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

INDUSTRY CANADA RSS-210 ISSUE 8

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

IC: 2703C-D820

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Prepared for

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Revision History

Rev.	Issue Date	Revisions	Revised By
---	7/22/13	Initial Issue	P. Kim
A	7/25/13	Updated RF Output Power Verification with GSM/CDMA with values	P. Kim
B	7/26/13	Updated LTE B26 OBW, BE low channel data, LTE B42 harmonics	P. Kim
C	7/30/13	Updated Radiated Harmonics plots for GPRS, CDMA/EVDO, WCDMA, and LTE B4	P. Kim
D	7/30/13	Added LTE Band 2 to RF Power Output Verification	P. Kim
E	8/1/13	Updated Radiated Harmonics plots for LTE B4 with correct harmonic frequency	P. Kim
F	8/5/13	Added Part 27 & Part 90 Emission mask rule section under test procedure. Updated the limits on Harmonics for LTE B41, Updated DC-HSDPA conducted output power, BE removed for LTE B41, since emission mask covers the requirement.	P. Kim

TABLE OF CONTENTS

1. ATTESTATION OF TEST RESULTS 10

2. TEST METHODOLOGY 11

3. FACILITIES AND ACCREDITATION 11

4. CALIBRATION AND UNCERTAINTY 11

4.1. MEASURING INSTRUMENT CALIBRATION 11

4.2. SAMPLE CALCULATION 11

4.3. MEASUREMENT UNCERTAINTY 11

5. EQUIPMENT UNDER TEST 12

5.1. DESCRIPTION OF EUT 12

5.1. MAXIMUM OUTPUT POWER 12

5.2. SOFTWARE AND FIRMWARE 20

5.3. DESCRIPTION OF AVAILABLE ANTENNAS 20

5.4. WORST-CASE CONFIGURATION AND MODE 21

5.5. DESCRIPTION OF TEST SETUP 21

6. TEST AND MEASUREMENT EQUIPMENT 23

7. RF POWER OUTPUT VERIFICATION 24

7.1. GPRS MODE 24

7.2. CDMA2000 28

7.2.1. 1xRTT 28

7.2.2. CDMA2000 OUTPUT POWER RESULT 29

7.2.3. 1xEV-DO Release 0 30

7.2.4. 1XEVDO REL 0 OUTPUT POWER RESULT 31

7.2.5. 1xEV-DO Rev. A 32

7.2.6. 1xEVDO REV A OUTPUT RESULT 33

7.3. REL 99 MODE 34

HSDPA 36

7.4. HSUPA 39

7.5. DC-HSDPA 42

7.6. LTE BAND 2 46

7.7. LTE BAND 4 53

7.8. LTE BAND 5 59
7.9. LTE BAND 17 63
7.10. LTE BAND 25 (B2) 65
7.11. LTE BAND 26 71
7.12. LTE BAND 41 75

8. CONDUCTED TEST RESULTS 78

9. PEAK TO AVERAGE POWER RATIO 78
9.1. GPRS 78
9.1. EGPRS 80
9.2. WCDMA REL 99 82
9.1. WCDMA HSDPA 85
9.1. CDMA RTT 88
9.1. CDMA EV-DO 91
9.2. LTE BAND 4 94
9.2.1. 1.4 MHz 94
9.2.1. 3 MHz 96
9.2.1. 5 MHz 98
9.2.1. 10 MHz 100
9.2.1. 15 MHz 102
9.2.1. 20 MHz 104
9.3. LTE BAND 17 106
9.3.1. 5 MHz 106
9.3.2. 10 MHz 108
9.4. LTE BAND 25 110
9.4.1. 1.4 MHz 110
9.4.2. 3 MHz 112
9.4.3. 5 MHz 114
9.4.4. 10 MHz 116
9.4.5. 15 MHz 118
9.4.6. 20 MHz 120
9.5. LTE BAND 26 122
9.5.1. 1.4 MHz 122
9.5.2. 3 MHz 124

9.5.3. 5 MHz 126
9.5.4. 10 MHz 128
9.6. LTE BAND 41 130
9.6.1. 10 MHz 130
9.6.2. 15 MHz 132
9.6.3. 20 MHz 134
10. OCCUPIED BANDWIDTH....136
10.1.1. GPRS MODE 152
10.1.1. EGPRS MODE....157
10.1.1. CDMA 1xRTT....163
10.1.1. CDMA EV-DO 172
10.1.2. UMTS REL 99 MODE 181
10.1.1. WCDMA HSDPA....190
10.2. LTE Band 4 199
10.2.1. LTE BAND 4-1.4MHz BANDWIDTH....199
10.2.2. LTE BAND 4-3MHz BANDWIDTH....211
10.2.3. LTE BAND 4-5MHz BANDWIDTH....223
10.2.4. LTE BAND 4-10MHz BANDWIDTH....235
10.2.5. LTE BAND 4-15MHz BANDWIDTH....246
10.2.6. LTE BAND 4-20MHz BANDWIDTH....258
10.1. LTE Band 17 270
10.1.1. LTE BAND 17-5MHz BANDWIDTH....270
10.1.2. LTE BAND 17-10MHz BANDWIDTH....282
10.2. LTE Band 25 293
10.2.1. LTE BAND 25-1.4MHz BANDWIDTH....293
10.2.2. LTE BAND 25-3MHz BANDWIDTH....305
10.2.3. LTE BAND 25-5MHz BANDWIDTH....317
10.2.4. LTE BAND 25-10MHz BANDWIDTH....329
10.2.5. LTE BAND 25-15MHz BANDWIDTH....340
10.2.6. LTE BAND 25-20MHz BANDWIDTH....352
10.3. LTE Band 26 364
10.3.1. LTE BAND 25-1.4MHz BANDWIDTH....364
10.3.2. LTE BAND 25-3MHz BANDWIDTH....376

10.3.3. LTE BAND 26-5MHz BANDWIDTH 388
10.3.4. LTE BAND 26-10MHz BANDWIDTH 400
10.4. LTE Band 41 411
10.4.1. LTE BAND 41-10MHz BANDWIDTH 411
10.4.2. LTE BAND 41-15MHz BANDWIDTH 422
10.4.3. LTE BAND 41-20MHz BANDWIDTH 434
11. BAND EDGE 446
11.1.1. GPRS MODE 447
11.1.1. EGPRS MODE 449
11.1.1. CDMA 1xRTT 451
11.1.1. CDMA EV-DO 457
11.1.2. UMTS REL 99 MODE 463
11.1.3. UMTS HSDPA MODE 467
11.2. LTE BAND 4 471
11.2.1. LTE BAND 4-1.4MHZ BANDWIDTH 471
11.2.2. LTE BAND 4-3MHZ BANDWIDTH 476
11.2.3. LTE BAND 4-5MHZ BANDWIDTH 482
11.2.4. LTE BAND 4-10MHZ BANDWIDTH 488
11.2.5. LTE BAND 4-15MHZ BANDWIDTH 493
11.2.6. LTE BAND 4-20MHZ BANDWIDTH 498
11.3. LTE BAND 17 503
11.3.1. LTE BAND 17-5MHz BANDWIDTH 503
11.3.2. LTE BAND 17-10MHz BANDWIDTH 508
11.4. LTE BAND 25 513
11.4.1. LTE BAND 25-1.4MHZ BANDWIDTH 513
11.4.2. LTE BAND 25-3MHZ BANDWIDTH 518
11.4.3. LTE BAND 25-5MHZ BANDWIDTH 522
11.4.4. LTE BAND 25-10MHZ BANDWIDTH 526
11.4.5. LTE BAND 25-15MHZ BANDWIDTH 530
11.4.6. LTE BAND 25-20MHZ BANDWIDTH 534
11.5. LTE BAND 26 538
11.5.1. LTE BAND 26-1.4MHZ BANDWIDTH 538
11.5.2. LTE BAND 26-3MHZ BANDWIDTH 542

11.5.3. LTE BAND 26-5MHZ BANDWIDTH 546
11.5.4. LTE BAND 26-10MHZ BANDWIDTH....550
11.6. LTE BAND 41....554

12. OUT OF BAND EMISSIONS....555

12.1.1. GPRS MODE 556
12.1.1. EGPRS MODE....560
12.1.1. CDMA 1xRTT MODE 564
12.1.1. CDMA EV-DO MODE....570
12.1.2. UMTS REL 99 MODE 576
12.1.3. UMTS HSDPA MODE 582
12.2. LTE BAND 4....588
12.2.1. LTE BAND 4-1.4MHz OUT OF BAND EMISSIONS QPSK....588
12.2.2. LTE BAND 4-3MHz OUT OF BAND EMISSIONS....592
12.2.3. LTE BAND 4-5MHz BANDWIDTH....596
12.2.4. LTE BAND 4-10MHz BANDWIDTH....600
12.2.5. LTE BAND 4-15MHz BANDWIDTH....604
12.2.6. LTE BAND 4-20MHz BANDWIDTH....608
12.3. LTE BAND 17....612
12.3.1. LTE BAND 17-5MHz BANDWIDTH....612
12.3.2. LTE BAND 17-10MHz BANDWIDTH....616
12.4. LTE BAND 25....620
12.4.1. LTE BAND 25-1.4MHz OUT OF BAND EMISSIONS QPSK....620
12.4.2. LTE BAND 25-3MHz OUT OF BAND EMISSIONS....624
12.4.3. LTE BAND 25-5MHz BANDWIDTH....628
12.4.4. LTE BAND 25-10MHz BANDWIDTH....632
12.4.5. LTE BAND 25-15MHz BANDWIDTH....636
12.4.6. LTE BAND 25-20MHz BANDWIDTH....640
12.5. LTE BAND 26....644
12.5.1. LTE BAND 26-1.4MHz OUT OF BAND EMISSIONS QPSK....644
12.5.2. LTE BAND 26-3MHz OUT OF BAND EMISSIONS....648
12.5.3. LTE BAND 26-5MHz BANDWIDTH....652
12.5.4. LTE BAND 26-10MHz BANDWIDTH....656
12.6. LTE BAND 41....660

12.6.1. LTE BAND 41-10MHz BANDWIDTH 660
12.6.2. LTE BAND 41-15MHz BANDWIDTH 665
12.6.3. LTE BAND 41-20MHz BANDWIDTH 670

13. EMISSION MASK 675

13.1. LTE BAND 26 676
13.1.1. 1.4 MHz 676
13.1.2. 3 MHz 679
13.1.1. 5 MHz 681
13.1.1. 10 MHz 683
13.2. LTE BAND 41 685
13.2.1. 10MHz 685
13.2.2. 15MHz 687
13.2.3. 20MHz 689

14. FREQUENCY STABILITY 691

15. RADIATED TEST RESULTS 700

15.1. RADIATED POWER (ERP & EIRP) 700
15.1.1. RESULTS 700
15.1.2. GPRS 709
15.1.3. EGPRS 711
15.1.1. WCDMA REL 99 713
15.1.2. WCDMA HSDPA 716
15.1.1. CDMA RTT 719
15.1.2. CDMA EVDO 722
15.1.3. LTE BAND 4 725
15.1.1. LTE BAND 17 737
15.1.1. LTE BAND 25 741
15.1.1. LTE BAND 26 753
15.1.1. LTE BAND 41 761

16. FIELD STRENGTH OF SPURIOUS RADIATION 767

16.1.1. GPRS 768
16.1.2. EGPRS 770
16.1.3. WCDMA REL 99 772

16.1.4. WCDMA HSDPA 775
16.1.5. CDMA RTT 778
16.1.6. CDMA EVDO 781
16.1.7. LTE BAND 4 784
16.1.8. LTE BAND 17 796
16.1.9. LTE BAND 25 800
16.1.10. LTE BAND 26 812
16.1.11. LTE BAND 41 820

17. SETUP PHOTOS 826

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: (0021EDF624E7C39B) CONDUCTED
(0021E9AAE056EE83) RADIATED

DATE TESTED: July 3 – July 9, 2013

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
FCC PART 22H AND 24E	PASS
INDUSTRY CANADA RSS-210 ISSUE 8	PASS
INDUSTRY CANADA RSS-GEN ISSUE 3	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 ENGINEER
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 2, FCC CFR 47 Part 22, and FCC CFR Part 24.

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:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

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

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a 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	Conducted		ERP	
		dBm	mW	dBm	mW
824.2 - 848.8	GPRS	33.22	2098.9	28.52	711.2
824.2 - 848.8	EGPRS	27.15	518.8	25.60	363.1

Part 24 PCS Band					
Frequency range (MHz)	Modulation	Conducted		EIRP	
		dBm	mW	dBm	mW
1850.2-1909.8	GPRS	30.61	1150.8	32.03	1595.9
1850.2-1909.8	EGPRS	26.09	406.4	30.69	1172.2

Part 22 Cellular Band					
Frequency range (MHz)	Modulation	Conducted		ERP	
		dBm	mW	dBm	mW
824.7 - 848.31	CDMA (1xRTT)	24.30	269.2	22.20	166.0
824.7 - 848.31	1xEVDO Rel 0	24.30	269.2	21.62	145.2

Part 90S Cellular Band					
Frequency range (MHz)	Modulation	Conducted		ERP	
		dBm	mW	dBm	mW
817.9-823.1	CDMA (1xRTT)	24.20	263.0	22.70	186.2
817.9-823.1	1xEVDO Rel 0	24.10	257.0	23.10	204.2

Part 24 PCS Band					
Frequency range (MHz)	Modulation	Conducted		EIRP	
		dBm	mW	dBm	mW
1851.25 - 1908.75	CDMA (1xRTT)	24.30	269.2	29.30	851.1
1851.25 - 1908.75	1xEVDO Rel 0	24.30	269.2	30.00	1000.0

Part 22 Cellular Band					
Frequency range (MHz)	Modulation	Conducted		ERP	
		dBm	mW	dBm	mW
826.4 - 846.6	REL 99	23.77	238.2	18.97	78.9
826.4 - 846.6	HSDPA	24.38	274.2	18.86	76.9

Part 27L AWS Band					
Frequency range (MHz)	Modulation	Conducted		EIRP	
		dBm	mW	dBm	mW
1712.4-1752.6	AWS Rel 99	24.39	274.8	26.96	496.6
	AWS HSDPA	23.57	227.5	26.64	461.3

Part 24 PCS Band					
Frequency range (MHz)	Modulation	Conducted		EIRP	
		dBm	mW	dBm	mW
1852.4 – 1907.6	REL 99	24.30	269.2	25.53	357.3
1852.4 – 1907.6	HSDPA	23.37	217.3	26.15	412.1

Part 24 LTE Band 2 MODE (1.4 MHz BANDWIDTH)

Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
1850.7-1914.3	QPSK	1/0	23.70	234.4
	16QAM		22.70	186.2

Part 24 LTE Band 2 MODE (3- MHz BANDWIDTH)

Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
1851.5-1913.5	QPSK	1/0	23.70	234.4
	16QAM		22.50	177.8

Part 24 LTE Band 2 MODE (5 MHz BANDWIDTH)

Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
1852.5-1912.5	QPSK	1/0	23.70	234.4
	16QAM		22.50	177.8

Part 24 LTE Band 2 MODE (10.0- MHz BANDWIDTH)

Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
1855-1910	QPSK	1/0	23.60	229.1
	16QAM		22.70	186.2

Part 24 LTE Band 2 MODE (15.0 MHz BANDWIDTH)

Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
1857.5-1907.5	QPSK	1/0	23.70	234.4
	16QAM		22.50	177.8

Part 24 LTE Band 2 MODE (20.0 MHz BANDWIDTH)

Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
1860-1905	QPSK	1/0	23.70	234.4
	16QAM		22.70	186.2

Part 27L LTE Band 4 MODE (1.4 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1710.7-1754.3	QPSK	1/0	23.60	229.1	23.99	250.6
	16QAM		22.70	186.2	23.13	205.6
Part 27L LTE Band 4 MODE (3.0- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1711.5-1753.5	QPSK	1/0	23.70	234.4	21.59	144.2
	16QAM		22.50	177.8	21.13	129.7
Part 27L LTE Band 4 MODE (5 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1712.5-1752.5	QPSK	1/0	23.60	229.1	20.73	118.3
	16QAM		22.40	173.8	19.83	96.2
Part 27L LTE Band 4 MODE (10.0- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1715-1750	QPSK	1/0	23.70	234.4	22.04	160.0
	16QAM		22.70	186.2	21.23	132.7
Part 27L LTE Band 4 MODE (15.0 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1717.5-1747.5	QPSK	1/0	23.70	234.4	22.13	163.3
	16QAM		22.60	182.0	21.23	132.7
Part 27L LTE Band 4 MODE (20.0 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1720.0-1745	QPSK	100/0	23.70	234.4	22.83	191.9
	16QAM		22.50	177.8	21.93	156.0

Part 22 LTE Band 5 MODE (1.4 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
824.7-848.3	QPSK	1/0	23.70	234.4
	16QAM		22.60	182.0

Part 22 LTE Band 5 MODE (3- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
825.5-847.5	QPSK	1/0	23.60	229.1
	16QAM		22.50	177.8

Part 22 LTE Band 5 MODE (5 MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
826.5-846.5	QPSK	1/0	23.60	229.1
	16QAM		22.30	169.8

Part 22 LTE Band 5 MODE (10.0- MHz BANDWIDTH)				
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted	
			dBm	mW
829-844	QPSK	1/0	23.70	234.4
	16QAM		22.60	182.0

Part 27F LTE Band 17 MODE (5 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
706.5-713.5	QPSK	1/0	23.60	229.1	15.40	34.7
	16QAM		22.50	177.8	14.50	28.2
Part 27FL LTE Band 17 MODE (10.0- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
709-711	QPSK	1/0	23.60	229.1	15.80	38.0
	16QAM		22.50	177.8	15.50	35.5

Part 24 LTE Band 25 MODE (1.4 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1850.7-1914.3	QPSK	1/0	23.50	223.9	25.16	328.1
	16QAM		22.60	182.0	24.26	266.7
Part 24 LTE Band 25 MODE (3- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1851.5-1913.5	QPSK	1/0	23.70	234.4	24.66	292.4
	16QAM		22.70	186.2	23.76	237.7
Part 24 LTE Band 25 MODE (5 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1852.5-1912.5	QPSK	1/0	23.60	229.1	23.96	248.9
	16QAM		22.60	182.0	23.28	212.8
Part 24 LTE Band 25 MODE (10.0- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1855-1910	QPSK	1/0	23.60	229.1	24.36	272.9
	16QAM		22.70	186.2	23.46	221.8
Part 24 LTE Band 25 MODE (15.0 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1857.5-1907.5	QPSK	1/0	23.50	223.9	25.88	387.3
	16QAM		22.60	182.0	24.98	314.8
Part 24 LTE Band 25 MODE (20.0 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
1860-1905	QPSK	1/0	23.60	229.1	26.14	411.1
	16QAM		22.80	190.5	25.28	337.3

Part 22 LTE Band 26 MODE (1.4 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
824.7-848.3	QPSK	1/0	23.70	234.4	22.70	186.2
	16QAM		22.70	186.2	21.70	147.9
Part 22 LTE Band 26 MODE (3- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
825.5-847.5	QPSK	1/0	23.70	234.4	22.30	169.8
	16QAM		22.50	177.8	21.30	134.9
Part 22 LTE Band 26 MODE (5 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
826.5-846.5	QPSK	1/0	23.60	229.1	21.20	131.8
	16QAM		22.50	177.8	20.30	107.2
Part 22 LTE Band 26 MODE (10- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
829-844	QPSK	1/0	23.70	234.4	20.40	109.6
	16QAM		22.50	177.8	19.50	89.1

Part 90S LTE Band 26 MODE (1.4 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
814.7-823.3	QPSK	1/0	23.70	234.4	21.90	154.9
	16QAM		22.70	186.2	21.00	125.9
Part 90S LTE Band 26 MODE (3- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
815.5-822.5	QPSK	1/0	23.70	234.4	21.60	144.5
	16QAM		22.50	177.8	20.60	114.8
Part 90S LTE Band 26 MODE (5 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		ERP	
			dBm	mW	dBm	mW
816.5-821.5	QPSK	1/0	23.60	229.1	20.80	120.2
	16QAM		22.50	177.8	19.80	95.5
Part 90S LTE Band 26 MODE (10- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
814-824	QPSK	1/0	23.70	234.4	20.10	102.3
	16QAM		22.50	177.8	19.10	81.3

Part 27 LTE Band 41 MODE (10 MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
2498.5-2687.5	QPSK	1/0	22.70	186.2	21.78	150.7
	16QAM		21.60	144.5	20.98	125.3
Part 27 LTE Band 41 MODE (15.0- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
2503.5-2682.5	QPSK	1/0	21.40	138.0	21.58	143.9
	16QAM		20.50	112.2	20.68	116.9
Part 27 LTE Band 41 MODE (20.0- MHz BANDWIDTH)						
Frequency range (MHz)	Modulation	Start RB and RB offset	Conducted		EIRP	
			dBm	mW	dBm	mW
2506.0-2680.0	QPSK	1/0	21.50	141.3	21.71	148.3
	16QAM		20.70	117.5	20.81	120.5

5.2. SOFTWARE AND FIRMWARE

Software version was 3.40-g9f6ebe1-00072-gcee1ab4b.

The firmware used was M8974A-0.0.19.0.01.

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an PFIA 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	304HYNY003615	N/A

I/O CABLES (CONDUCTED SETUP)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	RF	1	Antenna Port	Un-Shielded	0.2m	NA
2	RF In/Out	1	Call Box	Un-Shielded	0.5m	NA
3	RF Out	1	Spectrum Analyzer	None	None	NA

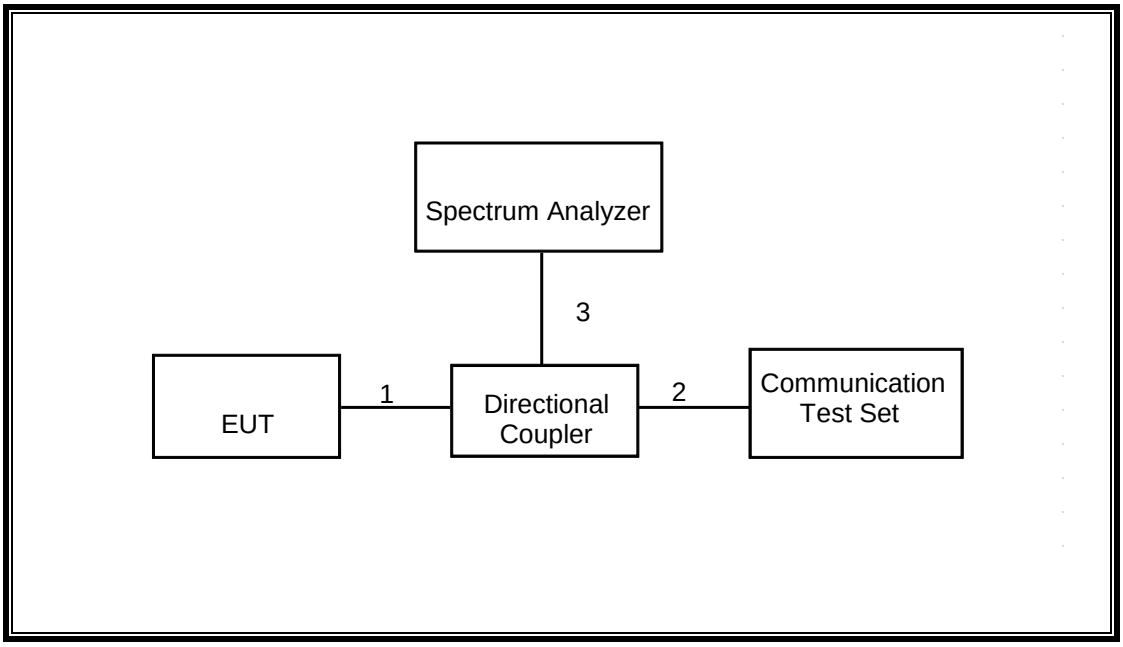
I/O CABLES (RADIATED SETUP)

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

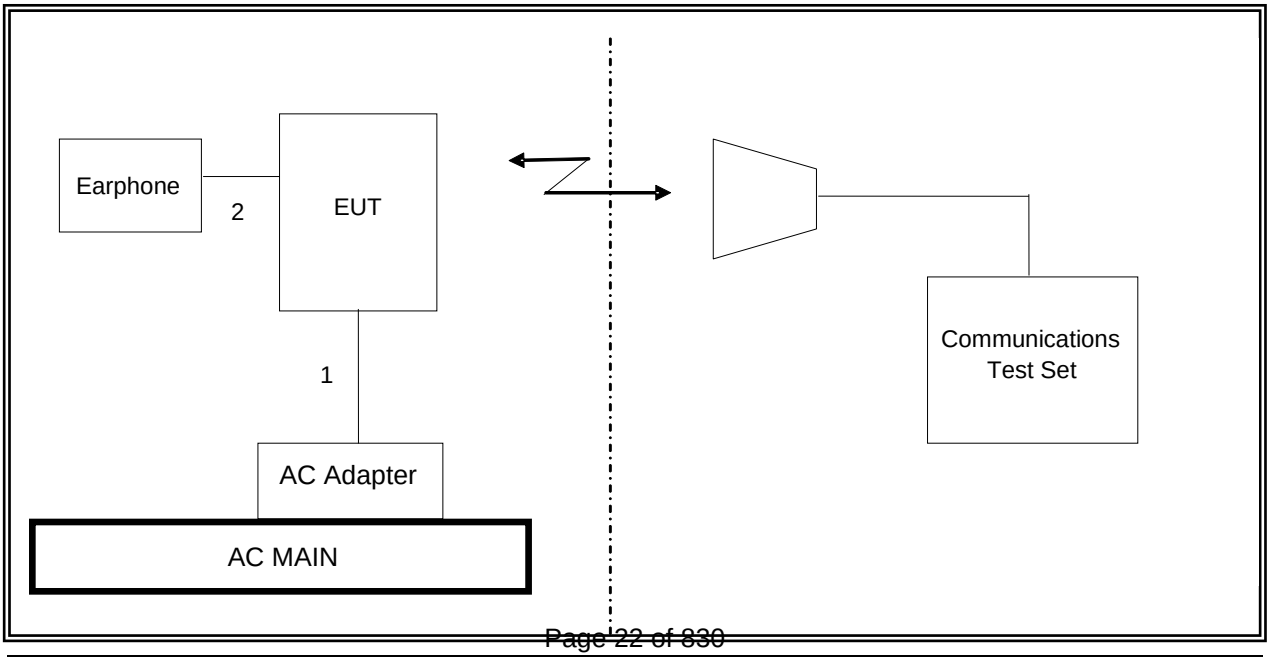
TEST SETUP

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
Communication Test Set	Agilent / HP	E5515C	C01086	06/20/13
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	C01016	08/14/13
Vector signal generator, 6 GHz	Agilent / HP	E4438C	None	07/06/13
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 ≥ RBW.≥ 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

Slot Config >	Unchanged (if already set under MS Signal)	
TCH >	choose desired test channel	
Hopping >	Off	
Main Timeslot >	3 (Default)	
Network	Coding Scheme >	CS1 (GPRS) and MCS5 (EGPRS)
	Bit Stream >	2E9-1PSR Bit Pattern
AF/RF	Enter appropriate offsets for Ext. Att. Output and Ext. Att. Input	
Connection	Press Signal On to turn on the signal and change settings	

RESULTS

GPRS (CELL)

Mode	Ch.	f (MHz)	1 Down 1 Up Burst Power
GSM	128	824.2	33.08
	190	836.6	33.19
	251	848.8	33.22

Mode	Ch.	f (MHz)	4 Down 1 Up Burst Power	3 Down 2 Up Burst Power	2 Down 3 Up Burst Power	1 Down 4 Up Burst Power
GPRS	128	824.2	33.08	32.01	29.75	27.61
	190	836.6	33.19	32.14	29.72	27.6
	251	848.8	33.22	31.87	29.79	27.53

Mode	Ch.	f (MHz)	4 Down 1 Up Burst Power	3 Down 2 Up Burst Power	2 Down 3 Up Burst Power	1 Down 4 Up Burst Power
EDGE	128	824.2	27.15	26.25	25.3	24.12
	190	836.6	27.02	26.42	25.38	24.28
	251	848.8	27.02	26.43	25.33	24.26

GPRS (PCS)

Mode	Ch.	f (MHz)	1 Down 1 Up Burst Power
GSM	512	1850.2	30.55
	661	1880.0	30.39
	810	1909.8	30.61

Mode	Ch.	f (MHz)	4 Down 1 Up Burst Power	3 Down 2 Up Burst Power	2 Down 3 Up Burst Power	1 Down 4 Up Burst Power
GPRS	512	1850.2	30.55	29.26	27.12	25.15
	661	1880.0	30.39	29.29	27.01	25.03
	810	1909.8	30.61	29.41	27.09	25.03

Mode	Ch.	f (MHz)	4 Down 1 Up Burst Power	3 Down 2 Up Burst Power	2 Down 3 Up Burst Power	1 Down 4 Up Burst Power
EDGE	512	1850.2	25.76	24.73	23.66	22.59
	661	1880.0	25.42	24.46	23.37	22.39
	810	1909.8	26.09	25.15	24.15	23.12

7.2. CDMA2000

7.2.1. 1xRTT

TEST PROCEDURE

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

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

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

7.2.2. CDMA2000 OUTPUT POWER RESULT

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC 0	RC1 SO55 (Loopback)	1013	824.70	22.2
		384	836.52	24.1
		777	848.31	24.1
	RC3 SO55 (Loopback)	1013	824.70	24.2
		384	836.52	24.1
		777	848.31	24.1
	RC3 SO32 (+F-SCH)	1013	824.70	24.3
		384	836.52	24.2
		777	848.31	24.1

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC 1	RC1 SO55 (Loopback)	25	1851.25	24.3
		600	1880.00	24.2
		1175	1908.75	24.2
	RC3 SO55 (Loopback)	25	1851.25	24.3
		600	1880.00	24.2
		1175	1908.75	24.1
	RC3 SO32 (+F-SCH)	25	1851.25	24.3
		600	1880.00	24.2
		1175	1908.75	24.1

Band	Mode	Ch	Freq. (MHz)	Avg Pwr (dBm)
BC 10	RC1 SO55 (Loopback)	476	817.90	24.1
		580	820.50	24.1
		684	823.10	24.1
	RC3 SO55 (Loopback)	476	817.90	24.1
		580	820.50	24.0
		684	823.10	24.1
	RC3 SO32 (+F-SCH)	476	817.90	24.2
		580	820.50	24.1
		684	823.10	24.1

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.

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

EVDO Release 0 - RTAP

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

EVDO Release 0 - FTAP

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

7.2.4. 1XEVDO REL 0 OUTPUT POWER RESULT

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC0	307.2 kbps (2 slot, QPSK)	1013	824.70	24.3
		384	836.52	24.2
		777	848.31	24.1

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC 1	307.2 kbps (2 slot, QPSK)	25	1851.25	24.3
		600	1880.00	24.2
		1175	1908.75	24.2

Band	FTAP Rate	Channel	f (MHz)	Avg Pwr (dBm)
BC 10	307.2 kbps (2 slot, QPSK)	476	817.90	24.1
		580	820.50	24.1
		684	823.10	24.1

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.

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

EVDO Release A – RETAP

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

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)

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

EVDO Release A - FETAP

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

> PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)

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

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	24.2
		777	848.31	24.0

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	24.3
		600	1880.00	24.2
		1175	1908.75	24.2

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	24.2
		580	820.50	24.2
		684	823.10	24.3

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 ≥ RBW.≥ 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
	βc	Not Applicable
	βd	Not Applicable
	βec	Not Applicable
	βc/βd	8/15
	βhs	Not Applicable
	βed	Not Applicable

RESULTS

UMTS REL99

Band	Mode	Ch.	f(MHz)	Conducted Power
				Avg (dBm)
Band V	REL 99	4132	826.4	23.54
		4180	836.0	23.74
		4230	846.0	23.69
Band IV	REL 99	1312	1712.4	24.34
		1413	1732.6	24.27
		1513	1752.6	24.21
Band II	REL 99	9262	1852.4	24.23
		9400	1880	24.11
		9538	1907.6	24.13

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			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	Bd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR (dB)	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack repetition factor	3			
	CQI Feedback (Table 5.2B.4)	4ms			
	CQI Repetition Factor (Table 5.2B.4)	2			
	Ahs =βhs/βc	30/15			

RESULT

Band	Subset	Ch.	f(MHz)	Conducted Power
				Avg (dBm)
Band V	1	4132	826.4	23.49
		4180	836.0	23.74
		4230	846.0	23.71
	2	4132	826.4	23.49
		4180	836.0	23.71
		4230	846.0	23.72
	3	4132	826.4	24.15
		4180	836.0	24.33
		4230	846.0	24.30
	4	4132	826.4	23.49
		4180	836.0	23.74
		4230	846.0	23.70

Band IV	1	1312	1712.4	23.26
		1413	1732.6	23.30
		1513	1752.6	23.25
	2	1312	1712.4	23.19
		1413	1732.6	22.85
		1513	1752.6	22.62
	3	1312	1712.4	23.35
		1413	1732.6	23.28
		1513	1752.6	23.29
	4	1312	1712.4	23.26
		1413	1732.6	23.12
		1513	1752.6	23.12
Band II	1	9262	1852.4	23.26
		9400	1880	23.21
		9538	1907.6	23.11
	2	9262	1852.4	22.84
		9400	1880	22.64
		9538	1907.6	22.54
	3	9262	1852.4	23.28
		9400	1880	23.15
		9538	1907.6	23.06
	4	9262	1851.4	23.08
		9400	1880	22.94
		9538	1907.6	22.87

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

7.4. HSUPA

TEST PROCEDURE

The following summary of these settings are illustrated below:

	Mode	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA	Rel6 HSUPA
	Subtest	1	2	3	4	5
WCDMA General Settings	Loopback Mode	Test Mode 1				
	Rel99 RMC	12.2kbps RMC				
	HSDPA FRC	H-Set1				
	HSUPA Test	HSUPA Loopback				
	Power Control Algorithm	Algorithm2				
	βc	11/15	6/15	15/15	2/15	15/15
	βd	15/15	15/15	9/15	15/15	0
	βec	209/225	12/15	30/15	2/15	5/15
	βc/βd	11/15	6/15	15/9	2/15	-
	βhs	22/15	12/15	30/15	4/15	5/15
	βed	1309/225	94/75	47/15 47/15	56/75	47/15
HSDPA Specific Settings	DACK	8				
	DNAK	8				
	DCQI	8				
	Ack-Nack repetition factor	3				
	CQI Feedback (Table 5.2B.4)	4ms				
	CQI Repetition Factor (Table 5.2B.4)	2				
	Ahs = βhs/βc	30/15				
HSUPA Specific Settings	D E-DPCCH	6	8	8	5	7
	DHARQ	0	0	0	0	0
	AG Index	20	12	15	17	12
	ETFCI (from 34.121 Table C.11.1.3)	75	67	92	71	67
	Associated Max UL Data Rate kbps	242.1	174.9	482.8	205.8	308.9
	Reference E_TFCIs	E-TFCI 11 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	22.84
		4180	836.0	22.98
		4230	846.0	22.89
	2	4132	826.4	22.47
		4180	836.0	22.55
		4230	846.0	22.51
	3	4132	826.4	23.01
		4180	836.0	23.25
		4230	846.0	22.89
	4	4132	826.4	22.56
		4180	836.0	22.45
		4230	846.0	22.70
	5	4132	826.4	22.15
		4180	836.0	22.69
		4230	846.0	22.67

Band IV	1	1312	1712.4	23.37
		1413	1732.6	23.34
		1513	1752.6	23.25
	2	1312	1712.4	22.88
		1413	1732.6	22.82
		1513	1752.6	22.74
	3	1312	1712.4	23.37
		1413	1732.6	23.33
		1513	1752.6	23.25
	4	1312	1712.4	23.35
		1413	1732.6	23.32
		1513	1752.6	23.26
	5	1312	1712.4	23.35
		1413	1732.6	23.29
		1513	1752.6	23.21
Band II	1	9262	1852.4	23.33
		9400	1880	23.14
		9538	1907.6	23.09
	2	9262	1852.4	22.78
		9400	1880	22.64
		9538	1907.6	22.58
	3	9262	1851.4	23.29
		9400	1880	23.17
		9538	1907.6	23.11
	4	9262	1852.4	23.32
		9400	1880	23.20
		9538	1907.6	23.08
	5	9262	1852.4	23.28
		9400	1880	23.15
		9538	1907.6	23.08

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

7.5. 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.		

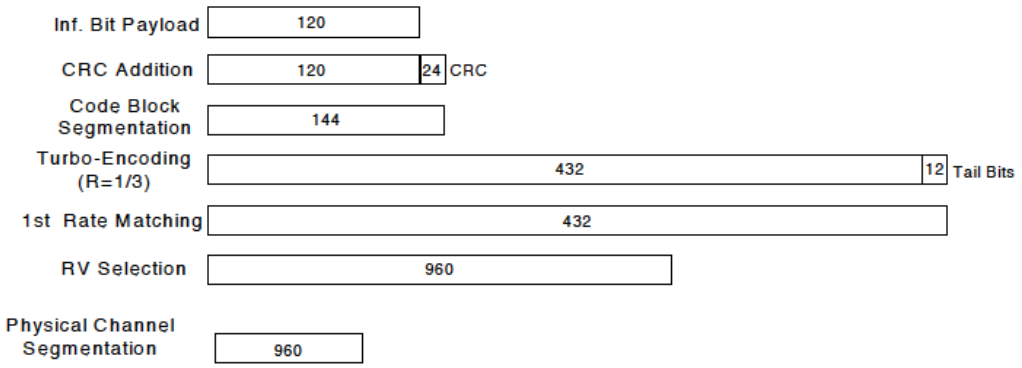


Figure C.8.19: Coding rate for Fixed reference Channel H-Set 12 (QPSK)

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			
	βc	2/15	12/15	15/15	15/15
	βd	15/15	15/15	8/15	4/15
	βd (SF)	64			
	βc/βd	2/15	12/15	15/8	15/4
	βhs	4/15	24/15	30/15	30/15
	MPR	0	0	0.5	0.5
HSDPA Specific Settings	DACK	8			
	DNAK	8			
	DCQI	8			
	Ack-Nack Repetition factor	3			
	CQI Feedback	4ms			
	CQI Repetition Factor	2			
	Ahs = βhs/ βc	30/15			

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	24.00
		4180	836.0	24.03
		4230	846.0	23.89
	2	4132	826.4	23.65
		4180	836.0	23.65
		4230	846.0	23.62
	3	4132	826.4	23.51
		4180	836.0	23.58
		4230	846.0	23.42
	4	4132	826.4	23.54
		4180	836.0	23.54
		4230	846.0	23.43
Band IV	1	1312	1712.4	24.34
		1413	1732.6	24.42
		1513	1752.6	24.20
	2	1312	1712.4	23.94
		1413	1732.6	23.96
		1513	1752.6	23.80
	3	1312	1712.4	23.83
		1413	1732.6	23.82
		1513	1752.6	23.72
	4	1312	1712.4	23.85
		1413	1732.6	23.85
		1513	1752.6	23.72

Band II	1	9262	1851.4	24.34
		9400	1880	24.23
		9538	1907.6	24.26
	2	9262	1851.4	23.94
		9400	1880	23.80
		9538	1907.6	23.81
	3	9262	1851.4	23.72
		9400	1880	23.67
		9538	1907.6	23.68
	4	9262	1851.4	23.74
		9400	1880	23.67
		9538	1907.6	23.69

7.6. 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	23.7
				1	99	0	23.6
				50	0	1	22.5
				50	25	1	22.6
				50	50	1	22.5
				100	0	1	22.6
			16QAM	1	0	1	22.3
				1	50	1	22.2
				1	99	1	22.1
				50	0	2	21.3
				50	25	2	21.3
				50	50	2	21.3
				100	0	2	21.3
	18900	1880.0	QPSK	1	0	0	23.6
				1	50	0	23.6
				1	99	0	23.6
				50	0	1	22.5
				50	25	1	22.6
				50	50	1	22.5
				100	0	1	22.6
			16QAM	1	0	1	22.1
				1	50	1	22.2
				1	99	1	22.2
				50	0	2	21.2
				50	25	2	21.2
				50	50	2	21.2
				100	0	2	21.3
	19100	1900.0	QPSK	1	0	0	23.6
				1	50	0	23.7
				1	99	0	23.6
				50	0	1	22.6
				50	25	1	22.7
				50	50	1	22.6
				100	0	1	22.6
			16QAM	1	0	1	22.7
				1	50	1	22.6
				1	99	1	22.6

				50	0	2	21.6
				50	25	2	21.6
				50	50	2	21.5
				100	0	2	21.6
BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	18675	1857.5	QPSK	1	0	0	23.5
				1	36	0	23.5
				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	22.4
				1	36	1	22.3
				1	74	1	22.4
				36	0	2	21.5
				36	18	2	21.4
				36	37	2	21.4
				75	0	2	21.4
	18900	1880.0	QPSK	1	0	0	23.6
				1	36	0	23.6
				1	74	0	23.6
				36	0	1	22.3
				36	18	1	22.3
				36	37	1	22.4
				75	0	1	22.2
			16QAM	1	0	1	22.3
				1	36	1	22.3
				1	74	1	22.4
				36	0	2	21.4
				36	18	2	21.3
				36	37	2	21.4
				75	0	2	21.3
	19125	1902.5	QPSK	1	0	0	23.7
				1	36	0	23.6
				1	74	0	23.6
				36	0	1	22.5
				36	18	1	22.4
				36	37	1	22.5
				75	0	1	22.5
			16QAM	1	0	1	22.5

				1	36	1	22.3
				1	74	1	22.5
				36	0	2	21.5
				36	18	2	21.5
				36	37	2	21.5
				75	0	2	21.5
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	23.5
				1	49	0	23.5
				25	0	1	22.6
				25	12	1	22.5
				25	25	1	22.5
				50	0	1	22.5
			16QAM	1	0	1	22.4
				1	25	1	22.4
				1	49	1	22.3
				25	0	2	21.5
				25	12	2	21.5
				25	25	2	21.4
				50	0	2	21.4
	18900	1880.0	QPSK	1	0	0	23.6
				1	25	0	23.6
				1	49	0	23.5
				25	0	1	22.4
				25	12	1	22.5
				25	25	1	22.4
				50	0	1	22.3
			16QAM	1	0	1	22.3
				1	25	1	22.4
				1	49	1	22.3
				25	0	2	21.5
				25	12	2	21.4
				25	25	2	21.4
				50	0	2	21.2
	19150	1905.0	QPSK	1	0	0	23.6
				1	25	0	23.5
				1	49	0	23.5
				25	0	1	22.6
				25	12	1	22.5
				25	25	1	22.6

				50	0	1	22.4
			16QAM	1	0	1	22.6
				1	25	1	22.7
				1	49	1	22.6
				25	0	2	21.6
				25	12	2	21.5
				25	25	2	21.6
				50	0	2	21.5
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	22.6
				12	6	1	22.7
				12	13	1	22.7
				25	0	1	22.6
			16QAM	1	0	1	22.4
				1	12	1	22.4
				1	24	1	22.3
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.6
	18900	1880.0	QPSK	1	0	0	23.5
				1	12	0	23.6
				1	24	0	23.5
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.5
				25	0	1	22.5
			16QAM	1	0	1	22.3
				1	12	1	22.3
				1	24	1	22.3
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.5
	19175	1907.5	QPSK	1	0	0	23.5
				1	12	0	23.7
				1	24	0	23.6
				12	0	1	22.7

				12	6	1	22.7
				12	13	1	22.7
				25	0	1	22.7
			16QAM	1	0	1	22.4
				1	12	1	22.5
				1	24	1	22.4
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.5
				25	0	2	21.7
BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	18615	1851.5	QPSK	1	0	0	23.6
				1	7	0	23.6
				1	14	0	23.6
				8	0	1	22.6
				8	4	1	22.7
				8	7	1	22.6
				15	0	1	22.6
			16QAM	1	0	1	22.4
				1	7	1	22.4
				1	14	1	22.4
				8	0	2	21.7
				8	4	2	21.7
				8	7	2	21.7
				15	0	2	21.6
	18900	1880.0	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	22.5
			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	21.6
				15	0	2	21.5
	19185	1908.5	QPSK	1	0	0	23.7
				1	7	0	23.7

				1	14	0	23.5
				8	0	1	22.7
				8	4	1	22.7
				8	7	1	22.7
				15	0	1	22.7
				1	0	1	22.5
				1	7	1	22.4
				1	14	1	22.3
			16QAM	8	0	2	21.7
				8	4	2	21.7
				8	7	2	21.7
				15	0	2	21.7
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	23.6
				1	2	0	23.5
				1	5	0	23.5
				3	0	0	23.7
				3	2	0	23.6
				3	3	0	23.6
				6	0	1	22.7
			16QAM	1	0	1	22.7
				1	2	1	22.4
				1	5	1	22.4
				3	0	1	22.5
				3	2	1	22.5
				3	3	1	22.5
				6	0	2	21.6
	18900	1880.0	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	23.6
				6	0	1	22.6
			16QAM	1	0	1	22.7
				1	2	1	22.3
				1	5	1	22.3
				3	0	1	22.5
				3	2	1	22.4
				3	3	1	22.5
				6	0	2	21.5

	19193	1909.3	QPSK	1	0	0	23.7
				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	22.7
			16QAM	1	0	1	22.7
				1	2	1	22.4
				1	5	1	22.4
				3	0	1	22.5
				3	2	1	22.5
				3	3	1	22.5
				6	0	2	21.6

7.7. LTE BAND 4

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	23.6
				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	22.6
				1	2	1	22.4
				1	5	1	22.7
				3	0	1	22.6
				3	2	1	22.6
				3	3	1	22.5
				6	0	2	21.5
	20175	1732.5	QPSK	1	0	0	23.6
				1	2	0	23.6
				1	5	0	23.6
				3	0	0	23.6
				3	2	0	23.7
				3	3	0	23.6
				6	0	1	22.7
			16QAM	1	0	1	22.7
				1	2	1	22.5
				1	5	1	22.7
				3	0	1	22.6
				3	2	1	22.6
				3	3	1	22.6
				6	0	2	21.5
	20393	1754.3	QPSK	1	0	0	23.6
				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	22.6
			16QAM	1	0	1	22.7
				1	2	1	22.6
				1	5	1	22.7
				3	0	1	22.4
				3	2	1	22.4
				3	3	1	22.4
				6	0	2	21.7

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	19965	1711.5	QPSK	1	0	0	23.6
				1	7	0	23.6
				1	14	0	23.6
				8	0	1	22.5
				8	4	1	22.6
				8	7	1	22.6
				15	0	1	22.5
			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	21.6
	20175	1732.5	QPSK	1	0	0	23.6
				1	7	0	23.6
				1	14	0	23.6
				8	0	1	22.6
				8	4	1	22.6
				8	7	1	22.6
				15	0	1	22.6
			16QAM	1	0	1	22.5
				1	7	1	22.4
				1	14	1	22.4
				8	0	2	21.6
				8	4	2	21.7
				8	7	2	21.6
				15	0	2	21.6
	20385	1753.5	QPSK	1	0	0	23.7
				1	7	0	23.6
				1	14	0	23.6
				8	0	1	22.7
				8	4	1	22.7
				8	7	1	22.6
				15	0	1	22.6
			16QAM	1	0	1	22.4
				1	7	1	22.4
				1	14	1	22.4
				8	0	2	21.6
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.6

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	19975	1712.5	QPSK	1	0	0	23.5
				1	12	0	23.6
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.6
				12	13	1	22.7
				25	0	1	22.4
			16QAM	1	0	1	22.4
				1	12	1	22.4
				1	24	1	22.4
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.5
	20175	1732.5	QPSK	1	0	0	23.6
				1	12	0	23.6
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.6
				12	13	1	22.6
				25	0	1	22.4
			16QAM	1	0	1	22.4
				1	12	1	22.4
				1	24	1	22.4
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.4
	20375	1752.5	QPSK	1	0	0	23.6
				1	12	0	23.6
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.7
				12	13	1	22.6
				25	0	1	22.5
			16QAM	1	0	1	22.1
				1	12	1	22.3
				1	24	1	22.2
				12	0	2	21.6
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.5

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	20000	1715.0	QPSK	1	0	0	23.6
				1	25	0	23.6
				1	49	0	23.6
				25	0	1	22.6
				25	12	1	22.6
				25	25	1	22.6
				50	0	1	22.3
			16QAM	1	0	1	22.4
				1	25	1	22.4
				1	49	1	22.4
				25	0	2	21.6
				25	12	2	21.6
				25	25	2	21.6
				50	0	2	21.4
	20175	1732.5	QPSK	1	0	0	23.7
				1	25	0	23.7
				1	49	0	23.6
				25	0	1	22.6
				25	12	1	22.5
				25	25	1	22.5
				50	0	1	22.4
			16QAM	1	0	1	22.5
				1	25	1	22.4
				1	49	1	22.4
				25	0	2	21.6
				25	12	2	21.6
				25	25	2	21.5
				50	0	2	21.4
	20350	1750.0	QPSK	1	0	0	23.6
				1	25	0	23.5
				1	49	0	23.5
				25	0	1	22.6
				25	12	1	22.6
				25	25	1	22.6
				50	0	1	22.5
			16QAM	1	0	1	22.7
				1	25	1	22.7
				1	49	1	22.7
				25	0	2	21.6
				25	12	2	21.6
				25	25	2	21.6
				50	0	2	21.5

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	20025	1717.5	QPSK	1	0	0	23.6
				1	36	0	23.6
				1	74	0	23.5
				36	0	1	22.5
				36	18	1	22.5
				36	37	1	22.5
				75	0	1	22.5
			16QAM	1	0	1	22.4
				1	36	1	22.5
				1	74	1	22.4
				36	0	2	21.5
				36	18	2	21.6
				36	37	2	21.5
				75	0	2	21.5
	20175	1732.5	QPSK	1	0	0	23.6
				1	36	0	23.6
				1	74	0	23.6
				36	0	1	22.5
				36	18	1	22.4
				36	37	1	22.5
				75	0	1	22.5
			16QAM	1	0	1	22.4
				1	36	1	22.4
				1	74	1	22.4
				36	0	2	21.5
				36	18	2	21.6
				36	37	2	21.5
				75	0	2	21.4
	20325	1747.5	QPSK	1	0	0	23.7
				1	36	0	23.7
				1	74	0	23.6
				36	0	1	22.5
				36	18	1	22.5
				36	37	1	22.6
				75	0	1	22.5
			16QAM	1	0	1	22.6
				1	36	1	22.5
				1	74	1	22.4
				36	0	2	21.6
				36	18	2	21.6
				36	37	2	21.6
				75	0	2	21.5

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
20	20050	1720.0	QPSK	1	0	0	23.6
				1	50	0	23.7
				1	99	0	23.6
				50	0	1	22.6
				50	25	1	22.6
				50	50	1	22.6
				100	0	1	22.6
			16QAM	1	0	1	22.3
				1	50	1	22.3
				1	99	1	22.3
				50	0	2	21.4
				50	25	2	21.5
				50	50	2	21.4
				100	0	2	21.5
	20175	1732.5	QPSK	1	0	0	23.7
				1	50	0	23.7
				1	99	0	23.7
				50	0	1	22.6
				50	25	1	22.6
				50	50	1	22.5
				100	0	1	22.6
			16QAM	1	0	1	22.5
				1	50	1	22.6
				1	99	1	22.7
				50	0	2	21.5
				50	25	2	21.6
				50	50	2	21.6
				100	0	2	21.5
	20300	1745.0	QPSK	1	0	0	23.7
				1	50	0	23.7
				1	99	0	23.7
				50	0	1	22.6
				50	25	1	22.6
				50	50	1	22.6
				100	0	1	22.6
			16QAM	1	0	1	22.5
				1	50	1	22.6
				1	99	1	22.5
				50	0	2	21.6
				50	25	2	21.6
				50	50	2	21.6
				100	0	2	21.6

7.8. LTE BAND 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	23.6
				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	22.6
				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	23.6
				1	2	0	23.5
				1	5	0	23.5
				3	0	0	23.6
				3	2	0	23.6
				3	3	0	23.5
				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	21.5
	20643	848.3	QPSK	1	0	0	23.7
				1	2	0	23.6
				1	5	0	23.7
				3	0	0	23.6
				3	2	0	23.7
				3	3	0	23.7
				6	0	1	22.7
			16QAM	1	0	1	22.4
				1	2	1	22.5
				1	5	1	22.4
				3	0	1	22.5
				3	2	1	22.6
				3	3	1	22.5
				6	0	2	21.7

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	20415	825.5	QPSK	1	0	0	23.6
				1	7	0	23.6
				1	14	0	23.7
				8	0	1	22.6
				8	4	1	22.6
				8	7	1	22.6
				15	0	1	22.5
			16QAM	1	0	1	22.4
				1	7	1	22.3
				1	14	1	22.4
				8	0	2	21.7
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.5
	20525	836.5	QPSK	1	0	0	23.7
				1	7	0	23.6
				1	14	0	23.6
				8	0	1	22.6
				8	4	1	22.5
				8	7	1	22.5
				15	0	1	22.6
			16QAM	1	0	1	22.5
				1	7	1	22.3
				1	14	1	22.3
				8	0	2	21.7
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.7
	20635	847.5	QPSK	1	0	0	23.6
				1	7	0	23.7
				1	14	0	23.6
				8	0	1	22.7
				8	4	1	22.7
				8	7	1	22.7
				15	0	1	22.6
			16QAM	1	0	1	22.4
				1	7	1	22.5
				1	14	1	22.4
				8	0	2	21.7
				8	4	2	21.7
				8	7	2	21.7
				15	0	2	21.7

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	20425	826.5	QPSK	1	0	0	23.6
				1	12	0	23.6
				1	24	0	23.7
				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	22.4
				1	24	1	22.4
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.5
	20525	836.5	QPSK	1	0	0	23.6
				1	12	0	23.5
				1	24	0	23.6
				12	0	1	22.7
				12	6	1	22.6
				12	13	1	22.5
				25	0	1	22.5
			16QAM	1	0	1	22.3
				1	12	1	22.3
				1	24	1	22.3
				12	0	2	21.7
				12	6	2	21.6
				12	13	2	21.7
				25	0	2	21.5
	20625	846.5	QPSK	1	0	0	23.6
				1	12	0	23.7
				1	24	0	23.6
				12	0	1	22.7
				12	6	1	22.7
				12	13	1	22.7
				25	0	1	22.6
			16QAM	1	0	1	22.1
				1	12	1	22.2
				1	24	1	22.1
				12	0	2	21.7
				12	6	2	21.7
				12	13	2	21.7
				25	0	2	21.7

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	20450	829.0	QPSK	1	0	0	23.6
				1	25	0	23.7
				1	49	0	23.6
				25	0	1	22.6
				25	12	1	22.7
				25	25	1	22.6
				50	0	1	22.5
			16QAM	1	0	1	22.3
				1	25	1	22.4
				1	49	1	22.3
				25	0	2	21.5
				25	12	2	21.4
				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	23.6
				25	0	1	22.6
				25	12	1	22.7
				25	25	1	22.6
				50	0	1	22.6
			16QAM	1	0	1	22.4
				1	25	1	22.3
				1	49	1	22.3
				25	0	2	21.5
				25	12	2	21.5
				25	25	2	21.4
				50	0	2	21.3
	20600	844.0	QPSK	1	0	0	23.7
				1	25	0	23.7
				1	49	0	23.6
				25	0	1	22.6
				25	12	1	22.7
				25	25	1	22.7
				50	0	1	22.6
			16QAM	1	0	1	22.6
				1	25	1	22.7
				1	49	1	22.7
				25	0	2	21.5
				25	12	2	21.5
				25	25	2	21.7
				50	0	2	21.3

7.9. LTE BAND 17

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	23755	706.5	QPSK	1	0	0	
				1	12	0	
				1	24	0	
				12	0	1	
				12	6	1	
				12	11	1	
				25	0	1	
			16QAM	1	0	1	
				1	12	1	
				1	24	1	
				12	0	2	
				12	6	2	
				12	11	2	
				25	0	2	
	23790	710.0	QPSK	1	0	0	23.6
				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	22.5
				1	12	1	22.5
				1	24	1	22.6
				12	0	2	21.6
				12	6	2	21.6
				12	13	2	21.6
				25	0	2	21.5
	23825	713.5	QPSK	1	0	0	
				1	12	0	
				1	24	0	
				12	0	1	
				12	6	1	
				12	11	1	
				25	0	1	
			16QAM	1	0	1	
				1	12	1	
				1	24	1	
				12	0	2	
				12	6	2	
				12	11	2	
				25	0	2	

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	23789	709.0	QPSK	1	0	0	
				1	25	0	
				1	49	0	
				25	0	1	
				25	12	1	
				25	25	1	
				50	0	1	
			16QAM	1	0	1	
				1	25	1	
				1	49	1	
				25	0	2	
				25	12	2	
				25	25	2	
				50	0	2	
	23790	710.0	QPSK	1	0	0	23.6
				1	25	0	23.7
				1	49	0	23.6
				25	0	1	22.5
				25	12	1	22.6
				25	25	1	22.5
				50	0	1	22.4
			16QAM	1	0	1	22.5
				1	25	1	22.5
				1	49	1	22.5
				25	0	2	21.4
				25	12	2	21.5
				25	25	2	21.6
				50	0	2	21.4
	23800	711.0	QPSK	1	0	0	
				1	25	0	
				1	49	0	
				25	0	1	
				25	12	1	
				25	25	1	
				50	0	1	
			16QAM	1	0	1	
				1	25	1	
				1	49	1	
				25	0	2	
				25	12	2	
				25	25	2	
				50	0	2	

7.10. LTE BAND 25 (B2)

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	23.5
				1	2	0	23.4
				1	5	0	23.5
				3	0	0	23.5
				3	2	0	23.5
				3	3	0	23.5
				6	0	1	22.6
			16QAM	1	0	1	22.6
				1	2	1	22.5
				1	5	1	22.6
				3	0	1	22.7
				3	2	1	22.6
				3	3	1	22.7
				6	0	2	21.5
	26365	1882.5	QPSK	1	0	0	23.5
				1	2	0	23.5
				1	5	0	23.5
				3	0	0	23.5
				3	2	0	23.5
				3	3	0	23.5
				6	0	1	22.6
			16QAM	1	0	1	22.5
				1	2	1	22.5
				1	5	1	22.6
				3	0	1	22.7
				3	2	1	22.7
				3	3	1	22.7
				6	0	2	21.5
	26683	1914.3	QPSK	1	0	0	23.5
				1	2	0	23.5
				1	5	0	23.4
				3	0	0	23.5
				3	2	0	23.5
				3	3	0	23.5
				6	0	1	22.5
			16QAM	1	0	1	22.4
				1	2	1	22.4
				1	5	1	22.6
				3	0	1	22.7
				3	2	1	22.7
				3	3	1	22.6
				6	0	2	21.4

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	26055	1851.5	QPSK	1	0	0	23.5
				1	7	0	23.5
				1	14	0	23.5
				8	0	1	22.5
				8	4	1	22.5
				8	7	1	22.6
				15	0	1	22.5
			16QAM	1	0	1	22.5
				1	7	1	22.5
				1	14	1	22.5
				8	0	2	21.6
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.5
	26365	1882.5	QPSK	1	0	0	23.7
				1	7	0	23.6
				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	22.7
				1	7	1	22.6
				1	14	1	22.5
				8	0	2	21.6
				8	4	2	21.6
				8	7	2	21.6
				15	0	2	21.5
	26675	1913.5	QPSK	1	0	0	23.6
				1	7	0	23.5
				1	14	0	23.4
				8	0	1	22.6
				8	4	1	22.5
				8	7	1	22.5
				15	0	1	22.4
			16QAM	1	0	1	22.5
				1	7	1	22.4
				1	14	1	22.5
				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)
5	26065	1852.5	QPSK	1	0	0	23.4
				1	12	0	23.4
				1	24	0	23.4
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.5
				25	0	1	22.4
			16QAM	1	0	1	22.5
				1	12	1	22.5
				1	24	1	22.4
				12	0	2	21.6
				12	6	2	21.6
				12	13	2	21.6
				25	0	2	21.4
	26365	1882.5	QPSK	1	0	0	23.6
				1	12	0	23.5
				1	24	0	23.5
				12	0	1	22.6
				12	6	1	22.5
				12	13	1	22.5
				25	0	1	22.4
			16QAM	1	0	1	22.6
				1	12	1	22.5
				1	24	1	22.4
				12	0	2	21.7
				12	6	2	21.6
				12	13	2	21.5
				25	0	2	21.5
	26665	1912.5	QPSK	1	0	0	23.5
				1	12	0	23.5
				1	24	0	23.4
				12	0	1	22.5
				12	6	1	22.5
				12	13	1	22.4
				25	0	1	22.3
			16QAM	1	0	1	22.3
				1	12	1	22.5
				1	24	1	22.5
				12	0	2	21.7
				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)
10	26090	1855.0	QPSK	1	0	0	23.5
				1	25	0	23.4
				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	22.5
				1	25	1	22.5
				1	49	1	22.5
				25	0	2	21.5
				25	12	2	21.4
				25	25	2	21.5
				50	0	2	21.3
	26365	1882.5	QPSK	1	0	0	23.6
				1	25	0	23.5
				1	49	0	23.5
				25	0	1	22.5
				25	12	1	22.5
				25	25	1	22.4
				50	0	1	22.4
			16QAM	1	0	1	22.6
				1	25	1	22.5
				1	49	1	22.5
				25	0	2	21.6
				25	12	2	21.5
				25	25	2	21.5
				50	0	2	21.4
	26640	1910.0	QPSK	1	0	0	23.3
				1	25	0	23.5
				1	49	0	23.4
				25	0	1	22.5
				25	12	1	22.6
				25	25	1	22.4
				50	0	1	22.3
			16QAM	1	0	1	22.7
				1	25	1	22.7
				1	49	1	22.7
				25	0	2	21.5
				25	12	2	21.6
				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)
15	26115	1857.5	QPSK	1	0	0	23.5
				1	36	0	23.5
				1	74	0	23.6
				36	0	1	22.5
				36	18	1	22.5
				36	37	1	22.6
				75	0	1	22.5
			16QAM	1	0	1	22.5
				1	36	1	22.5
				1	74	1	22.6
				36	0	2	21.5
				36	18	2	21.5
				36	37	2	21.6
				75	0	2	21.5
	26365	1882.5	QPSK	1	0	0	23.5
				1	36	0	23.6
				1	74	0	23.5
				36	0	1	22.5
				36	18	1	22.5
				36	37	1	22.4
				75	0	1	22.4
			16QAM	1	0	1	22.6
				1	36	1	22.6
				1	74	1	22.5
				36	0	2	21.5
				36	18	2	21.5
				36	37	2	21.5
				75	0	2	21.5
	26615	1907.5	QPSK	1	0	0	23.4
				1	36	0	23.5
				1	74	0	23.5
				36	0	1	22.5
				36	18	1	22.5
				36	37	1	22.5
				75	0	1	22.4
			16QAM	1	0	1	22.4
				1	36	1	22.6
				1	74	1	22.6
				36	0	2	21.5
				36	18	2	21.5
				36	37	2	21.5
				75	0	2	21.4

