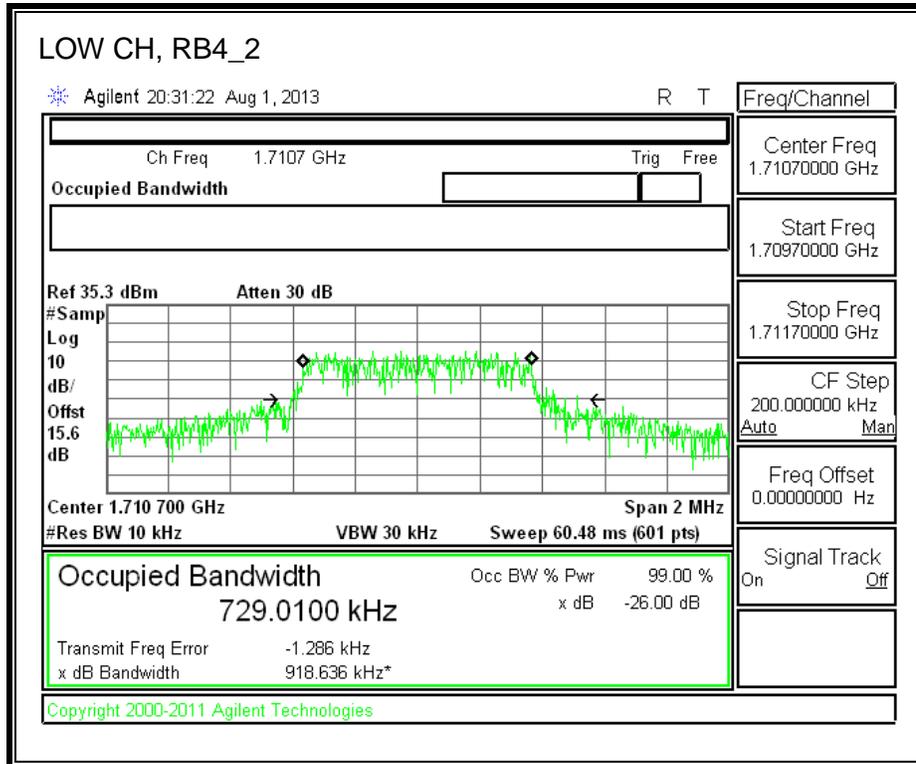
LTE BAND 4-1.4MHz BANDWIDTH

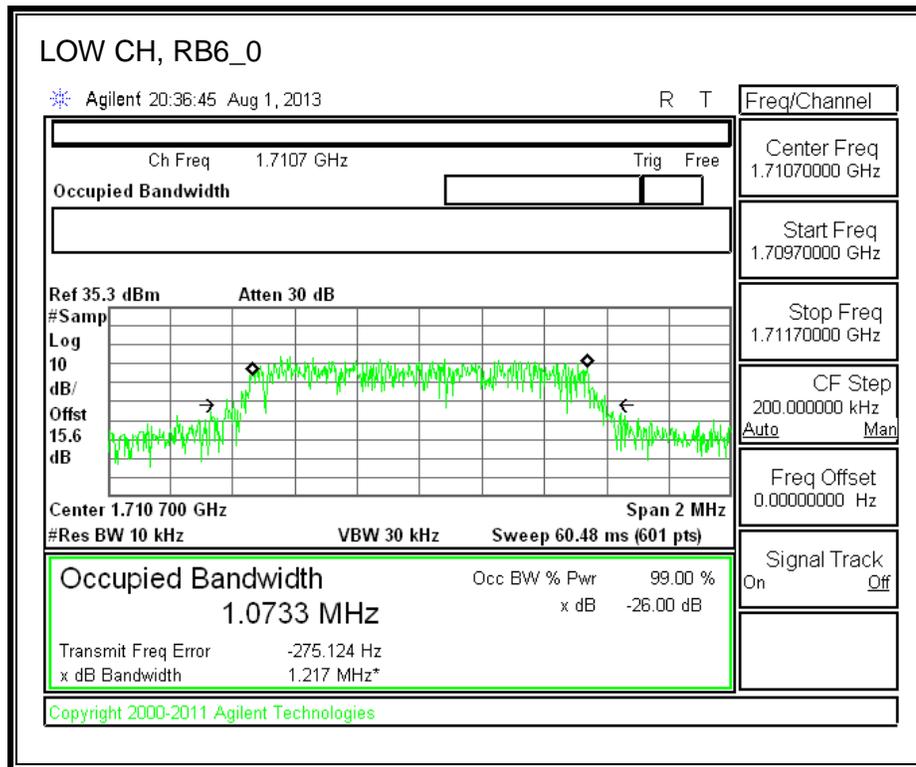
LOW-QPSK



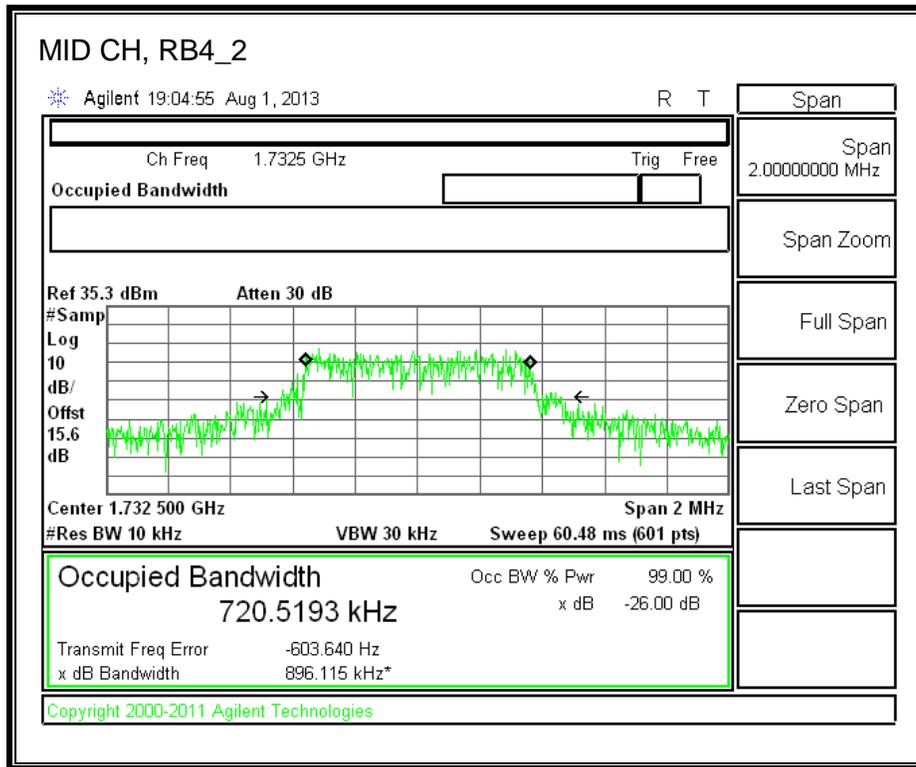


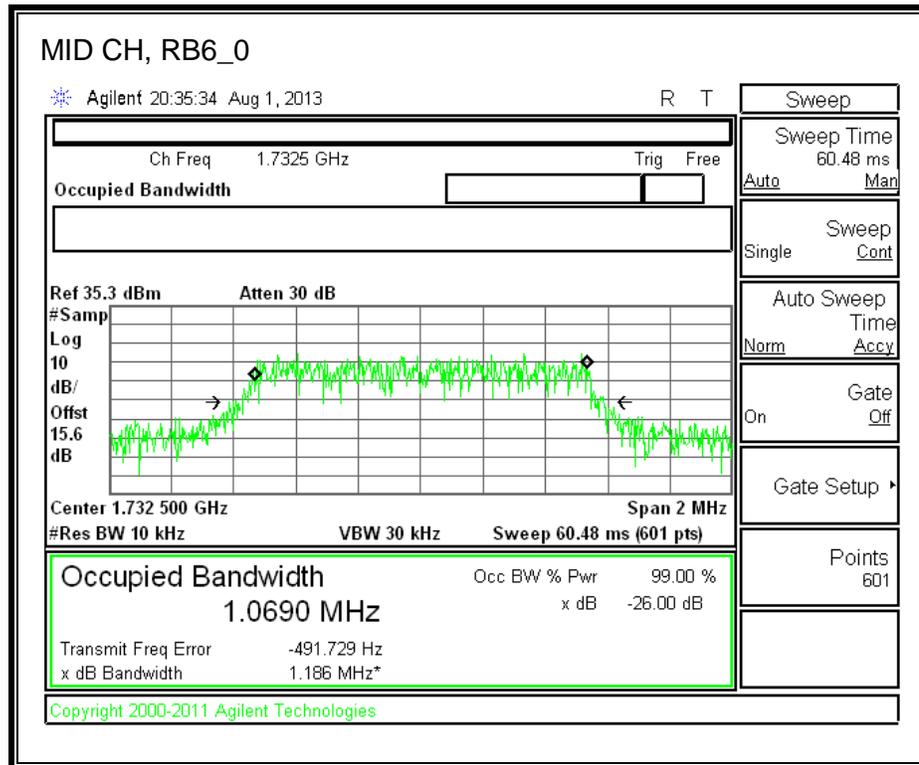
LOW-16QAM



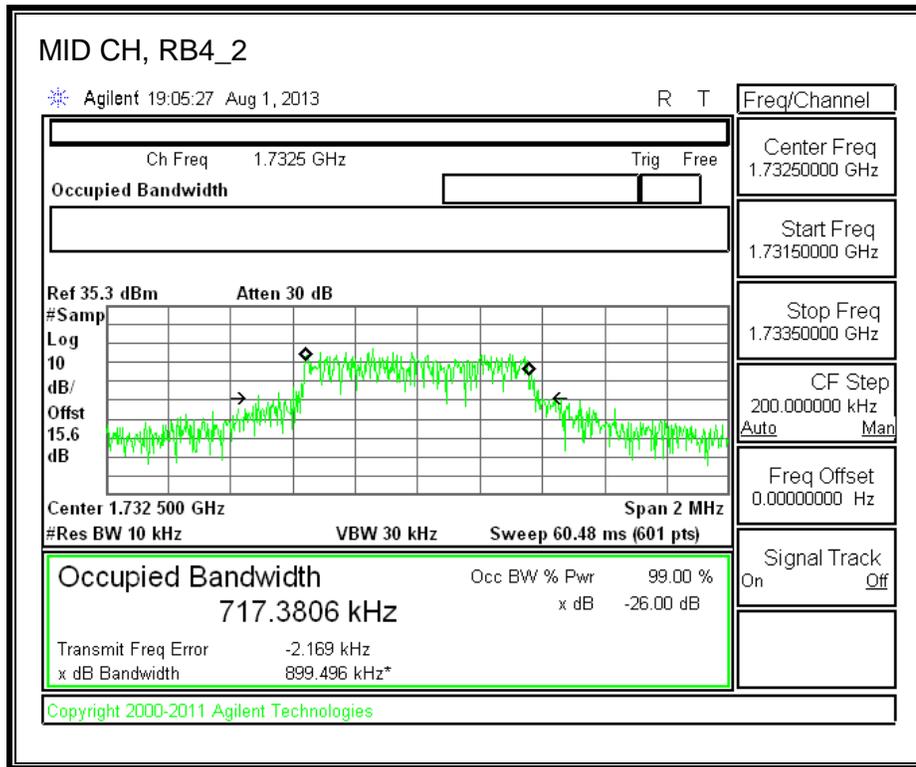


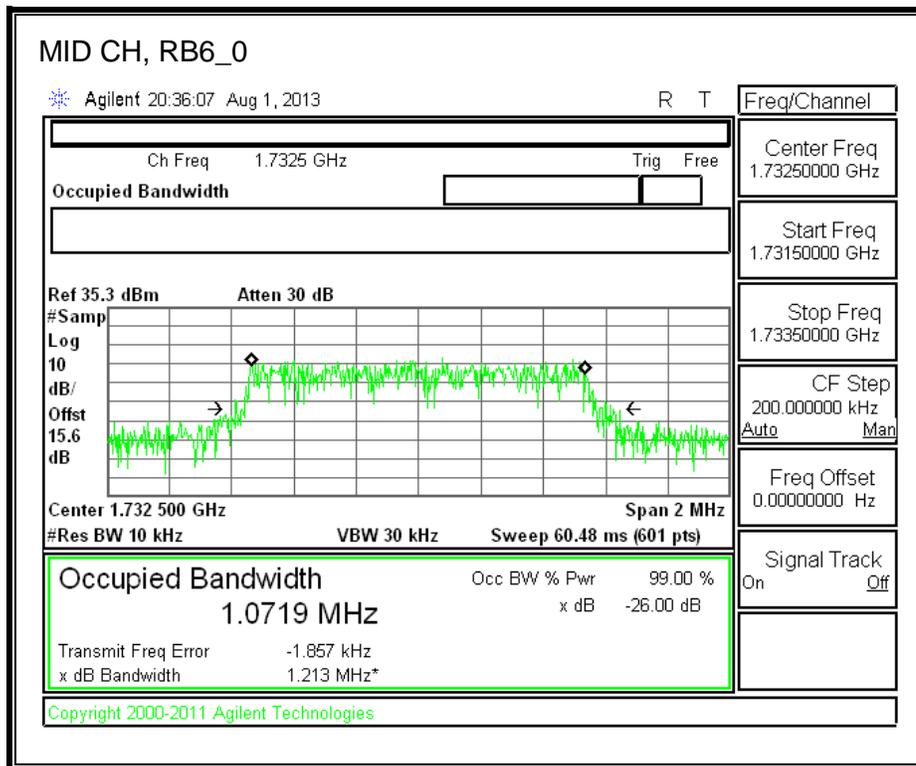
MID-QPSK



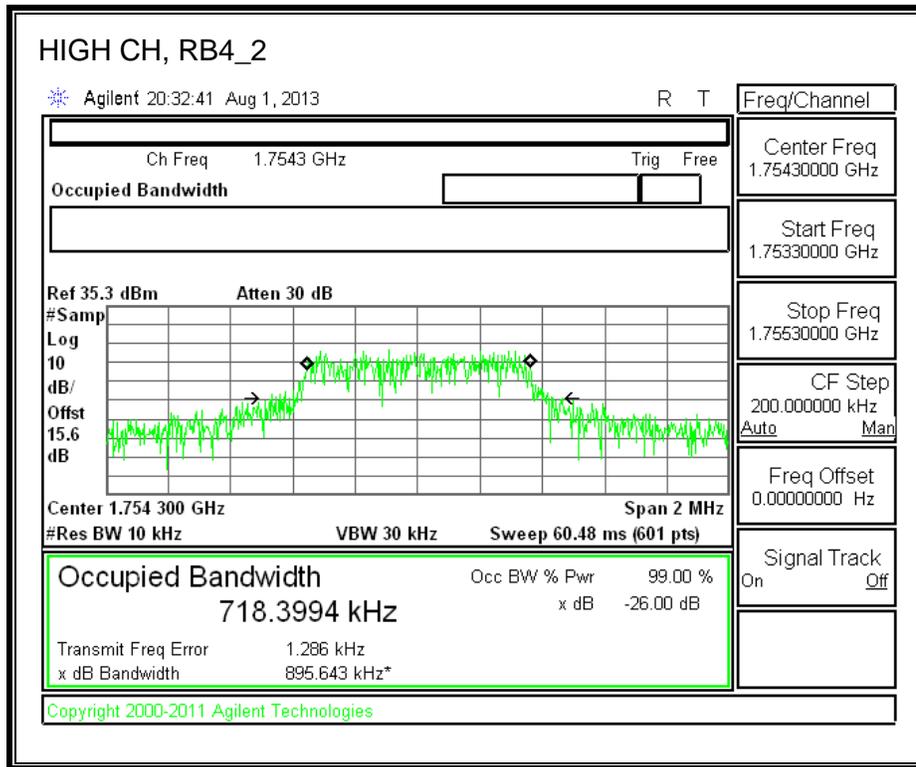


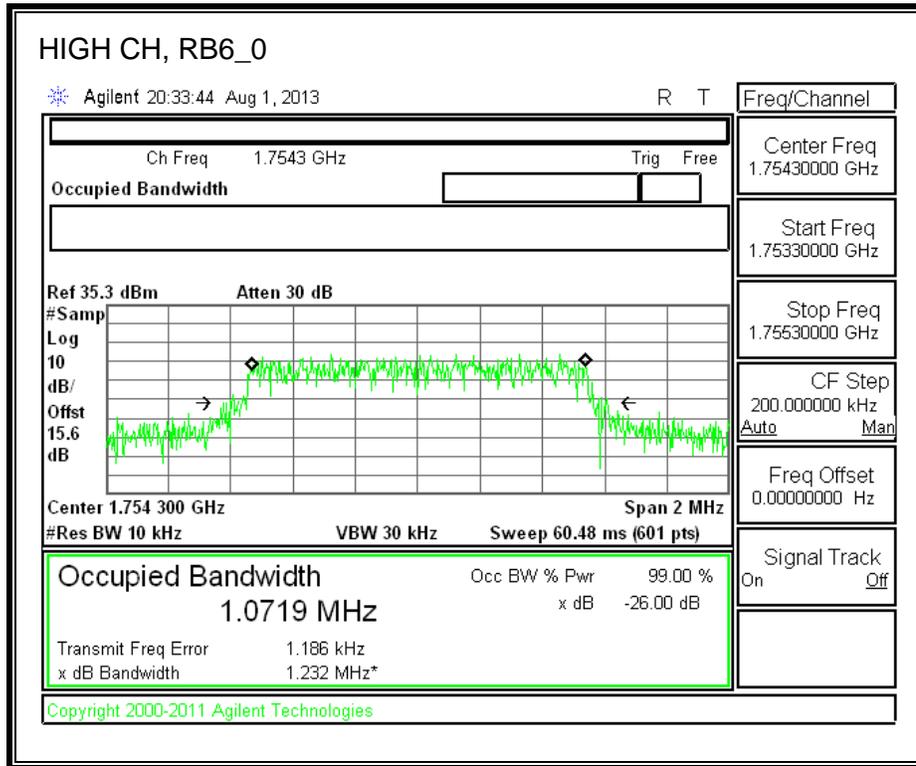
MID-16QAM



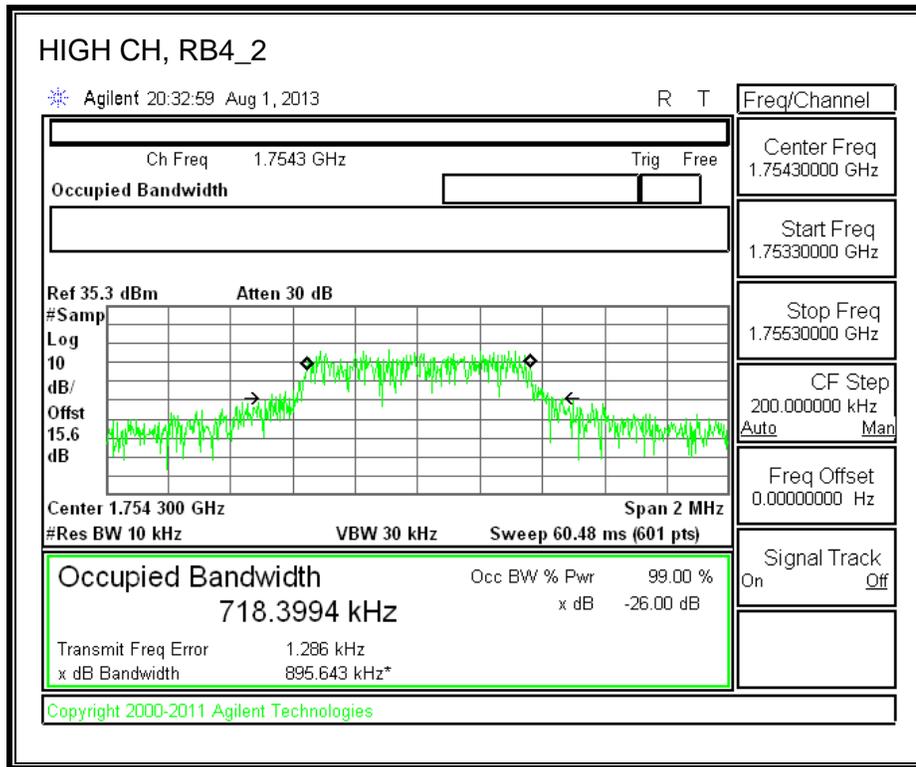


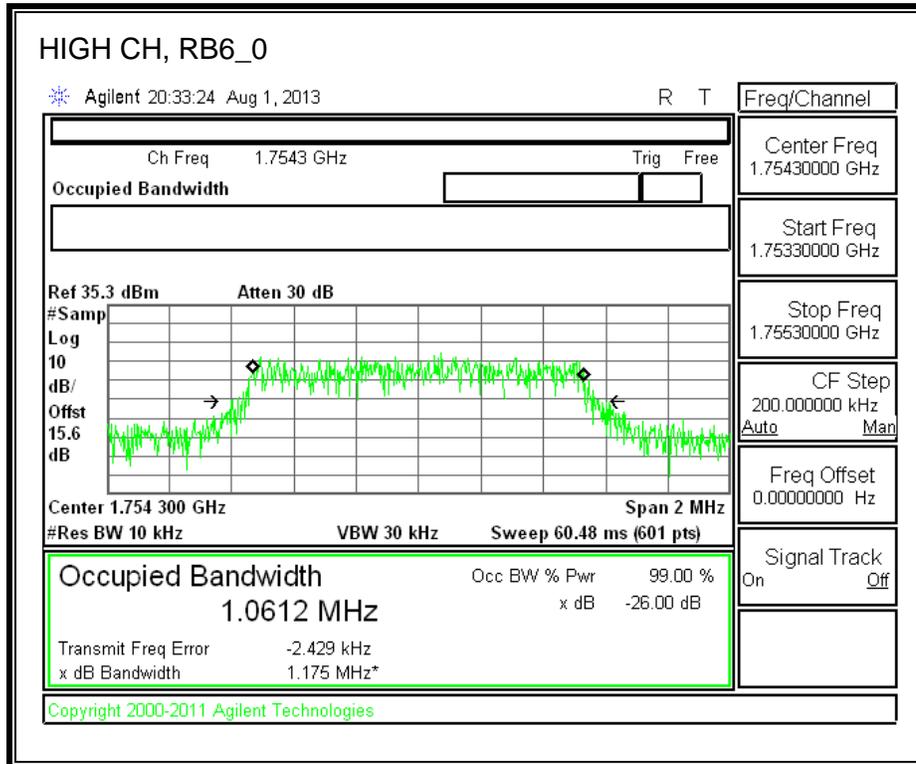
HIGH-QPSK





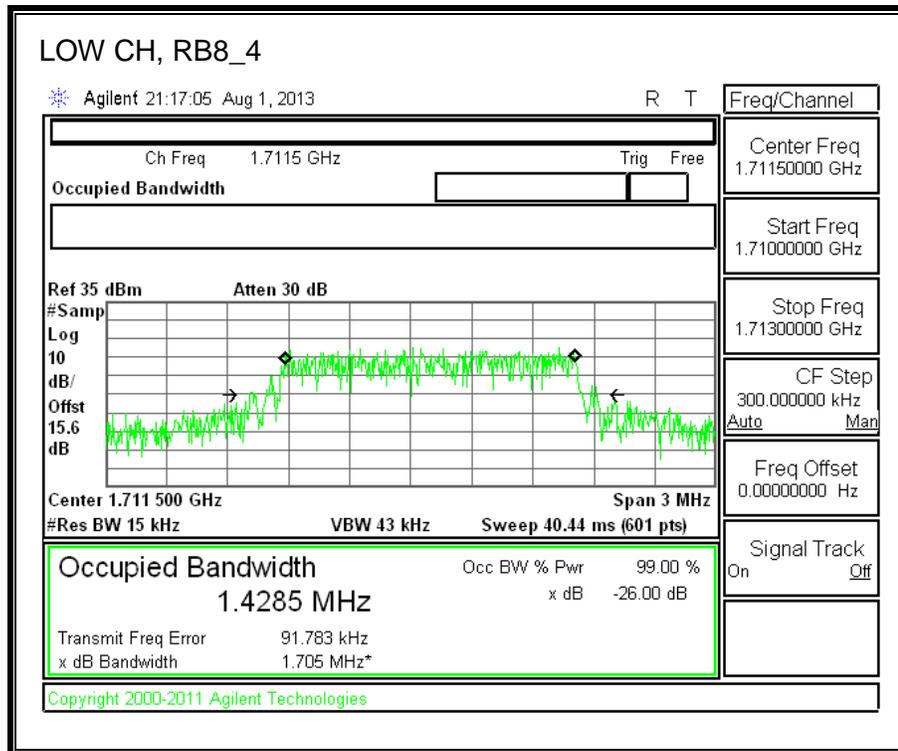
HIGH-16QAM

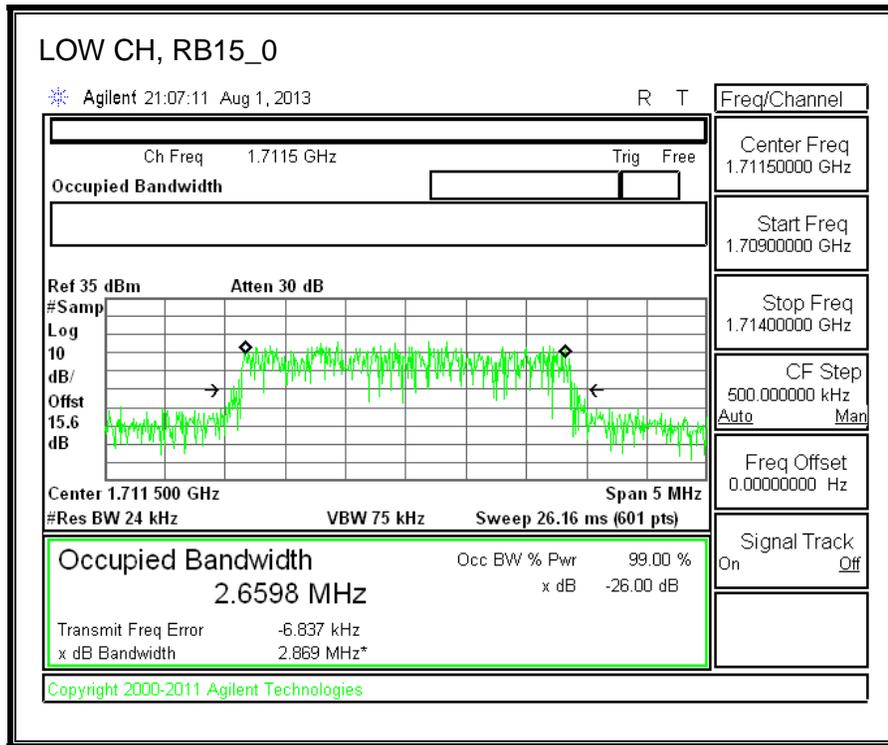




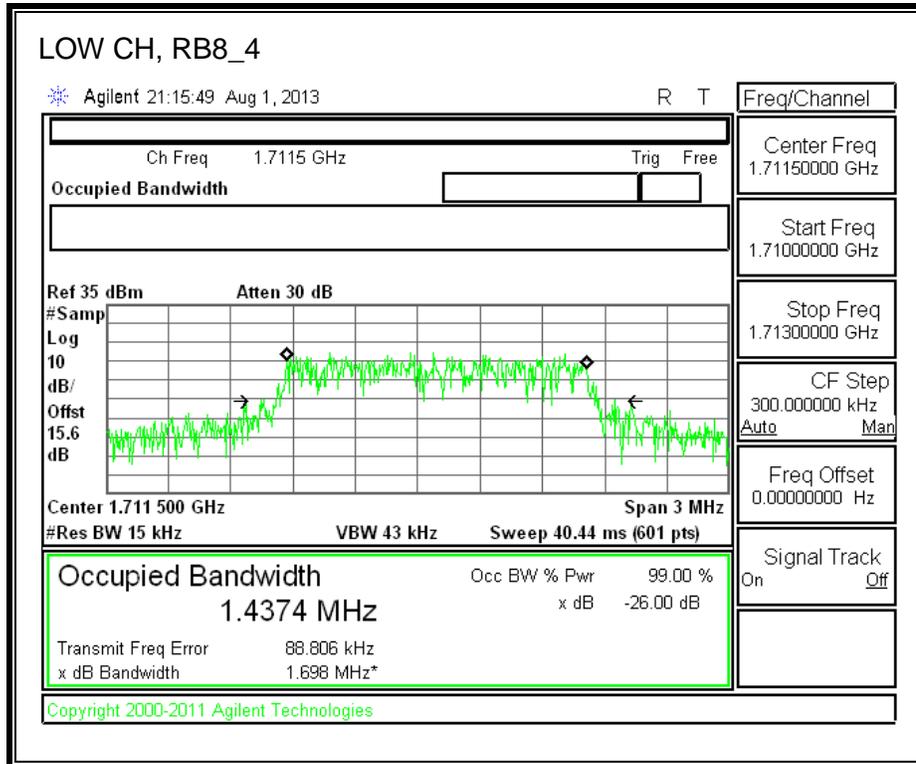
LTE BAND 4-3MHz BANDWIDTH

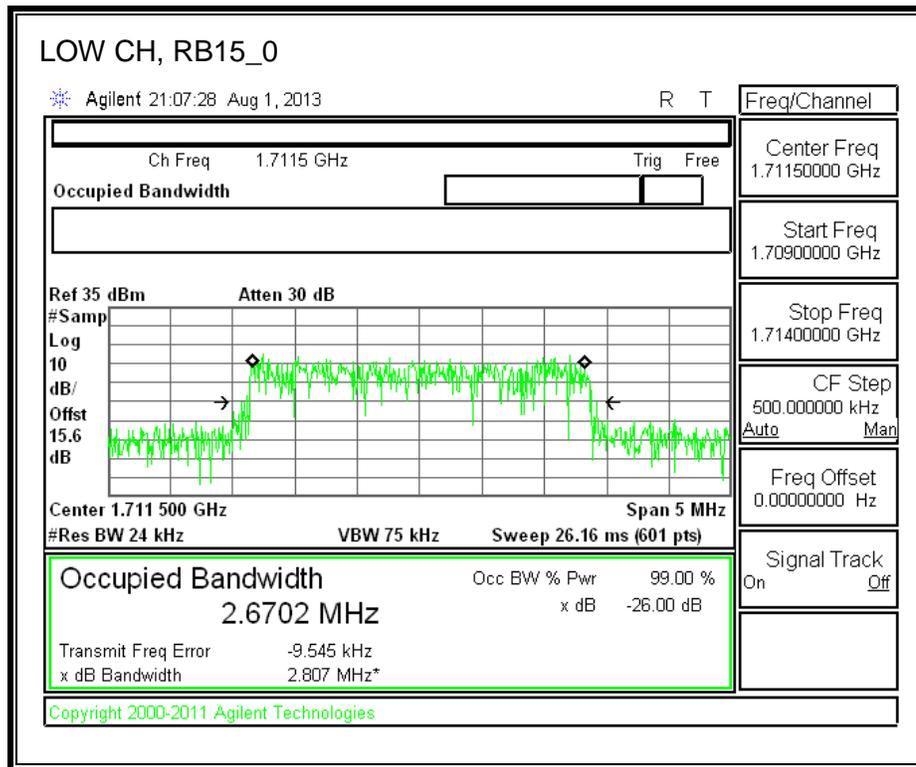
LOW-QPSK



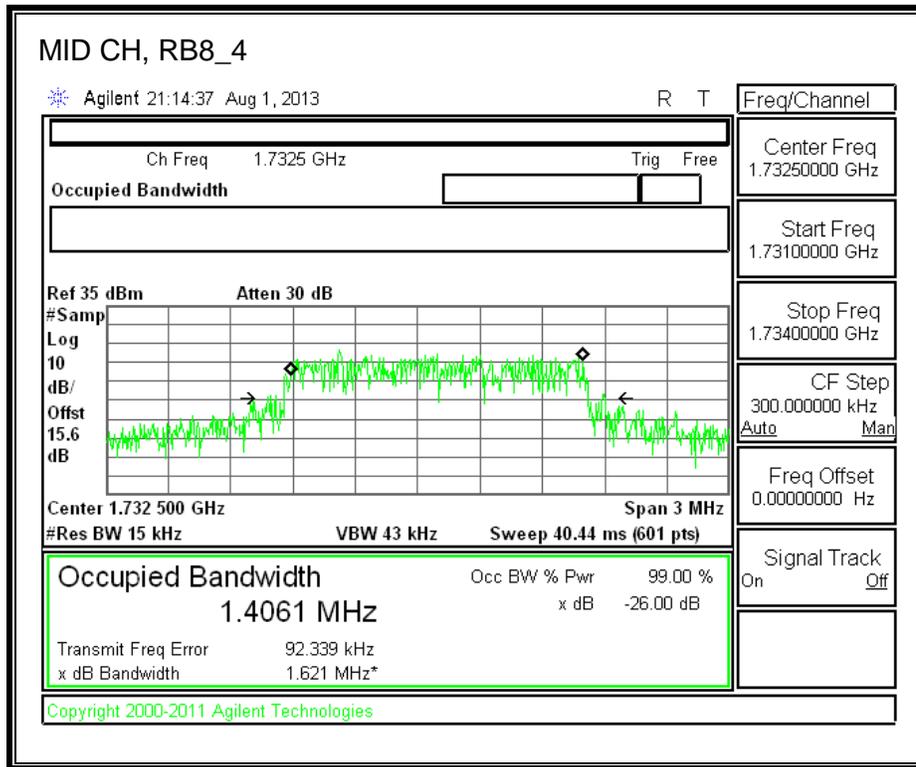


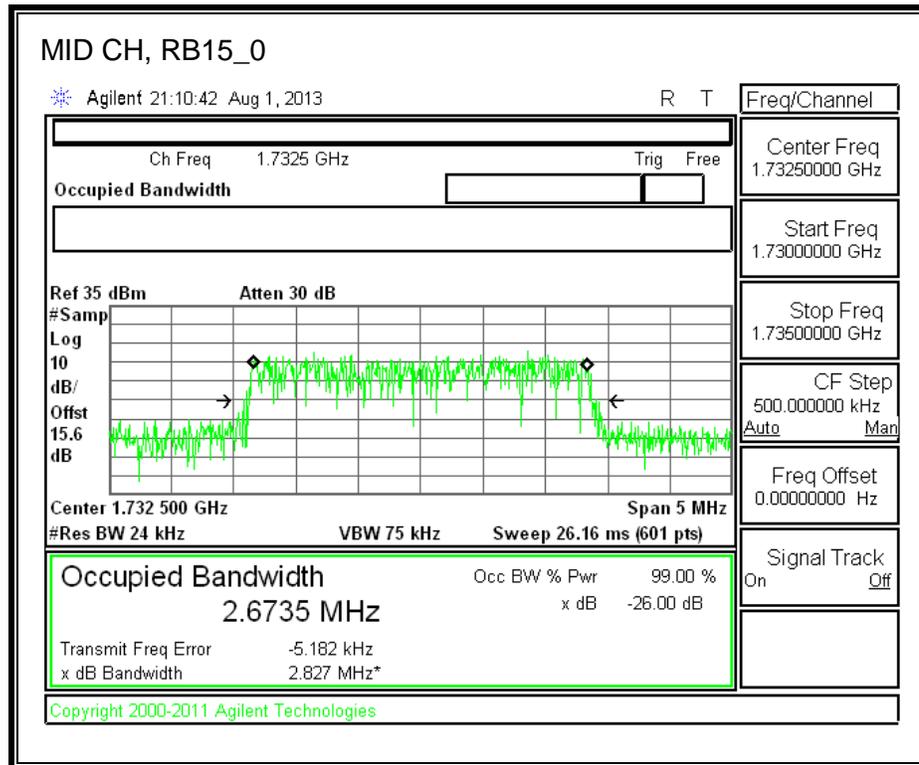
LOW-16QAM



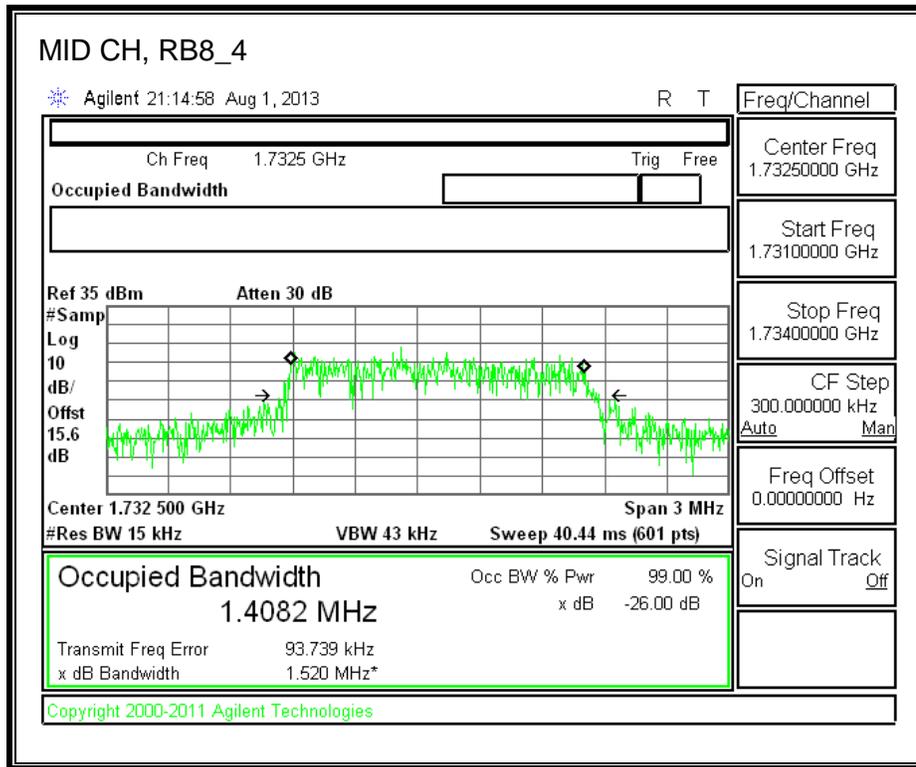


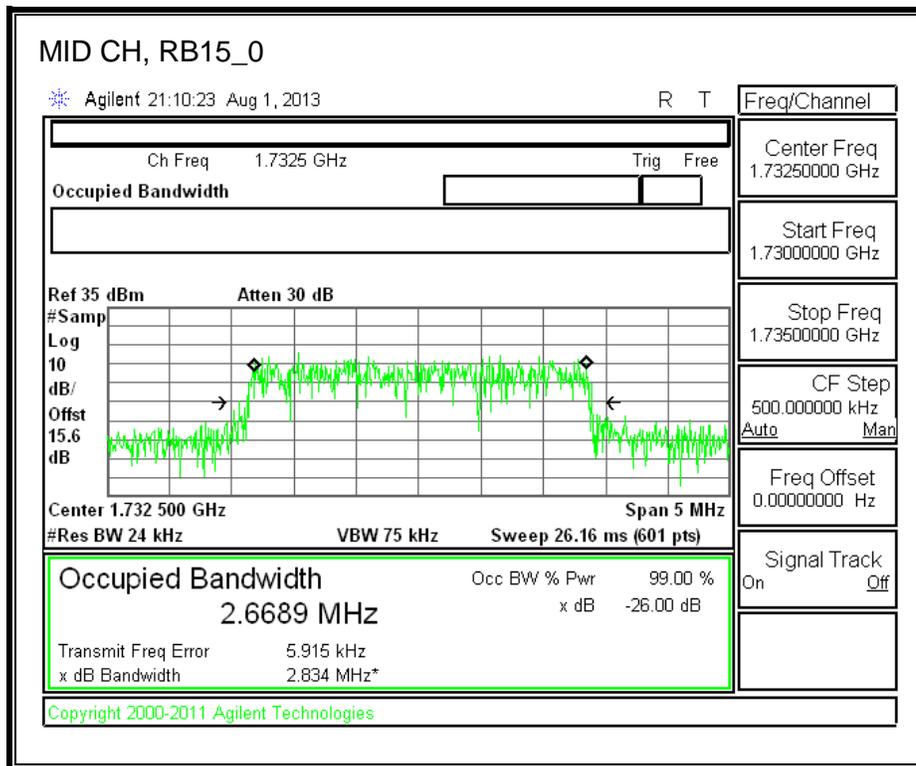
MID-QPSK



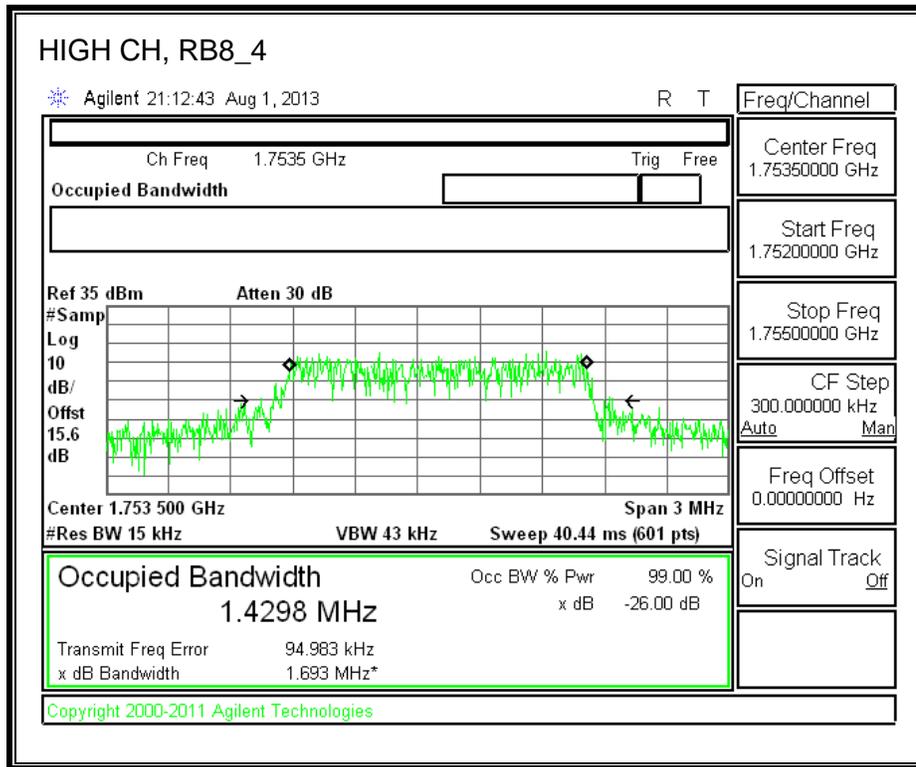


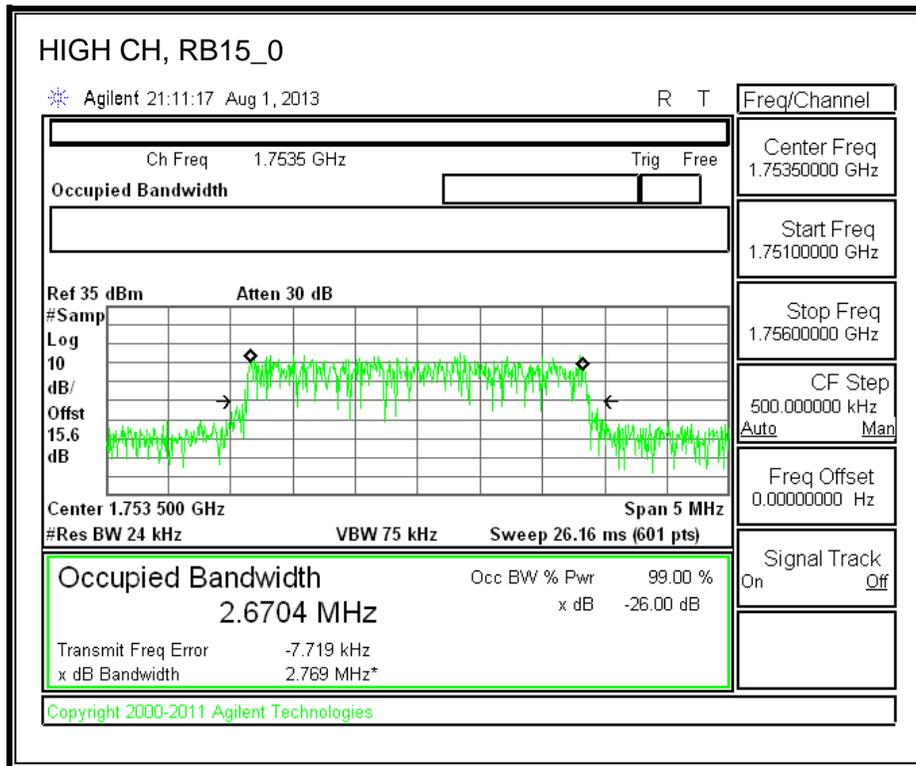
MID-16QAM



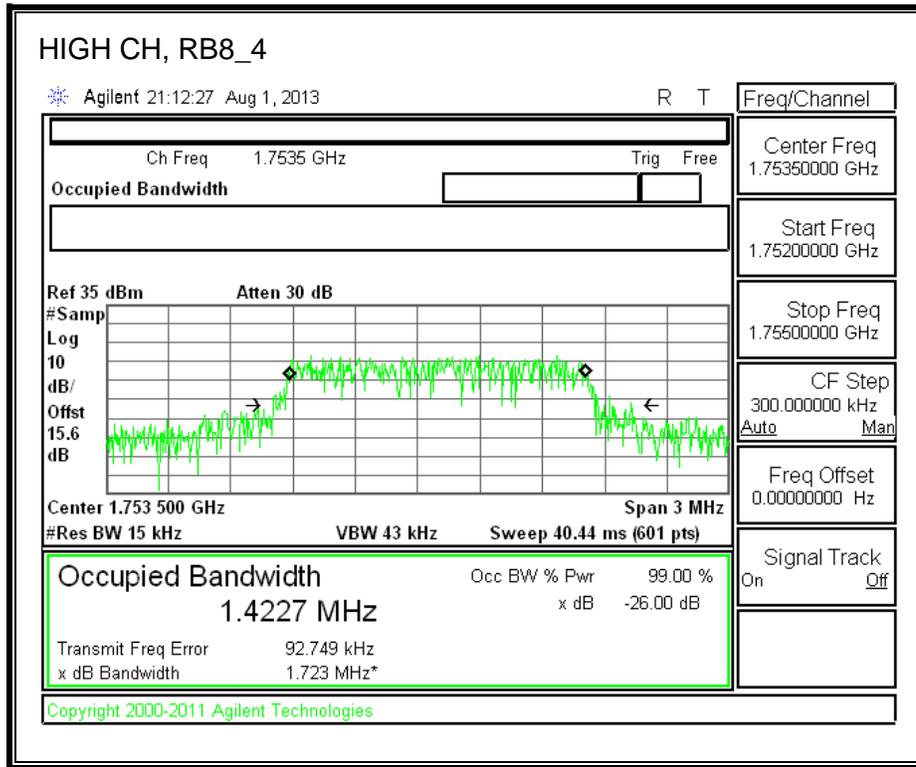


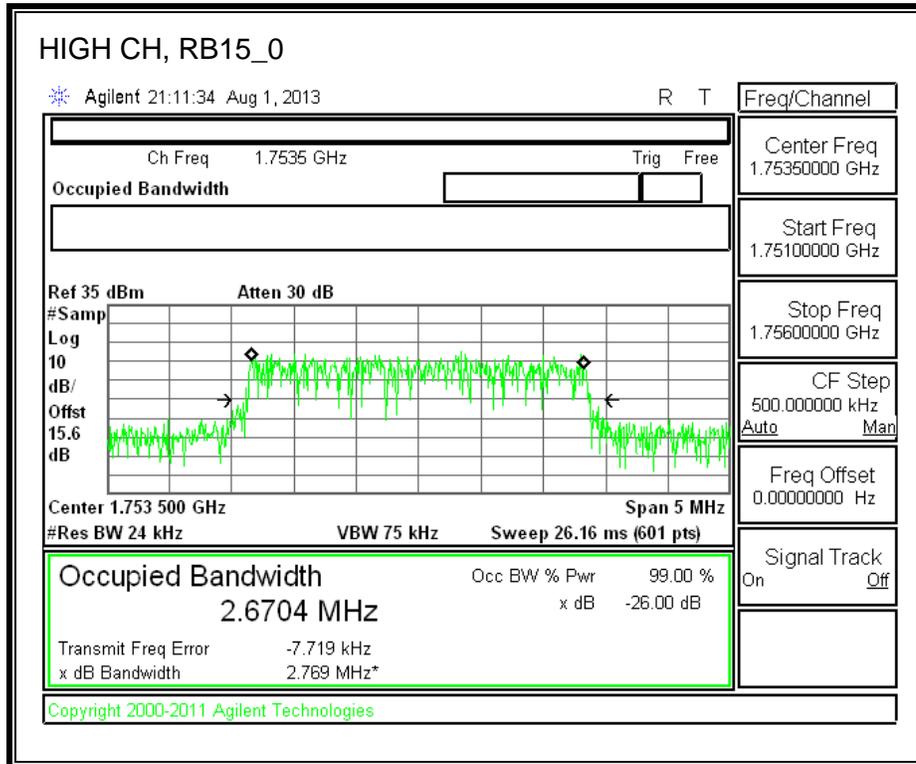
HIGH-QPSK





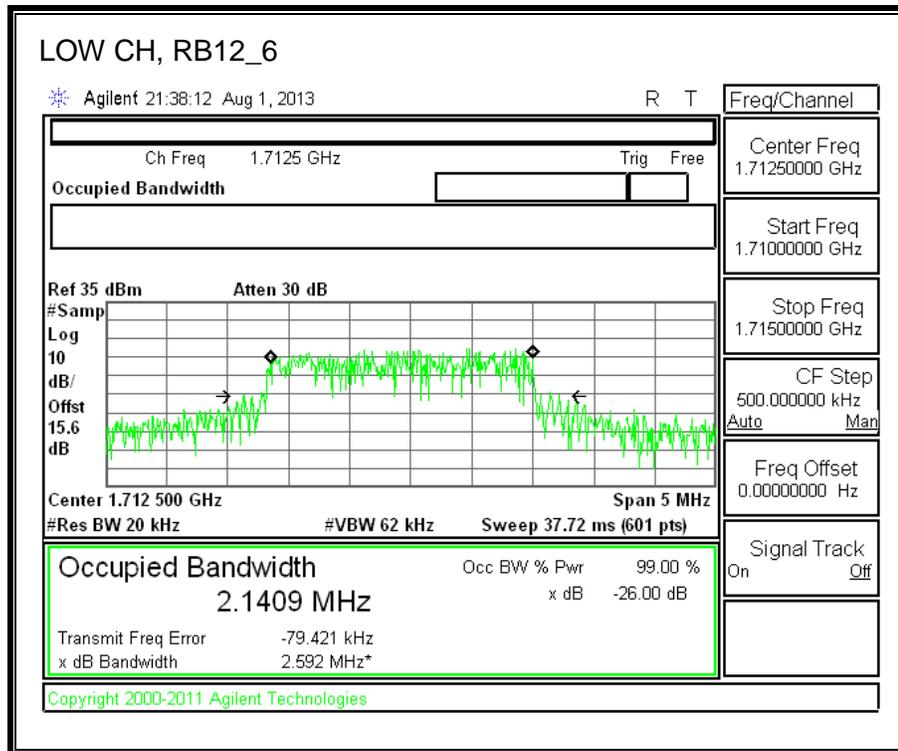
HIGH-16QAM

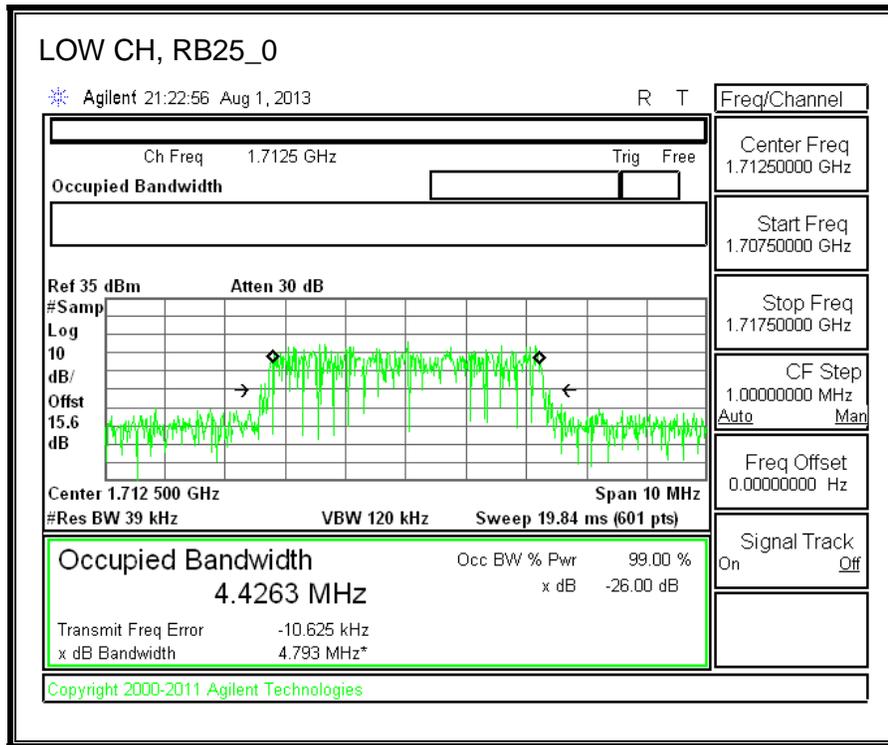




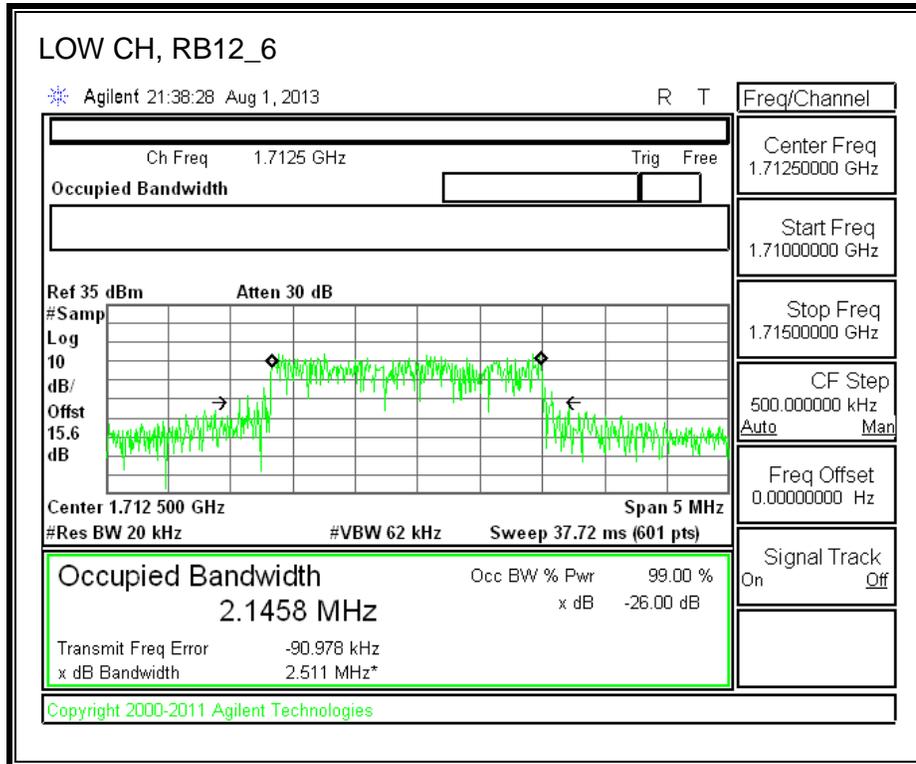
LTE BAND 4-5MHz BANDWIDTH

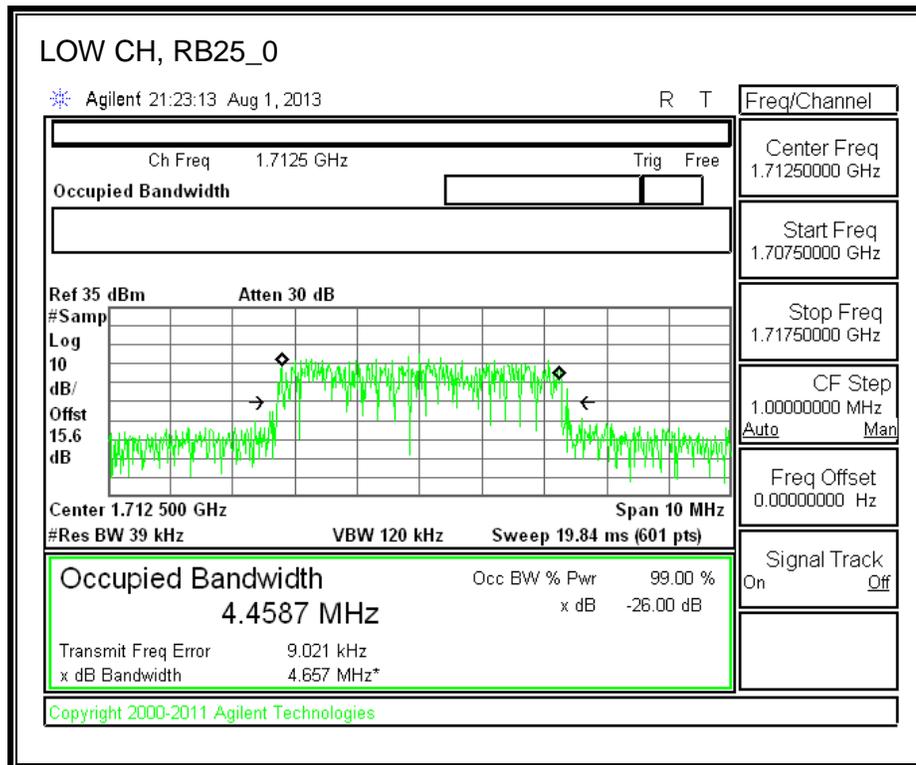
LOW-QPSK



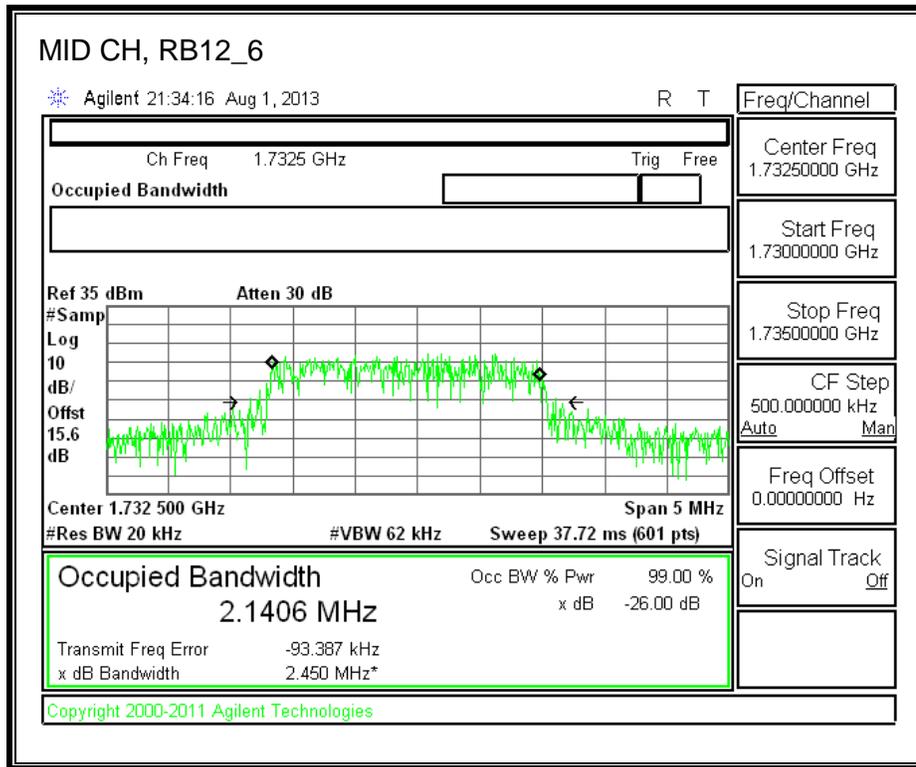


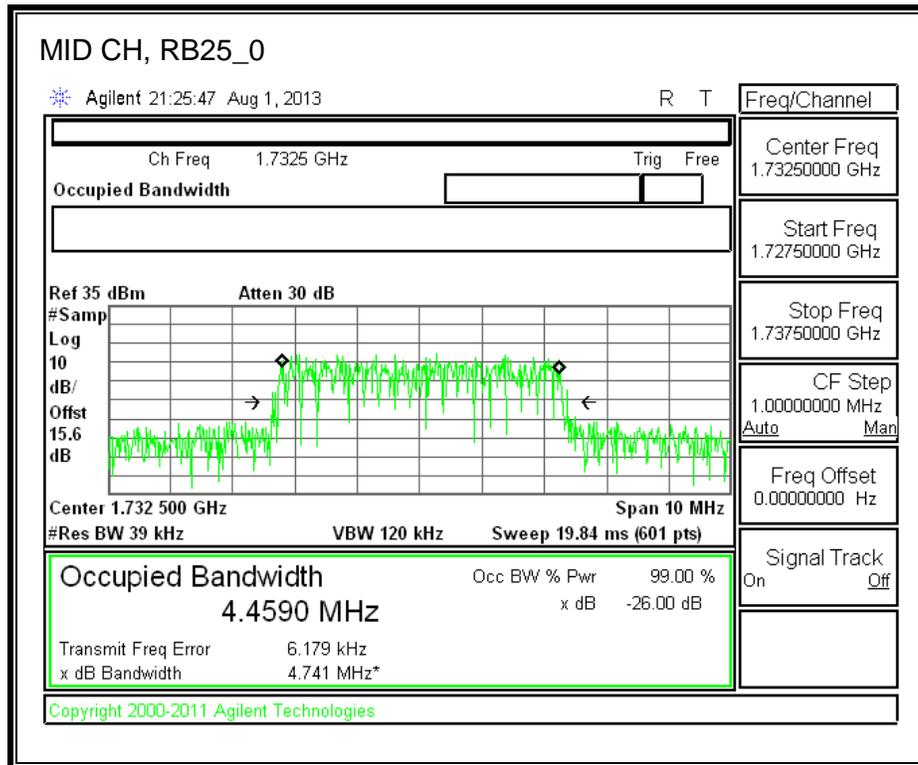
LOW-16QAM



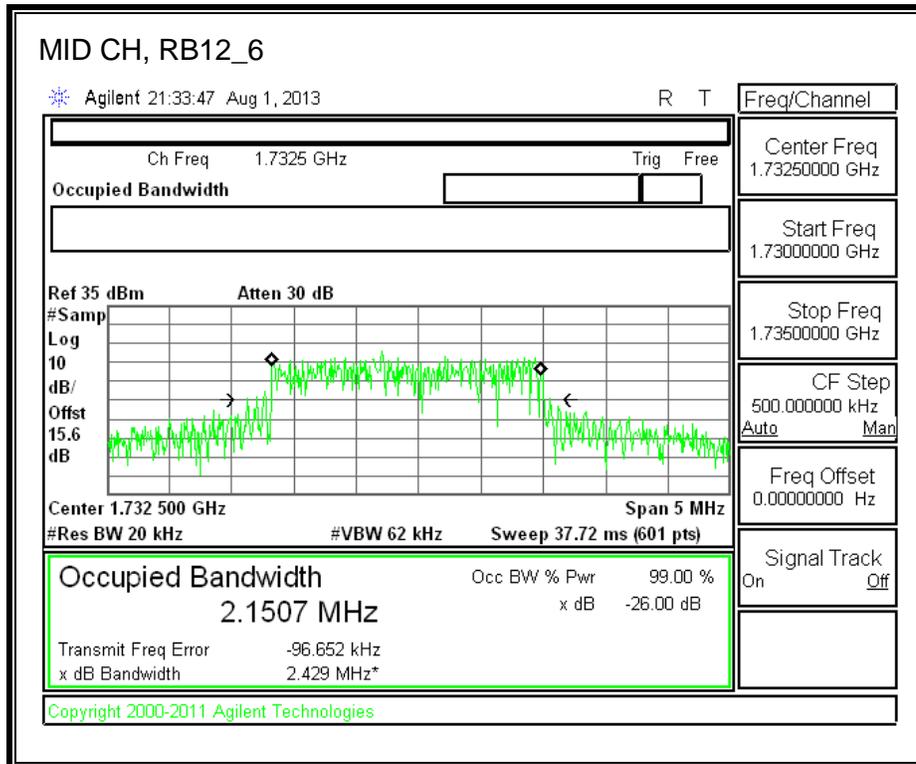


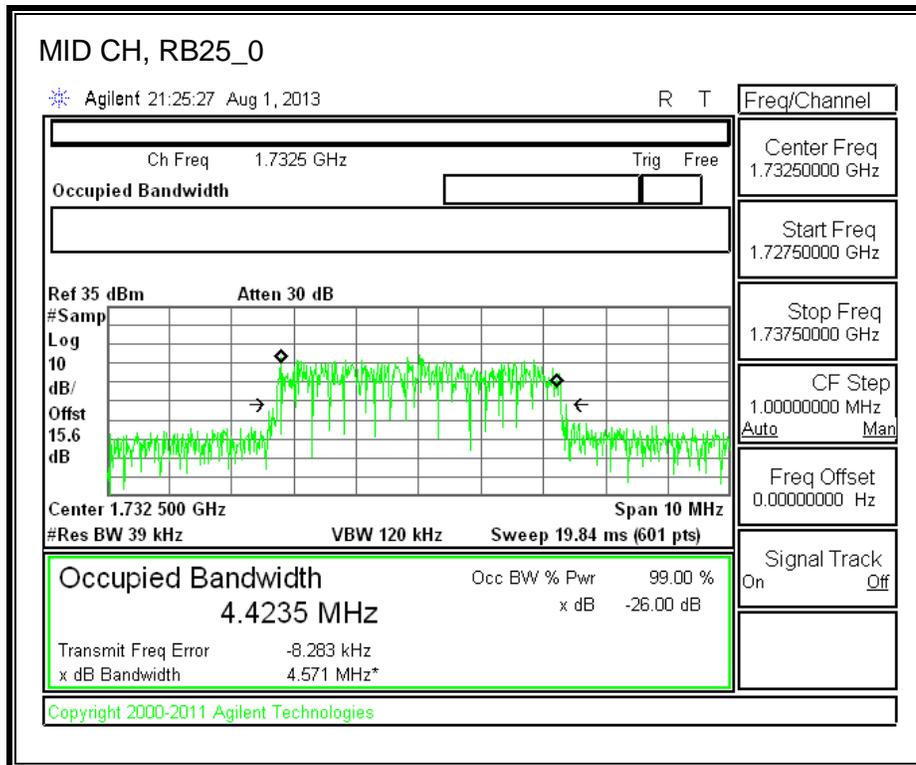
