

TEST REPORT

Product : Smart Helmet
Trade mark : K wearable
Model/Type reference : KC-N901
Serial Number : N/A
Report Number : EED32M00050705
FCC ID : 2AVZ7KC-N901
Date of Issue : Jun. 03, 2020
Test Standards : 47 CFR Part 2
47 CFR Part 22 subpart H
Test result : PASS

Prepared for:

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Check No.:3096344197

2 Version

Version No.	Date	Description
00	Jun. 03, 2020	Original

3 Test Summary

LTE Band 5			
Test Item	Test Requirement	Test method	Result
Conducted output power	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016&KDB 971168 D01v03r01	PASS
Effective Radiated Power of Transmitter(ERP)	Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016&KDB 971168 D01v03r01	PASS
peak-to-average ratio	Part 24.232(d)	KDB 971168 D01v02r02	PASS
99%&26dB Occupied Bandwidth	Part 2.1049(h)	Part 22.917(b) &KDB 971168 D01v03r01	PASS
Band Edge at antenna terminals	Part 2.1051/Part 22.917(a)	Part 22.917(b) &KDB 971168 D01v03r01	PASS
Spurious emissions at antenna terminals	Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016&KDB 971168 D01v03r01	PASS
Field strength of spurious radiation	Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016&KDB 971168 D01v03r01	PASS
Frequency stability	Part 2.1055/ Part 22.355	TIA-603-E-2016&KDB 971168 D01v03r01	PASS

Remark:

The tested samples and the sample information are provided by the client.

Tx: In this whole report Tx (or tx) means Transmitter.

Rx: In this whole report Rx (or rx) means Receiver.

RF: In this whole report RF means Radiated Frequency.

CH: In this whole report CH means channel.

Volt: In this whole report Volt means Voltage.

Temp: In this whole report Temp means Temperature.

Humid: In this whole report Humid means humidity.

Press: In this whole report Press means Pressure.

N/A: In this whole report not application

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5 Test Requirement

5.1 Test setup

5.1.1 For Radiated Emissions test setup

Radiated Emissions setup:

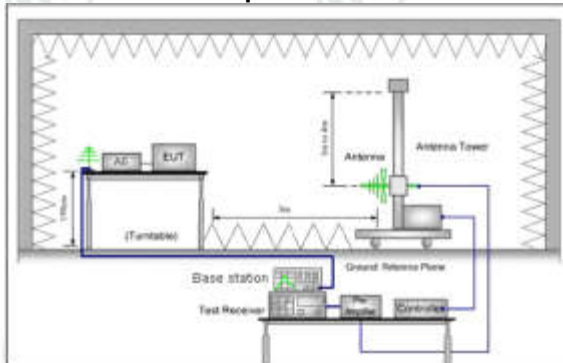


Figure 1.30MHz to 1GHz

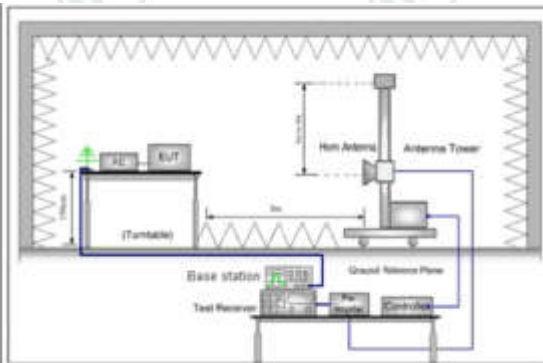


Figure 2. above 1GHz

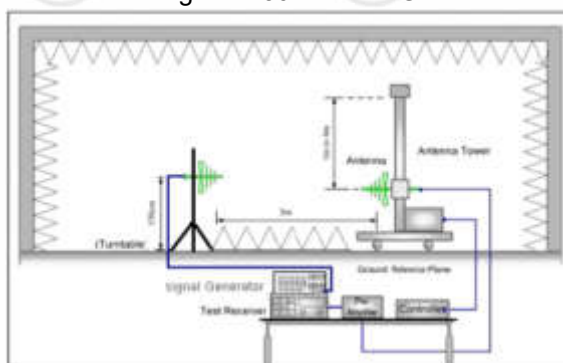


Figure 1. 30MHz to 1GHz

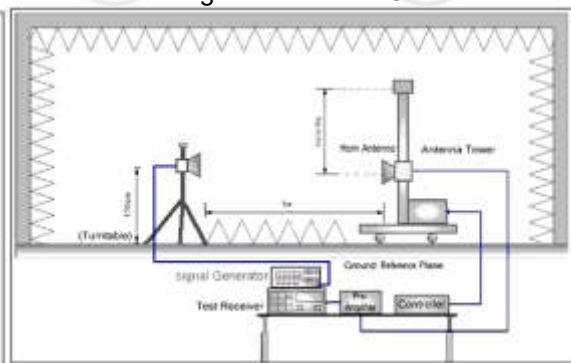


Figure 2. above 1GHz

5.2 Test Environment

Operating Environment:	
Temperature:	24.5°C
Humidity:	54.8 % RH
Atmospheric Pressure:	1010mbar

5.3 Test Condition

Test channel:

LTE

Test Mode	Test Frequency ID	Bandwidth (MHz)	Number [UL]	Frequency of Uplink(MHz)	Number [DL]	Frequency of Downlink(MHz)
LTE band 5 TX:824-849 MHz RX: 869-894MHz	Low Range	1.4	20407	824.7	2407	869.7
		3	20415	825.5	2415	870.5
		5	20425	826.5	2425	871.5
		10	20450	829	2450	874
	Mid Range	1.4/3/5/10	20525	836.5	2525	881.5
		1.4	20643	848.3	2643	893.3
	High Range	3	20635	847.5	2635	892.5
		5	20625	846.5	2625	891.5
		10	20600	844	2600	889

6 General Information

6.1 Client Information

Applicant:	Shenzhen Kuang-Chi Space Technology Co., Ltd
Address of Applicant:	301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China
Manufacturer:	Shenzhen Kuang-Chi Space Technology Co., Ltd.
Address of Manufacturer:	301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China
Factory:	Shenzhen Kuang-Chi Space Technology Co., Ltd
Address of Factory:	301-B077, Building 2, No.1, Mawu Road, Baoan Community, Longgang District, Shenzhen, Guangdong, China

6.2 General Description of EUT

Product Name:	Smart Helmet	
Model No.(EUT):	KC-N901	
Trade mark:		
EUT Supports Radios application:	LTE Band 5: Tx: 824-849 MHz, Rx: 869-894MHz	
Power Supply:	LI-ION BATTERY	RATED CAPACITY 5000mAh (19Wh) TYPICAL CAPACITY 5100mAh (19.38Wh) NOMINAL VOLTAGE: 3.8V --- LIMITED CHARGE VOLTAGE: 4.35V --- MODEL: GQ-V496594P
Sample Received Date:	Mar.18, 2020	
Sample tested Date:	Mar.18, 2020 to May 06, 2020	

6.3 Product Specification subjective to this standard

Frequency Band:	LTE Band 5: Tx: 824 MHz – 849 MHz, Rx: 869 MHz – 894MHz
Modulation Type:	QPSK, 16QAM
Antenna Type:	monopole antenna
Antenna Gain:	1.0 dBi
Test Voltage:	BATTERY 3.8V

6.4 Description of Support Units

The EUT has been tested with associated equipment below

Associated equipment name		Manufacturer	model	S/N serial number	Supplied by	Certification
AE1	Notebook	DELL	DELL 3490	D245DX2	DELL	CE&FCC

6.5 Test Location

All tests were performed at:

Centre Testing International Group Co., Ltd
Building C, Hongwei Industrial Park Block 70, Bao'an District, Shenzhen, China
Telephone: +86 (0) 755 33683668 Fax: +86 (0) 755 33683385
No tests were sub-contracted.
FCC Designation No.: CN1164

6.6 Deviation from Standards

None.

6.7 Abnormalities from Standard Conditions

None.

6.8 Other Information Requested by the Customer

None.

6.9 Measurement Uncertainty (95% confidence levels, k=2)

	Item	Measurement Uncertainty
1	Radio Frequency	7.9×10^{-8}
2	RF power, conducted	0.46dB (30MHz-1GHz)
		0.55dB (1GHz-18GHz)
3	Radiated Spurious emission test	4.3dB (30MHz-1GHz)
		4.5dB (1GHz-12.75GHz)
4	Conduction emission	3.5dB (9kHz to 150kHz)
		3.1dB (150kHz to 30MHz)
5	Temperature test	0.64°C
6	Humidity test	3.8%
7	DC power voltages	0.026%

7 Equipment List

Communication RF test system					
Equipment	Manufacturer	Model No.	Serial Number	Cal. Date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Spectrum Analyzer	Agilent	E4440A	MY46185649	11-05-2019	11-04-2020
Communication test set	R&S	CMW200	111935	02-17-2020	02-16-2021
Signal Generator	Keysight	E8257D	MY53401106	02-17-2020	02-16-2021
Communication test set	R&S	CMW500	152394	02-17-2020	02-16-2021
High-pass filter	Sinoscite	FL3CX03WG18 NM12-0398-002	---	---	---
High-pass filter	MICRO-TRONICS	SPA-F-63029-4	---	---	---
band rejection filter	Sinoscite	FL5CX01CA09C L12-0395-001	---	---	---
band rejection filter	Sinoscite	FL5CX01CA08C L12-0393-001	---	---	---
band rejection filter	Sinoscite	FL5CX02CA04C L12-0396-002	---	---	---
band rejection filter	Sinoscite	FL5CX02CA03C L12-0394-001	---	---	---
DC Power	Keysight	E3642A	MY55156236	02-17-2020	02-16-2021
DC Power	Keysight	E3642A	MY56376035	02-17-2020	02-16-2021
PC-2	Lenovo	R4960d	---	---	---
PC-3	Lenovo	R4960d	---	---	---
RF control unit	JS Tonscend	JS0806-1	158060004	02-17-2020	02-16-2021
DC power Box	JS Tonscend	JS0806-4	158060007	---	---
LTE Automatic test software	JS Tonscend	JS1120-1	---	---	---
WCDMA Automatic test software	JS Tonscend	JS1120-3	---	---	---
GSM Automatic test software	JS Tonscend	JS1120-3	---	---	---
Temperature/ Humidity Indicator	biaozhi	HM10	1804186	07-26-2019	07-25-2020

Conducted disturbance Test					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
Receiver	R&S	ESCI	100435	05-20-2019 04-28-2020	05-19-2020 04-27-2021
Temperature/ Humidity Indicator	Defu	TH128	/	06-14-2019	06-13-2020
LISN	R&S	ENV216	100098	03-05-2020	03-04-2021
Barometer	changchun	DYM3	1188	06-20-2019	06-19-2020

3M full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
RSE Automatic test software	JS Tonscend	JS36-RSE	10166	06-19-2019	06-18-2020
Receiver	Keysight	N9038A	MY57290136	03-05-2020	03-04-2021
Spectrum Analyzer	Keysight	N9020B	MY57111112	03-05-2020	03-04-2021
Spectrum Analyzer	Keysight	N9030B	MY57140871	03-05-2020	03-04-2021
TRILOG Broadband Antenna	Schwarzbeck	VULB 9163	9163-1148	04-25-2018	04-24-2021
Horn Antenna	Schwarzbeck	BBHA 9170	9170-832	04-25-2018	04-24-2021
Horn Antenna	ETS-LINDGREN	3117	00057407	07-10-2018	07-09-2021
Preamplifier	EMCI	EMC184055SE	980596	05-22-2019	05-21-2020
Communication test set	R&S	CMW500	102898	01-14-2020	01-13-2021
Preamplifier	EMCI	EMC001330	980563	05-08-2019 04-22-2020	05-07-2020 04-21-2021
Preamplifier	JS Tonscend	980380	EMC051845 SE	01-09-2020	01-08-2021
Temperature/ Humidity Indicator	biaozhi	GM1360	EE1186631	04-30-2019 04-27-2020	04-29-2020 04-26-2021
Fully Anechoic Chamber	TDK	FAC-3	---	01-17-2018	01-16-2021
Filter bank	JS Tonscend	JS0806-F	188060094	04-10-2018	04-09-2021
Cable line	Times	SFT205-NMSM-2.50M	394812-0001	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0002	---	---
Cable line	Times	SFT205-NMSM-2.50M	394812-0003	---	---
Cable line	Times	SFT205-NMSM-2.50M	393495-0001	---	---
Cable line	Times	EMC104-NMNM-1000	SN160710	---	---
Cable line	Times	SFT205-NMSM-3.00M	394813-0001	---	---
Cable line	Times	SFT205-NMNM-1.50M	381964-0001	---	---
Cable line	Times	SFT205-NMSM-7.00M	394815-0001	---	---
Cable line	Times	HF160-KMKM-3.00M	393493-0001	---	---

3M Semi/full-anechoic Chamber					
Equipment	Manufacturer	Model No.	Serial Number	Cal. date (mm-dd-yyyy)	Cal. Due date (mm-dd-yyyy)
3M Chamber & Accessory Equipment	TDK	SAC-3	---	05-24-2019	05-23-2022
TRILOG Broadband Antenna	Schwarzbeck	VULB9163	9163-618	07-26-2019	07-25-2020
Loop Antenna	Schwarzbeck	FMZB 1519B	1519B-076	04-25-2018	04-24-2021
Receiver	R&S	ESCI7	100938-003	10-21-2019	10-20-2020
Multi device Controller	matur	NCD/070/107 11112	---	---	---
Temperature/ Humidity Indicator	Shanghai qixiang	HM10	1804298	07-26-2019	07-25-2020
Communication test set	Agilent	E5515C	GB47050534	03-01-2019	02-28-2022
Cable line	Fulai(7M)	SF106	5219/6A	---	---
Cable line	Fulai(6M)	SF106	5220/6A	---	---
Cable line	Fulai(3M)	SF106	5216/6A	---	---
Cable line	Fulai(3M)	SF106	5217/6A	---	---
band rejection filter	Sinoscite	FL5CX01CA0 8CL12-0393-001	---	---	---

8 Radio Technical Requirements Specification

Reference documents for testing:

No.	Identity	Document Title
1	PART 22	PART 22 – PUBLIC MOBILE SERVICES Subpart H – Cellular Radiotelephone Service
2	PART 24)	PART 24 – PERSONAL COMMUNICATIONS SERVICES Subpart E – Broadband PCS
3	PART 27	PART 27 – MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES Subpart C – Technical Standards
3	PART 2	Frequency allocations and radio treaty matters; general rules and regulations
4	TIA-603-E-2016	Land Mobile FM or PM -Communications Equipment -Measurement and Performance Standards
5	KDB971168 D01	KDB971168 D01 Power Meas License Digital Systems v03r01

Test Results List:

Test Requirement	Test method	Test item	Verdict	Note
Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016& KDB 971168 D01v03r01	Conducted output power	PASS	Appendix A)
Part 2.1046(a)/Part 22.913(a)	TIA-603-E-2016& KDB 971168 D01v03r01	Effective Radiated Power of Transmitter(ERP)	PASS	Appendix A)
Part 24.232(d)	KDB 971168 D01v02r02	peak-to-average ratio	PASS	Appendix B)
Part 2.1049(h)	Part 22.917(b) &KDB 971168 D01v03r01	99% &26dBOccupied Bandwidth	PASS	Appendix C)
Part 2.1051/Part 22.917(a)/	Part 22.917(b) &KDB 971168 D01v03r01	Band Edge at antenna terminals	PASS	Appendix D)
Part 2.1051/ Part 2.1057/ Part 22.917(a)(b)/	TIA-603-E-2016& KDB 971168 D01v03r01	Spurious emissions at antenna terminals	PASS	Appendix E)
Part 2.1055/ Part 22.355	TIA-603-E-2016& KDB 971168 D01v03r01	Frequency stability	PASS	Appendix F)
Part 2.1053/ Part 2.1057/ Part 22.917(a)(b)	TIA-603-E-2016& KDB 971168 D01v03r01	Field strength of spurious radiation	PASS	Appendix G)

Appendix A: Effective (Isotropic) Radiated Power Output Data

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Average Power [dBm]	E.i.r.p [dBm]	Verdict
		Size	Offset			
QPSK	LCH	1	0	22.18	23.18	PASS
		1	3	22.46	23.46	PASS
		1	5	22.37	23.37	PASS
		3	0	22.33	23.33	PASS
		3	2	22.34	23.34	PASS
		3	3	22.44	23.44	PASS
		6	0	22.30	23.30	PASS
	MCH	1	0	23.52	24.52	PASS
		1	3	23.70	24.70	PASS
		1	5	23.53	24.53	PASS
		3	0	23.72	24.72	PASS
		3	2	23.74	24.74	PASS
		3	3	23.73	24.73	PASS
		6	0	23.58	24.58	PASS
	HCH	1	0	22.57	23.57	PASS
		1	3	22.55	23.55	PASS
		1	5	22.37	23.37	PASS
		3	0	22.68	23.68	PASS
		3	2	22.67	23.67	PASS
		3	3	22.61	23.61	PASS
		6	0	22.55	23.55	PASS

16QAM	LCH	1	0	21.44	22.44	PASS
		1	3	21.77	22.77	PASS
		1	5	21.68	22.68	PASS
		3	0	22.33	23.33	PASS
		3	2	22.34	23.34	PASS
		3	3	22.44	23.44	PASS
		6	0	21.45	22.45	PASS
	MCH	1	0	22.90	23.90	PASS
		1	3	23.18	24.18	PASS
		1	5	22.90	23.90	PASS
		3	0	23.69	24.69	PASS
		3	2	23.73	24.73	PASS
		3	3	23.74	24.74	PASS
		6	0	22.72	23.72	PASS
	HCH	1	0	21.82	22.82	PASS
		1	3	21.95	22.95	PASS
		1	5	21.66	22.66	PASS
		3	0	22.68	23.68	PASS
		3	2	22.67	23.67	PASS
		3	3	22.56	23.56	PASS
		6	0	21.67	22.67	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Average Power [dBm]	E.i.r.p [dBm]	Verdict
		Size	Offset			
QPSK	LCH	1	0	22.28	23.28	PASS
		1	7	22.59	23.59	PASS
		1	14	22.76	23.76	PASS
		8	0	21.59	22.59	PASS
		8	4	21.58	22.58	PASS
		8	7	21.58	22.58	PASS
		15	0	21.61	22.61	PASS
	MCH	1	0	23.62	24.62	PASS
		1	7	23.65	24.65	PASS
		1	14	23.66	24.66	PASS
		8	0	22.70	23.70	PASS
		8	4	22.72	23.72	PASS
		8	7	22.72	23.72	PASS
		15	0	22.73	23.73	PASS
	HCH	1	0	22.89	23.89	PASS
		1	7	22.63	23.63	PASS
		1	14	22.41	23.41	PASS
		8	0	21.78	22.78	PASS
		8	4	21.78	22.78	PASS
		8	7	21.77	22.77	PASS
		15	0	21.77	22.77	PASS

16QAM	LCH	1	0	21.64	22.64	PASS
		1	7	21.87	22.87	PASS
		1	14	22.00	23.00	PASS
		8	0	21.56	22.56	PASS
		8	4	21.57	22.57	PASS
		8	7	21.58	22.58	PASS
		15	0	20.56	21.56	PASS
	MCH	1	0	23.01	24.01	PASS
		1	7	23.01	24.01	PASS
		1	14	22.96	23.96	PASS
		8	0	22.72	23.72	PASS
		8	4	22.73	23.73	PASS
		8	7	22.71	23.71	PASS
		15	0	21.76	22.76	PASS
	HCH	1	0	22.24	23.24	PASS
		1	7	21.90	22.90	PASS
		1	14	21.70	22.70	PASS
		8	0	21.78	22.78	PASS
		8	4	21.79	22.79	PASS
		8	7	21.79	22.79	PASS
		15	0	20.79	21.79	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Average Power [dBm]	E.i.r.p [dBm]	Verdict
		Size	Offset			
QPSK	LCH	1	0	22.31	23.31	PASS
		1	12	22.85	23.85	PASS
		1	24	23.02	24.02	PASS
		12	0	21.50	22.50	PASS
		12	6	21.45	22.45	PASS
		12	13	21.91	22.91	PASS
		25	0	21.80	22.80	PASS
	MCH	1	0	23.59	24.59	PASS
		1	12	23.76	24.76	PASS
		1	24	23.57	24.57	PASS
		12	0	22.76	23.76	PASS
		12	6	22.76	23.76	PASS
		12	13	22.72	23.72	PASS
		25	0	22.79	23.79	PASS
	HCH	1	0	23.18	24.18	PASS
		1	12	22.91	23.91	PASS
		1	24	22.40	23.40	PASS
		12	0	22.17	23.17	PASS
		12	6	22.17	23.17	PASS
		12	13	21.66	22.66	PASS
		25	0	22.01	23.01	PASS

16QAM	LCH	1	0	21.41	22.41	PASS
		1	12	21.90	22.90	PASS
		1	24	22.14	23.14	PASS
		12	0	21.51	22.51	PASS
		12	6	21.51	22.51	PASS
		12	13	21.92	22.92	PASS
		25	0	20.73	21.73	PASS
	MCH	1	0	22.75	23.75	PASS
		1	12	22.89	23.89	PASS
		1	24	22.76	23.76	PASS
		12	0	22.73	23.73	PASS
		12	6	22.73	23.73	PASS
		12	13	22.72	23.72	PASS
		25	0	21.81	22.81	PASS
	HCH	1	0	22.25	23.25	PASS
		1	12	22.02	23.02	PASS
		1	24	21.59	22.59	PASS
		12	0	22.16	23.16	PASS
		12	6	22.18	23.18	PASS
		12	13	21.62	22.62	PASS
		25	0	20.97	21.97	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Average Power [dBm]	E.i.r.p [dBm]	Verdict
		Size	Offset			
QPSK	LCH	1	0	22.39	23.39	PASS
		1	24	23.22	24.22	PASS
		1	49	23.50	24.50	PASS
		25	0	21.92	22.92	PASS
		25	12	21.93	22.93	PASS
		25	25	22.42	23.42	PASS
		50	0	22.18	23.18	PASS
	MCH	1	0	23.48	24.48	PASS
		1	24	23.84	24.84	PASS
		1	49	23.52	24.52	PASS
		25	0	22.85	23.85	PASS
		25	12	22.86	23.86	PASS
		25	25	22.92	23.92	PASS
		50	0	22.90	23.90	PASS
	HCH	1	0	23.61	24.61	PASS
		1	24	23.36	24.36	PASS
		1	49	22.42	23.42	PASS
		25	0	22.57	23.57	PASS
		25	12	22.60	23.60	PASS
		25	25	21.95	22.95	PASS
		50	0	22.30	23.30	PASS

16QAM	LCH	1	0	21.68	22.68	PASS
		1	24	22.52	23.52	PASS
		1	49	22.81	23.81	PASS
		25	0	21.89	22.89	PASS
		25	12	21.92	22.92	PASS
		25	25	22.42	23.42	PASS
		50	0	21.10	22.10	PASS
	MCH	1	0	22.80	23.80	PASS
		1	24	23.15	24.15	PASS
		1	49	22.78	23.78	PASS
		25	0	22.83	23.83	PASS
		25	12	22.87	23.87	PASS
		25	25	22.92	23.92	PASS
		50	0	21.86	22.86	PASS
	HCH	1	0	22.96	23.96	PASS
		1	24	22.61	23.61	PASS
		1	49	21.78	22.78	PASS
		25	0	22.59	23.59	PASS
		25	12	22.59	23.59	PASS
		25	25	21.96	22.96	PASS
		50	0	21.24	22.24	PASS

Appendix B: Peak-to-Average Ratio

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio (dB)	Limit (dB)	Verdict
		Size	Offset			
QPSK	LCH	1	0	5.8	<13	PASS
		1	3	5.59	<13	PASS
		1	5	5.72	<13	PASS
		3	0	5.81	<13	PASS
		3	2	5.82	<13	PASS
		3	3	5.82	<13	PASS
		6	0	5.85	<13	PASS
	MCH	1	0	5.95	<13	PASS
		1	3	5.9	<13	PASS
		1	5	5.93	<13	PASS
		3	0	6.14	<13	PASS
		3	2	6.15	<13	PASS
		3	3	6.13	<13	PASS
		6	0	6.26	<13	PASS
	HCH	1	0	4.68	<13	PASS
		1	3	4.53	<13	PASS
		1	5	4.74	<13	PASS
		3	0	4.84	<13	PASS
		3	2	4.86	<13	PASS
		3	3	4.83	<13	PASS
		6	0	4.93	<13	PASS

16QAM	LCH	1	0	6.45	<13	PASS
		1	3	6.31	<13	PASS
		1	5	6.36	<13	PASS
		3	0	5.82	<13	PASS
		3	2	5.84	<13	PASS
		3	3	5.79	<13	PASS
		6	0	6.49	<13	PASS
	MCH	1	0	6.75	<13	PASS
		1	3	6.51	<13	PASS
		1	5	6.76	<13	PASS
		3	0	6.06	<13	PASS
		3	2	6.07	<13	PASS
		3	3	6.13	<13	PASS
		6	0	6.86	<13	PASS
	HCH	1	0	5.52	<13	PASS
		1	3	5.45	<13	PASS
		1	5	5.53	<13	PASS
		3	0	4.87	<13	PASS
		3	2	4.82	<13	PASS
		3	3	4.81	<13	PASS
		6	0	5.69	<13	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	5.57	<13	PASS
		1	7	5.4	<13	PASS
		1	14	5.2	<13	PASS
		8	0	6.05	<13	PASS
		8	4	6.02	<13	PASS
		8	7	6.06	<13	PASS
		15	0	6.02	<13	PASS
	MCH	1	0	5.64	<13	PASS
		1	7	5.83	<13	PASS
		1	14	5.84	<13	PASS
		8	0	6.58	<13	PASS
		8	4	6.54	<13	PASS
		8	7	6.5	<13	PASS
		15	0	6.46	<13	PASS
	HCH	1	0	4.75	<13	PASS
		1	7	4.67	<13	PASS
		1	14	4.65	<13	PASS
		8	0	5.59	<13	PASS
		8	4	5.57	<13	PASS
		8	7	5.62	<13	PASS
		15	0	5.55	<13	PASS

16QAM	LCH	1	0	6.33	<13	PASS
		1	7	6.22	<13	PASS
		1	14	5.89	<13	PASS
		8	0	6.04	<13	PASS
		8	4	5.97	<13	PASS
		8	7	6.01	<13	PASS
		15	0	6.8	<13	PASS
		15	7	6.01	<13	PASS
	MCH	1	0	6.53	<13	PASS
		1	7	6.61	<13	PASS
		1	14	6.63	<13	PASS
		8	0	6.43	<13	PASS
		8	4	6.62	<13	PASS
		8	7	6.59	<13	PASS
		15	0	7.15	<13	PASS
		15	7	6.59	<13	PASS
	HCH	1	0	5.48	<13	PASS
		1	7	5.57	<13	PASS
		1	14	5.59	<13	PASS
		8	0	5.58	<13	PASS
		8	4	5.53	<13	PASS
		8	7	5.57	<13	PASS
		15	0	6.38	<13	PASS
		15	7	5.57	<13	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	5.95	<13	PASS
		1	12	5.55	<13	PASS
		1	24	5.31	<13	PASS
		12	0	6.13	<13	PASS
		12	6	6.11	<13	PASS
		12	13	5.76	<13	PASS
		25	0	5.94	<13	PASS
	MCH	1	0	5.92	<13	PASS
		1	12	6.04	<13	PASS
		1	24	6.19	<13	PASS
		12	0	6.49	<13	PASS
		12	6	6.4	<13	PASS
		12	13	6.49	<13	PASS
		25	0	6.53	<13	PASS
	HCH	1	0	5.06	<13	PASS
		1	12	4.78	<13	PASS
		1	24	4.86	<13	PASS
		12	0	5.57	<13	PASS
		12	6	5.56	<13	PASS
		12	13	5.52	<13	PASS
		25	0	5.67	<13	PASS

16QAM	LCH	1	0	6.28	<13	PASS
		1	12	6.02	<13	PASS
		1	24	5.79	<13	PASS
		12	0	6.12	<13	PASS
		12	6	6.12	<13	PASS
		12	13	5.76	<13	PASS
		25	0	6.48	<13	PASS
	MCH	1	0	6.27	<13	PASS
		1	12	6.48	<13	PASS
		1	24	6.67	<13	PASS
		12	0	6.5	<13	PASS
		12	6	6.48	<13	PASS
		12	13	6.54	<13	PASS
		25	0	7.04	<13	PASS
	HCH	1	0	5.64	<13	PASS
		1	12	5.41	<13	PASS
		1	24	5.46	<13	PASS
		12	0	5.62	<13	PASS
		12	6	5.68	<13	PASS
		12	13	5.56	<13	PASS
		25	0	6.39	<13	PASS

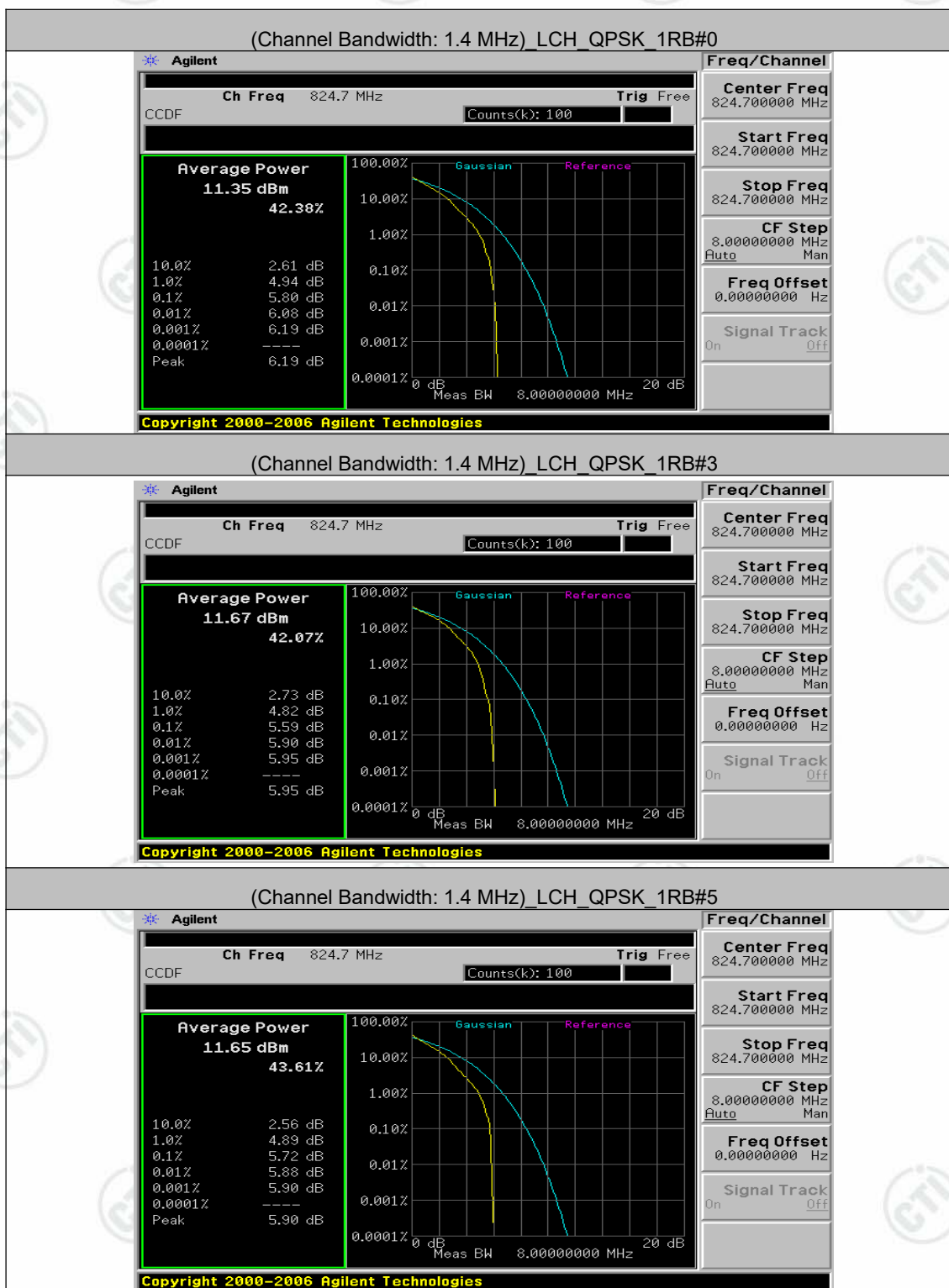
Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
		Size	Offset			
QPSK	LCH	1	0	5.62	<13	PASS
		1	24	4.9	<13	PASS
		1	49	5.35	<13	PASS
		25	0	5.5	<13	PASS
		25	12	5.49	<13	PASS
		25	25	5.36	<13	PASS
		50	0	5.43	<13	PASS
		50	0	5.43	<13	PASS
	MCH	1	0	5.17	<13	PASS
		1	24	5.71	<13	PASS
		1	49	5.52	<13	PASS
		25	0	5.88	<13	PASS
		25	12	5.91	<13	PASS
		25	25	5.93	<13	PASS
		50	0	5.73	<13	PASS
		50	0	5.73	<13	PASS
	HCH	1	0	5.93	<13	PASS
		1	24	4.77	<13	PASS
		1	49	4.55	<13	PASS
		25	0	5.69	<13	PASS
		25	12	5.79	<13	PASS
		25	25	5.18	<13	PASS
		50	0	5.27	<13	PASS
		50	0	5.27	<13	PASS

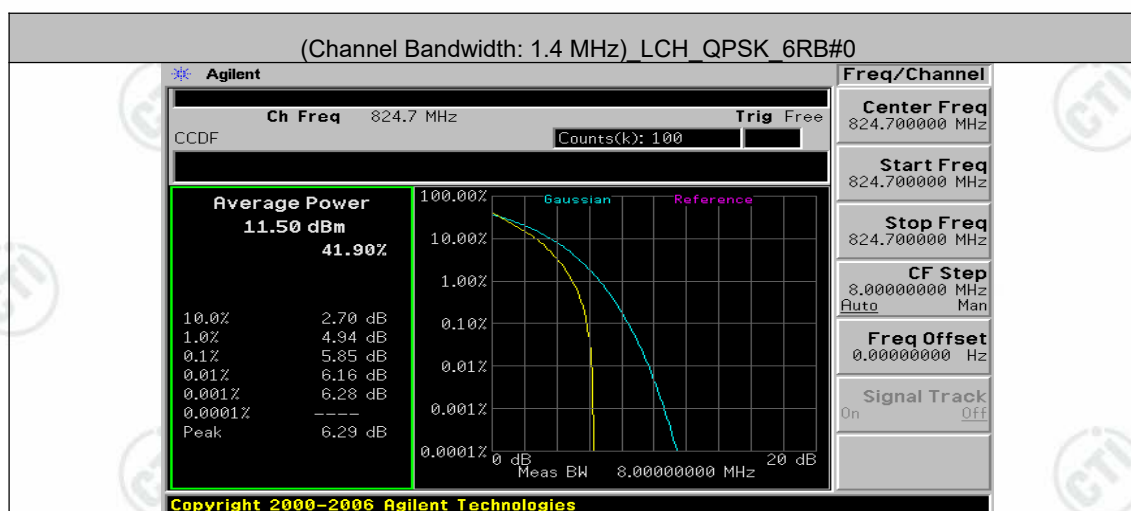
16QAM	LCH	1	0	6.69	<13	PASS
		1	24	5.65	<13	PASS
		1	49	6.07	<13	PASS
		25	0	5.51	<13	PASS
		25	12	5.51	<13	PASS
		25	25	5.42	<13	PASS
		50	0	6.34	<13	PASS
		50	0	6.34	<13	PASS
	MCH	1	0	5.74	<13	PASS
		1	24	6.38	<13	PASS
		1	49	6.16	<13	PASS
		25	0	5.92	<13	PASS
		25	12	5.85	<13	PASS
		25	25	5.87	<13	PASS
		50	0	6.64	<13	PASS
		50	0	6.64	<13	PASS
	HCH	1	0	6.65	<13	PASS
		1	24	5.41	<13	PASS
		1	49	5.39	<13	PASS
		25	0	5.73	<13	PASS
		25	12	5.69	<13	PASS
		25	25	5.13	<13	PASS
		50	0	6.34	<13	PASS
		50	0	6.34	<13	PASS

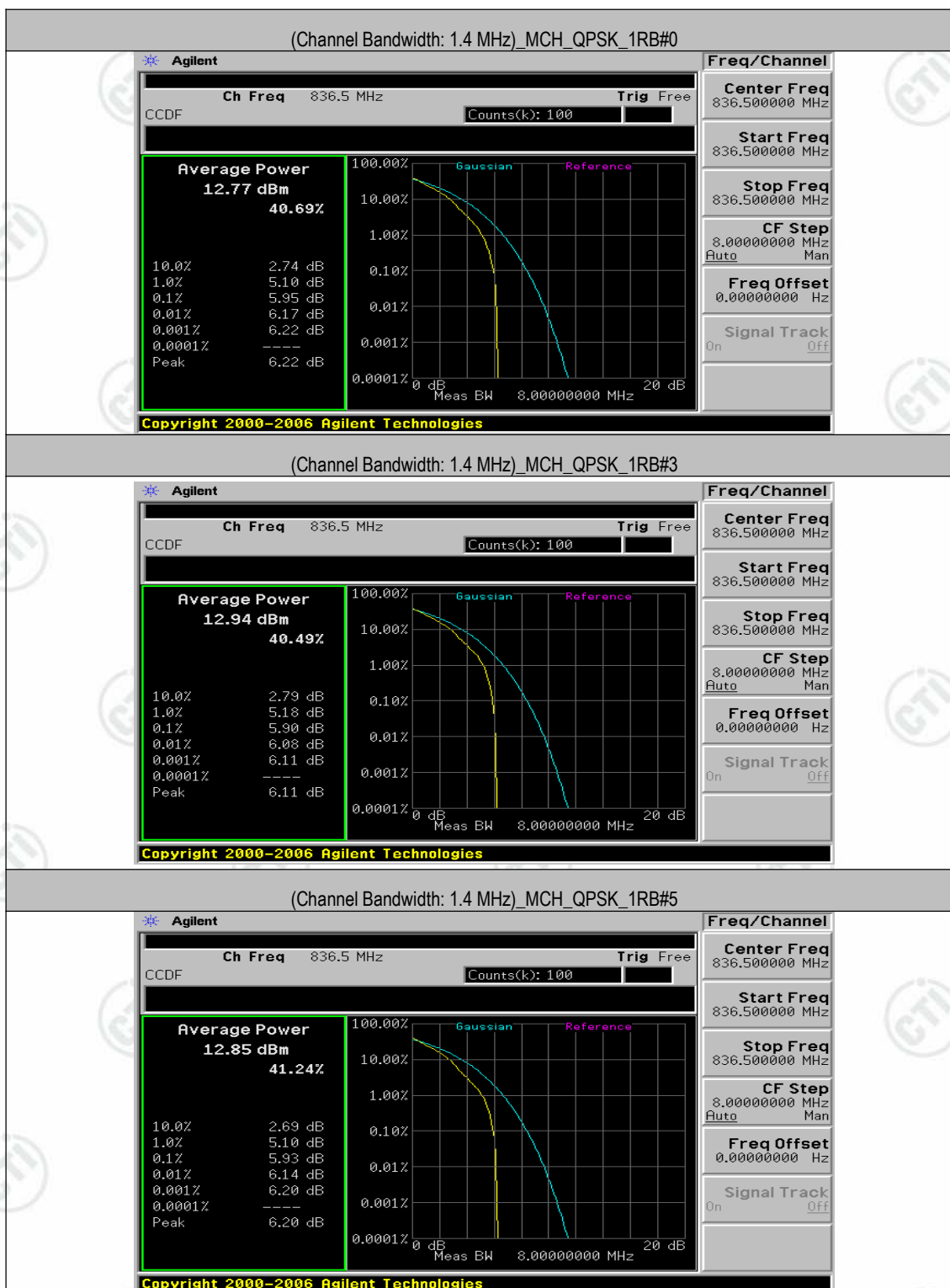
Test Graphs

Channel Bandwidth: 1.4 MHz

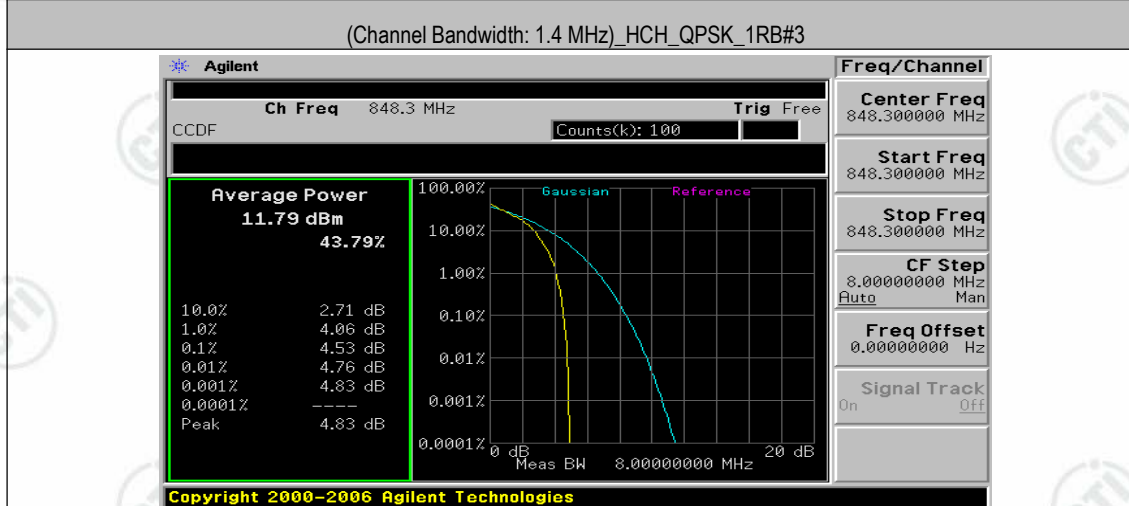
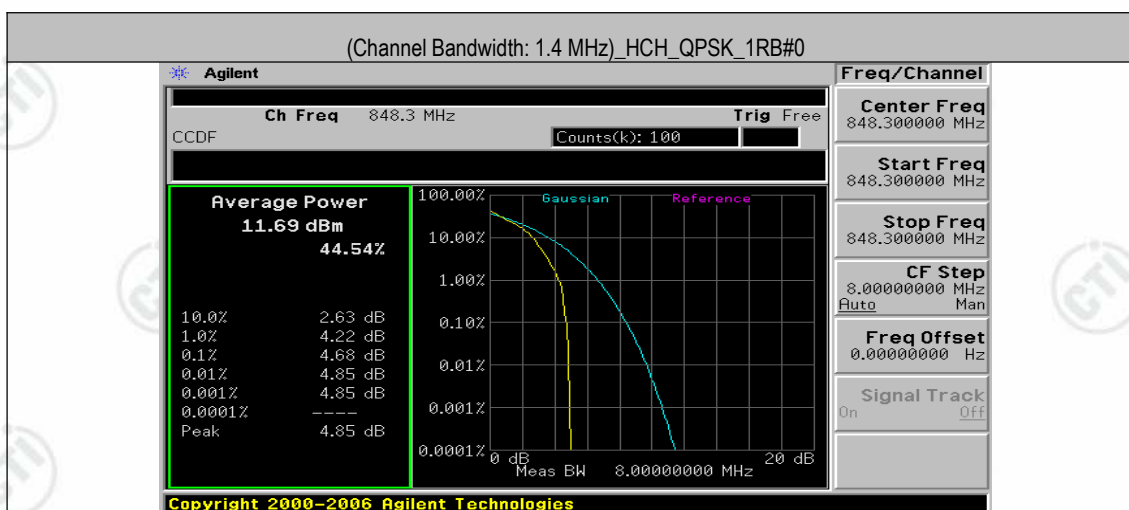
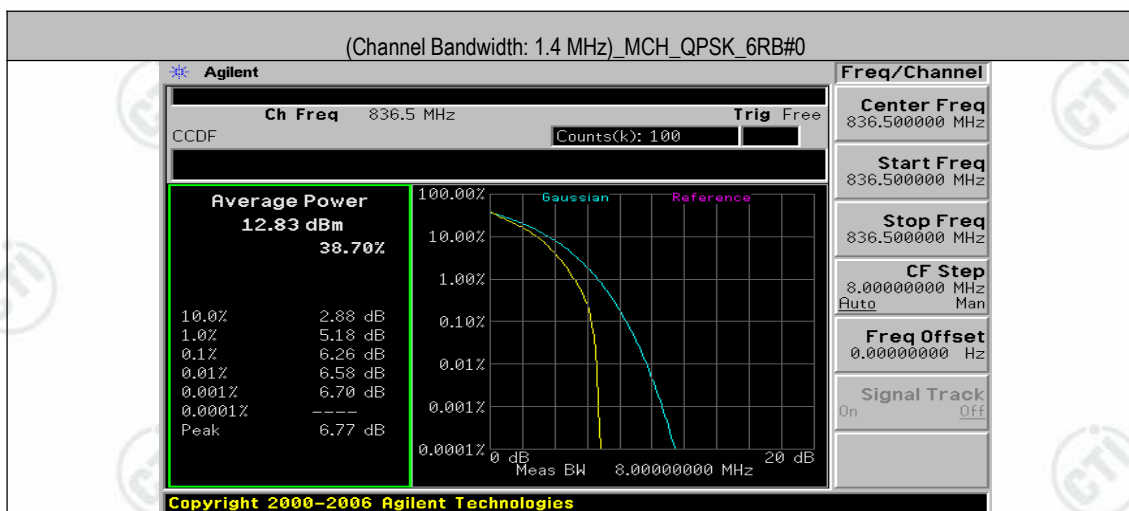










