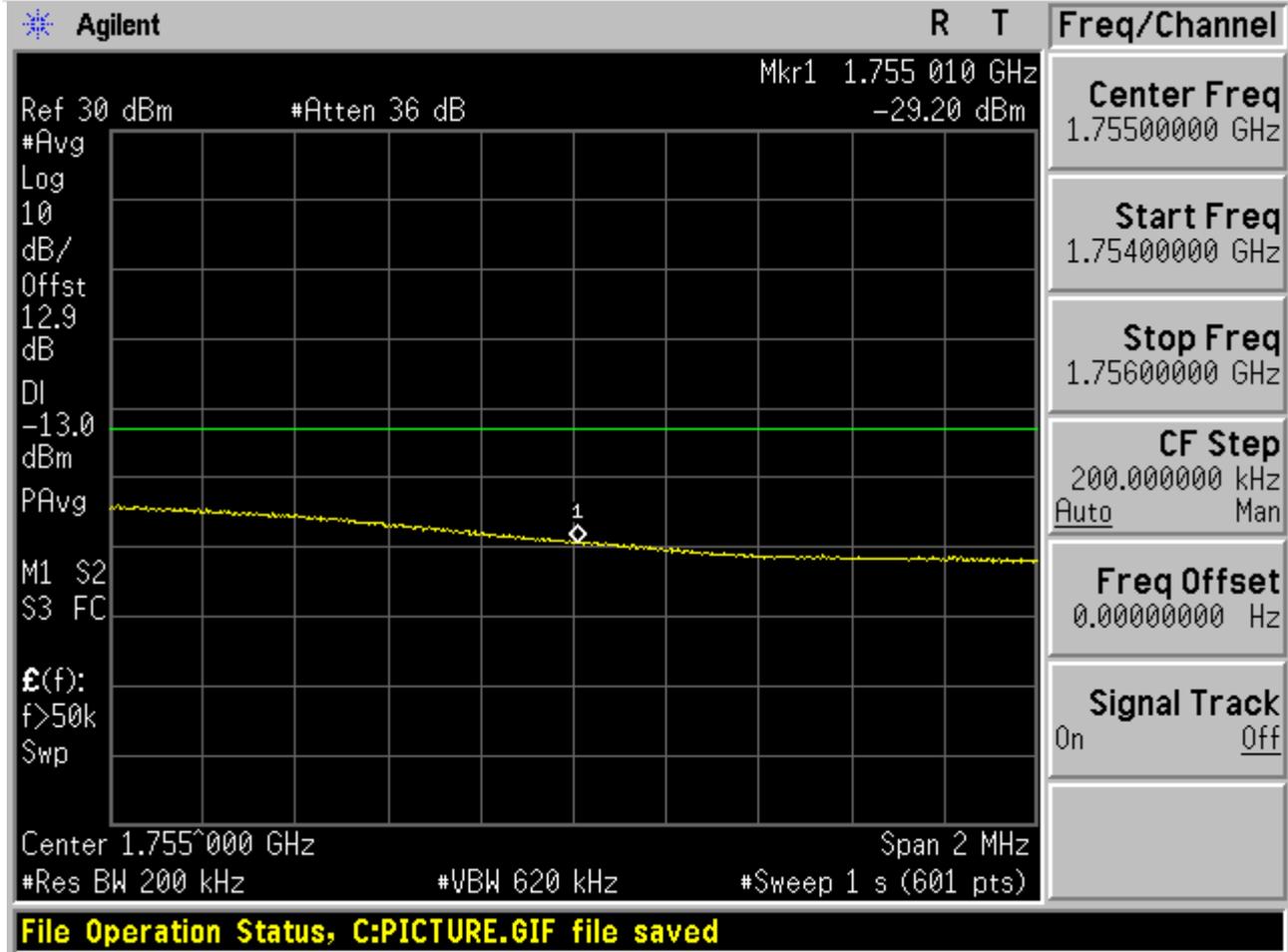
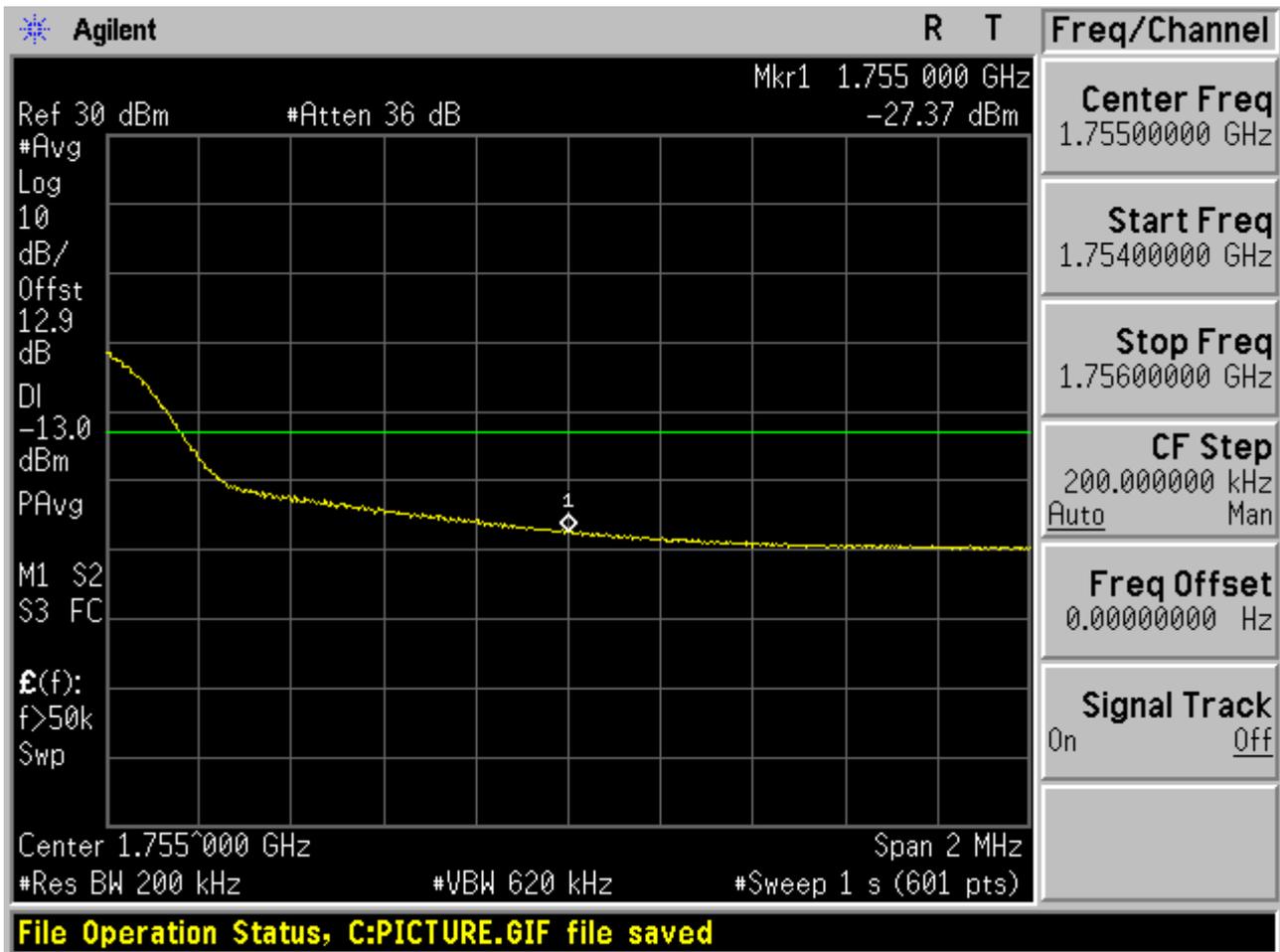




2.2.4.2.3 QPSK/Partial RBs /RB #25



2.2.4.2.4 QPSK/full RBs



-----END-----



Appendix E

Spurious Emission at Antenna Terminal

According to FCC Part 2.1051 & Part 27 Subpart C&L



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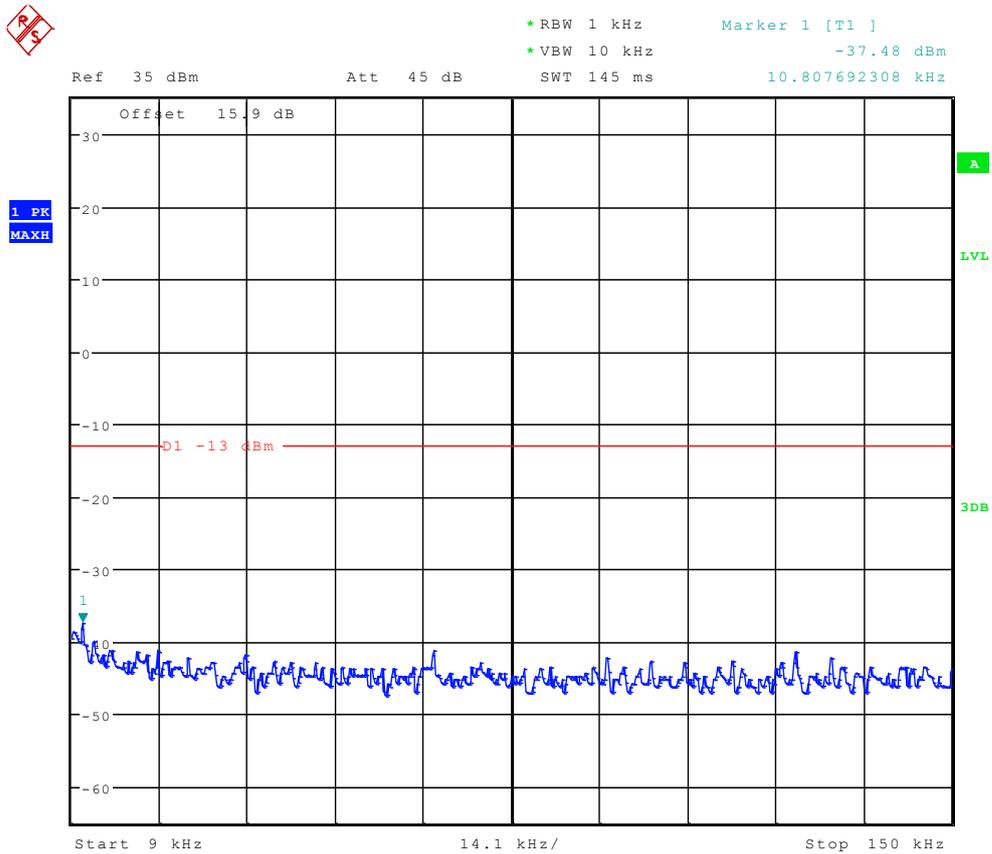
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1 For WCDMA Band 4

1.1 Test Mode=TM1

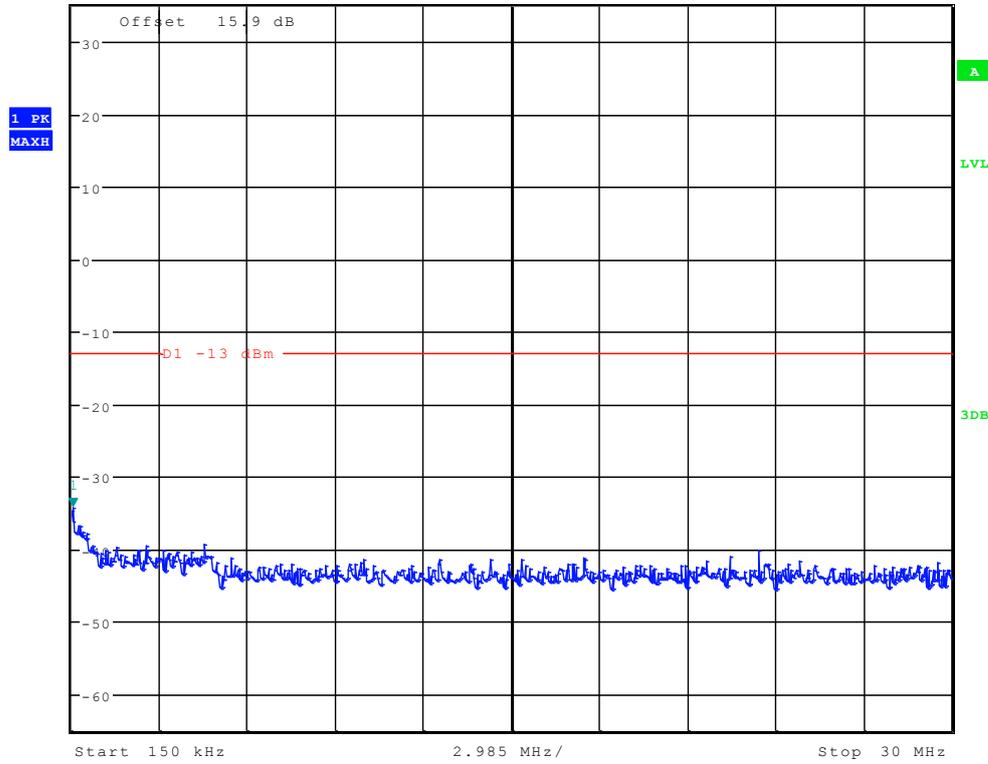
1.1.1 Channel B



Date: 31.MAY.2012 11:56:30



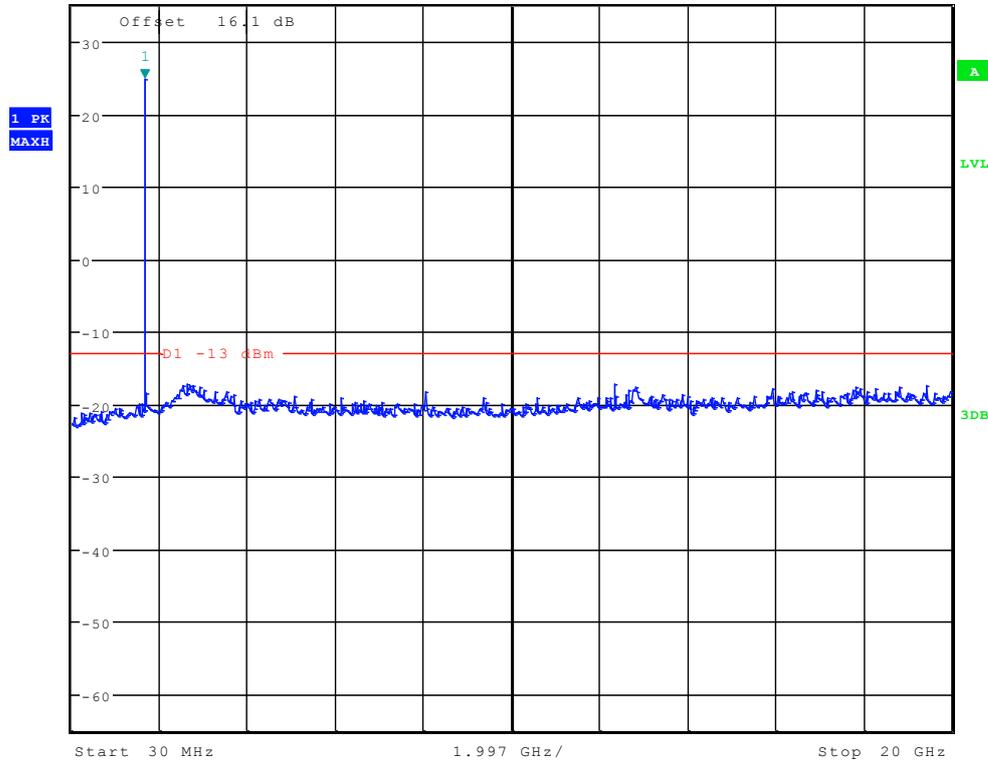
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -34.16 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 197.836538462 kHz



Date: 31.MAY.2012 11:57:13



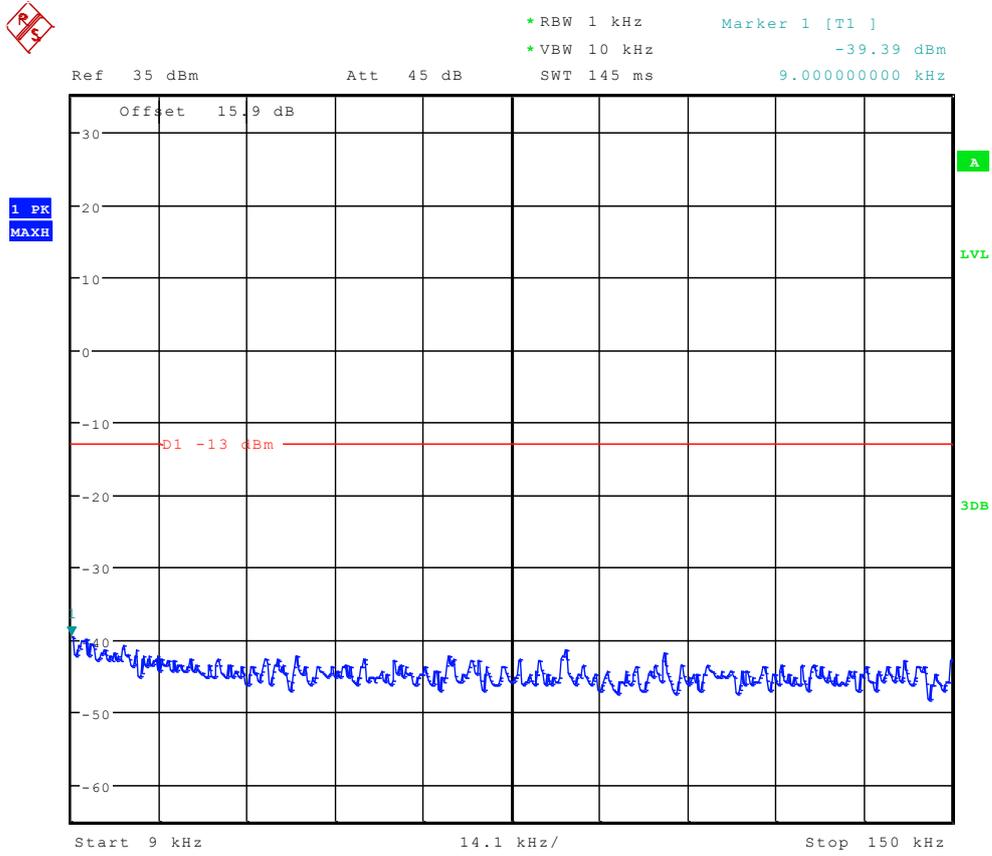
* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 24.78 dBm
Ref 35 dBm Att 45 dB SWT 115 ms 1.694166667 GHz



Date: 31.MAY.2012 11:57:57



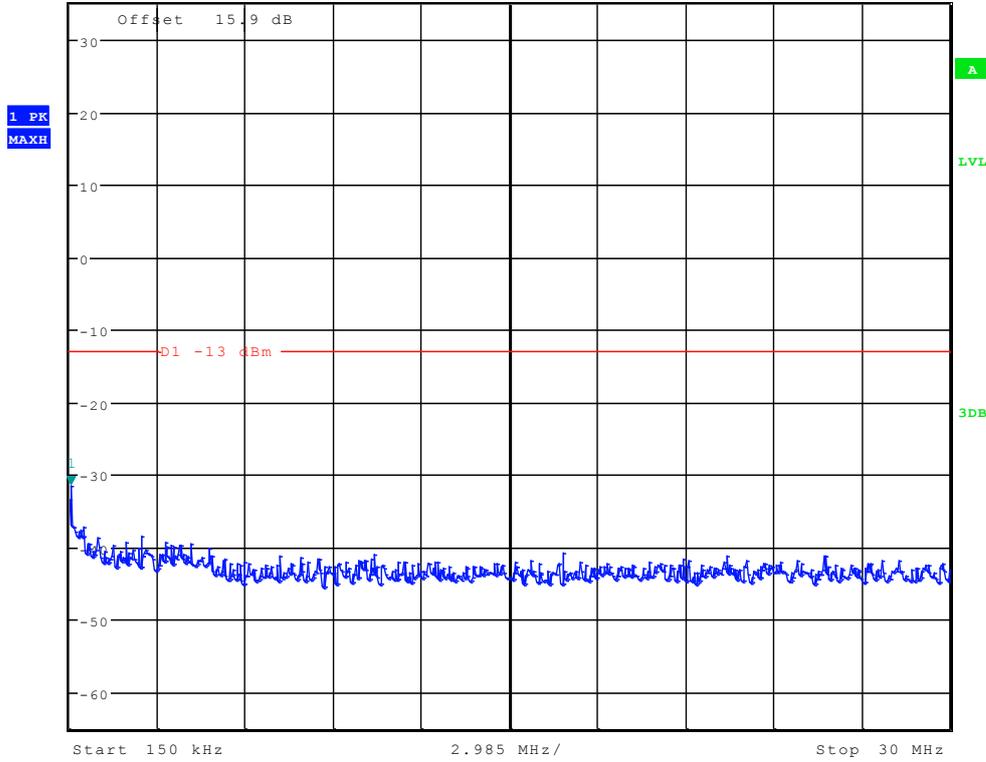
1.1.2 Channel M



Date: 31.MAY.2012 11:56:44



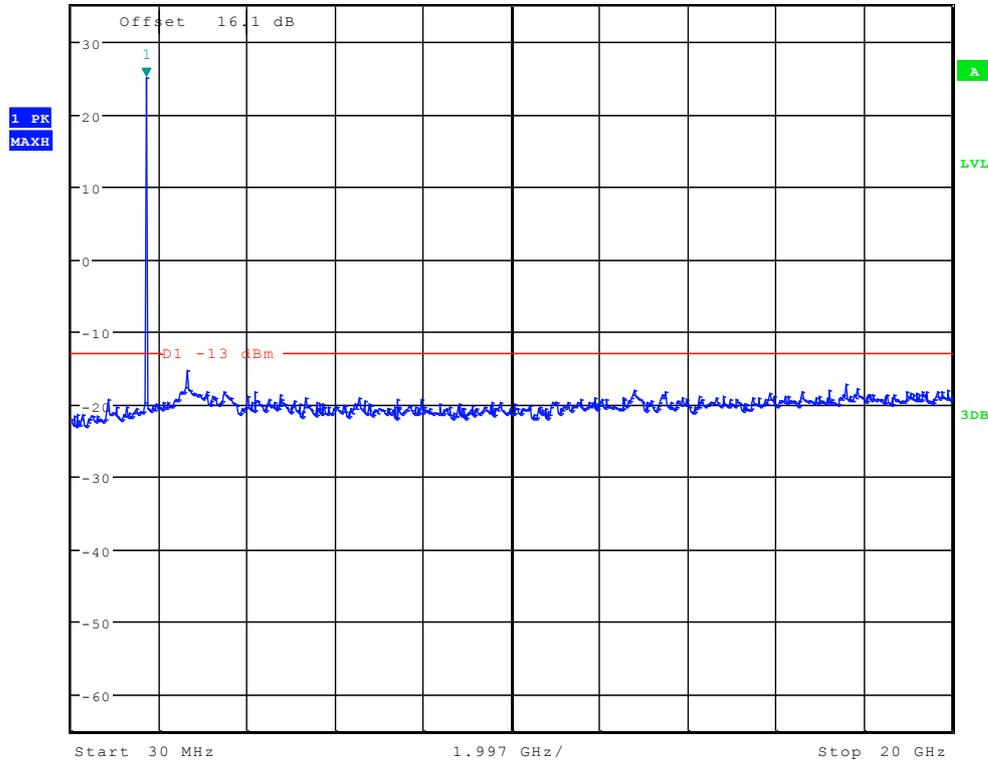
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -31.54 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 197.836538462 kHz



Date: 31.MAY.2012 11:57:27



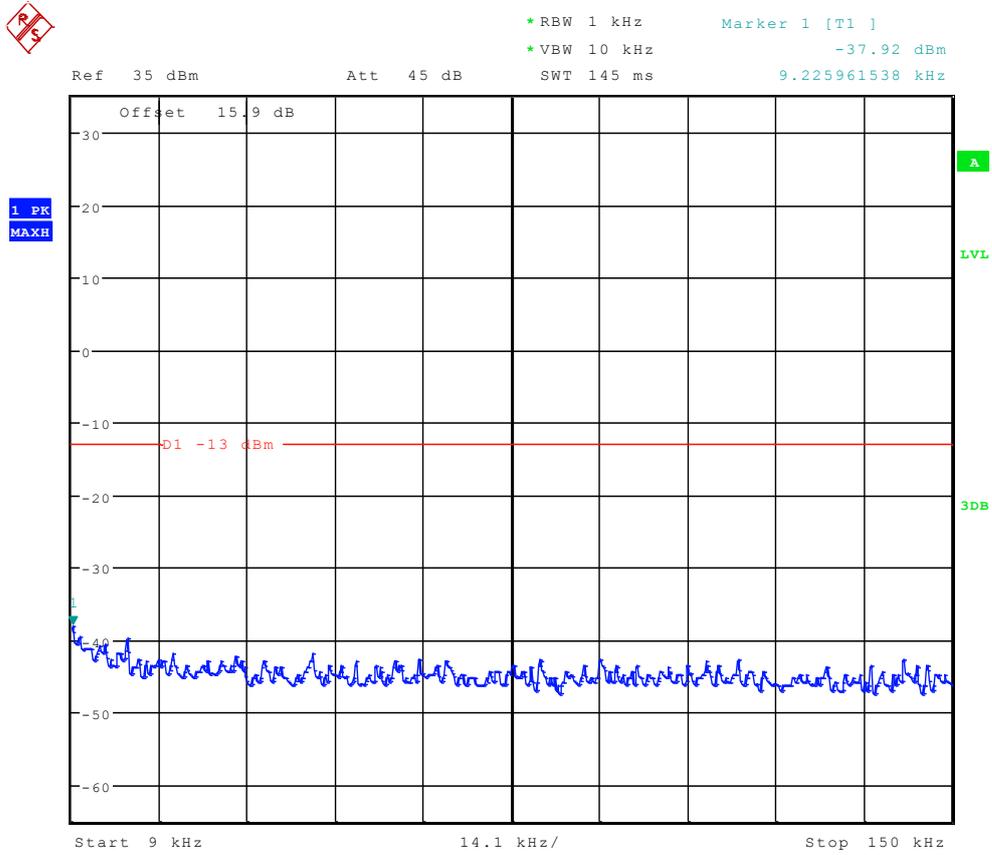
* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 25.12 dBm
Ref 35 dBm Att 45 dB SWT 115 ms 1.726169872 GHz



Date: 31.MAY.2012 11:58:11



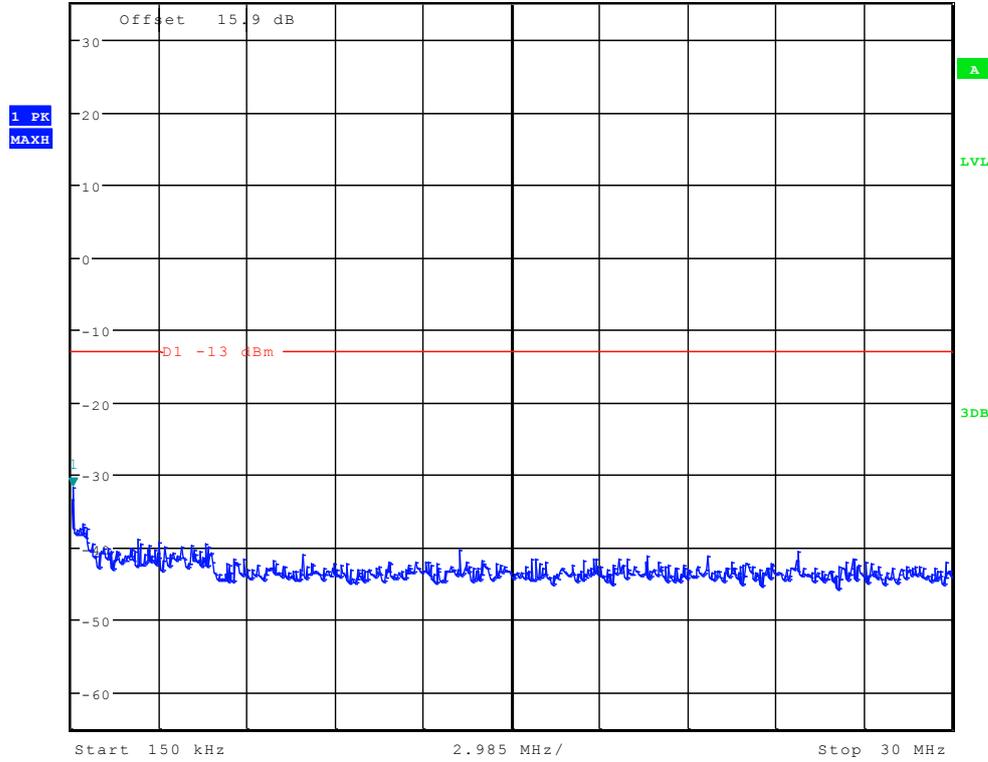
1.1.3 Channel T



Date: 31.MAY.2012 11:56:58



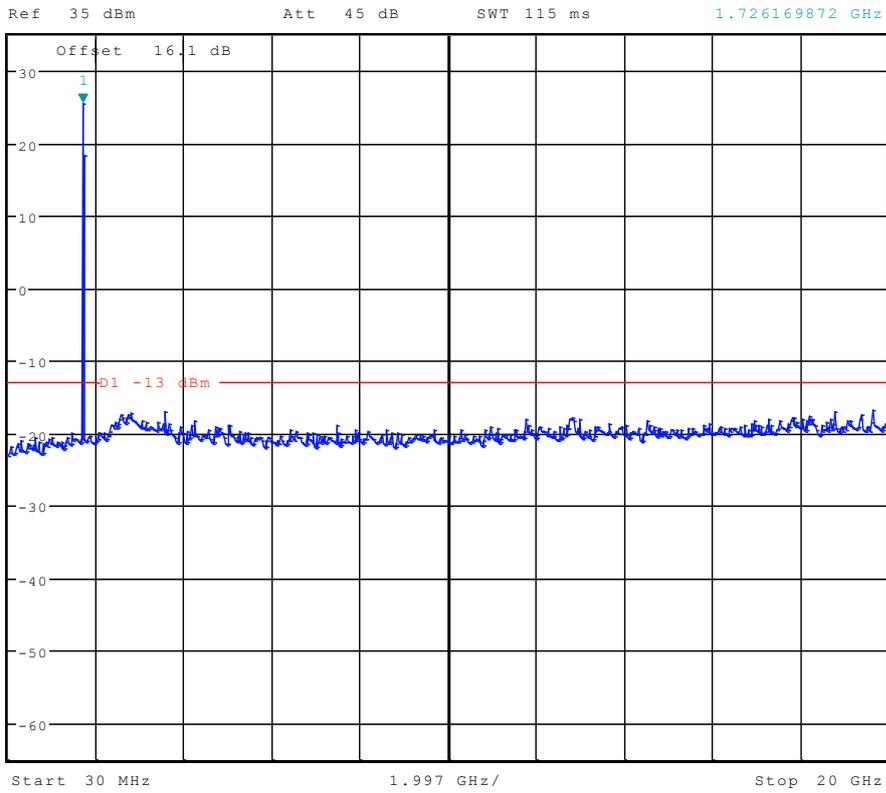
*RBW 10 kHz Marker 1 [T1]
*VBW 30 kHz -31.72 dBm
Ref 35 dBm Att 45 dB SWT 300 ms 197.836538462 kHz



Date: 31.MAY.2012 11:57:42



* RBW 1 MHz Marker 1 [T1]
* VBW 3 MHz 25.38 dBm
SWT 115 ms 1.726169872 GHz



Date: 31.MAY.2012 11:58:26



2 For Band 4

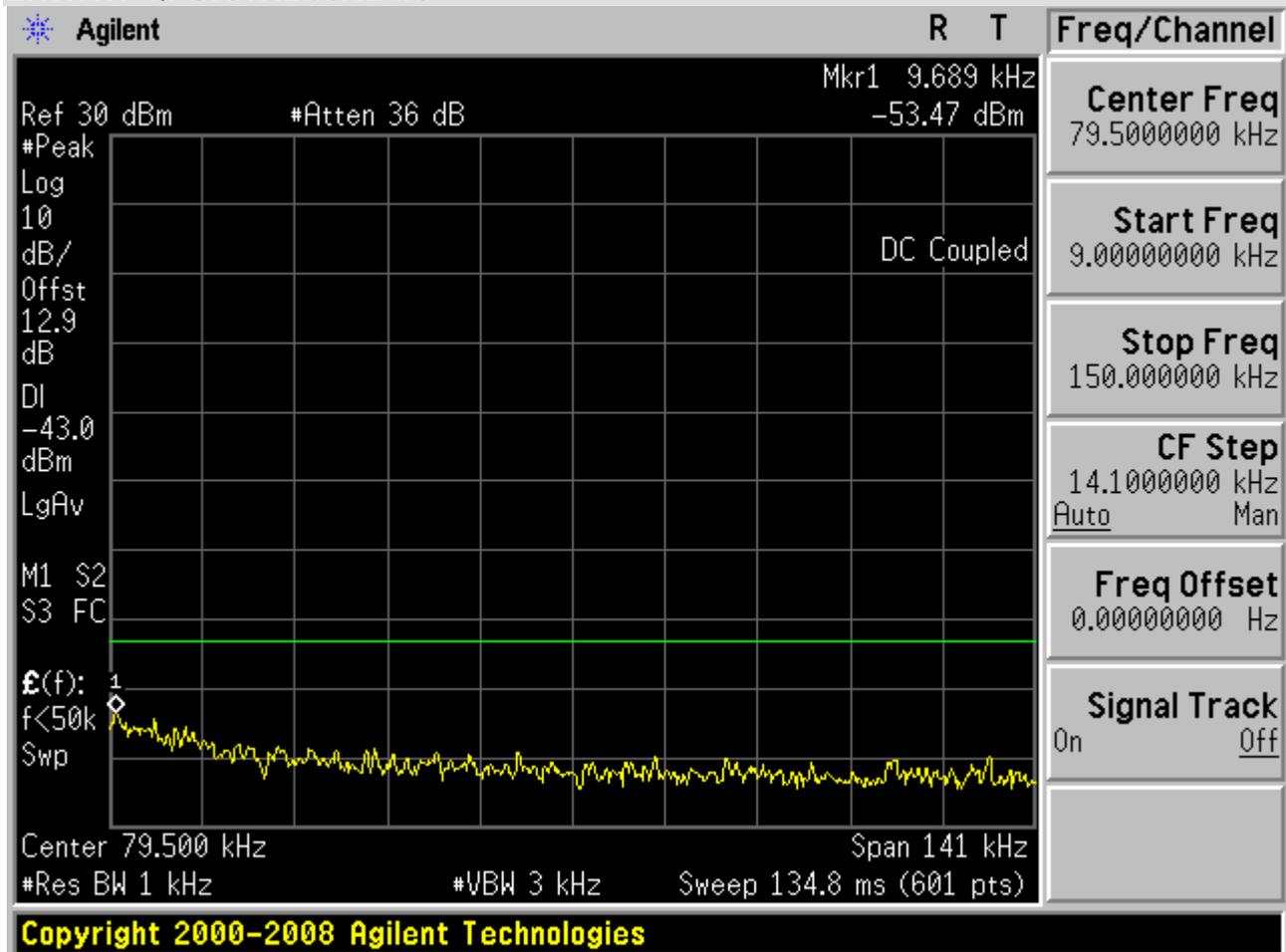
NOTE1: All relevant operation modes have been tested, and the 1RB case data is included in this report.

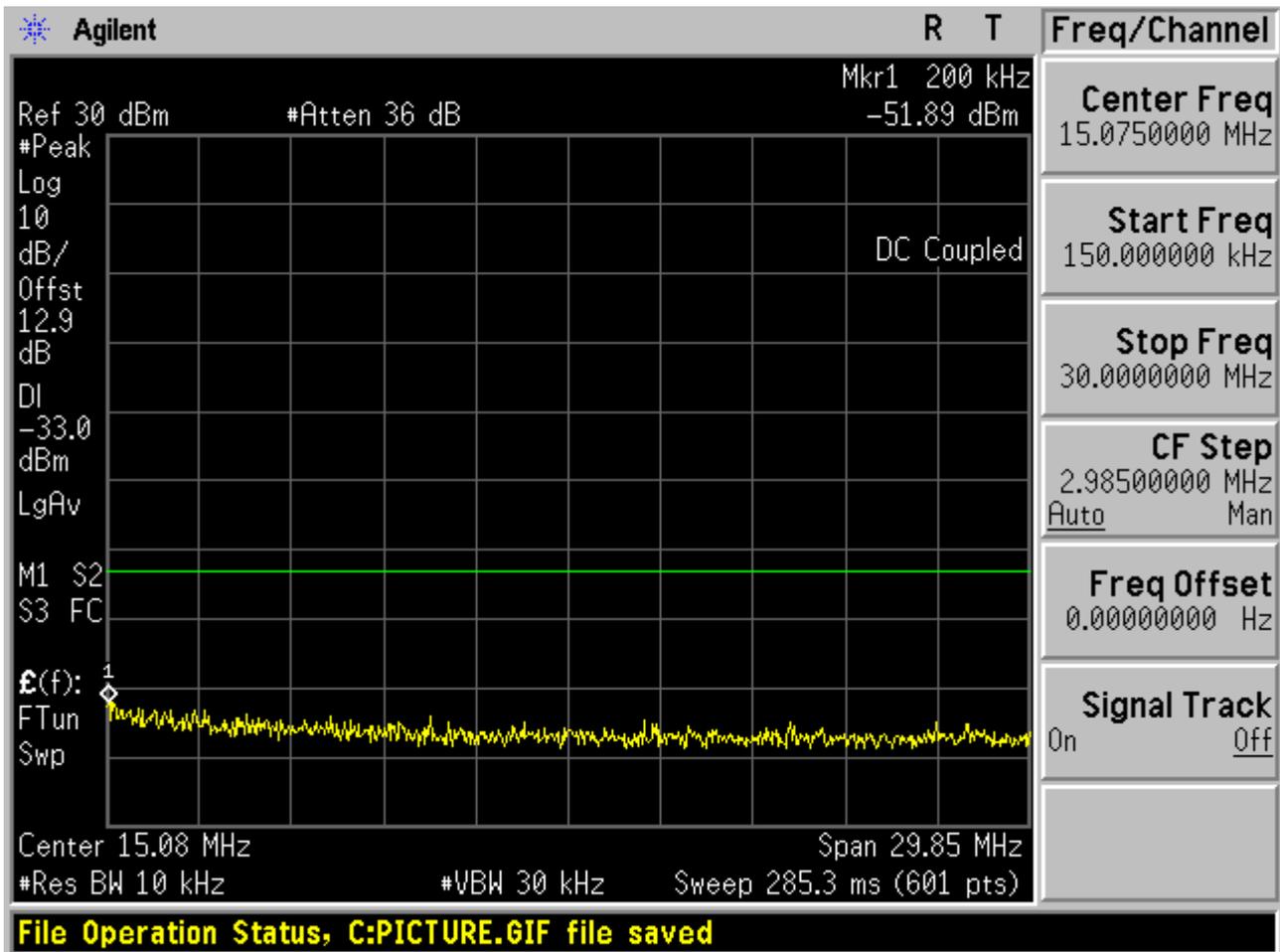
2.1 Test Mode=TM4

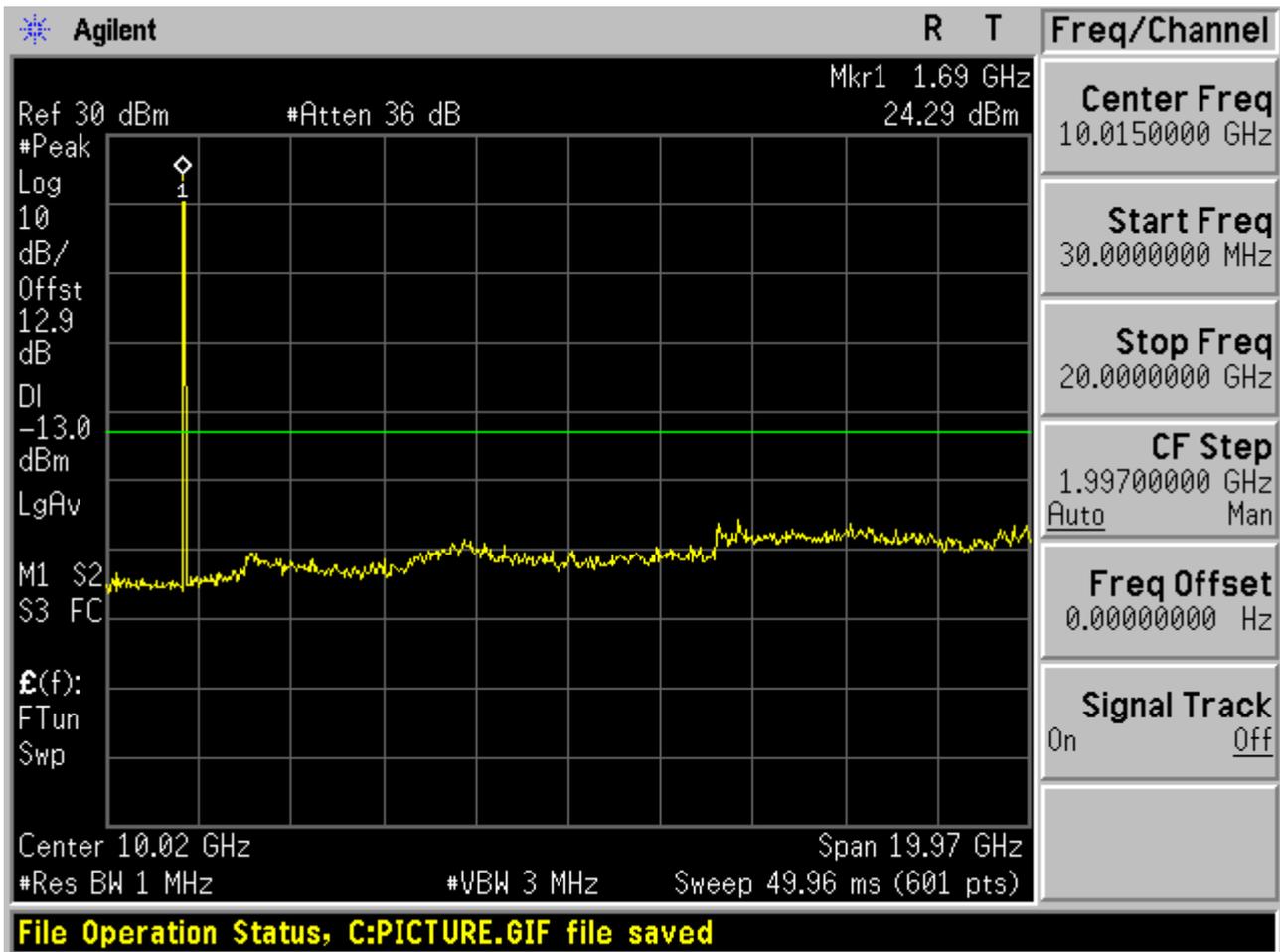
2.1.1 Channel Bandwidth = Lowest (5 MHz)