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	23.6
				1	99	0	23.5
				50	0	1	22.5
				50	25	1	22.5
				50	50	1	22.5
				100	0	1	22.5
			16QAM	1	0	1	22.4
				1	59	1	22.5
				1	99	1	22.4
				50	0	2	21.5
				50	25	2	21.4
				50	50	2	21.5
				100	0	2	21.4
	26365	1882.5	QPSK	1	0	0	23.6
				1	59	0	23.7
				1	99	0	23.6
				50	0	1	22.4
				50	25	1	22.5
				50	50	1	22.5
				100	0	1	22.5
			16QAM	1	0	1	22.8
				1	59	1	22.8
				1	99	1	22.7
				50	0	2	21.6
				50	25	2	21.6
				50	50	2	21.5
				100	0	2	21.4
	26590	1905.0	QPSK	1	0	0	23.5
				1	59	0	23.6
				1	99	0	23.5
				50	0	1	22.5
				50	25	1	22.5
				50	50	1	22.5
				100	0	1	22.5
			16QAM	1	0	1	22.4
				1	59	1	22.5
				1	99	1	22.6
				50	0	2	21.4
				50	25	2	21.4
				50	50	2	21.5
				100	0	2	21.4

7.11. LTE BAND 26

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	23.63
				1	2	0	23.61
				1	5	0	23.53
				3	0	1	23.68
				3	2	1	23.65
				3	3	1	23.55
				6	0	1	22.68
			16QAM	1	0	1	22.55
				1	2	1	22.57
				1	5	1	22.42
				3	0	2	22.65
				3	2	2	22.61
				3	3	2	22.57
				6	0	2	21.56
	26865	831.5	QPSK	1	0	0	23.60
				1	2	0	23.58
				1	5	0	23.67
				3	0	1	23.61
				3	2	1	23.63
				3	3	1	23.61
				6	0	1	22.68
			16QAM	1	0	1	22.50
				1	2	1	22.50
				1	5	1	22.57
				3	0	2	22.61
				3	2	2	22.57
				3	3	2	22.58
				6	0	2	21.51
	27033	848.3	QPSK	1	0	0	23.70
				1	2	0	23.65
				1	5	0	23.65
				3	0	1	23.70
				3	2	1	23.61
				3	3	1	23.67
				6	0	1	22.63
			16QAM	1	0	1	22.67
				1	2	1	22.60
				1	5	1	22.56
				3	0	2	22.65
				3	2	2	22.65
				3	3	2	22.65
				6	0	2	21.60

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
3	26705	815.5	QPSK	1	0	0	23.66
				1	7	0	23.57
				1	14	0	23.57
				8	0	1	22.61
				8	4	1	22.58
				8	7	1	22.59
				15	0	1	22.53
			16QAM	1	0	1	22.49
				1	7	1	22.38
				1	14	1	22.42
				8	0	2	21.61
				8	4	2	21.61
				8	7	2	21.61
				15	0	2	21.54
	26865	831.5	QPSK	1	0	0	23.66
				1	7	0	23.62
				1	14	0	23.69
				8	0	1	22.60
				8	4	1	22.57
				8	7	1	22.66
				15	0	1	22.55
			16QAM	1	0	1	22.50
				1	7	1	22.43
				1	14	1	22.49
				8	0	2	21.70
				8	4	2	21.64
				8	7	2	21.70
				15	0	2	21.56
	27025	847.5	QPSK	1	0	0	23.64
				1	7	0	23.70
				1	14	0	23.65
				8	0	1	22.70
				8	4	1	22.68
				8	7	1	22.68
				15	0	1	22.62
			16QAM	1	0	1	22.49
				1	7	1	22.52
				1	14	1	22.47
				8	0	2	21.67
				8	4	2	21.63
				8	7	2	21.65
				15	0	2	21.61

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
5	26715	816.5	QPSK	1	0	0	23.6
				1	12	0	23.6
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.6
				12	13	1	22.6
				25	0	1	22.5
			16QAM	1	0	1	22.46
				1	12	1	22.43
				1	24	1	22.39
				12	0	2	21.65
				12	6	2	21.66
				12	13	2	21.64
				25	0	2	21.44
	26865	831.5	QPSK	1	0	0	23.6
				1	12	0	23.7
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.7
				12	13	1	22.6
				25	0	1	22.6
			16QAM	1	0	1	22.44
				1	12	1	22.41
				1	24	1	22.49
				12	0	2	21.70
				12	6	2	21.62
				12	13	2	21.67
				25	0	2	21.44
	27015	846.5	QPSK	1	0	0	23.6
				1	12	0	23.7
				1	24	0	23.6
				12	0	1	22.6
				12	6	1	22.6
				12	13	1	22.6
				25	0	1	22.5
			16QAM	1	0	1	22.33
				1	12	1	22.34
				1	24	1	22.27
				12	0	2	21.64
				12	6	2	21.62
				12	13	2	21.68
				25	0	2	21.57

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	26740	819.0	QPSK	1	0	0	23.7
				1	25	0	23.5
				1	49	0	23.6
				25	0	1	22.4
				25	12	1	22.4
				25	25	1	22.5
				50	0	1	22.3
			16QAM	1	0	1	22.5
				1	25	1	22.4
				1	49	1	22.5
				25	0	2	21.4
				25	12	2	21.4
				25	25	2	21.4
				50	0	2	21.3
	26865	831.5	QPSK	1	0	0	23.5
				1	25	0	23.6
				1	49	0	23.6
				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	22.5
				25	0	2	21.5
				25	12	2	21.5
				25	25	2	21.5
				50	0	2	21.3
	26990	844.0	QPSK	1	0	0	23.5
				1	25	0	23.7
				1	49	0	23.6
				25	0	1	22.4
				25	12	1	22.5
				25	25	1	22.5
				50	0	1	22.3
			16QAM	1	0	1	22.5
				1	25	1	22.6
				1	49	1	22.5
				25	0	2	21.6
				25	12	2	21.5
				25	25	2	21.5
				50	0	2	21.4

7.12. LTE BAND 41

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
10	39675	2498.5	QPSK	1	0	0	21.1
				1	12	0	21.1
				1	24	0	21.2
				12	0	1	20.2
				12	6	1	20.1
				12	13	1	20.2
				25	0	1	20.2
			16QAM	1	0	1	19.8
				1	12	1	20.0
				1	24	1	19.8
				12	0	2	19.1
				12	6	2	19.1
				12	13	2	19.2
				25	0	2	19.2
	40148	2545.8	QPSK	1	0	0	20.1
				1	12	0	20.0
				1	24	0	20.1
				12	0	1	19.0
				12	6	1	18.9
				12	13	1	19.0
				25	0	1	19.0
			16QAM	1	0	1	19.4
				1	12	1	19.3
				1	24	1	19.4
				12	0	2	19.3
				12	6	2	19.3
				12	13	2	19.5
				25	0	2	19.8
	40620	2593.0	QPSK	1	0	0	21.3
				1	12	0	21.3
				1	24	0	21.2
				12	0	1	19.5
				12	6	1	19.5
				12	13	1	19.5
				25	0	1	19.5
			16QAM	1	0	1	20.5
				1	12	1	20.4
				1	24	1	20.5
				12	0	2	19.4
				12	6	2	19.4
				12	13	2	19.4
				25	0	2	19.3
	41092.5	2640.25	QPSK	1	0	0	21.2
				1	12	0	21.1
				1	24	0	21.1
				12	0	1	21.2
				12	6	1	20.2
				12	13	1	20.2
				25	0	1	20.1
			16QAM	1	0	1	19.8
				1	12	1	19.8
				1	24	1	19.8
				12	0	2	19.2
				12	6	2	19.2
				12	13	2	19.2
				25	0	2	19.3
	41565	2687.5	QPSK	1	0	0	21.3
				1	12	0	21.3
				1	24	0	21.3
				12	0	1	20.2
				12	6	1	20.1
				12	13	1	20.1
				25	0	1	20.1
			16QAM	1	0	1	21.6
				1	12	1	19.8
				1	24	1	19.8
				12	0	2	19.3
				12	6	2	19.4
				12	13	2	19.3
				25	0	2	19.3

BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
15	39725	2503.5	QPSK	1	0	0	21.4
				1	36	0	21.3
				1	74	0	21.3
				36	0	1	20.2
				36	18	1	20.2
				36	37	1	20.2
				75	0	1	20.2
			16QAM	1	0	1	20.5
				1	36	1	20.3
				1	74	1	20.4
				36	0	2	19.6
				36	18	2	19.4
				36	37	2	19.4
				75	0	2	19.3
	40173	2548.3	QPSK	1	0	0	21.1
				1	36	0	21.4
				1	74	0	21.2
				36	0	1	20.5
				36	18	1	20.3
				36	37	1	20.2
				75	0	1	20.2
			16QAM	1	0	1	20.1
				1	36	1	20.2
				1	74	1	20.1
				36	0	2	19.3
				36	18	2	19.3
				36	37	2	19.3
				75	0	2	19.3
	40620	2593.0	QPSK	1	0	0	21.1
				1	36	0	21.1
				1	74	0	21.1
				36	0	1	20.2
				36	18	1	20.2
				36	37	1	20.2
				75	0	1	20.1
			16QAM	1	0	1	20.3
				1	36	1	20.3
				1	74	1	20.2
				36	0	2	19.6
				36	18	2	19.3
				36	37	2	19.4
				75	0	2	19.3
	41067.5	2637.75	QPSK	1	0	0	21.4
				1	36	0	21.4
				1	74	0	21.3
				36	0	1	20.4
				36	18	1	20.2
				36	37	1	20.2
				75	0	1	20.2
			16QAM	1	0	1	20.4
				1	36	1	20.3
				1	74	1	20.2
				36	0	2	19.3
				36	18	2	19.4
				36	37	2	19.4
				75	0	2	19.3
	41515	2682.5	QPSK	1	0	0	21.4
				1	36	0	21.3
				1	74	0	21.2
				36	0	1	20.2
				36	18	1	20.2
				36	37	1	20.2
				75	0	1	20.2
			16QAM	1	0	1	20.3
				1	36	1	20.3
				1	74	1	20.1
				36	0	2	19.5
				36	18	2	19.3
				36	37	2	19.3
				75	0	2	19.3

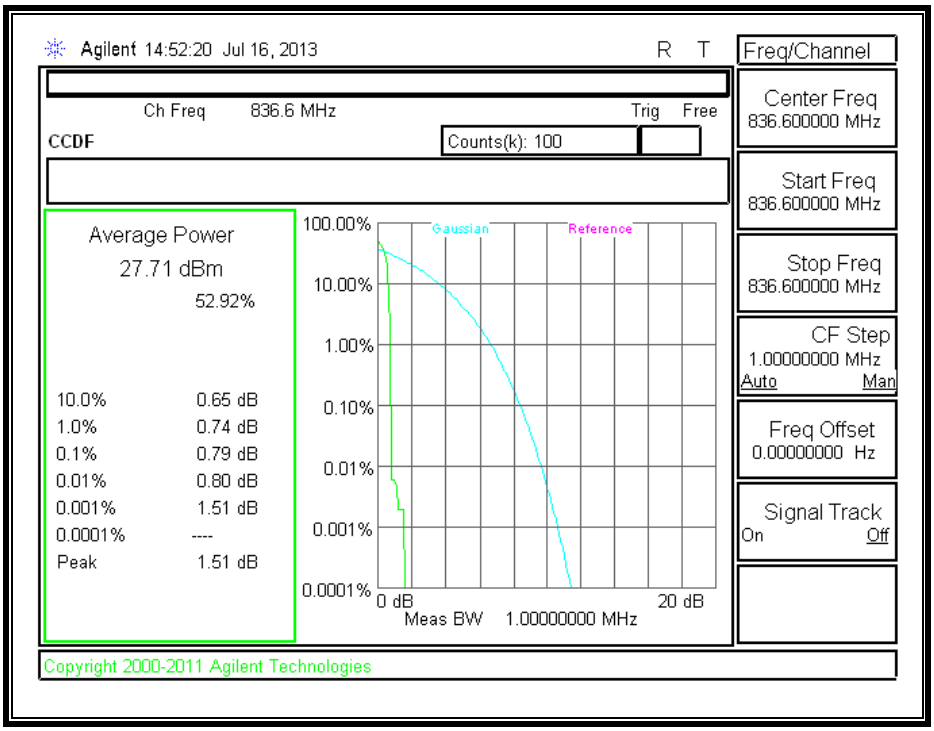
BW (MHz)	Ch	Freq. (MHz)	Mode	UL RB Allocation	UL RB Start	MPR	Avg Pwr (dBm)
20	39750	2506.0	QPSK	1	0	0	21.3
				1	59	0	21.4
				1	99	0	21.5
				50	0	1	20.2
				50	25	1	20.1
				50	50	1	20.2
				100	0	1	20.2
			16QAM	1	0	1	20.3
				1	59	1	20.3
				1	99	1	20.5
				50	0	2	19.2
				50	25	2	19.2
				50	50	2	19.1
				100	0	2	19.2
	40185	2549.5	QPSK	1	0	0	21.3
				1	59	0	21.2
				1	99	0	21.3
				50	0	1	20.3
				50	25	1	20.3
				50	50	1	20.2
				100	0	1	20.2
			16QAM	1	0	1	20.4
				1	59	1	20.5
				1	99	1	20.6
				50	0	2	19.4
				50	25	2	19.4
				50	50	2	19.3
				100	0	2	19.3
	40620	2593.0	QPSK	1	0	0	21.1
				1	59	0	21.2
				1	99	0	21.3
				50	0	1	20.3
				50	25	1	20.2
				50	50	1	20.3
				100	0	1	20.3
			16QAM	1	0	1	20.5
				1	59	1	20.6
				1	99	1	20.7
				50	0	2	19.6
				50	25	2	19.3
				50	50	2	19.3
				100	0	2	19.3
	41055	2636.5	QPSK	1	0	0	21.5
				1	59	0	21.4
				1	99	0	21.3
				50	0	1	20.6
				50	25	1	20.3
				50	50	1	20.3
				100	0	1	20.2
			16QAM	1	0	1	20.4
				1	59	1	20.4
				1	99	1	20.3
				50	0	2	19.5
				50	25	2	19.3
				50	50	2	19.3
				100	0	2	19.3
	41490	2680.0	QPSK	1	0	0	21.3
				1	59	0	21.3
				1	99	0	21.3
				50	0	1	20.3
				50	25	1	20.2
				50	50	1	20.3
				100	0	1	20.3
			16QAM	1	0	1	20.5
				1	59	1	20.7
				1	99	1	20.5
				50	0	2	19.4
				50	25	2	19.4
				50	50	2	19.3
				100	0	2	19.3

