



FCC&IC RF Test Report

Product Name:
**LTE/HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile
Phone with Bluetooth**

Model Number: HUAWEI U9202L-3, U9202L-3

Report No: SYBH(Z-RF) 016082012-2003
FCC ID: QISU9202L-3
IC ID: 6369A-U9202L3

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Notice

1. The laboratory has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L0310.
2. The laboratory has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 97456.
3. The laboratory has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 6369A-2.
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Applicant: Huawei Technologies Co., Ltd.
Address: Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
Date of Receipt Test Item: Aug.06, 2012
Start Date of Test: Aug.09, 2012
End Date of Test: Aug.29, 2012

Test Result: Pass

Approved By Senior Engineer Sept., 19, 2012 Dai Linjun *Dai Linjun*
 Date Name Signature

Reviewed By Sept., 19, 2012 Cousy Xu *Cousy XU*
 Date Name Signature

Operator Sept., 19, 2012 Huang Qiuliang *Huang Qiuliang*
 Date Name Signature



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1 General Information

1.1 Applied Standard	
Applied Rules:	47 CFR FCC Part 2:2011, Subpart J 47 CFR FCC Part 27:2011, Subpart C&L ANSI/TIA 603C:2004 IC RSS-Gen Issue 3 IC RSS-139 Issue 2
1.2 Test Location	
Test Location 1:	Reliability Laboratory of Huawei Technologies Co., Ltd.
Address:	Administration Building, Headquarters of Huawei Technologies Co., Ltd., Bantian, Longgang District, Shenzhen, 518129, P.R.C
1.3 Test Environment Condition	
Ambient Temperature:	20 – 25 °C
Ambient Relative Humidity:	45 – 55 %
Atmospheric Pressure:	101 kPa

2 Summary

Table 1 Summary of results

Test Case	FCC Part No.	Requirements	Result
AWS Band			
Transmitter Output Power	2.1046 & 27.50(d)	Peak EIRP not exceed 1 W	Pass
Modulation Characteristics	2.1047	Digital modulation	Pass
Occupied Bandwidth	2.1049	(Not specified)	Pass
Band Edges Compliance	2.1051 & 27.53(h)	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	2.1051 & 27.53(h)	Below -43 dBm/1 kHz, 9 kHz to 150 kHz Below -33 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/1 MHz, 30 MHz to 10 th harmonics	Pass
Field Strength of Spurious Radiation	2.1053 & 27.53(h)	Below -13 dBm/1 MHz	Pass
Frequency Stability	2.1055 & 27.54	Stay within the authorized bands of operation	Pass

Table 2 Summary of results

Test Case	IC Standard No.	Requirements	Result
AWS Band			
Transmitter Output Power	RSS-Gen, §4.8; RSS-139, §6.4	EIRP not exceed 1 W Peak-to-average ratio not exceed 13 dB	Pass
Modulation Characteristics	RSS-139, §6.2	Digital modulation	Pass
Occupied Bandwidth	RSS-Gen, §4.6	(Not specified)	Pass
Band Edges Compliance	RSS-Gen, §4.9; RSS-139, §6.5	Below -13 dBm/1%*EBW, in 1 MHz range	Pass
Spurious Emission at Antenna Terminals	RSS-Gen, §4.9; RSS-139, §6.5	Below -43 dBm/1 kHz, 9 kHz to 150 kHz Below -33 dBm/10 kHz, 150 kHz to 30 MHz Below -13 dBm/1 MHz, 30 MHz to 5 th harmonics	Pass
Field Strength of Spurious Radiation	RSS-Gen, §4.9; RSS-139, §6.5	Below -13 dBm/1 MHz	Pass
Frequency Stability	RSS-Gen, §4.7; RSS-139, §6.3	Stay within the authorized frequency block	Pass
Receiver Spurious Emissions (Conducted)	RSS-Gen, §4.10; RSS-Gen, §6; RSS-139, §6.6	Below 2 nW/4 kHz (-57 dBm/4 kHz), for 30 MHz - 1000 MHz Below 5 nW/MHz (-53 dBm/MHz), for above 1 GHz	Pass

3 Product Description

3.1 Production Information

3.1.1 General Description

HUAWEI U9202L-3, U9202L-3 is subscriber equipment in the LTE/UMTS/GSM system. The LTE frequency band is Band IV and Band XVII. The HSPA+/HSUPA/HSDPA/UMTS frequency band is Band I, Band II, Band IV and Band V. Only Band IV can be used in this report. The GSM/GPRS/EDGE frequency band includes GSM850 and DCS1800 and PCS1900. The Mobile Phone implements such functions as RF signal receiving/transmitting, LTE/UMTS/GSM protocol processing, voice, video, MMS service, GPS, AGPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and USIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

3.1.2 Board Information

Table 3 Board Information

LTE/HSPA+/HSUPA/HSDPA/UMTS/GSM/GPRS/EDGE Mobile Phone with Bluetooth		
HUAWEI U9202L-3, U9202L-3		
Board and Module		
Hardware Version	Software Version	Description
Ver.B	U9202L-3V100R001C00B116	Main board of Mobile Phone

3.1.3 Adapter Technical Data

AC/DCAdapter Model	HW-050100U3W
Input Voltage	~100-240V 50/60Hz 0.2A
Output Voltage	5V  1A
Rated Power	5W

3.1.4 Battery Technical Data

Name	Manufacture	Description
Rechargeable Li-ion	Huawei Technologies Co., Ltd.	Battery Model: HB5R1H Rated capacity: 1930mAh Nominal Voltage:  +3.7V Charging Voltage:  +4.2V

4 Test Description

4.1 Supported Frequency Range

Characteristics	Description
Uplink	1710 to 1755 MHz
Downlink	2110 to 2155 MHz

4.2 Transmitter / Receiver Characteristics

Characteristics	Description
System Type	UMTS LTE
TX Output Power (per Antenna Port)	UMTS system: 22.5dBm; LTE system: 22.5dBm;
Channel Spacing(s) / Bandwidth(s)	UMTS system: 5 MHz LTE system: 1.4MHz,3Mhz,5 MHz,10 MHz,15 MHz,20 MHz
Designation of Emissions	UMTS system: 4M17F9W LTE system: 1M08G7D (1.4MHz ,QPSK modulation), 1M09W7D (1.4 MHz ,16QAM modulation), 2M70G7D (3MHz ,QPSK modulation), 2M68W7D (3 MHz ,16QAM modulation), 4M47G7D (5MHz ,QPSK modulation), 4M48W7D (5 MHz ,16QAM modulation), 8M96G7D (10 MHz QPSK modulation), 8M89W7D (10 MHz 16QAM modulation), 13M4G7D (15 MHz QPSK modulation), 13M4W7D (15 MHz 16QAM modulation), 17M8G7D (20 MHz QPSK modulation), 17M9W7D (20 MHz 16QAM modulation),

4.3 Antenna Gain

Antenna Gain(dBi)	1.5
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4.4 Power Supply

Specification	Description
Power Supply Type	Directly Connected to DC /AC Power Supply
Input to EUT (DC power)	DC Voltage Nominal: \approx 3.7 V DC Voltage Range: \approx 3.5 V to 4.2 V
Input to EUT (AC power)	AC Voltage Nominal: ~ 120 V (50/60 Hz) AC Voltage Range: ~100-240V

5 General Test Conditions / Configurations

5.1 RF Channels under Test

Test Mode	TX / RX	RF Channel		
		Bottom (B)	Middle (M)	Top (T)
TM1/TM2/TM3	TX	Channel1312(B)	Channel1412(M)	Channel1513(T)
		1712.4MHz	1732.4MHz	1752.6MHz
	RX	Channel 1537	Channel 1637	Channel 1738
		2112.4 MHz	2132.4 MHz	2152.6 MHz
TM4/TM5	TX(1.4M)	Channel 19957	Channel 20175	Channel 20393
		1710.7MHz	1732.5 MHz	1754.3 MHz
	RX(1.4M)	Channel 1957	Channel 2175	Channel 2393
		2110.7 MHz	2132.5MHz	2154.3 MHz
	TX(3M)	Channel 19965	Channel 20175	Channel 20385
		1711.5 MHz	1732.5 MHz	1753.5 MHz
	RX(3M)	Channel 1965	Channel 2175	Channel 2385
		2111.5 MHz	2132.5MHz	2153.5 MHz
	TX(5M)	Channel 19975	Channel 20175	Channel 20375
		1712.5 MHz	1732.5 MHz	1752.5 MHz
	RX(5M)	Channel 1975	Channel 2175	Channel 2375
		2112.5 MHz	2132.5MHz	2152.5 MHz
	TX(10M)	Channel 20000	Channel 20175	Channel 20350
		1715 MHz	1732.5 MHz	1750 MHz
	RX(10M)	Channel 2000	Channel 2175	Channel 2350



Test Mode	TX / RX	RF Channel		
		Bottom (B)	Middle (M)	Top (T)
		2115 MHz	2132.5MHz	2150 MHz
		Channel 20025	Channel 20175	Channel 20325
	TX(15M)	1717.5 MHz	1732.5 MHz	1747.5 MHz
		Channel 2025	Channel 2175	Channel 2325
	RX(15M)	2117.5 MHz	2132.5MHz	2147.5 MHz
		Channel 2050	Channel 20175	Channel 20300
	TX(20M)	1720 MHz	1732.5 MHz	1745 MHz
		Channel 2050	Channel 2175	Channel 2300
	RX(20M)	2120 MHz	2132.5MHz	2145 MHz

5.2 Test Modes

Test Mode	Test Modes Description
TM1	WCDMA ,QPSK modulation
TM2	HSDPA , QPSK modulation
TM3	HSUPA , QPSK modulation
TM4	LTE , QPSK modulation
TM5	LTE , 16QAM modulation

Note:

HSPA+ implementation of this device, 16QAM is not used for uplink. The uplink Category and release number is same as HSUPA, RF test is evaluation is not required.

5.3 Test Environments

Environment Parameter	Selected Values During Tests	
Relative Humidity	Ambient	
Temperature	TN	Ambient
Voltage	VL	3.5V
	VN	3.7V
	VH	4.2V

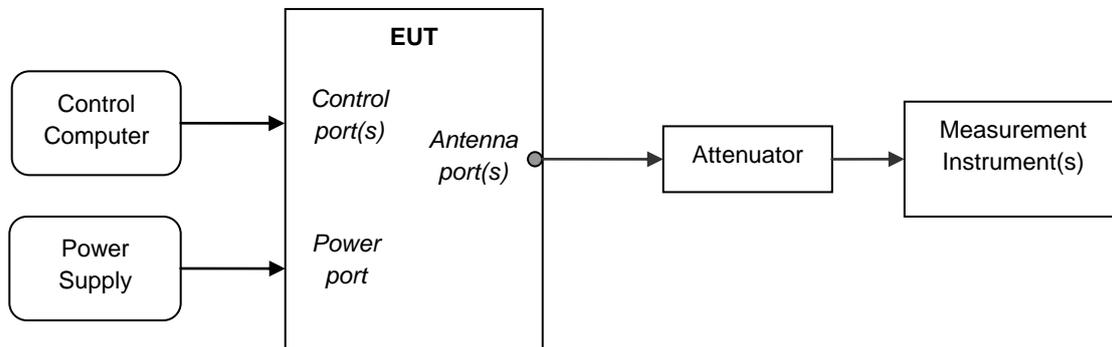
NOTE: VL= lower extreme test voltages
 VN= nominal voltage
 VH= upper extreme test voltage
 TN= normal temperature

5.4 Test Setups

5.4.1 General Test Setup Configurations

Configuration	Description
Test Antenna Ports	Until otherwise declared, all TX tests are ONLY performed at the main Transmitter antenna port (e.g. TRXA, TXA and so on) of the EUT, and all RX tests are ONLY performed at the main Receiver antenna port (e.g. TRXA, RXA and so on) of the EUT.
Multiple RF Sources	Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.

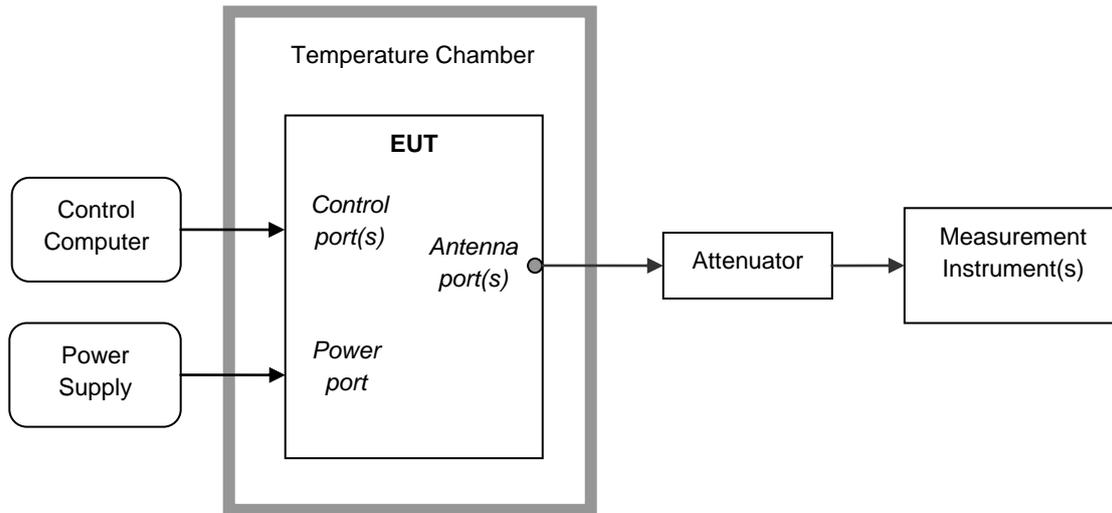
5.4.2 Test Setup 1



Note

A peak to average ratio measurement is performed at the conducted port of the EUT. For WCDMA and LTE signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. The traces are generated with the spectrum analyzer set to zero span mode.

5.4.3 Test Setup 2



5.4.4 Test Setup 3

NOTE1: Effective radiated power (ERP) or Effective Isotropic radiated power (EIRP) refers to the EUT radiation power output, assuming all emissions are radiated from half-wave dipole antennas or horn antennas.

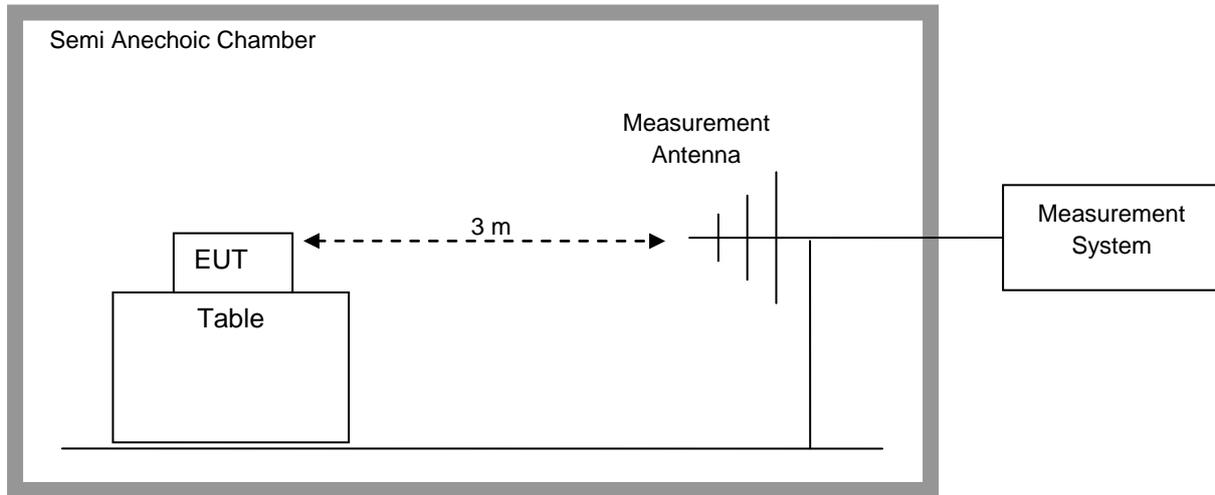
NOTE2: The EUT was set on insulator 80cm above the Ground Plane. The setup and test methods were according to ANSI-TIA-603C 2004. The measurements were carried through with a Rohde and Schwarz Test Receiver and control software.

Step 1: Pre-test

1. Connect the test system according to the following figure. EUT is running for 30 minutes before test, and measurement instruments are warming-up for 30 minutes.
2. Set up communication link between Universal radio communication tester and EUT, set EUT working frequency, and control EUT to transmit at maximum power.
3. Set the center frequency of the signal analyzer or receiver to the EUT's operating frequency, the RBW is equal to the emission bandwidth of the signal. Set RMS detector for the test, and the span is equal to 2 times of emission bandwidth, the other settings should remain automatic. Normally, the height range of antenna was 1m to 4m, the azimuth range of turntable was 0° to 360°. The receiver antenna has two polarizations V and H. A portable or small unlicensed wireless device shall be placed on a non-metallic test fixture or other non-metallic support during testing. The supporting fixture shall permit orientation of the EUT in each of three orthogonal (x, y, z) axis positions such that emissions from the EUT are maximized. Measure the EUT maximum RF power and record the result.

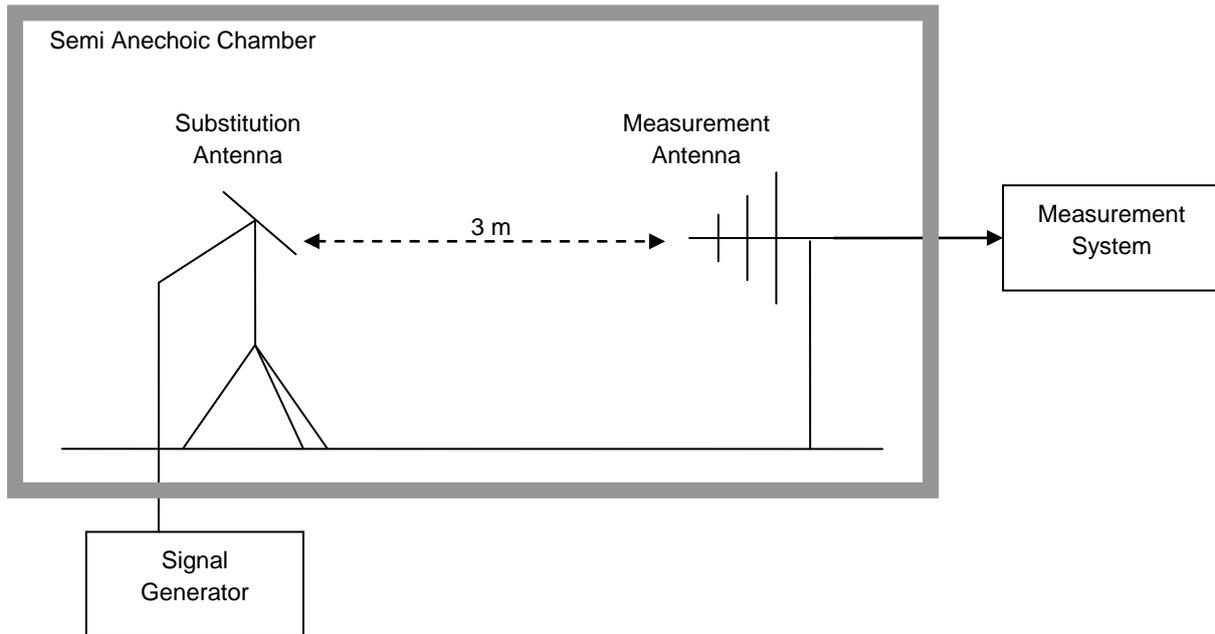
4. Changing EUT working frequency and measuring the RF power at channel T, M, B respectively.
Complete the test data.

Step 1: Pre-test



Step 2: Substitution method to verify the maximum EIRP

1. Measurement setup is according to the following figure. EUT was substituted by antenna, and the polarization is identical with the test antenna; the signal generator was connected to the substitution antenna.
2. The radiated output power, measured by signal analyzer set, is the same as recorded in above. Then this power level is matched by a signal from a calibrated signal generator which is substituted for EUT. The power supplied by the generator is then equal to the ERP or EIRP after corrected by the antenna gain and cable loss.



5.5 Test Conditions

Test Case	Test Conditions	
Transmitter Output Power	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1 & Test Setup 3
	Detector	RMS
	RF Channels (TX)	B, M, T
	Test Mode	TM1/TM2/TM3/TM4/TM5
Modulation Characteristics	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	RF Channels (TX)	M
	Test Mode	TM1/TM4/TM5
Occupied Bandwidth	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	RMS
	RF Channels (TX)	B, M, T
	Test Mode	TM1/TM4/TM5
Band Edges Compliance	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	RMS
	RF Channels (TX)	B, T
	Test Mode	TM1/TM4/TM5
Spurious Emission at Antenna Terminals	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 1
	Detector	PK
	RF Channels (TX)	B, M, T
	Test Mode	TM1/TM4/TM5
Field Strength of Spurious Radiation	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 3
	Detector	PK
	RF Channels (TX)	M
	Test Mode	TM1/TM2/TM3/TM4/TM5
Frequency Stability	Test Configuration	(1) -30 °C to +50 °C with step 10 °C at Rated Voltage; (2) VL, VH and VN Voltage at Ambient Temperature.
	Test Setup	Test Setup 2
	RF Channels (TX)	M



Test Case	Test Conditions	
	Test Mode	TM1/TM4
Receiver Spurious Emissions	Test Configuration	Ambient Temperature & Rated Voltage
	Test Setup	Test Setup 3
	Detector	QP,PK, AV
	RF Channels (TX)	M
	Test Mode	TM1/TM2/TM3/TM4/TM5

6 Main Test Instruments

Table 4 Main Test Equipments

Equipment Description	Manufacturer	Model	Serial Number	Calibrated until
Power supply	KEITHLEY	2303	1288003	Sept., 27,2012
Universal Radio Communication Tester	R&S	CMU200	117341	Jan., 12,2013
Universal Radio Communication Tester	Agilent	E5515C	MY50260239	Aug., 30,2013
Spectrum Analyzer	Agilent	E4440A	MY49420179	Jul., 17,2013
Signal Analyzer	Agilent	N9020A	MY52090652	Jul., 17,2013
Signal Analyzer	R&S	FSQ31	200021	Sept., 27,2012
Temperature Chamber	WEISS	WKL64	24600294	Feb.,13,2013
Signal generator	Agilent	E8257D	MY49281095	Jul.,09,2013
Spectrum analyzer	R&S	FSU3	200474	Mar., 05, 2013
Spectrum analyzer	R&S	FSU43	100144	Mar., 05, 2013
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100304	Apr., 05, 2013
Double-Ridged Waveguide Horn Antenna (1G~18GHz)	R&S	HF907	100391	Apr., 05, 2013
Trilog Broadband Antenna (30M~3GHz)	SCHWARZBECK	VULB 9163	9163-521	Jul., 07, 2013
Pyramidal Horn Antenna(26GHz-40GHz)	ETS-Lindgren	3160-10	00123940	Feb., 27, 2013
Pyramidal Horn Antenna(18GHz-26.5GHz)	ETS-Lindgren	3160-09	00125912	Feb., 27, 2013
Universal Radio Communication Tester	R & S	CMW500	20347676	Sept., 06, 2013
Universal Radio Communication Tester	Anritsu	MT8820C	6200971028	May, 04, 2013



Note: All the equipments are calibrated once a year. When it's almost due, we will arrange calibration again before the calibration deadline.

7 Test Results

No.	Test Item	Test Result
1	Transmitter Output Power	Appendix A
2	Modulation Characteristics	Appendix B
3	Occupied Bandwidth	Appendix C
4	Band Edges Compliance	Appendix D
5	Spurious Emission at Antenna Terminals	Appendix E
6	Field Strength of Spurious Radiation	Appendix F
7	Frequency Stability	Appendix G
8	Receiver Spurious Emissions	Appendix H
9	Photos of Test Setup	Appendix I

NOTE: The Appendix I only photos of test setup for Field Strength of Spurious Radiation and Receiver Spurious Emissions, no test data.

8 Measurement Uncertainty

For a 95% confidence level ($k=2$), the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 as following:

Test Item		Extended Uncertainty
Transmitter Output Power	Power (dBm)	U =0.39 dB
Occupied Bandwidth	Magnitude (%)	U=0.2%
Band Edge Compliance	Disturbance Power (dBm)	U=2.0 dB
Conducted Spurious Emissions	Disturbance Power (dBm)	U=2.0 dB
Field Strength of Spurious Radiation	ERP (dBm)	U=4.6 dB (30 MHz – 1GHz) U=3.0 dB (above 1 GHz)
Frequency Stability	Frequency Accuracy (ppm)	U=0.21 ppm

-----The END-----



Appendix A

Transmitter Output Power According to FCC Part 2.1046 & Part 27.50(d) & RSS-139



Conducted Power of Transmitter

Table 1 Measurement Results

TEST CONDITIONS		RF Output Power (Conducted)					
		Channel 1312(B)		Channel 1412(M)		Channel 1513(T)	
		1712.4MHz		1732.4MHz		1752.6MHz	
		dBm		dBm		dBm	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		22.28	30	22.34	30	22.31	30
TM2	Case1	21.53	30	21.62	30	21.64	30
	Case2	21.37	30	21.42	30	21.44	30
	Case3	20.69	30	20.87	30	20.93	30
	Case4	20.74	30	20.85	30	20.77	30
TM3	Case1	20.84	30	20.68	30	20.73	30
	Case2	18.31	30	18.24	30	18.28	30
	Case3	20.21	30	20.19	30	20.09	30
	Case4	20.82	30	20.68	30	20.21	30
	Case5	20.74	30	20.64	30	20.63	30

Note: RBW > emission bandwidth, VBW > 3 x RBW.



Table 2 Measurement Results (LTE) BAND 4

RF Output Power(Conducted) BAND 4				
Test Mode	TN/VN			
	Modulation	RB	Measured (dBm)	Limit (dBm)
Channel (B) 1.4MHz(BW)	QPSK	1RB#0	22.48	30
		1RB#max	22.51	30
		3RB#2	22.55	30
		Full	21.59	30
	16QAM	1RB#0	22.54	30
		1RB#max	22.61	30
		3RB#2	21.52	30
		Full	20.42	30
Channel (B) 3MHz(BW)	QPSK	1RB#0	22.53	30
		1RB#max	22.46	30
		8RB#4	21.48	30
		Full	21.37	30
	16QAM	1RB#0	22.11	30
		1RB#max	22.06	30
		8RB#4	20.57	30
		Full	20.45	30
Channel (B) 5MHz(BW)	QPSK	1RB#0	22.63	30
		1RB#max	22.6	30
		12RB#6	21.48	30
		Full	21.32	30
	16QAM	1RB#0	21.84	30
		1RB#max	21.81	30
		12RB#6	20.52	30
		Full	20.33	30
Channel (B) 10MHz(BW)	QPSK	1RB#0	22.52	30
		1RB#max	22.53	30
		25RB#13	21.29	30
		Full	21.24	30
	16QAM	1RB#0	21.4	30
		1RB#max	21.39	30
		25RB#13	20.36	30
		Full	20.24	30
Channel (B) 15MHz(BW)	QPSK	1RB#0	22.55	30
		1RB#max	22.48	30
		36RB#18	21.21	30



	16QAM	Full	21.32	30
		1RB#0	21.41	30
		1RB#max	21.36	30
		36RB#18	20.31	30
		Full	20.25	30
Channel (B) 20MHz(BW)	QPSK	1RB#0	22.57	30
		1RB#max	22.55	30
		50RB#25	21.15	30
		Full	21.31	30
	16QAM	1RB#0	21.42	30
		1RB#max	21.41	30
		50RB#25	20.14	30
		Full	20.24	30
Channel (M) 1.4MHz(BW)	QPSK	1RB#0	22.53	30
		1RB#max	22.53	30
		3RB#2	22.56	30
		Full	21.54	30
	16QAM	1RB#0	21.26	30
		1RB#max	21.25	30
		3RB#2	21.74	30
		Full	20.48	30
Channel (M) 3MHz(BW)	QPSK	1RB#0	22.61	30
		1RB#max	22.6	30
		8RB#4	21.54	30
		Full	21.53	30
	16QAM	1RB#0	21.49	30
		1RB#max	21.47	30
		8RB#4	20.51	30
		Full	20.49	30
Channel (M) 5MHz(BW)	QPSK	1RB#0	22.63	30
		1RB#max	22.59	30
		12RB#6	21.5	30
		Full	21.42	30
	16QAM	1RB#0	21.41	30
		1RB#max	21.95	30
		12RB#6	20.58	30
		Full	20.38	30
Channel (M) 10MHz(BW)	QPSK	1RB#0	22.52	30
		1RB#max	22.56	30
		25RB#13	21.43	30



	16QAM	Full	21.32	30
		1RB#0	21.38	30
		1RB#max	21.44	30
		25RB#13	20.36	30
		Full	20.33	30
Channel (M) 15MHz(BW)	QPSK	1RB#0	22.48	30
		1RB#max	22.55	30
		36RB#18	21.28	30
		Full	21.23	30
	16QAM	1RB#0	21.32	30
		1RB#max	21.45	30
		36RB#18	20.36	30
		Full	20.23	30
Channel (M) 20MHz(BW)	QPSK	1RB#0	22.49	30
		1RB#max	22.48	30
		50RB#25	21.32	30
		Full	21.41	30
	16QAM	1RB#0	21.42	30
		1RB#max	21.35	30
		50RB#25	20.26	30
		Full	20.31	30
Channel(T) 1.4MHz(BW)	QPSK	1RB#0	22.61	30
		1RB#max	22.58	30
		3RB#2	22.55	30
		Full	21.65	30
	16QAM	1RB#0	21.47	30
		1RB#max	21.48	30
		3RB#2	21.49	30
		Full	20.45	30
Channel(T) 3MHz(BW)	QPSK	1RB#0	22.44	30
		1RB#max	22.57	30
		8RB#4	21.52	30
		Full	21.56	30
	16QAM	1RB#0	21.31	30
		1RB#max	21.41	30
		8RB#4	20.54	30
		Full	20.42	30
Channel(T) 5MHz(BW)	QPSK	1RB#0	22.67	30
		1RB#max	22.57	30
		12RB#6	21.37	30



	16QAM	Full	21.42	30
		1RB#0	21.69	30
		1RB#max	21.74	30
		12RB#6	20.45	30
		Full	20.46	30
Channel(T) 10MHz(BW)	QPSK	1RB#0	22.62	30
		1RB#max	22.63	30
		25RB#13	21.39	30
		Full	21.28	30
	16QAM	1RB#0	21.71	30
		1RB#max	21.74	30
		25RB#13	20.41	30
		Full	20.26	30
Channel(T) 15MHz(BW)	QPSK	1RB#0	22.57	30
		1RB#max	22.66	30
		36RB#18	21.28	30
		Full	21.31	30
	16QAM	1RB#0	21.67	30
		1RB#max	21.75	30
		36RB#18	20.27	30
		Full	20.26	30
Channel(T) 20MHz(BW)	QPSK	1RB#0	22.56	30
		1RB#max	22.65	30
		50RB#25	21.28	30
		Full	21.33	30
	16QAM	1RB#0	21.73	30
		1RB#max	21.75	30
		50RB#25	20.27	30
		Full	20.27	30

Note: RBW > emission bandwidth, VBW > 3 x RBW.



Peak-to-Average Ratio

Table 3 Measurement Results WCDMA BAND 4

TEST CONDITIONS		RF Output Power (Conducted)					
		Channel 1312(B)		Channel 1412(M)		Channel 1513(T)	
		1712.4MHz		1732.4MHz		1752.6MHz	
		dB		dB		dB	
T_{nom} / V_{nom}		Measured	Limit	Measured	Limit	Measured	Limit
TM1		2.73	13	2.81	13	2.72	13
TM2	Case1	2.43	13	2.78	13	2.74	13
	Case2	2.41	13	2.43	13	2.45	13
	Case3	2.43	13	2.68	13	2.33	13
	Case4	2.41	13	2.85	13	2.13	13
TM3	Case1	2.63	13	2.42	13	2.84	13
	Case2	2.44	13	2.44	13	2.18	13
	Case3	2.57	13	2.51	13	2.27	13
	Case4	2.68	13	2.57	13	2.22	13
	Case5	2.42	13	2.45	13	2.83	13



Table 4 Measurement Results (LTE) BAND 4

Table 5 Peak-to-Average Ratio				
Test Mode	TN/VN			
	Modulation	RB	Measured (dB)	Limit (dB)
Channel (B) 1.4MHz(BW)	QPSK	1RB#0	5.68	13
		1RB#max	5.70	13
		3RB#2	5.59	13
		Full	5.71	13
	16QAM	1RB#0	6.46	13
		1RB#max	6.44	13
		3RB#2	6.49	13
		Full	6.51	13
Channel (B) 3MHz(BW)	QPSK	1RB#0	5.68	13
		1RB#max	5.59	13
		8RB#4	5.69	13
		Full	5.70	13
	16QAM	1RB#0	6.46	13
		1RB#max	6.50	13
		8RB#4	6.39	13
		Full	6.52	13
Channel (B) 5MHz(BW)	QPSK	1RB#0	5.61	13
		1RB#max	5.64	13
		12RB#6	5.66	13
		Full	5.69	13
	16QAM	1RB#0	6.40	13
		1RB#max	6.44	13
		12RB#6	6.45	13
		Full	6.48	13
Channel (B) 10MHz(BW)	QPSK	1RB#0	5.54	13
		1RB#max	5.52	13
		25RB#13	5.51	13
		Full	5.55	13
	16QAM	1RB#0	6.31	13
		1RB#max	6.30	13
		25RB#13	6.34	13
		Full	6.36	13
Channel (B) 15MHz(BW)	QPSK	1RB#0	5.81	13
		1RB#max	5.80	13



	16QAM	36RB#18	5.81	13
		Full	5.85	13
		1RB#0	6.35	13
		1RB#max	6.32	13
		36RB#18	6.33	13
		Full	6.43	13
Channel (B) 20MHz(BW)	QPSK	1RB#0	5.51	13
		1RB#max	5.53	13
		50RB#25	5.51	13
		Full	5.56	13
	16QAM	1RB#0	6.26	13
		1RB#max	6.25	13
		50RB#25	6.30	13
		Full	6.31	13
Channel (M) 1.4MHz(BW)	QPSK	1RB#0	5.56	13
		1RB#max	5.52	13
		3RB#2	5.51	13
		Full	5.64	13
	16QAM	1RB#0	6.38	13
		1RB#max	6.33	13
		3RB#2	6.35	13
		Full	6.41	13
Channel (M) 3MHz(BW)	QPSK	1RB#0	5.46	13
		1RB#max	5.76	13
		8RB#4	5.56	13
		Full	5.76	13
	16QAM	1RB#0	6.66	13
		1RB#max	6.46	13
		8RB#4	6.65	13
		Full	6.45	13
Channel (M) 5MHz(BW)	QPSK	1RB#0	5.67	13
		1RB#max	5.63	13
		12RB#6	5.69	13
		Full	5.71	13
	16QAM	1RB#0	6.38	13
		1RB#max	6.54	13
		12RB#6	6.55	13
		Full	6.57	13
Channel (M) 10MHz(BW)	QPSK	1RB#0	5.53	13
		1RB#max	5.51	13



	16QAM	25RB#13	5.51	13
		Full	5.58	13
		1RB#0	6.33	13
		1RB#max	6.31	13
		25RB#13	6.38	13
		Full	6.41	13
Channel (M) 15MHz(BW)	QPSK	1RB#0	5.89	13
		1RB#max	5.85	13
		36RB#18	5.86	13
		Full	5.90	13
	16QAM	1RB#0	6.42	13
		1RB#max	6.44	13
		36RB#18	6.46	13
		Full	6.47	13
Channel (M) 20MHz(BW)	QPSK	1RB#0	5.55	13
		1RB#max	5.51	13
		50RB#25	5.55	13
		Full	5.58	13
	16QAM	1RB#0	6.31	13
		1RB#max	6.33	13
		50RB#25	6.30	13
		Full	6.35	13
Channel(T) 1.4MHz(BW)	QPSK	1RB#0	5.60	13
		1RB#max	5.60	13
		3RB#2	5.55	13
		Full	5.61	13
	16QAM	1RB#0	6.38	13
		1RB#max	6.34	13
		3RB#2	6.31	13
		Full	6.40	13
Channel(T) 3MHz(BW)	QPSK	1RB#0	5.61	13
		1RB#max	5.65	13
		8RB#4	5.68	13
		Full	5.70	13
	16QAM	1RB#0	6.45	13
		1RB#max	6.44	13
		8RB#4	6.41	13
		Full	6.49	13
Channel(T) 5MHz(BW)	QPSK	1RB#0	5.64	13
		1RB#max	5.61	13



	16QAM	12RB#6	5.66	13
		Full	5.68	13
		1RB#0	6.55	13
		1RB#max	6.51	13
		12RB#6	6.53	13
		Full	6.56	13
Channel(T) 10MHz(BW)	QPSK	1RB#0	5.56	13
		1RB#max	5.55	13
		25RB#13	5.50	13
		Full	5.57	13
	16QAM	1RB#0	6.37	13
		1RB#max	6.35	13
		25RB#13	6.38	13
		Full	6.41	13
Channel(T) 15MHz(BW)	QPSK	1RB#0	5.84	13
		1RB#max	5.88	13
		36RB#18	5.87	13
		Full	5.89	13
	16QAM	1RB#0	6.41	13
		1RB#max	6.41	13
		36RB#18	6.43	13
		Full	6.45	13
Channel(T) 20MHz(BW)	QPSK	1RB#0	5.51	13
		1RB#max	5.52	13
		50RB#25	5.51	13
		Full	5.54	13
	16QAM	1RB#0	6.25	13
		1RB#max	6.21	13
		50RB#25	6.24	13
		Full	6.29	13



Efficient Isotropic Radiated Power (EIRP)

Table 2 Substitution Results

Test Mode	Freq. [MHz]	Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBi]	Cable Loss [dB]	Substitution Level (EIRP) [dBm]	Limit [dBm]	Result
TM1	1712.4	23.78	Horn Ant.	20.08	4.5	1.0	23.58	30	Pass
TM1	1732.4	23.84	Horn Ant.	20.5	4.5	1.0	24	30	Pass
TM1	1752.6	23.81	Horn Ant.	19.81	4.8	1.0	23.61	30	Pass

Test Mode			Meas. Level [dBm]	Substitution Antenna Type	SGP [dBm]	Substitution Gain [dBi]	Cable Loss [dB]	Substitution Level (EIRP) [dBm]	Limit [dBm]	Result
Channel	Modulation	RB								
Channel (B) 1.4MHz(BW)	QPSK	1 RB/#0	23.98	Horn Ant.	20.33	4.5	1	23.83	30	Pass
		1 RB/#max	24.01	Horn Ant.	20.36	4.5	1	23.86	30	Pass
		3 RB/#2	24.05	Horn Ant.	20.40	4.5	1	23.90	30	Pass
		Full	23.09	Horn Ant.	19.44	4.5	1	22.94	30	Pass
	16QAM	1 RB/#0	24.04	Horn Ant.	20.39	4.5	1	23.89	30	Pass
		1 RB/#max	24.11	Horn Ant.	20.46	4.5	1	23.96	30	Pass
		3 RB/#2	23.02	Horn Ant.	19.37	4.5	1	22.87	30	Pass
		Full	21.92	Horn Ant.	18.27	4.5	1	21.77	30	Pass
Channel (B) 3MHz(BW)	QPSK	1 RB/#0	24.03	Horn Ant.	20.38	4.5	1	23.88	30	Pass
		1 RB/#max	23.96	Horn Ant.	20.31	4.5	1	23.81	30	Pass
		8 RB/#4	22.98	Horn Ant.	19.33	4.5	1	22.83	30	Pass
		Full	22.87	Horn Ant.	19.22	4.5	1	22.72	30	Pass
	16QAM	1 RB/#0	23.61	Horn Ant.	19.96	4.5	1	23.46	30	Pass
		1 RB/#max	23.56	Horn Ant.	19.91	4.5	1	23.41	30	Pass
		8 RB/#4	22.07	Horn Ant.	18.42	4.5	1	21.92	30	Pass
		Full	21.95	Horn Ant.	18.30	4.5	1	21.80	30	Pass
Channel (B) 5MHz(BW)	QPSK	1 RB/#0	24.13	Horn Ant.	20.48	4.5	1	23.98	30	Pass
		1 RB/#max	24.1	Horn Ant.	20.45	4.5	1	23.95	30	Pass
		12 RB/#6	22.98	Horn Ant.	19.33	4.5	1	22.83	30	Pass
		Full	22.82	Horn Ant.	19.17	4.5	1	22.67	30	Pass
	16QAM	1 RB/#0	23.34	Horn Ant.	19.69	4.5	1	23.19	30	Pass
		1 RB/#max	23.31	Horn Ant.	19.66	4.5	1	23.16	30	Pass
		12 RB/#6	22.02	Horn Ant.	18.37	4.5	1	21.87	30	Pass
		Full	21.83	Horn Ant.	18.18	4.5	1	21.68	30	Pass
Channel (B) 10MHz(BW)	QPSK	1 RB/#0	24.02	Horn Ant.	20.37	4.5	1	23.87	30	Pass
		1 RB/#max	24.03	Horn Ant.	20.38	4.5	1	23.88	30	Pass
		25 RB/#13	22.79	Horn Ant.	19.14	4.5	1	22.64	30	Pass
		Full	22.74	Horn Ant.	19.09	4.5	1	22.59	30	Pass
	16QAM	1 RB/#0	22.9	Horn Ant.	19.25	4.5	1	22.75	30	Pass



		1 RB/#max	22.89	Horn Ant.	19.24	4.5	1	22.74	30	Pass
		25 RB/#13	21.86	Horn Ant.	18.21	4.5	1	21.71	30	Pass
		Full	21.74	Horn Ant.	18.09	4.5	1	21.59	30	Pass
		1 RB/#0	24.05	Horn Ant.	20.40	4.5	1	23.90	30	Pass
Channel (B) 15MHz(B W)	QPSK	1 RB/#max	23.98	Horn Ant.	20.33	4.5	1	23.83	30	Pass
		36 RB/#18	22.71	Horn Ant.	19.06	4.5	1	22.56	30	Pass
		Full	22.82	Horn Ant.	19.17	4.5	1	22.67	30	Pass
		1 RB/#0	22.91	Horn Ant.	19.26	4.5	1	22.76	30	Pass
	16QAM	1 RB/#max	22.86	Horn Ant.	19.21	4.5	1	22.71	30	Pass
		36 RB/#18	21.81	Horn Ant.	18.16	4.5	1	21.66	30	Pass
		Full	21.75	Horn Ant.	18.10	4.5	1	21.60	30	Pass
		1 RB/#0	24.07	Horn Ant.	20.42	4.5	1	23.92	30	Pass
Channel (B) 20MHz(B W)	QPSK	1 RB/#max	24.05	Horn Ant.	20.40	4.5	1	23.90	30	Pass
		50 RB/#25	22.65	Horn Ant.	19.00	4.5	1	22.50	30	Pass
		Full	22.81	Horn Ant.	19.16	4.5	1	22.66	30	Pass
		1 RB/#0	22.92	Horn Ant.	19.27	4.5	1	22.77	30	Pass
	16QAM	1 RB/#max	22.91	Horn Ant.	19.26	4.5	1	22.76	30	Pass
		50 RB/#25	21.64	Horn Ant.	17.99	4.5	1	21.49	30	Pass
		Full	21.74	Horn Ant.	18.09	4.5	1	21.59	30	Pass
		1 RB/#0	24.03	Horn Ant.	20.38	4.5	1	23.88	30	Pass
Channel (M) 1.4MHz(B W)	QPSK	1 RB/#max	24.03	Horn Ant.	20.38	4.5	1	23.88	30	Pass
		3 RB/#2	24.06	Horn Ant.	20.41	4.5	1	23.91	30	Pass
		Full	23.04	Horn Ant.	19.39	4.5	1	22.89	30	Pass
		1 RB/#0	22.76	Horn Ant.	19.11	4.5	1	22.61	30	Pass
	16QAM	1 RB/#max	22.75	Horn Ant.	19.10	4.5	1	22.60	30	Pass
		3 RB/#2	23.24	Horn Ant.	19.59	4.5	1	23.09	30	Pass
		Full	21.98	Horn Ant.	18.33	4.5	1	21.83	30	Pass
		1 RB/#0	24.11	Horn Ant.	20.46	4.5	1	23.96	30	Pass
Channel (M) 3MHz(BW)	QPSK	1 RB/#max	24.1	Horn Ant.	20.45	4.5	1	23.95	30	Pass
		8 RB/#4	23.04	Horn Ant.	19.39	4.5	1	22.89	30	Pass
		Full	23.03	Horn Ant.	19.38	4.5	1	22.88	30	Pass
		1 RB/#0	22.99	Horn Ant.	19.34	4.5	1	22.84	30	Pass
	16QAM	1 RB/#max	22.97	Horn Ant.	19.32	4.5	1	22.82	30	Pass
		8 RB/#4	22.01	Horn Ant.	18.36	4.5	1	21.86	30	Pass
		Full	21.99	Horn Ant.	18.34	4.5	1	21.84	30	Pass
		1 RB/#0	24.13	Horn Ant.	20.48	4.5	1	23.98	30	Pass
Channel (M) 5MHz(BW)	QPSK	1 RB/#max	24.09	Horn Ant.	20.44	4.5	1	23.94	30	Pass
		12 RB/#6	23	Horn Ant.	19.35	4.5	1	22.85	30	Pass
		Full	22.92	Horn Ant.	19.27	4.5	1	22.77	30	Pass
		1 RB/#0	22.91	Horn Ant.	19.26	4.5	1	22.76	30	Pass
	16QAM	1 RB/#max	23.45	Horn Ant.	19.80	4.5	1	23.30	30	Pass
		12 RB/#6	22.08	Horn Ant.	18.43	4.5	1	21.93	30	Pass
		Full	21.88	Horn Ant.	18.23	4.5	1	21.73	30	Pass



Channel (M) 10MHz(BW)	QPSK	1 RB/#0	24.02	Horn Ant.	20.37	4.5	1	23.87	30	Pass
		1 RB/#max	24.06	Horn Ant.	20.41	4.5	1	23.91	30	Pass
		25 RB/#13	22.93	Horn Ant.	19.28	4.5	1	22.78	30	Pass
		Full	22.82	Horn Ant.	19.17	4.5	1	22.67	30	Pass
	16QAM	1 RB/#0	22.88	Horn Ant.	19.23	4.5	1	22.73	30	Pass
		1 RB/#max	22.94	Horn Ant.	19.29	4.5	1	22.79	30	Pass
		25 RB/#13	21.86	Horn Ant.	18.21	4.5	1	21.71	30	Pass
	Full	21.83	Horn Ant.	18.18	4.5	1	21.68	30	Pass	
Channel (M) 15MHz(BW)	QPSK	1 RB/#0	23.98	Horn Ant.	20.33	4.5	1	23.83	30	Pass
		1 RB/#max	24.05	Horn Ant.	20.40	4.5	1	23.90	30	Pass
		36 RB/#18	22.78	Horn Ant.	19.13	4.5	1	22.63	30	Pass
		Full	22.73	Horn Ant.	19.08	4.5	1	22.58	30	Pass
	16QAM	1 RB/#0	22.82	Horn Ant.	19.17	4.5	1	22.67	30	Pass
		1 RB/#max	22.95	Horn Ant.	19.30	4.5	1	22.80	30	Pass
		36 RB/#18	21.86	Horn Ant.	18.21	4.5	1	21.71	30	Pass
	Full	21.73	Horn Ant.	18.08	4.5	1	21.58	30	Pass	
Channel (M) 20MHz(BW)	QPSK	1 RB/#0	23.99	Horn Ant.	20.34	4.5	1	23.84	30	Pass
		1 RB/#max	23.98	Horn Ant.	20.33	4.5	1	23.83	30	Pass
		50 RB/#25	22.82	Horn Ant.	19.17	4.5	1	22.67	30	Pass
		Full	22.91	Horn Ant.	19.26	4.5	1	22.76	30	Pass
	16QAM	1 RB/#0	22.92	Horn Ant.	19.27	4.5	1	22.77	30	Pass
		1 RB/#max	22.85	Horn Ant.	19.20	4.5	1	22.70	30	Pass
		50 RB/#25	21.76	Horn Ant.	18.11	4.5	1	21.61	30	Pass
	Full	21.81	Horn Ant.	18.16	4.5	1	21.66	30	Pass	
Channel(T) 1.4MHz(BW)	QPSK	1 RB/#0	24.11	Horn Ant.	20.46	4.5	1	23.96	30	Pass
		1 RB/#max	24.08	Horn Ant.	20.43	4.5	1	23.93	30	Pass
		3 RB/#2	24.05	Horn Ant.	20.40	4.5	1	23.90	30	Pass
		Full	23.15	Horn Ant.	19.50	4.5	1	23.00	30	Pass
	16QAM	1 RB/#0	22.97	Horn Ant.	19.32	4.5	1	22.82	30	Pass
		1 RB/#max	22.98	Horn Ant.	19.33	4.5	1	22.83	30	Pass
		3 RB/#2	22.99	Horn Ant.	19.34	4.5	1	22.84	30	Pass
	Full	21.95	Horn Ant.	18.30	4.5	1	21.80	30	Pass	
Channel(T) 3MHz(BW)	QPSK	1 RB/#0	23.94	Horn Ant.	20.29	4.5	1	23.79	30	Pass
		1 RB/#max	24.07	Horn Ant.	20.42	4.5	1	23.92	30	Pass
		8 RB/#4	23.02	Horn Ant.	19.37	4.5	1	22.87	30	Pass
		Full	23.06	Horn Ant.	19.41	4.5	1	22.91	30	Pass
	16QAM	1 RB/#0	22.81	Horn Ant.	19.16	4.5	1	22.66	30	Pass
		1 RB/#max	22.91	Horn Ant.	19.26	4.5	1	22.76	30	Pass
		8 RB/#4	22.04	Horn Ant.	18.39	4.5	1	21.89	30	Pass
	Full	21.92	Horn Ant.	18.27	4.5	1	21.77	30	Pass	
Channel(T) 5MHz(BW)	QPSK	1 RB/#0	24.17	Horn Ant.	20.52	4.5	1	24.02	30	Pass
		1 RB/#max	24.07	Horn Ant.	20.42	4.5	1	23.92	30	Pass
		12 RB/#6	22.87	Horn Ant.	19.22	4.5	1	22.72	30	Pass



	16QAM	Full	22.92	Horn Ant.	19.27	4.5	1	22.77	30	Pass	
		1 RB/#0	23.19	Horn Ant.	19.54	4.5	1	23.04	30	Pass	
		1 RB/#max	23.24	Horn Ant.	19.59	4.5	1	23.09	30	Pass	
		12 RB/#6	21.95	Horn Ant.	18.30	4.5	1	21.80	30	Pass	
Channel(T) 10MHz(B W)	QPSK	Full	21.96	Horn Ant.	18.31	4.5	1	21.81	30	Pass	
		1 RB/#0	24.12	Horn Ant.	20.47	4.5	1	23.97	30	Pass	
		1 RB/#max	24.13	Horn Ant.	20.48	4.5	1	23.98	30	Pass	
		25 RB/#13	22.89	Horn Ant.	19.24	4.5	1	22.74	30	Pass	
	16QAM	Full	22.78	Horn Ant.	19.13	4.5	1	22.63	30	Pass	
		1 RB/#0	23.21	Horn Ant.	19.56	4.5	1	23.06	30	Pass	
		1 RB/#max	23.24	Horn Ant.	19.59	4.5	1	23.09	30	Pass	
		25 RB/#13	21.91	Horn Ant.	18.26	4.5	1	21.76	30	Pass	
	Channel(T) 15MHz(B W)	QPSK	Full	21.76	Horn Ant.	18.11	4.5	1	21.61	30	Pass
			1 RB/#0	24.07	Horn Ant.	20.42	4.5	1	23.92	30	Pass
			1 RB/#max	24.16	Horn Ant.	20.51	4.5	1	24.01	30	Pass
			36 RB/#18	22.78	Horn Ant.	19.13	4.5	1	22.63	30	Pass
16QAM		Full	22.81	Horn Ant.	19.16	4.5	1	22.66	30	Pass	
		1 RB/#0	23.17	Horn Ant.	19.52	4.5	1	23.02	30	Pass	
		1 RB/#max	23.25	Horn Ant.	19.60	4.5	1	23.10	30	Pass	
		36 RB/#18	21.77	Horn Ant.	18.12	4.5	1	21.62	30	Pass	
Channel(T) 20MHz(B W)	QPSK	Full	21.76	Horn Ant.	18.11	4.5	1	21.61	30	Pass	
		1 RB/#0	24.06	Horn Ant.	20.41	4.5	1	23.91	30	Pass	
		1 RB/#max	24.15	Horn Ant.	20.50	4.5	1	24.00	30	Pass	
		50 RB/#25	22.78	Horn Ant.	19.13	4.5	1	22.63	30	Pass	
	16QAM	Full	22.83	Horn Ant.	19.18	4.5	1	22.68	30	Pass	
		1 RB/#0	23.23	Horn Ant.	19.58	4.5	1	23.08	30	Pass	
		1 RB/#max	23.25	Horn Ant.	19.60	4.5	1	23.10	30	Pass	
		50 RB/#25	21.77	Horn Ant.	18.12	4.5	1	21.62	30	Pass	
		Full	21.77	Horn Ant.	18.12	4.5	21.62	30	Pass		

Note: a, For getting the EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should take to calculate it,

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

Note2: RBW > emission bandwidth, VBW > 3 x RBW.

-----The END-----



Appendix B

Modulation Characteristics

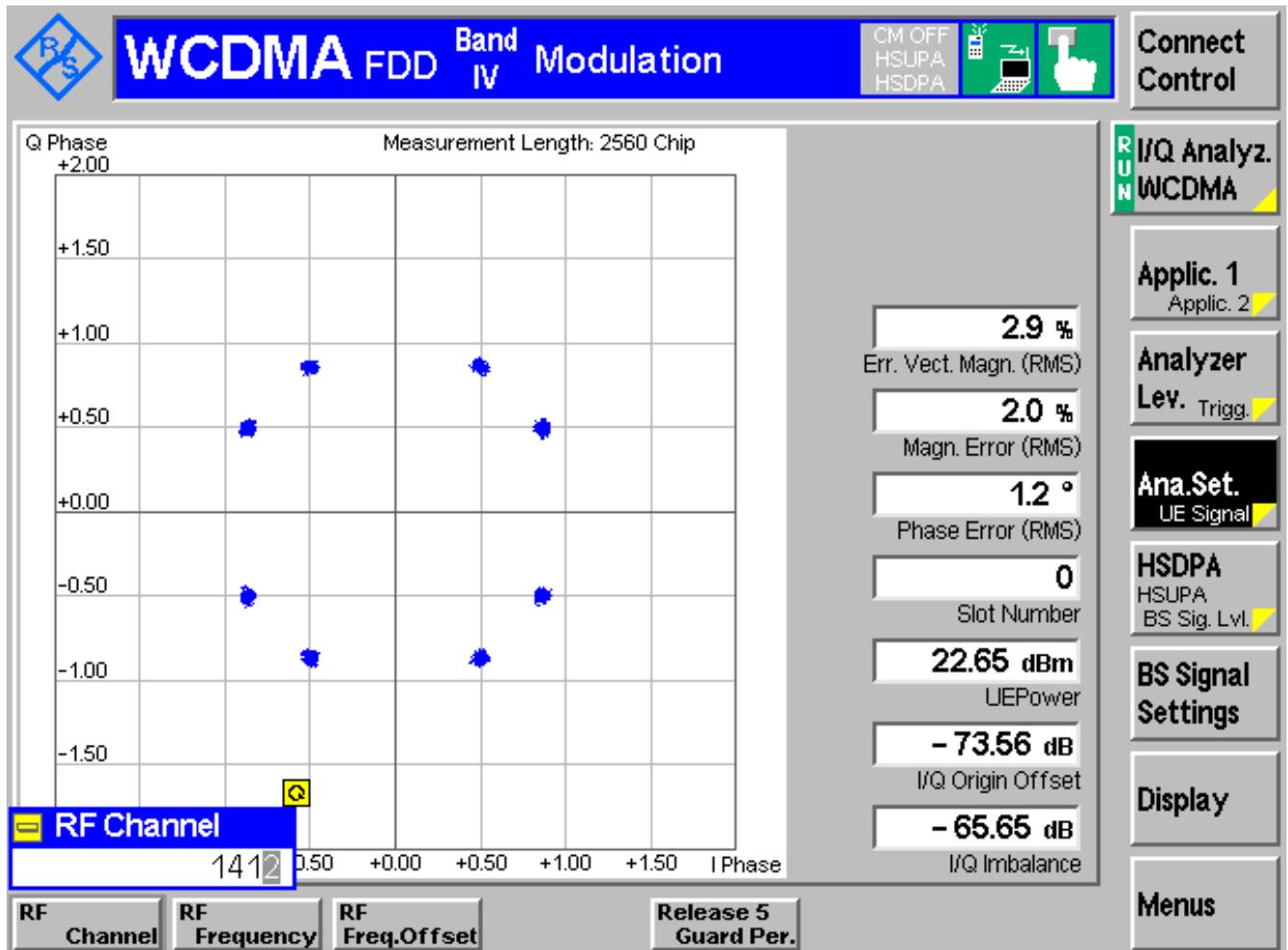
According to FCC Part 2.1047 & RSS-139



For WCDMA Band 4

Test Mode = TM1/TM2/TM3

Channel = M



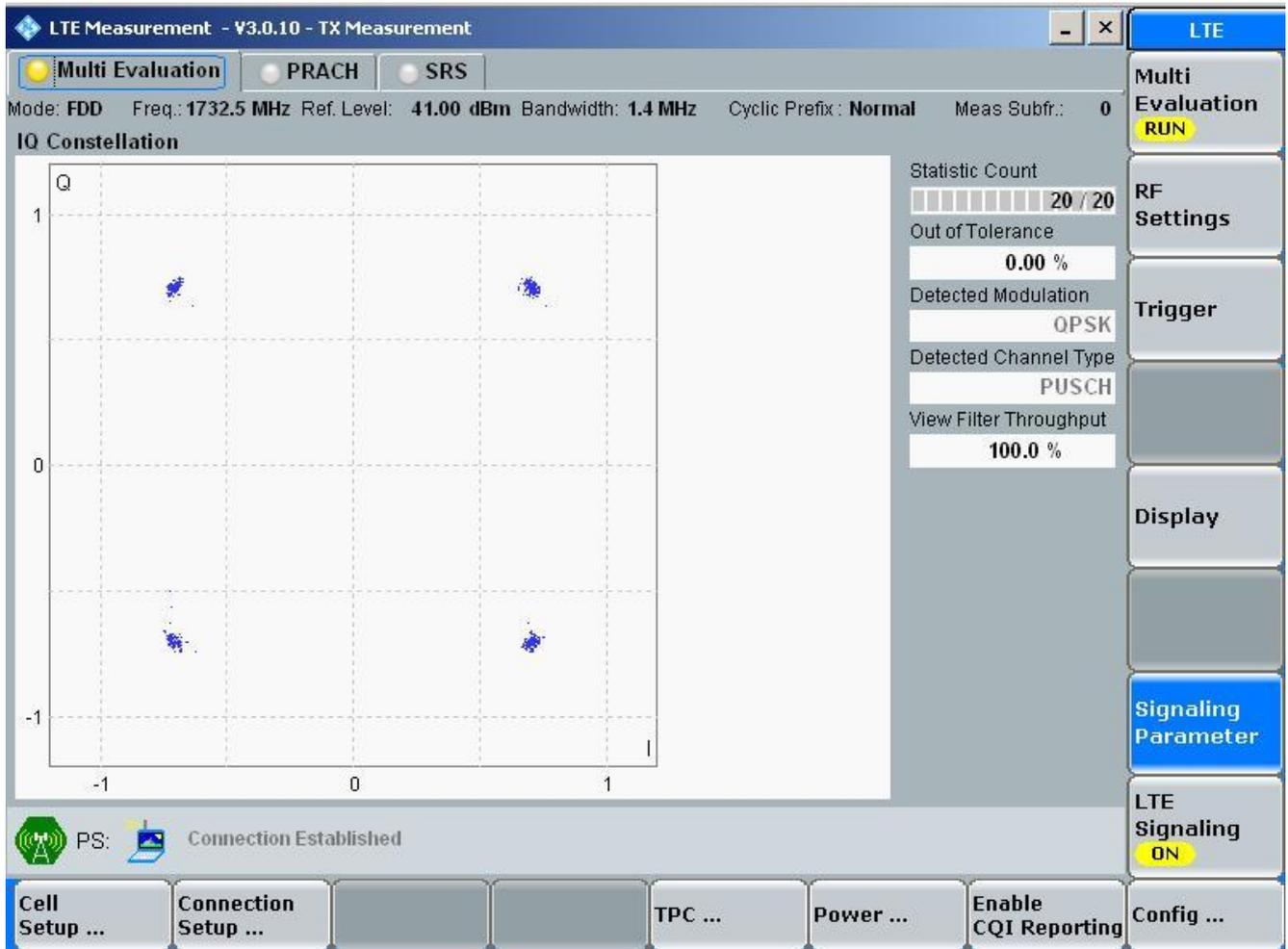


Test Mode = TM4

Channel Bandwidth = Lowest (1.4 MHz)

Channel = M

QPSK/full RBs





Channel Bandwidth = 3 MHz

Channel = M

QPSK/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' software interface. The main window is titled 'Multi Evaluation' and shows the following parameters: Mode: FDD, Freq.: 1732.5 MHz, Ref. Level: 41.00 dBm, Bandwidth: 3.0 MHz, Cyclic Prefix: Normal, Meas Subfr.: 0. The 'IQ Constellation' plot shows four distinct clusters of blue dots in a square pattern, representing QPSK modulation. The axes are labeled 'Q' (vertical) and 'I' (horizontal), ranging from -1 to 1. To the right of the plot, the 'Statistic Count' is 20 / 20, 'Out of Tolerance' is 0.00%, 'Detected Modulation' is QPSK, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0%. The interface includes a vertical toolbar on the right with buttons for 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling ON'. At the bottom, there are buttons for 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'. A status bar at the bottom left shows 'PS: Connection Established'.



Channel Bandwidth = 5 MHz

Channel = M

QPSK/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' software interface. The main window is titled 'Multi Evaluation' and shows the following parameters: Mode: FDD, Freq.: 1732.5 MHz, Ref. Level: 41.00 dBm, Bandwidth: 5.0 MHz, Cyclic Prefix: Normal, Meas Subfr.: 0. The 'IQ Constellation' plot shows four distinct clusters of blue dots in a square pattern, representing QPSK modulation. The axes are labeled 'Q' (vertical) and 'I' (horizontal), ranging from -1 to 1. On the right side, a 'Statistic Count' bar shows 20 / 20, 'Out of Tolerance' is 0.00%, 'Detected Modulation' is QPSK, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0%. The bottom status bar indicates 'PS: Connection Established' and 'LTE Signaling ON'. A vertical toolbar on the right contains buttons for 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling ON'. The bottom navigation bar includes buttons for 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'.



Channel Bandwidth =10 MHz

Channel = M

QPSK/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' software interface. The main window is titled 'Multi Evaluation' and shows the following details:

- Mode: FDD
- Freq.: 1732.5 MHz
- Ref. Level: 41.00 dBm
- Bandwidth: 10.0 MHz
- Cyclic Prefix: Normal
- Meas Subfr.: 0

The 'IQ Constellation' plot shows a QPSK signal with four distinct clusters of points in a square arrangement on a grid from -1 to 1 on both axes. The axes are labeled 'Q' (vertical) and 'I' (horizontal).

On the right side, a 'Statistic Count' section shows a progress bar for 20 / 20 samples. Below this, the 'Out of Tolerance' is 0.00%, 'Detected Modulation' is QPSK, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0%.

The bottom status bar indicates 'PS: Connection Established' and includes several control buttons: 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'. On the far right, a vertical toolbar contains buttons for 'LTE', 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', 'LTE Signaling ON', and 'Config ...'.



Channel Bandwidth =15 MHz

Channel = M

QPSK/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' software interface. At the top, it shows 'Multi Evaluation' as the active mode. The main display area is titled 'IQ Constellation' and features a scatter plot with four distinct clusters of blue dots, characteristic of QPSK modulation. The plot axes are labeled 'Q' (vertical) and 'I' (horizontal), both ranging from -1 to 1. To the right of the plot, a 'Statistic Count' bar shows 20/20, and 'Out of Tolerance' is at 0.00%. The 'Detected Modulation' is 'QPSK' and the 'Detected Channel Type' is 'PUSCH'. Below this, 'View Filter Throughput' is shown as 100.0%. On the far right, a vertical toolbar contains buttons for 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling ON'. At the bottom, a status bar indicates 'PS: Connection Established' and a row of control buttons including 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'.



Channel Bandwidth = Highest (20 MHz)

Channel = M

QPSK/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' software interface. The main window is titled 'Multi Evaluation' and shows the following parameters: Mode: FDD, Freq.: 1732.5 MHz, Ref. Level: 41.00 dBm, Bandwidth: 20.0 MHz, Cyclic Prefix: Normal, Meas Subfr.: 0. The 'IQ Constellation' plot shows four distinct clusters of blue dots in a square pattern, representing QPSK modulation. The axes are labeled 'Q' (vertical) and 'I' (horizontal), ranging from -1 to 1. On the right side, a 'Statistic Count' bar shows 20 / 20, 'Out of Tolerance' is 0.00%, 'Detected Modulation' is QPSK, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0%. The interface includes several control buttons: 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', 'LTE Signaling ON', 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'. At the bottom left, there is a status bar showing 'PS: Connection Established'.