2.1.1.1 Channel = B

2.1.1.1.1 QPSK/1RBs /RB #0



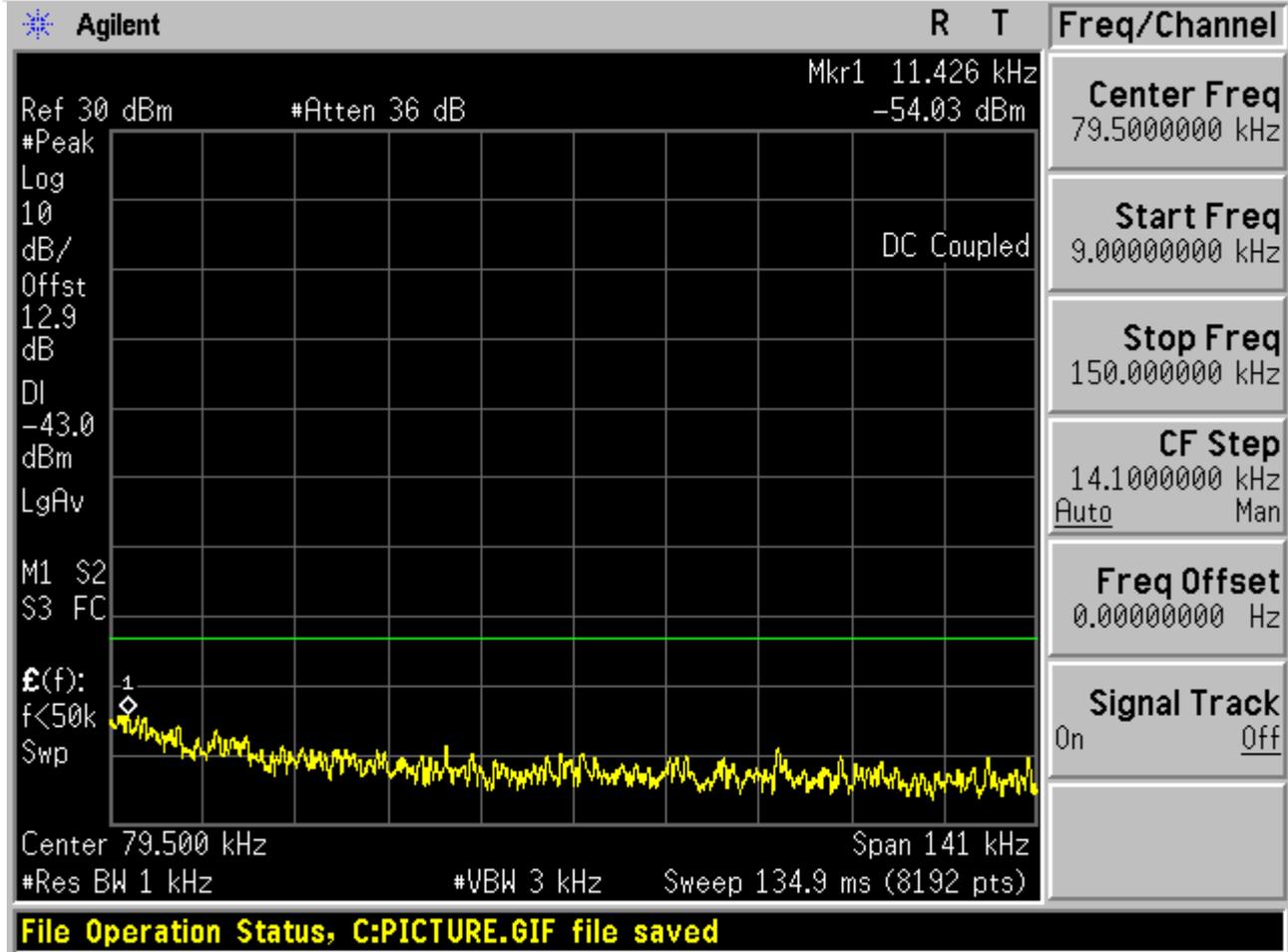


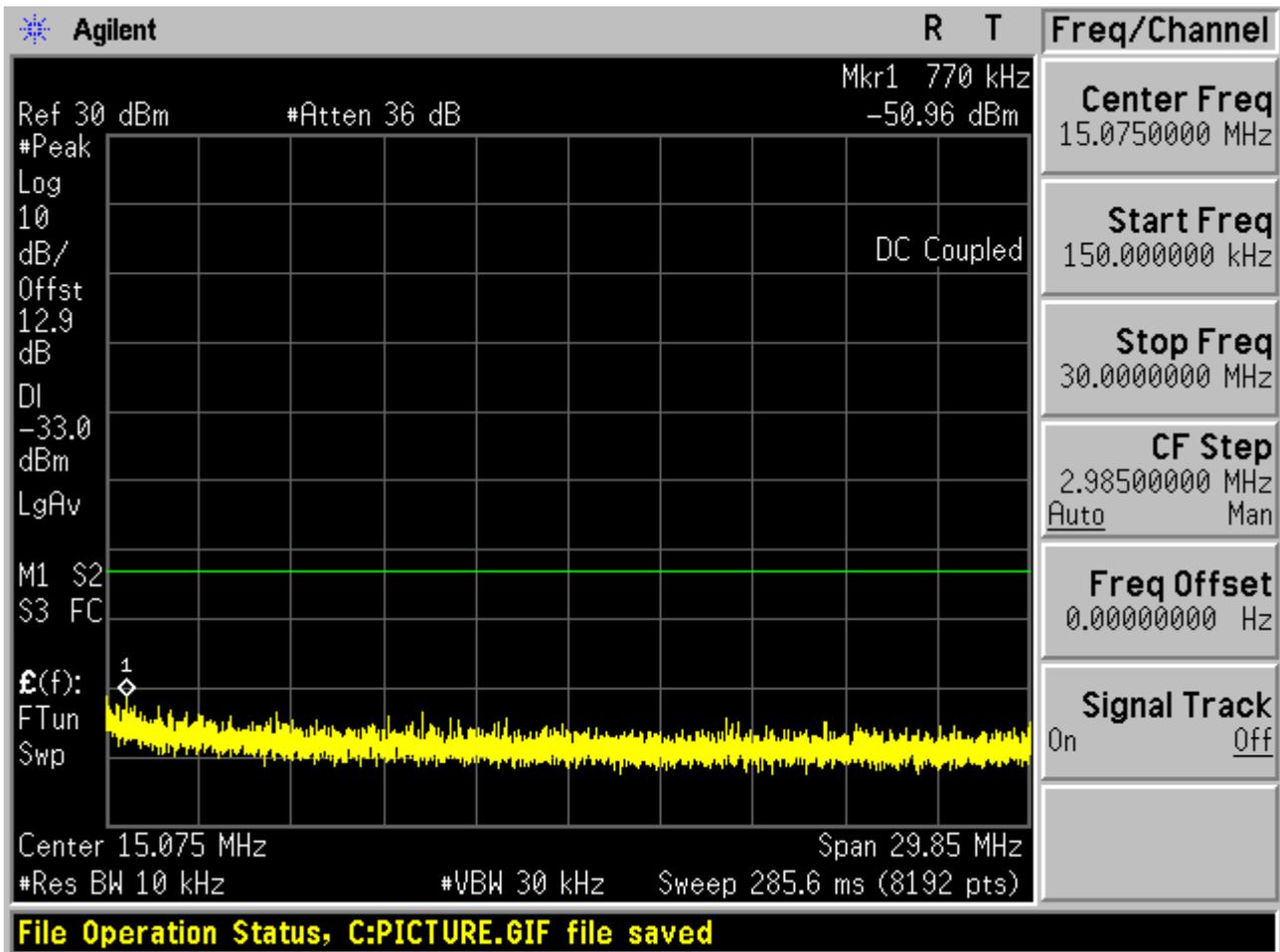


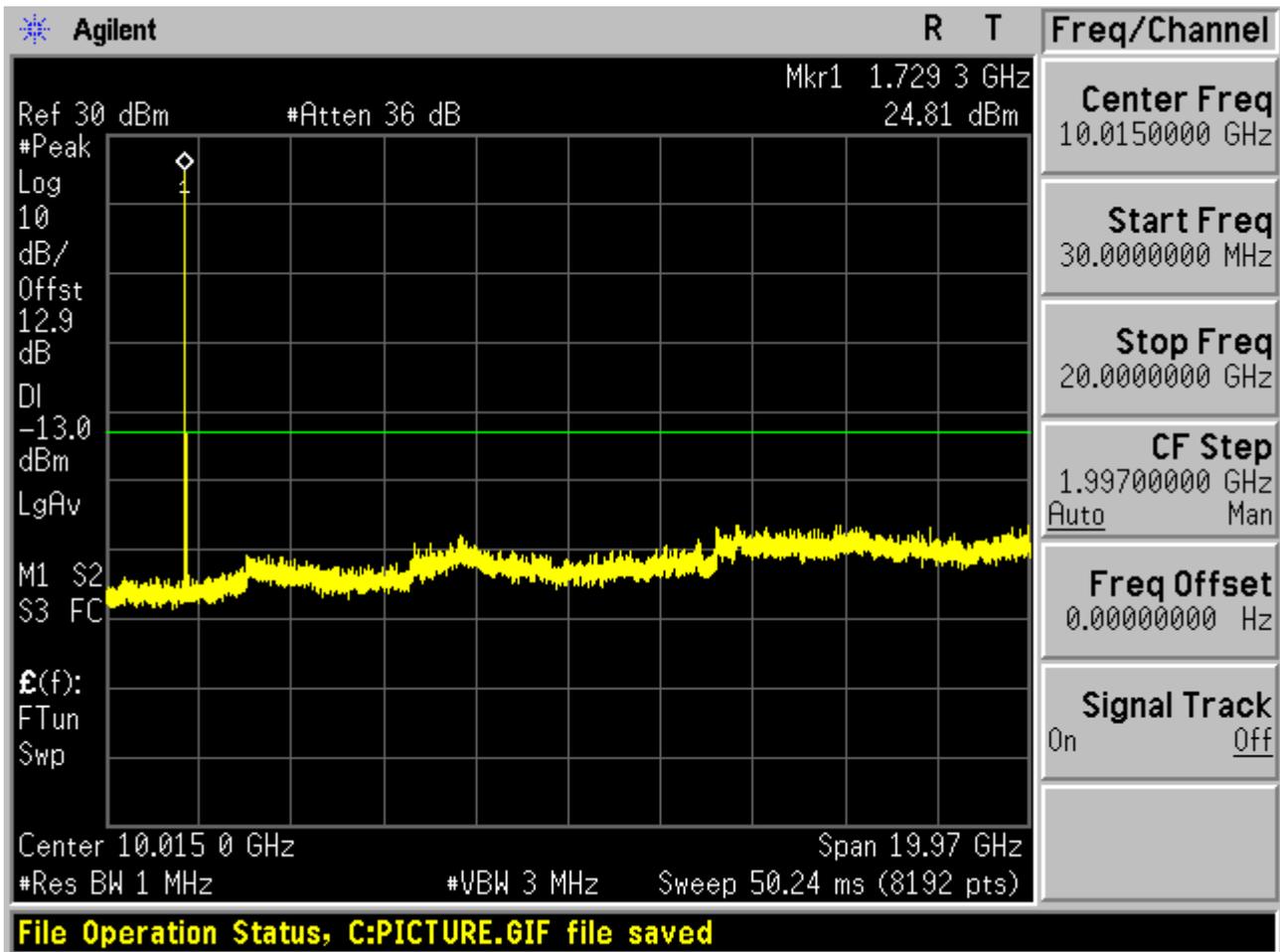
2.1.1.2 Channel = M



2.1.1.2.1 QPSK/1RBs /RB #0

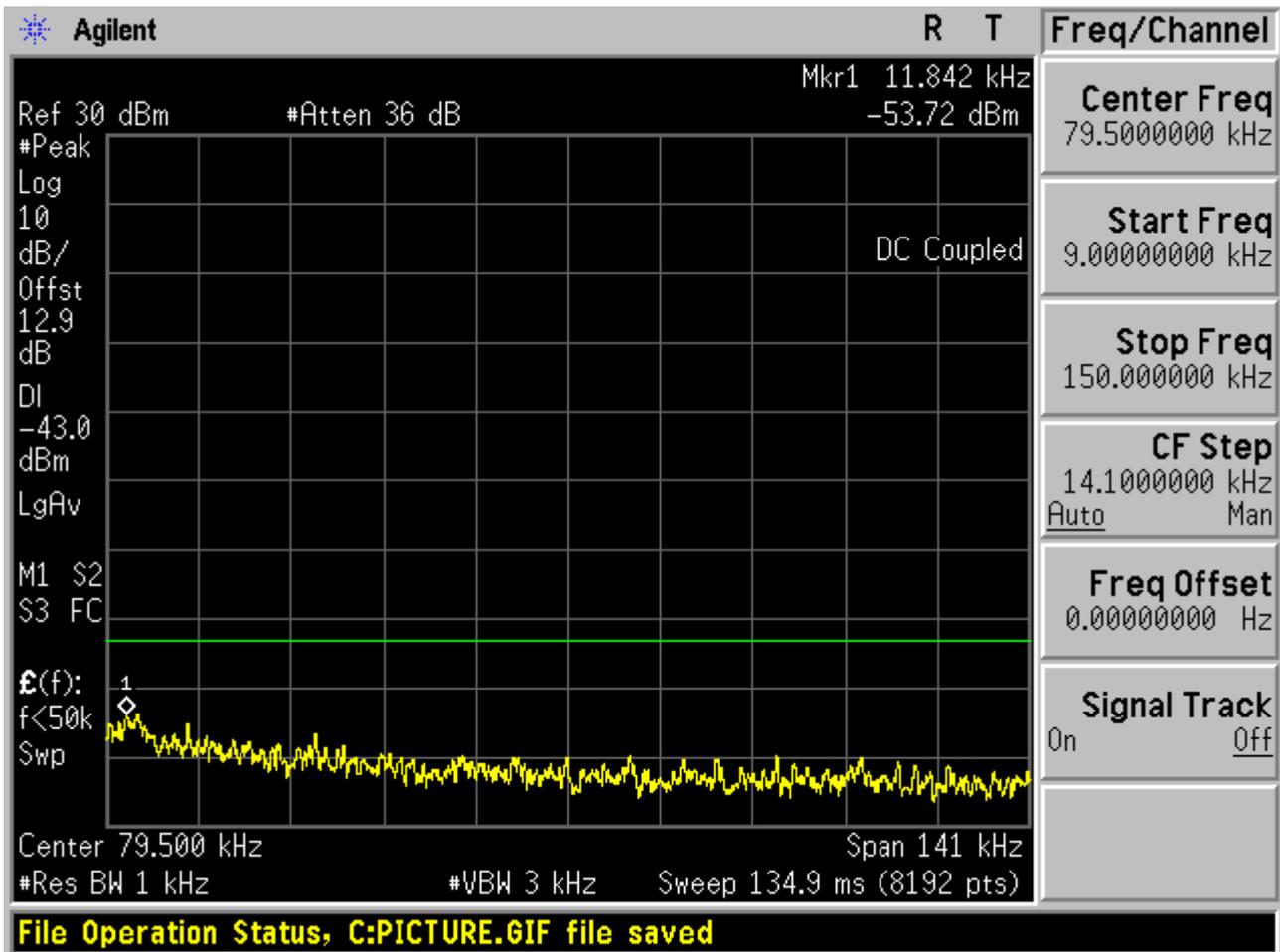


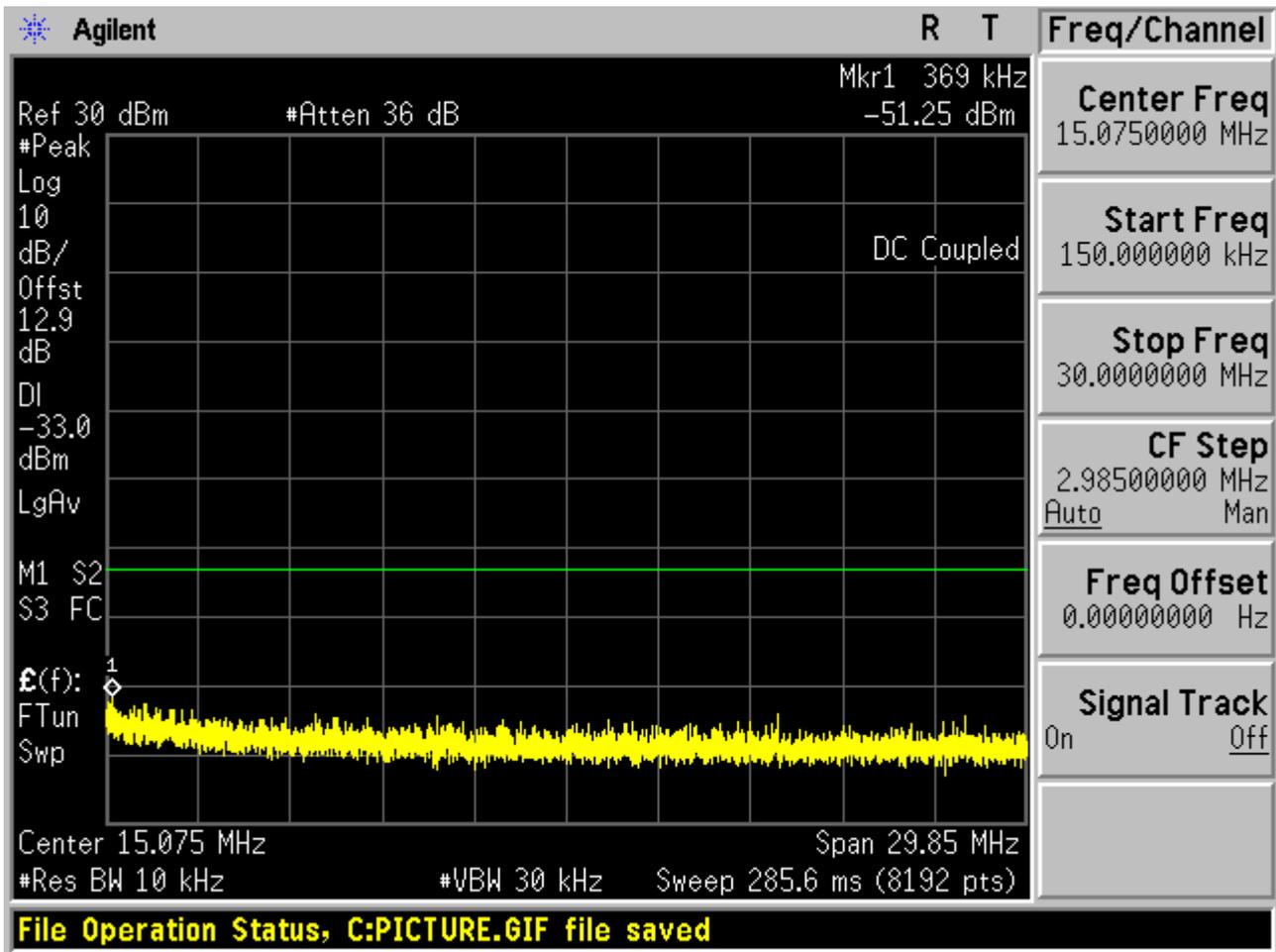


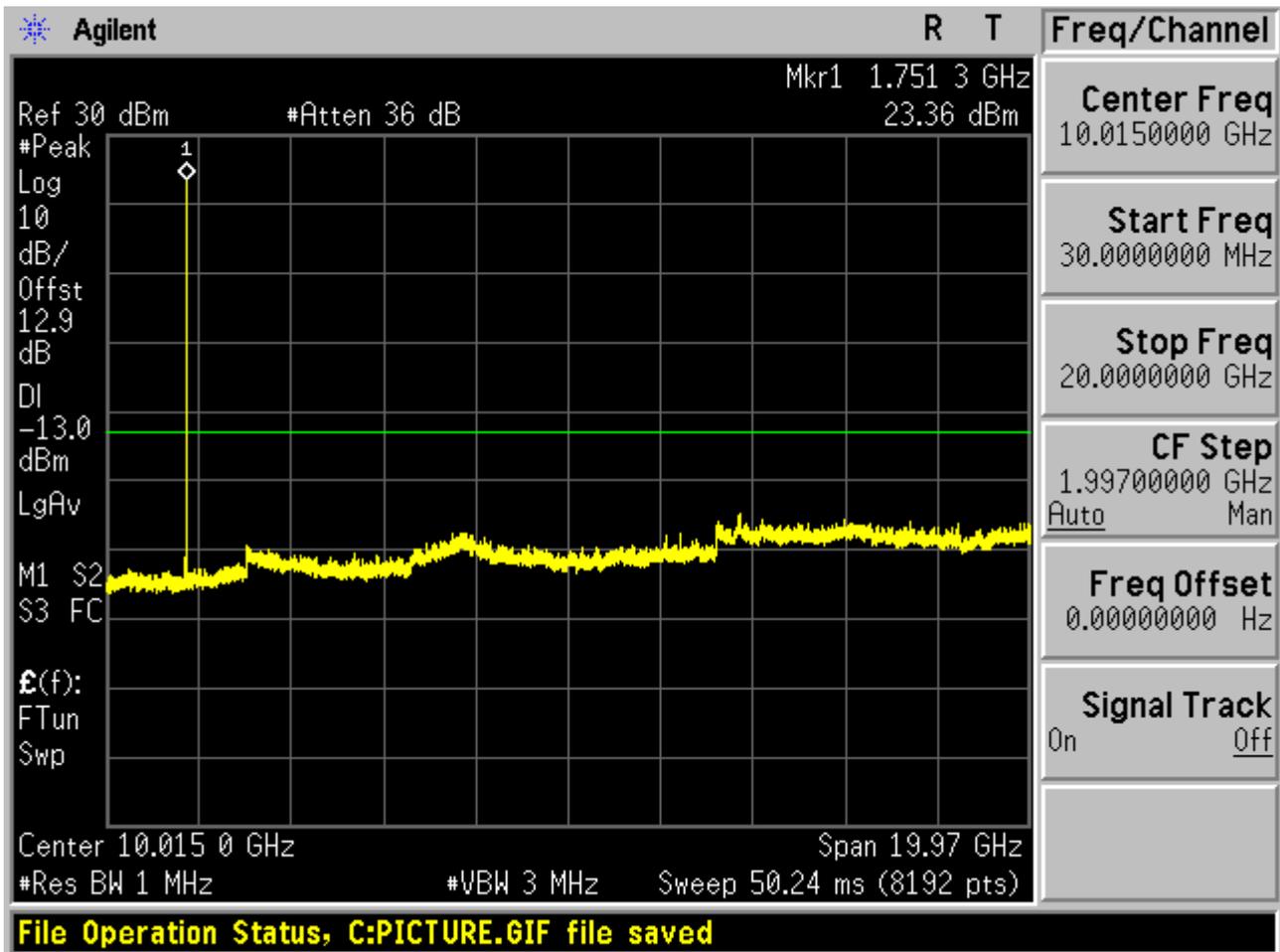


2.1.1.3 Channel = T

2.1.1.3.1 QPSK/1RBs /RB #0





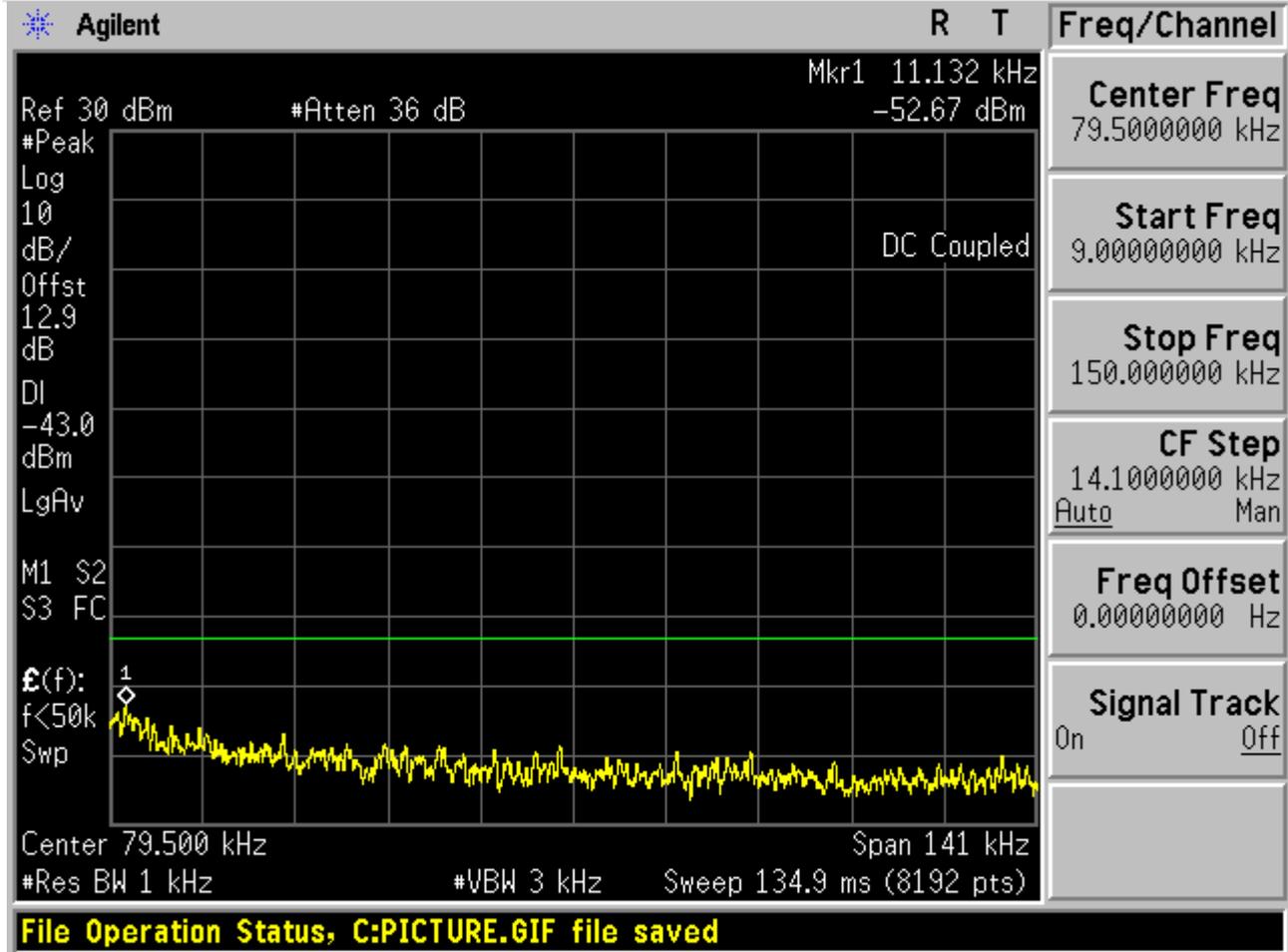


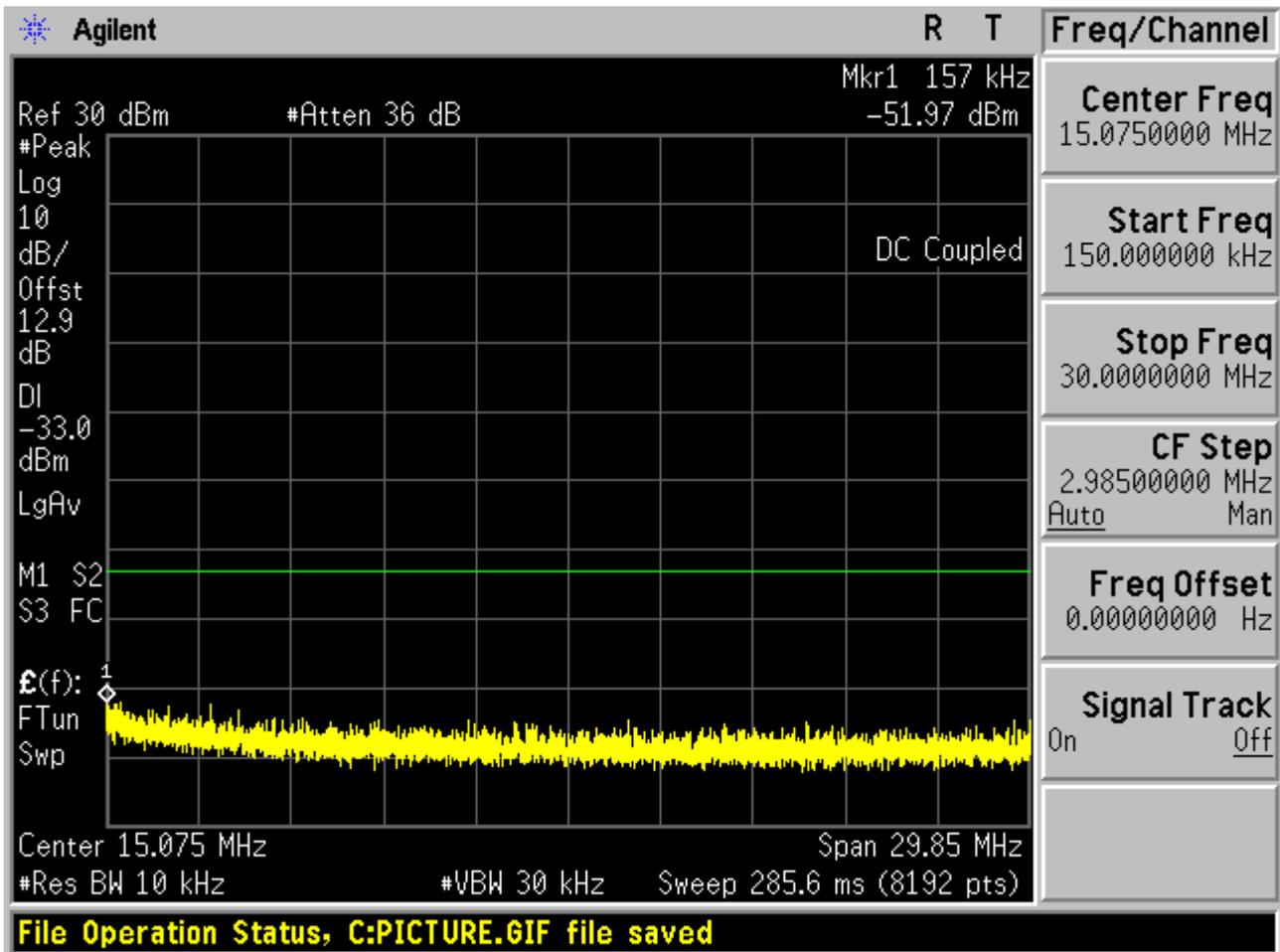
2.1.2 Channel Bandwidth = 10 MHz

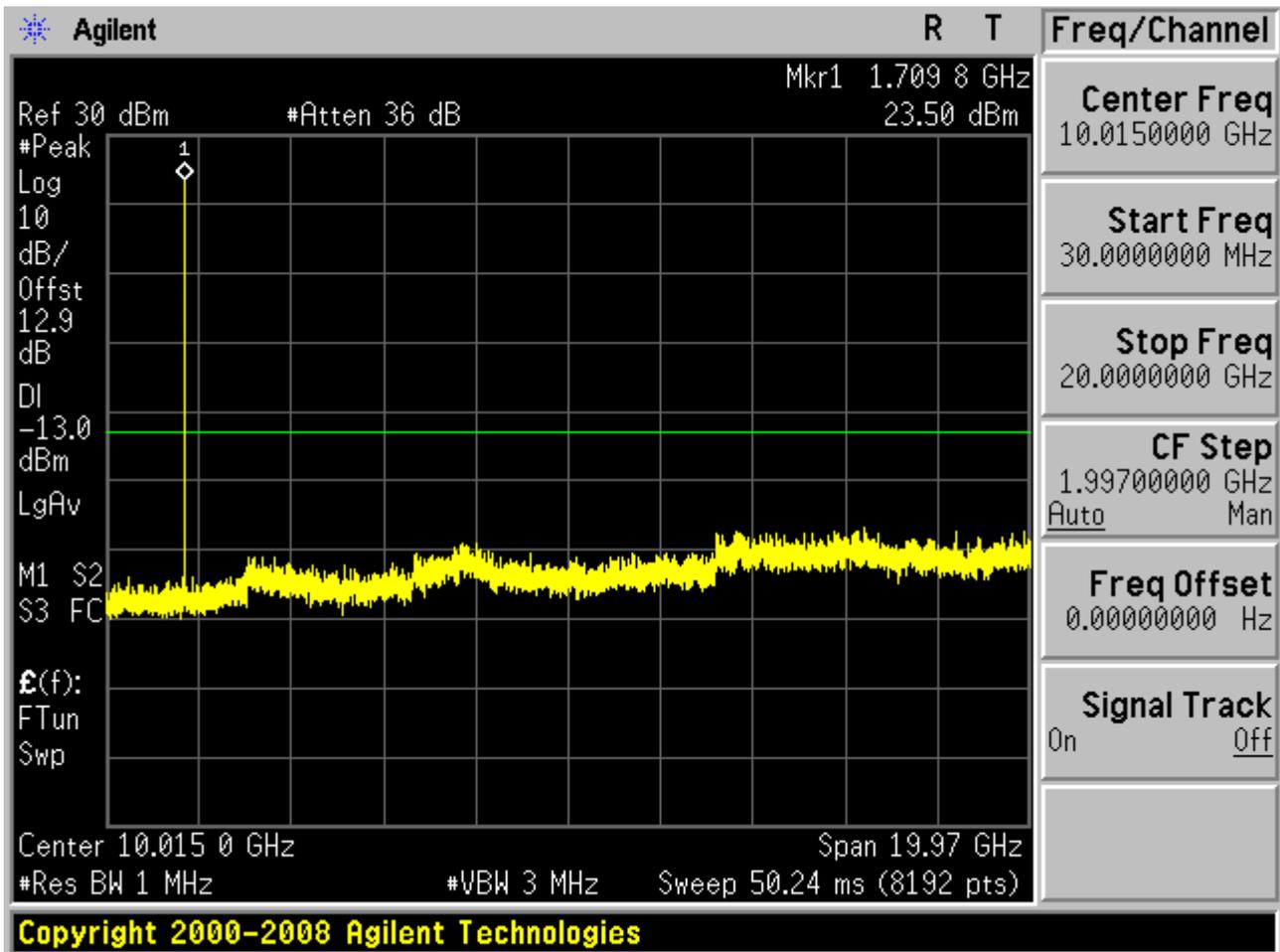
2.1.2.1 Channel = B



2.1.2.1.1 QPSK/1RBs /RB #0

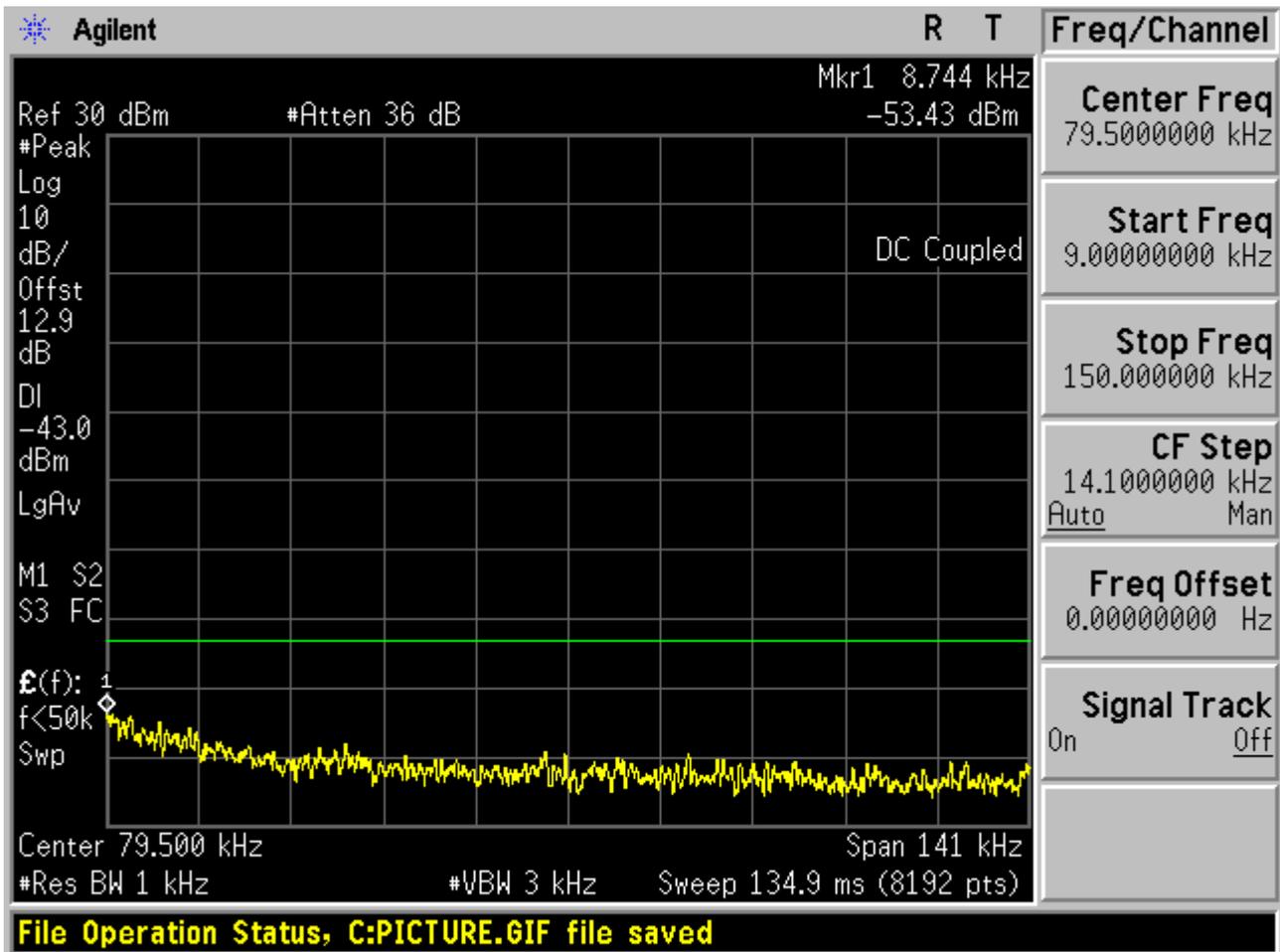


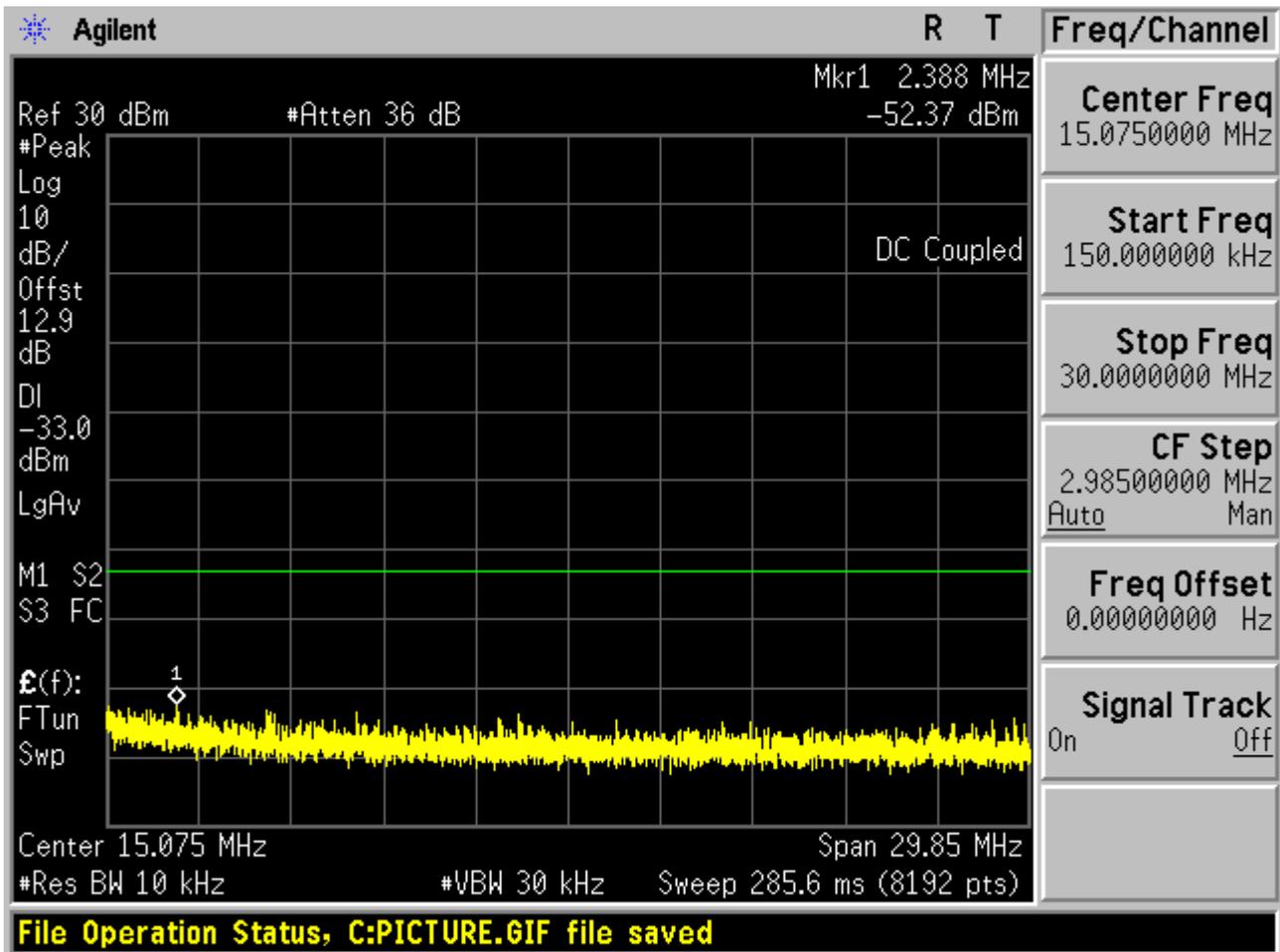


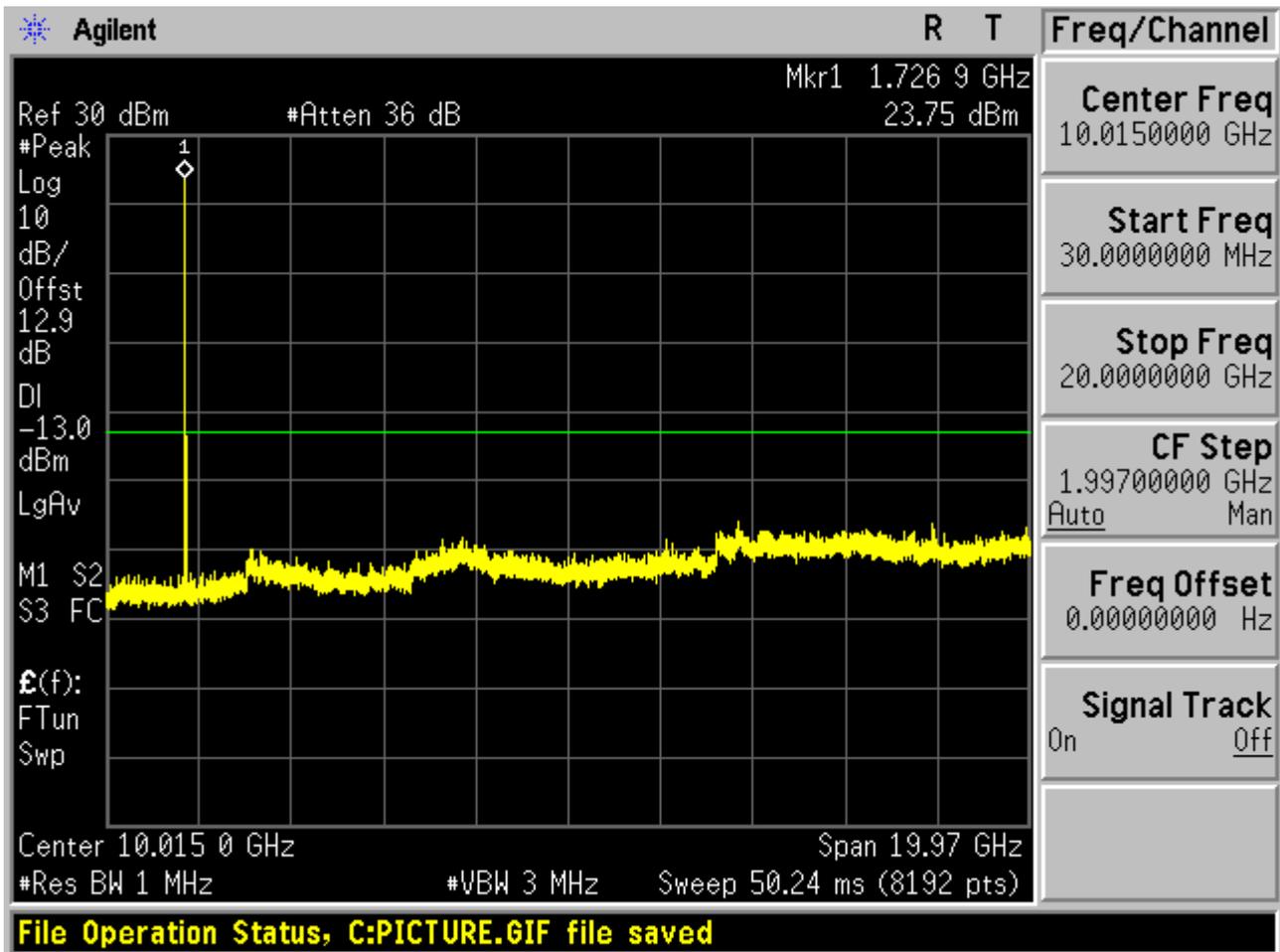


2.1.2.2 Channel = M

