FCC CFR47 PART 27
CERTIFICATION TEST REPORT

FCC ID: 2AJJYPT7003

Product：	Android Smart POS
Trade Name：	Anlinx
Model Number：	PT7003
Serial Model：	PT7003S、PT7003M、PT7003MS
Report No.：	2016NT07016902F7

Prepared for

Shenzhen Anlinx Technology Company

RM 1302, 13/F, Building A3, LeeLang Software Park,No.31,Rd. BuLan,LongGang District,City ShenZhen，518112,P.R.C.

Prepared by

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TEST RESULT CERTIFICATION

Applicant's name ..... :	Shenzhen Anlinx Technology Company
Address..... :	RM 1302, 13/F, Building A3, LeeLang Software Park,No.31,Rd. BuLan,LongGang District,City ShenZhen，518112,P.R.C.
Manufacture's Name ..... :	Shenzhen Anlinx Technology Company
Address..... :	RM 1302, 13/F, Building A3, LeeLang Software Park,No.31,Rd. BuLan,LongGang District,City ShenZhen，518112,P.R.C.
Product name..... :	Android Smart POS
Model and/or type reference .. :	PT7003
Serial Model：	PT7003S、PT7003M、PT7003MS
Standards..... :	FCC CFR 47 Part 27
Test procedure ..... :	ANSI/TIA-603-D:2010

This device described above has been tested by NTEK, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test .....

Date (s) of performance of tests..... 01 Jul. 2016 ~ 06 Sept. 2016

Date of Issue ..... 06 Sept . 2016

Test Result..... **Pass**

Testing Engineer : Eileen Wu.

(Janon chen)

Technical Manager : Jason chen

(Jason Chen)

Authorized Signatory : Sam . Chen

(Sam Chen)

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1. GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	Android Smart POS
Hardware version:	--
Software version:	--
FCC ID:	2AJJYPT7003
Frequency Bands:	U.S. Bands: ☐UMTS FDD Band II ☐UMTS FDD Band V ☒LTE TDD Band 41
Frequency Range:	LTE Band 41:2547.5MHz~2652.5MHz
Type of Modulation:	QPSK/16QAM
Antenna:	FPCB Antenna
Antenna gain:	1.0dBi
Power Supply:	DC 7.4V by battery or DC 9.0V supplied by adapter
Battery parameter:	DC 7.4V/3900mAh
Adapter Input:	AC100-240V, 50-60Hz
Adapter Output:	9.0V⎓, 2.5A
Extreme Vol. Limits:	DC8.5 V to 6.7 V (Nominal DC7.4 V)
Extreme Temp. Tolerance	-10℃ to +50℃
** Note: The High Voltage 8.5V and Low Voltage 6.7V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage.	

1.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for **FCC ID: 2AJJYPT7003** filing to comply with the FCC Part 22H&24E &27.

1.3 TEST METHODOLOGY

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

1.4 TEST FACILITY

The test site used to collect the radiated data is located at:

NTEK Testing Technology Co., Ltd.

1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003.

FCC Registration No.:238937

IC Registration No.:9270A-1,

CNAS Registration No.:L5516

1.5 SPECIAL ACCESSORIES

The battery and the charger, earphone supplied by the applicant were used as accessories and being tested with EUT intended for FCC grant together.

1.6 WORST-CASE CONFIGURATION AND MODE

The worst-case scenario for all measurements is based on the investigation results.

The device has LTE Bands of: TDD Band 41

The RB Size was selected to measure for peak or average ERP and EIRP, which was based on the conducted power verification baseline data.

For the fundamental investigation of radiated emissions, the EUT is investigated for vertical and horizontal antenna orientations and X Y and Z orientations of the EUT alone. After the investigations the worst case was determined to be at X orientation for all LTE bands.

2. Summary of Compliance Status

Standard Section	Test Item	Verdict	Remark
2.1046	Coducted Output Power	PASS	
27.50(h)(2)	Equivalent Isotropic Radiated Power	PASS	
2.1049 27.53(m)(6)	Occupied Bandwidth	PASS	
2.1051 27.53(m)(4)	Field Strength Of Spurious Radiation	PASS	
2.1051 27.53(m)(4)	Conducted Band edge And Emission Mask	PASS	
2.1051 27.53(m)(4)	Coducted Spurious Emission Measuremet	PASS	
2.1055 27.54	FREQUENCY STABILITY	PASS	

3. SYSTEM TEST CONFIGURATION

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

3.2 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

3.3 CONFIGURATION OF EUT SYSTEM

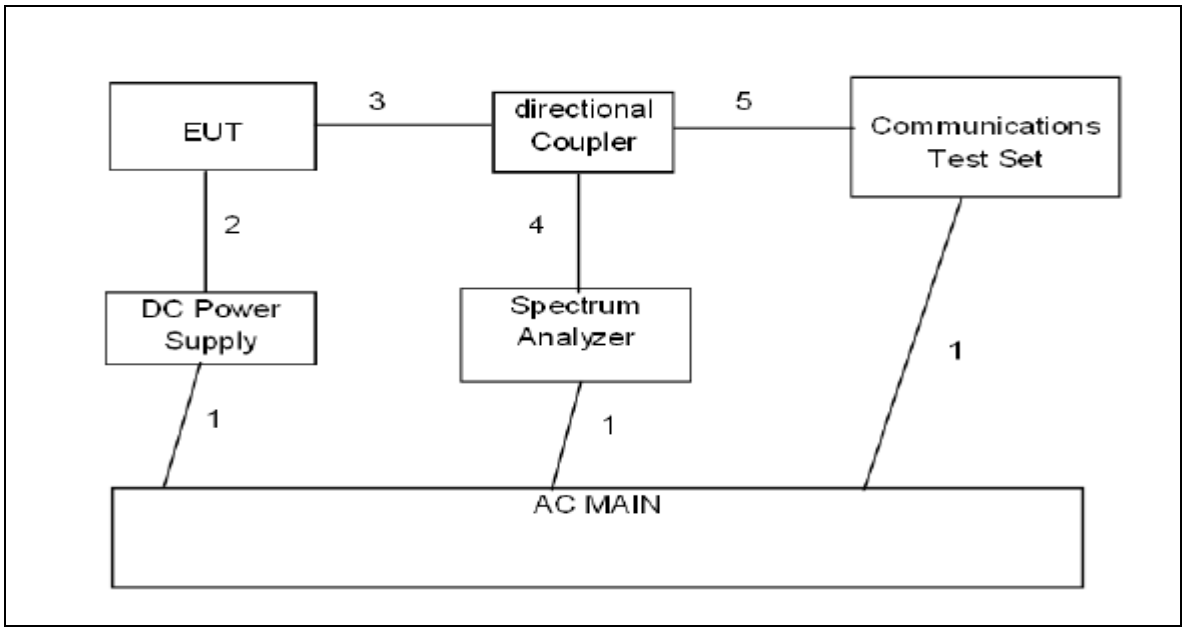
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Android Smart POS	PT7003	FCC ID: 2AJJYPT7003	EUT

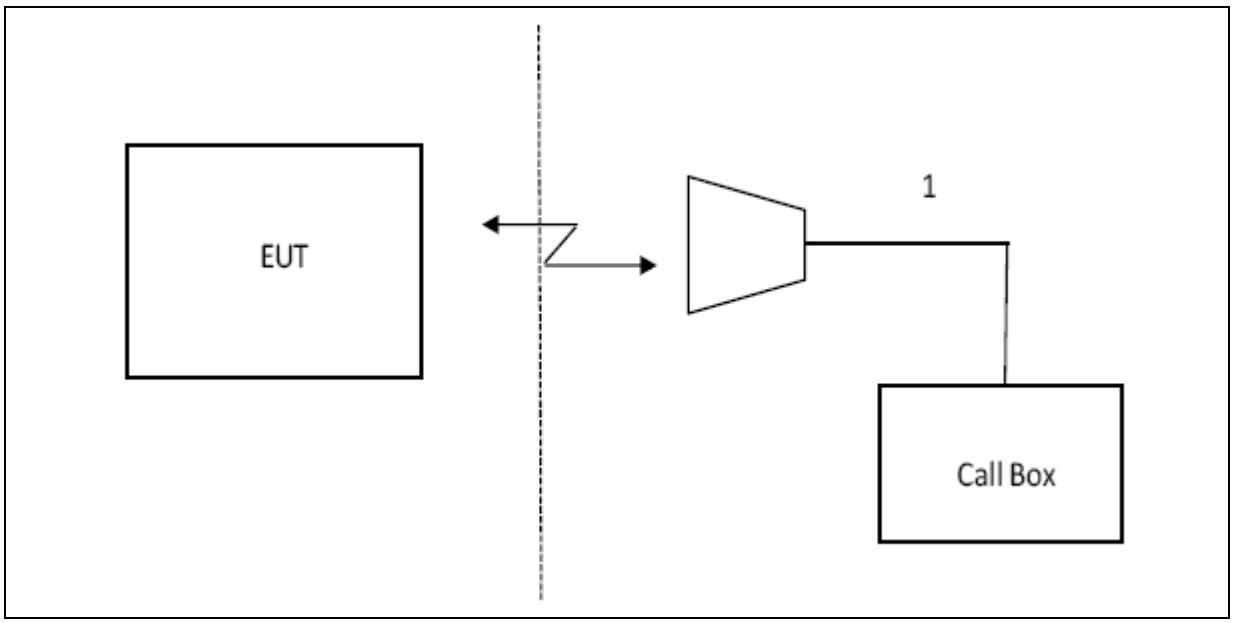
Note: All the accessories have been used during the test.
the following "EUT" in setup diagram means EUT system.

3.4 TEST SETUP

CONDUCTED SETUP DIAGRAM FOR TESTS



RADIATED SETUP DIAGRAM FOR TESTS



4.TEST AND MEASUREMENT EQUIPMENT

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

NAME OF EQUIPMENT	MANUFACTURER	MODEL	SERIAL NUMBER	NEXT CAL. DATE
SPECTRUM ANALYZER	AGILENT	E4440A	US44300399	2016.6.26
TEST RECEIVER	R&S	ESCI	A0304218	2016.6.26
COMMUNICATION TESTER	R&S	CMU200	A0304247	2016.6.26
COMMUNICATION TESTER	R&S	CMW500	X	2016.6.26
TEST RECEIVER	R&S	FCKL1528	A0304230	2016.6.26
LISN	SCHWARZBECK	NSLK8127	A0304233	2016.6.26
CLIMATE CHAMBER	ALBATROSS	--	--	2016.6.26
Loop Antenna	Daze	ZN30900N	SEL0097	2016.6.26
Bilogical Antenna	A.H. Systems Inc.	SAS-521-4	N/A	2016.6.26
Horn Antenna	EM	EM-AH-10180	N/A	2016.6.26

5. OUTPUT POWER

5.1 OUTPUT POWER MEASUREMENT

LTE Measurement Procedure:

All LTE bands conducted power peak and average are obtained from the CMW500 telecommunication test set. The following tests were conducted according to the test requirements outlined in section 6.2 of the 3GPP TS36.101 specification.

UE Power Class: 3 (23 +/- 2dBm). The allowed Maximum Power Reduction (MPR) for the maximum output power due to higher order modulation and transmit bandwidth configuration (resource blocks) is specified in Table 6.2.3-1 of the 3GPP TS36.101.

Table 6.2.3-1: Maximum Power Reduction (MPR) for Power Class 3

Modulation	Channel bandwidth / Transmission bandwidth (RB)						MPR (dB)
	1.4 MHz	3.0 MHz	5 MHz	10 MHz	15 MHz	20 MHz	
QPSK	> 5	> 4	> 8	> 12	> 16	> 18	≤ 1
16 QAM	≤ 5	≤ 4	≤ 8	≤ 12	≤ 16	≤ 18	≤ 1
16 QAM	> 5	> 4	> 8	> 12	> 16	> 18	≤ 2

The allowed A-MPR values specified below in Table 6.2.4.-1 of 3GPP TS36.101 are in addition to the allowed MPR requirements. All the measurements below were performed with A-MPR disabled, by using Network Signaling Value of “NS_01”.3

Table 6.2.4-1: Additional Maximum Power Reduction (A-MPR)

Network Signalling value	Requirements (sub-clause)	E-UTRA Band	Channel bandwidth (MHz)	Resources Blocks (N_{RB})	A-MPR (dB)
NS_01	6.6.2.1.1	Table 5.5-1	1.4, 3, 5, 10, 15, 20	Table 5.6-1	NA
NS_03	6.6.2.2.1	2, 4,10, 23, 25, 35, 36	3	>5	≤ 1
			5	>6	≤ 1
			10	>6	≤ 1
			15	>8	≤ 1
			20	>10	≤ 1
NS_04	6.6.2.2.2	41	5	>6	≤ 1
			10, 15, 20	See Table 6.2.4-4	
NS_05	6.6.3.3.1	1	10,15,20	≥ 50	≤ 1
NS_06	6.6.2.2.3	12, 13, 14, 17	1.4, 3, 5, 10	Table 5.6-1	n/a
NS_07	6.6.2.2.3 6.6.3.3.2	13	10	Table 6.2.4-2	Table 6.2.4-2
NS_08	6.6.3.3.3	19	10, 15	> 44	≤ 3
NS_09	6.6.3.3.4	21	10, 15	> 40	≤ 1
				> 55	≤ 2
NS_10		20	15, 20	Table 6.2.4-3	Table 6.2.4-3
NS_11	6.6.2.2.1	23[1]	1.4, 3, 5, 10	Table 6.2.4-5	Table 6.2.4-5
--					
NS_32	-	-	-	-	-

Note 1: Applies to the lower block of Band 23, i.e. a carrier placed in the 2000-2010 MHz region.

5.1.1 LTE BAND 41

OUTPUT POWER FOR LTE BAND 41 (5.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	5.0 MHz	40165	2547.5	QPSK	1	Low	22.59	27.64
					1	Mid	22.51	27.54
					1	High	22.55	27.66
					12	Low	22.58	27.51
					12	High	22.57	27.48
					25	Low	22.49	27.47
				16QAM	1	Low	22.57	27.73
					1	Mid	22.53	27.41
					1	High	22.46	27.36
					12	Low	22.48	27.38
					12	High	22.44	27.45
					25	Low	22.45	**27.49**
	5.0 MHz	40690	2600	QPSK	1	Low	22.35	27.58
					1	Mid	22.39	27.55
					1	High	22.53	27.45
					12	Low	22.49	27.56
					12	High	22.40	27.73
					25	Low	22.41	27.32
				16QAM	1	Low	22.44	27.18
					1	Mid	22.52	27.19
					1	High	22.59	27.23
					12	Low	22.57	27.47
					12	High	22.63	27.65
					25	Low	22.33	27.66
	5.0 MHz	41215	2652.5	QPSK	1	Low	22.88	27.82
					1	Mid	22.74	27.97
					1	High	22.87	27.83
					12	Low	22.83	27.94
					12	High	22.92	27.98
					25	Low	22.89	27.85
				16QAM	1	Low	22.90	28.01
					1	Mid	22.73	27.97
					1	High	22.76	27.86
					12	Low	22.67	27.77
					12	High	22.91	28.06
					25	Low	22.95	28.07

OUTPUT POWER FOR LTE BAND 41 (10.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	10.0 MHz	40190	2550	QPSK	1	Low	22.54	27.54
					1	Mid	22.45	27.21
					1	High	22.56	27.32
					25	Low	22.59	27.66
					25	High	22.51	27.47
					50	Low	22.63	27.68
				16QAM	1	Low	22.60	27.33
					1	Mid	22.47	27.38
					1	High	22.52	27.46
					25	Low	22.69	27.55
					25	High	22.56	27.47
					50	Low	22.27	27.67
	10.0 MHz	40690	2600	QPSK	1	Low	22.51	27.59
					1	Mid	22.35	27.64
					1	High	22.22	27.42
					25	Low	22.49	27.68
					25	High	22.60	27.59
					50	Low	22.54	27.71
				16QAM	1	Low	22.68	27.74
					1	Mid	22.54	27.65
					1	High	22.58	27.63
					25	Low	22.54	27.58
					25	High	22.63	**27.60**
					50	Low	22.56	27.66
	10.0 MHz	41190	2650	QPSK	1	Low	22.84	27.76
					1	Mid	22.77	27.89
					1	High	22.85	27.86
					25	Low	22.81	27.88
					25	High	22.85	27.79
					50	Low	22.79	27.91
				16QAM	1	Low	22.84	27.95
					1	Mid	22.83	27.96
					1	High	22.76	27.93
					25	Low	22.71	27.76
					25	High	22.75	27.77
					50	Low	22.80	27.68

OUTPUT POWER FOR LTE BAND 41 (15.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	15.0 MHz	40215	2552.5	QPSK	1	Low	22.54	27.46
					1	Mid	22.51	27.33
					1	High	22.49	27.41
					36	Low	22.46	27.48
					36	High	22.50	27.52
					75	Low	22.53	27.58
				16QAM	1	Low	22.55	27.54
					1	Mid	22.57	27.63
					1	High	22.58	27.66
					36	Low	22.62	27.69
					36	High	22.63	27.72
					75	Low	22.66	27.65
	15.0 MHz	40690	2600	QPSK	1	Low	22.29	27.68
					1	Mid	22.31	27.73
					1	High	22.65	27.77
					36	Low	22.27	27.69
					36	High	22.28	27.66
					75	Low	22.23	**27.81**
				16QAM	1	Low	22.26	27.23
					1	Mid	22.34	27.38
					1	High	22.21	27.34
					36	Low	22.39	27.45
					36	High	22.45	27.48
					75	Low	22.38	27.52
	15.0 MHz	41165	2647.5	QPSK	1	Low	**22.92**	27.53
					1	Mid	22.91	27.59
					1	High	22.84	27.58
					36	Low	22.88	27.67
					36	High	22.92	27.87
					75	Low	22.91	27.96
				16QAM	1	Low	22.89	27.98
					1	Mid	22.83	28.01
					1	High	22.85	28.05
					36	Low	22.86	28.12
					36	High	22.85	28.17
					75	Low	22.83	28.02

OUTPUT POWER FOR LTE BAND 41 (20.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 41	20.0 MHz	40240	2555	QPSK	1	Low	22.63	27.76
					1	Mid	22.59	27.71
					1	High	22.61	27.69
					50	Low	22.57	27.68
					50	High	22.53	27.78
					100	Low	22.52	27.73
				16QAM	1	Low	22.58	27.66
					1	Mid	22.46	27.65
					1	High	22.43	27.59
					50	Low	22.69	27.54
					50	High	22.44	27.62
					100	Low	22.55	27.39
	20.0 MHz	40690	2600	QPSK	1	Low	22.41	27.68
					1	Mid	22.38	27.74
					1	High	22.77	27.75
					50	Low	22.73	27.69
					50	High	22.36	27.62
					100	Low	22.39	27.63
				16QAM	1	Low	22.42	27.51
					1	Mid	22.45	27.56
					1	High	22.48	27.64
					50	Low	22.46	27.69
					50	High	22.43	27.68
					100	Low	22.50	27.73
	20.0 MHz	41140	2645	QPSK	1	Low	**22.99**	27.77
					1	Mid	22.92	27.75
					1	High	22.96	27.71
					50	Low	22.93	27.92
					50	High	22.91	27.96
					100	Low	22.88	28.01
				16QAM	1	Low	22.87	27.98
					1	Mid	22.85	27.86
					1	High	22.83	28.04
					50	Low	22.79	27.97
					50	High	22.77	27.78
					100	Low	22.71	**27.84**

6. OCCUPIED BANDWIDTH

RULE PART(S)

FCC: §2.1049, §27.53(m)(6)

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

LTE Band 41

RESULTS

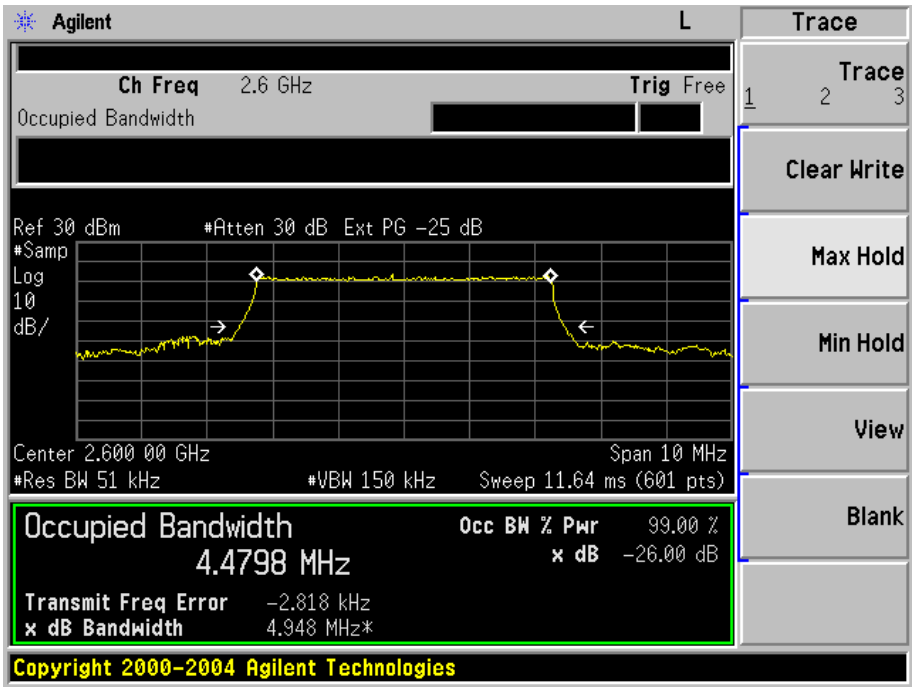
Test results:

Band	Mode	RB Size/RB Offset	Frequency (MHz)	99% Occupied Bandwidth (MHz)	-26dBc Occupied Bandwidth (MHz)
LTE Band 41	5.0MHz BAND QPSK	25/0	2600	4.480	4.948
	5.0MHz BAND 16QAM	25/0	2600	4.489	6.484
	10.0MHz BAND QPSK	50/0	2600	8.925	9.657
	10.0MHz BAND 16QAM	50/0	2600	8.924	9.673
	15.0MHz BAND QPSK	75/0	2600	13.410	14.477
	15.0MHz BAND 16QAM	75/0	2600	13.386	14.350
	20.0MHz BAND QPSK	100/0	2600	17.882	18.997
	20.0MHz BAND 16QAM	100/0	2600	17.889	19.163

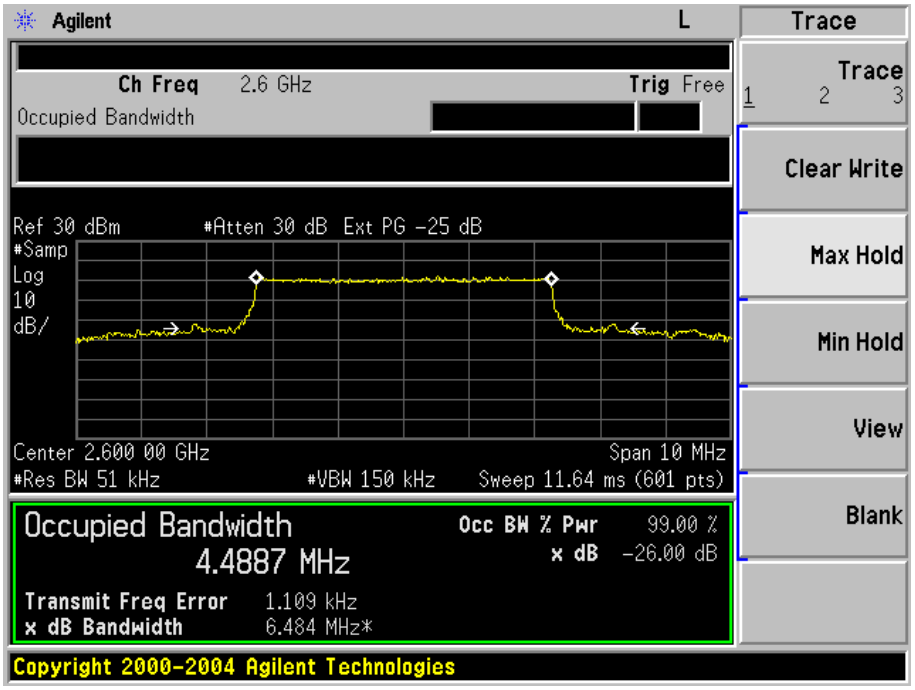
Note: This test was only measured at maximum RB allocation and at CENTER of band for each LTE BW

6.1.1. LTE BAND 41

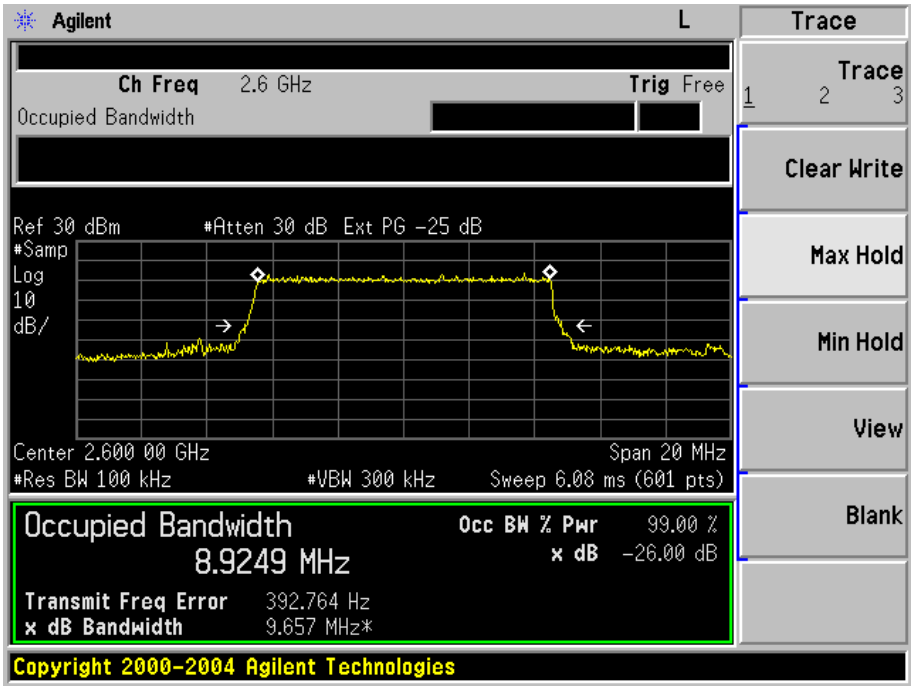
Band 41,UL Channel 40690,UL Frequency 2600.0,BW 5.0,NO. RB 25,RB POS. Low,QPSK



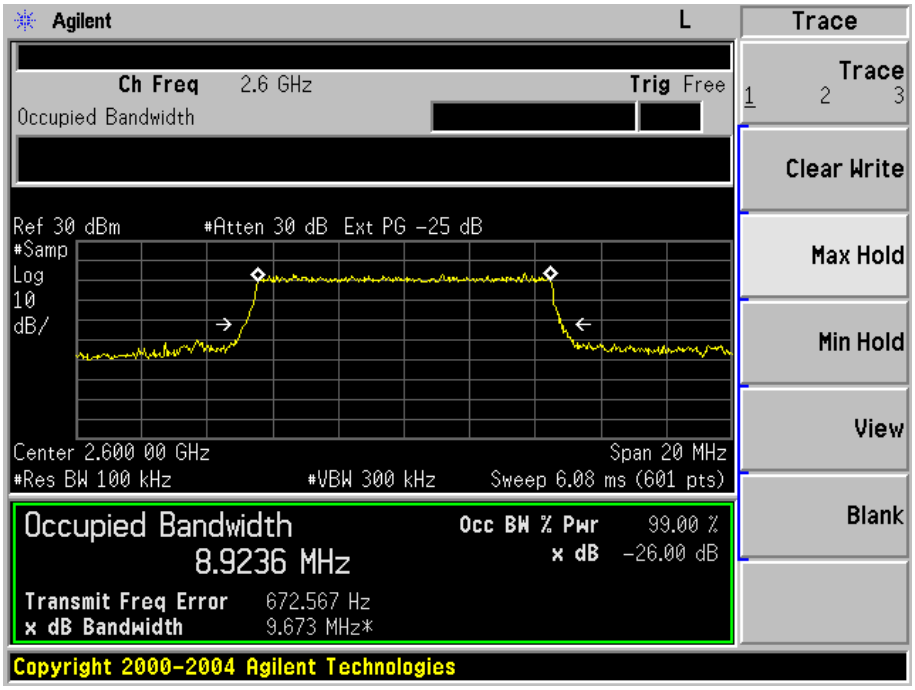
Band 41,UL Channel 40690,UL Frequency 2600.0,BW 5.0,NO. RB 25,RB POS. Low,16QAM



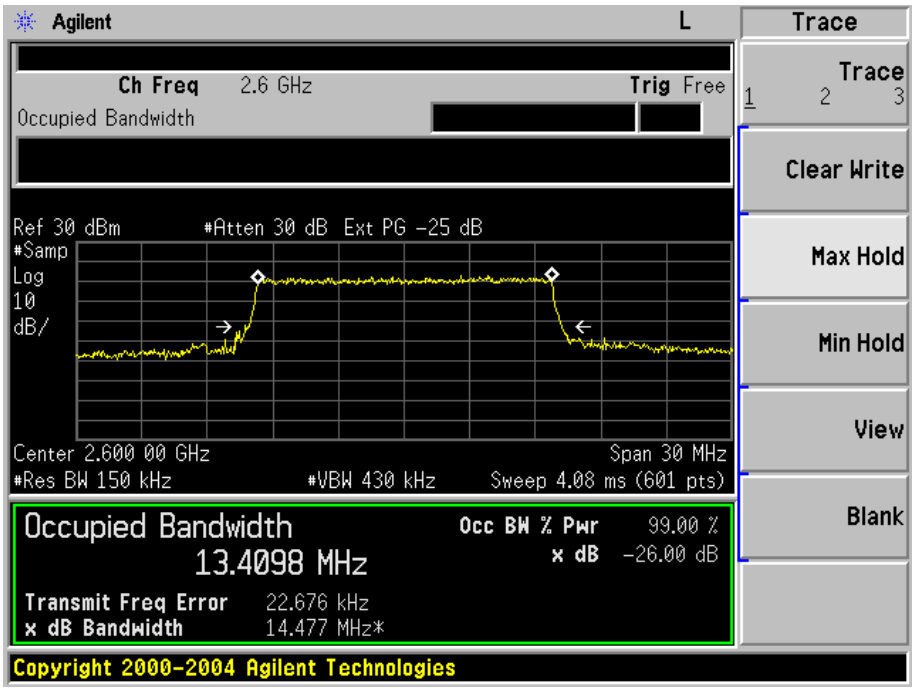
Band 41,UL Channel 40690,UL Frequency 2600.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