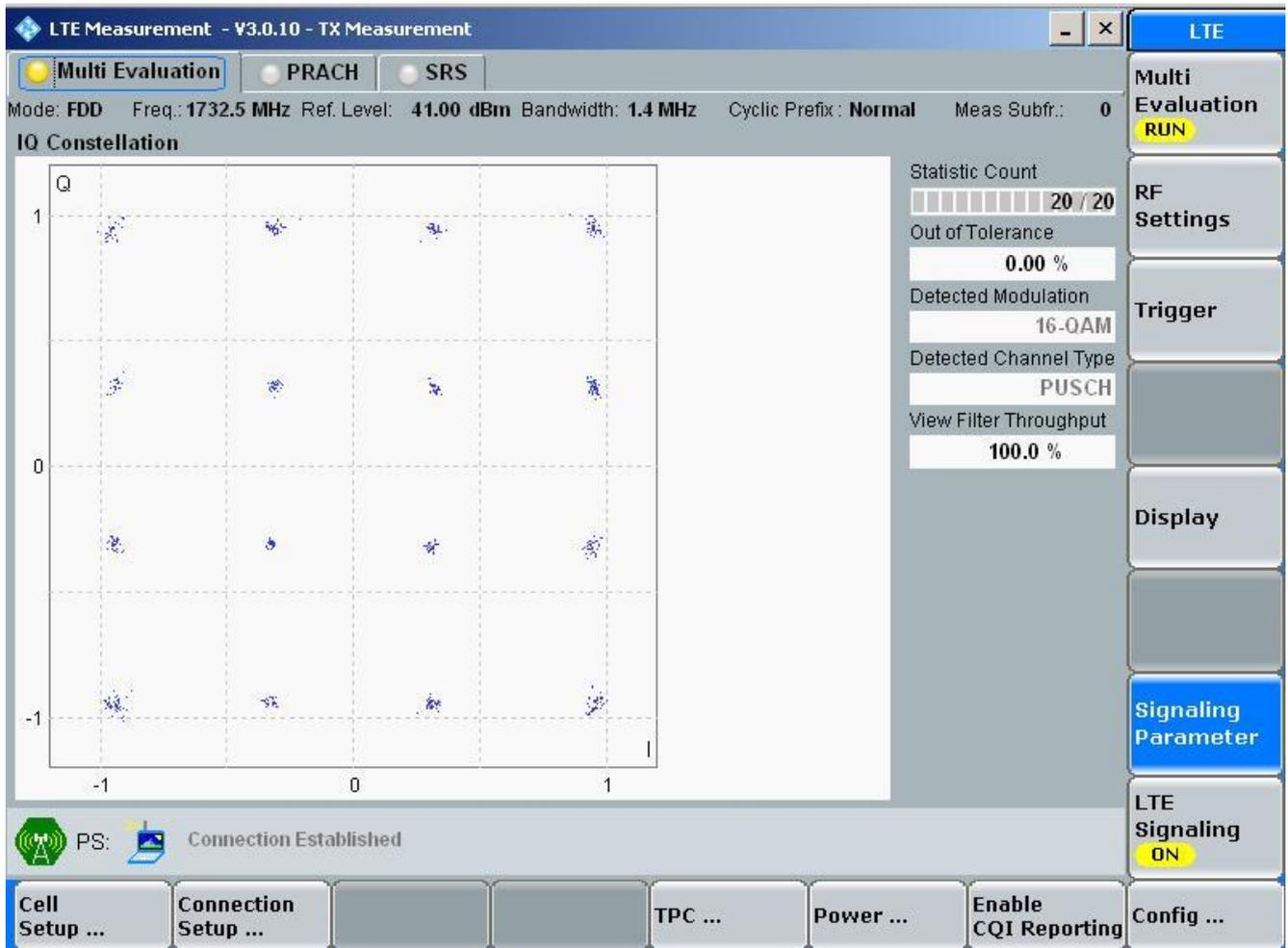


Test Mode = TM5

Channel Bandwidth = Lowest (1.4 MHz)

Channel = M

16QAM/full RBs





Channel Bandwidth = 3 MHz

Channel = M

16QAM/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' window. The 'Multi Evaluation' tab is active, showing a 'Multi Evaluation RUN' button. The measurement mode is 'FDD' at a frequency of '1732.5 MHz' with a reference level of '41.00 dBm' and a bandwidth of '3.0 MHz'. The cyclic prefix is 'Normal' and the measurement subframe is '0'. The 'IQ Constellation' plot shows a 16-QAM signal with points clustered around a 4x4 grid. The 'Statistic Count' is 20/20, with 0.00% out of tolerance. The detected modulation is '16-QAM' and the channel type is 'PUSCH'. The filter throughput is 100.0%. The interface includes a status bar at the bottom showing 'PS: Connection Established' and several control buttons like 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'. A vertical toolbar on the right contains buttons for 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', 'LTE Signaling ON', and 'Config ...'.



Channel Bandwidth = 5 MHz

Channel = M

16QAM/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' window. The 'Multi Evaluation' tab is active, showing a 'Multi Evaluation RUN' button. The measurement mode is 'FDD' at a frequency of '1732.5 MHz' with a reference level of '41.00 dBm' and a bandwidth of '5.0 MHz'. The cyclic prefix is 'Normal' and the measurement subframe is '0'. The 'IQ Constellation' plot shows a 16-QAM signal with points clustered around a 4x4 grid. The 'Statistic Count' is 20/20, with 0.00% out of tolerance. The detected modulation is '16-QAM' and the channel type is 'PUSCH'. The filter throughput is 100.0%. The interface includes a status bar at the bottom showing 'PS: Connection Established' and several control buttons like 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'. A vertical toolbar on the right contains buttons for 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', 'LTE Signaling ON', and 'Config ...'.



Channel Bandwidth = 10 MHz

Channel = M

16QAM/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' window. The 'Multi Evaluation' tab is active, showing a 16-QAM IQ Constellation plot with a grid. The plot shows 16 clusters of points arranged in a 4x4 grid, with the horizontal axis labeled 'I' and the vertical axis labeled 'Q', both ranging from -1 to 1. To the right of the plot, the 'Statistic Count' is 20/20, 'Out of Tolerance' is 0.00%, 'Detected Modulation' is 16-QAM, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0%. The interface includes a top bar with 'LTE' and 'Multi Evaluation RUN' buttons, a right sidebar with 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling ON' buttons, and a bottom bar with 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...' buttons. The status bar at the bottom left shows 'PS: Connection Established'.



Channel Bandwidth = 15 MHz

Channel = M

16QAM/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' window. The 'Multi Evaluation' tab is active, showing a 16-QAM IQ Constellation plot with a grid from -1 to 1 on both axes. The plot shows 16 distinct clusters of blue dots representing the constellation points. To the right of the plot, the 'Statistic Count' is 20/20, 'Out of Tolerance' is 0.00%, 'Detected Modulation' is 16-QAM, 'Detected Channel Type' is PUSCH, and 'View Filter Throughput' is 100.0%. The interface includes a top bar with 'LTE' and 'Multi Evaluation RUN' buttons, a right sidebar with 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', and 'LTE Signaling ON' buttons, and a bottom bar with 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...' buttons. The status bar at the bottom left shows 'PS: Connection Established'.



Channel Bandwidth = Highest (20 MHz)

Channel = M

16QAM/full RBs

The screenshot displays the 'LTE Measurement - V3.0.10 - TX Measurement' window. The 'Multi Evaluation' tab is active. The main display area shows an 'IQ Constellation' plot with a grid of points, indicating 16-QAM modulation. The plot axes range from -1 to 1. To the right of the plot, a 'Statistic Count' bar shows 20 / 20, and 'Out of Tolerance' is 0.00%. The 'Detected Modulation' is 16-QAM and the 'Detected Channel Type' is PUSCH. The 'View Filter Throughput' is 100.0%. On the right side, there is a vertical toolbar with buttons for 'Multi Evaluation RUN', 'RF Settings', 'Trigger', 'Display', 'Signaling Parameter', 'LTE Signaling ON', 'Cell Setup ...', 'Connection Setup ...', 'TPC ...', 'Power ...', 'Enable CQI Reporting', and 'Config ...'. At the bottom left, there is a status bar showing 'PS: Connection Established'.

-----END-----



Appendix C

Occupied Bandwidth According to FCC part 2.1049 & Part 27 Subpart C&L



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Result Table

NOTE: All relevant operation modes have been tested, and the full RB data is included in this report.

Table 1 Measurement Results (LTE) BAND 4

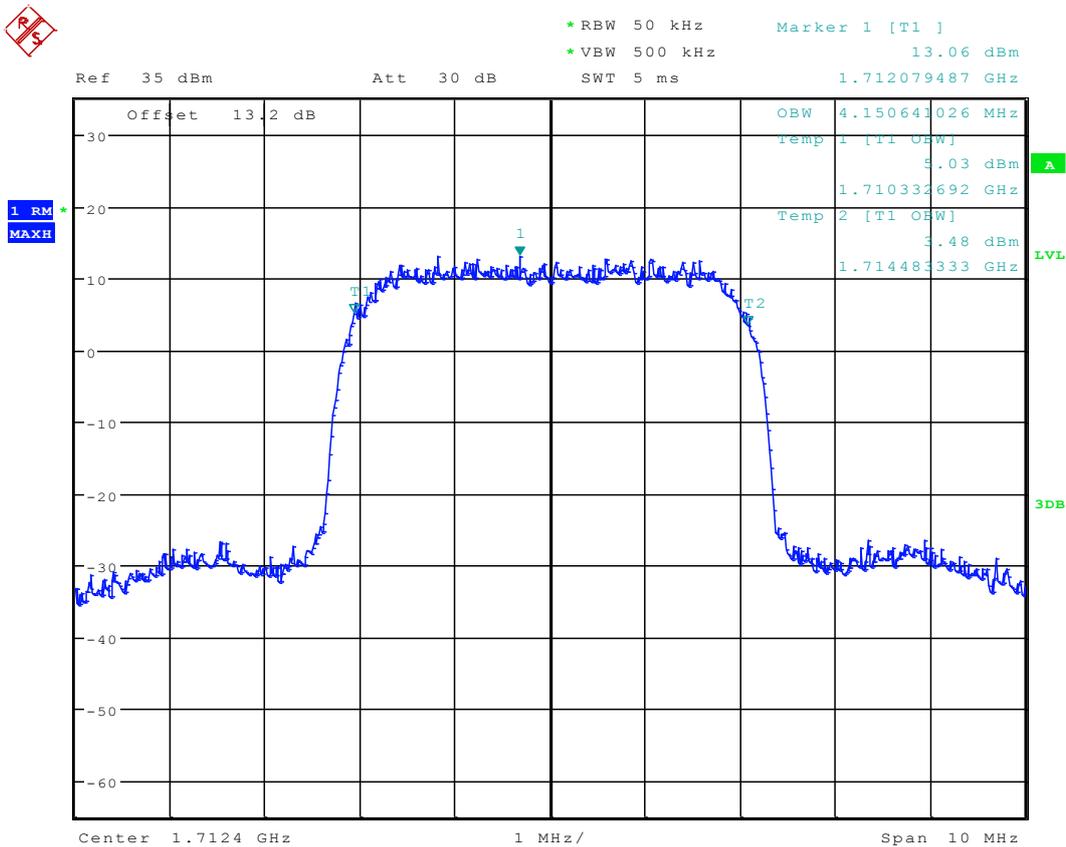
Test Mode	RF Channel		Occupied Bandwidth [MHz]	Verdict
TM1	L		4.16	Pass
	M		4.17	Pass
	H		4.17	Pass
Test Mode	Carrier Conf.	RF Ch.	Occupied Bandwidth [MHz]	Verdict
TM2	1.4 MHz	L	1.08	Pass
		M	1.08	Pass
		H	1.07	Pass
	3 MHz	L	2.67	Pass
		M	2.65	Pass
		H	2.70	Pass
	5 MHz	L	4.46	Pass
		M	4.47	Pass
		H	4.44	Pass
	10 MHz	L	8.91	Pass
		M	8.96	Pass
		H	8.79	Pass
	15 MHz	L	13.36	Pass
		M	13.19	Pass
		H	13.25	Pass
20 MHz	L	17.72	Pass	
	M	17.73	Pass	
	H	17.39	Pass	
TM3	1.4 MHz	L	1.08	Pass
		M	1.09	Pass
		H	1.08	Pass
	3 MHz	L	2.67	Pass
		M	2.68	Pass
		H	2.66	Pass
	5 MHz	L	4.45	Pass
		M	4.48	Pass
		H	4.45	Pass
	10 MHz	L	8.86	Pass
		M	8.88	Pass
		H	8.89	Pass
	15 MHz	L	13.38	Pass
		M	13.37	Pass
		H	13.31	Pass
20 MHz	L	17.48	Pass	
	M	17.83	Pass	
	H	17.88	Pass	



1 For WCDMA Band 4

1.1 Test Mode=TM1

1.1.1 Channel = B



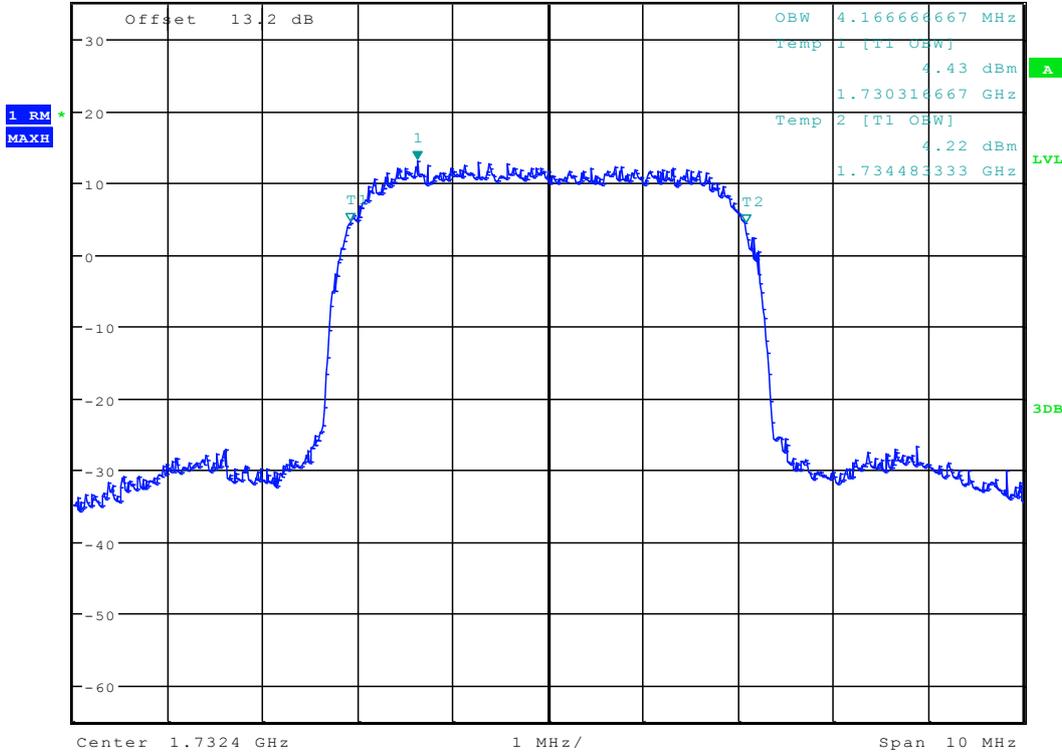
Date: 18.SEP.2012 16:06:14



1.1.2 Channel = M



*RBW 50 kHz Marker 1 [T1] 13.07 dBm
 *VBW 500 kHz
 Ref 35 dBm Att 30 dB SWT 5 ms 1.731021795 GHz



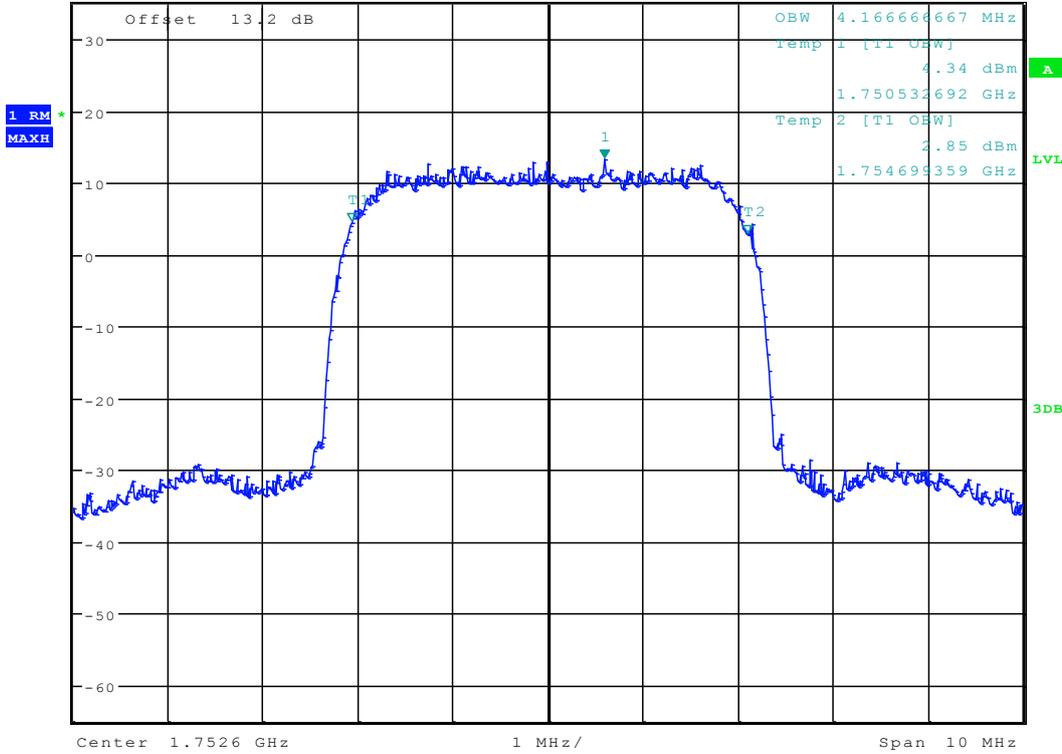
Date: 18.SEP.2012 16:06:28



1.1.3 Channel = T



*RBW 50 kHz Marker 1 [T1]
 *VBW 500 kHz 13.32 dBm
 Ref 35 dBm Att 30 dB SWT 5 ms 1.753192949 GHz



Date: 18.SEP.2012 16:06:41



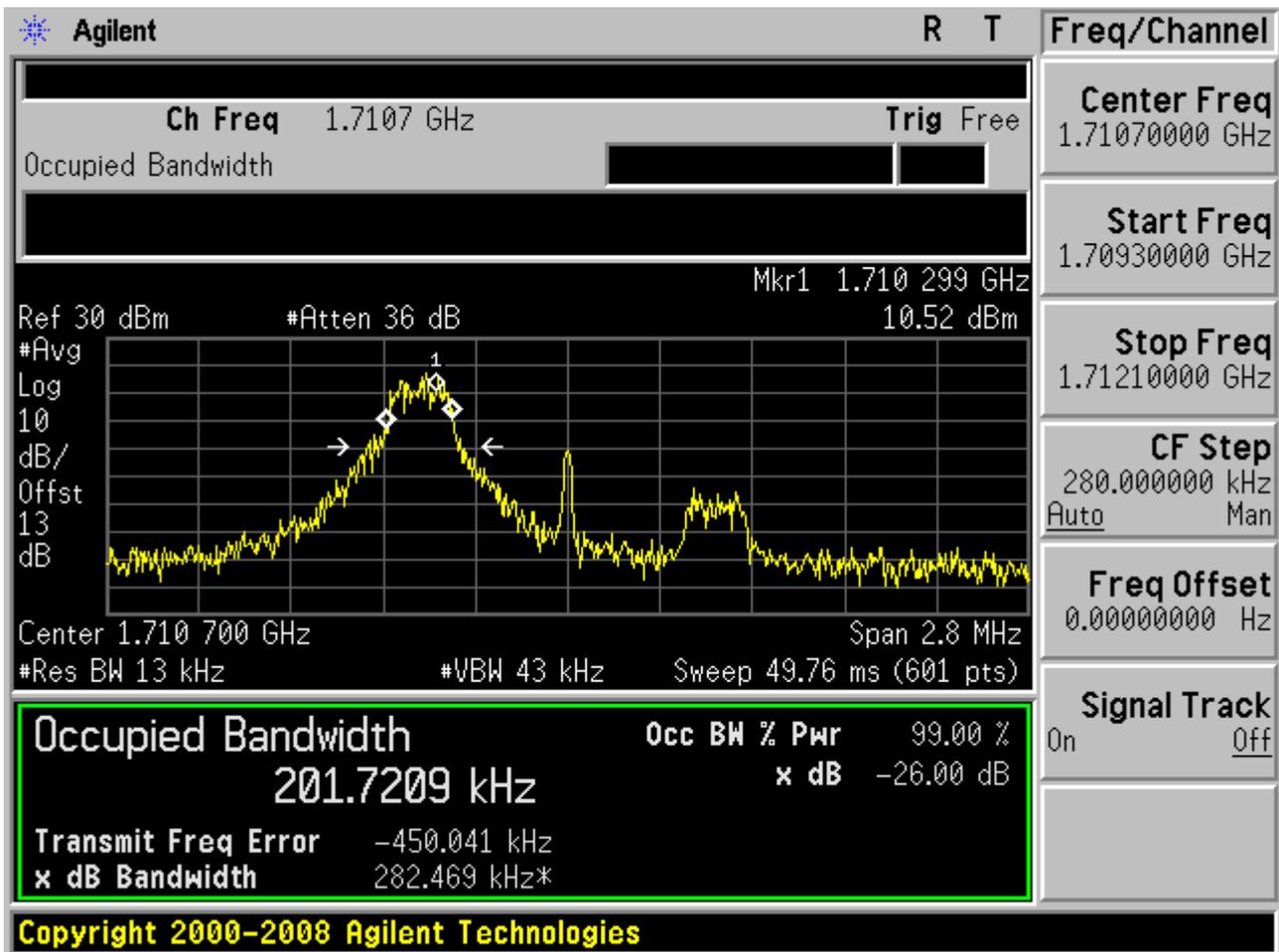
2 For LTE Band 4

2.1 Test Mode=TM4

2.1.1 Channel Bandwidth = 1.4 MHz

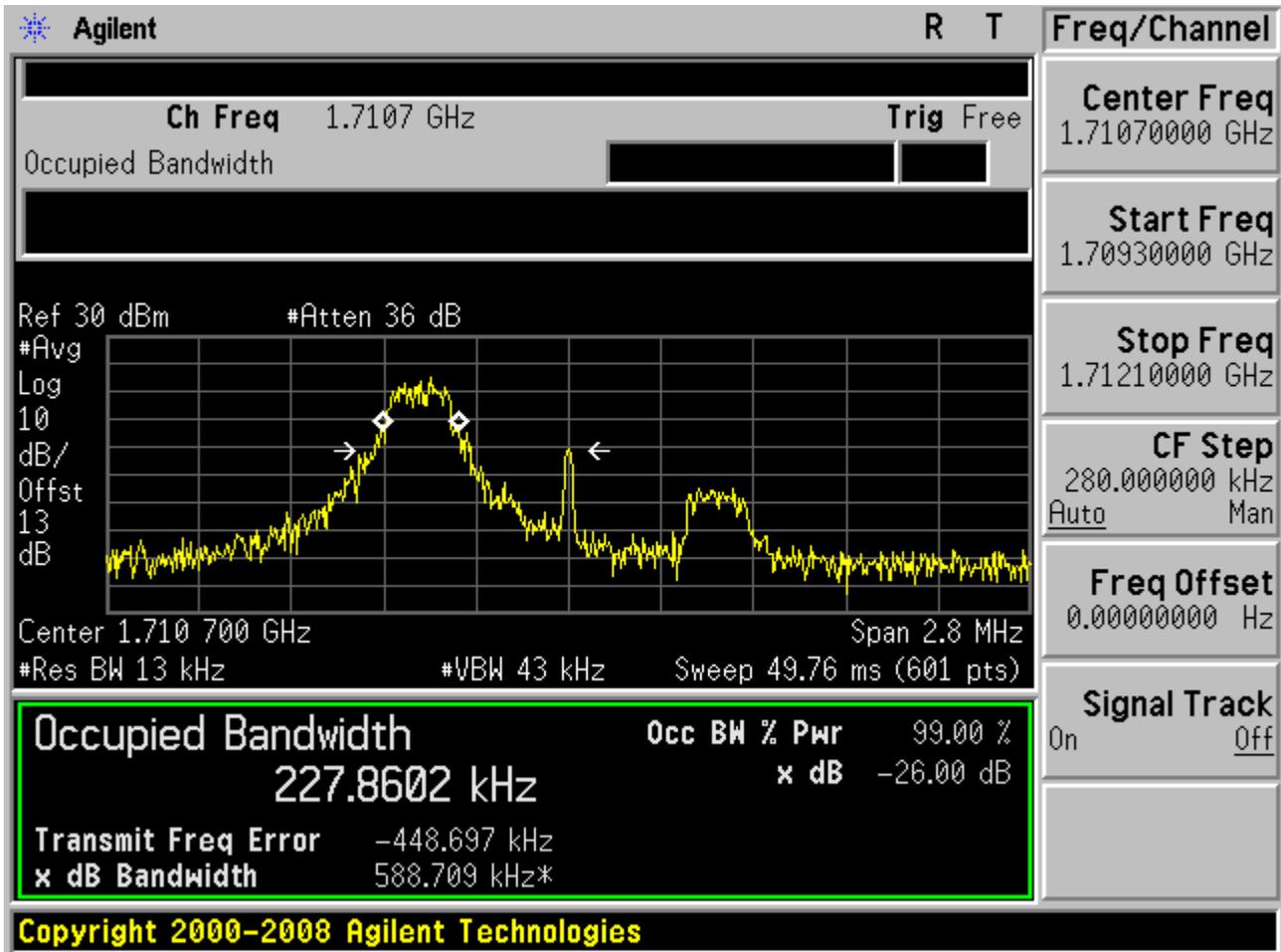
2.1.1.1 Channel = B

2.1.1.1.1 QPSK/1RB # 0



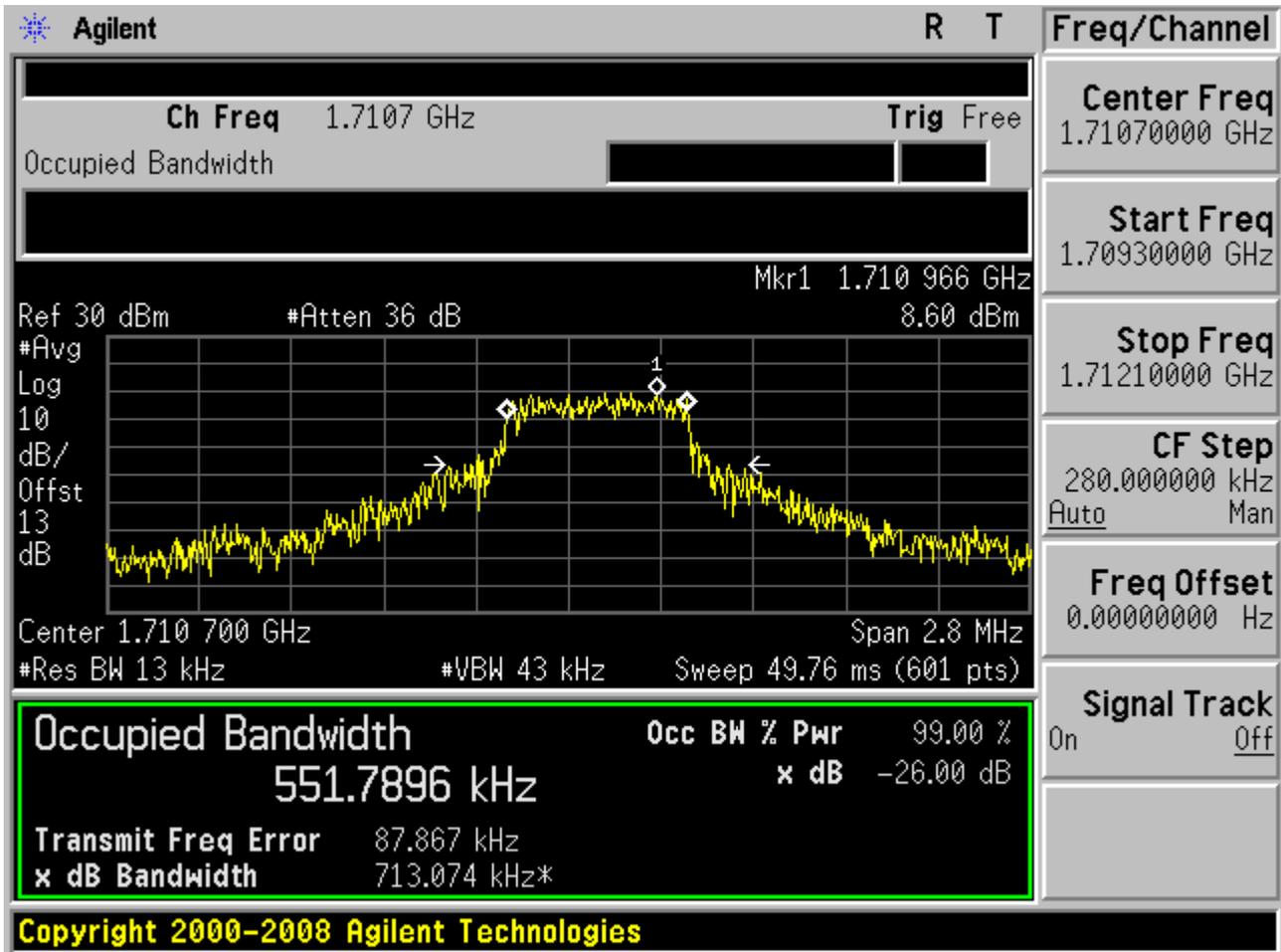


2.1.1.1.2 QPSK/1RB # max



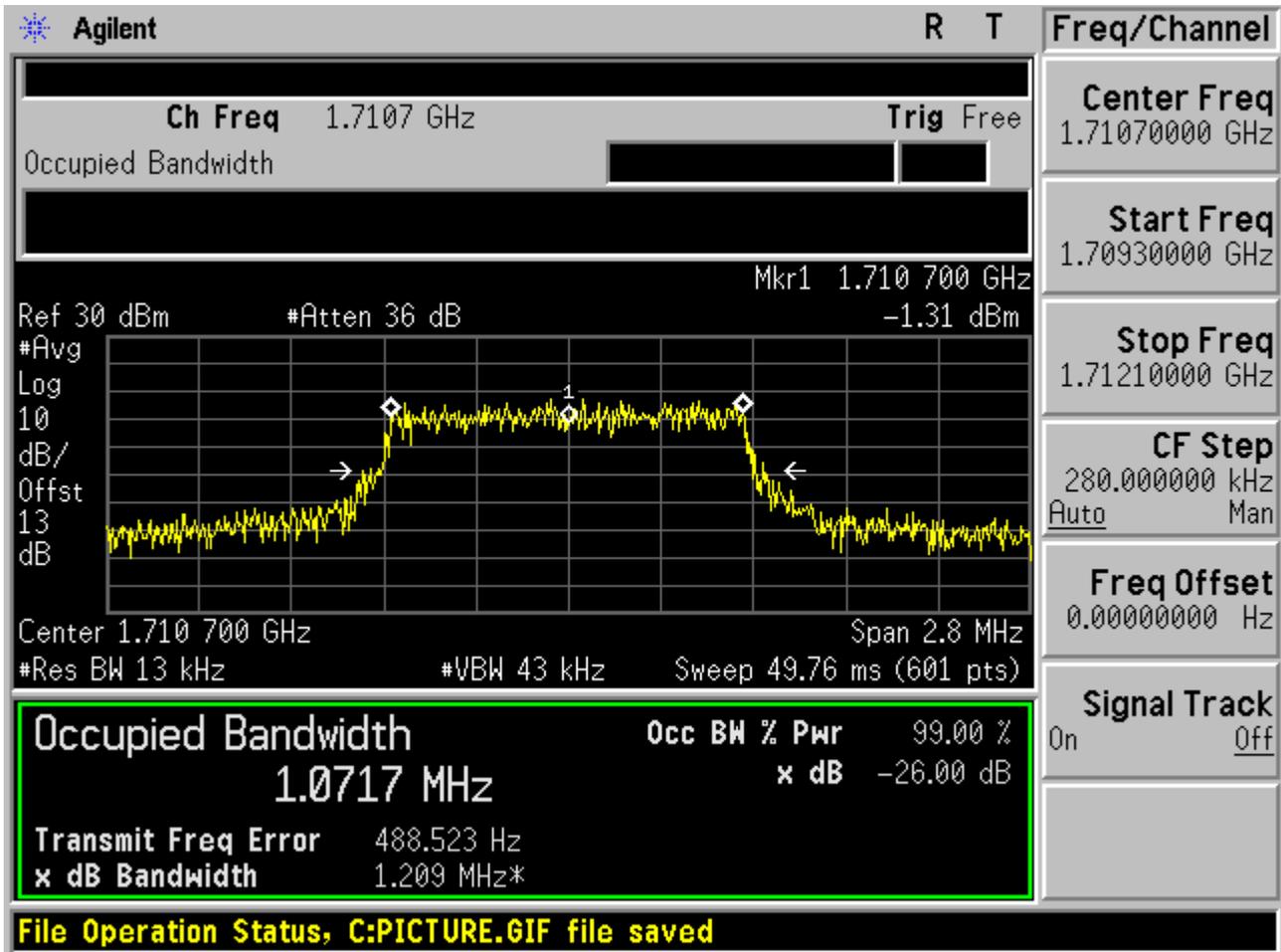


2.1.1.1.3 QPSK/non-1RB #mid/2





2.1.1.1.4 QPSK/full RBs





2.1.1.2 Channel =M

2.1.1.2.1 QPSK/1RB # 0



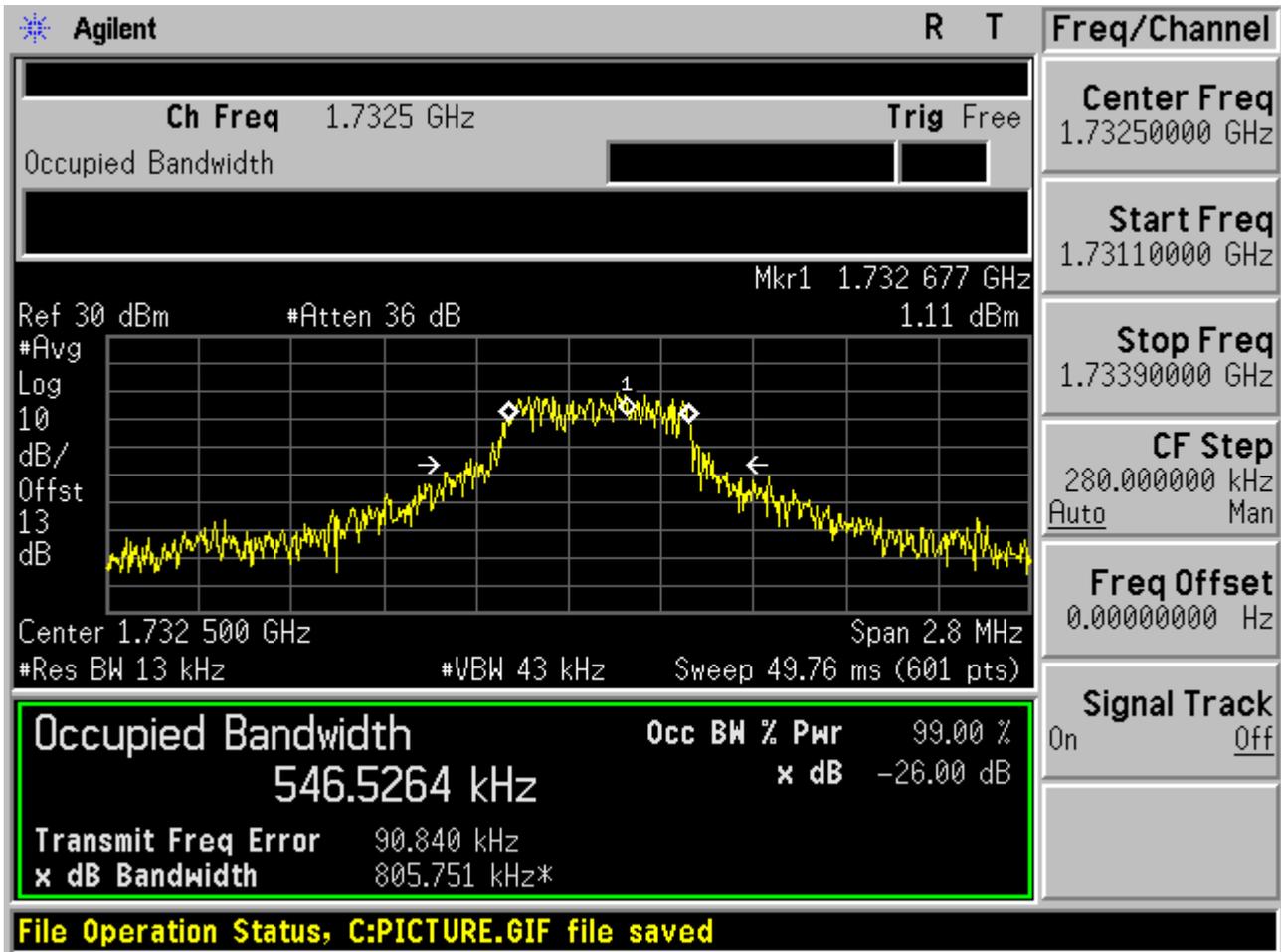


2.1.1.2.2 QPSK/1RB # max





2.1.1.2.3 QPSK/non-1RB #mid/2





2.1.1.2.4 QPSK/full RBs





2.1.1.3 Channel =T

2.1.1.3.1 QPSK/1RB # 0





2.1.1.3.2 QPSK/1RB # max





2.1.1.3.3 QPSK/non-1RB #mid/2

Agilent R T

Ch Freq 1.7543 GHz **Trig** Free

Occupied Bandwidth Mkr1 1.754 291 GHz

Ref 30 dBm #Atten 36 dB 5.63 dBm

#Avg 10
 Log
 dB/
 Offst 13
 dB

Center 1.754 300 GHz Span 2.8 MHz

#Res BW 13 kHz #VBW 43 kHz Sweep 49.76 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr 99.00 %
550.4976 kHz	x dB -26.00 dB
Transmit Freq Error 85.747 kHz	
x dB Bandwidth 731.390 kHz*	

File Operation Status, C:PICTURE.GIF file saved

Freq/Channel

Center Freq
1.75430000 GHz

Start Freq
1.75290000 GHz

Stop Freq
1.75570000 GHz

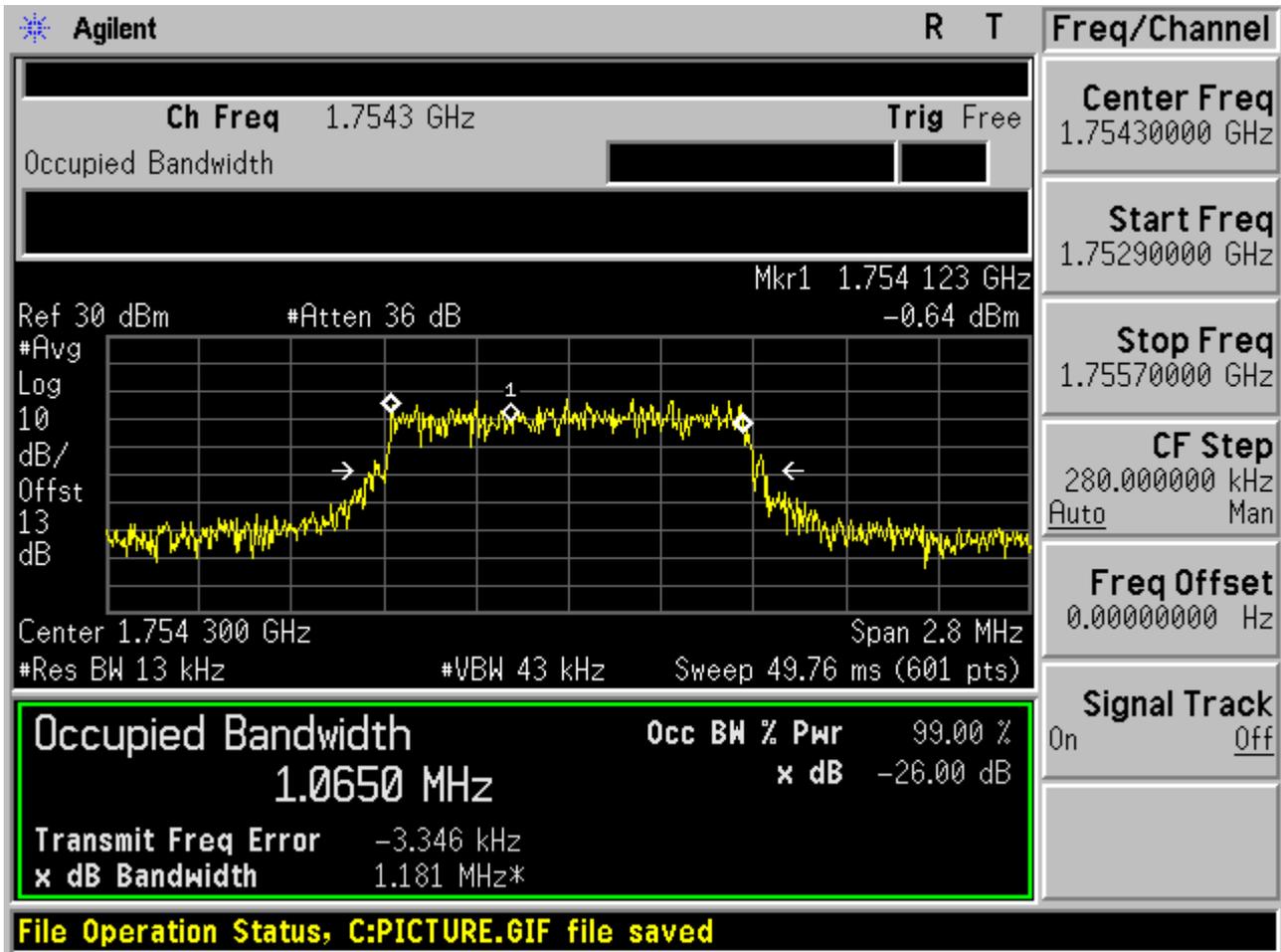
CF Step
280.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



2.1.1.3.4 QPSK/full RBs

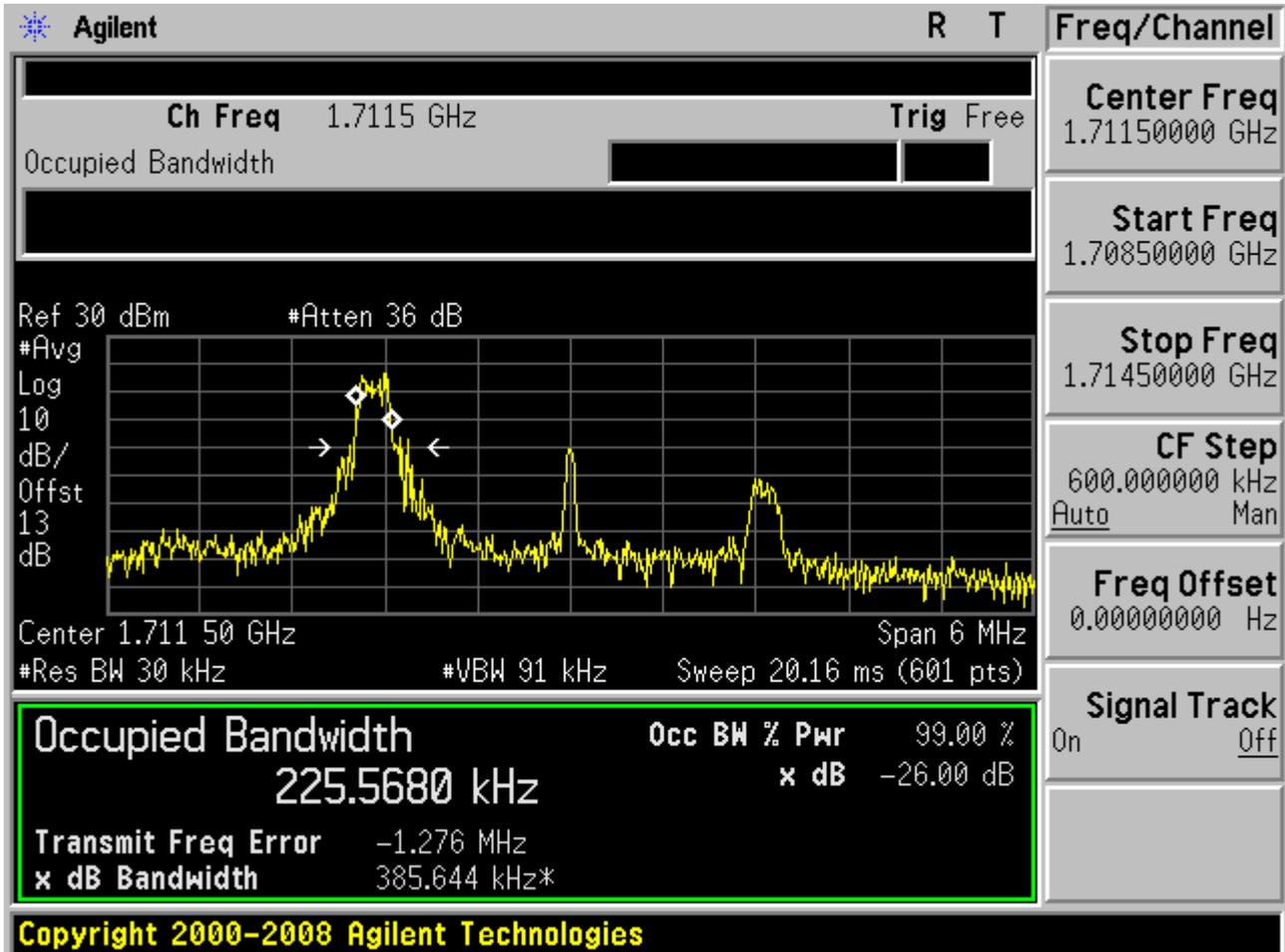




2.1.2 Channel Bandwidth = 3 MHz

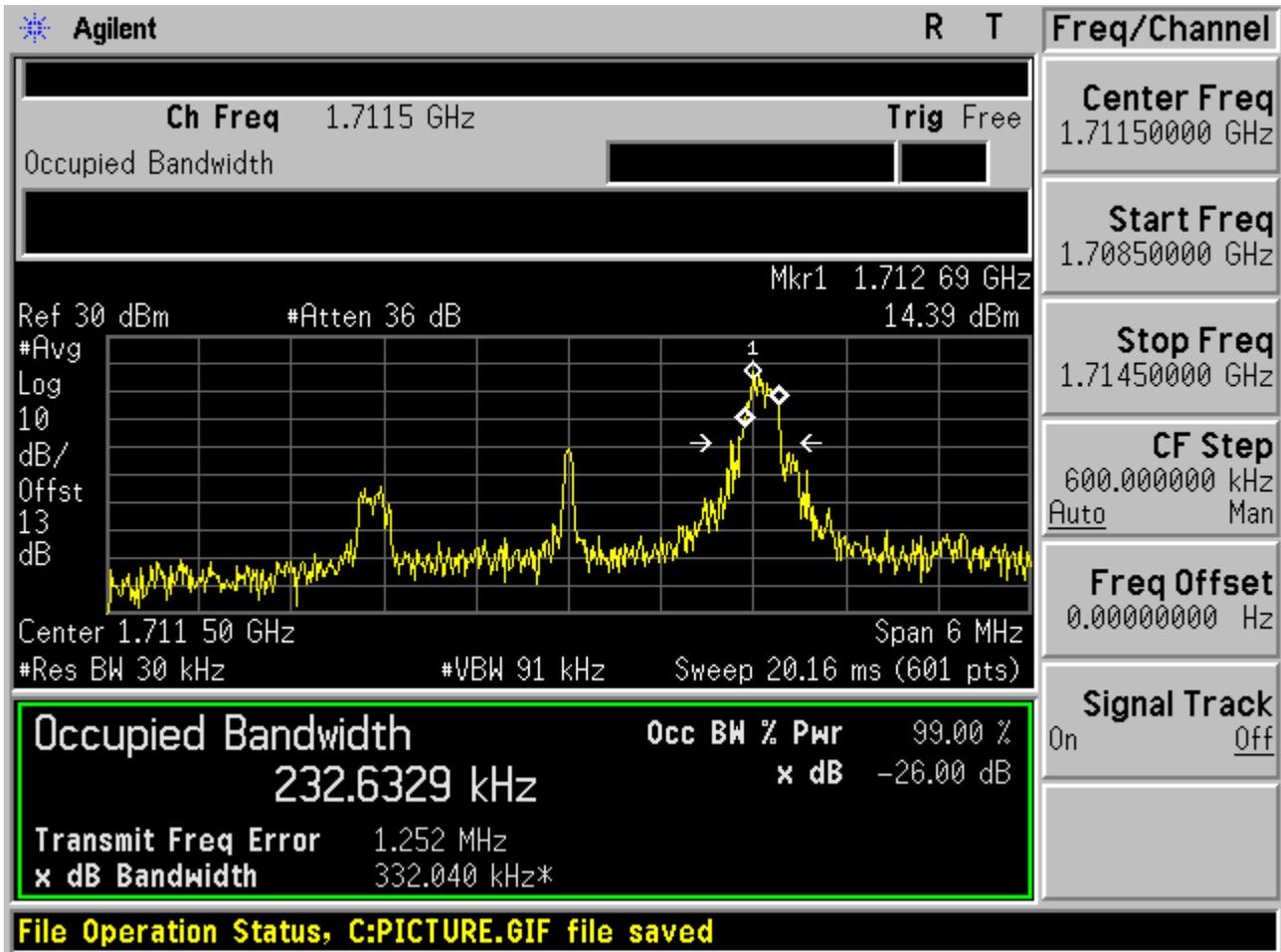
2.1.2.1 Channel = B

2.1.2.1.1 QPSK/1RB # 0



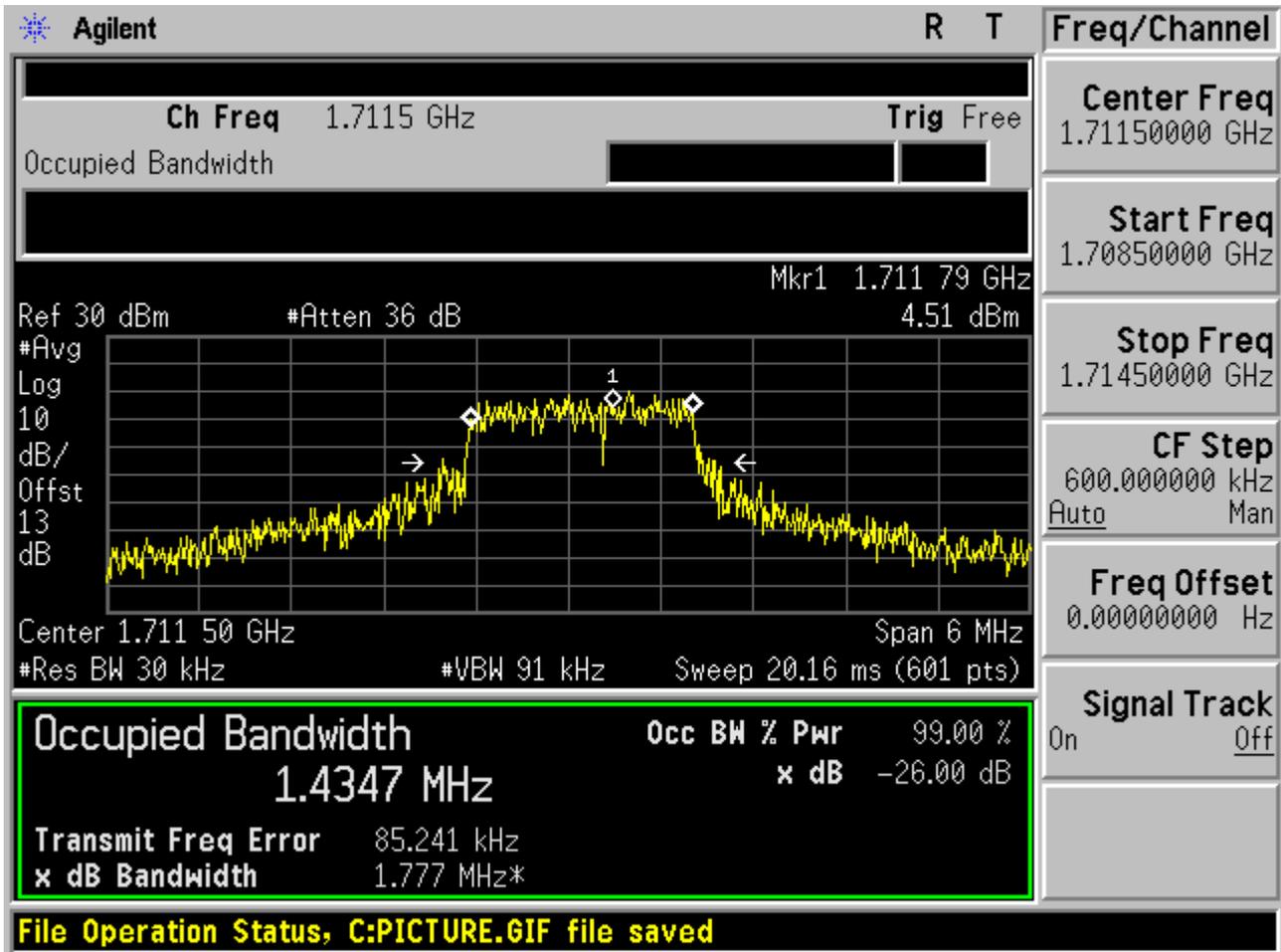


2.1.2.1.2 QPSK/1RB # max



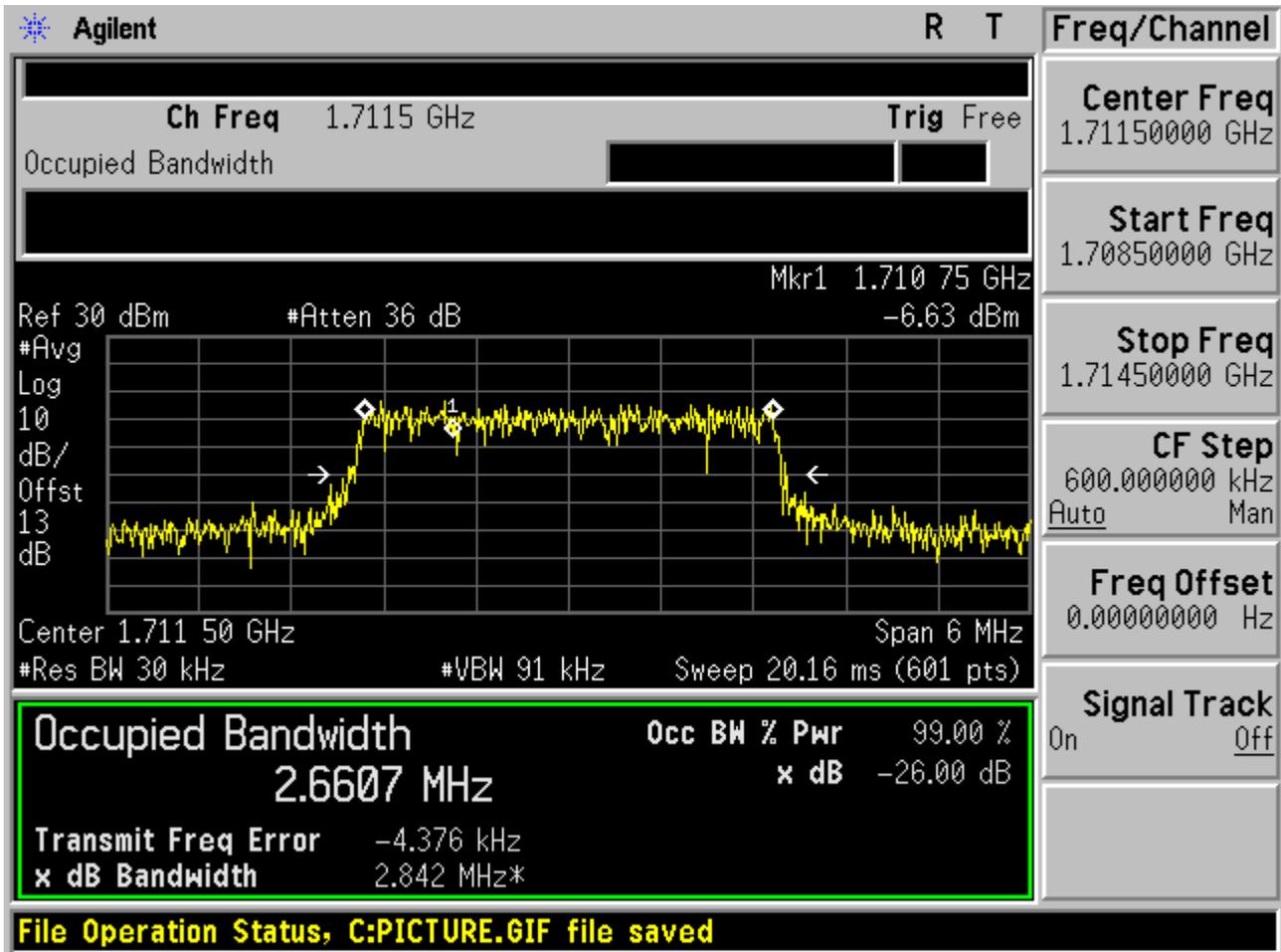


2.1.2.1.3 QPSK/non-1RB #mid/2



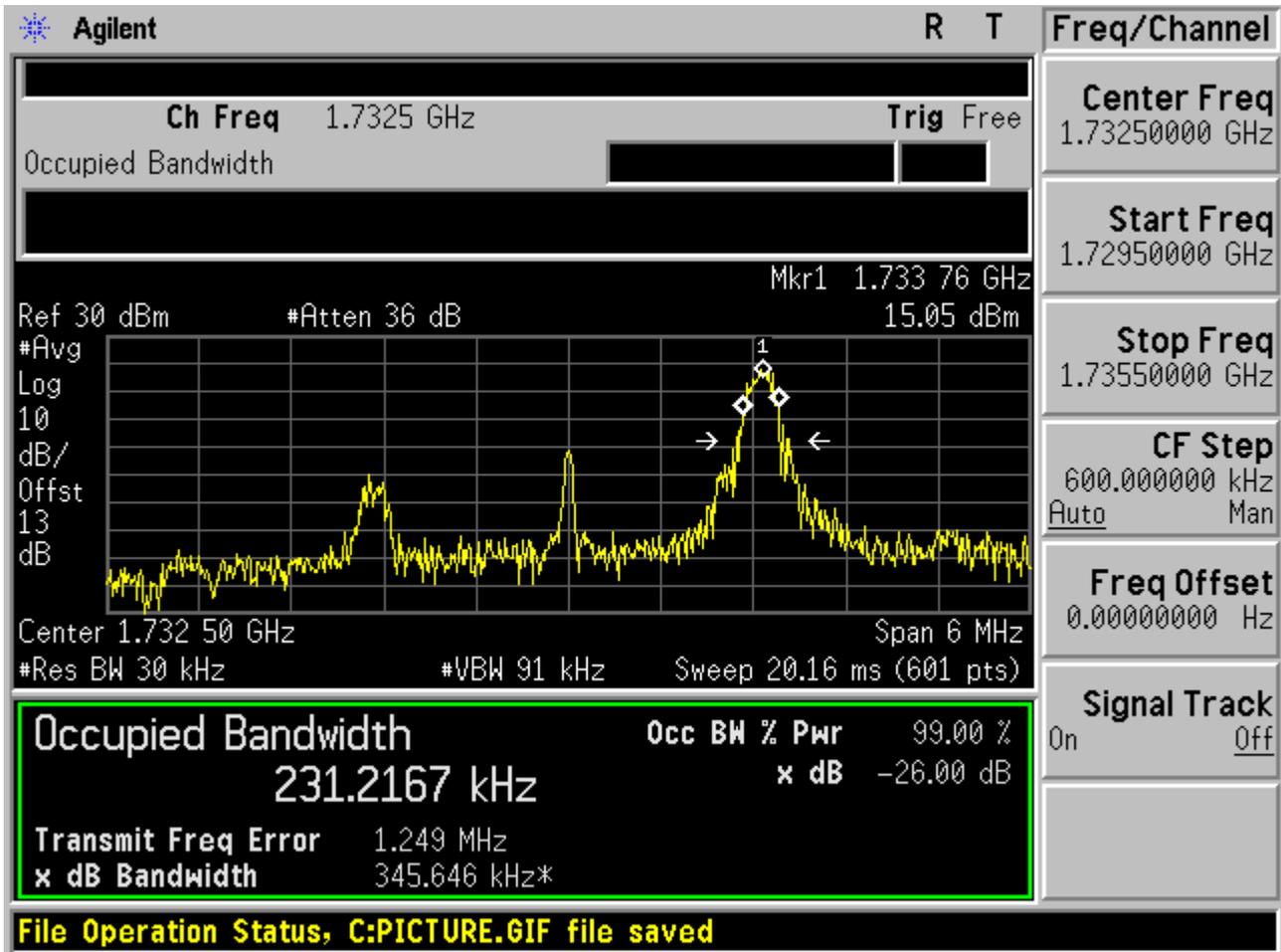


2.1.2.1.4 QPSK/full RBs





2.1.2.2.2 QPSK/1RB # max





2.1.2.2.3 QPSK/non-1RB #mid/2

Agilent R T

Ch Freq 1.7325 GHz **Trig** Free

Occupied Bandwidth [Progress Bar]

Ref 30 dBm #Atten 36 dB Mkr1 1.732 55 GHz

#Avg 10 -3.18 dBm

Log

dB/

Offst 13

dB

Center 1.732 50 GHz Span 6 MHz

#Res BW 30 kHz #VBW 91 kHz Sweep 20.16 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr 99.00 %
1.4391 MHz	x dB -26.00 dB
Transmit Freq Error 88.665 kHz	
x dB Bandwidth 1.751 MHz*	

File Operation Status, C:PICTURE.GIF file saved

Freq/Channel

Center Freq
1.73250000 GHz

Start Freq
1.72950000 GHz

Stop Freq
1.73550000 GHz

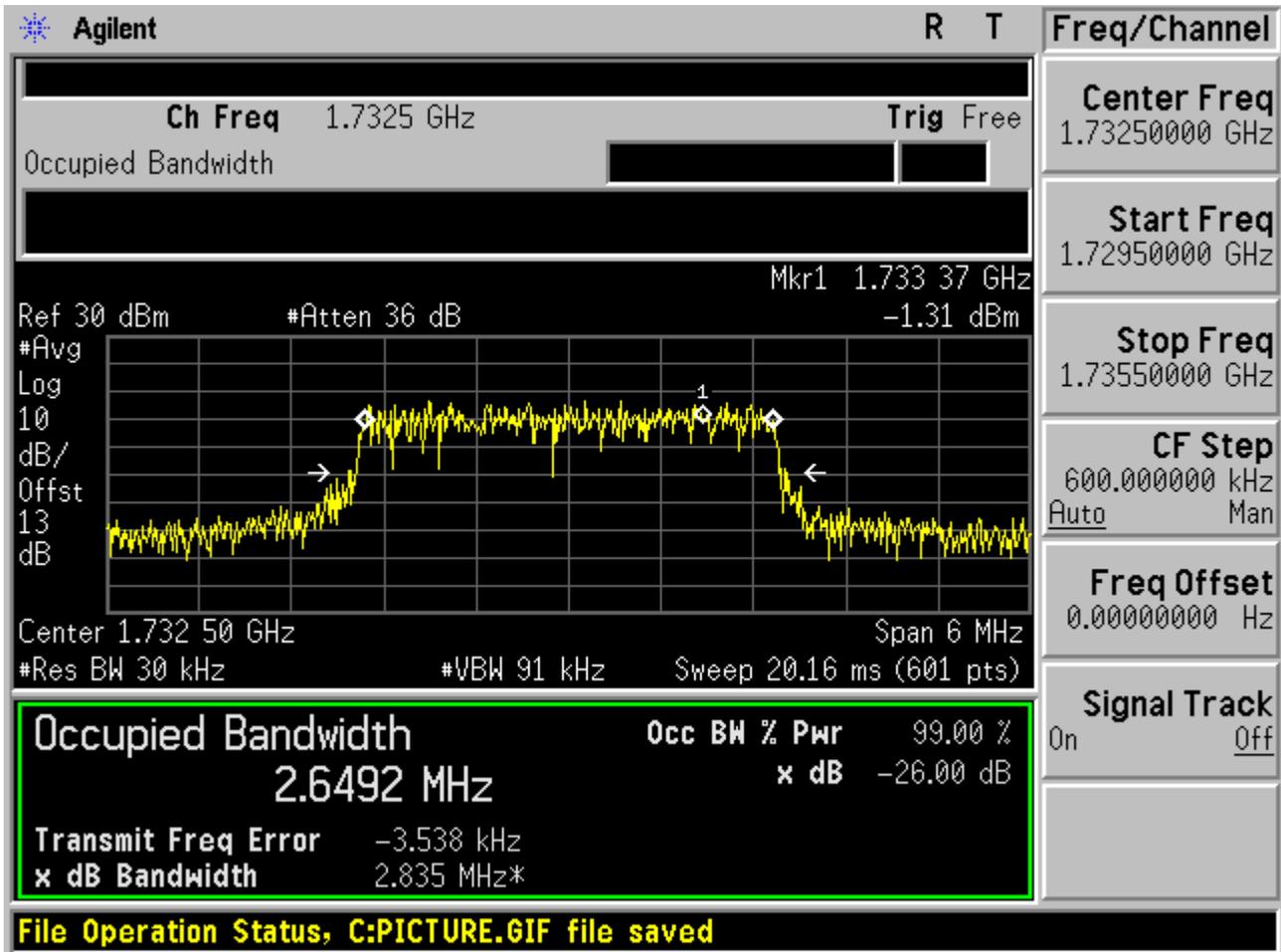
CF Step
600.000000 kHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