2.1.2.2.1 QPSK/1RBs /RB #0

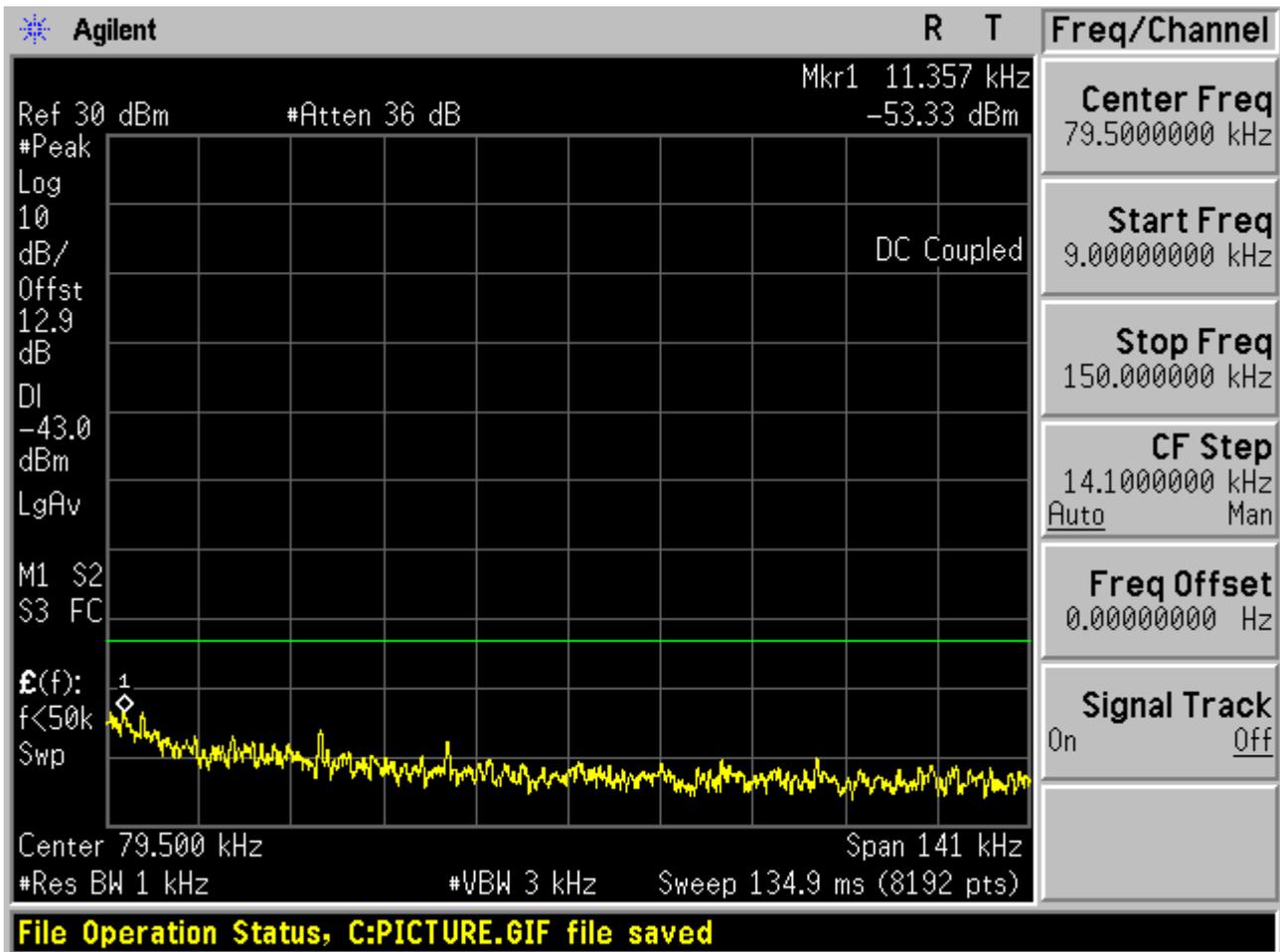


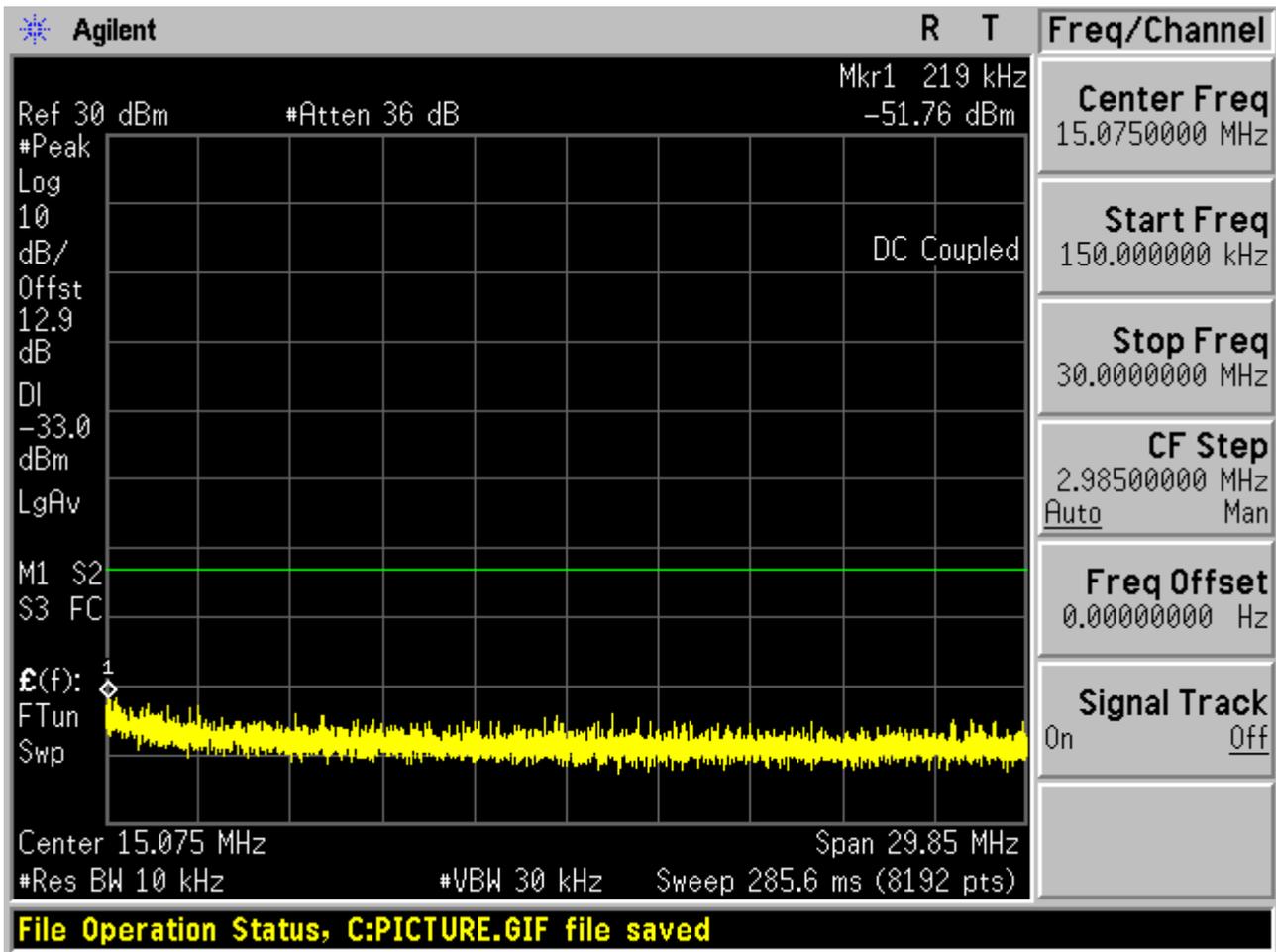


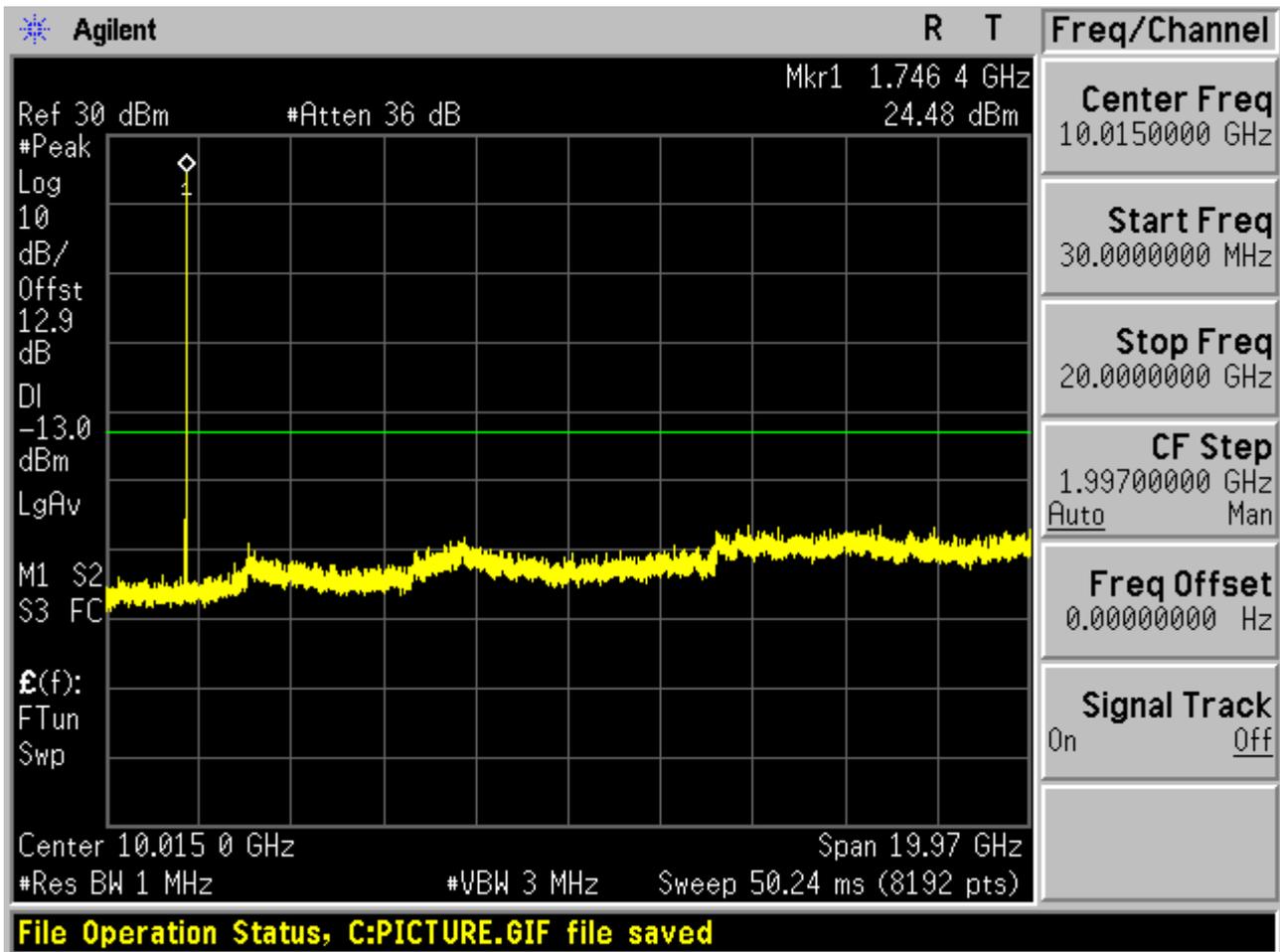


2.1.2.3 Channel = T

2.1.2.3.1 QPSK/1RBs /RB #0





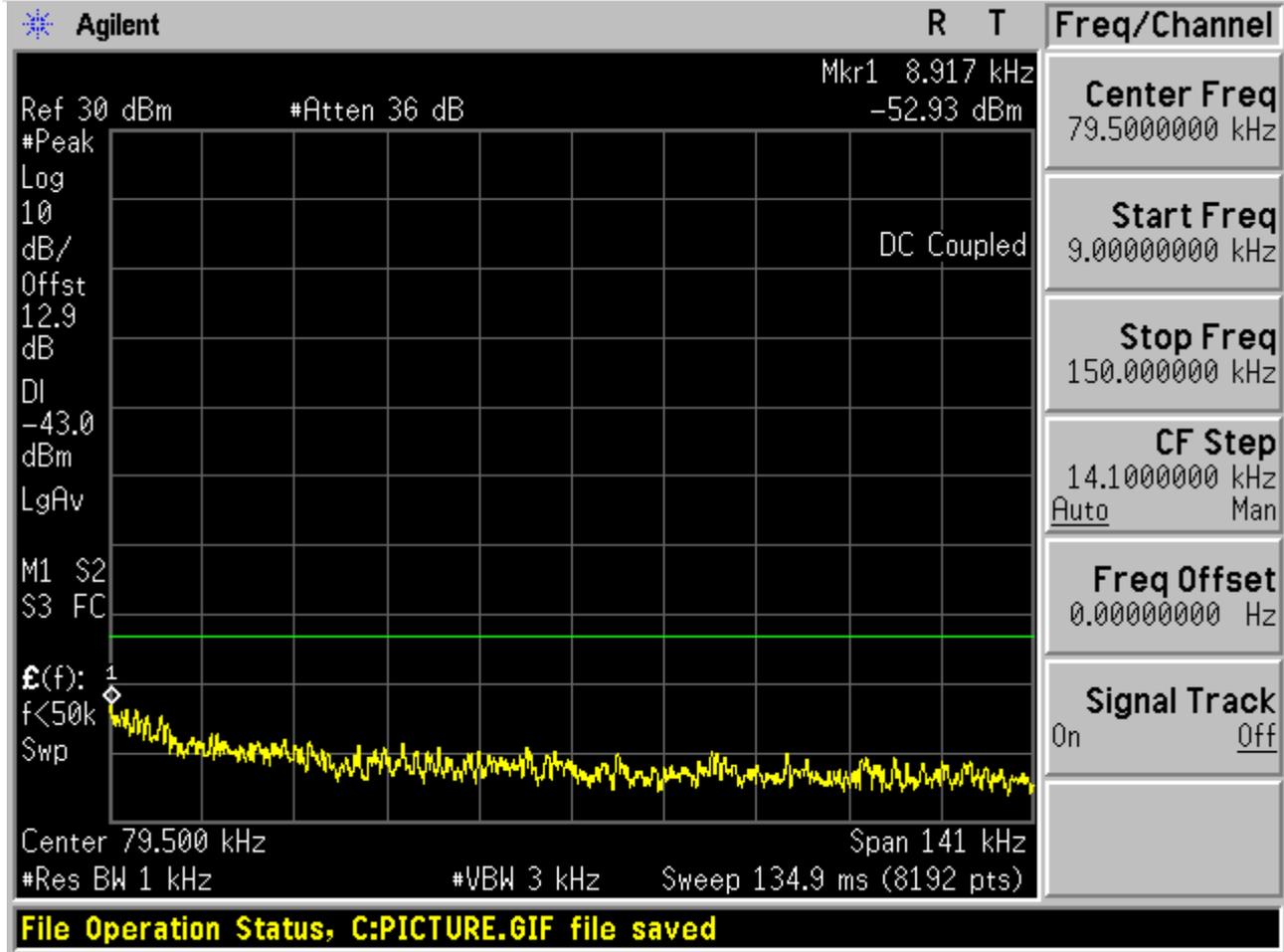


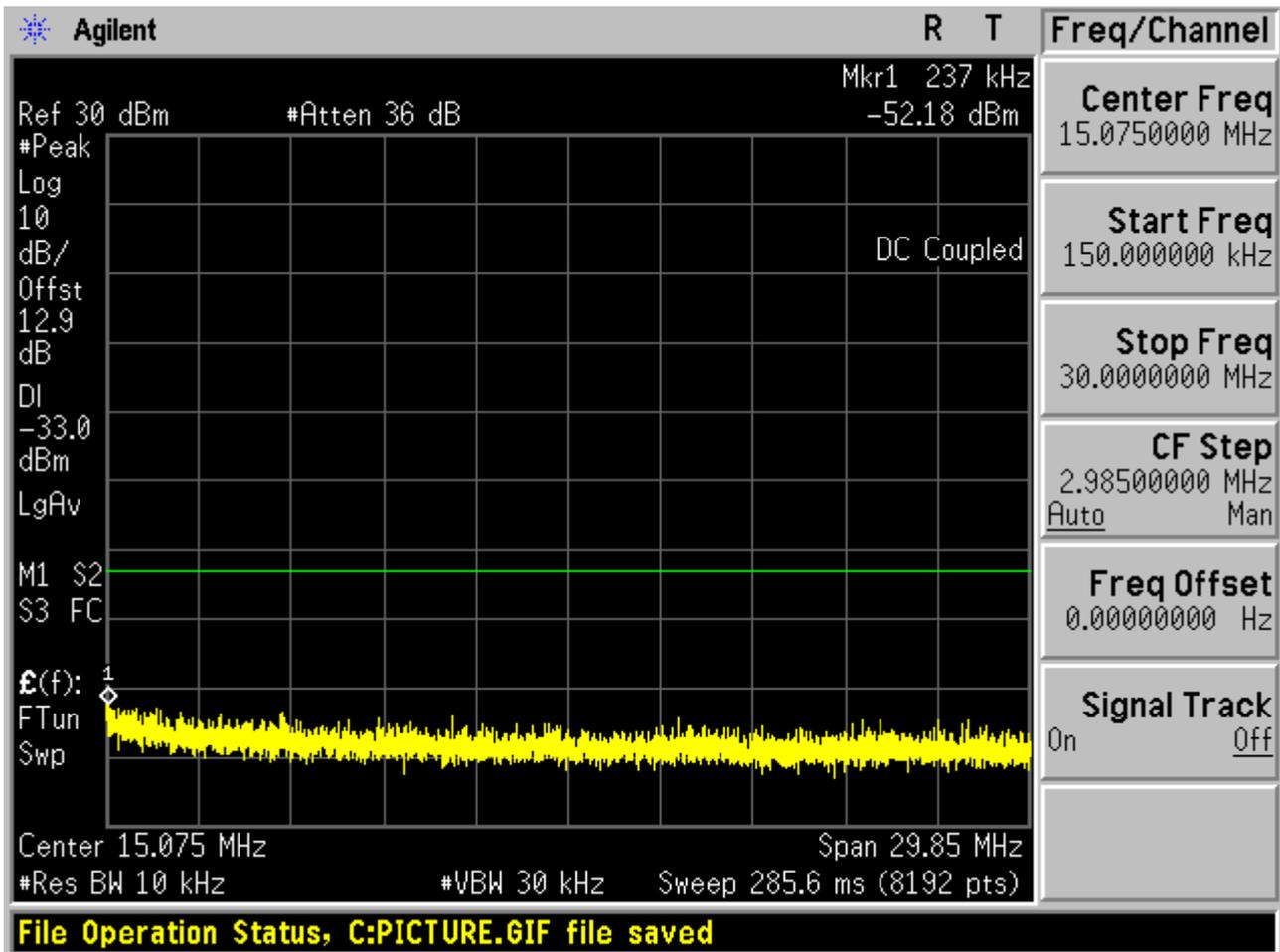
2.1.3 Channel Bandwidth = 15 MHz

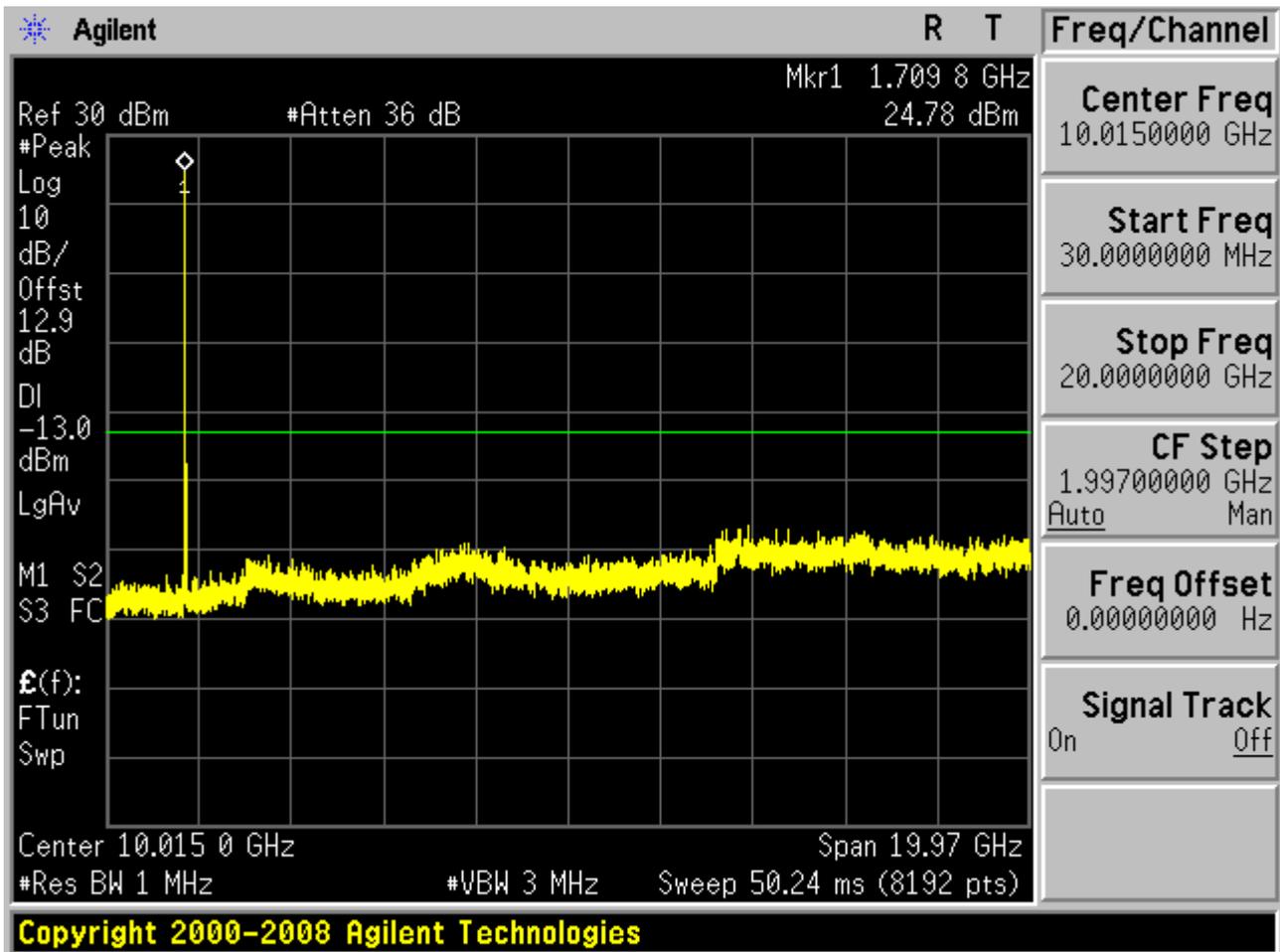
2.1.3.1 Channel = B



2.1.3.1.1 QPSK/1RBs /RB #0

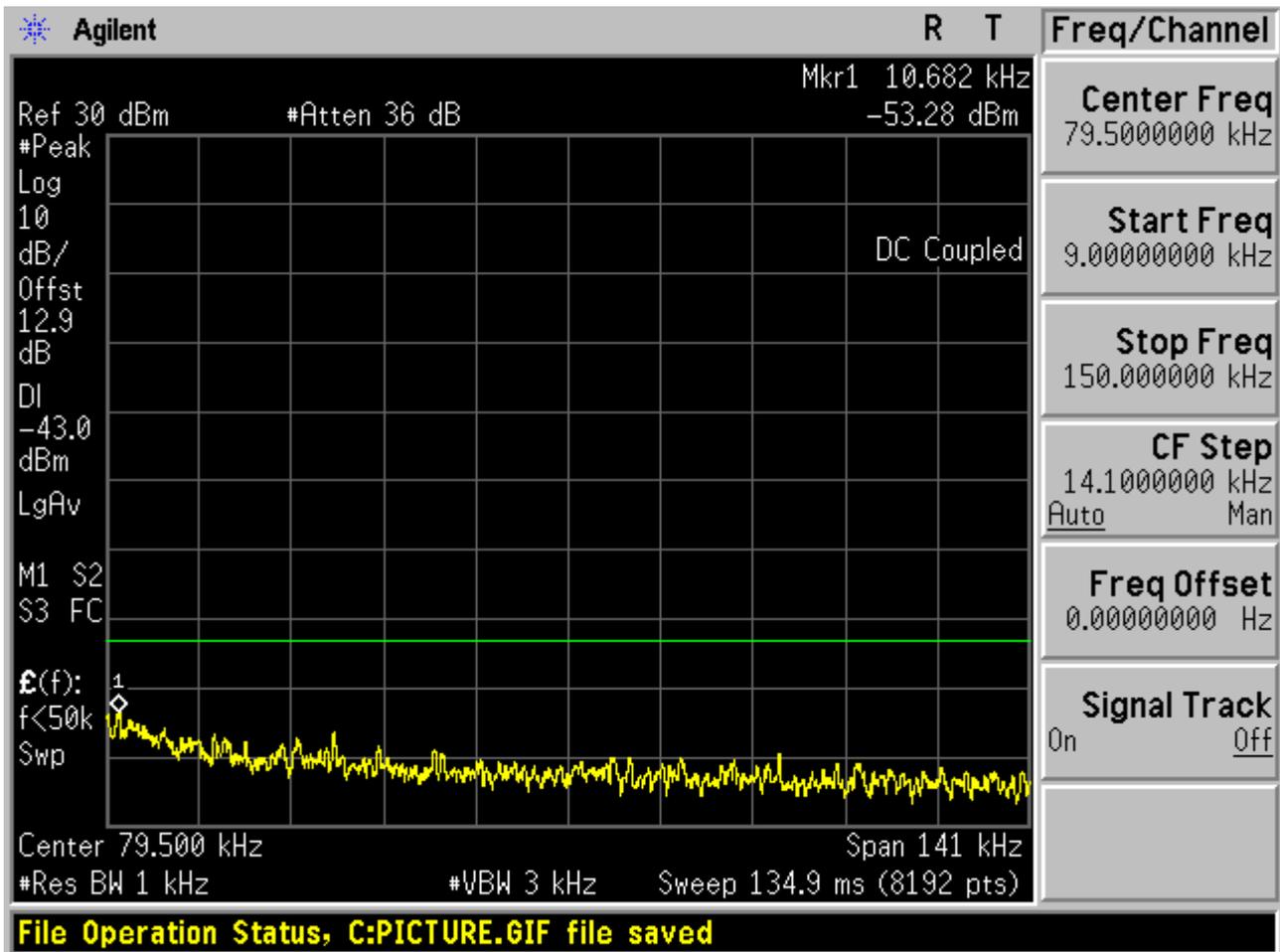


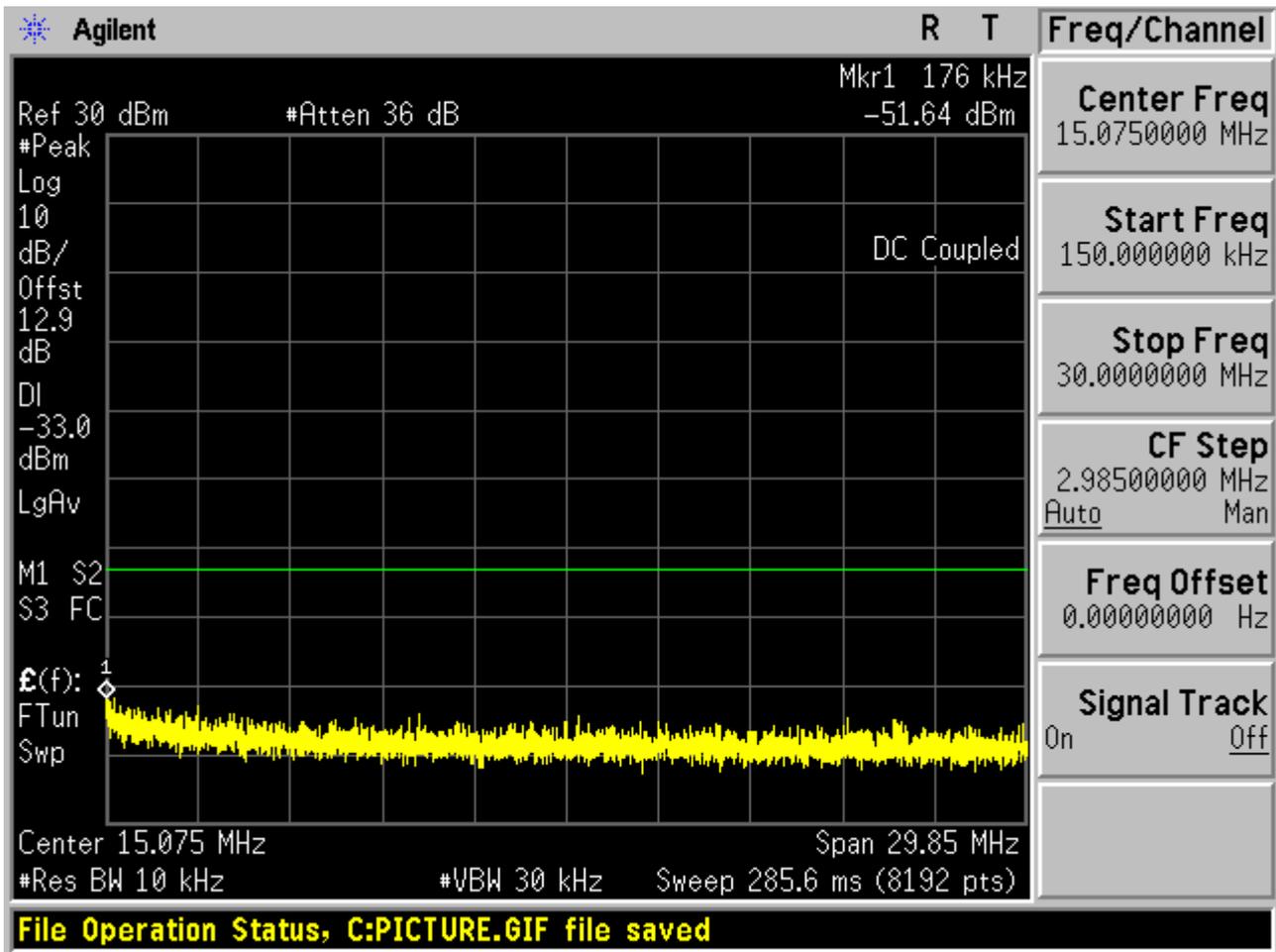


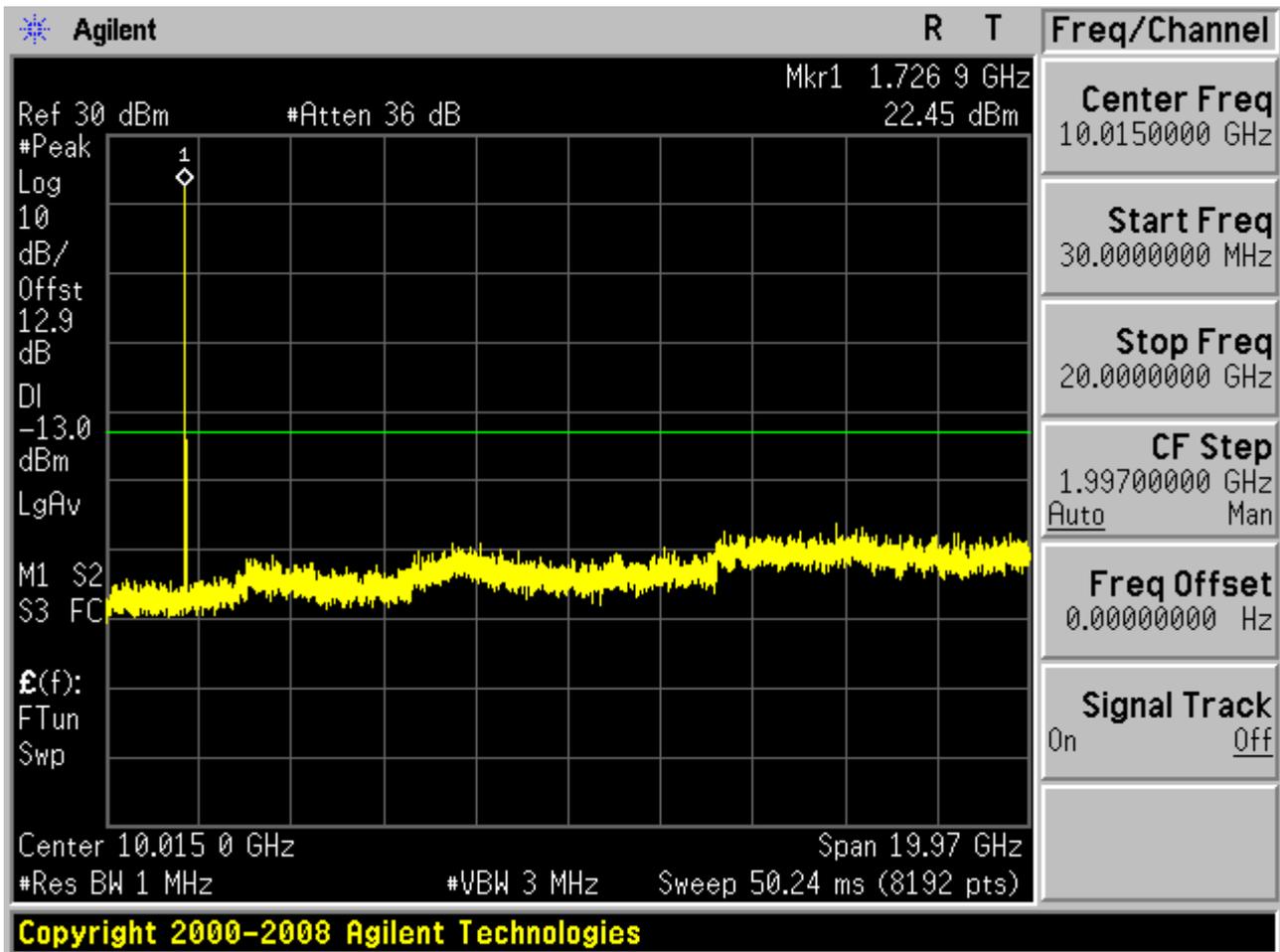


2.1.3.2 Channel = M

2.1.3.2.1 QPSK/1RBs /RB #0

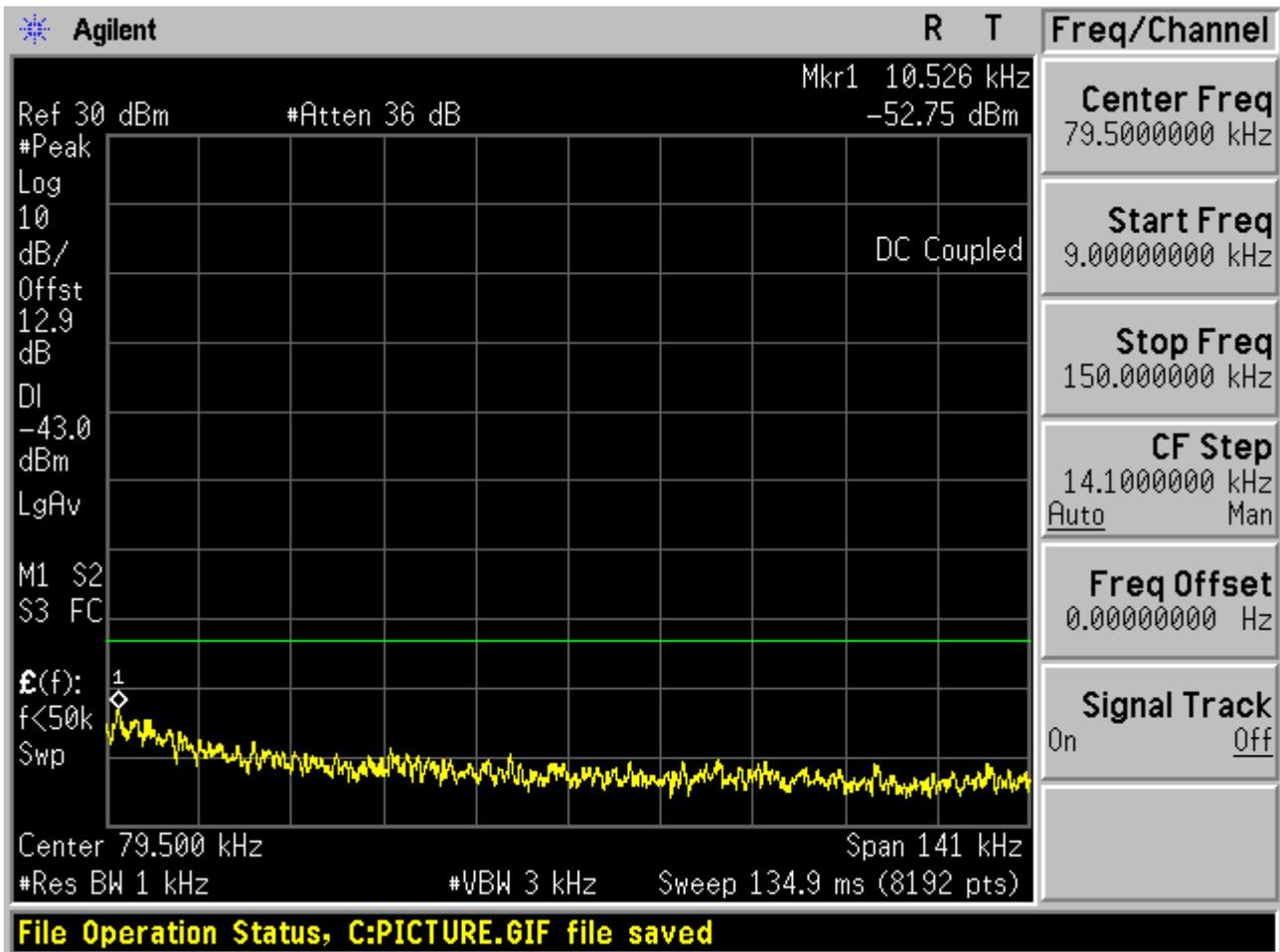


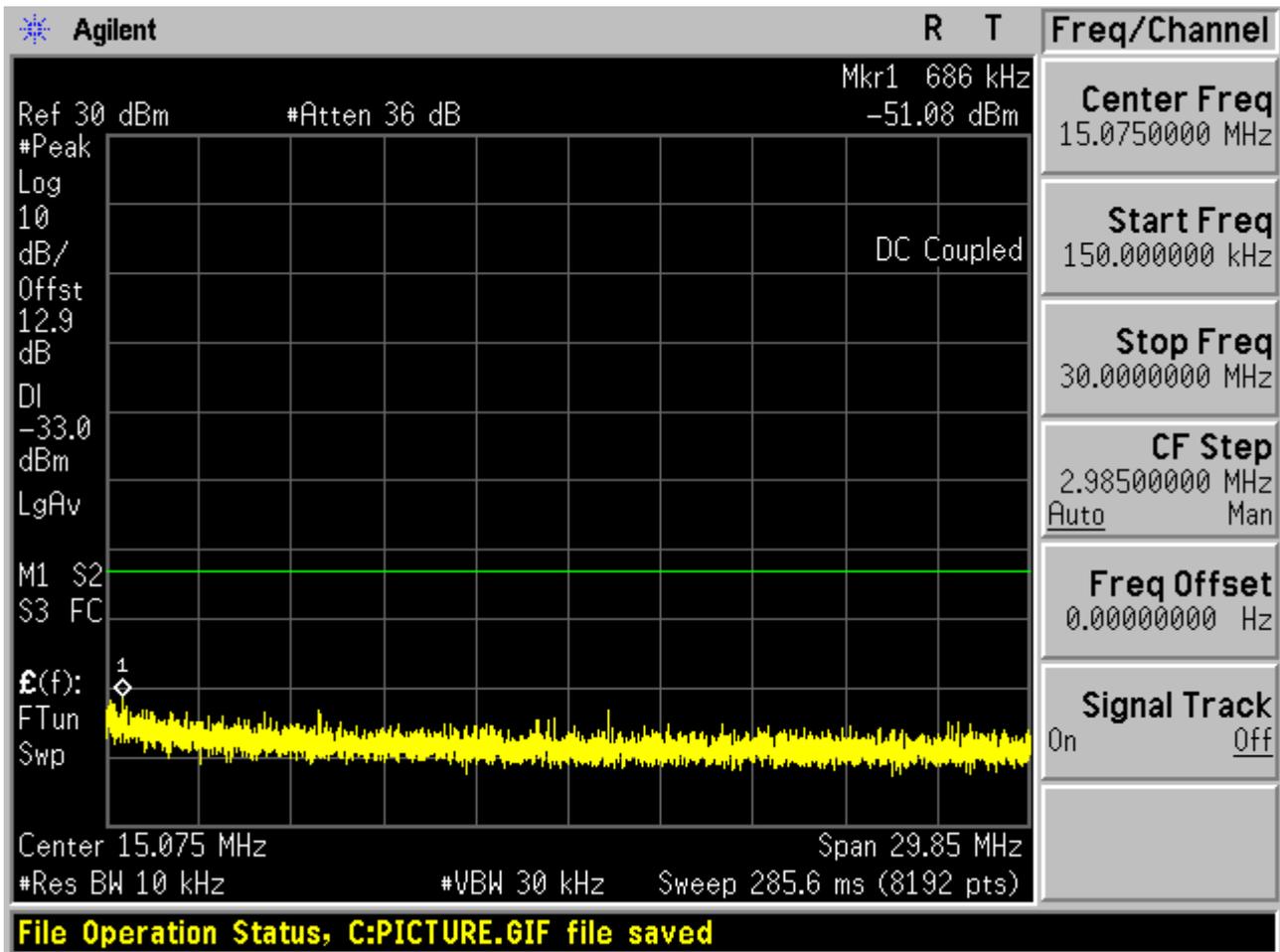


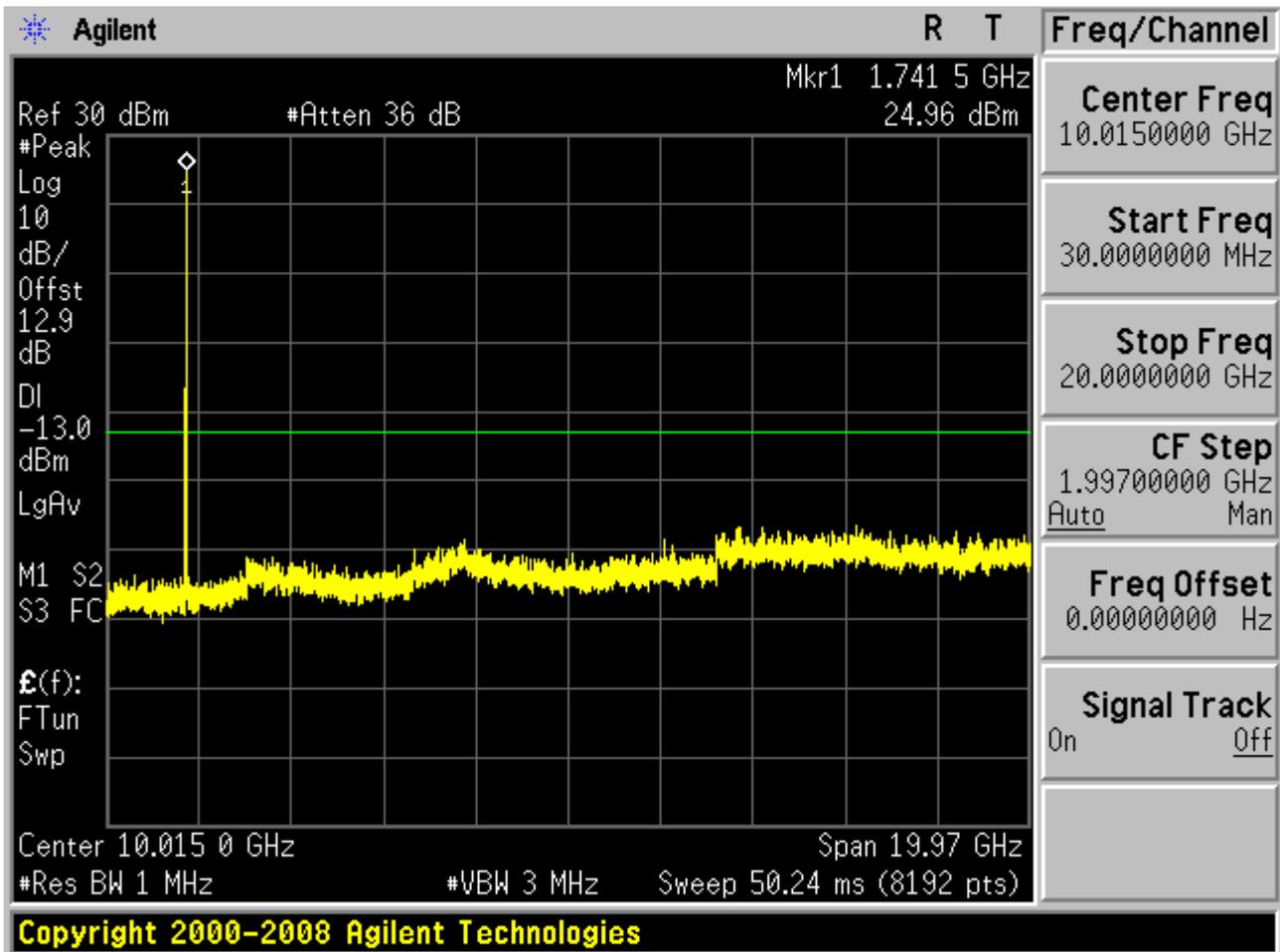


2.1.3.3 Channel = T

2.1.3.3.1 QPSK/1RBs /RB #0