MID-QPSK



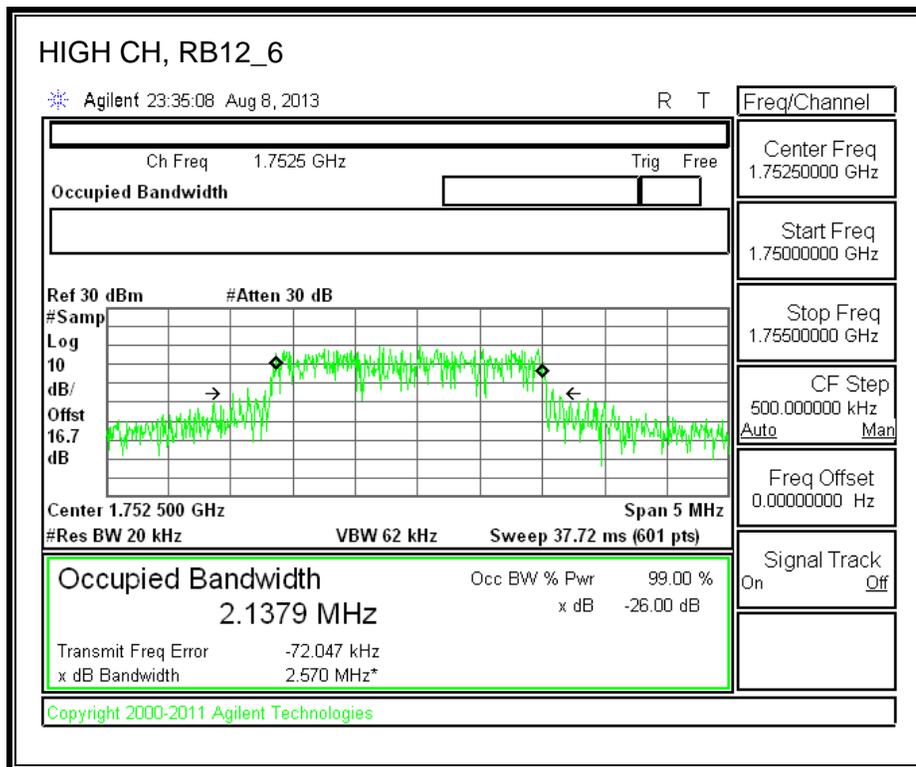


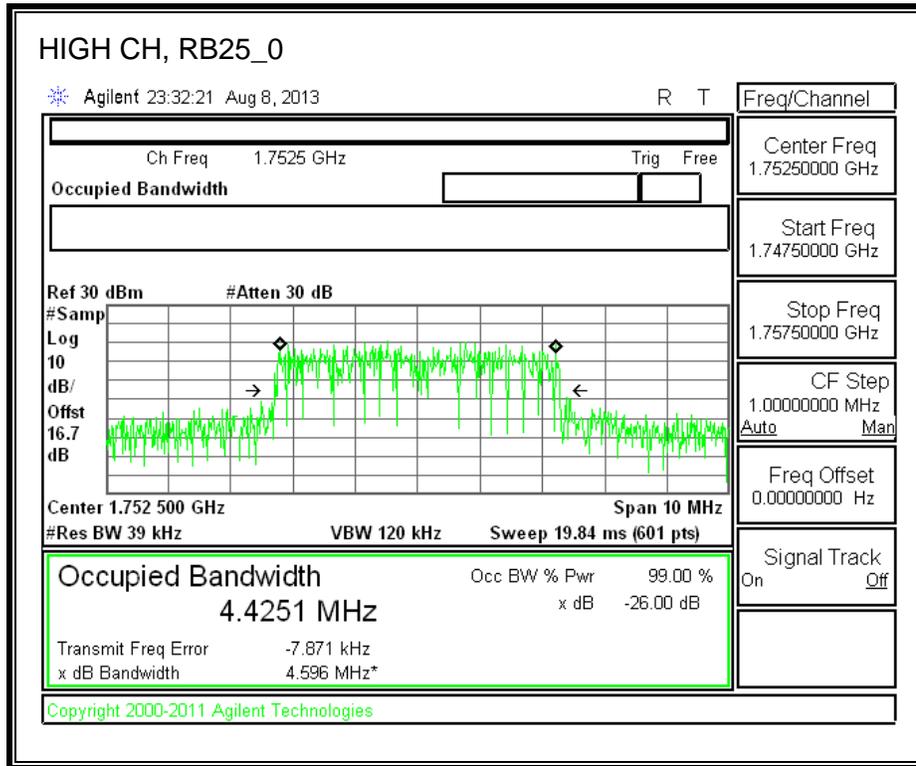
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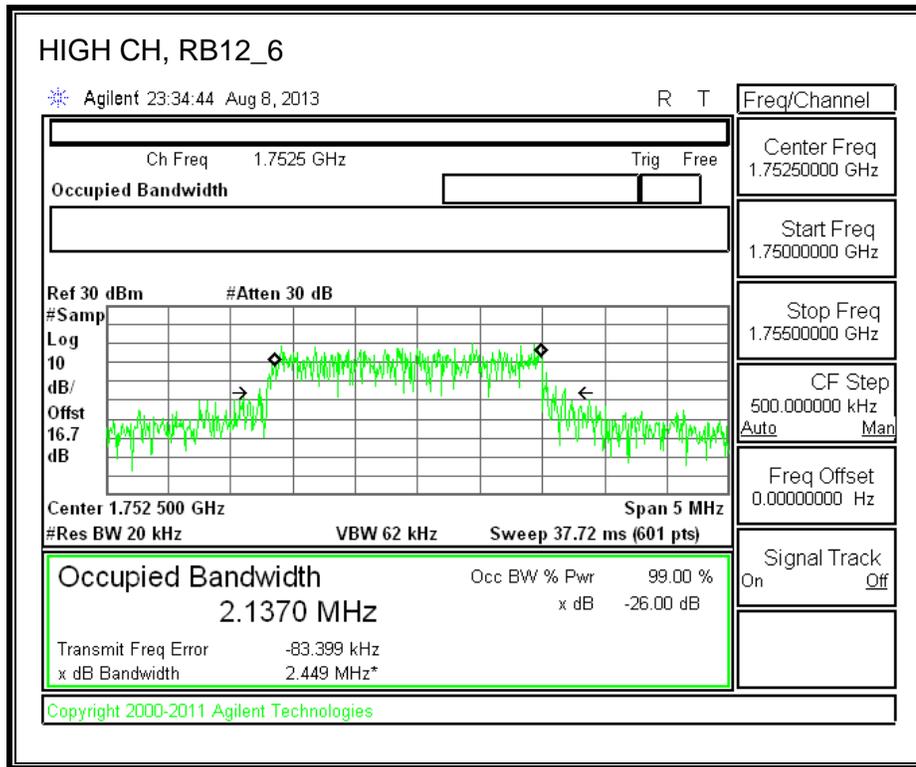


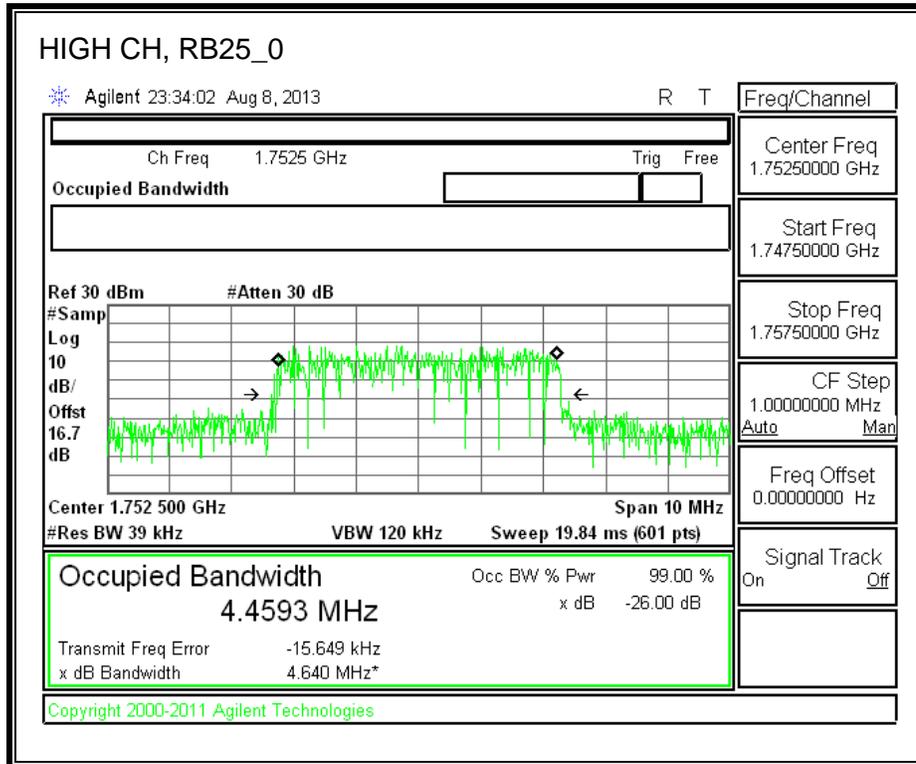
HIGH-QPSK





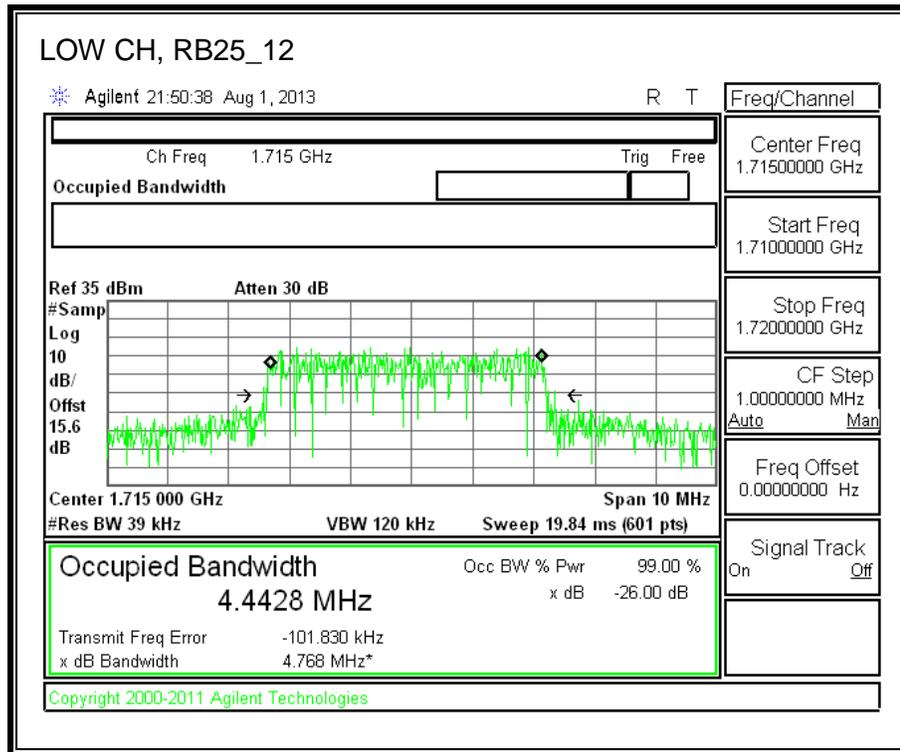
HIGH-16QAM

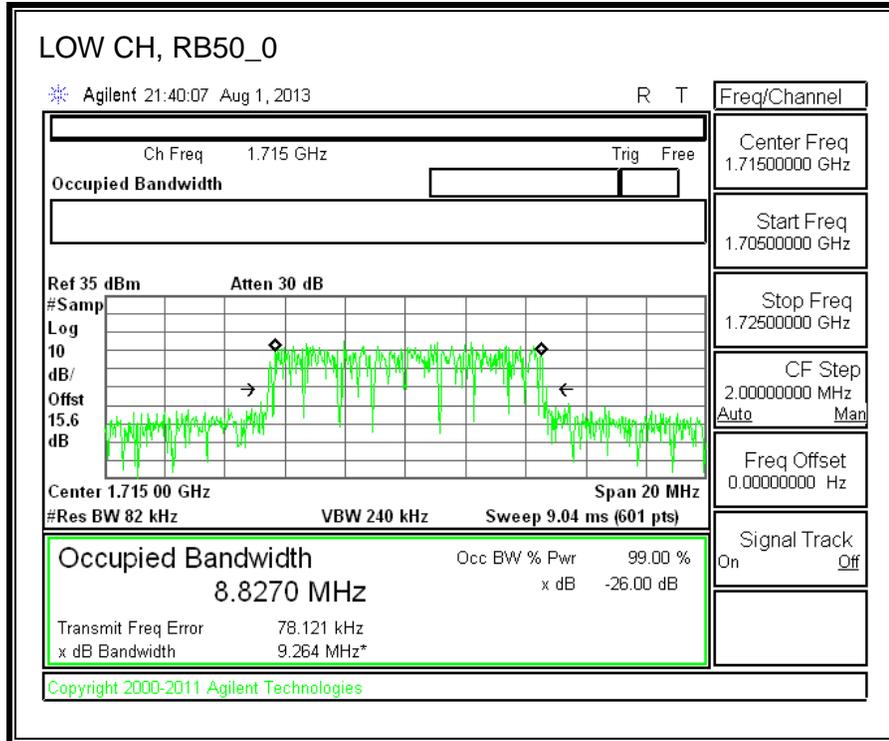




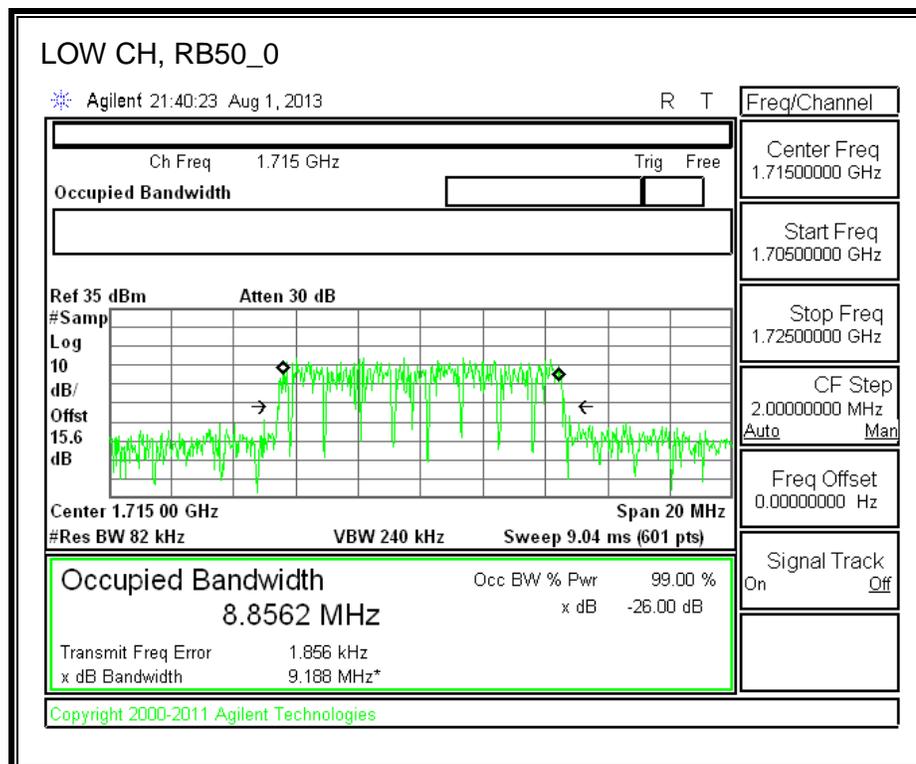
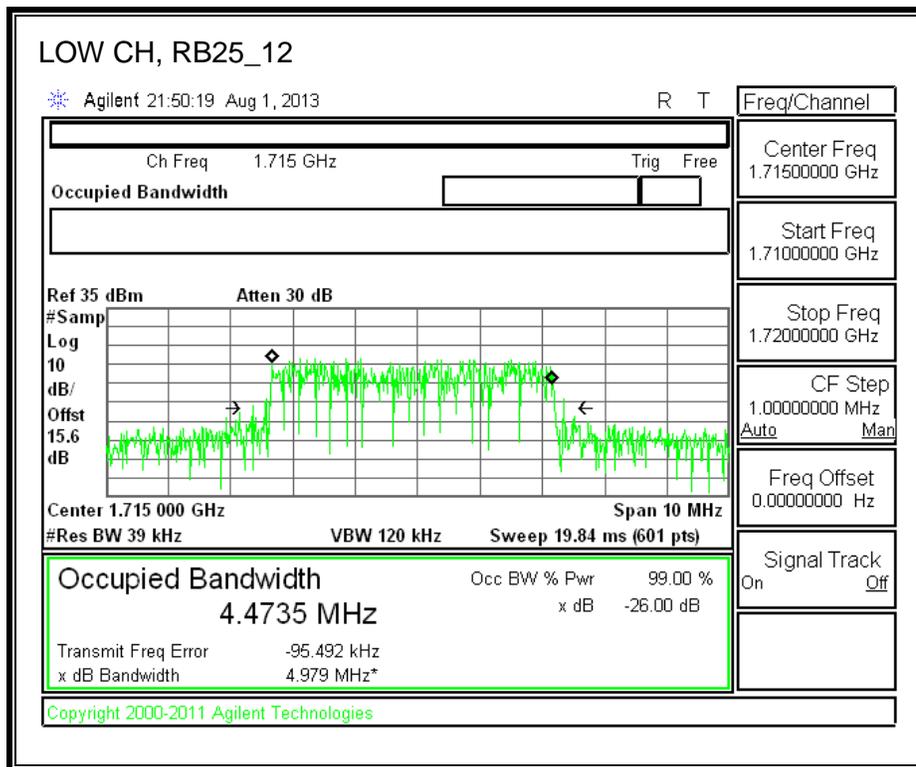
LTE BAND 4-10MHz BANDWIDTH

LOW-QPSK

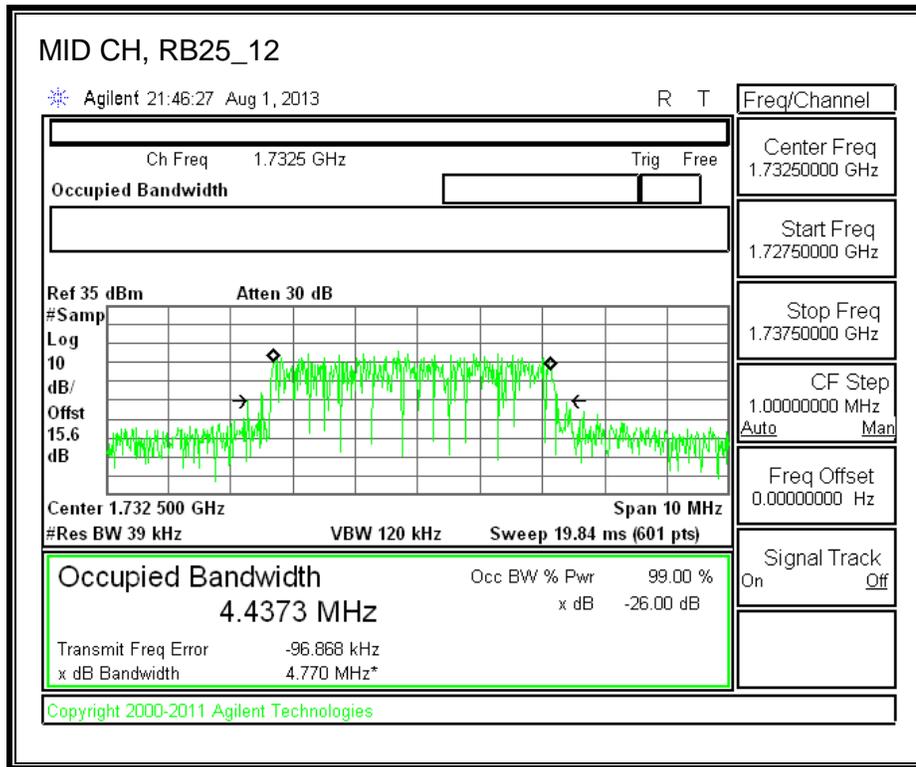


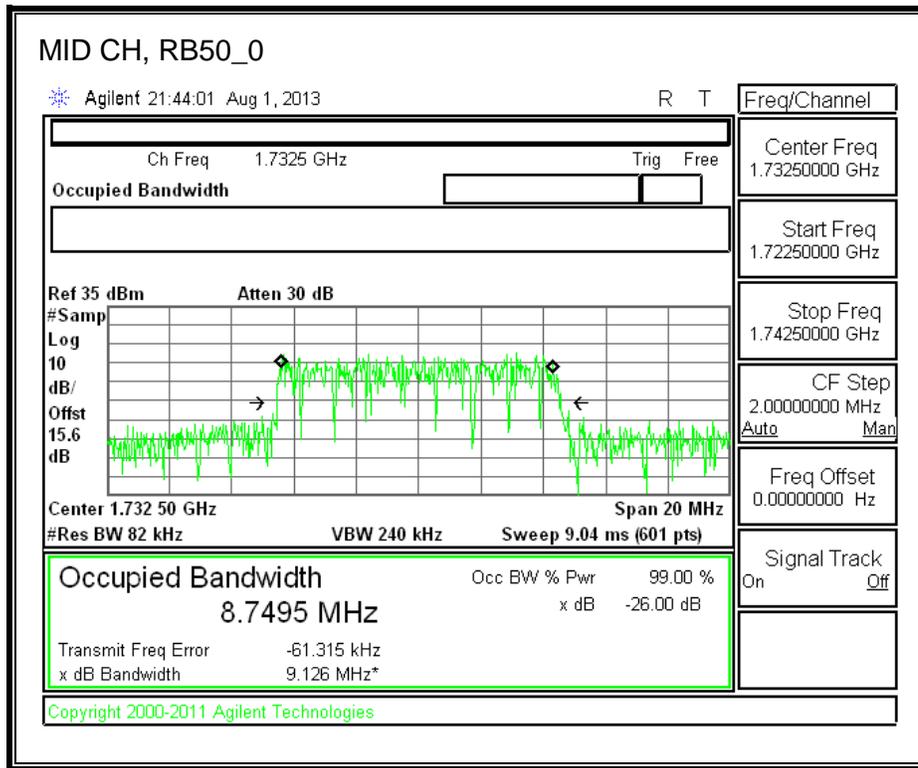


LOW-16QAM

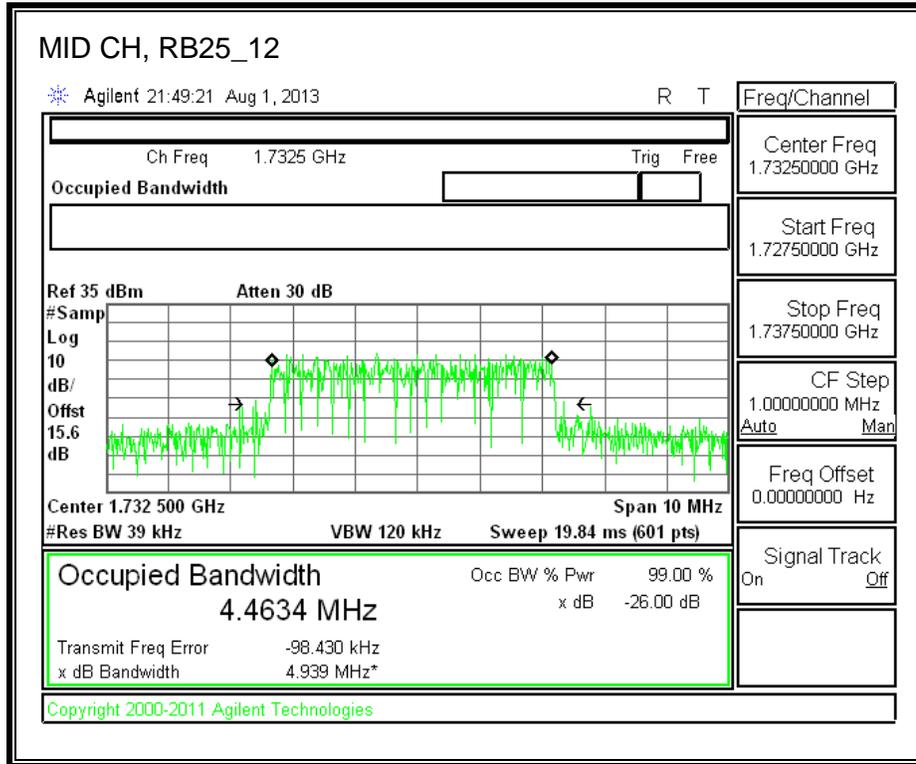


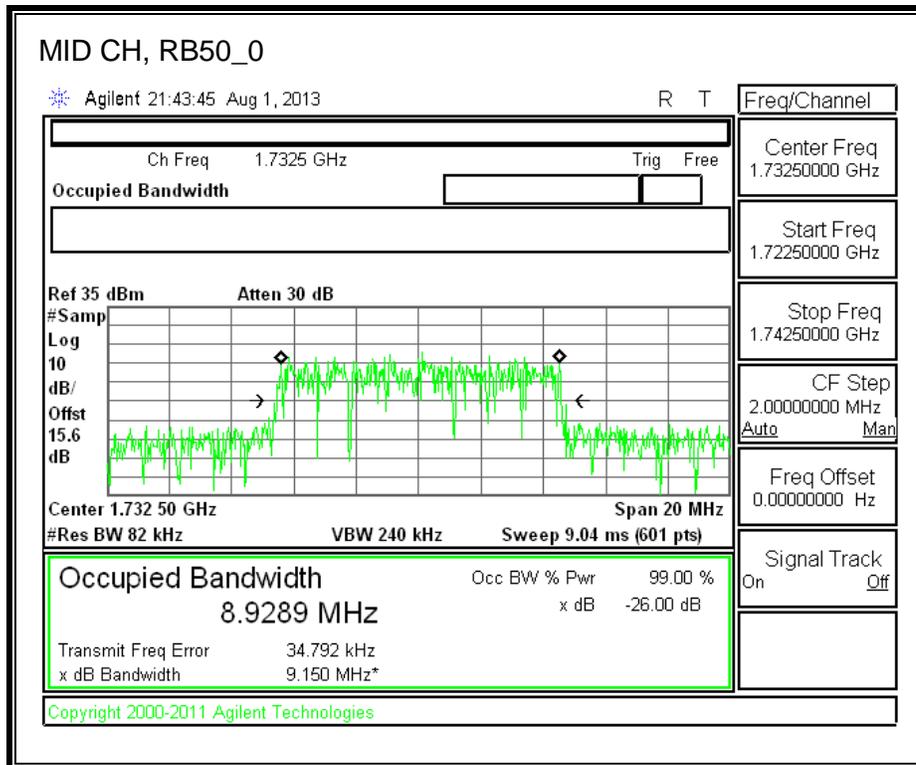
MID-QPSK



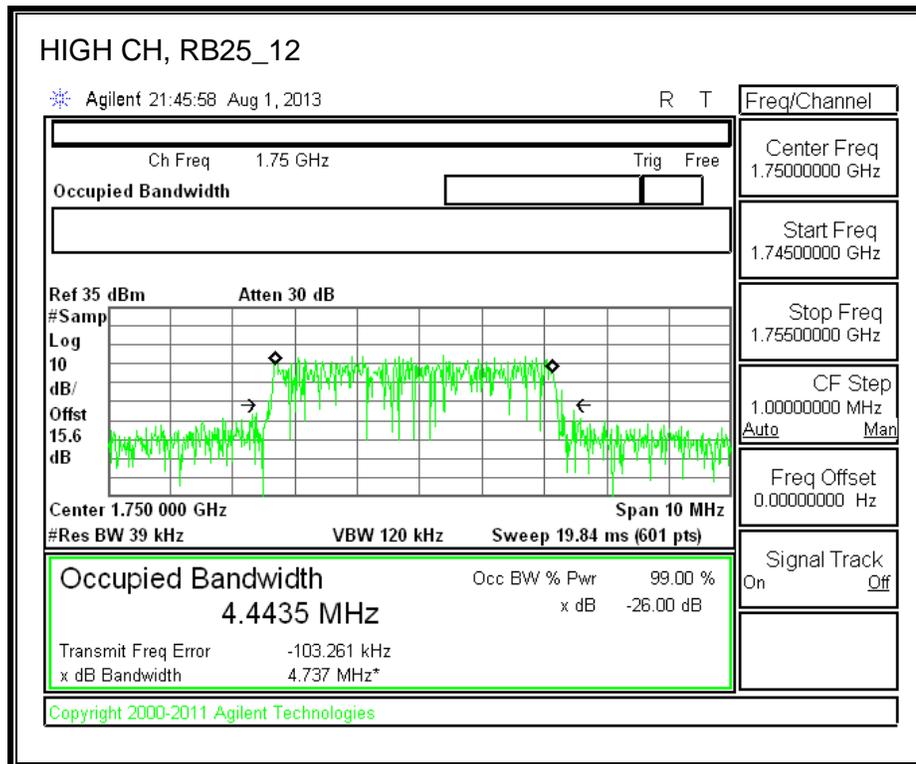


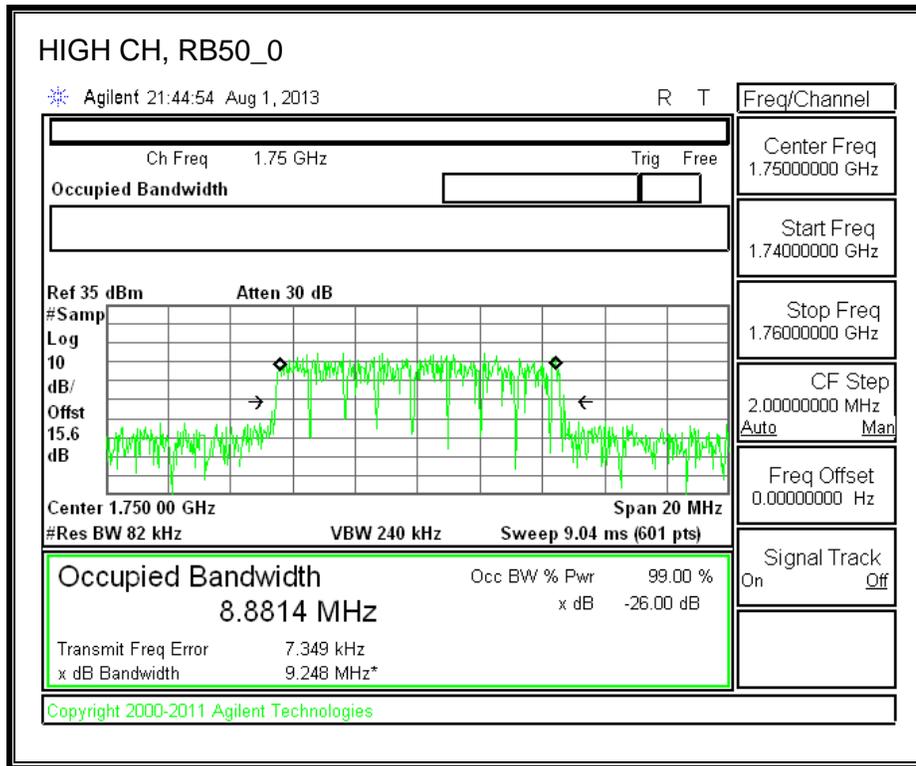
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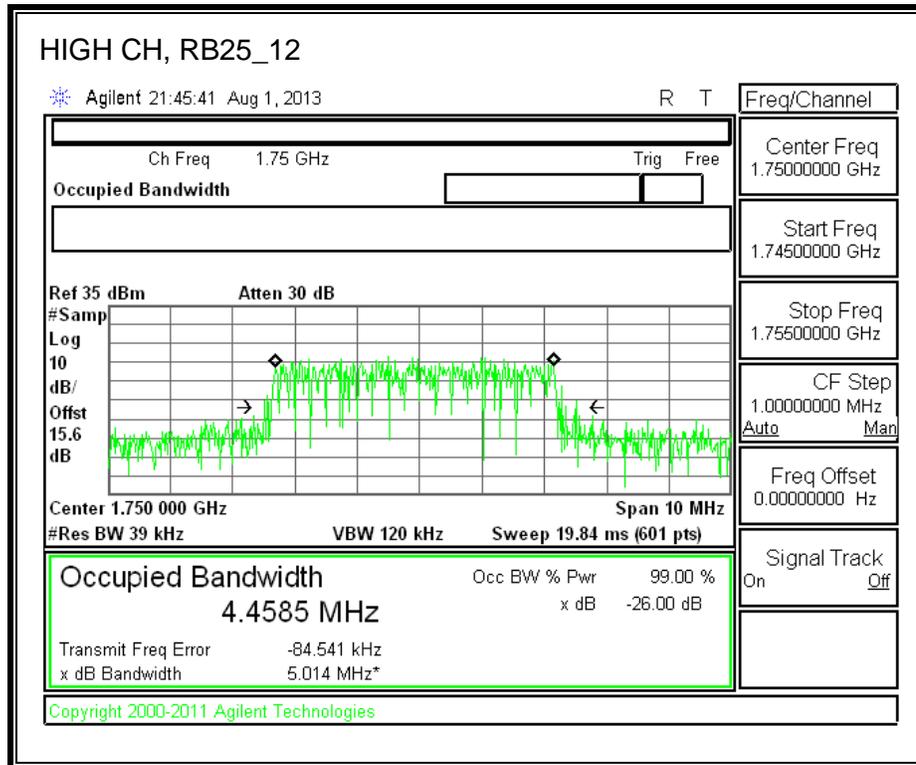


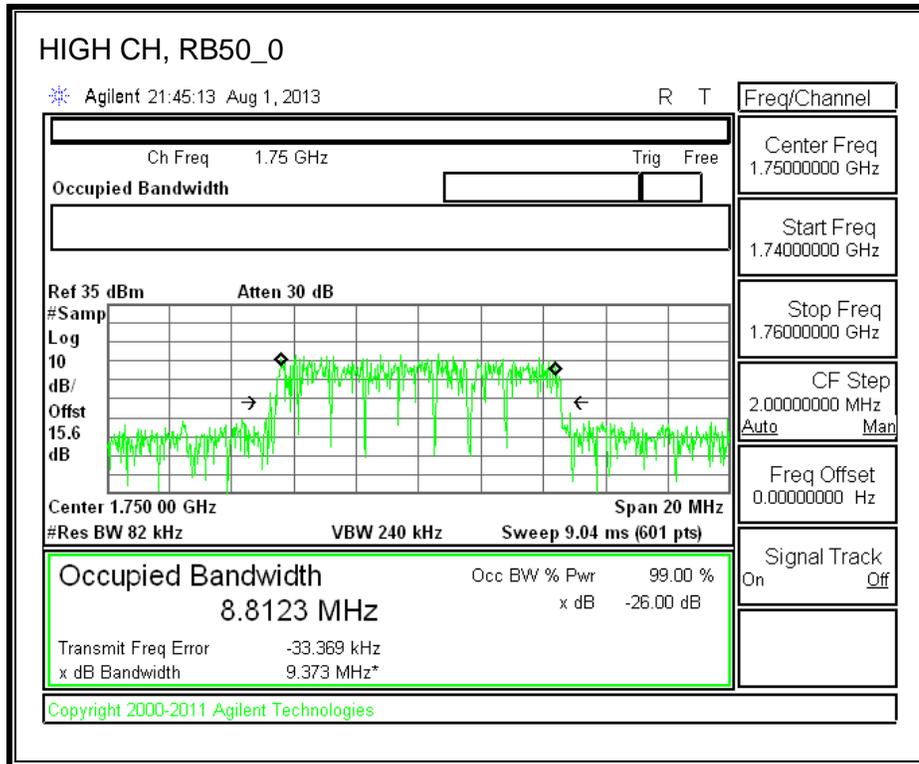
HIGH-QPSK





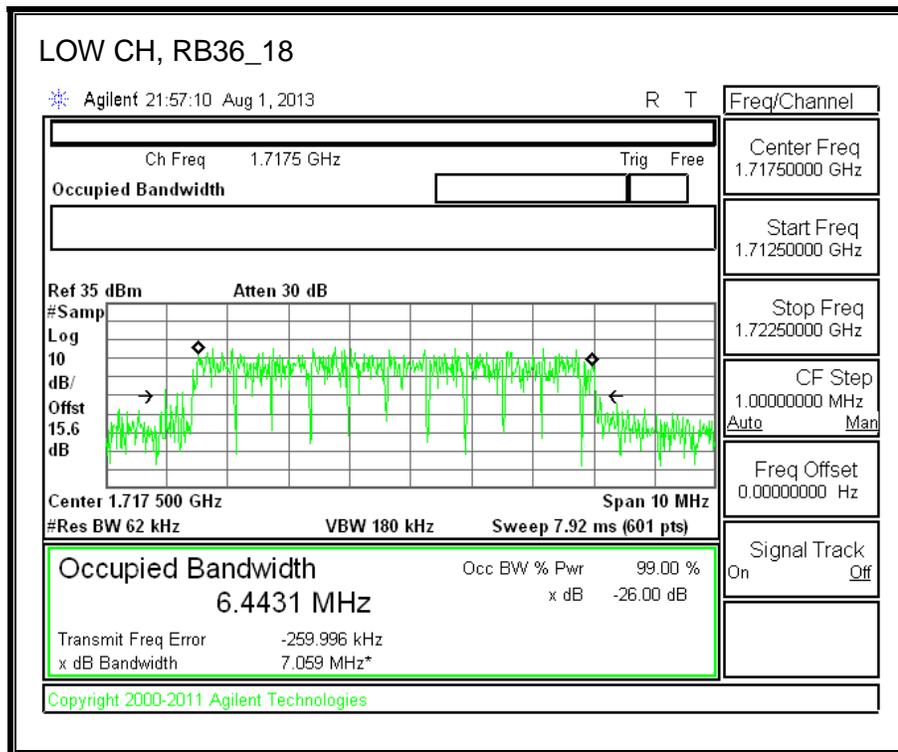
HIGH-16QAM

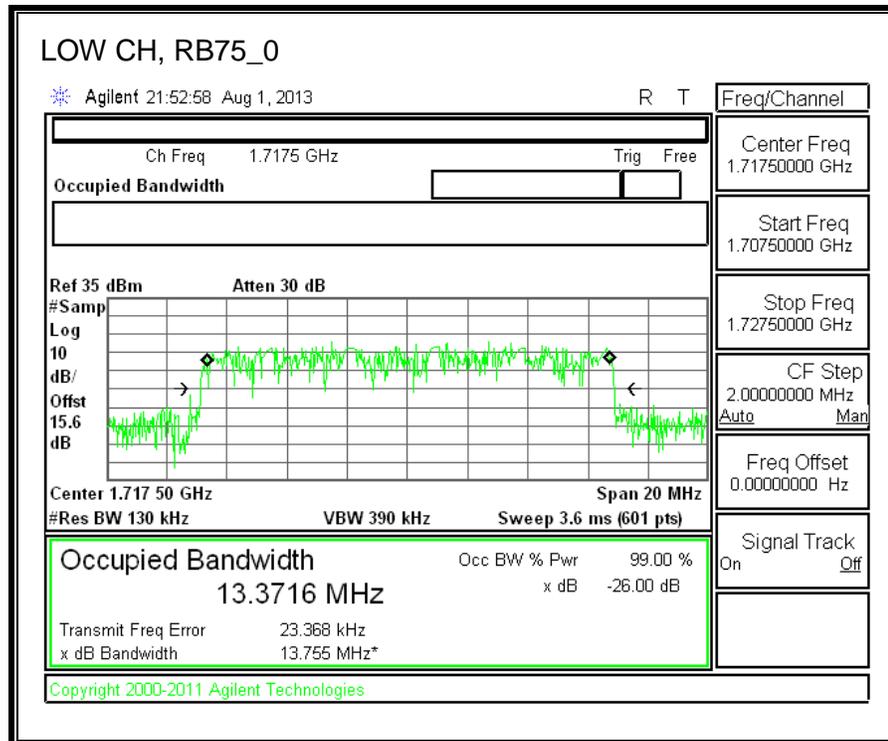




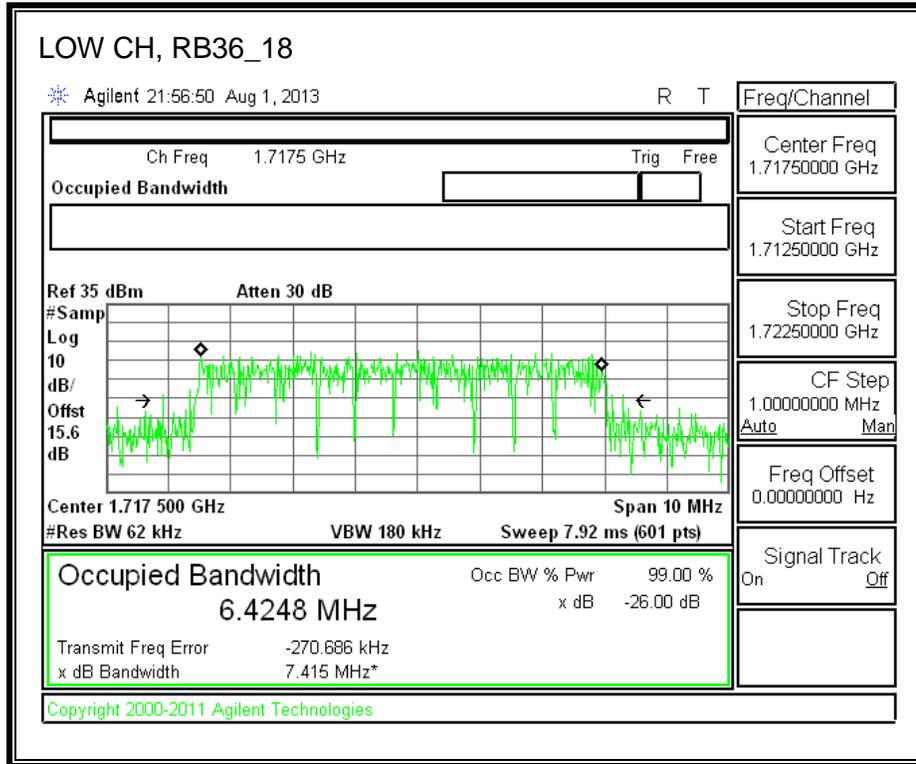
LTE BAND 4-15MHz BANDWIDTH

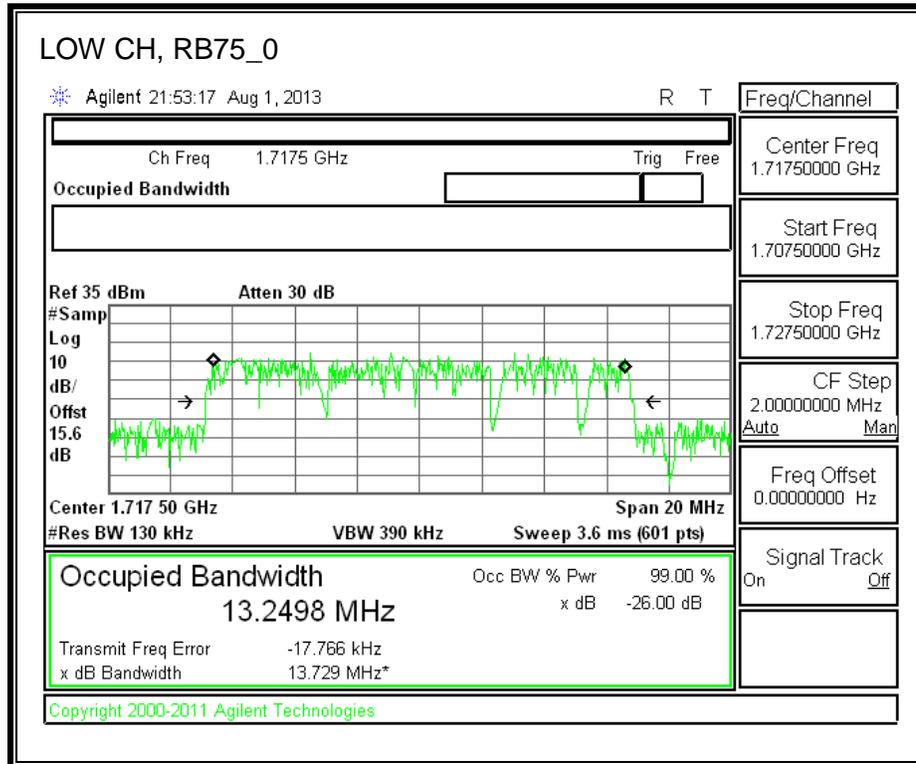
LOW-QPSK



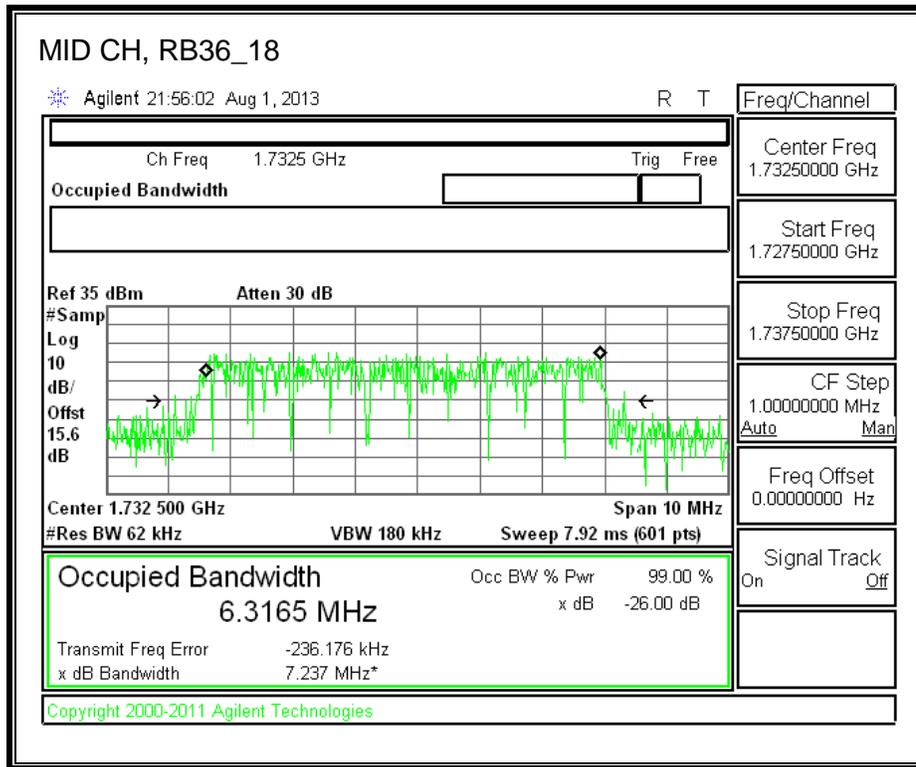


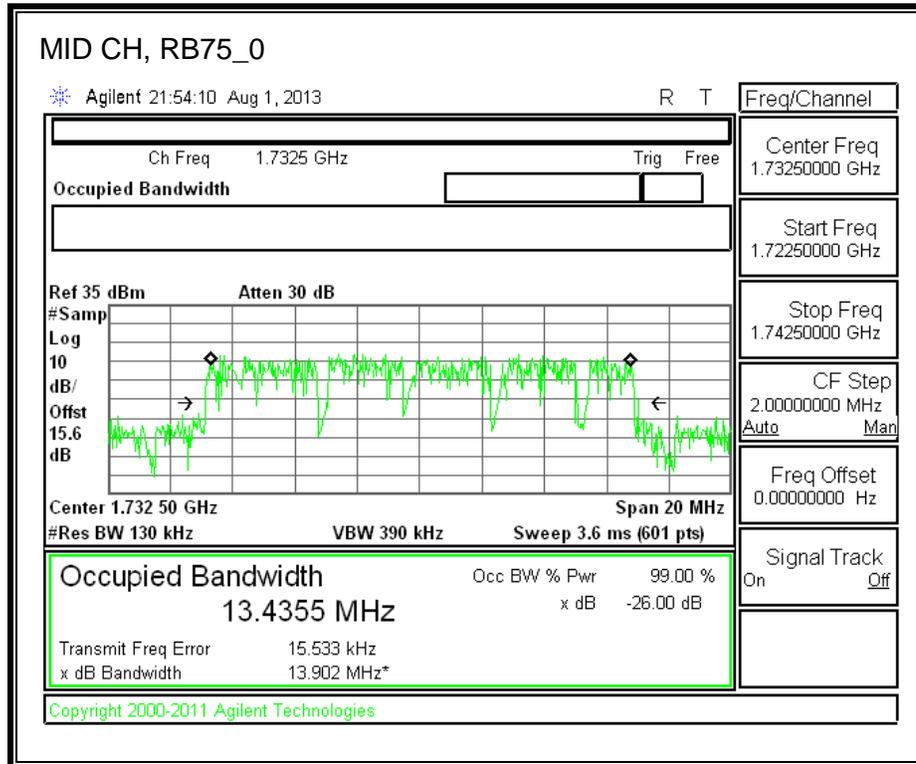
LOW-16QAM



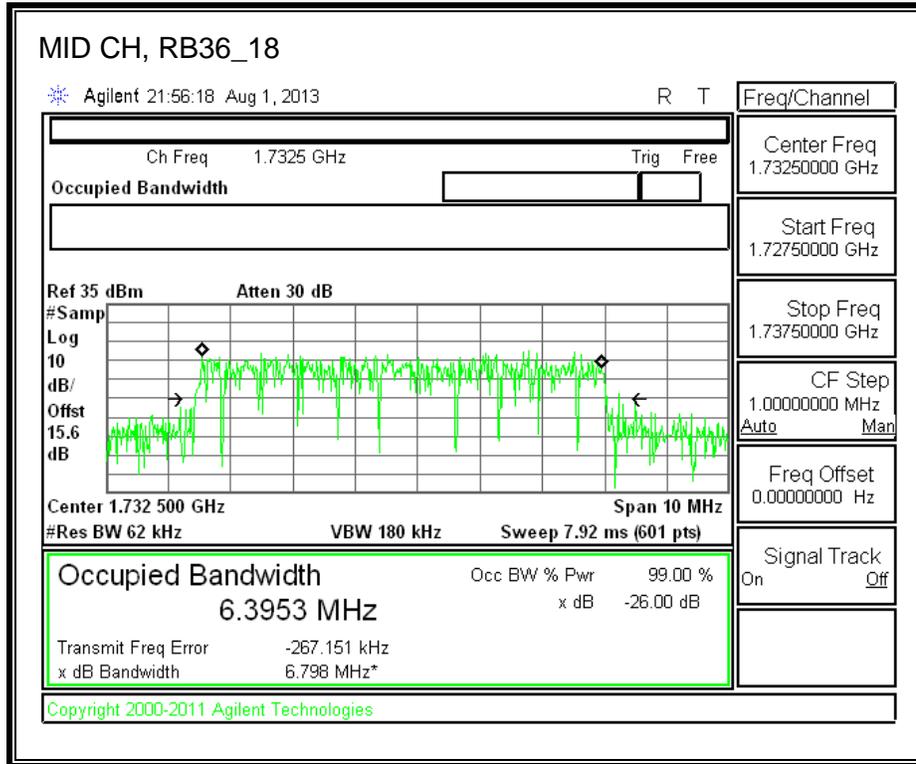


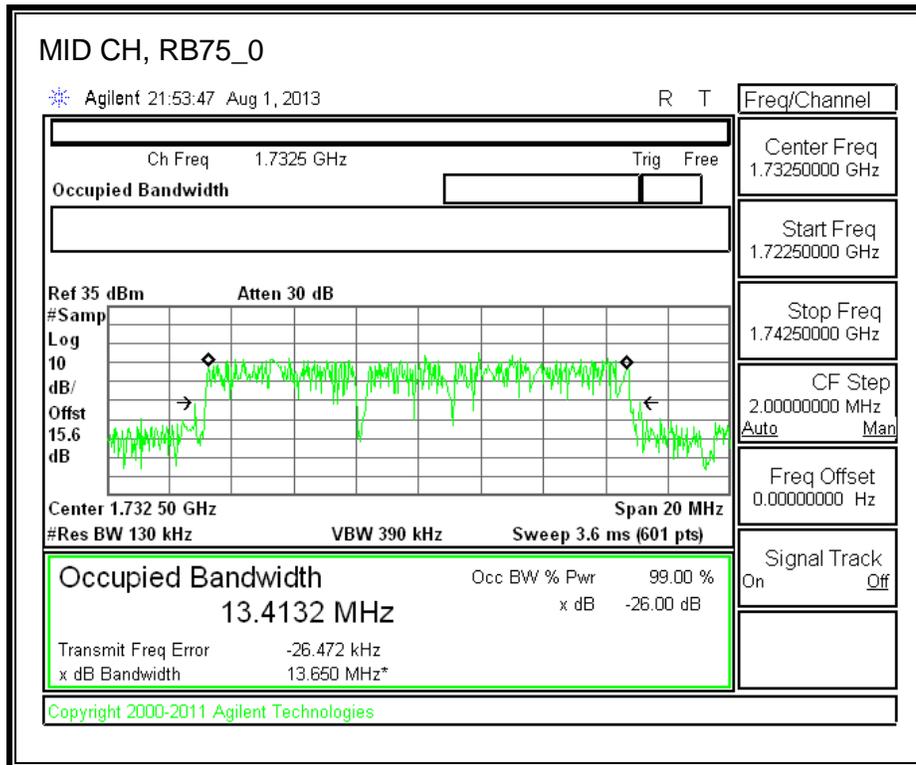
MID-QPSK



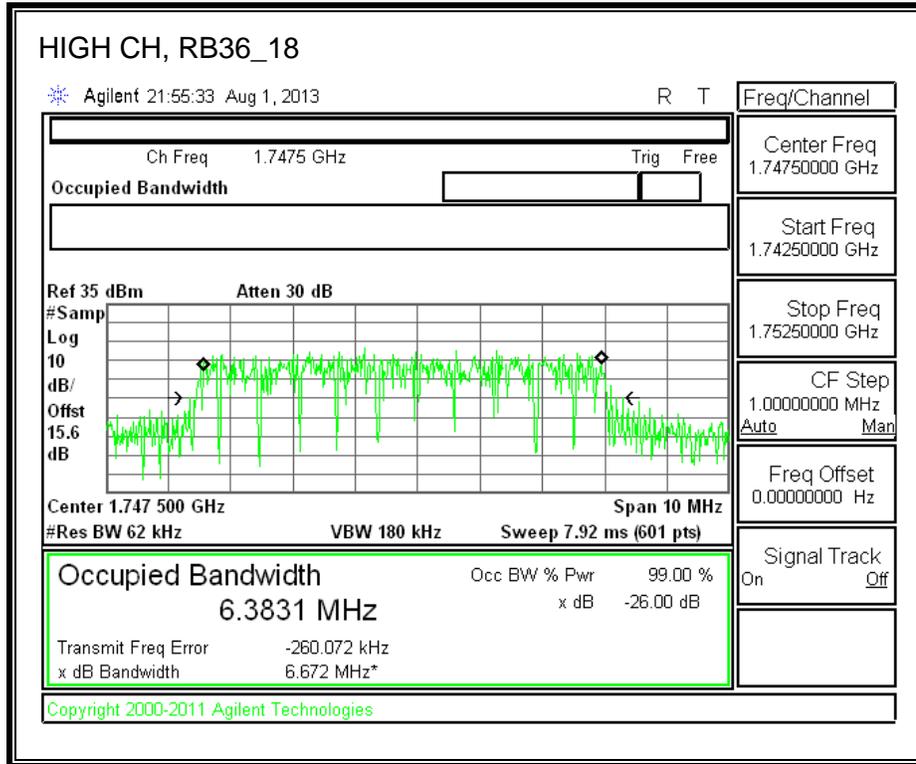


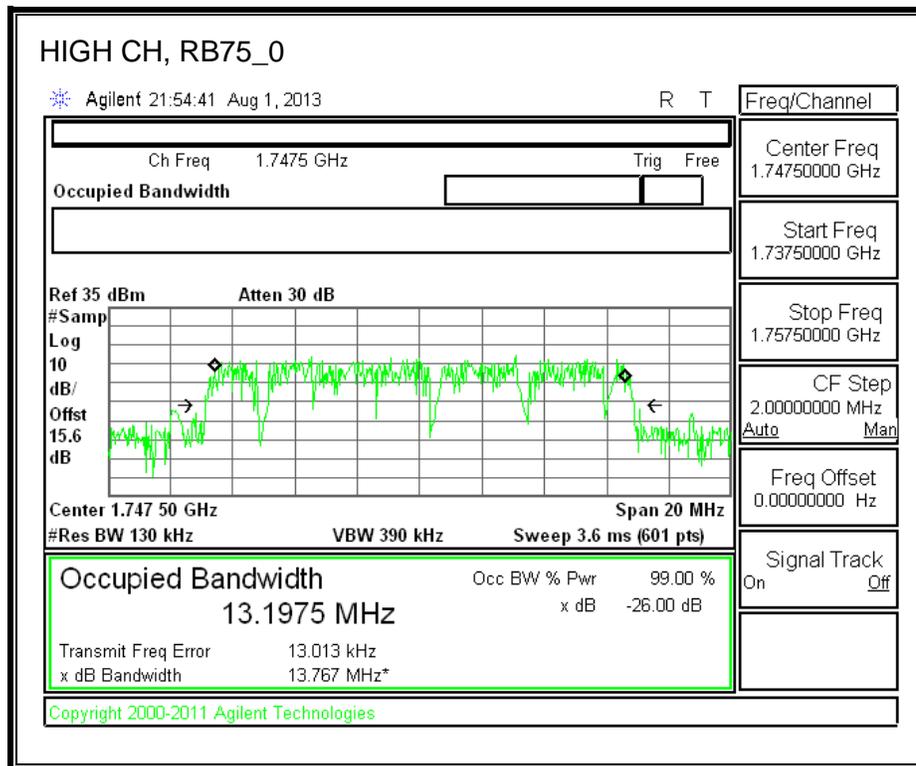
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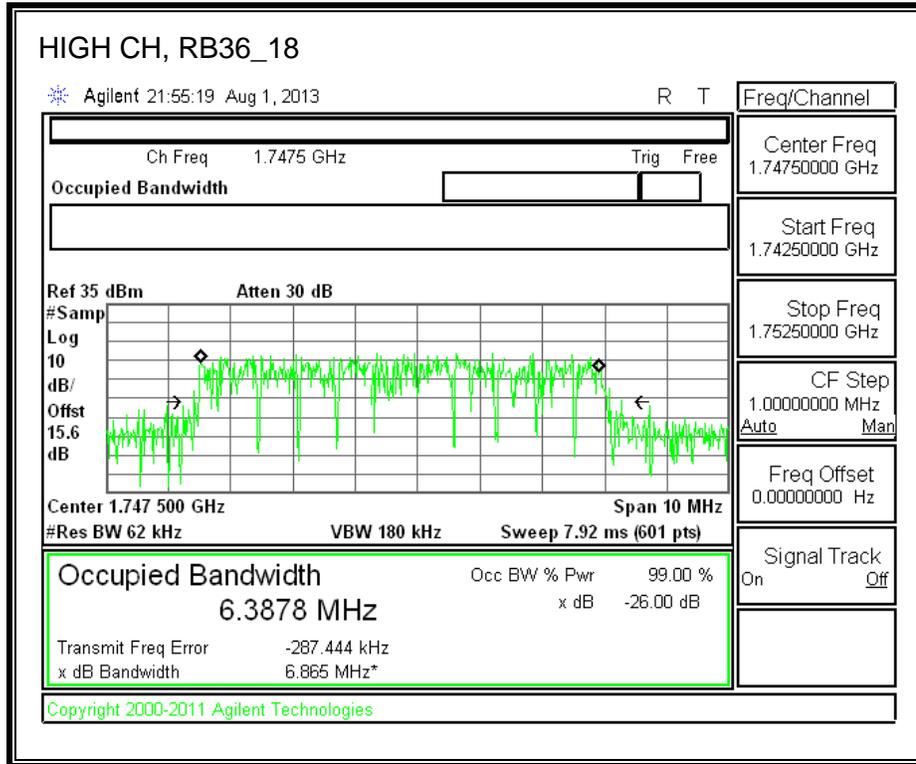