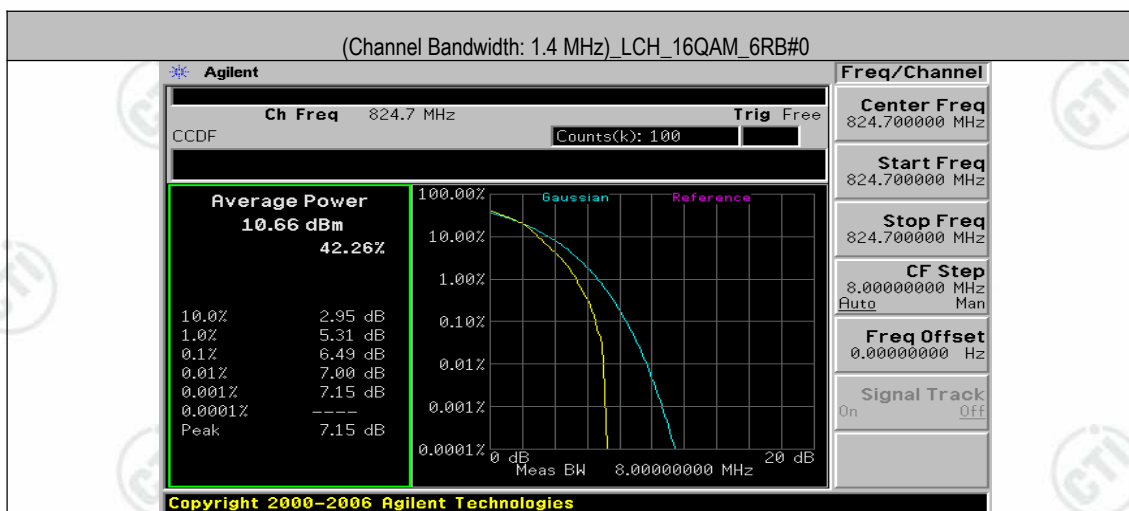


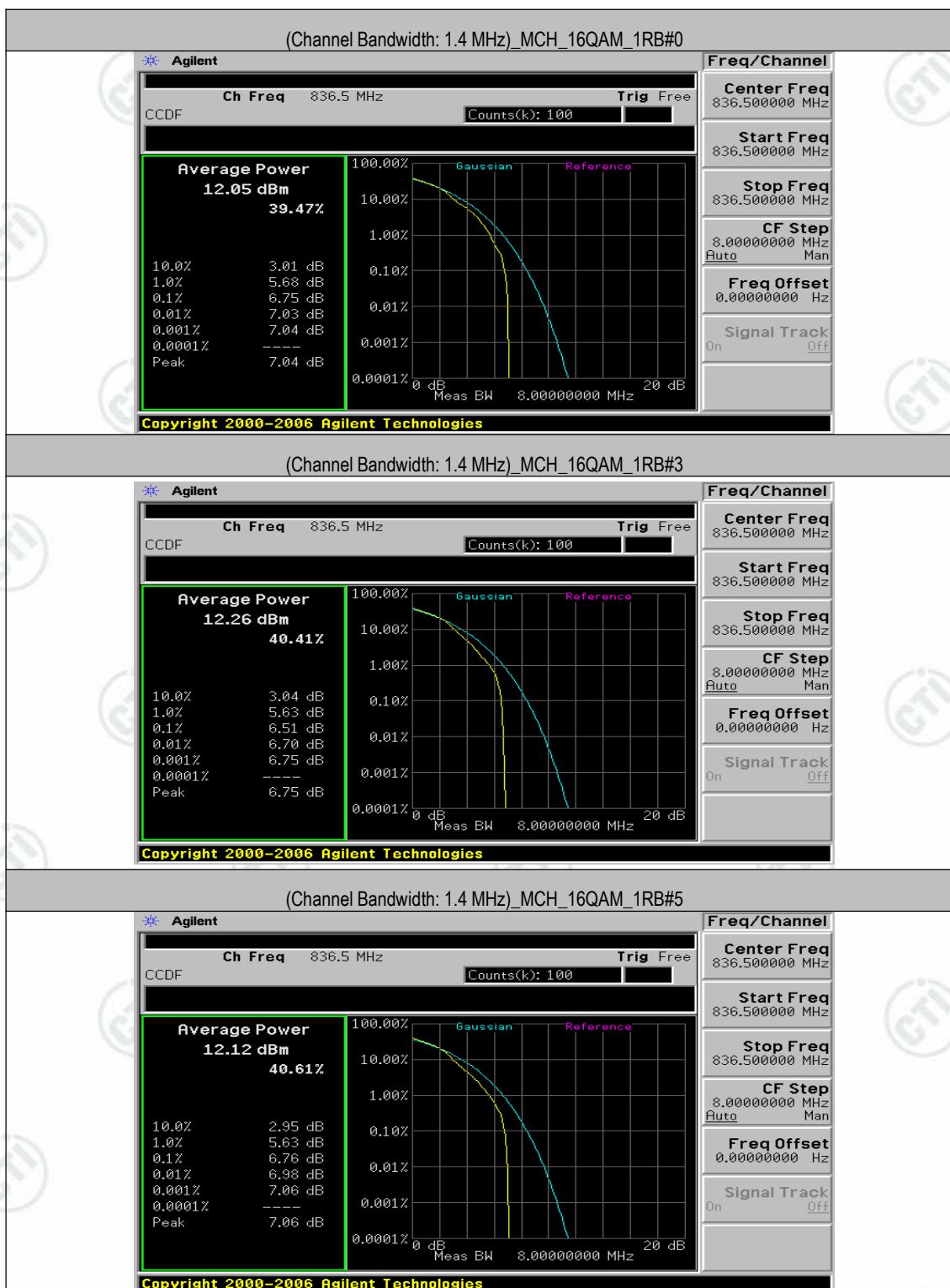




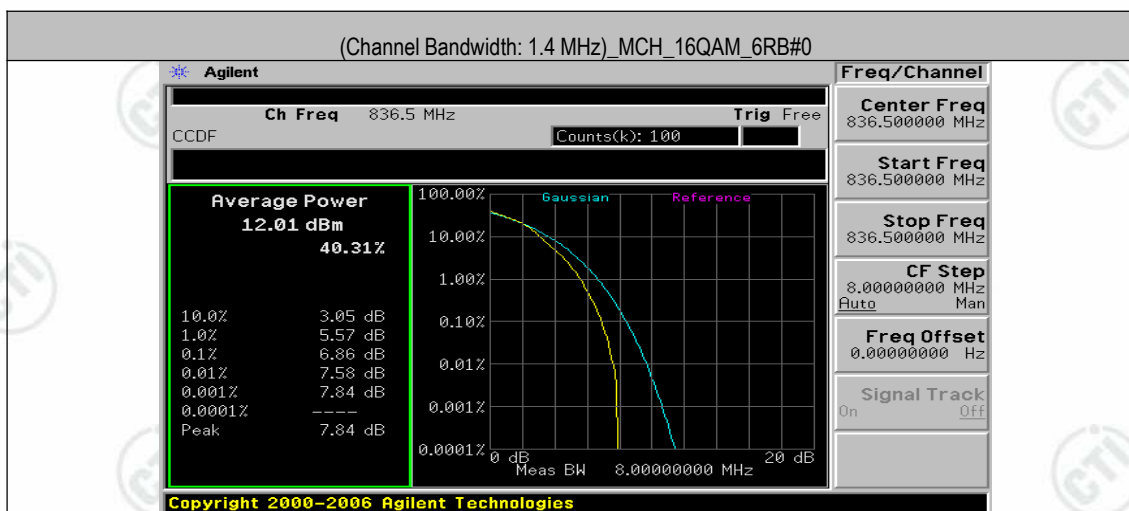


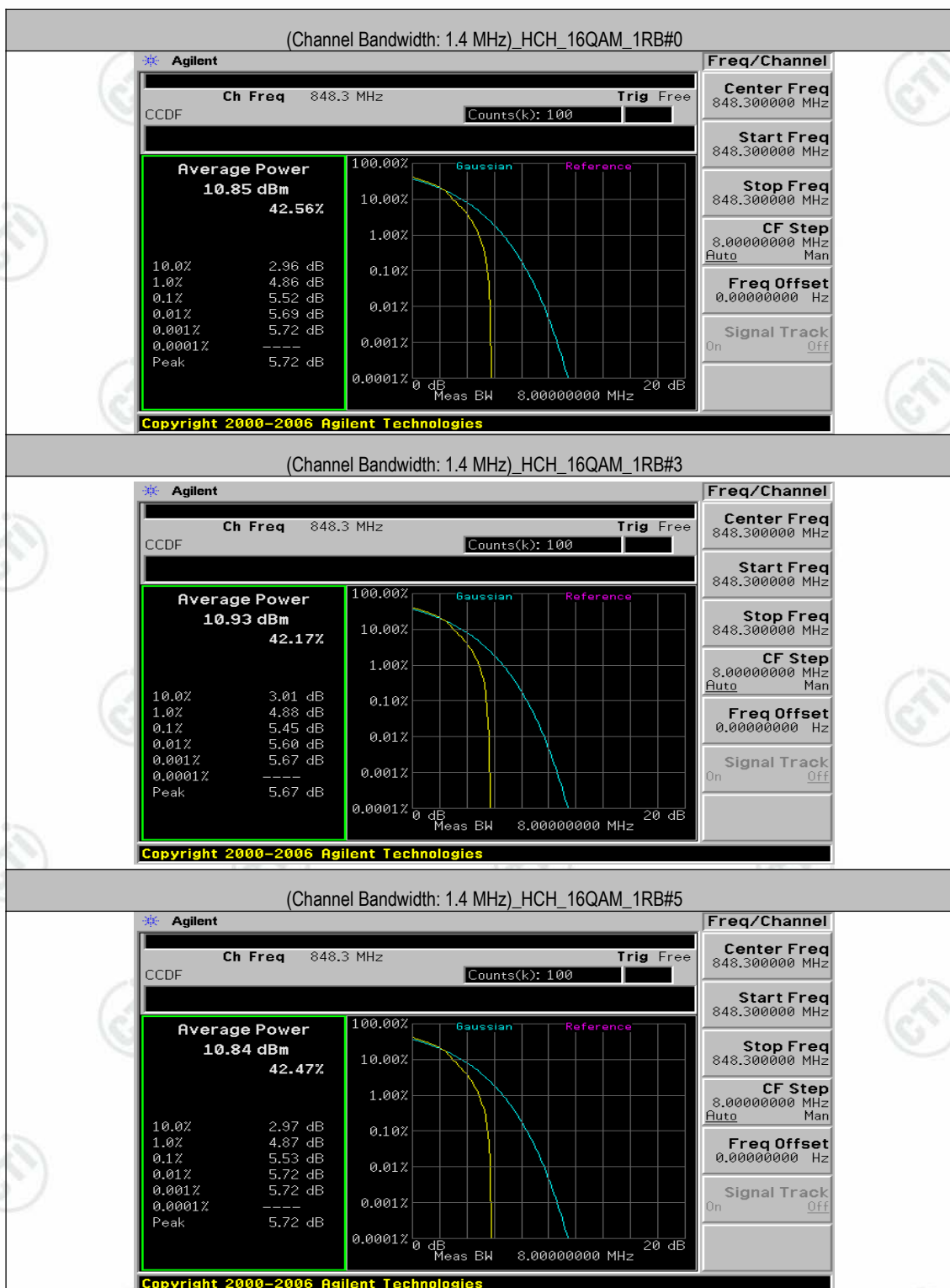


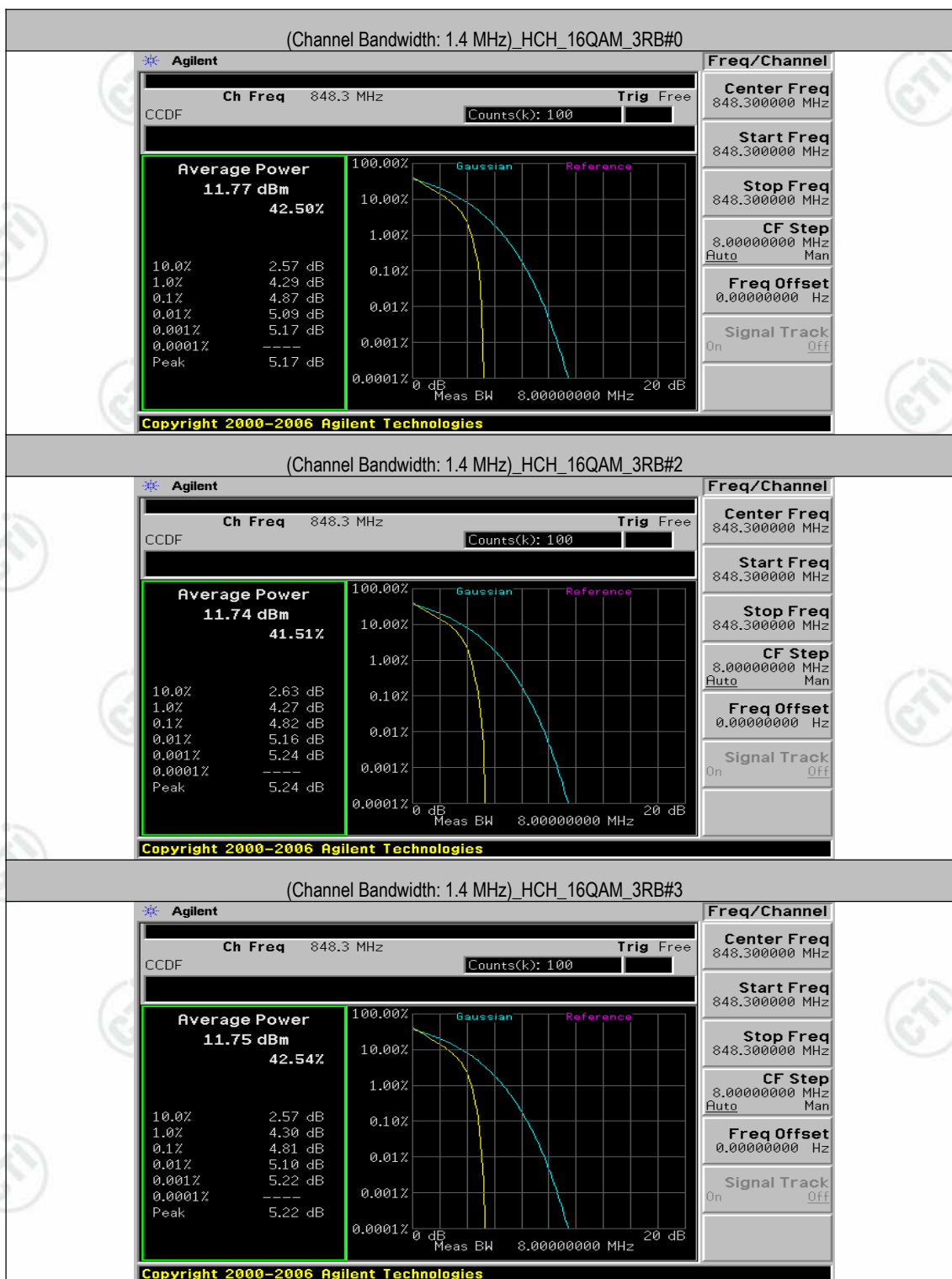


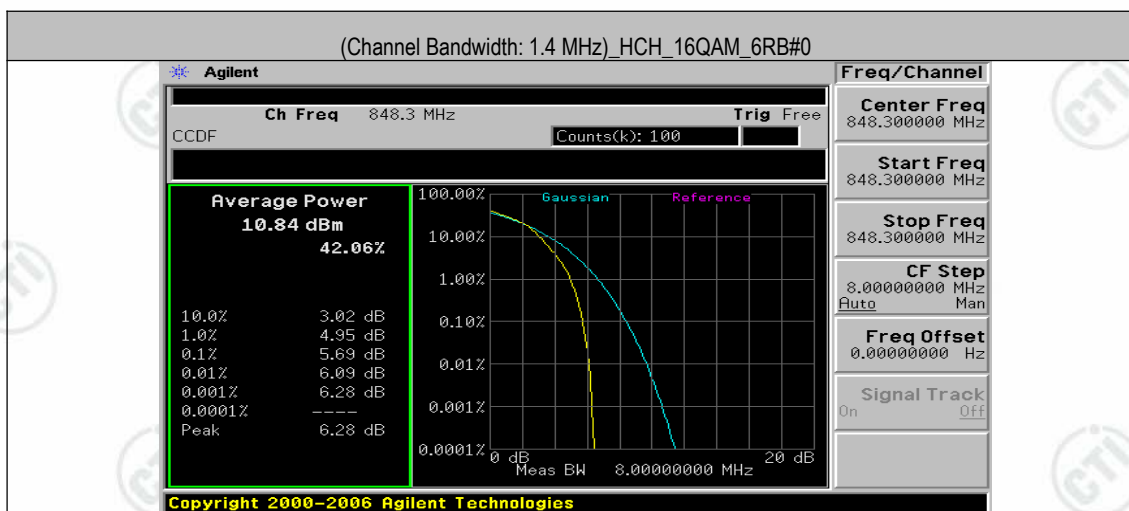






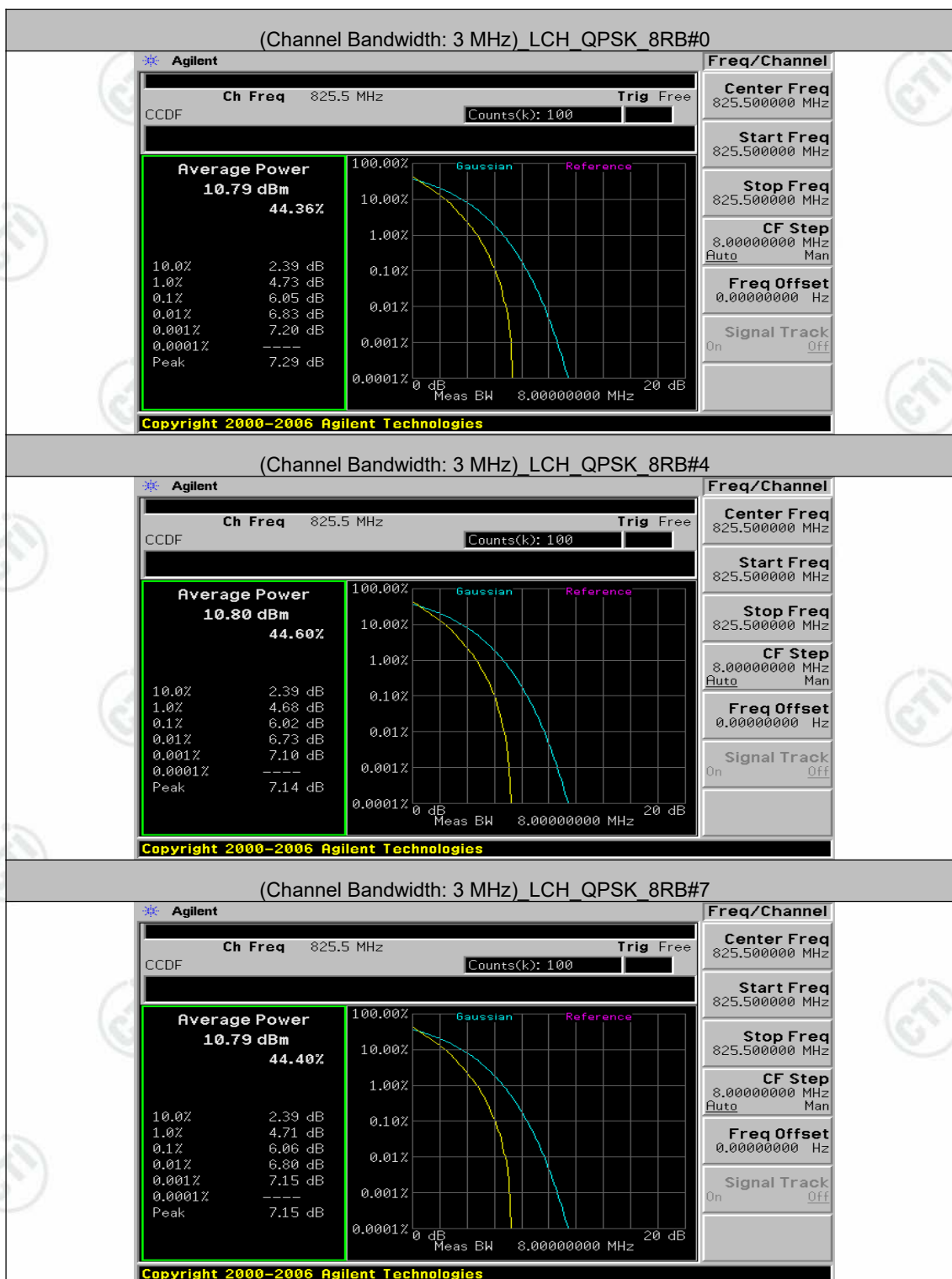


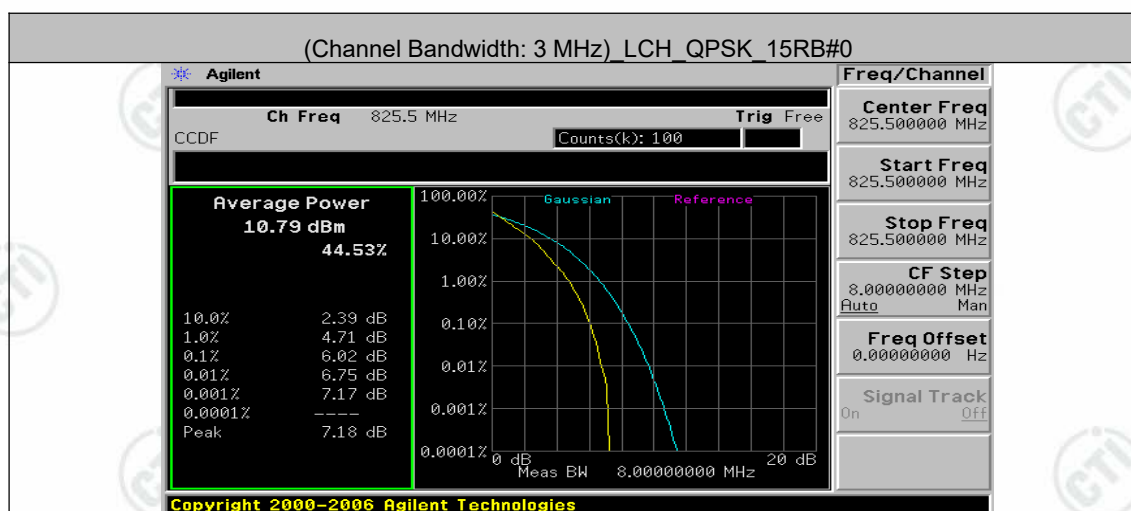




Channel Bandwidth: 3 MHz

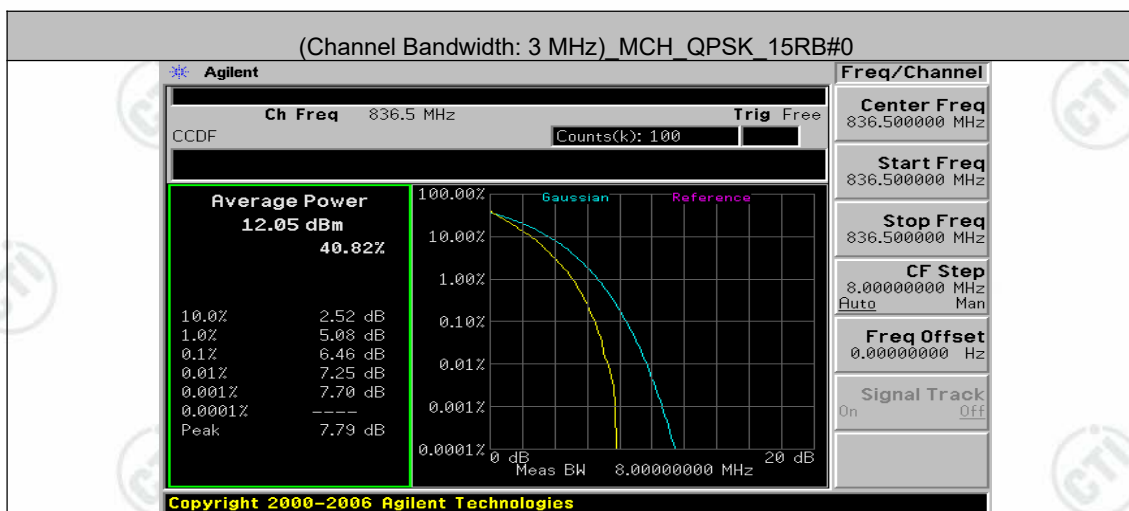


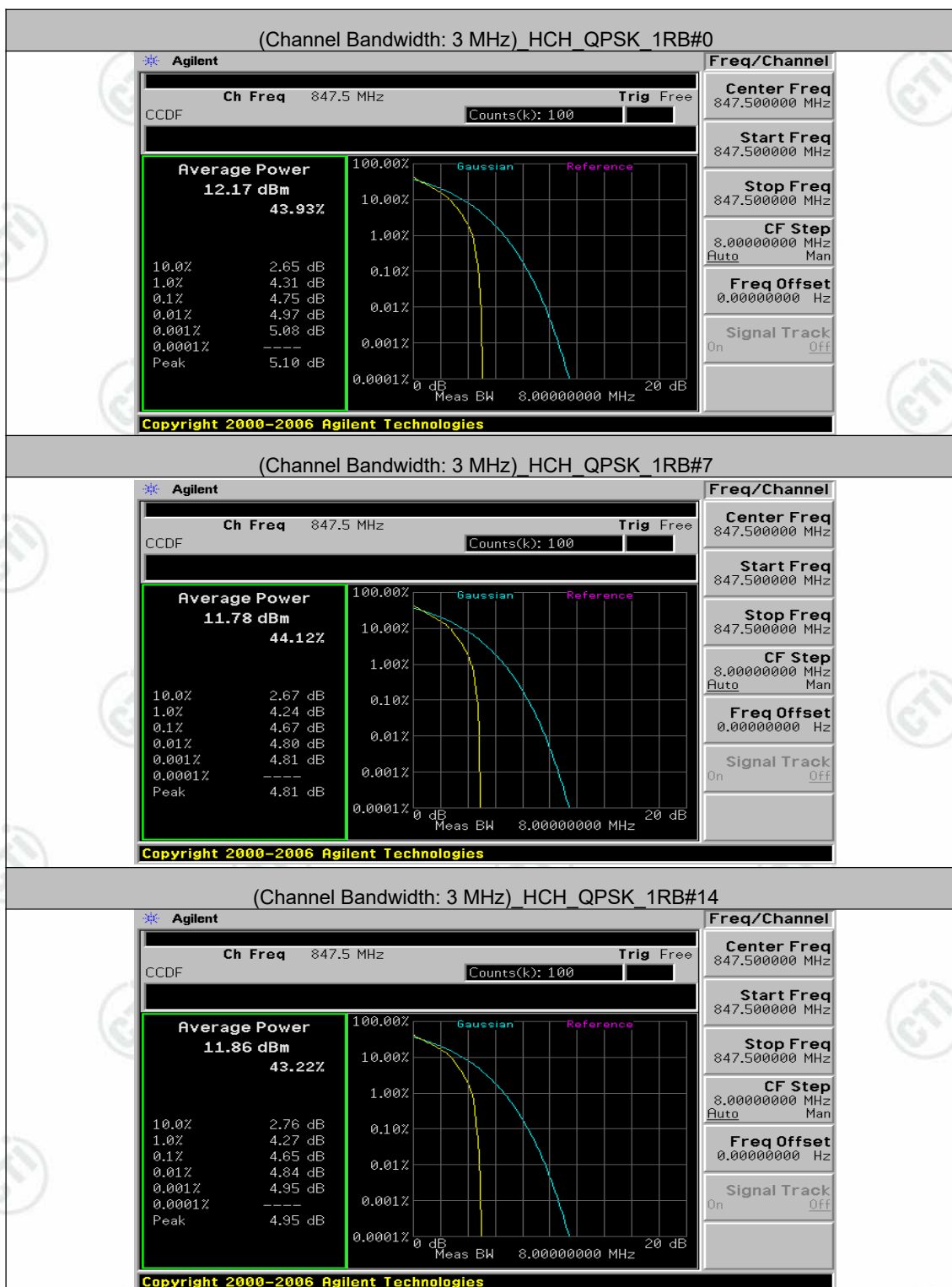




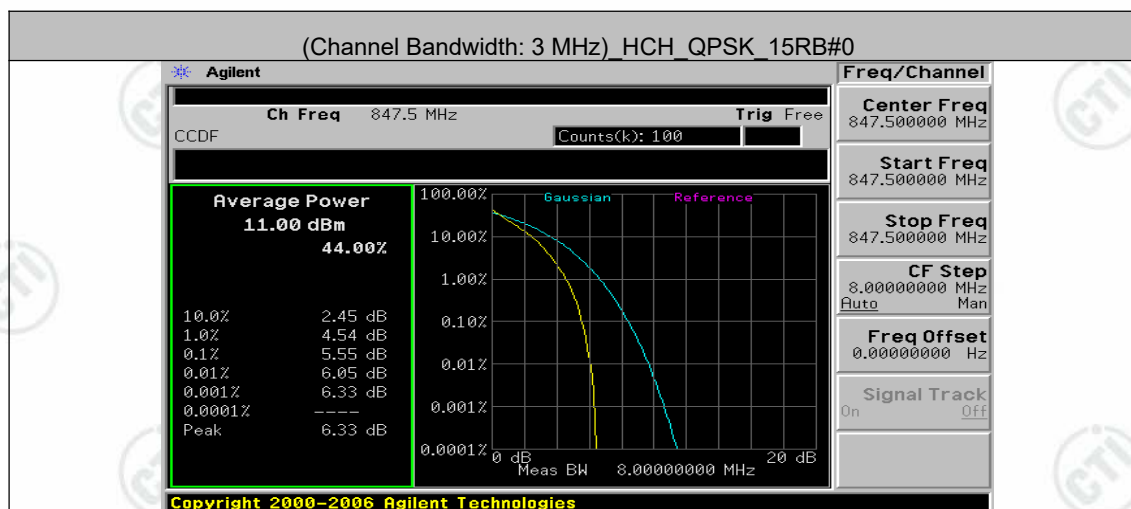






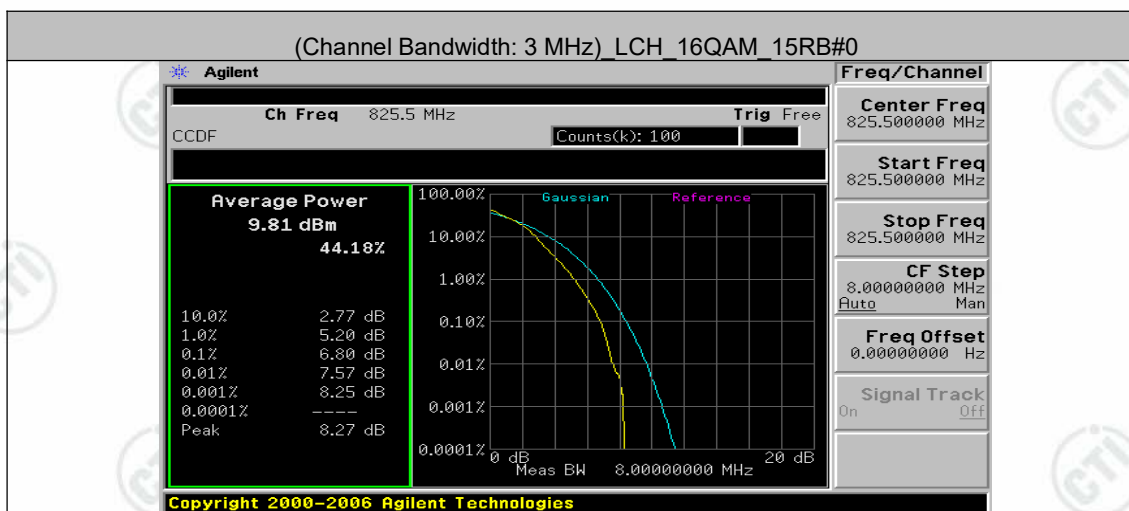






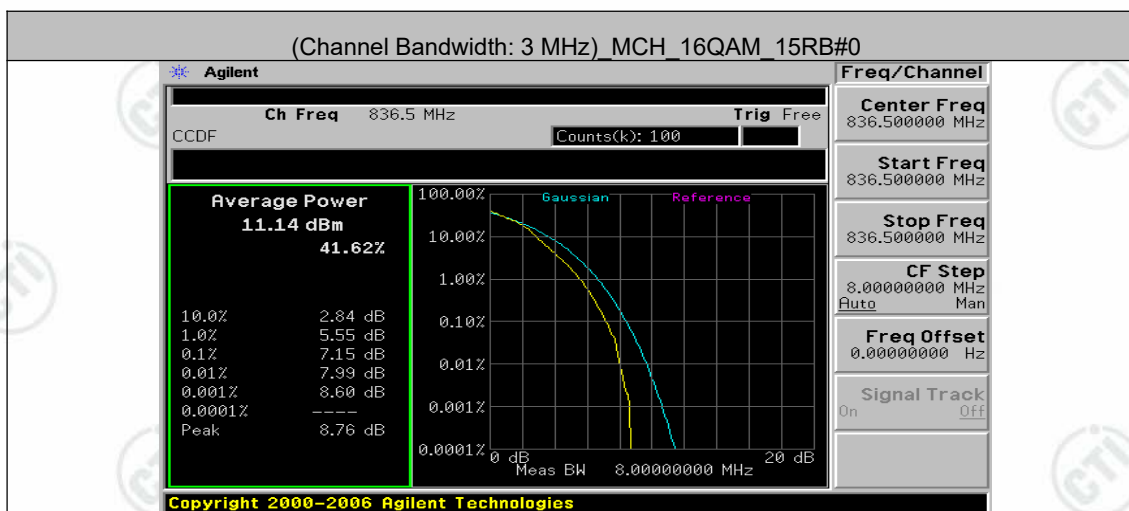






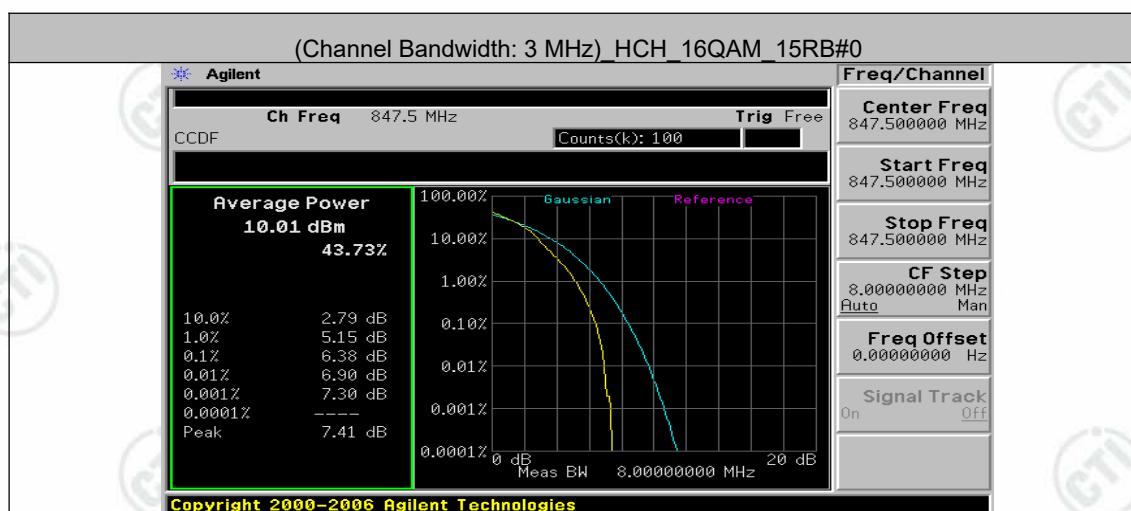








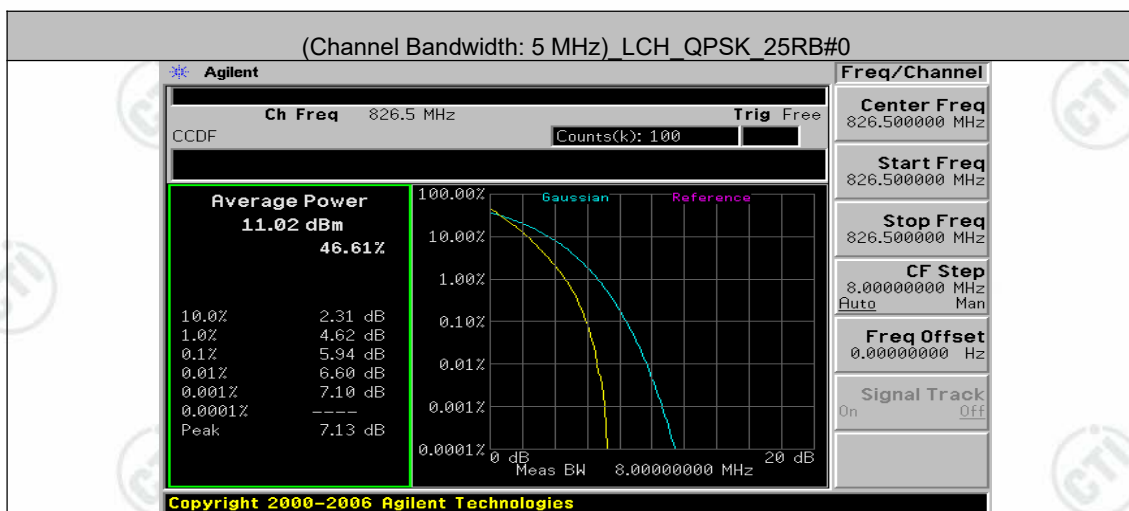




Channel Bandwidth: 5 MHz

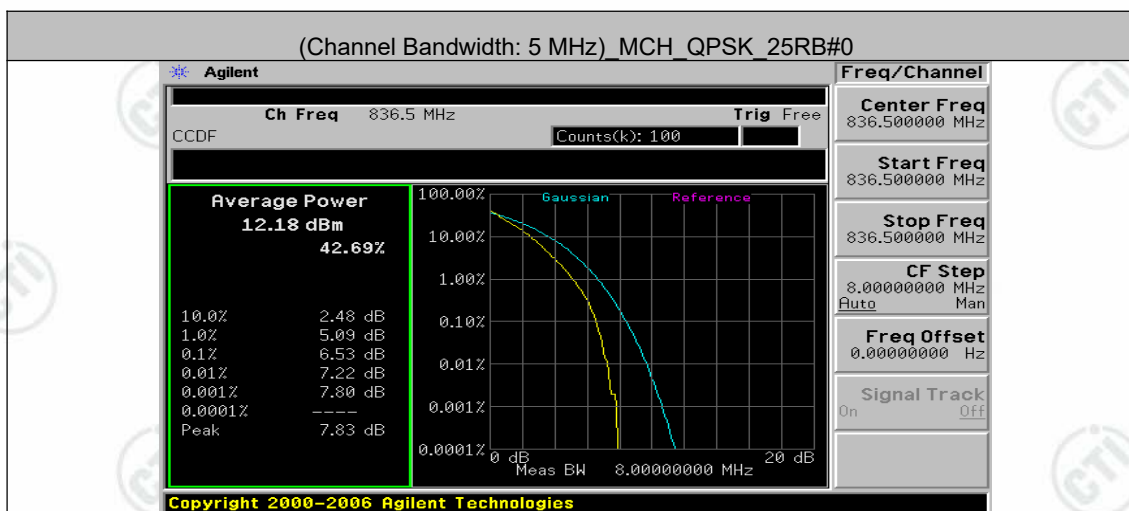


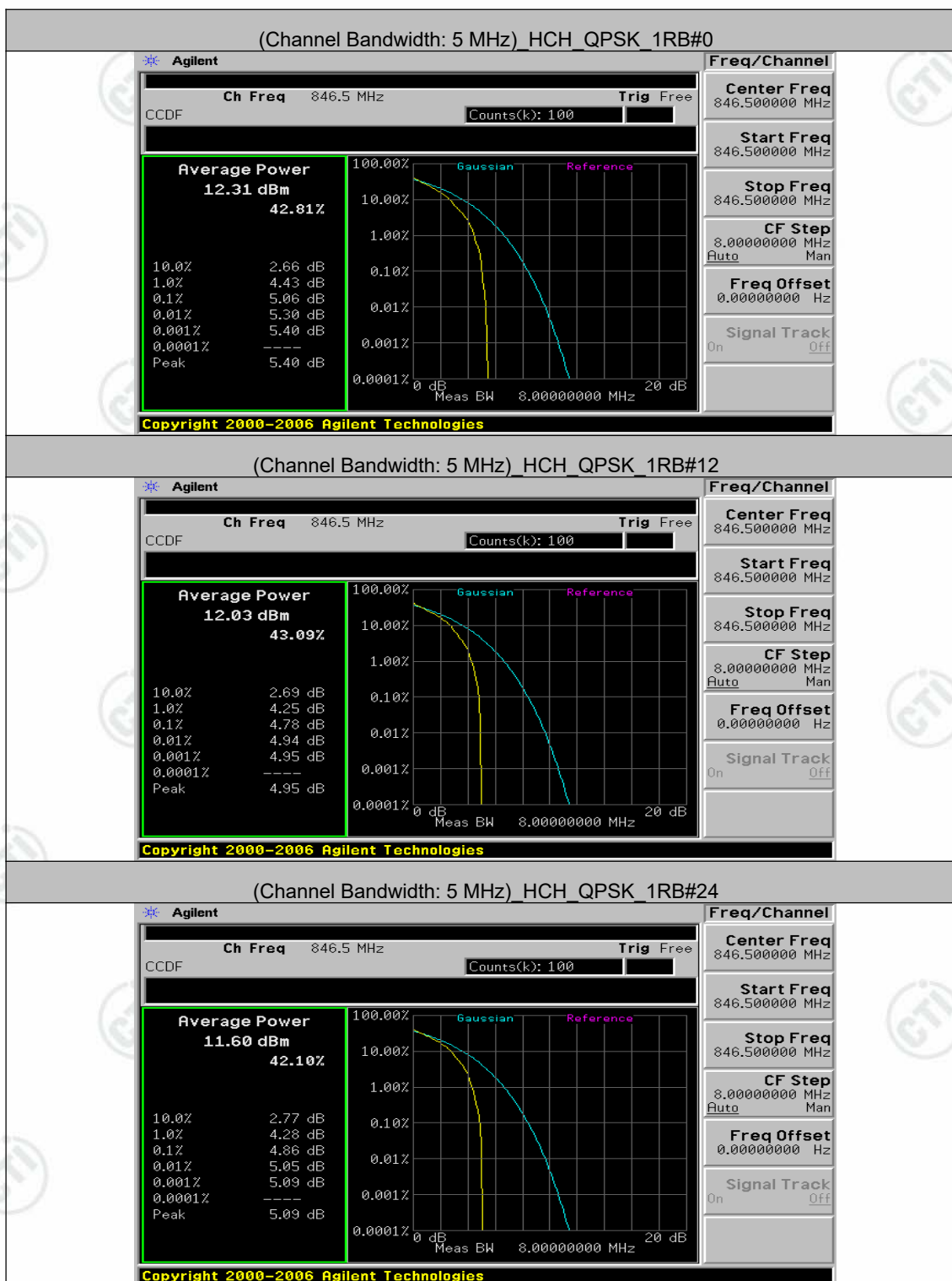




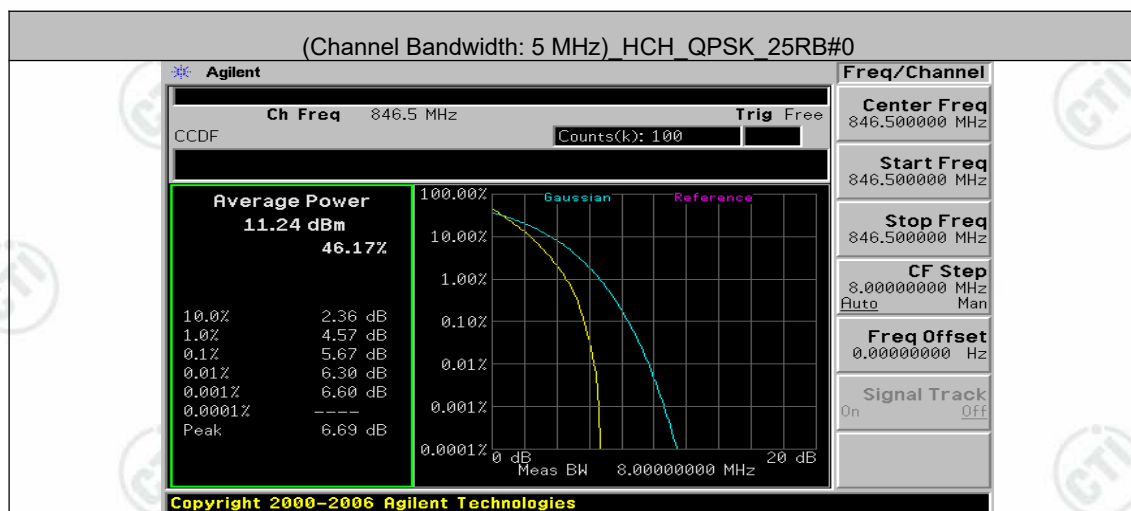






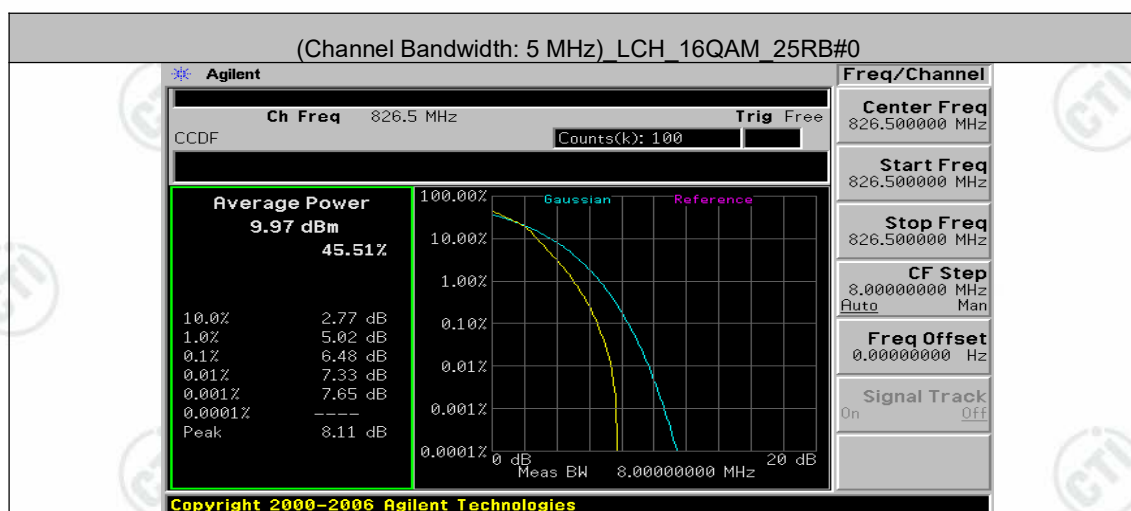






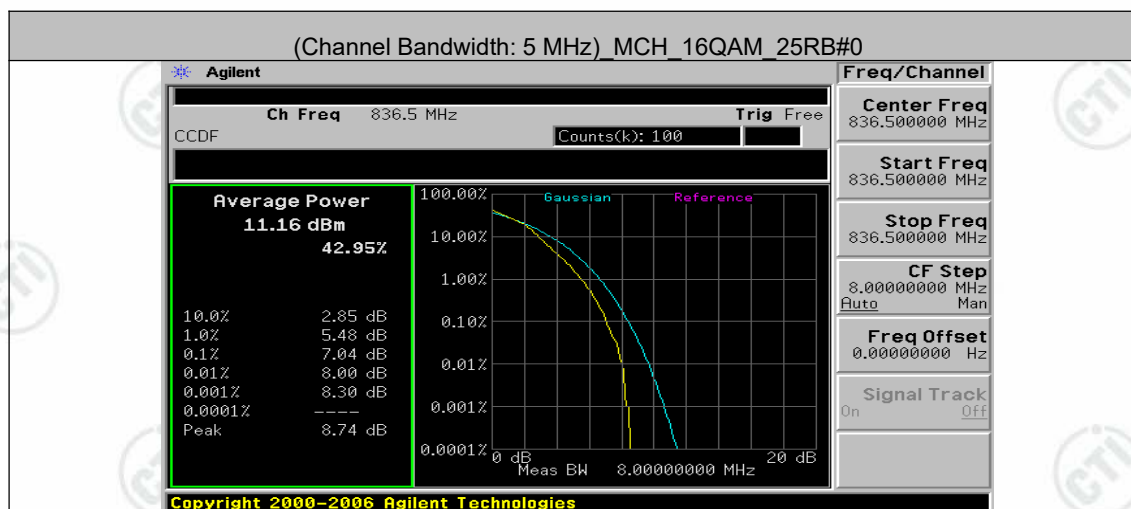






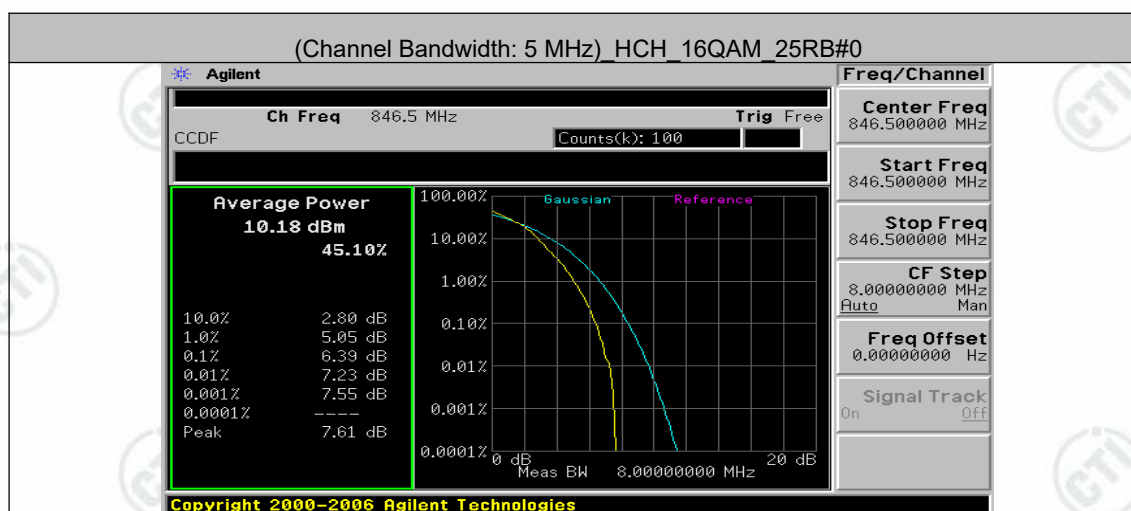








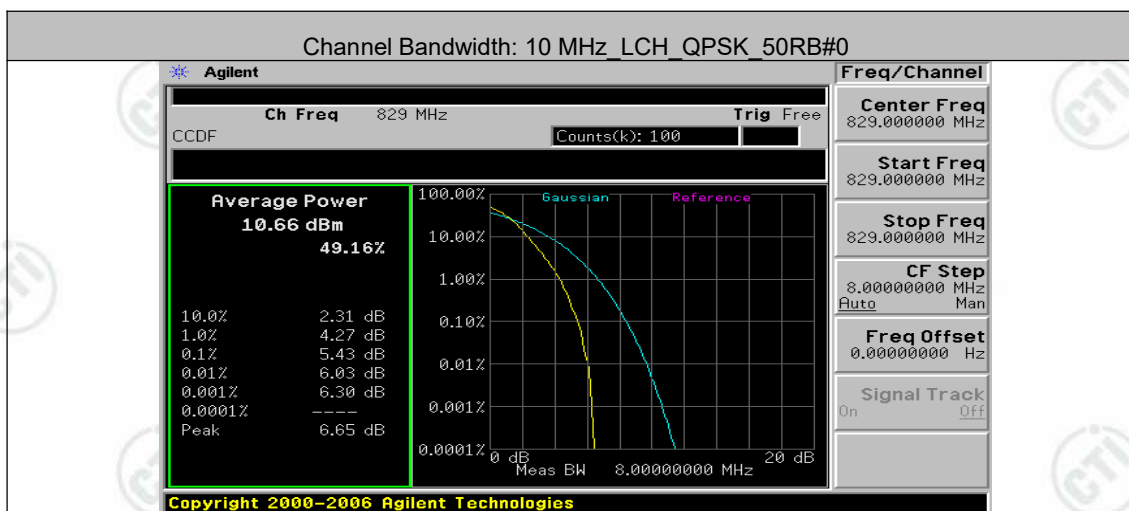


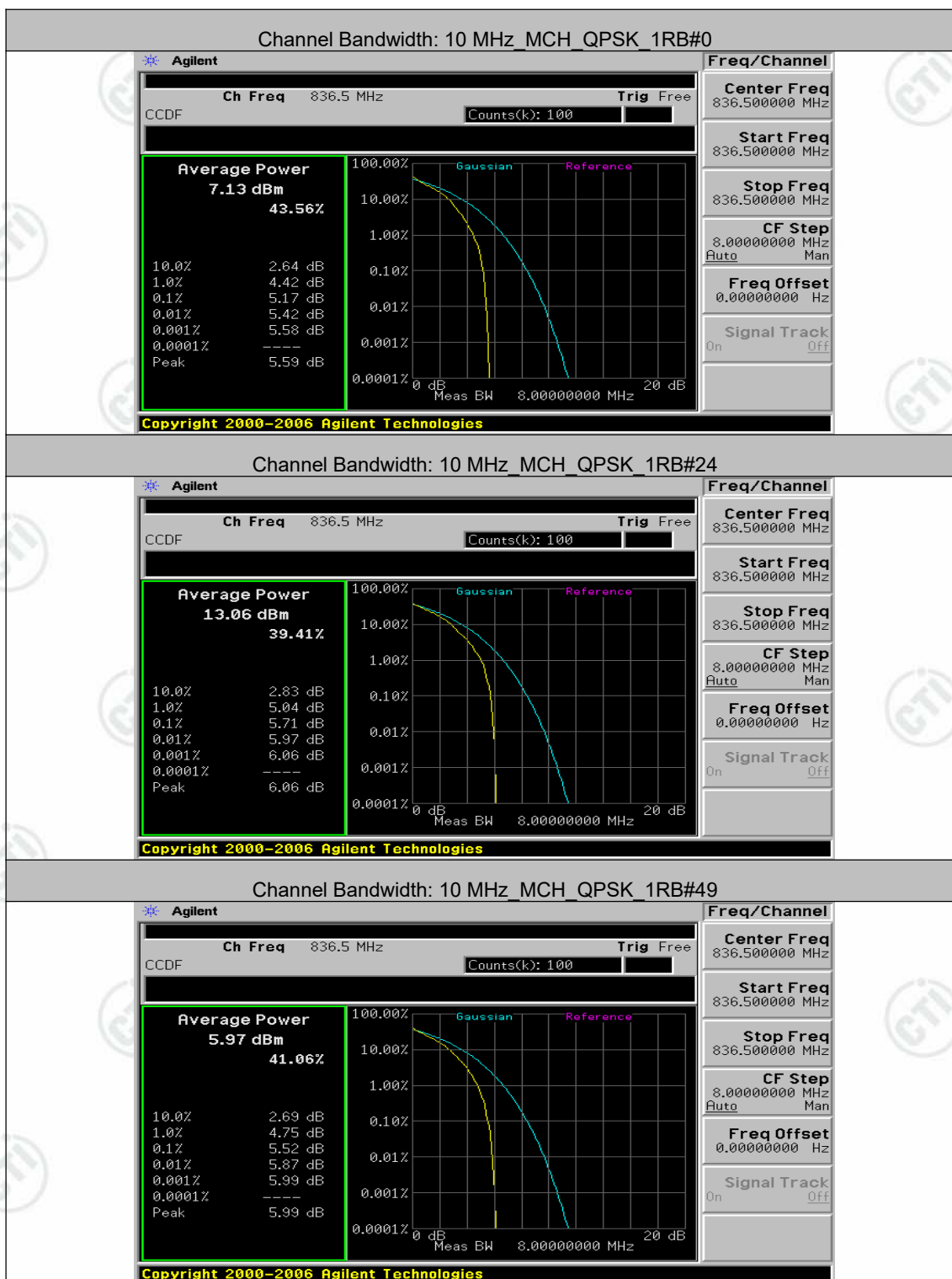


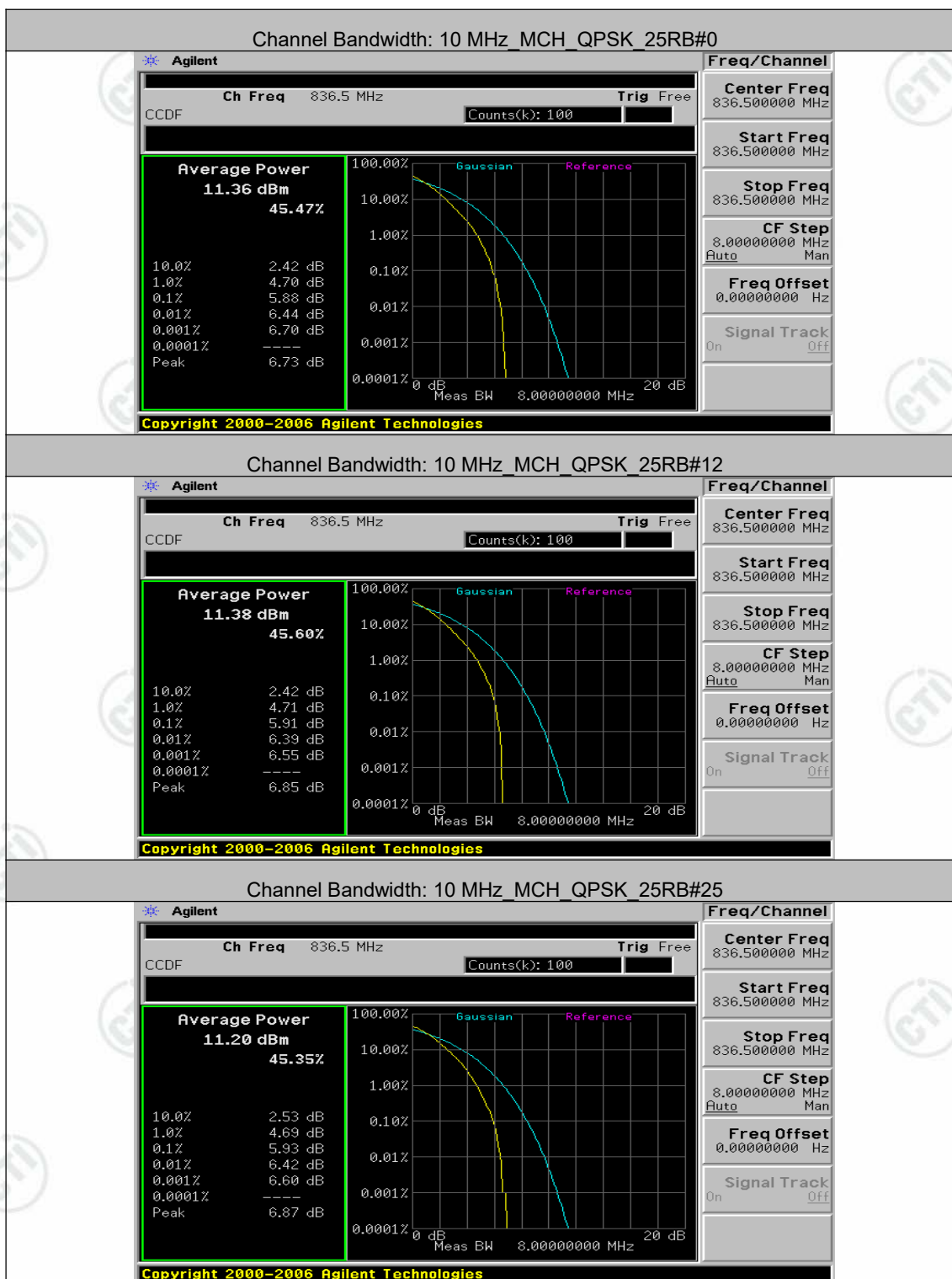
Channel Bandwidth: 10 MHz

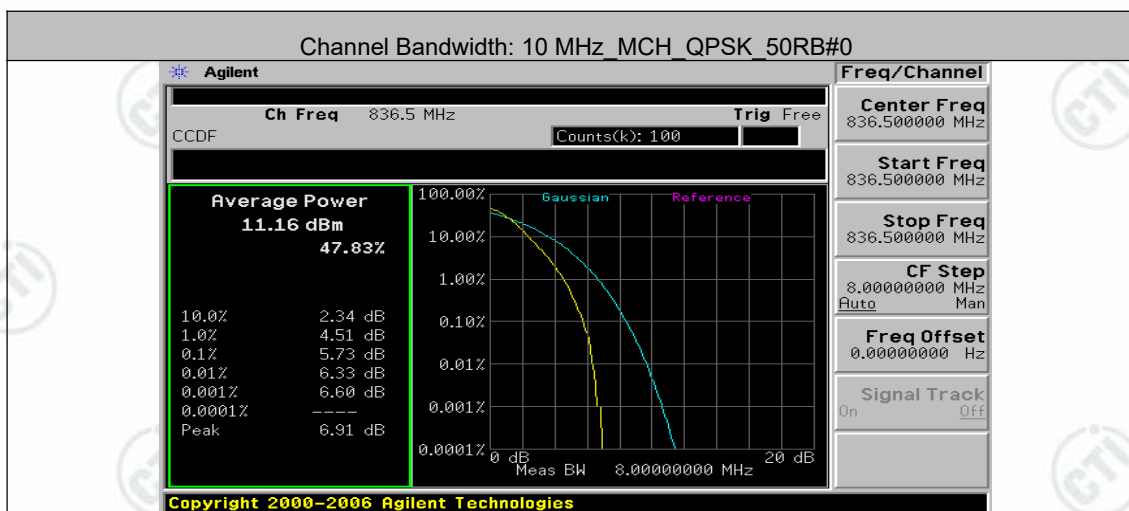


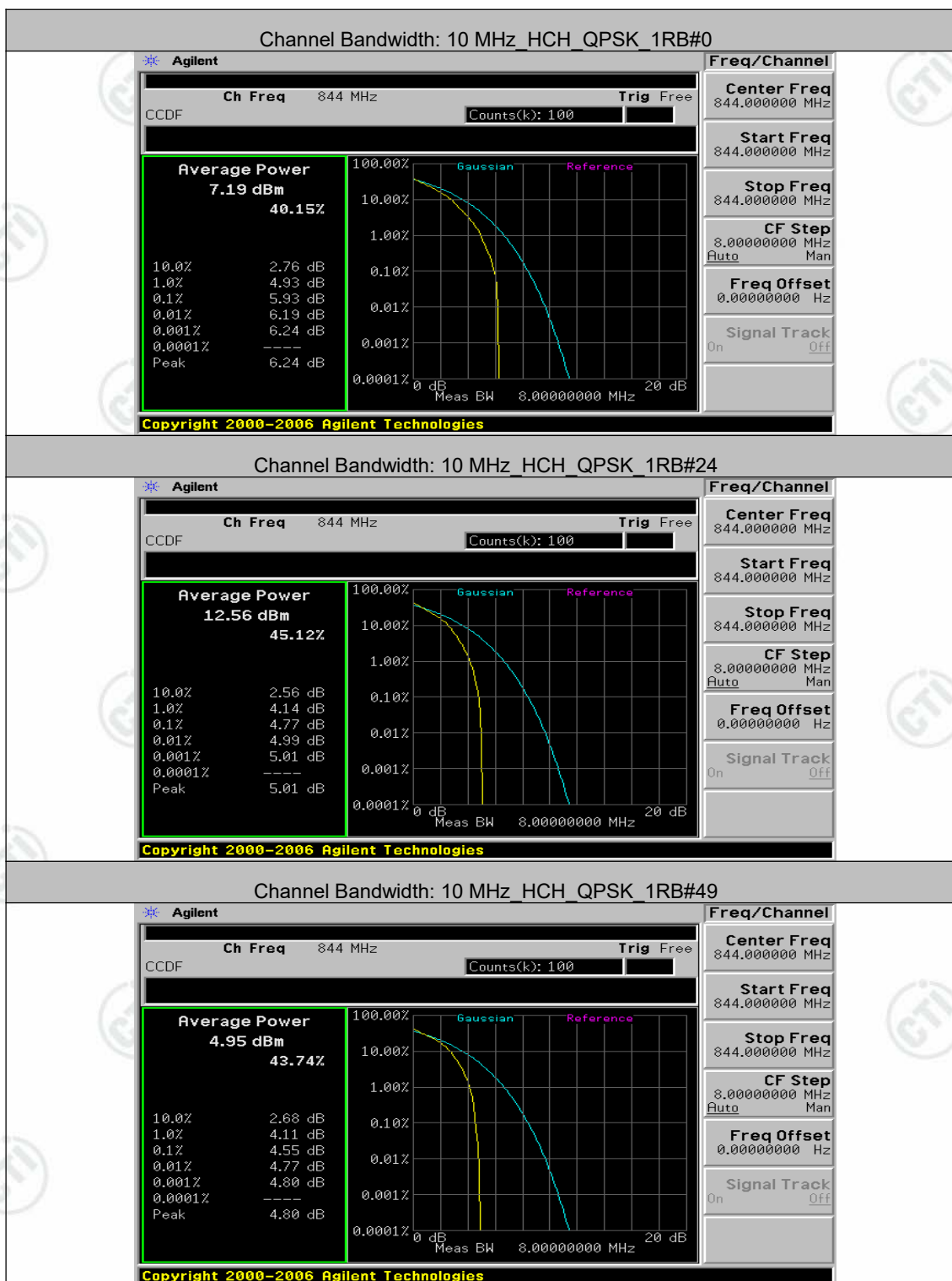




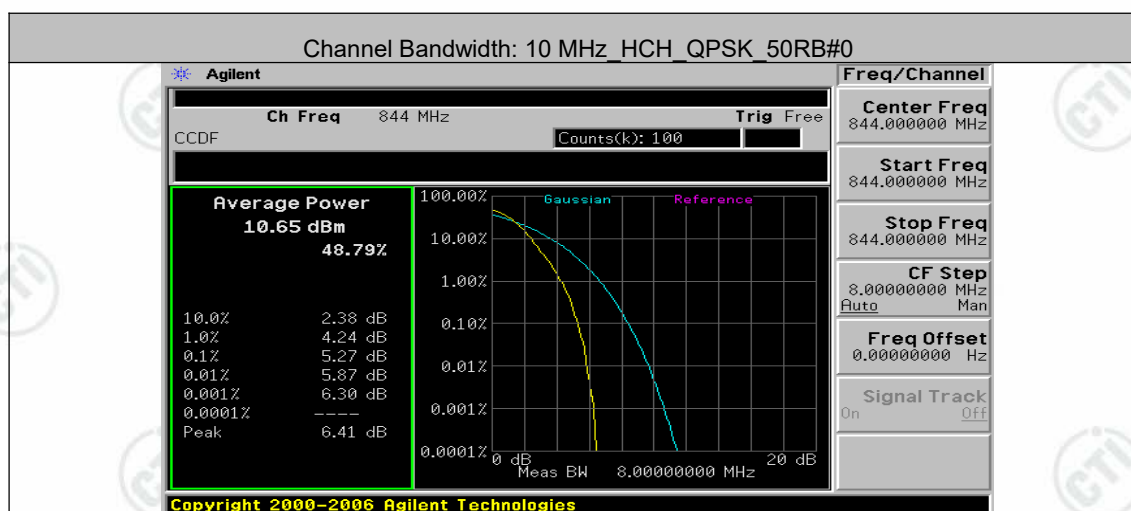




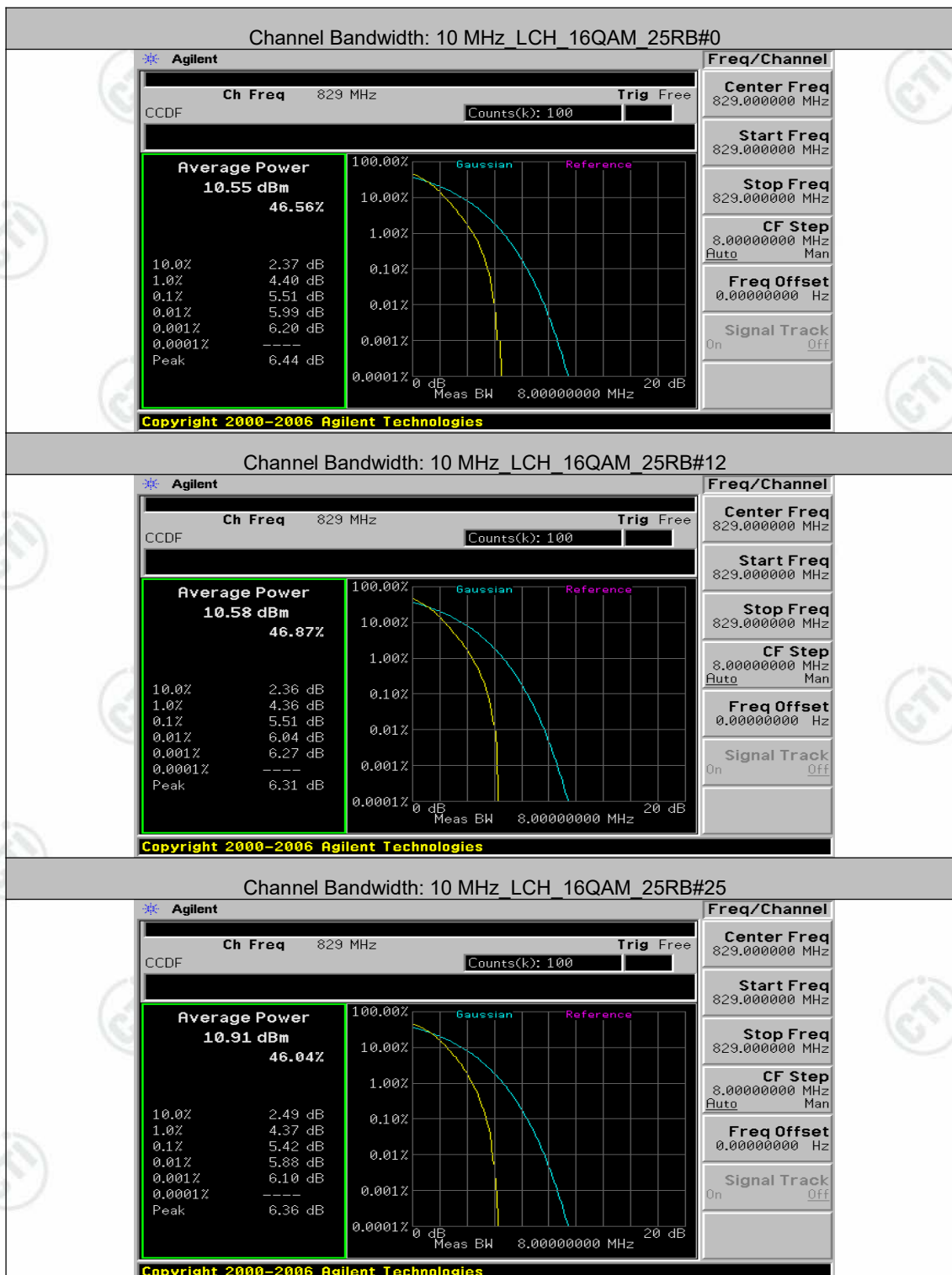