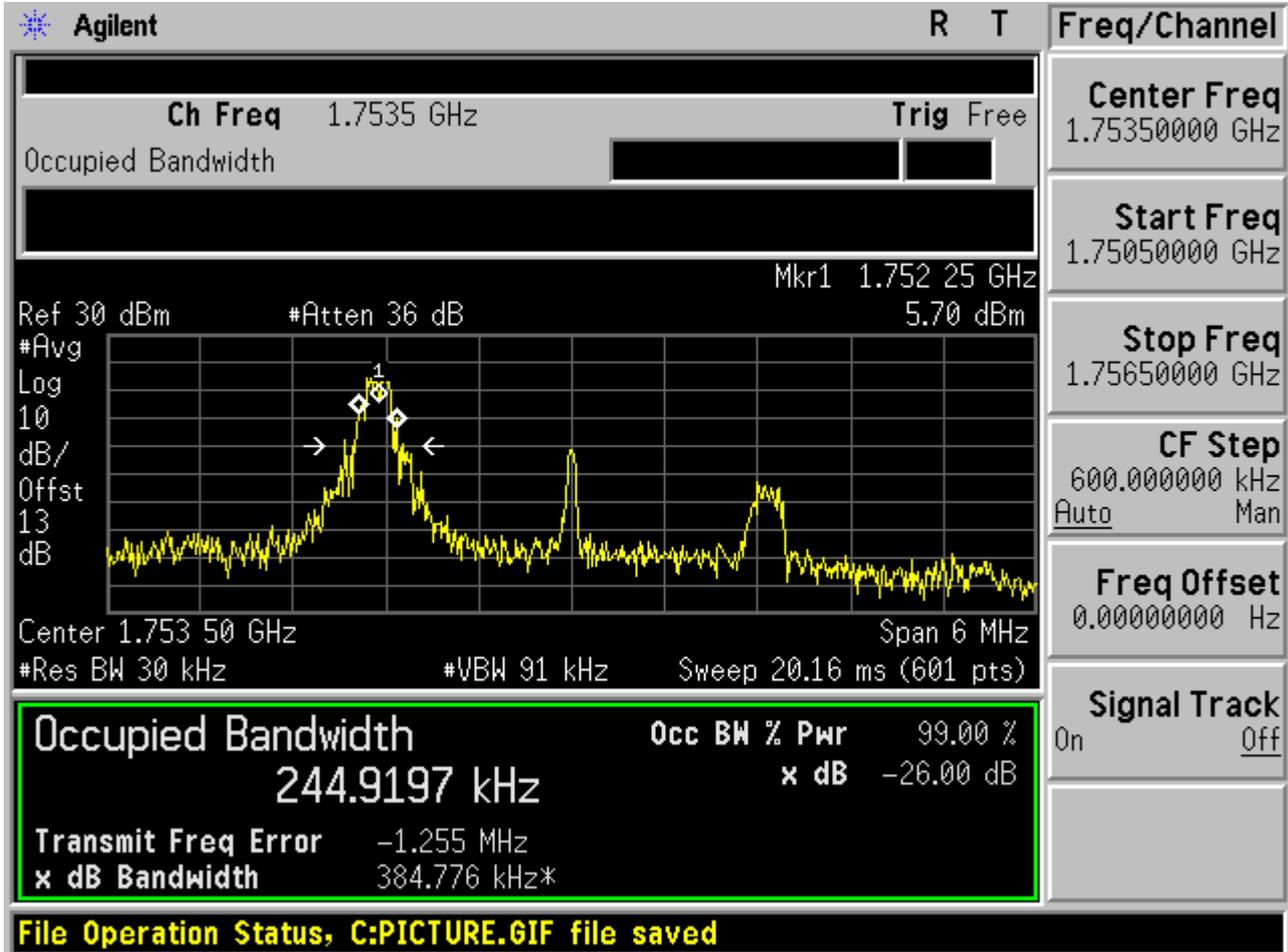
2.1.2.2.4 QPSK/full RBs





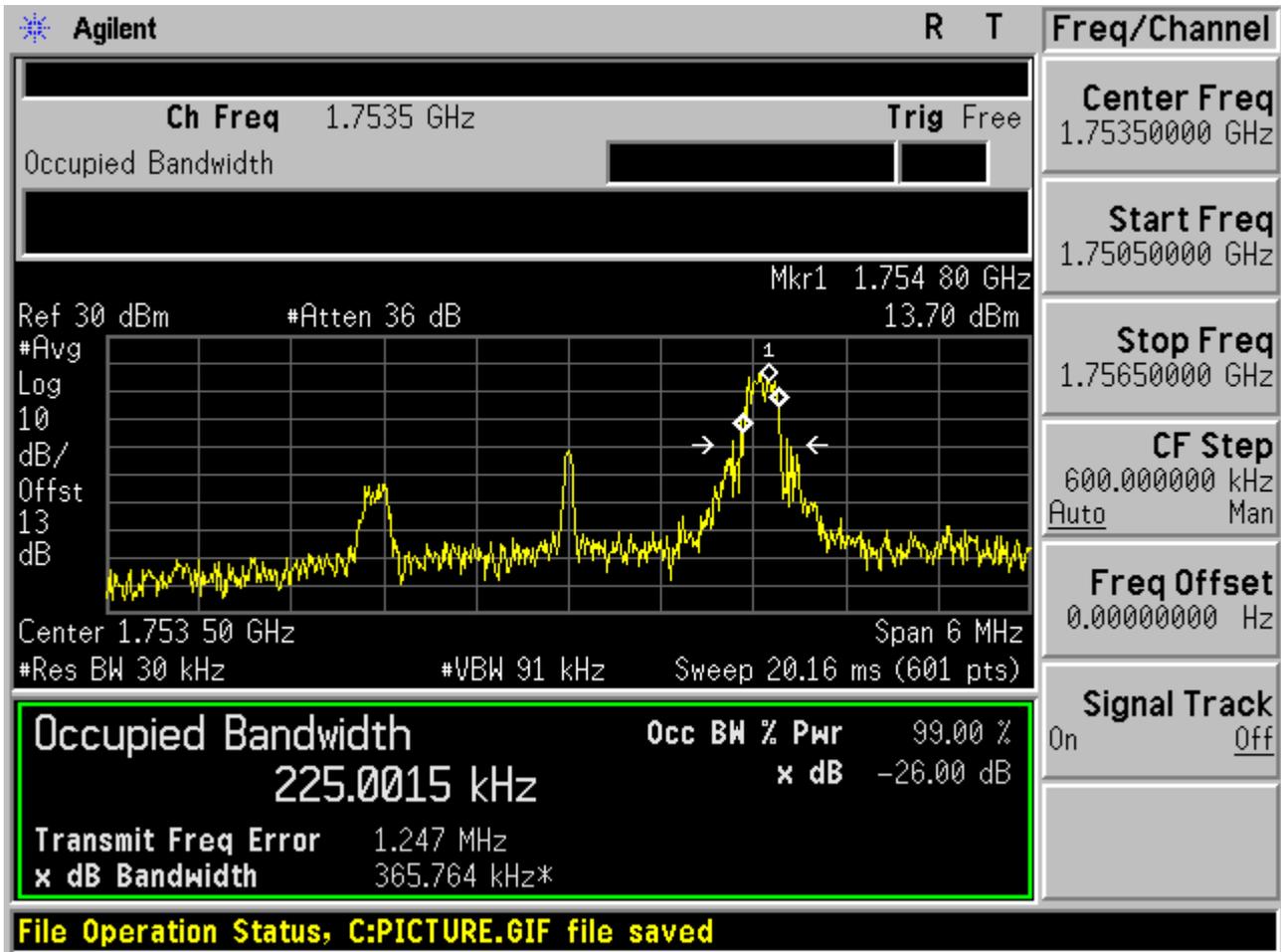
2.1.2.3 Channel =T

2.1.2.3.1 QPSK/1RB # 0



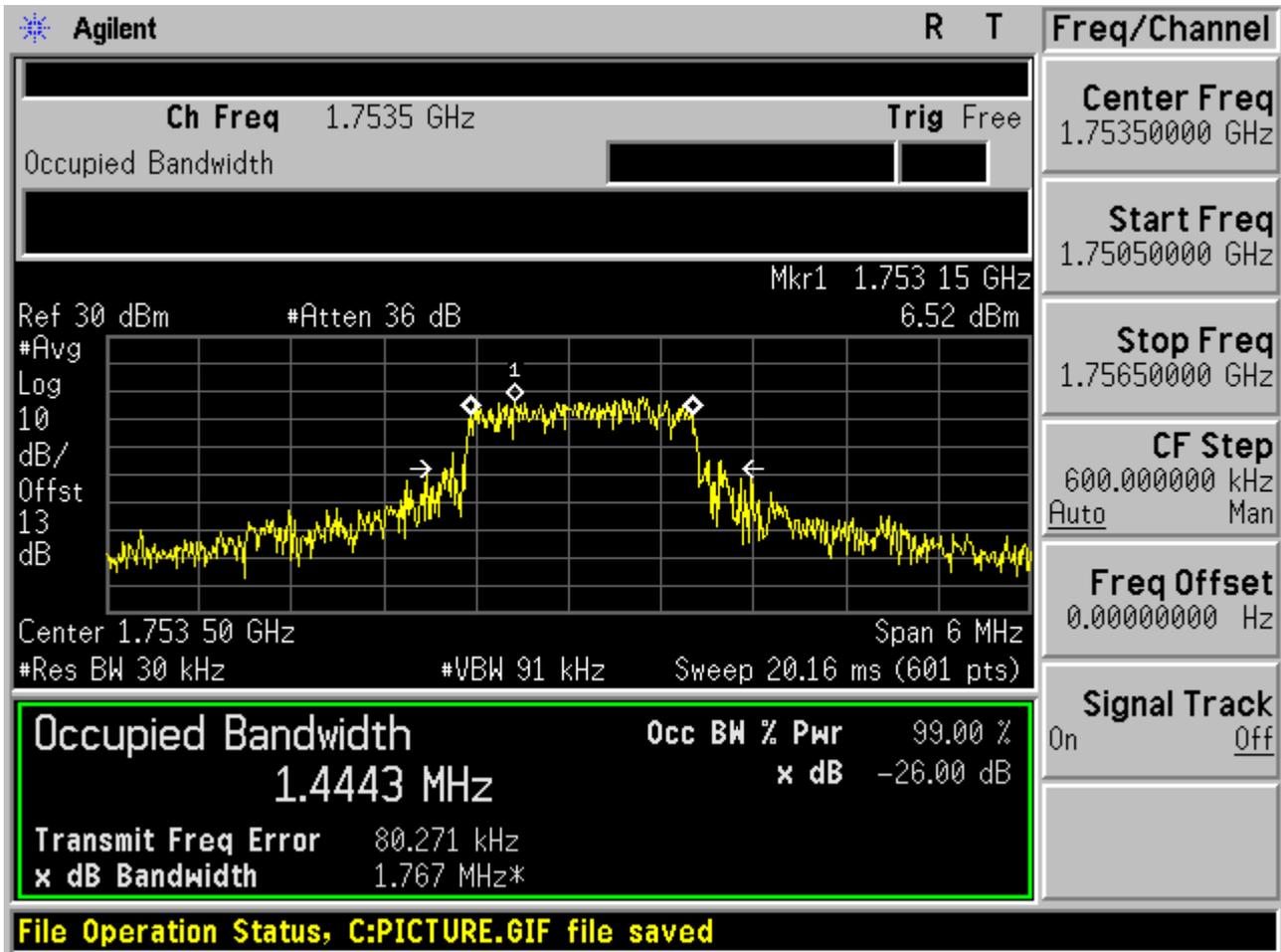


2.1.2.3.2 QPSK/1RB # max



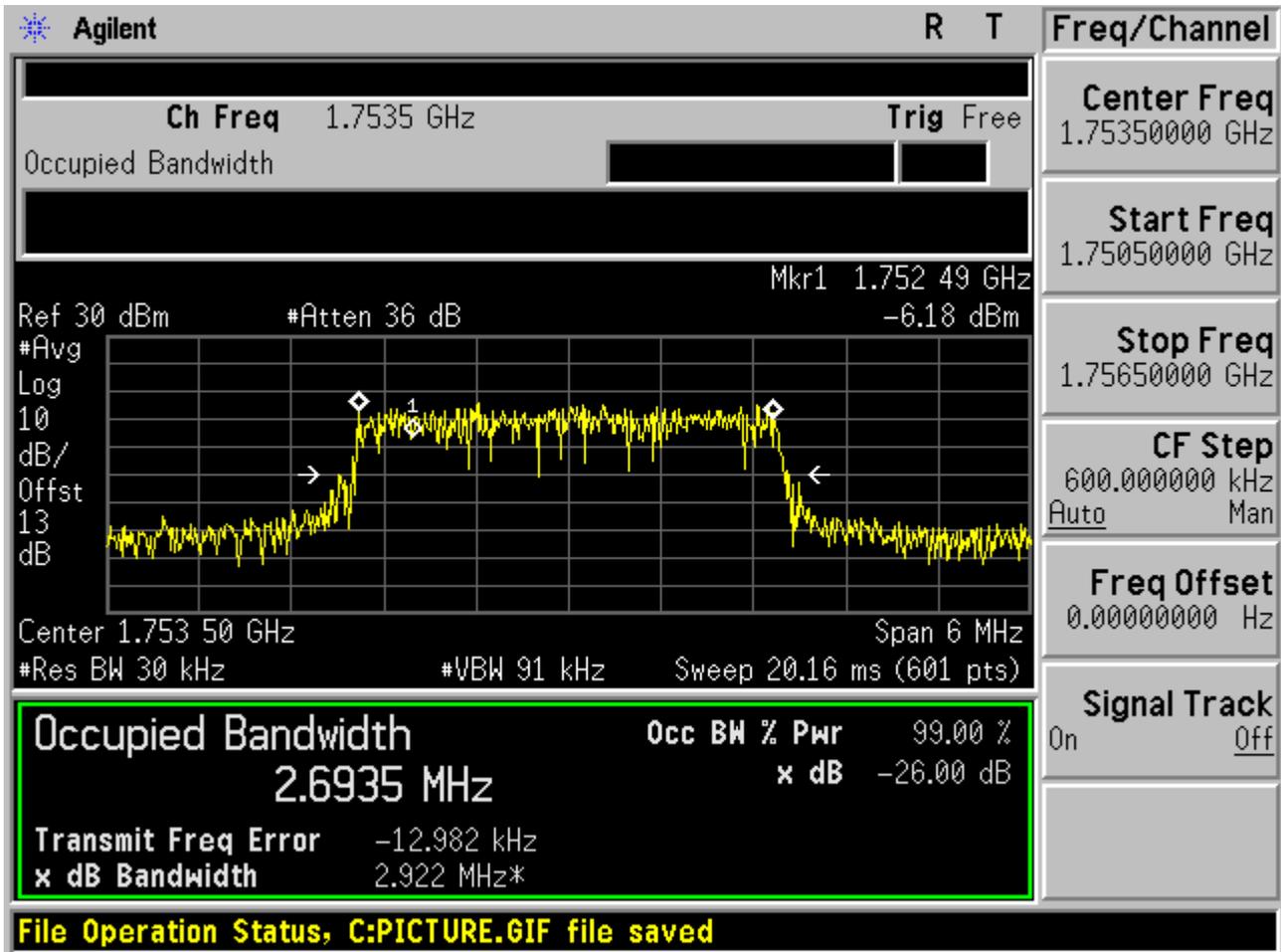


2.1.2.3.3 QPSK/non-1RB #mid/2





2.1.2.3.4 QPSK/full RBs

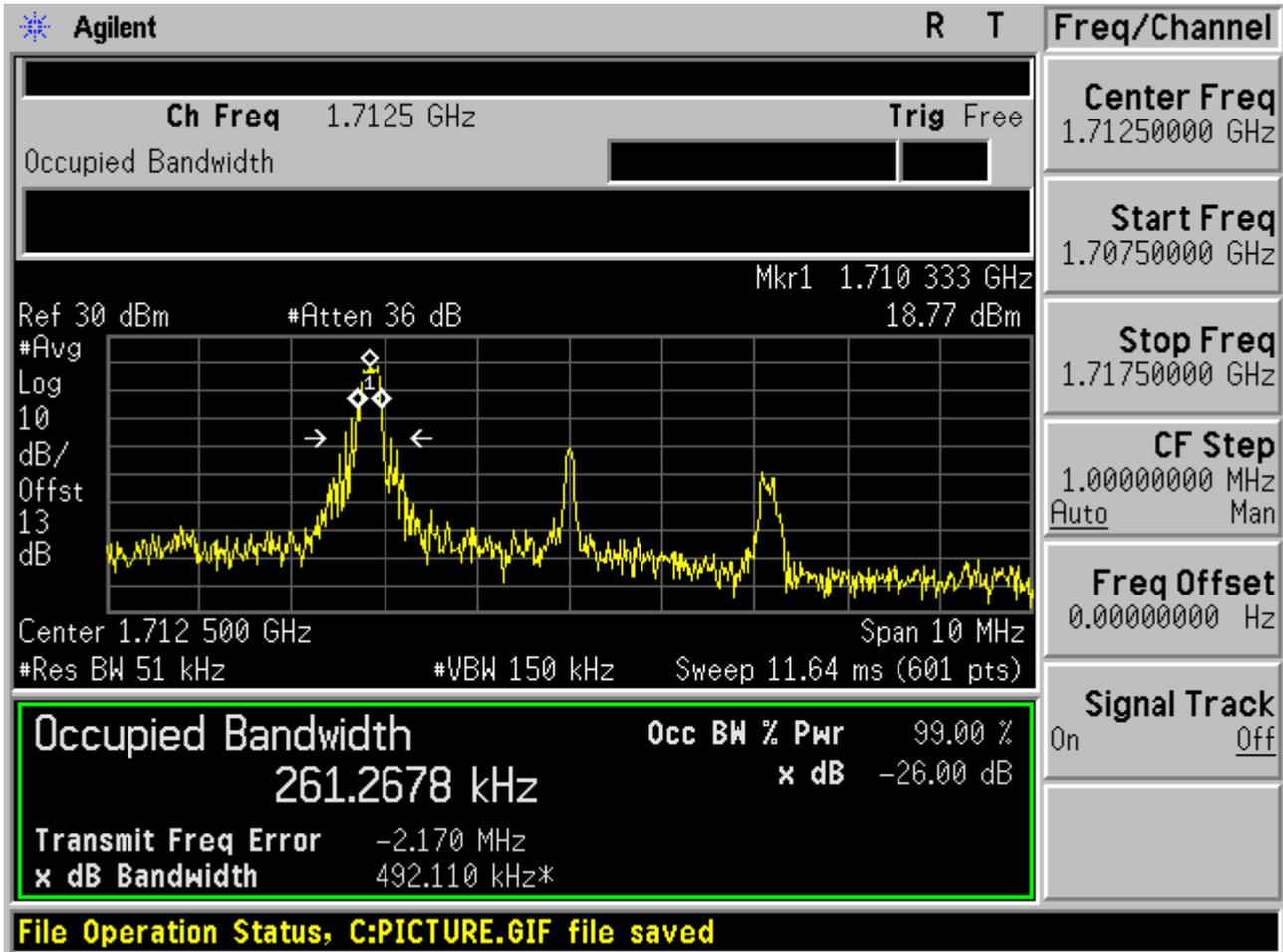




2.1.3 Channel Bandwidth = 5 MHz

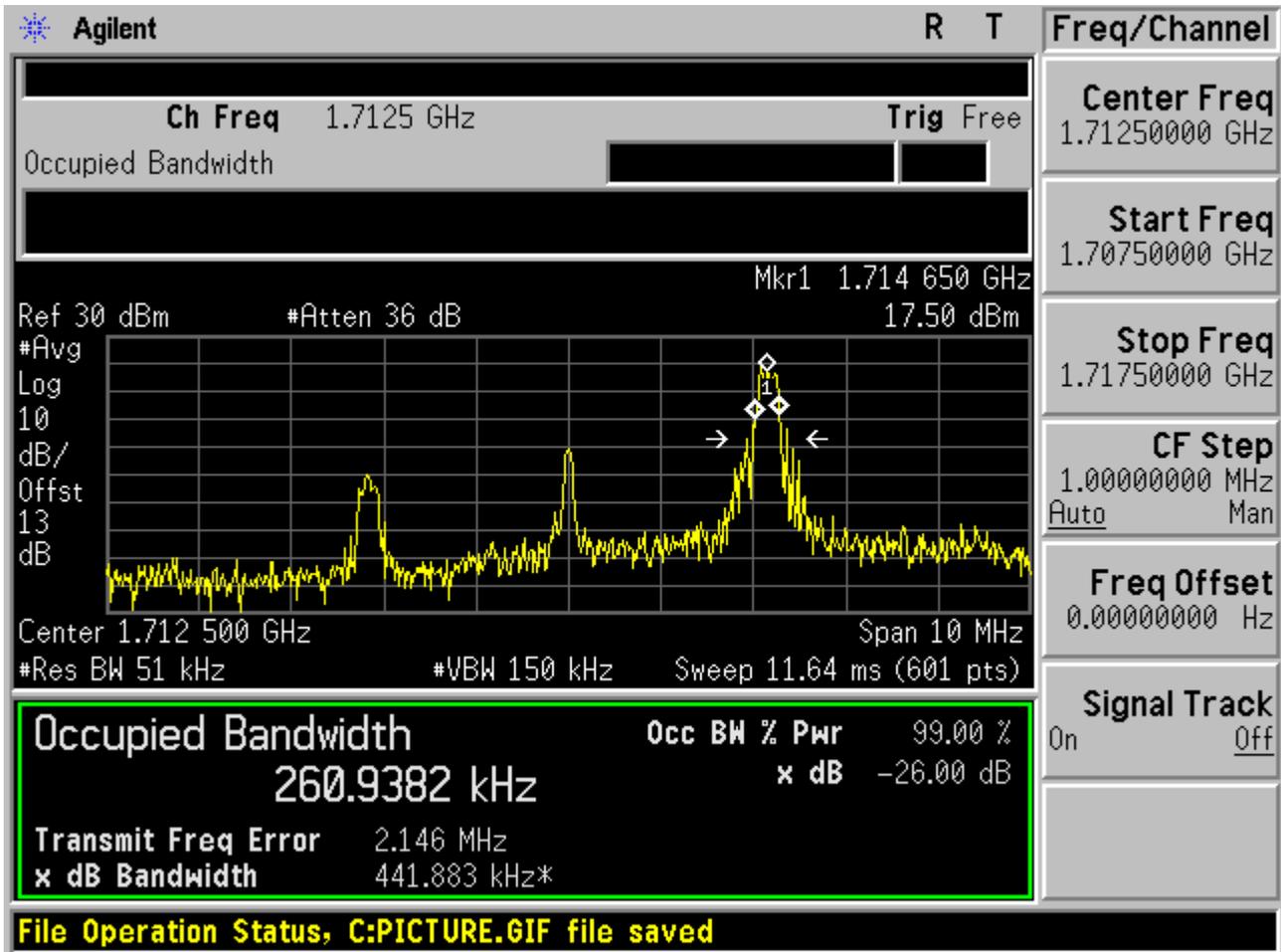
2.1.3.1 Channel = B

2.1.3.1.1 QPSK/1RB # 0



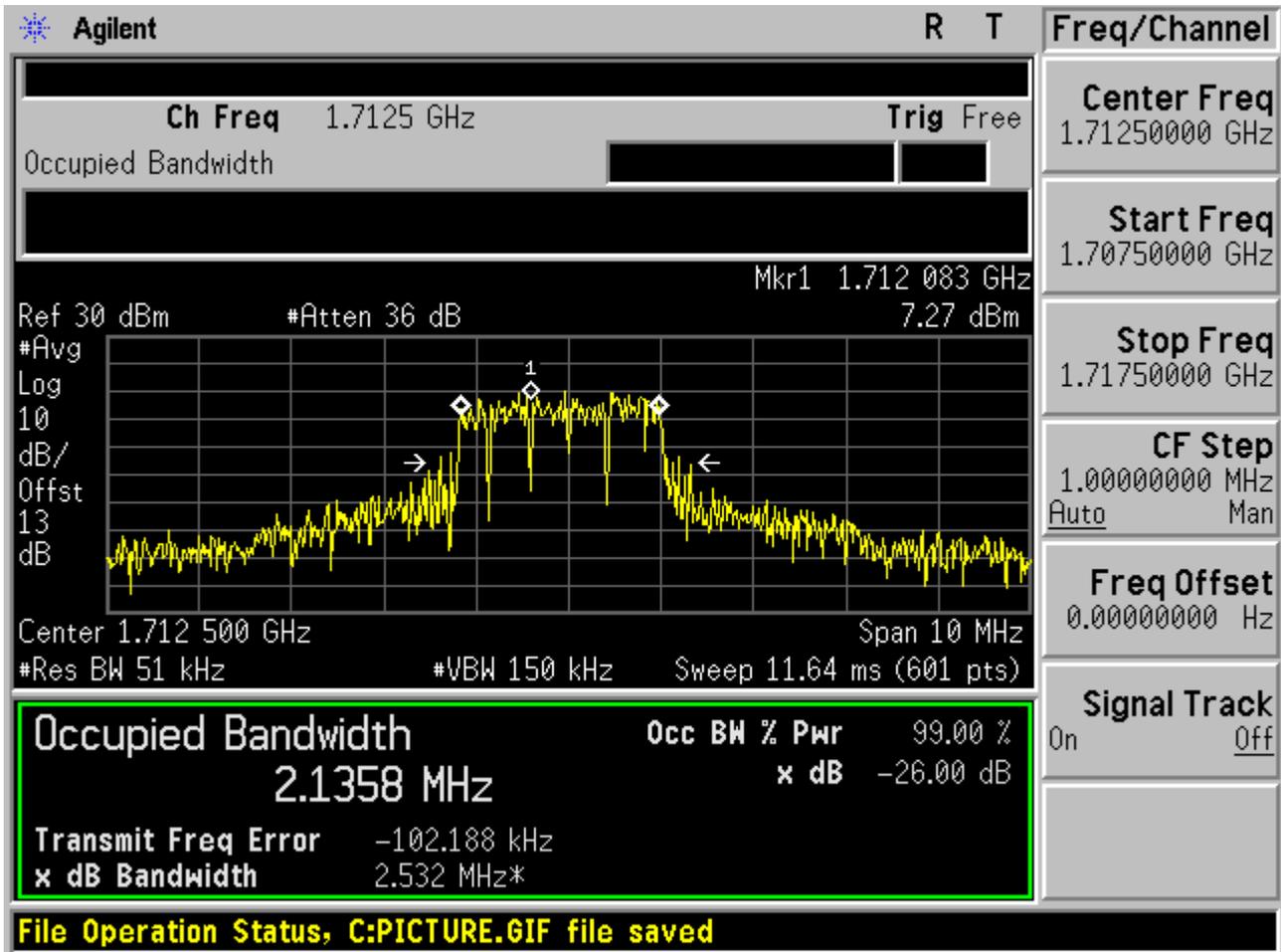


2.1.3.1.2 QPSK/1RB # max



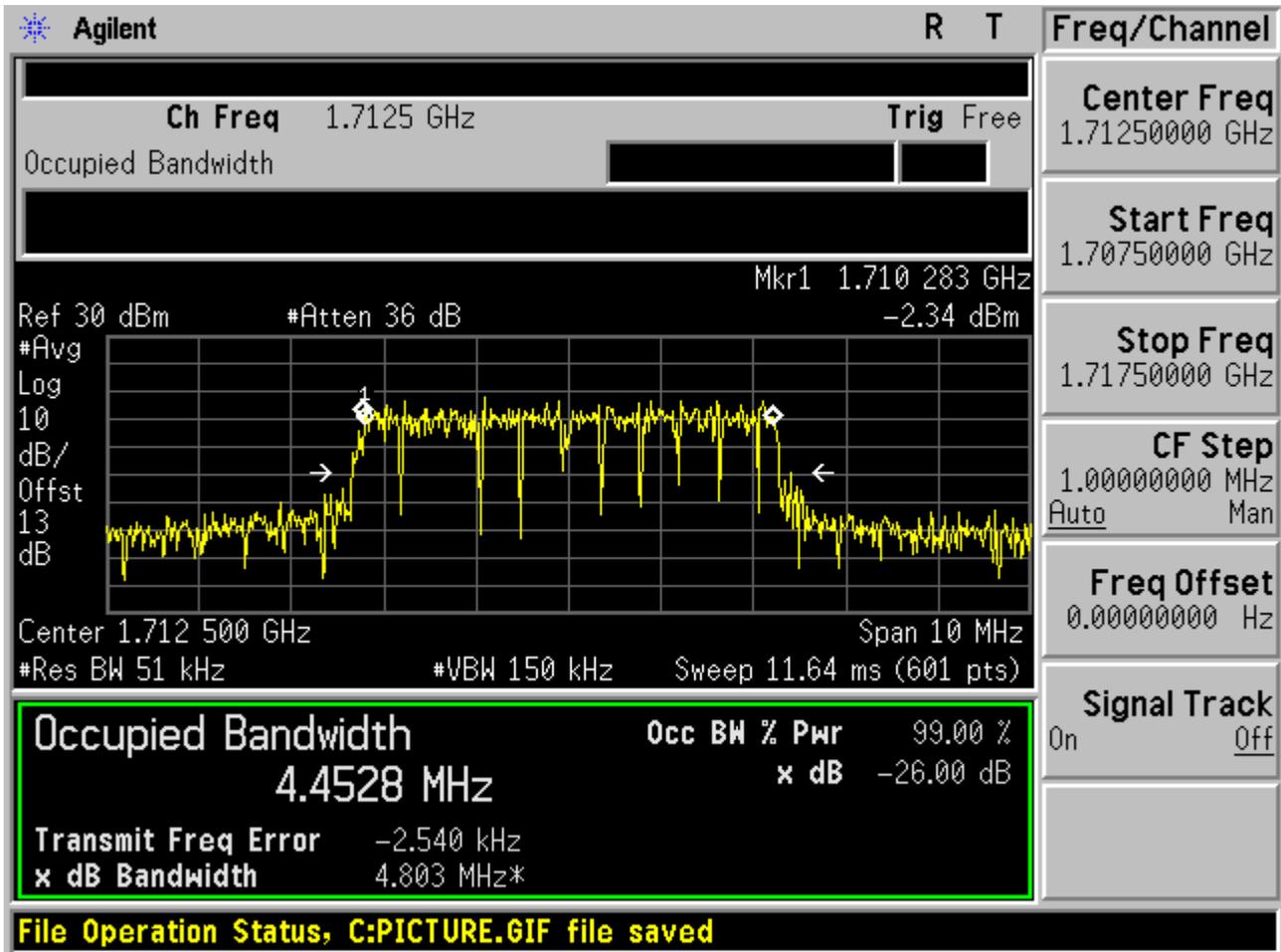


2.1.3.1.3 QPSK/non-1RB #mid/2





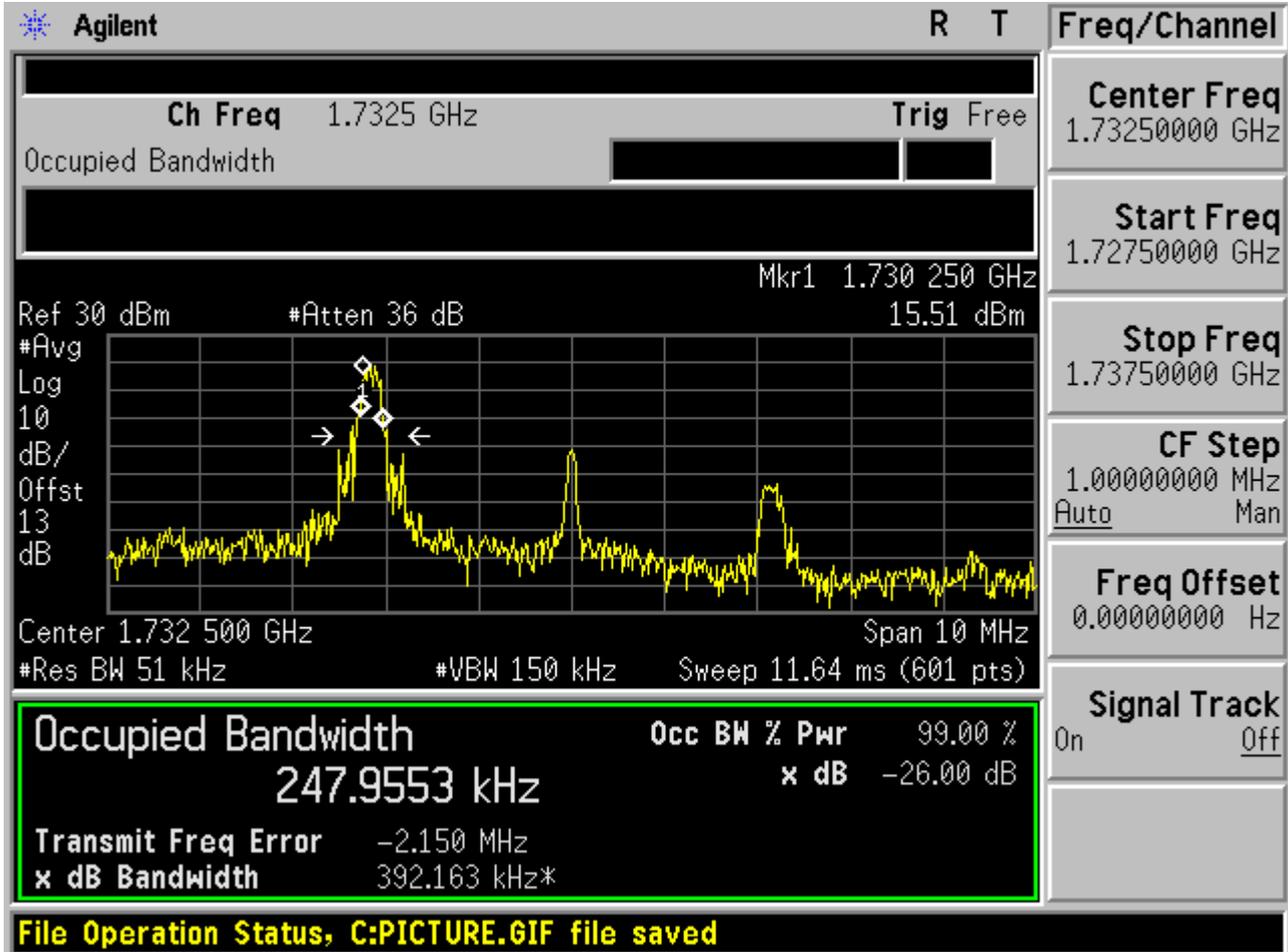
2.1.3.1.4 QPSK/full RBs





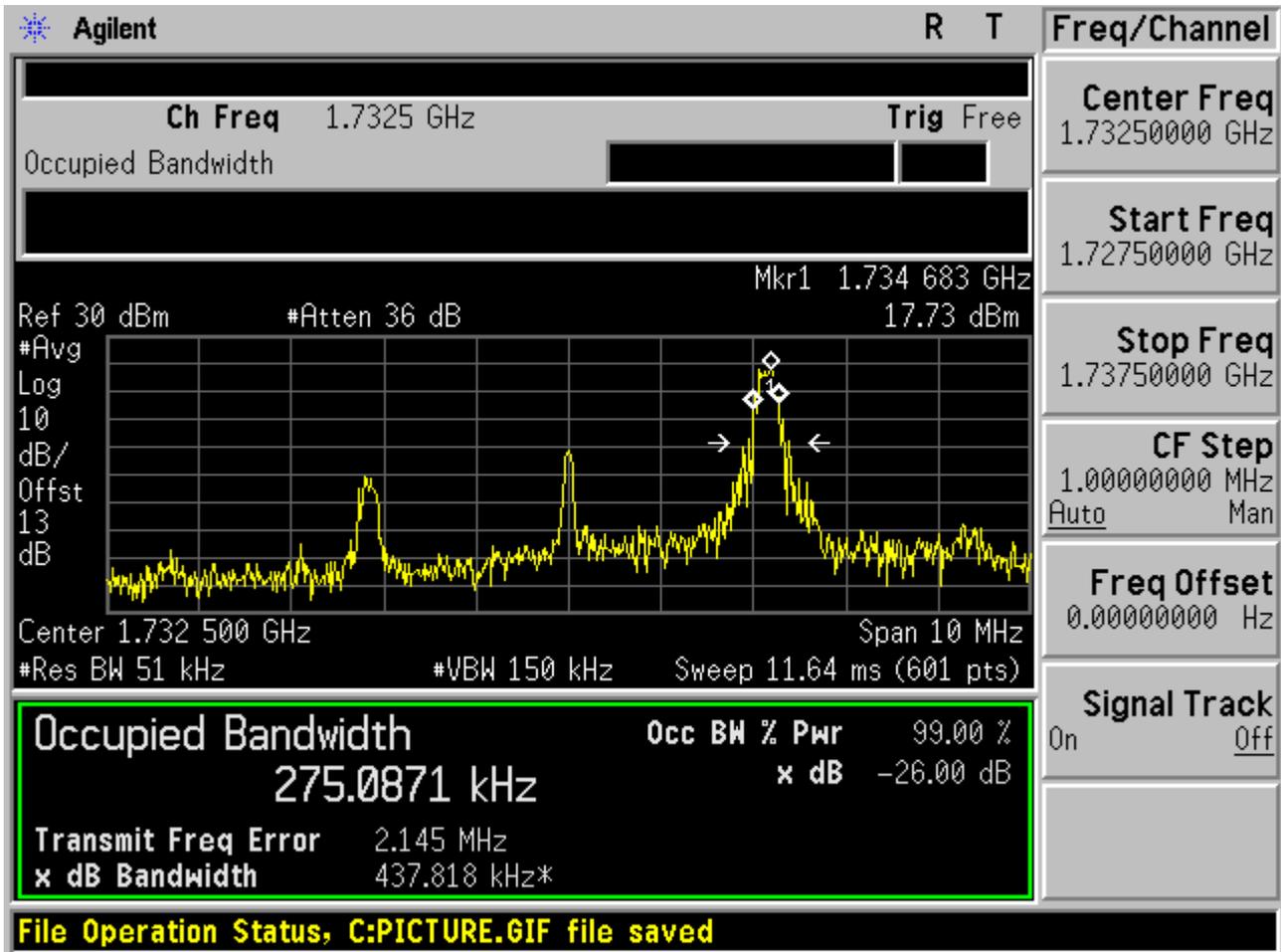
2.1.3.2 Channel =M

2.1.3.2.1 QPSK/1RB # 0





2.1.3.2.2 QPSK/1RB # max



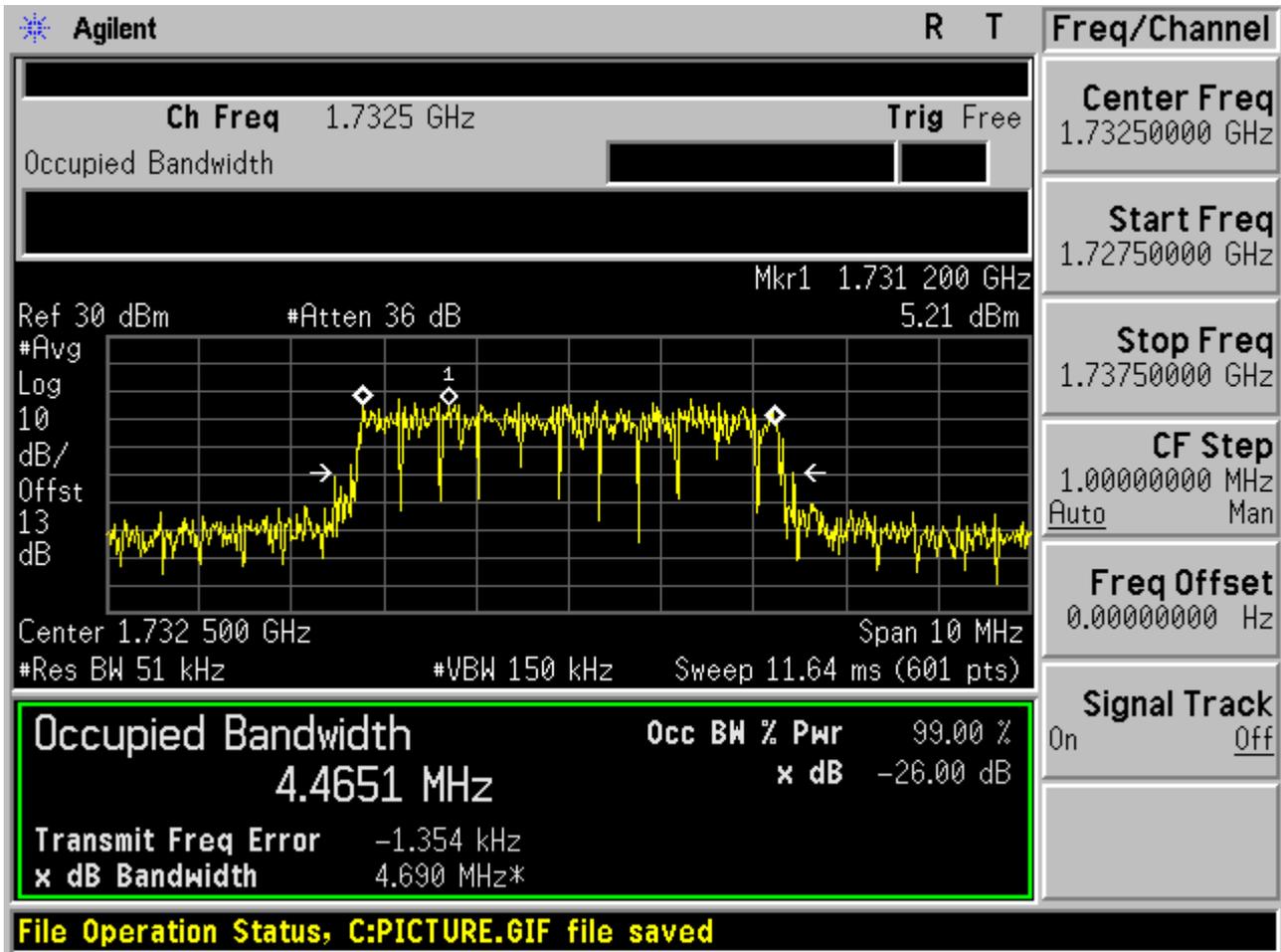


2.1.3.2.3 QPSK/non-1RB #mid/2





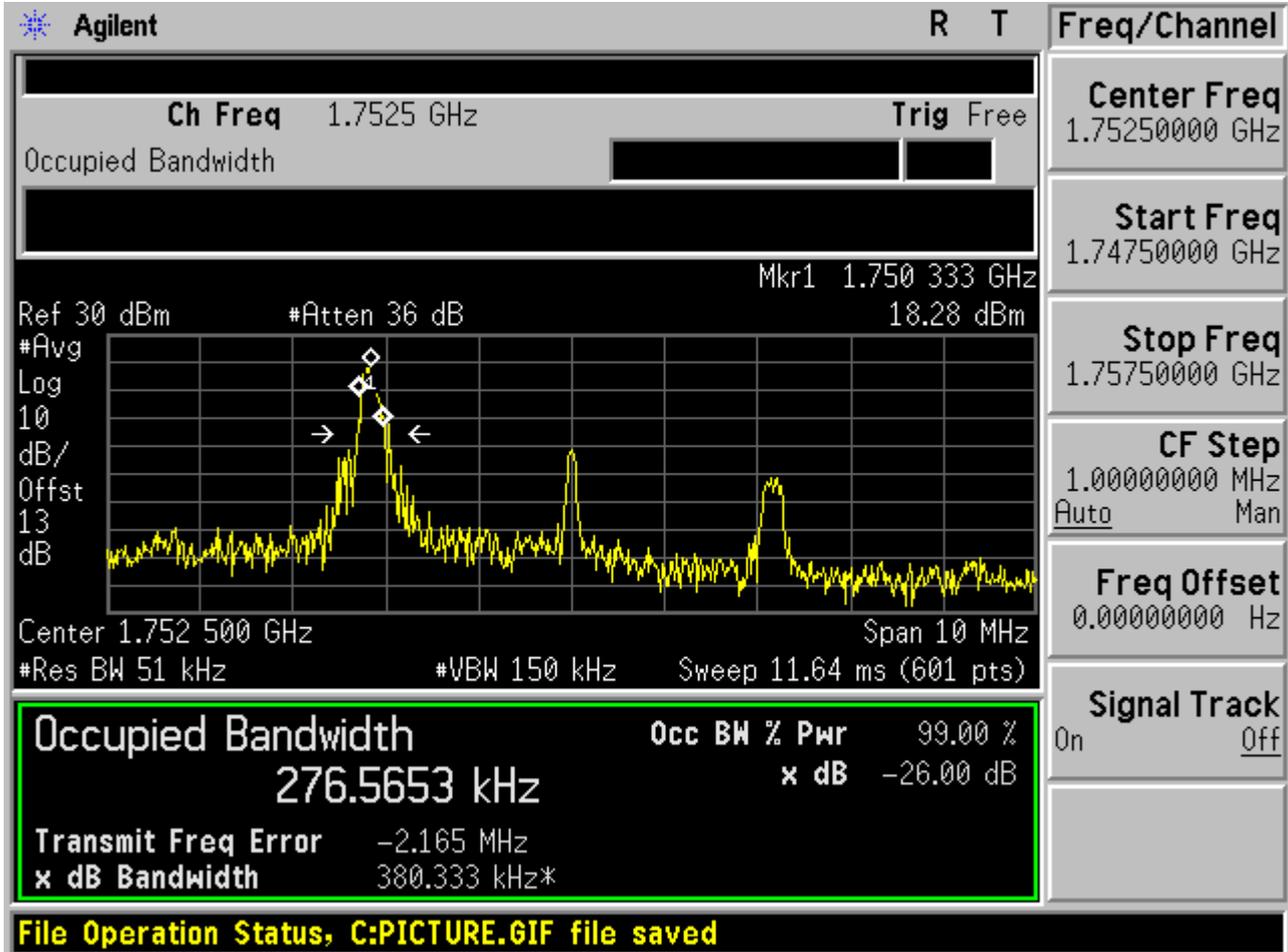
2.1.3.2.4 QPSK/full RBs





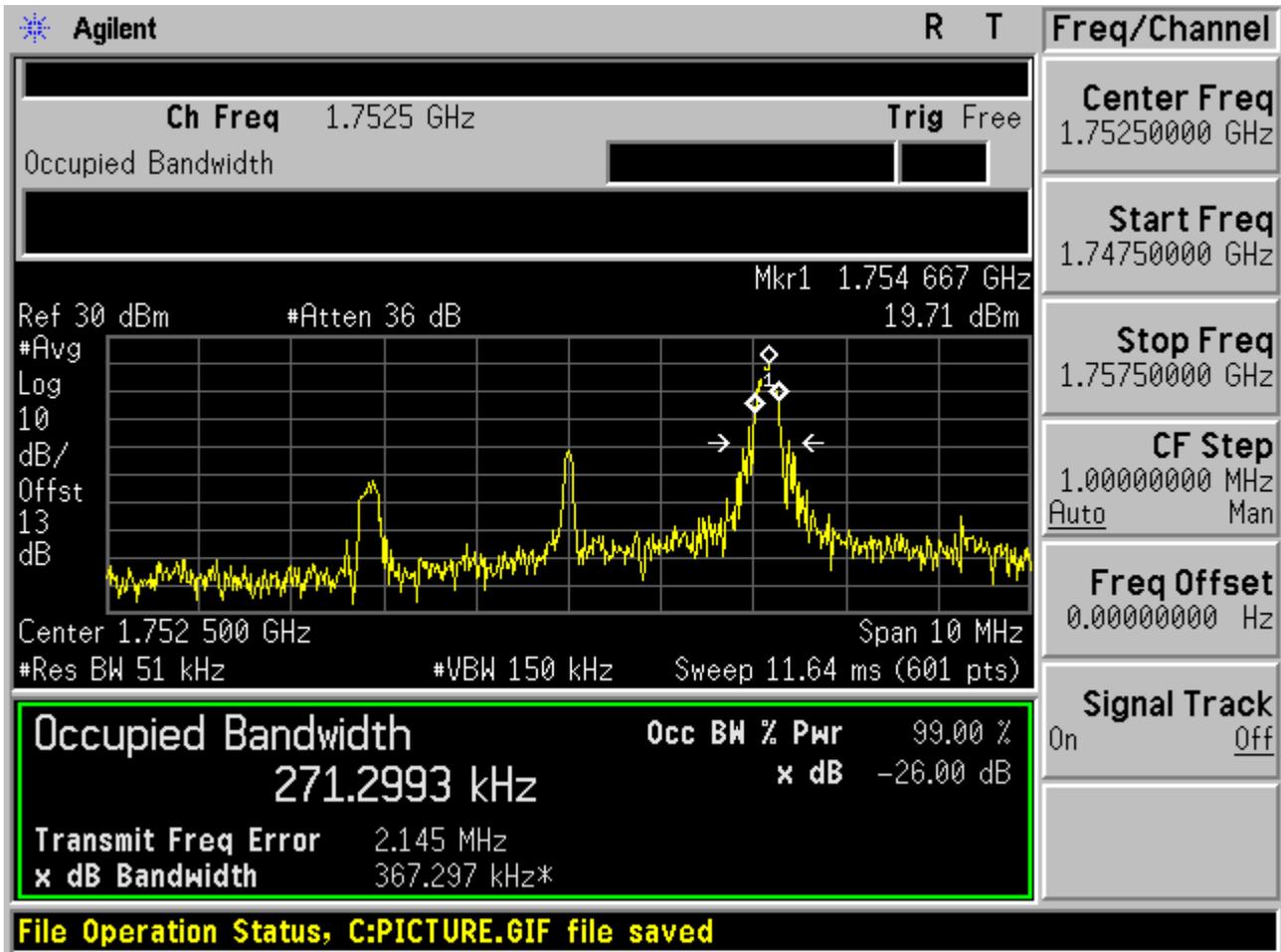
2.1.3.3 Channel =T

2.1.3.3.1 QPSK/1RB # 0



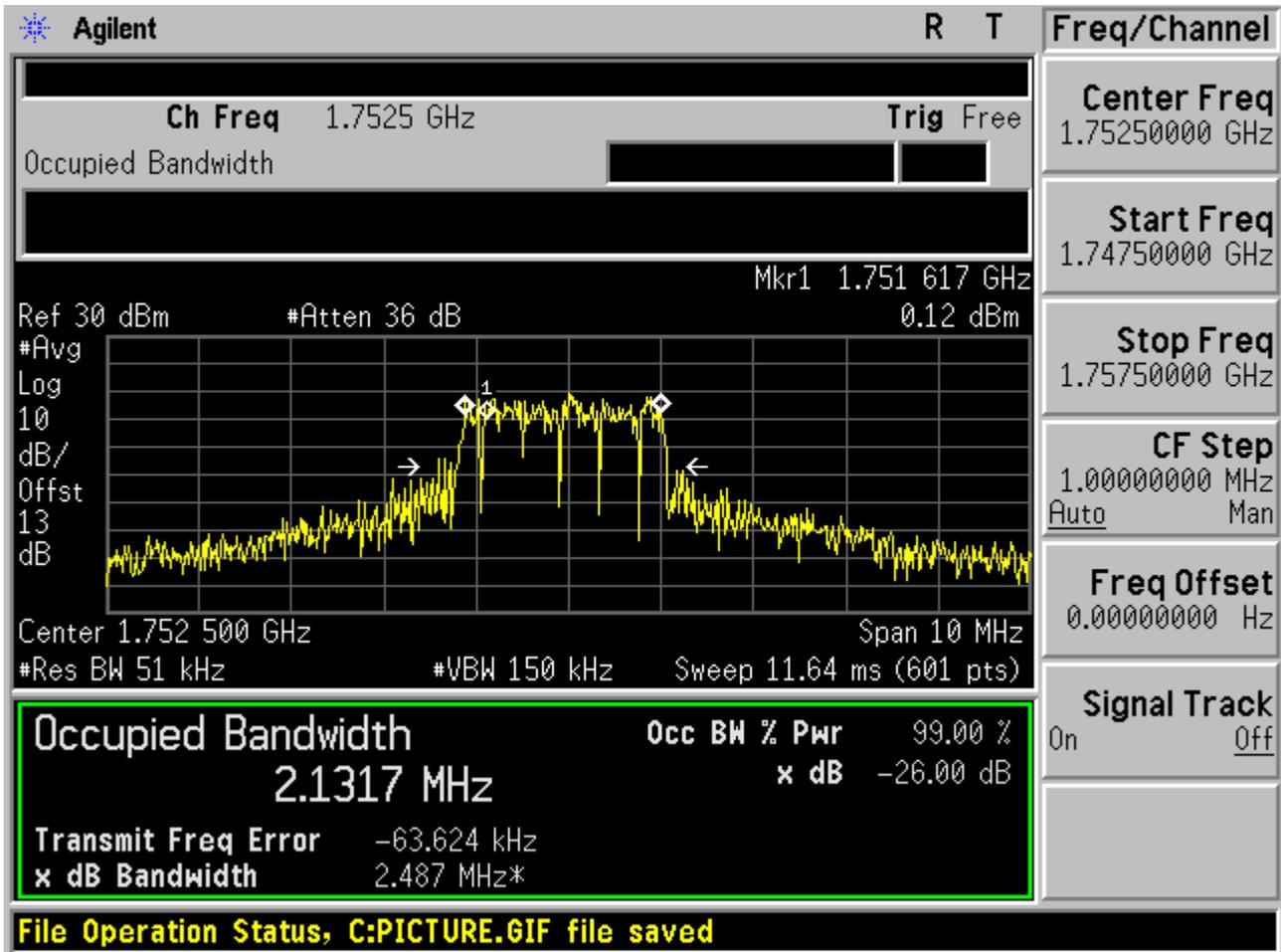


2.1.3.3.2 QPSK/1RB # max



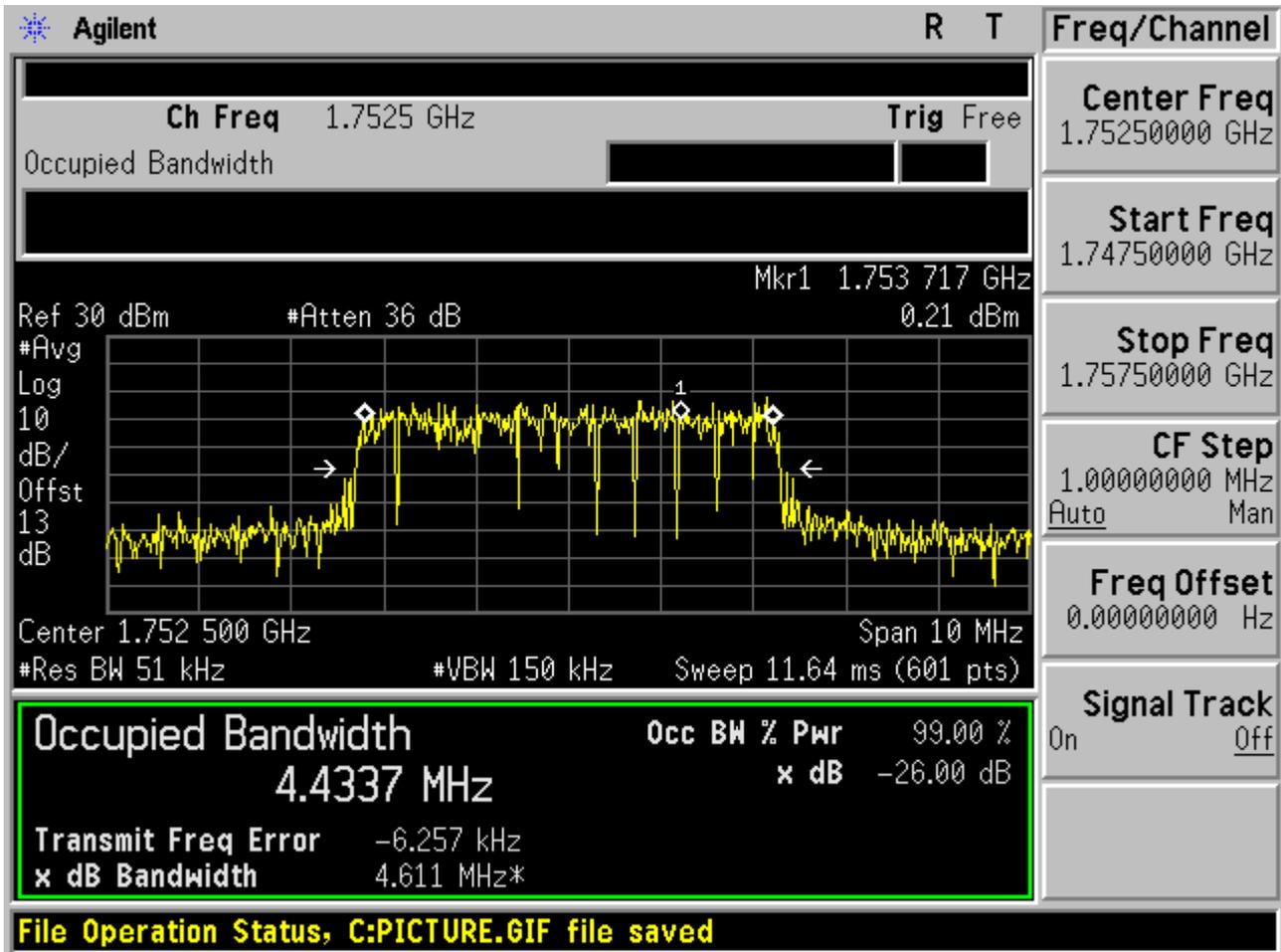


2.1.3.3.3 QPSK/non-1RB #mid/2





2.1.3.3.4 QPSK/full RBs

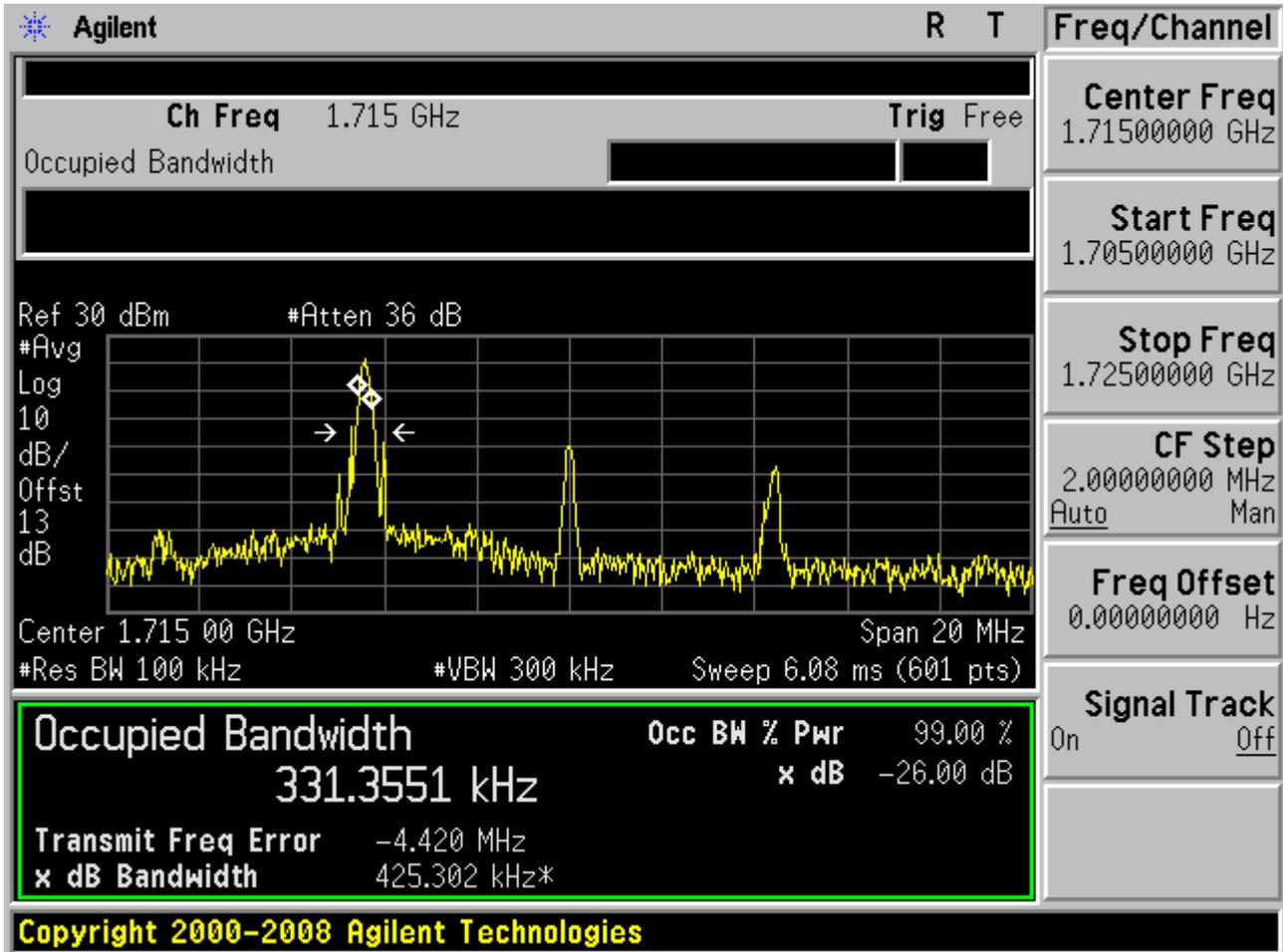




2.1.4 Channel Bandwidth = 10 MHz

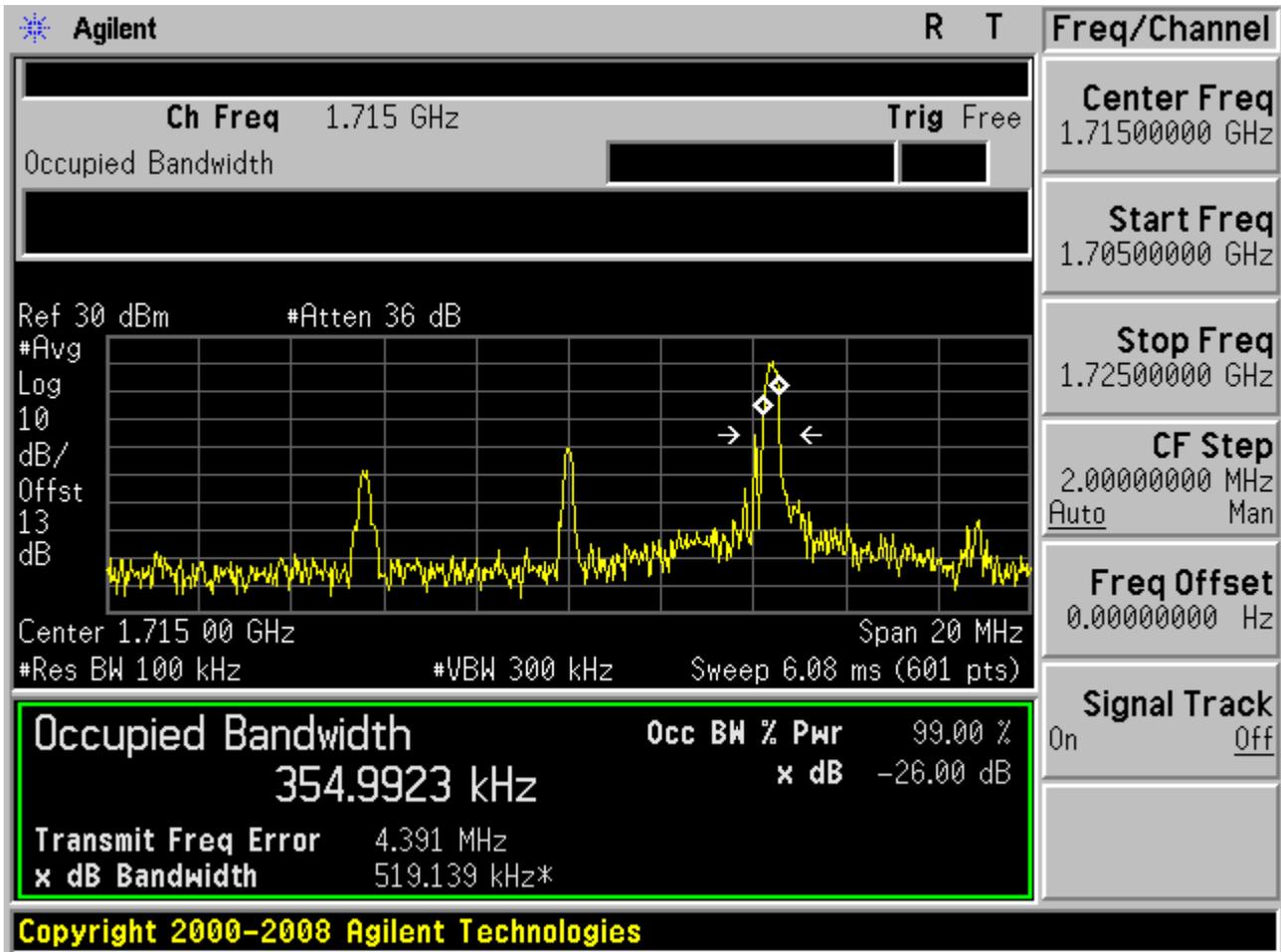
2.1.4.1 Channel = B

2.1.4.1.1 QPSK/1RB # 0



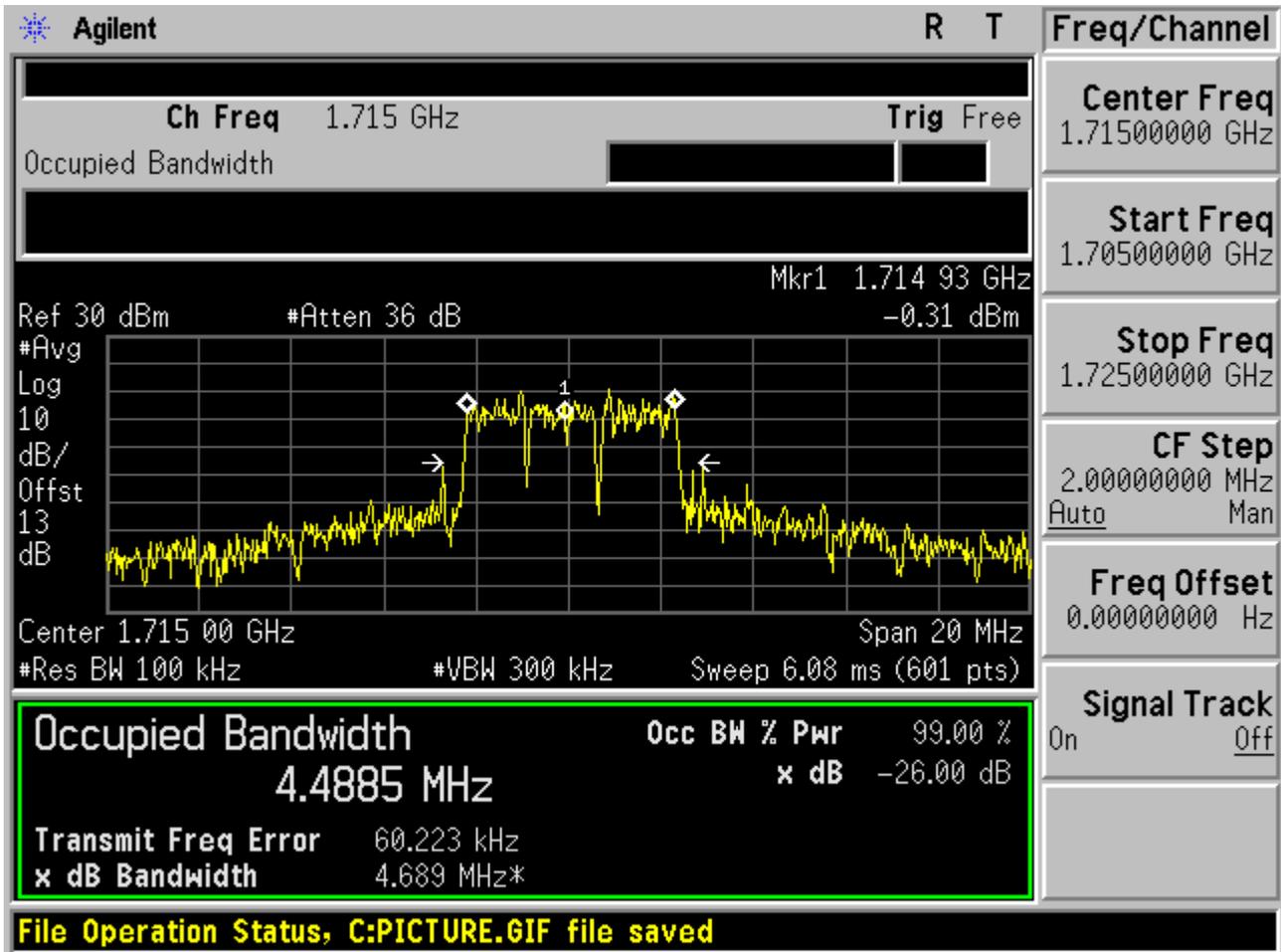


2.1.4.1.2 QPSK/1RB # max





2.1.4.1.3 QPSK/non-1RB #mid/2





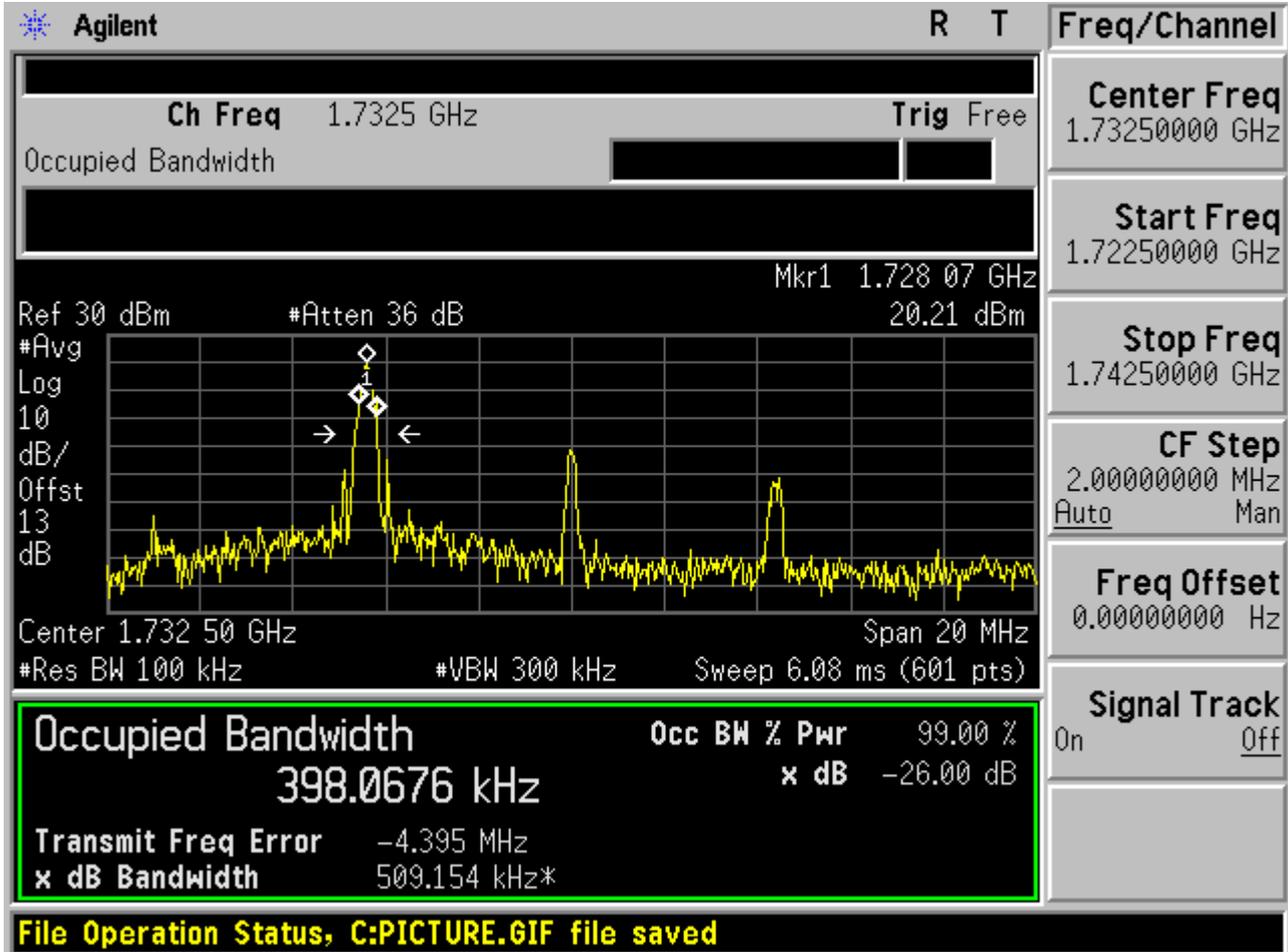
2.1.4.1.4 QPSK/full RBs





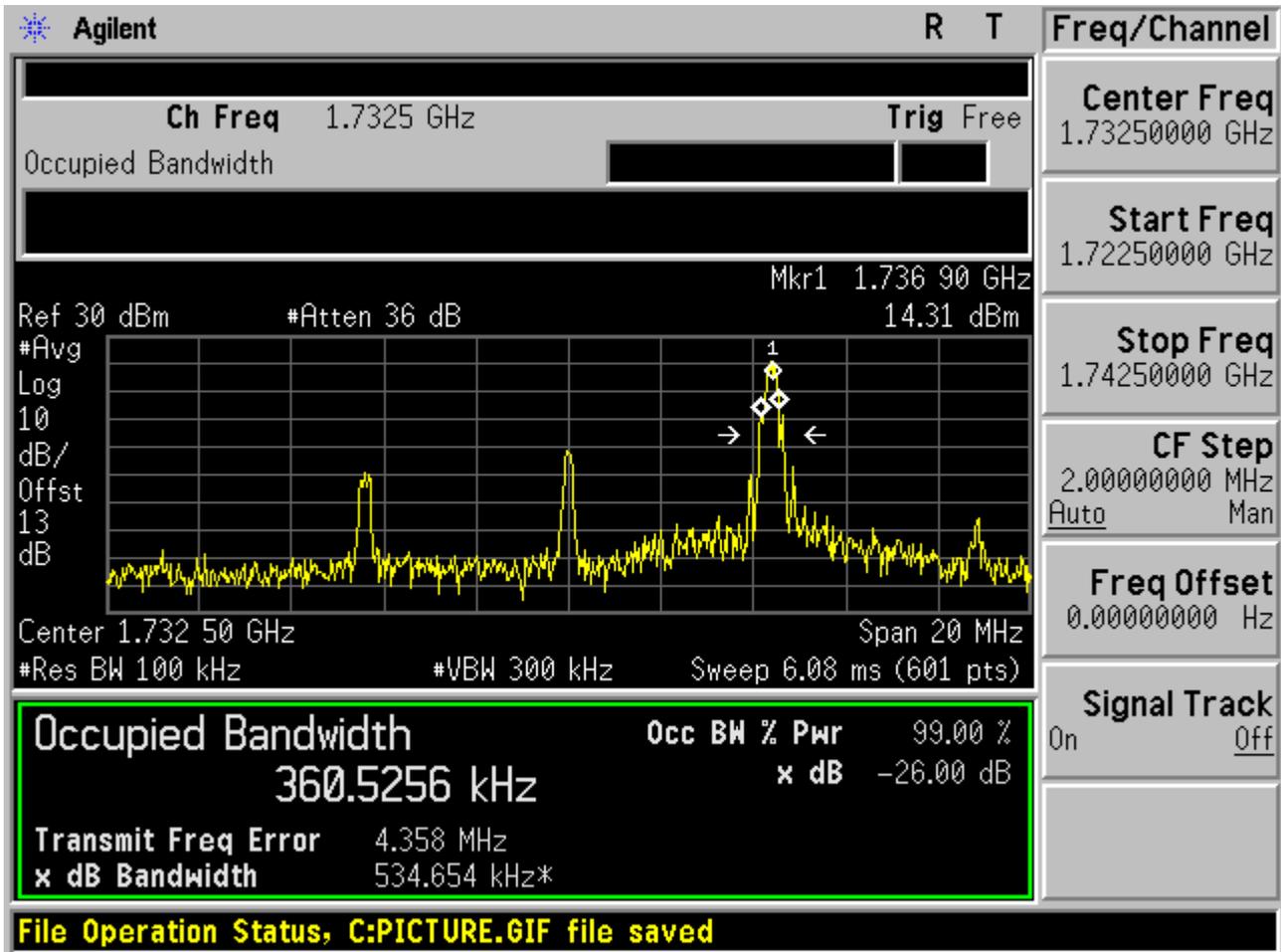
2.1.4.2 Channel =M

2.1.4.2.1 QPSK/1RB # 0



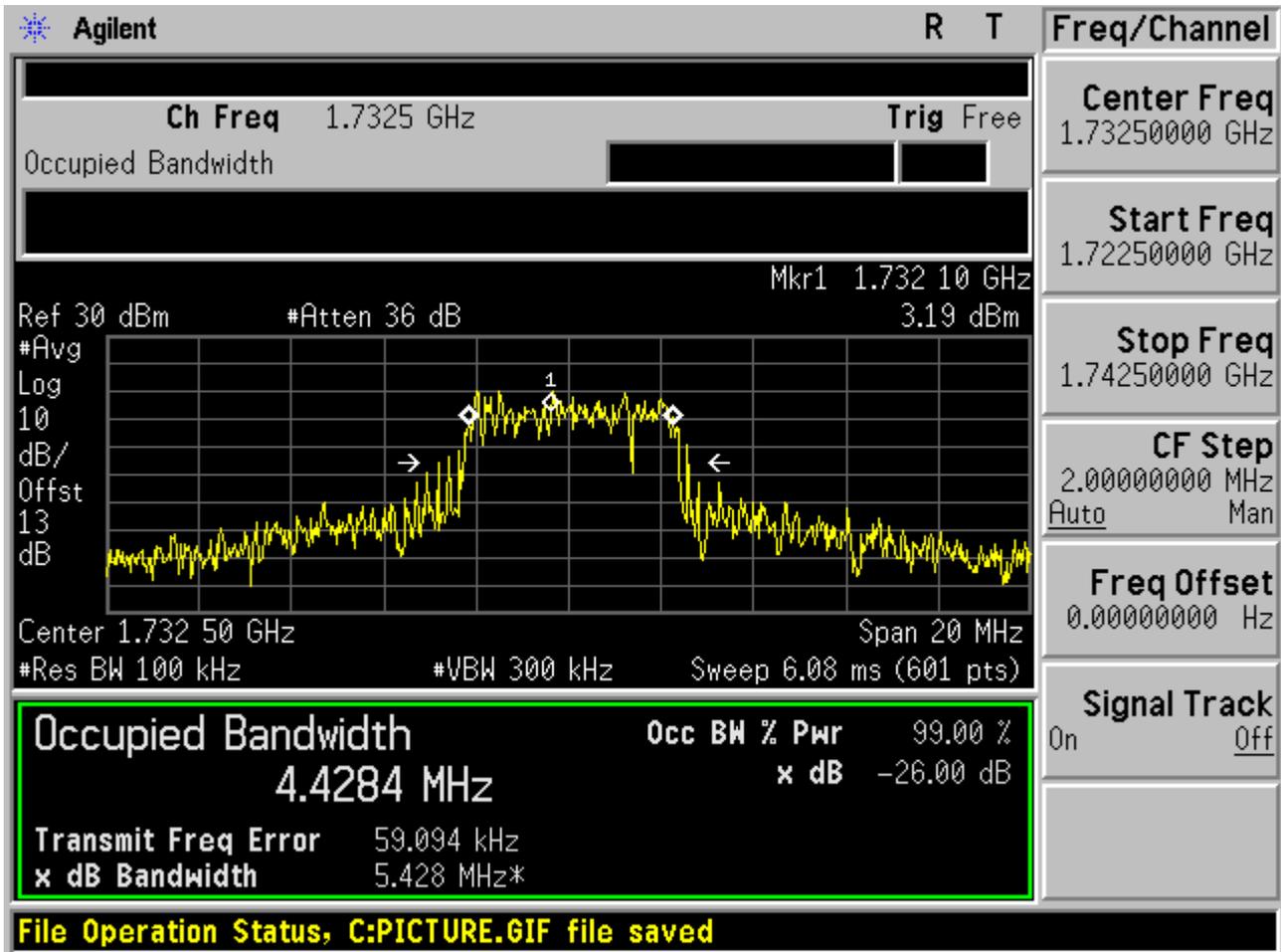


2.1.4.2.2 QPSK/1RB # max



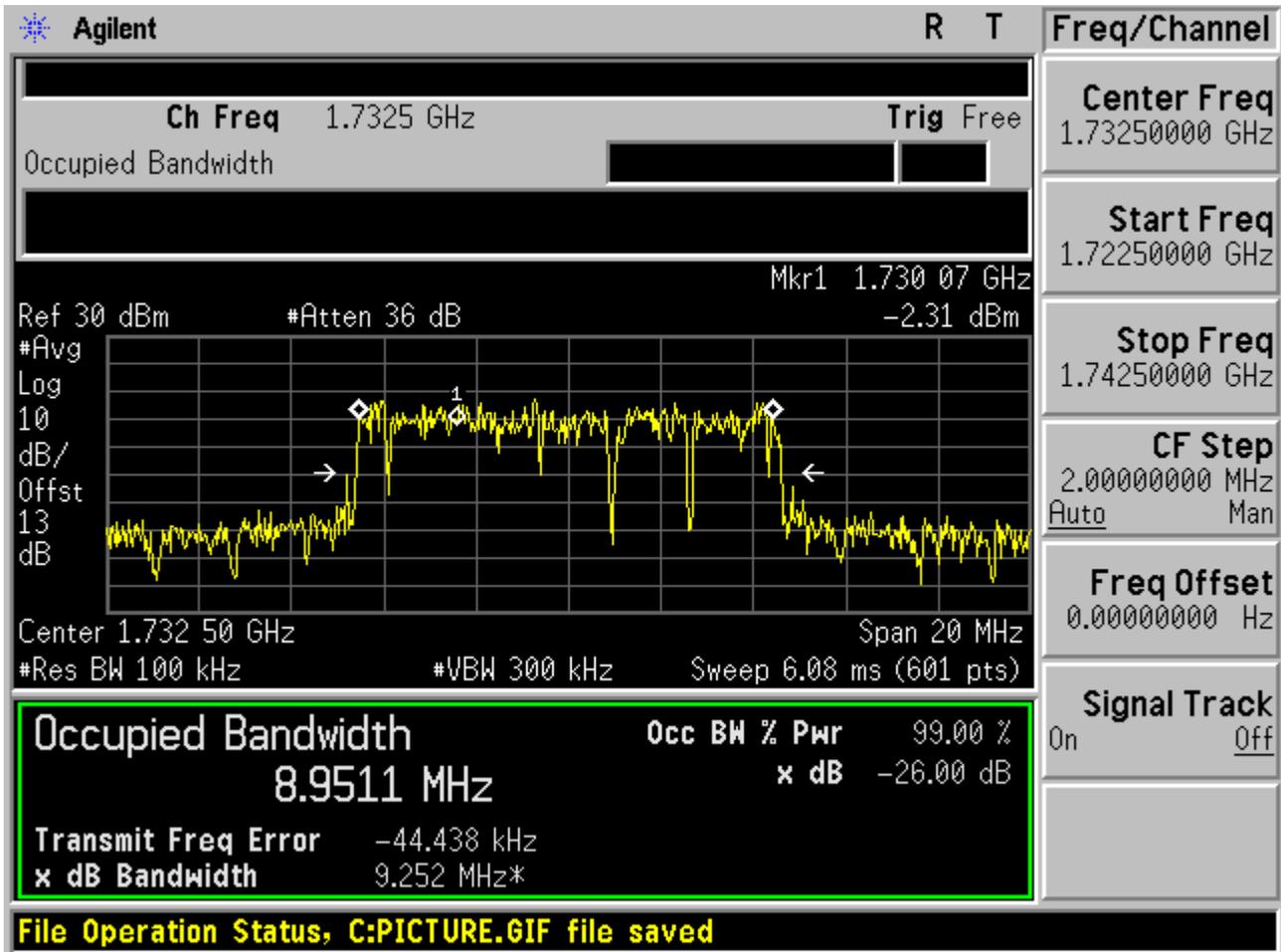


2.1.4.2.3 QPSK/non-1RB #mid/2





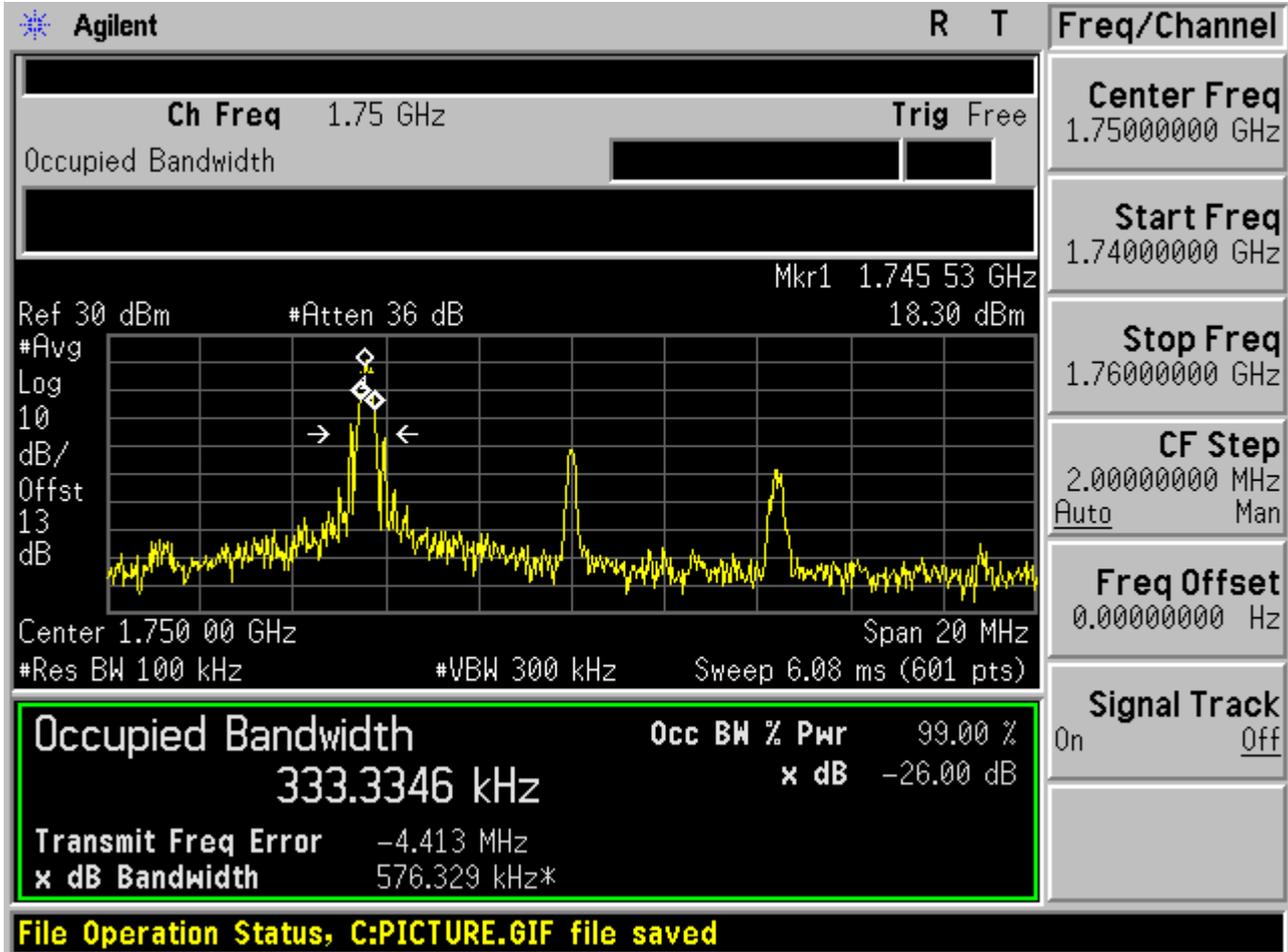
2.1.4.2.4 QPSK/full RBs





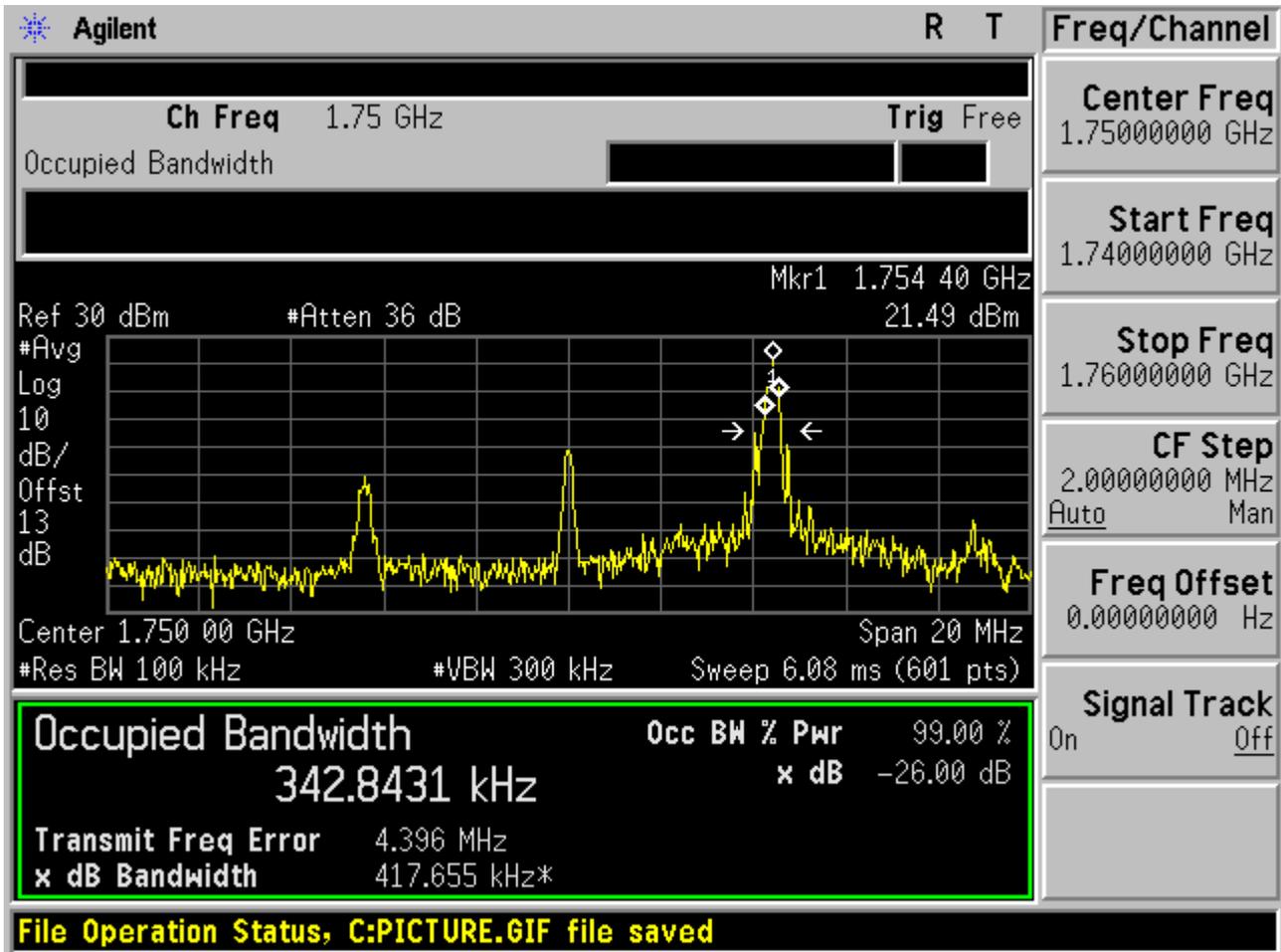
2.1.4.3 Channel =T

2.1.4.3.1 QPSK/1RB # 0





2.1.4.3.2 QPSK/1RB # max





2.1.4.3.3 QPSK/non-1RB #mid/2

Agilent
R T

Ch Freq 1.75 GHz **Trig** Free

Occupied Bandwidth

Freq/Channel

Center Freq
1.75000000 GHz

Start Freq
1.74000000 GHz

Stop Freq
1.76000000 GHz

CF Step
2.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off

Ref 30 dBm #Atten 36 dB Mkr1 1.750 13 GHz 5.34 dBm

Center 1.750 00 GHz Span 20 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 6.08 ms (601 pts)