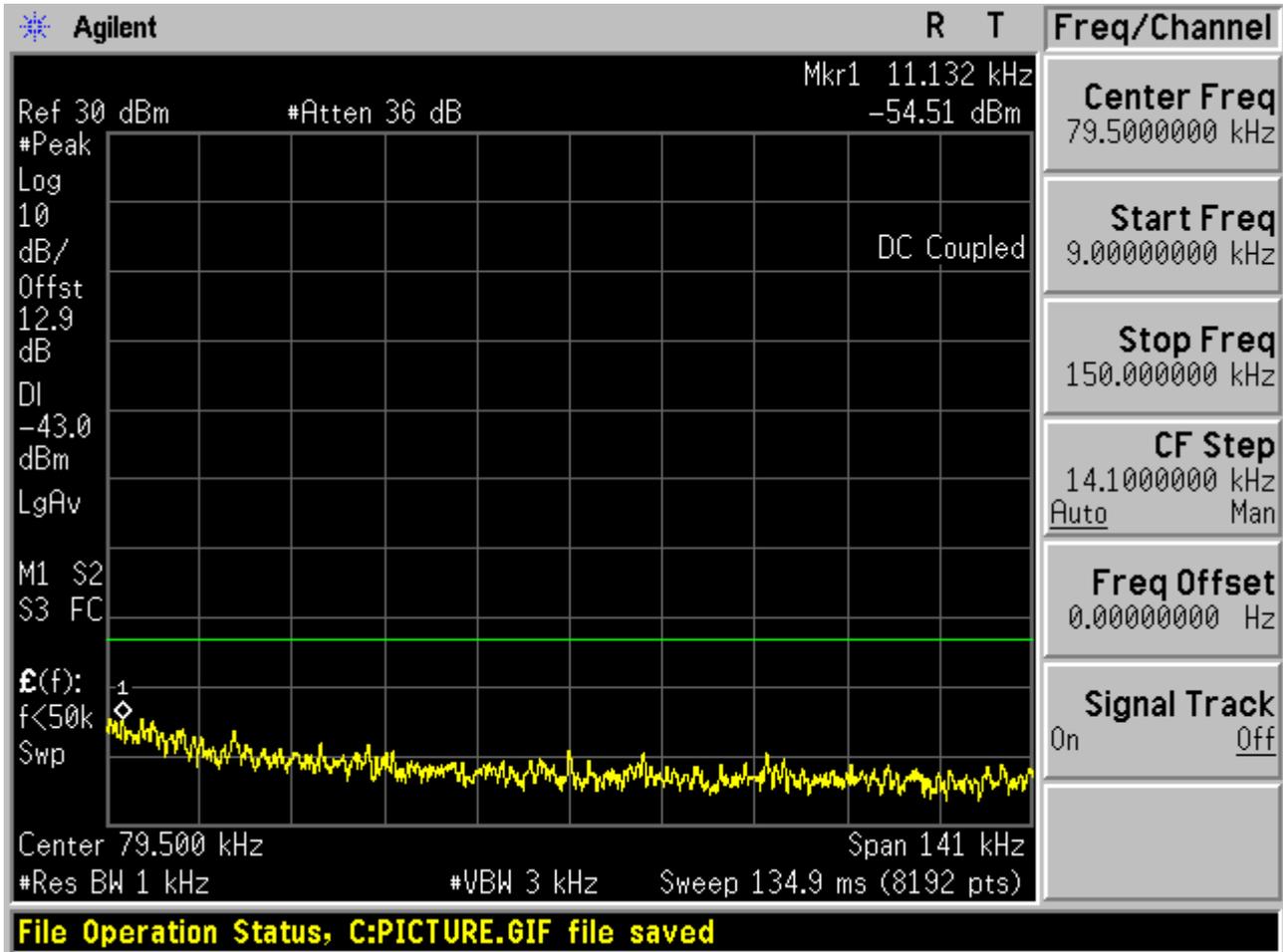


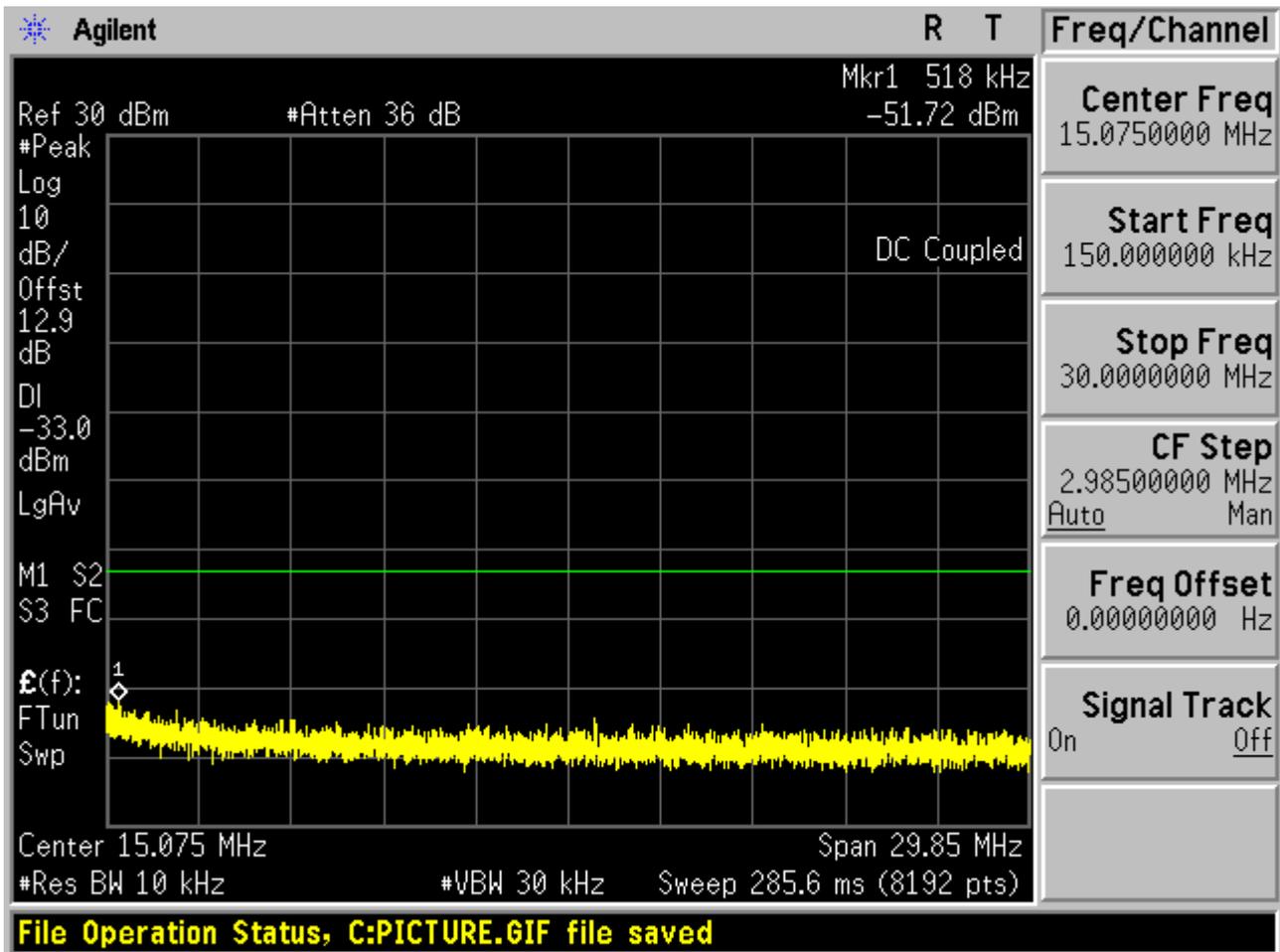


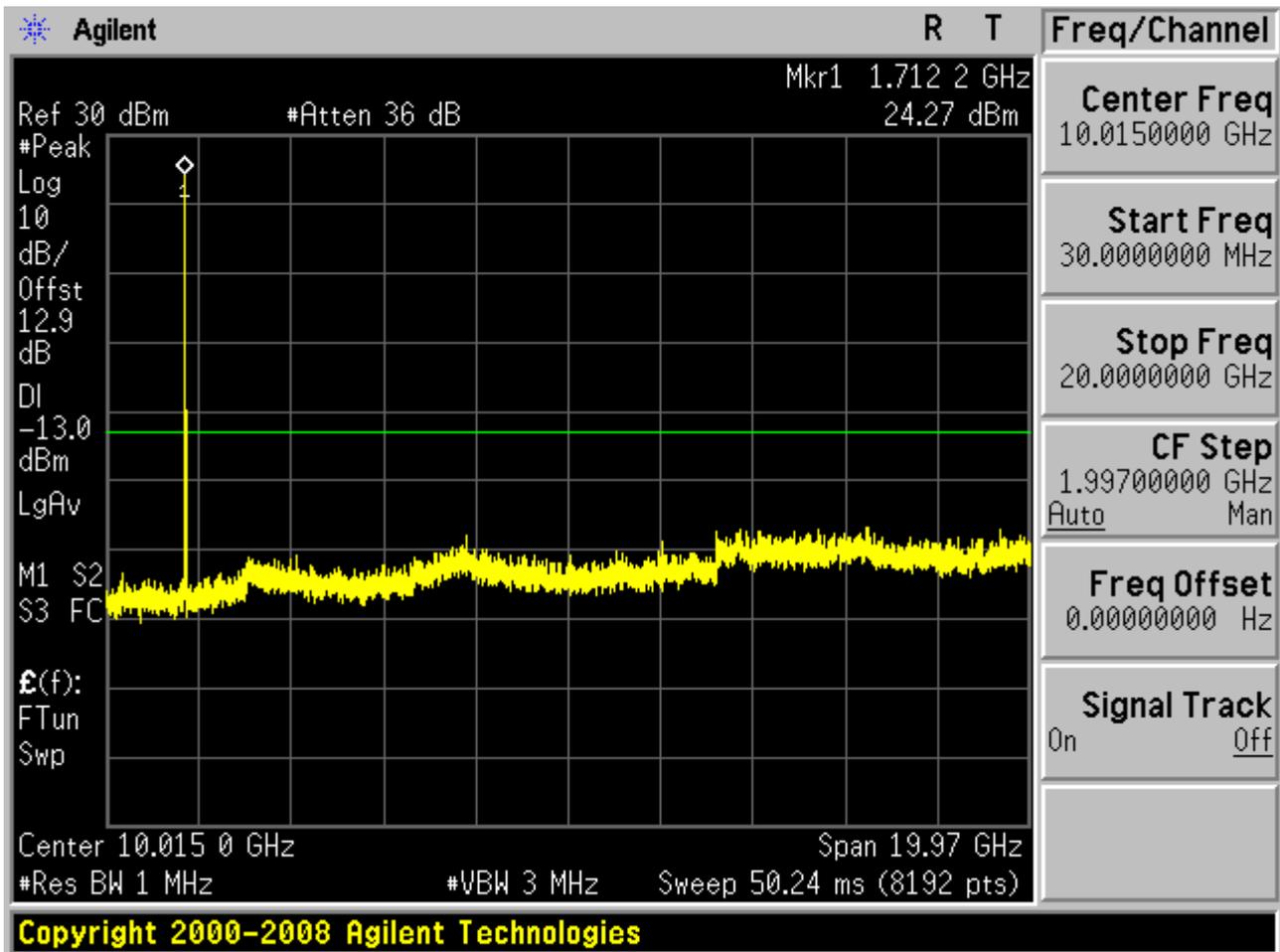
2.1.4 Channel Bandwidth = Highest (20 MHz)

2.1.4.1 Channel = B

2.1.4.1.1 QPSK/1RBs /RB #0



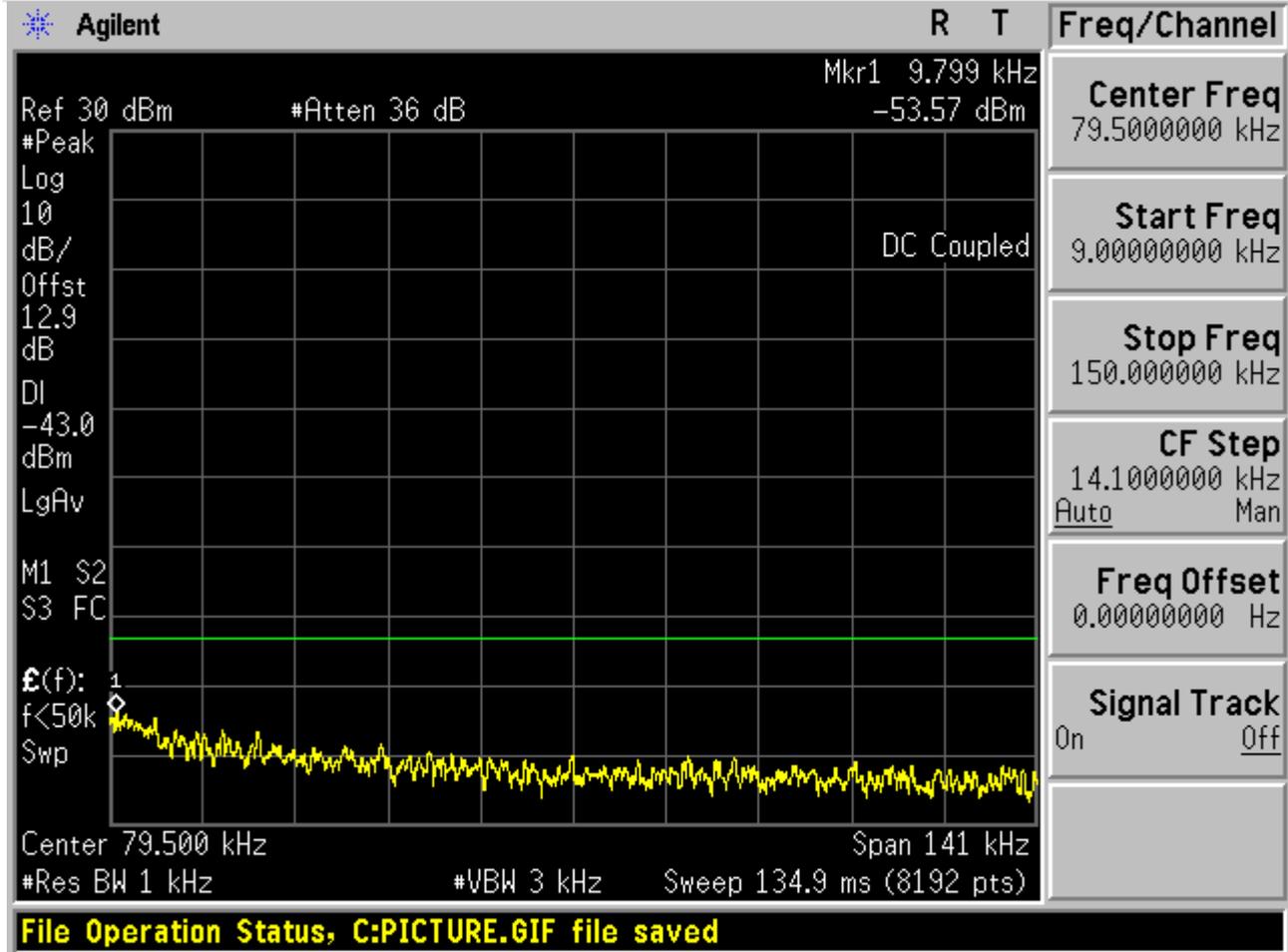


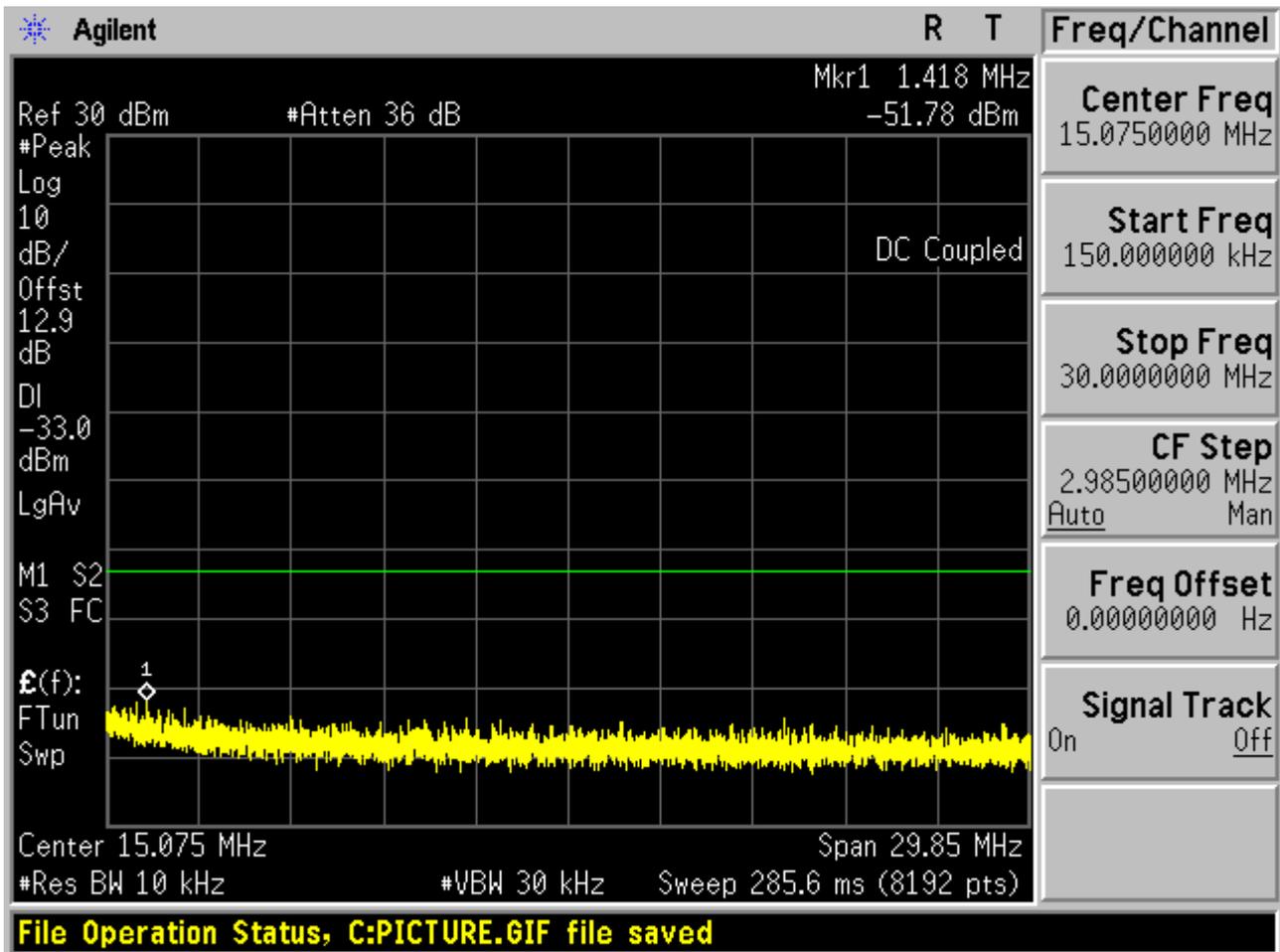


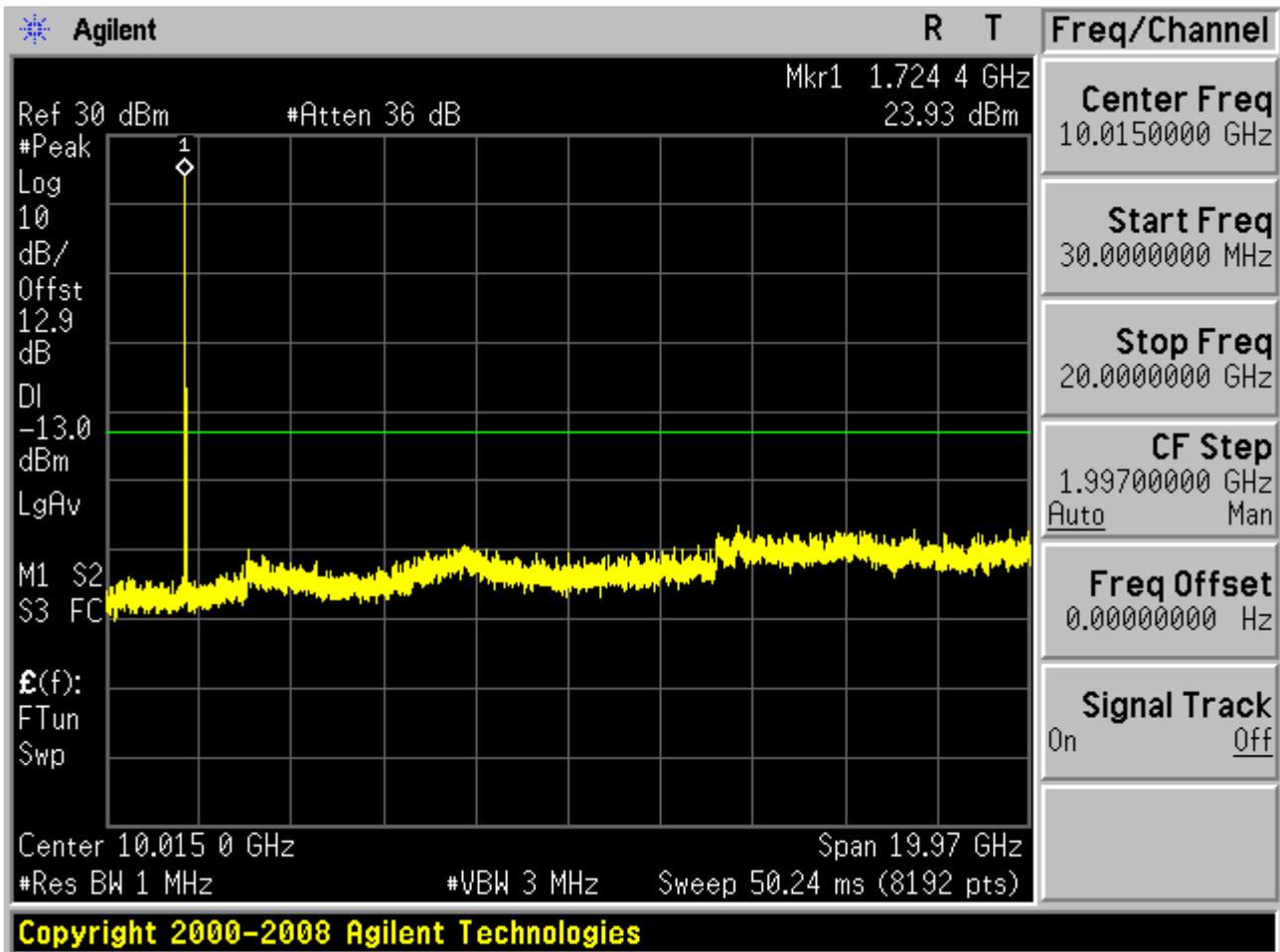
2.1.4.2 Channel = M



2.1.4.2.1 QPSK/1RBs /RB #0

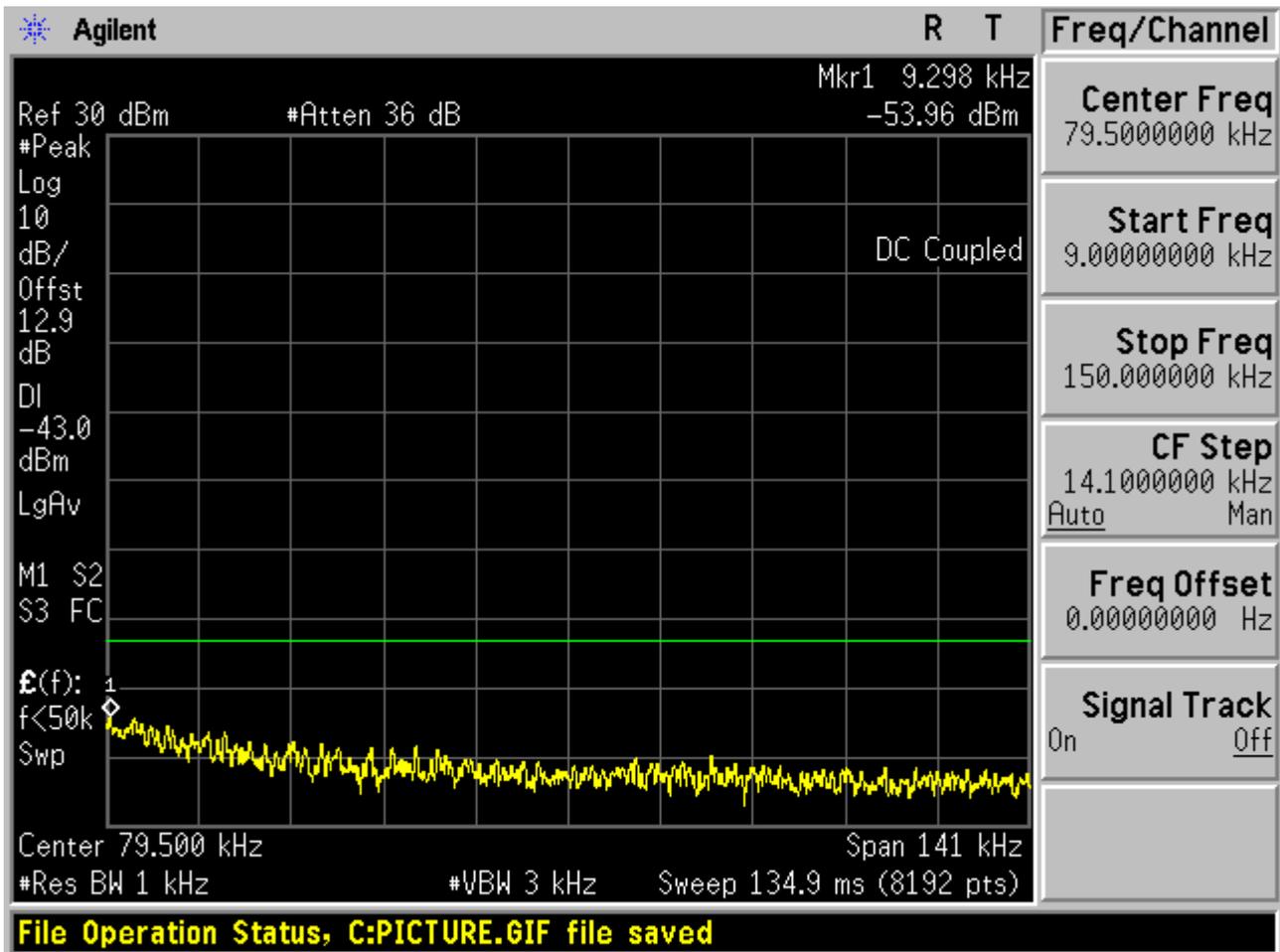


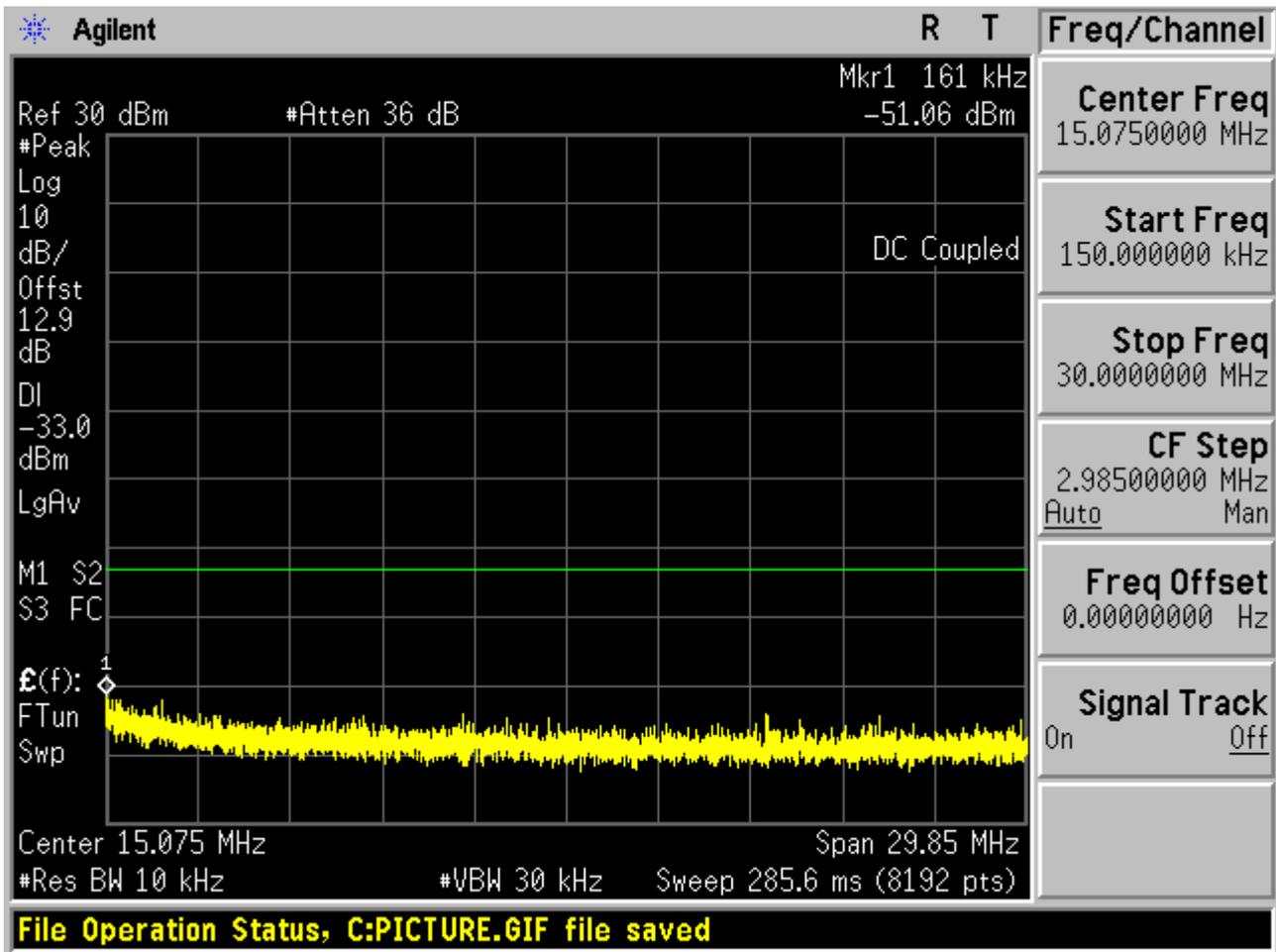


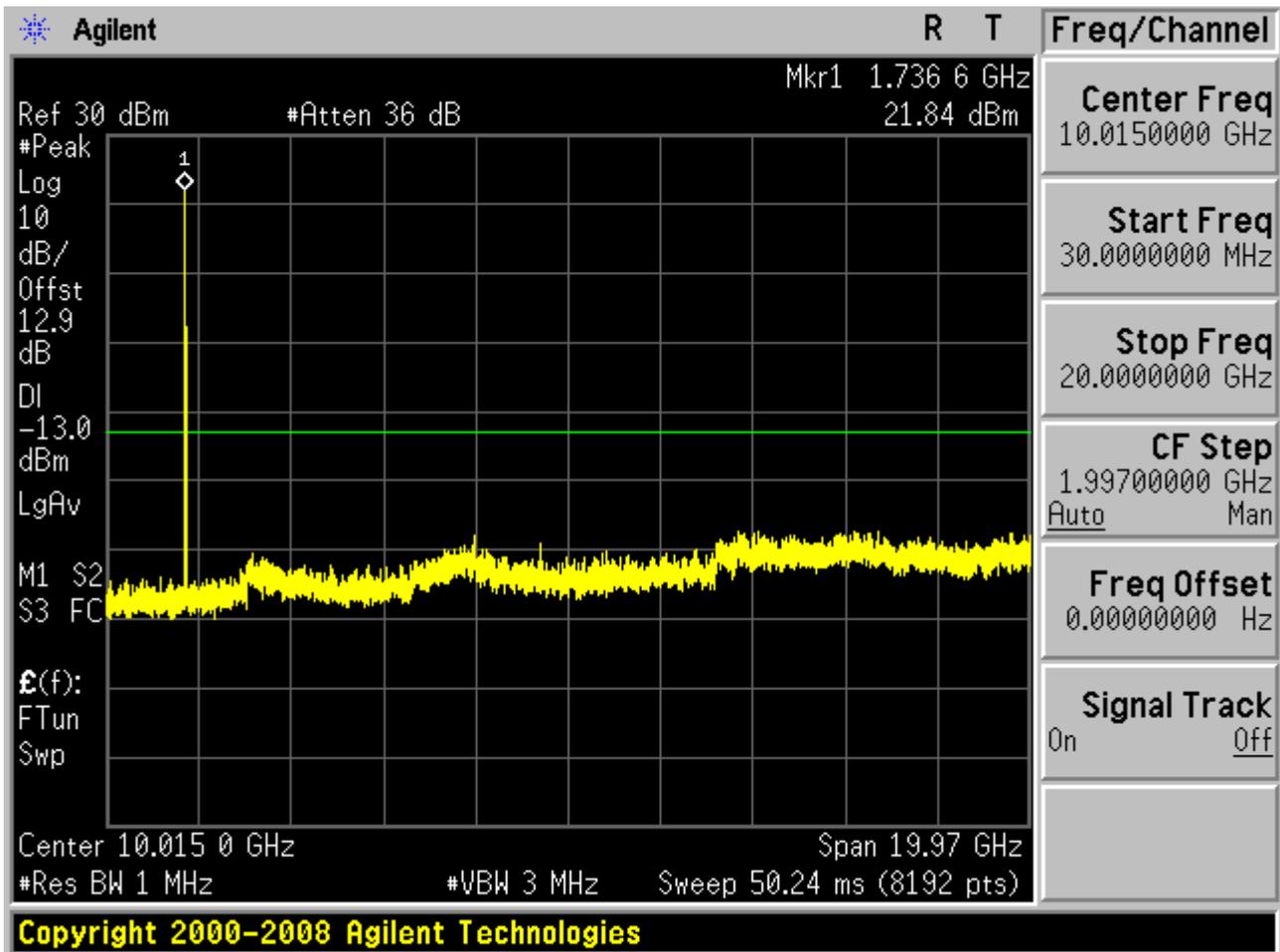


2.1.4.3 Channel = T

2.1.4.3.1 QPSK/1RBs /RB #0







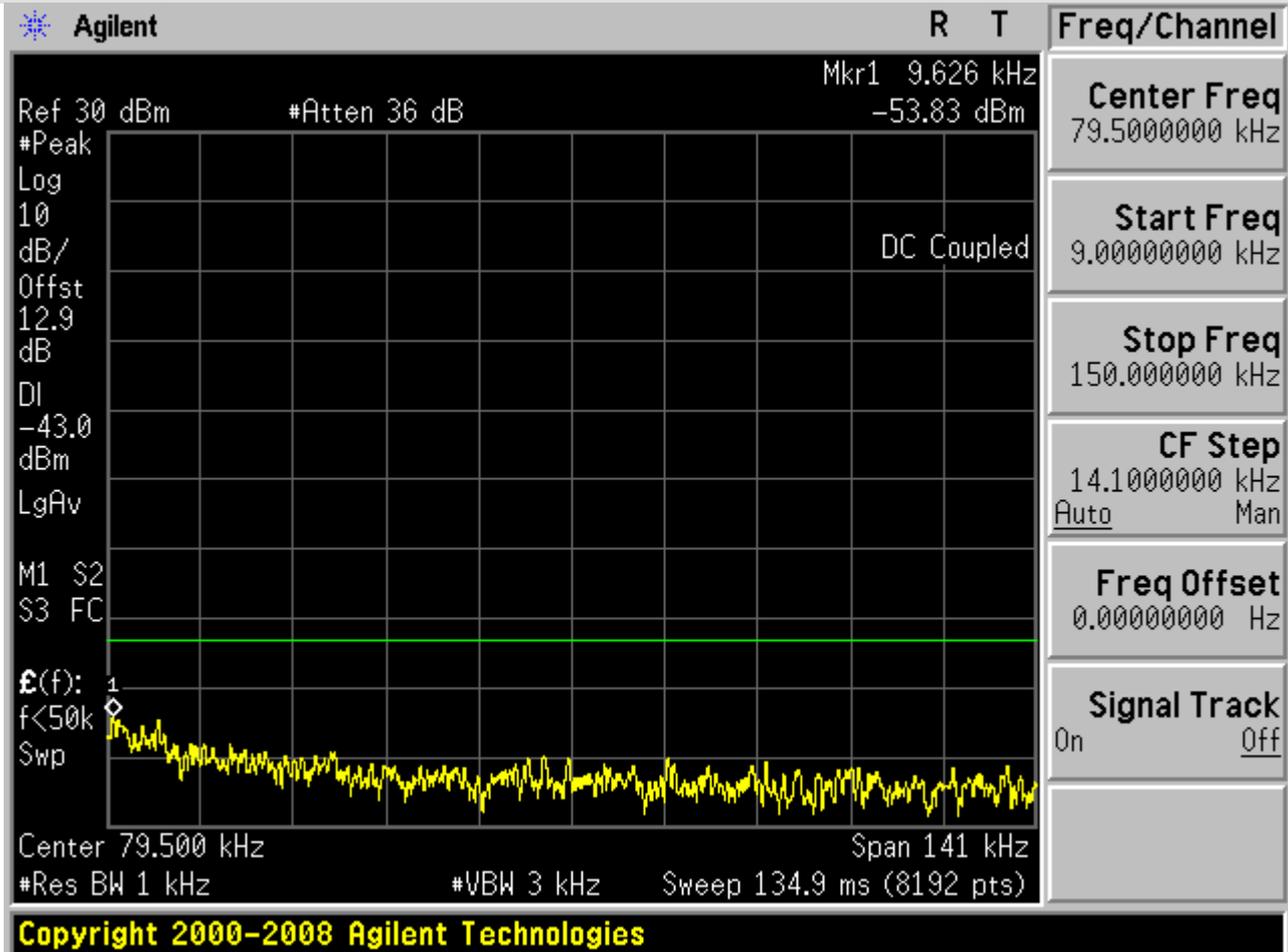


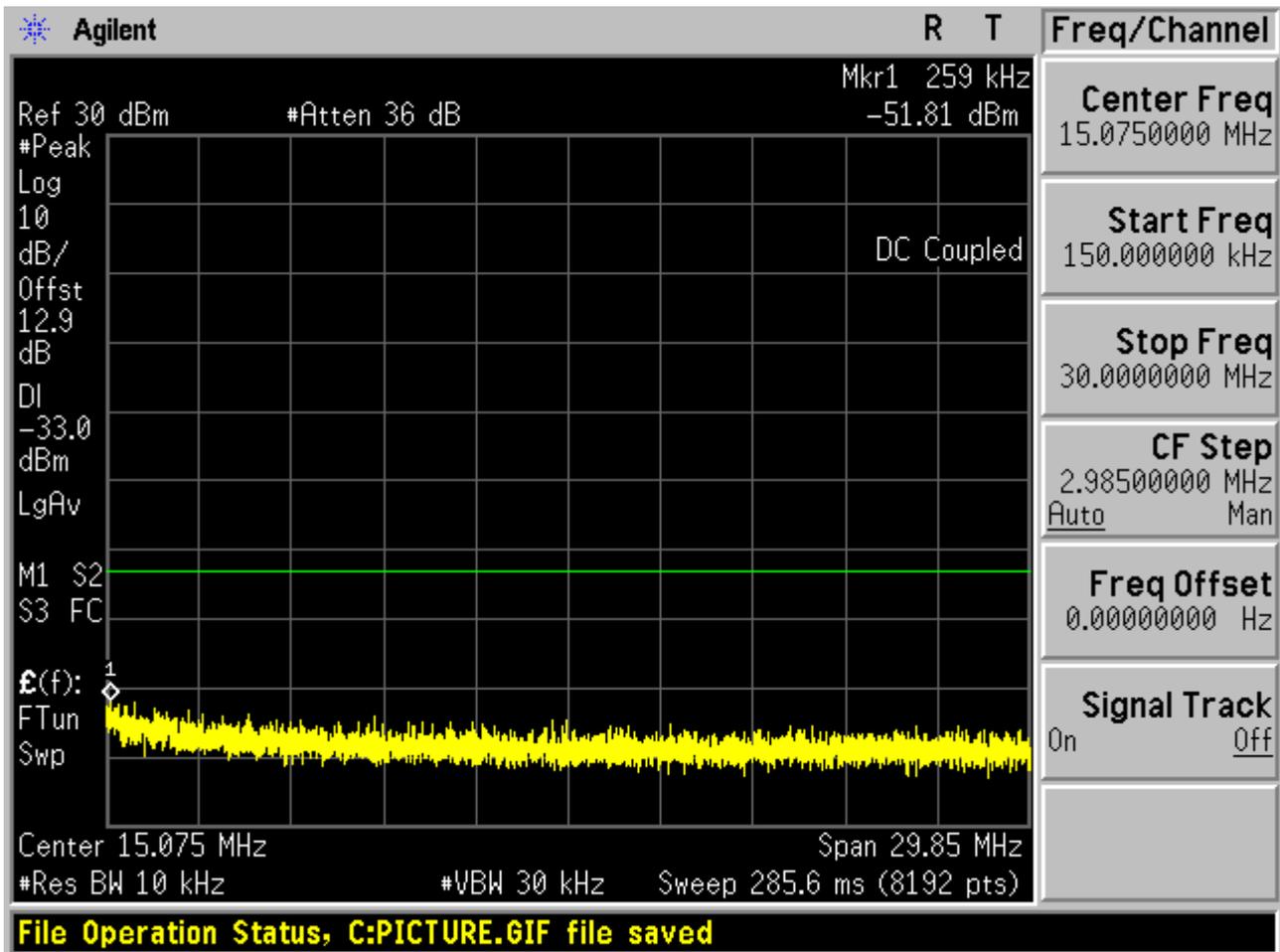
2.2 Test Mode=TM5

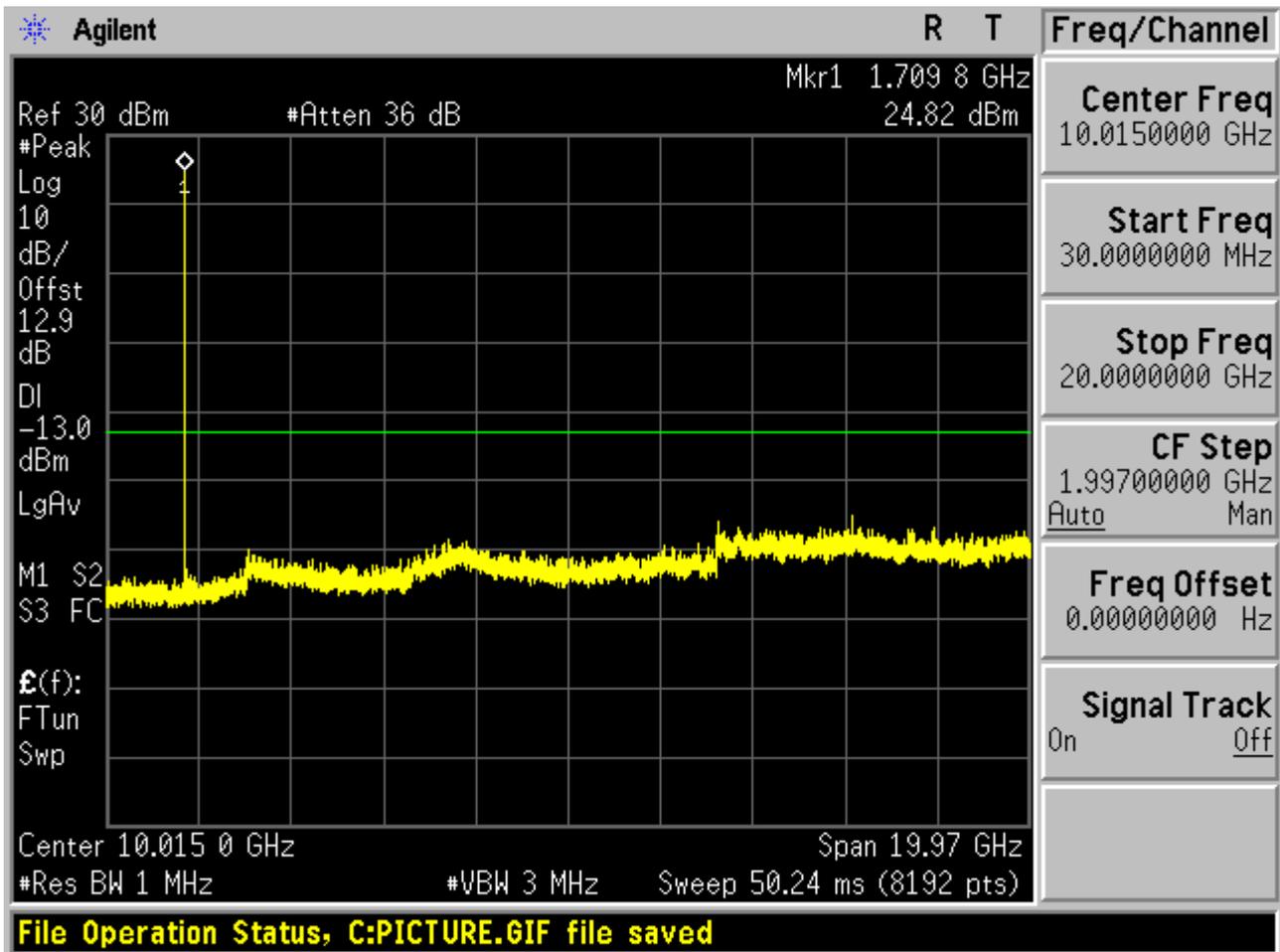
2.2.1 Channel Bandwidth = Lowest (5 MHz)

