



# FCC CFR47 PART 22H, 24E, 27 CERTIFICATION TEST REPORT

**FCC ID: 2ABFV-LTE27**

**Product:** Pc smart  
**Trade Name:** N/A  
**Model Number:** Touch Smart Pro GP Series  
**Serial Model:** N/A  
**Report No.:** NTEK- 2012NT03084611F5

## **Prepared for**

PC Smart S.A.

Carrera 116 no.15-25, Bogota, Colombia.

## **Prepared by**

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### TEST RESULT CERTIFICATION

**Applicant's name** ..... : PC Smart S.A.  
**Address**..... : Carrera 116 no.15-25, Bogota, Colombia.  
**Manufacture's Name** ..... : Locopo Technolgy Co.,Ltd.  
**Address**..... : Rm./Flat 1501(056), 15/F, Spa Centre,53-55 Lockhart Road, Wan Chai, Kong Kong  
**Product name**..... : Pc smart  
**Model and/or type reference** .. : Touch Smart Pro GP Series  
**Serial Model:** : N/A  
**Standards**..... : FCC CFR 47 Part 22H, Part 24E, Part 27  
**Test procedure** ..... : ANSI C63.4-2009

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**..... 08 Mar. 2016 ~ 26 Apr. 2016  
**Date of Issue** ..... 26 Apr. 2016  
**Test Result**..... **Pass**

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(Janon chen)

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(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:	Pc smart
Hardware version:	--
Software version:	--
FCC ID:	2ABFV-LTE27
Frequency Bands:	U.S. Bands: <input type="checkbox"/> UMTS FDD Band II <input type="checkbox"/> UMTS FDD Band V <input checked="" type="checkbox"/> LTE FDD Band 4 ,7
Frequency Range:	LTE Band 4 Uplink: 1710MHz-1755MHz, Downlink: 2110MHz-2155MHz LTE Band 7 Uplink: 2500MHz-2570MHz, Downlink: 2620MHz-2690MHz
Type of Modulation:	QPSK/16QAM
Antenna:	FPCB Antenna
Antenna gain:	1.0dBi
Power Supply:	DC 3.7V by battery or DC 5.0V supplied by adapter
Battery parameter:	DC 3.7V/2800mAh
Adapter Input:	AC100-240V, 50-60Hz
Adapter Output:	DC 5.0V, 2A
Extreme Vol. Limits:	DC3.4 V to 4.2 V (Nominal DC3.7 V)
Extreme Temp. Tolerance	-10°C to +50°C
** Note: The High Voltage 4.2V and Low Voltage 3.4V 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: 2ABFV-LTE27** 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-C, FCC CFR 47 Part 2, Part 22, Part 24, 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: Band 2, Band 4, Band 17,

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. SYSTEM TEST CONFIGURATION

### 2.1 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.

## 2.2 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.

## 2.3 CONFIGURATION OF EUT SYSTEM

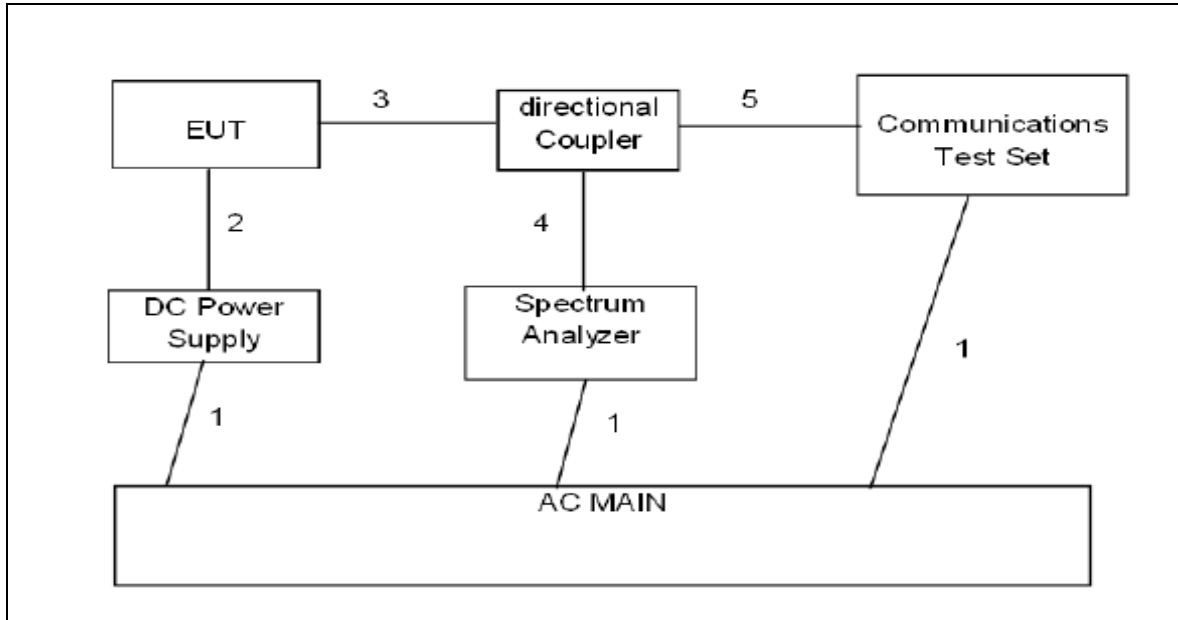
Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Pc smart	Touch Smart Pro GP Series	FCC ID: 2ABFV-LTE27	EUT

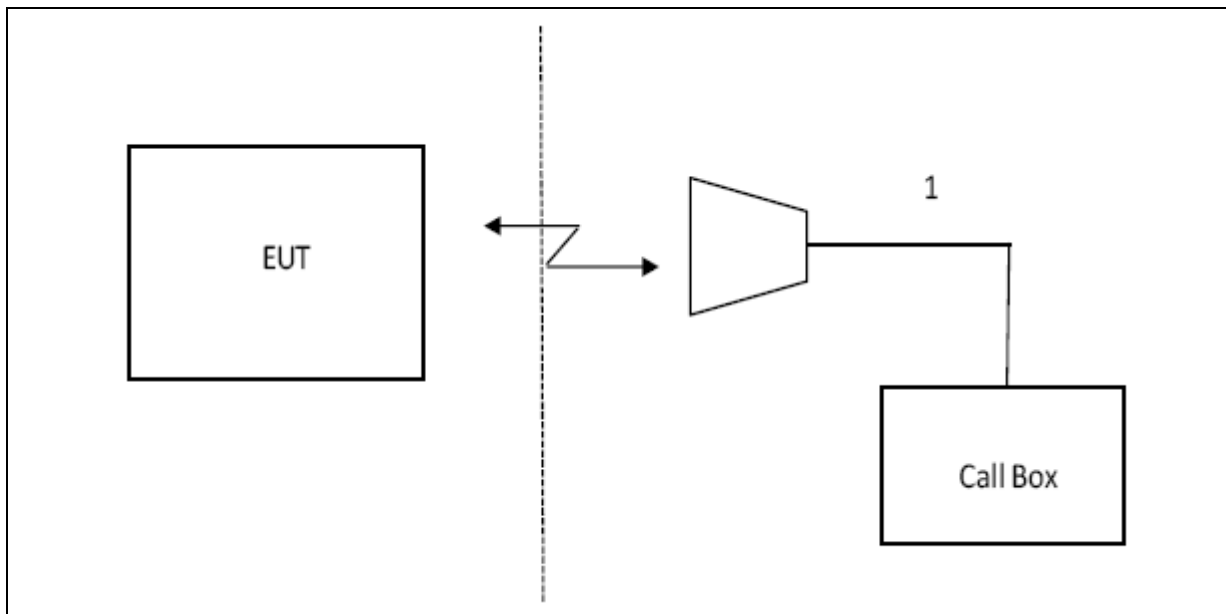
*Note: All the accessories have been used during the test.  
the following "EUT" in setup diagram means EUT system.*

### 2.4 TEST SETUP

#### CONDUCTED SETUP DIAGRAM FOR TESTS



#### RADIATED SETUP DIAGRAM FOR TESTS





### 3. 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
Biological Antenna	A.H. Systems Inc.	SAS-521-4	N/A	2016.6.26
Horn Antenna	EM	EM-AH-10180	N/A	2016.6.26

## 4. OUTPUT POWER

### 4.1 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	13	10	Table 6.2.4-2	Table 6.2.4-2
	6.6.3.3.2				
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 <sup>1</sup>	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.

### 4.1.2 LTE BAND 4

#### OUTPUT POWER FOR LTE BAND 4 (1.4MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 4	1.4MHz	19957	1710.7	QPSK	1	Low	<b>23.69</b>	28.94
					1	Mid	23.51	28.82
					1	High	23.51	28.87
					3	Low	23.48	<b>29.22</b>
					3	High	23.35	29.13
					6	Low	22.50	29.11
				16QAM	1	Low	23.43	28.73
					1	Mid	23.20	28.62
					1	High	23.25	28.67
					3	Low	23.26	29.00
					3	High	23.17	28.97
					6	Low	22.41	29.02
	1.4MHz	20175	1732.5	QPSK	1	Low	23.54	28.94
					1	Mid	23.30	28.85
					1	High	23.47	28.94
					3	Low	23.39	29.23
					3	High	23.34	29.32
					6	Low	22.43	28.99
				16QAM	1	Low	23.42	28.87
					1	Mid	23.23	28.80
					1	High	23.41	28.92
					3	Low	23.36	29.29
					3	High	23.31	29.32
					6	Low	22.40	29.08
	1.4MHz	20393	1754.3	QPSK	1	Low	23.07	28.00
					1	Mid	22.85	27.89
					1	High	22.96	27.93
3					Low	22.94	28.62	
3					High	22.88	28.55	
6					Low	21.98	28.08	
16QAM				1	Low	22.96	27.84	
				1	Mid	22.77	27.77	
				1	High	22.89	27.80	
				3	Low	22.89	28.60	
				3	High	22.84	28.55	
				6	Low	21.95	28.03	

**OUTPUT POWER FOR LTE BAND 4 (3.0MHZ)**

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 4	3.0 MHz	19965	1711.5	QPSK	1	Low	23.18	28.13
					1	Mid	22.82	27.91
					1	High	22.76	27.82
					8	Low	22.76	27.86
					8	High	22.76	27.83
					15	Low	22.05	28.24
				16QAM	1	Low	23.17	28.13
					1	Mid	22.85	27.93
					1	High	22.79	27.84
					8	Low	22.79	27.84
					8	High	22.79	27.85
					15	Low	22.06	28.78
	3.0 MHz	20175	1732.5	QPSK	1	Low	<b>23.48</b>	28.48
					1	Mid	23.24	28.29
					1	High	23.30	28.35
					8	Low	23.29	28.33
					8	High	23.28	28.33
					15	Low	22.39	28.91
				16QAM	1	Low	23.40	28.43
					1	Mid	23.20	28.26
					1	High	23.26	28.33
					8	Low	23.26	28.32
					8	High	23.23	28.27
					15	Low	22.35	<b>29.09</b>
	3.0 MHz	20385	1753.5	QPSK	1	Low	23.05	27.96
					1	Mid	22.80	27.82
					1	High	22.85	27.87
8					Low	22.82	27.82	
8					High	22.80	27.85	
15					Low	21.89	28.96	
16QAM				1	Low	22.91	27.84	
				1	Mid	22.71	27.76	
				1	High	22.77	27.81	
				8	Low	22.76	27.77	
				8	High	22.76	27.73	
				15	Low	21.86	28.96	

OUTPUT POWER FOR LTE BAND 4 (5.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 4	5.0 MHz	19975	1712.5	QPSK	1	Low	22.84	28.00
					1	Mid	22.06	27.44
					1	High	22.45	27.80
					12	Low	21.40	28.18
					12	High	21.26	28.07
					25	Low	21.31	28.14
				16QAM	1	Low	22.77	27.96
					1	Mid	22.09	27.48
					1	High	22.48	27.75
					12	Low	21.42	28.42
					12	High	21.29	28.30
					25	Low	21.34	<b>28.66</b>
	5.0 MHz	20175	1732.5	QPSK	1	Low	23.12	28.37
					1	Mid	22.65	28.01
					1	High	<b>23.17</b>	28.40
					12	Low	21.81	28.60
					12	High	21.84	28.60
					25	Low	21.80	28.46
				16QAM	1	Low	23.04	28.28
					1	Mid	22.60	27.96
					1	High	23.12	28.41
					12	Low	21.79	28.64
					12	High	21.81	28.59
					25	Low	21.77	28.50
	5.0 MHz	20375	1752.5	QPSK	1	Low	22.81	28.09
					1	Mid	22.29	27.84
					1	High	22.65	27.92
12					Low	21.46	27.92	
12					High	21.40	27.79	
25					Low	21.39	28.54	
16QAM				1	Low	22.76	28.04	
				1	Mid	22.26	27.80	
				1	High	22.61	27.90	
				12	Low	21.44	27.89	
				12	High	21.39	27.89	
				25	Low	21.37	28.33	

OUTPUT POWER FOR LTE BAND 4 (10.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 4	10.0 MHz	20000	1715.0	QPSK	1	Low	22.14	27.29
					1	Mid	21.97	27.10
					1	High	21.83	27.07
					25	Low	21.16	27.82
					25	High	21.09	27.86
					50	Low	21.14	27.78
				16QAM	1	Low	22.10	27.26
					1	Mid	21.97	27.13
					1	High	21.84	27.07
					25	Low	21.17	27.83
					25	High	21.10	27.85
					50	Low	21.15	27.79
	10.0 MHz	20175	1732.5	QPSK	1	Low	22.41	27.59
					1	Mid	<b>22.53</b>	27.69
					1	High	22.46	27.63
					25	Low	21.64	28.32
					25	High	21.72	28.31
					50	Low	21.71	28.30
				16QAM	1	Low	22.36	27.53
					1	Mid	22.49	27.59
					1	High	22.41	27.58
					25	Low	21.61	28.20
					25	High	21.69	<b>28.40</b>
					50	Low	21.68	28.16
	10.0 MHz	20350	1750.0	QPSK	1	Low	22.32	27.61
					1	Mid	22.22	27.38
					1	High	21.98	27.26
25					Low	21.39	28.39	
25					High	21.27	28.38	
50					Low	21.37	27.89	
16QAM				1	Low	22.28	27.53	
				1	Mid	22.19	27.39	
				1	High	21.96	27.23	
				25	Low	21.39	28.22	
				25	High	21.27	28.28	
				50	Low	21.37	27.60	

OUTPUT POWER FOR LTE BAND 4 (15.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 4	15.0 MHz	20025	1717.5	QPSK	1	Low	22.40	27.51
					1	Mid	21.94	27.17
					1	High	22.30	27.49
					36	Low	21.12	27.72
					36	High	21.19	27.81
					75	Low	21.14	28.59
				16QAM	1	Low	22.24	27.39
					1	Mid	21.87	27.10
					1	High	22.25	27.43
					36	Low	21.09	27.69
					36	High	21.16	27.73
					75	Low	21.12	28.58
	15.0 MHz	20175	1732.5	QPSK	1	Low	22.41	27.58
					1	Mid	22.54	27.73
					1	High	22.78	27.91
					36	Low	21.69	28.23
					36	High	21.85	28.39
					75	Low	21.79	<b>29.10</b>
				16QAM	1	Low	22.50	27.62
					1	Mid	22.62	27.82
					1	High	22.86	27.97
					36	Low	21.75	28.33
					36	High	21.90	28.45
					75	Low	21.84	29.09
	15.0 MHz	20325	1747.5	QPSK	1	Low	<b>22.91</b>	27.99
					1	Mid	22.52	27.59
					1	High	22.46	27.51
36					Low	21.77	28.49	
36					High	21.58	28.31	
75					Low	21.71	28.77	
16QAM				1	Low	22.93	27.99	
				1	Mid	22.56	27.65	
				1	High	22.49	27.52	
				36	Low	21.80	28.54	
				36	High	21.60	28.29	
				75	Low	21.71	28.74	



OUTPUT POWER FOR LTE BAND 4 (20.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Average Power(dBm)	Peak Power(dBm)
					RB Size	RB Offset		
Band 4	20.0 MHz	20050	1720.0	QPSK	1	Low	22.71	28.02
					1	Mid	22.30	27.73
					1	High	22.83	28.28
					50	Low	21.34	28.16
					50	High	21.59	28.32
					100	Low	21.44	28.31
				16QAM	1	Low	22.51	27.88
					1	Mid	22.23	27.68
					1	High	22.79	28.27
					50	Low	21.31	28.11
					50	High	21.56	28.34
					100	Low	21.43	28.22
	20.0 MHz	20175	1732.5	QPSK	1	Low	22.60	27.98
					1	Mid	22.67	28.07
					1	High	22.81	28.19
					50	Low	21.76	28.57
					50	High	21.90	28.57
					100	Low	21.85	28.63
				16QAM	1	Low	22.56	27.91
					1	Mid	22.65	28.04
					1	High	22.77	28.18
					50	Low	21.70	28.49
					50	High	21.88	28.51
					100	Low	21.82	28.52
	20.0 MHz	20300	1745.0	QPSK	1	Low	<b>23.32</b>	28.41
					1	Mid	22.59	27.99
					1	High	22.43	27.71
50					Low	21.87	28.52	
50					High	21.64	28.29	
100					Low	21.81	28.70	
16QAM				1	Low	23.01	28.39	
				1	Mid	22.58	27.92	
				1	High	22.43	27.73	
				50	Low	21.86	28.54	
				50	High	21.64	28.31	
				100	Low	21.81	<b>28.71</b>	

### 4.1.4 LTE BAND 7

#### OUTPUT POWER FOR LTE BAND 7 (5.0MHZ)

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Peak Power(dBm)	Average Power(dBm)
					RB Size	RB Offset		
Band 7	5.0MHz	20775	2502.5	QPSK	1	Low	22.22	27.95
					1	Mid	22.14	27.89
					1	High	<b>22.85</b>	28.46
					12	Low	20.91	28.03
					12	High	21.40	<b>28.63</b>
					25	Low	21.11	28.36
				16QAM	1	Low	21.91	27.68
					1	Mid	21.89	27.69
					1	High	22.65	28.32
					12	Low	20.72	28.03
					12	High	21.24	28.53
					25	Low	20.96	28.53
	5.0MHz	21100	2535.0	QPSK	1	Low	21.20	26.98
					1	Mid	21.75	26.62
					1	High	21.34	27.15
					12	Low	20.09	27.20
					12	High	20.07	27.42
					25	Low	20.01	27.48
				16QAM	1	Low	21.11	26.92
					1	Mid	21.07	26.53
					1	High	21.26	27.07
					12	Low	20.12	27.16
					12	High	20.02	27.39
					25	Low	20.16	26.97
	5.0MHz	21425	2567.5	QPSK	1	Low	22.45	28.40
					1	Mid	22.02	28.15
					1	High	22.46	28.44
12					Low	21.09	28.07	
12					High	21.18	28.13	
25					Low	21.08	28.05	
16QAM				1	Low	22.39	28.38	
				1	Mid	21.97	28.13	
				1	High	22.44	28.42	
				12	Low	21.09	27.83	
				12	High	21.19	27.96	
				25	Low	21.09	28.53	

**OUTPUT POWER FOR LTE BAND 7 (10.0MHZ)**

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Peak Power(dBm)	Average Power(dBm)
					RB Size	RB Offset		
Band 7	10.0 MHz	20800	2505.0	QPSK	1	Low	22.22	26.79
					1	Mid	22.11	27.68
					1	High	<b>22.54</b>	28.02
					25	Low	20.79	27.82
					25	High	21.59	<b>28.59</b>
					50	Low	21.19	27.89
				16QAM	1	Low	21.07	26.65
					1	Mid	22.06	27.61
					1	High	22.49	27.97
					25	Low	20.75	27.74
					25	High	21.55	28.45
					50	Low	21.17	28.06
	10.0 MHz	21100	2535.0	QPSK	1	Low	21.37	25.93
					1	Mid	21.60	26.16
					1	High	21.87	26.44
					25	Low	20.60	26.50
					25	High	20.03	26.99
					50	Low	20.81	26.71
				16QAM	1	Low	21.36	25.91
					1	Mid	21.60	26.20
					1	High	21.87	26.46
					25	Low	20.61	26.57
					25	High	20.04	27.14
					50	Low	20.83	26.52
	10.0 MHz	21400	2565.0	QPSK	1	Low	21.50	27.20
					1	Mid	21.81	27.52
					1	High	21.88	27.55
25					Low	20.72	28.15	
25					High	21.04	28.36	
50					Low	20.93	27.65	
16QAM				1	Low	21.45	27.16	
				1	Mid	21.79	27.53	
				1	High	21.87	27.56	
				25	Low	20.72	28.11	
				25	High	21.04	28.36	
				50	Low	20.93	27.68	

**OUTPUT POWER FOR LTE BAND 7 (15.0MHZ)**

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Peak Power(dBm)	Average Power(dBm)
					RB Size	RB Offset		
Band 7	15.0 MHz	20825	2507.5	QPSK	1	Low	21.37	26.94
					1	Mid	22.40	27.95
					1	High	<b>22.58</b>	28.08
					36	Low	20.90	27.85
					36	High	21.71	28.52
					75	Low	21.33	<b>28.88</b>
				16QAM	1	Low	21.21	26.78
					1	Mid	22.34	27.88
					1	High	22.49	28.01
					36	Low	20.83	27.78
					36	High	21.69	28.55
					75	Low	21.27	28.83
	15.0 MHz	21100	2535.0	QPSK	1	Low	21.65	26.24
					1	Mid	21.54	26.18
					1	High	21.00	26.64
					36	Low	20.59	26.49
					36	High	20.05	26.99
					75	Low	20.78	27.52
				16QAM	1	Low	21.61	26.18
					1	Mid	21.52	26.13
					1	High	21.03	26.64
					36	Low	20.55	26.47
					36	High	20.07	27.04
					75	Low	20.79	27.48
	15.0 MHz	21375	2562.5	QPSK	1	Low	21.48	26.92
					1	Mid	21.50	26.98
					1	High	22.06	27.44
36					Low	20.58	27.67	
36					High	20.97	27.99	
75					Low	20.81	28.31	
16QAM				1	Low	21.44	26.88	
				1	Mid	21.48	26.93	
				1	High	22.04	27.42	
				36	Low	20.55	27.68	
				36	High	20.95	27.96	
				75	Low	20.78	28.29	

**OUTPUT POWER FOR LTE BAND 7 (20.0MHZ)**

Band	Band Width	Channel	Frequency (MHz)	Modulation	RB Configuration		Peak Power(dBm)	Average Power(dBm)
					RB Size	RB Offset		
Band 7	20.0 MHz	20850	2510.0	QPSK	1	Low	21.47	27.44
					1	Mid	<b>22.53</b>	28.43
					1	High	22.03	28.03
					50	Low	21.05	28.24
					50	High	21.50	<b>28.56</b>
					100	Low	21.32	28.33
				16QAM	1	Low	21.36	27.34
					1	Mid	22.49	28.39
					1	High	21.99	27.99
					50	Low	21.05	28.18
					50	High	21.50	28.55
					100	Low	21.32	28.29
	20.0 MHz	21100	2535.0	QPSK	1	Low	21.93	26.89
					1	Mid	21.56	26.57
					1	High	21.16	27.20
					50	Low	20.52	26.65
					50	High	20.03	27.12
					100	Low	20.77	26.75
				16QAM	1	Low	21.87	26.84
					1	Mid	21.52	26.54
					1	High	21.14	27.17
					50	Low	20.52	26.62
					50	High	20.04	27.10
					100	Low	20.77	26.78
	20.0 MHz	21350	2560.0	QPSK	1	Low	21.45	27.38
					1	Mid	21.39	27.35
					1	High	21.86	27.75
50					Low	20.49	27.60	
50					High	20.79	27.85	
100					Low	20.67	27.92	
16QAM				1	Low	21.37	27.32	
				1	Mid	21.36	27.32	
				1	High	21.83	27.74	
				50	Low	20.48	27.64	
				50	High	20.79	27.87	
				100	Low	20.67	27.94	

## 5. 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

LTE Band 4

LTE Band 7

### RESULTS

**Test results:**

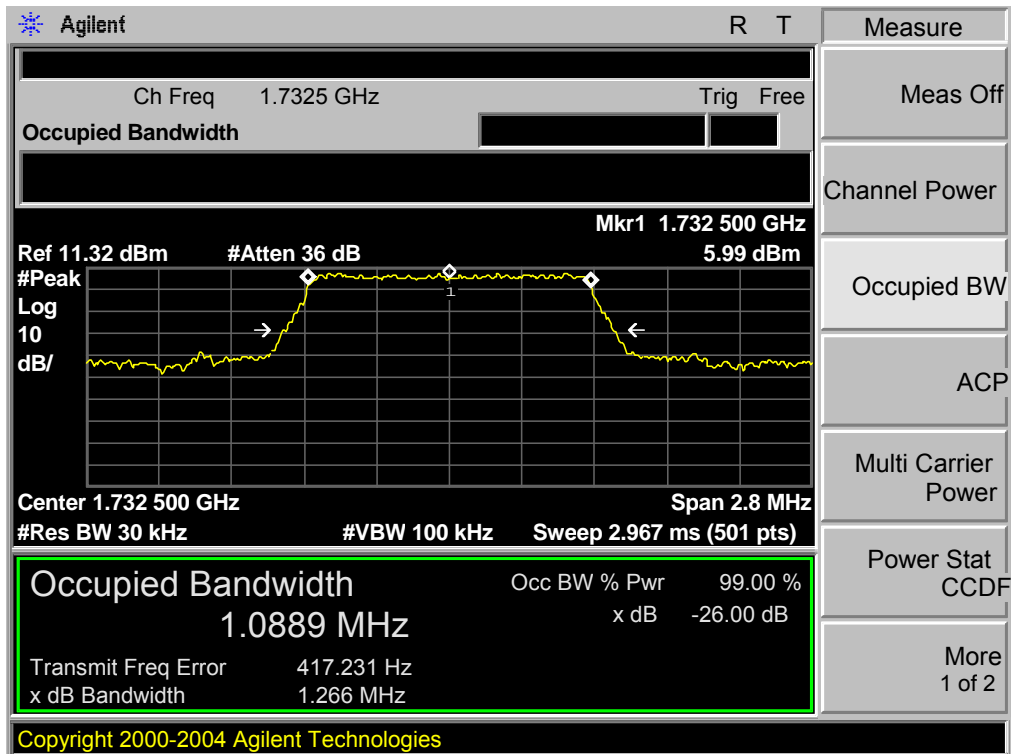
Band	Mode	RB Size/RB Offset	Frequency (MHz)	99% Occupied Bandwidth (MHz)	-26dBc Occupied Bandwidth (MHz)
LTE Band 4	1.4MHz BAND QPSK	6/0	1732.5	1.09	1.27
	1.4MHz BAND 16QAM	6/0	1732.5	1.09	1.27
	3.0MHz BAND QPSK	15/0	1732.5	2.74	3.01
	3.0MHz BAND 16QAM	15/0	1732.5	2.74	3.01
	5.0MHz BAND QPSK	25/0	1732.5	4.52	5.03
	5.0MHz BAND 16QAM	25/0	1732.5	4.50	5.04
	10.0MHz BAND QPSK	50/0	1732.5	9.03	10.07
	10.0MHz BAND 16QAM	50/0	1732.5	9.03	10.05
	15.0MHz BAND QPSK	75/0	1732.5	13.45	14.50
	15.0MHz BAND 16QAM	75/0	1732.5	13.50	14.83
	20.0MHz BAND QPSK	100/0	1732.5	18.38	20.44
	20.0MHz BAND 16QAM	100/0	1732.5	18.40	20.43

Band	Mode	RB Size/RB Offset	Frequency (MHz)	99% Occupied Bandwidth (MHz)	-26dBc Occupied Bandwidth (MHz)
LTE Band 7	5.0MHz BAND QPSK	25/0	21100	4.52	4.99
	5.0MHz BAND 16QAM	25/0	21100	4.53	5.08
	10.0MHz BAND QPSK	50/0	21100	9.04	9.90
	10.0MHz BAND 16QAM	50/0	21100	9.04	9.94
	15.0MHz BAND QPSK	75/0	21100	13.45	14.80
	15.0MHz BAND 16QAM	75/0	21100	13.44	14.90
	20.0MHz BAND QPSK	100/0	21100	18.41	20.31
	20.0MHz BAND 16QAM	100/0	21100	18.38	20.25

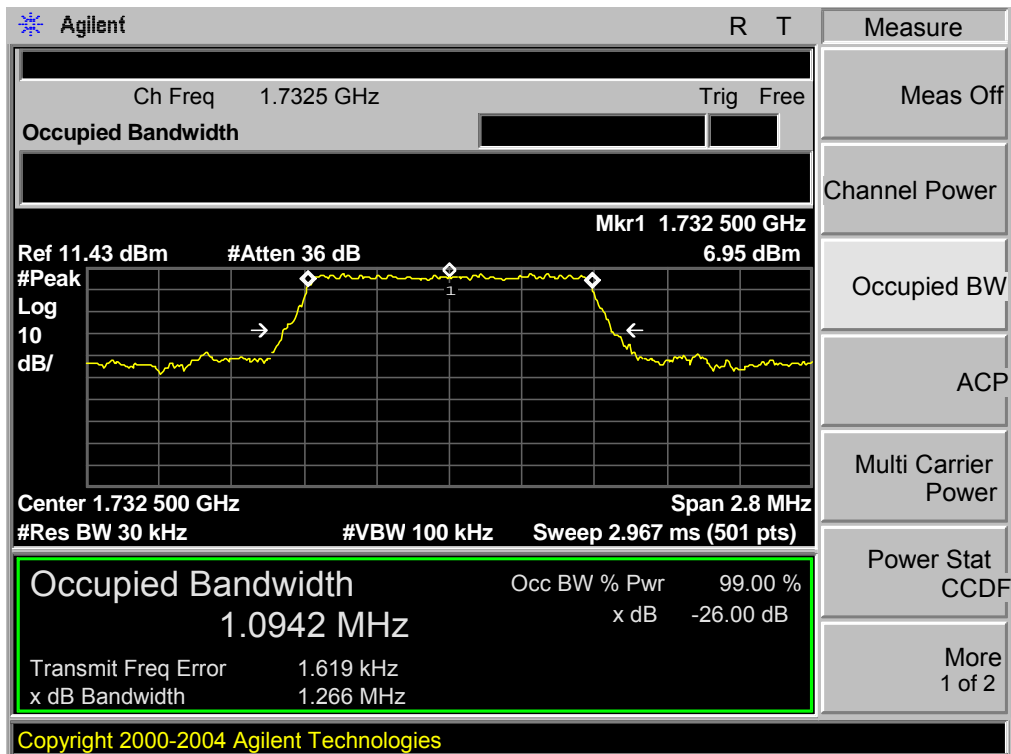
Note: This test was only measured at maximum RB allocation and at CENTER of band for each LTE BW

### 5.1.1. LTE BAND 4

Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 6,RB POS. Low,QPSK

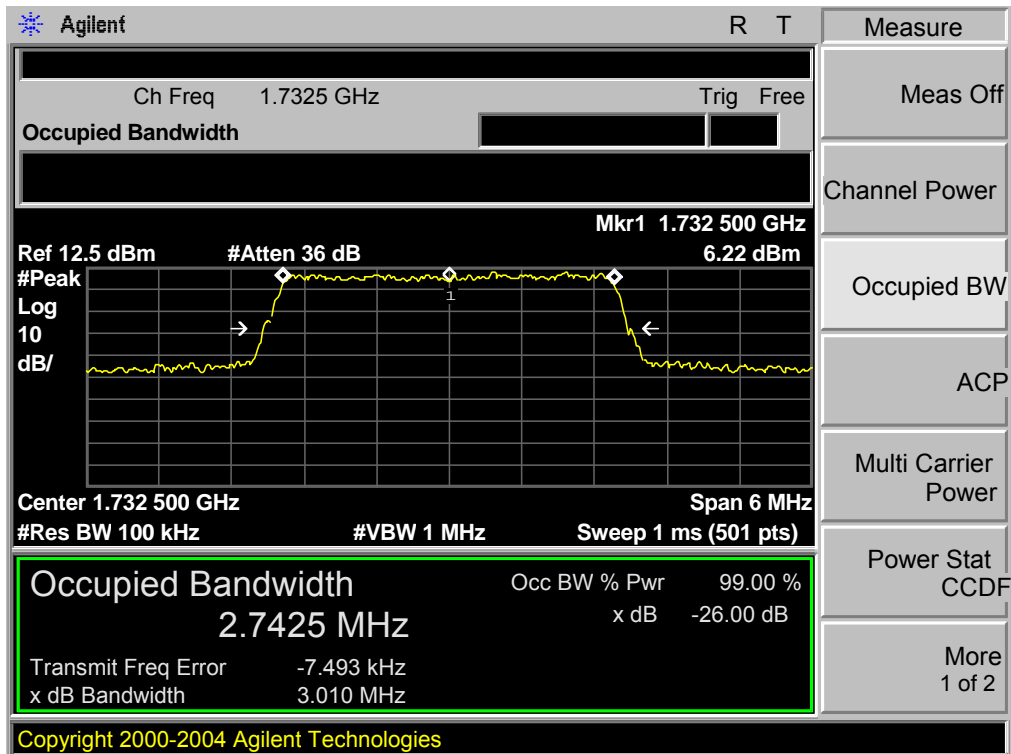


Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 6,RB POS. Low,16QAM

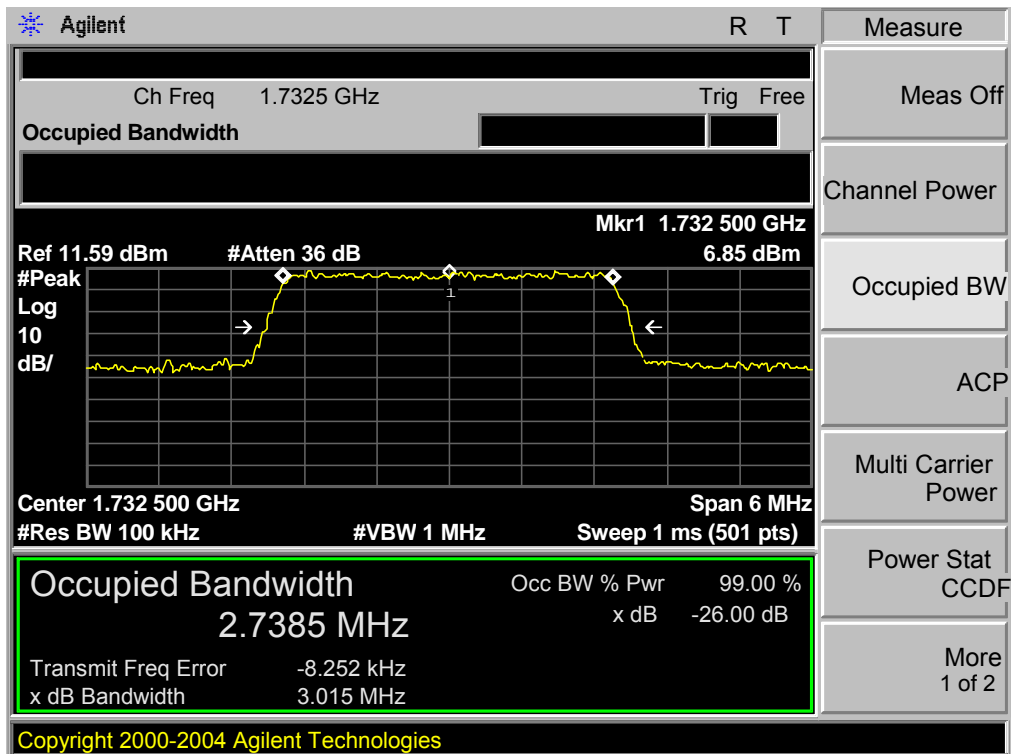




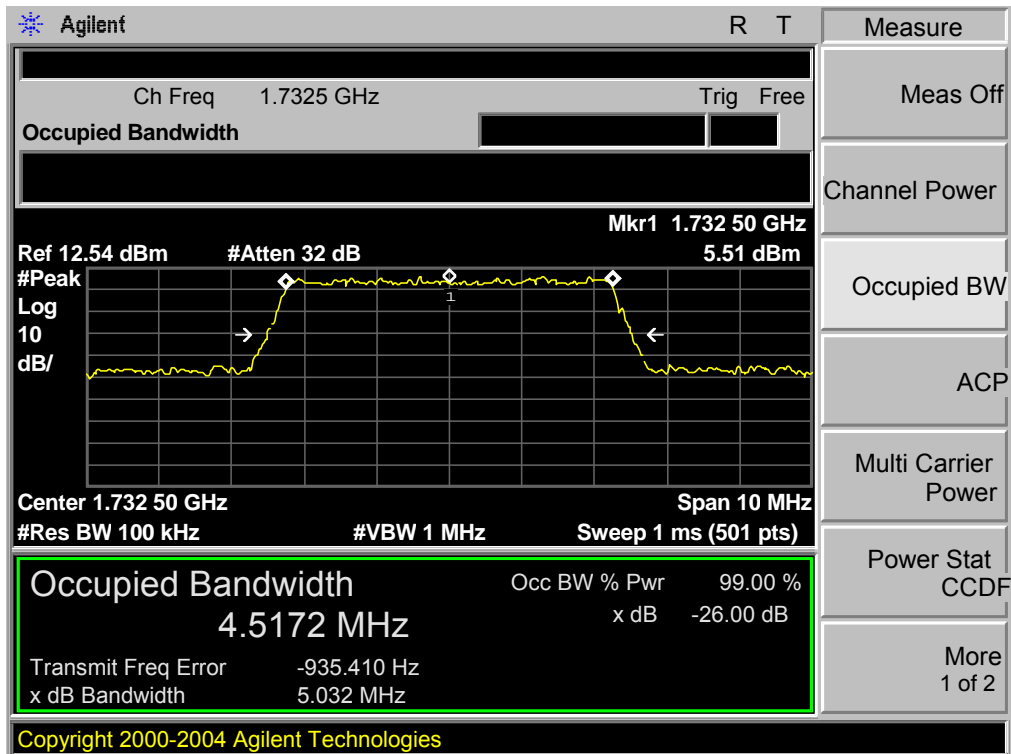
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



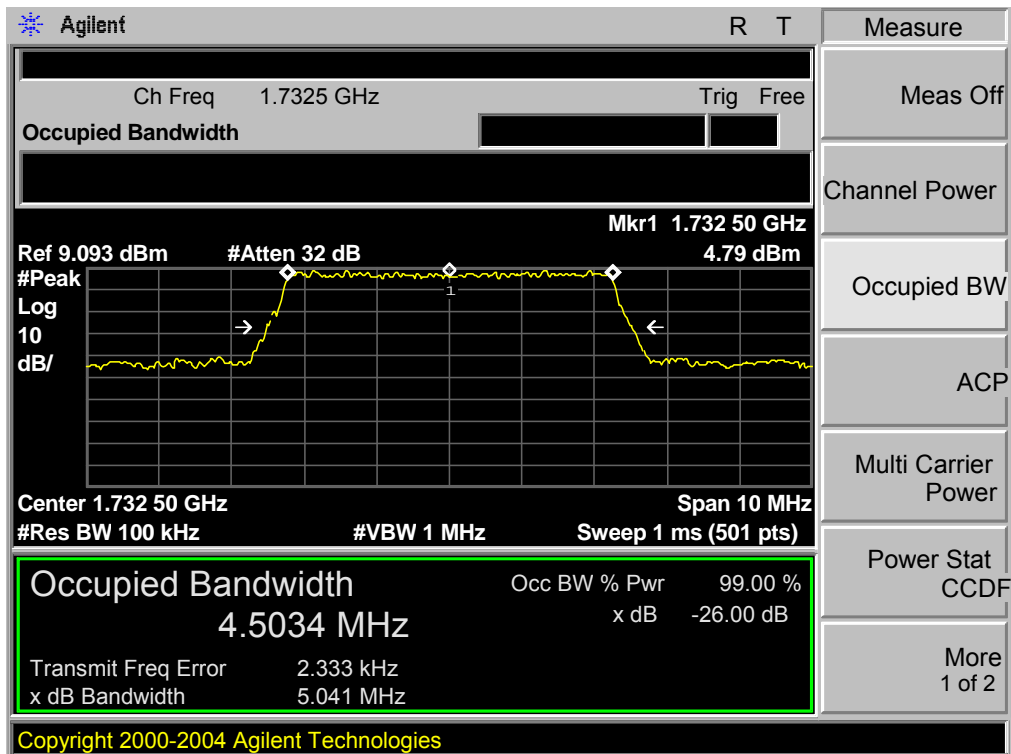
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 15,RB POS. Low,16QAM



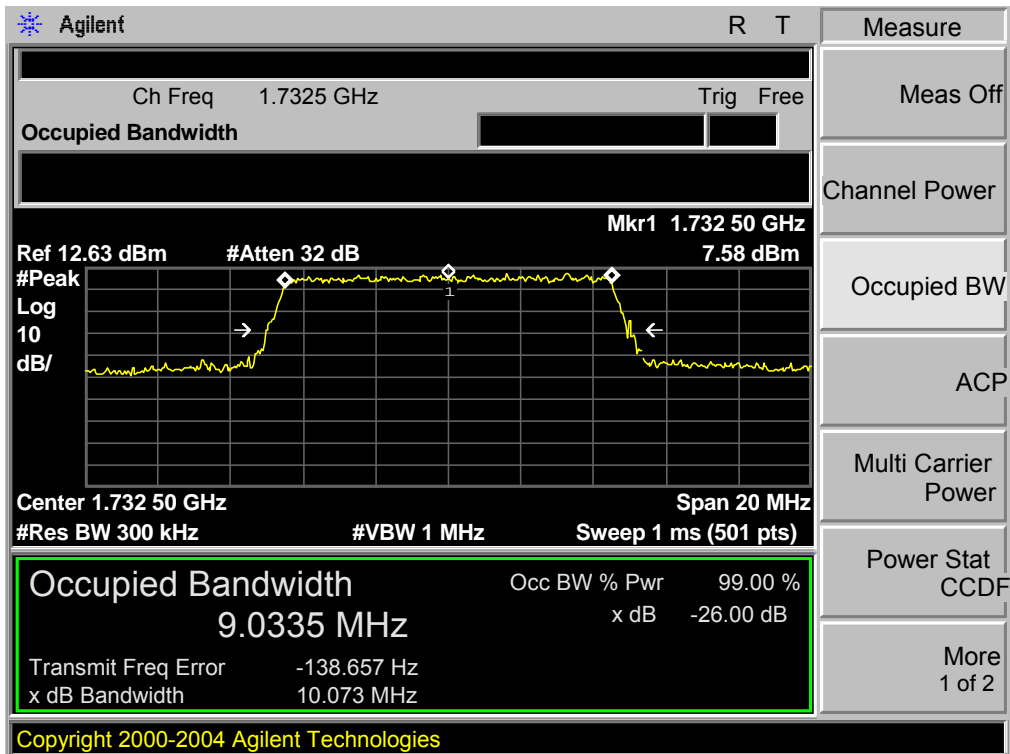
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



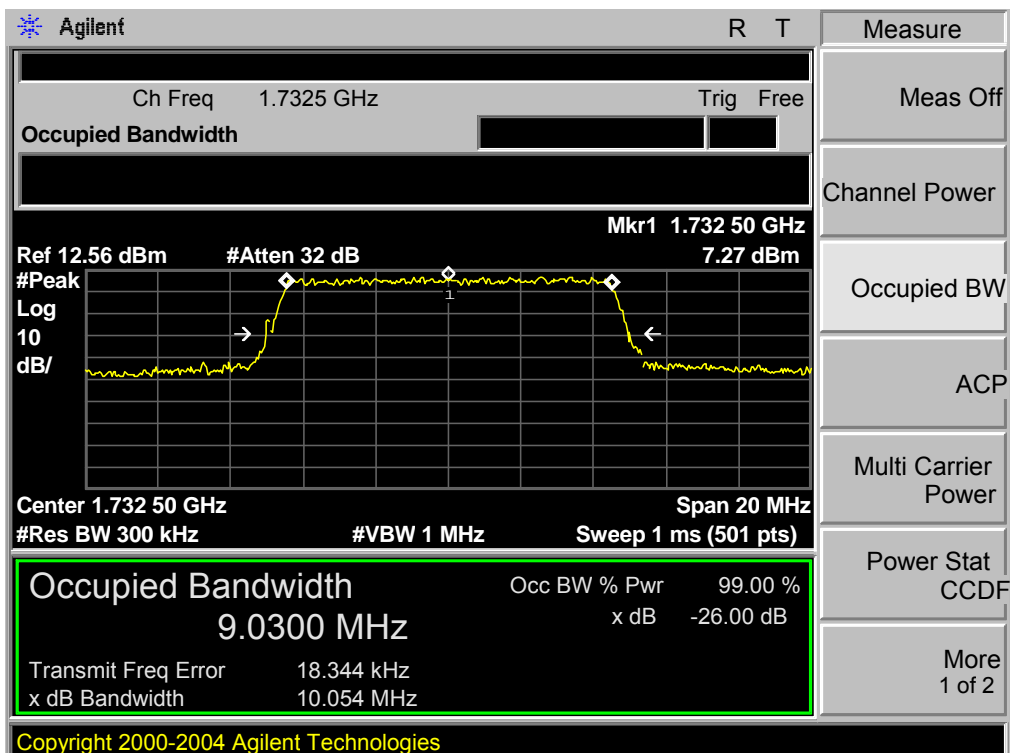
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



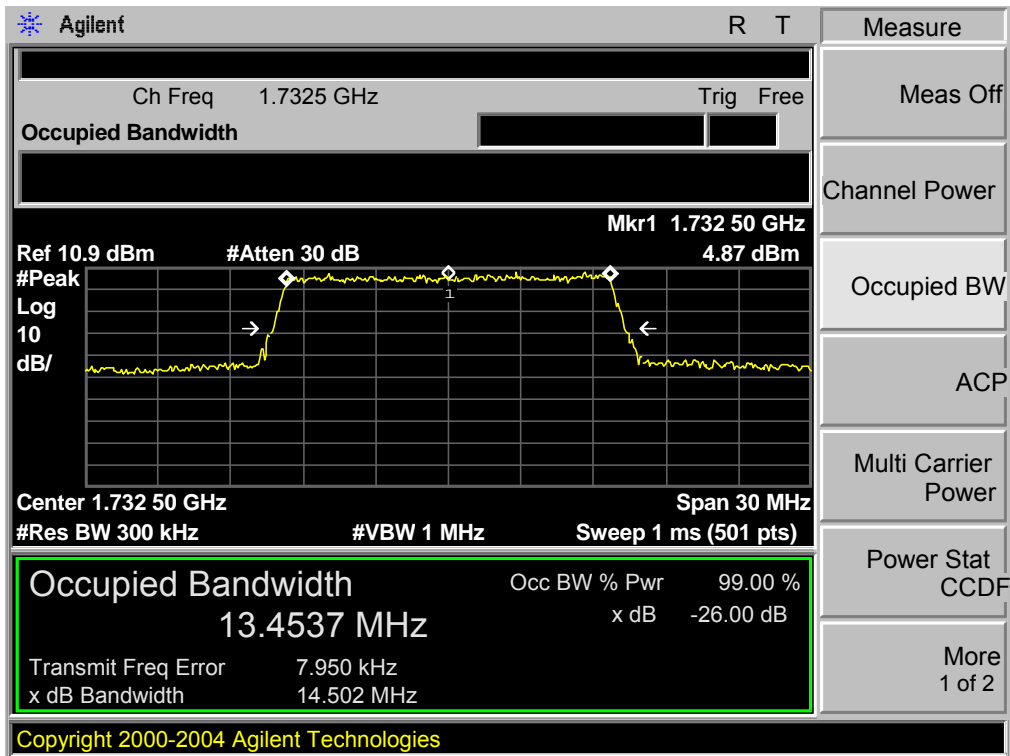
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 50,RB POS. Low,QPSK



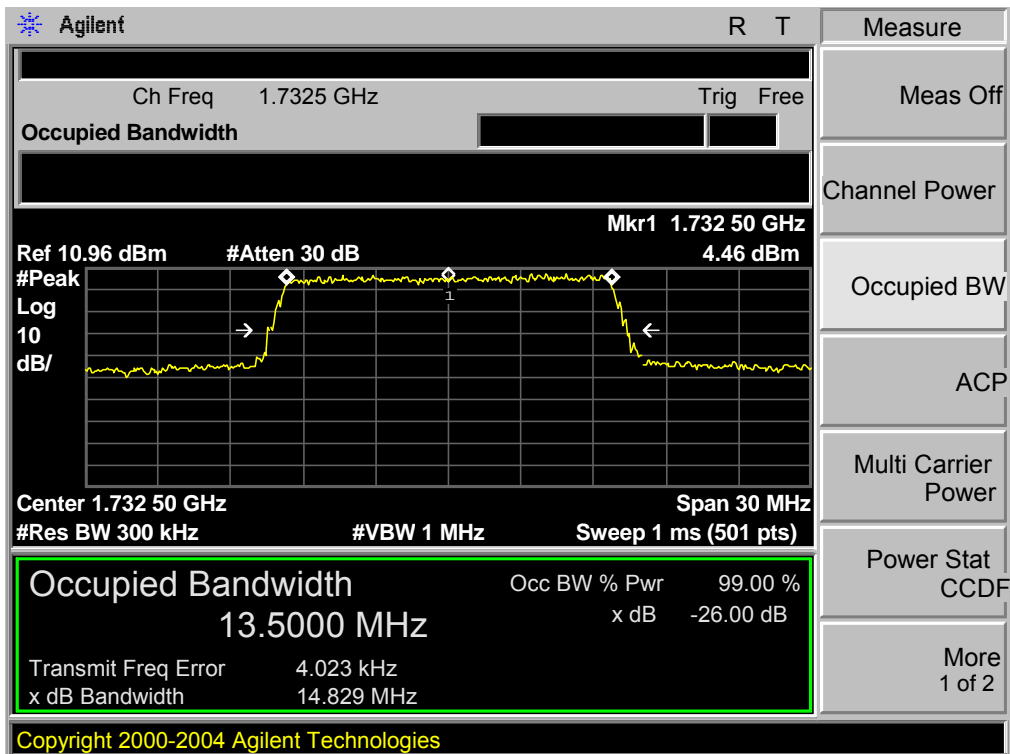
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 50,RB POS. Low,16QAM



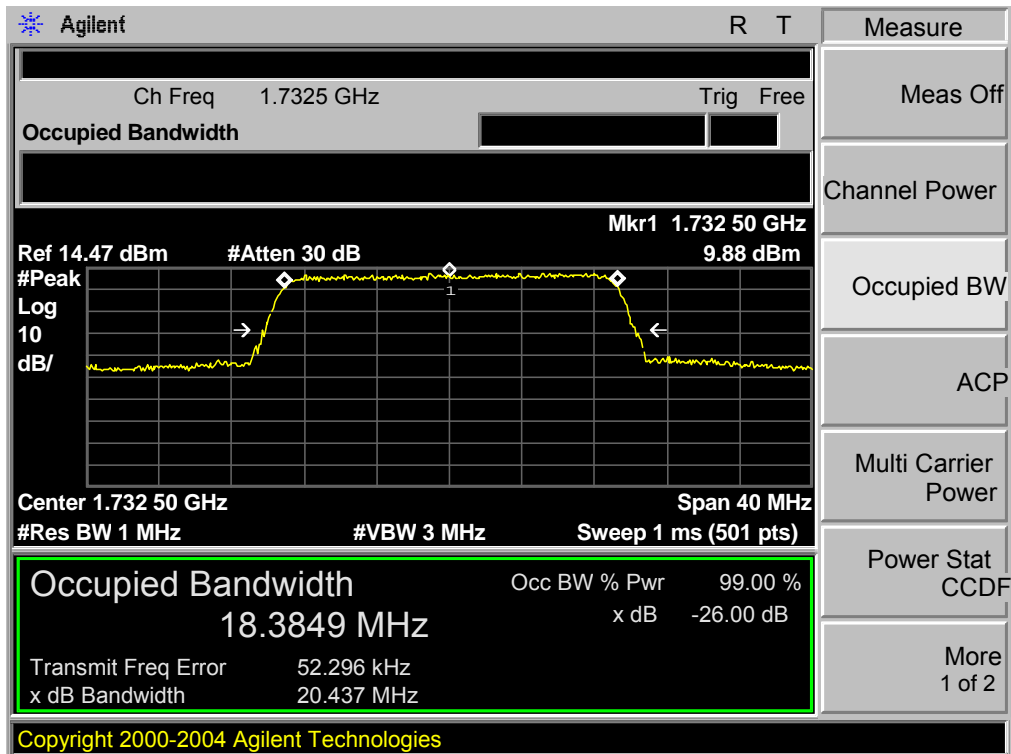
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



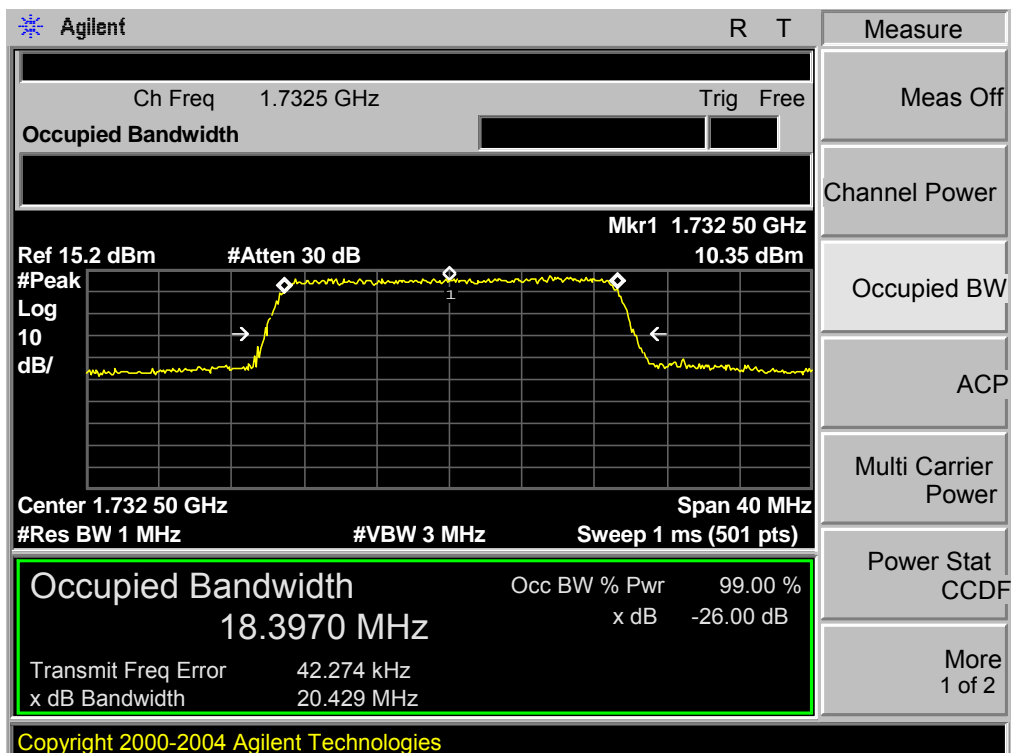
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 100,RB POS. Low,QPSK

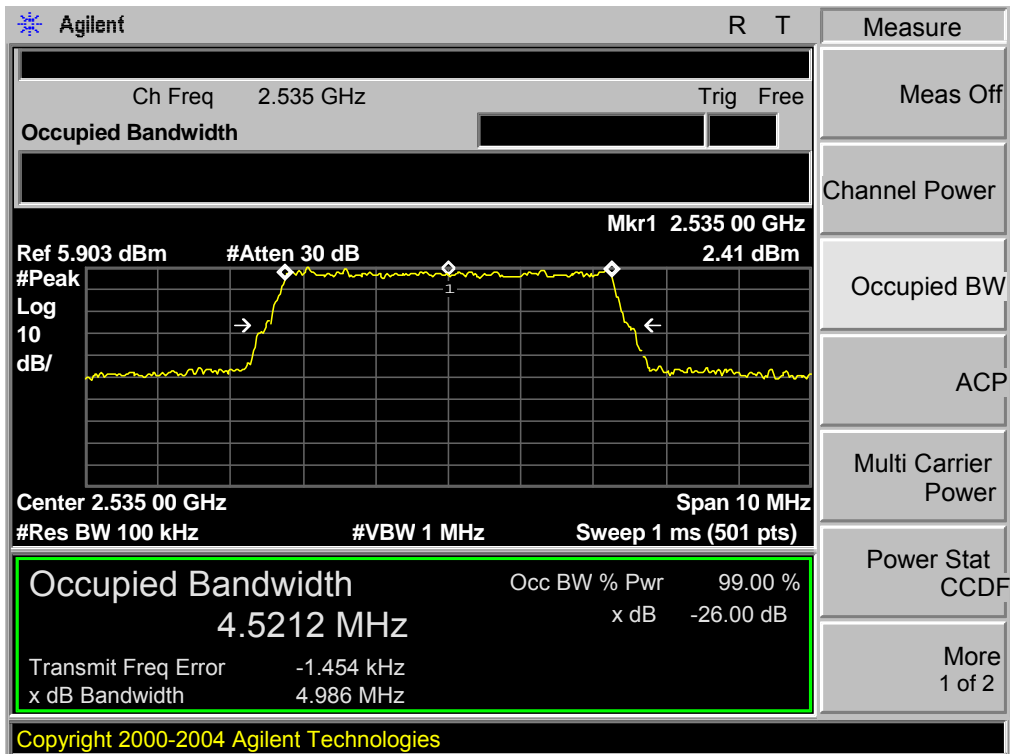


Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 100,RB POS. Low,16QAM

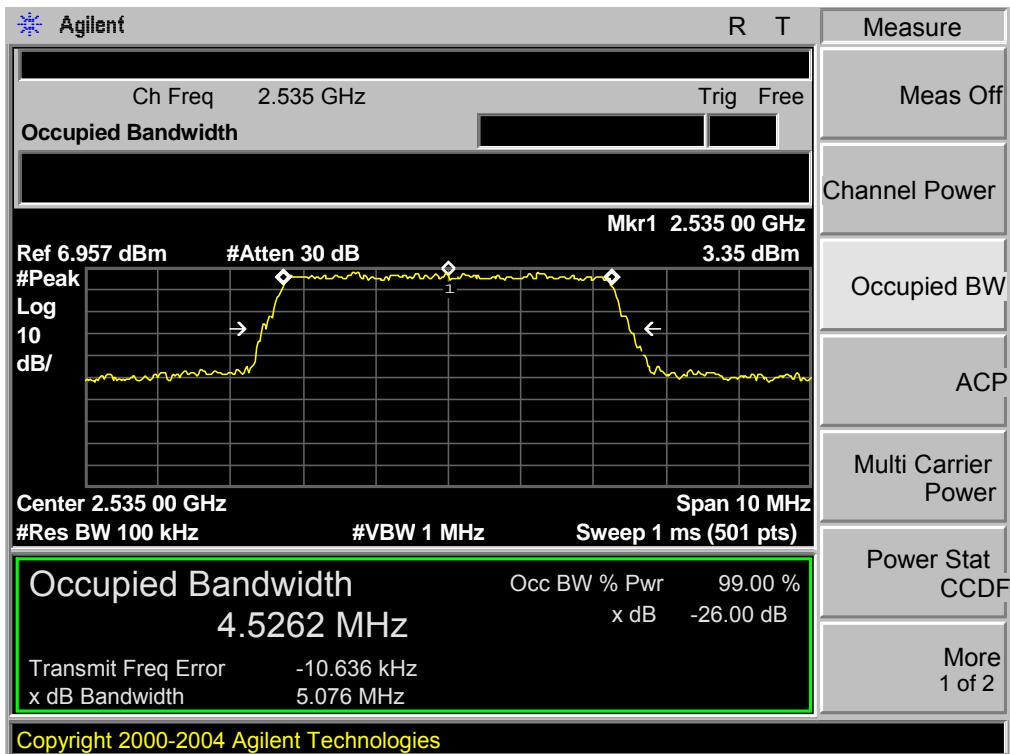


### 5.1.2. LTE BAND 7

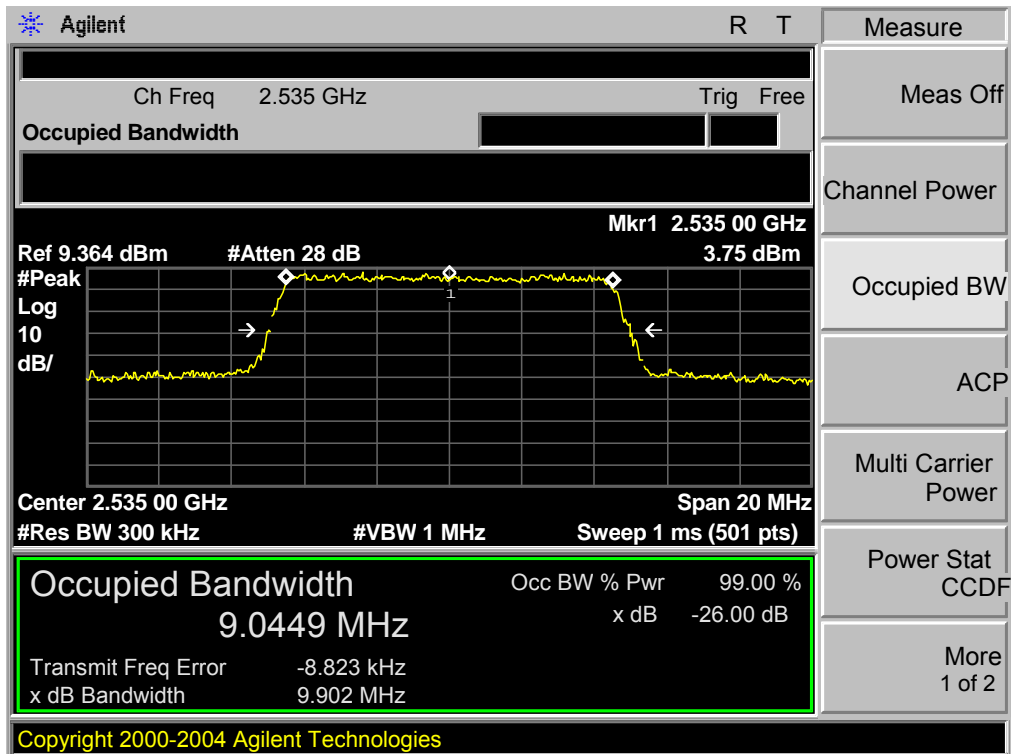
Band 7,UL Channel 21100,UL Frequency 2535.0,BW 5.0,NO. RB 25,RB POS. Low,QPSK



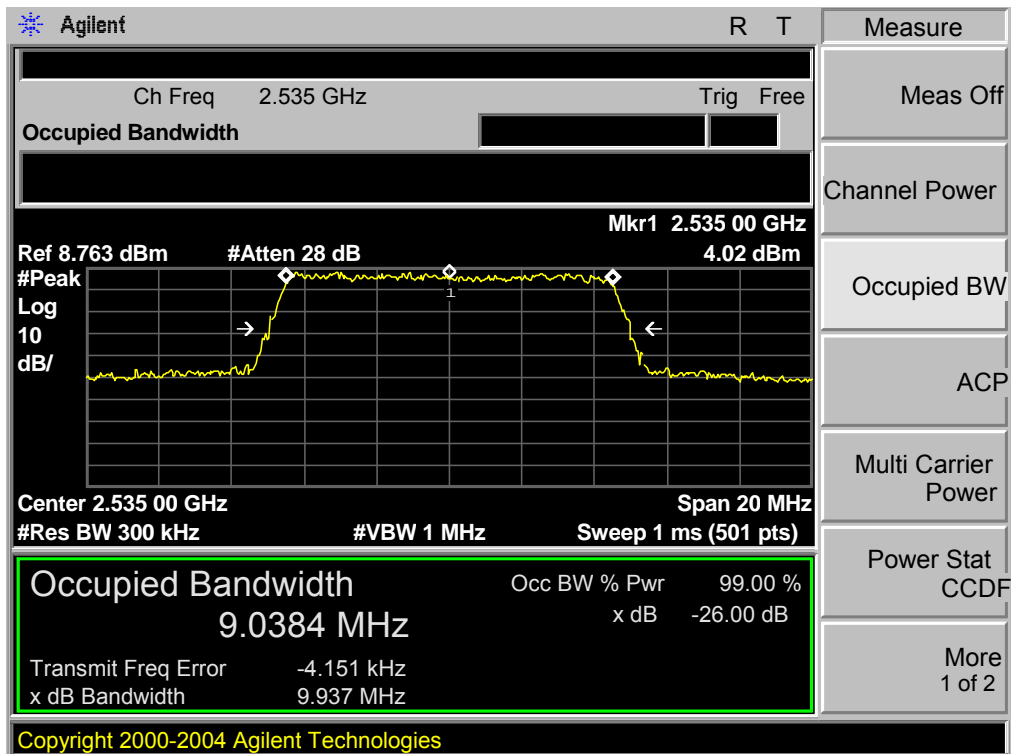
Band 7,UL Channel 21100,UL Frequency 2535.0,BW 5.0,NO. RB 25,RB POS. Low,16QAM



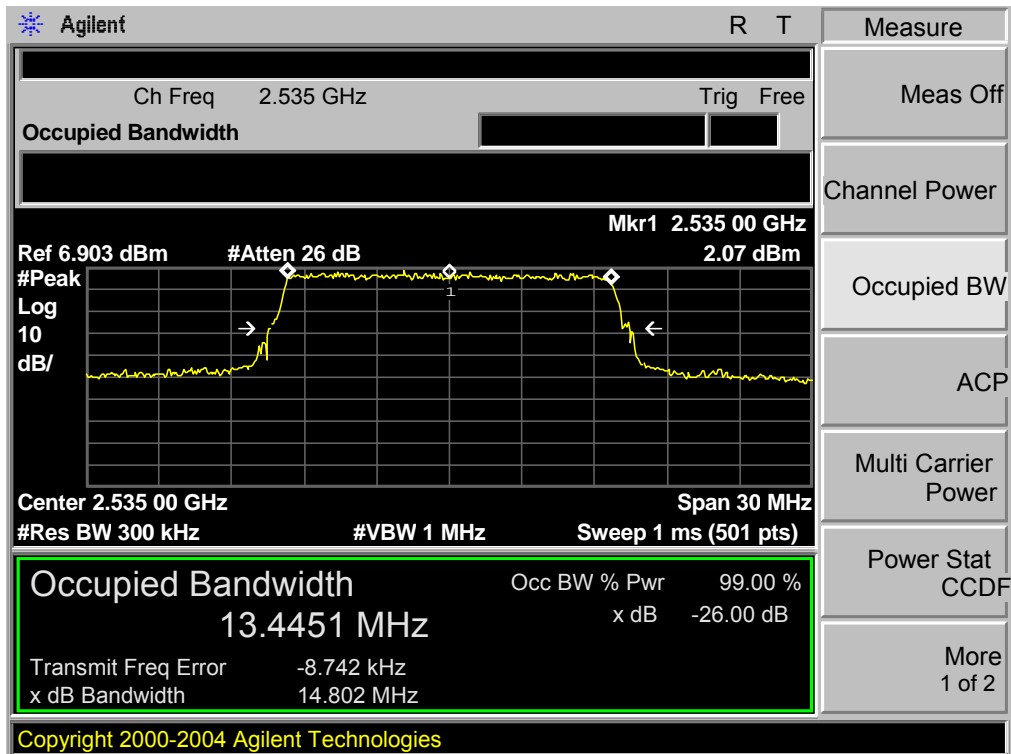
Band 7,UL Channel 21100,UL Frequency 2535.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



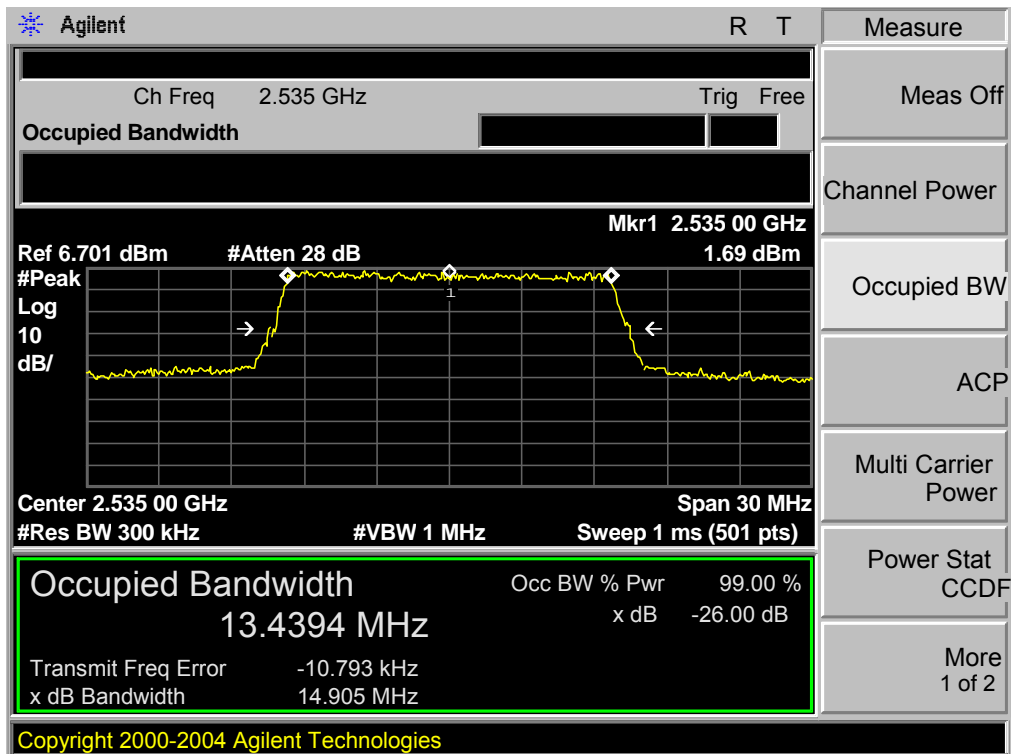
Band 7,UL Channel 21100,UL Frequency 2535.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



Band 7,UL Channel 21100,UL Frequency 2535.0,BW 15.0,NO. RB 75,RB POS. Low,QPSK

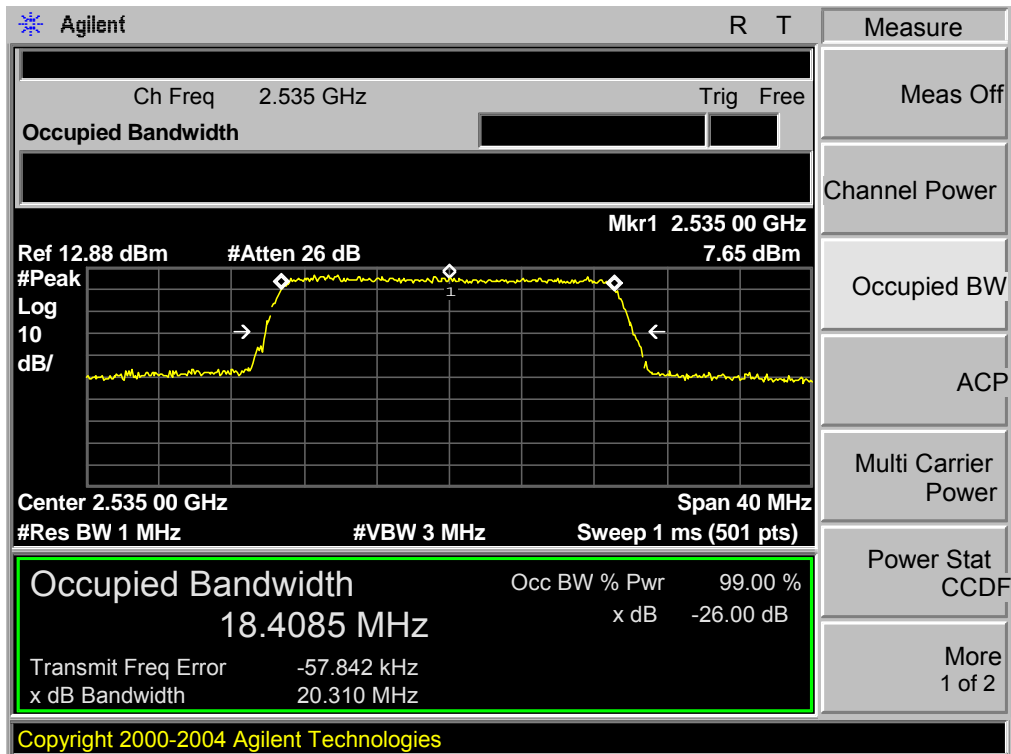


Band 7,UL Channel 21100,UL Frequency 2535.0,BW 15.0,NO. RB 75,RB POS. Low,16QAM

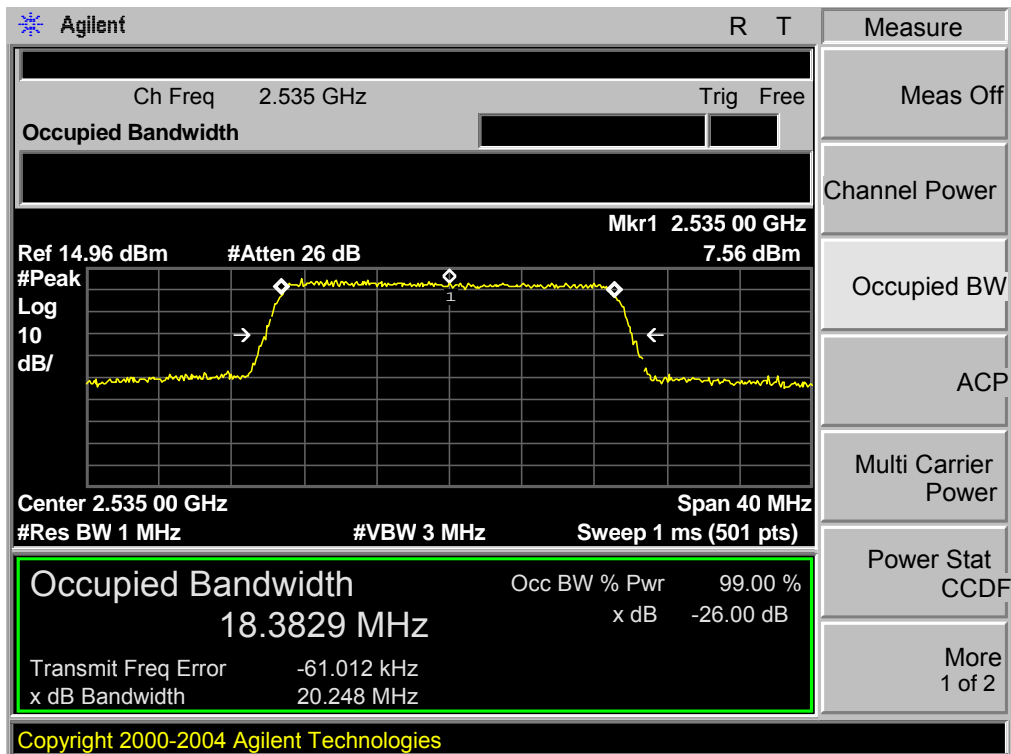




Band 7,UL Channel 21100,UL Frequency 2535.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 7,UL Channel 21100,UL Frequency 2535.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



## 6. BANDEDGE AND EMISSION MASK

### RULE PART(S)

FCC: §2.1051, §22.901, §22.917, §24.238, §27.53, and §90.691

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.

(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 than  $43 + 10 \log (P)$  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. Show citation box.