8. CONDUCTED TEST RESULTS

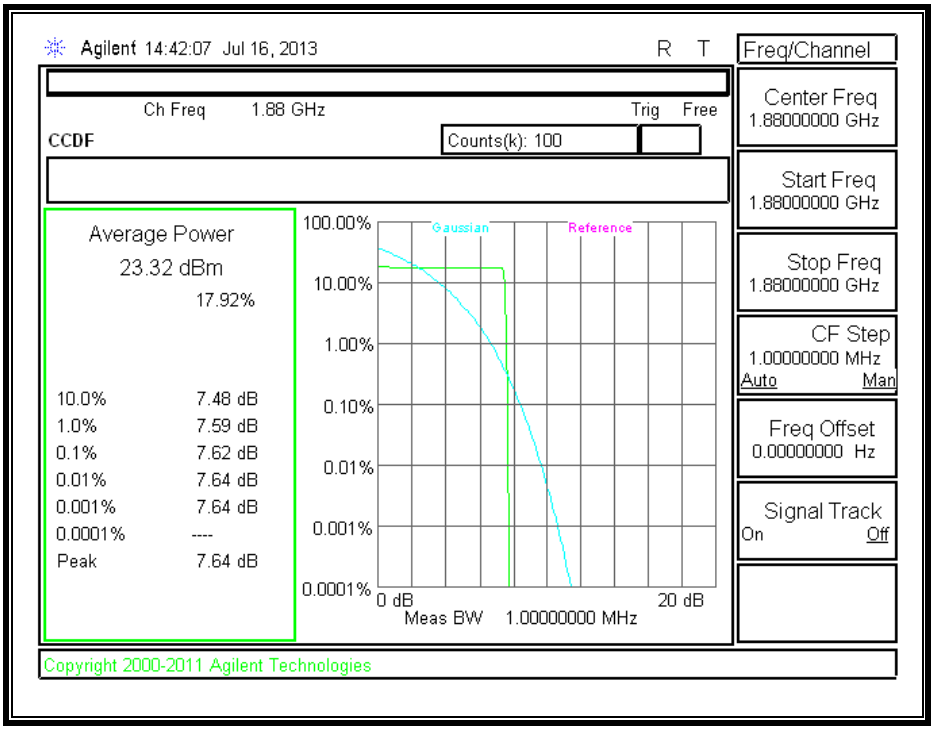
9. PEAK TO AVERAGE POWER RATIO

9.1. GPRS

CELL

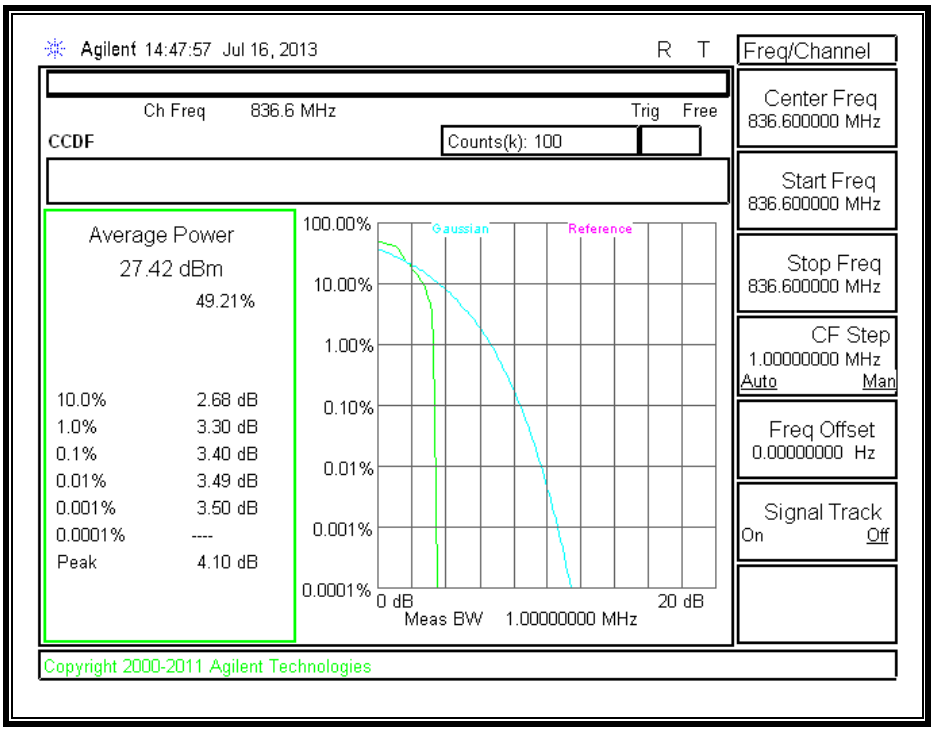


PCS

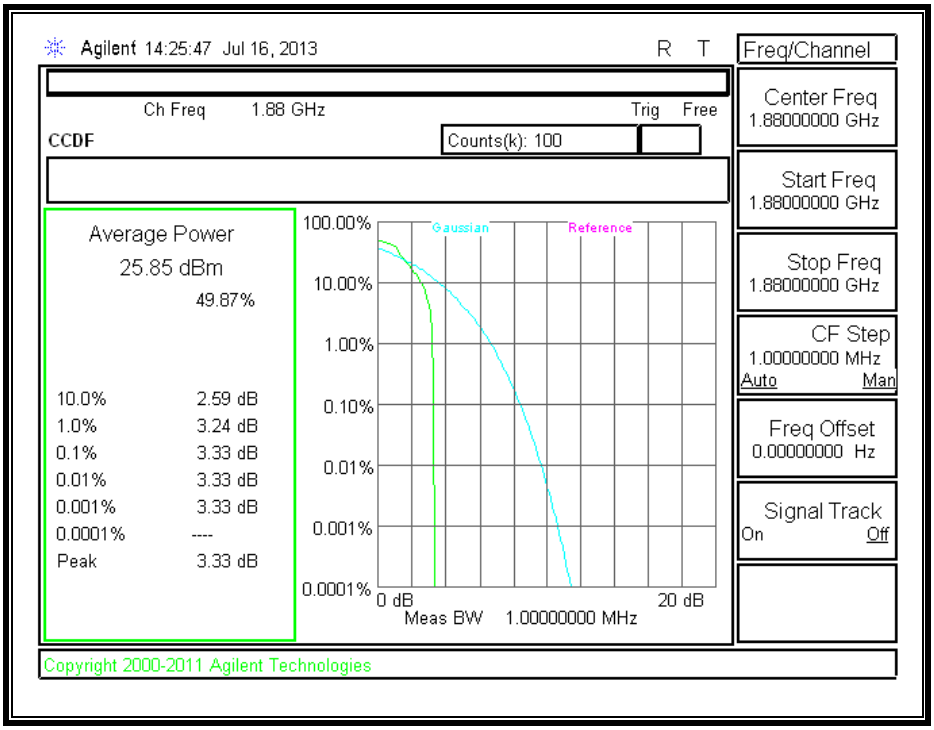


9.1. EGPRS

CELL

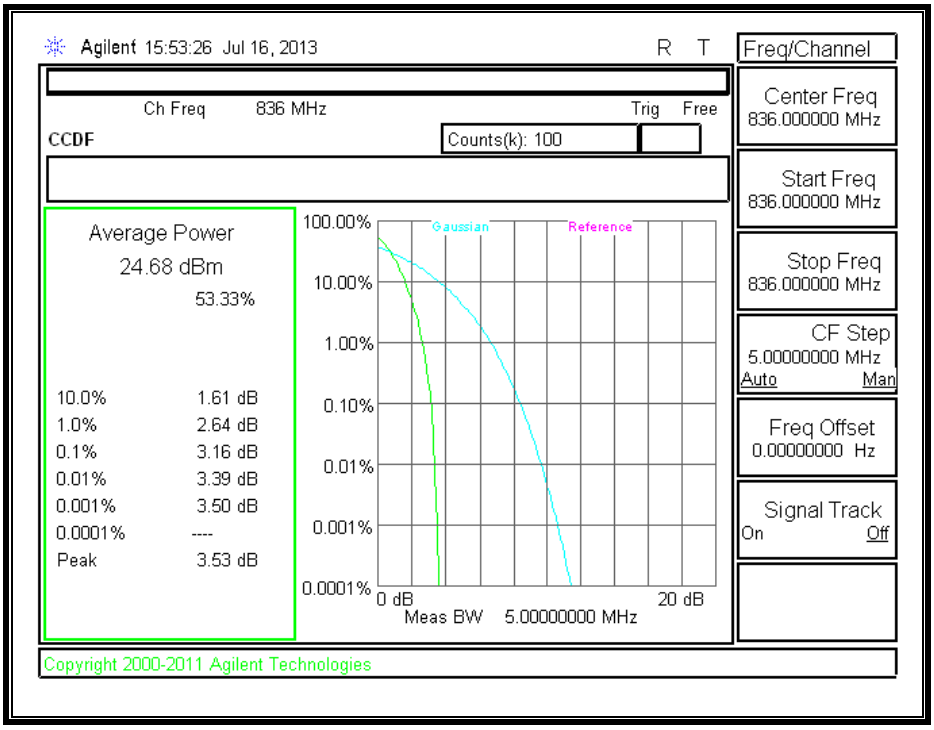


PCS

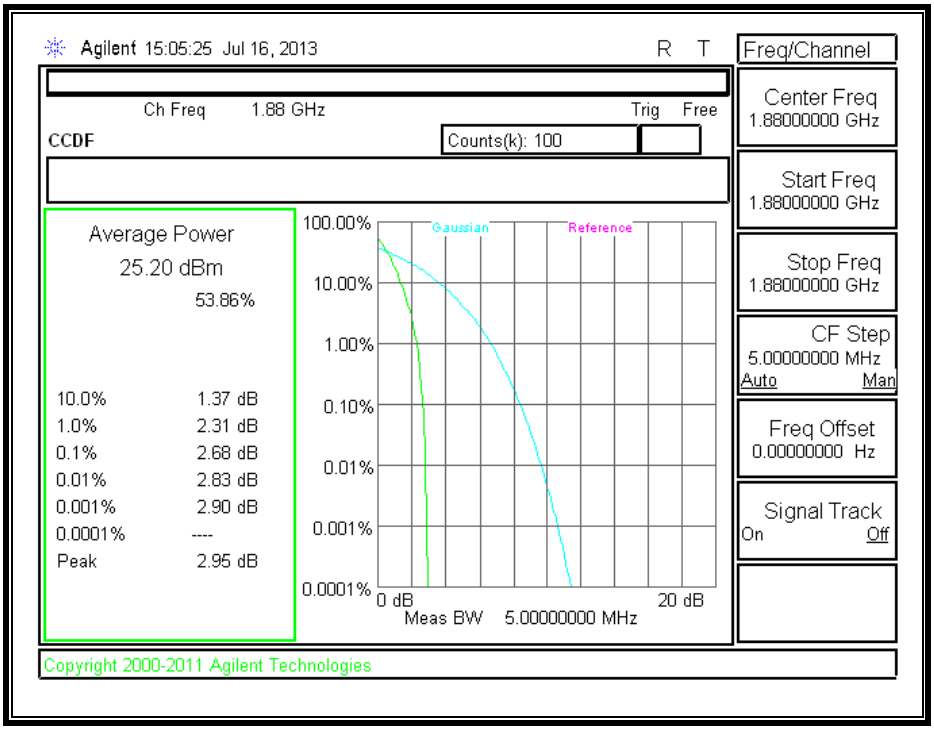


9.2. WCDMA REL 99

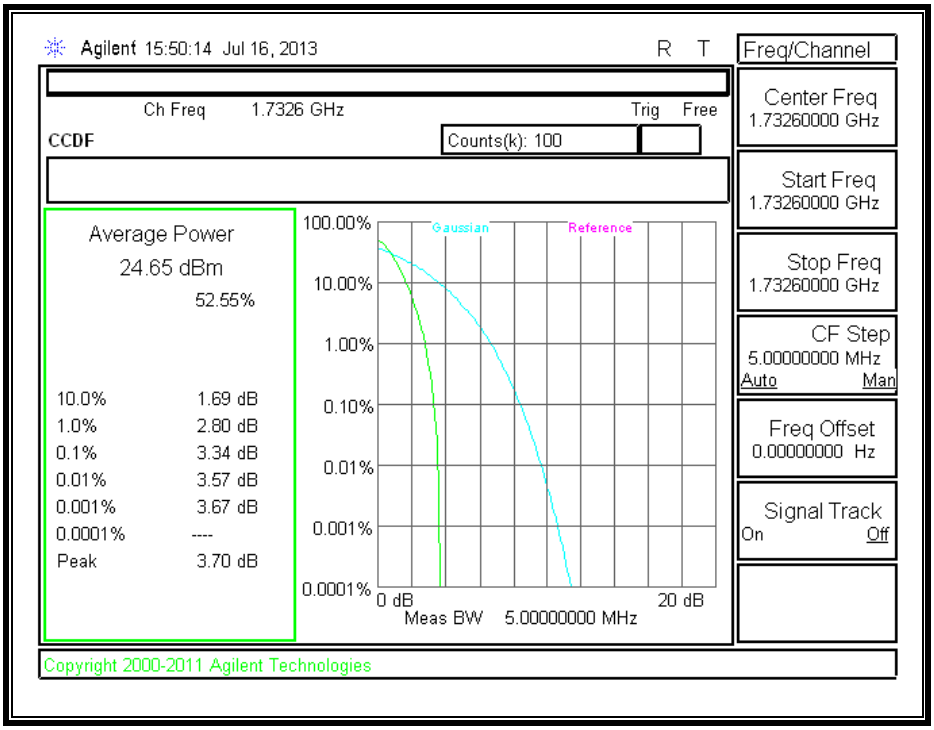
BAND 5



BAND 2

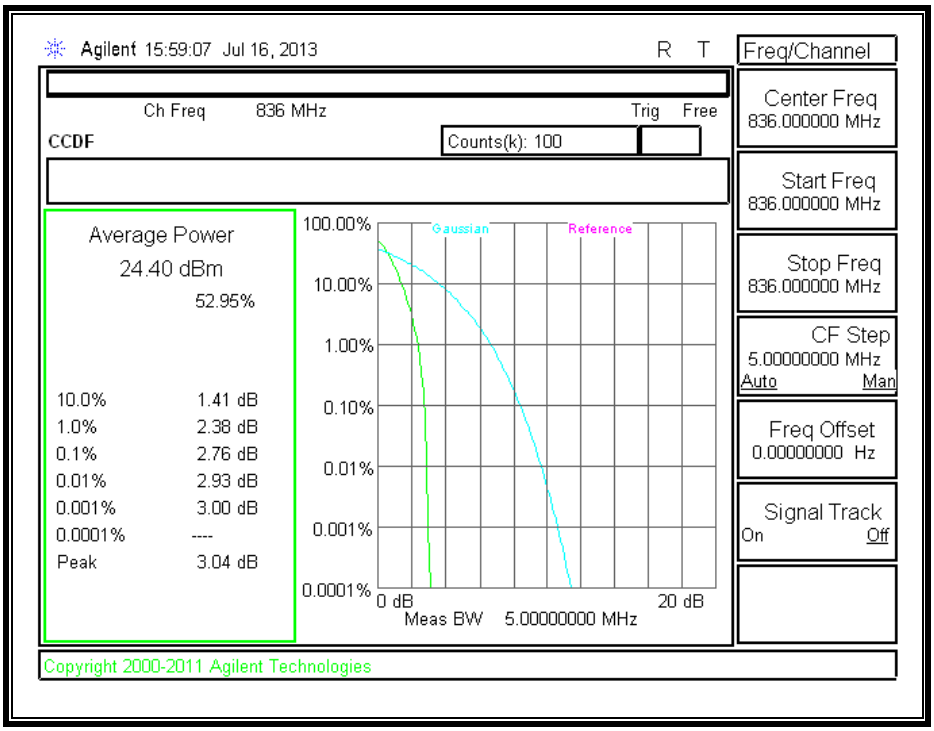


BAND 4

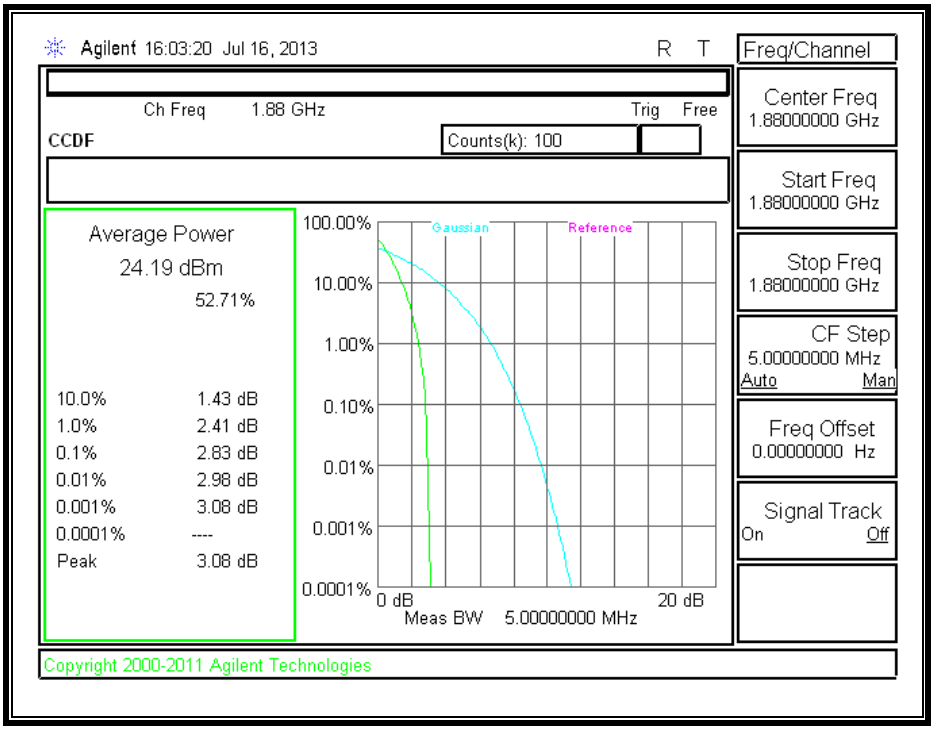


9.1. WCDMA HSDPA

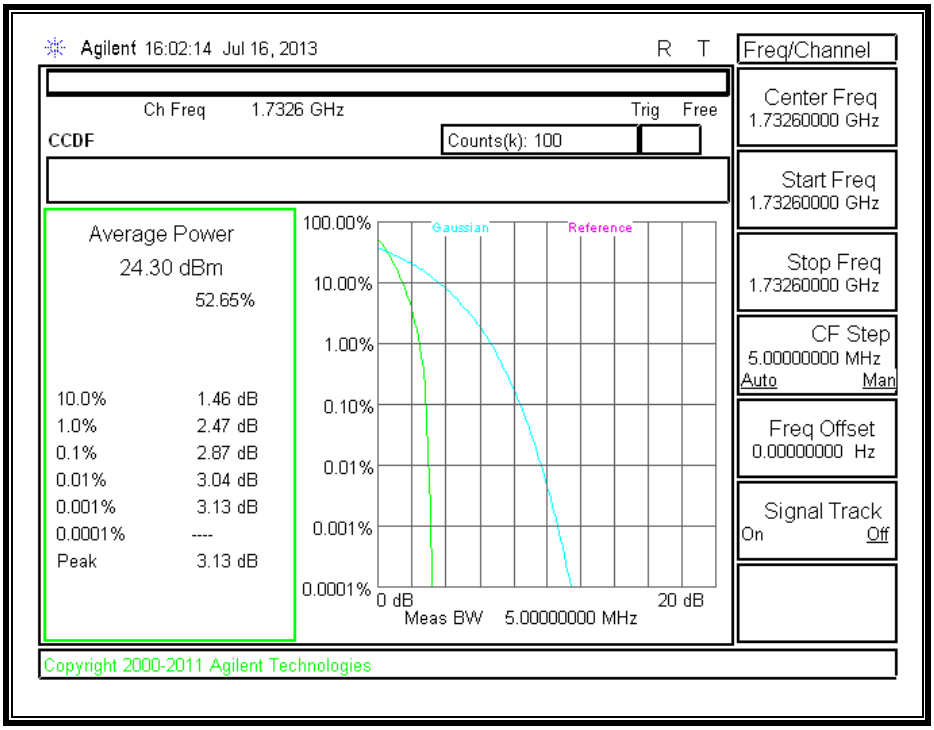
BAND 5



BAND 2

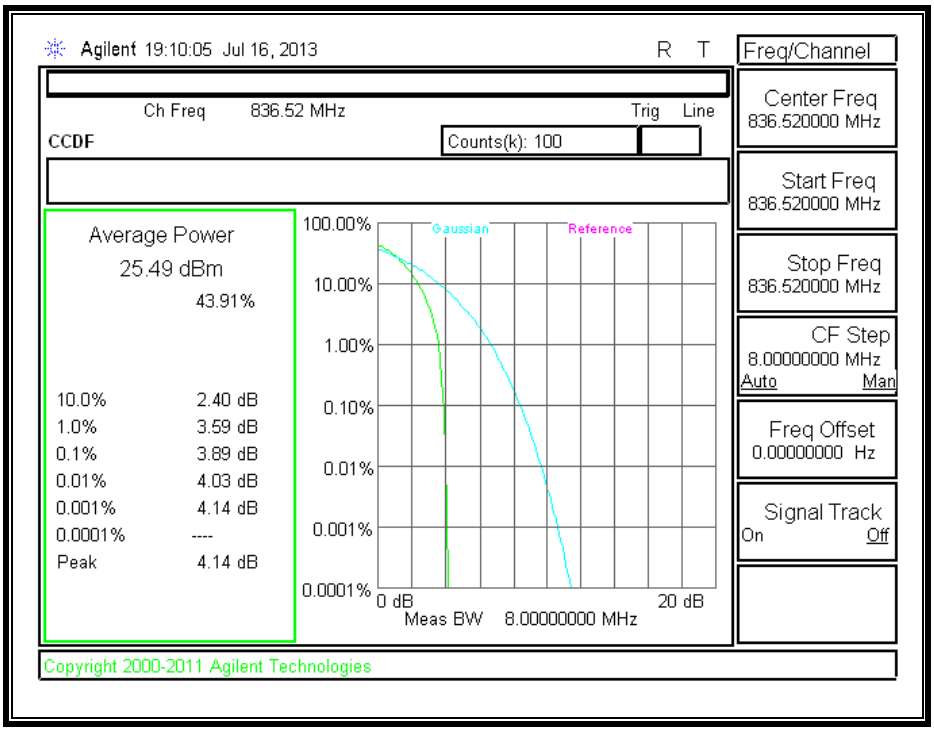


BAND 4

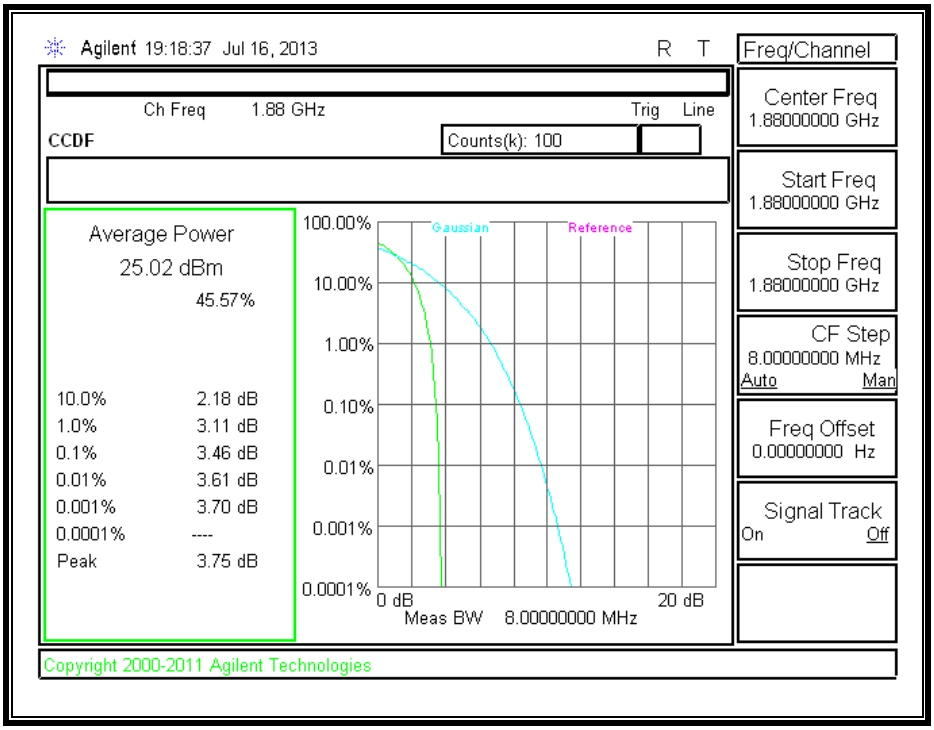


9.1. CDMA RTT

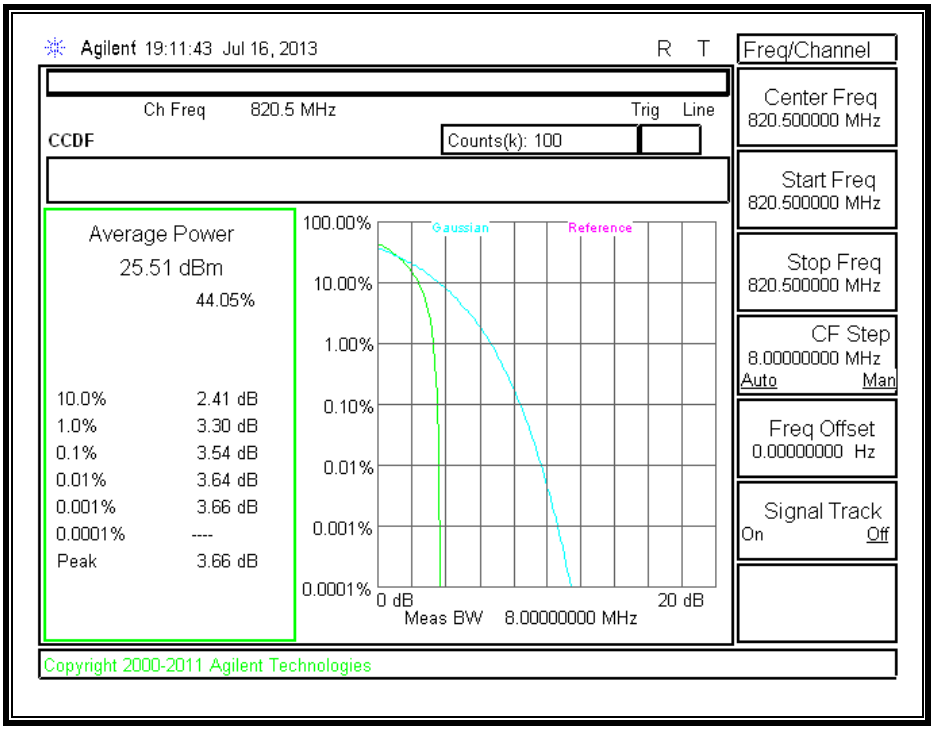
BC0



BC1

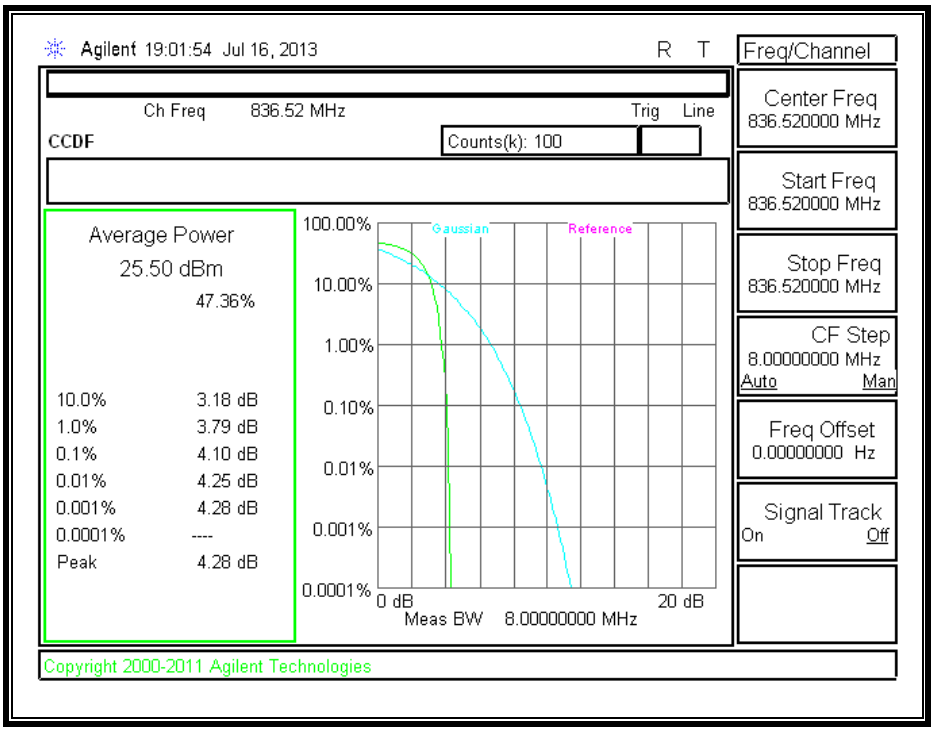


BC10

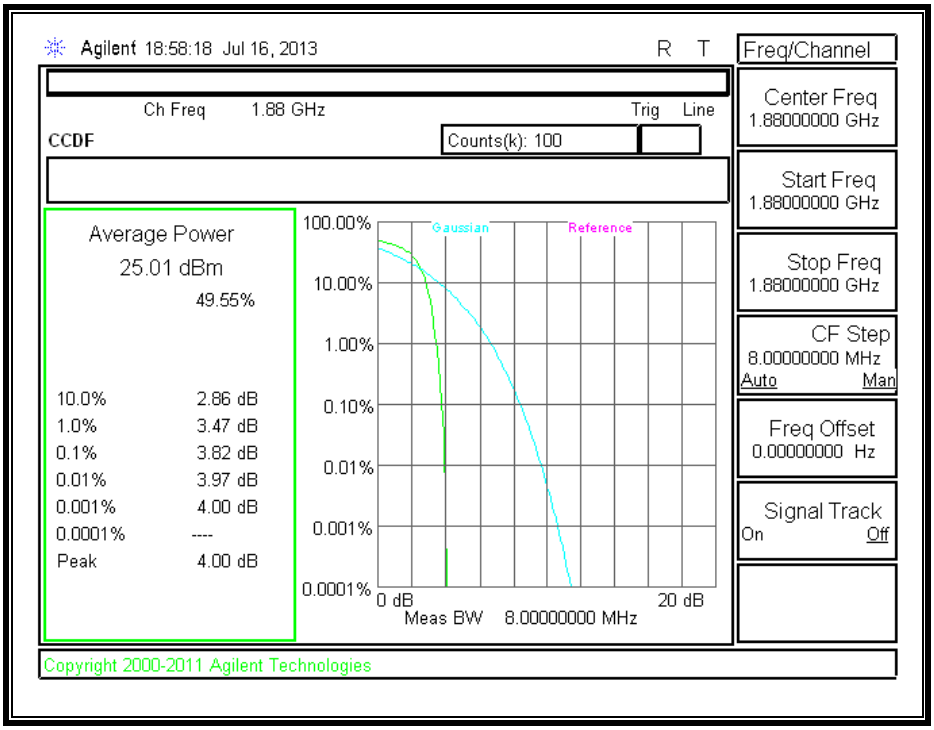


9.1. CDMA EV-DO

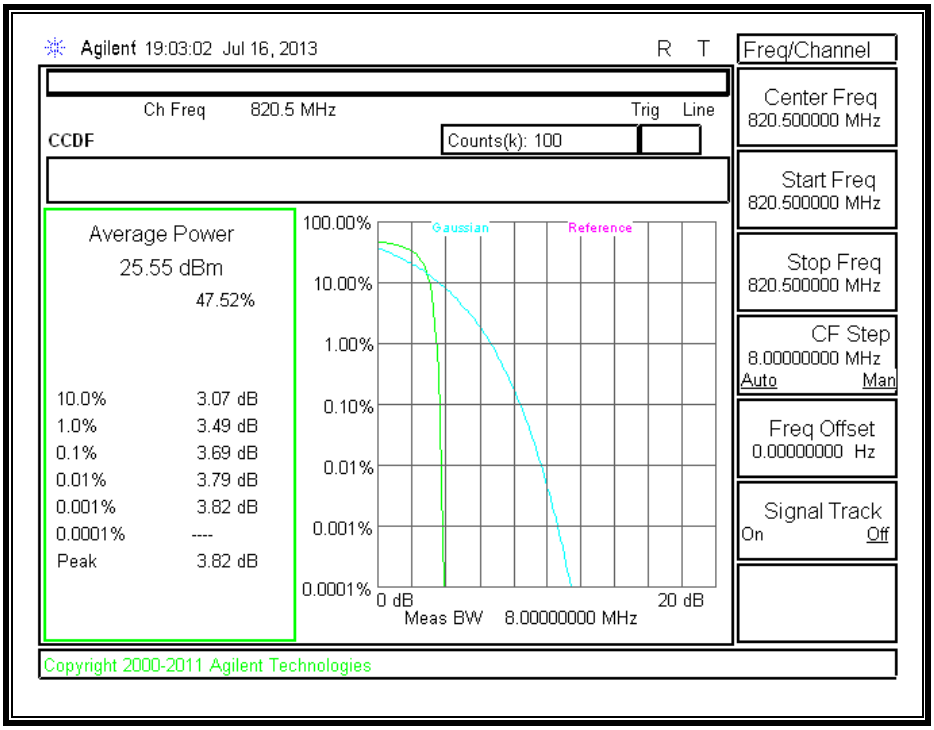
BC0



BC1



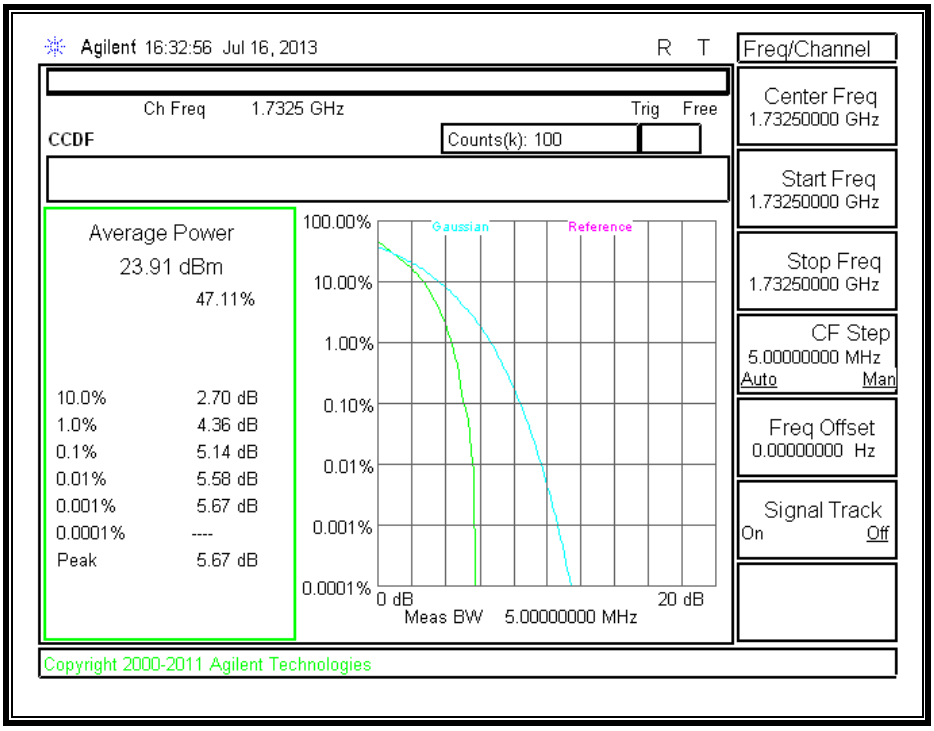
BC10



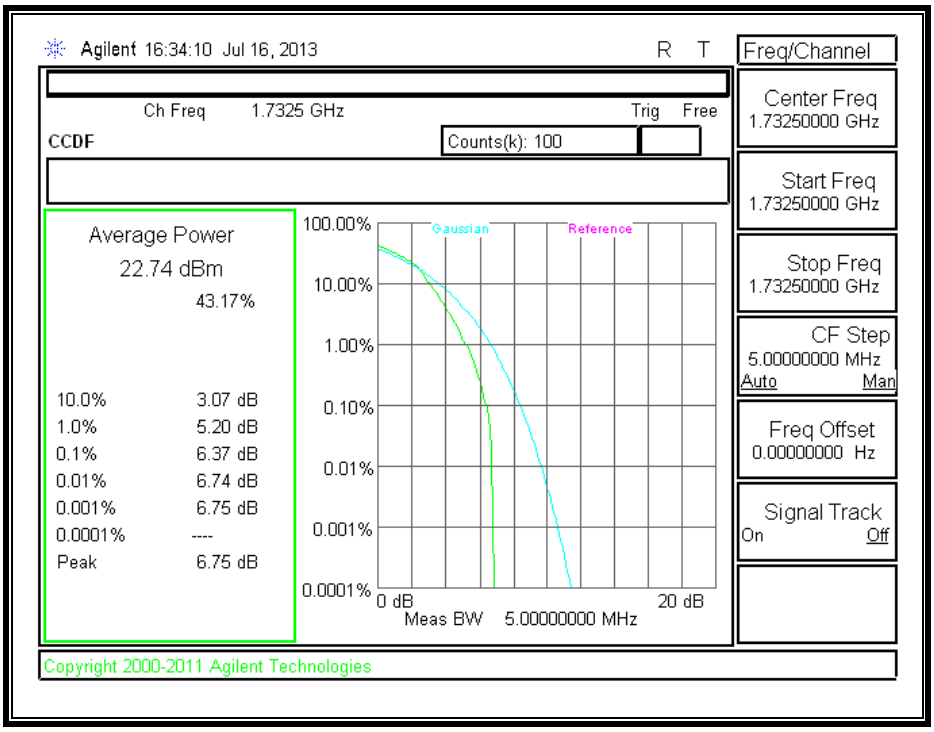
9.2. LTE BAND 4

9.2.1. 1.4 MHz

QPSK

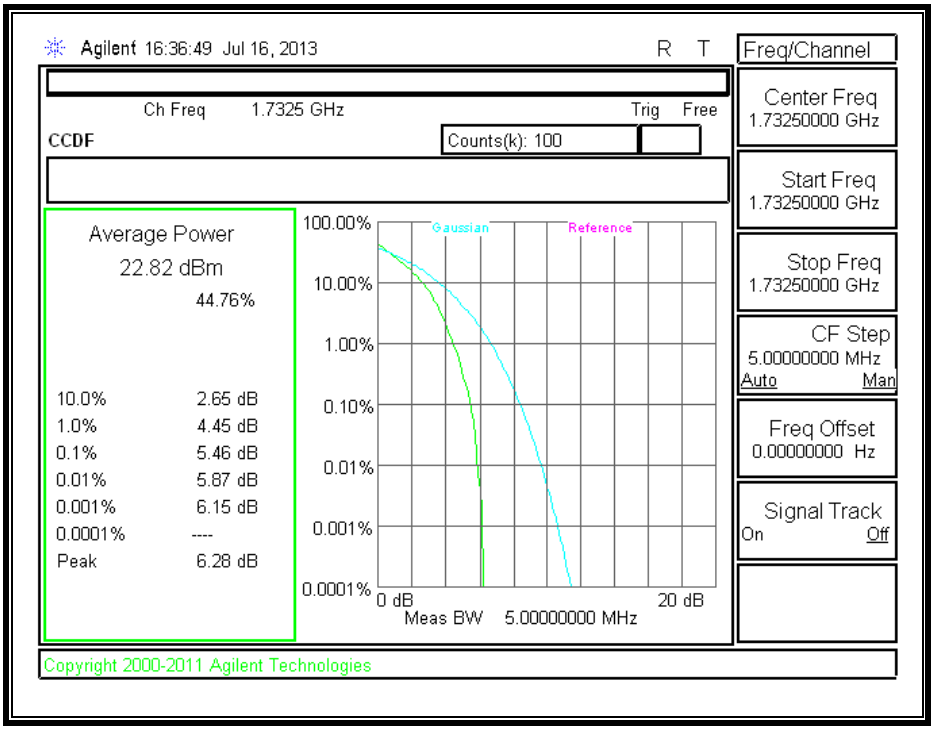


16QAM

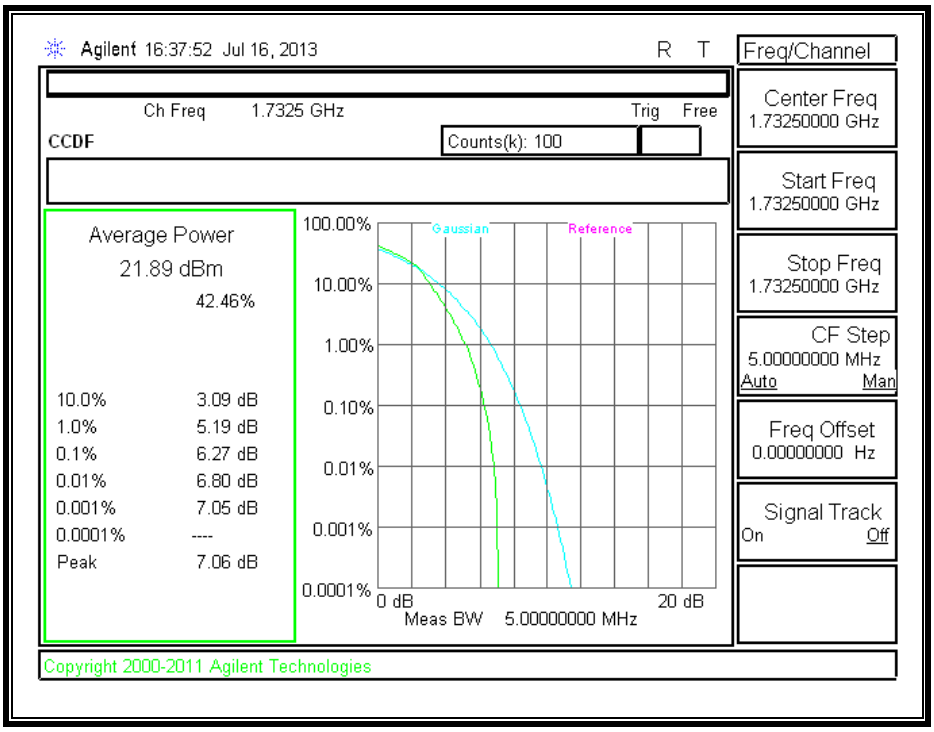


9.2.1. 3 MHz

QPSK

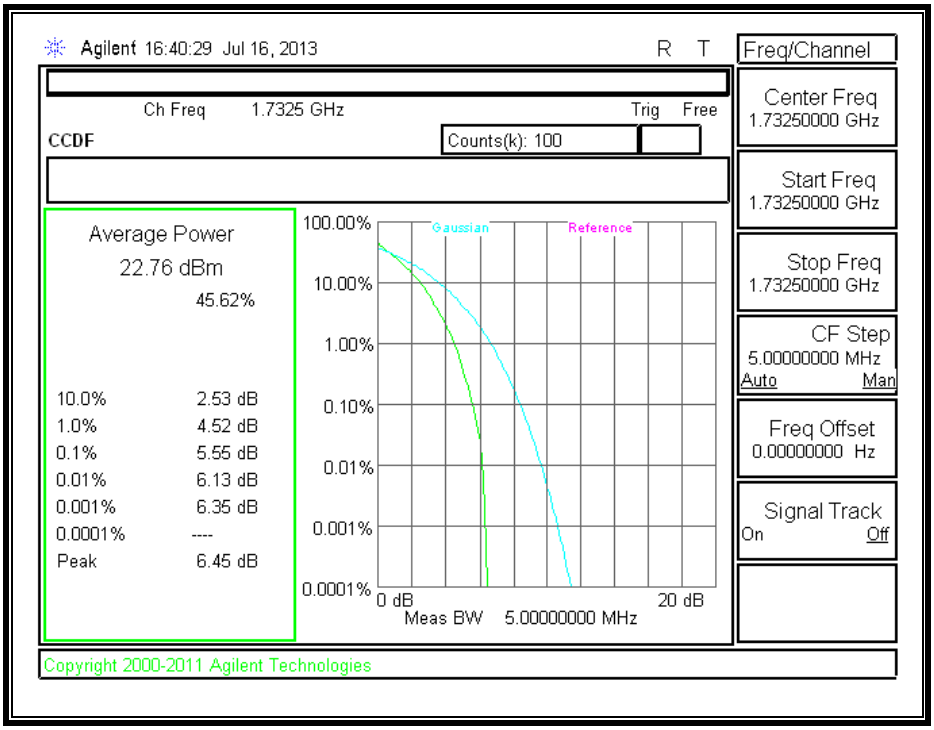


16QAM

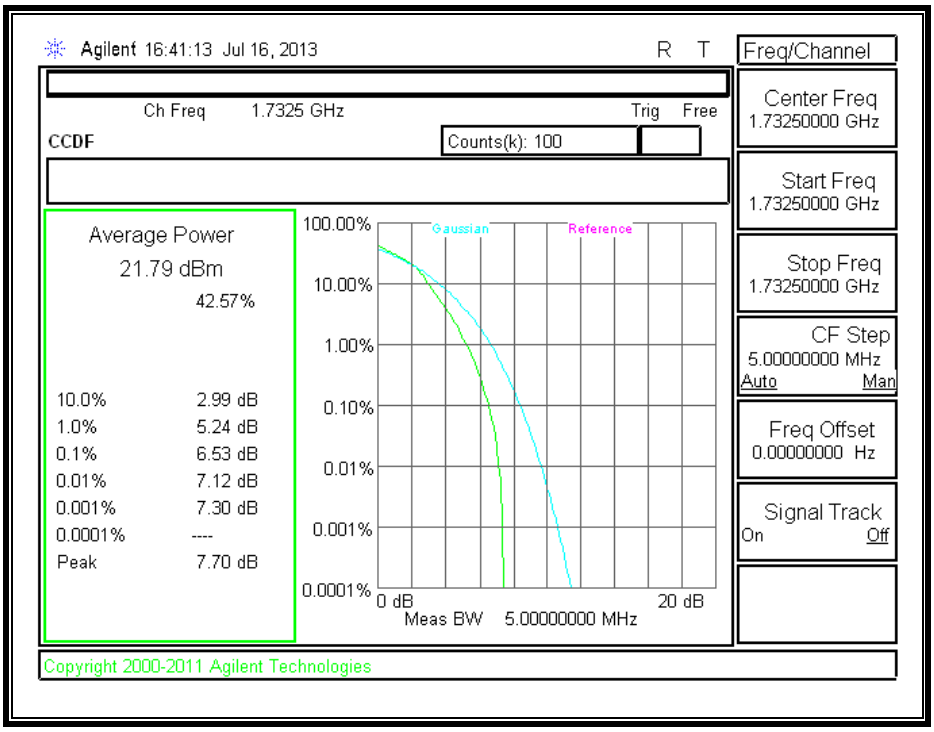


9.2.1. 5 MHz

QPSK

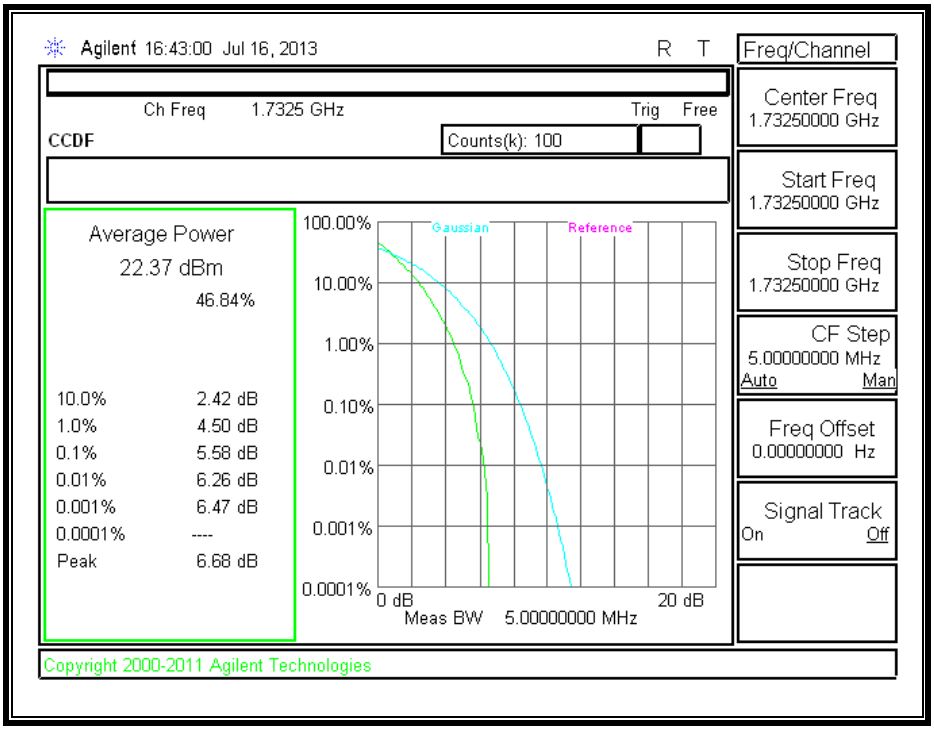


16QAM

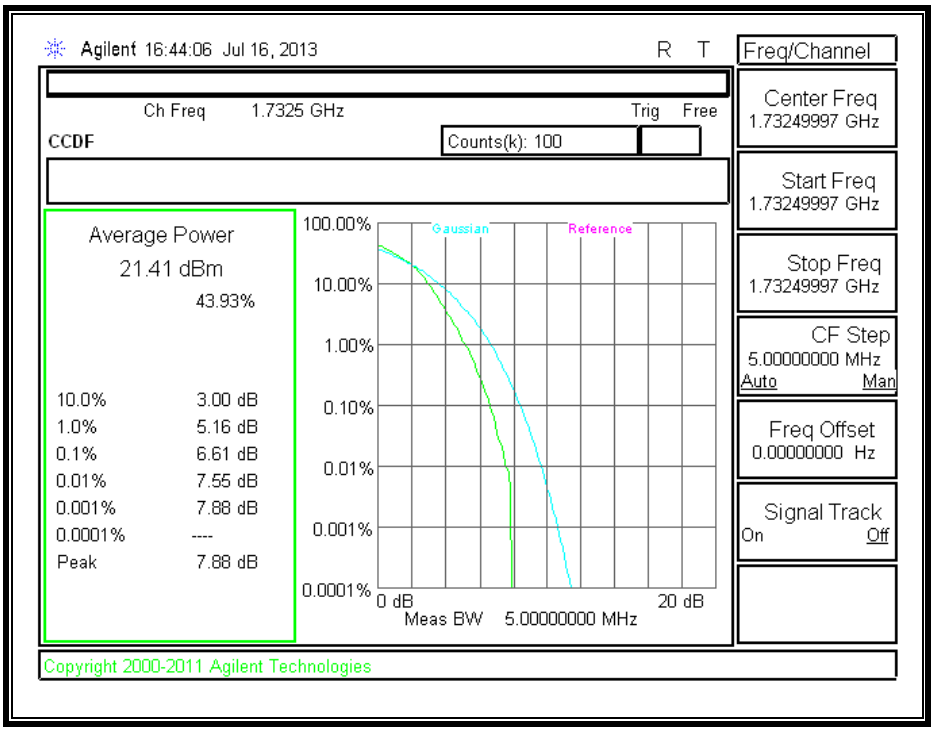


9.2.1. 10 MHz

QPSK

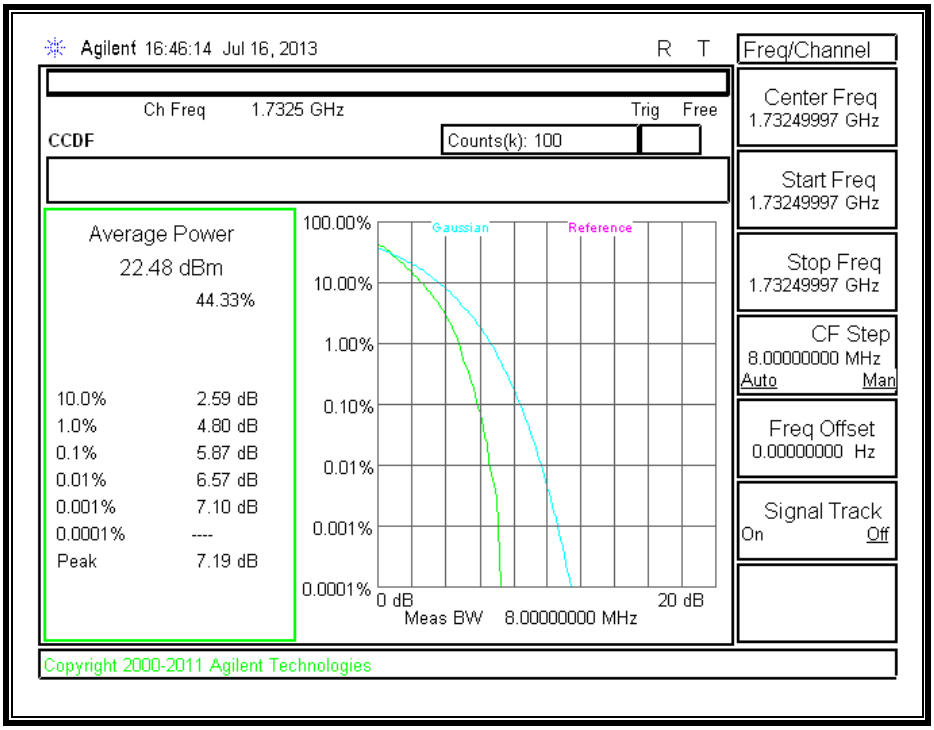


16QAM



9.2.1. 15 MHz

QPSK



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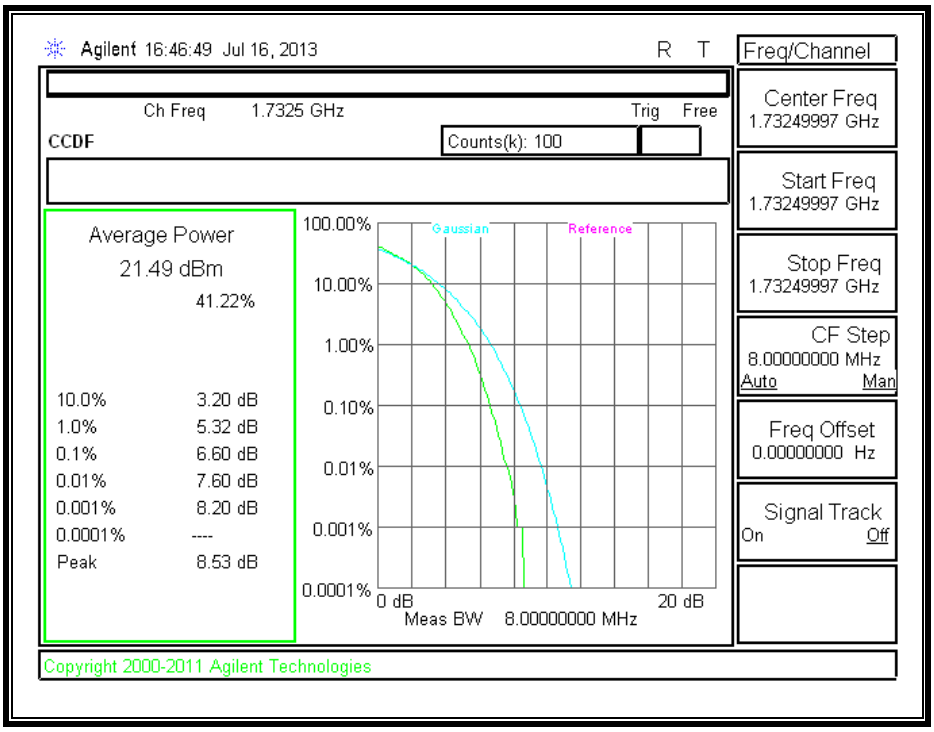
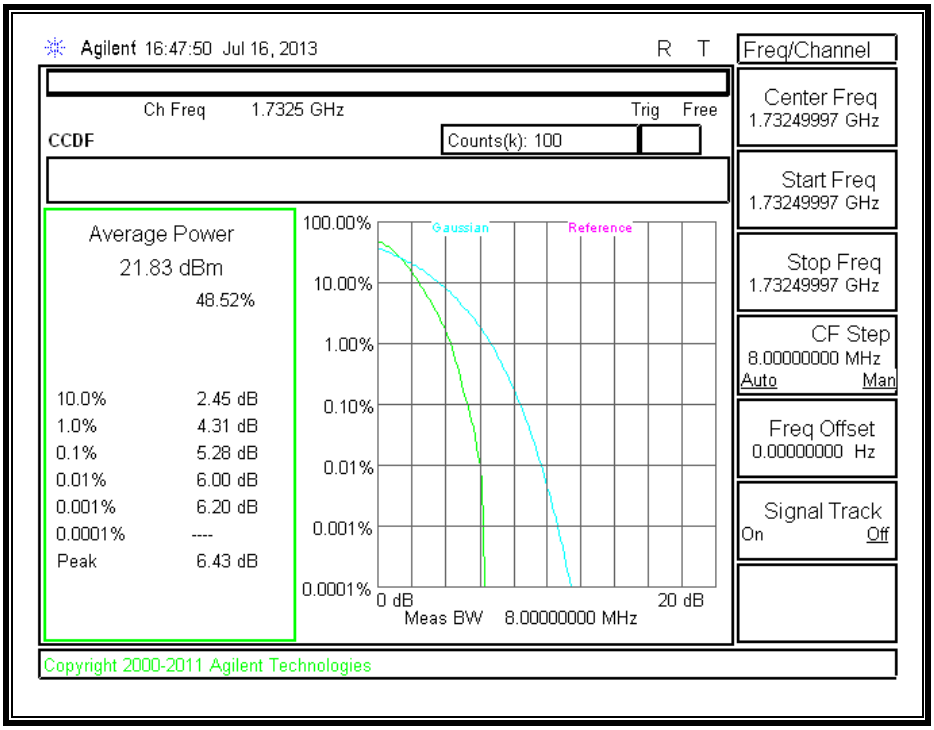
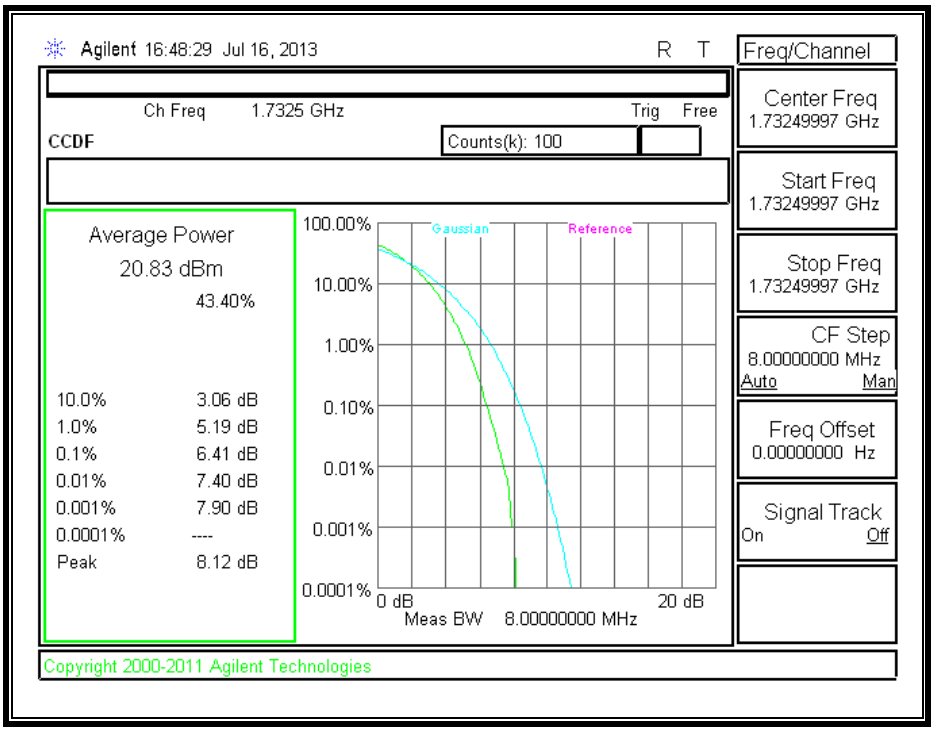