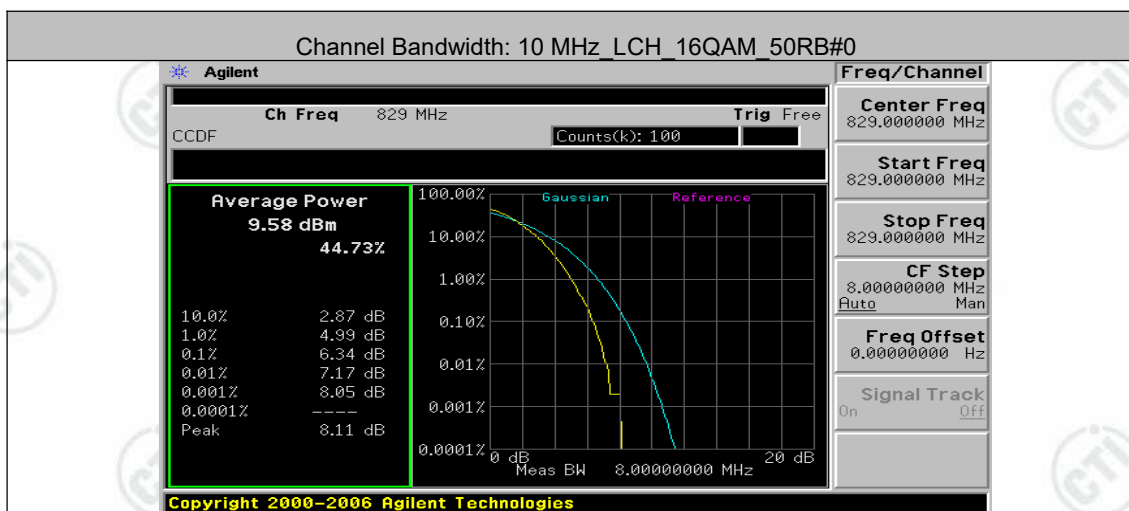






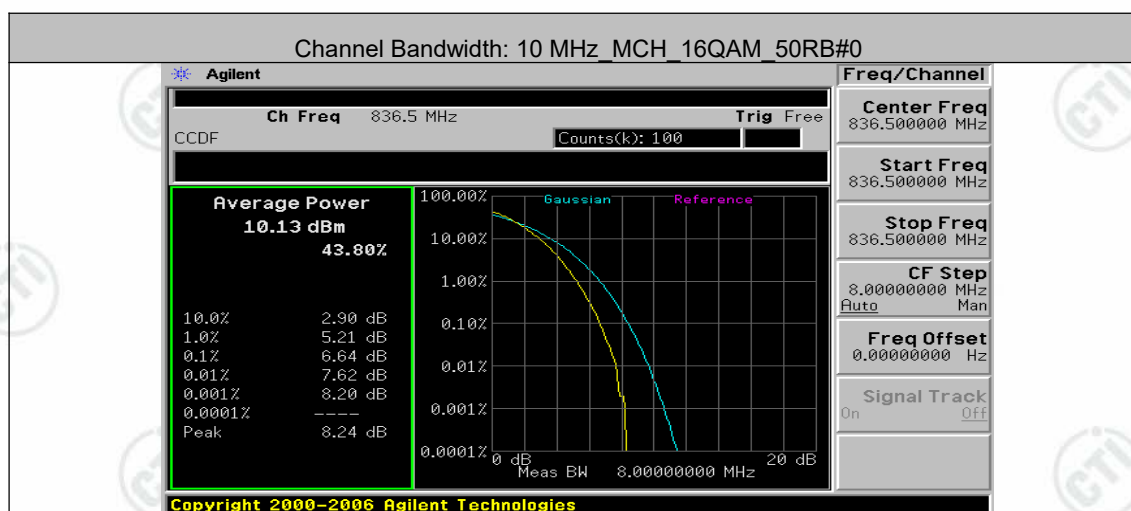






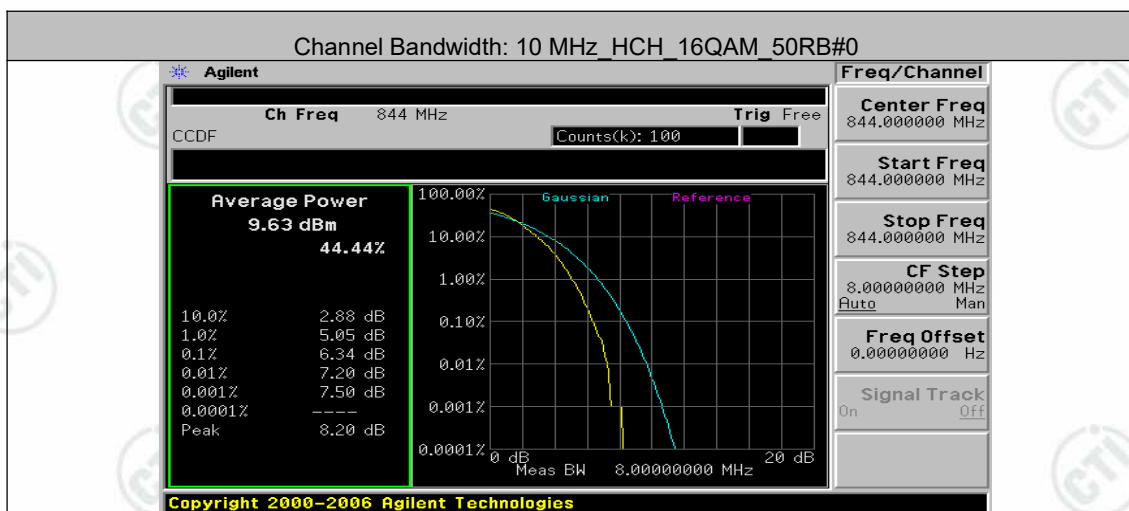












Appendix C: 26dB Bandwidth and 99% Occupied Bandwidth

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	0.9020863	1.046	PASS
	MCH	6	0	0.9035717	1.064	PASS
	HCH	6	0	0.9028113	1.055	PASS
16QAM	LCH	6	0	0.9003015	1.075	PASS
	MCH	6	0	0.9003598	1.104	PASS
	HCH	6	0	0.9000128	1.078	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	2.6626	2.860	PASS
	MCH	6	0	2.6731	2.859	PASS
	HCH	6	0	2.6722	2.845	PASS
16QAM	LCH	6	0	2.6691	2.851	PASS
	MCH	6	0	2.6696	2.851	PASS
	HCH	6	0	2.6735	2.871	PASS

Channel Bandwidth: 5 MHz

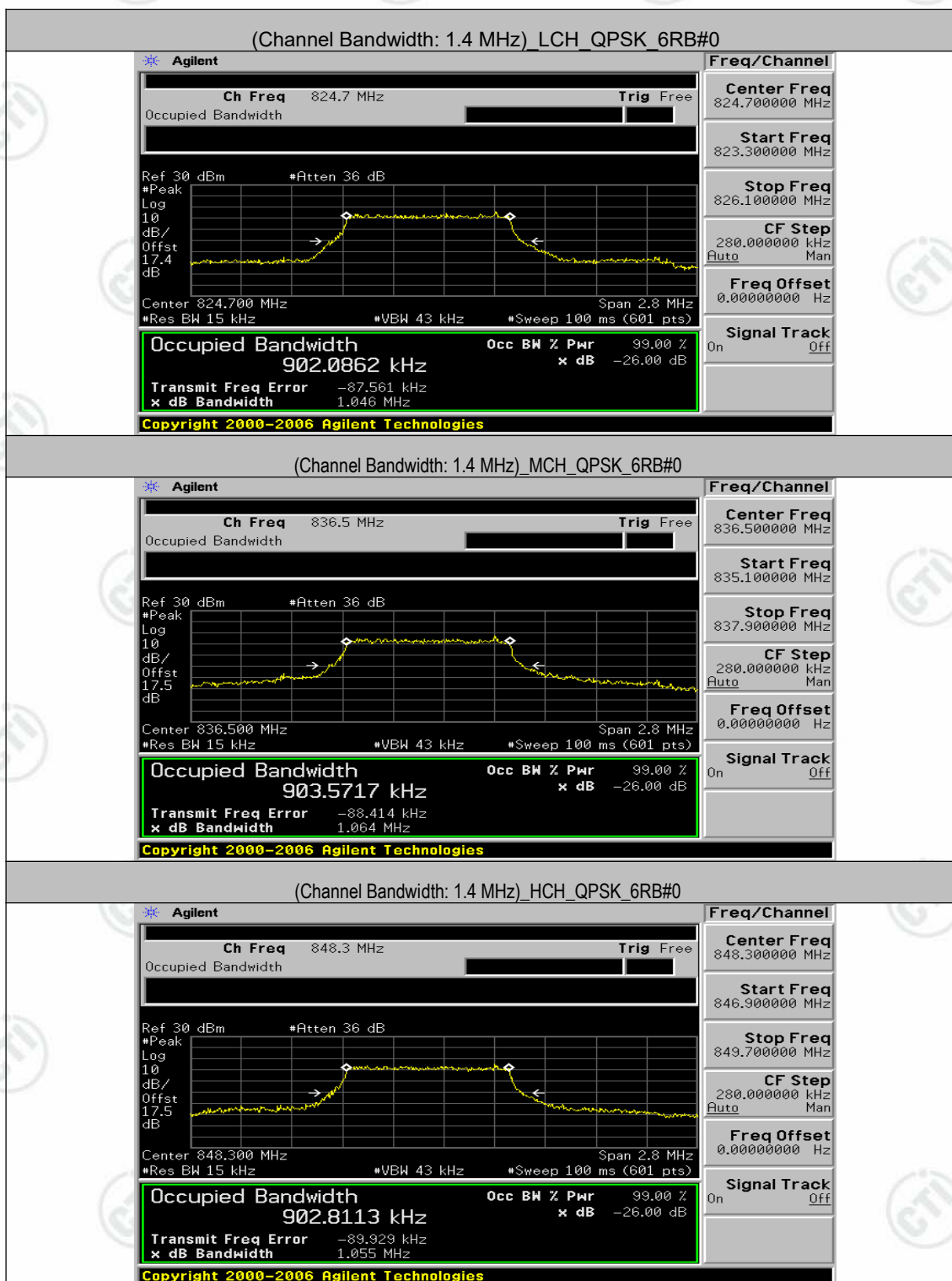
Channel Bandwidth: 5 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	4.4704	5.089	PASS
	MCH	6	0	4.4862	5.157	PASS
	HCH	6	0	4.4730	5.060	PASS
16QAM	LCH	6	0	4.4640	4.938	PASS
	MCH	6	0	4.4728	4.952	PASS
	HCH	6	0	4.4708	4.950	PASS

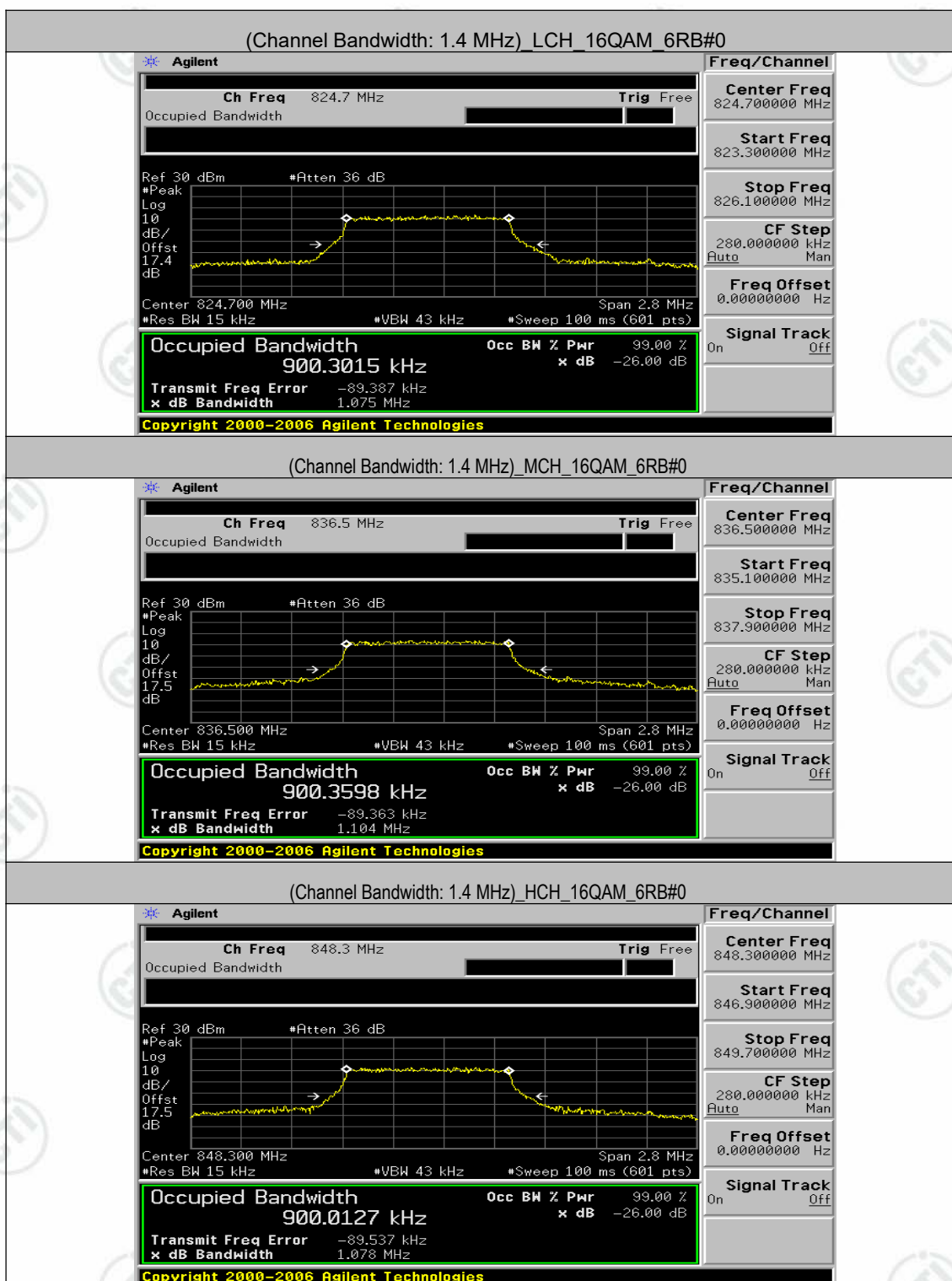
Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz						
Modulation	Channel	RB Configuration		Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
		Size	Offset			
QPSK	LCH	6	0	8.9472	9.850	PASS
	MCH	6	0	8.9859	9.936	PASS
	HCH	6	0	8.9292	9.797	PASS
16QAM	LCH	6	0	8.9387	9.770	PASS
	MCH	6	0	8.9607	9.814	PASS
	HCH	6	0	8.9214	9.813	PASS

