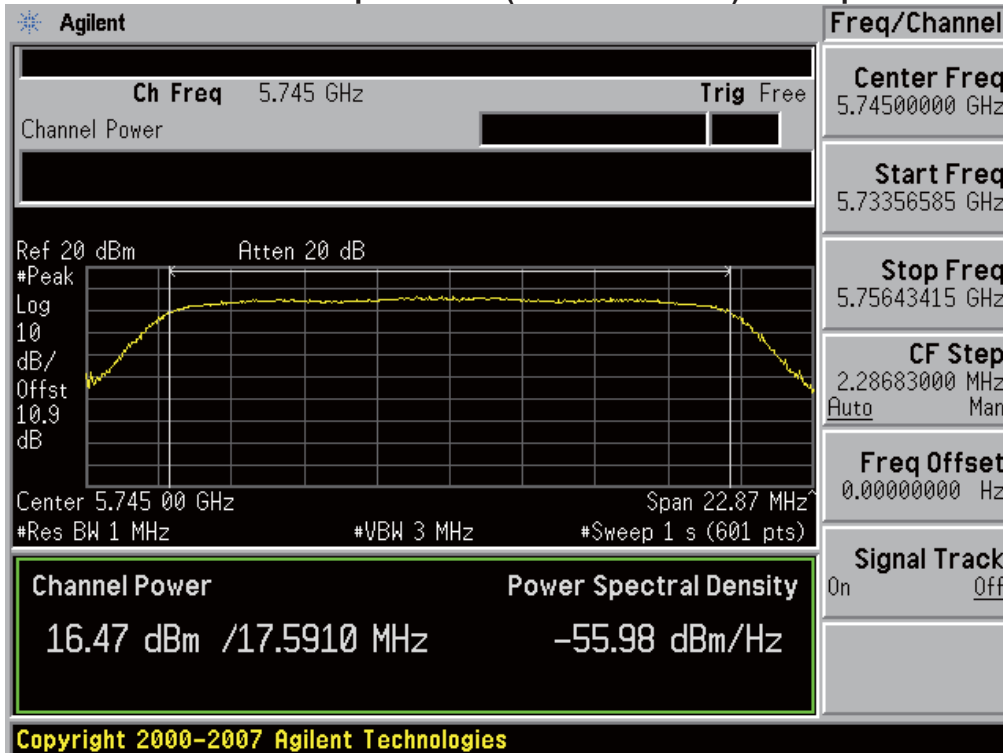
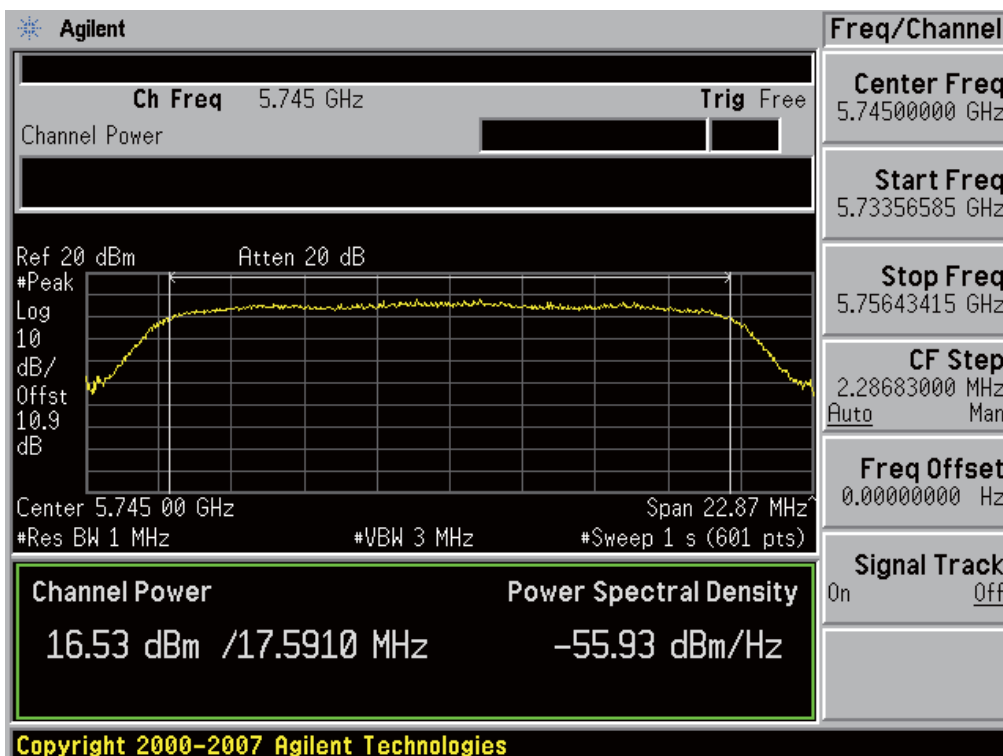


(5745 MHz ~5825 MHz)

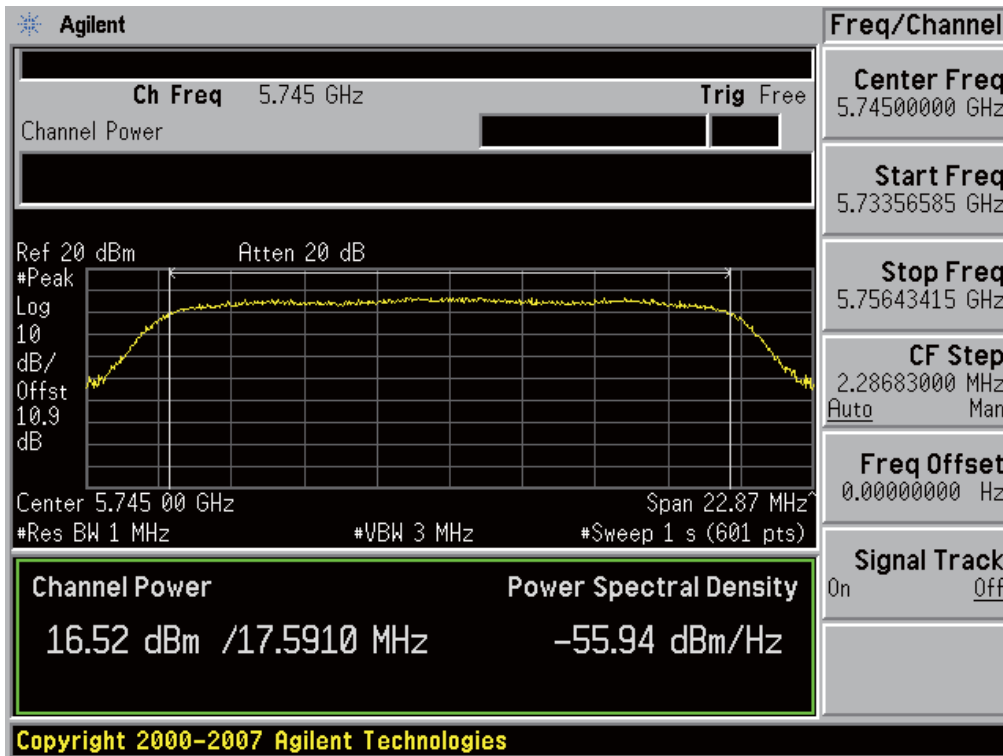
Conducted Output Power (802.11n-CH 149) 6.5 Mbps



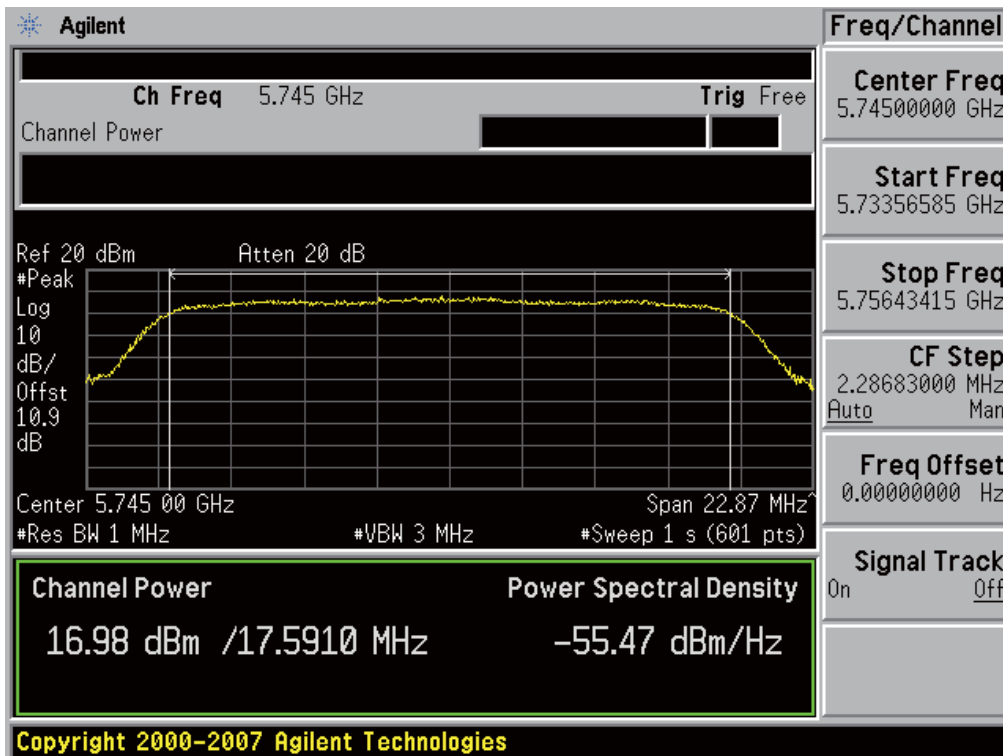
Conducted Output Power (802.11n-CH 149) 13 Mbps



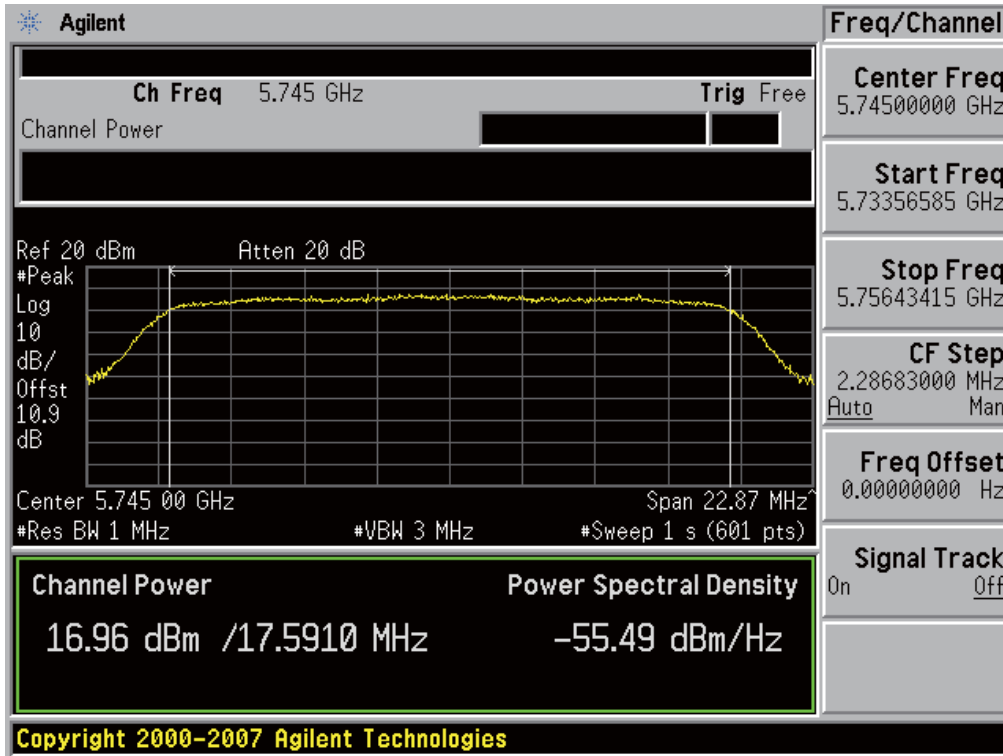
Conducted Output Power (802.11n-CH 149) 19.5 Mbps



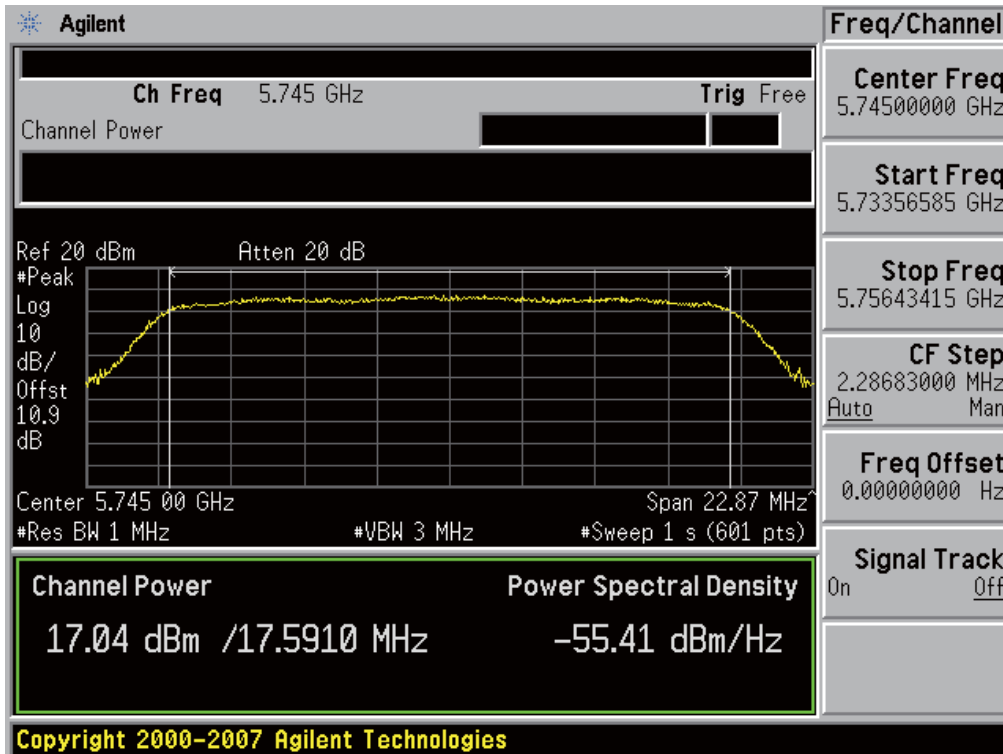
Conducted Output Power (802.11n-CH 149) 26 Mbps



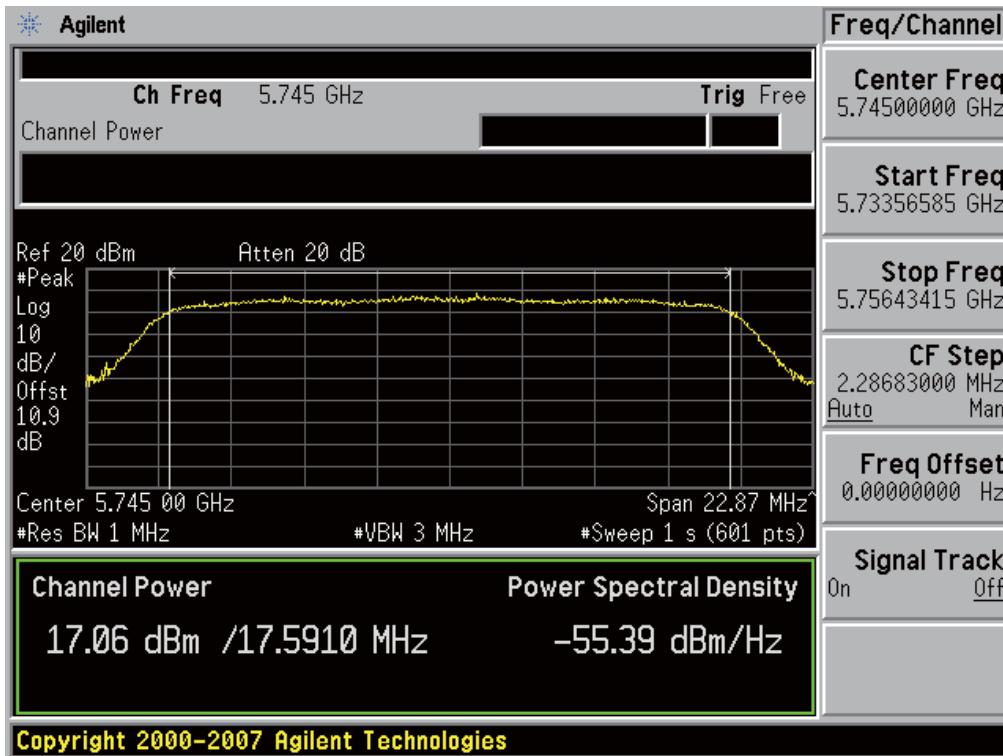
Conducted Output Power (802.11n-CH 149) 39 Mbps



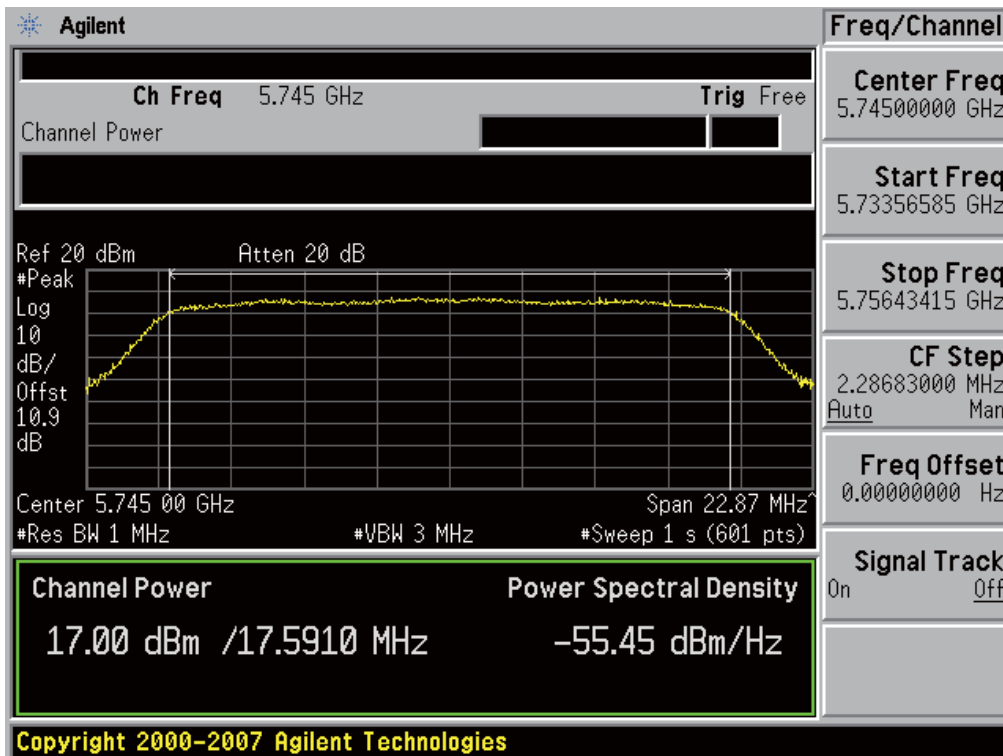
Conducted Output Power (802.11n-CH 149) 52 Mbps



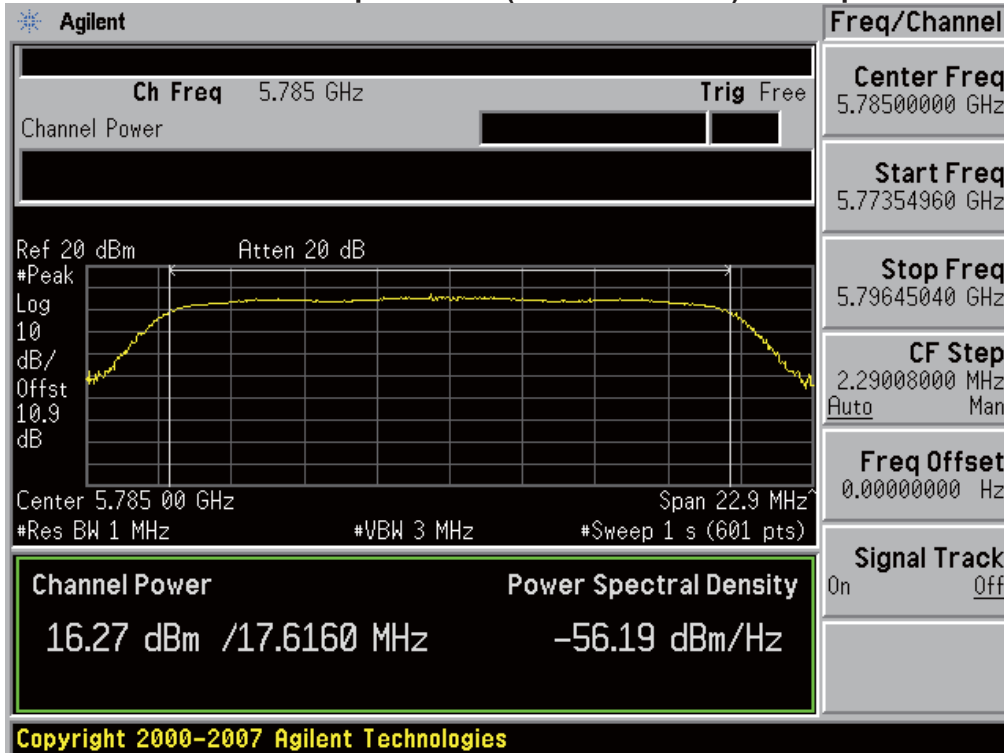
Conducted Output Power (802.11n-CH 149) 58.5 Mbps



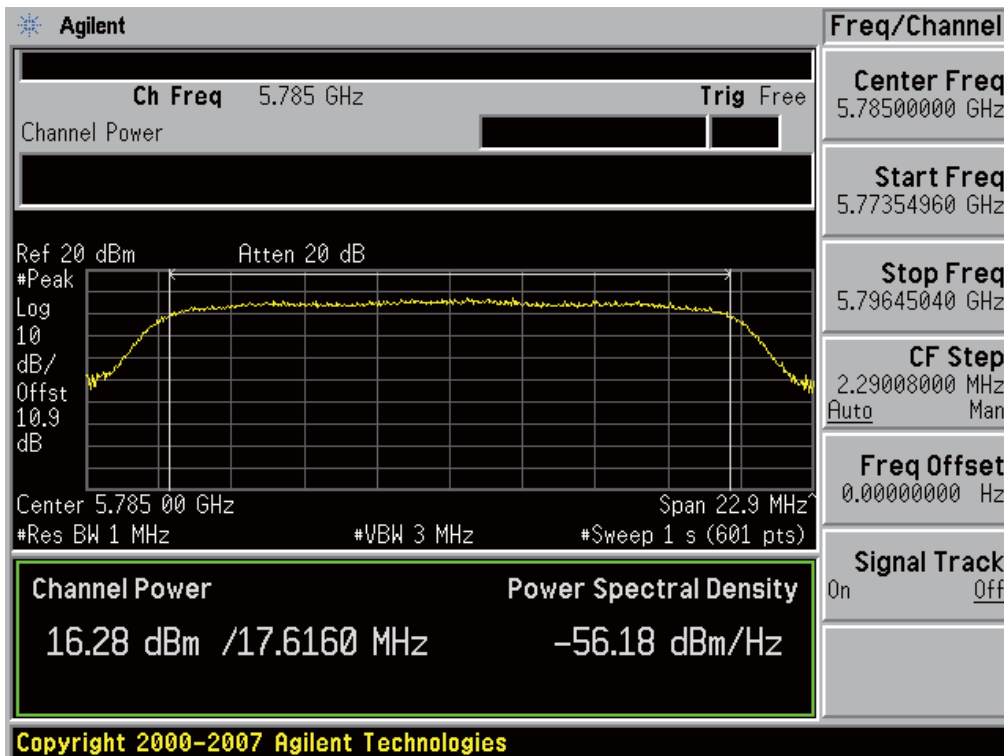
Conducted Output Power (802.11n-CH 149) 65 Mbps



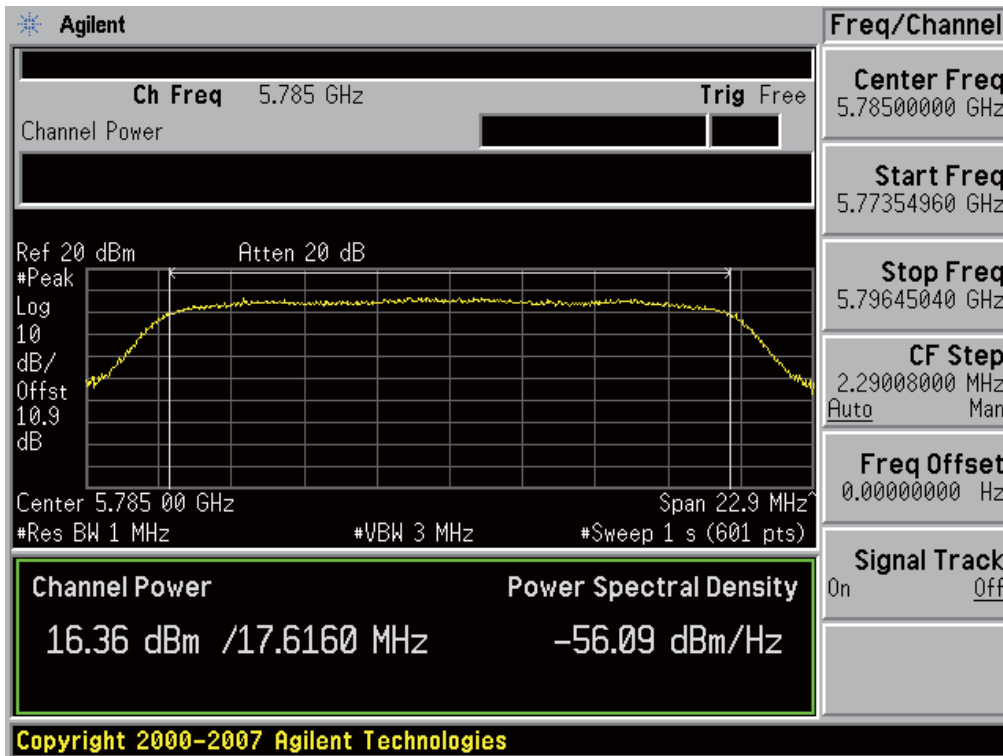
Conducted Output Power (802.11n-CH 157) 6.5 Mbps



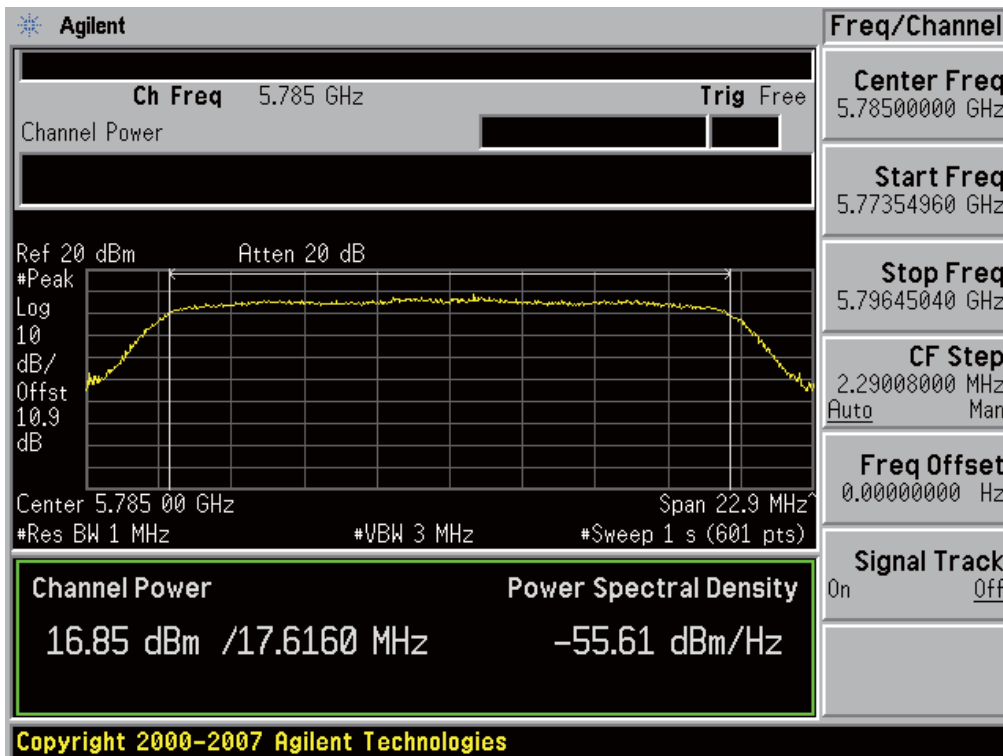
Conducted Output Power (802.11n-CH 157) 13 Mbps



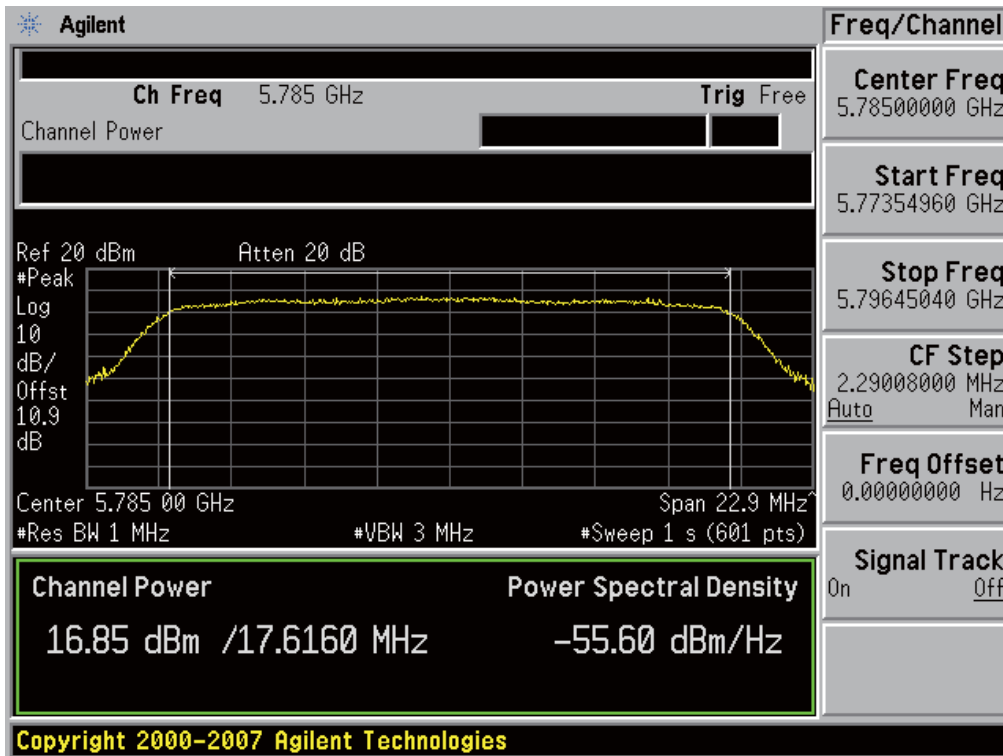
Conducted Output Power (802.11n-CH 157) 19.5 Mbps



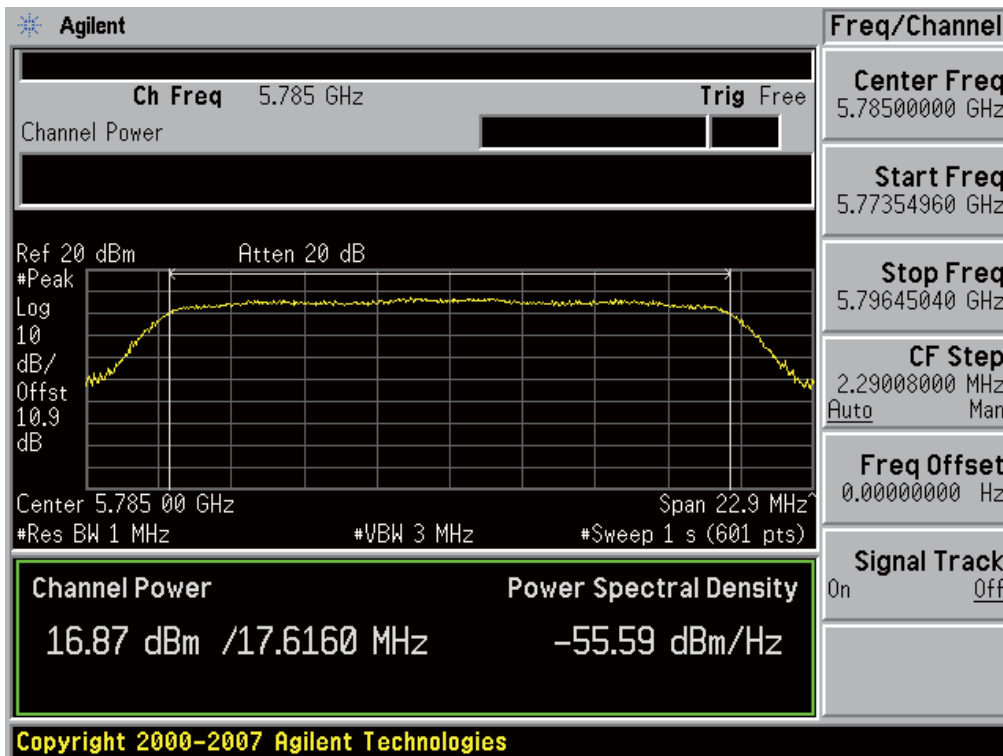
Conducted Output Power (802.11n-CH 157) 26 Mbps



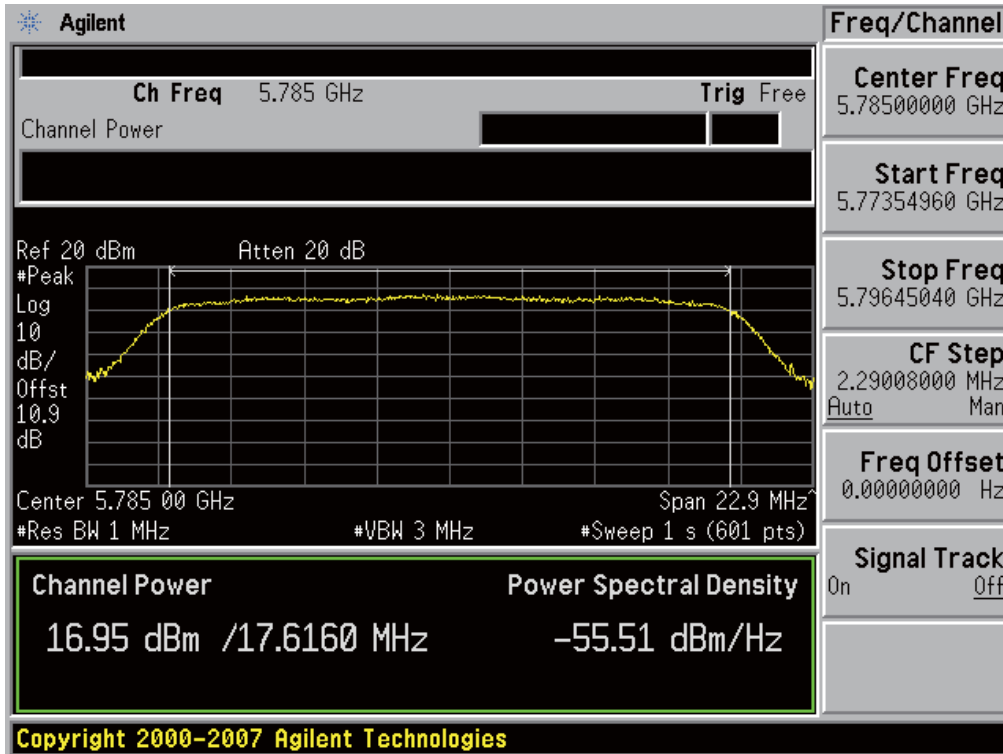
Conducted Output Power (802.11n-CH 157) 39 Mbps



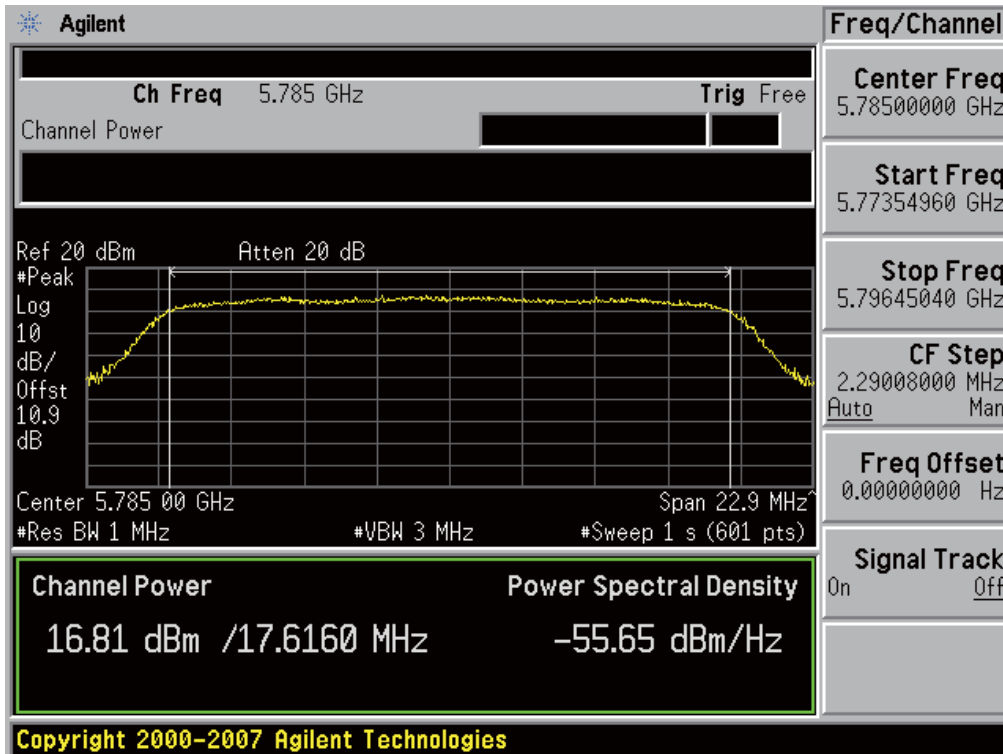
Conducted Output Power (802.11n-CH 157) 52 Mbps



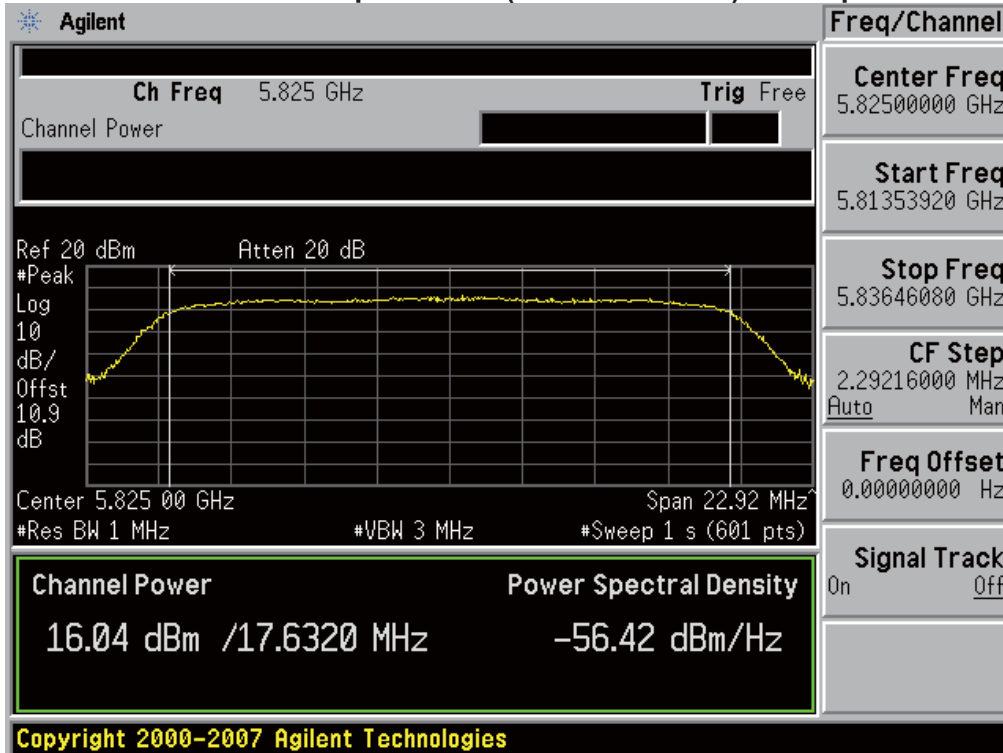
Conducted Output Power (802.11n-CH 157) 58.5 Mbps