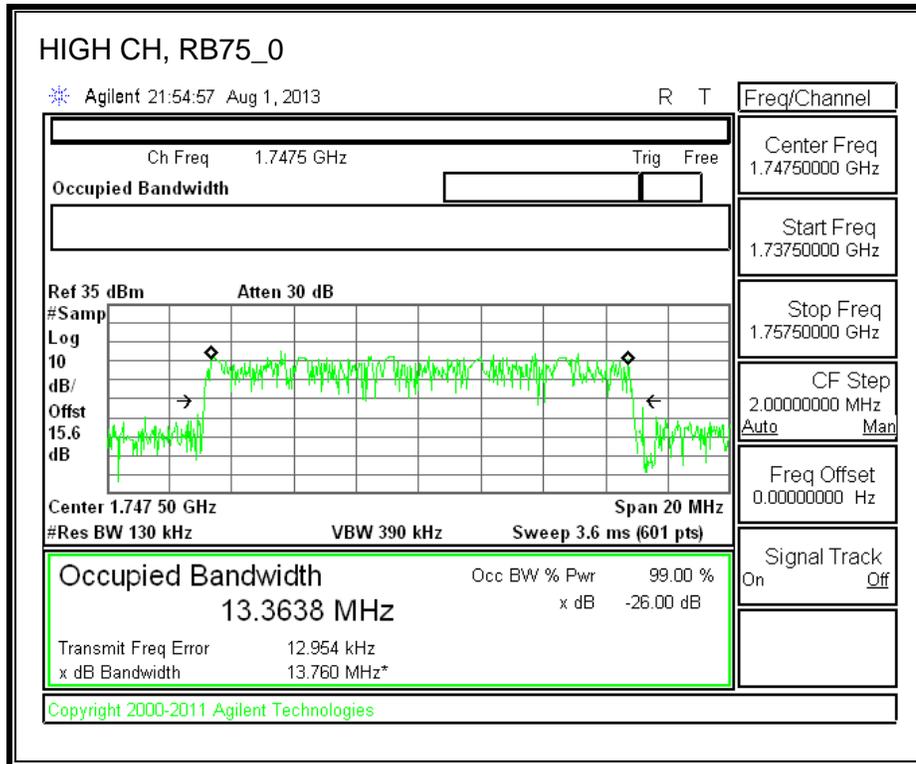
HIGH-QPSK





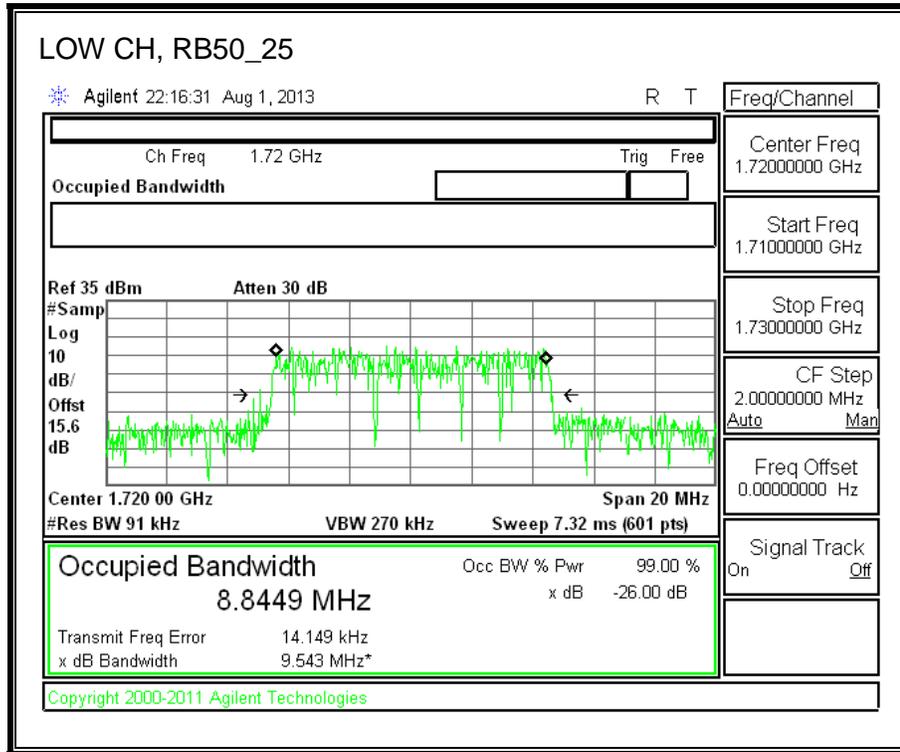
HIGH-16QAM

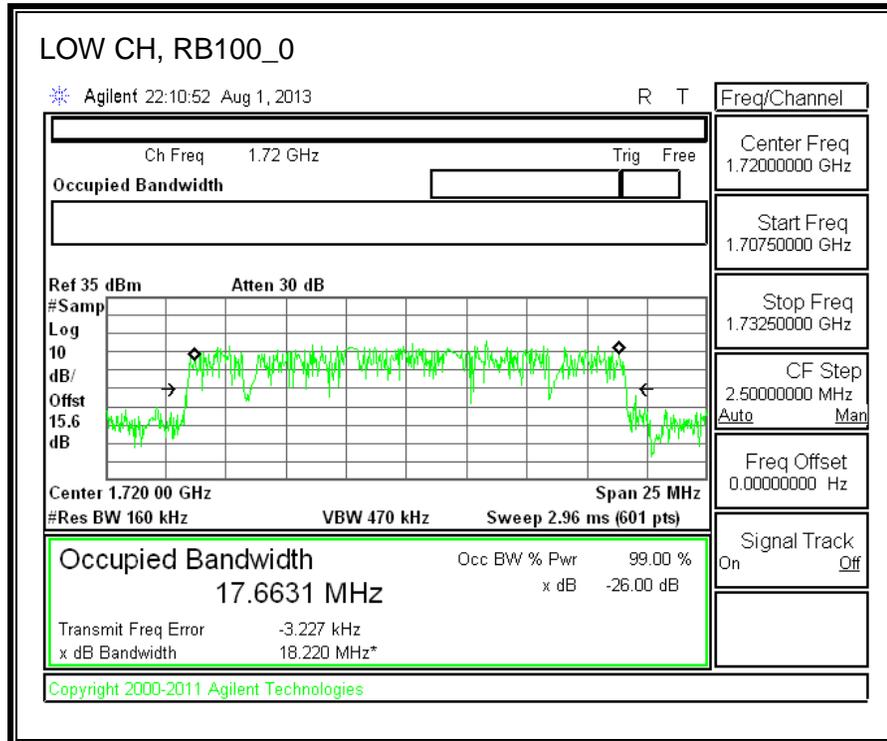




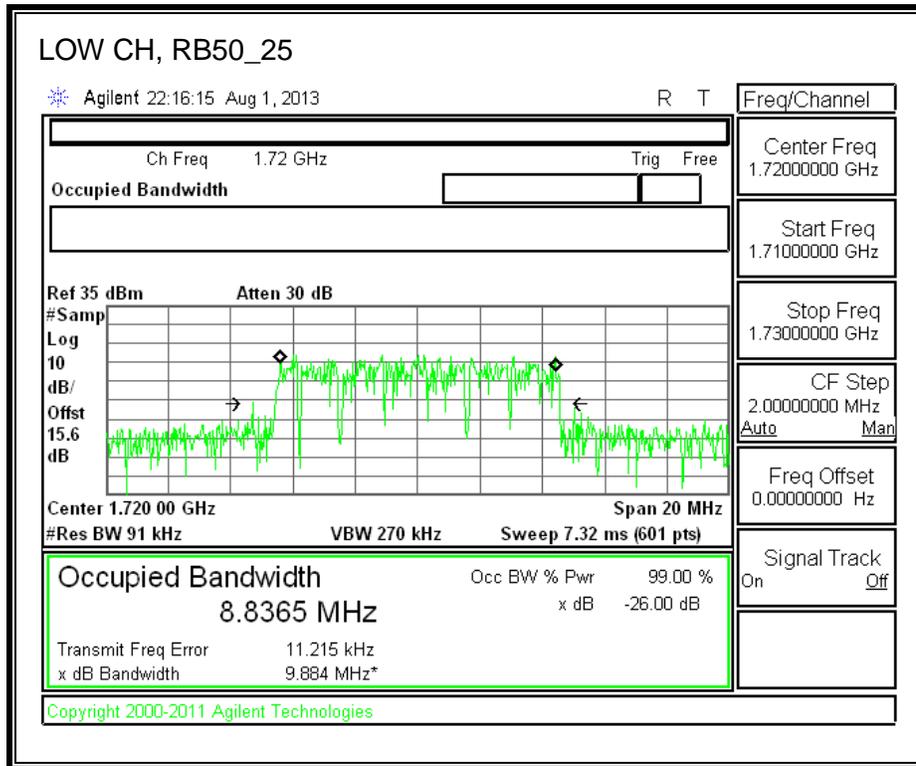
LTE BAND 4-20MHz BANDWIDTH

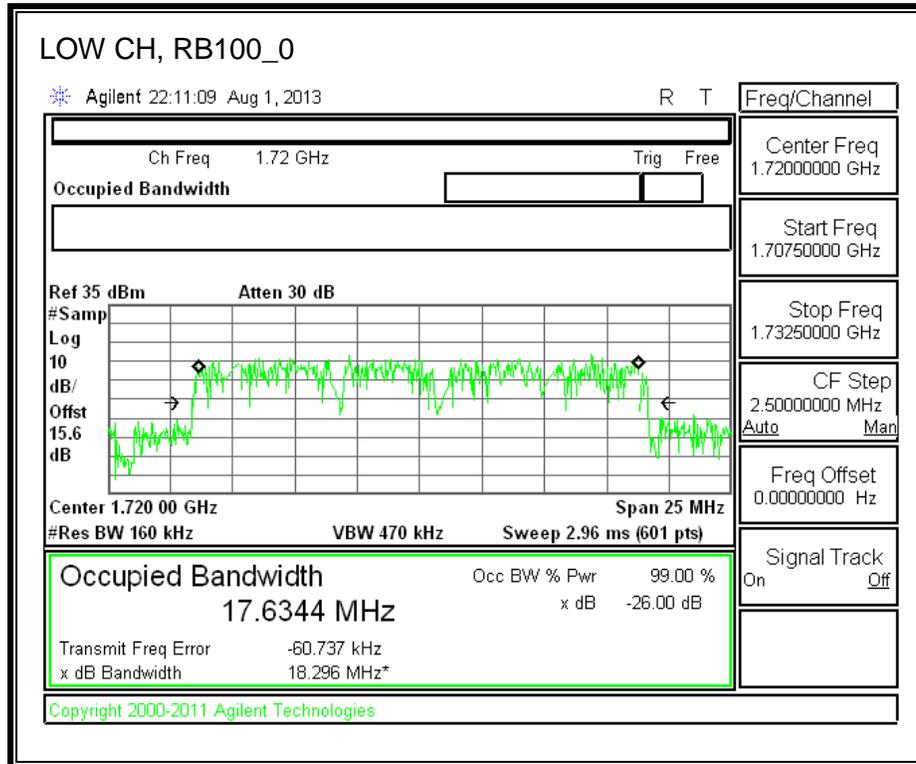
LOW-QPSK



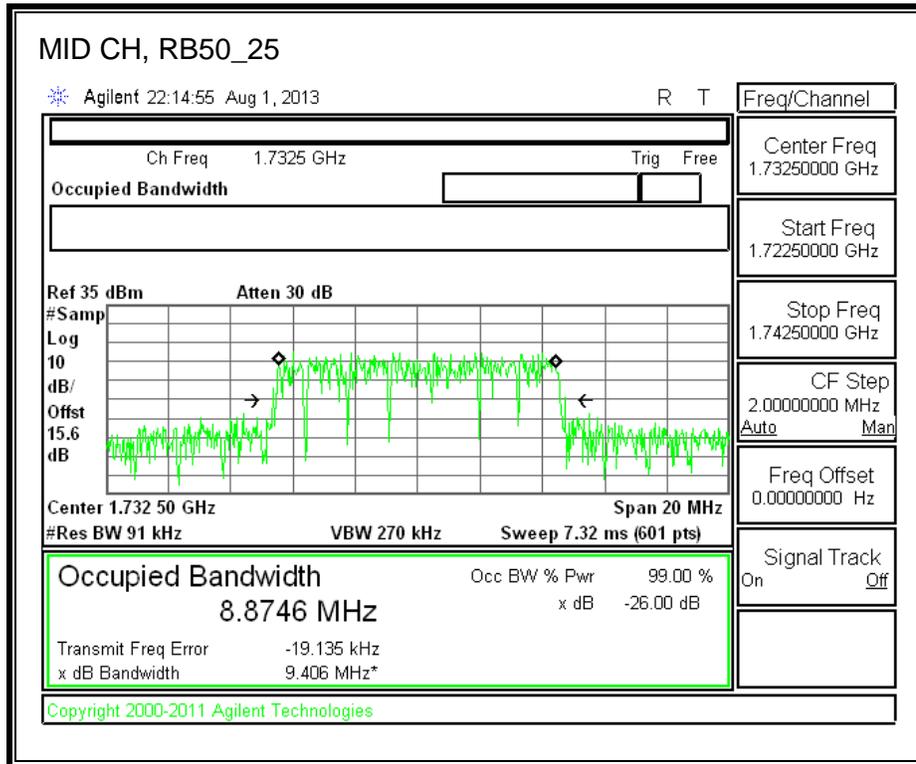


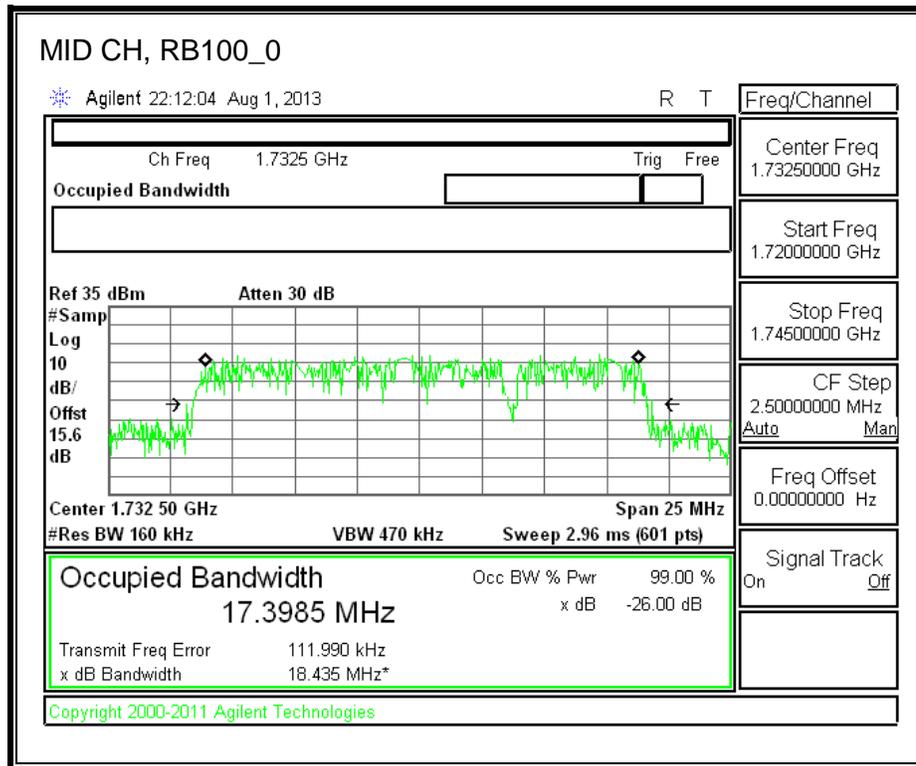
LOW-16QAM



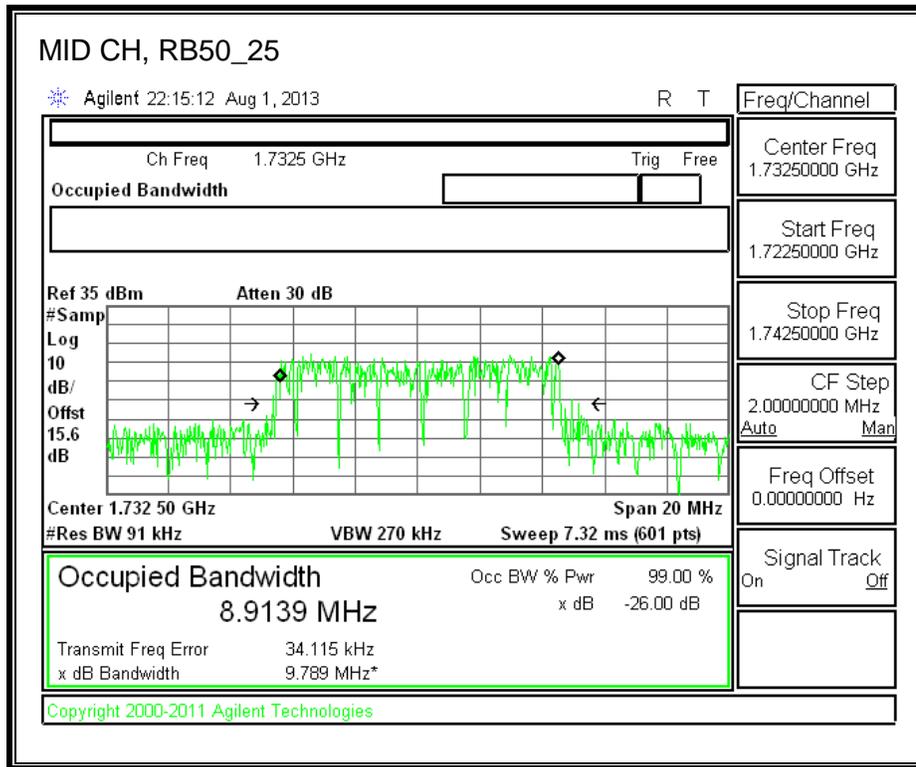


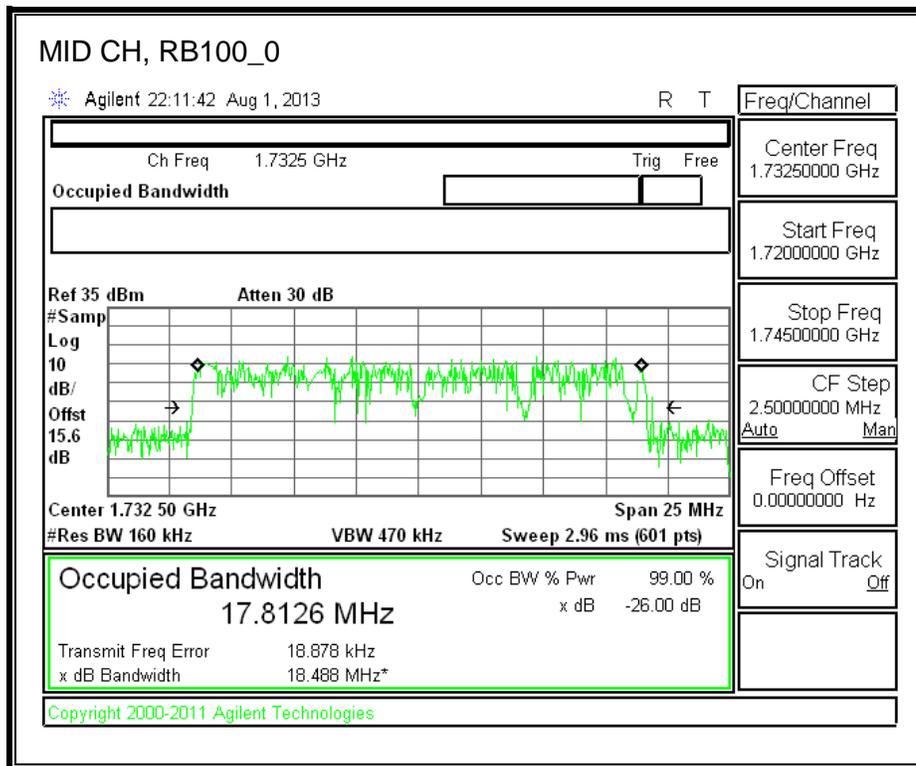
MID-QPSK



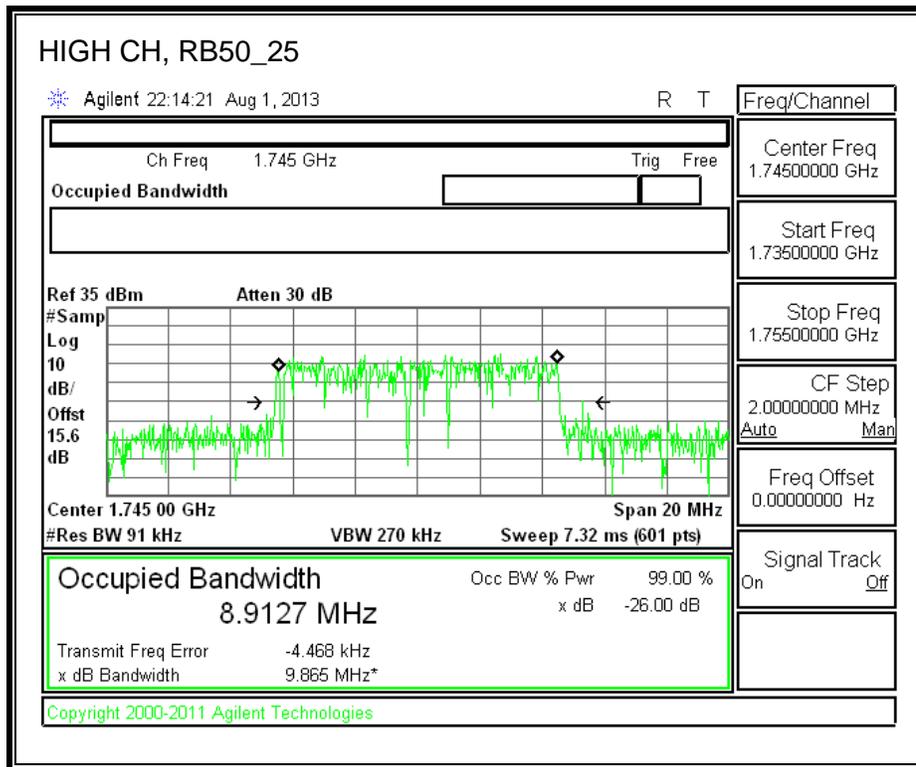


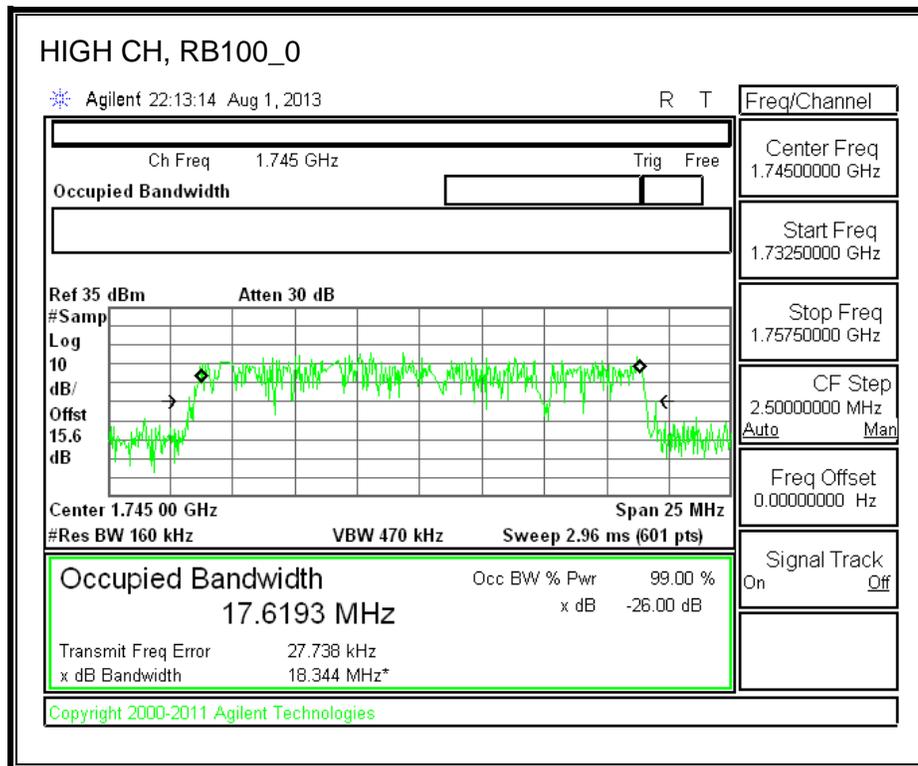
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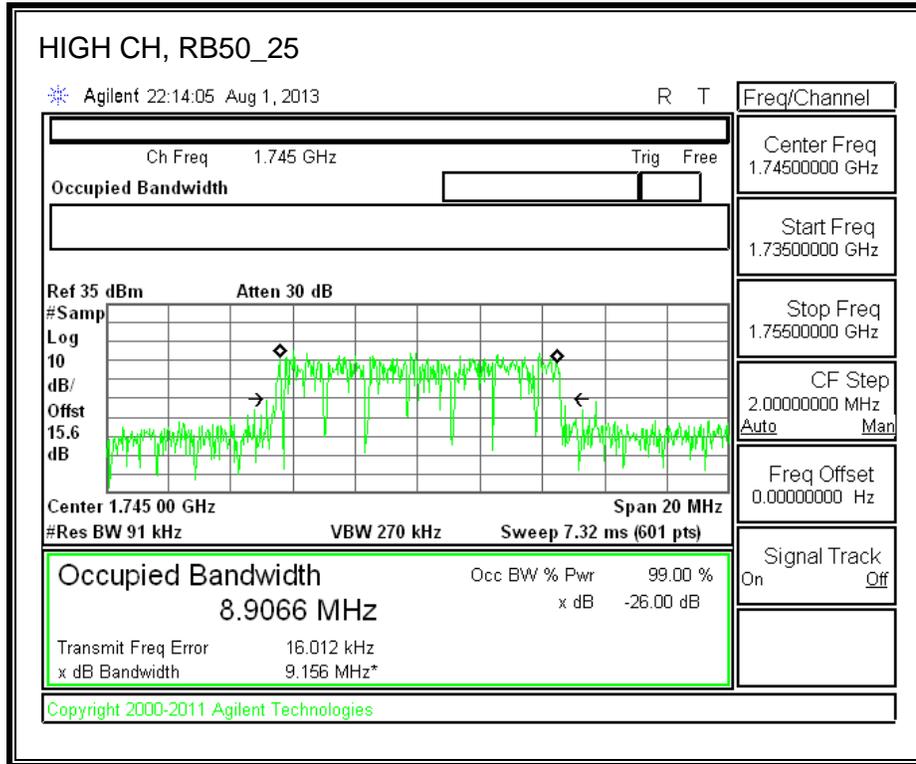


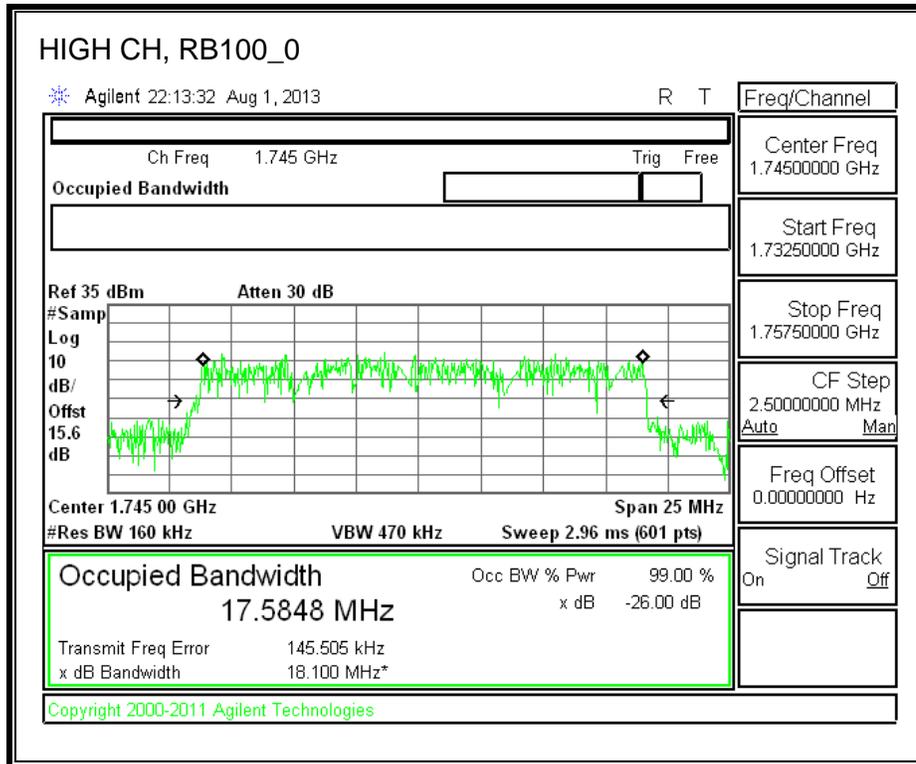
HIGH-QPSK





HIGH-16QAM

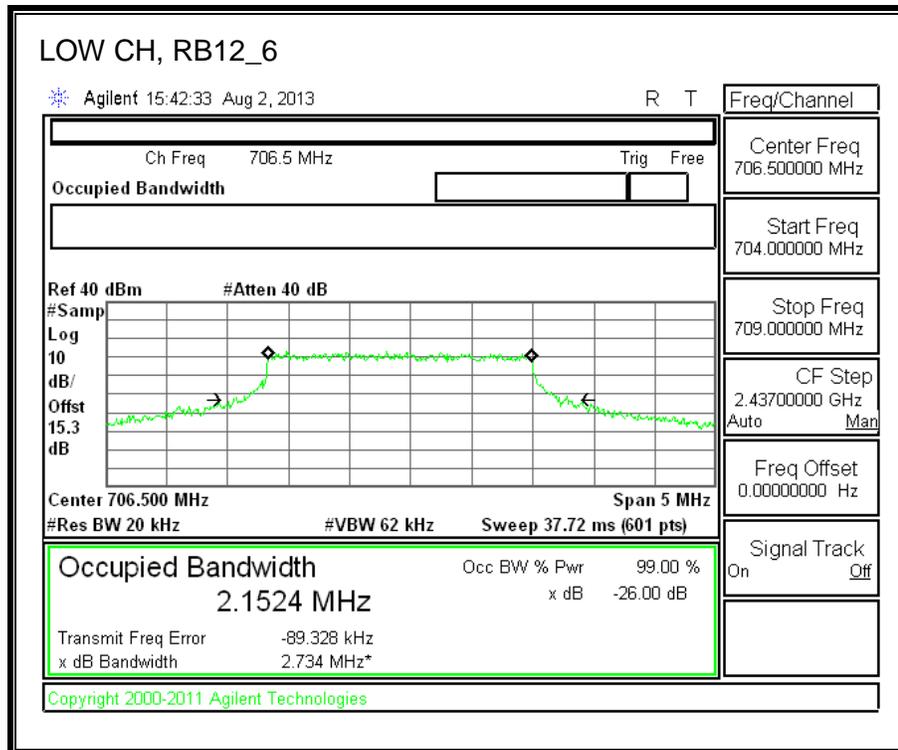


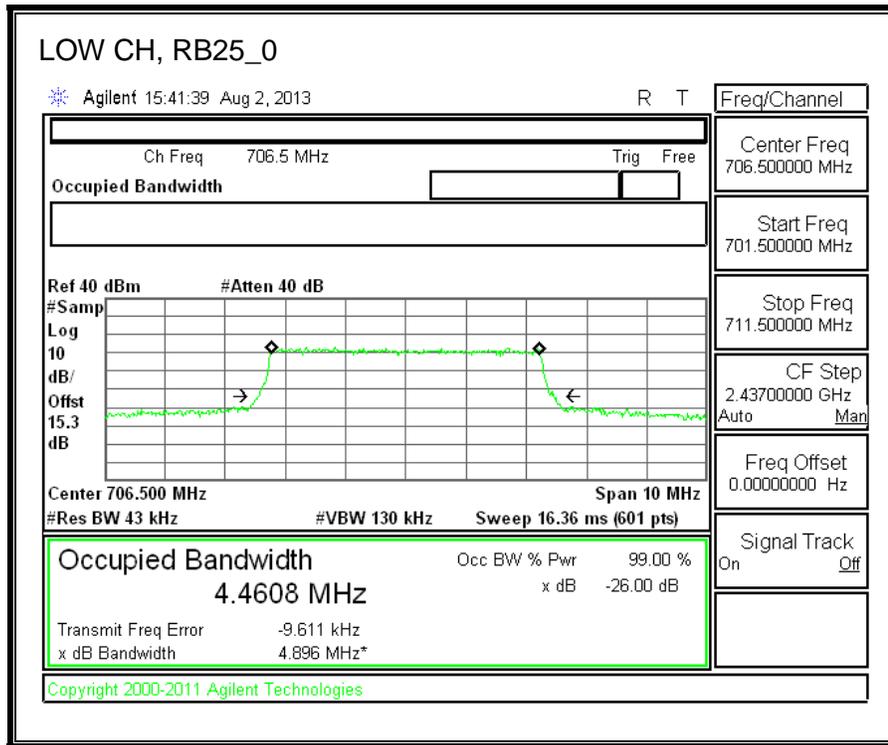


8.2.8. LTE Band 17

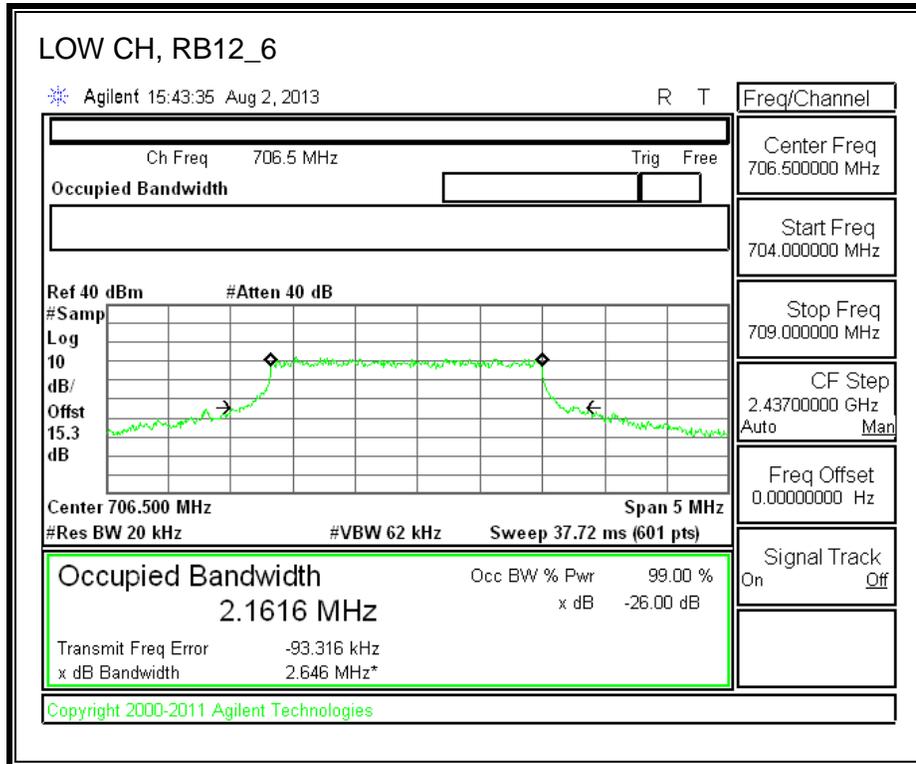
LTE BAND 17-5MHz BANDWIDTH

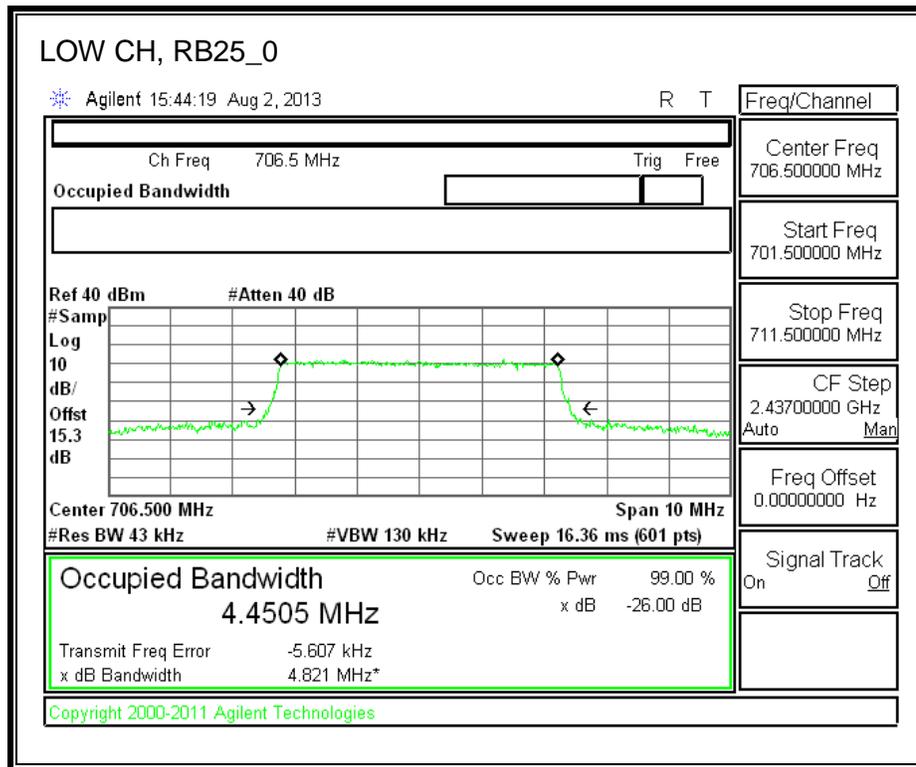
LOW-QPSK



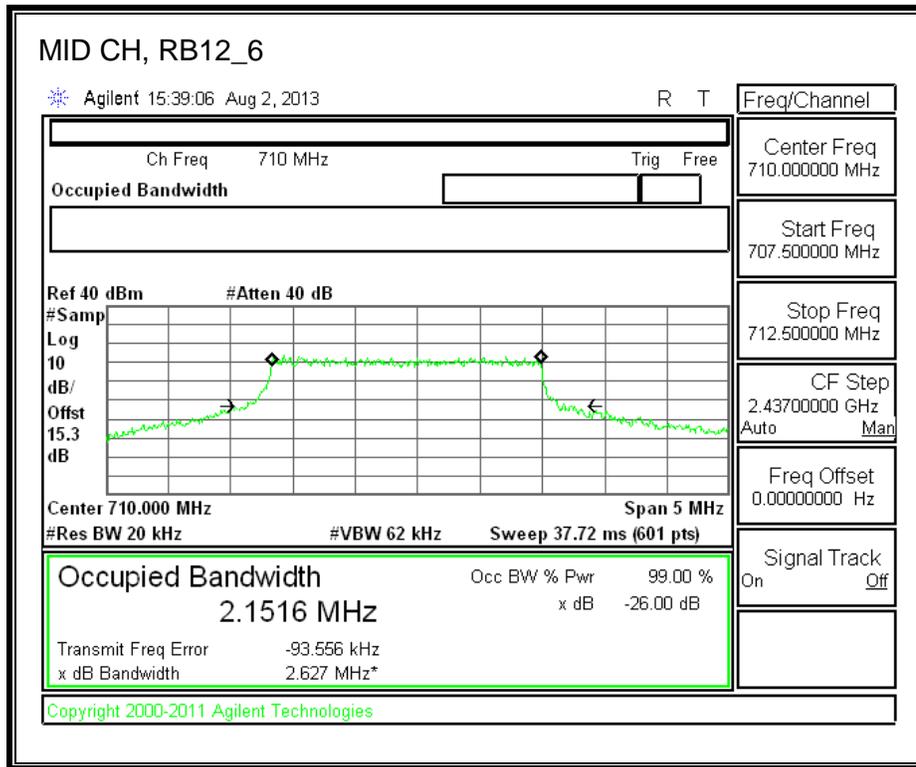


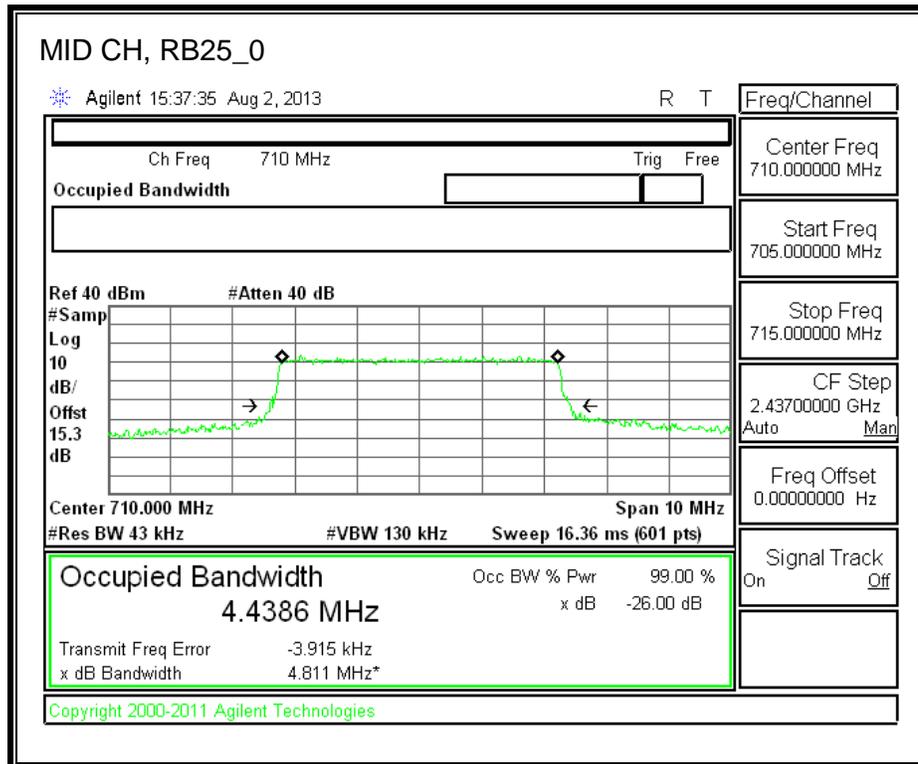
LOW-16QAM



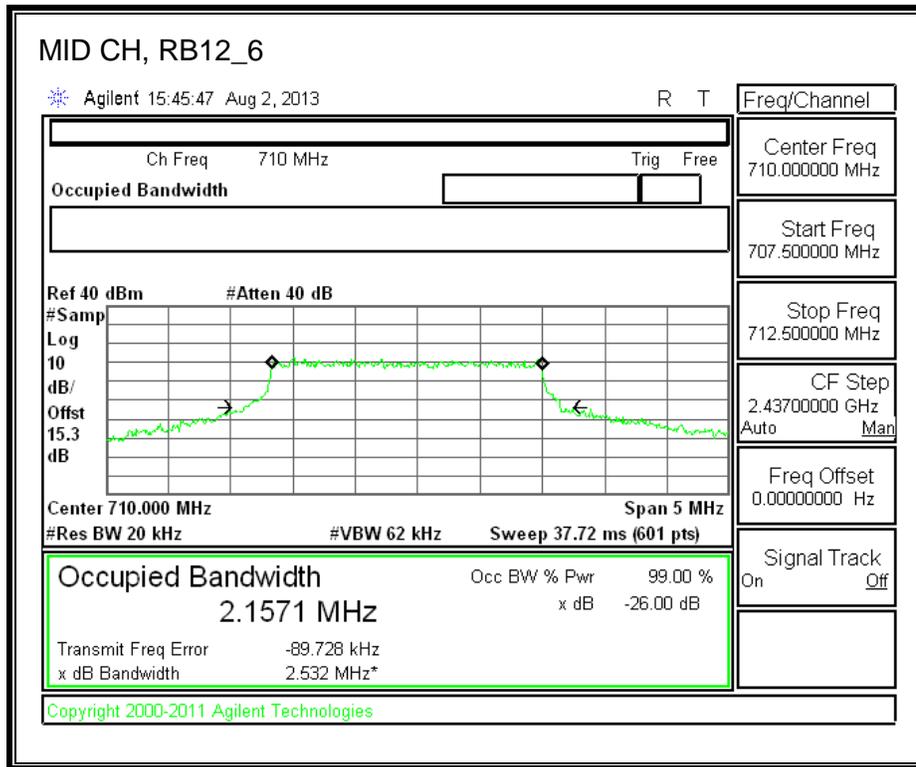


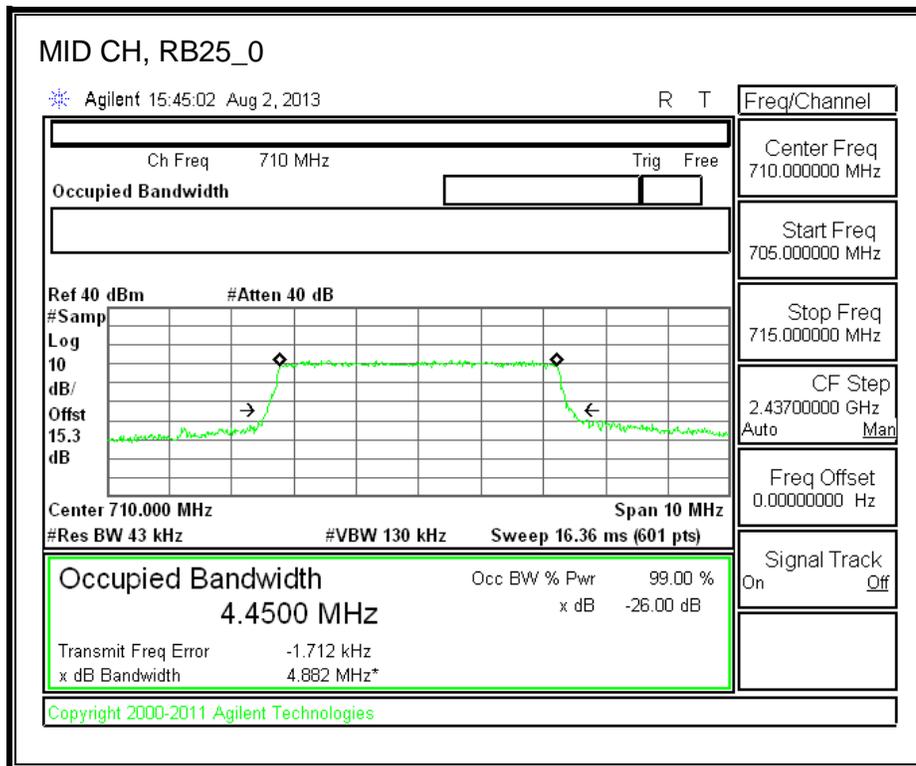
MID-QPSK



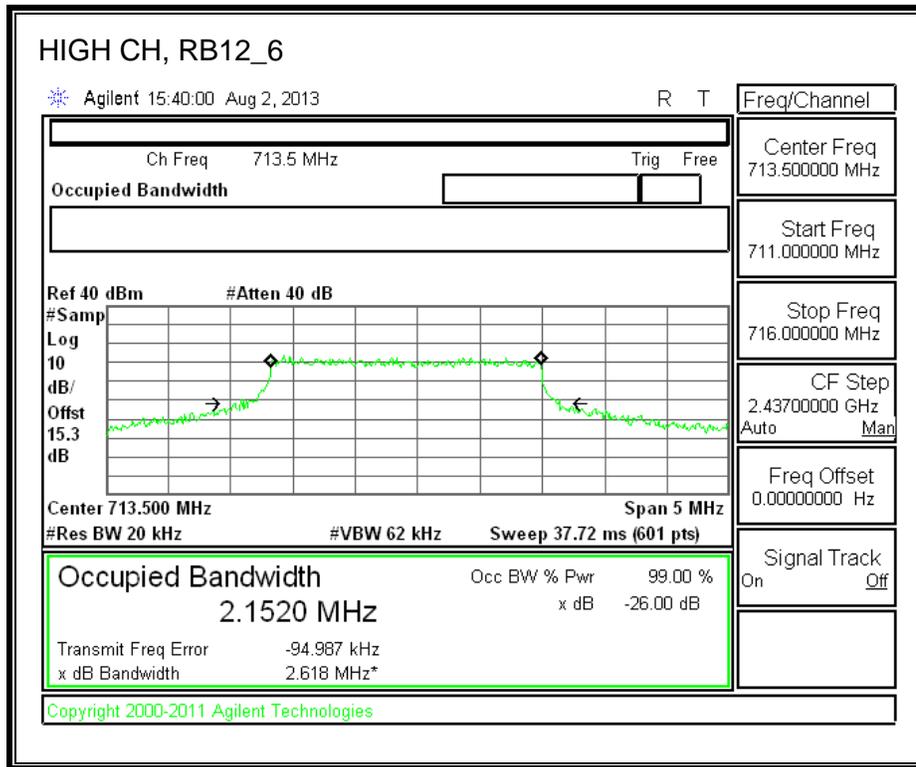


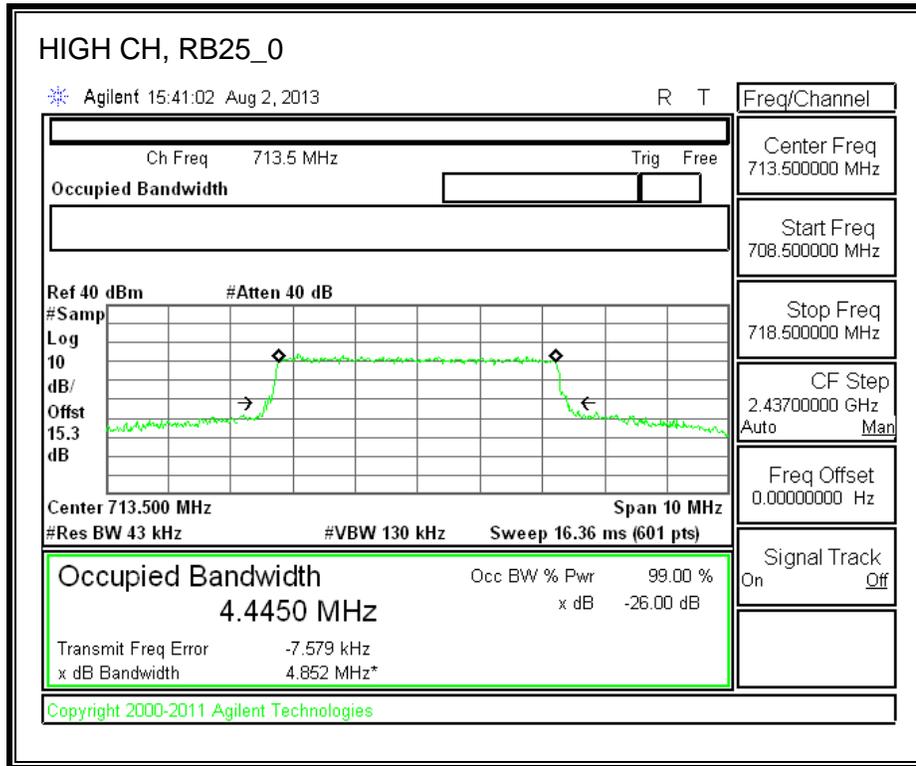
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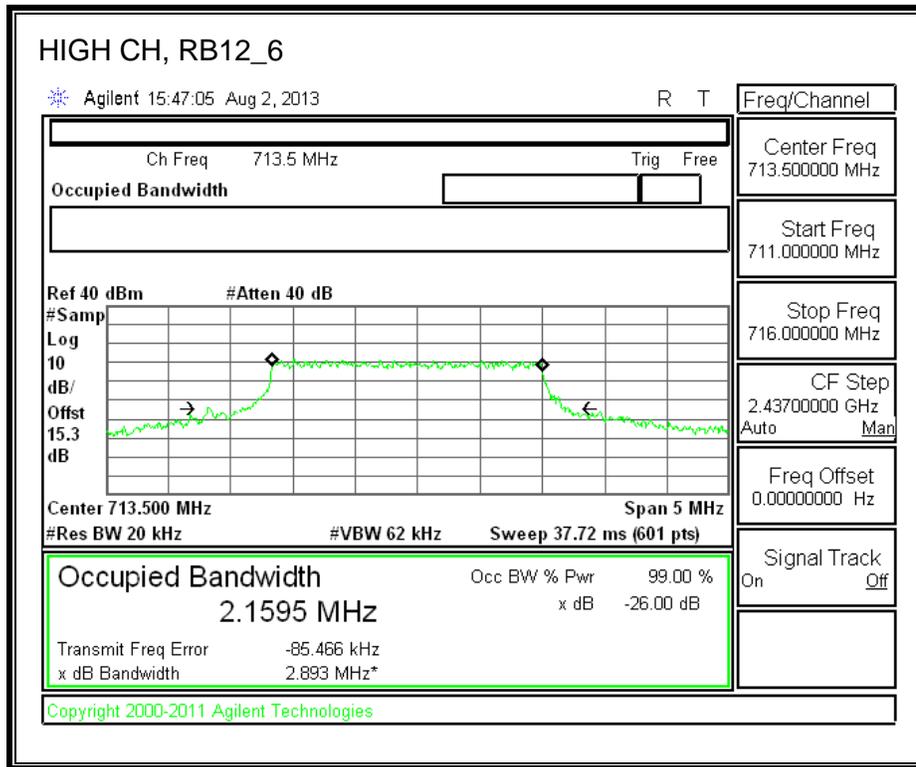


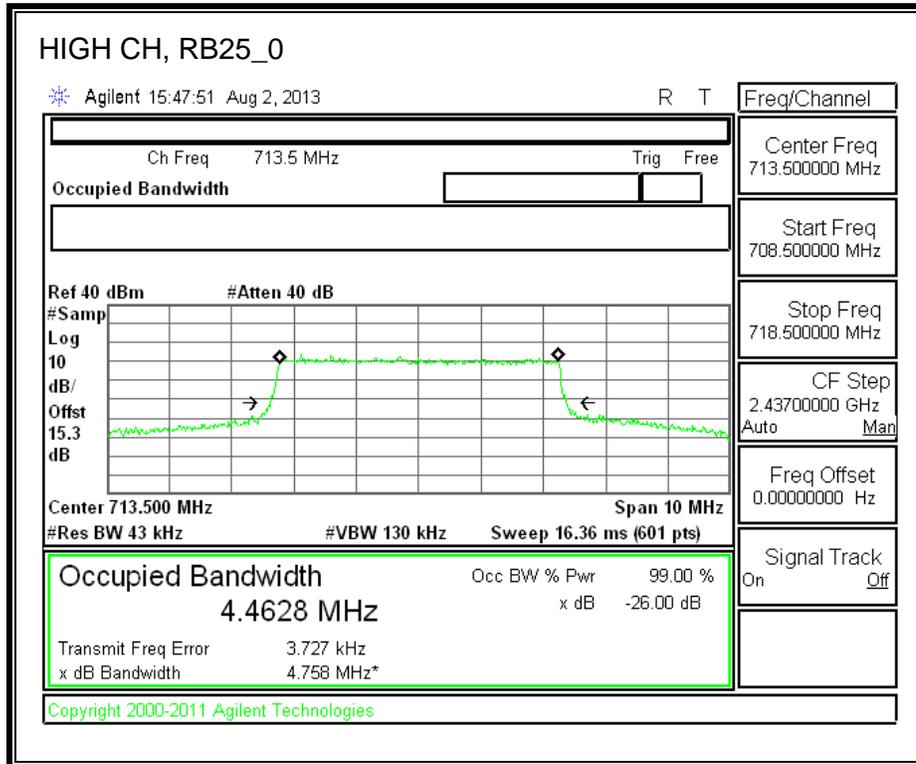
HIGH-QPSK





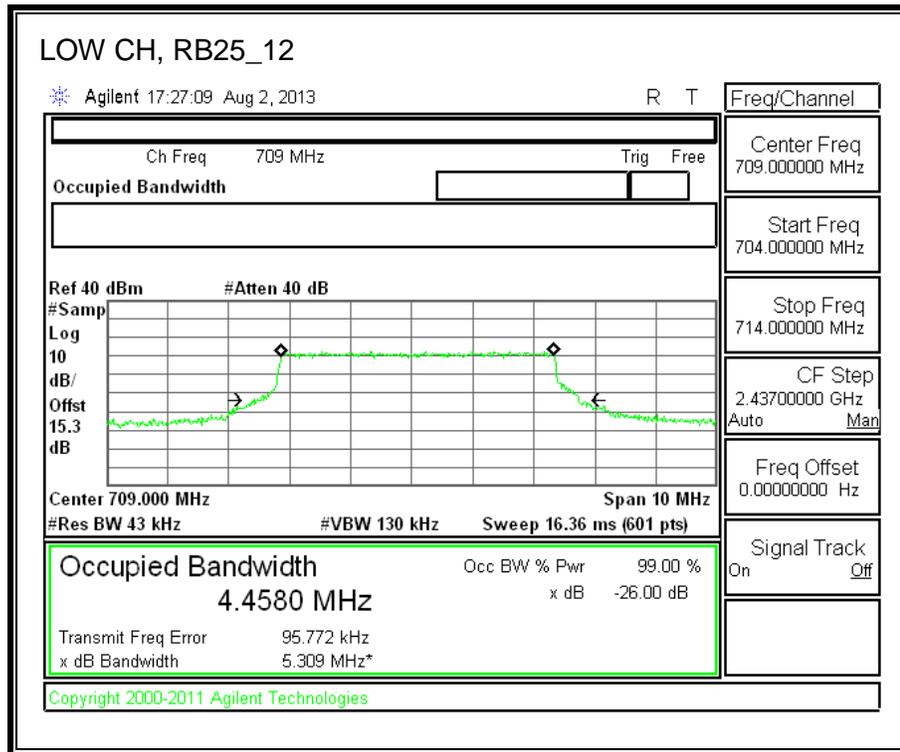
HIGH-16QAM

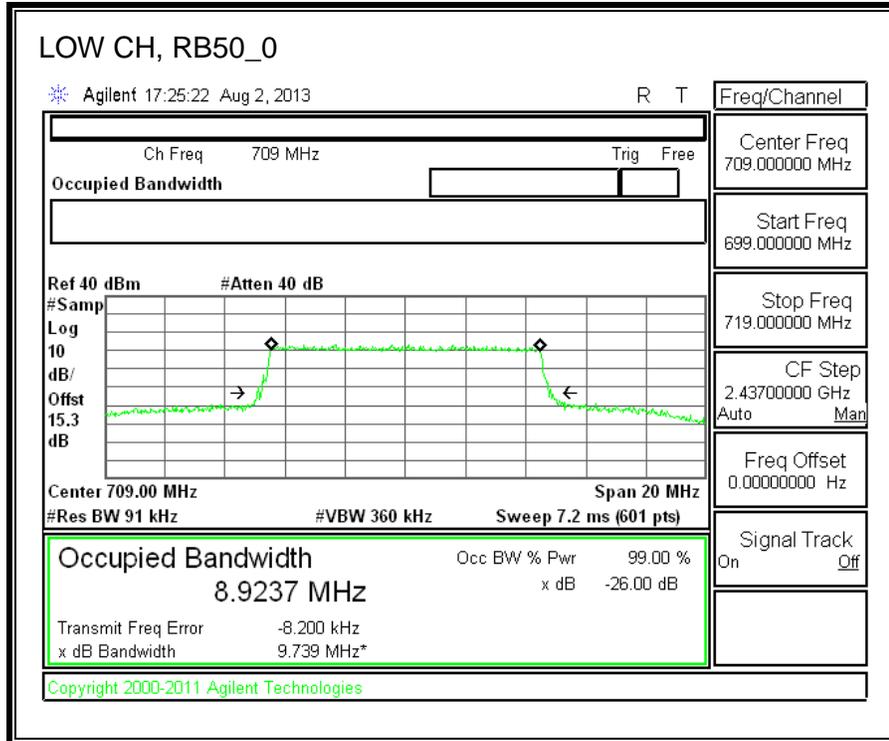




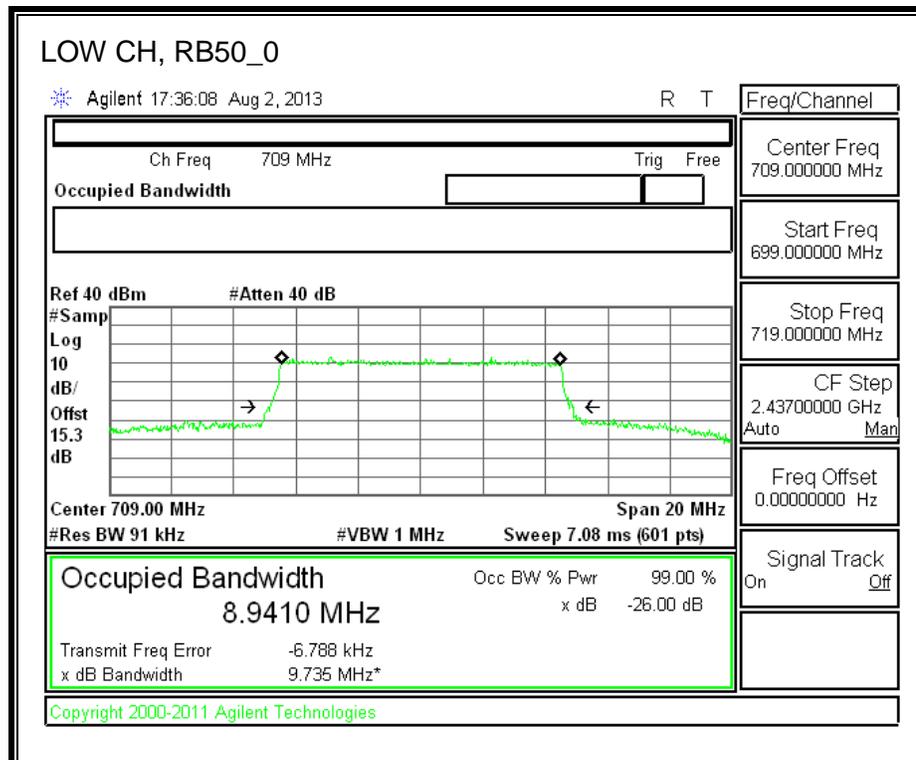
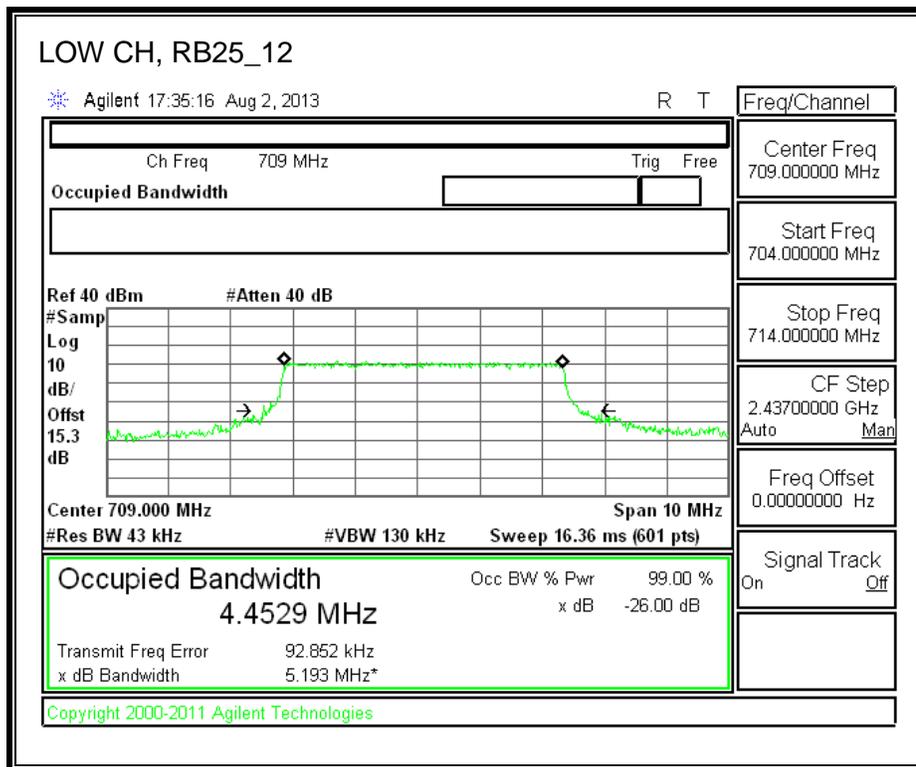
LTE BAND 17-10MHz BANDWIDTH