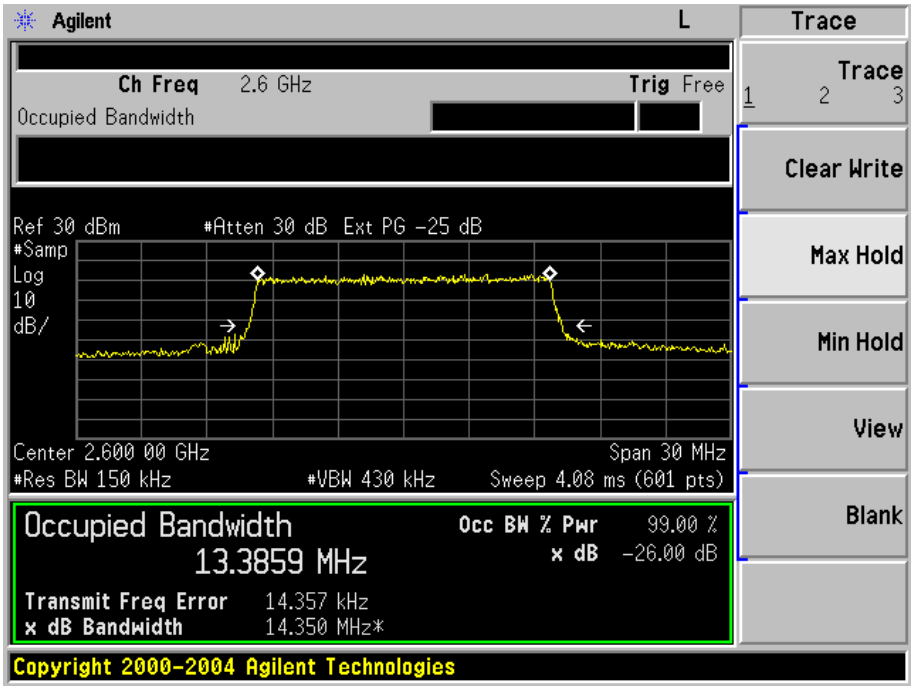
Band 41,UL Channel 40690,UL Frequency 2600.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



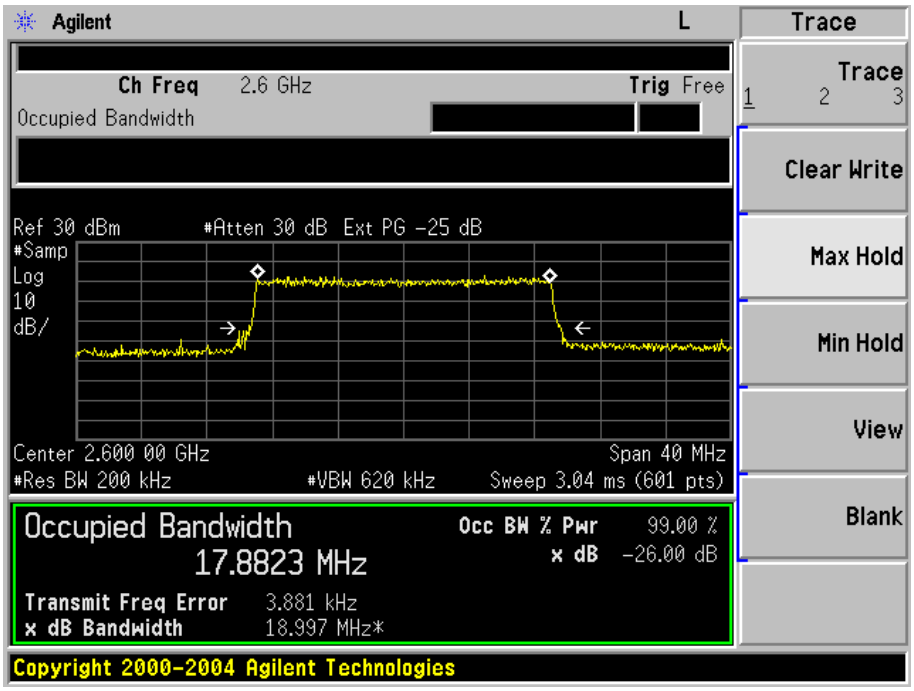
Band 41,UL Channel 40690,UL Frequency 2600.0,BW 15.0,NO. RB 75,RB POS. Low,QPSK



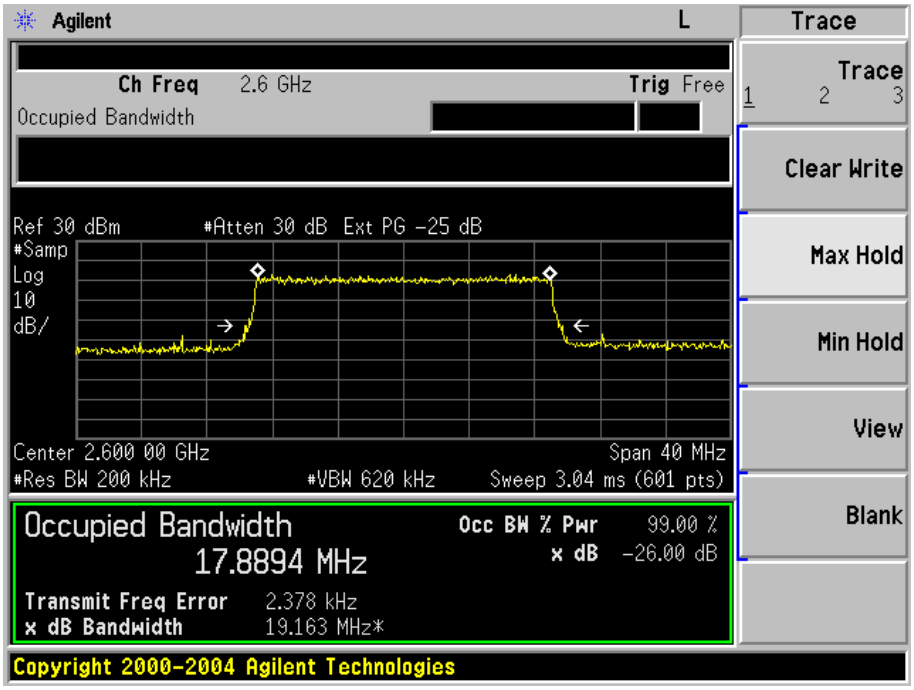
Band 41,UL Channel 40690,UL Frequency 2600.0,BW 15.0,NO. RB 75,RB POS. Low,16QAM



Band 41,UL Channel 40690,UL Frequency 2600.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 41,UL Channel 40690,UL Frequency 2600.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



7. Conducted Band edge And Emission Mask

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53
FCC: §22.359

LIMITS

FCC: §22.359, §24.238,
The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log (P) dB.

FCC: §27.53(LTE TDD BAND 41)
(m)(6) Measurement procedure. Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 megahertz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed; for mobile digital stations, in the 1 megahertz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least two percent may be employed, except when the 1 megahertz band is 2495-2496 MHz, in which case a resolution bandwidth of at least one percent may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 megahertz or 1 percent of emission bandwidth, as specified; or 1 megahertz or 2 percent for mobile digital stations, except in the band 2495-2496 MHz). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. With respect to television operations, measurements must be made of the separate visual and aural operating powers at sufficiently frequent intervals to ensure compliance with the rules.
(m) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

The transmitter output was connected to a CMW500Test Set and configured to operate at maximum power. The band edge emissions were measured at the required operating frequencies in each band on the Spectrum Analyzer.

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency (704, 716, 824, 849, 1710 and 1755, 1850 and 1910MHz)

Set a marker to point the corresponding band edge frequency in each test case.

Set display line at -13 dBm

Set resolution bandwidth to at least 1% of emission bandwidth.

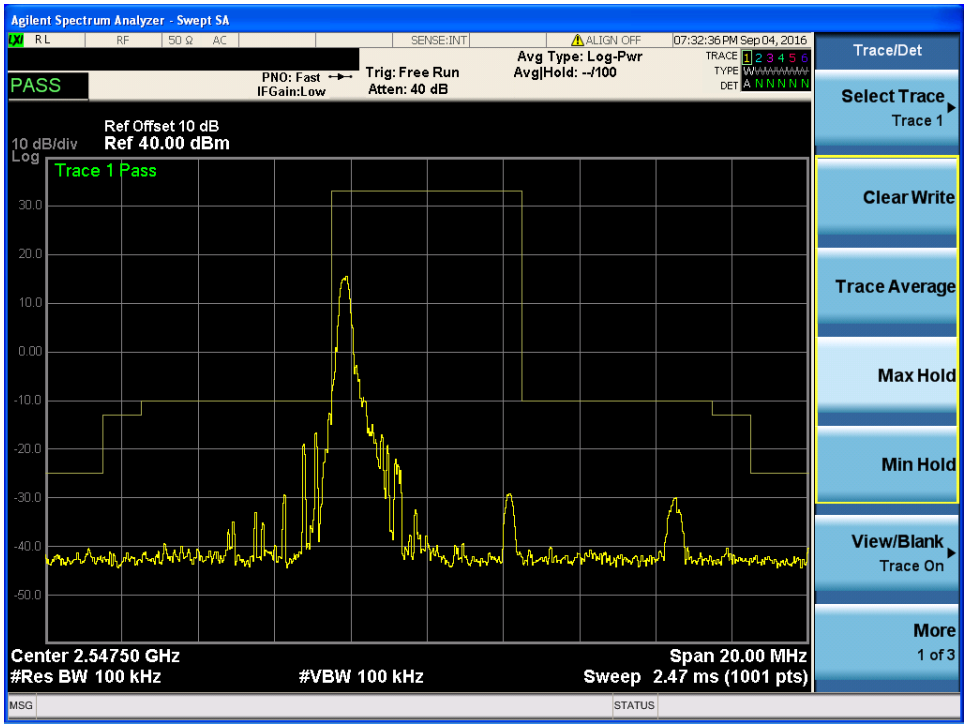
MODES TESTED

LTE Band 41

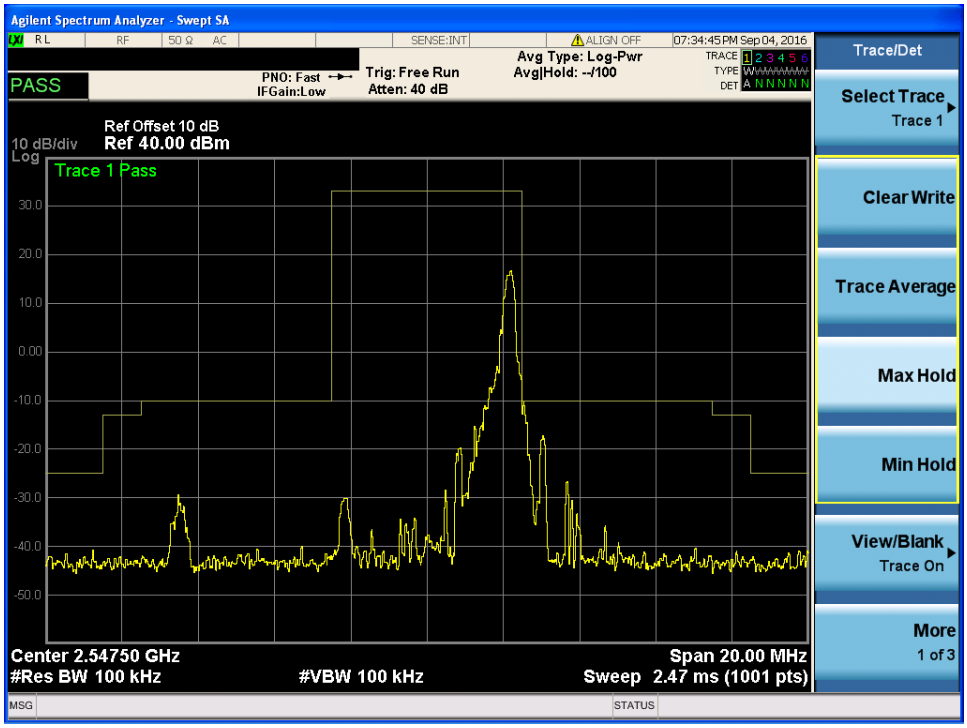
RESULTS

7.1.1. LTE BAND 41

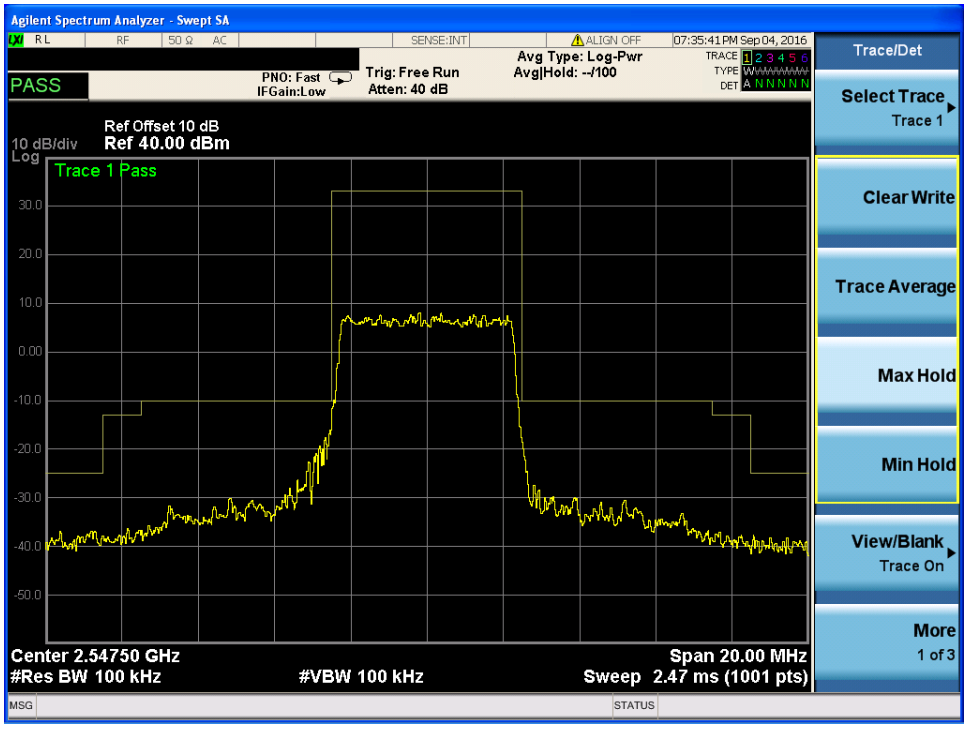
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 1-0,QPSK



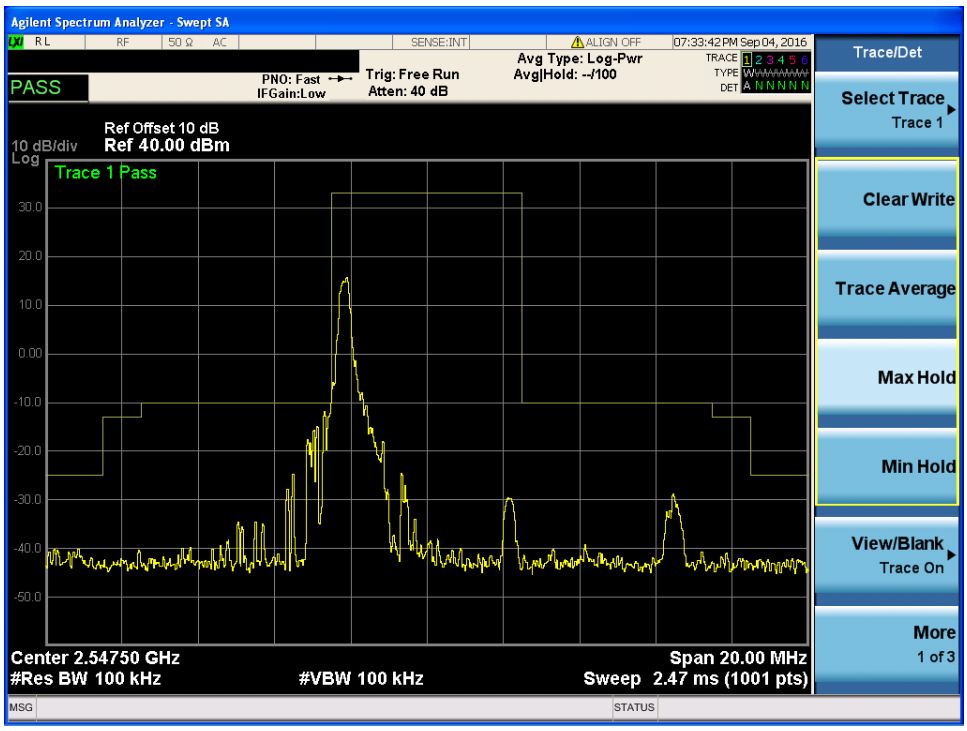
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 1-24 ,QPSK



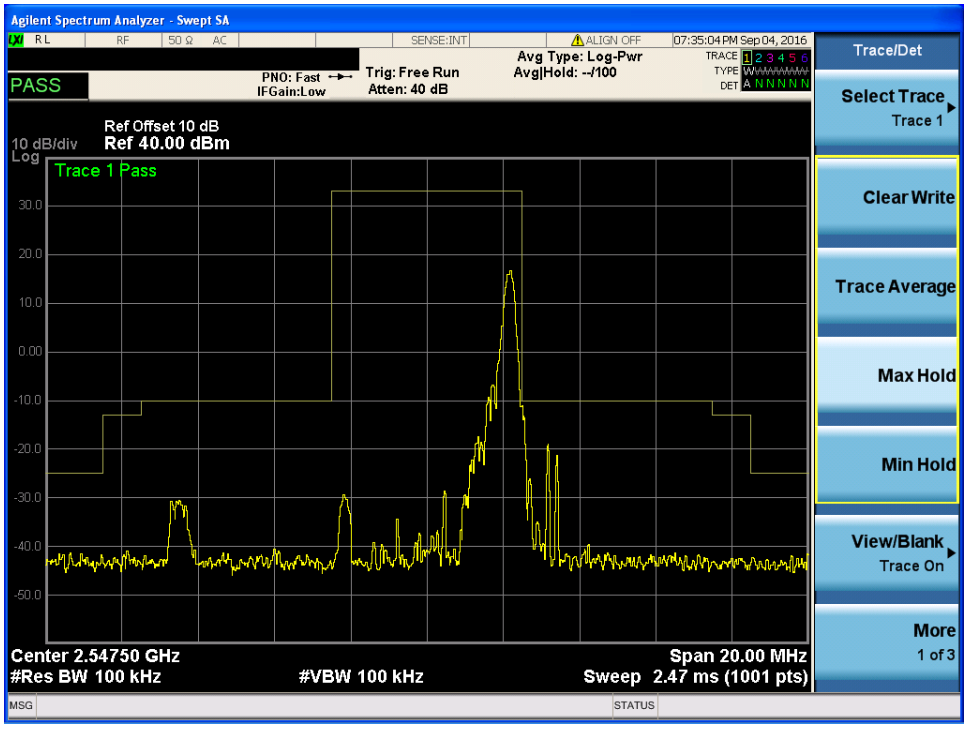
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 25-0, QPSK



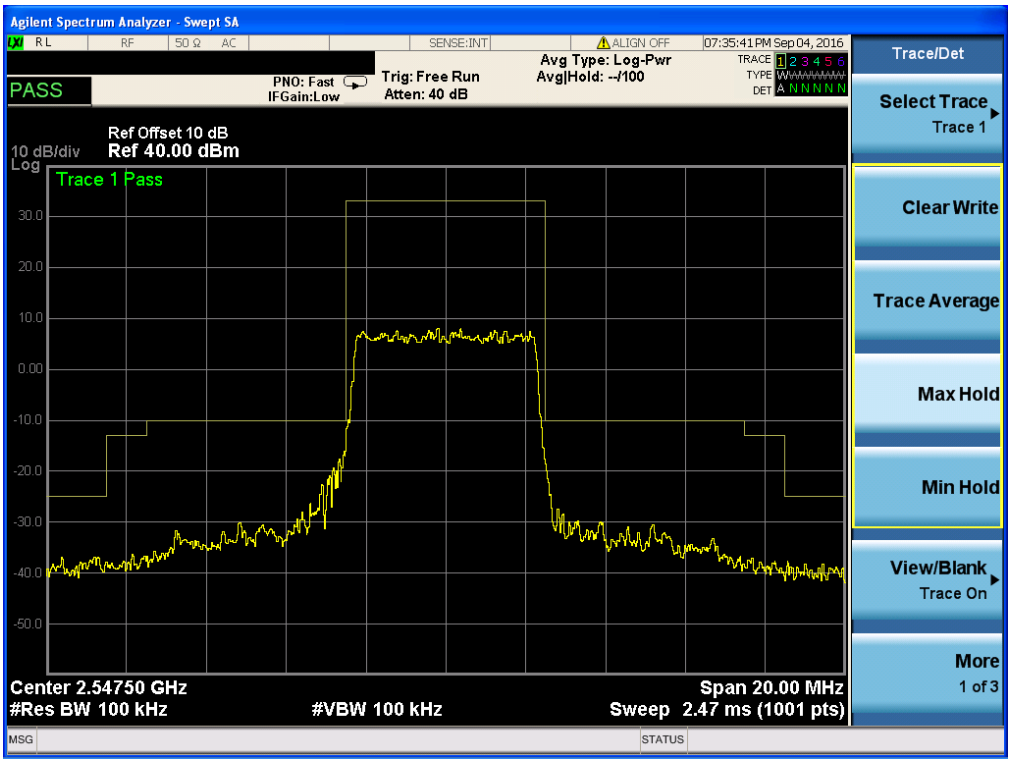
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 1-0, 16QAM



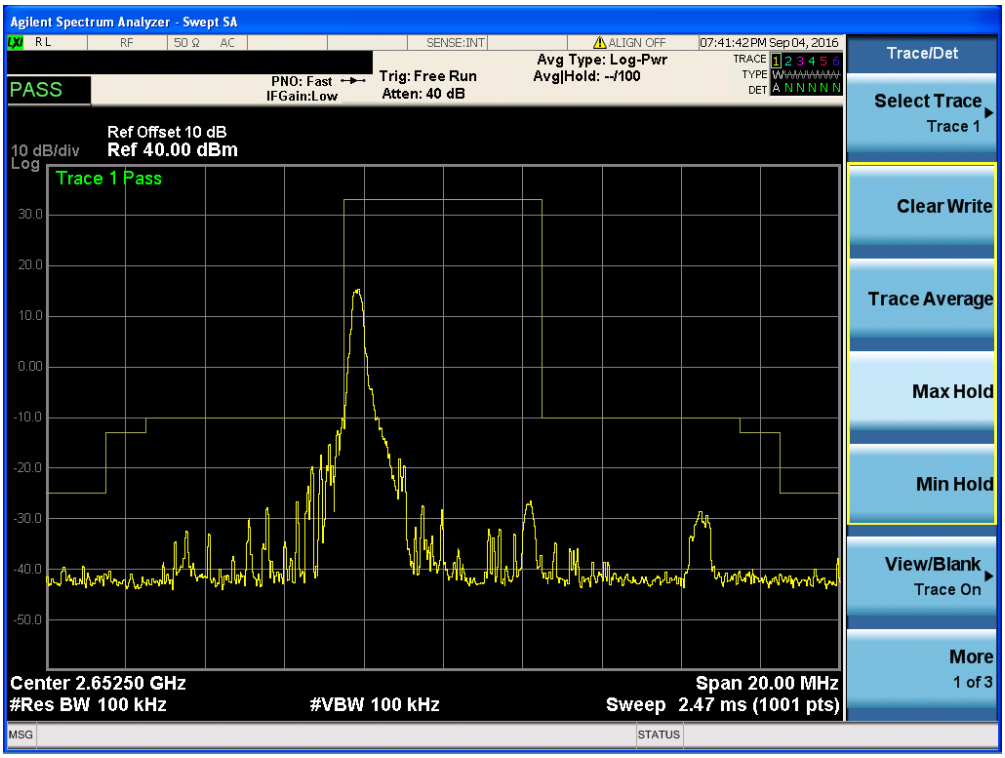
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 1-24, 16QAM



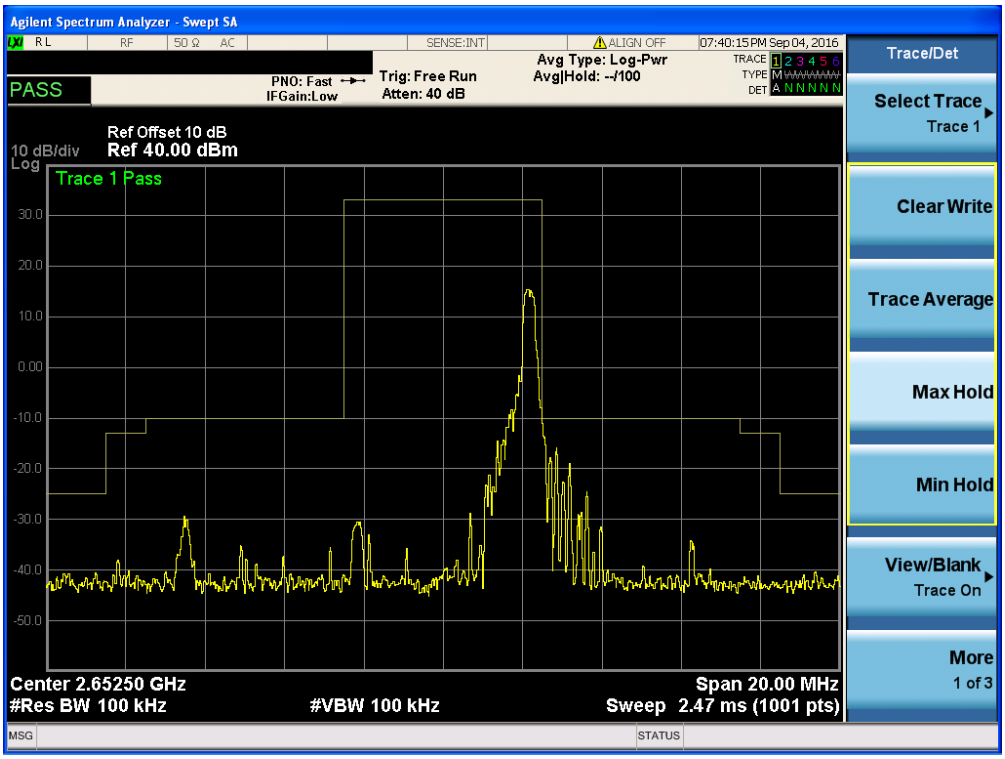
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 25-0, 16QAM



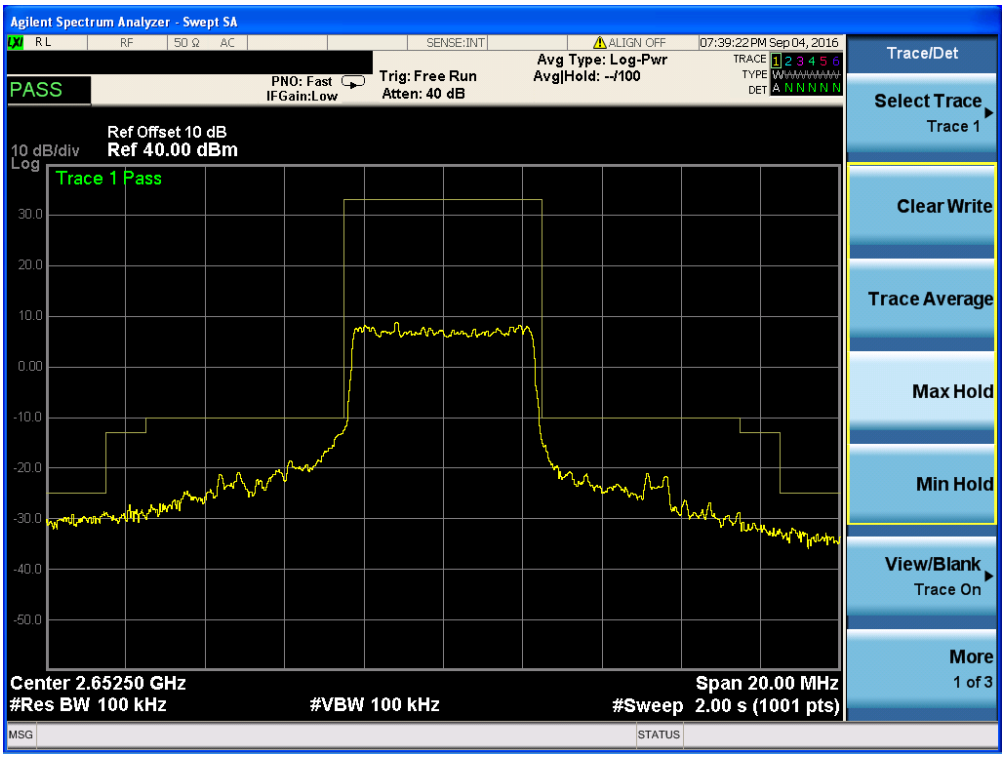
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 1-0,QPSK



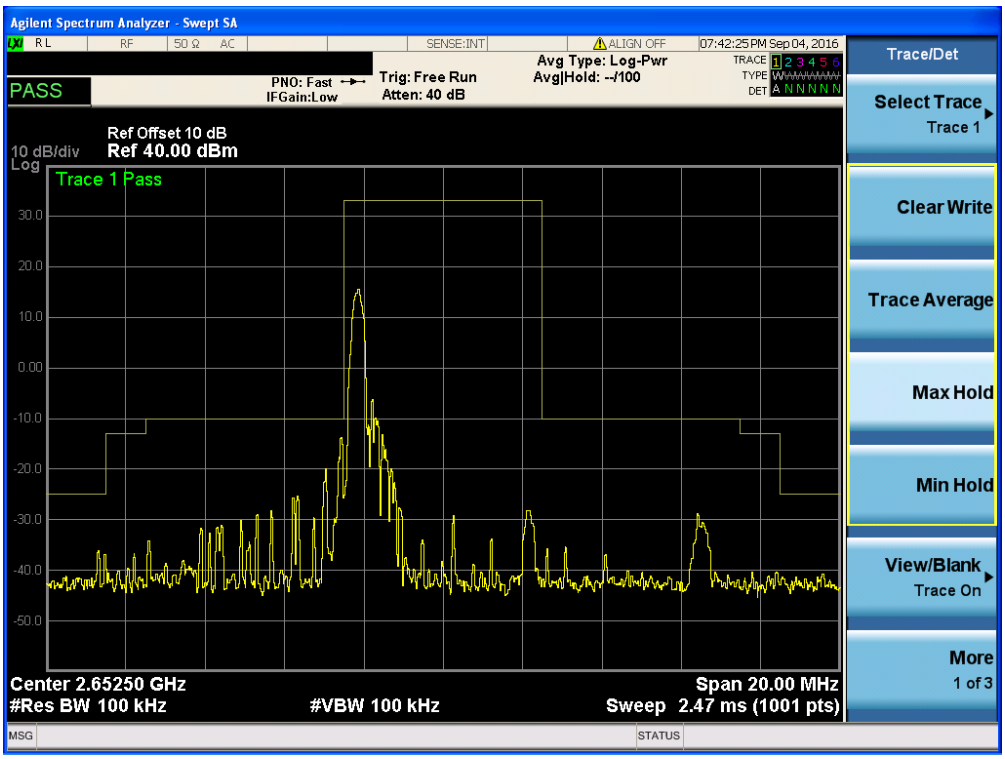
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0, NO. RB 1-24,QPSK