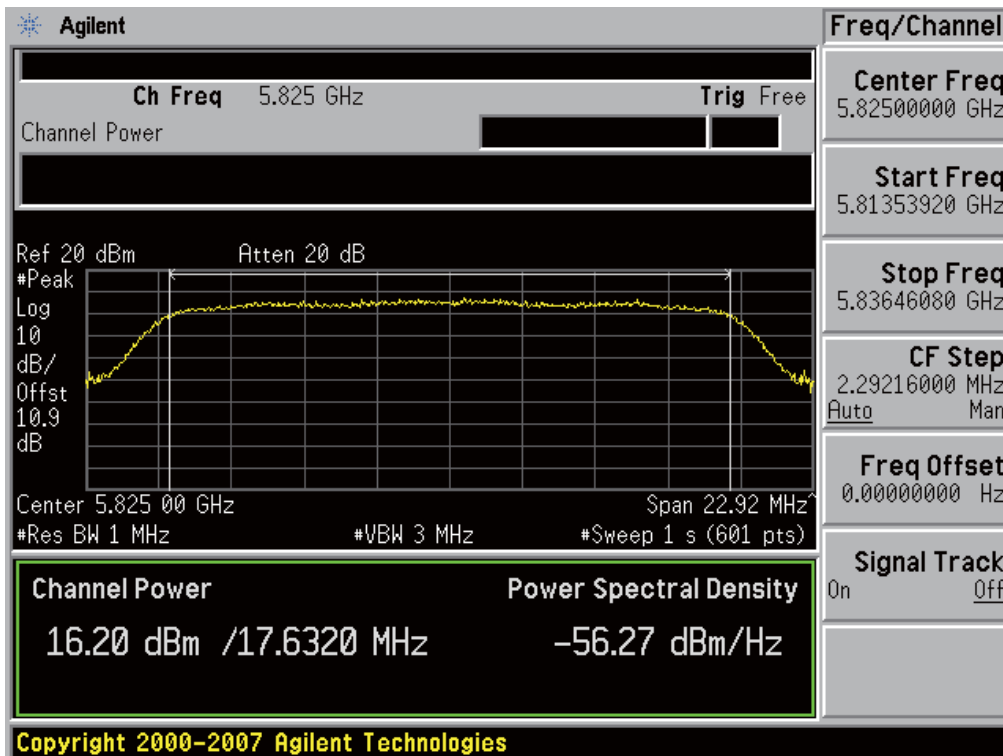
Conducted Output Power (802.11n-CH 157) 65 Mbps



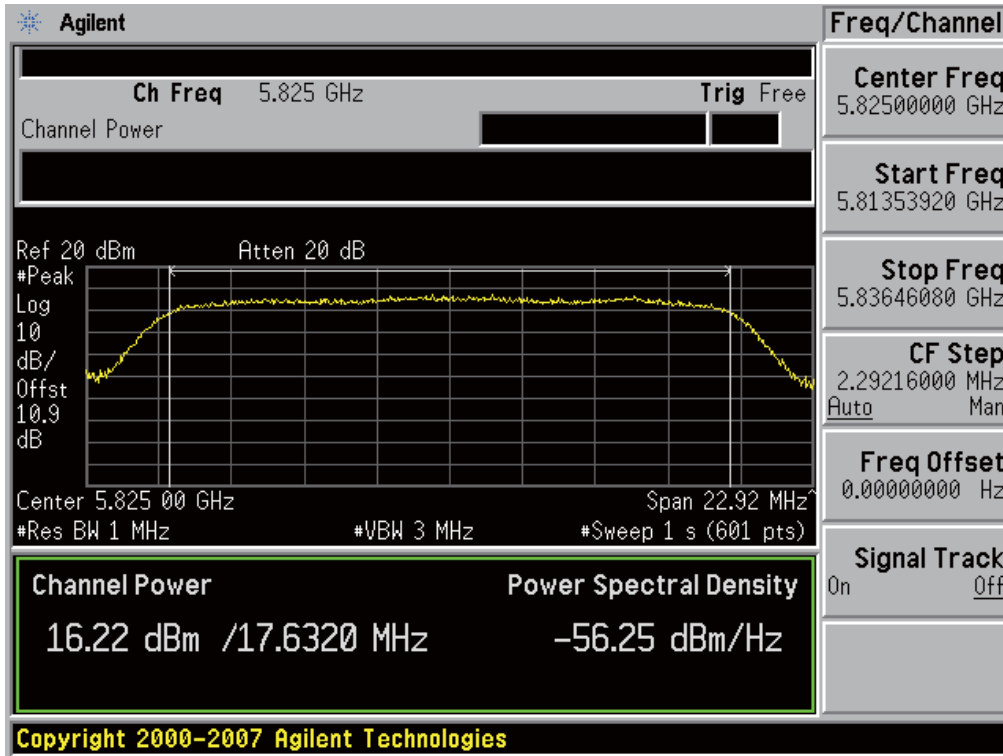
Conducted Output Power (802.11n-CH 165) 6.5 Mbps



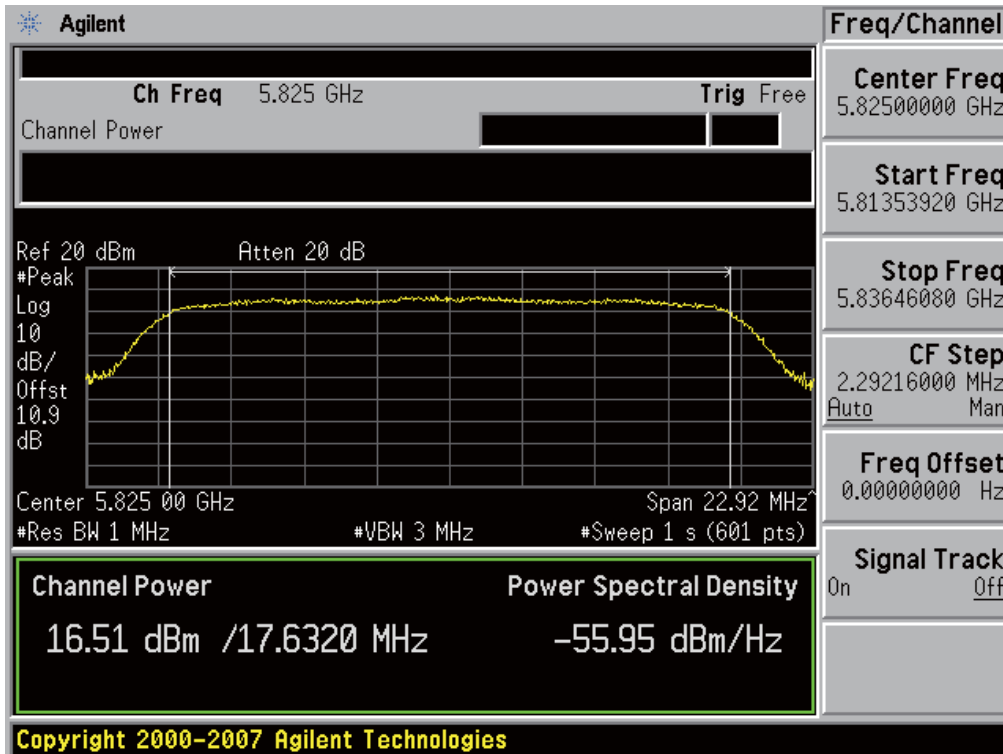
Conducted Output Power (802.11n-CH 165) 13 Mbps



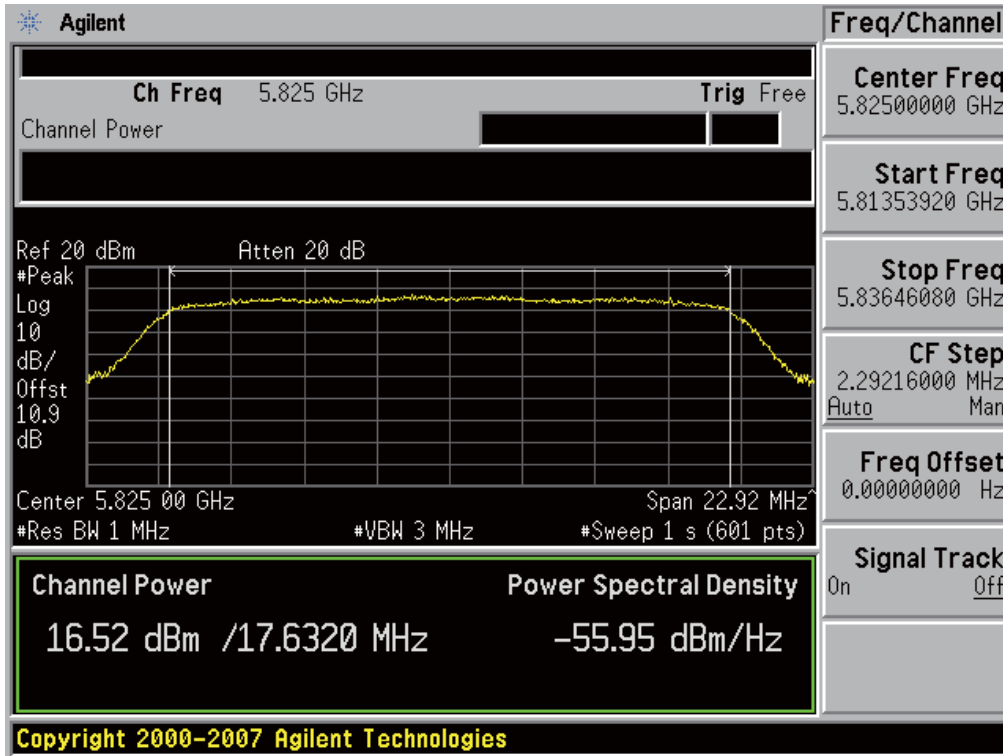
Conducted Output Power (802.11n-CH 165) 19.5 Mbps



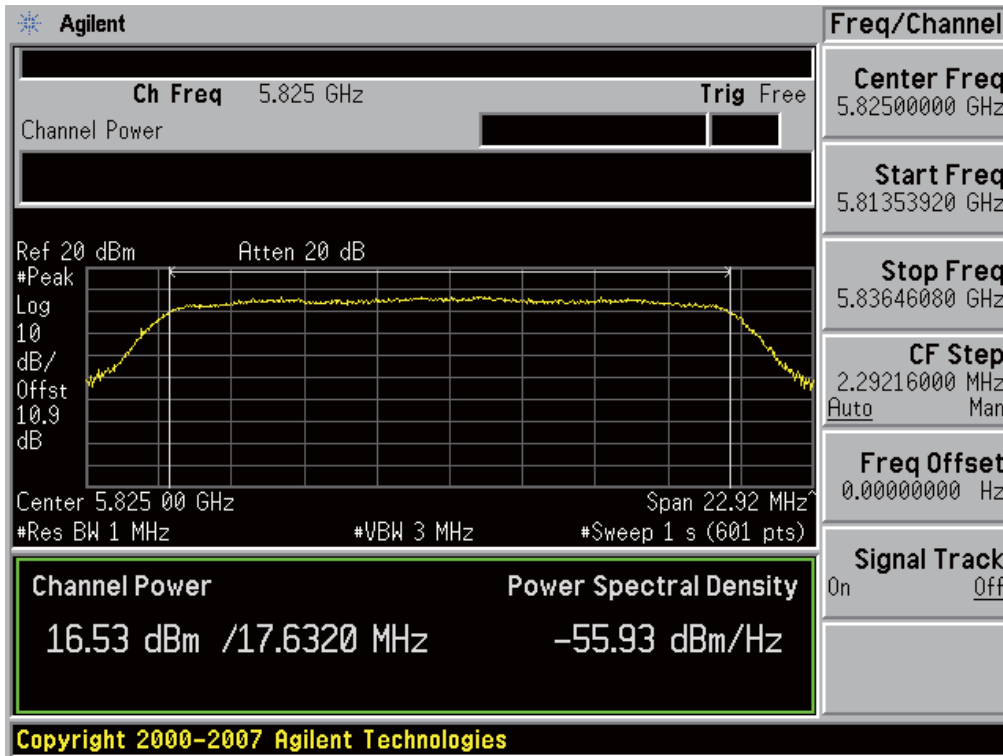
Conducted Output Power (802.11n-CH 165) 26 Mbps



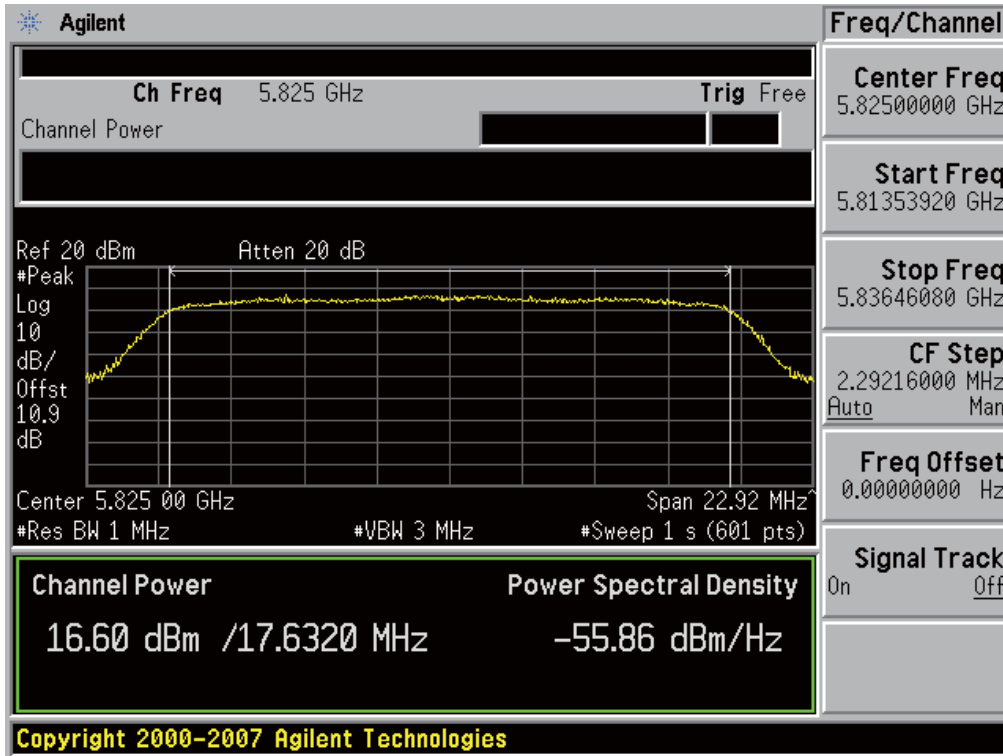
Conducted Output Power (802.11n-CH 165) 39 Mbps



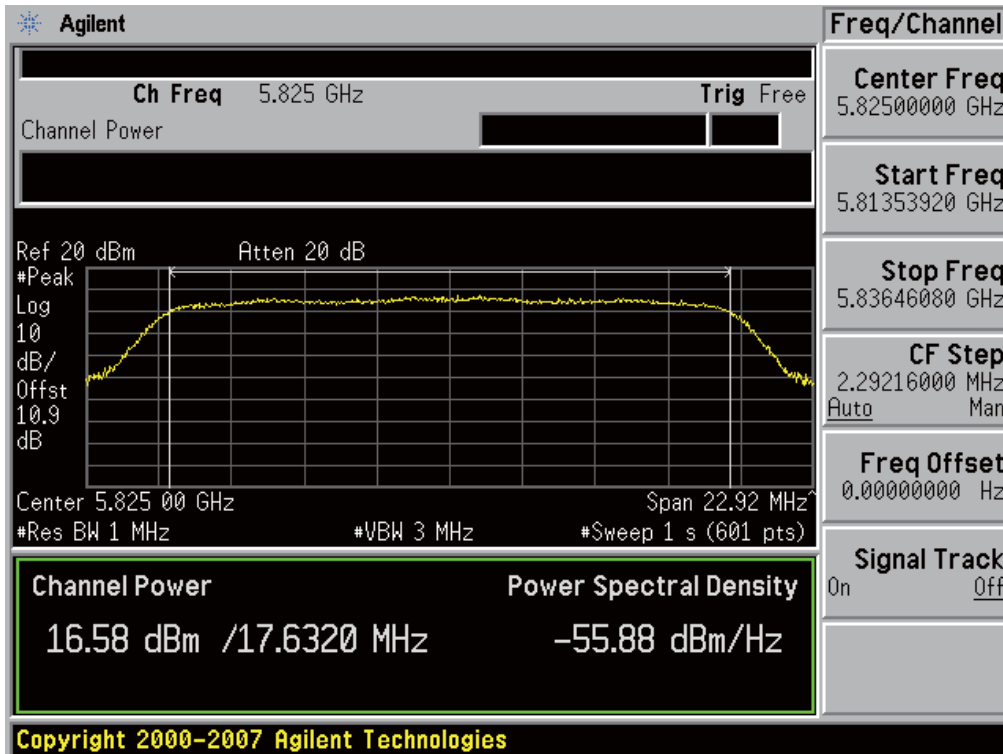
Conducted Output Power (802.11n-CH 165) 52 Mbps



Conducted Output Power (802.11n-CH 165) 58.5 Mbps

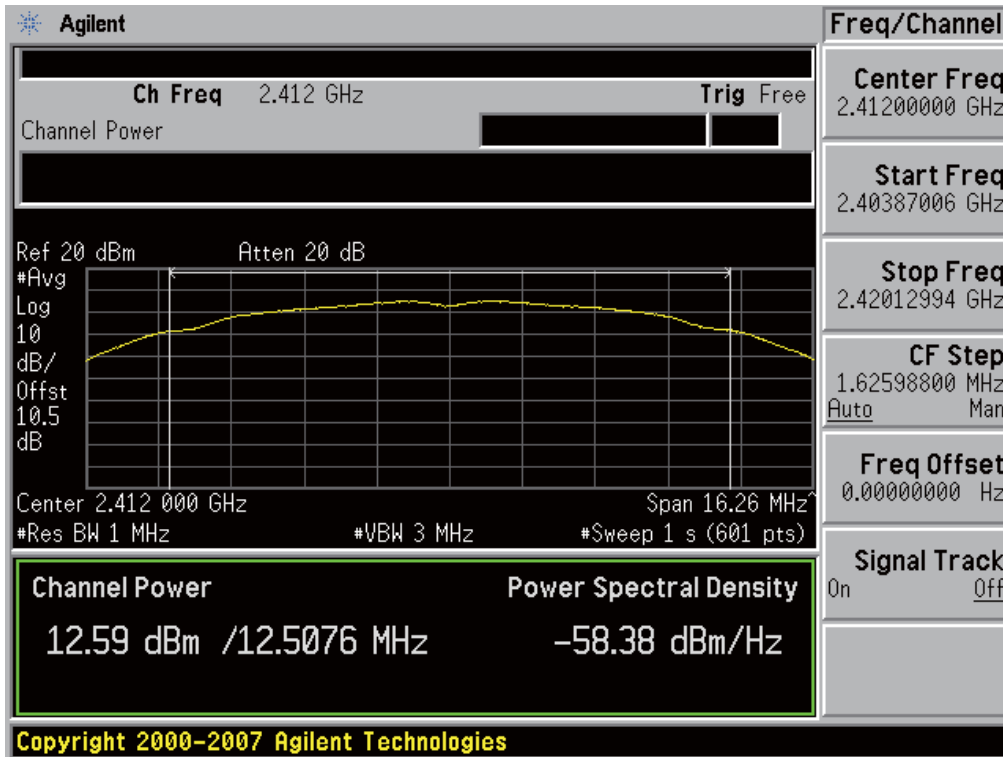


Conducted Output Power (802.11n-CH 165) 65 Mbps

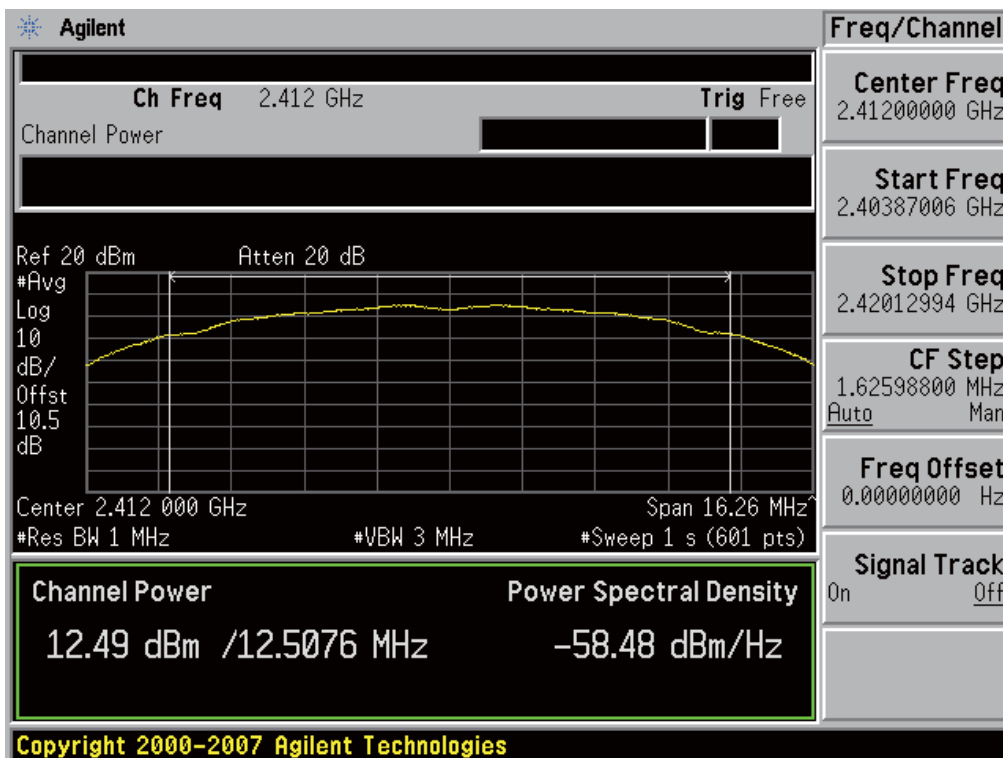


RESULT PLOTS-Average

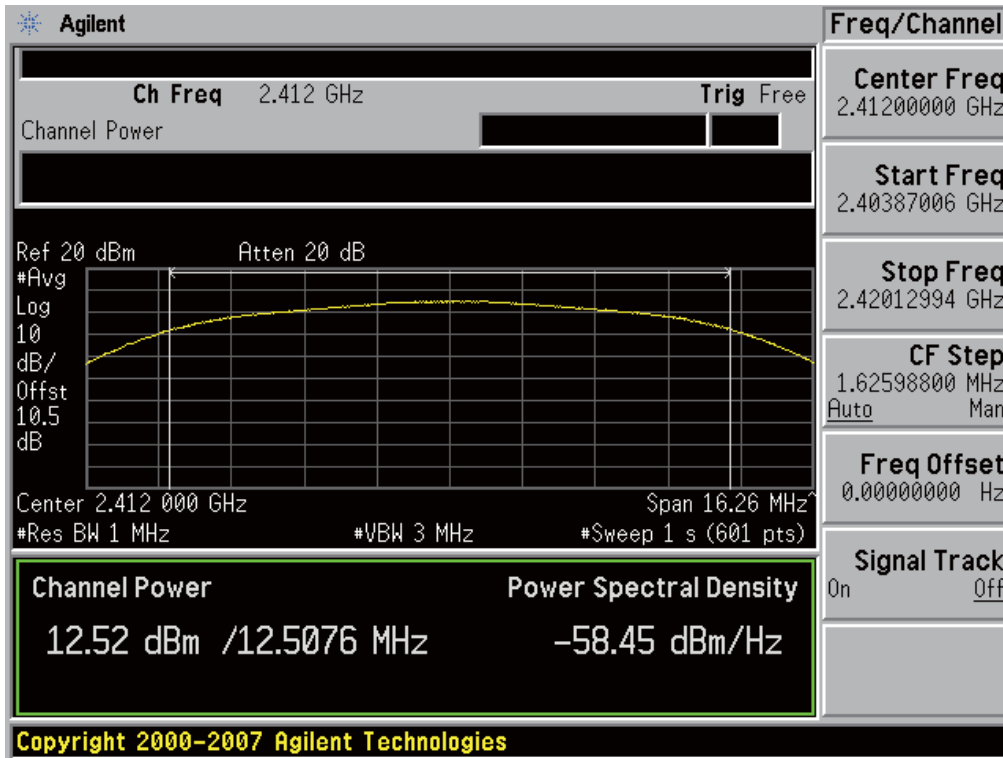
Conducted Output Power (802.11b-CH 1) 1Mbps



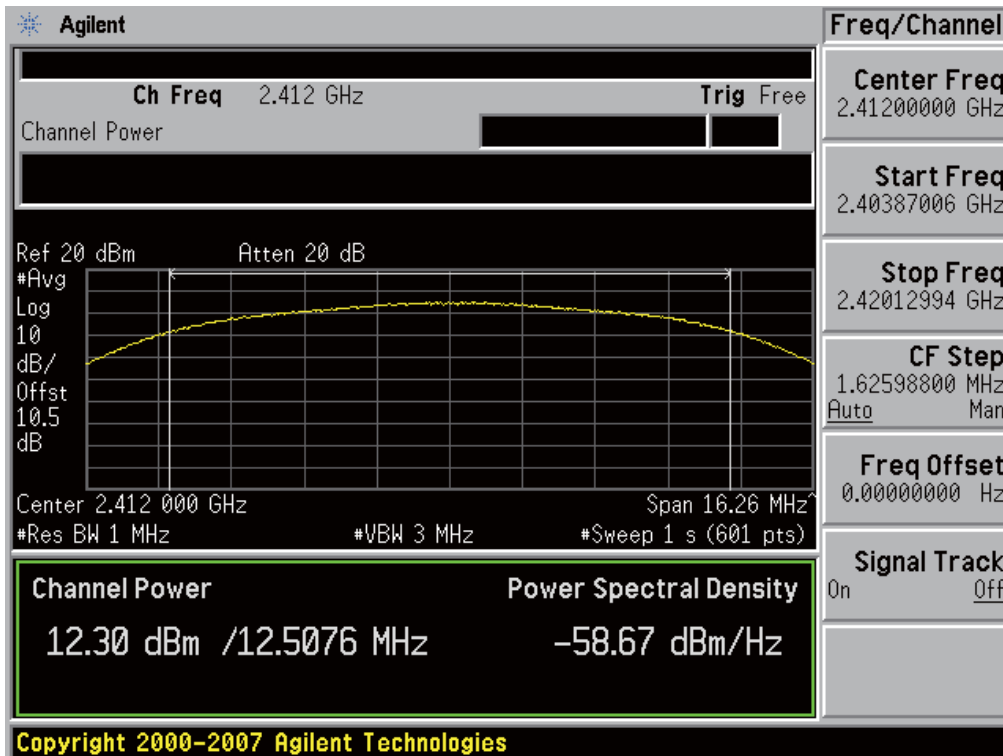
Conducted Output Power (802.11b-CH 1) 2Mbps



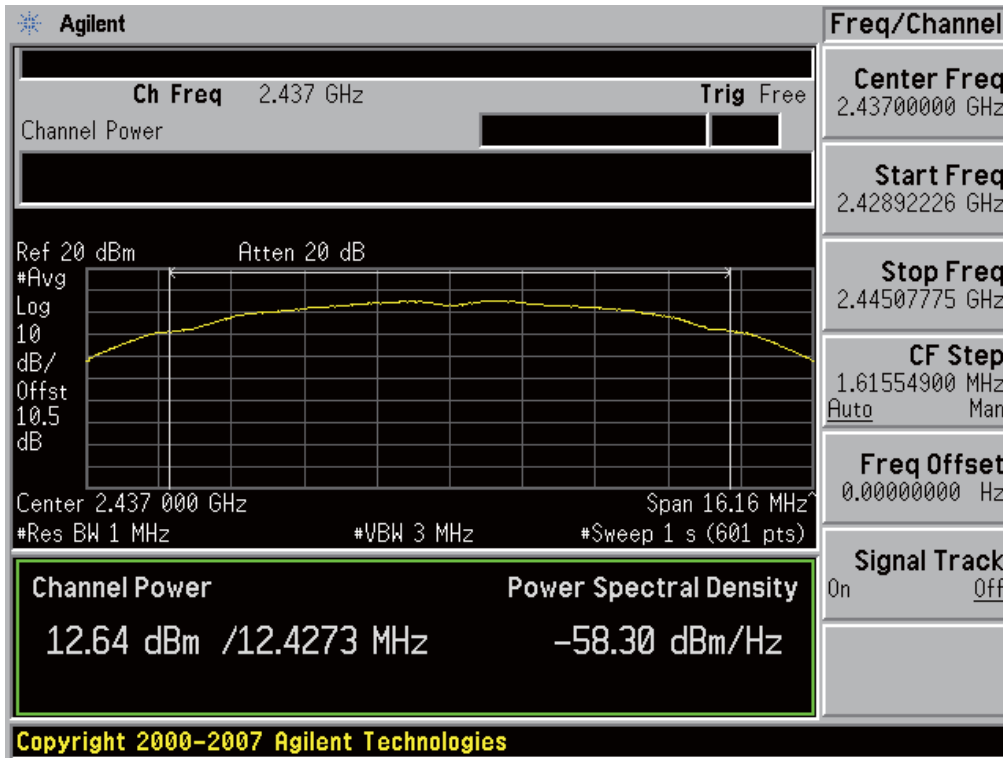
Conducted Output Power (802.11b-CH 1) 5.5Mbps



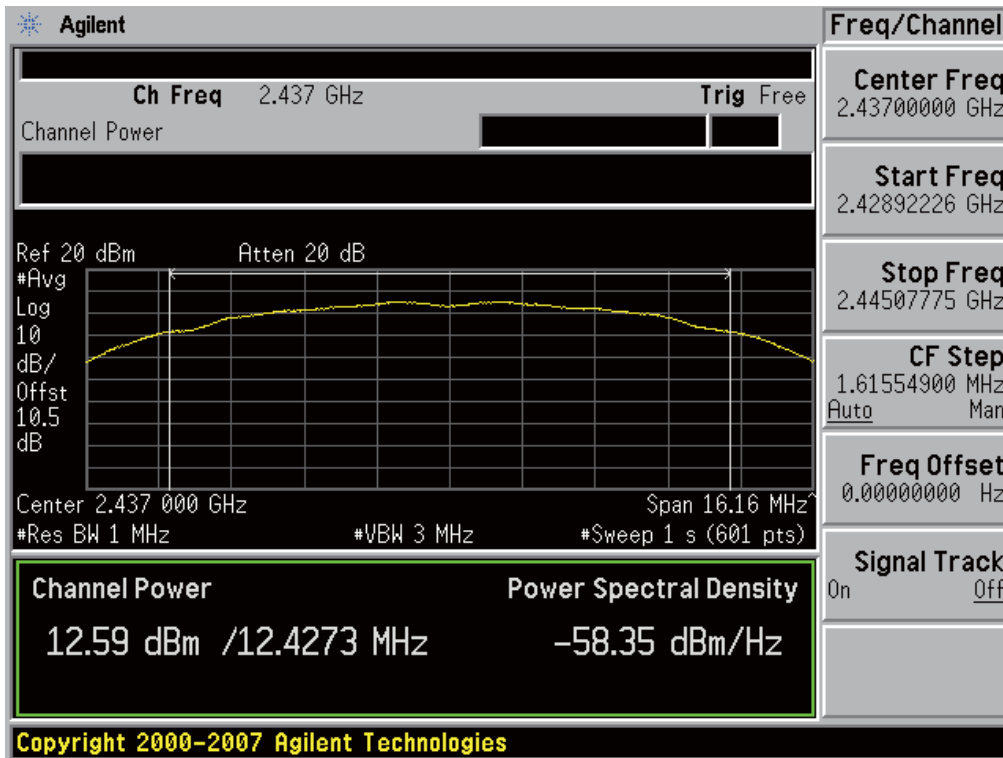
Conducted Output Power (802.11b-CH 1) 11Mbps



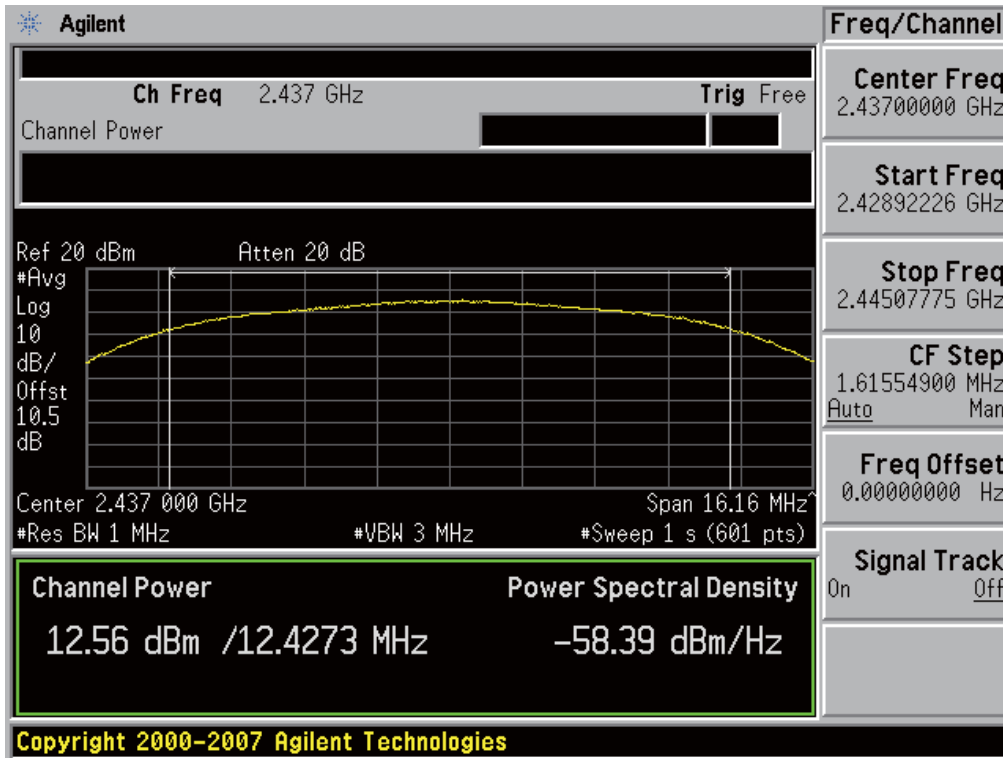
Conducted Output Power (802.11b-CH 6) 1Mbps



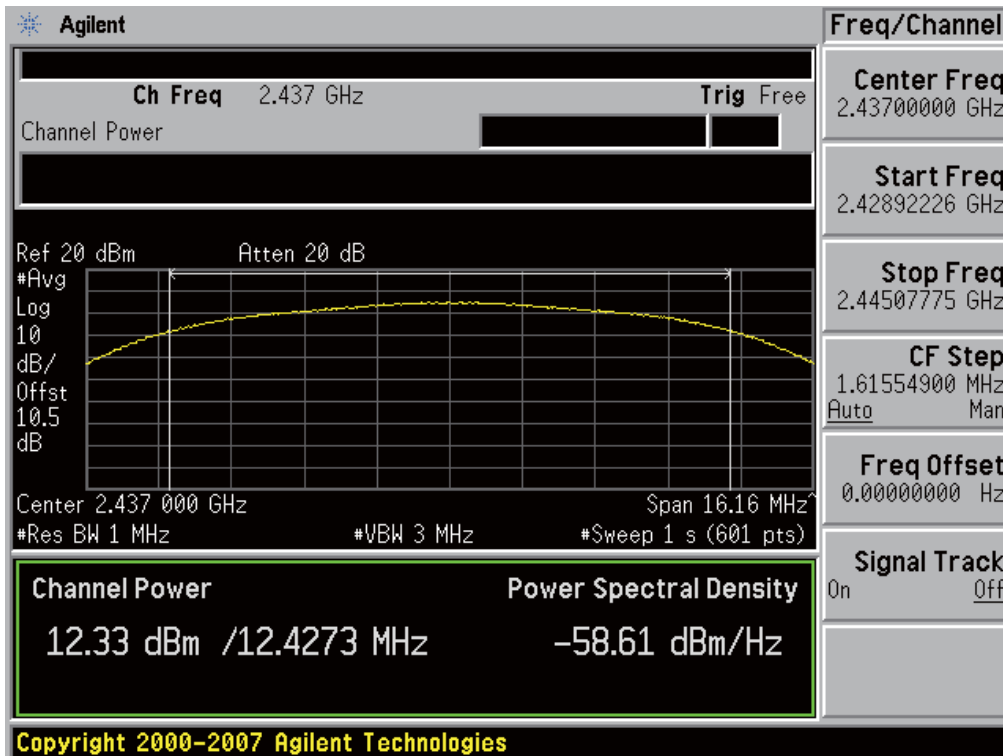
Conducted Output Power (802.11b-CH 6) 2Mbps



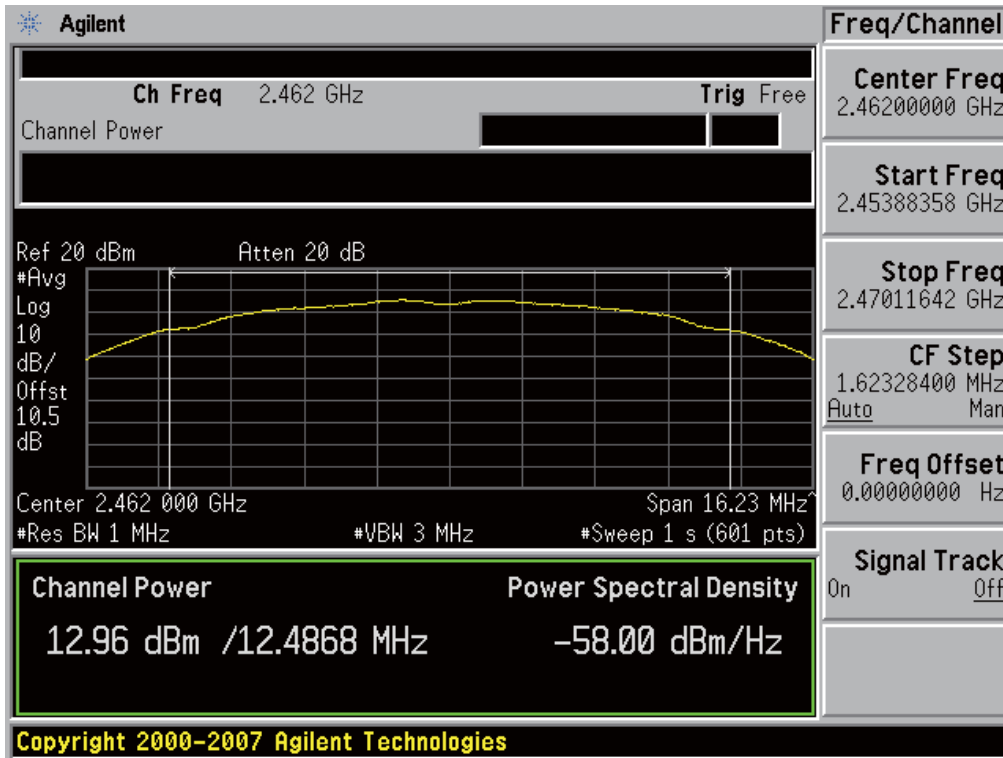
Conducted Output Power (802.11b-CH 6) 5.5Mbps



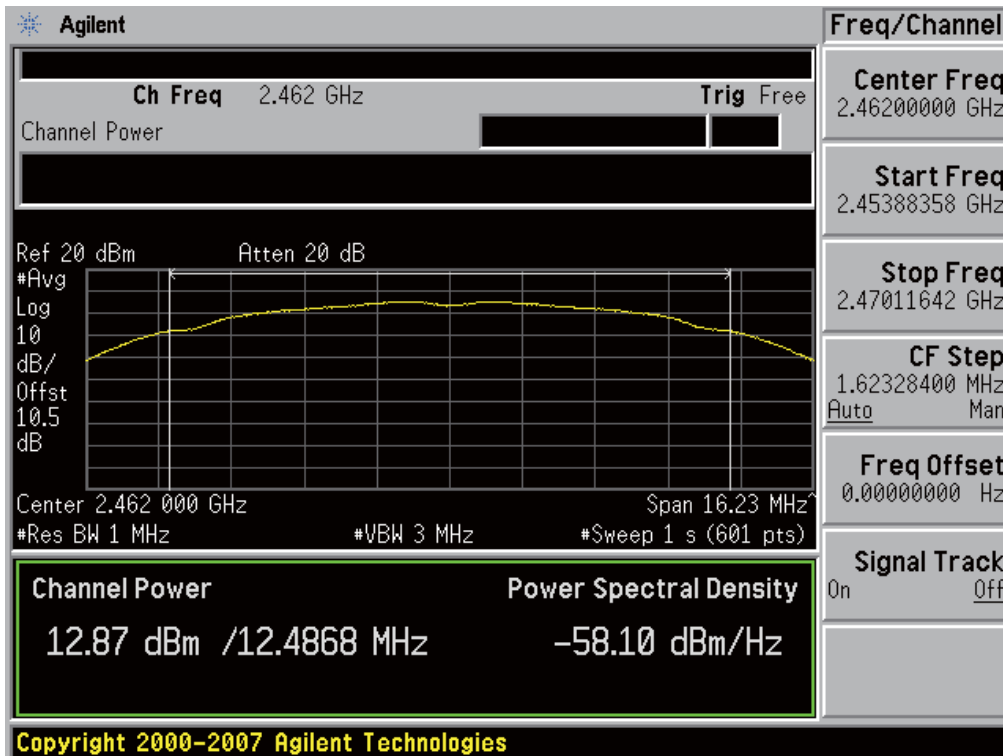
Conducted Output Power (802.11b-CH 6) 11Mbps