LOW-QPSK

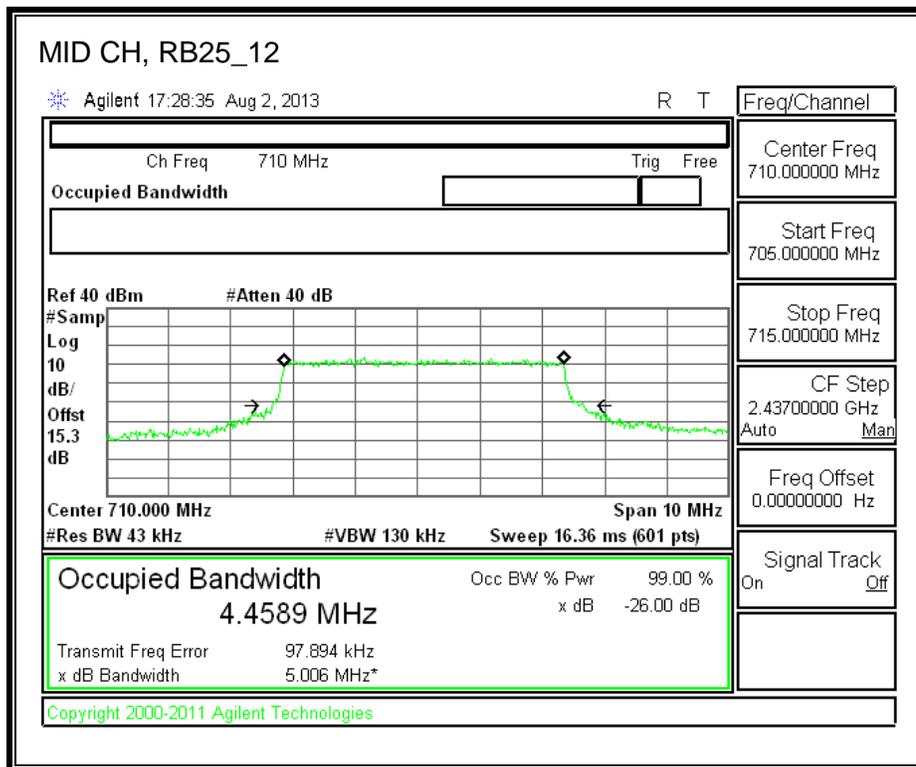


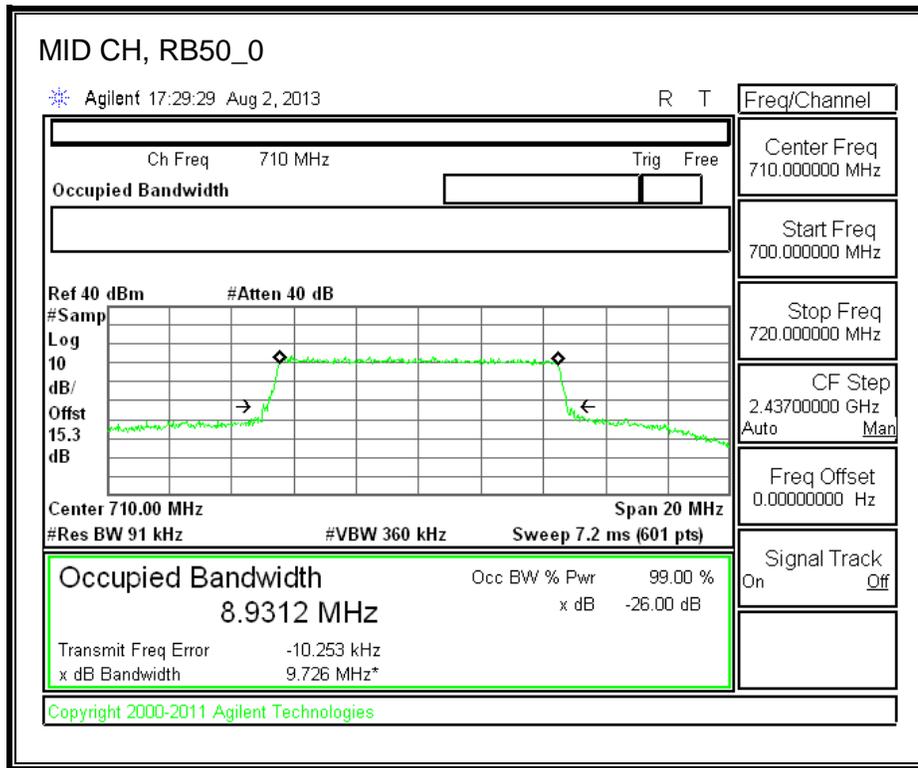


LOW-16QAM

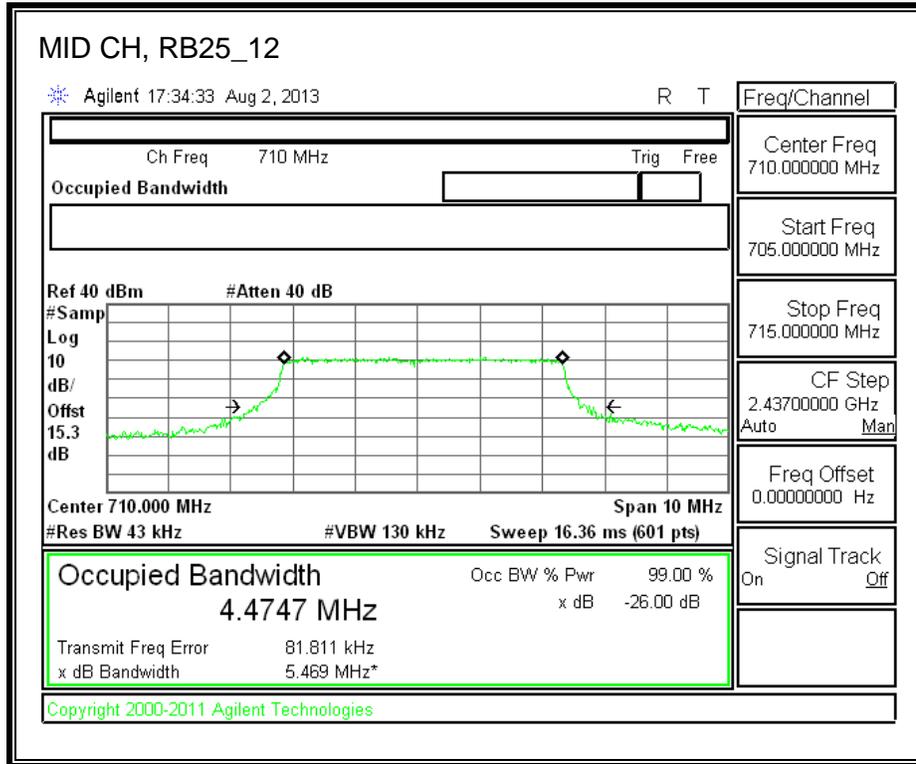


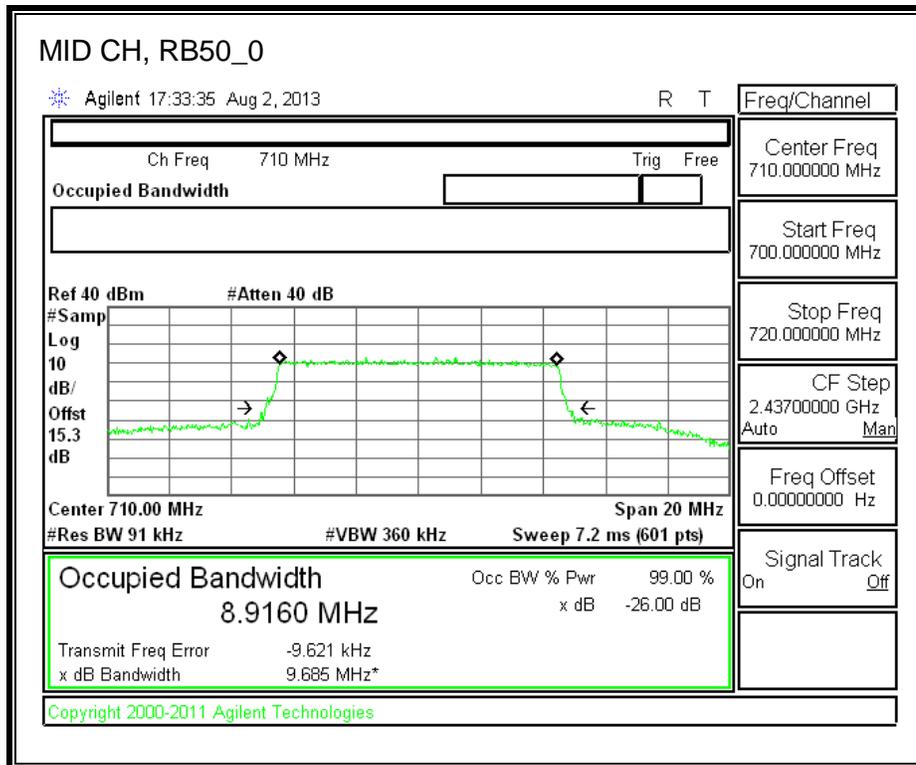
MID-QPSK



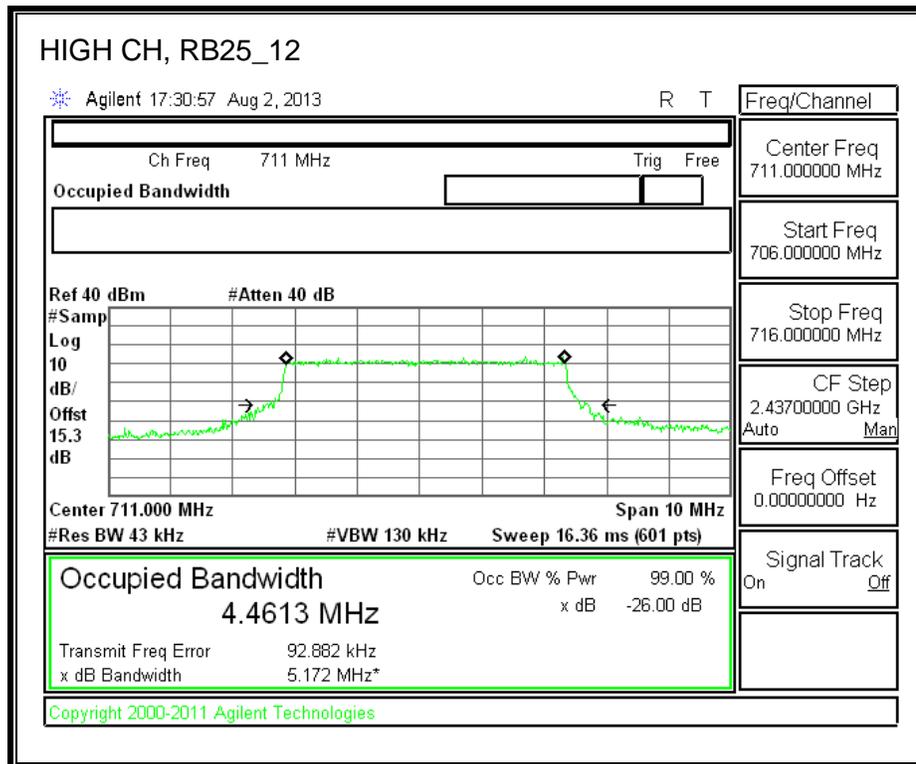


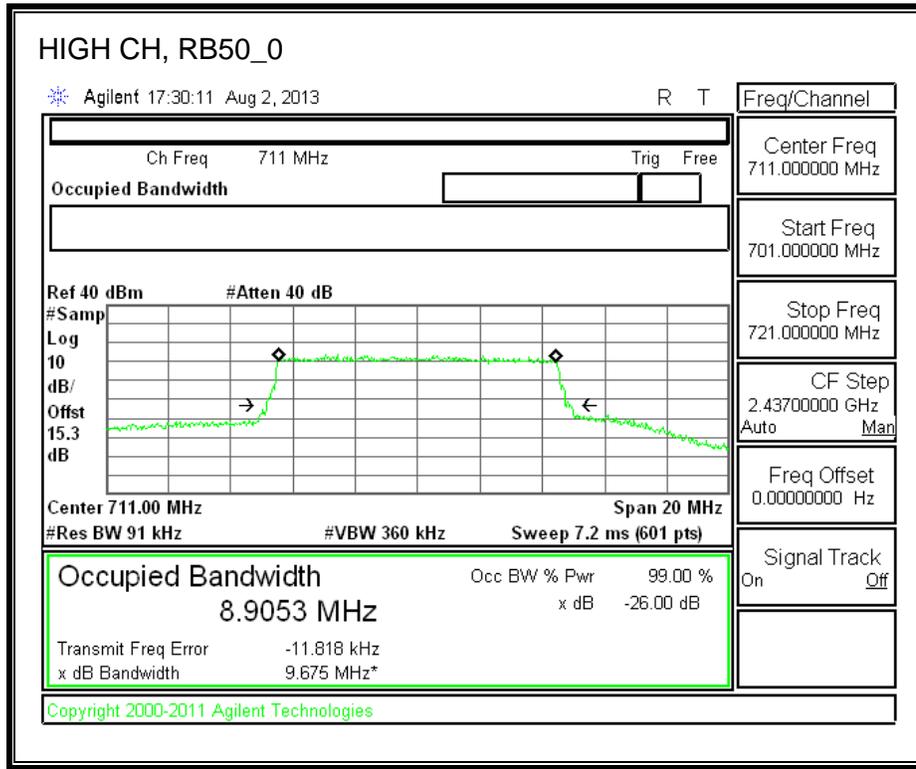
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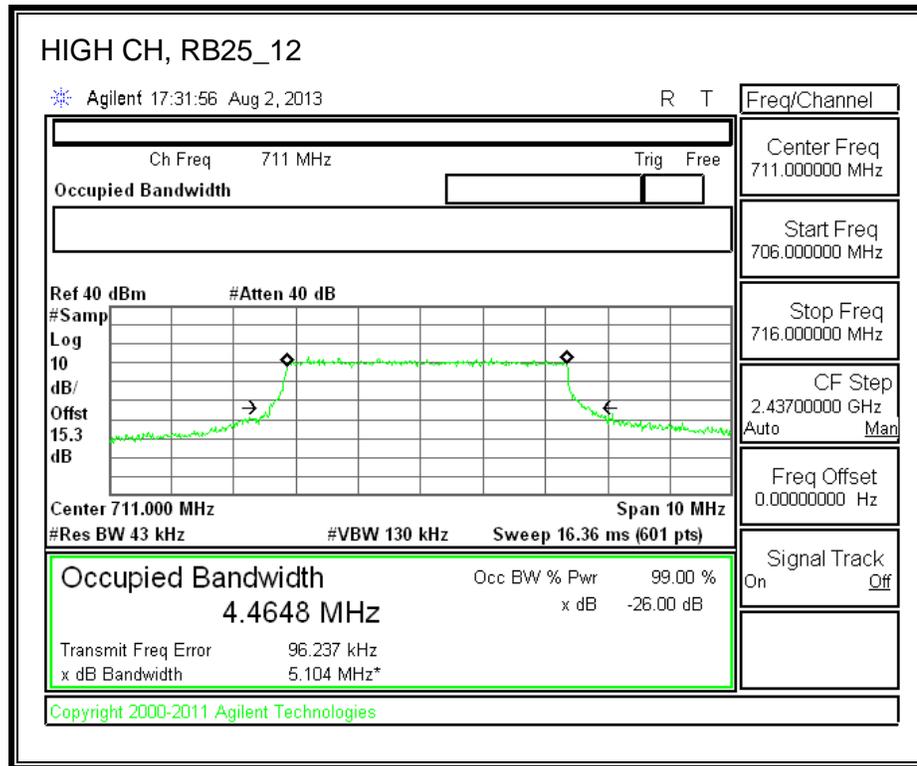


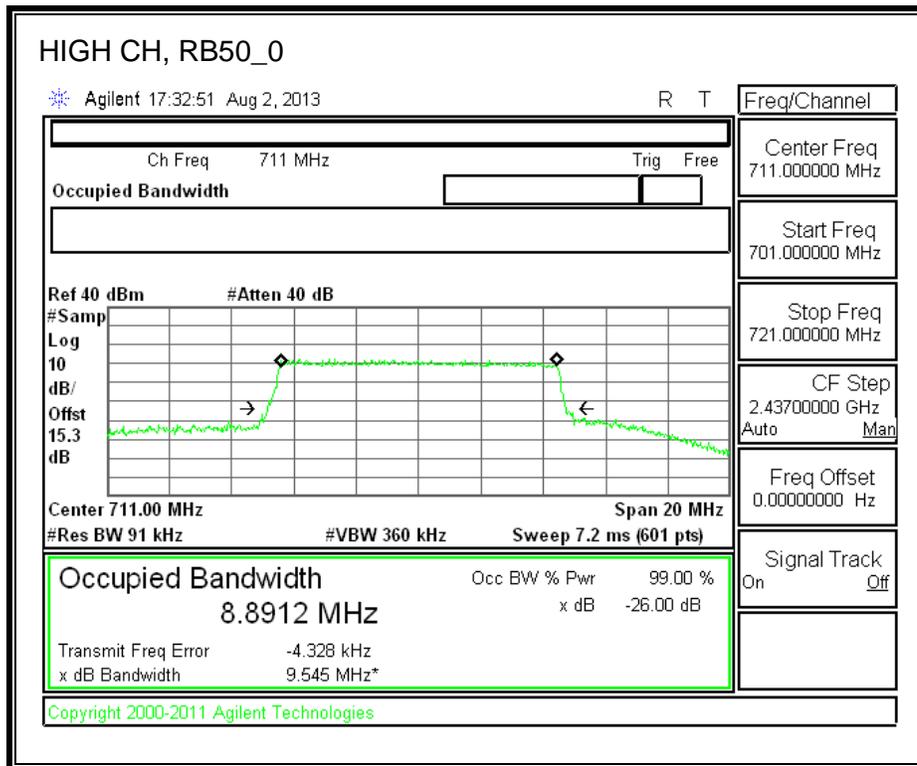
HIGH-QPSK





HIGH-16QAM

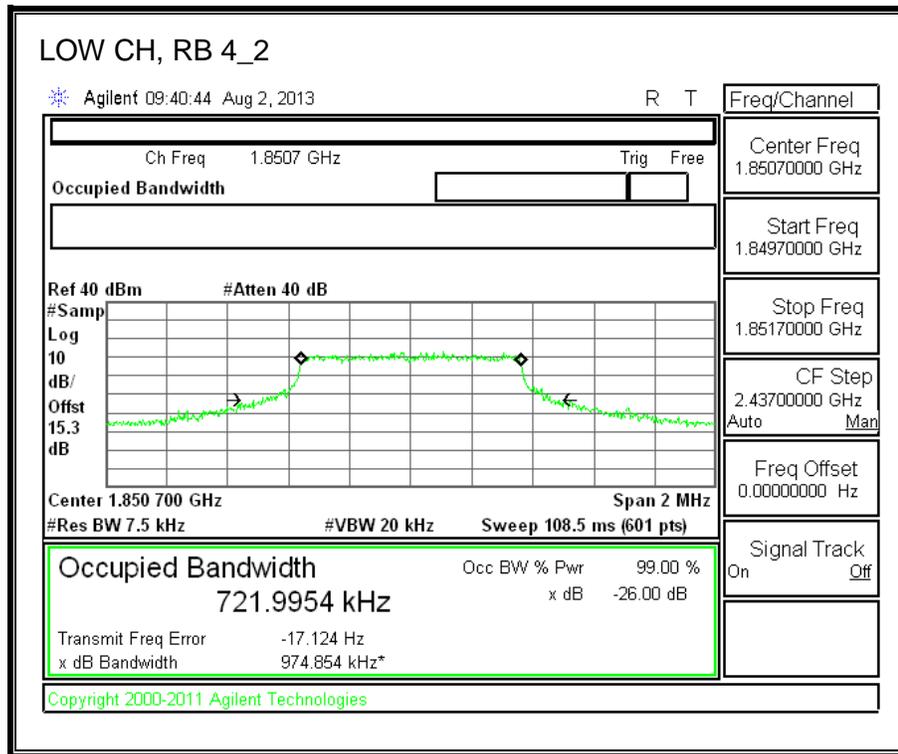


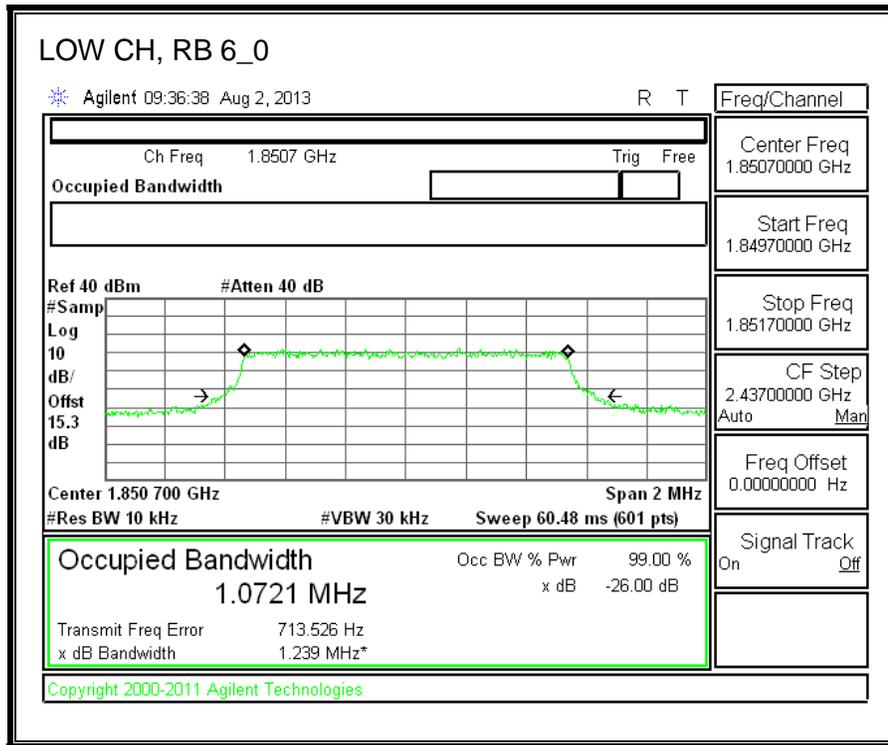


8.2.9. LTE Band 25

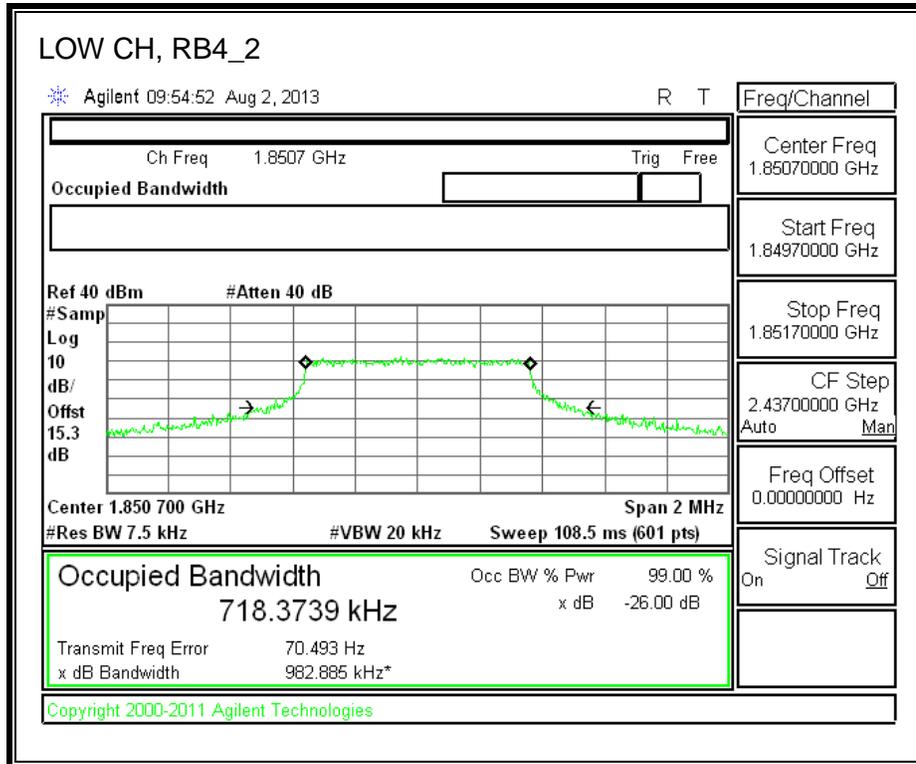
LTE BAND 25-1.4MHz BANDWIDTH

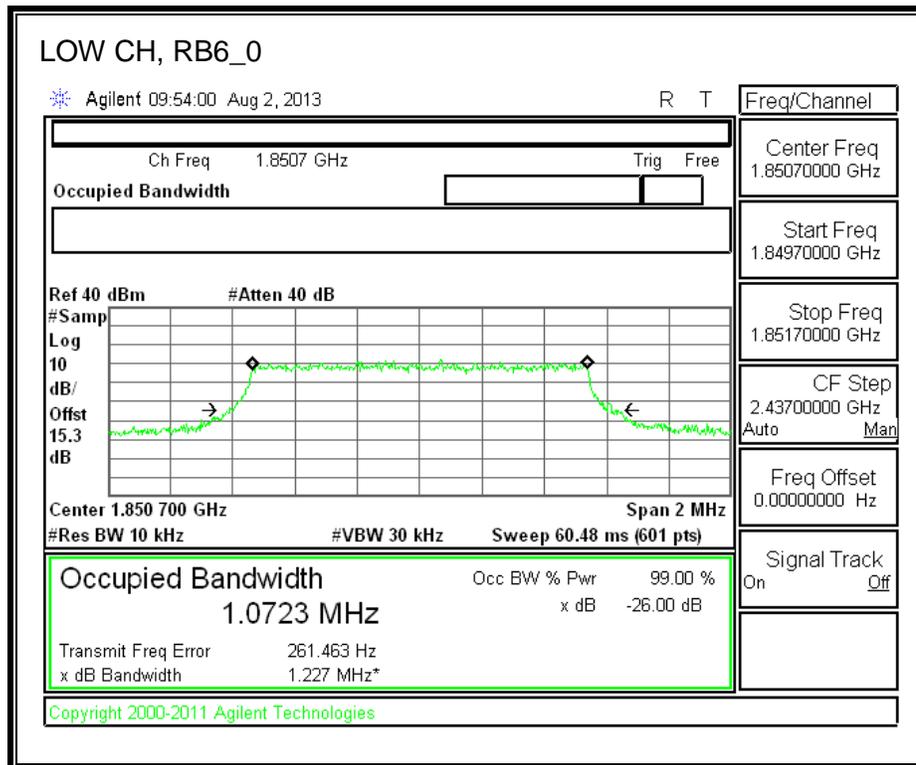
LOW-QPSK



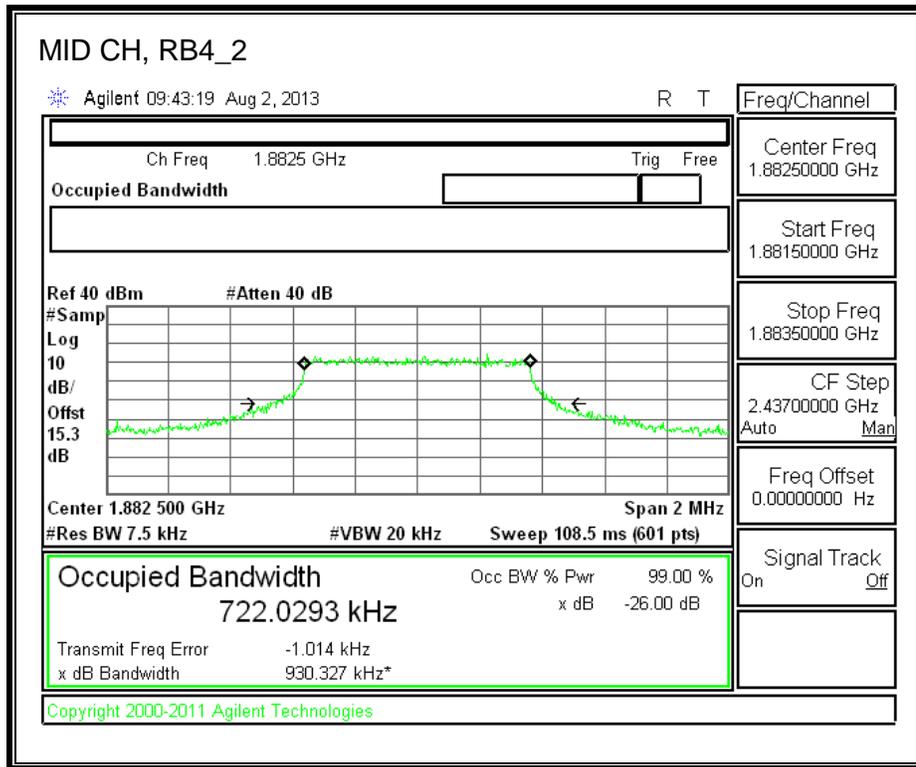


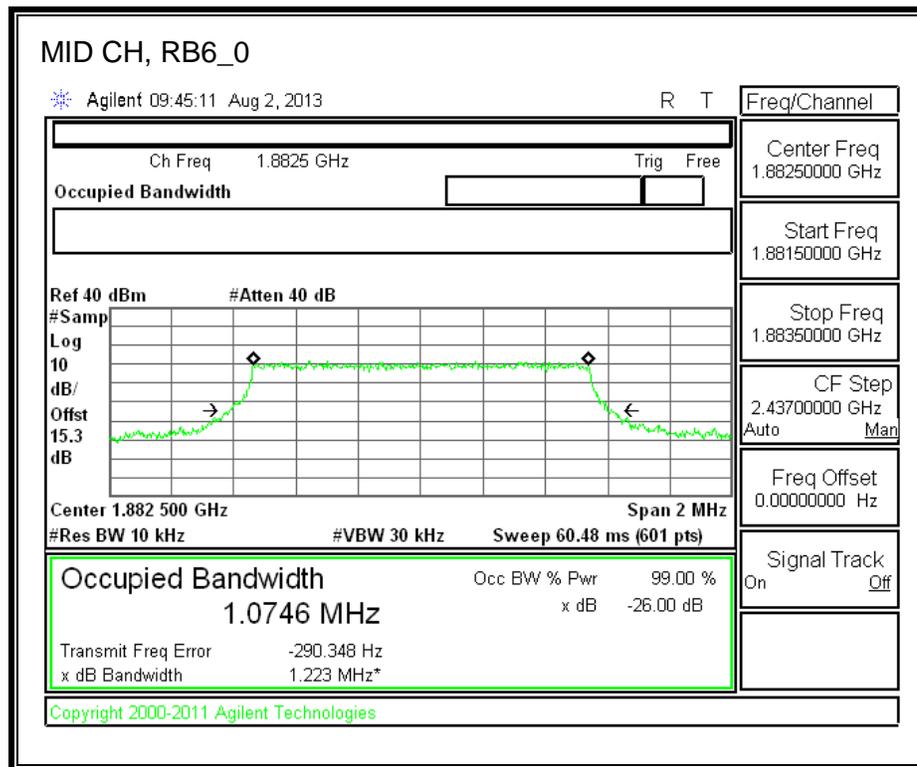
LOW-16QAM



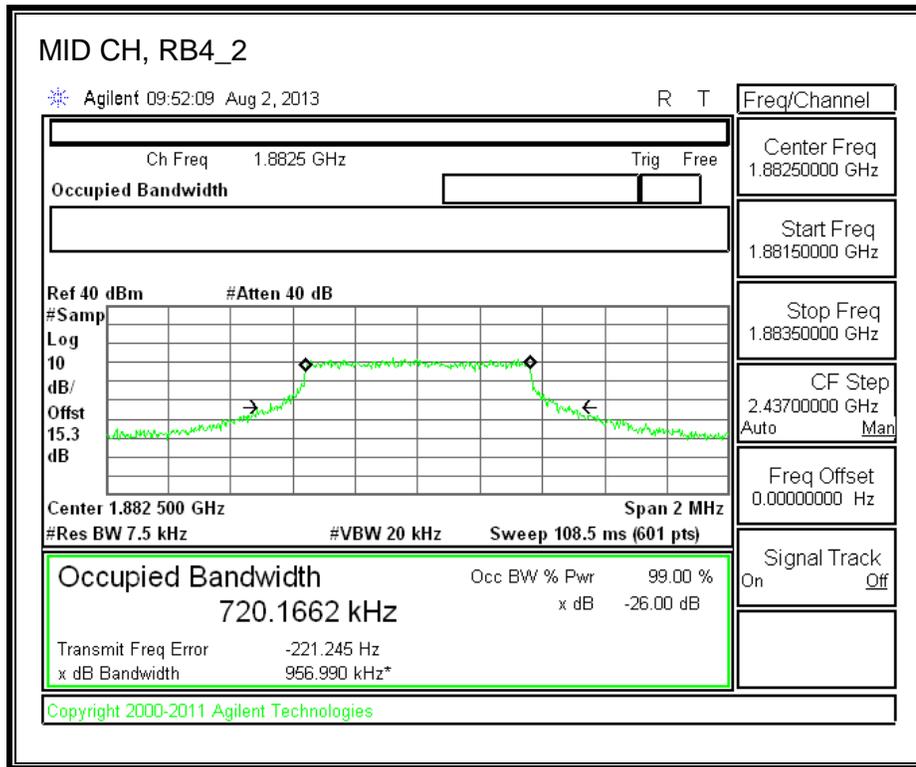


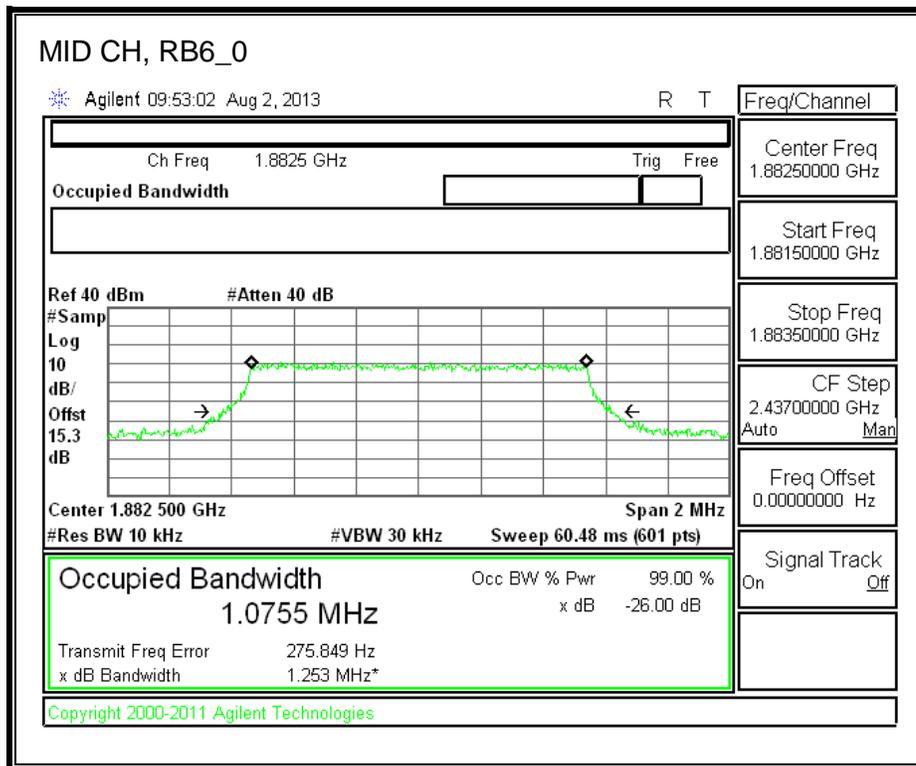
MID-QPSK



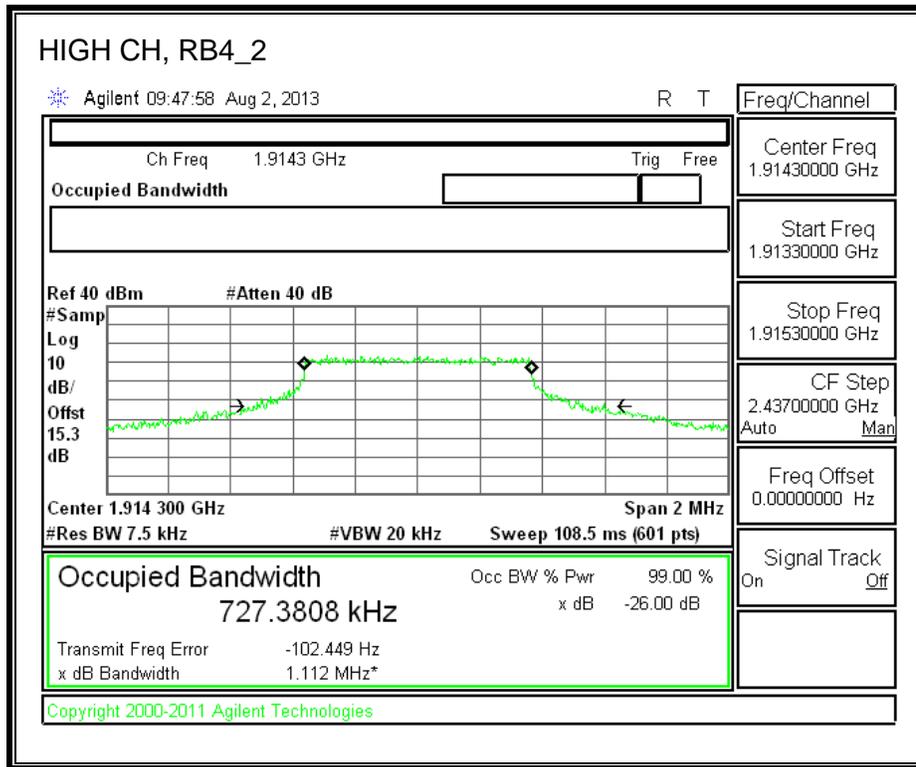


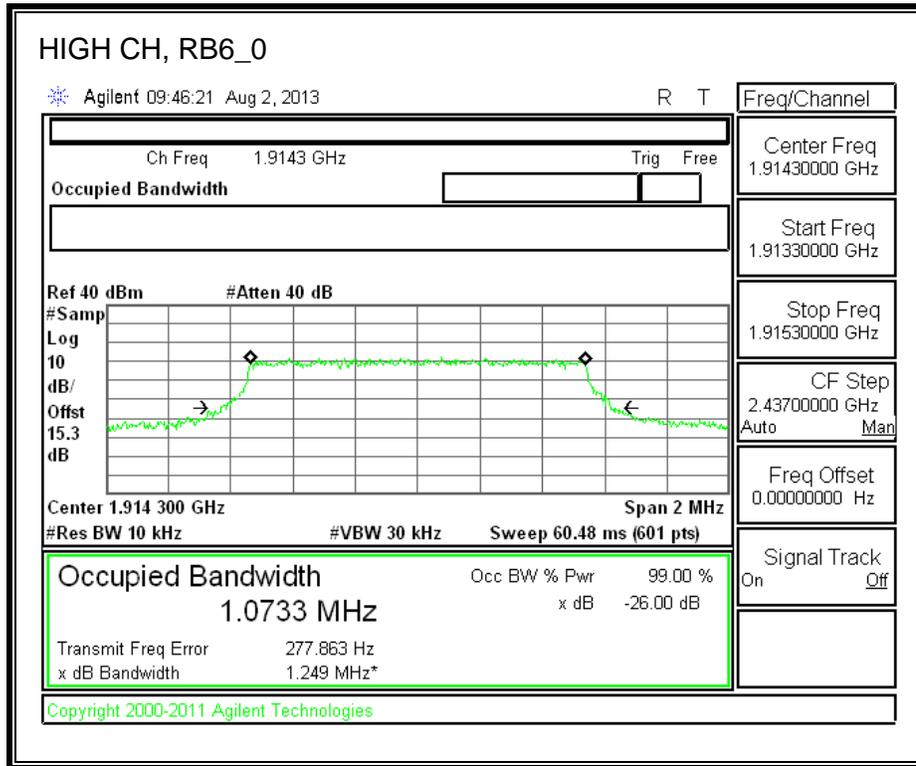
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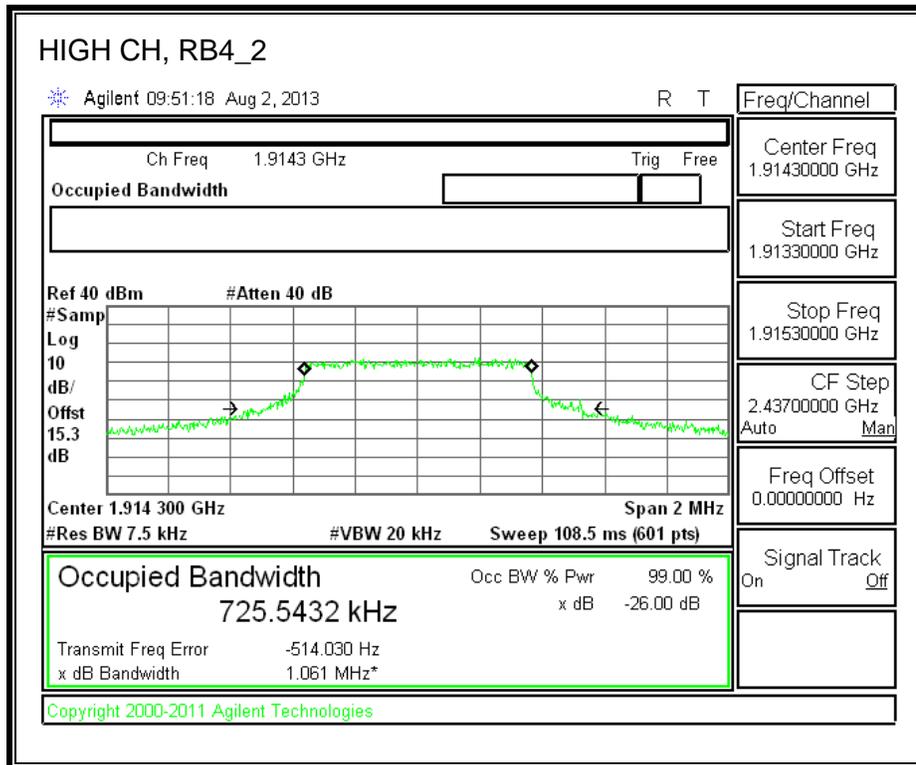


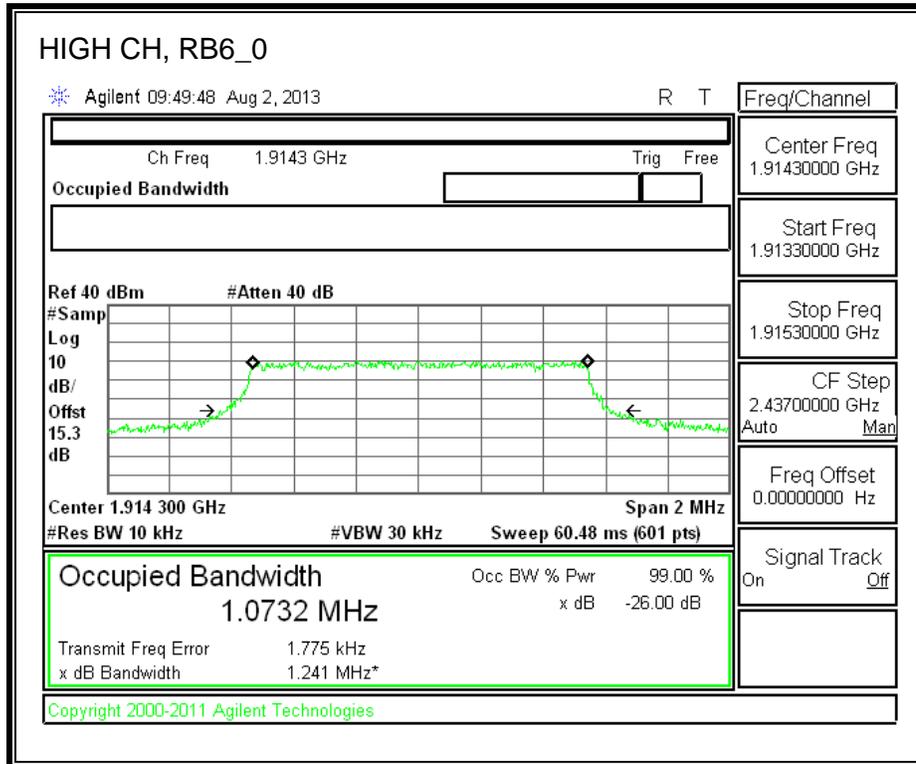
HIGH-QPSK





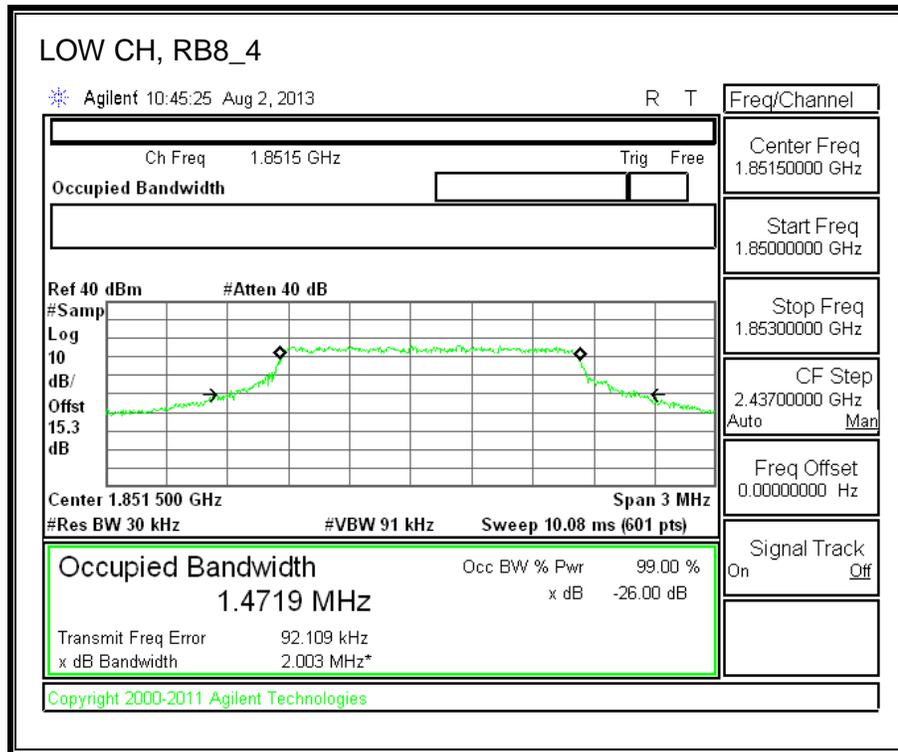
HIGH-16QAM

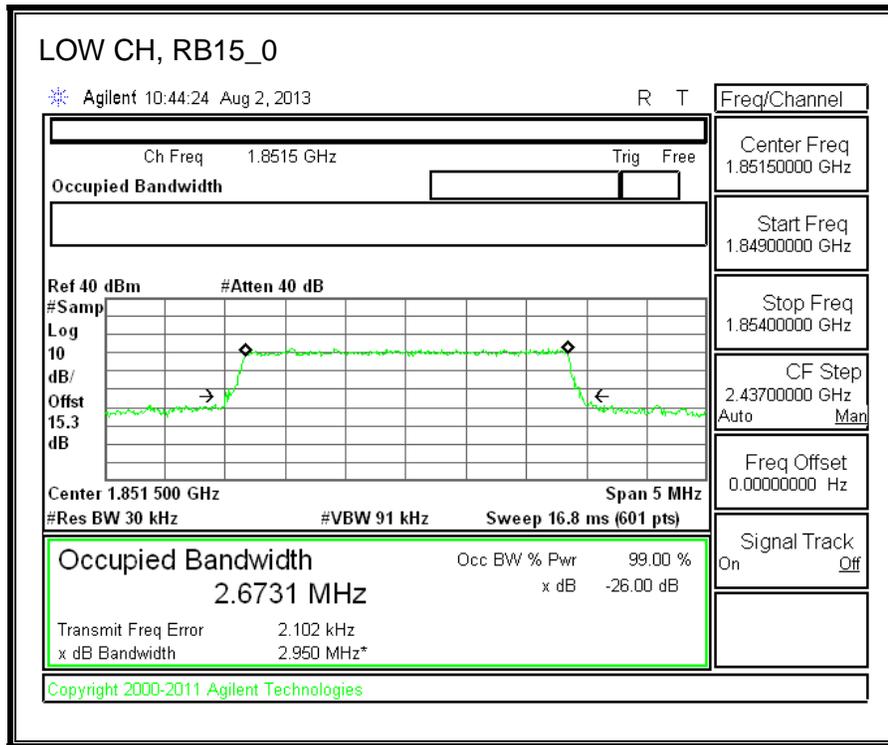




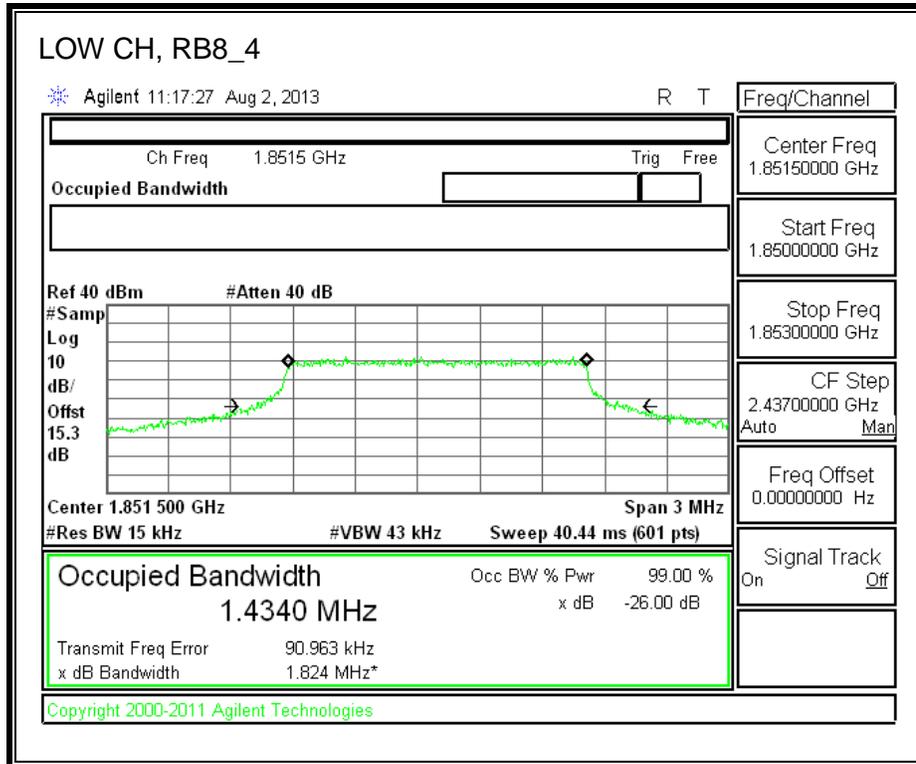
LTE BAND 25-3MHz BANDWIDTH

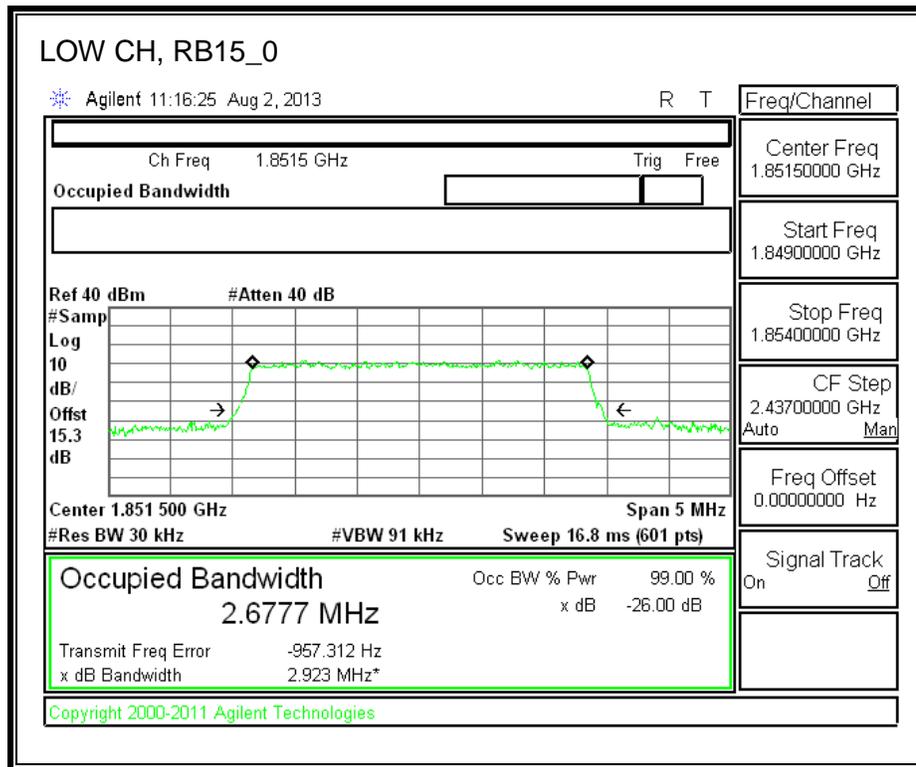
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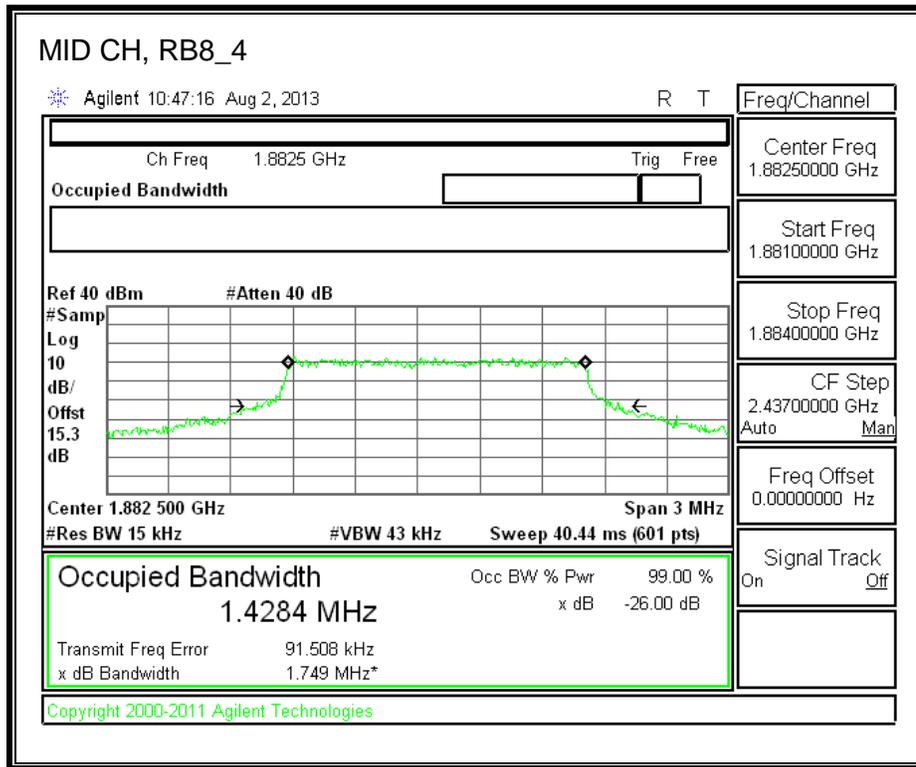


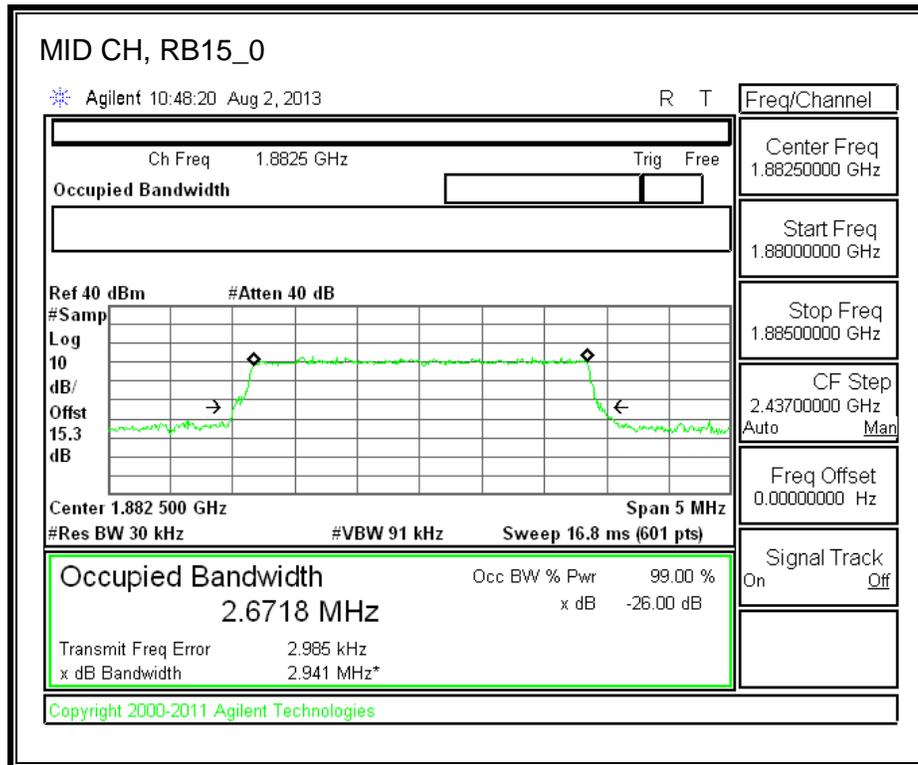
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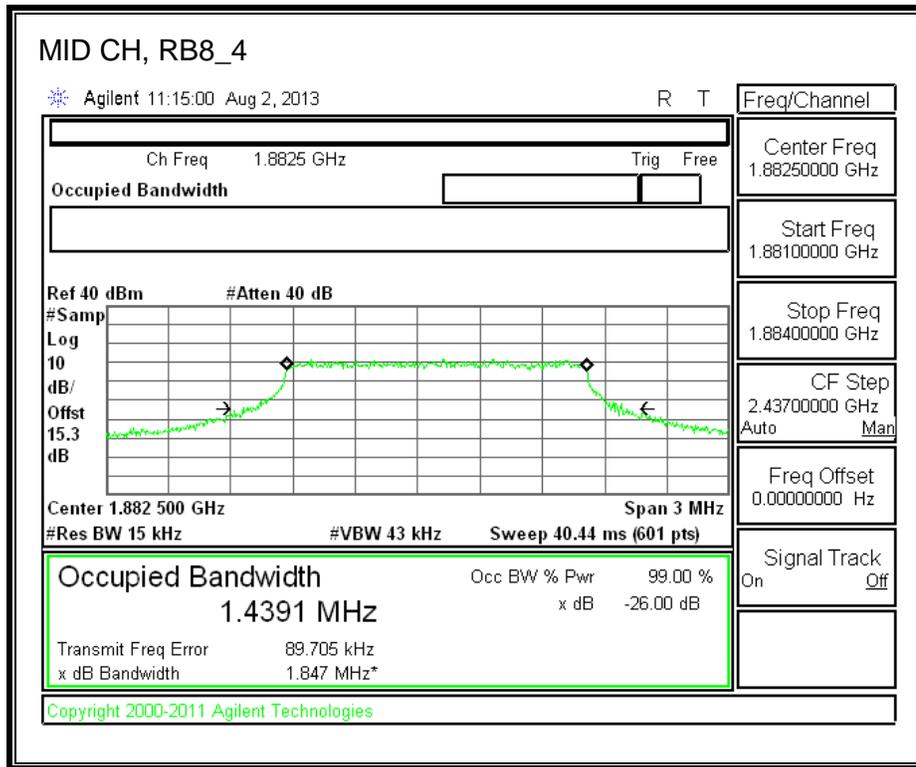


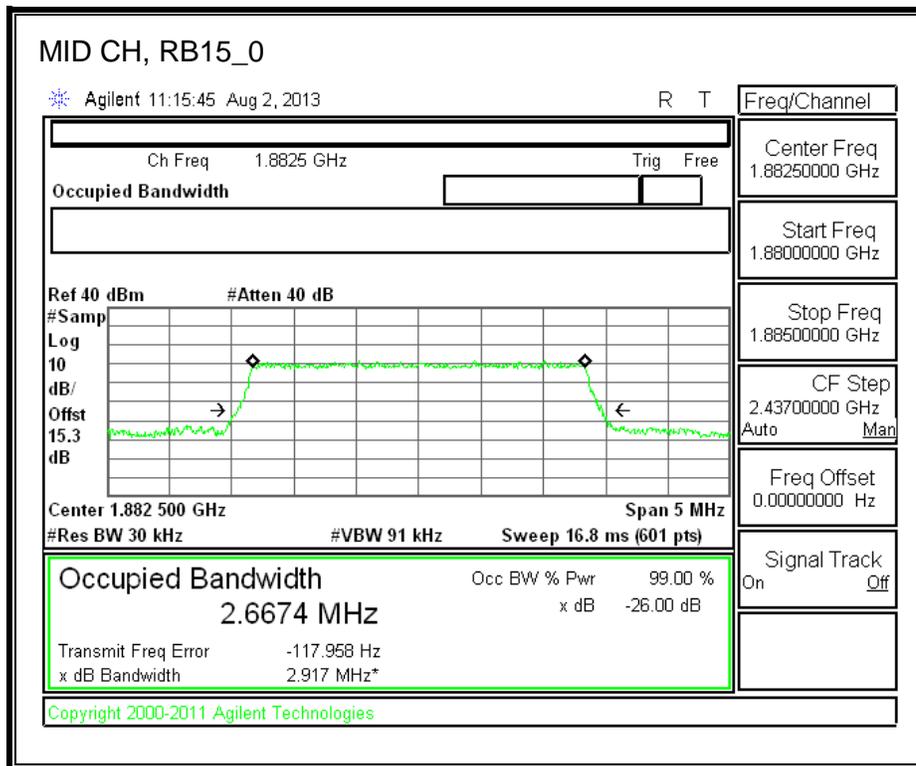
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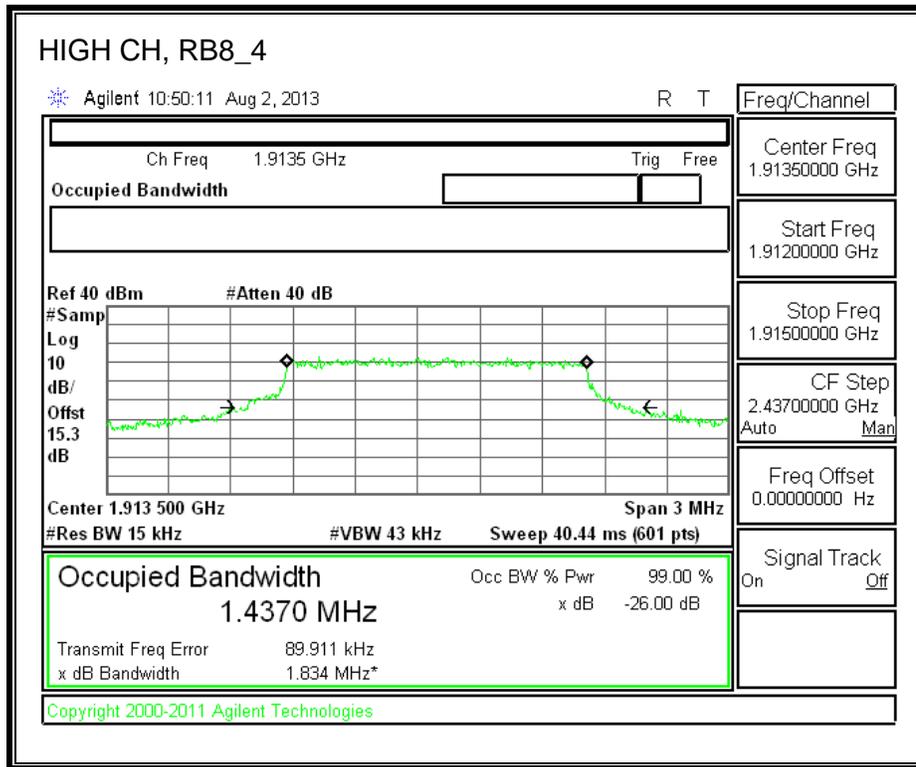