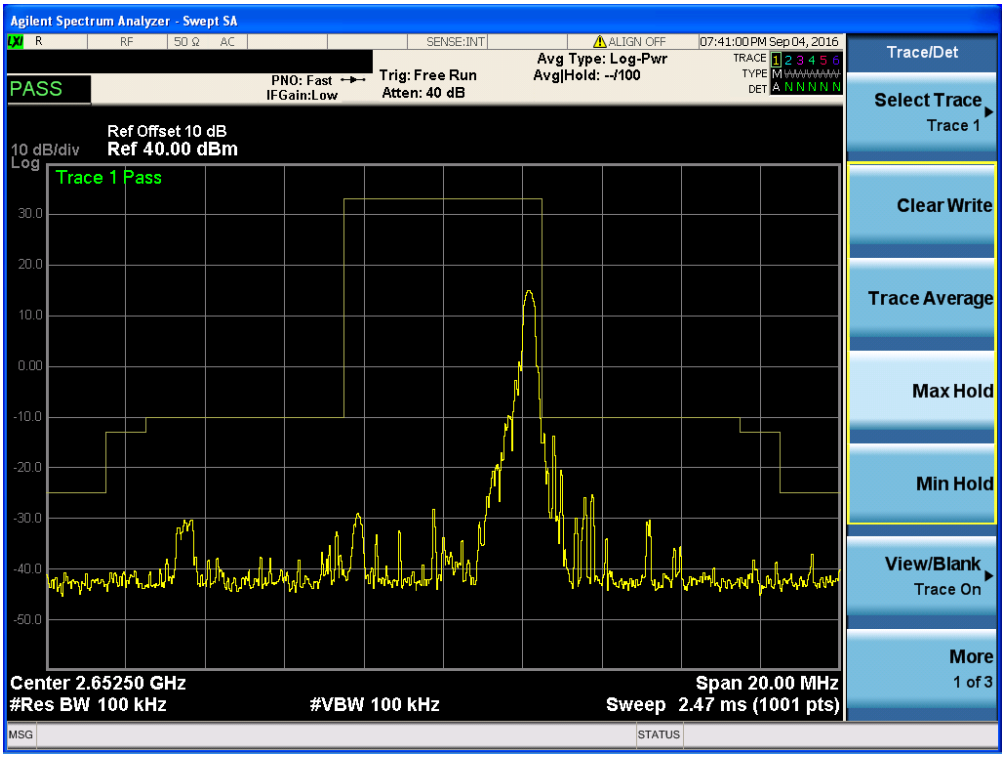
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 25-0,QPSK



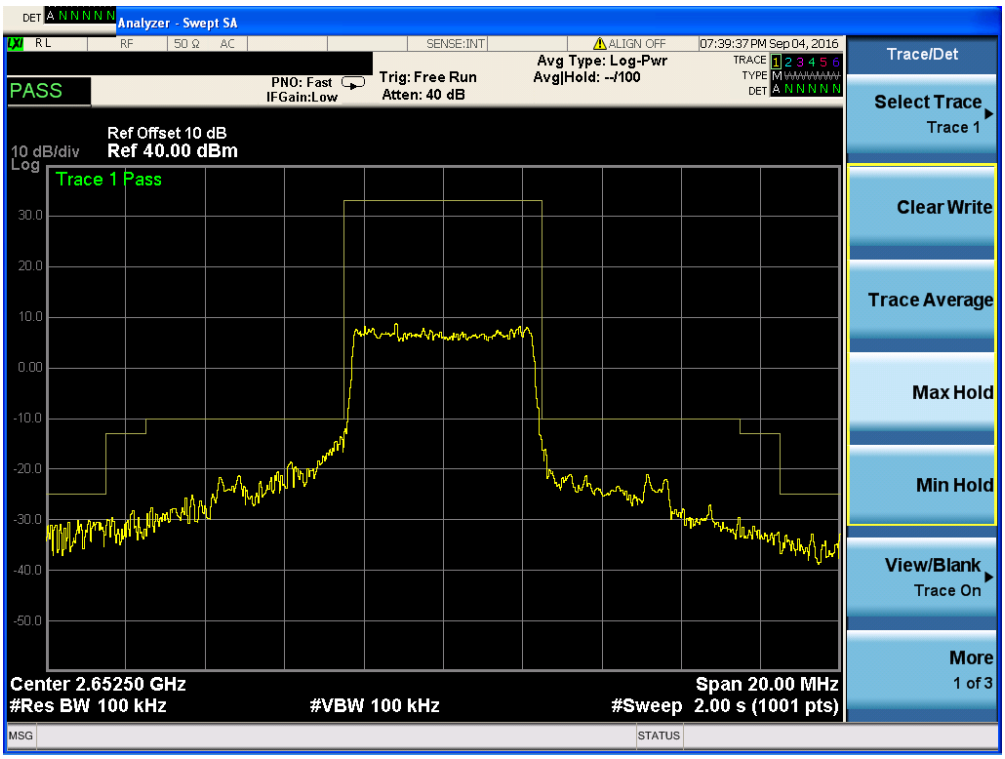
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0, NO. RB 1-0,16QAM



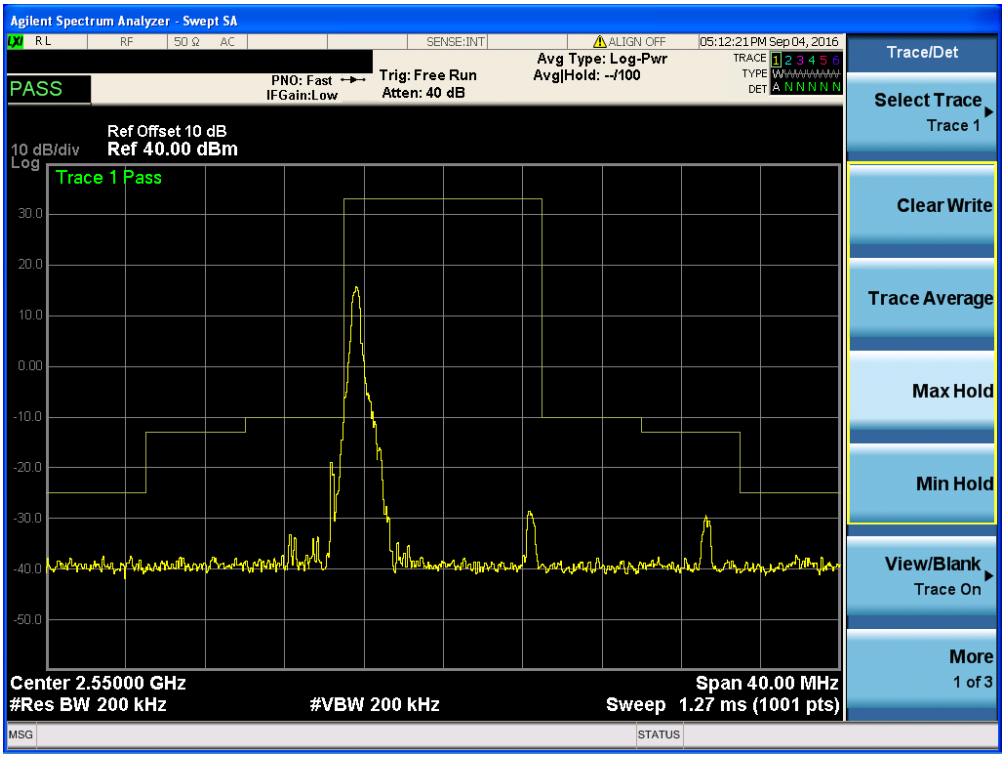
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 1-24, 16QAM



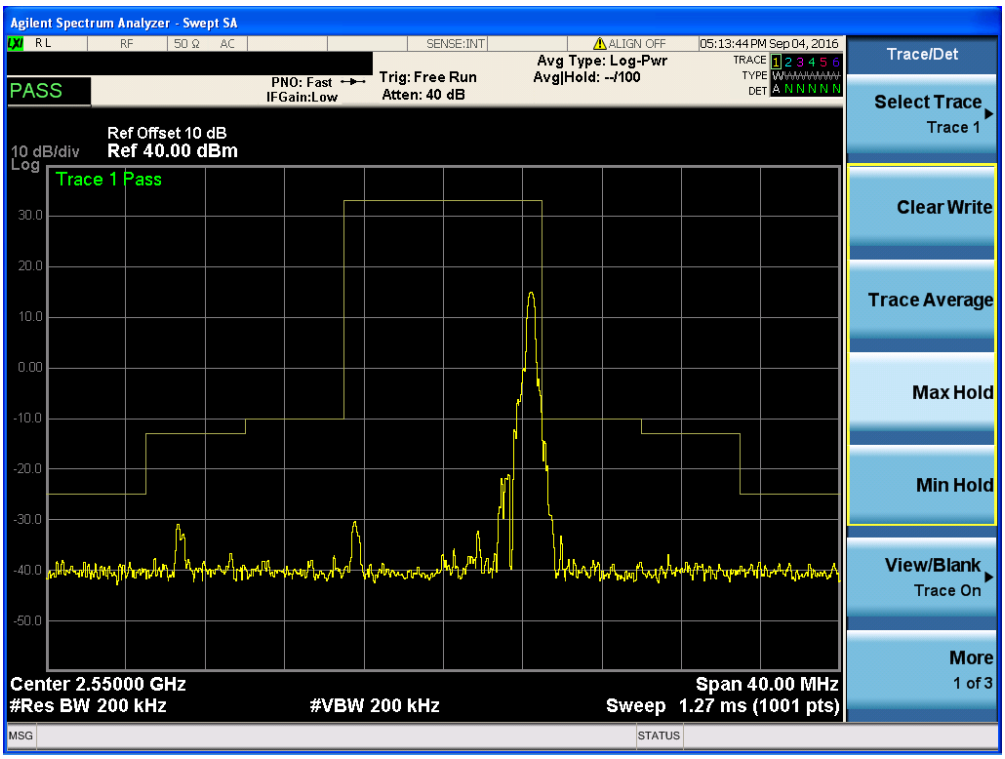
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0, NO. RB 25-0, 16QAM



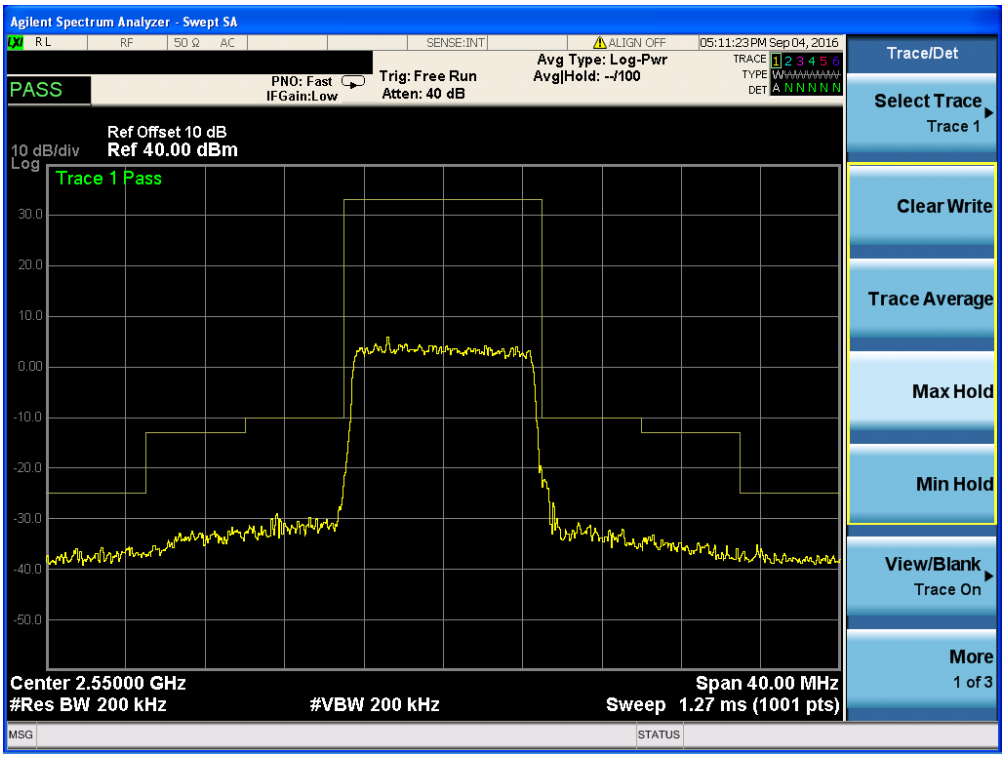
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 1-0, QPSK



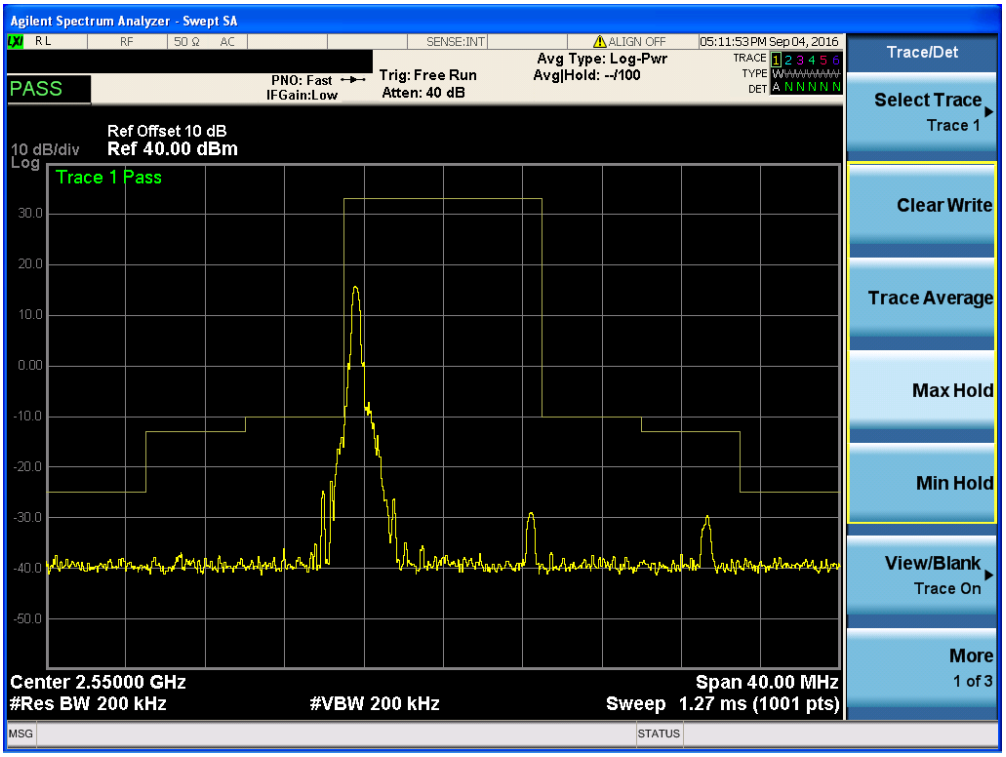
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 1-49, QPSK



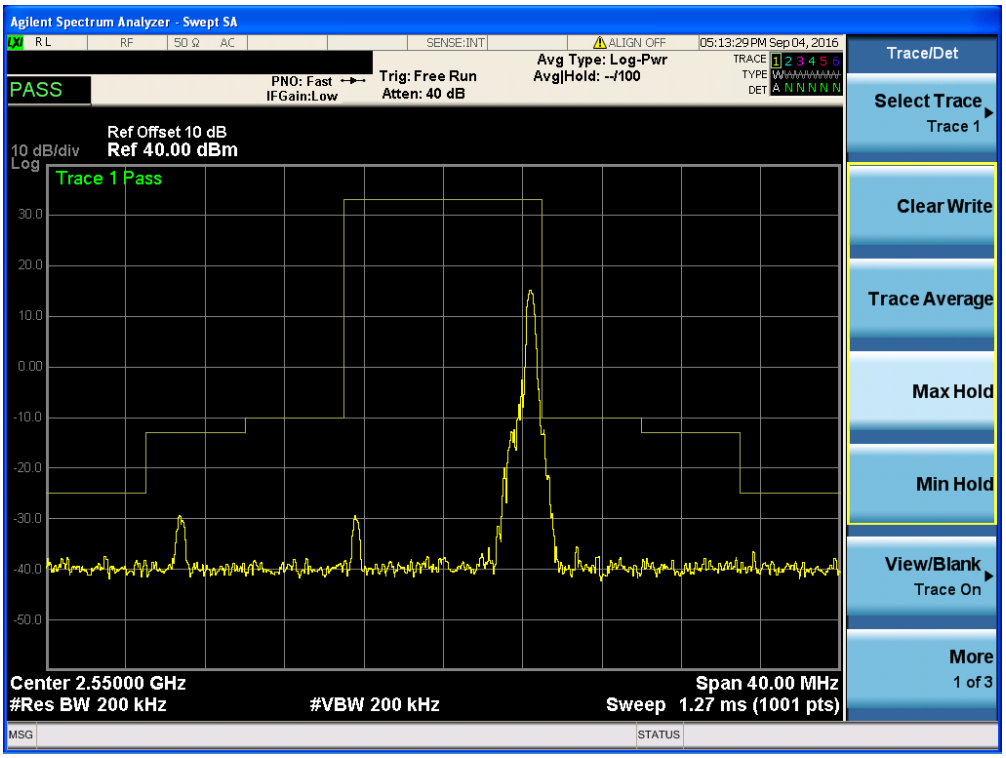
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 50-0, QPSK



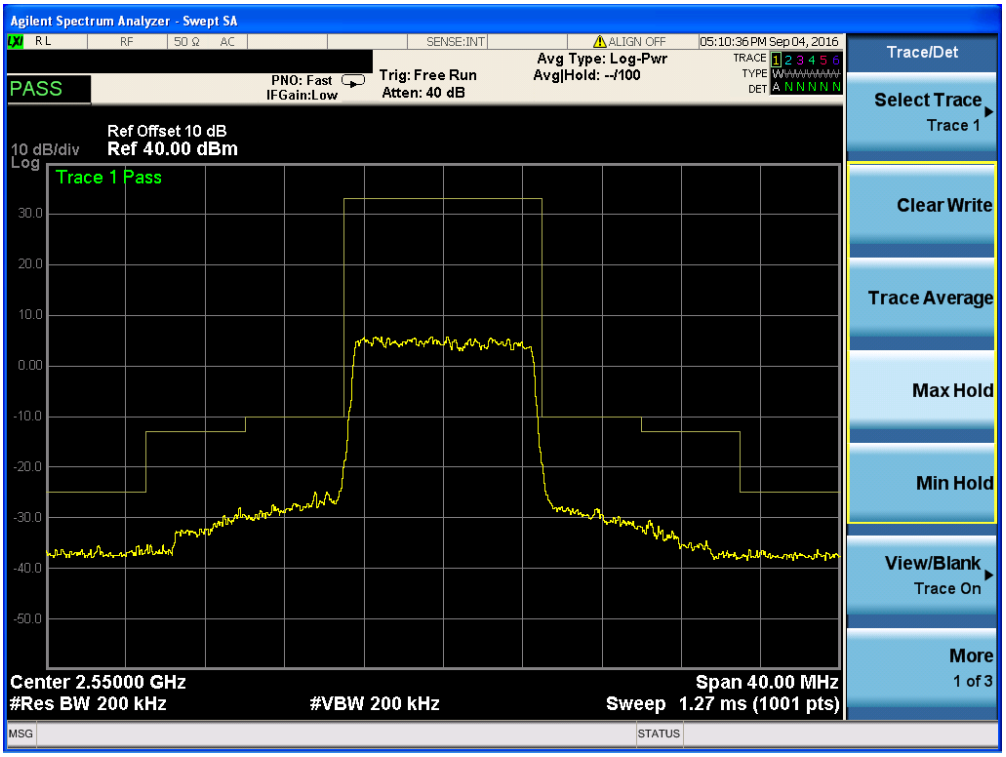
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 1-0, 16QAM



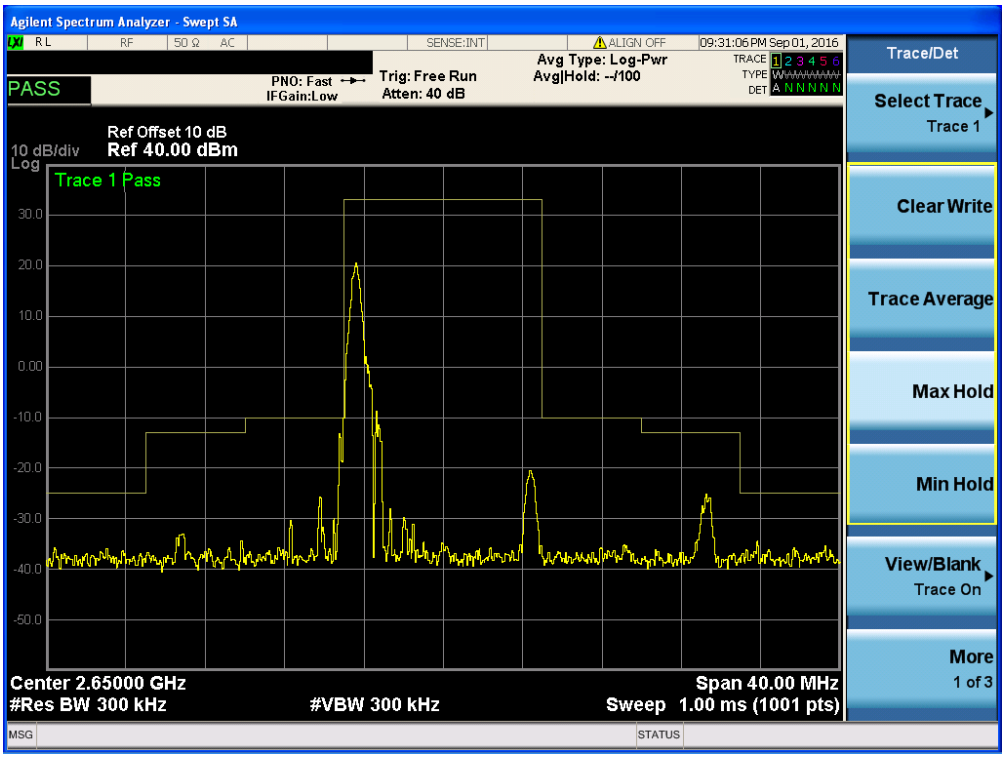
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 1-49, 16QAM



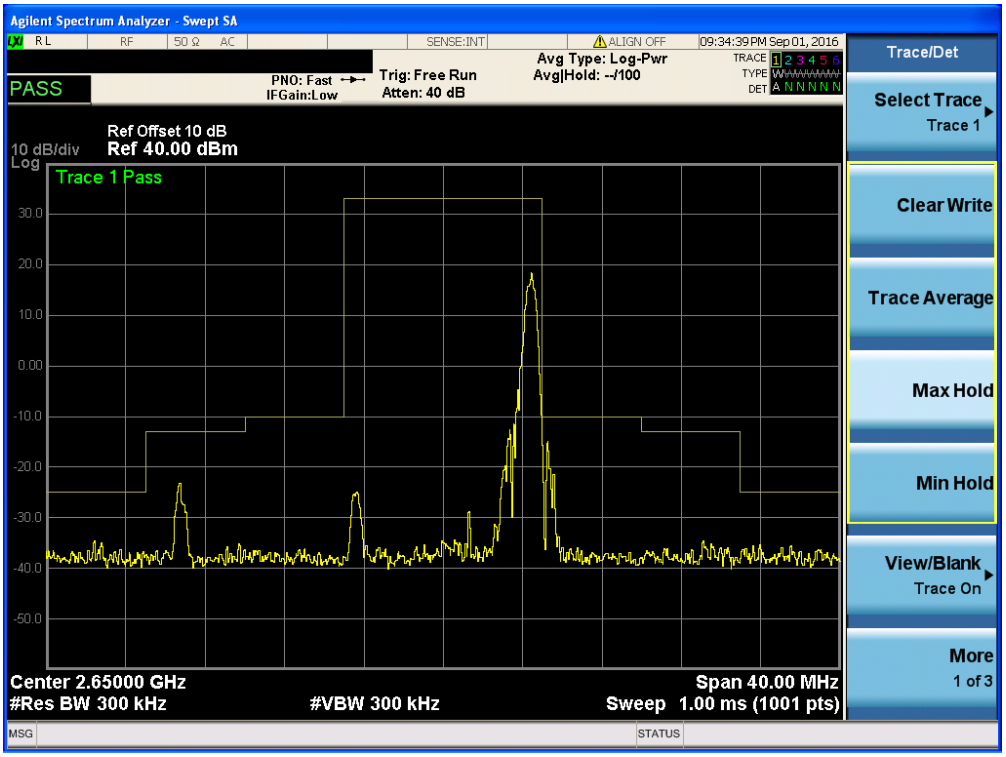
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 50-0, 16QAM



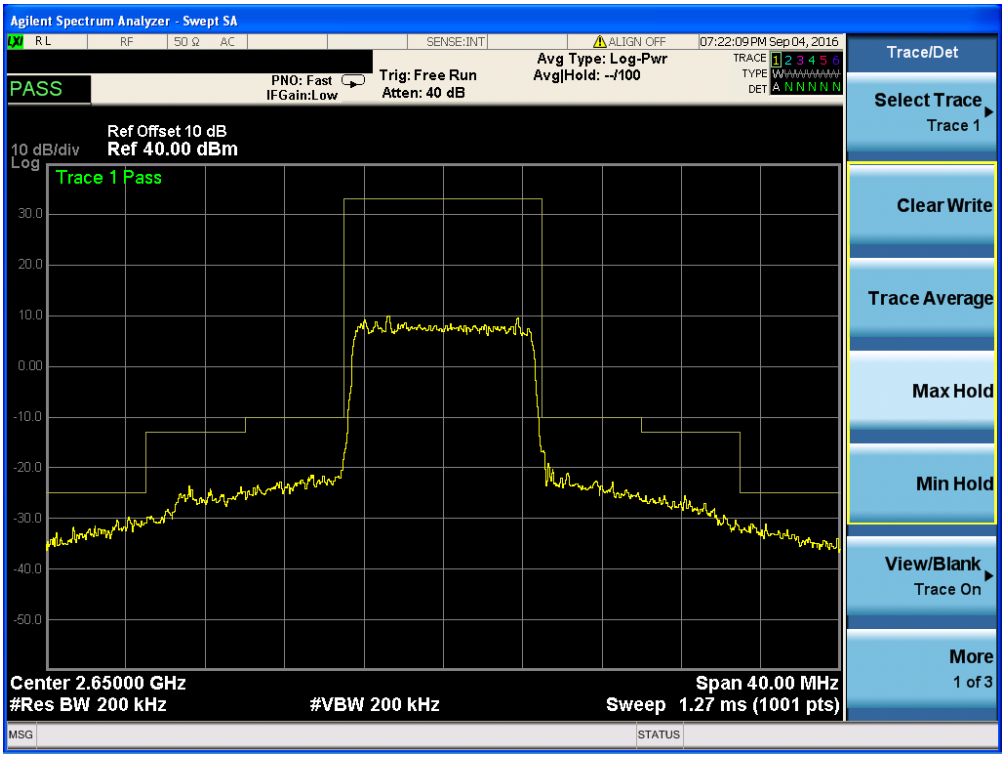
Band 41, UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 1-0, QPSK



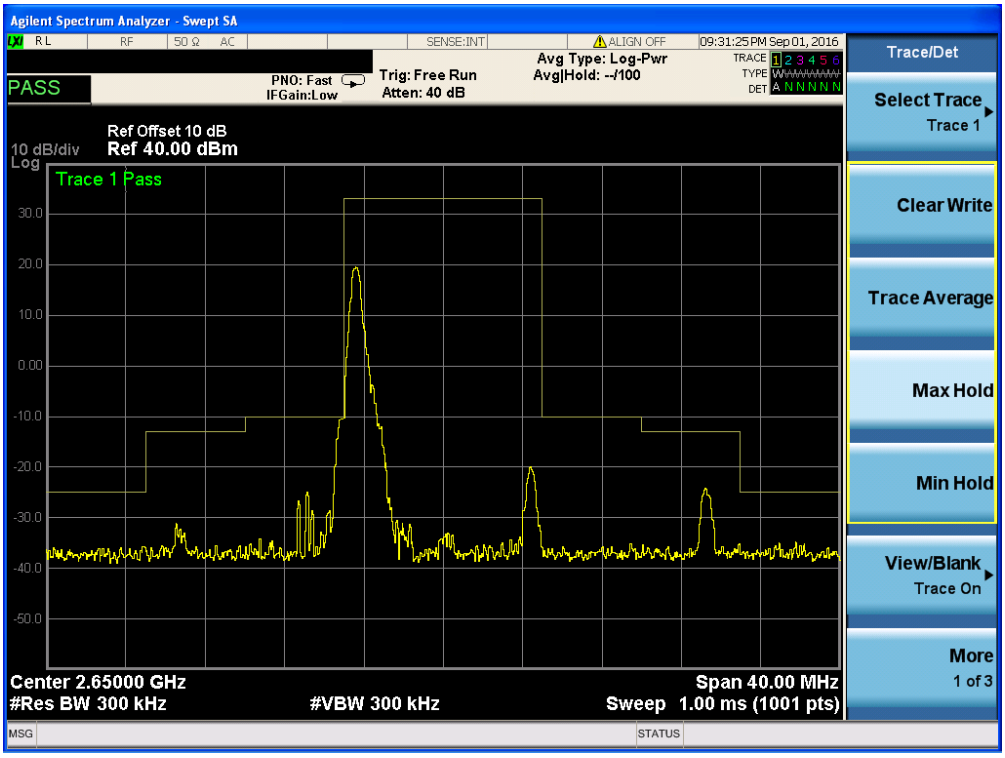
Band 41, UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 1-49, QPSK



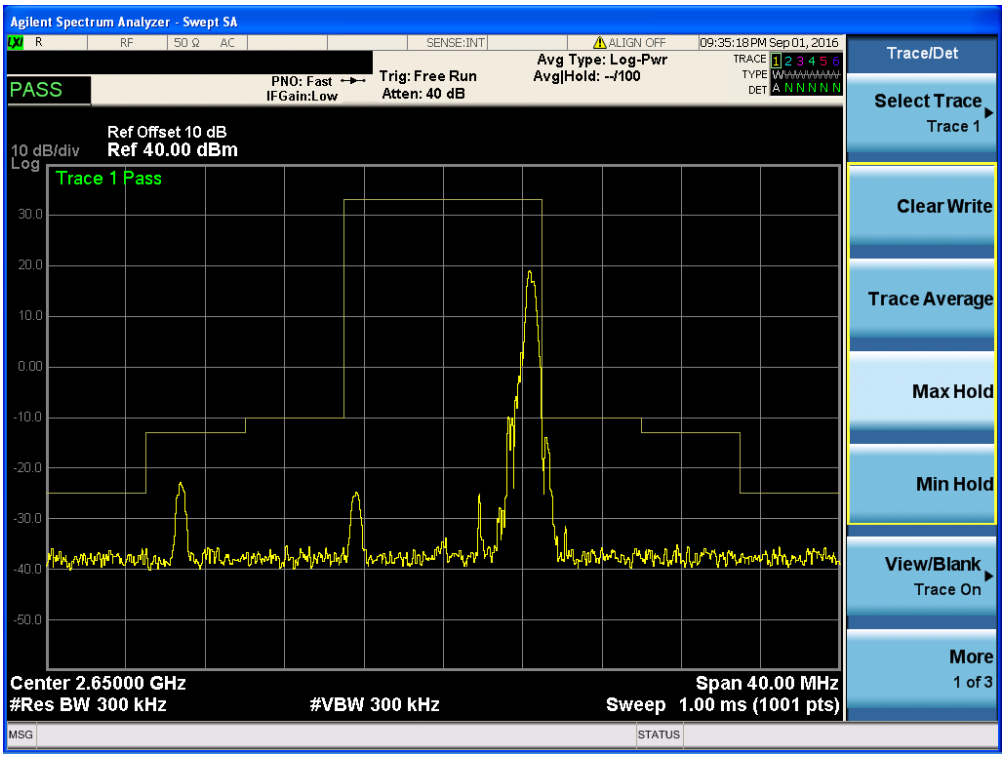
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 50-0, QPSK