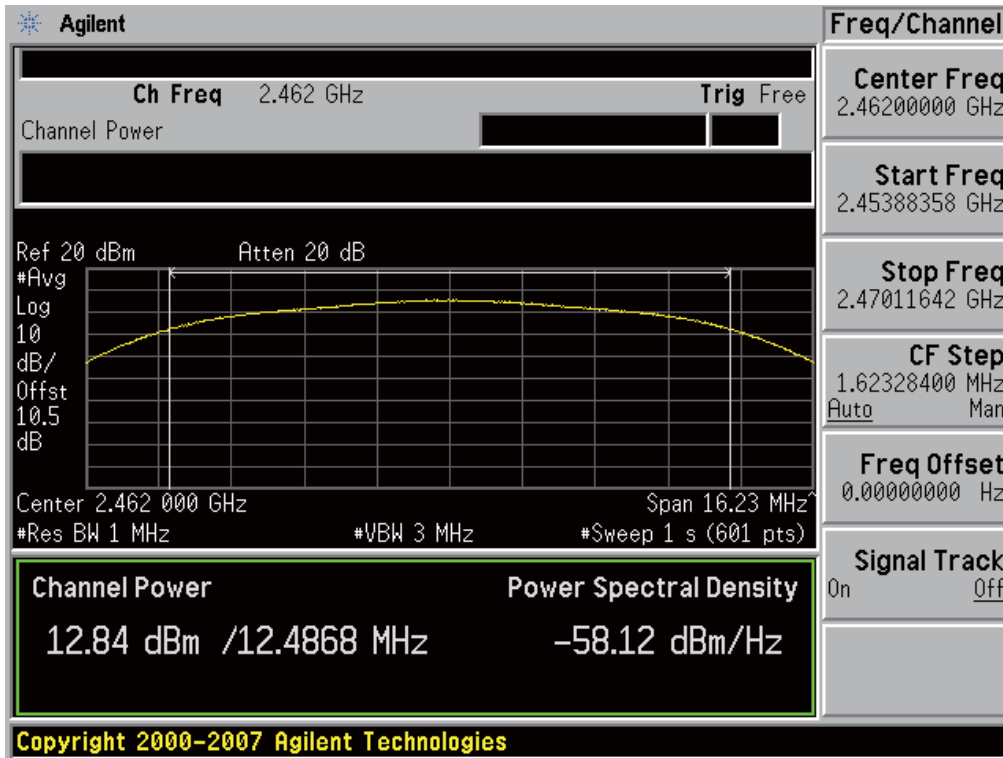
Conducted Output Power (802.11b-CH 11) 1Mbps



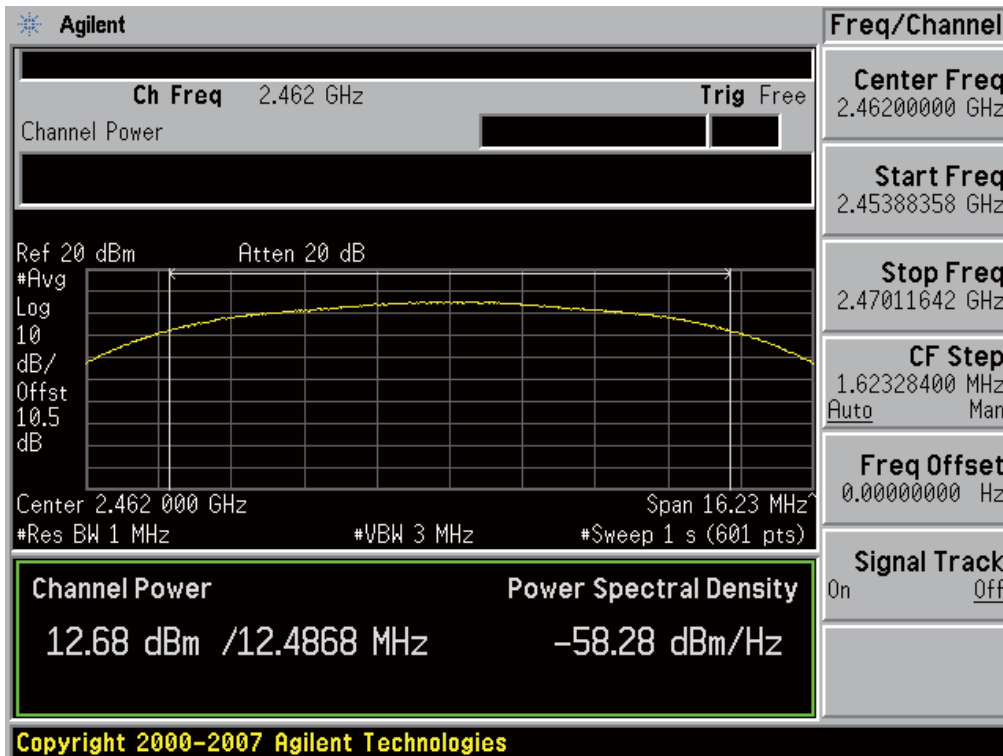
Conducted Output Power (802.11b-CH 11) 2Mbps



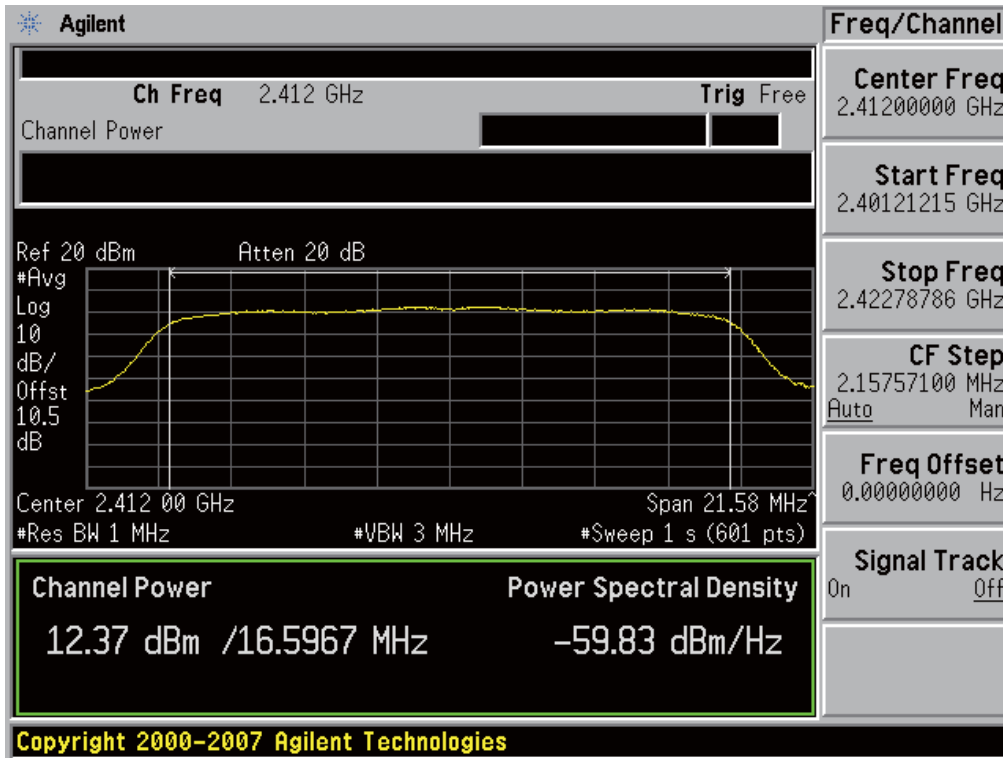
Conducted Output Power (802.11b-CH 11) 5.5Mbps



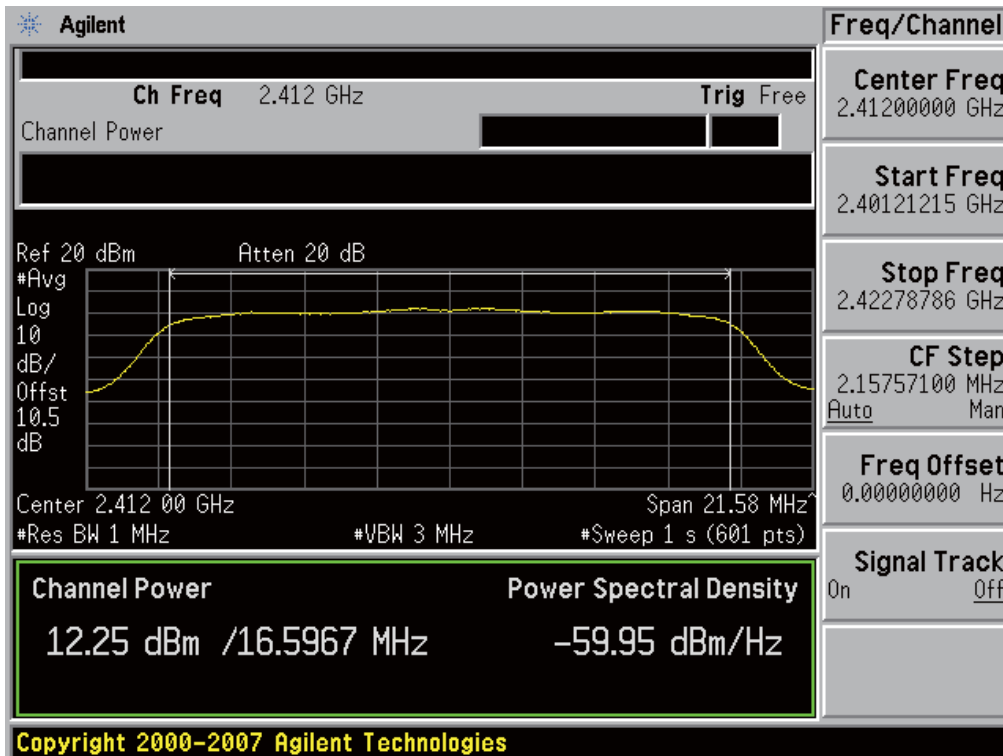
Conducted Output Power (802.11b-CH 11) 11Mbps



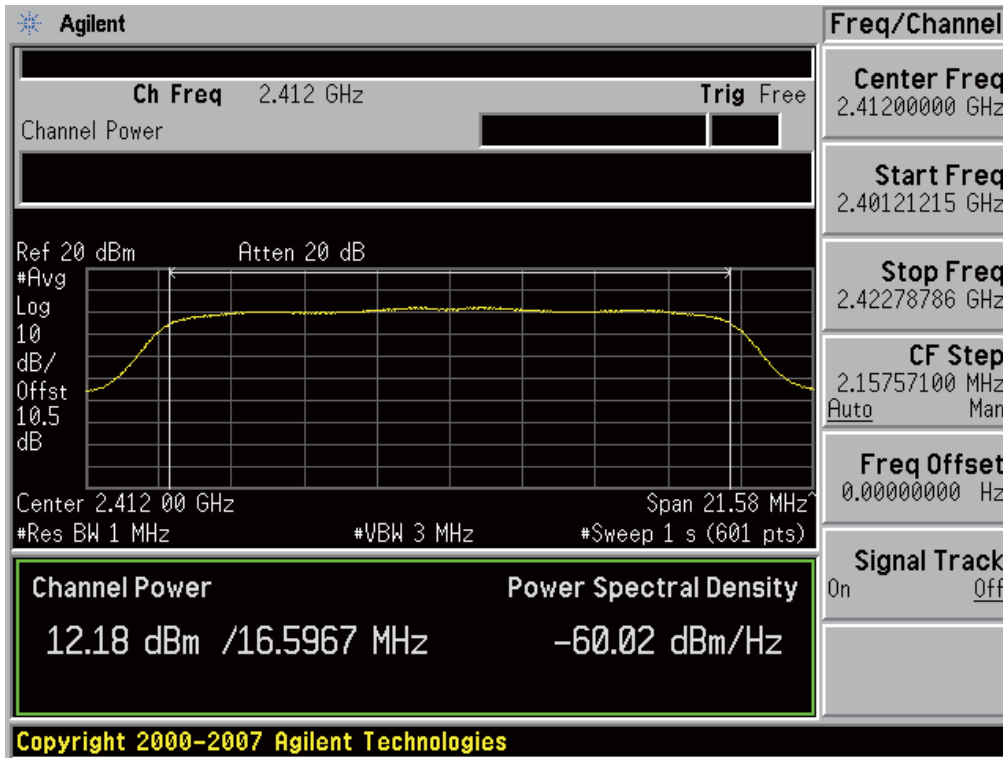
Conducted Output Power (802.11g-CH 1) 6Mbps



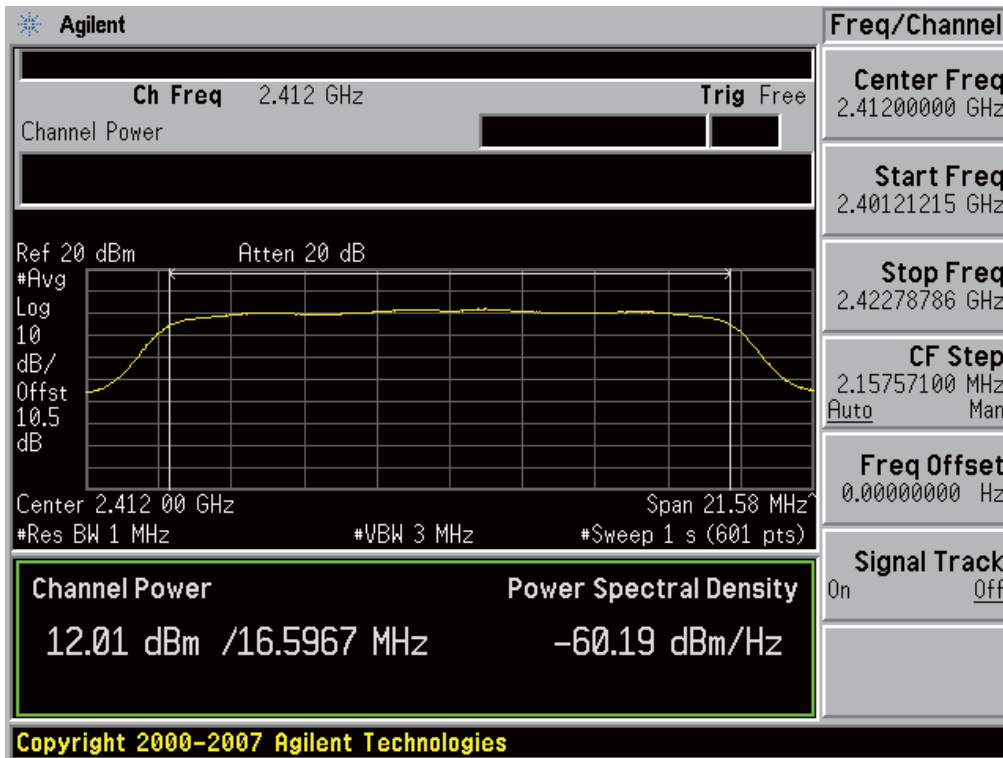
Conducted Output Power (802.11g-CH 1) 9Mbps



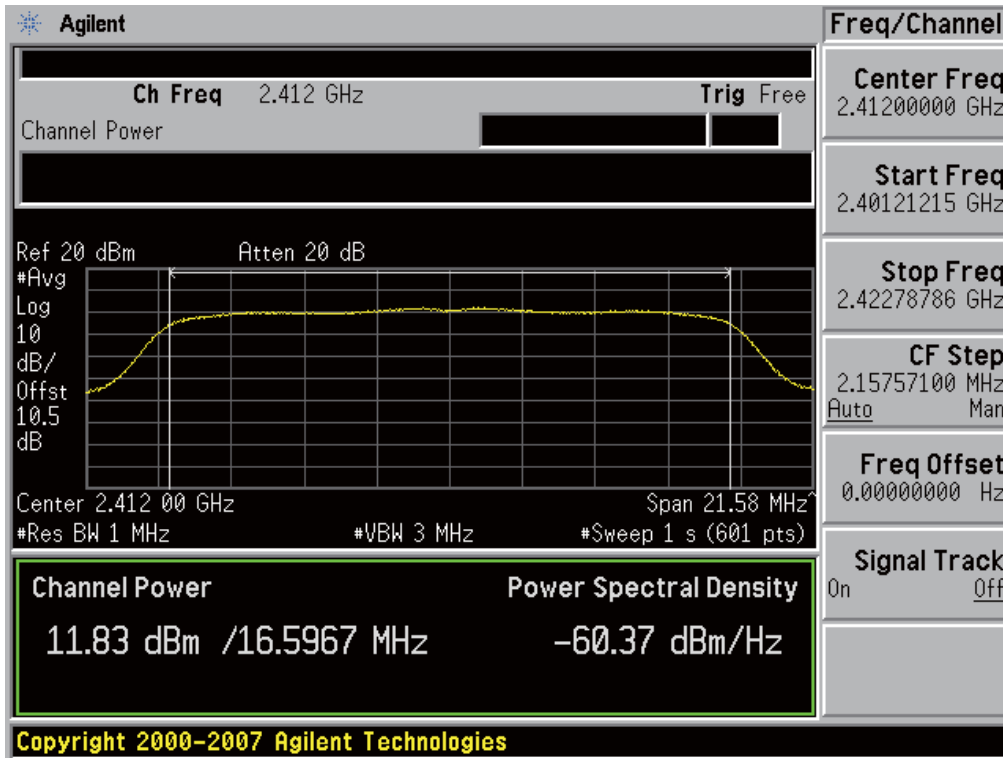
Conducted Output Power (802.11g-CH 1) 12Mbps



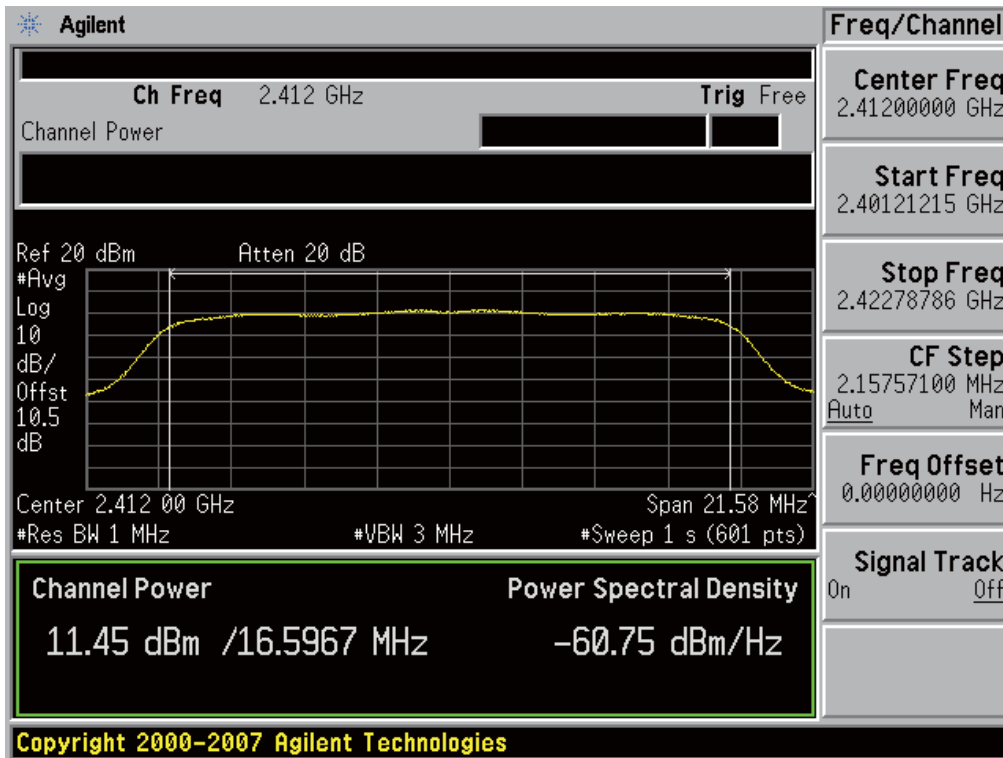
Conducted Output Power (802.11g-CH 1) 18Mbps



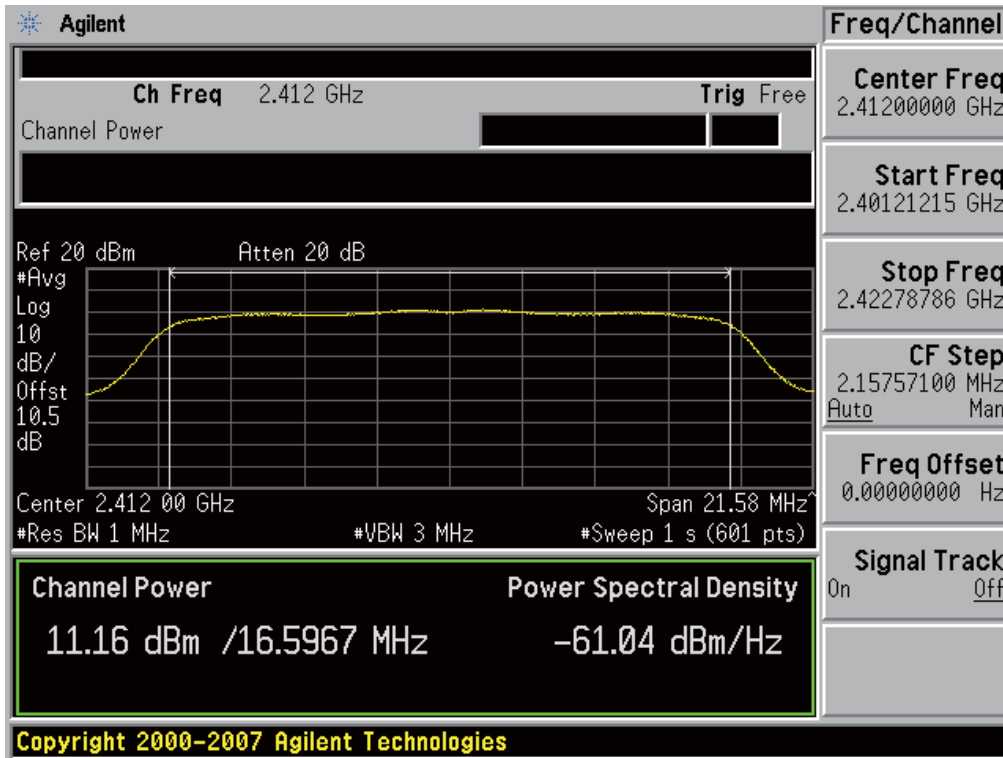
Conducted Output Power (802.11g-CH 1) 24Mbps



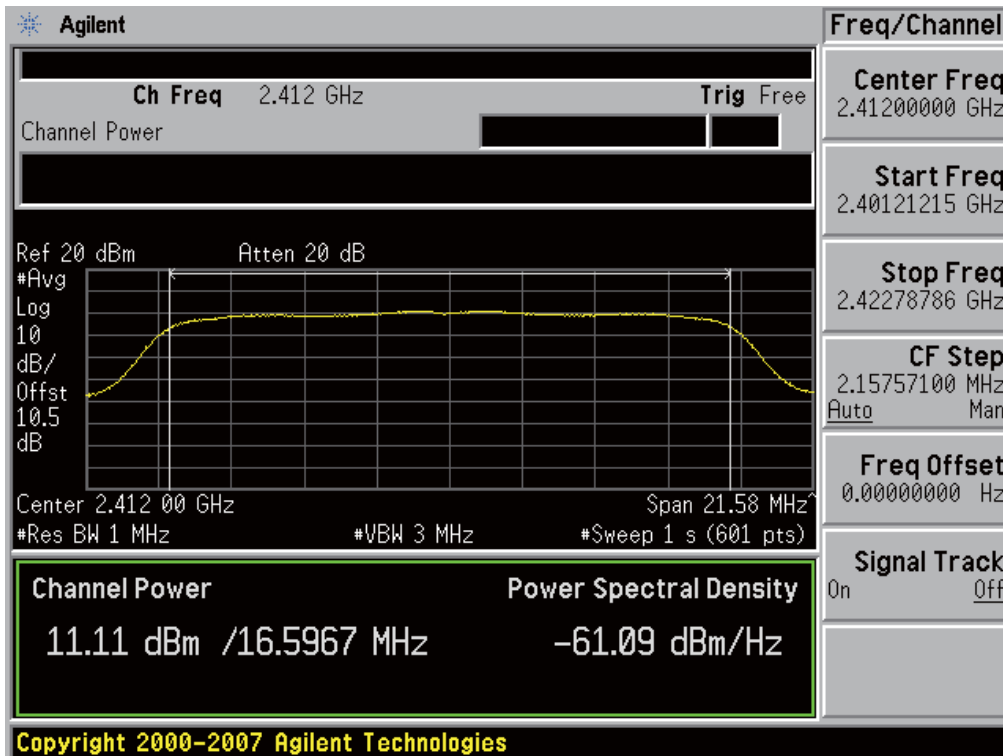
Conducted Output Power (802.11g-CH 1) 36Mbps



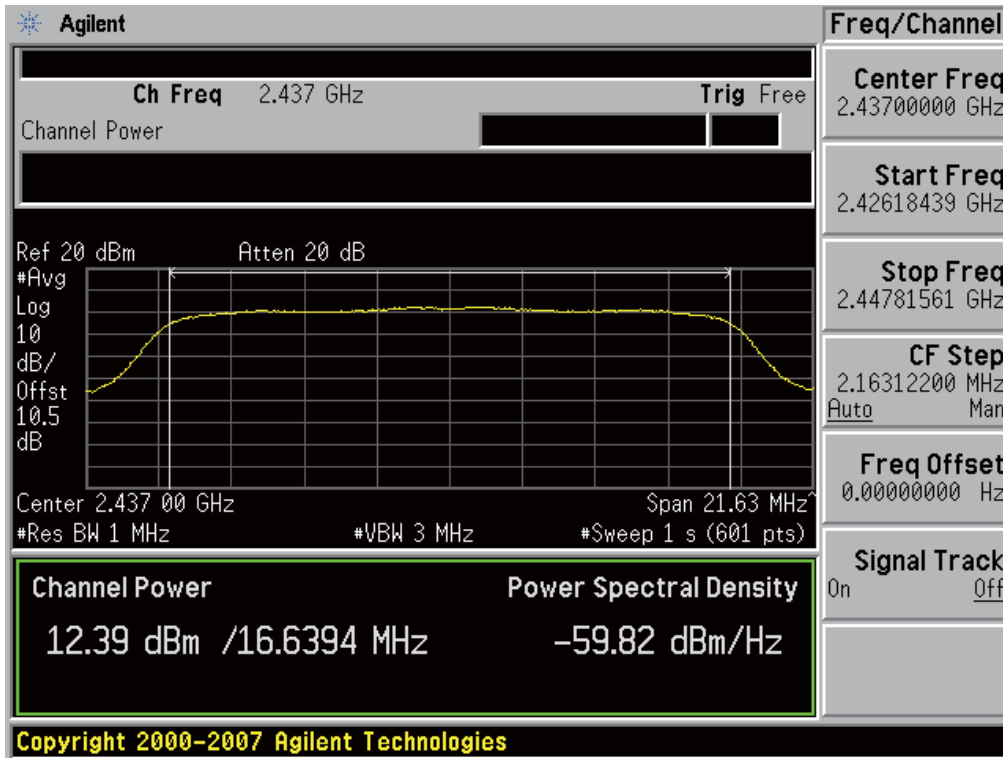
Conducted Output Power (802.11g-CH 1) 48Mbps



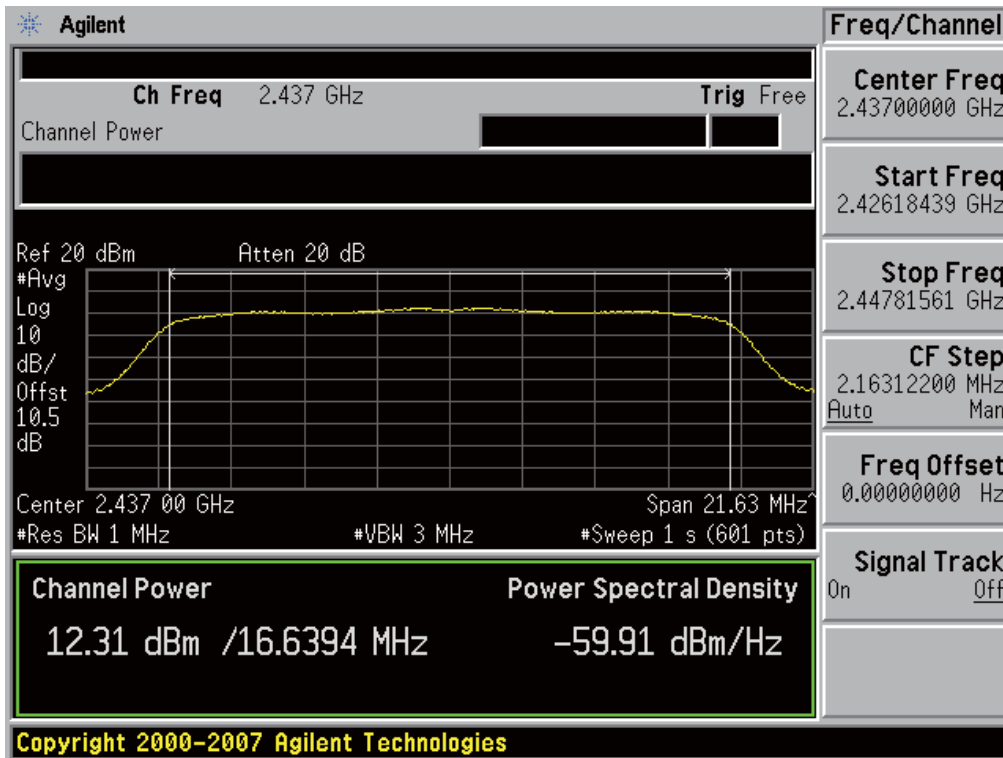
Conducted Output Power (802.11g-CH 1) 54Mbps



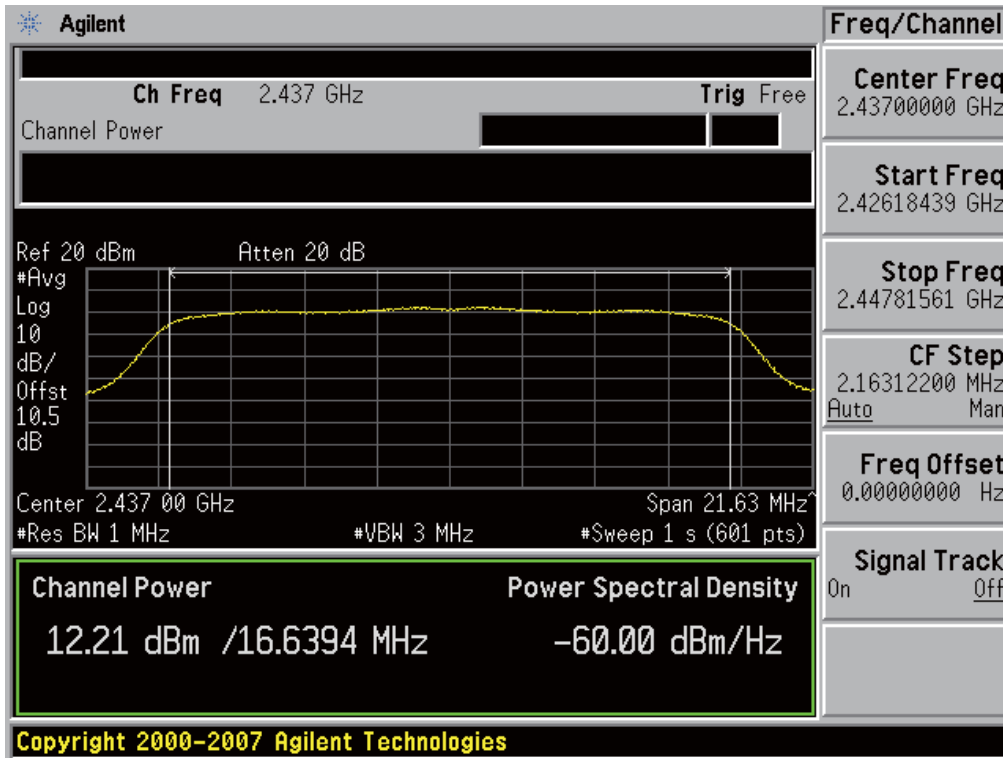
Conducted Output Power (802.11g-CH 6) 6Mbps



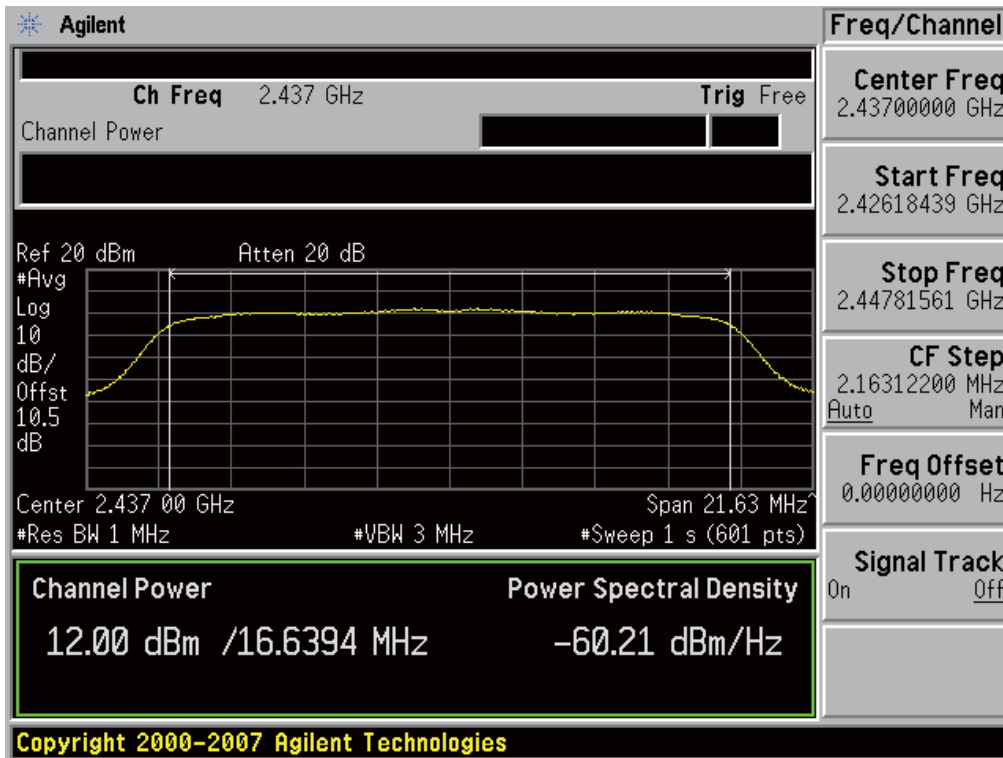
Conducted Output Power (802.11g-CH 6) 9Mbps



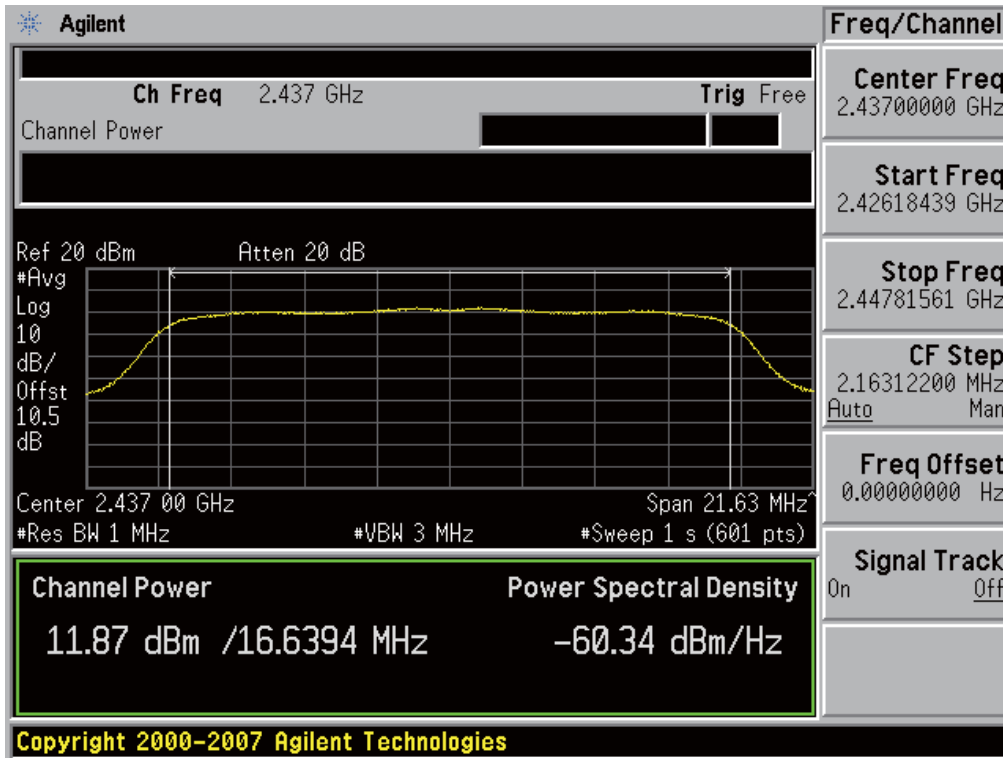
Conducted Output Power (802.11g-CH 6) 12Mbps



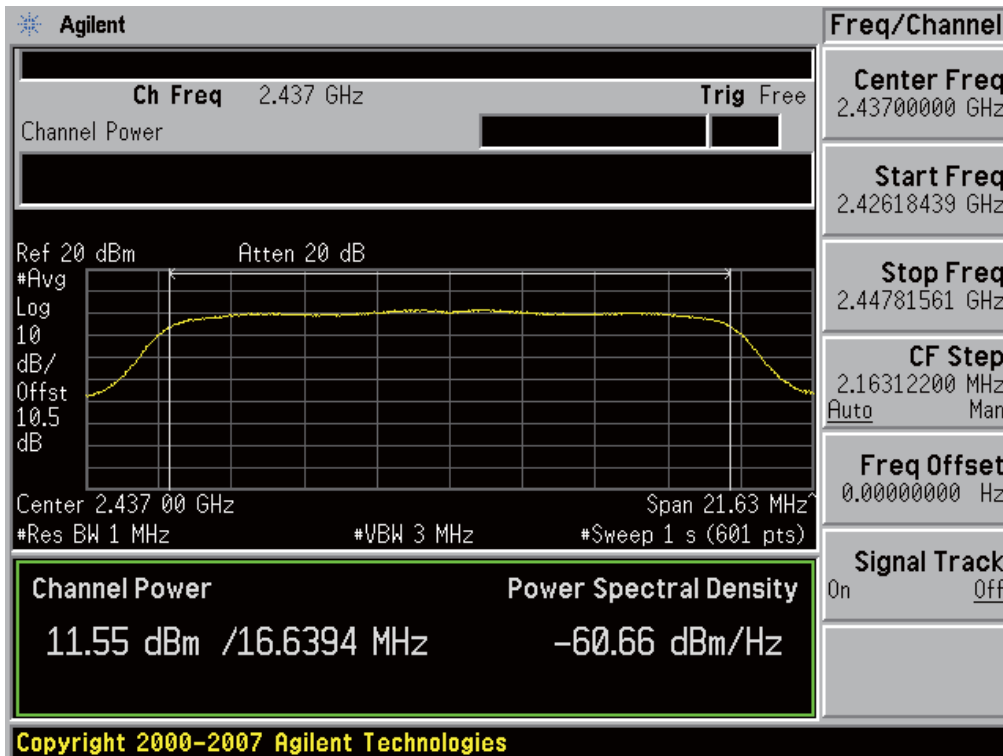
Conducted Output Power (802.11g-CH 6) 18Mbps



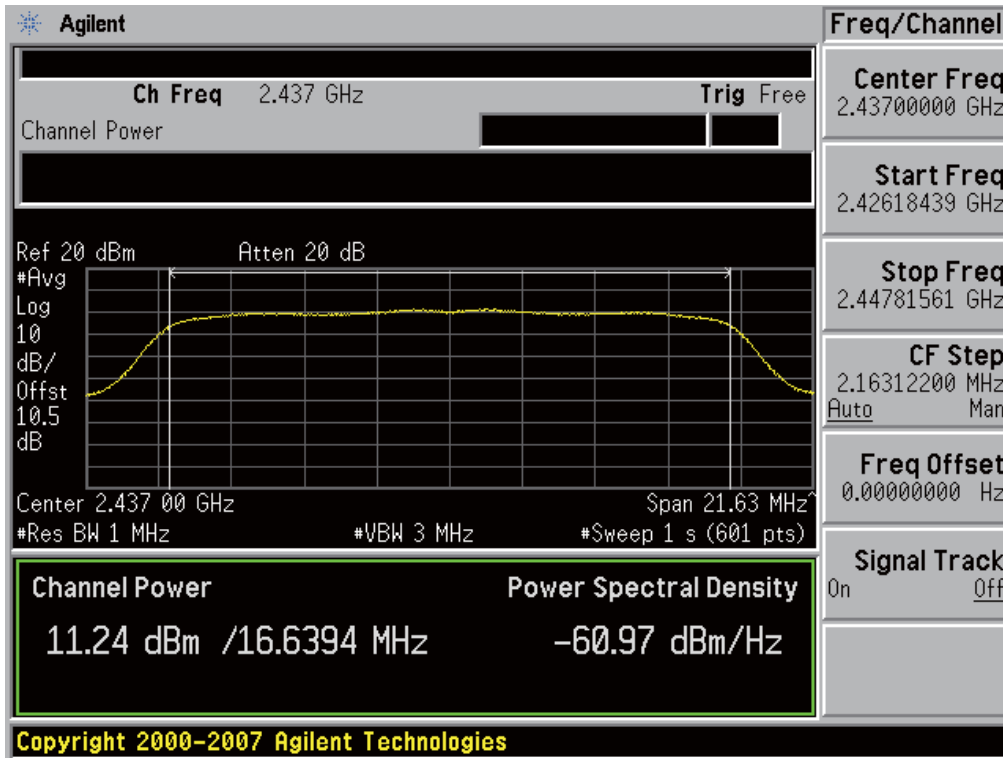
Conducted Output Power (802.11g-CH 6) 24Mbps