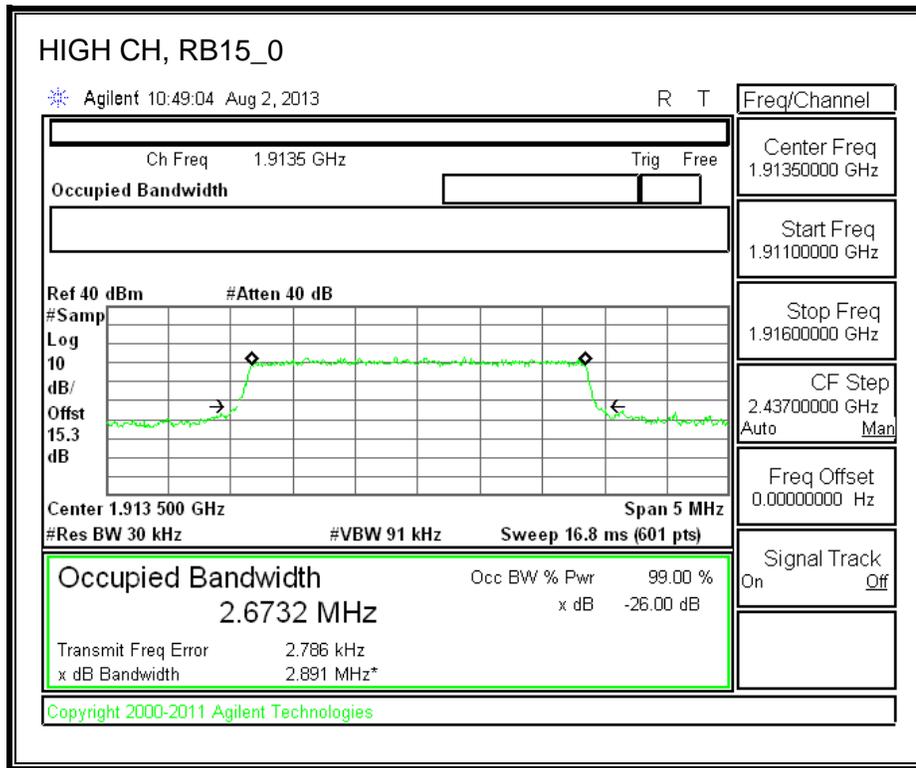
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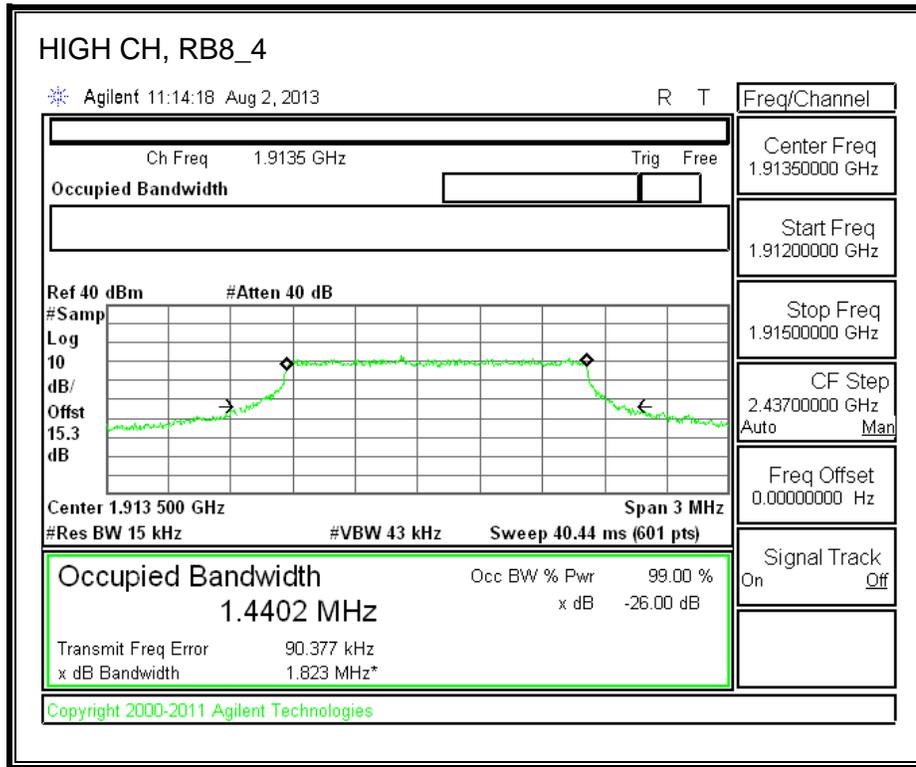


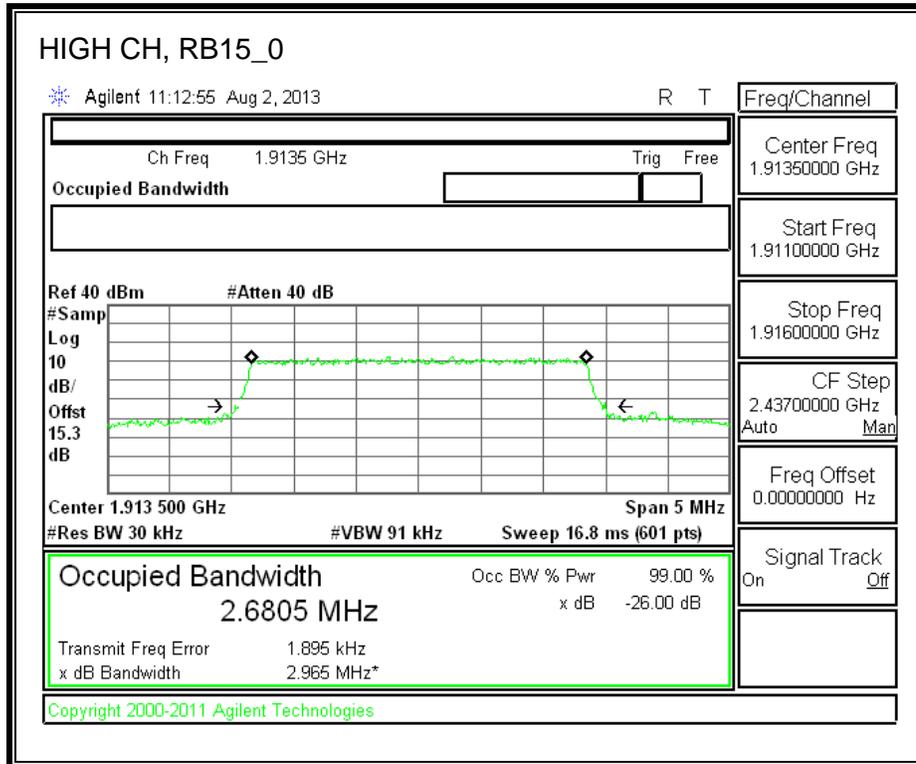
HIGH-QPSK





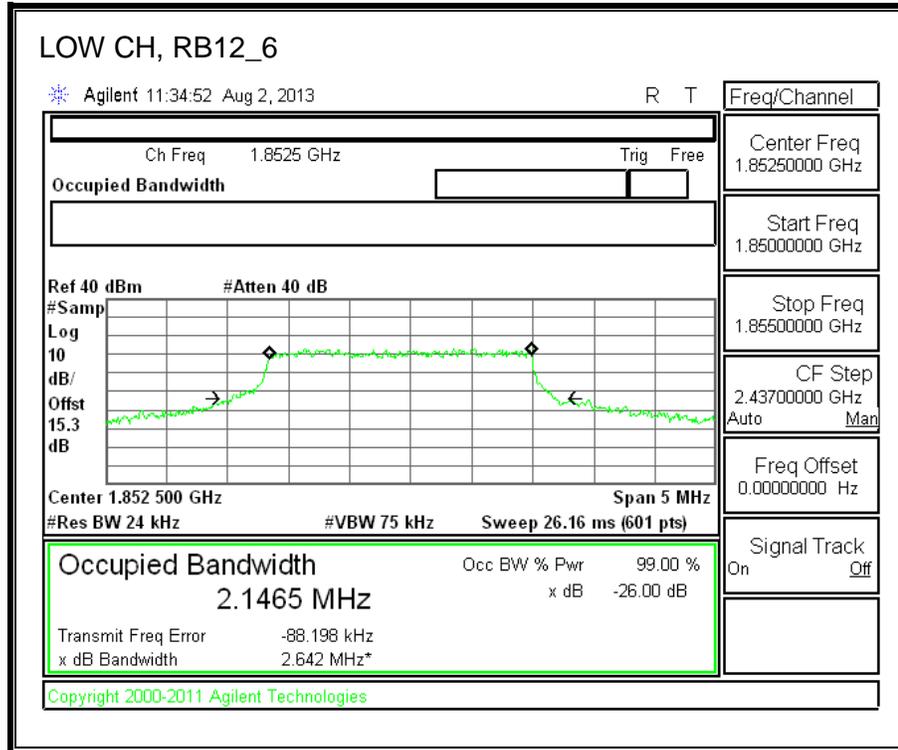
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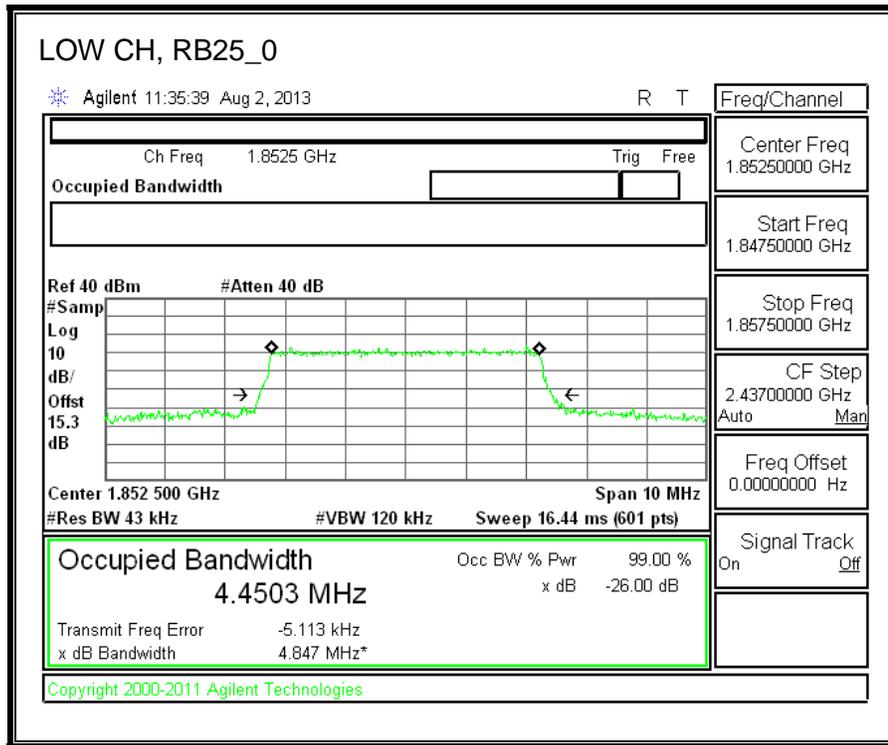




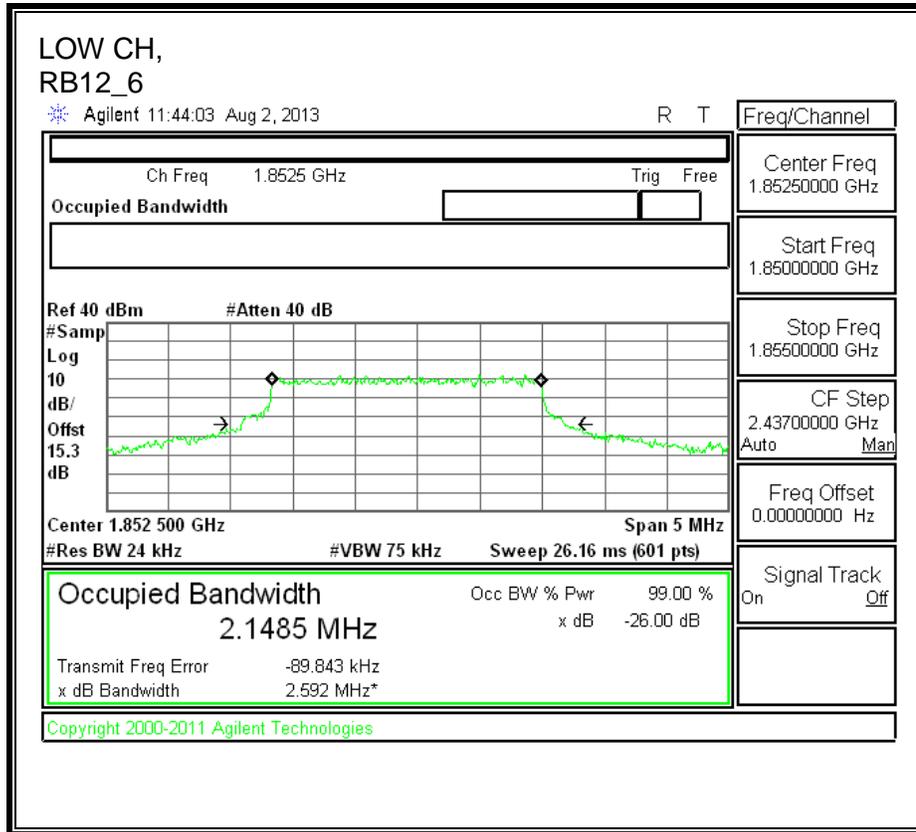
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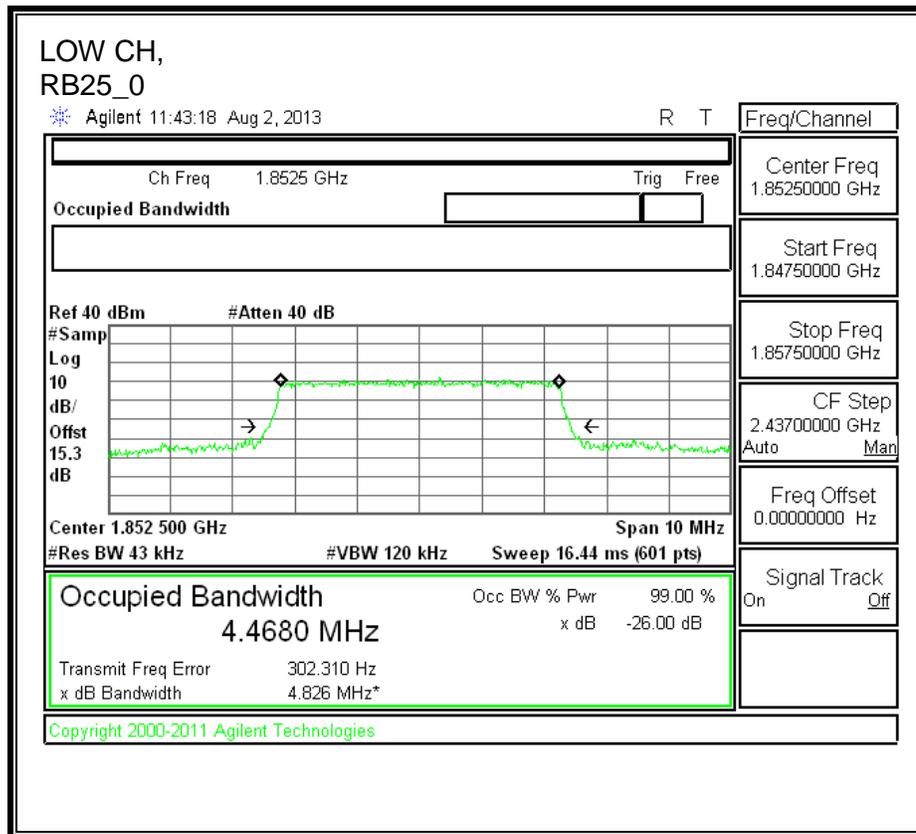
LOW-QPSK



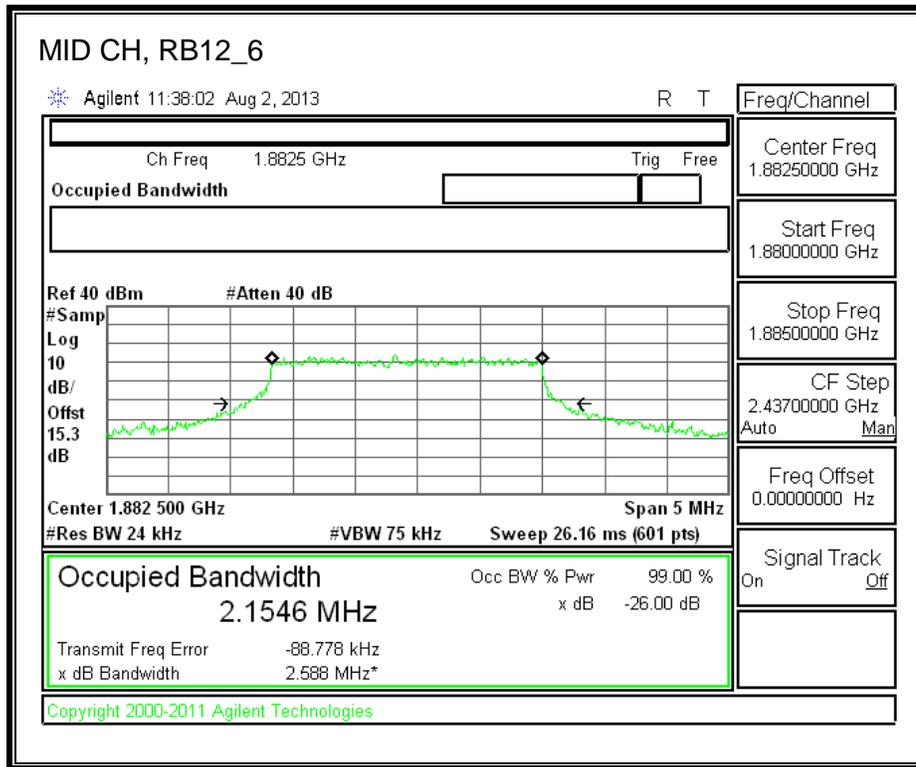


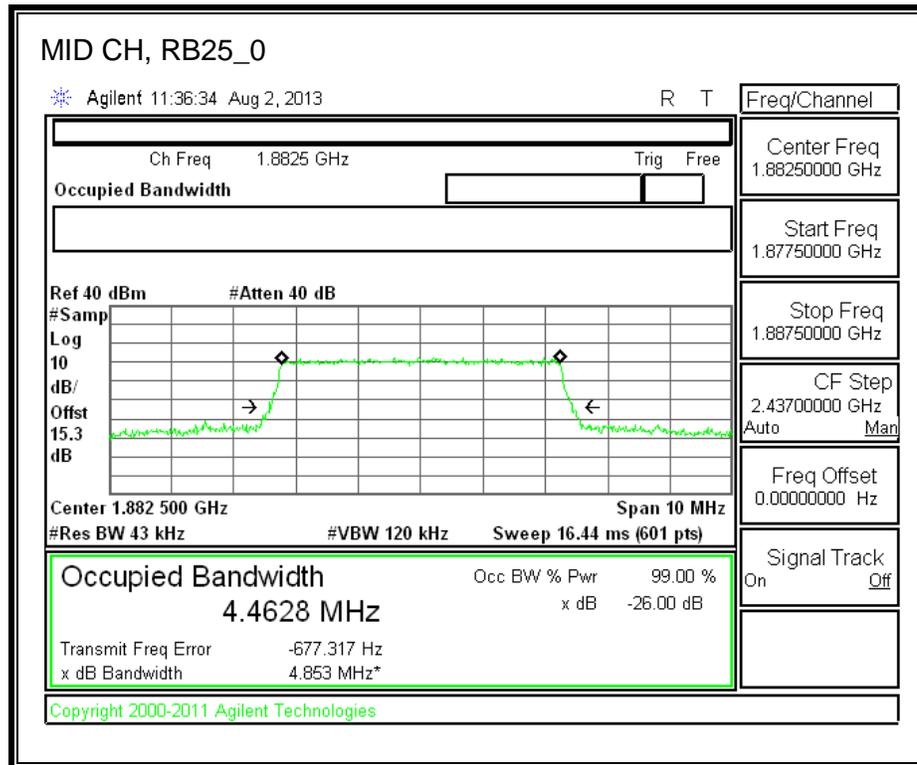
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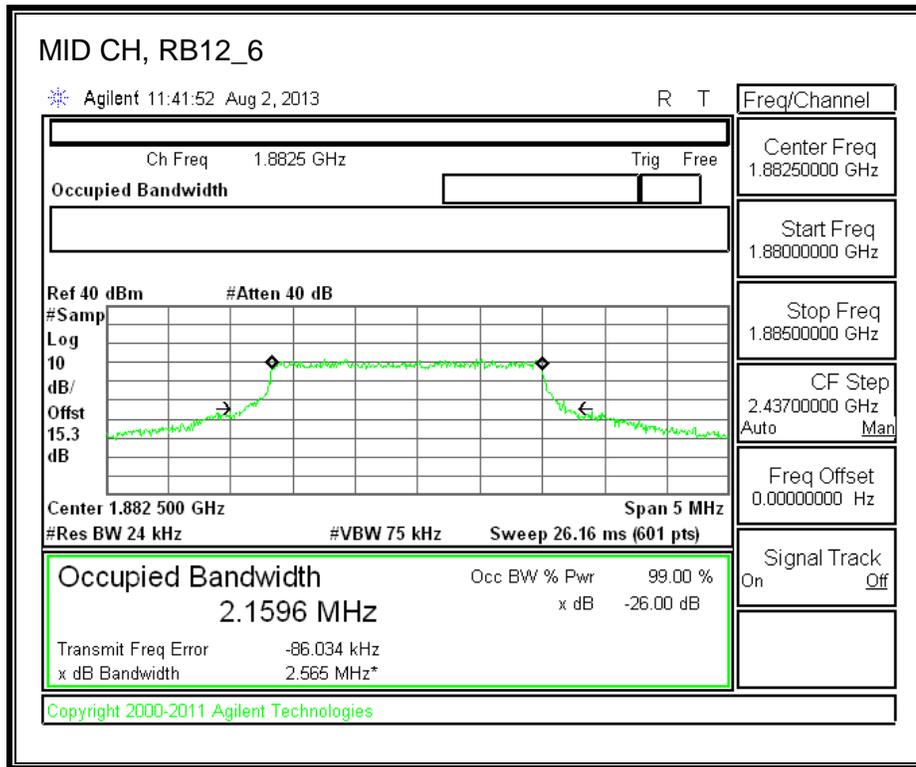


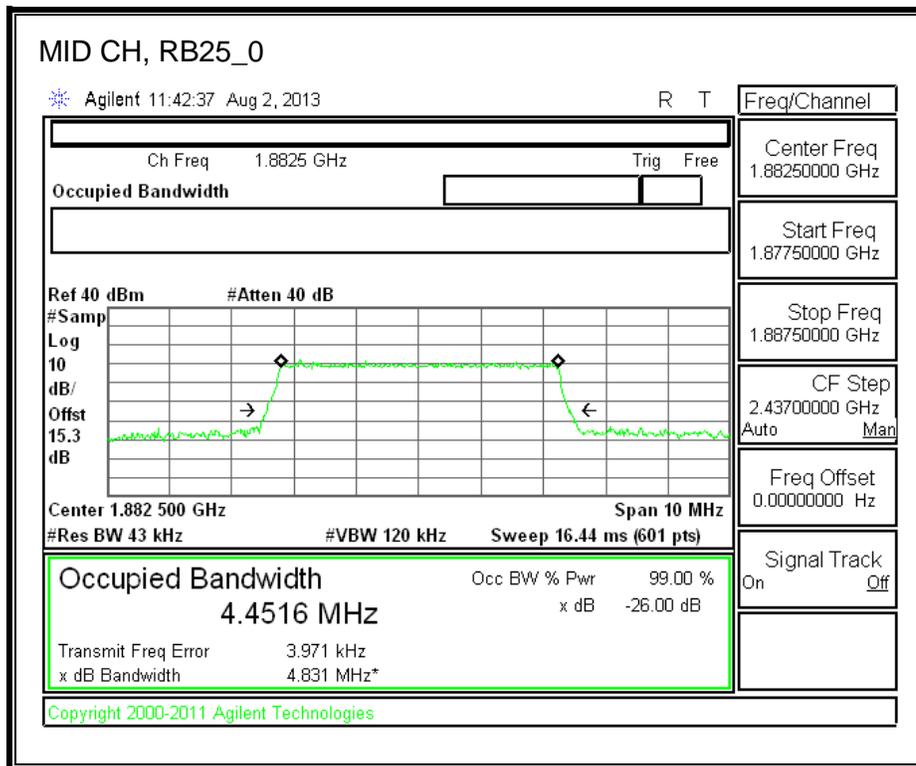
MID-QPSK



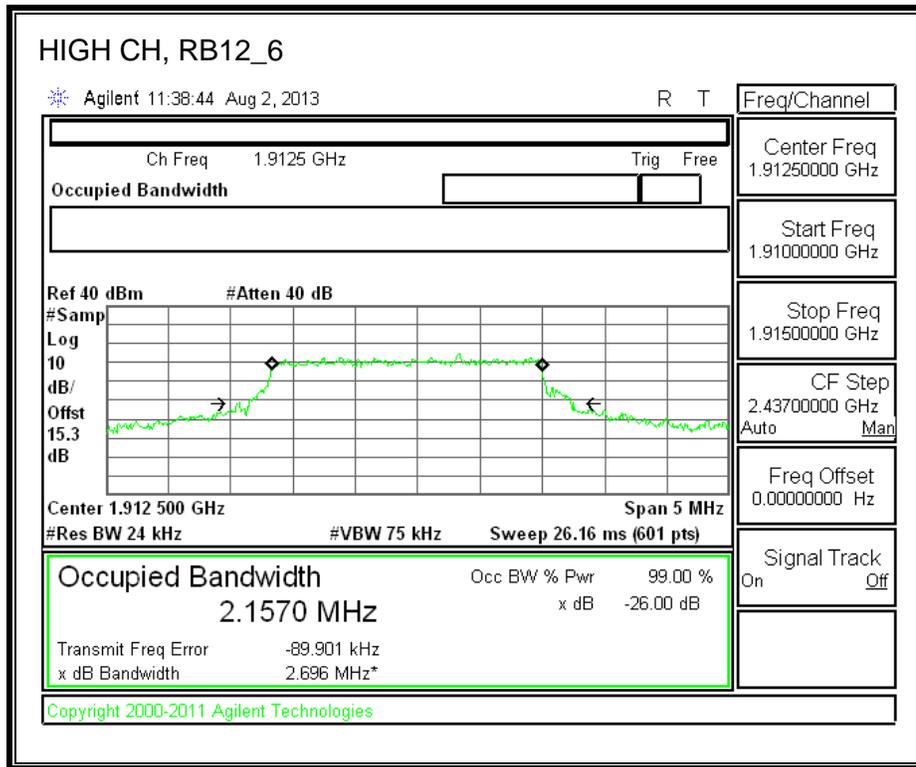


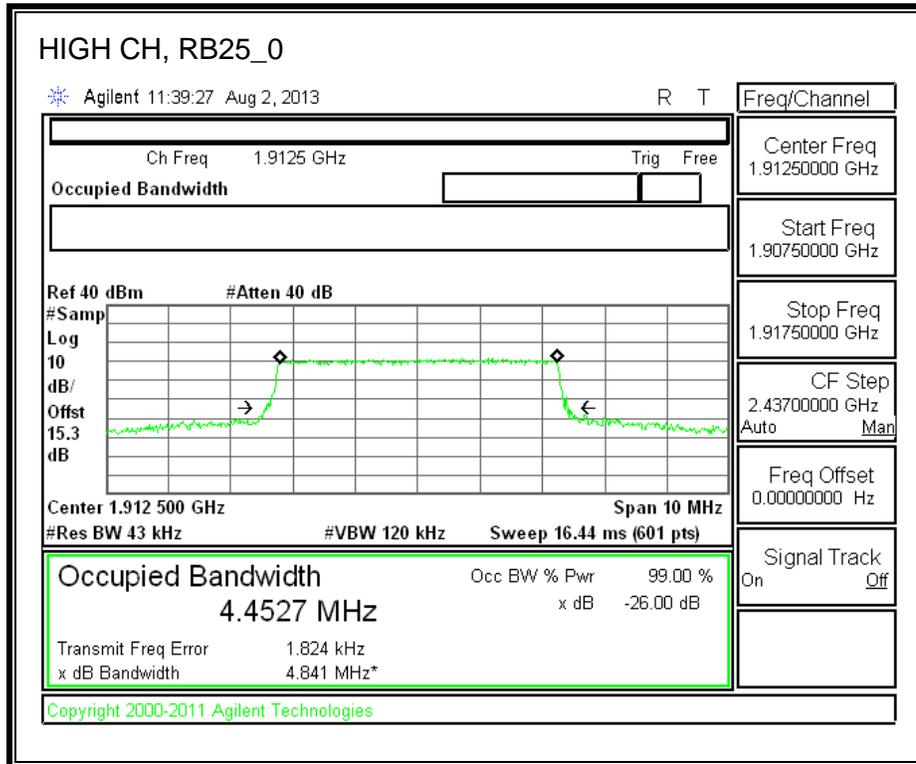
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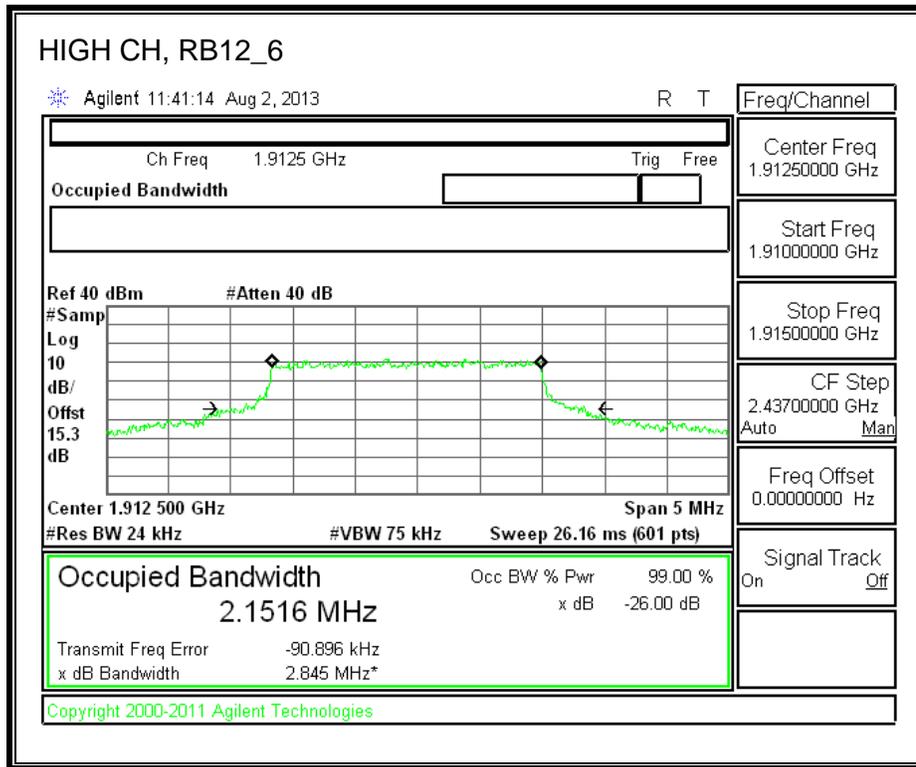


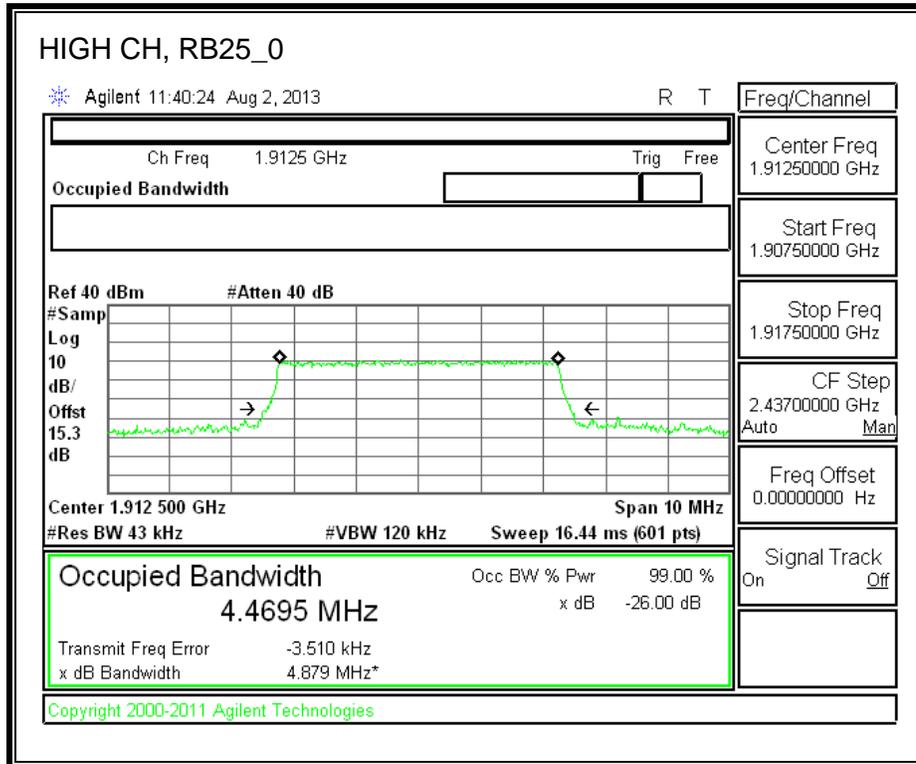
HIGH-QPSK





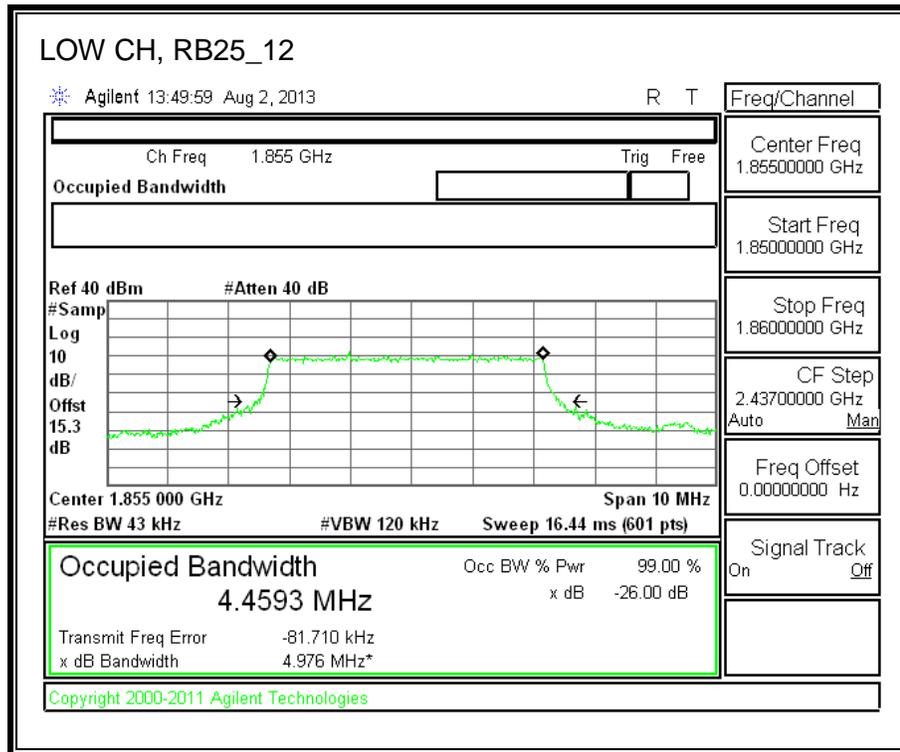
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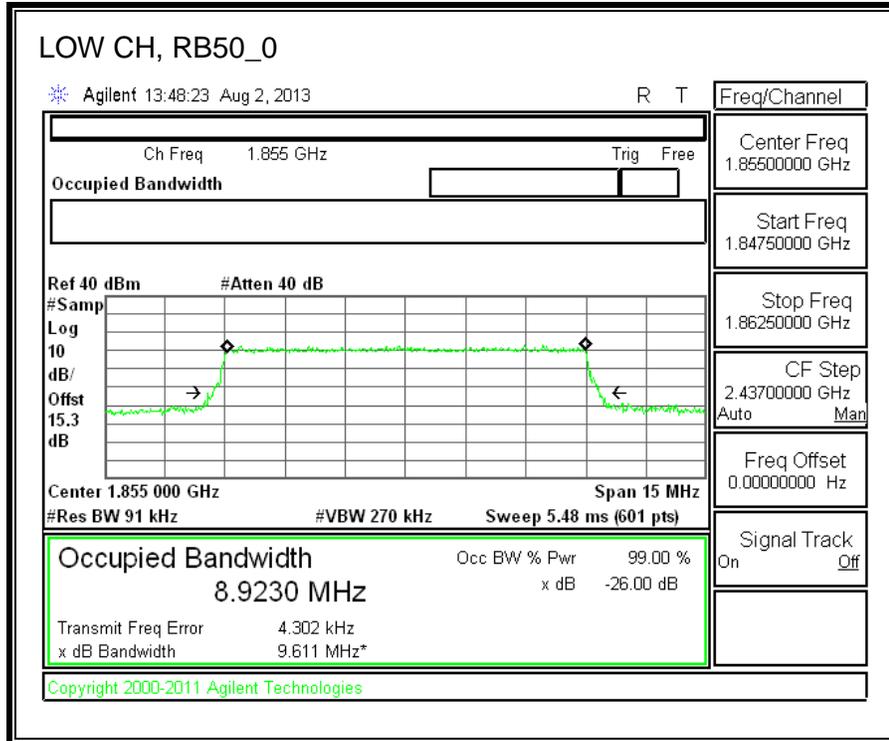




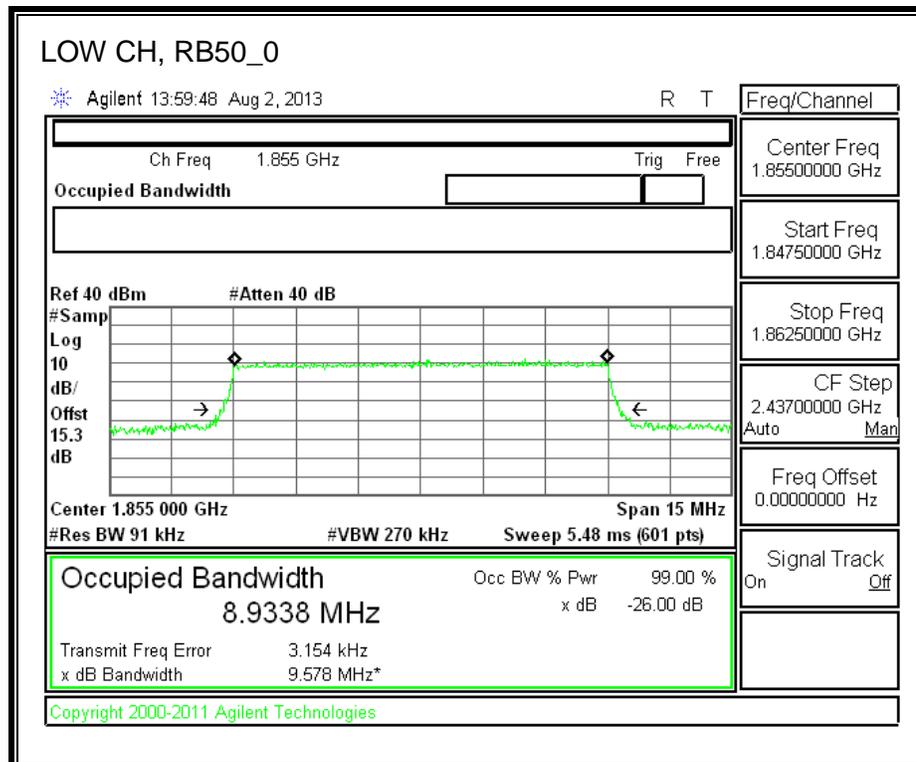
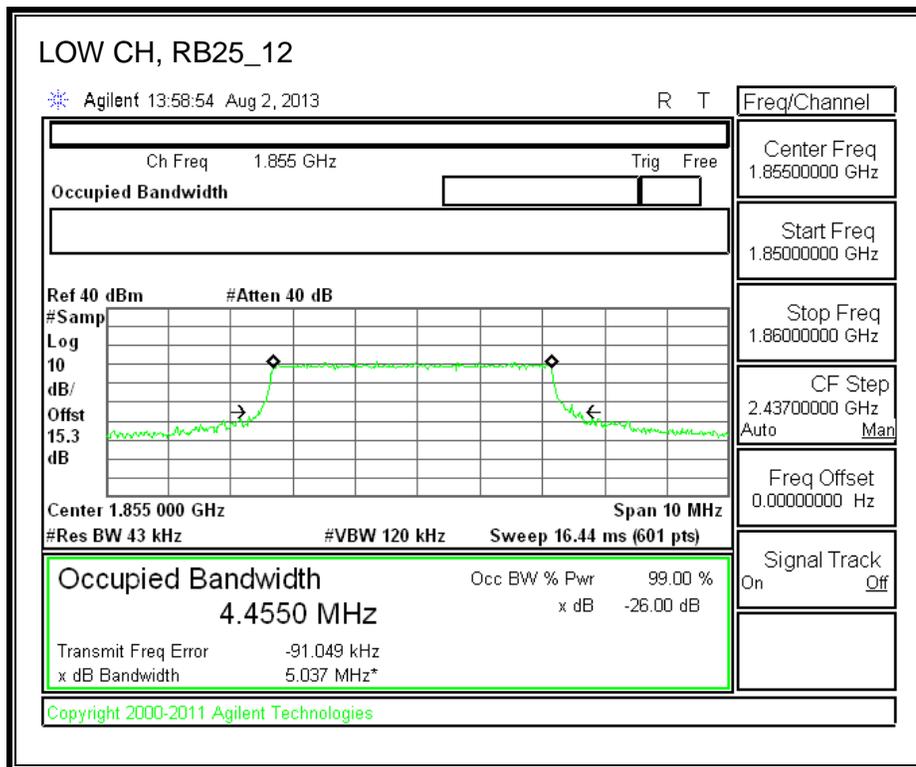
LTE BAND 25-10MHz BANDWIDTH

LOW-QPSK

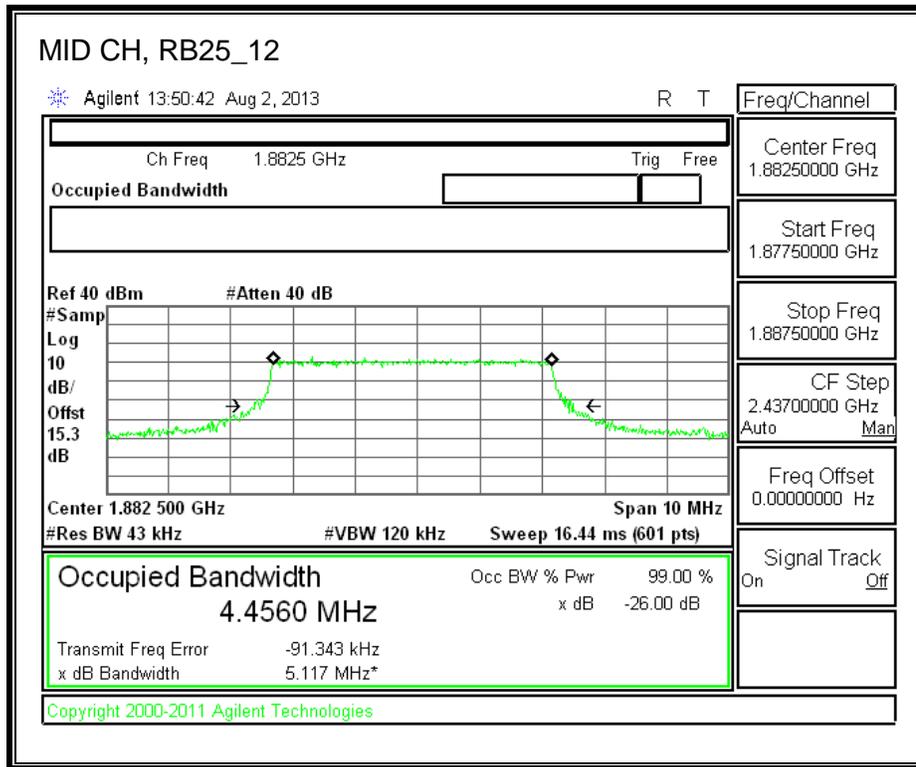


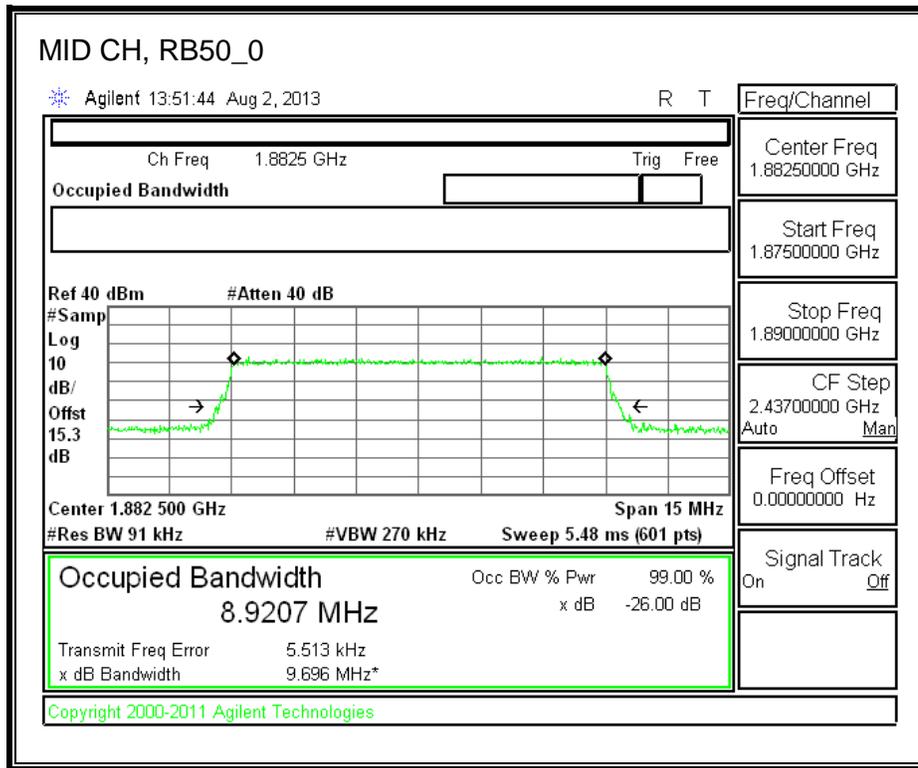


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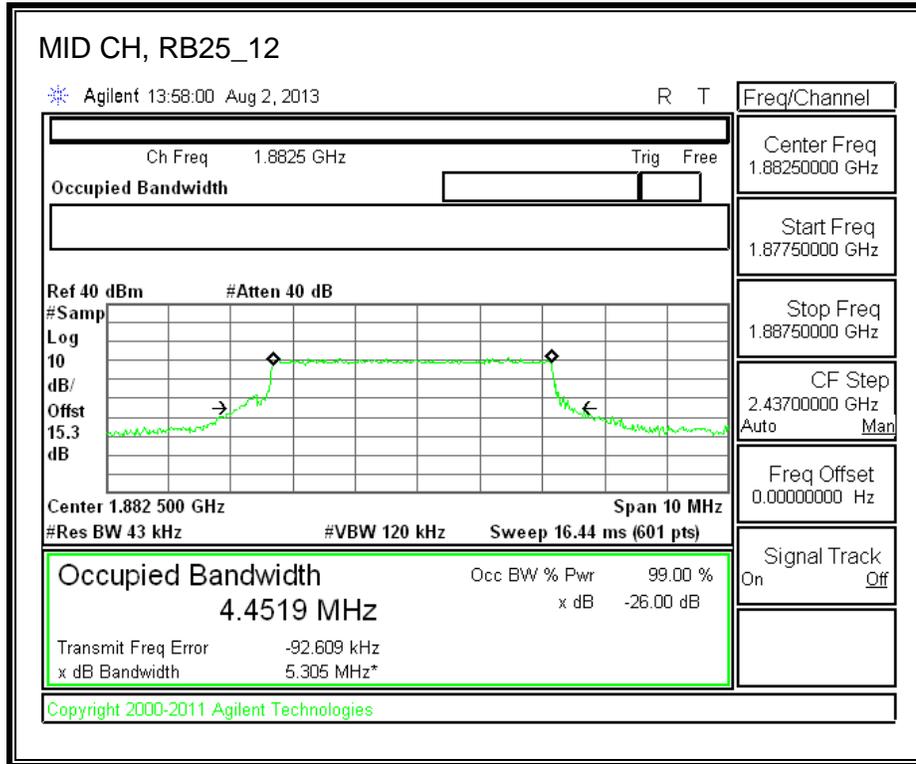


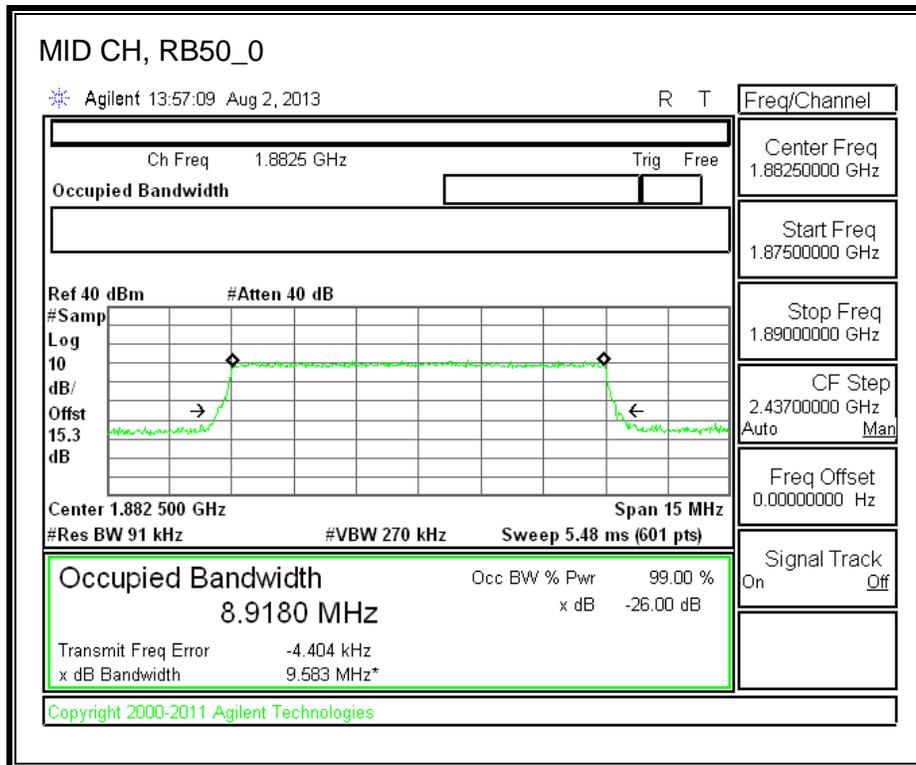
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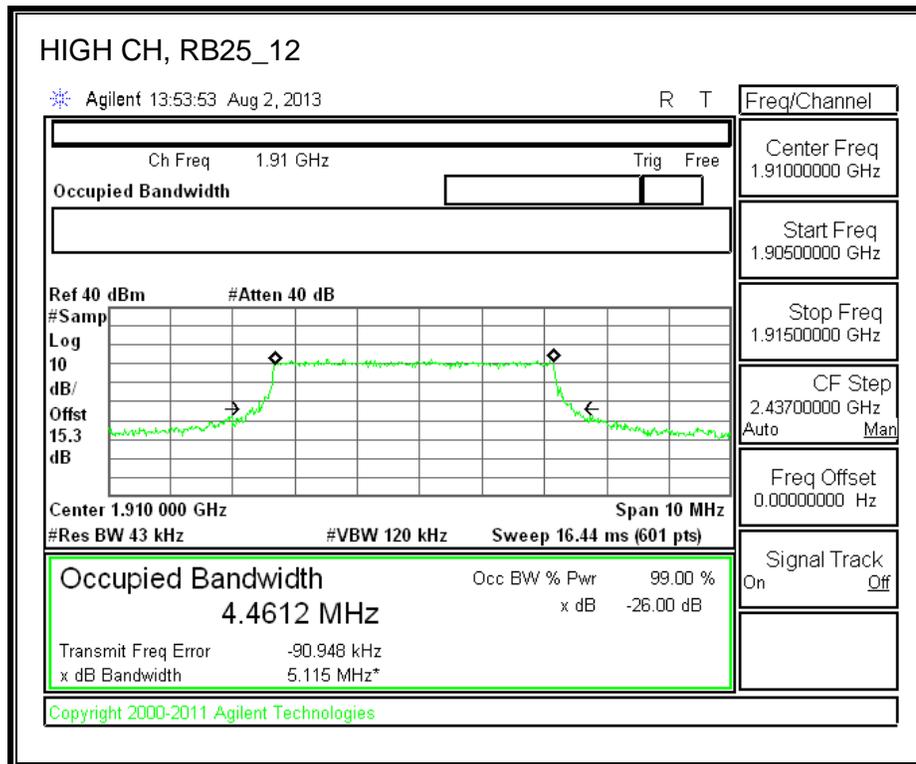


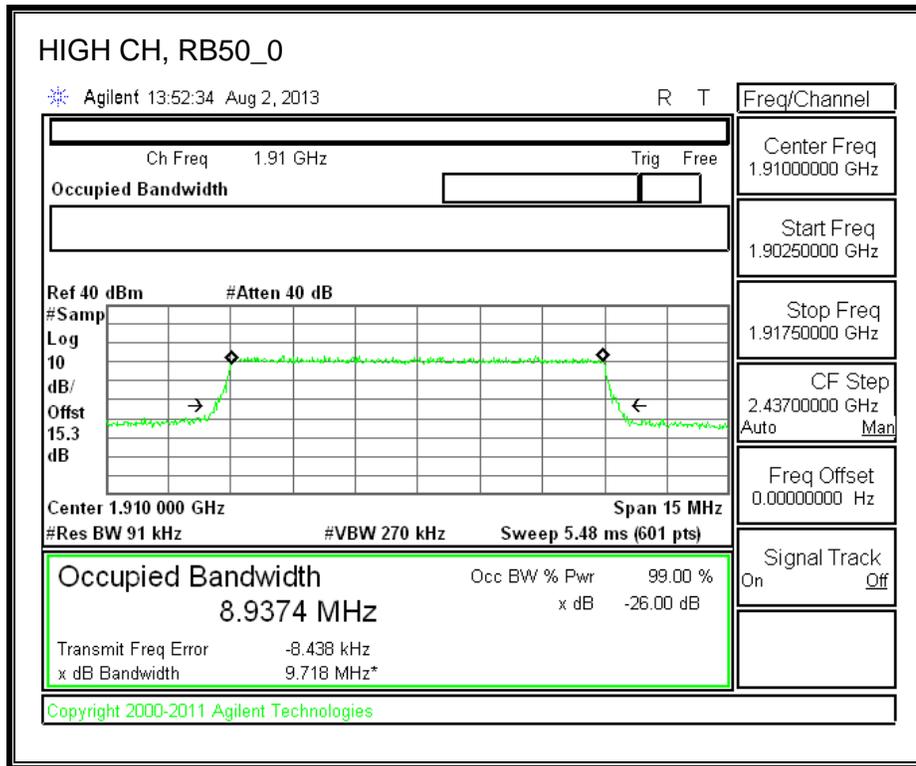
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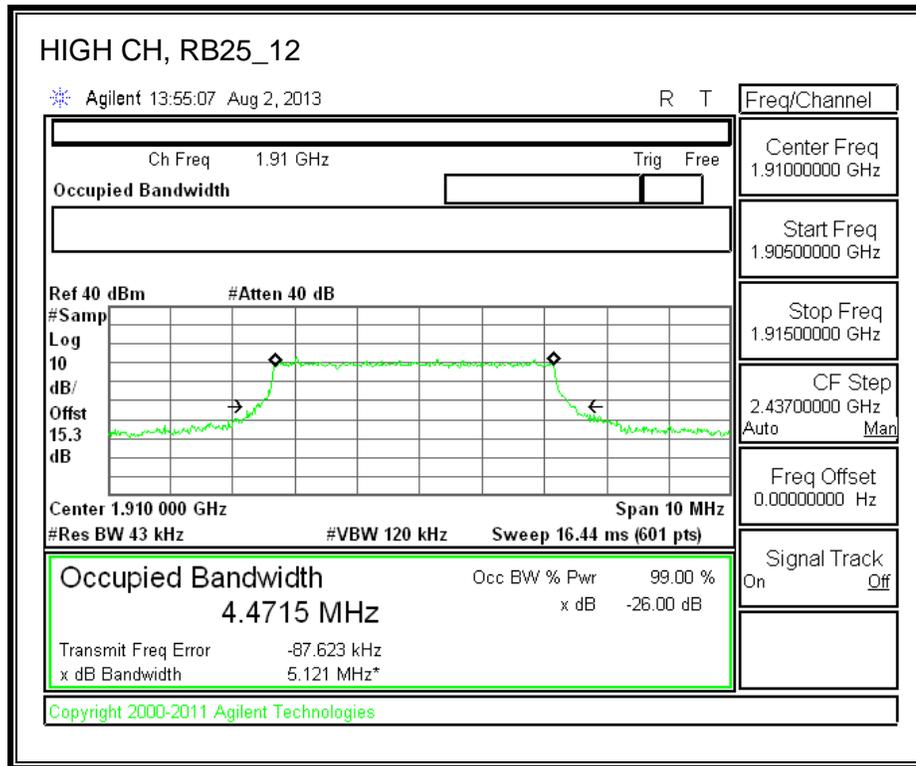


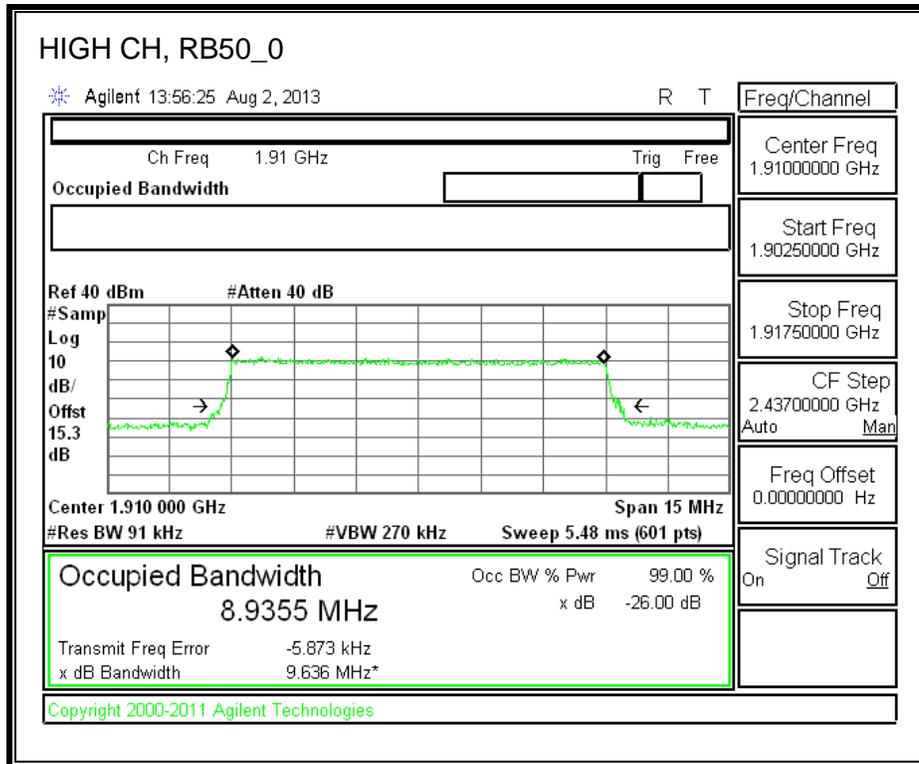
HIGH-QPSK





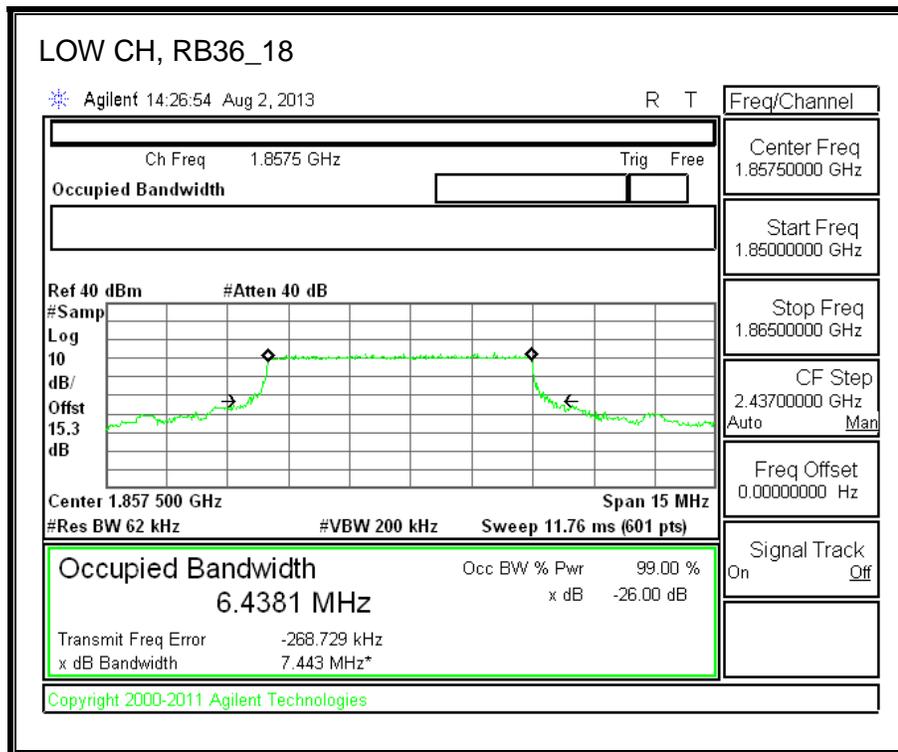
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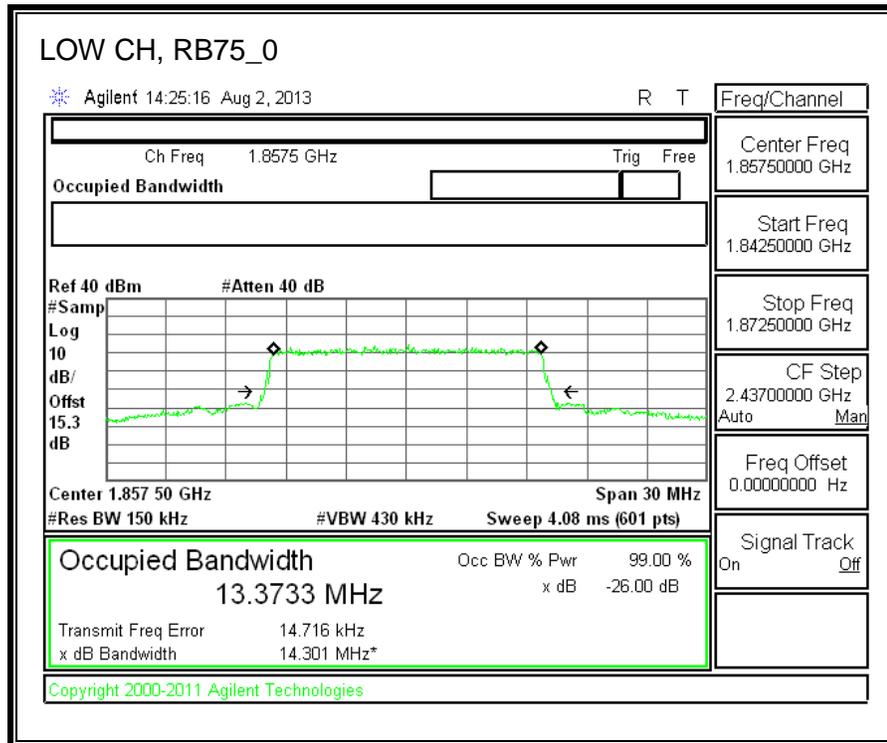