### TEST PROCEDURE

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

For each band edge measurement:

Set the spectrum analyzer span to include the block edge frequency (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

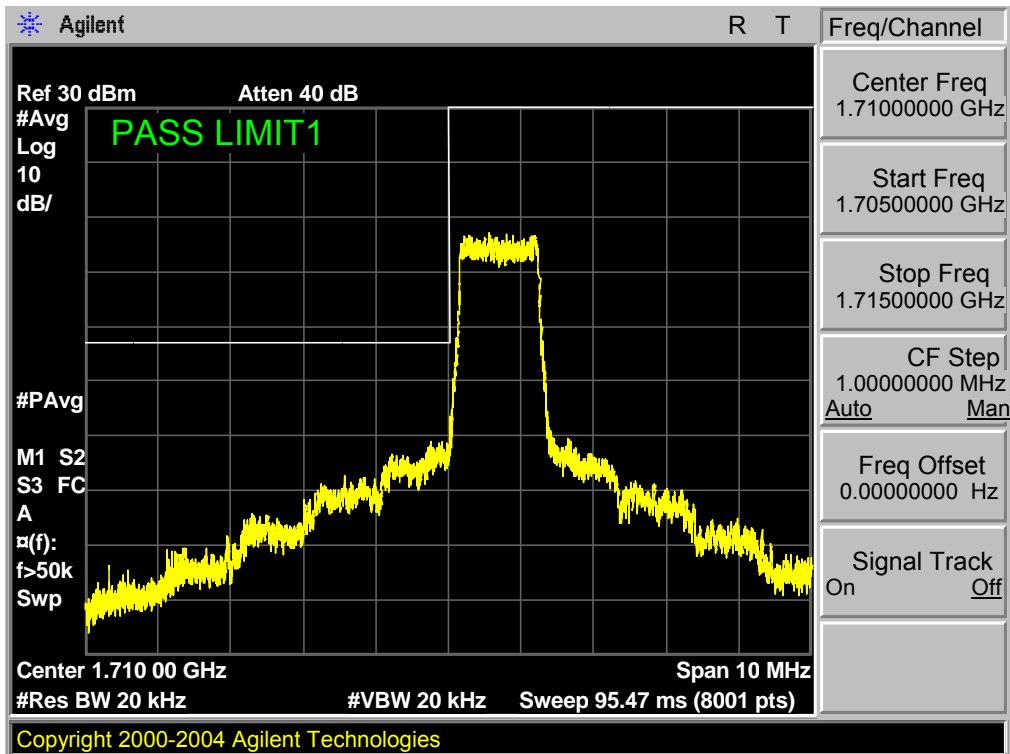
LTE Band 4

LTE Band 7

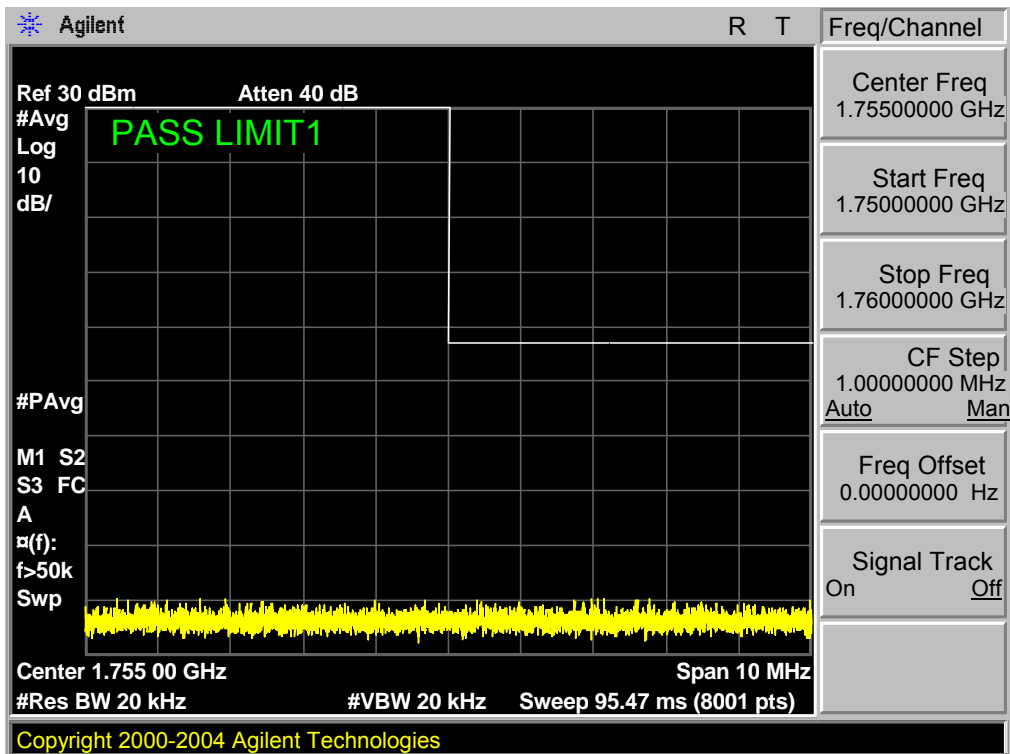
### RESULTS

### 6.1.1. LTE BAND 4

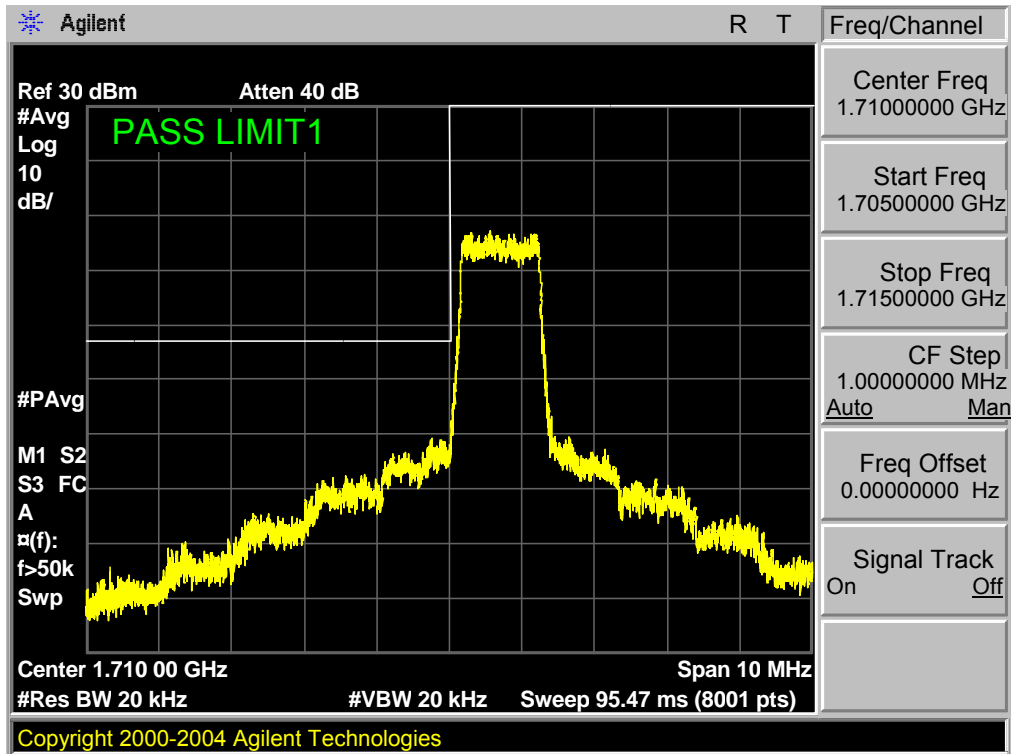
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 6,RB POS. Low,QPSK



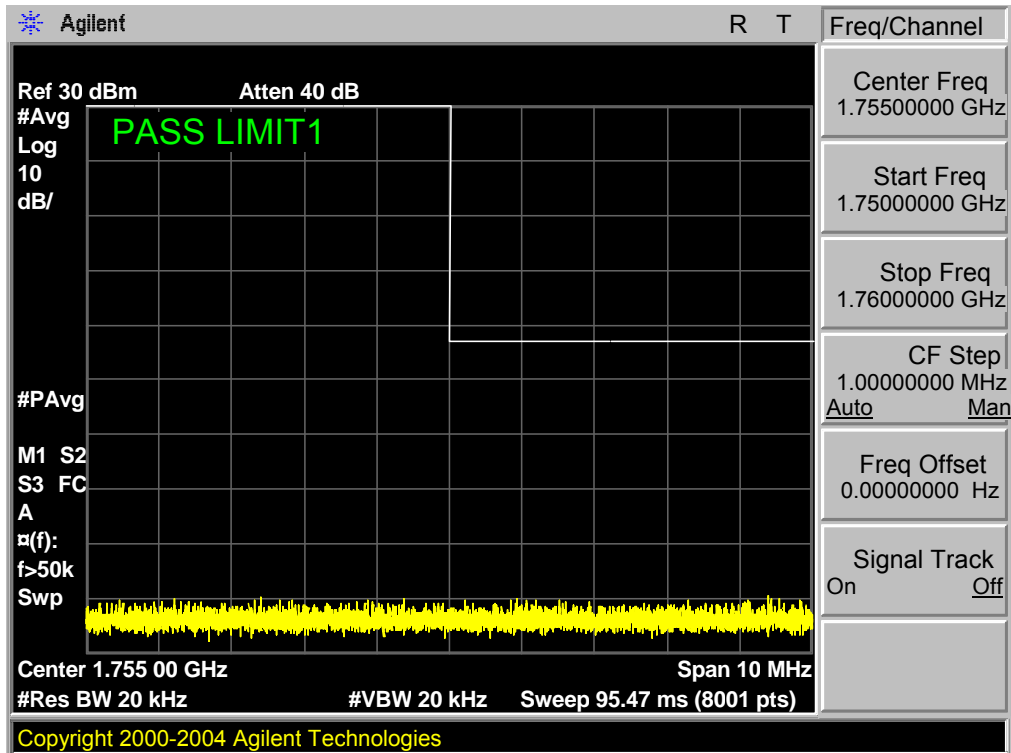
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 6,RB POS. Low,QPSK



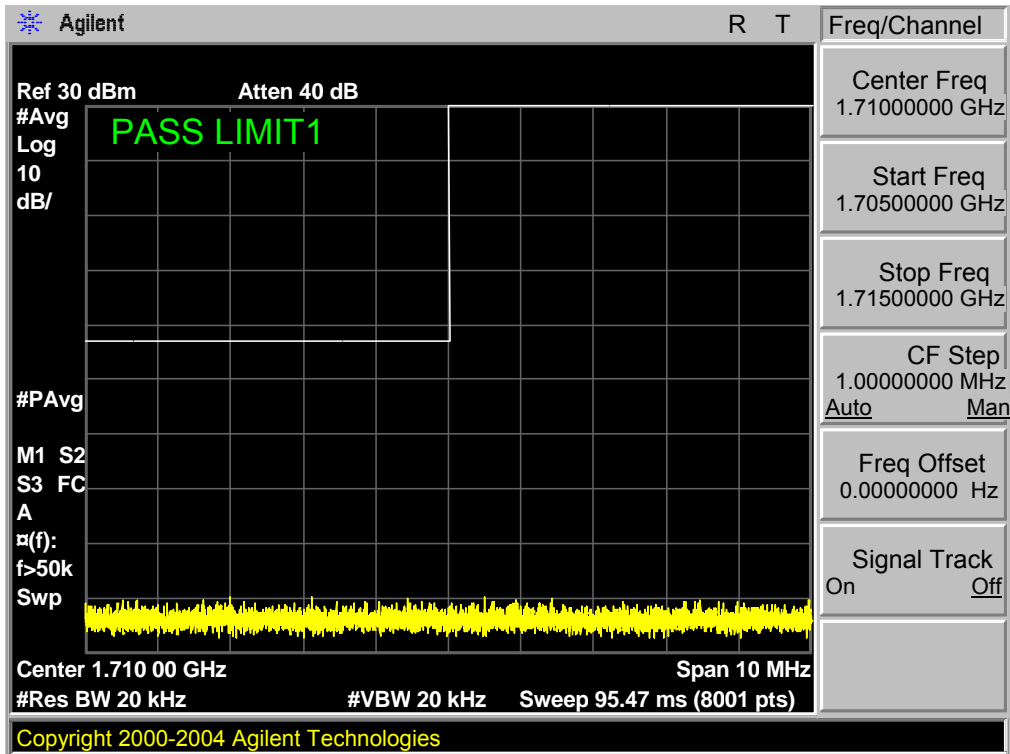
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 6,RB POS. Low,16QAM



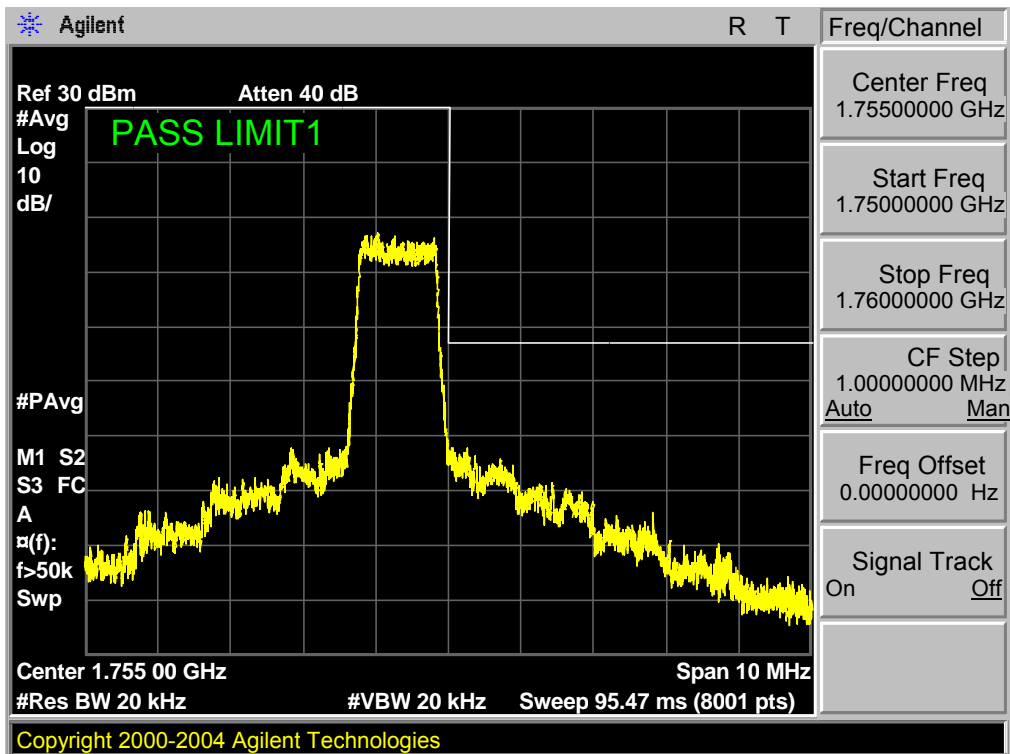
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 6,RB POS. Low,16QAM



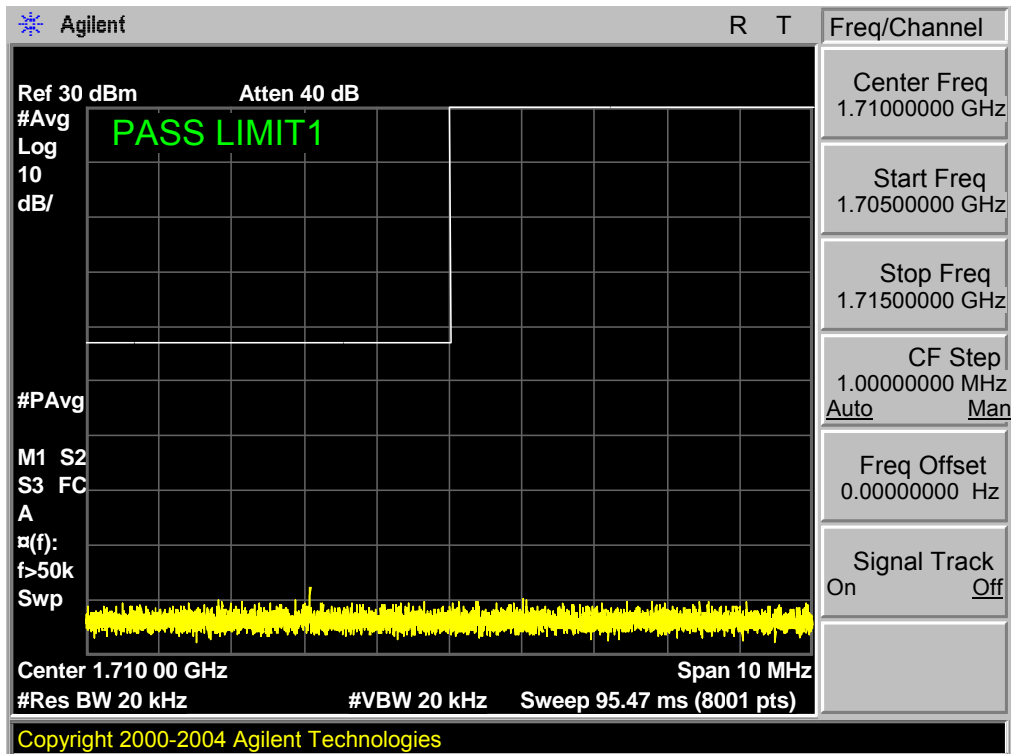
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 6,RB POS. Low,QPSK



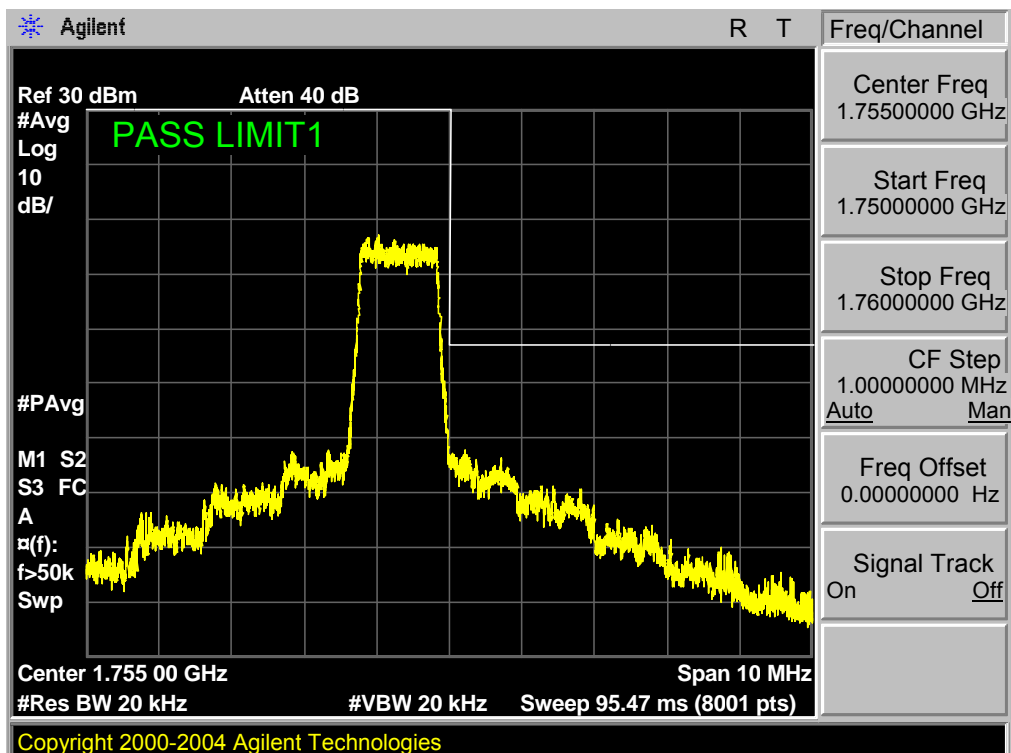
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 6,RB POS. Low,QPSK



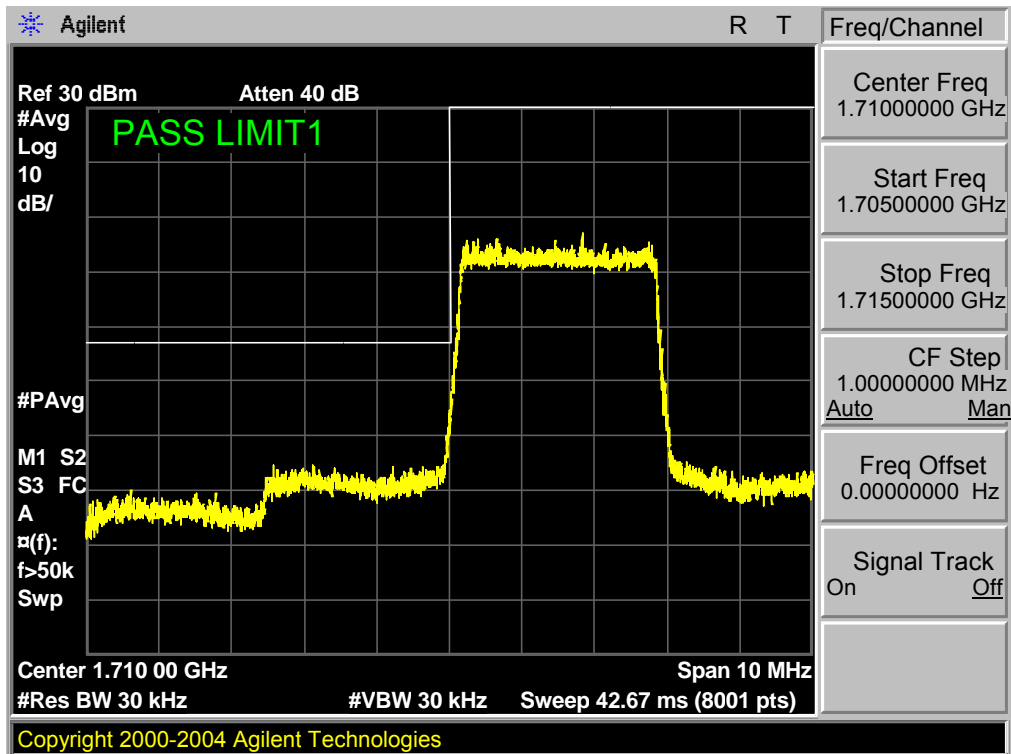
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 6,RB POS. Low,16QAM



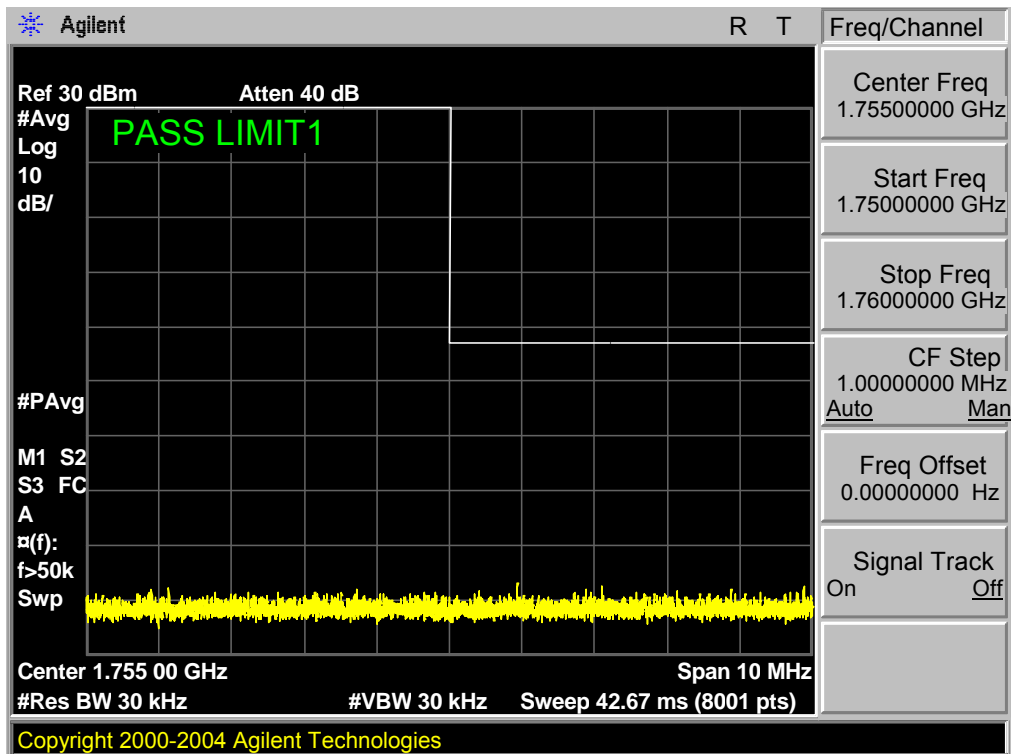
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 6,RB POS. Low,16QAM



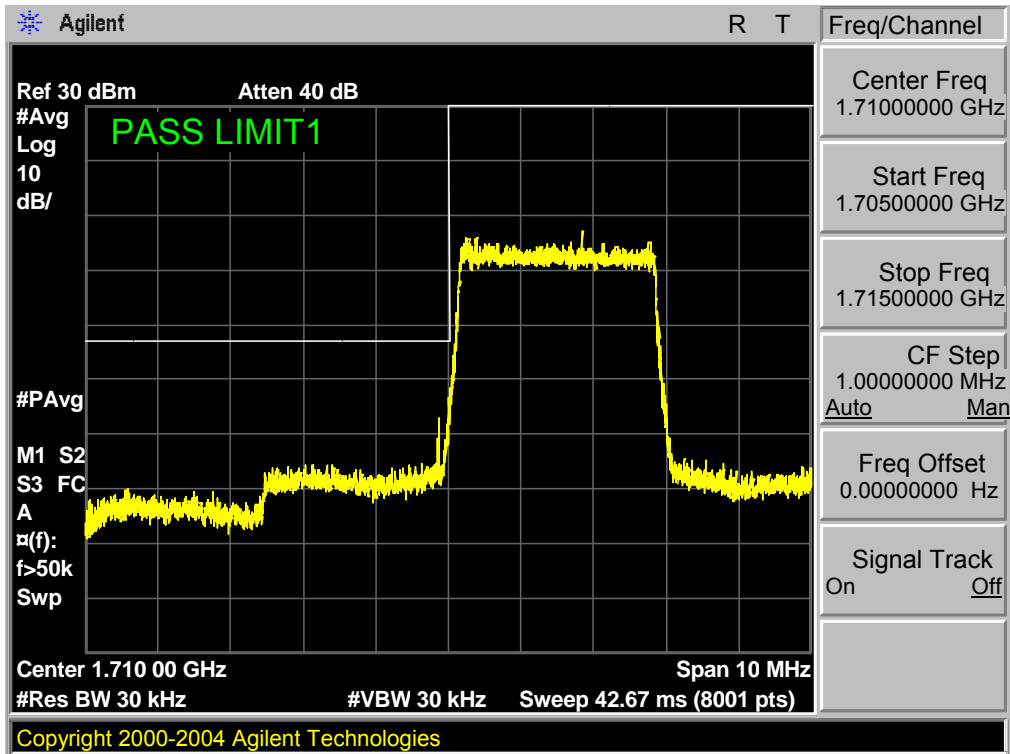
Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



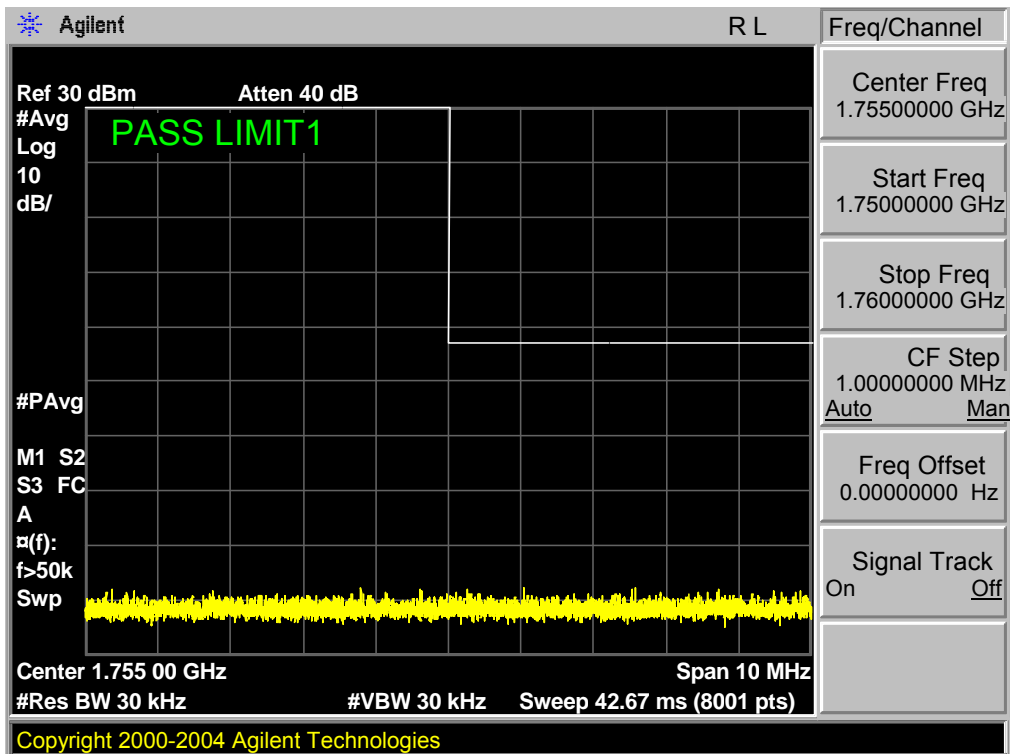
Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 15,RB POS. Low,16QAM

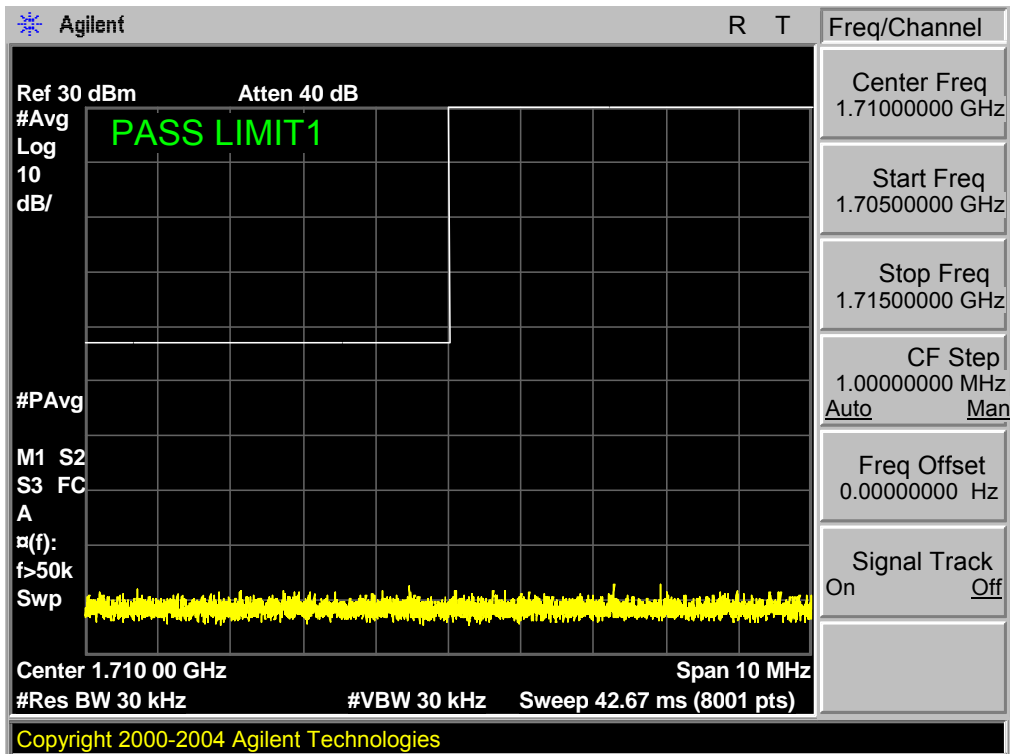


Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 15,RB POS. Low,16QAM

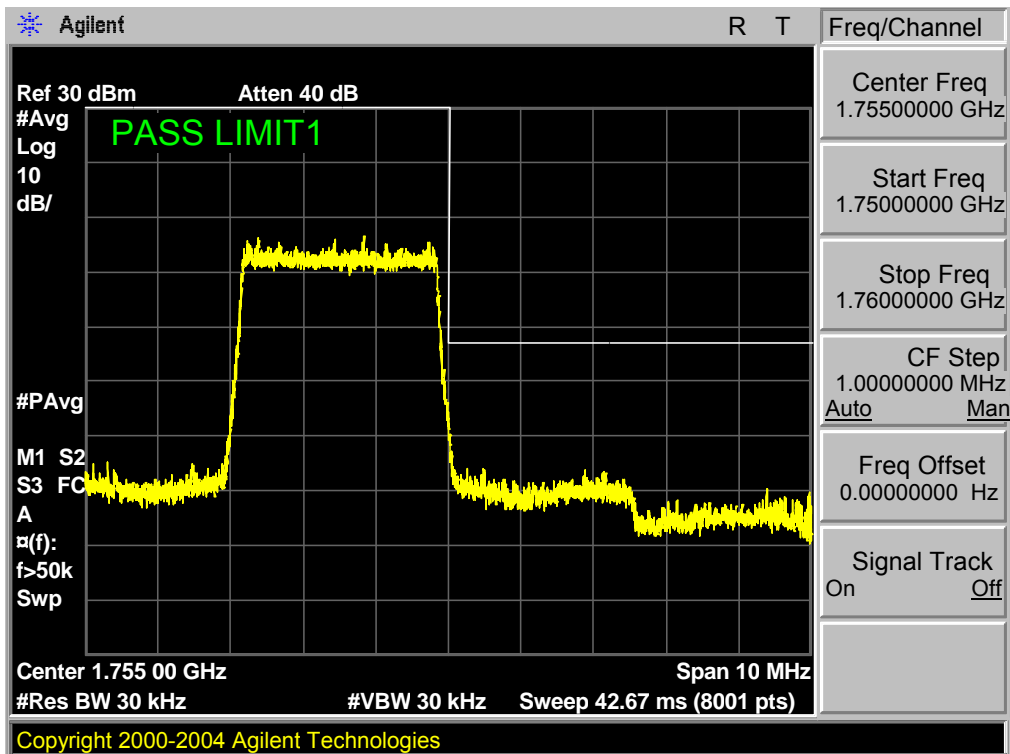




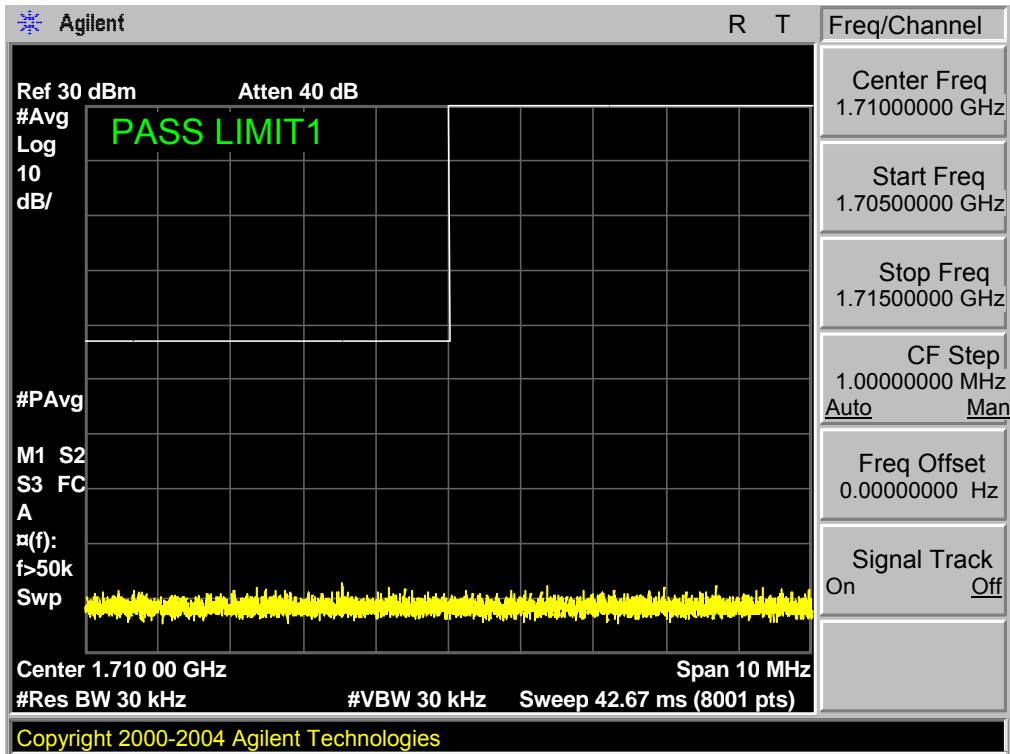
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



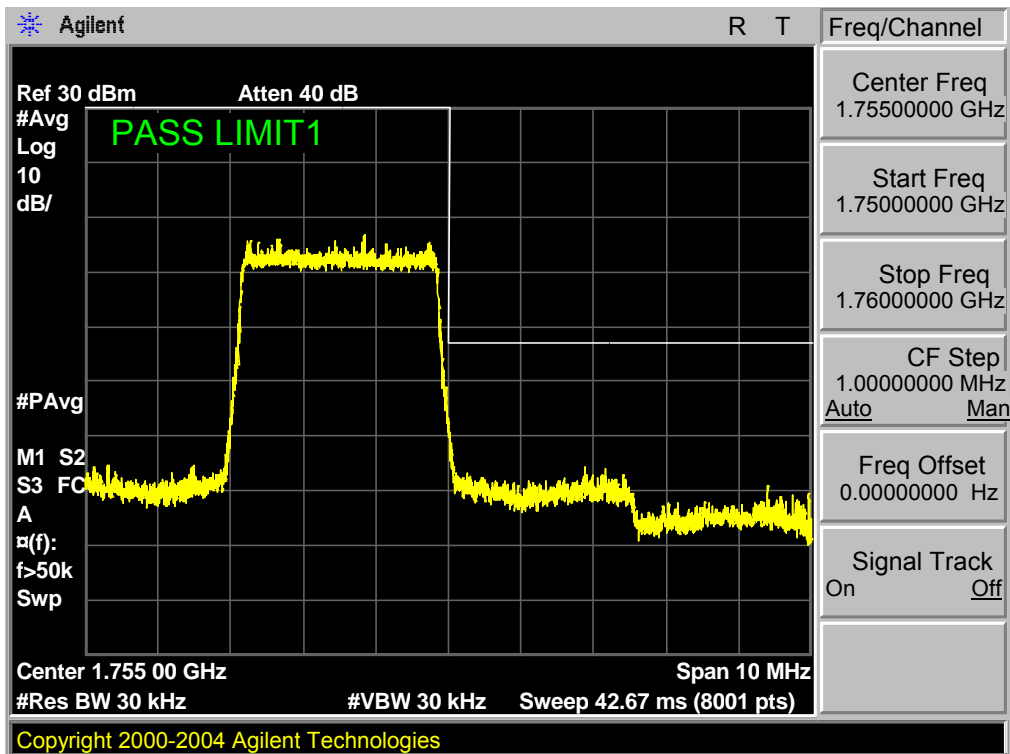
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 15,RB POS. Low,QPSK



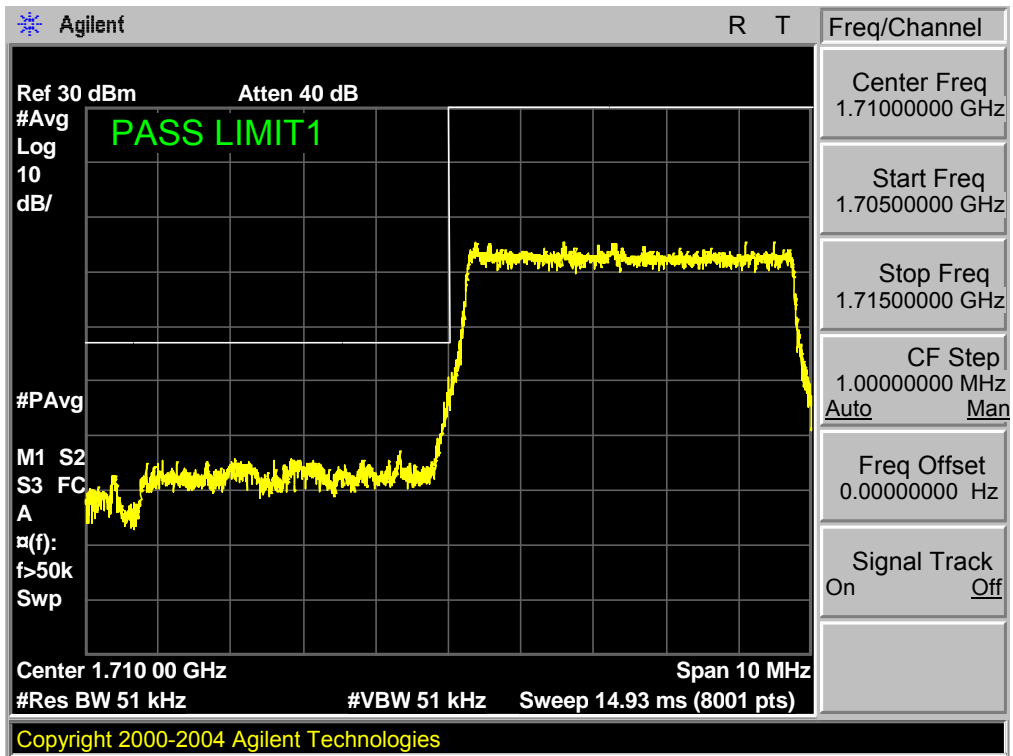
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 15,RB POS. Low,16QAM



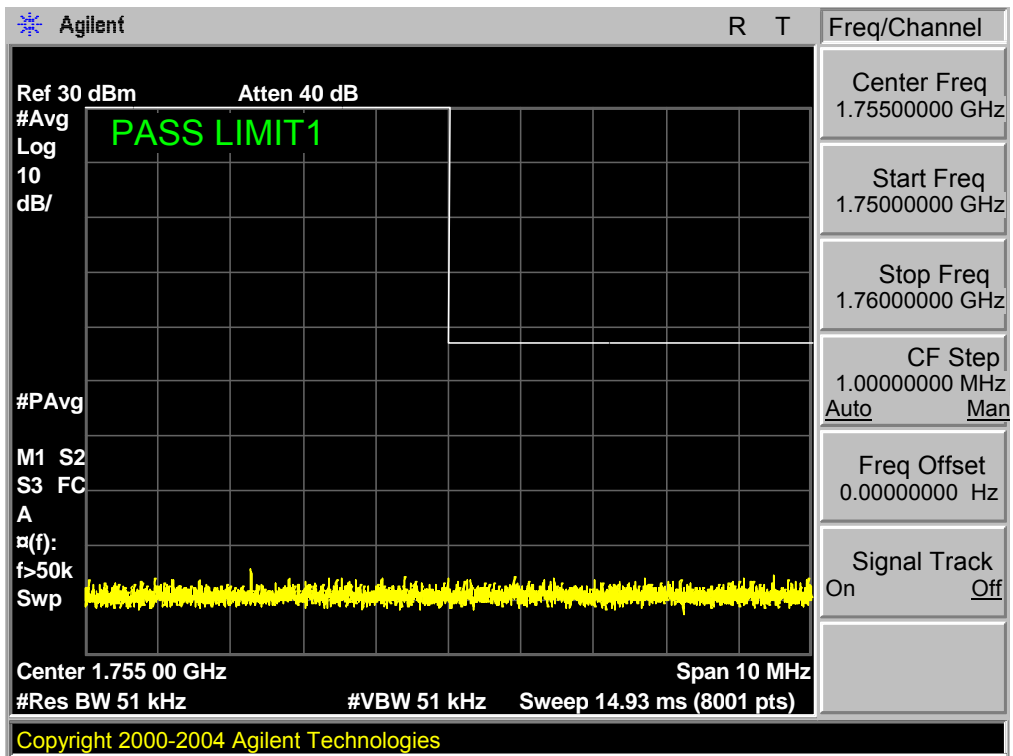
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 15,RB POS. Low,16QAM



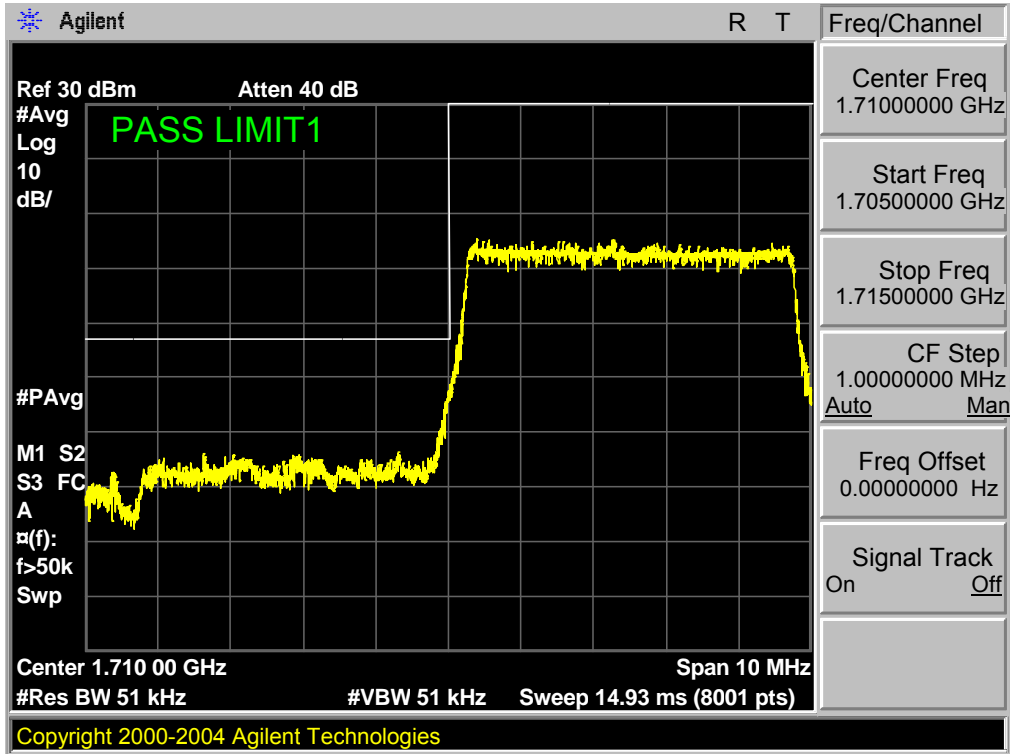
Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



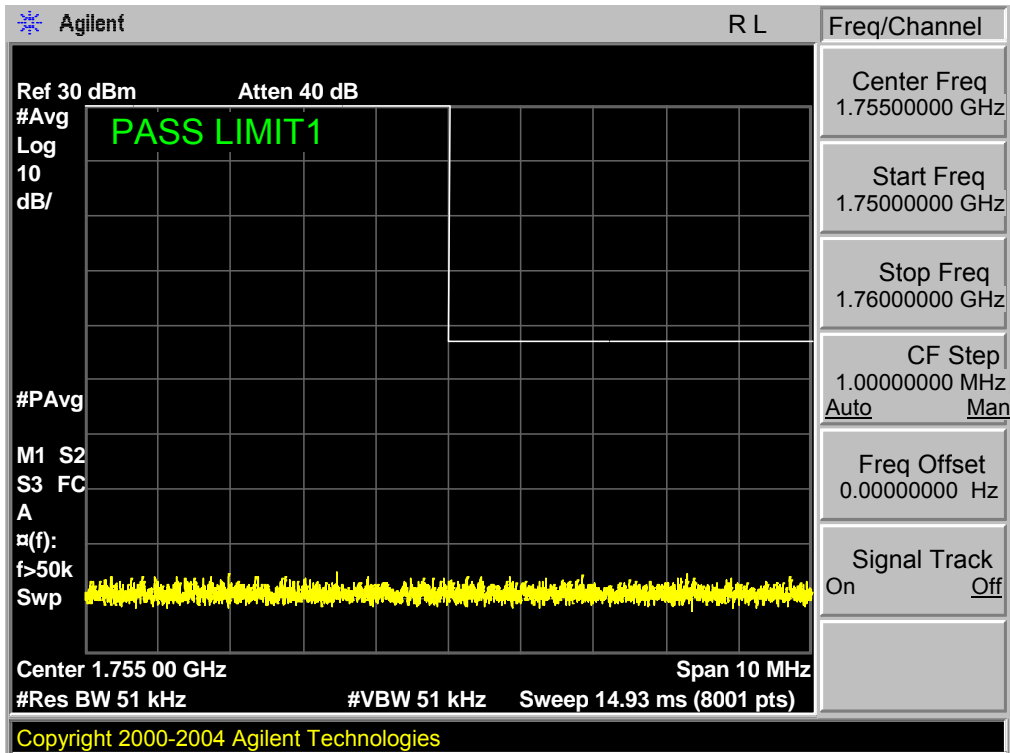
Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



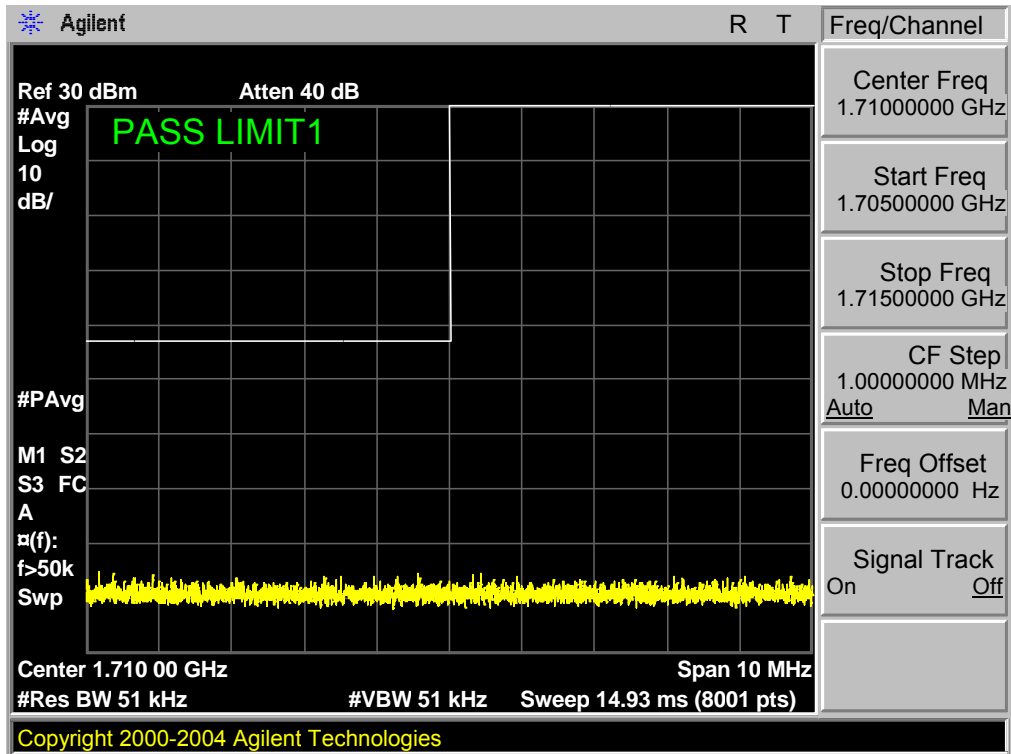
Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



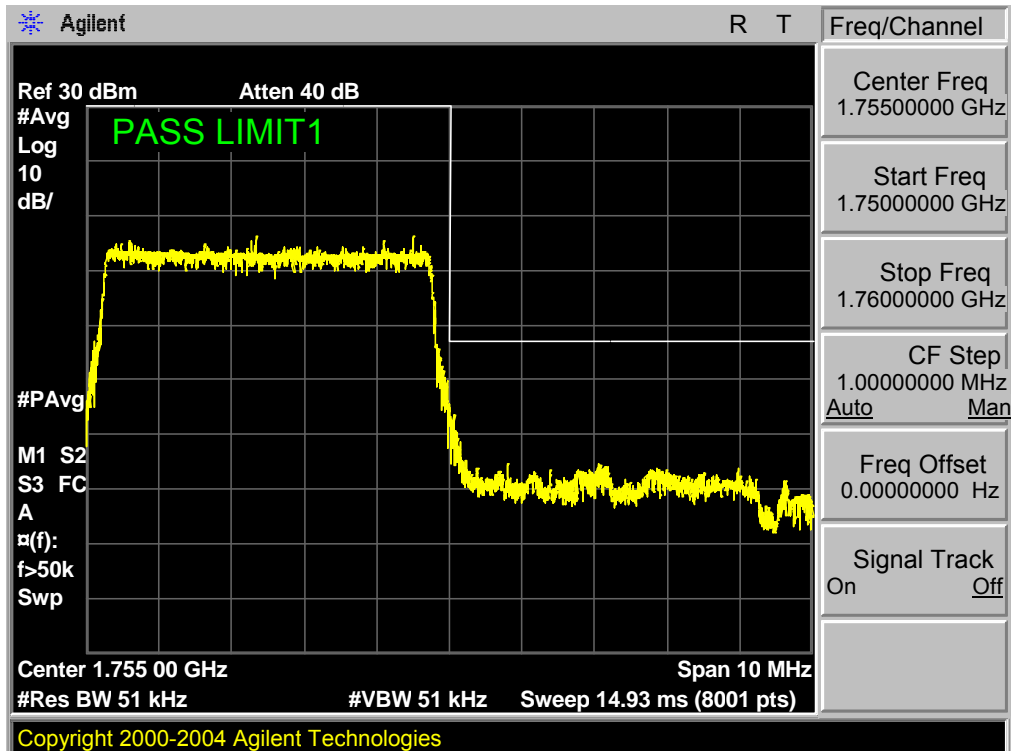
Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



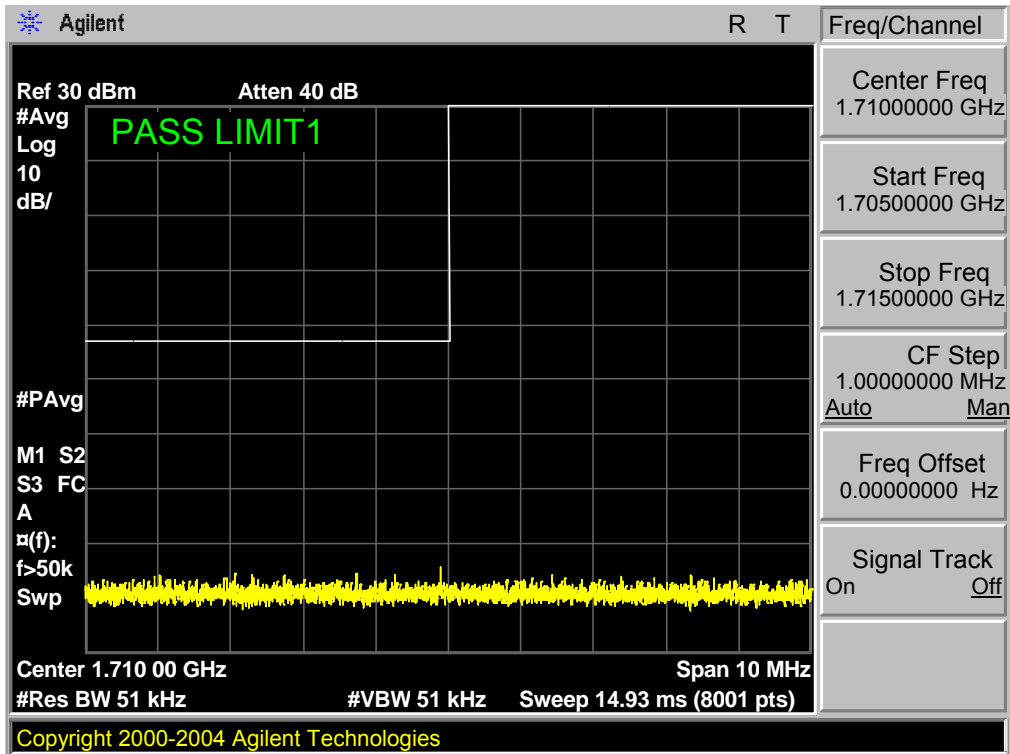
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



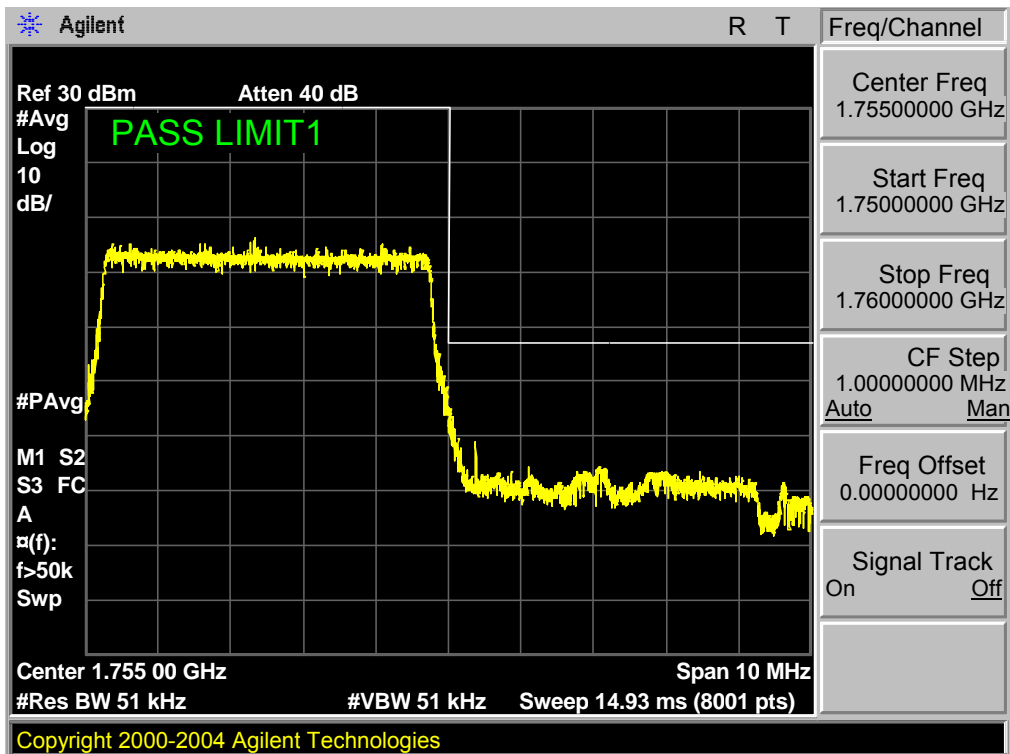
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



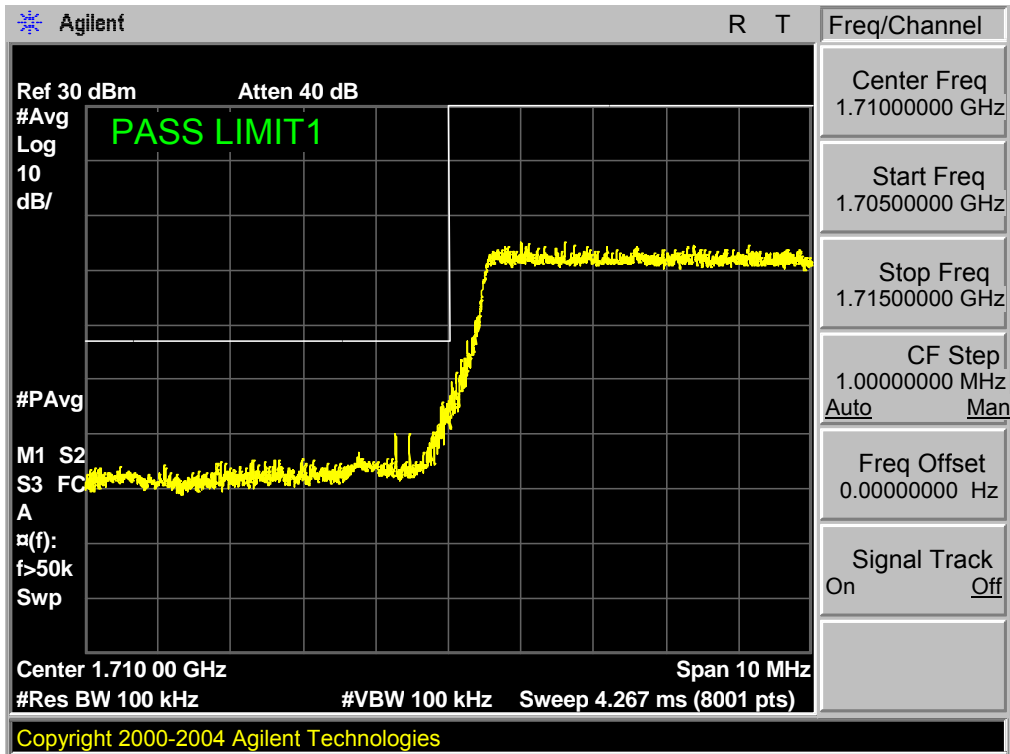
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



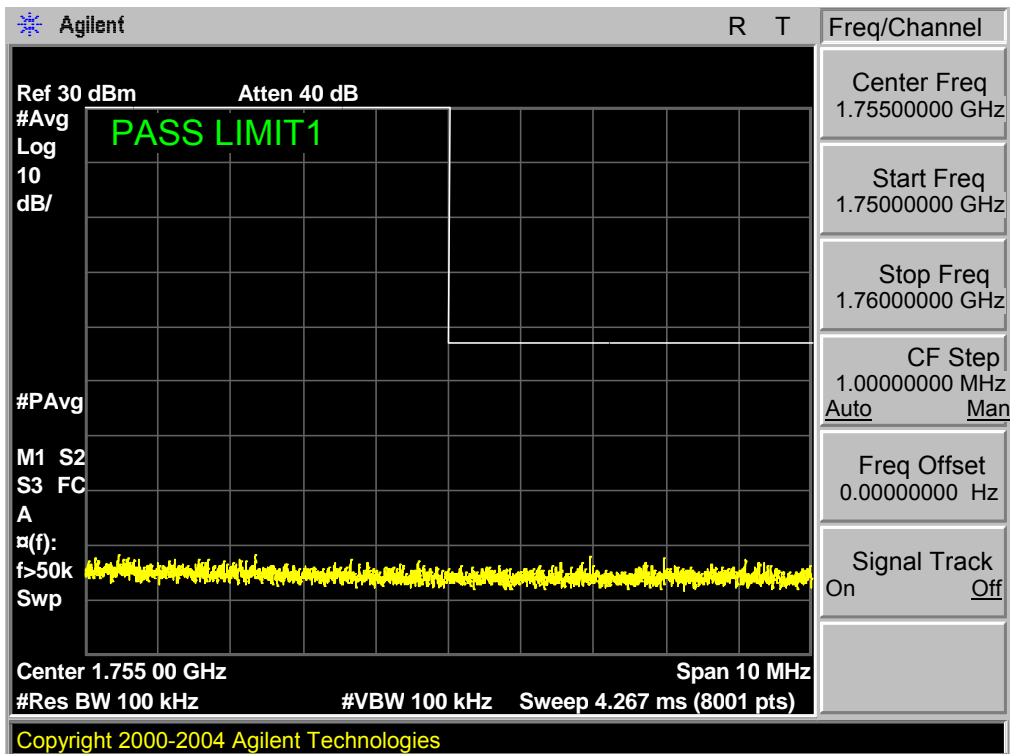
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



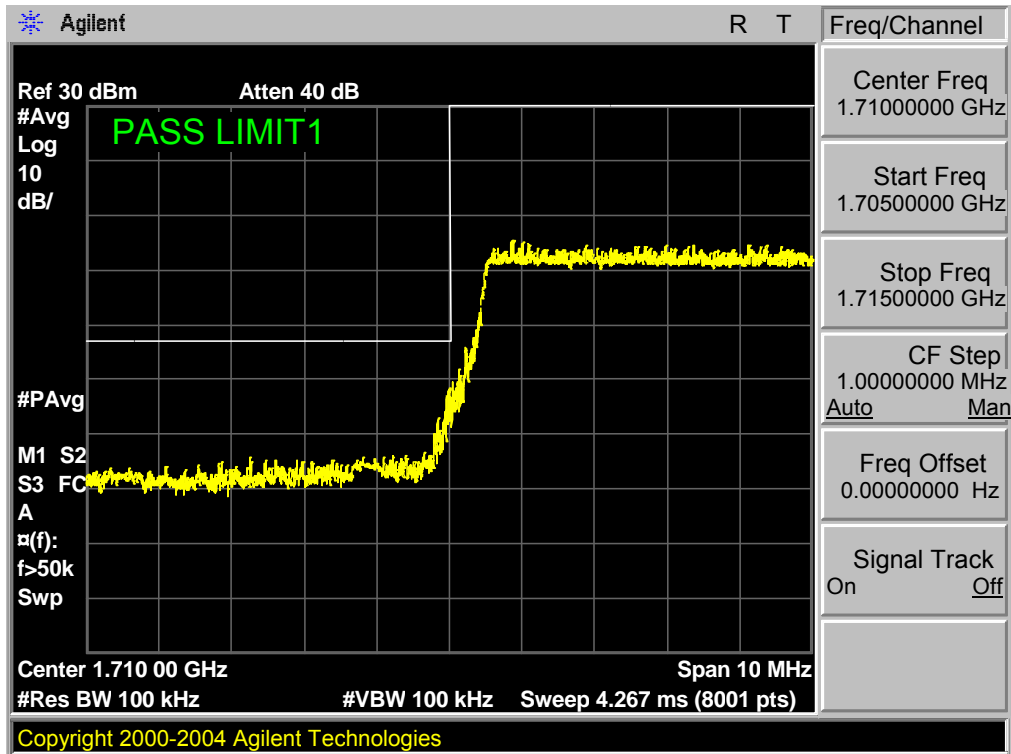
Band 4,UL Channel 20000,UL Frequency 1715.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



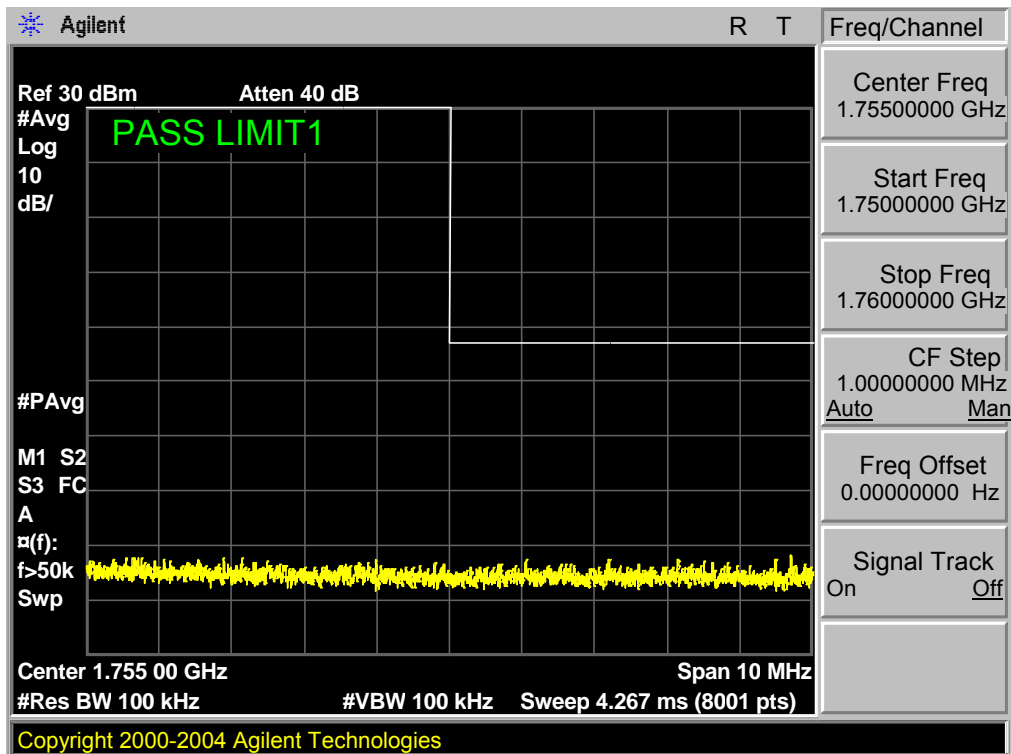
Band 4,UL Channel 20000,UL Frequency 1715.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



Band 4,UL Channel 20000,UL Frequency 1715.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM

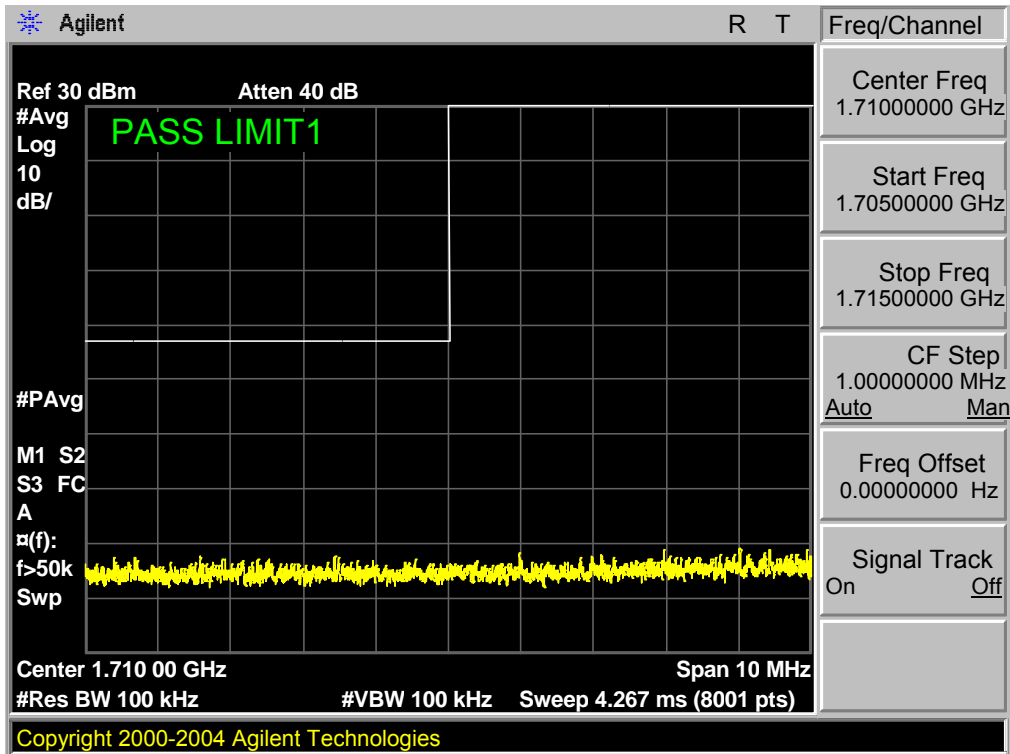


Band 4,UL Channel 20000,UL Frequency 1715.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM

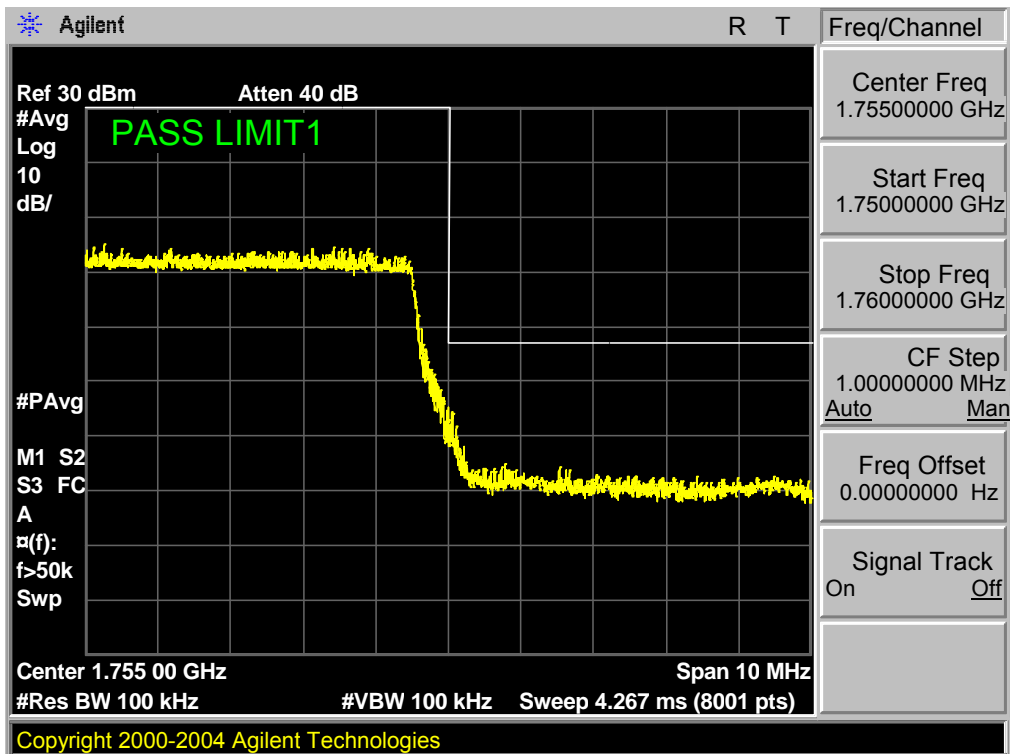




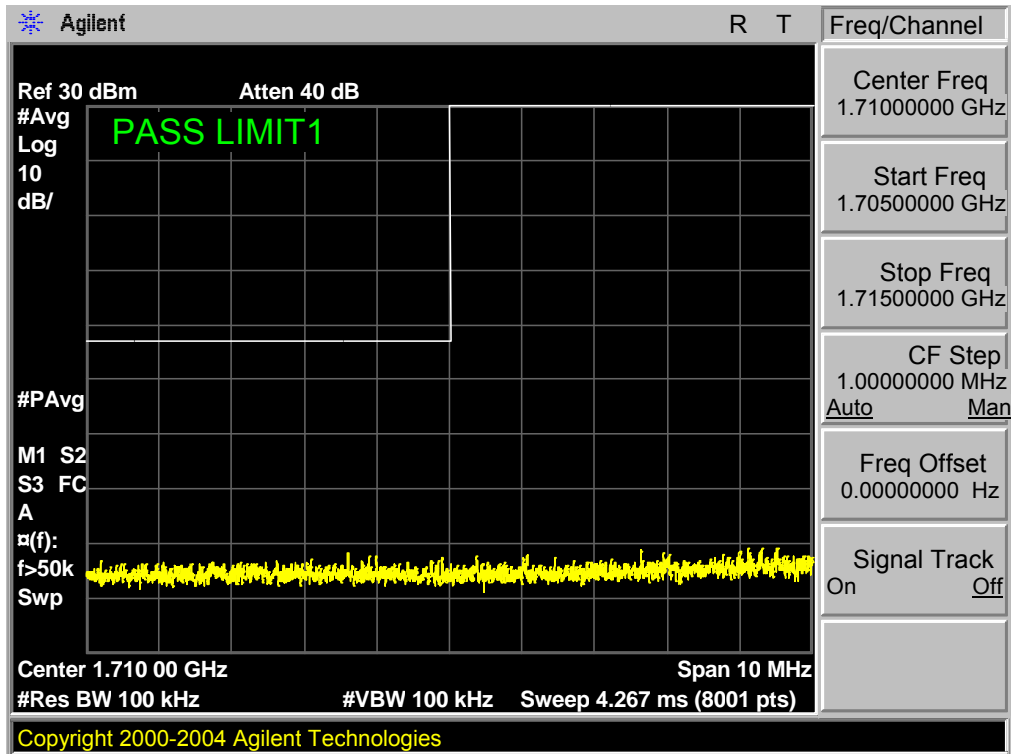
Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