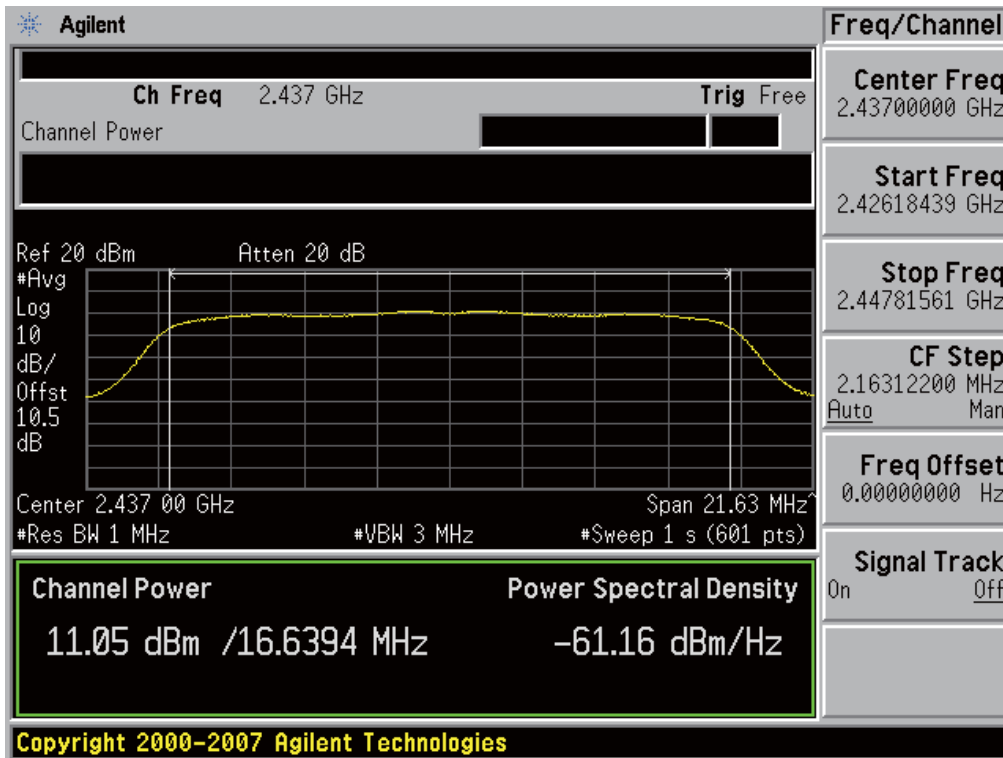
Conducted Output Power (802.11g-CH 6) 36Mbps



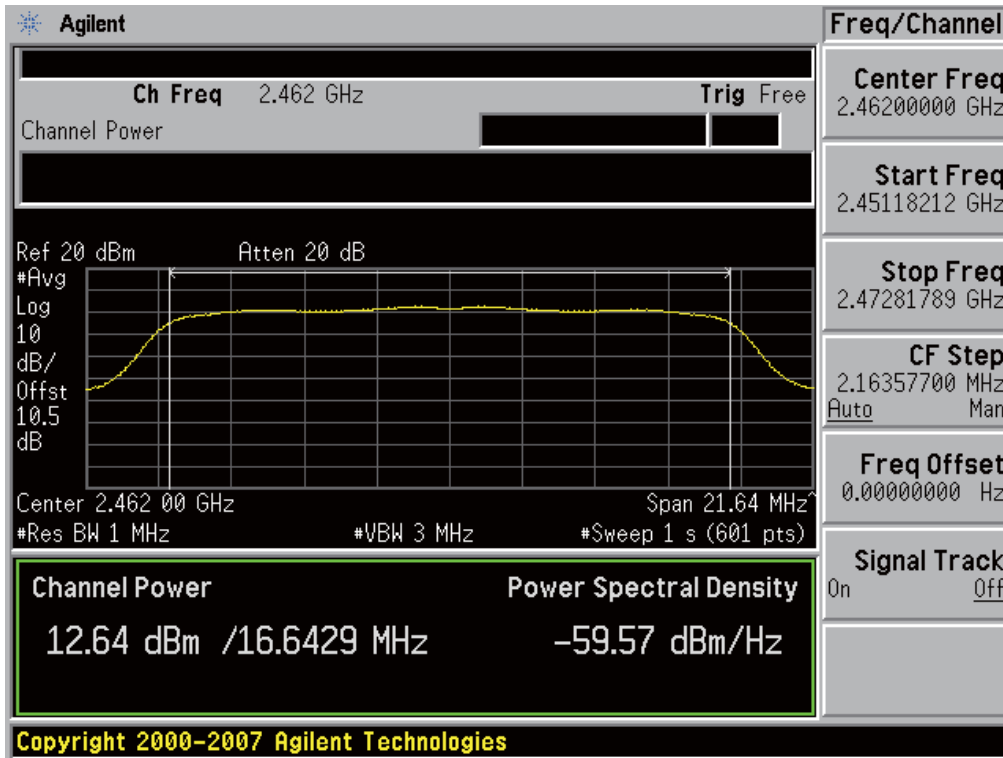
Conducted Output Power (802.11g-CH 6) 48Mbps



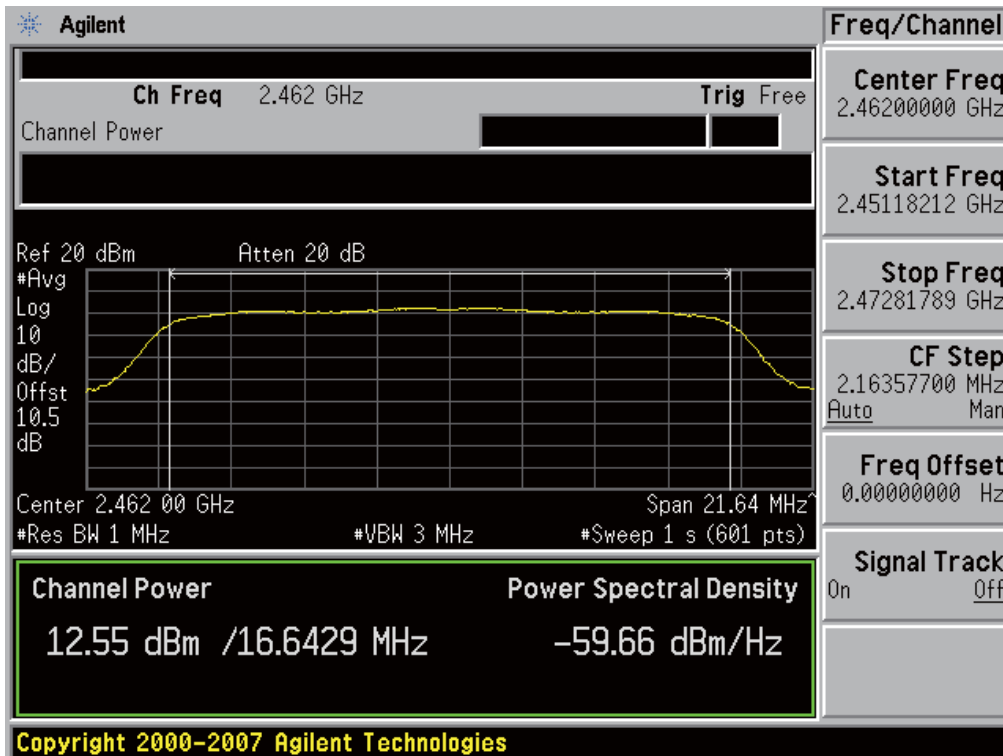
Conducted Output Power (802.11g-CH 6) 54Mbps



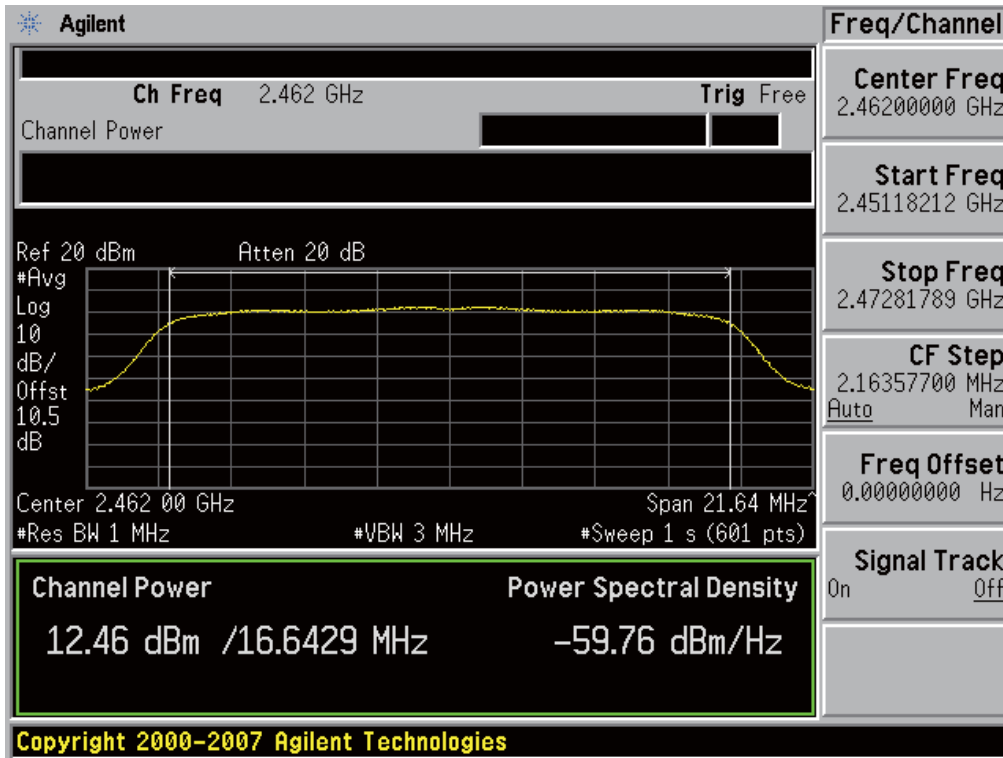
Conducted Output Power (802.11g-CH 11) 6Mbps



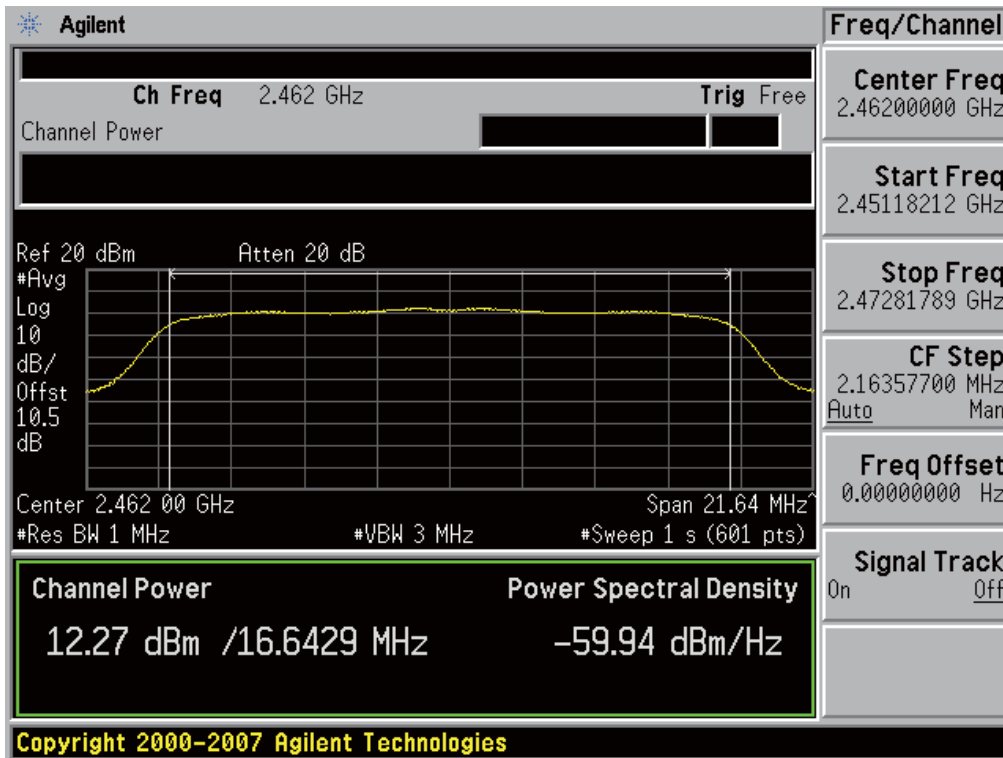
Conducted Output Power (802.11g-CH 11) 9Mbps



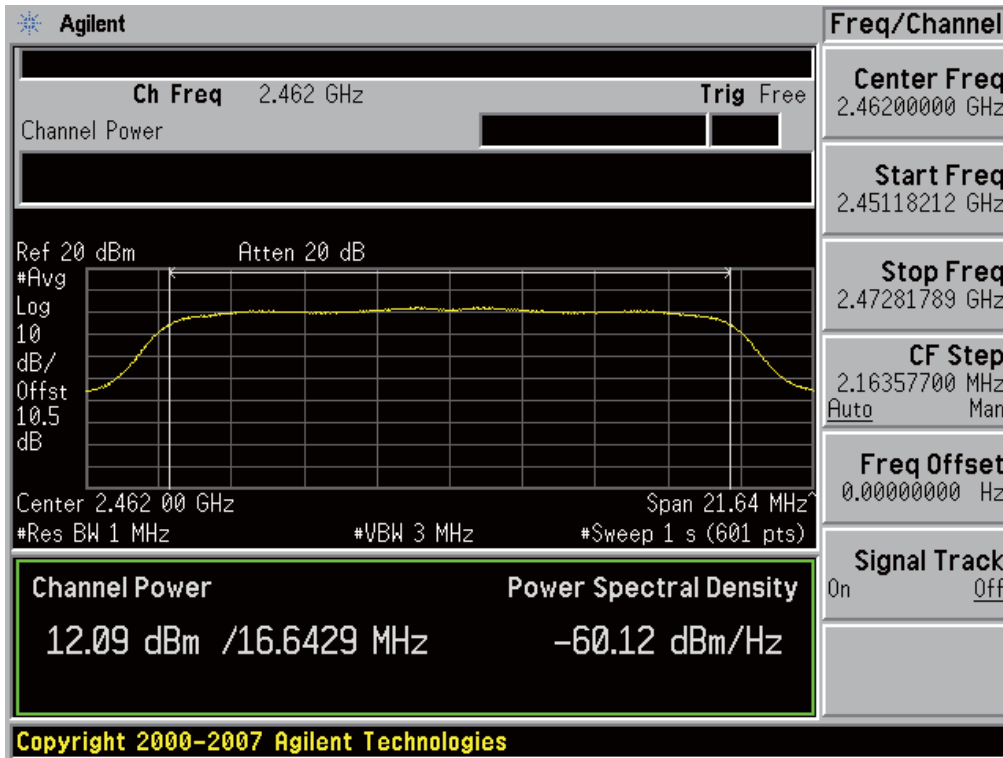
Conducted Output Power (802.11g-CH 11) 12Mbps



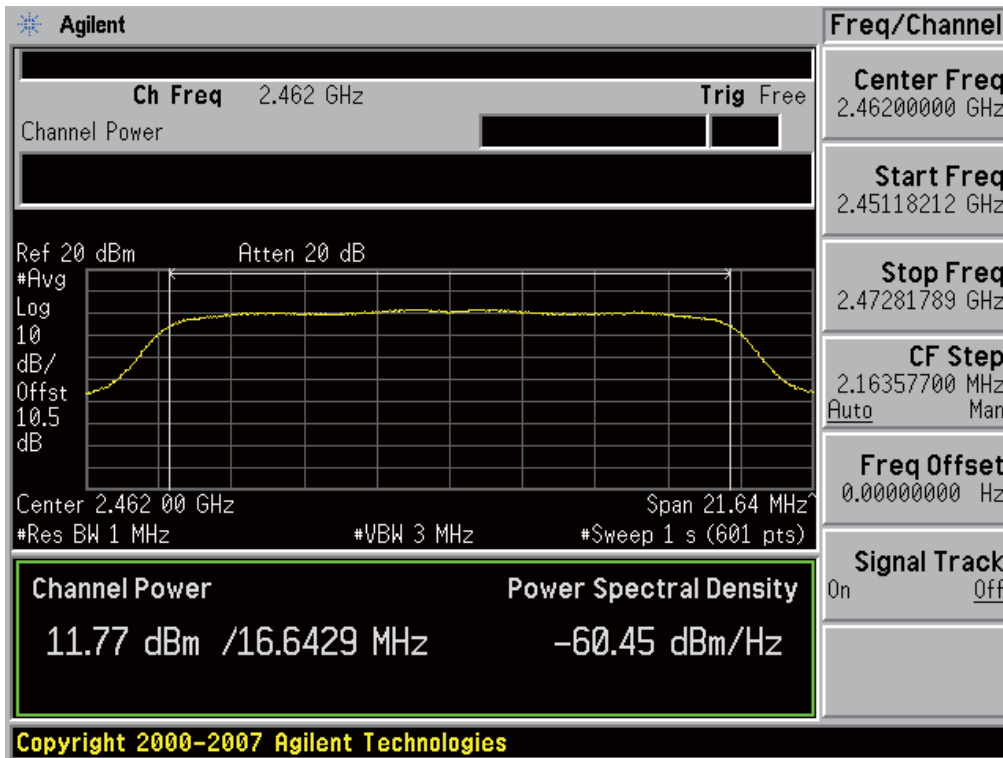
Conducted Output Power (802.11g-CH 11) 18Mbps



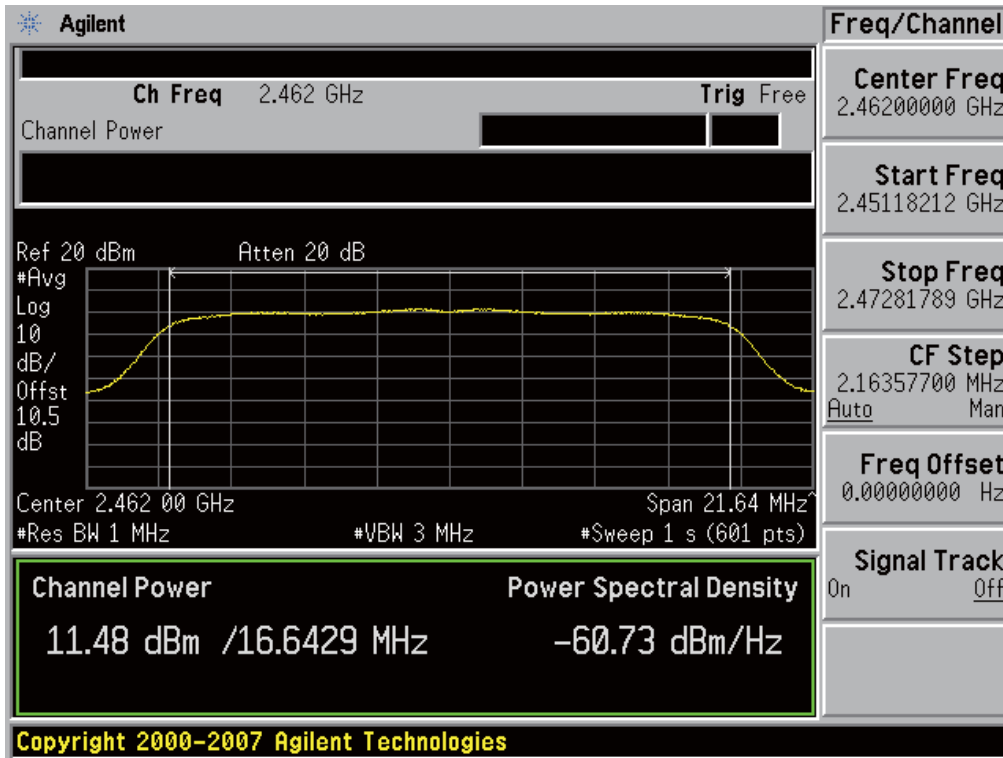
Conducted Output Power (802.11g-CH 11) 24Mbps



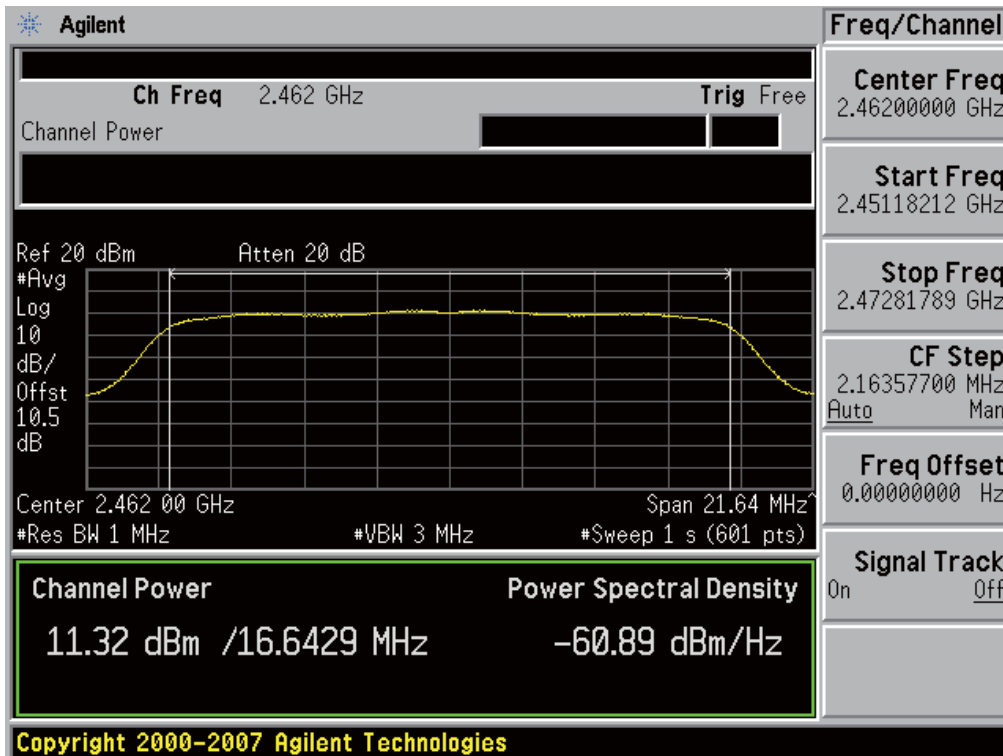
Conducted Output Power (802.11g-CH 11) 36Mbps



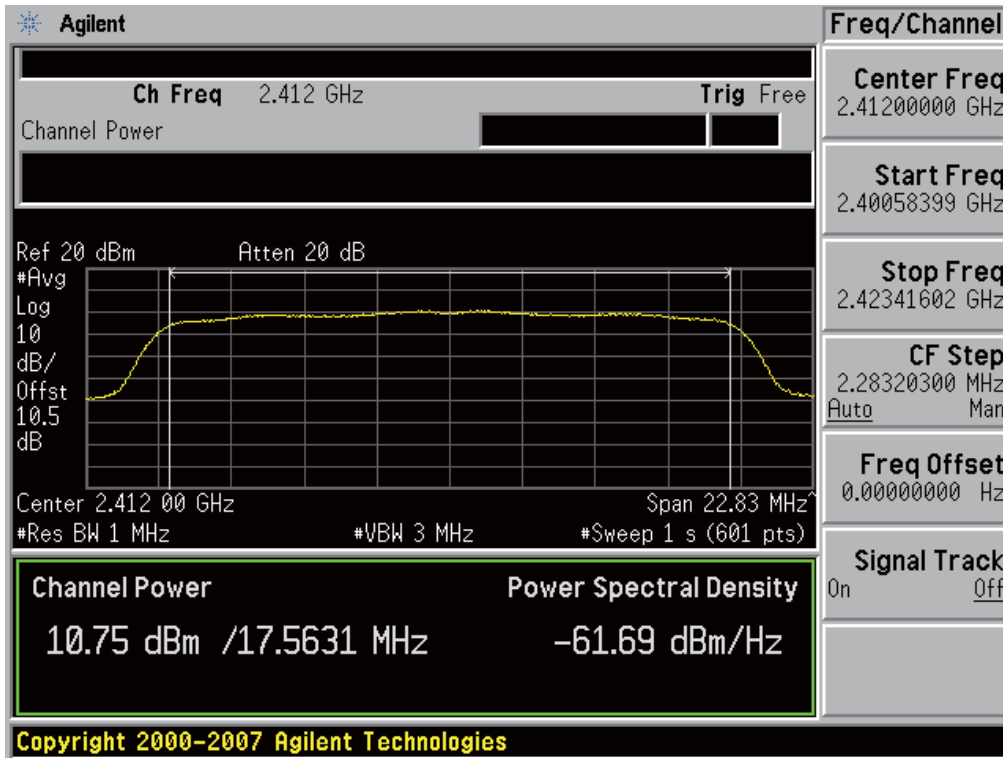
Conducted Output Power (802.11g-CH 11) 48Mbps



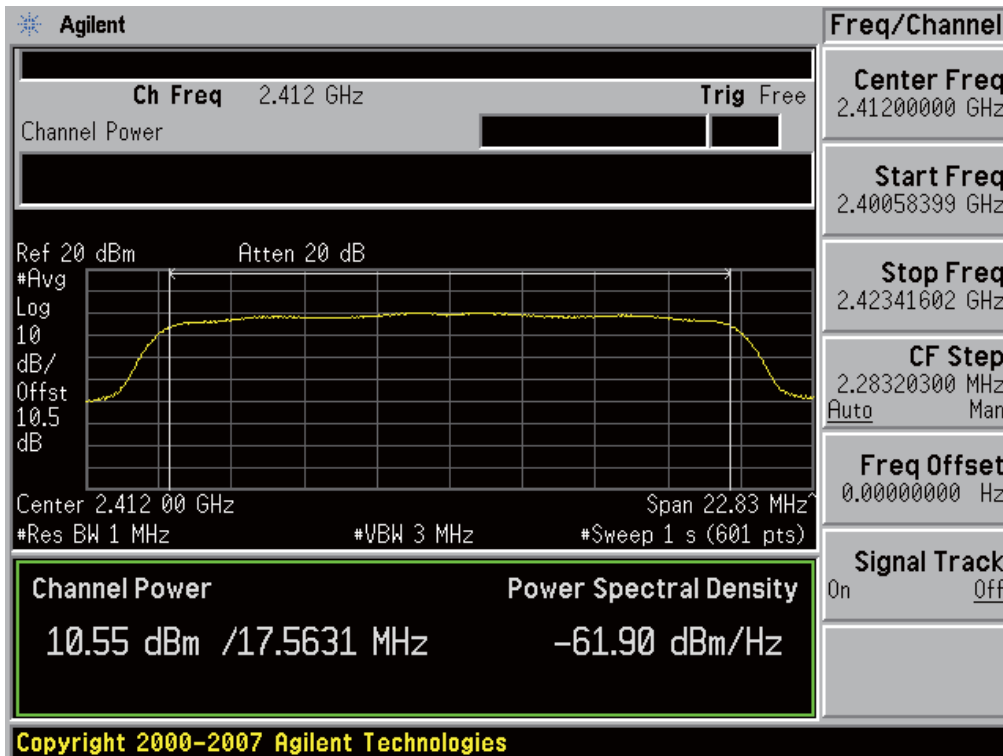
Conducted Output Power (802.11g-CH 11) 54Mbps



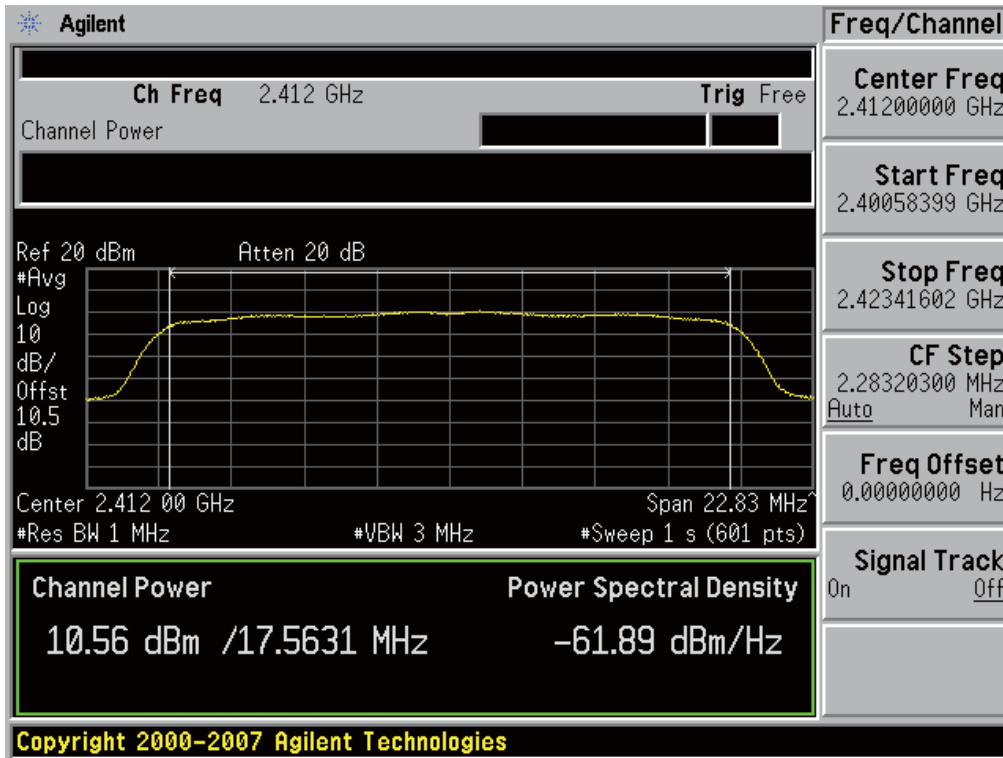
Conducted Output Power (802.11n-CH 1) 6.5Mbps



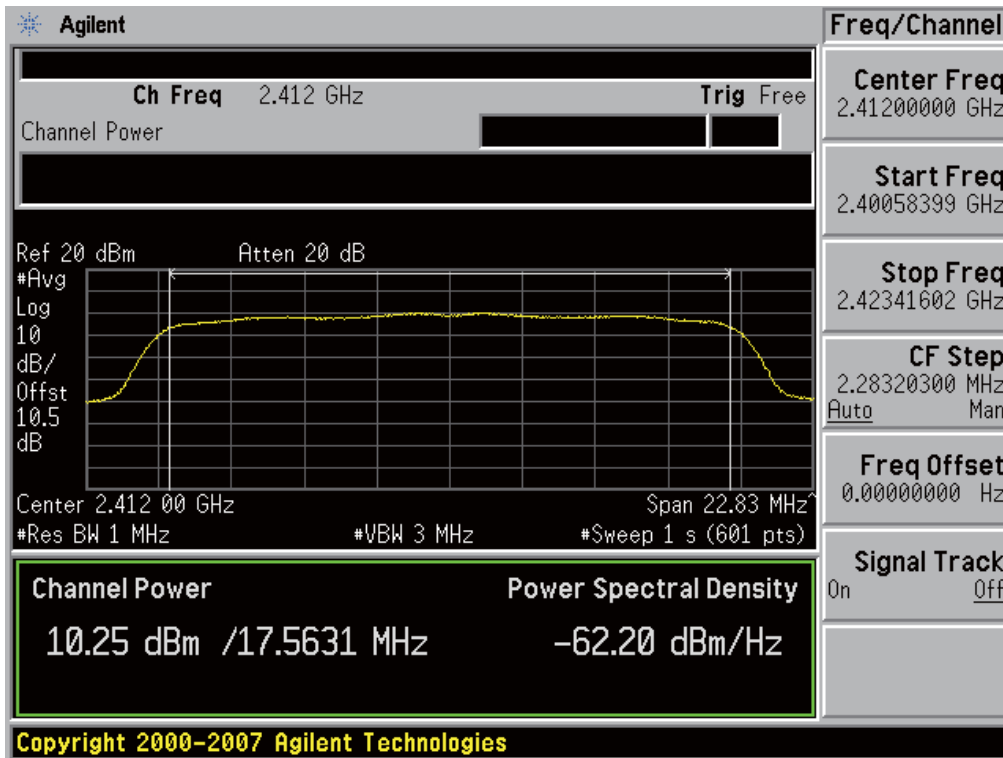
Conducted Output Power (802.11n-CH 1) 13Mbps



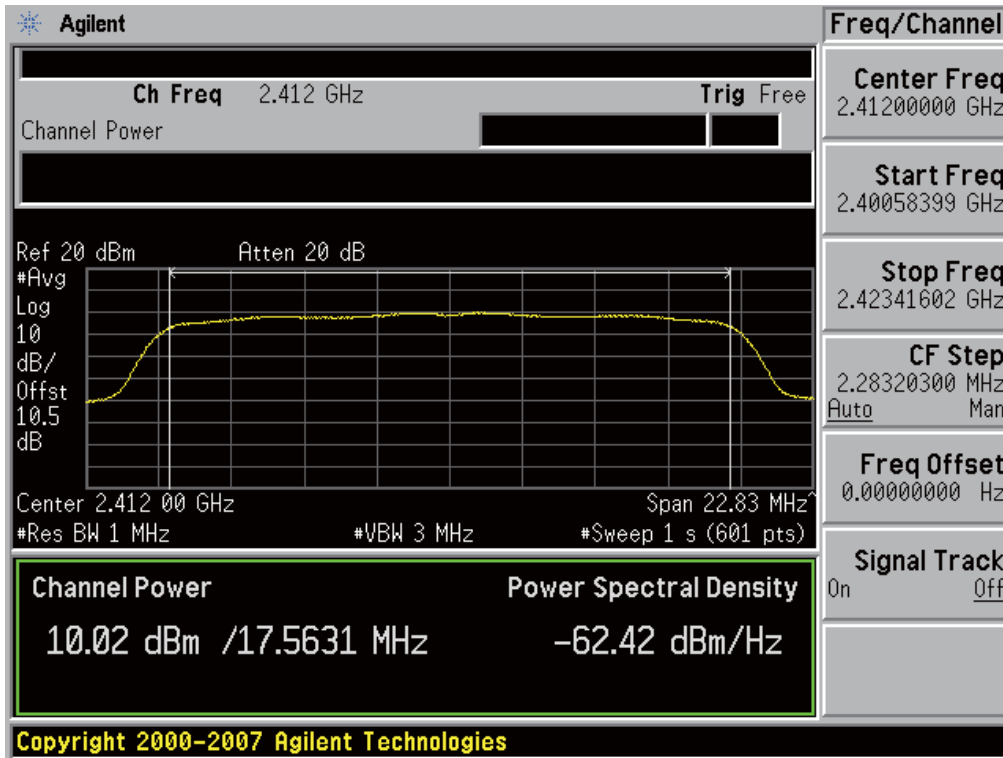
Conducted Output Power (802.11n-CH 1) 19.5Mbps



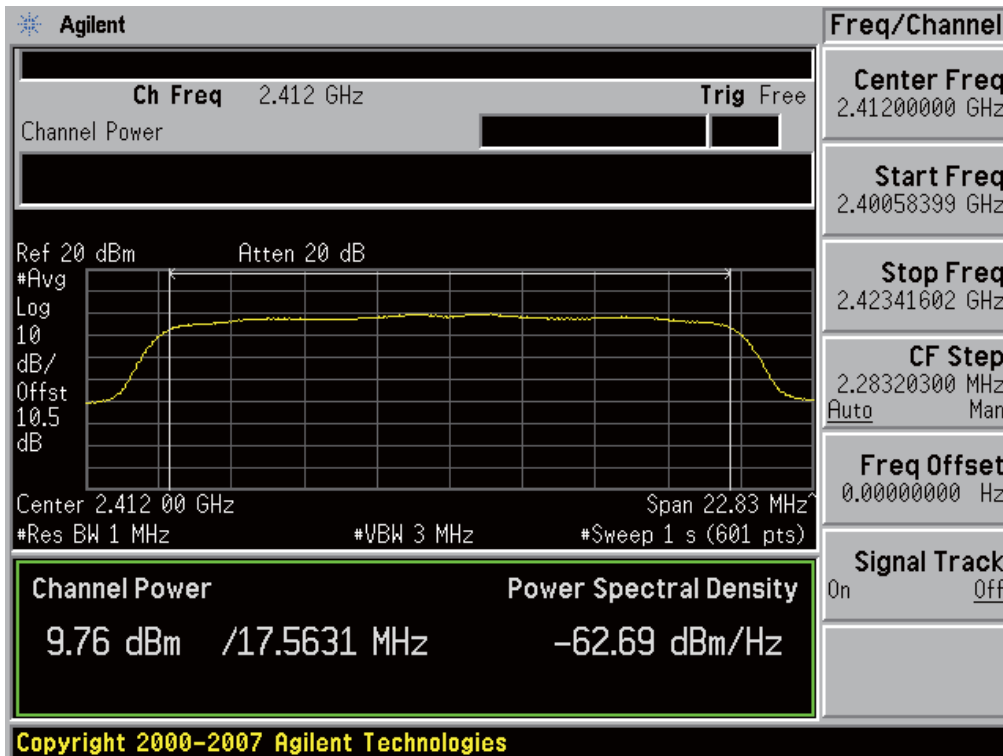
Conducted Output Power (802.11n-CH 1) 26Mbps



Conducted Output Power (802.11n-CH 1) 39Mbps

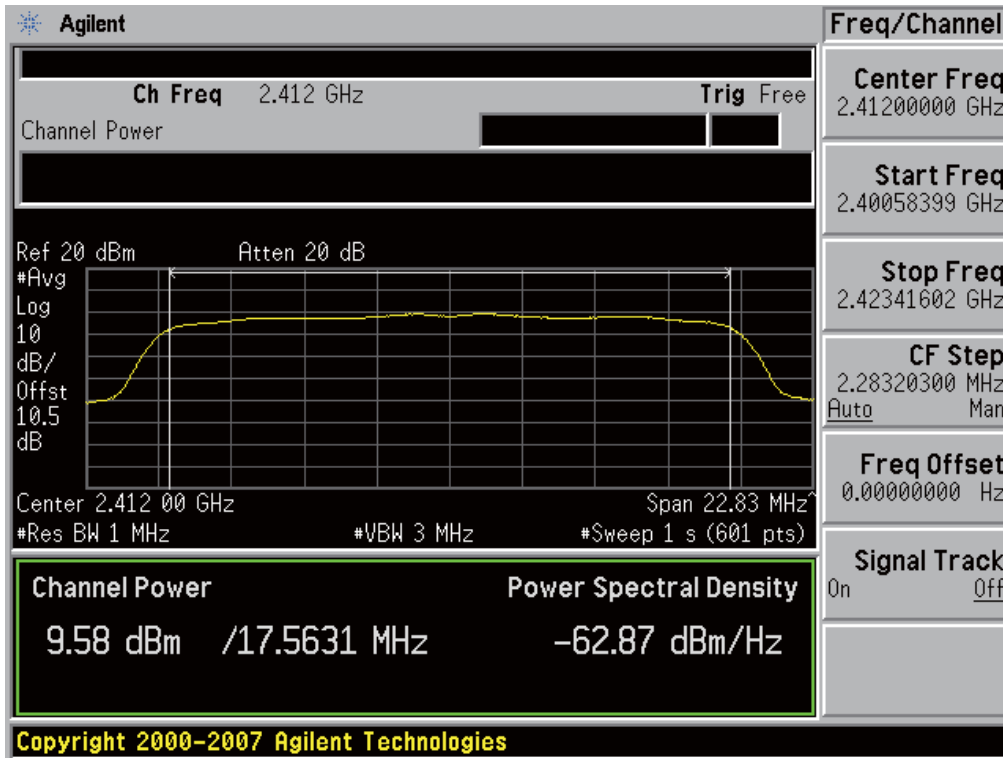


Conducted Output Power (802.11n-CH 1) 52Mbps

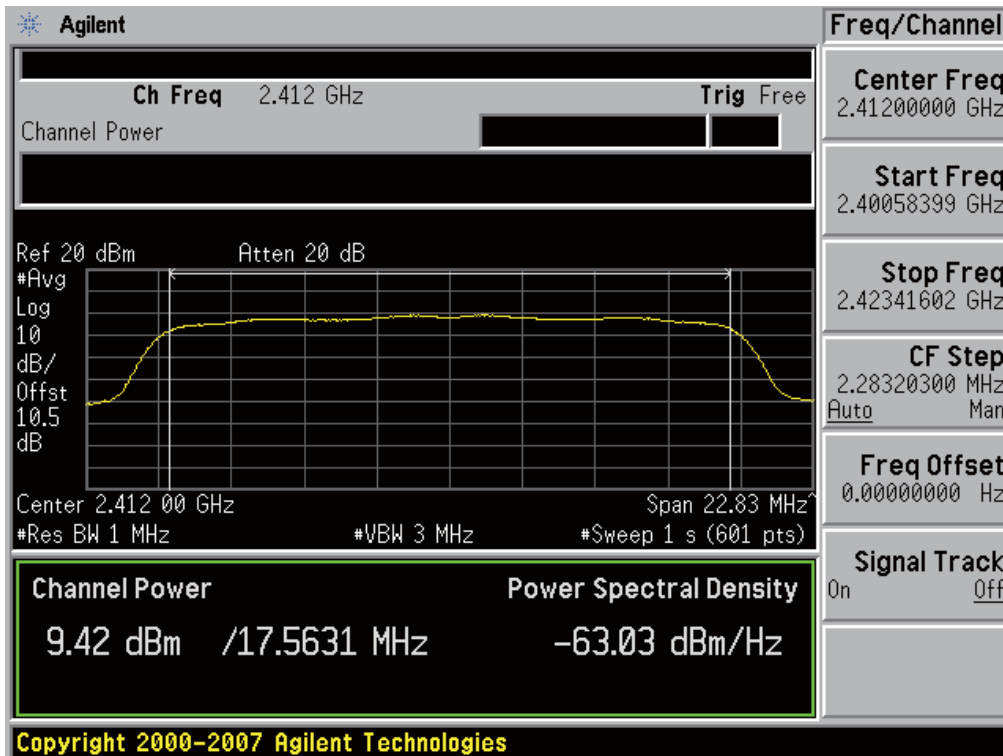


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

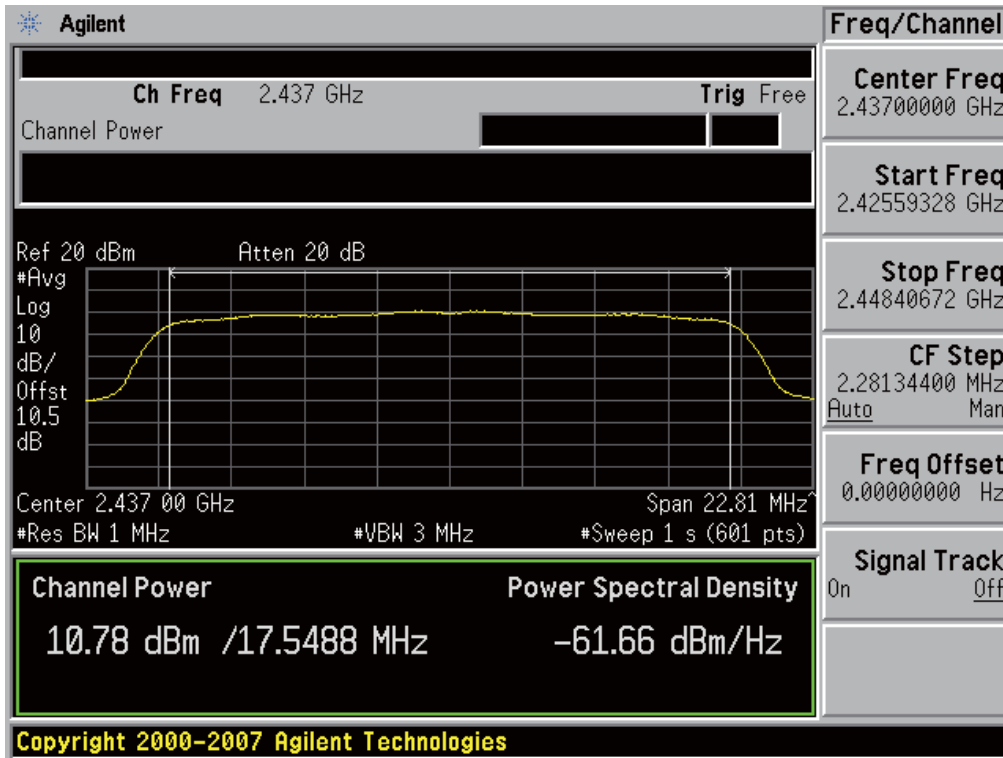
Conducted Output Power (802.11n-CH 1) 58.5Mbps