Occupied Bandwidth Occ BW % Pwr 99.00 %

4.5190 MHz x dB -26.00 dB

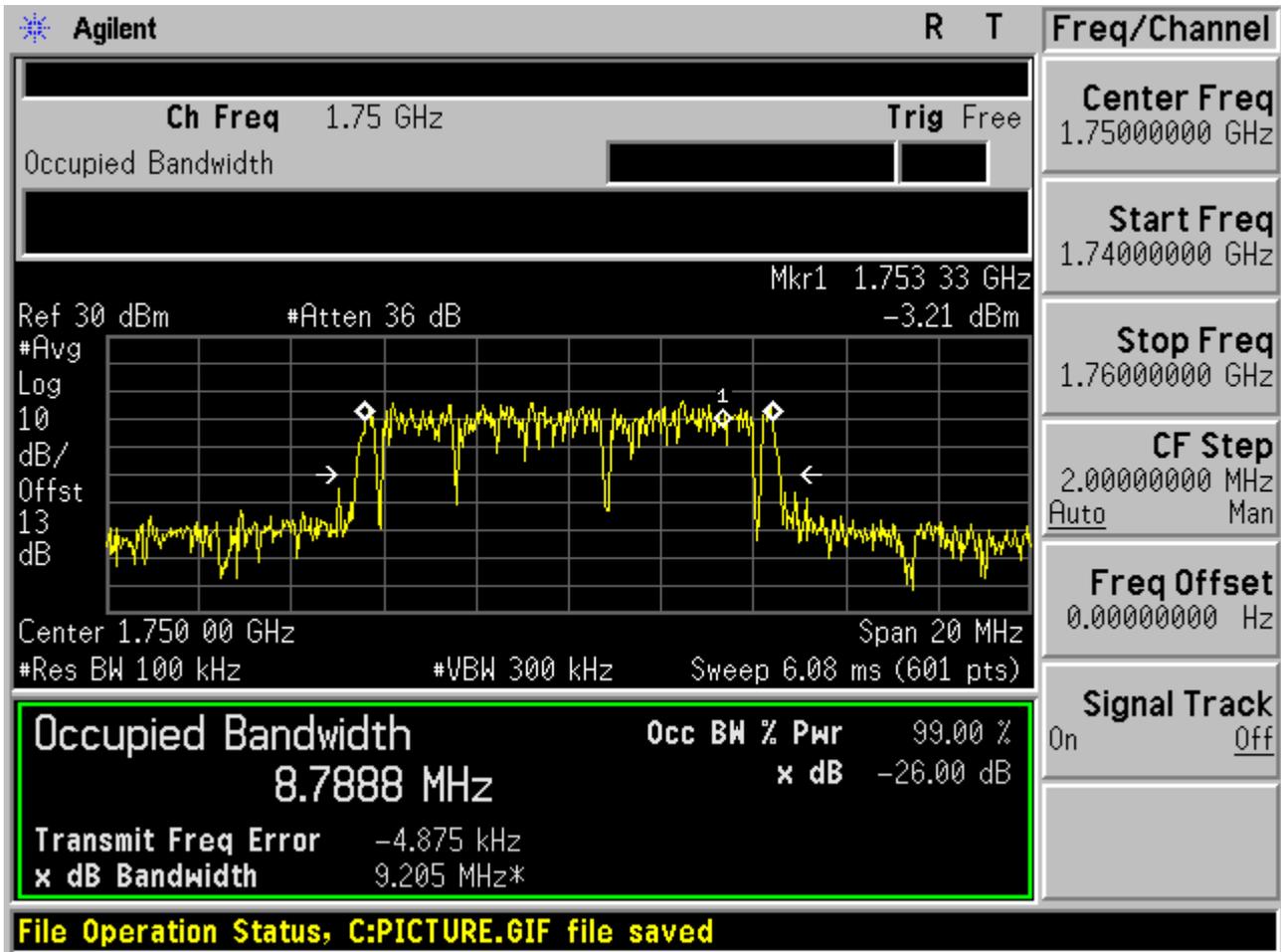
Transmit Freq Error 92.937 kHz

x dB Bandwidth 4.714 MHz*

File Operation Status, C:PICTURE.GIF file saved



2.1.4.3.4 QPSK/full RBs

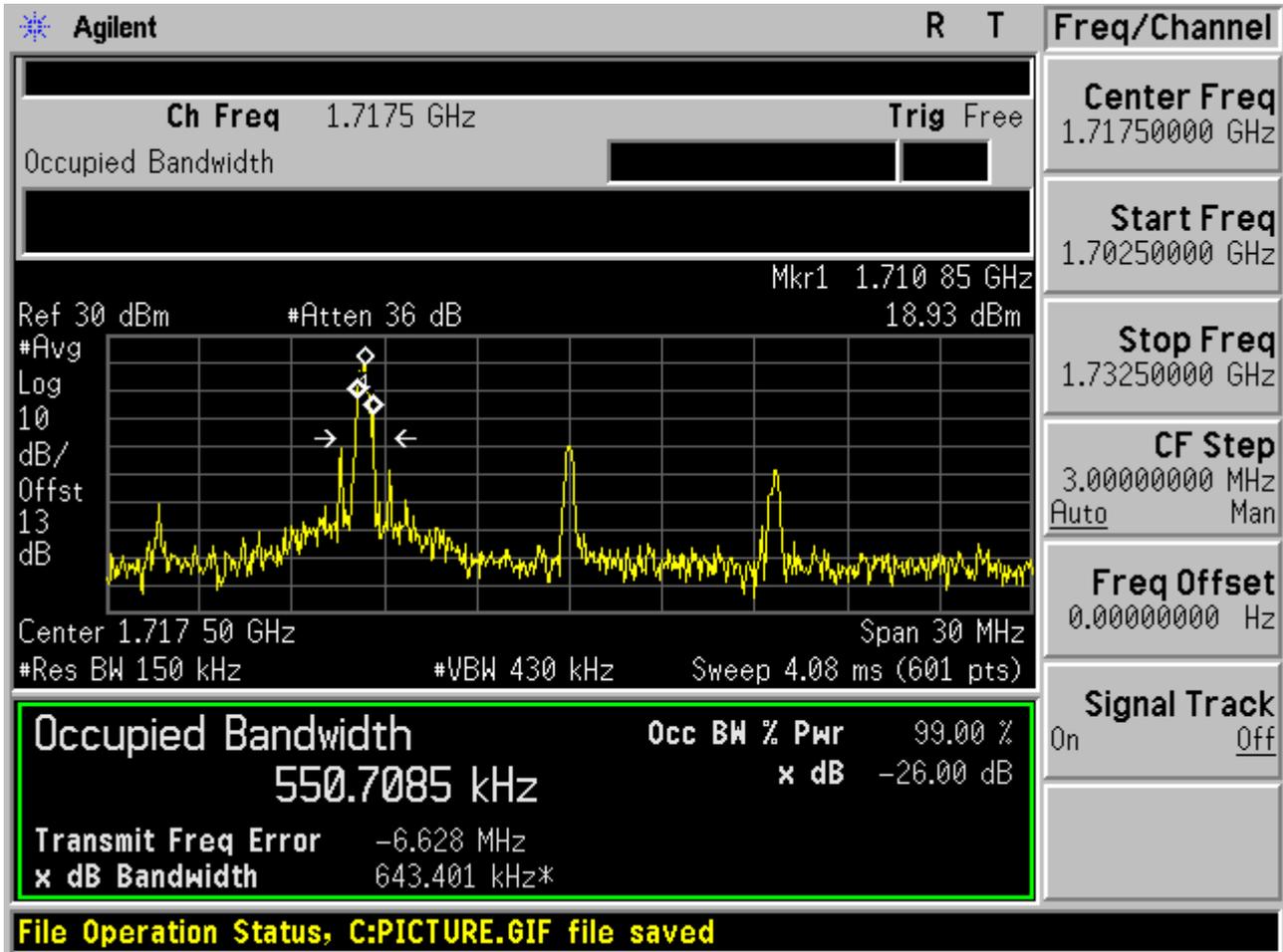




2.1.5 Channel Bandwidth = 15 MHz

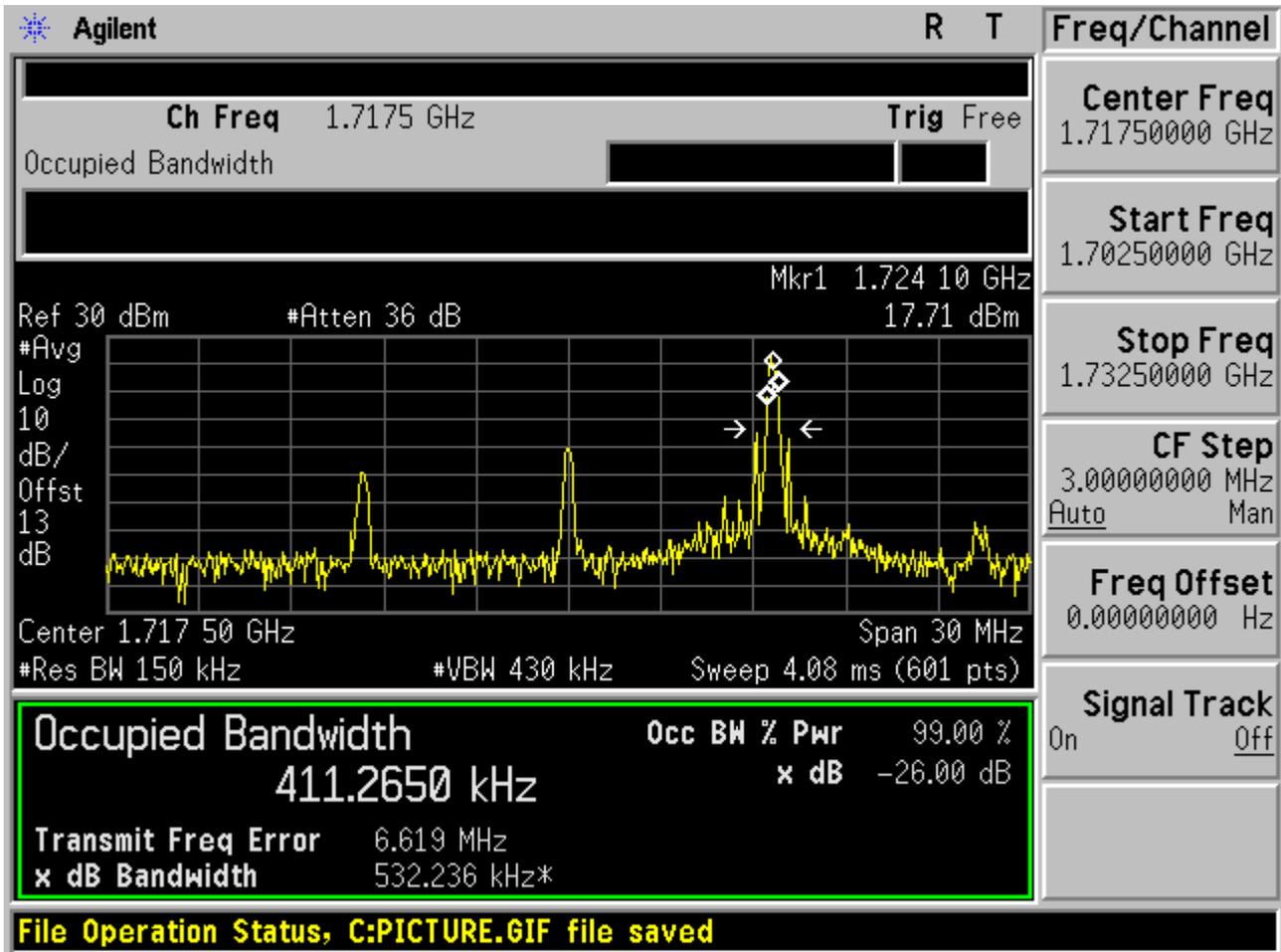
2.1.5.1 Channel = B

2.1.5.1.1 QPSK/1RB # 0





2.1.5.1.2 QPSK/1RB # max



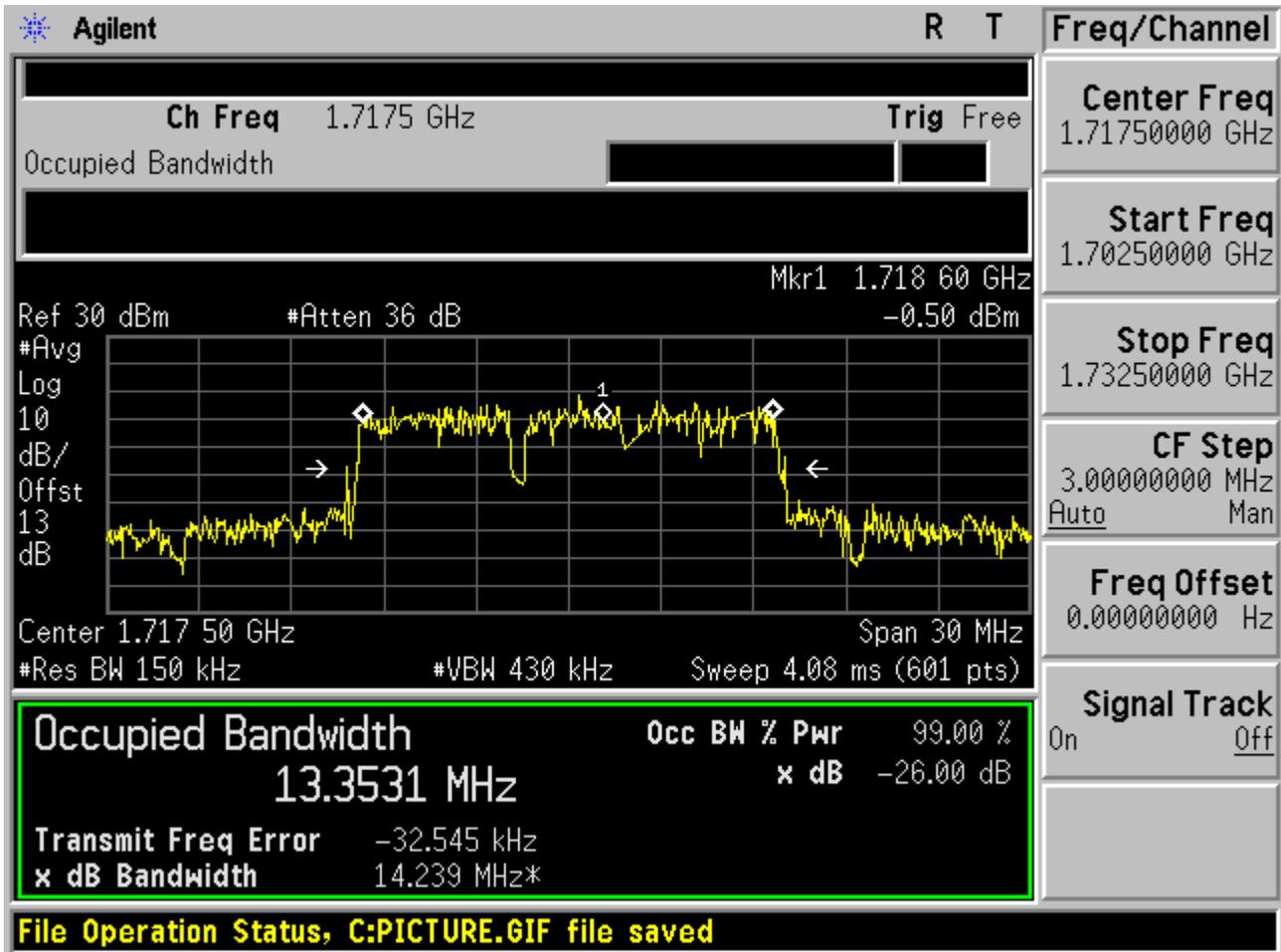


2.1.5.1.3 QPSK/non-1RB #mid/2





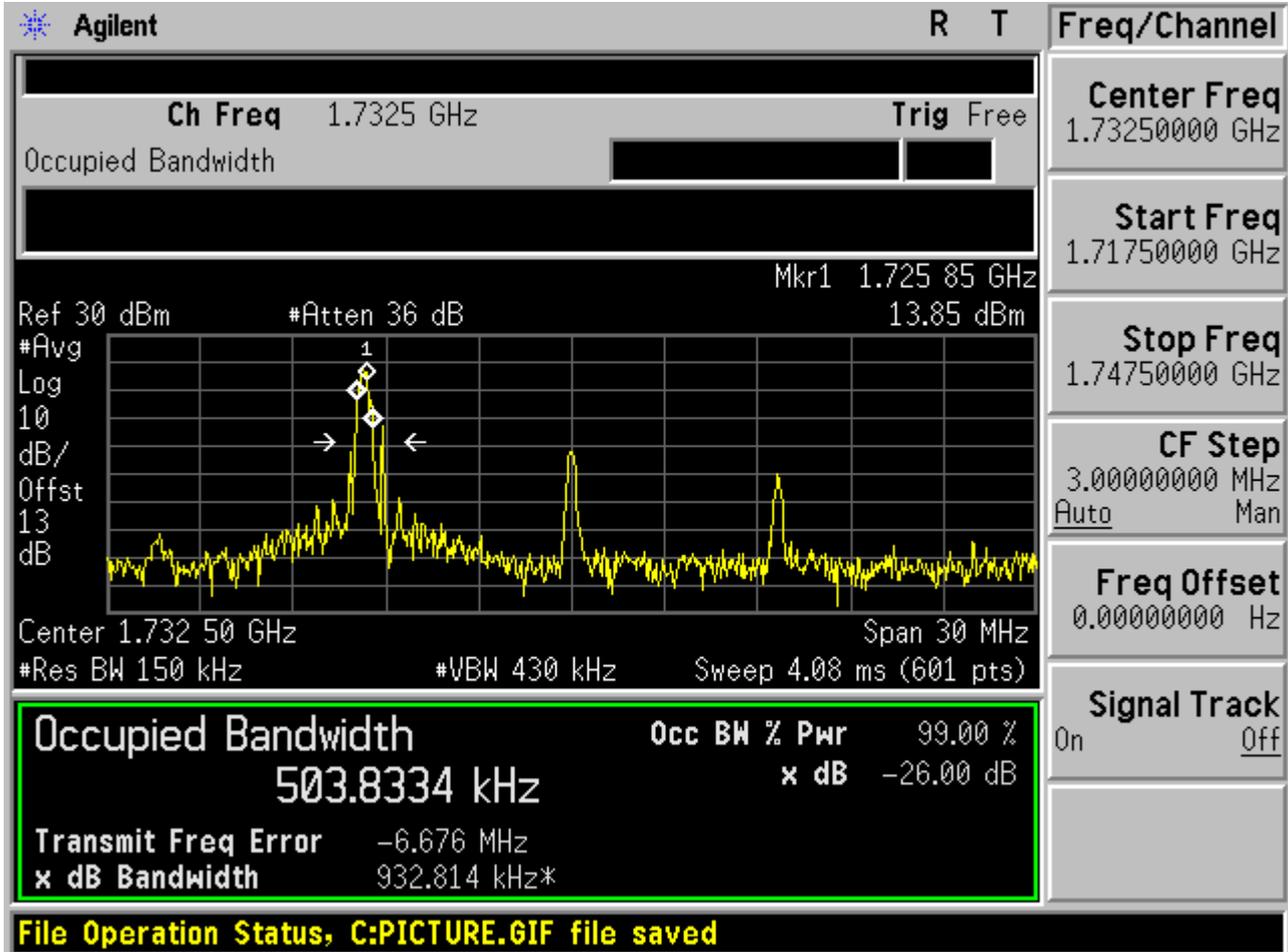
2.1.5.1.4 QPSK/full RBs





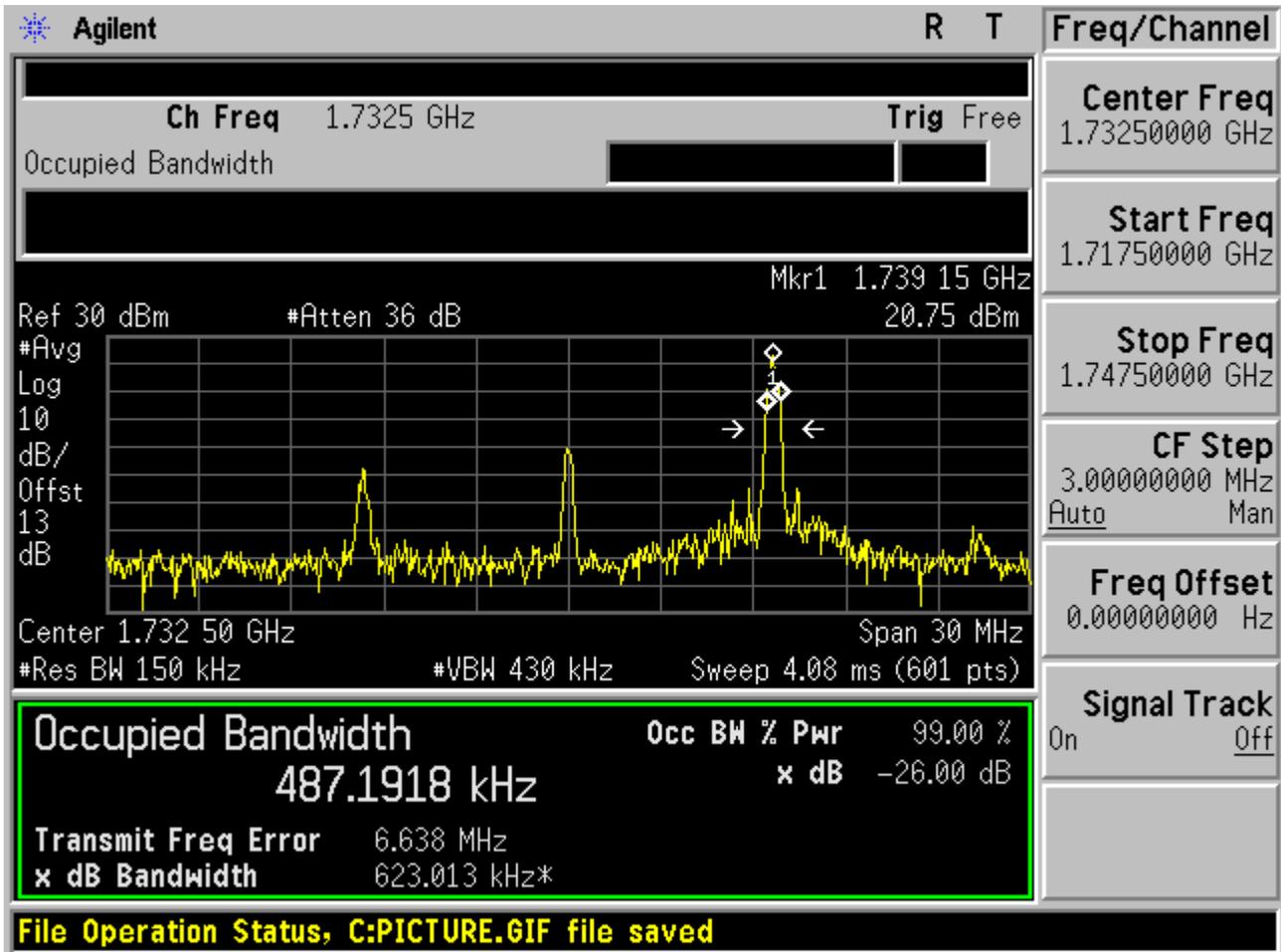
2.1.5.2 Channel =M

2.1.5.2.1 QPSK/1RB # 0



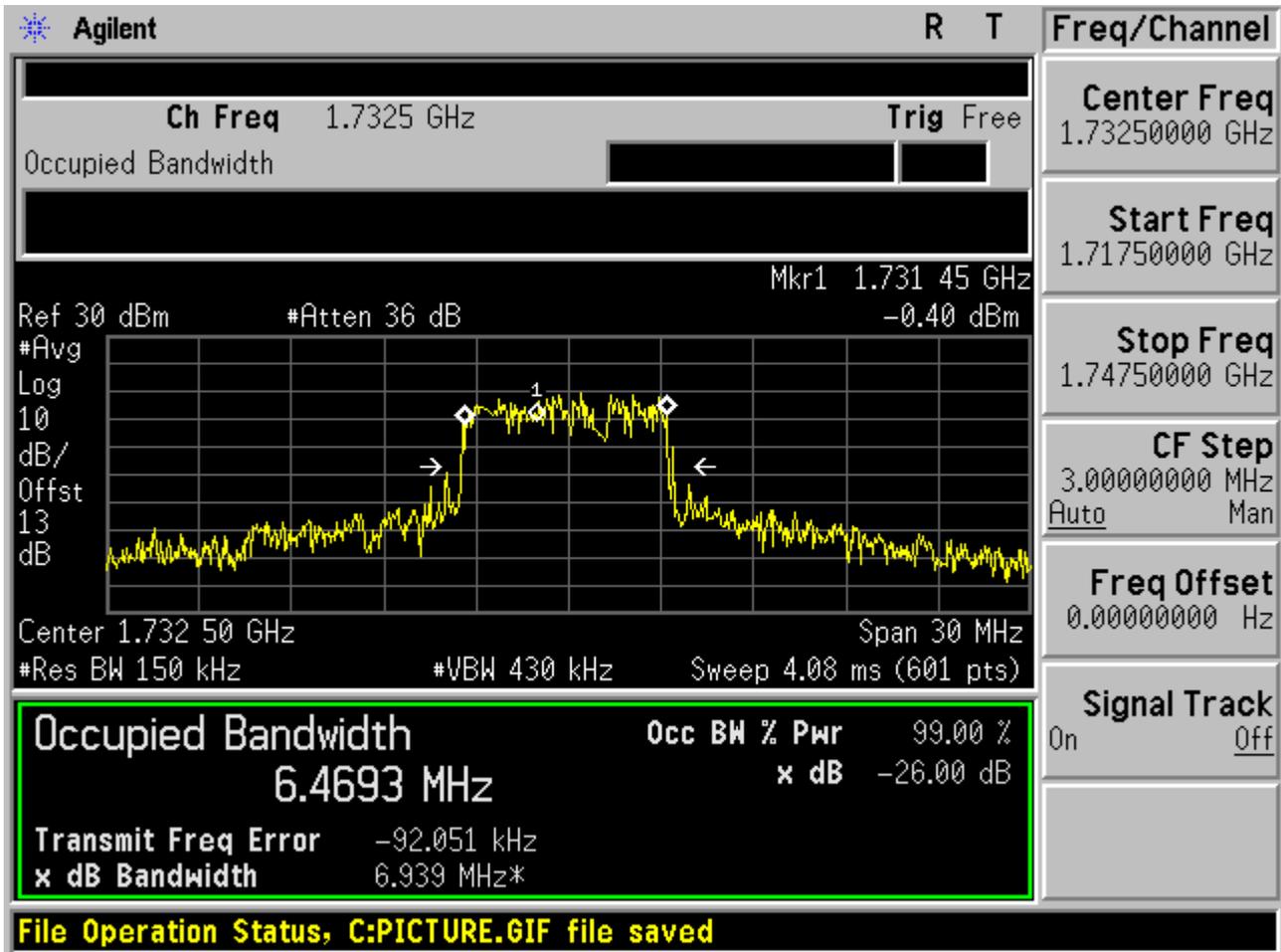


2.1.5.2.2 QPSK/1RB # max





2.1.5.2.3 QPSK/non-1RB #mid/2





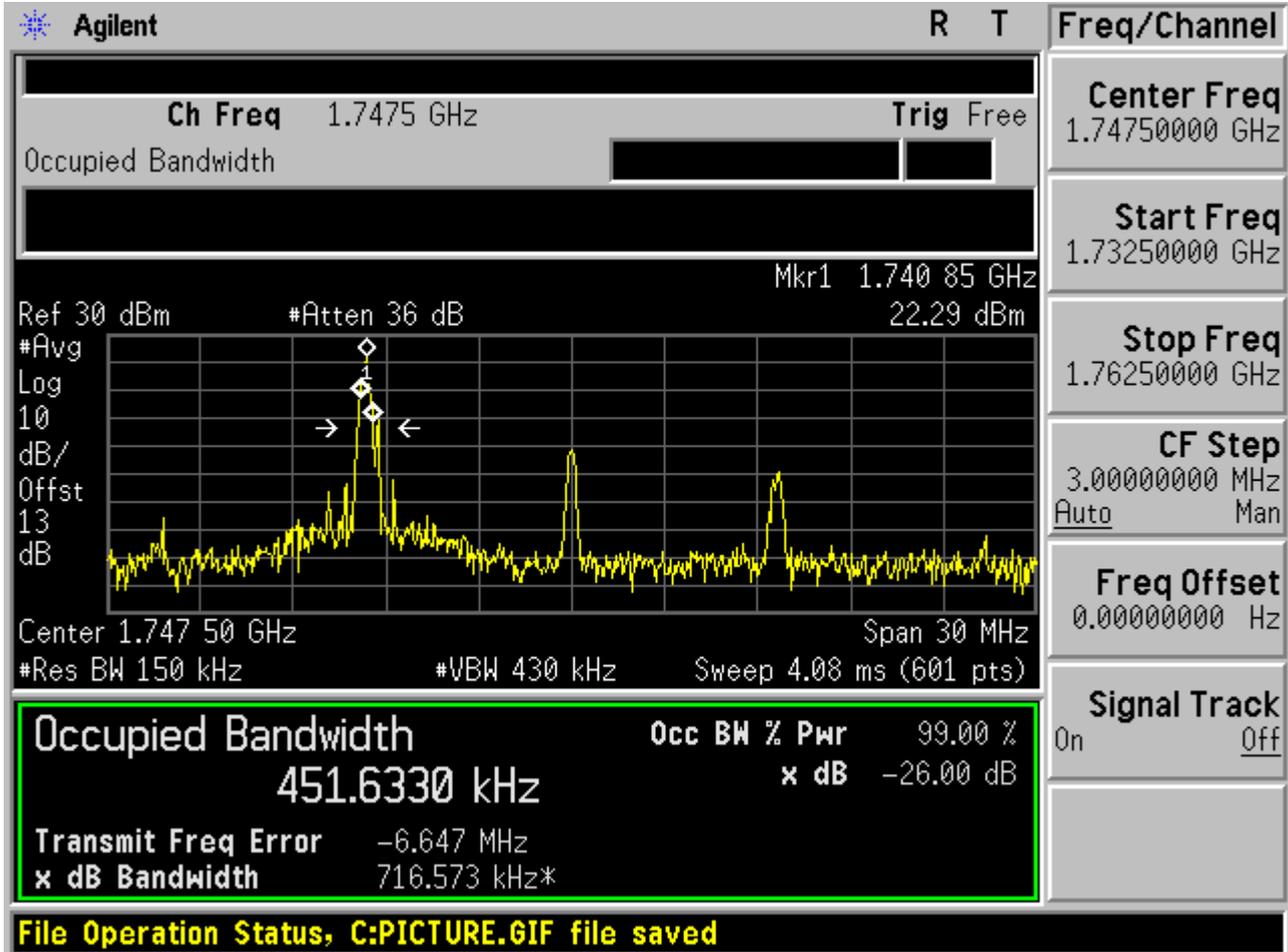
2.1.5.2.4 QPSK/full RBs





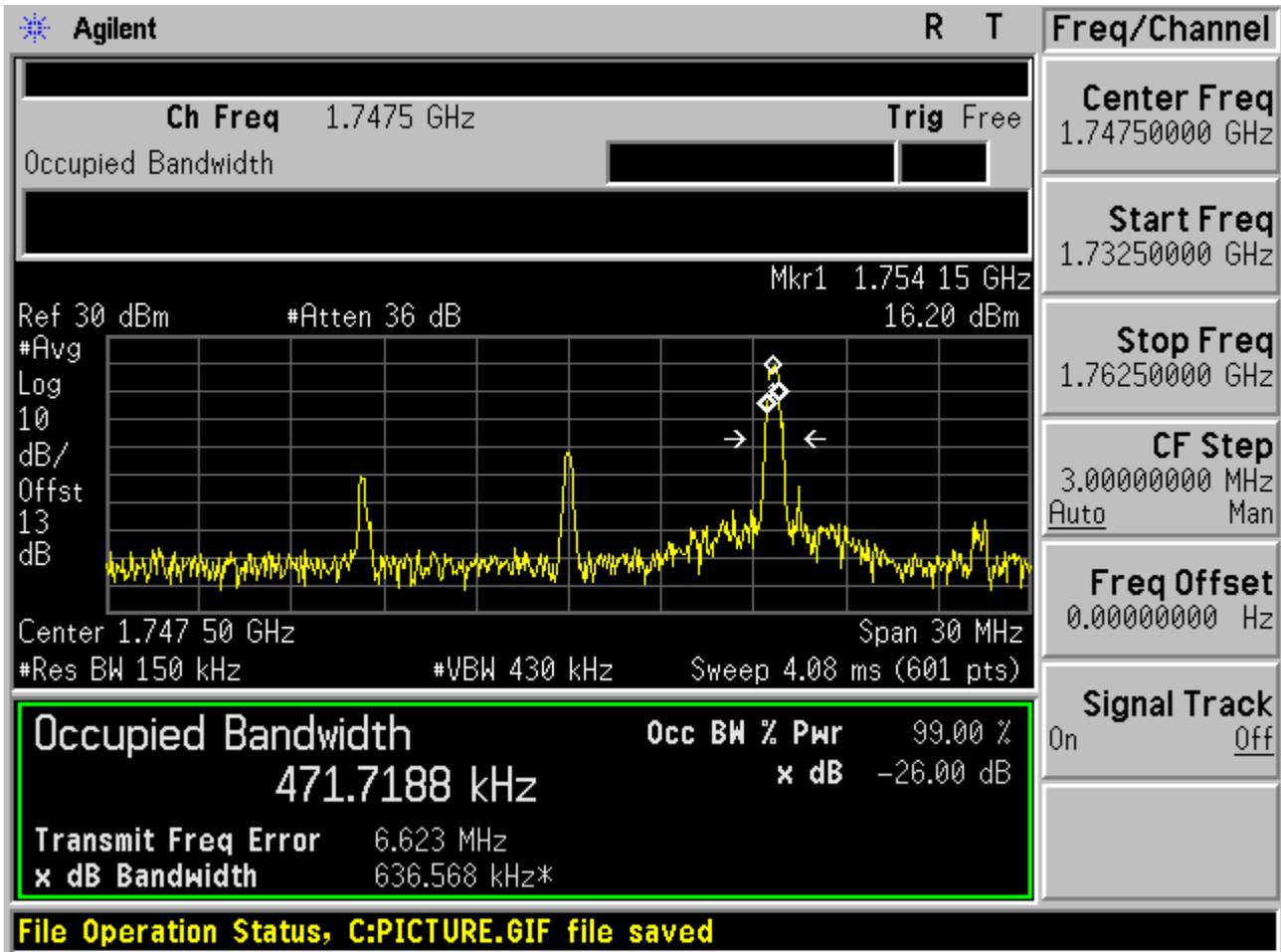
2.1.5.3 Channel =T

2.1.5.3.1 QPSK/1RB # 0





2.1.5.3.2 QPSK/1RB # max



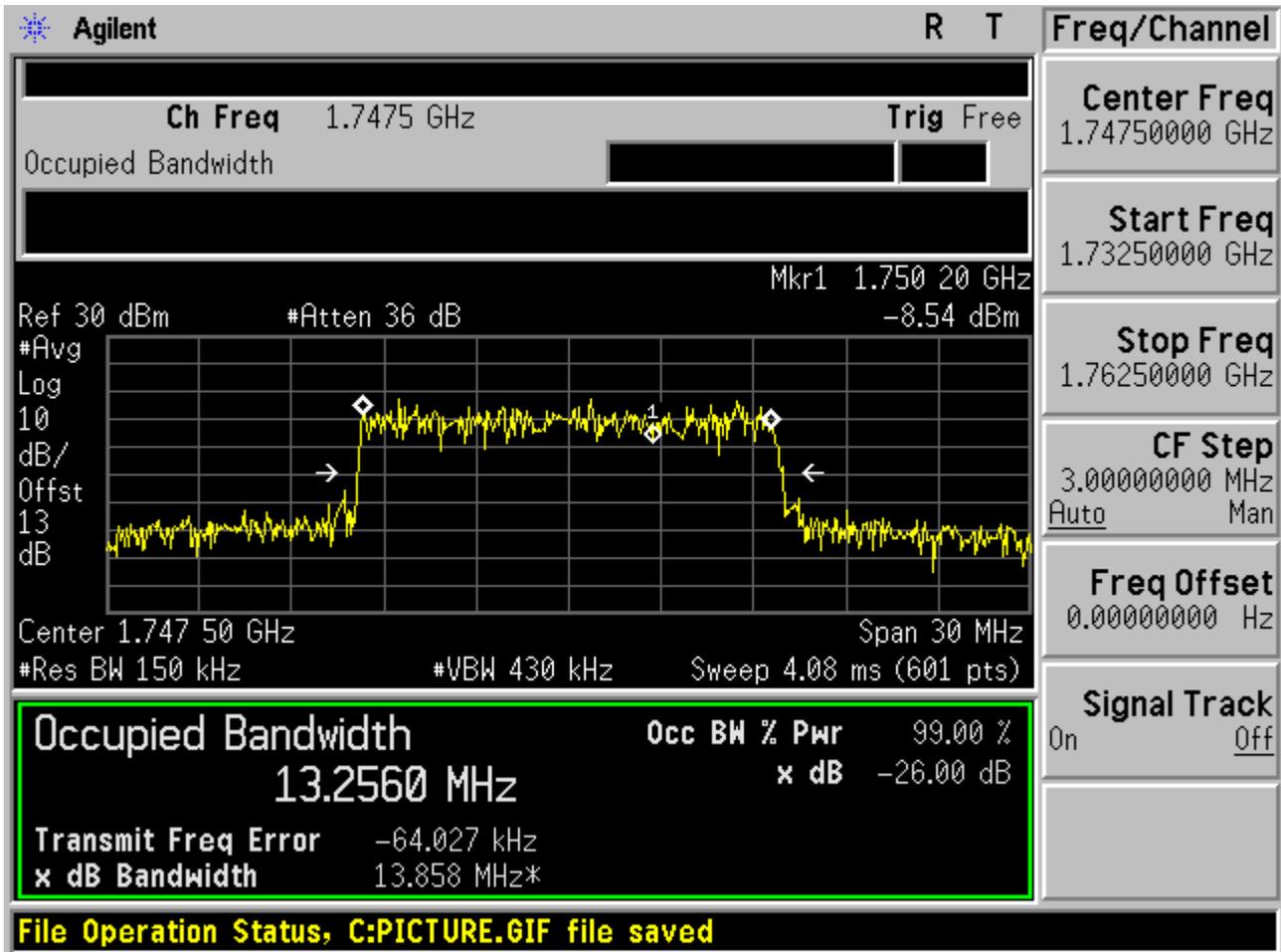


2.1.5.3.3 QPSK/non-1RB #mid/2





2.1.5.3.4 QPSK/full RBs

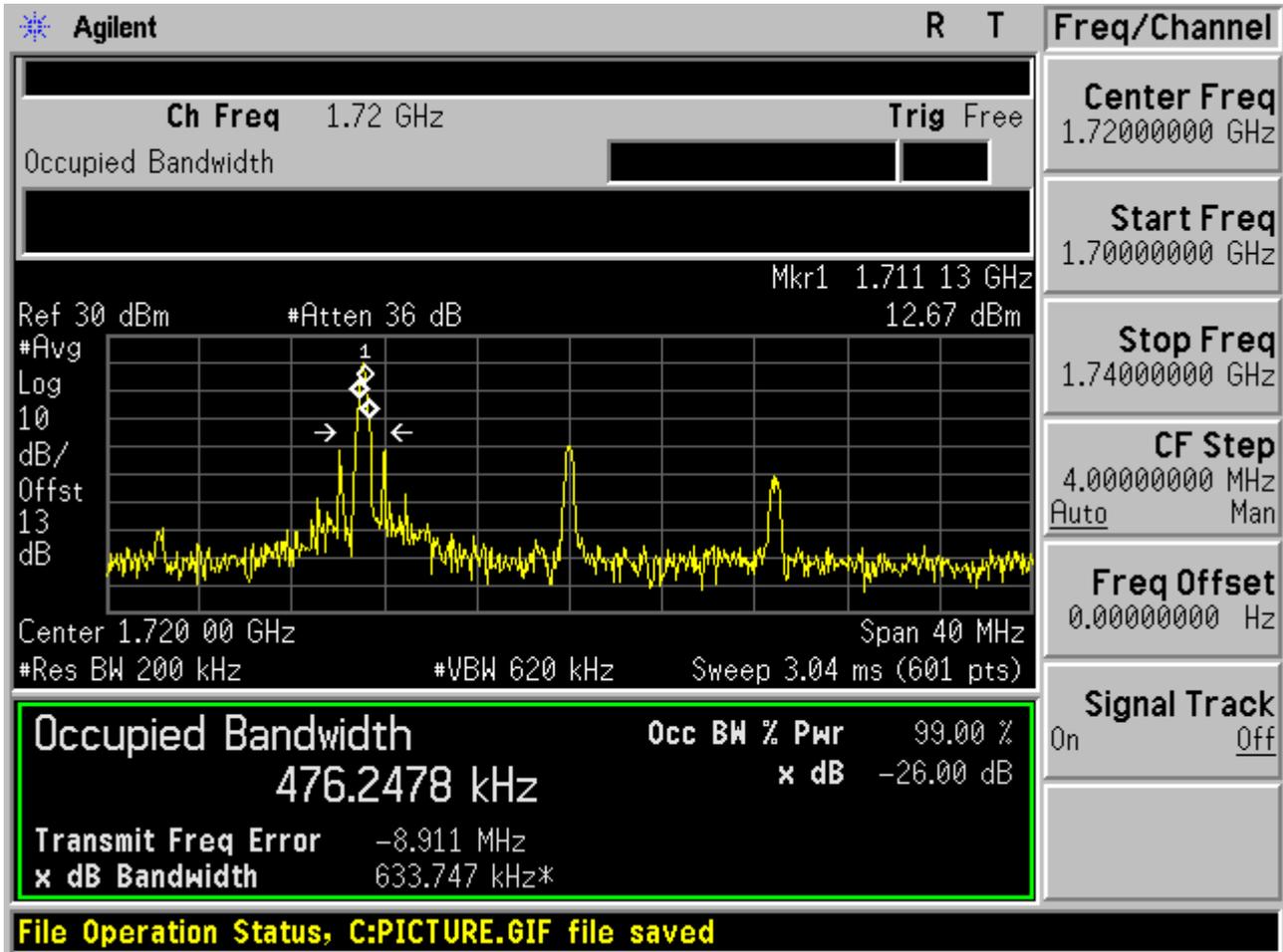




2.1.6 Channel Bandwidth = 20 MHz

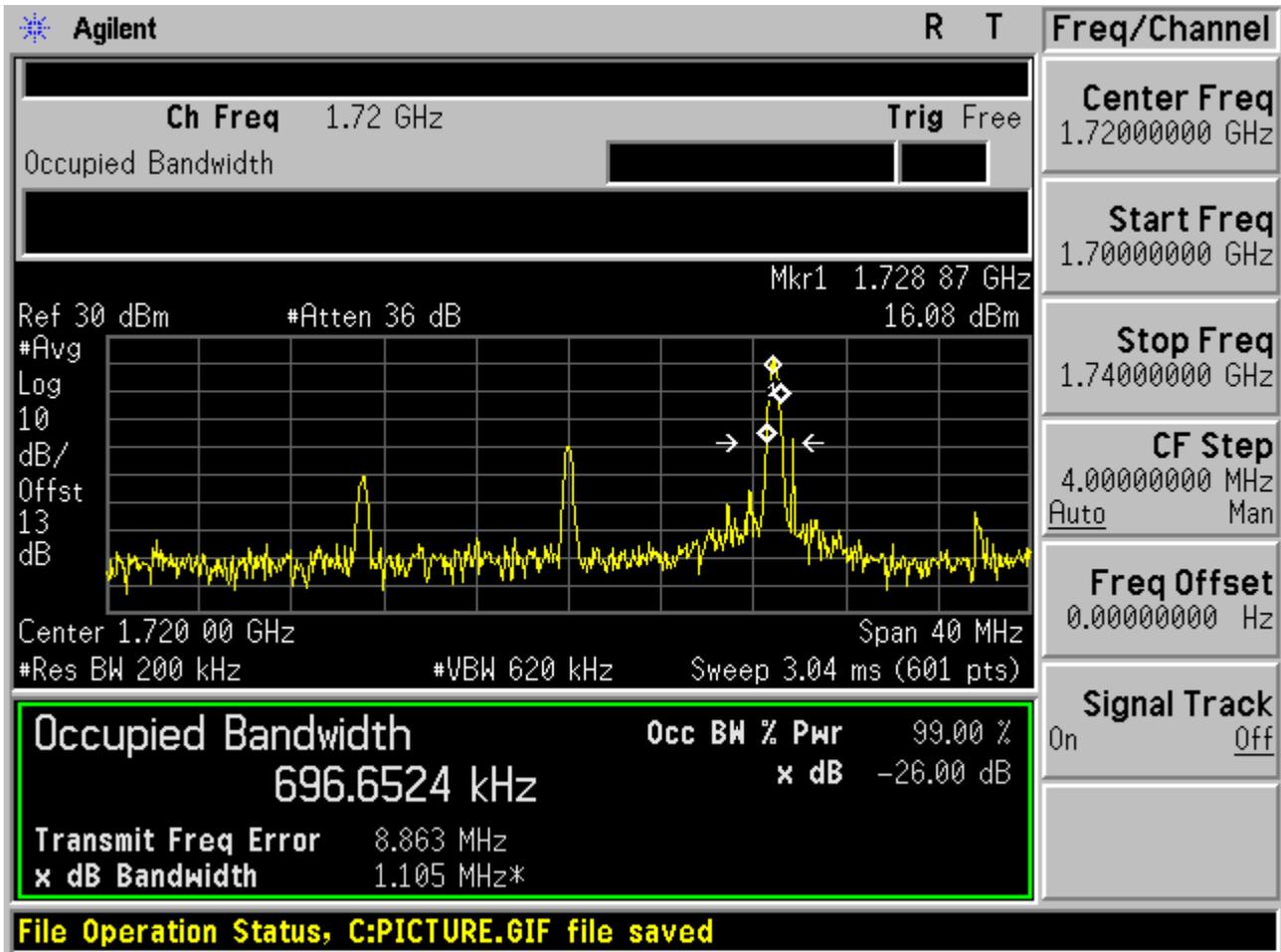
2.1.6.1 Channel = B

2.1.6.1.1 QPSK/1RB # 0



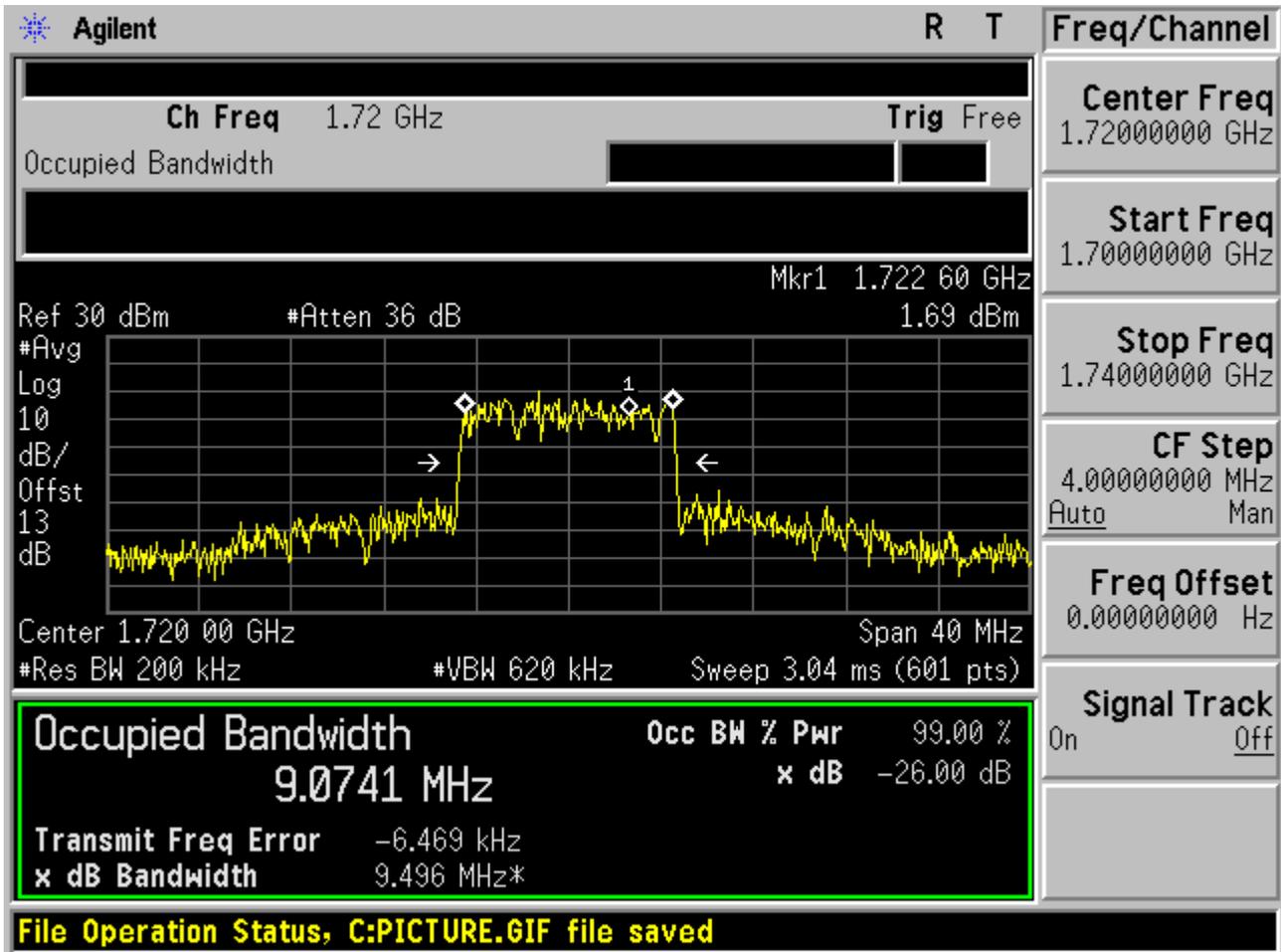


2.1.6.1.2 QPSK/1RB # max



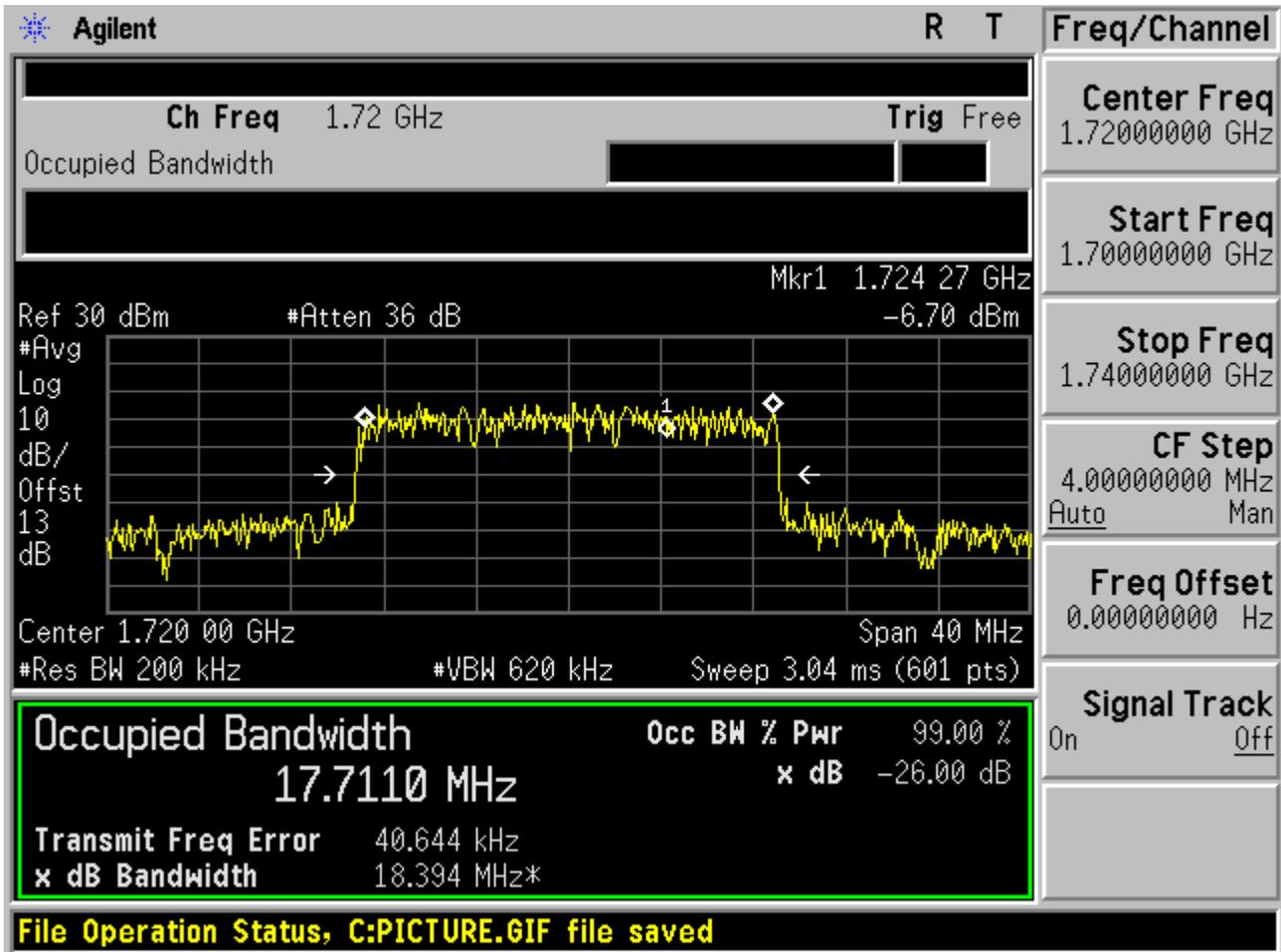


2.1.6.1.3 QPSK/non-1RB #mid/2





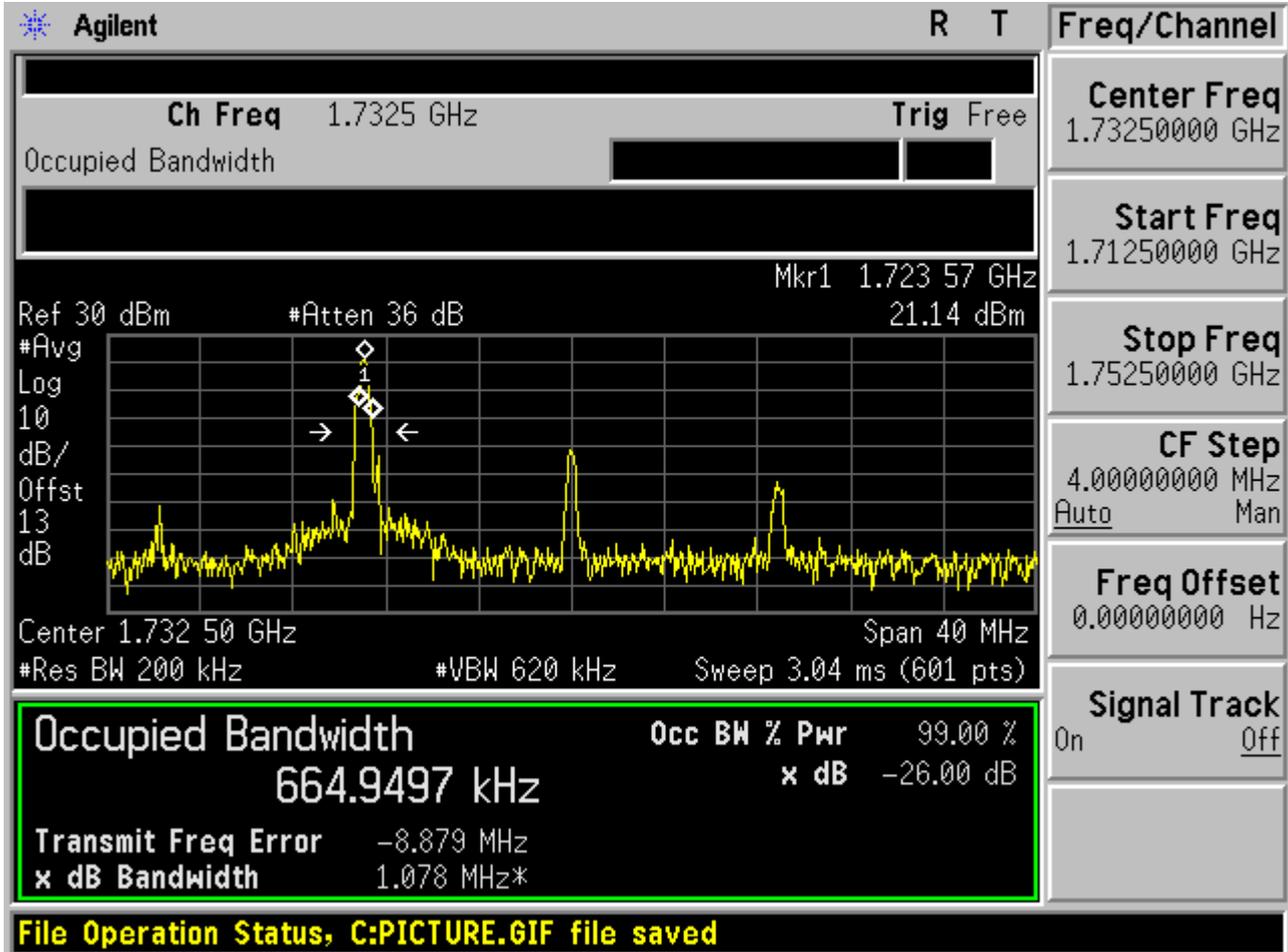
2.1.6.1.4 QPSK/full RBs





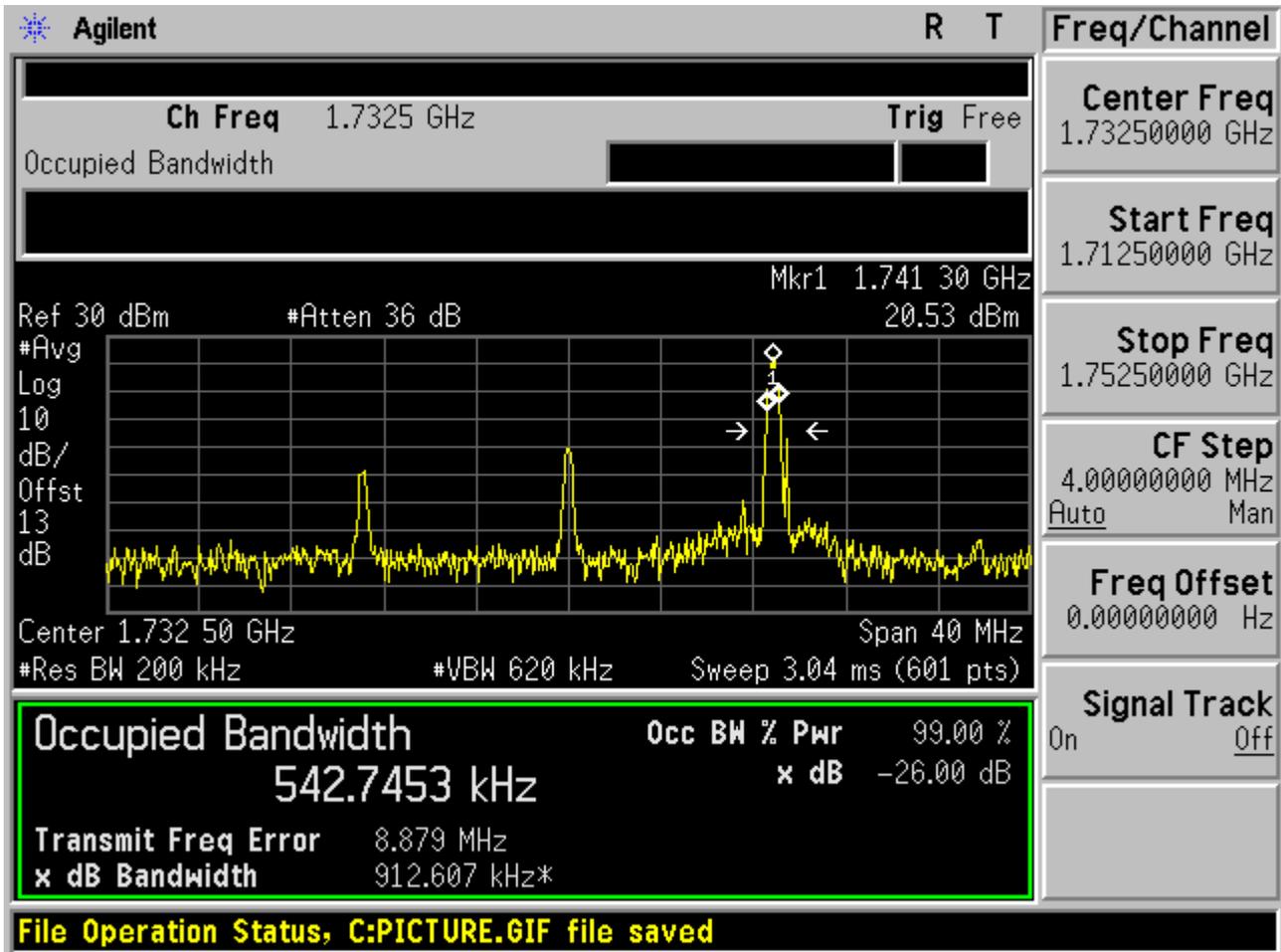
2.1.6.2 Channel =M

2.1.6.2.1 QPSK/1RB # 0





2.1.6.2.2 QPSK/1RB # max





2.1.6.2.3 QPSK/non-1RB #mid/2

Agilent R T

Ch Freq 1.7325 GHz **Trig** Free

Occupied Bandwidth Mkr1 1.730 77 GHz

Ref 30 dBm #Atten 36 dB
 #Avg 10 4.20 dBm

Log
 dB/
 Offst
 13
 dB

Center 1.732 50 GHz Span 40 MHz
 #Res BW 200 kHz #VBW 620 kHz Sweep 3.04 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr 99.00 %
8.9893 MHz	x dB -26.00 dB
Transmit Freq Error	-47.078 kHz
x dB Bandwidth	9.580 MHz*

File Operation Status, C:PICTURE.GIF file saved

Freq/Channel

Center Freq
1.73250000 GHz

Start Freq
1.71250000 GHz

Stop Freq
1.75250000 GHz

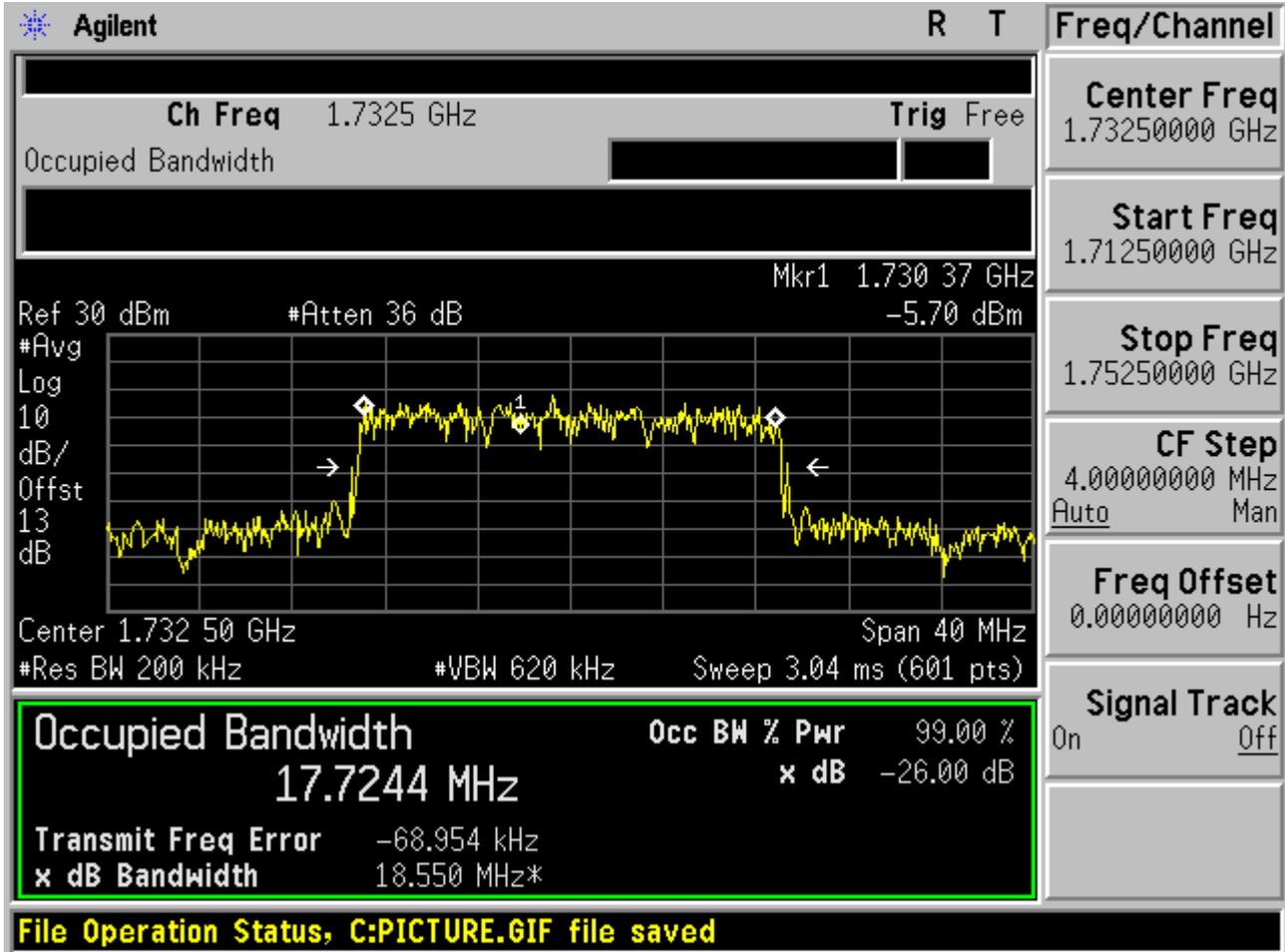
CF Step
4.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