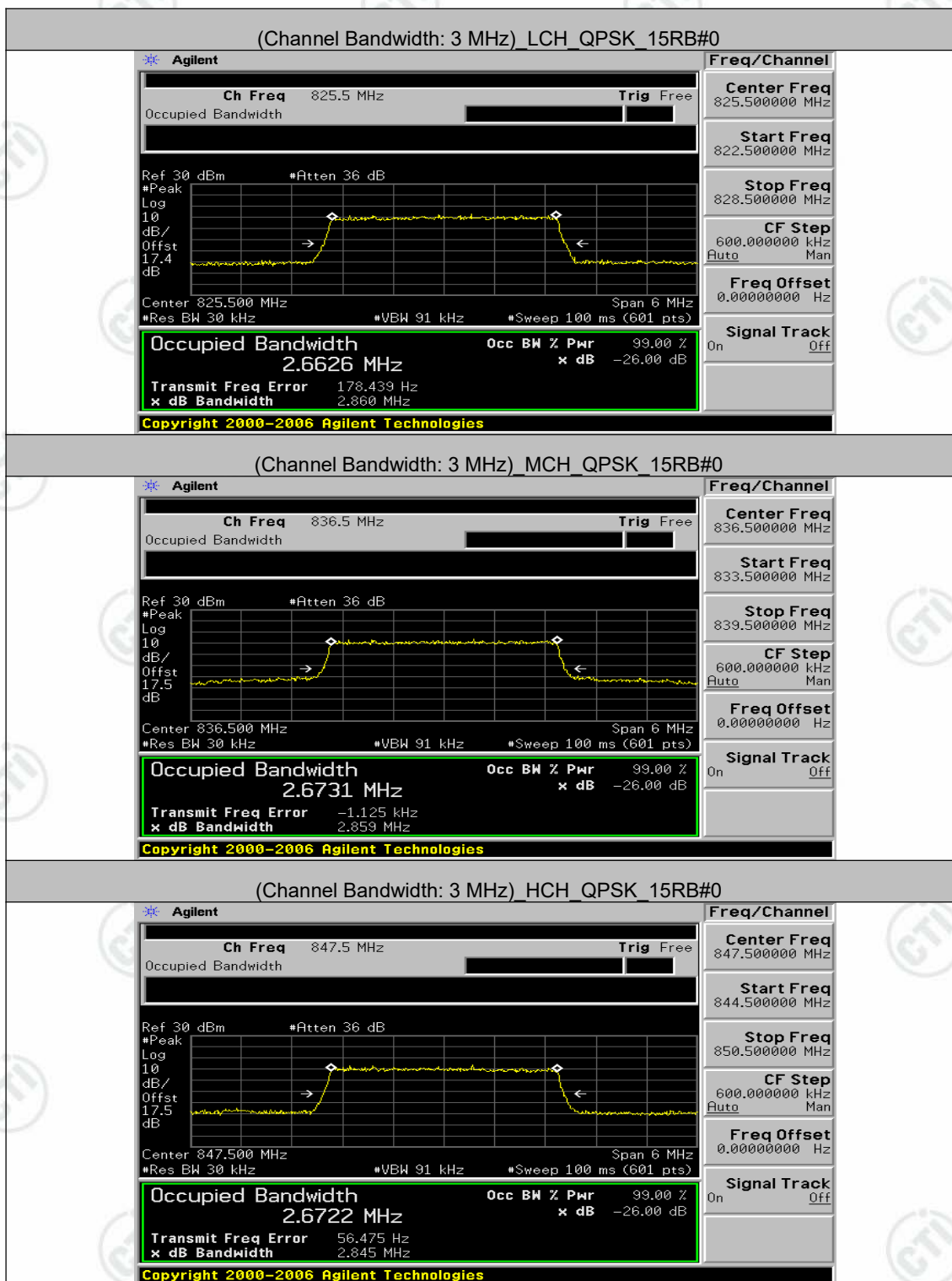
Test Graphs

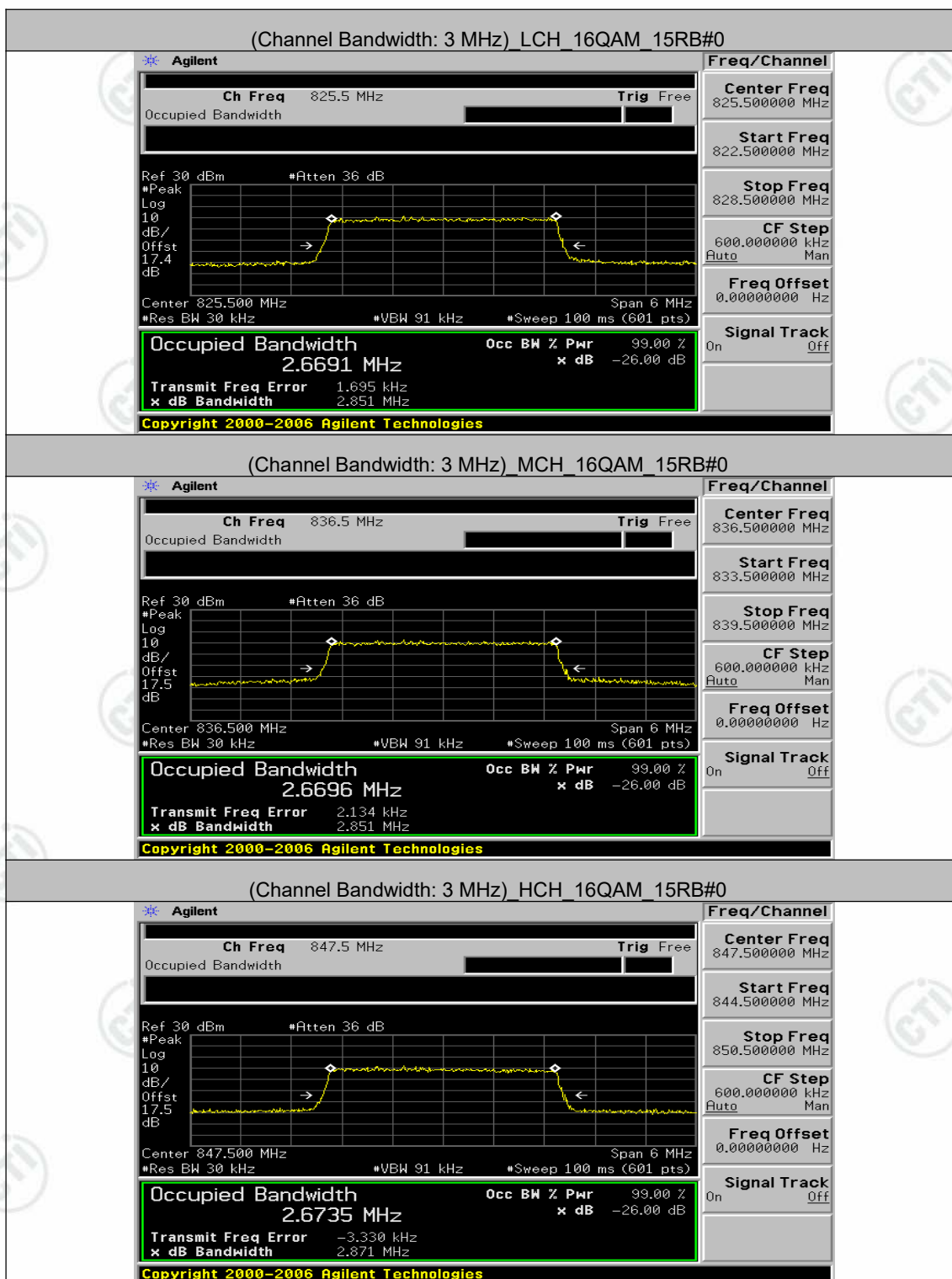
Channel Bandwidth: 1.4 MHz



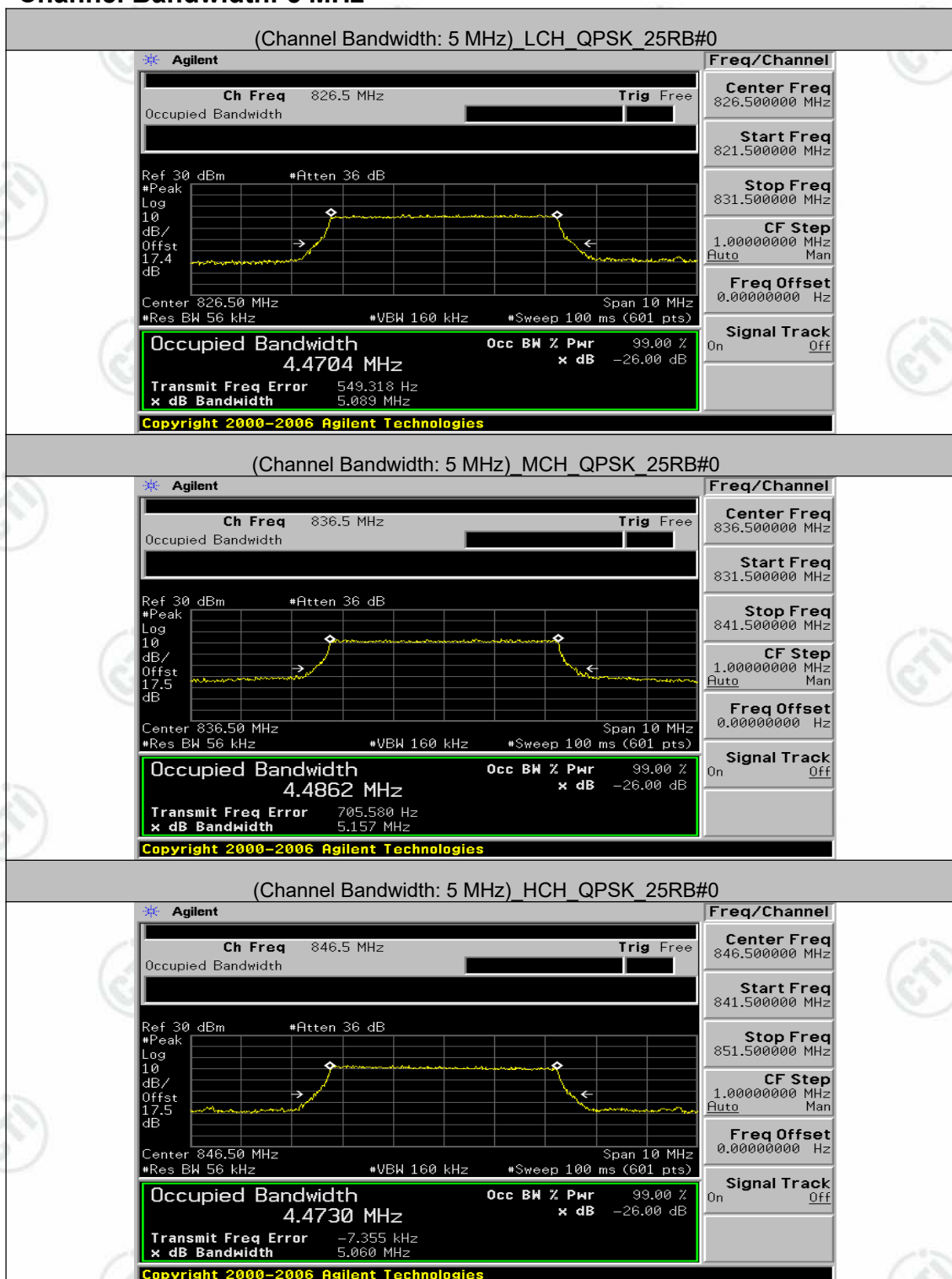


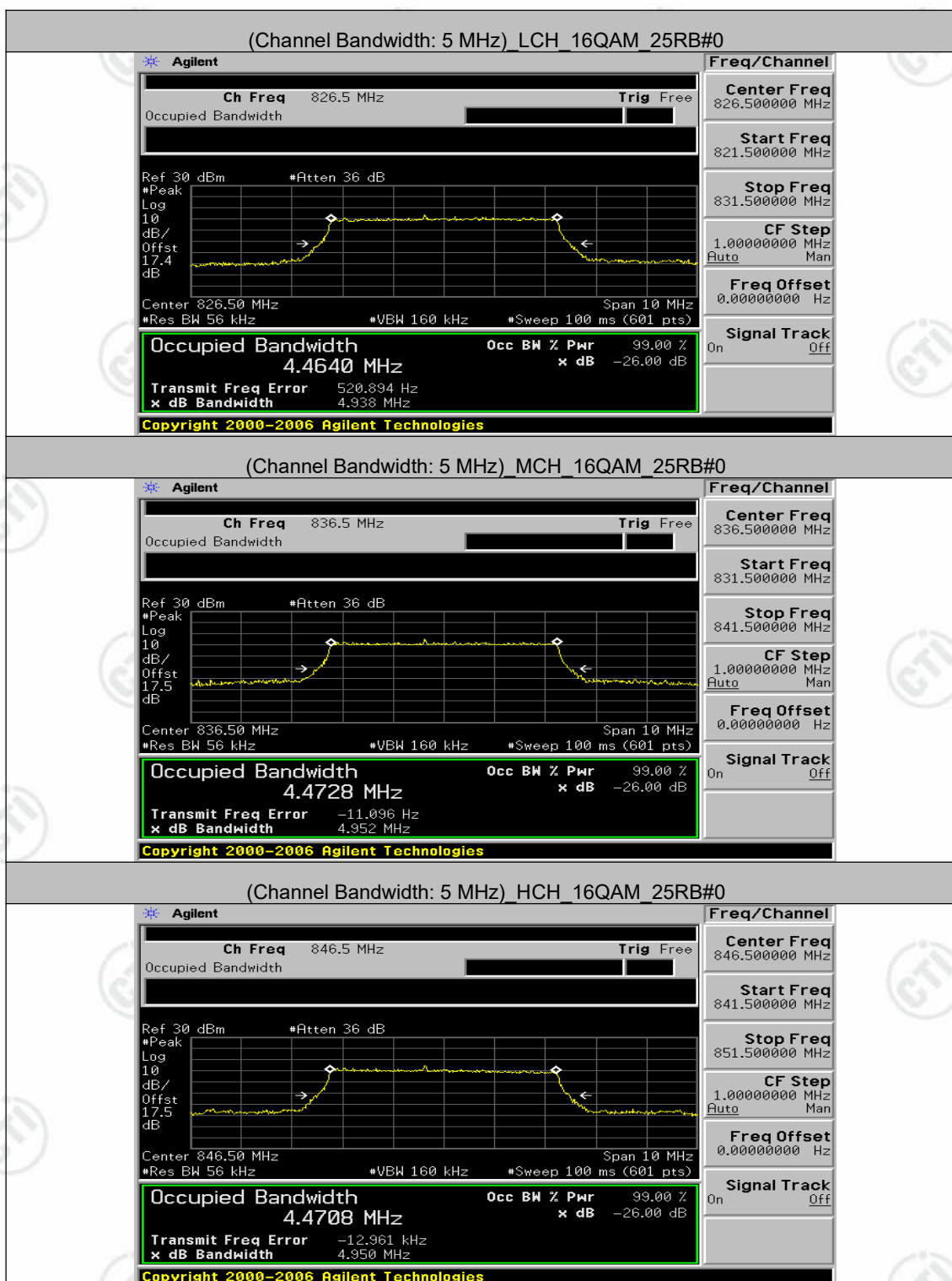
Channel Bandwidth: 3 MHz



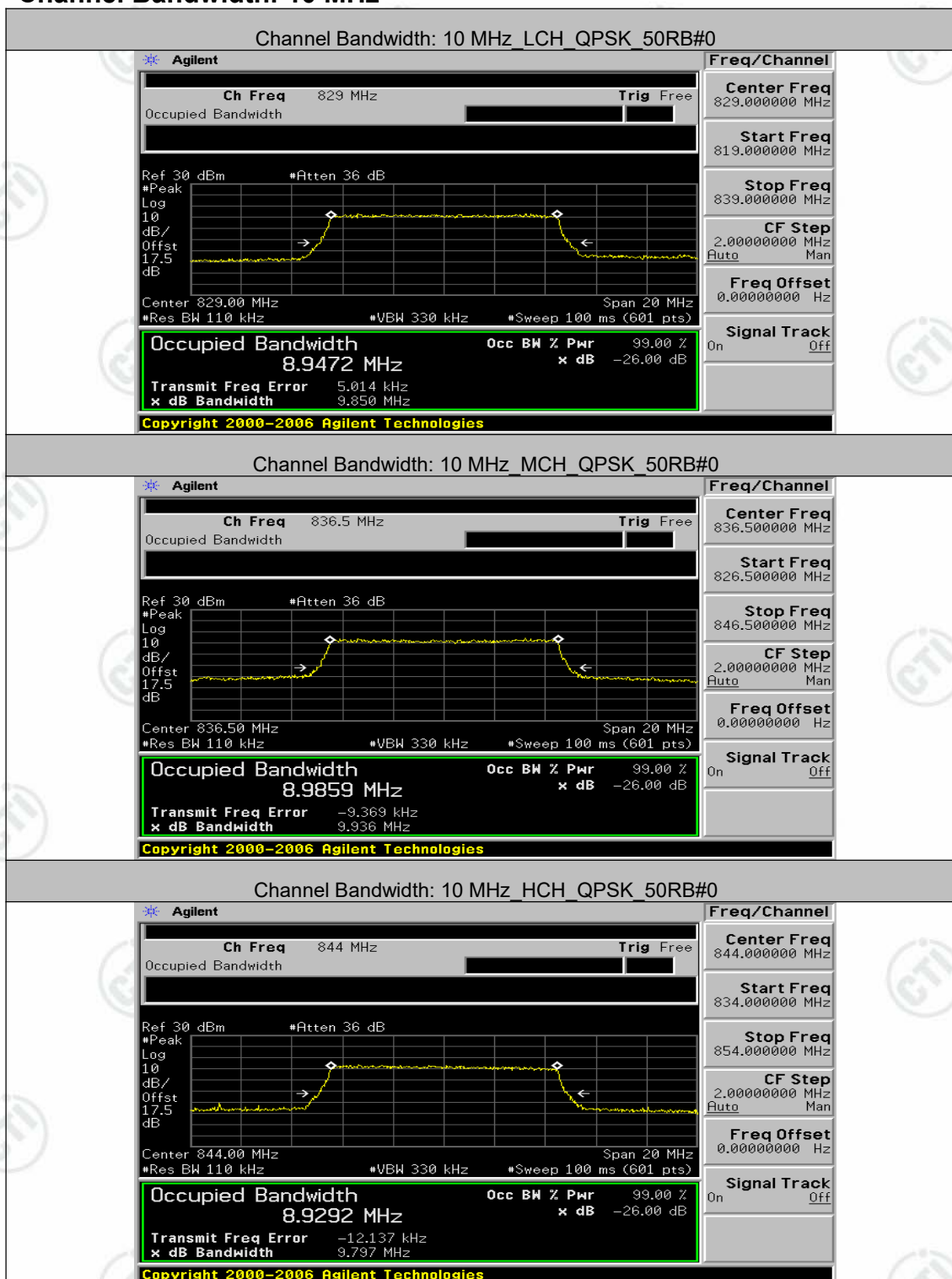


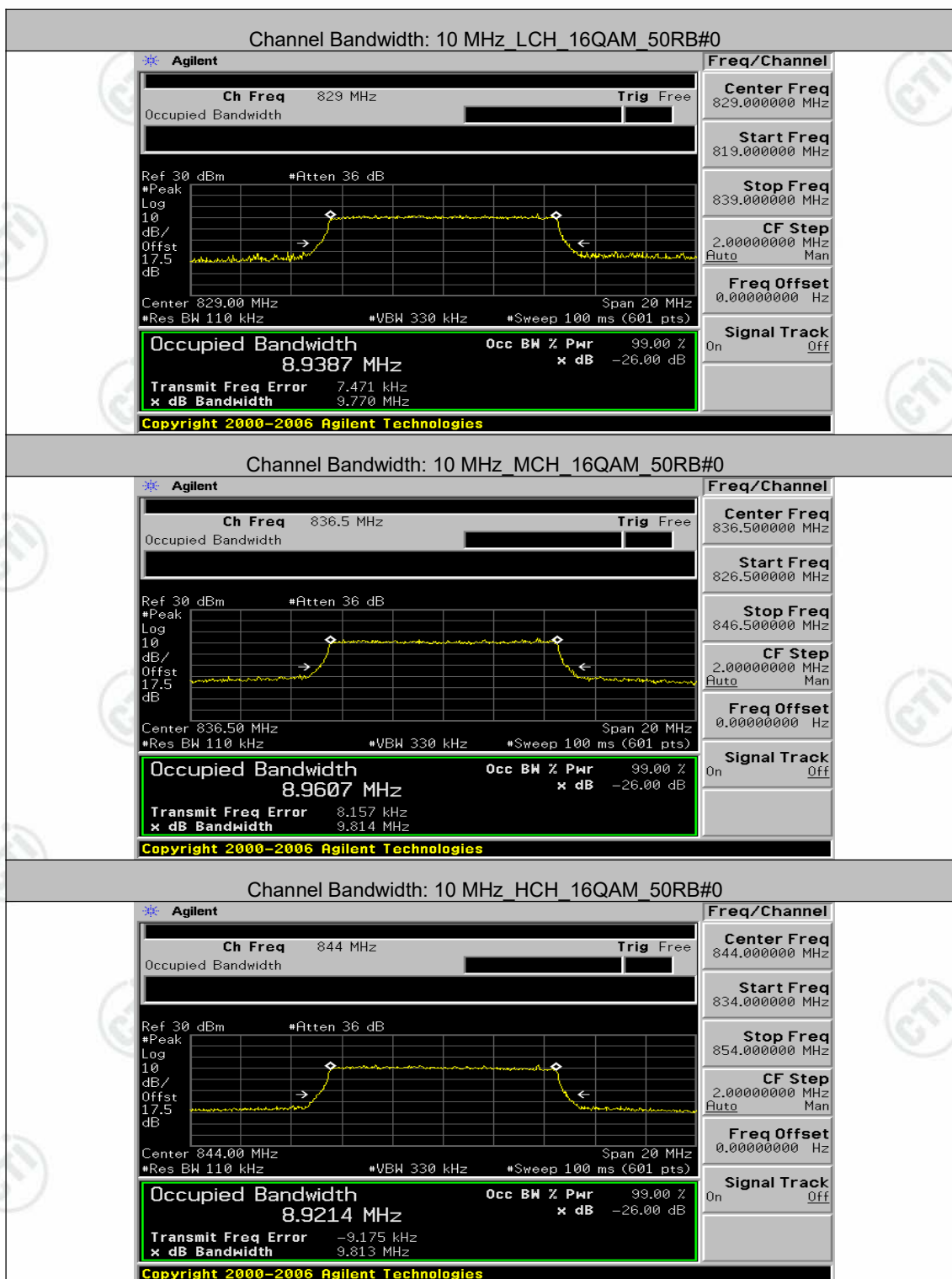
Channel Bandwidth: 5 MHz





Channel Bandwidth: 10 MHz

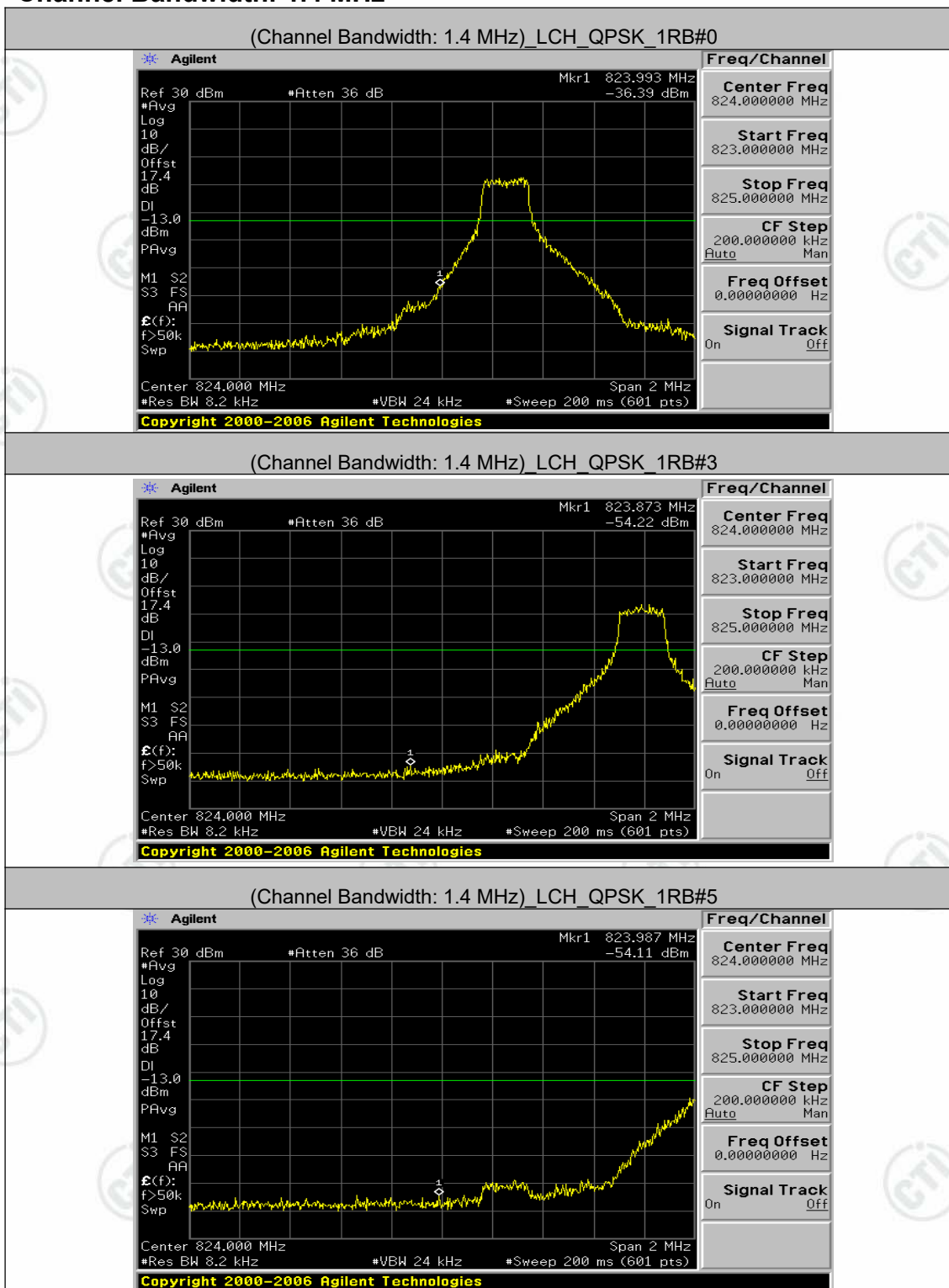


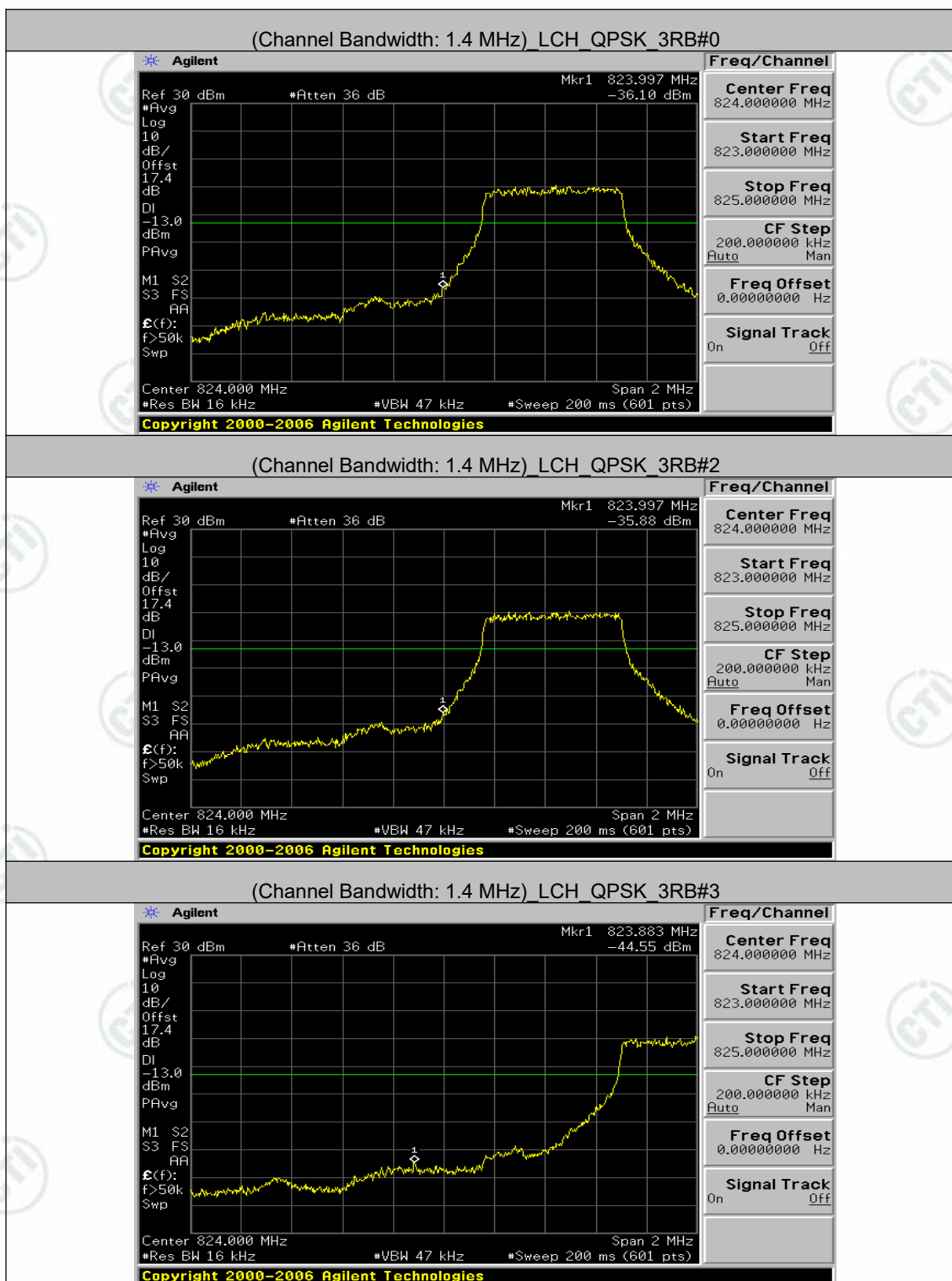


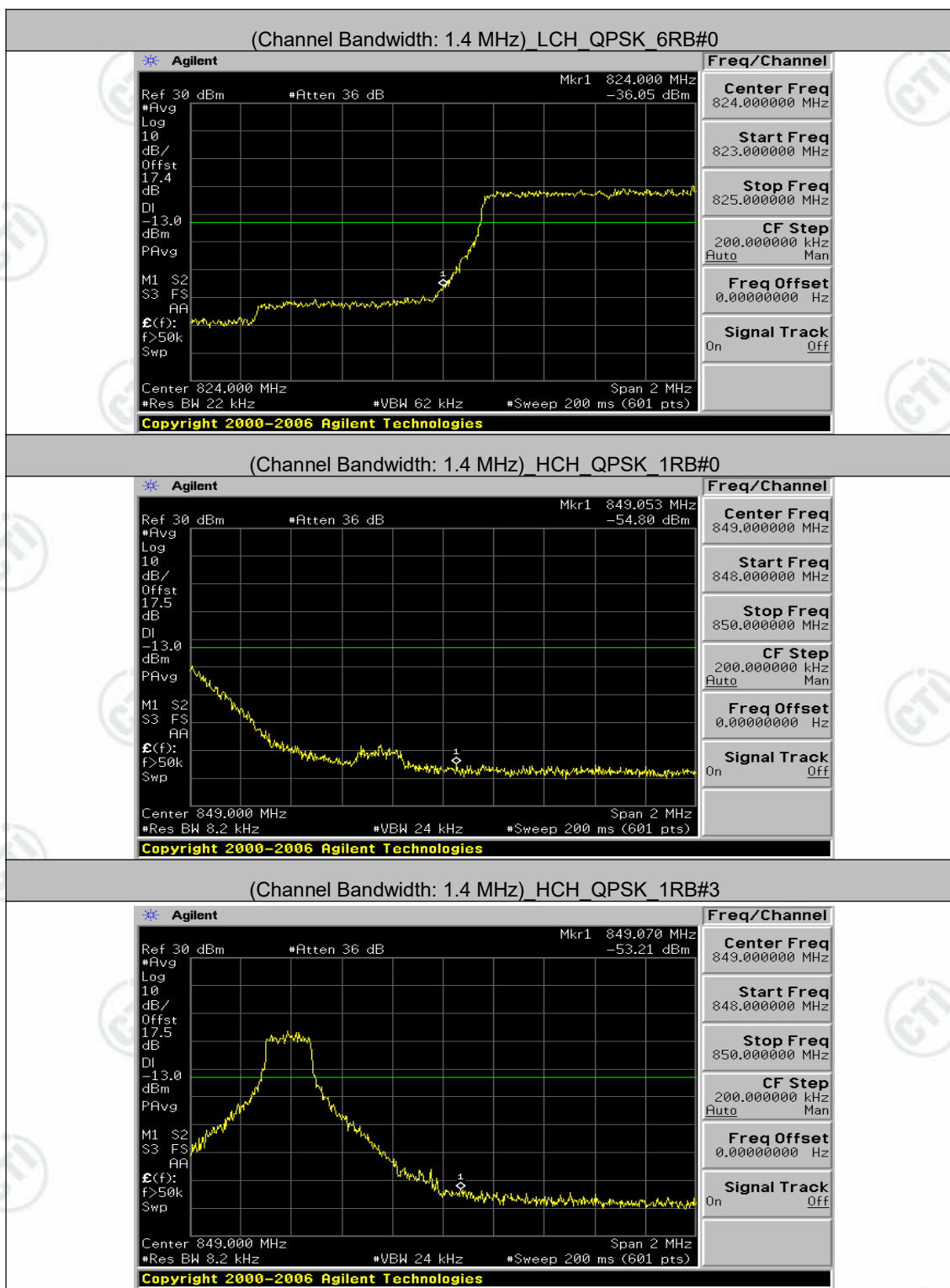
Appendix D: Band Edge

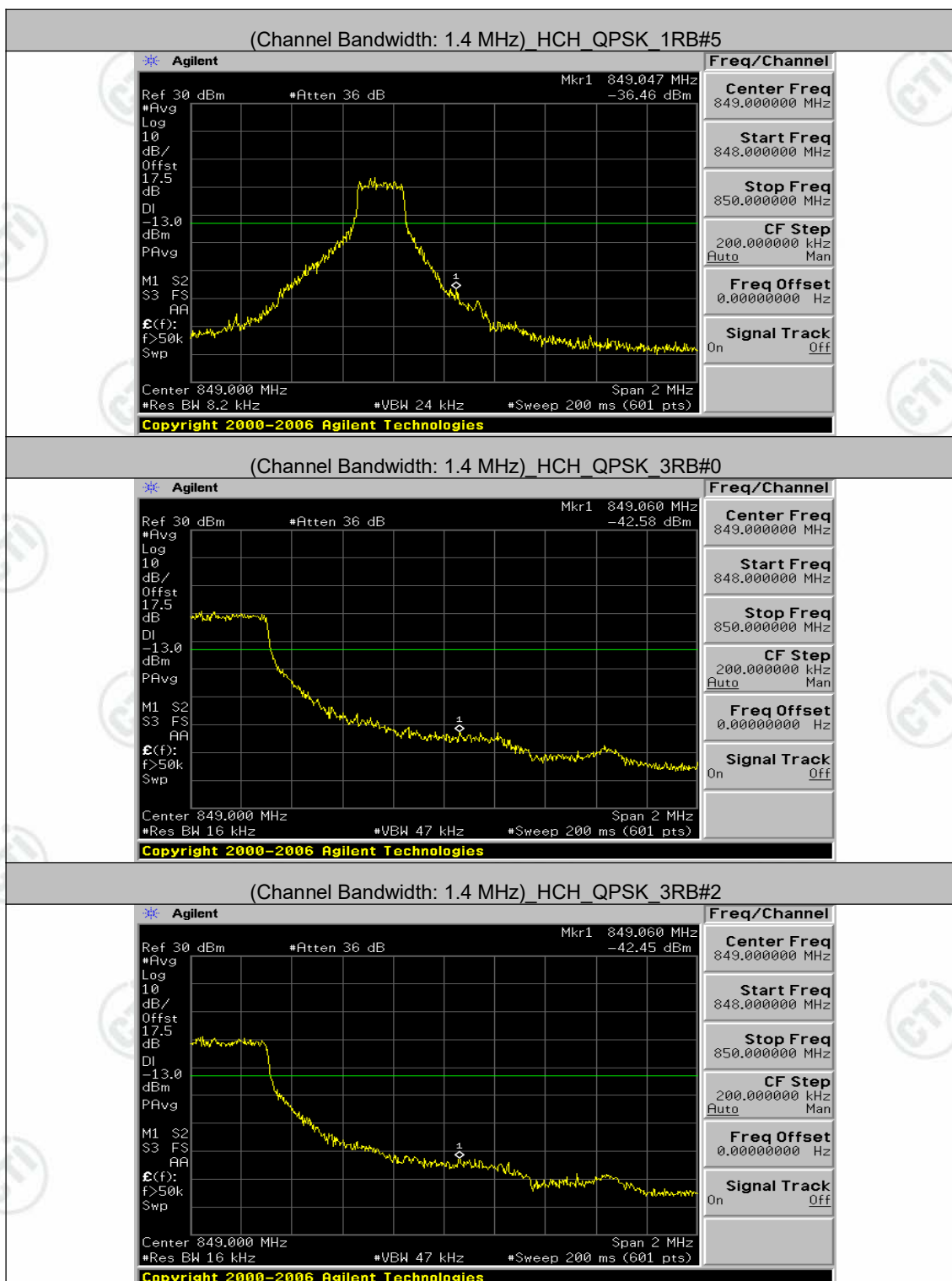
Test Graphs

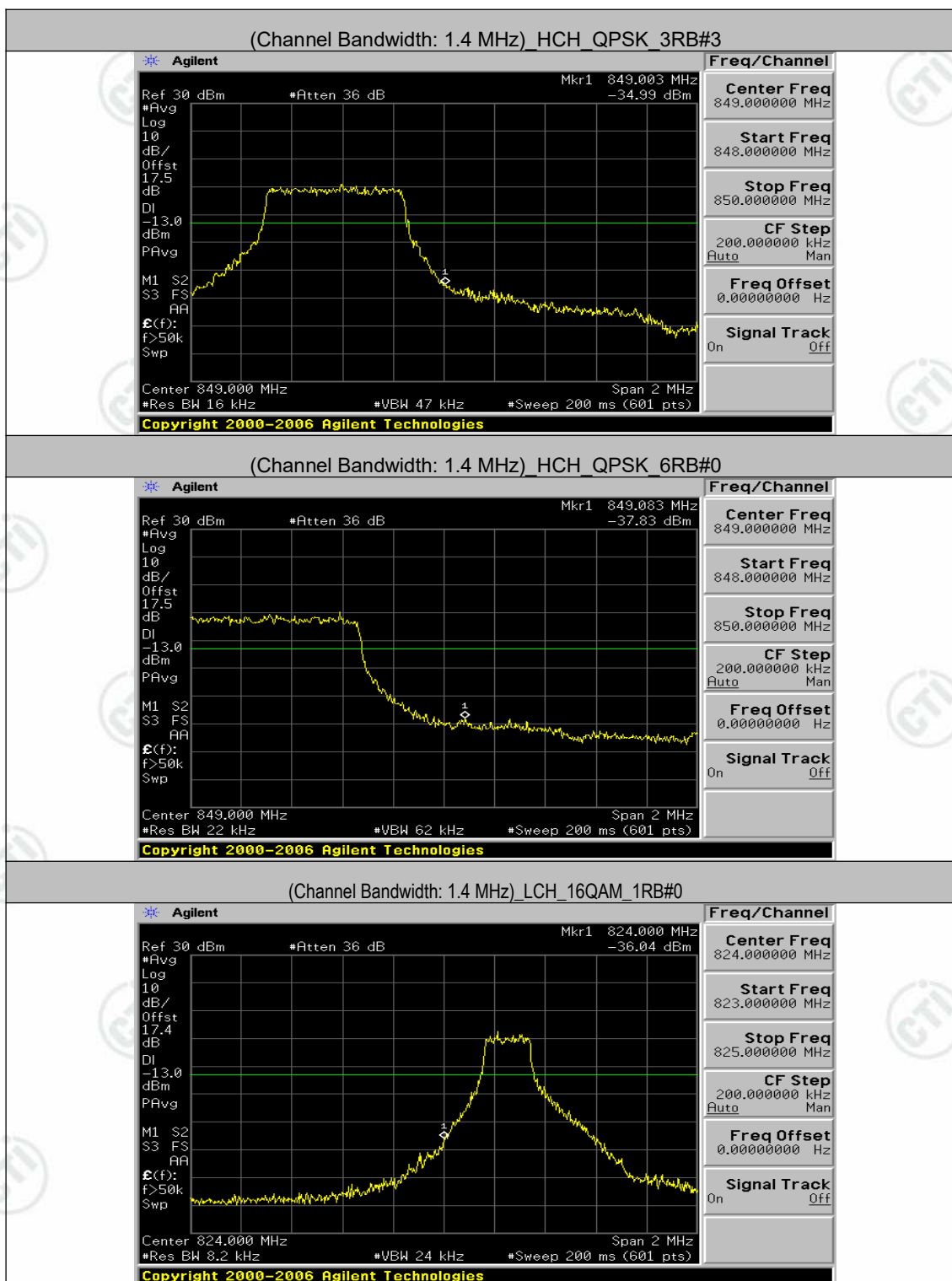
Channel Bandwidth: 1.4 MHz

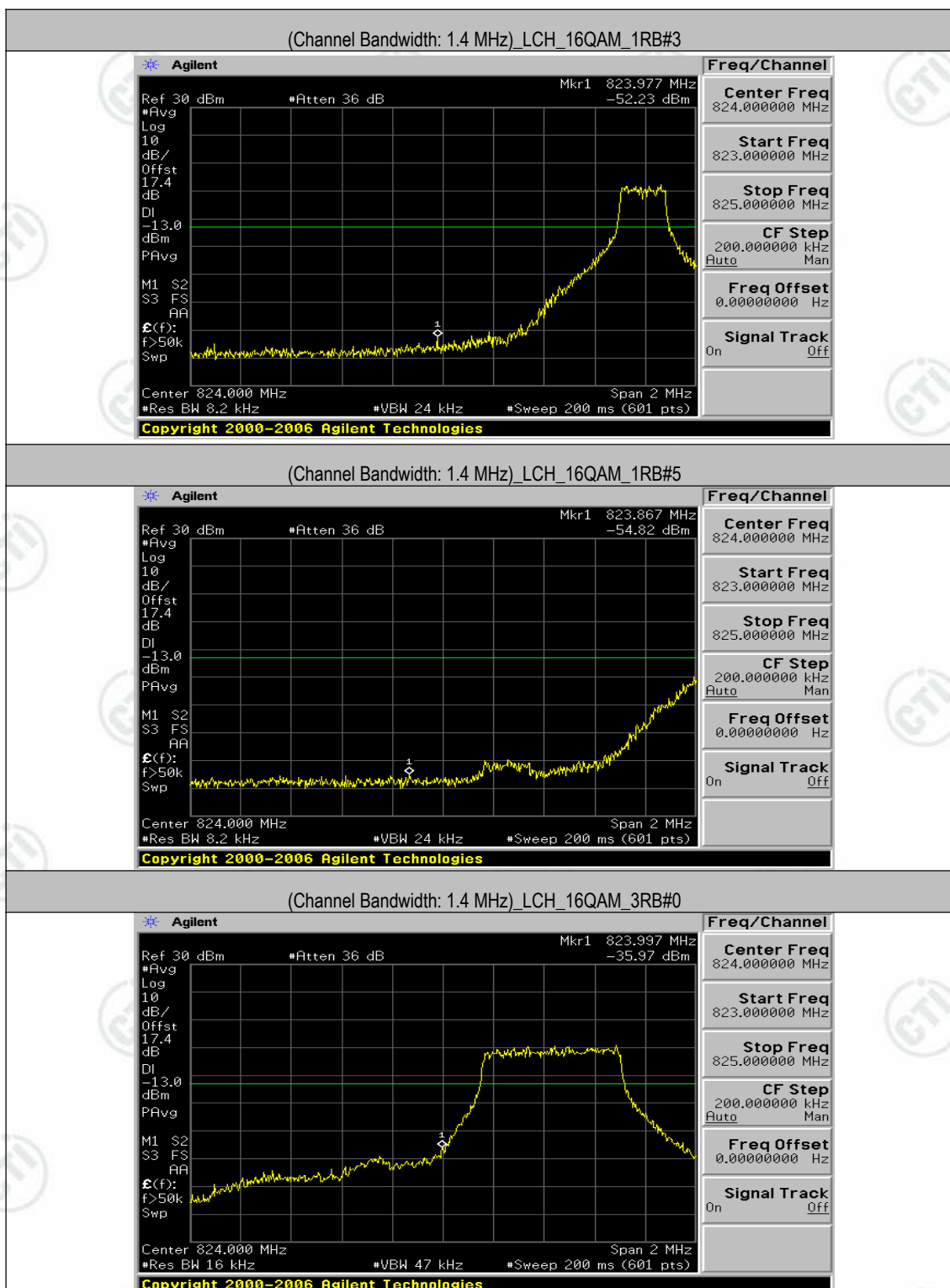


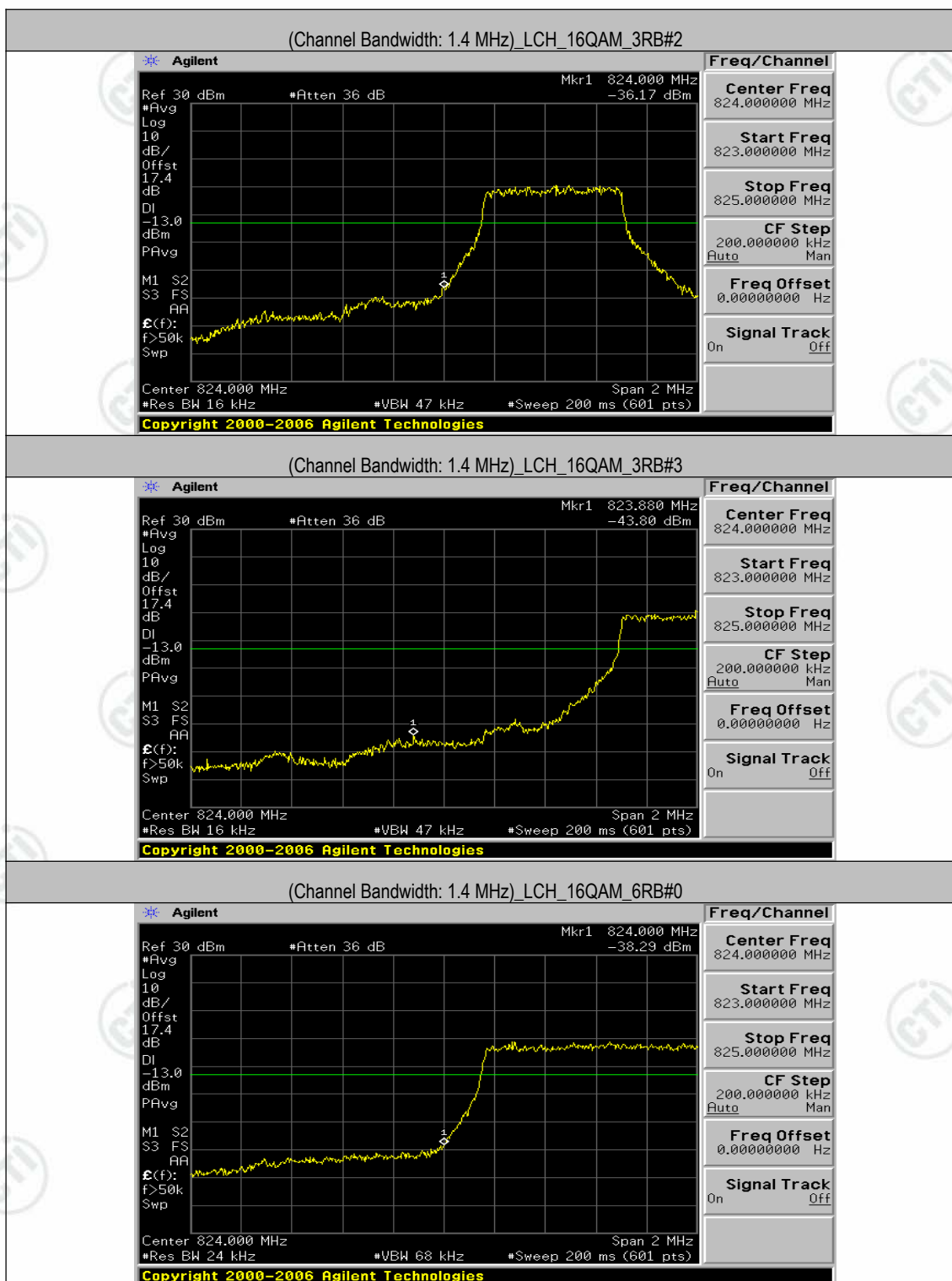


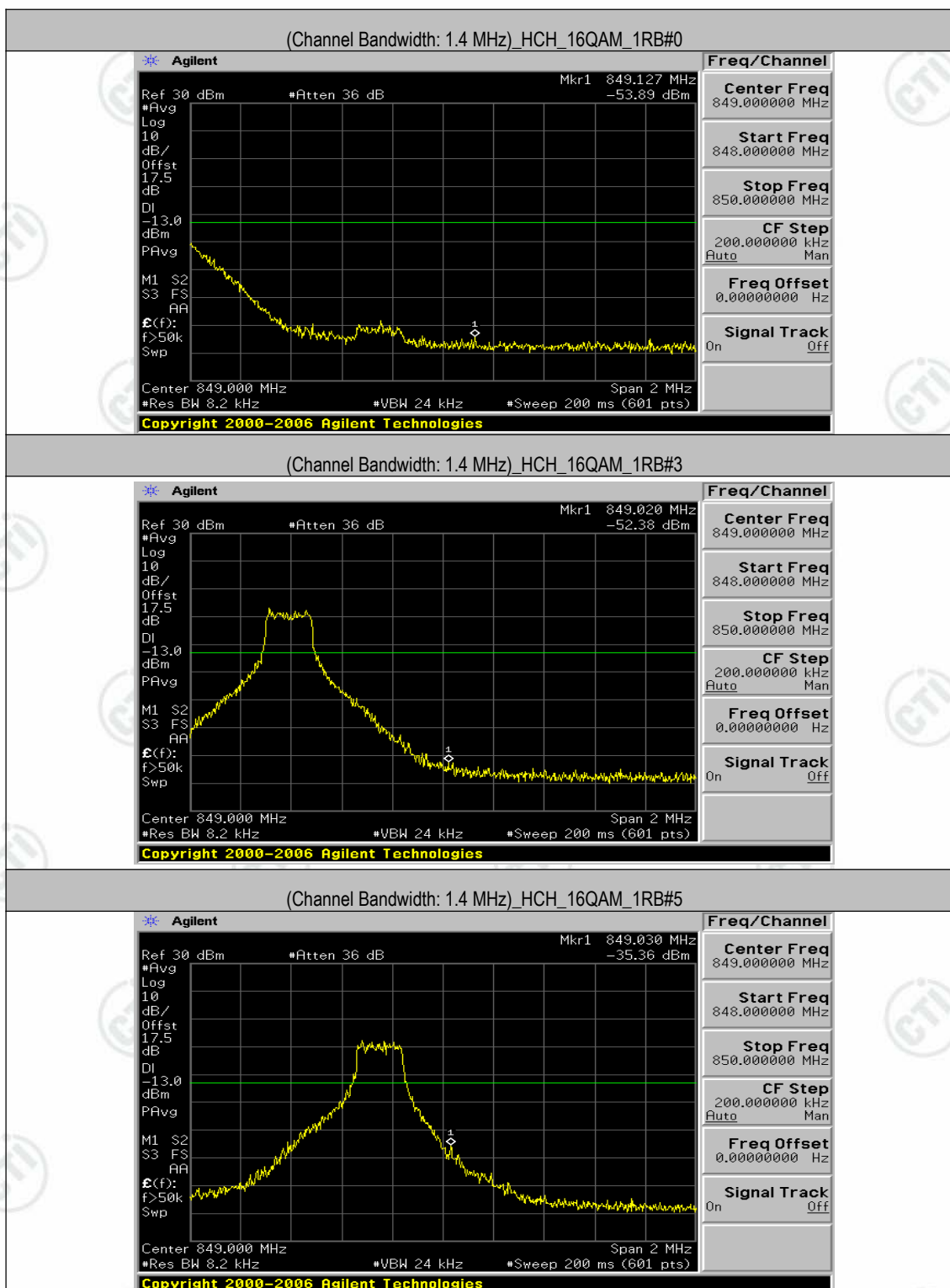


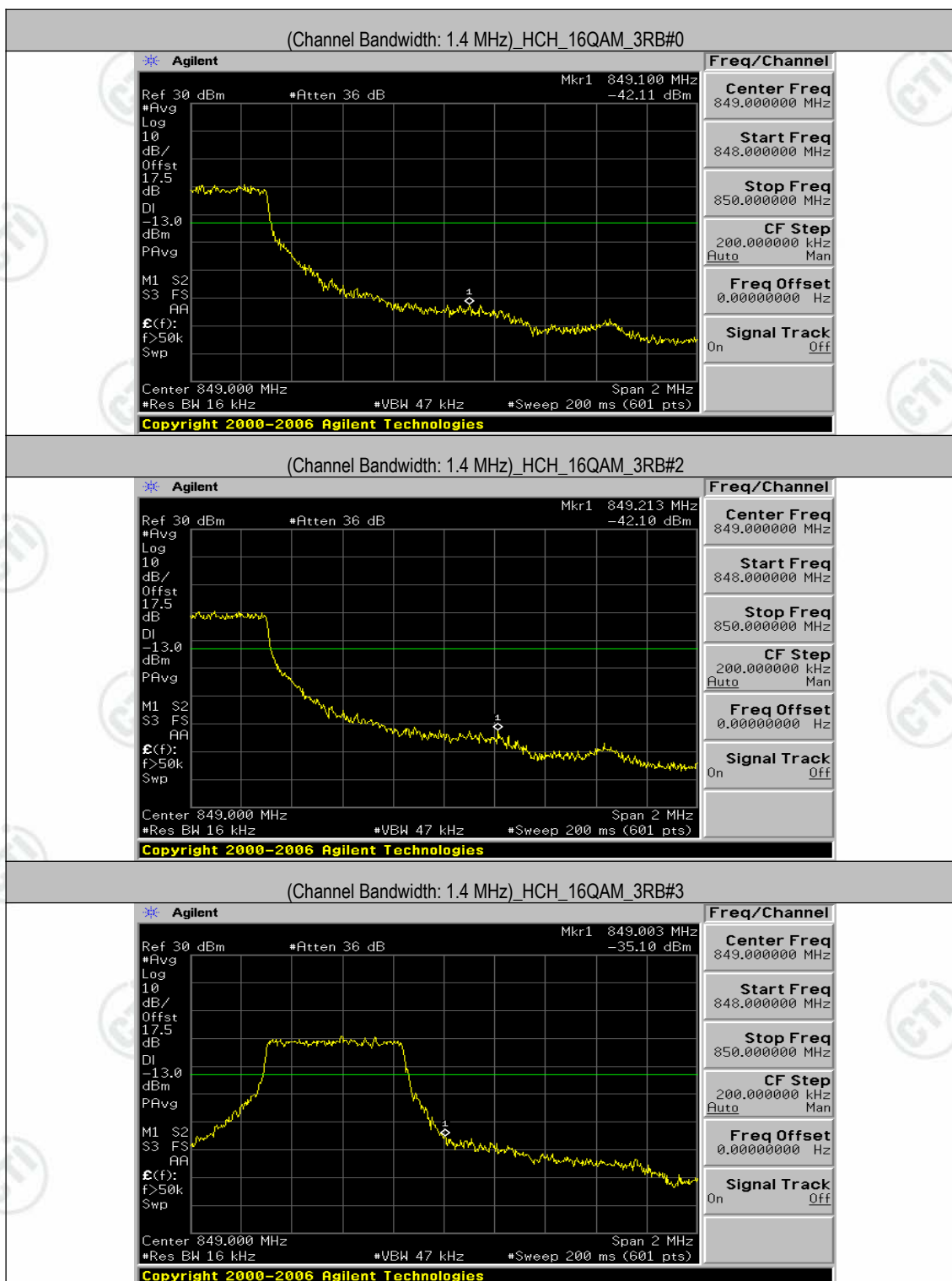


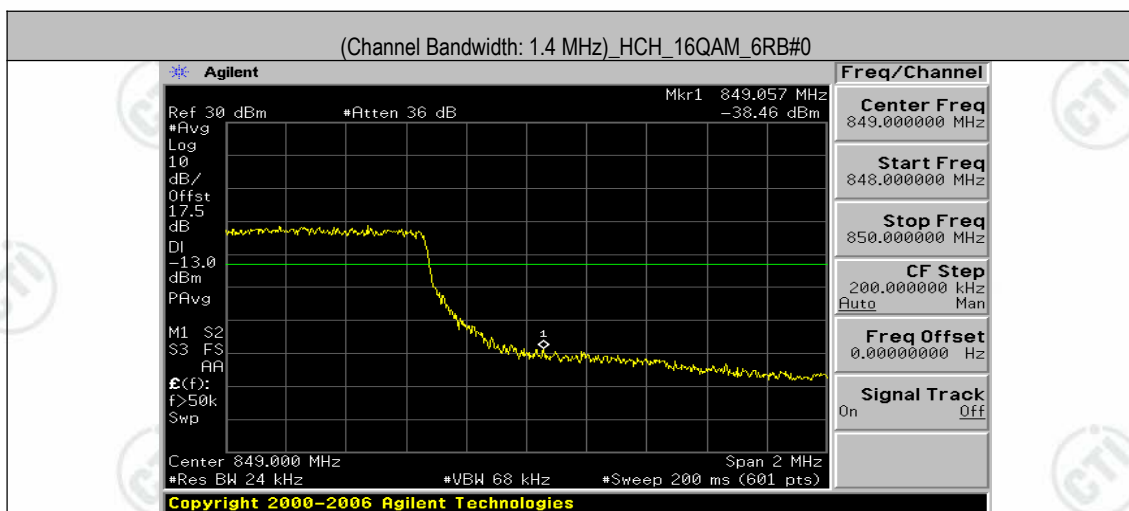




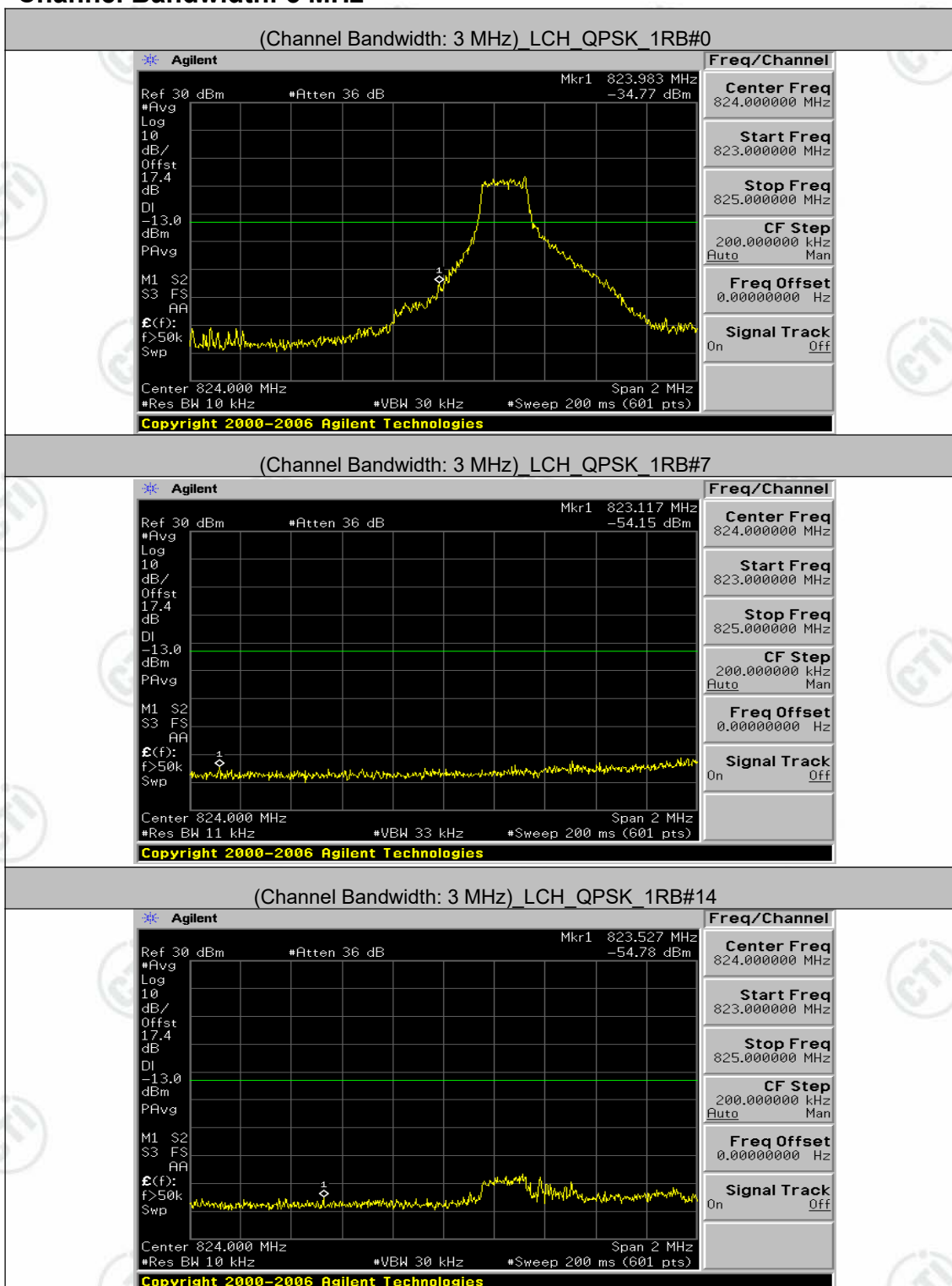


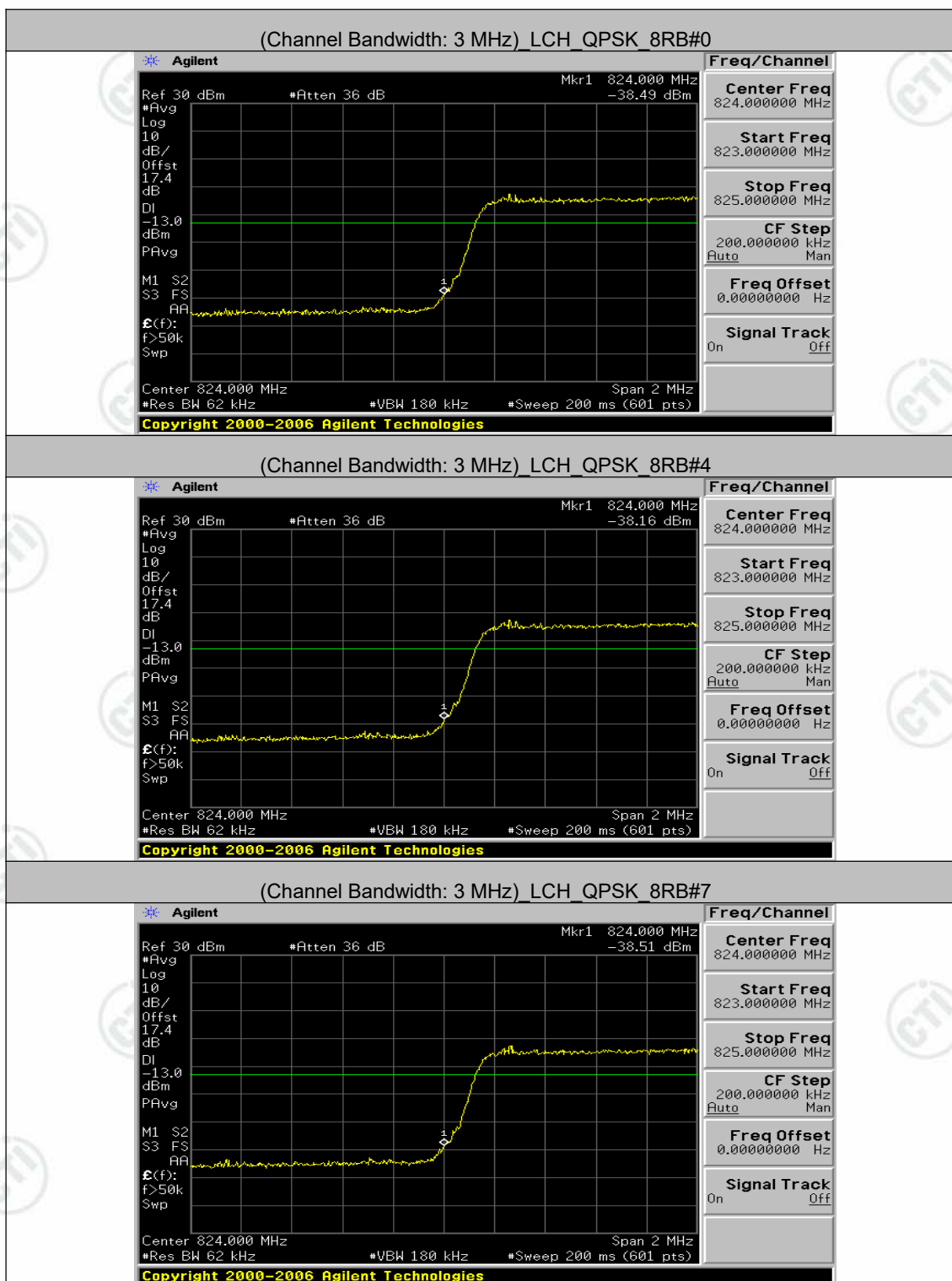


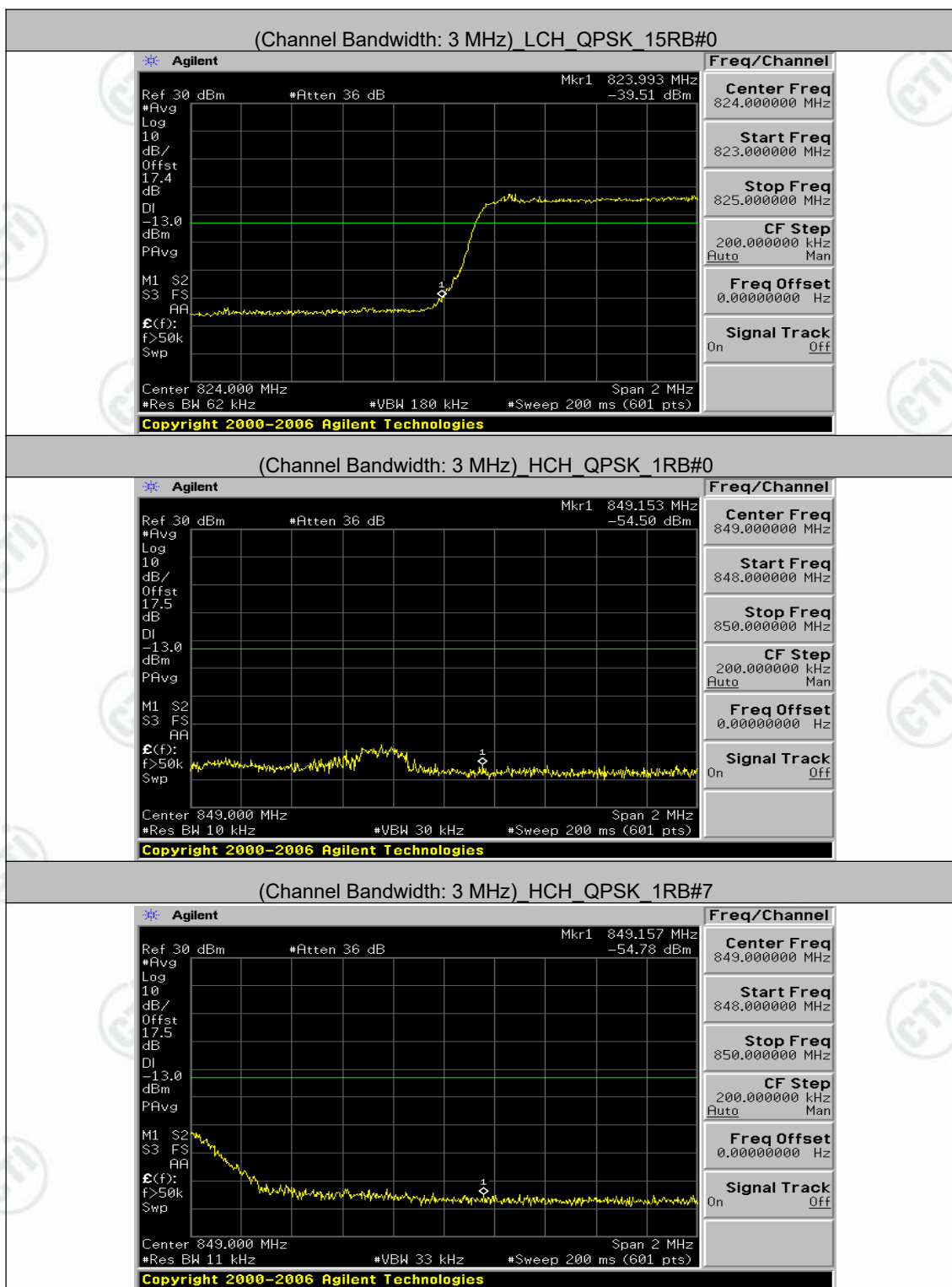


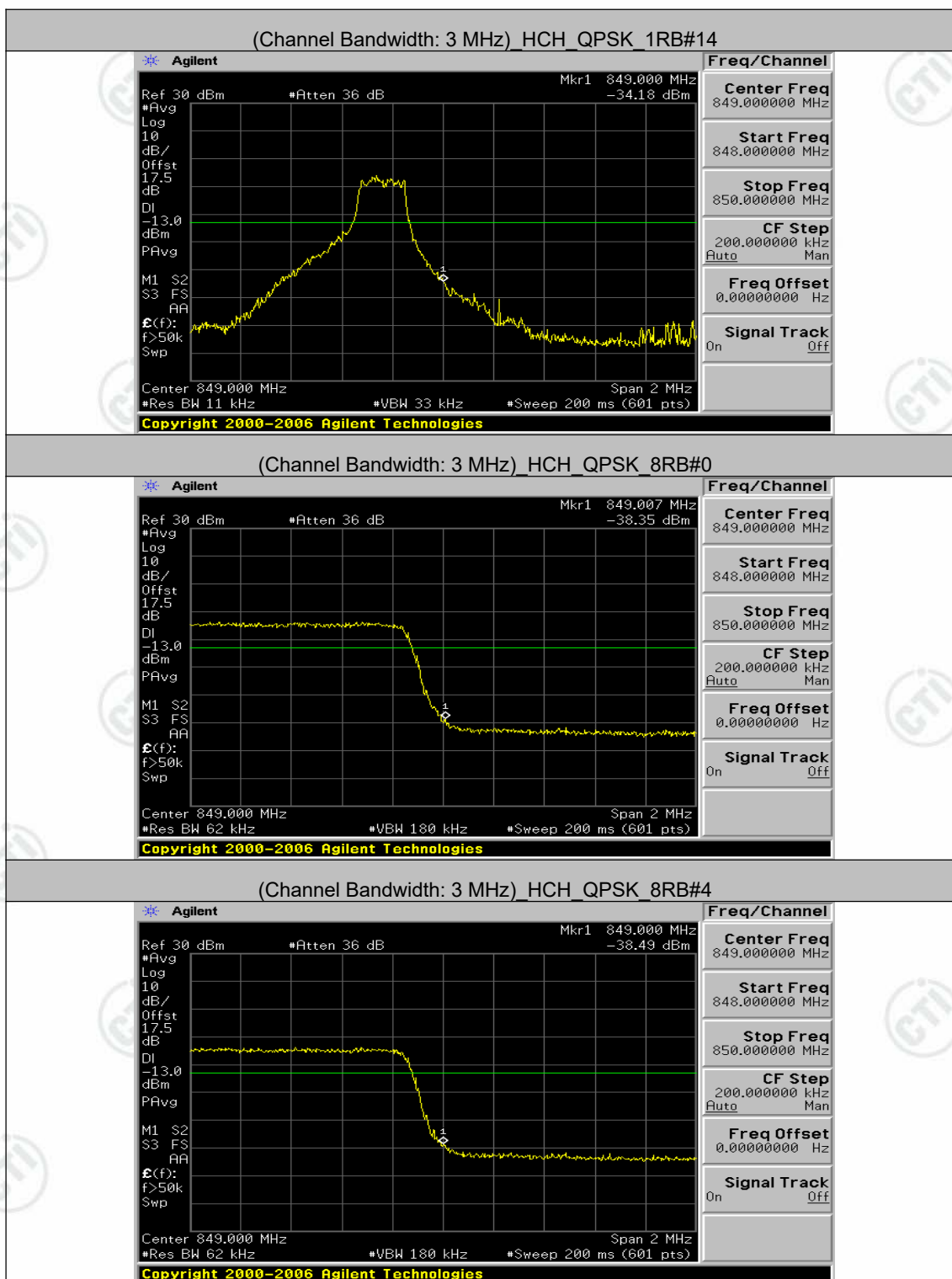


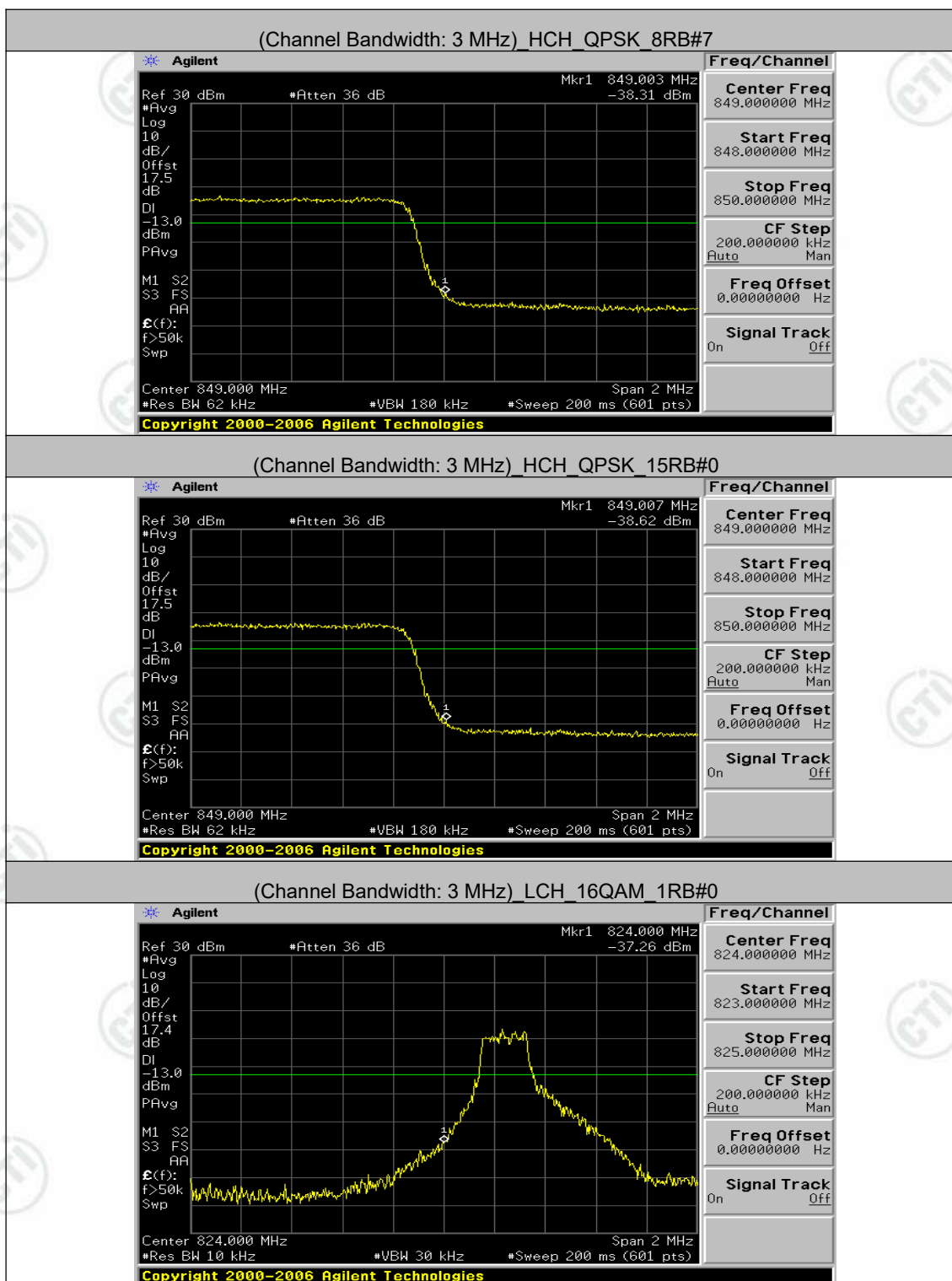
Channel Bandwidth: 3 MHz

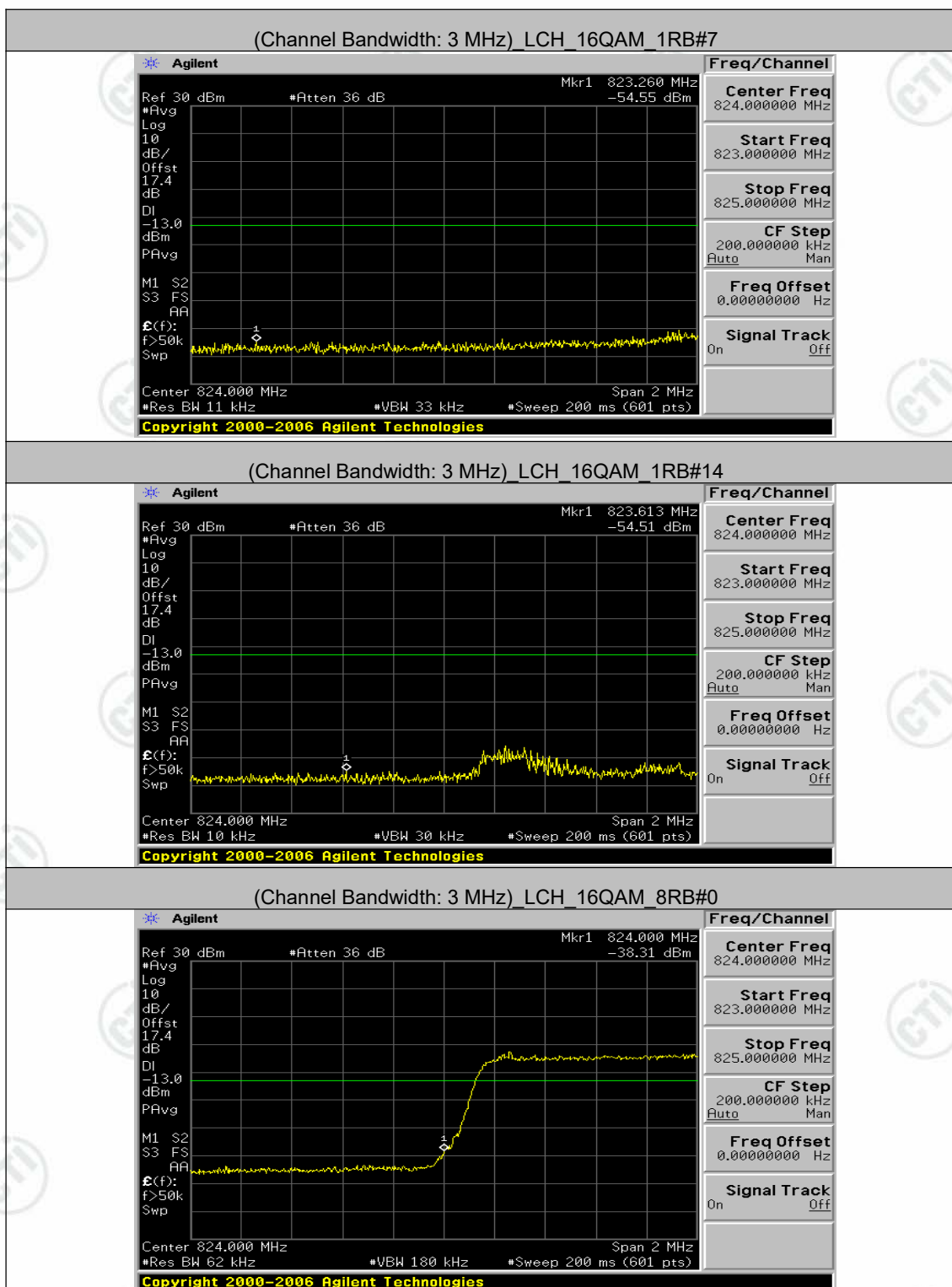


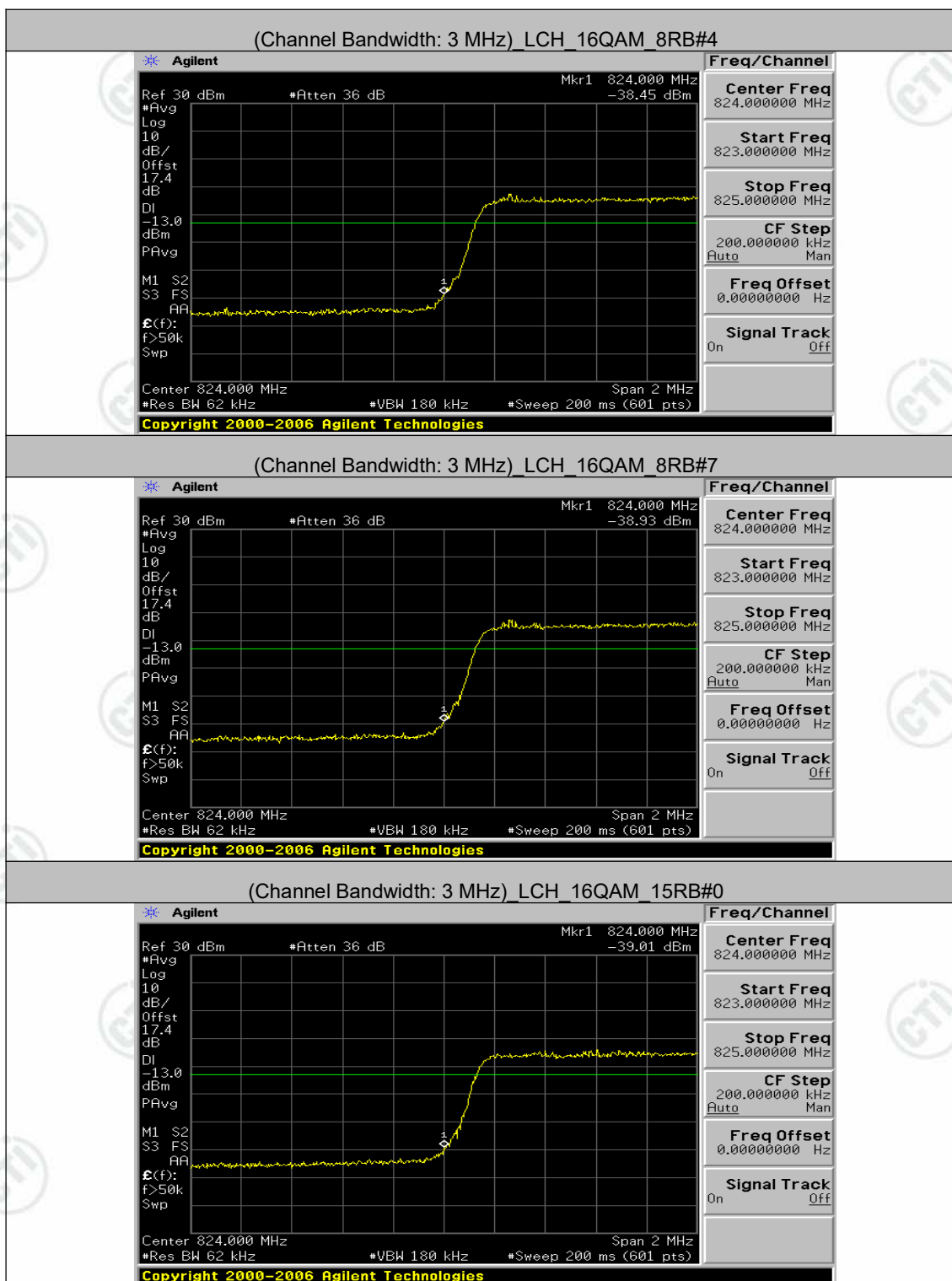


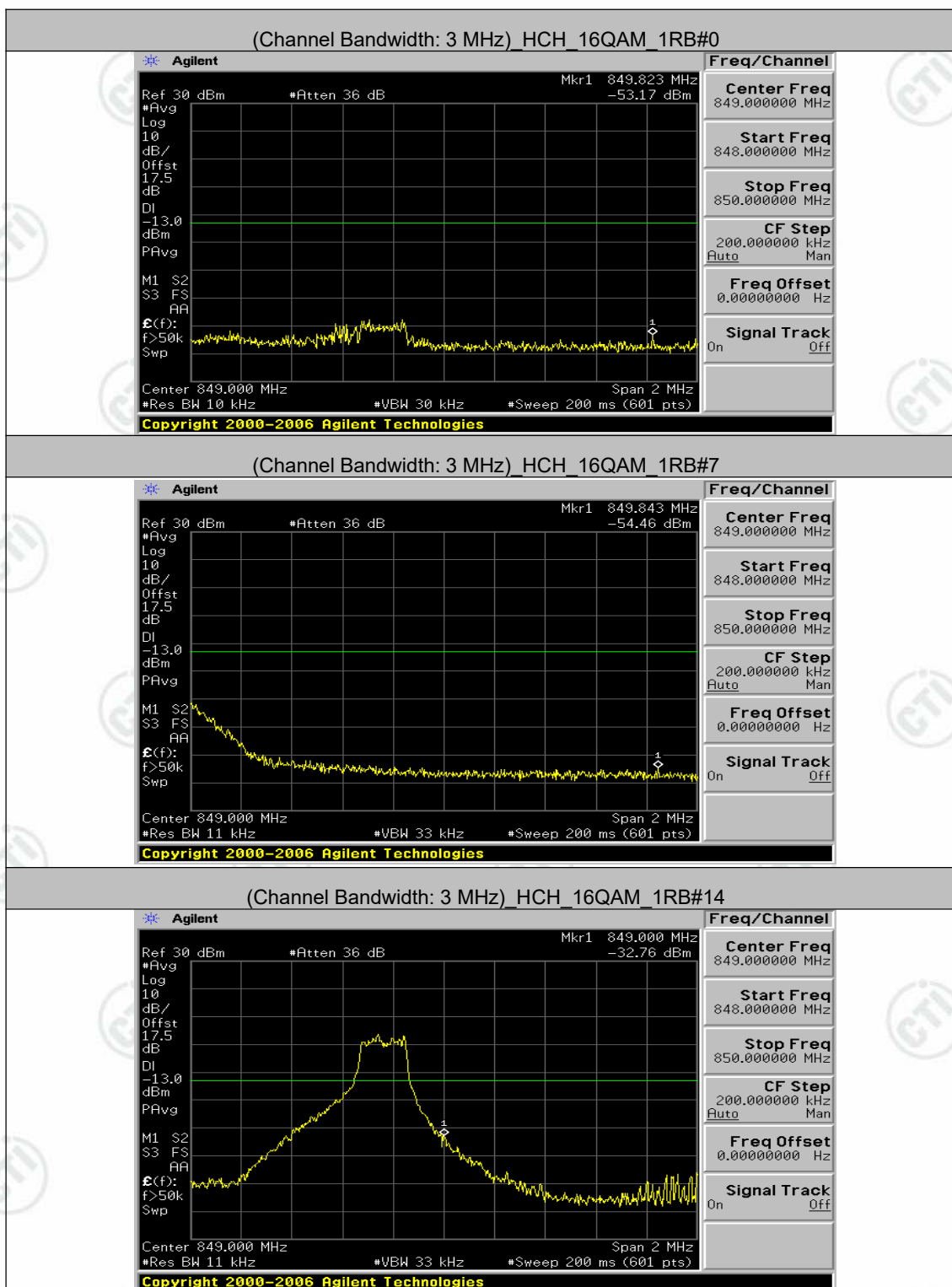


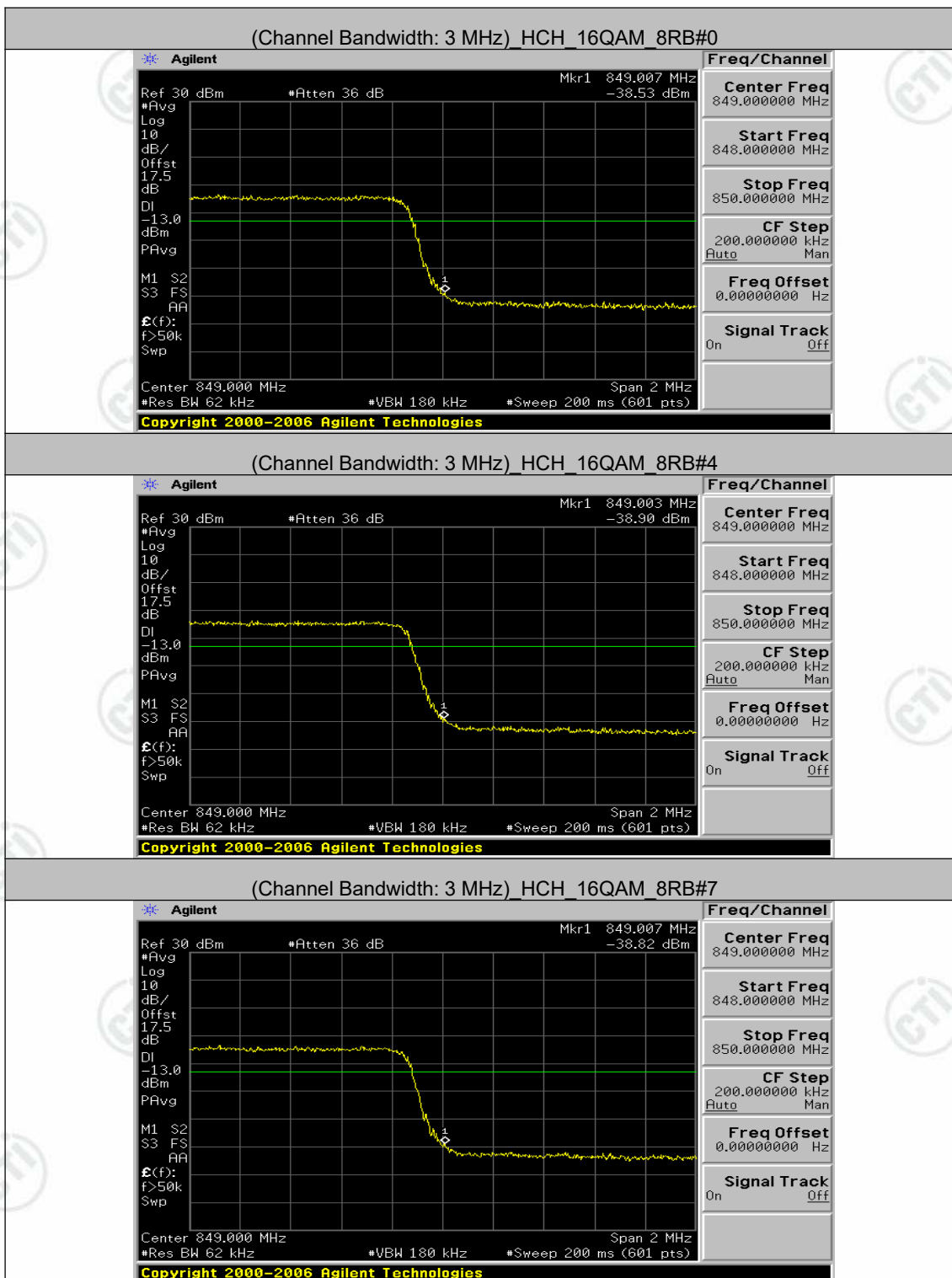


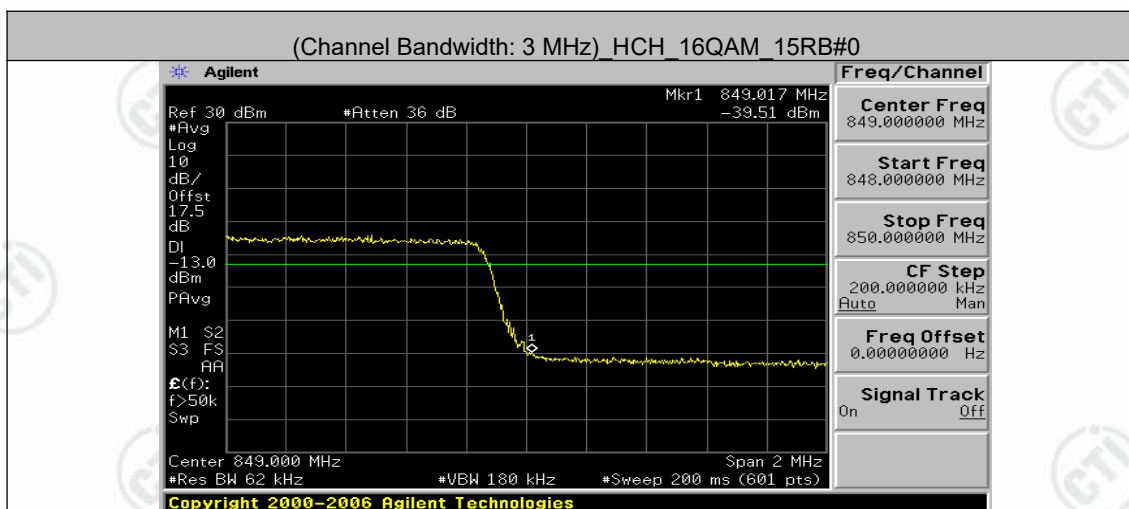




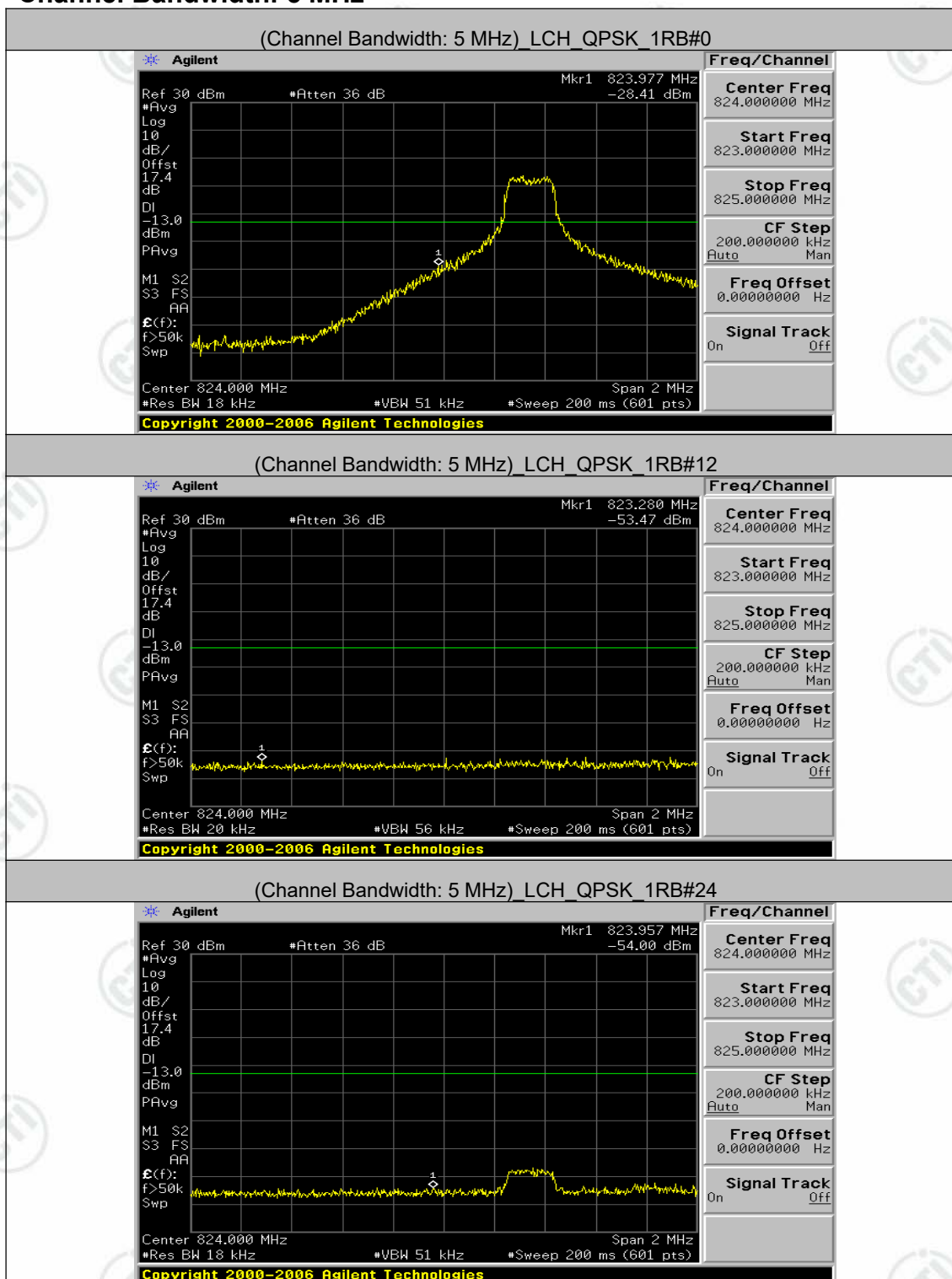


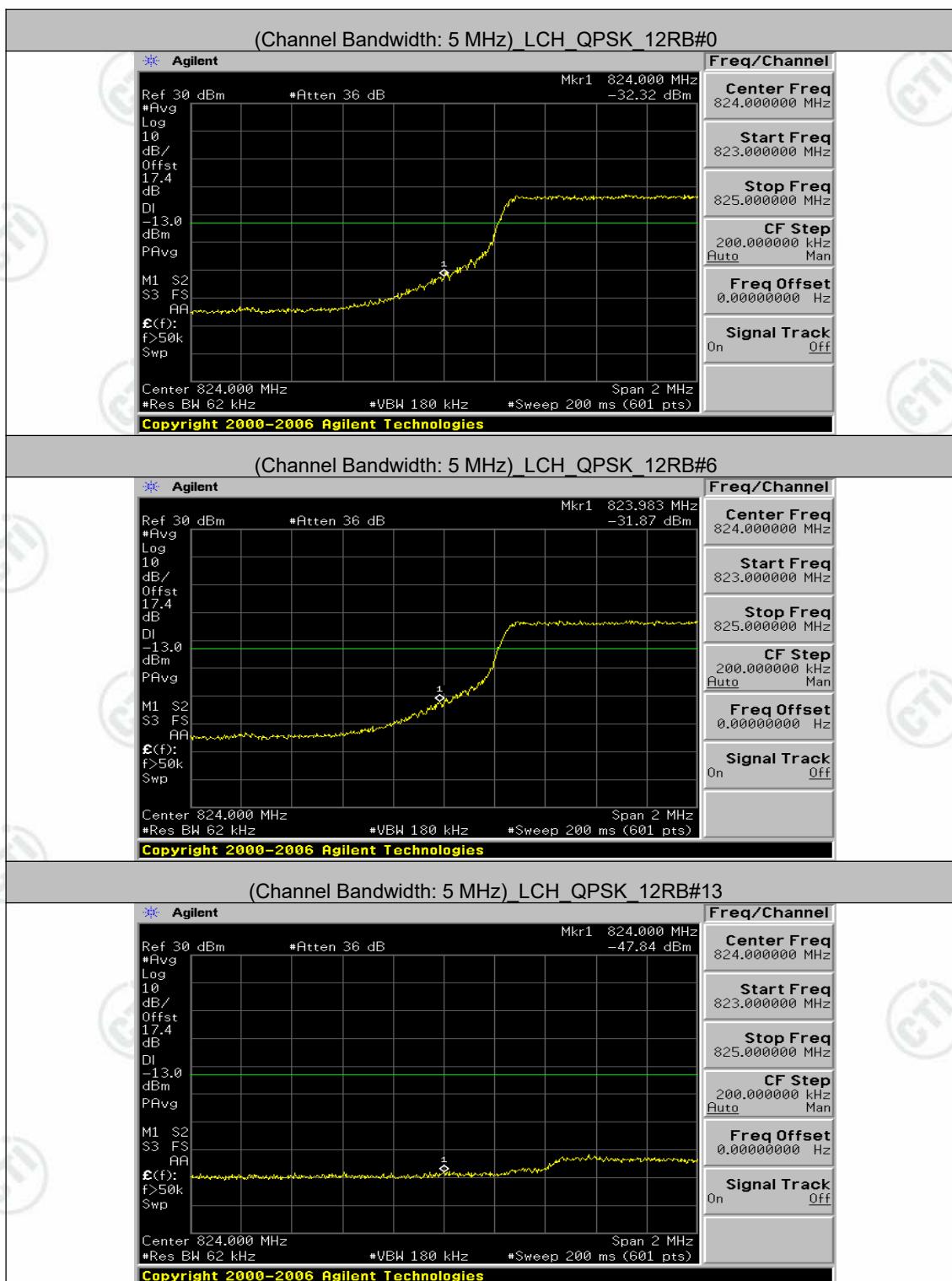


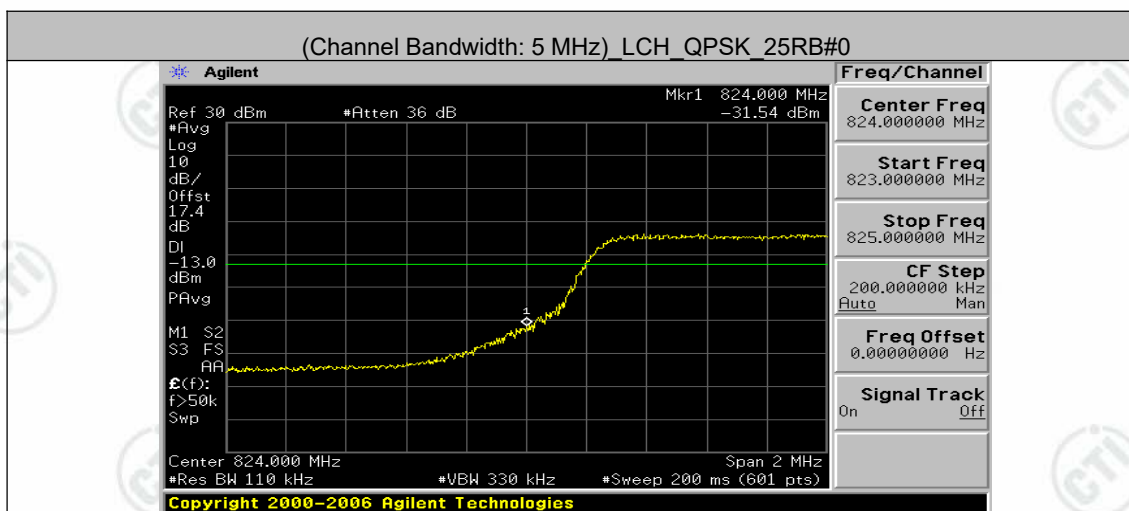


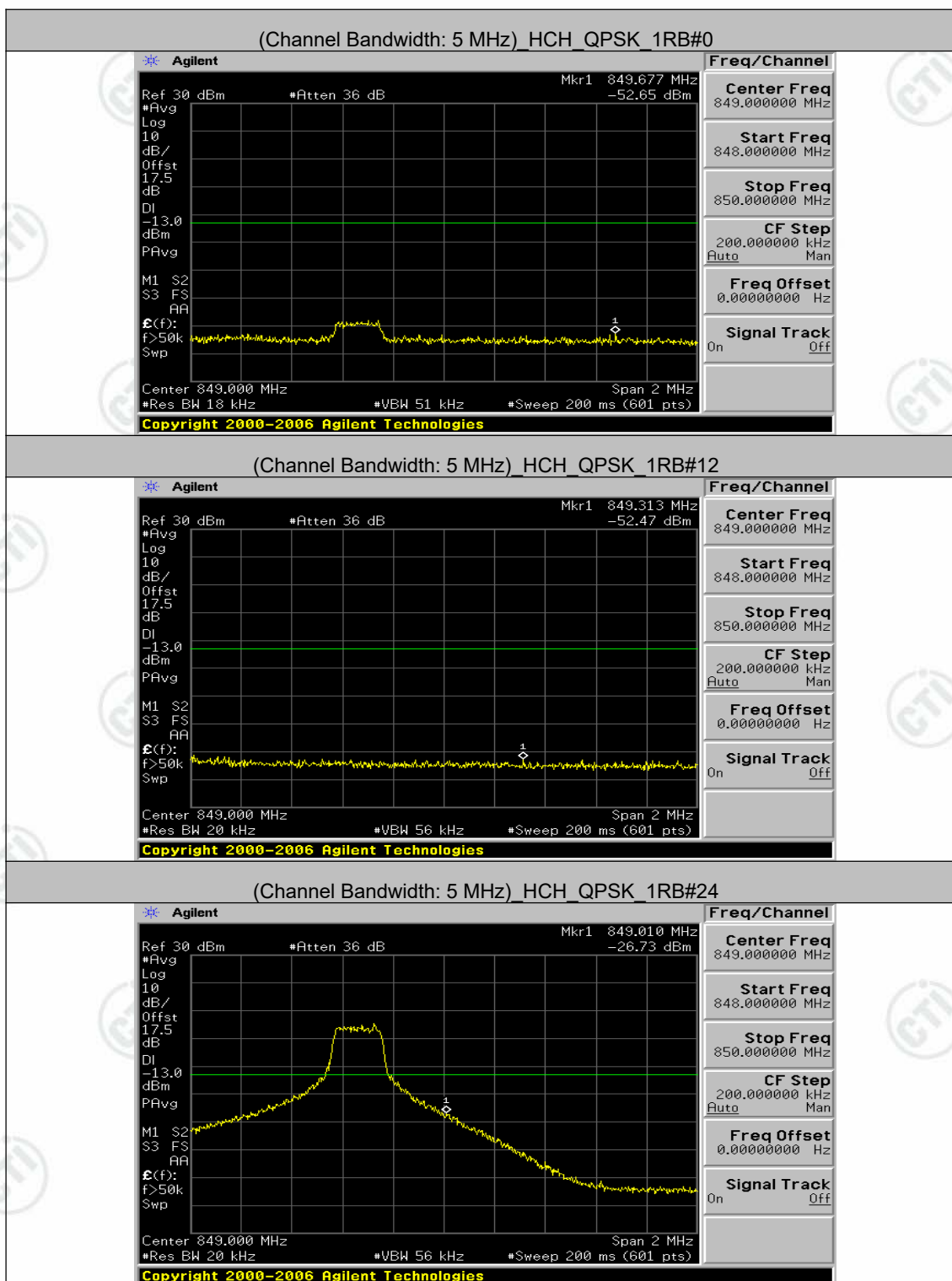


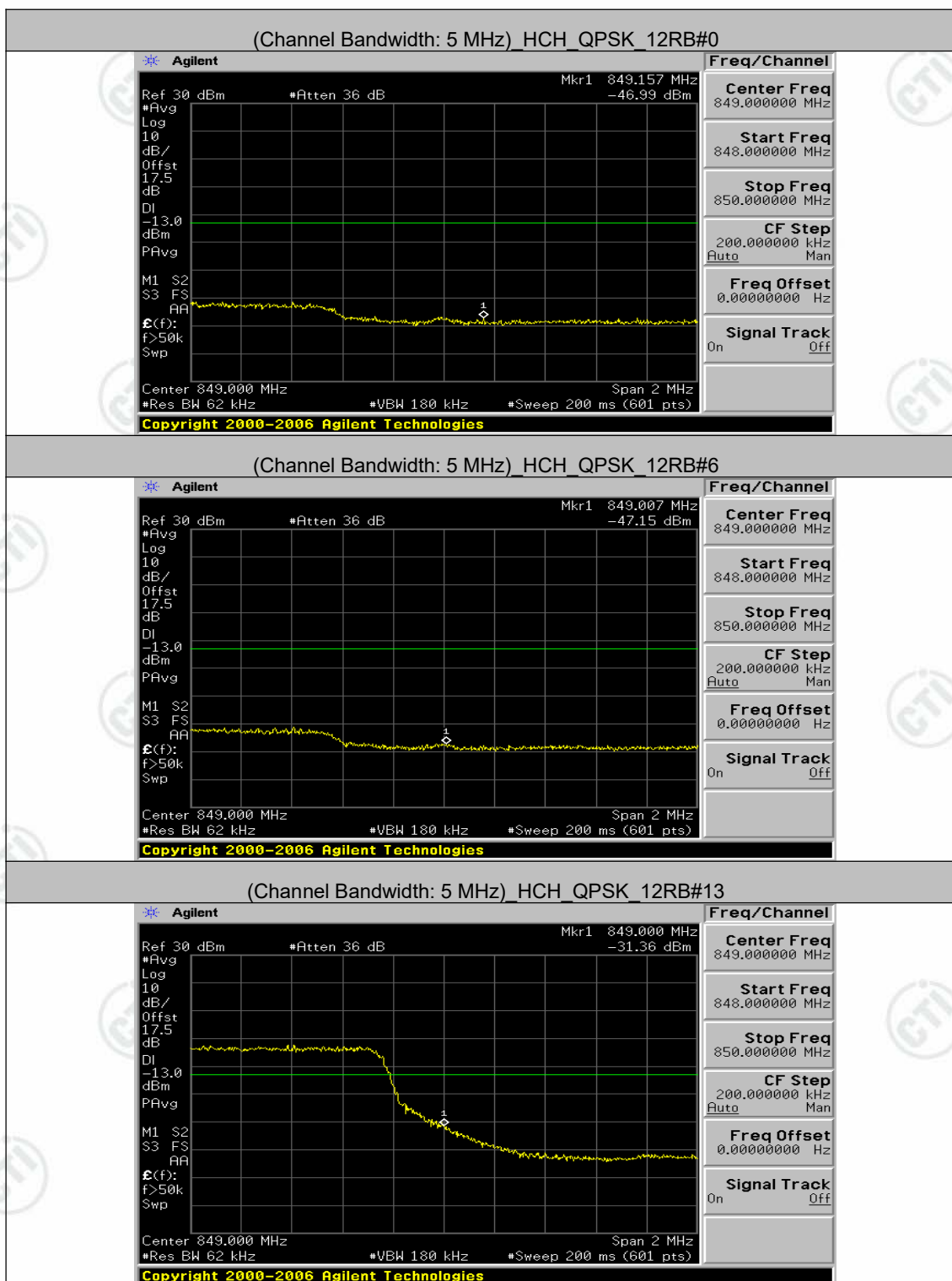
Channel Bandwidth: 5 MHz

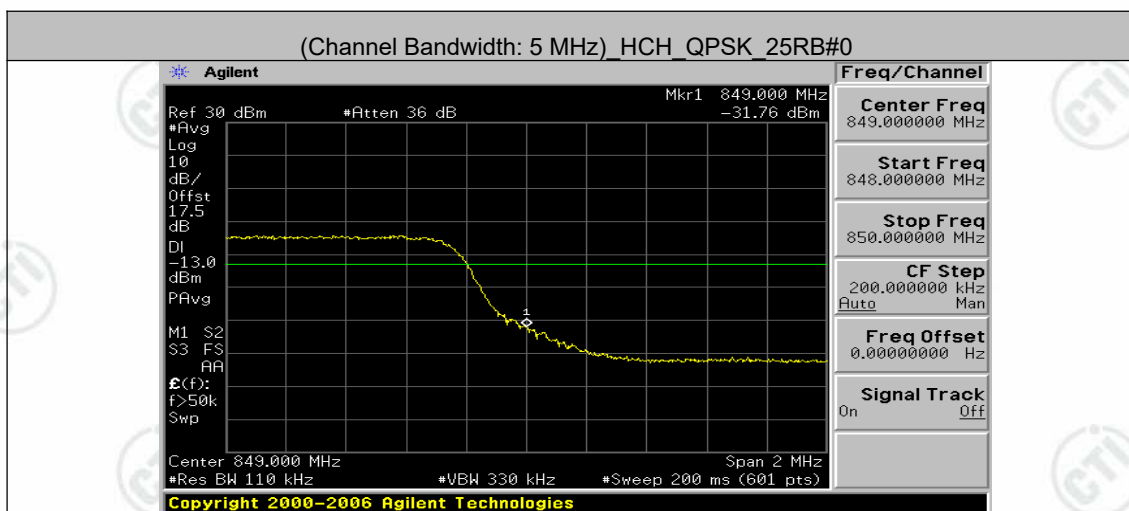


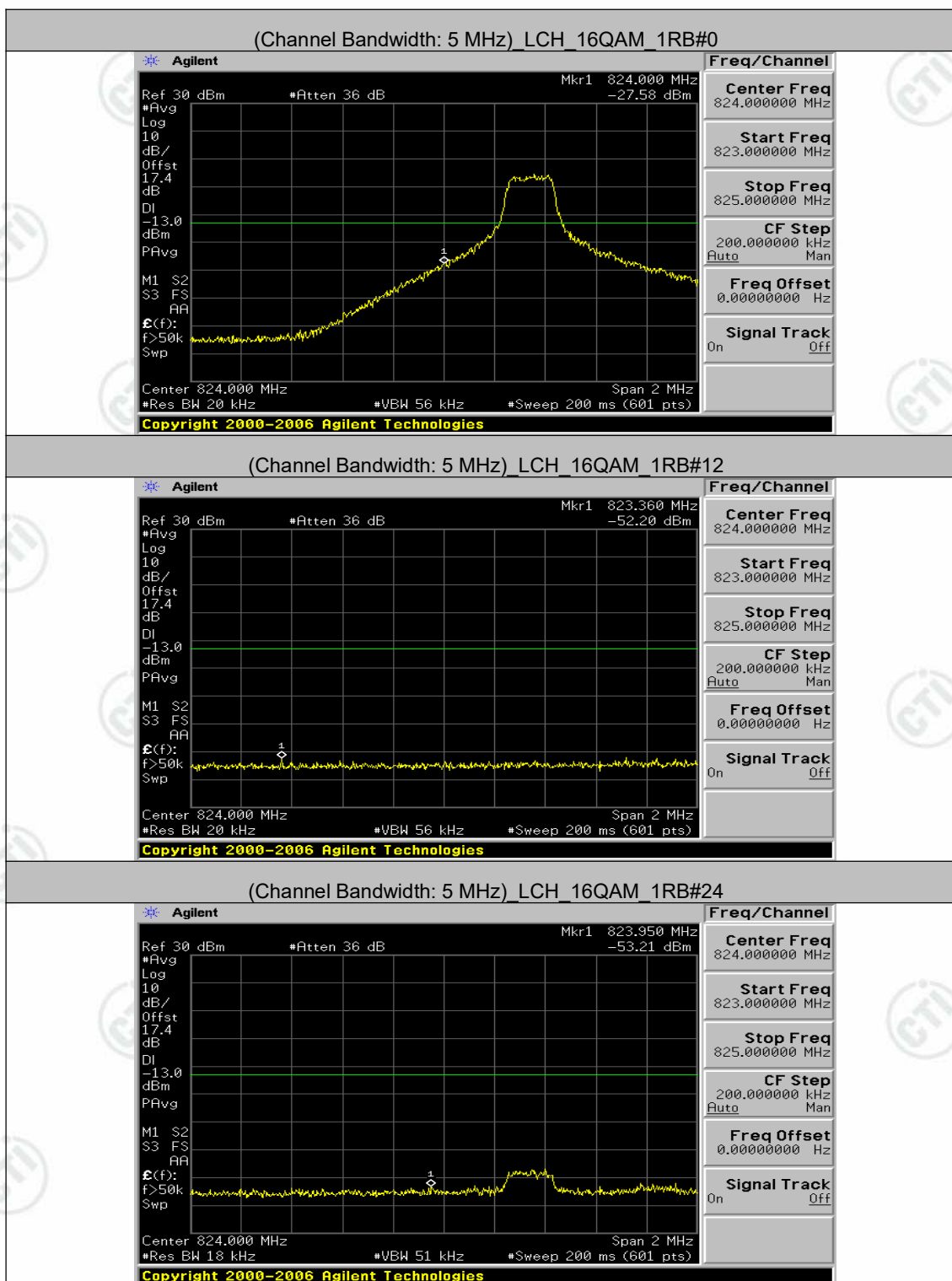


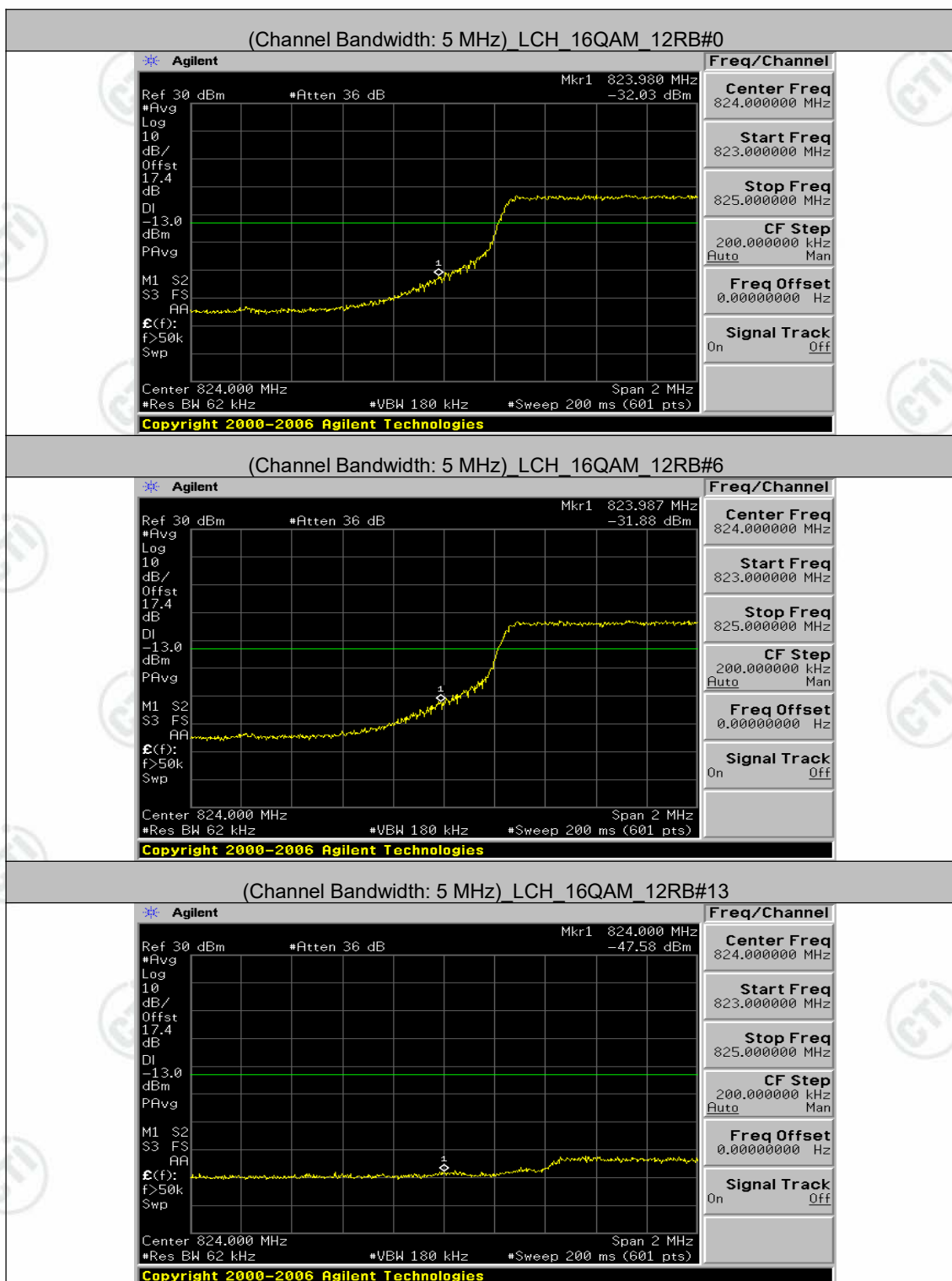


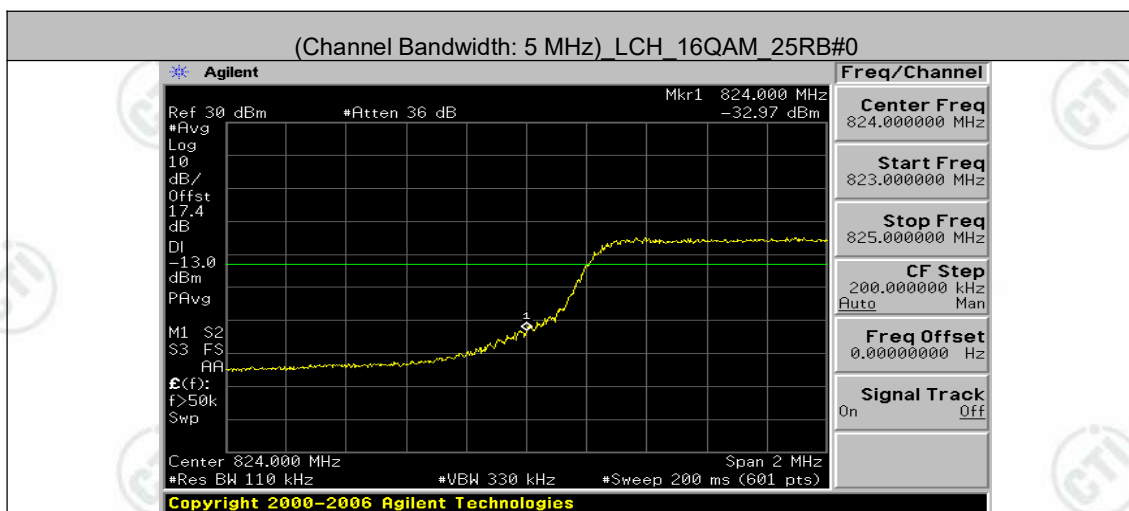


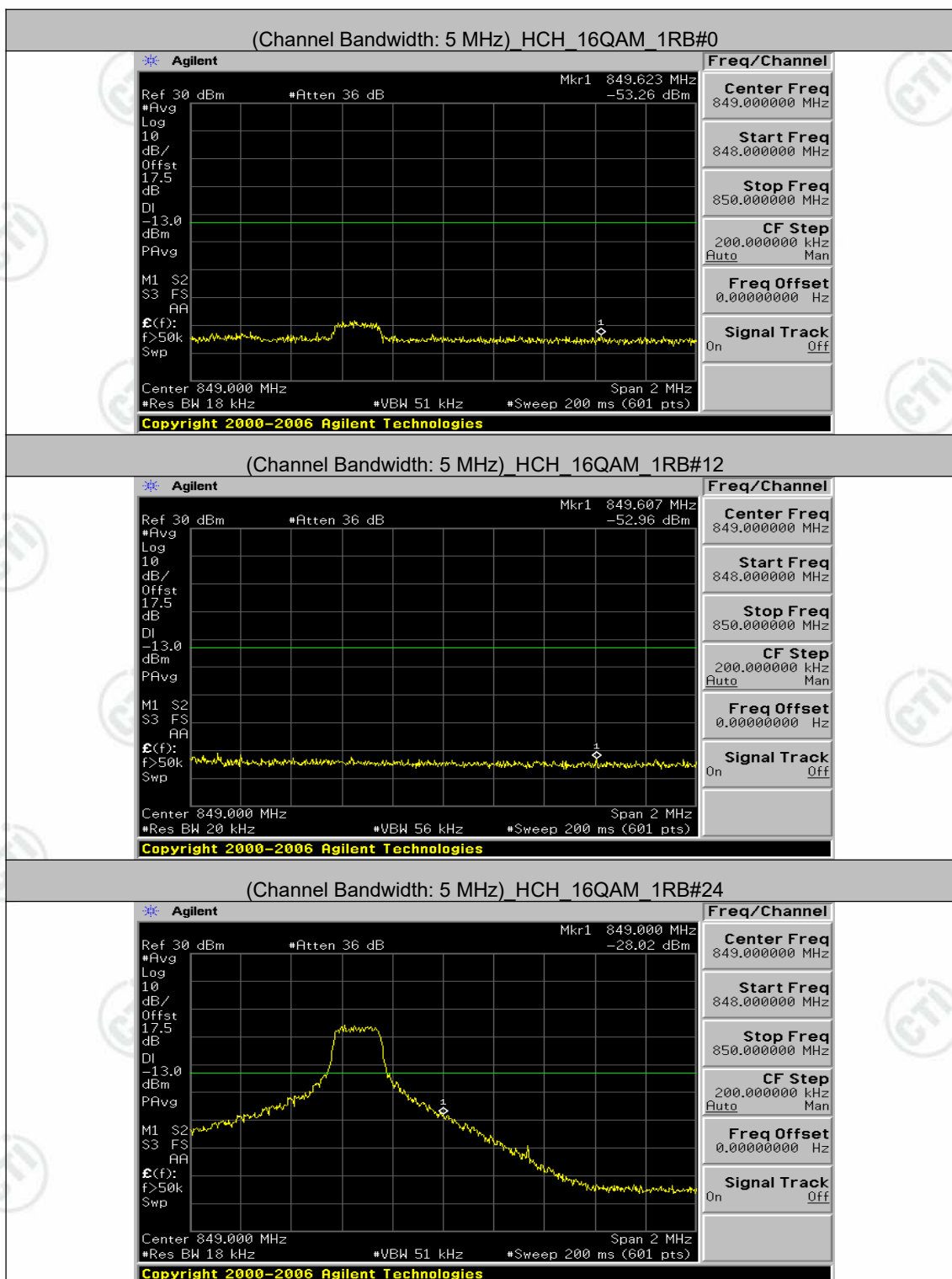


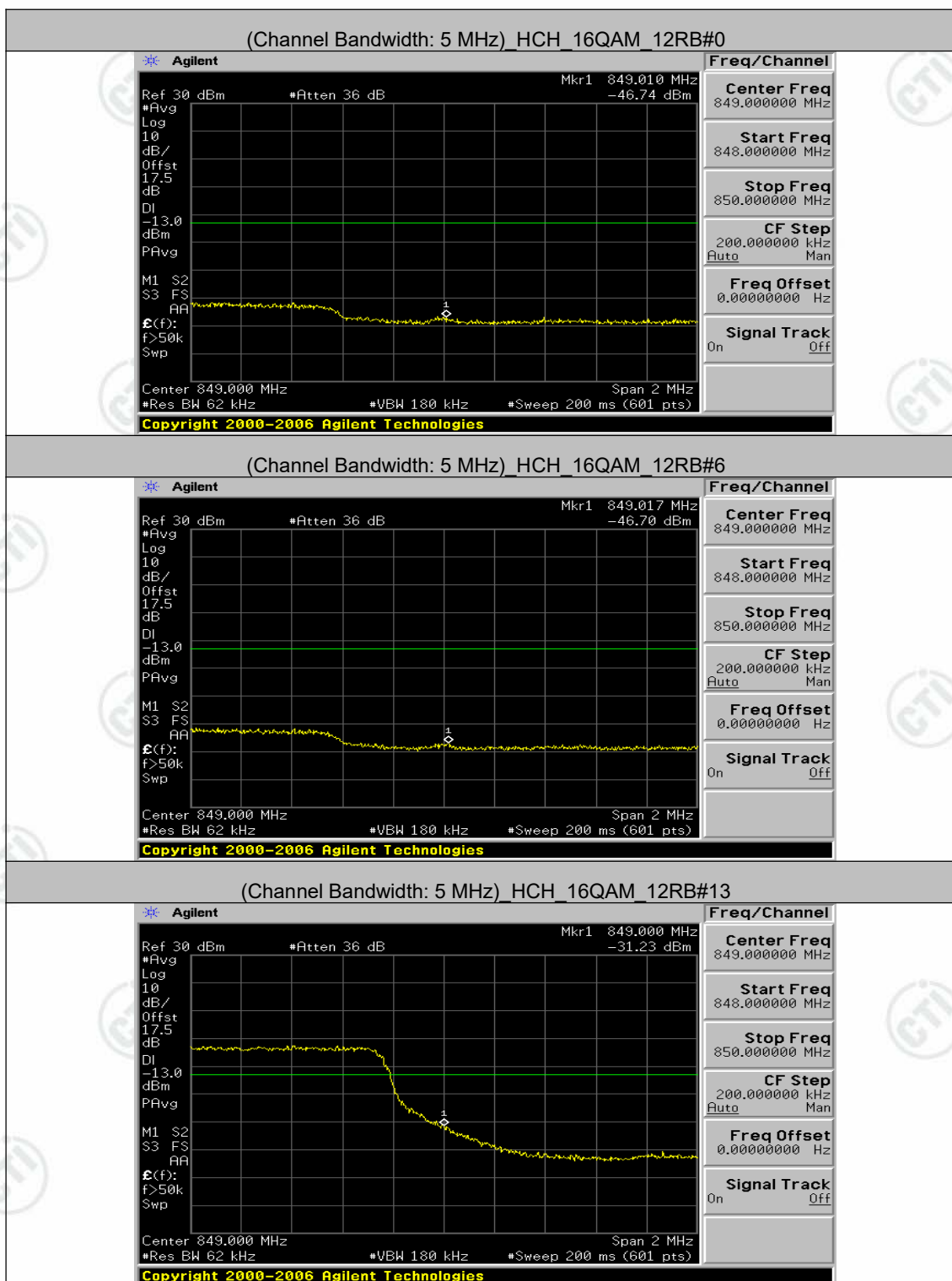


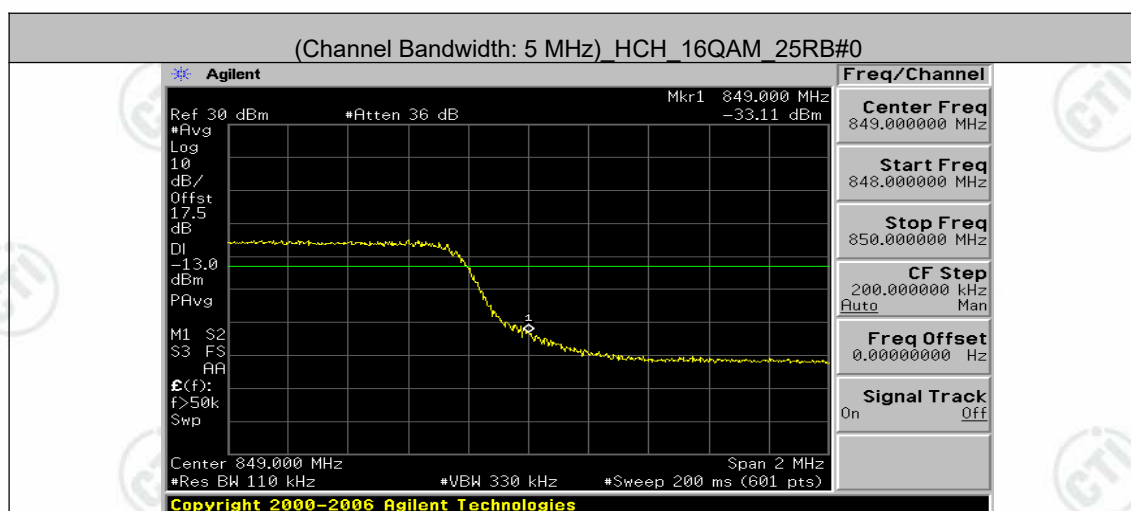




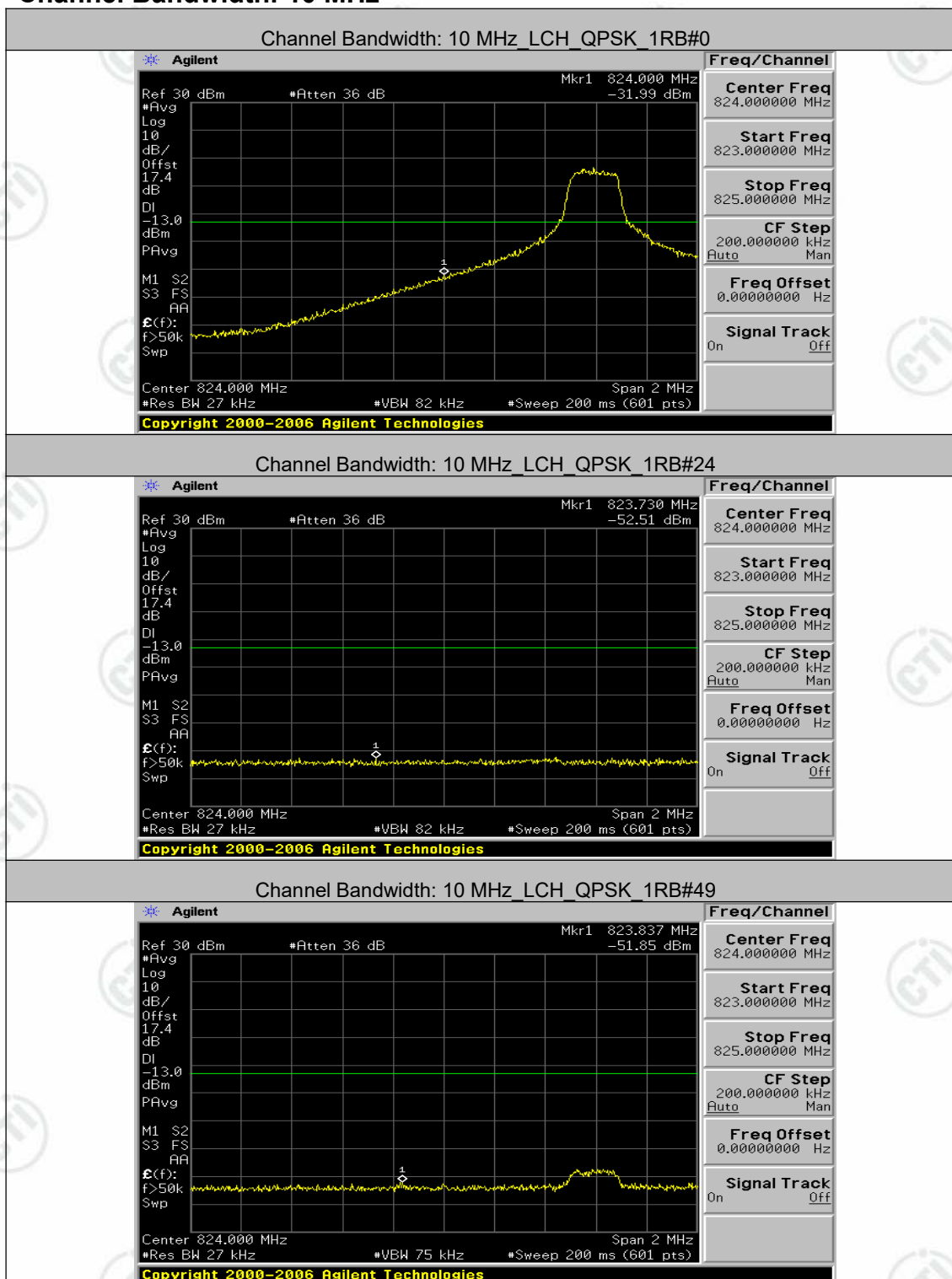


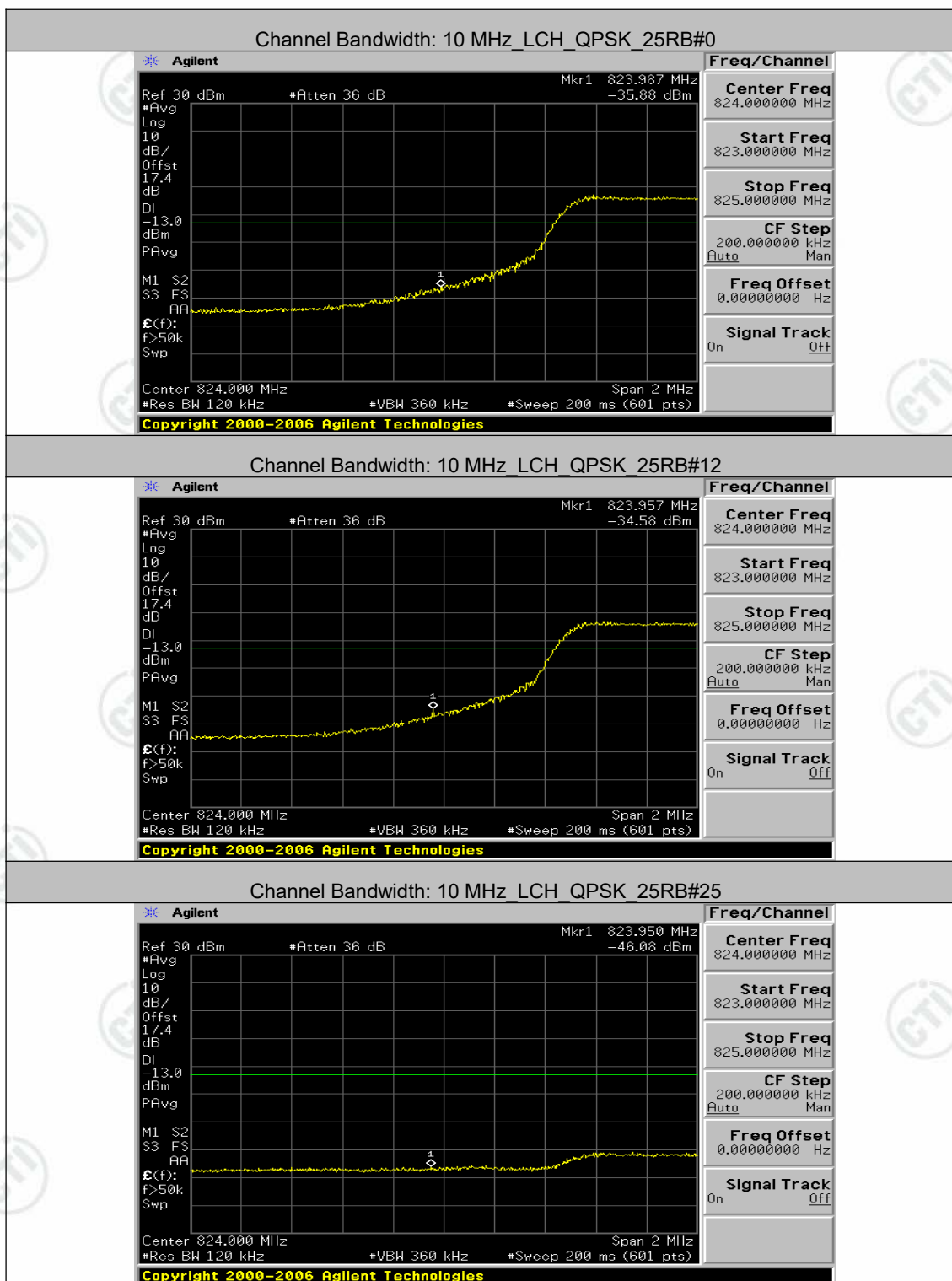


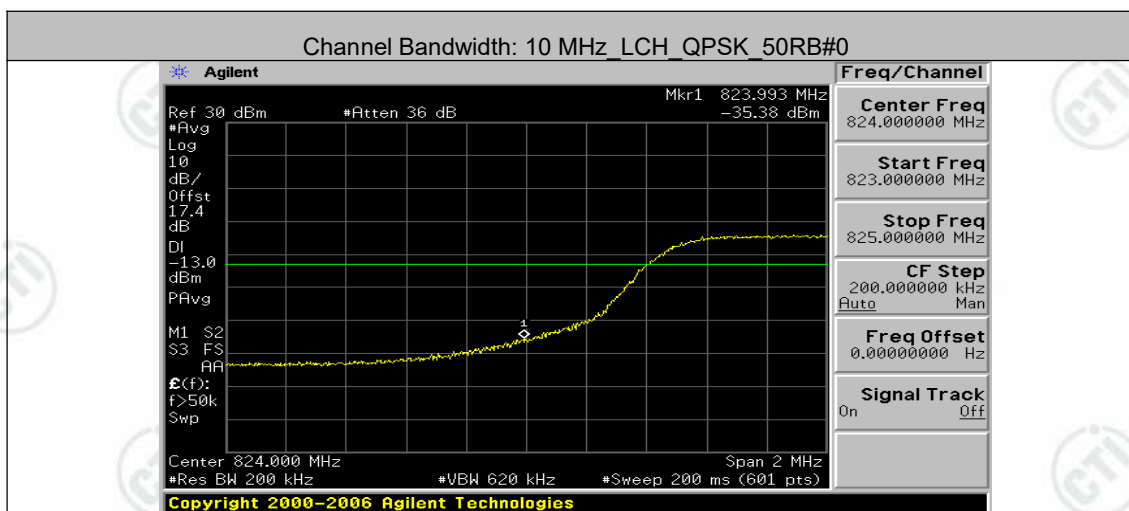


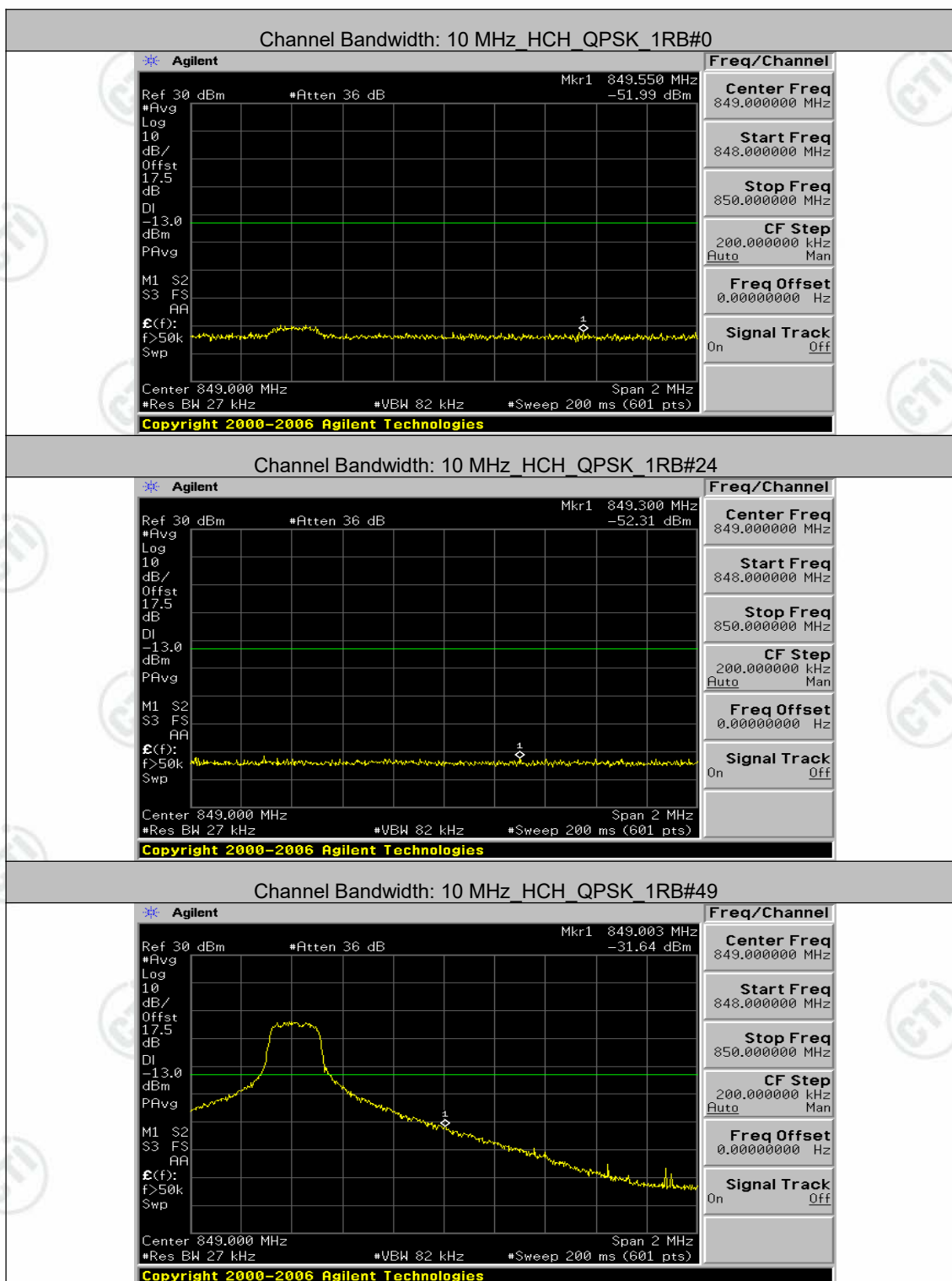


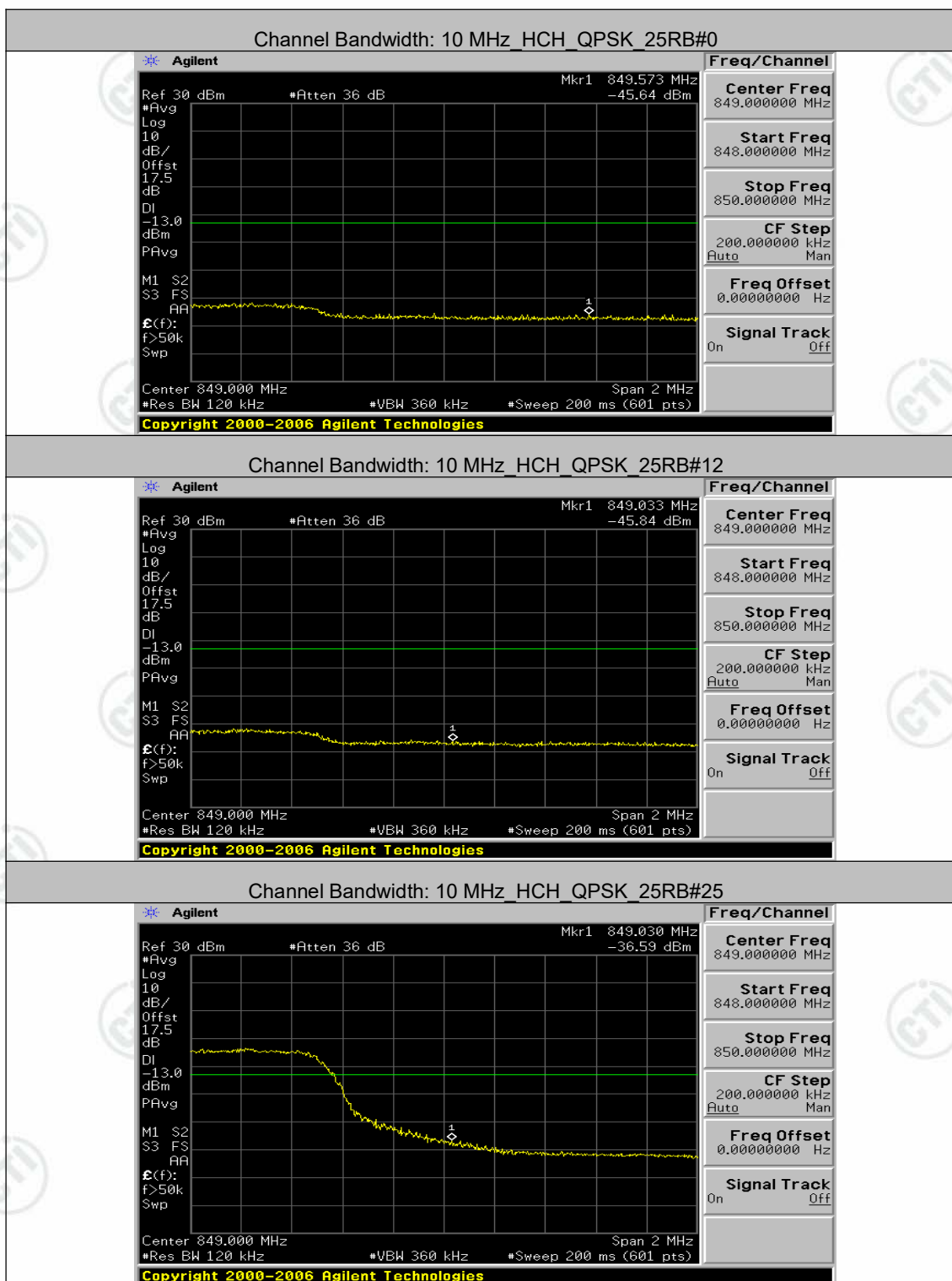
Channel Bandwidth: 10 MHz

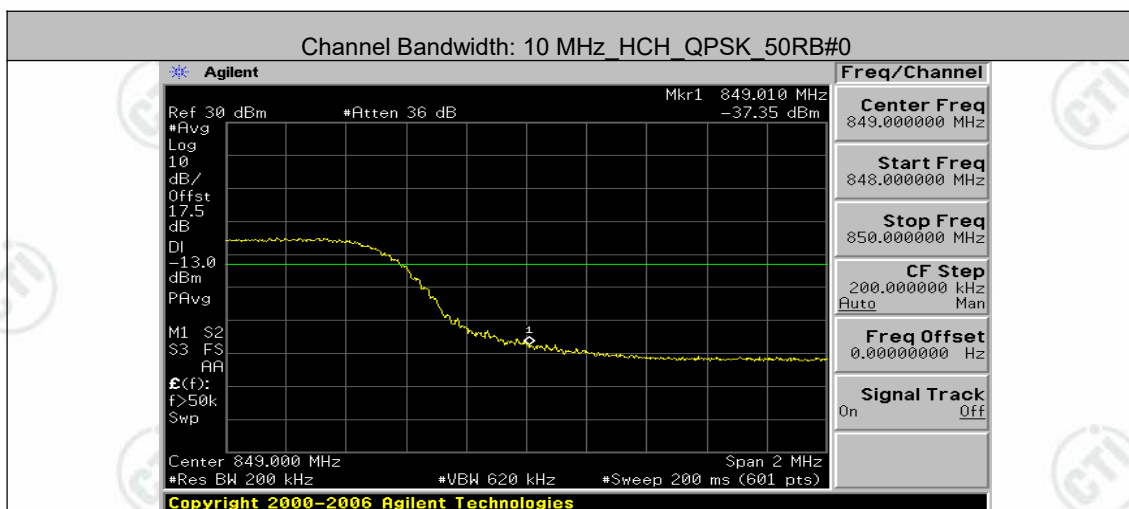


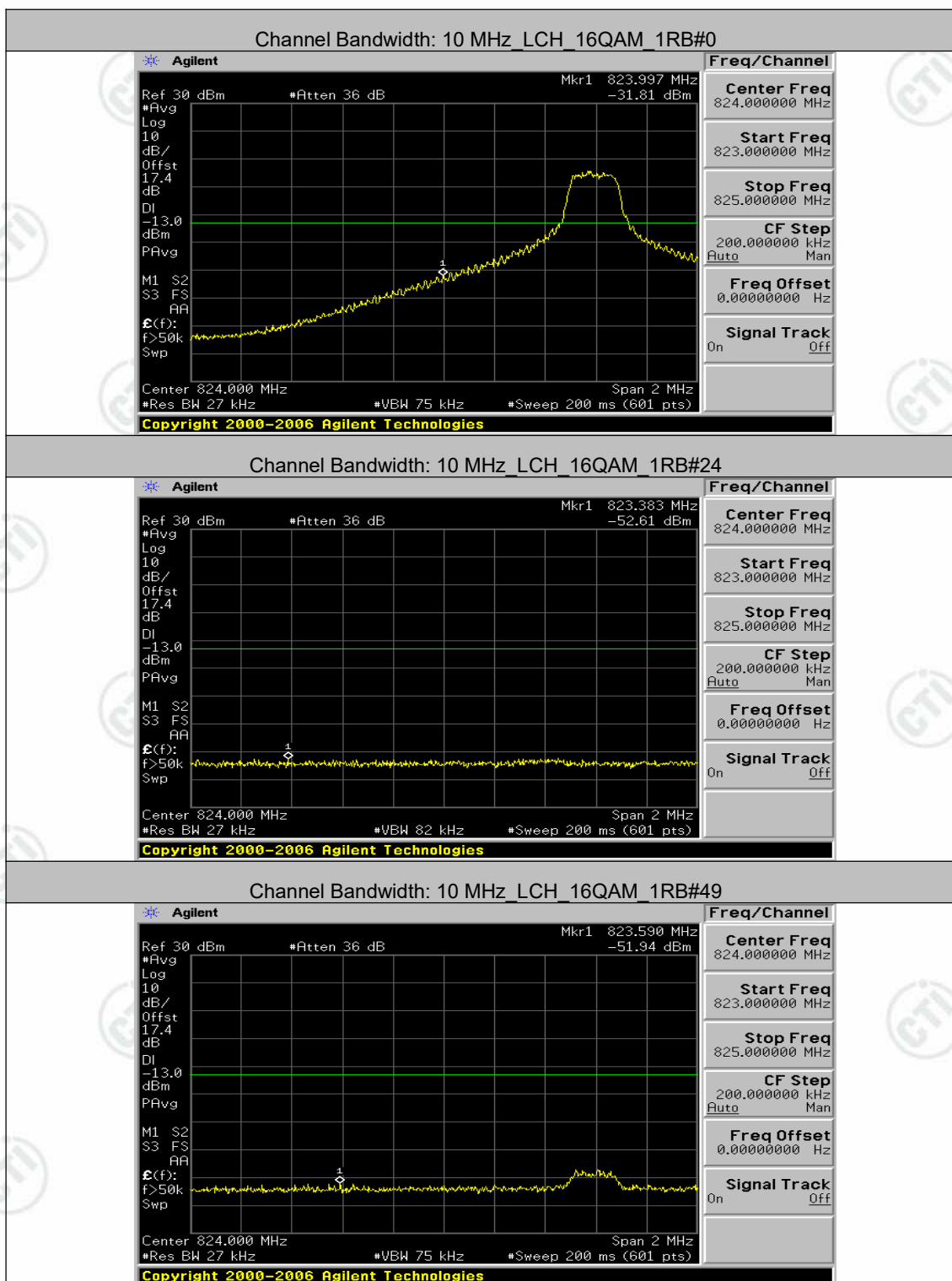


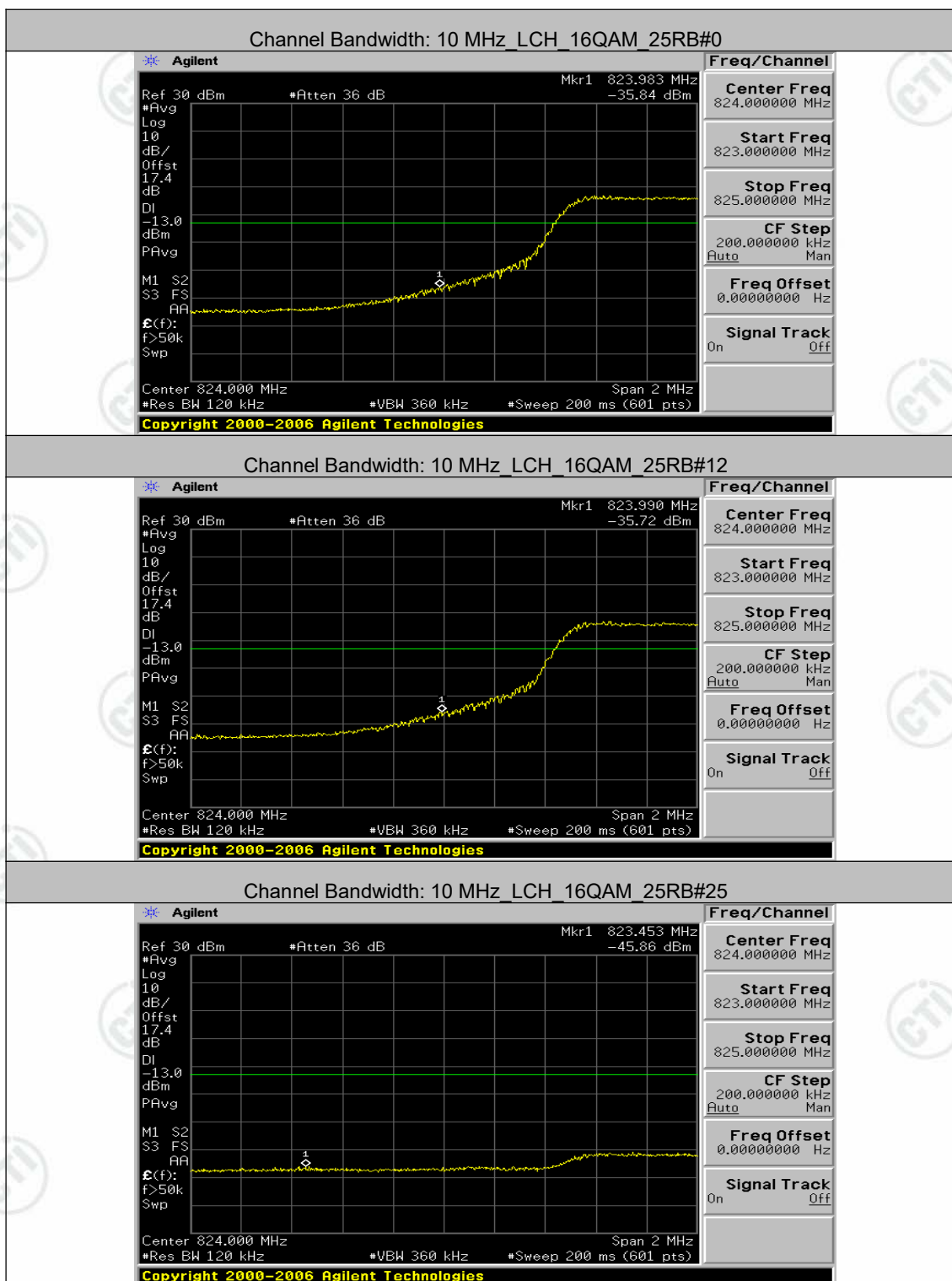


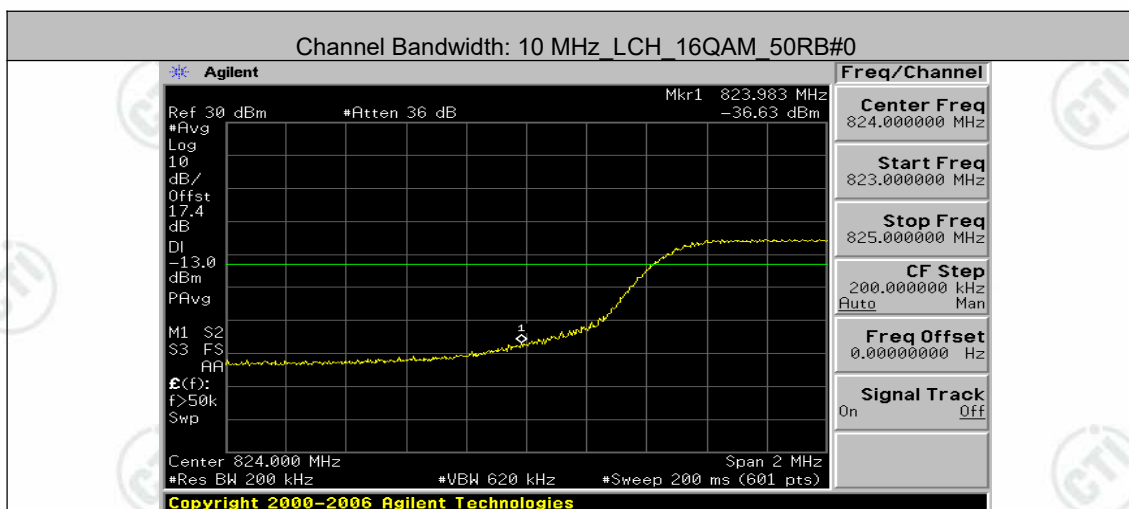


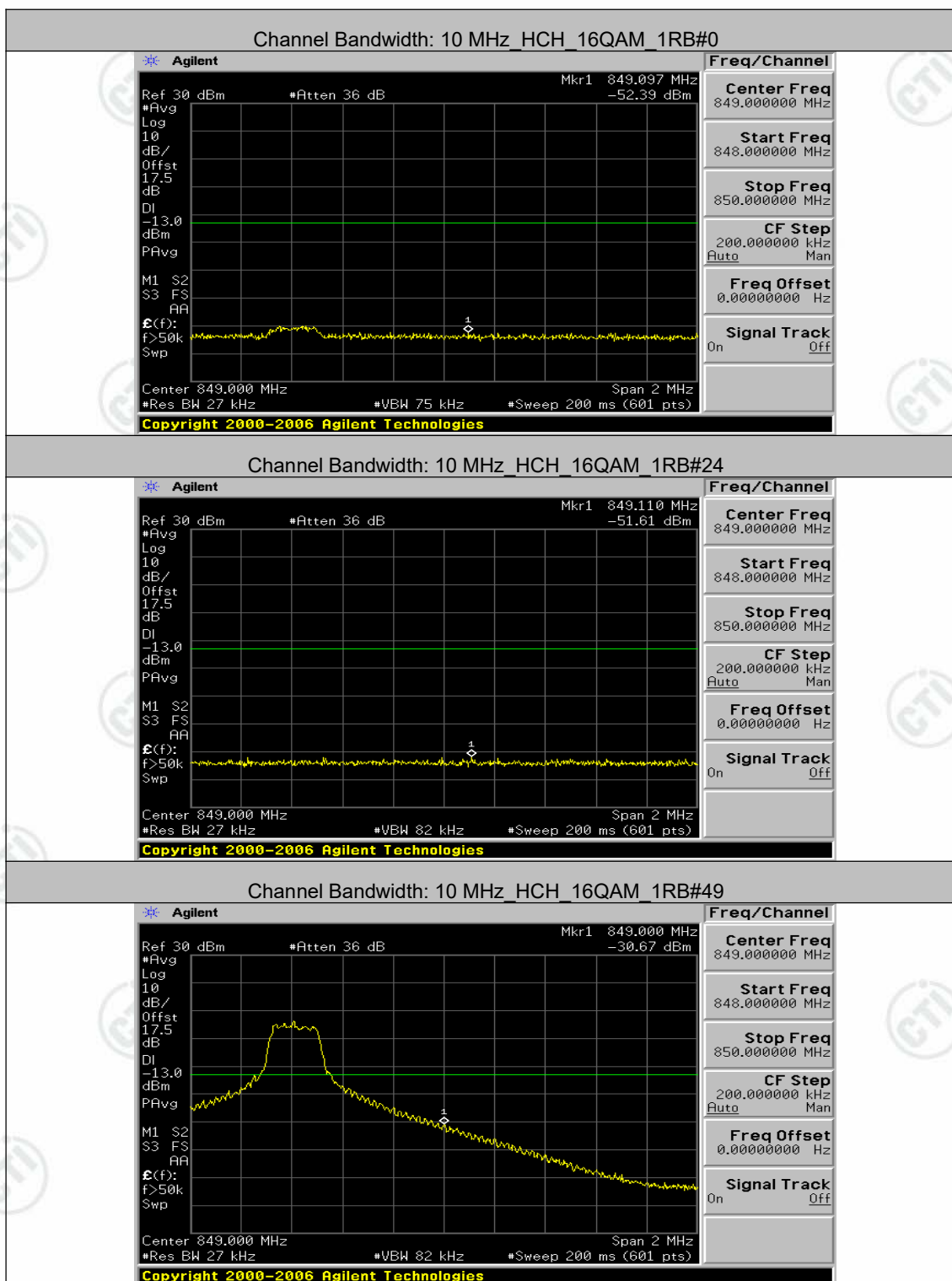


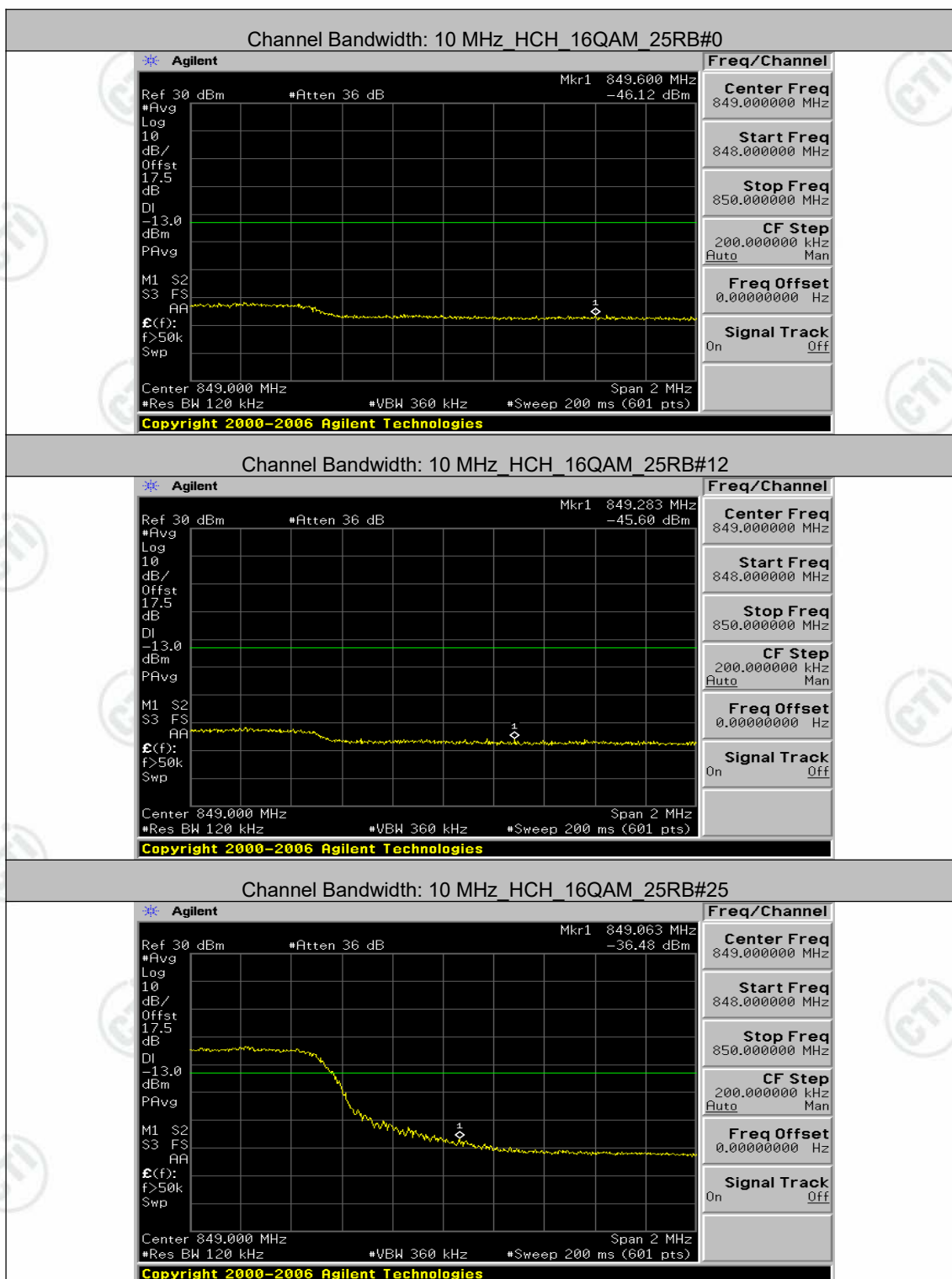


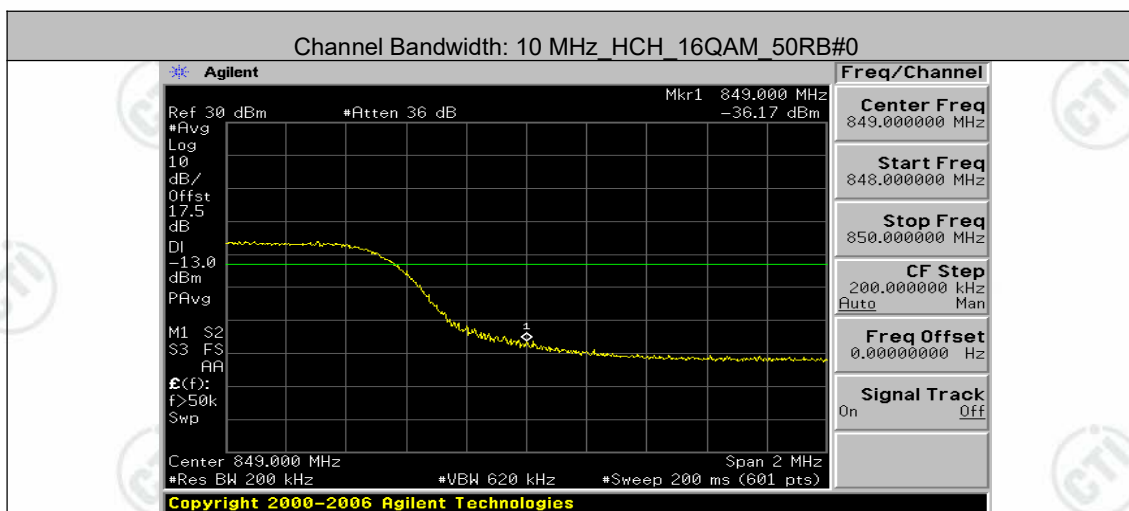








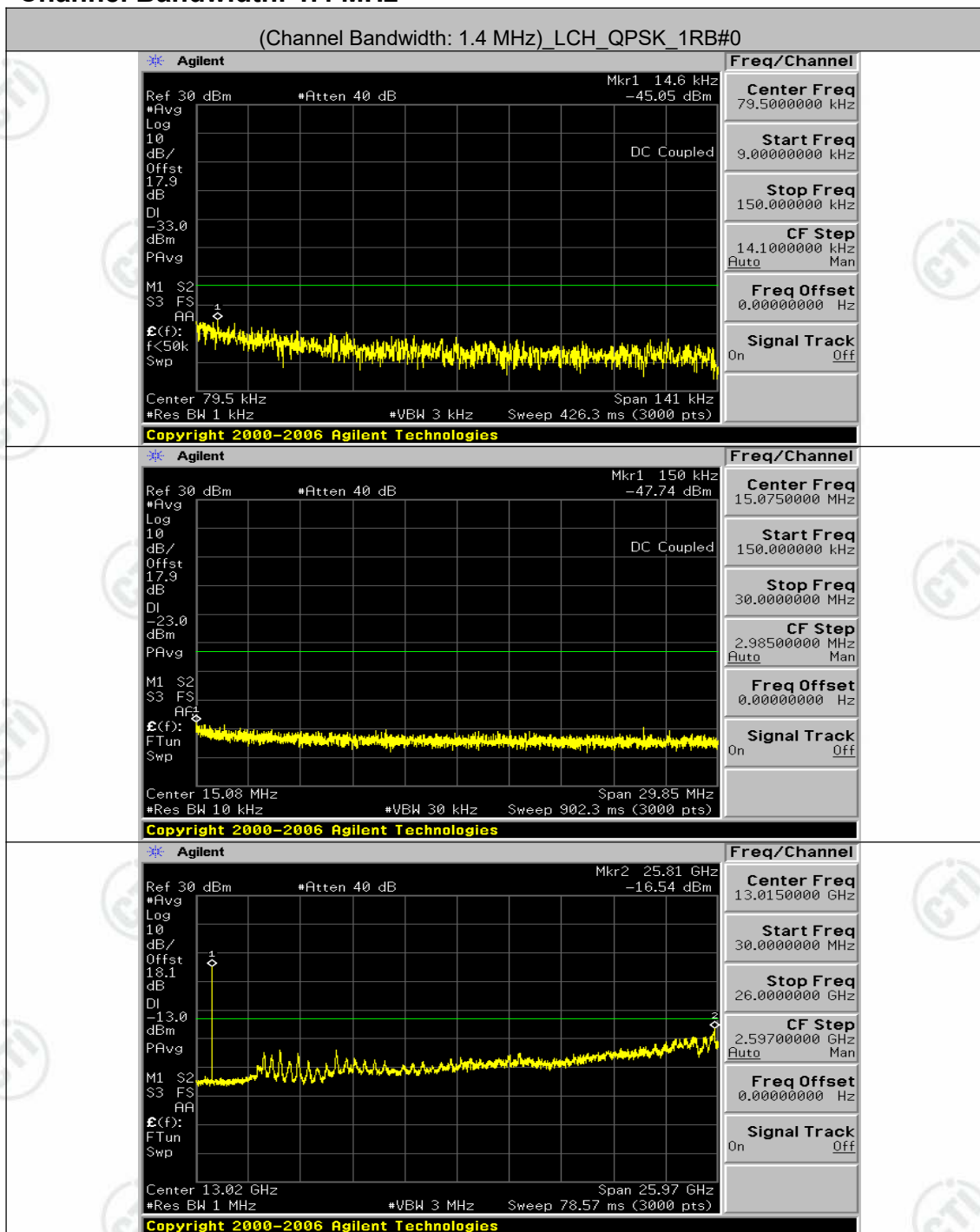


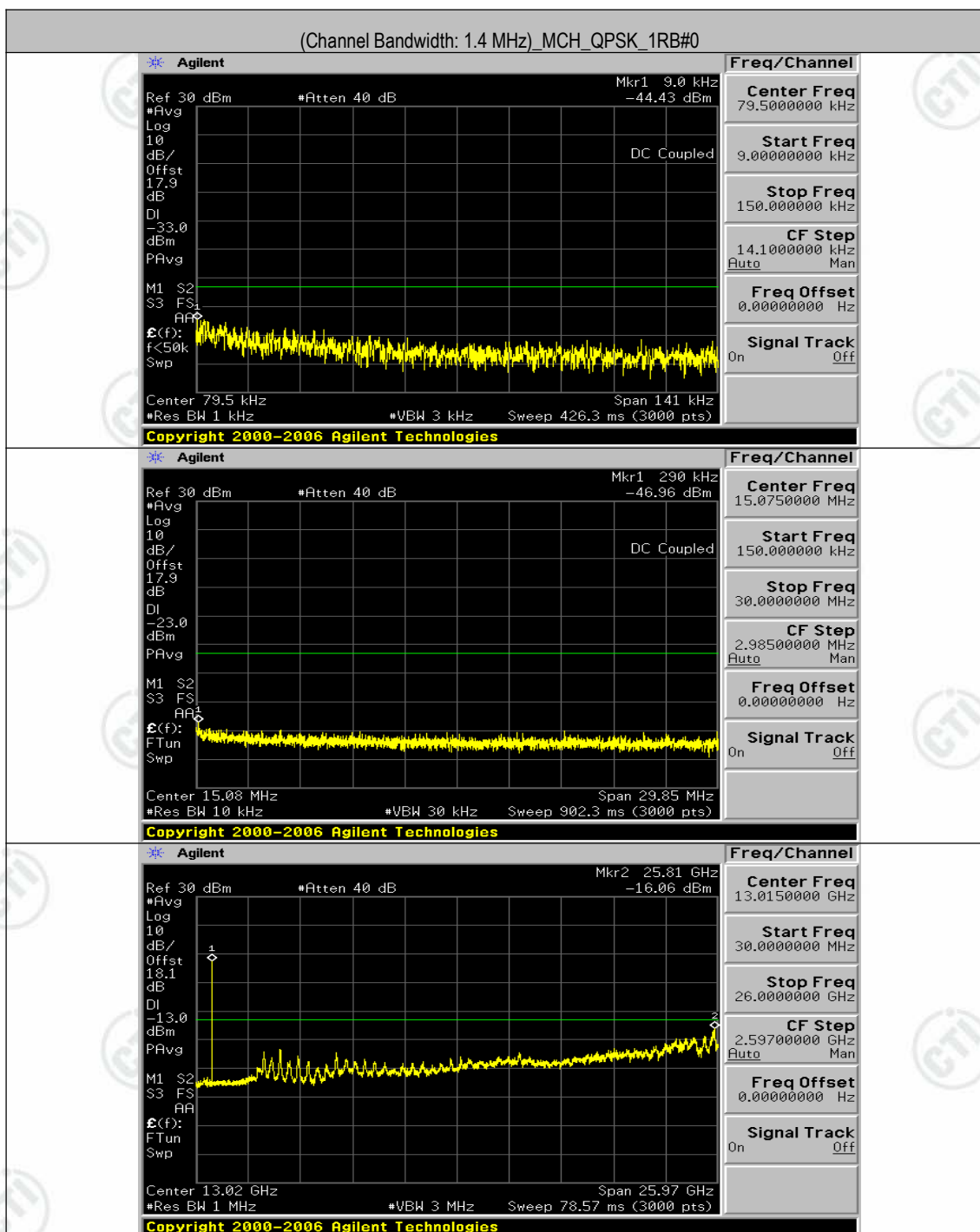


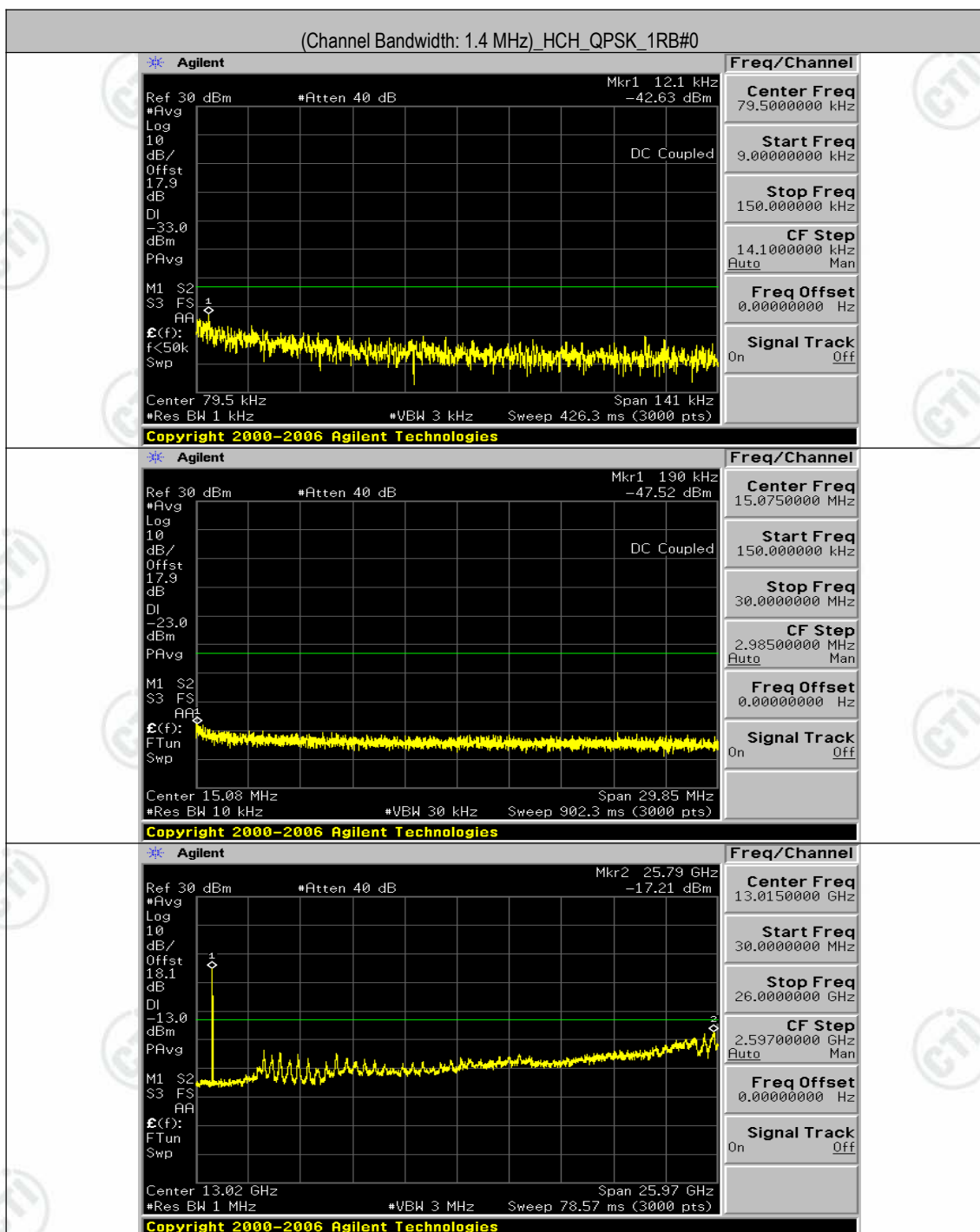
Appendix E: Conducted Spurious Emission

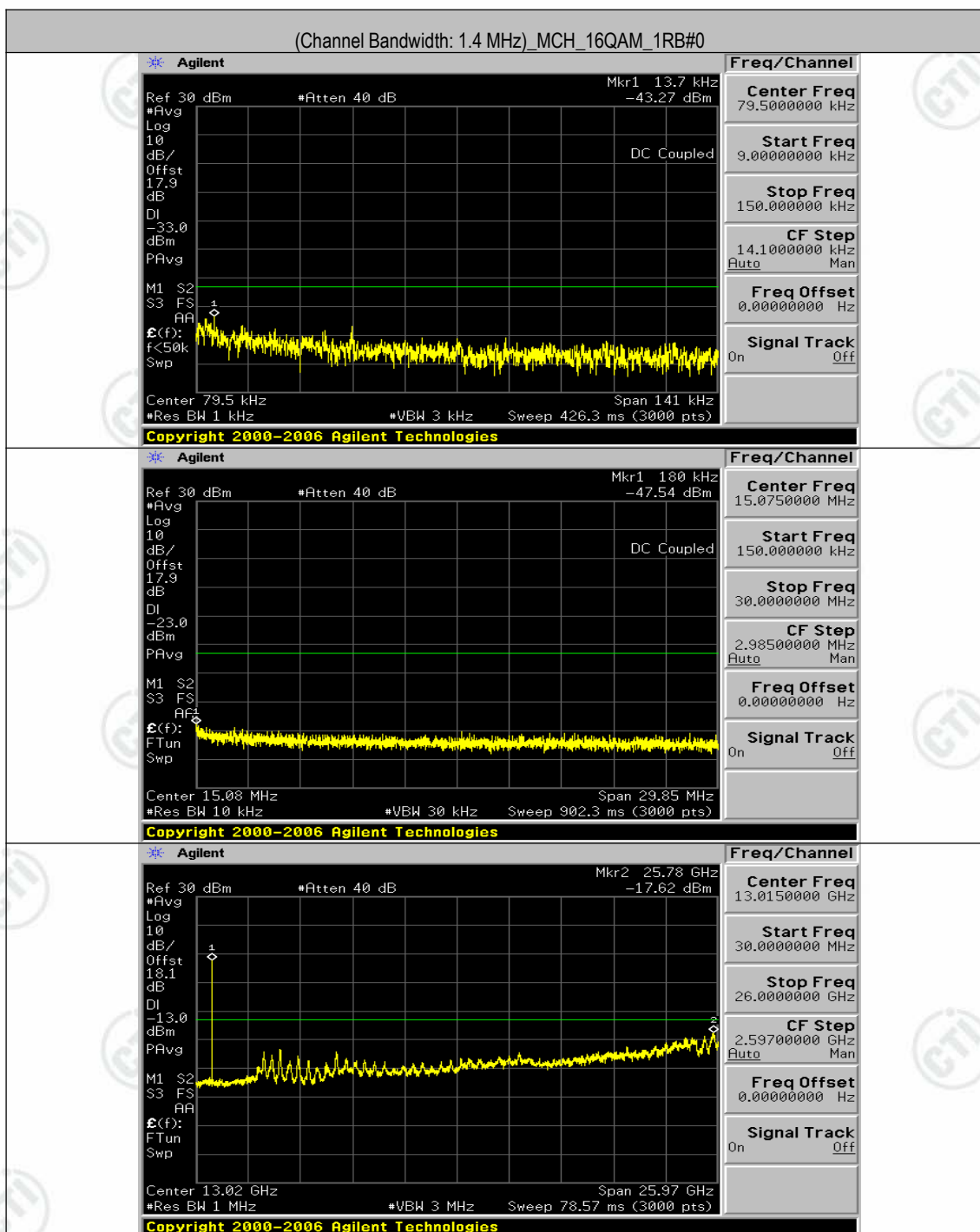
Test Graphs

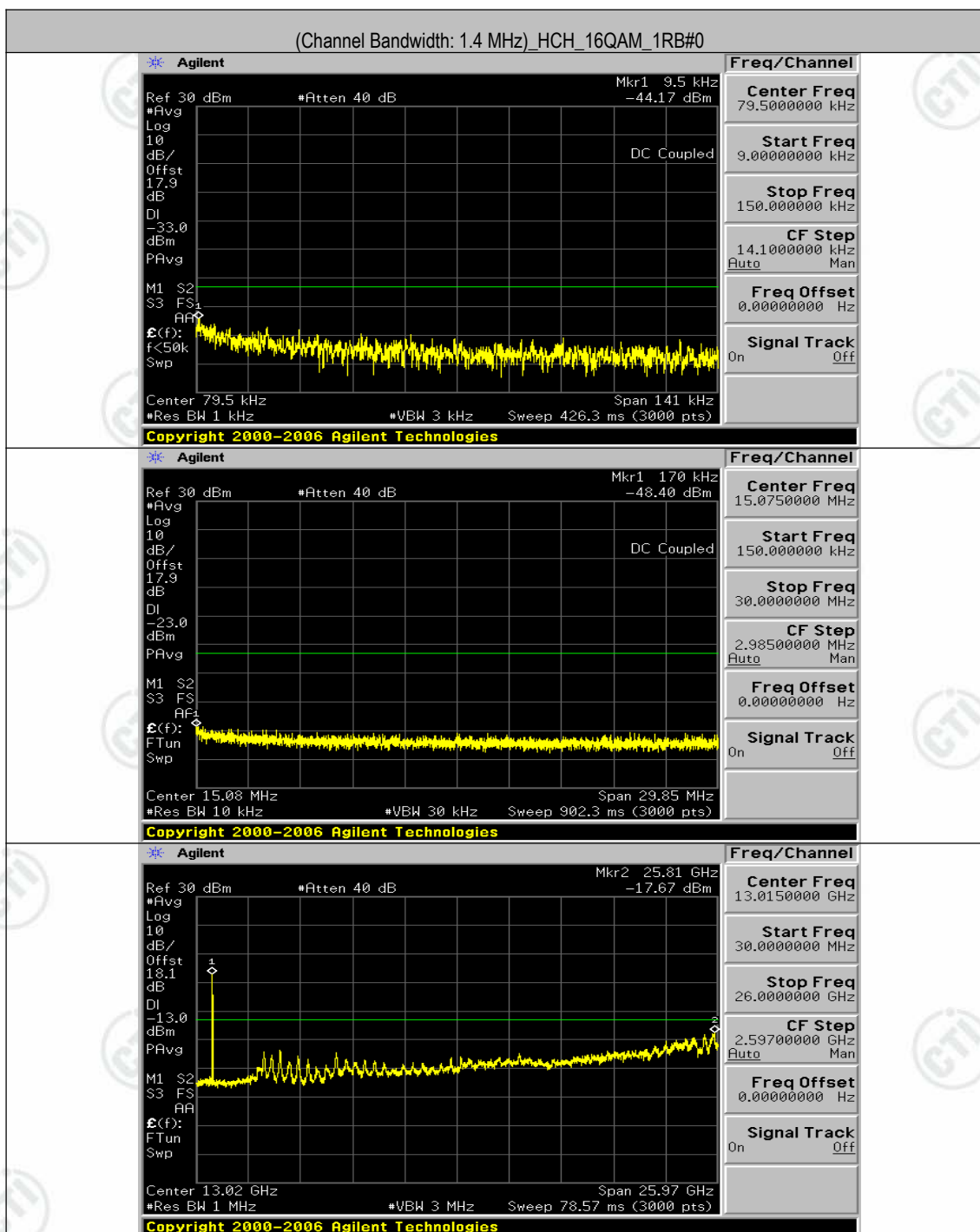
Channel Bandwidth: 1.4 MHz



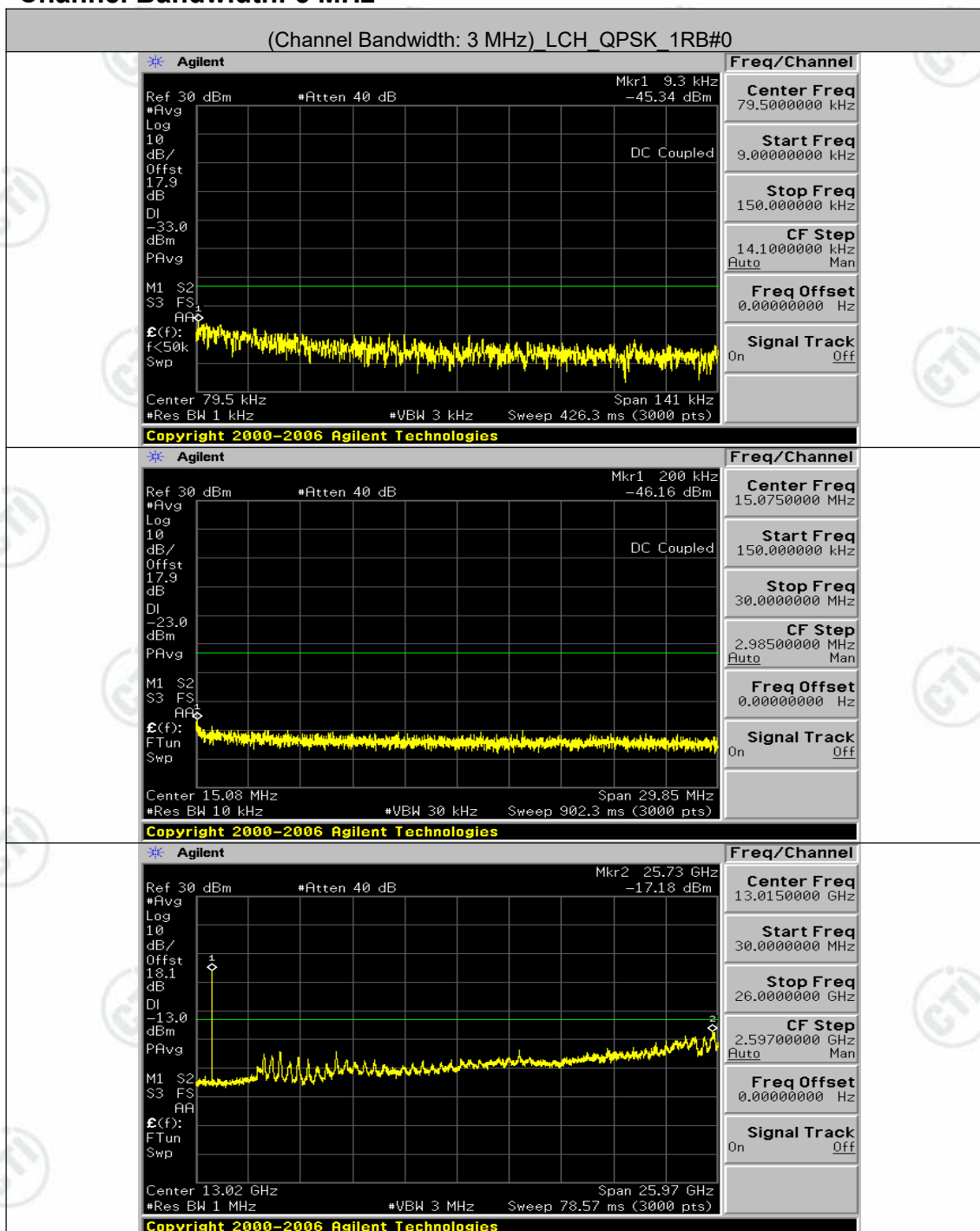


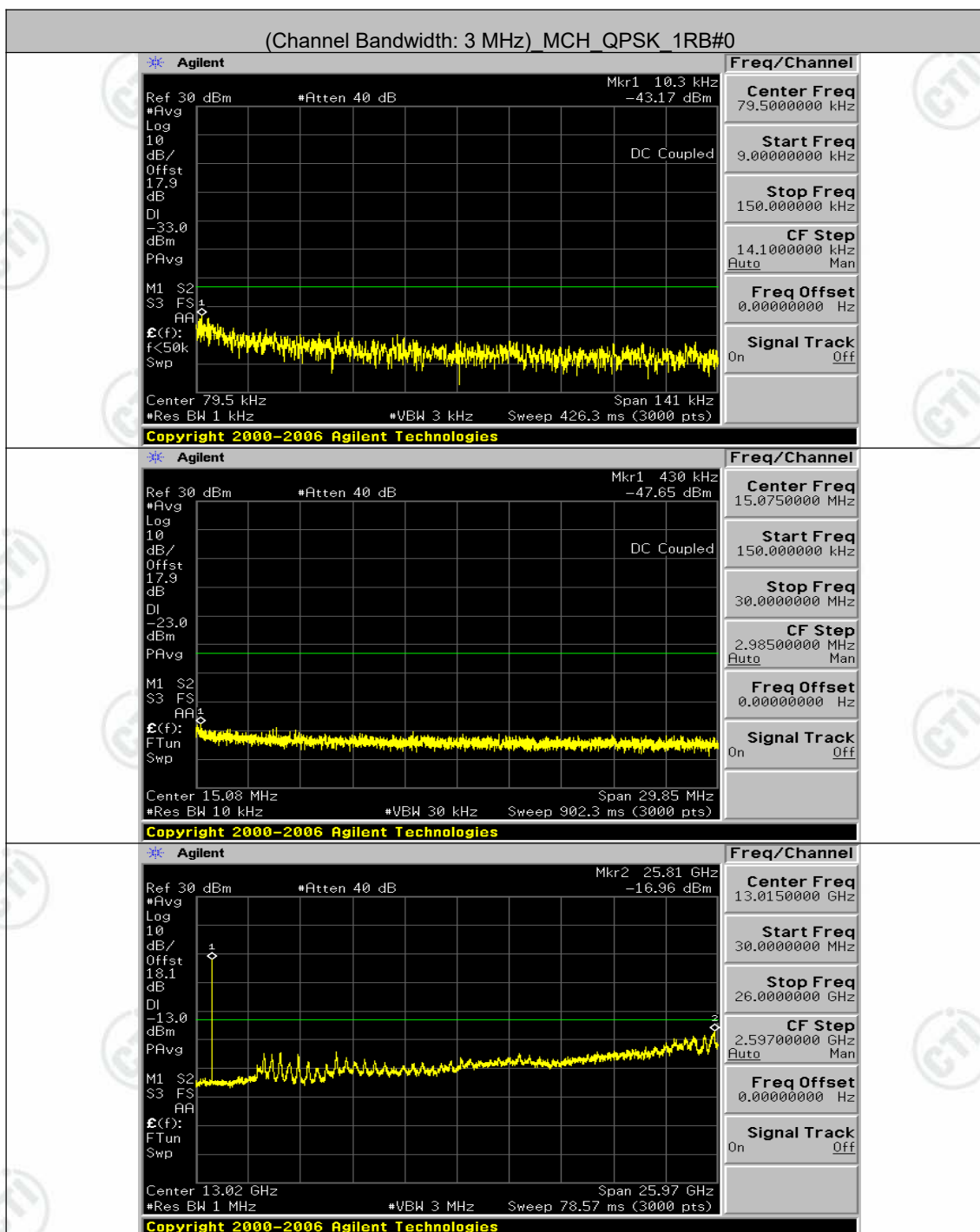


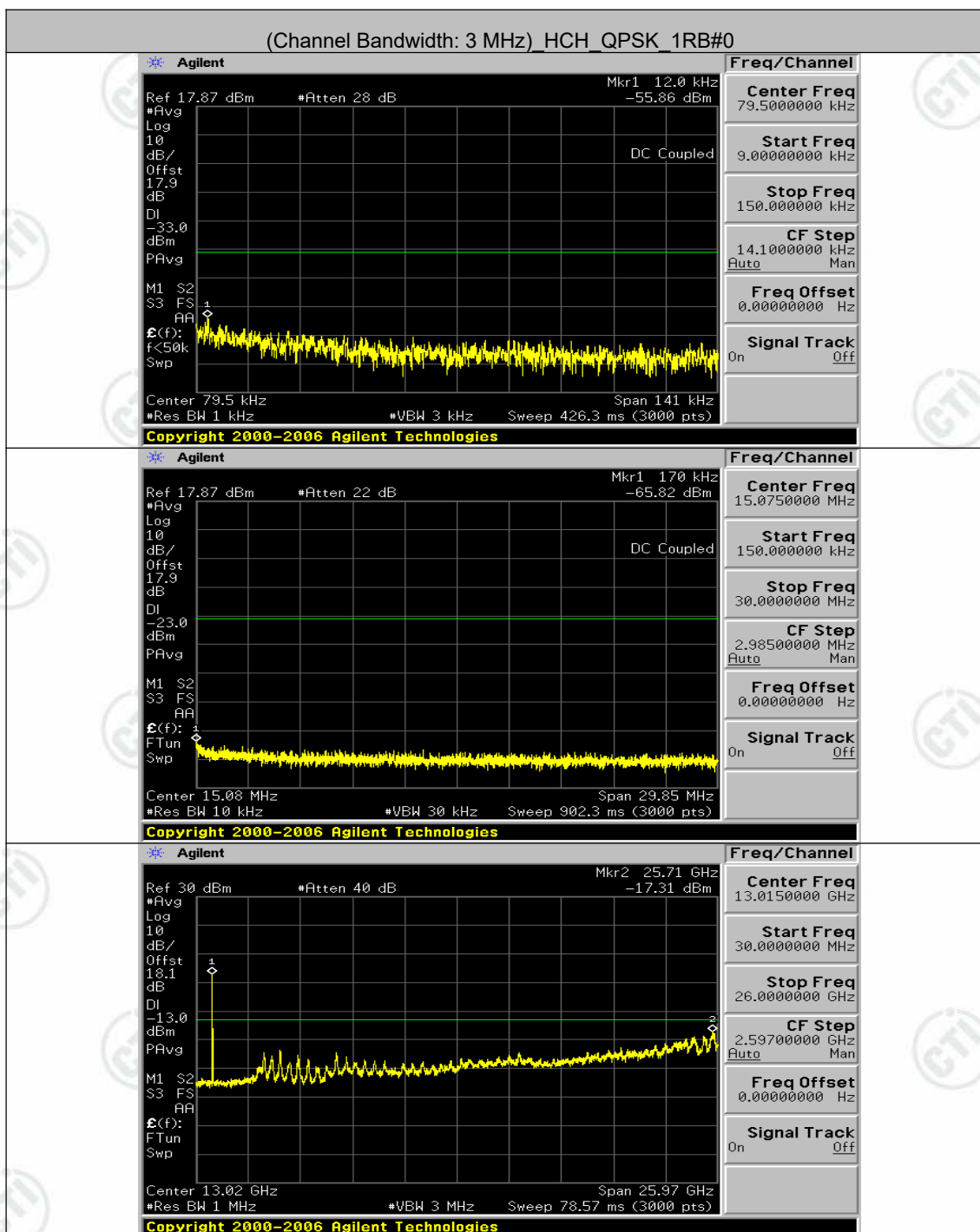


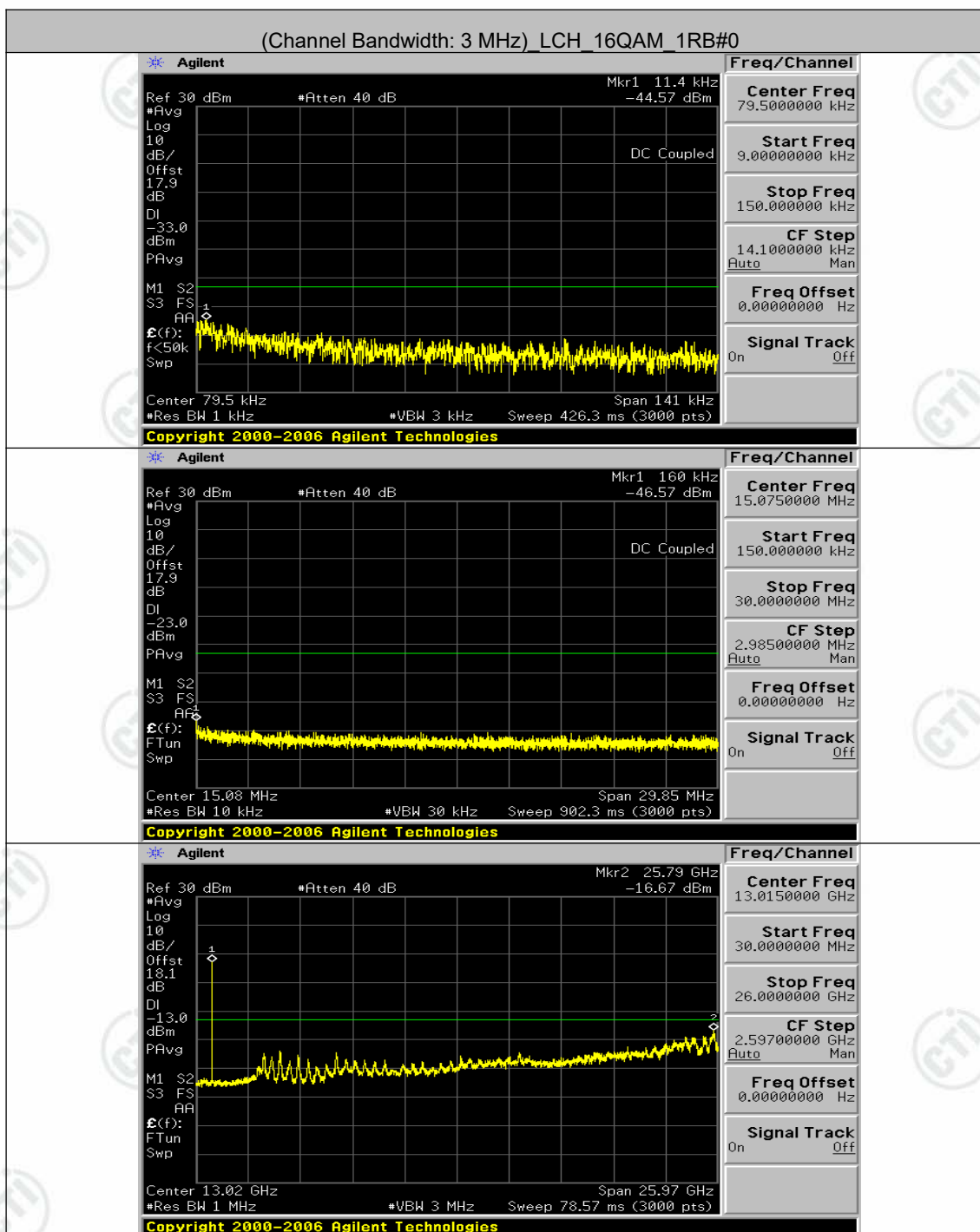


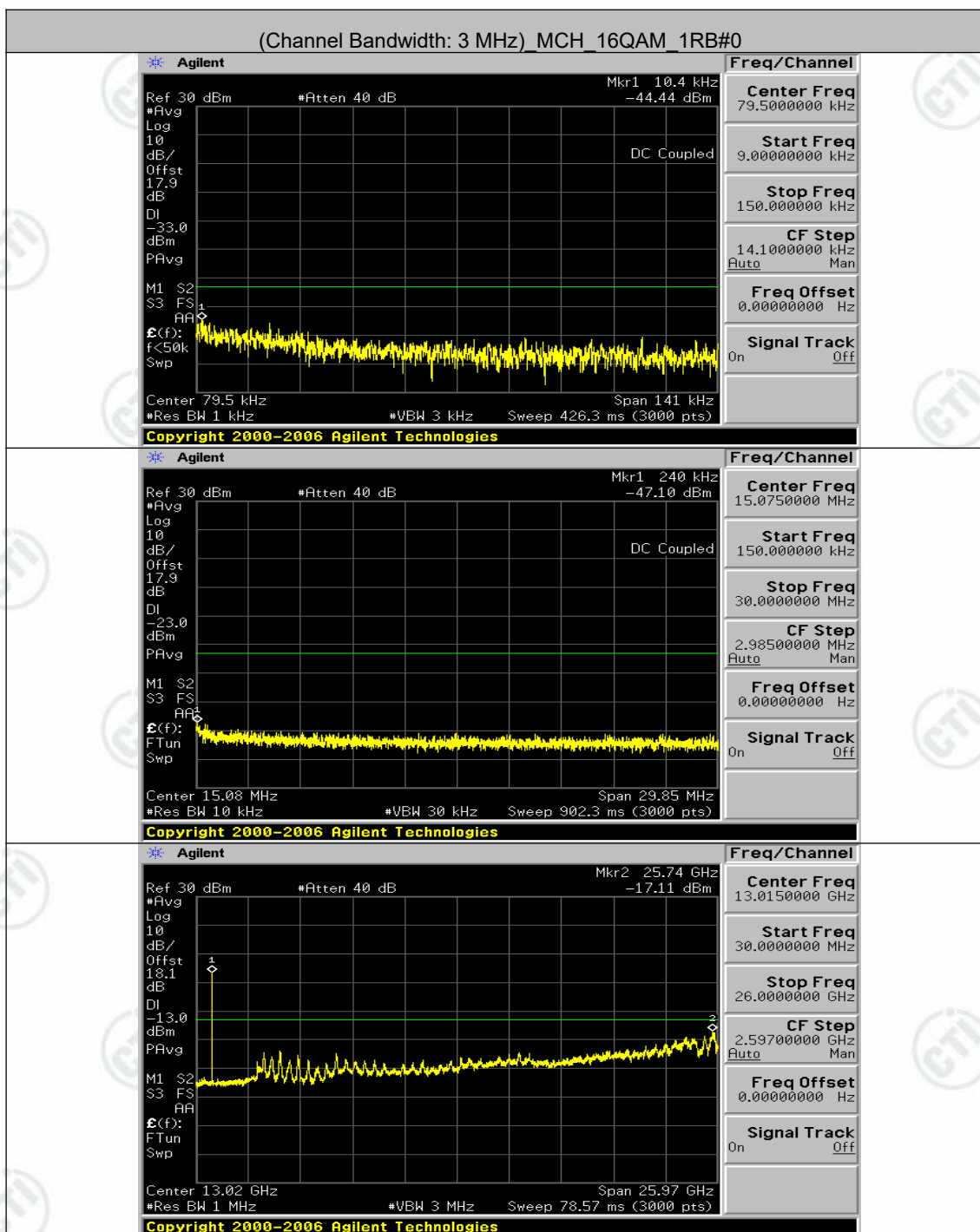
Channel Bandwidth: 3 MHz

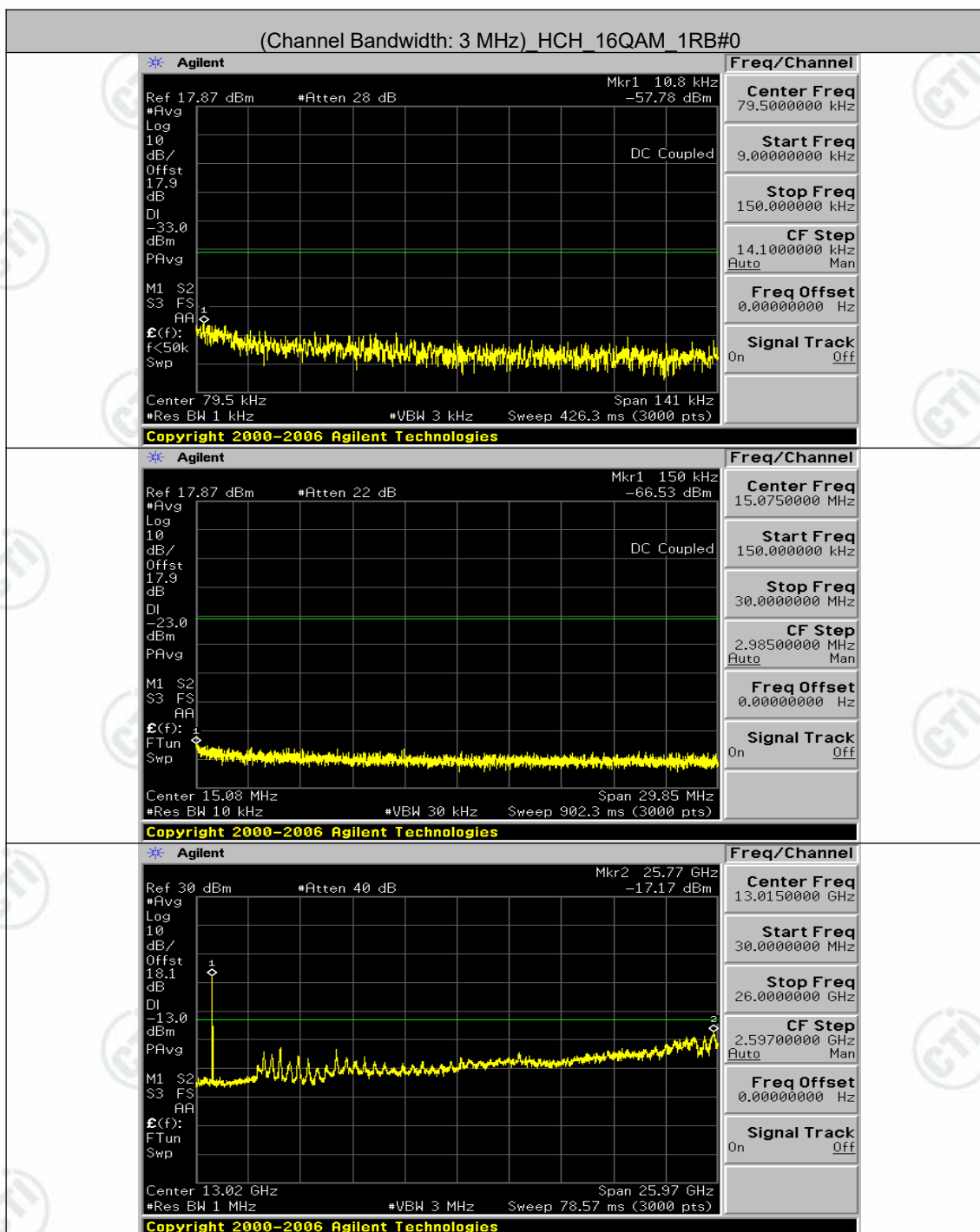




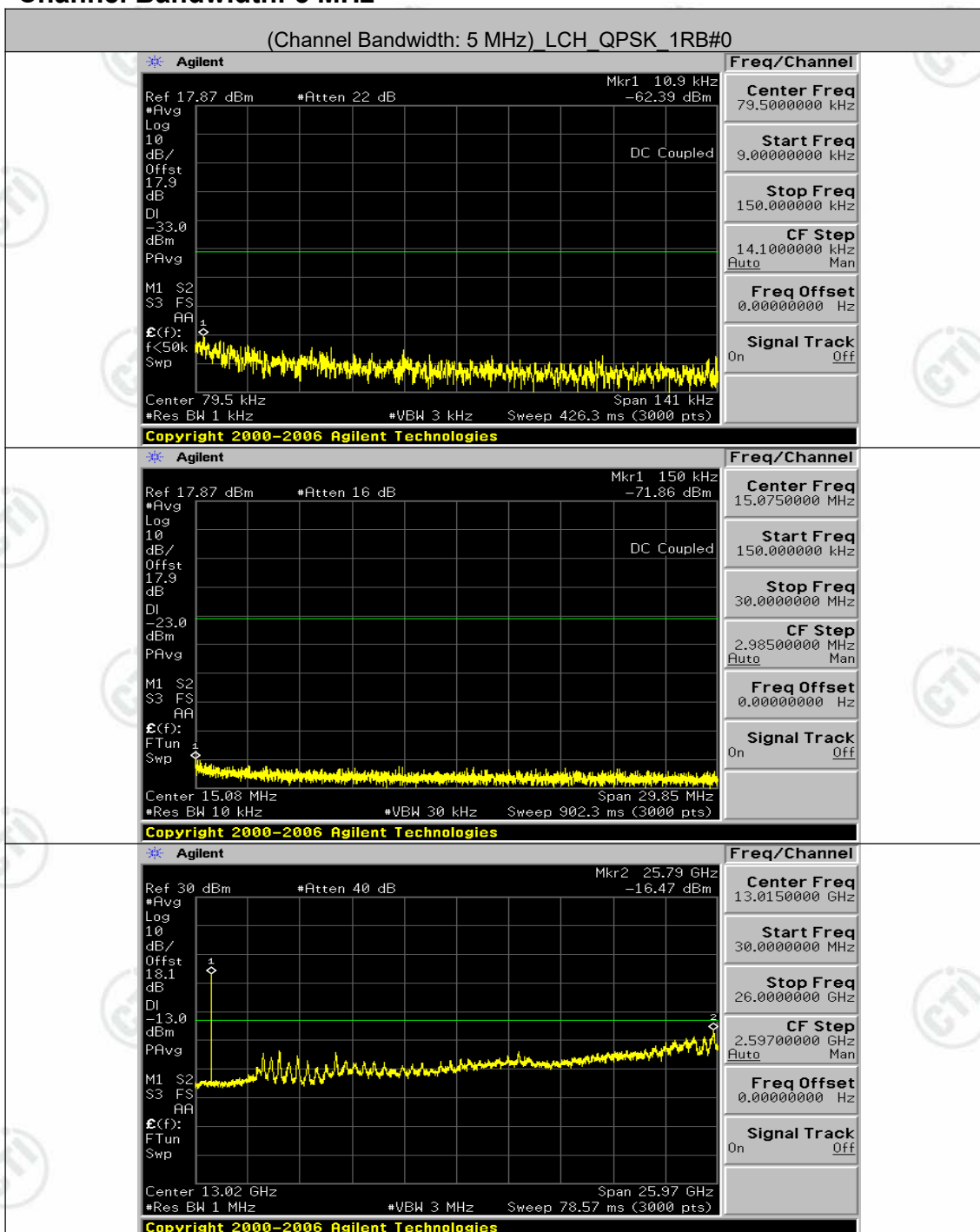


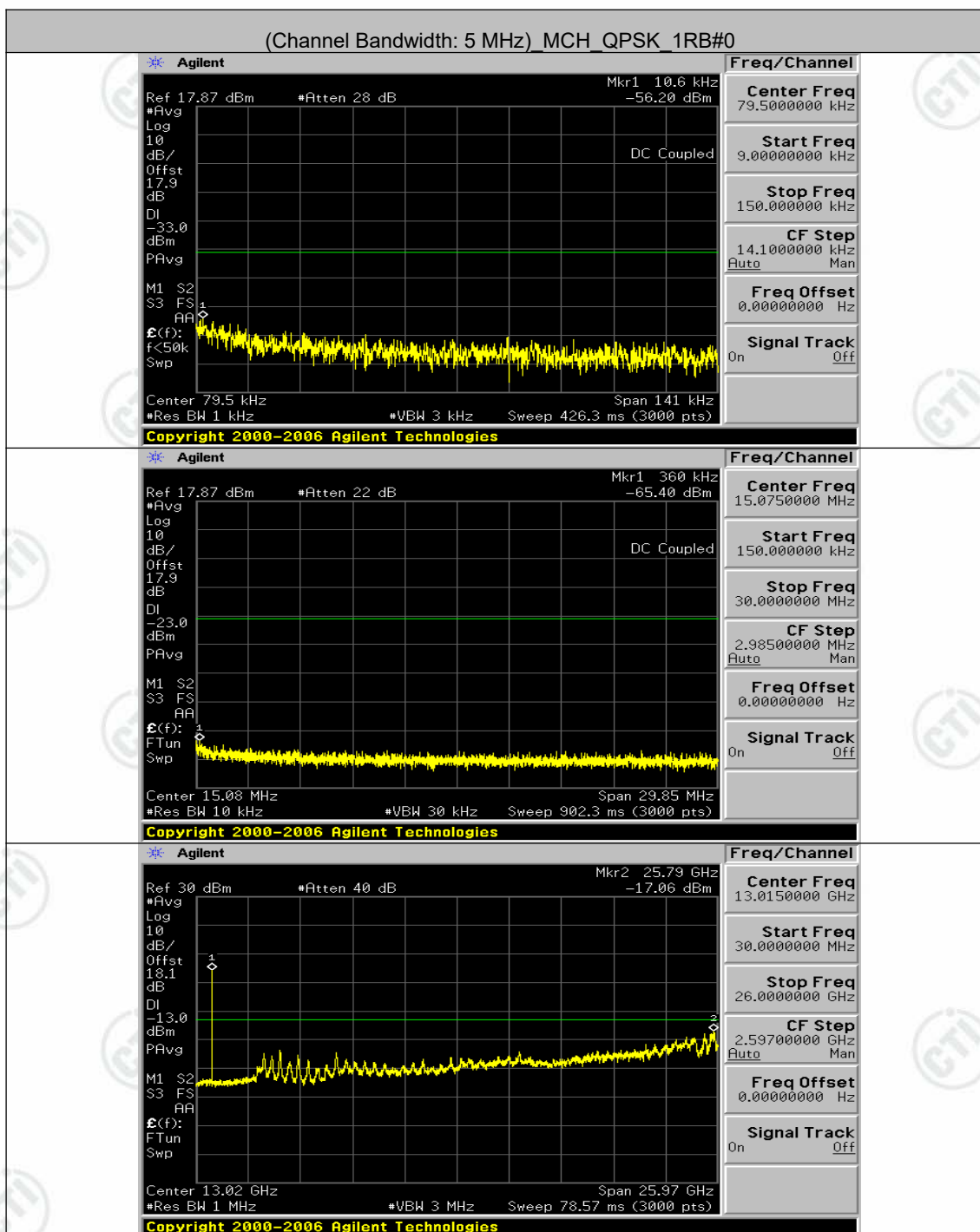


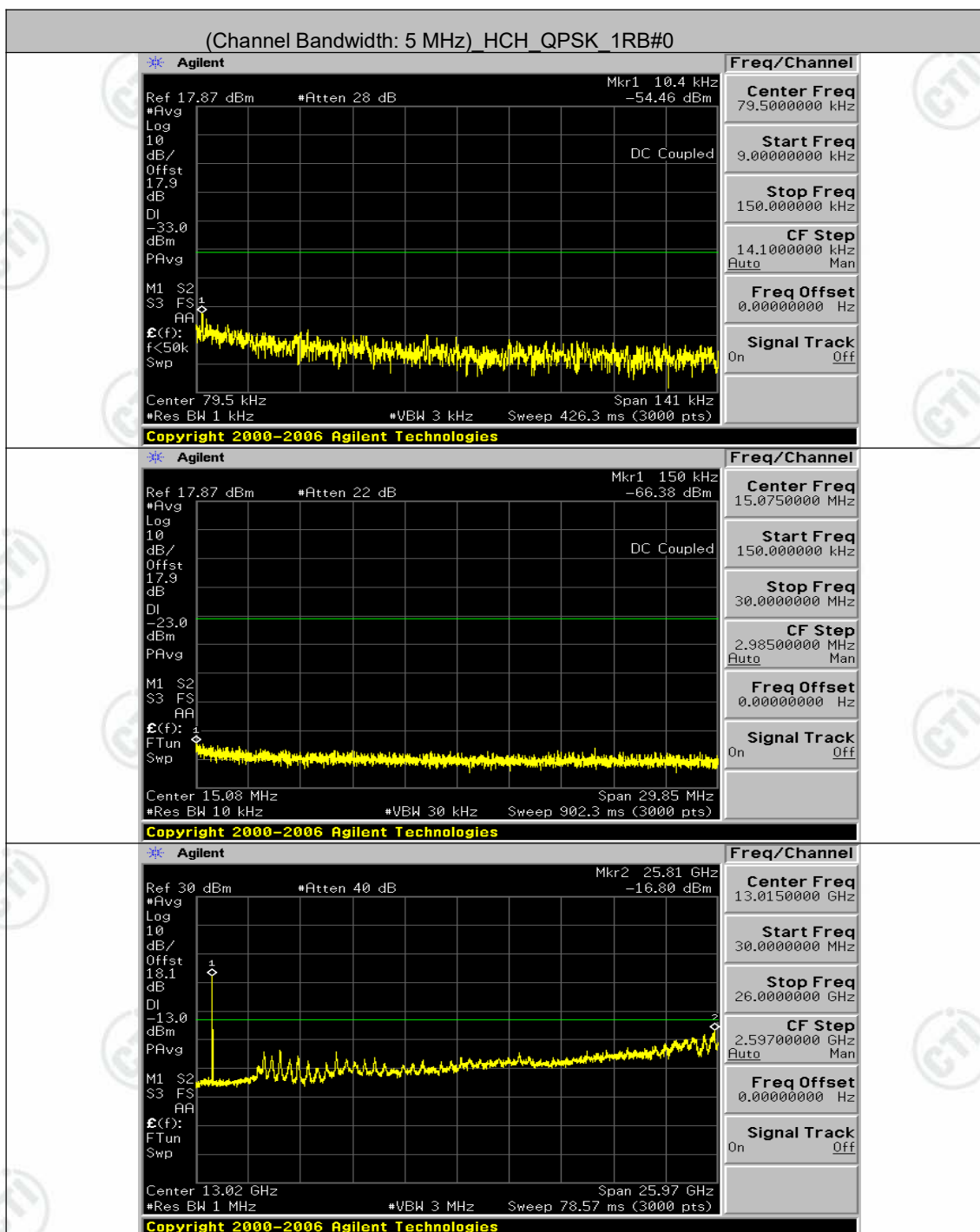


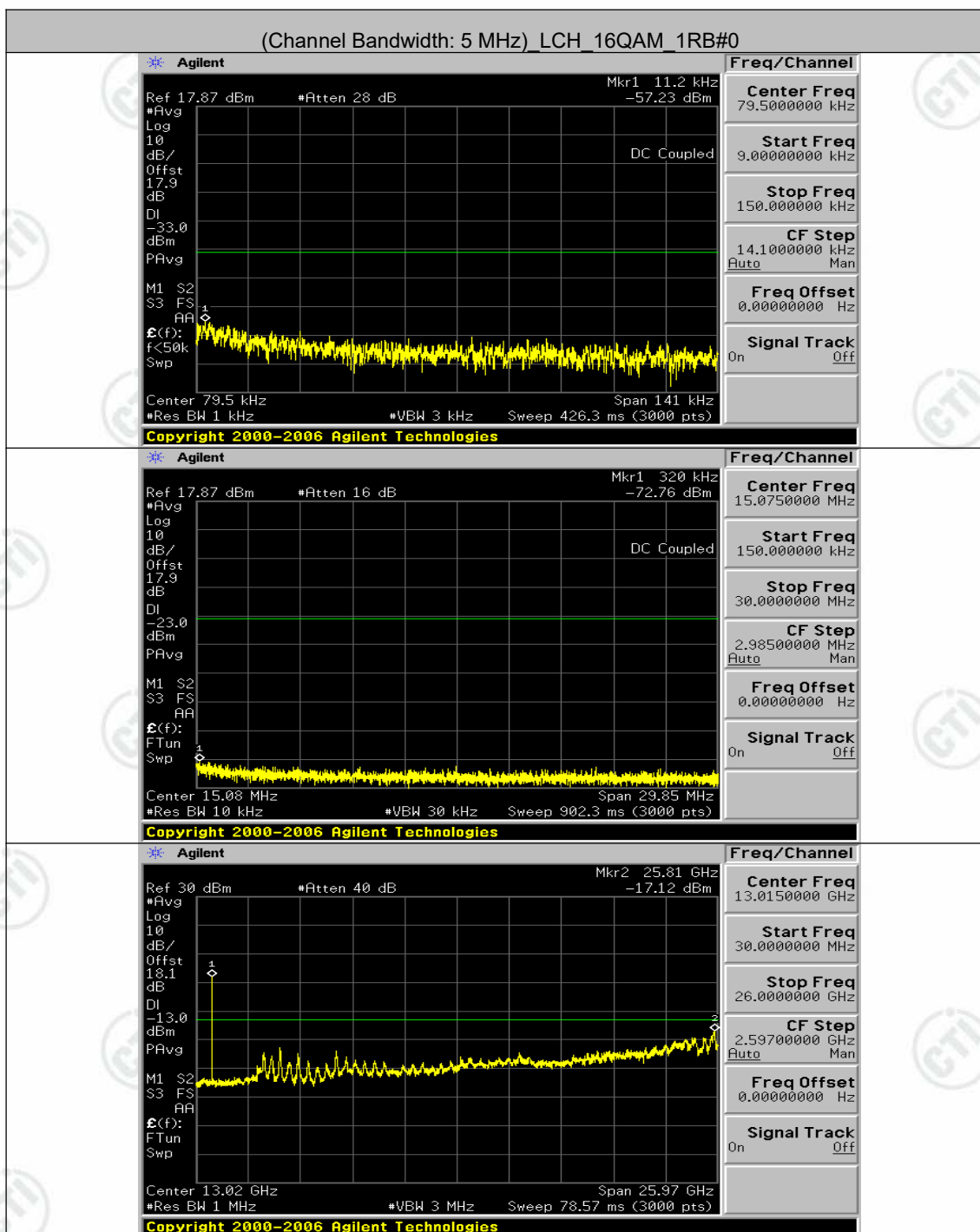


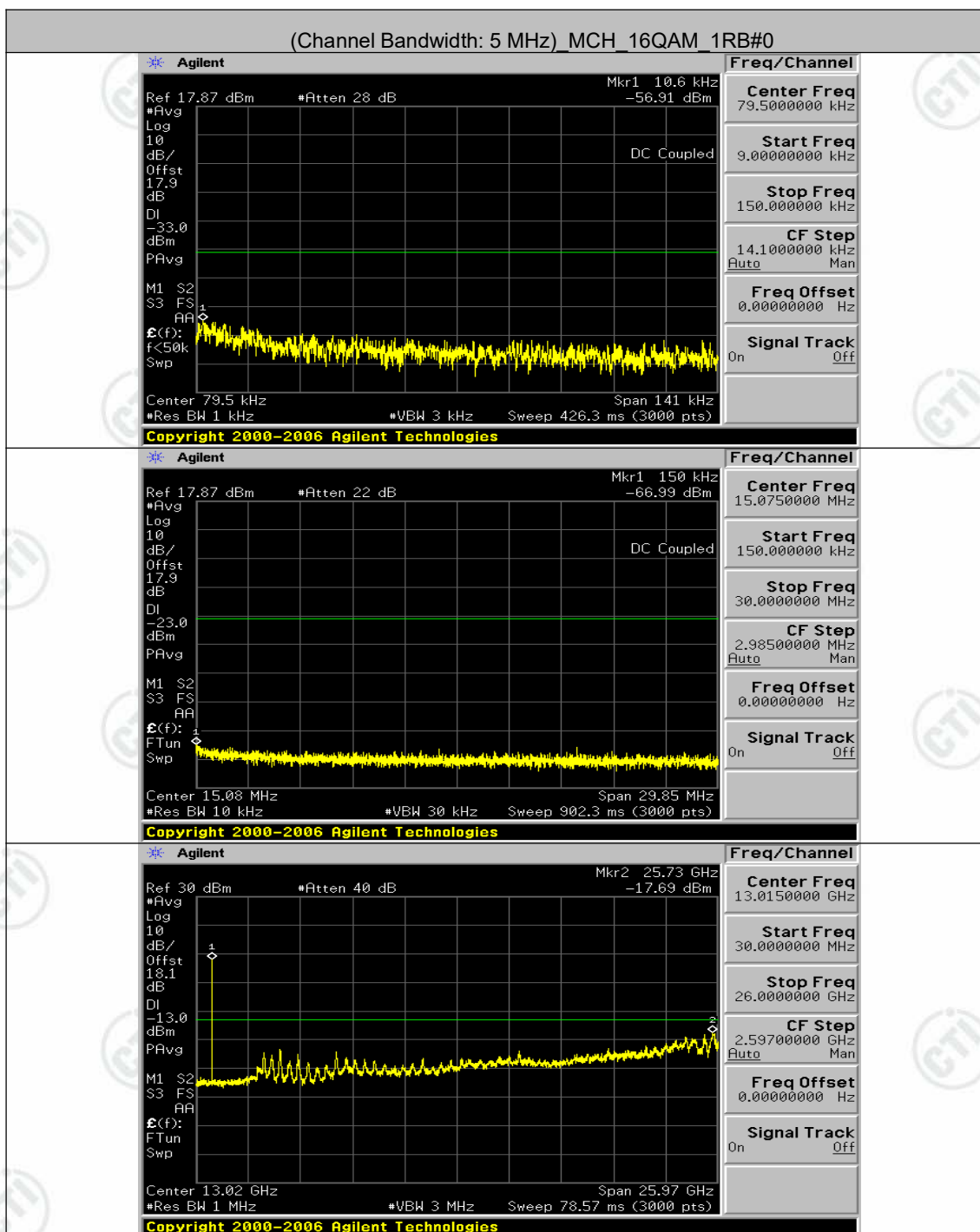
Channel Bandwidth: 5 MHz

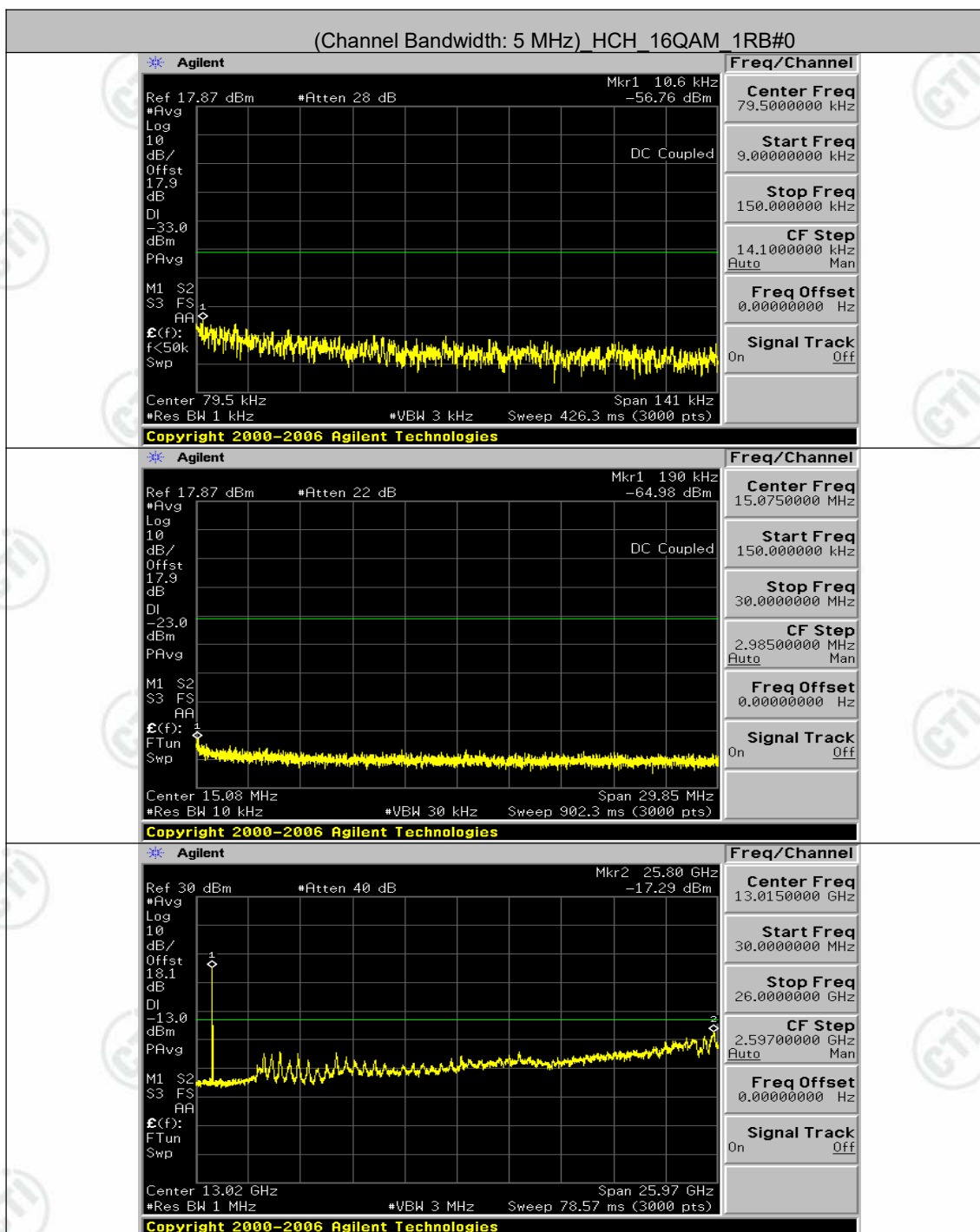




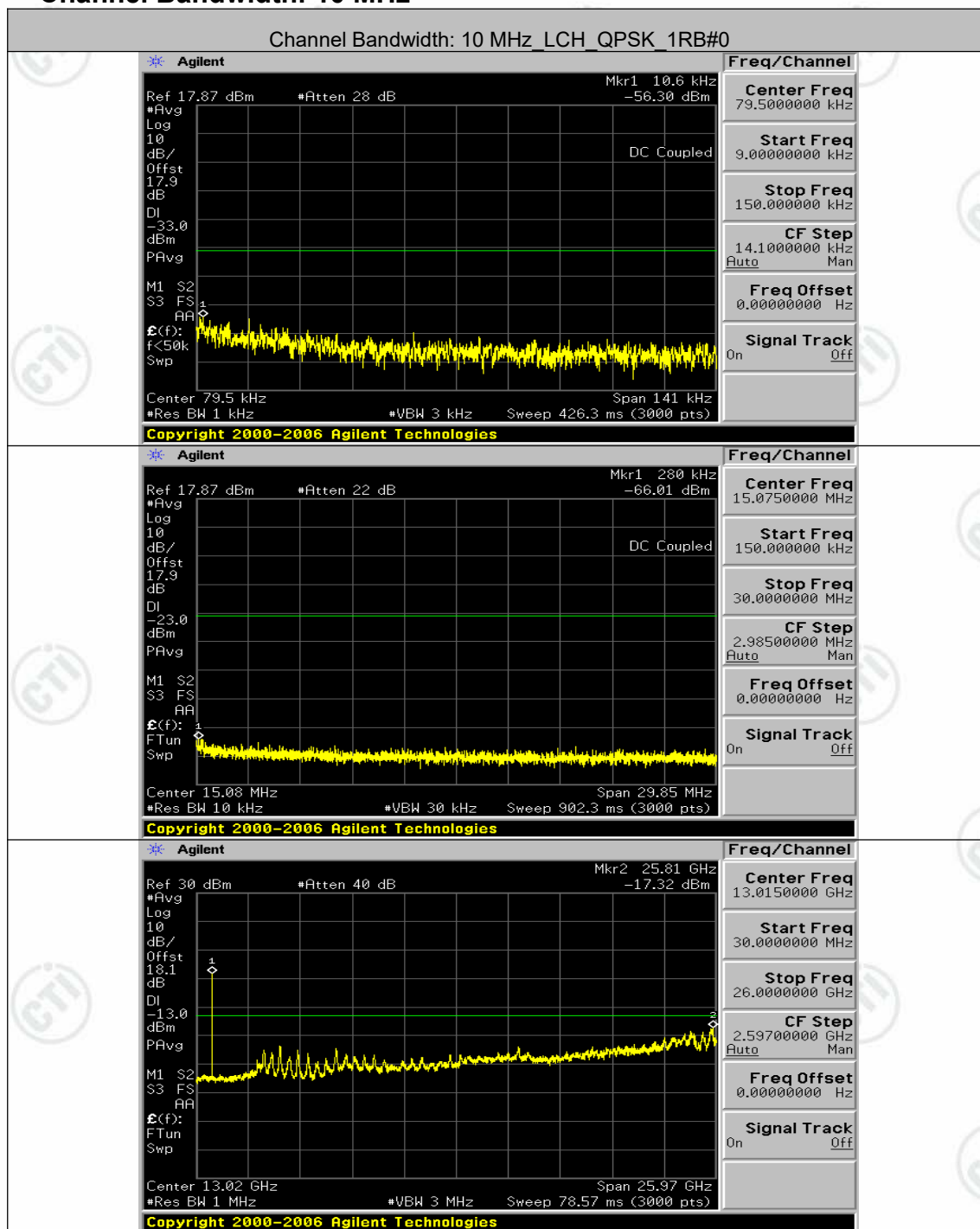


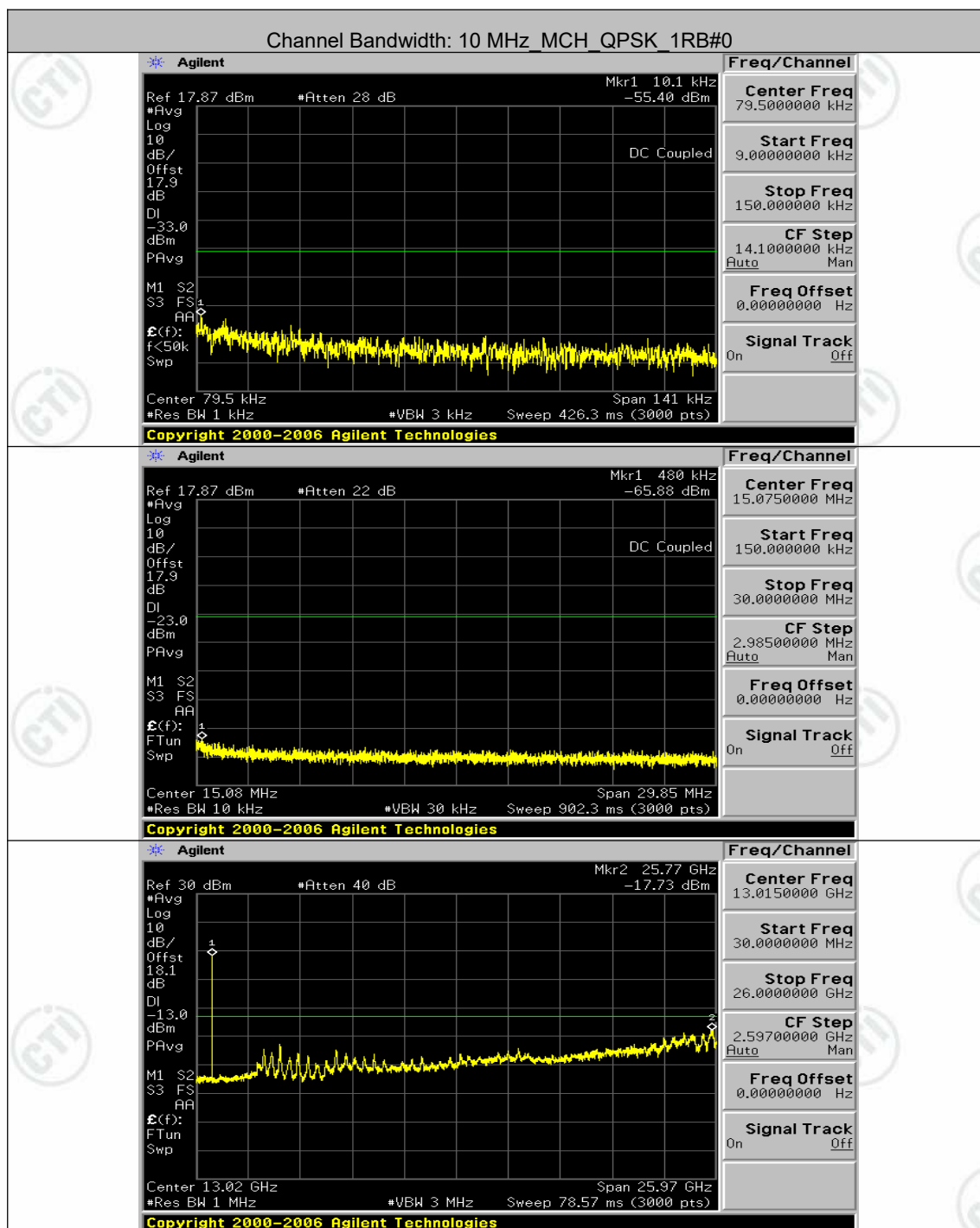


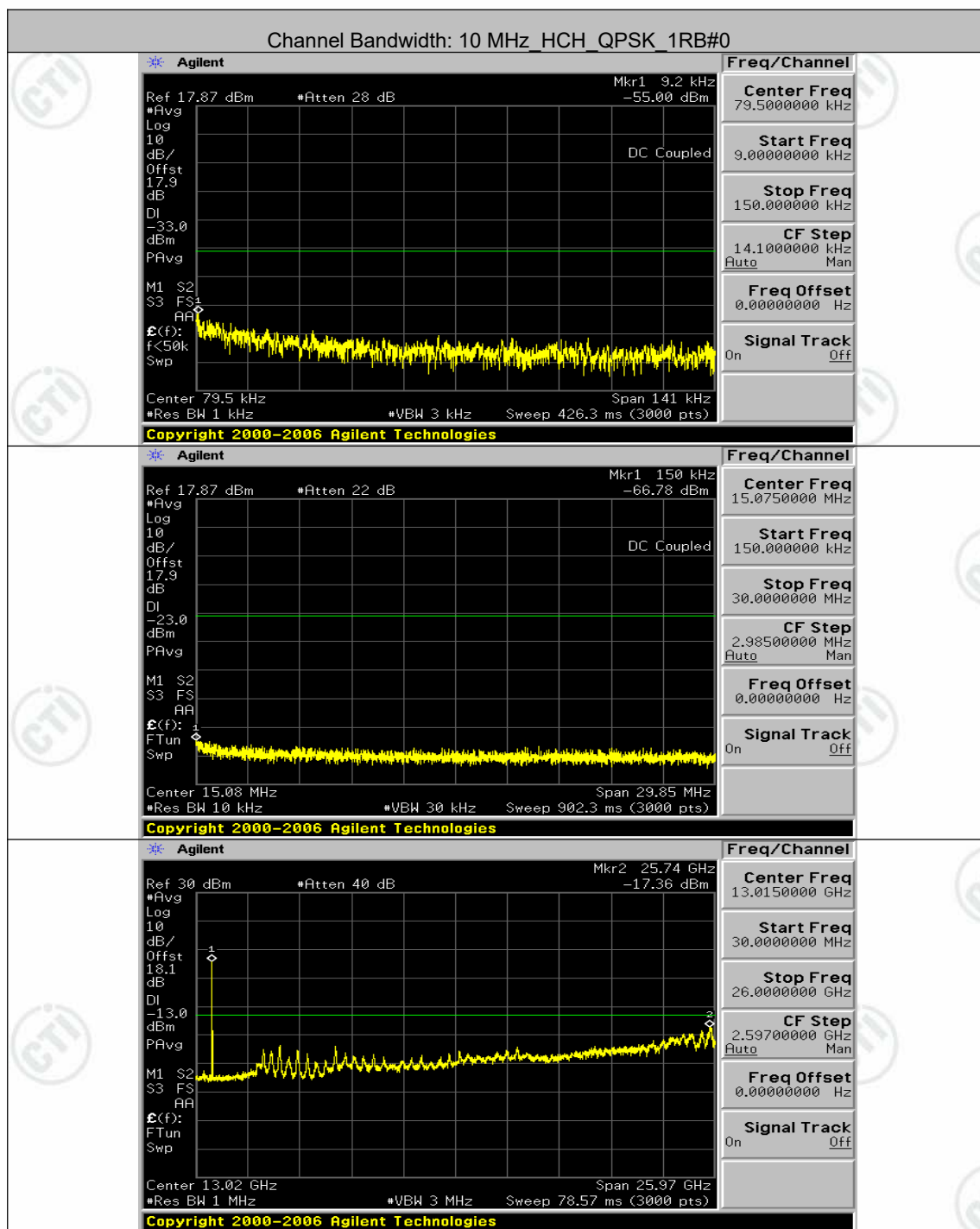


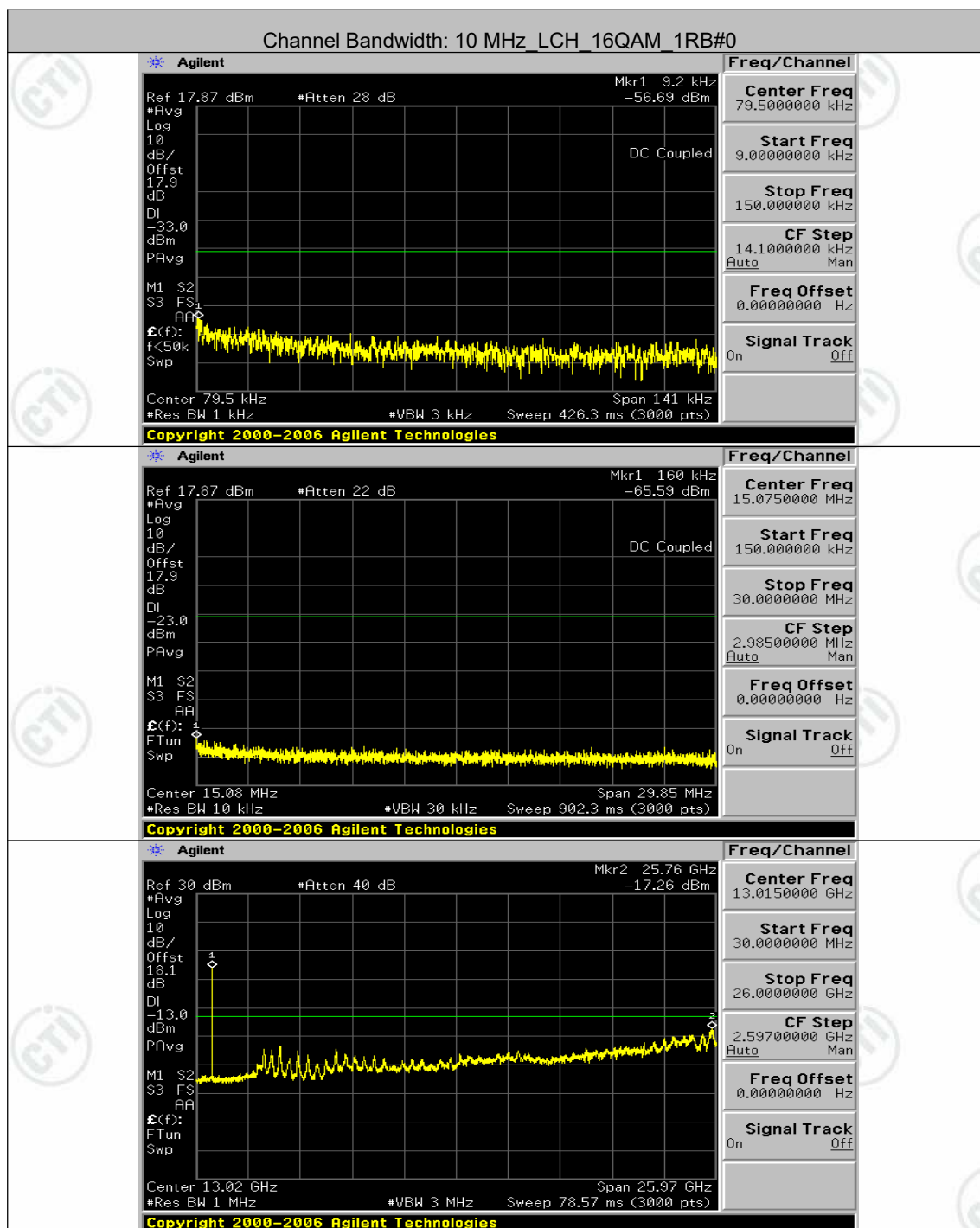


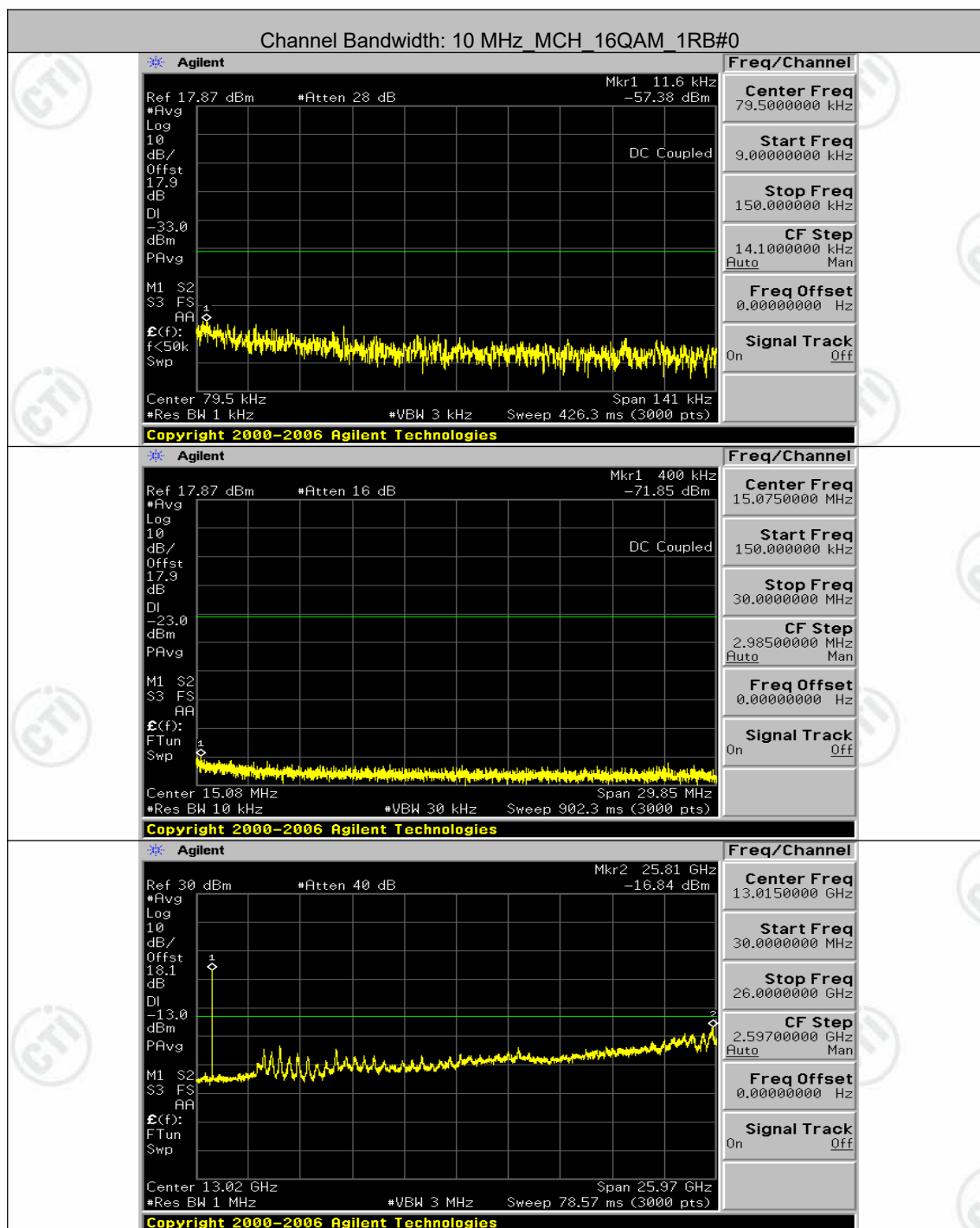
Channel Bandwidth: 10 MHz

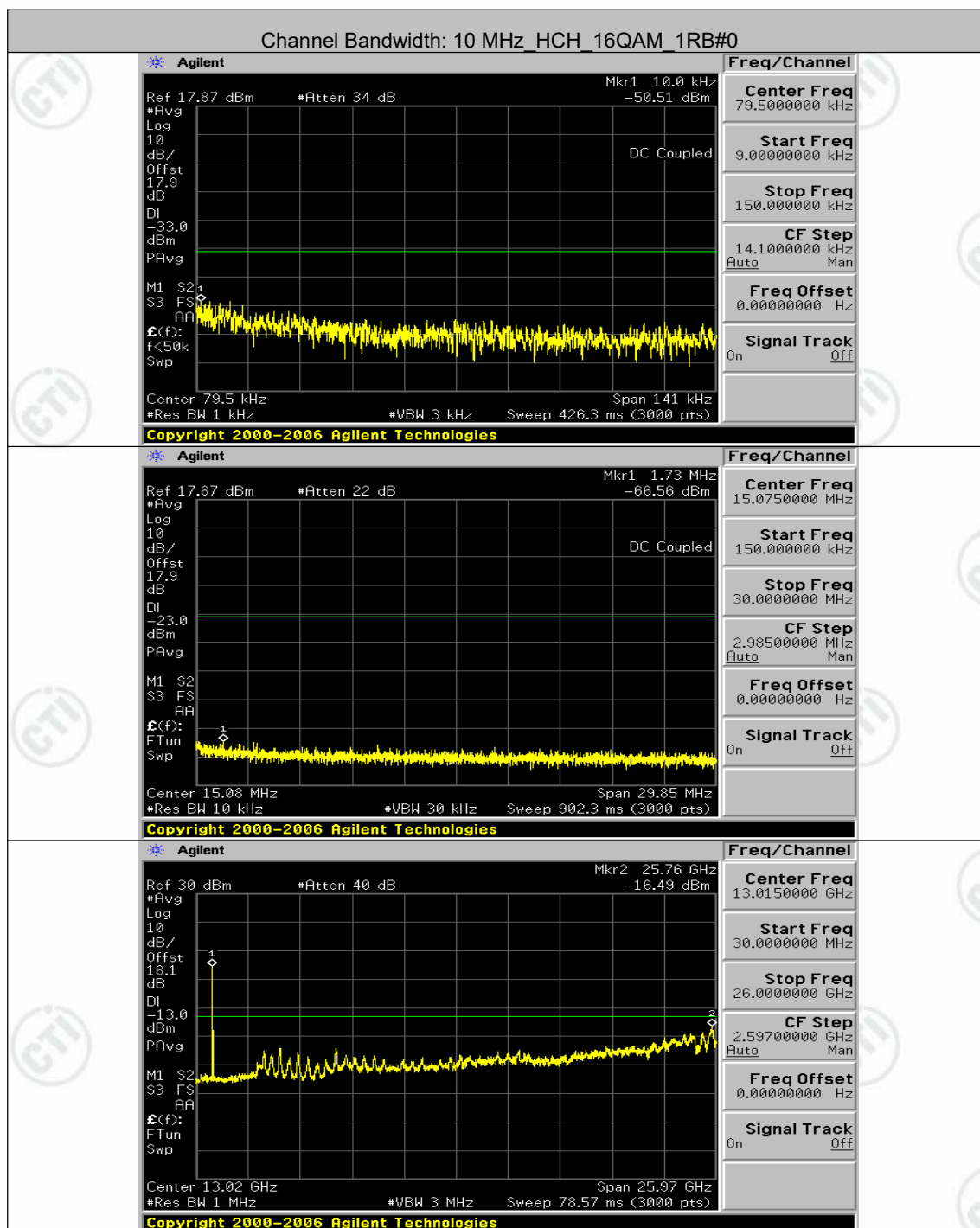












Appendix F: Frequency Stability

Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-8.61	-0.010442	± 2.5	PASS
		VN	TN	-8.24	-0.009991	± 2.5	PASS
		VH	TN	-6.97	-0.008447	± 2.5	PASS
	MCH	VL	TN	-7.72	-0.009235	± 2.5	PASS
		VN	TN	-4.76	-0.005695	± 2.5	PASS
		VH	TN	-3.25	-0.003882	± 2.5	PASS
	HCH	VL	TN	-6.47	-0.007622	± 2.5	PASS
		VN	TN	-5.14	-0.006054	± 2.5	PASS
		VH	TN	-8.40	-0.009899	± 2.5	PASS
16QAM	LCH	VL	TN	-7.72	-0.009367	± 2.5	PASS
		VN	TN	-4.42	-0.005360	± 2.5	PASS
		VH	TN	-0.30	-0.000364	± 2.5	PASS
	MCH	VL	TN	-5.58	-0.006669	± 2.5	PASS
		VN	TN	-1.92	-0.002292	± 2.5	PASS
		VH	TN	-4.73	-0.005660	± 2.5	PASS
	HCH	VL	TN	-7.20	-0.008482	± 2.5	PASS
		VN	TN	-0.66	-0.000776	± 2.5	PASS
		VH	TN	-5.21	-0.006138	± 2.5	PASS

Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-6.27	-0.007597	± 2.5	PASS
		VN	-20	-1.92	-0.002324	± 2.5	PASS
		VN	-10	-4.53	-0.005499	± 2.5	PASS
		VN	0	-8.11	-0.009835	± 2.5	PASS
		VN	10	-0.60	-0.000729	± 2.5	PASS