9.2.1. 20 MHz

QPSK



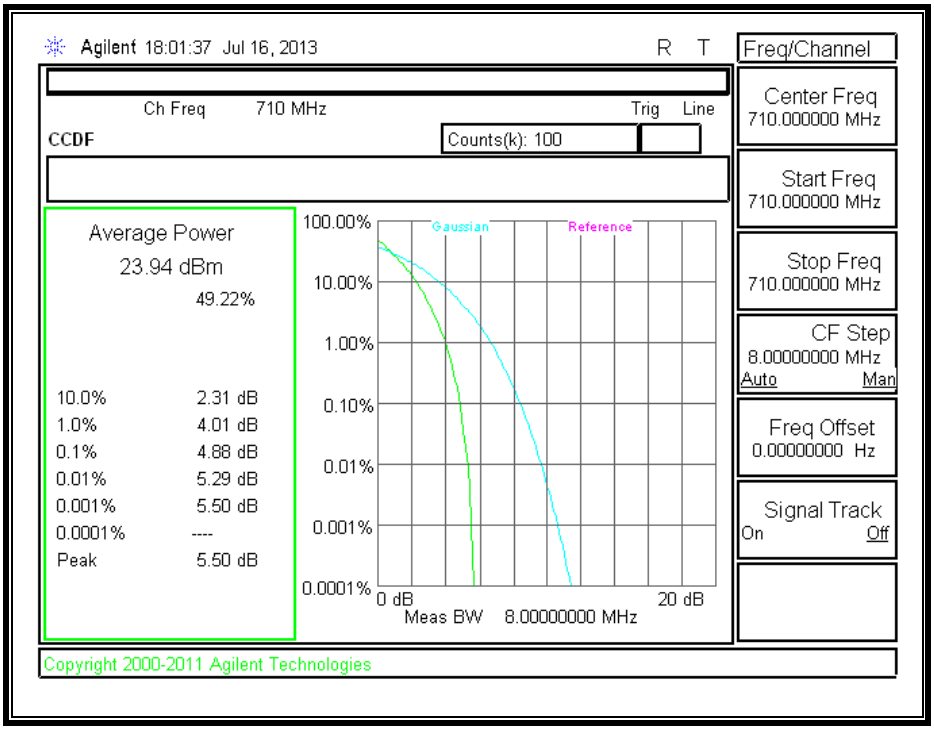
16QAM



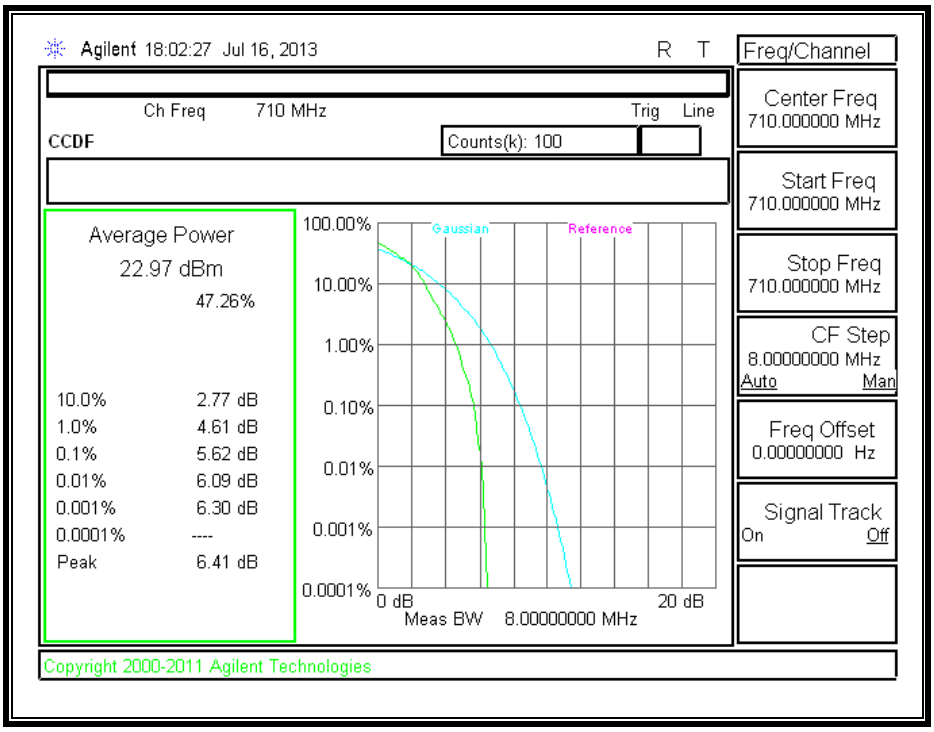
9.3. LTE BAND 17

9.3.1. 5 MHz

QPSK

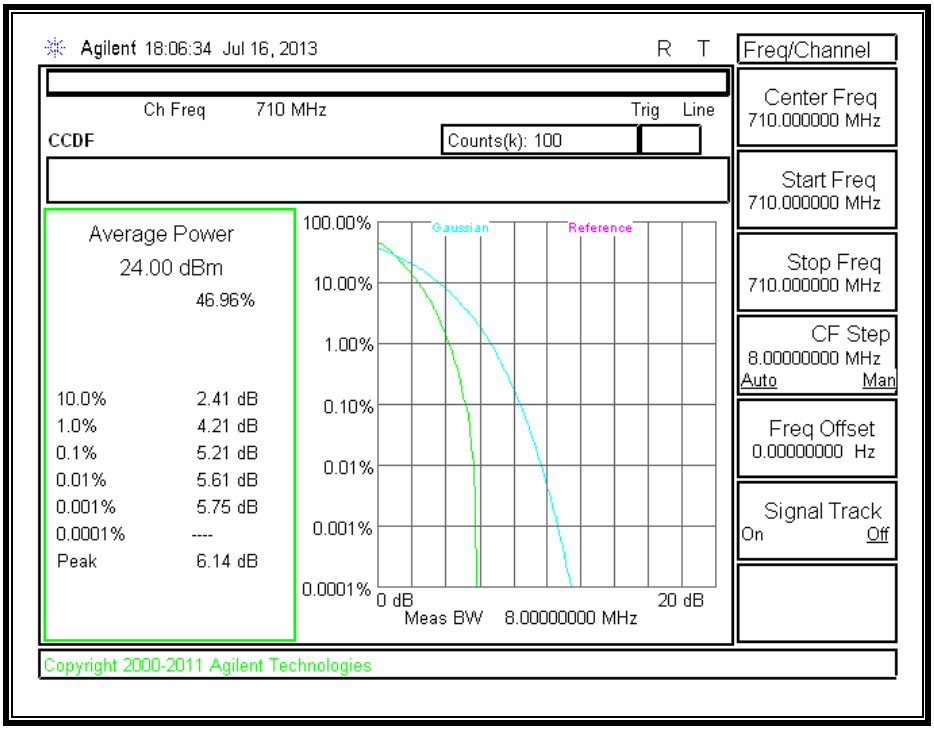


16QAM

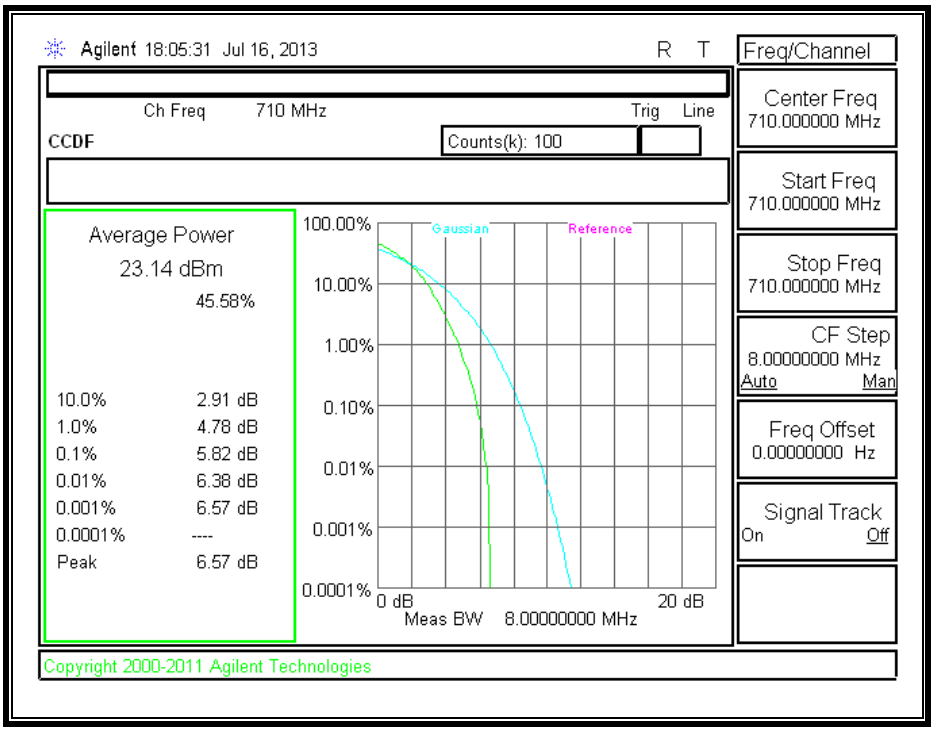


9.3.2. 10 MHz

QPSK



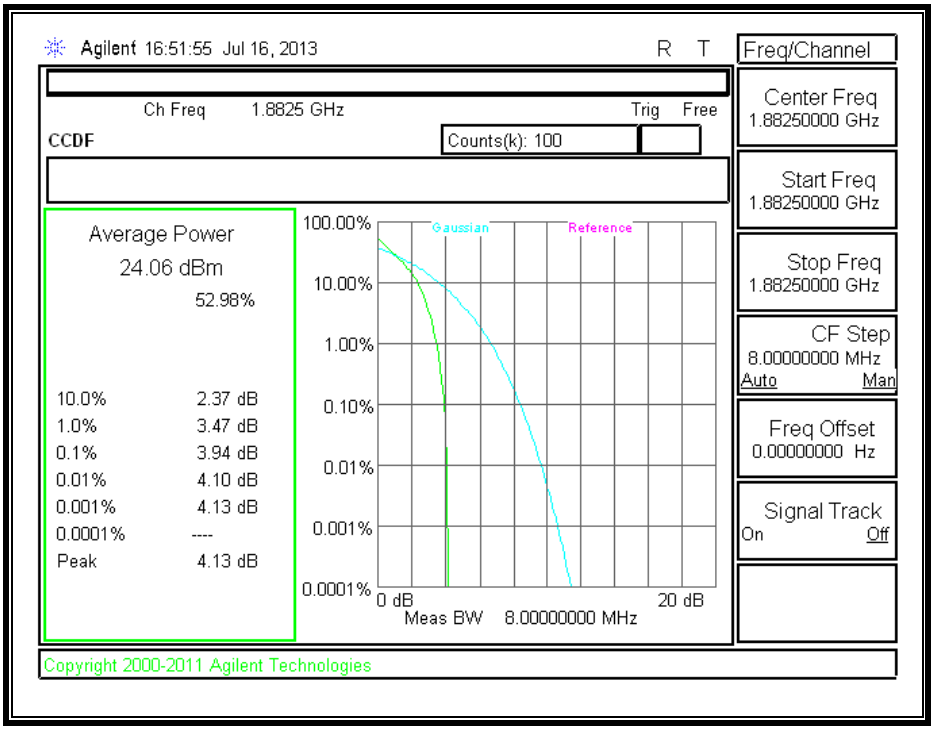
16QAM



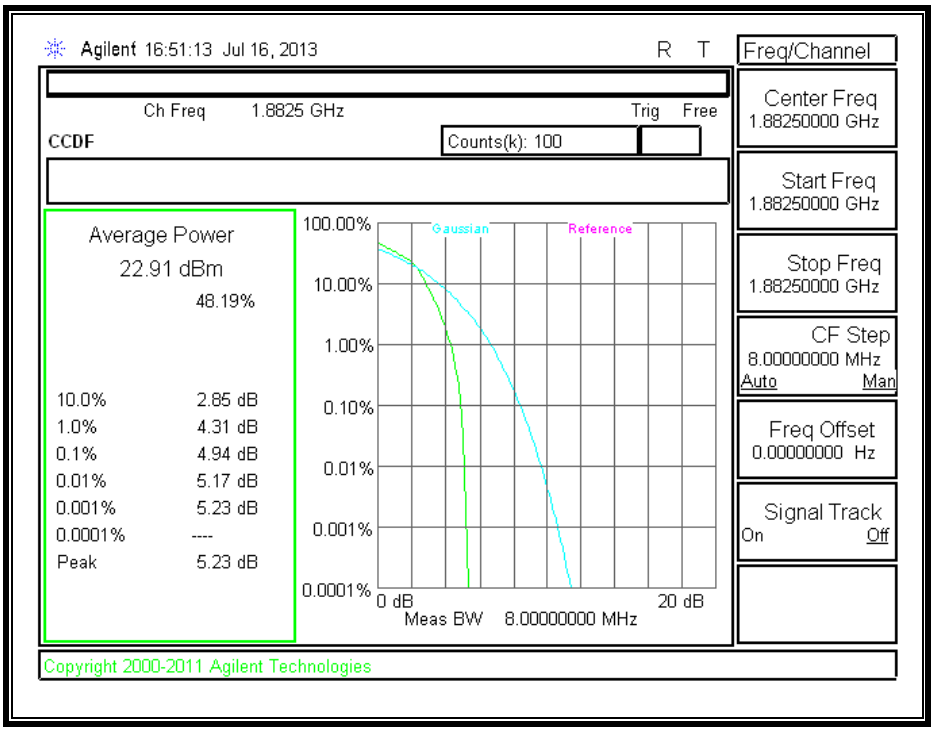
9.4. LTE BAND 25

9.4.1. 1.4 MHz

QPSK

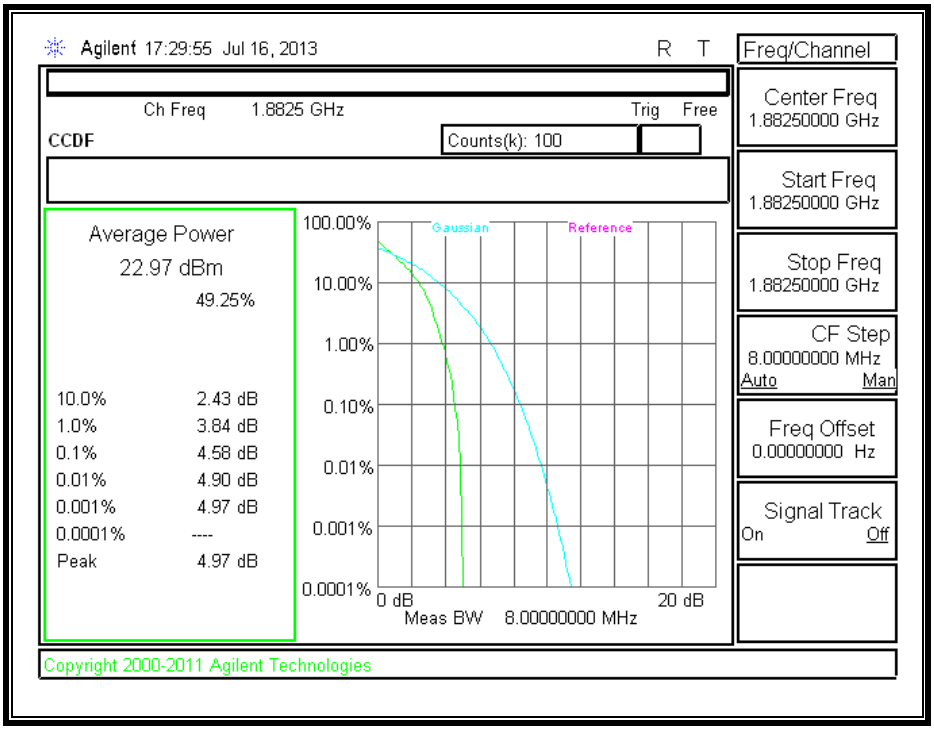


16QAM

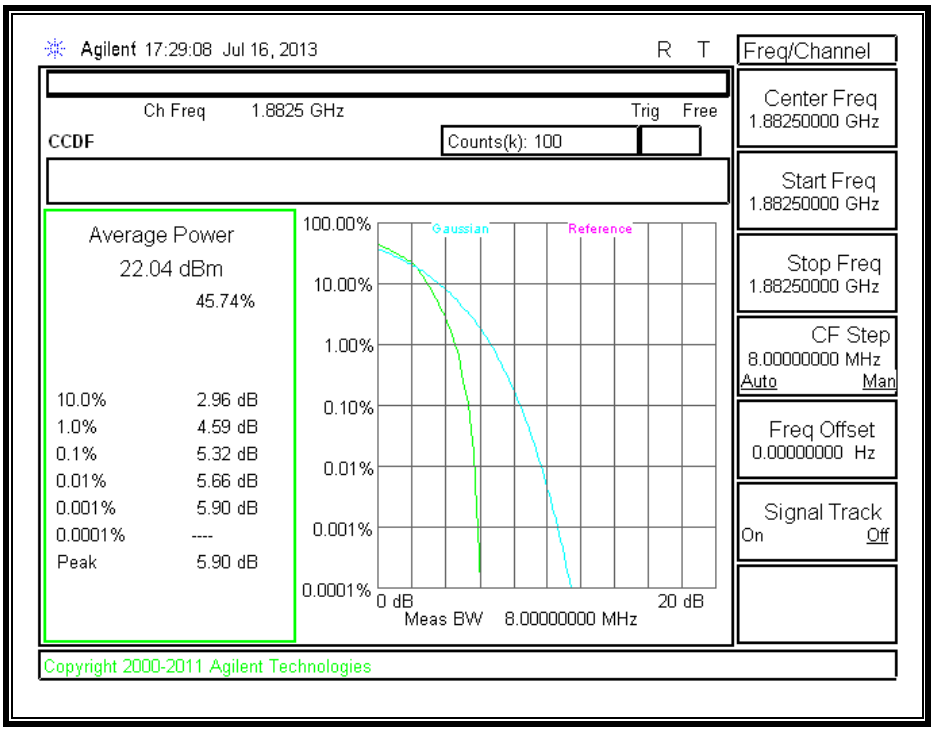


9.4.2. 3 MHz

QPSK

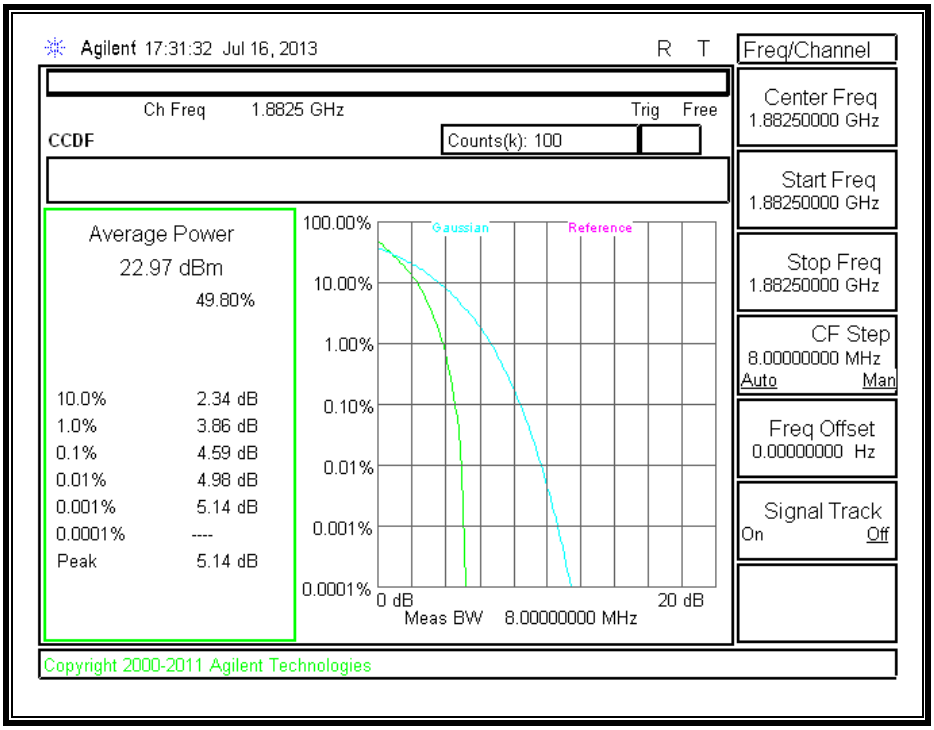


16QAM

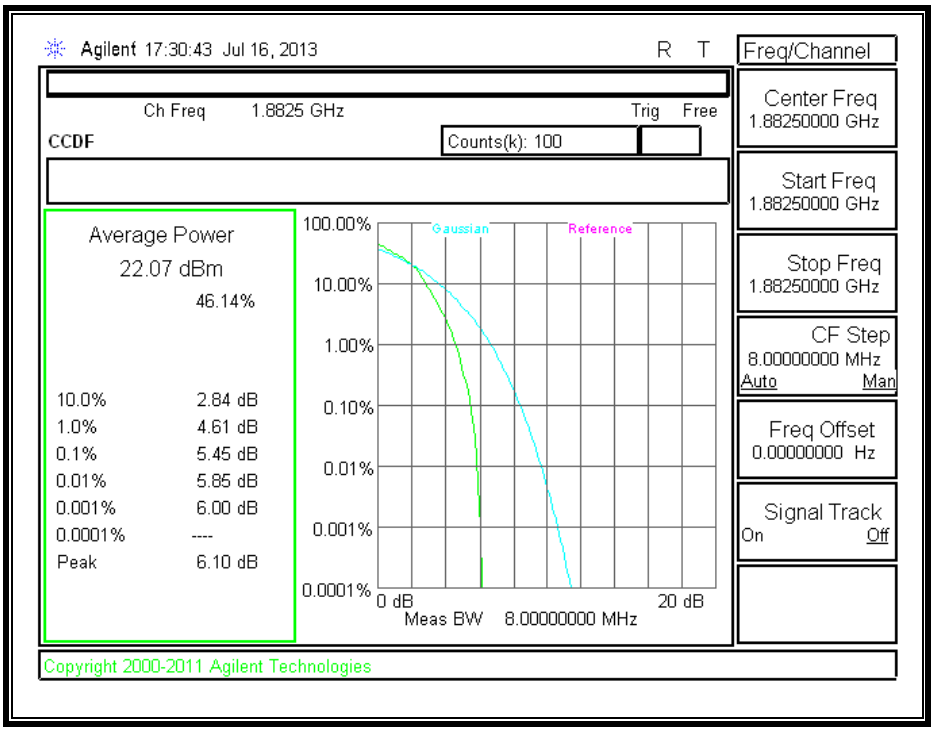


9.4.3. 5 MHz

QPSK

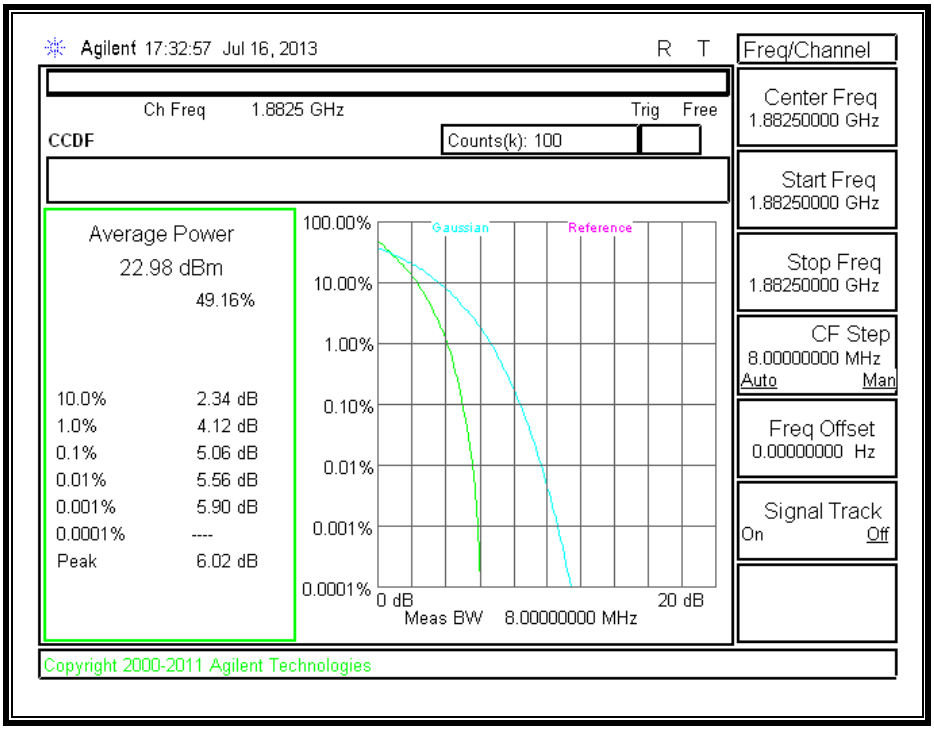


16QAM

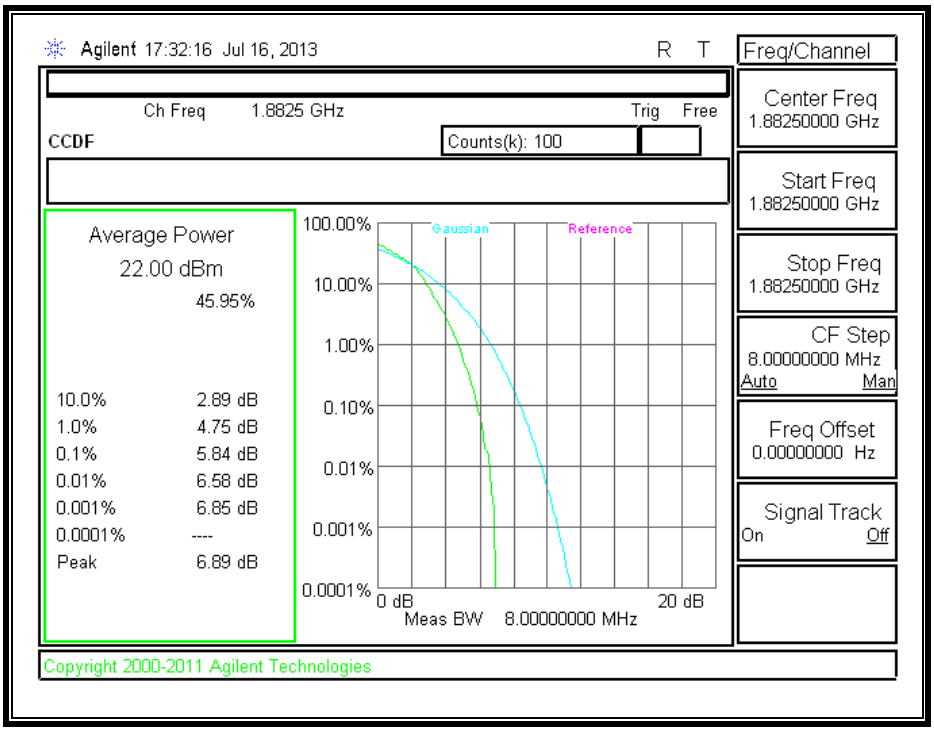


9.4.4. 10 MHz

QPSK

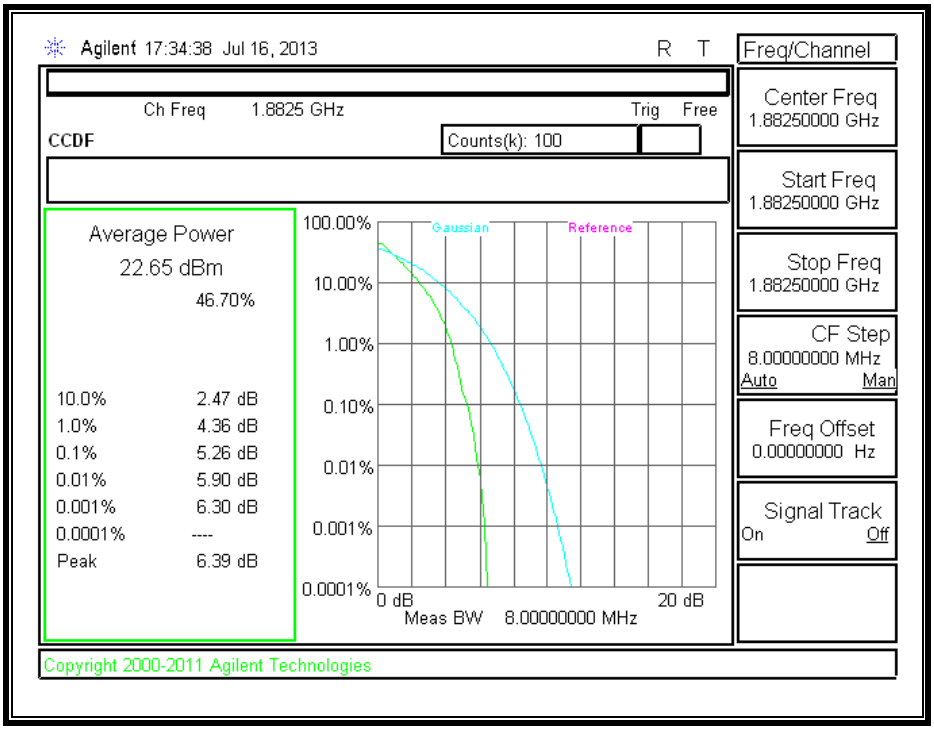


16QAM

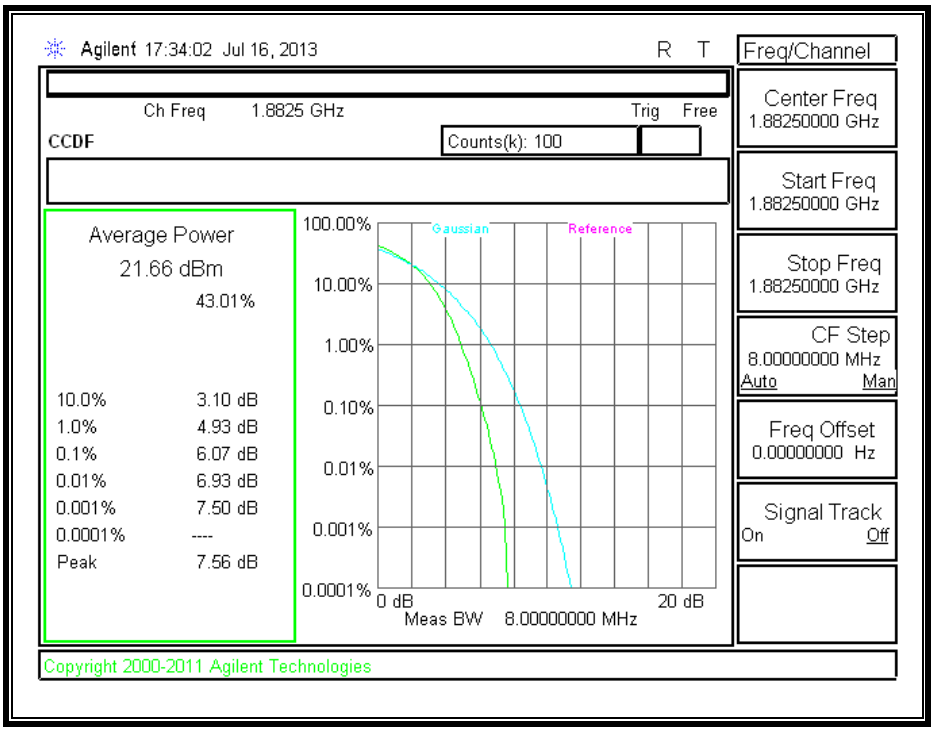


9.4.5. 15 MHz

QPSK

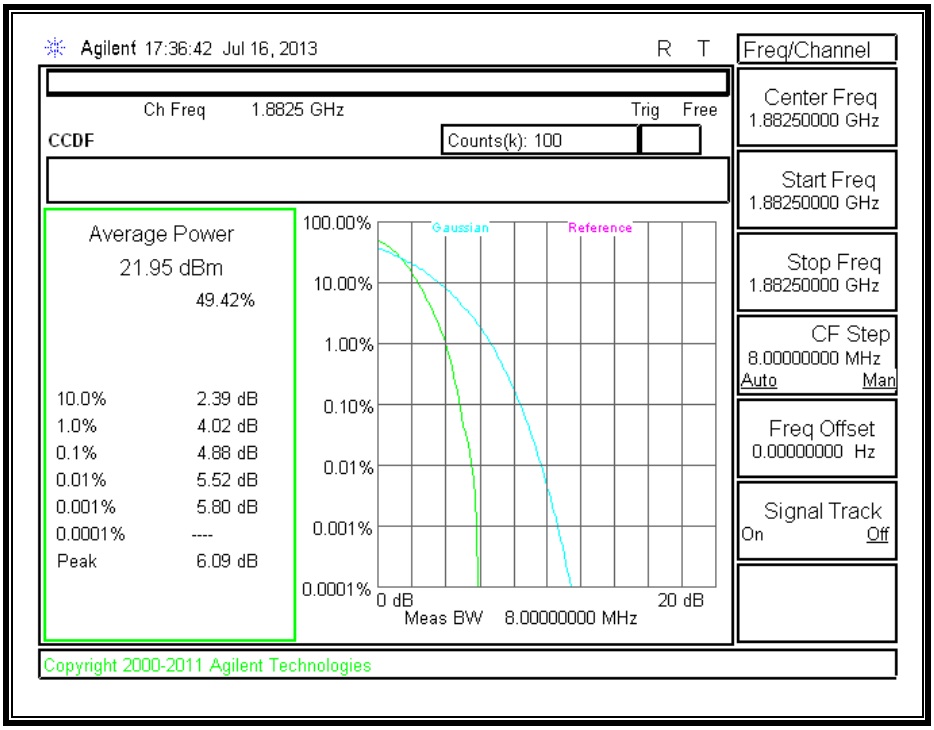


16QAM

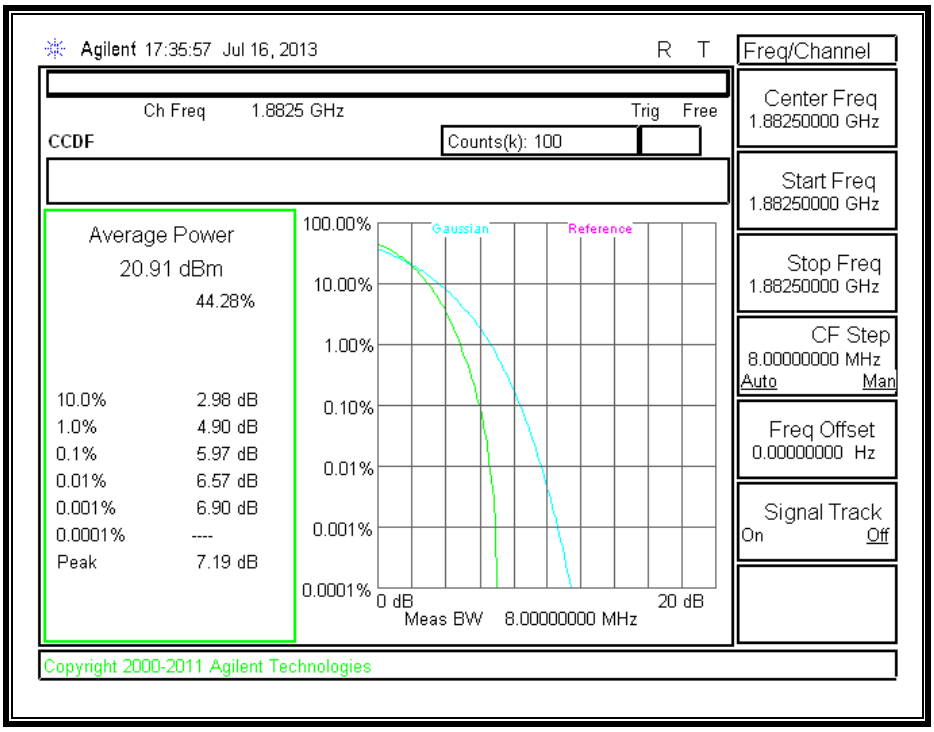


9.4.6. 20 MHz

QPSK



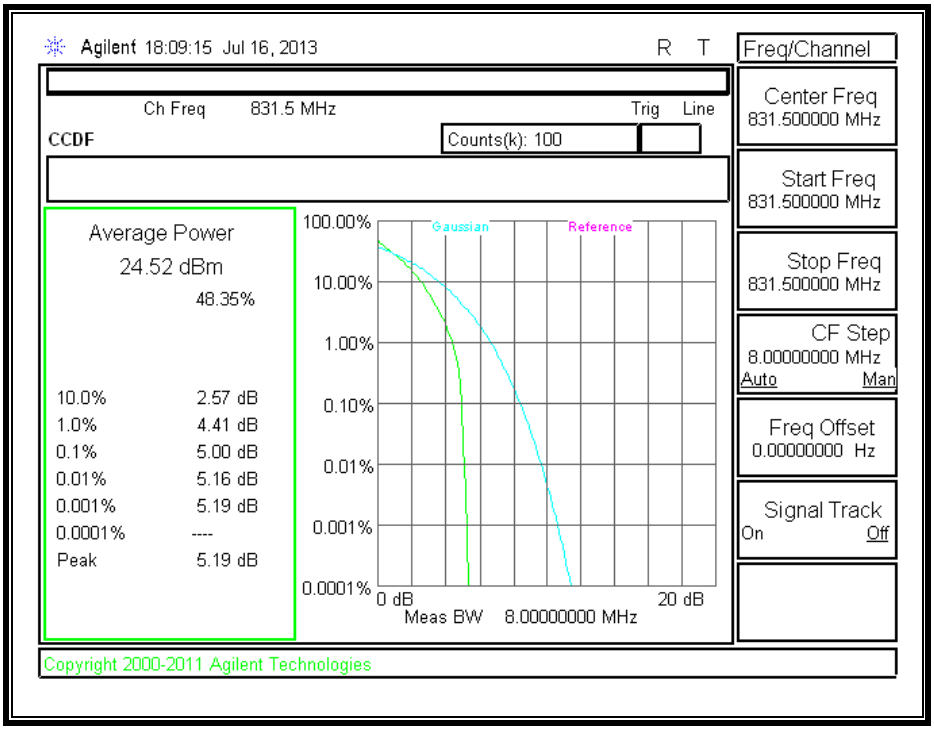
16QAM



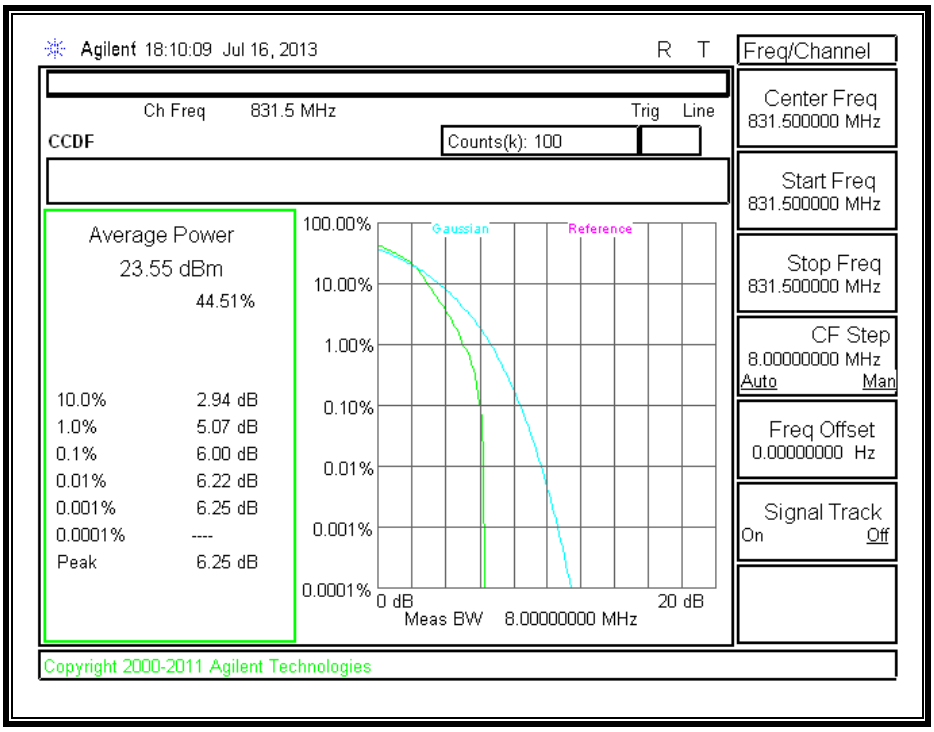
9.5. LTE BAND 26

9.5.1. 1.4 MHz

QPSK

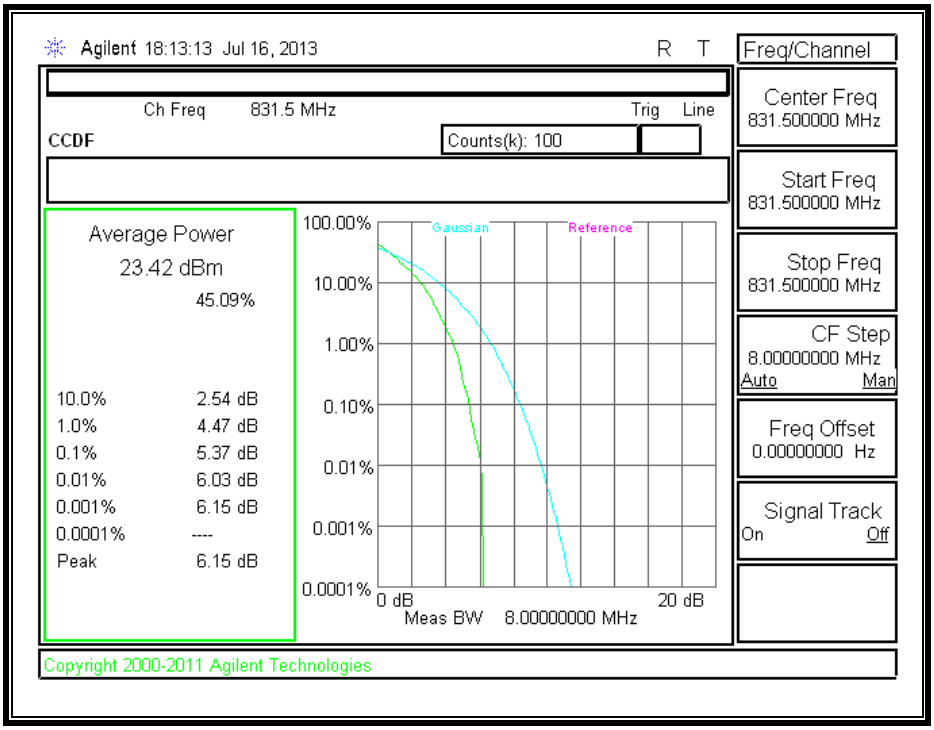


16QAM

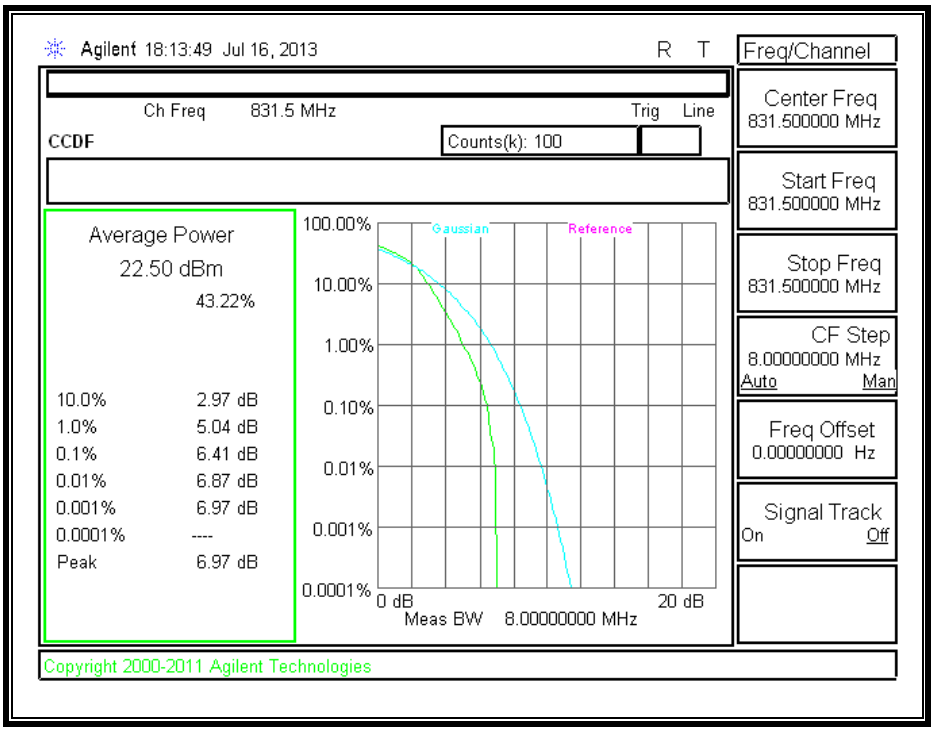


9.5.2. 3 MHz

QPSK

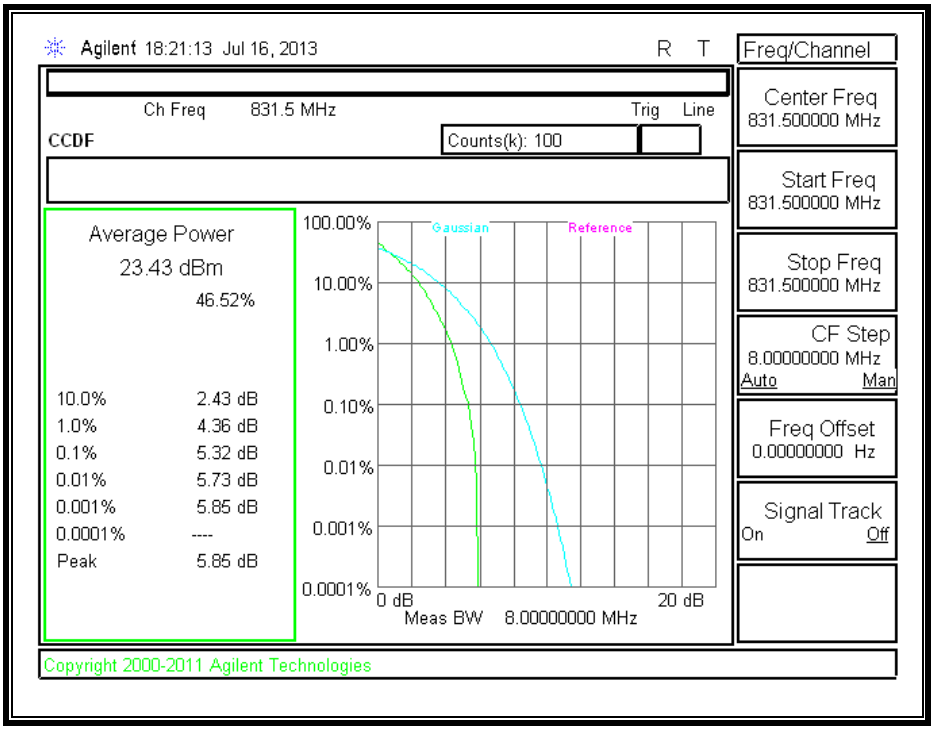


16QAM

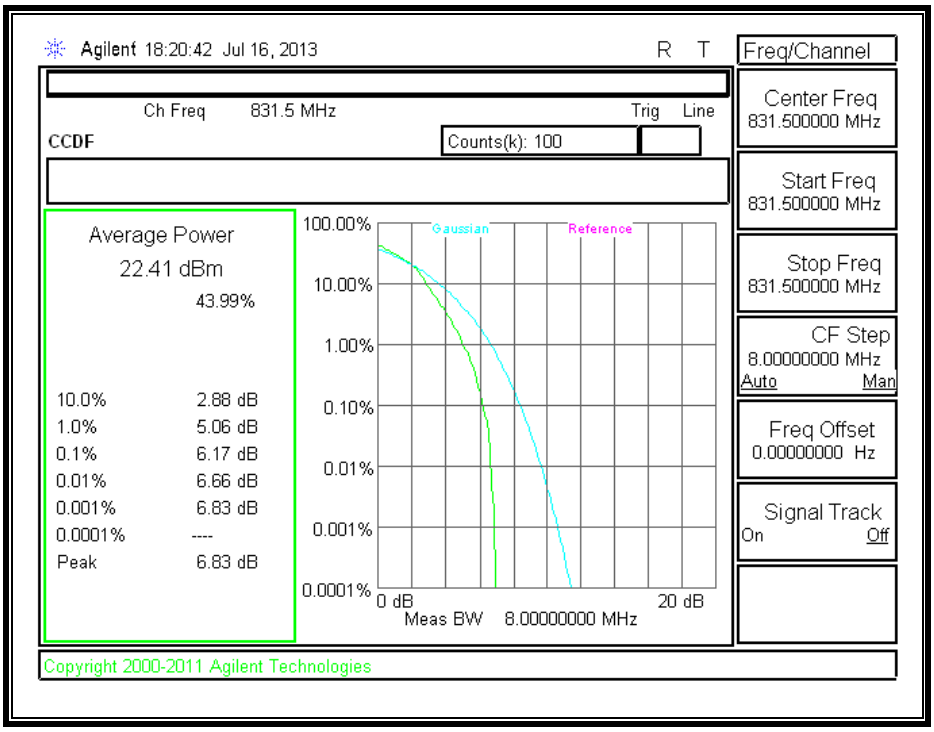


9.5.3. 5 MHz

QPSK

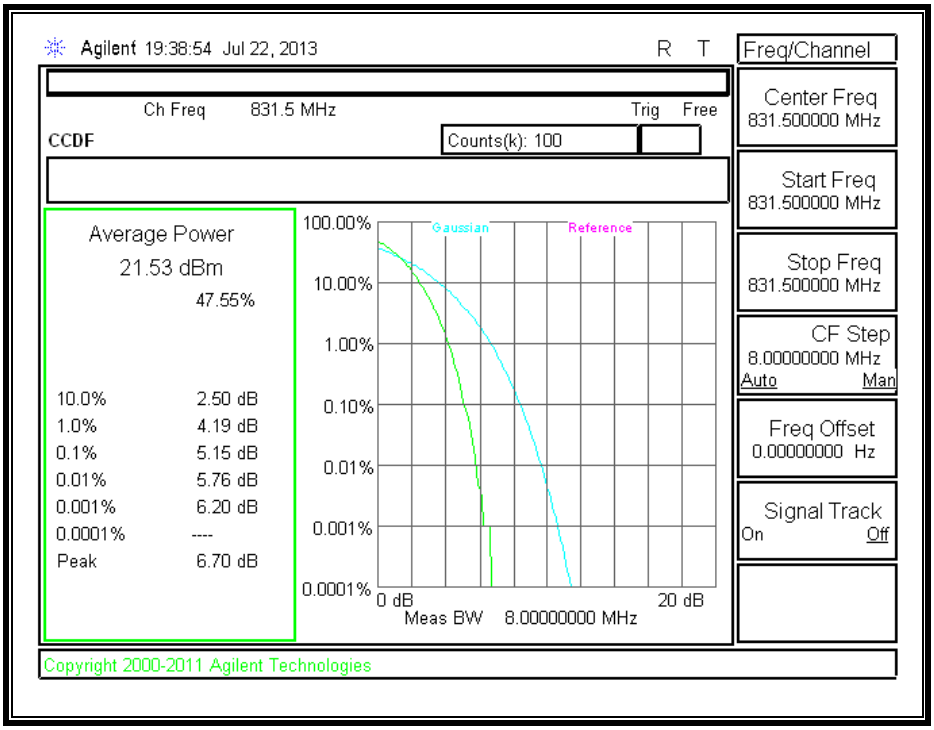


16QAM

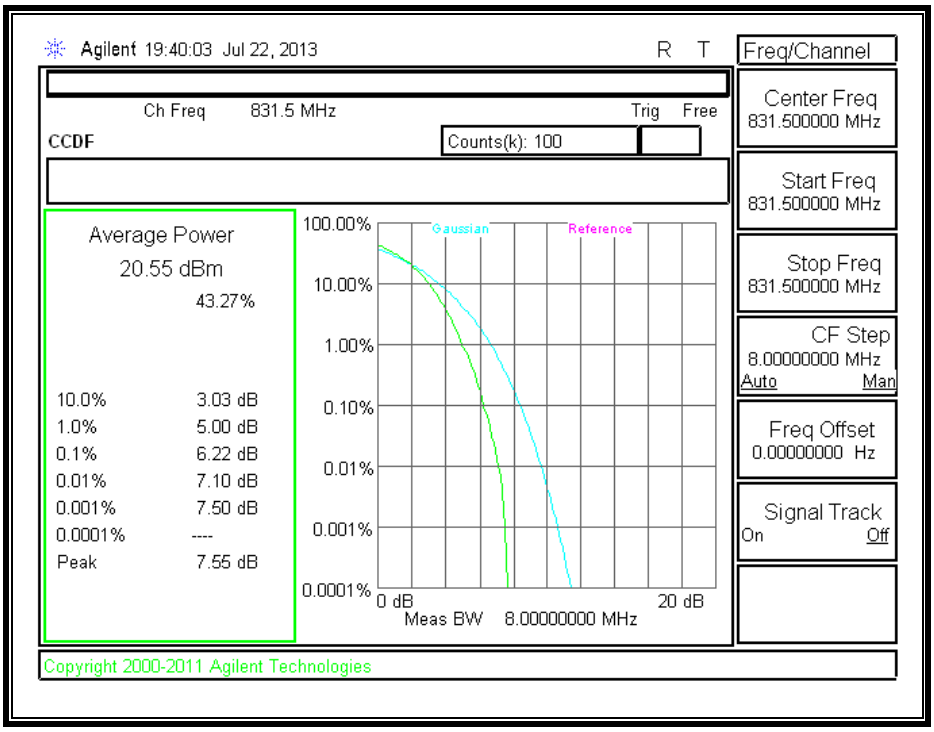


9.5.4. 10 MHz

QPSK



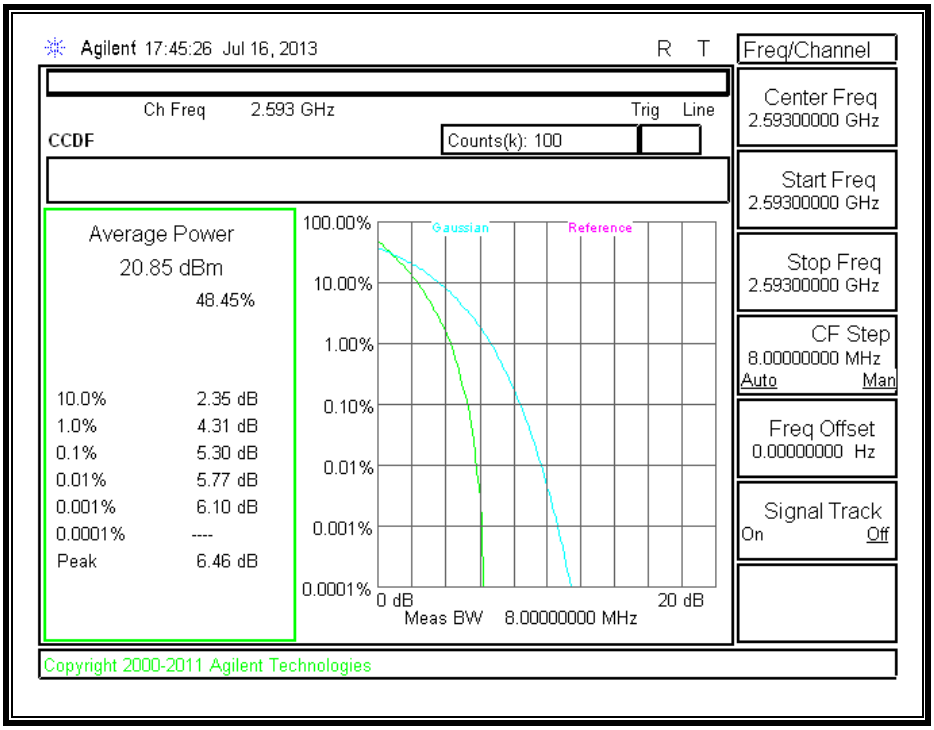
16QAM



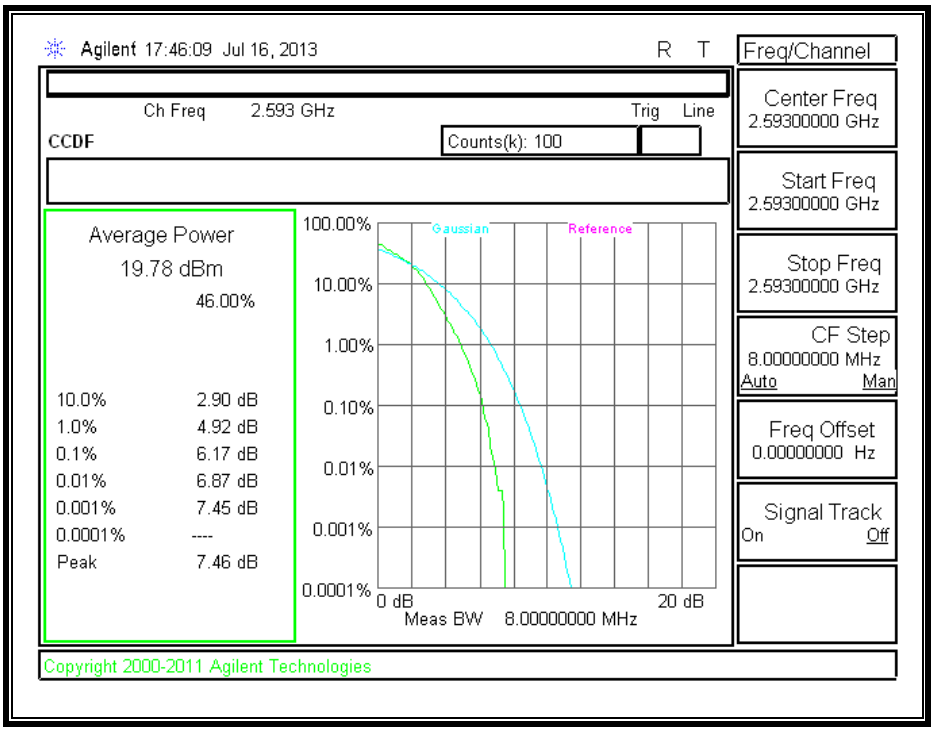
9.6. LTE BAND 41

9.6.1. 10 MHz

QPSK

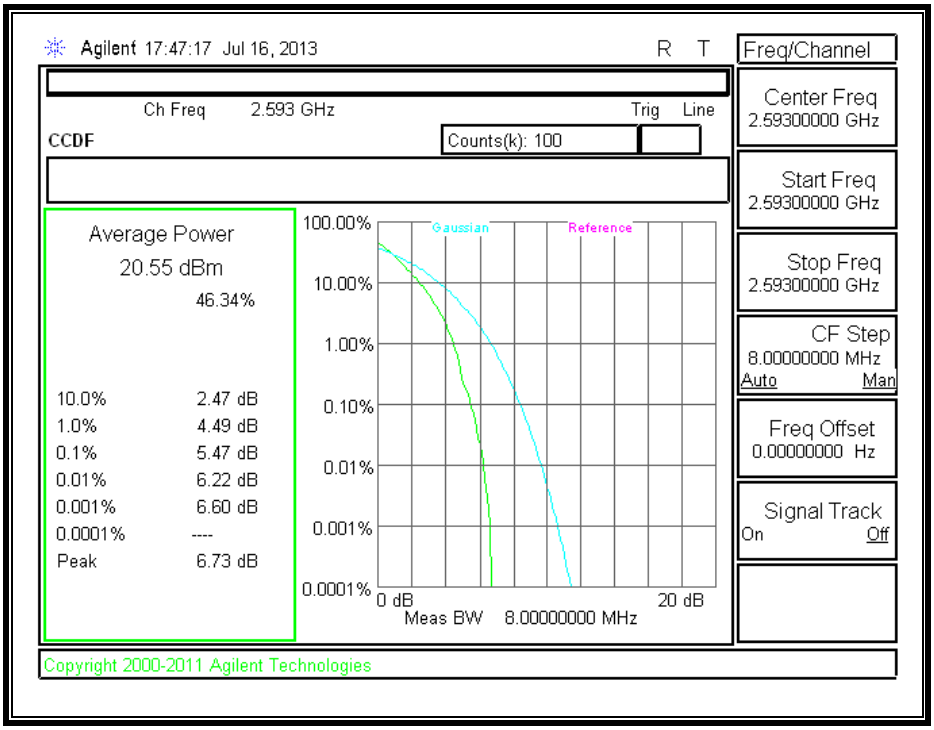


16QAM

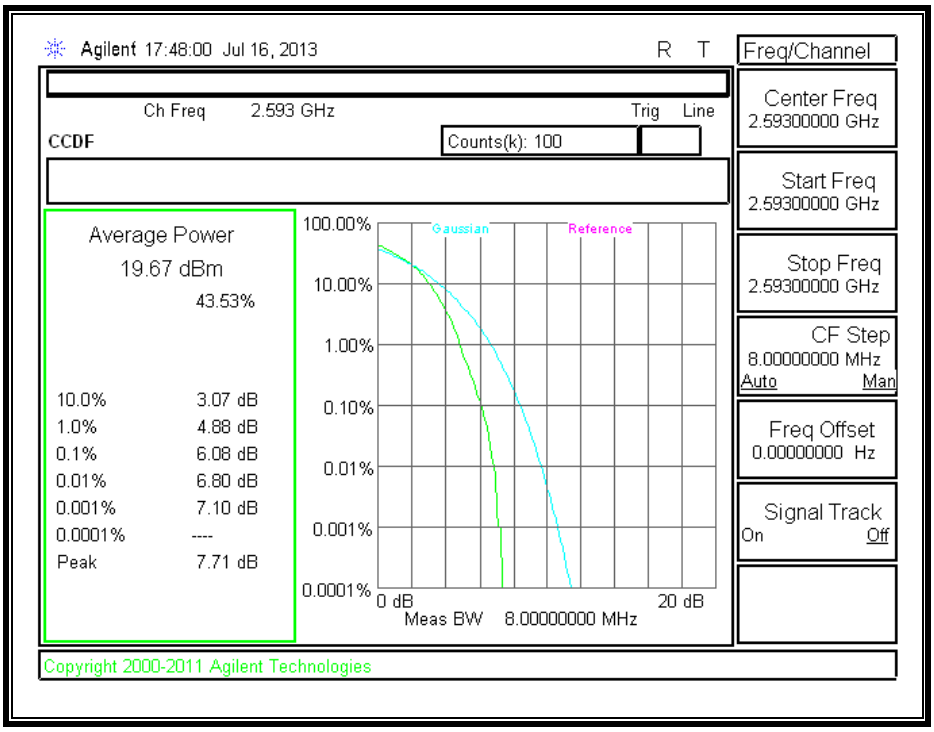


9.6.2. 15 MHz

QPSK

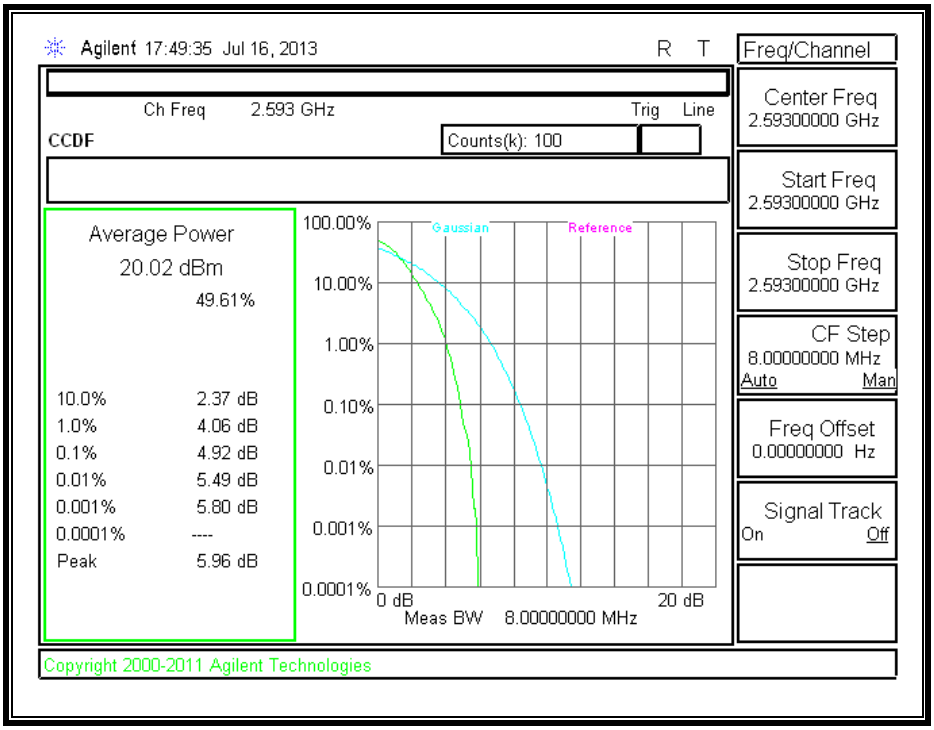


16QAM

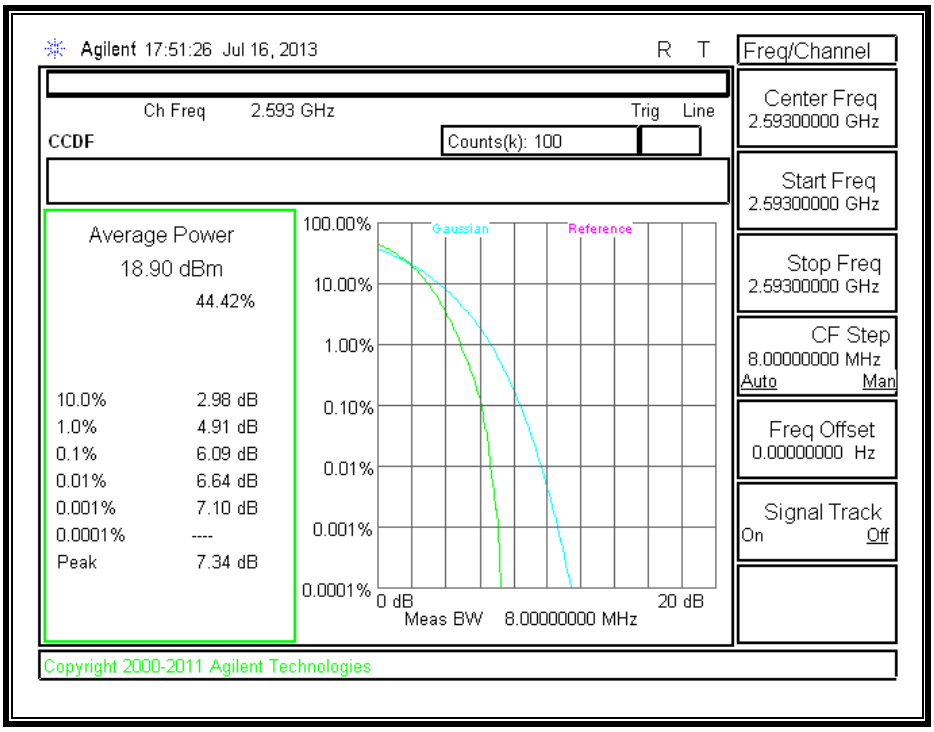


9.6.3. 20 MHz

QPSK



16QAM



10. 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	249.9143	315.036
	190	836.60	247.7638	324.925
	251	848.80	246.6561	314.999
PCS	512	1850.2	251.0257	319.969
	661	1880.0	245.5513	313.867
	810	1909.8	242.1706	323.856

EGPRS

Band	Channel	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
Cellular	128	824.20	238.2693	311.986
	190	836.60	238.8571	301.058
	251	848.80	237.2722	305.985
PCS	512	1850.2	241.8364	301.353
	661	1880.0	244.8870	316.106
	810	1909.8	244.2621	309.633

REL 99

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	4357	826.4	4.1357	4.671
	4408	836.6	4.1278	4.654
	4458	846.6	4.1408	4.670
BAND 2	9662	1852.4	4.1439	4.656
	9800	1880	4.1308	4.663
	9938	1907.6	4.1348	4.657
BAND 4	1312	1712.4	4.1492	4.633
	1413	1732.6	4.1371	4.655
	1513	1752.6	4.1271	4.645

HSDPA

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BAND 5	4357	826.4	4.1079	4.547
	4408	836.6	4.1611	4.566
	4458	846.6	4.1008	4.612
BAND 2	9662	1852.4	4.2021	4.594
	9800	1880	4.1757	4.559
	9938	1907.6	4.1770	4.562
BAND 4	1312	1712.4	4.1476	4.603
	1413	1732.6	4.0629	4.513
	1513	1752.6	4.0496	4.545

CDMA RTT

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC0	1013	824.7	1.2588	1.379
	384	836.52	1.2809	1.410
	777	848.31	1.2719	1.383
BC1	25	1851.25	1.2804	1.449
	600	1880	1.2817	1.463
	1175	1908.75	1.2882	1.514
BC10	476	817.9	1.2734	1.404
	580	820.5	1.2737	1.403
	684	823.1	1.2716	1.400

CDMA EVDO

Band	Channel	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
BC0	1013	824.7	1.2680	1.402
	384	836.52	1.2172	1.407
	777	848.31	1.2483	1.394
BC1	25	1851.25	1.2826	1.813
	600	1880	1.2938	1.682
	1175	1908.75	1.2936	1.746
BC10	476	817.9	1.2745	1.402
	580	820.5	1.2674	1.395
	684	823.1	1.2634	1.400

LTE Band 4

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
LTE Band 4	1,4 MHz BAND QPSK	4/2	1710.7	718.0081	815.517
		6/0		1080.0	1213
	1.4 MHz BAND 16QAM	4/2		758.5734	916.120
		6/0		1080.8	1221
	1,4 MHz BAND QPSK	4/2	1732.5	723.5913	862.004
		6/0		1080.1	1215
	1.4 MHz BAND 16QAM	4/2		760.1184	862.331
		6/0		1094.2	1279
	1,4 MHz BAND QPSK	4/2	1754.5	728.3459	900.277
		6/0		1082.7	1225
	1.4 MHz BAND 16QAM	4/2		738.0373	862.371
		6/0		1110.6	1222
	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
	3 MHz BAND QPSK	25/12	1711.5	1.4447	1.778
		50/0		2.6906	2.871
	3 MHz BAND 16QAM	25/12		1.4397	1.765
		50/0		2.6801	2.866
	3 MHz BAND QPSK	25/12	1732.5	1.4429	1.777
		50/0		2.6836	2.870
	3 MHz BAND 16QAM	25/12		1.4424	1.791
		50/0		2.6827	2.872
	3 MHz BAND QPSK	25/12	1753.5	1.4415	1.741
		50/0		2.6873	2.872
	3 MHz BAND 16QAM	25/12		1.4439	1.817
		50/0		2.6839	2.862

LTE Band 4

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 4	5.0 MHz BAND QPSK	12/6	1712.5	2.1569	2.593
		25/0		4.4730	4.771
	5.0 MHz BAND 16QAM	12/6		2.1589	2.621
		25/0		4.722	4.770
	5.0 MHz BAND QPSK	12/6	1732.5	2.1647	2.580
		25/0		4.4714	4.775
	5.0 MHz BAND 16QAM	12/6		2.1661	2.689
		25/0		4.4667	4.764
	5.0 MHz BAND QPSK	12/6	1752.5	2.1586	2.628
		25/0		4.4579	4.778
	5.0 MHz BAND 16QAM	12/6		2.1559	2.638
		25/0		4.4679	4.756
	10 MHz BAND QPSK	25/12	1715.0	4.4729	4.978
		50/0		8.9345	9.485
	10 MHz BAND 16QAM	25/12		4.4546	4.975
		50/0		8.9457	9.472
	10 MHz BAND QPSK	25/12	1732.5	4.4603	5.003
		50/0		8.9212	9.477
	10 MHz BAND 16QAM	25/12		4.4718	5.075
		50/0		8.9531	9.477
	10 MHz BAND QPSK	25/12	1750.0	4.4775	5.028
		50/0		8.9464	9.493
	10 MHz BAND 16QAM	25/12		4.4629	5.013
		50/0		8.9491	9.485

LTE Band 4

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 4	15 MHz BAND QPSK	36/18	1717.5	6.4331	7.247
		75/0		13.4114	14.186
	15 MHz BAND 16QAM	36/18		4.6335	7.234
		75/0		13.4154	14.195
	15 MHz BAND QPSK	36/18	1732.5	6.4278	7.255
		75/0		13.6033	14.178
	15 MHz BAND 16QAM	36/18		6.4244	7.275
		75/0		13.4143	14.211
	15 MHz BAND QPSK	36/18	1747.5	6.4268	7.171
		75/0		13.3819	14.191
	15 MHz BAND 16QAM	36/18		6.4382	7.254
		75/0		13.4020	14.188
	20 MHz BAND QPSK	100/0	1720.0	8.9578	9.811
		50/25		17.8620	18.872
	20 MHz BAND 16QAM	100/0		8.9293	9.695
		50/25		17.8502	18.891
	20 MHz BAND QPSK	50/25	1732.5	8.9569	9.758
		100/0		17.8653	18.877
	20 MHz BAND 16QAM	50/25		8.9212	9.754
		100/0		17.8855	18.871
	20 MHz BAND QPSK	50/25	1745.0	8.9652	9.755
		100/0		17.8673	18.848
	20 MHz BAND 16QAM	50/25		8.9384	9.670
		100/0		17.8647	18.860

LTE Band 17

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 17	5.0 MHz BAND QPSK	12/6	706.5	2.1475	2.650
		25/0		4.4680	4.686
	5.0 MHz BAND 16QAM	12/6		2.1373	2.716
		25/0		4.4581	4.805
	5.0 MHz BAND QPSK	12/6	710	2.1300	2.472
		25/0		4.4340	4.694
	5.0 MHz BAND 16QAM	12/6		2.1577	2.388
		25/0		4.4980	4.857
	5.0 MHz BAND QPSK	12/6	713.5	2.1460	2.408
		25/0		4.4469	4.690
	5.0 MHz BAND 16QAM	12/6		2.1371	2.732
		25/0		4.4454	4.843
	10 MHz BAND QPSK	25/12	709	4.3918	4.728
		50/0		8.9446	9.157
	10 MHz BAND 16QAM	25/12		4.4484	4.759
		50/0		8.8704	9.183
	10 MHz BAND QPSK	25/12	710	4.4835	4.736
		50/0		8.9104	9.206
	10 MHz BAND 16QAM	25/12		4.3873	4.578
		50/0		8.9141	9.183
	10 MHz BAND QPSK	25/12	711	4.4614	4.826
		50/0		8.9029	9.251
	10 MHz BAND 16QAM	25/12		4.4703	4.765
		50/0		8.8662	9.258

LTE Band 25

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (kHz)	-26dB BW (kHz)
LTE Band 25	1,4 MHz BAND QPSK	4/2	1850.7	721.3199	1044.0
		6/0		1072.0	1186.0
	1.4 MHz BAND 16QAM	4/2		723.6190	1055.0
		6/0		1071.8	1183.0
	1,4 MHz BAND QPSK	4/2	1882.5	721.1348	1004.0
		6/0		1069.7	1250.0
	1.4 MHz BAND 16QAM	4/2		714.9573	1147.0
		6/0		1073.0	1236.0
	1,4 MHz BAND QPSK	4/2	1914.3	731.3982	1089.0
		6/0		1074.8	1272.0
	1.4 MHz BAND 16QAM	4/2		720.9339	1135.0
		6/0		1077.8	1294.0
	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
	3 MHz BAND QPSK	8/4	1851.5	1.4233	1.648
		15/0		2.6755	2.752
	3 MHz BAND 16QAM	8/4		1.4184	1.849
		15/0		2.6882	2.801
	3 MHz BAND QPSK	8/4	1882.5	1.4350	1.637
		15/0		2.6913	2.827
	3 MHz BAND 16QAM	8/4		1.4196	1.604
		15/0		2.6869	2.845
	3 MHz BAND QPSK	8/4	1913.5	1.4246	1.788
		15/0		2.6669	2.801
	3 MHz BAND 16QAM	8/4		1.4378	1.709
		15/0		2.6486	2.802

LTE Band 25

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 25	5.0 MHz BAND QPSK	12/6	1852.5	2.1386	2.702
		25/0		4.4758	4.597
	5.0 MHz BAND 16QAM	12/6		2.1628	2.743
		25/0		4.3835	4.736
	5.0 MHz BAND QPSK	12/6	1882.5	2.1422	2.594
		25/0		4.4489	4.583
	5.0 MHz BAND 16QAM	12/6		2.1432	2.450
		25/0		4.4454	4.620
	5.0 MHz BAND QPSK	12/6	1912.5	2.1253	2.357
		25/0		4.4309	4.725
	5.0 MHz BAND 16QAM	12/6		2.1430	2.730
		25/0		4.4695	4.770
	10 MHz BAND QPSK	25/12	1855	4.4557	4.788
		50/0		8.8349	9.140
	10 MHz BAND 16QAM	25/12		4.4414	4.979
		50/0		8.8398	9.200
	10 MHz BAND QPSK	25/12	1882.5	4.4616	4.993
		50/0		8.7472	9.159
	10 MHz BAND 16QAM	25/12		4.4752	4.764
		50/0		8.8985	9.157
	10 MHz BAND QPSK	25/12	1910	4.4358	4.802
		50/0		8.7863	9.184
	10 MHz BAND 16QAM	25/12		4.4401	4.975
		50/0		8.8128	9.392

LTE Band 25

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 25	15 MHz BAND QPSK	36/18	1857.5	6.2961	6.851
		75/0		13.2736	13.877
	15 MHz BAND 16QAM	36/18		6.4325	6.888
		75/0		13.1195	13.848
	15 MHz BAND QPSK	36/18	1882.5	6.4380	7.168
		75/0		13.3211	13.789
	15 MHz BAND 16QAM	36/18		6.4257	7.063
		75/0		13.3305	13.839
	15 MHz BAND QPSK	36/18	1907.5	6.3865	6.722
		75/0		13.4069	13.788
	15 MHz BAND 16QAM	36/18		6.3754	6.903
		75/0		13.3643	13.746
	20 MHz BAND QPSK	50/25	1860	8.8674	9.122
		100/0		17.6930	18.232
	20 MHz BAND 16QAM	50/25		8.8674	9.122
		100/0		17.6747	18.328
	20 MHz BAND QPSK	50/25	1882.5	8.9314	9.206
		100/0		17.4425	18.729
	20 MHz BAND 16QAM	50/25		8.8464	9.204
		100/0		17.6988	18.271
	20 MHz BAND QPSK	50/25	1905	8.9066	9.793
		100/0		17.7597	18.311
	20 MHz BAND 16QAM	50/25		8.9308	9.175
		100/0		17.7789	18.521

LTE Band 26

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 26	1,4 MHz BAND QPSK	4/2	814.7	0.720	0.820
		6/0		1.061	1.174
	1.4 MHz BAND 16QAM	4/2		0.718	0.801
		6/0		1.073	1.214
	1,4 MHz BAND QPSK	4/2	831.5	0.713	0.830
		6/0		1.071	1.217
	1.4 MHz BAND 16QAM	4/2		0.714	0.832
		6/0		1.076	1.179
	1,4 MHz BAND QPSK	4/2	848.3	0.714	0.833
		6/0		1.073	1.211
	1.4 MHz BAND 16QAM	4/2		0.715	0.817
		6/0		1.067	1.160
	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
	3 MHz BAND QPSK	8/4	815.5	1.4136	1.604
		15/0		2.6650	2.832
	3 MHz BAND 16QAM	8/4		1.4255	1.600
		15/0		2.6784	2.810
	3 MHz BAND QPSK	8/4	831.5	1.4284	1.850
		15/0		2.6697	2.775
	3 MHz BAND 16QAM	8/4		1.4246	1.544
		15/0		2.6563	2.808
	3 MHz BAND QPSK	8/4	847.5	1.4235	1.599
		15/0		2.6491	2.865
	3 MHz BAND 16QAM	8/4		1.4312	1.602
		15/0		2.6371	2.764

LTE Band 26

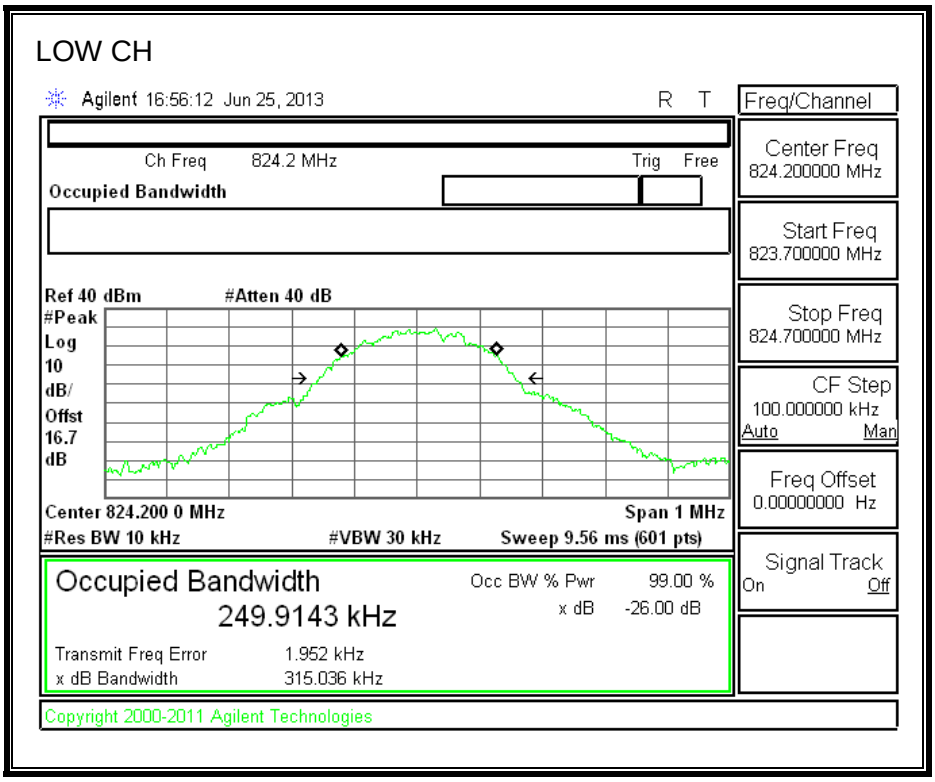
Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 26	5 MHz BAND QPSK	12/6	816.5	2.1390	2.553
		25/0		4.4601	4.607
	5 MHz BAND 16QAM	12/6		2.1527	2.706
		25/0		4.4601	4.607
	5 MHz BAND QPSK	12/6	831.5	2.1417	2.235
		25/0		4.4151	4.618
	5 MHz BAND 16QAM	12/6		2.1391	2.385
		25/0		4.4563	4.651
	5 MHz BAND QPSK	12/6	846.5	2.1510	2.374
		25/0		4.4727	4.728
	5 MHz BAND 16QAM	12/6		2.1630	2.587
		25/0		4.4632	4.611
	10 MHz BAND QPSK	25/12	819.0	4.4231	4.986
		50/0		8.9264	9.158
	10 MHz BAND 16QAM	25/12		4.4530	4.786
		50/0		8.8814	9.259
	10 MHz BAND QPSK	25/12	831.5	4.4553	4.941
		50/0		8.9220	9.213
	10 MHz BAND 16QAM	25/12		4.4509	4.598
		50/0		8.9085	9.213
	10 MHz BAND QPSK	25/12	844.0	4.4363	4.580
		50/0		8.9486	9.247
	10 MHz BAND 16QAM	25/12		4.4024	4.908
		50/0		8.8275	9.138

LTE Band 41

Band	Mode	RB/RB SIZE	f (MHz)	99% BW (MHz)	-26dB BW (MHz)
LTE Band 41	10 MHz BAND QPSK	25/12	2498.5	4.4708	5.372
		50/0		8.9258	9.381
	10 MHz BAND 16QAM	25/12		4.4694	5.193
		50/0		8.9361	9.482
	10 MHz BAND QPSK	25/12	2593	4.5363	8.406
		50/0		9.0284	16.810
	10 MHz BAND 16QAM	25/12		4.5333	9.461
		50/0		9.0847	19.801
	10 MHz BAND QPSK	25/12	2687.5	4.4748	4.941
		50/0		8.9455	9.799
	10 MHz BAND 16QAM	25/12		4.4748	4.941
		50/0		8.9184	9.500
	15 MHz BAND QPSK	36/18	2503.5	6.4659	9.089
		75/0		13.3795	14.315
	15 MHz BAND 16QAM	36/18		6.4349	7.796
		75/0		13.3828	14.045
	15 MHz BAND QPSK	36/18	2583	6.4295	8.706
		75/0		13.4047	14.174
	15 MHz BAND 16QAM	36/18		6.4109	7.656
		75/0		13.3609	14.111
	15 MHz BAND QPSK	36/18	2682.5	6.4287	7.246
		75/0		13.3680	14.205
	15 MHz BAND 16QAM	36/18		6.4404	7.744
		75/0		13.3952	14.250
	20 MHz BAND QPSK	100/0	2506	8.9302	10.356
		50/25		17.8305	18.790
	20 MHz BAND 16QAM	100/0		8.9425	10.059
		50/25		17.7718	18.743
	20 MHz BAND QPSK	50/25	2593	8.9433	10.364
		100/0		17.8284	18.734
	20 MHz BAND 16QAM	50/25		8.9249	10.073
		100/0		17.8355	18.911
	20 MHz BAND QPSK	50/25	2680	8.598	10.282
		100/0		17.7935	18.900
	20 MHz BAND 16QAM	50/25		8.9285	10.263
		100/0		17.8323	18.669

10.1.1. GPRS MODE

CELL BAND



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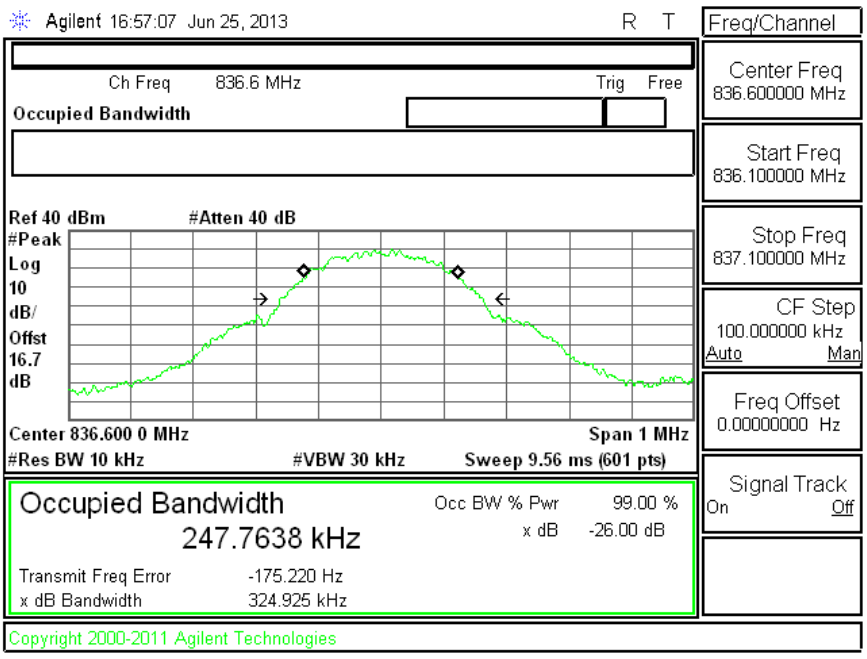
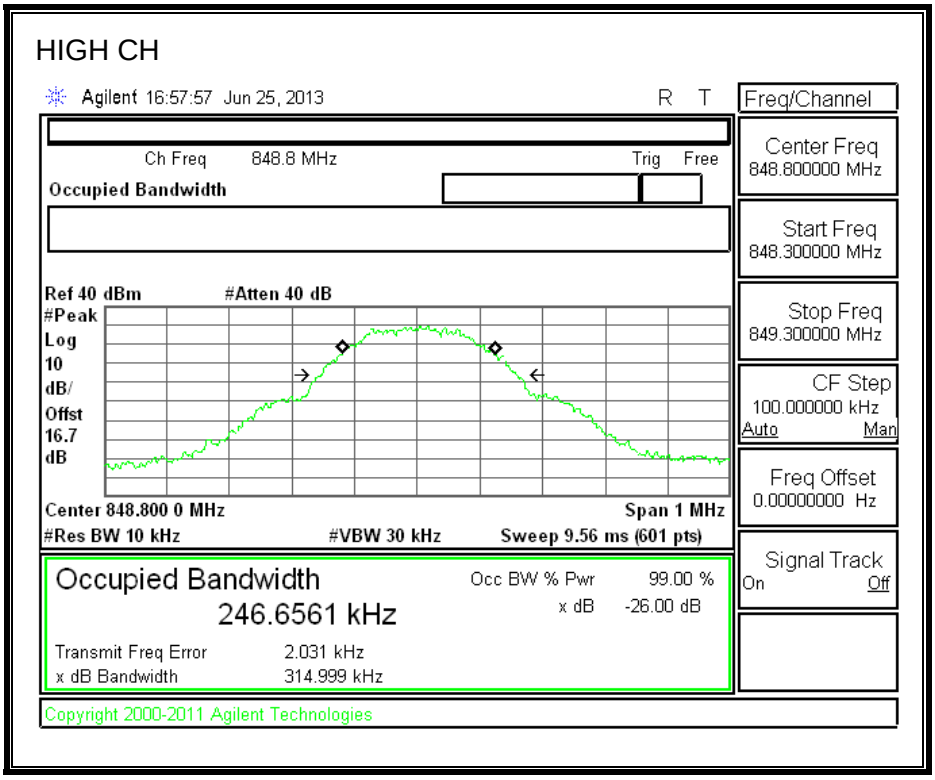
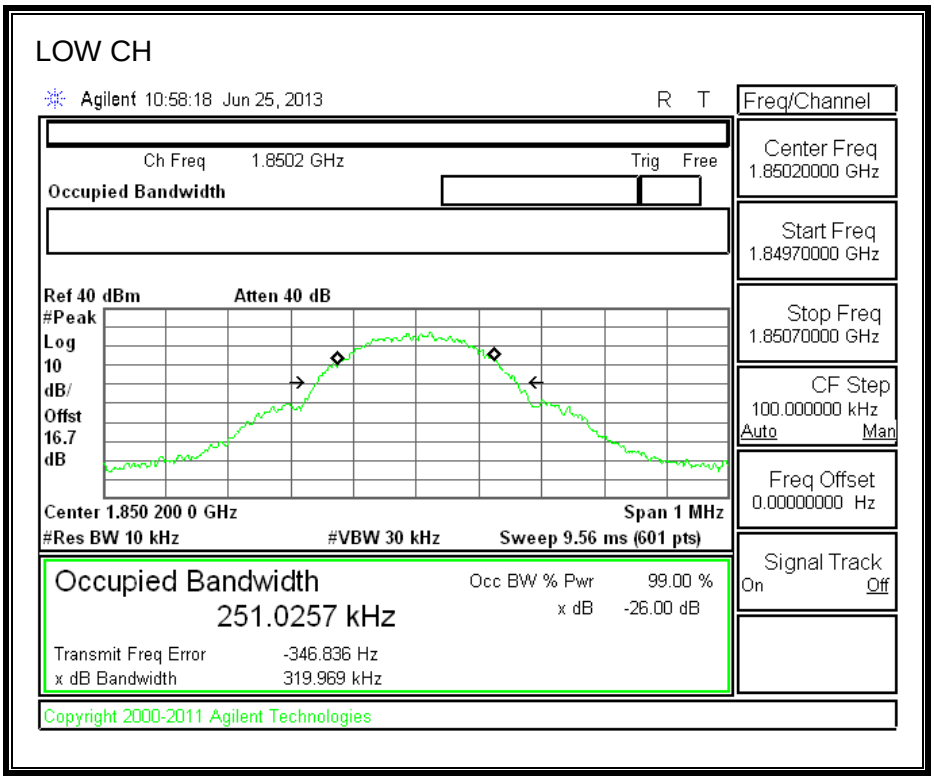




PCS Band

LOW CH



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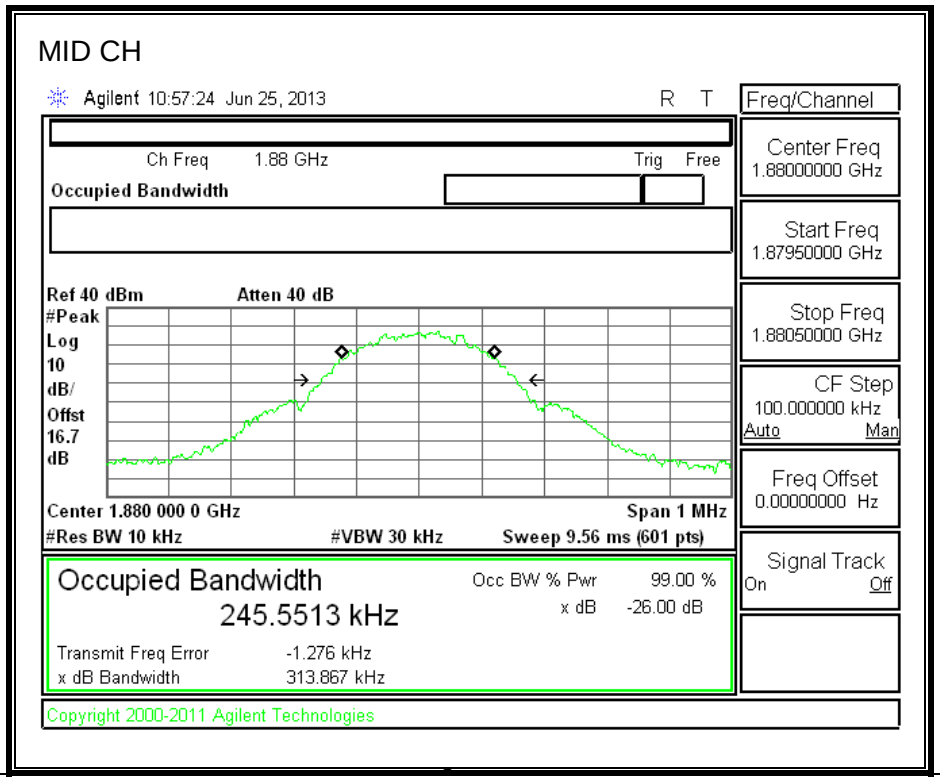
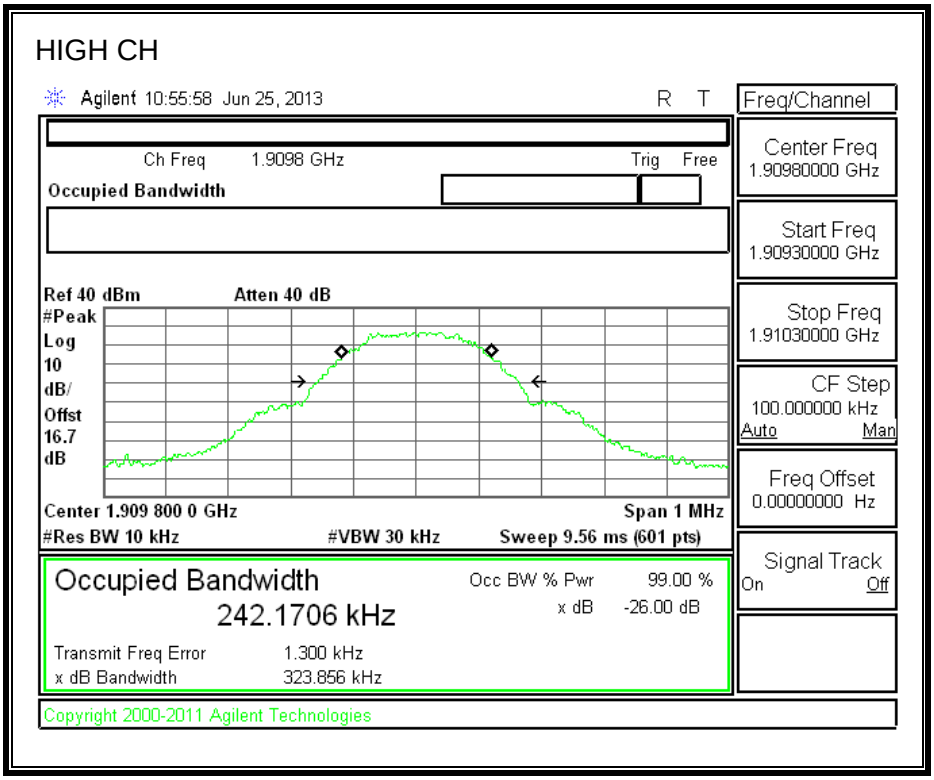
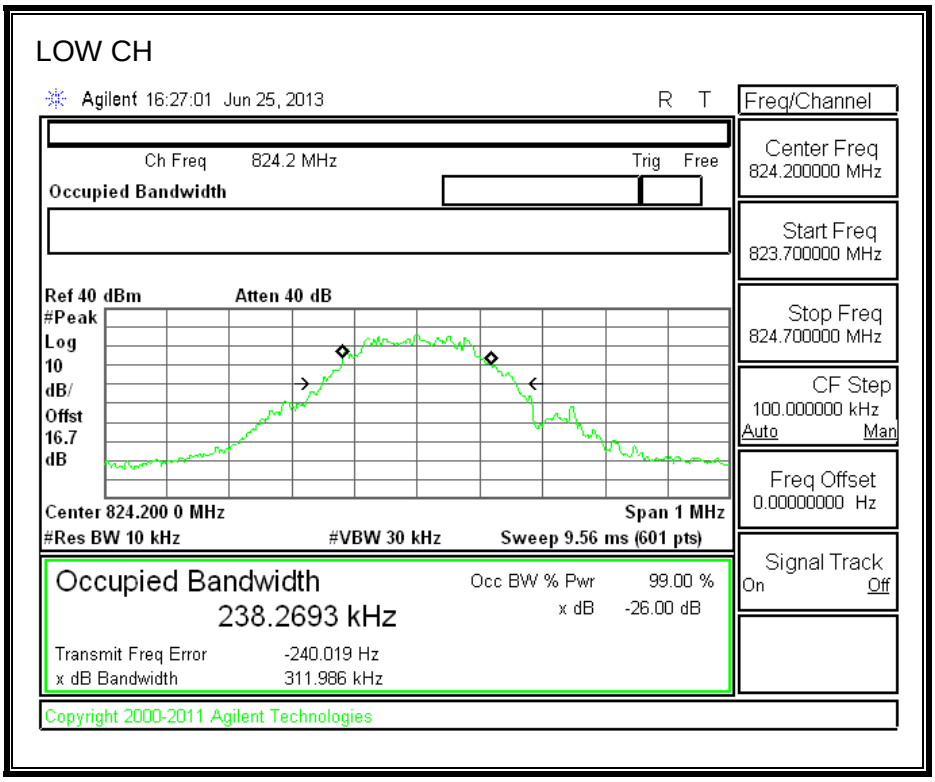




10.1.1. EGPRS MODE

CELL BAND



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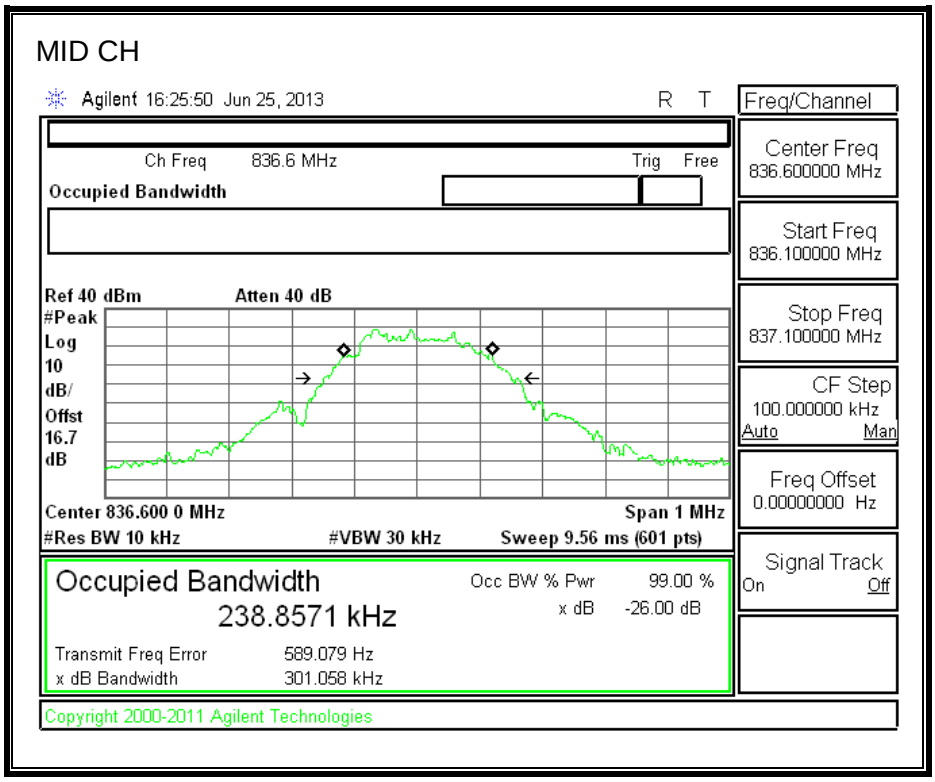
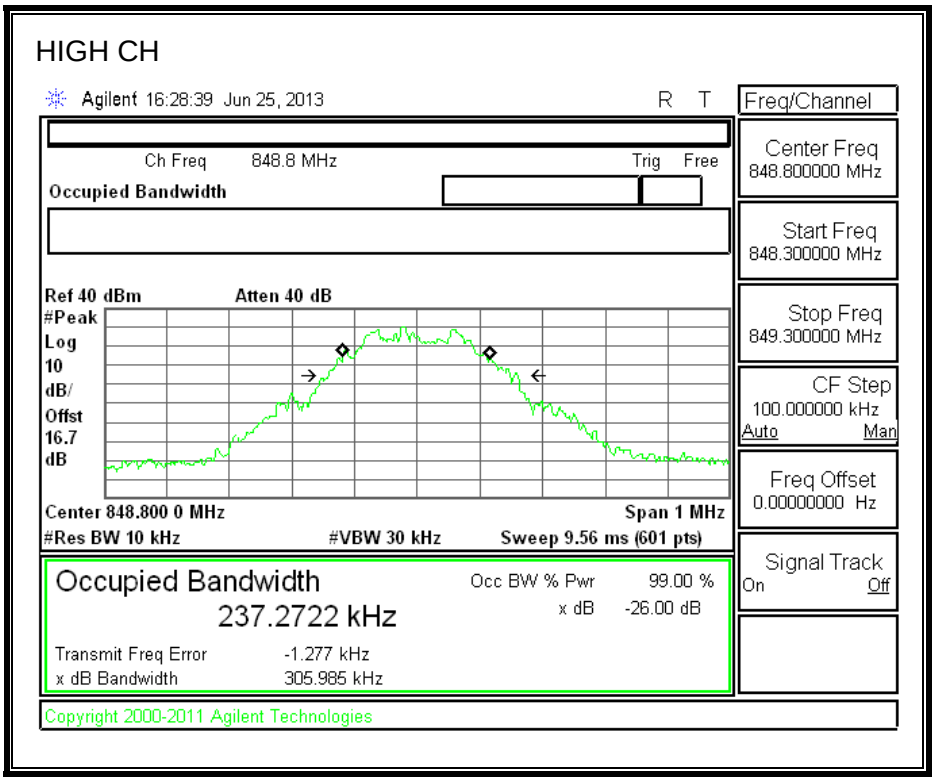
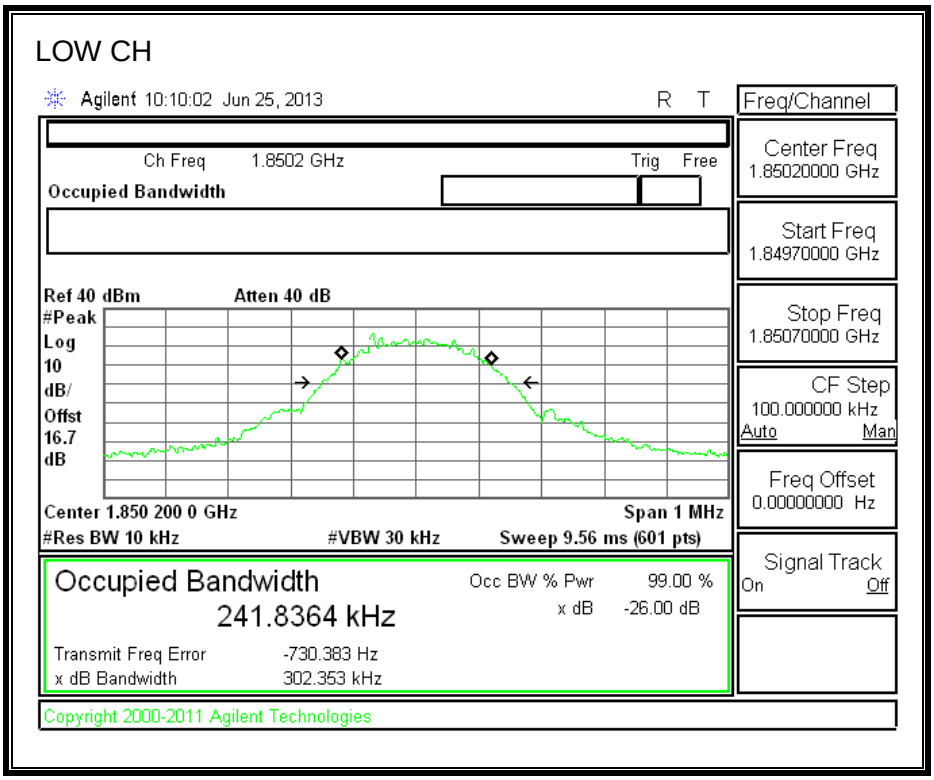
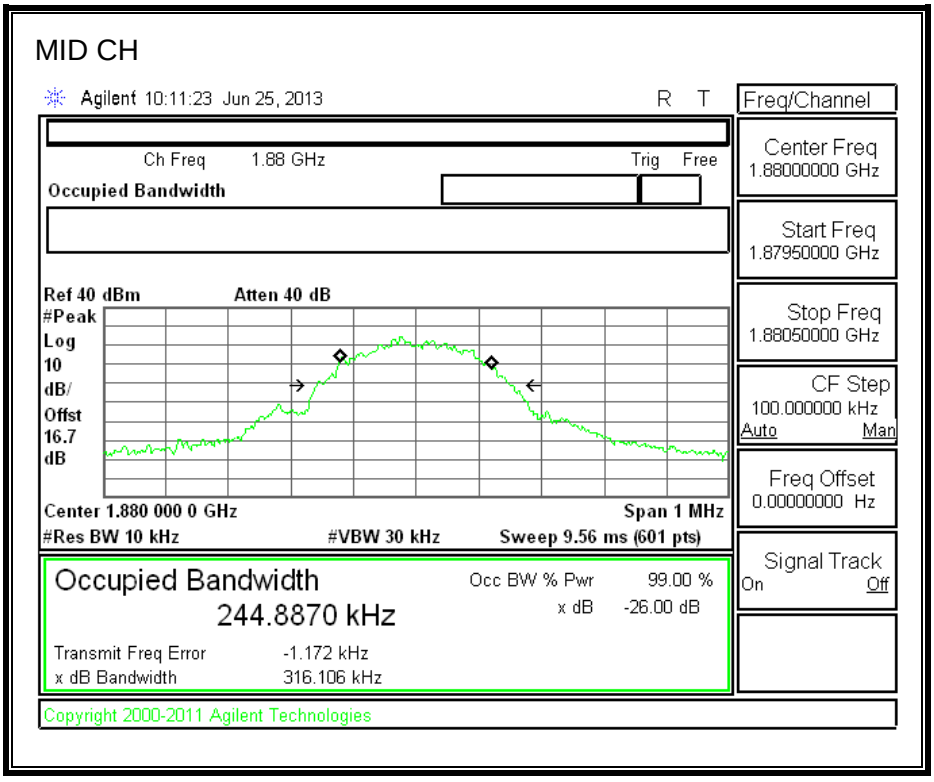


HIGH CH



PCS Band





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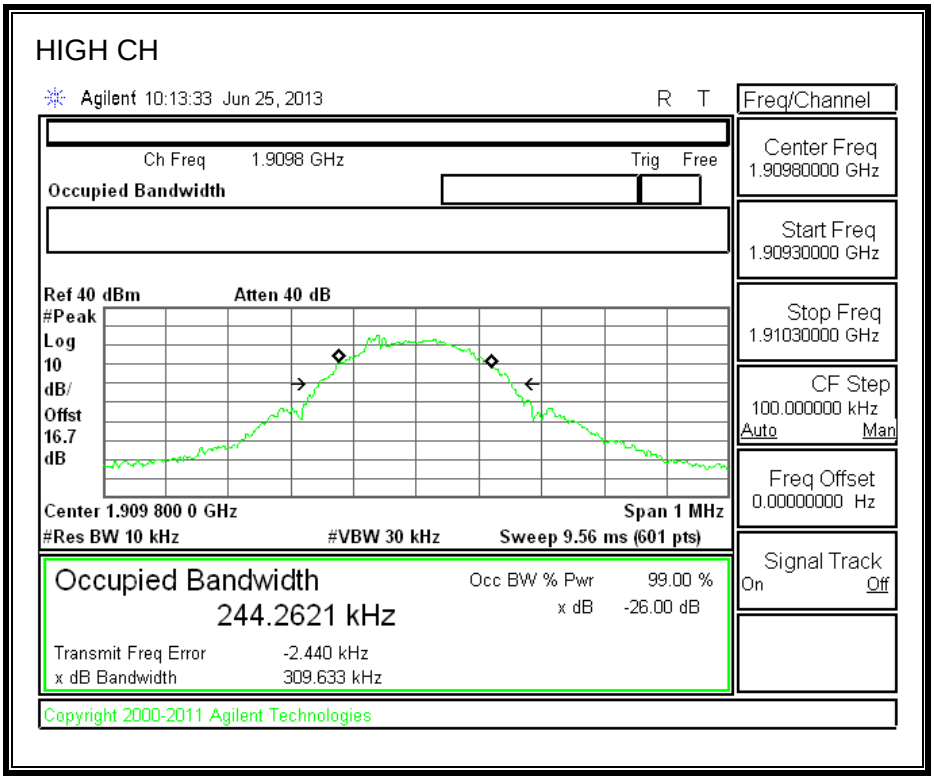
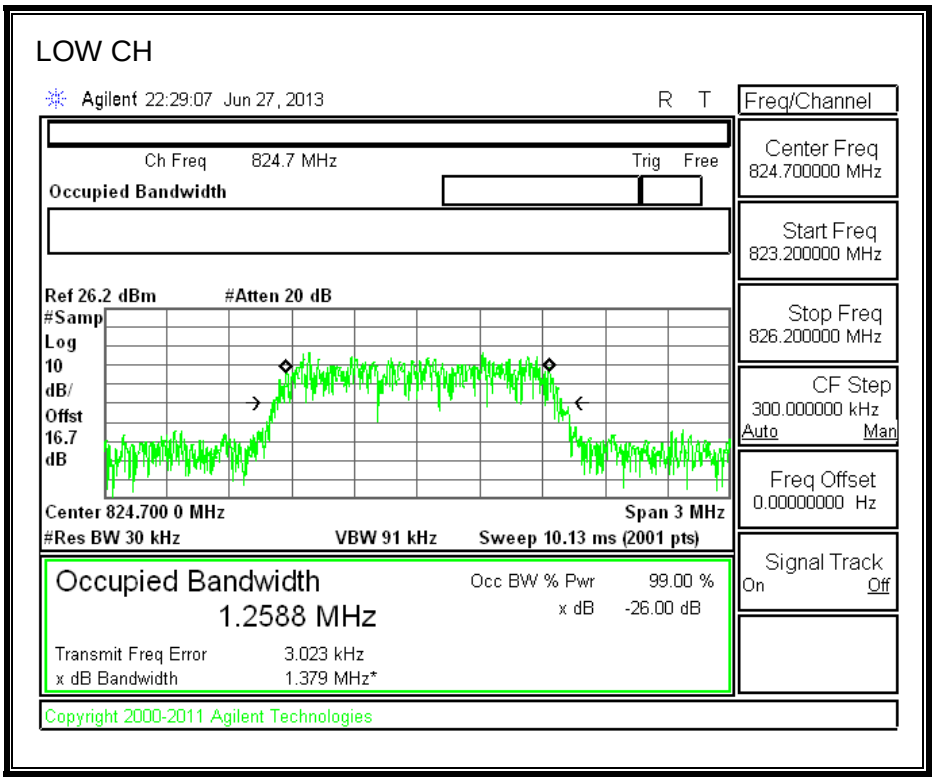


10.1.1. CDMA 1xRTT

BCO BAND



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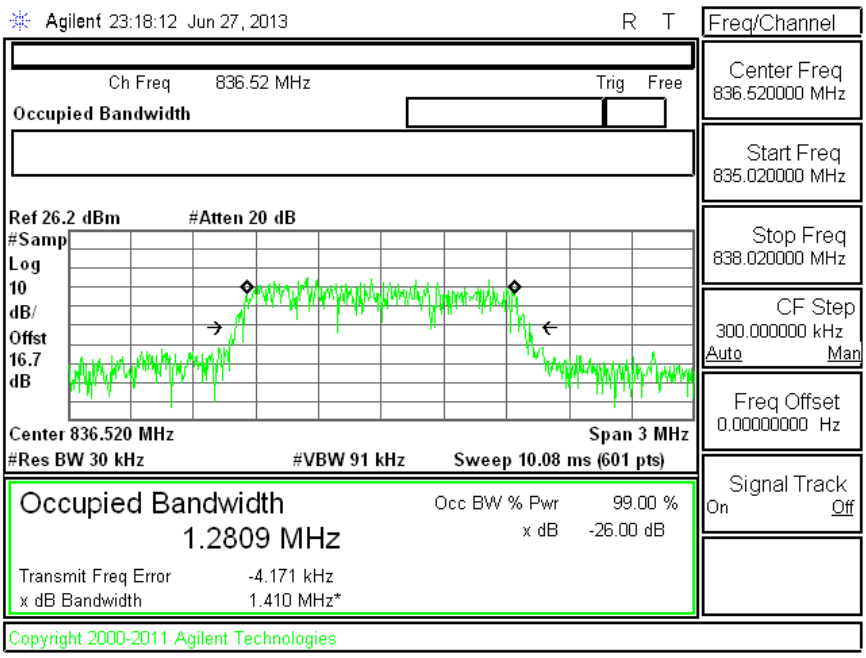