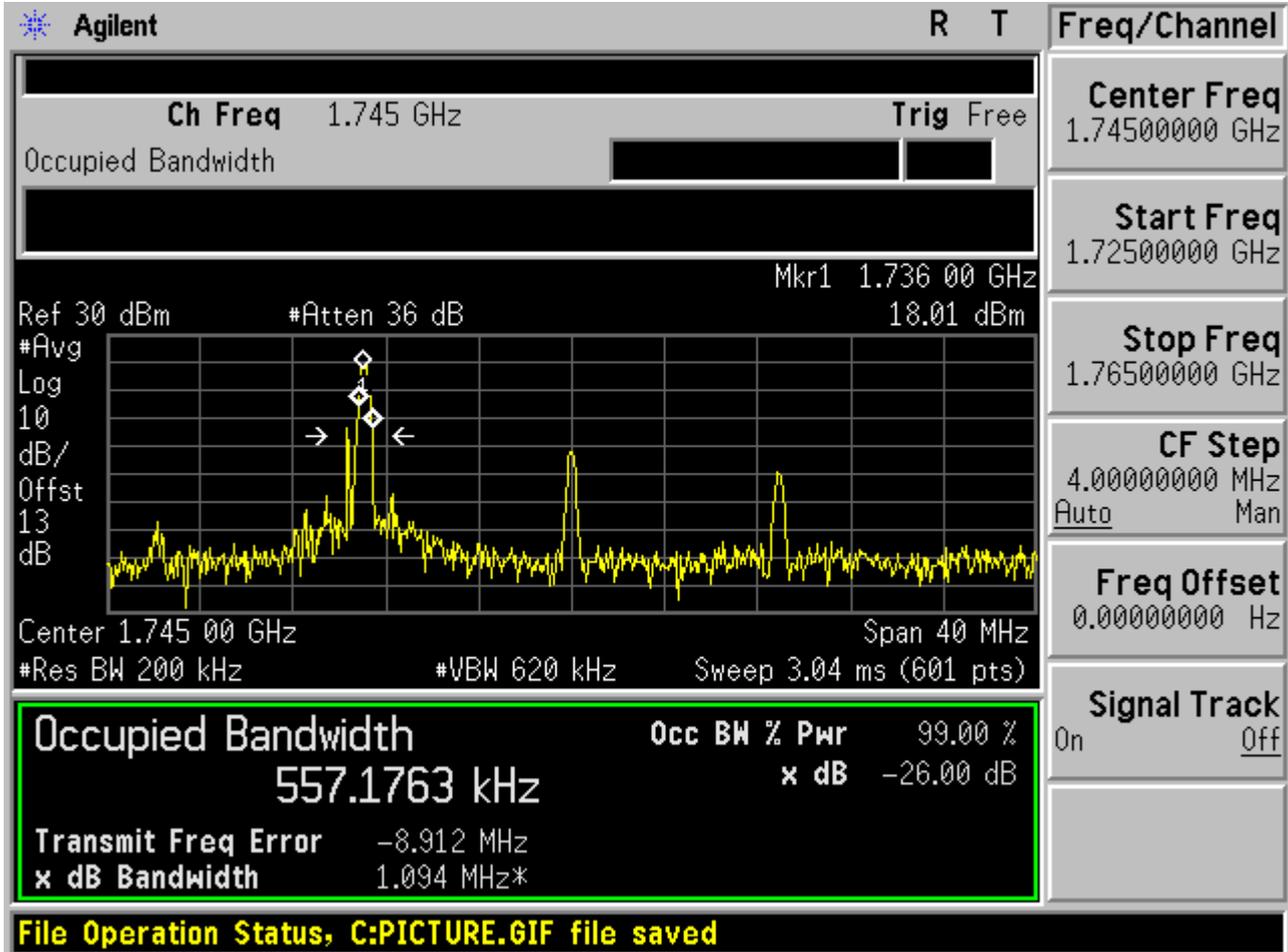
2.1.6.2.4 QPSK/full RBs





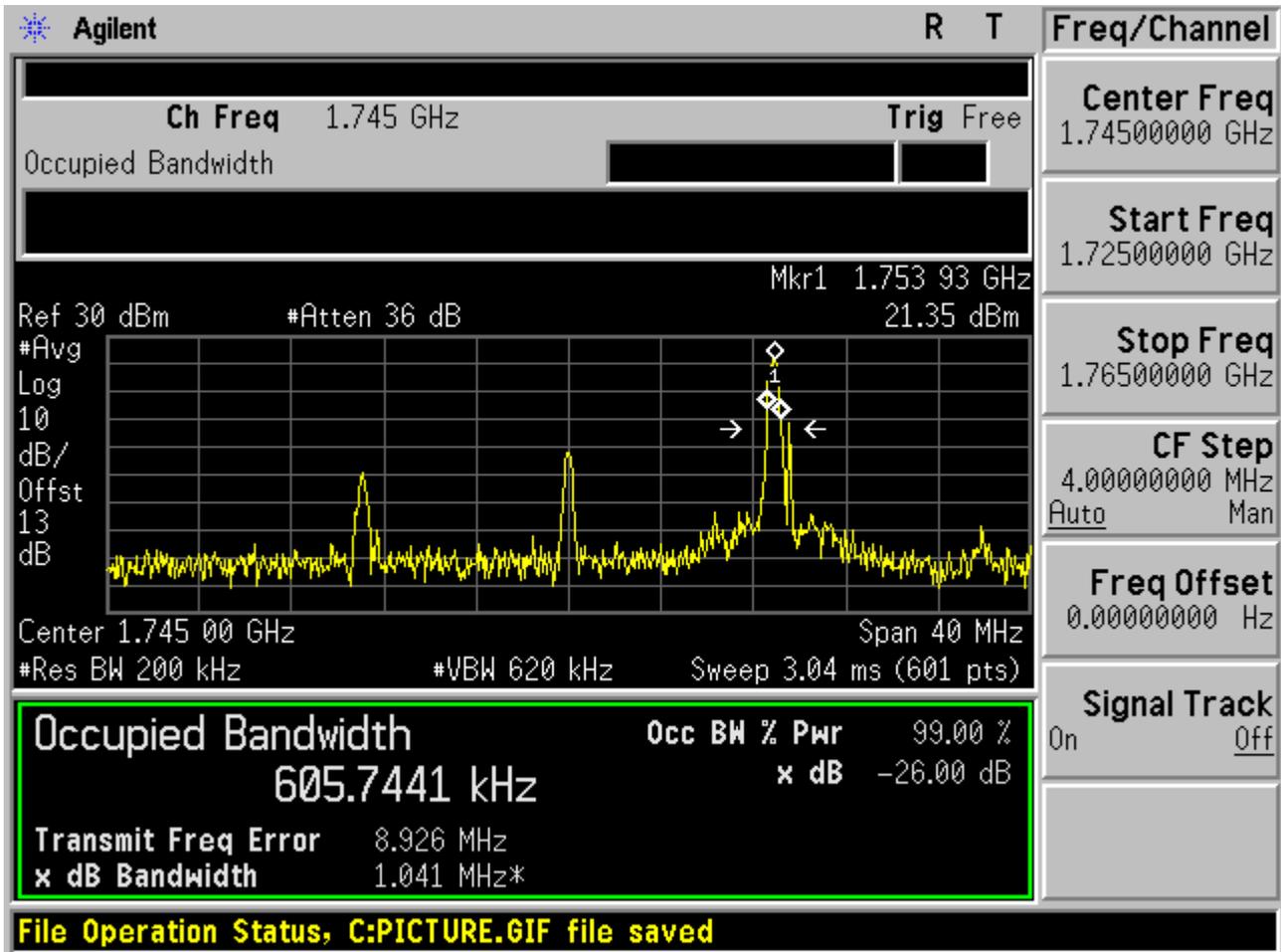
2.1.6.3 Channel =T

2.1.6.3.1 QPSK/1RB # 0



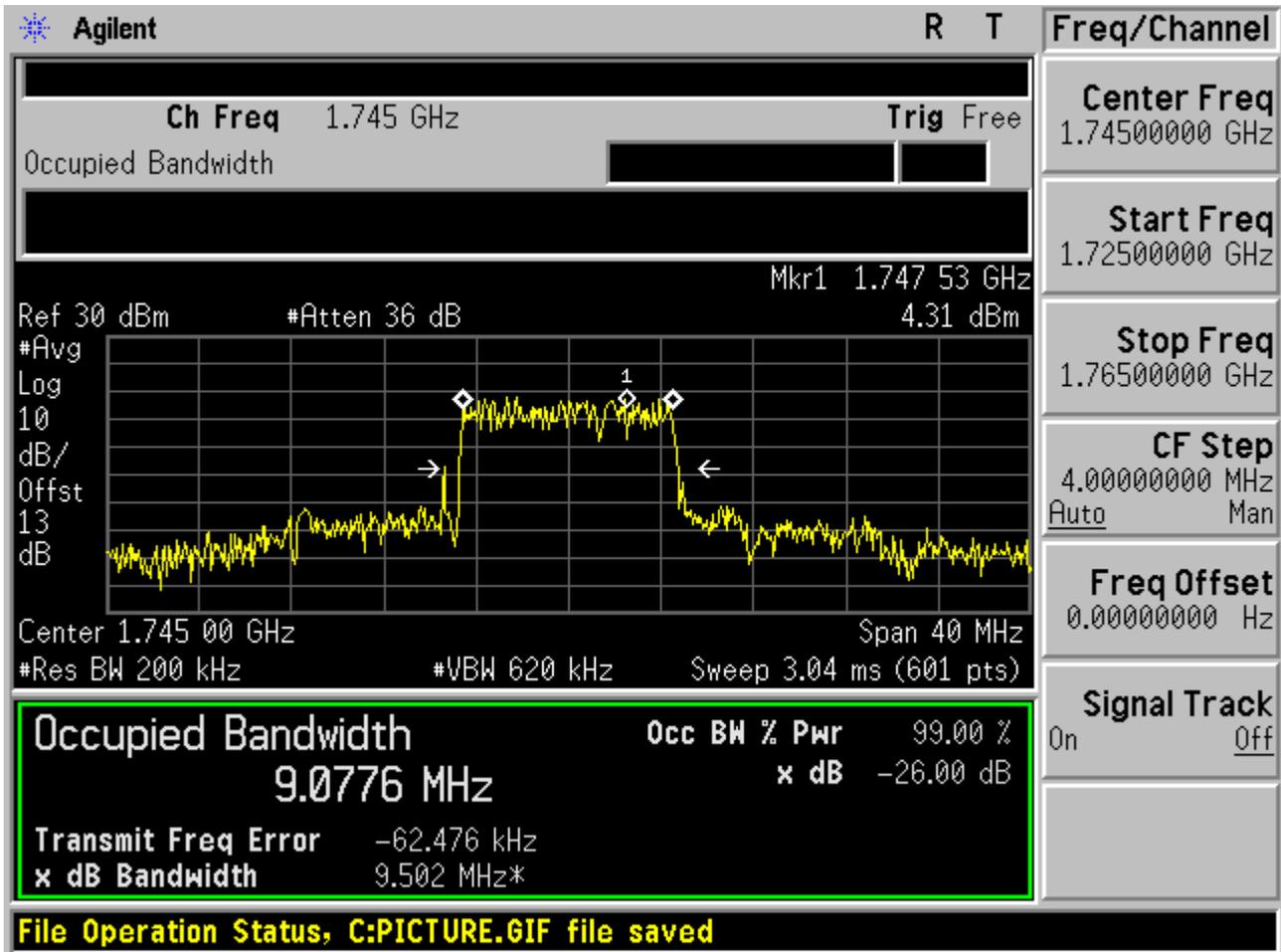


2.1.6.3.2 QPSK/1RB # max



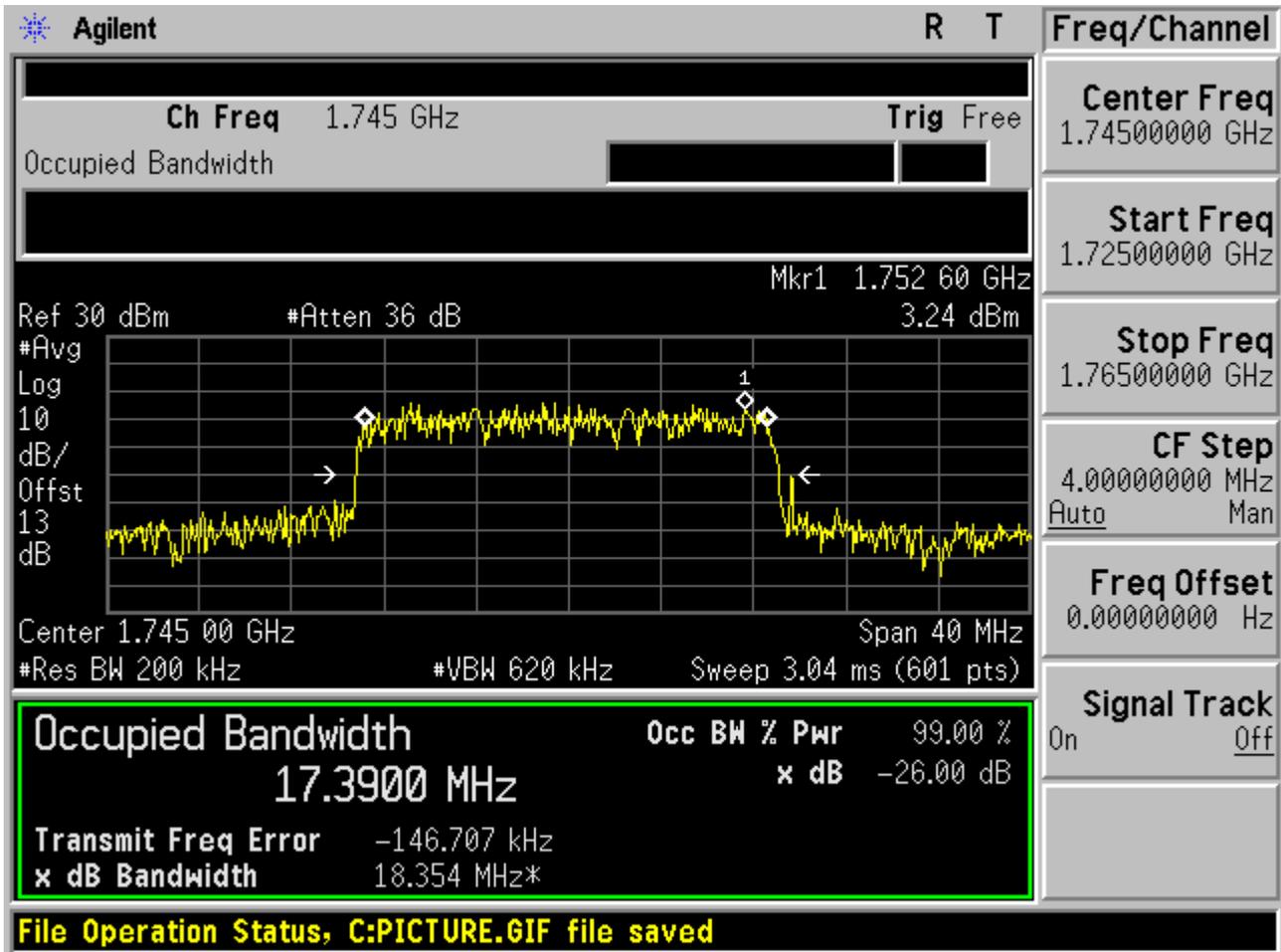


2.1.6.3.3 QPSK/non-1RB #mid/2





2.1.6.3.4 QPSK/full RBs



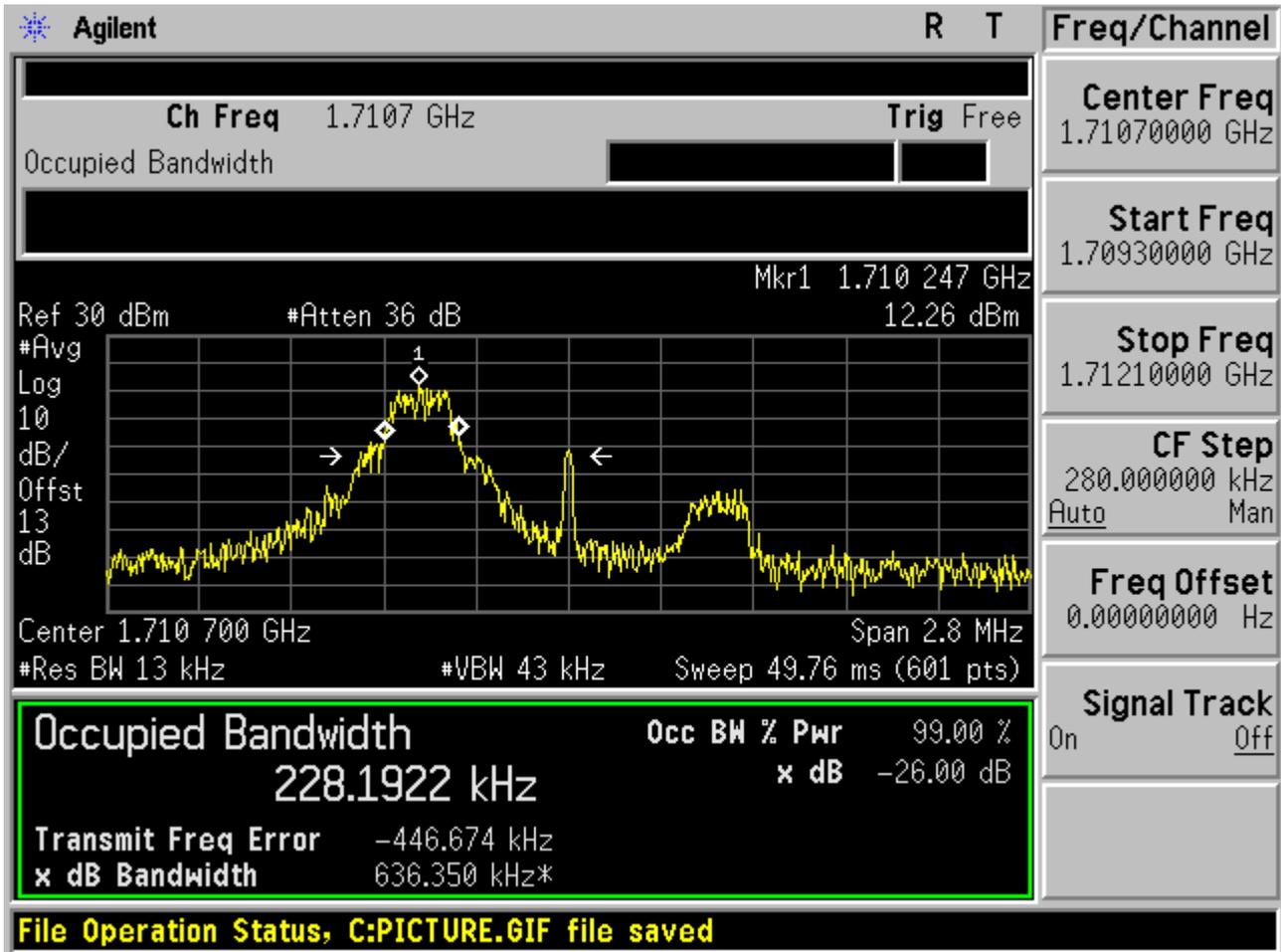


2.2 Test Mode=TM5

2.2.1 Channel Bandwidth = 1.4 MHz

2.2.1.1 Channel =B

2.2.1.1.1 16QAM/1RB # 0



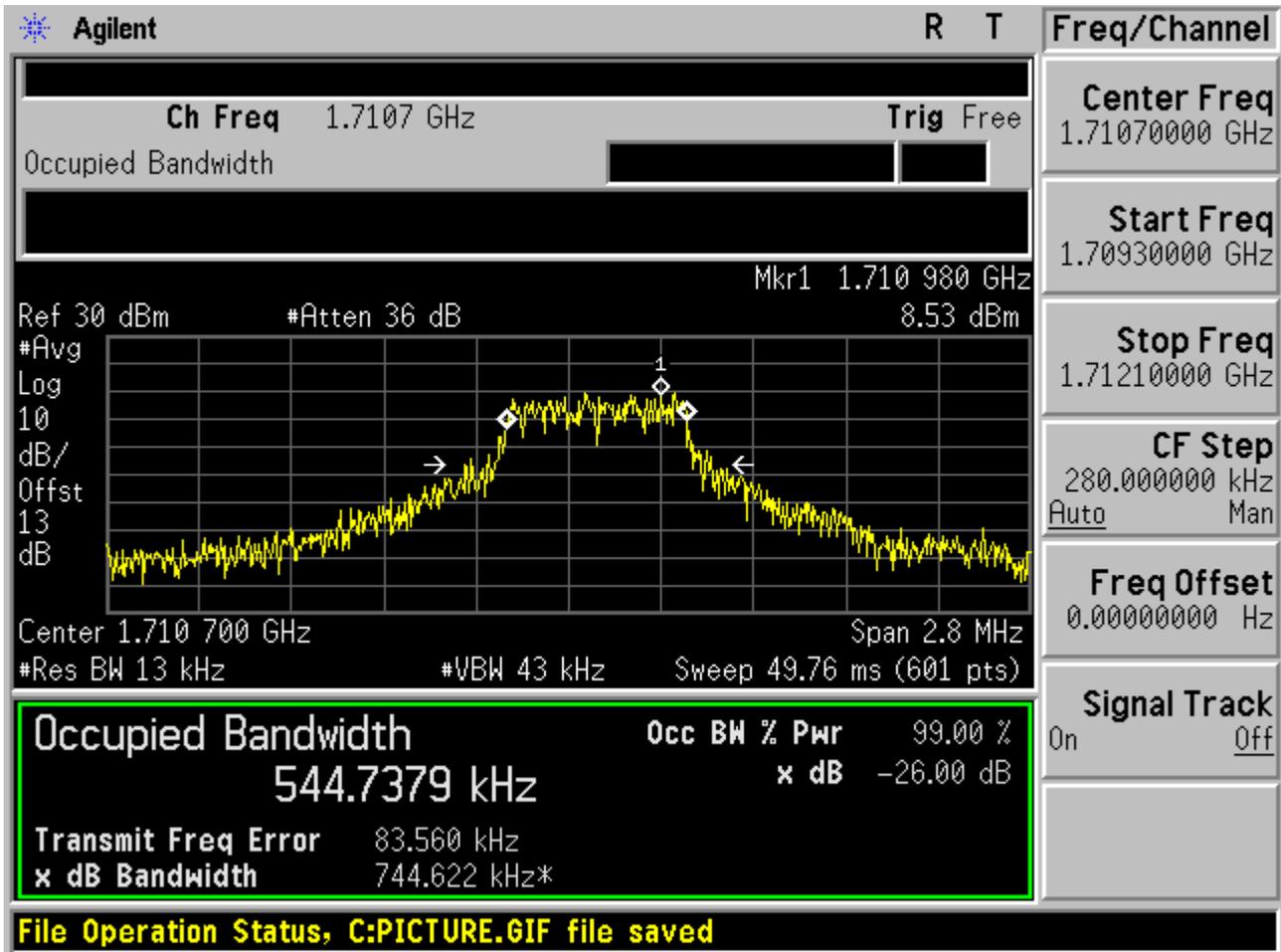


2.2.1.1.2 16QAM /1RB # max



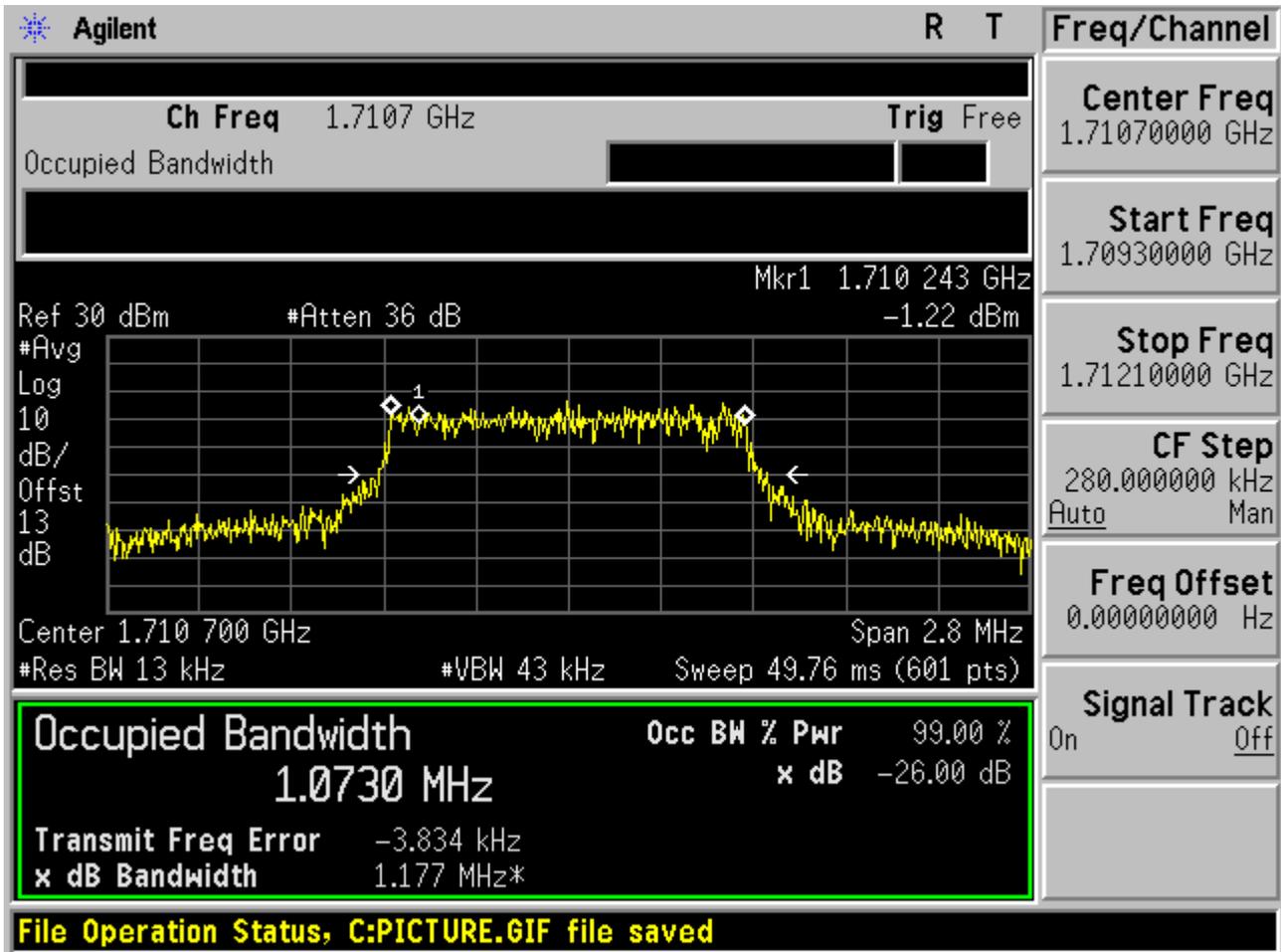


2.2.1.1.3 16QAM /non-1RB #mid/2





2.2.1.1.4 16QAM /full RBs





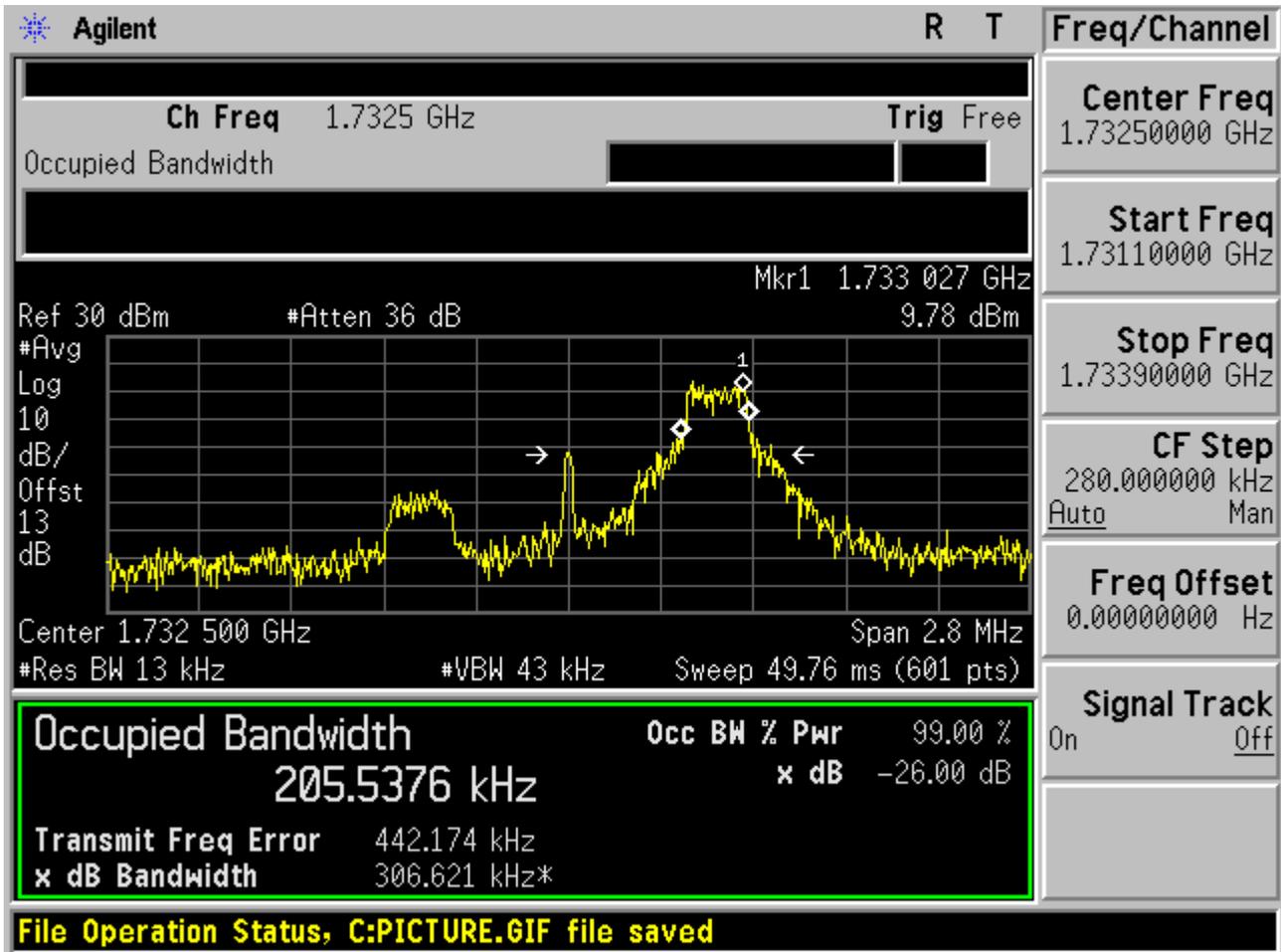
2.2.1.2 Channel =M

2.2.1.2.1 16QAM/1RB # 0



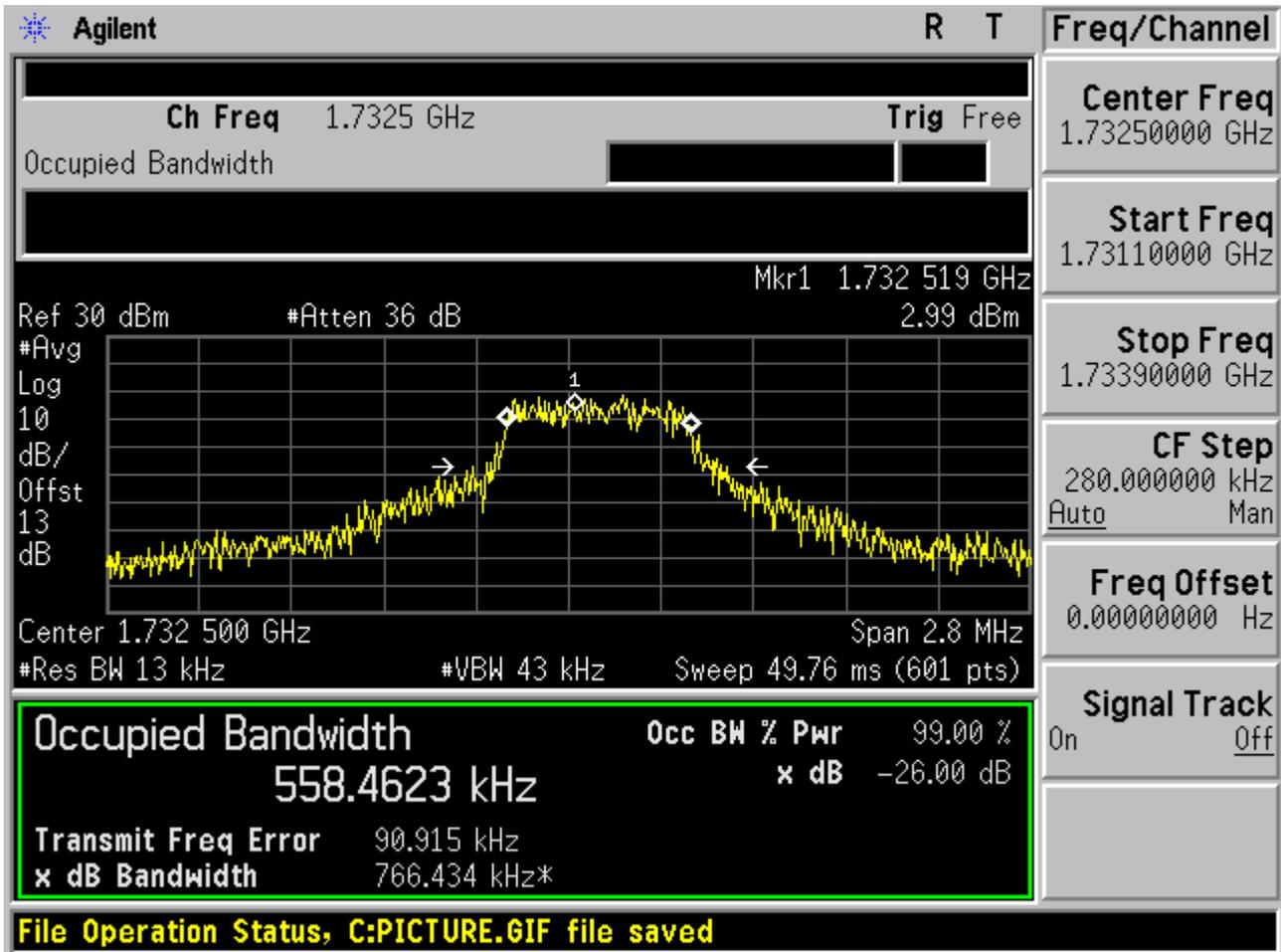


2.2.1.2.2 16QAM /1RB # max



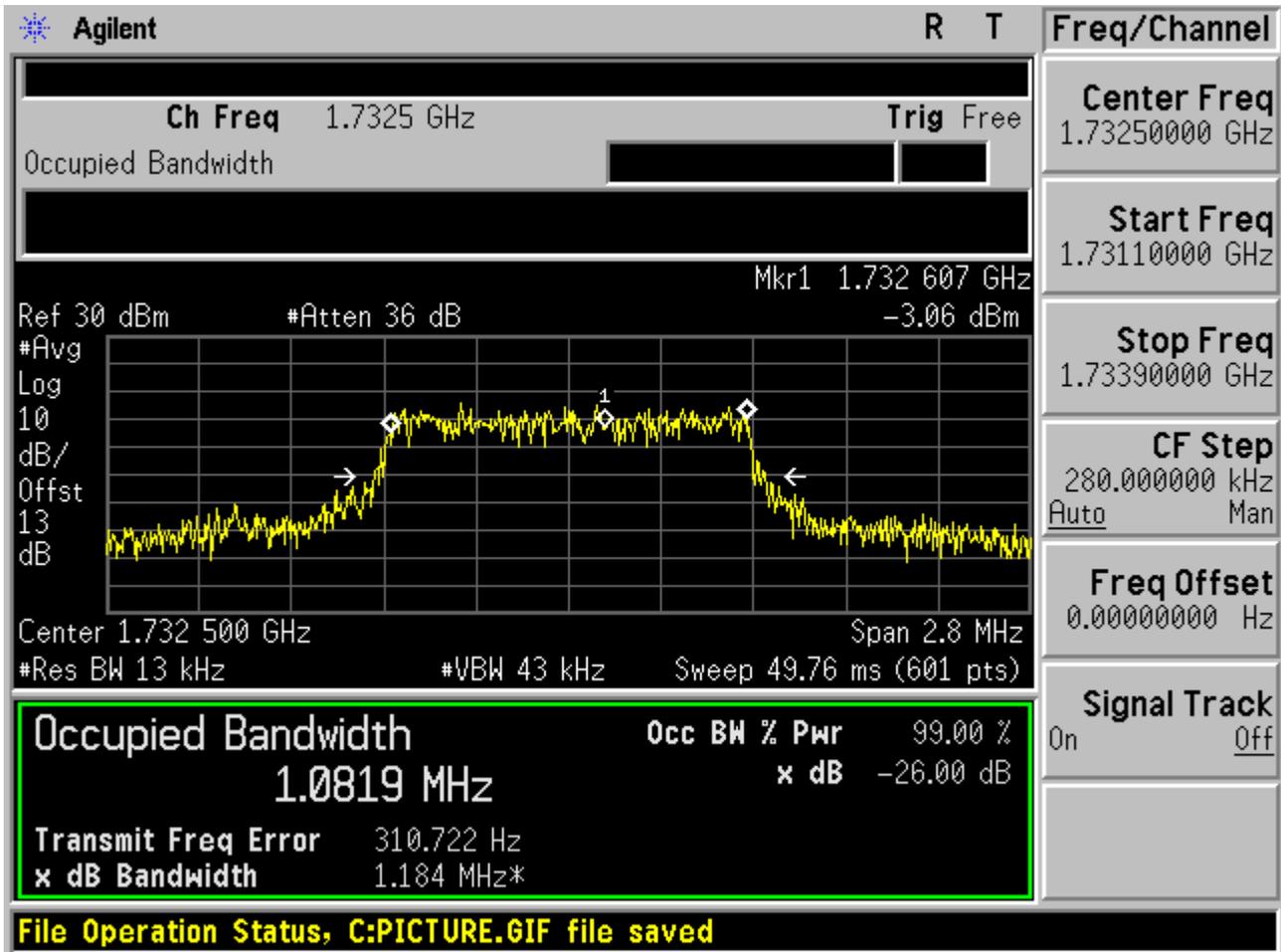


2.2.1.2.3 16QAM /non-1RB #mid/2





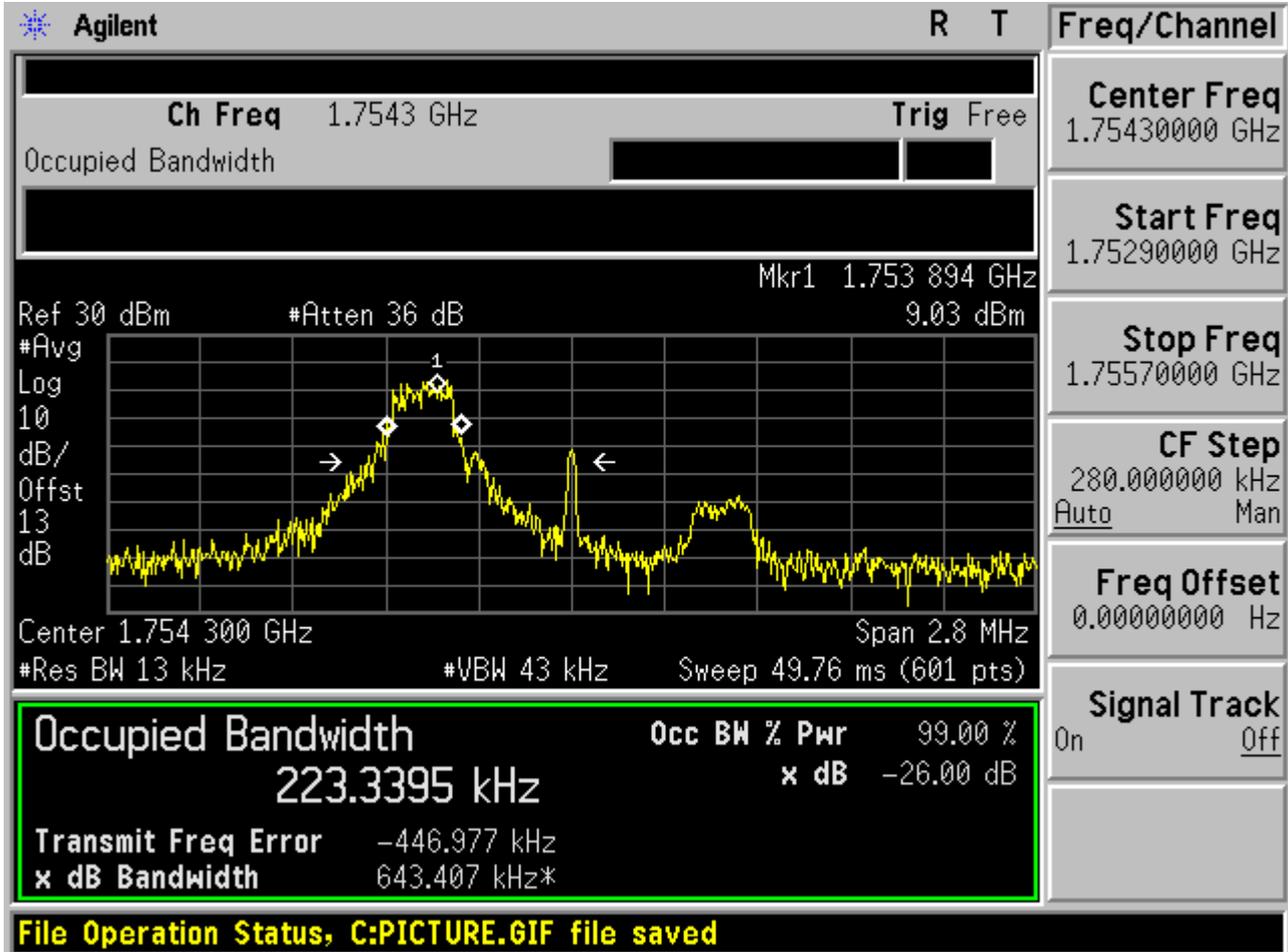
2.2.1.2.4 16QAM /full RBs





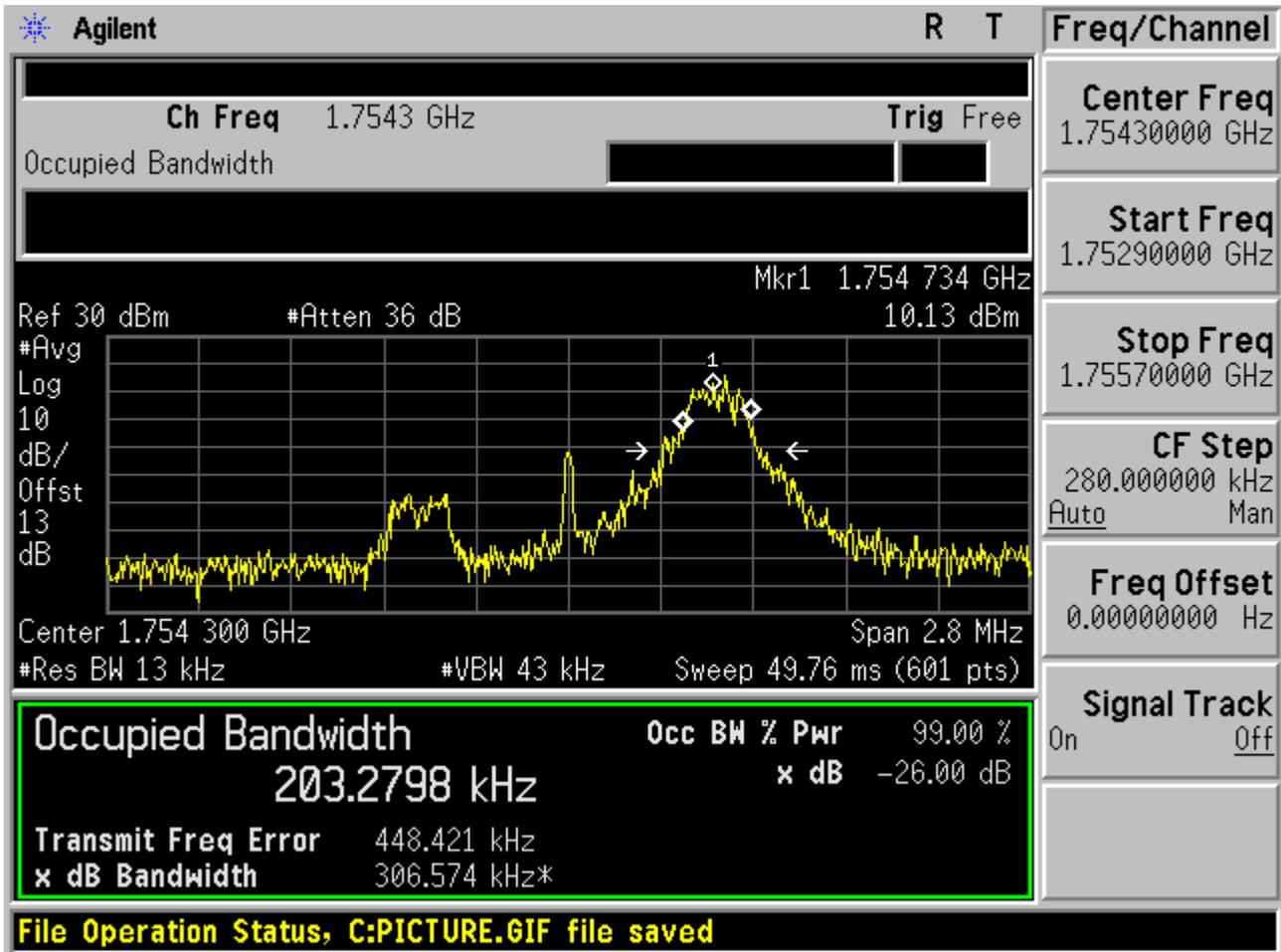
2.2.1.3 Channel =T

2.2.1.3.1 16QAM/1RB # 0



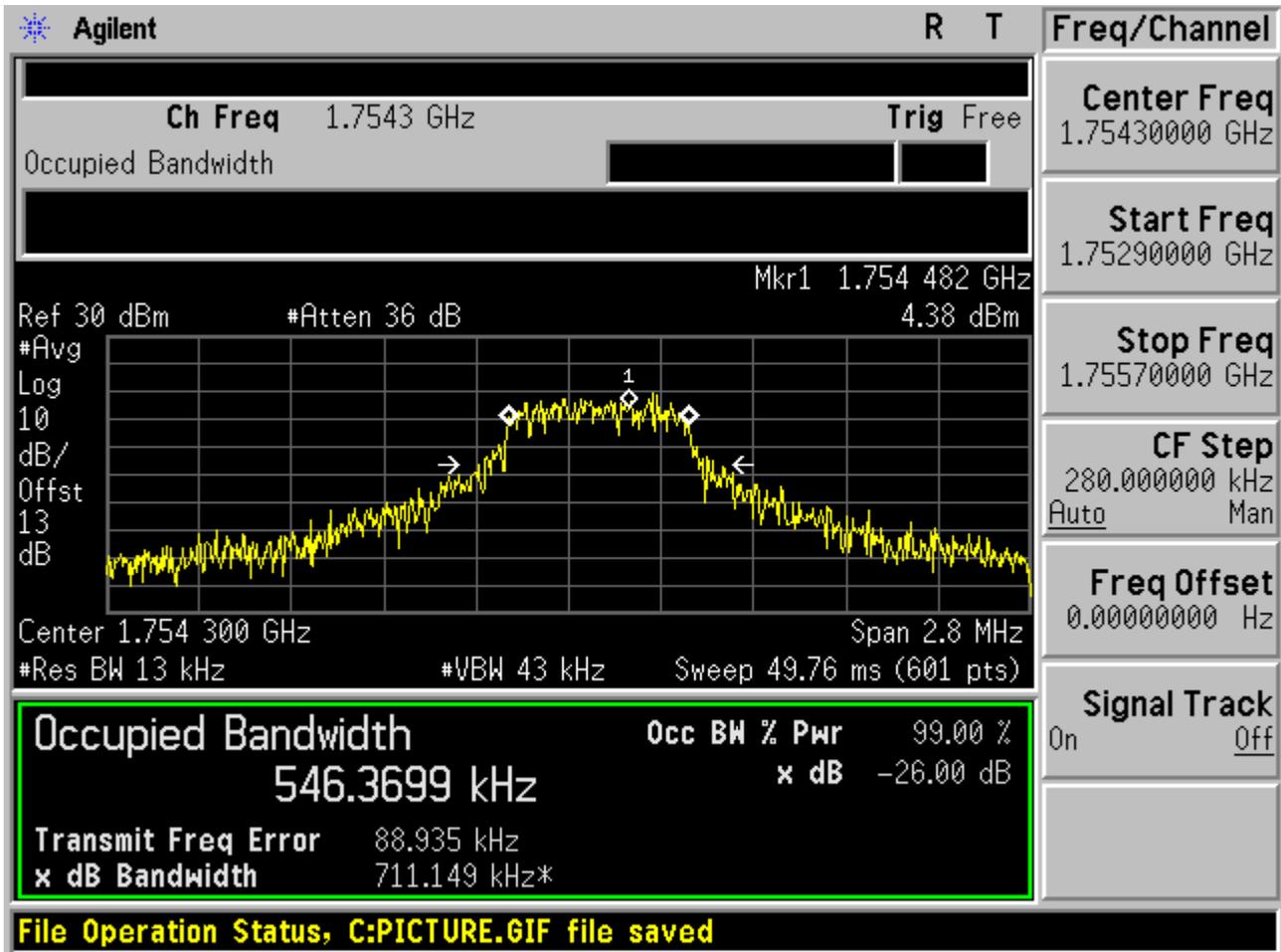


2.2.1.3.2 16QAM /1RB # max





2.2.1.3.3 16QAM /non-1RB #mid/2





2.2.1.3.4 16QAM /full RBs

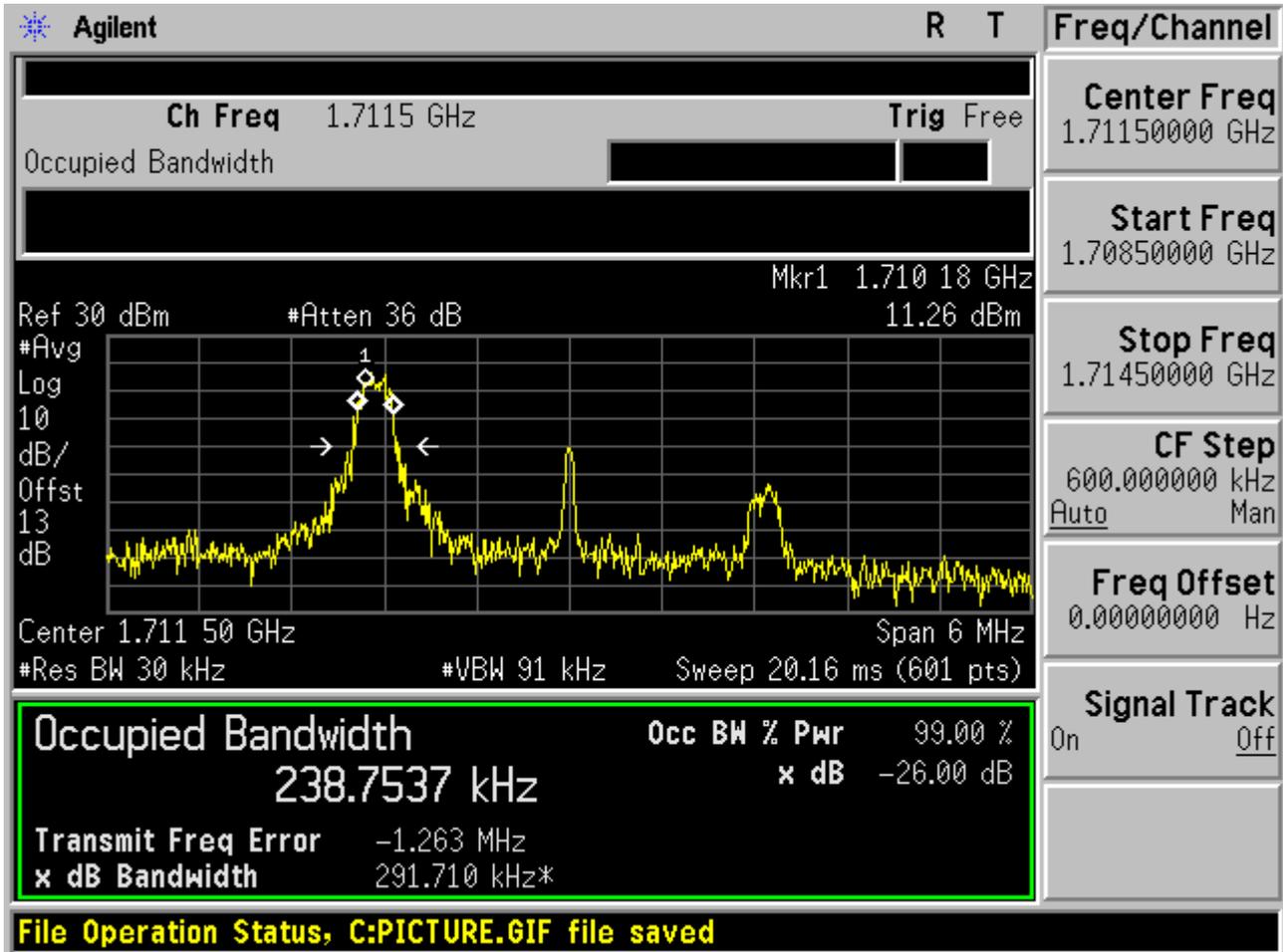




2.2.2 Channel Bandwidth = 3 MHz

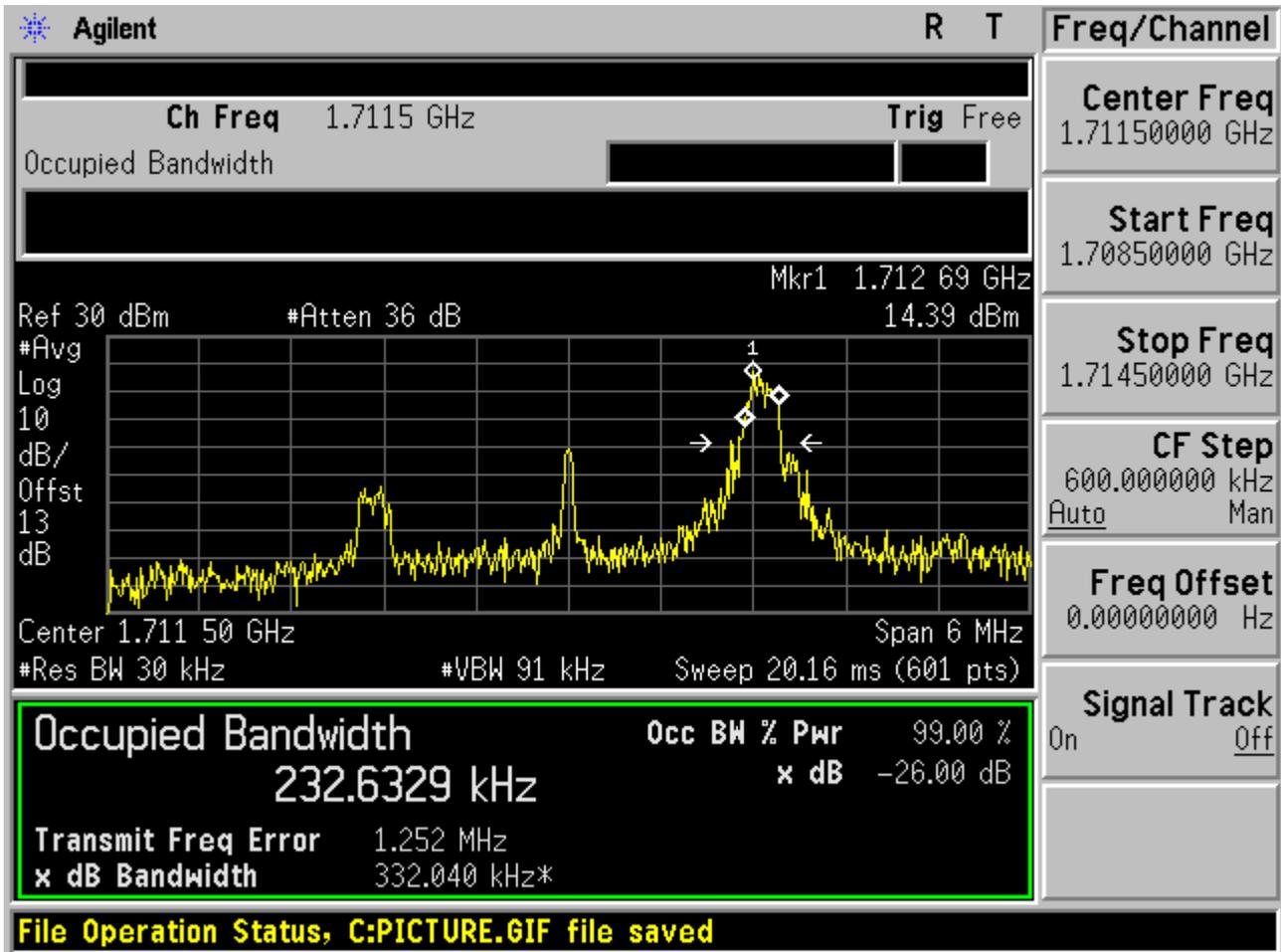
2.2.2.1 Channel = B

2.2.2.1.1 16QAM/1RB # 0





2.2.2.1.2 16QAM /1RB # max



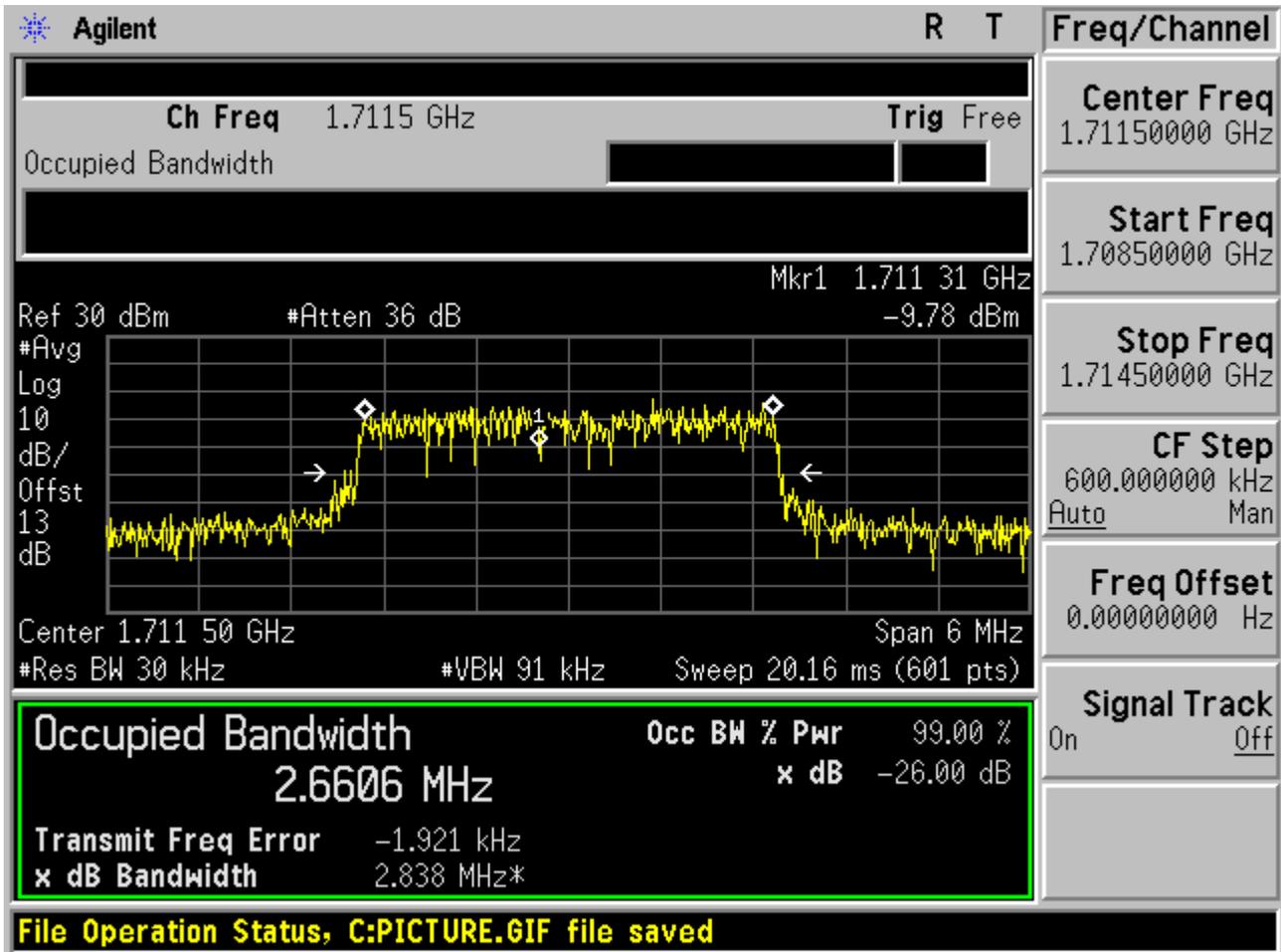