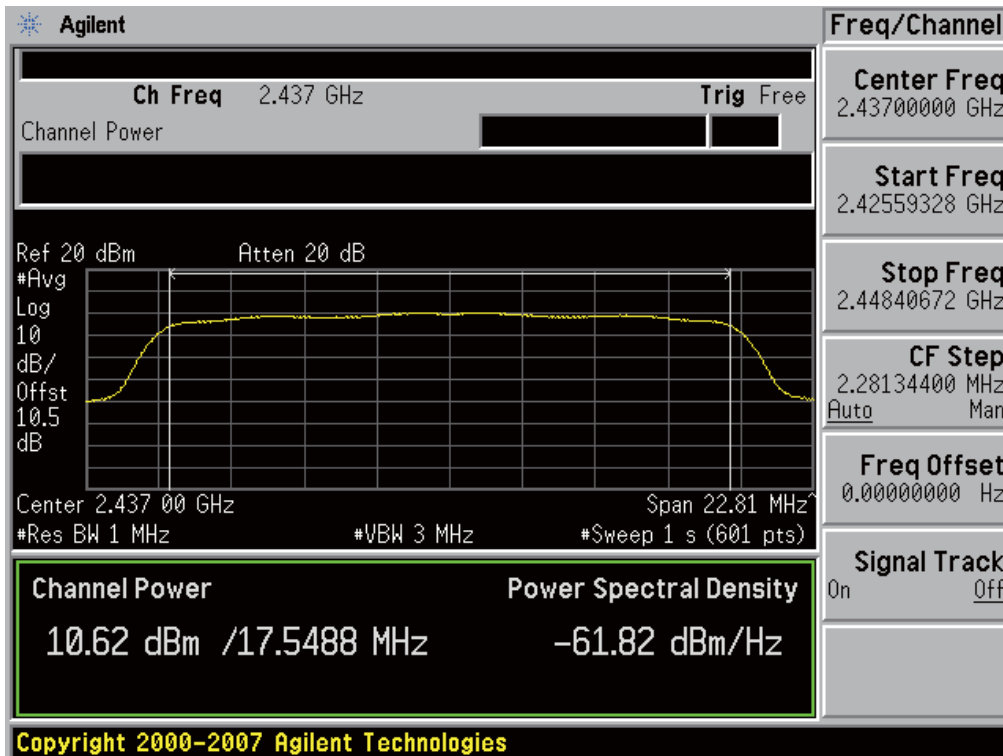
Conducted Output Power (802.11n-CH 1) 65Mbps



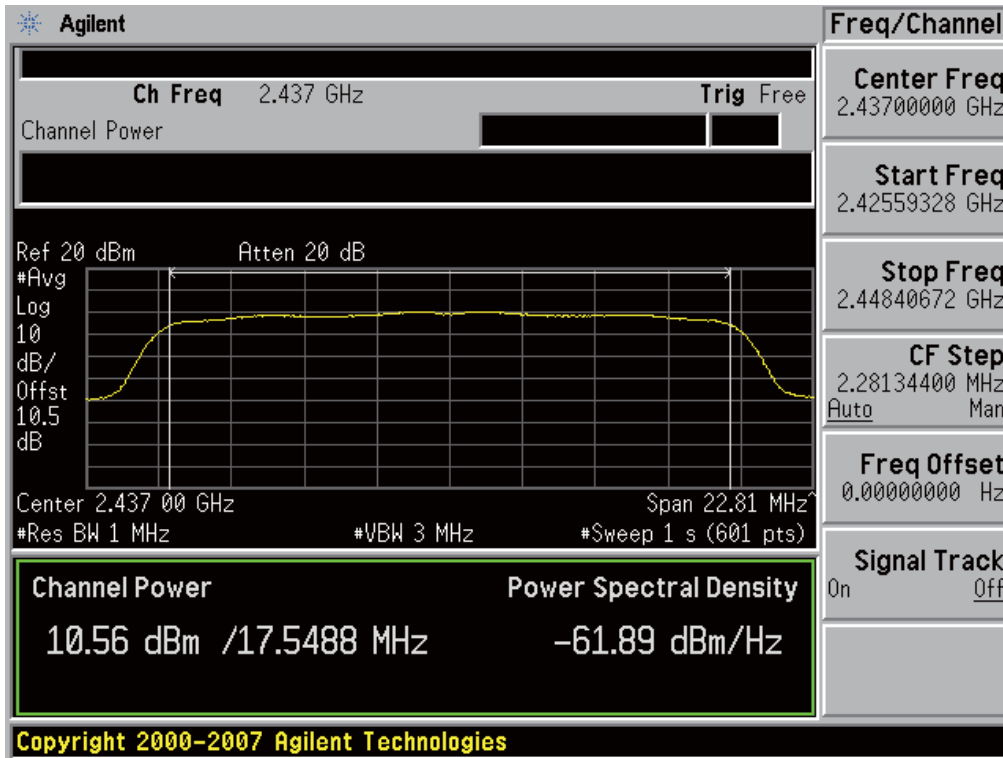
Conducted Output Power (802.11n-CH 6) 6.5Mbps



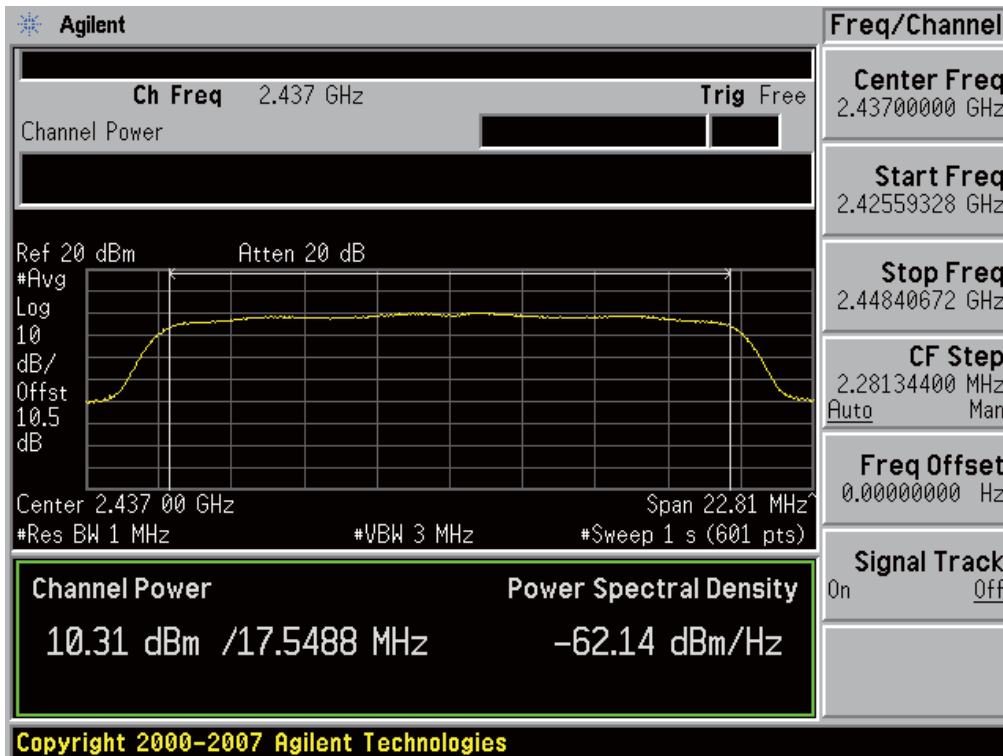
Conducted Output Power (802.11n-CH 6) 13Mbps



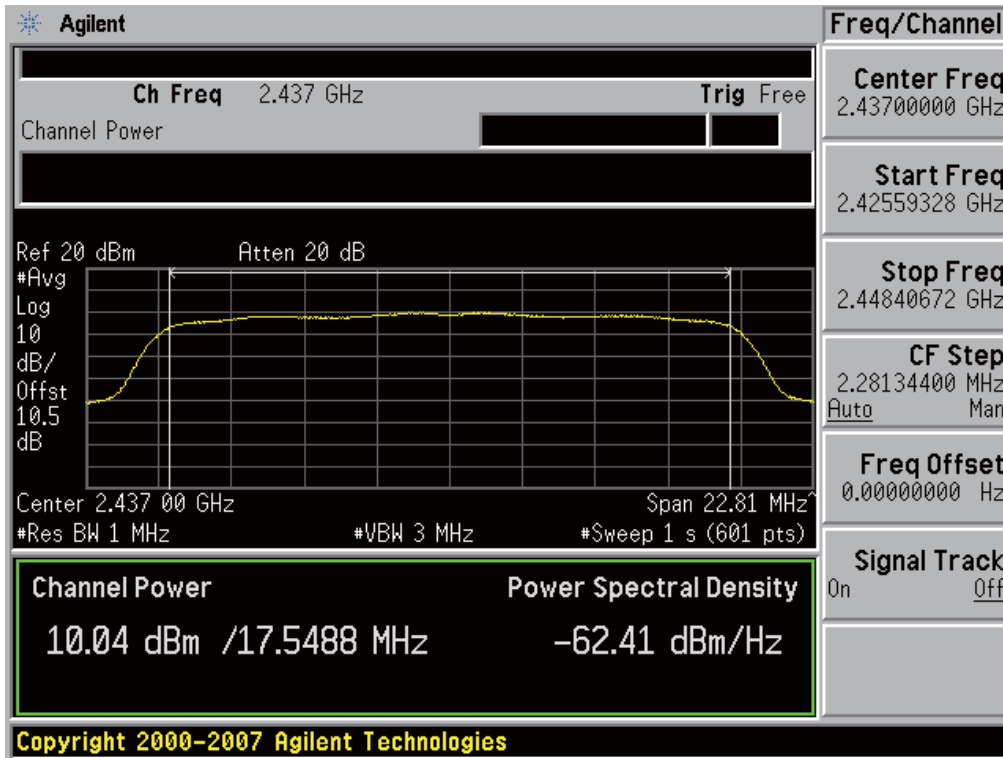
Conducted Output Power (802.11n-CH 6) 19.5Mbps



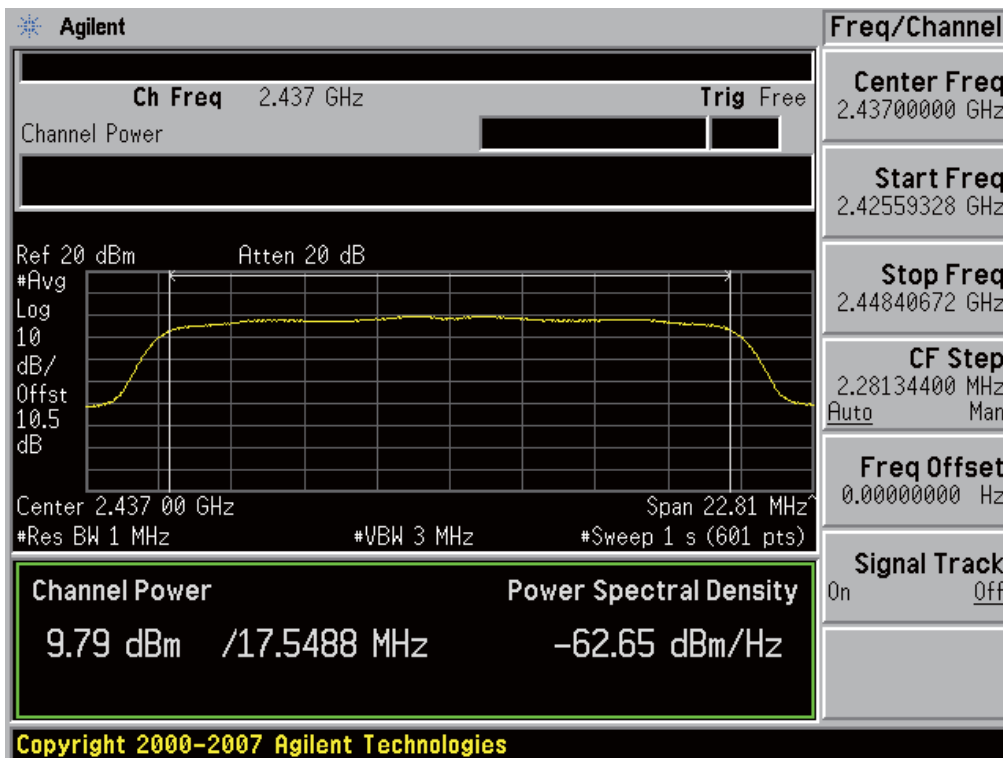
Conducted Output Power (802.11n-CH 6) 26Mbps



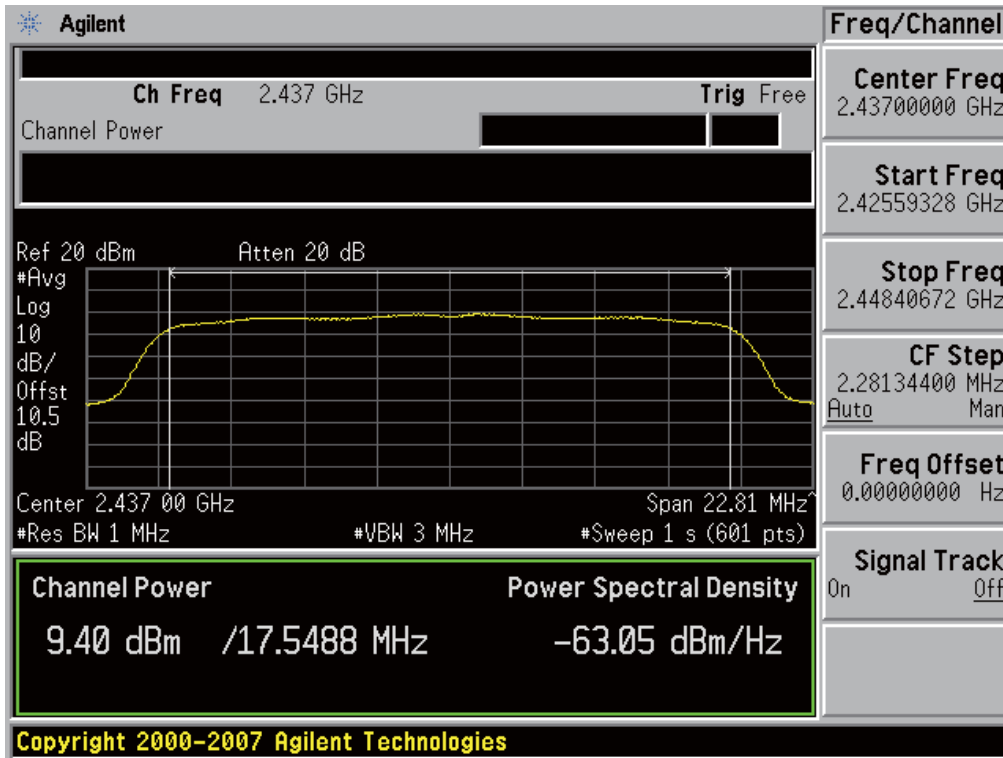
Conducted Output Power (802.11n-CH 6) 39Mbps



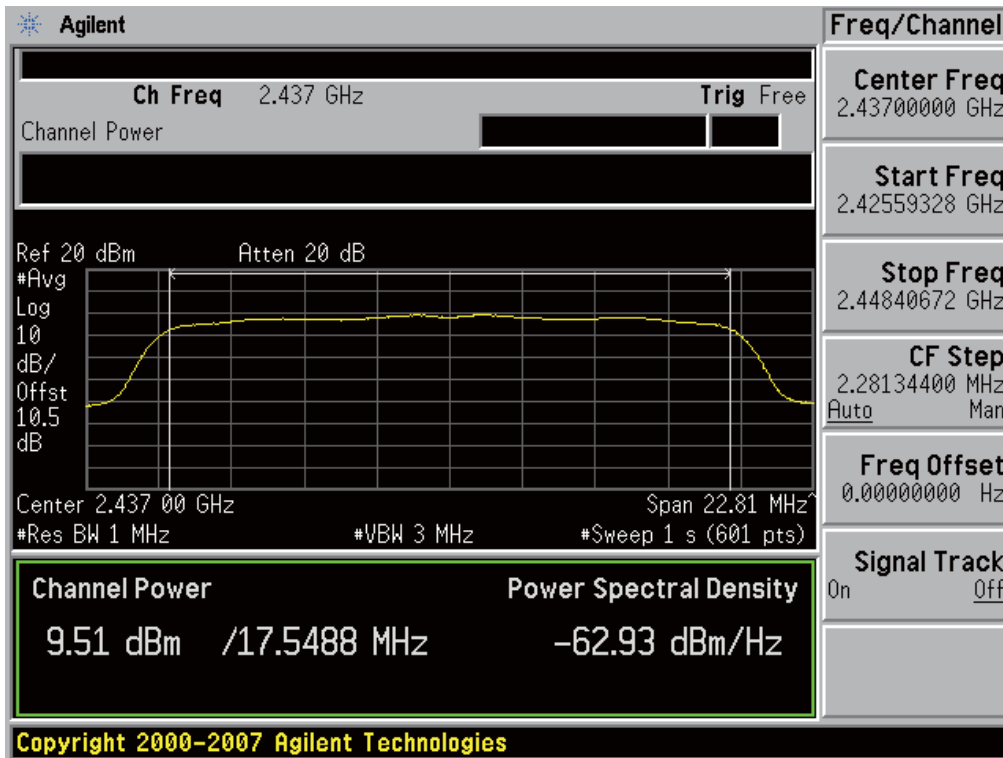
Conducted Output Power (802.11n-CH 6) 52Mbps



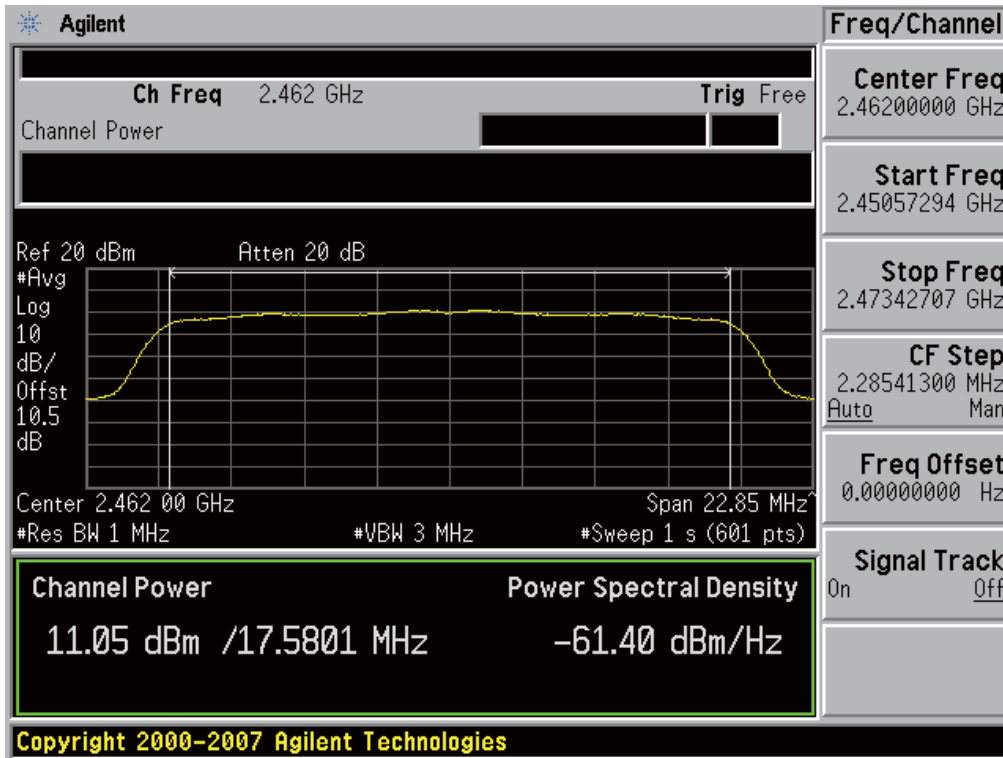
Conducted Output Power (802.11n-CH 6) 58.5Mbps



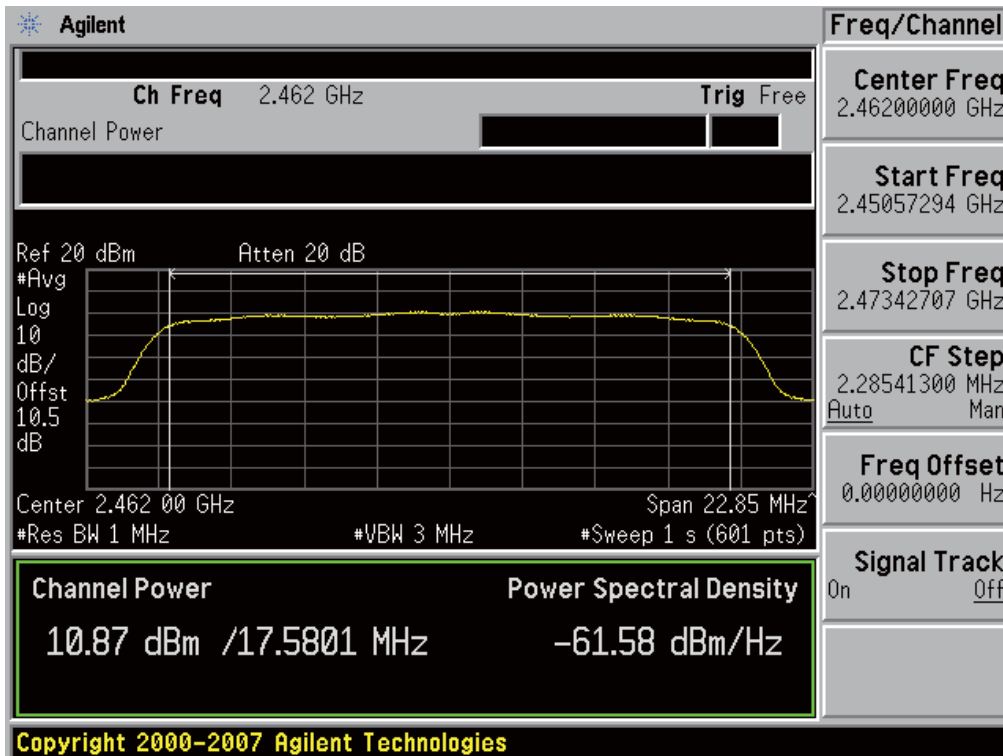
Conducted Output Power (802.11n-CH 6) 65Mbps



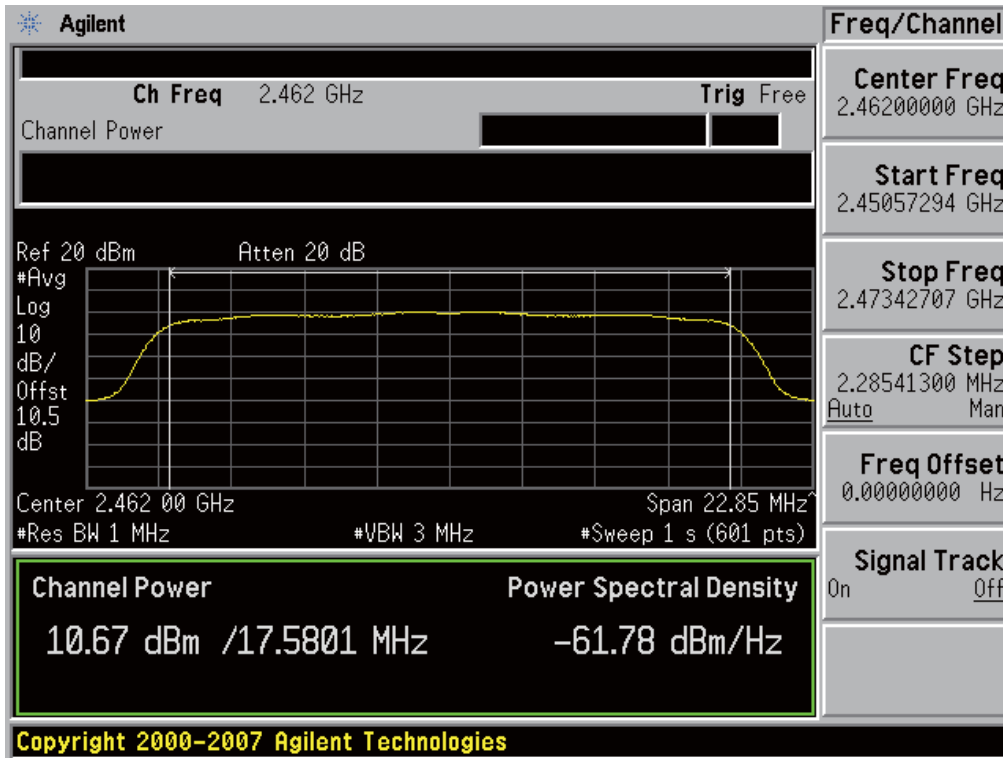
Conducted Output Power (802.11n-CH 11) 6.5Mbps



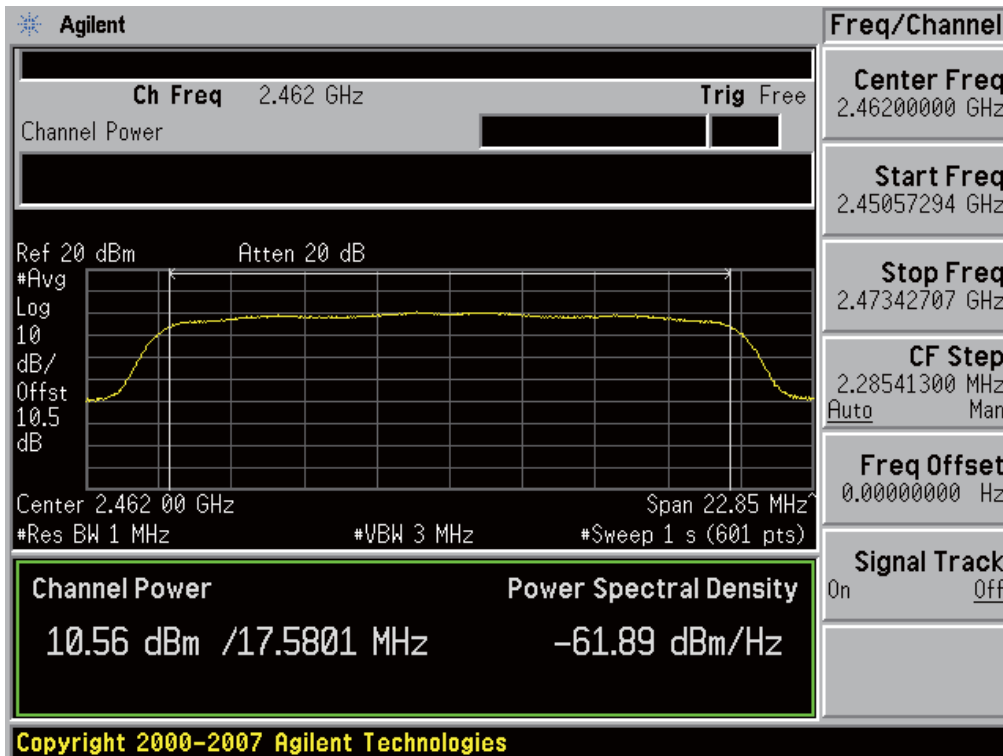
Conducted Output Power (802.11n-CH 11) 13Mbps



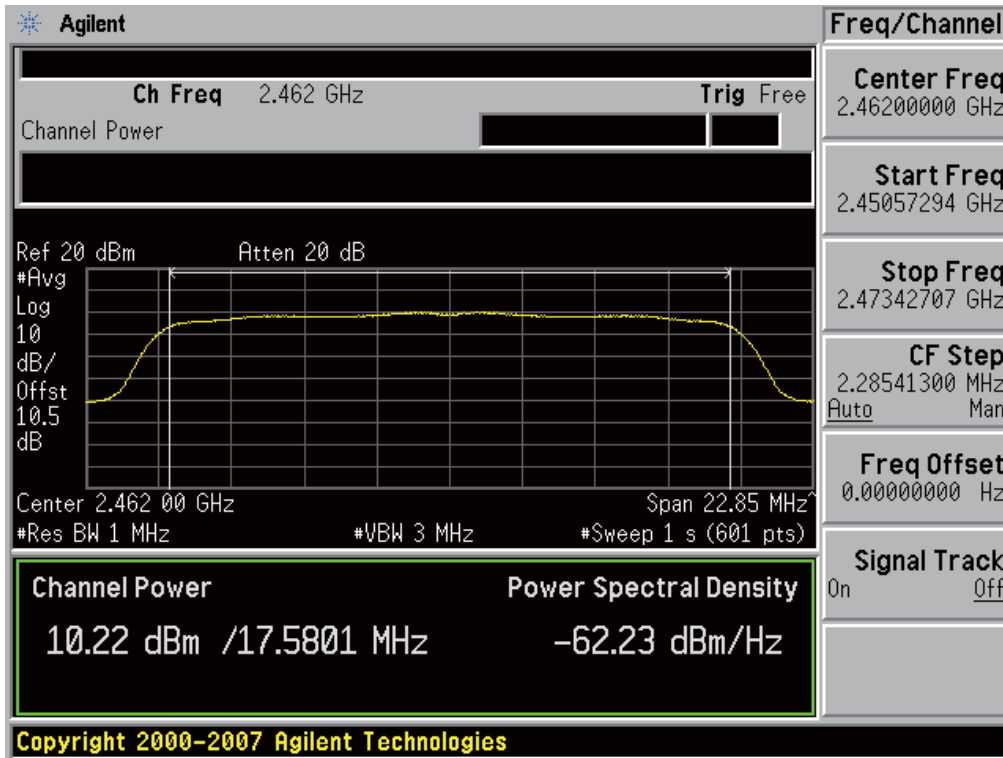
Conducted Output Power (802.11n-CH 11) 19.5Mbps



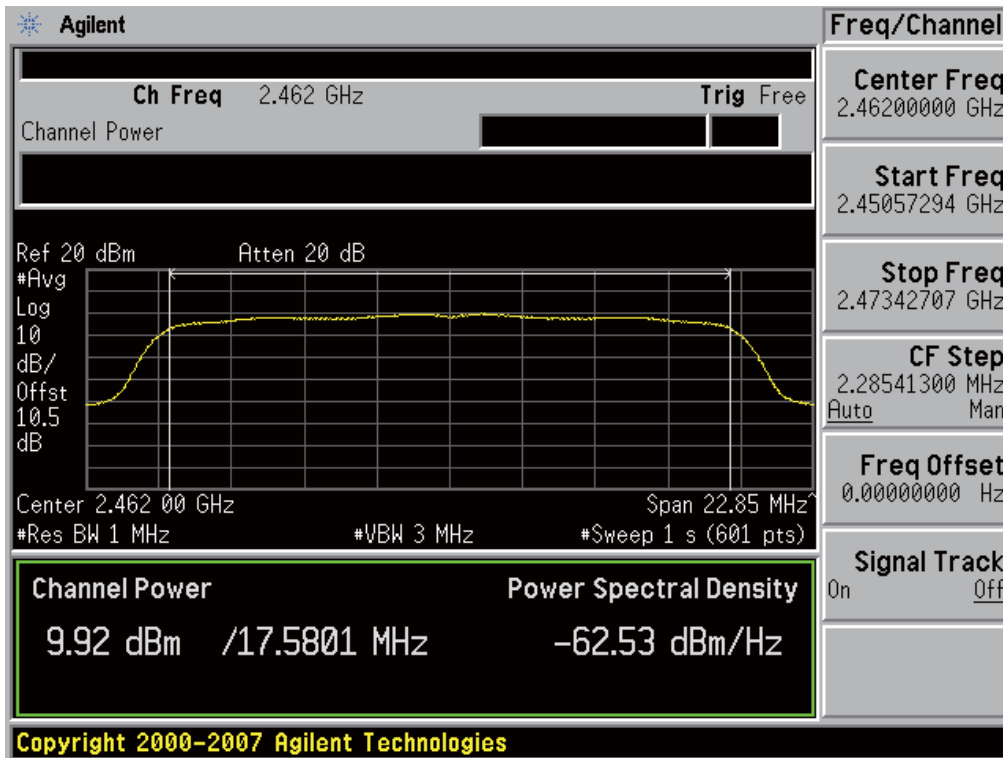
Conducted Output Power (802.11n-CH 11) 26Mbps



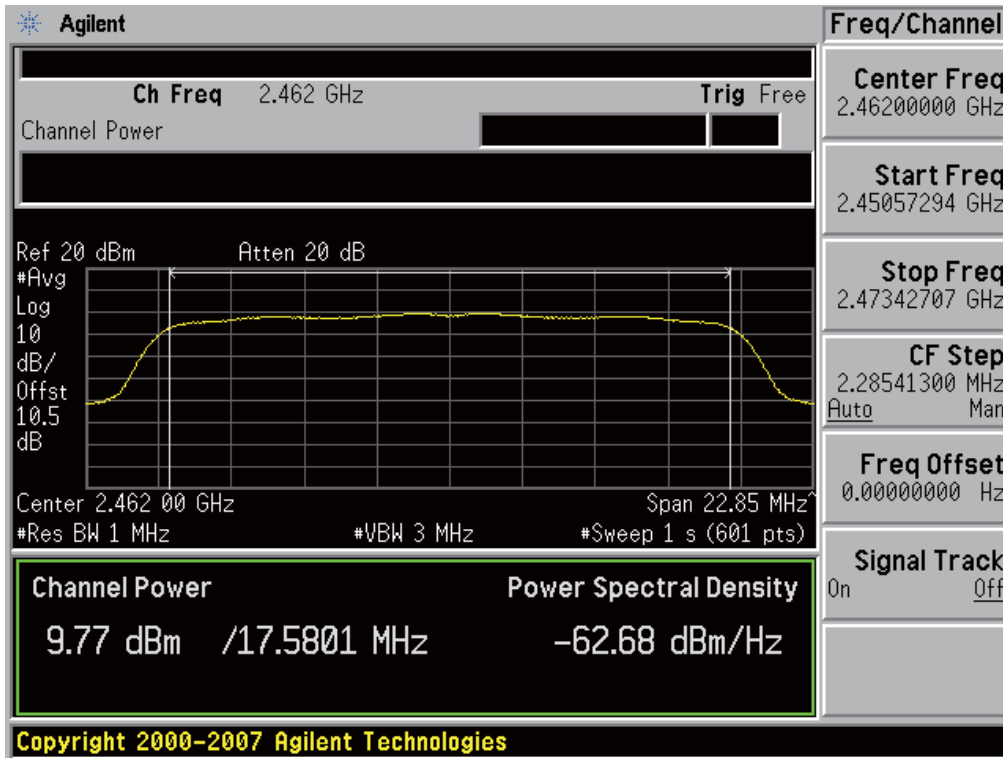
Conducted Output Power (802.11n-CH 11) 39Mbps



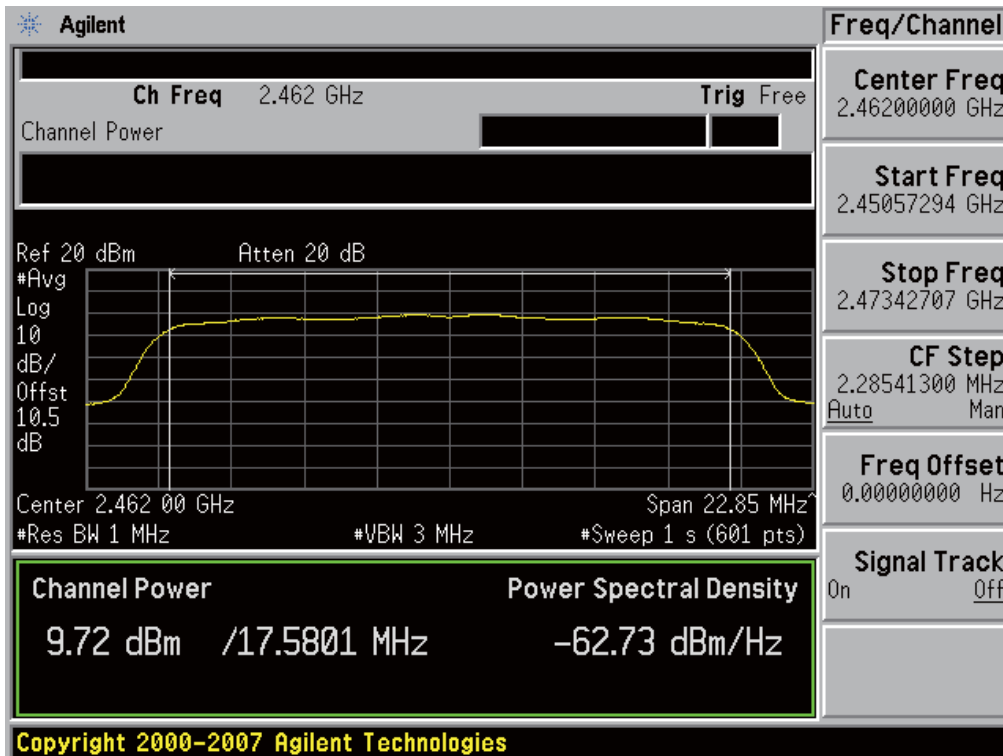
Conducted Output Power (802.11n-CH 11) 52Mbps



Conducted Output Power (802.11n-CH 11) 58.5Mbps



Conducted Output Power (802.11n-CH 11) 65Mbps



(5745 MHz ~5825 MHz)