2.2.1.1 Channel = B

2.2.1.1.1 QPSK/1RBs /RB #0



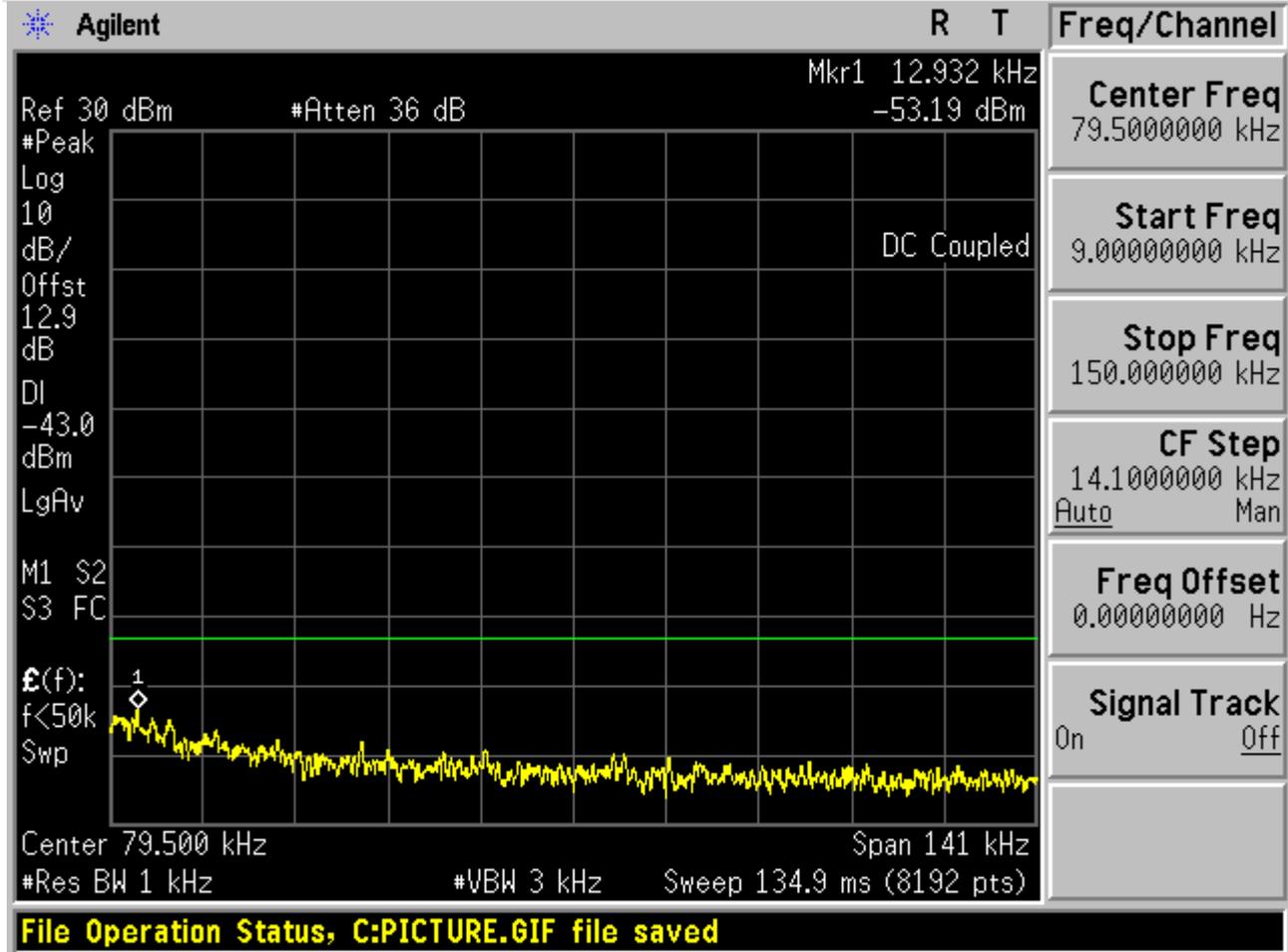


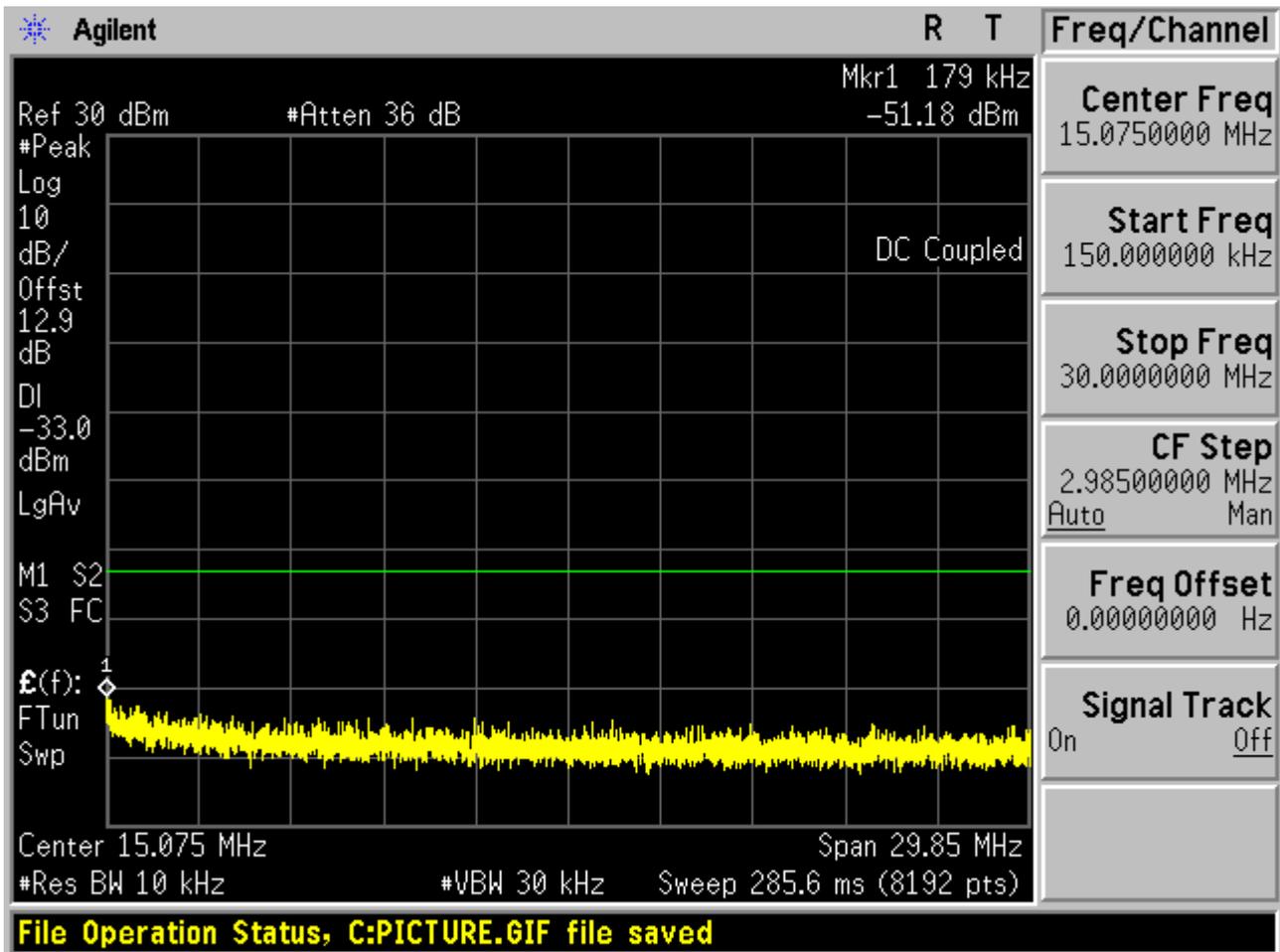


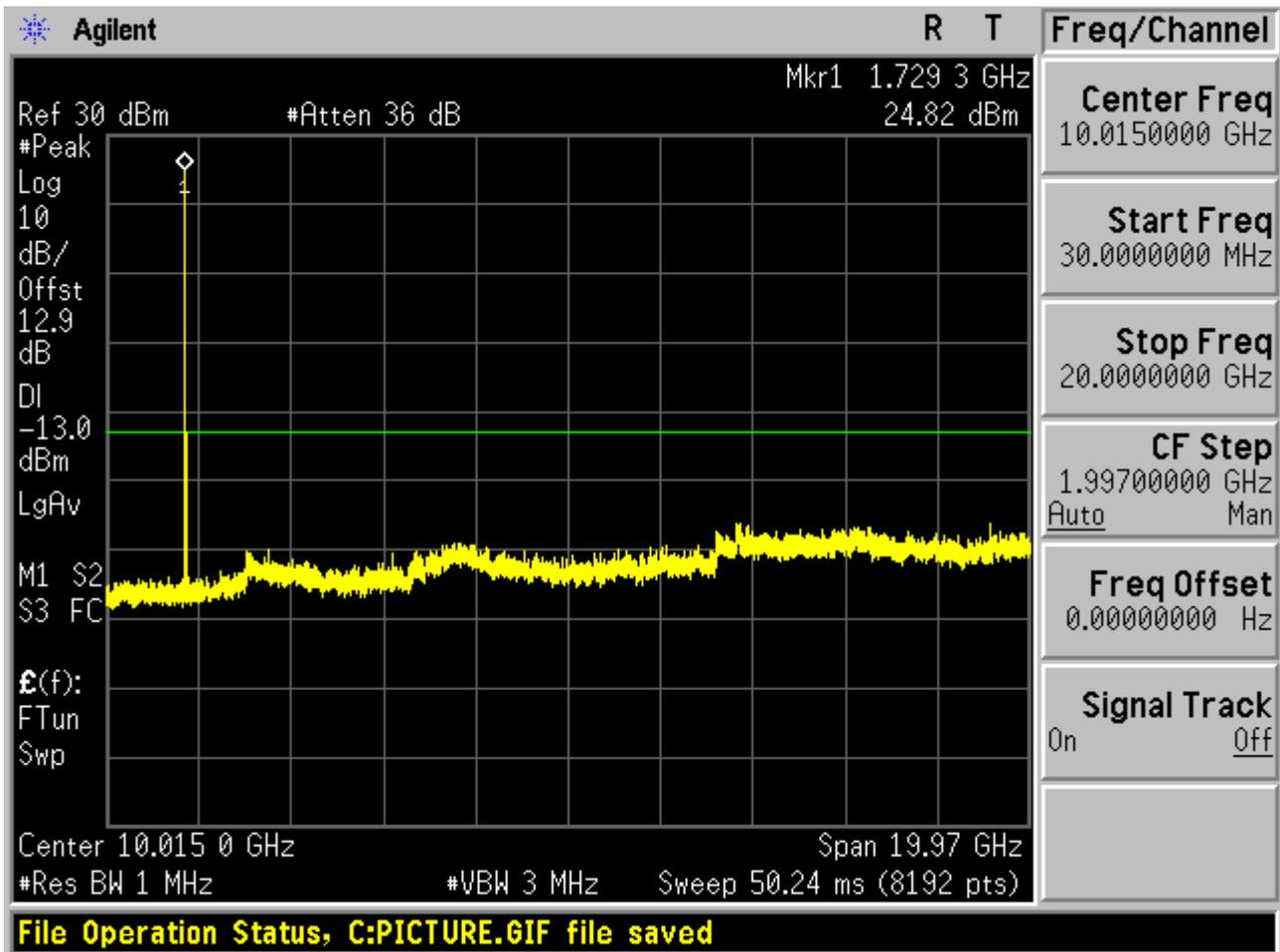
2.2.1.2 Channel = M



2.2.1.2.1 QPSK/1RBs /RB #0



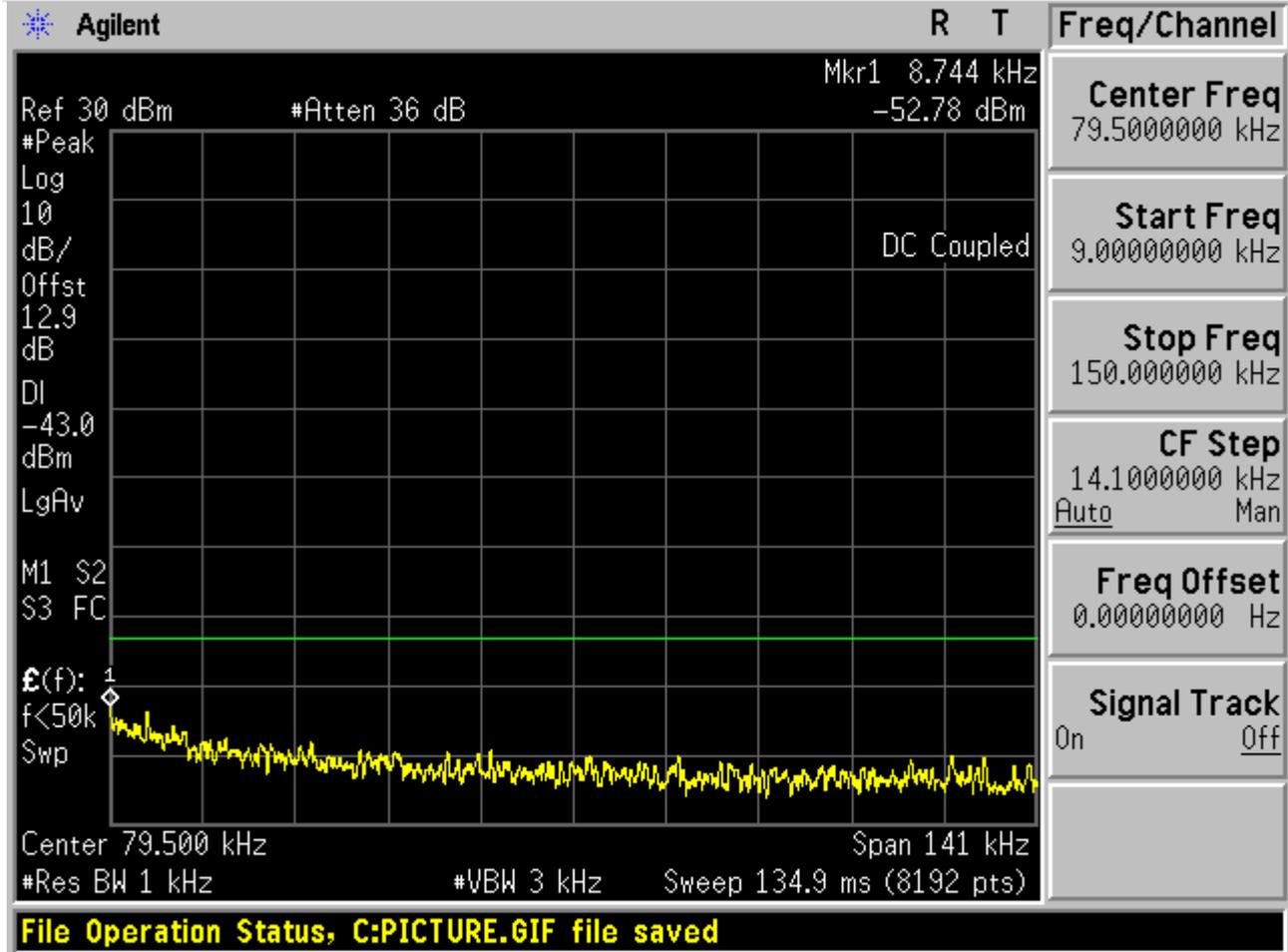


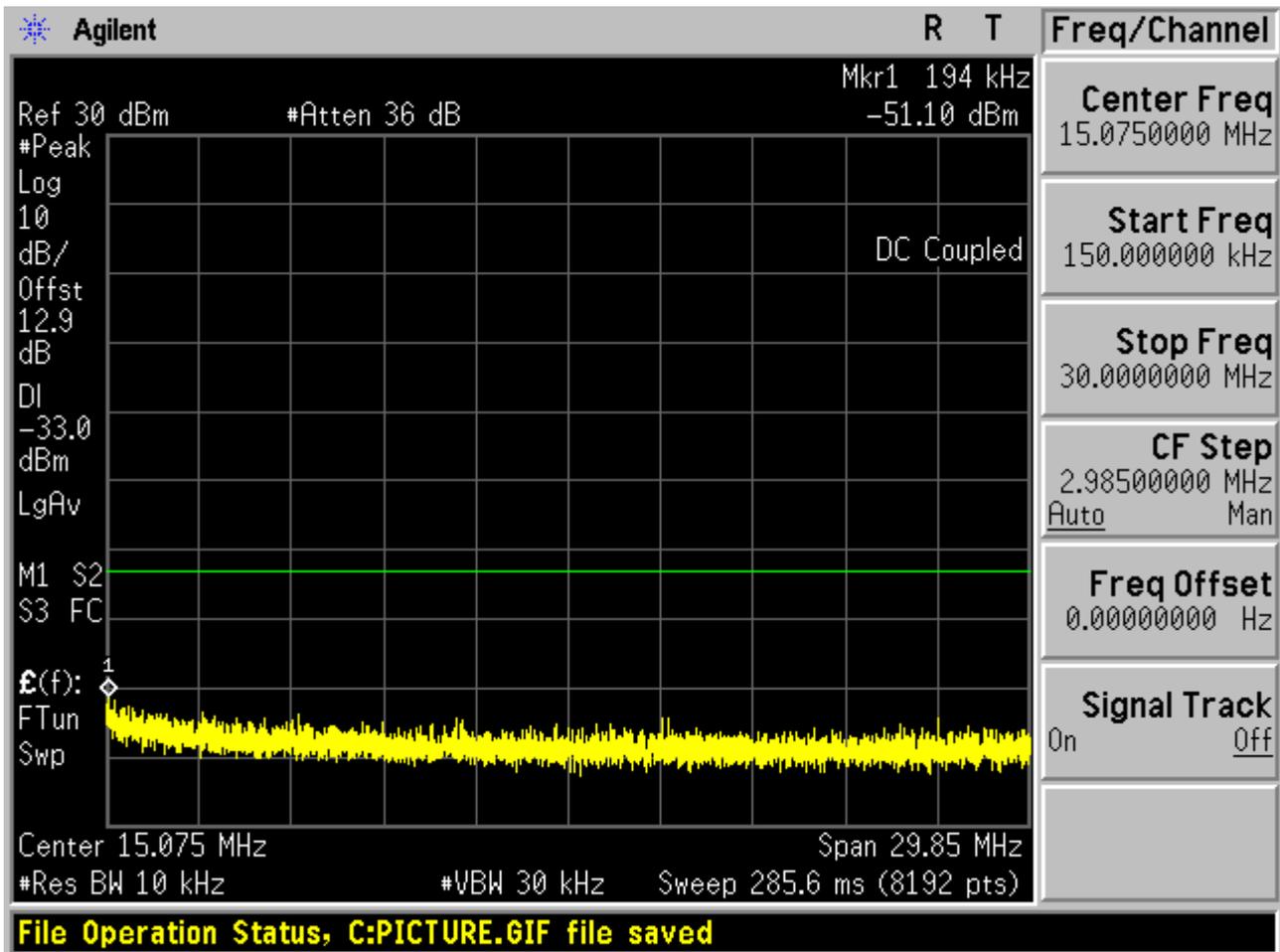


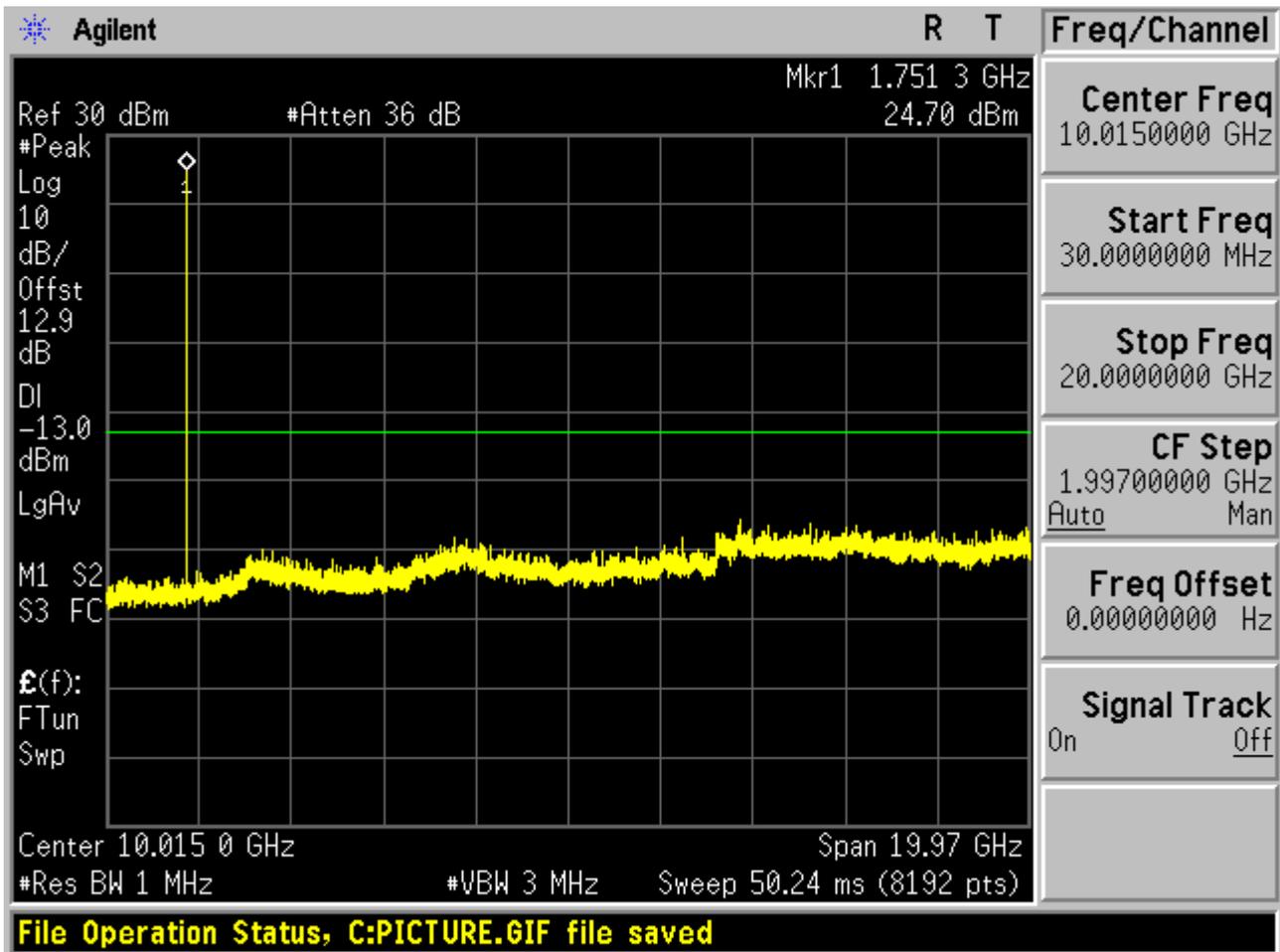
2.2.1.3 Channel = T



2.2.1.3.1 QPSK/1RBs /RB #0





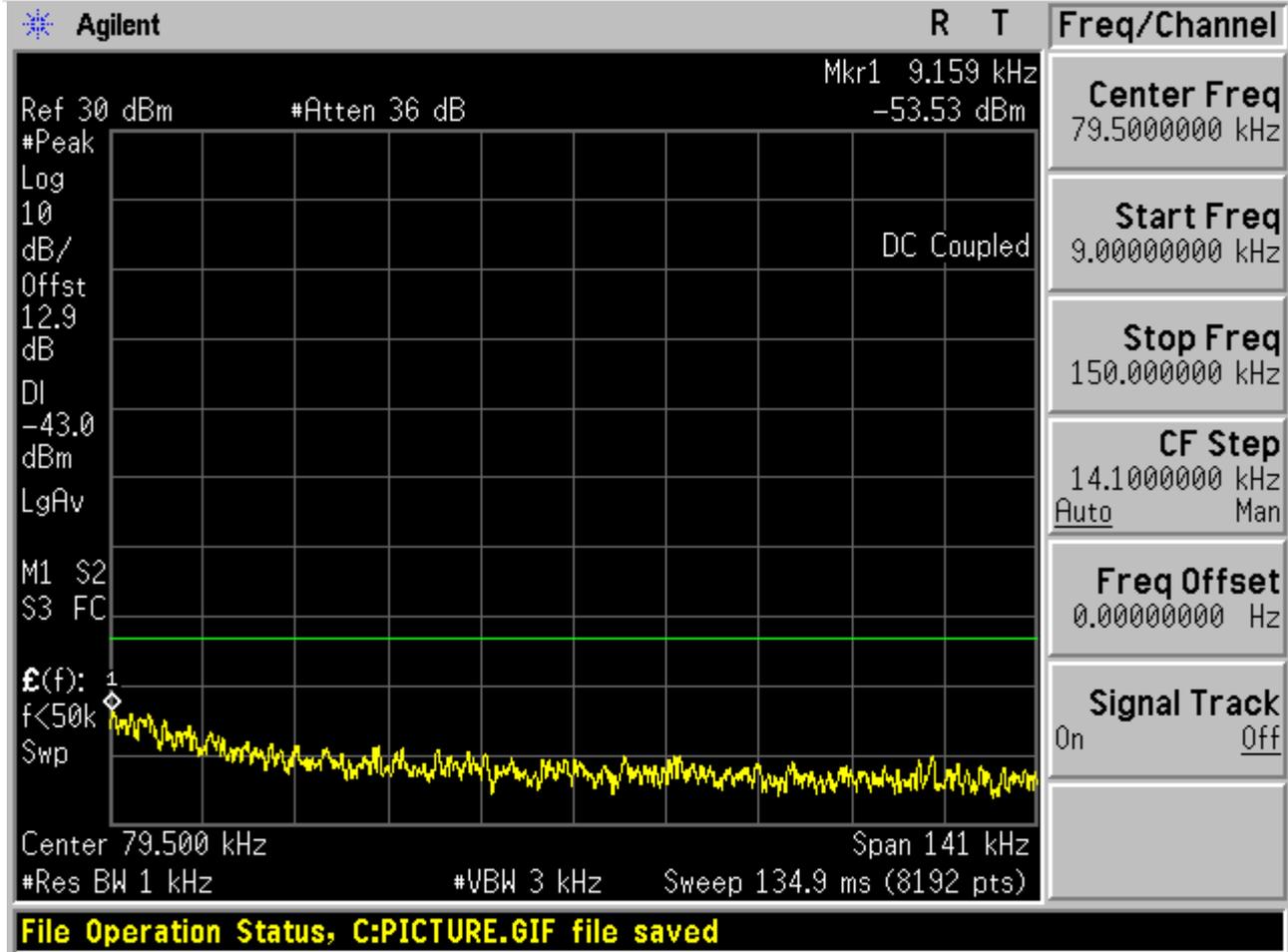


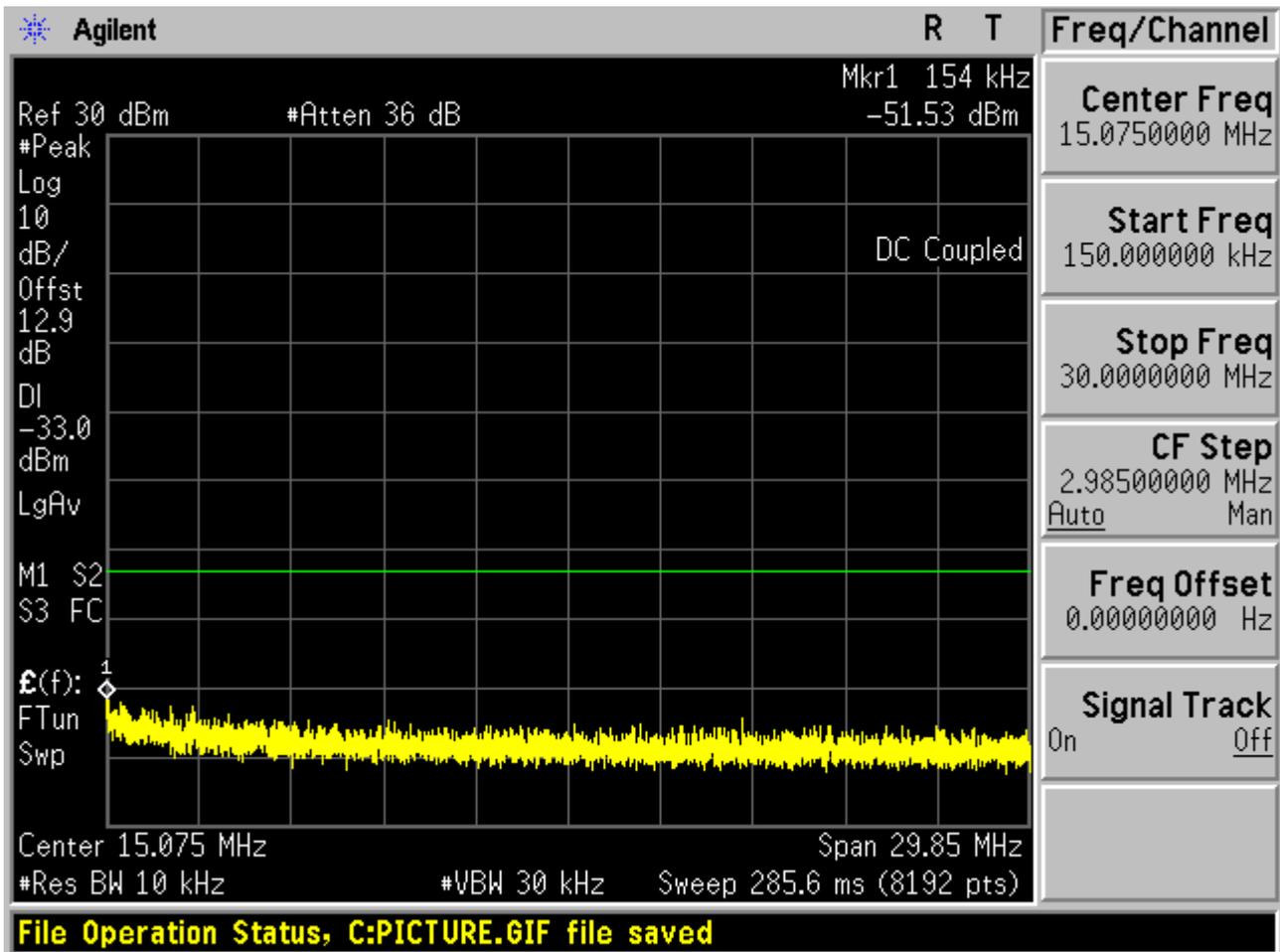
2.2.2 Channel Bandwidth = 10 MHz

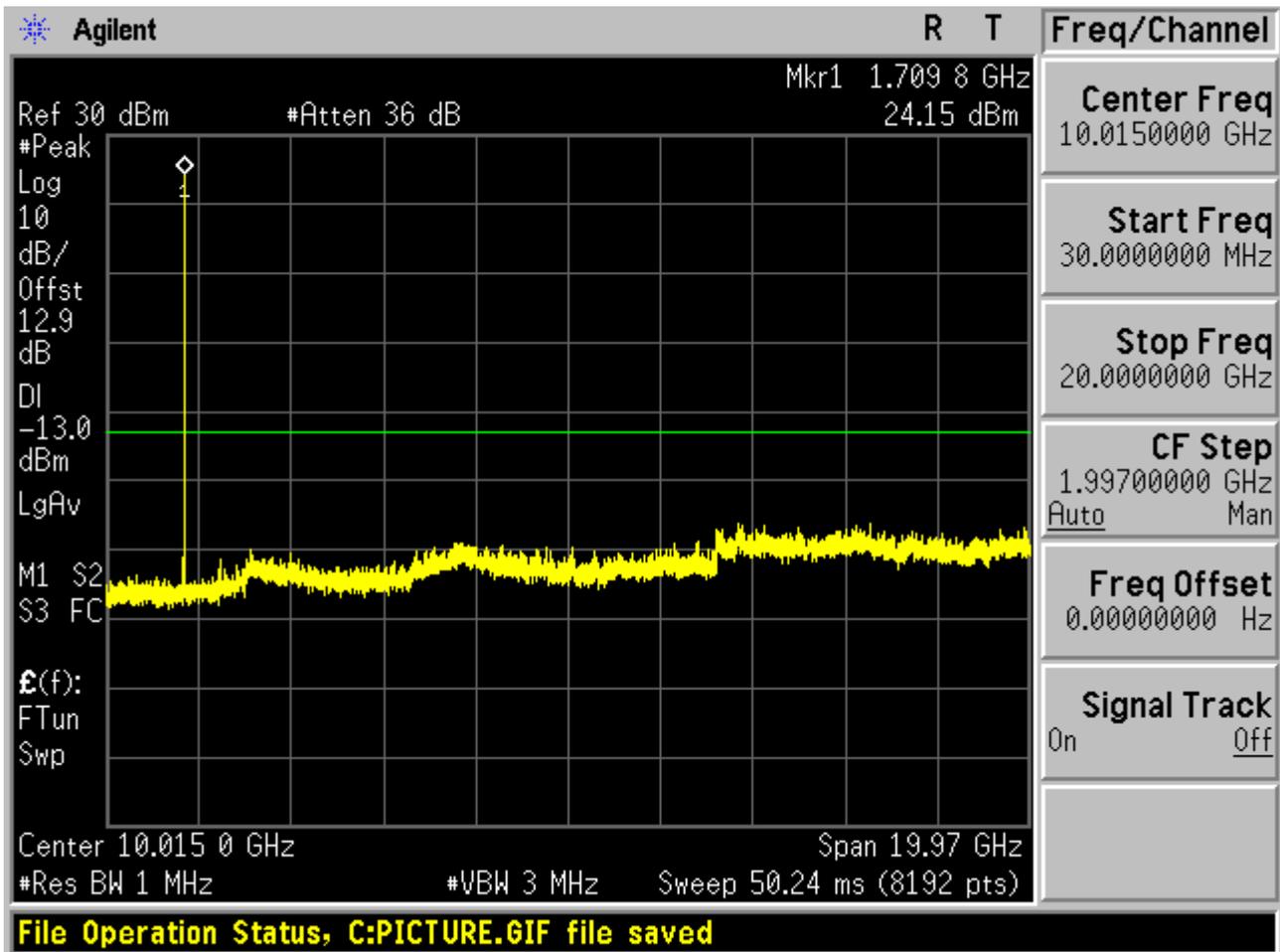
2.2.2.1 Channel = B



2.2.2.1.1 QPSK/1RBs /RB #0



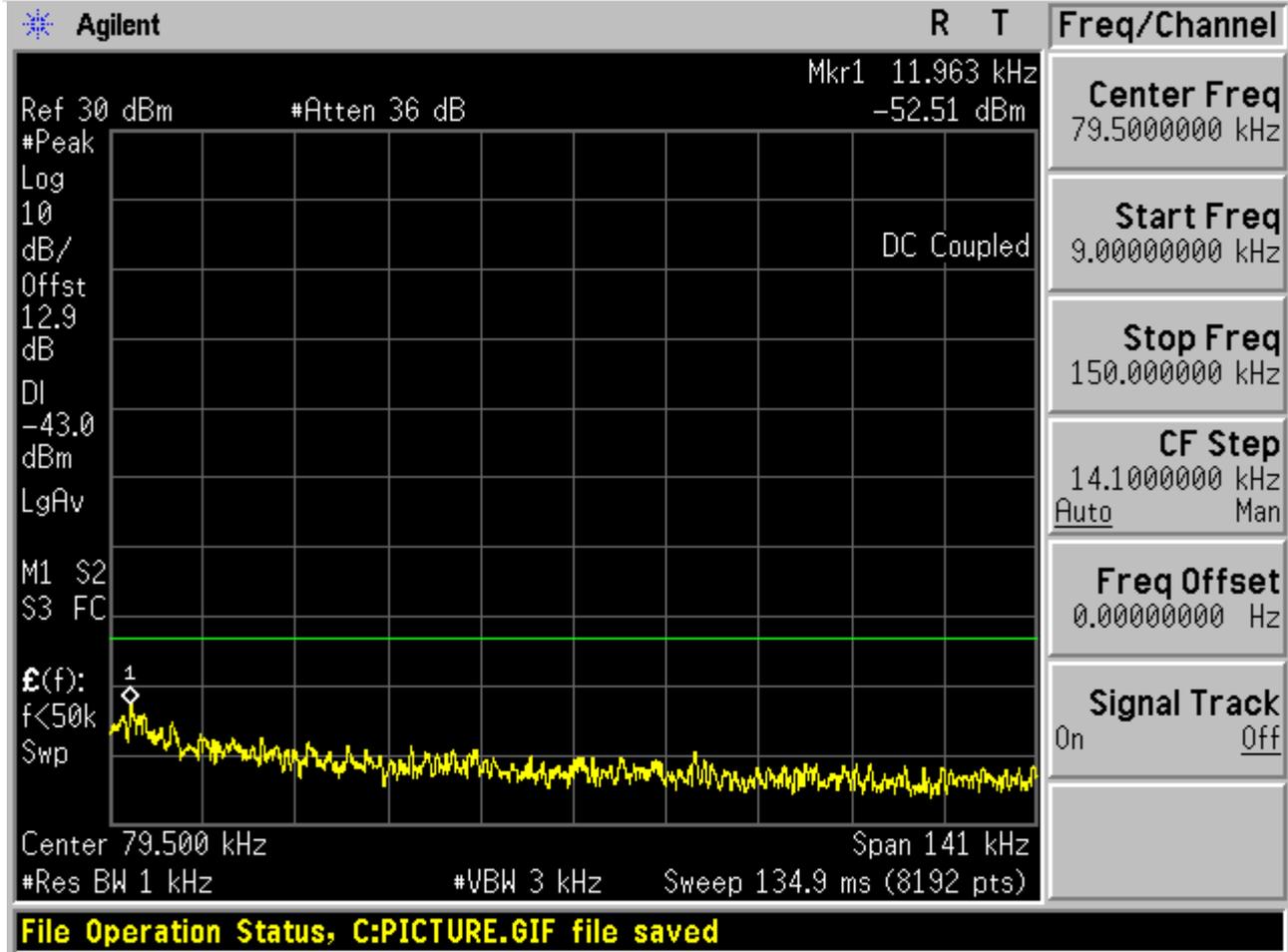


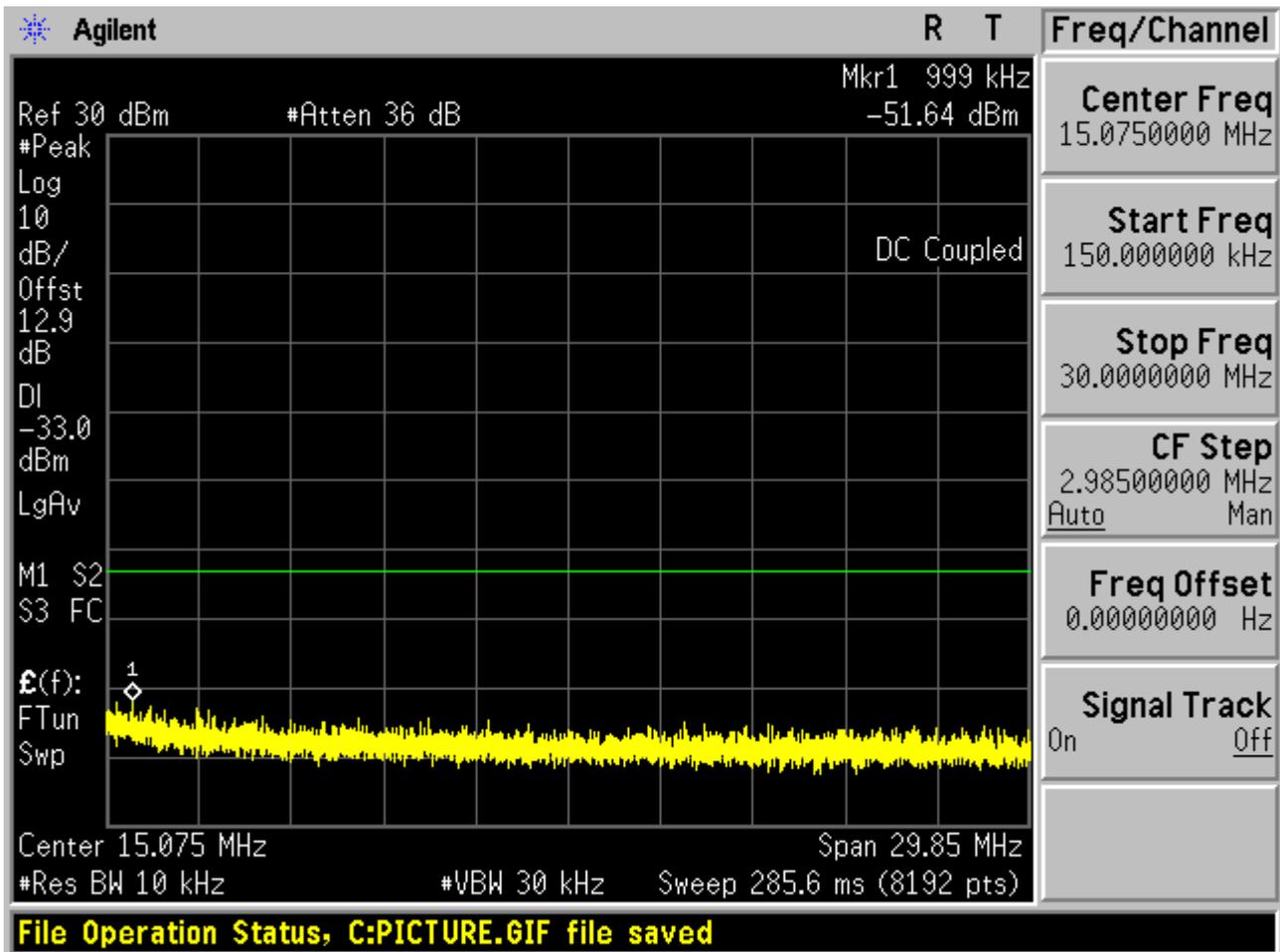


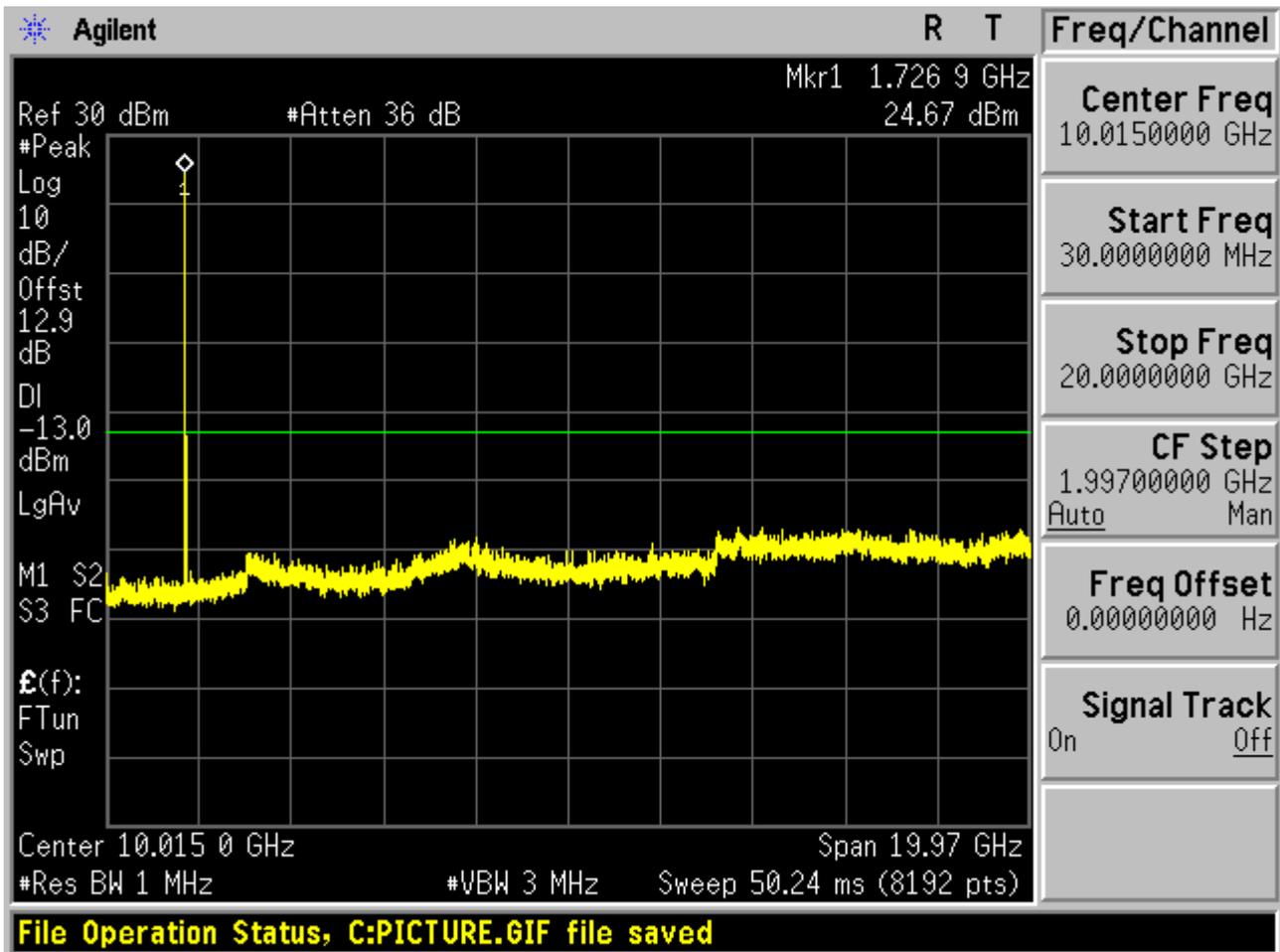