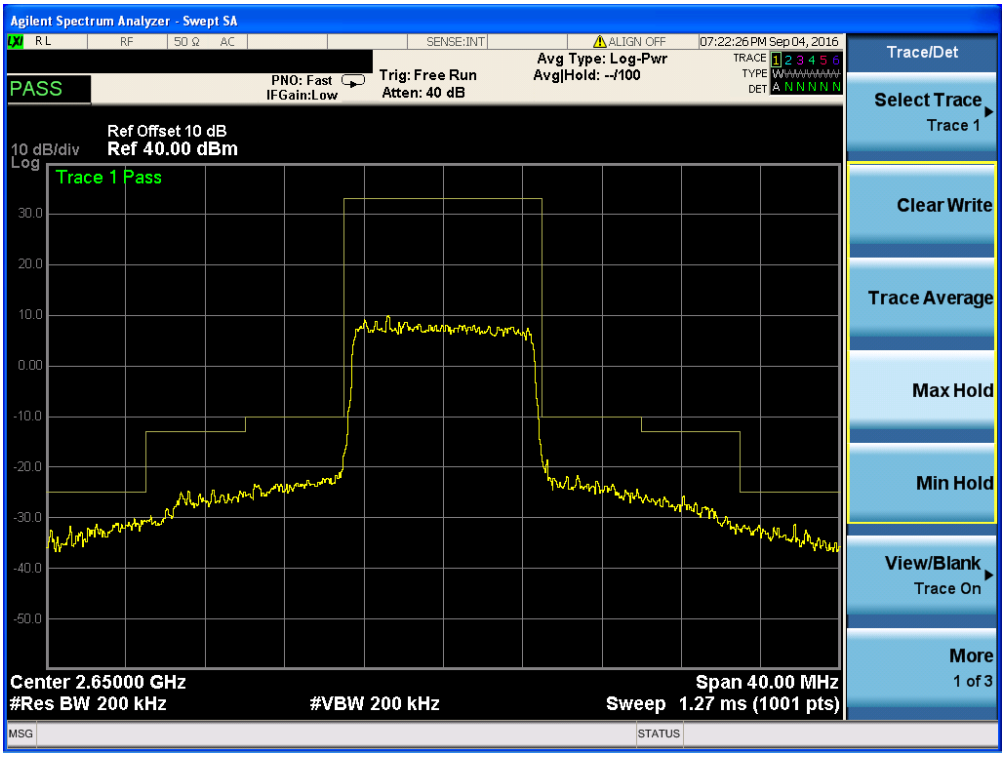
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 1-0, 16QAM



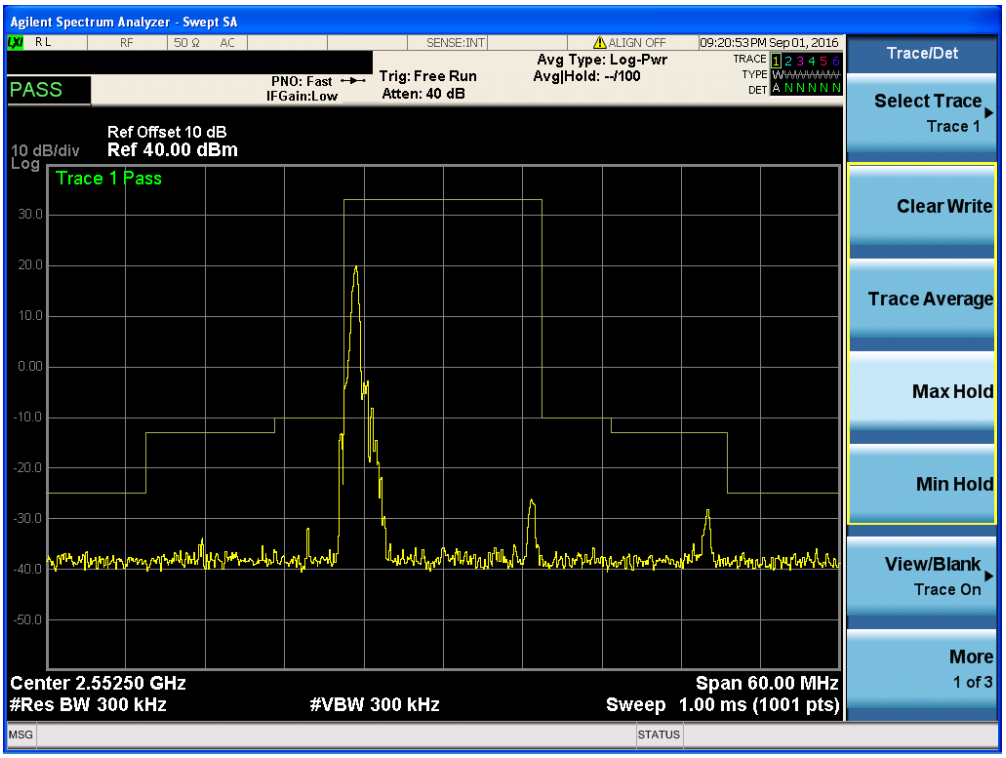
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. NO. RB 1-49, 16QAM



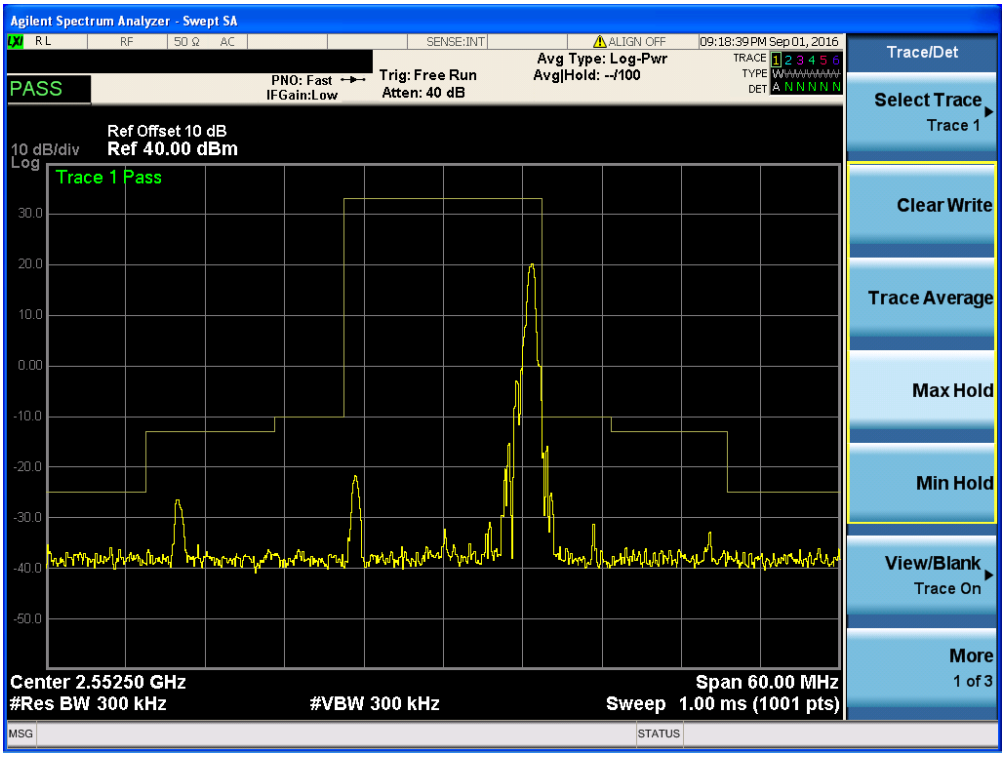
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 50-0, 16QAM



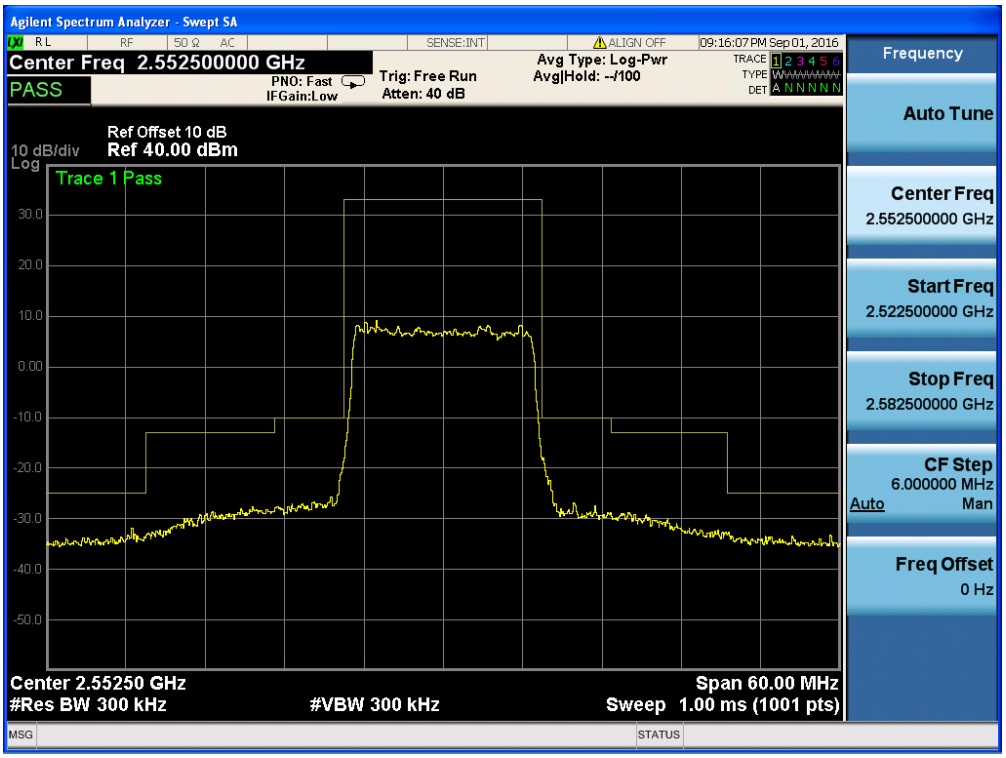
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 1-0, QPSK



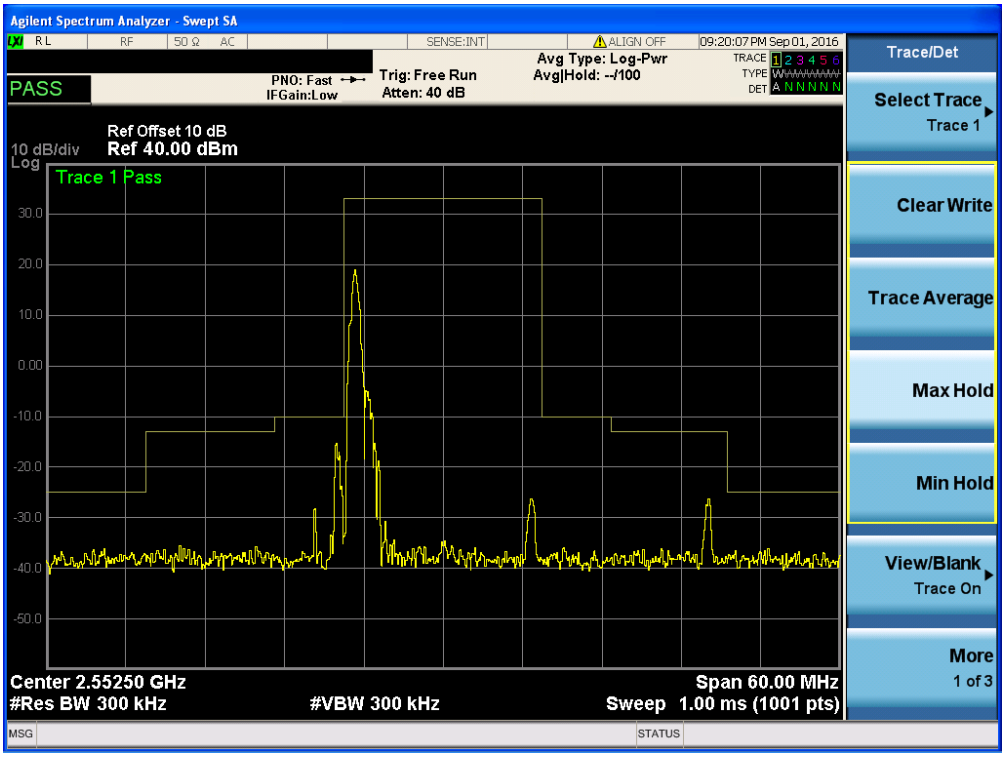
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 1-74, QPSK



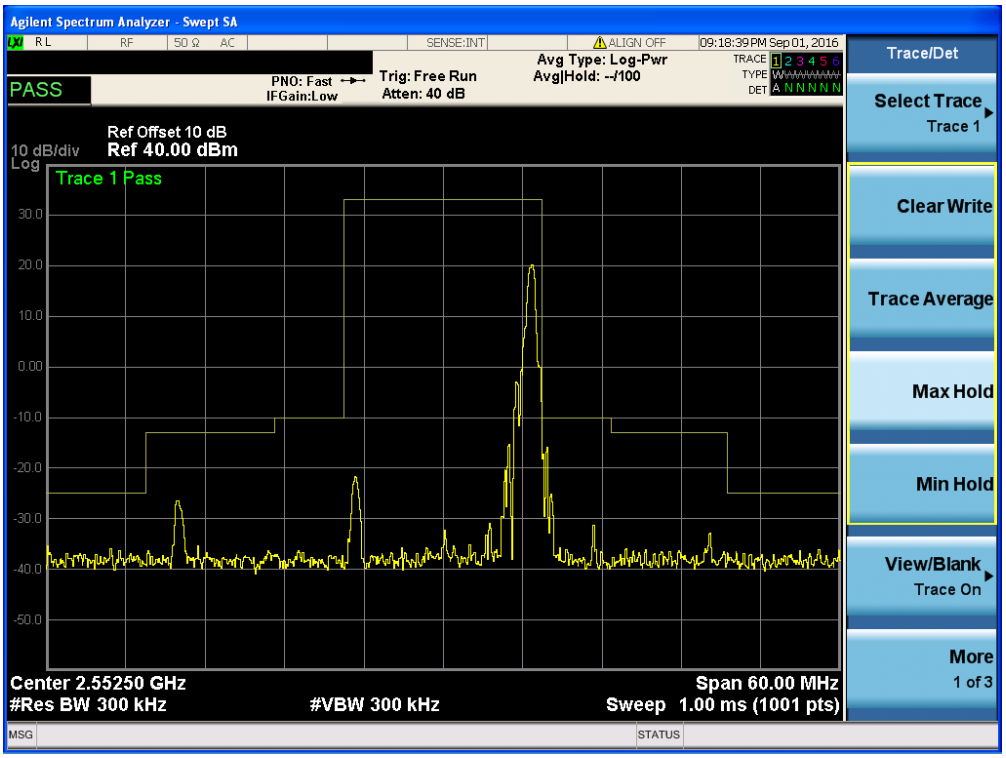
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 75-0, QPSK



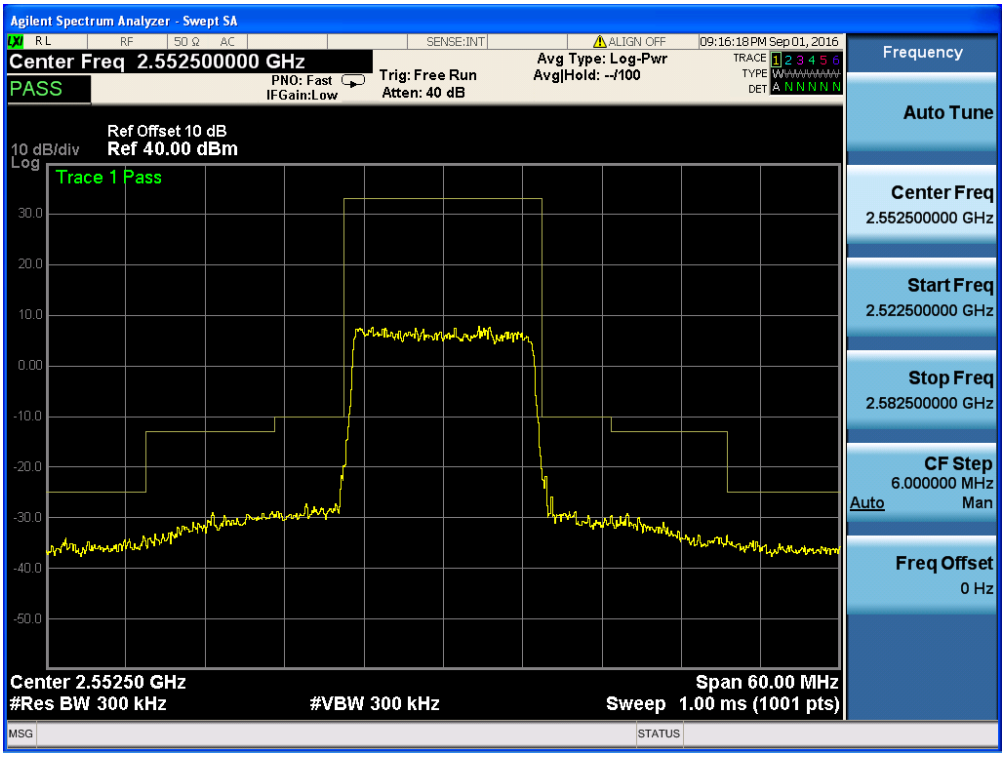
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 1-0, 16QAM



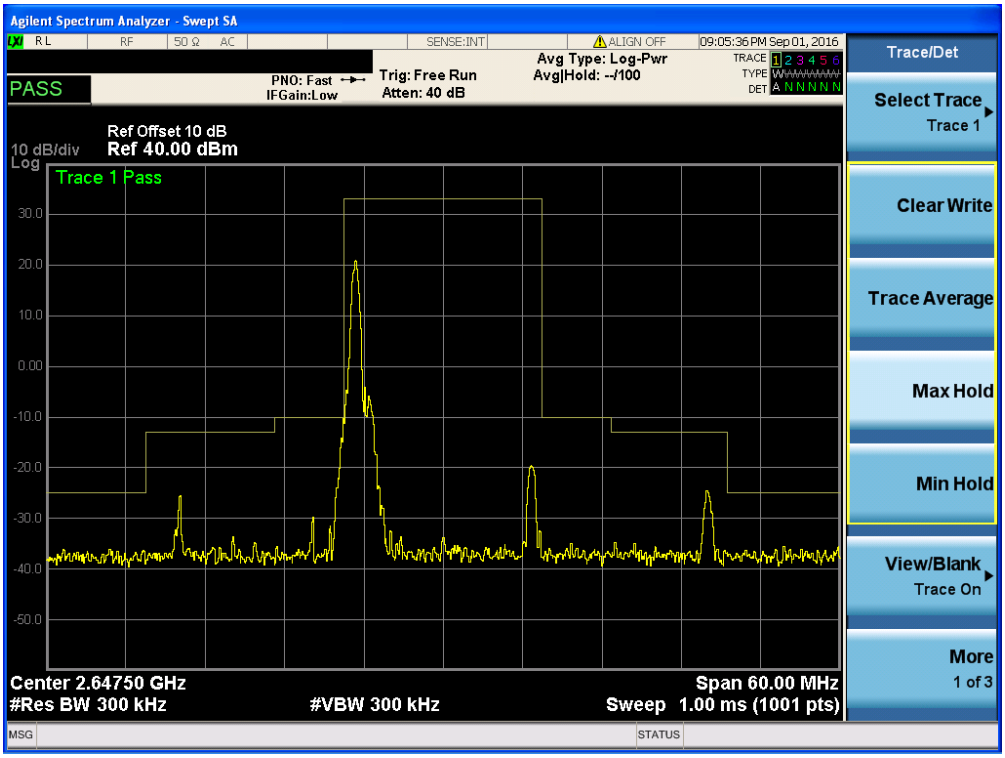
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 1-74, 16QAM



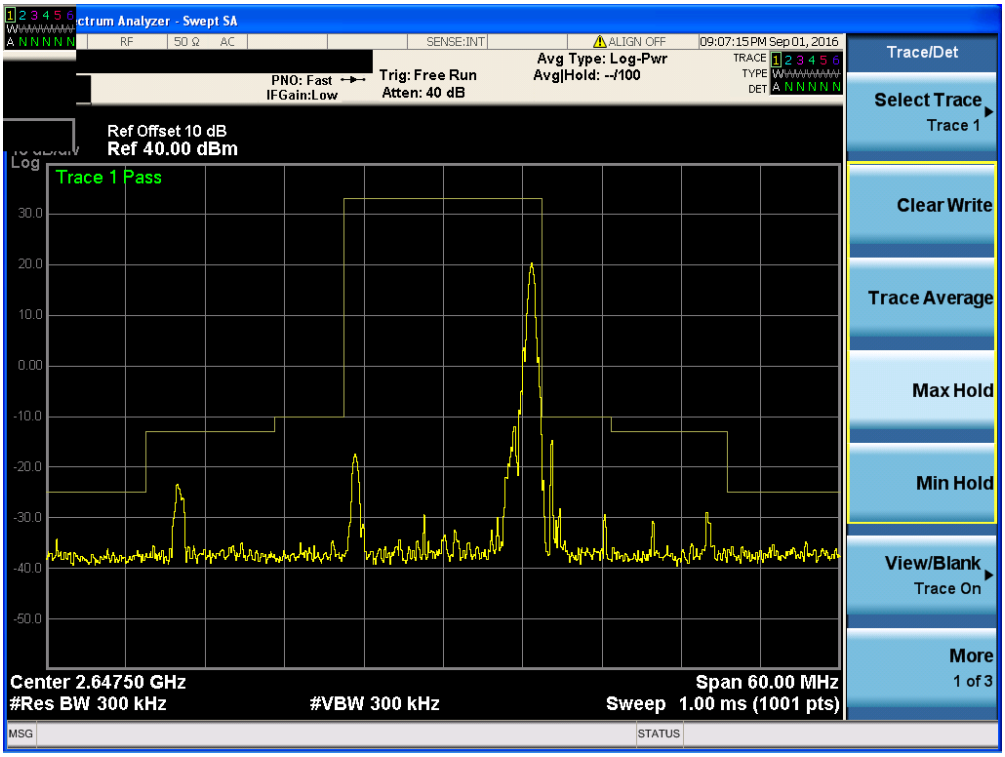
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 75-0, 16QAM



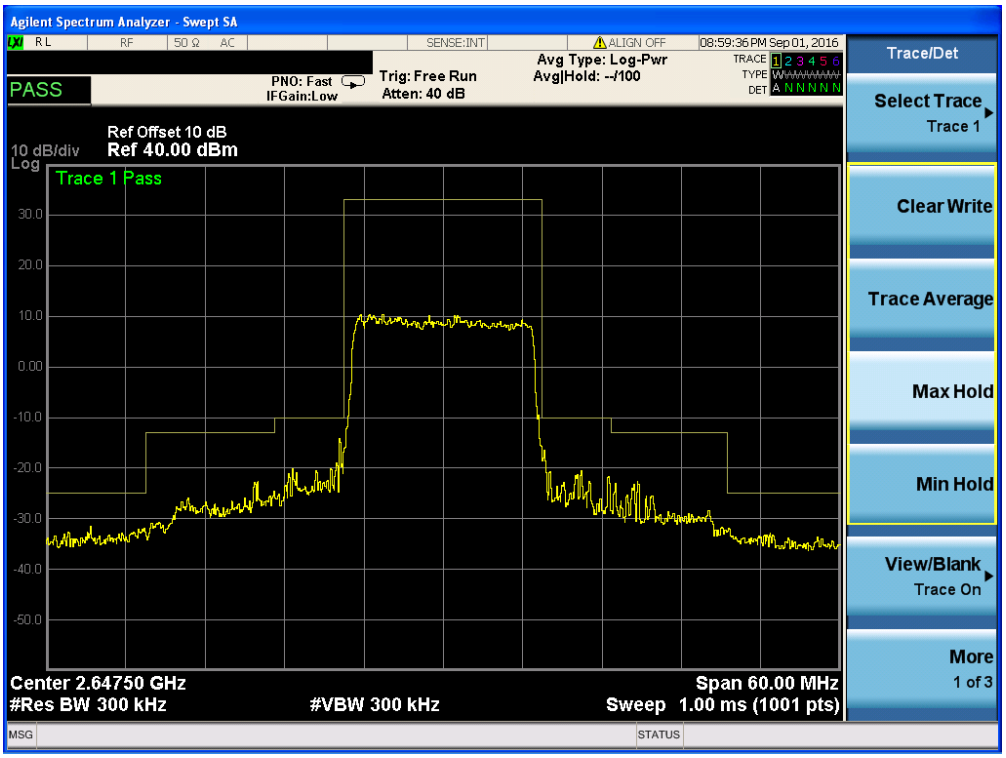
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 1-0, QPSK



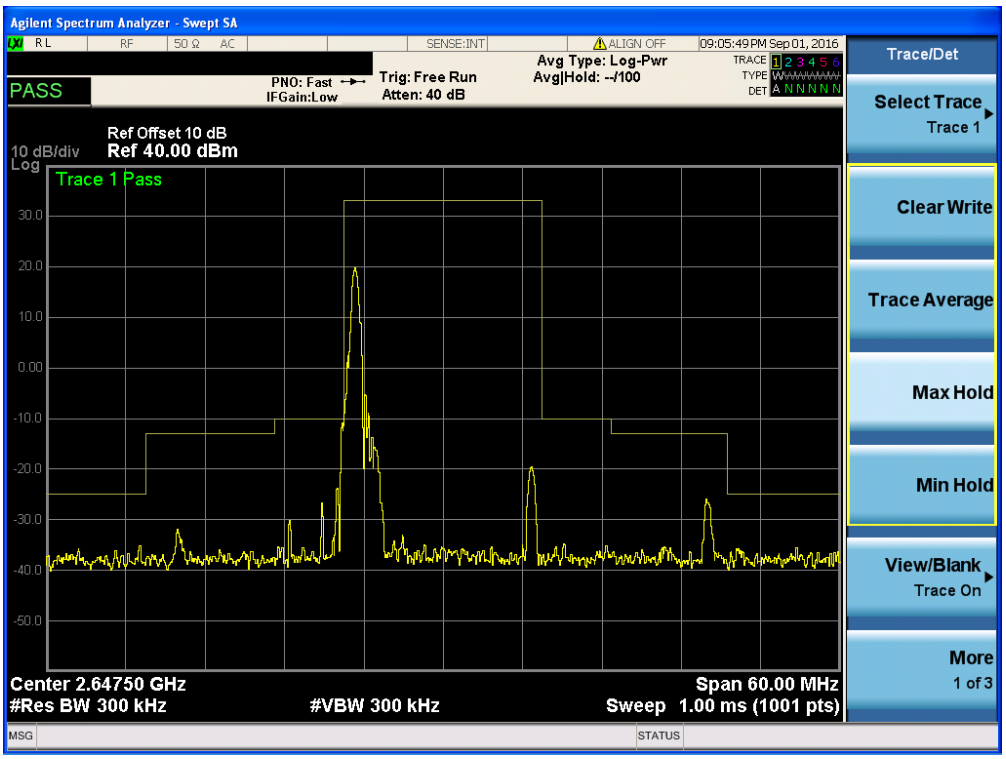
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0, NO. RB 1-74, QPSK



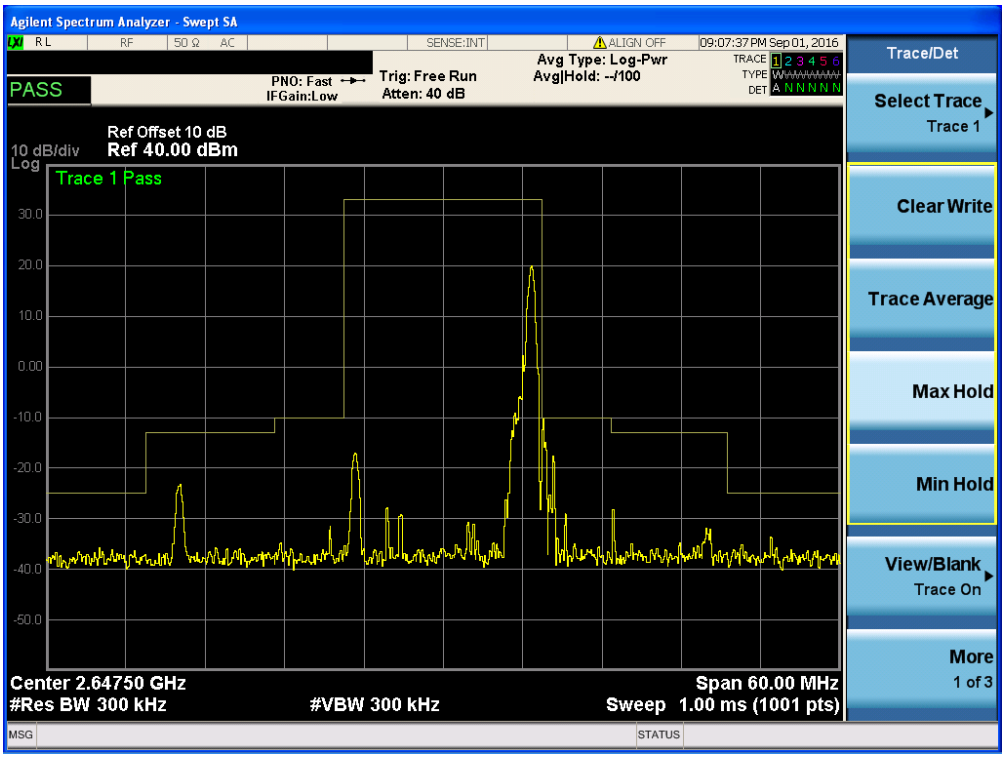
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0, NO. RB 75-0, QPSK



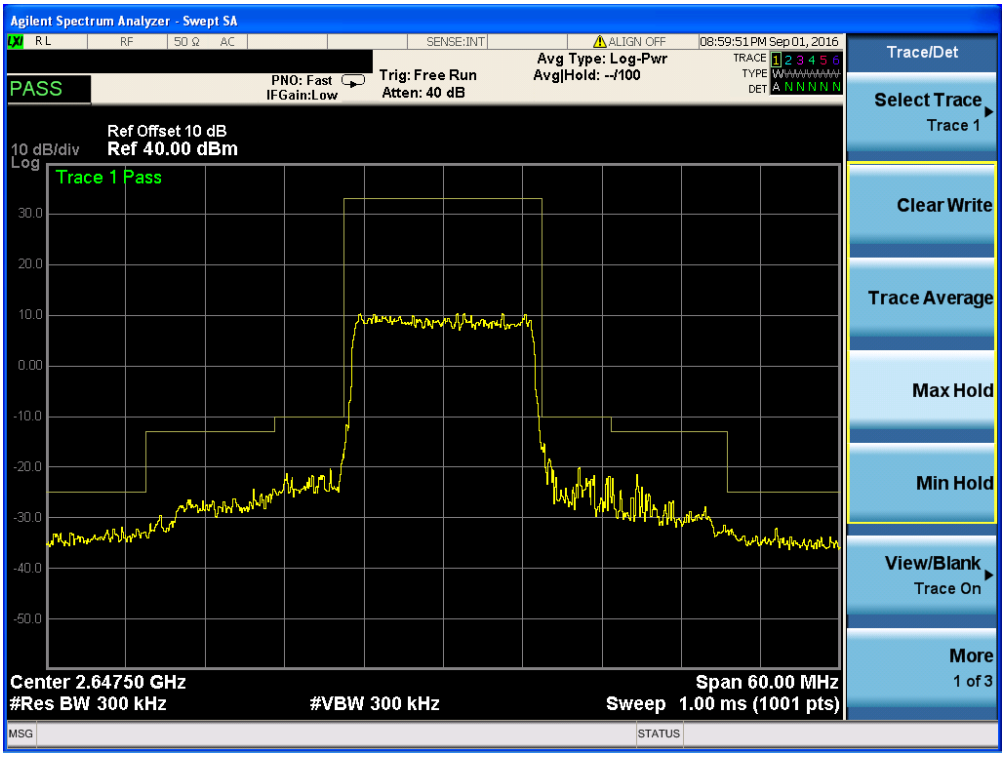
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 1-0, 16QAM