		VN	20	-1.42	-0.001717	± 2.5	PASS
		VN	30	-8.67	-0.010512	± 2.5	PASS
		VN	40	-4.03	-0.004892	± 2.5	PASS
		VN	50	-6.05	-0.007337	± 2.5	PASS
	MCH	VN	-30	-9.10	-0.010876	± 2.5	PASS
		VN	-20	-4.18	-0.004994	± 2.5	PASS
		VN	-10	-11.13	-0.013305	± 2.5	PASS
		VN	0	-9.31	-0.011133	± 2.5	PASS
		VN	10	-8.04	-0.009611	± 2.5	PASS
		VN	20	-7.94	-0.009491	± 2.5	PASS
		VN	30	-6.75	-0.008072	± 2.5	PASS
		VN	40	-10.76	-0.012860	± 2.5	PASS
		VN	50	-3.55	-0.004241	± 2.5	PASS
	HCH	VN	-30	-8.37	-0.009865	± 2.5	PASS
		VN	-20	-4.49	-0.005295	± 2.5	PASS
		VN	-10	-8.70	-0.010253	± 2.5	PASS
		VN	0	-4.61	-0.005430	± 2.5	PASS
		VN	10	-3.55	-0.004182	± 2.5	PASS
		VN	20	-5.68	-0.006695	± 2.5	PASS
		VN	30	-6.65	-0.007841	± 2.5	PASS
		VN	40	-5.61	-0.006610	± 2.5	PASS
		VN	50	-0.73	-0.000860	± 2.5	PASS

16QAM	LCH	VN	-30	0.77	0.000937	± 2.5	PASS
		VN	-20	-3.36	-0.004076	± 2.5	PASS
		VN	-10	-1.36	-0.001648	± 2.5	PASS
		VN	0	-6.62	-0.008031	± 2.5	PASS
		VN	10	-1.92	-0.002324	± 2.5	PASS
		VN	20	-4.31	-0.005221	± 2.5	PASS
		VN	30	-3.93	-0.004770	± 2.5	PASS
		VN	40	-8.38	-0.010165	± 2.5	PASS
		VN	50	-4.62	-0.005603	± 2.5	PASS
	MCH	VN	-30	-4.39	-0.005250	± 2.5	PASS
		VN	-20	-1.44	-0.001727	± 2.5	PASS
		VN	-10	-6.39	-0.007644	± 2.5	PASS
		VN	0	-5.19	-0.006208	± 2.5	PASS
		VN	10	-7.02	-0.008397	± 2.5	PASS
		VN	20	-2.50	-0.002993	± 2.5	PASS
		VN	30	-4.94	-0.005900	± 2.5	PASS
		VN	40	-3.10	-0.003711	± 2.5	PASS
		VN	50	-3.91	-0.004669	± 2.5	PASS
	HCH	VN	-30	-3.42	-0.004030	± 2.5	PASS
		VN	-20	-2.49	-0.002934	± 2.5	PASS
		VN	-10	-7.21	-0.008499	± 2.5	PASS
		VN	0	-5.14	-0.006054	± 2.5	PASS
		VN	10	-6.05	-0.007133	± 2.5	PASS
		VN	20	-4.02	-0.004739	± 2.5	PASS
		VN	30	-1.67	-0.001973	± 2.5	PASS
		VN	40	-3.23	-0.003811	± 2.5	PASS
		VN	50	-8.77	-0.010337	± 2.5	PASS

Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz+							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-9.77	-0.011836	± 2.5	PASS
		VN	TN	-8.73	-0.010571	± 2.5	PASS
		VH	TN	-7.45	-0.009028	± 2.5	PASS
	MCH	VL	TN	-8.53	-0.010192	± 2.5	PASS
		VN	TN	-9.04	-0.010808	± 2.5	PASS
		VH	TN	-7.01	-0.008380	± 2.5	PASS
	HCH	VL	TN	-7.05	-0.008321	± 2.5	PASS
		VN	TN	-6.74	-0.007950	± 2.5	PASS
		VH	TN	-4.28	-0.005047	± 2.5	PASS
16QAM	LCH	VL	TN	-1.90	-0.002305	± 2.5	PASS
		VN	TN	-6.17	-0.007469	± 2.5	PASS
		VH	TN	-9.01	-0.010917	± 2.5	PASS
	MCH	VL	TN	-8.27	-0.009884	± 2.5	PASS
		VN	TN	-4.39	-0.005250	± 2.5	PASS
		VH	TN	-6.74	-0.008055	± 2.5	PASS
	HCH	VL	TN	-9.54	-0.011258	± 2.5	PASS
		VN	TN	-3.40	-0.004017	± 2.5	PASS
		VH	TN	-7.02	-0.008288	± 2.5	PASS

Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-0.30	-0.000364	± 2.5	PASS
		VN	-20	-5.59	-0.006776	± 2.5	PASS
		VN	-10	-8.13	-0.009843	± 2.5	PASS
		VN	0	-8.41	-0.010189	± 2.5	PASS
		VN	10	-10.36	-0.012546	± 2.5	PASS
		VN	20	-7.74	-0.009375	± 2.5	PASS
		VN	30	-7.70	-0.009323	± 2.5	PASS
		VN	40	-2.72	-0.003293	± 2.5	PASS
		VN	50	-6.90	-0.008353	± 2.5	PASS
	MCH	VN	-30	-6.95	-0.008311	± 2.5	PASS
		VN	-20	-6.19	-0.007405	± 2.5	PASS
		VN	-10	-9.03	-0.010791	± 2.5	PASS
		VN	0	-3.72	-0.004446	± 2.5	PASS
		VN	10	-5.61	-0.006704	± 2.5	PASS
		VN	20	-6.18	-0.007388	± 2.5	PASS
		VN	30	-3.02	-0.003608	± 2.5	PASS
		VN	40	-5.81	-0.006943	± 2.5	PASS
		VN	50	-7.57	-0.009047	± 2.5	PASS
	HCH	VN	-30	-3.25	-0.003832	± 2.5	PASS
		VN	-20	-3.25	-0.003832	± 2.5	PASS
		VN	-10	-3.15	-0.003713	± 2.5	PASS
		VN	0	-3.20	-0.003781	± 2.5	PASS
		VN	10	-8.23	-0.009706	± 2.5	PASS
		VN	20	0.20	0.000236	± 2.5	PASS
		VN	30	-9.03	-0.010651	± 2.5	PASS
		VN	40	-5.66	-0.006684	± 2.5	PASS
		VN	50	-6.74	-0.007950	± 2.5	PASS

QPSK	LCH	VN	-30	-4.05	-0.004904	± 2.5	PASS
		VN	-20	-4.99	-0.006048	± 2.5	PASS
		VN	-10	-6.15	-0.007451	± 2.5	PASS
		VN	0	-5.54	-0.006706	± 2.5	PASS
		VN	10	-2.02	-0.002443	± 2.5	PASS
		VN	20	-2.59	-0.003137	± 2.5	PASS
		VN	30	-9.63	-0.011662	± 2.5	PASS
		VN	40	-4.08	-0.004939	± 2.5	PASS
		VN	50	-4.01	-0.004852	± 2.5	PASS
	MCH	VN	-30	-10.73	-0.012826	± 2.5	PASS
		VN	-20	-7.00	-0.008362	± 2.5	PASS
		VN	-10	-7.12	-0.008516	± 2.5	PASS
		VN	0	-8.96	-0.010705	± 2.5	PASS
		VN	10	-9.87	-0.011800	± 2.5	PASS
		VN	20	-5.09	-0.006088	± 2.5	PASS
		VN	30	-9.51	-0.011372	± 2.5	PASS
		VN	40	-8.68	-0.010380	± 2.5	PASS
		VN	50	-6.41	-0.007661	± 2.5	PASS
	HCH	VN	-30	-7.54	-0.008895	± 2.5	PASS
		VN	-20	-6.28	-0.007410	± 2.5	PASS
		VN	-10	-10.30	-0.012153	± 2.5	PASS
		VN	0	-4.46	-0.005266	± 2.5	PASS
		VN	10	-4.49	-0.005300	± 2.5	PASS
		VN	20	-7.68	-0.009064	± 2.5	PASS
		VN	30	-5.76	-0.006802	± 2.5	PASS
		VN	40	-6.11	-0.007207	± 2.5	PASS
		VN	50	-4.94	-0.005823	± 2.5	PASS

Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-10.59	-0.012808	± 2.5	PASS
		VN	TN	-7.42	-0.008983	± 2.5	PASS
		VH	TN	-3.06	-0.003704	± 2.5	PASS
	MCH	VL	TN	-4.63	-0.005541	± 2.5	PASS
		VN	TN	-6.11	-0.007302	± 2.5	PASS
		VH	TN	-4.61	-0.005507	± 2.5	PASS
	HCH	VL	TN	-3.42	-0.004039	± 2.5	PASS
		VN	TN	-5.87	-0.006929	± 2.5	PASS
		VH	TN	-5.99	-0.007081	± 2.5	PASS
16QAM	LCH	VL	TN	-5.72	-0.006923	± 2.5	PASS
		VN	TN	-6.28	-0.007598	± 2.5	PASS
		VH	TN	-4.22	-0.005106	± 2.5	PASS
	MCH	VL	TN	-10.50	-0.012552	± 2.5	PASS
		VN	TN	-9.60	-0.011475	± 2.5	PASS
		VH	TN	-7.95	-0.009508	± 2.5	PASS
	HCH	VL	TN	-5.81	-0.006861	± 2.5	PASS
		VN	TN	-5.79	-0.006844	± 2.5	PASS
		VH	TN	-9.66	-0.011407	± 2.5	PASS

Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-9.97	-0.012064	± 2.5	PASS
		VN	-20	-8.25	-0.009987	± 2.5	PASS
		VN	-10	-6.47	-0.007823	± 2.5	PASS
		VN	0	-9.31	-0.011268	± 2.5	PASS
		VN	10	-6.27	-0.007581	± 2.5	PASS
		VN	20	-4.48	-0.005417	± 2.5	PASS
		VN	30	-7.02	-0.008498	± 2.5	PASS
		VN	40	-8.24	-0.009969	± 2.5	PASS
		VN	50	-5.65	-0.006837	± 2.5	PASS
	MCH	VN	-30	-5.42	-0.006481	± 2.5	PASS
		VN	-20	-2.85	-0.003403	± 2.5	PASS
		VN	-10	-6.35	-0.007593	± 2.5	PASS
		VN	0	-11.01	-0.013168	± 2.5	PASS
		VN	10	-6.32	-0.007559	± 2.5	PASS
		VN	20	-7.90	-0.009440	± 2.5	PASS
		VN	30	-7.62	-0.009115	± 2.5	PASS
		VN	40	-4.72	-0.005643	± 2.5	PASS
		VN	50	-1.75	-0.002086	± 2.5	PASS
	HCH	VN	-30	-6.04	-0.007131	± 2.5	PASS
		VN	-20	-8.97	-0.010596	± 2.5	PASS
		VN	-10	-9.71	-0.011475	± 2.5	PASS
		VN	0	-9.84	-0.011627	± 2.5	PASS
		VN	10	-6.94	-0.008196	± 2.5	PASS
		VN	20	-10.14	-0.011981	± 2.5	PASS
		VN	30	-9.78	-0.011559	± 2.5	PASS
		VN	40	-7.47	-0.008821	± 2.5	PASS
		VN	50	-5.74	-0.006777	± 2.5	PASS

16QAM	LCH	VN	-30	-2.83	-0.003427	± 2.5	PASS
		VN	-20	-8.67	-0.010489	± 2.5	PASS
		VN	-10	-7.35	-0.008896	± 2.5	PASS
		VN	0	-4.86	-0.005885	± 2.5	PASS
		VN	10	-7.57	-0.009156	± 2.5	PASS
		VN	20	-7.51	-0.009087	± 2.5	PASS
		VN	30	-3.59	-0.004344	± 2.5	PASS
		VN	40	-1.54	-0.001869	± 2.5	PASS
		VN	50	-0.50	-0.000606	± 2.5	PASS
	MCH	VN	-30	-6.88	-0.008226	± 2.5	PASS
		VN	-20	-5.81	-0.006943	± 2.5	PASS
		VN	-10	-11.10	-0.013270	± 2.5	PASS
		VN	0	-11.32	-0.013527	± 2.5	PASS
		VN	10	-3.66	-0.004378	± 2.5	PASS
		VN	20	-7.34	-0.008773	± 2.5	PASS
		VN	30	-0.60	-0.000718	± 2.5	PASS
		VN	40	-6.37	-0.007610	± 2.5	PASS
		VN	50	-4.21	-0.005028	± 2.5	PASS
	HCH	VN	-30	-5.75	-0.006793	± 2.5	PASS
		VN	-20	-8.10	-0.009565	± 2.5	PASS
		VN	-10	-5.65	-0.006675	± 2.5	PASS
		VN	0	-8.43	-0.009954	± 2.5	PASS
		VN	10	-9.23	-0.010900	± 2.5	PASS
		VN	20	-8.68	-0.010258	± 2.5	PASS
		VN	30	-6.24	-0.007368	± 2.5	PASS
		VN	40	-3.59	-0.004242	± 2.5	PASS
		VN	50	-7.05	-0.008331	± 2.5	PASS

Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	-2.73	-0.003296	± 2.5	PASS
		VN	TN	-9.67	-0.011665	± 2.5	PASS
		VH	TN	-8.35	-0.010077	± 2.5	PASS
	MCH	VL	TN	-6.05	-0.007234	± 2.5	PASS
		VN	TN	-6.37	-0.007610	± 2.5	PASS
		VH	TN	-7.64	-0.009132	± 2.5	PASS
	HCH	VL	TN	-5.11	-0.006051	± 2.5	PASS
		VN	TN	-5.29	-0.006271	± 2.5	PASS
		VH	TN	-5.87	-0.006949	± 2.5	PASS
16QAM	LCH	VL	TN	-6.77	-0.008162	± 2.5	PASS
		VN	TN	-5.71	-0.006885	± 2.5	PASS
		VH	TN	-8.58	-0.010354	± 2.5	PASS
	MCH	VL	TN	-7.78	-0.009303	± 2.5	PASS
		VN	TN	-4.92	-0.005883	± 2.5	PASS
		VH	TN	-6.81	-0.008140	± 2.5	PASS
	HCH	VL	TN	-4.89	-0.005797	± 2.5	PASS
		VN	TN	-5.29	-0.006271	± 2.5	PASS
		VH	TN	-8.83	-0.010458	± 2.5	PASS

Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
16QAM	LCH	VN	-30	-6.75	-0.008145	± 2.5	PASS
		VN	-20	-10.43	-0.012580	± 2.5	PASS
		VN	-10	-11.22	-0.013529	± 2.5	PASS
		VN	0	-7.54	-0.009094	± 2.5	PASS
		VN	10	-8.04	-0.009698	± 2.5	PASS
		VN	20	-11.09	-0.013373	± 2.5	PASS
		VN	30	-8.04	-0.009698	± 2.5	PASS
		VN	40	-6.42	-0.007748	± 2.5	PASS
		VN	50	-8.03	-0.009681	± 2.5	PASS
	MCH	VN	-30	-7.71	-0.009218	± 2.5	PASS
		VN	-20	-9.66	-0.011543	± 2.5	PASS
		VN	-10	-7.70	-0.009200	± 2.5	PASS
		VN	0	-6.32	-0.007559	± 2.5	PASS
		VN	10	-6.39	-0.007644	± 2.5	PASS
		VN	20	-2.17	-0.002599	± 2.5	PASS
		VN	30	-4.33	-0.005182	± 2.5	PASS
		VN	40	-7.21	-0.008619	± 2.5	PASS
		VN	50	-7.42	-0.008875	± 2.5	PASS
	HCH	VN	-30	-9.10	-0.010780	± 2.5	PASS
		VN	-20	-6.61	-0.007831	± 2.5	PASS
		VN	-10	-6.74	-0.007983	± 2.5	PASS
		VN	0	-6.34	-0.007508	± 2.5	PASS
		VN	10	-6.87	-0.008136	± 2.5	PASS
		VN	20	-7.72	-0.009153	± 2.5	PASS
		VN	30	-7.65	-0.009068	± 2.5	PASS
		VN	40	-6.77	-0.008017	± 2.5	PASS
		VN	50	-4.61	-0.005458	± 2.5	PASS

QPSK	LCH	VN	-30	-9.66	-0.011648	± 2.5	PASS
		VN	-20	-7.90	-0.009525	± 2.5	PASS
		VN	-10	-9.50	-0.011458	± 2.5	PASS
		VN	0	-8.18	-0.009870	± 2.5	PASS