2.2.2.2 Channel = M



2.2.2.2.1 QPSK/1RBs /RB #0

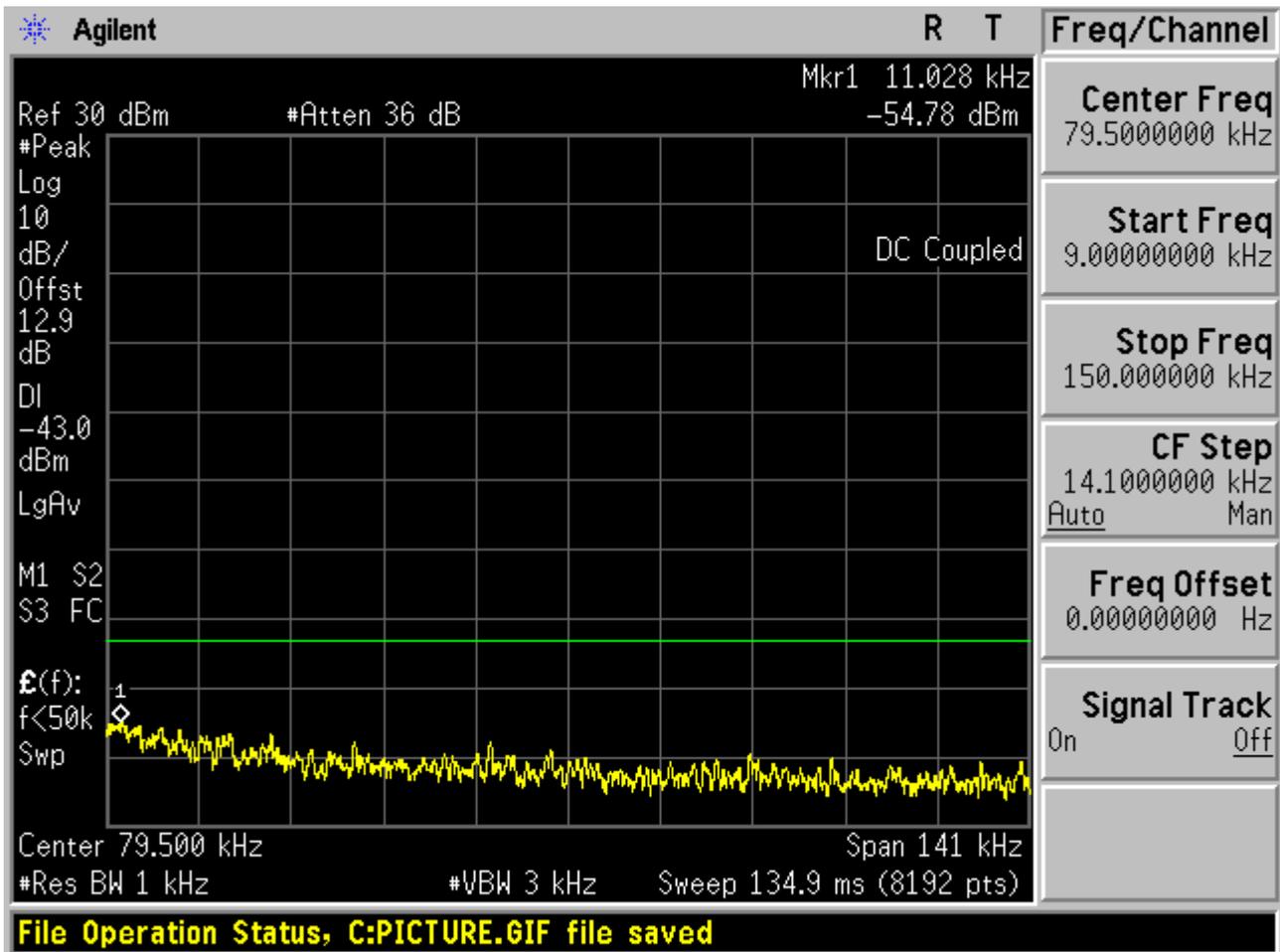


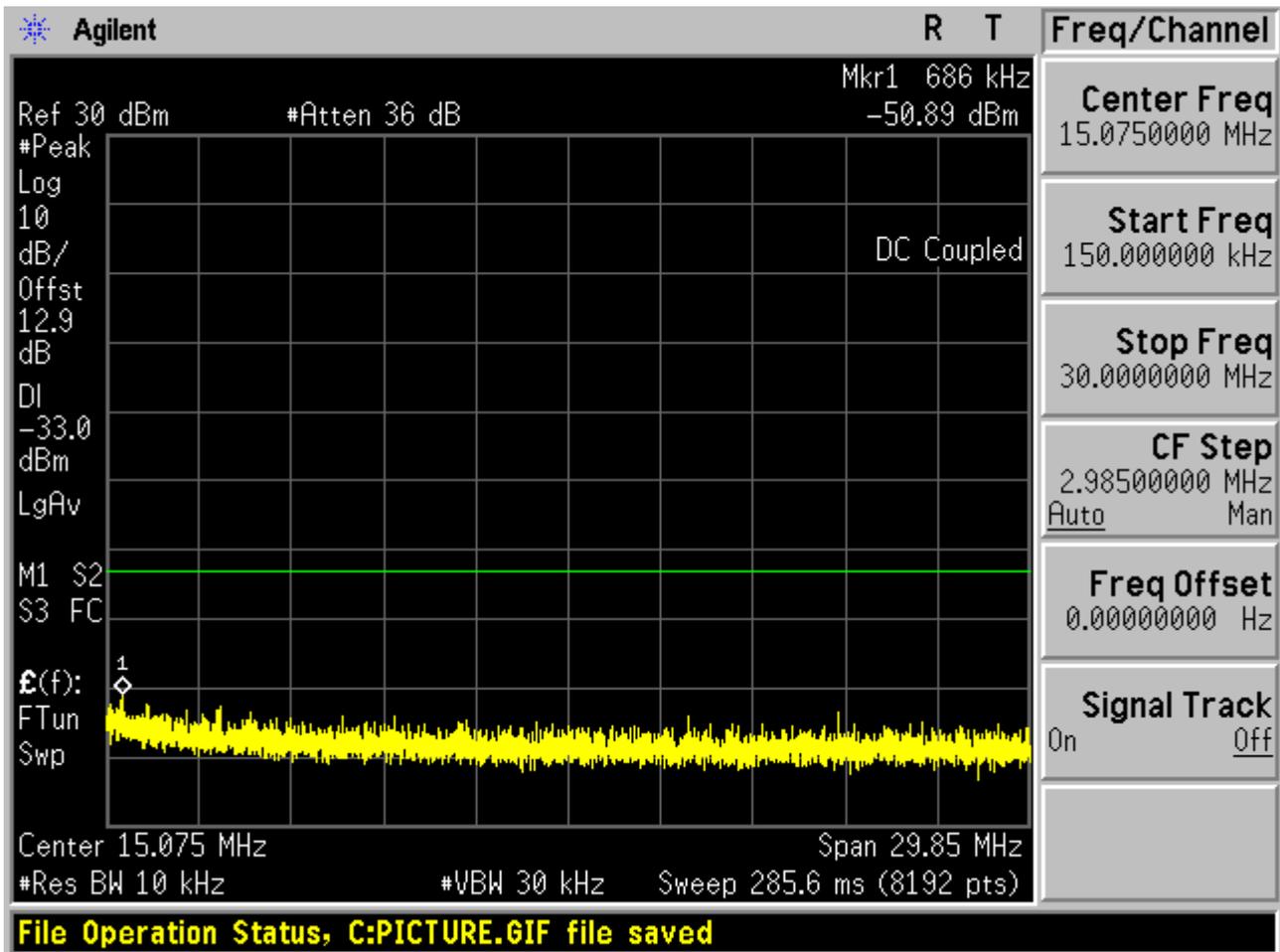


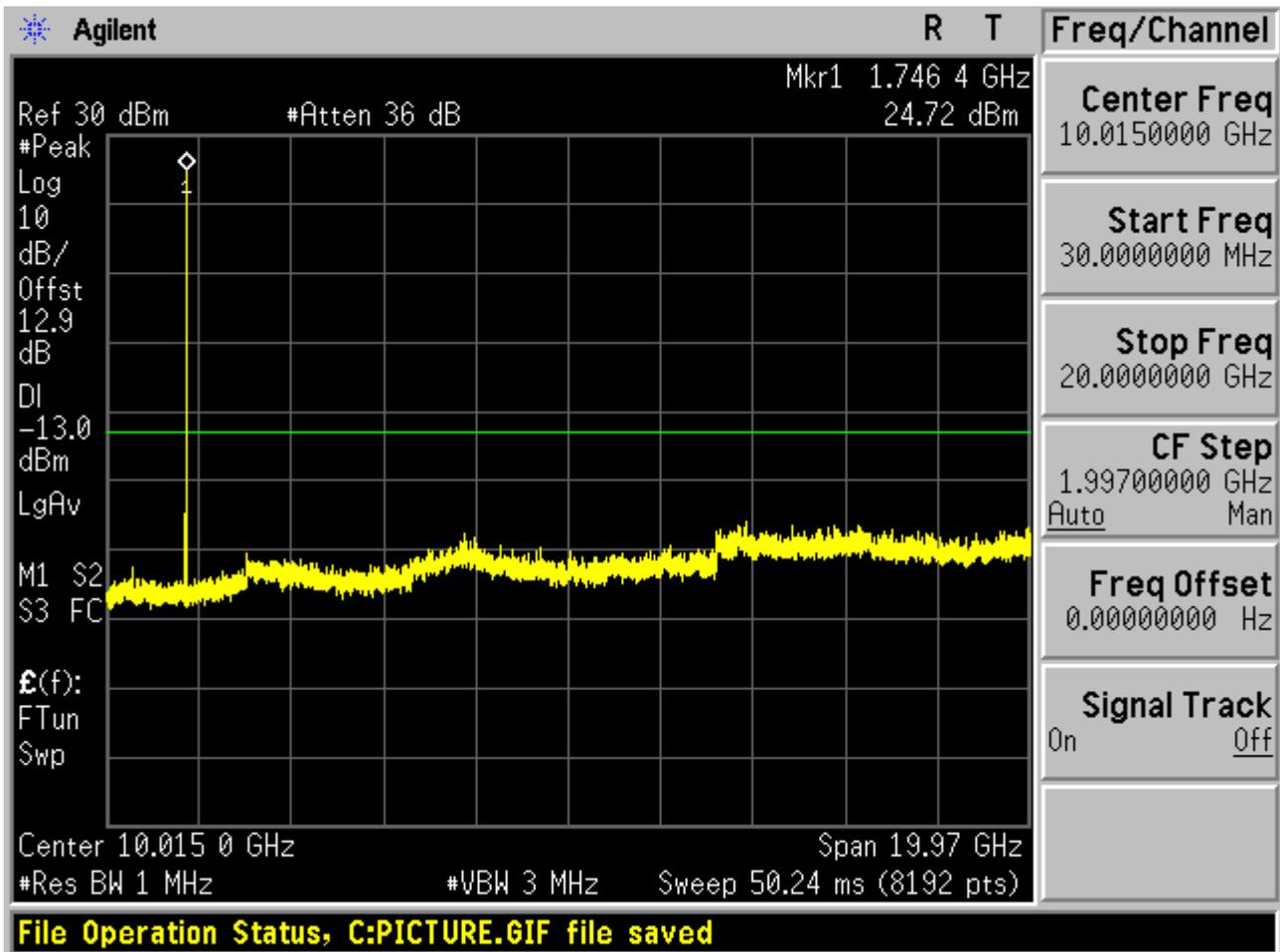


2.2.2.3 Channel = T

2.2.2.3.1 QPSK/1RBs /RB #0





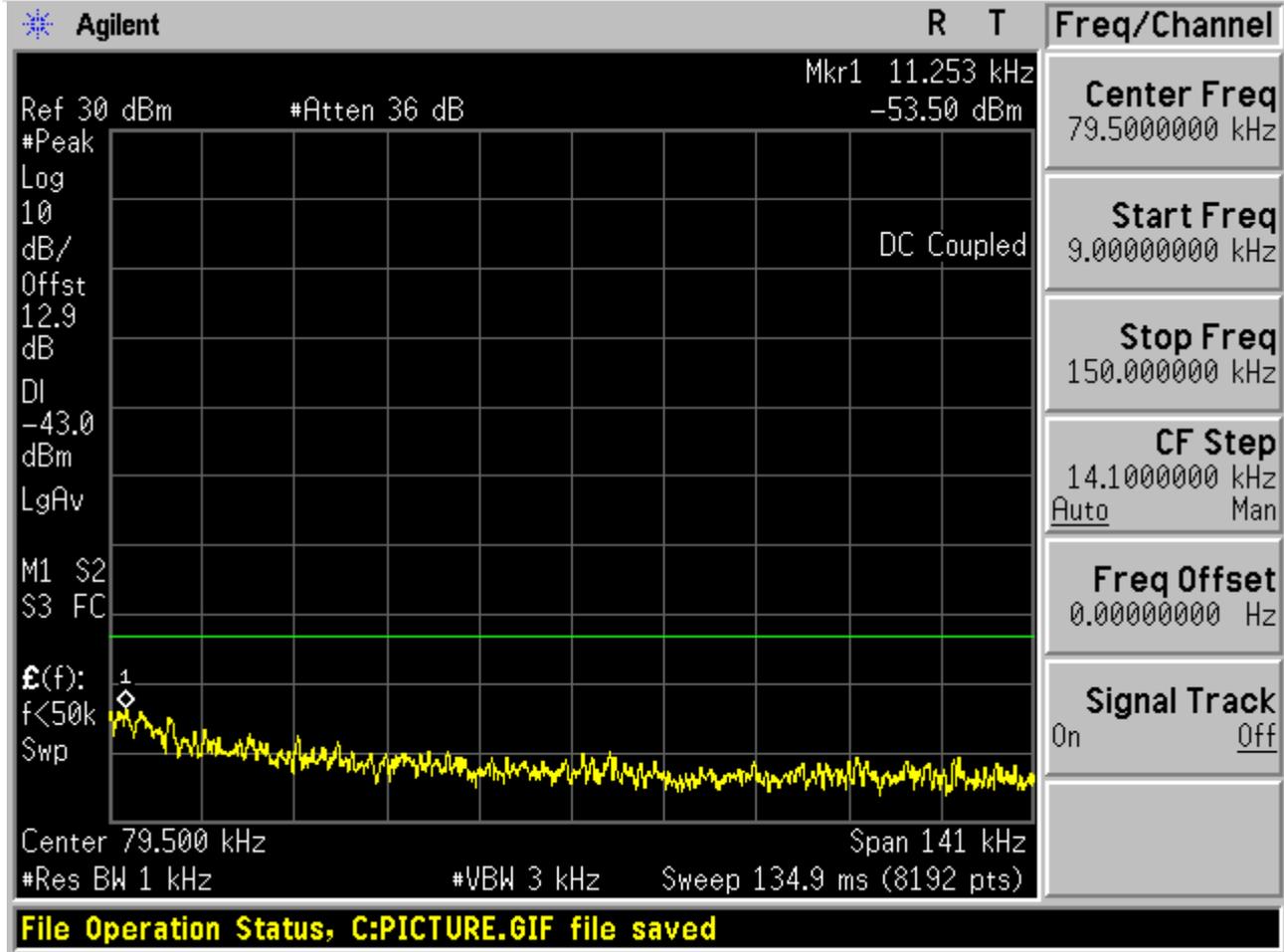


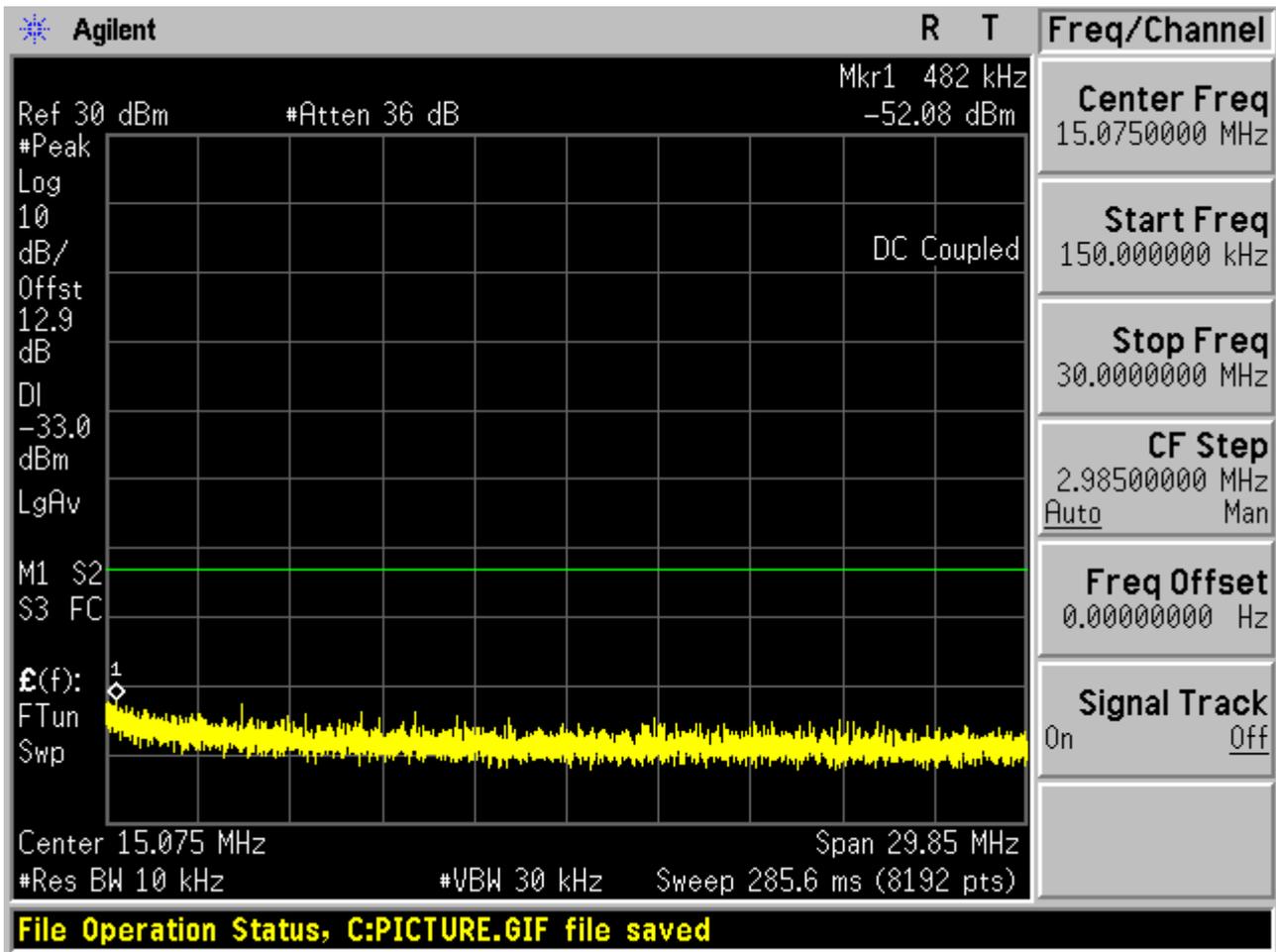
2.2.3 Channel Bandwidth = 15 MHz

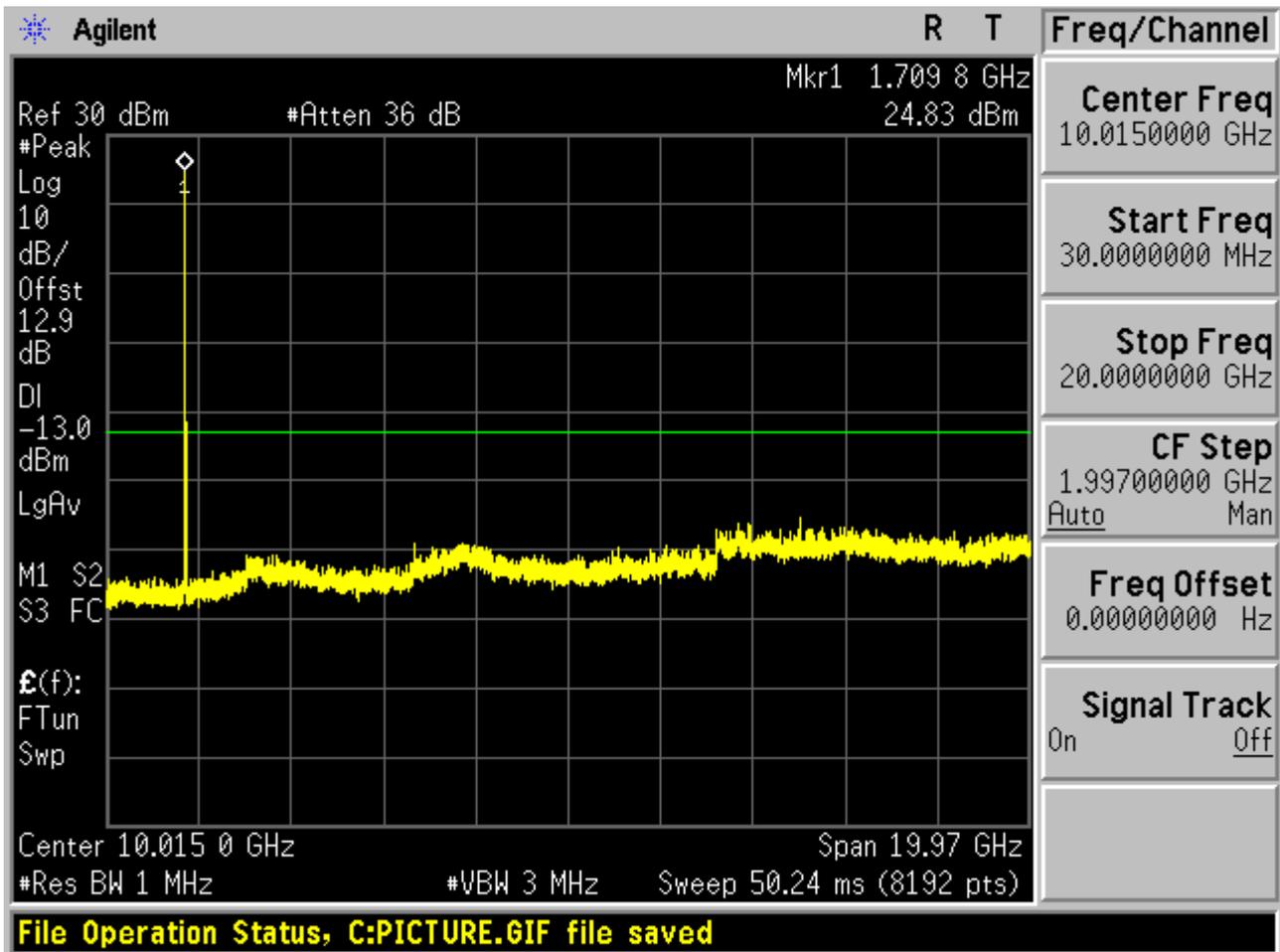
2.2.3.1 Channel = B



2.2.3.1.1 QPSK/1RBs /RB #0

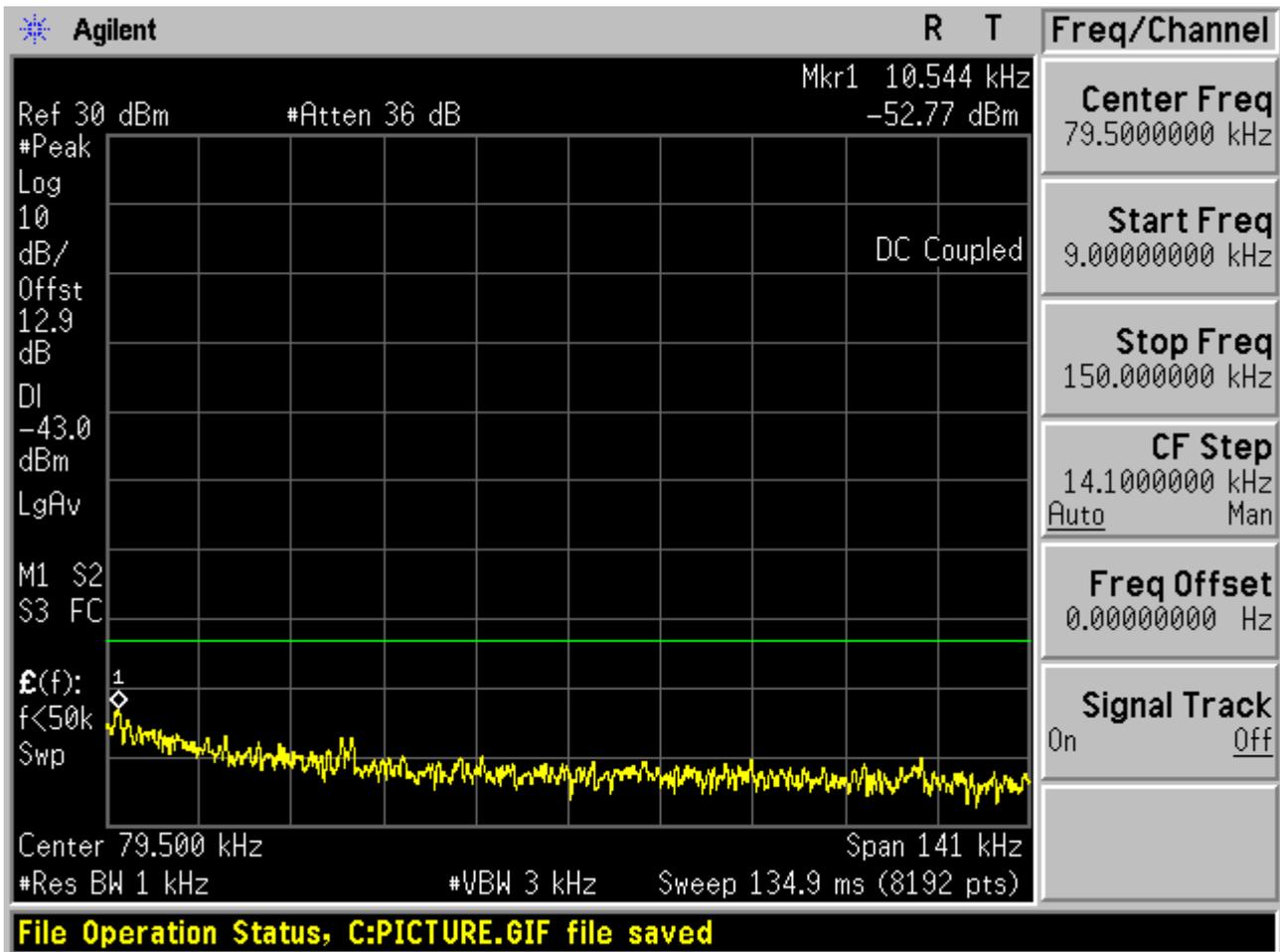


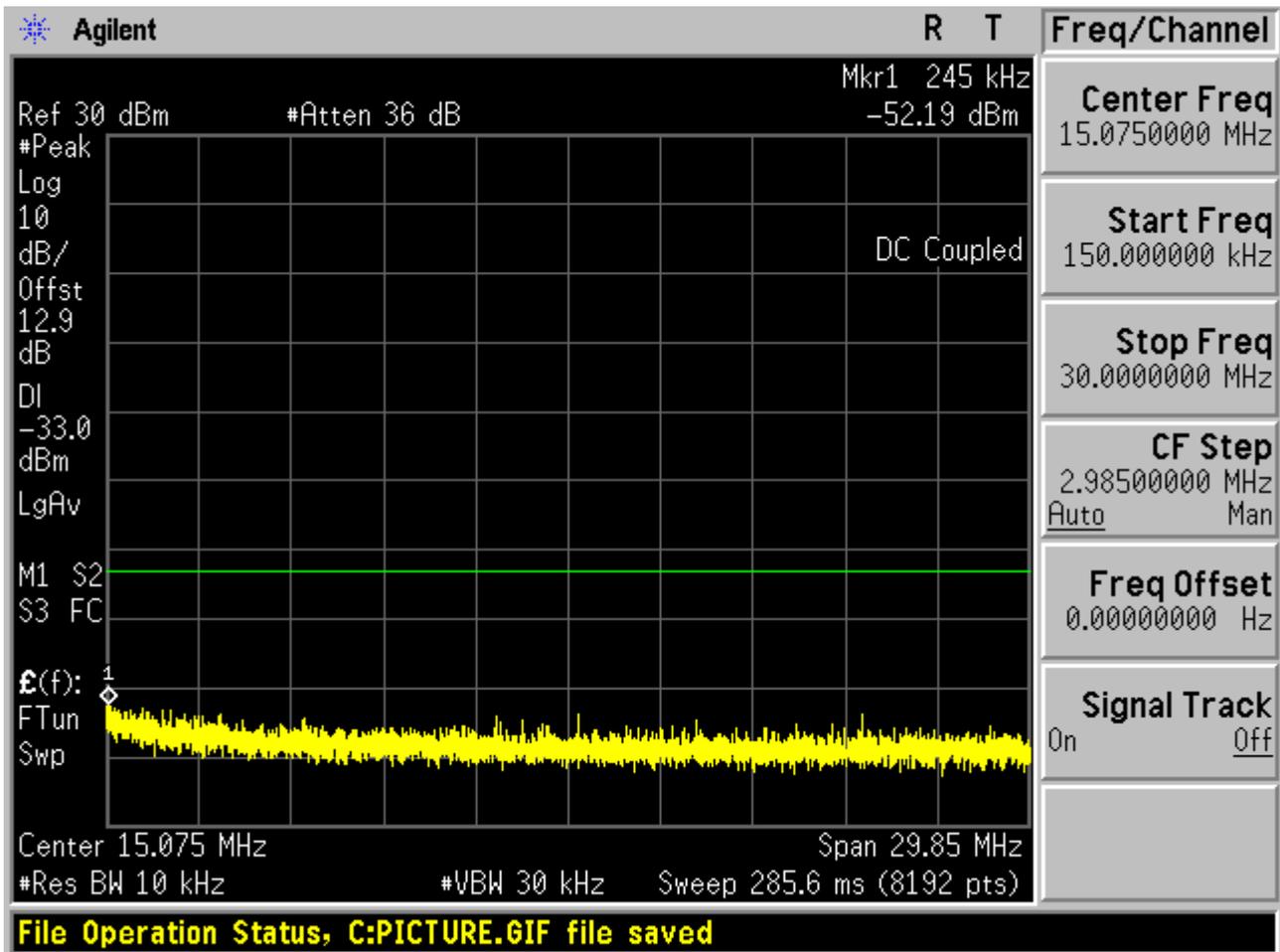


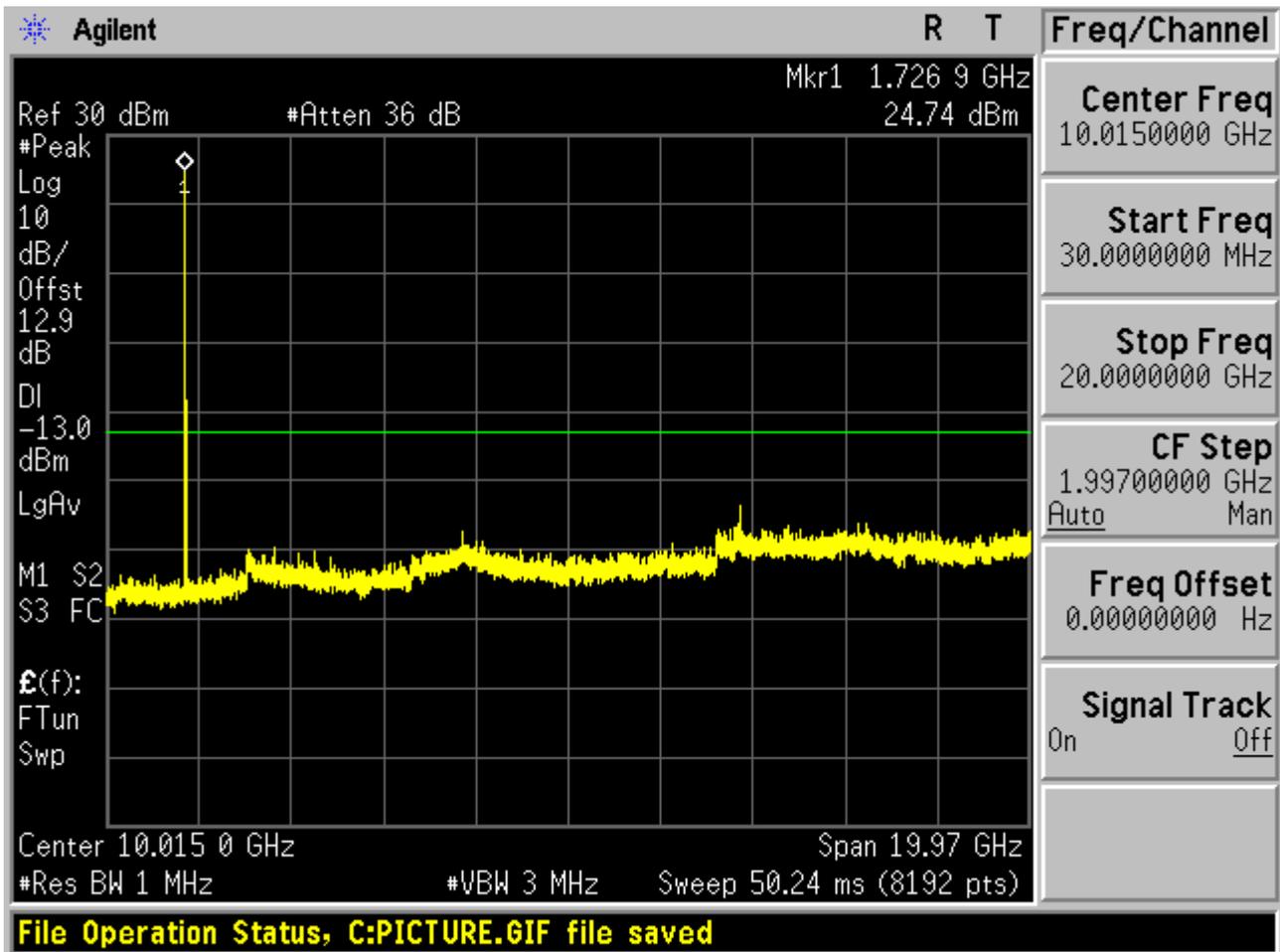


2.2.3.2 Channel = M

2.2.3.2.1 QPSK/1RBs /RB #0

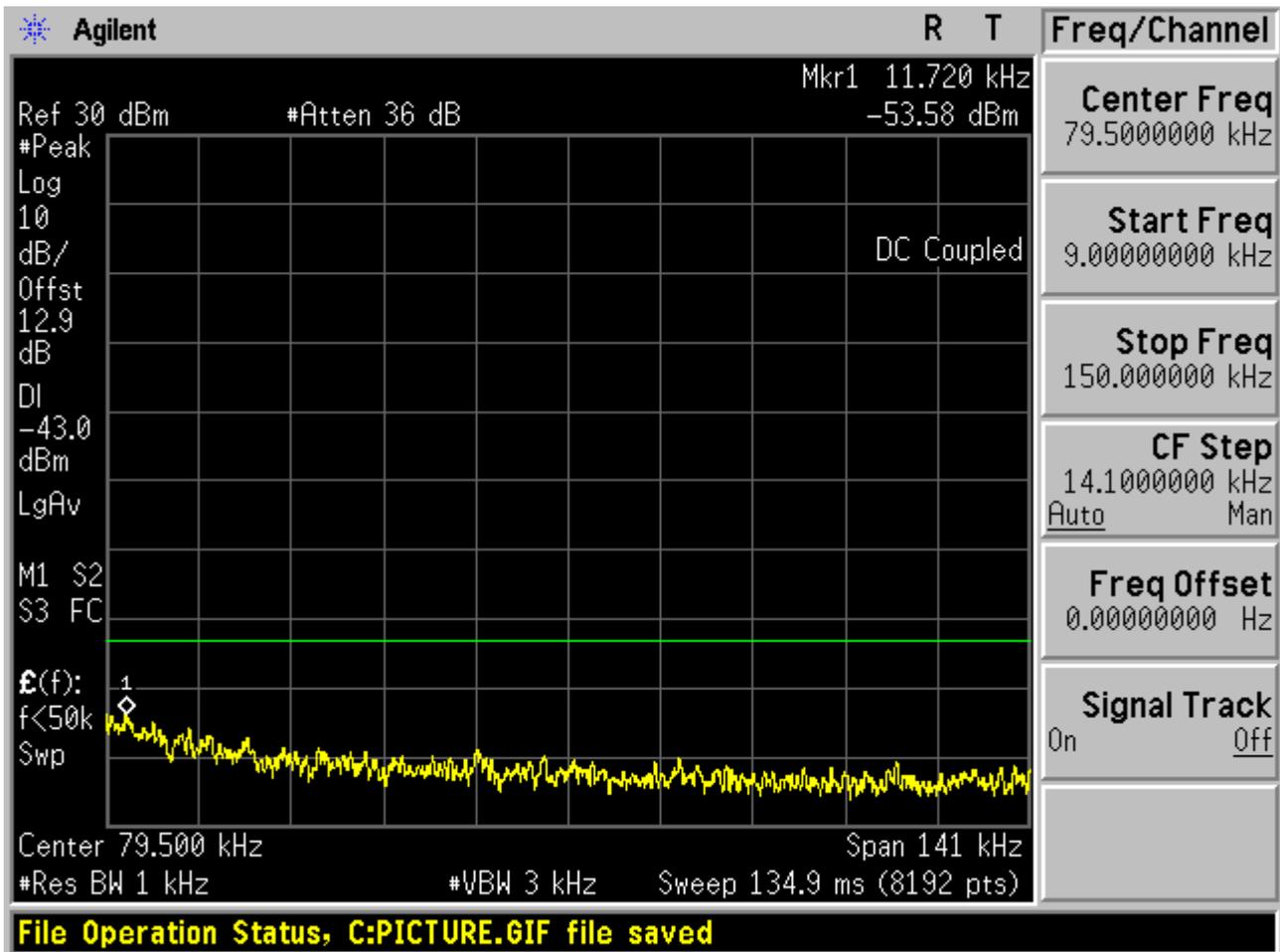


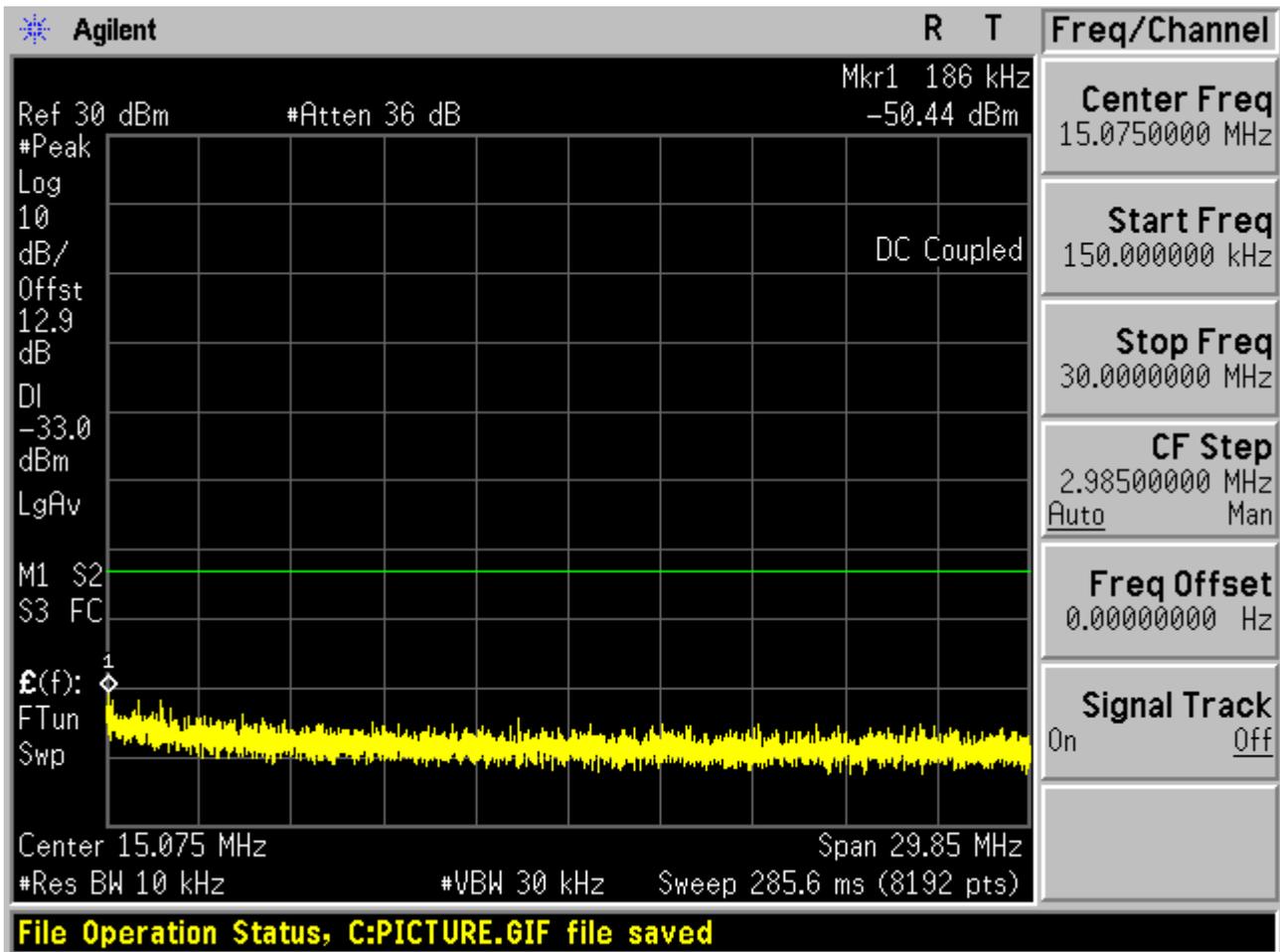


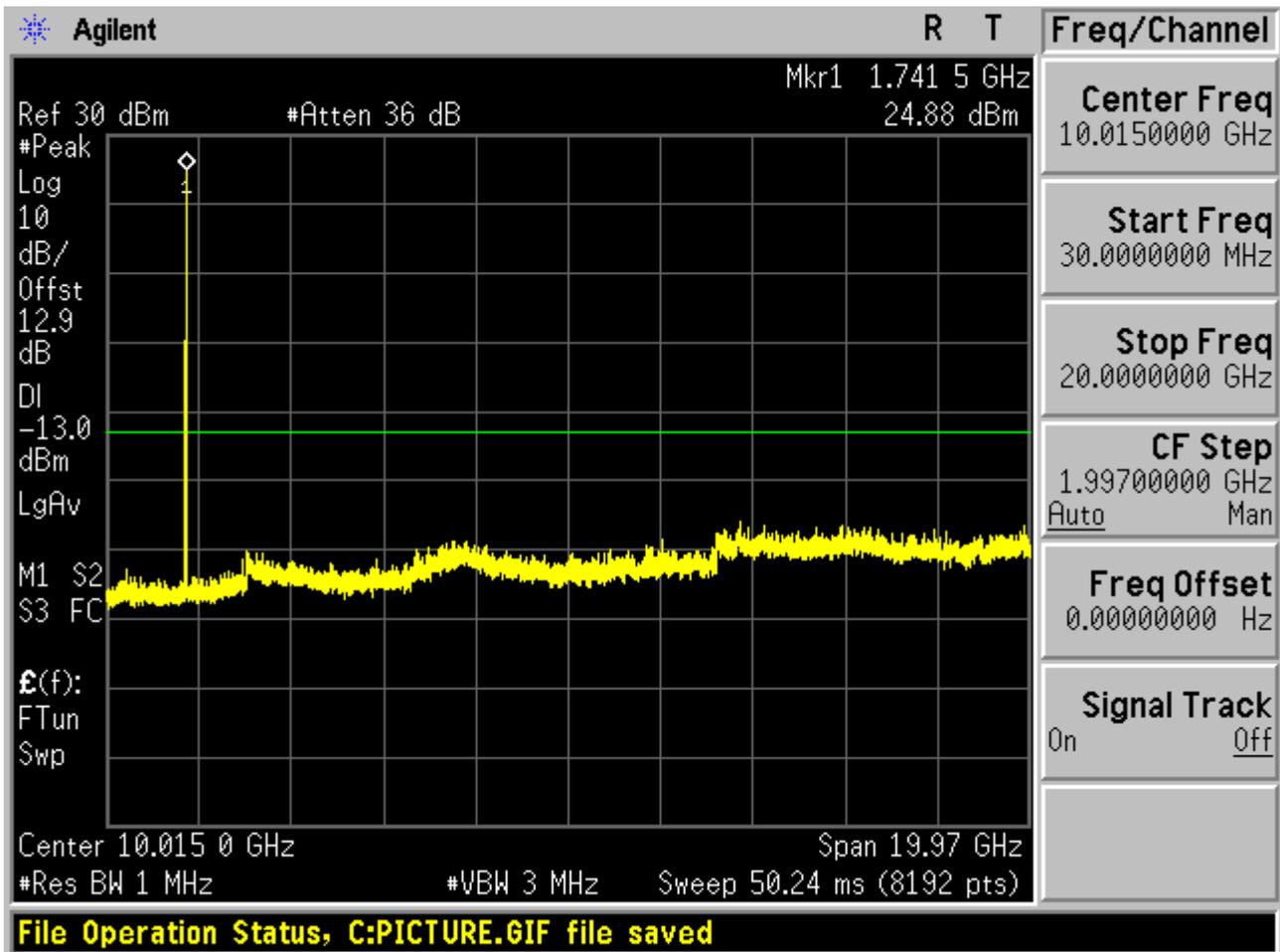


2.2.3.3 Channel = T