Conducted Output Power (802.11a-CH 149) 6 Mbps



Conducted Output Power (802.11a-CH 149) 9 Mbps

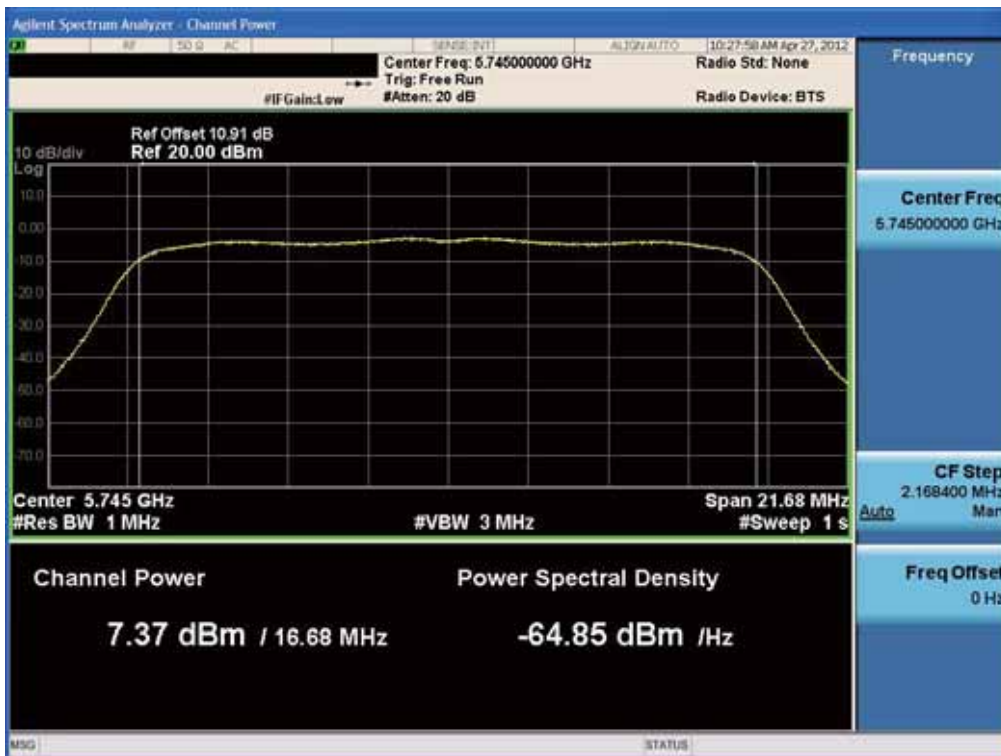


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Output Power (802.11a-CH 149) 12 Mbps



Conducted Output Power (802.11a-CH 149) 18 Mbps

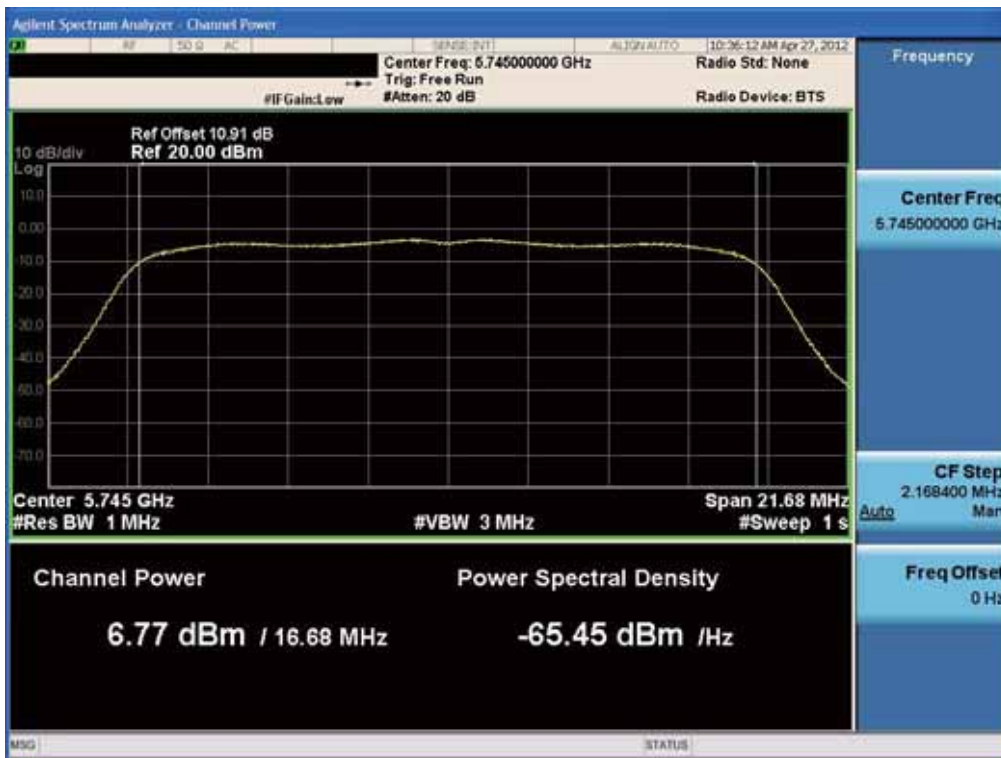


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Output Power (802.11a-CH 149) 24 Mbps



Conducted Output Power (802.11a-CH 149) 36 Mbps

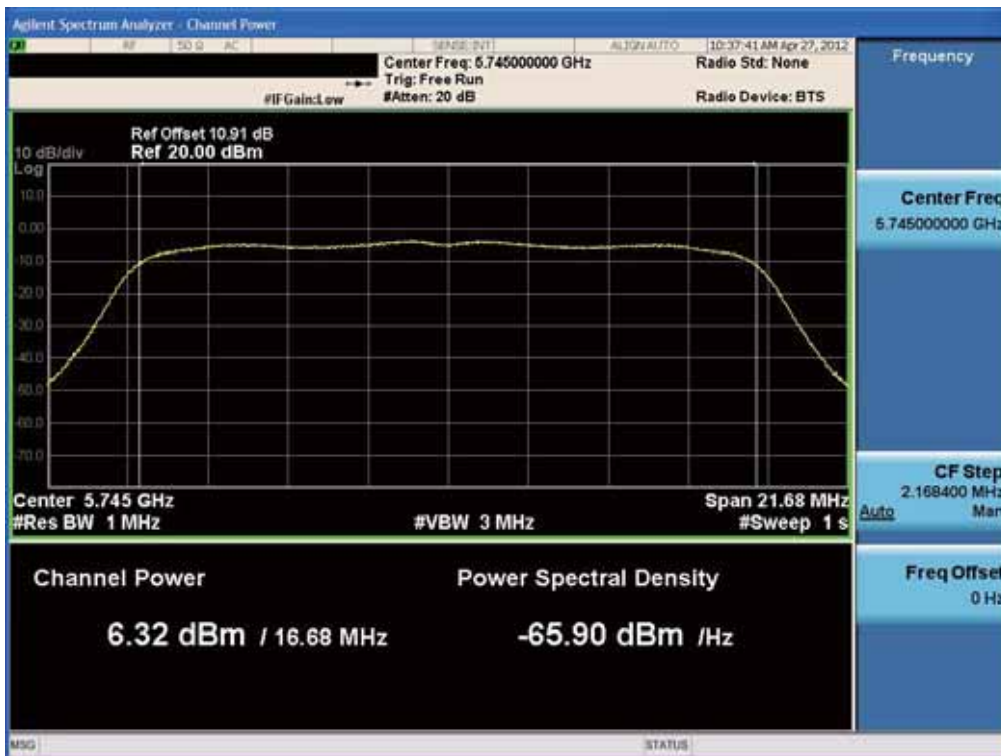


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Output Power (802.11a-CH 149) 48 Mbps



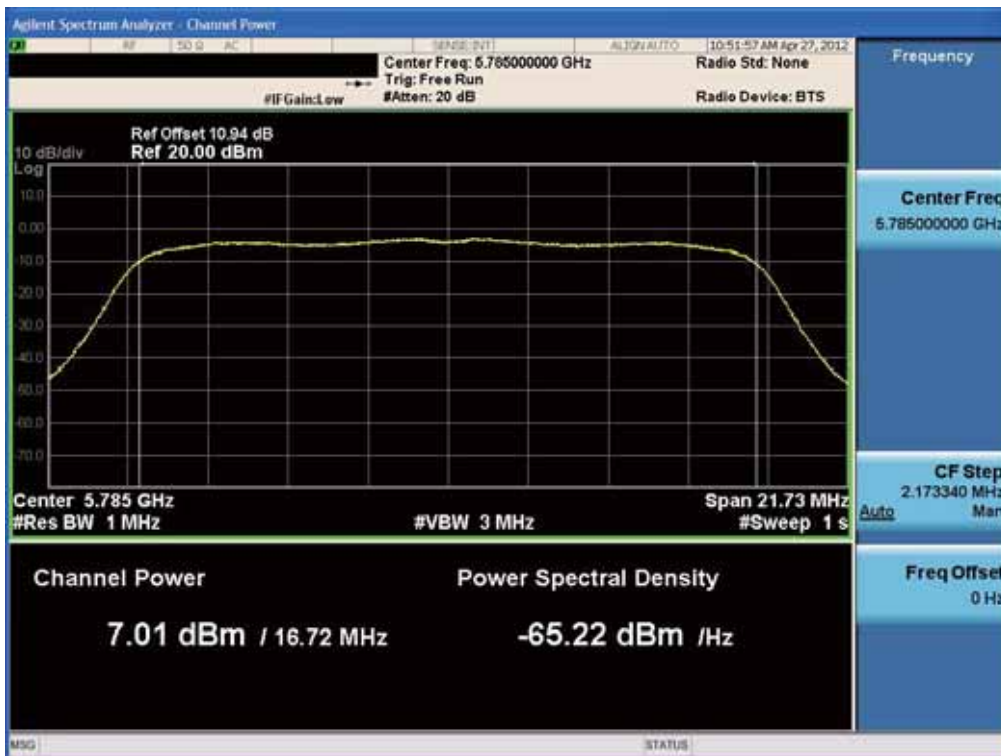
Conducted Output Power (802.11a-CH 149) 54 Mbps



Conducted Output Power (802.11a-CH 157) 6 Mbps

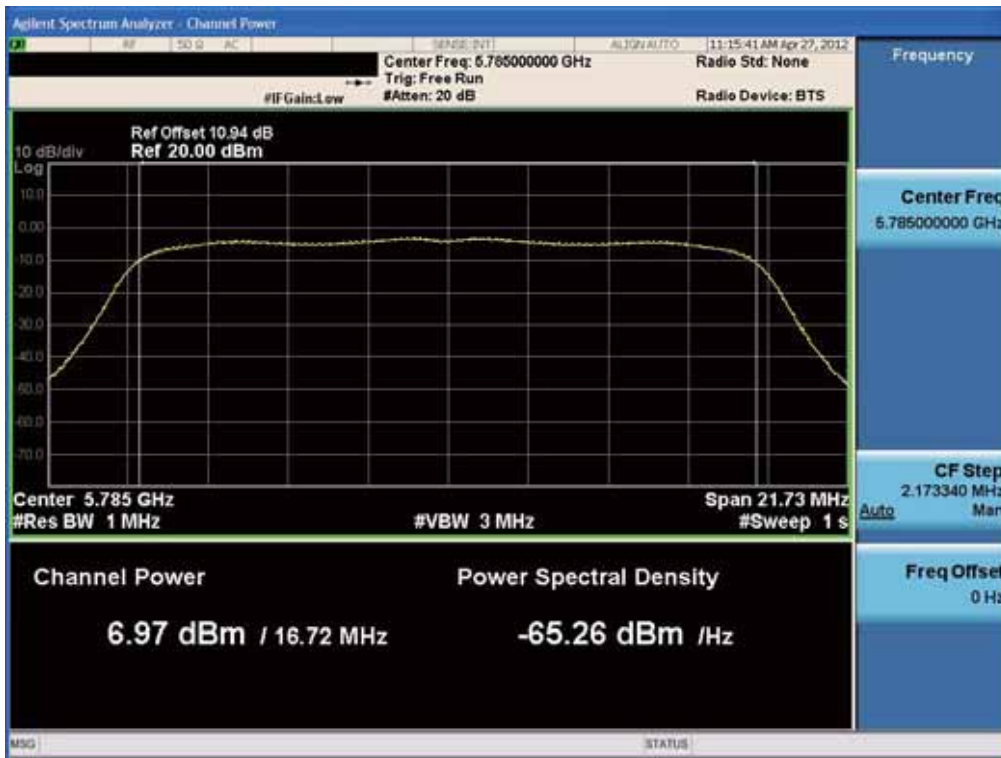


Conducted Output Power (802.11a-CH 157) 9 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Output Power (802.11a-CH 157) 12 Mbps



Conducted Output Power (802.11a-CH 157) 18 Mbps

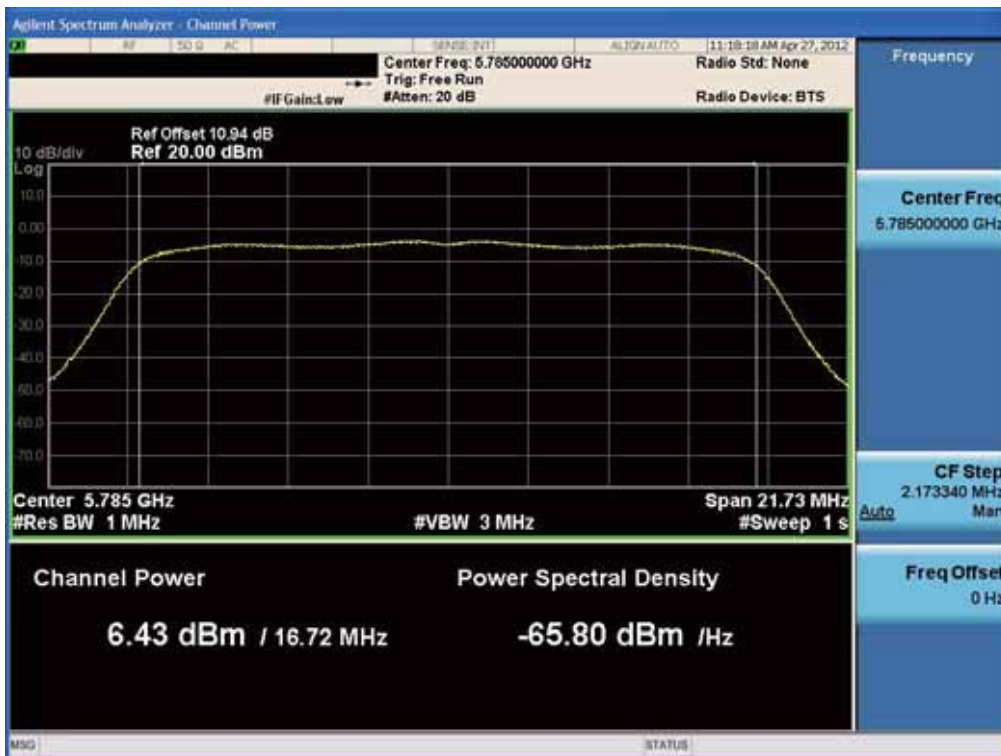


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Output Power (802.11a-CH 157) 24 Mbps



Conducted Output Power (802.11a-CH 157) 36 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Output Power (802.11a-CH 157) 48 Mbps



Conducted Output Power (802.11a-CH 157) 54 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Output Power (802.11a-CH 165) 6 Mbps



Conducted Output Power (802.11a-CH 165) 9 Mbps

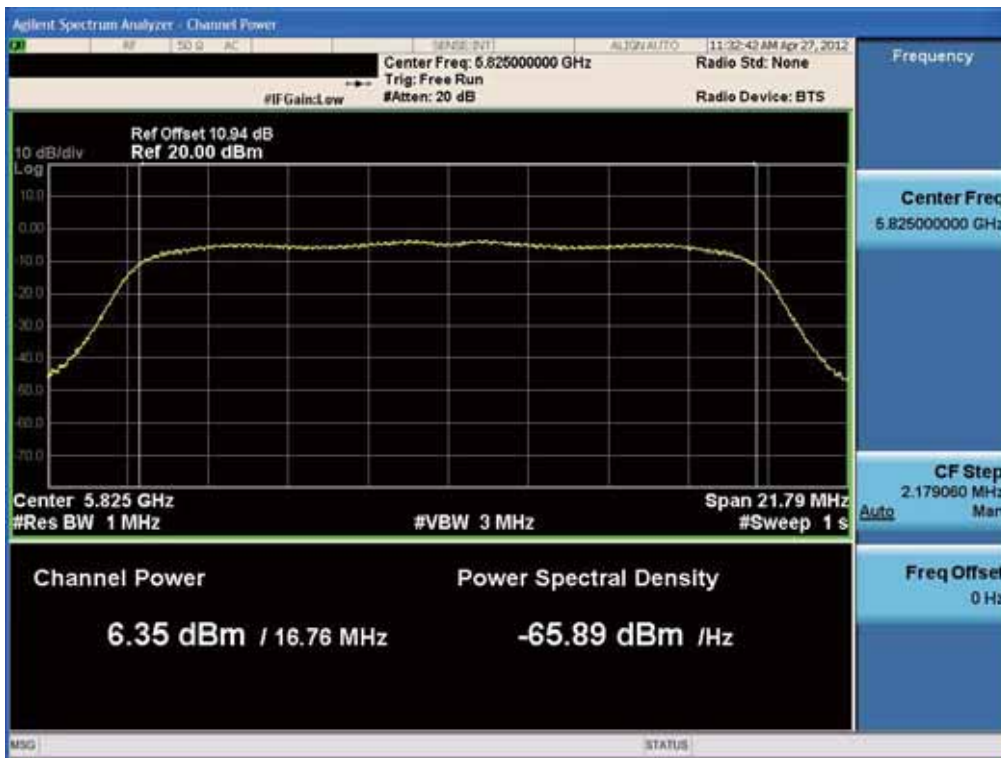


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Output Power (802.11a-CH 165) 12 Mbps



Conducted Output Power (802.11a-CH 165) 18 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Output Power (802.11a-CH 165) 24 Mbps



Conducted Output Power (802.11a-CH 165) 36 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Output Power (802.11a-CH 165) 48 Mbps



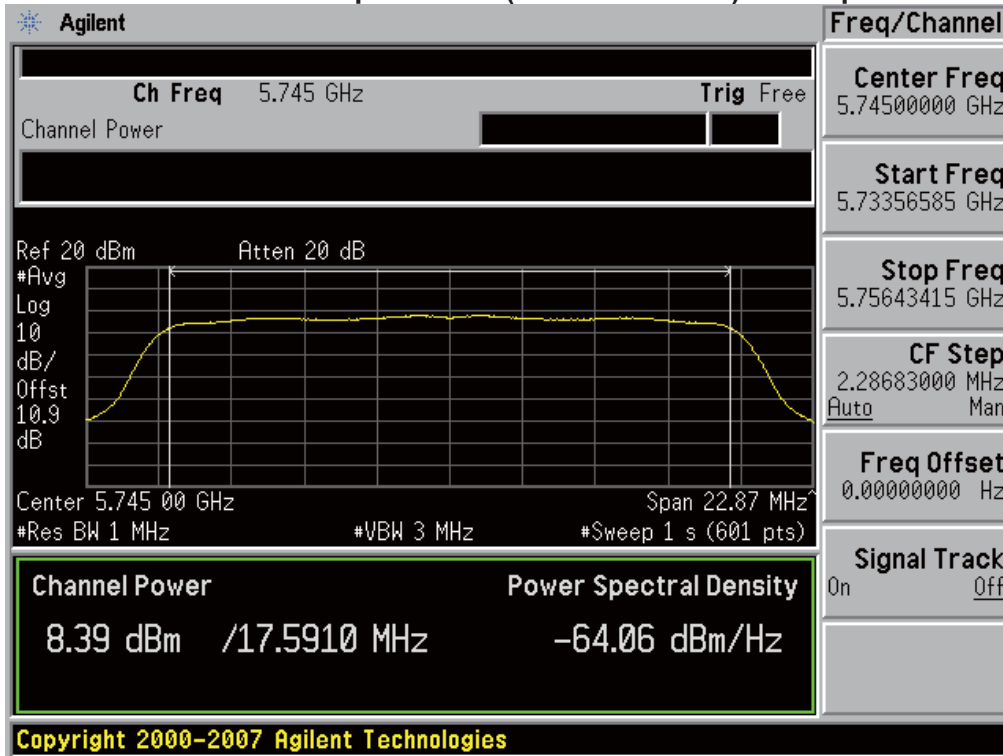
Conducted Output Power (802.11a-CH 165) 54 Mbps



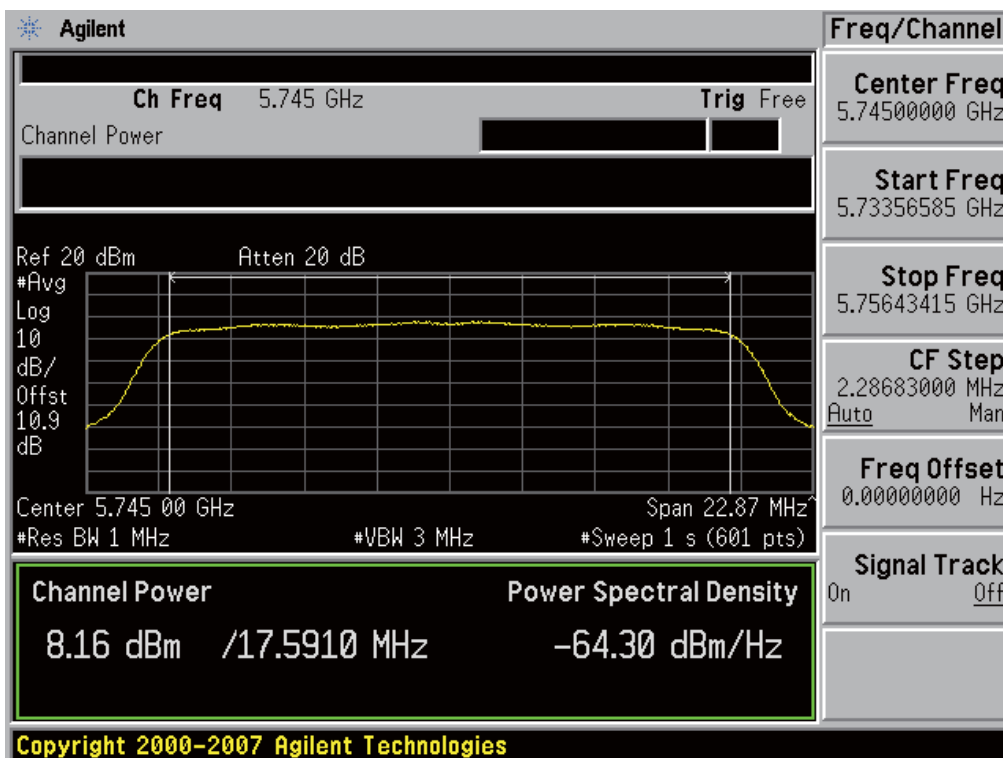
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

(5745 MHz ~5825 MHz)

Conducted Output Power (802.11n-CH 149) 6.5 Mbps

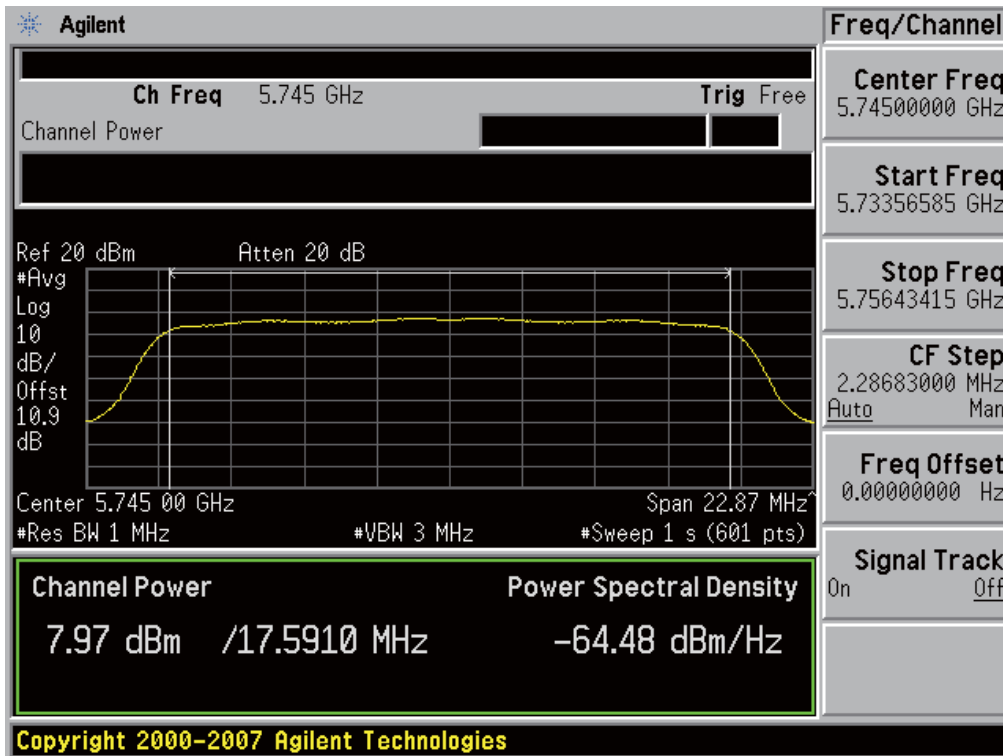


Conducted Output Power (802.11n-CH 149) 13 Mbps

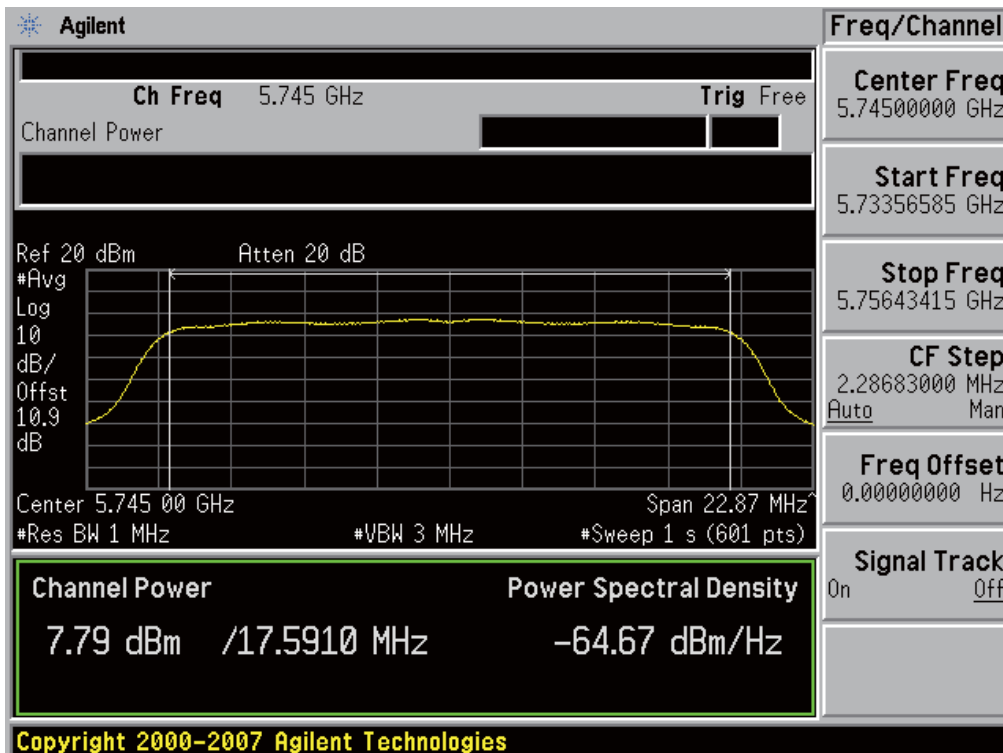


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

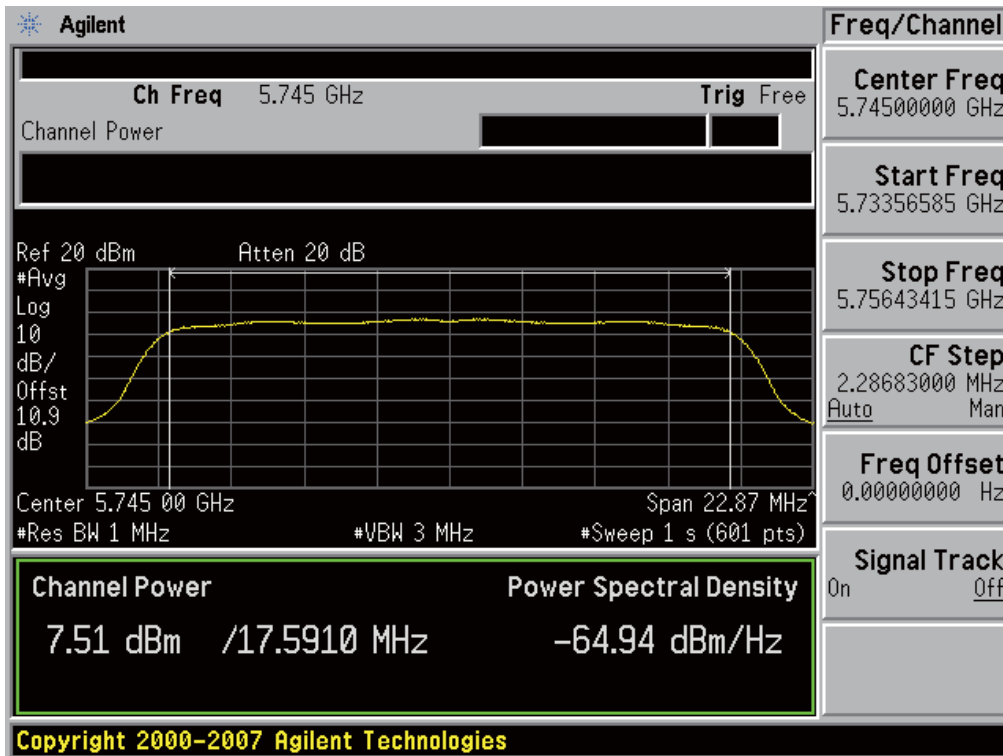
Conducted Output Power (802.11n-CH 149) 19.5 Mbps



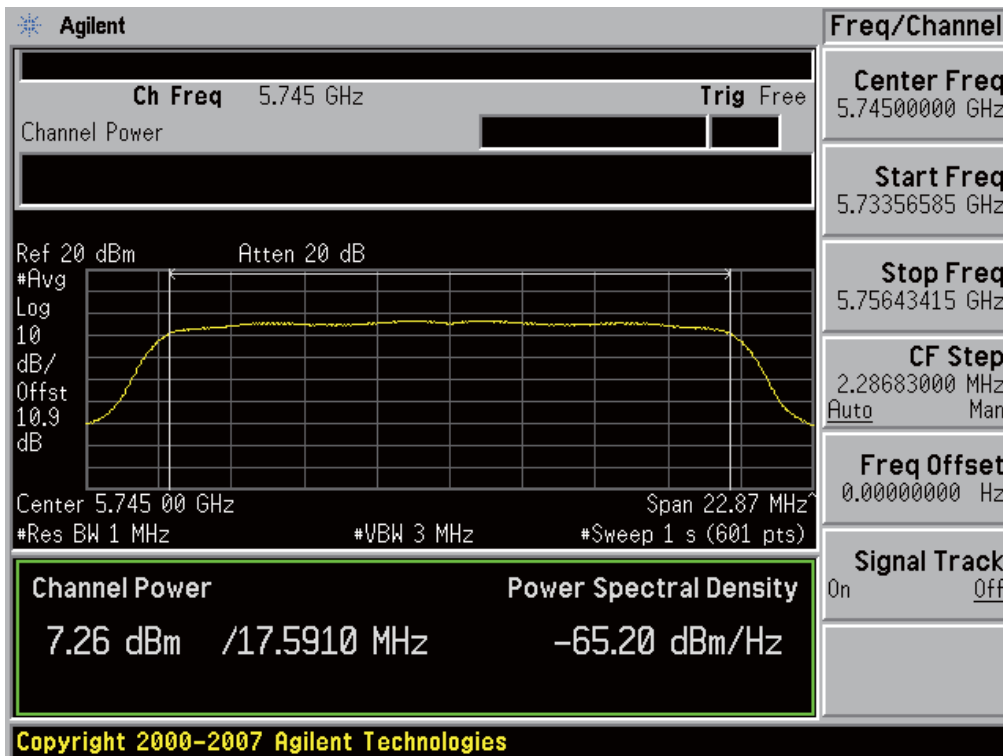
Conducted Output Power (802.11n-CH 149) 26 Mbps



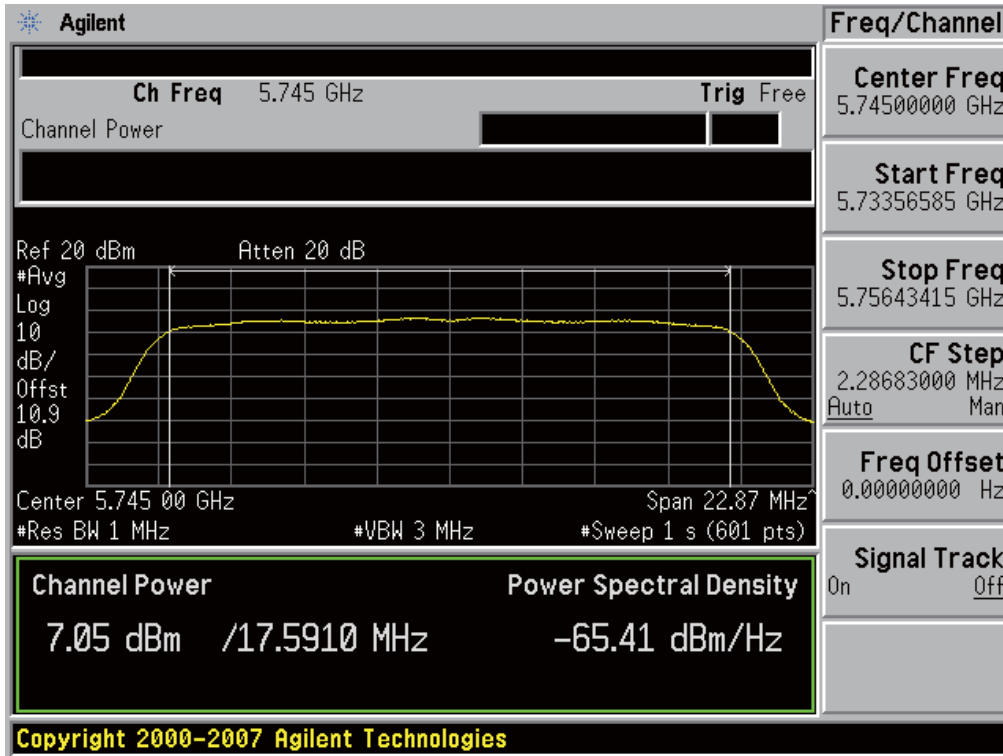
Conducted Output Power (802.11n-CH 149) 39 Mbps



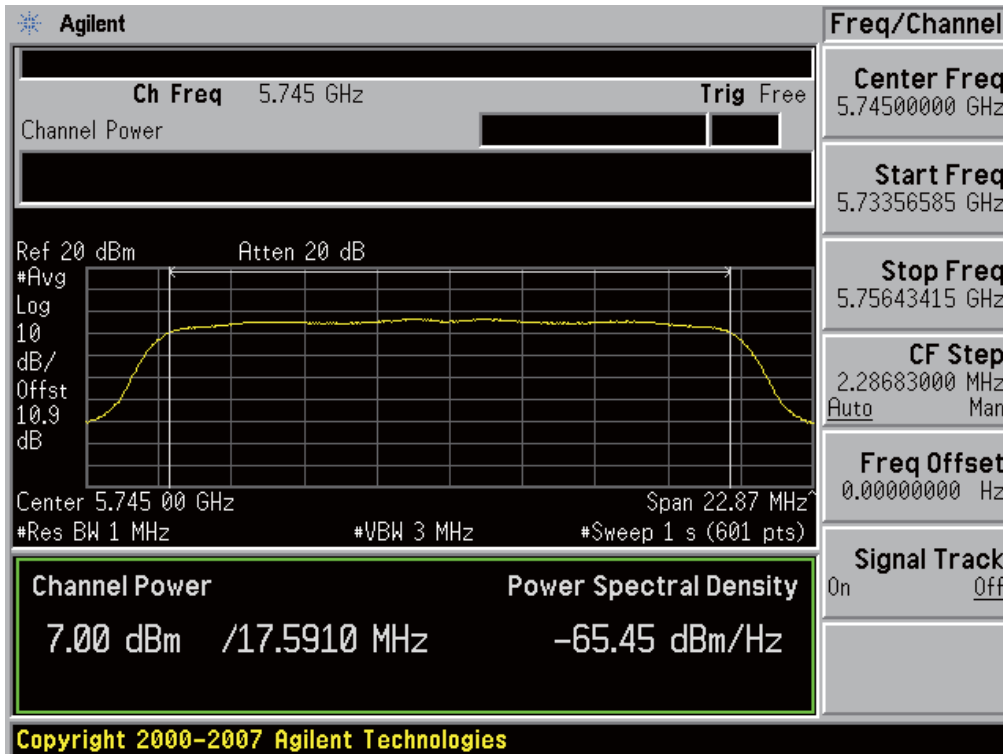
Conducted Output Power (802.11n-CH 149) 52 Mbps



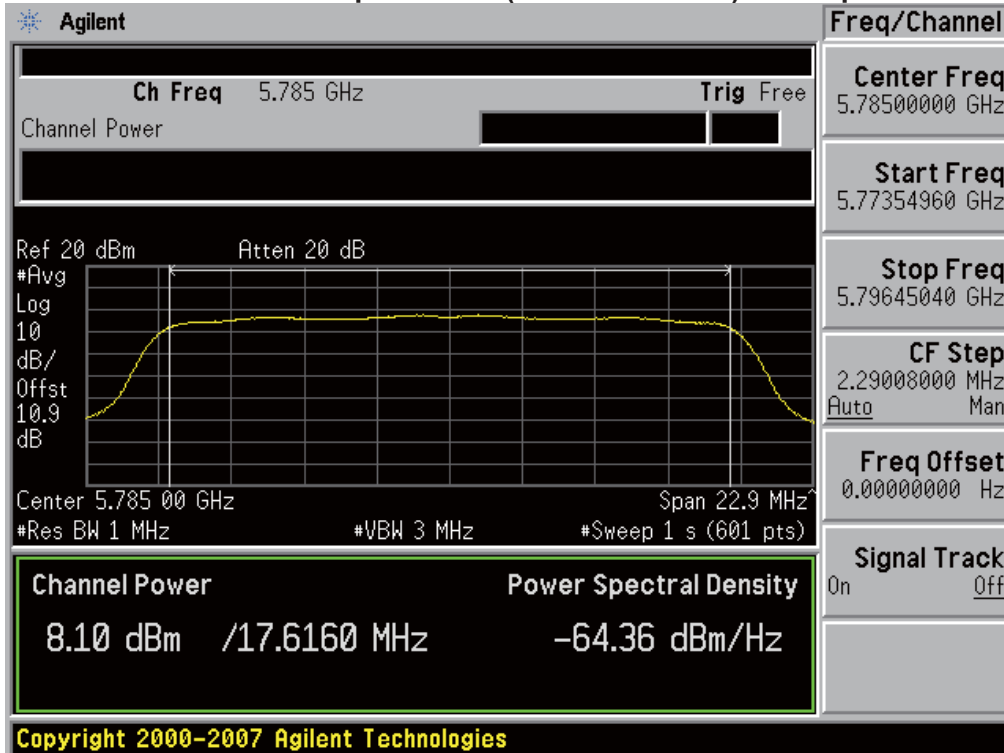
Conducted Output Power (802.11n-CH 149) 58.5 Mbps



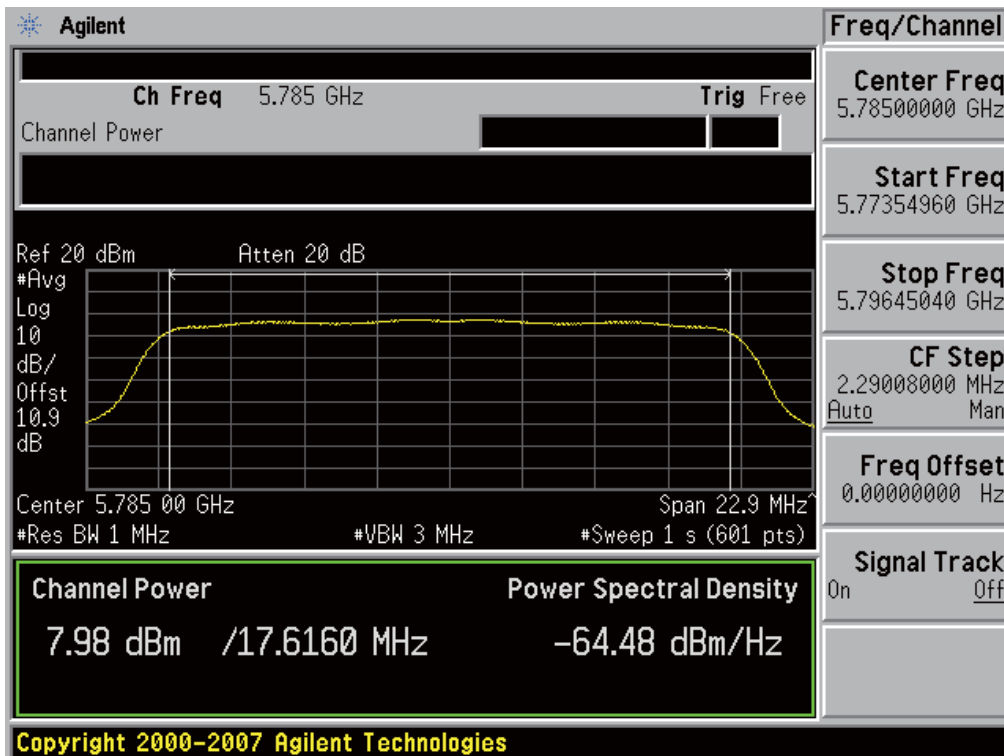
Conducted Output Power (802.11n-CH 149) 65 Mbps