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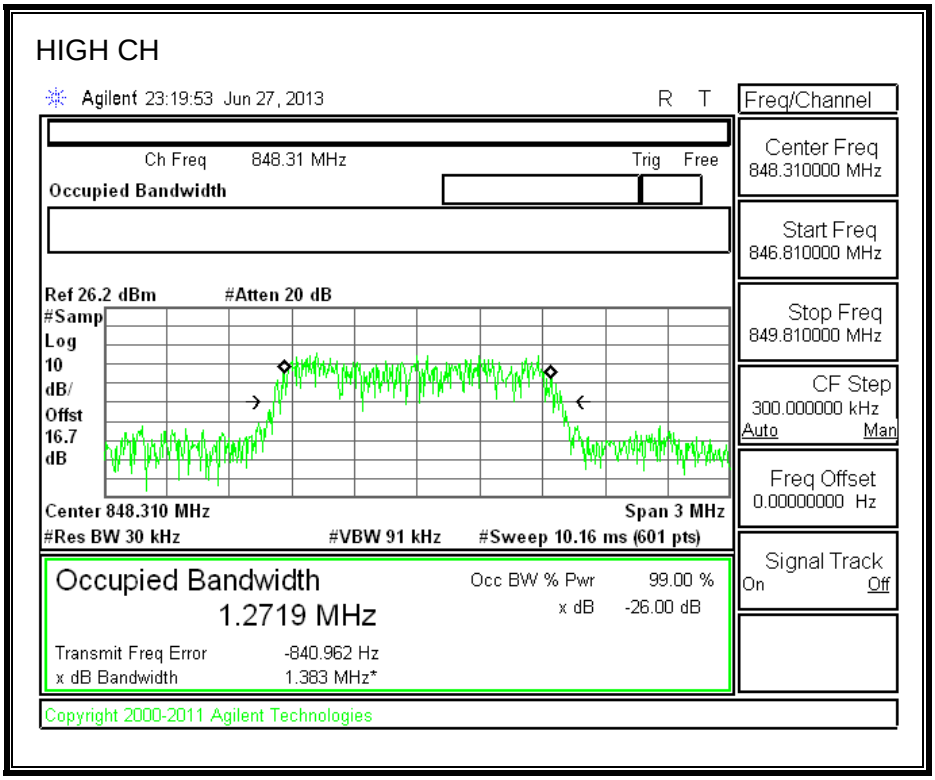
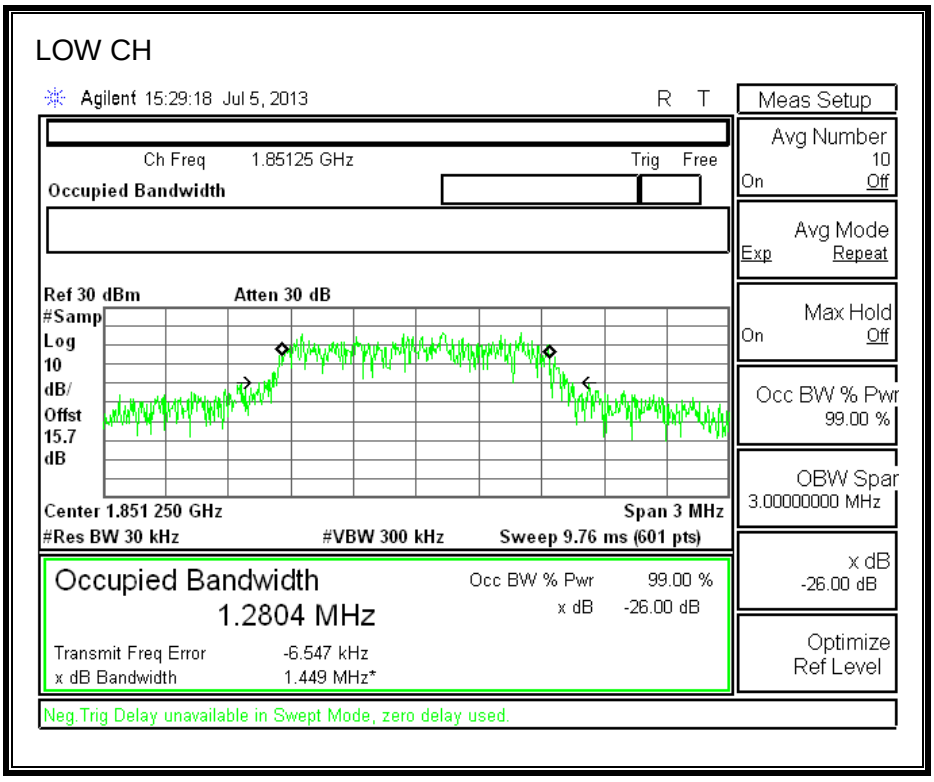
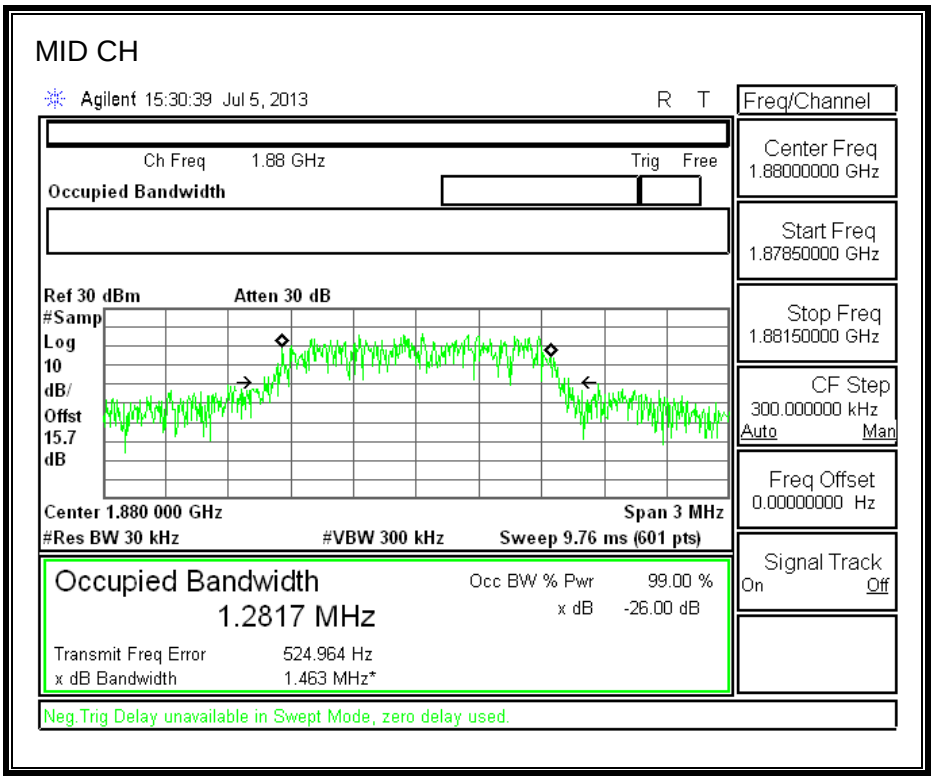


BC1 Band





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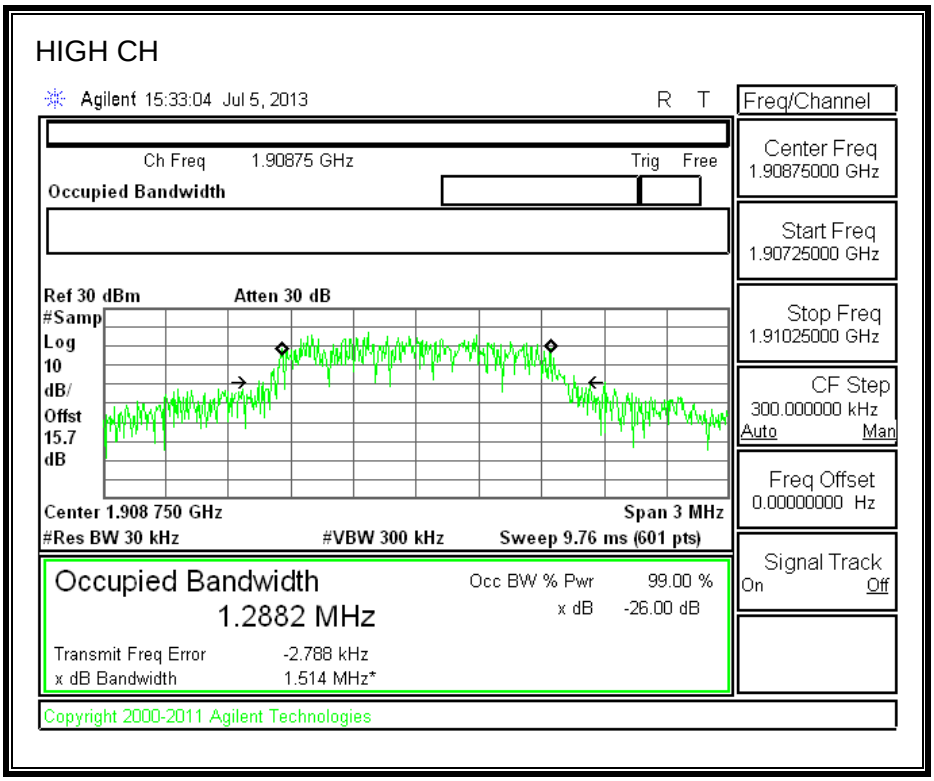
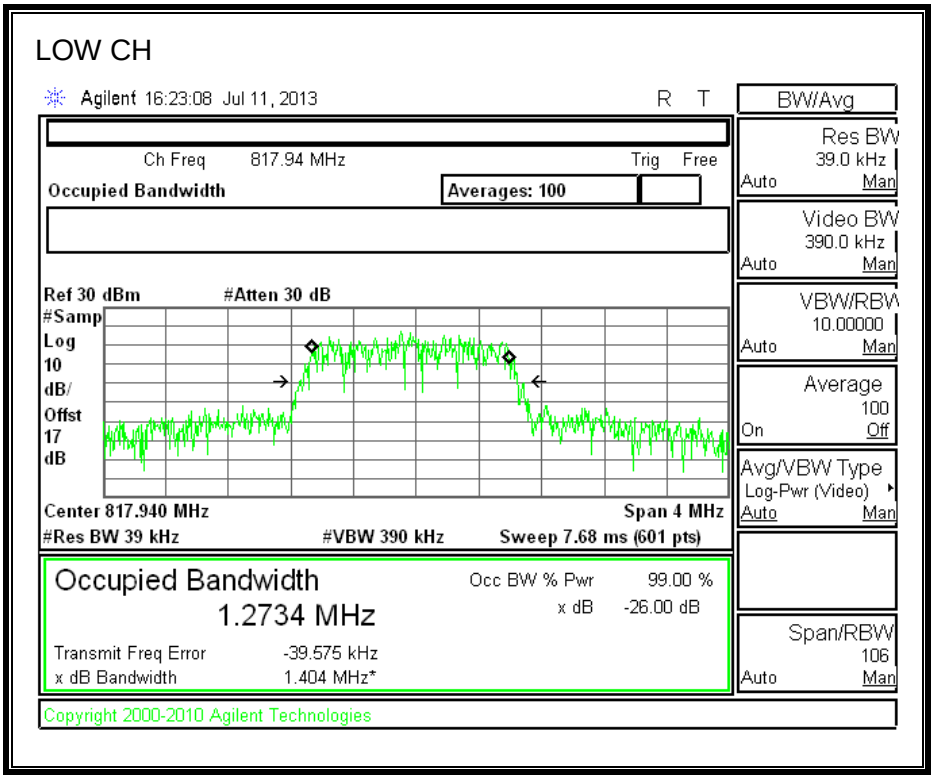
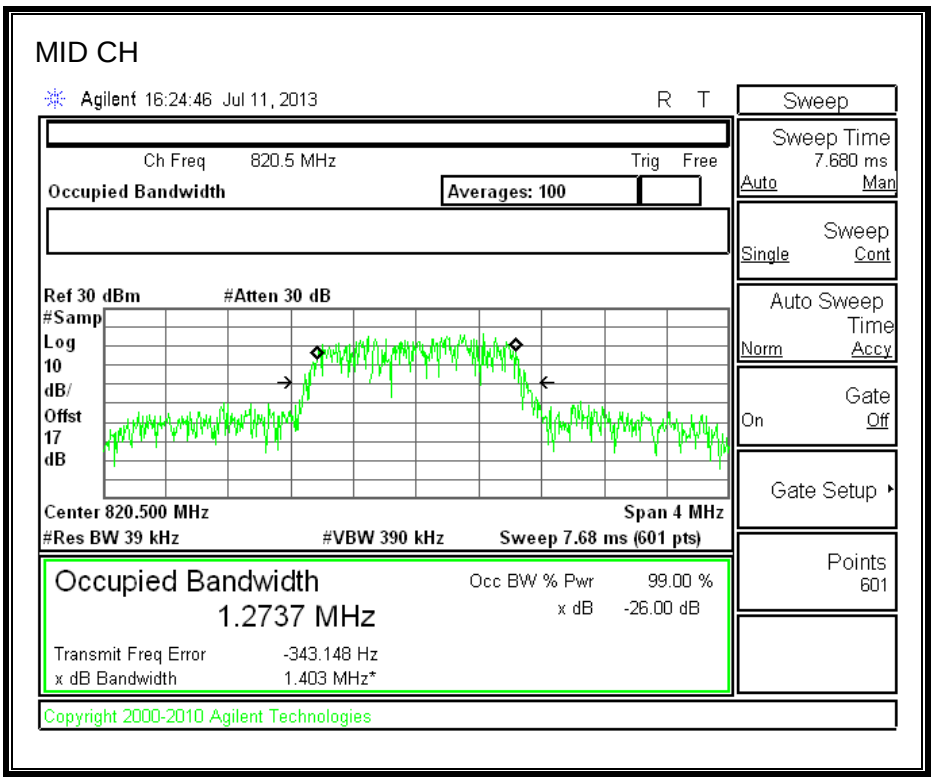
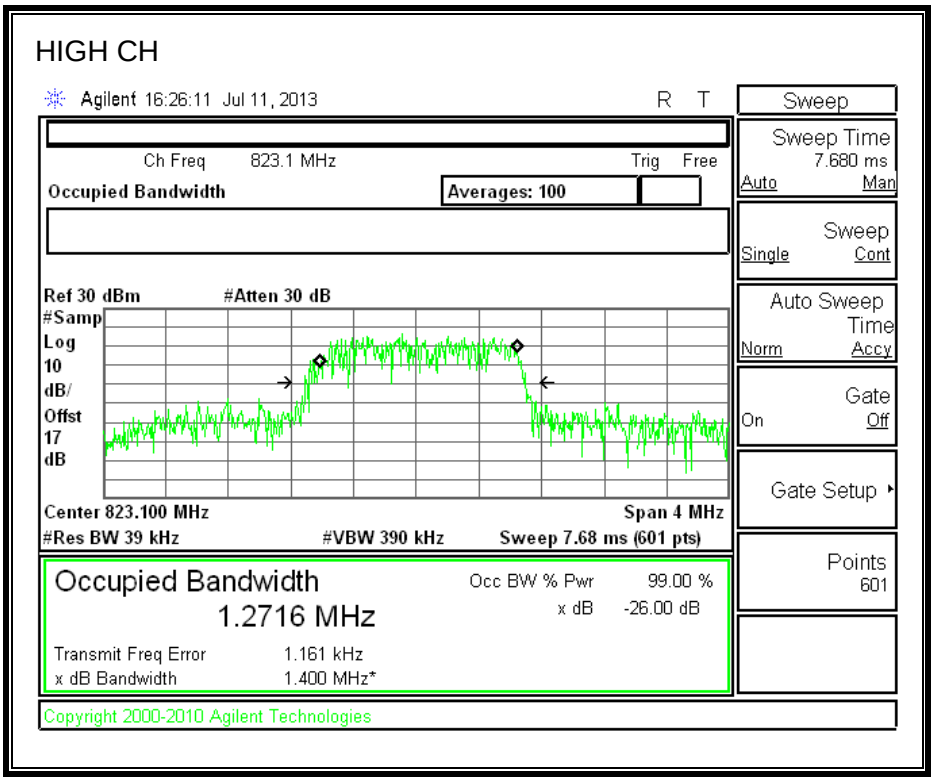