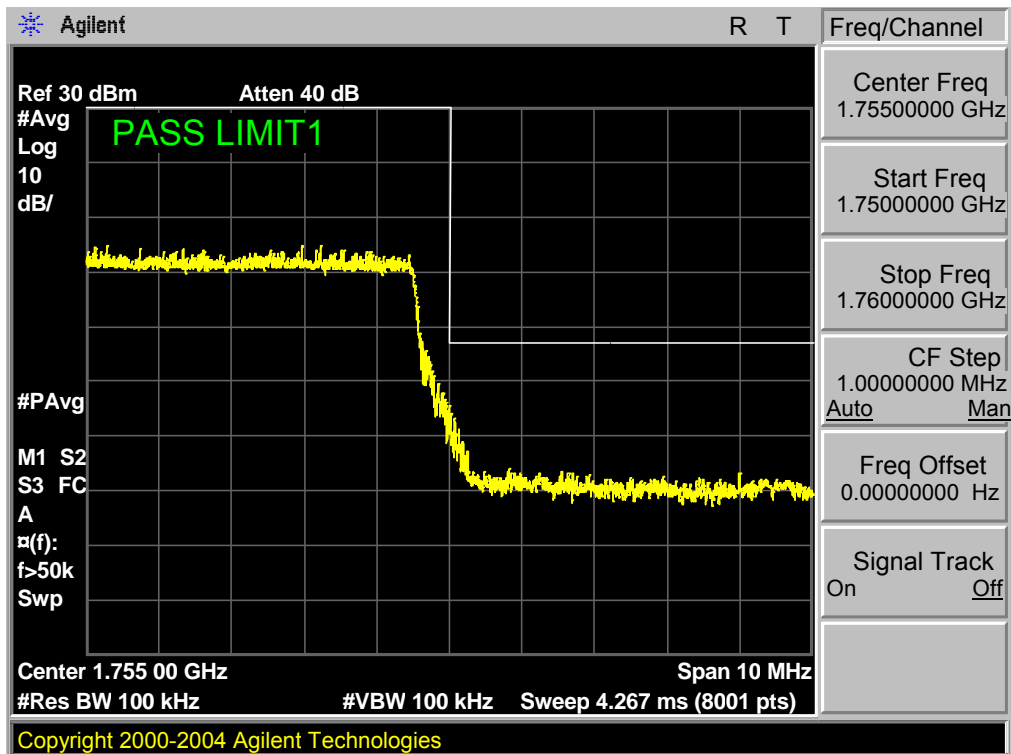
Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



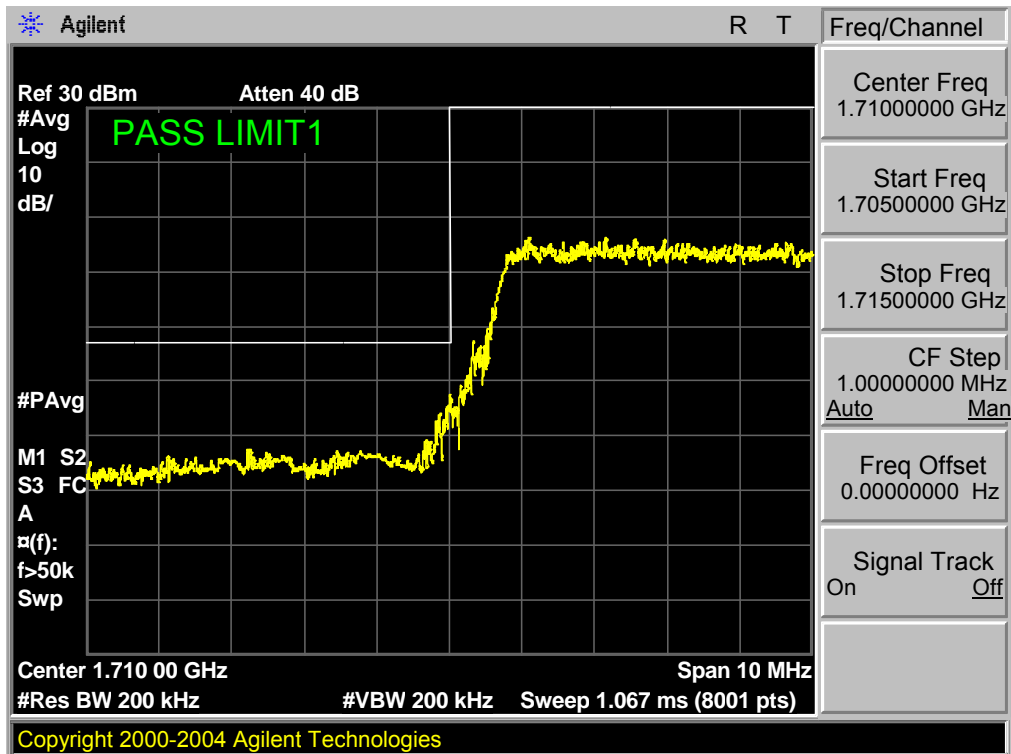
Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



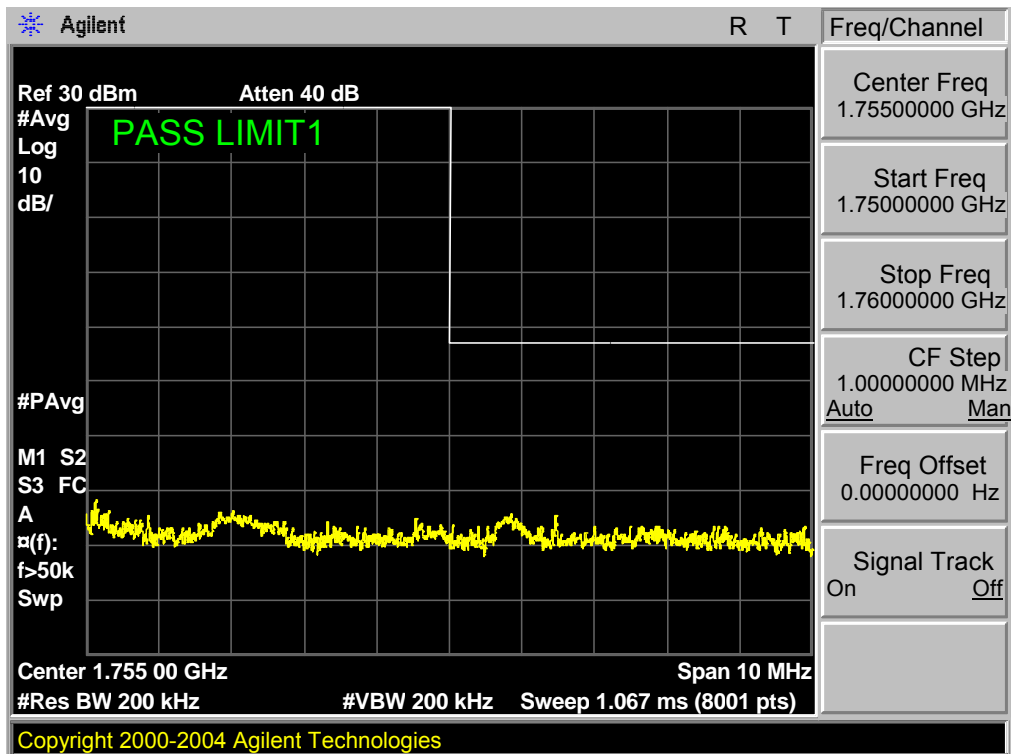
Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



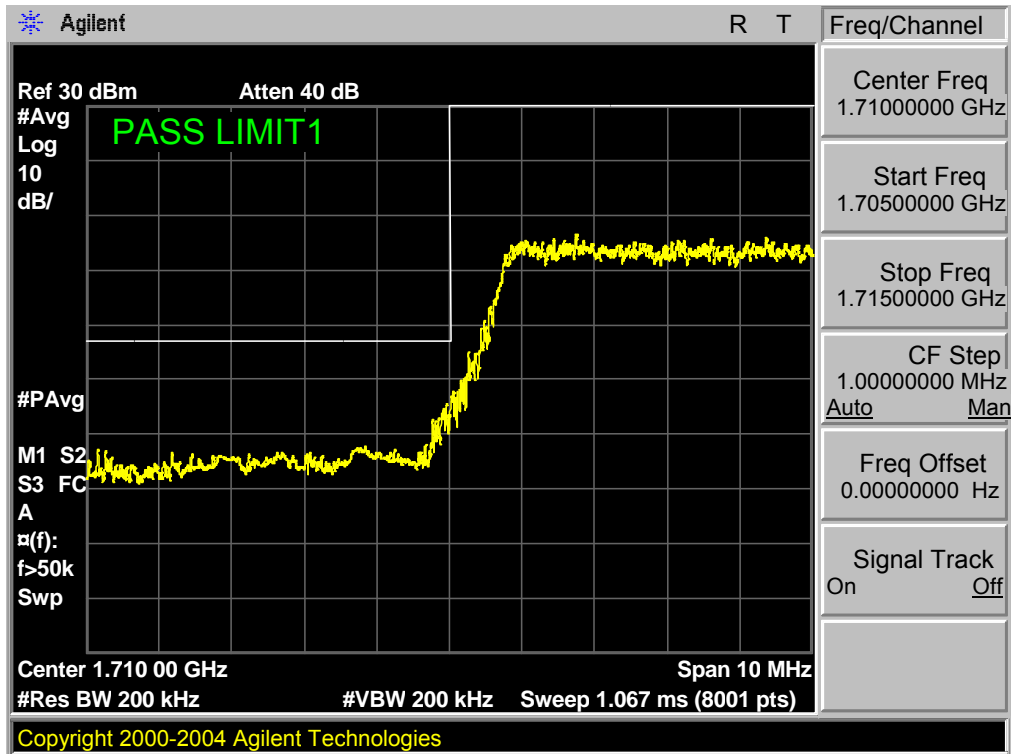
Band 4,UL Channel 20025,UL Frequency 1717.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



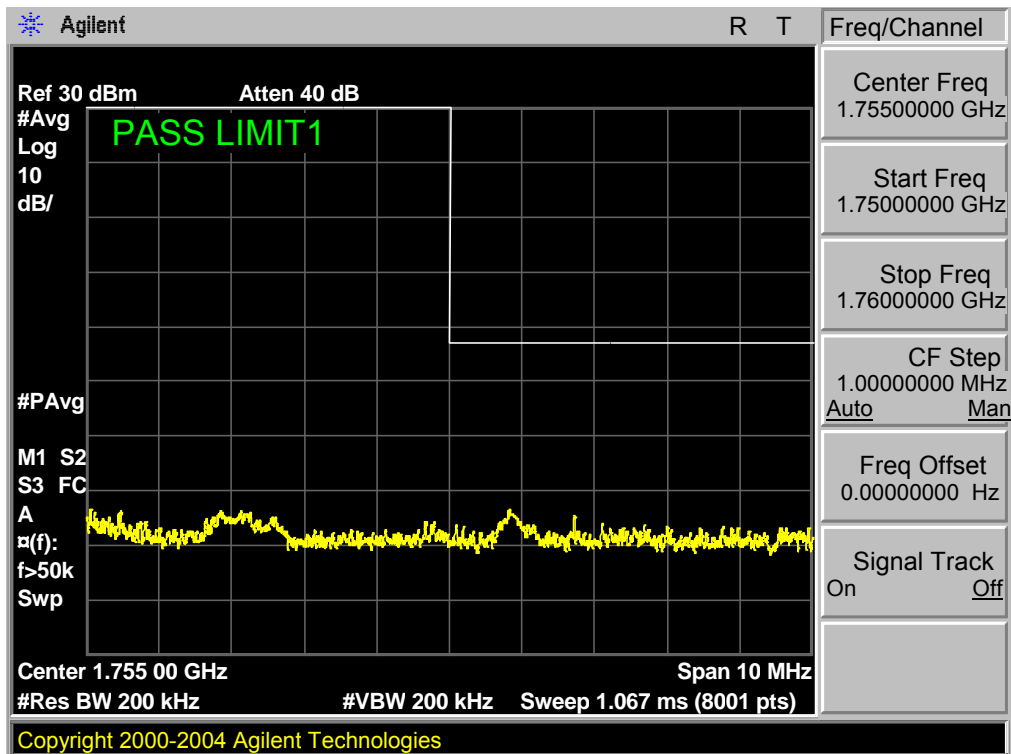
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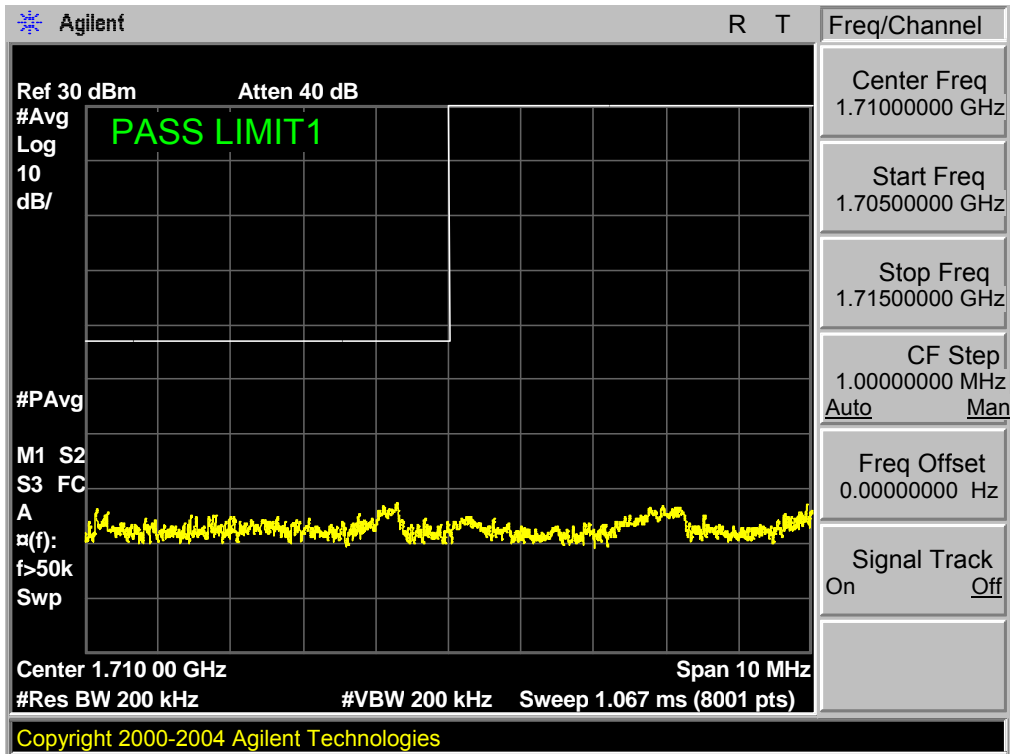
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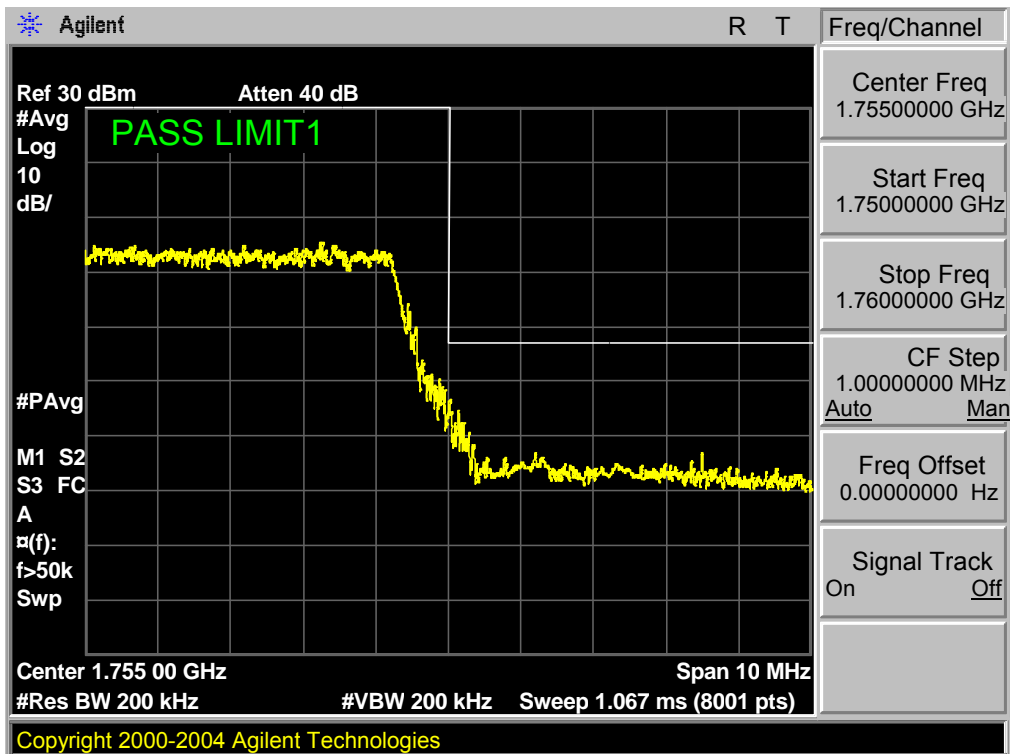
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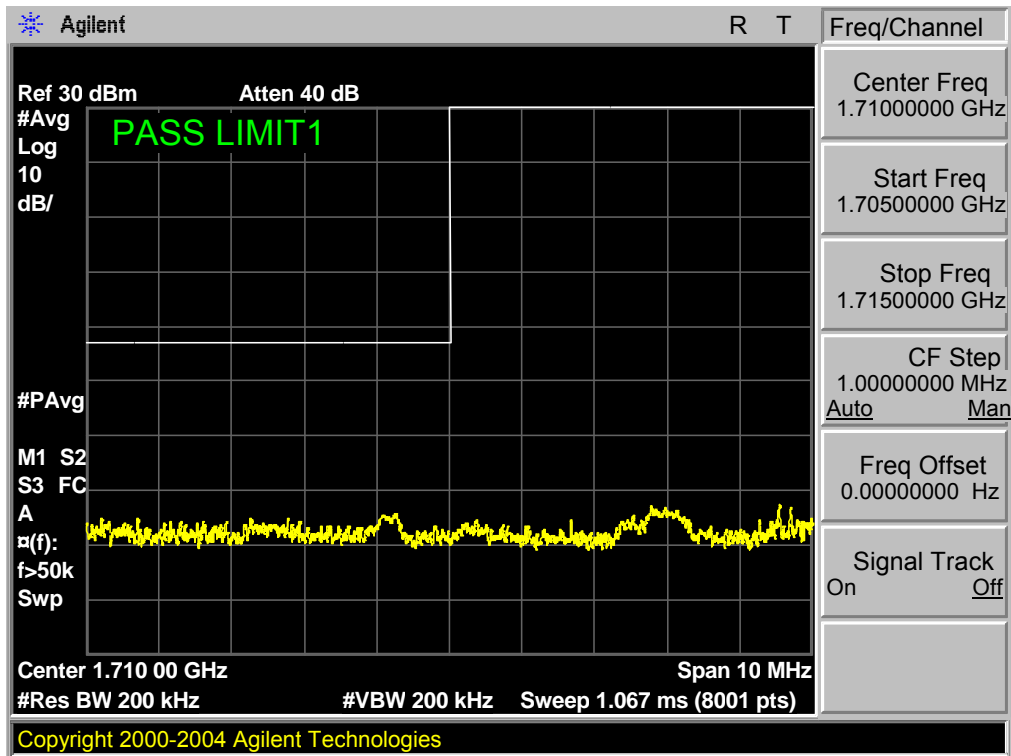
Band 4,UL Channel 20325,UL Frequency 1747.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



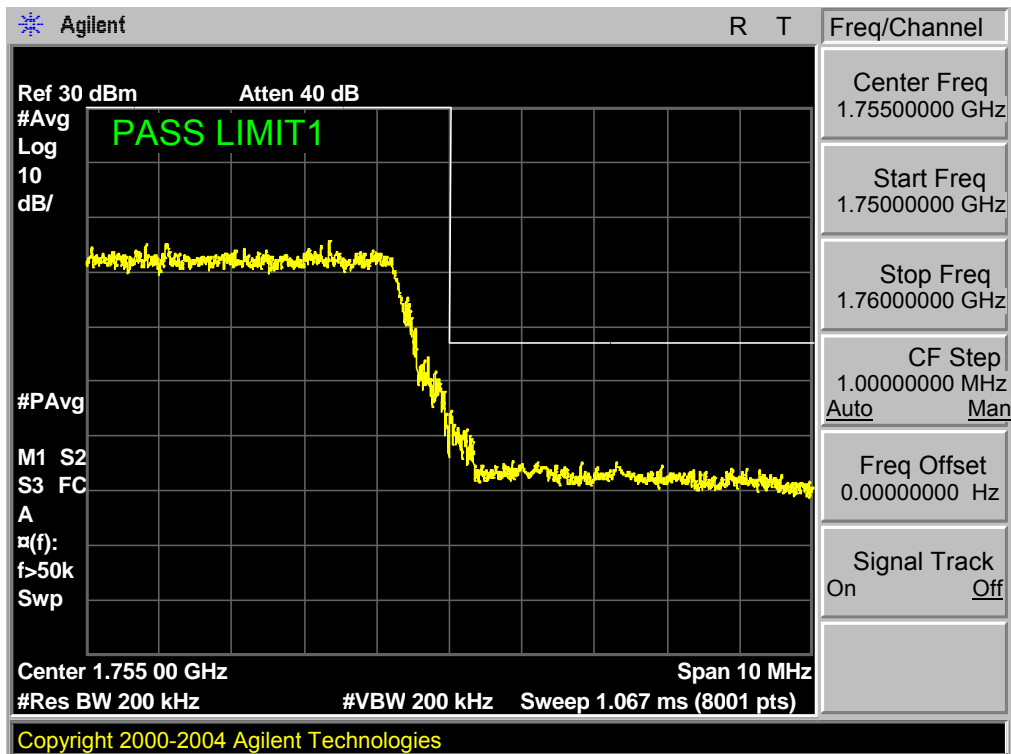
Band 4,UL Channel 20325,UL Frequency 1747.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



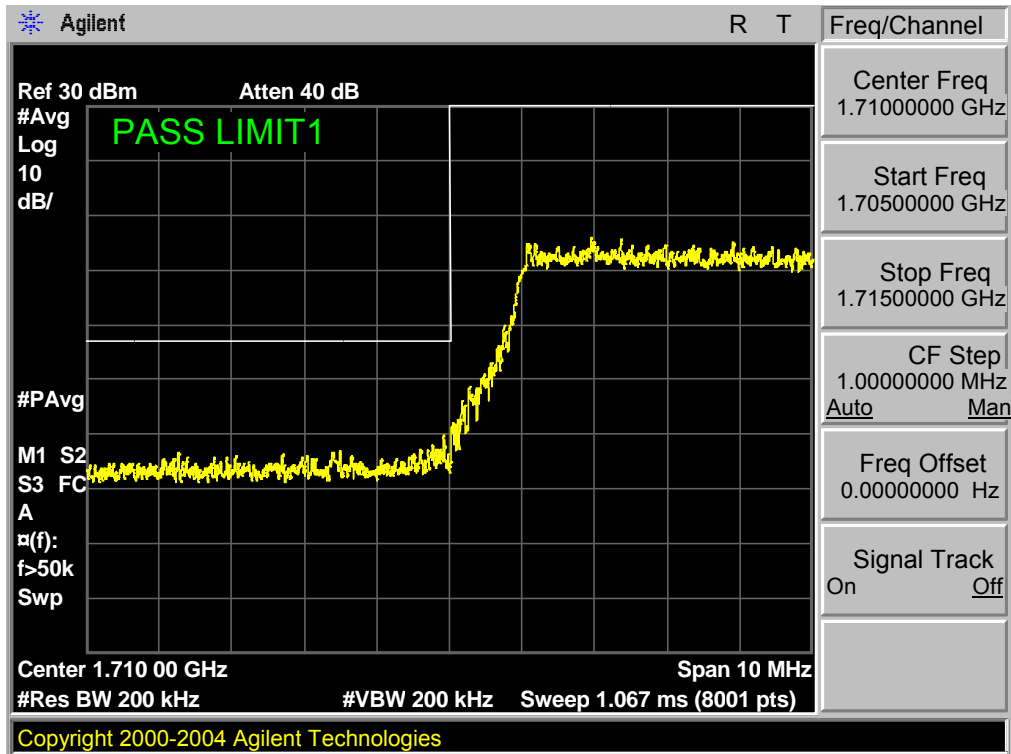
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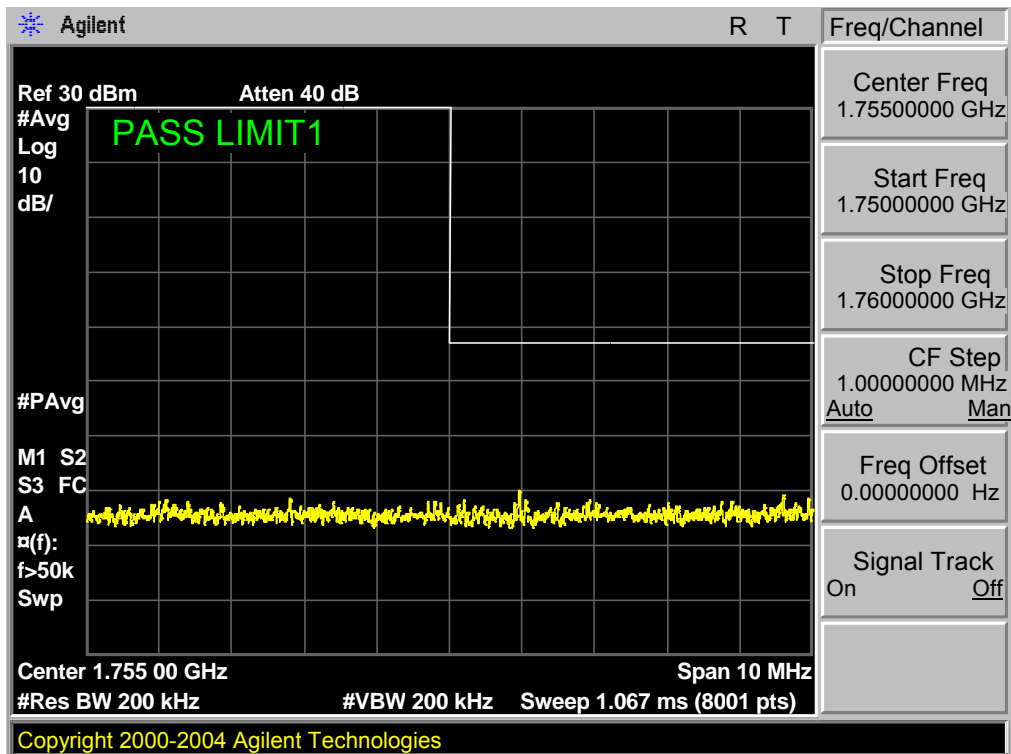
Band 4,UL Channel 20325,UL Frequency 1747.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



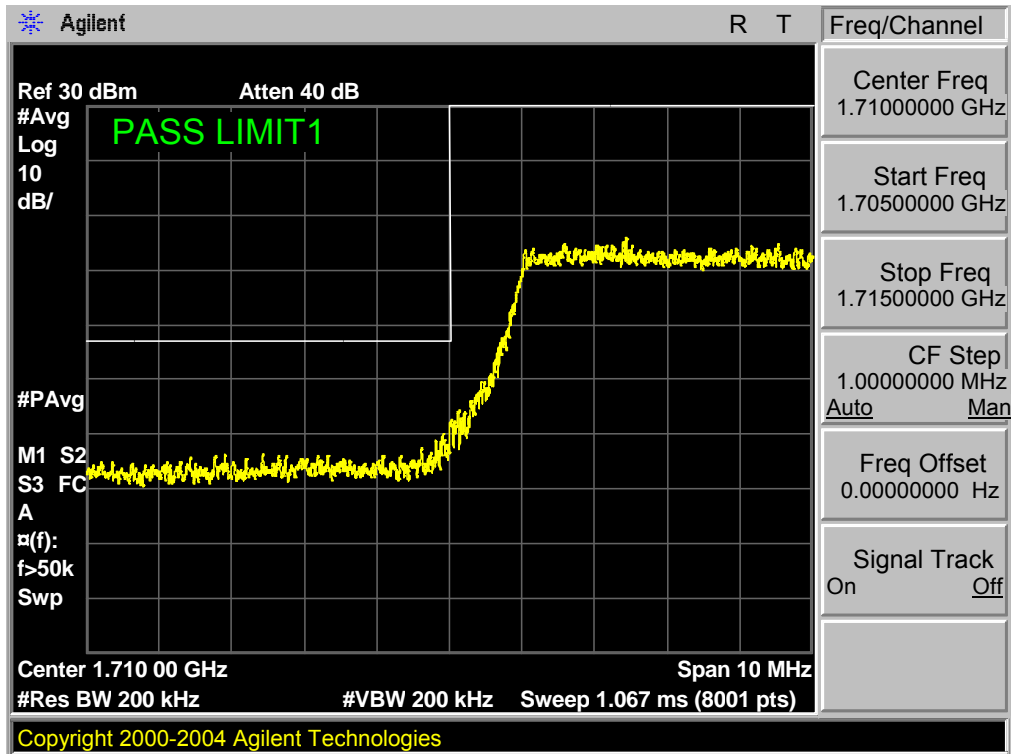
Band 4,UL Channel 20050,UL Frequency 1720.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



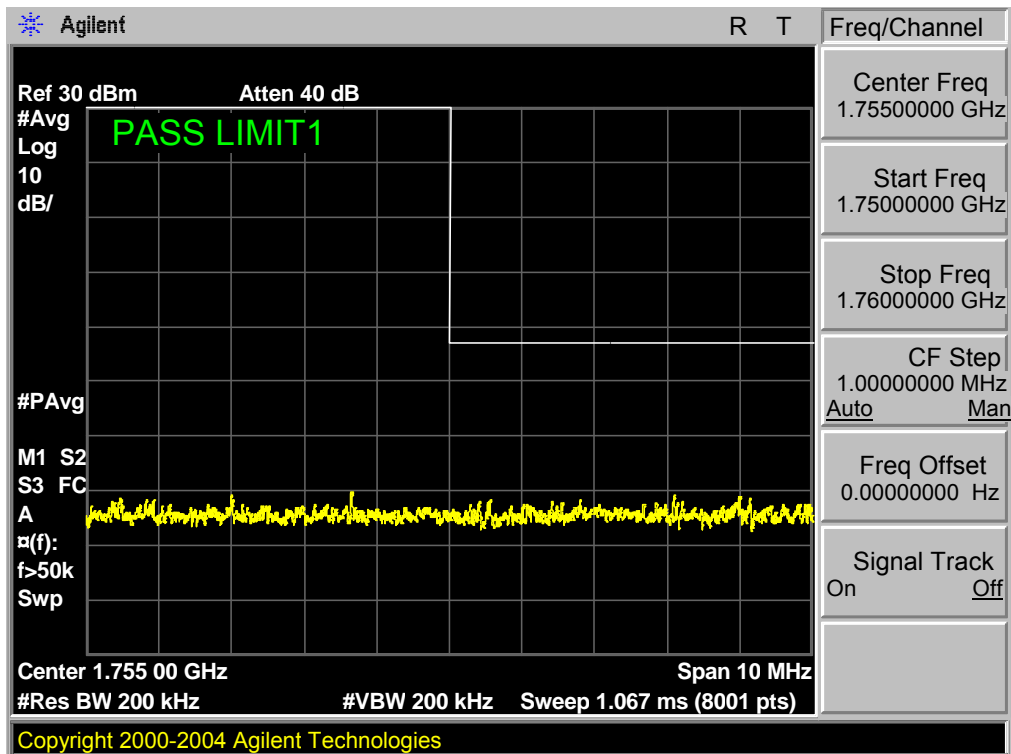
Band 4,UL Channel 20050,UL Frequency 1720.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 4,UL Channel 20050,UL Frequency 1720.0,EW 20.0,NO. RB 100,RB POS. Low,16QAM

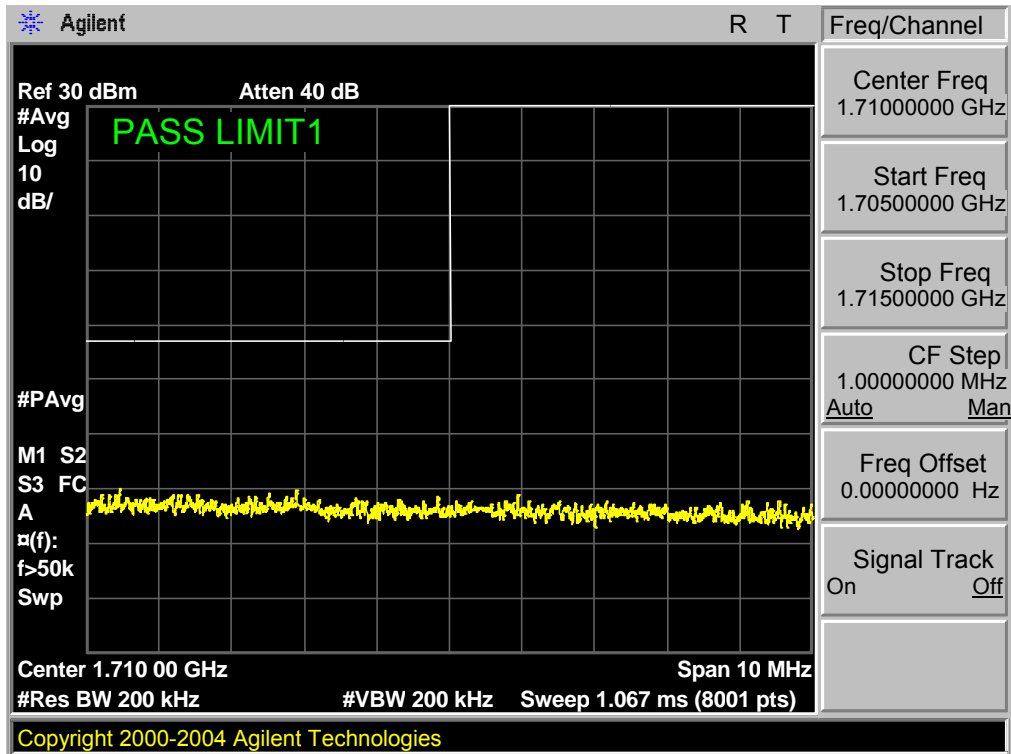


Band 4,UL Channel 20050,UL Frequency 1720.0,EW 20.0,NO. RB 100,RB POS. Low,16QAM

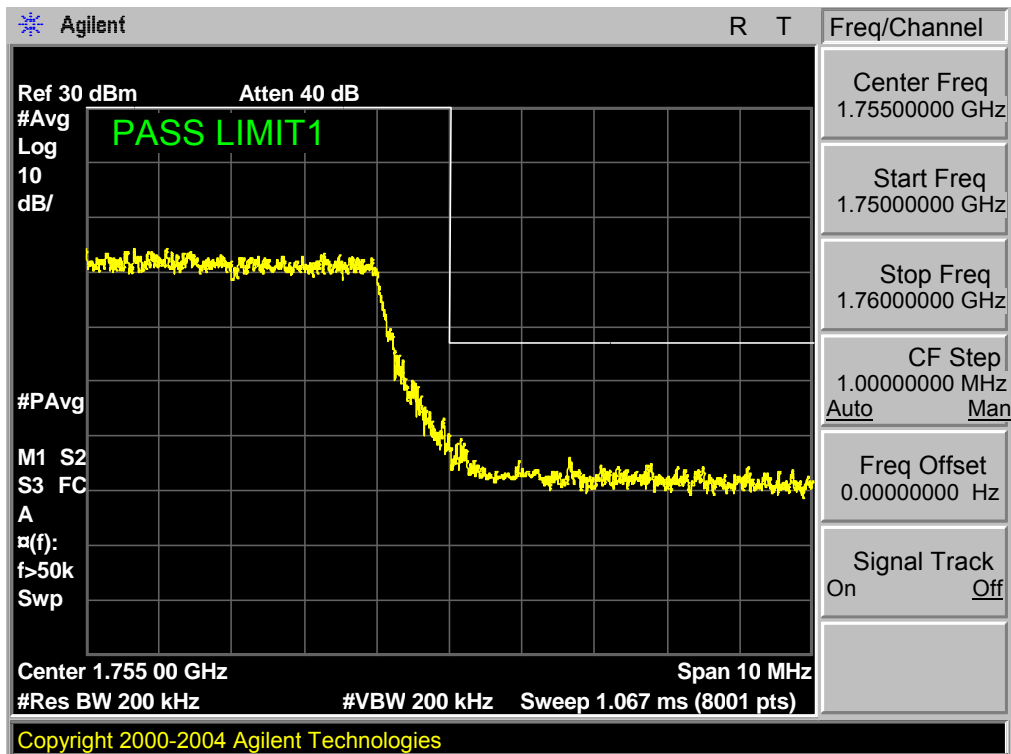




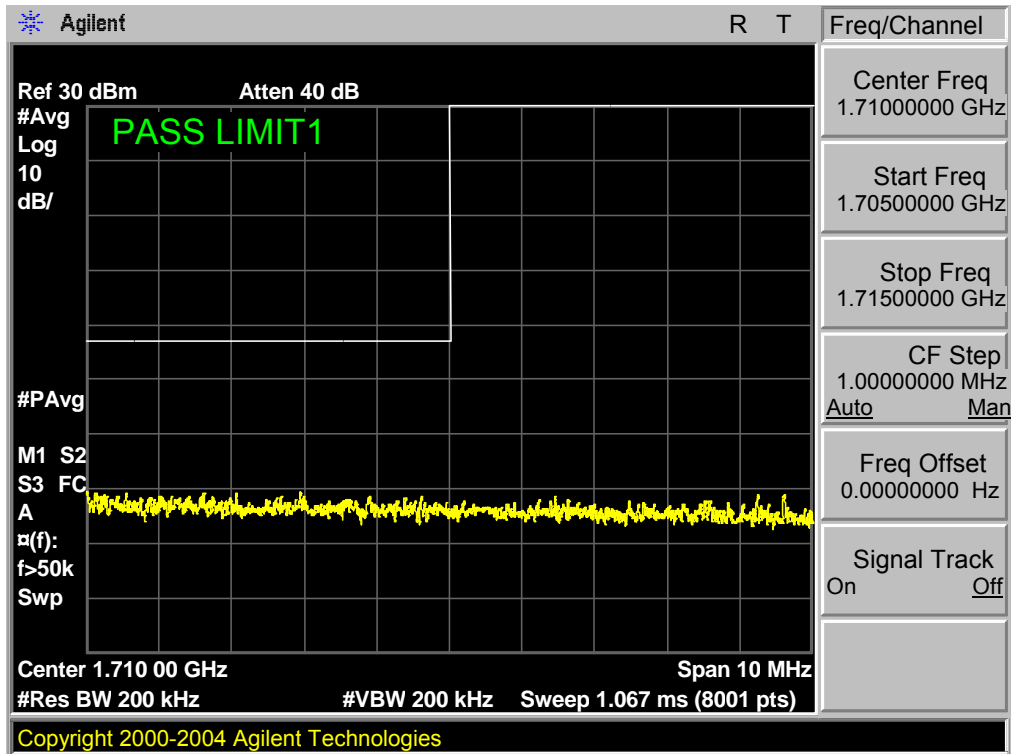
Band 4,UL Channel 20300,UL Frequency 1745.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



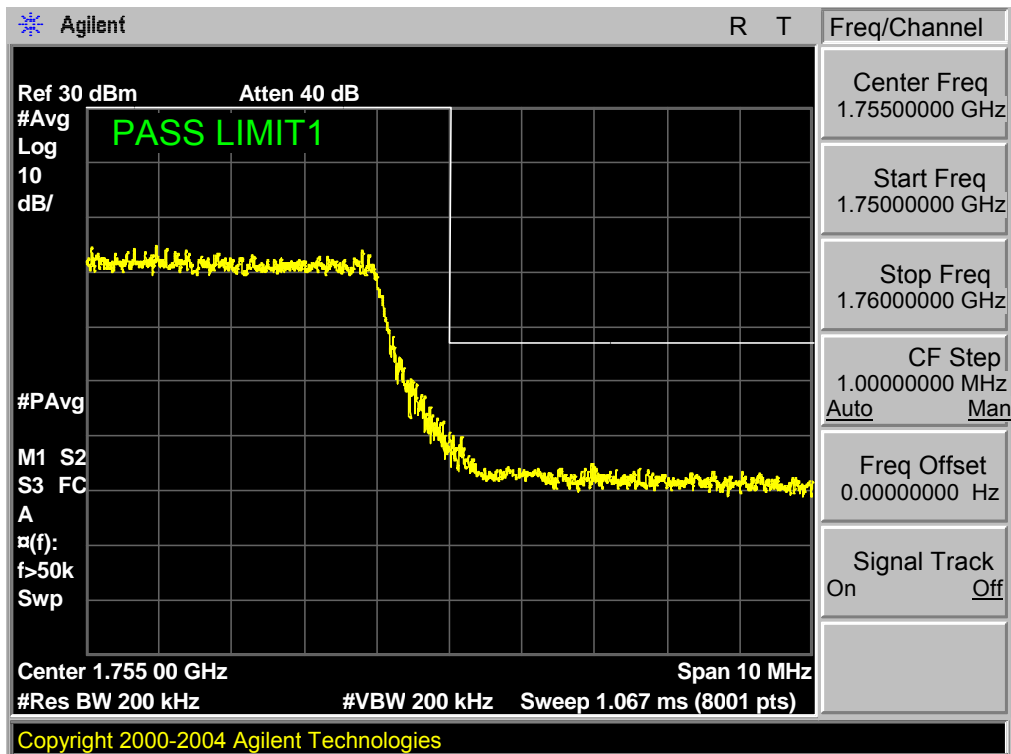
Band 4,UL Channel 20300,UL Frequency 1745.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 4,UL Channel 20300,UL Frequency 1745.0,EW 20.0,NO. RB 100,RB POS. Low,16QAM

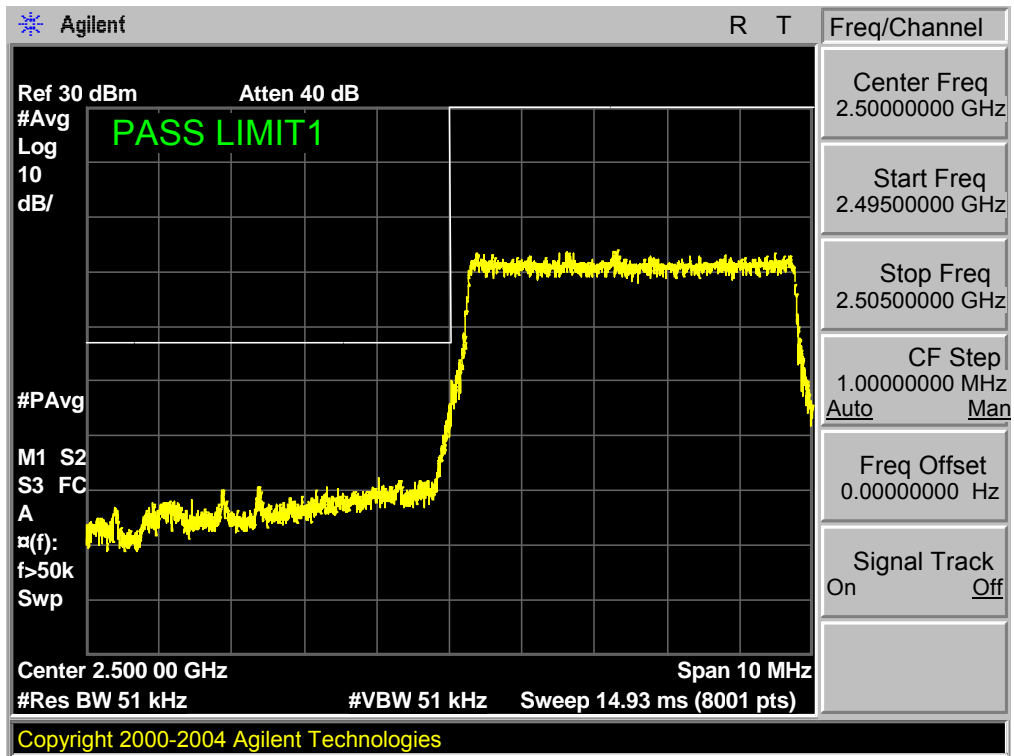


Band 4,UL Channel 20300,UL Frequency 1745.0,EW 20.0,NO. RB 100,RB POS. Low,16QAM

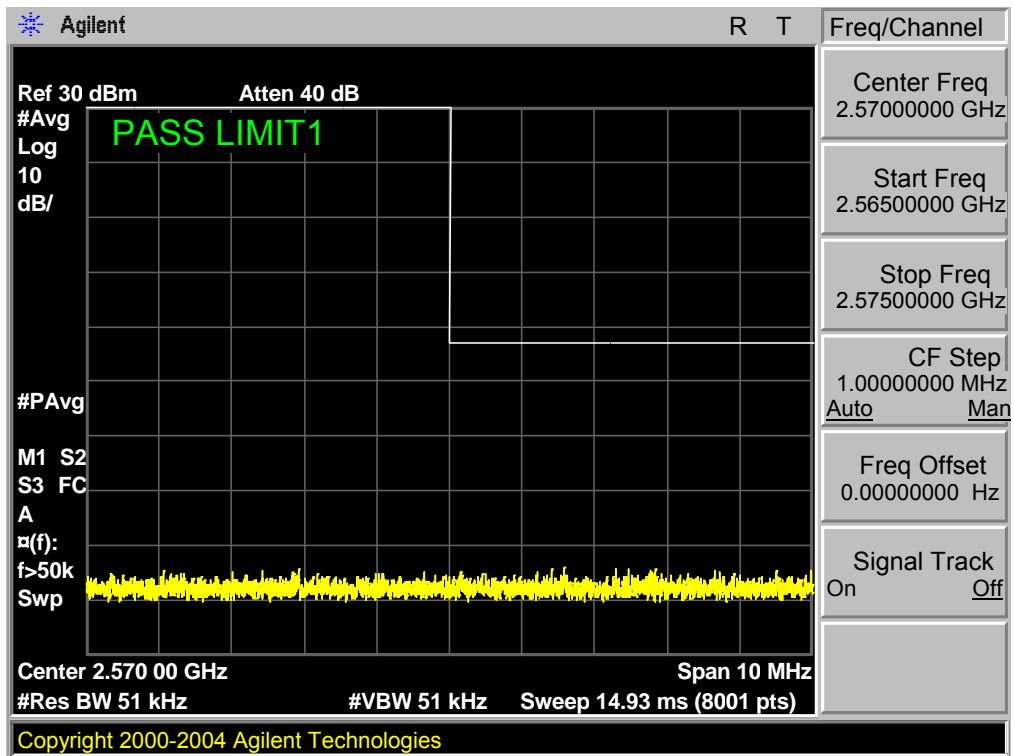


### 6.1.2. LTE BAND 7

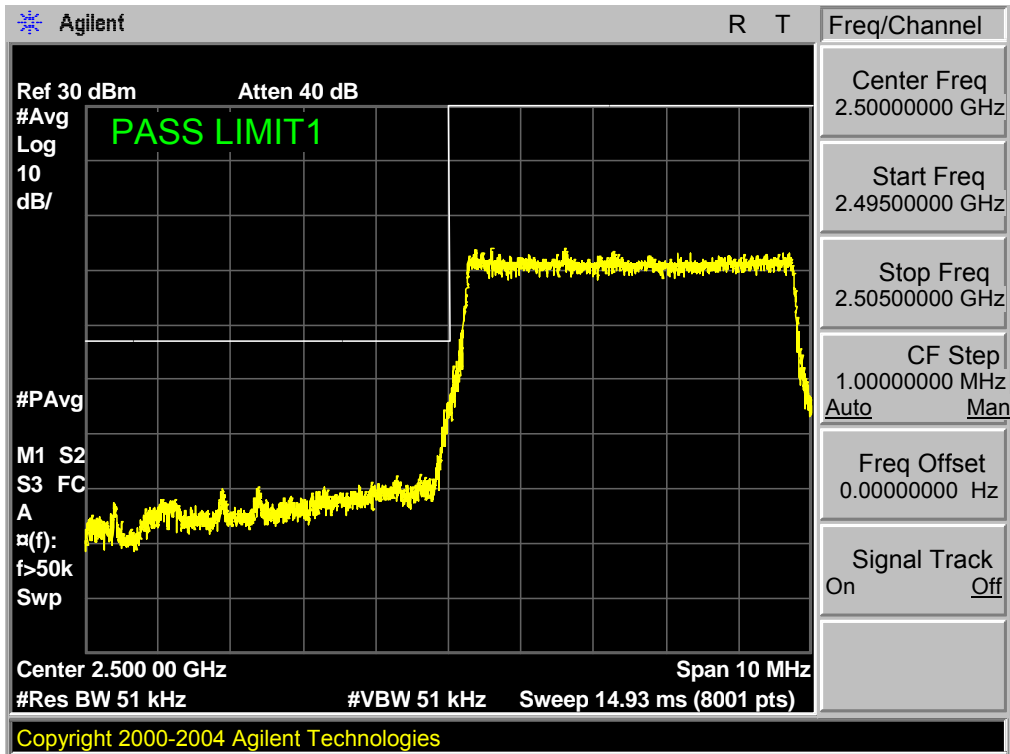
Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



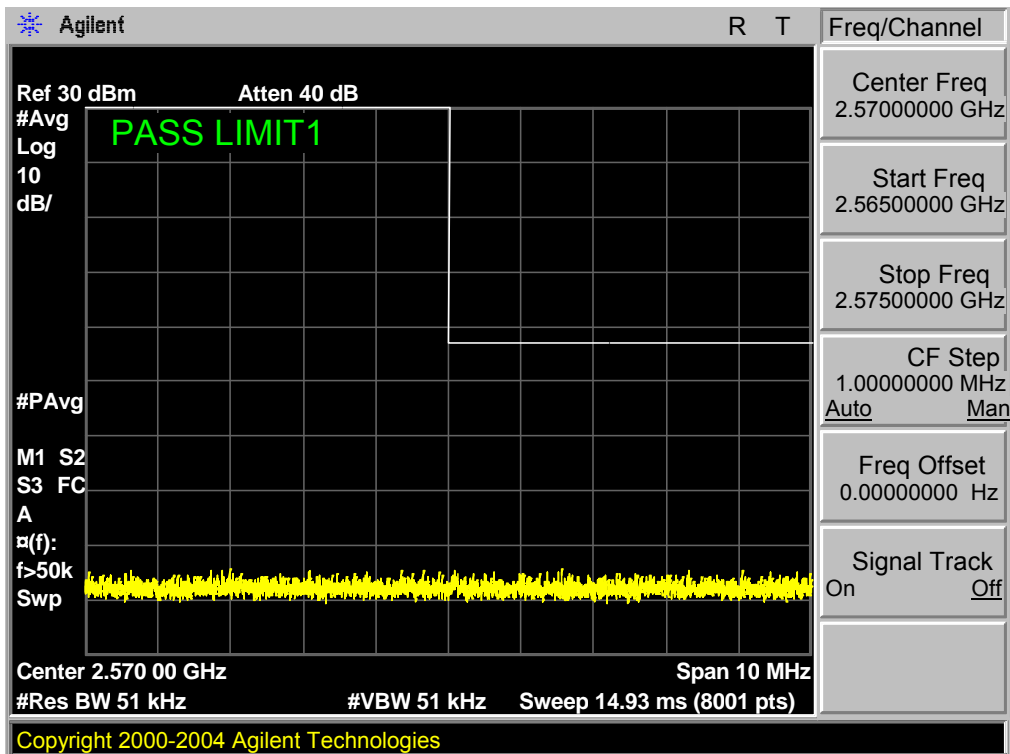
Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



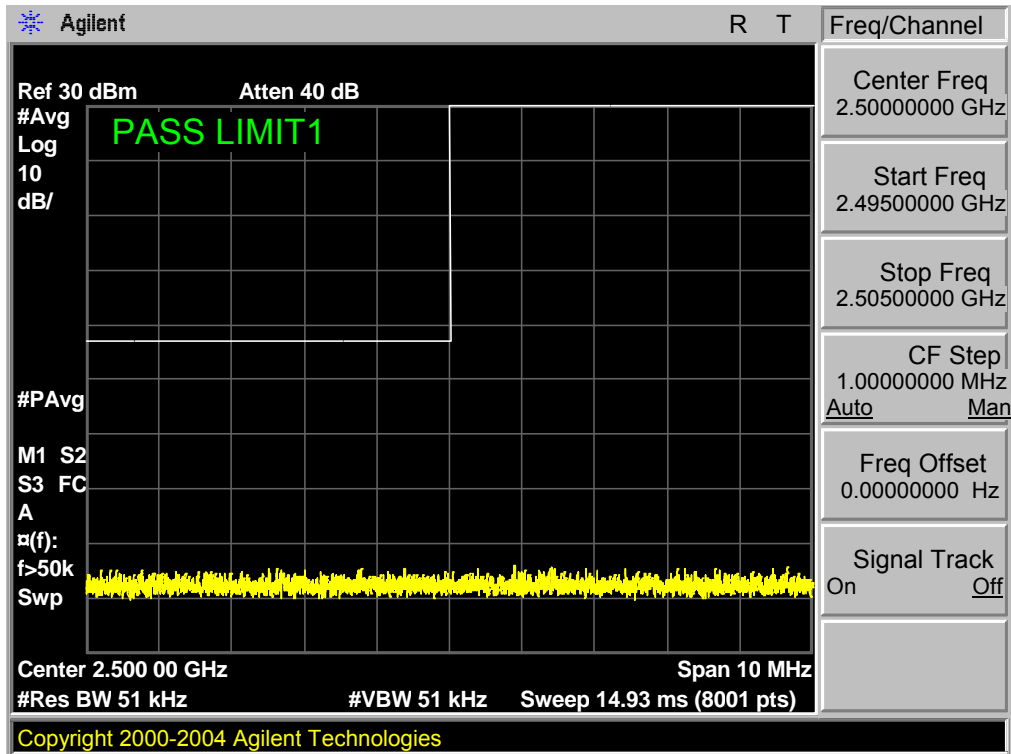
Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



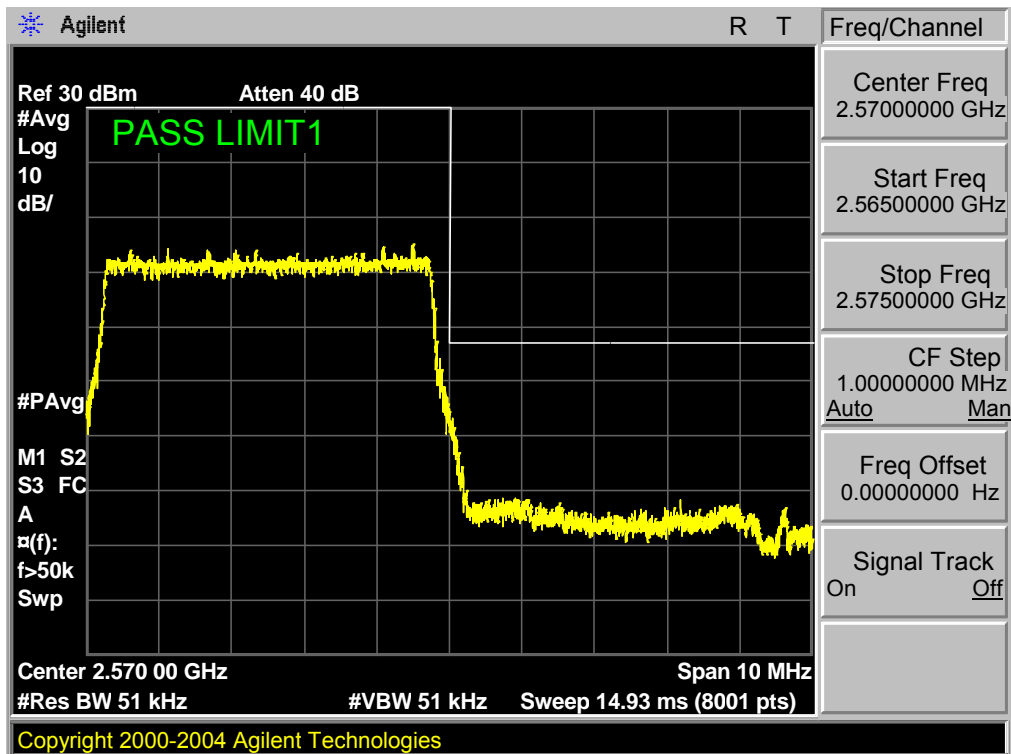
Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



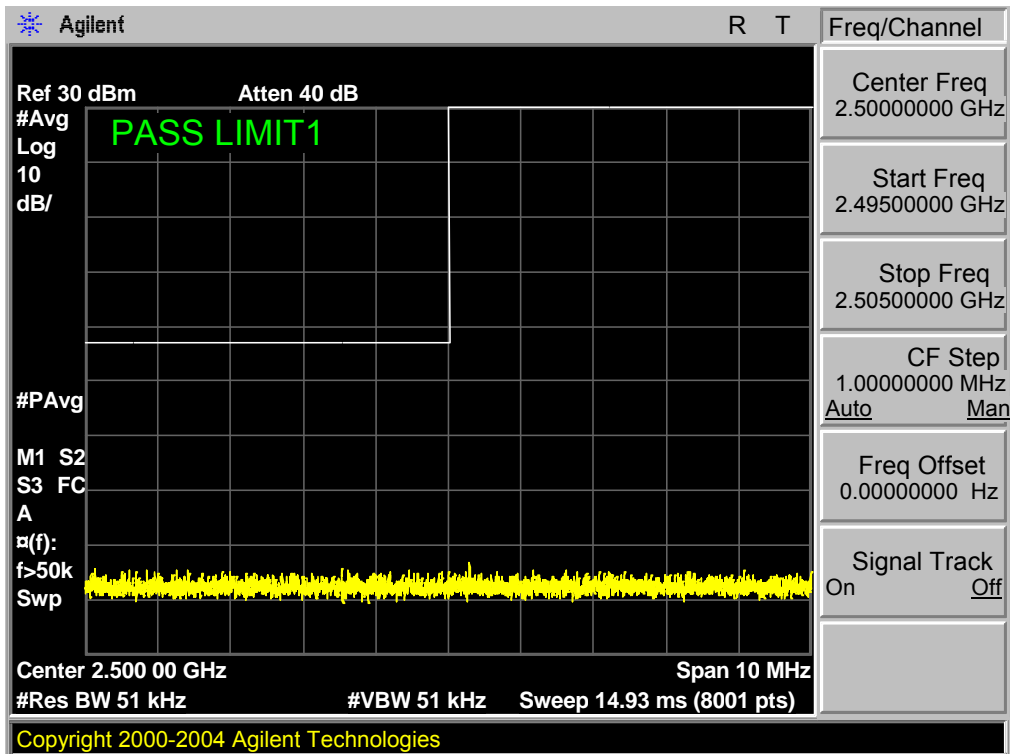
Band 7,UL Channel 21425,UL Frequency 2567.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



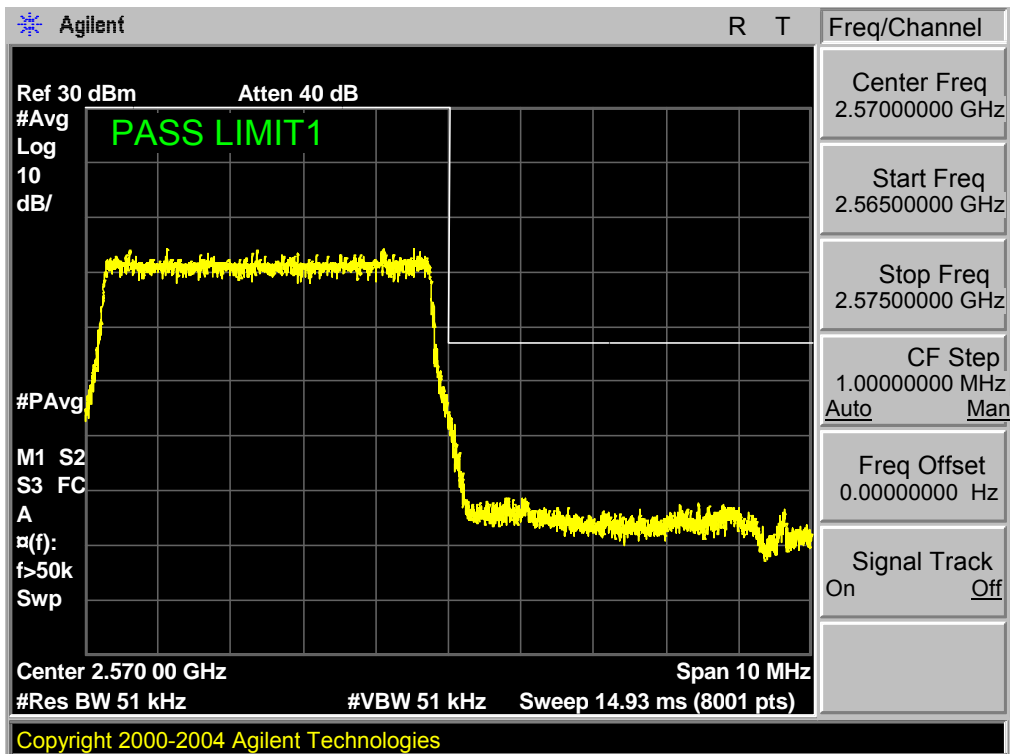
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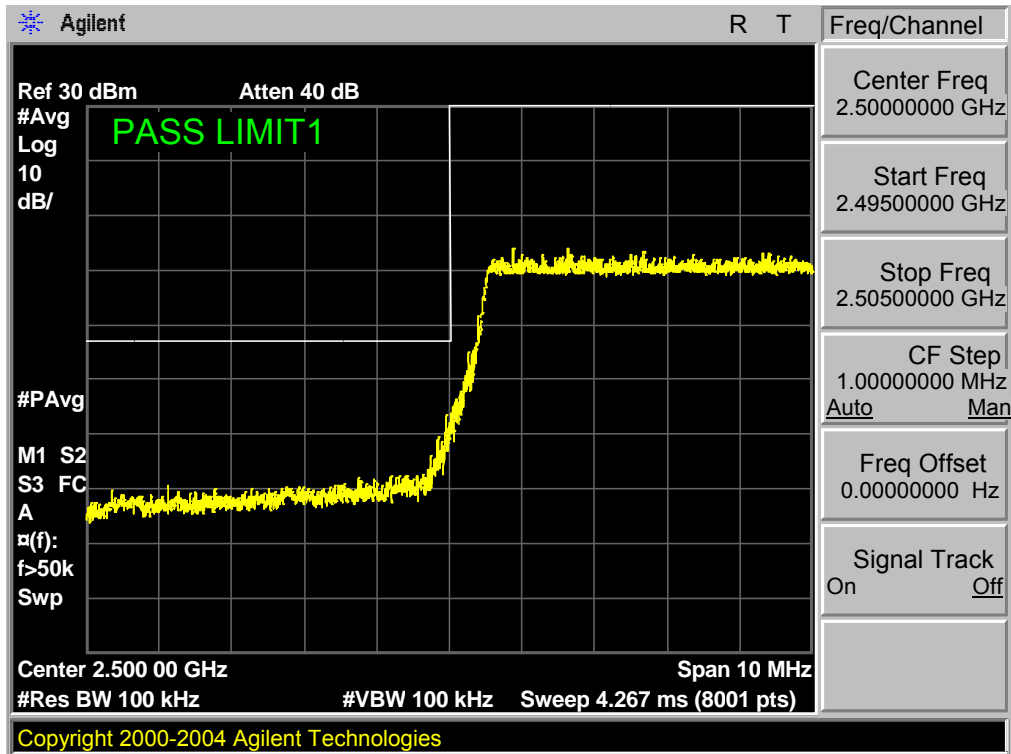
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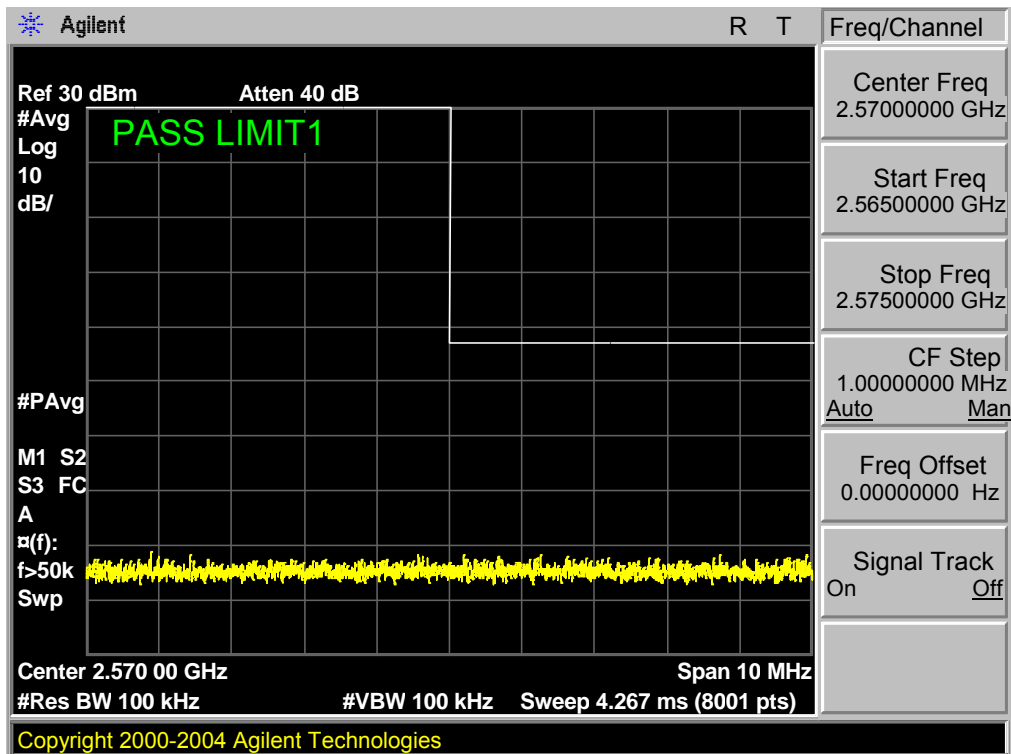
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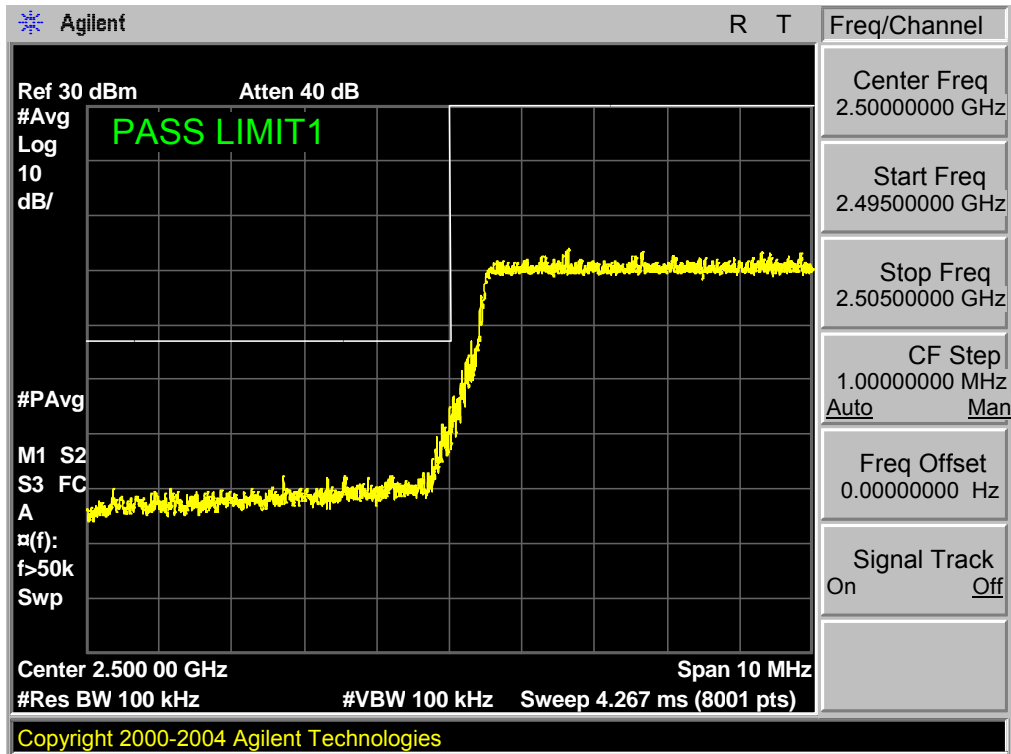
Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



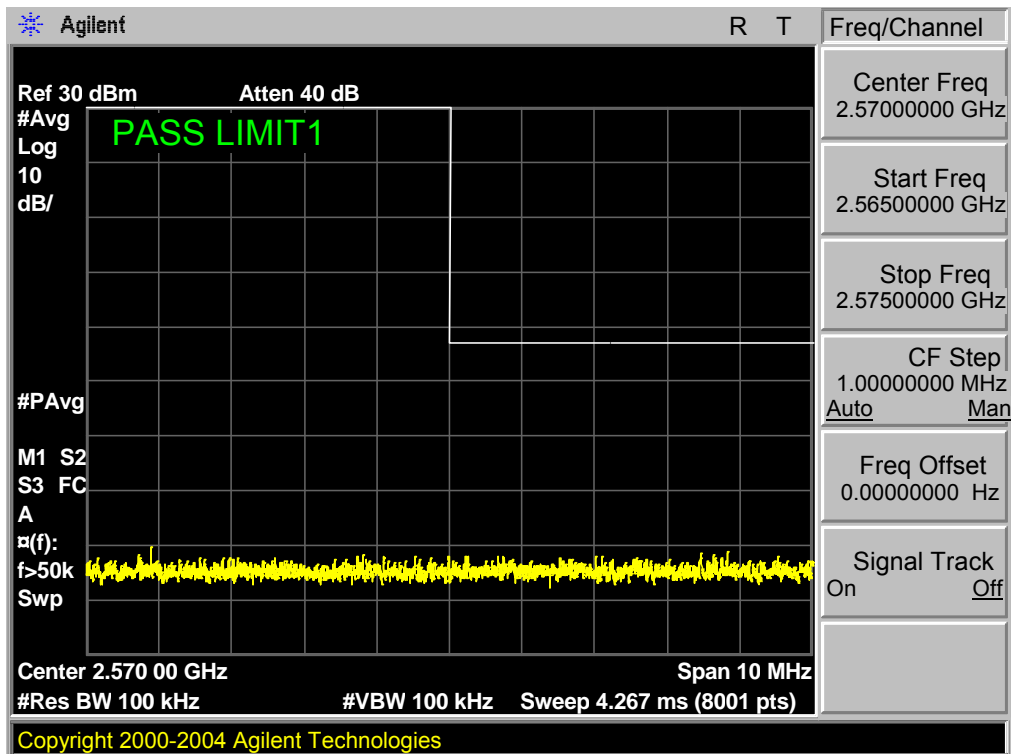
Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM

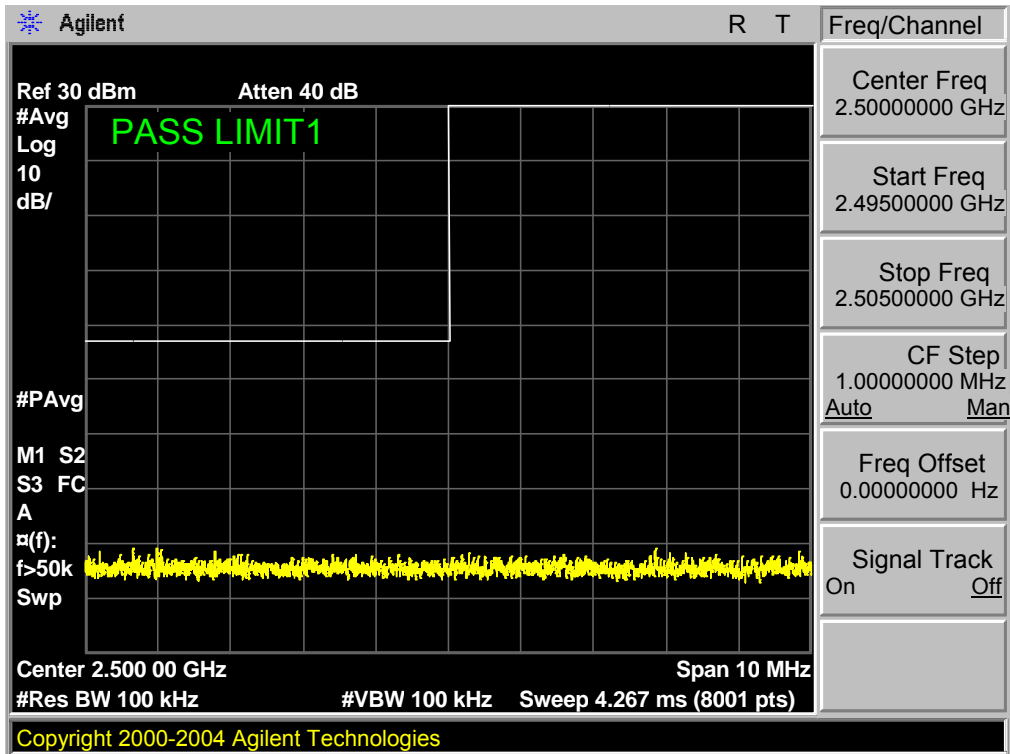


Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM

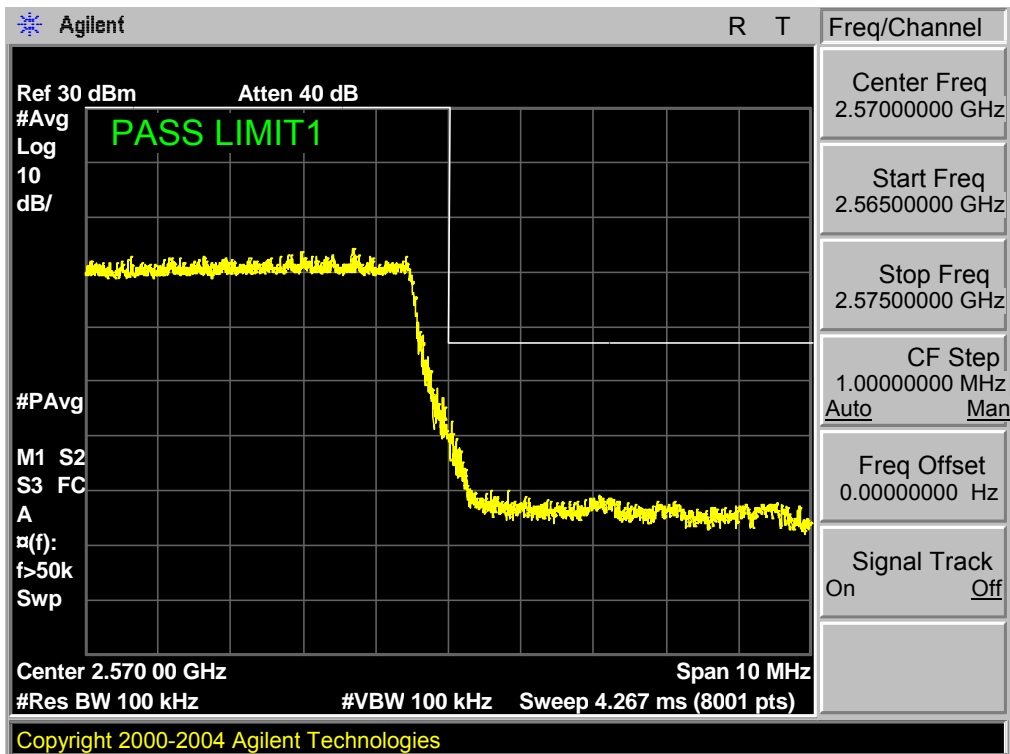




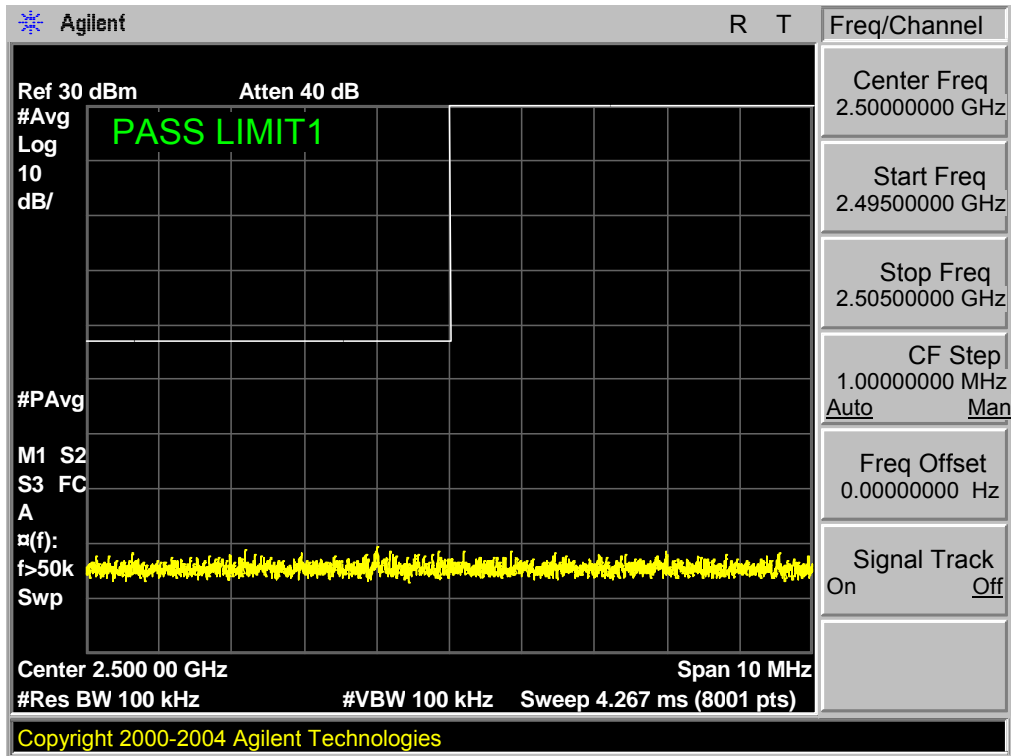
Band 7,UL Channel 21400,UL Frequency 2565.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