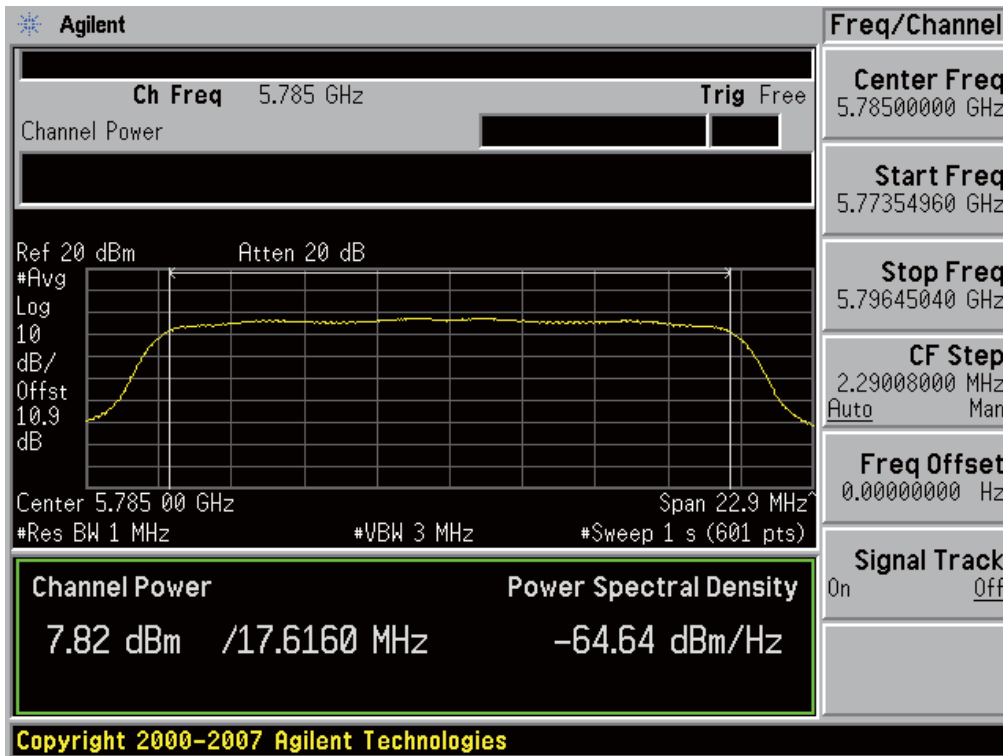
Conducted Output Power (802.11n-CH 157) 6.5 Mbps



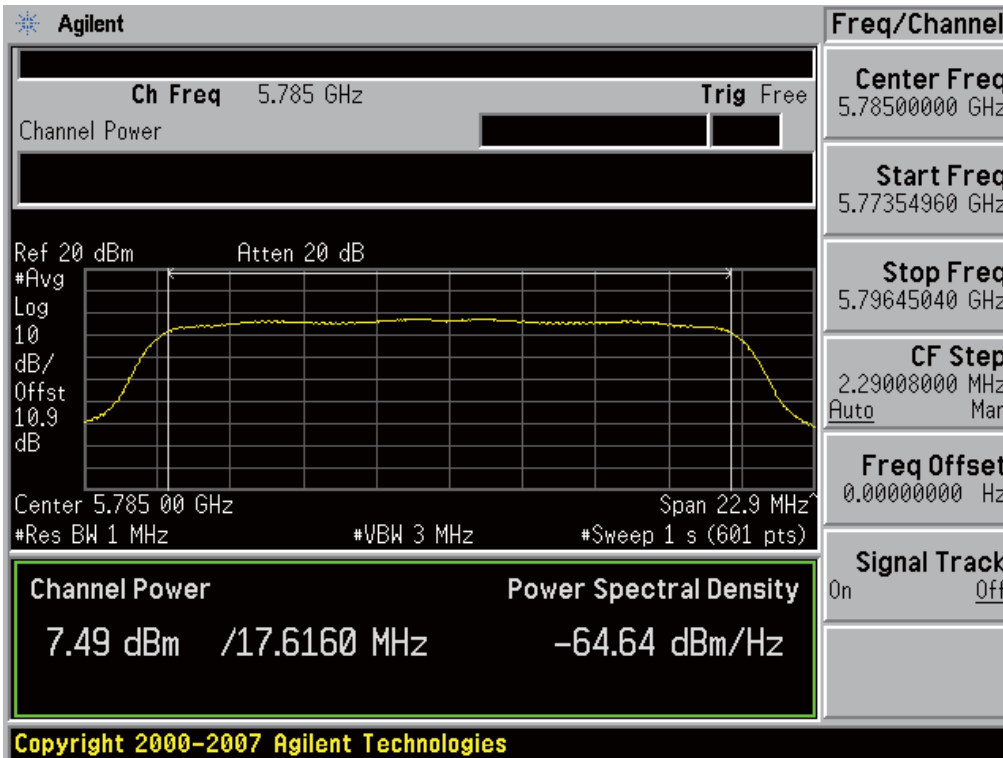
Conducted Output Power (802.11n-CH 157) 13 Mbps



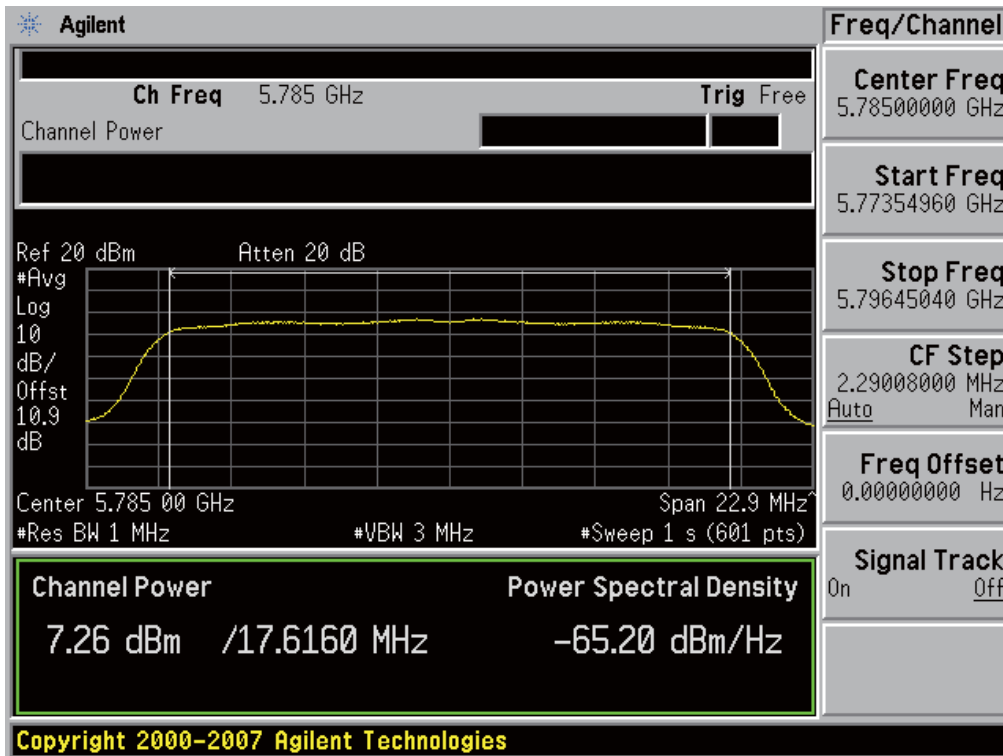
Conducted Output Power (802.11n-CH 157) 19.5 Mbps



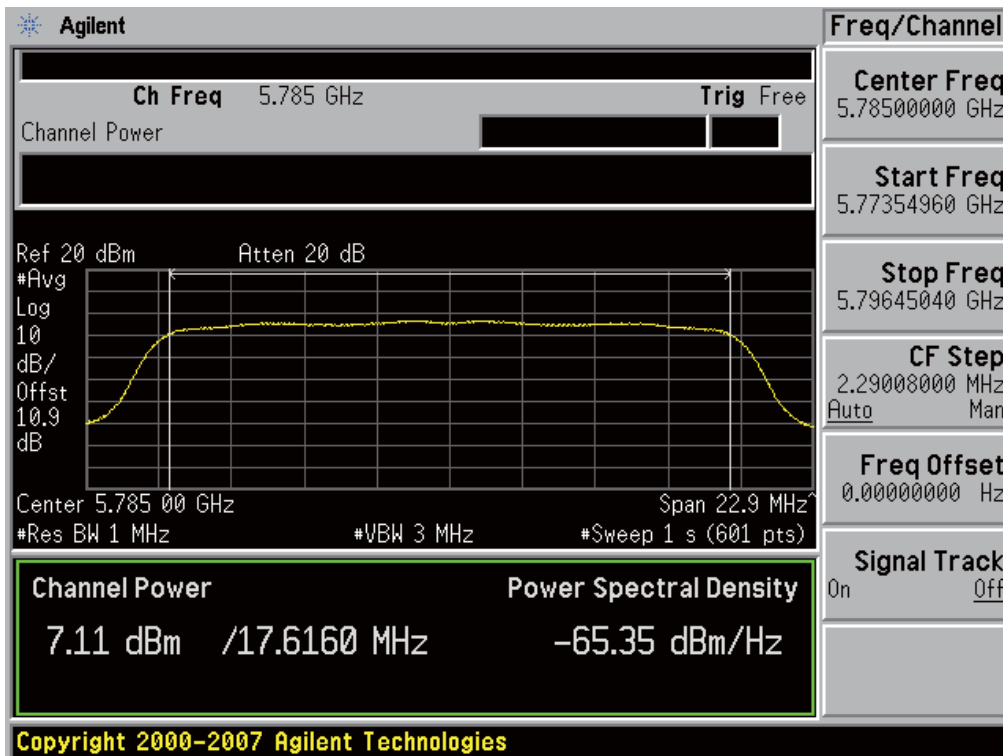
Conducted Output Power (802.11n-CH 157) 26 Mbps



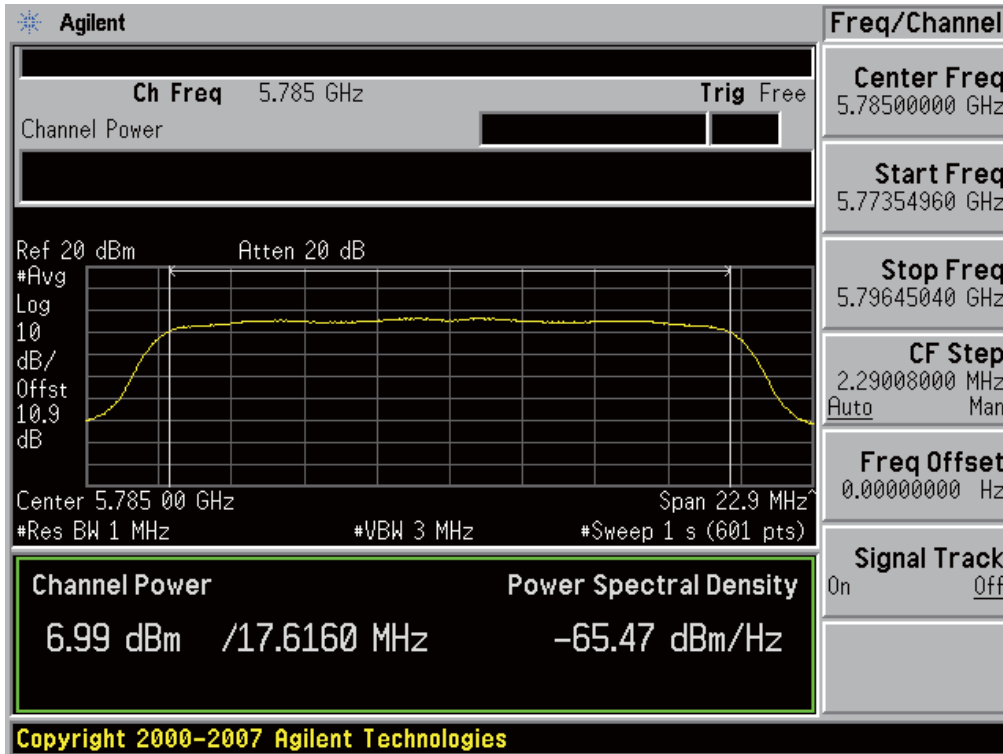
Conducted Output Power (802.11n-CH 157) 39 Mbps



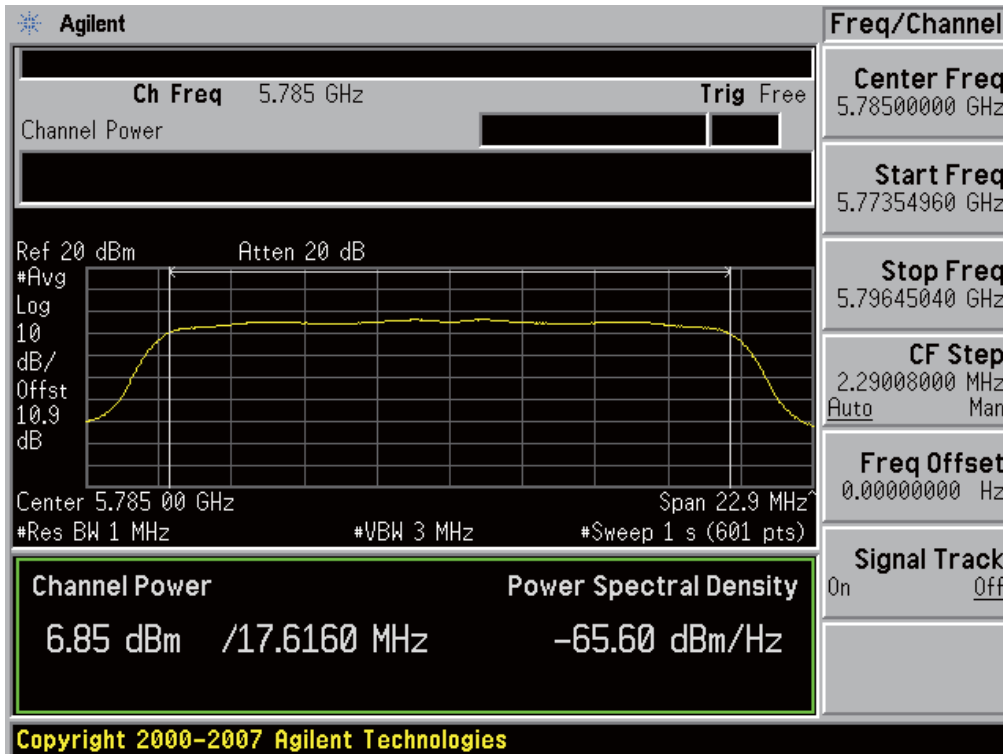
Conducted Output Power (802.11n-CH 157) 52 Mbps



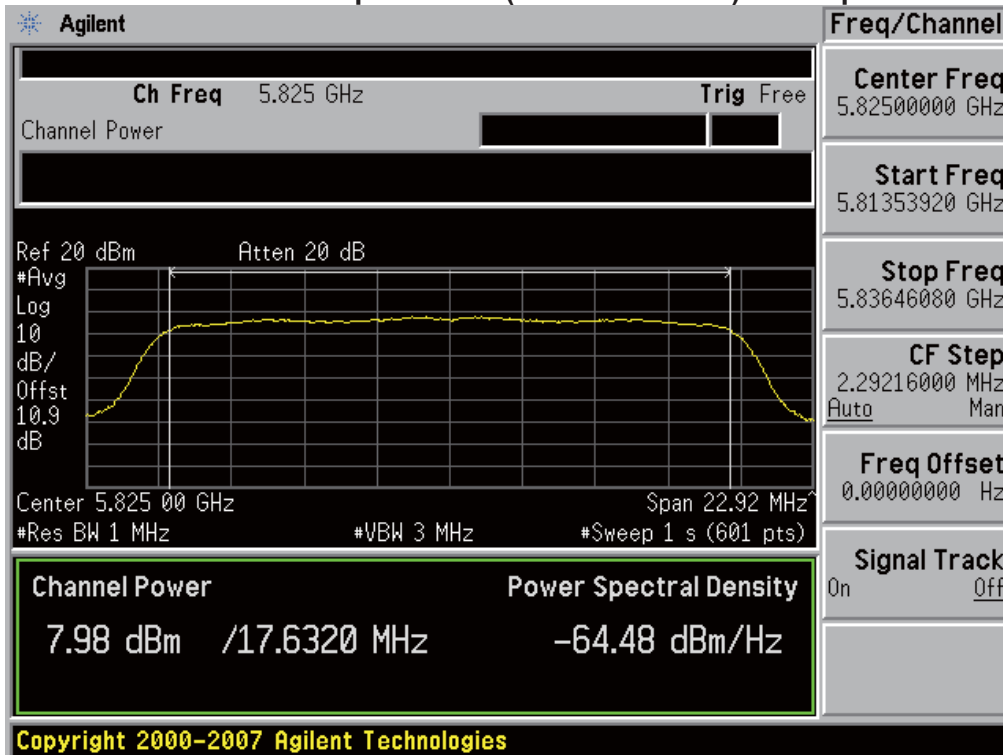
Conducted Output Power (802.11n-CH 157) 58.5 Mbps



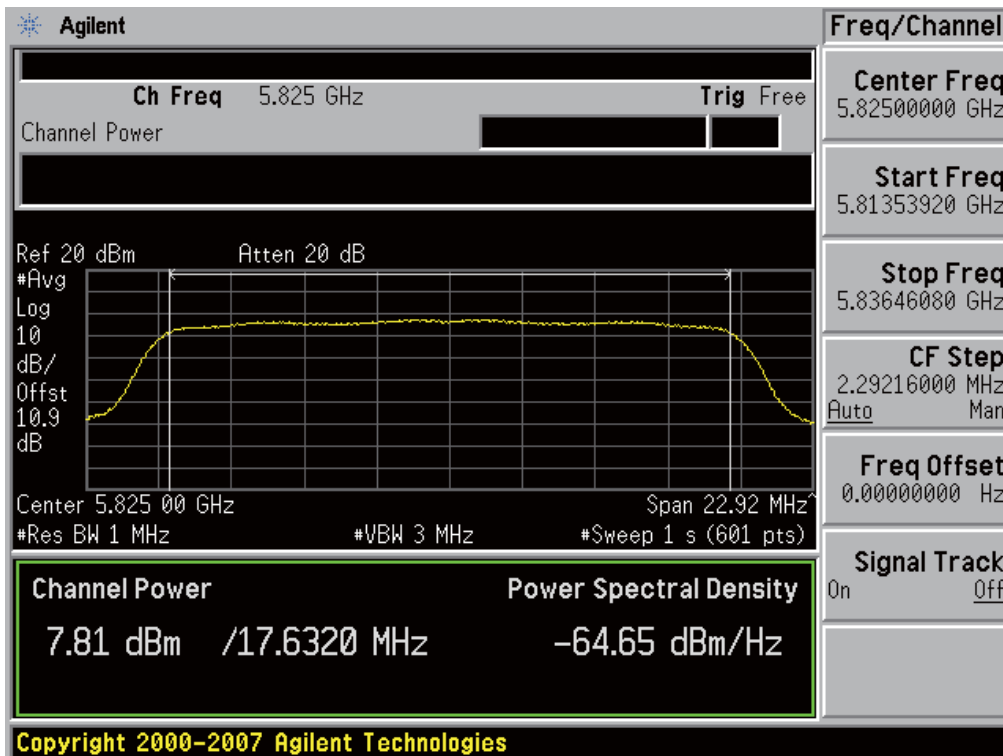
Conducted Output Power (802.11n-CH 157) 65 Mbps



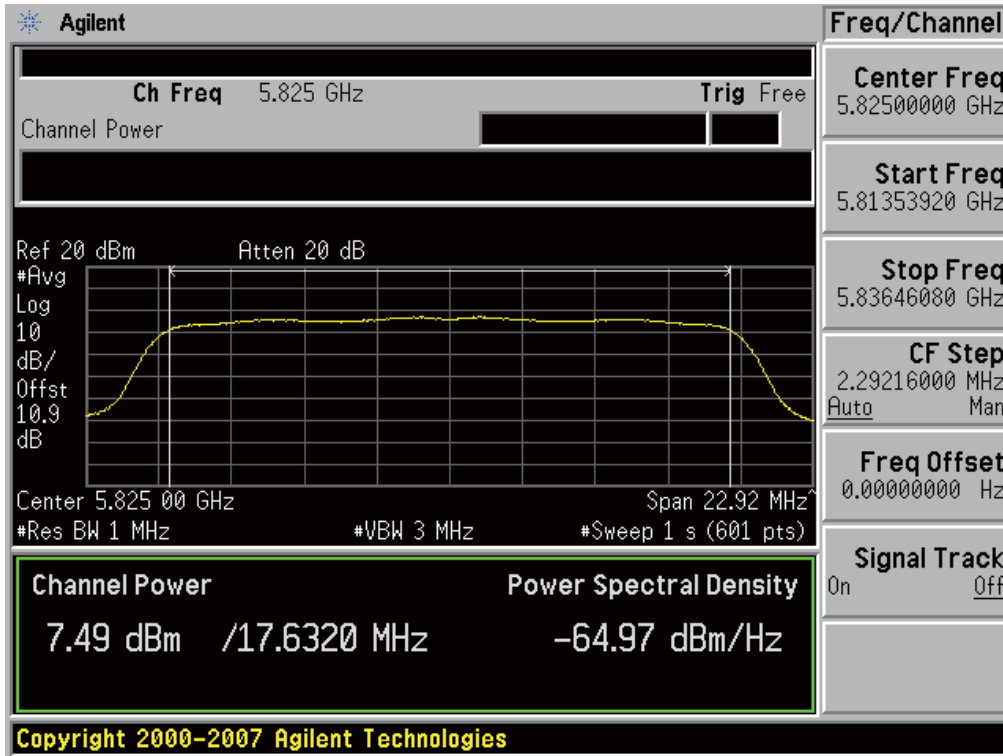
Conducted Output Power (802.11n-CH 165) 6.5 Mbps



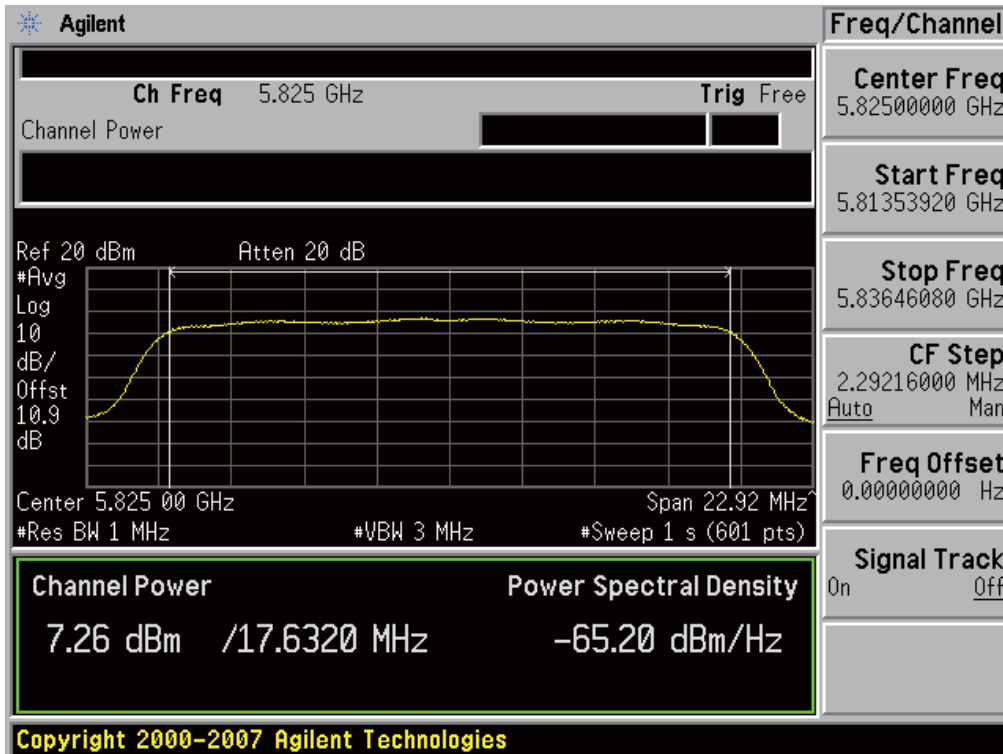
Conducted Output Power (802.11n-CH 165) 13 Mbps



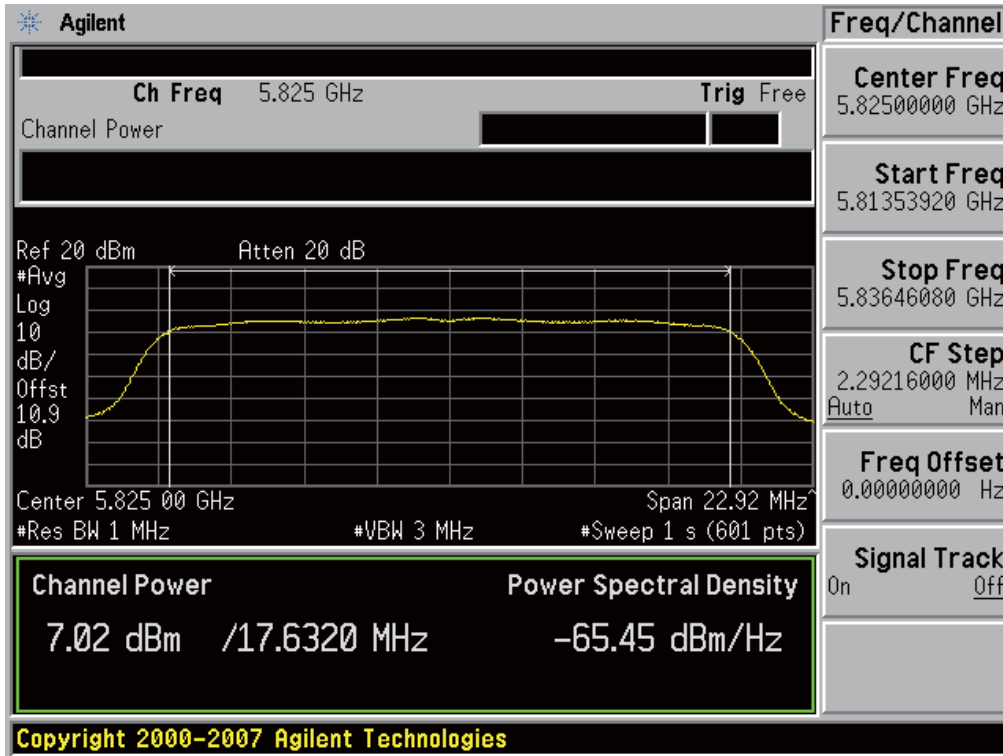
Conducted Output Power (802.11n-CH 165) 19.5 Mbps



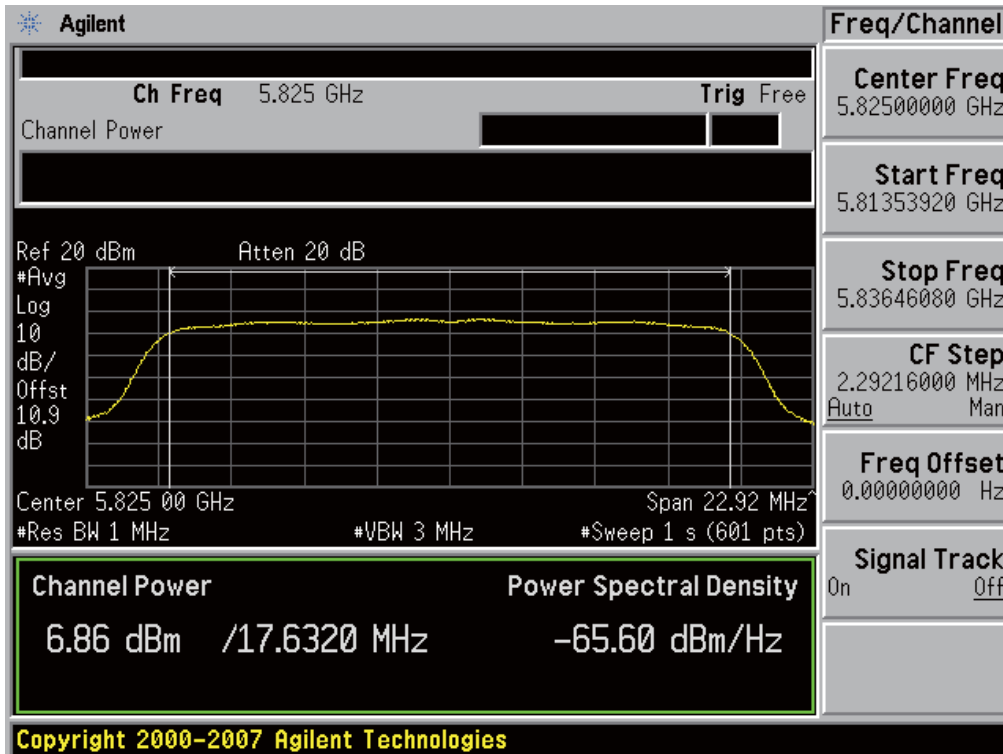
Conducted Output Power (802.11n-CH 165) 26 Mbps



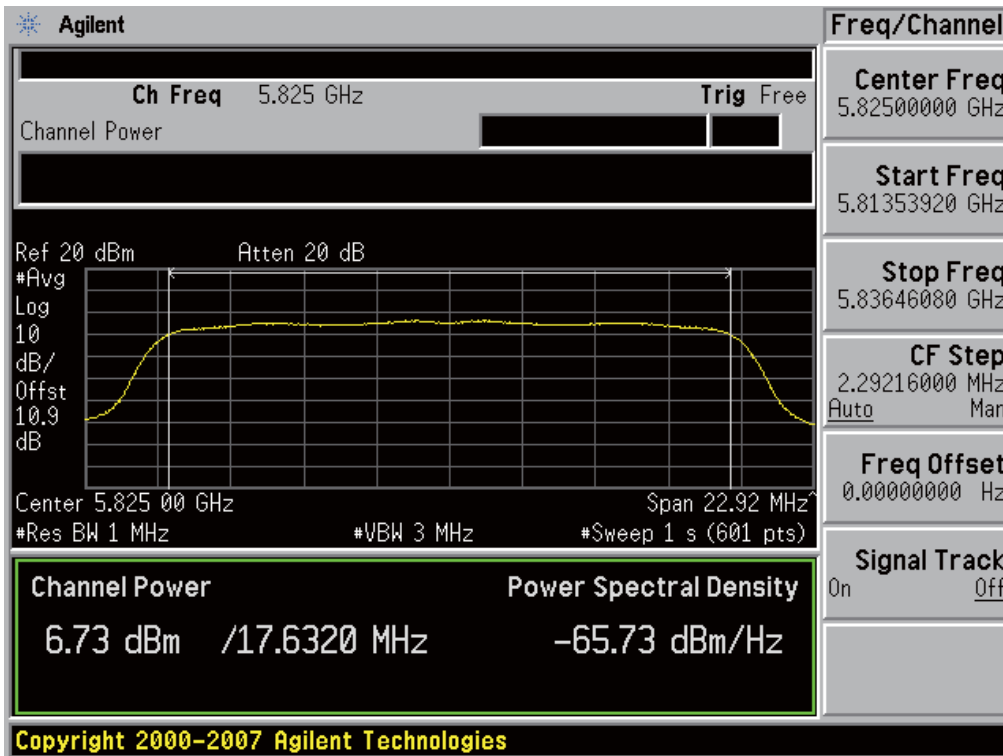
Conducted Output Power (802.11n-CH 165) 39 Mbps



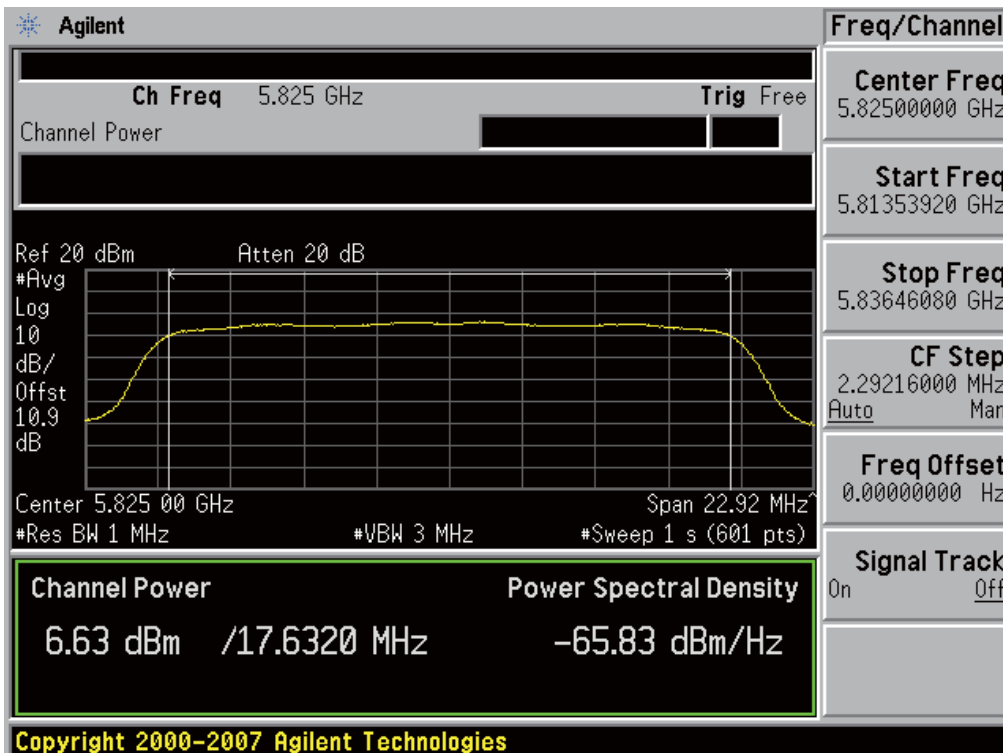
Conducted Output Power (802.11n-CH 165) 52 Mbps



Conducted Output Power (802.11n-CH 165) 58.5 Mbps



Conducted Output Power (802.11n-CH 165) 65 Mbps



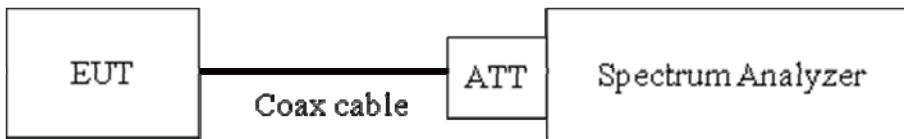
8.3 POWER SPECTRAL DENSITY (802.11a/b/g/n)

Test Requirements and limit, §15.247(e)

The peak power spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating in transmission mode at the appropriate frequencies.

Minimum Standard – the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

■ TEST CONFIGURATION



■ TEST PROCEDURE

We tested according to KDB 558074(issued 1/18/2012).

The spectrum analyzer is set to :

1. Span = 5 – 30 % greater than the EBW
2. RBW = 100 kHz
3. VBW = 300 kHz
4. Sweep = Auto couple
5. Detector Mode = Peak
6. Trace Mode = Max hold

■ Sample Calculation

$$\begin{aligned} \text{PSD} &= \text{Reading Value} + \text{ATT loss} + \text{Cable loss}(1 \text{ ea}) + \text{BWCF} \\ &= -5 \text{ dBm} + 10 \text{ dB} + 0.8 \text{ dB} - 15.2 \text{ dB} = 0.6 \text{ dBm} \end{aligned}$$

$$\text{Where: BWCF(Bandwidth Correction Factor)} = 10\log(3 \text{ kHz}/100 \text{ kHz}) = -15.2 \text{ dB}$$

Note :

1. Spectrum reading values are not plot data. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 10.49 dB at 2412 MHz and is 10.52 dB at 2462 MHz. So, the offset is 10.5 dB. And the offset gab in the 2.4 GHz range do not affect the power spectral density final result.
4. We apply to the offset in the 5.8 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 10.91 dB at 5745 MHz, 10.94 dB at 5785 MHz and 5825 MHz.