BC10 Band



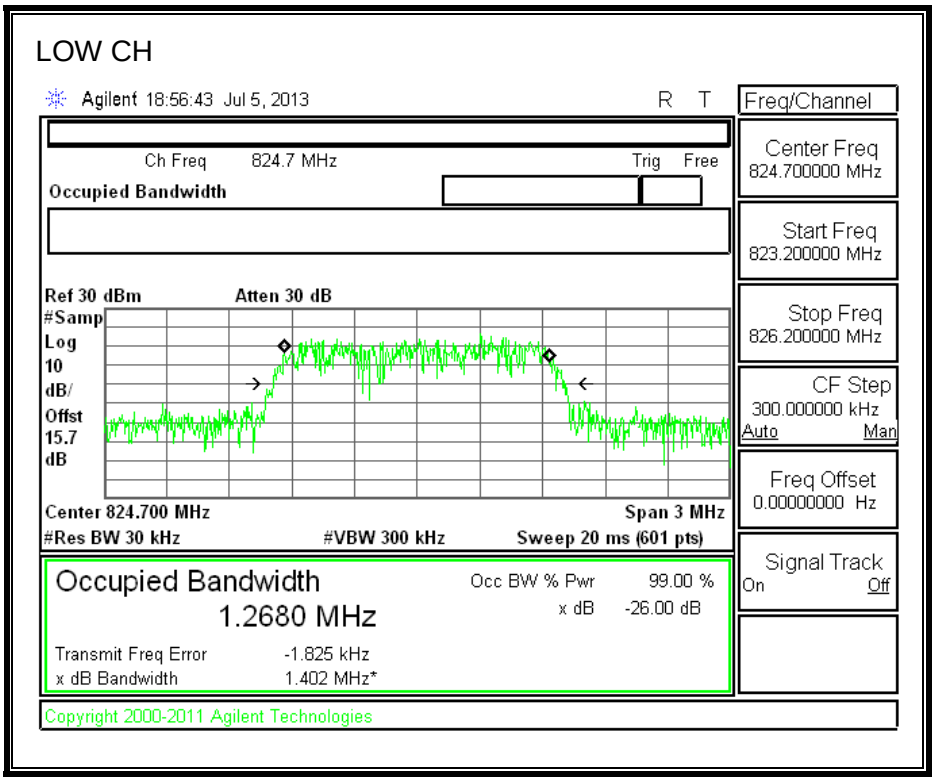


HIGH CH

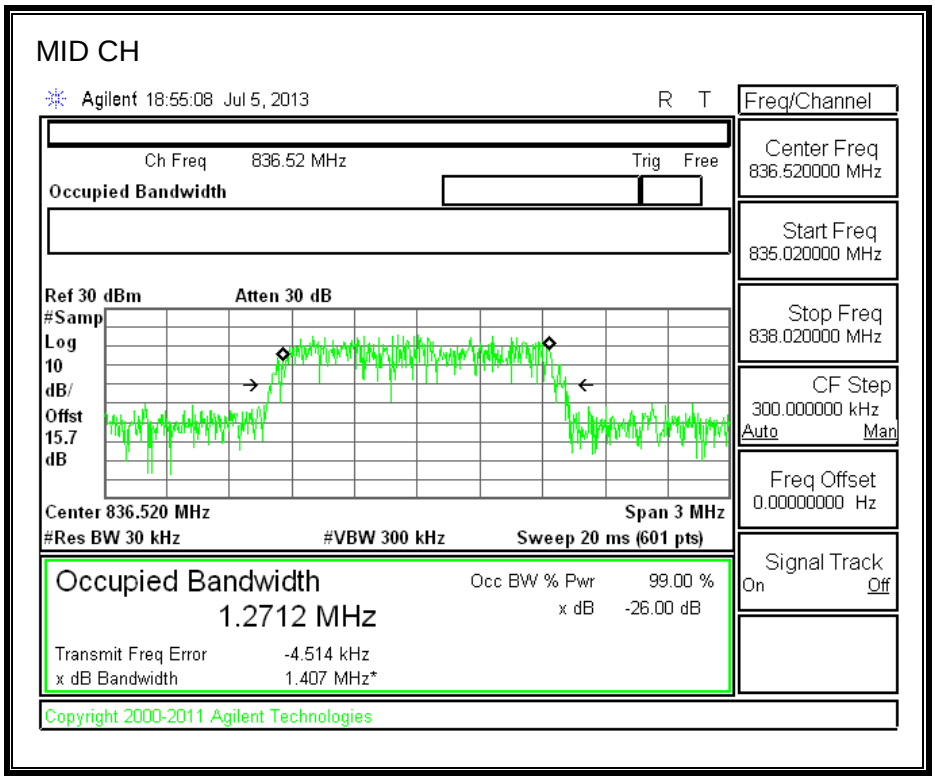


10.1.1. CDMA EV-DO

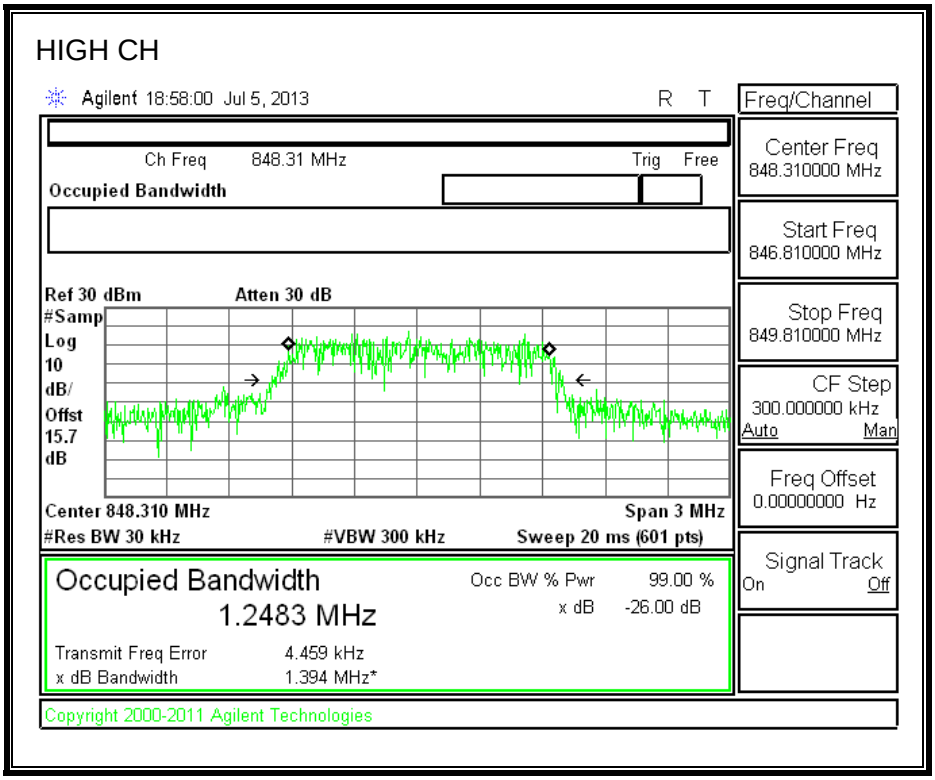
BC0 BAND



MID CH

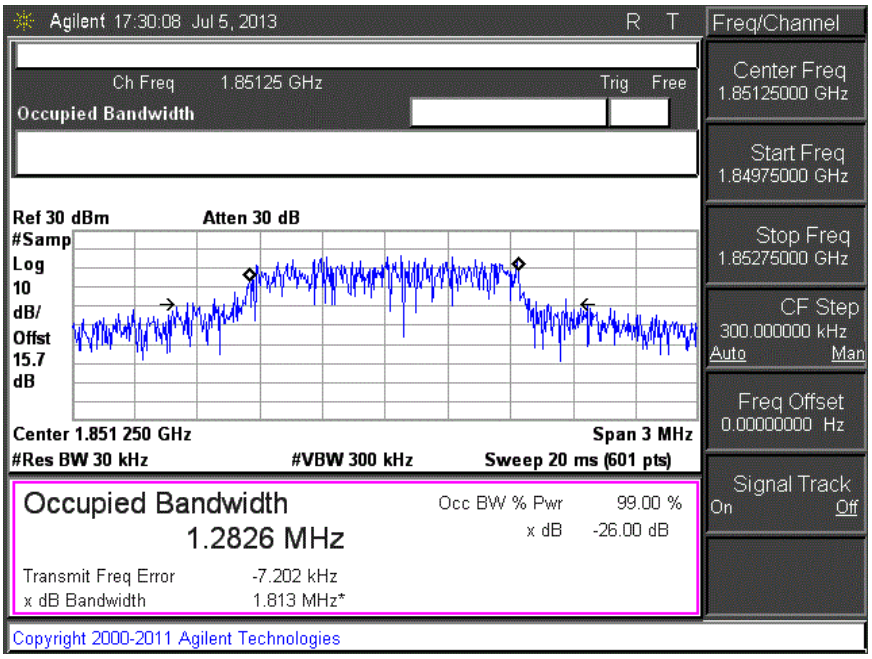


HIGH CH

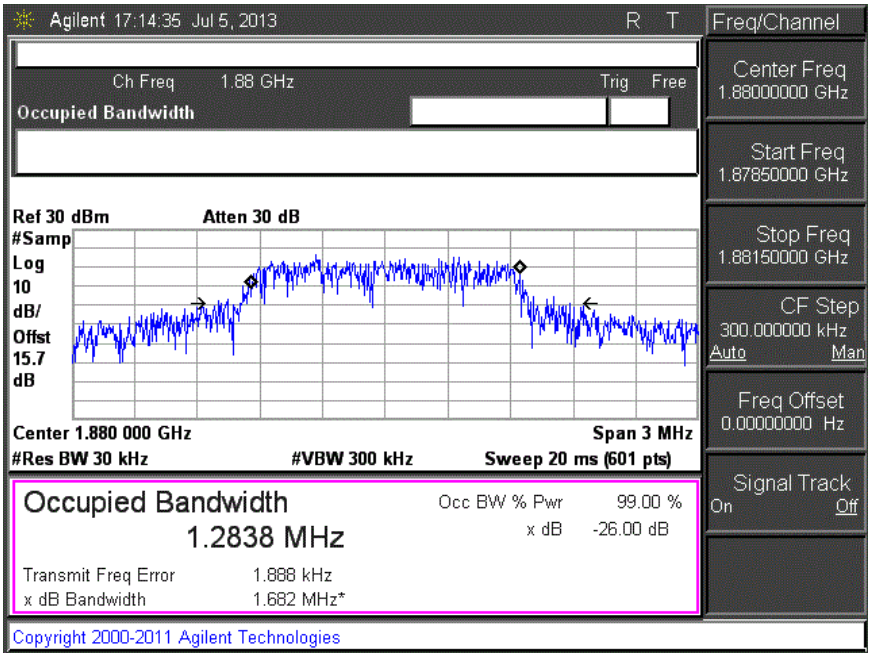


BC1 Band

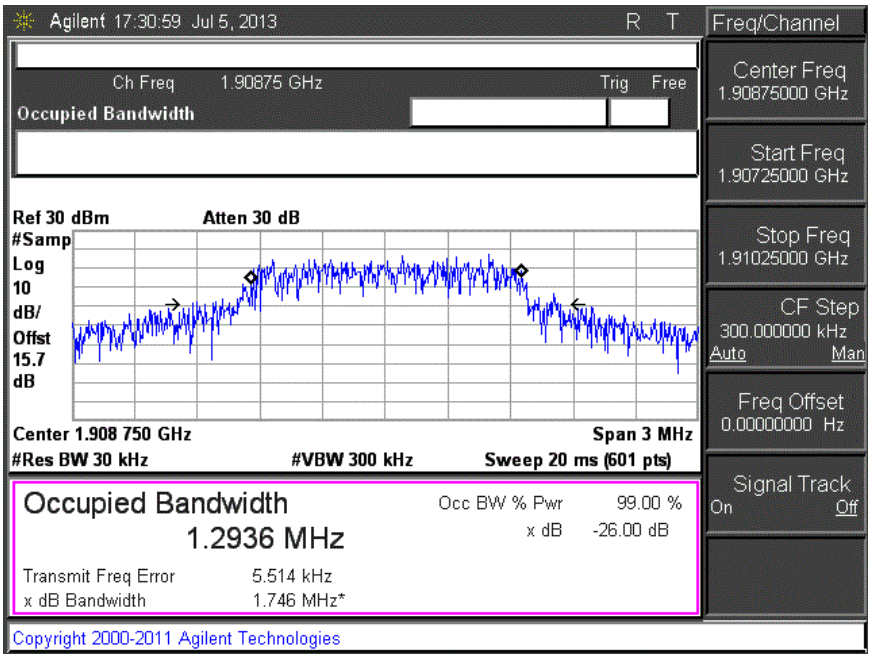
LOW CH



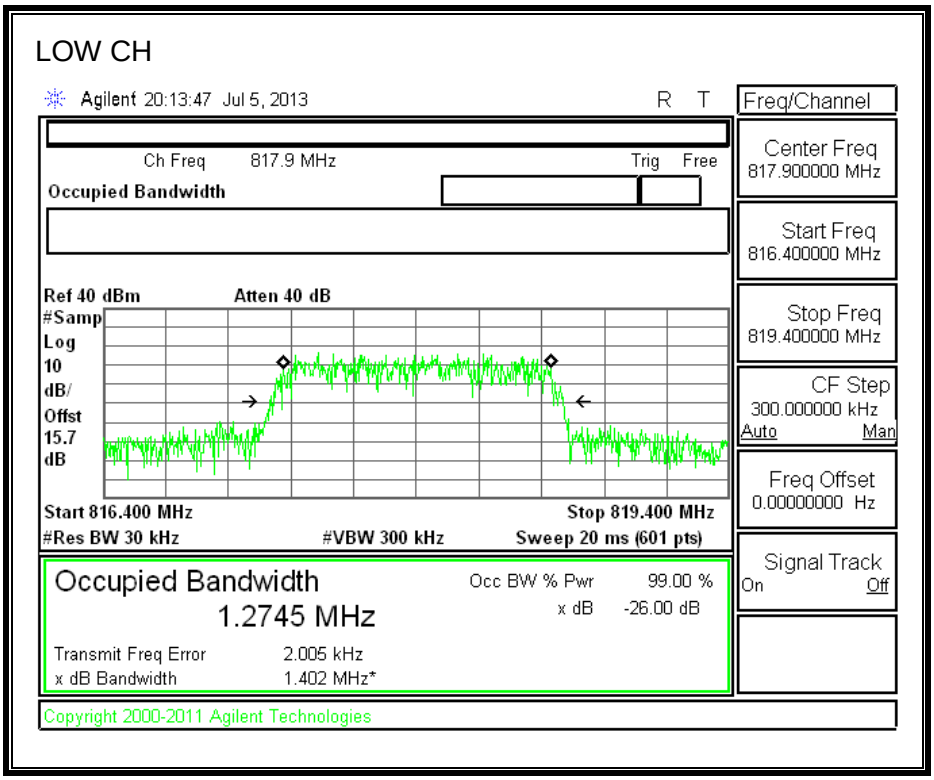
MID CH



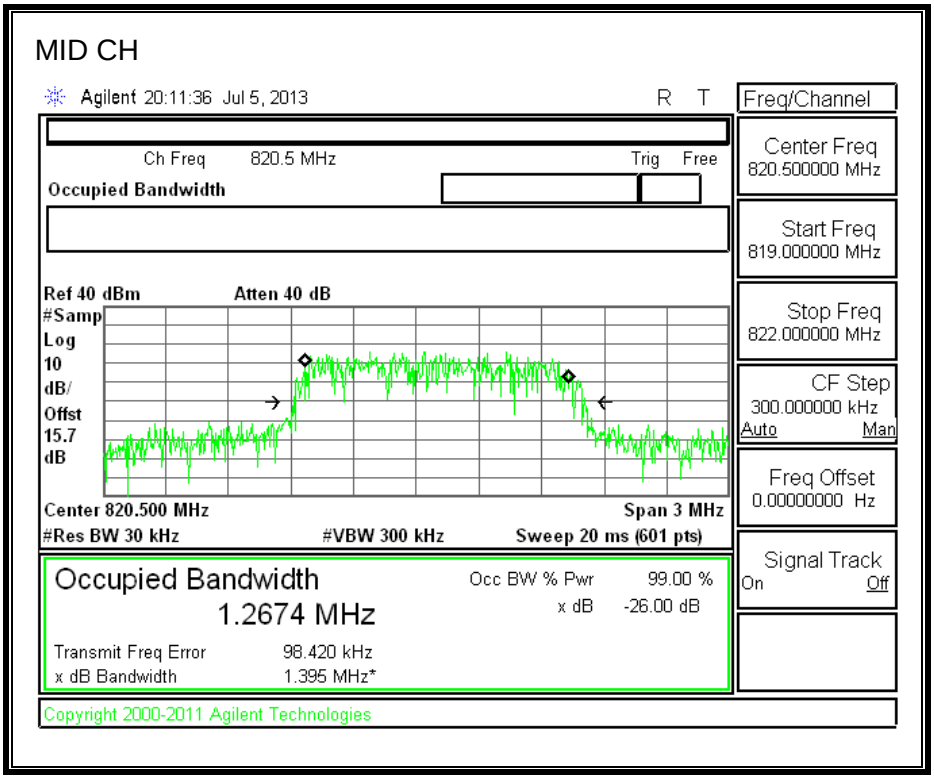
HIGH CH



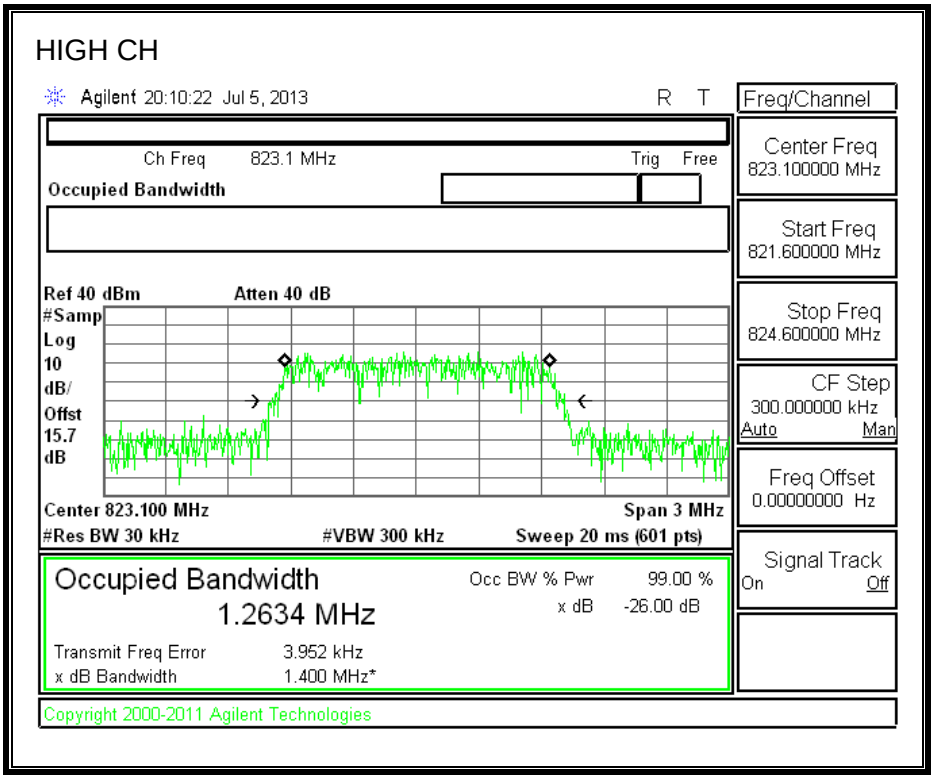
BC10 Band



MID CH

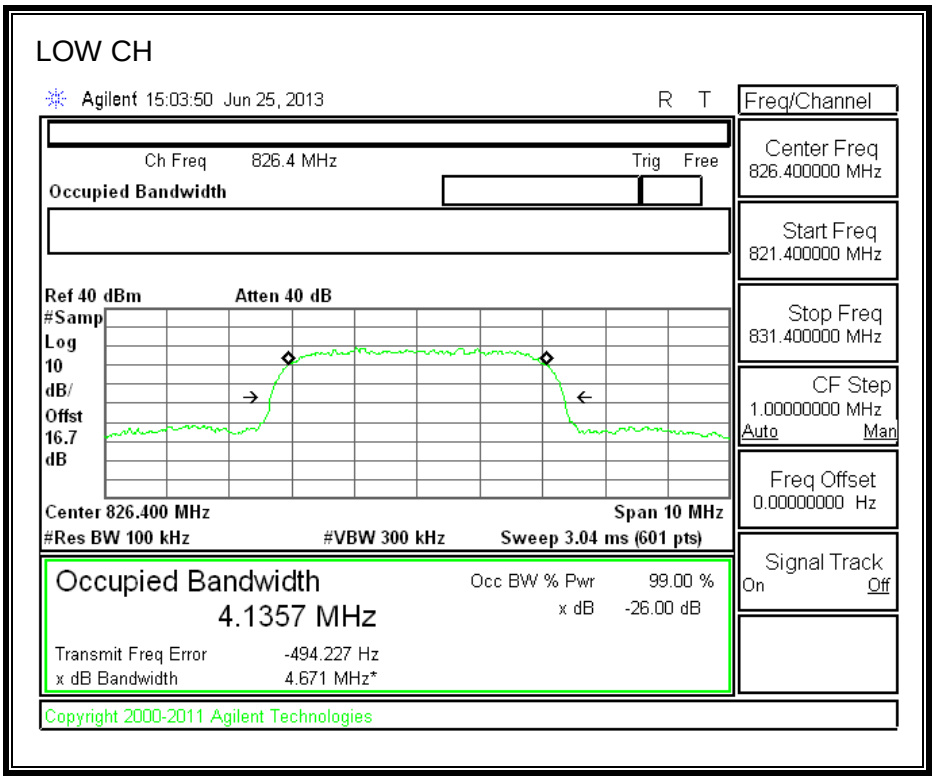


HIGH CH

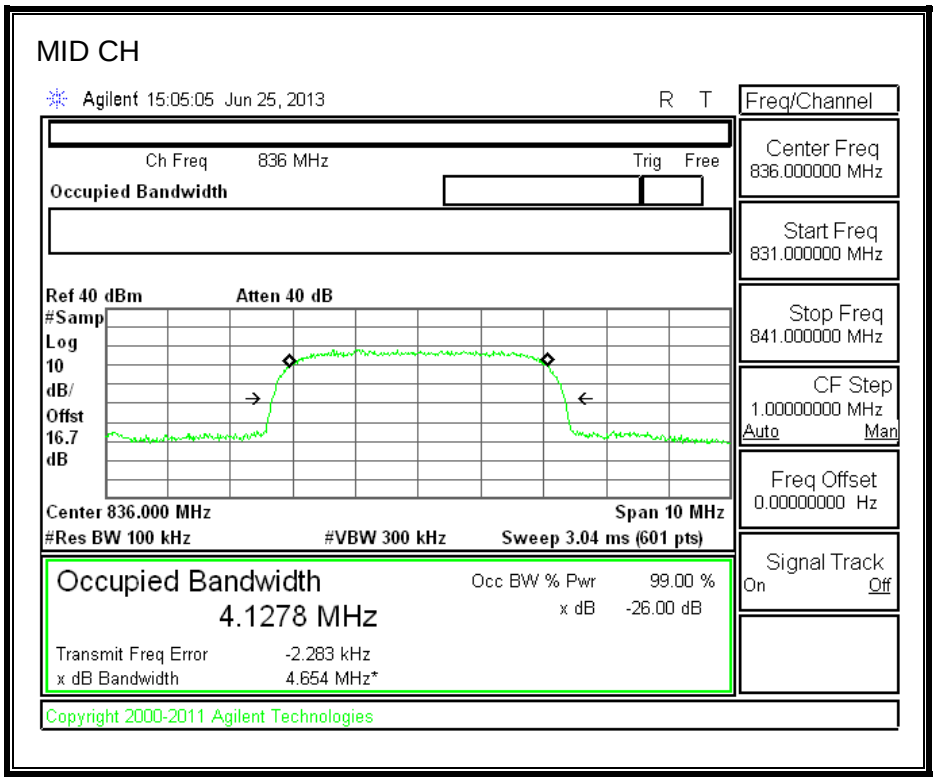


10.1.2. UMTS REL 99 MODE

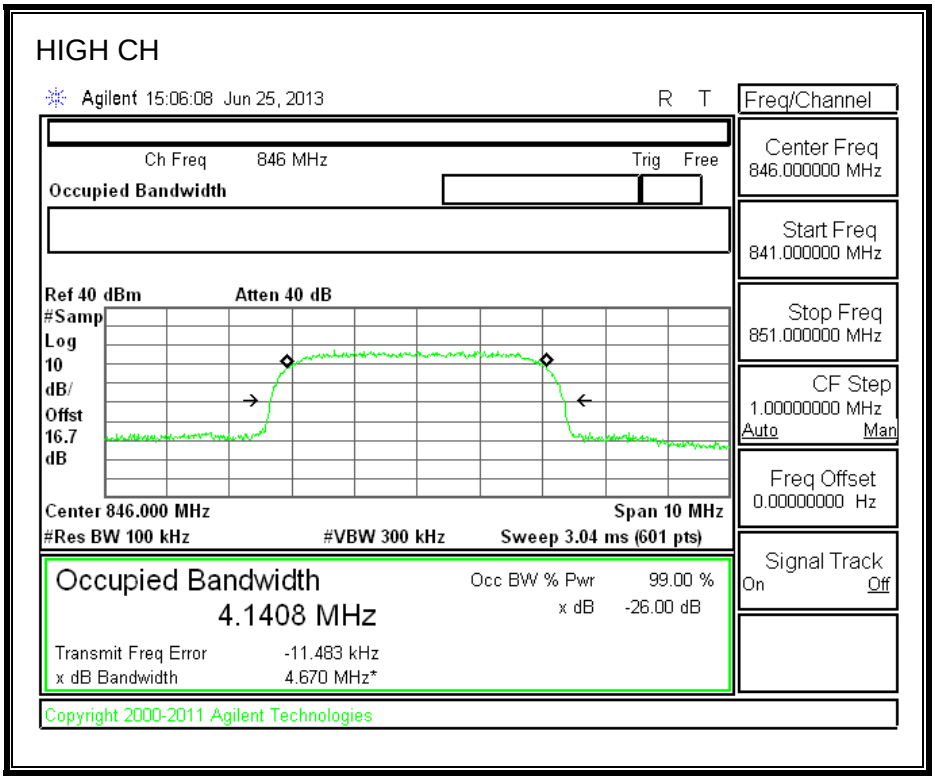
Band 5



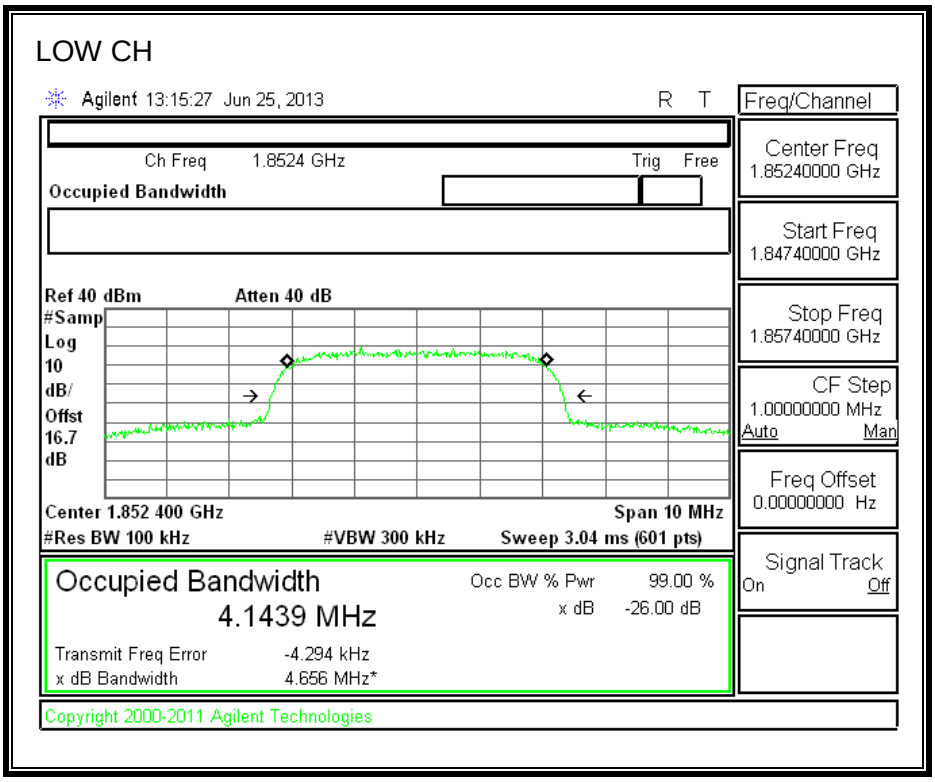
MID CH



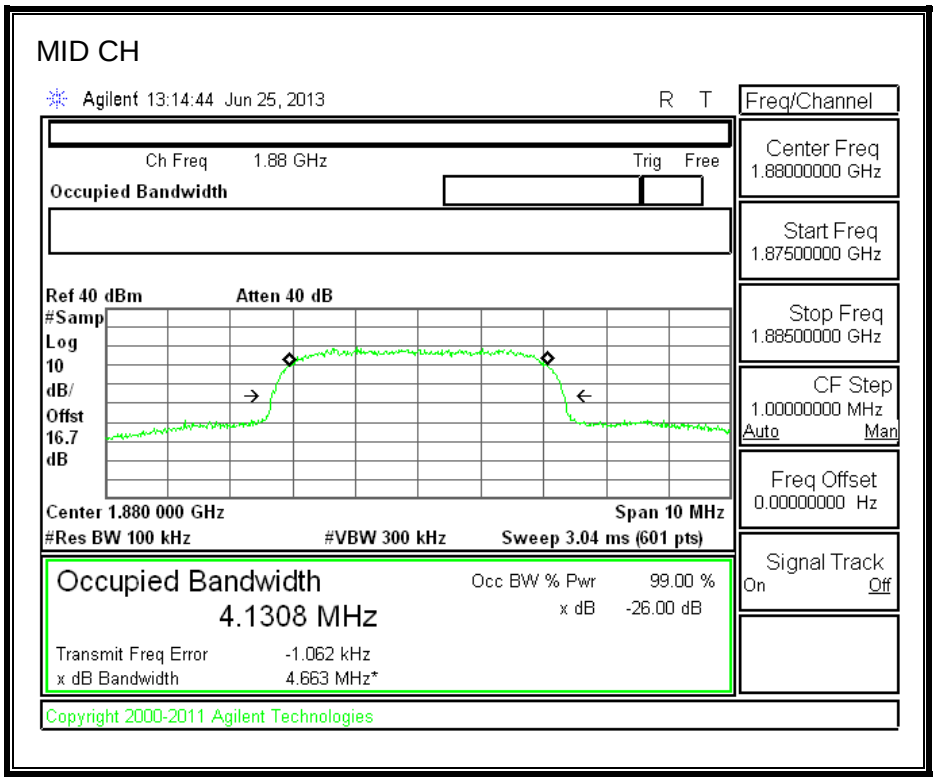
HIGH CH



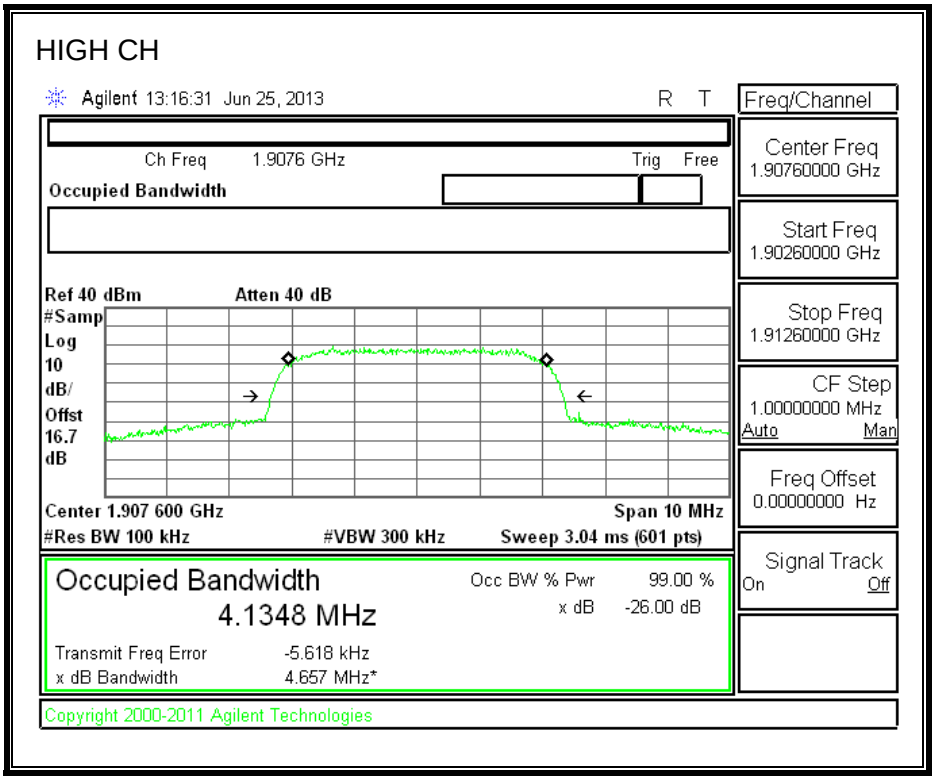
Band 2



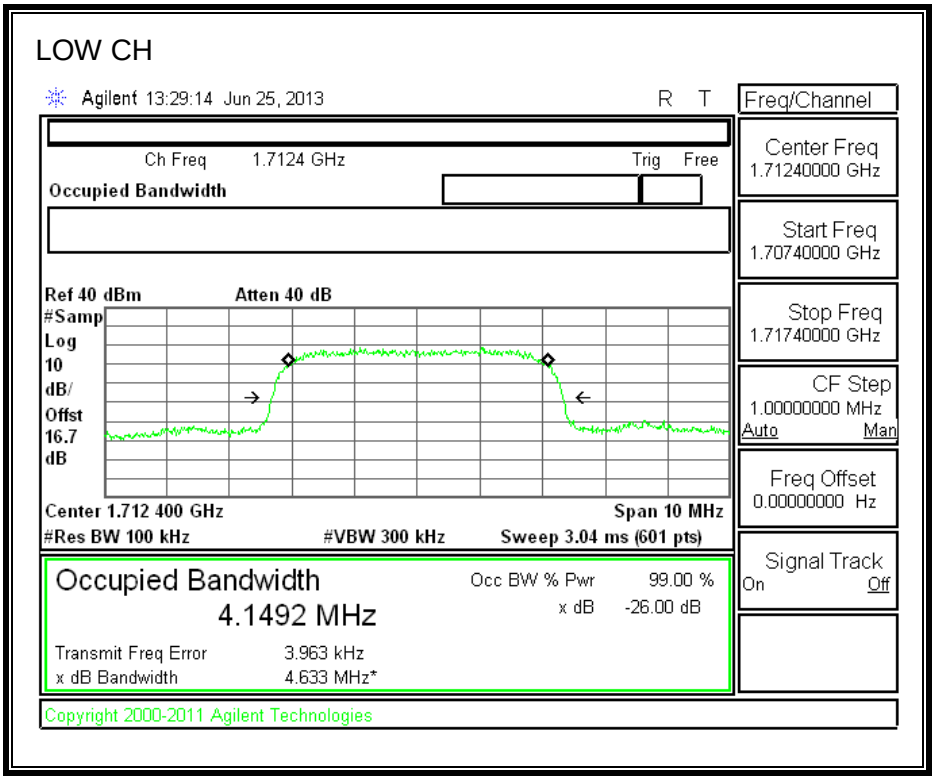
MID CH

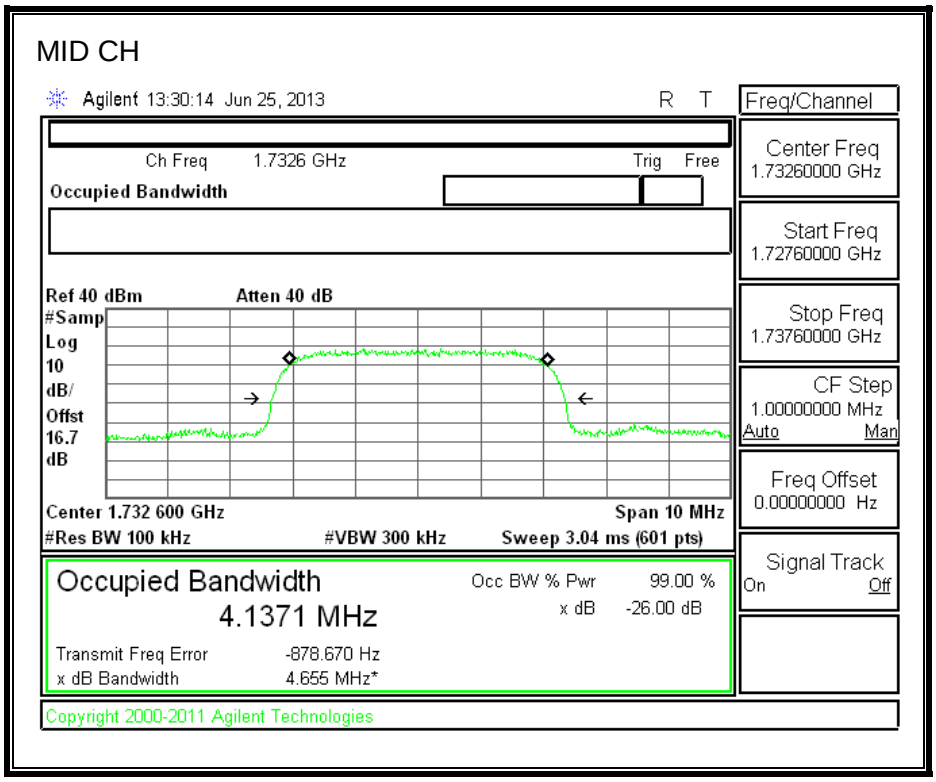


HIGH CH

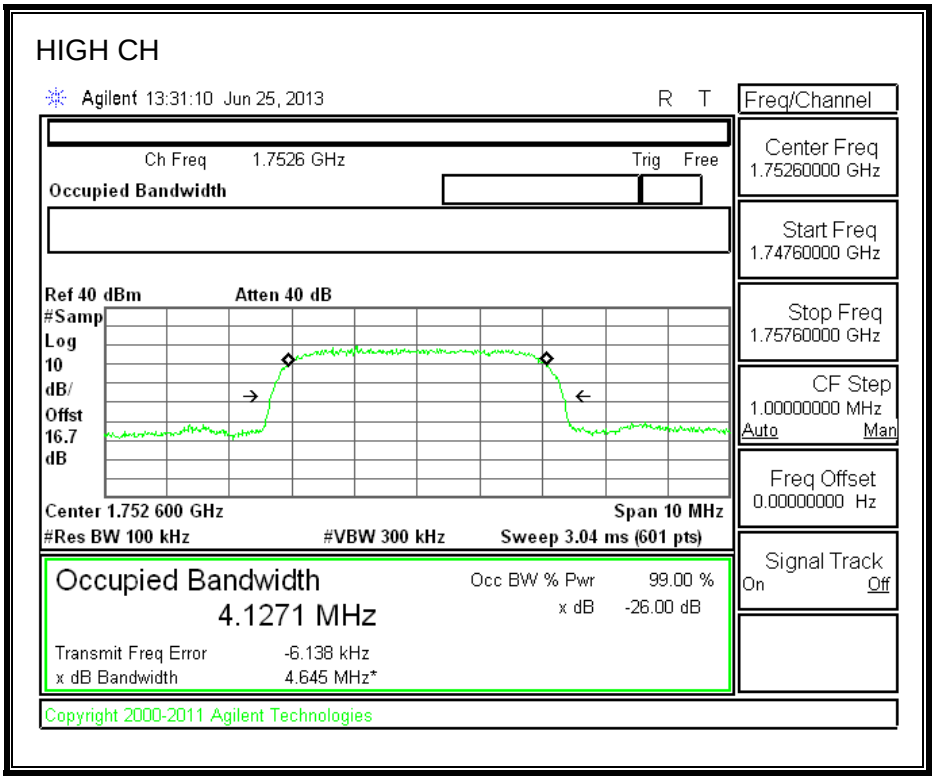


Band 4



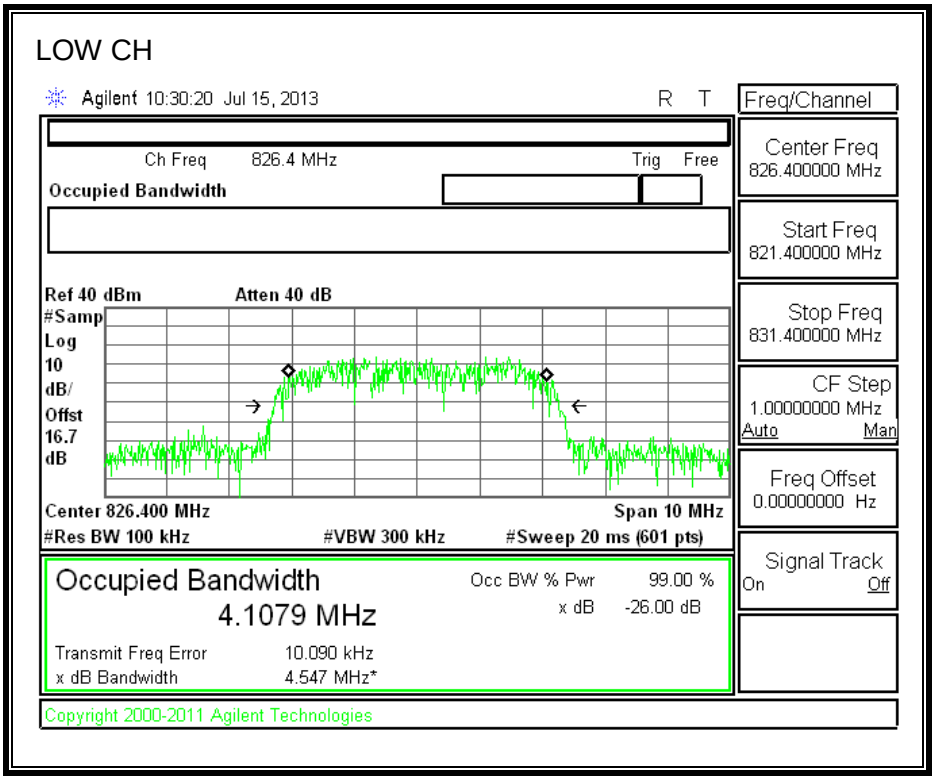


HIGH CH

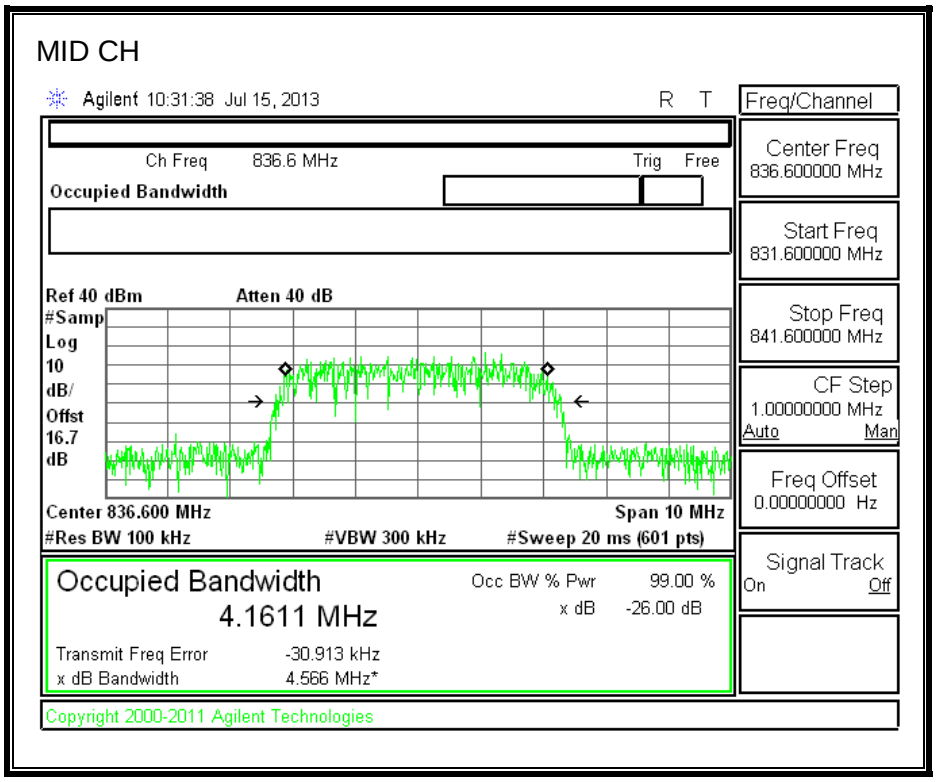


10.1.1. WCDMA HSDPA

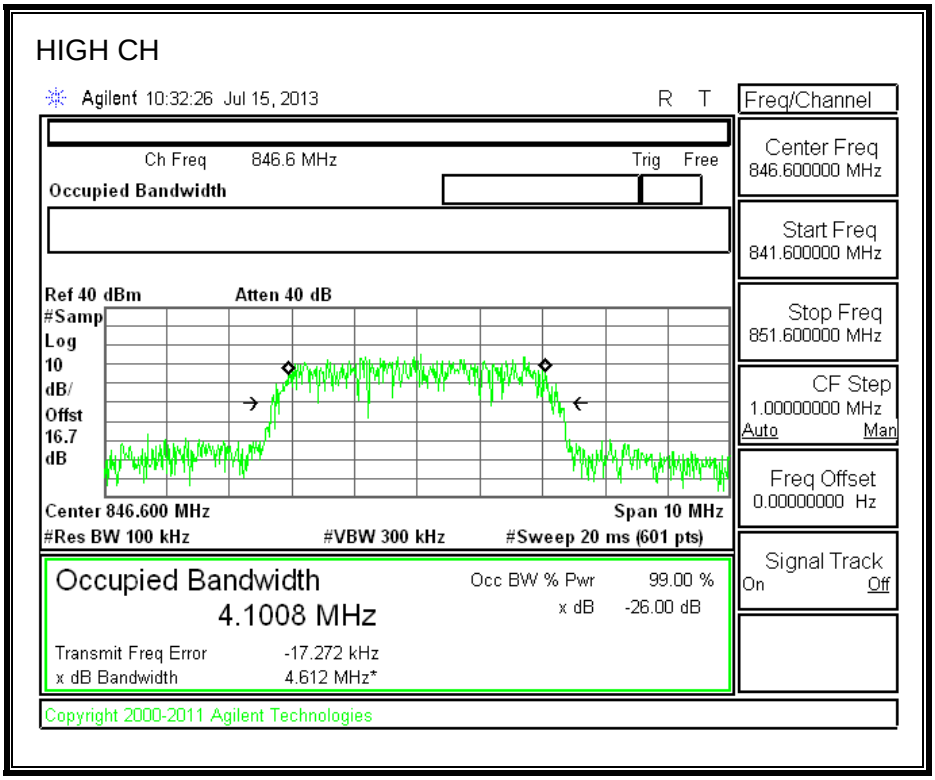
Band 5



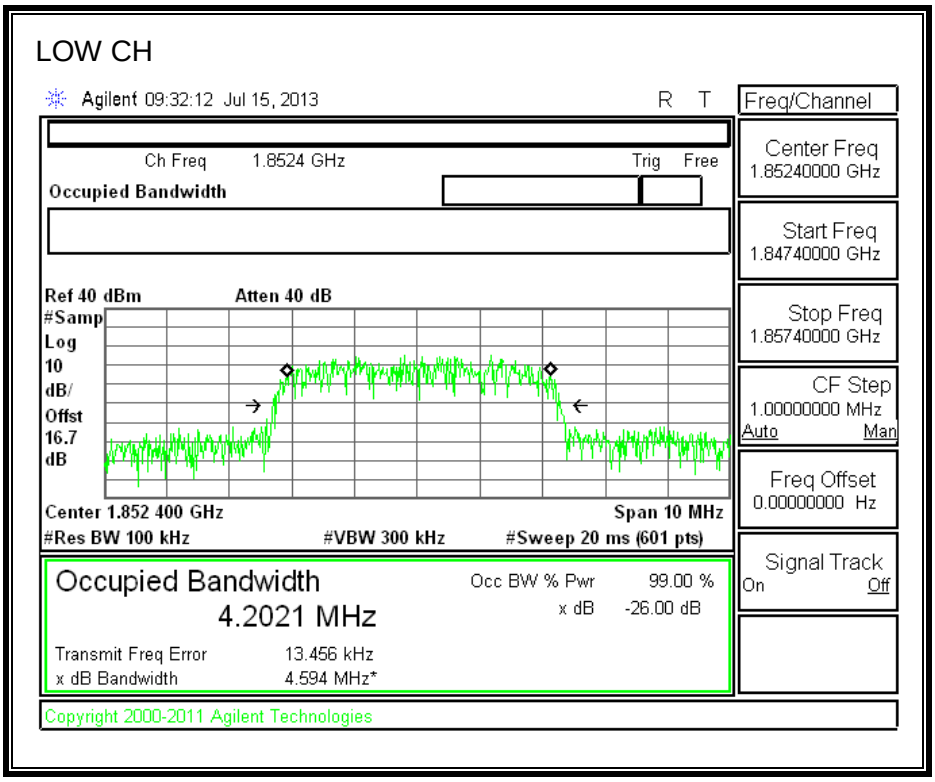
MID CH

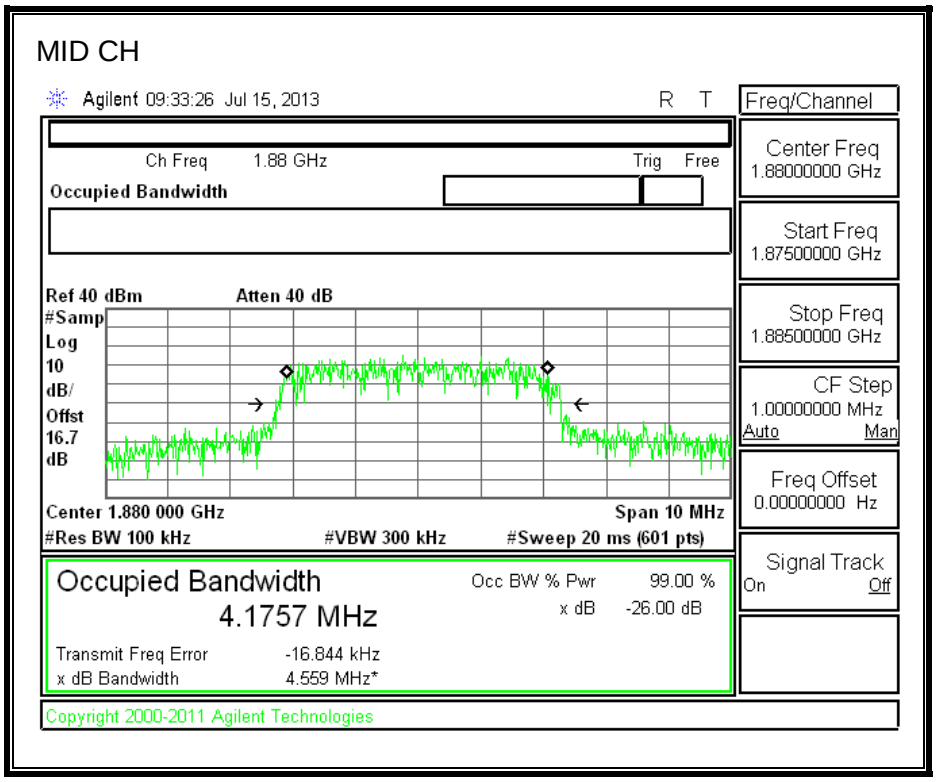


HIGH CH

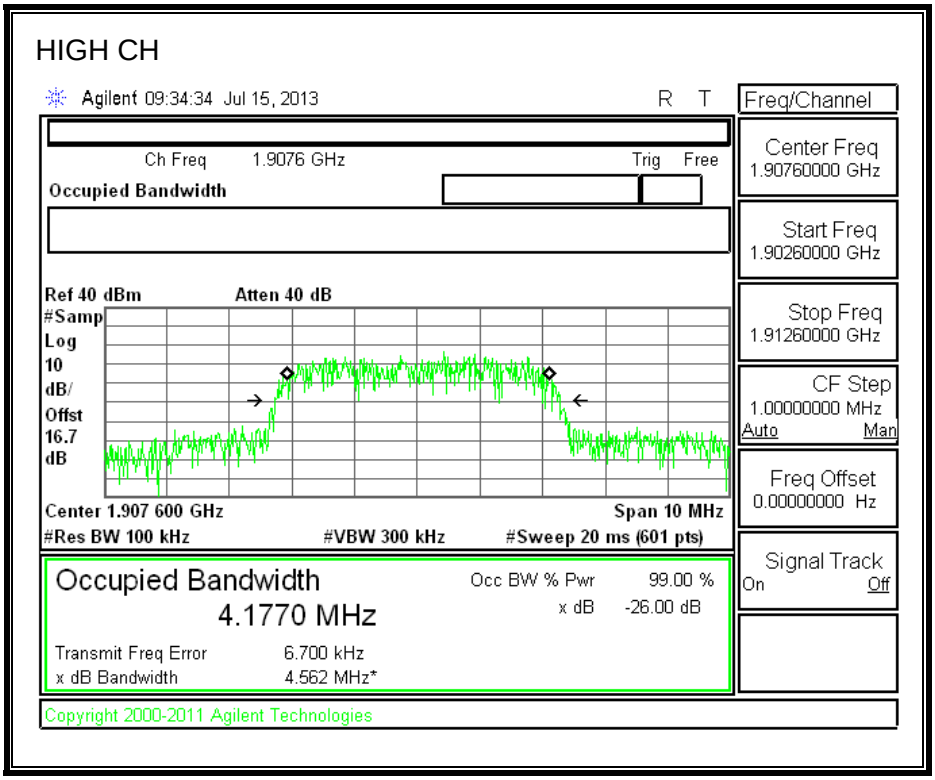


Band 2

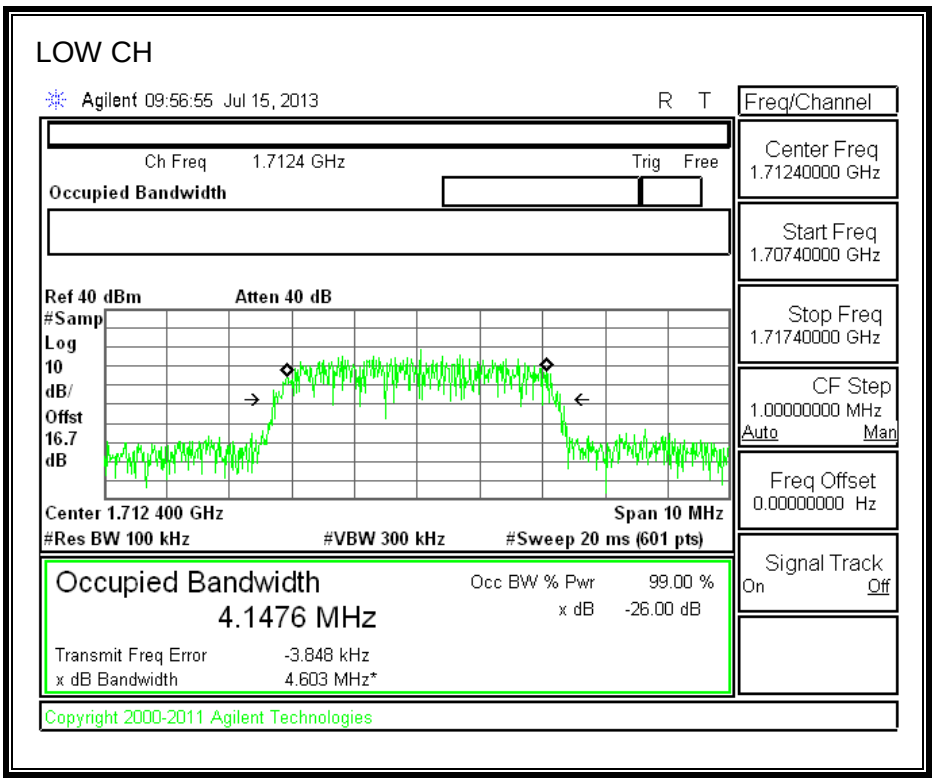


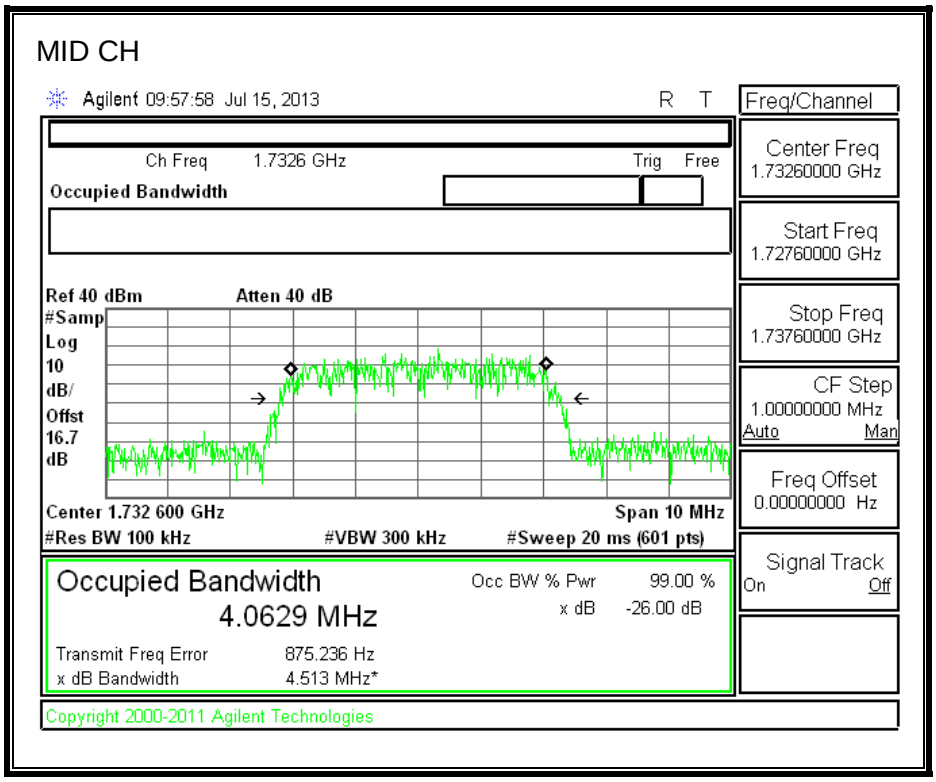


HIGH CH

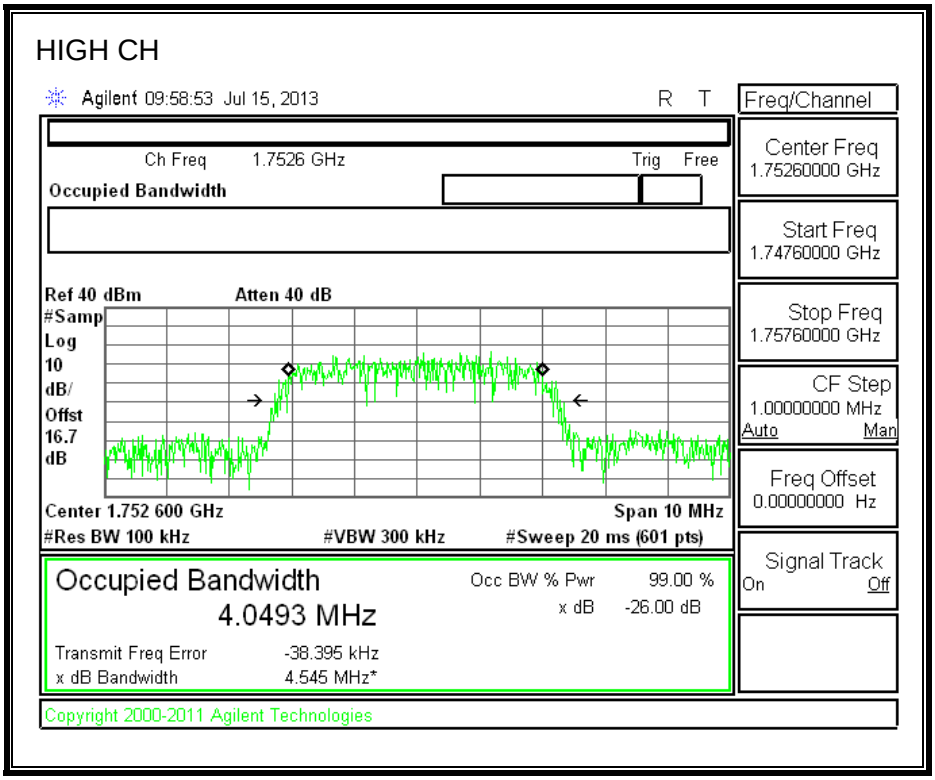


Band 4





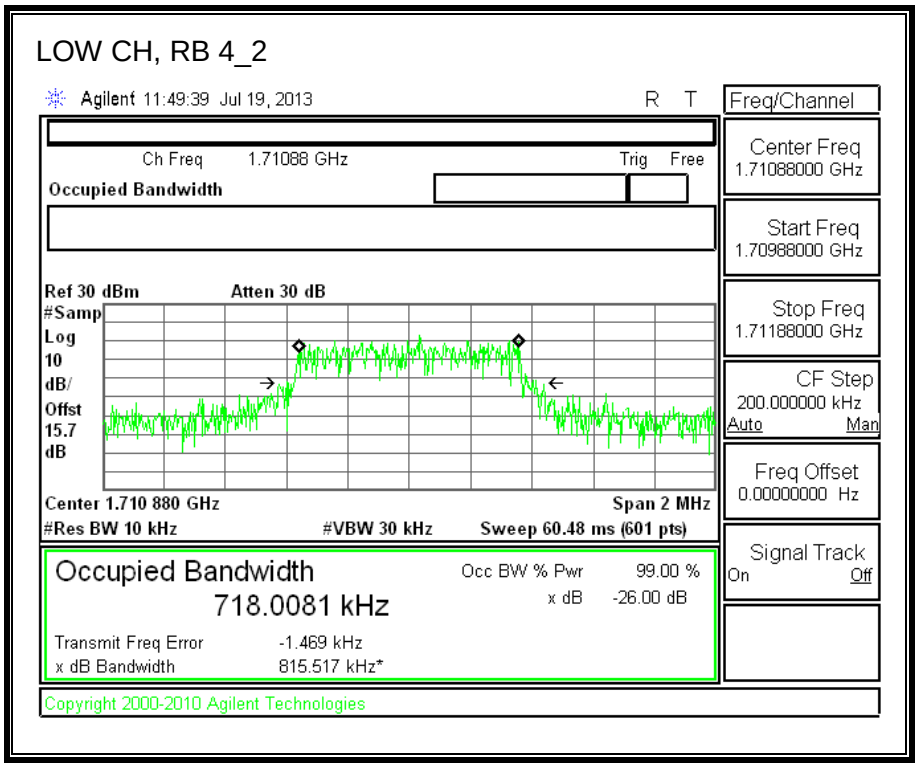
HIGH CH



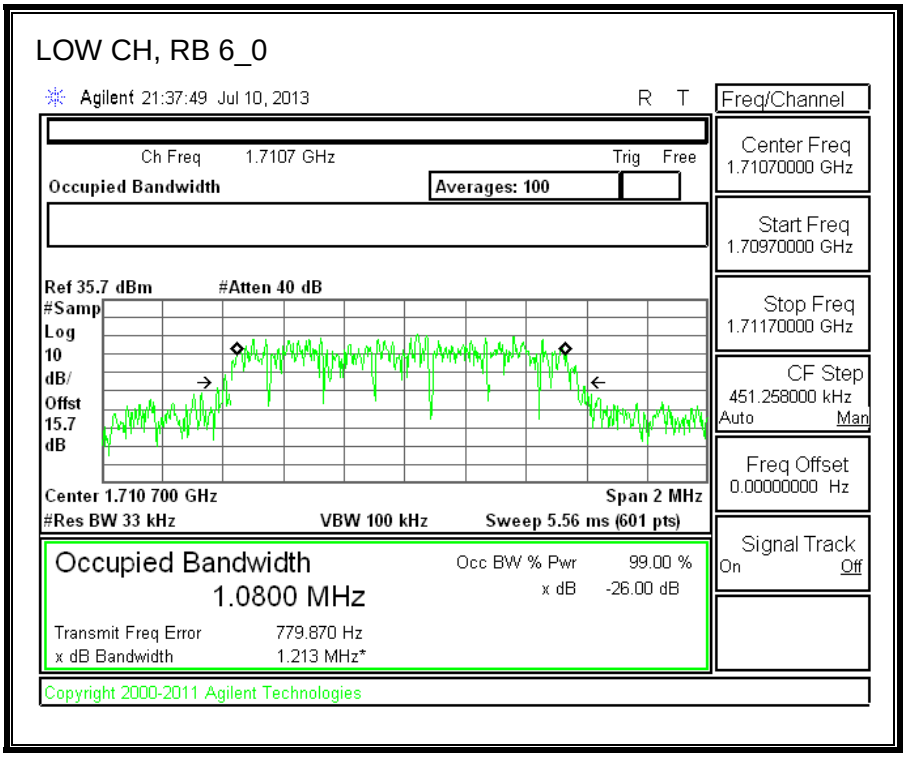
10.2. LTE Band 4

10.2.1. LTE BAND 4-1.4MHz BANDWIDTH

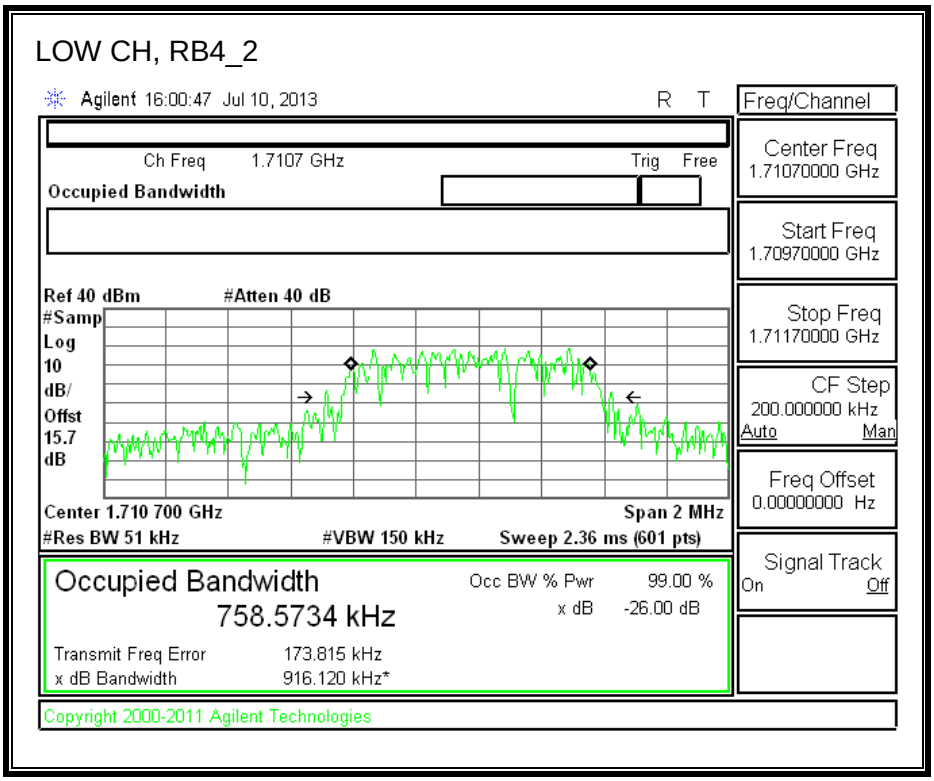
LOW-QPSK

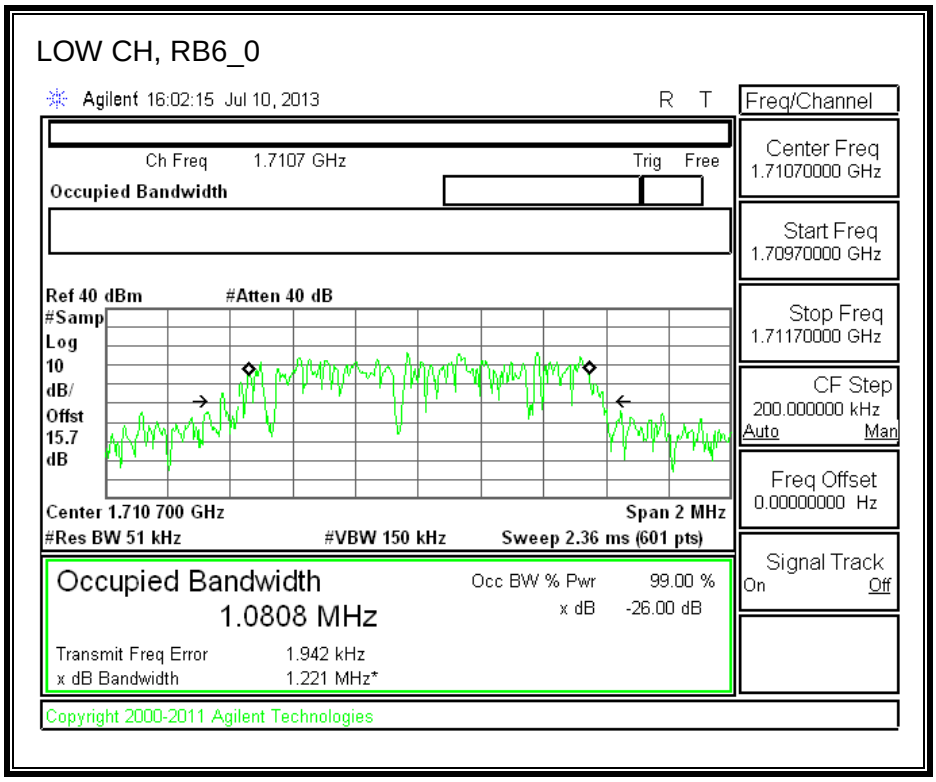


LOW CH, RB 6_0

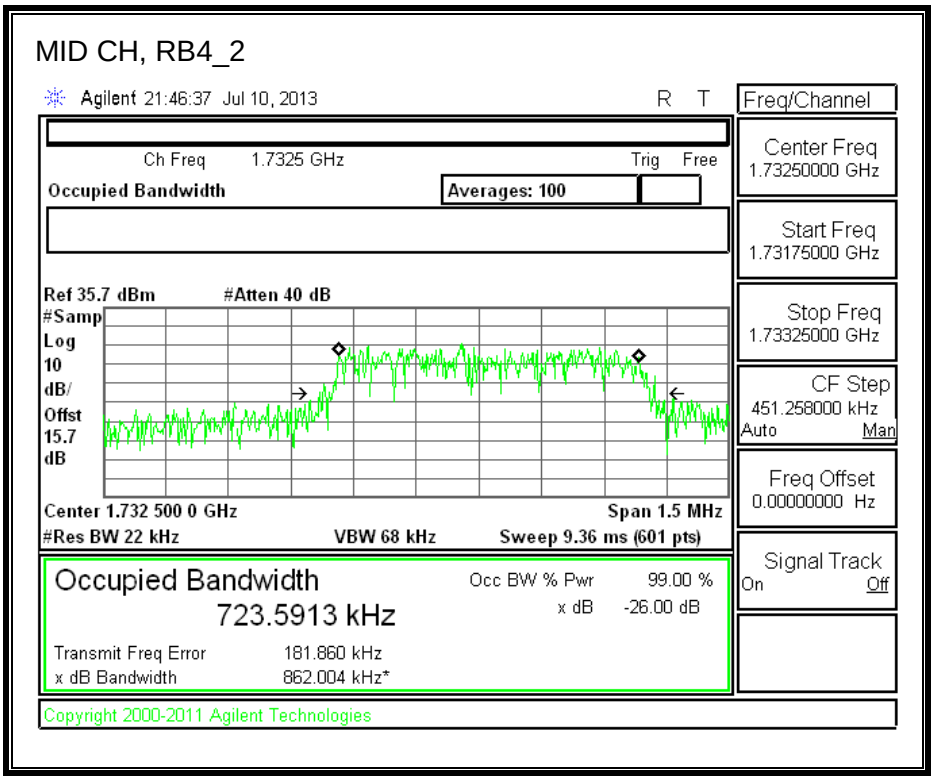


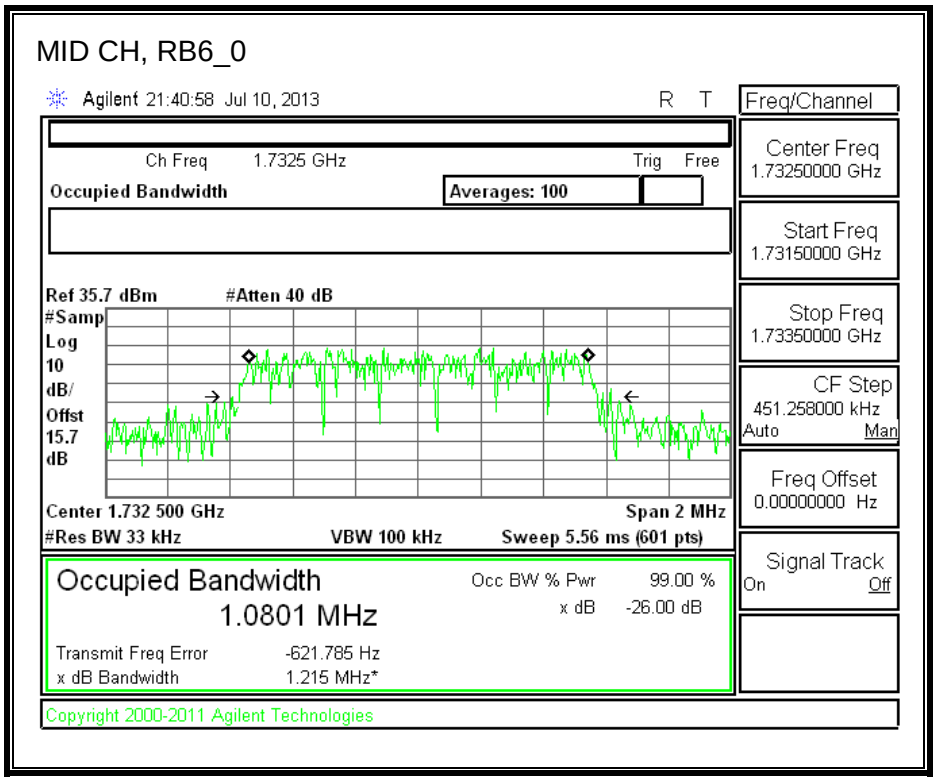
LOW-16QAM



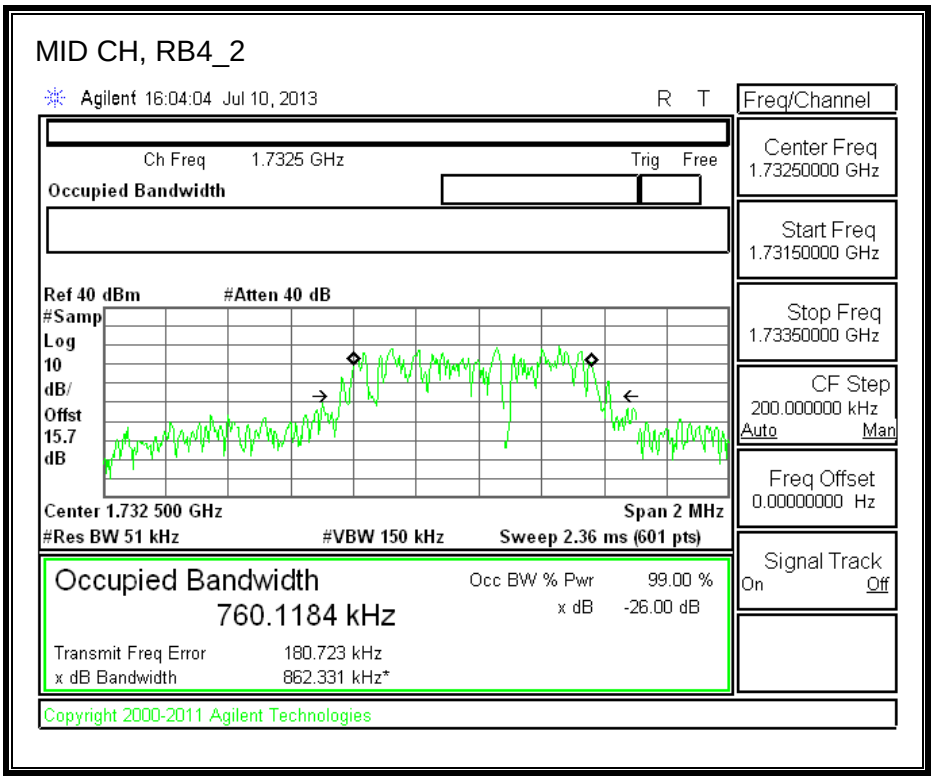


MID-QPSK

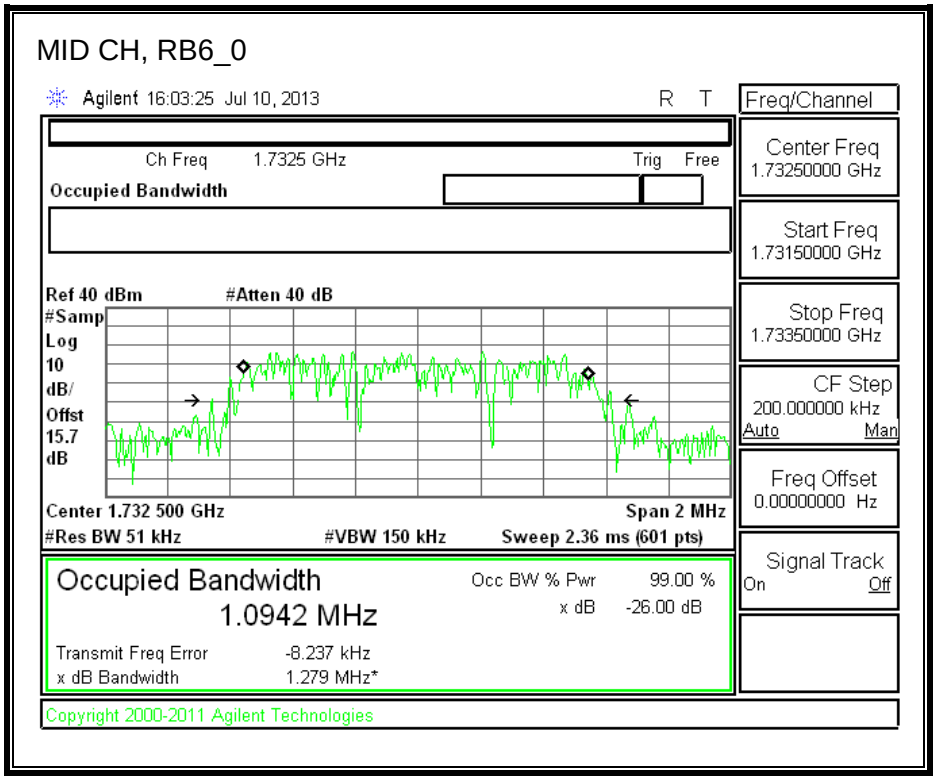




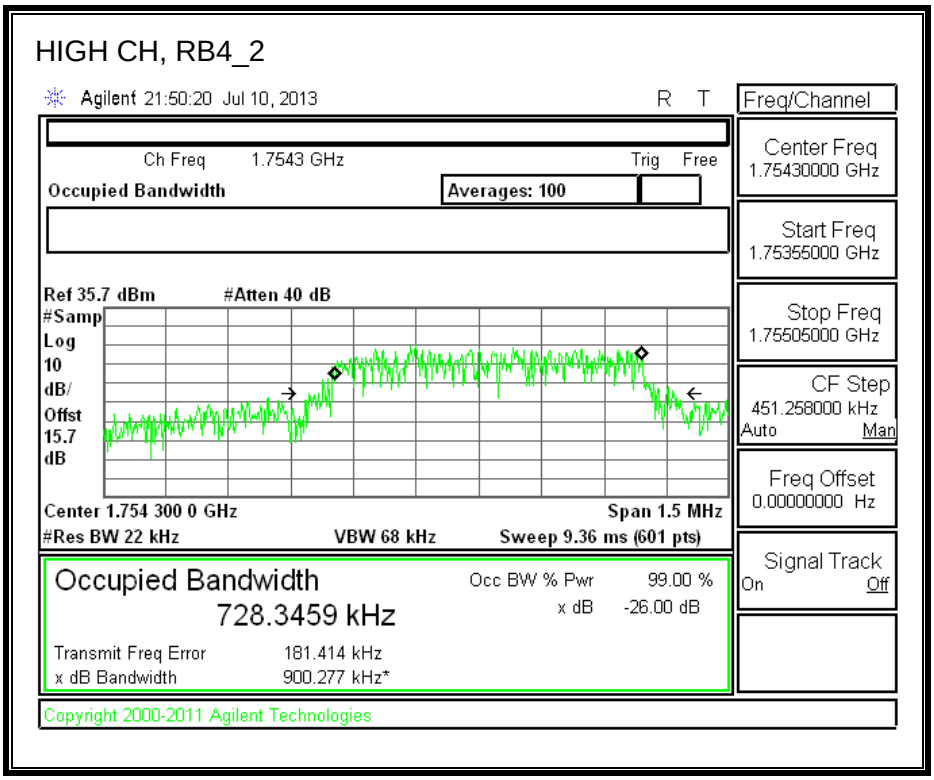