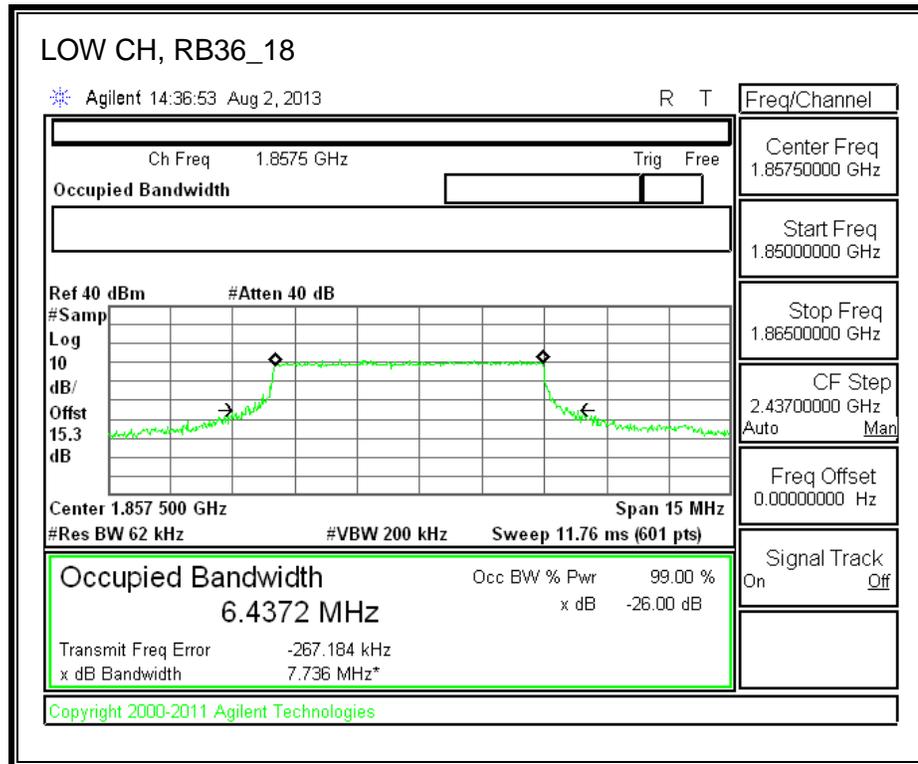
LTE BAND 25-15MHz BANDWIDTH

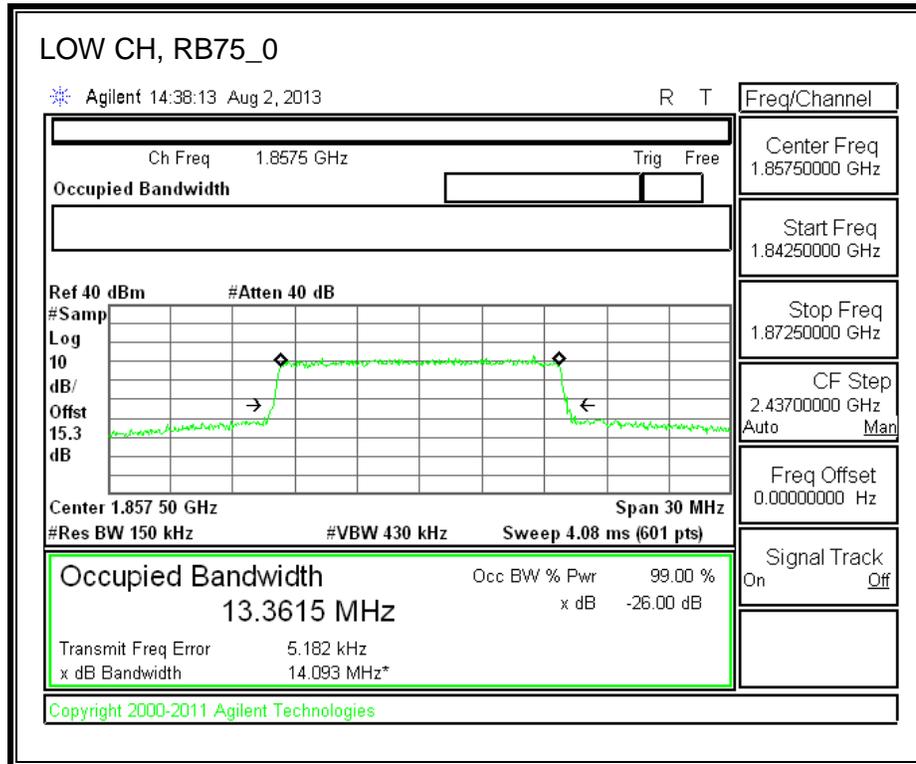
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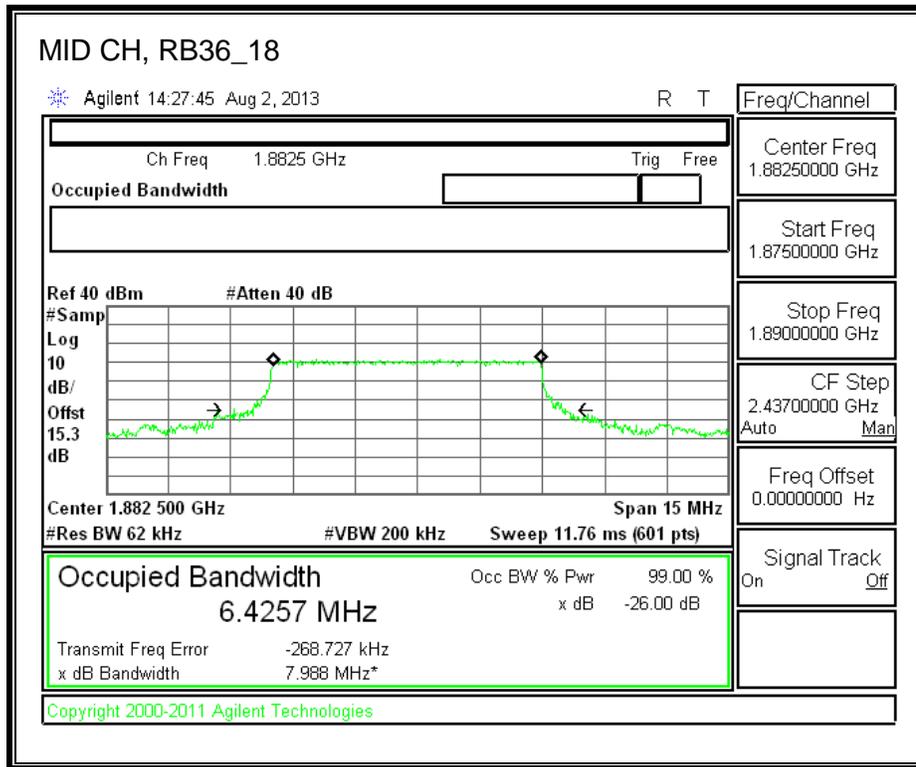


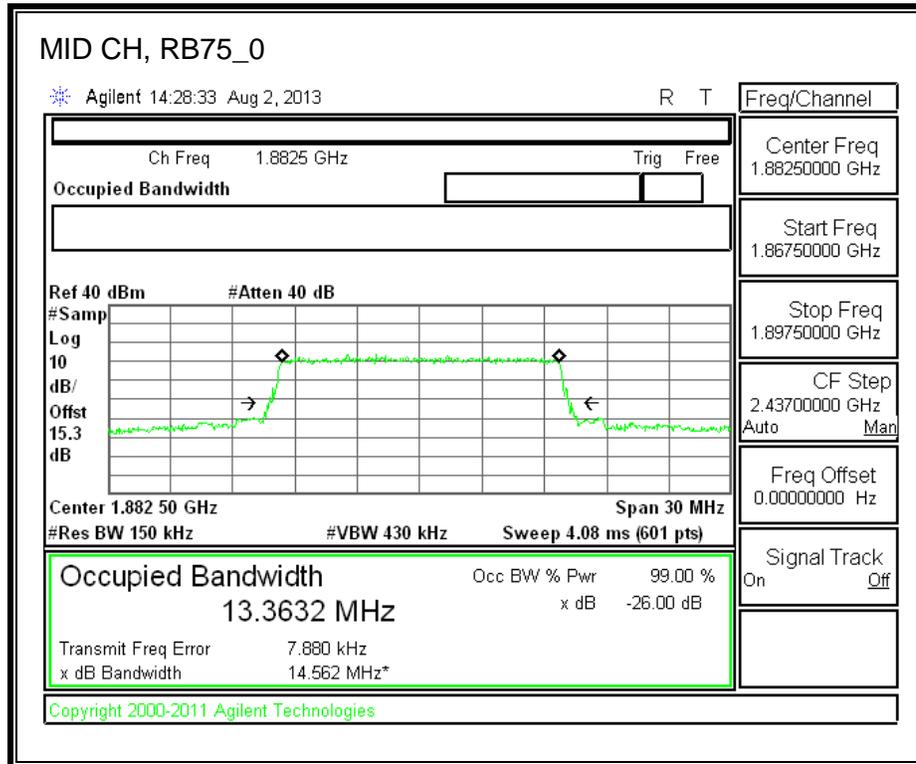
LOW-16QAM



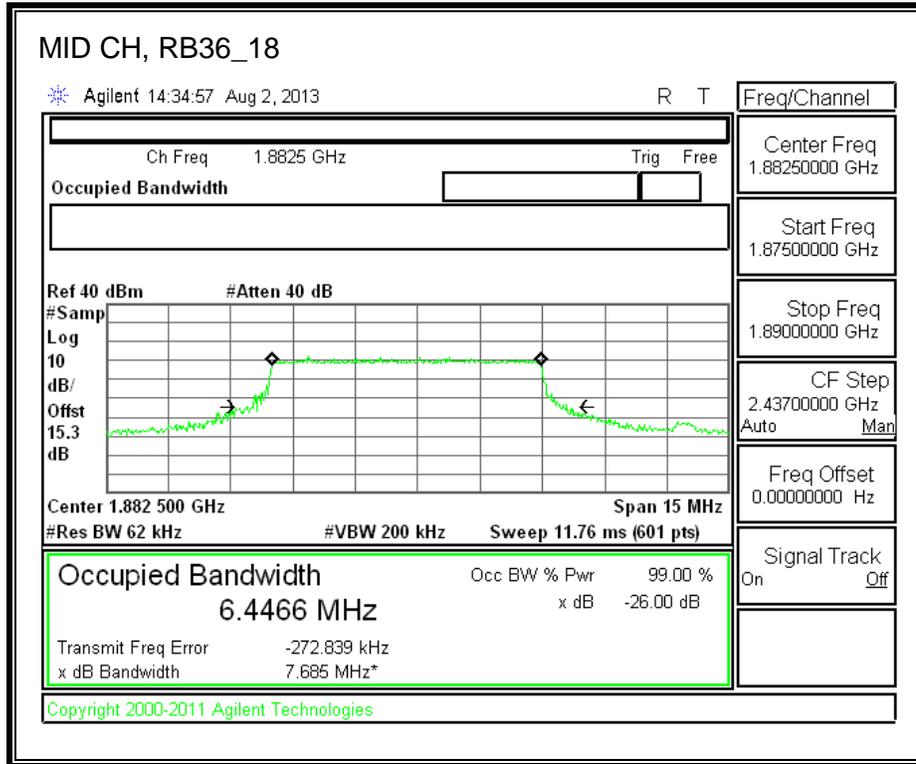


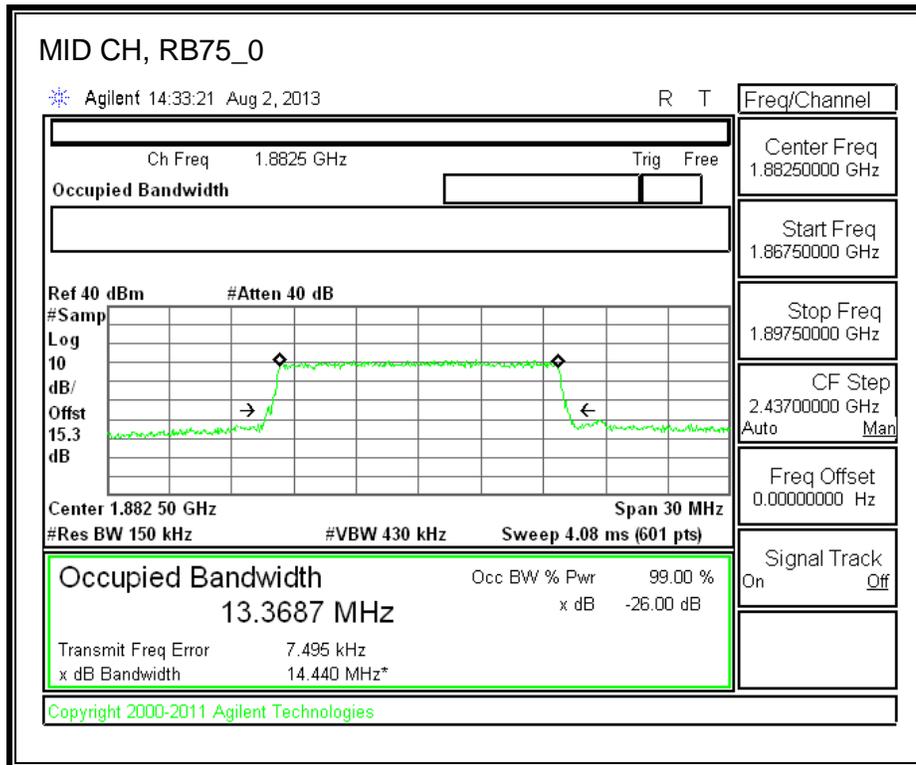
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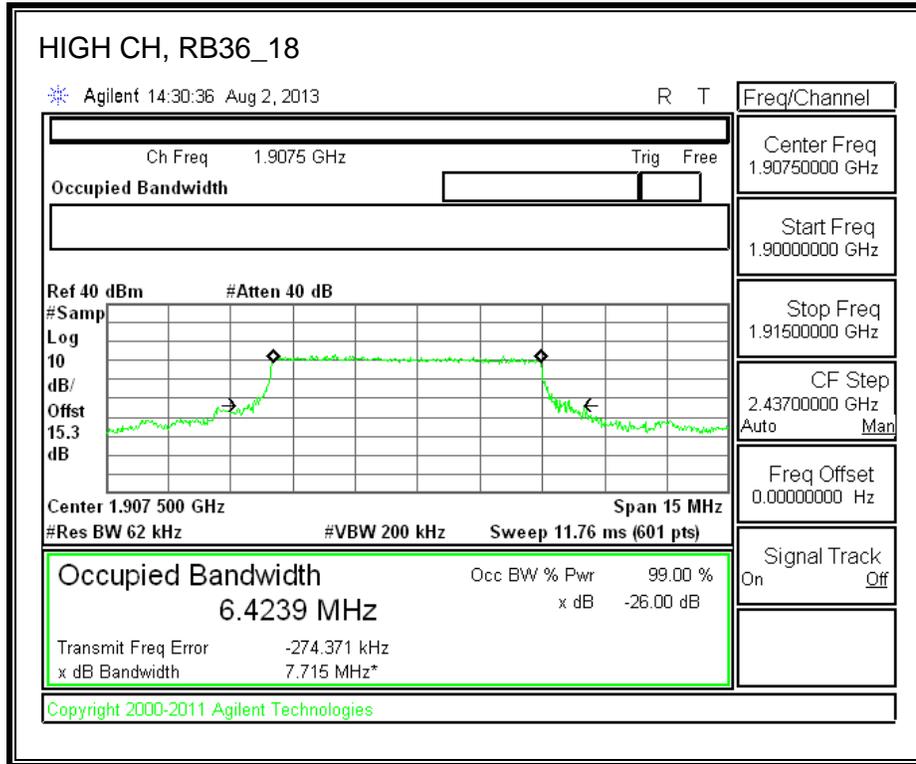


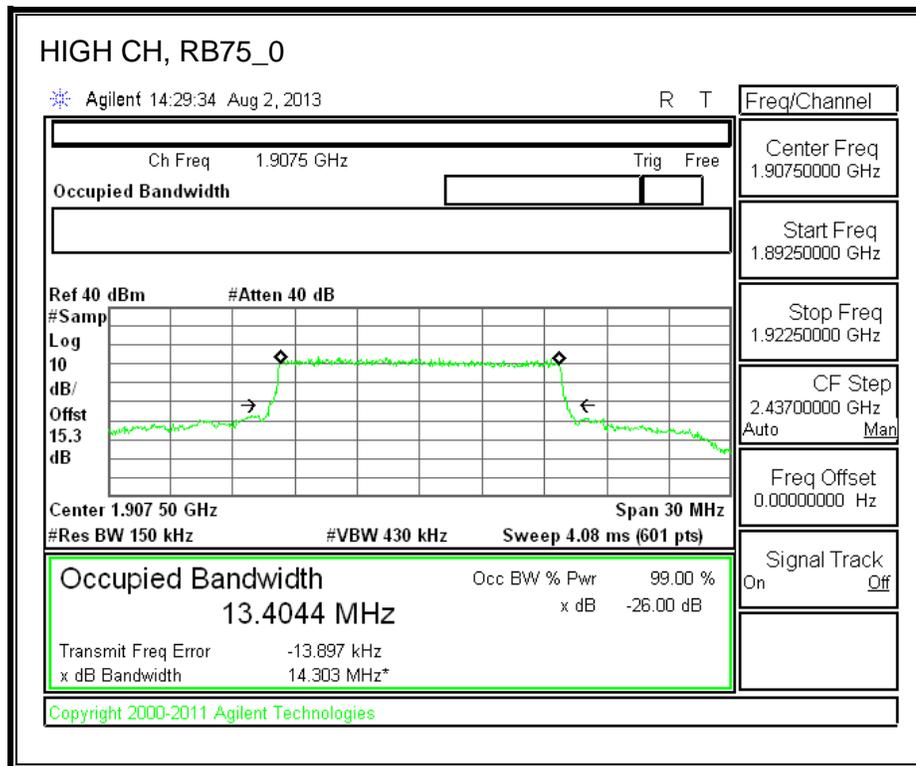
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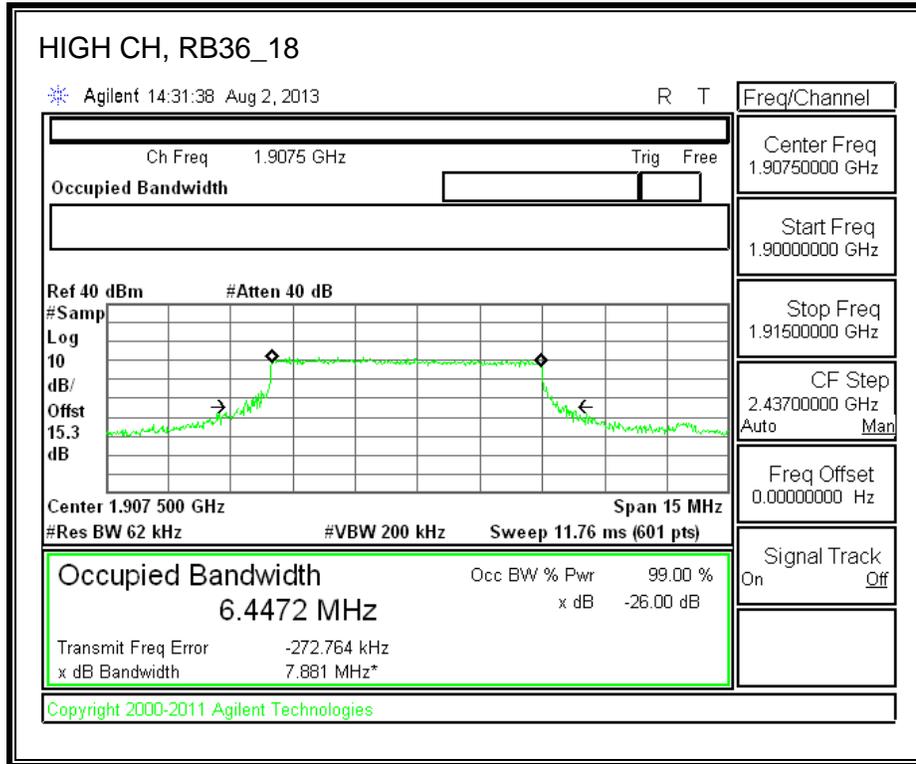


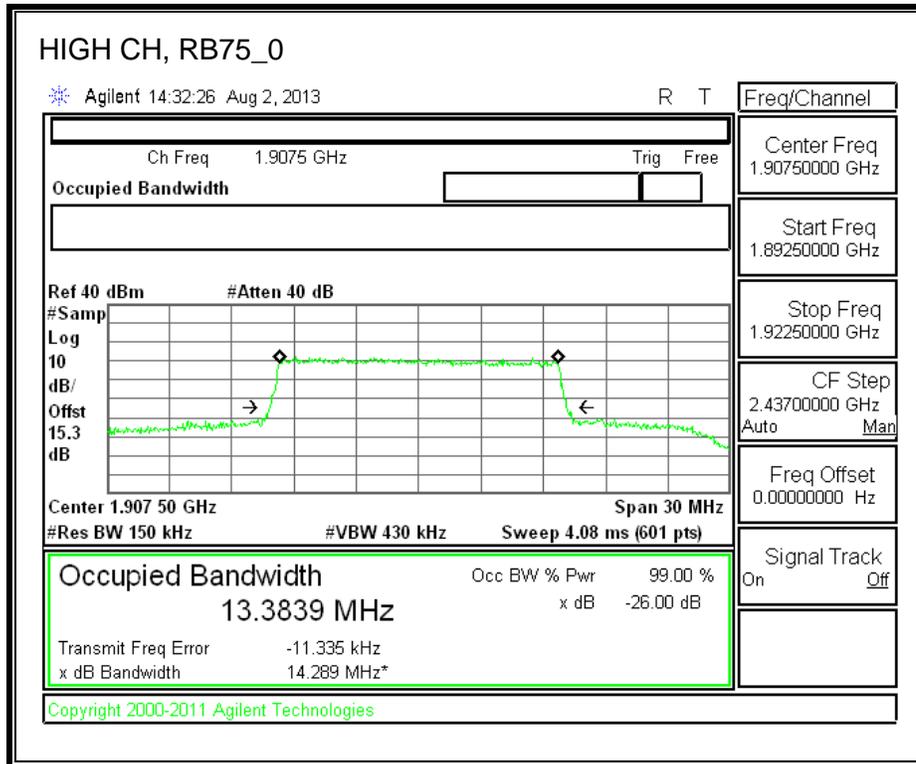
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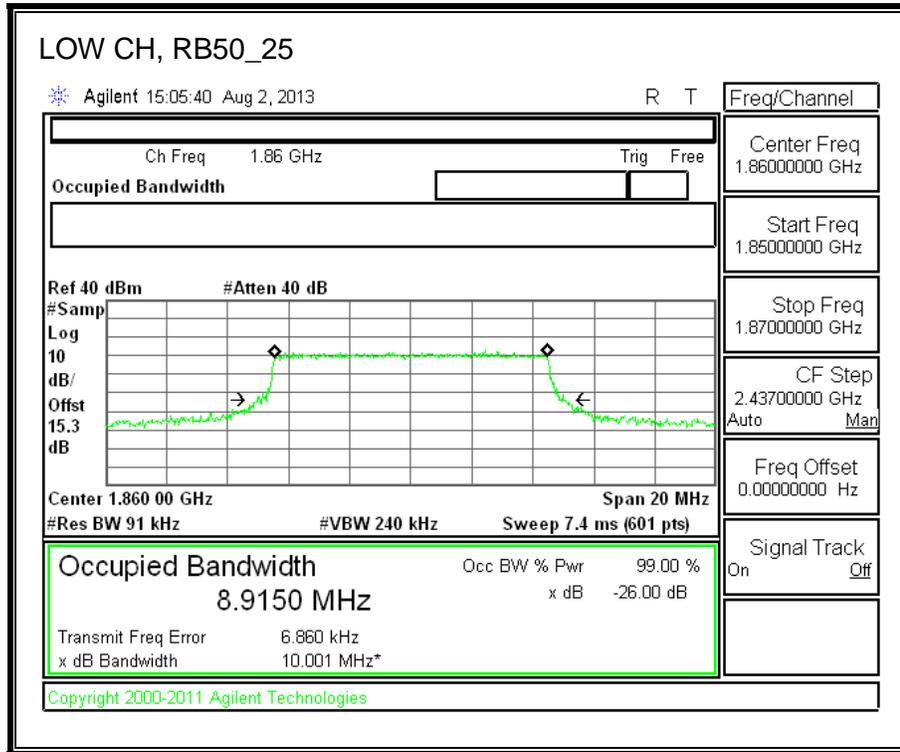
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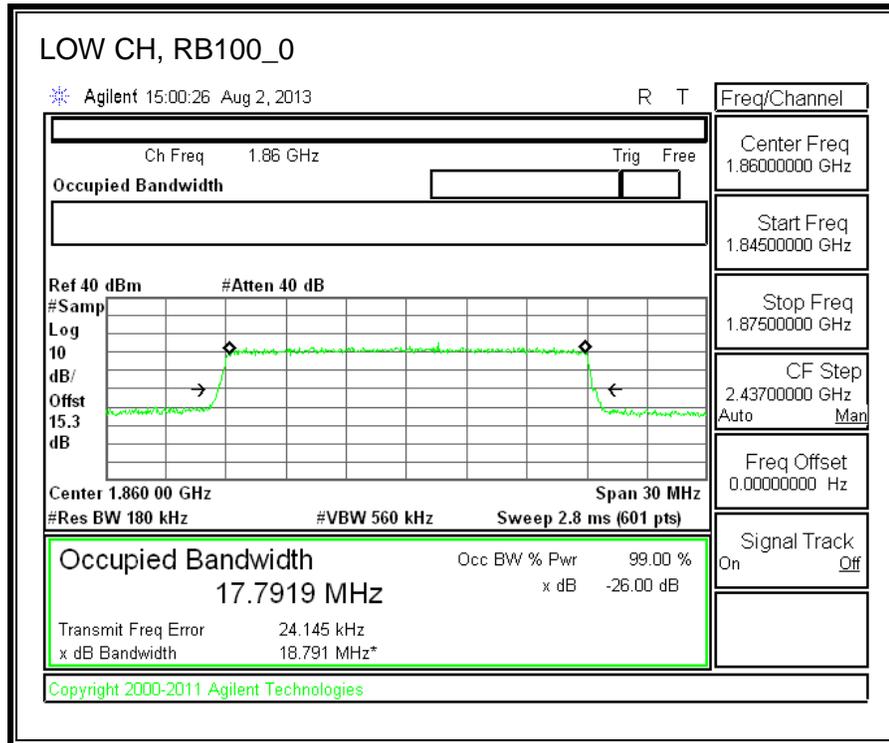




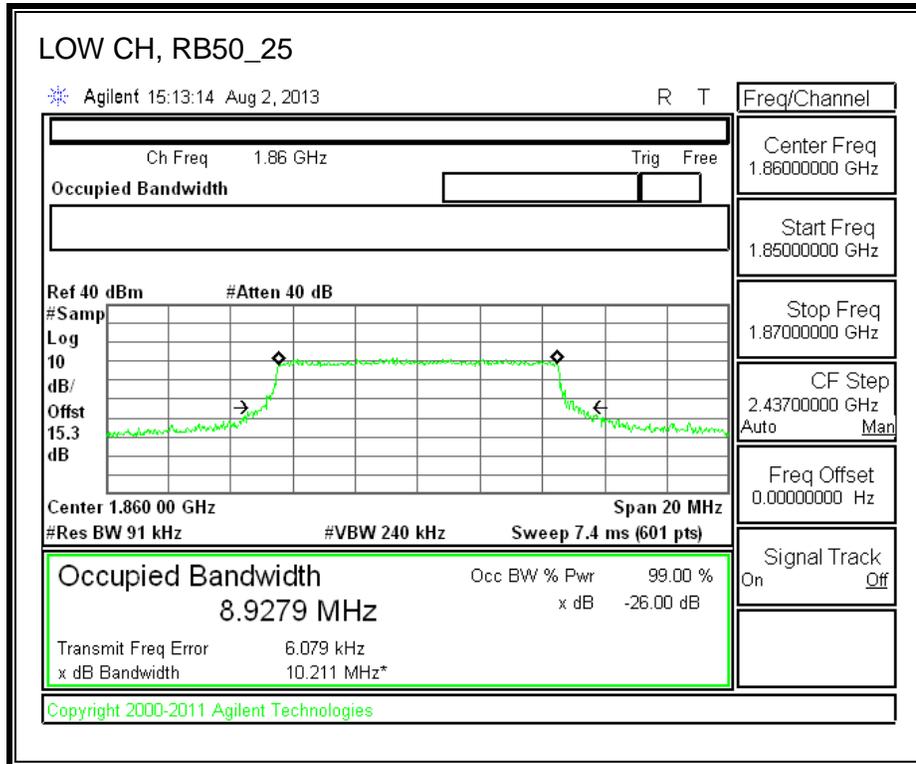
LTE BAND 25-20MHz BANDWIDTH

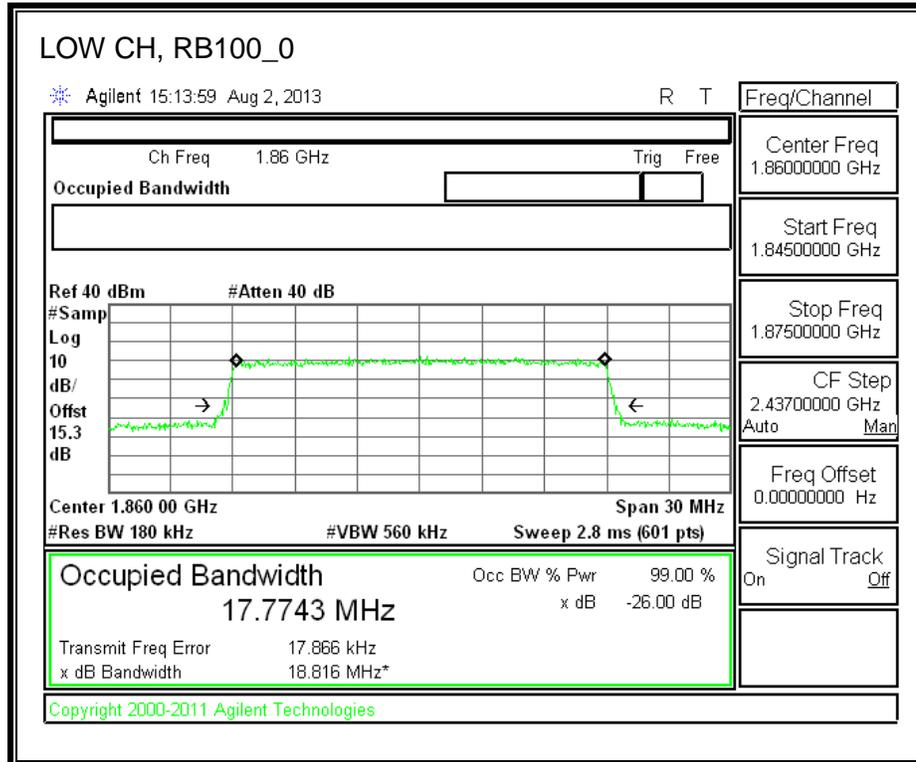
LOW-QPSK



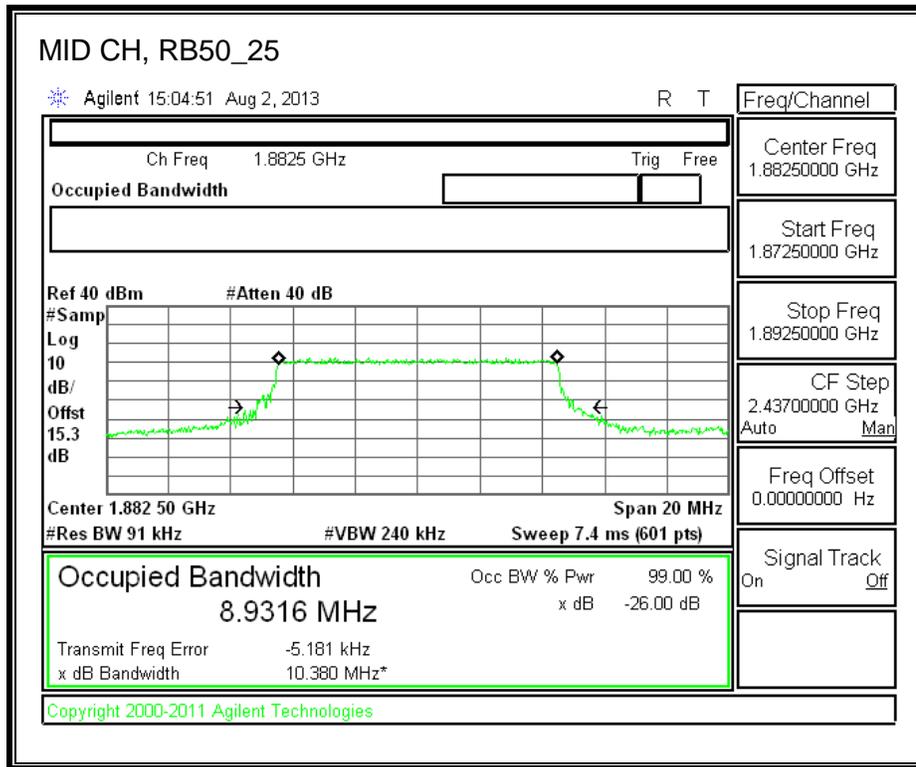


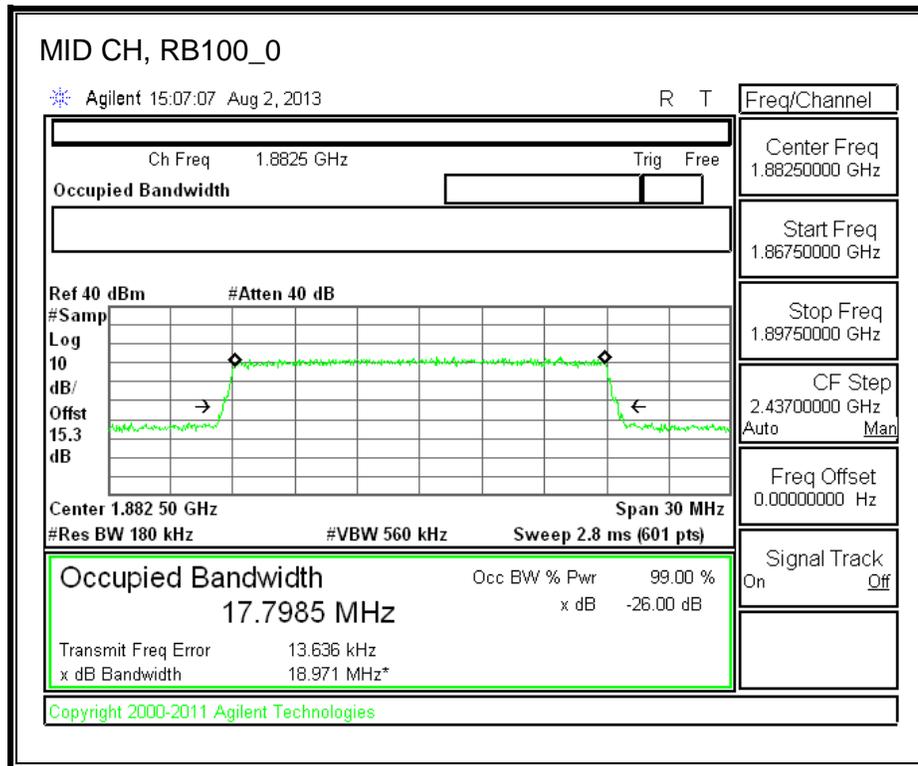
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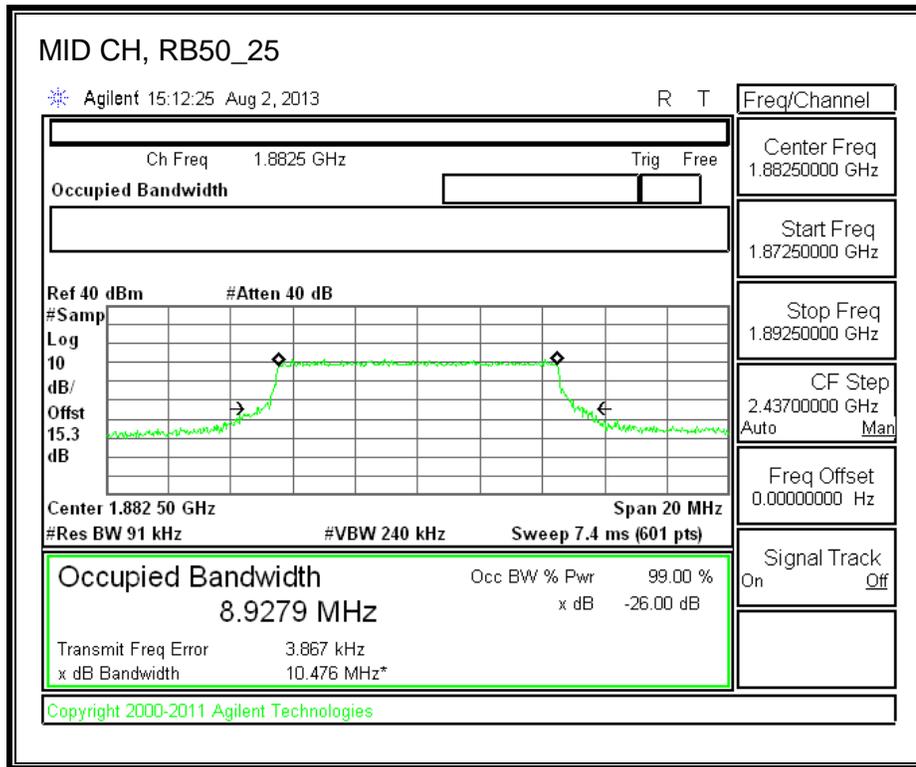


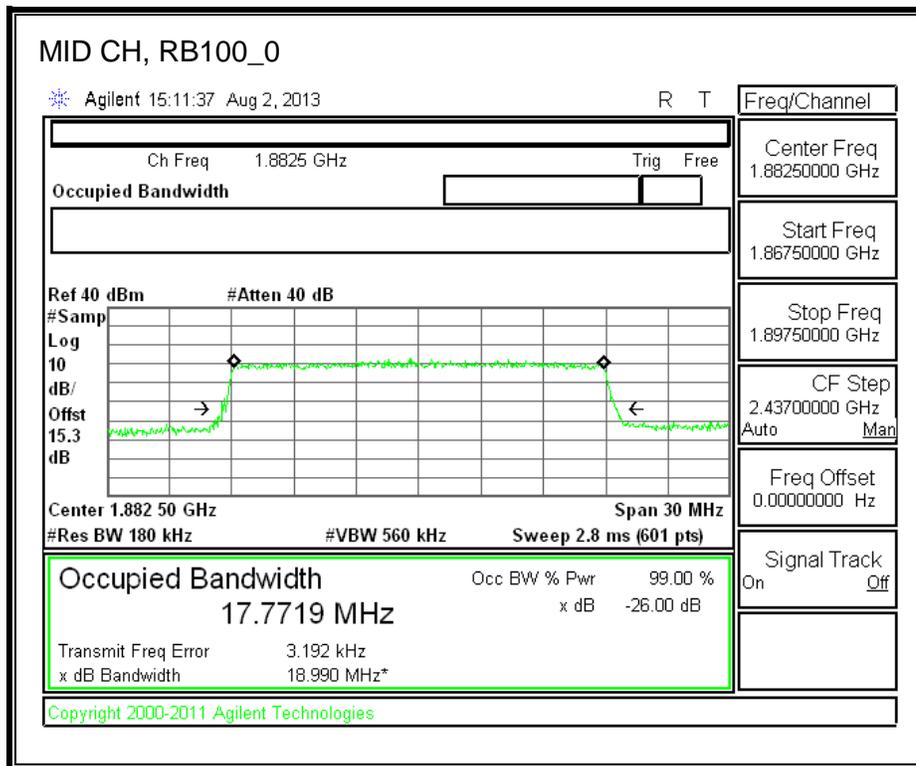
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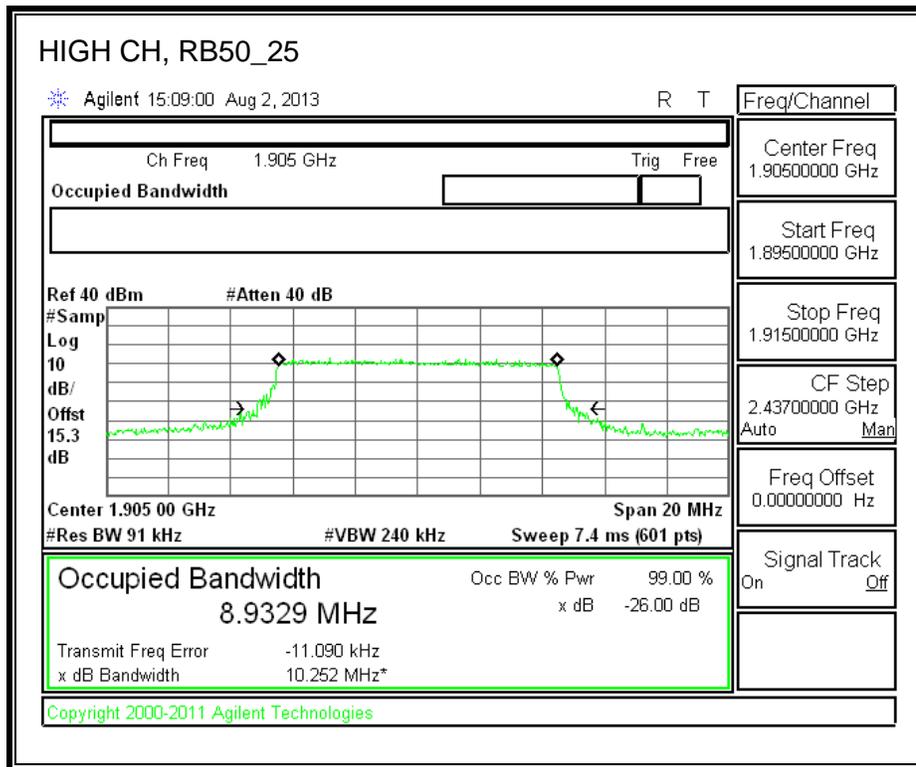


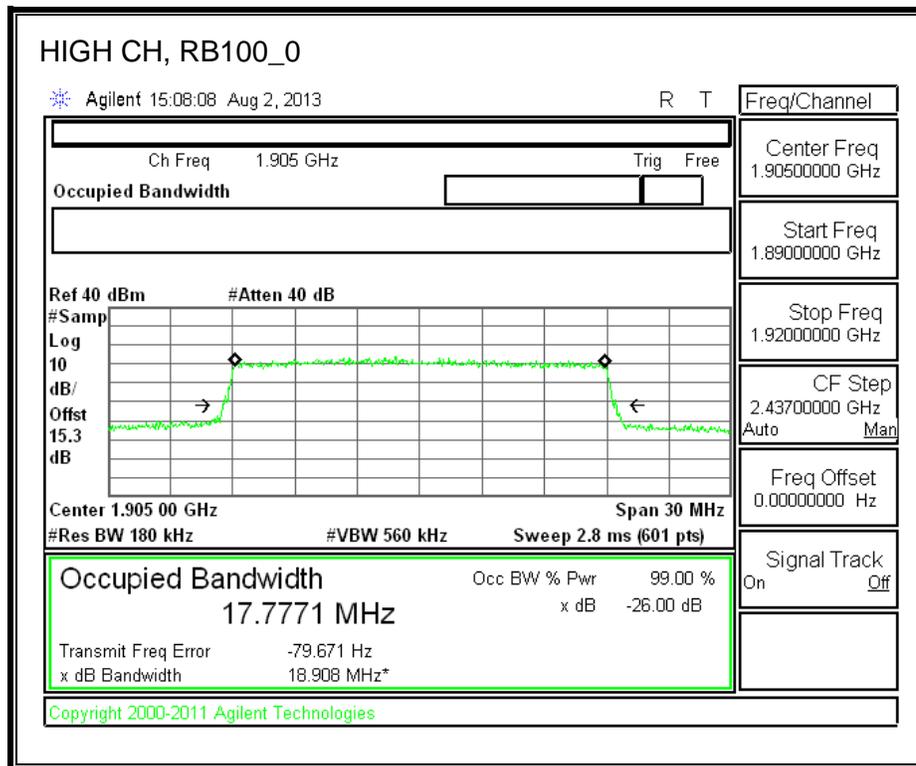
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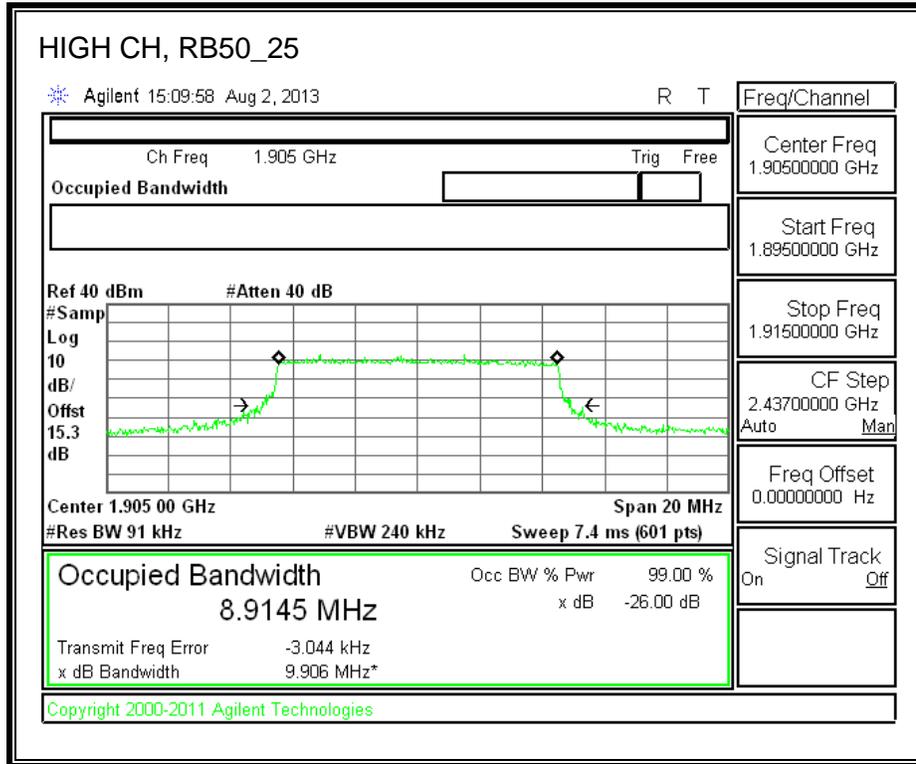


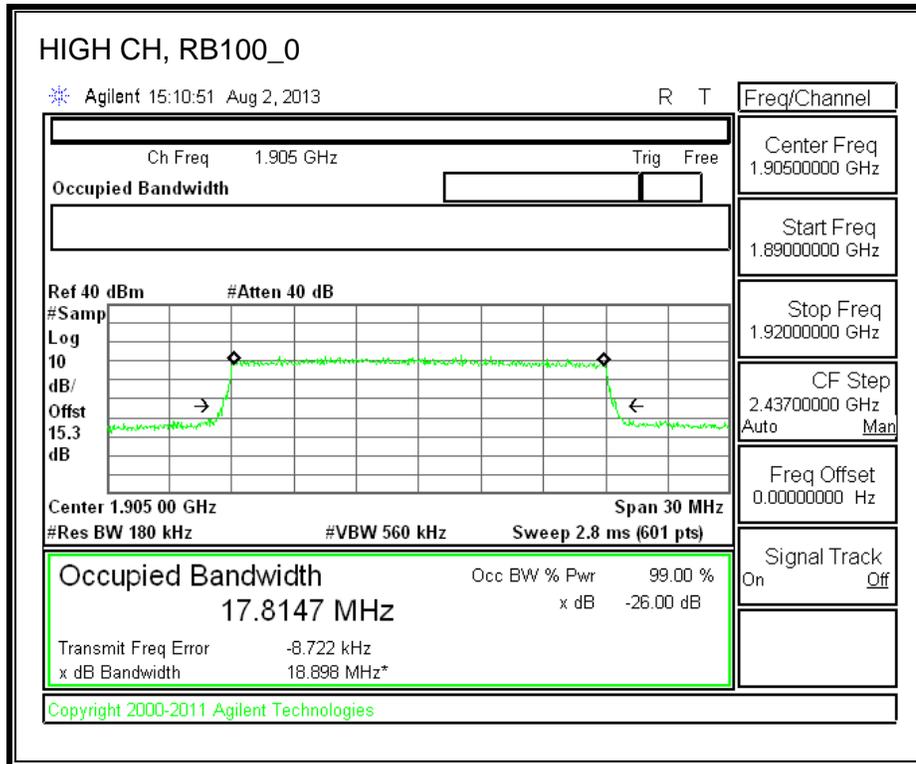
HIGH-QPSK





HIGH-16QAM

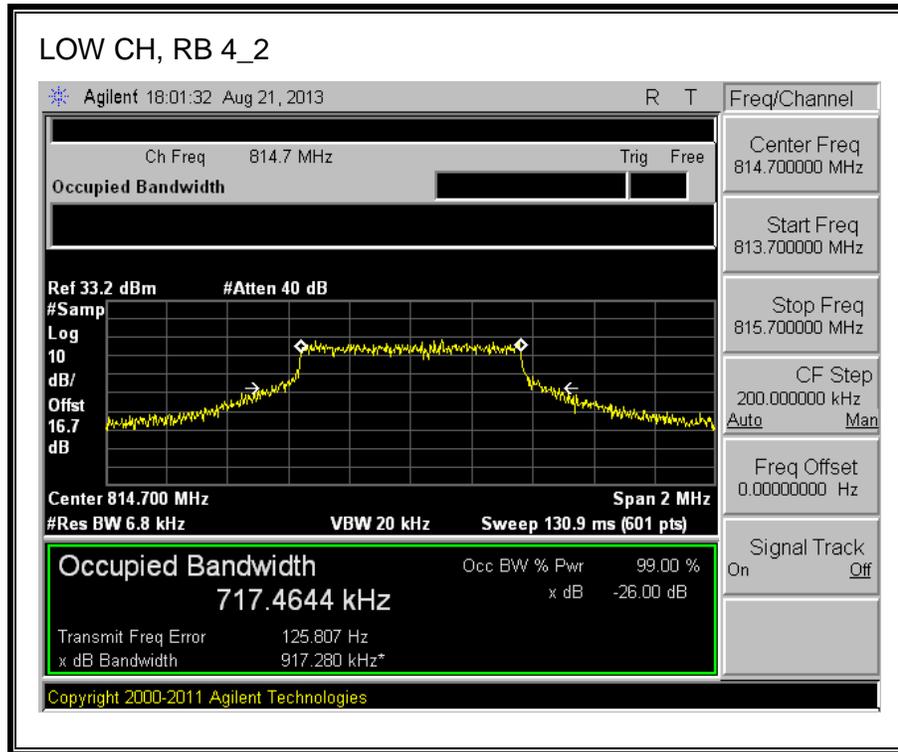


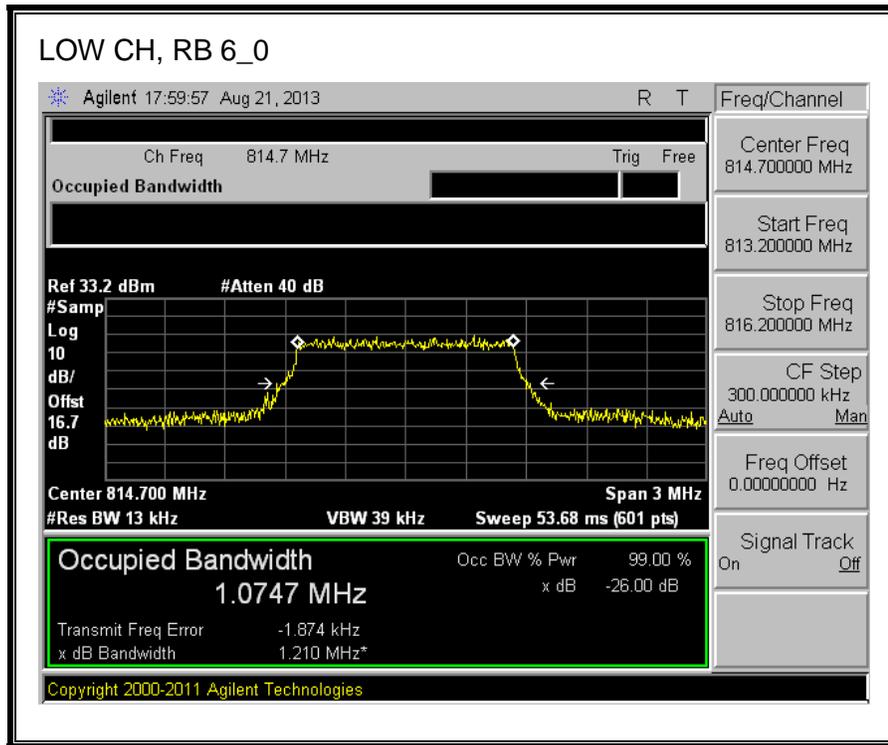


8.2.10. LTE Band 26

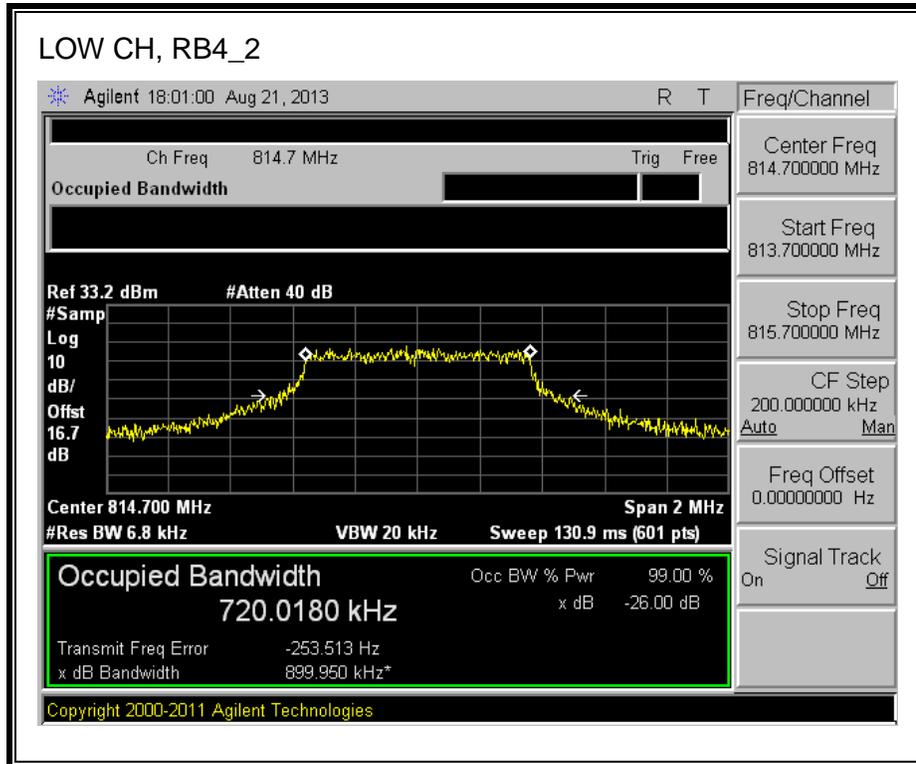
LTE BAND 25-1.4MHz BANDWIDTH

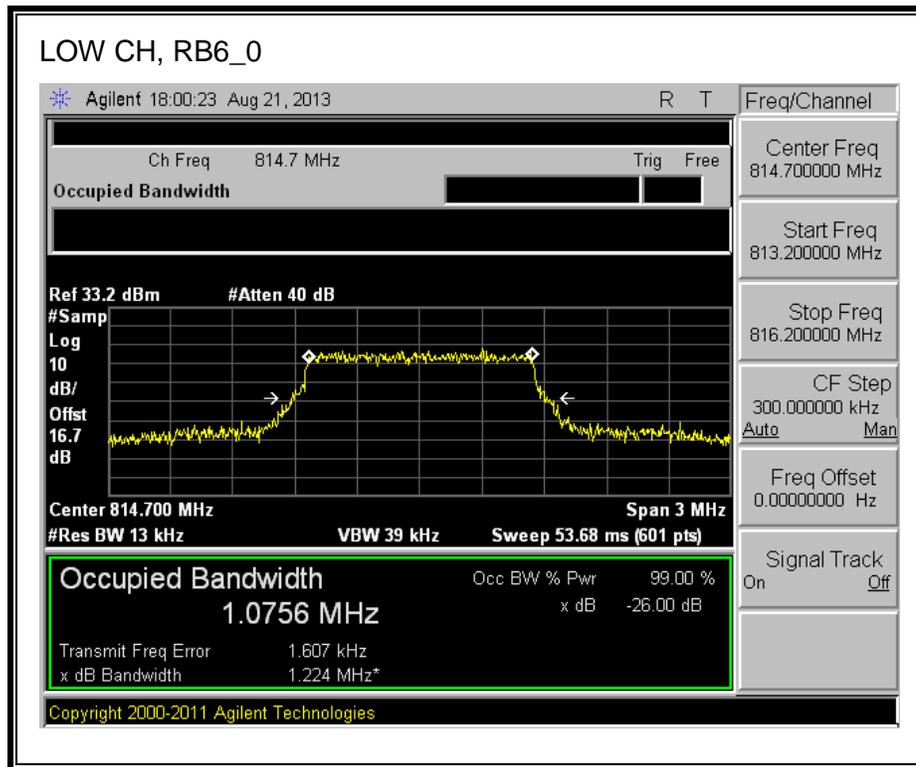
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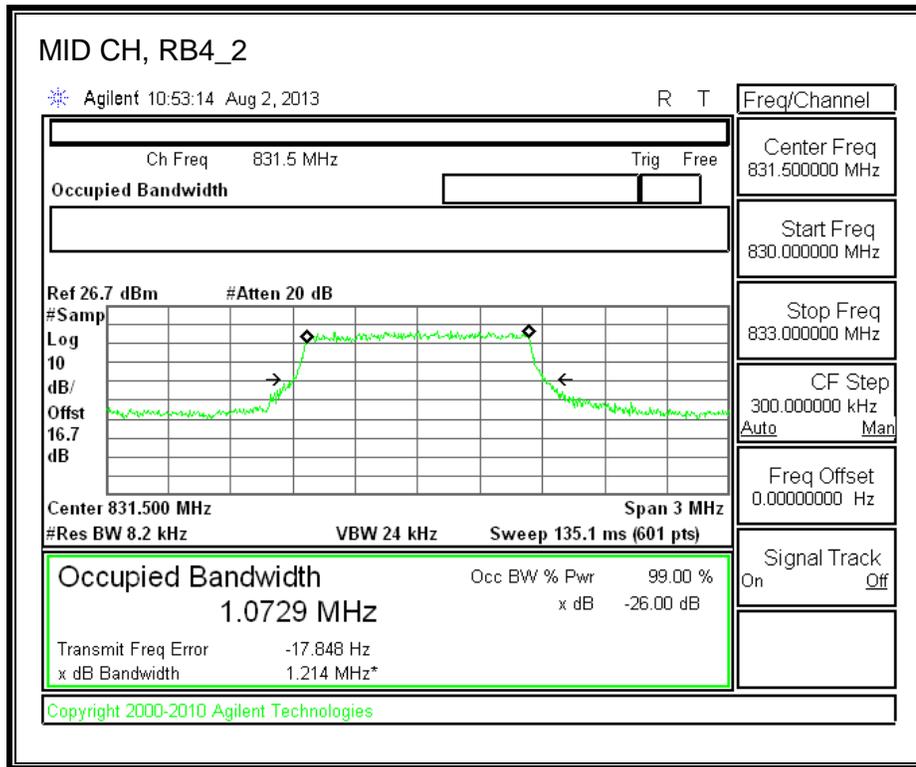


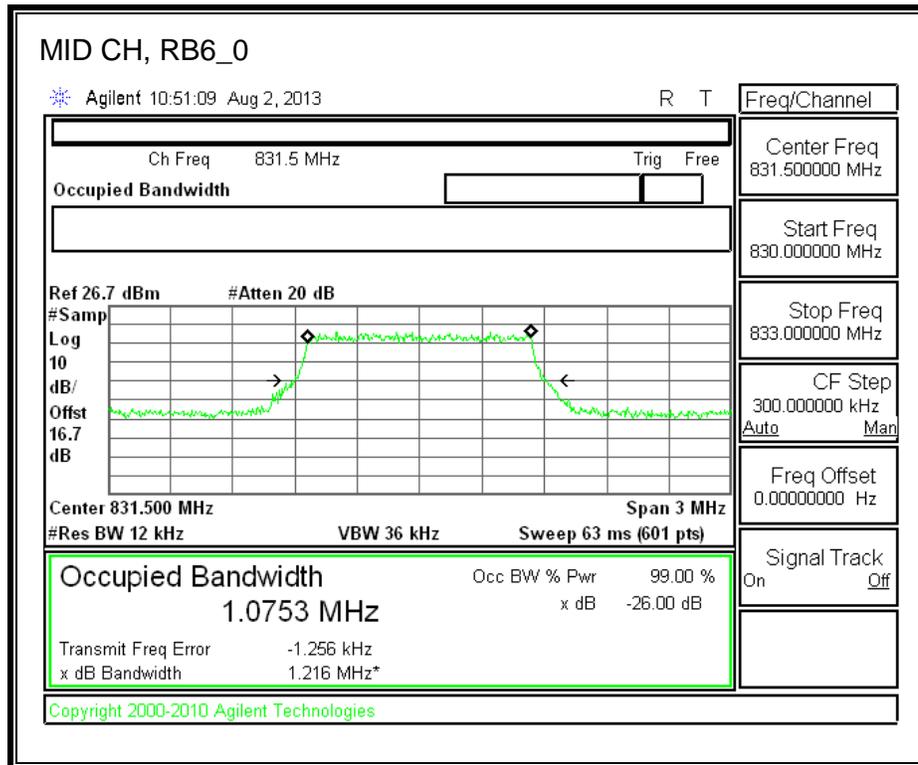
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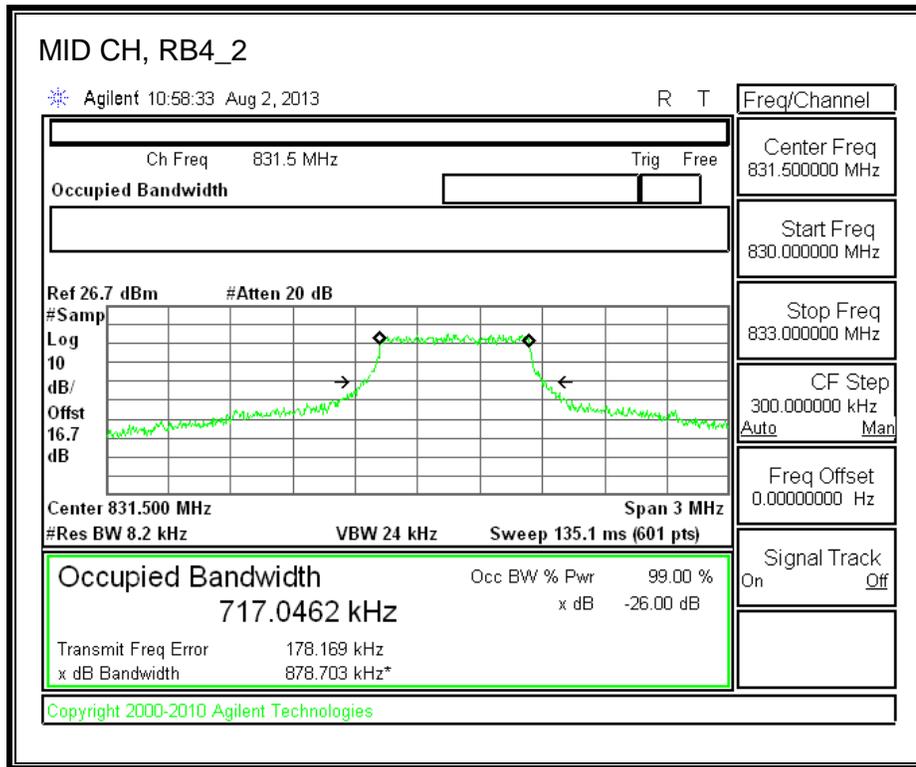