2.2.2.1.3 16QAM /non-1RB #mid/2





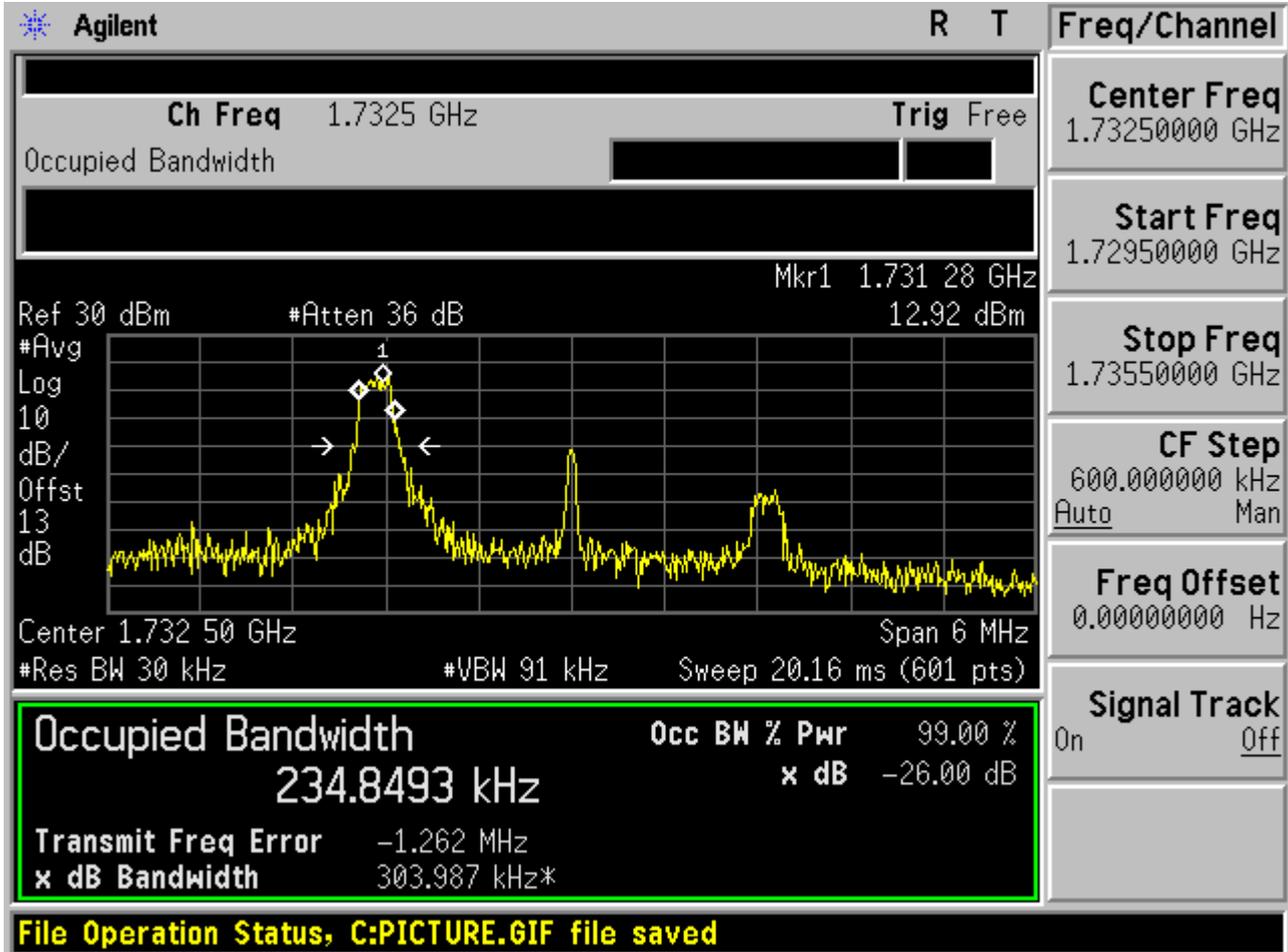
2.2.2.1.4 16QAM /full RBs





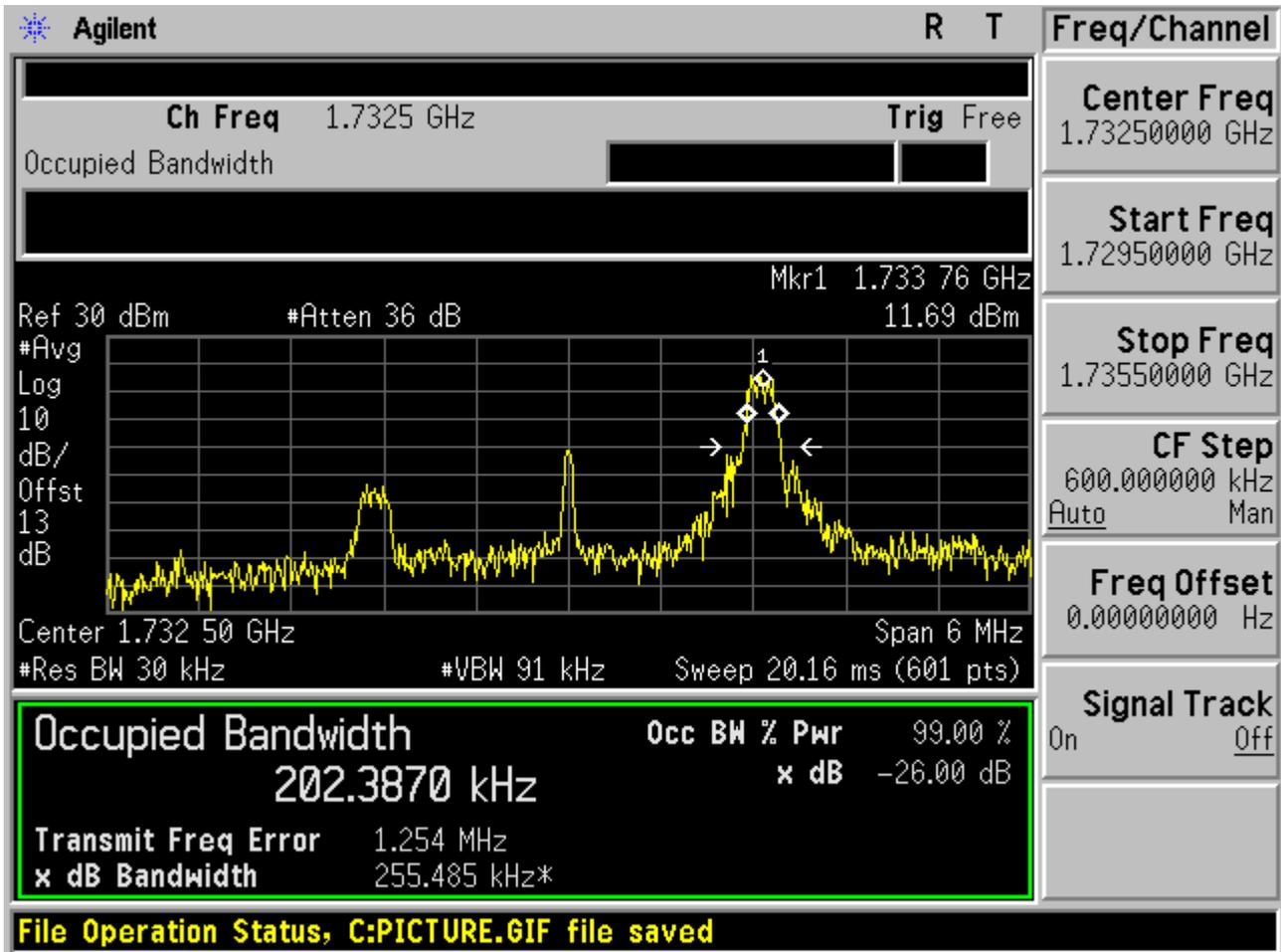
2.2.2.2 Channel =M

2.2.2.2.1 16QAM/1RB # 0



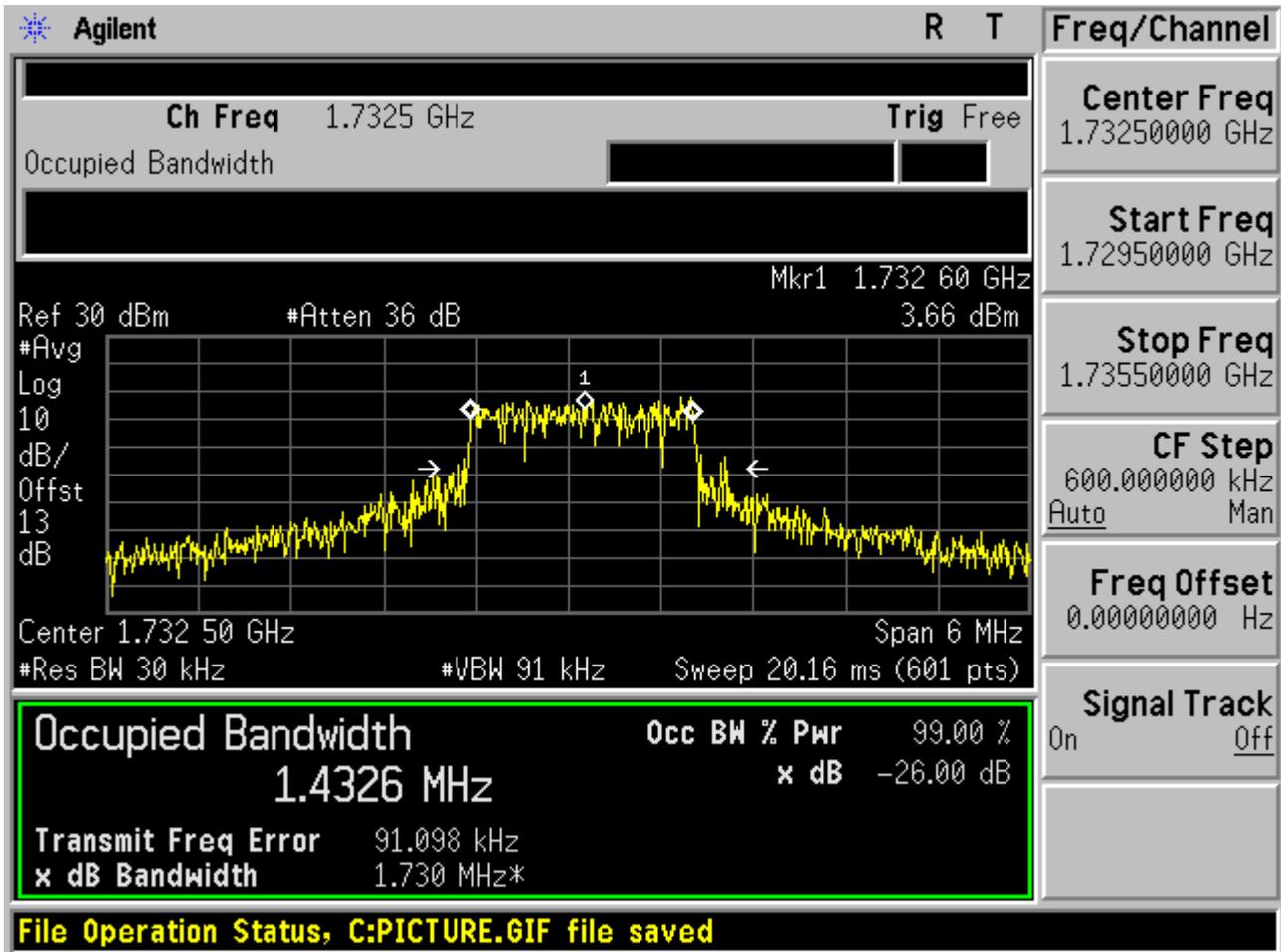


2.2.2.2.2 16QAM /1RB # max



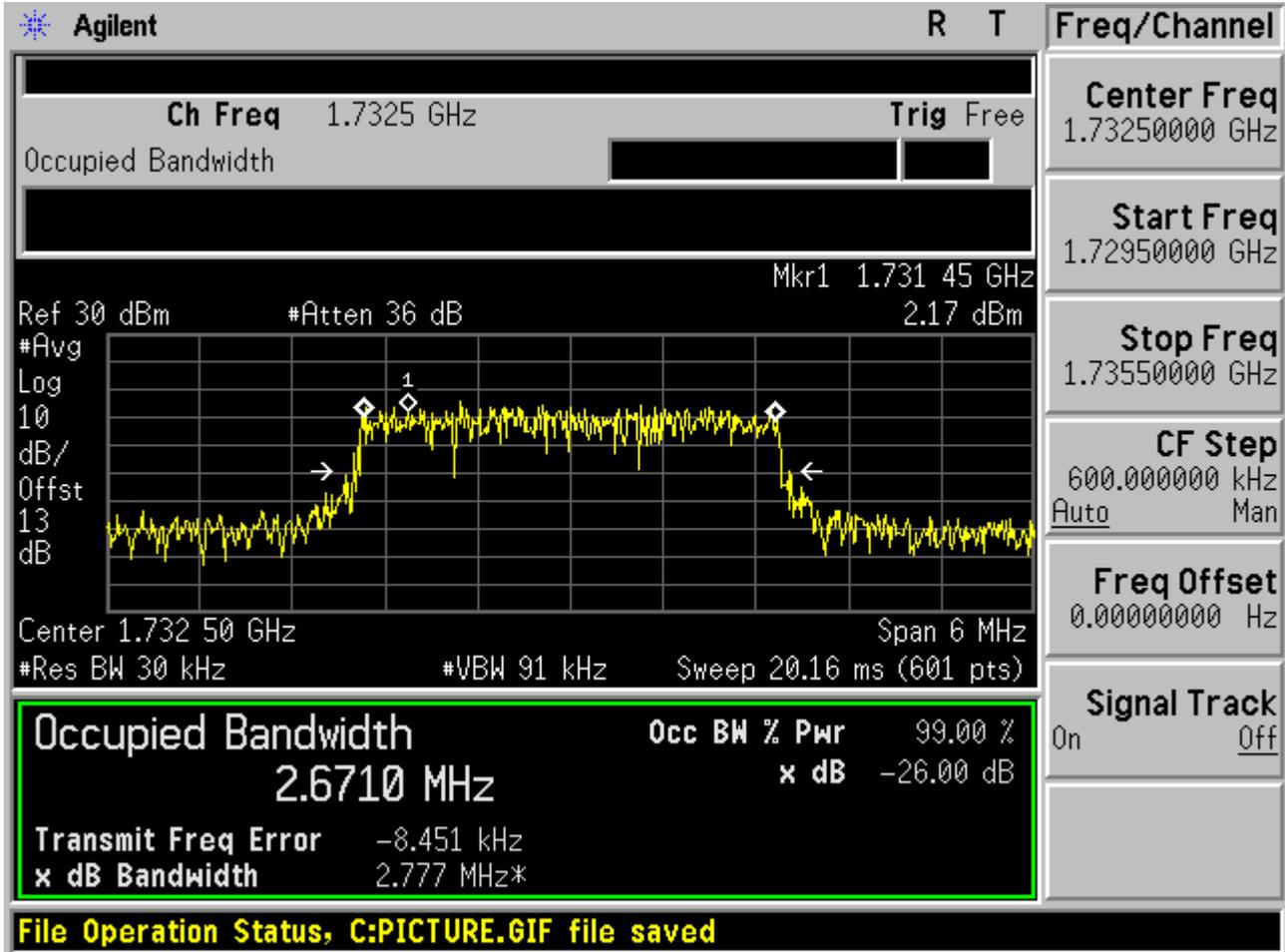


2.2.2.2.3 16QAM /non-1RB #mid/2





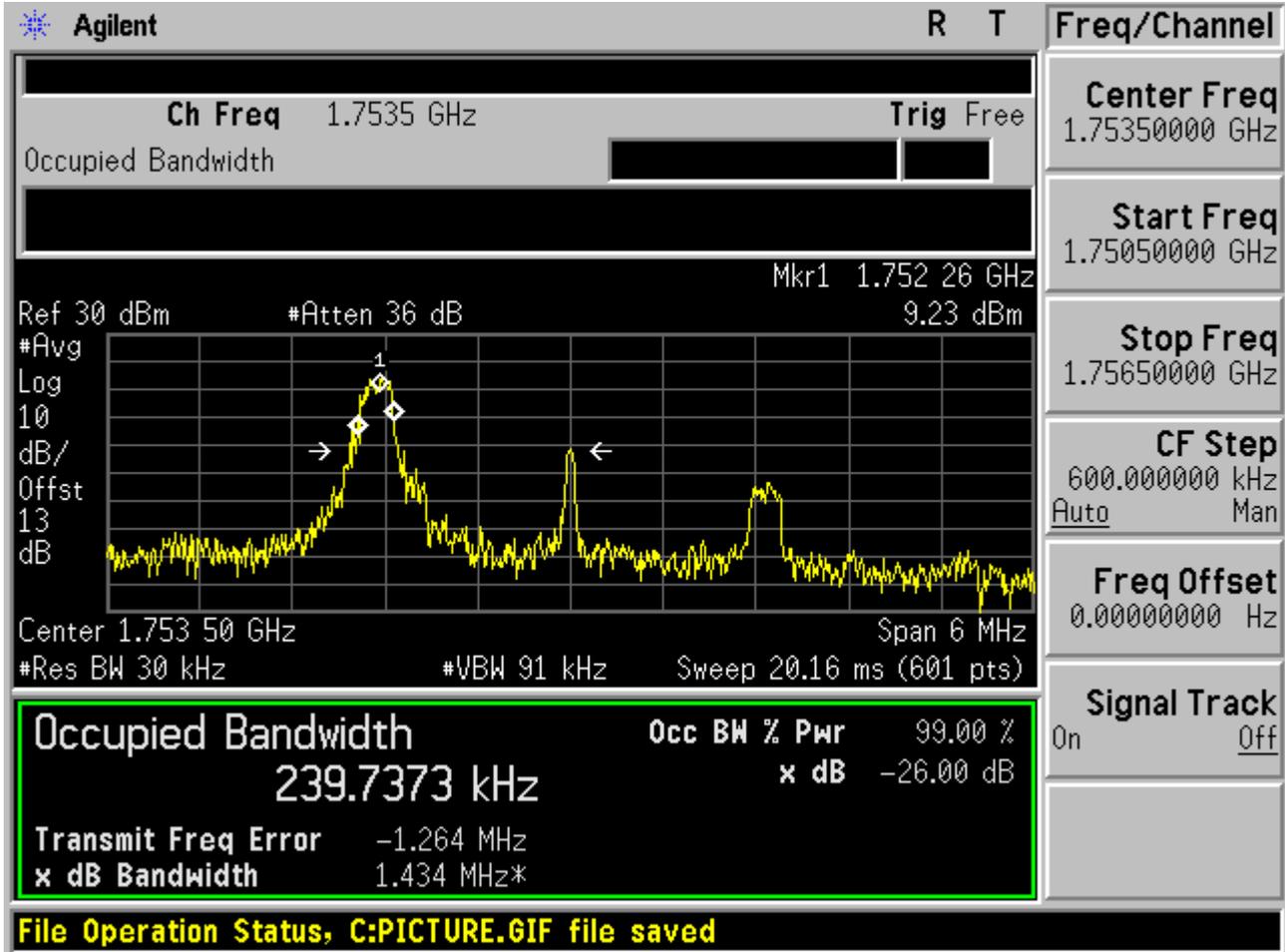
2.2.2.2.4 16QAM /full RBs





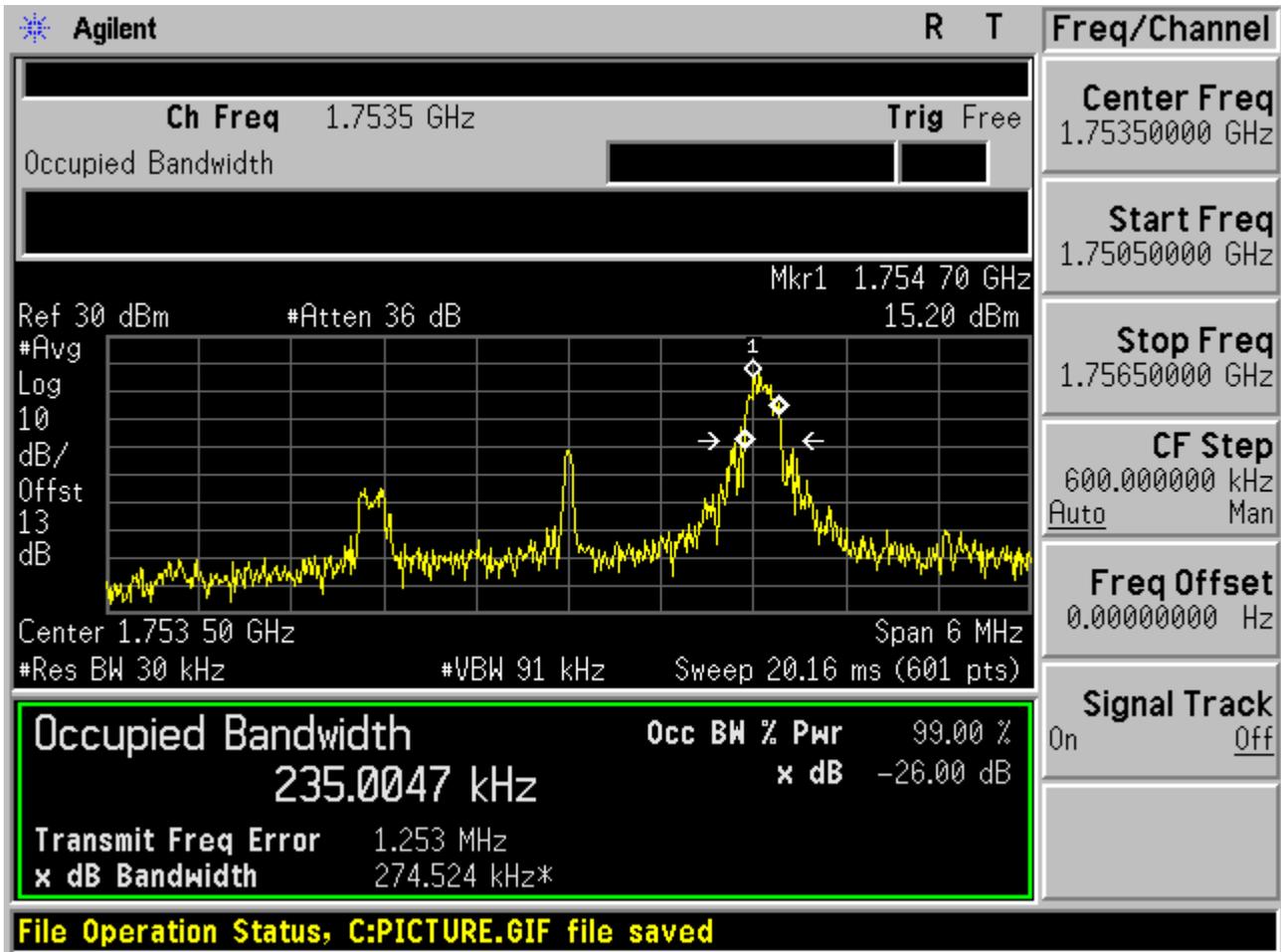
2.2.2.3 Channel =T

2.2.2.3.1 16QAM/1RB # 0



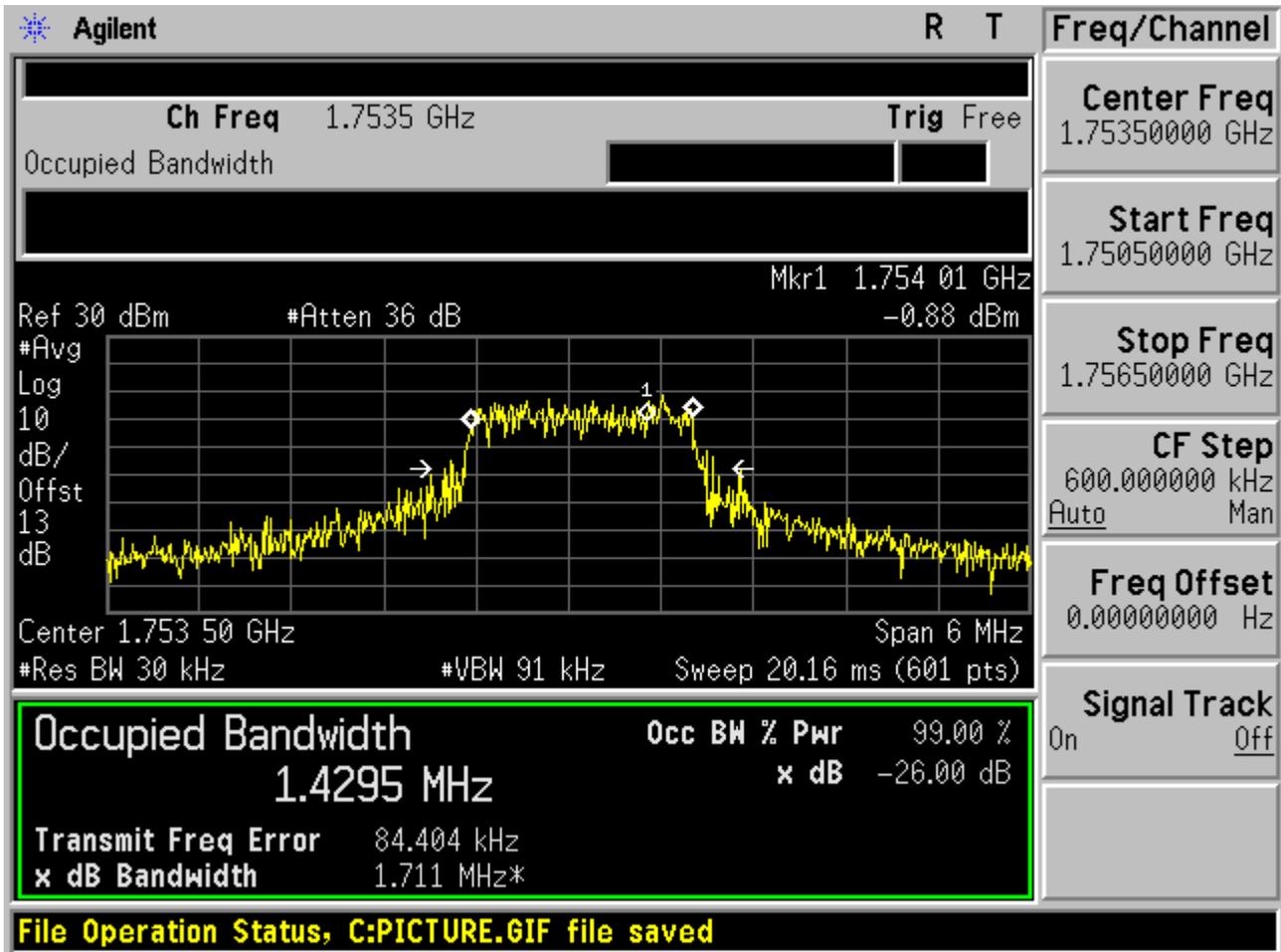


2.2.2.3.2 16QAM /1RB # max



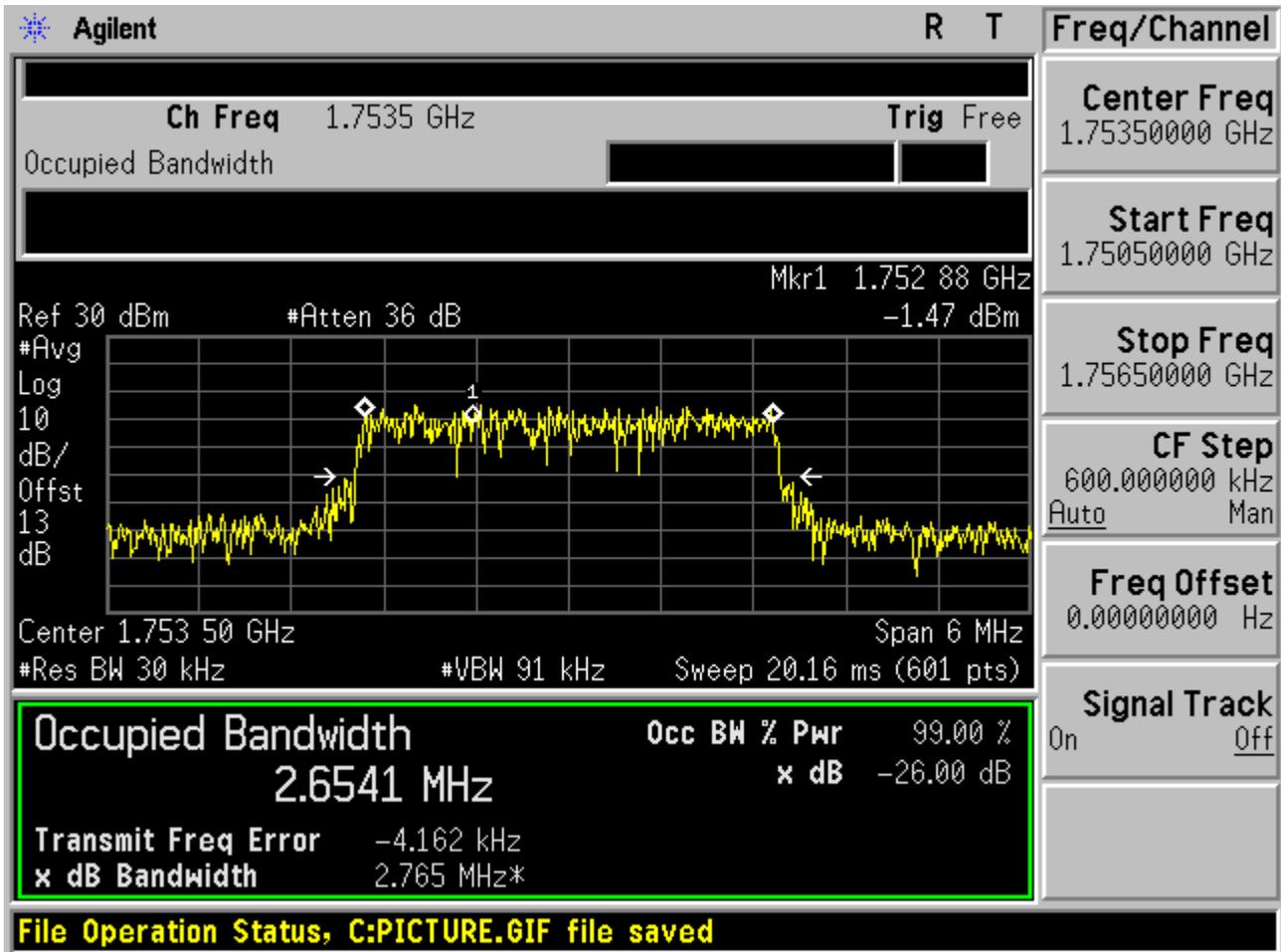


2.2.2.3.3 16QAM /non-1RB #mid/2





2.2.2.3.4 16QAM /full RBs

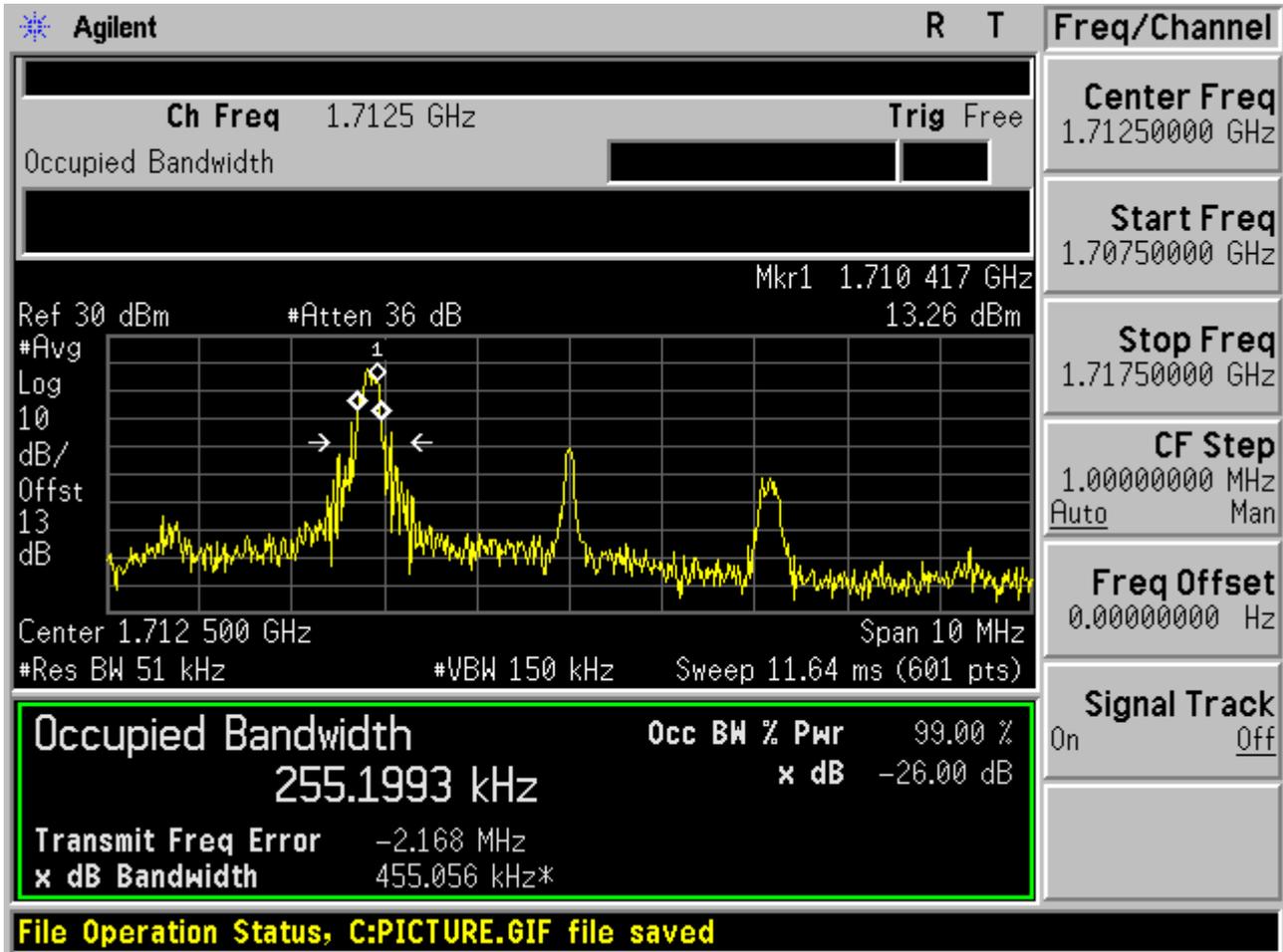




2.2.3 Channel Bandwidth = 5 MHz

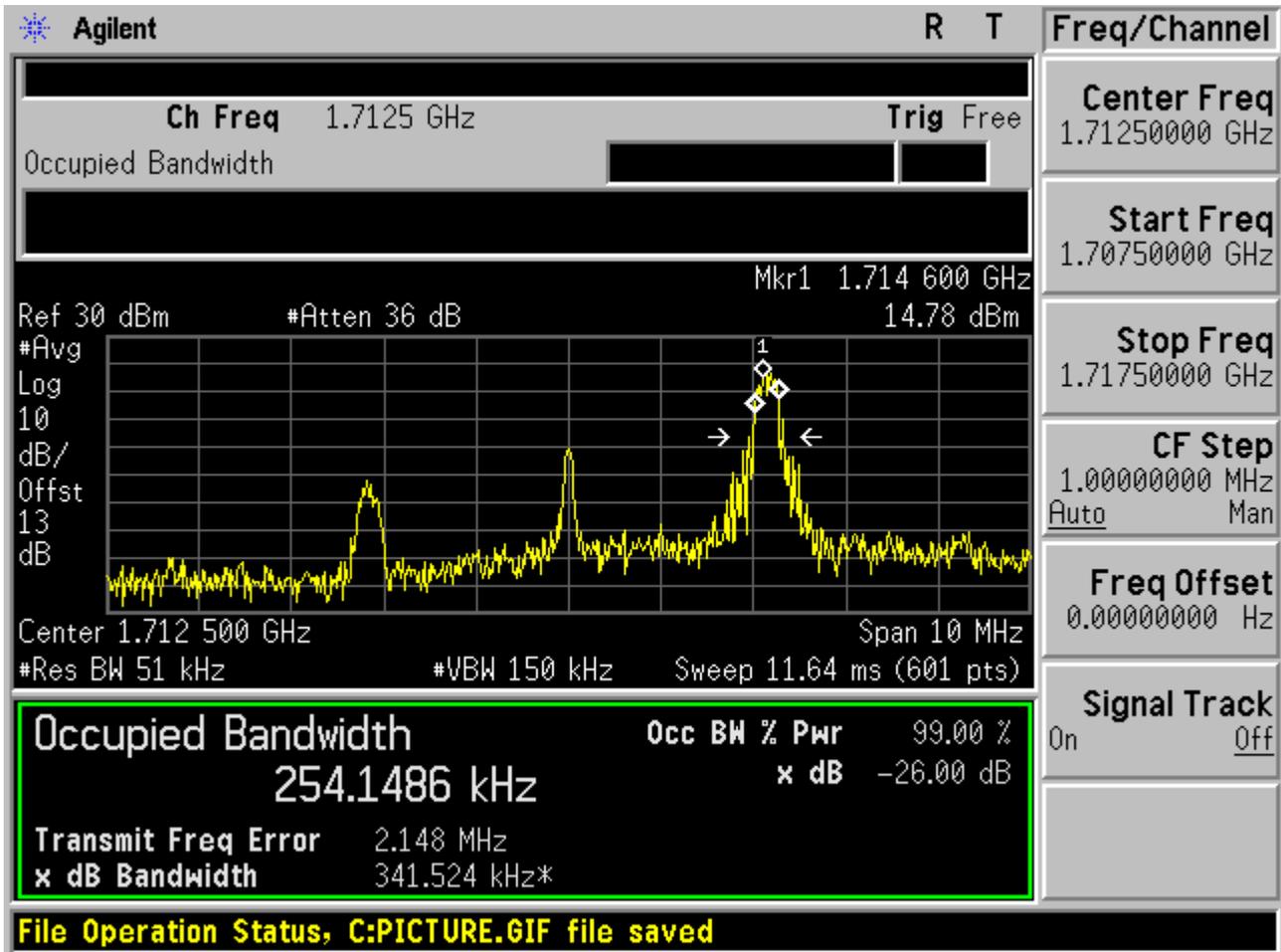
2.2.3.1 Channel = B

2.2.3.1.1 16QAM/1RB # 0



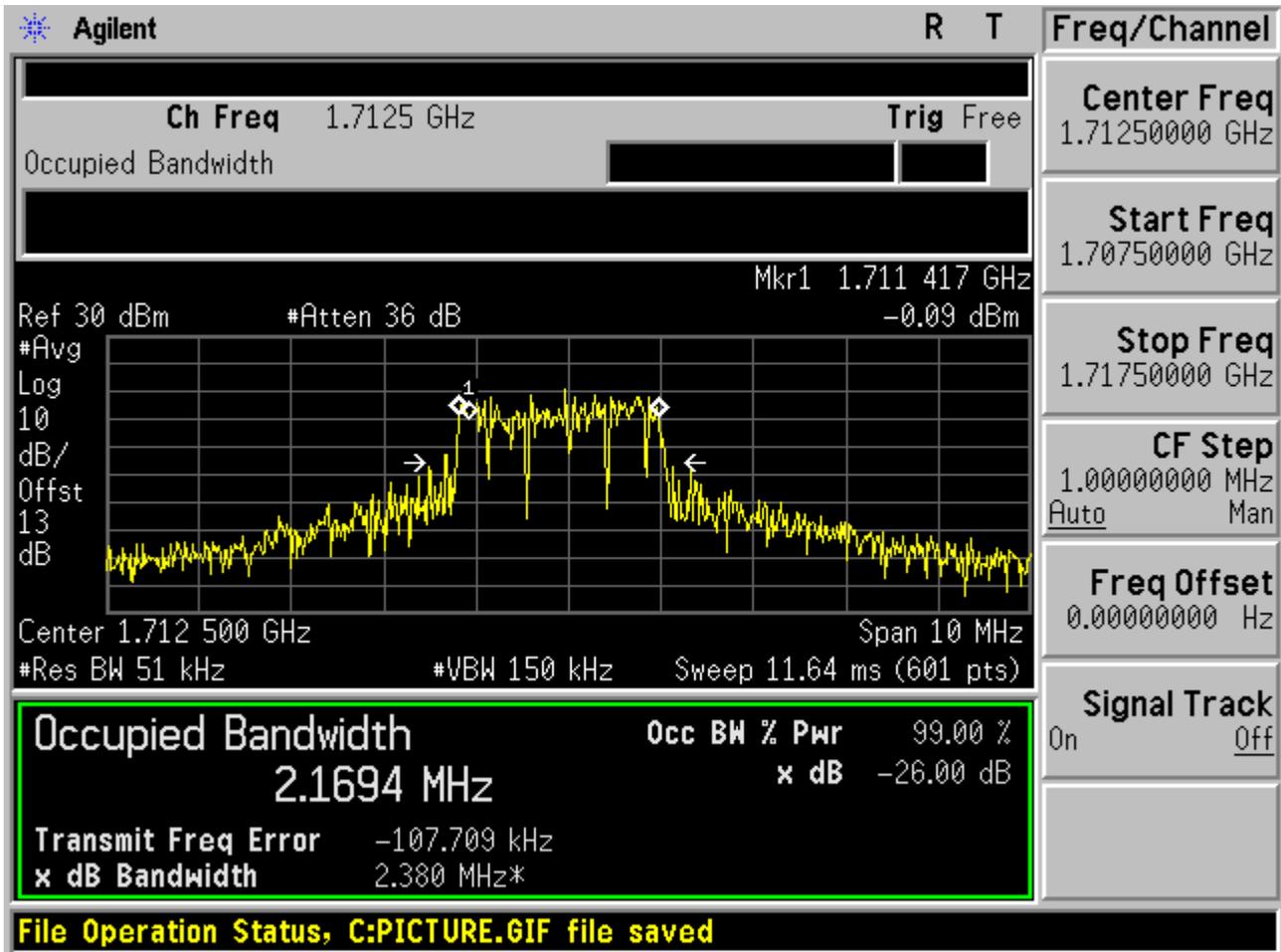


2.2.3.1.2 16QAM /1RB # max



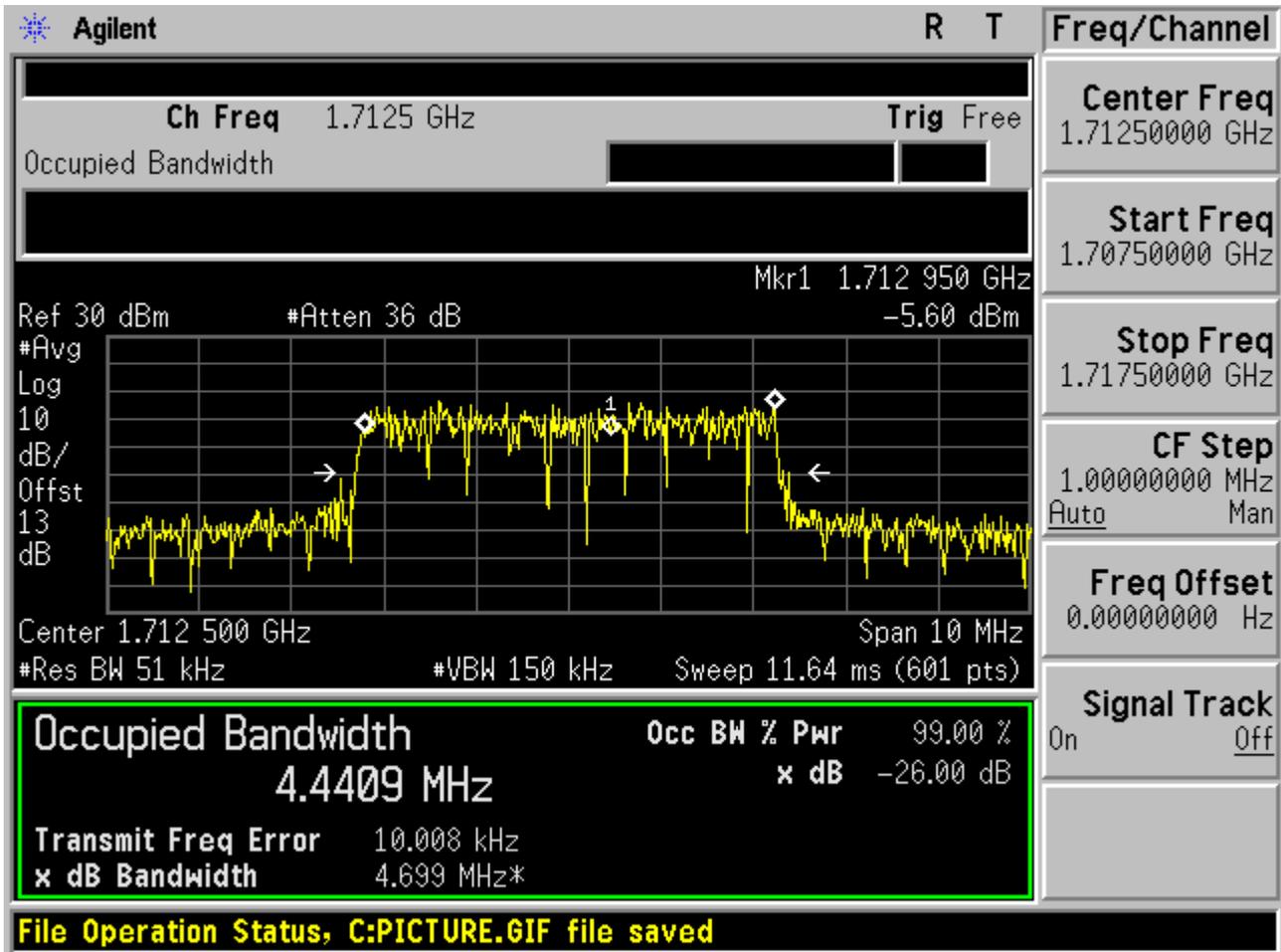


2.2.3.1.3 16QAM /non-1RB #mid/2





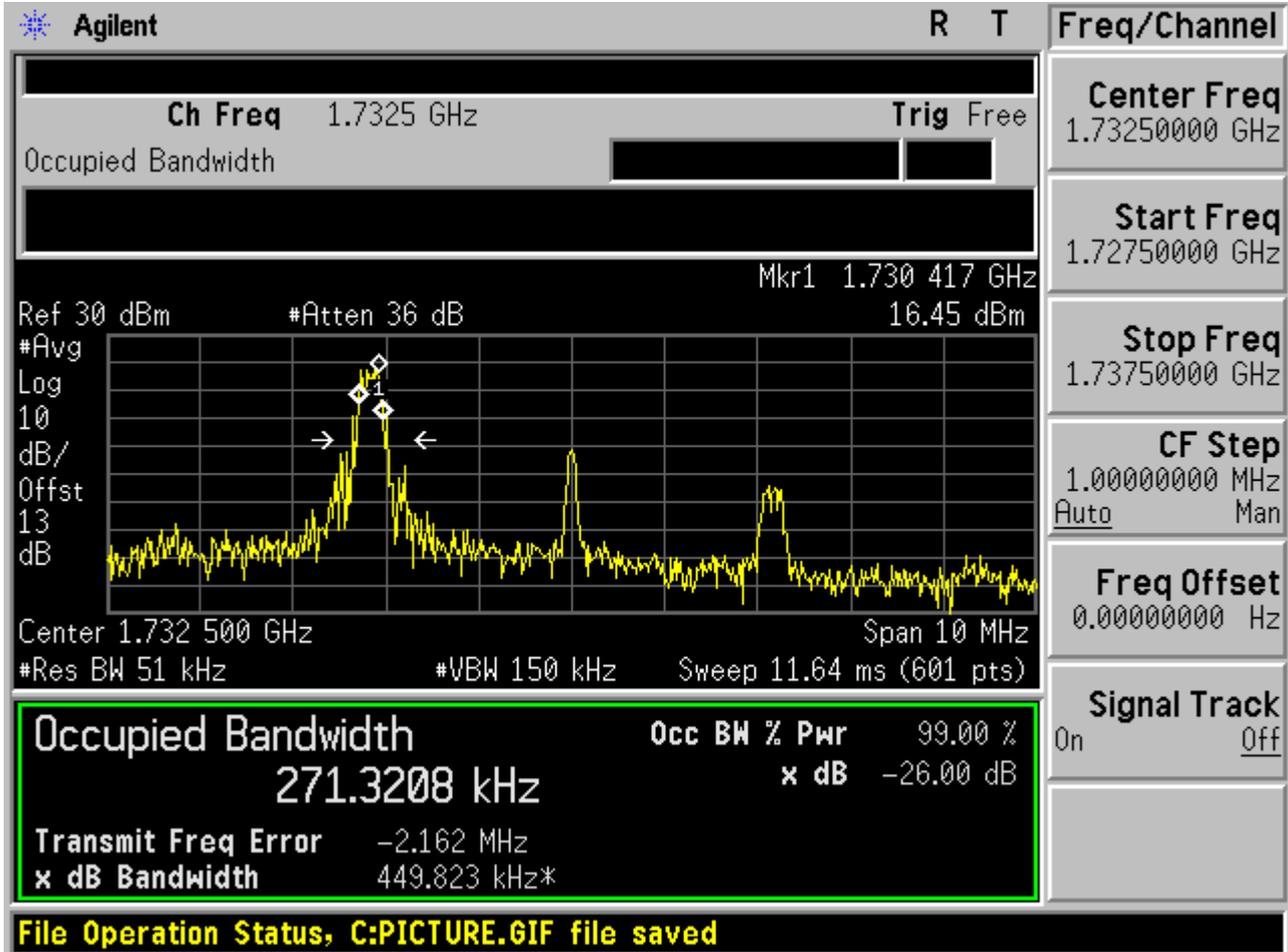
2.2.3.1.4 16QAM /full RBs





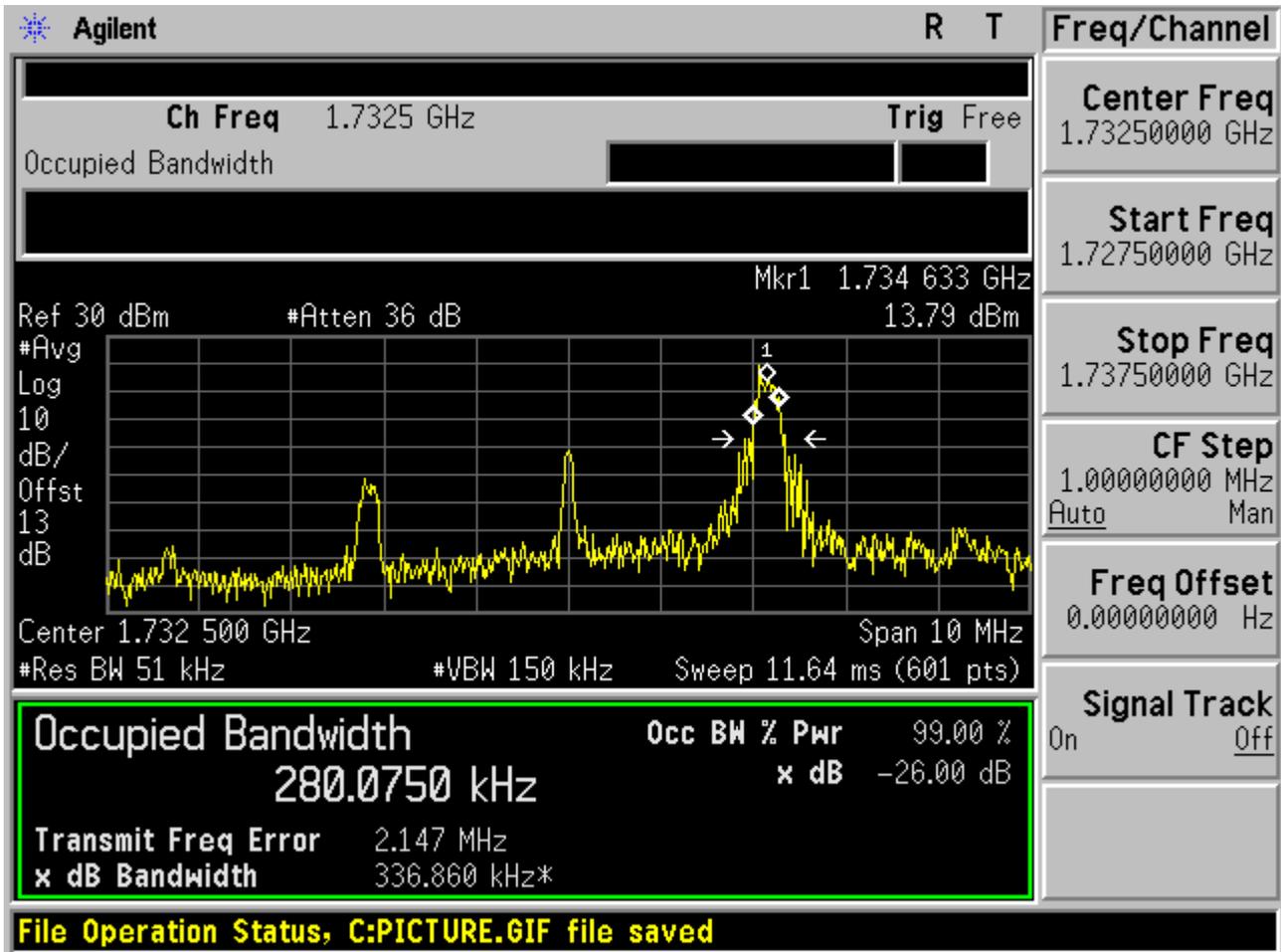
2.2.3.2 Channel =M

2.2.3.2.1 16QAM/1RB # 0



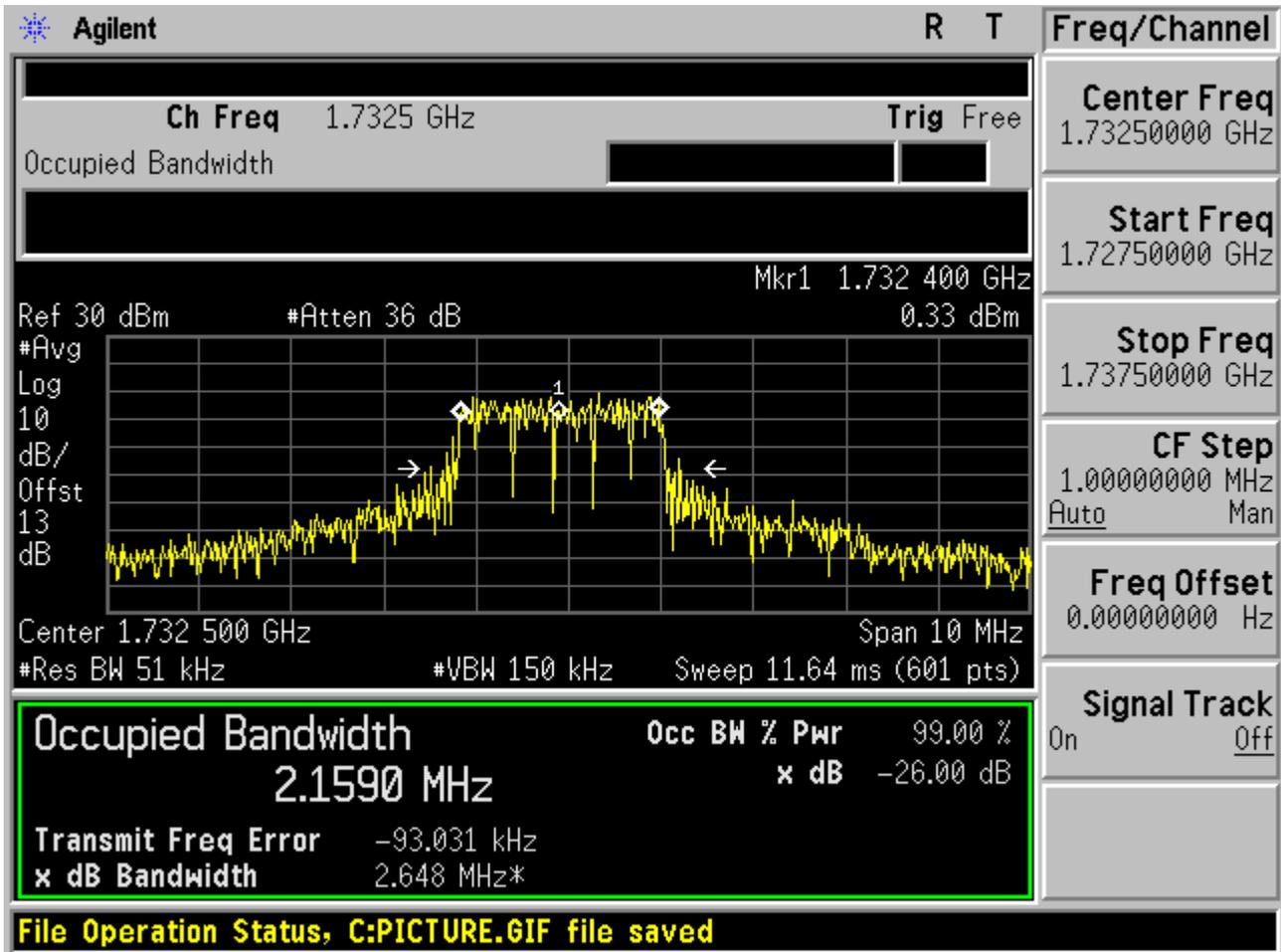


2.2.3.2.2 16QAM /1RB # max



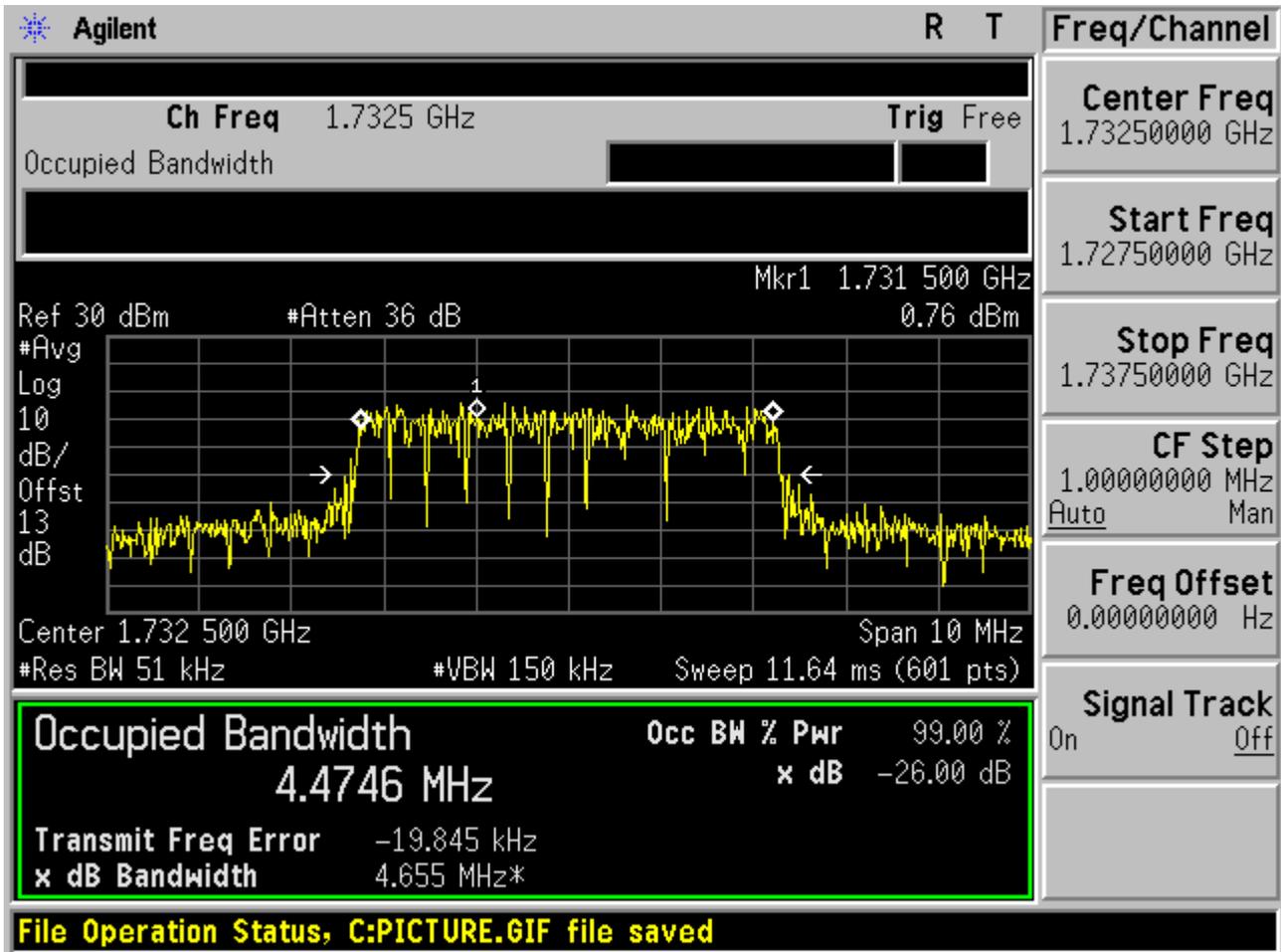


2.2.3.2.3 16QAM /non-1RB #mid/2





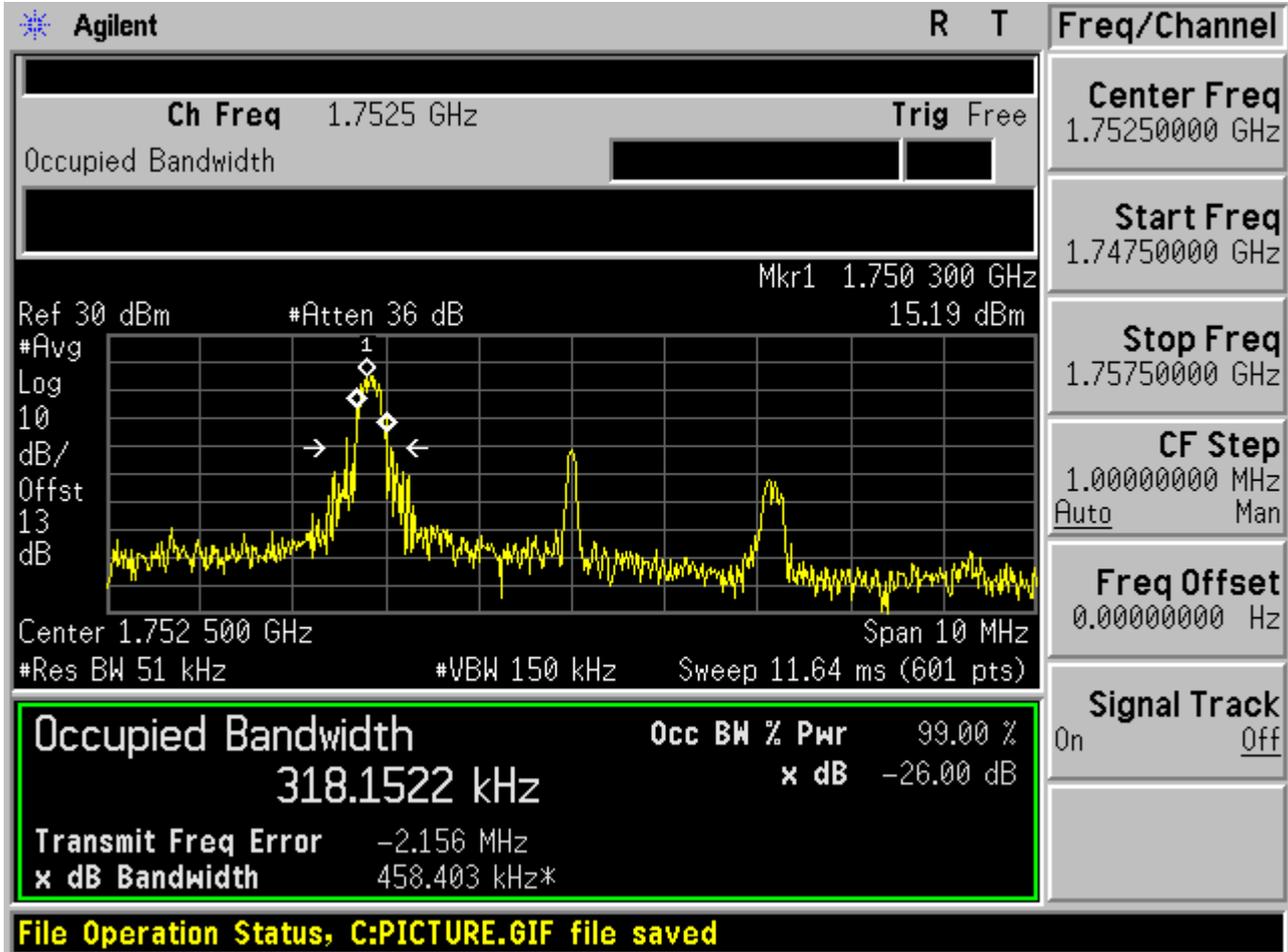
2.2.3.2.4 16QAM /full RBs





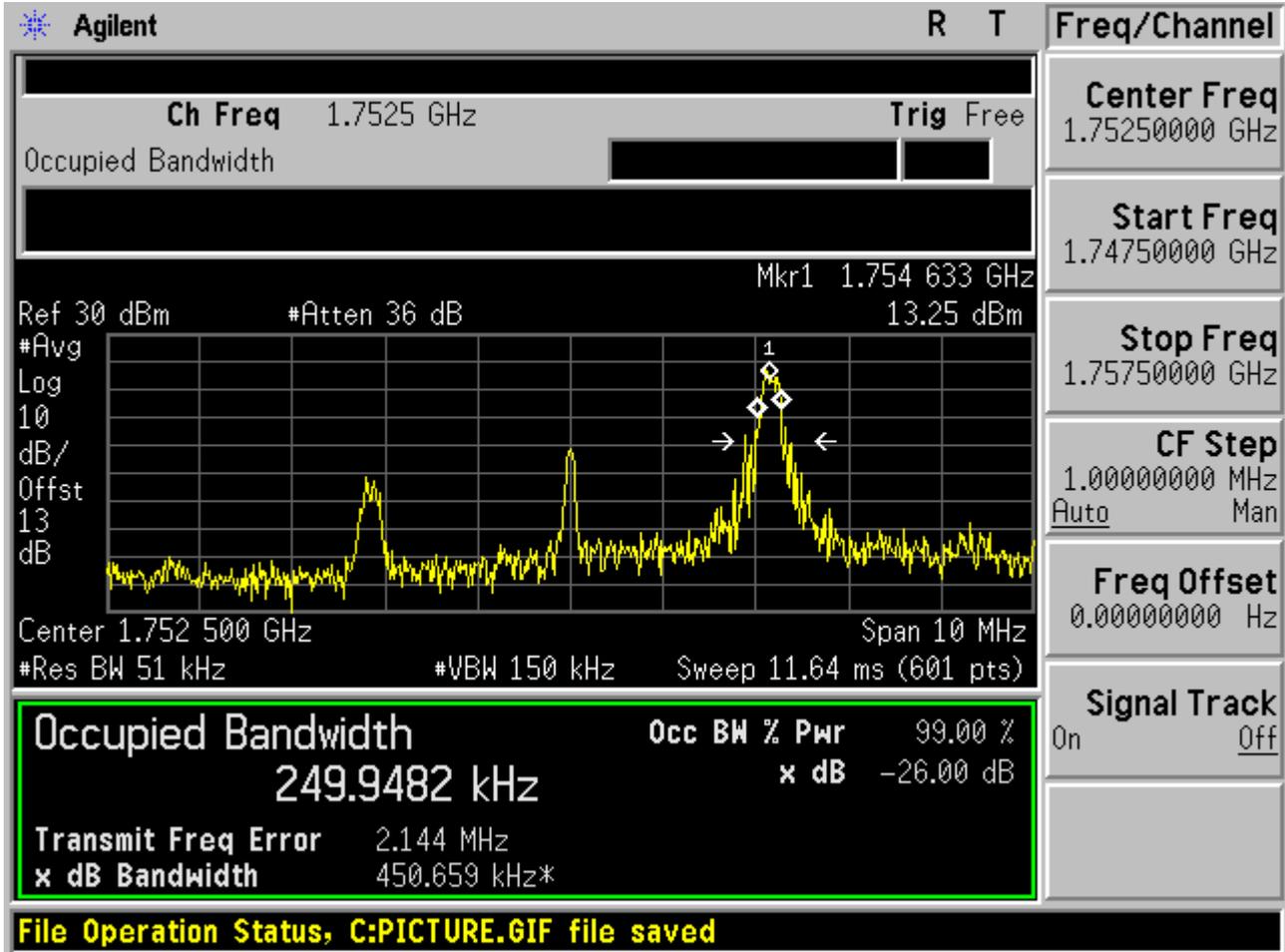
2.2.3.3 Channel =T

2.2.3.3.1 16QAM/1RB # 0