MID-16QAM



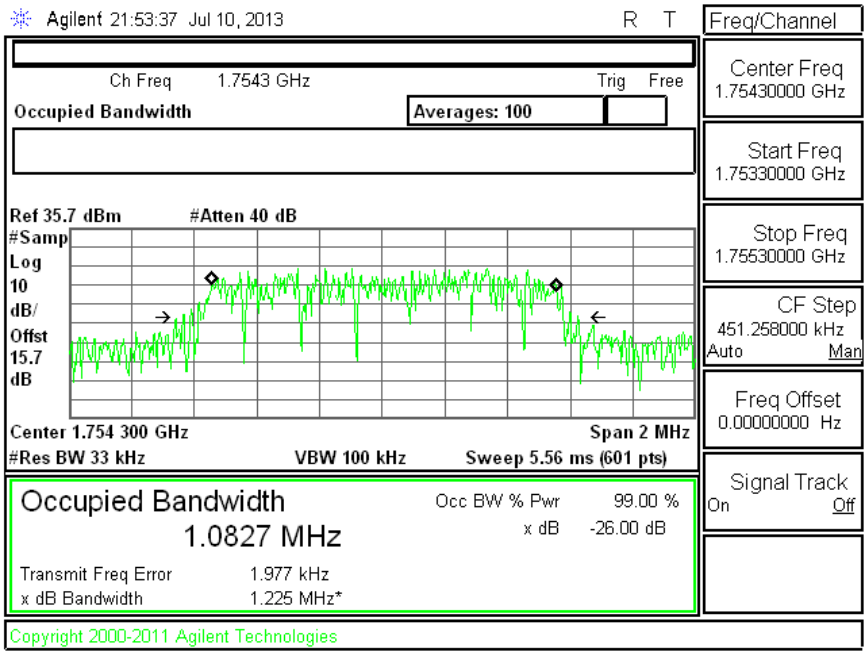
MID CH, RB6_0



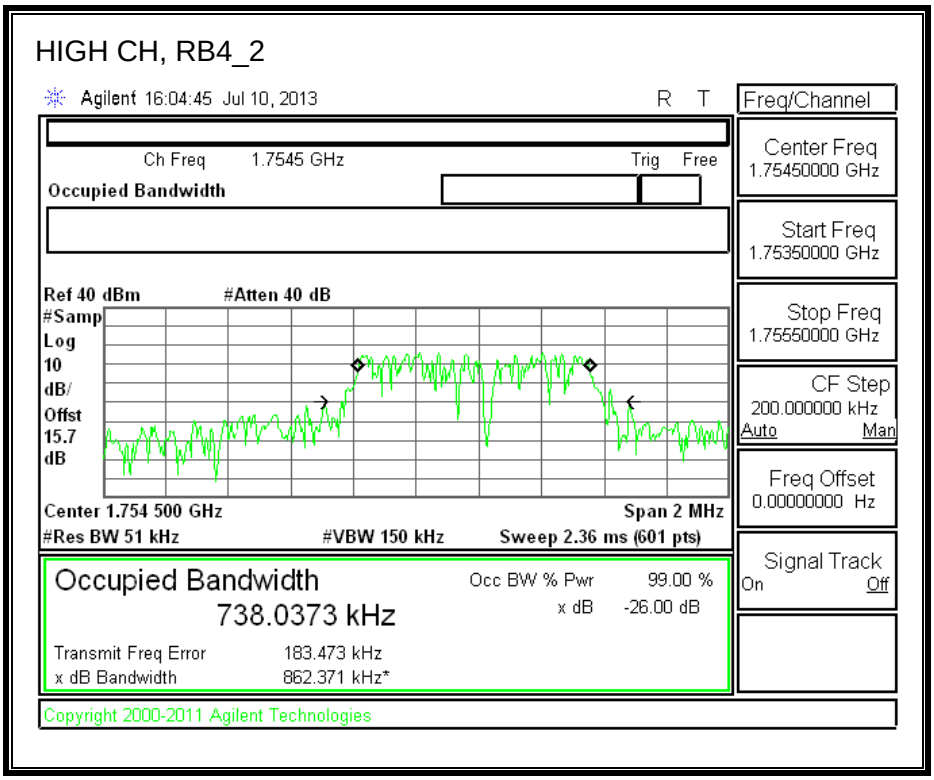
HIGH-QPSK



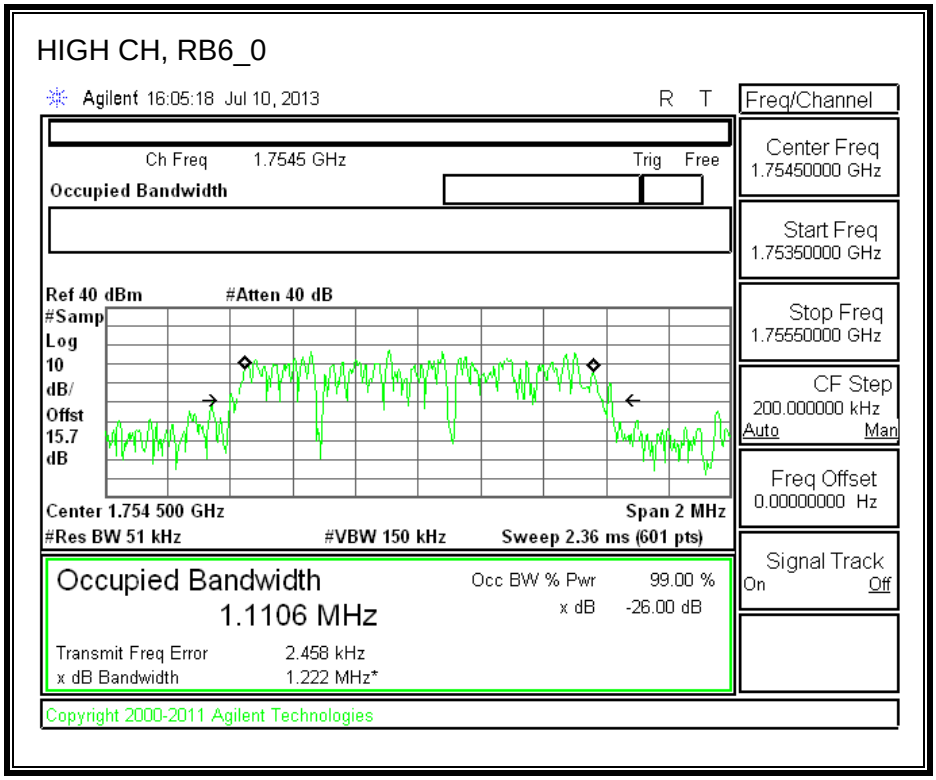
HIGH CH, RB6_0



HIGH-16QAM

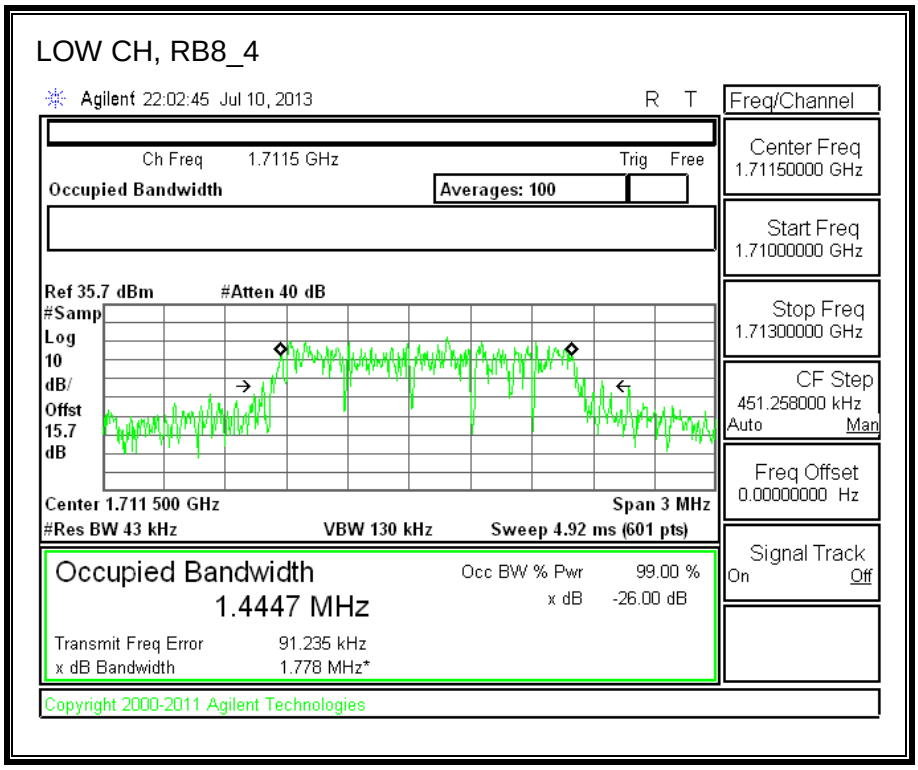


HIGH CH, RB6_0

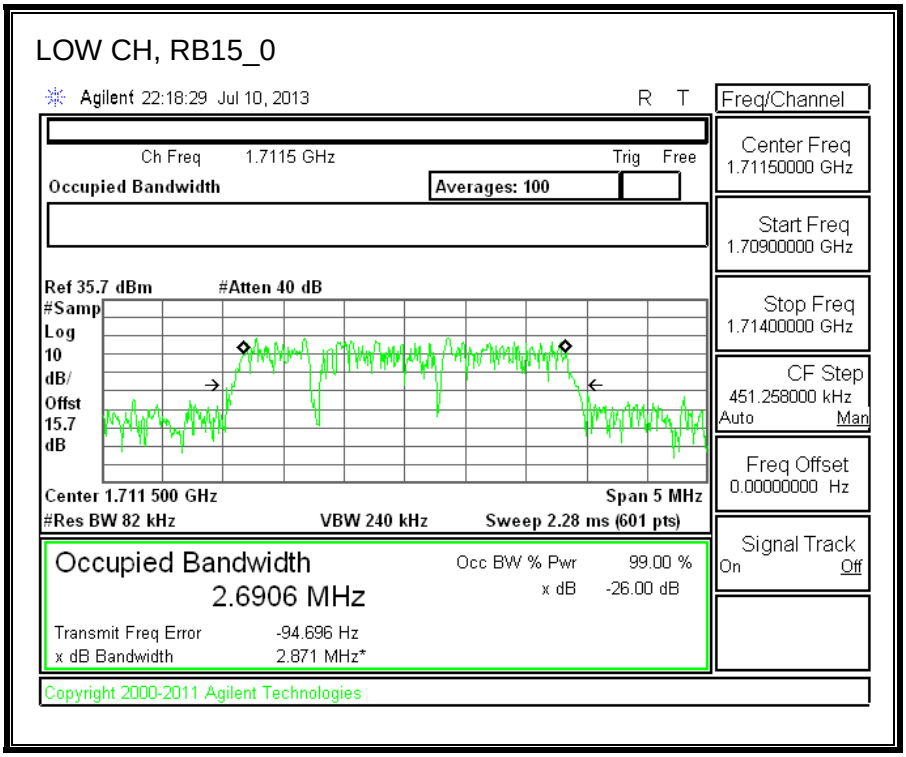


10.2.2. LTE BAND 4-3MHz BANDWIDTH

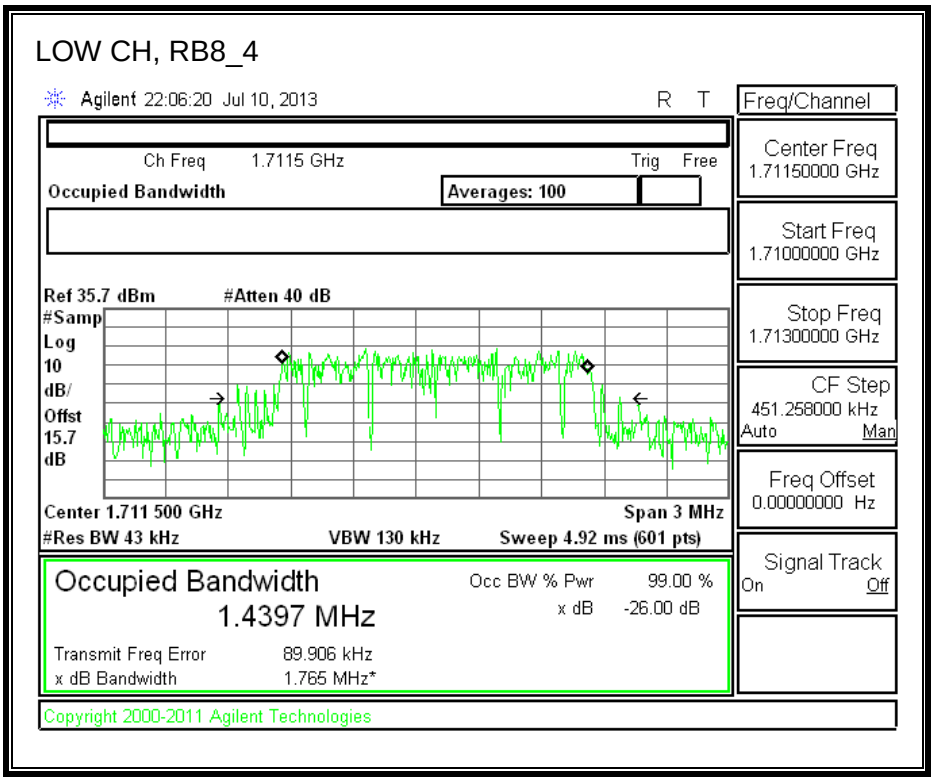
LOW-QPSK

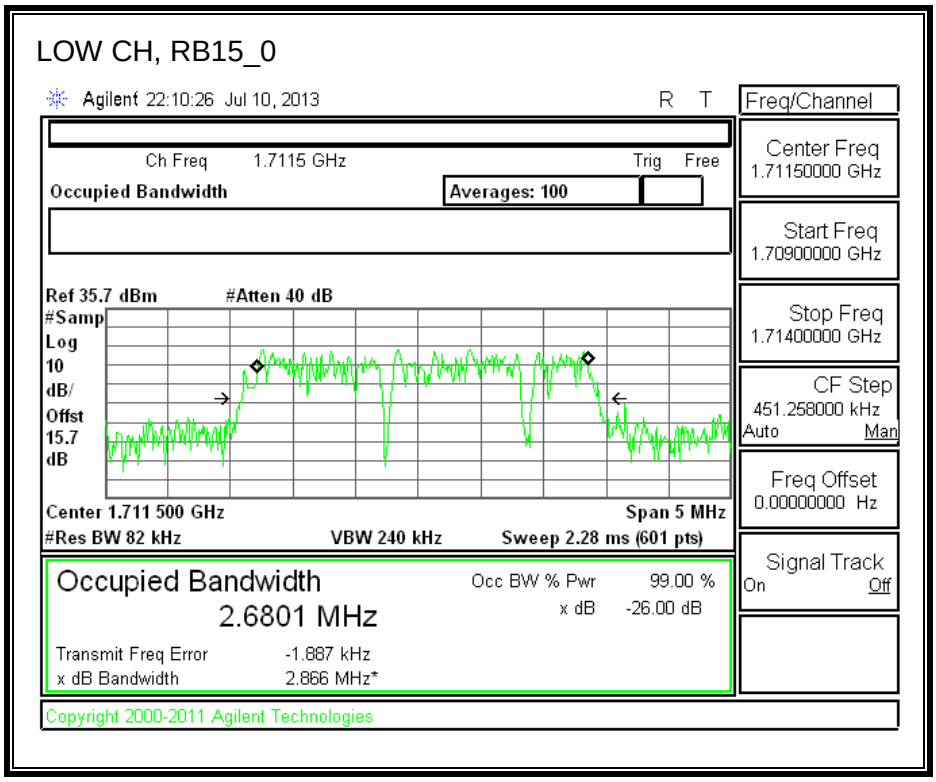


LOW CH, RB15_0

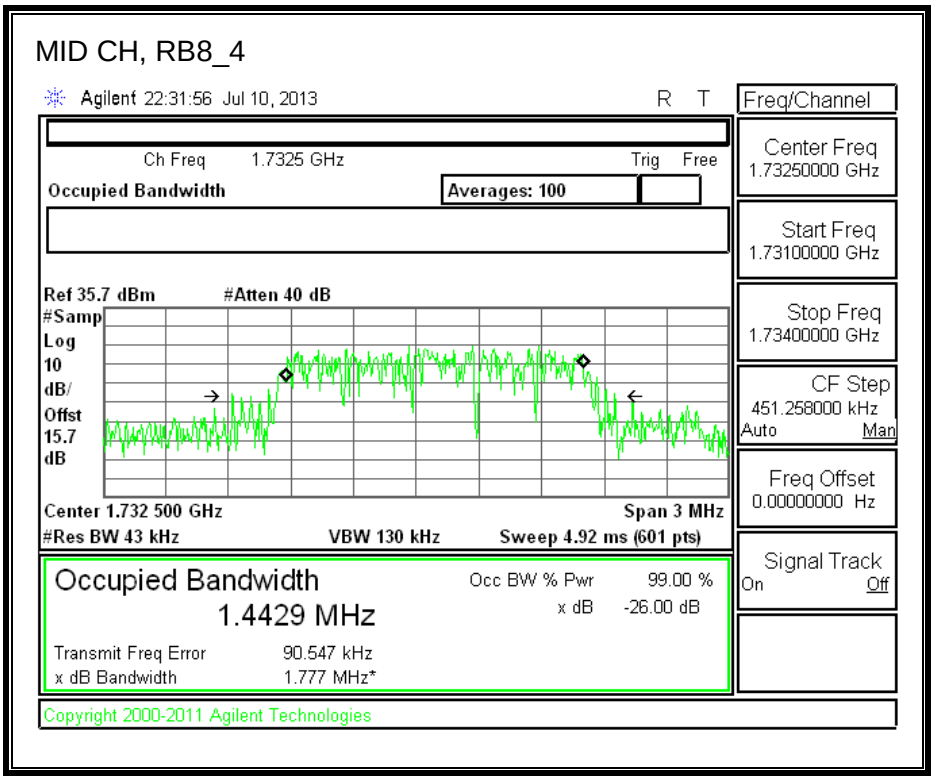


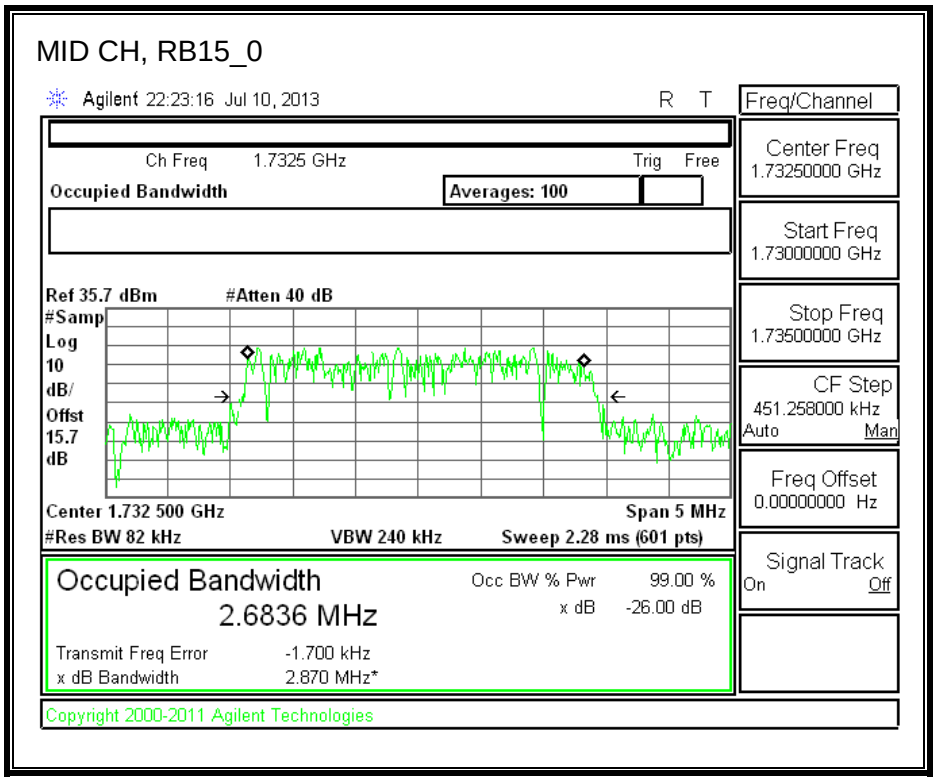
LOW-16QAM



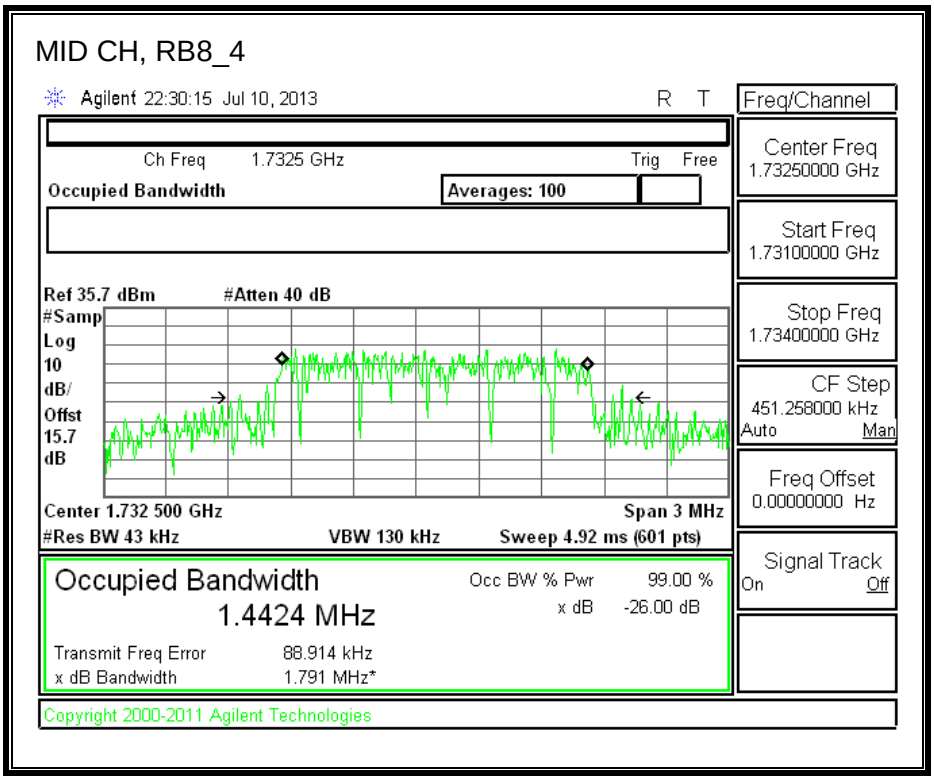


MID-QPSK

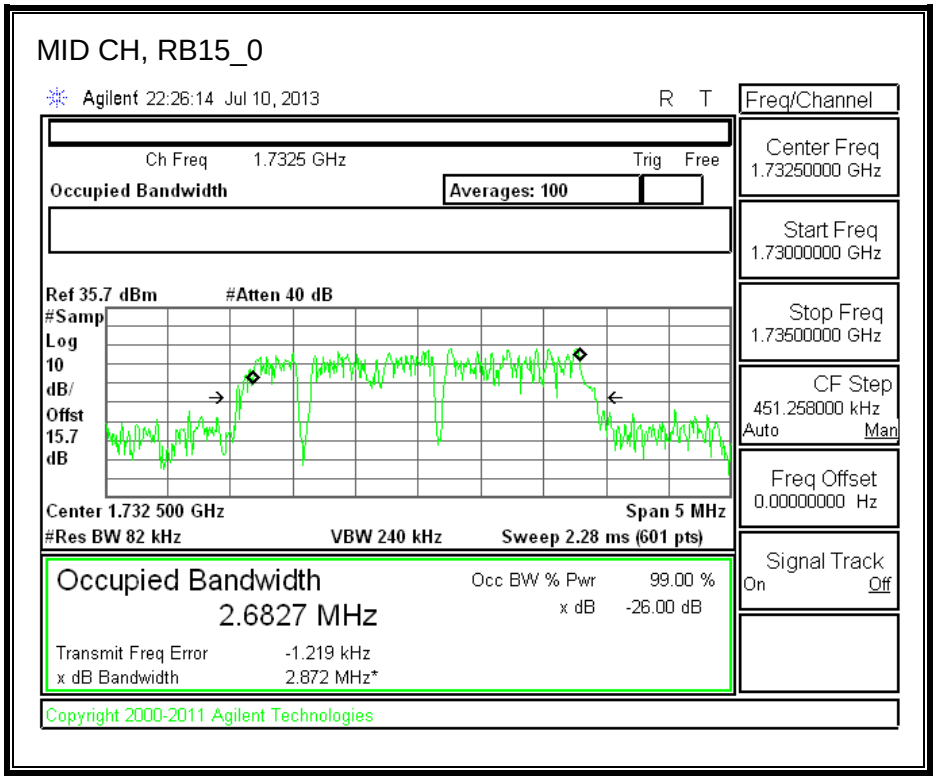




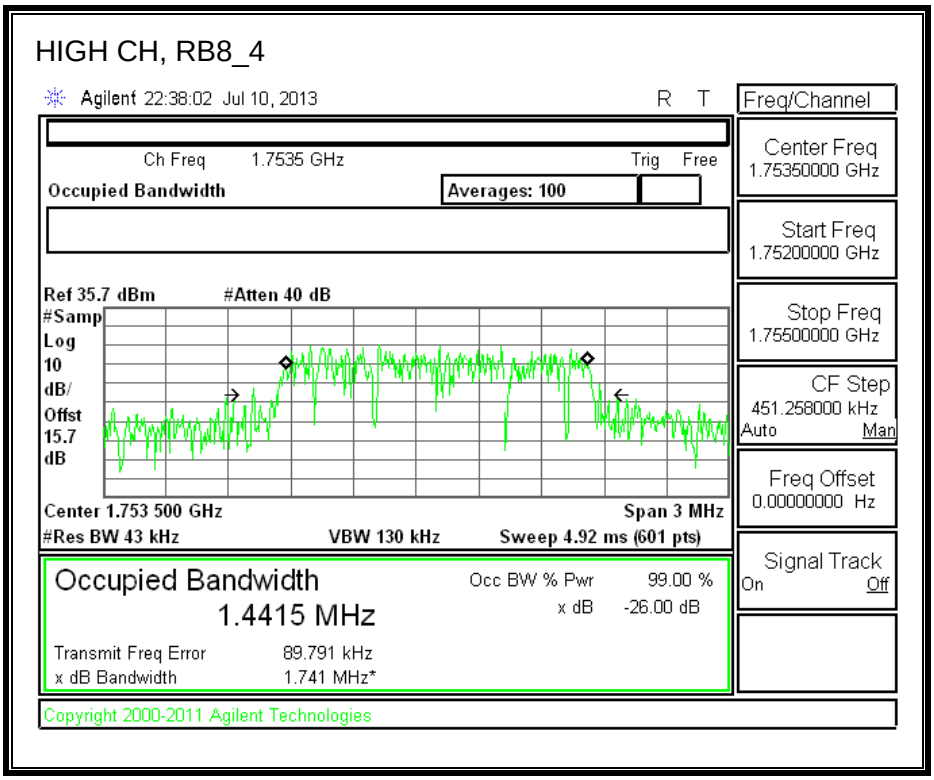
MID-16QAM



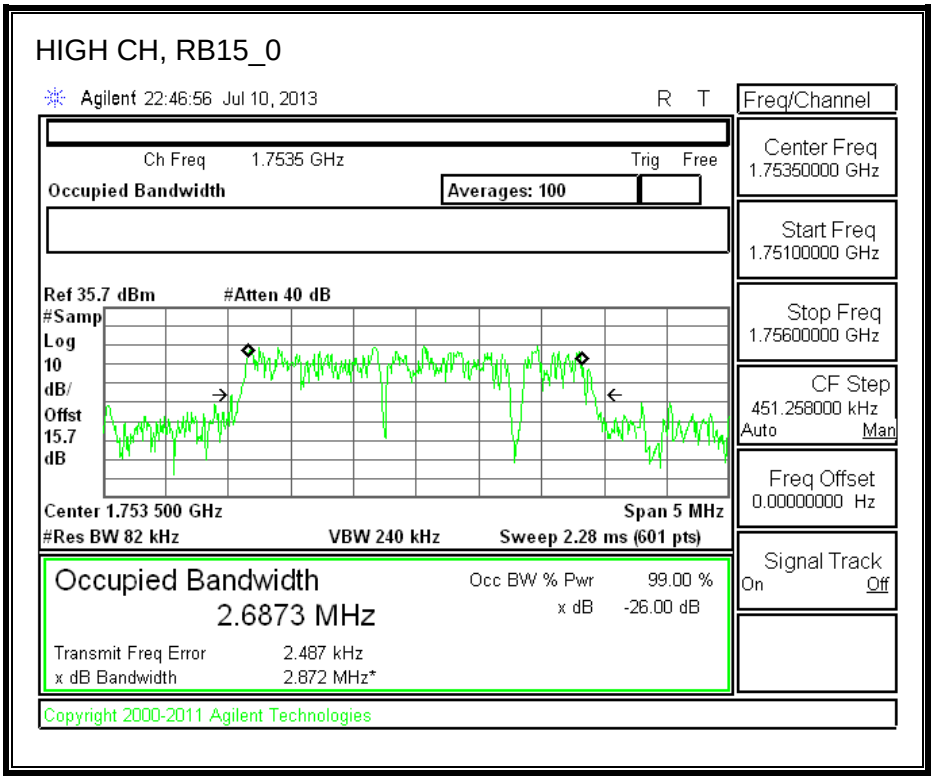
MID CH, RB15_0



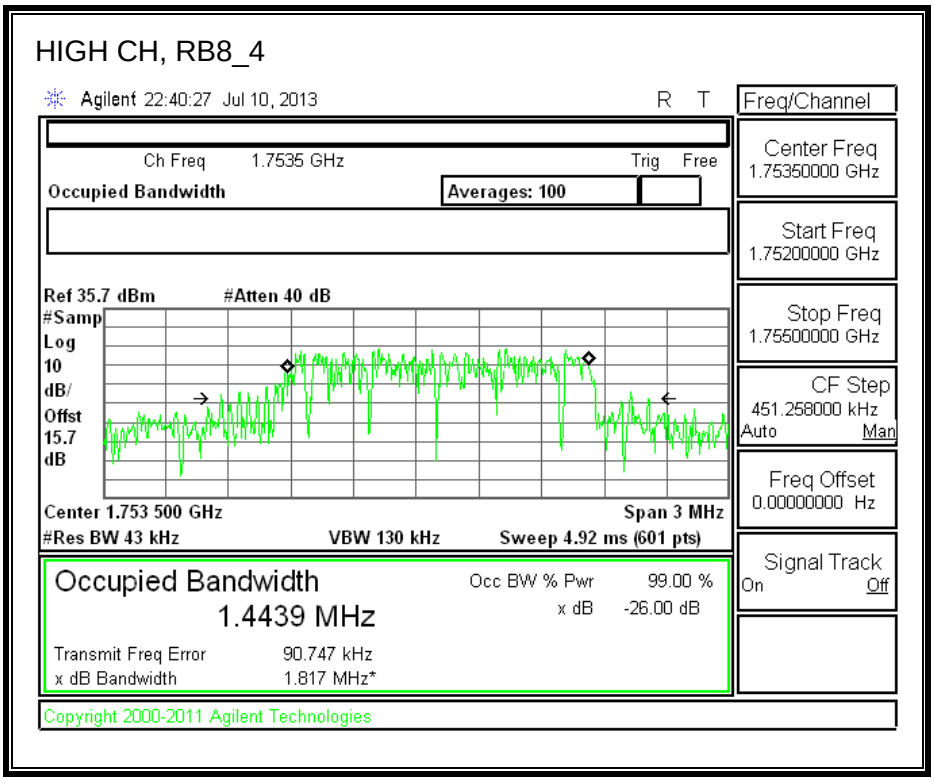
HIGH-QPSK



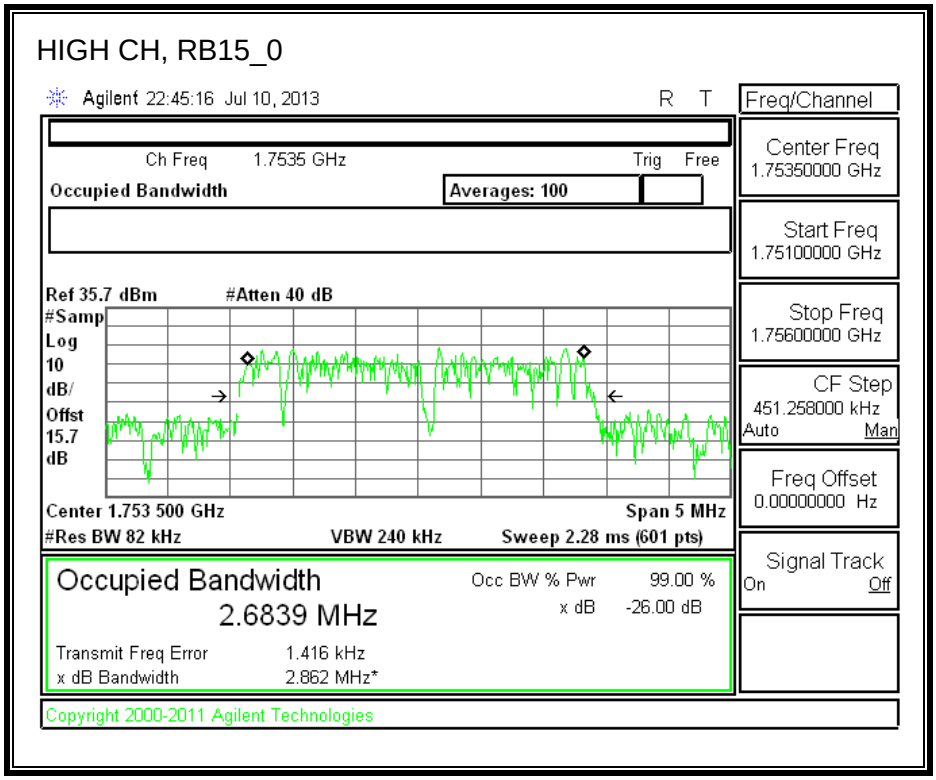
HIGH CH, RB15_0



HIGH-16QAM

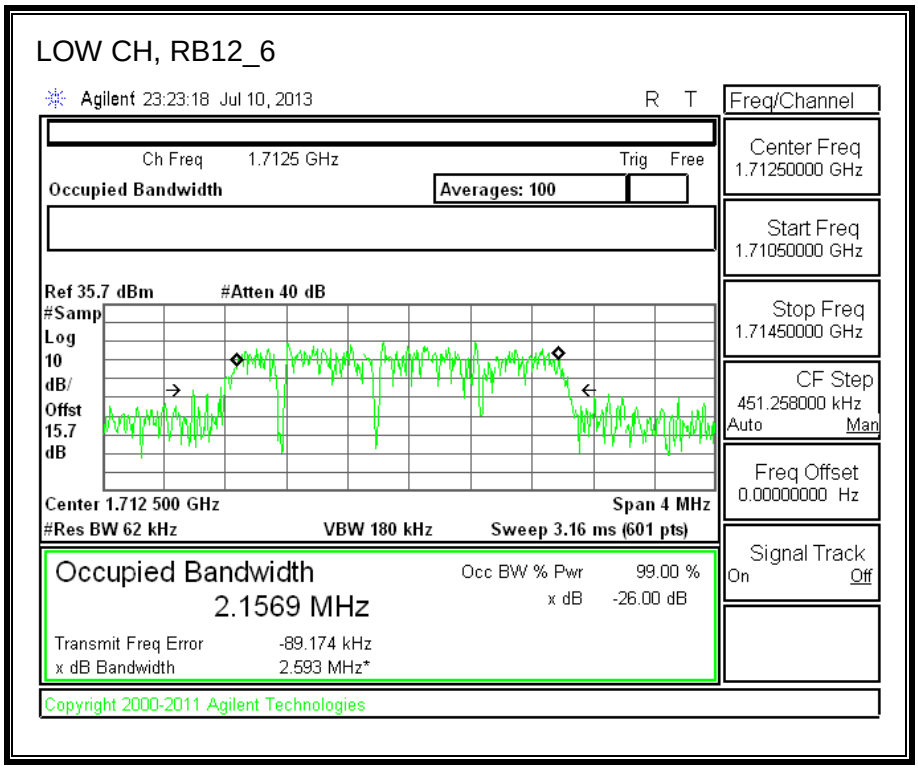


HIGH CH, RB15_0

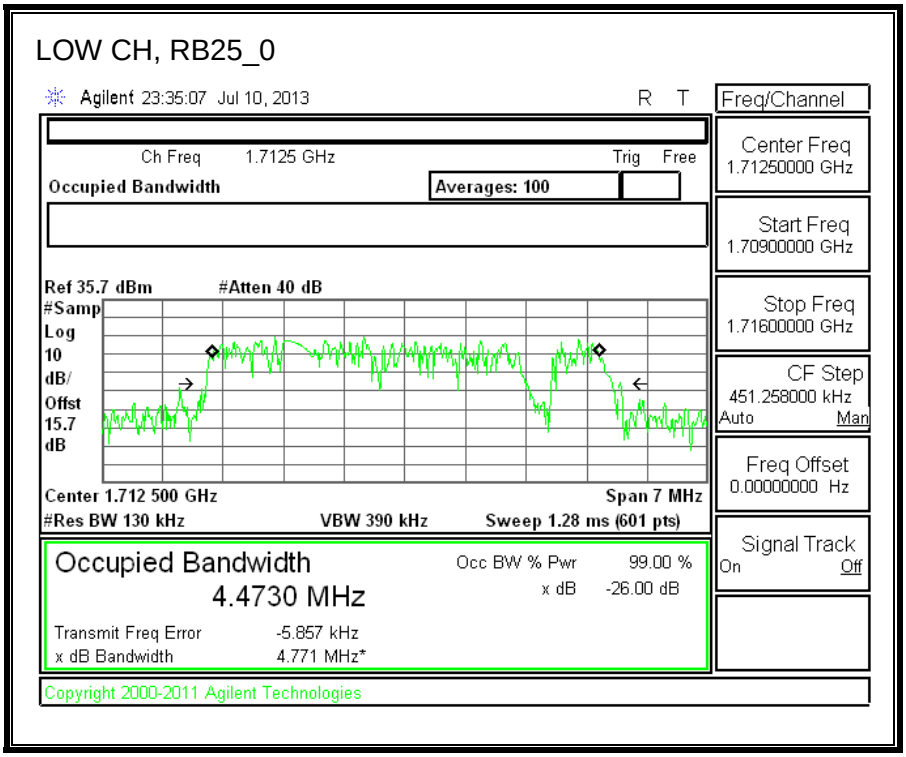


10.2.3. LTE BAND 4-5MHz BANDWIDTH

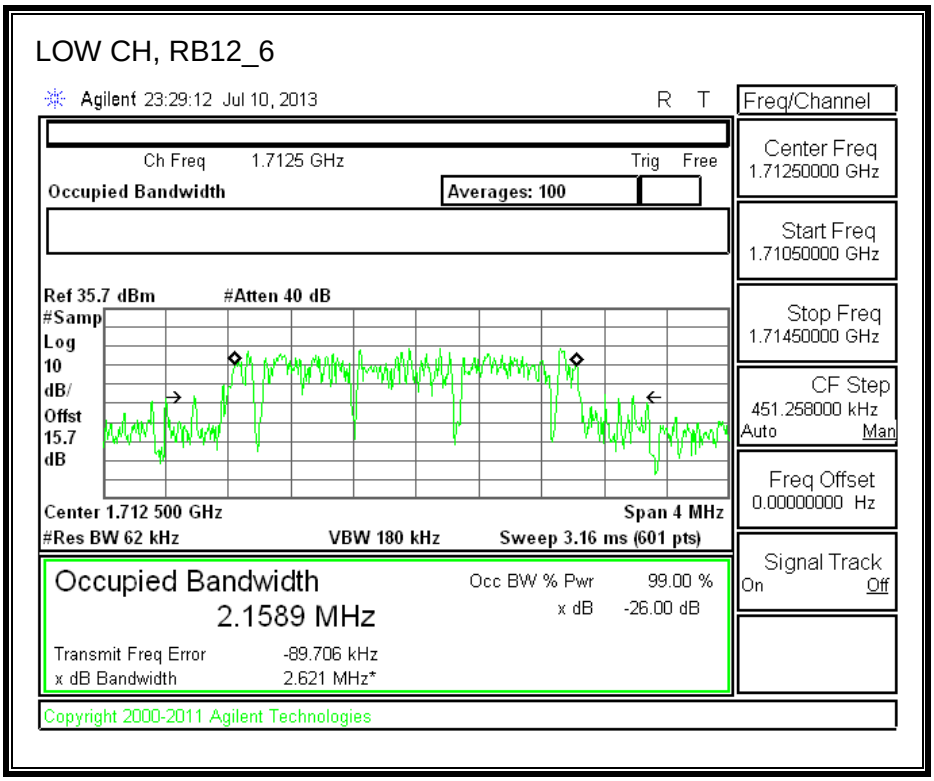
LOW-QPSK

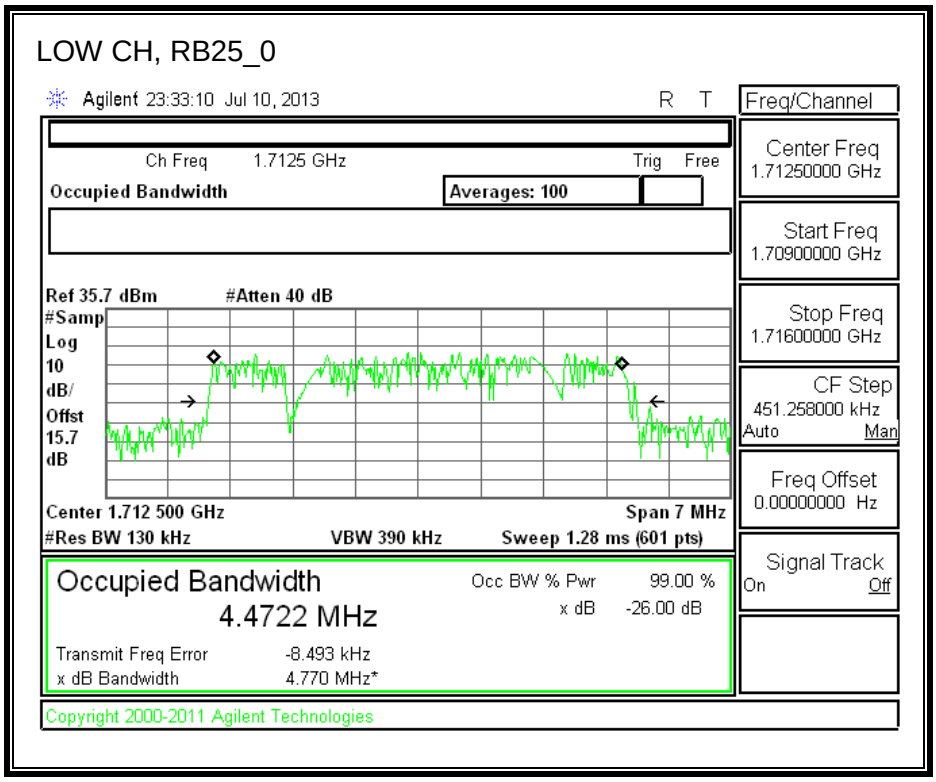


LOW CH, RB25_0

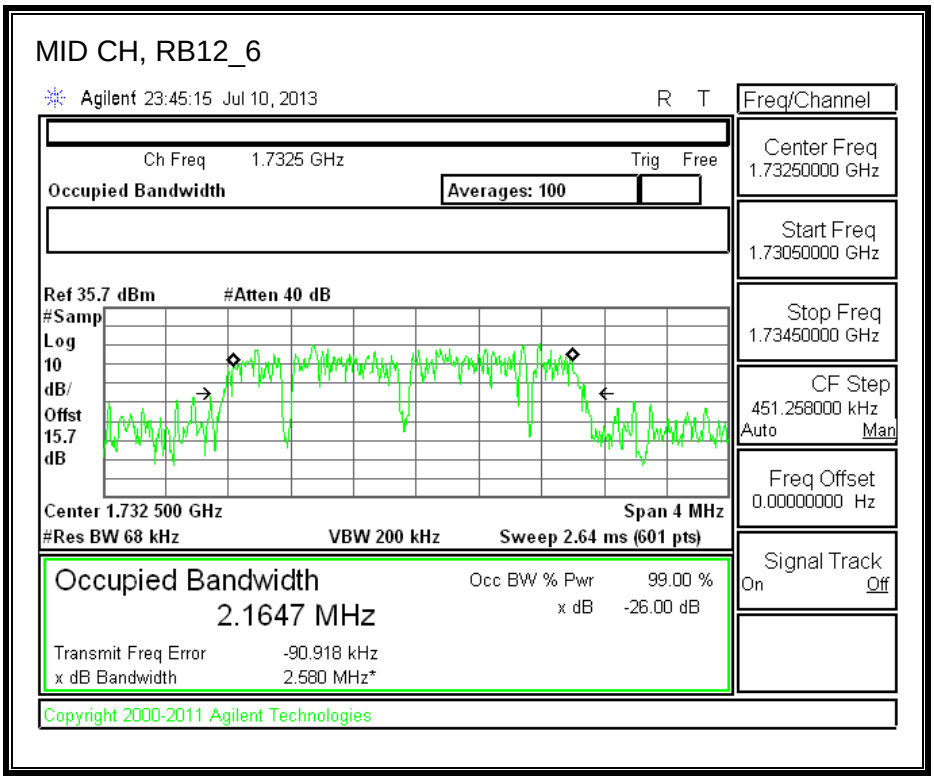


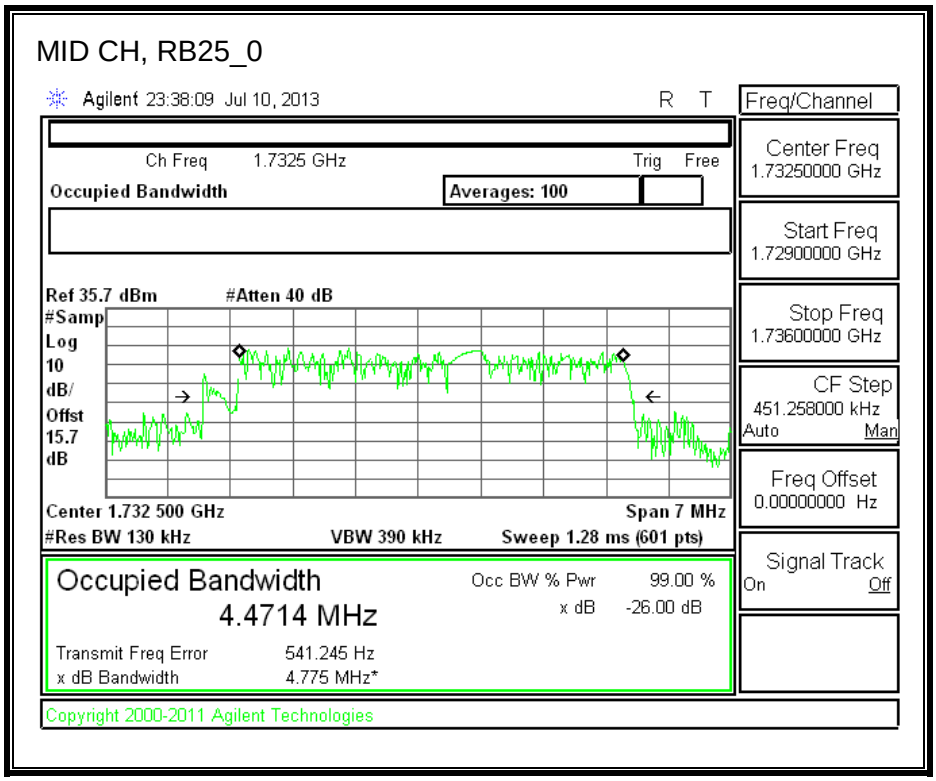
LOW-16QAM



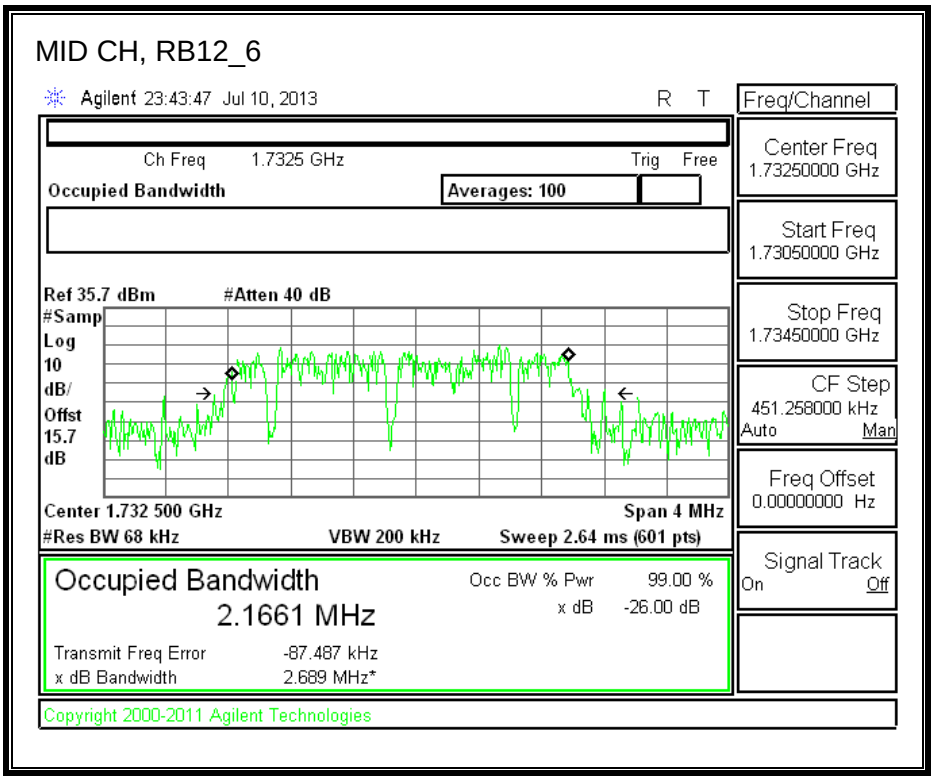


MID-QPSK

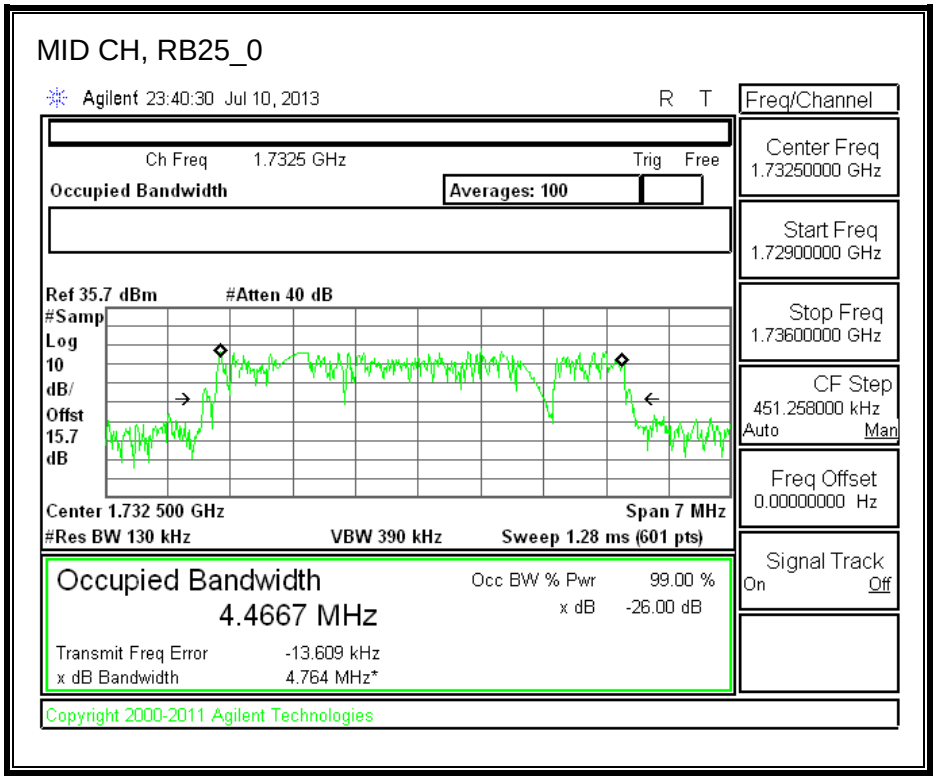




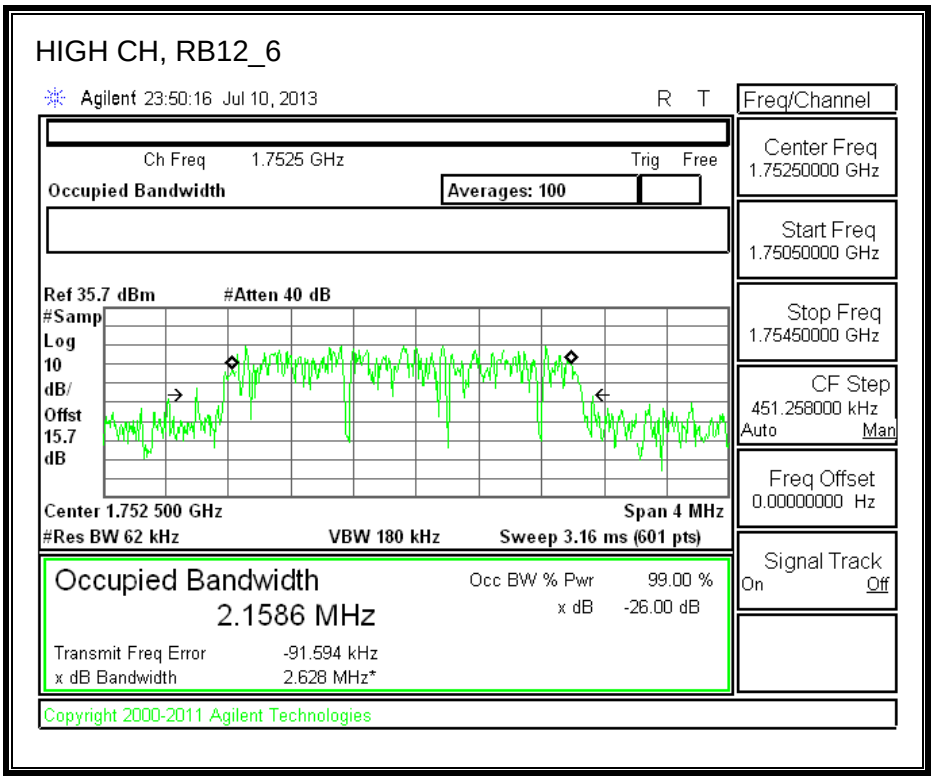
MID-16QAM

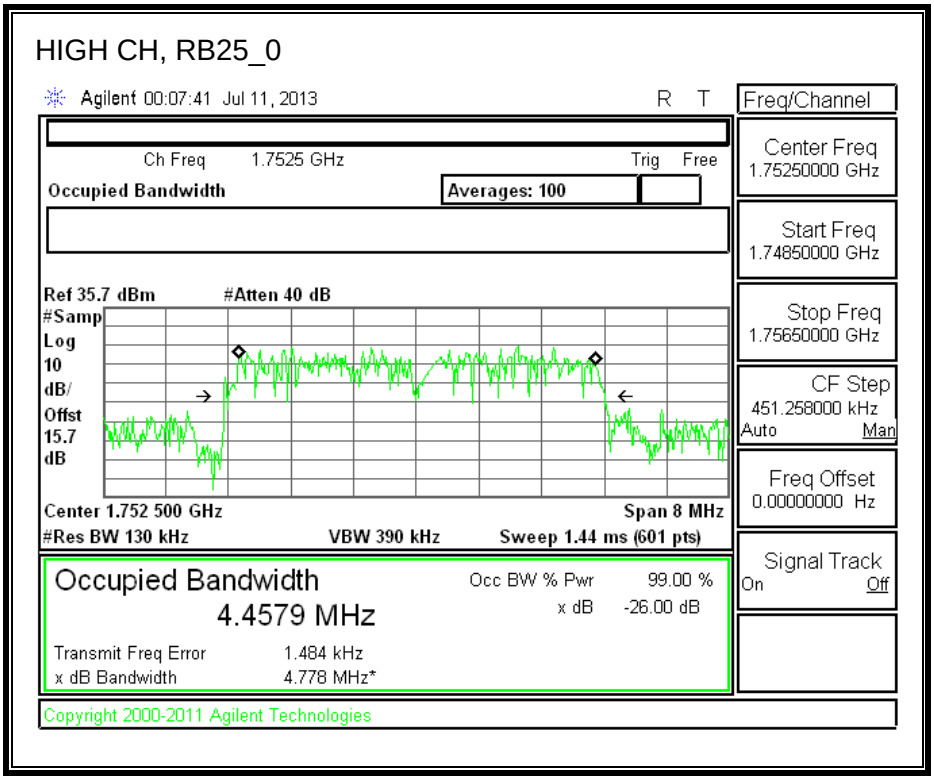


MID CH, RB25_0

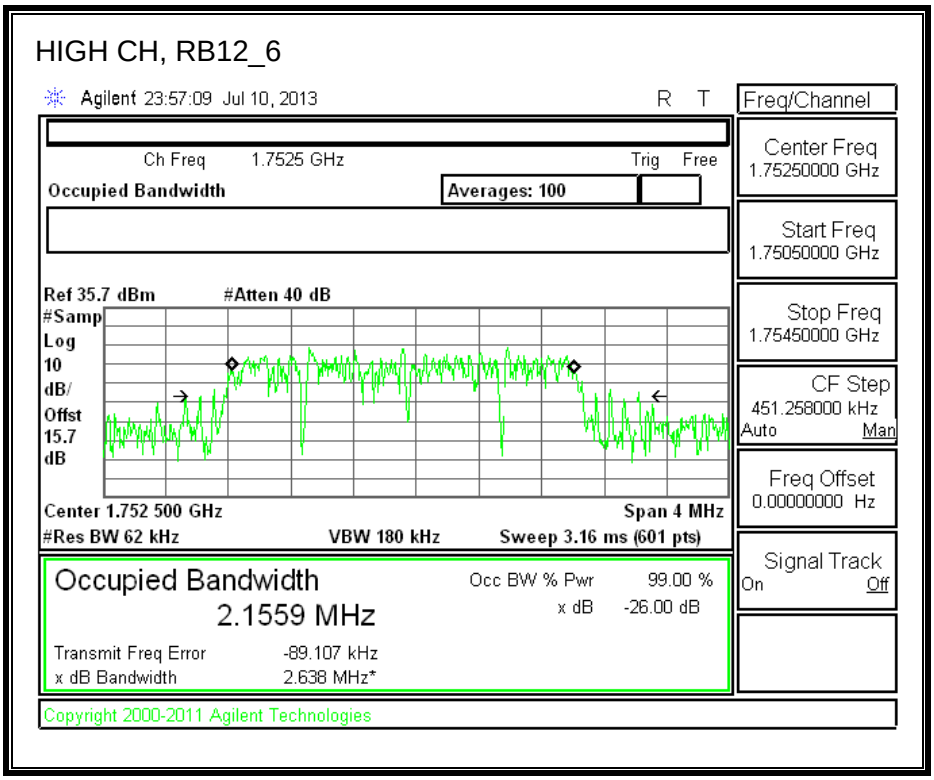


HIGH-QPSK

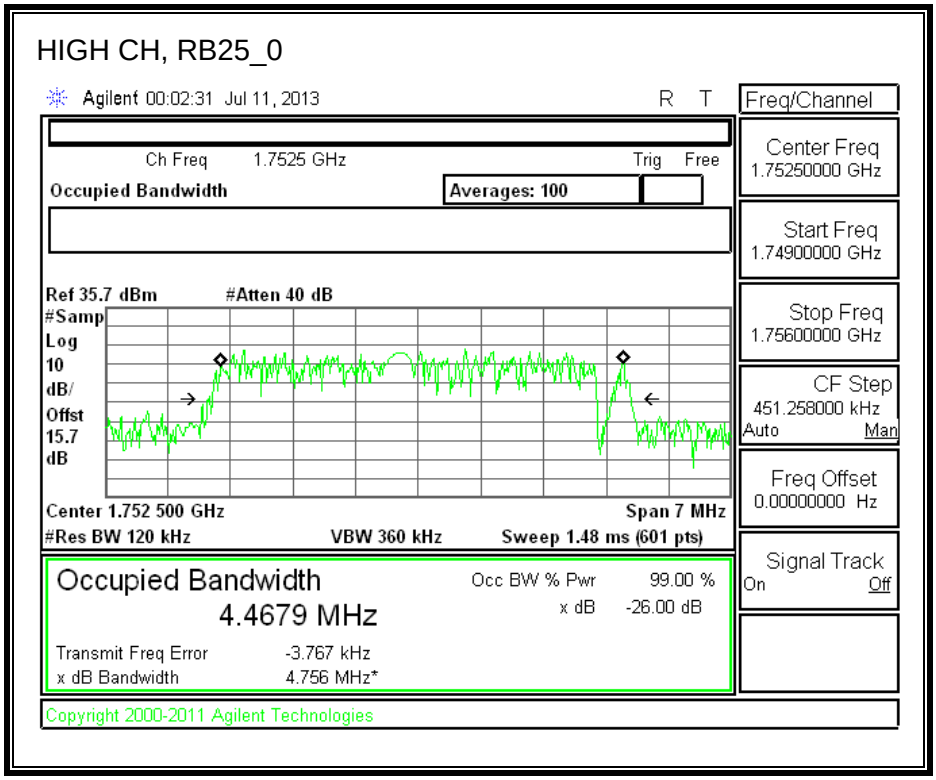




HIGH-16QAM

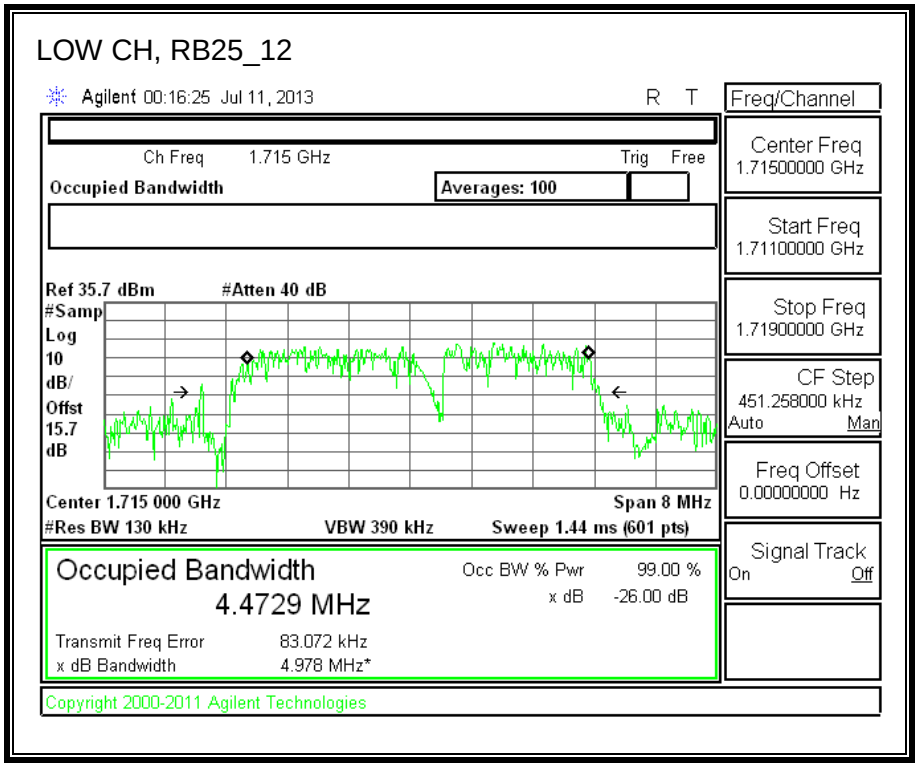


HIGH CH, RB25_0

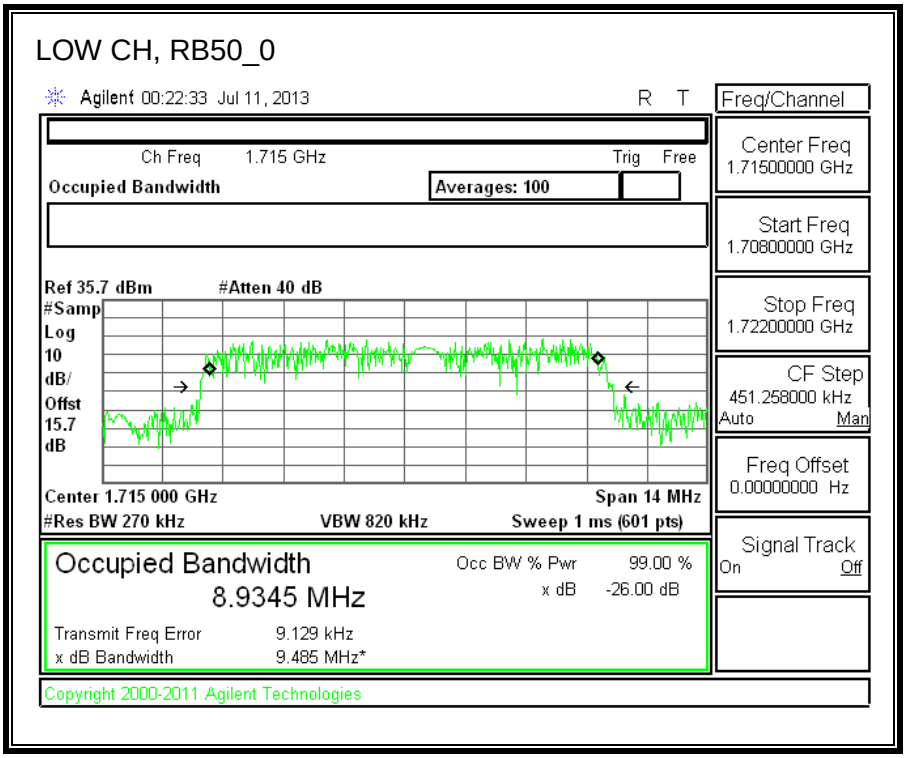


10.2.4. LTE BAND 4-10MHz BANDWIDTH

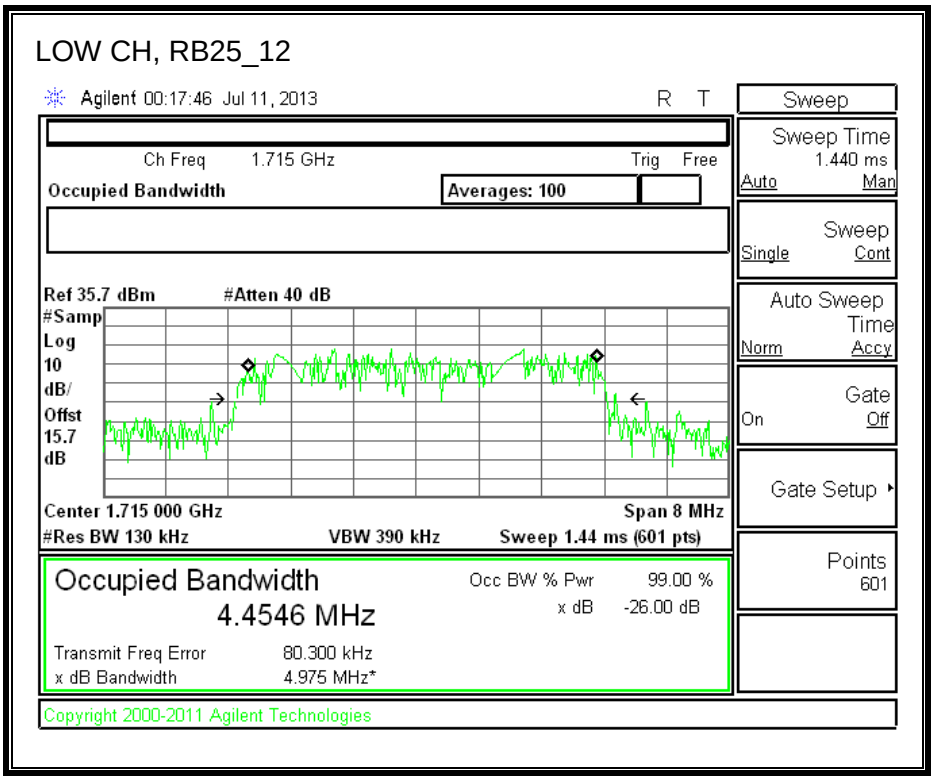
LOW-QPSK

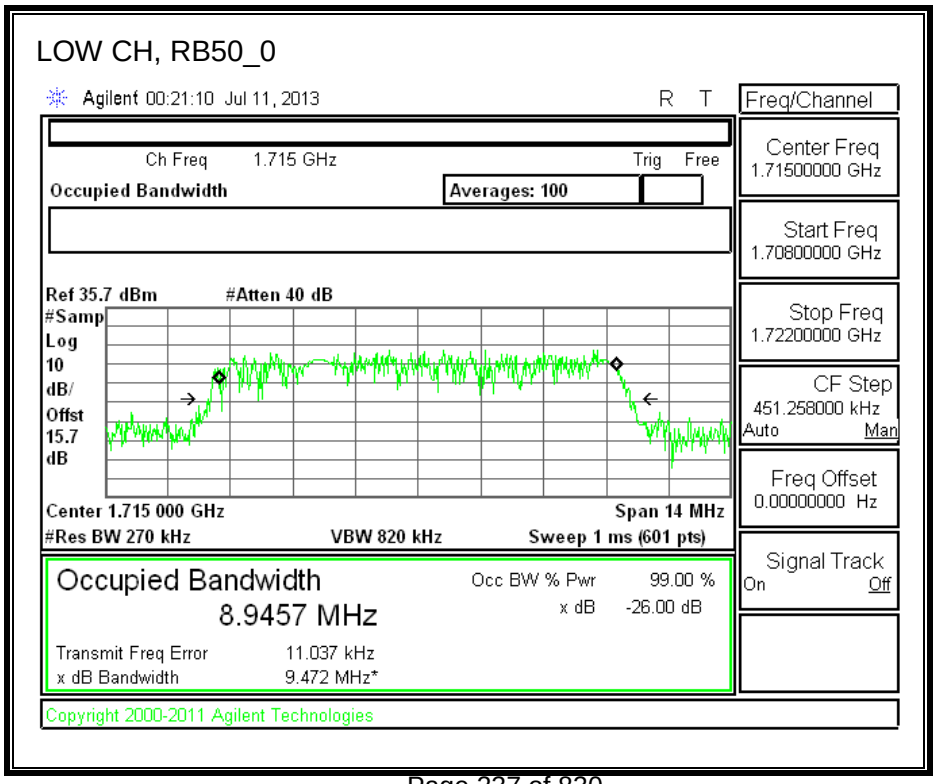


LOW CH, RB50_0

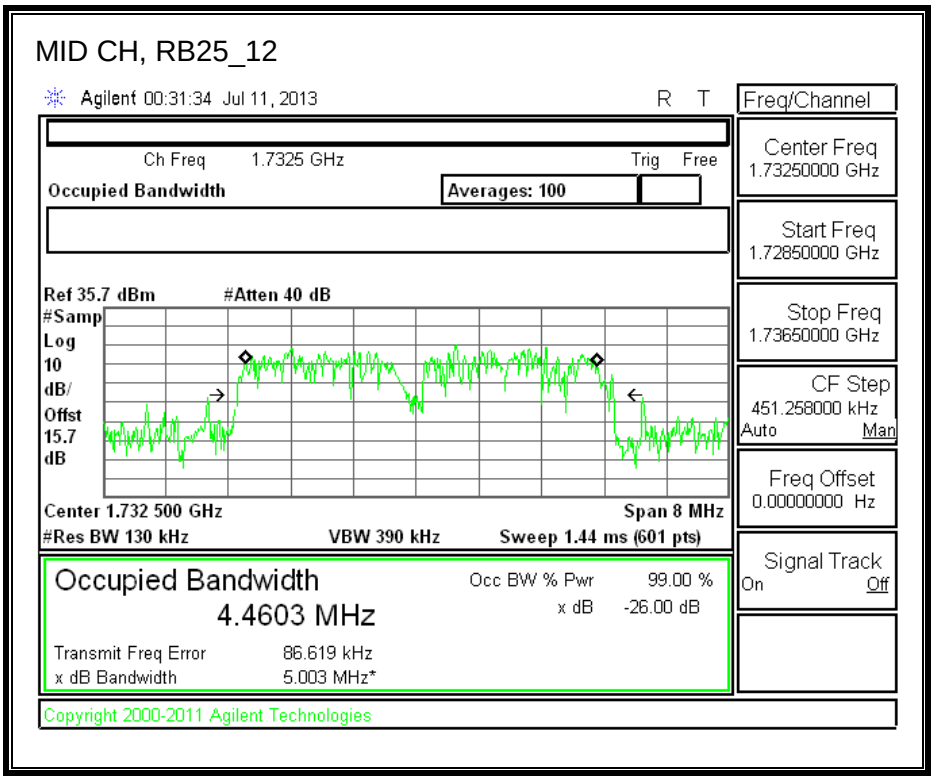


LOW-16QAM

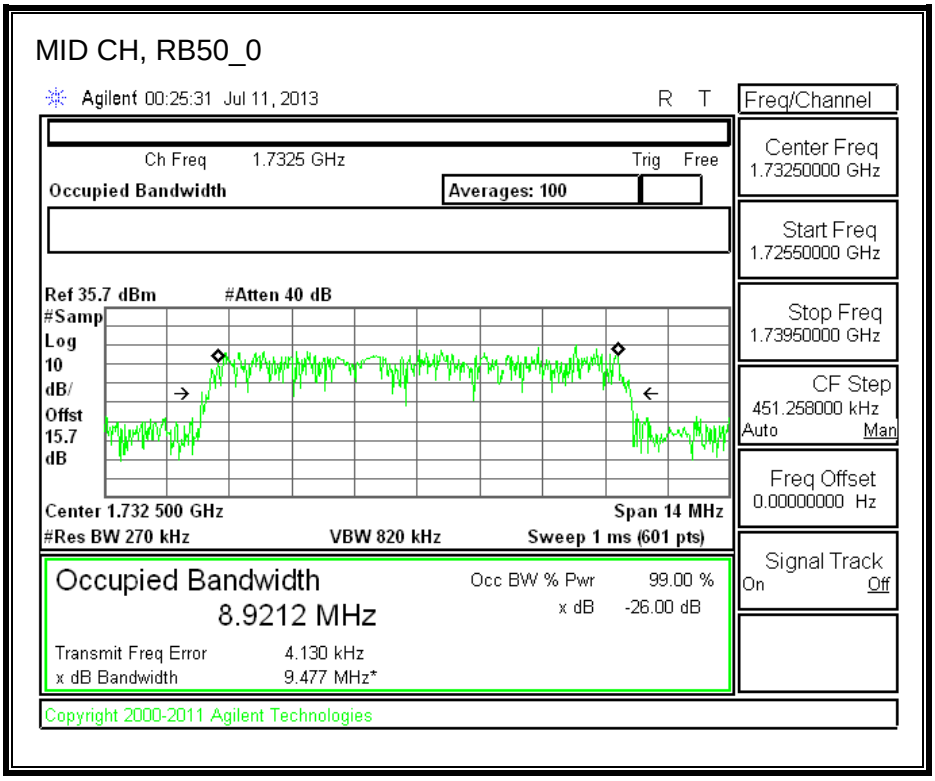




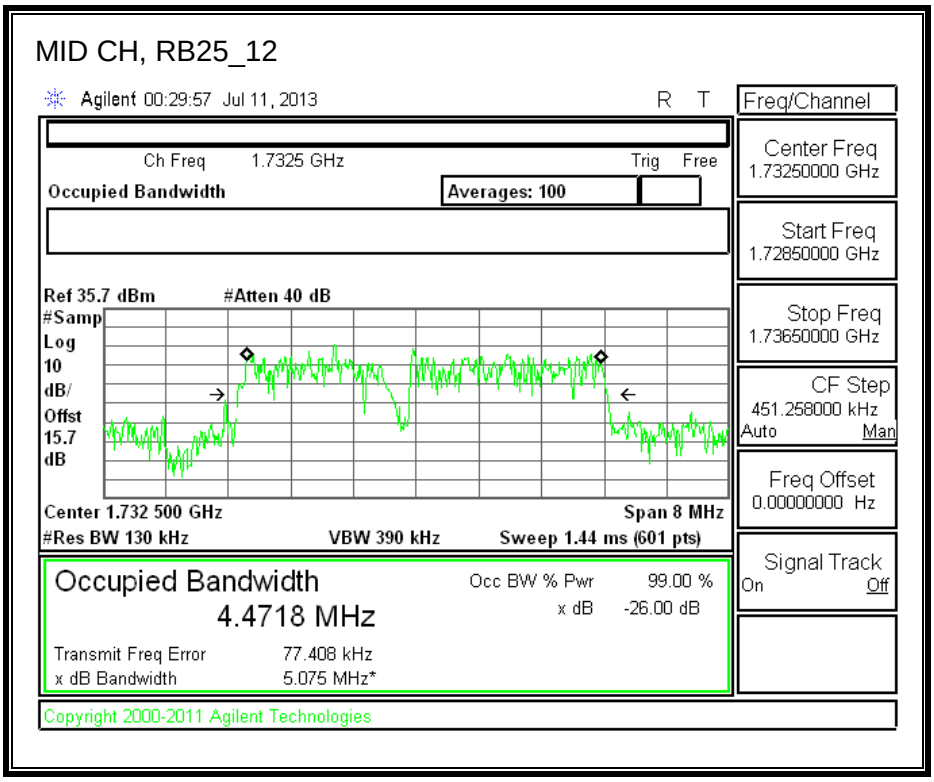
MID-QPSK