		VN	10	-7.45	-0.008990	± 2.5	PASS
		VN	20	-8.94	-0.010785	± 2.5	PASS
		VN	30	-10.43	-0.012580	± 2.5	PASS
		VN	40	-9.76	-0.011769	± 2.5	PASS
		VN	50	-7.95	-0.009594	± 2.5	PASS
	MCH	VN	-30	-6.01	-0.007182	± 2.5	PASS
		VN	-20	-6.72	-0.008038	± 2.5	PASS
		VN	-10	-5.97	-0.007131	± 2.5	PASS
		VN	0	-8.28	-0.009902	± 2.5	PASS
		VN	10	-8.23	-0.009833	± 2.5	PASS
		VN	20	-2.30	-0.002753	± 2.5	PASS
		VN	30	-4.38	-0.005233	± 2.5	PASS
		VN	40	-5.34	-0.006379	± 2.5	PASS
		VN	50	-6.15	-0.007353	± 2.5	PASS
	HCH	VN	-30	-7.97	-0.009441	± 2.5	PASS
		VN	-20	-8.98	-0.010644	± 2.5	PASS
		VN	-10	-4.23	-0.005017	± 2.5	PASS
		VN	0	-4.39	-0.005203	± 2.5	PASS
		VN	10	-6.75	-0.008000	± 2.5	PASS
		VN	20	-2.35	-0.002780	± 2.5	PASS
		VN	30	-3.12	-0.003695	± 2.5	PASS
		VN	40	-5.71	-0.006763	± 2.5	PASS
		VN	50	-3.65	-0.004322	± 2.5	PASS

Appendix G): Field strength of spurious radiation

Receiver Setup:	<table><tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Remark</th></tr><tr><td>0.009MHz-30MHz</td><td>Peak</td><td>10kHz</td><td>30kHz</td><td>Peak</td></tr><tr><td>30MHz-1GHz</td><td>Peak</td><td>120kHz</td><td>300kHz</td><td>Peak</td></tr><tr><td>Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr></table>	Frequency	Detector	RBW	VBW	Remark	0.009MHz-30MHz	Peak	10kHz	30kHz	Peak	30MHz-1GHz	Peak	120kHz	300kHz	Peak	Above 1GHz	Peak	1MHz	3MHz	Peak
Frequency	Detector	RBW	VBW	Remark																	
0.009MHz-30MHz	Peak	10kHz	30kHz	Peak																	
30MHz-1GHz	Peak	120kHz	300kHz	Peak																	
Above 1GHz	Peak	1MHz	3MHz	Peak																	
Measurement Procedure:	1. Scan up to 10th harmonic, find the maximum radiation frequency to measure. 2. The technique used to find the Spurious Emissions of the transmitter was the antenna substitution method. Substitution method was performed to determine the actual ERP/EIRP emission levels of the EUT. Test procedure as below: 1) The EUT was powered ON and placed on a 1.5m high table at a 3 meter fully Anechoic Chamber. The antenna of the transmitter was extended to its maximum length. modulation mode and the measuring receiver shall be tuned to the frequency of the transmitter under test. 2) The EUT was set 3 meters(above 18GHz the distance is 1 meter) away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3) The disturbance of the transmitter was maximized on the test receiver display by raising and lowering from 1m to 4m the receive antenna and by rotating through 360° the turntable. After the fundamental emission was maximized, a field strength measurement was made. 4) Steps 1) to 3) were performed with the EUT and the receive antenna in both vertical and horizontal polarization. 5) The transmitter was then removed and replaced with another antenna. The center of the antenna was approximately at the same location as the center of the transmitter. 6) A signal at the disturbance was fed to the substitution antenna by means of a non-radiating cable. With both the substitution and the receive antennas horizontally polarized, the receive antenna was raised and lowered to obtain a maximum reading at the test receiver. The level of the signal generator was adjusted until the measured field strength level in step 3) is obtained for this set of conditions. 7) The output power into the substitution antenna was then measured. 8) Steps 6) and 7)were repeated with both antennas polarized. 9) Calculate power in dBm by the following formula: $\text{ERP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBd)}$$\text{EIRP(dBm)} = \text{Pg(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dBi)}$$\text{EIRP}=\text{ERP}+2.15\text{dB}$ where: Pg is the generator output power into the substitution antenna. 10) Test the EUT in the lowest channel, the middle channel the Highest channel 11) The radiation measurements are performed in X, Y, Z axis positioning for EUT operation mode,And found the X axis positioning which it is worse case. 12) Repeat above procedures until all frequencies measured was complete.																				
Limit:	Attenuated at least 43+10log(P)																				

Test Data:

QPSK

Mode:		LTE Traffic						
Band:		5		Channel:			20450	
Remark:		1.4M						
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	31.9402	150	324	-56.85	-36.00	20.85	Pass	Horizontal
2	124.5845	150	208	-61.46	-36.00	25.46	Pass	Horizontal
3	195.0135	150	109	-65.94	-36.00	29.94	Pass	Horizontal
4	304.0524	150	341	-60.22	-36.00	24.22	Pass	Horizontal
5	433.2693	150	307	-65.54	-36.00	29.54	Pass	Horizontal
6	649.9890	150	0	-64.73	-36.00	28.73	Pass	Horizontal