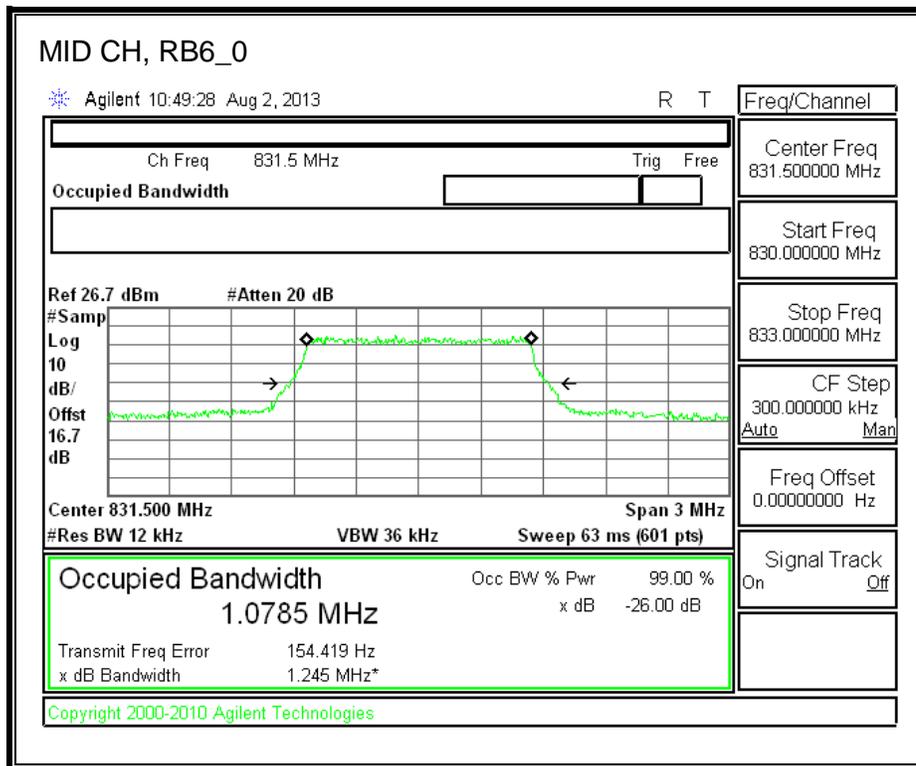
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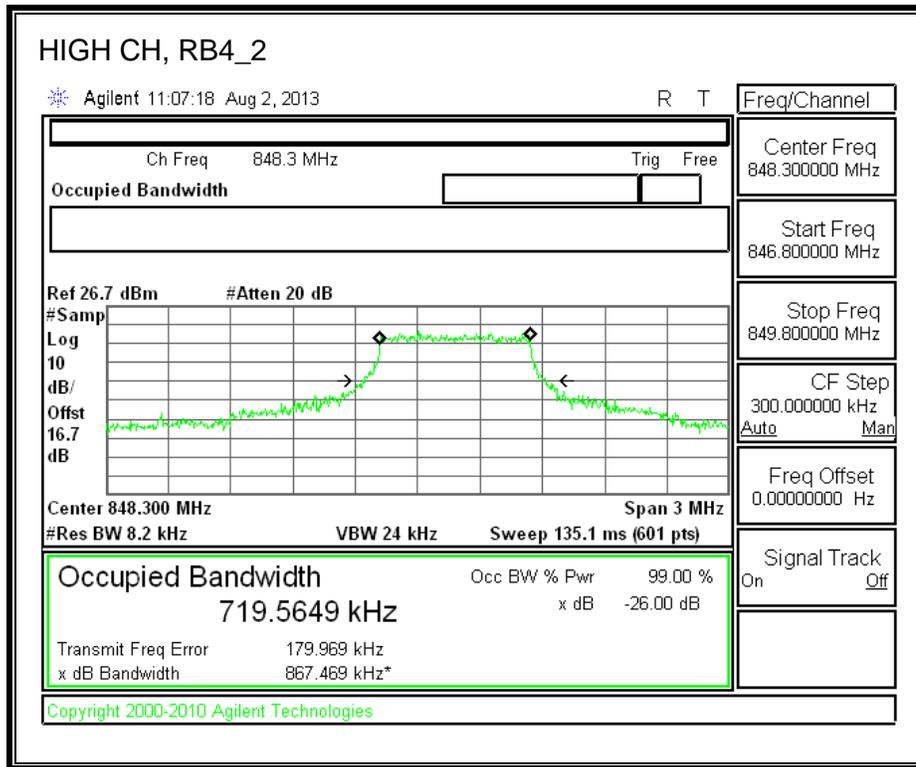


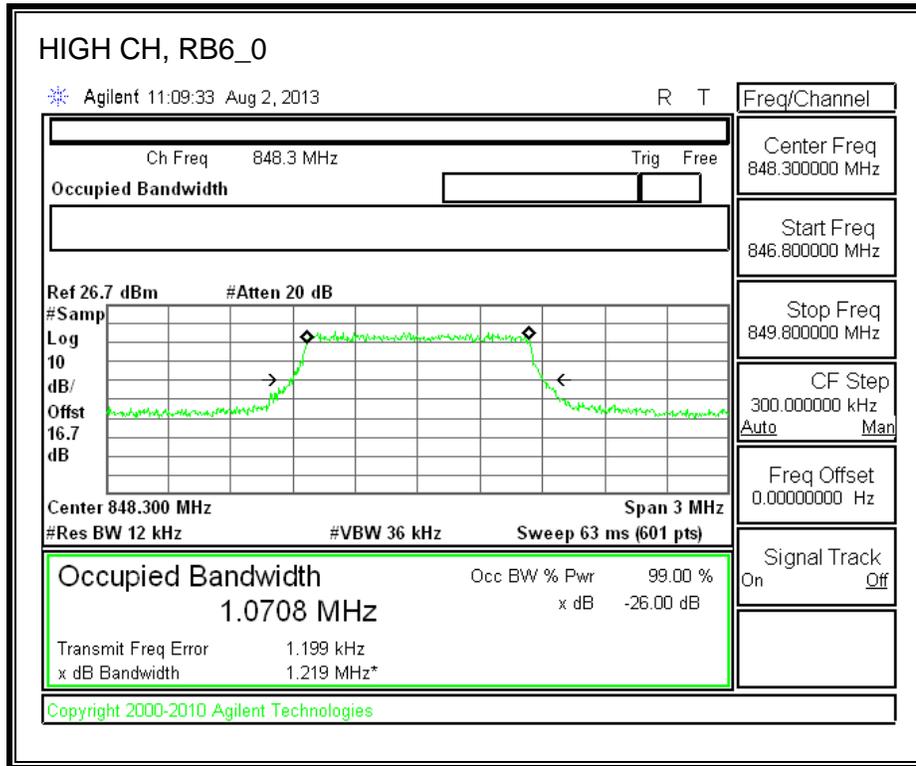
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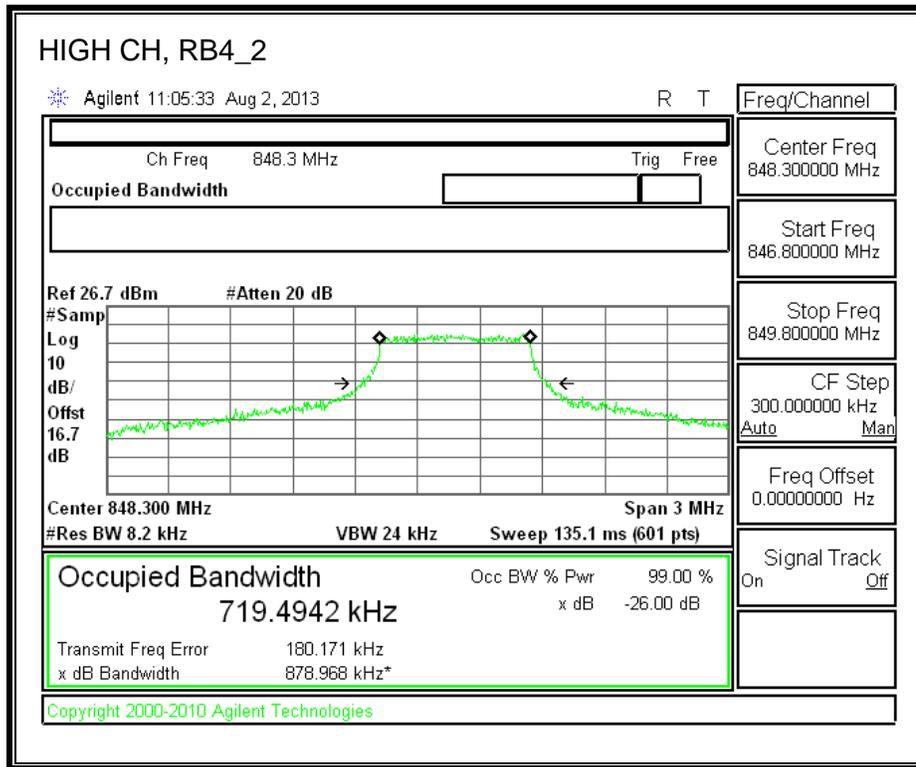


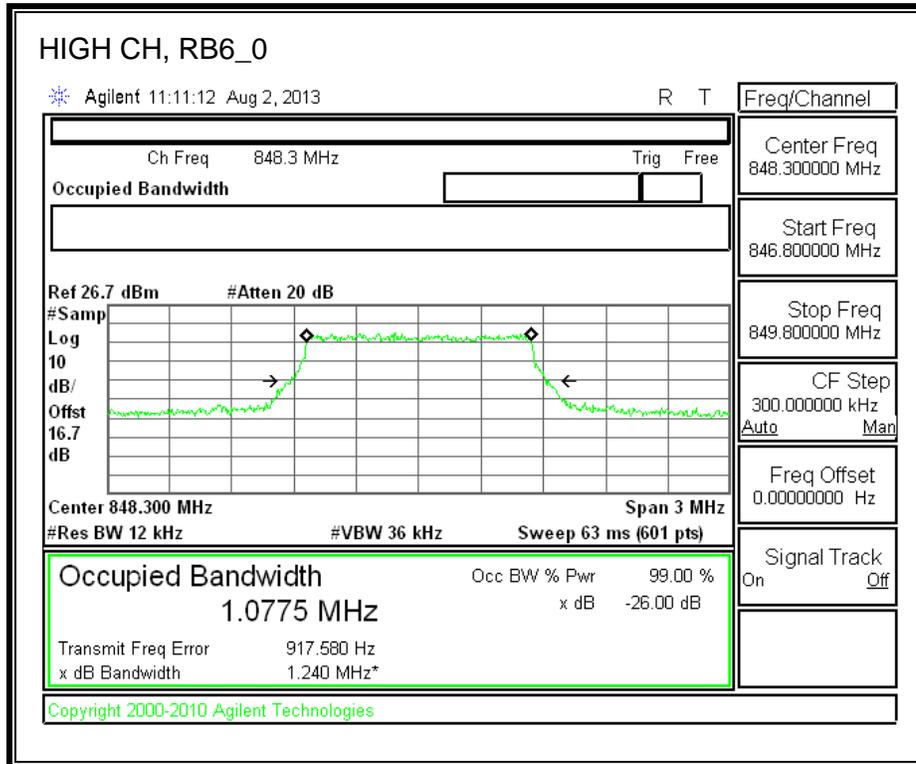
HIGH-QPSK





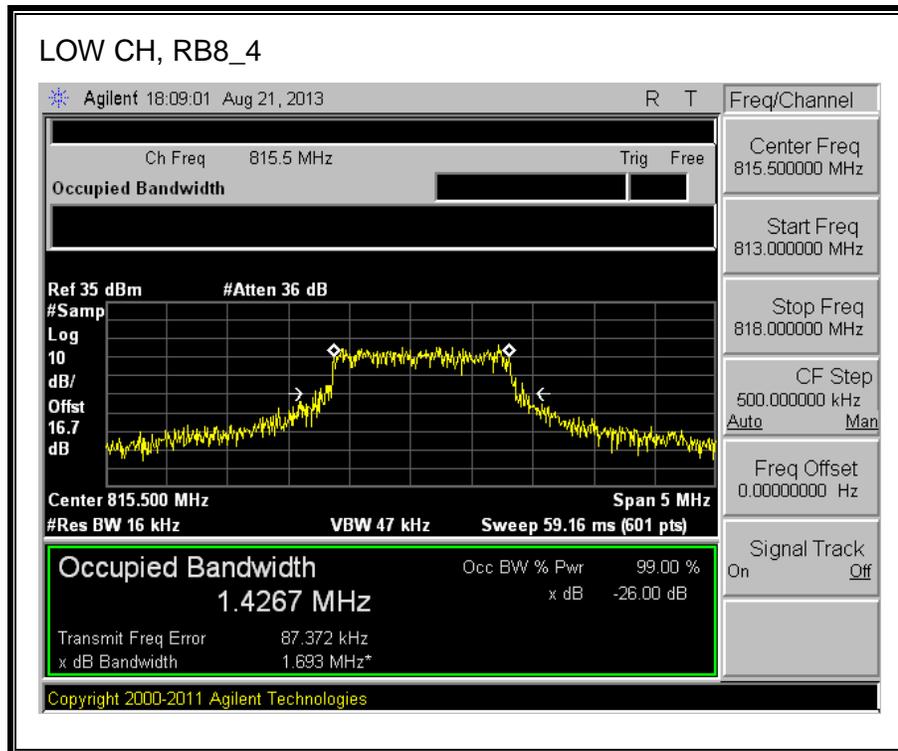
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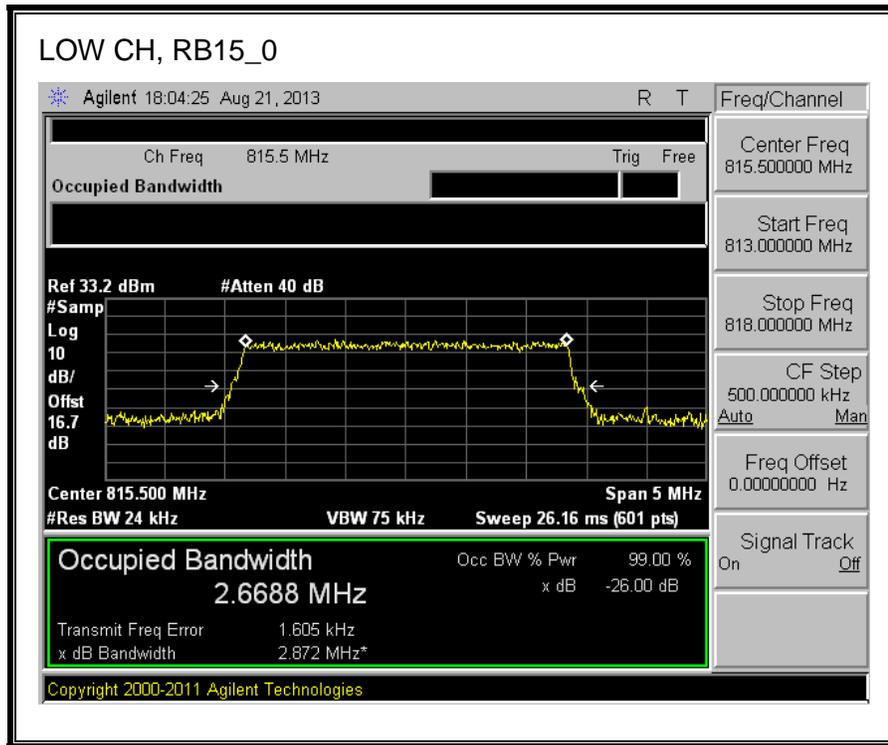




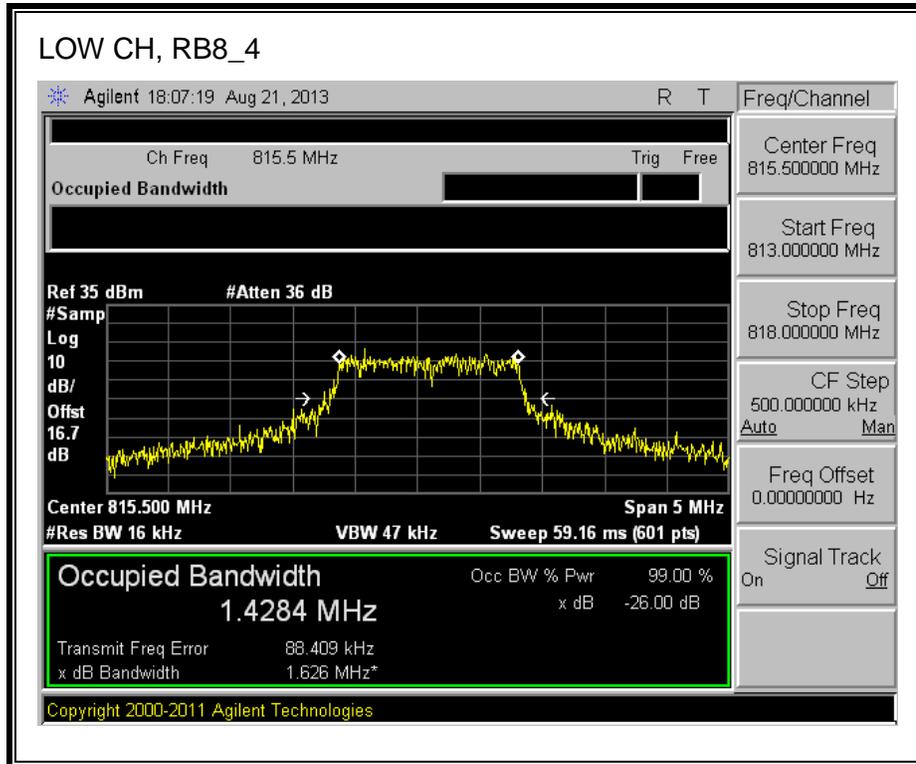
LTE BAND 25-3MHz BANDWIDTH

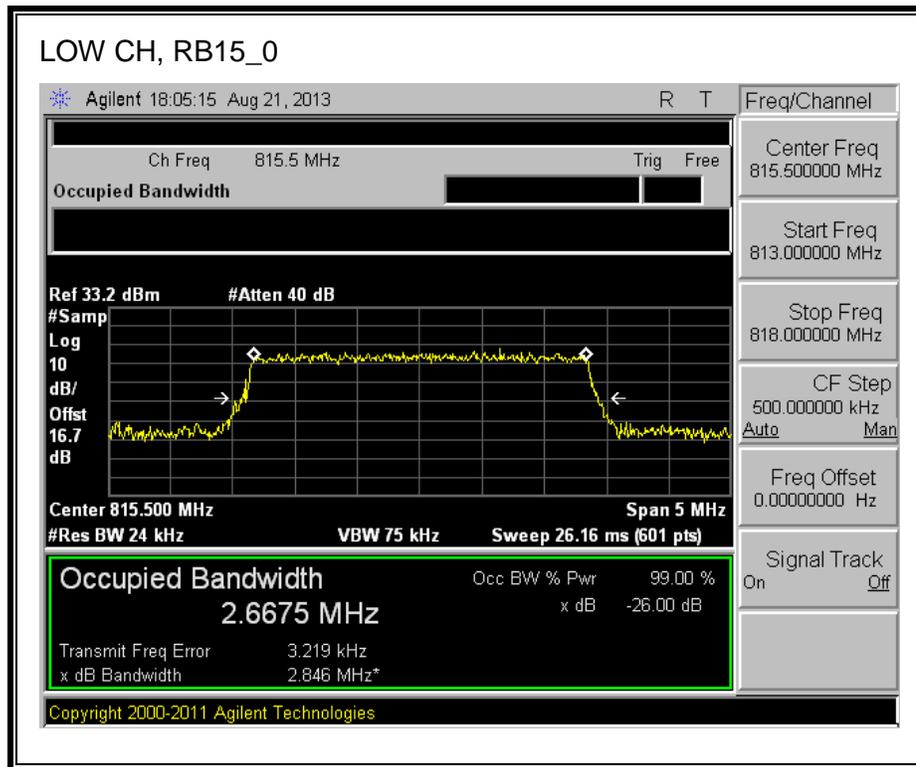
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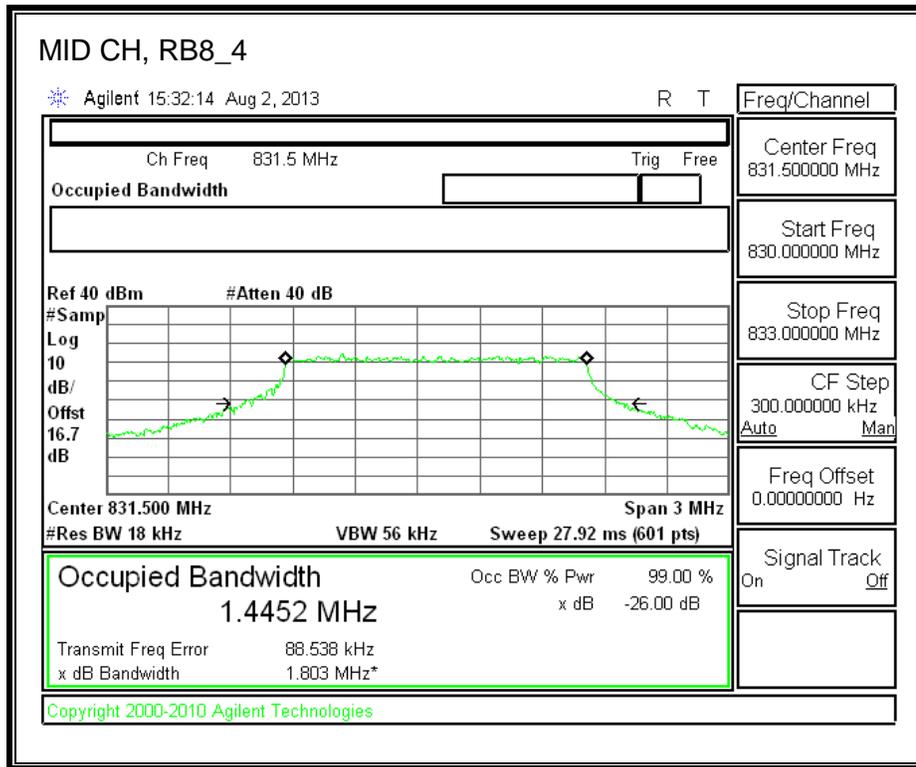


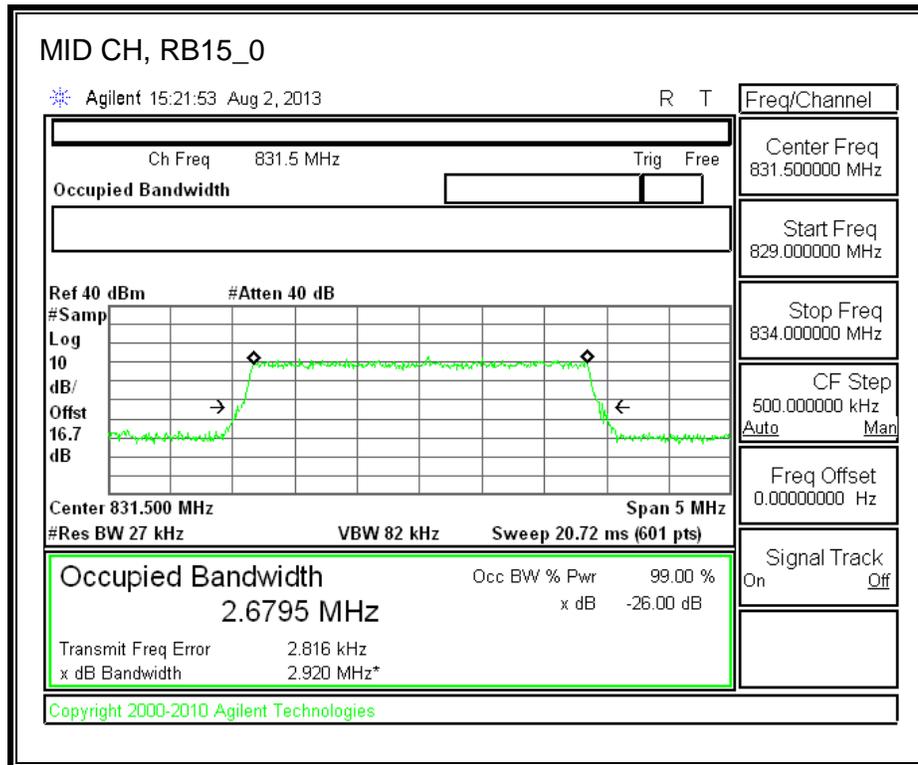
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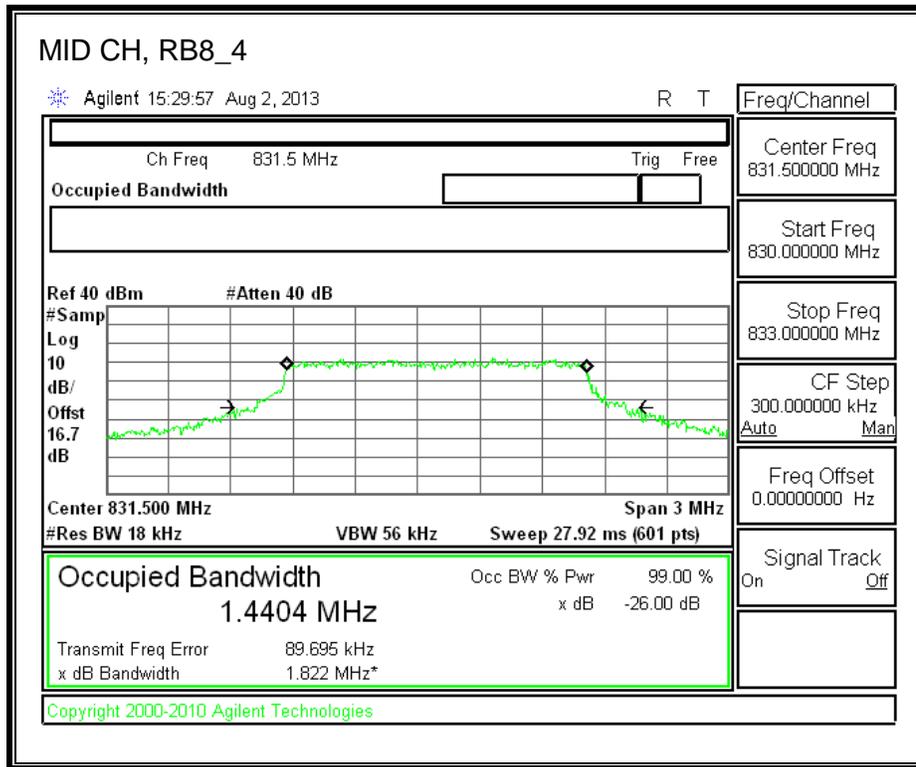


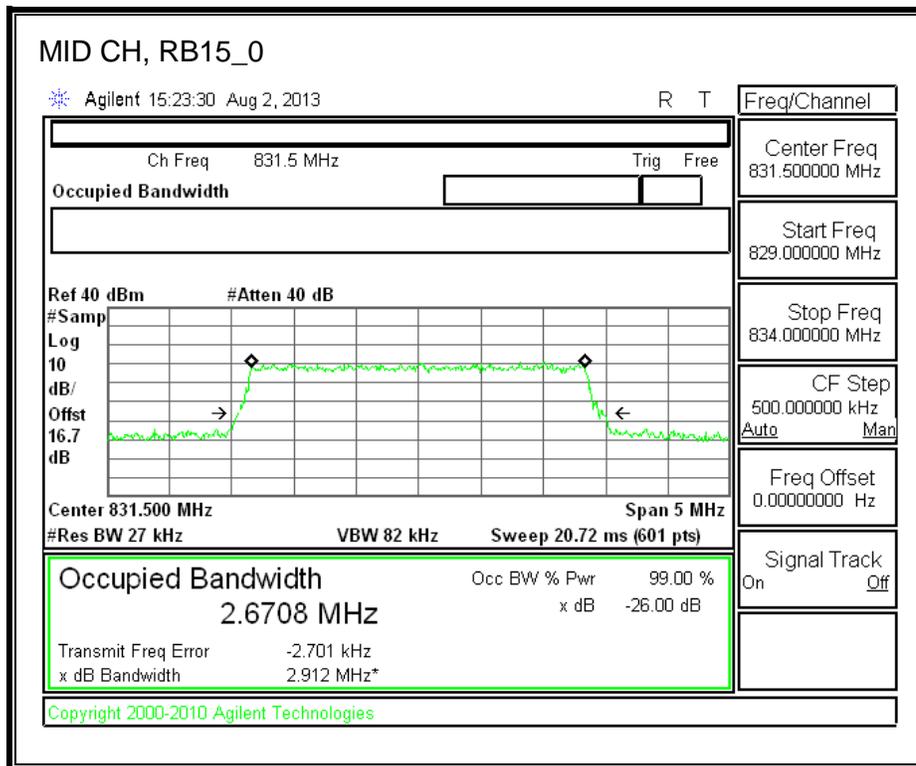
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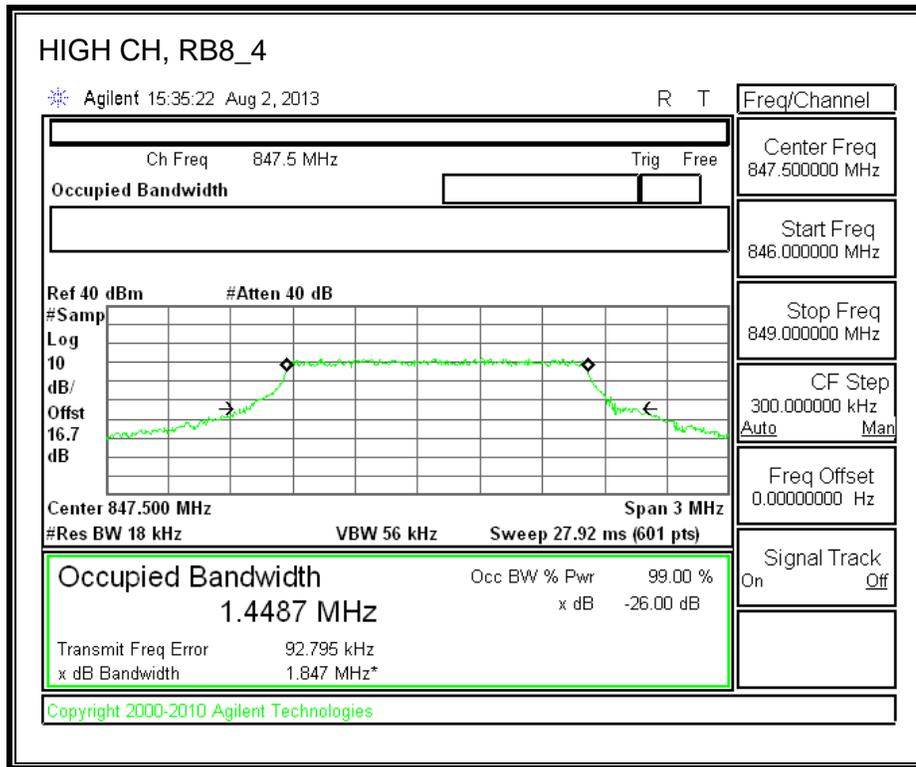


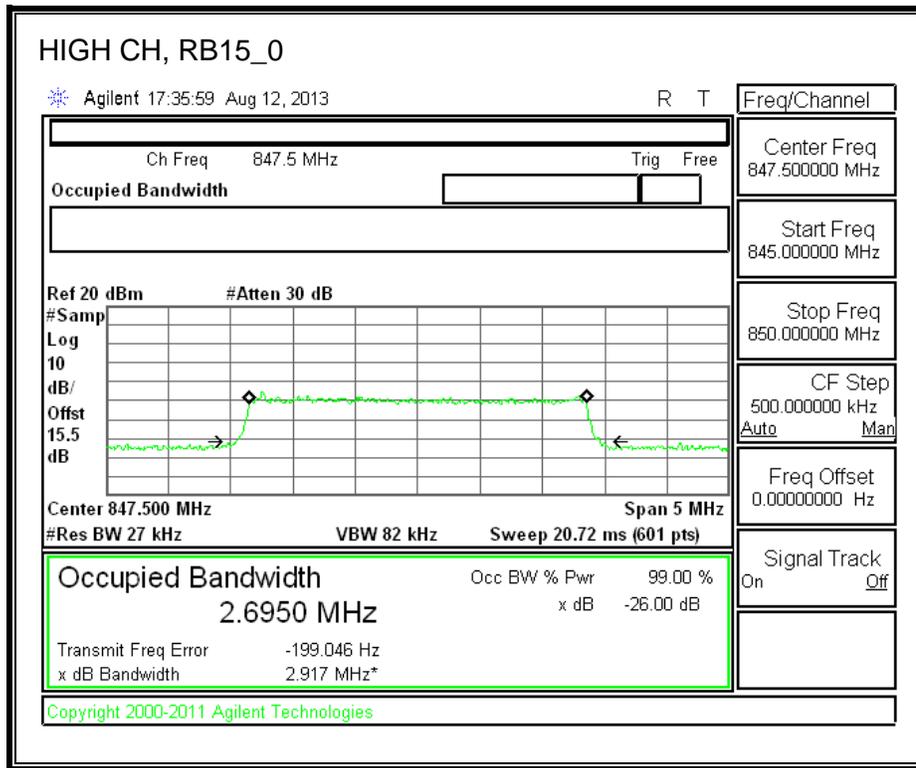
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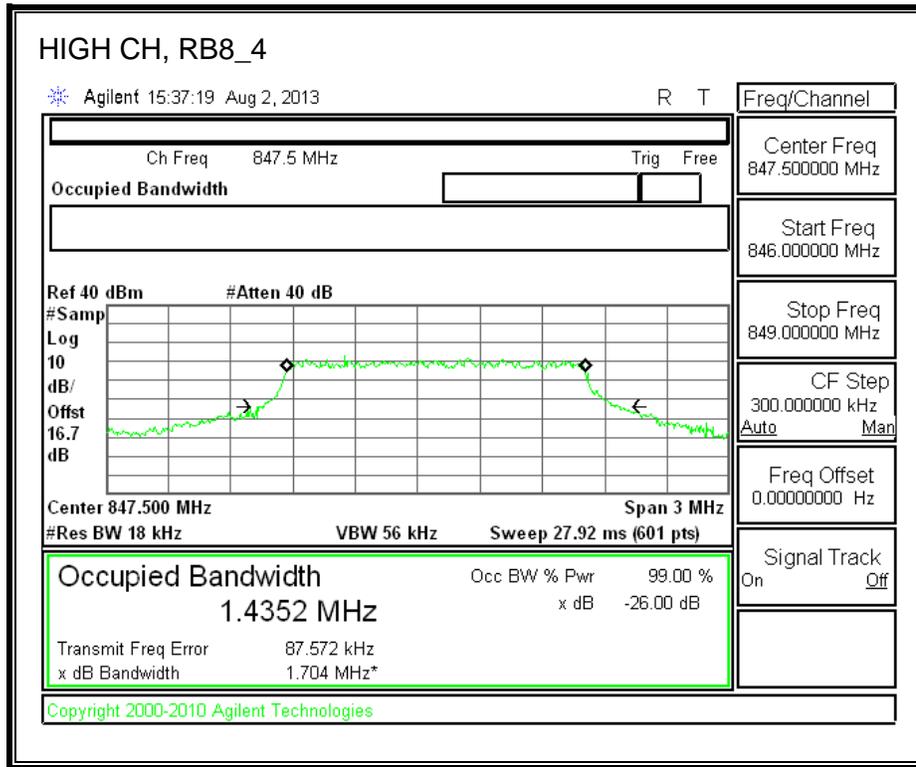


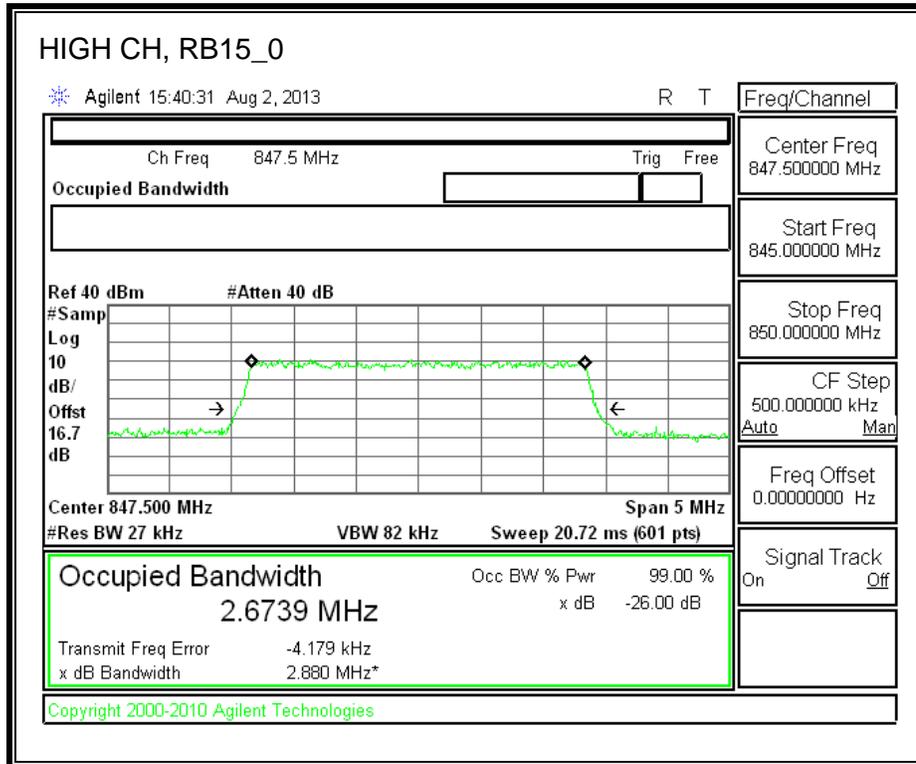
HIGH-QPSK





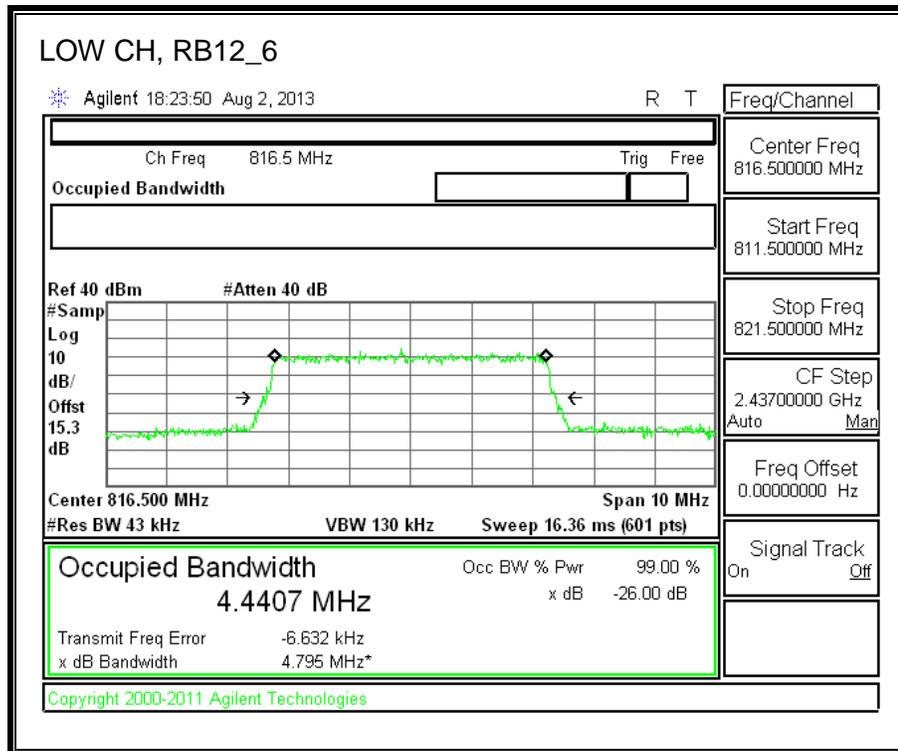
HIGH-16QAM

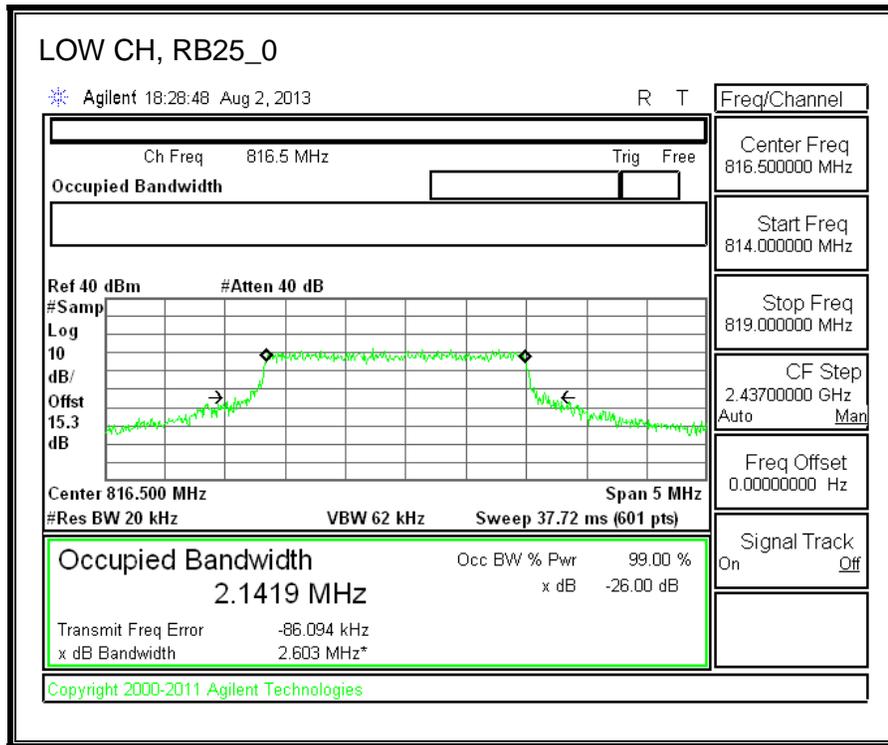




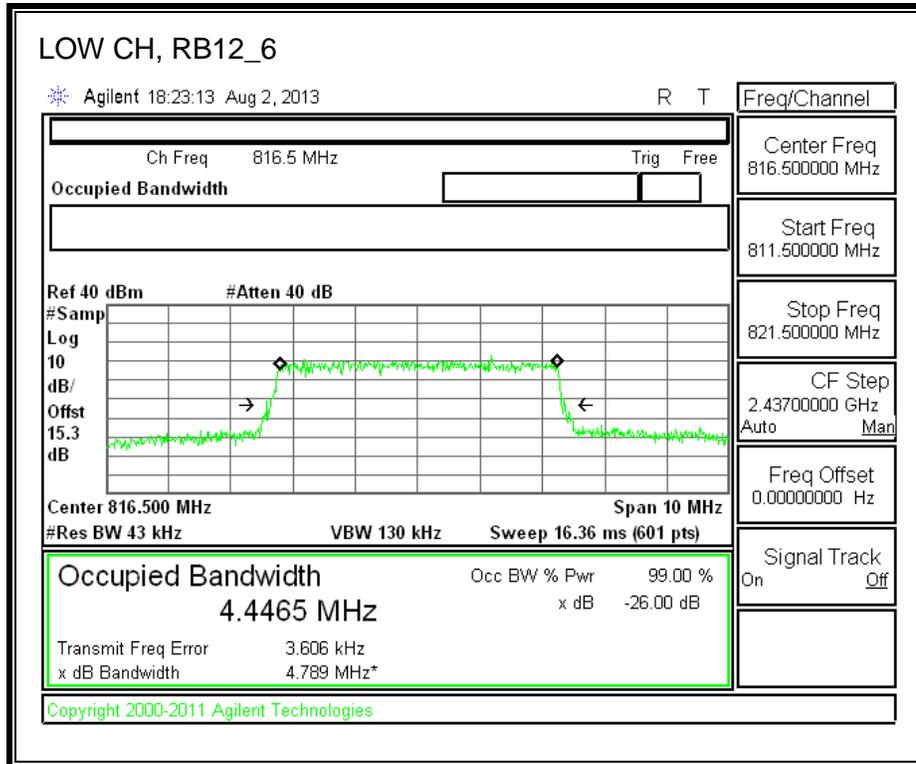
LTE BAND 26-5MHz BANDWIDTH

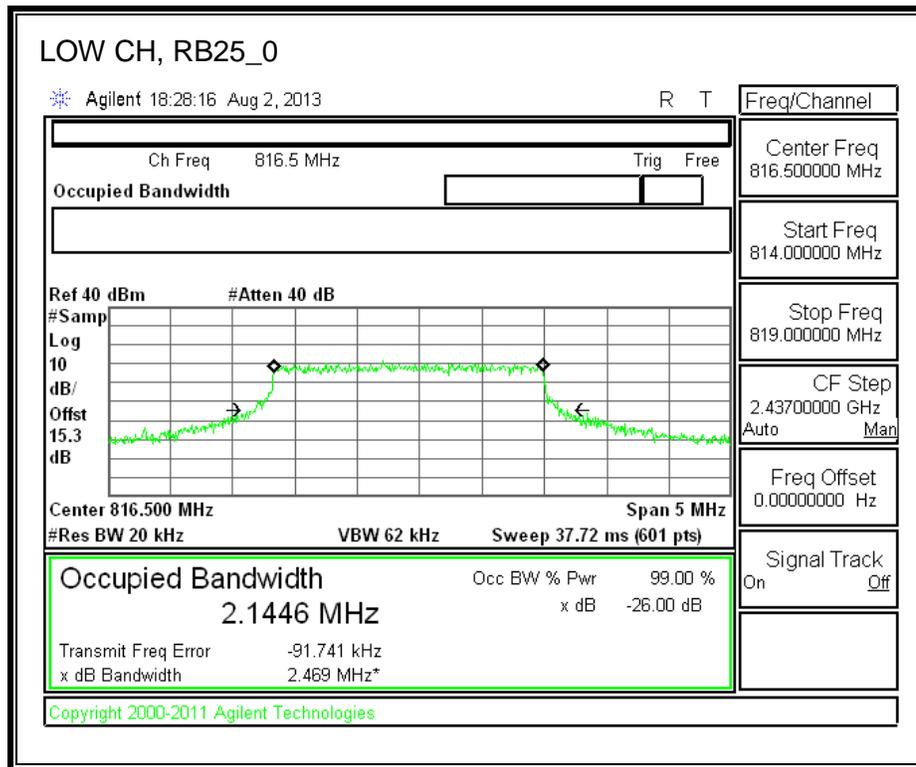
LOW-QPSK



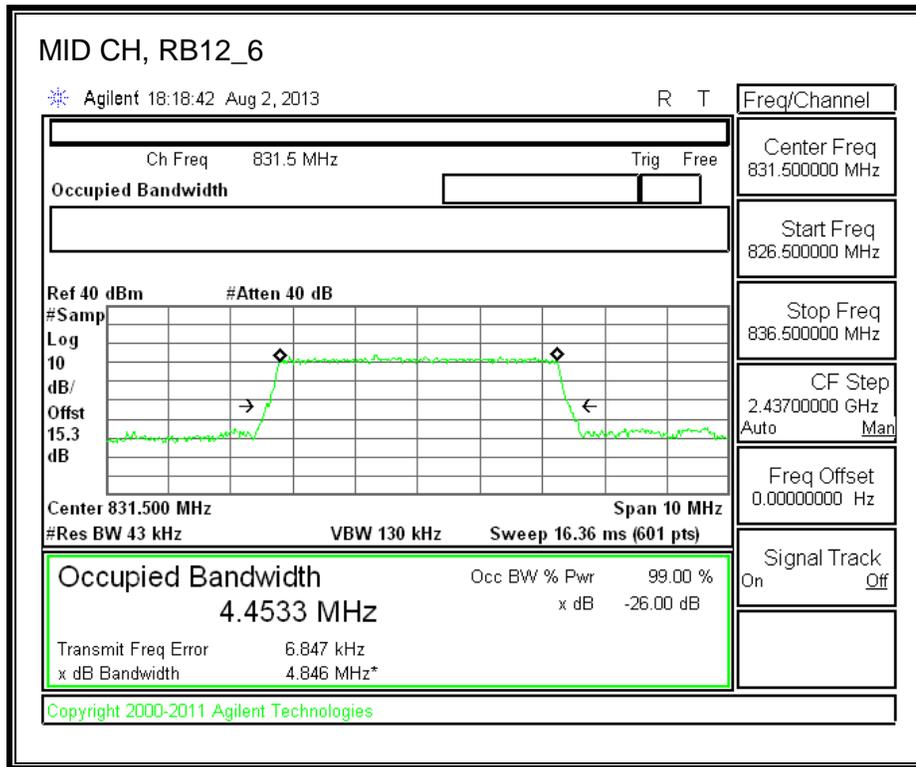


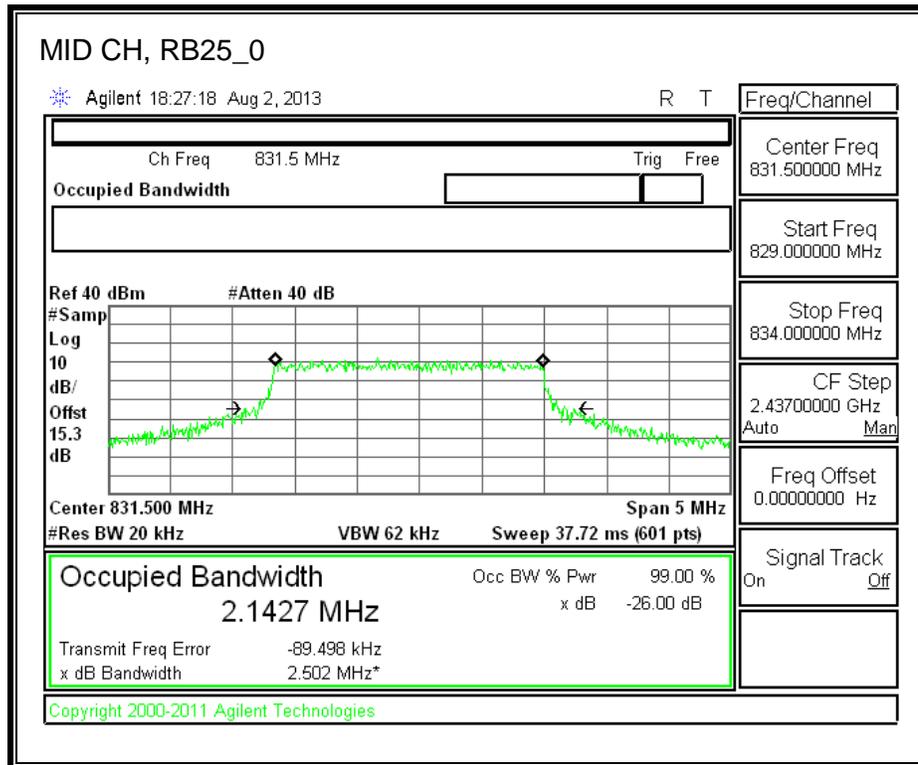
LOW-16QAM



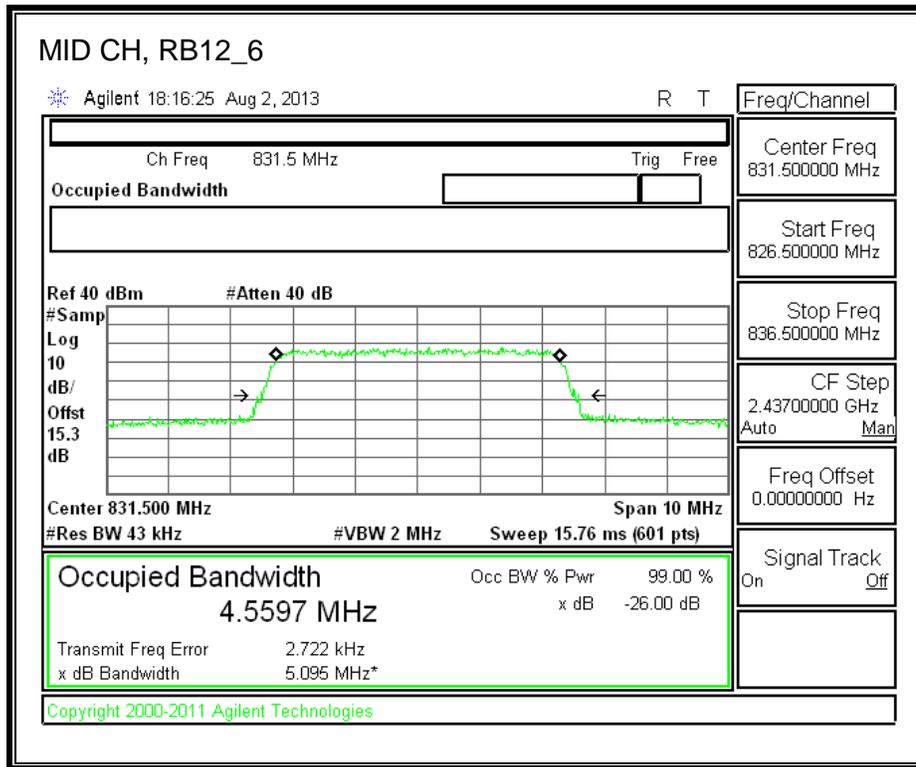


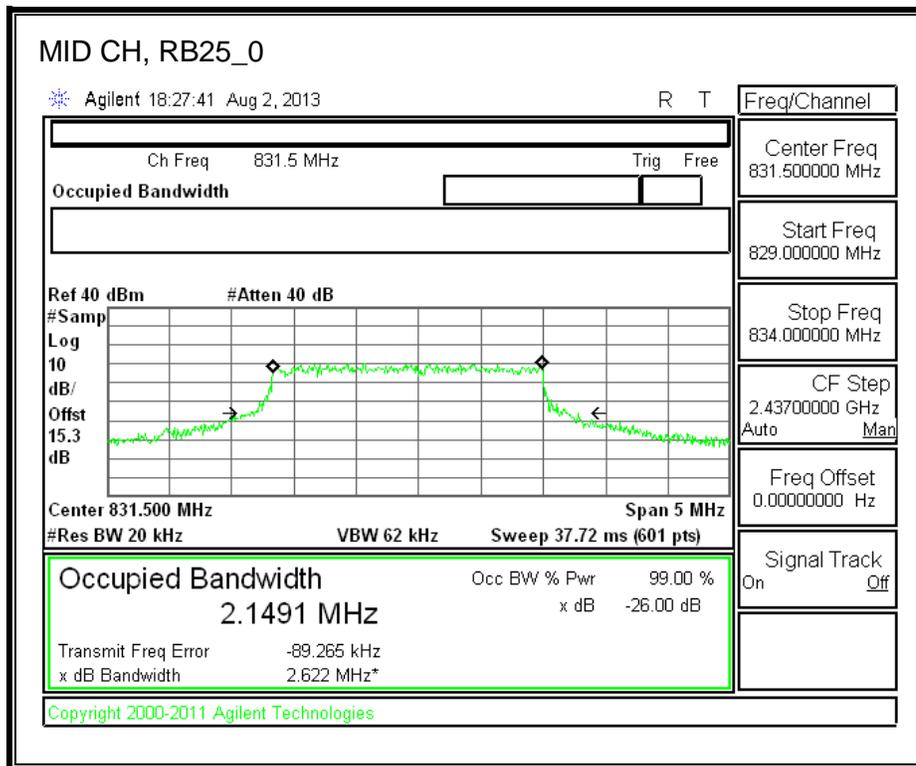
MID-QPSK



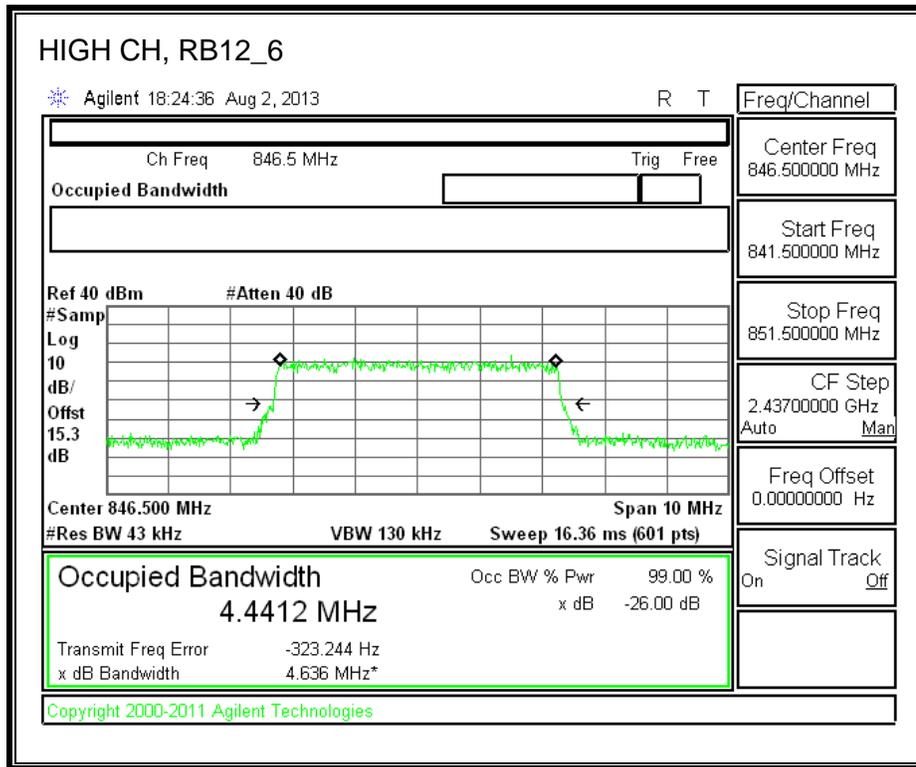


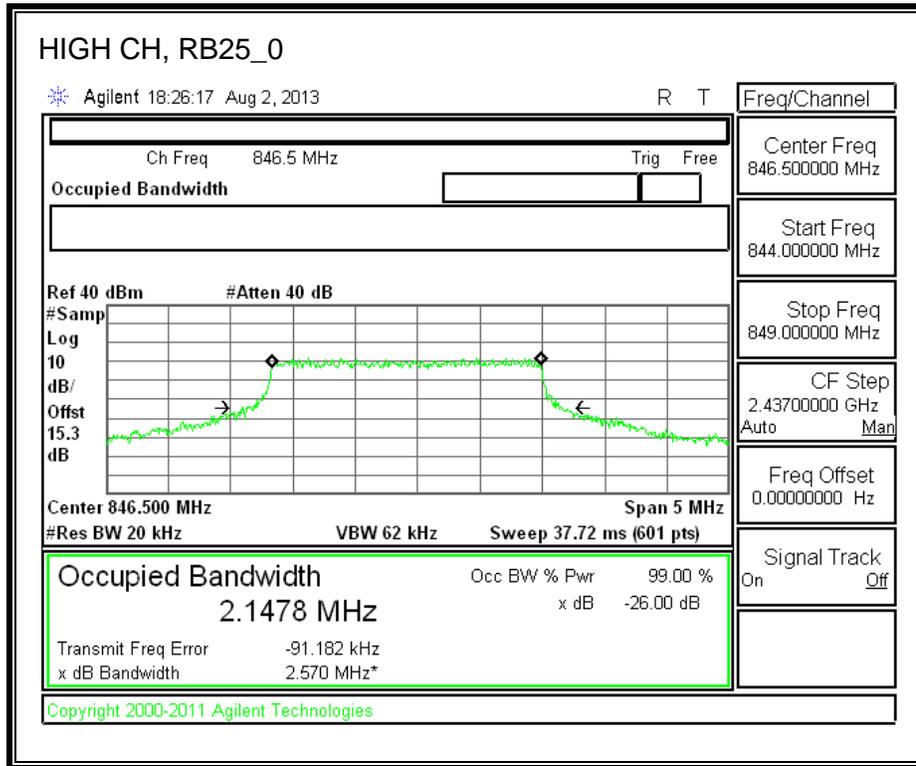
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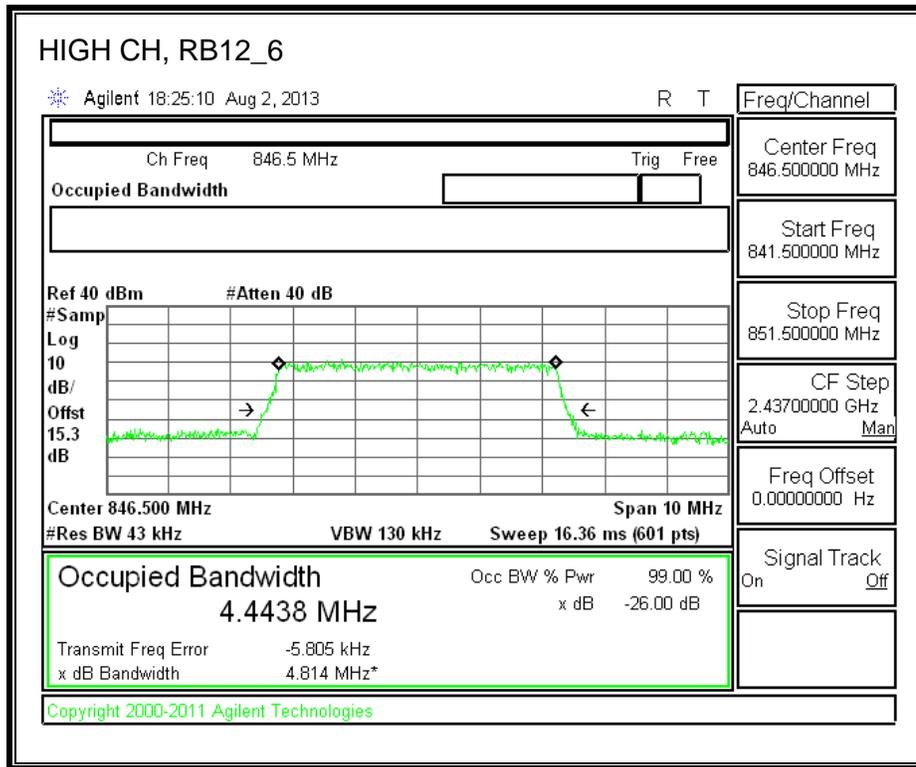