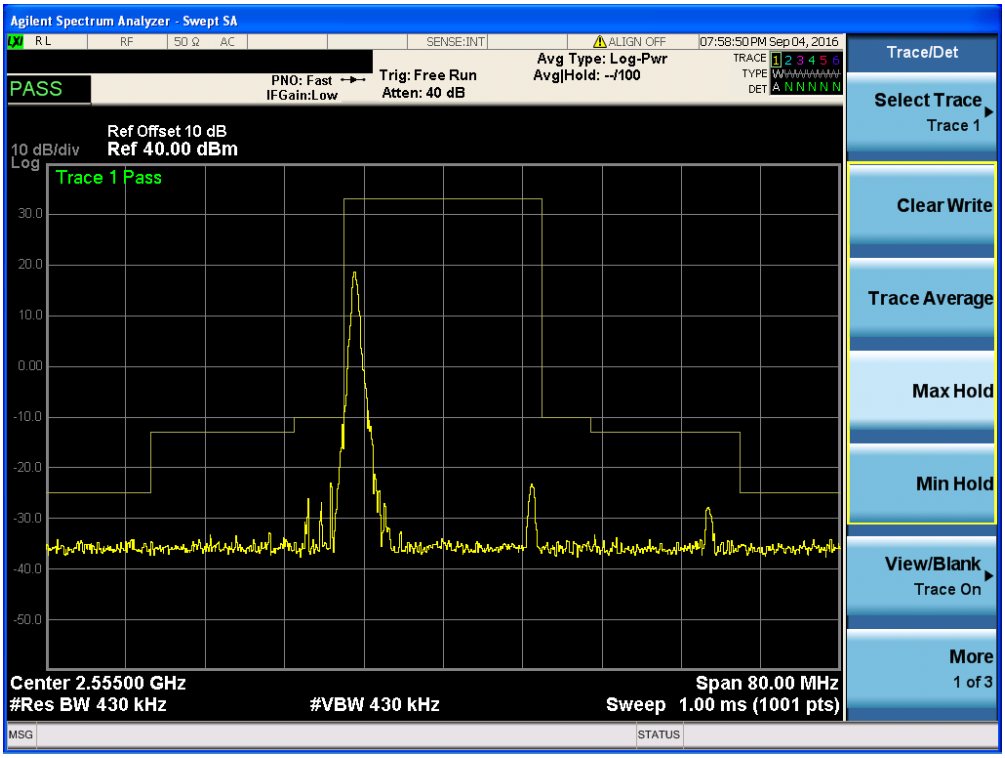
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0, NO. RB 1-74, 16QAM



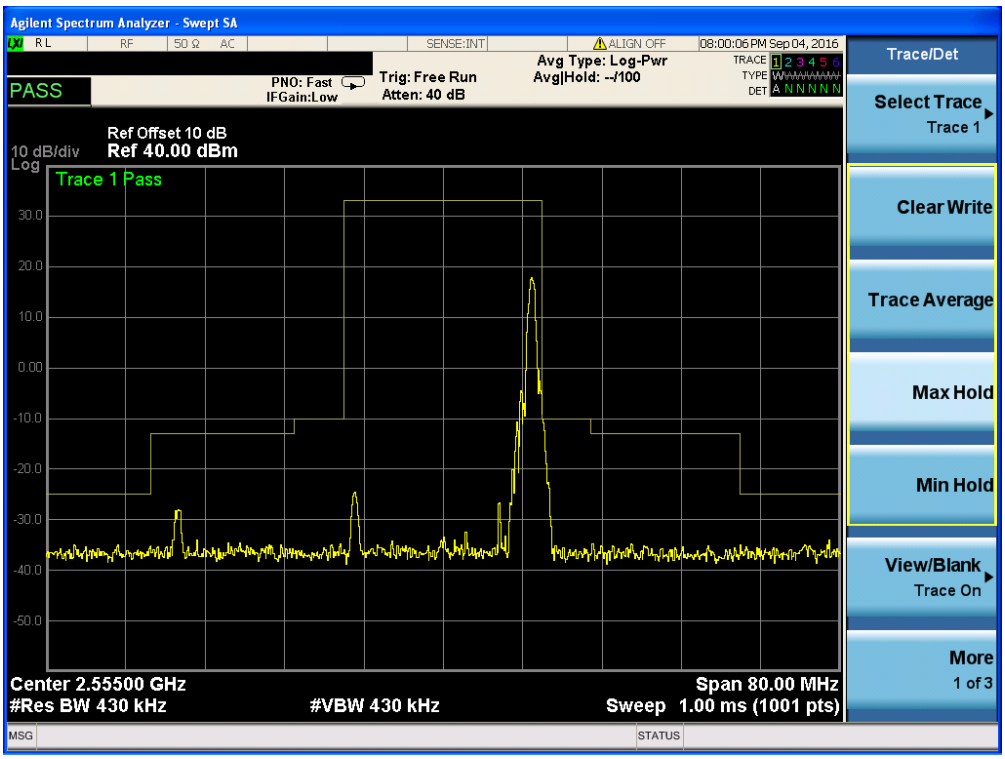
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 75-0, 16QAM



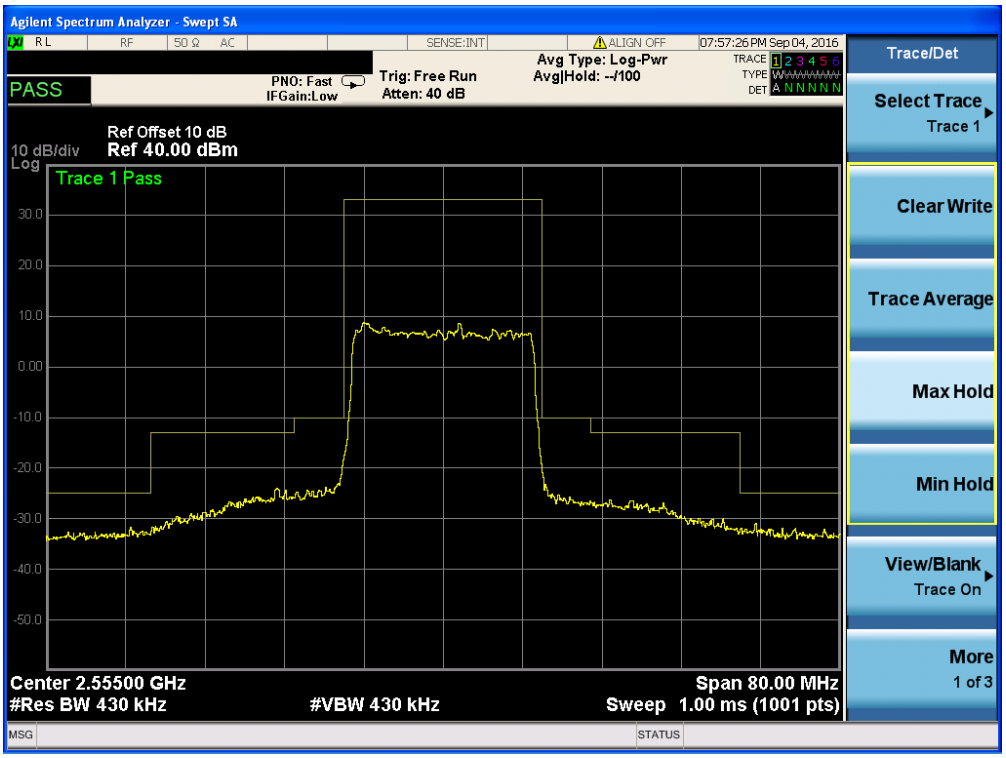
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 1-0, QPSK



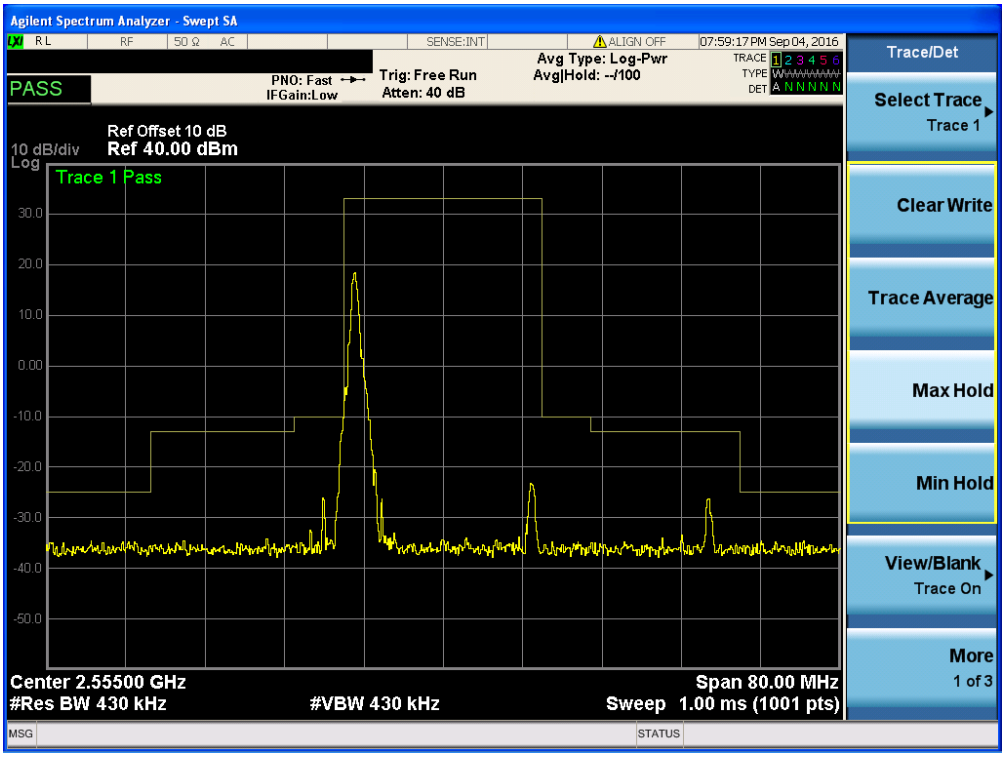
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 1-99, QPSK



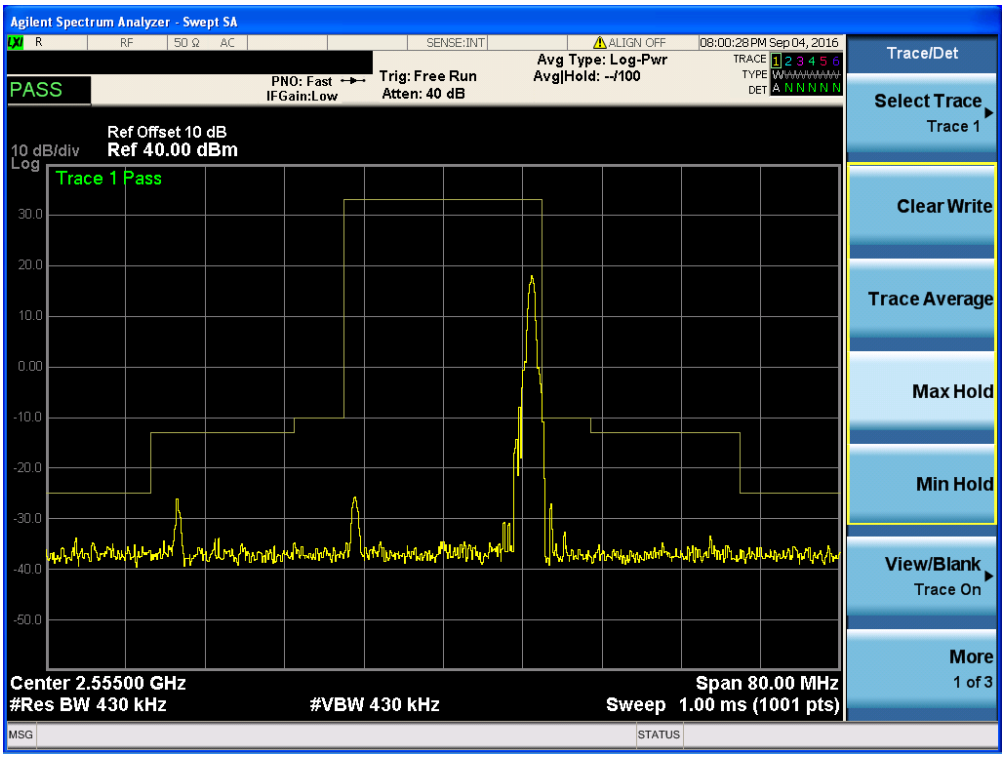
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 100-0, QPSK



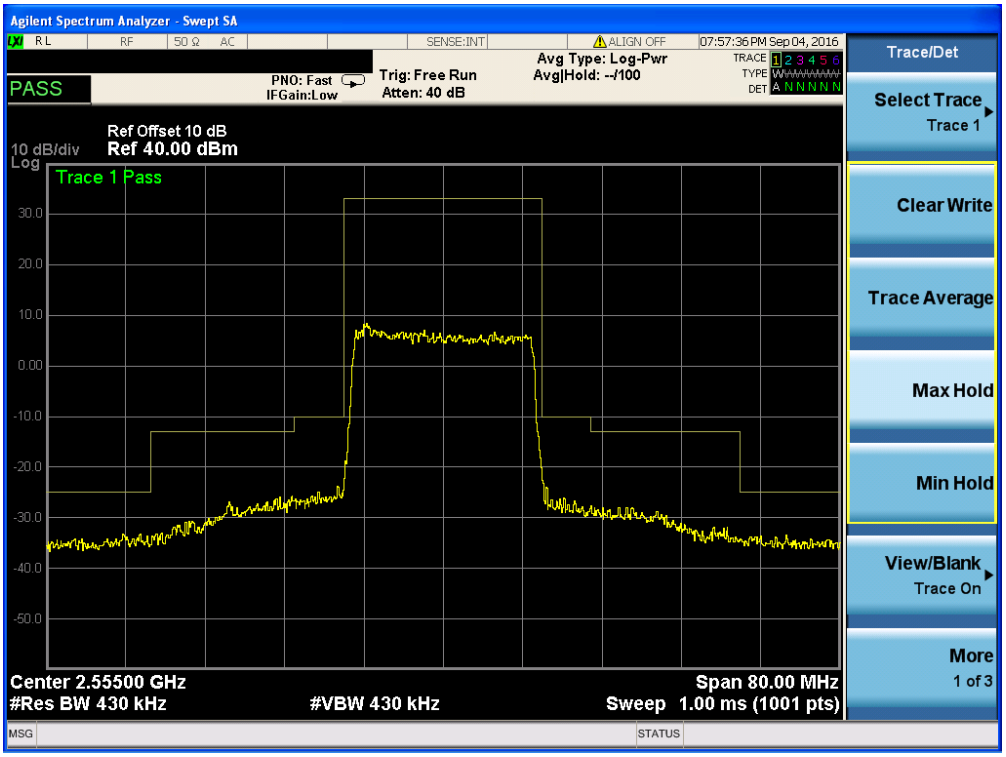
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 1-0, 16QAM



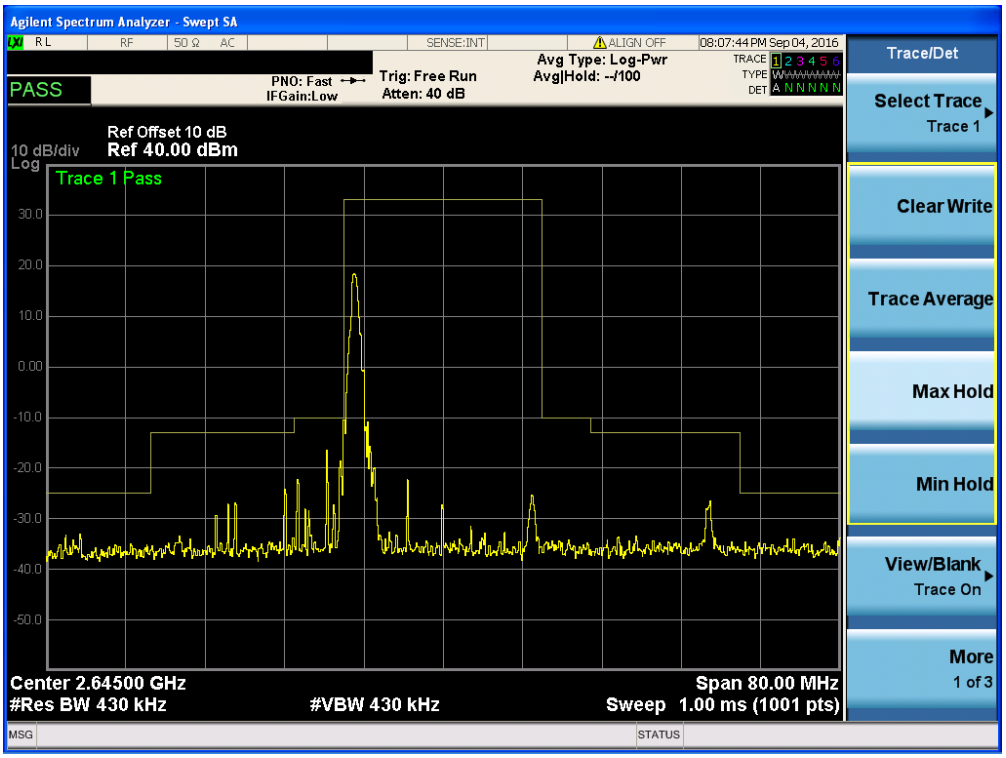
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 1-99, 16QAM



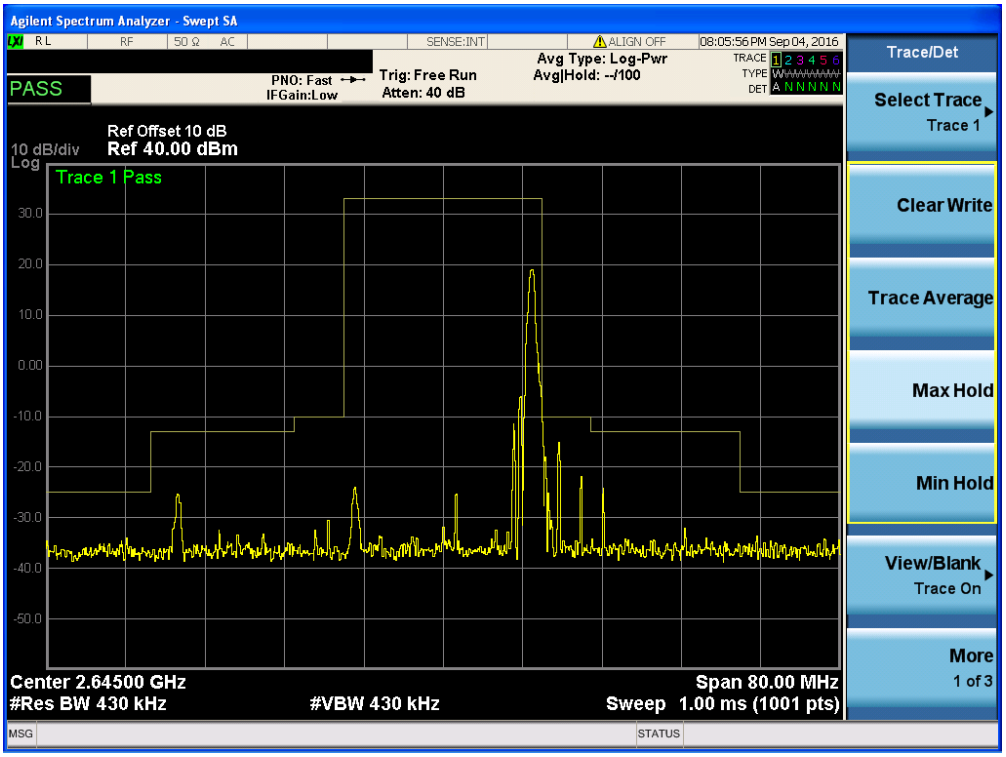
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 100-0, 16QAM



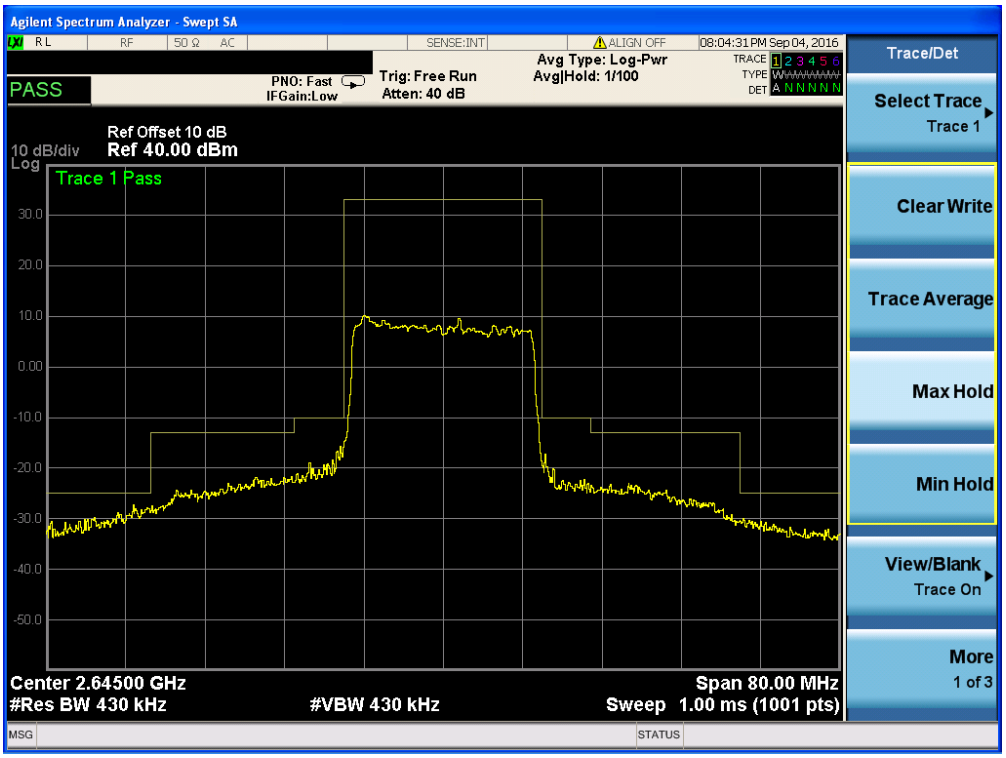
Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 1-0, QPSK



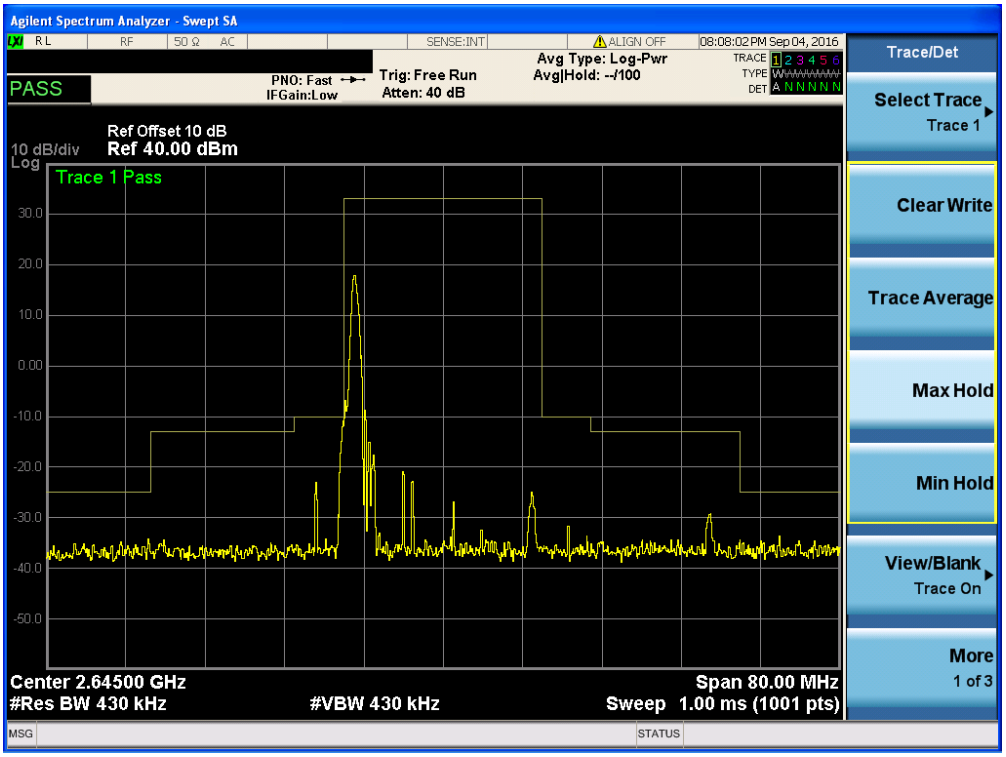
Band 41,UL Channel 41140,UL Frequency 2645.0, BW 20.0,NO. RB 1-99, QPSK



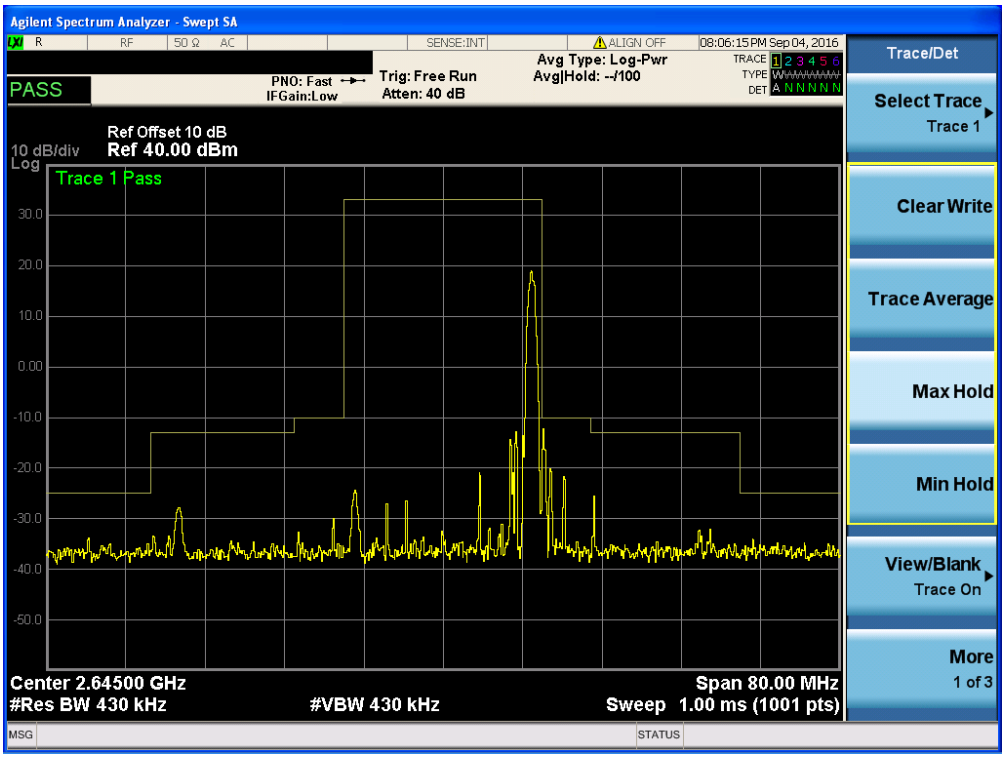
Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 100-0, QPSK



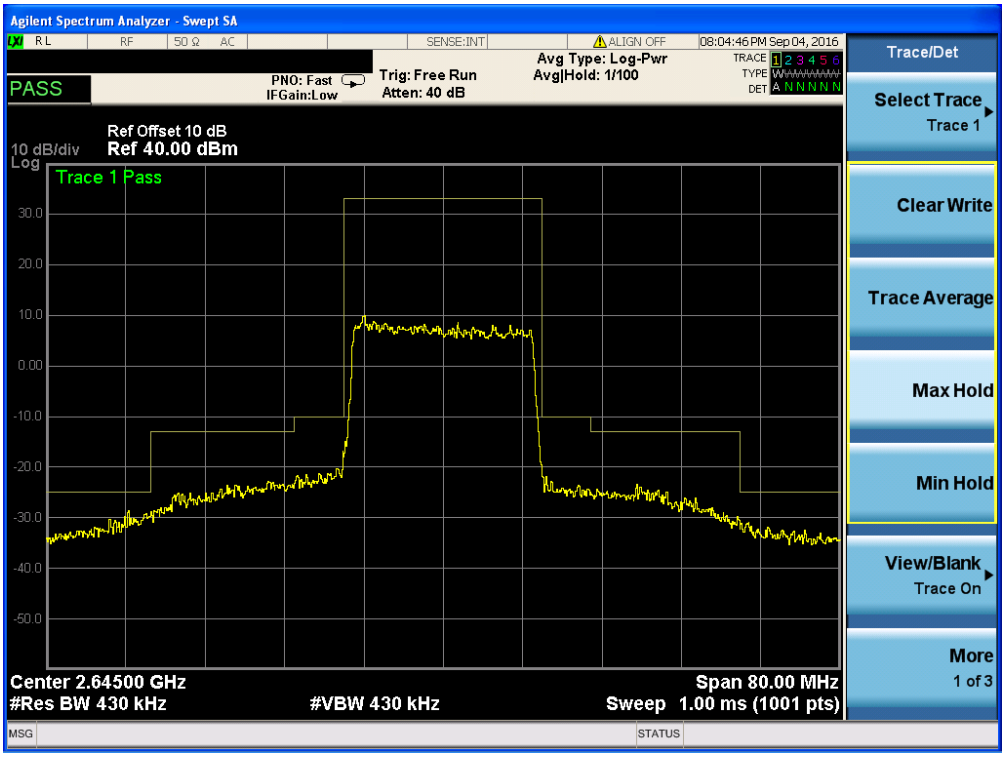
Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 1-0, 16QAM



Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 1-99, 16QAM



Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 100-0, 16QAM



8. Coducted Spurious Emission Measuremet

RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238 and §27.53

LIMITS

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

TEST PROCEDURE

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

For each out of band emissions measurement:

Set display line at -13 dBm

Set RBW & VBW to 100 kHz for the measurement below 1 GHz, and 1 MHz for the measurement above 1 GHz.