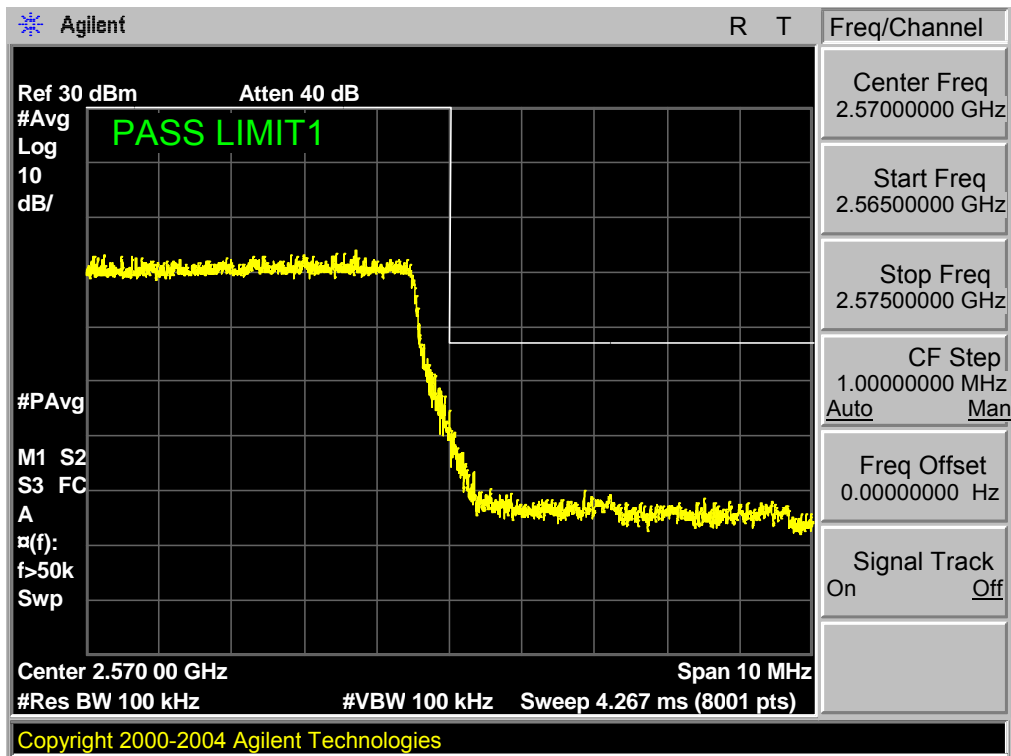
Band 7,UL Channel 21400,UL Frequency 2565.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



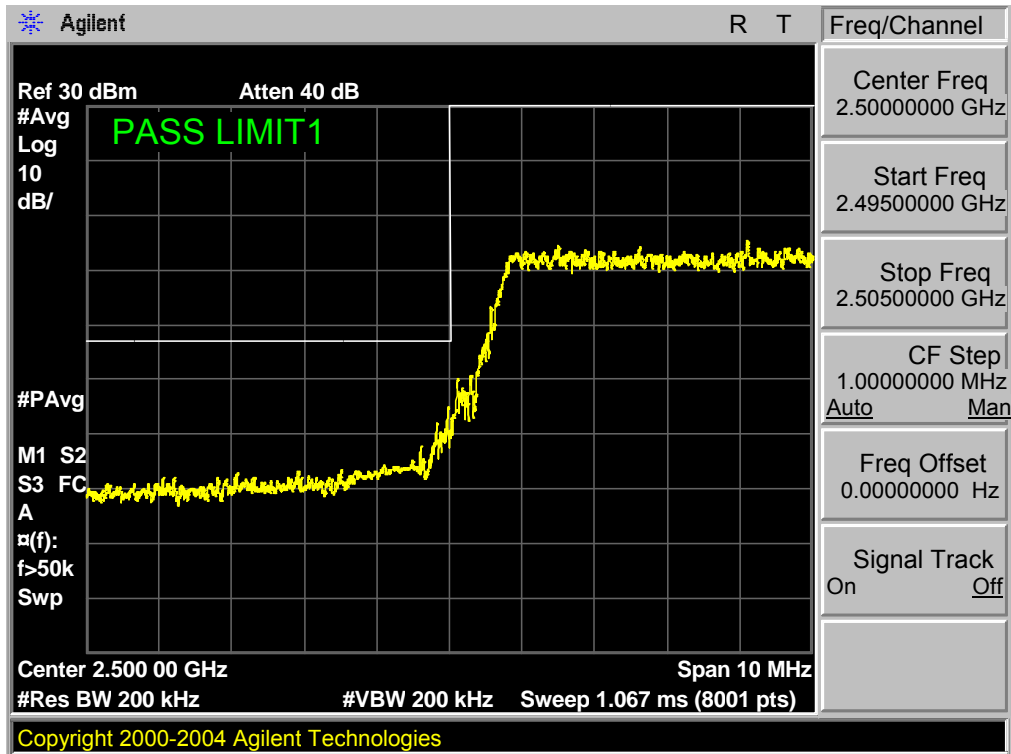
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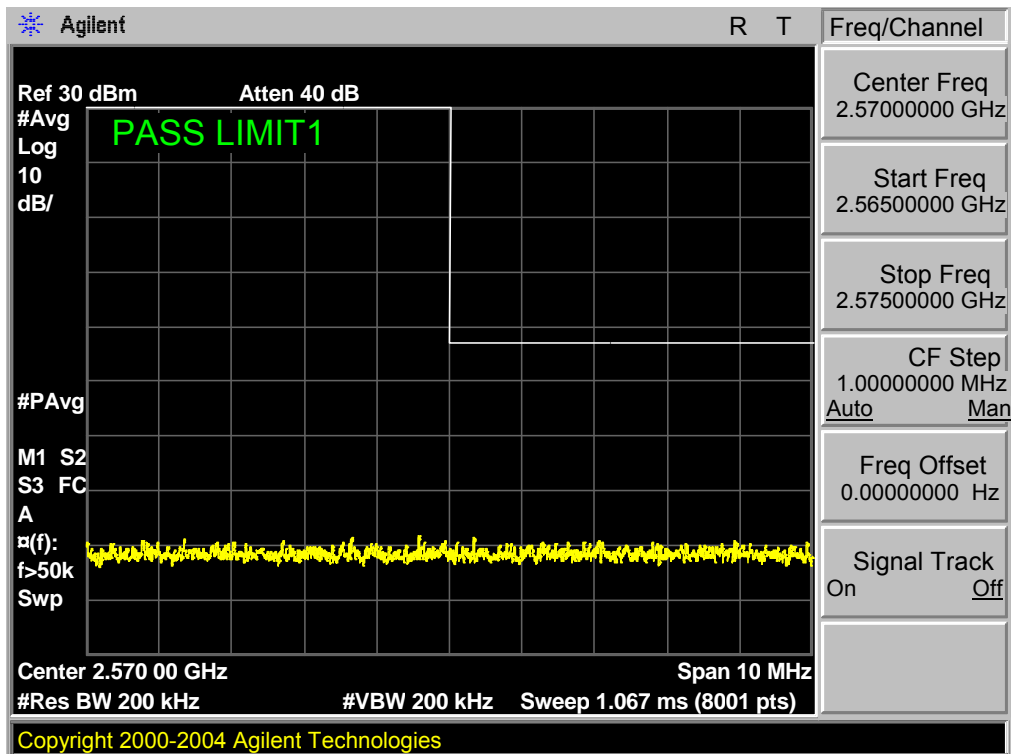
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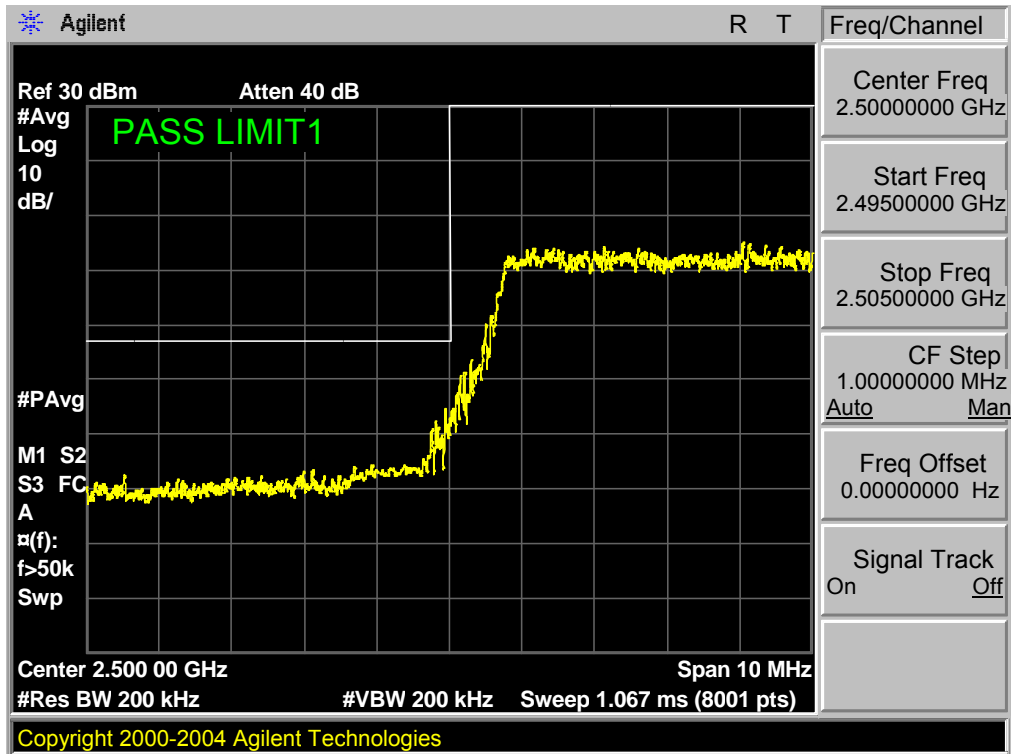
Band 7,UL Channel 20825,UL Frequency 2507.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



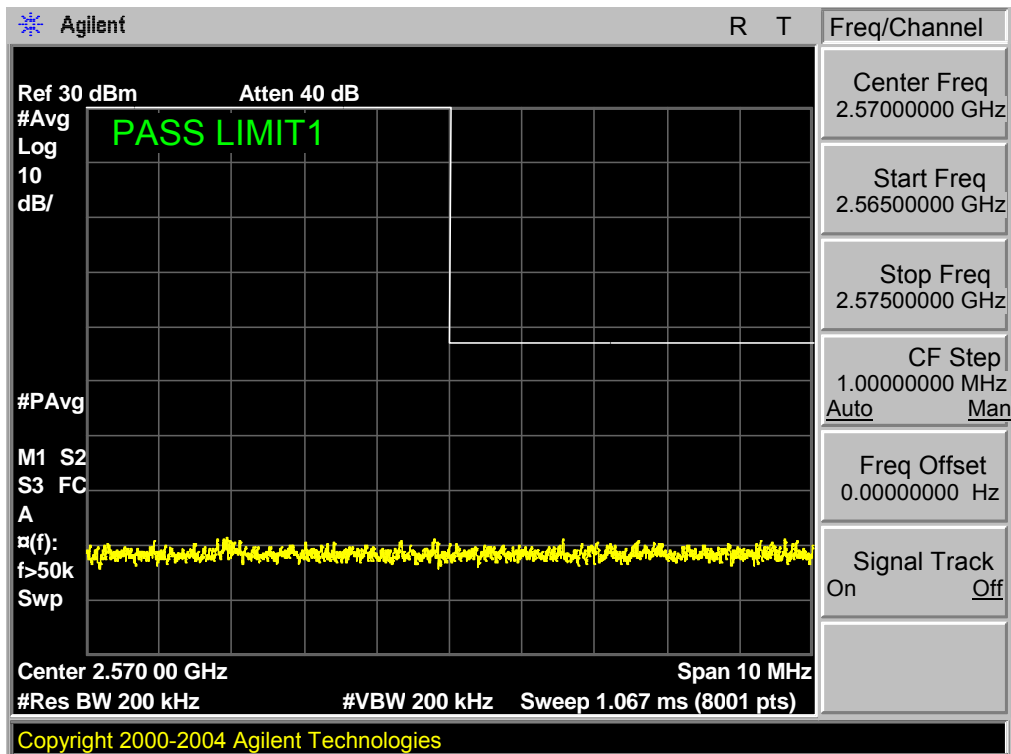
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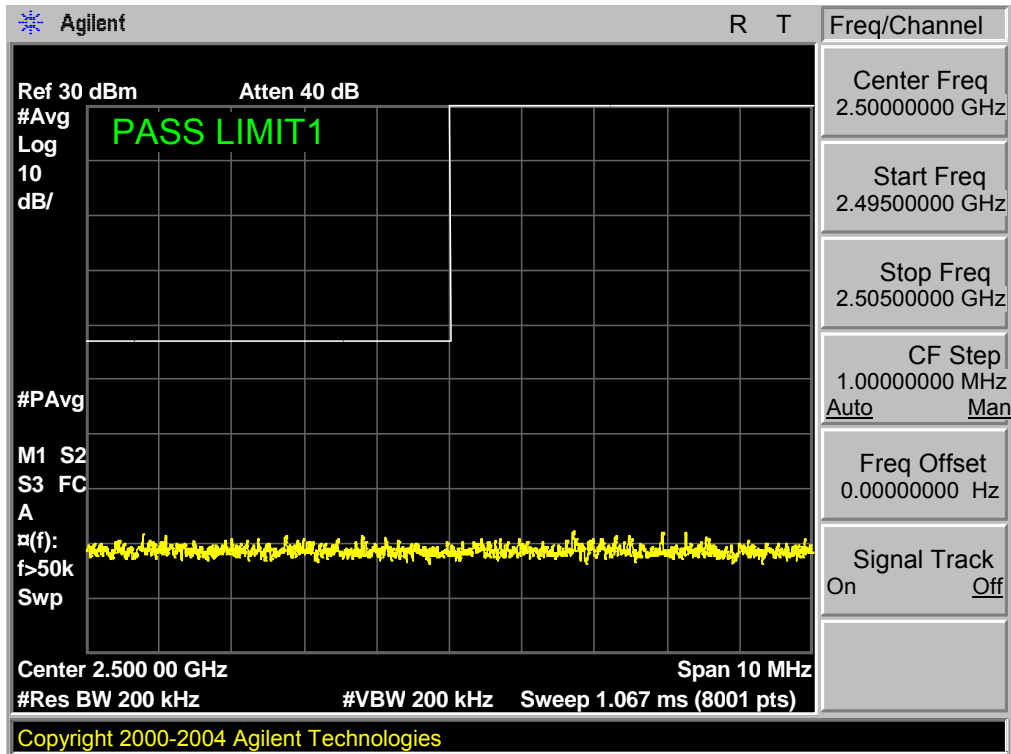
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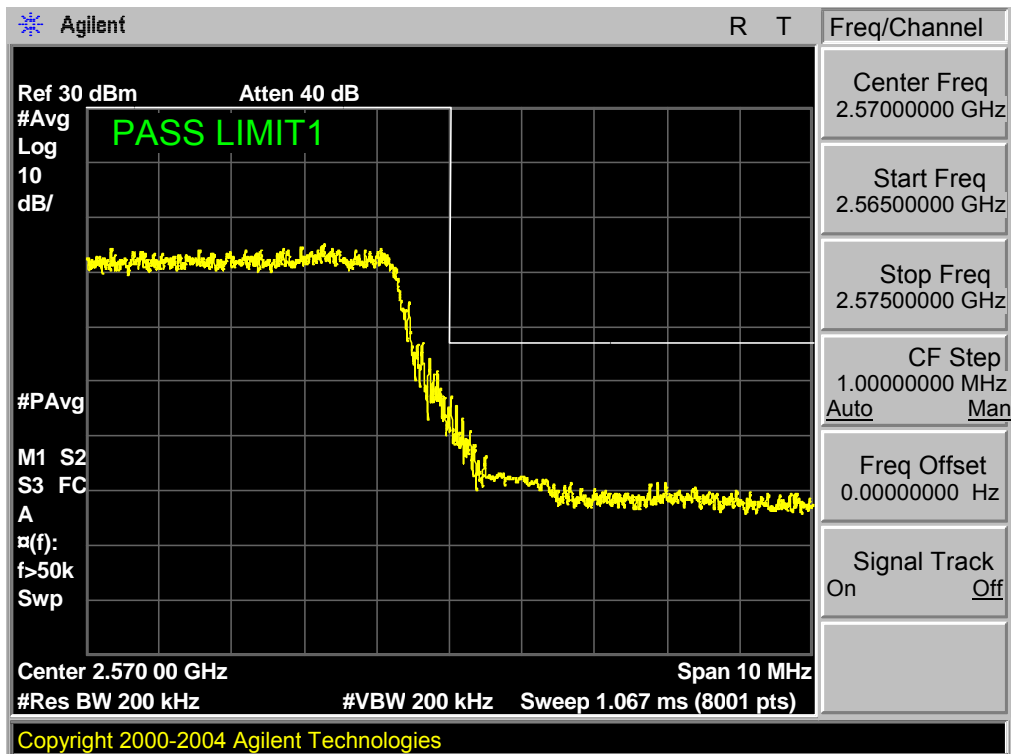
Band 7,UL Channel 20825,UL Frequency 2507.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



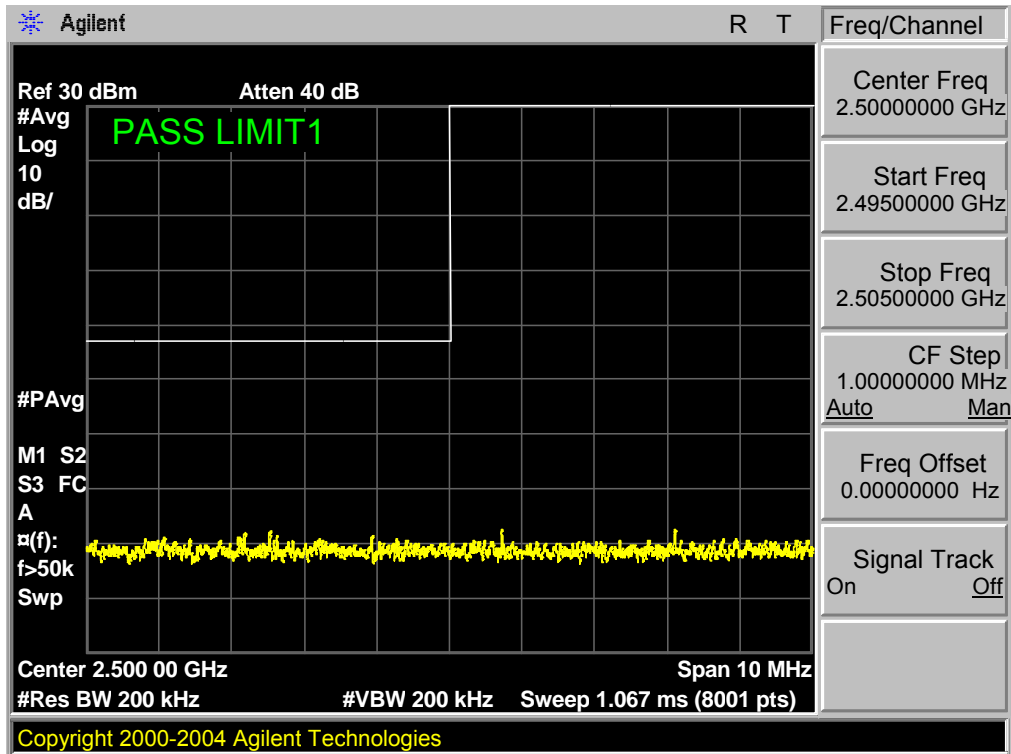
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



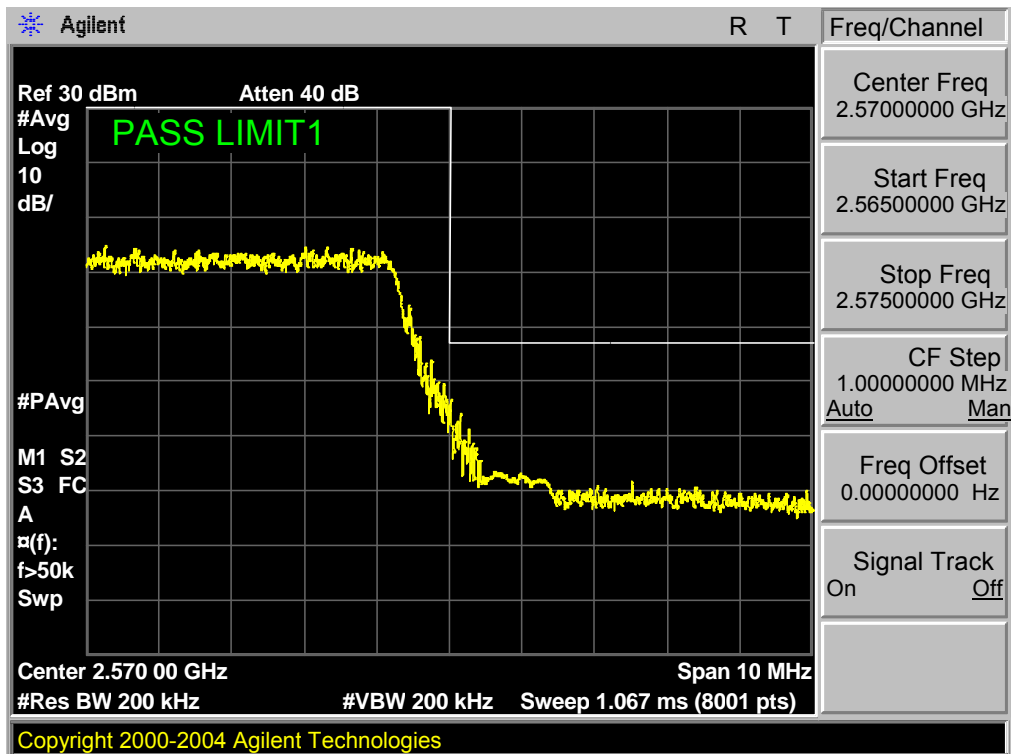
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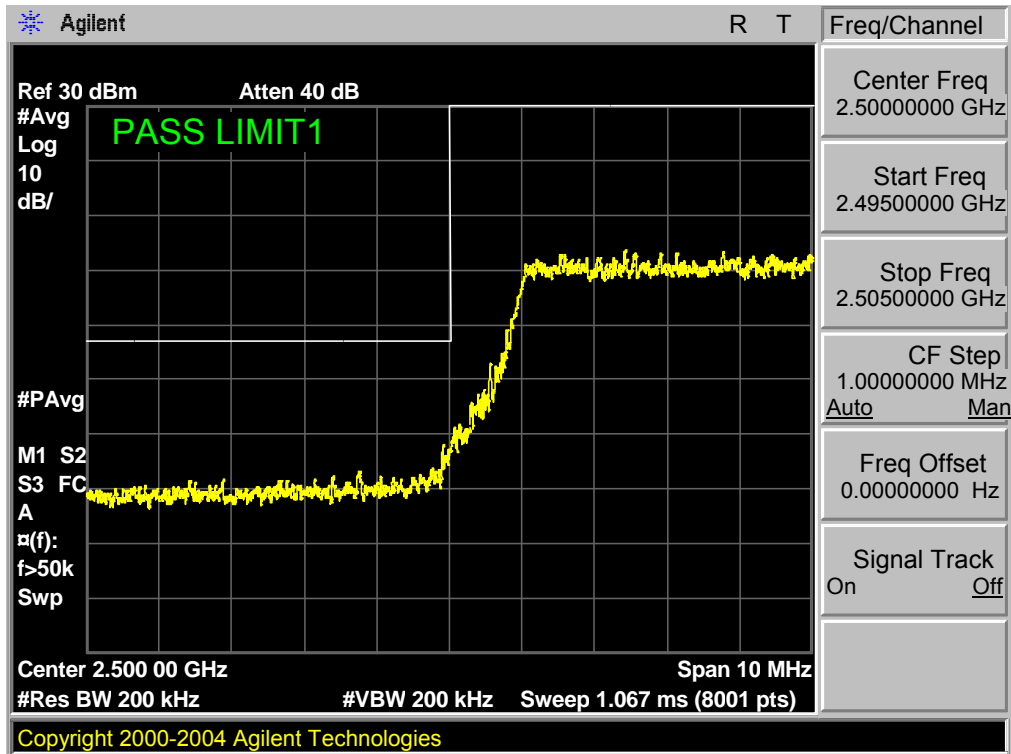
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



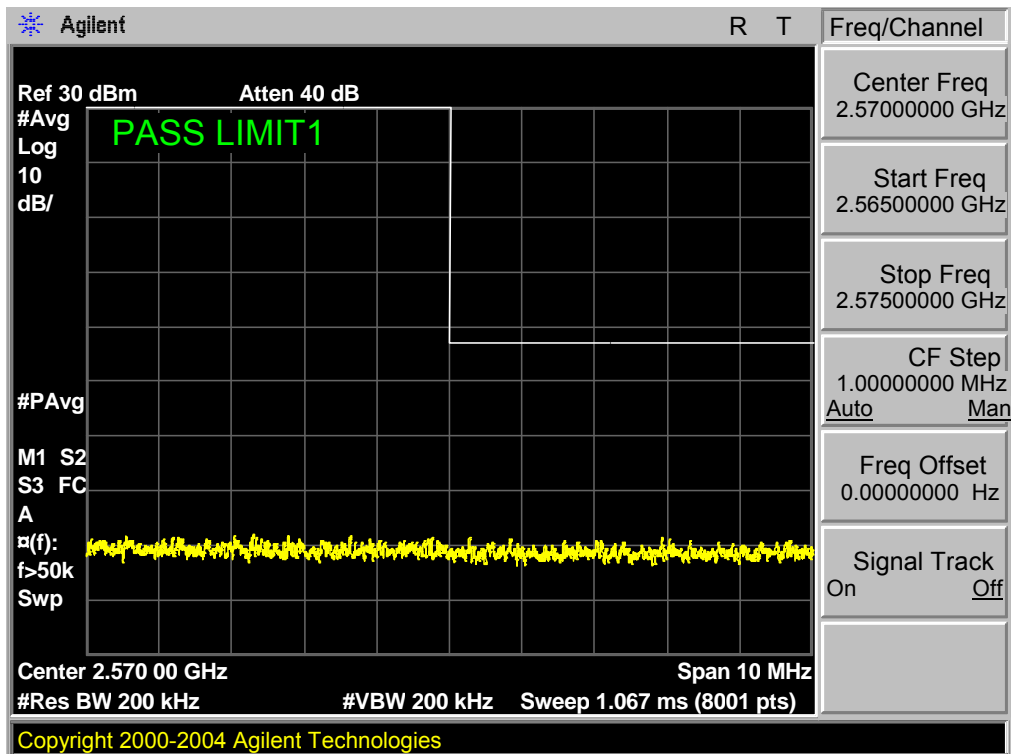
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



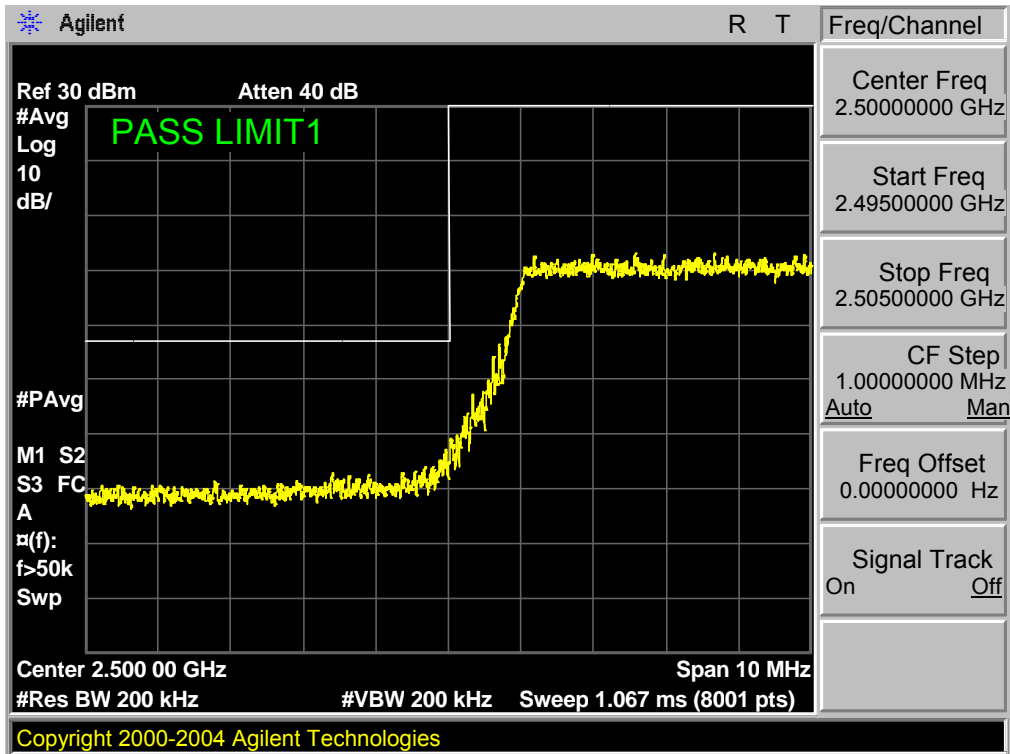
Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



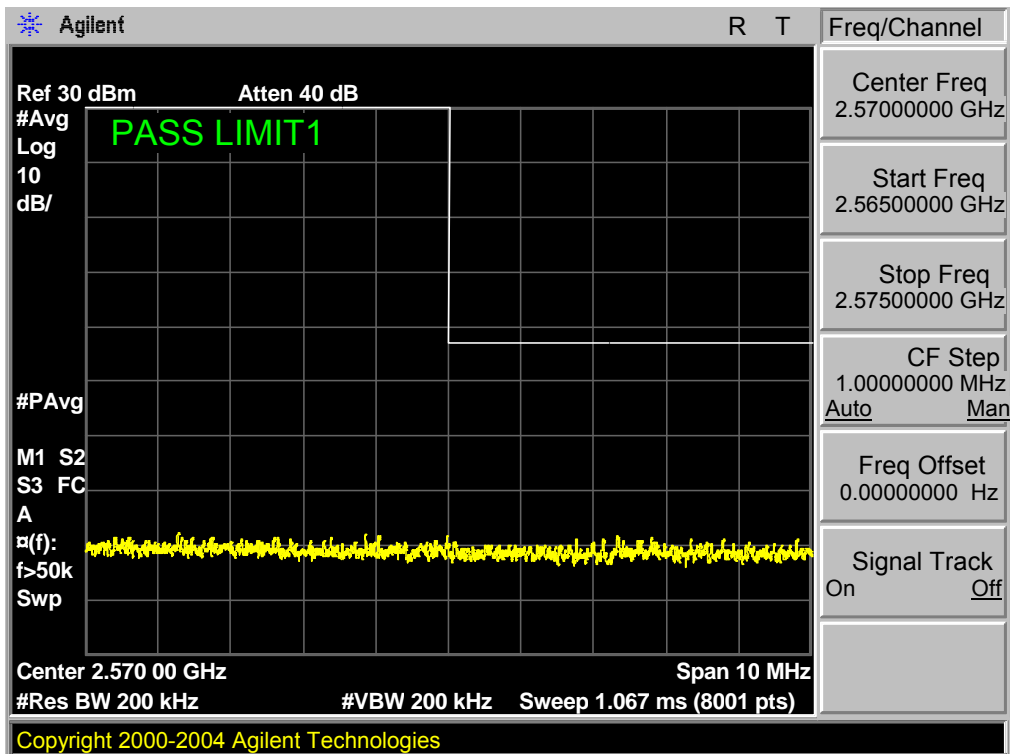
Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM

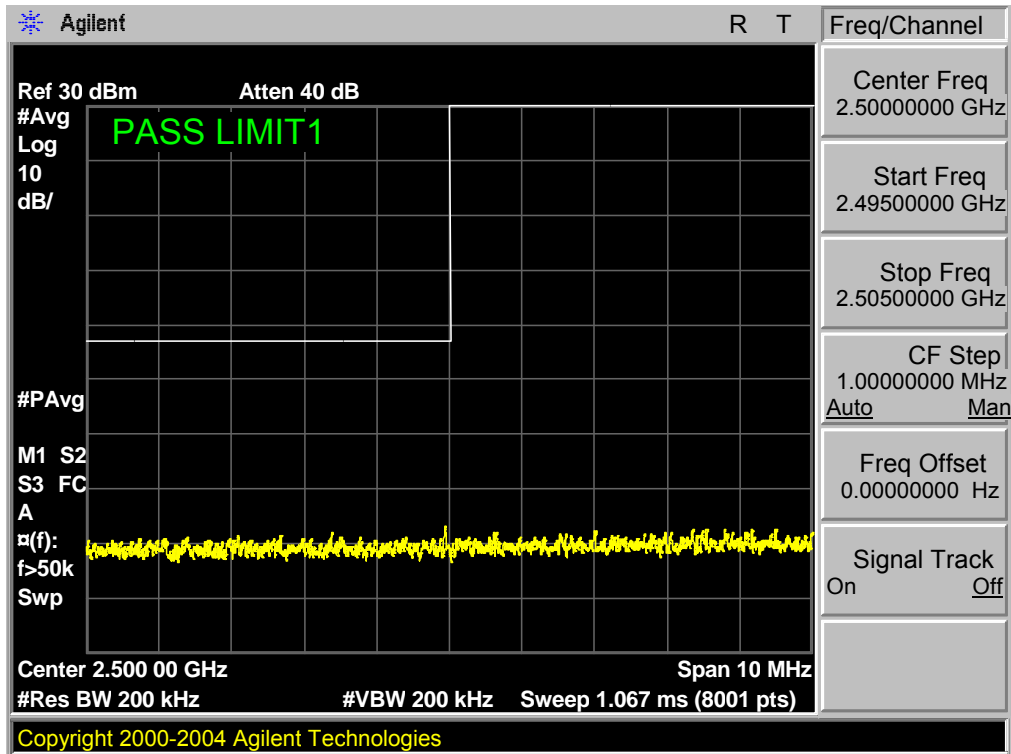


Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM

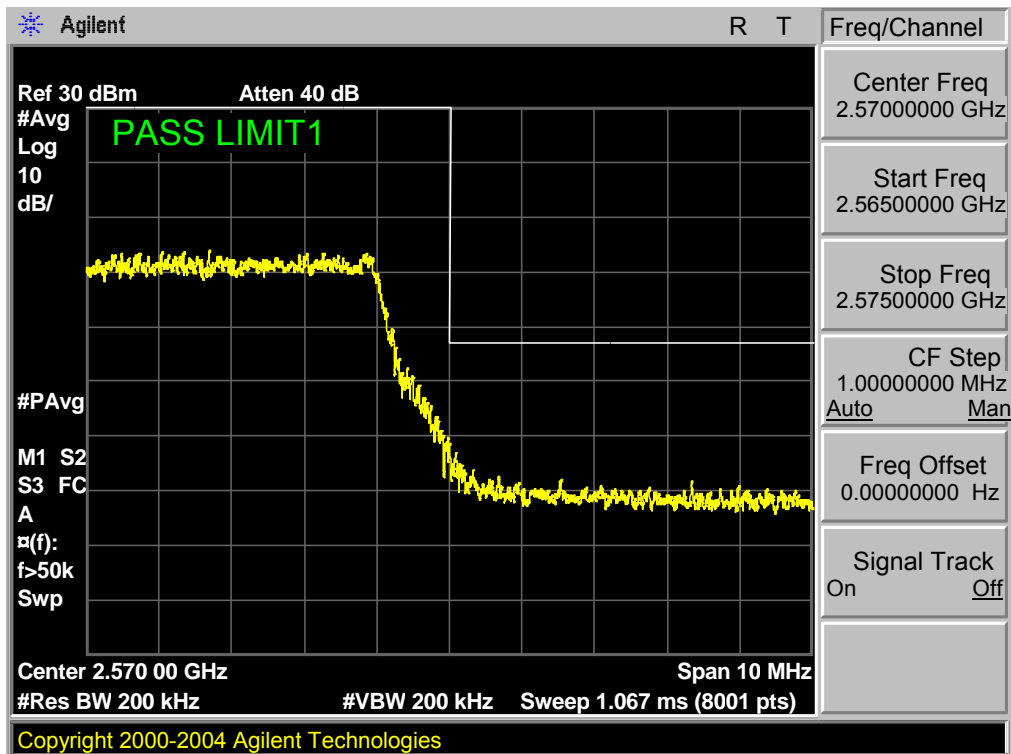




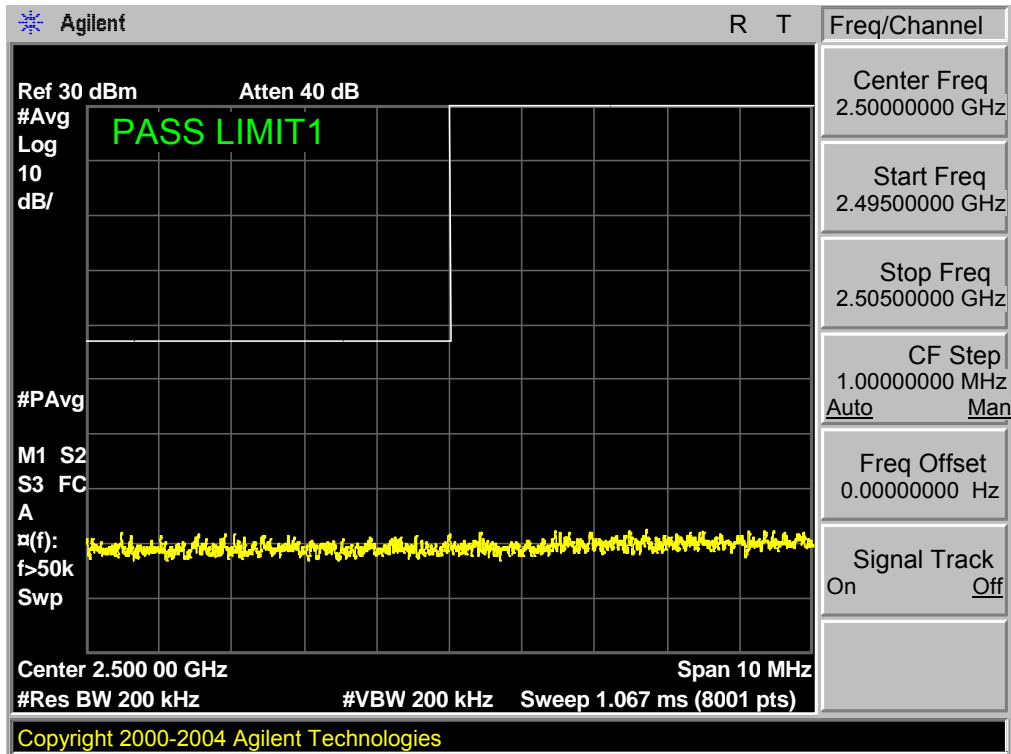
Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



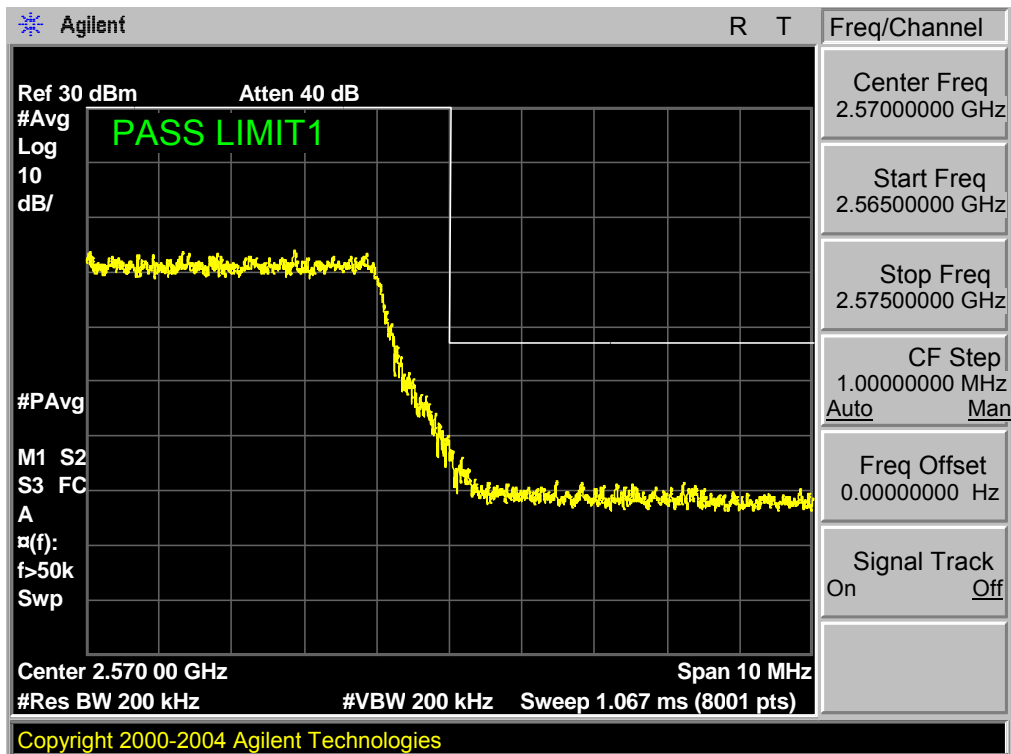
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Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



## 7. OUT OF BAND EMISSIONS

### 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 4

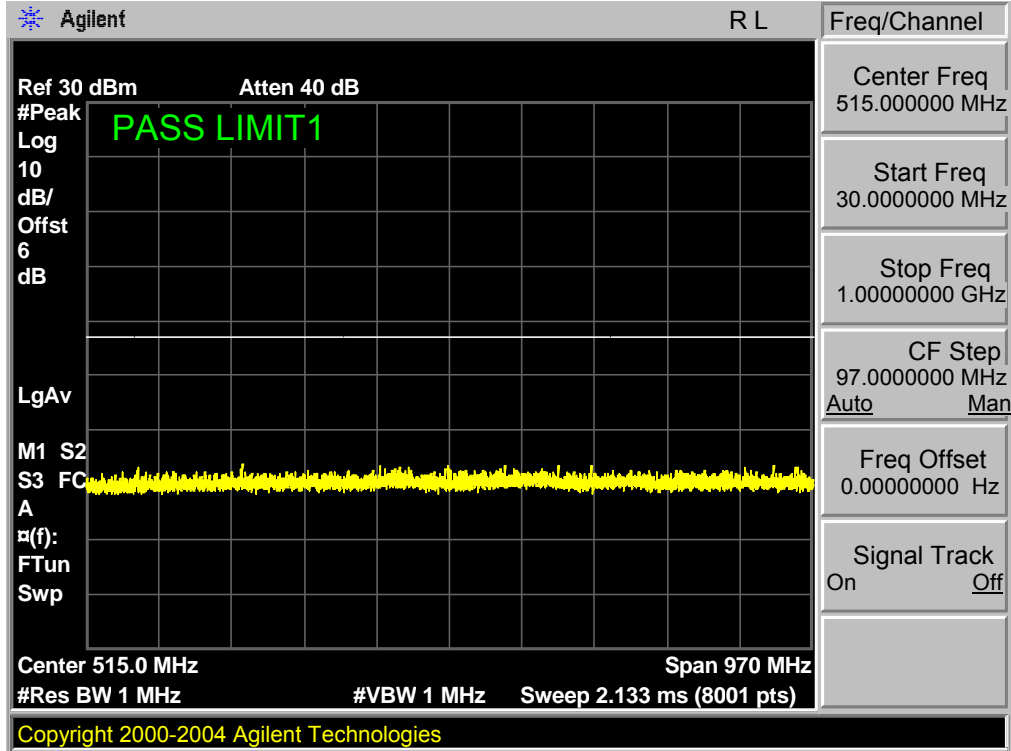
- LTE Band 7

### 7.1 MEASUREMENT METHOD

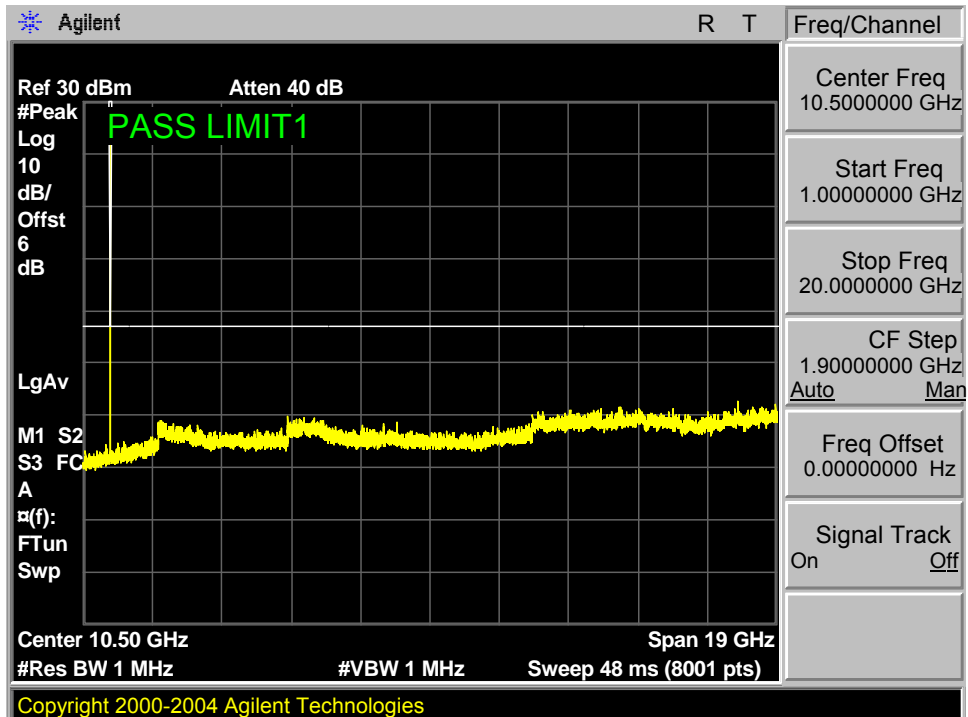
The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

### 7.1.1 LTE BAND 4

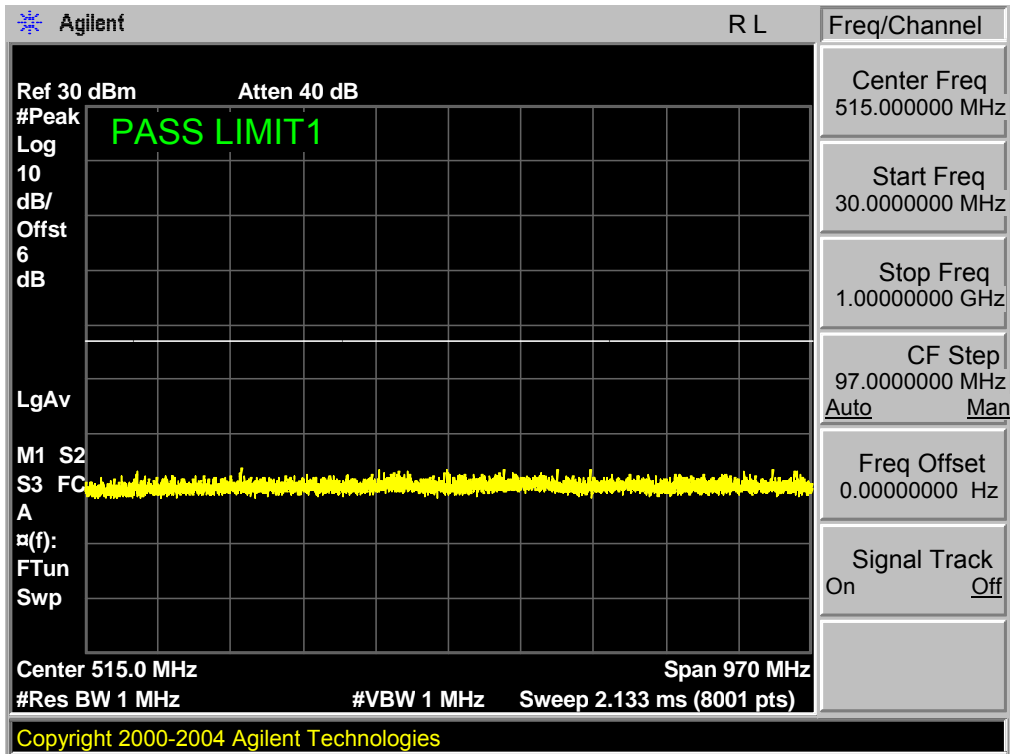
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 1,RB POS. Low,QPSK



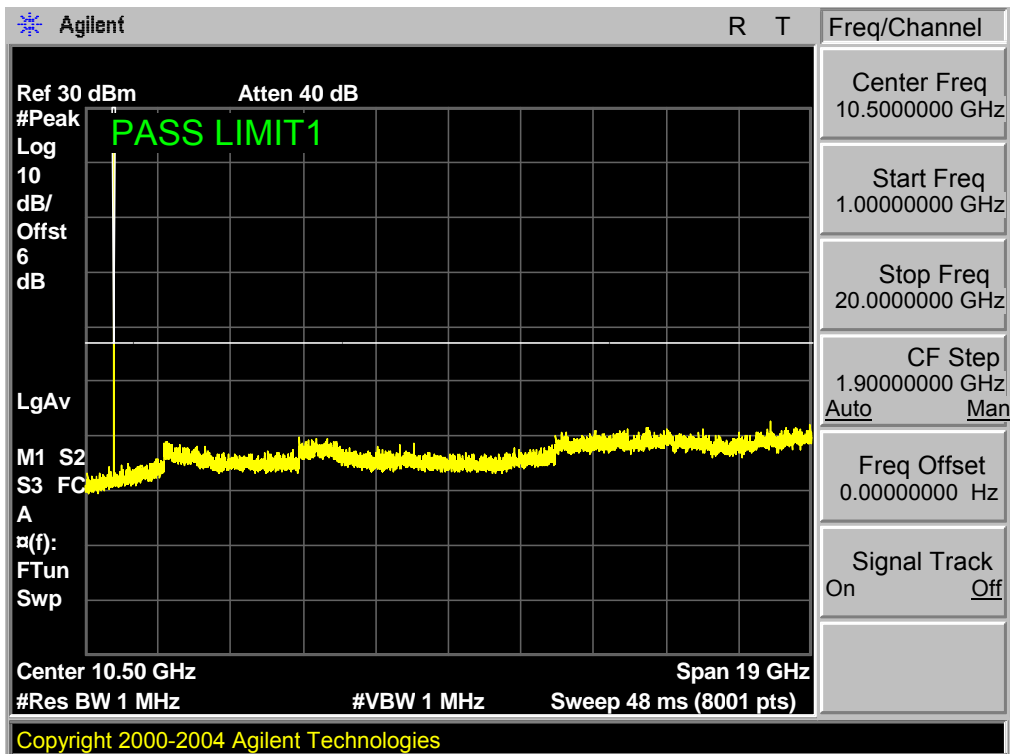
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 1,RB POS. Low,QPSK



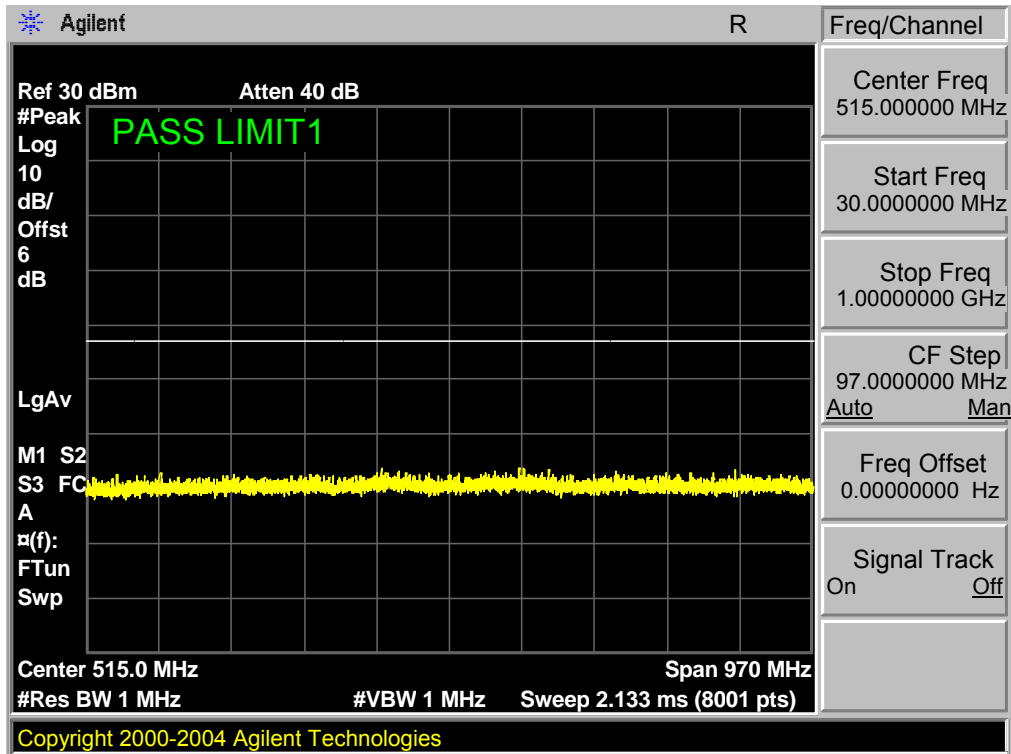
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 1,RB POS. Low,QPSK



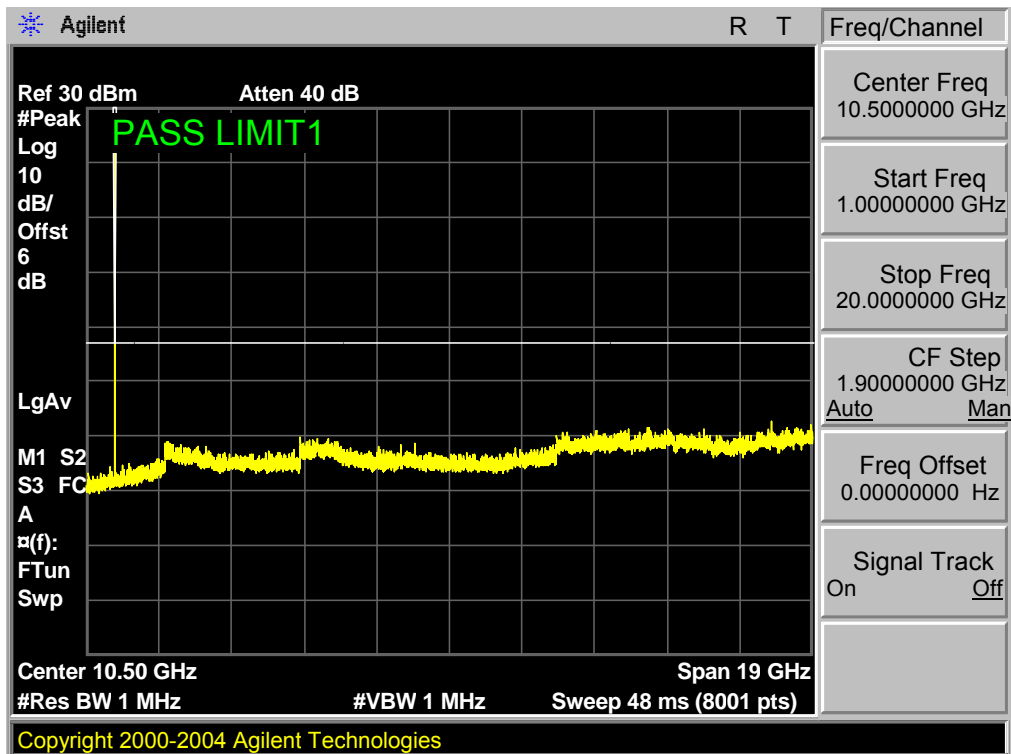
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 1,RB POS. Low,QPSK



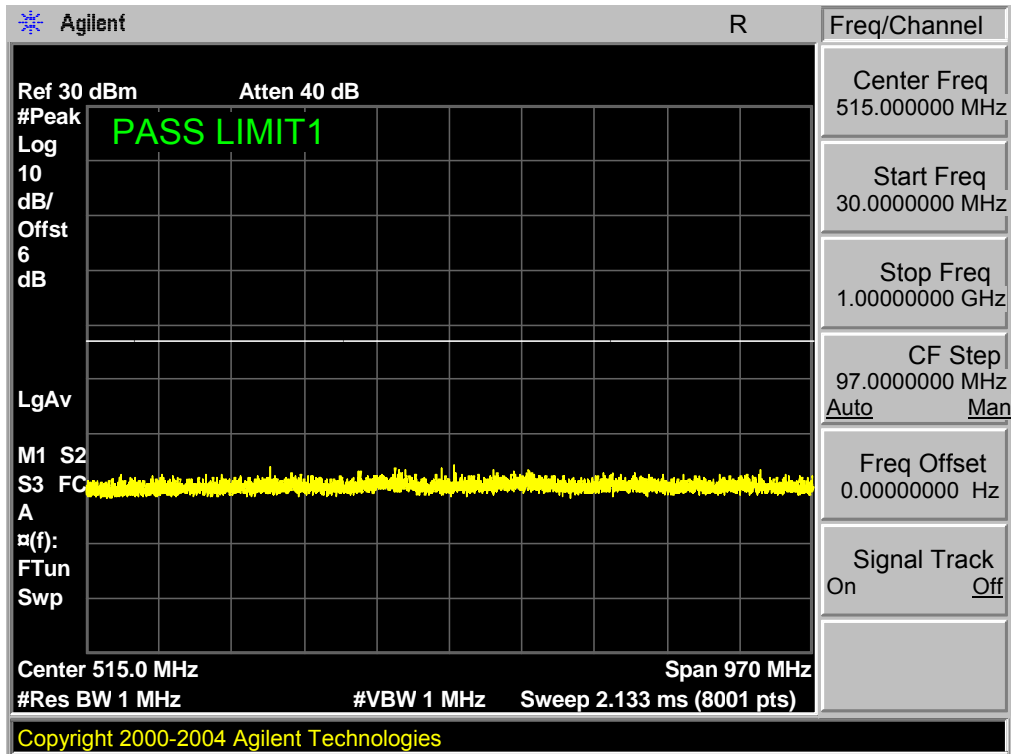
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 1,RB POS. Low,QPSK



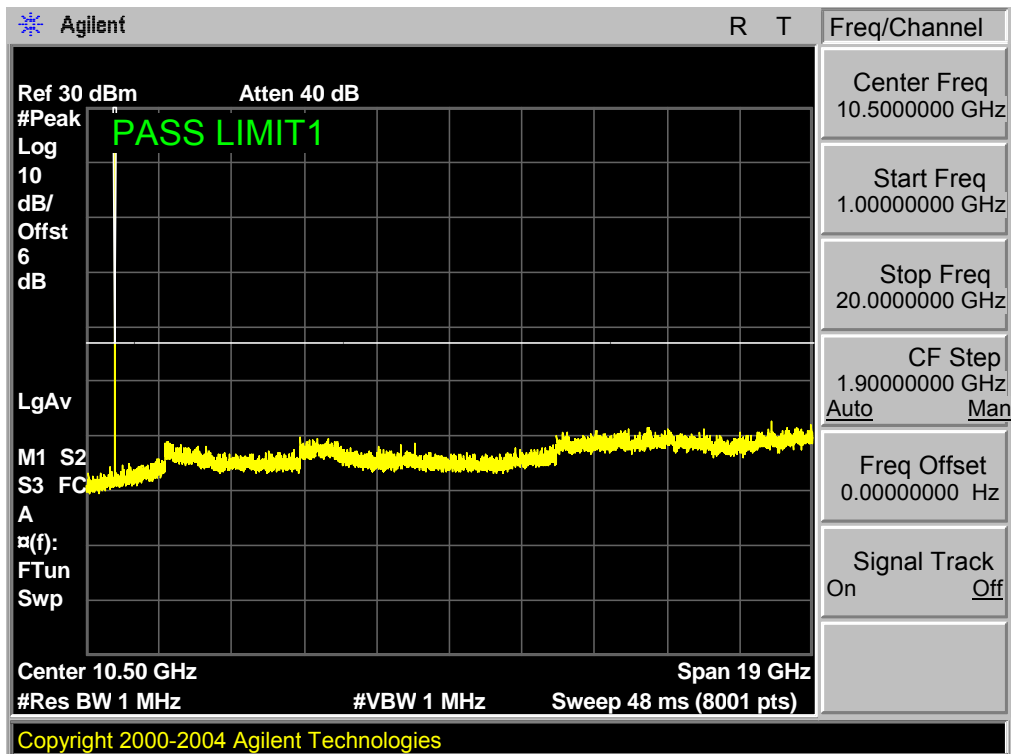
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 1,RB POS. Low,QPSK



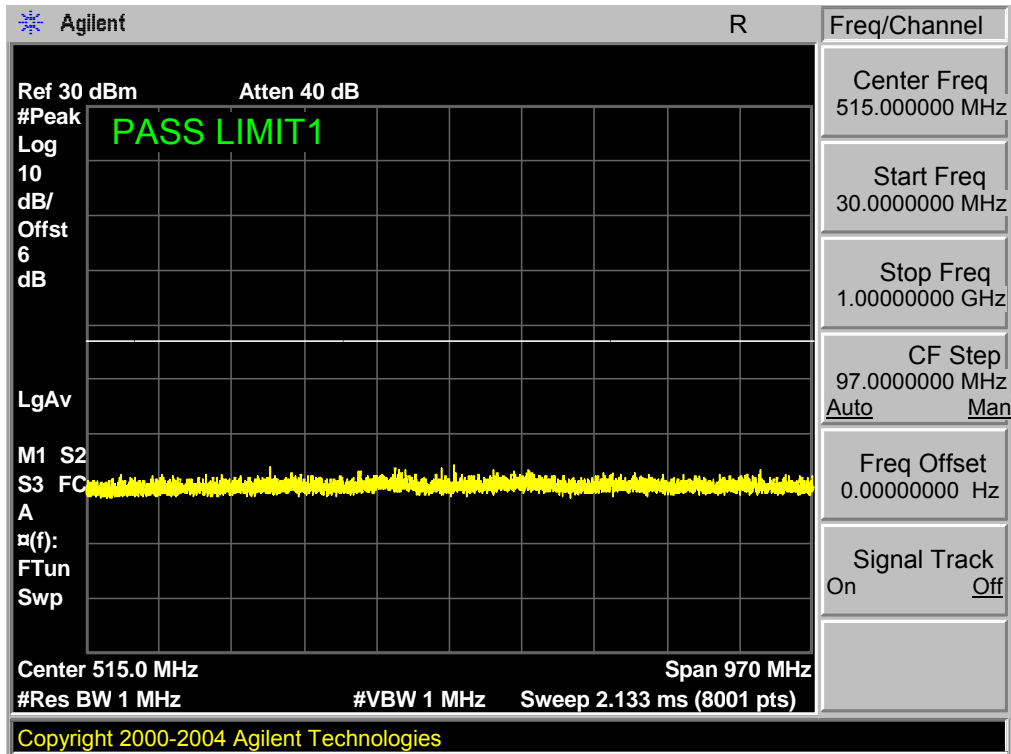
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 1,RB POS. Low,16QAM



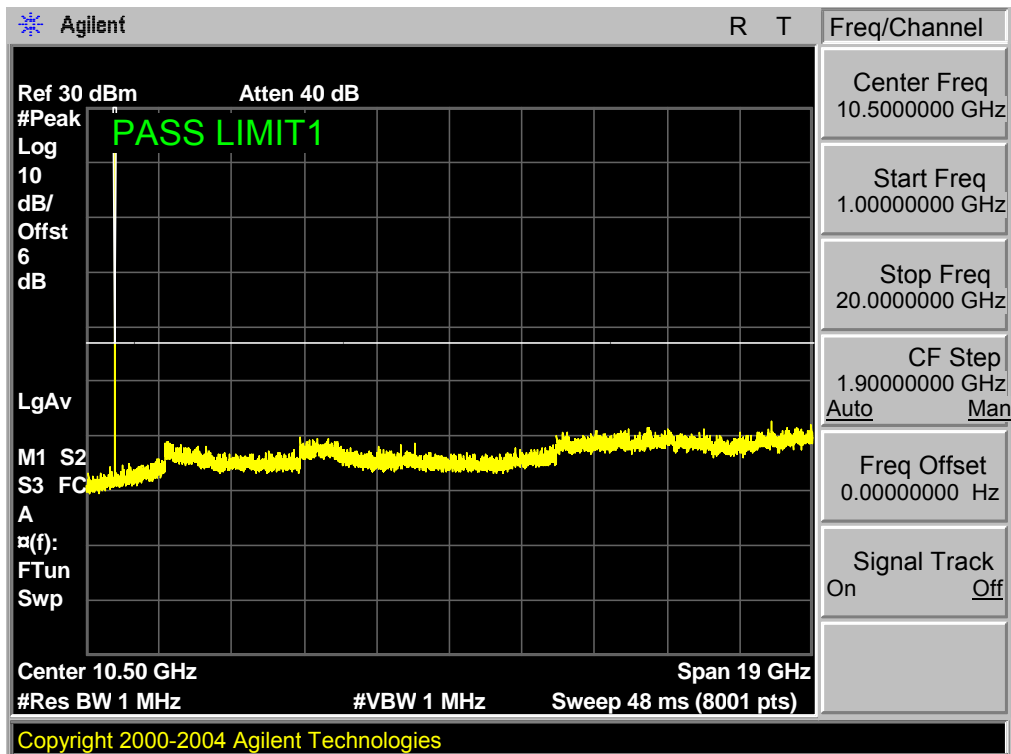
Band 4,UL Channel 19957,UL Frequency 1710.7,BW 1.4,NO. RB 1,RB POS. Low,16QAM



Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 1,RB POS. Low,16QAM

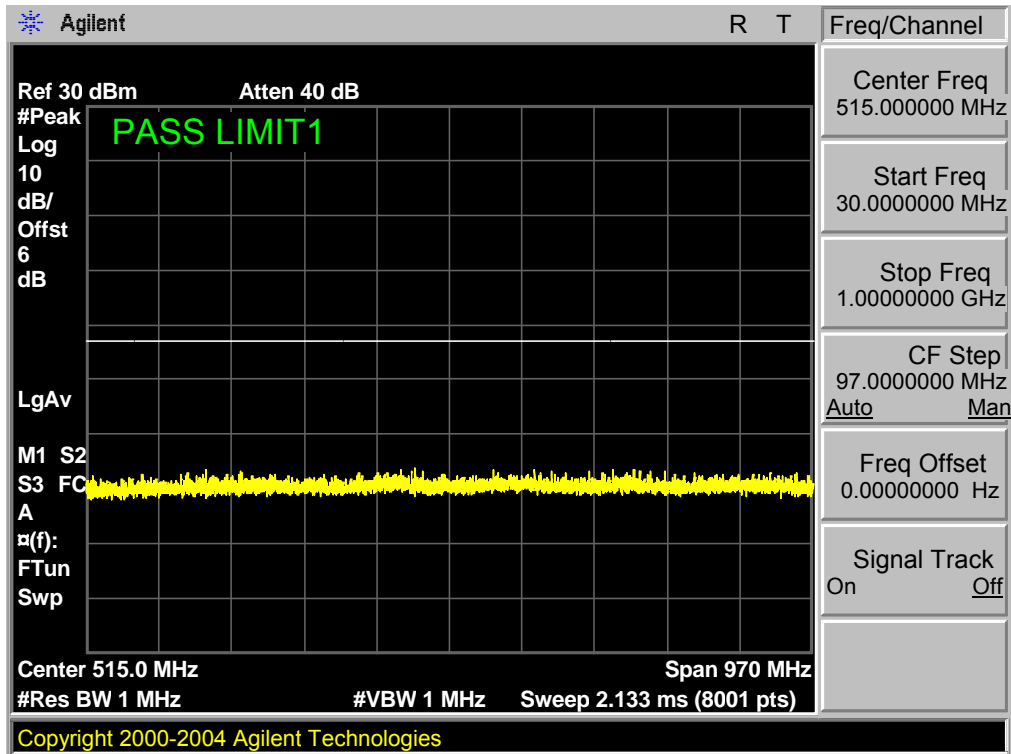


Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 1,RB POS. Low,16QAM

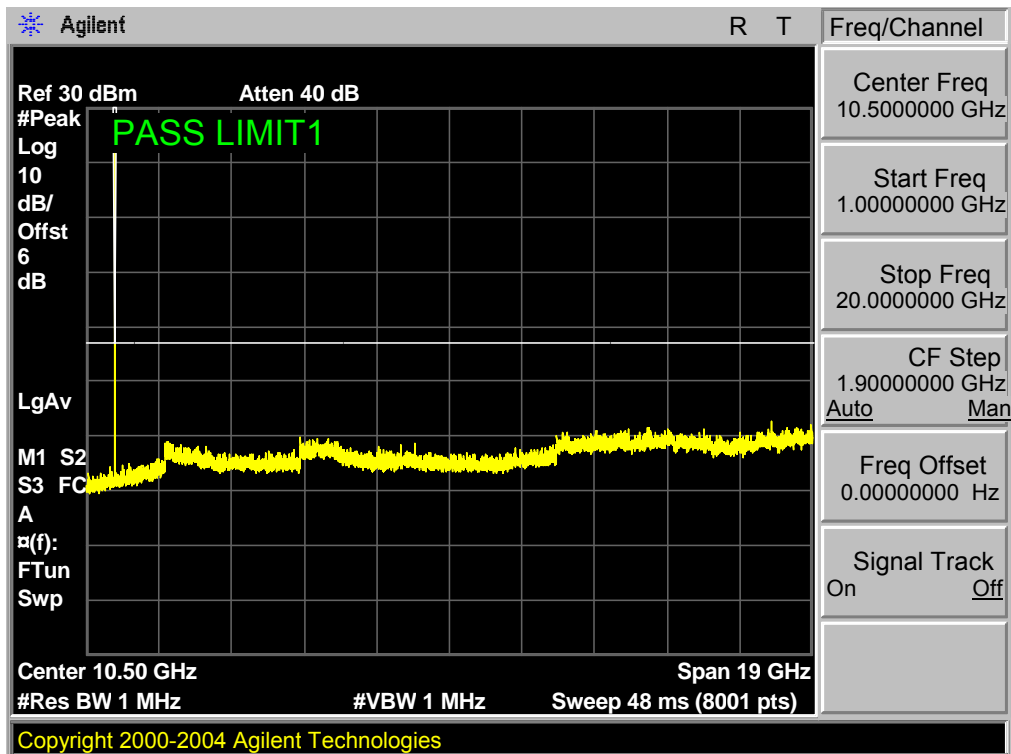




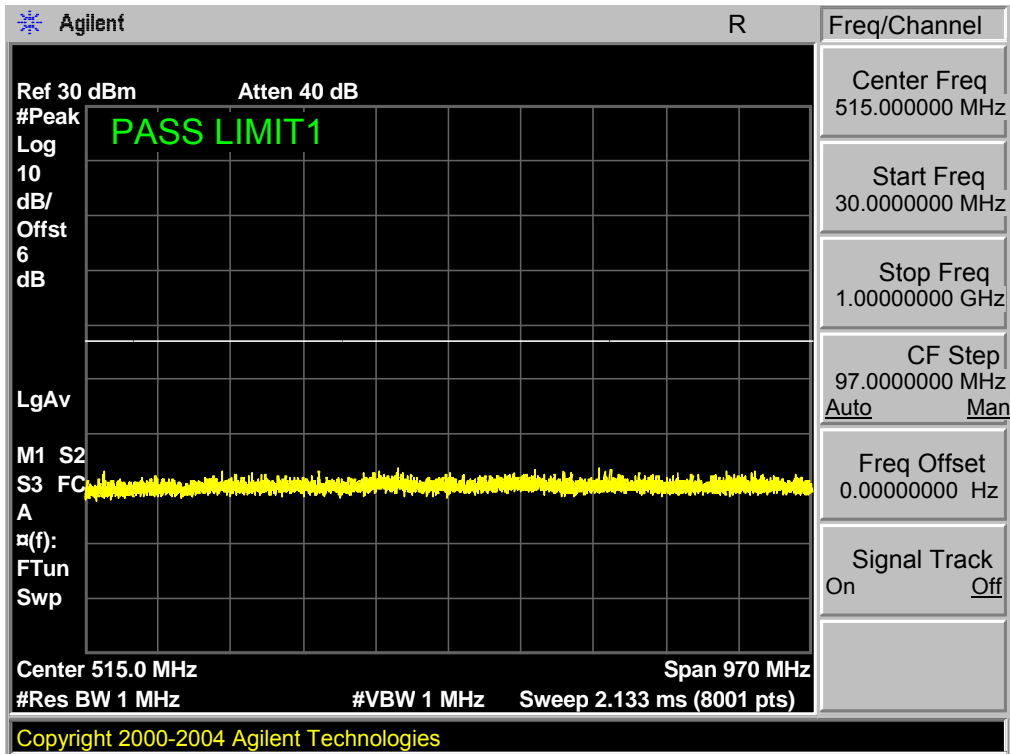
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 1,RB POS. Low,16QAM