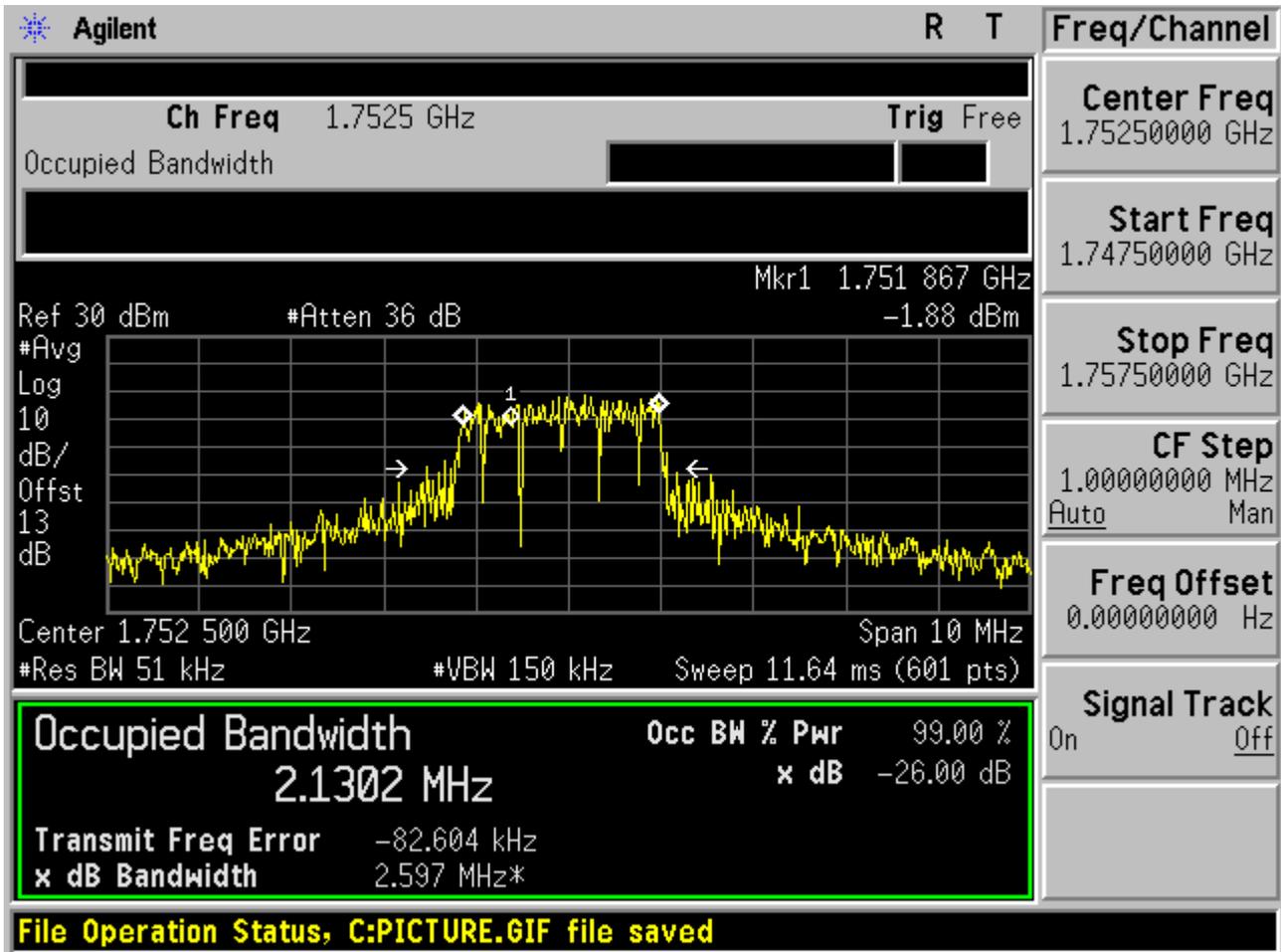


2.2.3.3.2 16QAM /1RB # max





2.2.3.3.3 16QAM /non-1RB #mid/2

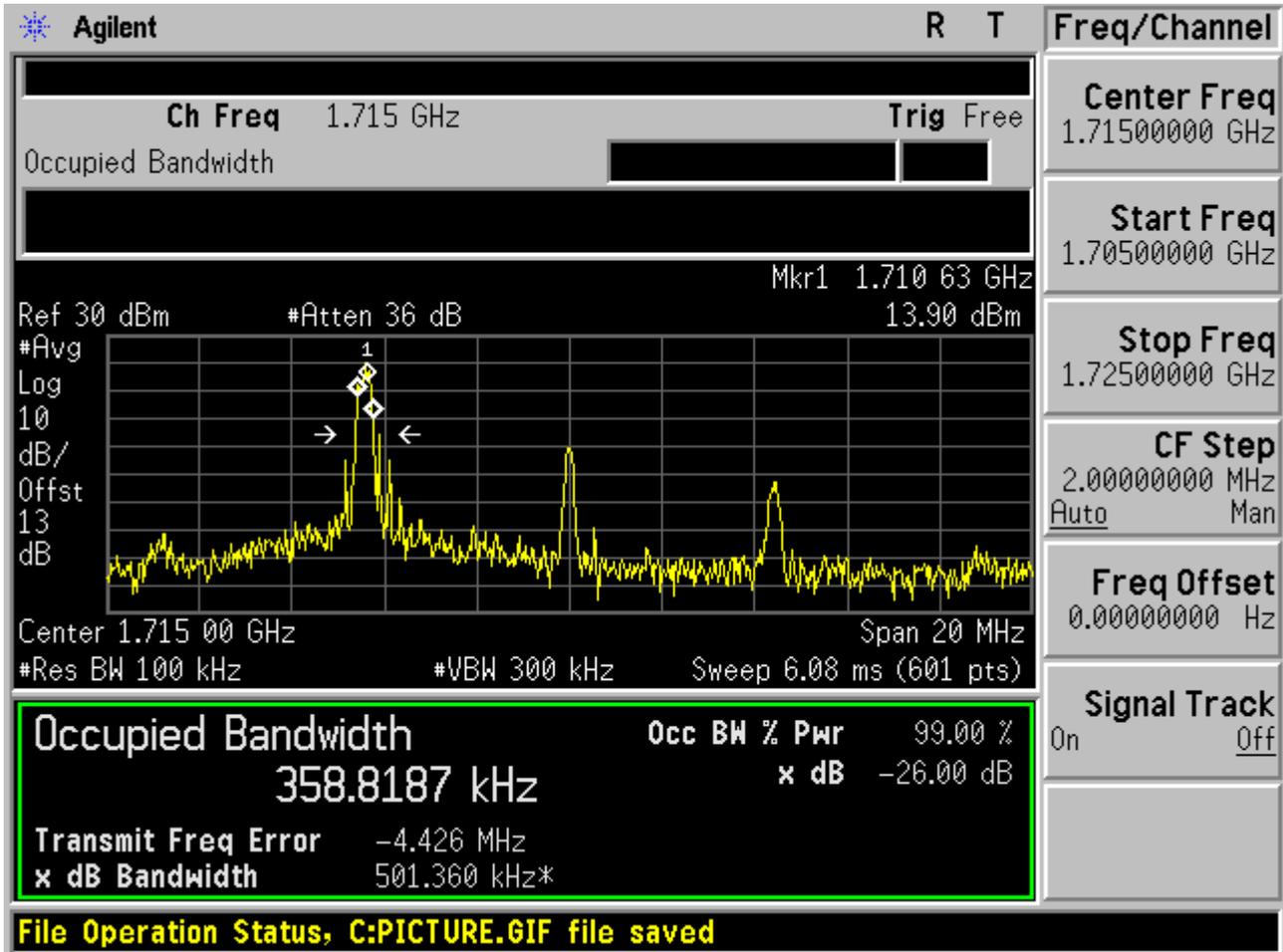




2.2.4 Channel Bandwidth = 10 MHz

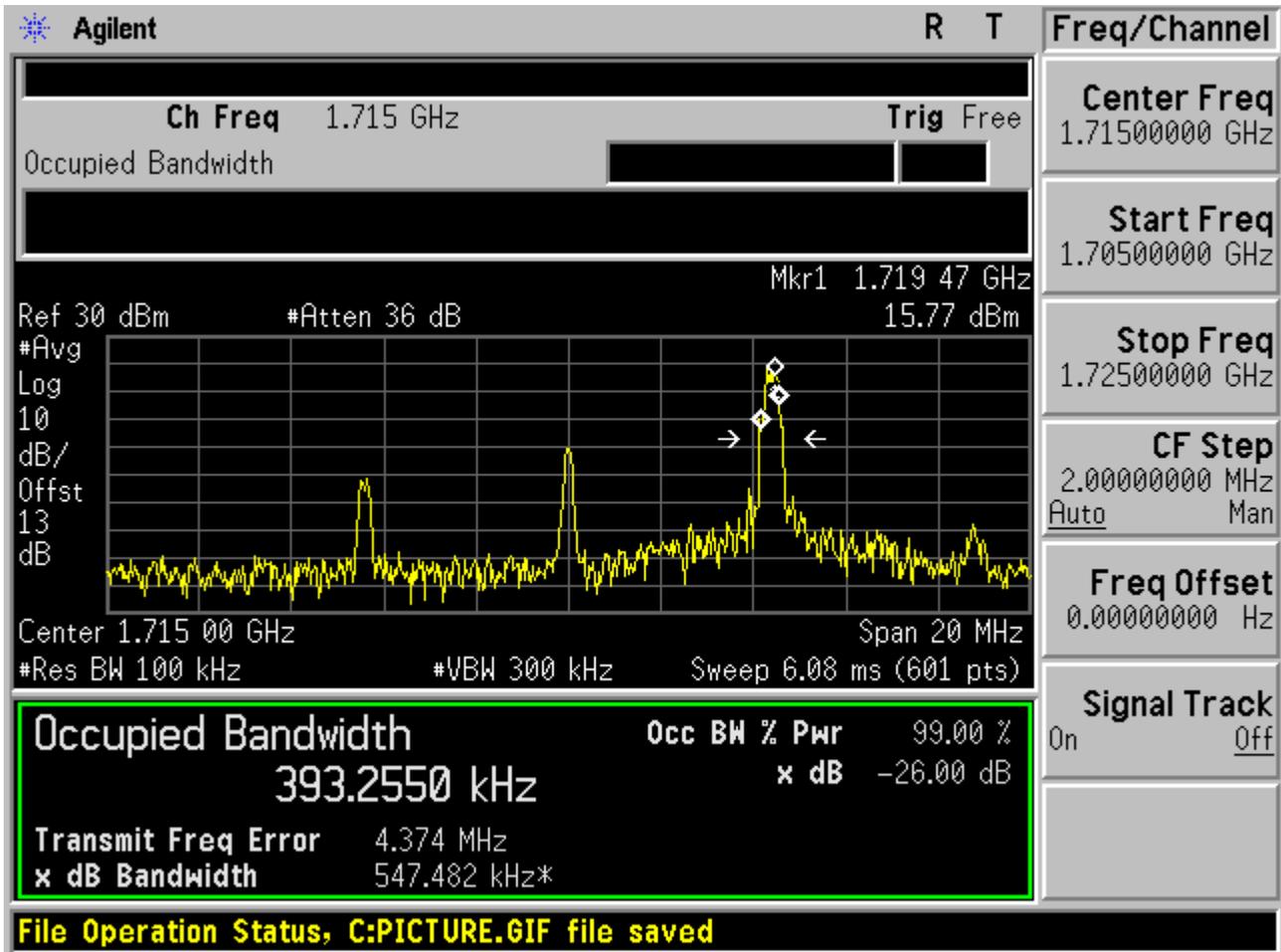
2.2.4.1 Channel = B

2.2.4.1.1 16QAM/1RB # 0



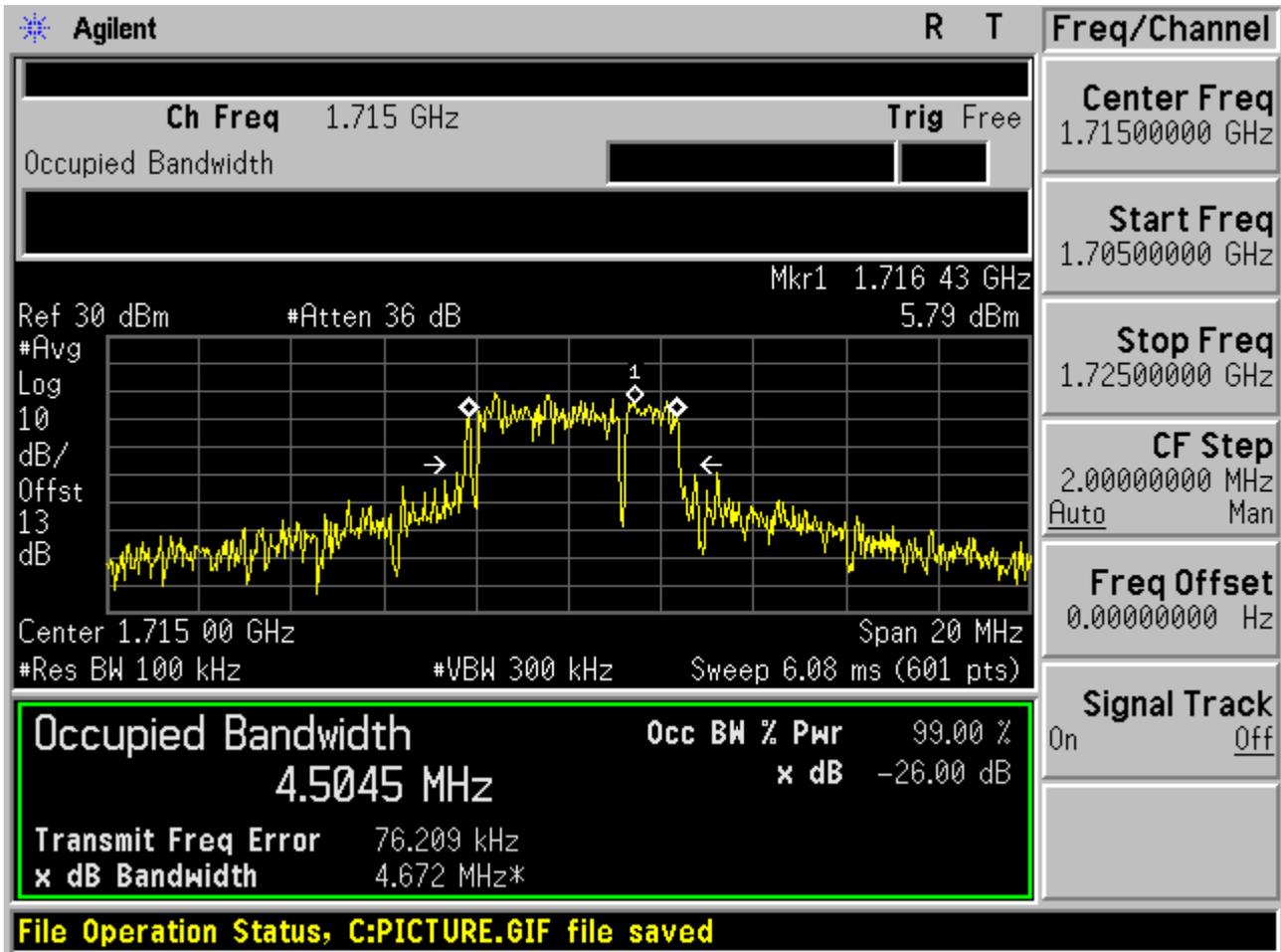


2.2.4.1.2 16QAM /1RB # max



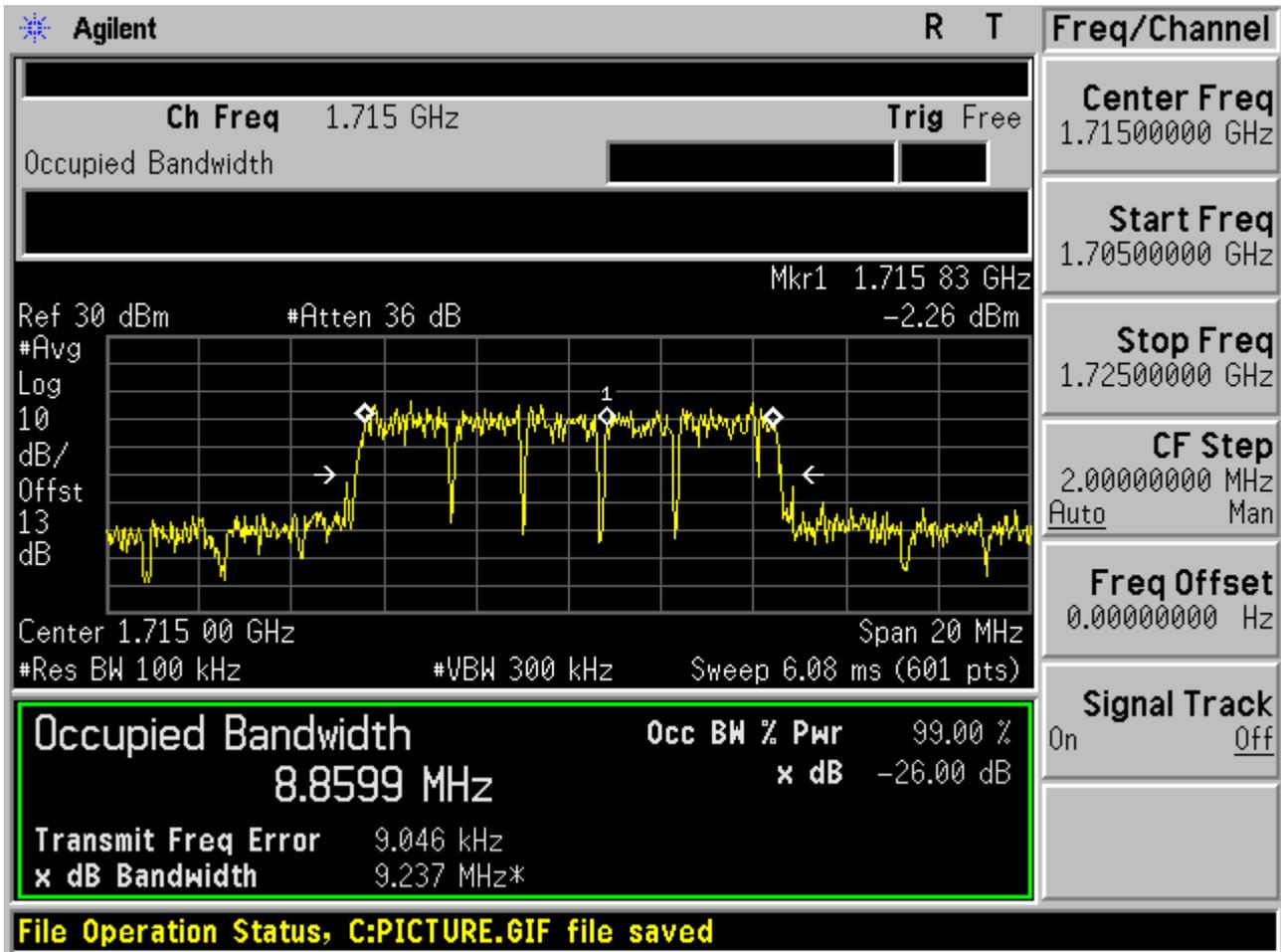


2.2.4.1.3 16QAM /non-1RB #mid/2





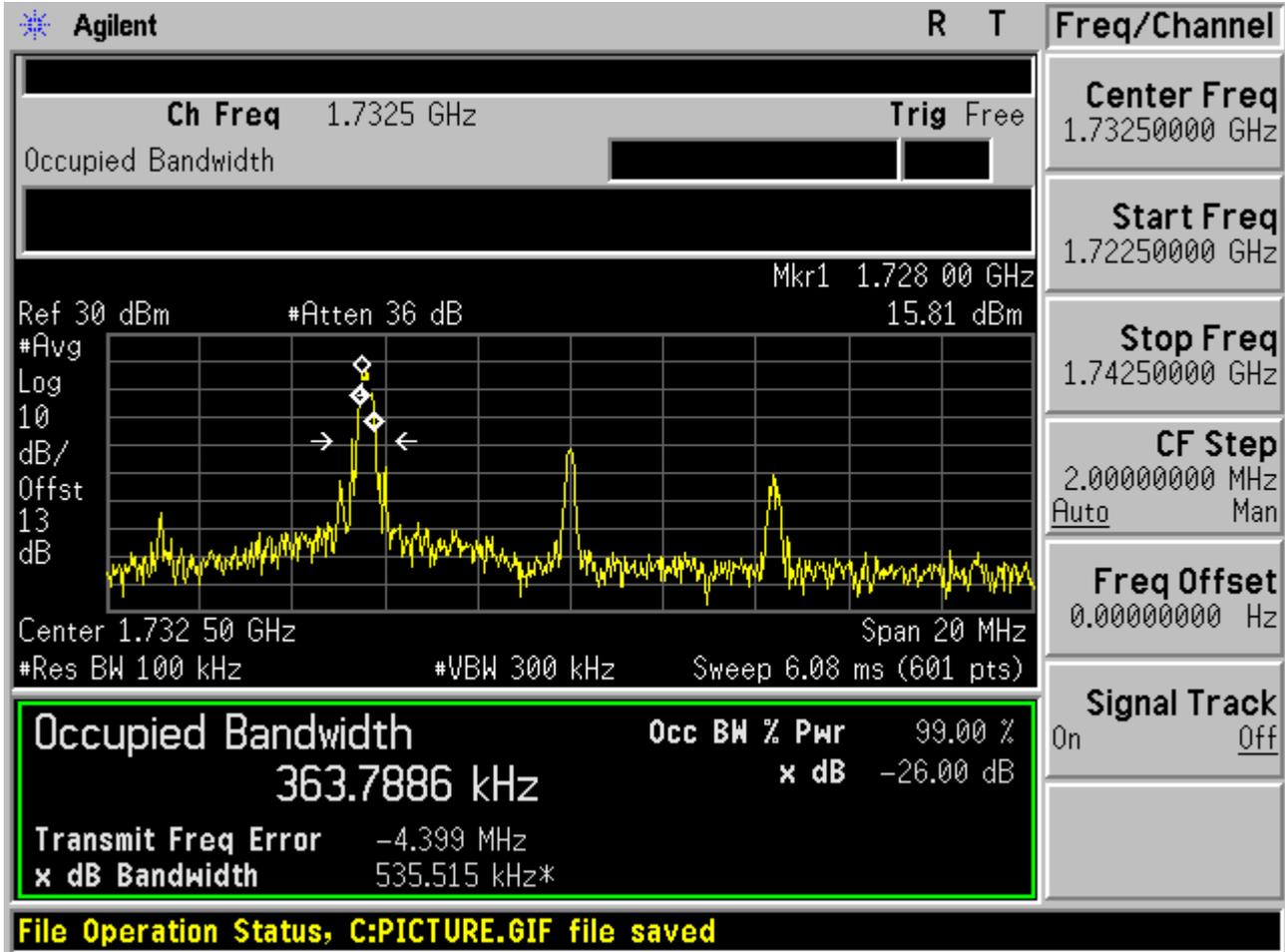
2.2.4.1.4 16QAM /full RBs





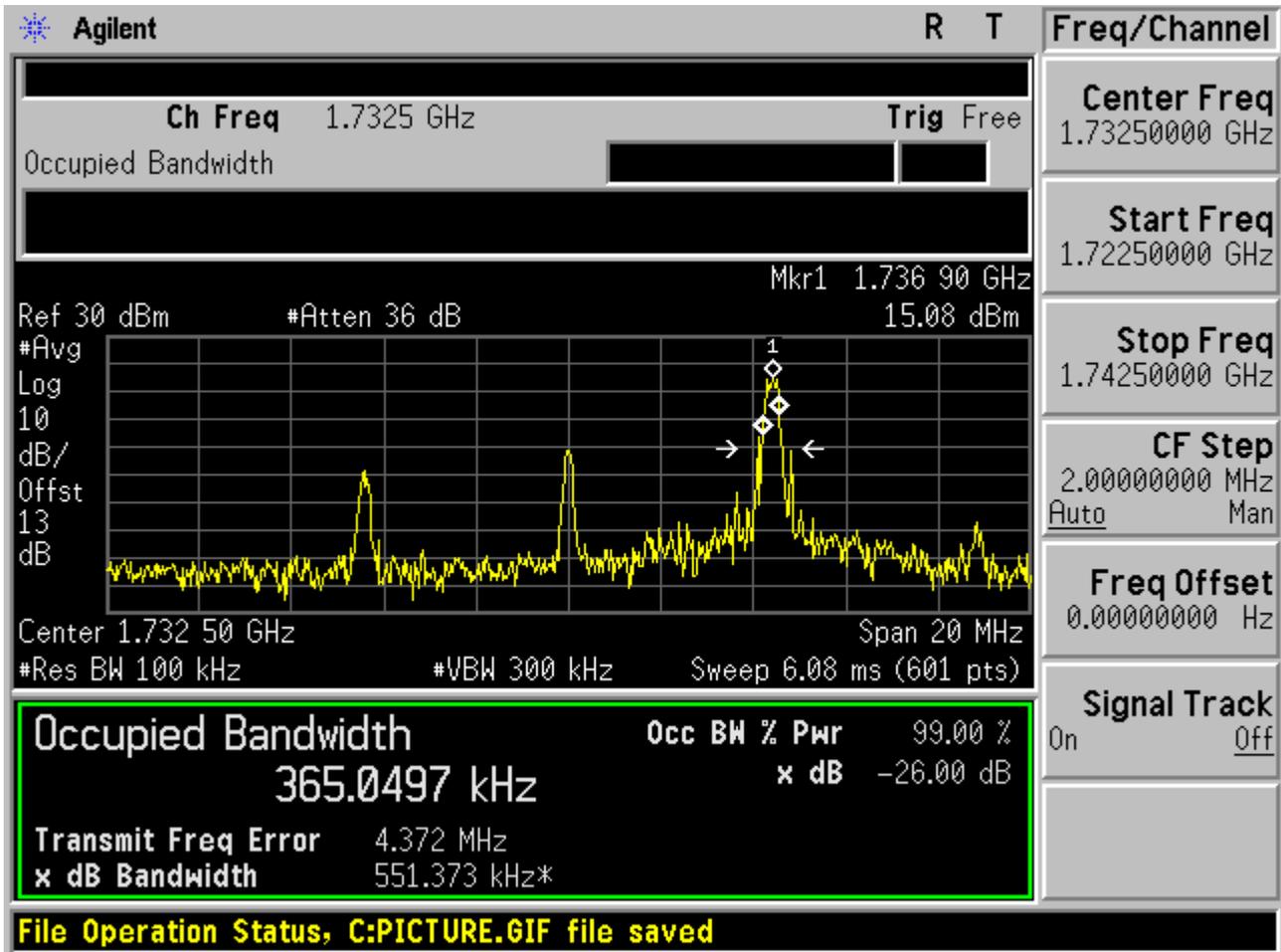
2.2.4.2 Channel =M

2.2.4.2.1 16QAM/1RB # 0



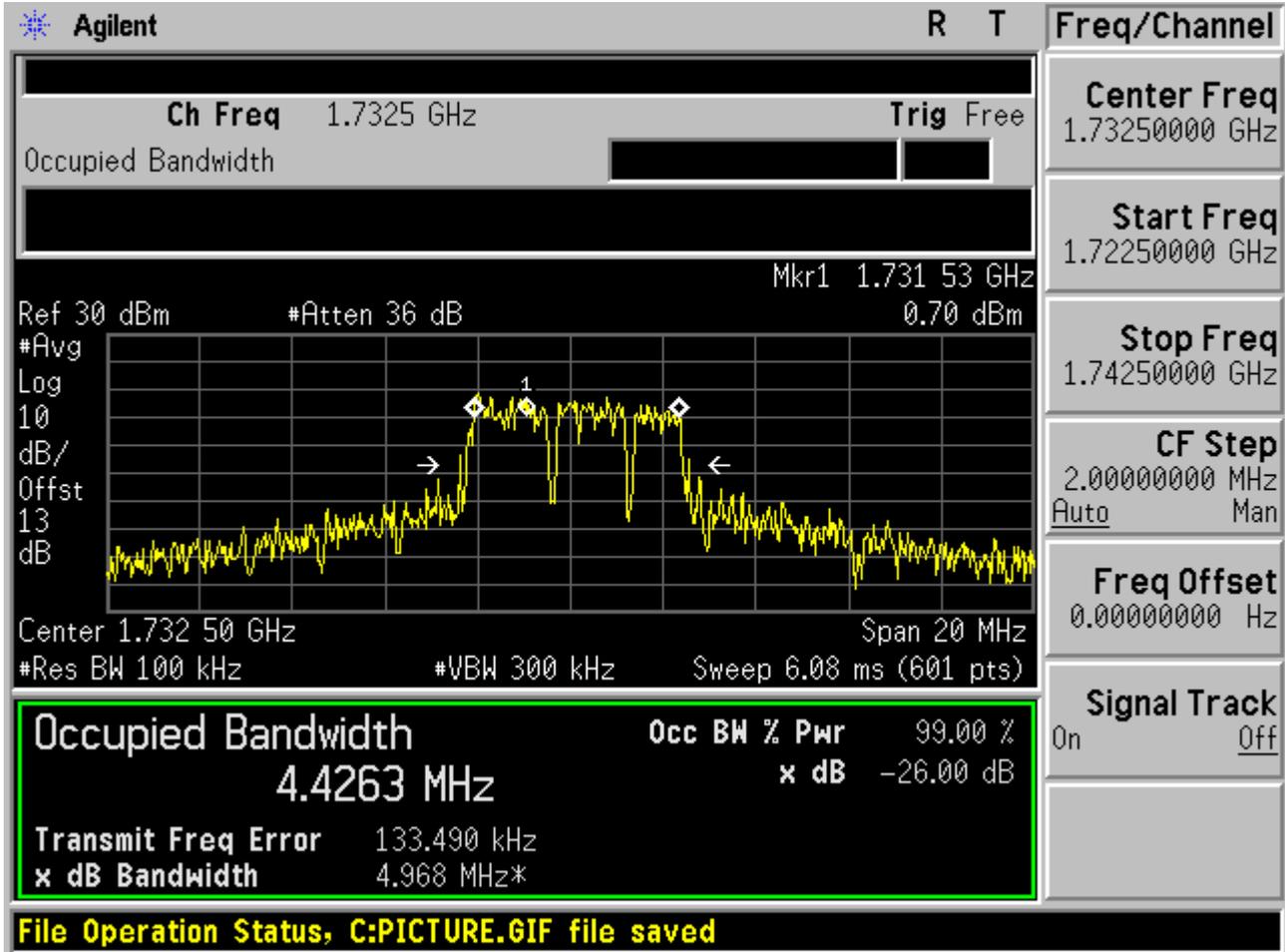


2.2.4.2.2 16QAM /1RB # max



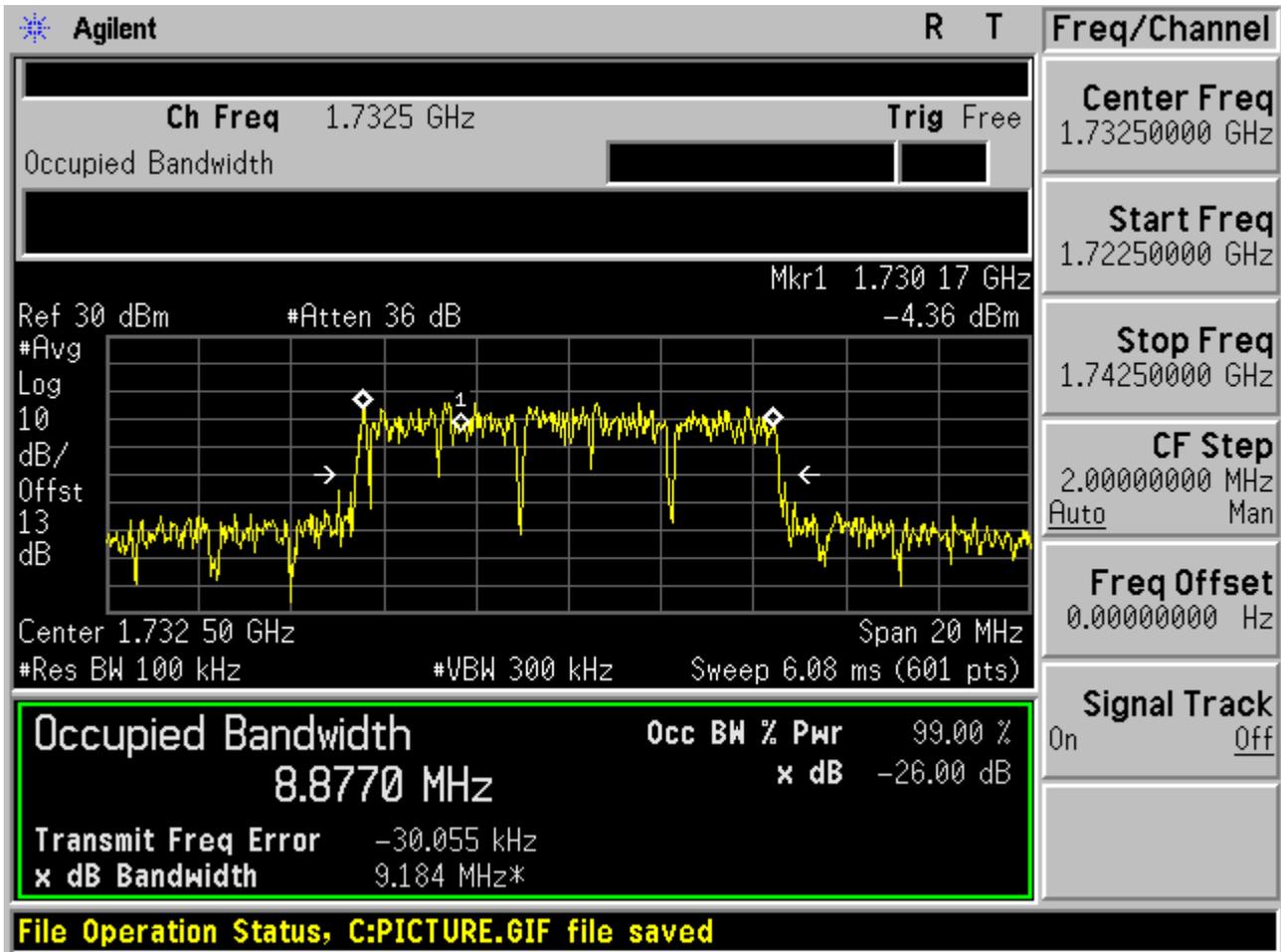


2.2.4.2.3 16QAM /non-1RB #mid/2





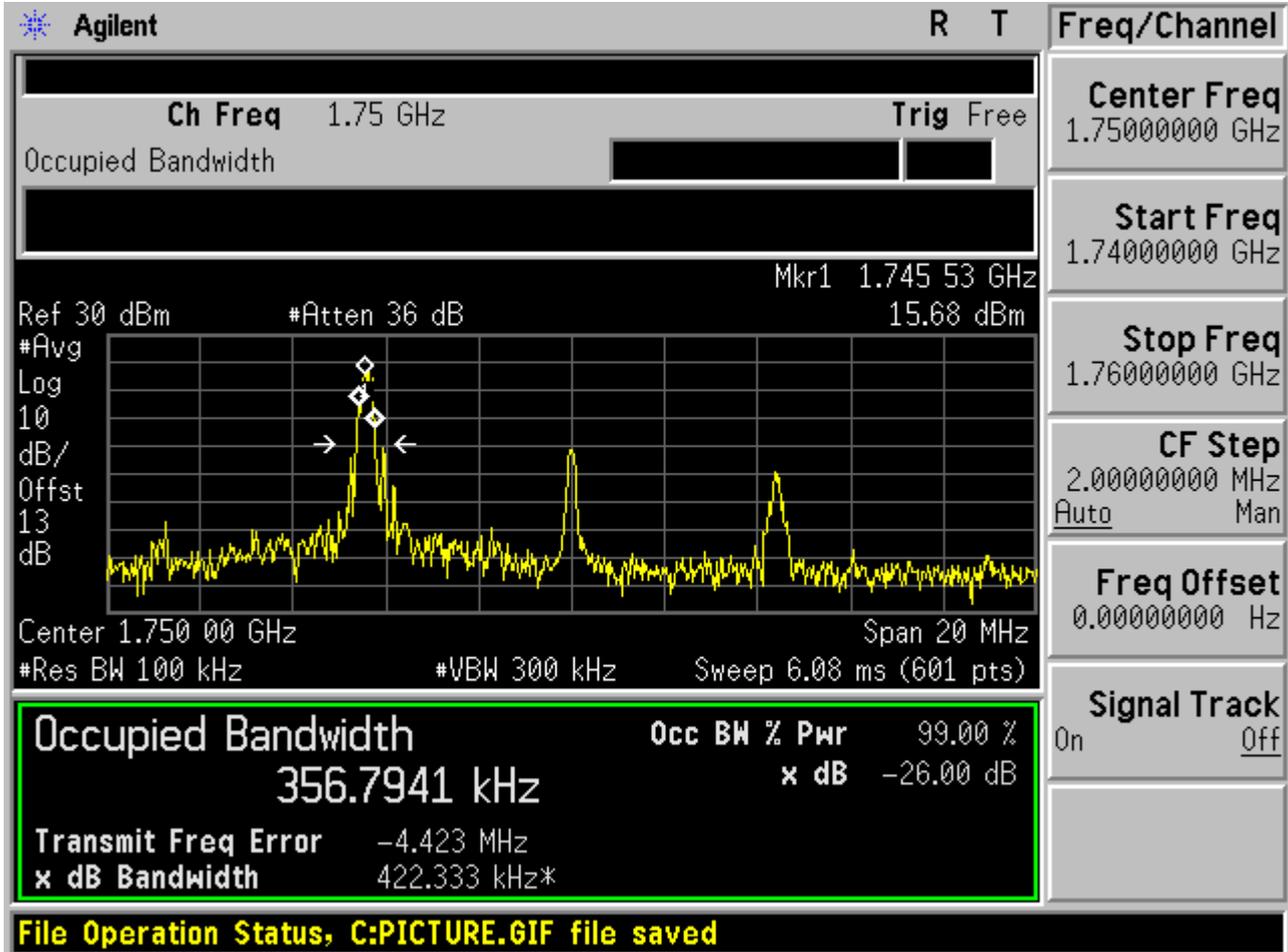
2.2.4.2.4 16QAM /full RBs





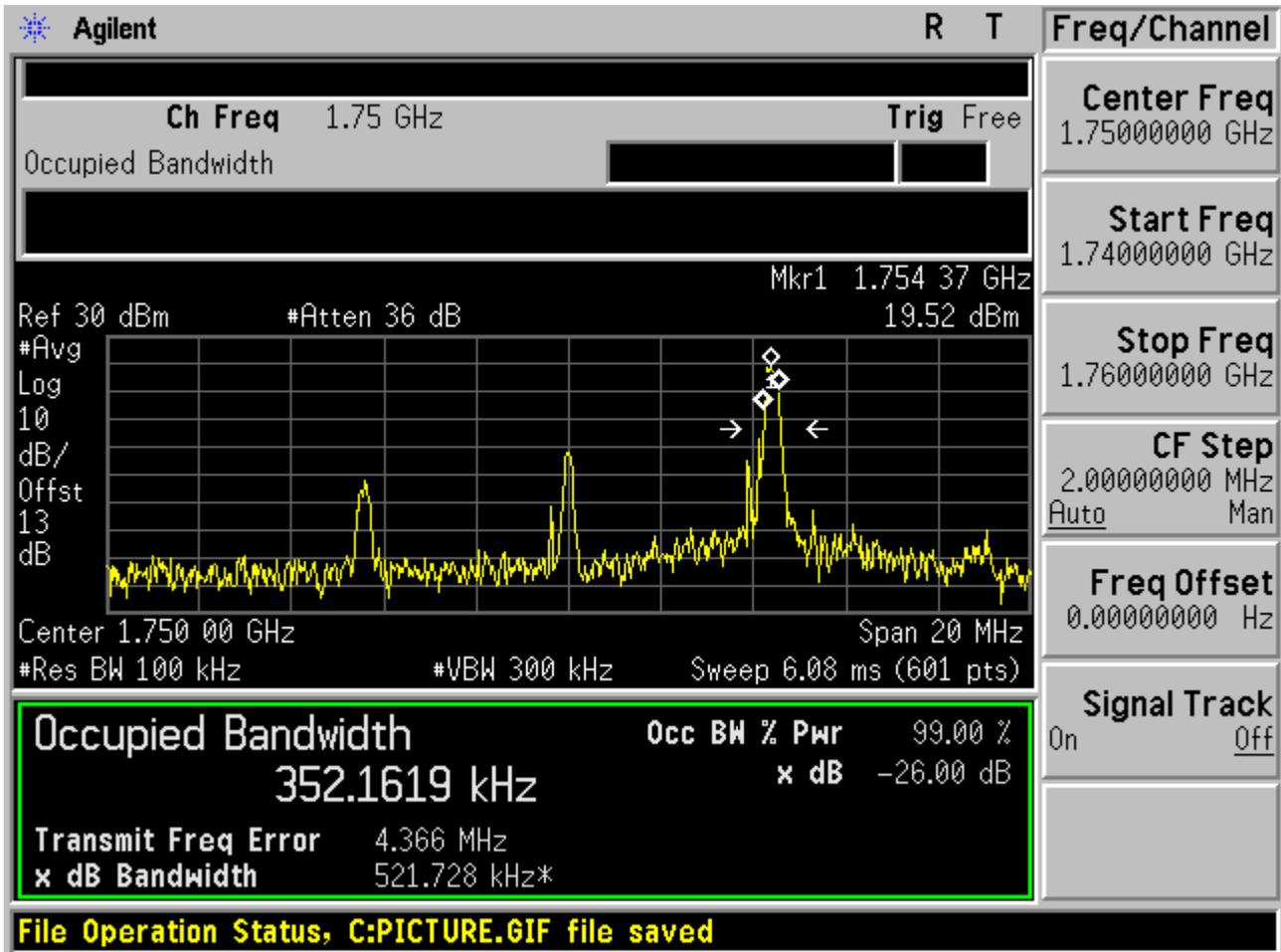
2.2.4.3 Channel =T

2.2.4.3.1 16QAM/1RB # 0





2.2.4.3.2 16QAM /1RB # max





2.2.4.3.3 16QAM /non-1RB #mid/2

Agilent R T **Freq/Channel**

Ch Freq 1.75 GHz **Trig** Free

Occupied Bandwidth 1.75000000 GHz

Start Freq 1.74000000 GHz

Stop Freq 1.76000000 GHz

CF Step 2.00000000 MHz
Auto Man

Freq Offset 0.00000000 Hz

Signal Track On Off

Ref 30 dBm #Atten 36 dB Mkr1 1.751 93 GHz -8.55 dBm

Center 1.750 00 GHz Span 20 MHz
 #Res BW 100 kHz #VBW 300 kHz Sweep 6.08 ms (601 pts)

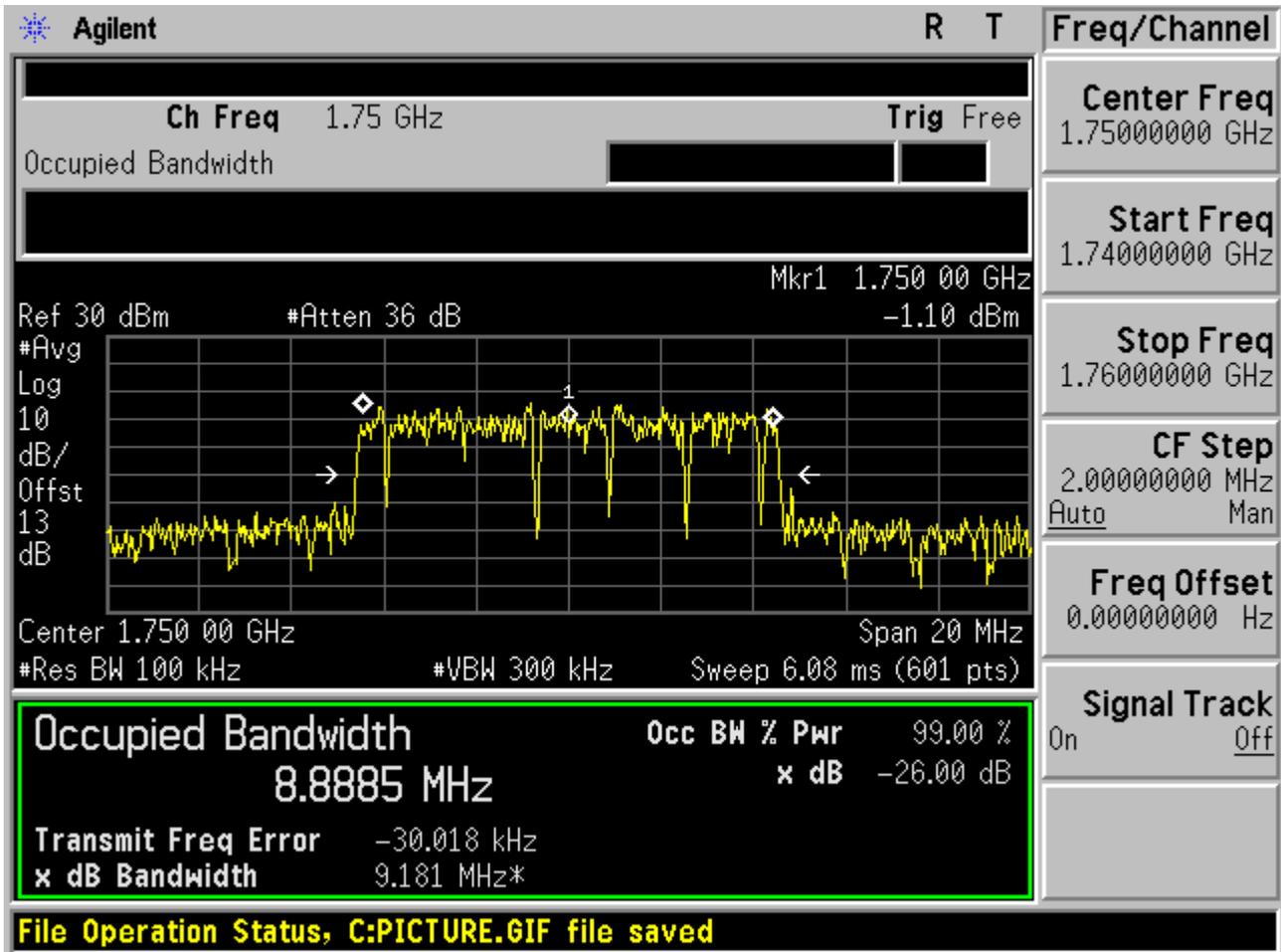
Occupied Bandwidth **Occ BW % Pwr** 99.00 %
 4.5117 MHz **x dB** -26.00 dB