MODES TESTED

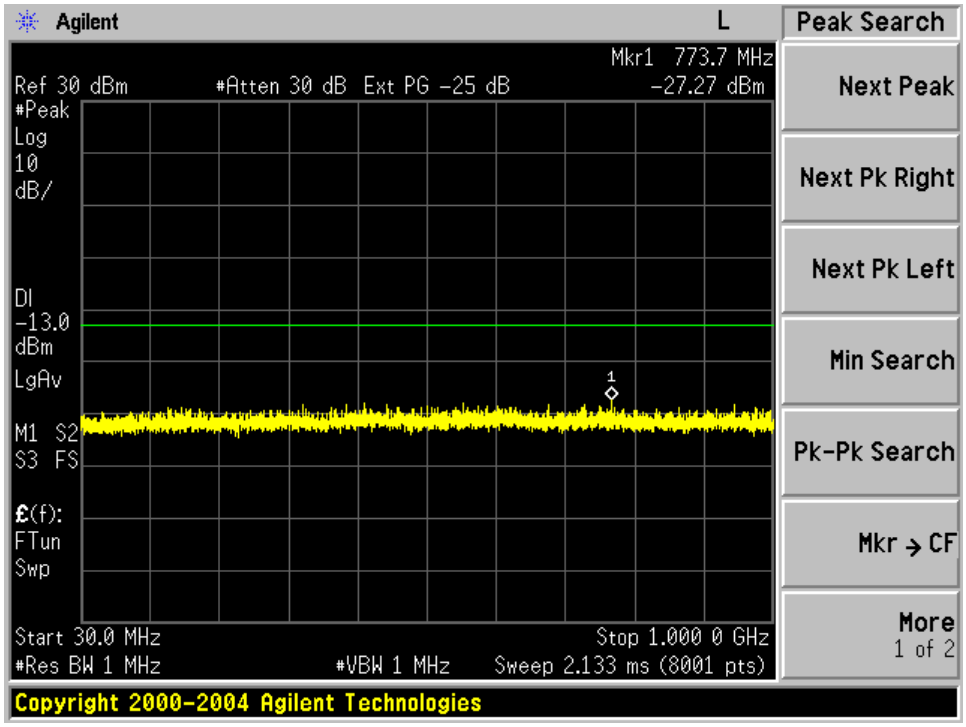
LTE Band 41

8.1 MEASUREMENT METHOD

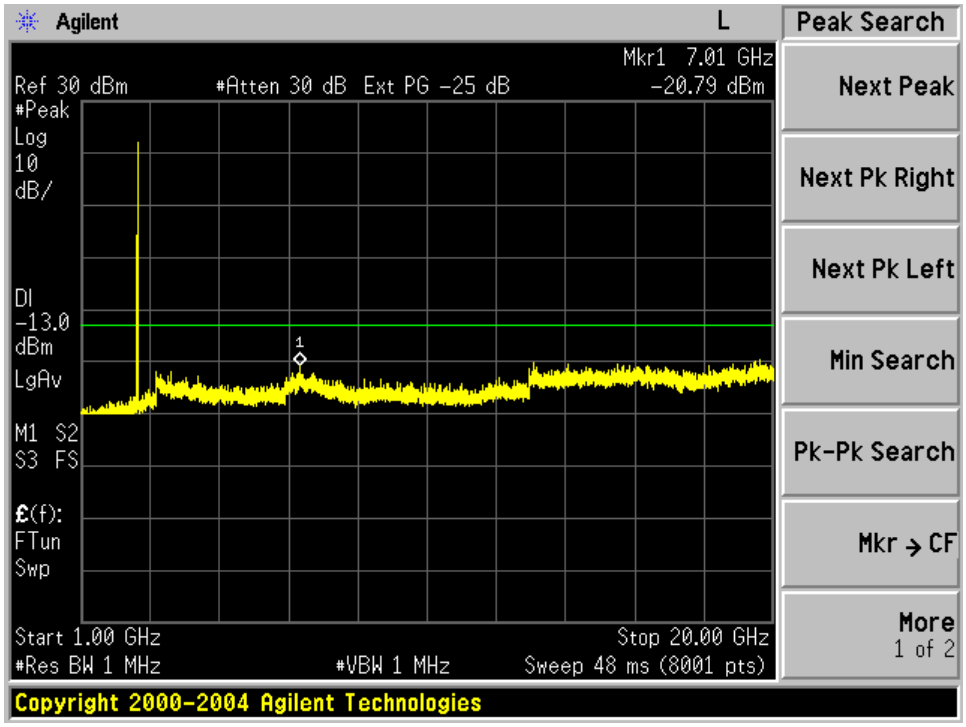
The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

8.1.1 LTE BAND 41

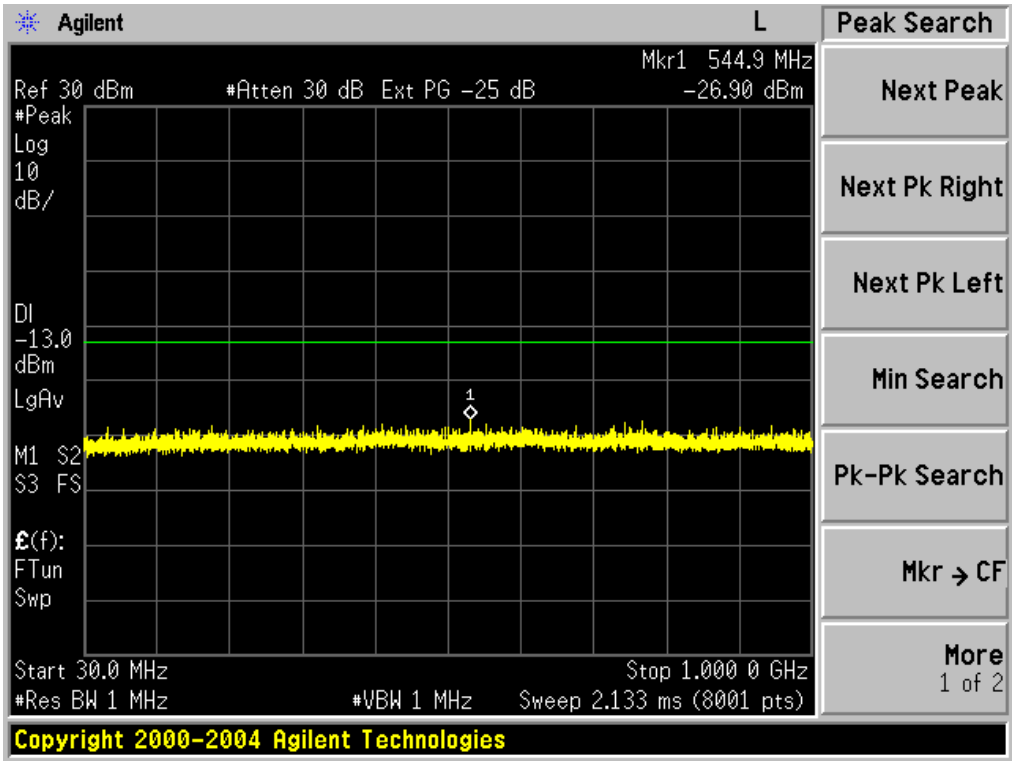
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



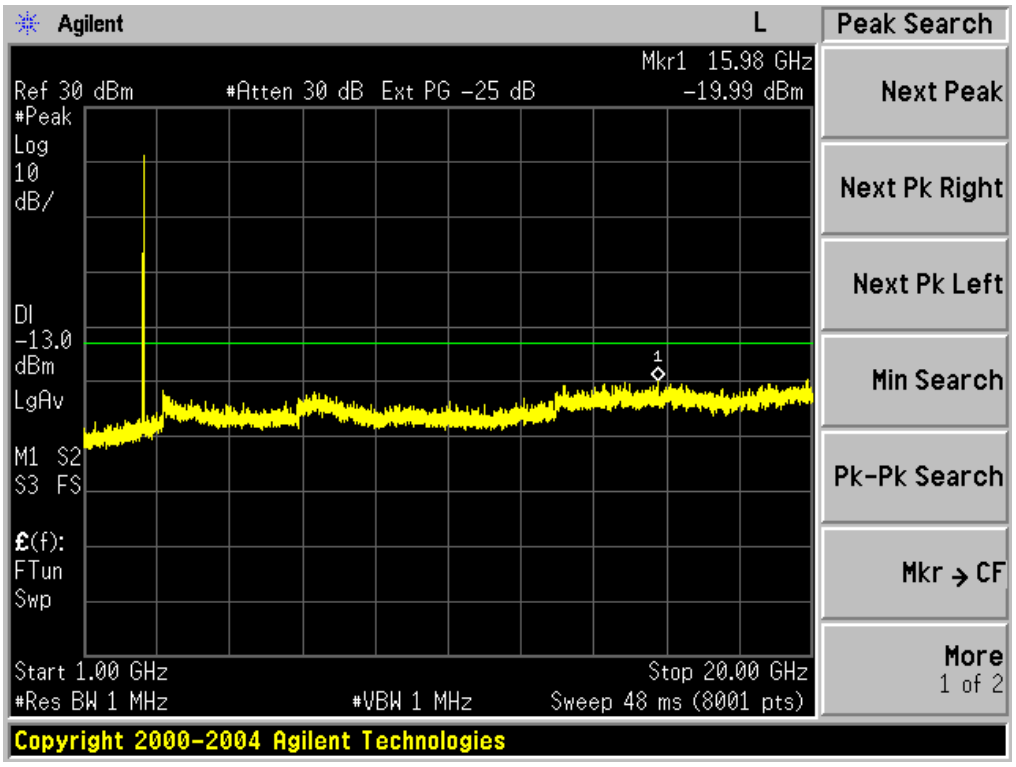
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



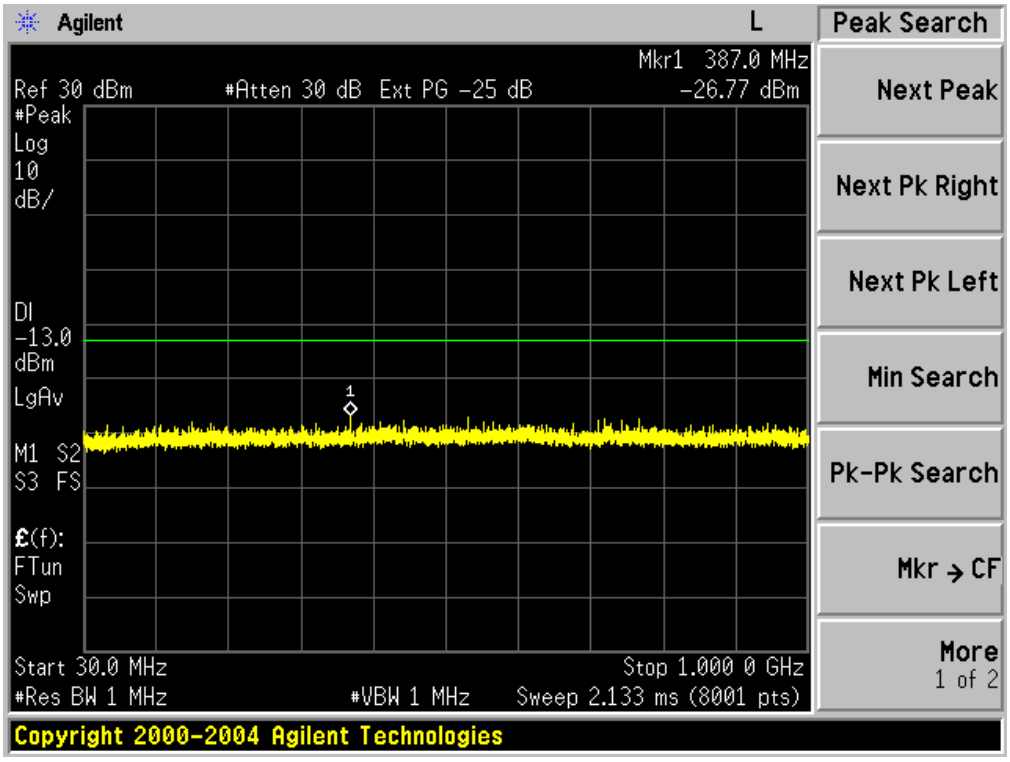
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



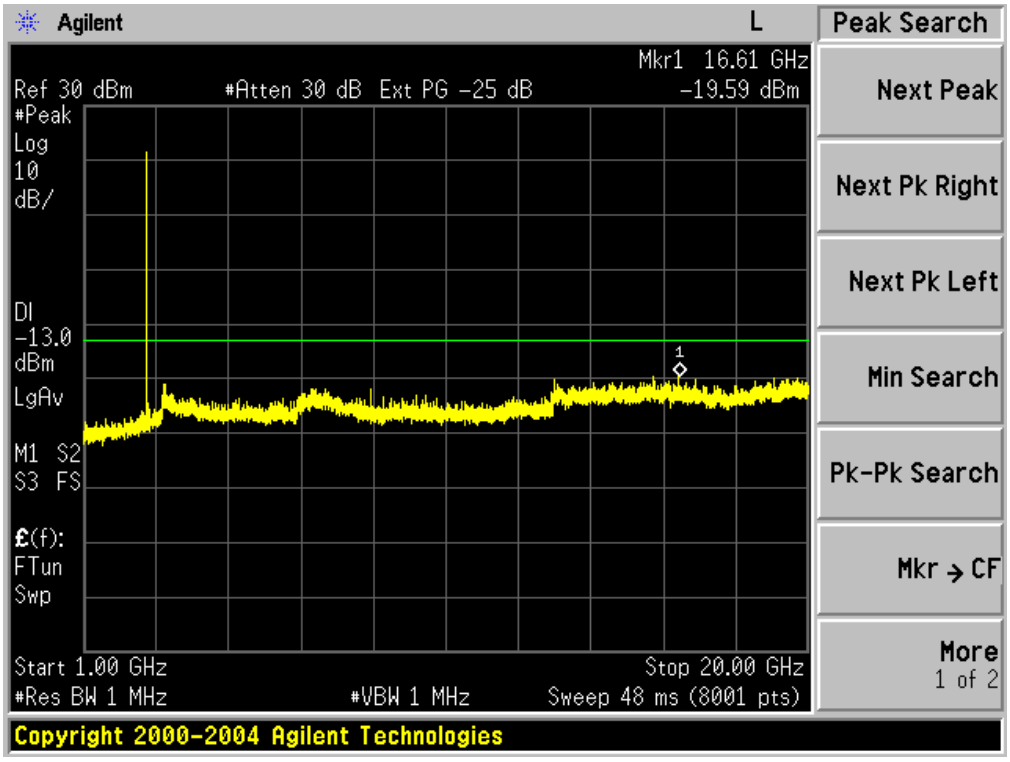
Band 41,UL Channel 40165,UL Frequency 2547.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



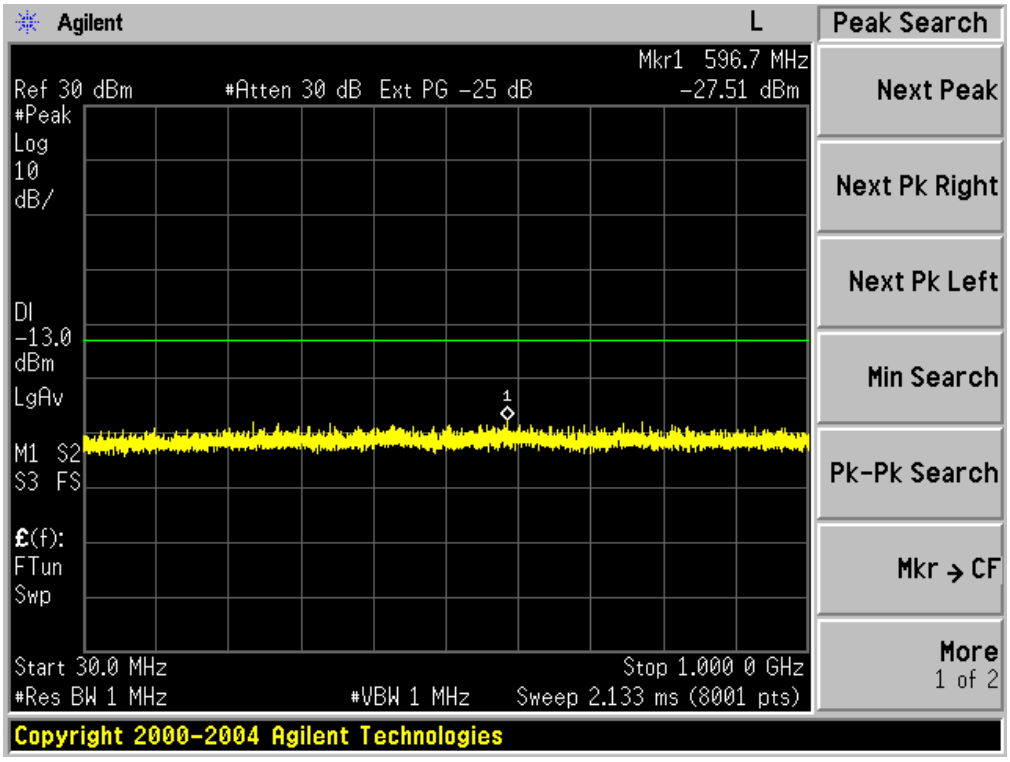
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



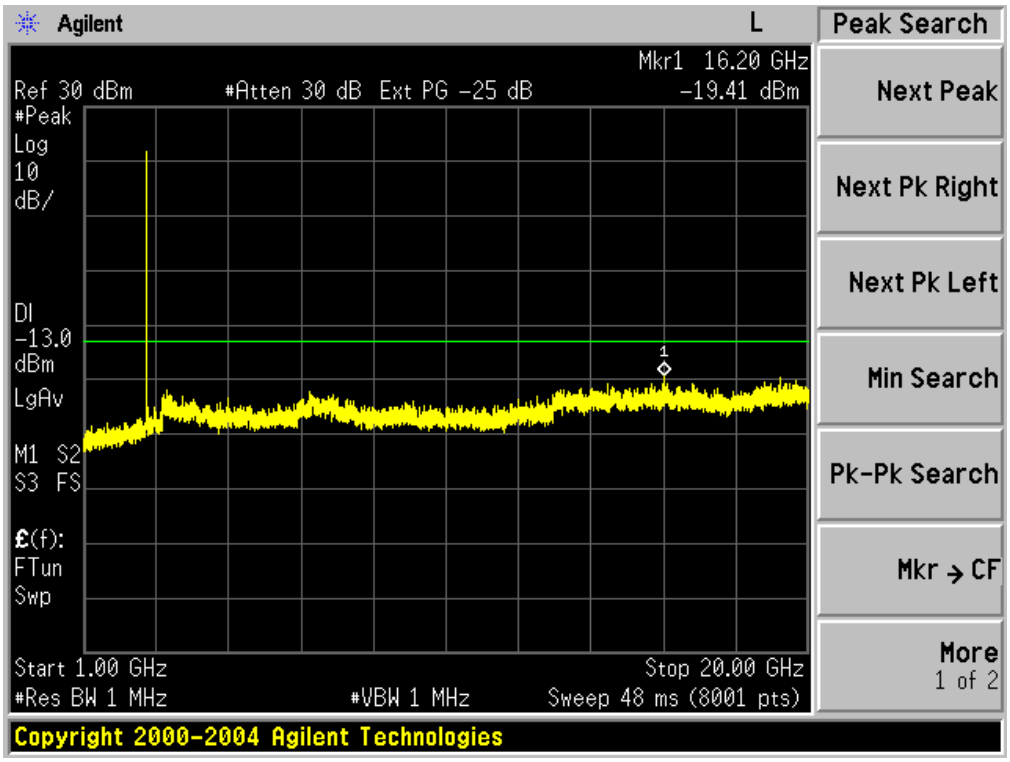
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



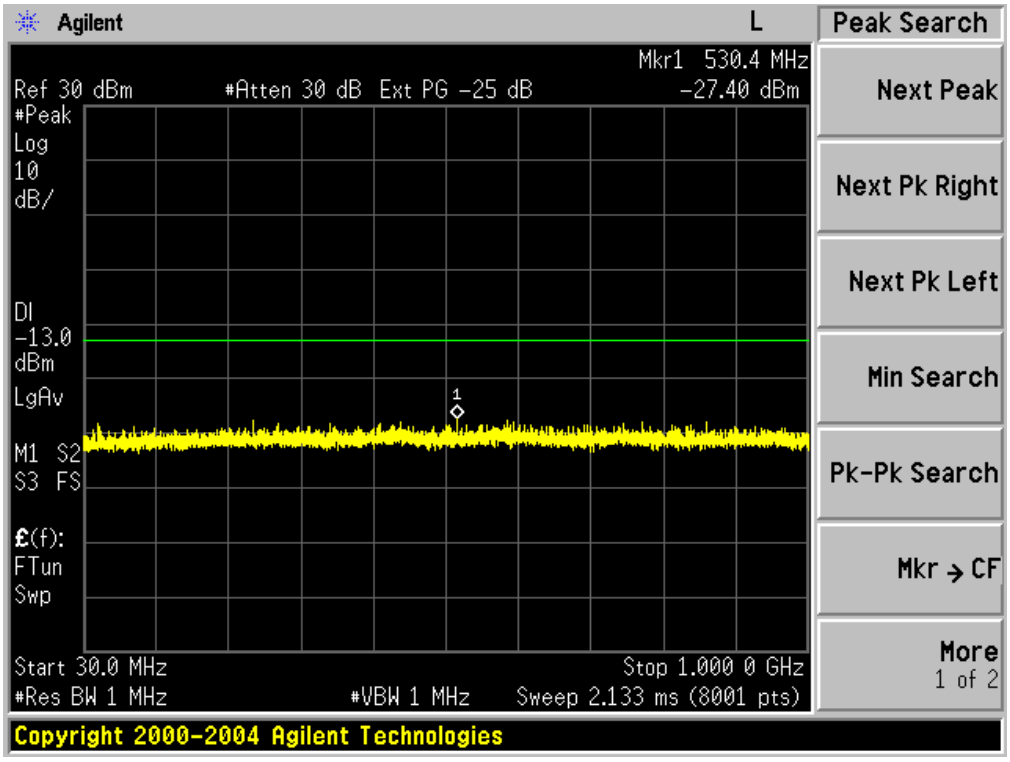
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



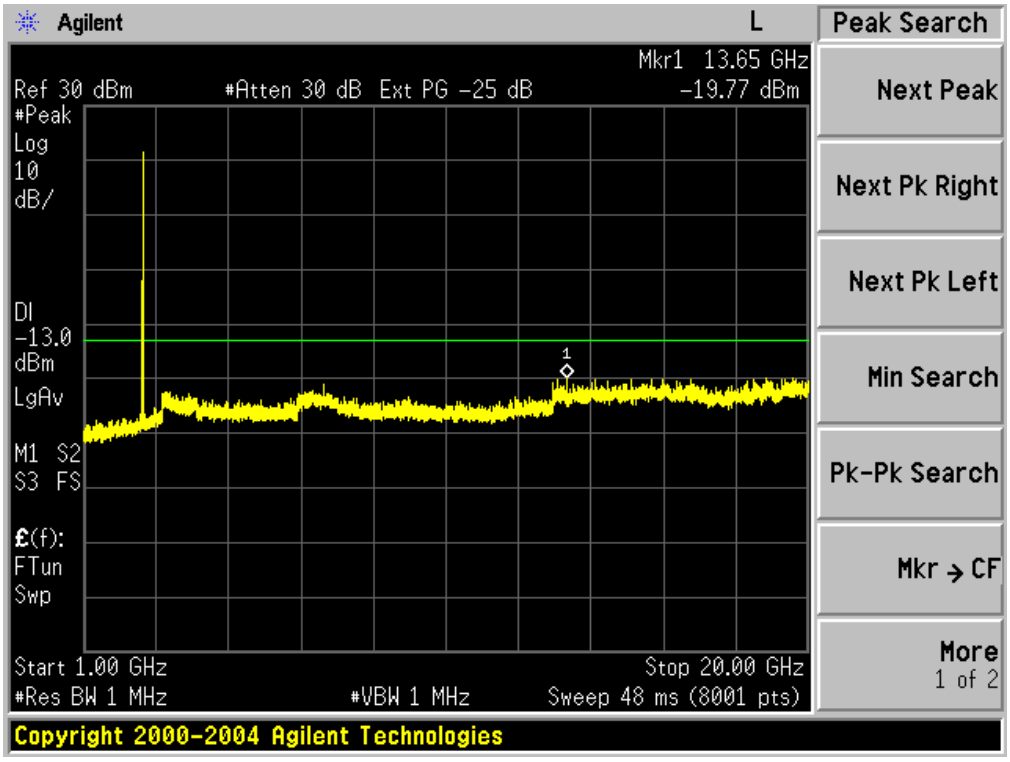
Band 41,UL Channel 41215,UL Frequency 2652.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



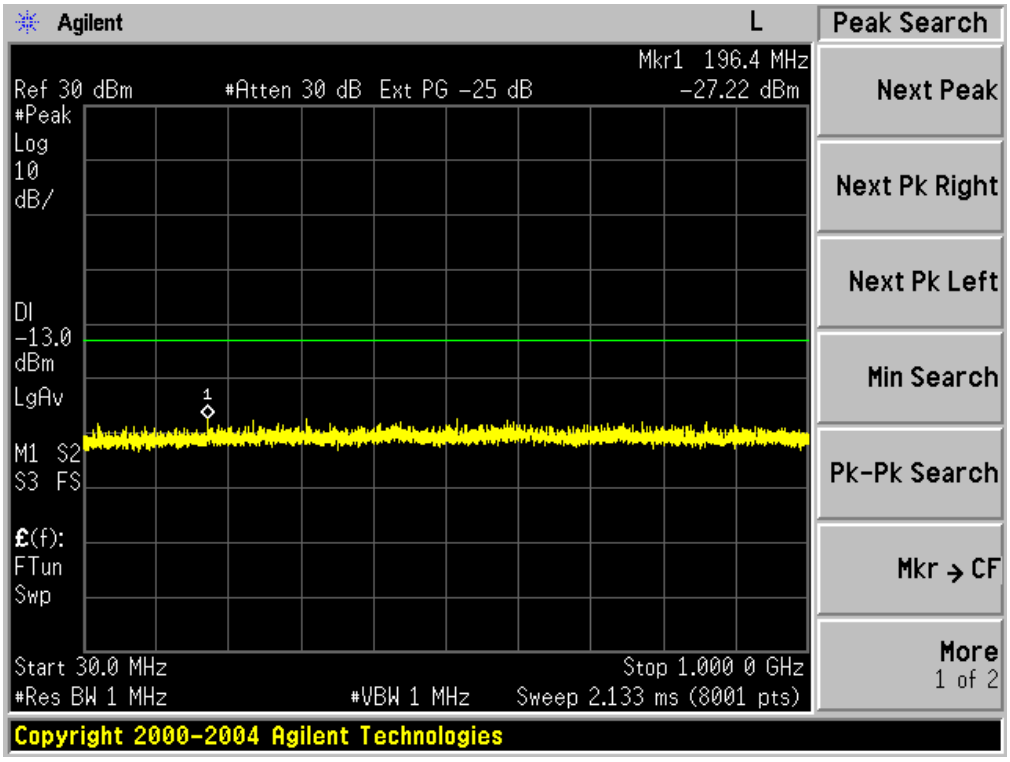
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



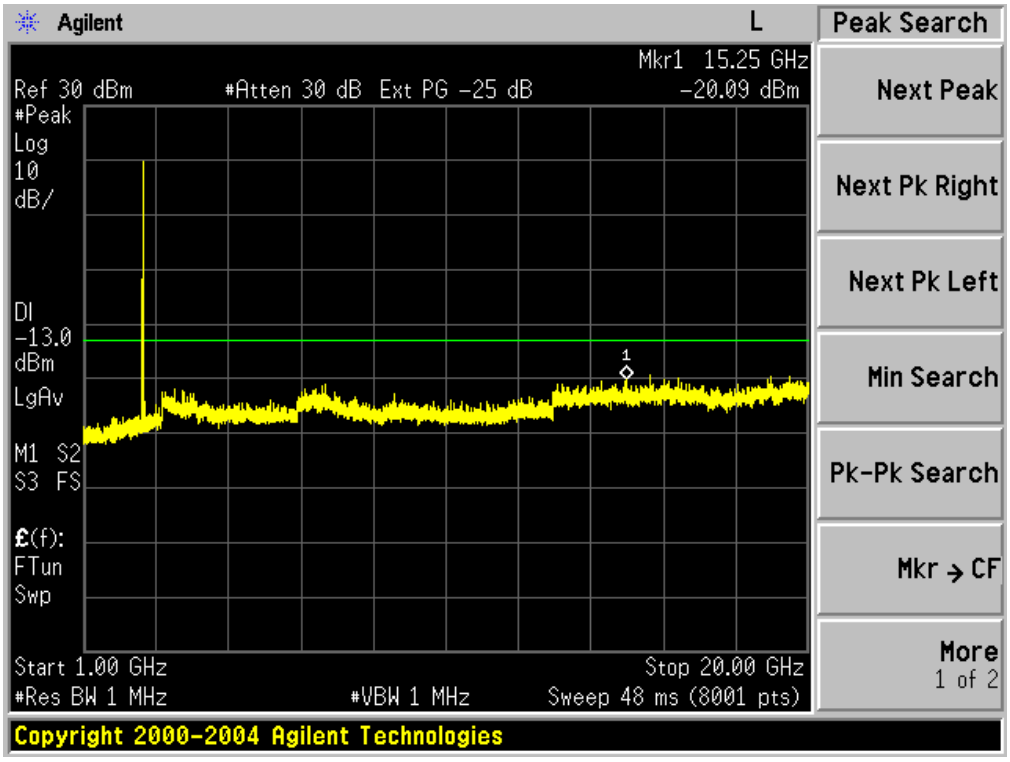
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



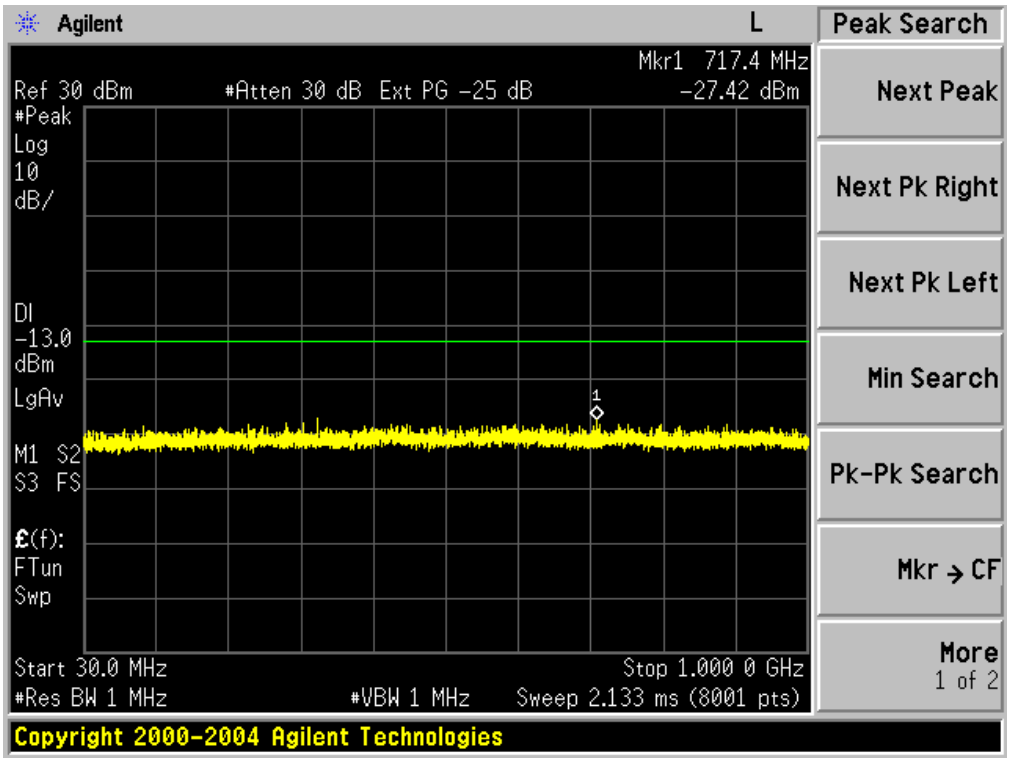
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