7	1495.0997	150	241	-44.85	-30.00	14.85	Pass	Horizontal
8	2126.5084	150	76	-43.61	-30.00	13.61	Pass	Horizontal
9	3206.0137	150	76	-49.38	-30.00	19.38	Pass	Horizontal
10	4249.4833	150	109	-46.72	-30.00	16.72	Pass	Horizontal
11	10299.5700	150	60	-40.48	-30.00	10.48	Pass	Horizontal
12	12552.5868	150	192	-40.36	-30.00	10.36	Pass	Horizontal

Mode:		LTE Traffic						
Band:		5			Channel:		20450	
Remark:		1.4M						
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	36.5967	150	319	-56.48	-36.00	20.48	Pass	Vertical
2	59.4909	150	120	-62.59	-36.00	26.59	Pass	Vertical
3	120.0250	150	335	-62.74	-36.00	26.74	Pass	Vertical
4	195.0135	150	352	-63.45	-36.00	27.45	Pass	Vertical
5	304.0524	150	36	-59.55	-36.00	23.55	Pass	Vertical
6	649.9890	150	352	-64.03	-36.00	28.03	Pass	Vertical
7	1495.0997	150	319	-40.80	-30.00	10.80	Pass	Vertical
8	2128.0752	150	103	-42.44	-30.00	12.44	Pass	Vertical
9	3986.2658	150	36	-43.55	-30.00	13.55	Pass	Vertical
10	5331.3388	150	187	-45.65	-30.00	15.65	Pass	Vertical
11	9183.2456	150	3	-41.29	-30.00	11.29	Pass	Vertical
12	12695.9464	150	3	-39.16	-30.00	9.16	Pass	Vertical

Mode:		LTE Traffic						
Band:		5			Channel:		20525	
Remark:		3M						
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	32.5223	150	208	-59.75	-36.00	23.75	Pass	Horizontal
2	57.1627	150	208	-63.37	-36.00	27.37	Pass	Horizontal
3	120.0250	150	109	-61.04	-36.00	25.04	Pass	Horizontal
4	240.0260	150	158	-64.03	-36.00	28.03	Pass	Horizontal
5	304.0524	150	93	-59.78	-36.00	23.78	Pass	Horizontal
6	649.9890	150	27	-64.25	-36.00	28.25	Pass	Horizontal
7	1495.8831	150	241	-45.18	-30.00	15.18	Pass	Horizontal
8	2132.7755	150	76	-37.57	-30.00	7.57	Pass	Horizontal
9	2656.8605	150	0	-46.92	-30.00	16.92	Pass	Horizontal
10	5032.0855	150	324	-45.33	-30.00	15.33	Pass	Horizontal
11	7450.3967	150	291	-44.16	-30.00	14.16	Pass	Horizontal
12	11885.1423	150	10	-39.74	-30.00	9.74	Pass	Horizontal

Mode:		LTE Traffic						
Band:		5			Channel:		20525	
Remark:		3M						
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	36.4997	150	36	-56.65	-36.00	20.65	Pass	Vertical
2	120.0250	150	152	-63.67	-36.00	27.67	Pass	Vertical
3	195.0135	150	3	-63.61	-36.00	27.61	Pass	Vertical
4	304.0524	150	152	-60.63	-36.00	24.63	Pass	Vertical
5	433.2693	150	185	-67.54	-36.00	31.54	Pass	Vertical
6	649.9890	150	3	-64.29	-36.00	28.29	Pass	Vertical
7	1494.3163	150	152	-40.96	-30.00	10.96	Pass	Vertical
8	2124.1583	150	36	-43.57	-30.00	13.57	Pass	Vertical
9	2656.8605	150	152	-42.32	-30.00	12.32	Pass	Vertical
10	4247.1331	150	335	-43.79	-30.00	13.79	Pass	Vertical
11	9127.6252	150	360	-41.47	-30.00	11.47	Pass	Vertical
12	11902.3768	150	135	-39.03	-30.00	9.03	Pass	Vertical

Mode:		LTE Traffic						
Band:		5			Channel:		20600	
Remark:		5M						
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	48.3348	150	360	-63.04	-36.00	27.04	Pass	Horizontal
2	124.0024	150	153	-64.85	-36.00	28.85	Pass	Horizontal
3	179.7830	150	135	-66.27	-36.00	30.27	Pass	Horizontal
4	304.0524	150	219	-66.05	-36.00	30.05	Pass	Horizontal
5	433.2693	150	235	-63.79	-36.00	27.79	Pass	Horizontal
6	539.9800	150	350	-62.88	-36.00	26.88	Pass	Horizontal
7	1160.5940	150	86	-49.68	-30.00	19.68	Pass	Horizontal
8	1991.7661	150	52	-47.61	-30.00	17.61	Pass	Horizontal
9	3223.2482	150	317	-49.53	-30.00	19.53	Pass	Horizontal
10	5003.1002	150	186	-46.28	-30.00	16.28	Pass	Horizontal
11	9167.5778	150	202	-41.48	-30.00	11.48	Pass	Horizontal
12	11889.8427	150	86	-39.85	-30.00	9.85	Pass	Horizontal

Mode:		LTE Traffic						
Band:		5			Channel:		20600	
Remark:		5M						
NO.	Freq. [MHz]	Height [cm]	Azimuth [deg]	Level [dBm]	Limit [dBm]	Margin [dB]	Result	Polarity
1	47.2677	150	66	-61.19	-36.00	25.19	Pass	Vertical
2	150.0010	150	357	-67.50	-36.00	31.50	Pass	Vertical
3	195.0135	150	15	-64.68	-36.00	28.68	Pass	Vertical
4	304.0524	150	32	-65.22	-36.00	29.22	Pass	Vertical
5	433.2693	150	15	-63.77	-36.00	27.77	Pass	Vertical
6	539.9800	150	15	-63.21	-36.00	27.21	Pass	Vertical
7	1690.1627	150	209	-47.34	-30.00	17.34	Pass	Vertical
8	2667.0445	150	32	-44.77	-30.00	14.77	Pass	Vertical
9	3985.4824	150	15	-40.86	-30.00	10.86	Pass	Vertical
10	5083.7889	150	119	-46.72	-30.00	16.72	Pass	Vertical
11	7093.1729	150	15	-43.19	-30.00	13.19	Pass	Vertical
12	11883.5756	150	15	-39.48	-30.00	9.48	Pass	Vertical

Note:

Scan from 9kHz to 25GHz, the disturbance above 18GHz and below 30MHz was very low, and the above harmonics were the highest point could be found when testing, so only the above harmonics had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.