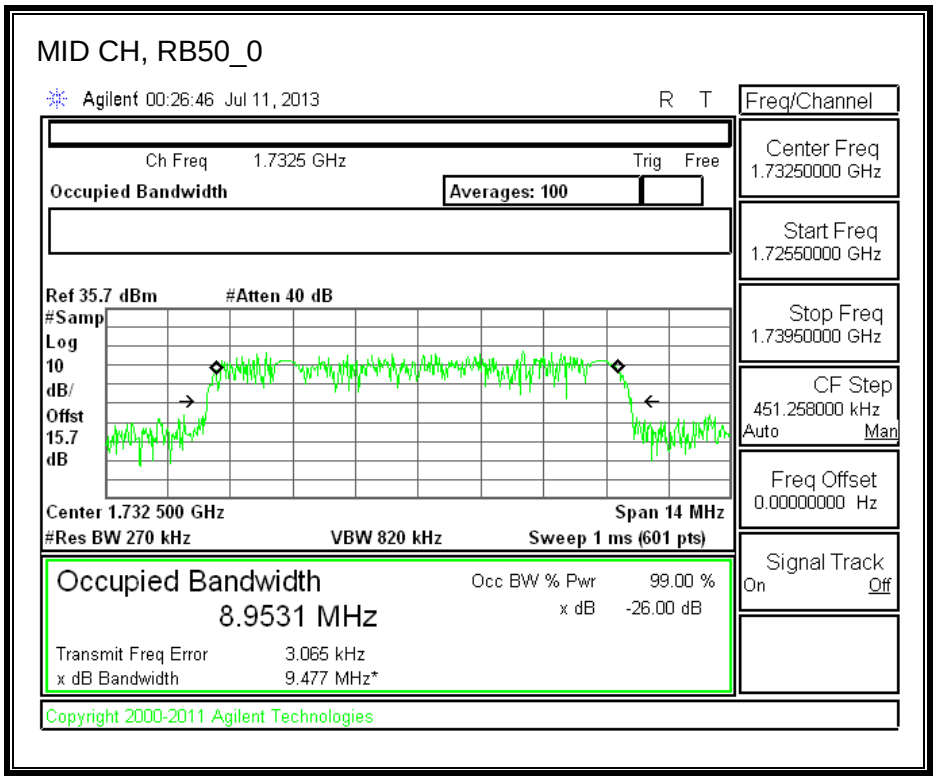
MID CH, RB50_0



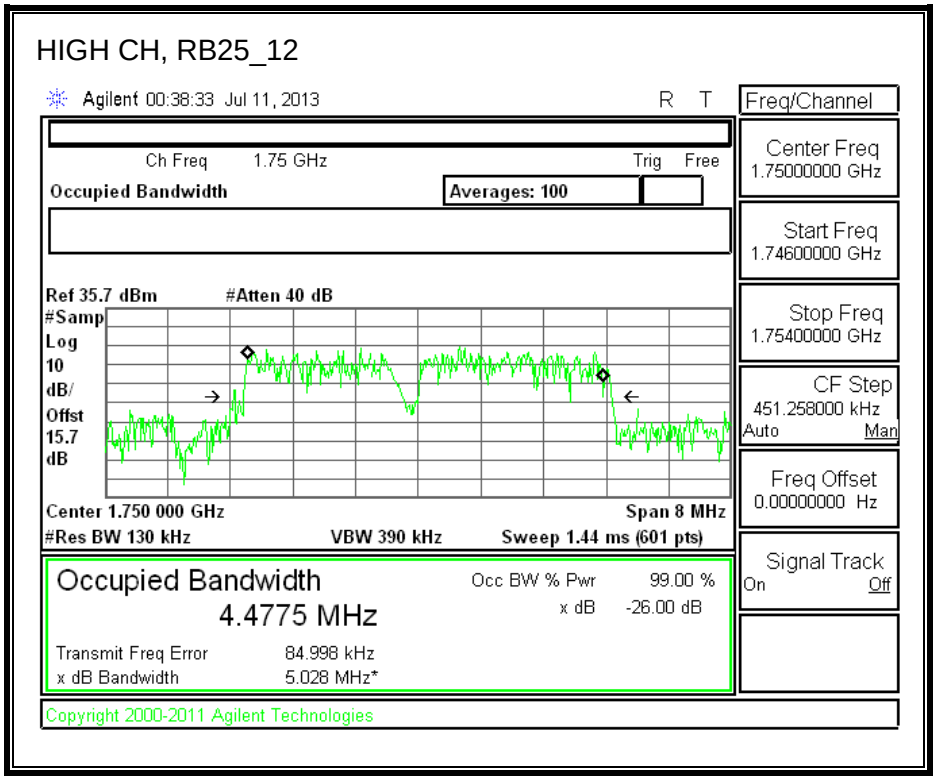
MID-16QAM



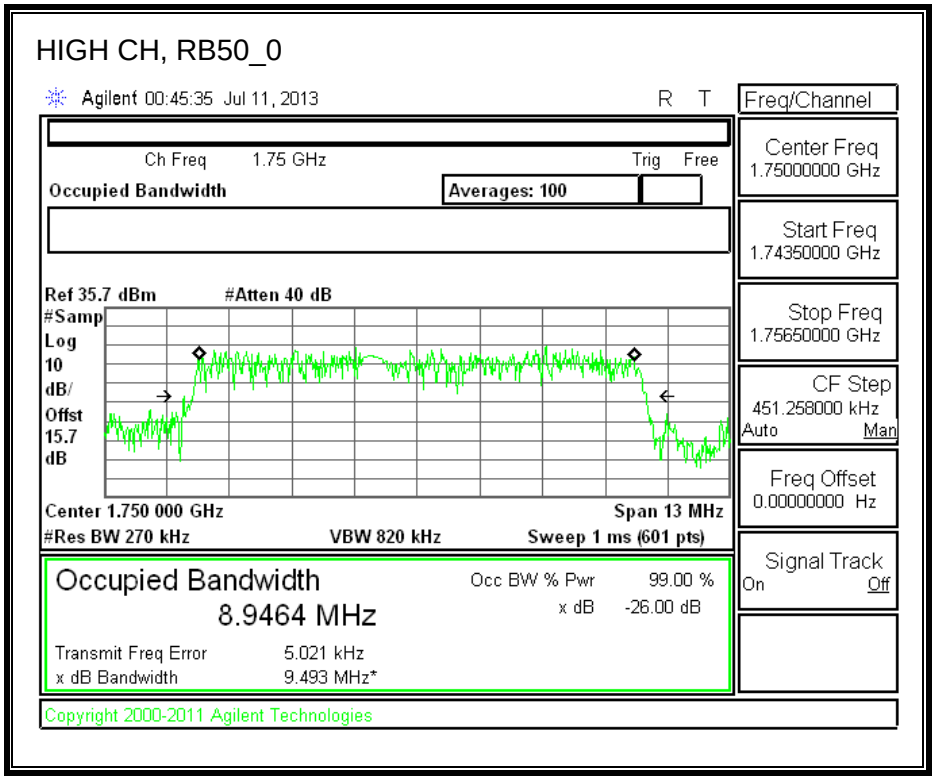
MID CH, RB50_0



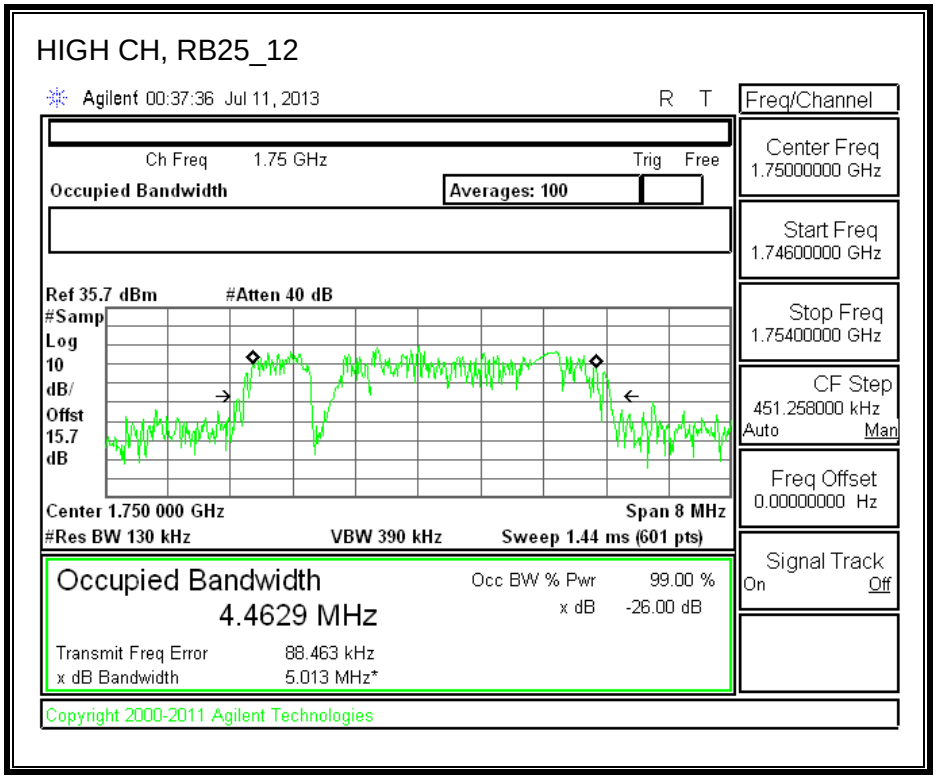
HIGH-QPSK



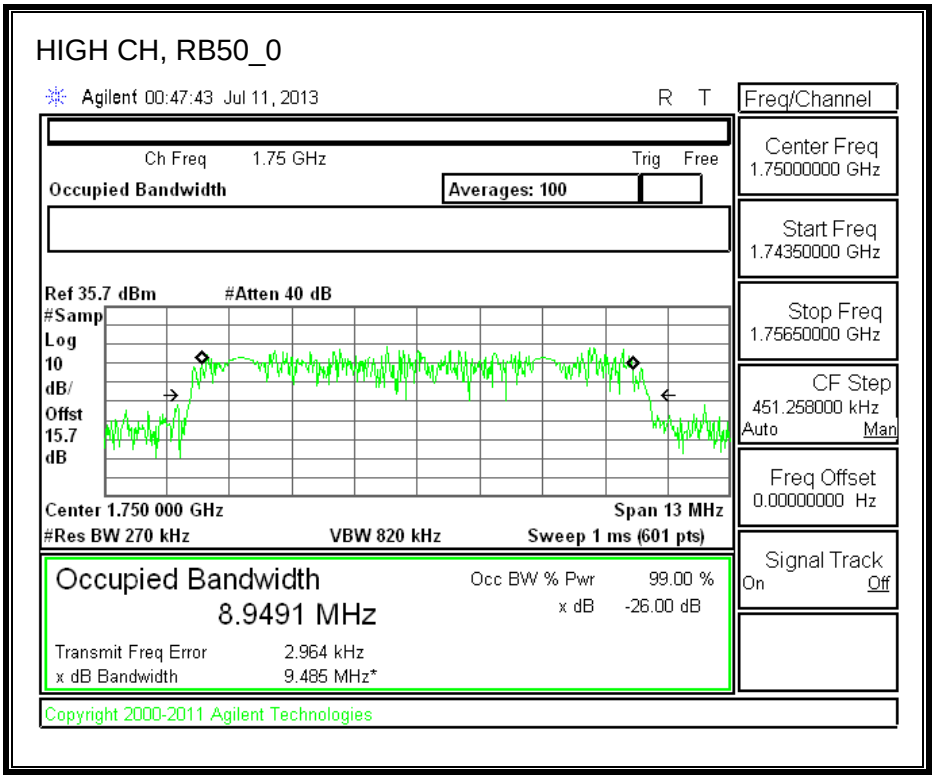
HIGH CH, RB50_0



HIGH-16QAM

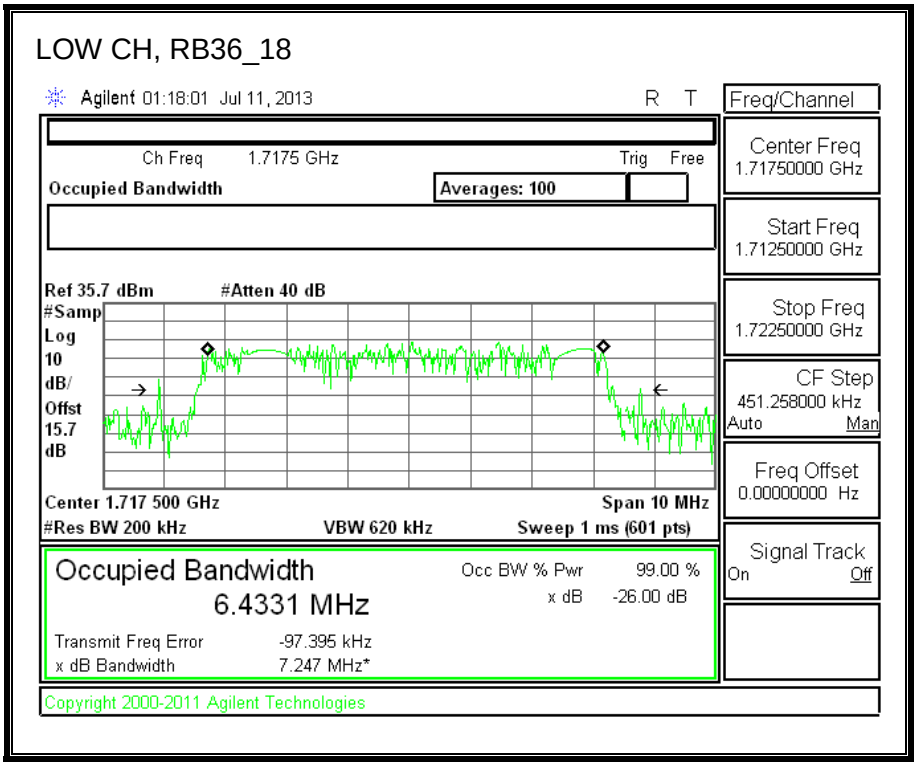


HIGH CH, RB50_0

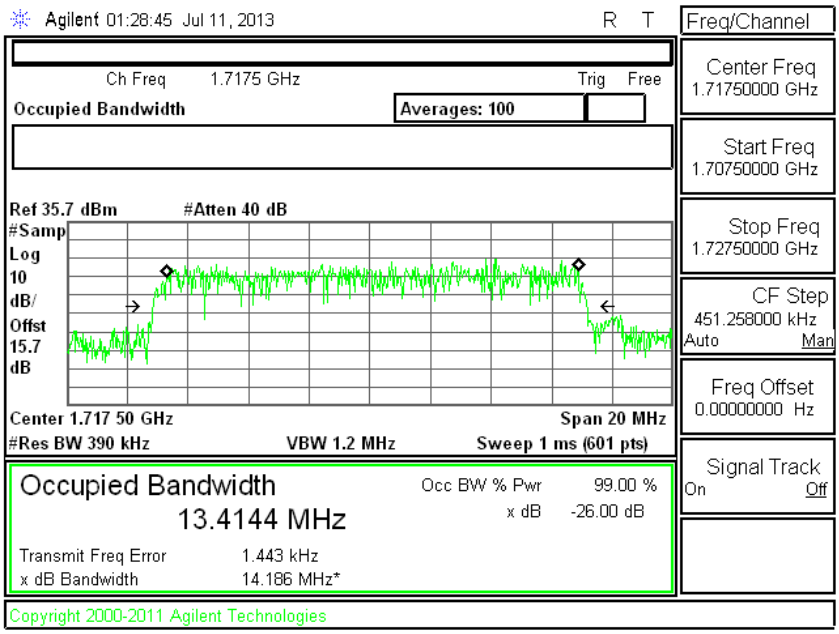


10.2.5. LTE BAND 4-15MHz BANDWIDTH

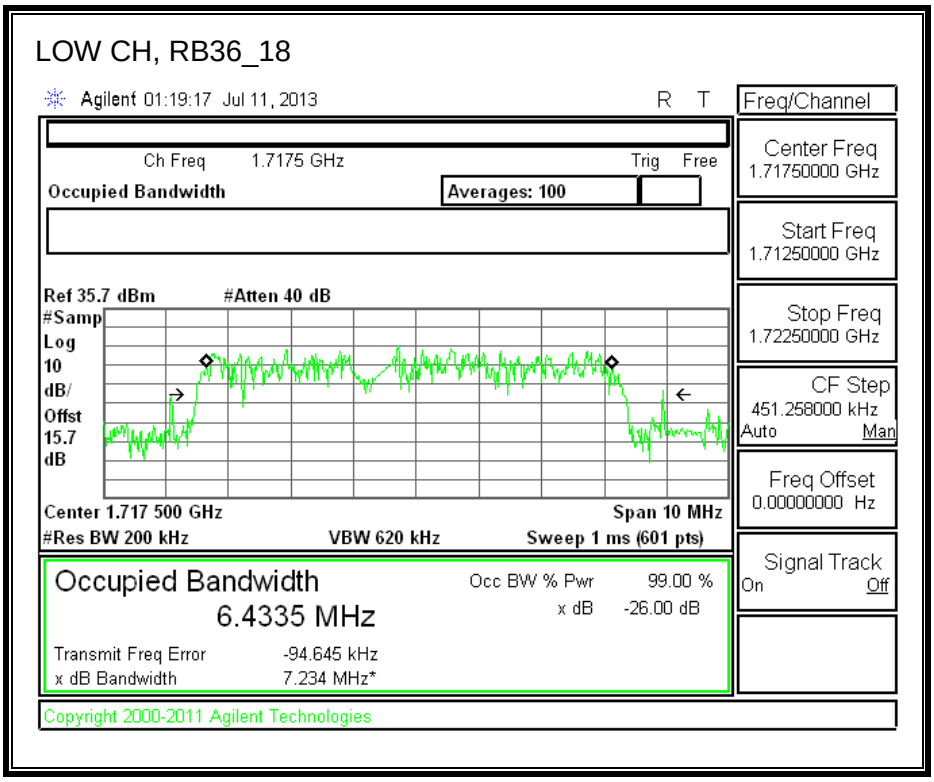
LOW-QPSK

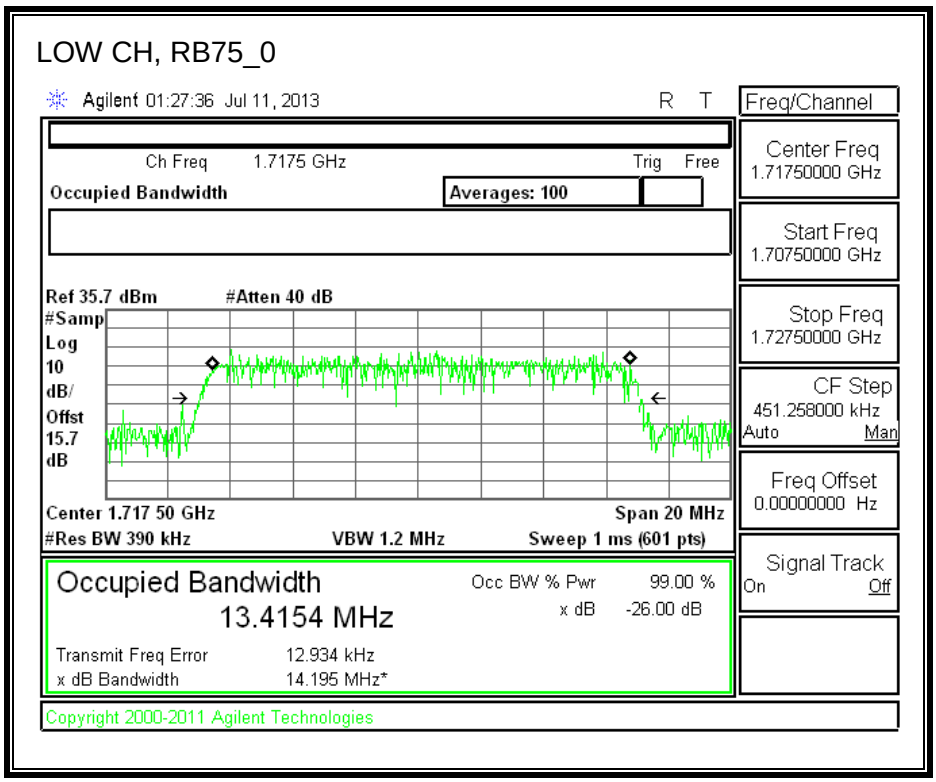


LOW CH, RB75_0

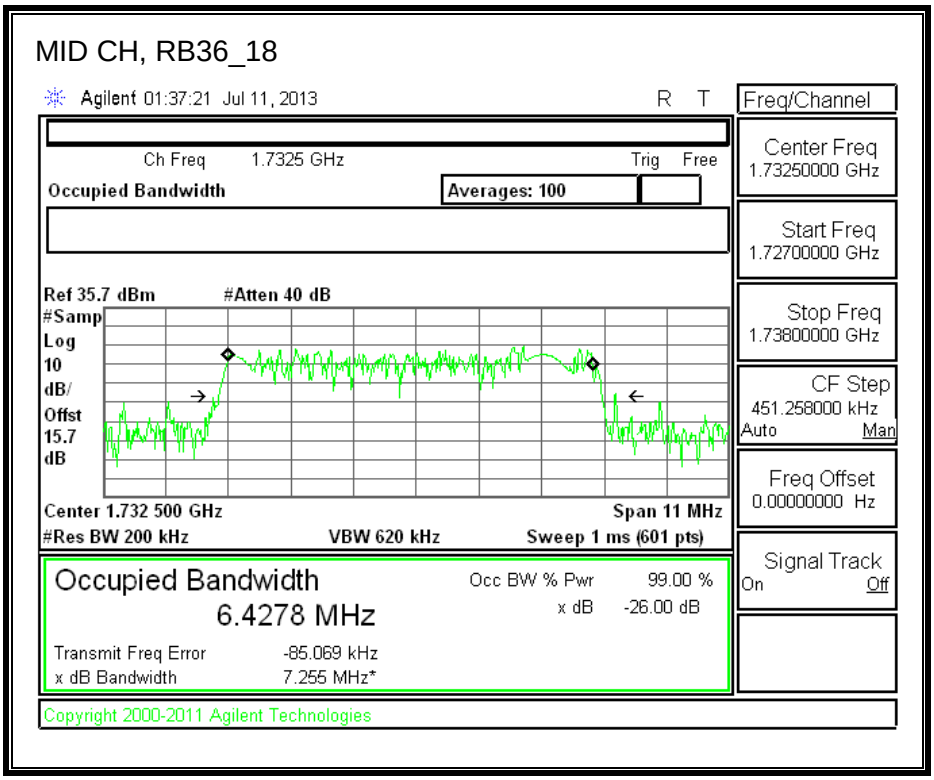


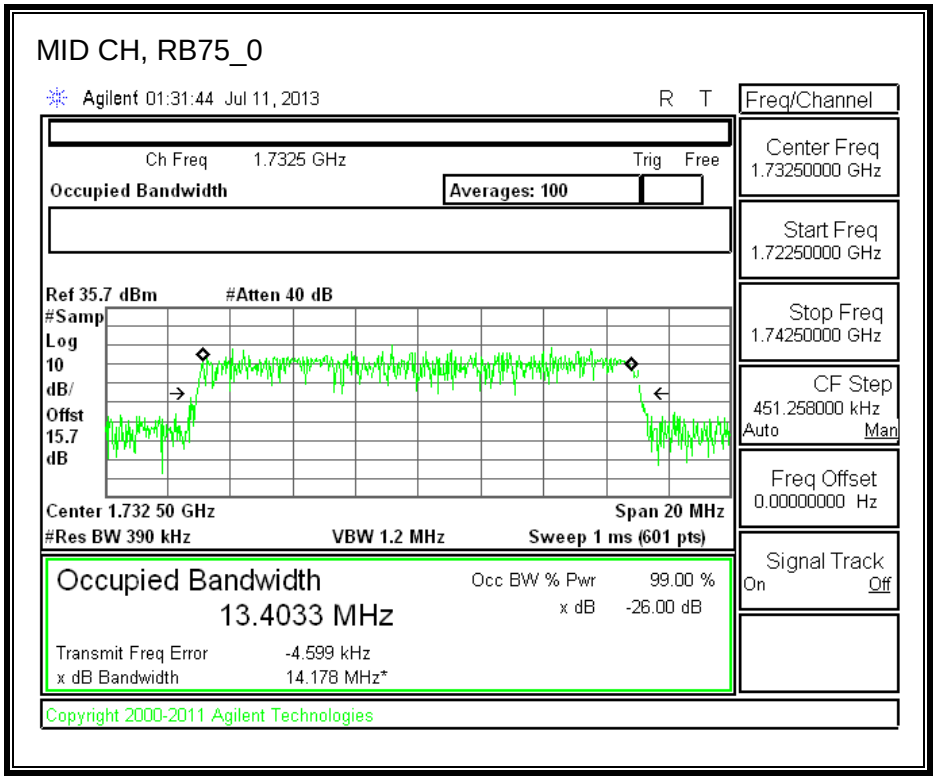
LOW-16QAM



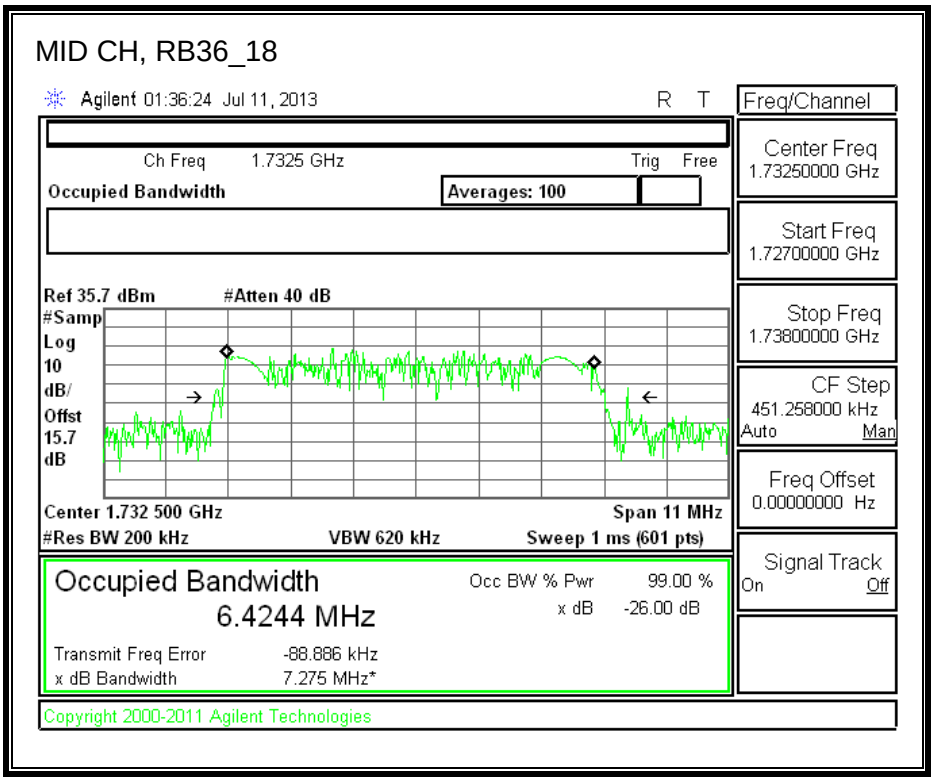


MID-QPSK

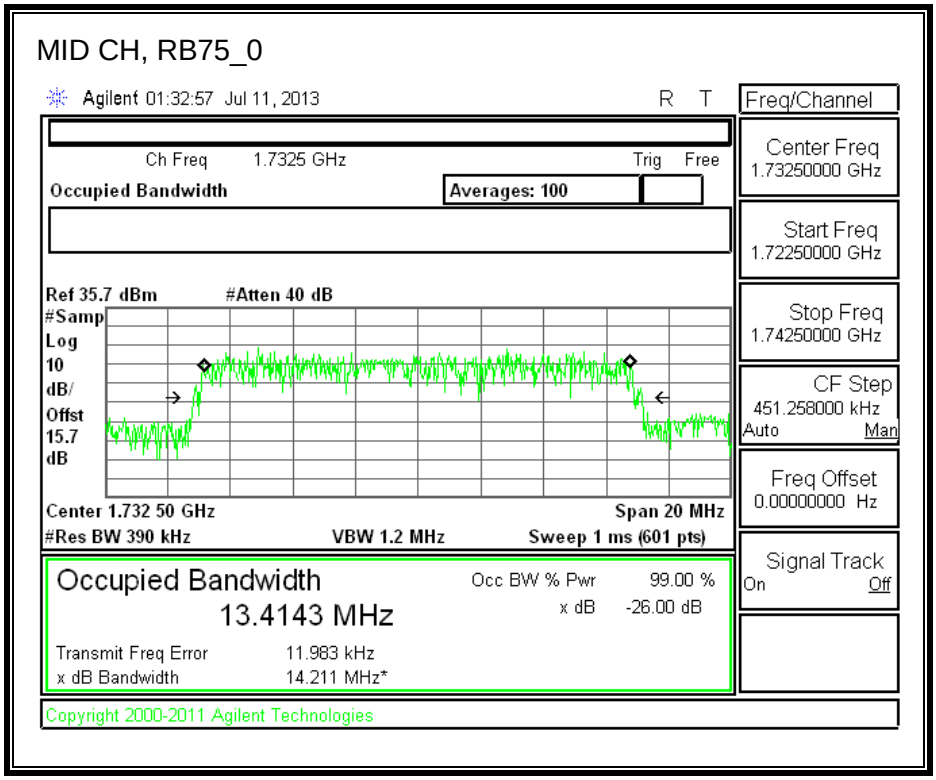




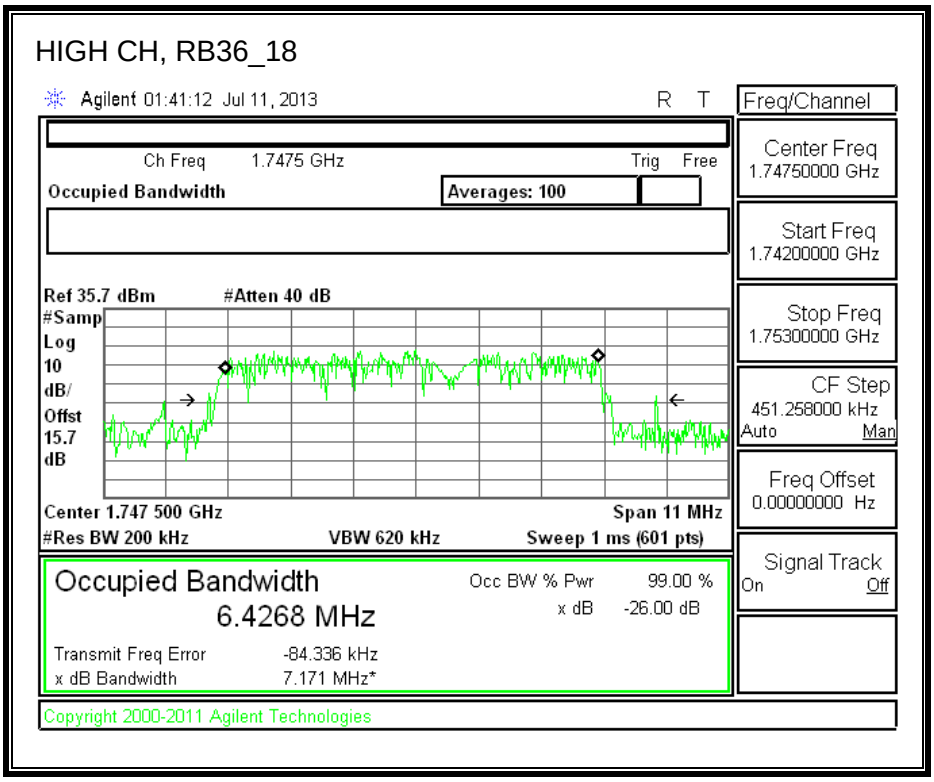
MID-16QAM



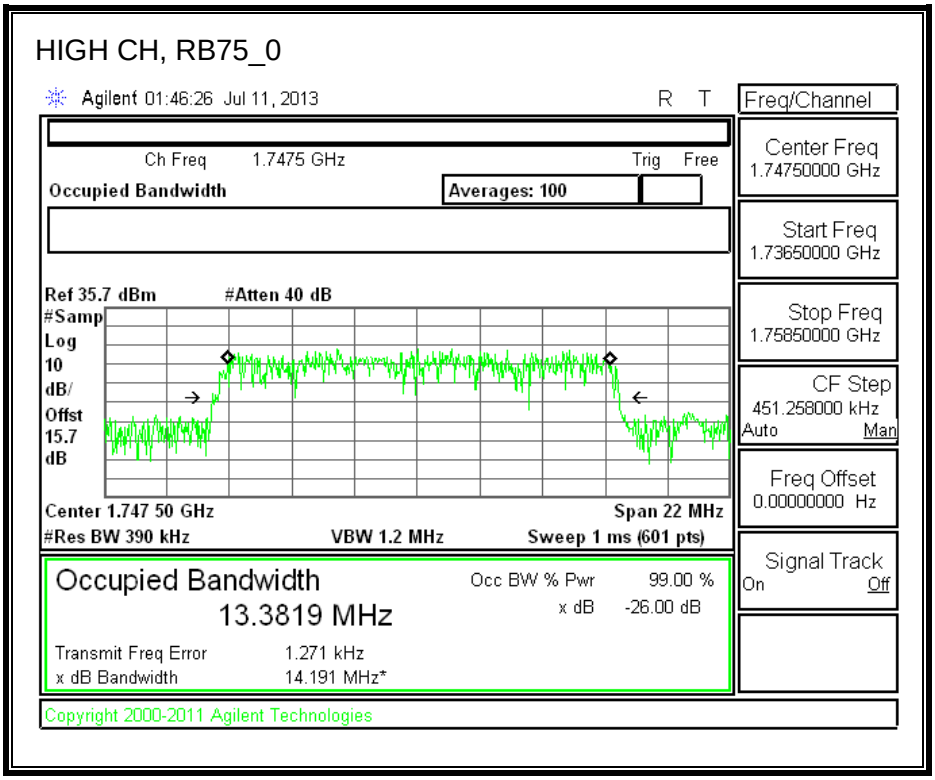
MID CH, RB75_0



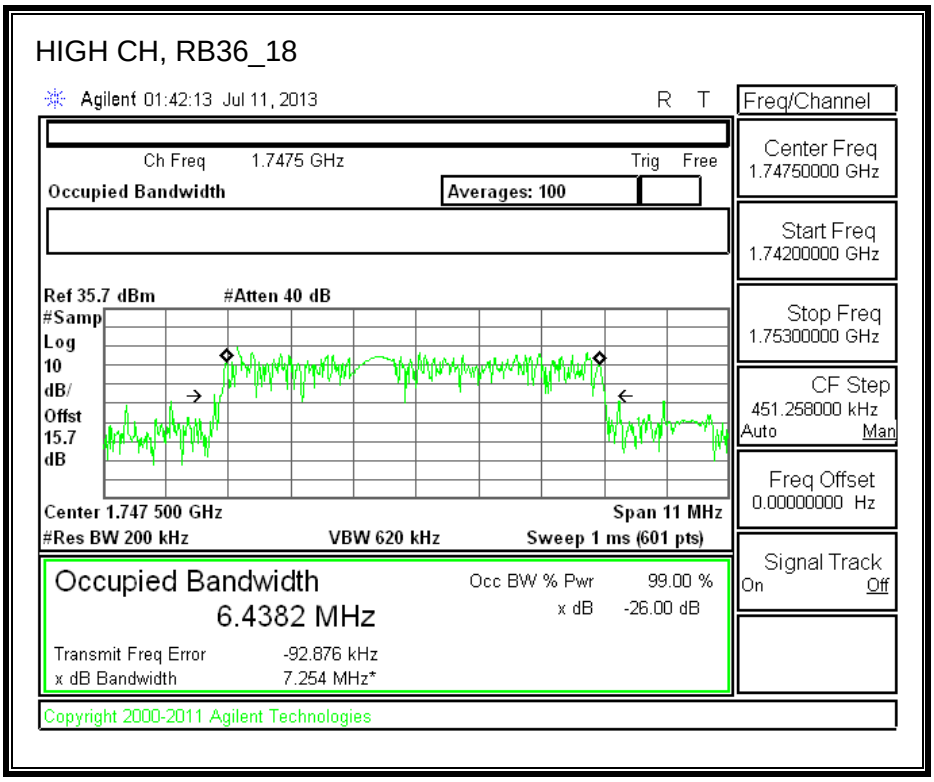
HIGH-QPSK



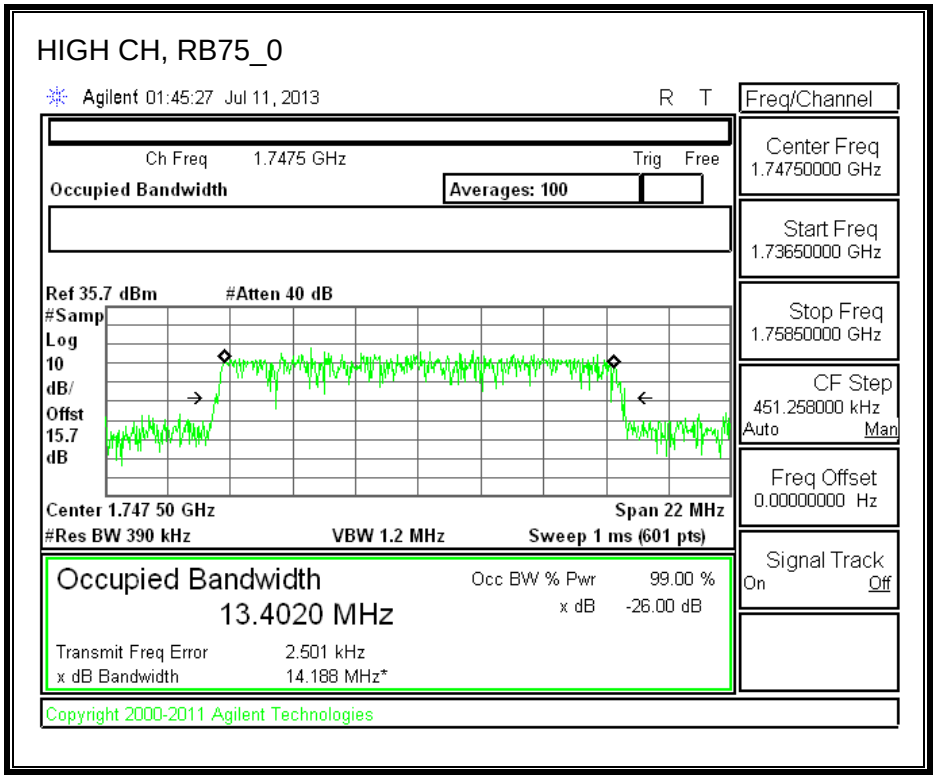
HIGH CH, RB75_0



HIGH-16QAM

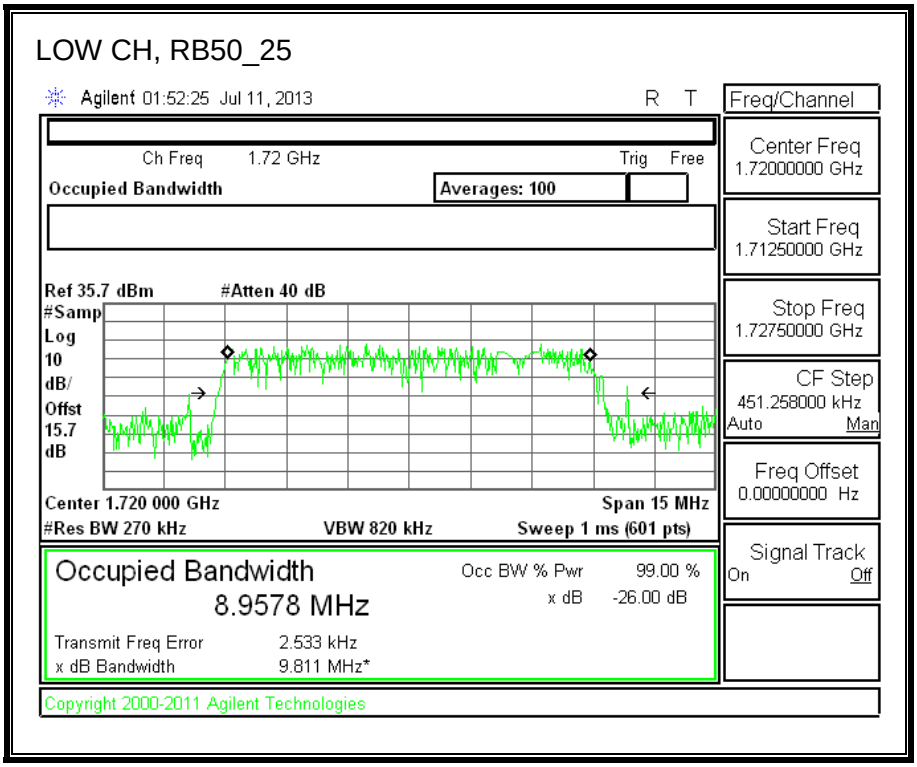


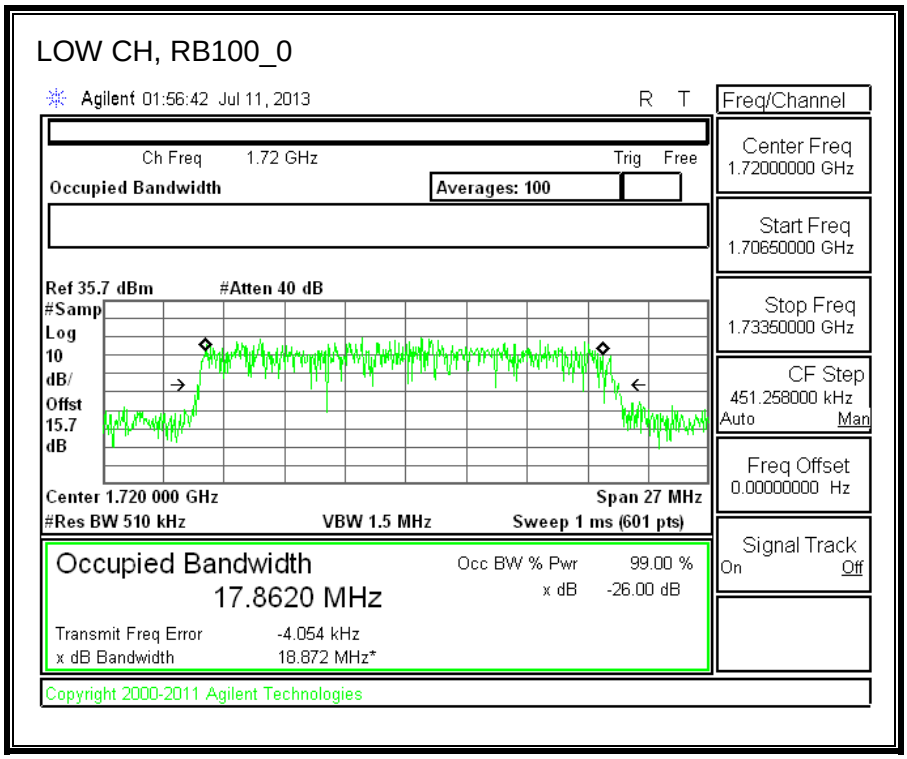
HIGH CH, RB75_0



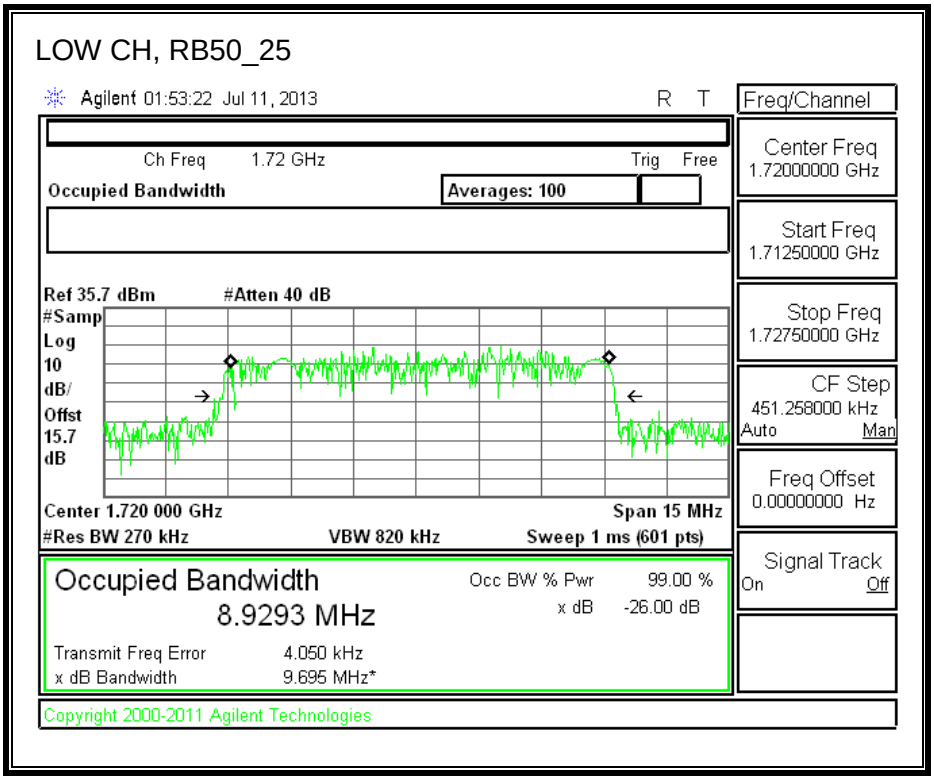
10.2.6. LTE BAND 4-20MHz BANDWIDTH

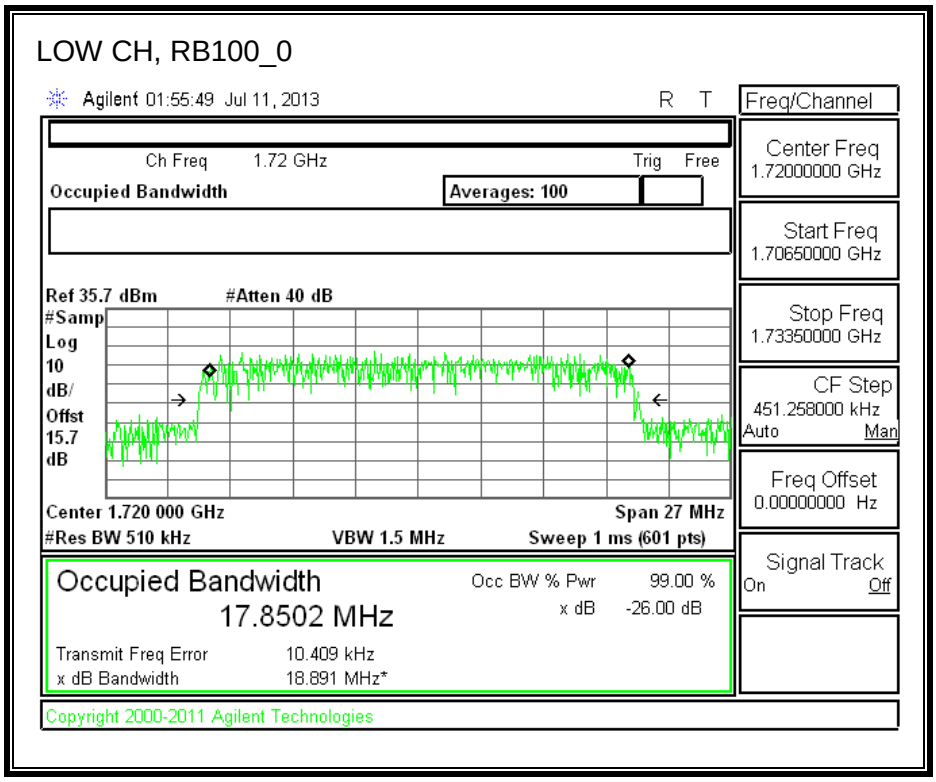
LOW-QPSK



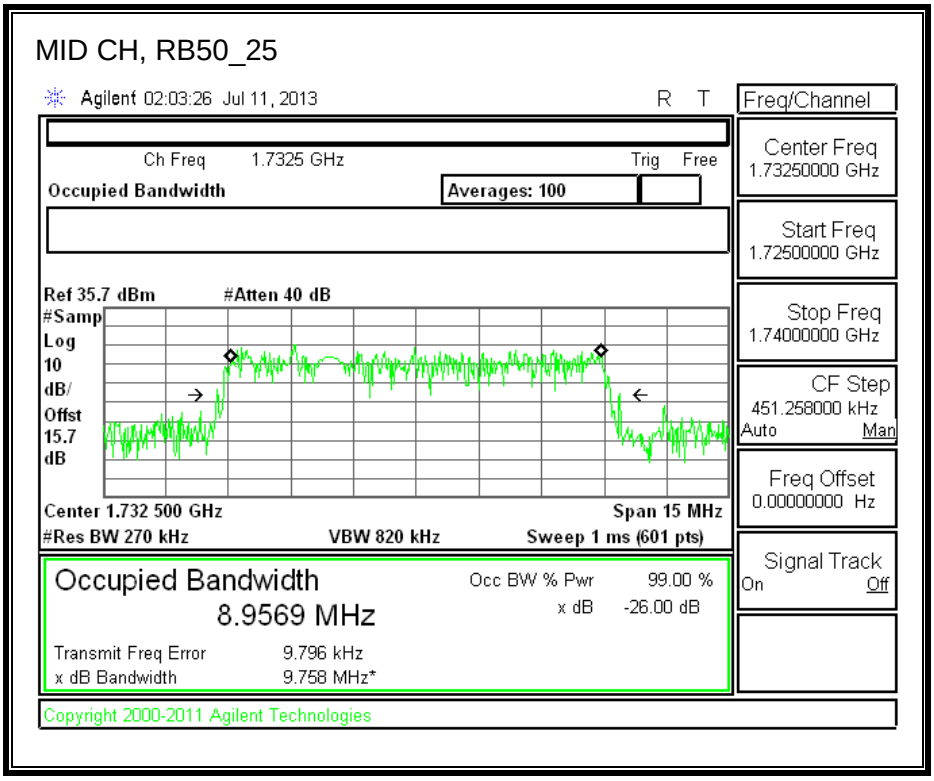


LOW-16QAM

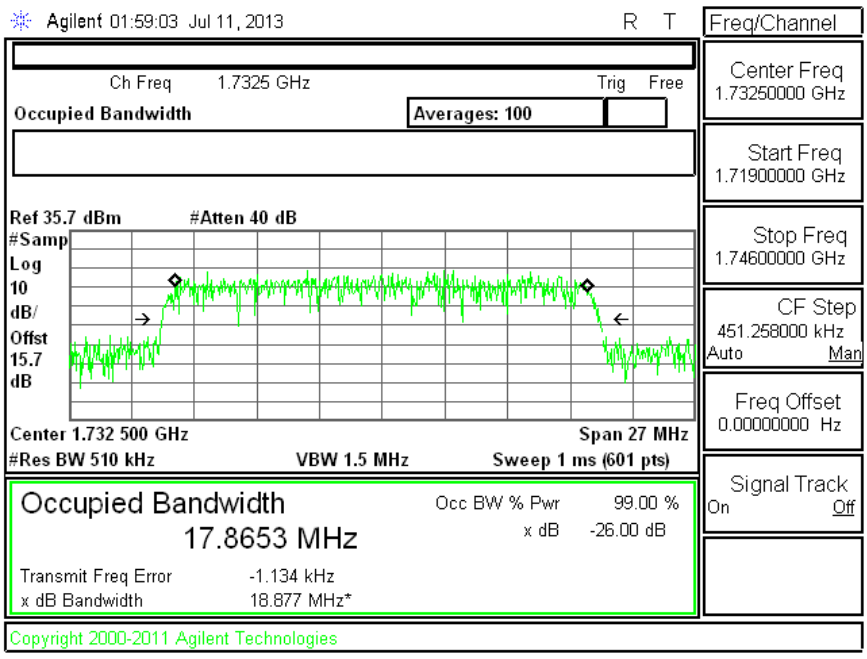




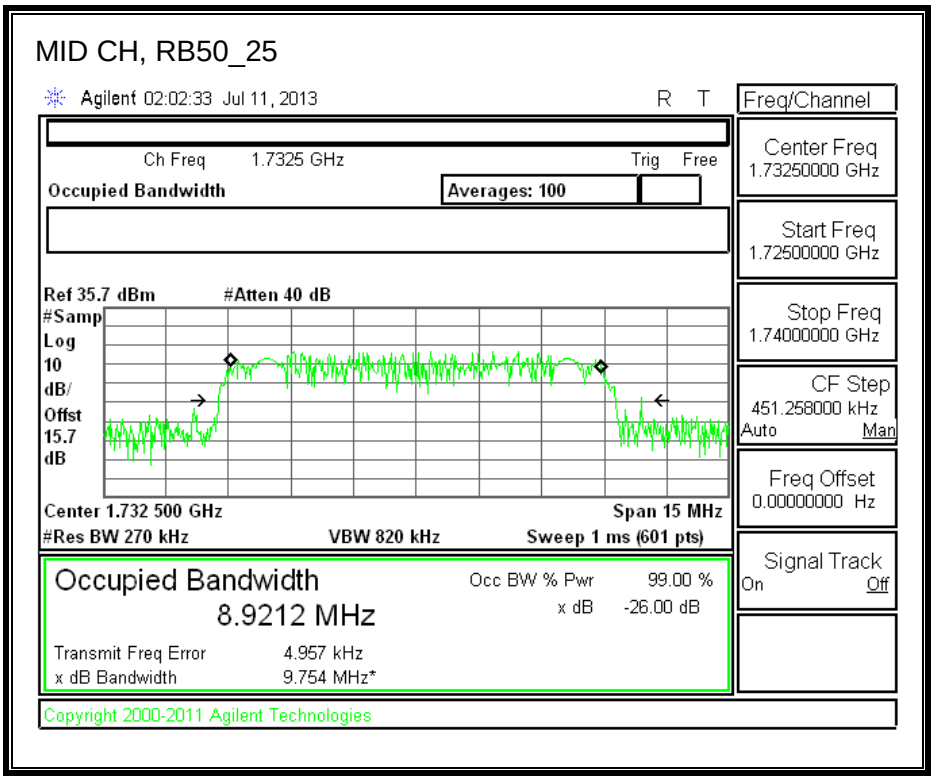
MID-QPSK



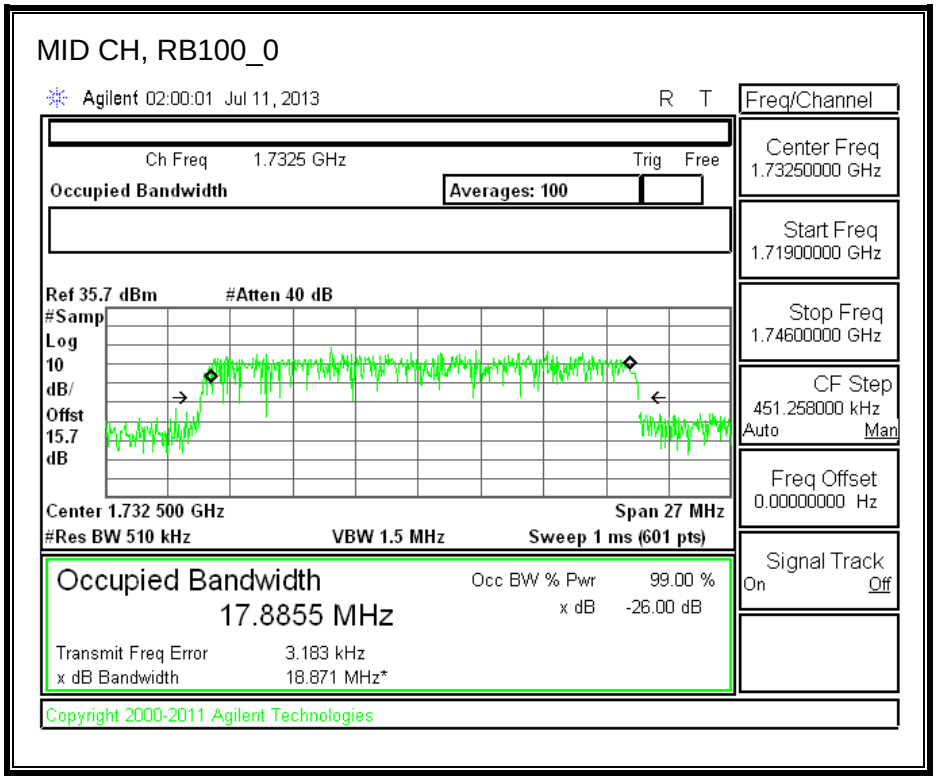
MID CH, RB100_0



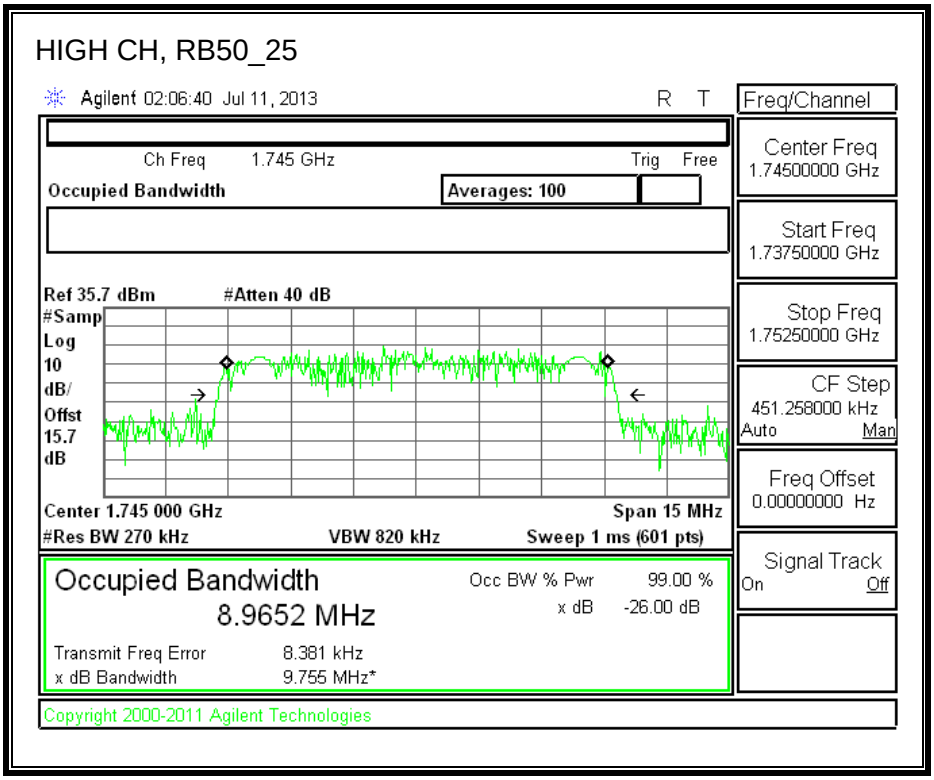
MID-16QAM



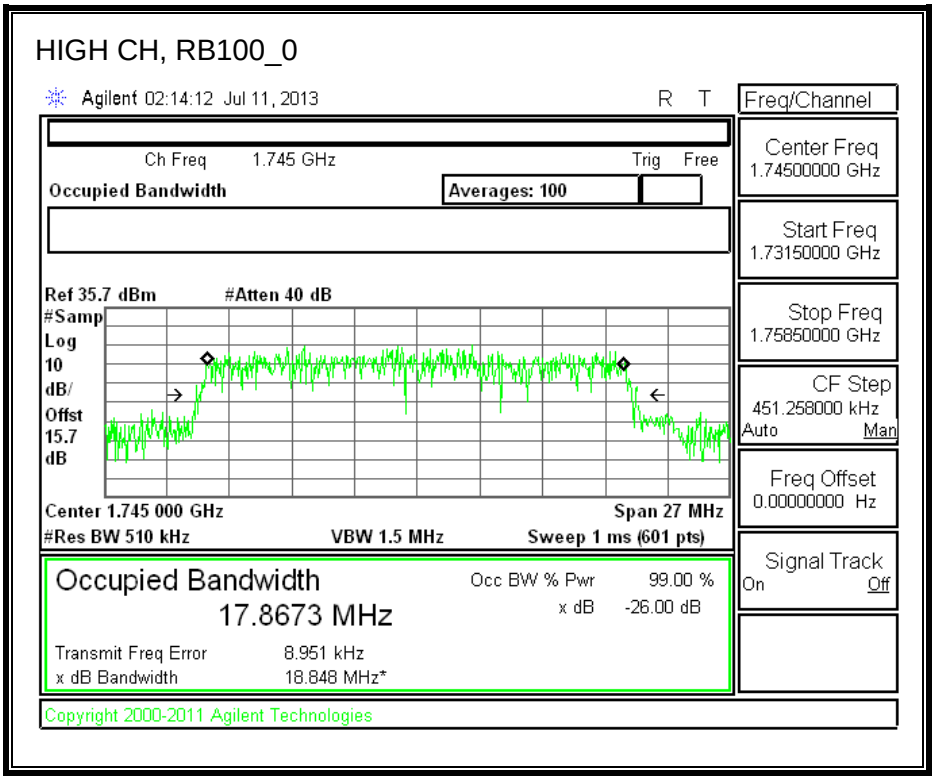
MID CH, RB100_0



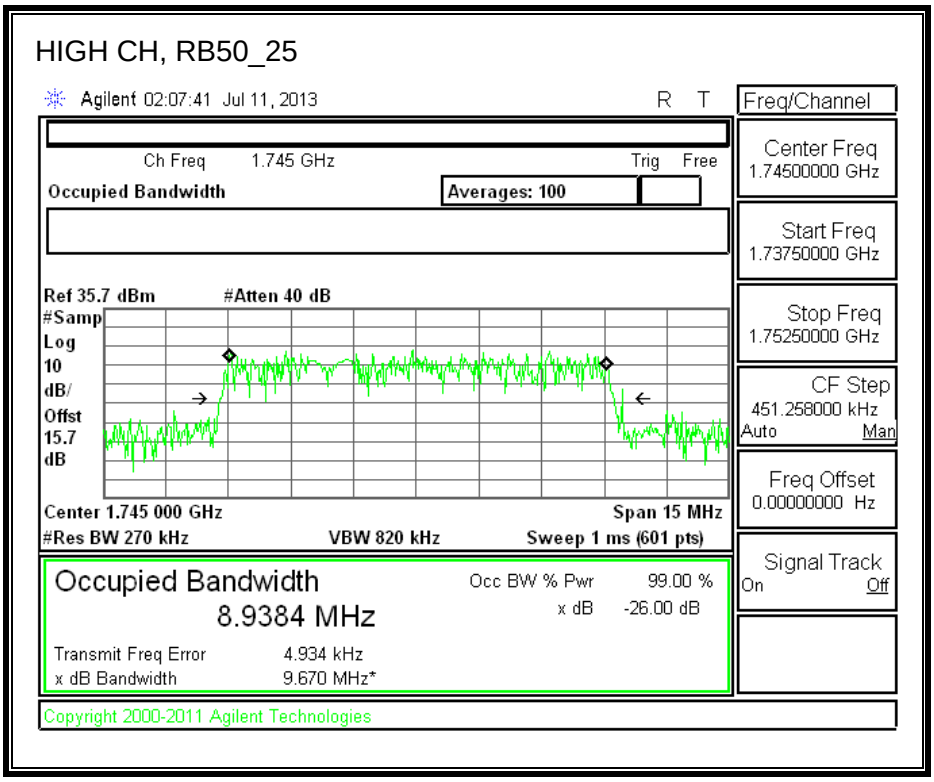
HIGH-QPSK



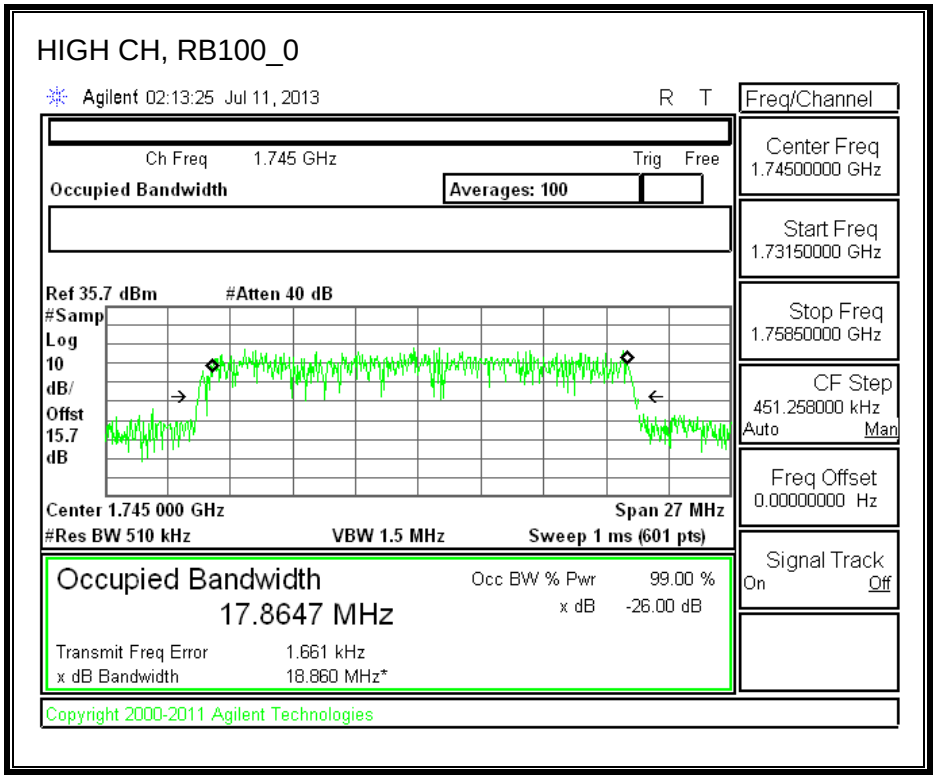
HIGH CH, RB100_0



HIGH-16QAM



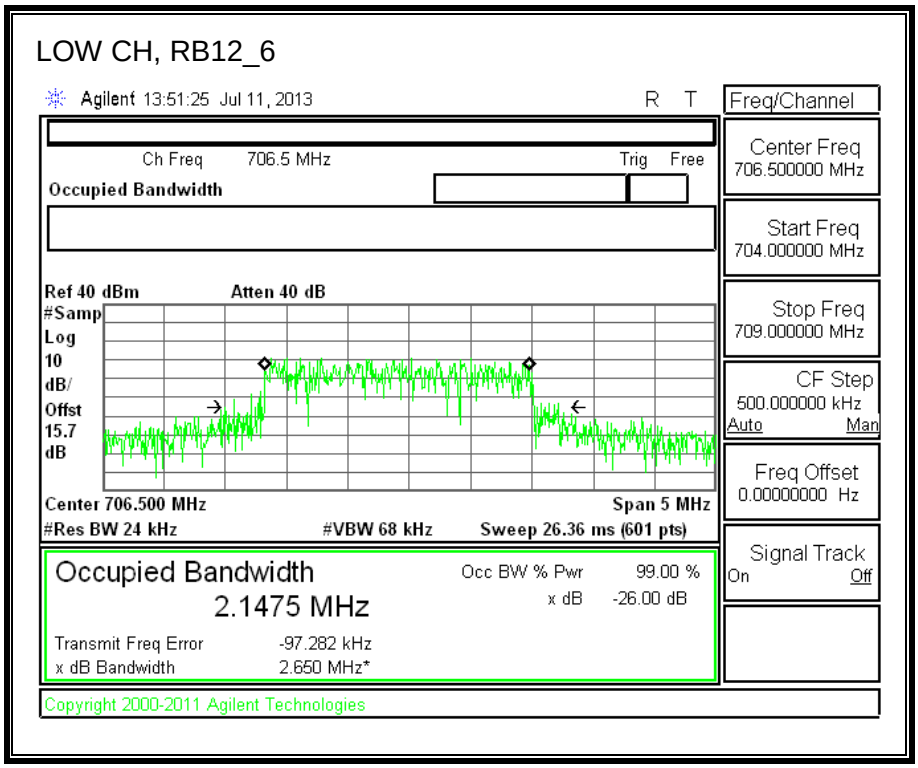
HIGH CH, RB100_0



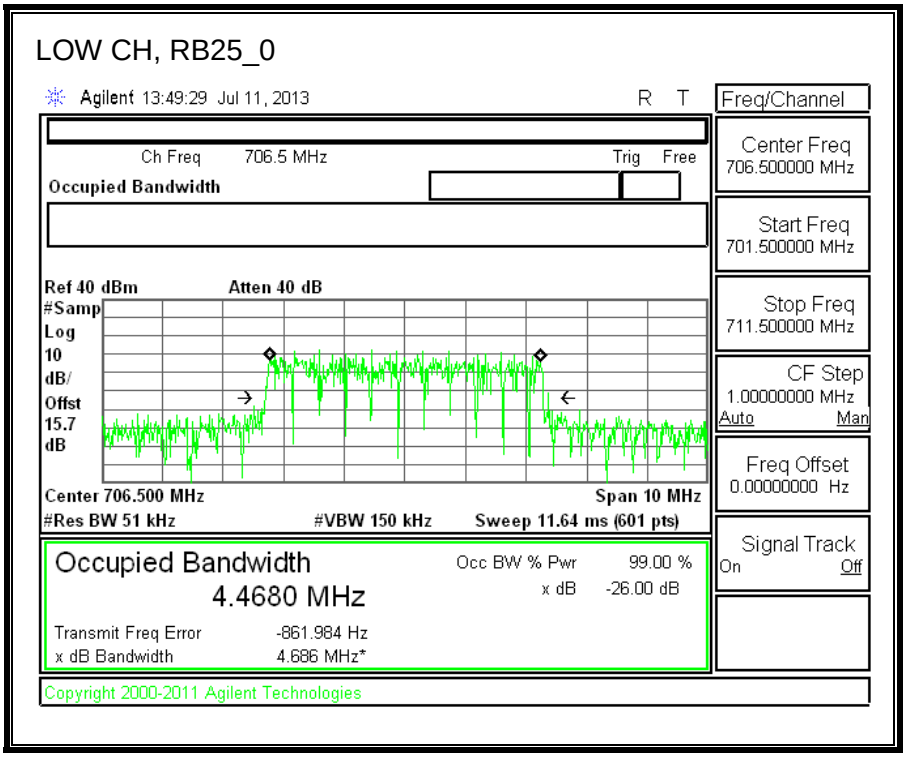
10.1. LTE Band 17

10.1.1. LTE BAND 17-5MHz BANDWIDTH

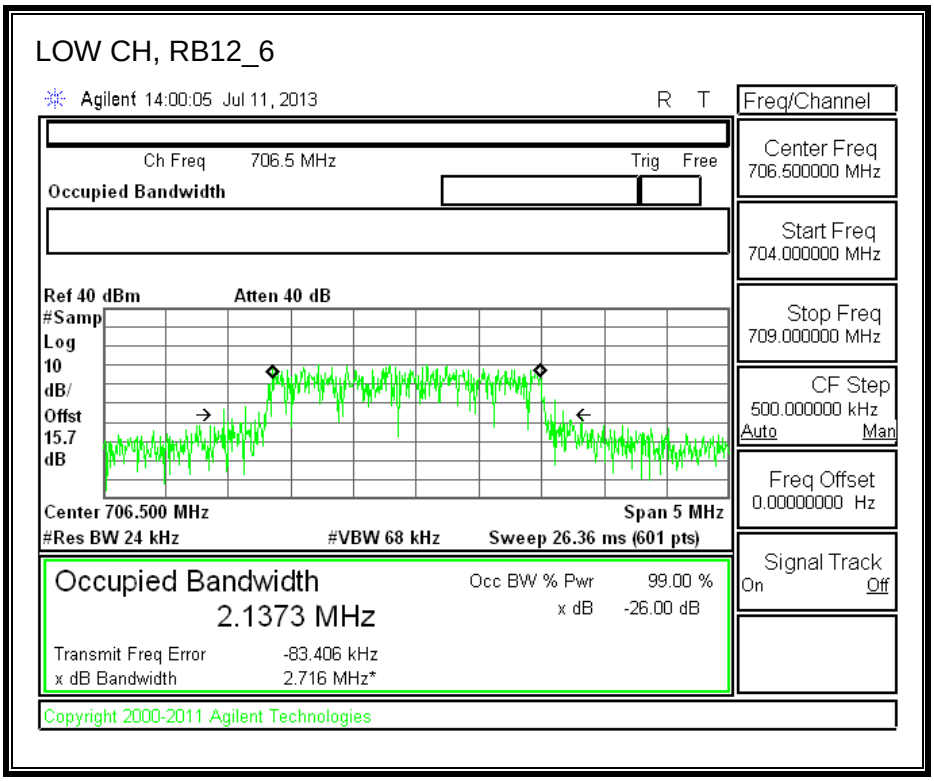
LOW-QPSK

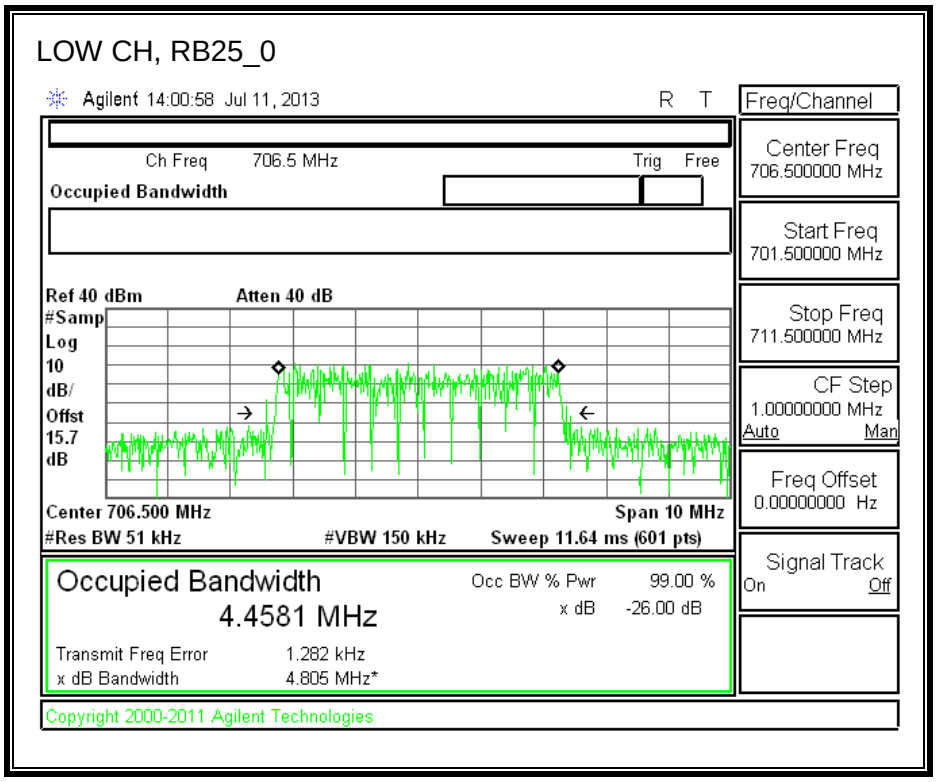


LOW CH, RB25_0



LOW-16QAM





MID-QPSK