2.2.3.3.1 QPSK/1RBs /RB #0





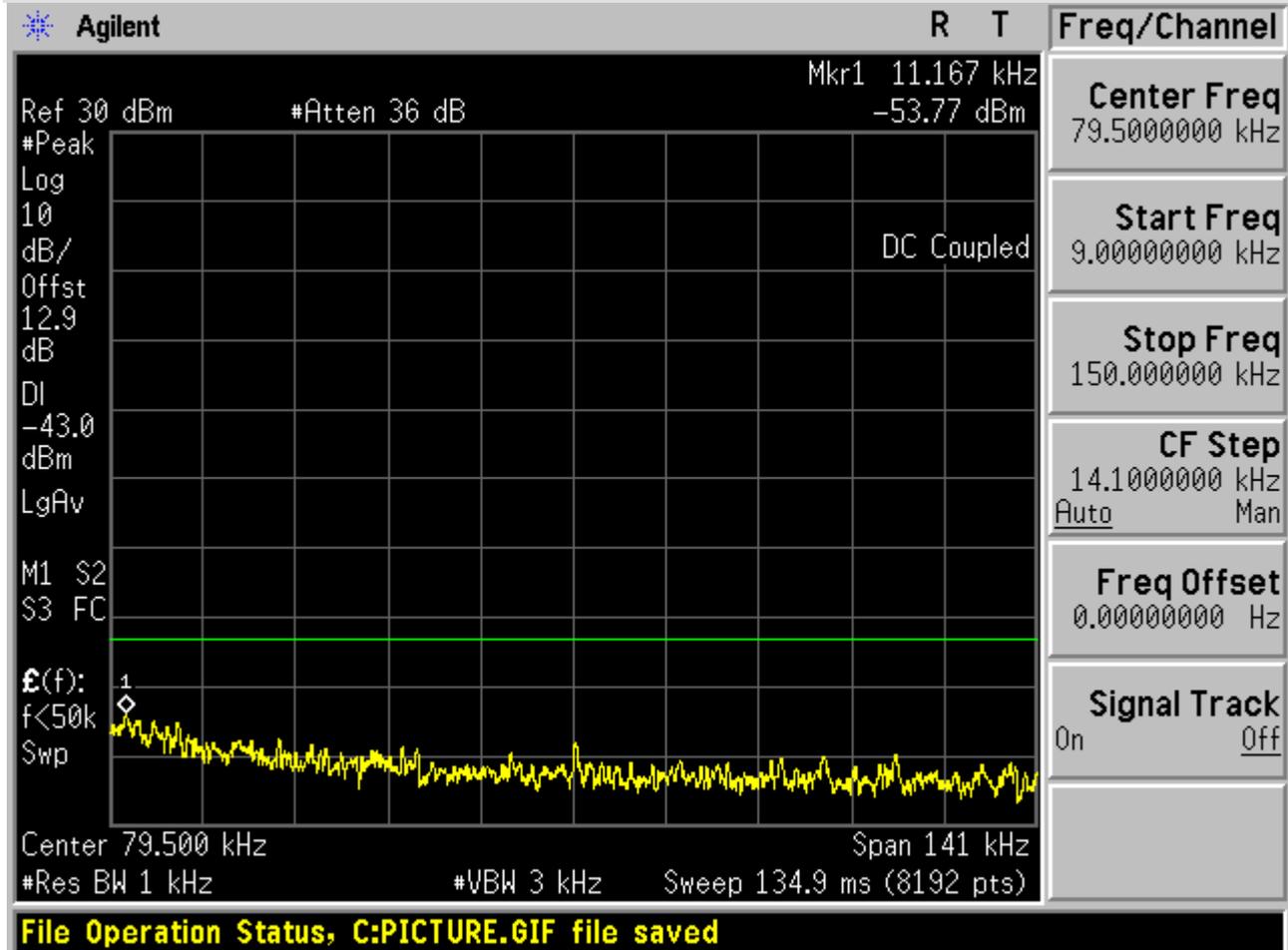


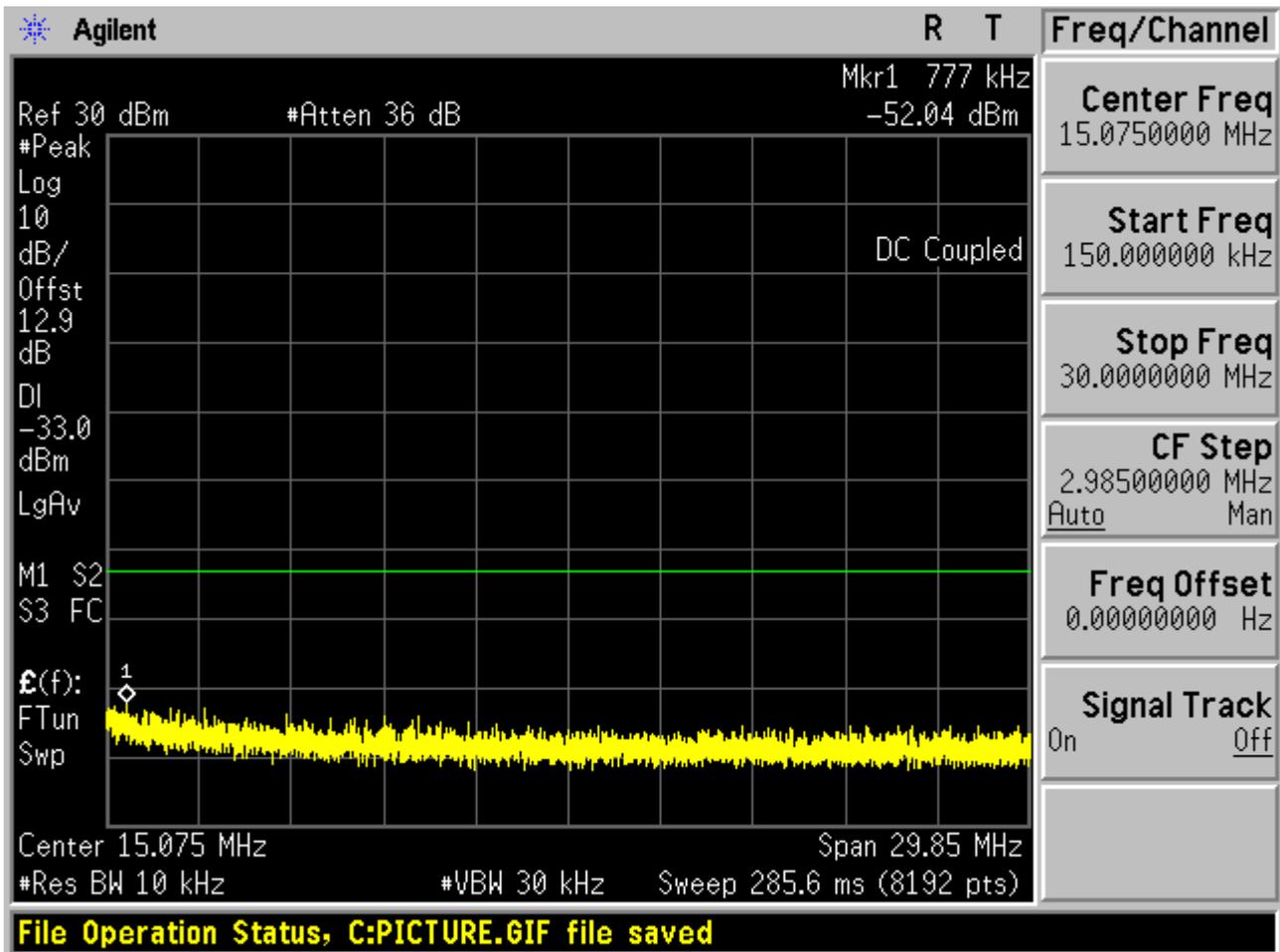


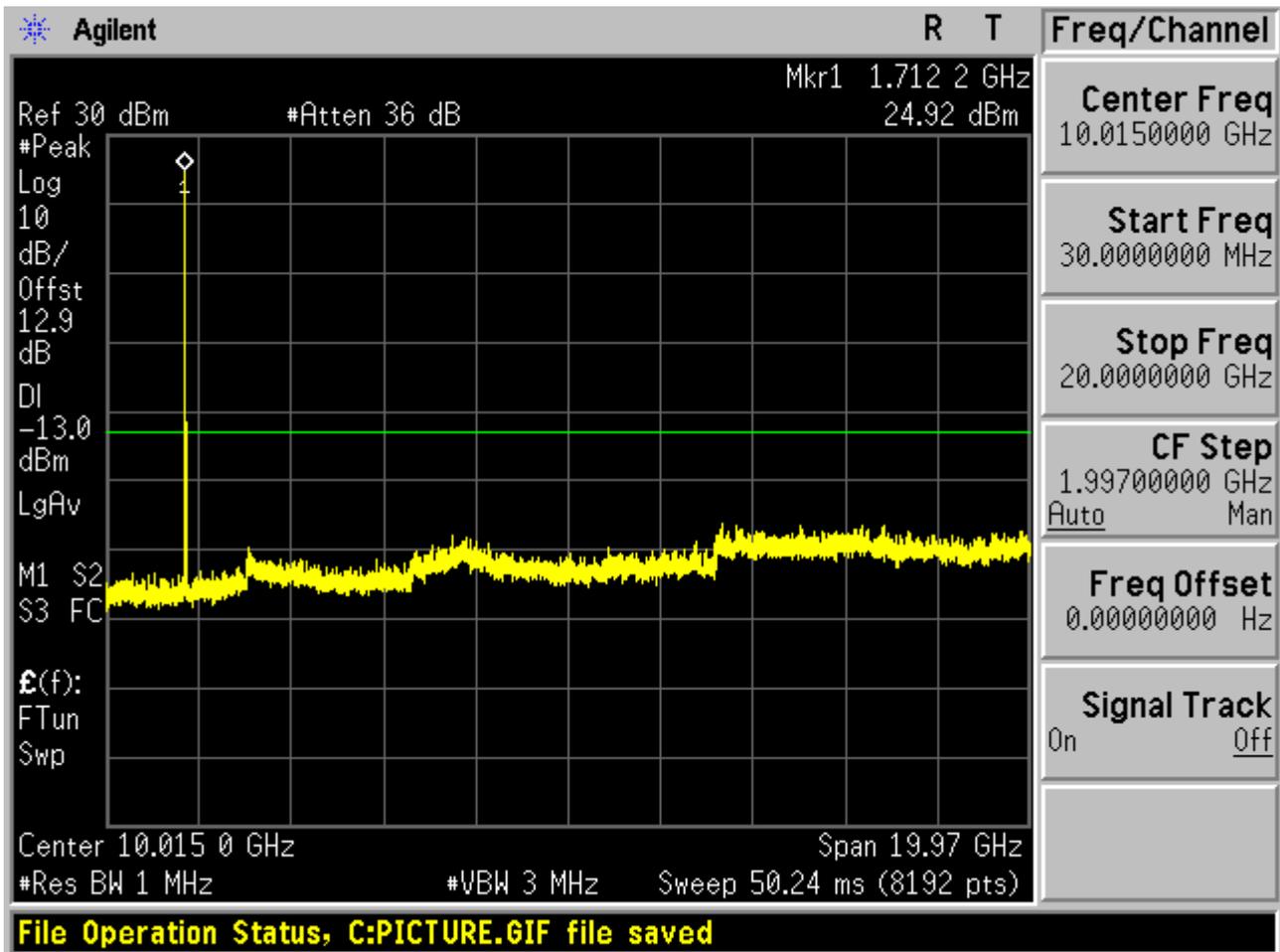
2.2.4 Channel Bandwidth = Highest (20 MHz)

2.2.4.1 Channel = B

2.2.4.1.1 QPSK/1RBs /RB #0

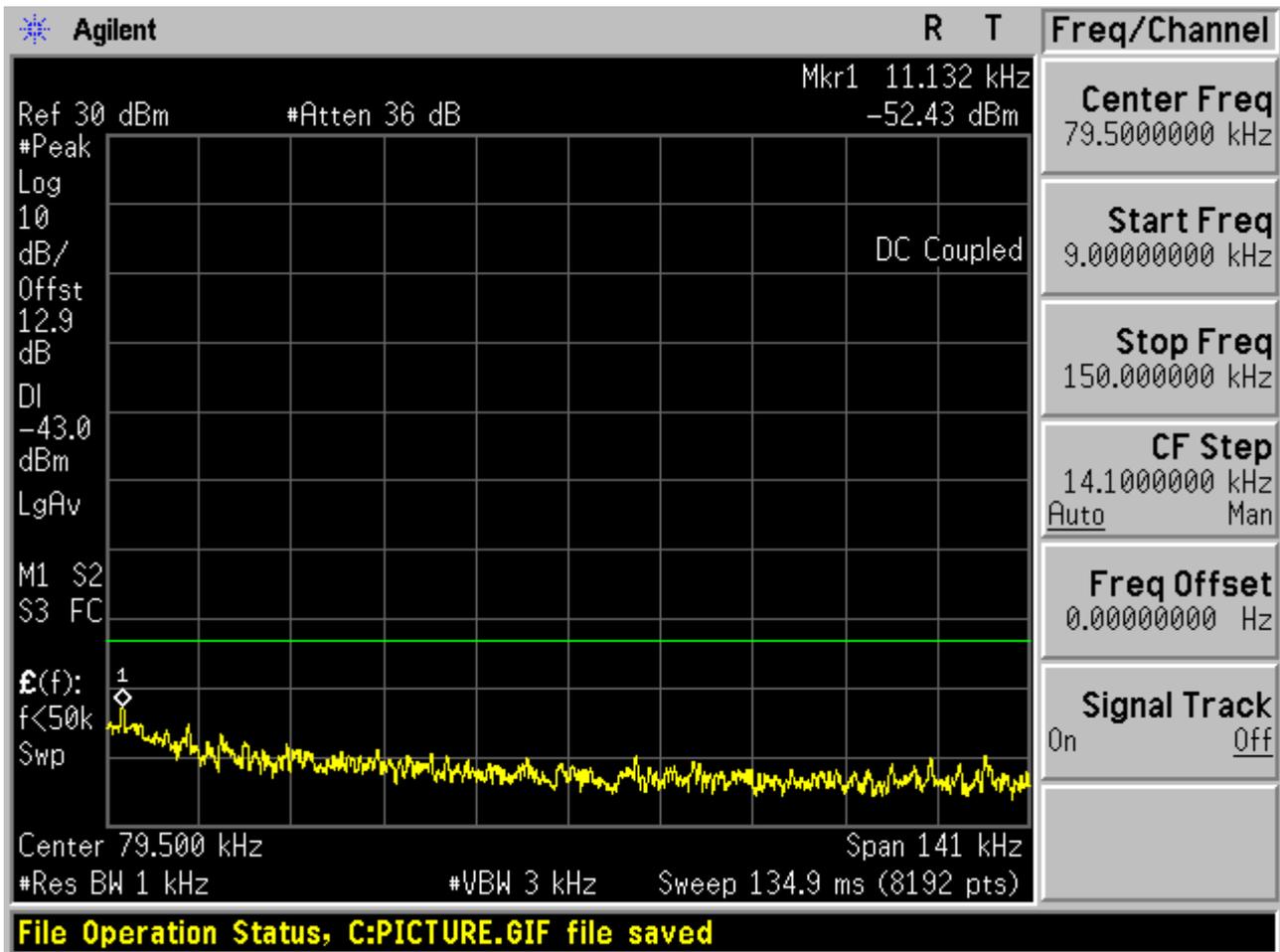


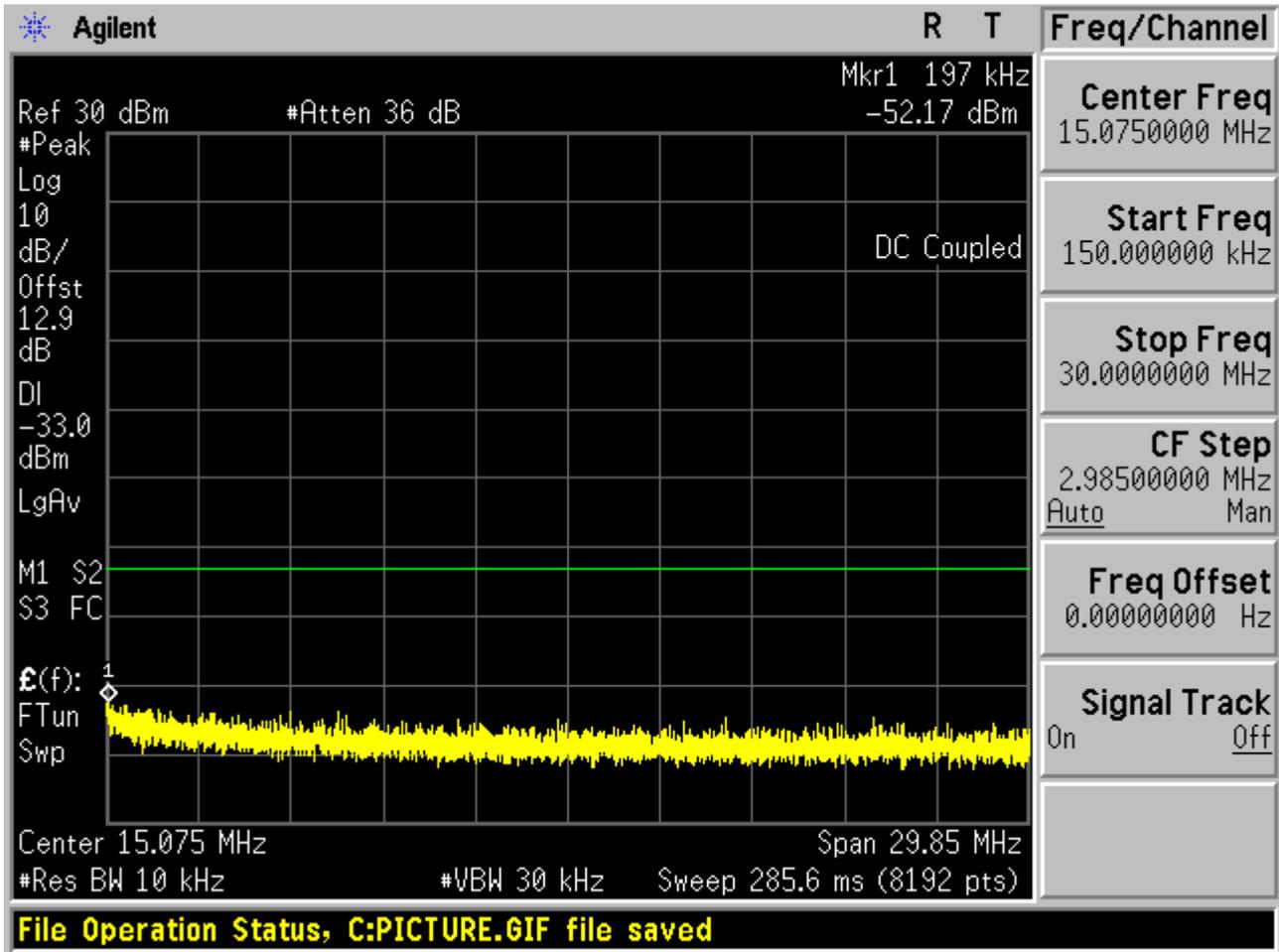


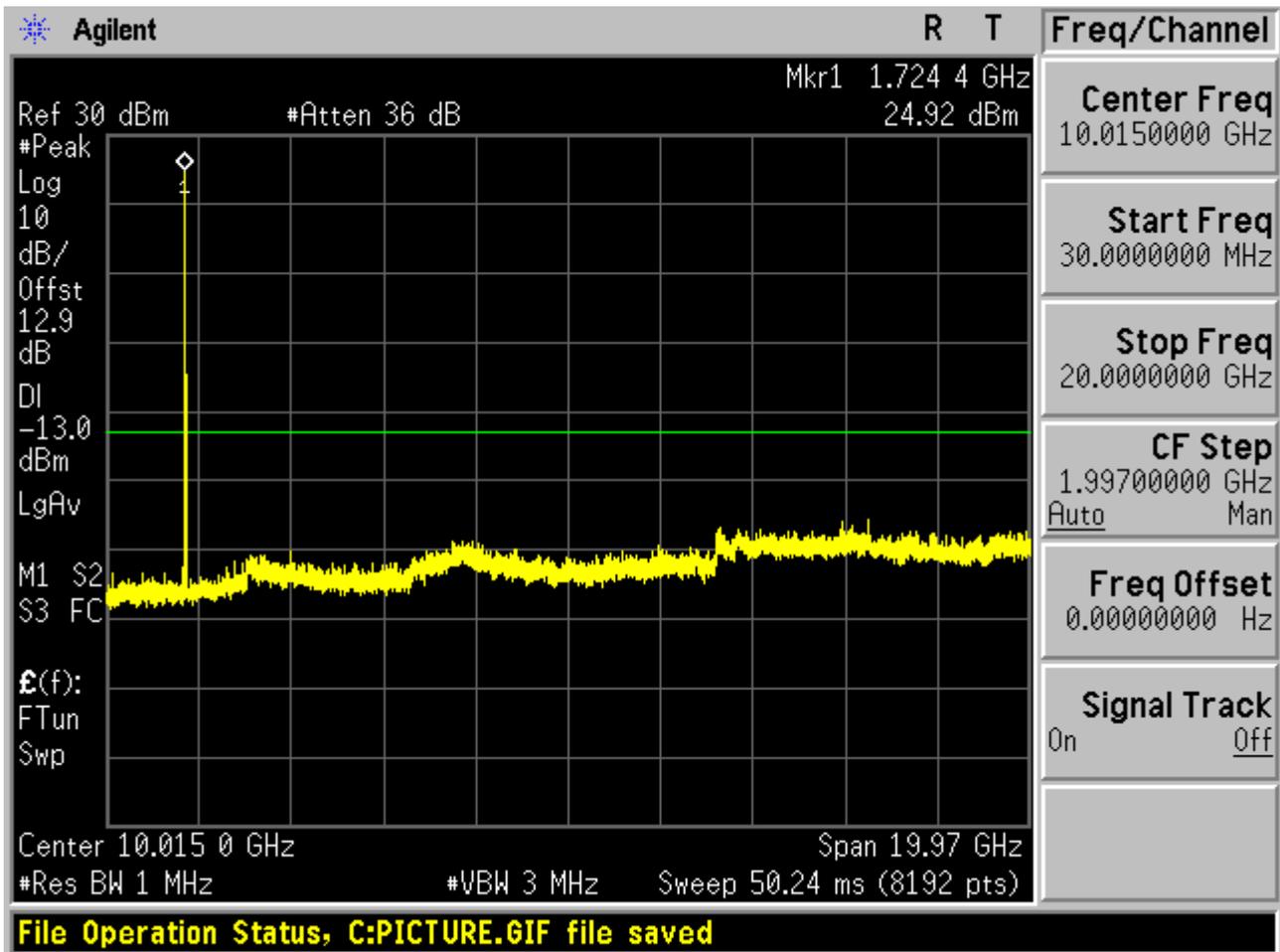


2.2.4.2 Channel = M

2.2.4.2.1 QPSK/1RBs /RB #0

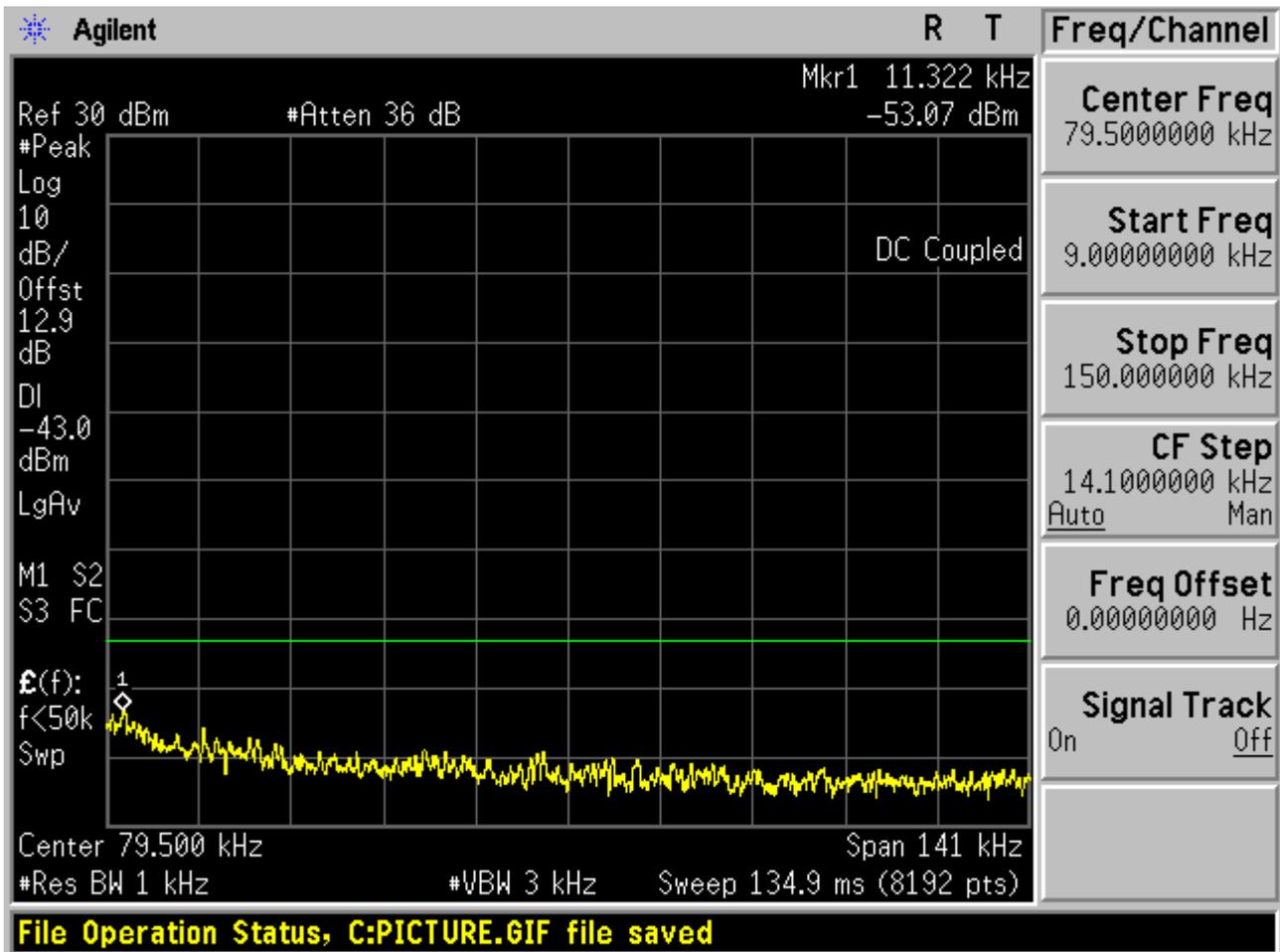


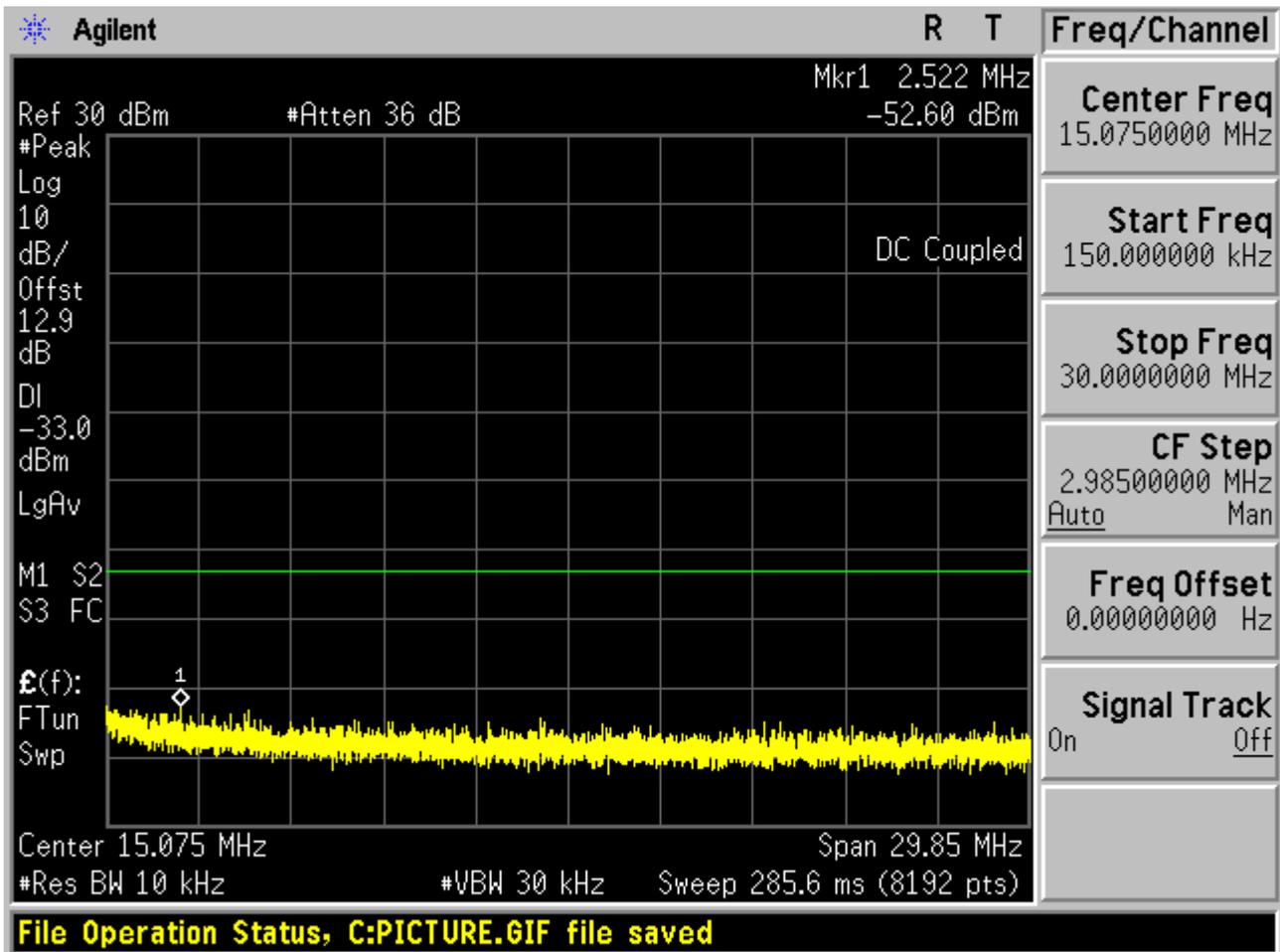


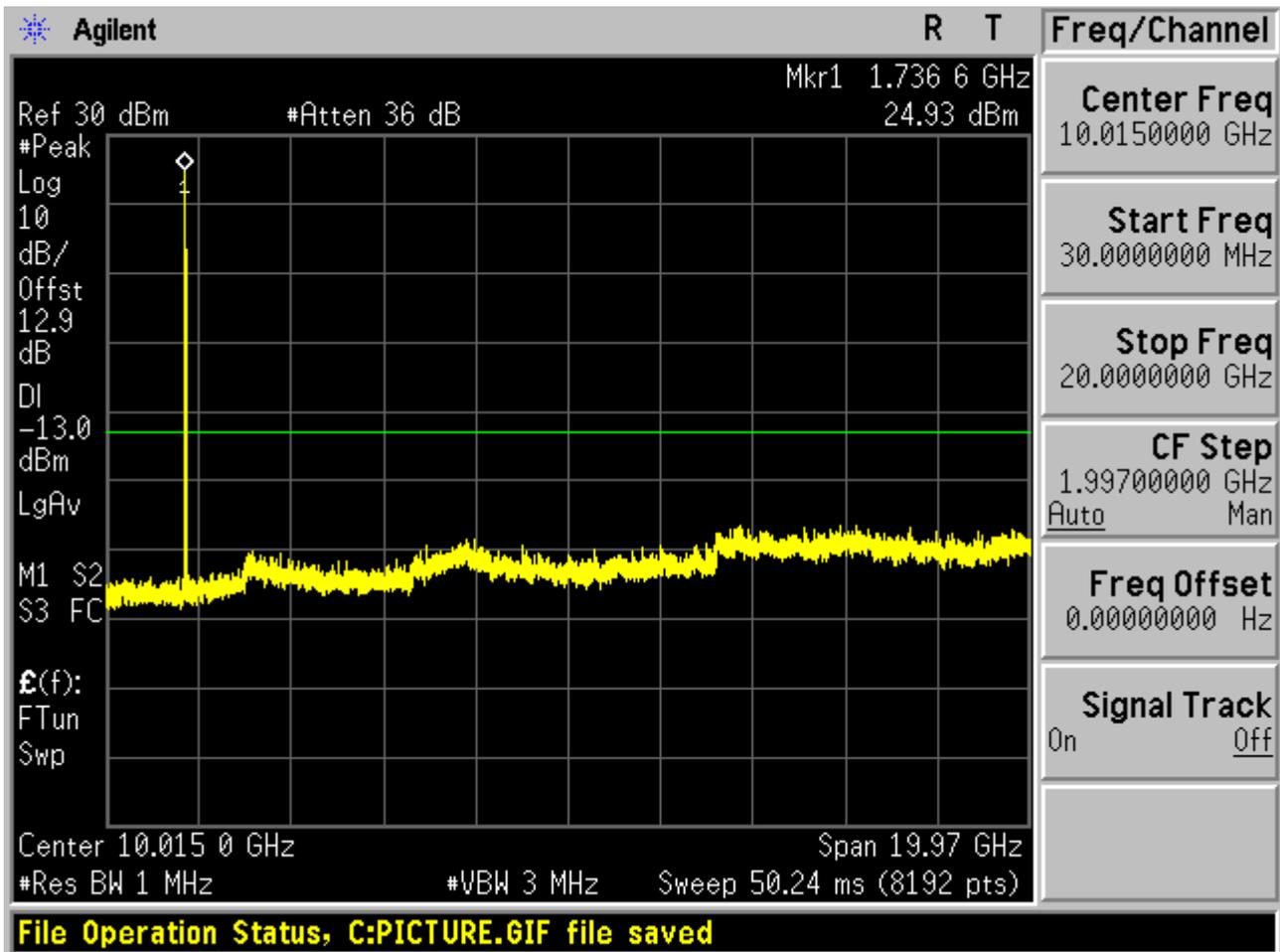


2.2.4.3 Channel = T

2.2.4.3.1 QPSK/1RBs /RB #0







-----END-----



Appendix F

Radiated spurious emission

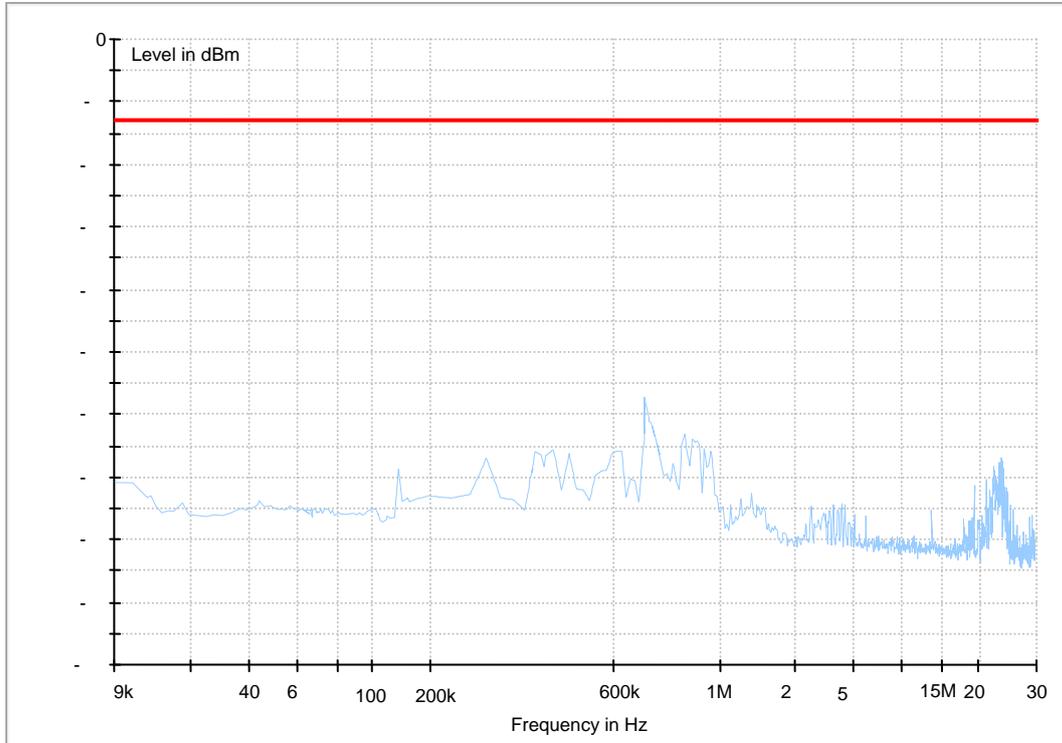
According to FCC Part 2.1053& Part 27.53(h)