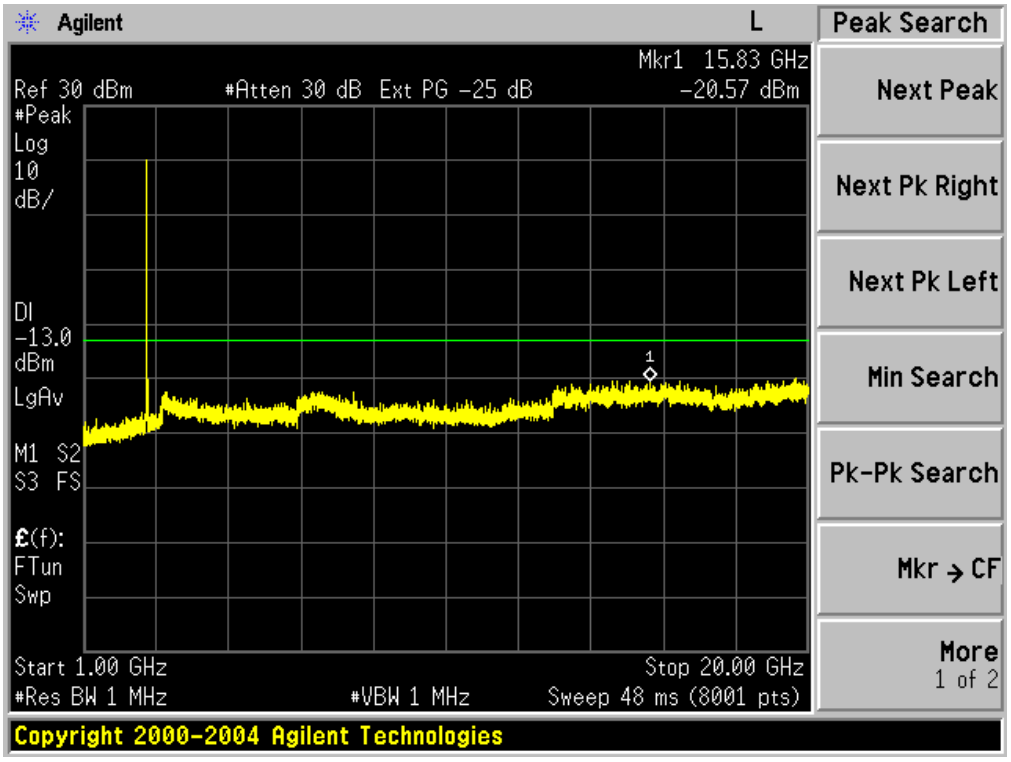
Band 41,UL Channel 40190,UL Frequency 2550.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



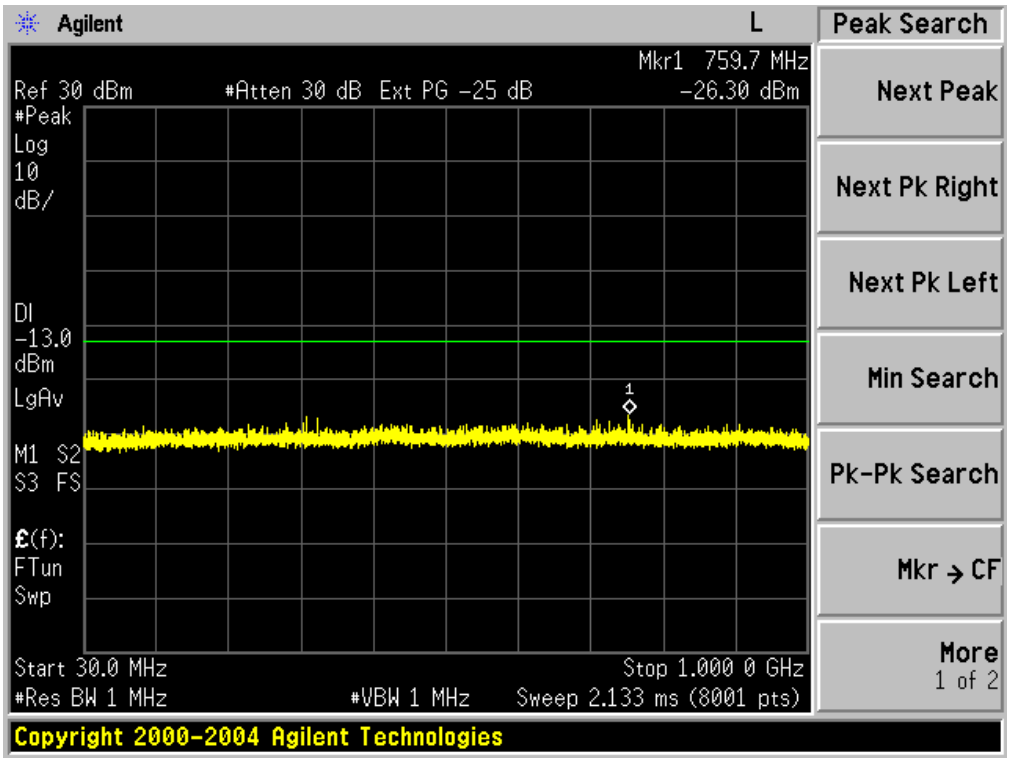
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



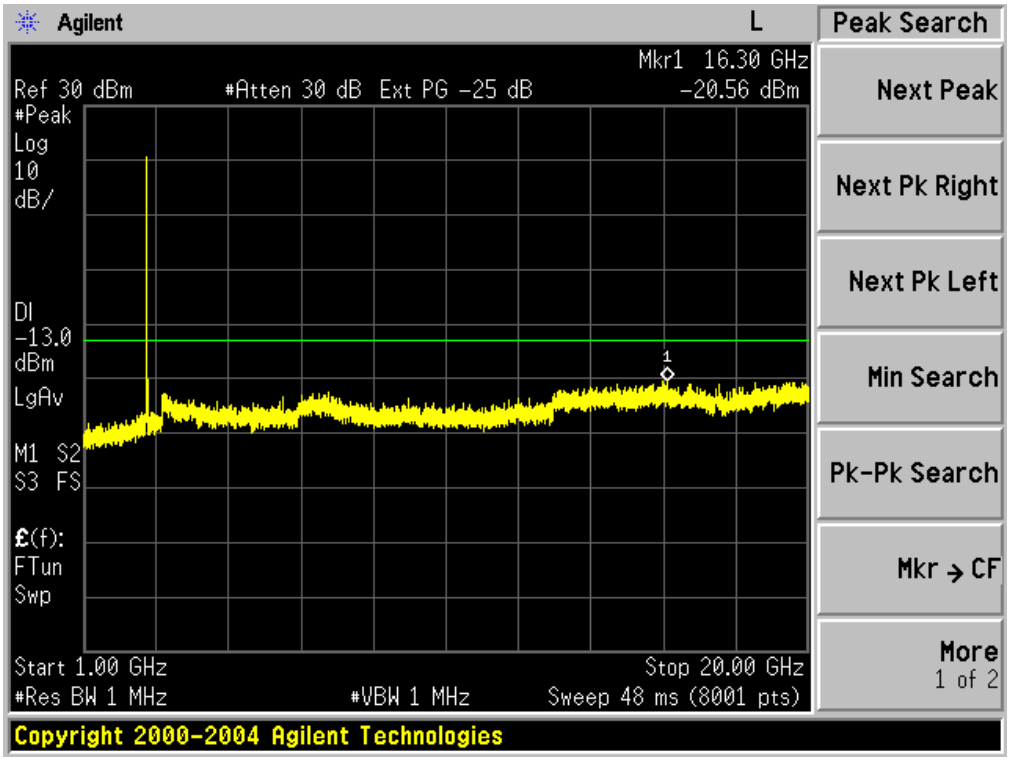
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



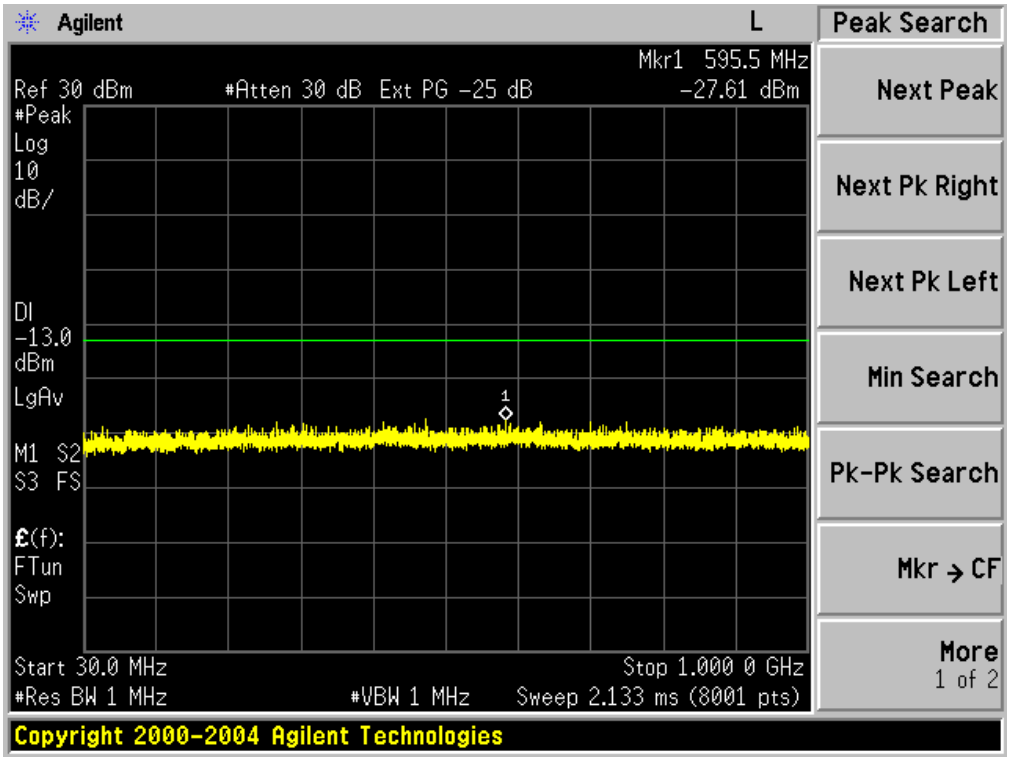
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



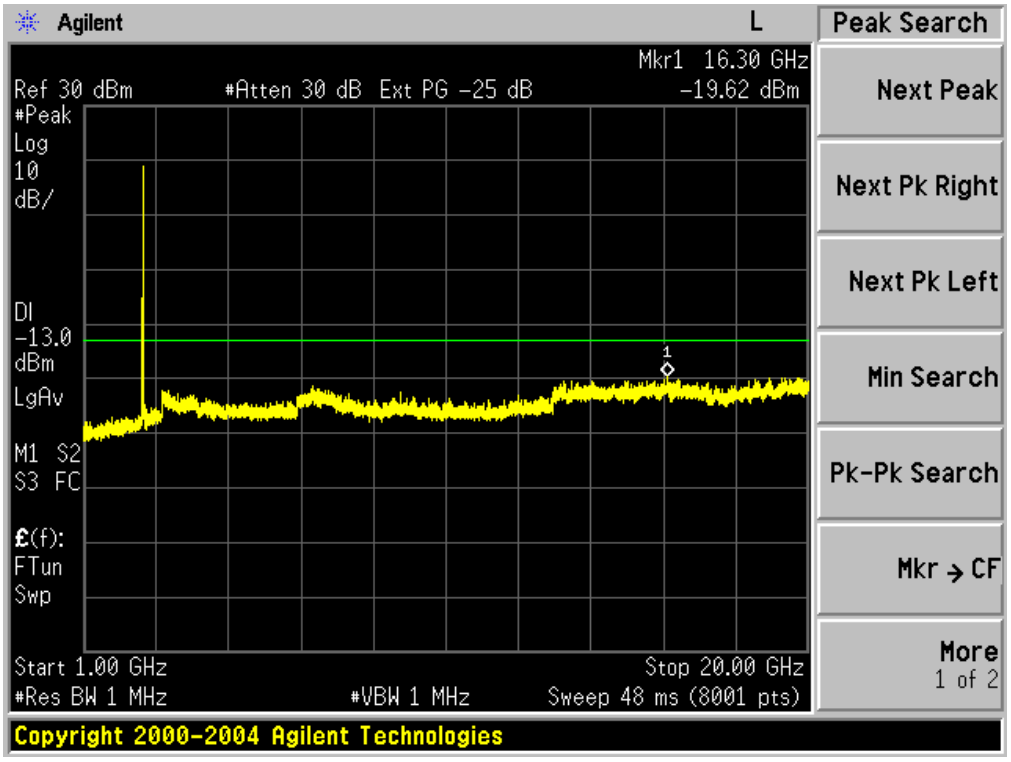
Band 41,UL Channel 41190,UL Frequency 2650.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



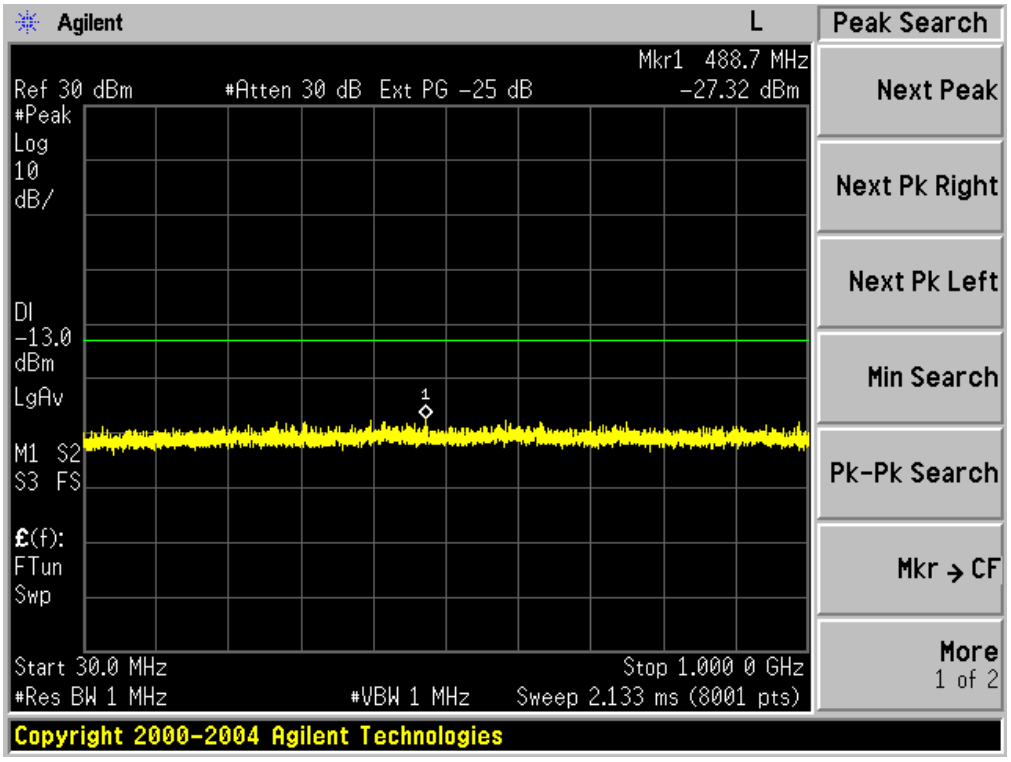
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



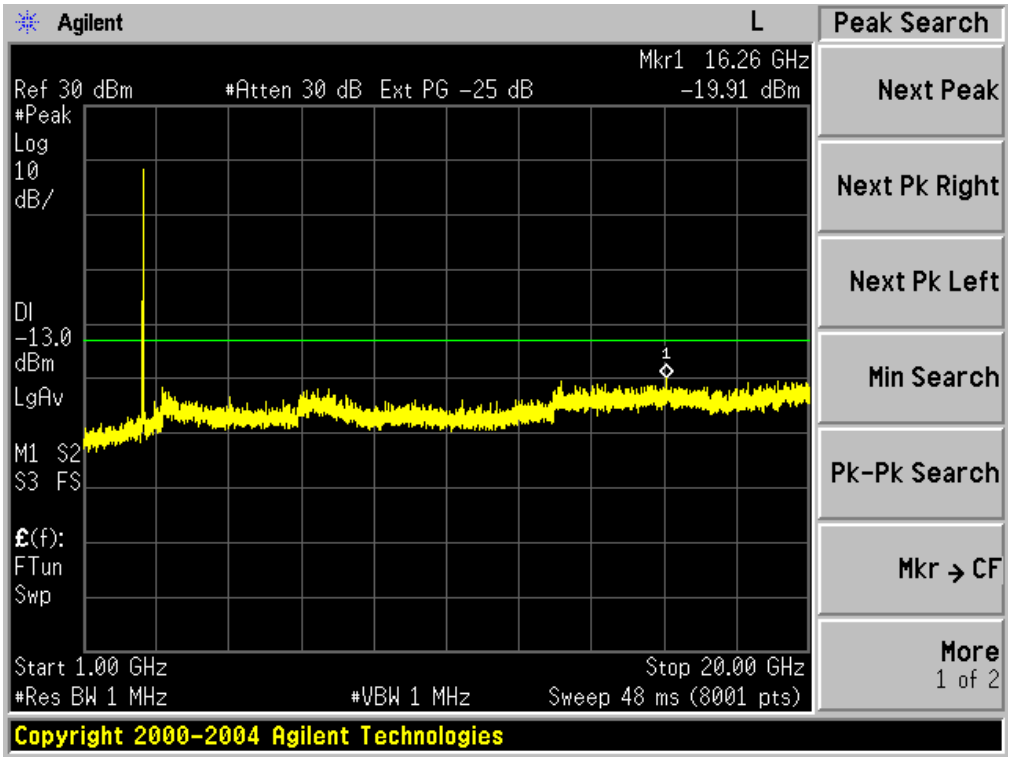
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



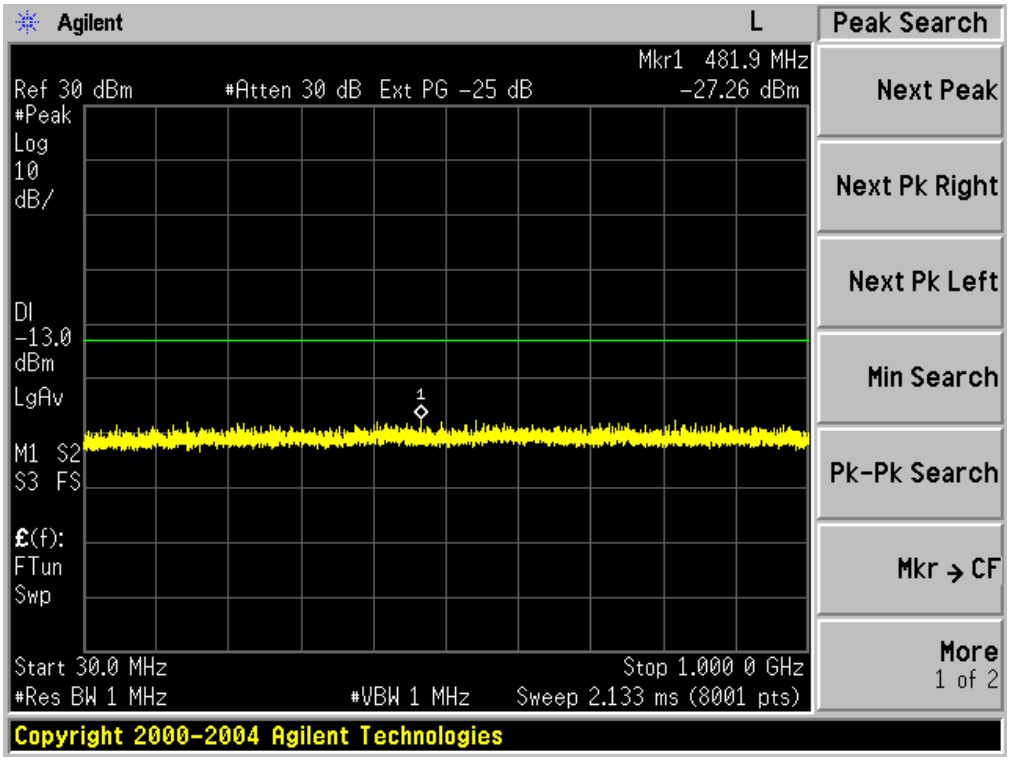
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



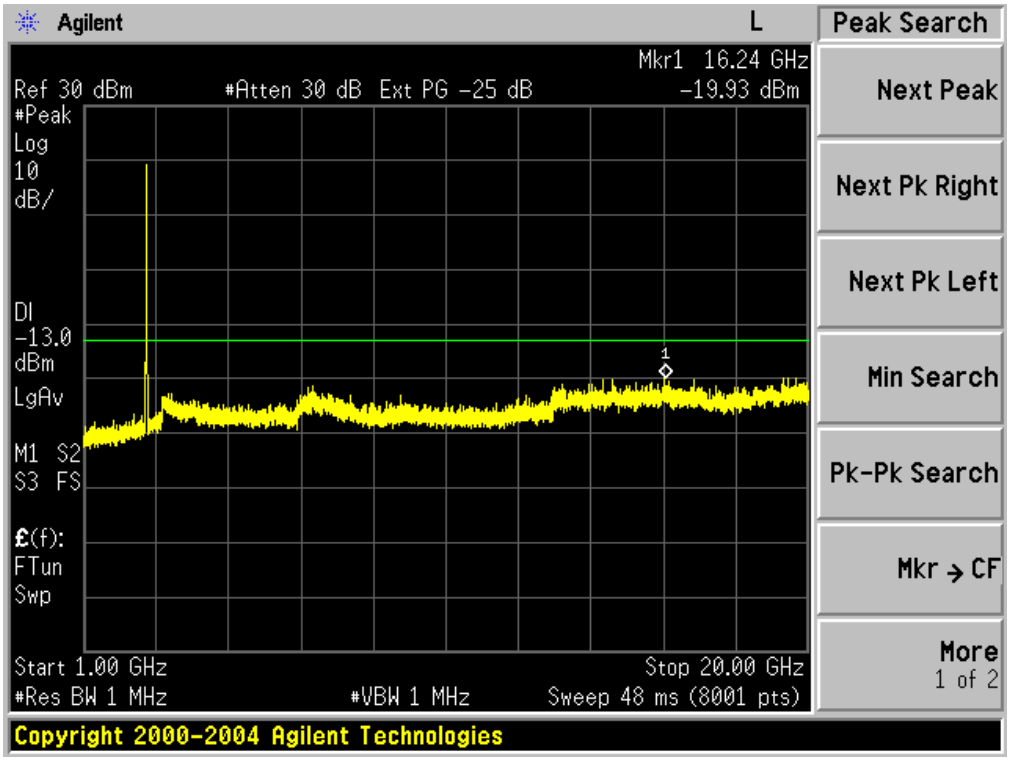
Band 41,UL Channel 40215,UL Frequency 2552.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



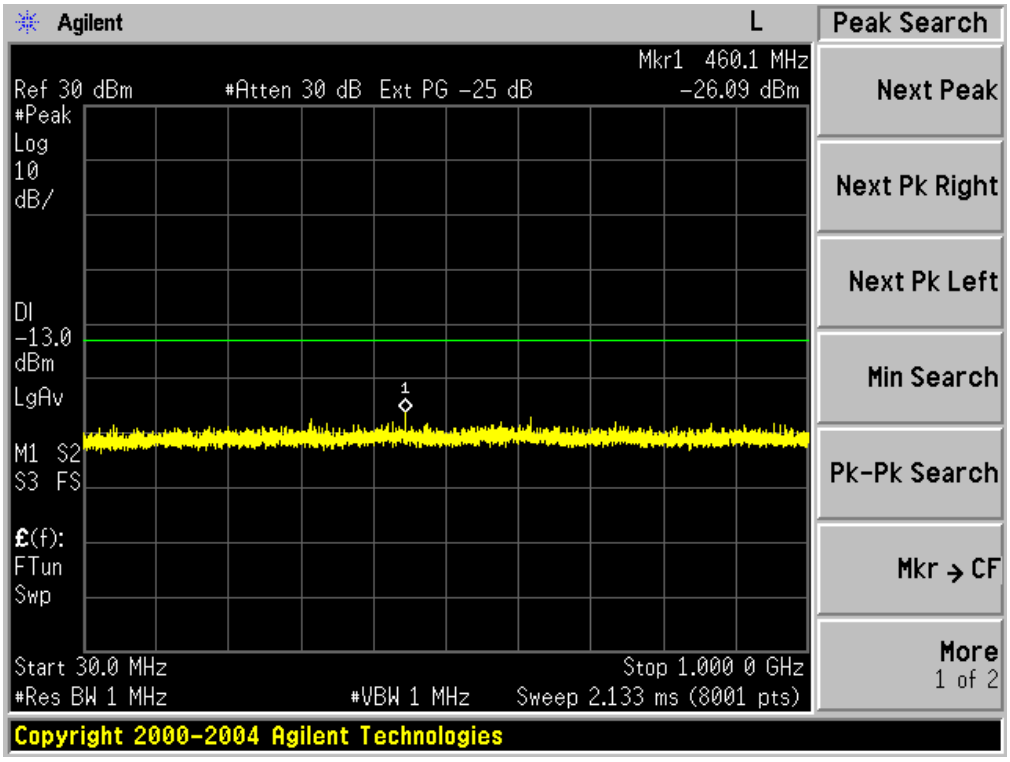
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



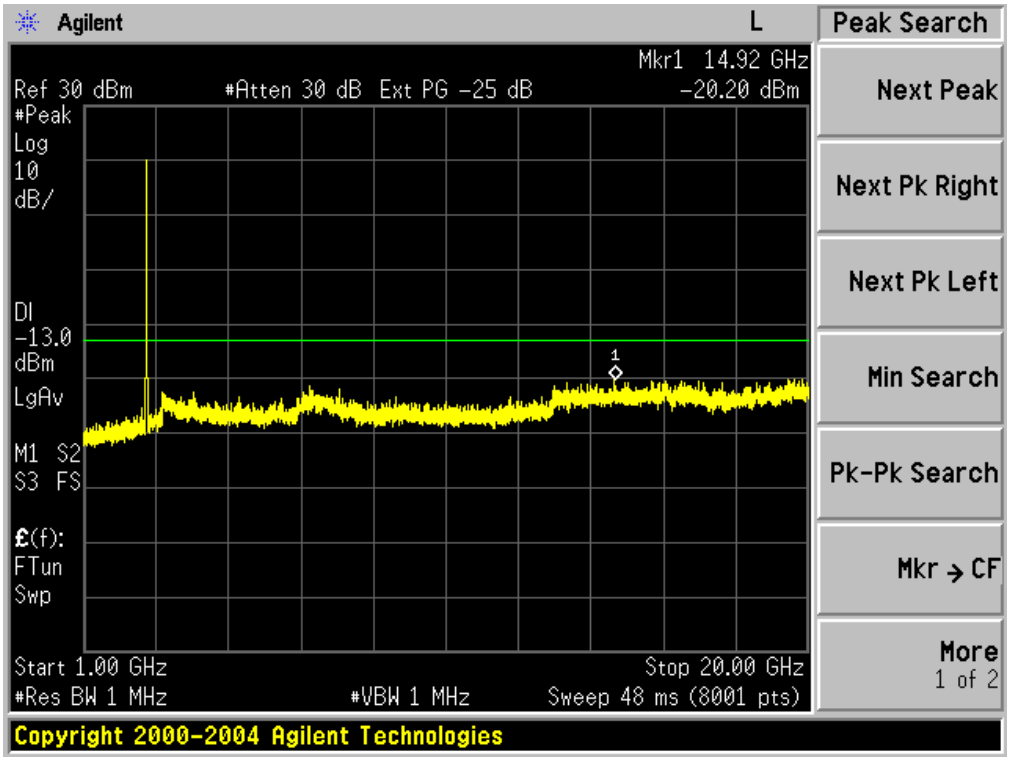
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



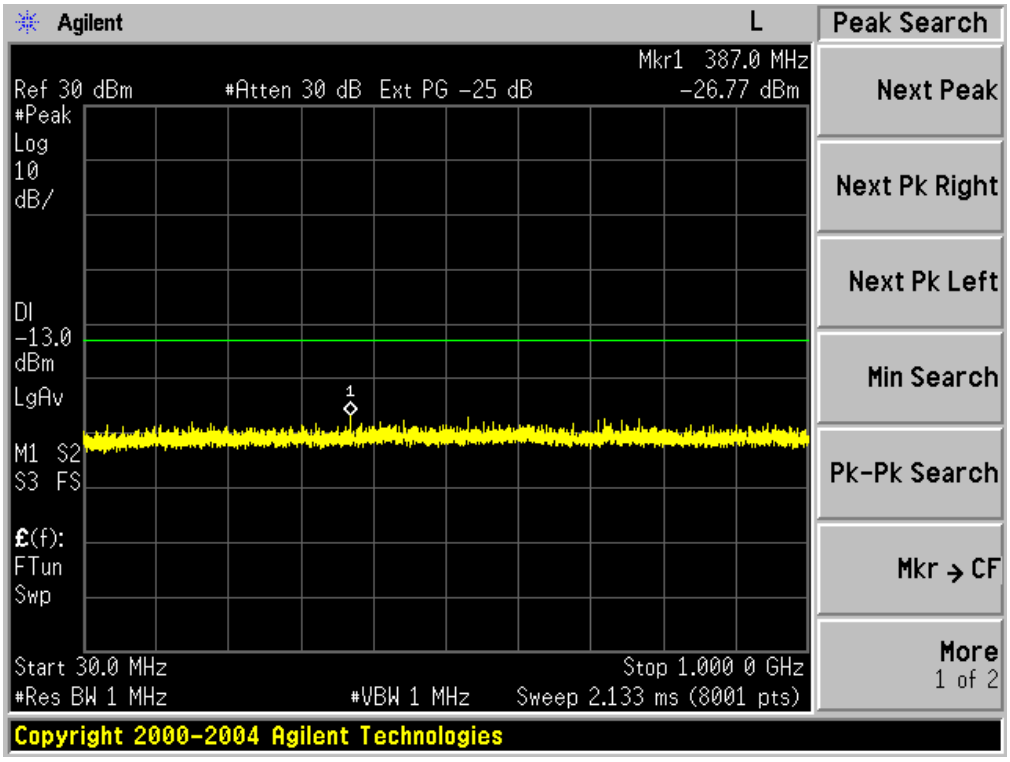
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



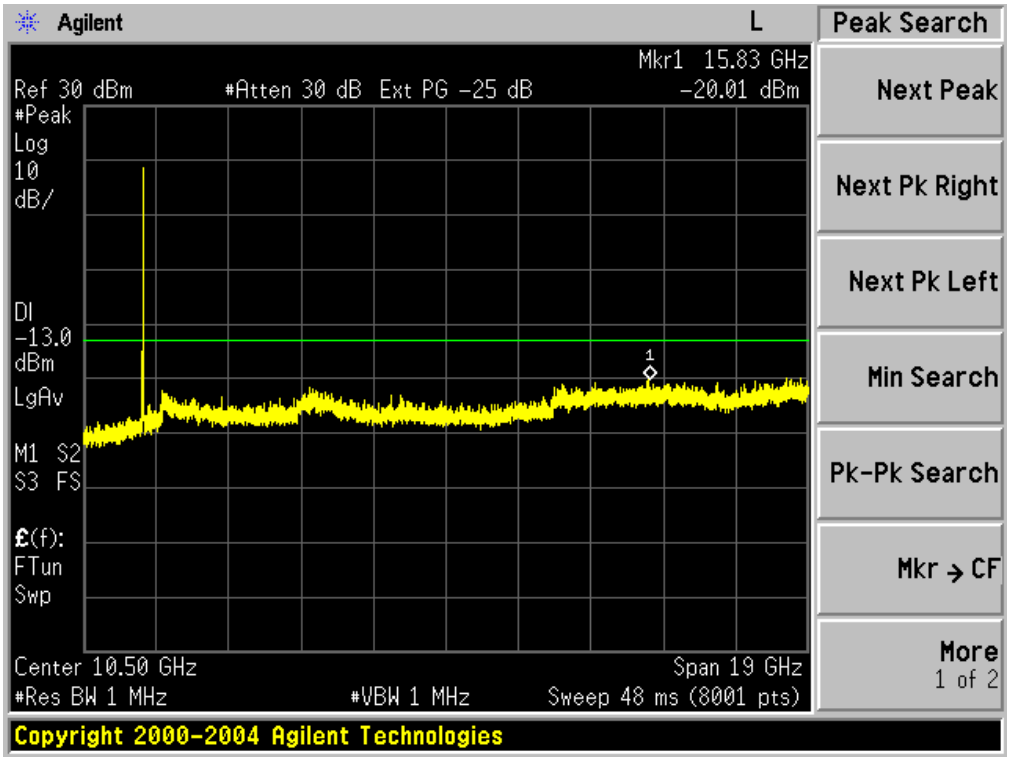
Band 41,UL Channel 41165,UL Frequency 2647.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