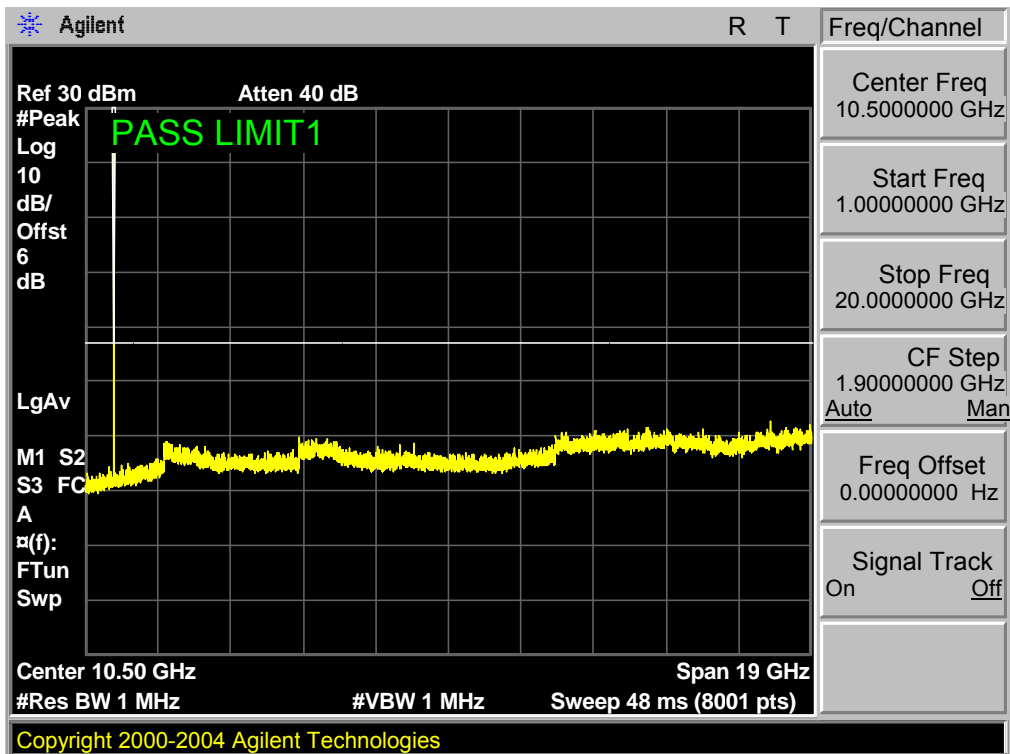
Band 4,UL Channel 20393,UL Frequency 1754.3,BW 1.4,NO. RB 1,RB POS. Low,16QAM



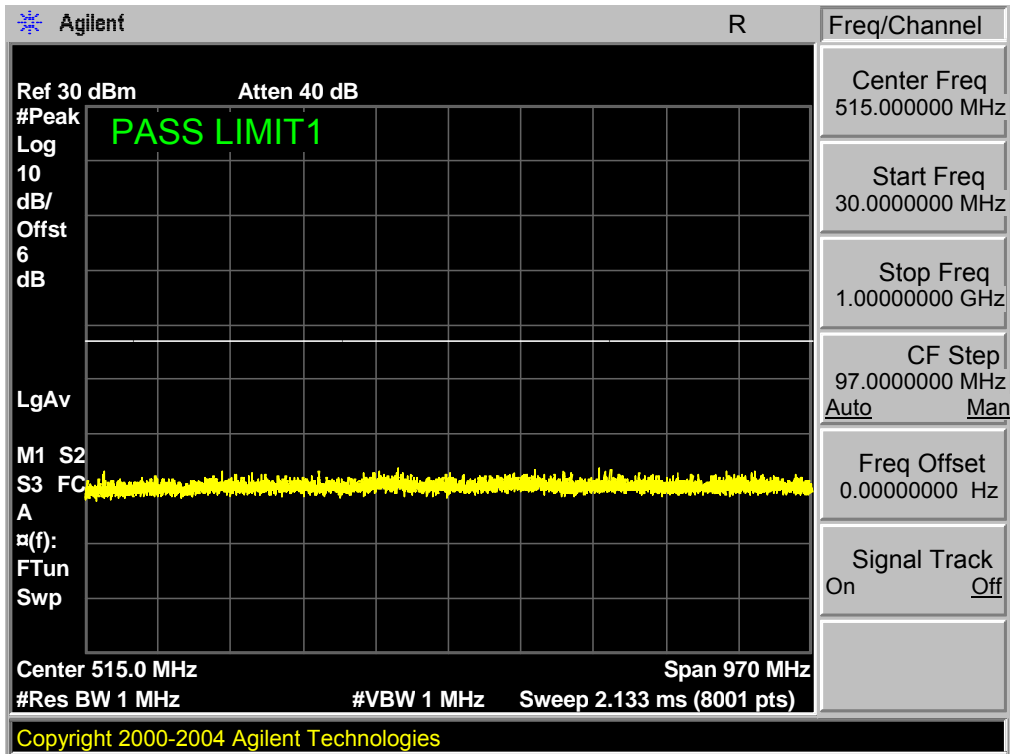
Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



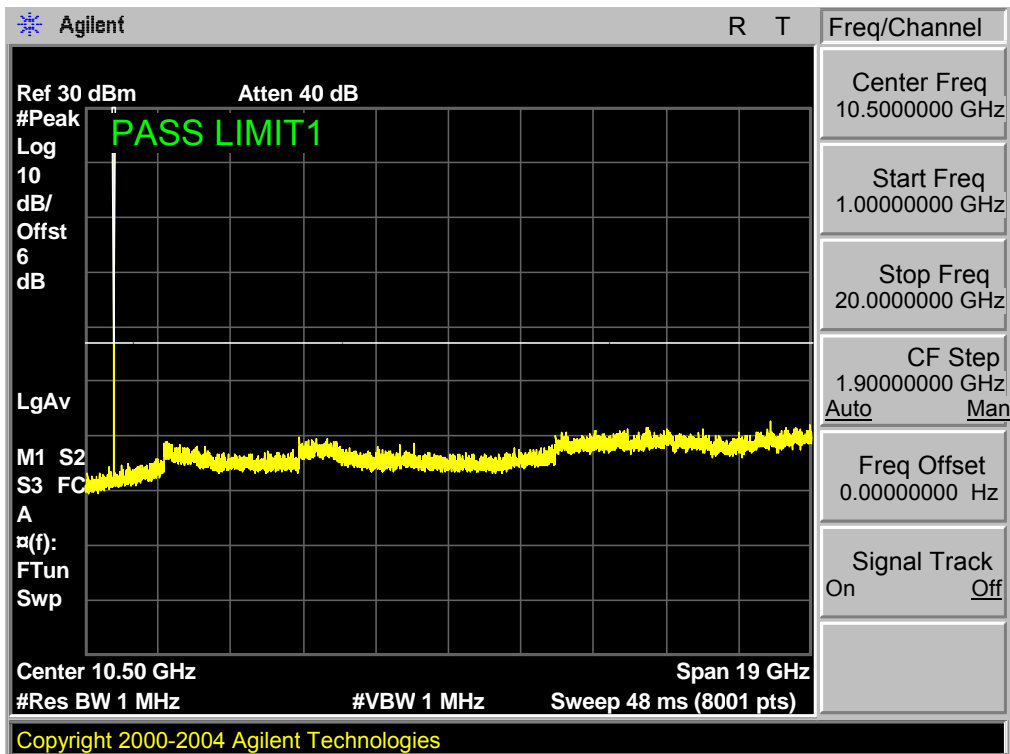
Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



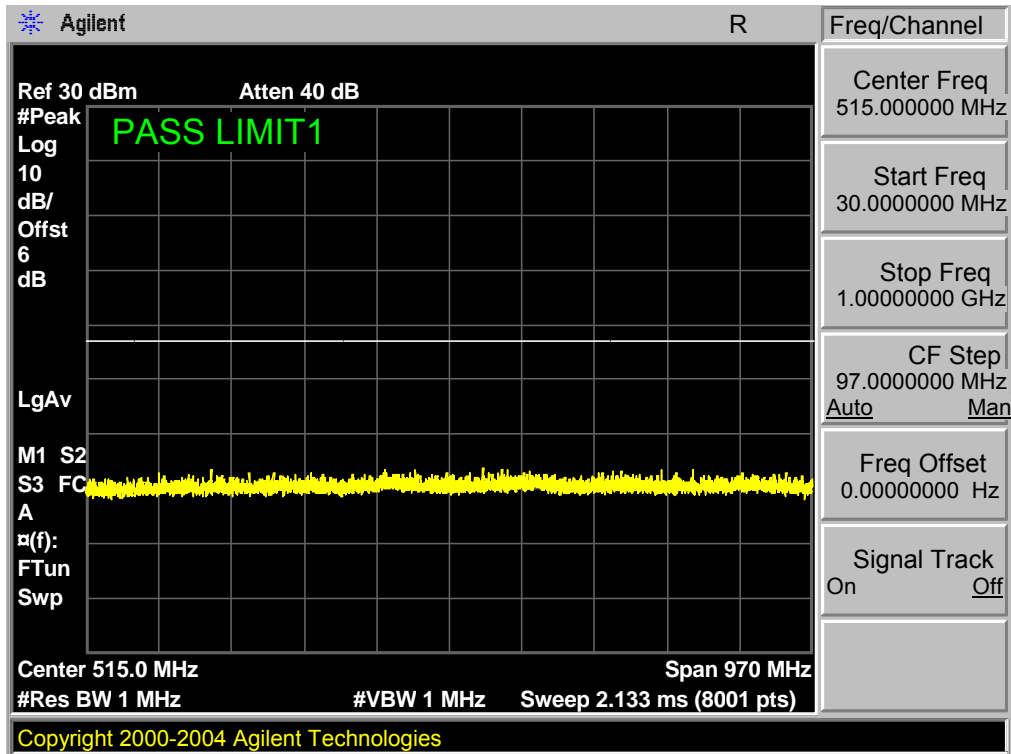
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



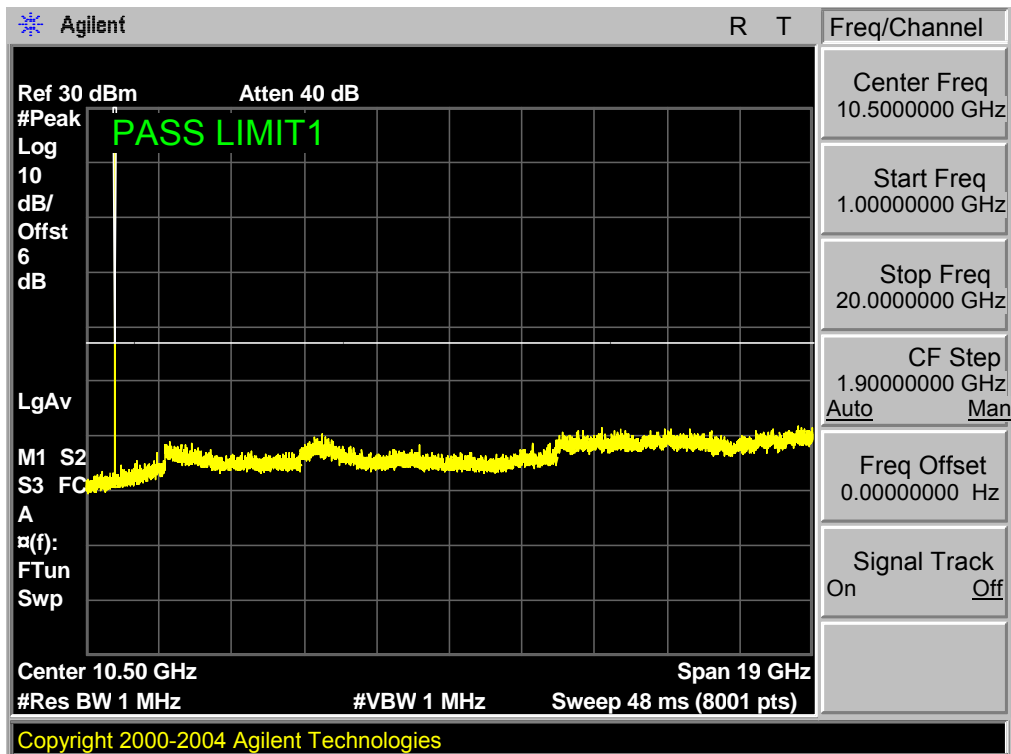
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



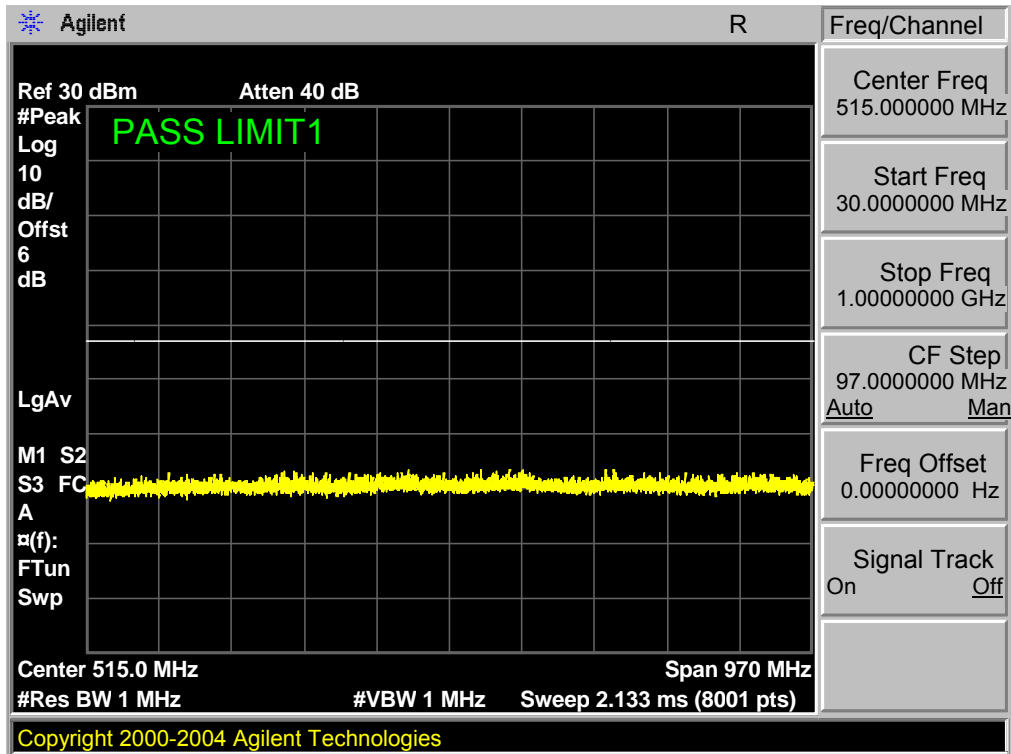
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



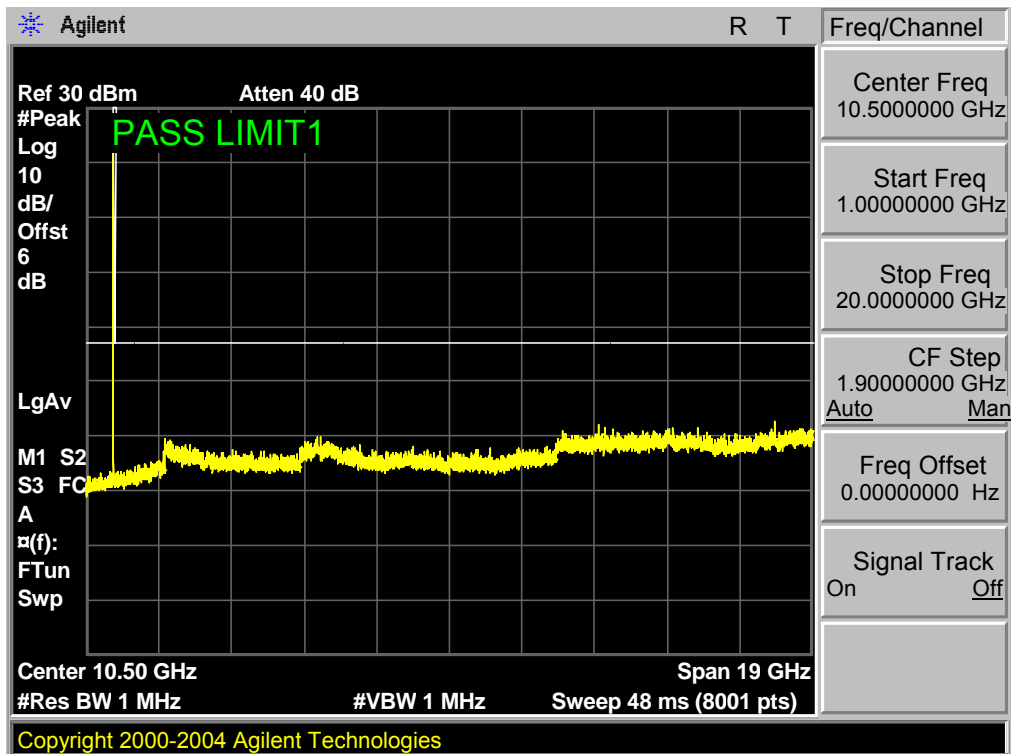
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



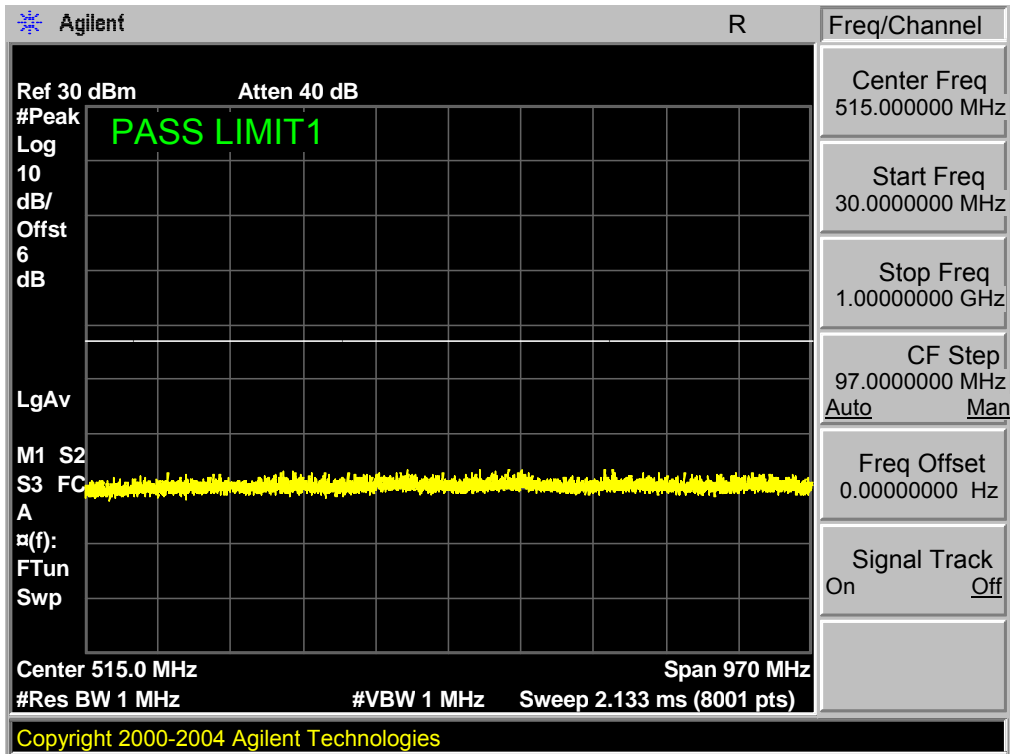
Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 1,RB POS. High,16QAM



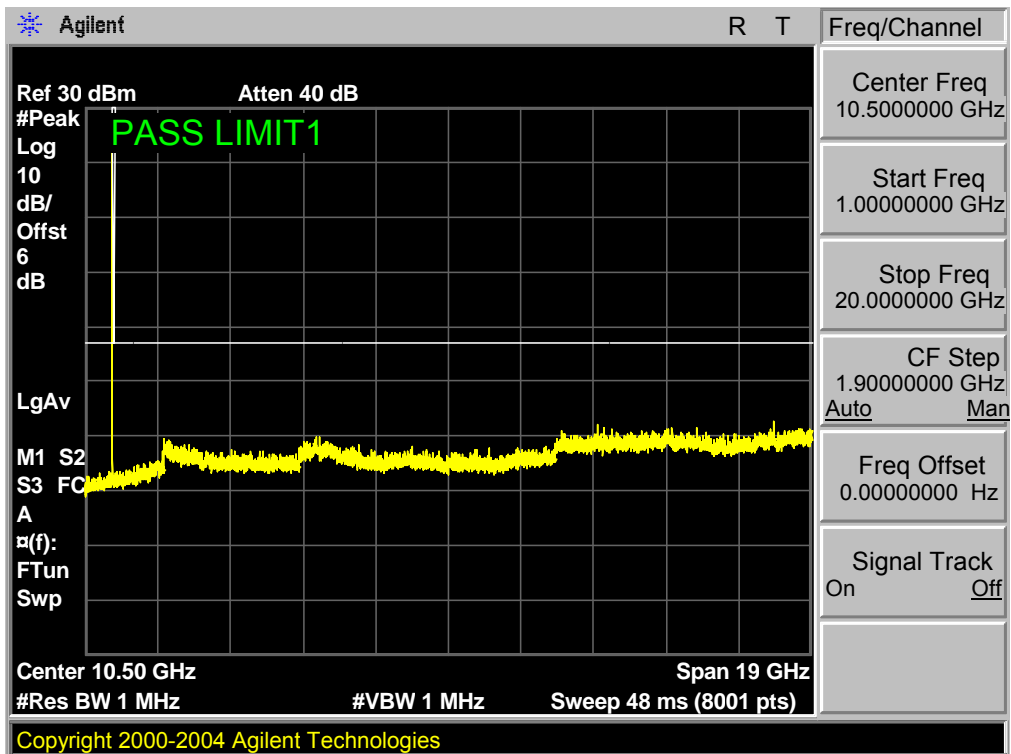
Band 4,UL Channel 19965,UL Frequency 1711.5,BW 3.0,NO. RB 1,RB POS. High,16QAM



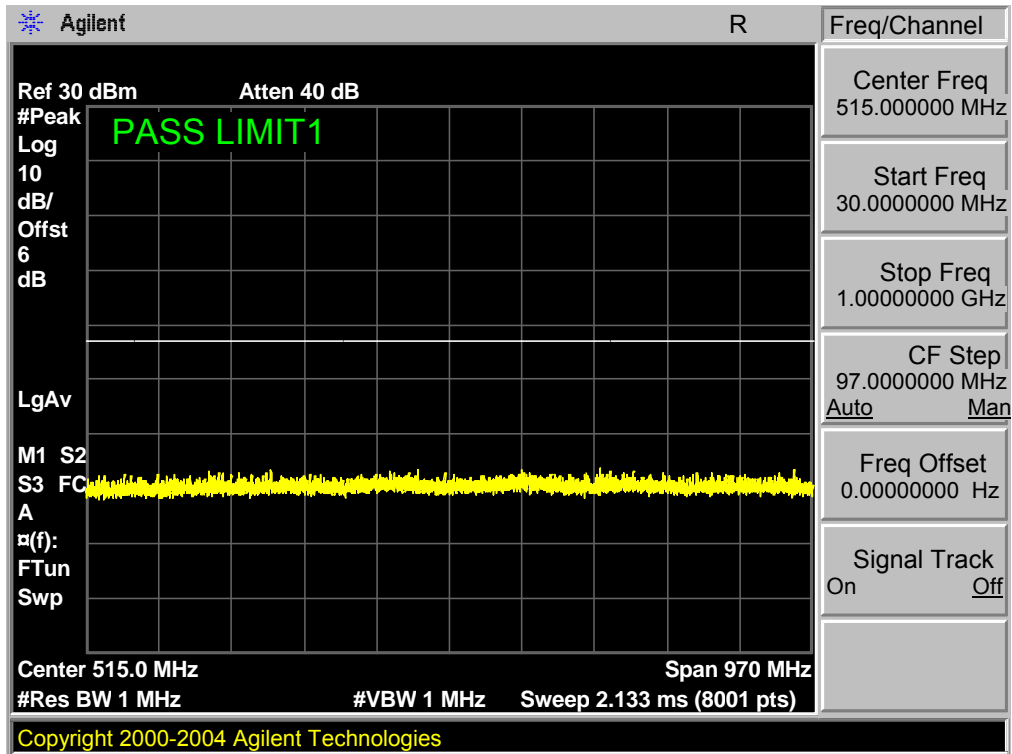
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 1,RB POS. High,16QAM



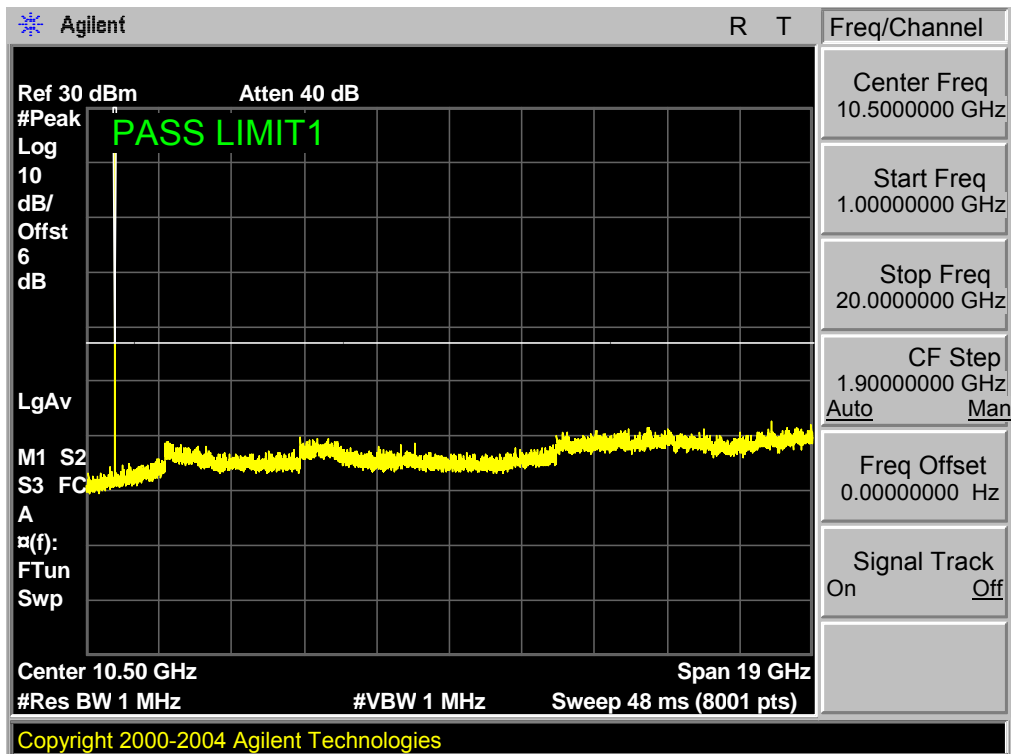
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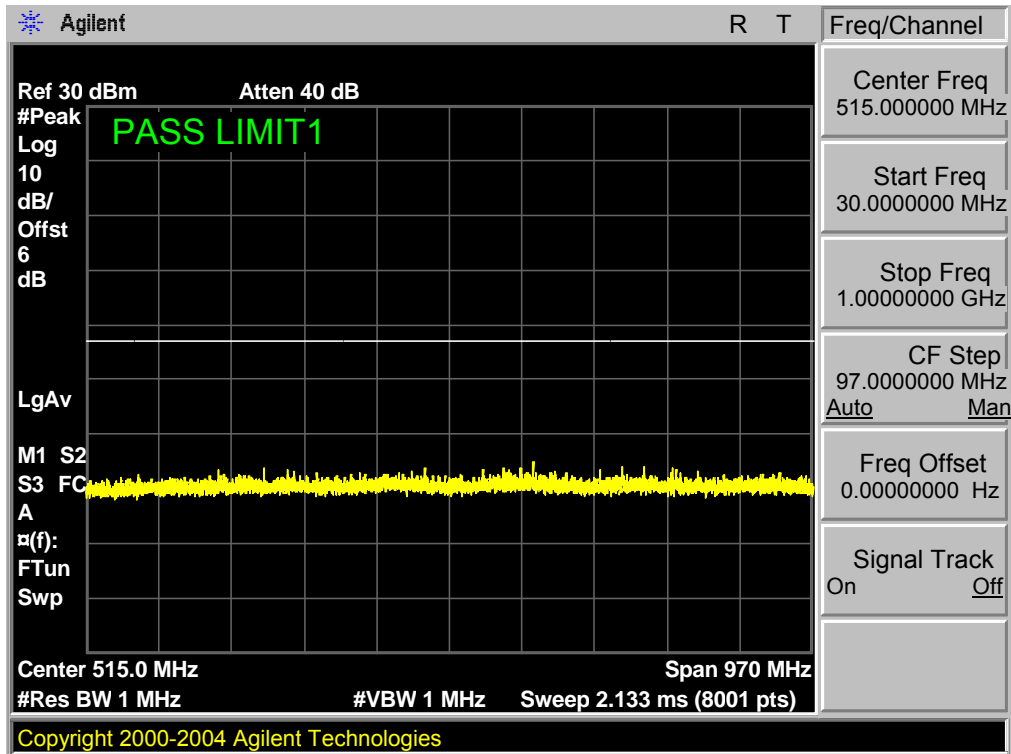
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 1,RB POS. Low,16QAM



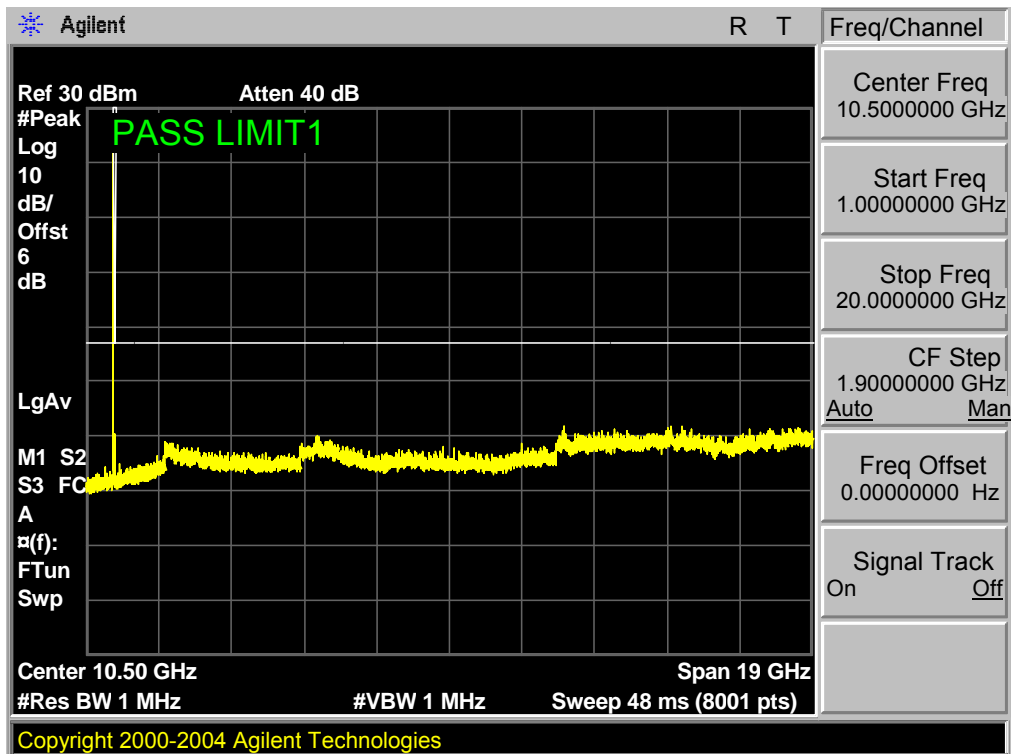
Band 4,UL Channel 20385,UL Frequency 1753.5,BW 3.0,NO. RB 1,RB POS. Low,16QAM



Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK

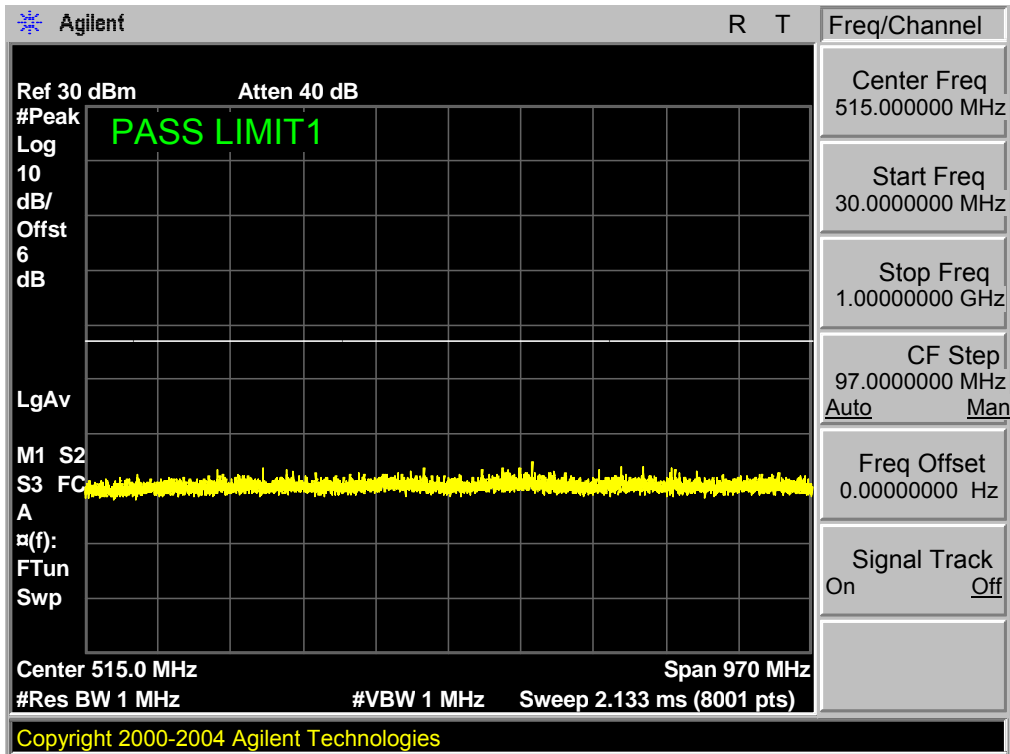


Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK

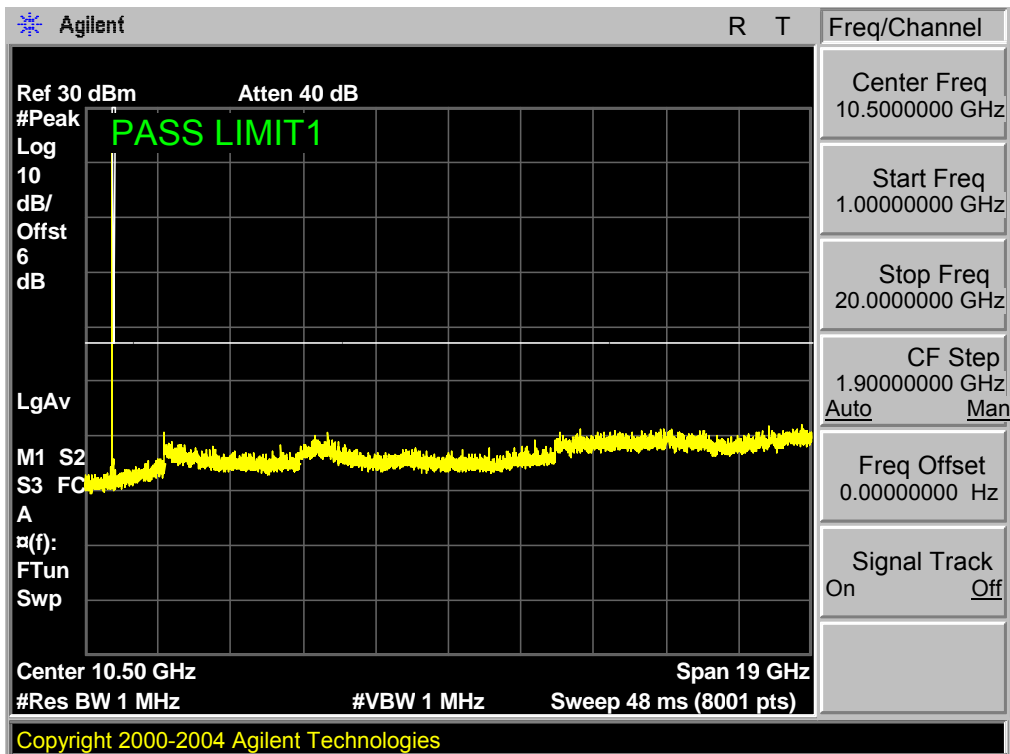




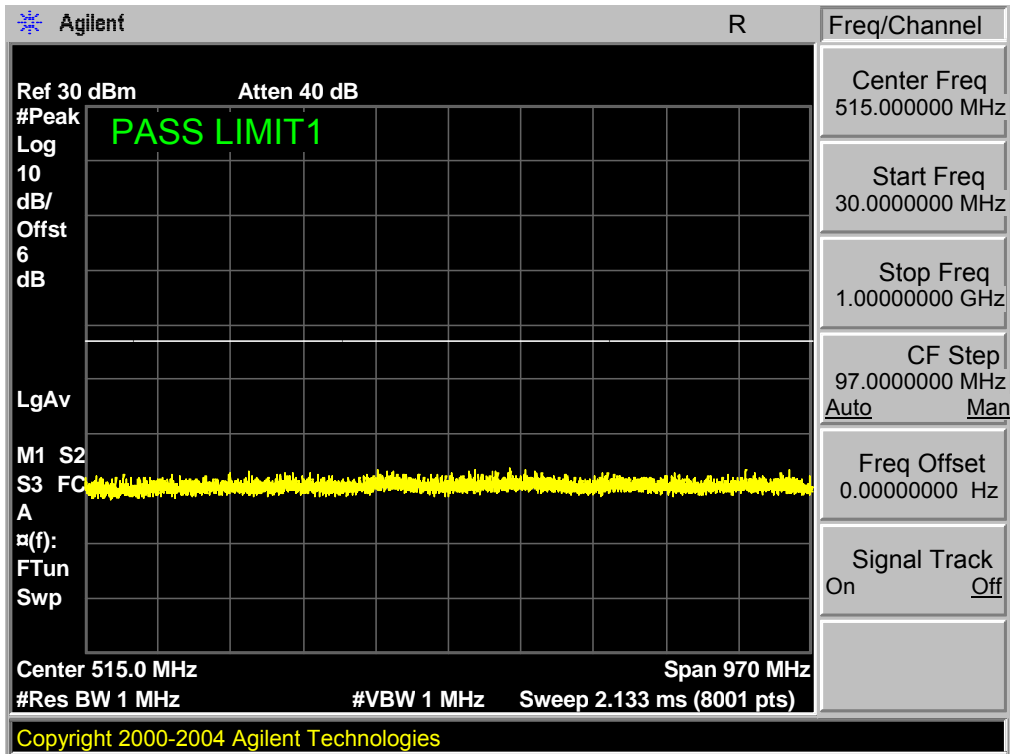
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK



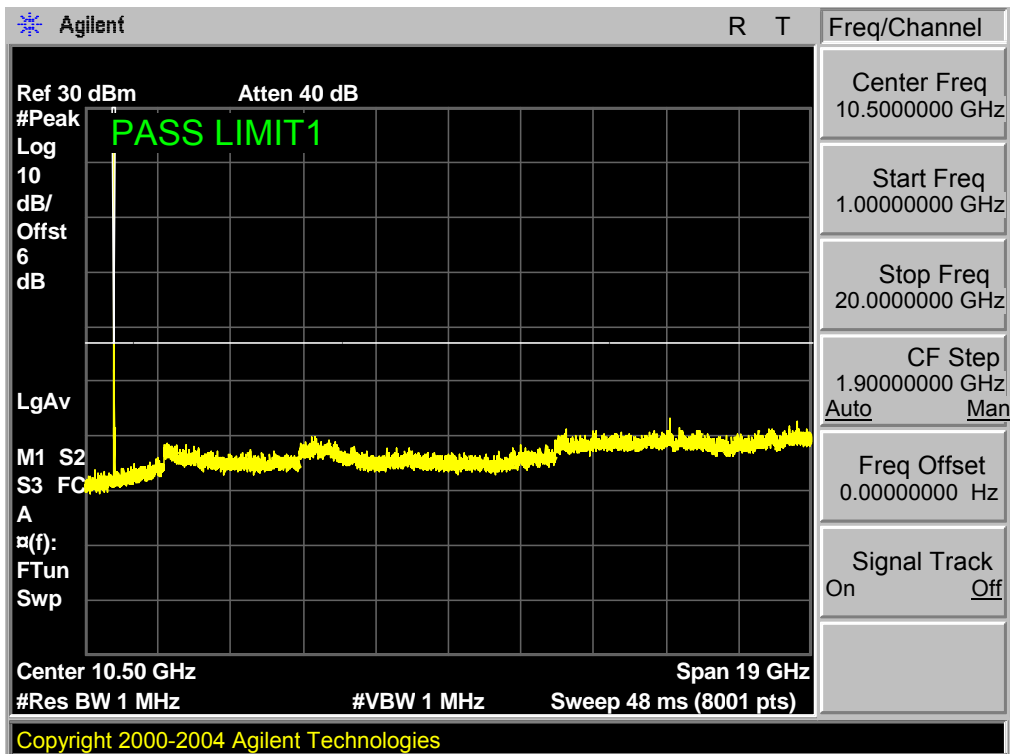
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK



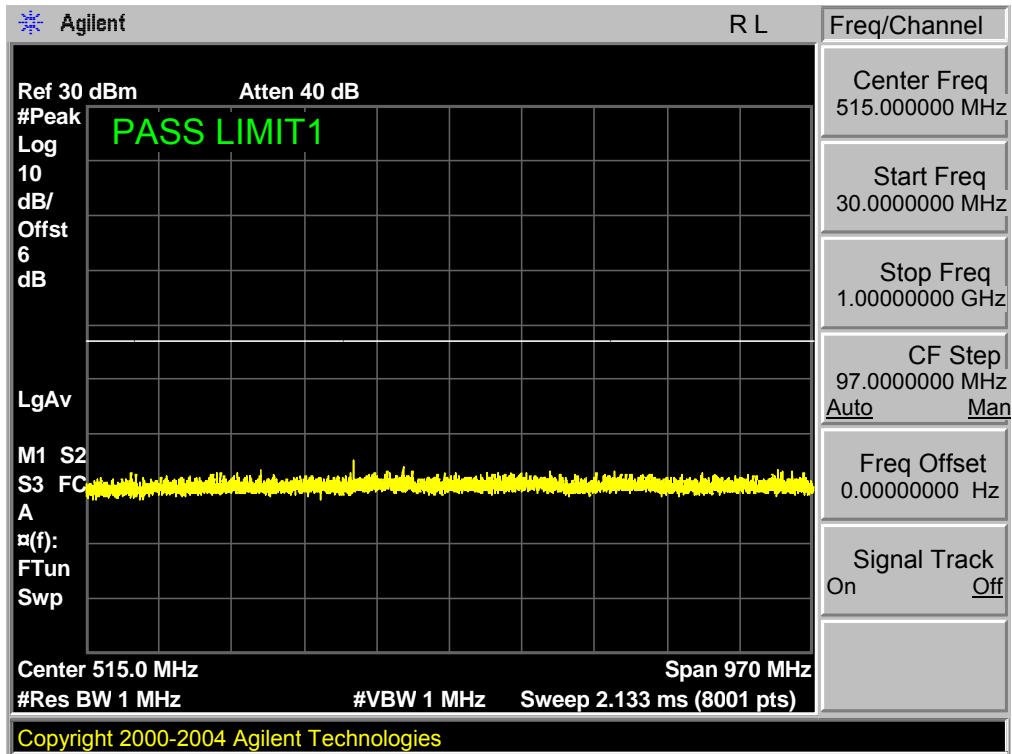
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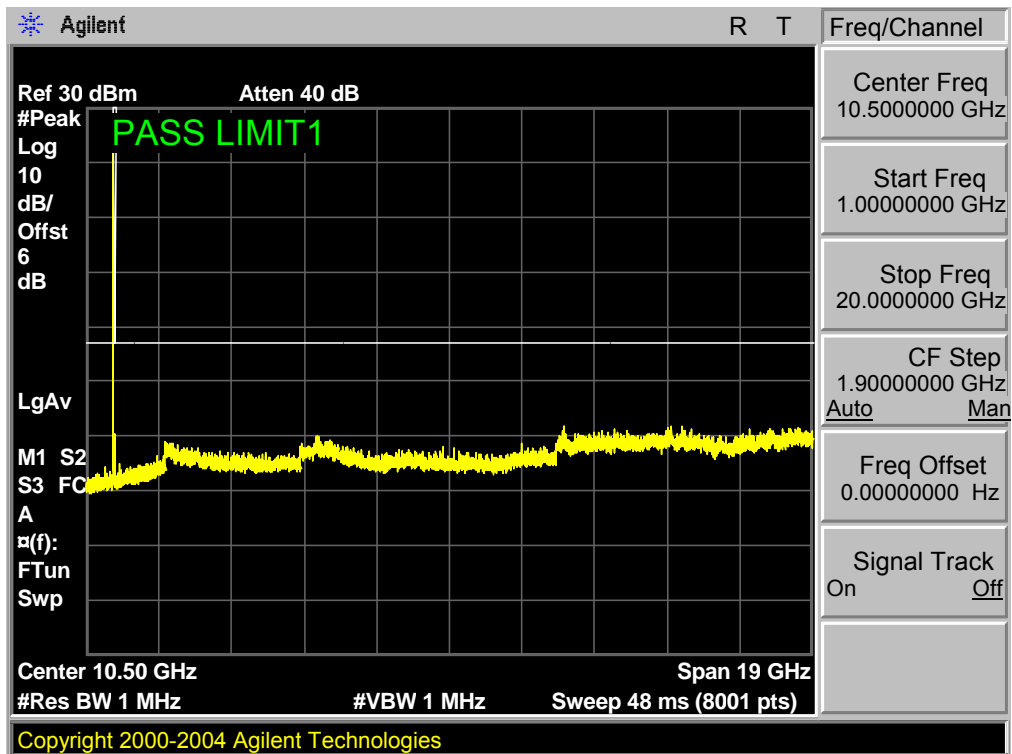
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK



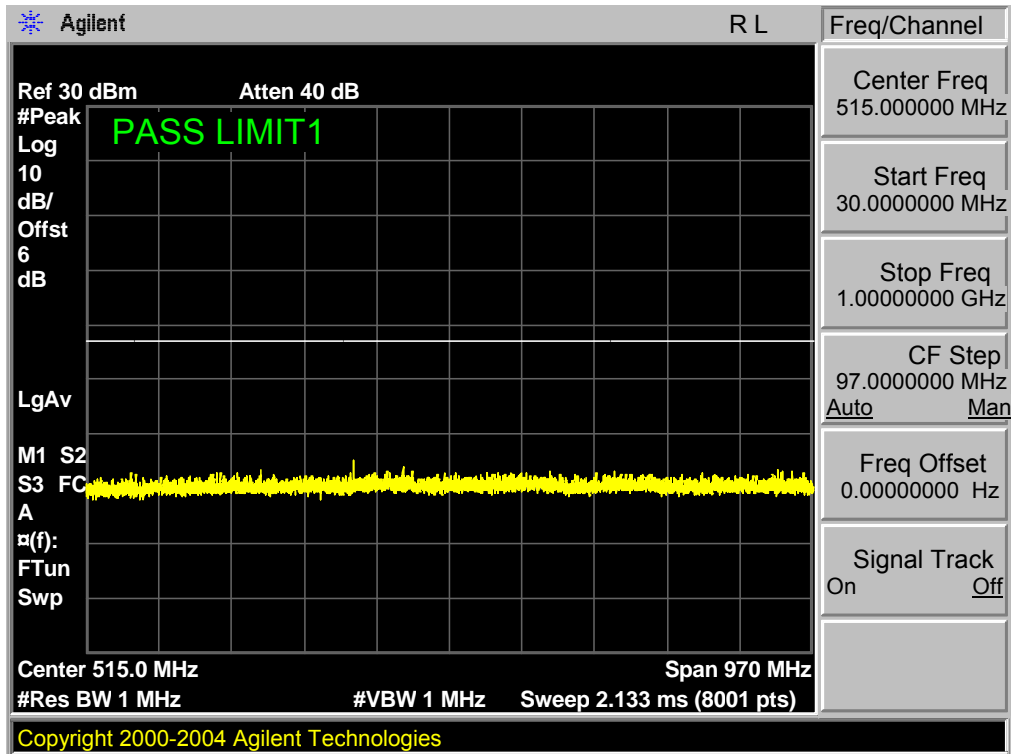
Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM



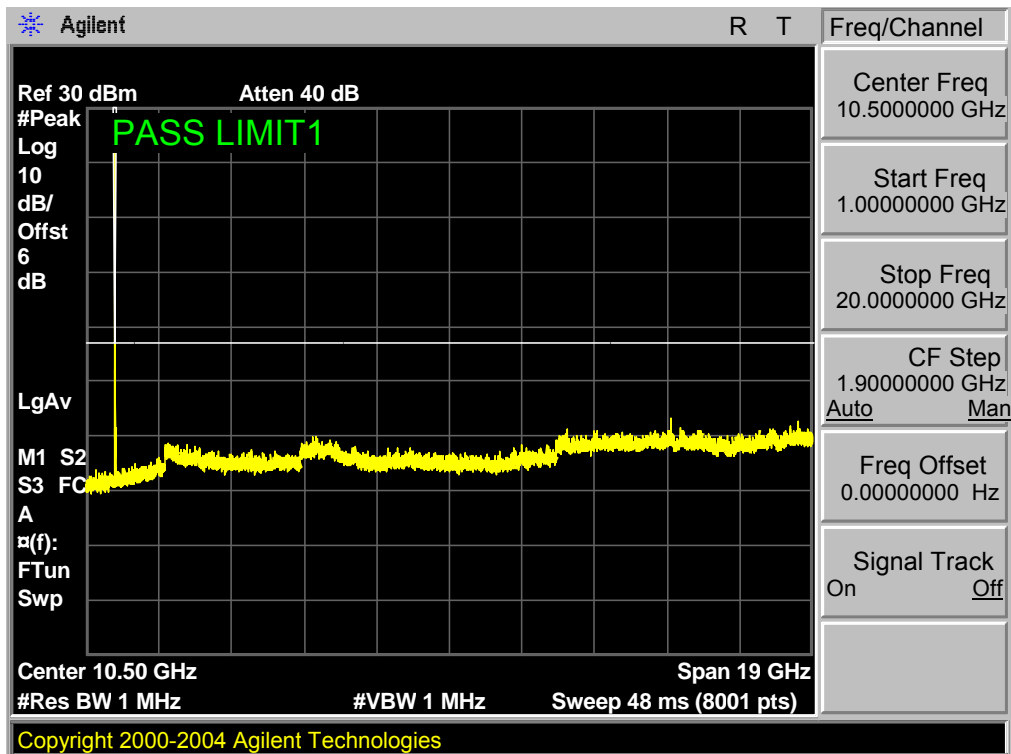
Band 4,UL Channel 19975,UL Frequency 1712.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM



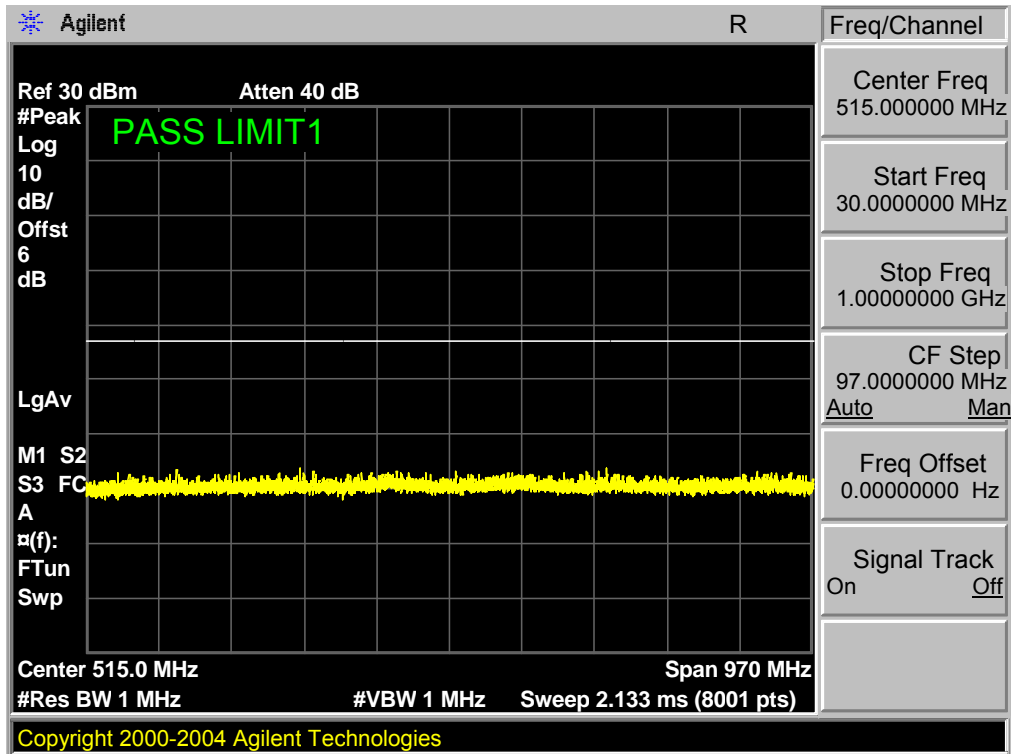
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM



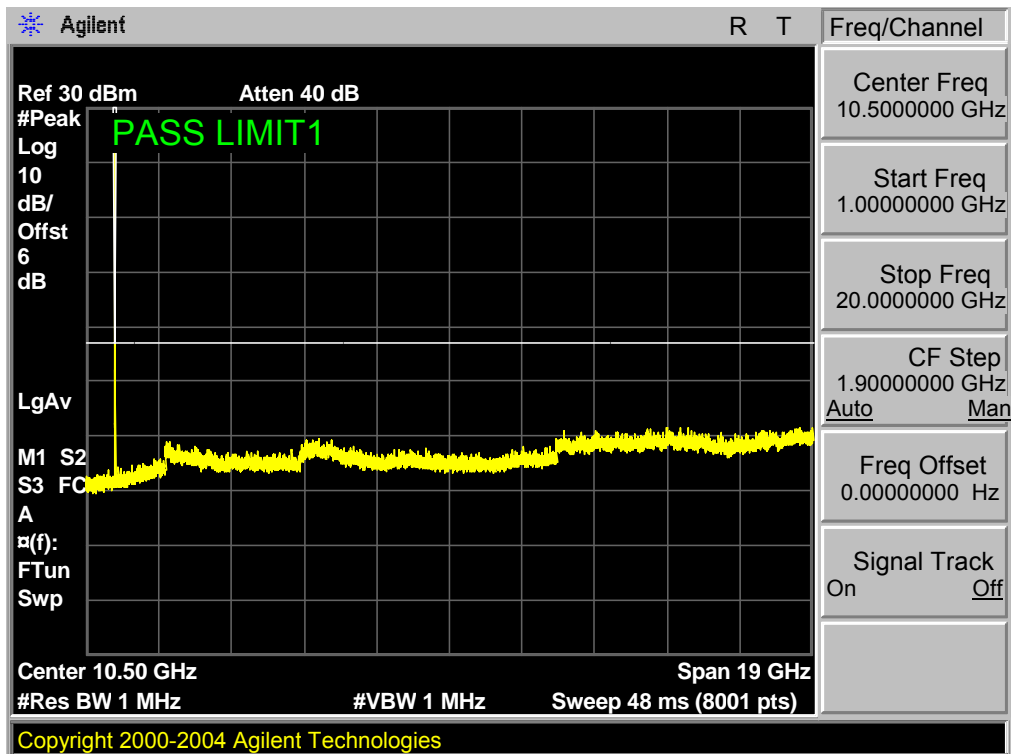
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM



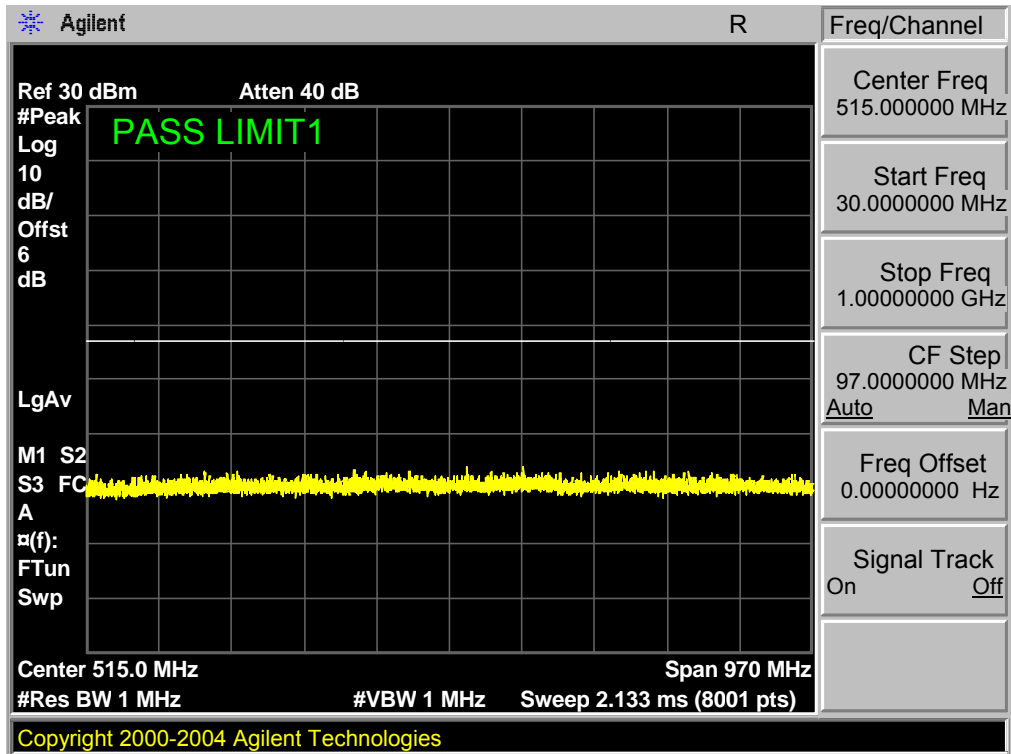
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM



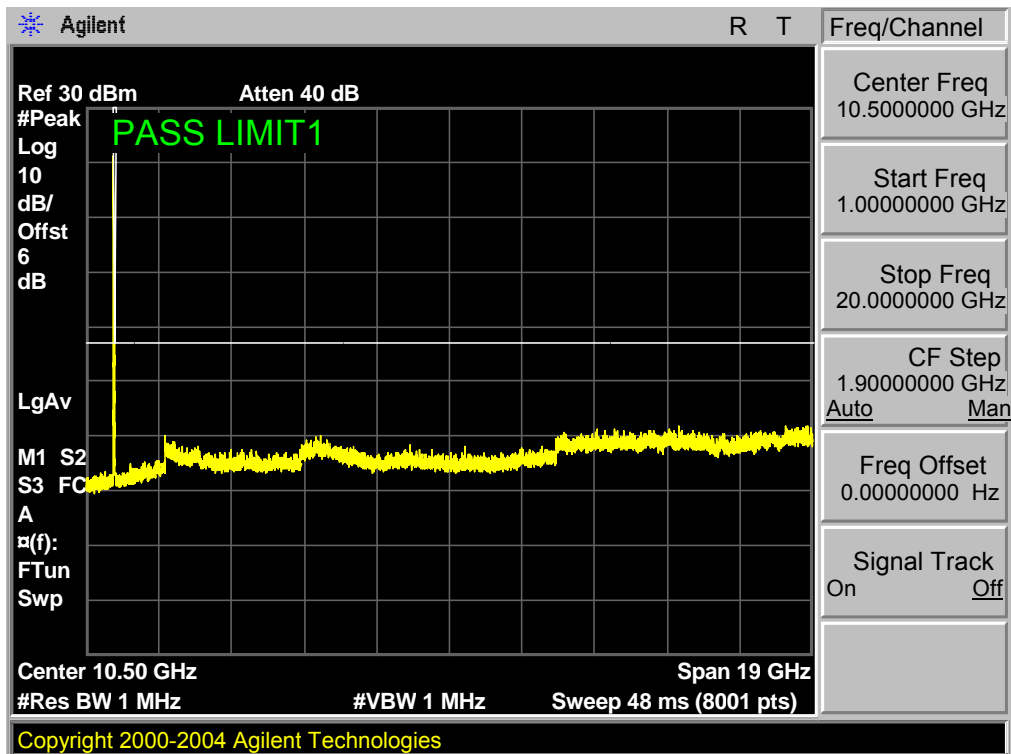
Band 4,UL Channel 20375,UL Frequency 1752.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM



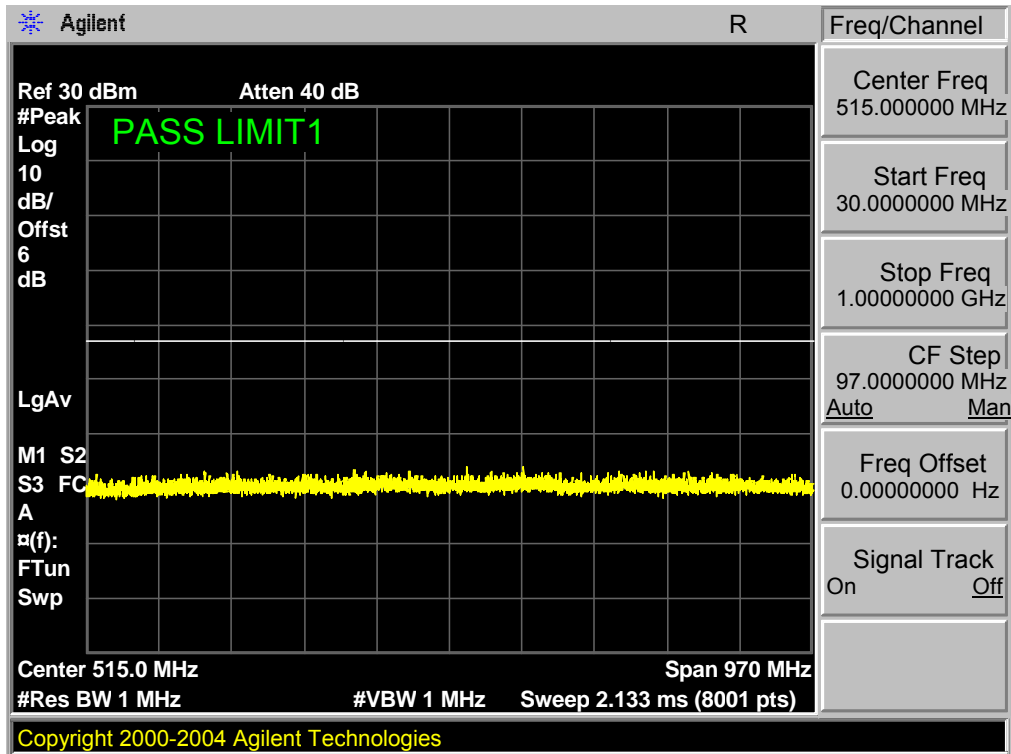
Band 4,UL Channel 2000,UL Frequency 1715.0,BW 10.0,NO. RB 1,RB POS. Low,QPSK



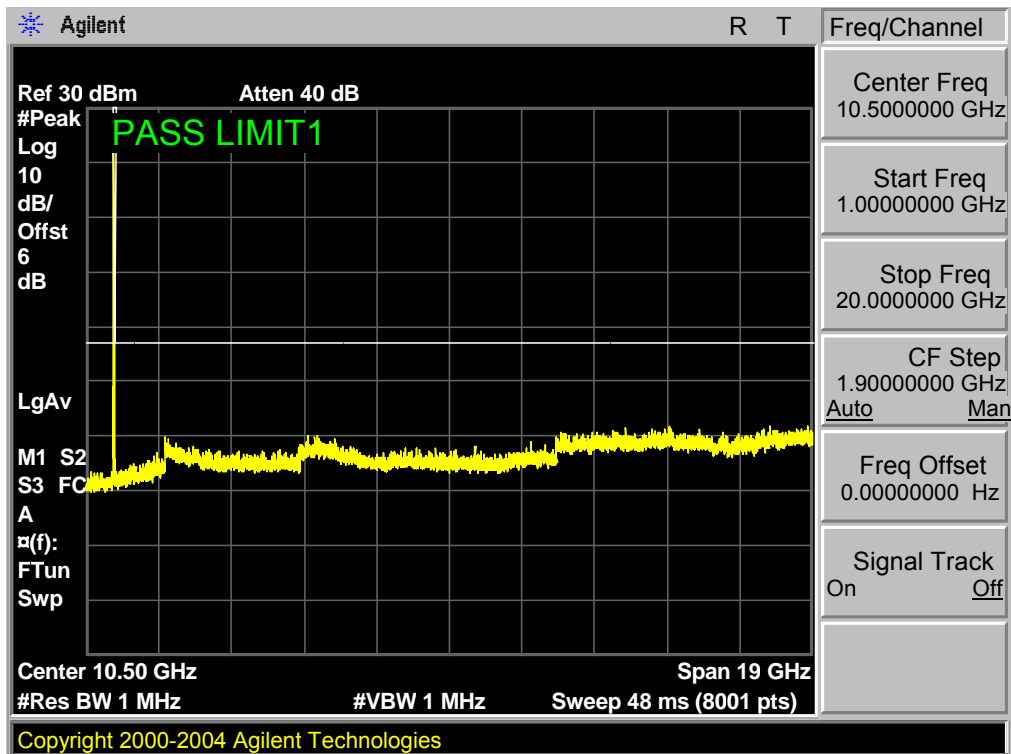
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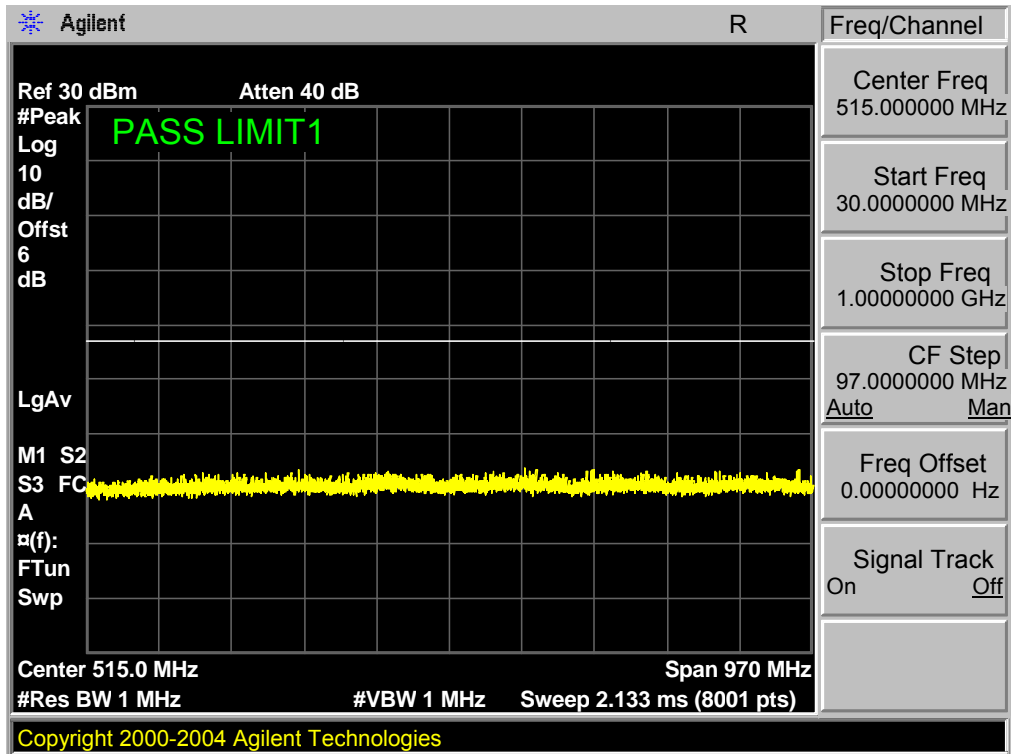
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 1,RB POS. Low,QPSK



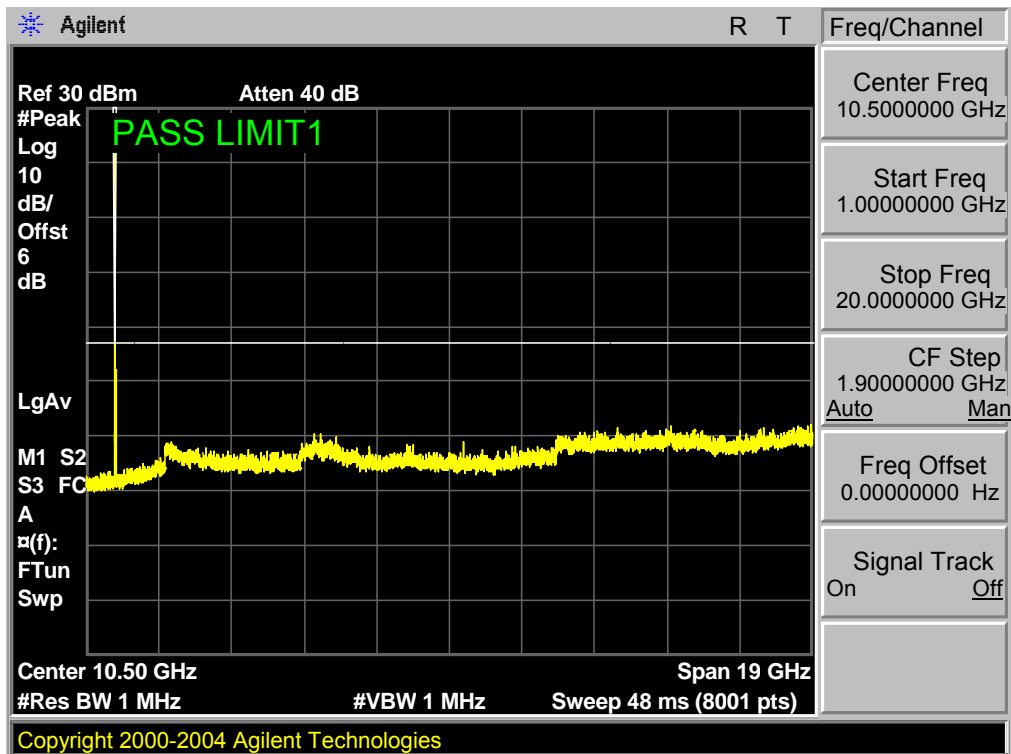
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 1,RB POS. Low,QPSK



Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 1,RB POS. Low,QPSK

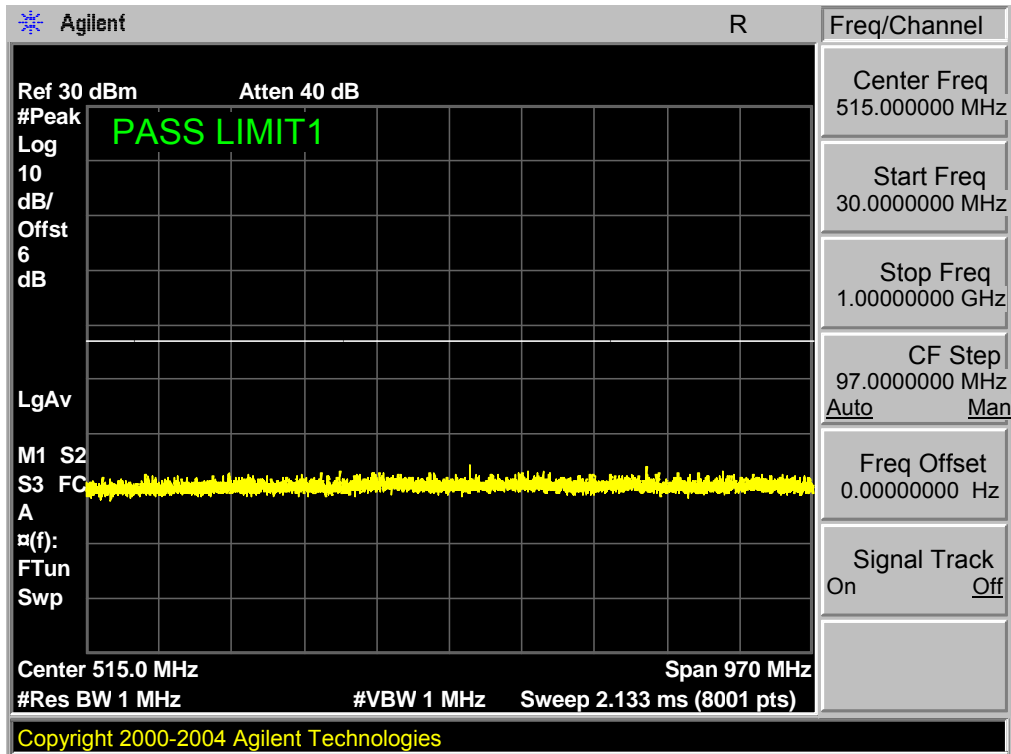


Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 1,RB POS. Low,QPSK

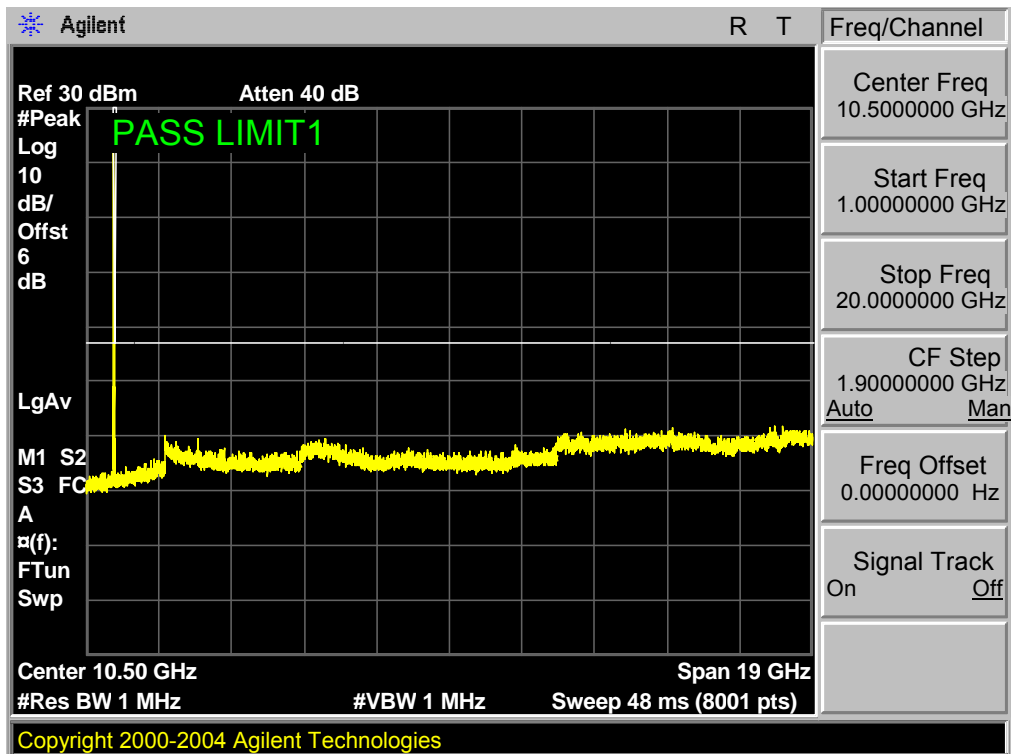




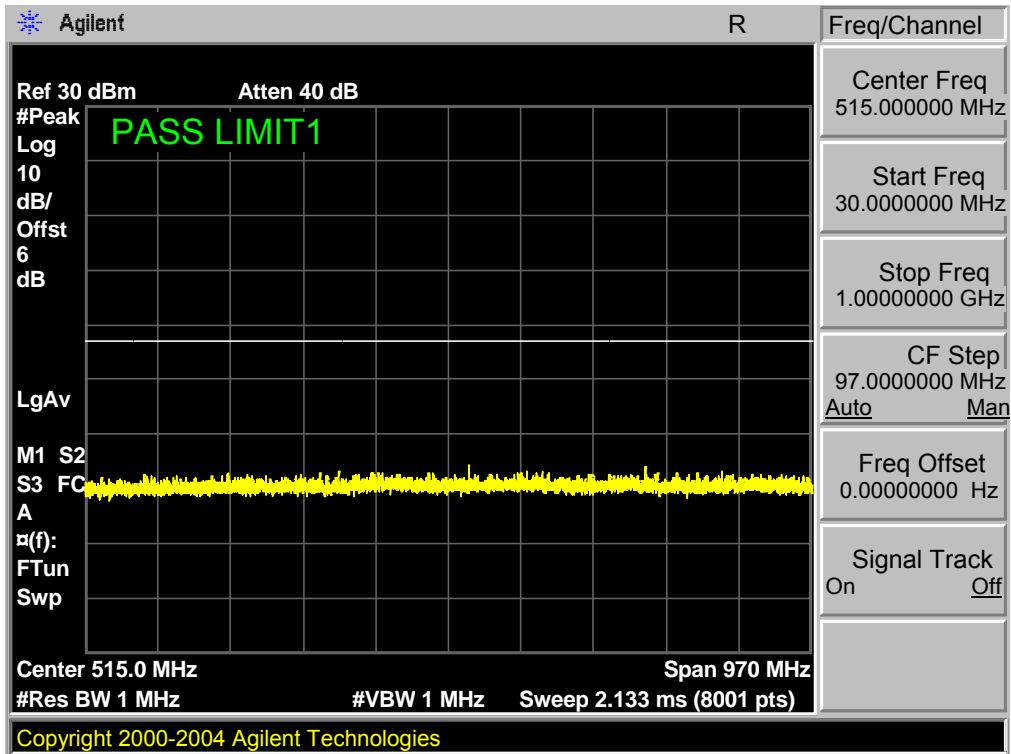
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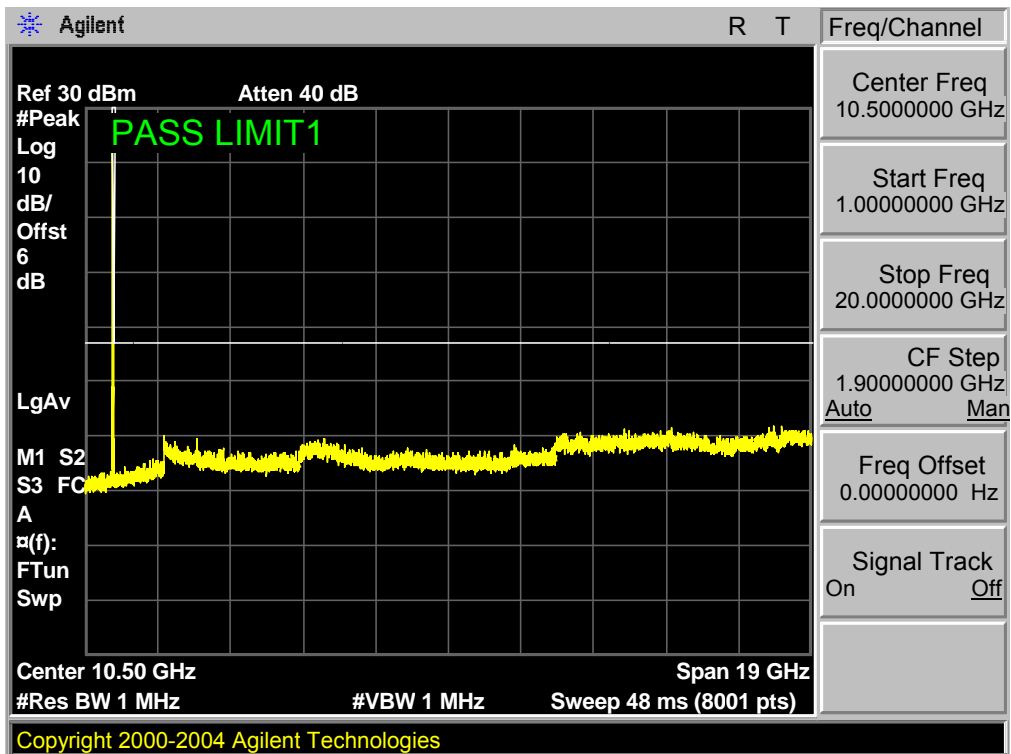
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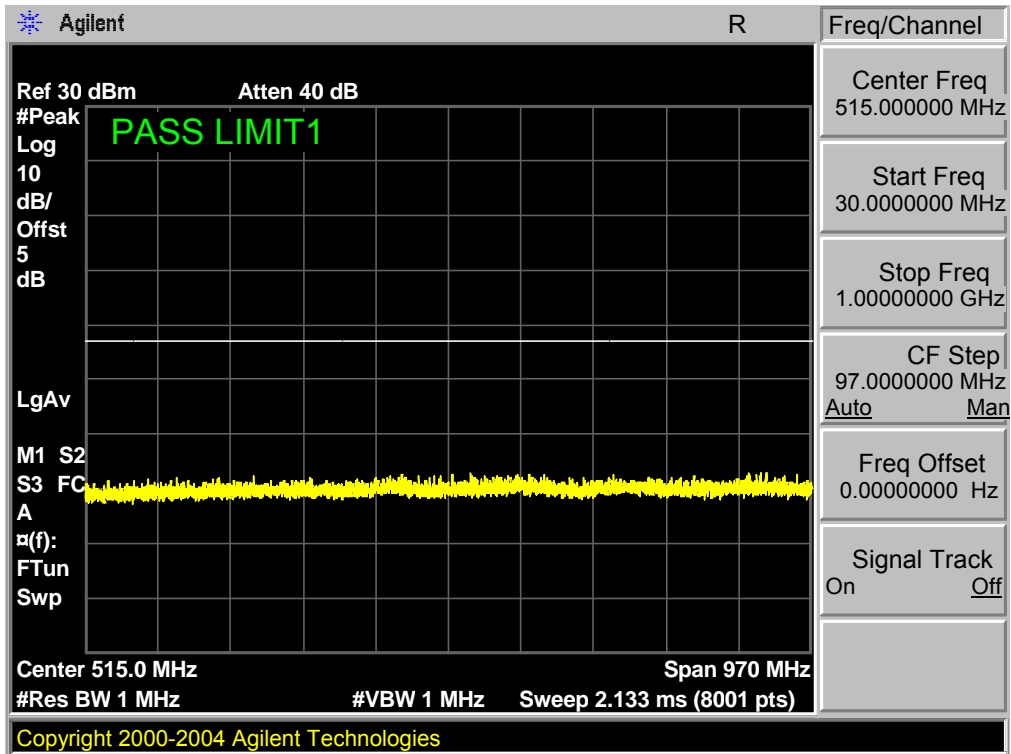
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 1,RB POS. Low,16QAM



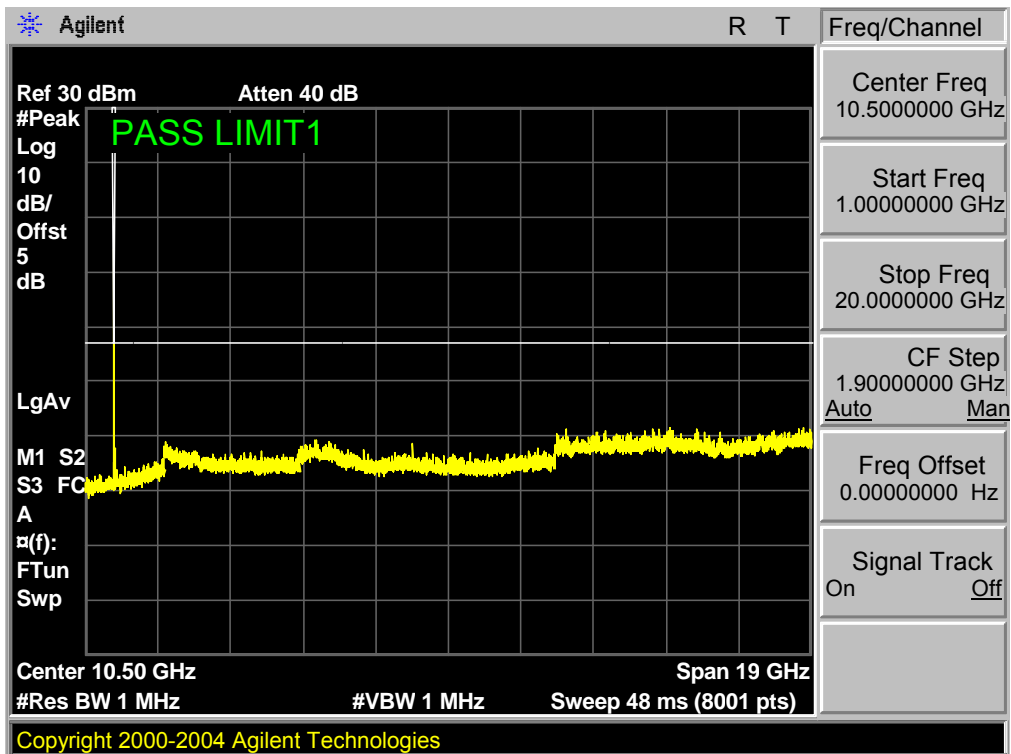
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 1,RB POS. Low,16QAM



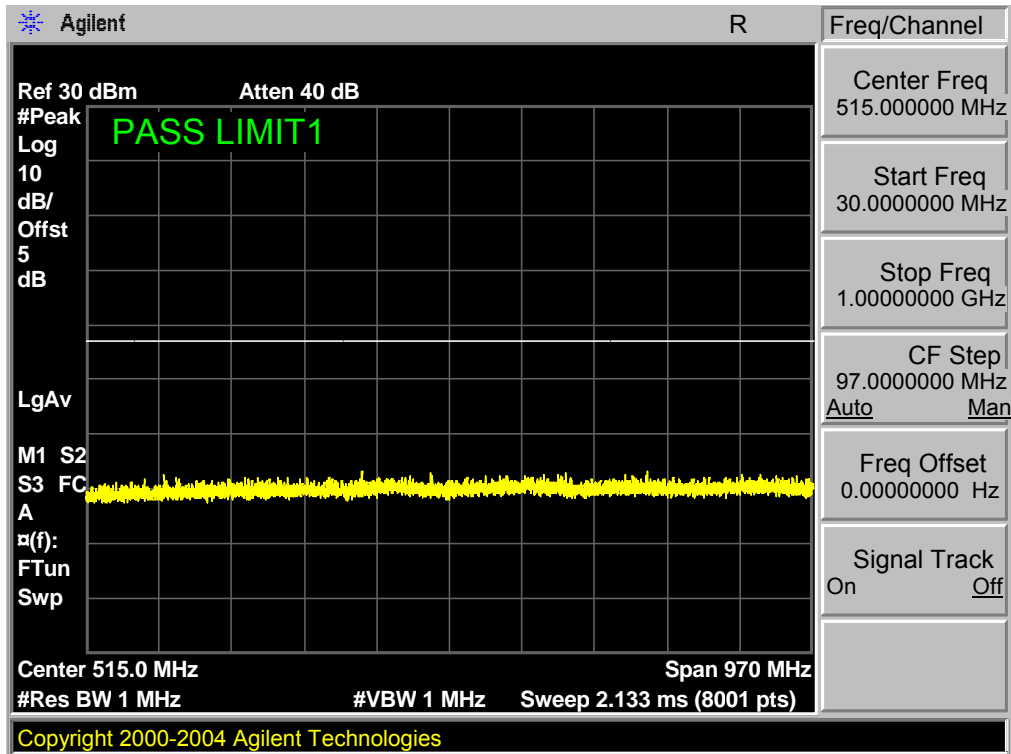
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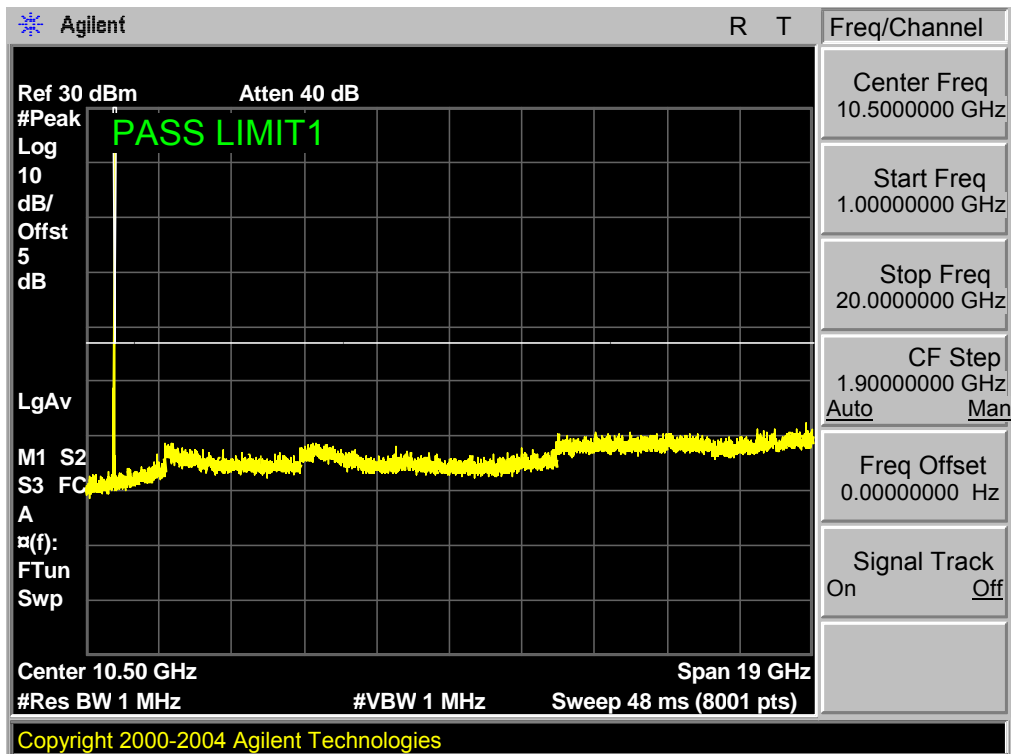
Band 4,UL Channel 20350,UL Frequency 1750.0,BW 10.0,NO. RB 1,RB POS. Low,16QAM



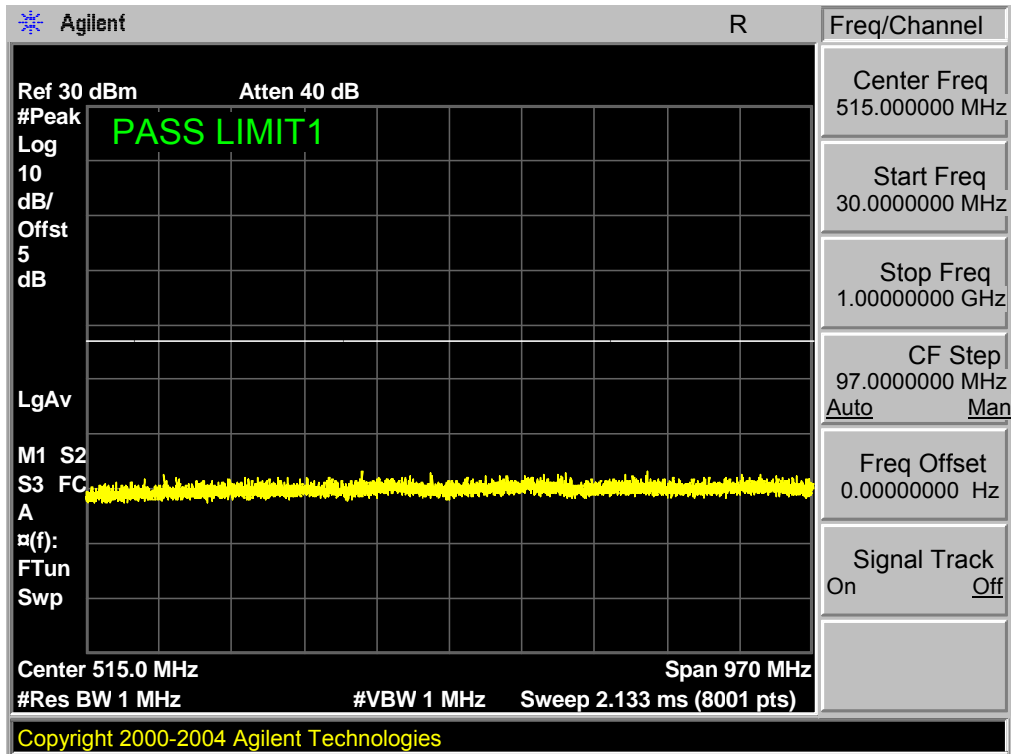
Band 4,UL Channel 20025,UL Frequency 1717.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



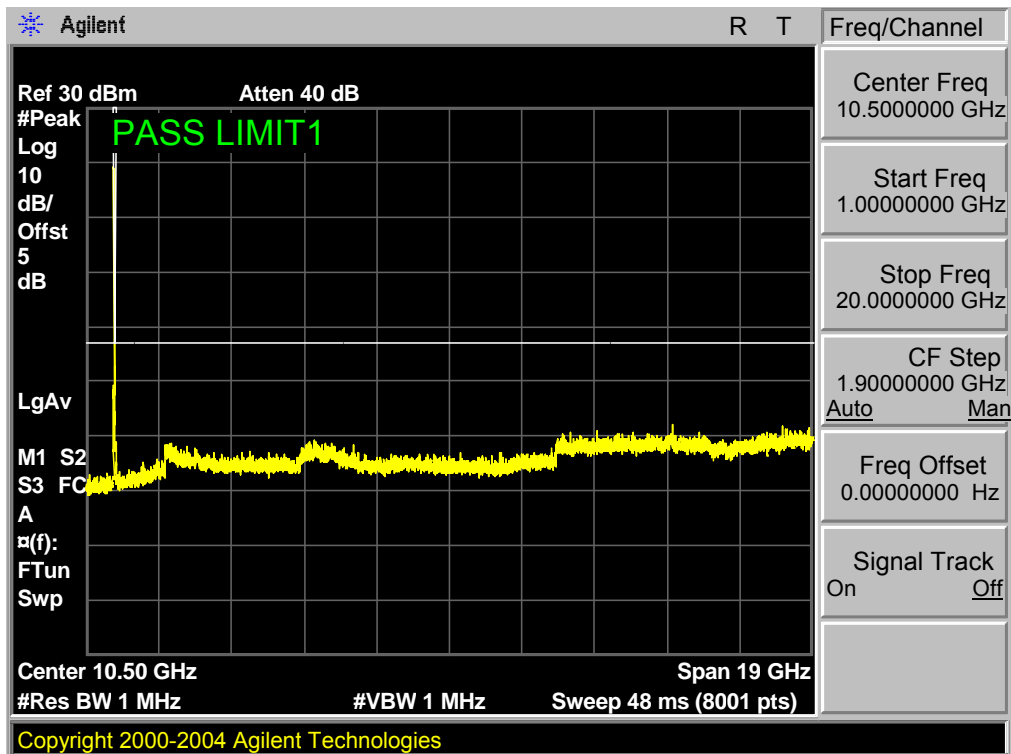
Band 4,UL Channel 20025,UL Frequency 1717.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



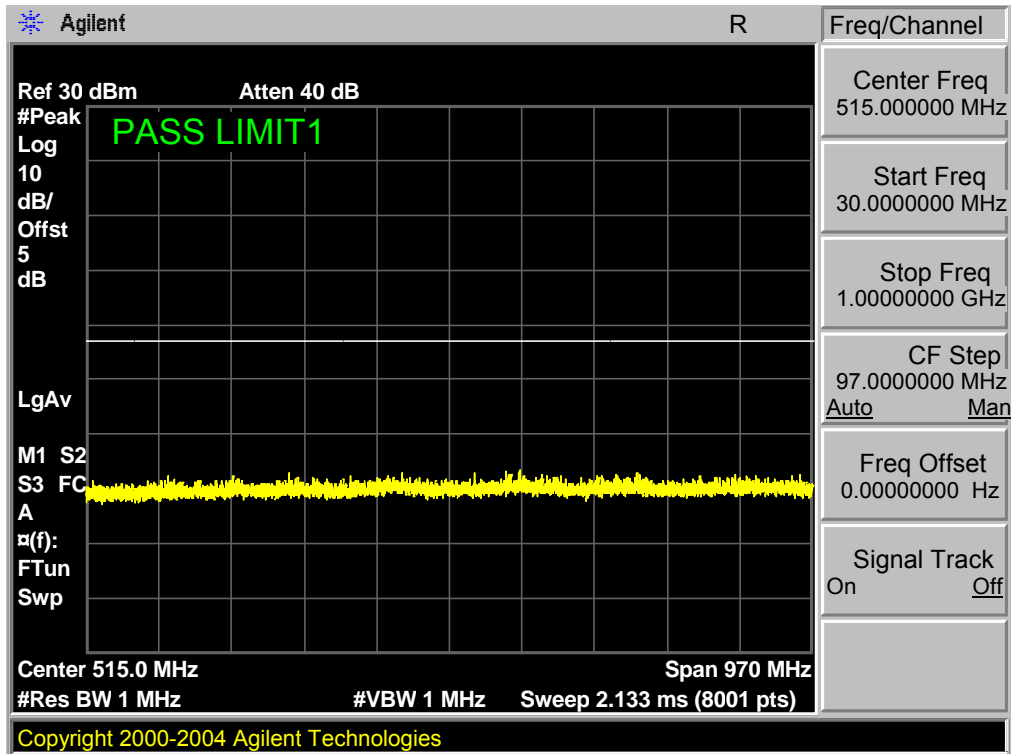
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



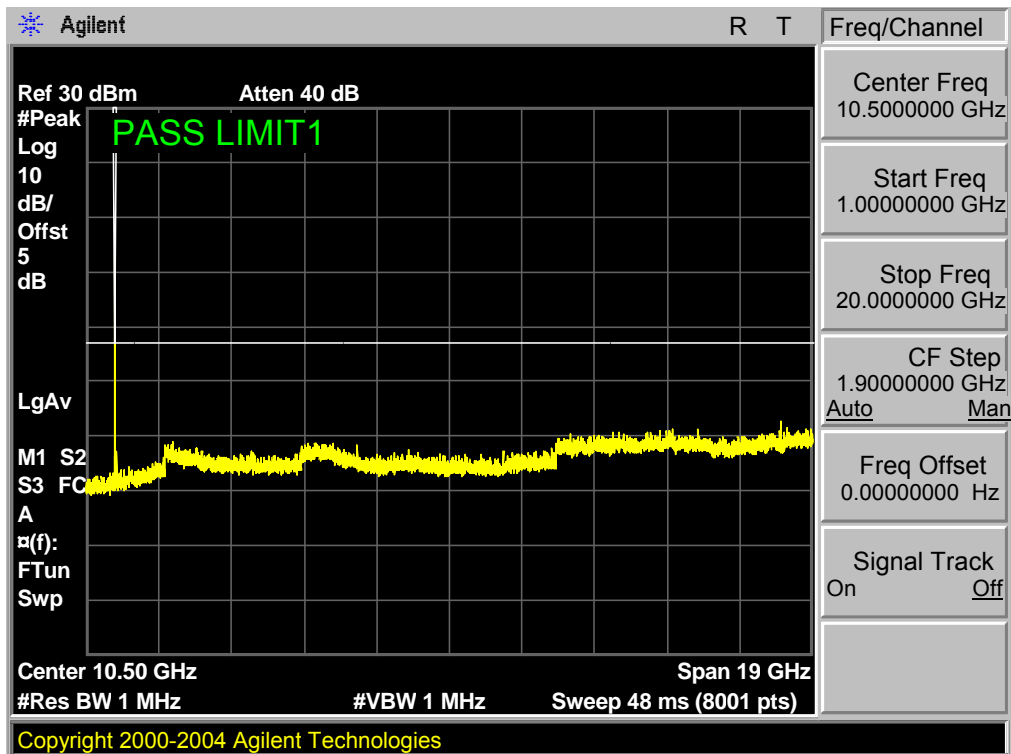
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



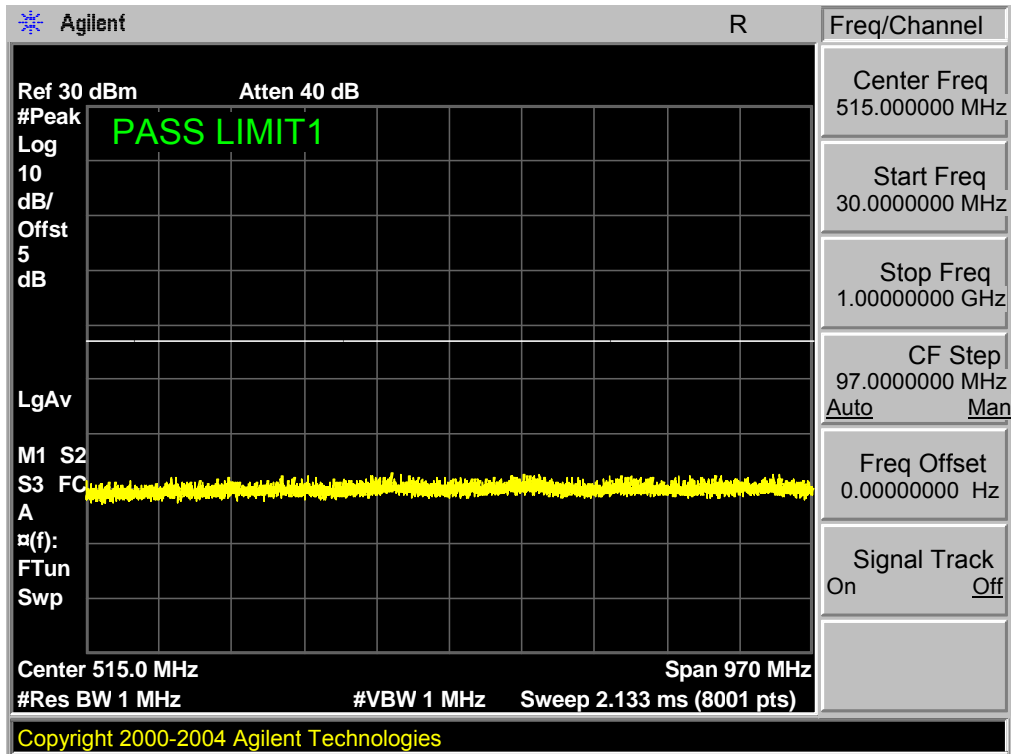
Band 4,UL Channel 20325,UL Frequency 1747.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



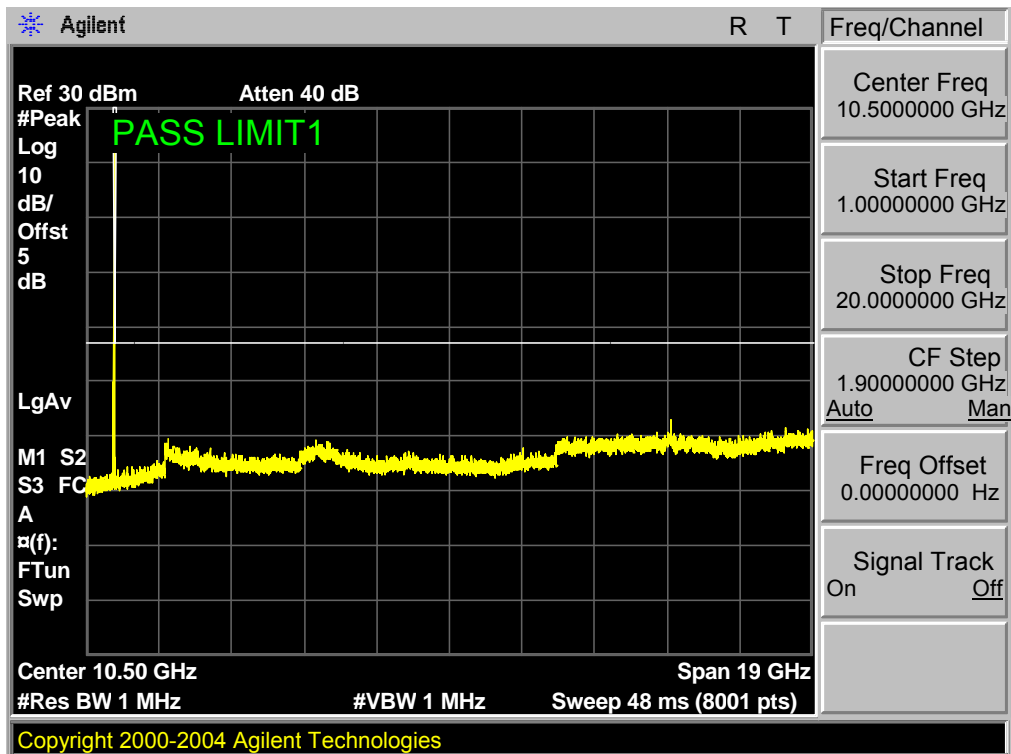
Band 4,UL Channel 20325,UL Frequency 1747.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



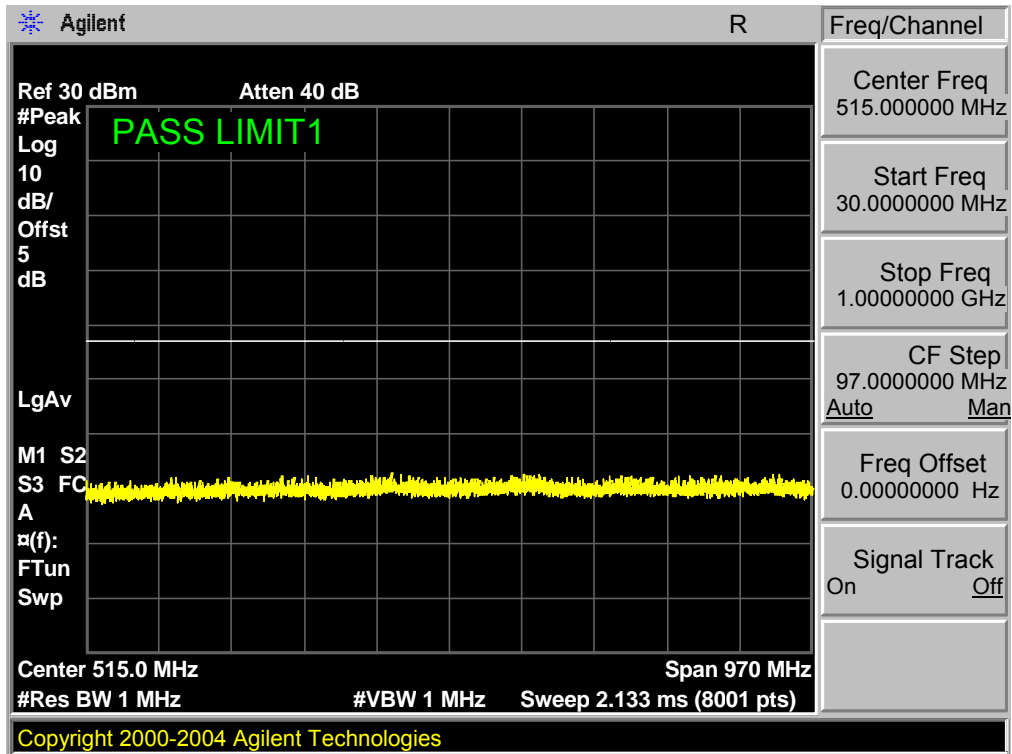
Band 4,UL Channel 20025,UL Frequency 1717.5,BW 15.0,NO. RB 1,RB POS. Low,16QAM



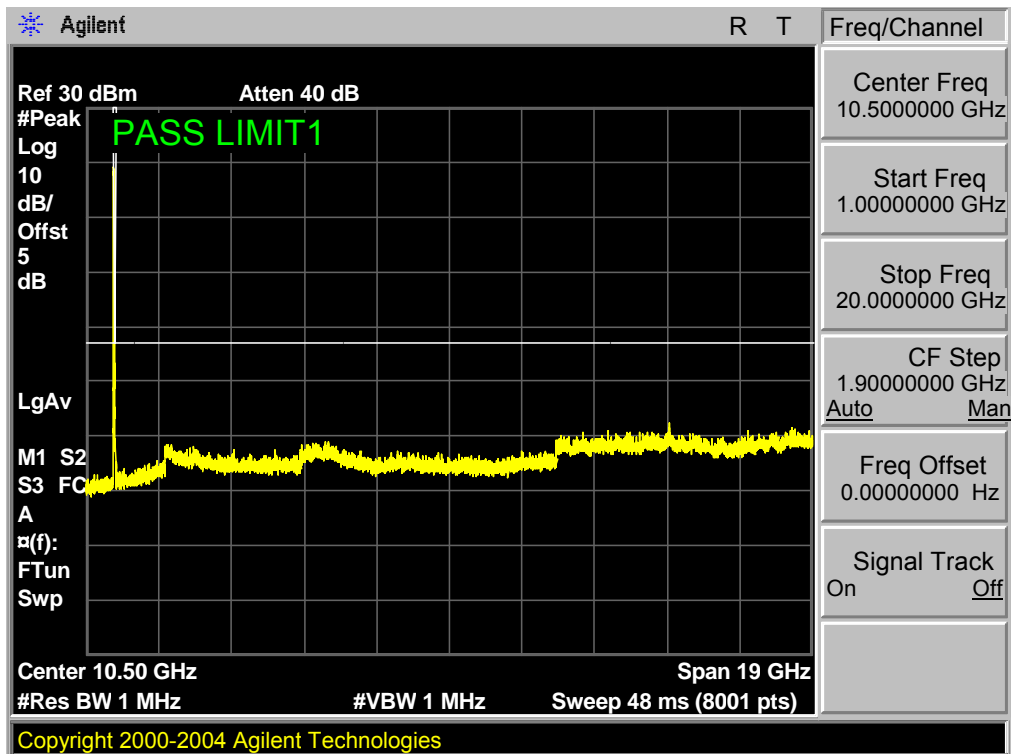
Band 4,UL Channel 20025,UL Frequency 1717.5,BW 15.0,NO. RB 1,RB POS. Low,16QAM



Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 1,RB POS. Low,16QAM

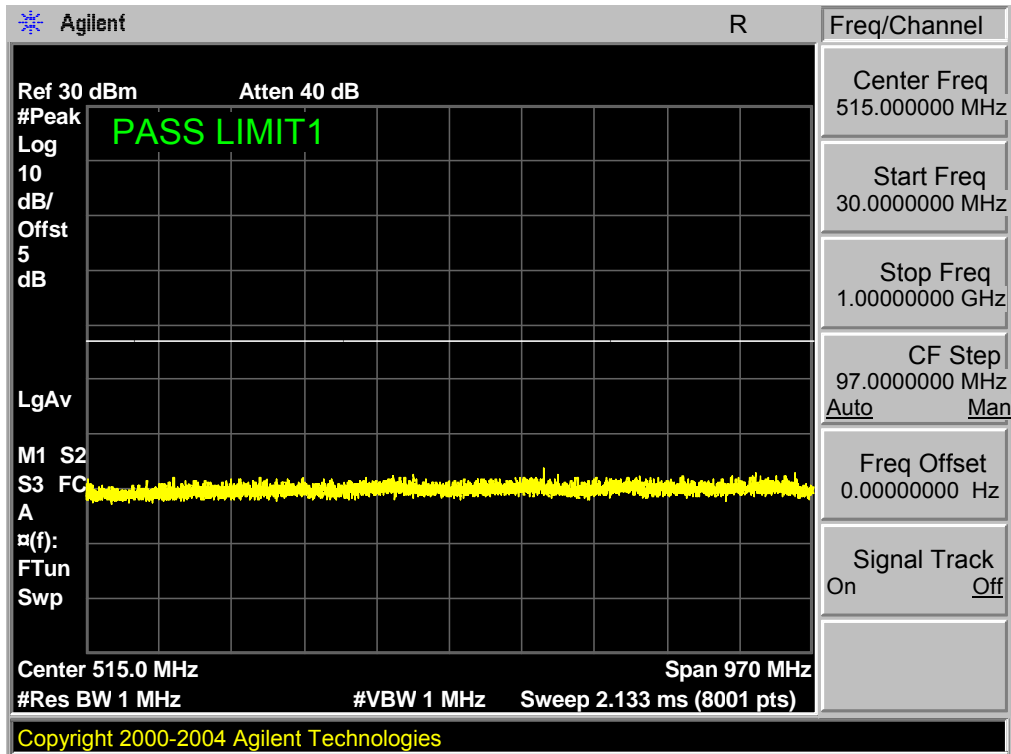


Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 1,RB POS. Low,16QAM

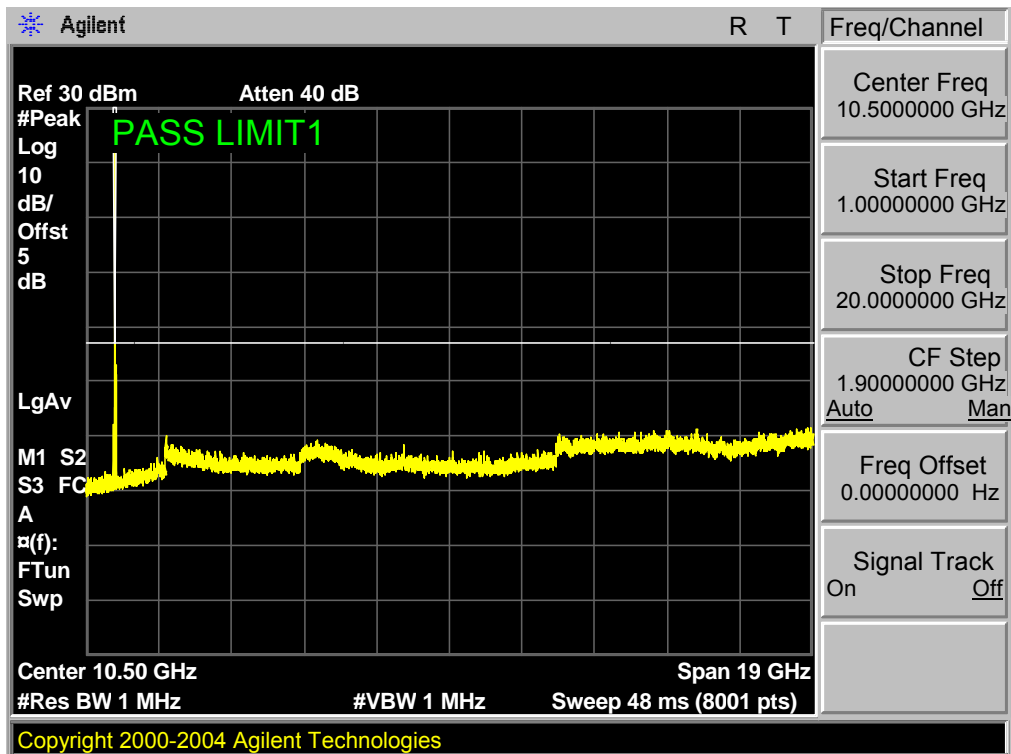




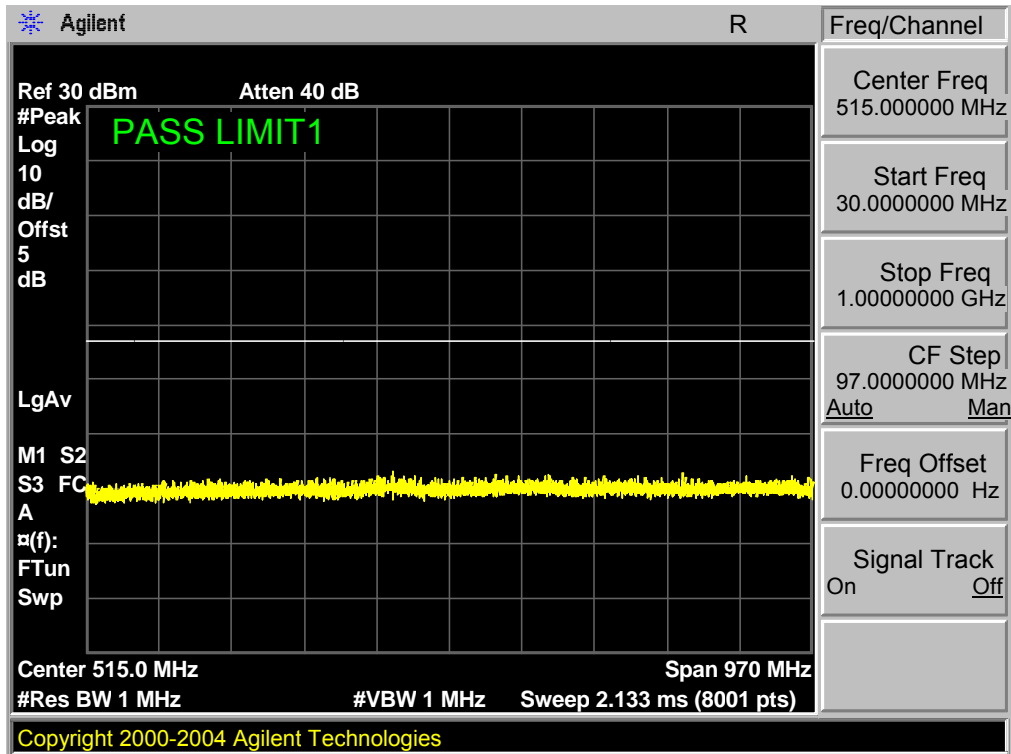
Band 4,UL Channel 20325,UL Frequency 1747.5,BW 15.0,NO. RB 1,RB POS. Low,16QAM



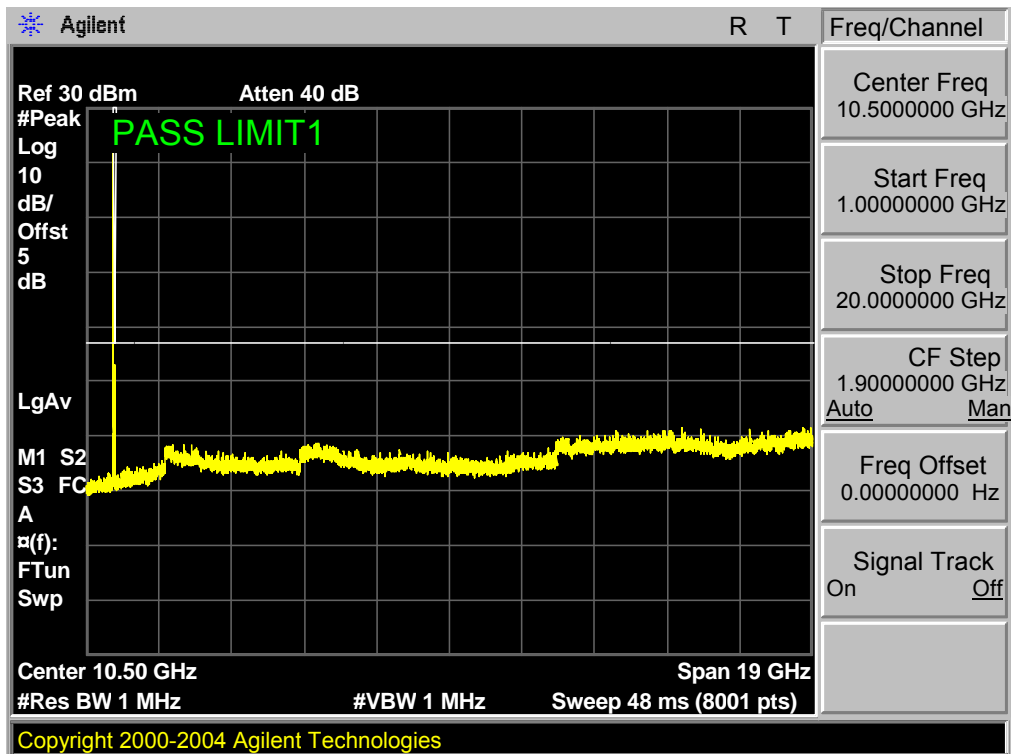
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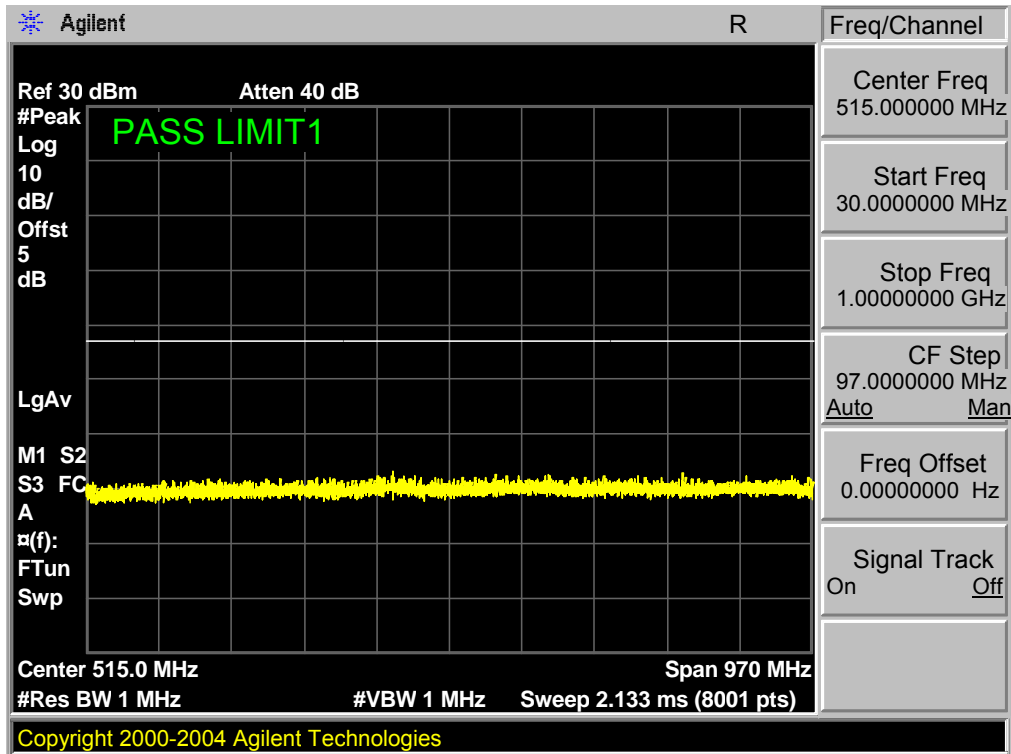
Band 4,UL Channel 20050,UL Frequency 1720.0,BW 20.0,NO. RB 1,RB POS. Low,QPSK



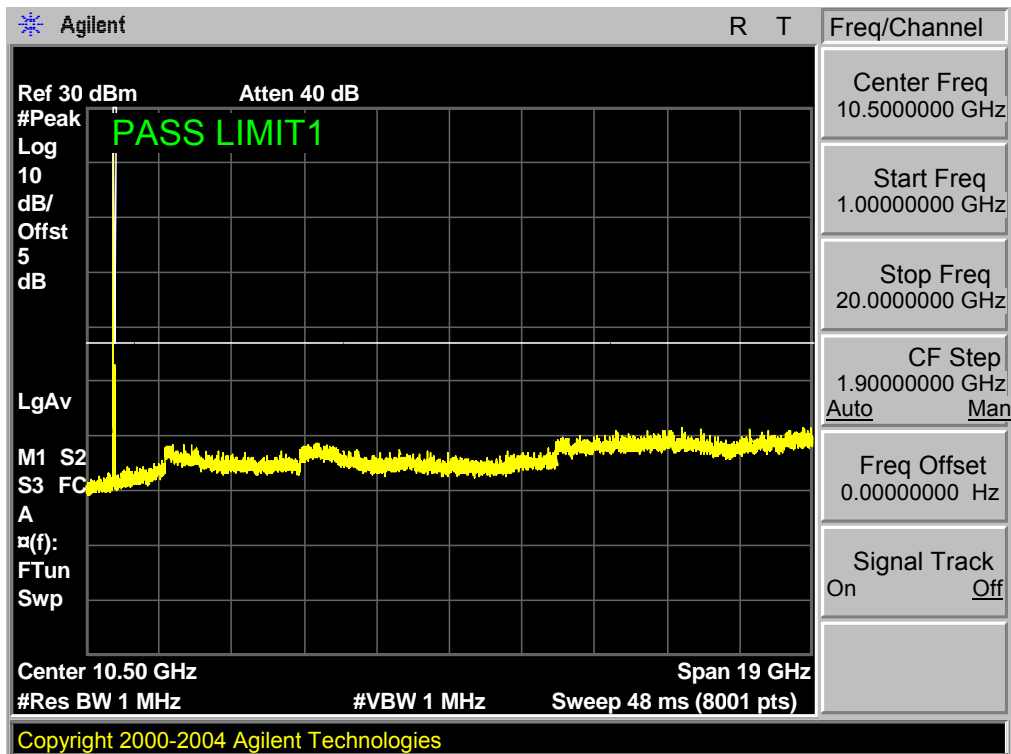
Band 4,UL Channel 20050,UL Frequency 1720.0,BW 20.0,NO. RB 1,RB POS. Low,QPSK



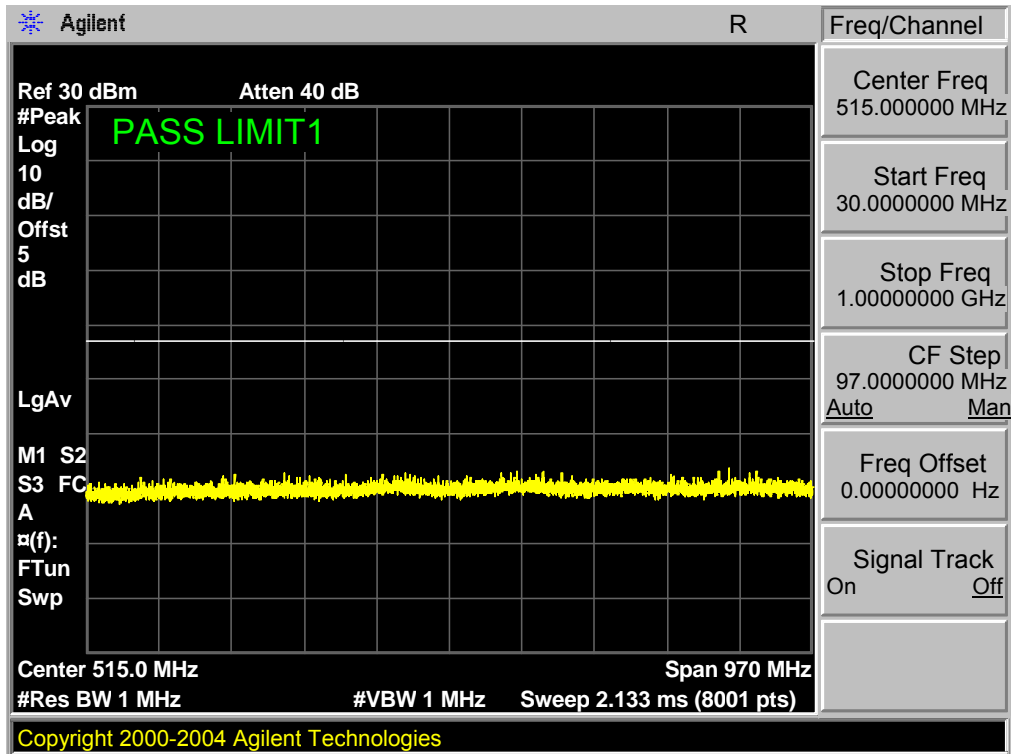
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 1,RB POS. Low,QPSK



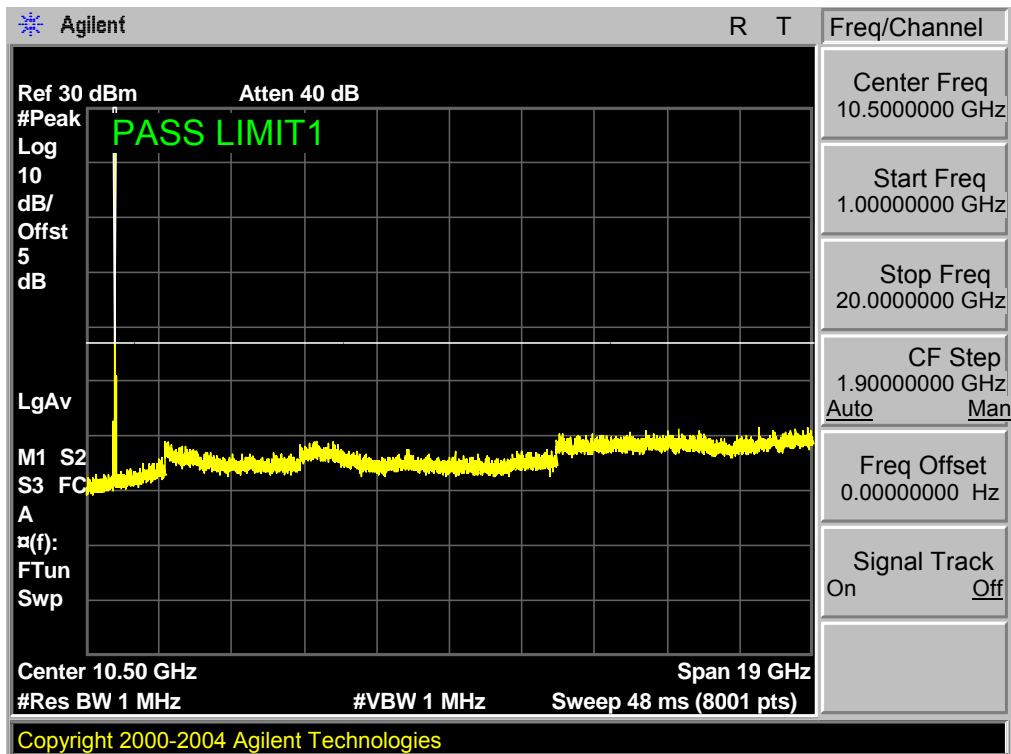
Band 4,UL Channel 20175,UL Frequency 1732.0,BW 20.0,NO. RB 1,RB POS. Low,QPSK



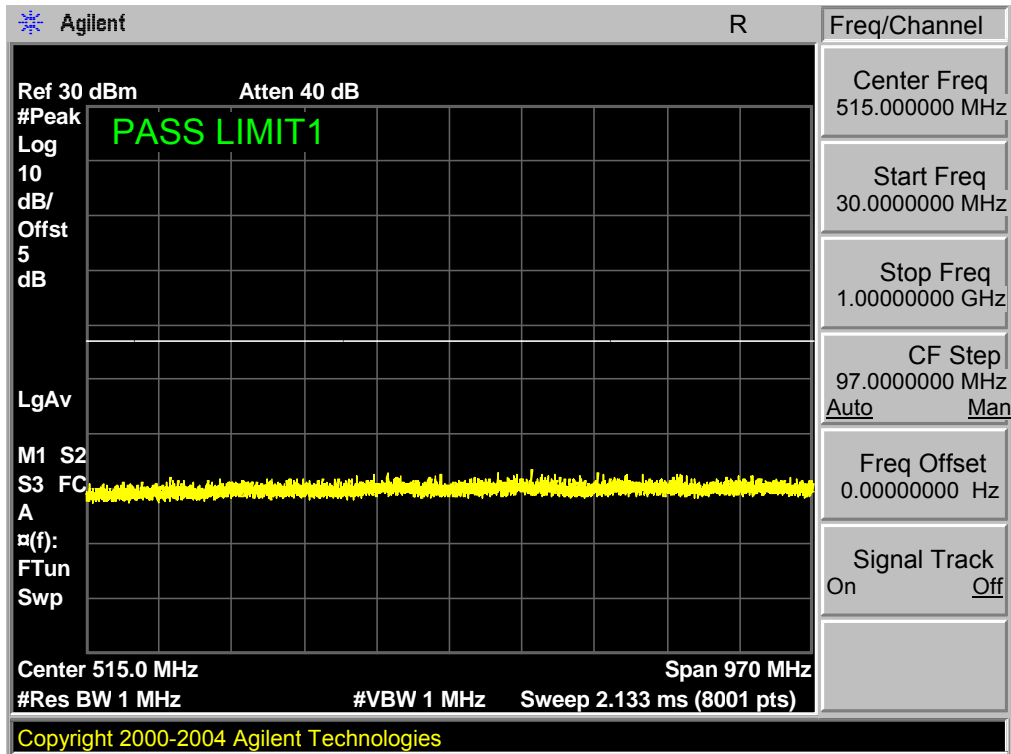
Band 4,UL Channel 20300,UL Frequency 1745.0,BW 20.0,NO. RB 1,RB POS. Low,QPSK



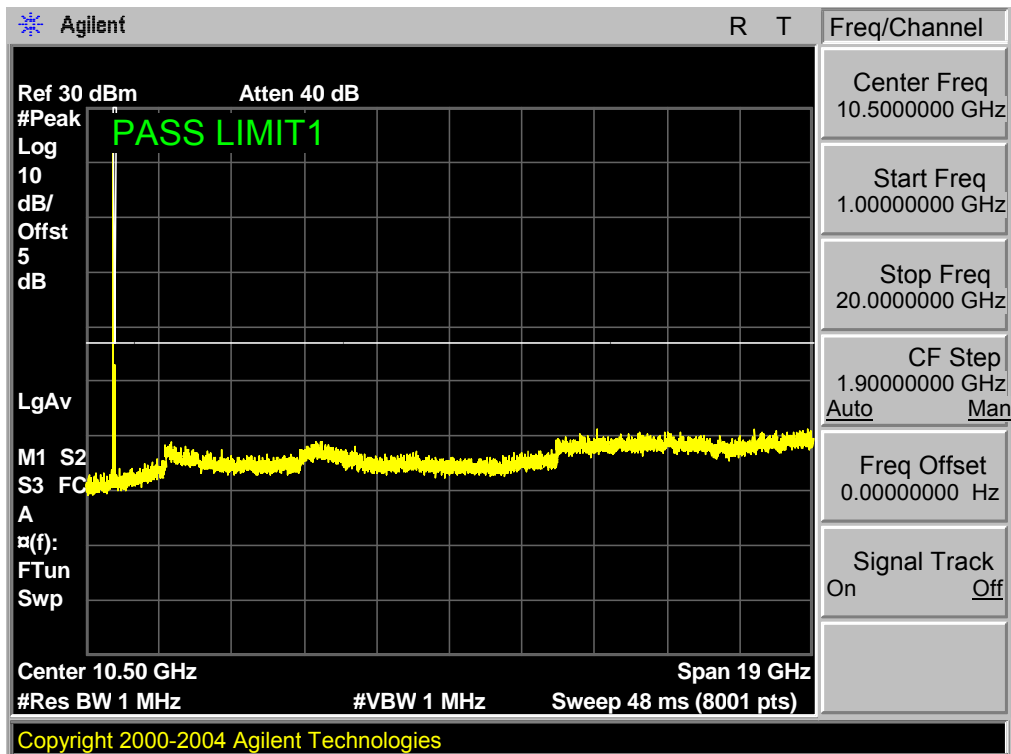
Band 4,UL Channel 20300,UL Frequency 1745.0,BW 20.0,NO. RB 1,RB POS. Low,QPSK



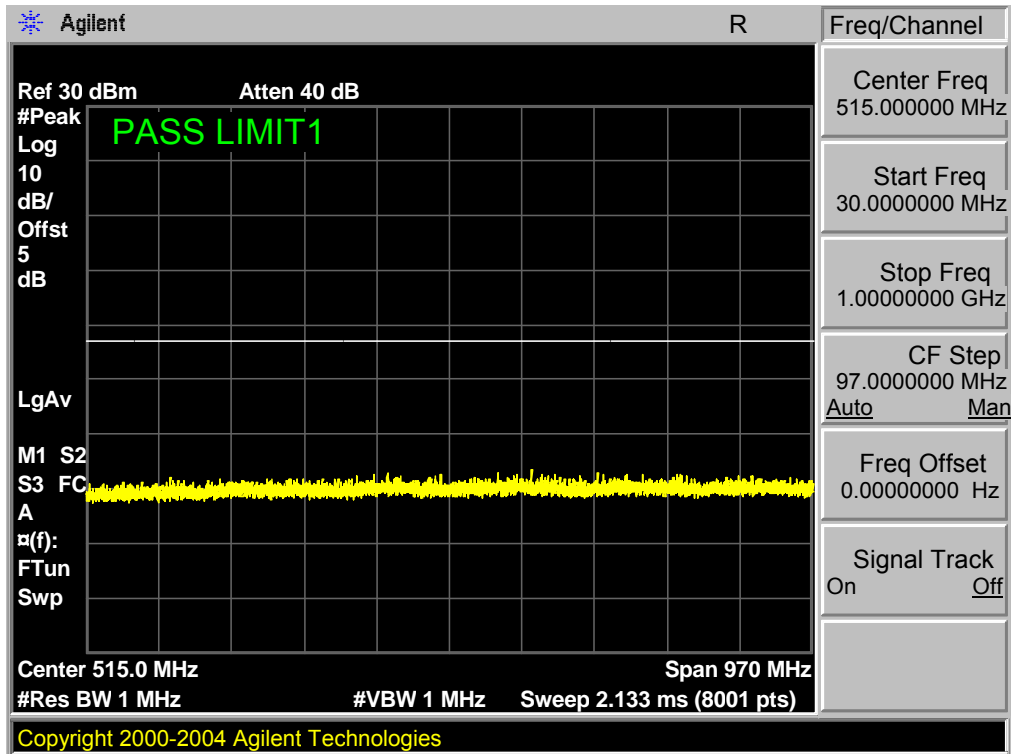
Band 4,UL Channel 20050,UL Frequency 1720.0,BW 20.0,NO. RB 1,RB POS. Low,16QAM



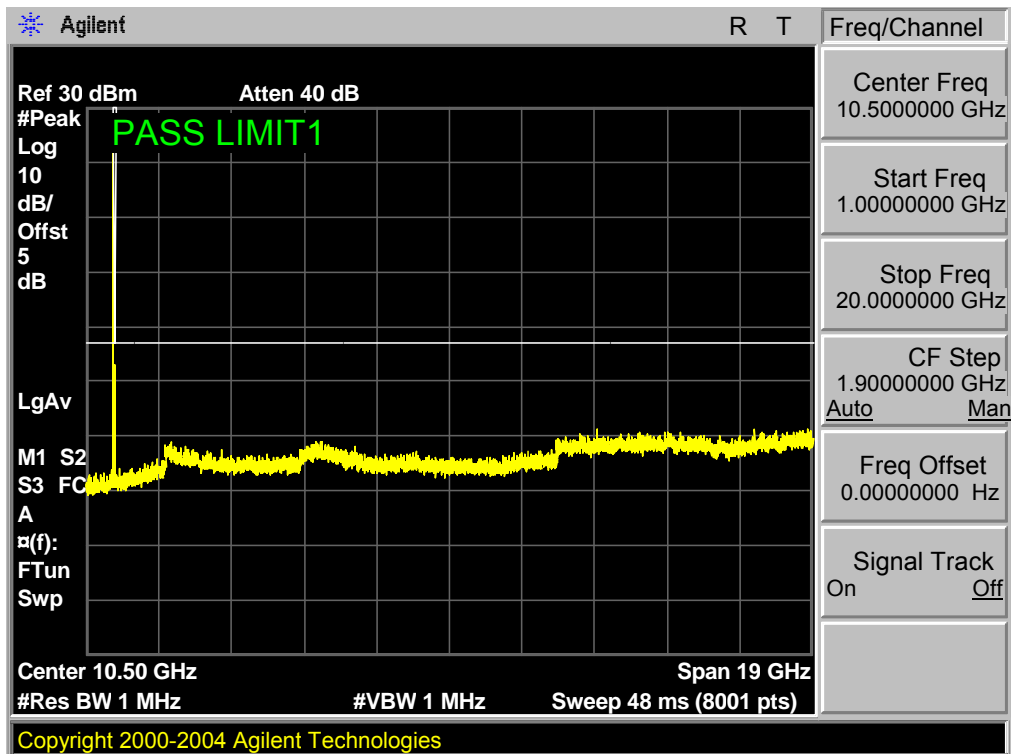
Band 4,UL Channel 20050,UL Frequency 1720.0,BW 20.0,NO. RB 1,RB POS. Low,16QAM



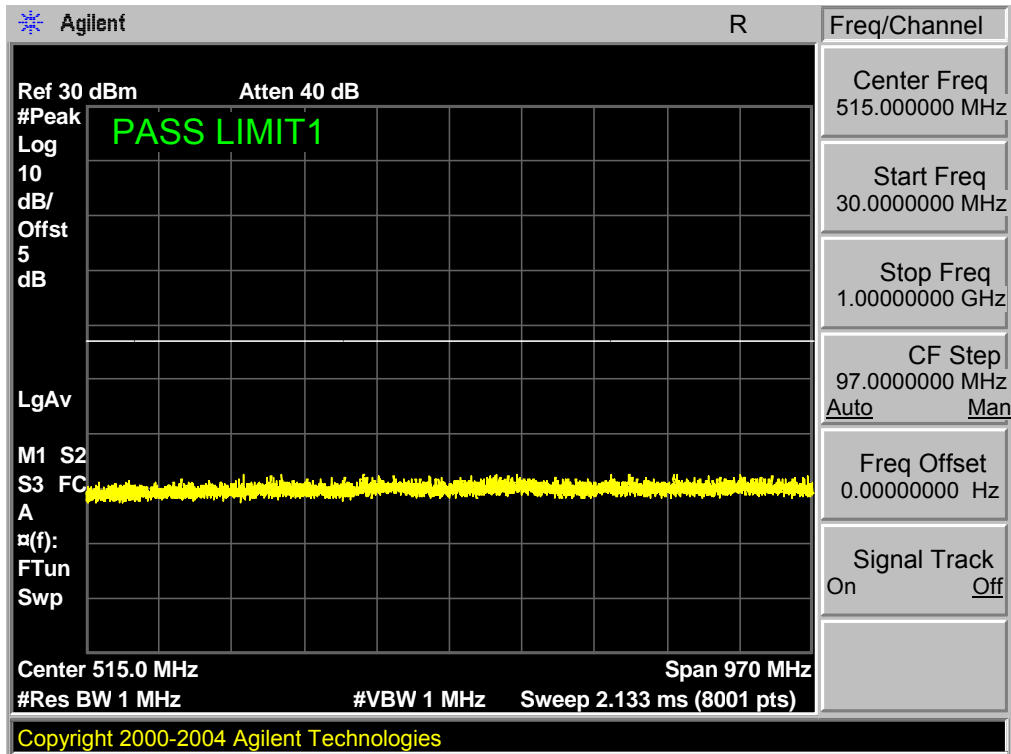
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 1,RB POS. Low,16QAM



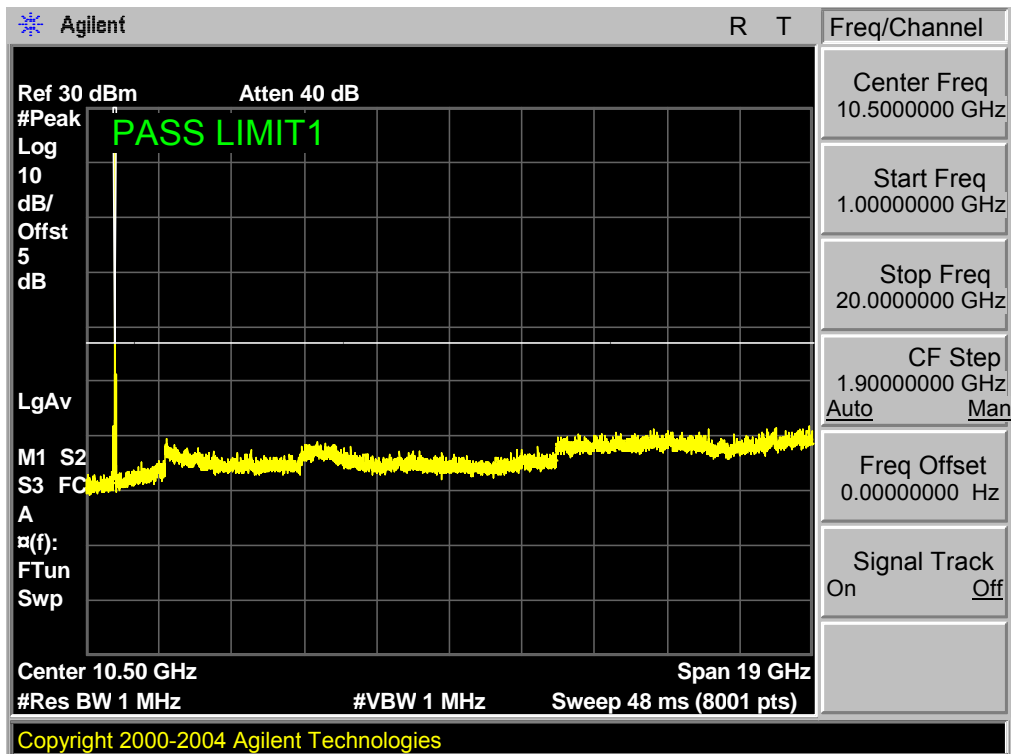
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 1,RB POS. Low,16QAM



Band 4,UL Channel 20300,UL Frequency 1745.0,BW 20.0,NO. RB 1,RB POS. Low,16QAM

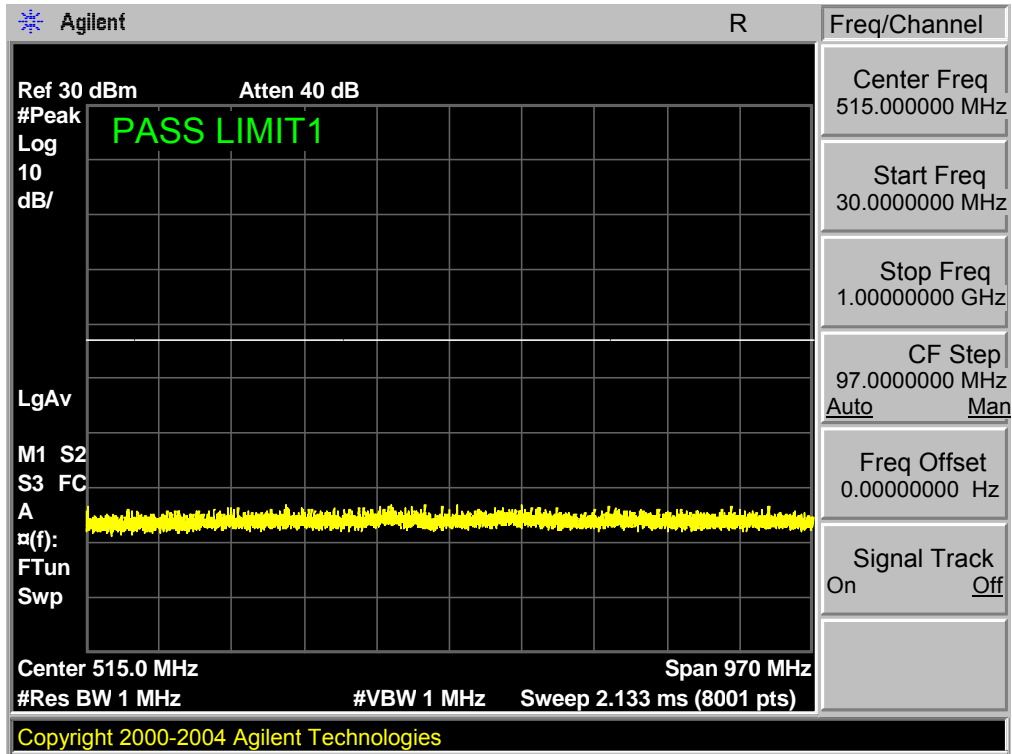


Band 4,UL Channel 20300,UL Frequency 1745.0,BW 20.0,NO. RB 1,RB POS. Low,16QAM

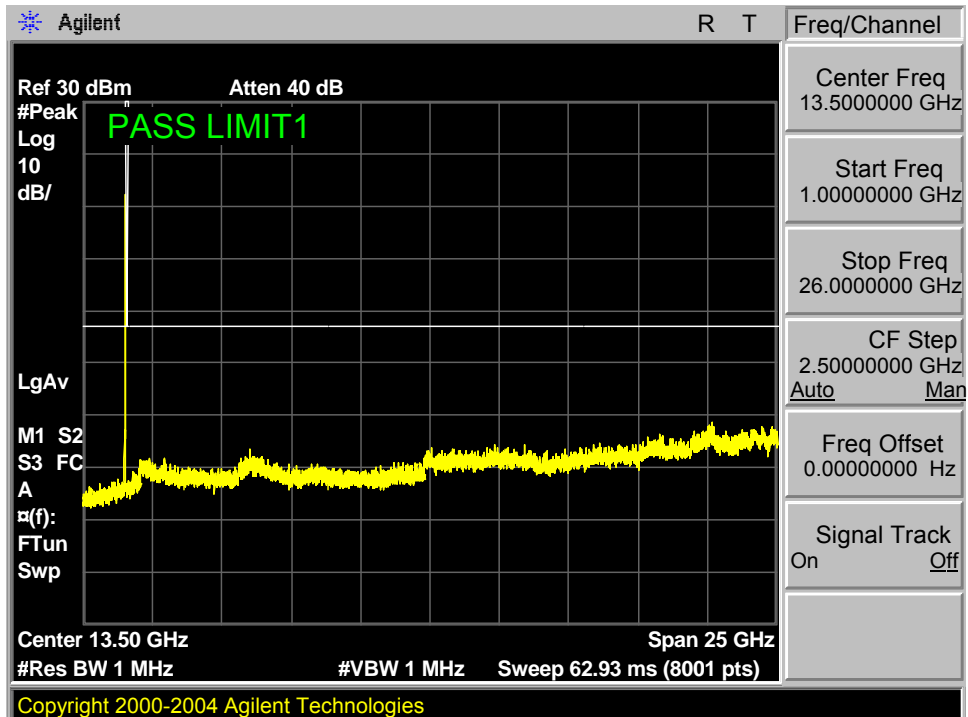


### 7.1.3 LTE BAND 7

Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK

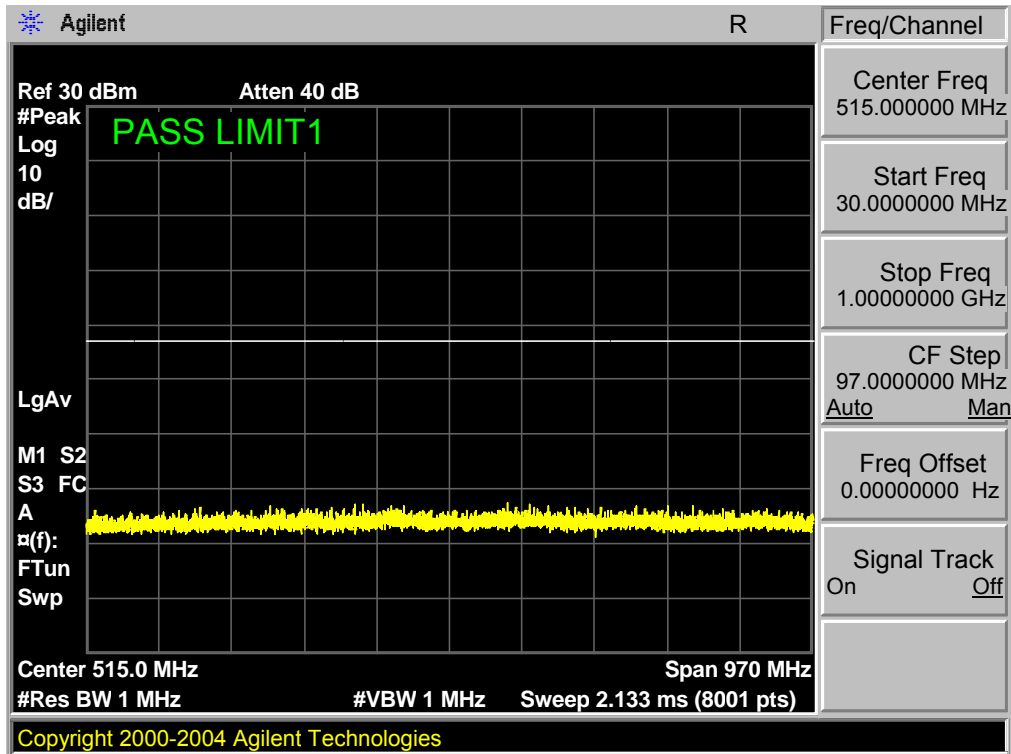


Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK

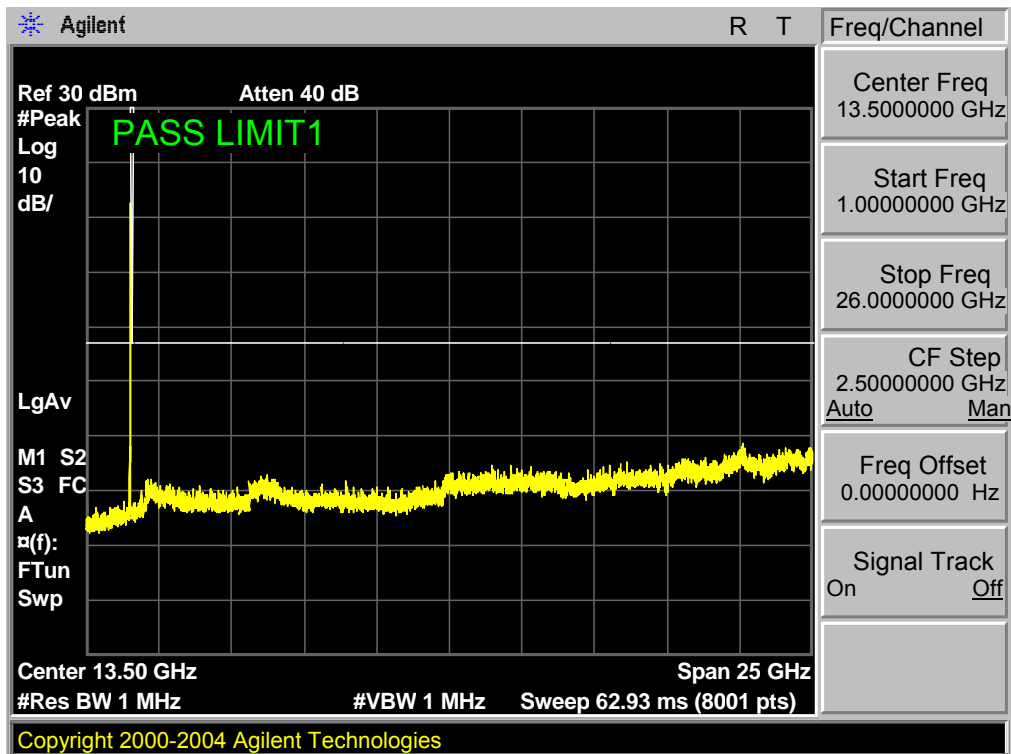




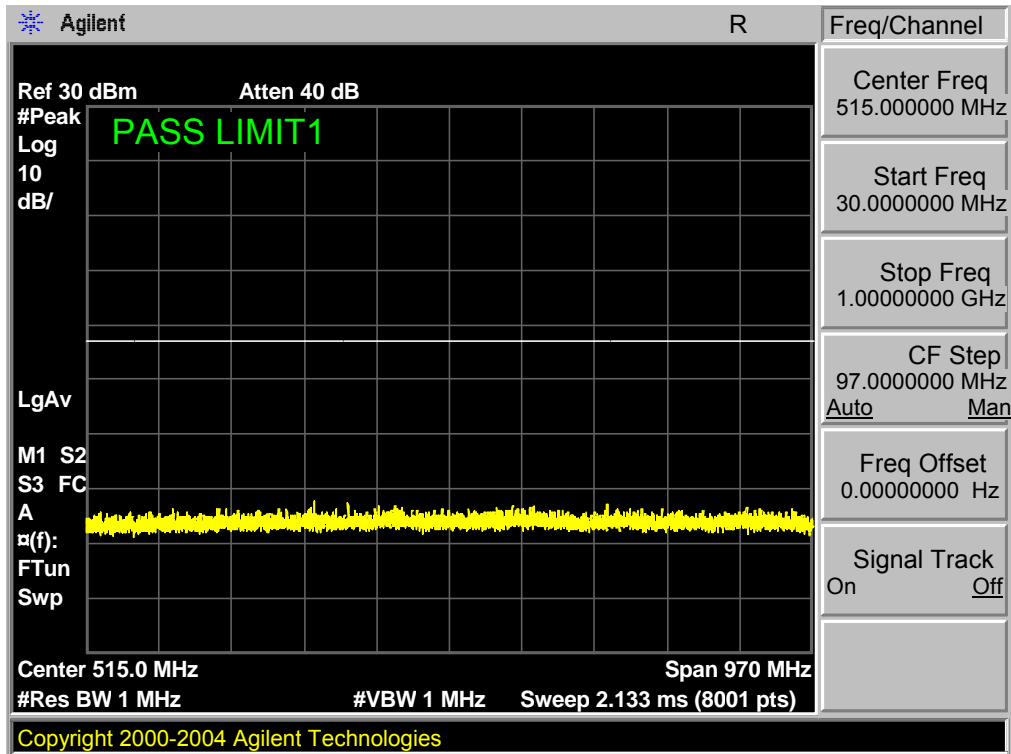
Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