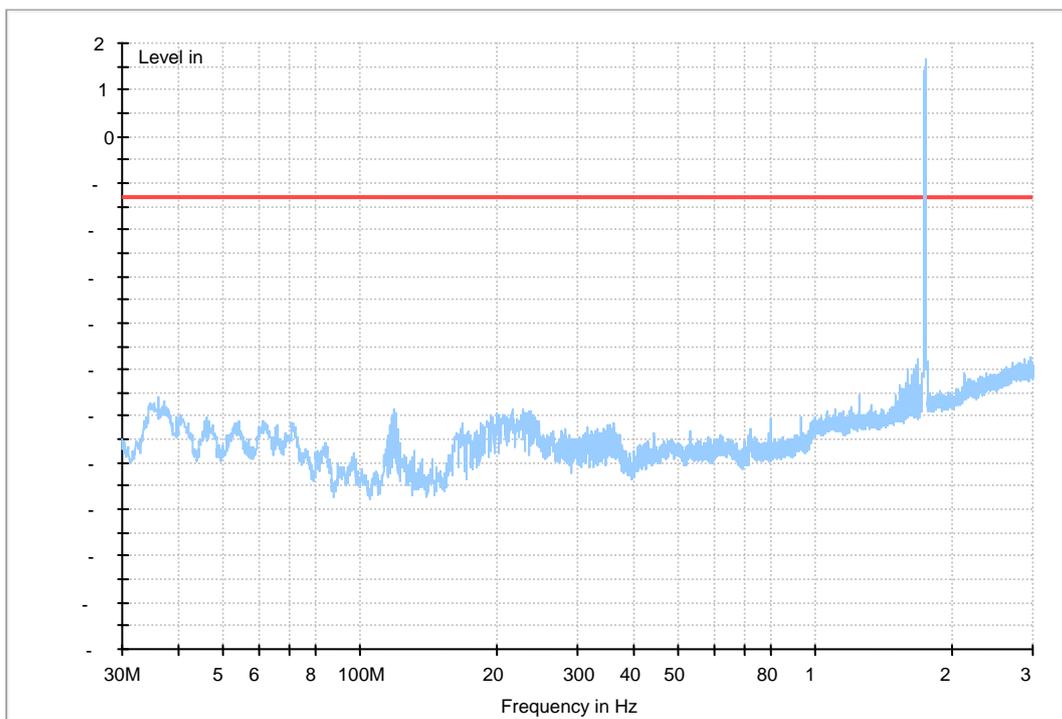
Note: 1. Simultaneous transmission was investigated and no new emissions were found.
2. RBW \geq 1MHz, VBW $>$ 3 x RBW

WCDMA AWS

Traffic Mode (9kHz-30MHz)

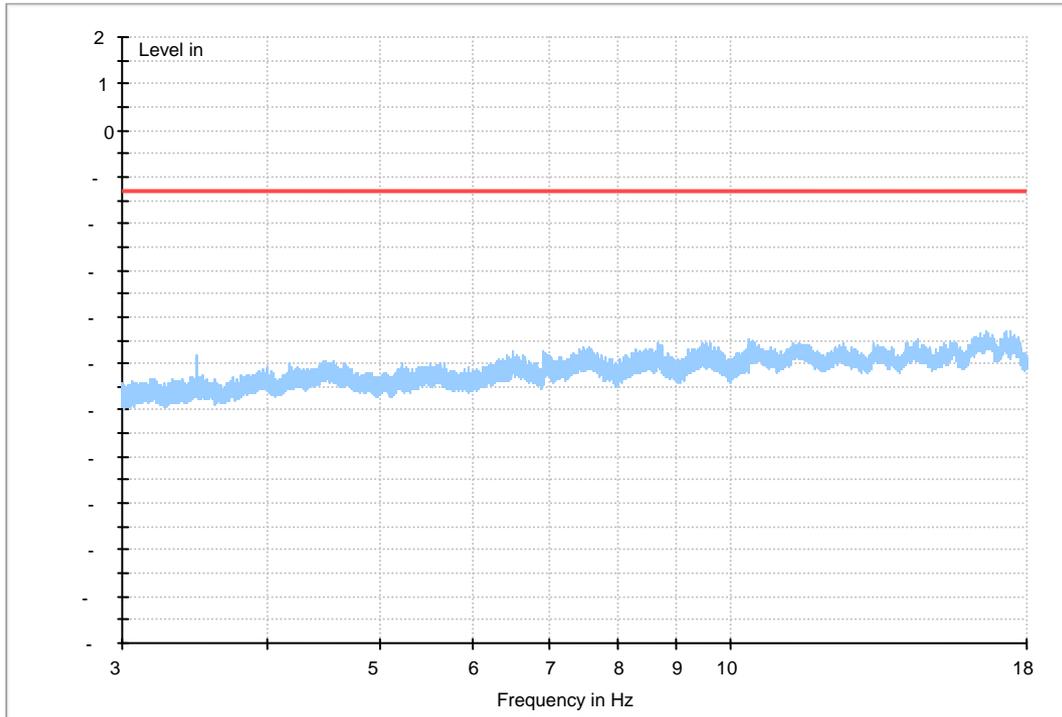


Traffic Mode (30MHz-3GHz)



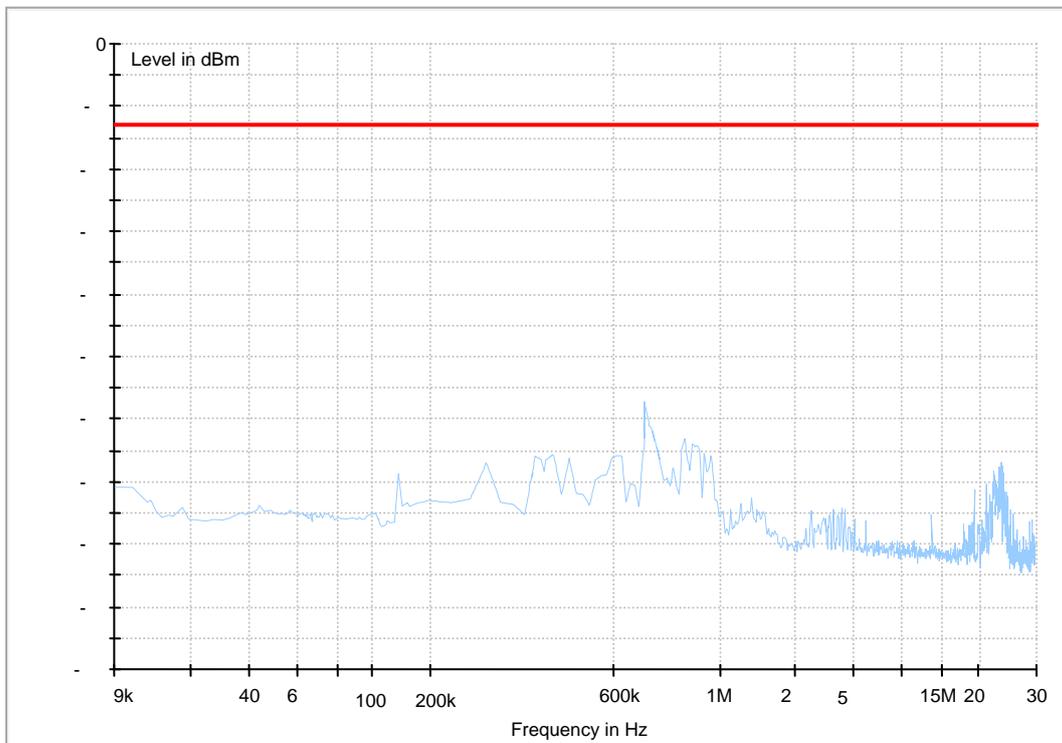


Traffic Mode (3GHz-18GHz)



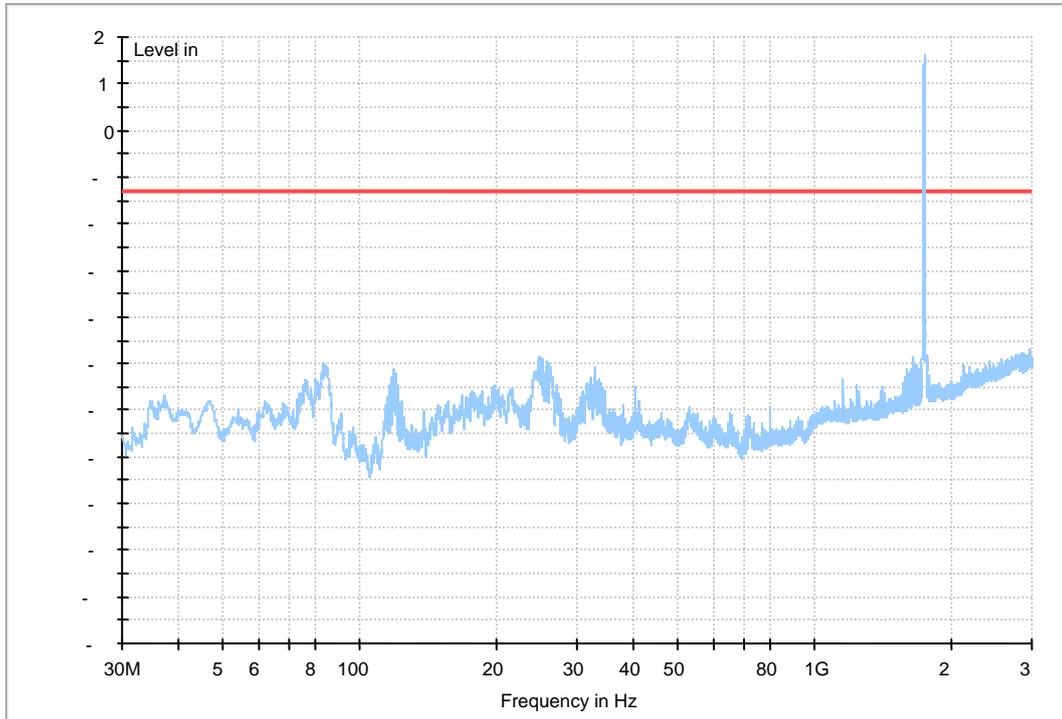
HSDPA AWS

Traffic Mode (9kHz-30MHz)

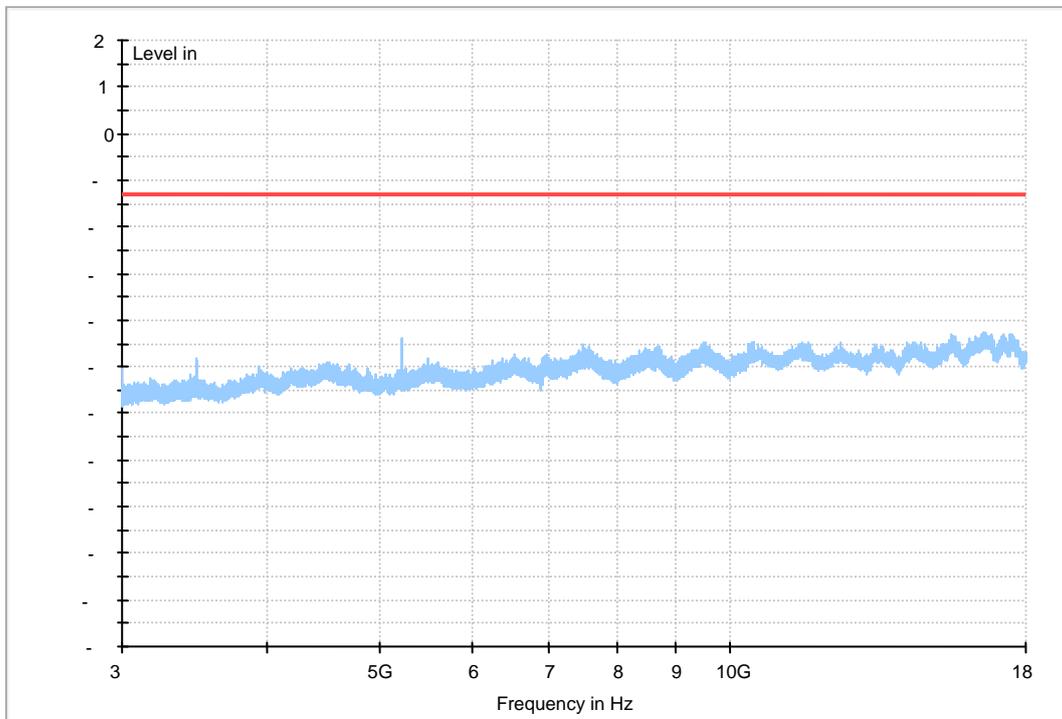




Traffic Mode (30MHz-3GHz)



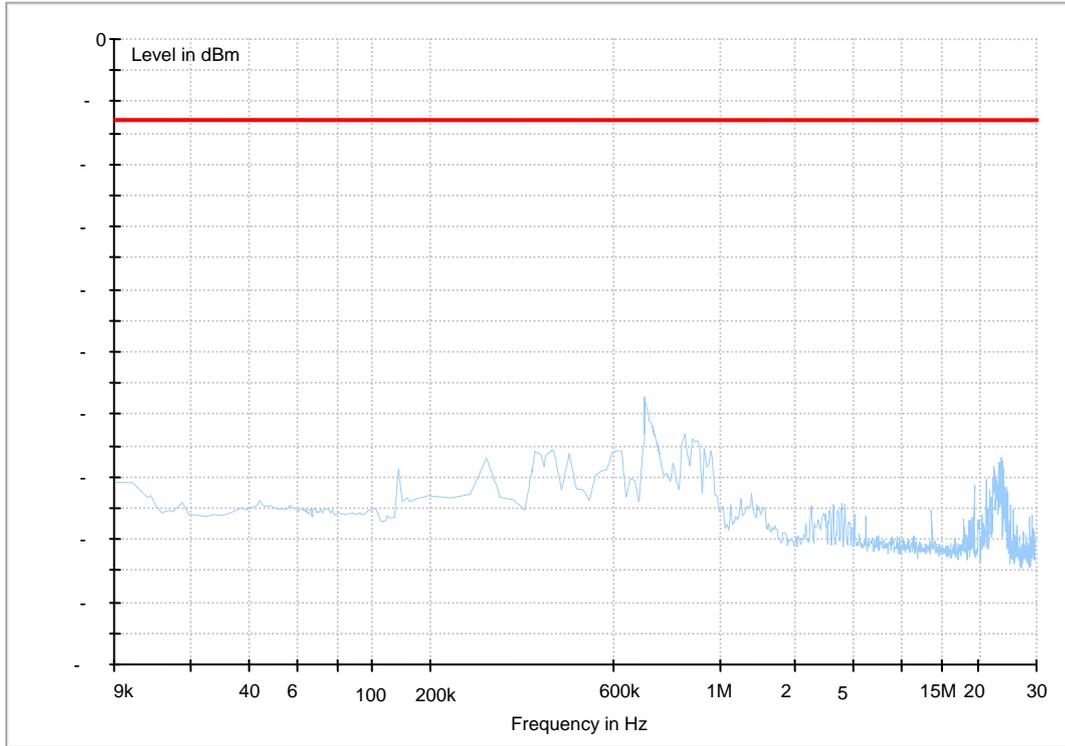
Traffic Mode (3GHz-18GHz)



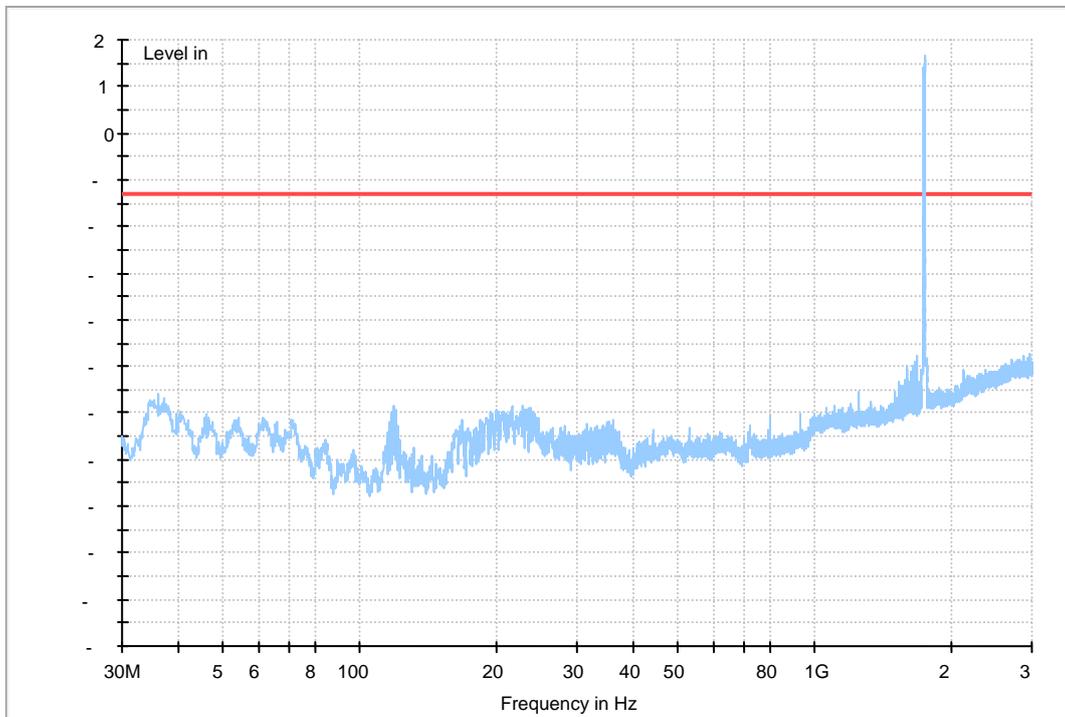


HSUPA AWS

Traffic Mode (9kHz-30MHz)

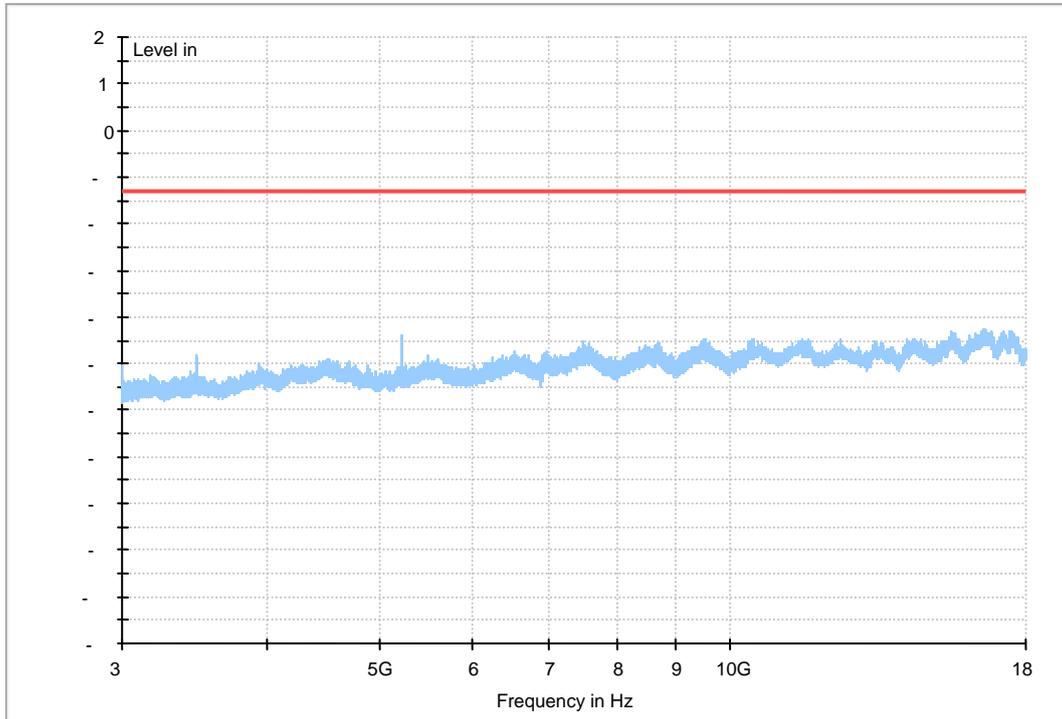


Traffic Mode (30MHz-3GHz)





Traffic Mode (3GHz-18GHz)

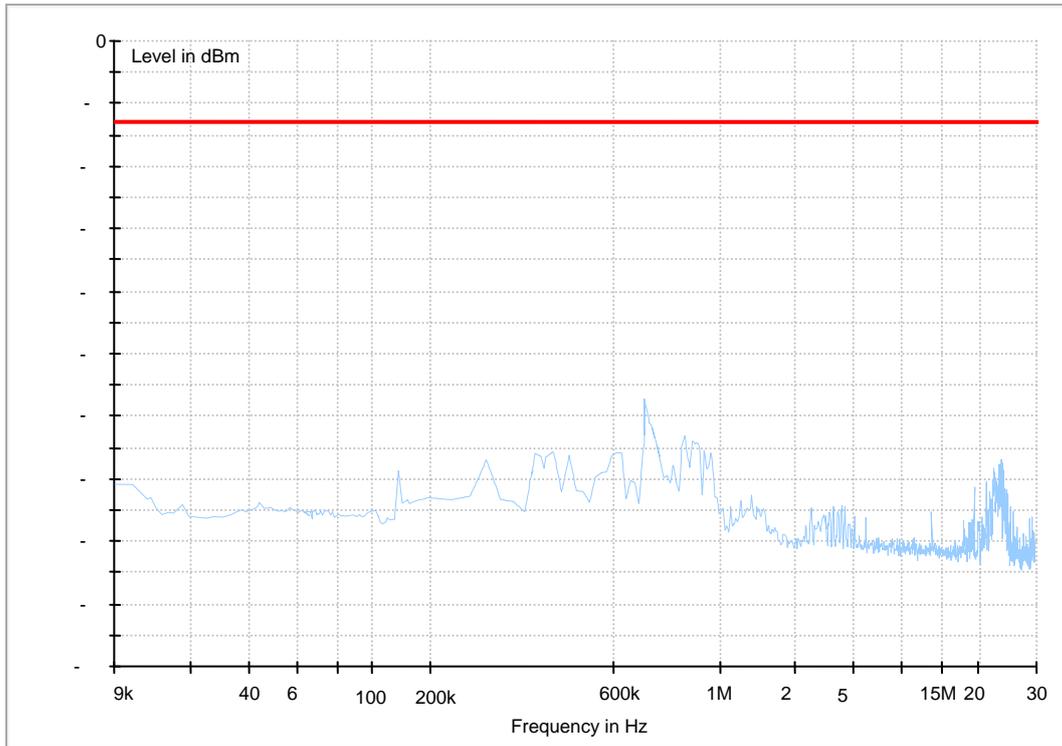




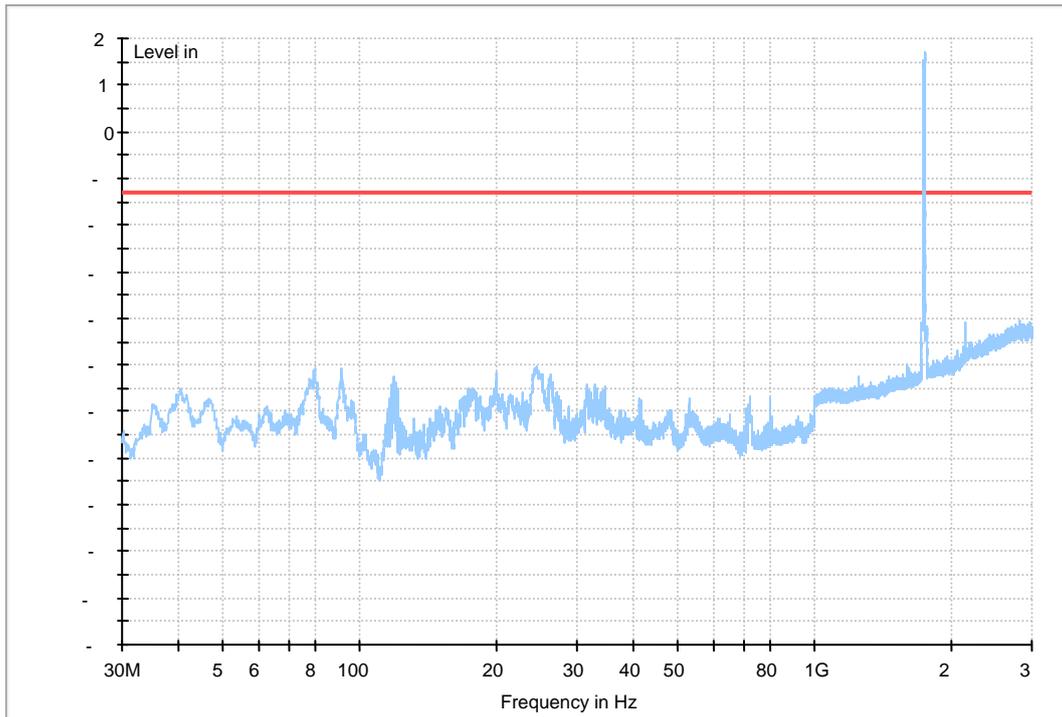
Note: 1. Simultaneous transmission was investigated and no new emissions were found.
2. $RBW \geq 1\text{MHz}$, $VBW > 3 \times RBW$

LTE Band IV 5M

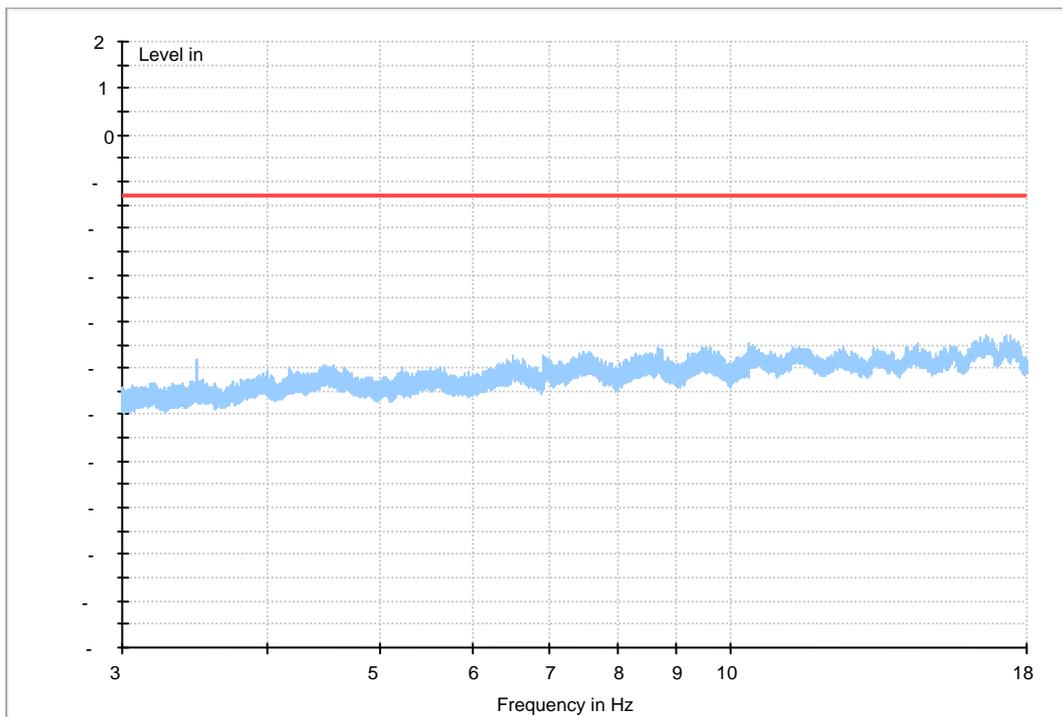
Traffic Mode (9kHz-30MHz)



Traffic Mode (30MHz-3GHz)

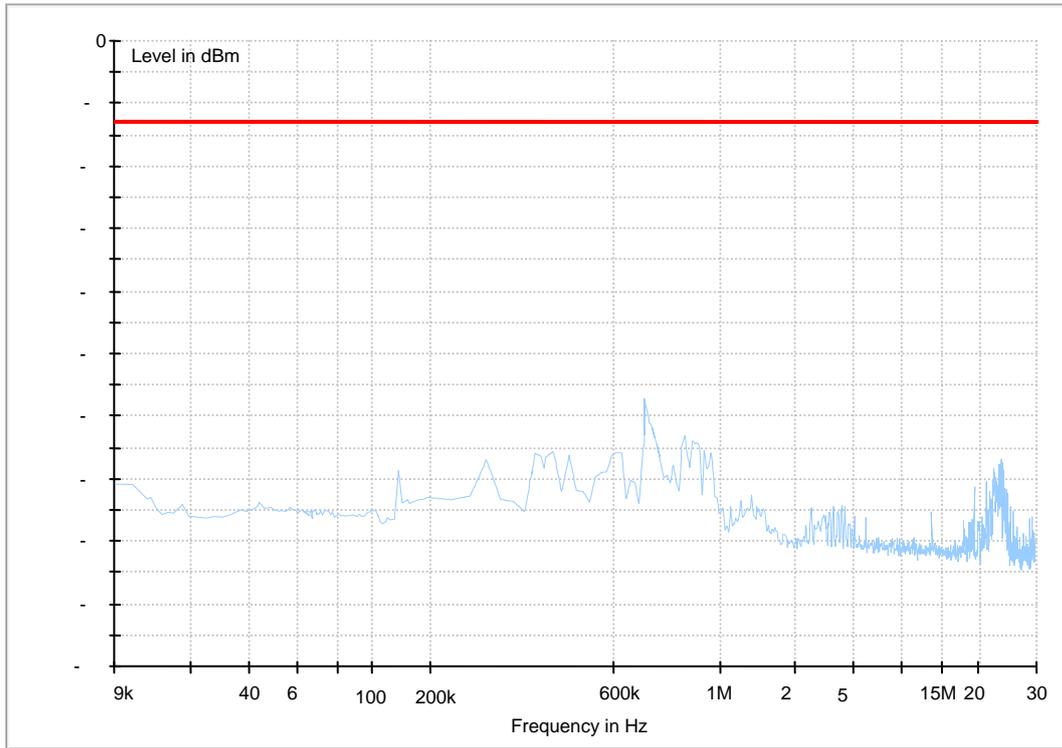


Traffic Mode (3GHz-18GHz)

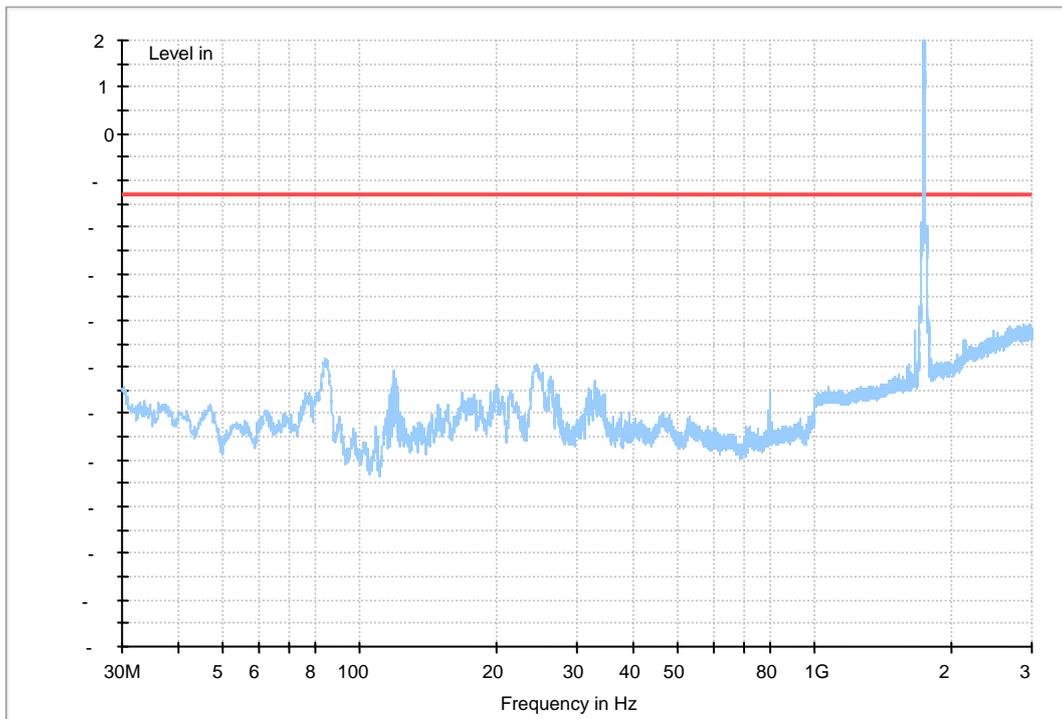


LTE Band IV 20M

Traffic Mode (9kHz-30MHz)

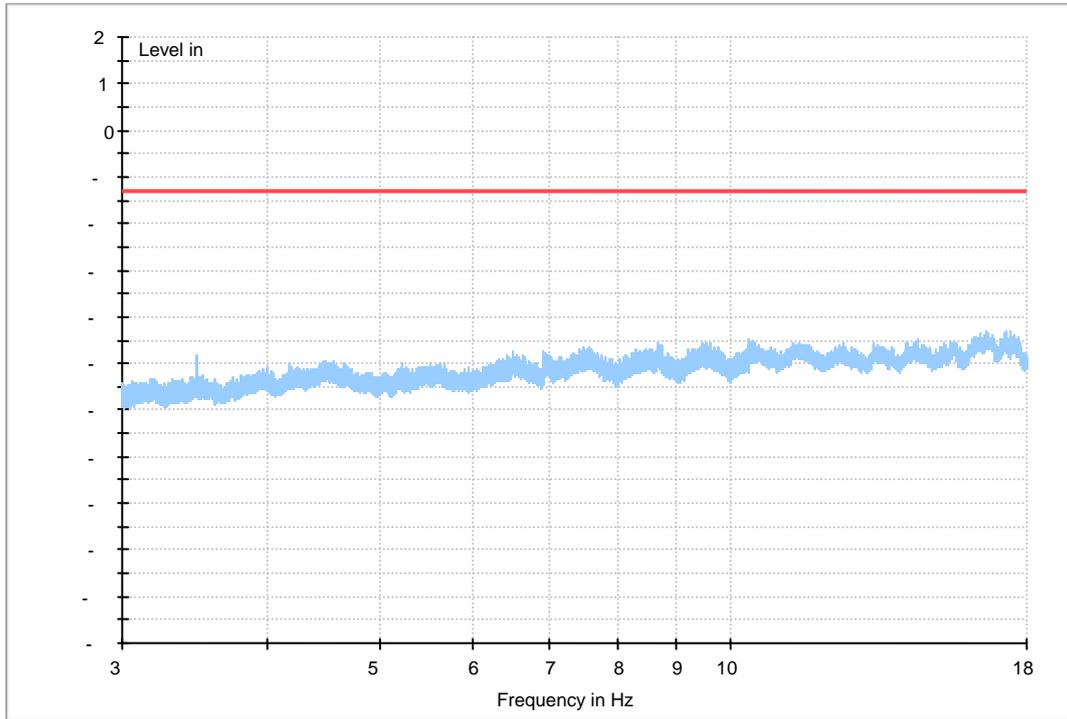


Traffic Mode (30MHz-3GHz)





Traffic Mode (3GHz-18GHz)



The END



Appendix G

Frequency Stability

According to FCC Part 2.1051 & Part 27 Subpart C&L



Frequency Error vs. Temperature:

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

Table 1 Measurement Results BAND 4

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	VN	-30 °C	-8	-0.0046	---	±2.5	Pass
			-20 °C	-14	-0.0081	---	±2.5	Pass
			-10 °C	14	0.00808	---	±2.5	Pass
			0 °C	-16	-0.0092	---	±2.5	Pass
			10 °C	17	0.00981	---	±2.5	Pass
			20 °C	-12	-0.0069	---	±2.5	Pass
			30 °C	-15	-0.0087	---	±2.5	Pass
			40 °C	15	0.00866	---	±2.5	Pass
			50 °C	-12	-0.0069	---	±2.5	Pass

Table 2 Measurement Results (LTE QPSK) BAND 4

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 4(5M)	M	VN	-30 °C	-13	-0.0075	---	±2.5	Pass
			-20 °C	-17	-0.00981	---	±2.5	Pass
			-10 °C	-14	-0.00808	---	±2.5	Pass
			0 °C	-11	-0.00635	---	±2.5	Pass
			10 °C	-14	-0.00808	---	±2.5	Pass
			20 °C	15	0.008658	---	±2.5	Pass
			30 °C	30	0.017316	---	±2.5	Pass
			40 °C	-17	-0.00981	---	±2.5	Pass
			50 °C	10	0.005772	---	±2.5	Pass
TM 4(10M)	M	VN	-30 °C	28	0.016162	---	±2.5	Pass
			-20 °C	18	0.01039	---	±2.5	Pass
			-10 °C	27	0.015584	---	±2.5	Pass
			0 °C	17	0.009812	---	±2.5	Pass
			10 °C	-15	-0.00866	---	±2.5	Pass
			20 °C	-17	-0.00981	---	±2.5	Pass
			30 °C	17	0.009812	---	±2.5	Pass
			40 °C	27	0.015584	---	±2.5	Pass
			50 °C	12	0.006926	---	±2.5	Pass
TM 4(15M)	M	VN	-30 °C	-24	-0.01385	---	±2.5	Pass
			-20 °C	-10	-0.00577	---	±2.5	Pass
			-10 °C	-16	-0.00924	---	±2.5	Pass
			0 °C	20	0.011544	---	±2.5	Pass



			10 °C	26	0.015007	---	±2.5	Pass
			20 °C	-24	-0.01385	---	±2.5	Pass
			30 °C	24	0.013853	---	±2.5	Pass
			40 °C	-14	-0.00808	---	±2.5	Pass
			50 °C	-15	-0.00866	---	±2.5	Pass
TM 4(20M)	M	VN	-30 °C	-10	-0.00577	---	±2.5	Pass
			-20 °C	-23	-0.01328	---	±2.5	Pass
			-10 °C	15	0.008658	---	±2.5	Pass
			0 °C	14	0.008081	---	±2.5	Pass
			10 °C	16	0.009235	---	±2.5	Pass
			20 °C	27	0.015584	---	±2.5	Pass
			30 °C	11	0.006349	---	±2.5	Pass
			40 °C	15	0.008658	---	±2.5	Pass
			50 °C	-22	-0.0127	---	±2.5	Pass



Table 3 Measurement Results (LTE 16QAM) BAND 4

Test Mode	RF Ch.	Volt.	Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 4(5M)	M	VN	-30 °C	-19	-0.01097	---	±2.5	Pass
			-20 °C	-23	-0.01328	---	±2.5	Pass
			-10 °C	-20	-0.01154	---	±2.5	Pass
			0 °C	-17	-0.00981	---	±2.5	Pass
			10 °C	-20	-0.01154	---	±2.5	Pass
			20 °C	9	0.005195	---	±2.5	Pass
			30 °C	24	0.013853	---	±2.5	Pass
			40 °C	-23	-0.01328	---	±2.5	Pass
TM 4(10M)	M	VN	50 °C	4	0.002309	---	±2.5	Pass
			-30 °C	22	0.012698	---	±2.5	Pass
			-20 °C	12	0.006926	---	±2.5	Pass
			-10 °C	21	0.012121	---	±2.5	Pass
			0 °C	11	0.006349	---	±2.5	Pass
			10 °C	-21	-0.01212	---	±2.5	Pass
			20 °C	-23	-0.01328	---	±2.5	Pass
			30 °C	11	0.006349	---	±2.5	Pass
TM 4(15M)	M	VN	40 °C	21	0.012121	---	±2.5	Pass
			50 °C	6	0.003463	---	±2.5	Pass
			-30 °C	-30	-0.01732	---	±2.5	Pass
			-20 °C	-16	-0.00924	---	±2.5	Pass
			-10 °C	-22	-0.0127	---	±2.5	Pass
			0 °C	14	0.008081	---	±2.5	Pass
			10 °C	20	0.011544	---	±2.5	Pass
			20 °C	-30	-0.01732	---	±2.5	Pass
TM 4(20M)	M	VN	30 °C	18	0.01039	---	±2.5	Pass
			40 °C	-20	-0.01154	---	±2.5	Pass
			50 °C	-21	-0.01212	---	±2.5	Pass
			-30 °C	-16	-0.00924	---	±2.5	Pass
			-20 °C	-29	-0.01674	---	±2.5	Pass
			-10 °C	9	0.005195	---	±2.5	Pass
			0 °C	8	0.004618	---	±2.5	Pass
			10 °C	10	0.005772	---	±2.5	Pass
TM 4(20M)	M	VN	20 °C	21	0.012121	---	±2.5	Pass
			30 °C	5	0.002886	---	±2.5	Pass
			40 °C	9	0.005195	---	±2.5	Pass
			50 °C	-28	-0.01616	---	±2.5	Pass



Frequency Error vs. Voltage:

Table 4 Measurement Results BAND 4

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM 1	M	20 °C	VL	16	0.00924	---	±2.5	Pass
			VN	-9	-0.0052	---	±2.5	Pass
			VH	19	0.01097	---	±2.5	Pass

Table 5 Measurement Results (LTE QPSK) BAND 4

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM4(5M)	M	20 °C	VL	25	0.01443	---	±2.5	Pass
			VN	13	0.007504	---	±2.5	Pass
			VH	20	0.011544	---	±2.5	Pass
TM4(10M)	M	20 °C	VL	-18	-0.01039	---	±2.5	Pass
			VN	-20	-0.01154	---	±2.5	Pass
			VH	-12	-0.00693	---	±2.5	Pass
TM4(15M)	M	20 °C	VL	30	0.017316	---	±2.5	Pass
			VN	22	0.012698	---	±2.5	Pass
			VH	10	0.005772	---	±2.5	Pass
TM4(20M)	M	20 °C	VL	-19	-0.01097	---	±2.5	Pass
			VN	14	0.008081	---	±2.5	Pass
			VH	20	0.011544	---	±2.5	Pass

Table 6 Measurement Results (LTE 16QAM) BAND 4

Test Mode	RF Ch.	Temp.	Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Freq. vs. 20 °C [ppm]	Limit [ppm]	Verdict
TM4(5M)	M	20 °C	VL	19	0.010967	---	±2.5	Pass
			VN	7	0.00404	---	±2.5	Pass
			VH	14	0.008081	---	±2.5	Pass
TM4(10M)	M	20 °C	VL	-24	-0.01385	---	±2.5	Pass
			VN	-26	-0.01501	---	±2.5	Pass
			VH	-18	-0.01039	---	±2.5	Pass
TM4(15M)	M	20 °C	VL	24	0.013853	---	±2.5	Pass
			VN	16	0.009235	---	±2.5	Pass



			VH	4	0.002309	---	±2.5	Pass
TM4(20M)	M	20 °C	VL	-25	-0.01443	---	±2.5	Pass
			VN	8	0.004618	---	±2.5	Pass
			VH	14	0.008081	---	±2.5	Pass

-----END-----



Appendix H

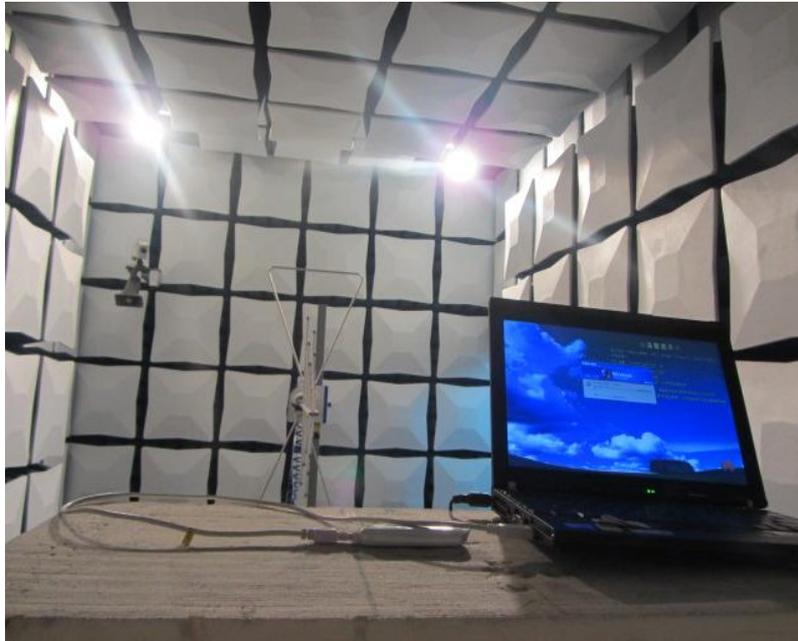
Photos of Radiated Spurious Emissions



Photos of Test Setup



1 Radiated Spurious Emissions



Radiated Spurious Emission (below 3GHz)





Radiated Spurious Emission (3GHz to18GHz)



Radiated Spurious Emission (18GHz to26.5GHz)

The END