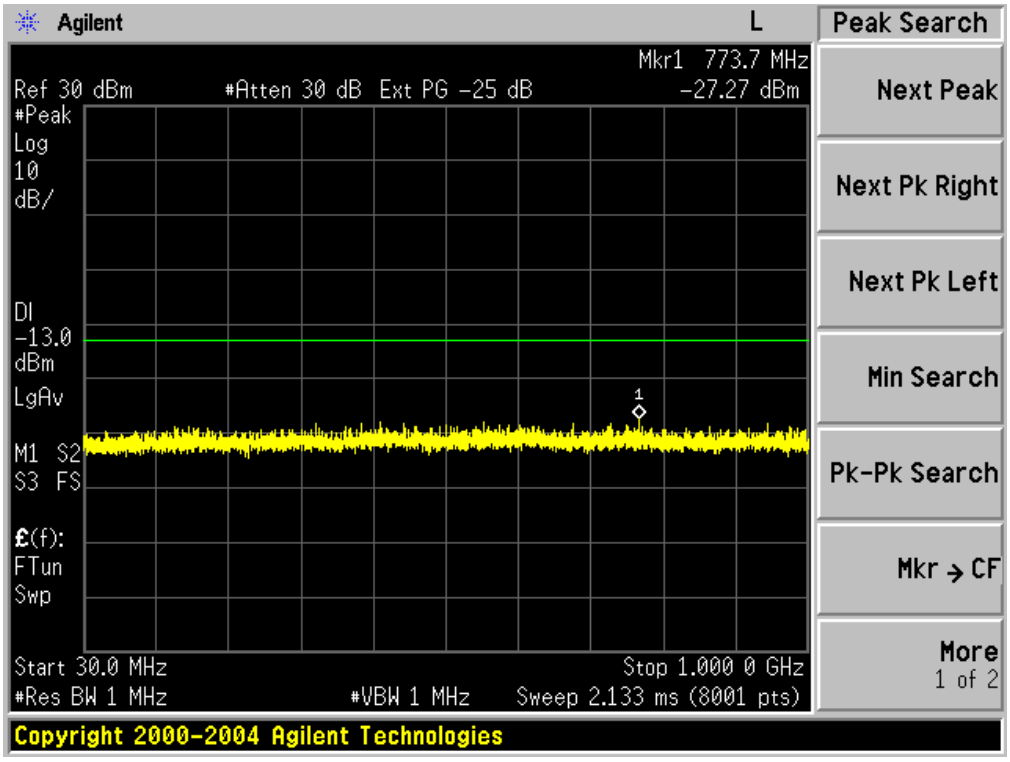
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



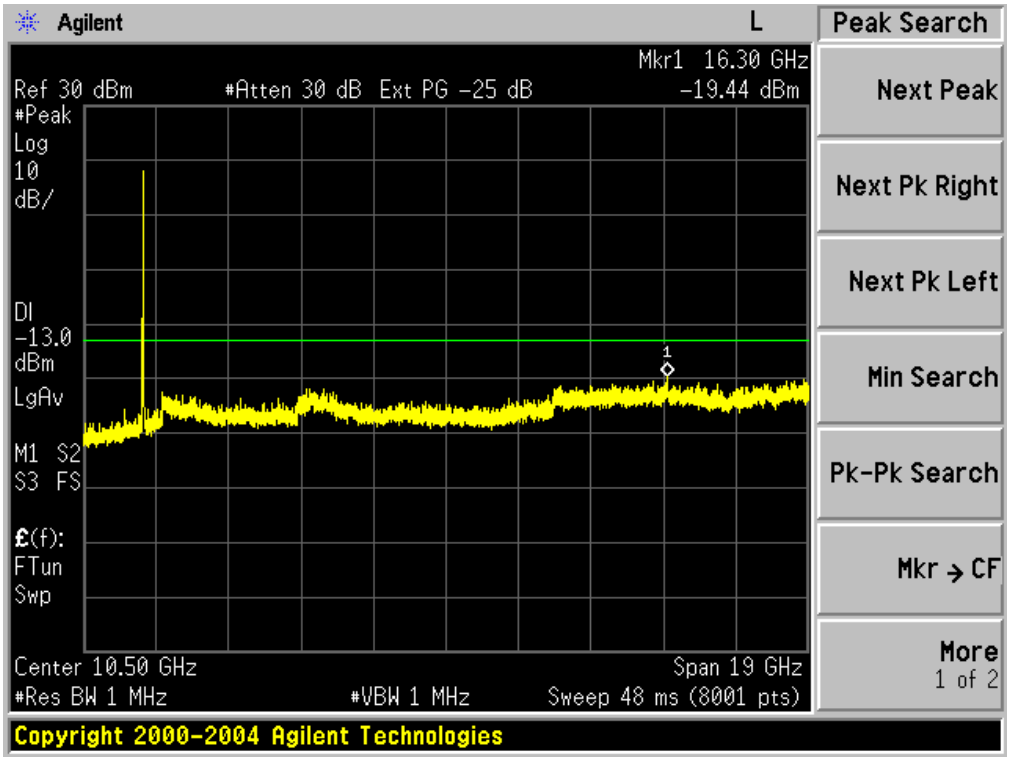
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



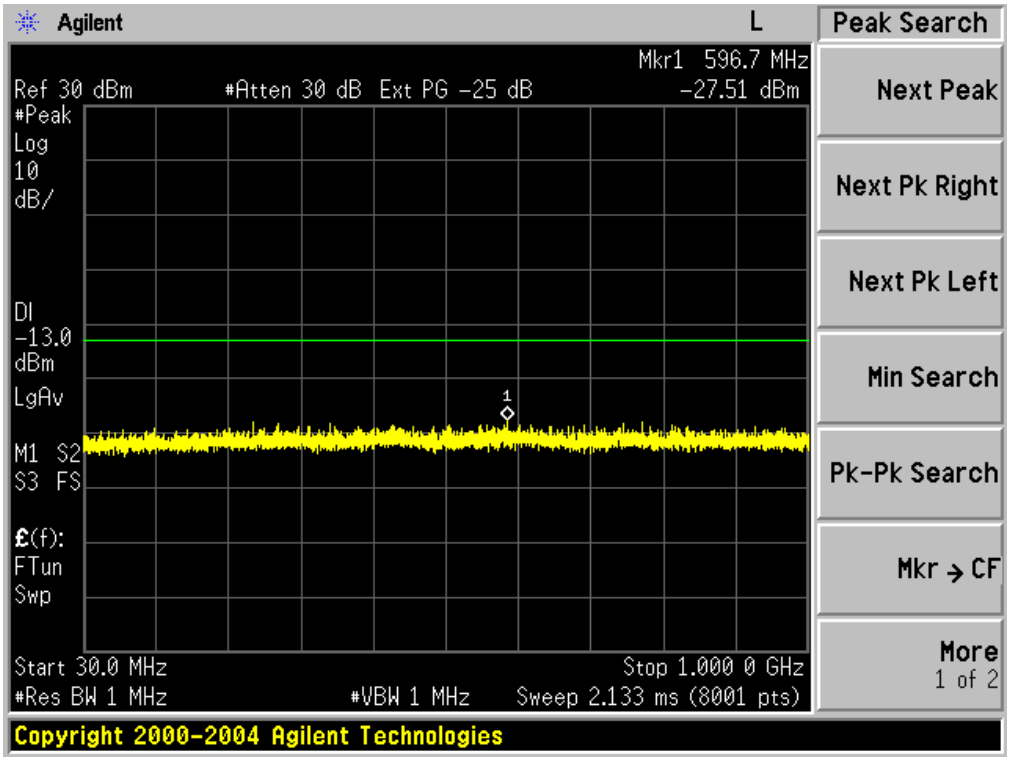
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



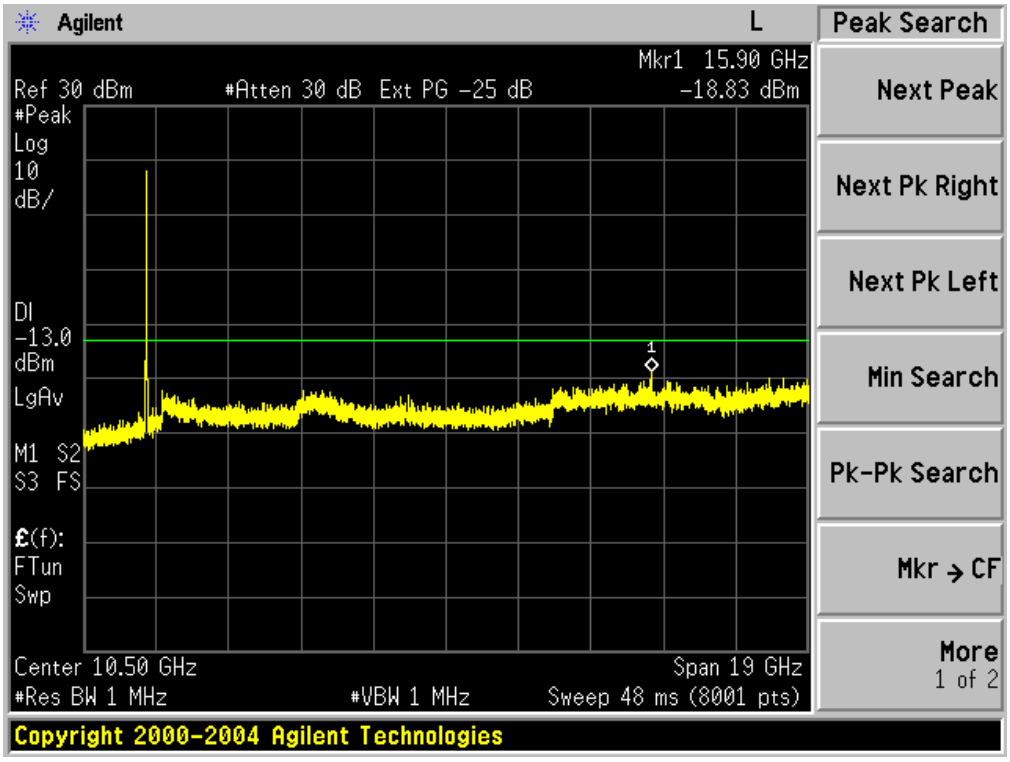
Band 41,UL Channel 40240,UL Frequency 2555.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



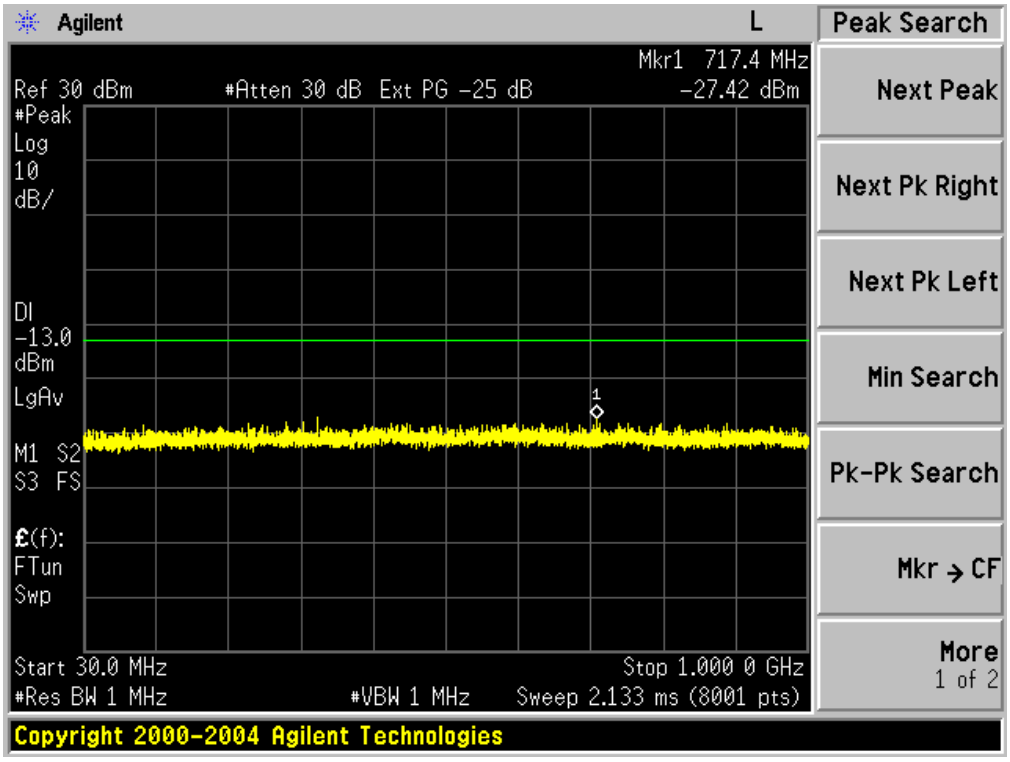
Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



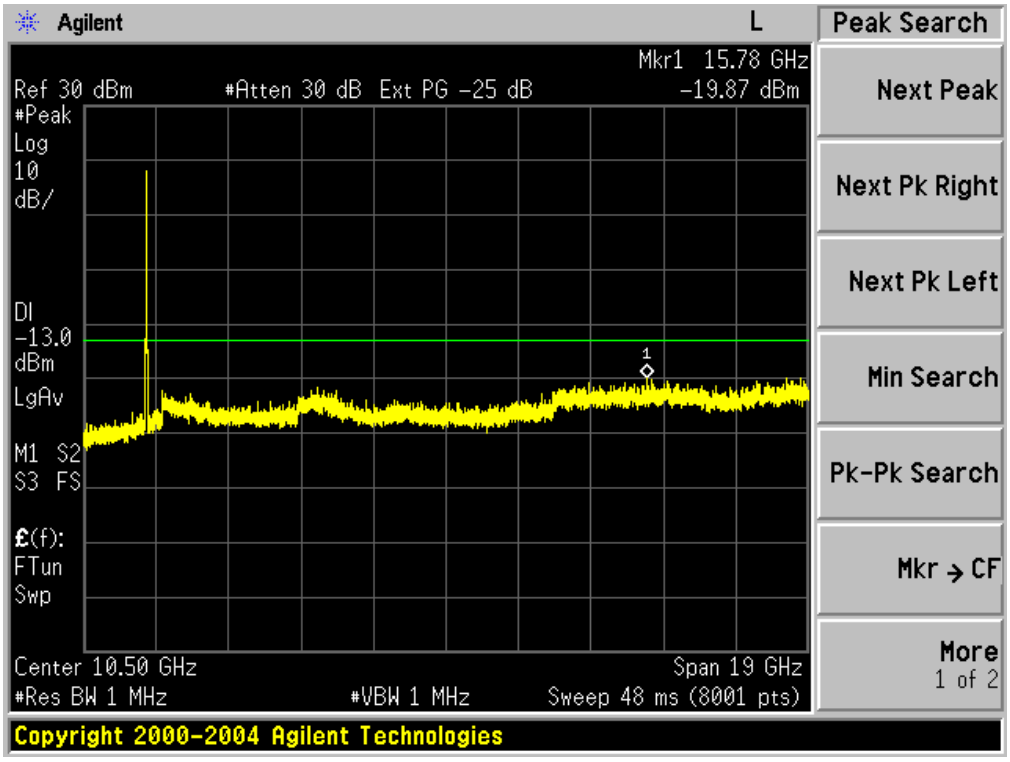
Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



Band 41,UL Channel 41140,UL Frequency 2645.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



10. Equivalent Isotropic Radiated Power

10.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232 and §27.50

LIMITS:

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
27.50 (c) (10) the following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band, the portable stations (hand-held devices) are limited to 3 watts ERP.
27.50 (b)(10) Portable stations (hand-held devices) transmitting in the 746–757 MHz, 758–763 MHz, 776–793 MHz, and 805–806 MHz bands are limited to 3 watts ERP.
27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.
27.50 (h) The following power limits shall apply in the BRS and EBS: (2) Mobile and other user stations. Mobile stations are limited to 2.0 watts EIRP. All user stations are limited to 2.0 watts transmitter output power.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.17
KDB 971168 v02r01 RF power output using broadband peak and average power meter method.
KDB 971168 D01 Power Meas License Digital Systems v02r01, “Measurement Guidance for Certification of Licensed Digital Transmitters”

MODES TESTED

LTE Band 41

RESULTS

10.1.1 LTE BAND 41

EIRP POWER FOR LTE BAND 41 (5.0MHZ BANDWIDTH)

Radiated Power (EIRP) for 5.0MHz Band										
Mode	RB/RB SIZE	Frequency	Result							Polarization
			P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP Average (dBm)	Limit (dBm)	Margin (dB)	
5.0MHz Band QPSK	1/0	2547.5	-4.96	4.32	6.80	24.56	22.08	33.01	-10.93	H
		2600.0	-4.58	4.32	6.61	24.27	21.98	33.01	-11.03	V
		2652.5	-4.48	4.33	6.57	24.69	22.45	33.01	-10.56	H
5.0MHz Band 16 QAM	1/0	2547.5	-4.96	4.32	6.80	24.85	22.37	33.01	-10.64	V
		2600.0	-4.58	4.32	6.61	24.58	22.29	33.01	-10.72	H
		2652.5	-4.48	4.33	6.57	24.2	21.96	33.01	-11.05	V

EIRP POWER FOR LTE BAND 41 (10.0MHZ BANDWIDTH)

Radiated Power (EIRP) for 10.0MHz Band										
Mode	RB/RB SIZE	Frequency	Result							Polarization
			P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP Average (dBm)	Limit (dBm)	Margin (dB)	
10.0MHz Band QPSK	1/0	2550.0	-8.70	4.03	8.38	26.42	22.07	33.01	-10.94	H
		2600.0	-8.50	4.08	8.33	26.38	22.13	33.01	-10.88	V
		2650.0	-8.24	4.14	8.26	26.66	22.54	33.01	-10.47	H
10.0MHz Band 16 QAM	1/0	2550.0	-8.70	4.03	8.38	26.73	22.38	33.01	-10.63	V
		2600.0	-8.50	4.08	8.33	26.66	22.41	33.01	-10.6	H
		2650.0	-8.24	4.14	8.26	26.76	22.64	33.01	-10.37	V

Note:

P_{cl}= cable loss

G_a= Antenna Gain

P_{Ag}= Signal generator power

E_{IRP}= PAg(dB)-Ga(dBi)+Pcl(dB)

EIRP POWER FOR LTE BAND 41 (15.0MHZ BANDWIDTH)

Radiated Power (EIRP) for 15.0MHz Band										
Mode	RB/RB SIZE	Frequency	Result							Polarization
			P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP Average (dBm)	Limit (dBm)	Margin (dB)	
15.0MHz Band QPSK	1/0	2552.5	-10.24	3.93	9.05	27.45	22.33	33.01	-10.68	H
		2600.0	-9.92	3.93	8.89	27.12	22.16	33.01	-10.85	V
		2647.5	-9.64	3.94	8.76	27.34	22.52	33.01	-10.49	H
15.0MHz Band 16 QAM	1/0	2552.5	-10.24	3.93	9.05	27.31	22.19	33.01	-10.82	V
		2600.0	-9.92	3.93	8.89	27.39	22.43	33.01	-10.58	H
		2647.5	-9.64	3.94	8.76	27.09	22.27	33.01	-10.74	V

EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

Radiated Power (EIRP) for 20.0MHz Band										
Mode	RB/RB SIZE	Frequency	Result							Polarization
			P_{Mea} (dBm)	P_{cl} (dB)	G_a Antenna Gain(dB)	P_{Ag} (dB)	EIRP Average (dBm)	Limit (dBm)	Margin (dB)	
20.0MHz Band QPSK	1/0	2555.0	-9.64	3.96	8.78	26.88	22.33	33.01	-10.95	H
		2600.0	-9.18	4.08	8.67	26.78	22.16	33.01	-10.82	V
		2645.0	-9.56	4.11	8.89	27.16	22.52	33.01	-10.63	H
20.0MHz Band 16 QAM	1/0	2555.0	-9.64	3.96	8.78	27.19	22.19	33.01	-10.64	V
		2600.0	-9.18	4.08	8.67	26.64	22.43	33.01	-10.96	H
		2645.0	-9.56	4.11	8.89	27.4	22.27	33.01	-10.39	V

Note:

P_{cl}= cable loss

G_{a}= Antenna Gain

P_{Ag}= Signal generator power

E_{IRP}= PAg(dB)-Ga(dBi)+Pcl(dB)

11.0 FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

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

LIMIT

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

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least 43 + 10 log (P) dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least 43 + 10 log10(P) dB.

§27.53 (m) (4) For mobile digital stations, the attenuation factor shall be not less than 40 + 10 log (P) dB on all frequencies between the channel edge and 5 megahertz from the channel edge, 43 + 10 log (P) dB on all frequencies between 5 megahertz and X megahertz from the channel edge, and 55 + 10 log (P) dB on all frequencies more than X megahertz from the channel edge, where X is the greater of 6 megahertz or the actual emission bandwidth as defined in paragraph (m)(6) of this section. In addition, the attenuation factor shall not be less that 43 + 10 log (P) dB on all frequencies between 2490.5 MHz and 2496 MHz and 55 + 10 log (P) dB at or below 2490.5 MHz. Mobile Satellite Service licensees operating on frequencies below 2495 MHz may also submit a documented interference complaint against BRS licensees operating on channel BRS Channel 1 on the same terms and conditions as adjacent channel BRS or EBS licensees.

TEST PROCEDURE

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

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent

of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

The unwanted emission power shall be measured with a resolution bandwidth of at least 1% of the occupied bandwidth in the 1 MHz band immediately outside and adjacent to the channel edge of the equipment. Beyond the 1 MHz band immediately outside the channel edge of the equipment, a resolution bandwidth of 1 MHz shall be employed. A narrower resolution bandwidth is allowed to be used provided that the measured power is integrated over the full required measurement bandwidth of 1 MHz or 1% of the occupied bandwidth as applicable.
The power of any unwanted emissions measured from the channel edge of the equipment shall be attenuated below the transmitter power, P (dBW), as follows:
a. for base station and subscriber equipment, other than mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB; and
b. for mobile subscriber equipment, the attenuation shall not be less than 43 + 10 Log10 (p), dB at the channel edges and 55 + 10 Log10 (p) at 5.5 MHz away and beyond the channel edges where p in (a) and (b) is the transmitter power measured in watts.

MODES TESTED

LTE Band 41

RESULTS

11.1.1. LTE BAND 41

QPSK EIRP POWER FOR LTE BAND 41 (5.0MHZ BANDWIDTH)

Test Results for Low Channel 2547.5MHz					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
2508	-25.86	8.7	-17.16	-13	Horizontal
2508	-29.64	8.7	-20.94	-13	Vertical
5095	-31.41	4.73	-26.68	-13	Horizontal
5095	-33.28	4.73	-28.55	-13	Vertical
7642.5	-38.97	12.84	-26.13	-13	Horizontal
7642.5	-44.46	12.84	-31.62	-13	Vertical
10190	-47.81	15.53	-32.28	-13	Horizontal
10190	-50.92	15.53	-35.39	-13	Vertical
Test Results for Mid Channel 2600.0MHz					
2567	-26.96	8.67	-18.29	-13	Horizontal
2567	-27.74	8.67	-19.07	-13	Vertical
5200	-30.95	5.06	-25.89	-13	Horizontal
5200	-33.46	5.06	-28.4	-13	Vertical
7800	-39.41	13.93	-25.48	-13	Horizontal
7800	-38.86	13.93	-24.93	-13	Vertical
10400	-46.52	15.39	-31.13	-13	Horizontal
10400	-44.77	15.39	-29.38	-13	Vertical
Test Results for High Channel 2652.5MHz					
2584	-26.96	8.75	-18.21	-13	Horizontal
2584	-24.41	8.75	-15.66	-13	Vertical
5305	-32.28	5.45	-26.83	-13	Horizontal
5305	-33.96	5.45	-28.51	-13	Vertical
7957.5	-40.14	14.01	-26.13	-13	Horizontal
7957.5	-38.97	14.01	-24.96	-13	Vertical
10610	-48.55	15.59	-32.96	-13	Horizontal
10610	-48.52	15.59	-32.93	-13	Vertical

QPSK EIRP POWER FOR LTE BAND 41 (20.0MHZ BANDWIDTH)

Test Results for Low Channel 2555.0MHz					
Frequency(MHz)	Power(dBm)	A_{Rpl} (dBm)	P_{Mea}(dBm)	Limit（dBm）	Polarity
2517	-26.96	8.75	-18.21	-13	Horizontal
2517	-29.89	8.75	-21.14	-13	Vertical
5110	-33.52	4.9	-28.62	-13	Horizontal
5110	-30.74	4.9	-25.84	-13	Vertical
7665	-38.95	12.96	-25.99	-13	Horizontal
7665	-40.14	12.96	-27.18	-13	Vertical
Test Results for Mid Channel 2600.0MHz					
2567	-25.67	8.44	-17.23	-13	Horizontal
2567	-28.96	8.44	-20.52	-13	Vertical
5200	-36.66	5.07	-31.59	-13	Horizontal
5200	-37.76	5.07	-32.69	-13	Vertical
7800	-40.51	13.93	-26.58	-13	Horizontal
7800	-35.59	13.93	-21.66	-13	Vertical
Test Results for High Channel 2645.0MHz					
2579	-27.88	8.44	-19.44	-13	Horizontal
2579	-26.53	8.44	-18.09	-13	Vertical
5290	-37.79	5.17	-32.62	-13	Horizontal
5290	-36.65	5.17	-31.48	-13	Vertical
7935	-40.15	13.83	-26.32	-13	Horizontal
7935	-45.58	13.83	-31.75	-13	Vertical

Note:This test we selected the highest and lowest Bandwidth to be test,QPSK mode is the worst mode,only report the worst mode.

12. FREQUENCY STABILITY

RULE PART(S)

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

LIMITS

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

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

TEST PROCEDURE

Use CMW 500 with Frequency Error measurement capability.

Temp. = −30° to +50°C

Voltage =low voltage, 6.7VDC, Normal, 7.4VDC and High voltage, 8.5VDC.

Frequency Stability vs Temperature:

The EUT is place inside a temperature chamber. The temperature is set to 20ºC and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is increased by 10 degrees, allowed to stabilize and soak, and then the measurement is repeated. This is repeated until +50ºC is reached.

Frequency Stability vs Voltage:

The peak frequency error is recorded (worst-case).

MODES TESTED

LTE Band 41

RESULTS

See the following pages.

12.1.1. LTE BAND 41

QPSK, (20MHz BANDWIDTH)

Frequency error vs. Voltage

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 20800 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
6.7	2600.0	-10.83	-0.004165	2.5
7.4	2600.0	-9.94	-0.003823	2.5
8.5	2600.0	-6.72	-0.002585	2.5

Frequency error vs. Temperature

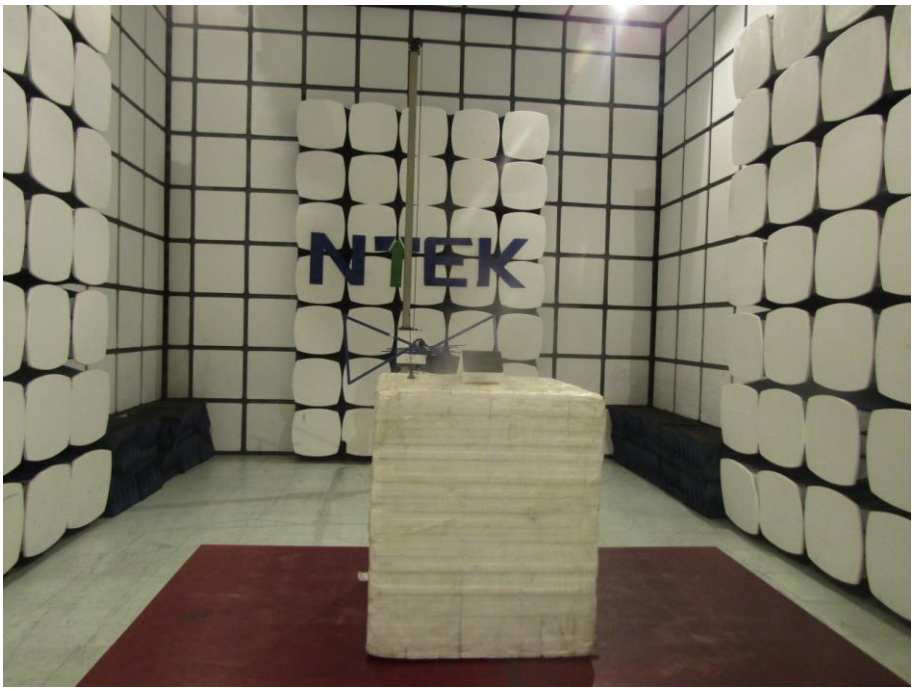
Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
BAND 41 QPSK, (CH 20800 RB size 50 RB Offset 0 10MHz BANDWIDTH)				
Normal (25℃)	2600.0	-19.15	-0.007365	2.5
Extreme (50℃)	2600.0	-19.53	-0.007512	2.5
Extreme (40℃)	2600.0	-9.57	-0.003681	2.5
Extreme (30℃)	2600.0	-9.94	-0.003823	2.5
Extreme (10℃)	2600.0	-10.14	-0.003900	2.5
Extreme (0℃)	2600.0	-9.88	-0.003800	2.5
Extreme (-10℃)	2600.0	-13.26	-0.005100	2.5
Extreme (-20℃)	2600.0	-8.11	-0.003119	2.5
Extreme (-30℃)	2600.0	-15.59	-0.005996	2.5

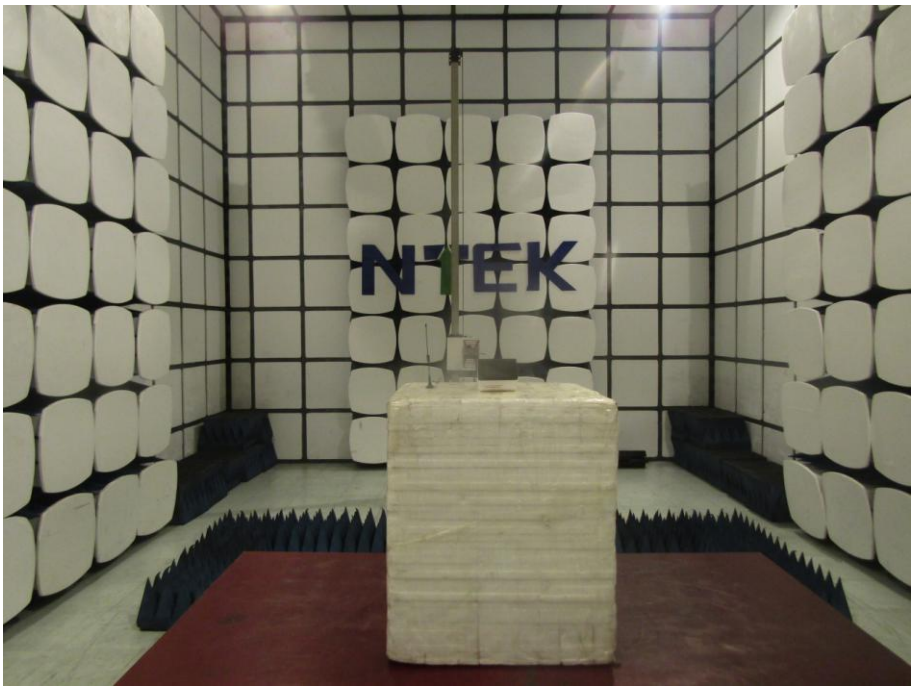
***Note:** Frequency error measurements were made by using the build-in capability of the Wireless Communication Test Set.

APPENDIX IV

PHOTOGRAPHS OF TEST SETUP

RADIATED SPURIOUS EMISSION





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