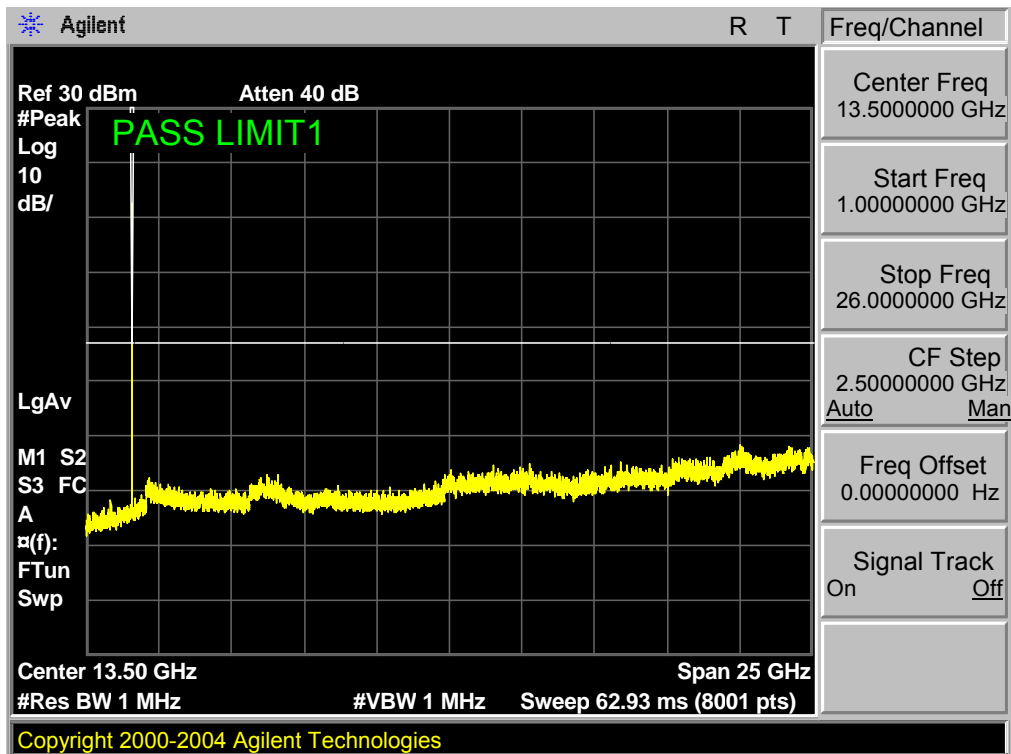
Band 7,UL Channel 20775,UL Frequency 2502.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



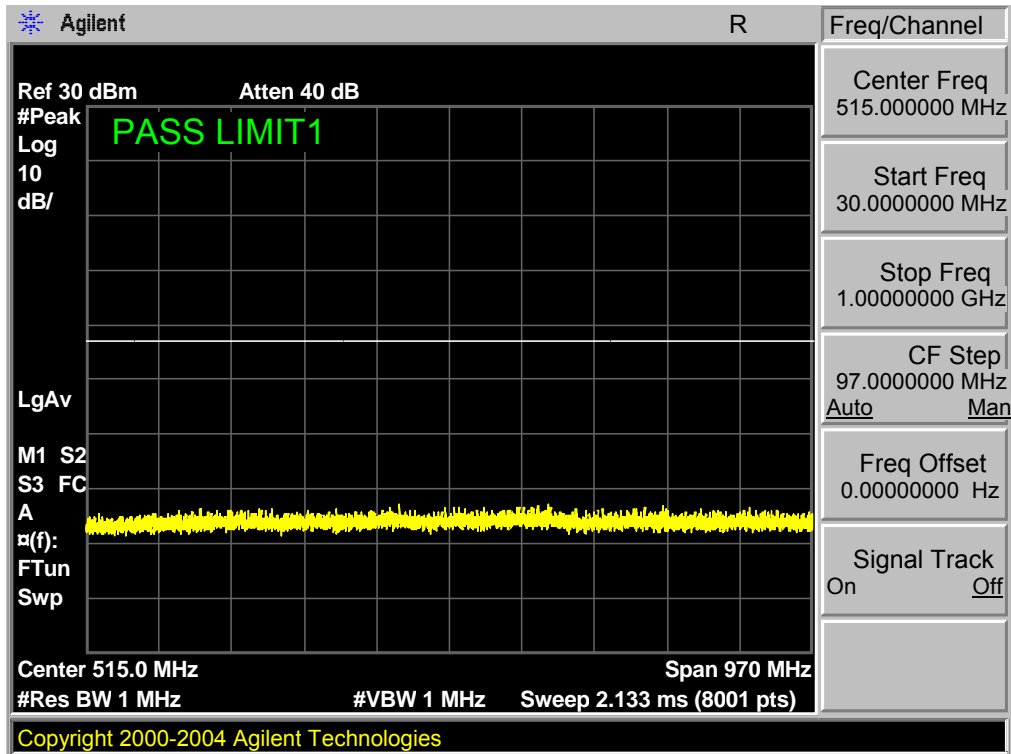
Band 7,UL Channel 21425,UL Frequency 2567.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



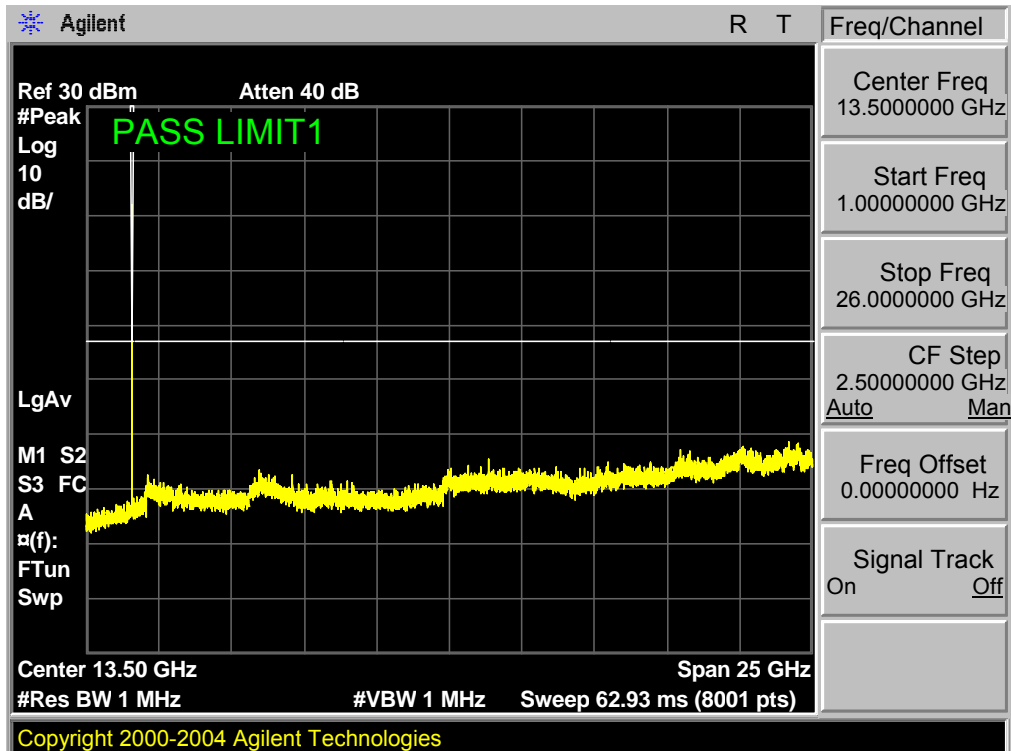
Band 7,UL Channel 21425,UL Frequency 2567.5,BW 5.0,NO. RB 25,RB POS. Low,QPSK



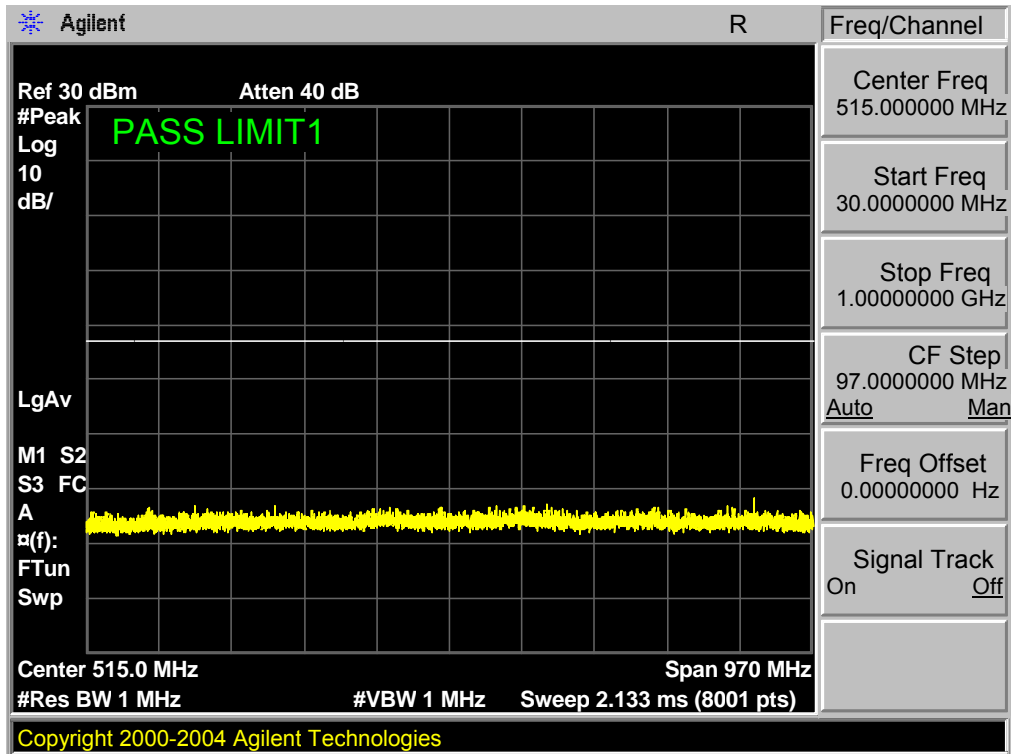
Band 7,UL Channel 21425,UL Frequency 2567.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



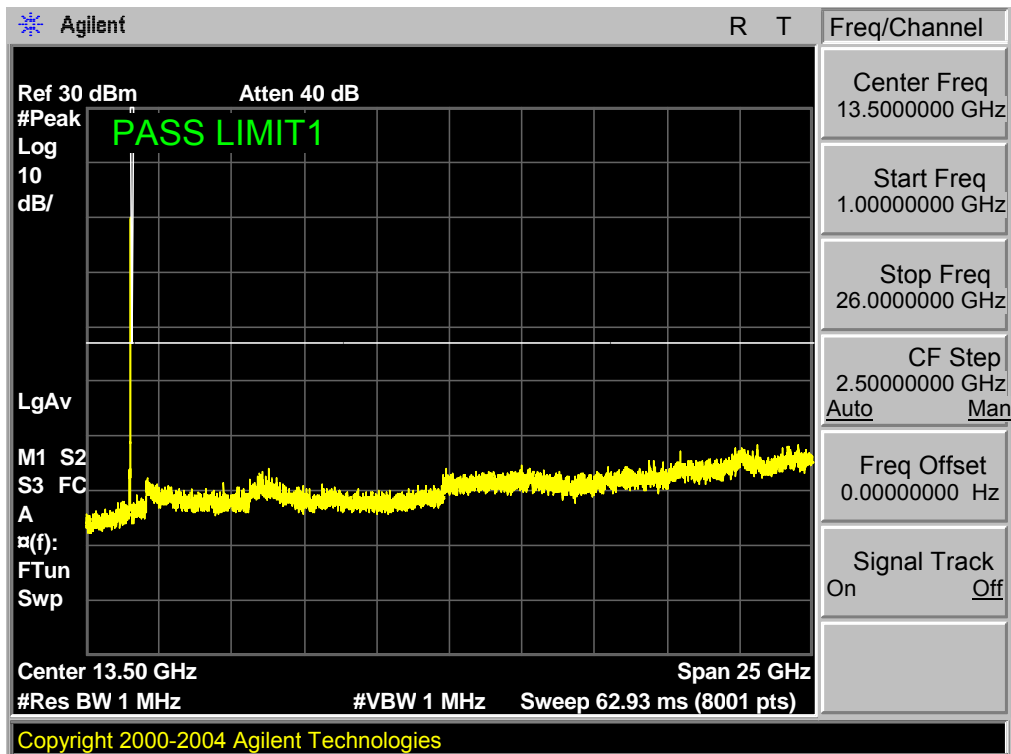
Band 7,UL Channel 21425,UL Frequency 2567.5,BW 5.0,NO. RB 25,RB POS. Low,16QAM



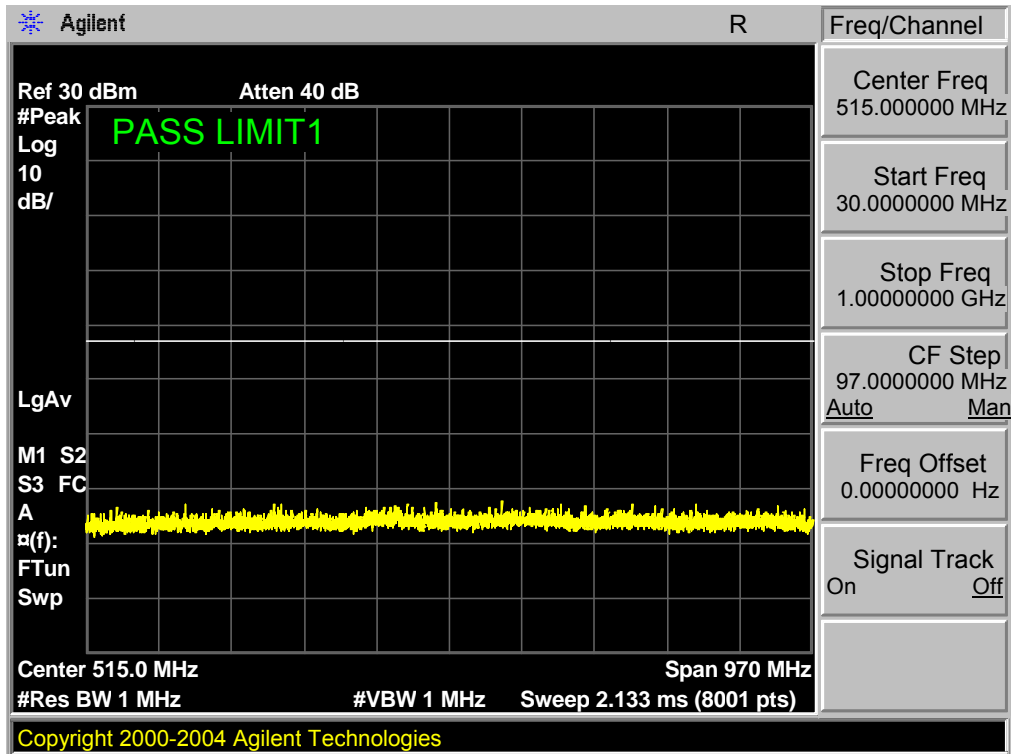
Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



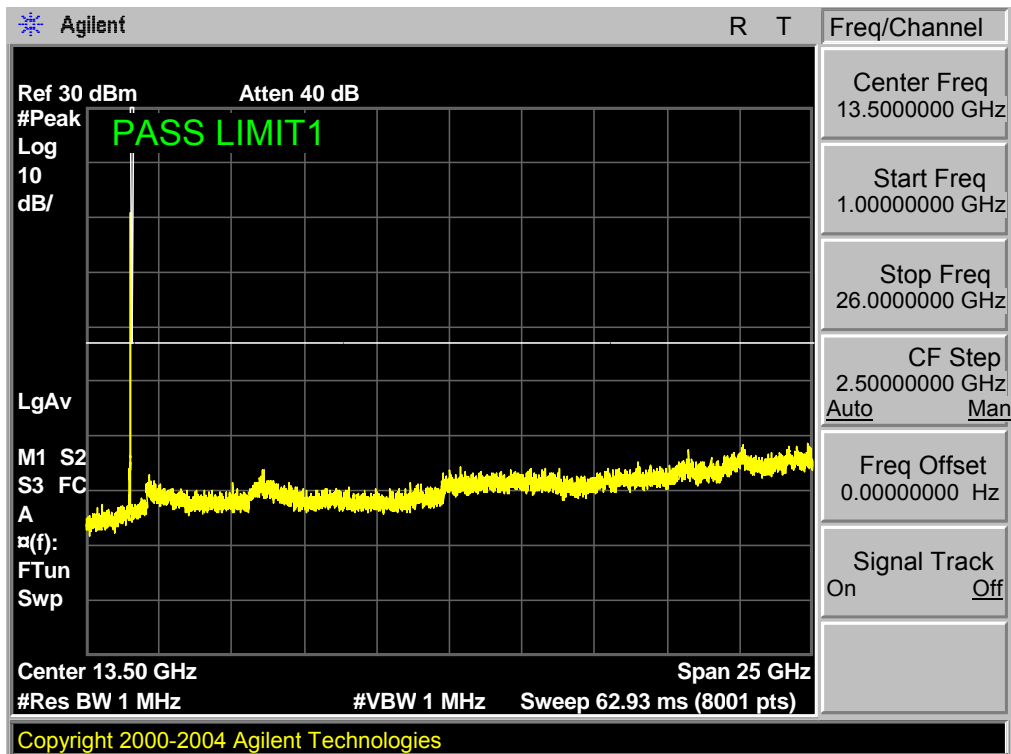
Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



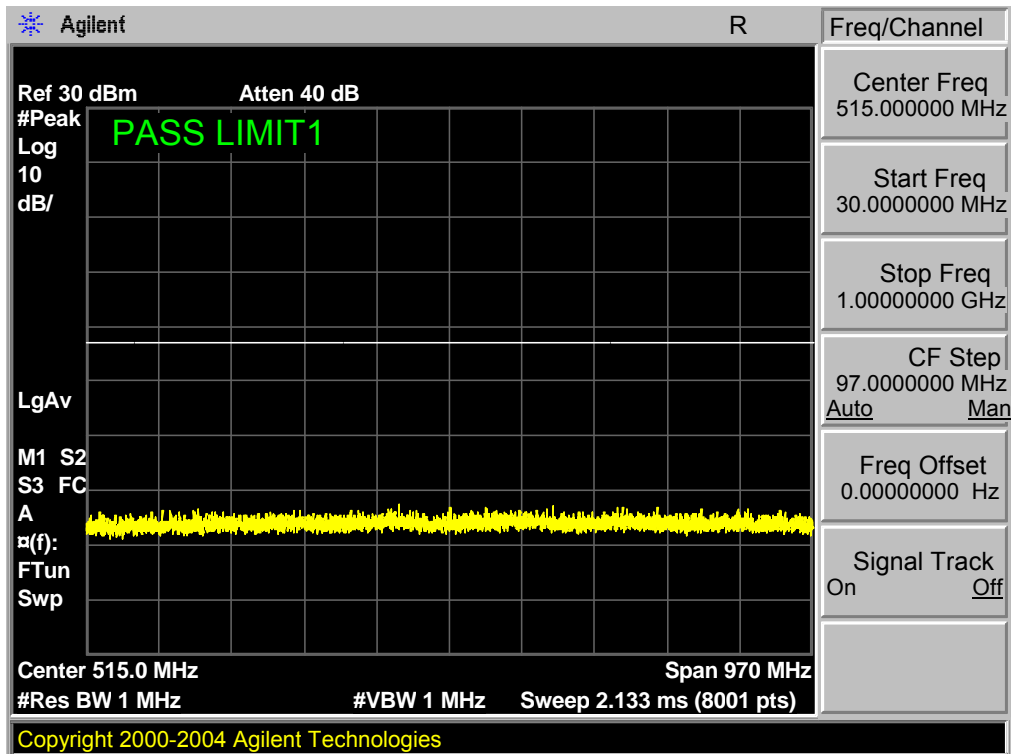
Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



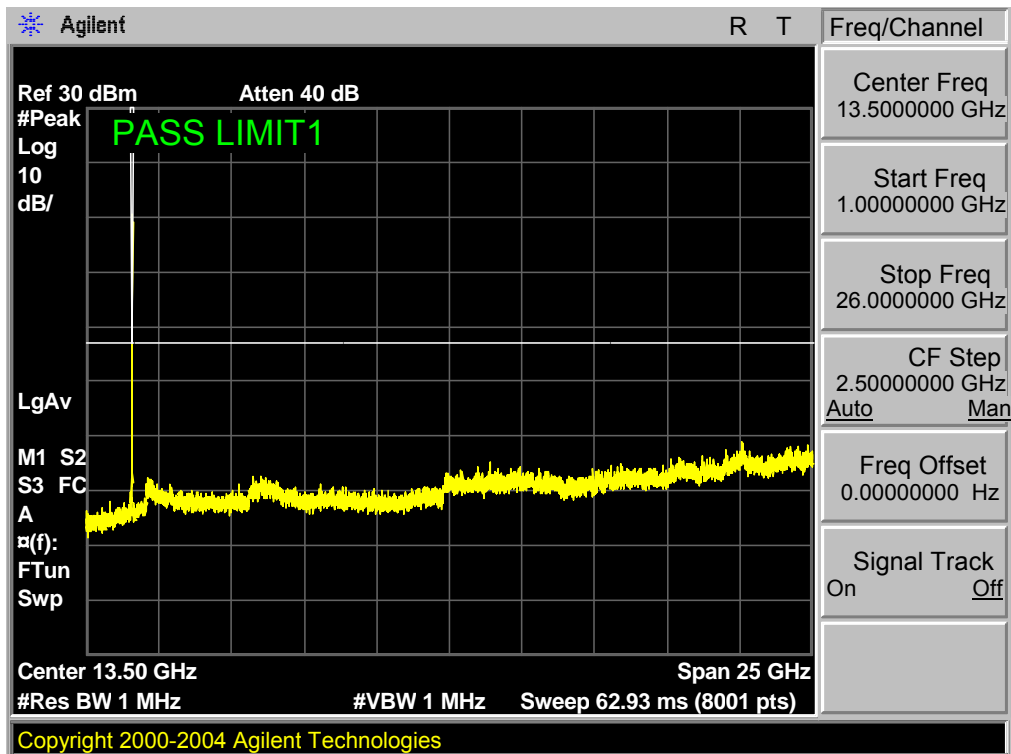
Band 7,UL Channel 20800,UL Frequency 2505.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



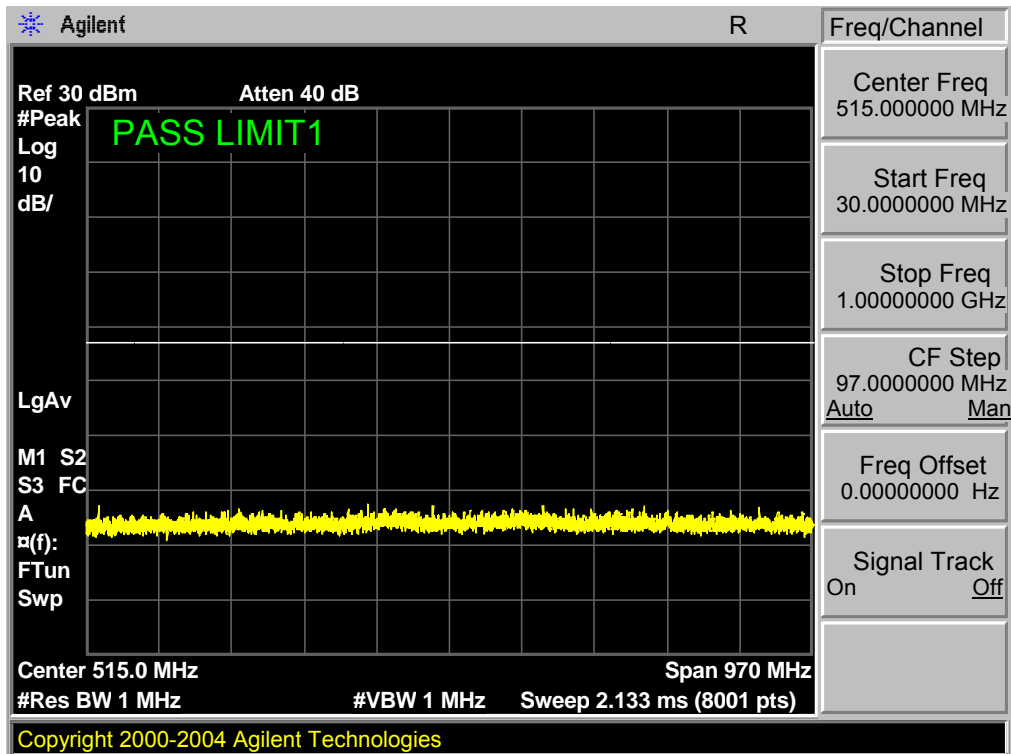
Band 7,UL Channel 21400,UL Frequency 2565.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



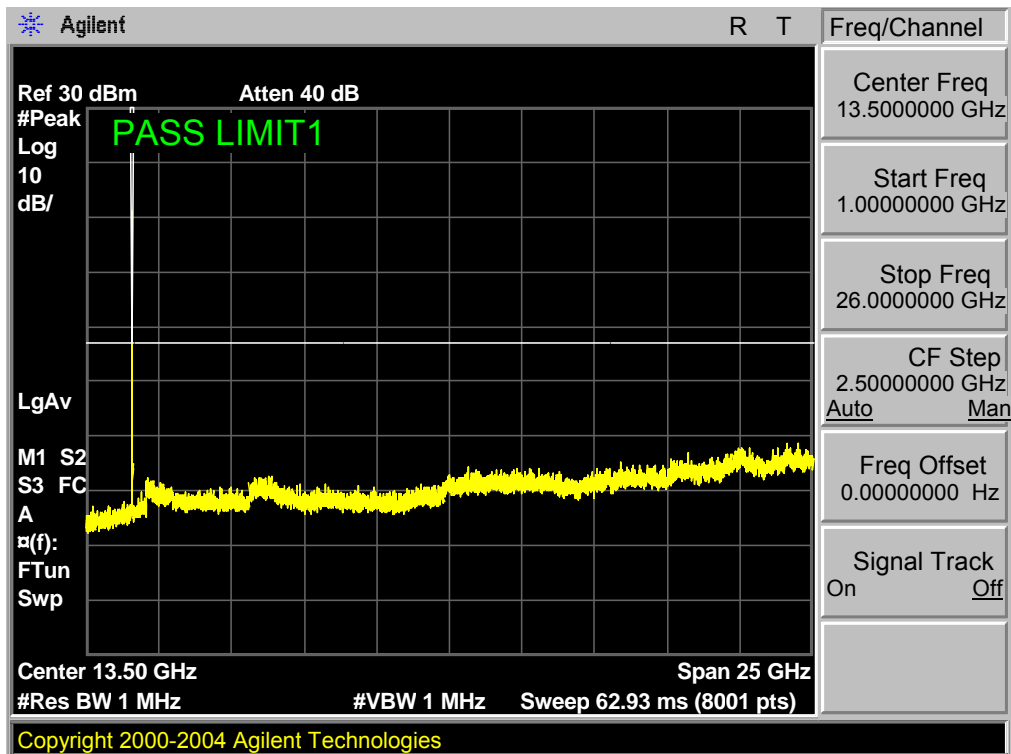
Band 7,UL Channel 21400,UL Frequency 2565.0,BW 10.0,NO. RB 50,RB POS. Low,QPSK



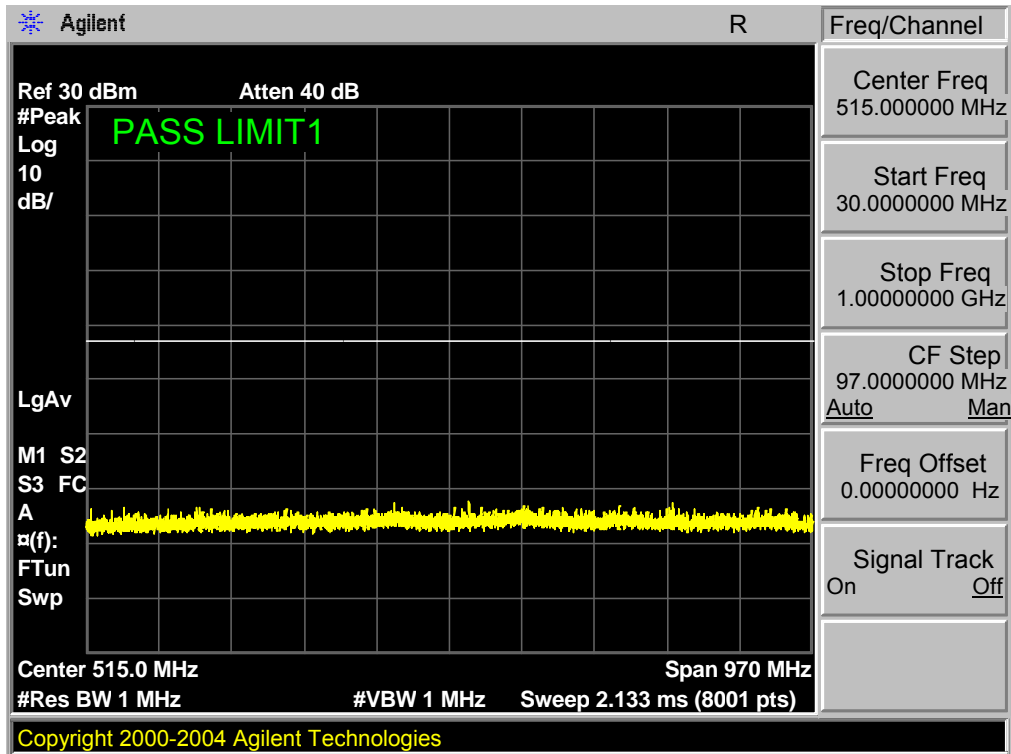
Band 7,UL Channel 21400,UL Frequency 2565.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



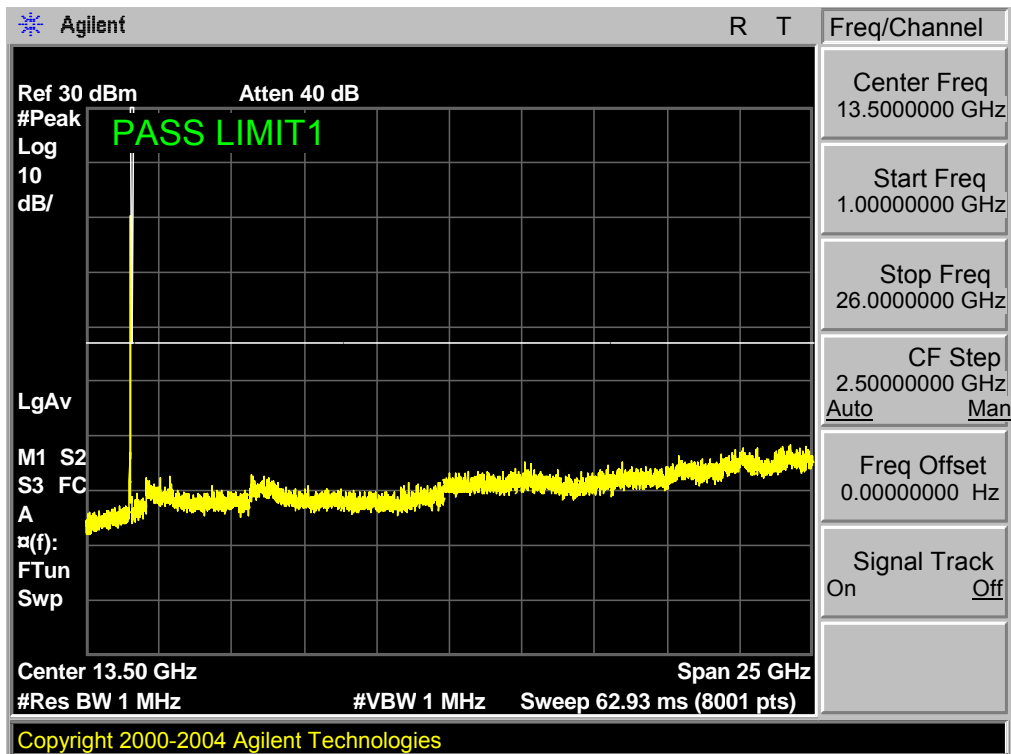
Band 7,UL Channel 21400,UL Frequency 2565.0,BW 10.0,NO. RB 50,RB POS. Low,16QAM



Band 7,UL Channel 20825,UL Frequency 2507.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK

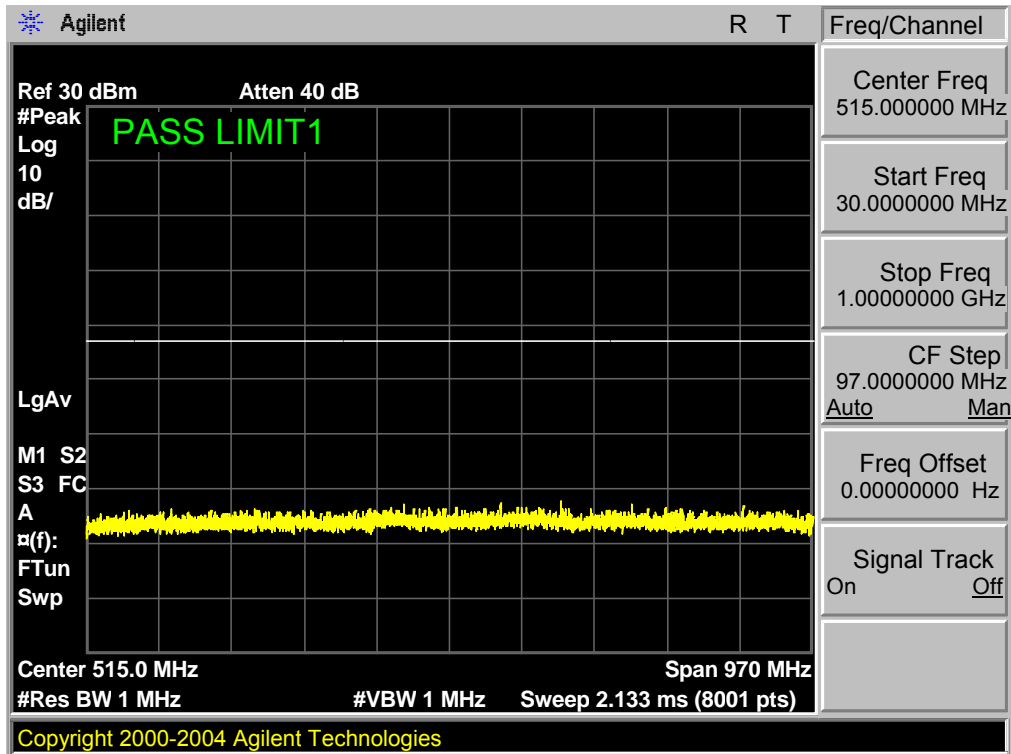


Band 7,UL Channel 20825,UL Frequency 2507.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK

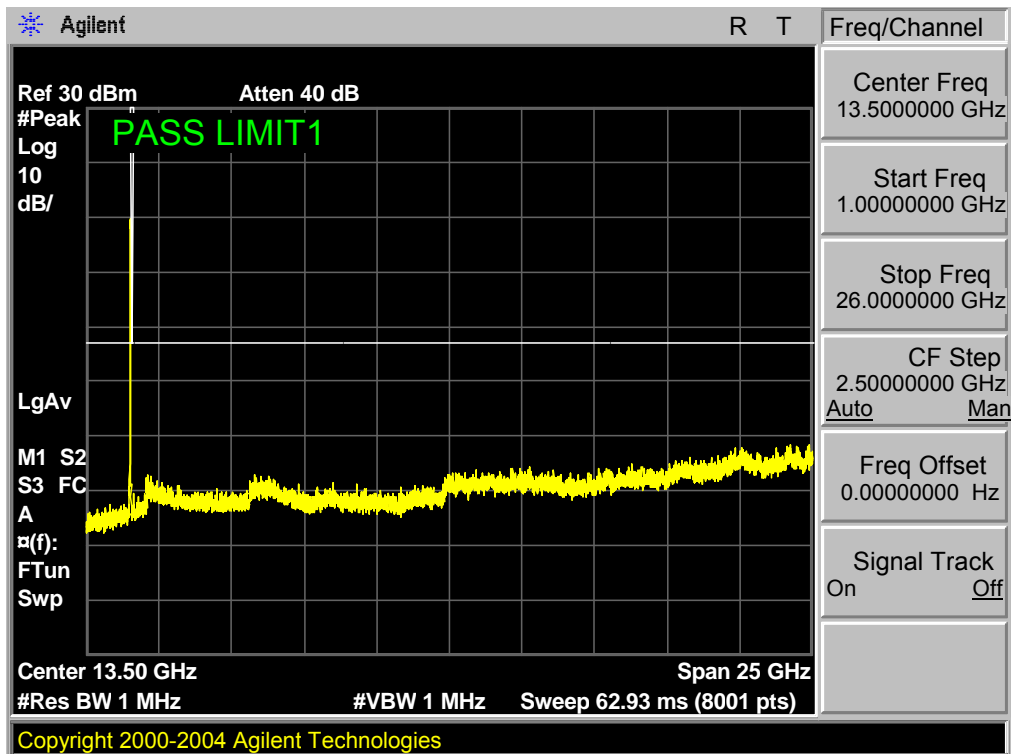




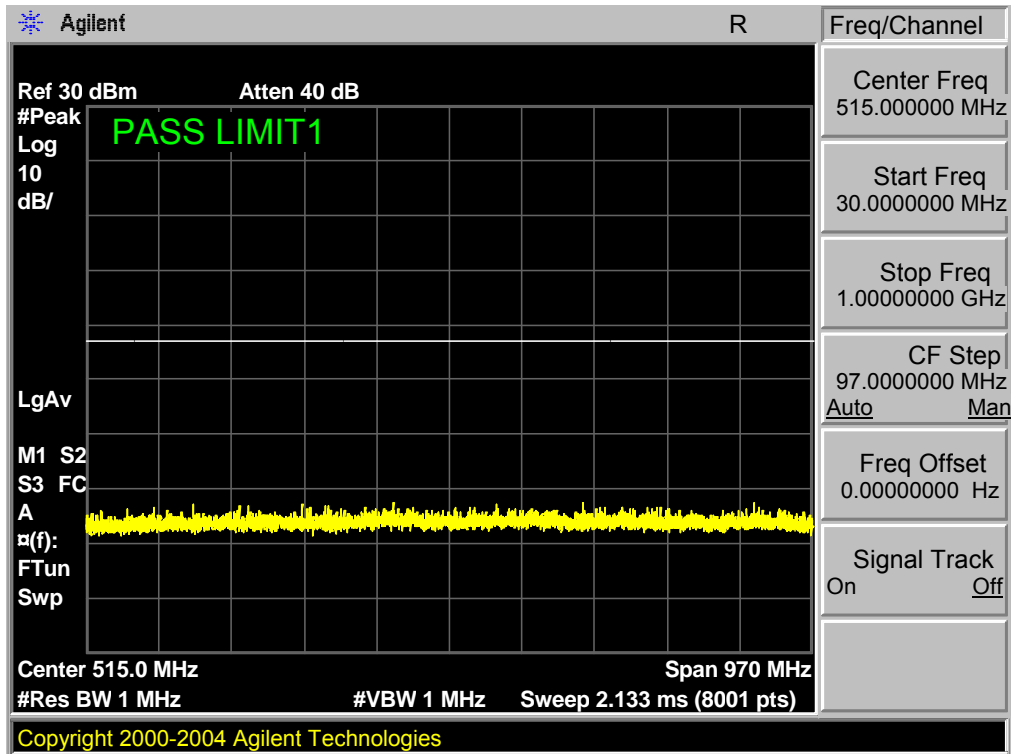
Band 7,UL Channel 20825,UL Frequency 2507.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



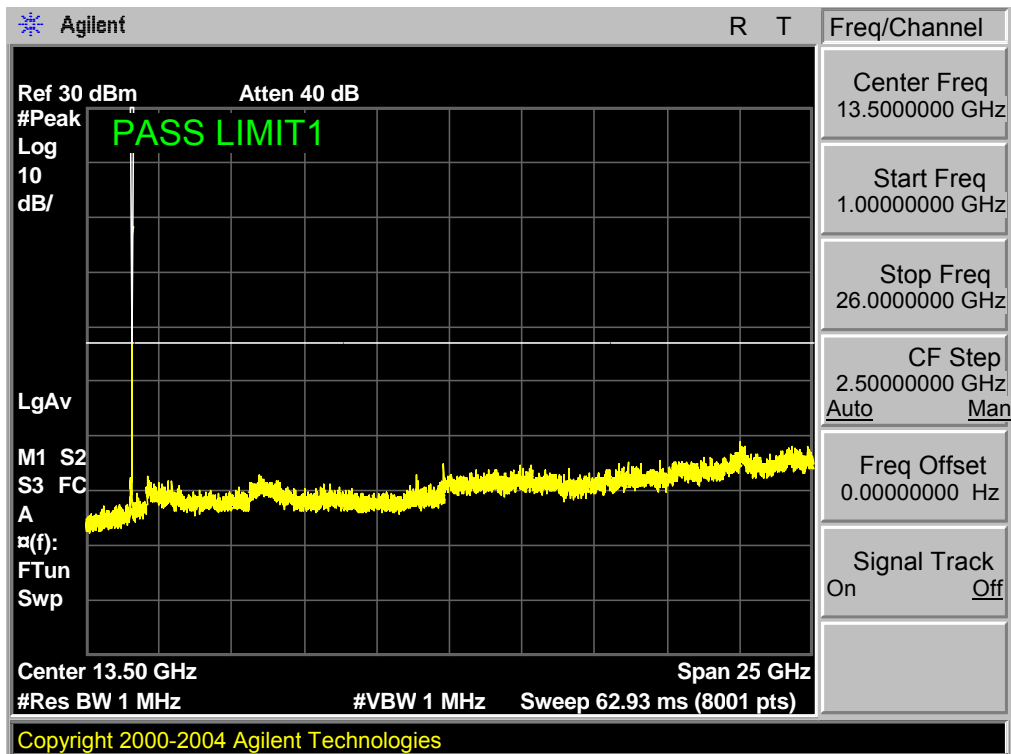
Band 7,UL Channel 20825,UL Frequency 2507.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



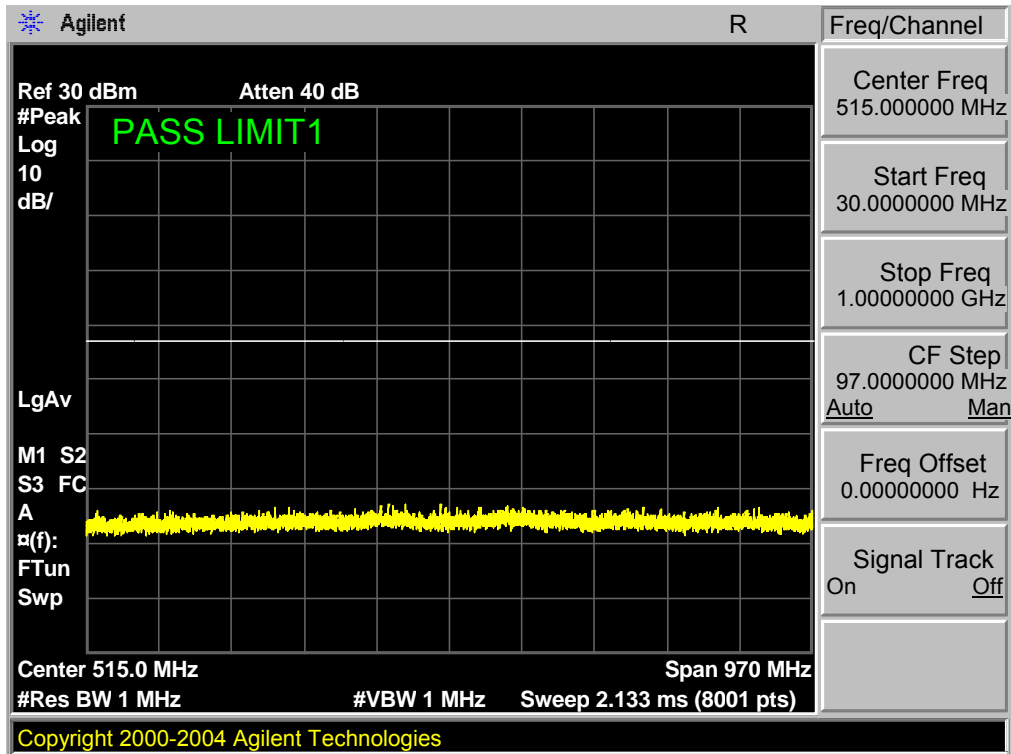
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



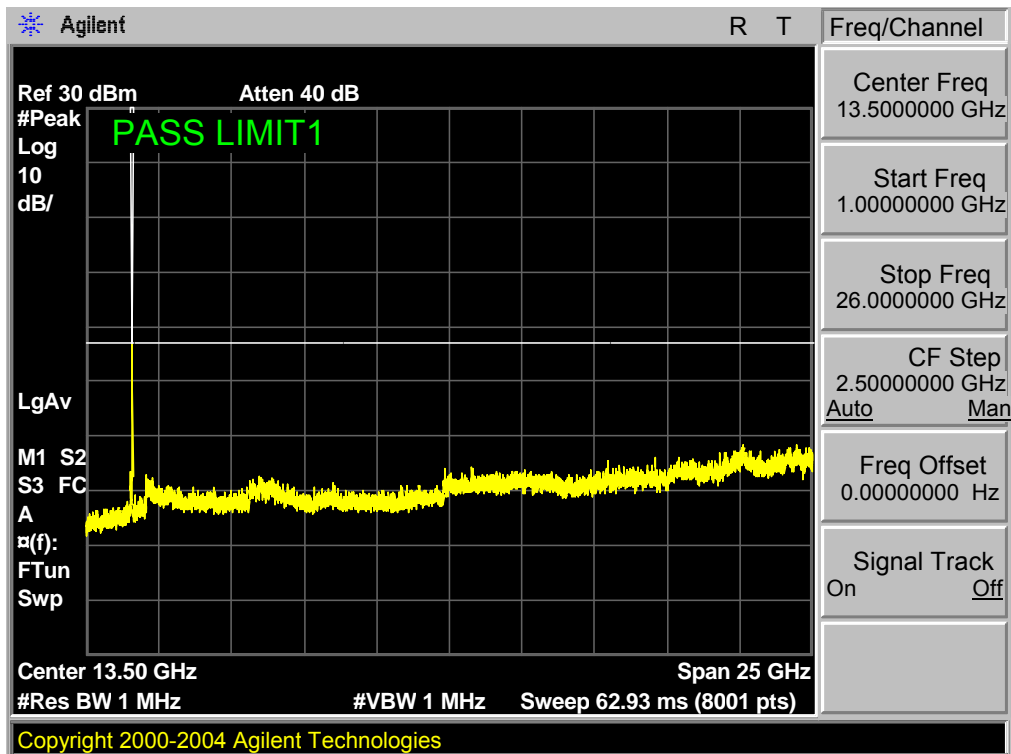
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,QPSK



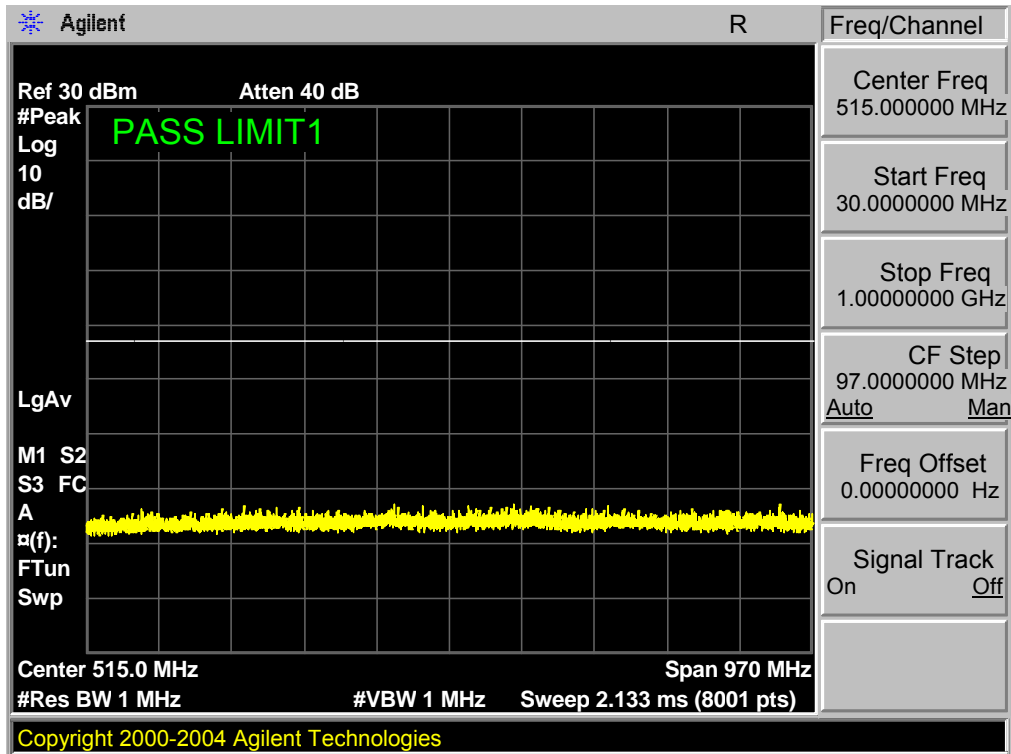
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



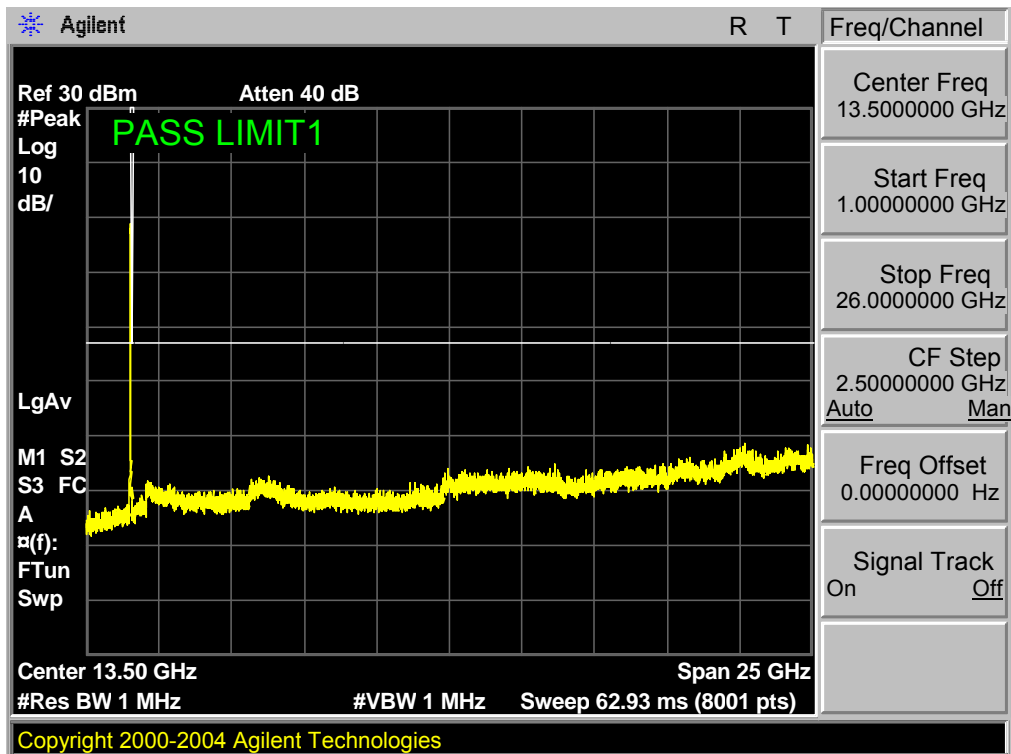
Band 7,UL Channel 21375,UL Frequency 2562.5,BW 15.0,NO. RB 75,RB POS. Low,16QAM



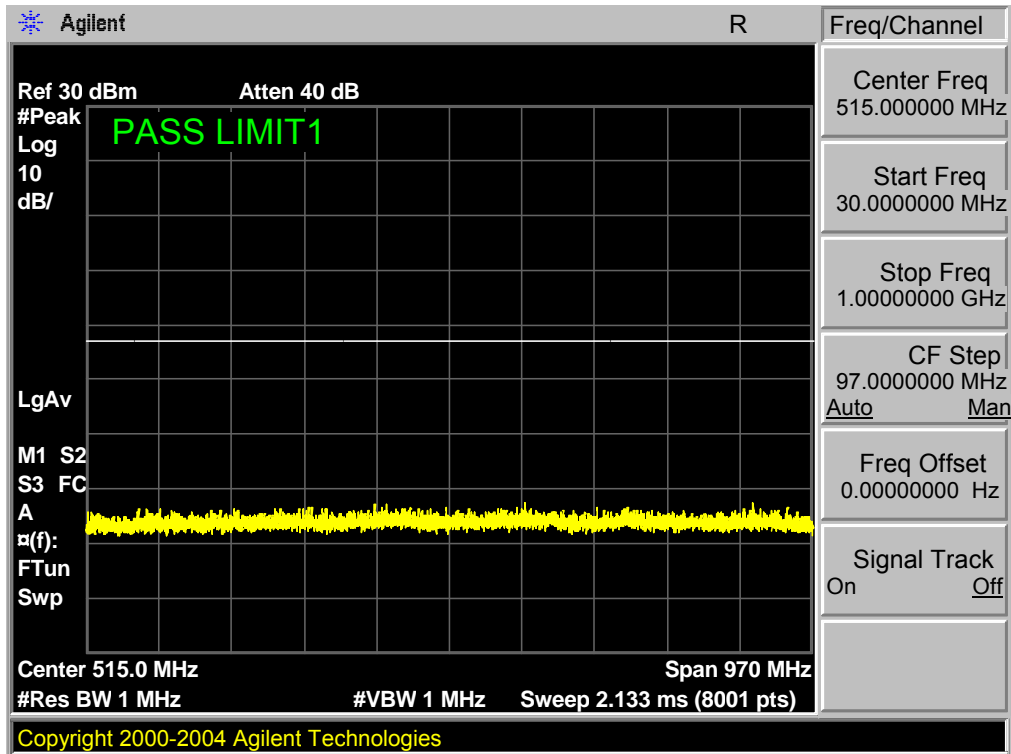
Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



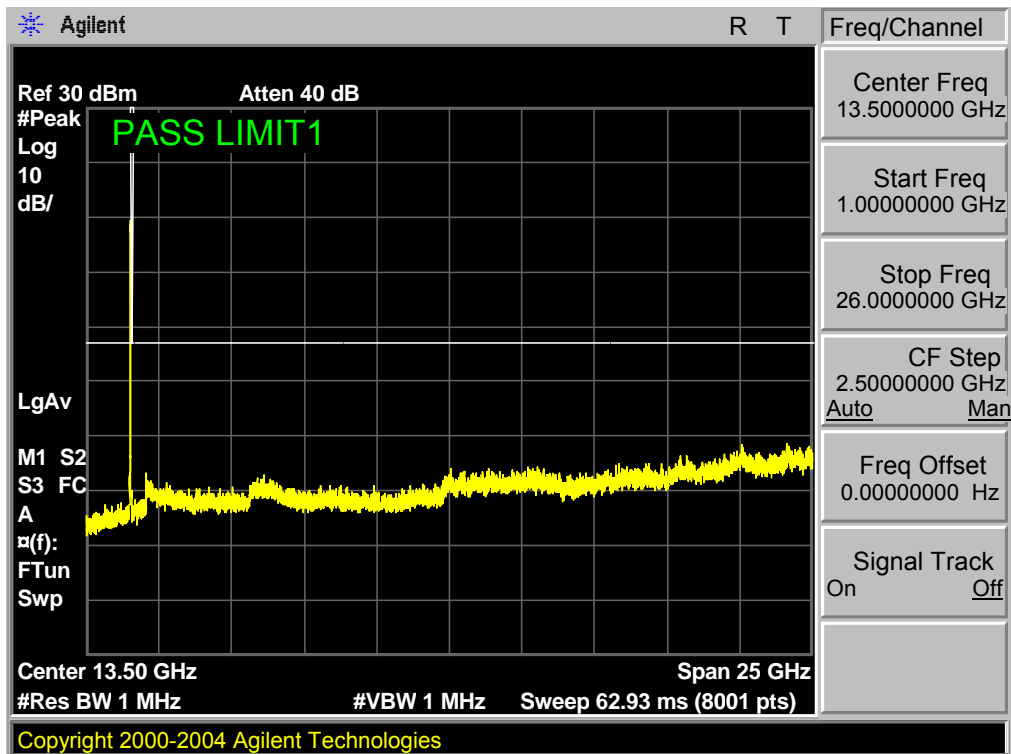
Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



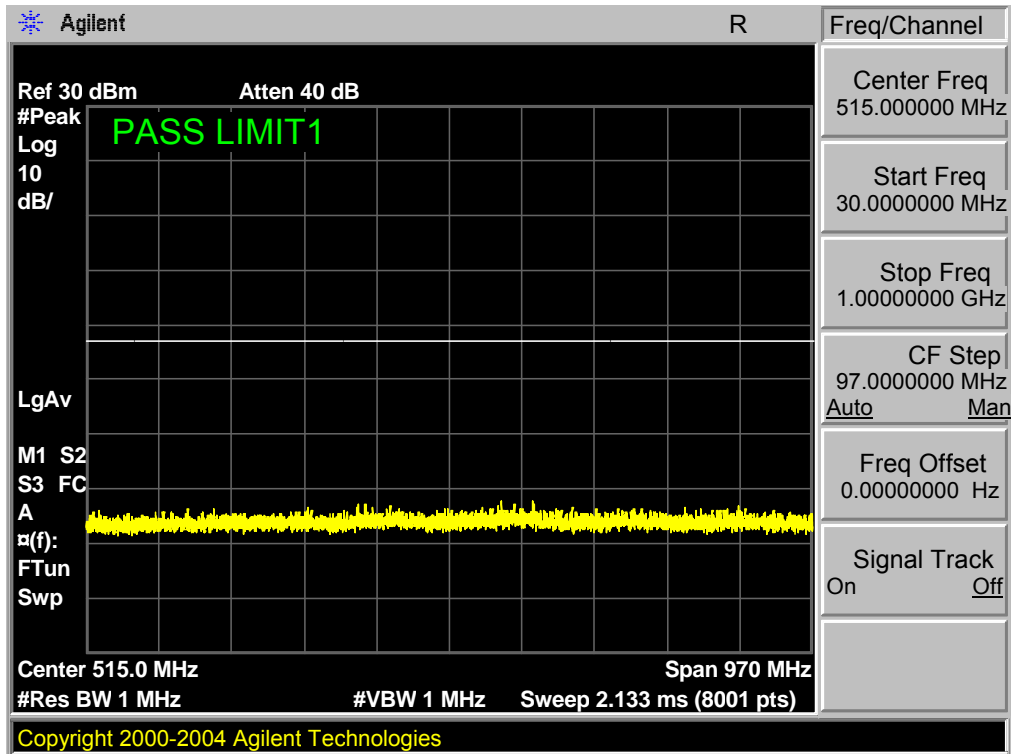
Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



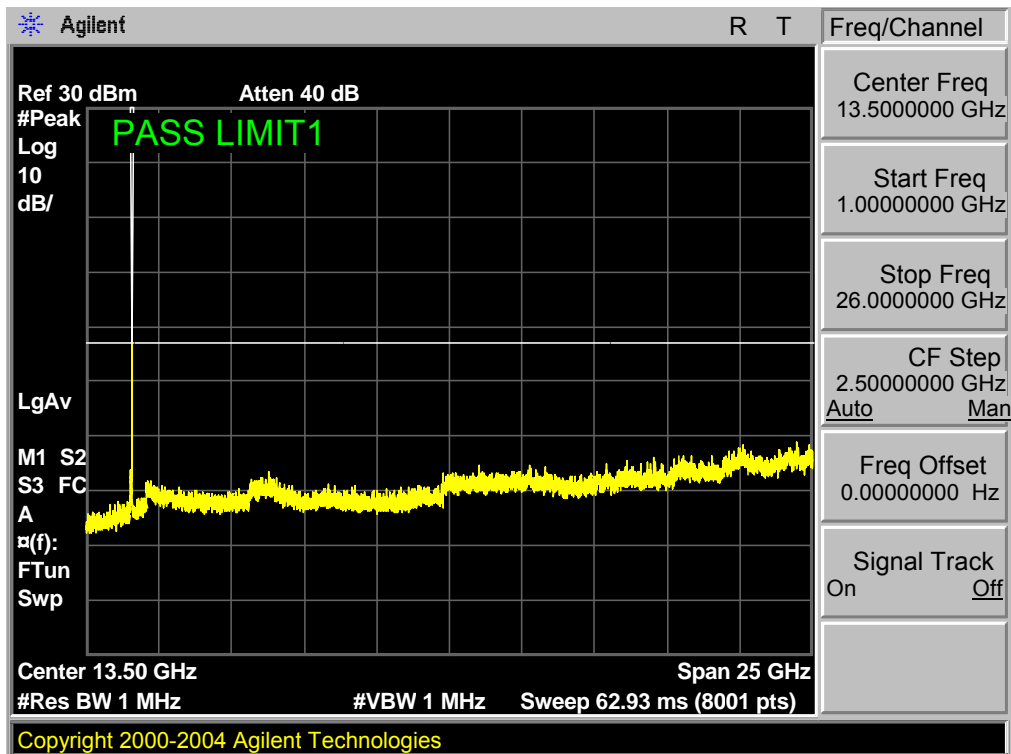
Band 7,UL Channel 20850,UL Frequency 2510.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



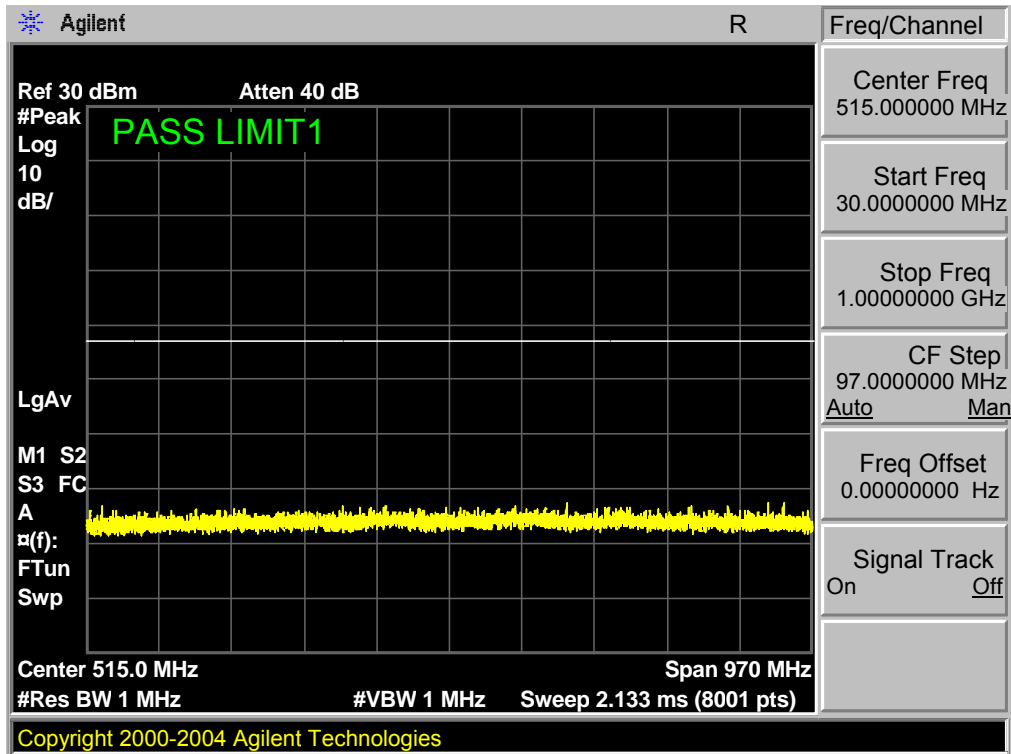
Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



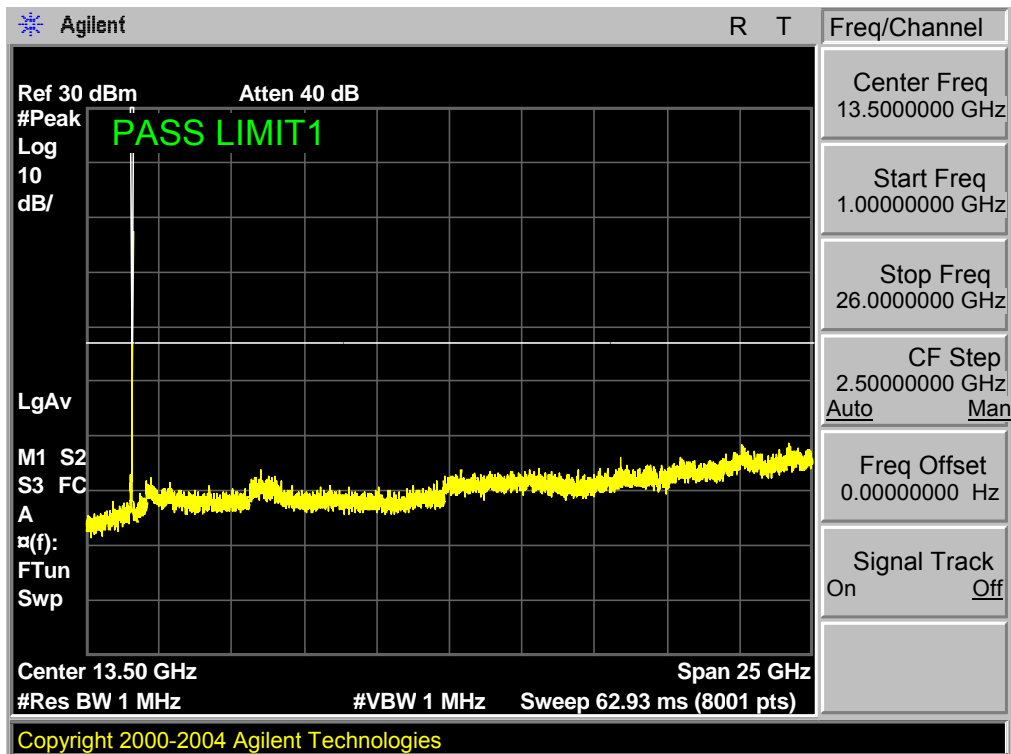
Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,QPSK



Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



Band 7,UL Channel 21350,UL Frequency 2560.0,BW 20.0,NO. RB 100,RB POS. Low,16QAM



## 9. Radiated Spurious Emission

### 9.1. 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.

#### 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 4

LTE Band 7

#### RESULTS



**9.1.2 LTE BAND 4**

**EIRP POWER FOR LTE BAND 4 (1.4MHZ BANDWIDTH)**

Radiated Power (EIRP) for 1.4MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
1.4MHz Band QPSK	6/0	1850.7	<b>25.18</b>	<b>329.61</b>	Horizontal	Pass
		1880.0	24.33	271.02	Vertical	Pass
		1909.3	24.73	297.17	Horizontal	Pass
1.4MHz Band 16 QAM	6/0	1850.7	25.13	325.84	Vertical	Pass
		1880.0	24.54	284.45	Horizontal	Pass
		1909.3	24.15	260.02	Vertical	Pass

**EIRP POWER FOR LTE BAND 4 (3.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 3.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
3.0MHz Band QPSK	15/0	1851.5	24.32	270.40	Horizontal	Pass
		1880.0	24.52	283.14	Vertical	Pass
		1908.5	24.83	304.09	Horizontal	Pass
3.0MHz Band 16 QAM	15/0	1851.5	<b>25.11</b>	<b>324.34</b>	Vertical	Pass
		1880.0	24.68	293.76	Horizontal	Pass
		1908.5	24.35	272.27	Vertical	Pass

**EIRP POWER FOR LTE BAND 4(5.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 5.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	25/0	1851.5	25.41	347.54	Horizontal	Pass
		1880.0	24.83	304.09	Vertical	Pass
		1908.5	24.51	282.49	Horizontal	Pass
5.0MHz Band 16 QAM	25/0	1851.5	24.59	287.74	Vertical	Pass
		1880.0	24.31	269.77	Horizontal	Pass
		1908.5	24.72	296.48	Vertical	Pass

**EIRP POWER FOR LTE BAND 4 (10.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 10.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz Band QPSK	50/0	1855.0	25.21	331.89	Horizontal	Pass
		1880.0	24.83	304.09	Vertical	Pass
		1905.0	24.29	268.53	Horizontal	Pass
10.0MHz Band 16 QAM	50/0	1855.0	24.18	261.82	Vertical	Pass
		1880.0	24.32	270.40	Horizontal	Pass
		1905.0	24.86	306.20	Vertical	Pass

**EIRP POWER FOR LTE BAND 2 (15.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 15.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
15.0MHz Band QPSK	75/0	1857.5	<b>25.18</b>	<b>329.61</b>	Horizontal	Pass
		1880.0	24.67	293.09	Vertical	Pass
		1902.5	24.22	264.24	Horizontal	Pass
15.0MHz Band 16 QAM	75/0	1857.5	24.37	273.53	Vertical	Pass
		1880.0	24.91	309.74	Horizontal	Pass
		1902.5	24.83	304.09	Vertical	Pass

**EIRP POWER FOR LTE BAND 4 (20.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 20.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
20.0MHz Band QPSK	100/0	1860.0	24.38	274.16	Horizontal	Pass
		1880.0	24.55	285.10	Vertical	Pass
		1900.0	<b>24.67</b>	<b>293.09</b>	Horizontal	Pass
20.0MHz Band 16 QAM	100/0	1860.0	24.53	283.79	Vertical	Pass
		1880.0	24.58	287.08	Horizontal	Pass
		1900.0	24.67	293.09	Vertical	Pass

### 9.1.3 LTE BAND 7

#### EIRP POWER FOR LTE BAND 7 (5.0MHZ BANDWIDTH)

Radiated Power (EIRP) for 5.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
5.0MHz Band QPSK	1/0	2502.5	21.12	129.42	Horizontal	Pass
		2535.0	20.53	112.98	Vertical	Pass
		2567.5	21.73	148.94	Horizontal	Pass
5.0MHz Band 16 QAM	1/0	2502.5	21.41	138.36	Vertical	Pass
		2535.0	21.05	127.35	Horizontal	Pass
		2567.5	<b>21.84</b>	<b>152.76</b>	Vertical	Pass

#### EIRP POWER FOR LTE BAND 7 (10.0MHZ BANDWIDTH)

Radiated Power (EIRP) for 10.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz Band QPSK	1/0	2505.0	21.53	142.23	Horizontal	Pass
		2535.0	21.42	138.68	Vertical	Pass
		2565.0	21.37	137.09	Horizontal	Pass
10.0MHz Band 16 QAM	1/0	2505.0	21.43	139.00	Vertical	Pass
		2535.0	21.53	142.23	Horizontal	Pass
		2565.0	<b>21.82</b>	<b>152.05</b>	Vertical	Pass