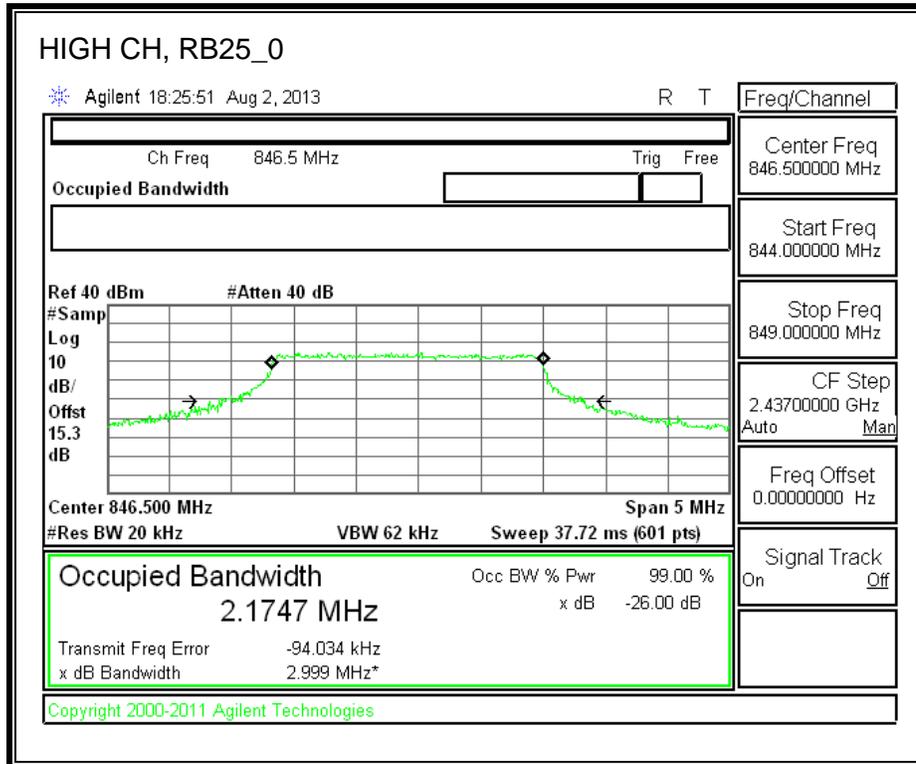
HIGH-QPSK





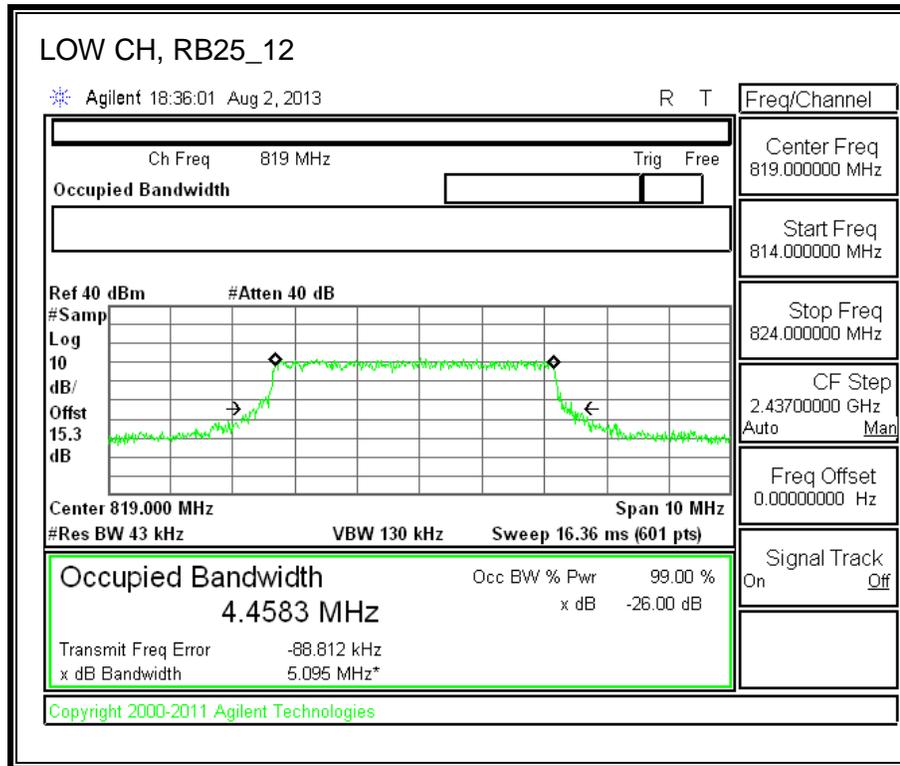
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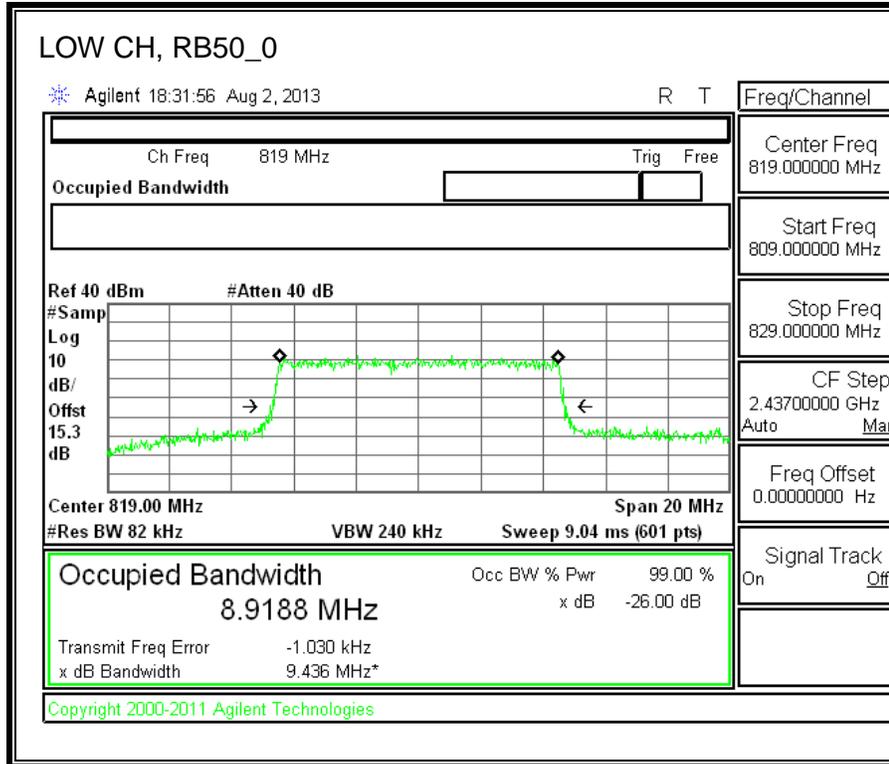




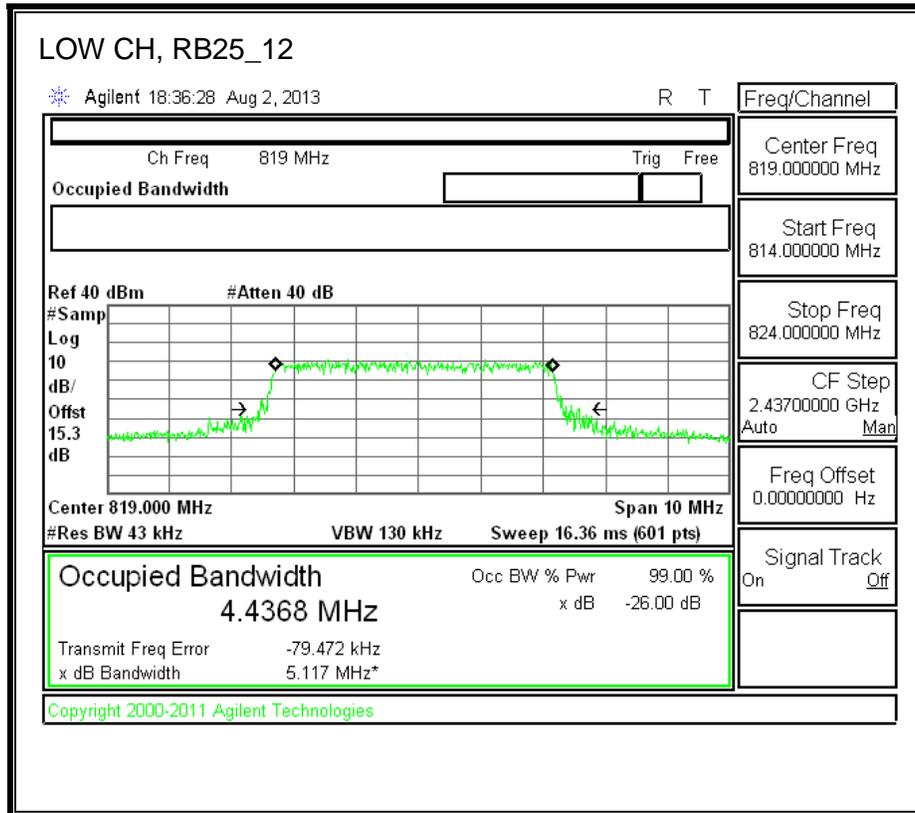
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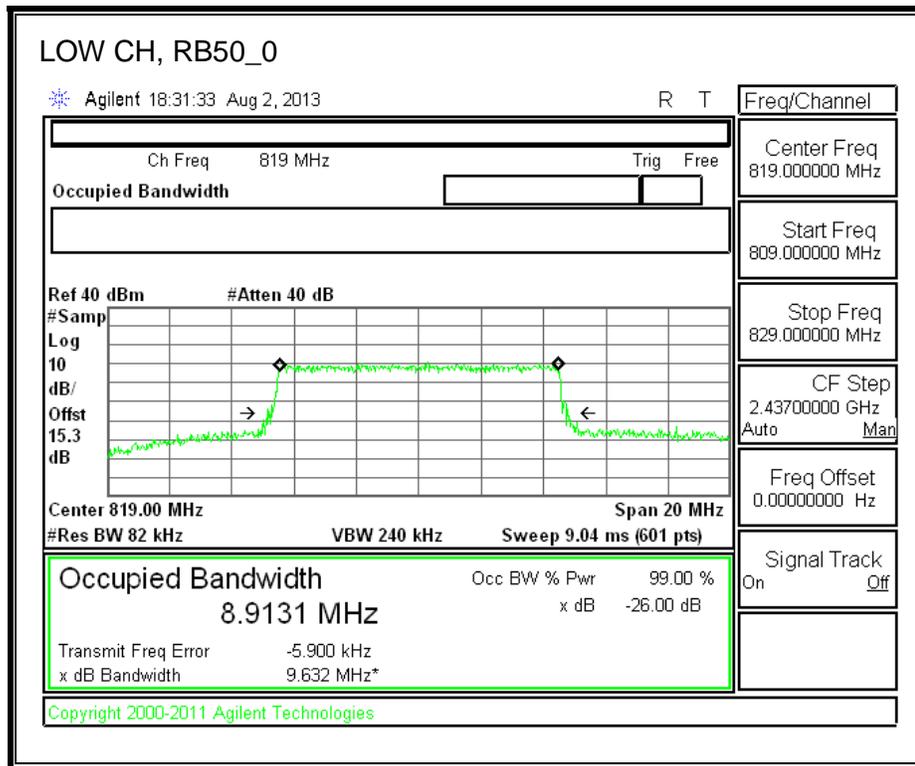
LOW-QPSK



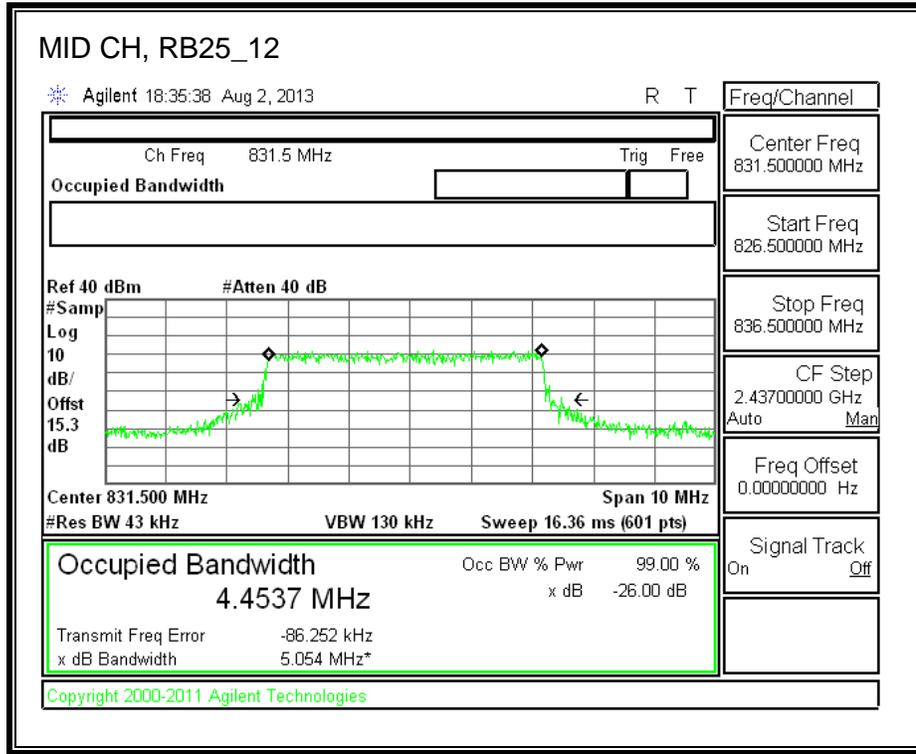


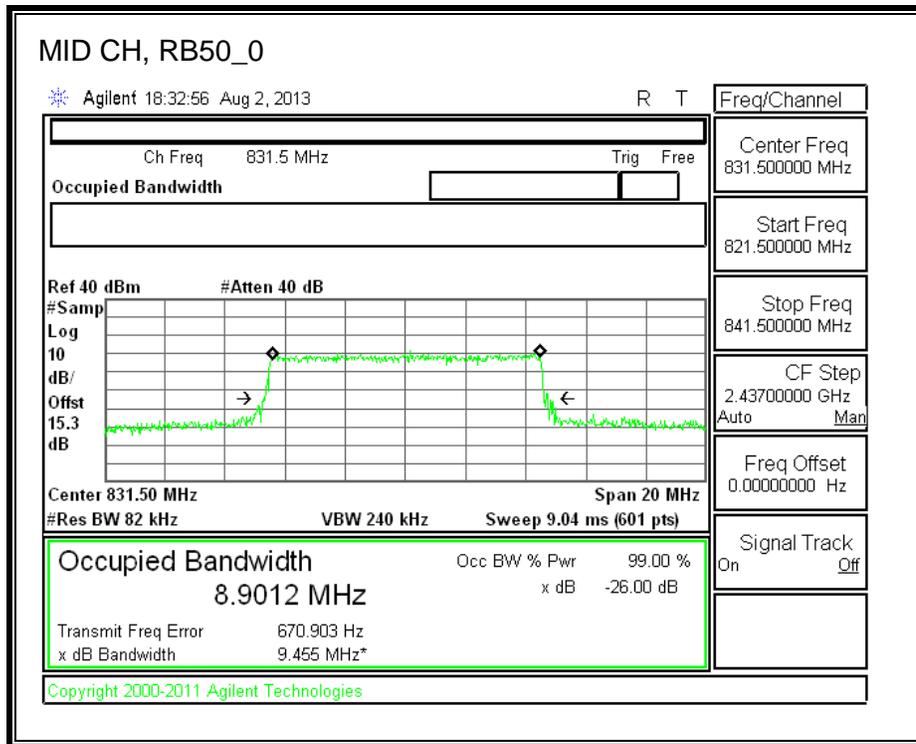
LOW-16QAM



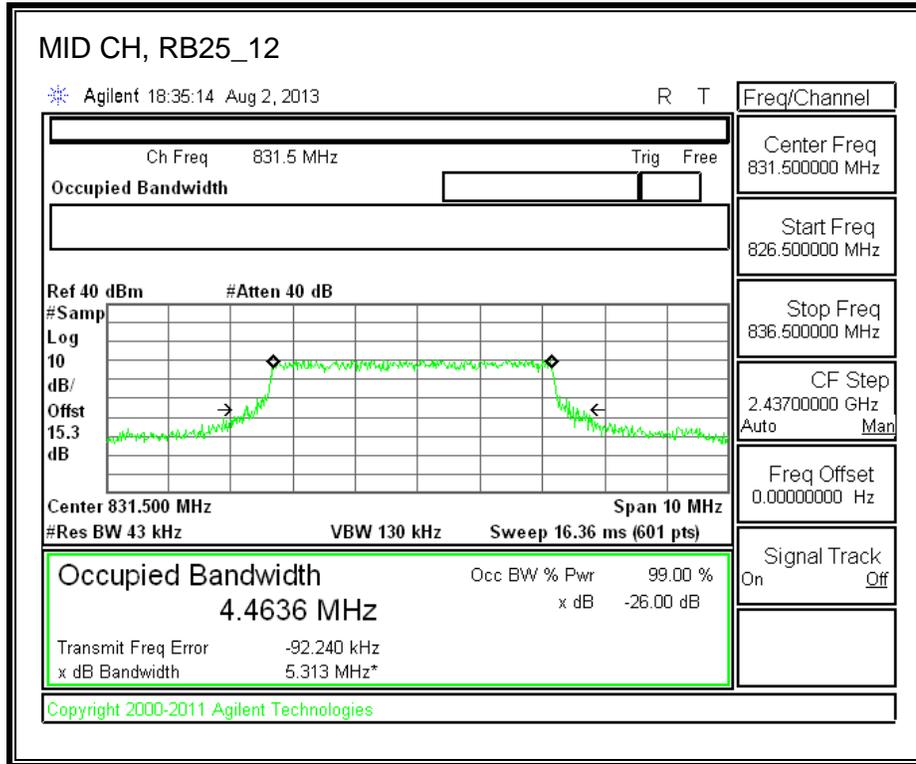


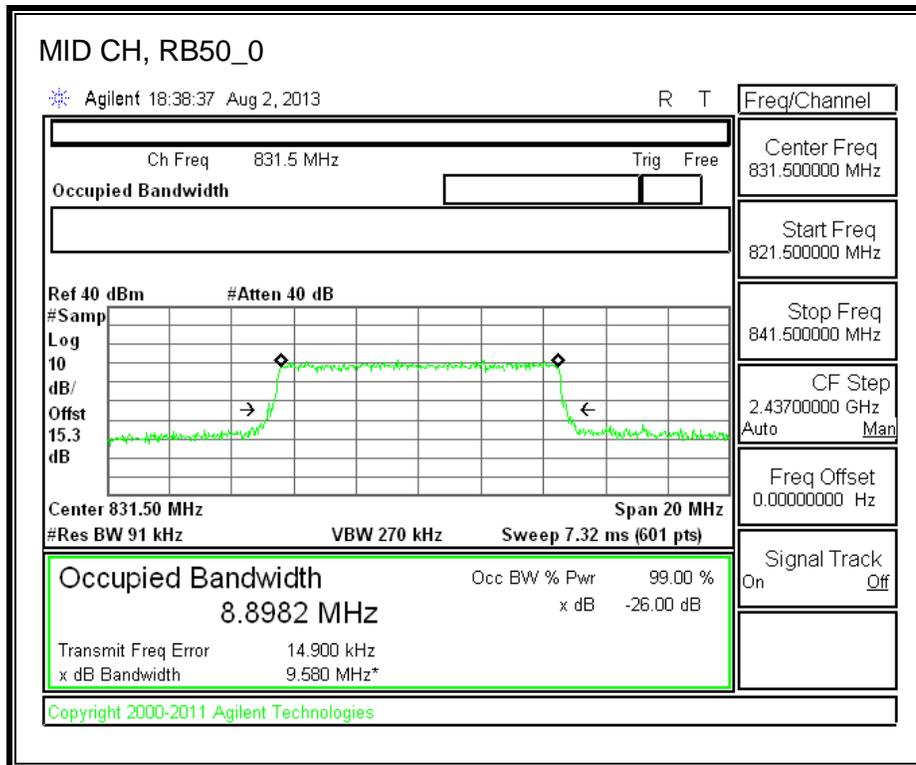
MID-QPSK



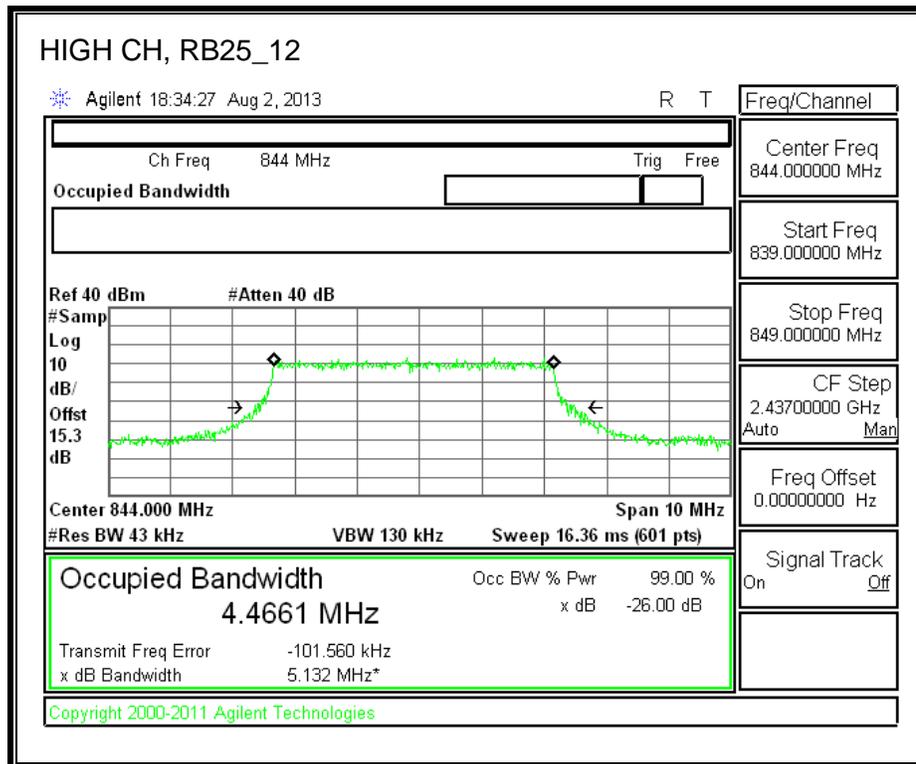


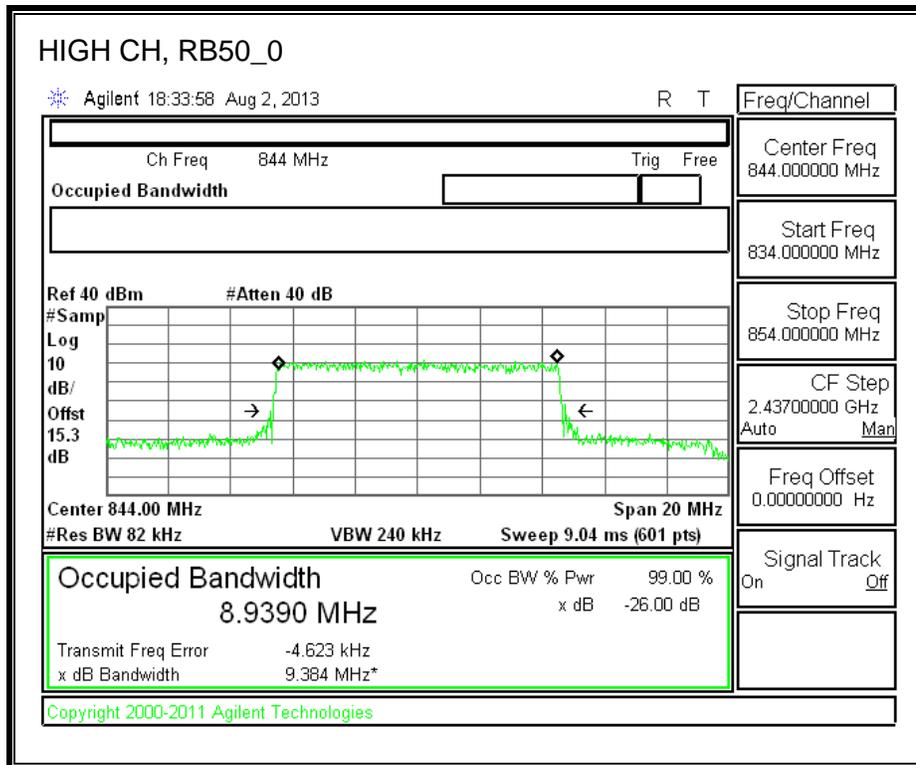
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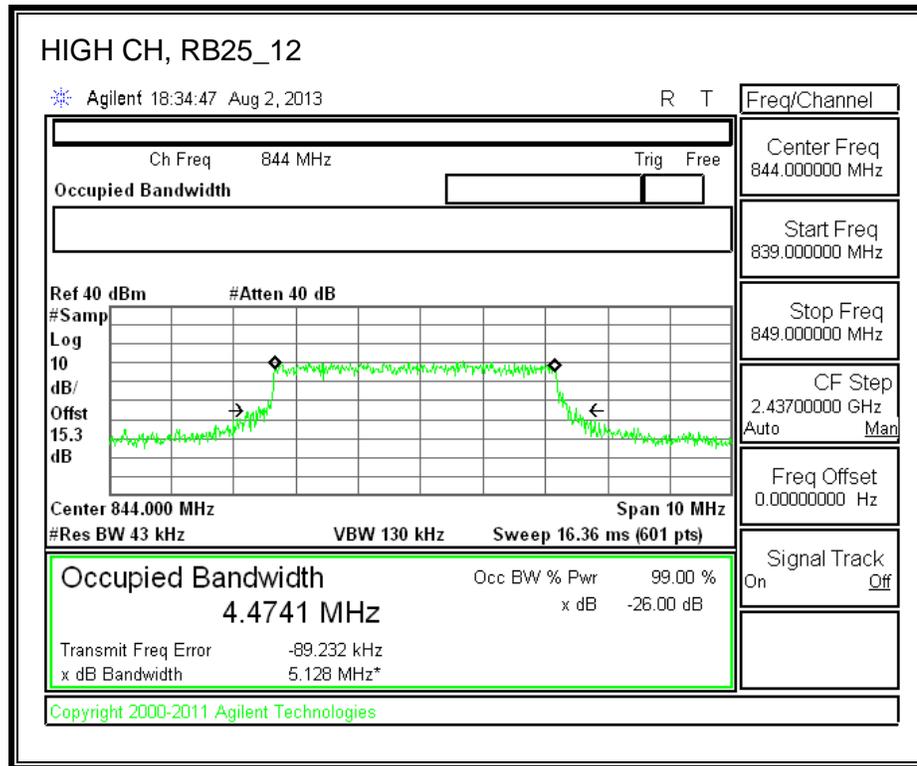


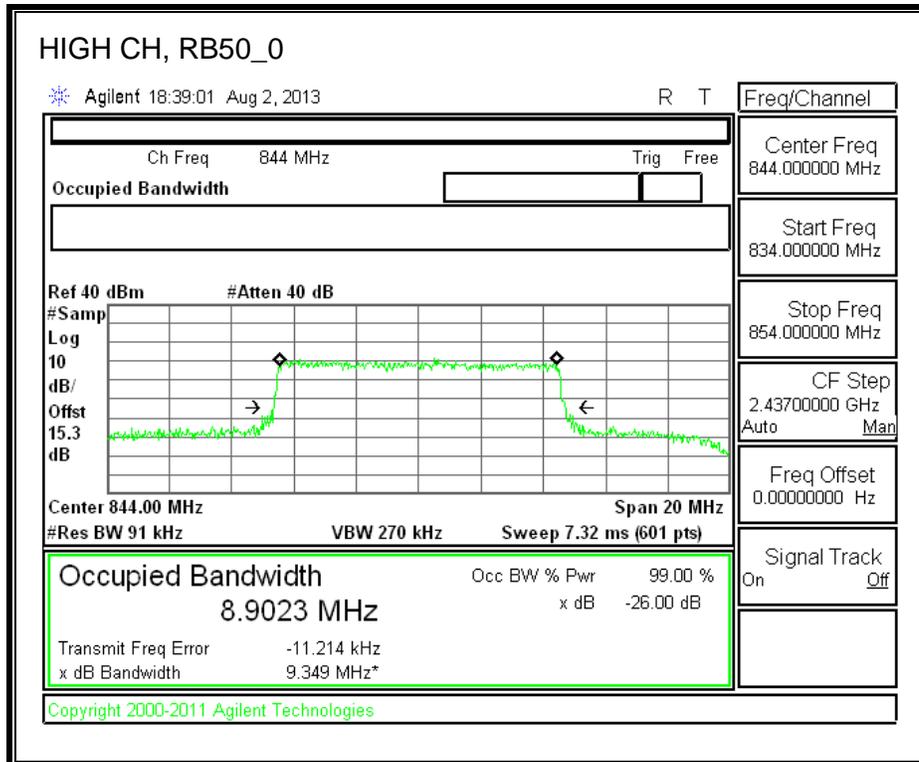
HIGH-QPSK





HIGH-16QAM

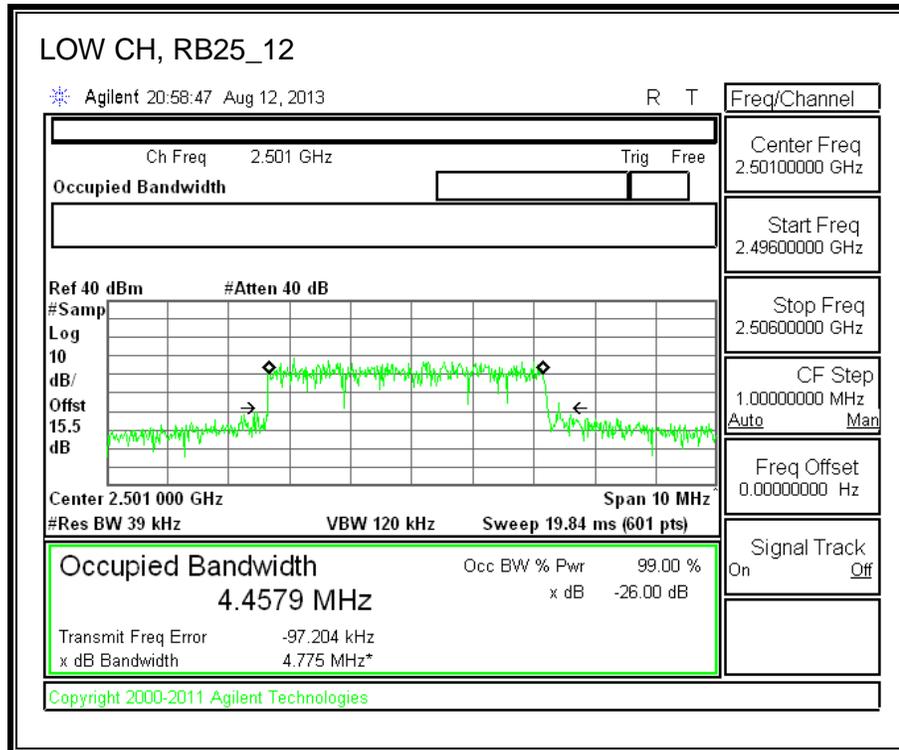


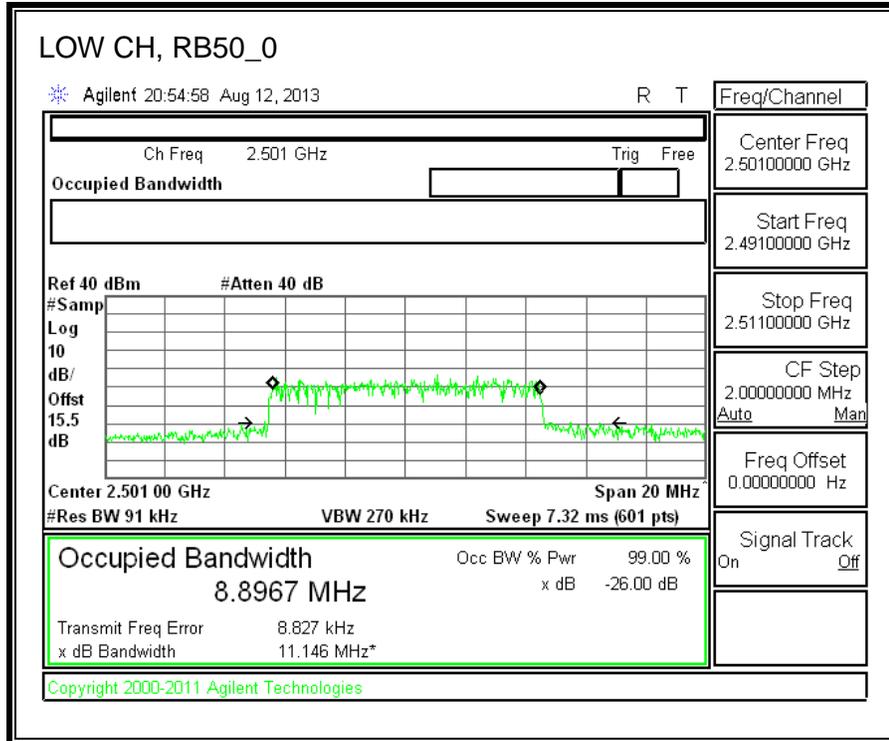


8.2.11. LTE Band 41

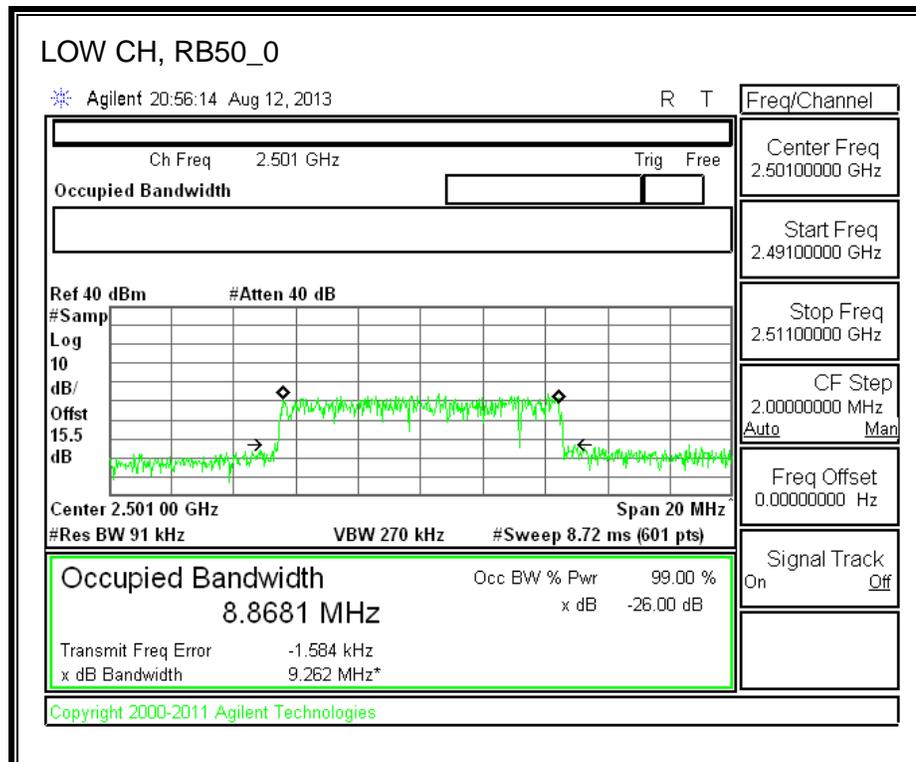
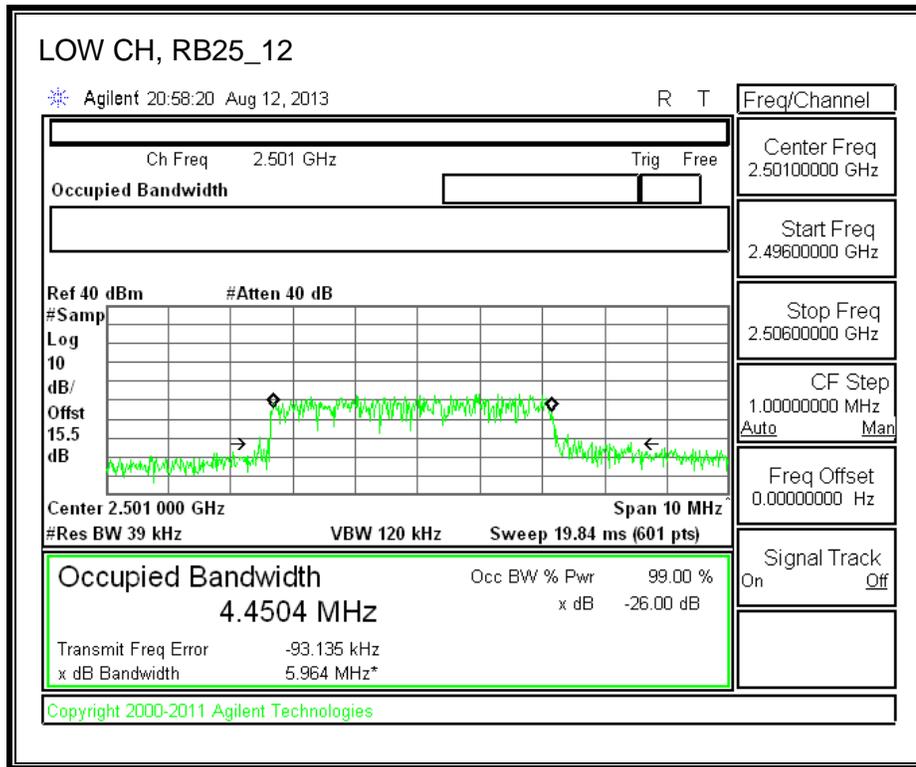
LTE BAND 41-10MHz BANDWIDTH

LOW-QPSK

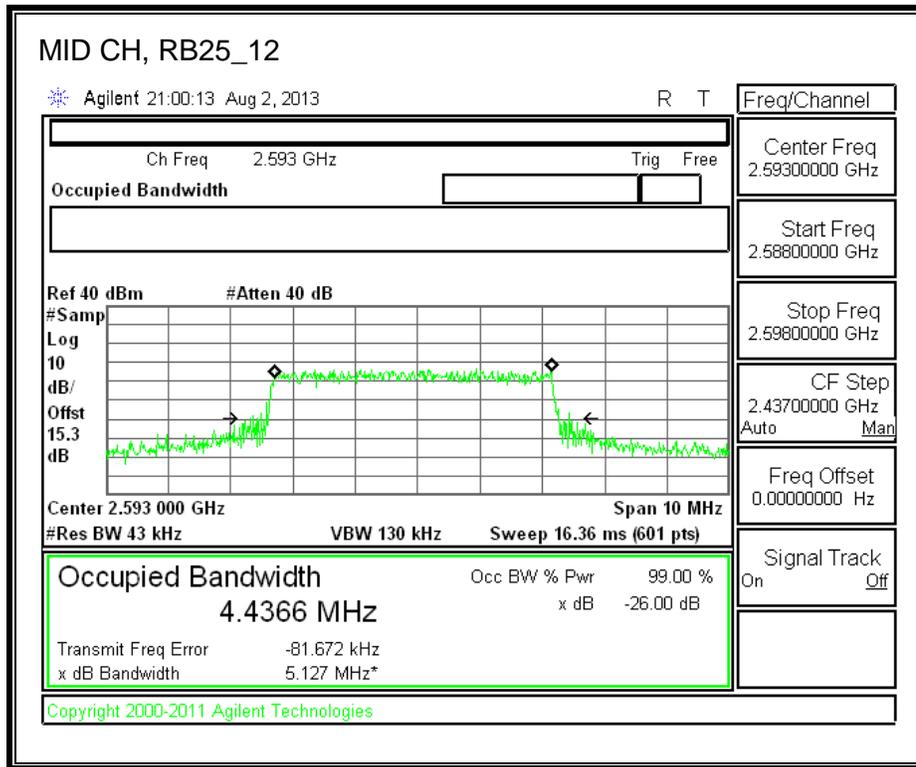


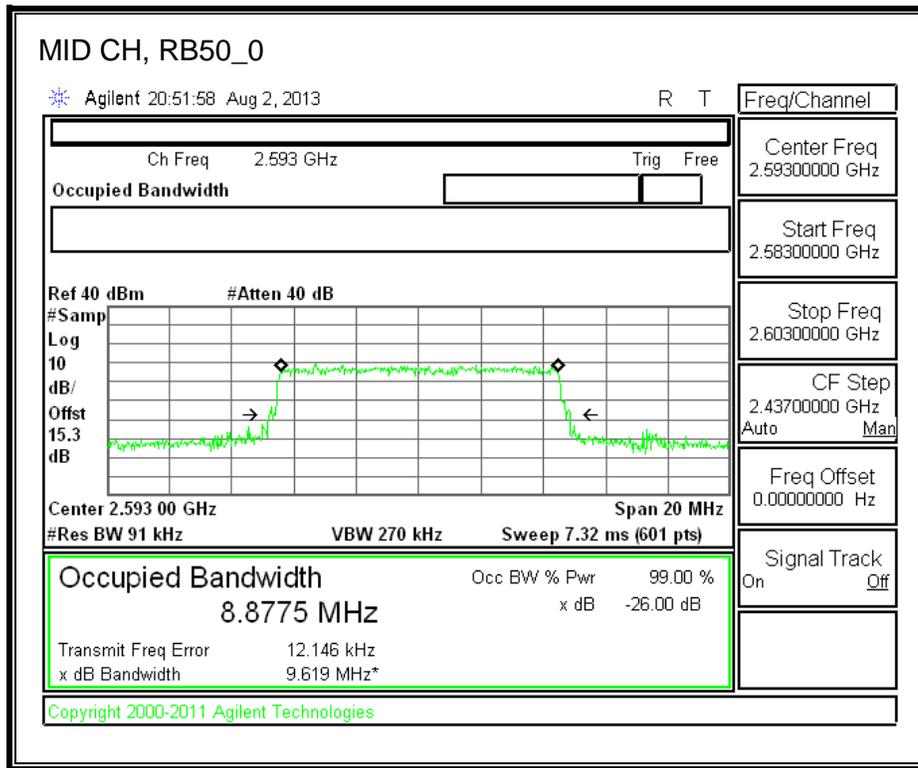


LOW-16QAM

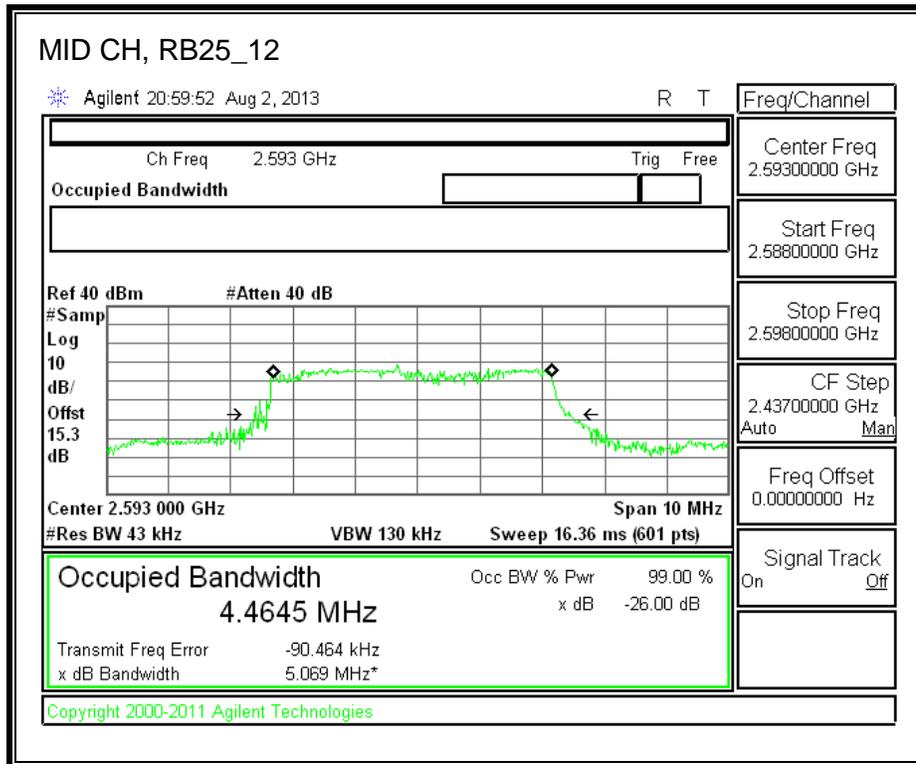


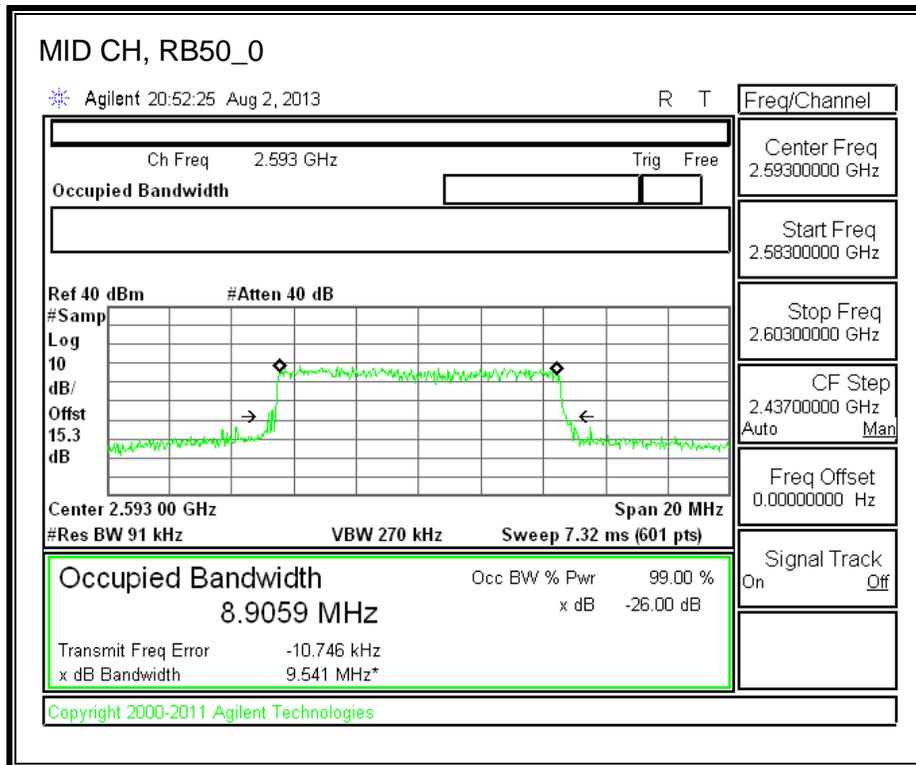
MID-QPSK



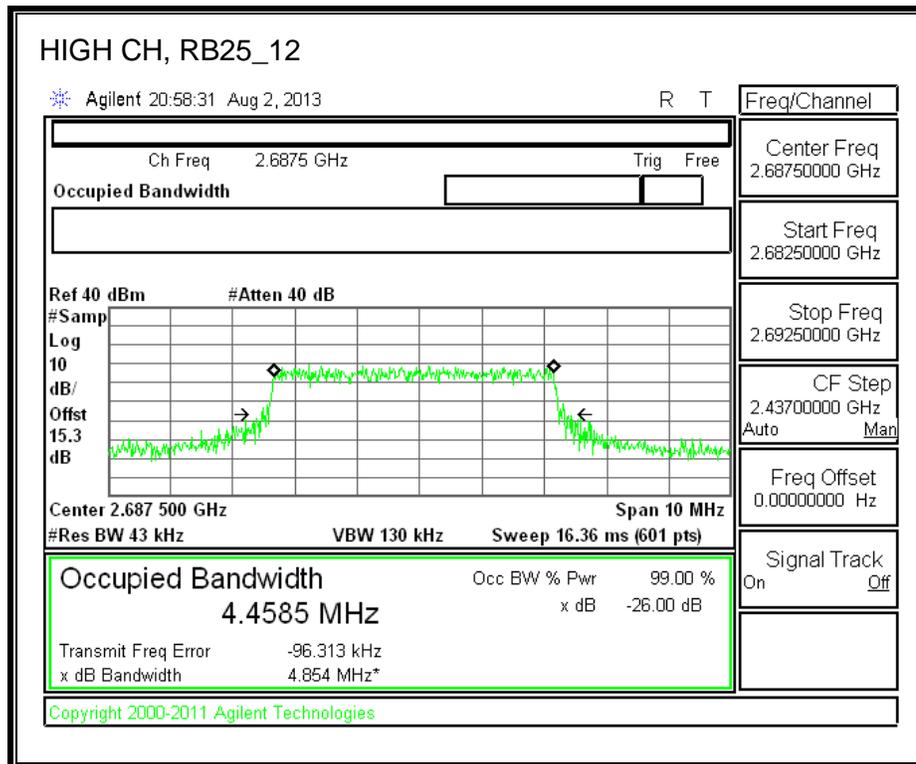


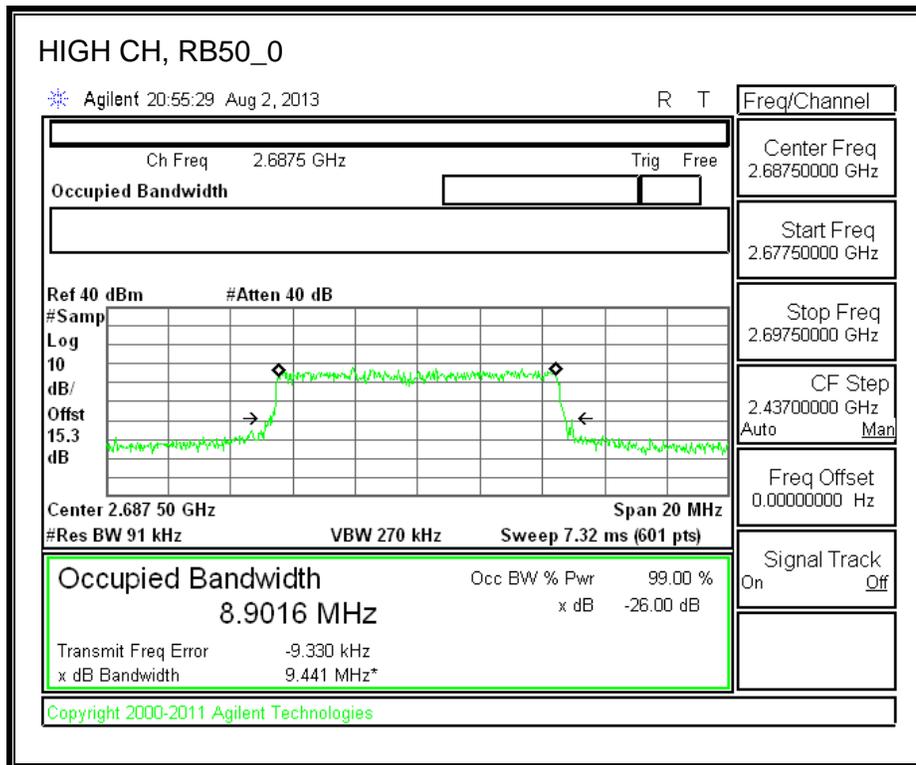
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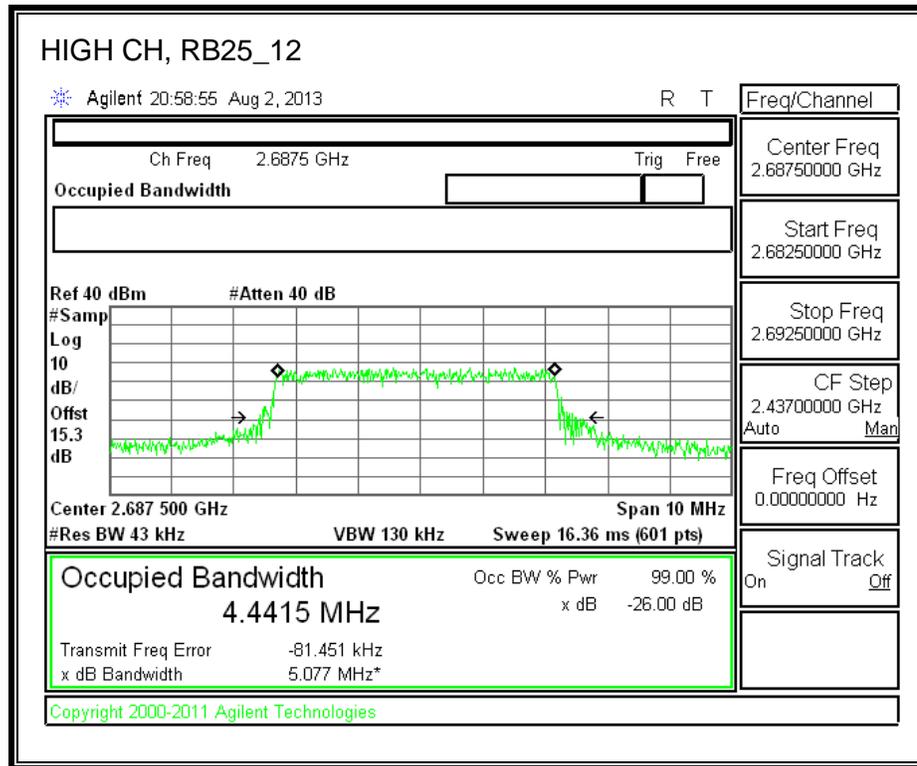


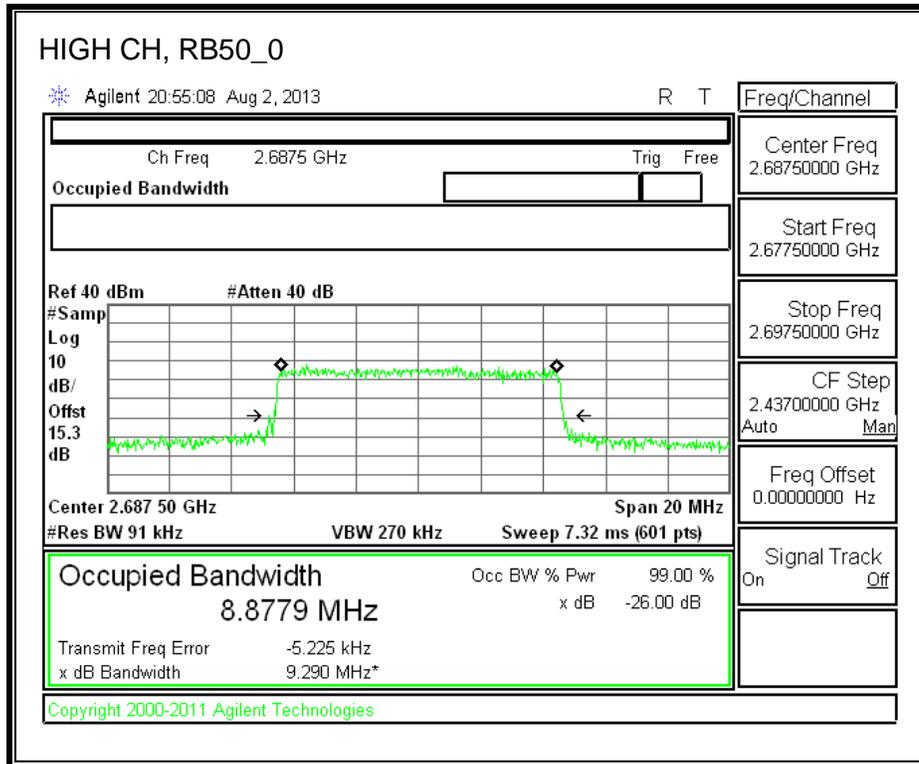
HIGH-QPSK





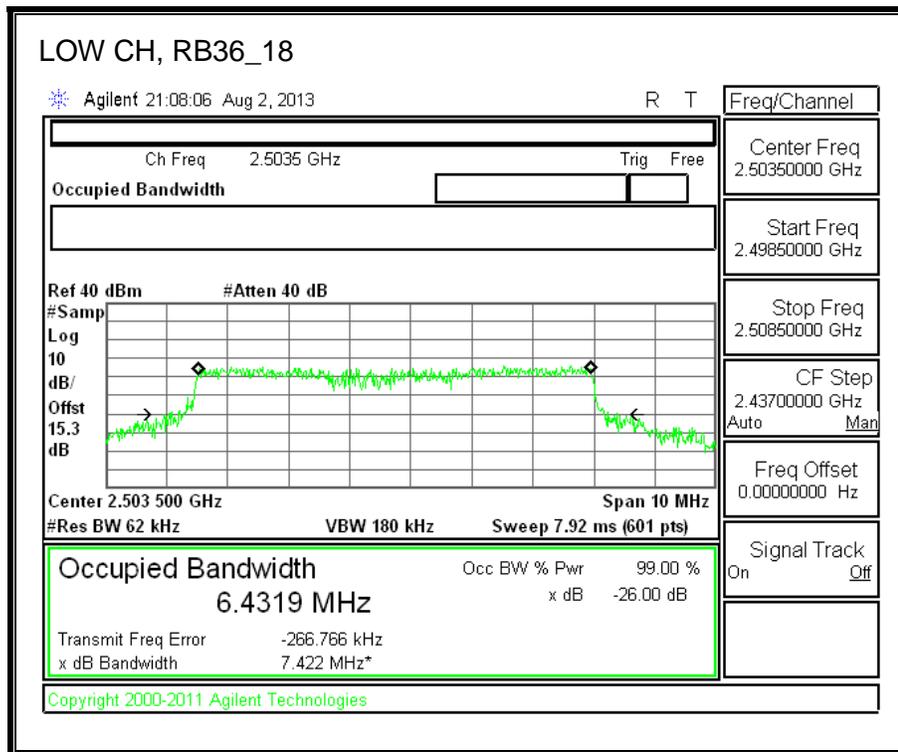
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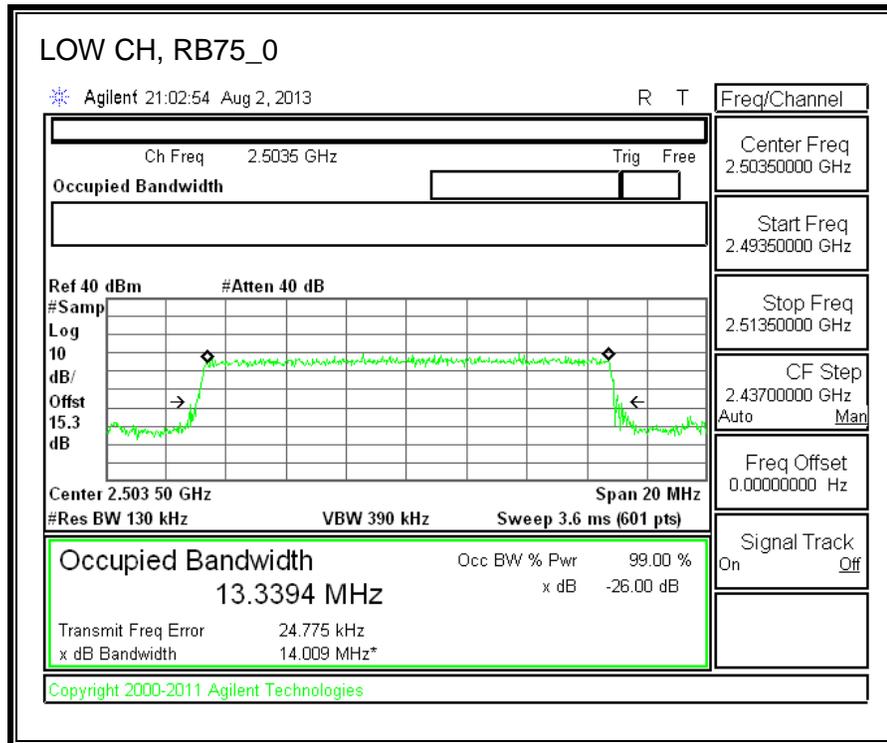




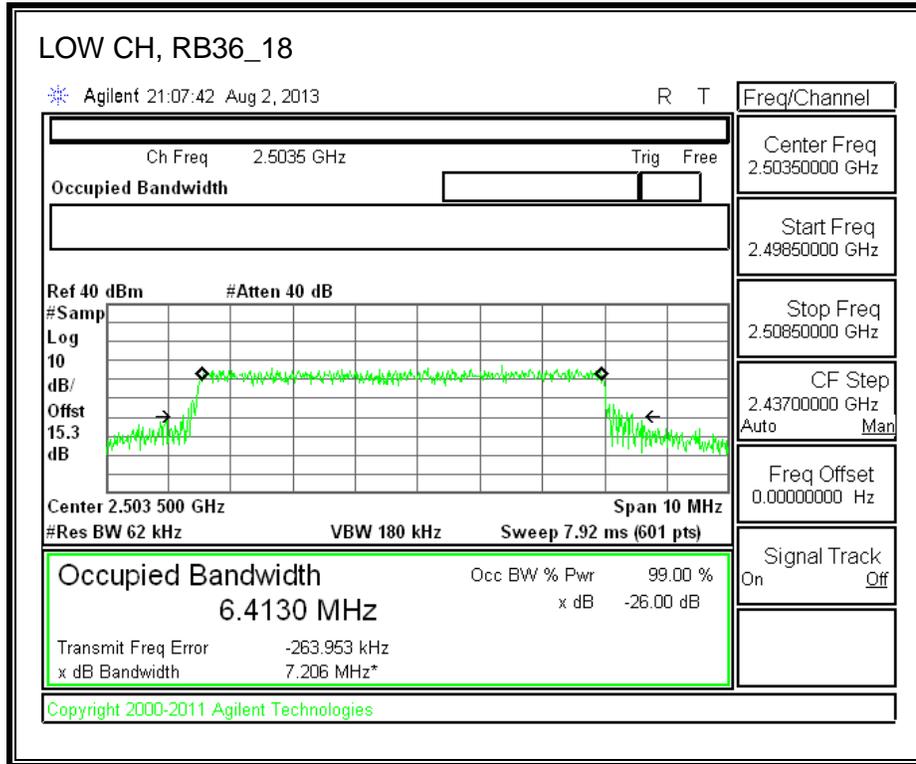
LTE BAND 41-15MHz BANDWIDTH

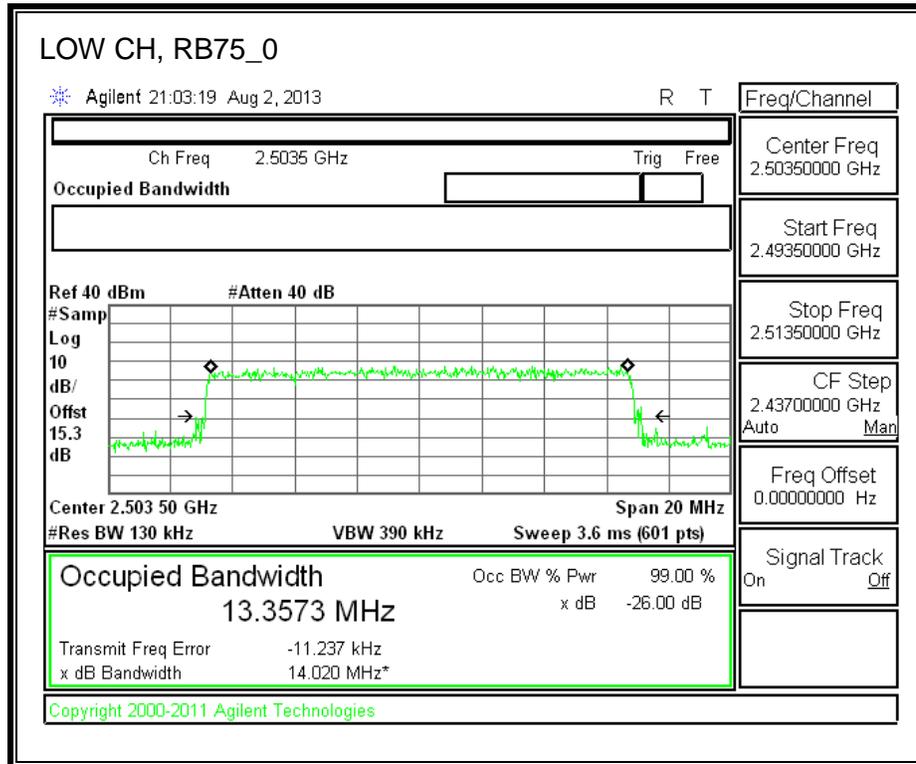
LOW-QPSK





LOW-16QAM





MID-QPSK