Transmit Freq Error 94.895 kHz
x dB Bandwidth 5.029 MHz*

File Operation Status, C:PICTURE.GIF file saved



2.2.4.3.4 16QAM /full RBs

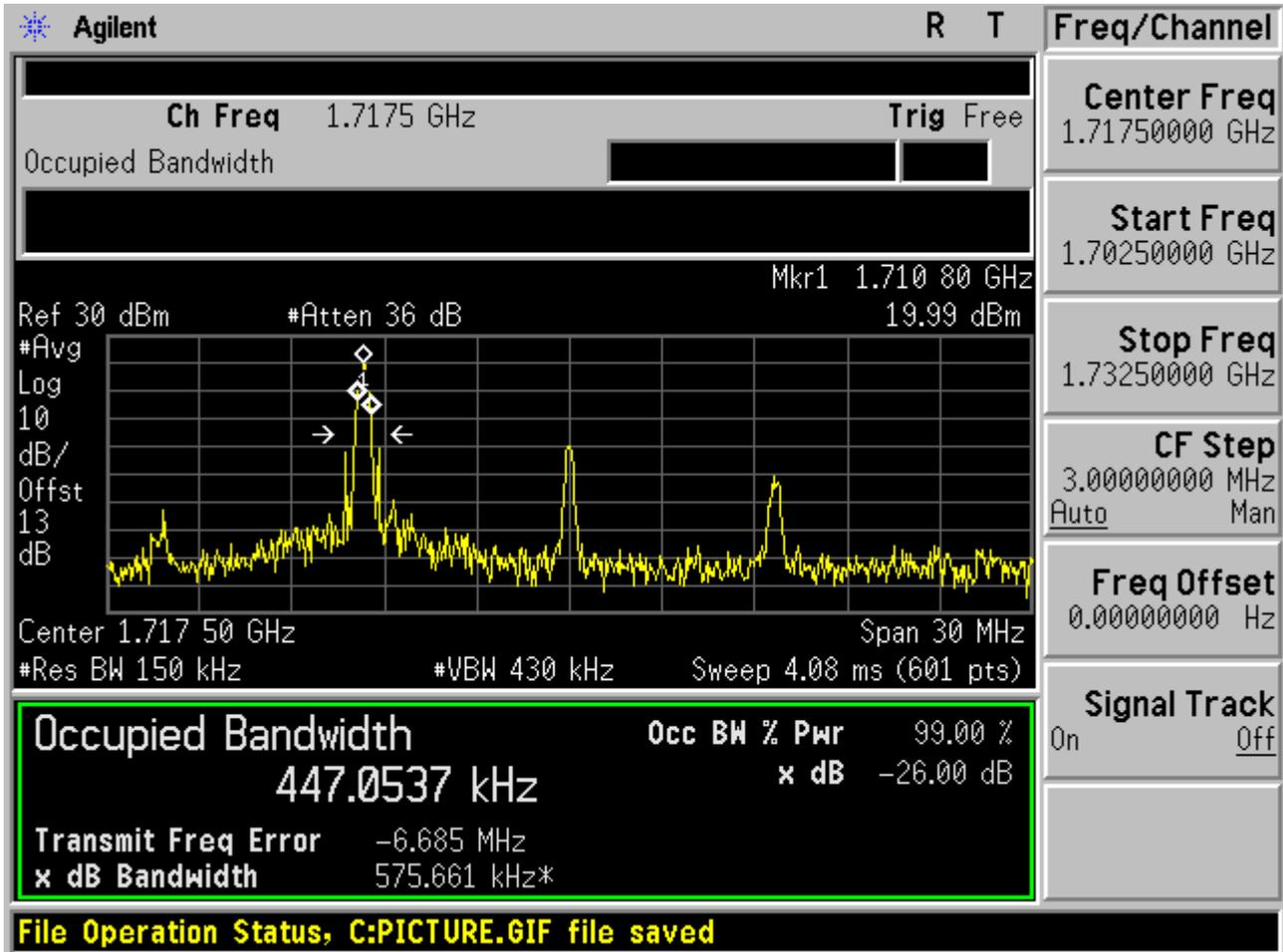




2.2.5 Channel Bandwidth = 15 MHz

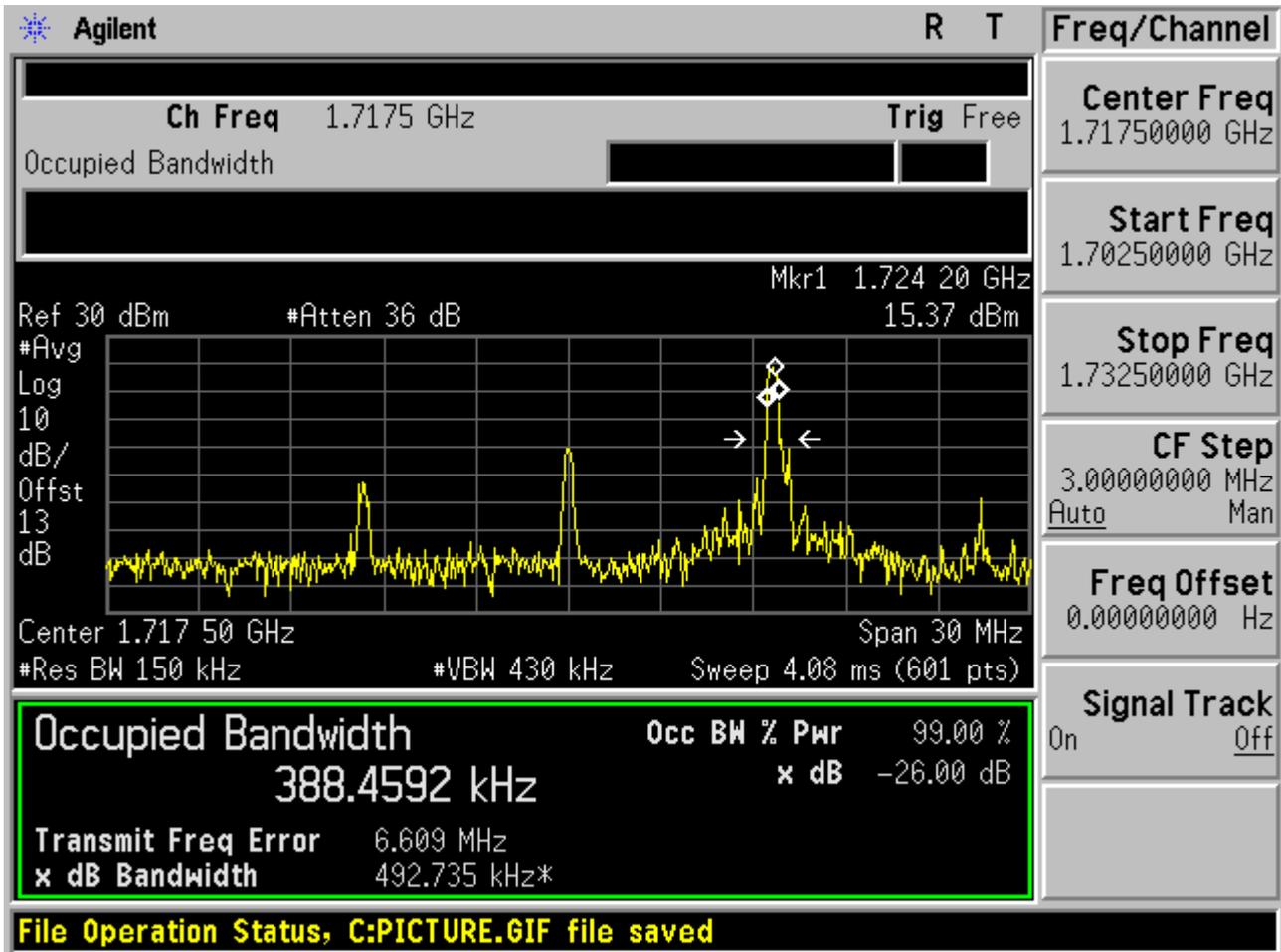
2.2.5.1 Channel =B

2.2.5.1.1 16QAM/1RB # 0



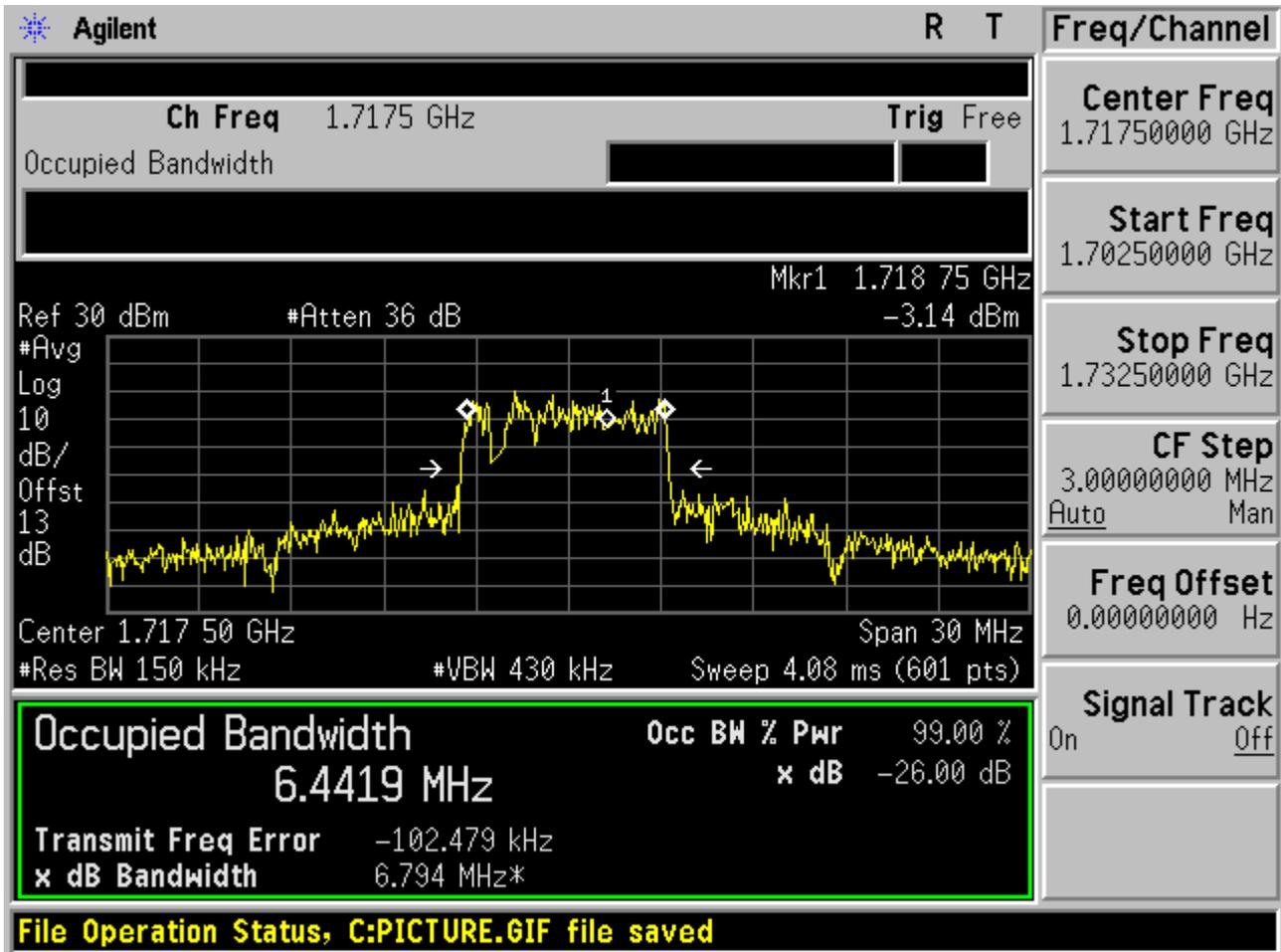


2.2.5.1.2 16QAM /1RB # max





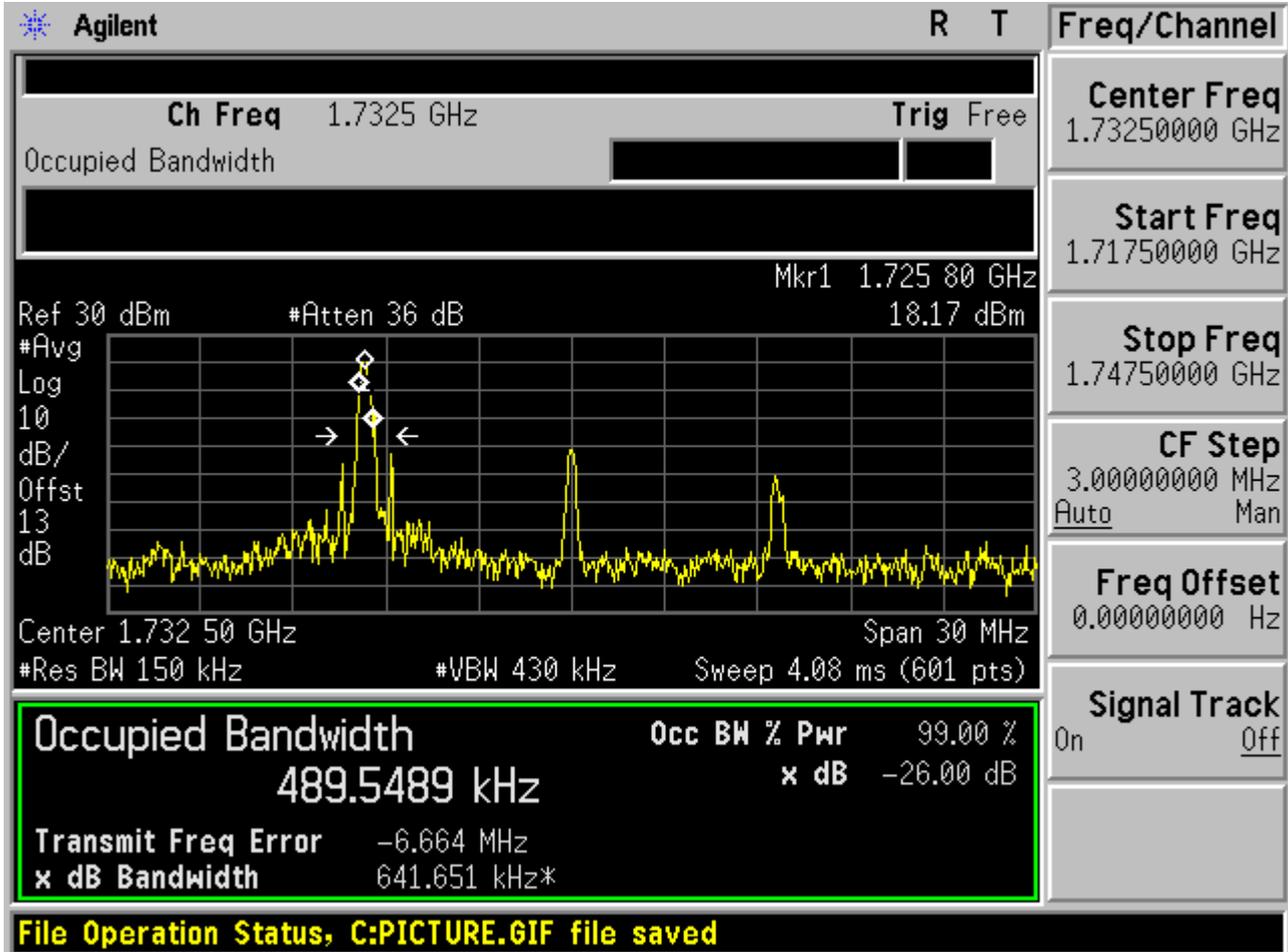
2.2.5.1.3 16QAM /non-1RB #mid/2





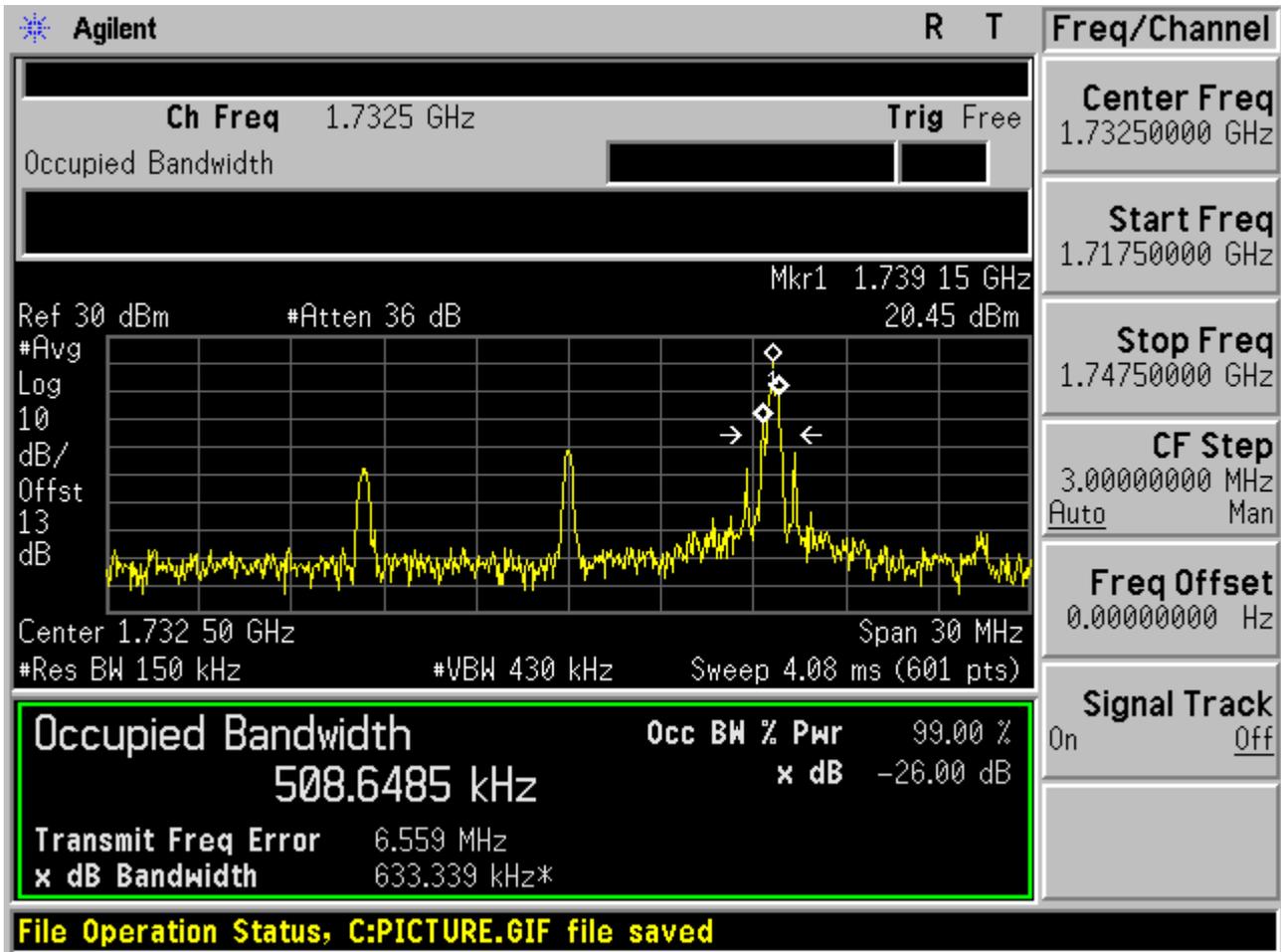
2.2.5.2 Channel =M

2.2.5.2.1 16QAM/1RB # 0





2.2.5.2.2 16QAM /1RB # max





2.2.5.2.3 16QAM /non-1RB #mid/2

Agilent R T

Ch Freq 1.7325 GHz **Trig** Free

Occupied Bandwidth [Bar]

Ref 30 dBm #Atten 36 dB

#Avg 10 Mkr1 1.732 65 GHz

Log -0.35 dBm

dB/Offst 13

dB

Center 1.732 50 GHz Span 30 MHz

#Res BW 150 kHz #VBW 430 kHz

Sweep 4.08 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr 99.00 %
6.3755 MHz	x dB -26.00 dB
Transmit Freq Error -126.485 kHz	
x dB Bandwidth 7.057 MHz*	

File Operation Status, C:PICTURE.GIF file saved

Freq/Channel

Center Freq
1.73250000 GHz

Start Freq
1.71750000 GHz

Stop Freq
1.74750000 GHz

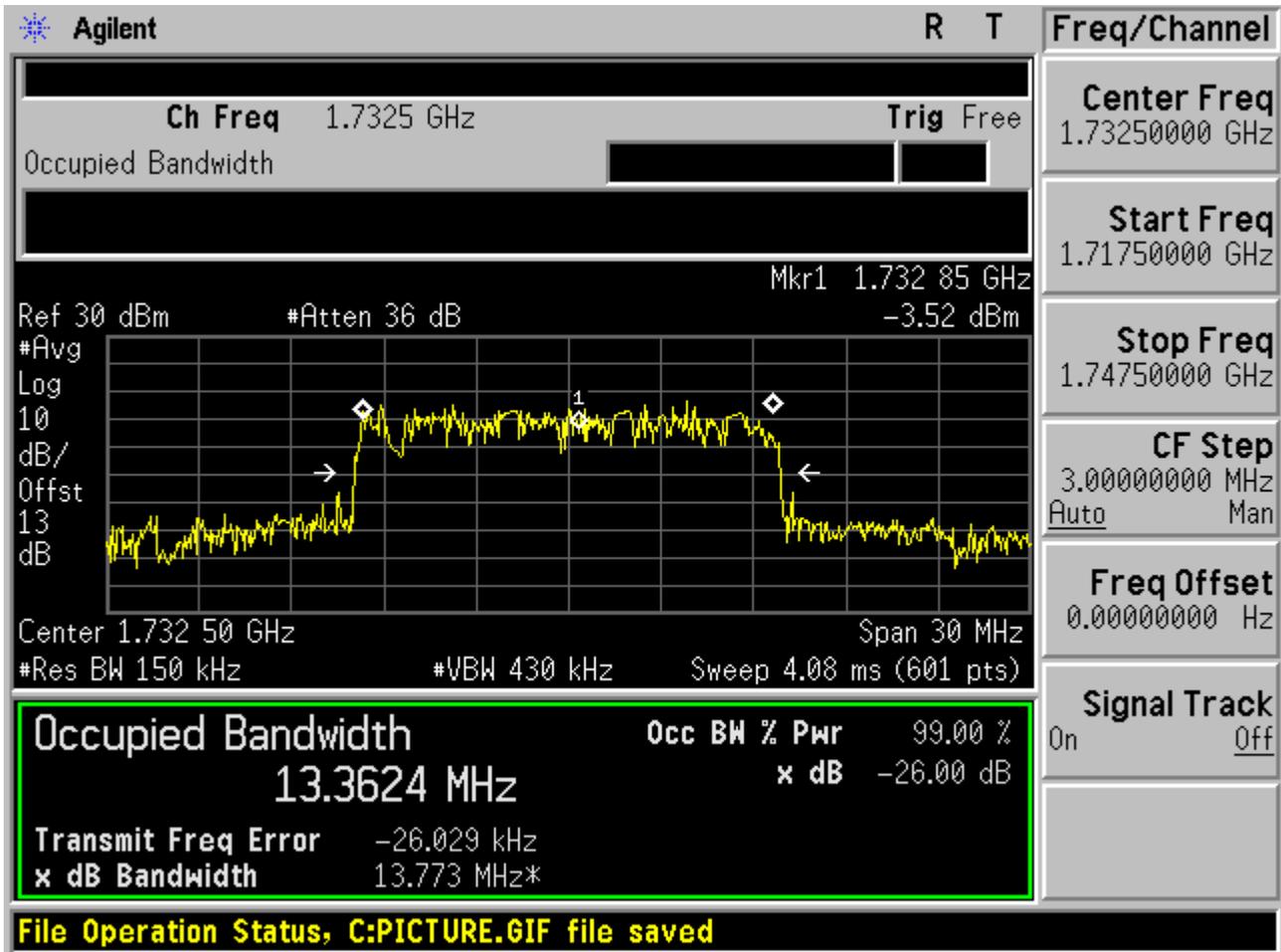
CF Step
3.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



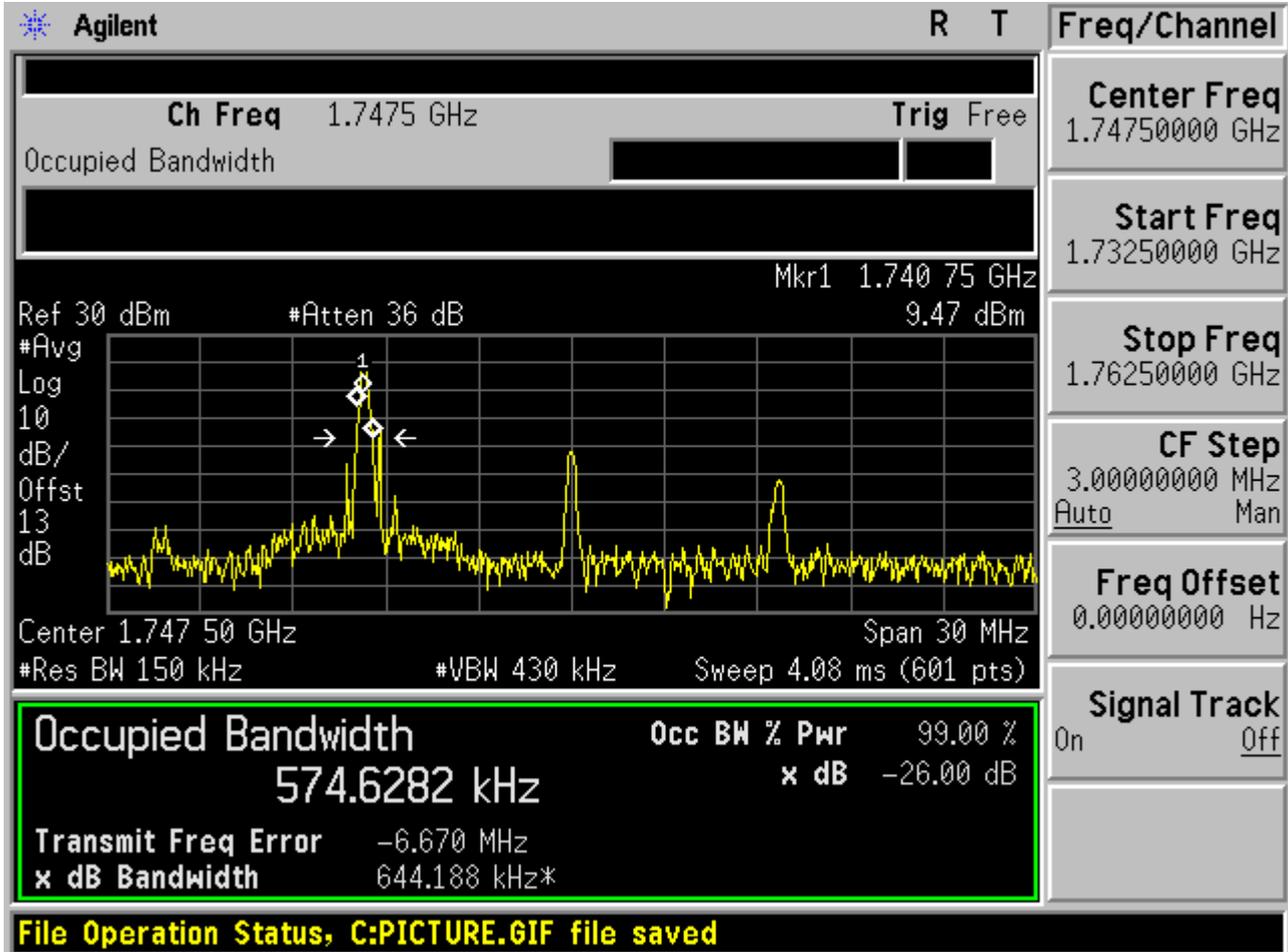
2.2.5.2.4 16QAM /full RBs





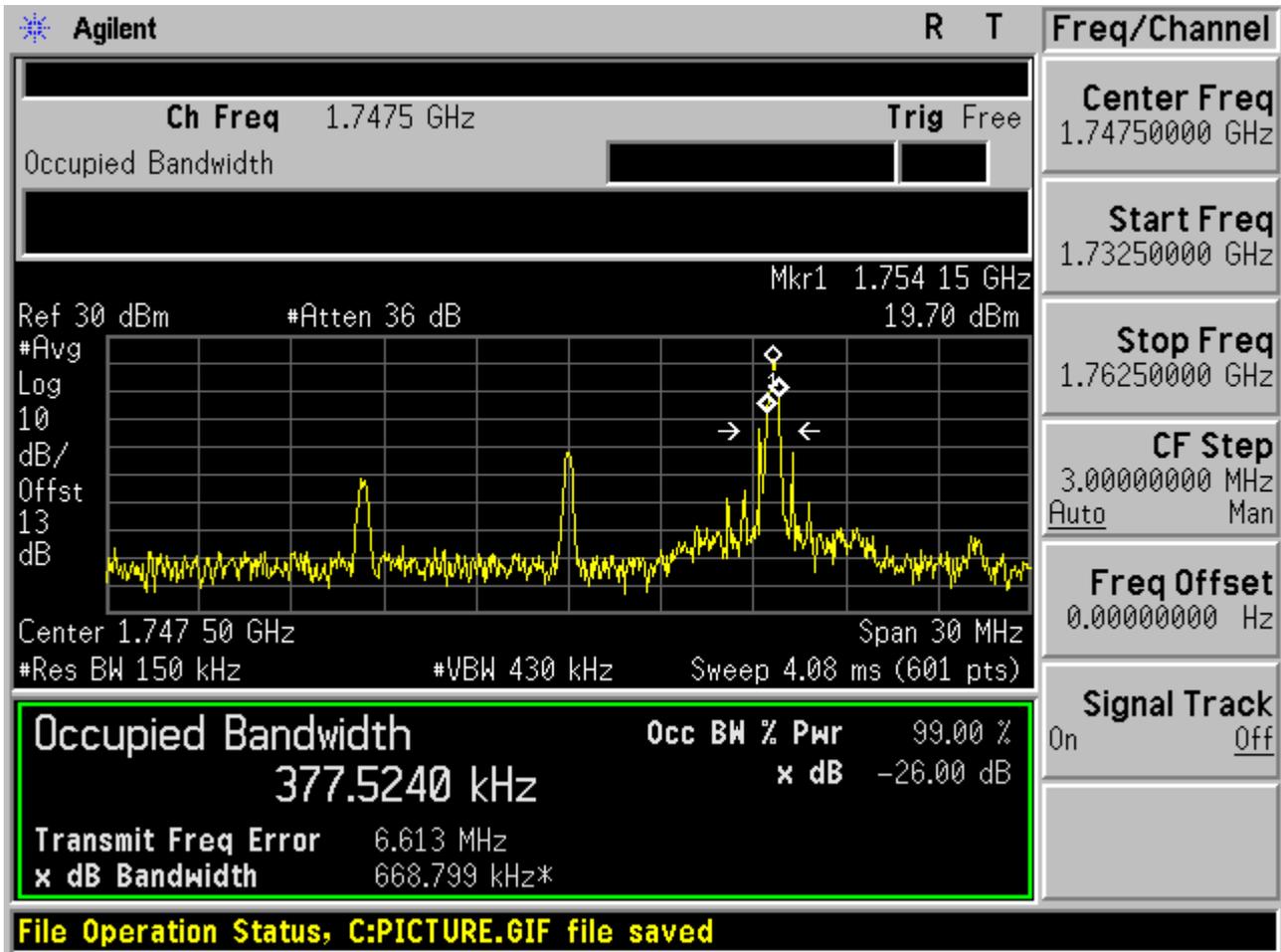
2.2.5.3 Channel =T

2.2.5.3.1 16QAM/1RB # 0



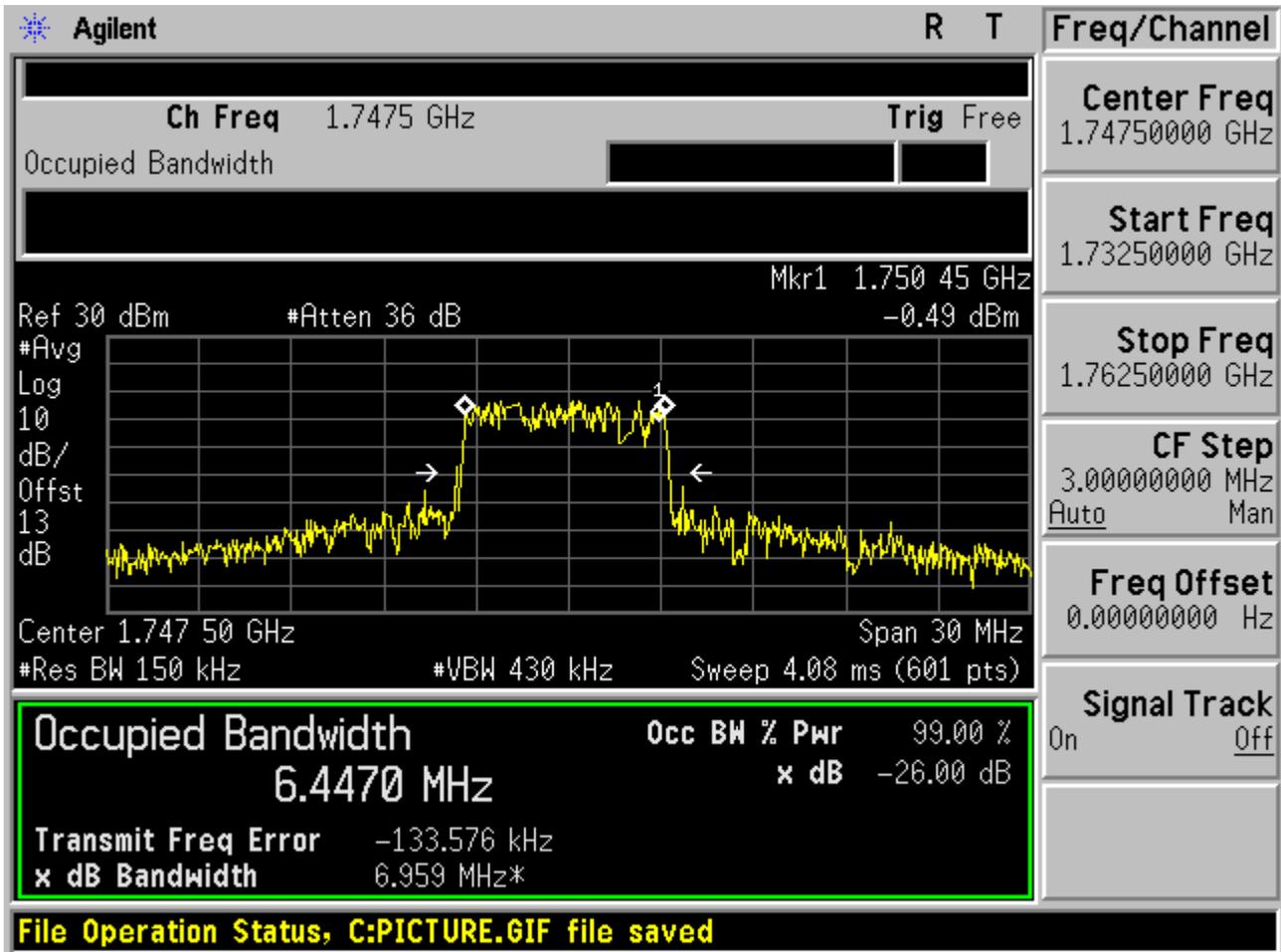


2.2.5.3.2 16QAM /1RB # max



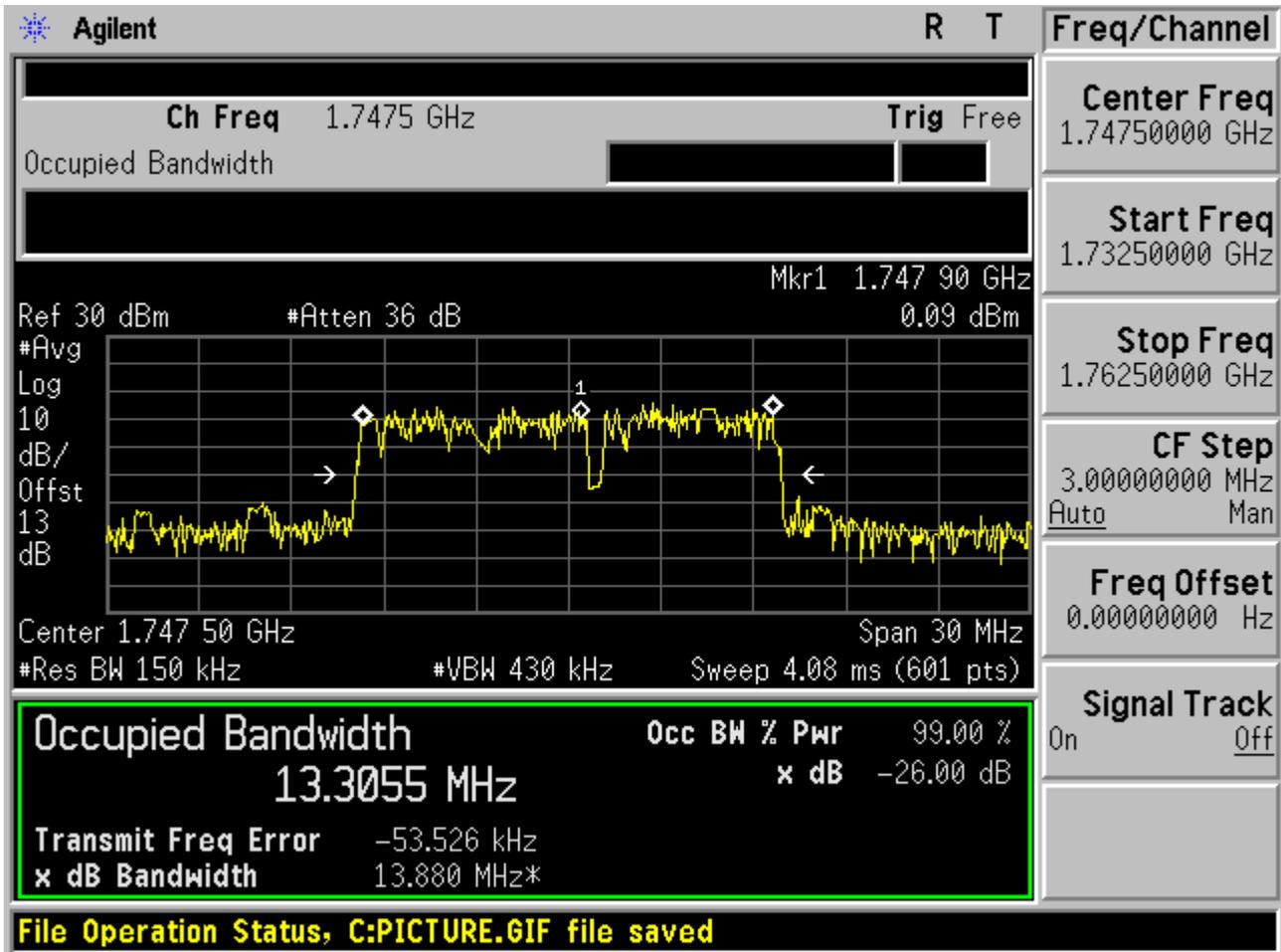


2.2.5.3.3 16QAM /non-1RB #mid/2





2.2.5.3.4 16QAM /full RBs

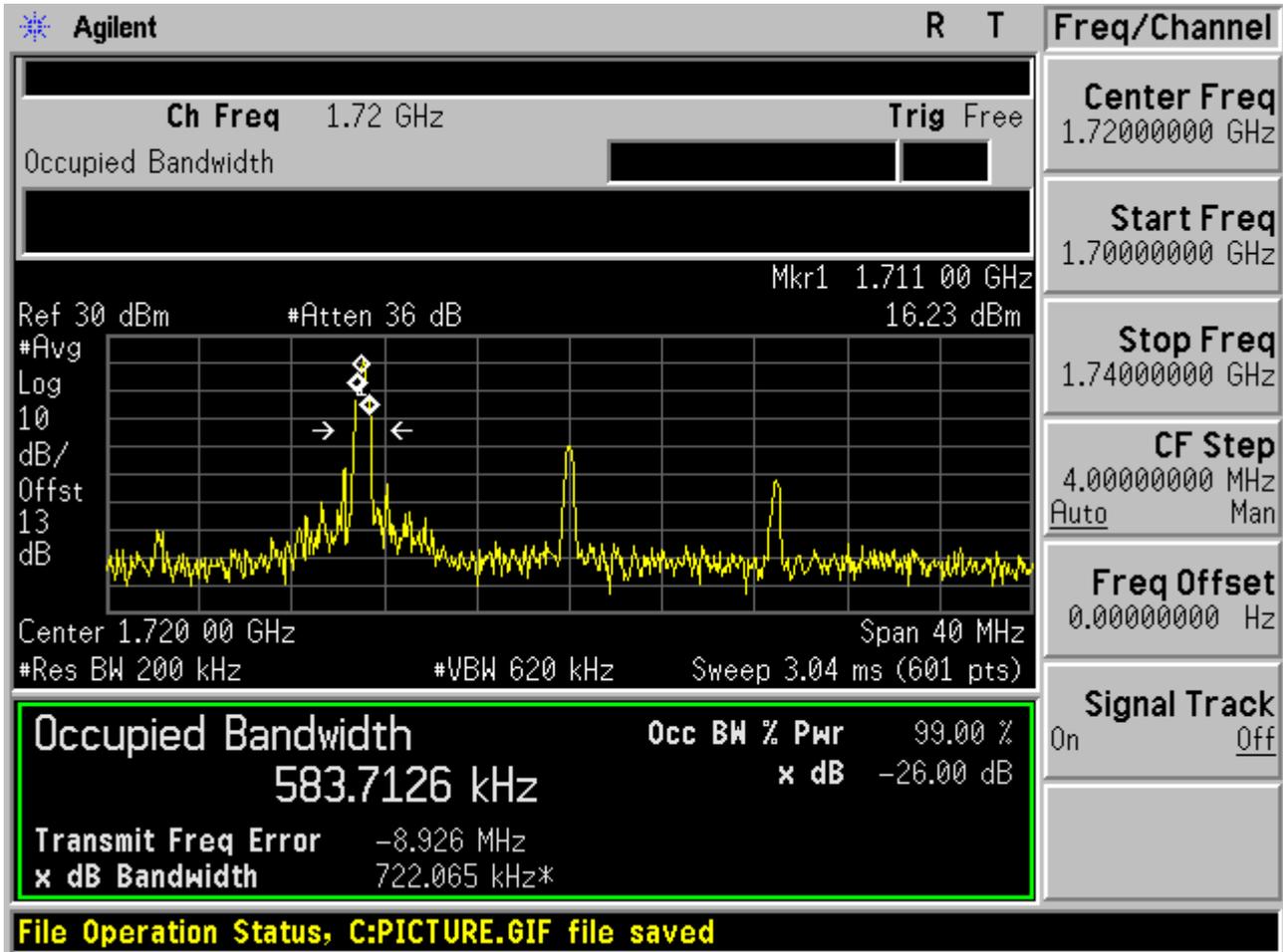




2.2.6 Channel Bandwidth = 20 MHz

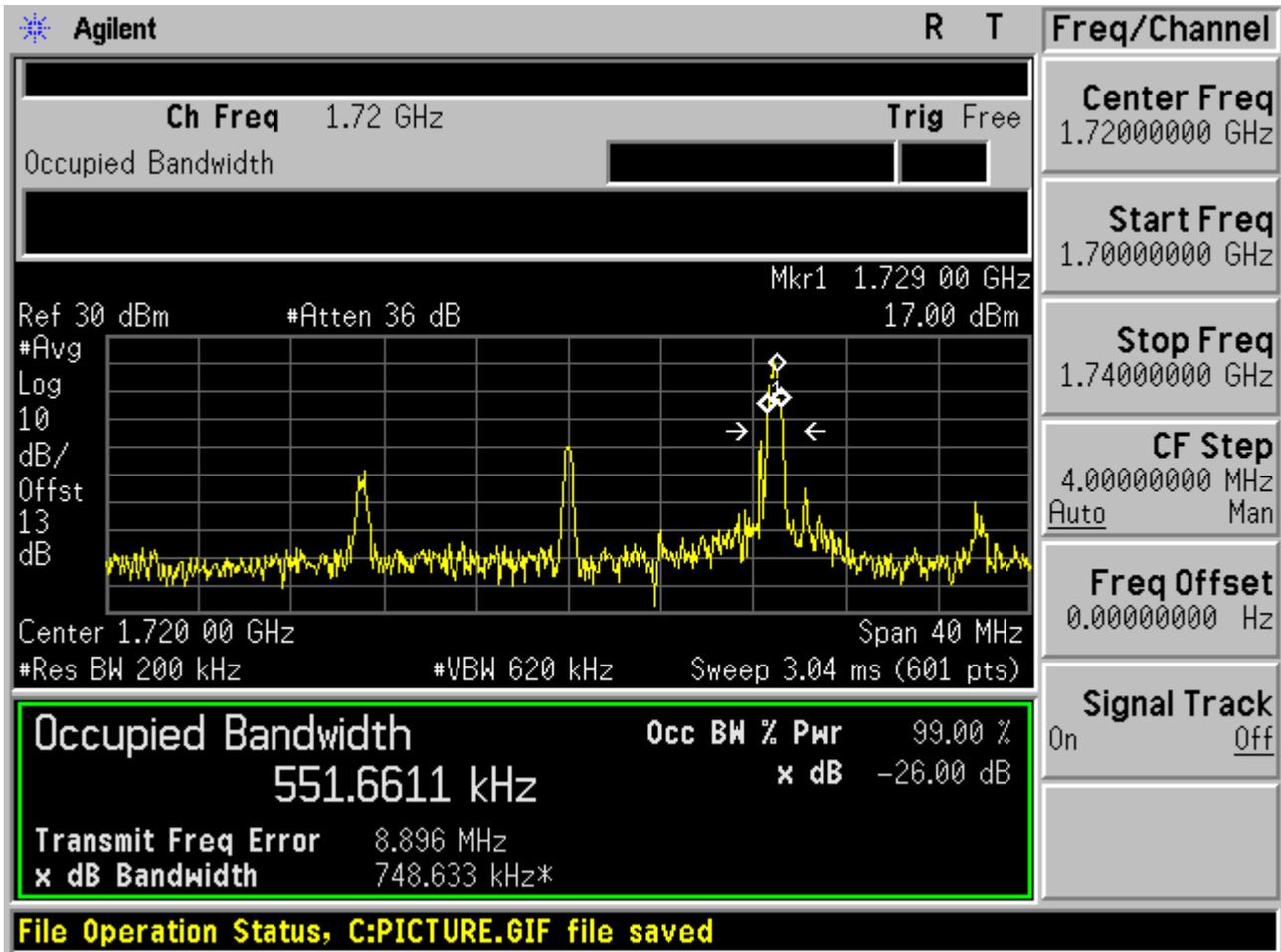
2.2.6.1 Channel = B

2.2.6.1.1 16QAM/1RB # 0





2.2.6.1.2 16QAM /1RB # max



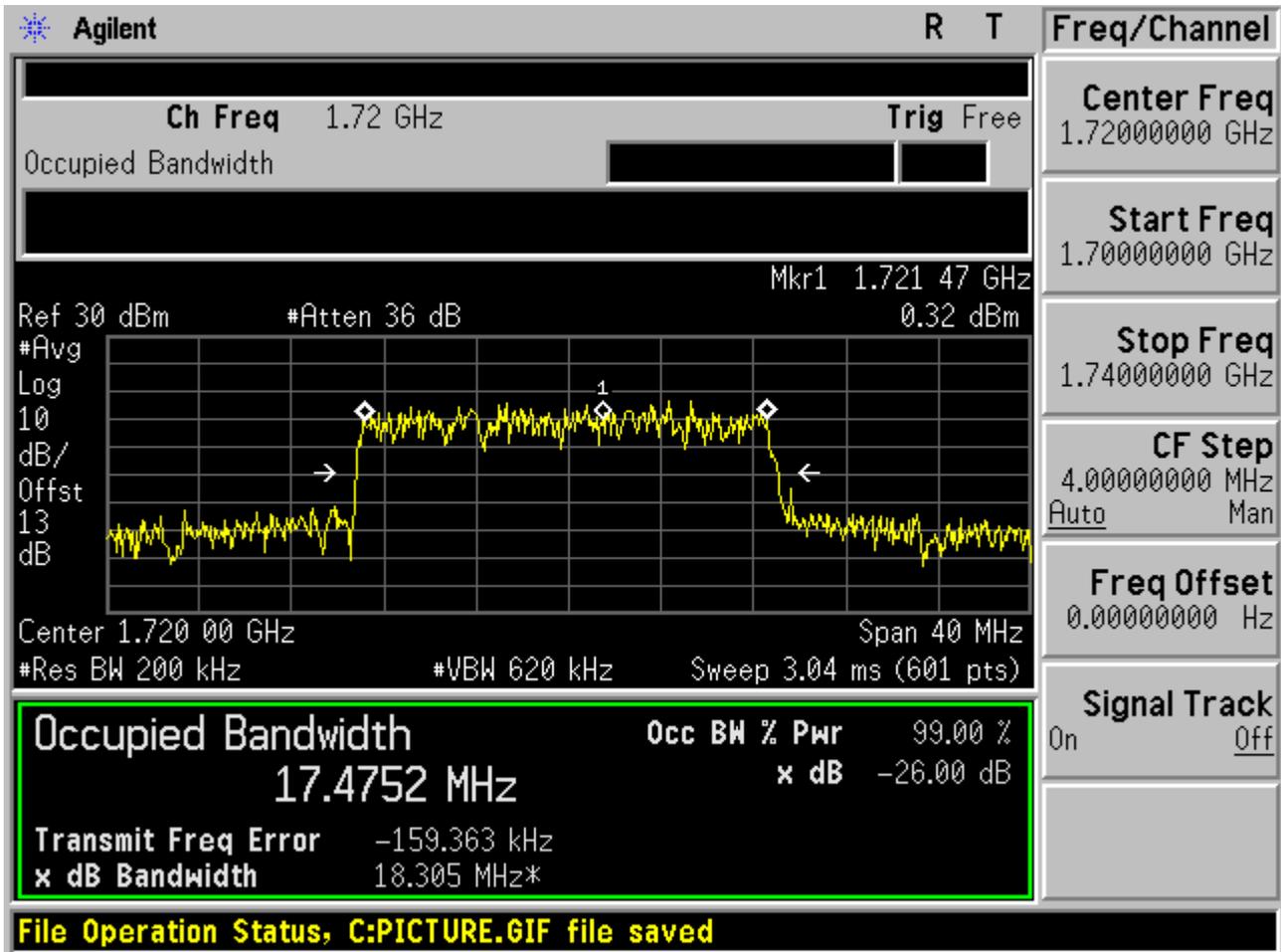


2.2.6.1.3 16QAM /non-1RB #mid/2





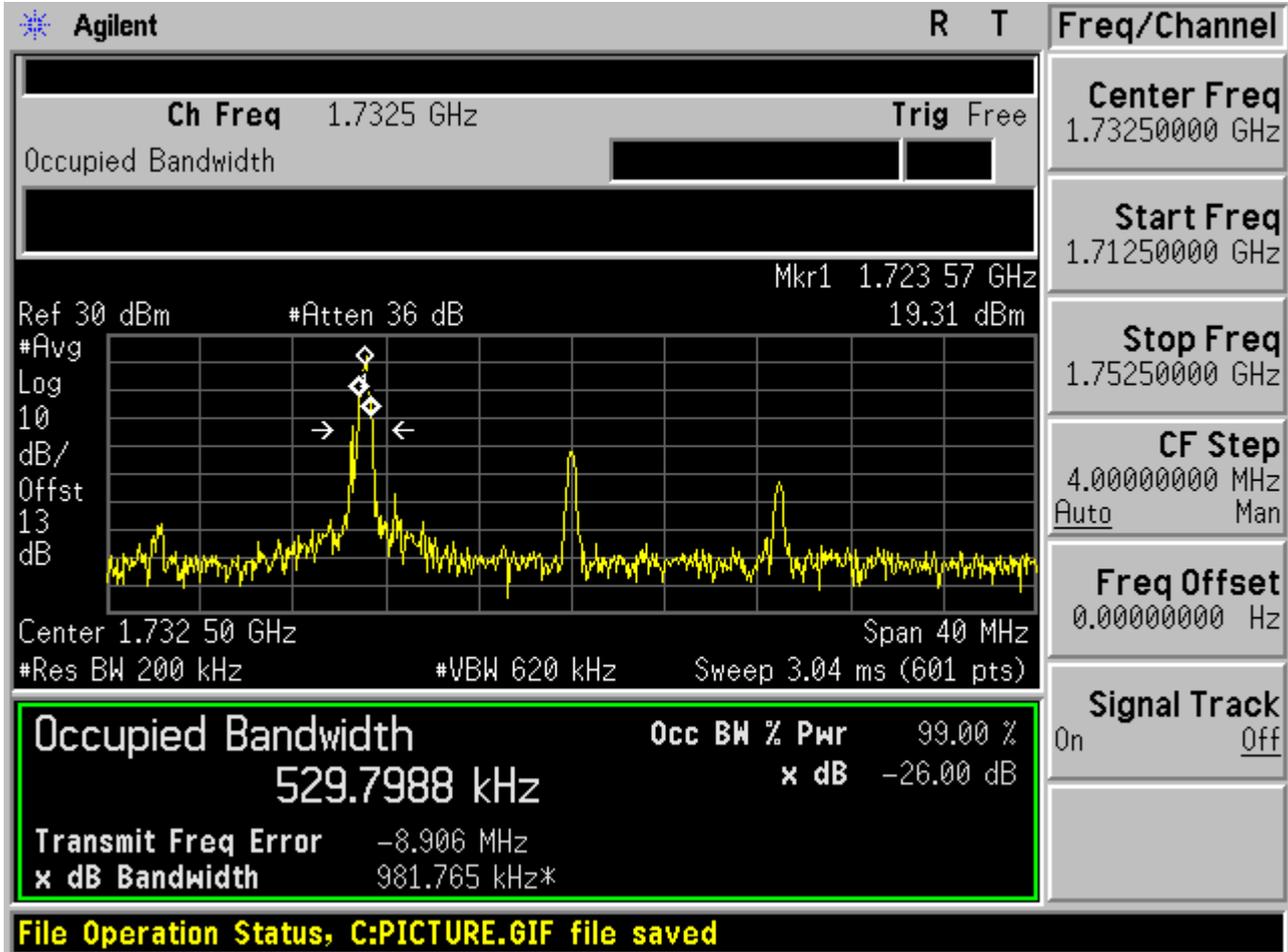
2.2.6.1.4 16QAM /full RBs





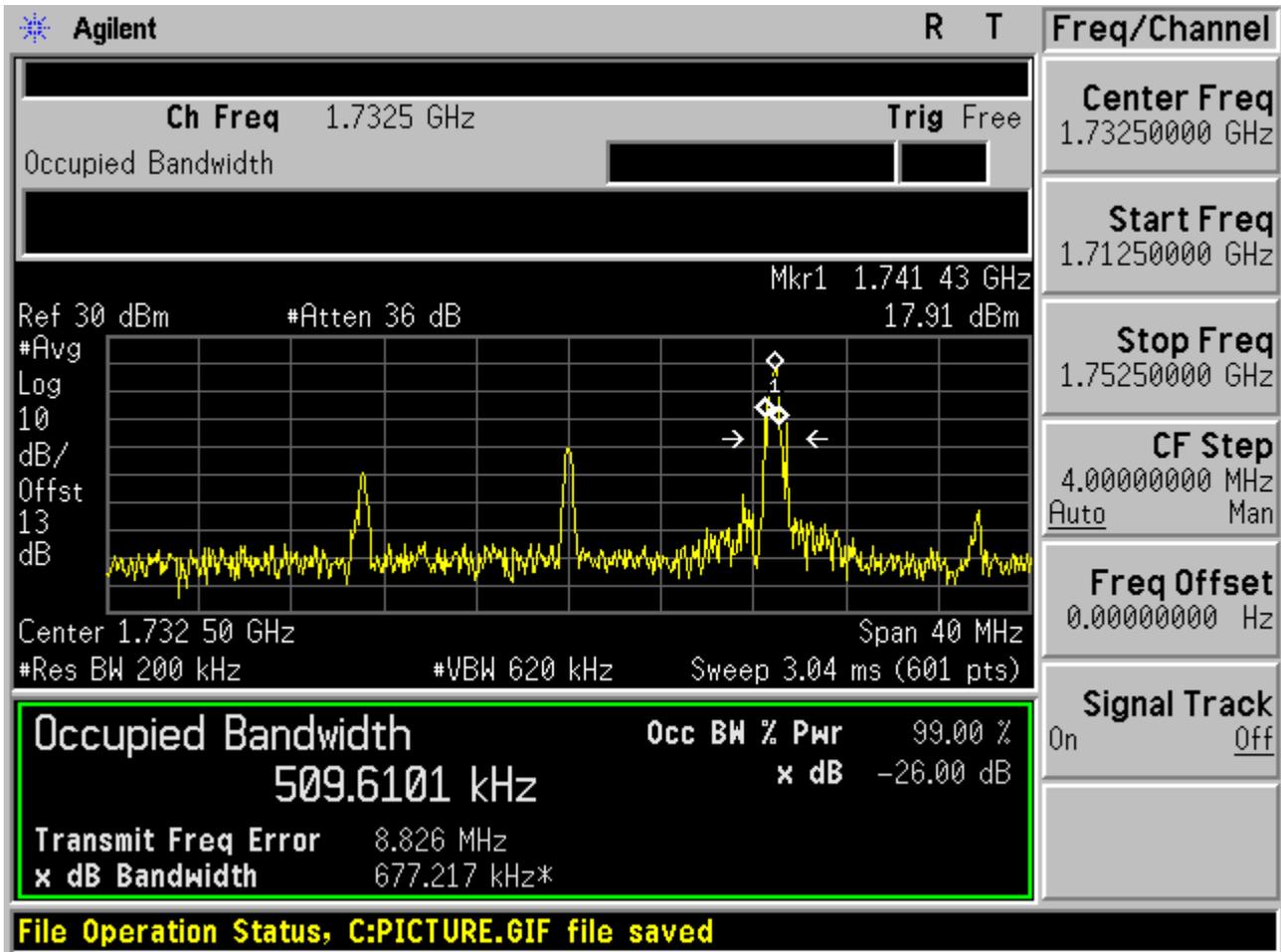
2.2.6.2 Channel =M

2.2.6.2.1 16QAM/1RB # 0





2.2.6.2.2 16QAM /1RB # max



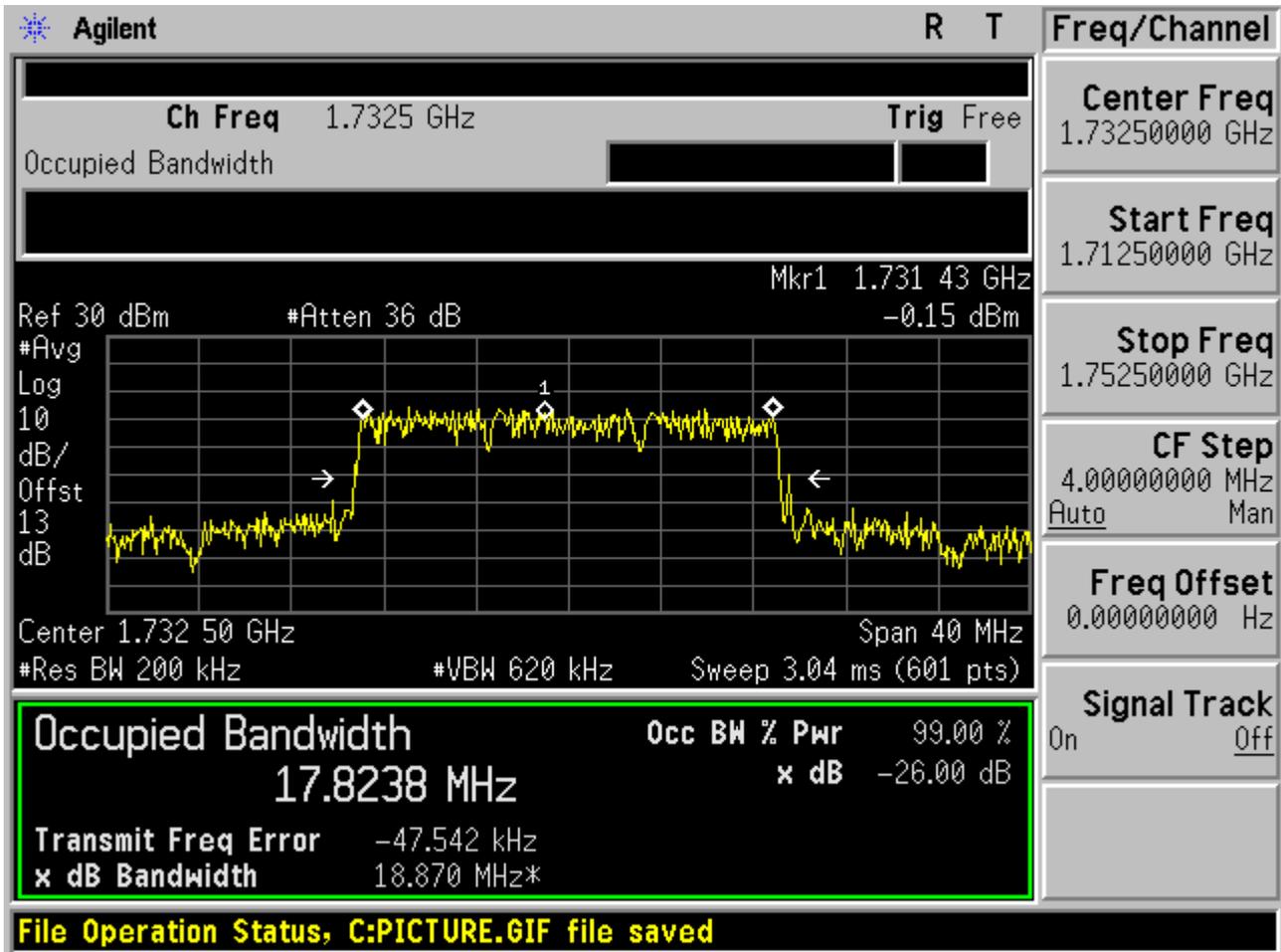


2.2.6.2.3 16QAM /non-1RB #mid/2





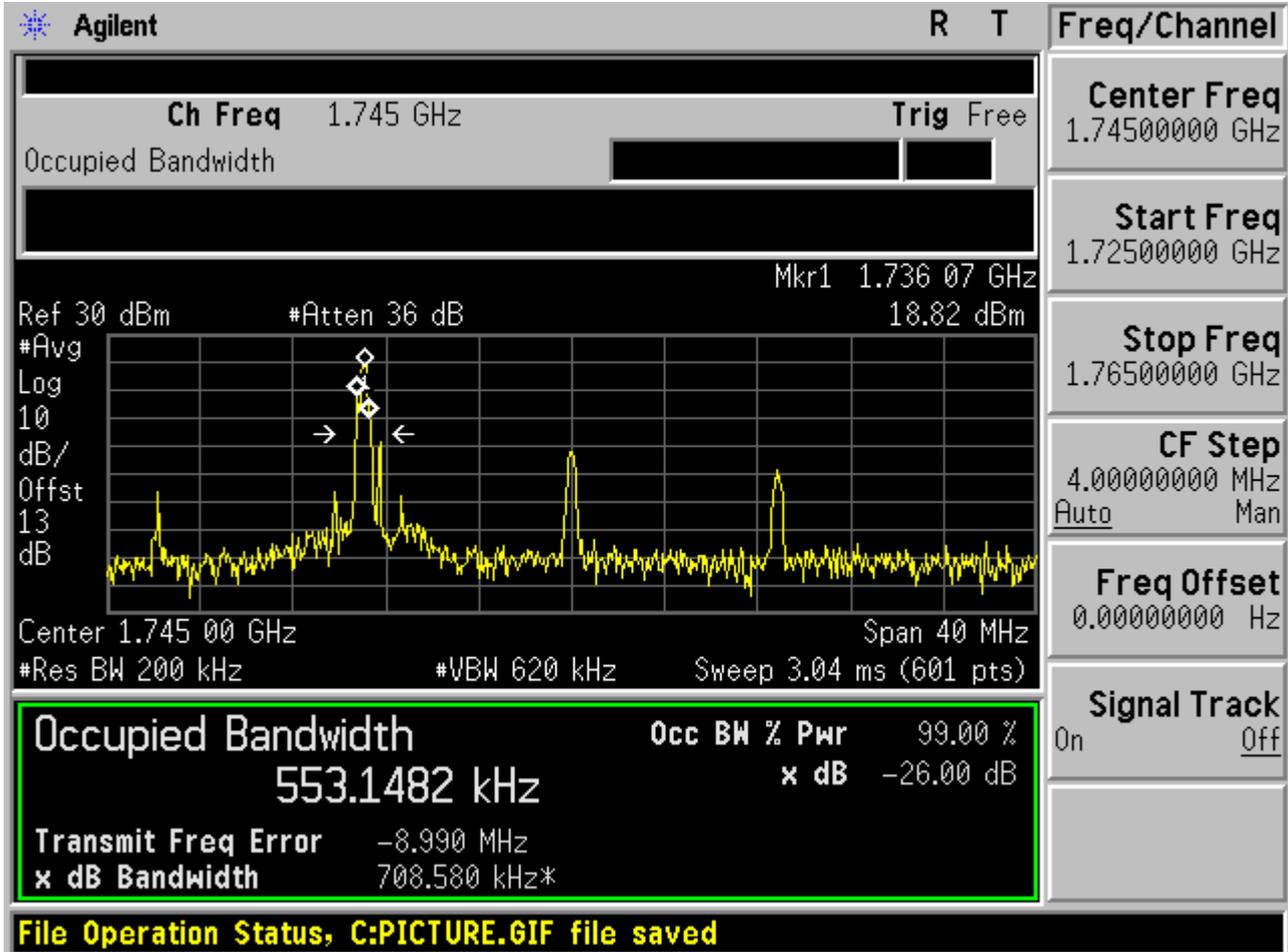
2.2.6.2.4 16QAM /full RBs





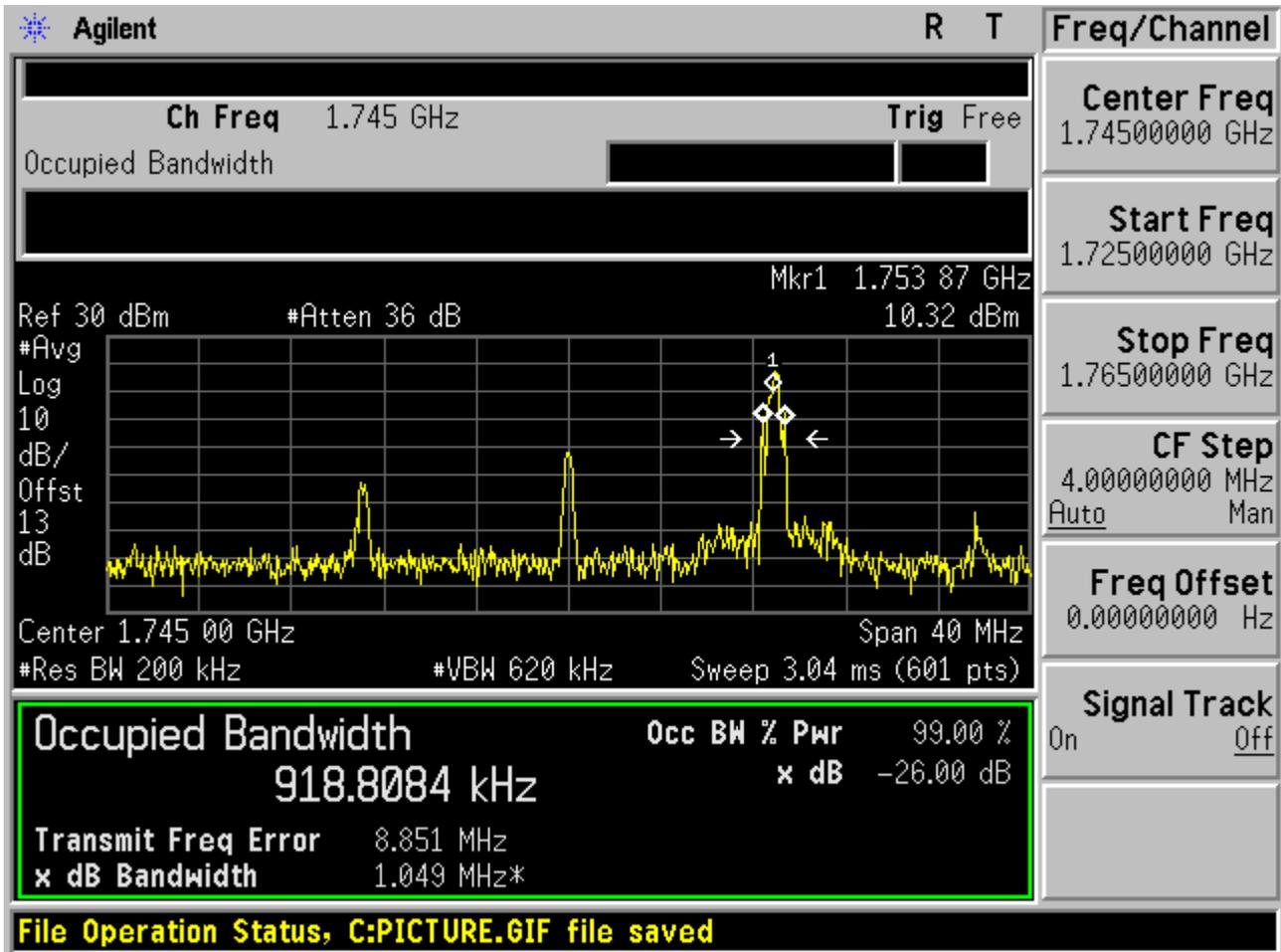
2.2.6.3 Channel =T

2.2.6.3.1 16QAM/1RB # 0





2.2.6.3.2 16QAM /1RB # max





2.2.6.3.3 16QAM /non-1RB #mid/2

Agilent R T

Ch Freq 1.745 GHz **Trig** Free

Occupied Bandwidth █

Ref 30 dBm #Atten 36 dB

#Avg 10 Mkr1 1.745 33 GHz

Log -7.24 dBm

dB/Offst 13

dB

Center 1.745 00 GHz Span 40 MHz

#Res BW 200 kHz #VBW 620 kHz

Sweep 3.04 ms (601 pts)

Occupied Bandwidth	Occ BW % Pwr 99.00 %
8.9303 MHz	x dB -26.00 dB
Transmit Freq Error -87.514 kHz	
x dB Bandwidth 10.082 MHz*	

File Operation Status, C:PICTURE.GIF file saved

Freq/Channel

Center Freq
1.74500000 GHz

Start Freq
1.72500000 GHz

Stop Freq
1.76500000 GHz

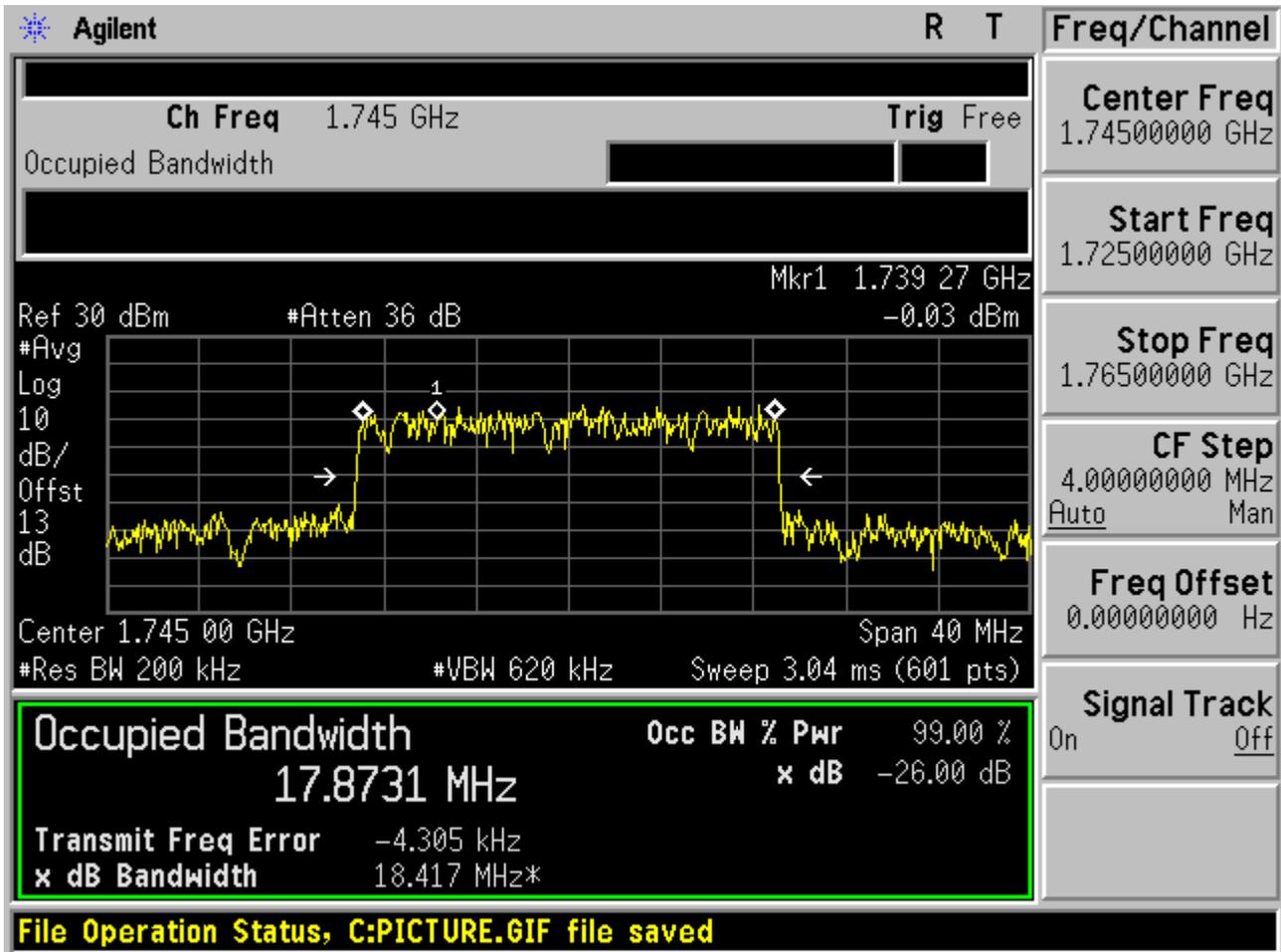
CF Step
4.00000000 MHz
Auto Man

Freq Offset
0.00000000 Hz

Signal Track
On Off



2.2.6.3.4 16QAM /full RBs



-----END-----