**EIRP POWER FOR LTE BAND 7 (15.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 15.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz Band QPSK	1/0	2507.5	21.44	139.316	Horizontal	Pass
		2535.0	21.51	141.579	Vertical	Pass
		2562.5	<b>21.57</b>	143.549	Horizontal	Pass
10.0MHz Band 16 QAM	1/0	2507.5	21.55	142.889	Vertical	Pass
		2535.0	21.56	143.219	Horizontal	Pass
		2562.5	21.54	142.561	Vertical	Pass

**EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)**

Radiated Power (EIRP) for 20.0MHz Band						
Mode	RB/RB SIZE	Frequency	Result			Conclusion
			Max. EIRP Average (dBm)	Max. EIRP Average (mW)	Polarization Of Max. ERP	
10.0MHz Band QPSK	1/0	2510.0	21.52	141.906	Horizontal	Pass
		2535.0	21.47	140.281	Vertical	Pass
		2560.0	21.42	138.676	Horizontal	Pass
10.0MHz Band 16 QAM	1/0	2510.0	21.44	139.316	Vertical	Pass
		2535.0	<b>21.55</b>	142.889	Horizontal	Pass
		2560.0	21.45	139.637	Vertical	Pass

## 10.0 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  $43 + 10 \log_{10}(P)$  dB.

### 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  $43 + 10 \text{ Log}_{10} (p)$ , dB; and
- b. for mobile subscriber equipment, the attenuation shall not be less than  $43 + 10 \text{ Log}_{10} (p)$ , dB at the channel edges and  $55 + 10 \text{ Log}_{10} (p)$  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 4

LTE Band 7

**RESULTS**

**10.1.2. LTE BAND 4**

**QPSK EIRP POWER FOR LTE BAND 4 (1.4.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 1710.7MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
3421.4	-28.69	12.42	-16.27	-13.00	Horizontal
3421.4	-31.46	12.42	-19.04	-13.00	Vertical
5132.1	-33.85	14.12	-19.73	-13.00	Vertical
5132.1	-32.63	14.12	-18.51	-13.00	Horizontal
6842.4	-33.86	16.26	-17.6	-13.00	Horizontal
6842.4	-34.28	16.26	-18.02	-13.00	Vertical
<b>Test Results for Mid Channel 1732.5MHz</b>					
3760	-33.51	11.76	-21.75	-13.00	Horizontal
3760	-30.31	11.76	-18.55	-13.00	Vertical
5640	-31.83	14.56	-17.27	-13.00	Vertical
5640	-35.83	14.56	-21.27	-13.00	Horizontal
7520	-36.73	16.6	-20.13	-13.00	Horizontal
7520	-36.53	16.6	-19.93	-13.00	Vertical
<b>Test Results for High Channel 1754.3MHz</b>					
3508.6	-30.73	11.87	-18.86	-13.00	Horizontal
3508.6	-31.84	11.87	-19.97	-13.00	Vertical
5262.9	-36.35	14.66	-21.69	-13.00	Vertical
5262.9	-31.26	14.66	-16.6	-13.00	Horizontal
7017.2	-35.73	16.75	-18.98	-13.00	Horizontal
7017.2	-39.35	16.75	-22.6	-13.00	Vertical



**QPSK EIRP POWER FOR LTE BAND 4 (3.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 1711.5MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
3423	-33.62	12.42	-21.2	-13.00	Horizontal
3423	-31.52	12.42	-19.1	-13.00	Vertical
5134.5	-35.28	14.12	-21.16	-13.00	Vertical
5134.5	-37.13	14.12	-23.01	-13.00	Horizontal
6846	-36.23	16.26	-19.97	-13.00	Horizontal
6846	-37.59	16.26	-21.33	-13.00	Vertical
<b>Test Results for Mid Channel 1732.5MHz</b>					
3760	-31.2	11.76	-19.44	-13.00	Horizontal
3760	-33.26	11.76	-21.5	-13.00	Vertical
5640	-34.18	14.56	-19.62	-13.00	Vertical
5640	-41.38	14.56	-26.82	-13.00	Horizontal
7520	-36.26	16.6	-19.66	-13.00	Horizontal
7520	-33.9	16.6	-17.3	-13.00	Vertical
<b>Test Results for High Channel 1753.5MHz</b>					
3507	-32.63	11.87	-20.76	-13.00	Horizontal
3507	-34.18	11.87	-22.31	-13.00	Vertical
5260.5	-35.26	14.66	-20.6	-13.00	Vertical
5260.5	-34.73	14.66	-20.07	-13.00	Horizontal
7014	-38.34	16.75	-21.59	-13.00	Horizontal
7014	-37.29	16.75	-20.54	-13.00	Vertical

**QPSK EIRP POWER FOR LTE BAND 4 (5.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 1712.5MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
3425	-29.61	12.42	-17.19	-13.00	Horizontal
3425	-34.18	12.42	-21.76	-13.00	Vertical
5137.5	-35.26	14.12	-21.14	-13.00	Vertical
5137.5	-37.16	14.12	-23.04	-13.00	Horizontal
6850	-35.56	16.26	-19.3	-13.00	Horizontal
6850	-37.06	16.26	-20.8	-13.00	Vertical
<b>Test Results for Mid Channel 1732.5MHz</b>					
3760	-33.61	11.76	-21.85	-13.00	Horizontal
3760	-34.56	11.76	-22.8	-13.00	Vertical
5640	-37.26	14.56	-22.7	-13.00	Vertical
5640	-34.83	14.56	-20.27	-13.00	Horizontal
7520	-35.91	16.6	-19.31	-13.00	Horizontal
7520	-36.58	16.6	-19.98	-13.00	Vertical
<b>Test Results for High Channel 1752.5MHz</b>					
3465	-36.86	11.87	-24.99	-13.00	Horizontal
3465	-37.51	11.87	-25.64	-13.00	Vertical
5197.5	-41.26	14.66	-26.6	-13.00	Vertical
5197.5	-38.61	14.66	-23.95	-13.00	Horizontal
6930	-39.63	16.75	-22.88	-13.00	Horizontal
6930	-37.56	16.75	-20.81	-13.00	Vertical

**QPSK EIRP POWER FOR LTE BAND 4 (10.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 1715.0MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
3700.4	-29.34	12.42	-16.92	-13.00	Horizontal
3700.4	-33.87	12.42	-21.45	-13.00	Vertical
5550.6	-34.75	14.12	-20.63	-13.00	Vertical
5550.6	-36.36	14.12	-22.24	-13.00	Horizontal
7400.8	-35.79	16.26	-19.53	-13.00	Horizontal
7400.8	-36.12	16.26	-19.86	-13.00	Vertical
<b>Test Results for Mid Channel 1732.5MHz</b>					
3760	-32.65	11.76	-20.89	-13.00	Horizontal
3760	-35.98	11.76	-24.22	-13.00	Vertical
5640	-35.64	14.56	-21.08	-13.00	Vertical
5640	-44.12	14.56	-29.56	-13.00	Horizontal
7520	-38.83	16.6	-22.23	-13.00	Horizontal
7520	-37.49	16.6	-20.89	-13.00	Vertical
<b>Test Results for High Channel 1750.0MHz</b>					
3819.6	-34.12	11.87	-22.25	-13.00	Horizontal
3819.6	-35.39	11.87	-23.52	-13.00	Vertical
5729.4	-39.83	14.66	-25.17	-13.00	Vertical
5729.4	-37.53	14.66	-22.87	-13.00	Horizontal
7639.2	-39.83	16.75	-23.08	-13.00	Horizontal
7639.2	-36.77	16.75	-20.02	-13.00	Vertical

**QPSK EIRP POWER FOR LTE BAND 4 (15.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 1717.5MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
3435	-28.31	12.42	-15.89	-13.00	Horizontal
3435	-35.16	12.42	-22.74	-13.00	Vertical
5125.5	-33.72	14.12	-19.6	-13.00	Vertical
5125.5	-35.26	14.12	-21.14	-13.00	Horizontal
6870	-36.72	16.26	-20.46	-13.00	Horizontal
6870	-37.13	16.26	-20.87	-13.00	Vertical
<b>Test Results for Mid Channel 1732.5MHz</b>					
3760	-33.32	11.76	-21.56	-13.00	Horizontal
3760	-36.52	11.76	-24.76	-13.00	Vertical
5640	-34.19	14.56	-19.63	-13.00	Vertical
5640	-45.26	14.56	-30.7	-13.00	Horizontal
7520	-39.53	16.6	-22.93	-13.00	Horizontal
7520	-41.56	16.6	-24.96	-13.00	Vertical
<b>Test Results for High Channel 1747.5MHz</b>					
3495	-34.29	11.87	-22.42	-13.00	Horizontal
3495	-36.27	11.87	-24.4	-13.00	Vertical
5442.5	-41.06	14.66	-26.4	-13.00	Vertical
5442.5	-38.53	14.66	-23.87	-13.00	Horizontal
6990	-42.13	16.75	-25.38	-13.00	Horizontal
6990	-37.61	16.75	-20.86	-13.00	Vertical

**QPSK EIRP POWER FOR LTE BAND 4 (20.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 1720.0MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
3440	-28.31	12.42	-15.89	-13.00	Horizontal
3440	-32.53	12.42	-20.11	-13.00	Vertical
5160	-33.61	14.12	-19.49	-13.00	Vertical
5160	-37.56	14.12	-23.44	-13.00	Horizontal
6880	-36.19	16.26	-19.93	-13.00	Horizontal
6880	-37.51	16.26	-21.25	-13.00	Vertical
<b>Test Results for Mid Channel 1732.5MHz</b>					
3465	-33.83	11.76	-22.07	-13.00	Horizontal
3465	-36.72	11.76	-24.96	-13.00	Vertical
5197.5	-37.51	14.56	-22.95	-13.00	Vertical
5197.5	-45.86	14.56	-31.3	-13.00	Horizontal
6930	-39.16	16.6	-22.56	-13.00	Horizontal
6930	-36.51	16.6	-19.91	-13.00	Vertical
<b>Test Results for High Channel 1745.0MHz</b>					
3490	-35.18	11.87	-23.31	-13.00	Horizontal
3490	-36.51	11.87	-24.64	-13.00	Vertical
5235	-40.13	14.66	-25.47	-13.00	Vertical
5235	-37.52	14.66	-22.86	-13.00	Horizontal
6980	-40.26	16.75	-23.51	-13.00	Horizontal
6980	-34.13	16.75	-17.38	-13.00	Vertical

**10.1.3. LTE BAND 7**

**QPSK EIRP POWER FOR LTE BAND 7 (5.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 2502.5MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit (dBm)	Polarity
2411	-26.41	8.7	-17.71	-13.00	Horizontal
2411	-27.84	8.7	-19.14	-13.00	Vertical
5005.2	-33.08	4.73	-28.35	-13.00	Horizontal
5005.2	-35.92	4.73	-31.19	-13.00	Vertical
7506.8	-41.55	12.84	-28.71	-13.00	Horizontal
7506.8	-48.61	12.84	-35.77	-13.00	Vertical
10000.16	-51.09	15.53	-35.56	-13.00	Horizontal
10000.16	-54.76	15.53	-39.23	-13.00	Vertical
<b>Test Results for Mid Channel 2535.0MHz</b>					
2414	-28.03	8.67	-19.36	-13.00	Horizontal
2414	-29.41	8.67	-20.74	-13.00	Vertical
5071	-33.07	5.06	-28.01	-13.00	Horizontal
5071	-34.51	5.06	-29.45	-13.00	Vertical
7605.6	-39.76	13.93	-25.83	-13.00	Horizontal
7605.6	-40.16	13.93	-26.23	-13.00	Vertical
10141	-51.76	15.39	-36.37	-13.00	Horizontal
10141	-49.68	15.39	-34.29	-13.00	Vertical
<b>Test Results for High Channel 2567.5MHz</b>					
2405	-28.35	8.75	-19.6	-13.00	Horizontal
2405	-27.61	8.75	-18.86	-13.00	Vertical
5135.2	-33.85	5.45	-28.4	-13.00	Horizontal
5135.2	-34.13	5.45	-28.68	-13.00	Vertical
7702.1	-39.65	14.01	-25.64	-13.00	Horizontal
7702.1	-40.75	14.01	-26.74	-13.00	Vertical
10270	-48.61	15.59	-33.02	-13.00	Horizontal
10270	-47.69	15.59	-32.1	-13.00	Vertical

**QPSK EIRP POWER FOR LTE BAND 7 (10.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 2505.0MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit ( dBm )	Polarity
2441	-27.83	8.43	-19.4	-13.00	Horizontal
2441	-26.48	8.43	-18.05	-13.00	Vertical
5010	-33.75	4.78	-28.97	-13.00	Horizontal
5010	-34.51	4.78	-29.73	-13.00	Vertical
7515.1	-39.64	12.88	-26.76	-13.00	Horizontal
7515.1	-38.76	12.88	-25.88	-13.00	Vertical
<b>Test Results for Mid Channel 2535.0MHz</b>					
2442	-24.33	8.42	-15.91	-13.00	Horizontal
2442	-26.18	8.42	-17.76	-13.00	Vertical
5070	-30.64	5.07	-25.57	-13.00	Horizontal
5070	-33.51	5.07	-28.44	-13.00	Vertical
7605	-42.65	13.93	-28.72	-13.00	Horizontal
7605	-39.64	13.93	-25.71	-13.00	Vertical
<b>Test Results for High Channel 2565.0MHz</b>					
2412	-23.56	8.69	-14.87	-13.00	Horizontal
2412	-24.18	8.69	-15.49	-13.00	Vertical
5130	-32.61	5.36	-27.25	-13.00	Horizontal
5130	-33.75	5.36	-28.39	-13.00	Vertical
7695	-39.64	13.93	-25.71	-13.00	Horizontal
7695	-38.06	13.93	-24.13	-13.00	Vertical

**QPSK EIRP POWER FOR LTE BAND 7 (20.0MHZ BANDWIDTH)**

<b>Test Results for Low Channel 2510.0MHz</b>					
Frequency(MHz)	Power(dBm)	A <sub>Rpl</sub> (dBm)	P <sub>Mea</sub> (dBm)	Limit ( dBm )	Polarity
2405	-24.18	8.75	-15.43	-13.00	Horizontal
2405	-25.38	8.75	-16.63	-13.00	Vertical
5020	-32.09	4.9	-27.19	-13.00	Horizontal
5020	-31.75	4.9	-26.85	-13.00	Vertical
7530	-37.69	12.96	-24.73	-13.00	Horizontal
7530	-39.03	12.96	-26.07	-13.00	Vertical
<b>Test Results for Mid Channel 2535.0MHz</b>					
2440	-26.83	8.44	-18.39	-13.00	Horizontal
2440	-27.68	8.44	-19.24	-13.00	Vertical
5070	-35.98	5.07	-30.91	-13.00	Horizontal
5070	-36.08	5.07	-31.01	-13.00	Vertical
7605	-39.66	13.93	-25.73	-13.00	Horizontal
7605	-40.35	13.93	-26.42	-13.00	Vertical
<b>Test Results for High Channel 2560.0MHz</b>					
2440	-26.36	8.44	-17.92	-13.00	Horizontal
2440	-25.91	8.44	-17.47	-13.00	Vertical
5120	-36.07	5.17	-30.9	-13.00	Horizontal
5120	-37.08	5.17	-31.91	-13.00	Vertical
7680	-39.06	13.83	-25.23	-13.00	Horizontal
7680	-43.86	13.83	-30.03	-13.00	Vertical



## 11. 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  $\pm 2.5$  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. =  $-30^{\circ}$  to  $+50^{\circ}$ C

Voltage = low voltage, 3.4VDC, Normal, 3.8VDC and High voltage, 4.3VDC.

### Frequency Stability vs Temperature:

The EUT is placed inside a temperature chamber. The temperature is set to  $20^{\circ}$ C 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  $+50^{\circ}$ C is reached.

### Frequency Stability vs Voltage:

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

### MODES TESTED

LTE Band 4

LTE Band 7

### RESULTS

See the following pages.

**11.1.1. LTE BAND 4**

**QPSK, (10MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 4 QPSK, (CH 20175 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
3.4	1732.5	2.9	0.001676	2.5
3.8	1732.5	5.0	0.002873	2.5
4.3	1732.5	3.4	0.001949	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 4 QPSK, (CH 20175 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
Normal (25C)	1732.5	5.2	0.002981	2.5
Extreme (50C)	1732.5	-6.1	-0.003542	2.5
Extreme (40C)	1732.5	5.7	0.003303	2.5
Extreme (30C)	1732.5	-4.9	-0.002840	2.5
Extreme (10C)	1732.5	3.8	0.002213	2.5
Extreme (0C)	1732.5	-5.7	-0.003278	2.5
Extreme (-10C)	1732.5	-3.0	-0.001742	2.5
Extreme (-20C)	1732.5	-13.9	-0.008050	2.5
Extreme (-30C)	1732.5	-20.4	-0.011791	2.5

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

**11.1.2. LTE BAND 7**

**QPSK, (10MHz BANDWIDTH)**

**Frequency error vs. Voltage**

Voltage [Vdc]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 7 QPSK, (CH 20800 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
3.4	2505.0	-3.7	-0.001486	2.5
3.8	2505.0	6.5	0.002601	2.5
4.3	2505.0	-6.0	-0.002346	2.5

**Frequency error vs. Temperature**

Temperature [° C]	Frequency [MHz]	Frequency* Error[Hz]	Frequency Error[ppm]	Limit [ppm]
<b>BAND 7 QPSK, (CH 20800 RB size 50 RB Offset 0 10MHz BANDWIDTH)</b>				
Normal (25C)	2505.0	-4.6	-0.001811	2.5
Extreme (50C)	2505.0	-4.3	-0.001736	2.5
Extreme (40C)	2505.0	5.6	0.002233	2.5
Extreme (30C)	2505.0	4.7	0.001852	2.5
Extreme (10C)	2505.0	3.8	0.001472	2.5
Extreme (0C)	2505.0	-6.4	-0.002567	2.5
Extreme (-10C)	2505.0	5.4	0.002168	2.5
Extreme (-20C)	2505.0	-6.6	-0.002557	2.5
Extreme (-30C)	2505.0	-4.3	-0.001664	2.5

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

## 12. Peak-to-Average Ratio

### 12.1.1 DESCRIPTION OF THE PAR MEASUREMENT

The peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

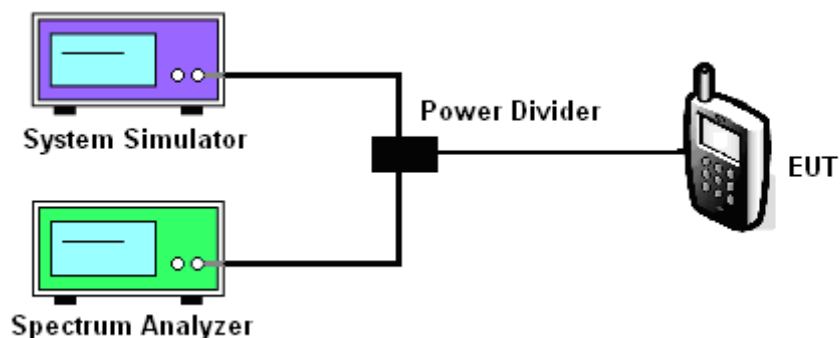
### 12.1.2 MEASURING INSTRUMENTS

See list of measuring instruments of this test report.

### 12.1.3 TEST PROCEDURES

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. For GSM/EGPRS operating modes:
  - a. Set the RBW = 1MHz, VBW = 1MHz, Peak detector in spectrum analyzer.
  - b. Set EUT in maximum power output, and triggered the burst signal.
  - c. Measured respectively the Peak level and Mean level, and the deviation was recorded as Peak to Average Ratio.
4. For UMTS operating modes:
  - a. Set the CCDF (Complementary Cumulative Distribution Function) option in spectrum analyzer.
  - b. The highest RF powers were measured and recorded the maximum PAPR level associated with a probability of 0.1 %.

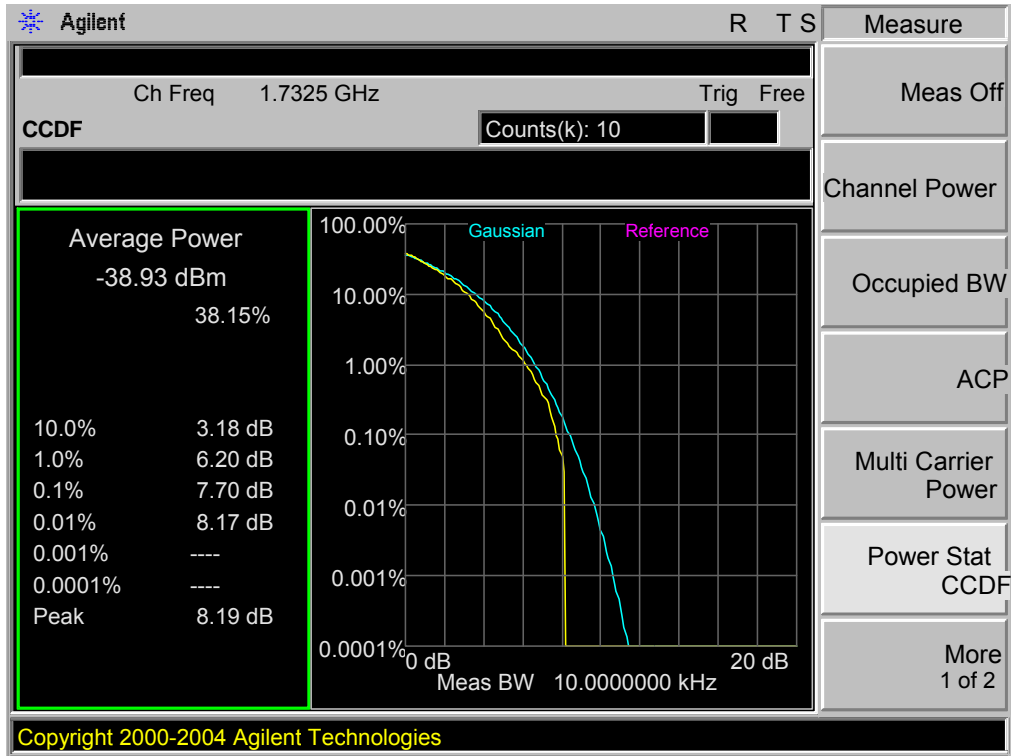
### 12.1.4 TEST SETUP



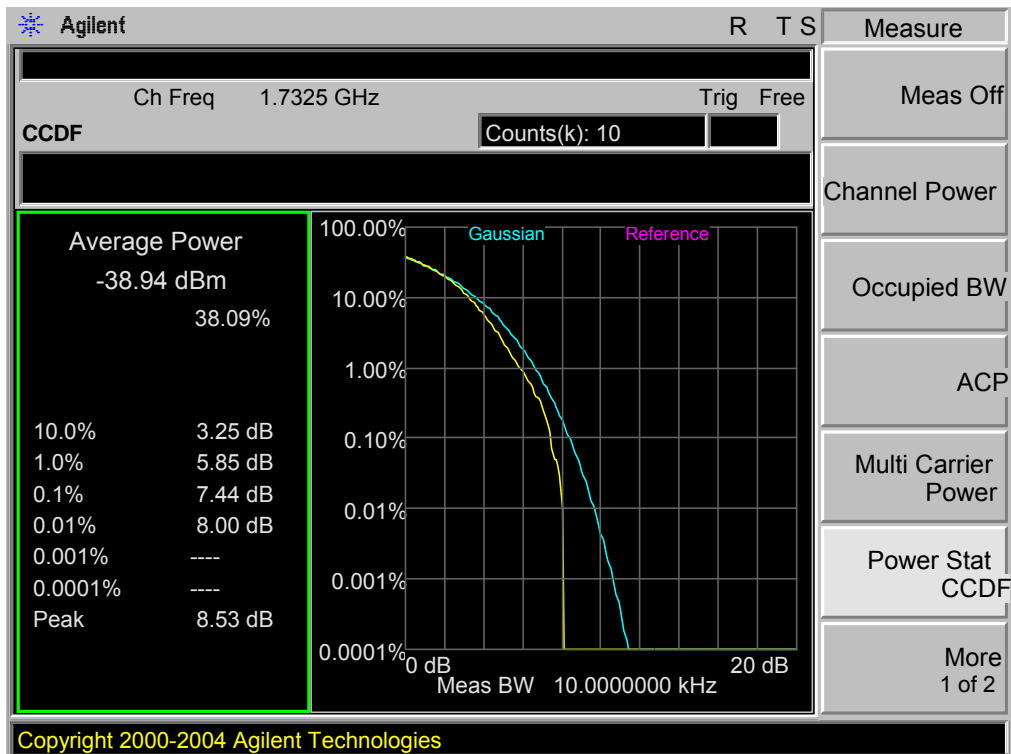
BAND	CHANNEL	Frequency [MHz]	BANDWIDTH	NO. RB	RB POS.	MODULATION	PAR [dB]
4	20175	1732.5	1.4	1	Low	QPSK	7.70
4	20175	1732.5	1.4	1	Low	16QAM	7.44
4	20175	1732.5	3.0	1	Low	QPSK	3.08
4	20175	1732.5	3.0	1	Low	16QAM	3.07
4	20175	1732.5	5.0	1	Low	QPSK	2.52
4	20175	1732.5	5.0	1	Low	16QAM	2.81
4	20175	1732.5	10.0	1	Low	QPSK	2.59
4	20175	1732.5	10.0	1	Low	16QAM	2.87
4	20175	1732.5	15.0	1	Low	QPSK	1.98
4	20175	1732.5	15.0	1	Low	16QAM	2.18
4	20175	1732.5	20.0	1	Low	QPSK	2.73
4	20175	1732.5	20.0	1	Low	16QAM	2.79
7	18900	2315.0	5.0	1	Low	QPSK	8.05
7	18900	2315.0	5.0	1	Low	16QAM	8.40
7	18900	2315.0	10.0	1	Low	QPSK	8.20
7	18900	2315.0	10.0	1	Low	16QAM	8.30
7	18900	2315.0	15.0	1	Low	QPSK	7.90
7	18900	2315.0	15.0	1	Low	16QAM	7.87
7	18900	2315.0	20.0	1	Low	QPSK	8.30
7	18900	2315.0	20.0	1	Low	16QAM	8.03

### 12.1.5. LTE BAND 4

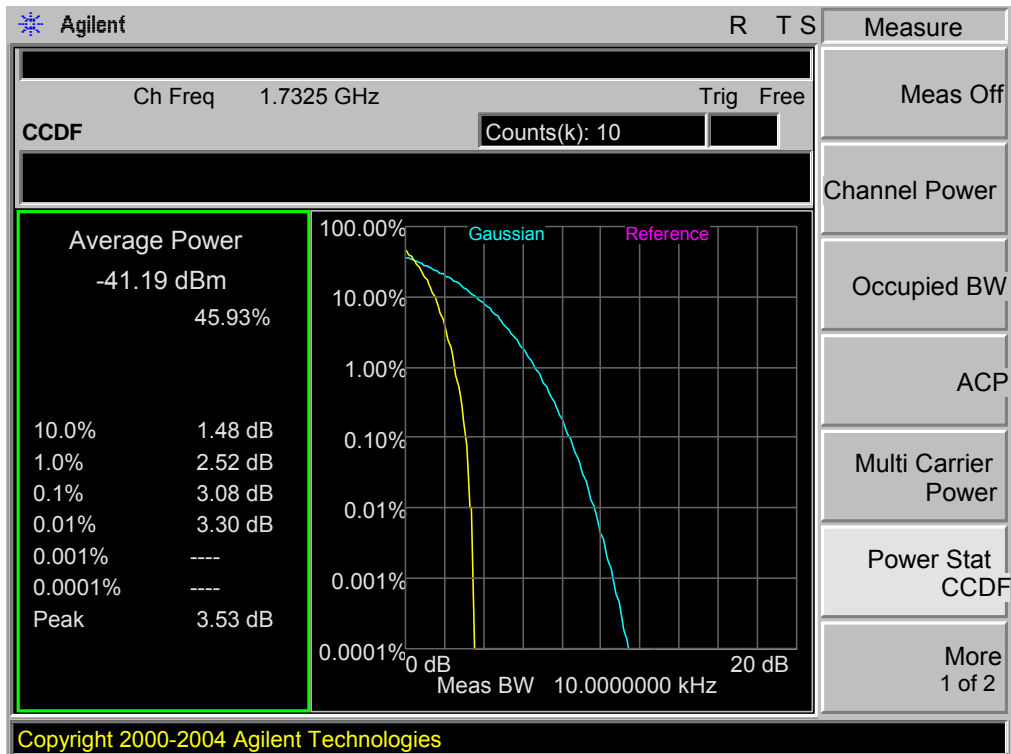
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 1,RB POS. Low,QPSK



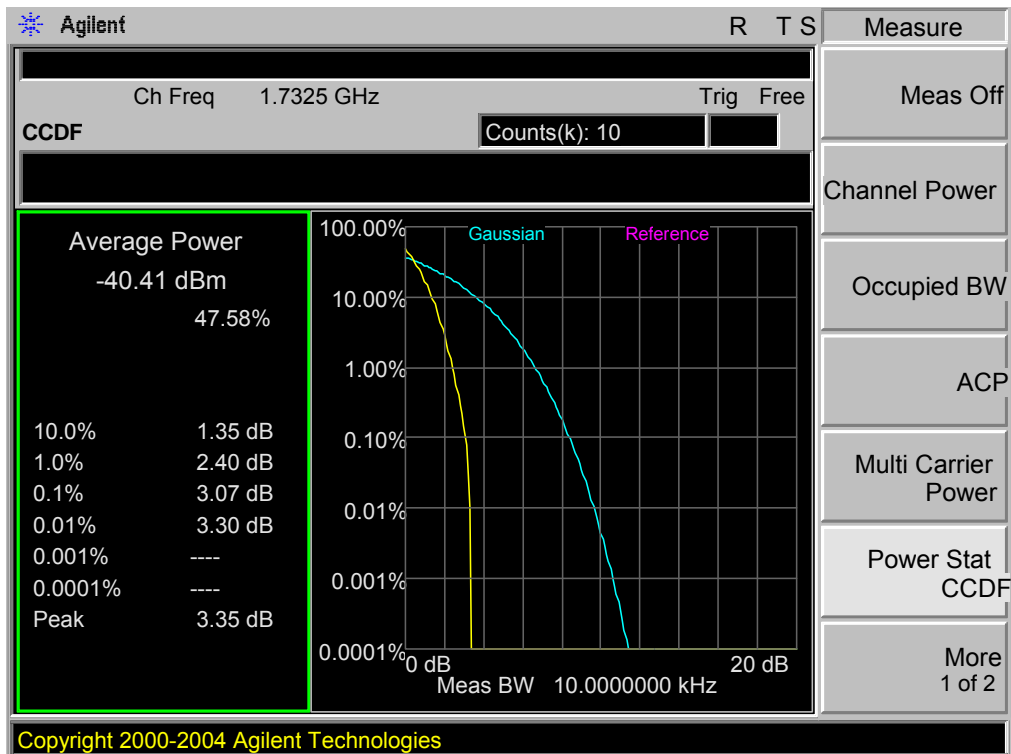
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 1.4,NO. RB 1,RB POS. Low,16QAM



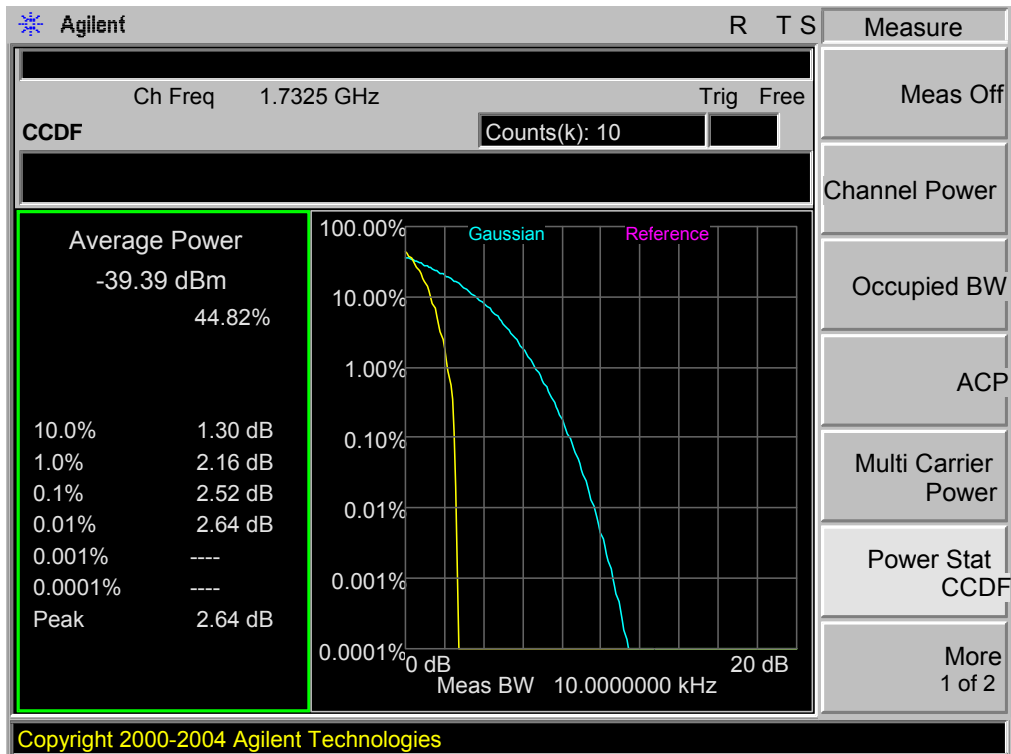
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 1,RB POS. Low,QPSK



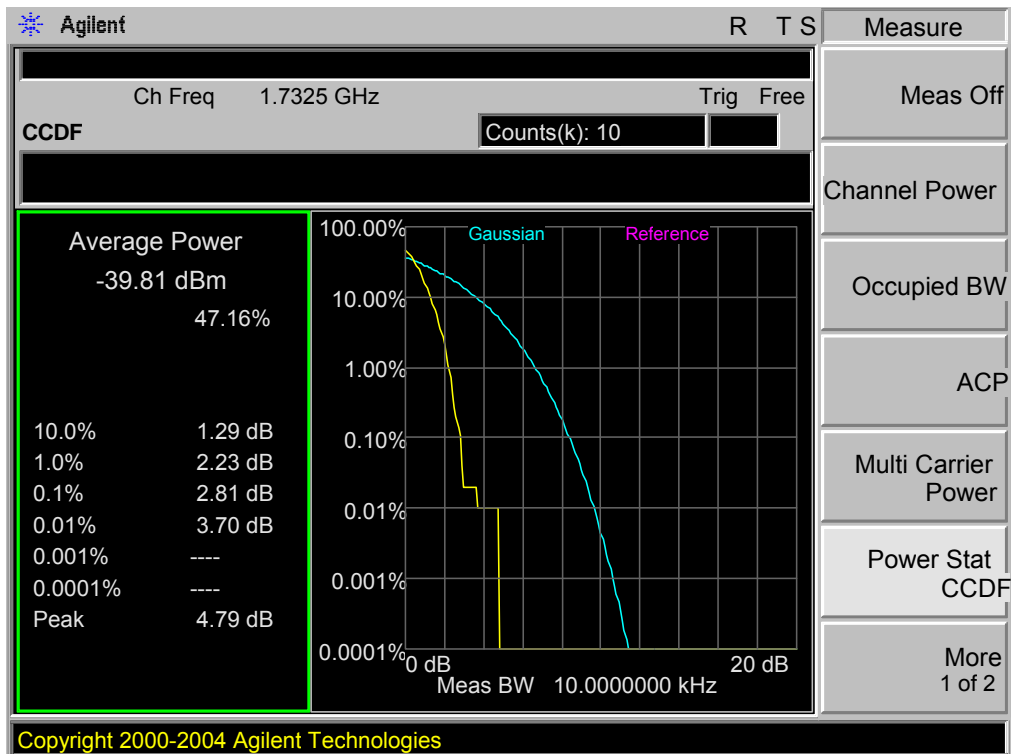
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 3.0,NO. RB 1,RB POS. Low,16QAM



Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 1,RB POS. Low,QPSK

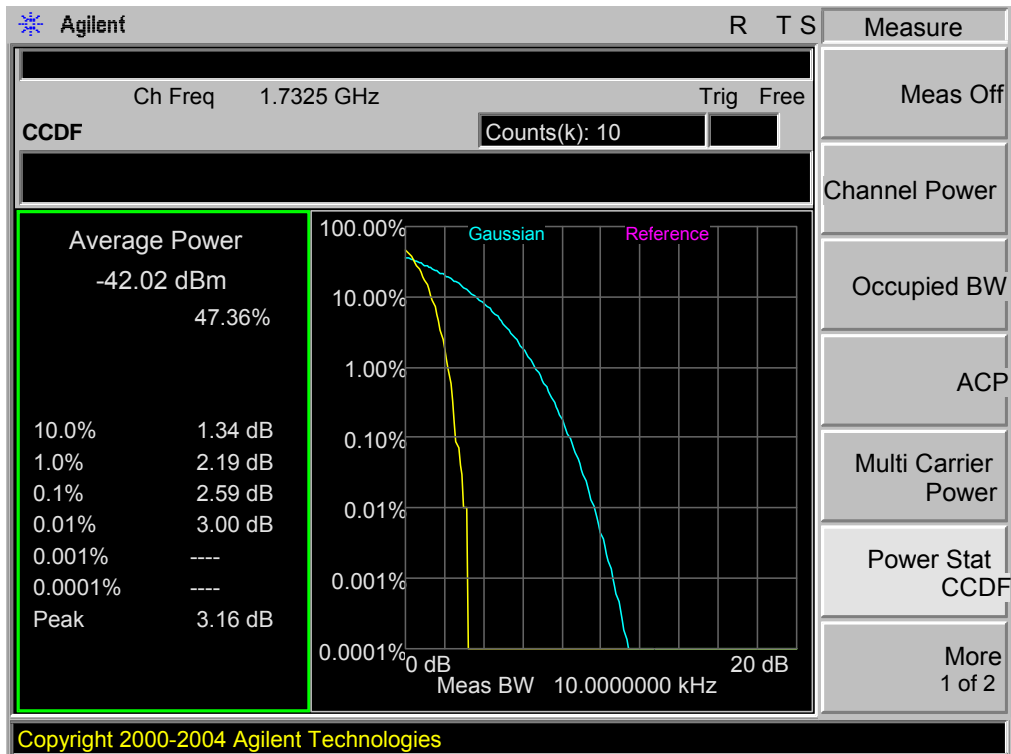


Band 4,UL Channel 20175,UL Frequency 1732.5,BW 5.0,NO. RB 1,RB POS. Low,16QAM

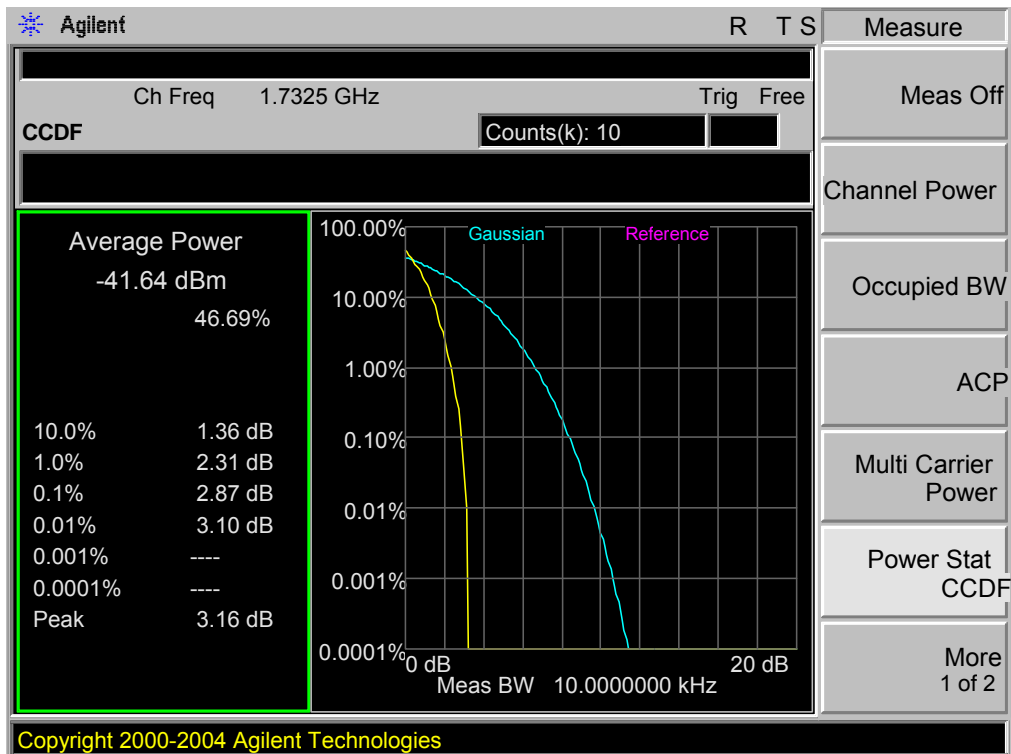




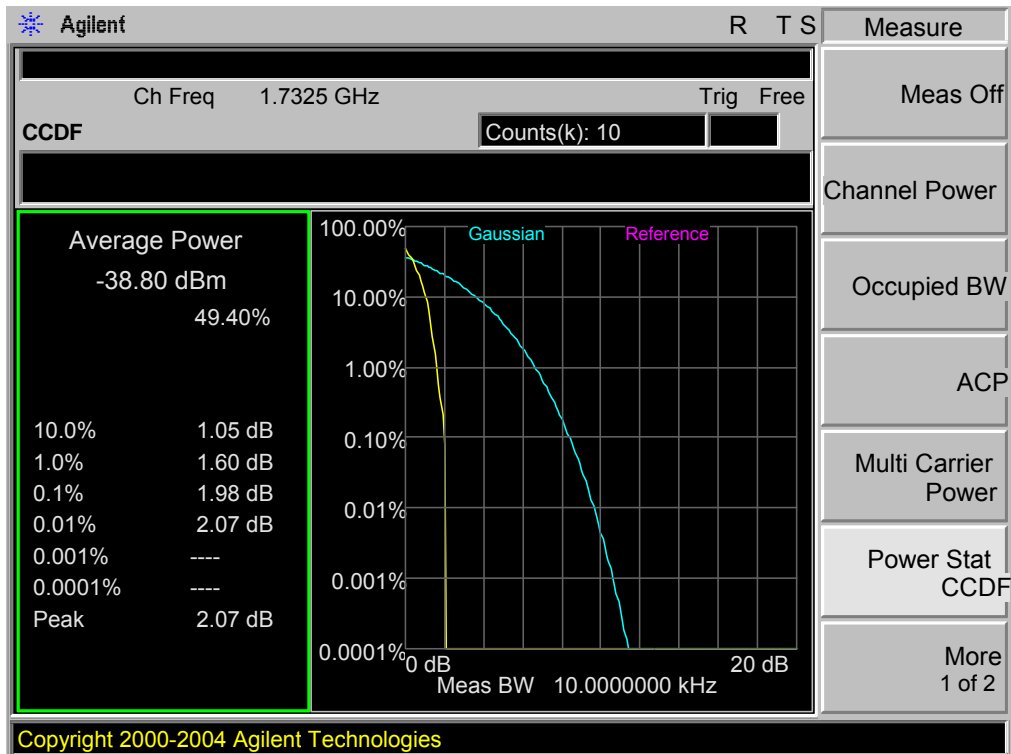
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 1,RB POS. Low,QPSK



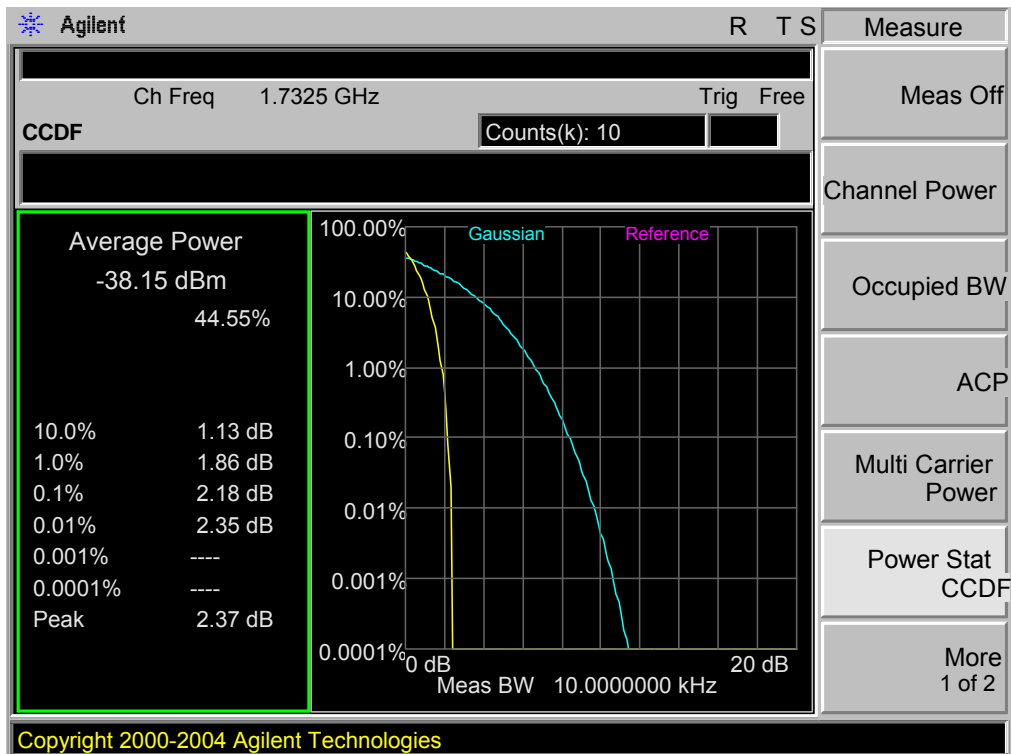
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 10.0,NO. RB 1,RB POS. Low,16QAM



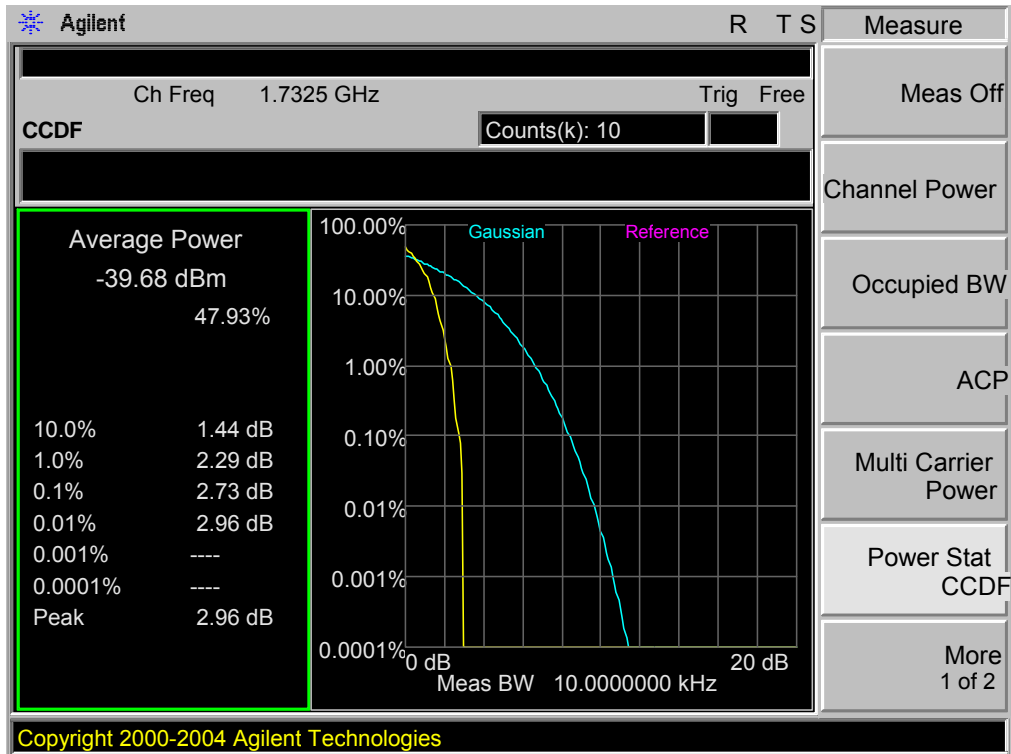
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 1,RB POS. Low,QPSK



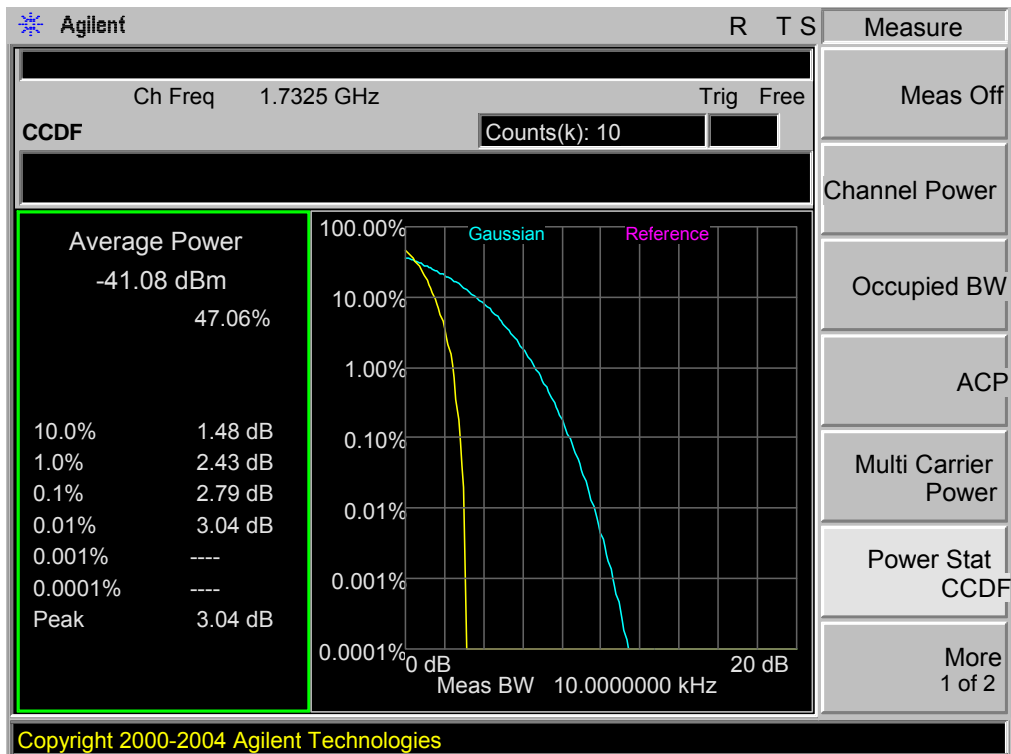
Band 4,UL Channel 20175,UL Frequency 1732.5,BW 15.0,NO. RB 1,RB POS. Low,16QAM



Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 1,RB POS. Low,QPSK

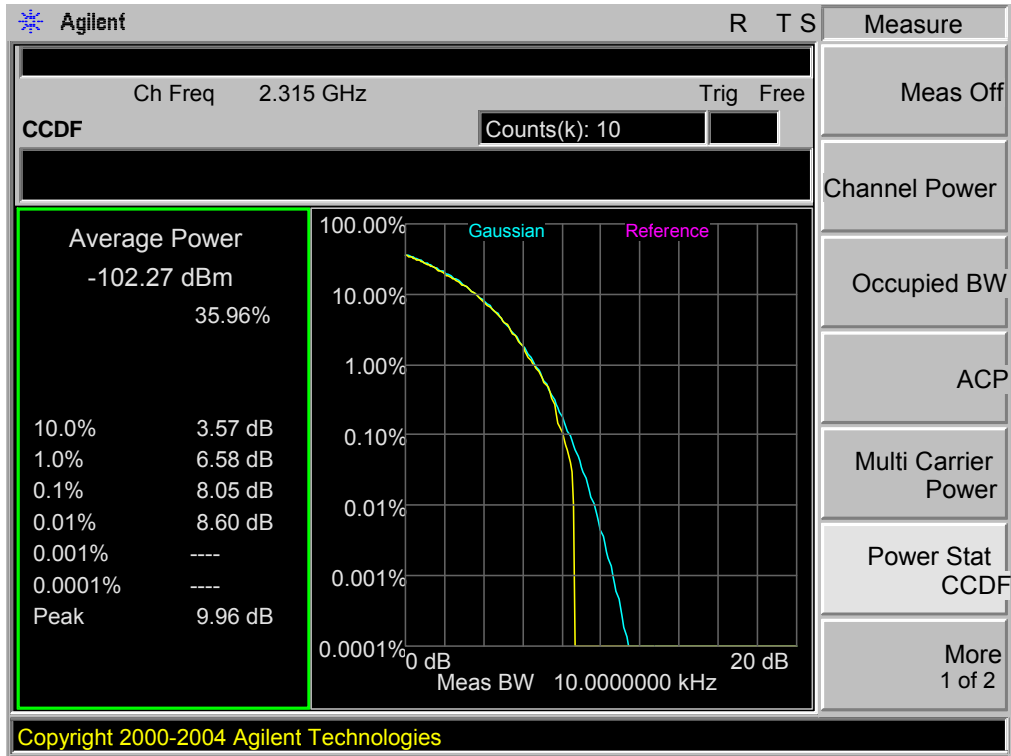


Band 4,UL Channel 20175,UL Frequency 1732.5,BW 20.0,NO. RB 1,RB POS. Low,16QAM

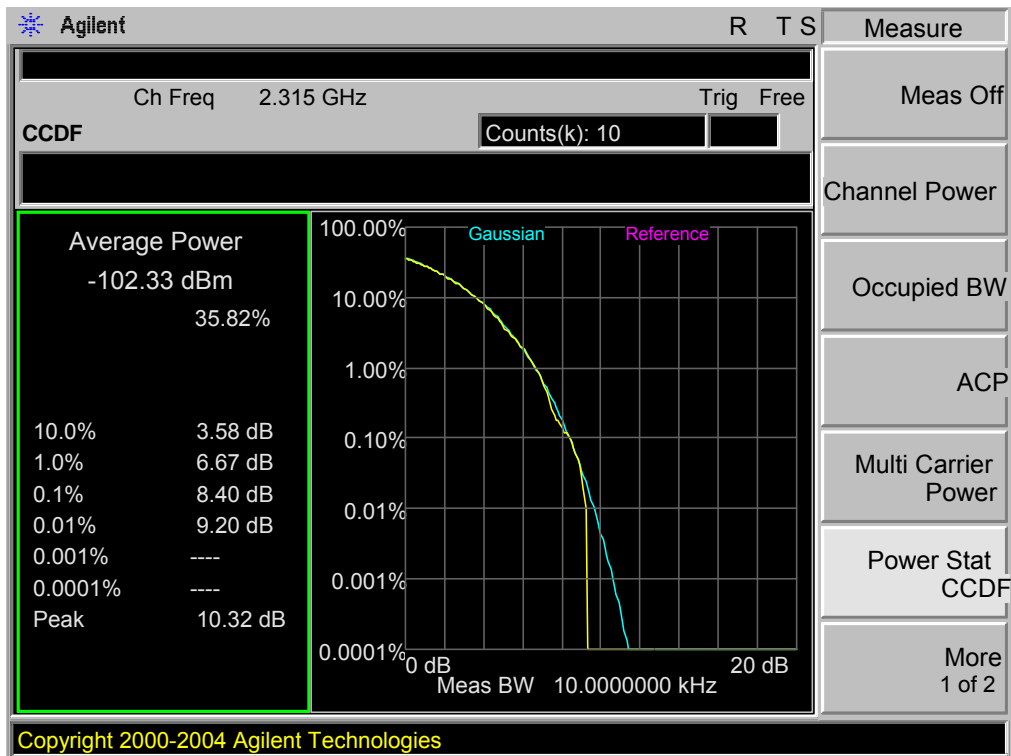


### 12.1.5. LTE BAND 7

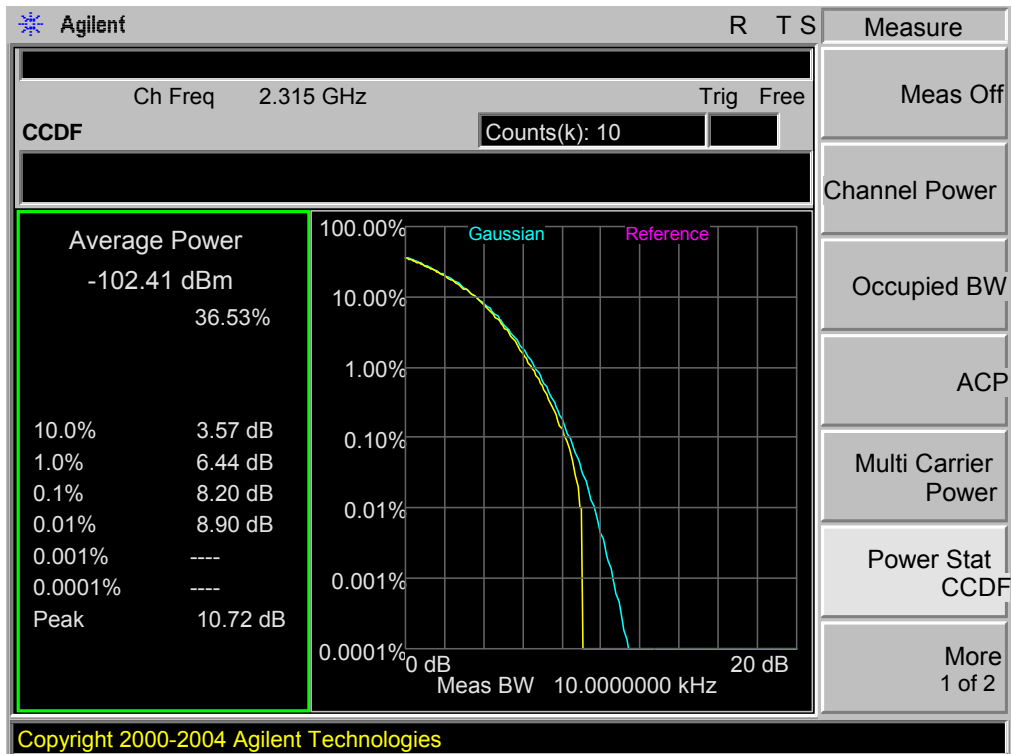
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 5.0,NO. RB 1,RB POS. Low,QPSK



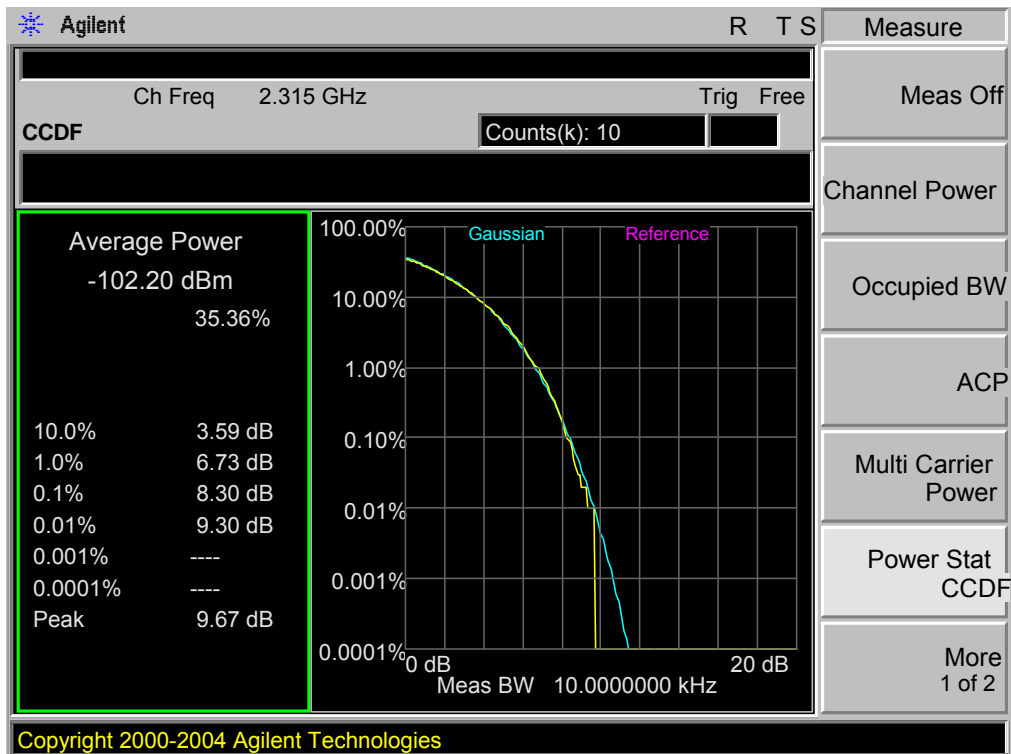
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 5.0,NO. RB 1,RB POS. Low,16QAM



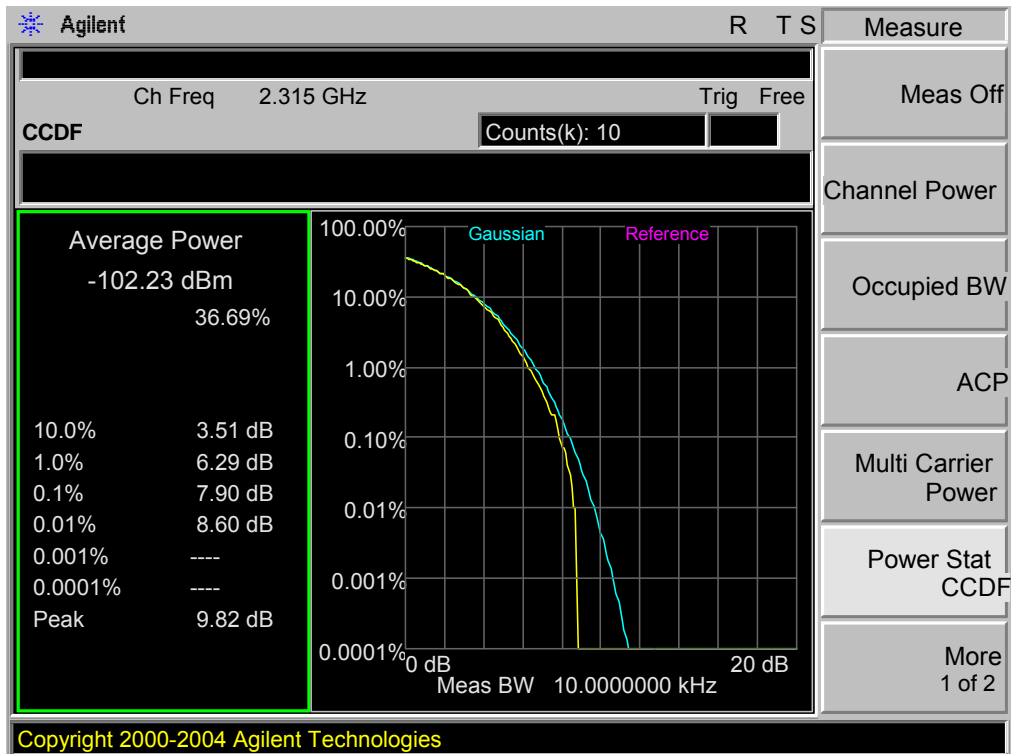
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 10.0,NO. RB 1,RB POS. Low,QPSK



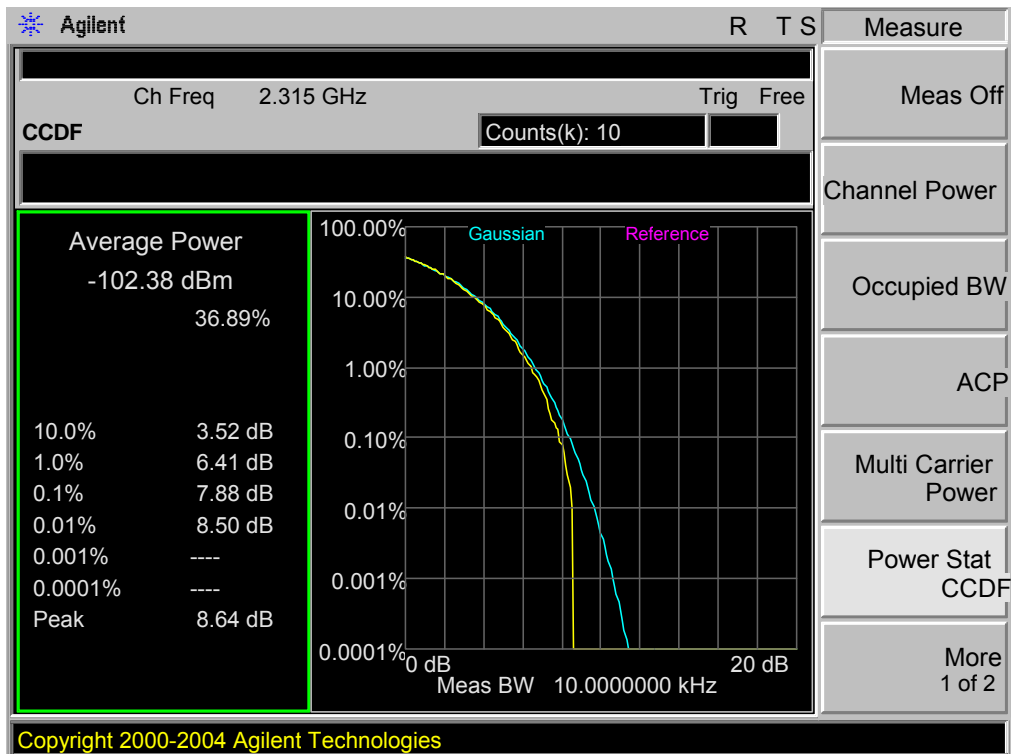
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 10.0,NO. RB 1,RB POS. Low,16QAM



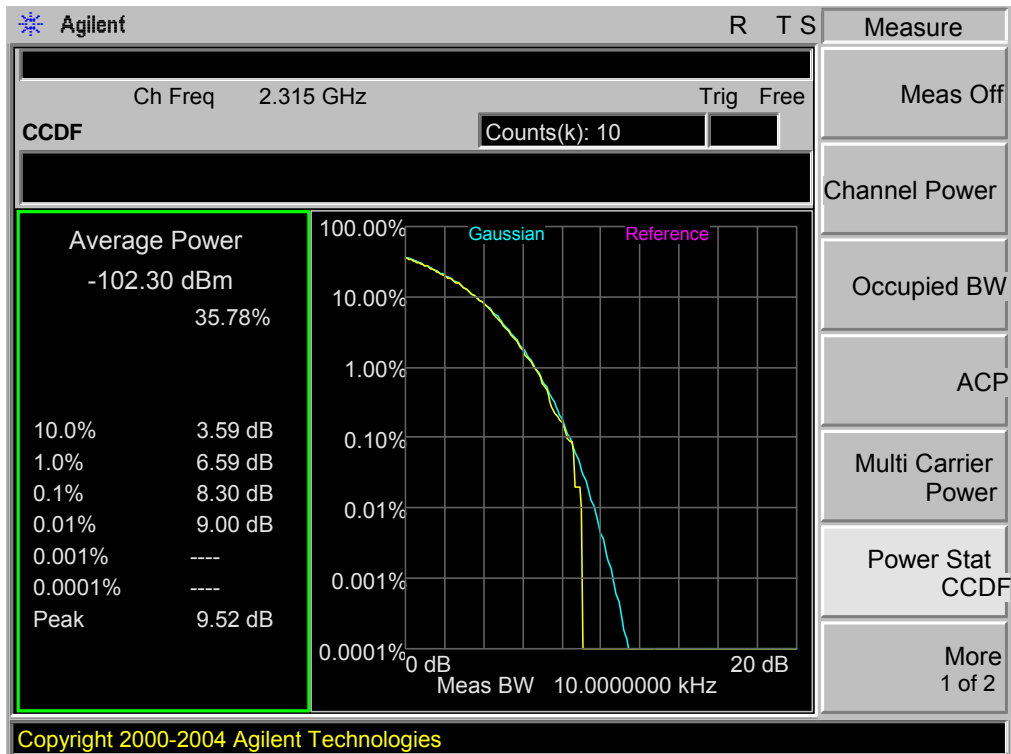
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 15.0,NO. RB 1,RB POS. Low,QPSK



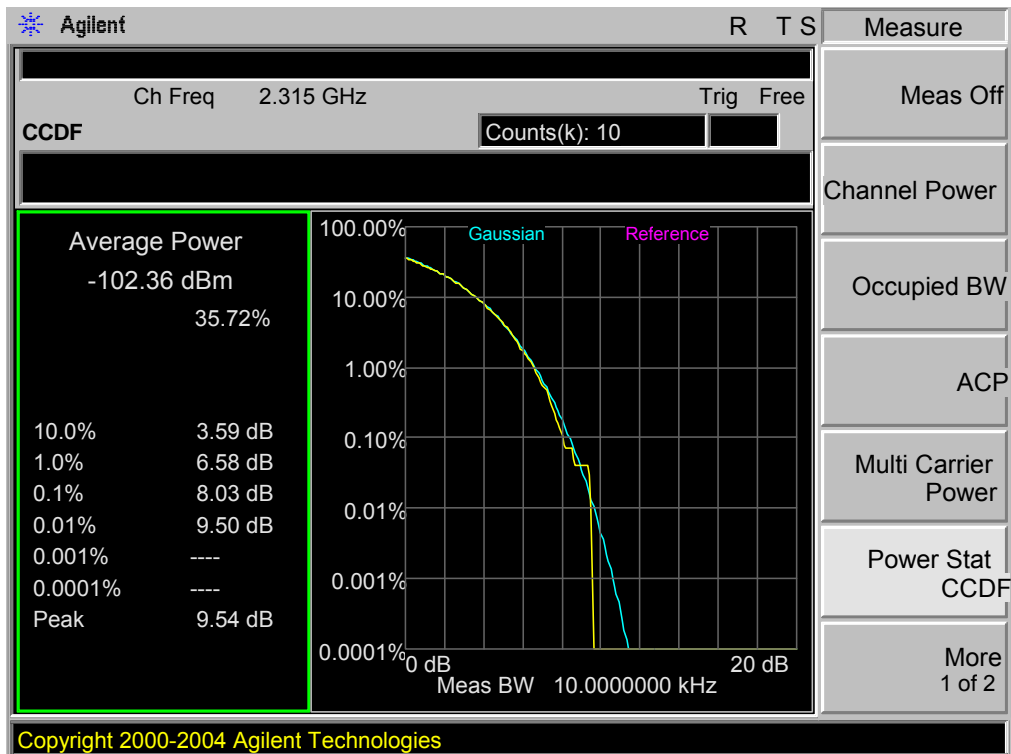
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 15.0,NO. RB 1,RB POS. Low,16QAM



Band 7,UL Channel 18900,UL Frequency 2315.0,BW 20.0,NO. RB 1,RB POS. Low,QPSK



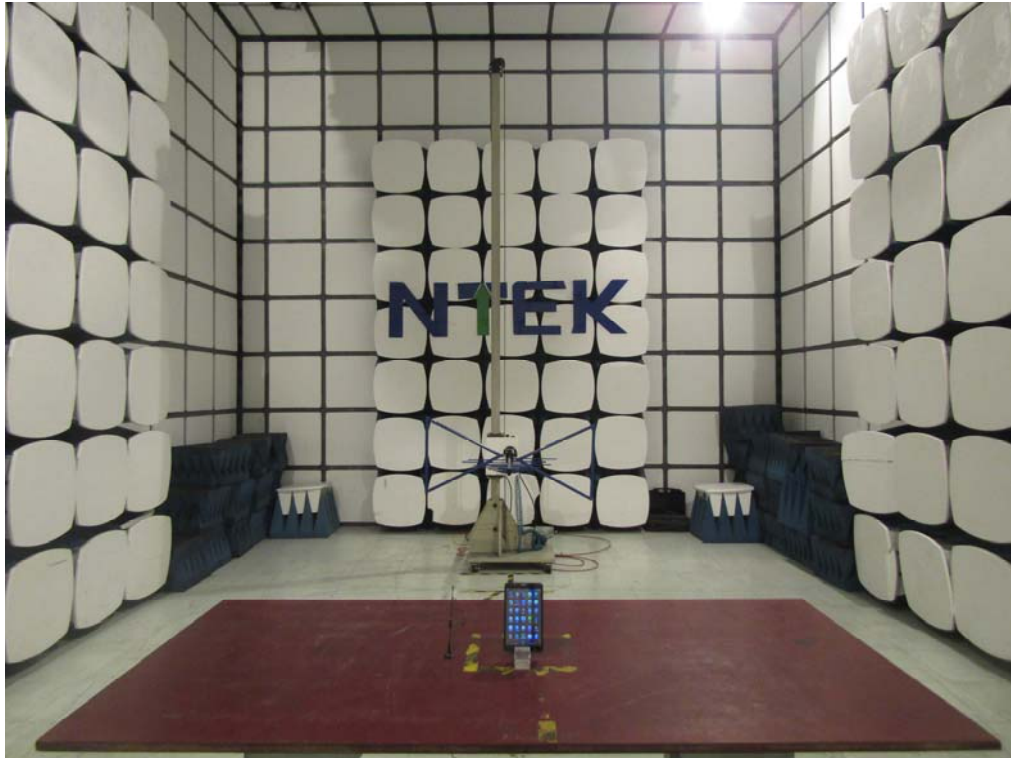
Band 7,UL Channel 18900,UL Frequency 2315.0,BW 20.0,NO. RB 1,RB POS. Low,16QAM



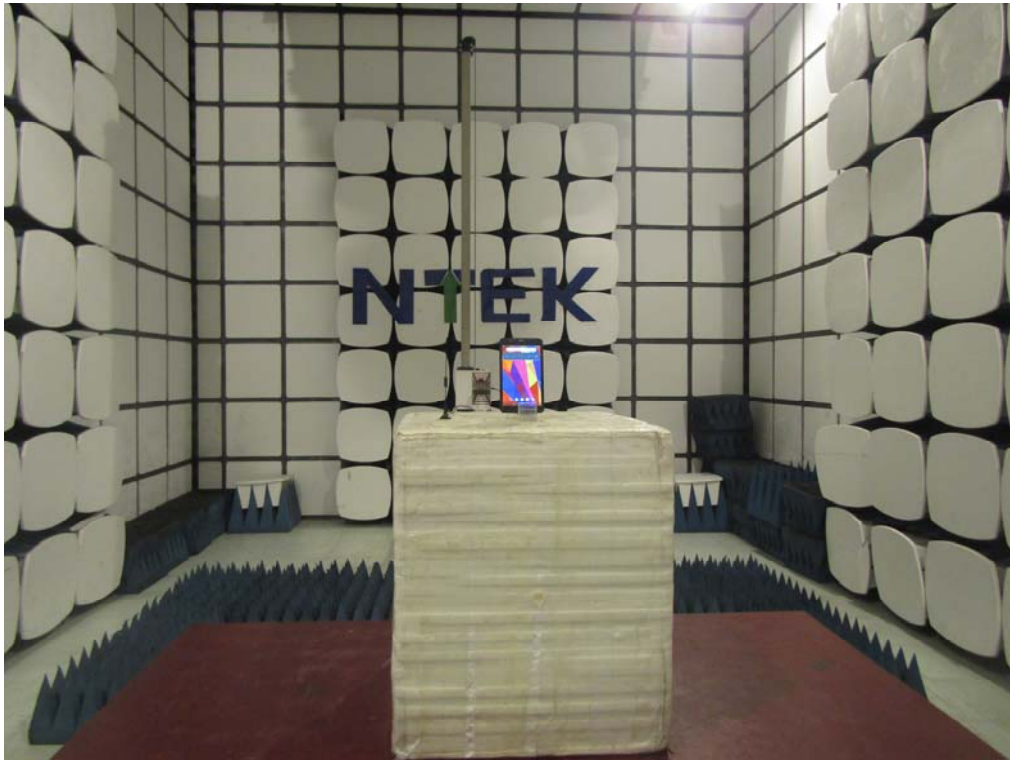
# APPENDIX IV

## PHOTOGRAPHS OF TEST SETUP

### RADIATED SPURIOUS EMISSION







----END OF REPORT----