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■ TEST RESULTS

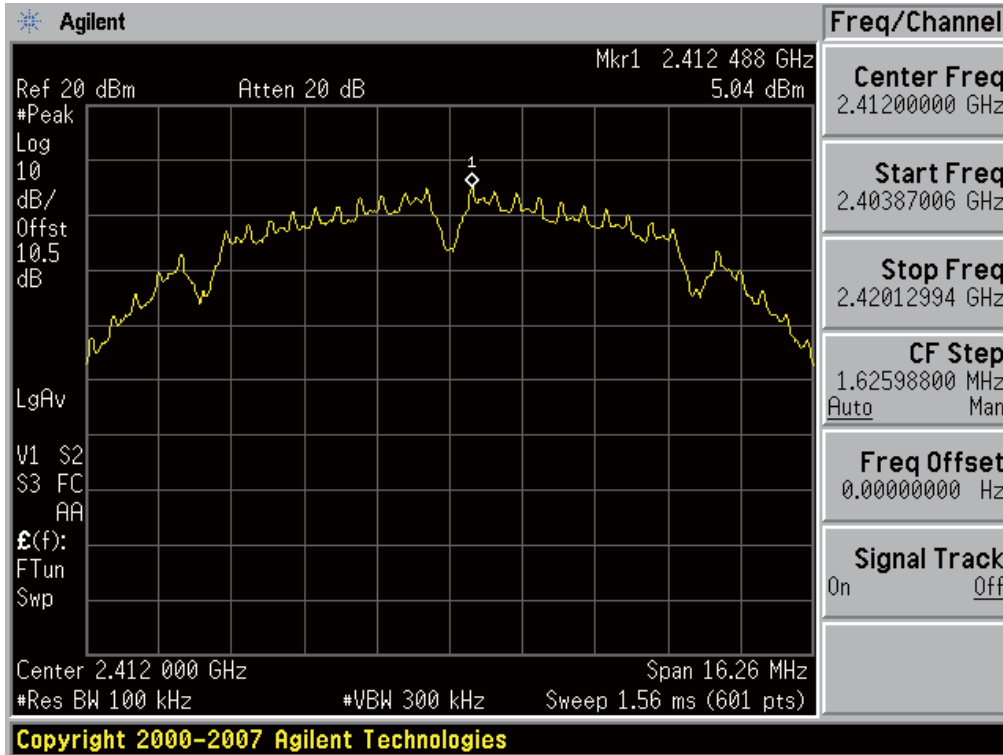
Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result				
			Spectrum Value(dBm)	BWCF (dB)	PSD (dBm)	Limit (dBm)	Pass/Fail
2412	1	802.11b	5.04	-15.2	-10.16	8	Pass
2437	6		5.27	-15.2	-9.93	8	Pass
2462	11		5.39	-15.2	-9.81	8	Pass
2412	1	802.11g	2.58	-15.2	-12.62	8	Pass
2437	6		2.61	-15.2	-12.59	8	Pass
2462	11		3.05	-15.2	-12.15	8	Pass
2412	1	802.11n	1.67	-15.2	-13.53	8	Pass
2437	6	2.4 GHz Band	1.70	-15.2	-13.50	8	Pass
2462	11		1.97	-15.2	-13.23	8	Pass
5745	149	802.11a	1.592	-15.2	-13.61	8	Pass
5785	157		1.071	-15.2	-14.13	8	Pass
5825	165		0.748	-15.2	-14.45	8	Pass
5745	149	802.11n	-0.347	-15.2	-15.55	8	Pass
5785	157	5.8 GHz Band	-0.602	-15.2	-15.80	8	Pass
5825	165		-1.095	-15.2	-16.30	8	Pass

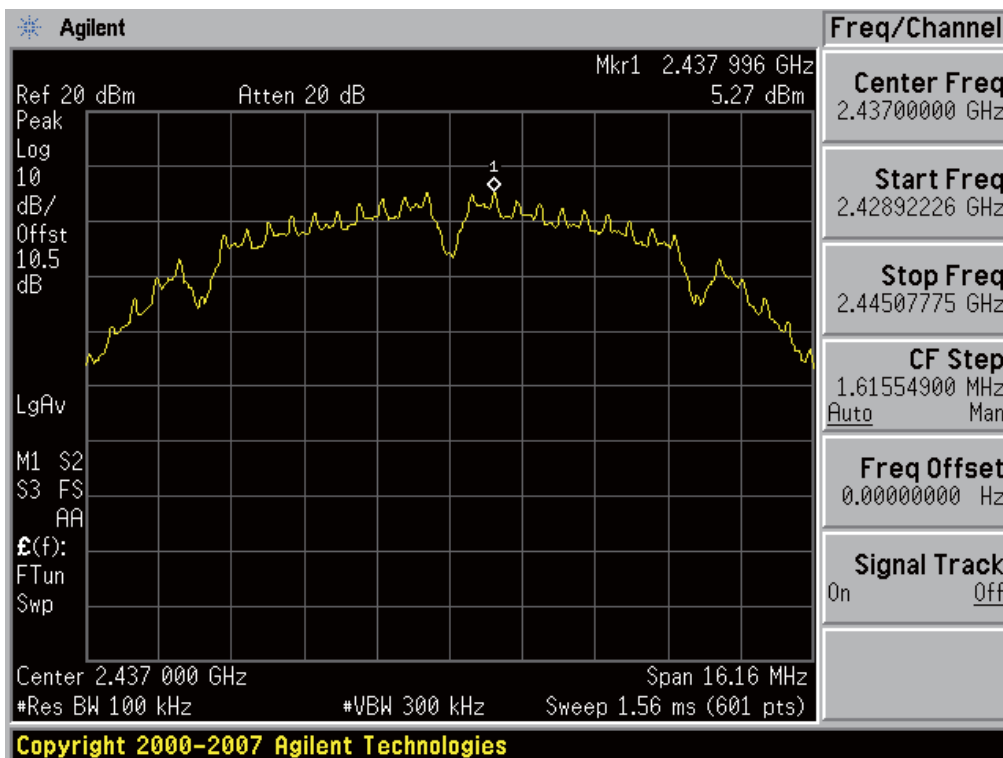
Note : PSD = Spectrum Value + BWCF

RESULT PLOTS

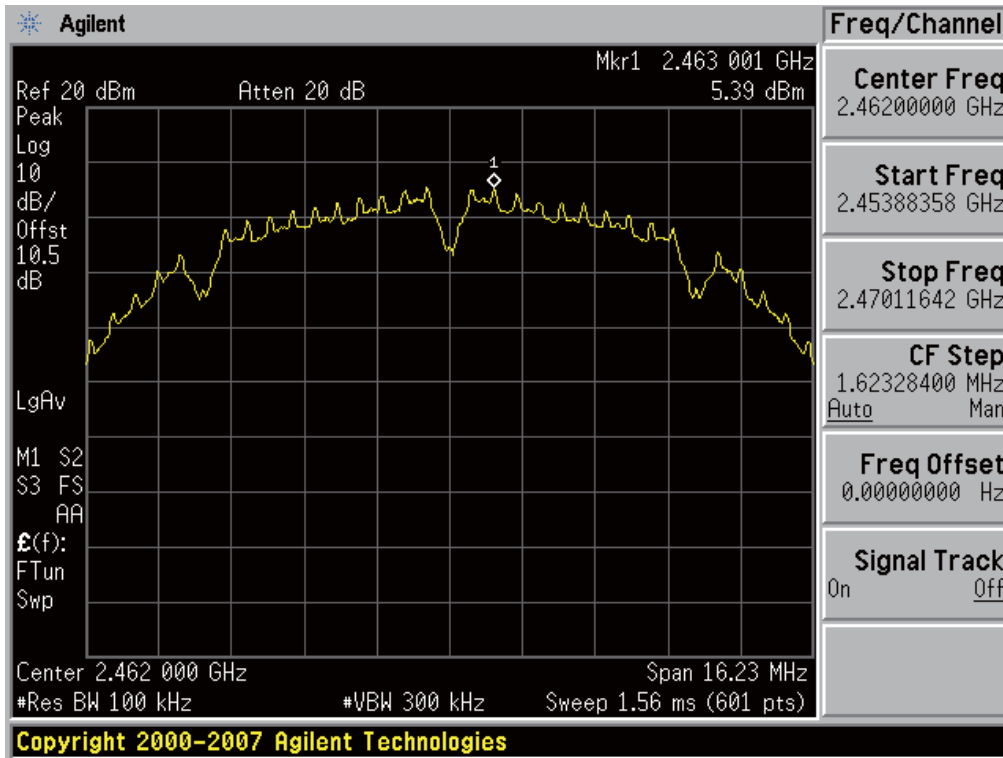
Power Spectral Density (802.11b-CH 1)



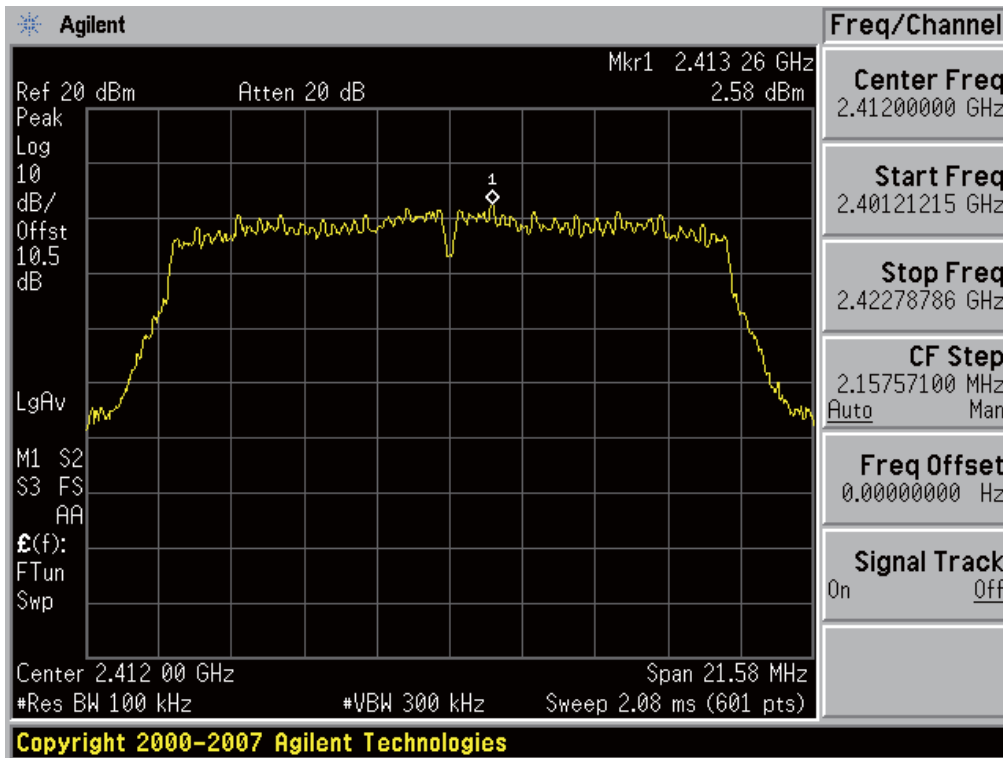
Power Spectral Density (802.11b-CH 6)



Power Spectral Density (802.11b-CH 11)

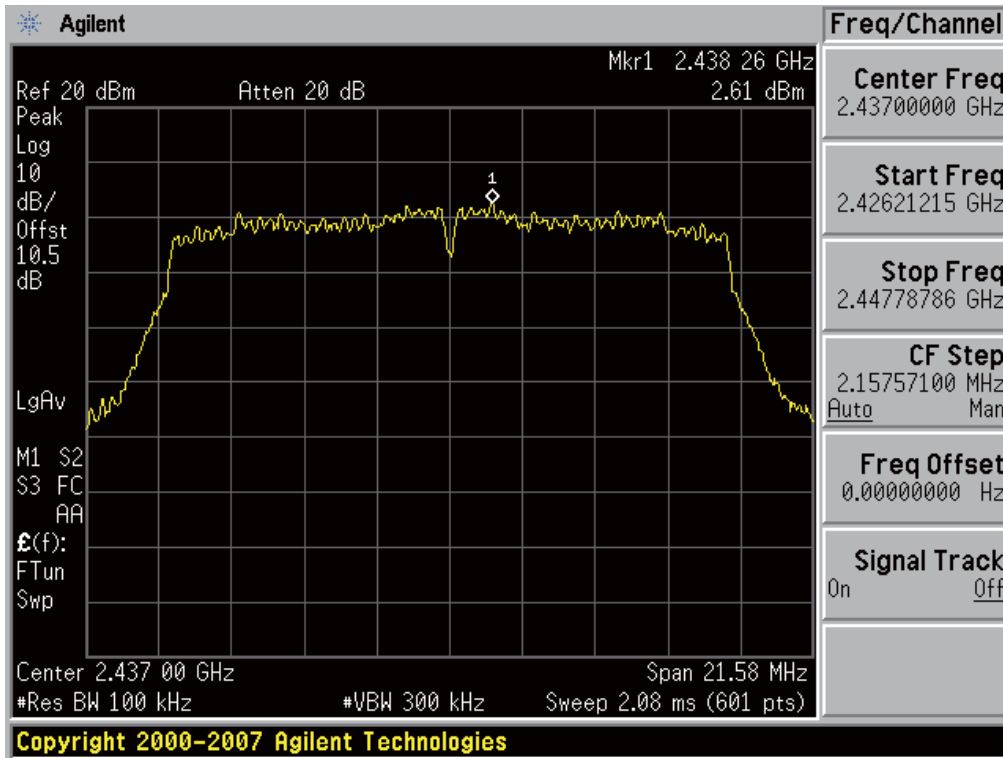


Power Spectral Density (802.11g-CH 1)

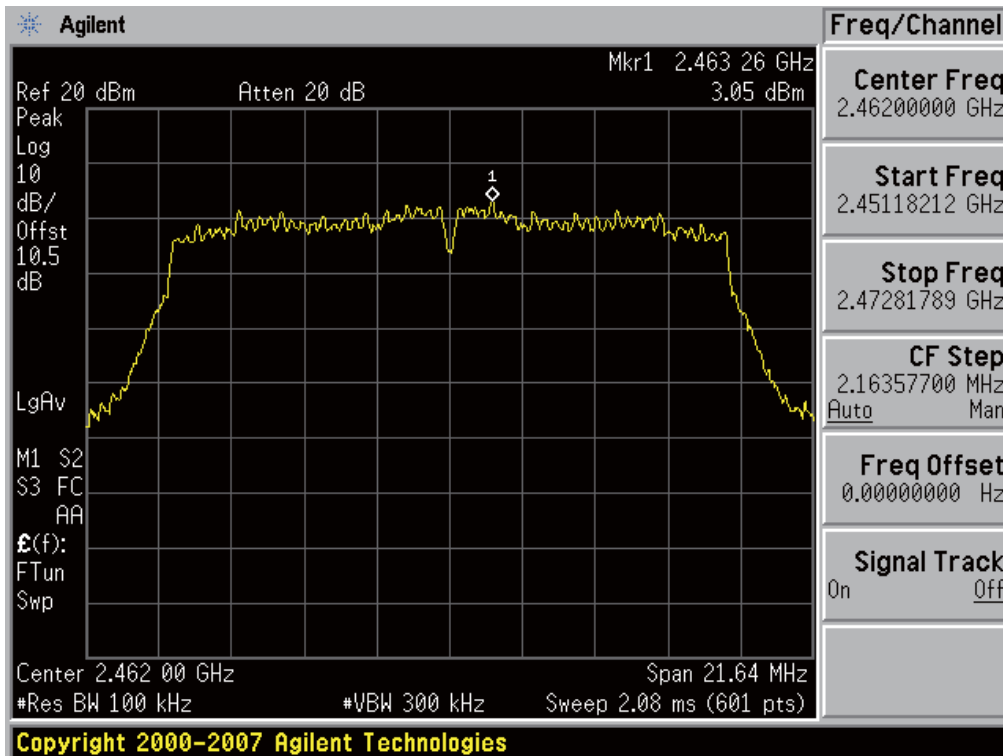


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
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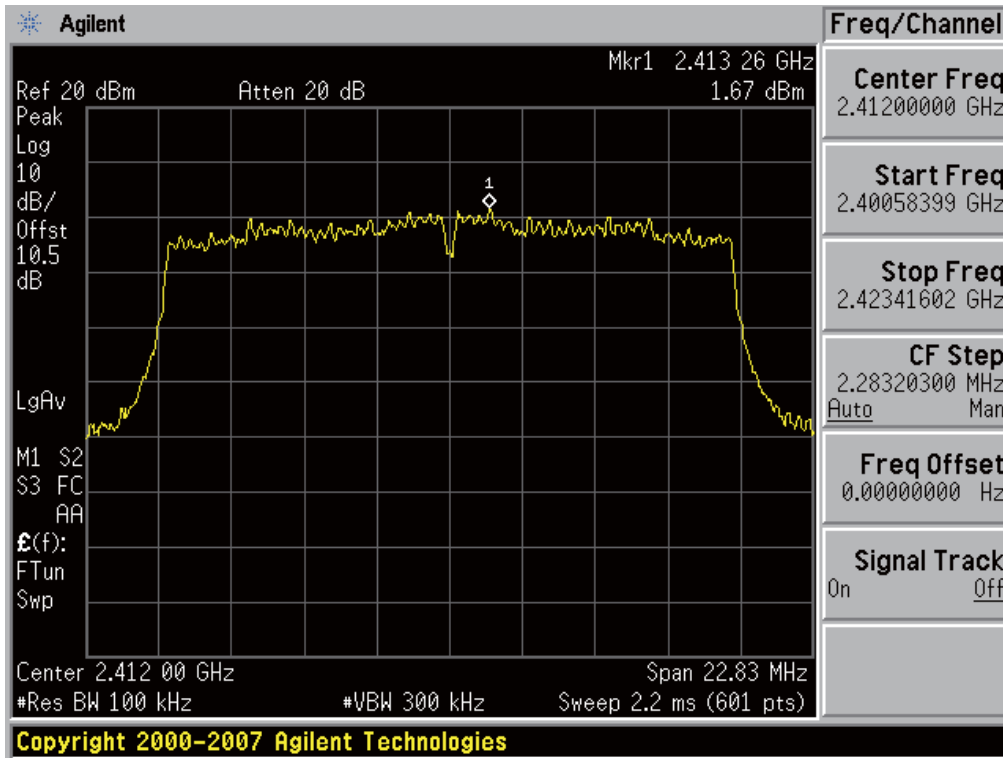
Power Spectral Density (802.11g-CH 6)



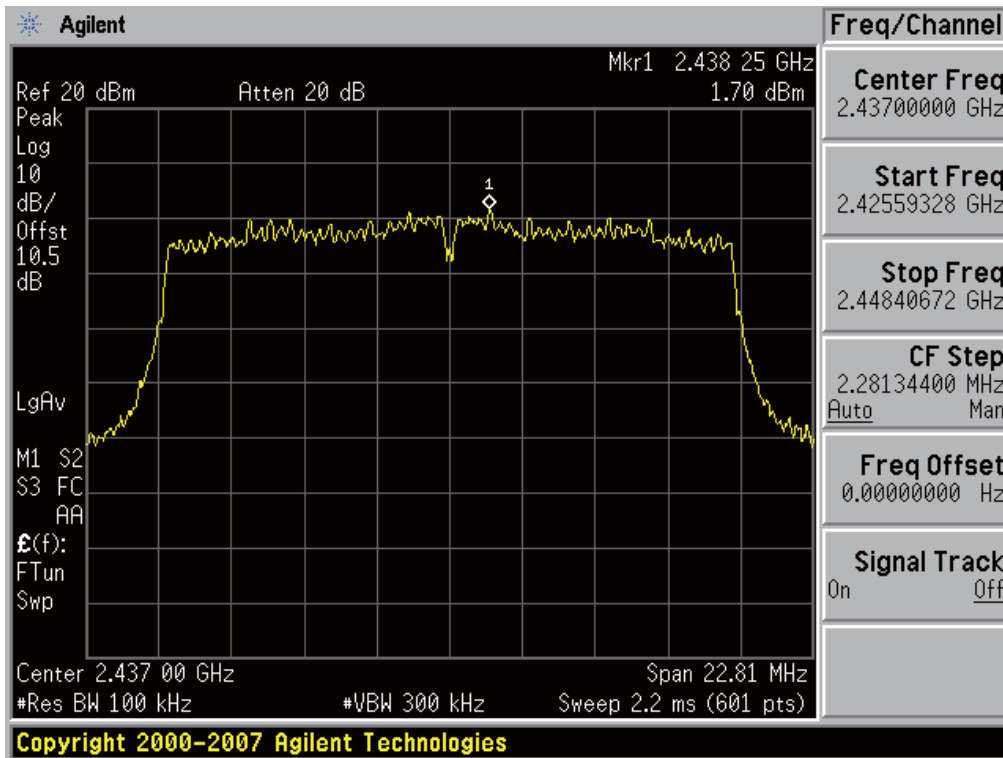
Power Spectral Density (802.11g-CH11)



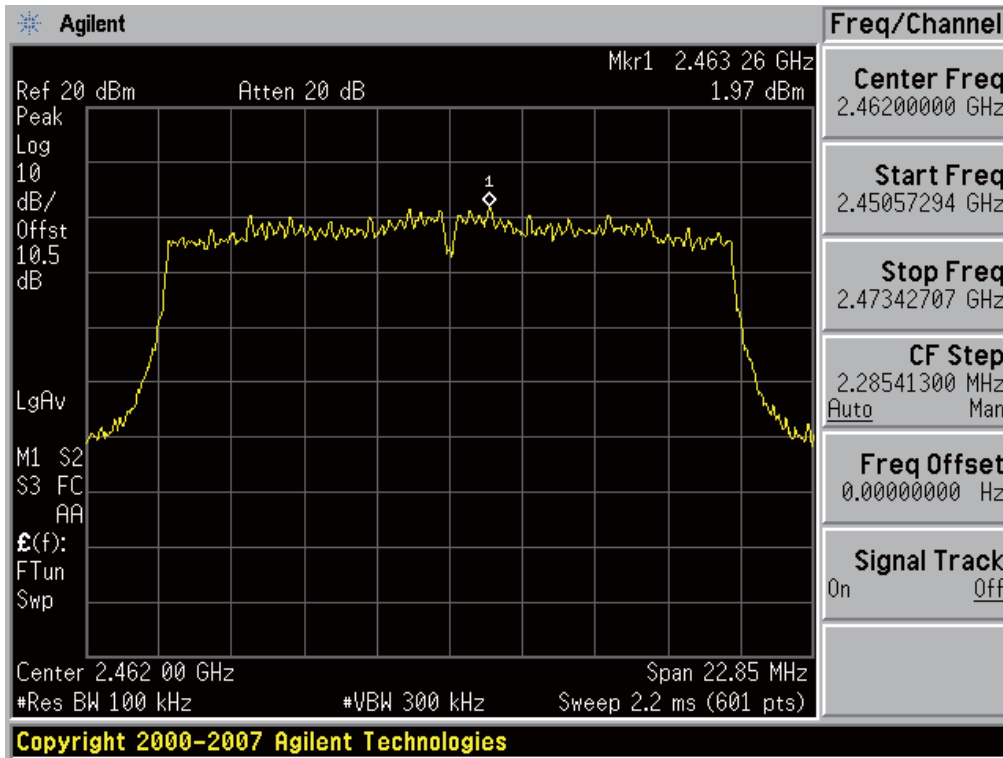
Power Spectral Density (802.11n-CH 1)



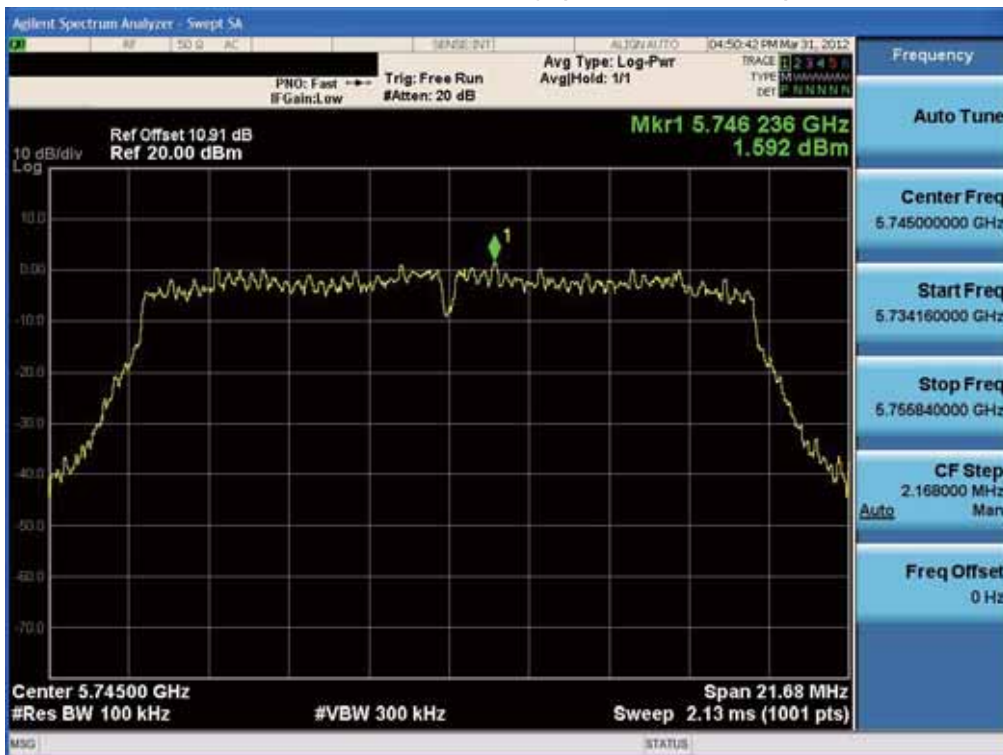
Power Spectral Density (802.11n-CH 6)



Power Spectral Density (802.11n-CH11)



Power Spectral Density (802.11a-CH 149)

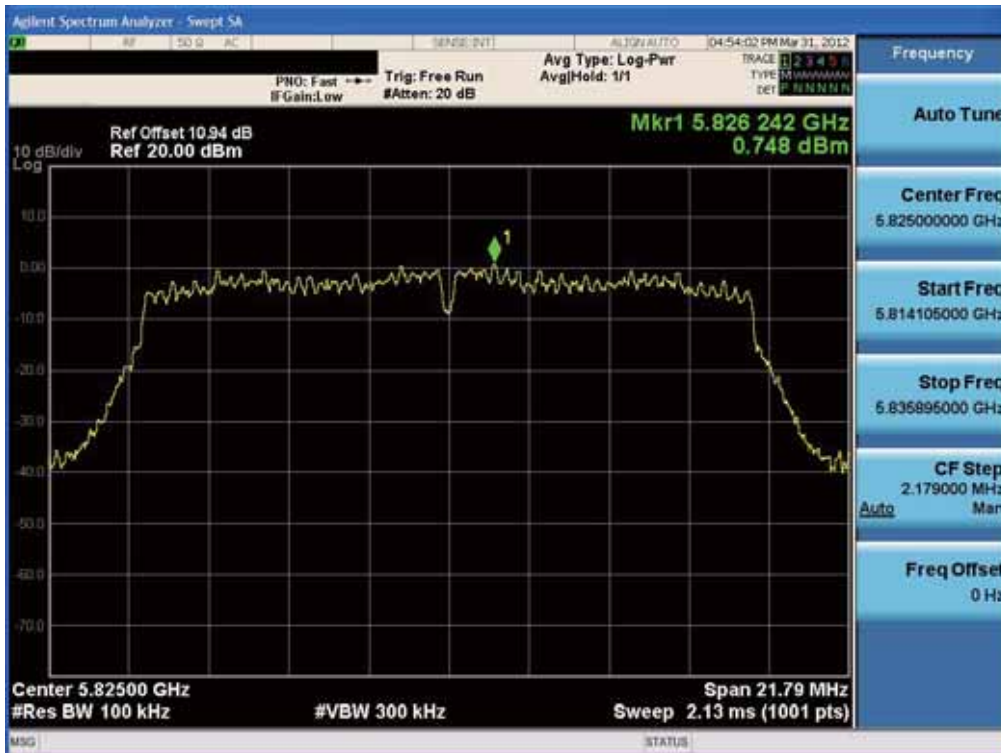


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Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Power Spectral Density (802.11a-CH 157)

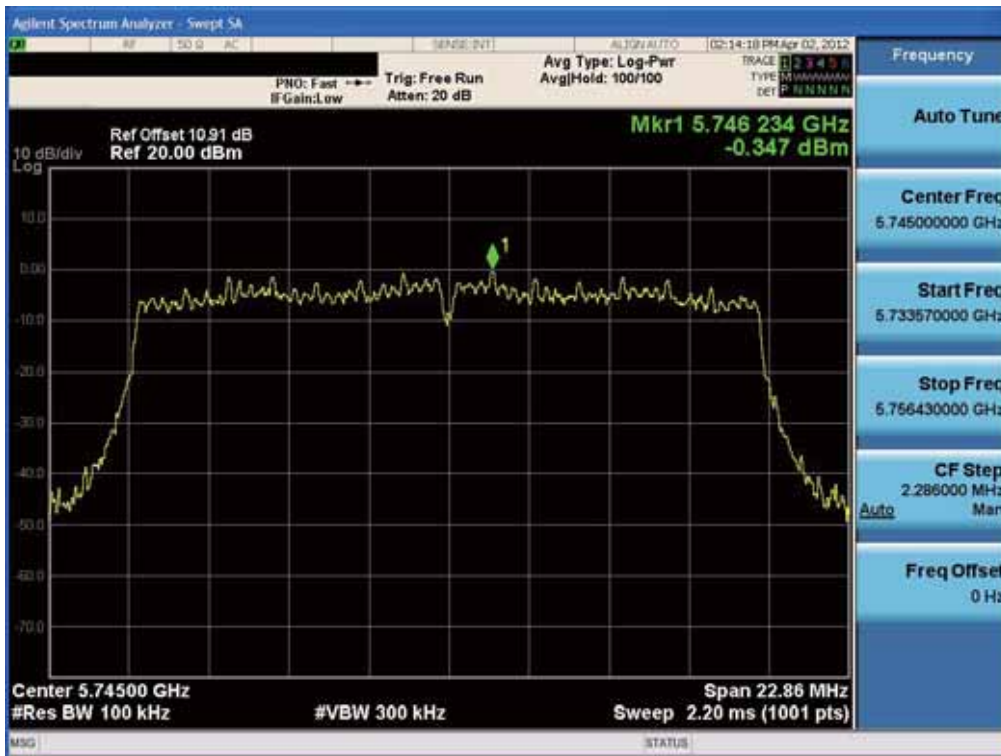


Power Spectral Density (802.11a-CH 165)

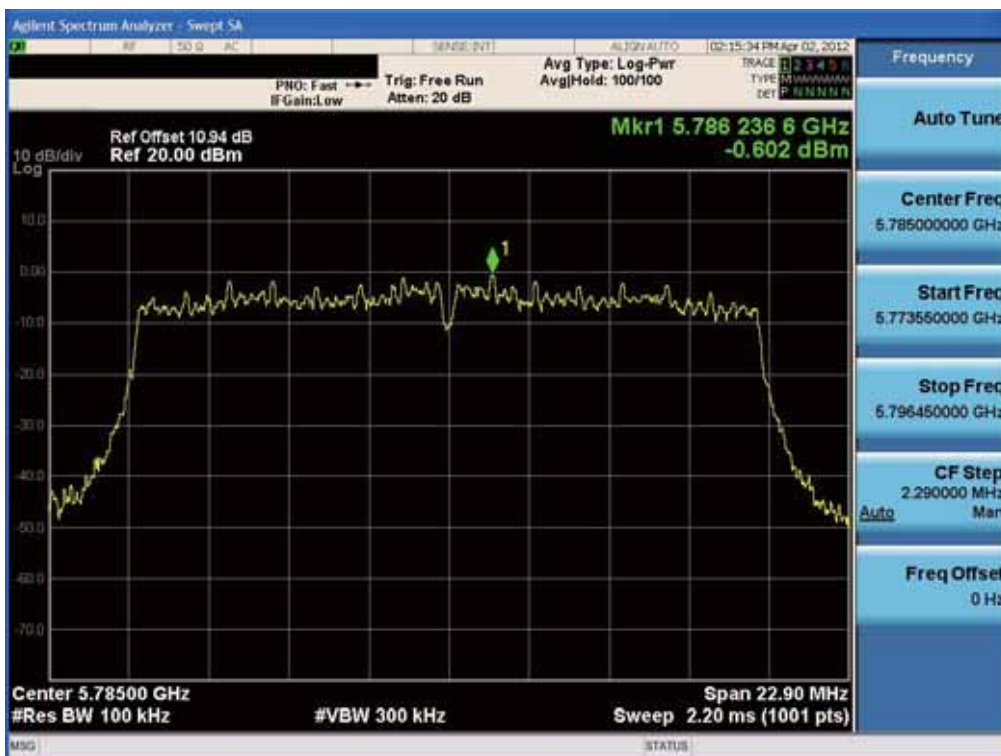


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Power Spectral Density (802.11n-CH 149)

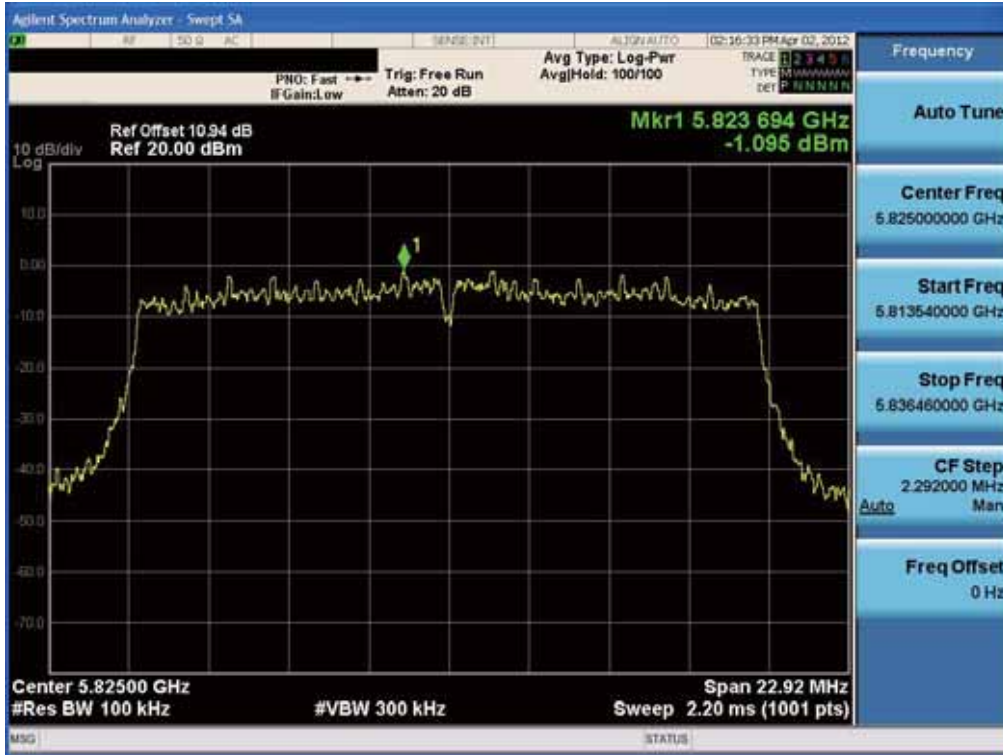


Power Spectral Density (802.11n-CH 157)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Power Spectral Density (802.11n-CH 165)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

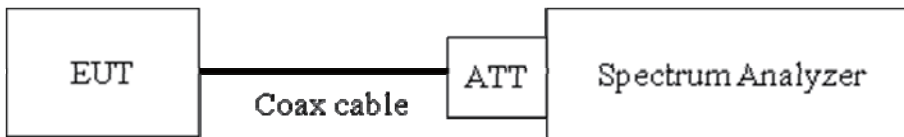
8.4 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS

Test Requirements and limit, §15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit : 20 dBc

■ TEST CONFIGURATION



■ TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 100 kHz.

Detector Mode is set to a peak detector Mode.

Measurements are made over the 30 MHz to 26 GHz range with the transmitter set to the lowest, middle, and highest channels.

Note :

1. The band edge results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 10.49 dB at 2412 MHz and is 10.52 dB at 2462 MHz. So, the offset is 10.5 dB. And the offset gap in the 2.4 GHz range do not affect the band edge final result.
4. We apply to the offset in the 5.8 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is 10.91 dB at 5745 MHz, 10.94 dB at 5785 MHz and 5825 MHz.
5. In case of conducted spurious emissions test, please check factors blow table.

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■ FACTORS FOR FREQUENCY

Freq(MHz)	Factor(dB)
30	9.96
100	10.00
100	10.06
200	10.12
300	10.16
400	10.12
500	10.14
600	10.19
700	10.34
800	10.25
900	10.29
1000	10.26
1000	10.31
2000	10.53
2400*	10.49
2500*	10.53
3000	10.66
4000	10.77
5000	10.73
6000	10.99
7000	11.18
8000	11.33
9000	11.48
10000	11.61
11000	12.09
12000	14.96
13000	12.55
14000	11.88
15000	11.83
16000	11.81
17000	11.98
18000	11.84
19000	12.14
20000	12.29
21000	12.33
22000	12.82
23000	12.86
24000	12.98
25000	13.08
26000	12.80
27000	12.46
28000	13.74
29000	13.88
30000	13.43
31000	12.20
32000	12.88
33000	13.05
34000	13.42
35000	13.24
36000	12.53
37000	12.94
38000	13.25
39000	13.18
40000	14.92

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP880

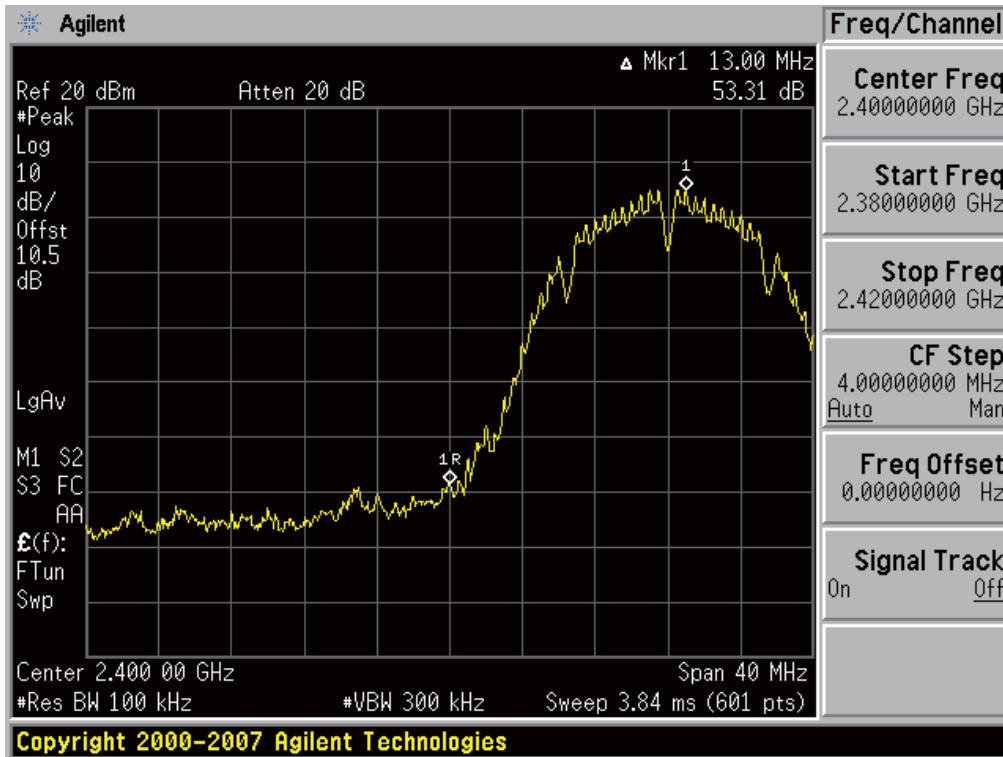


Note : 1. ** is fundamental frequency range.
2. Factor = Cable loss + Attenuator loss

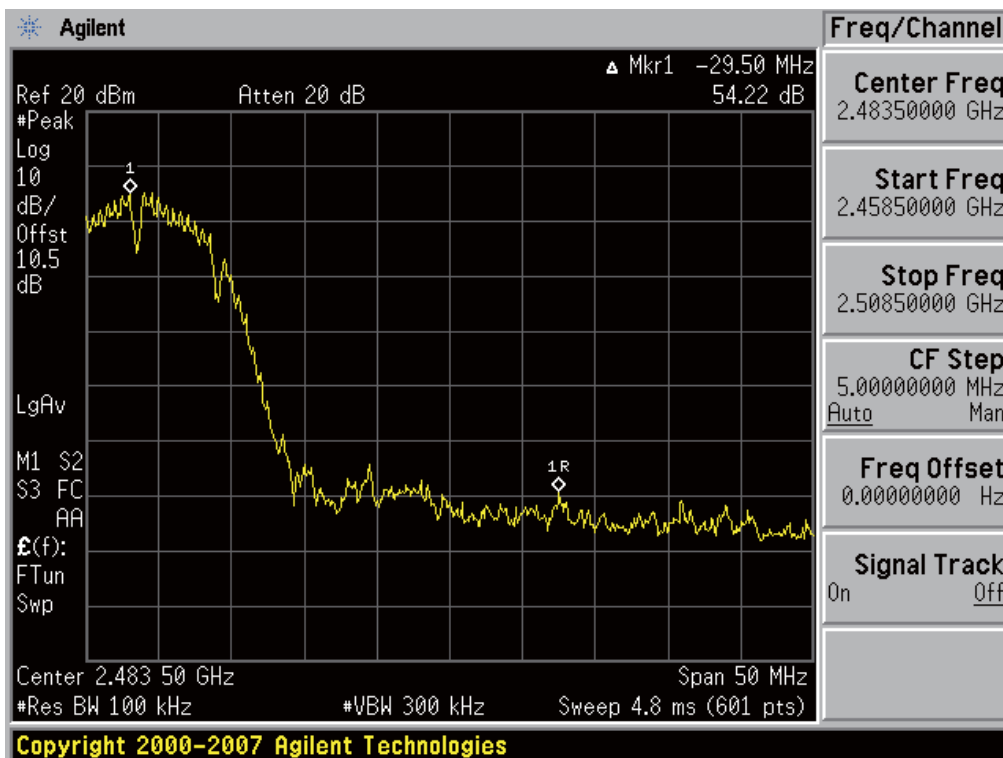
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

RESULT PLOTS

BandEdge (802.11b-CH1)

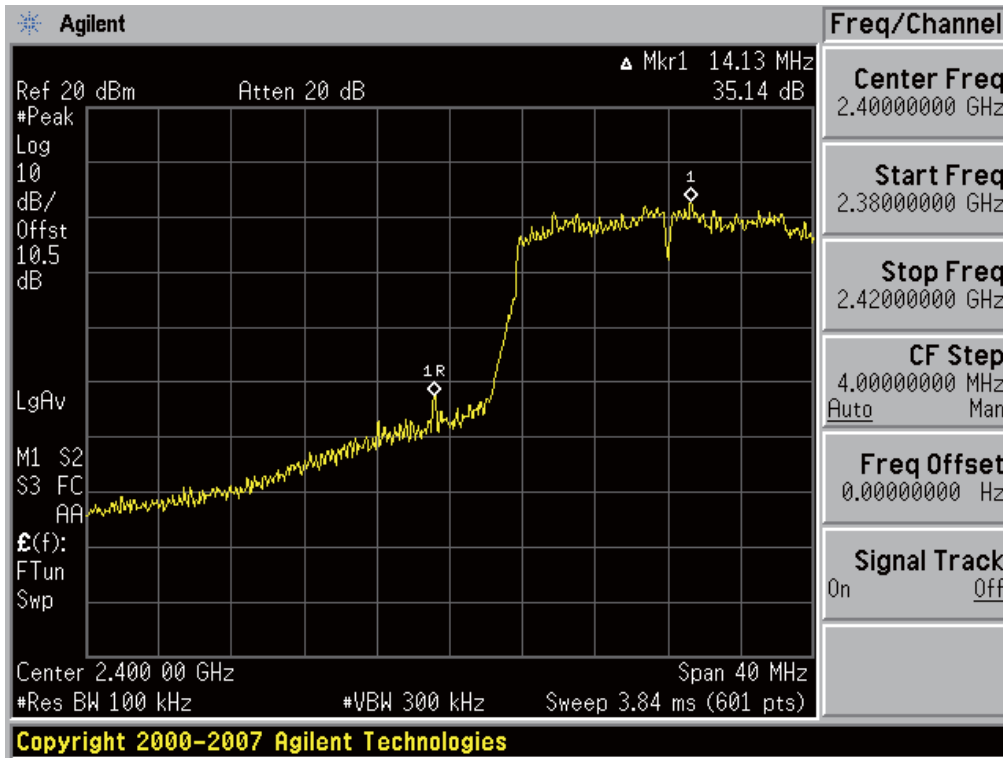


BandEdge (802.11b-CH11)

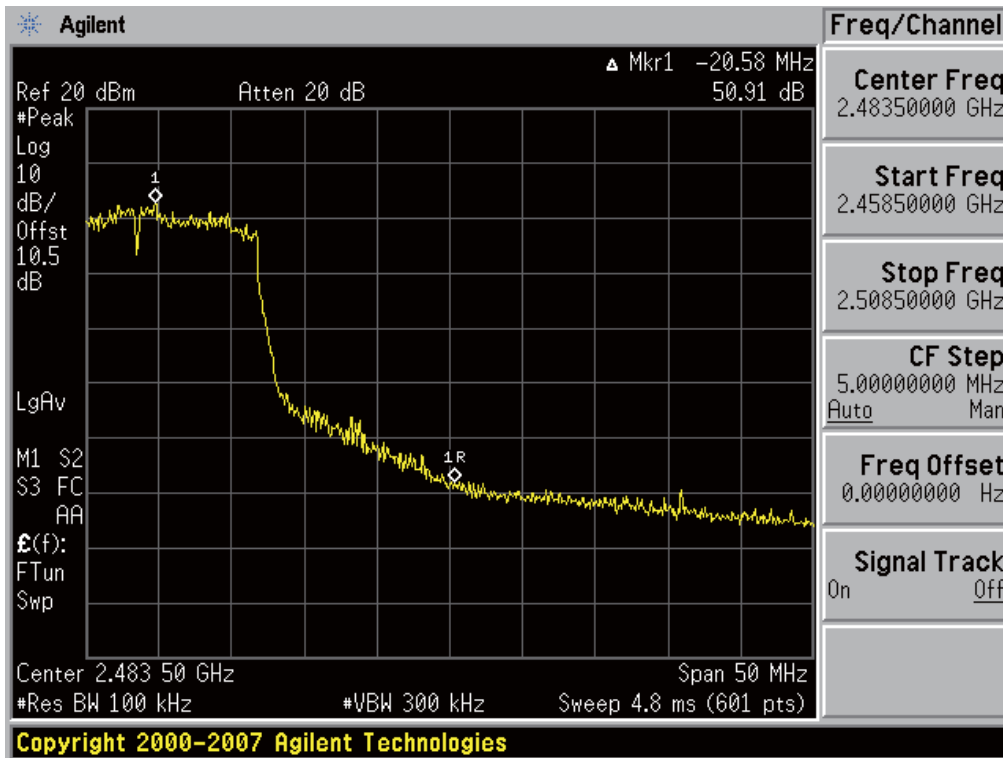


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

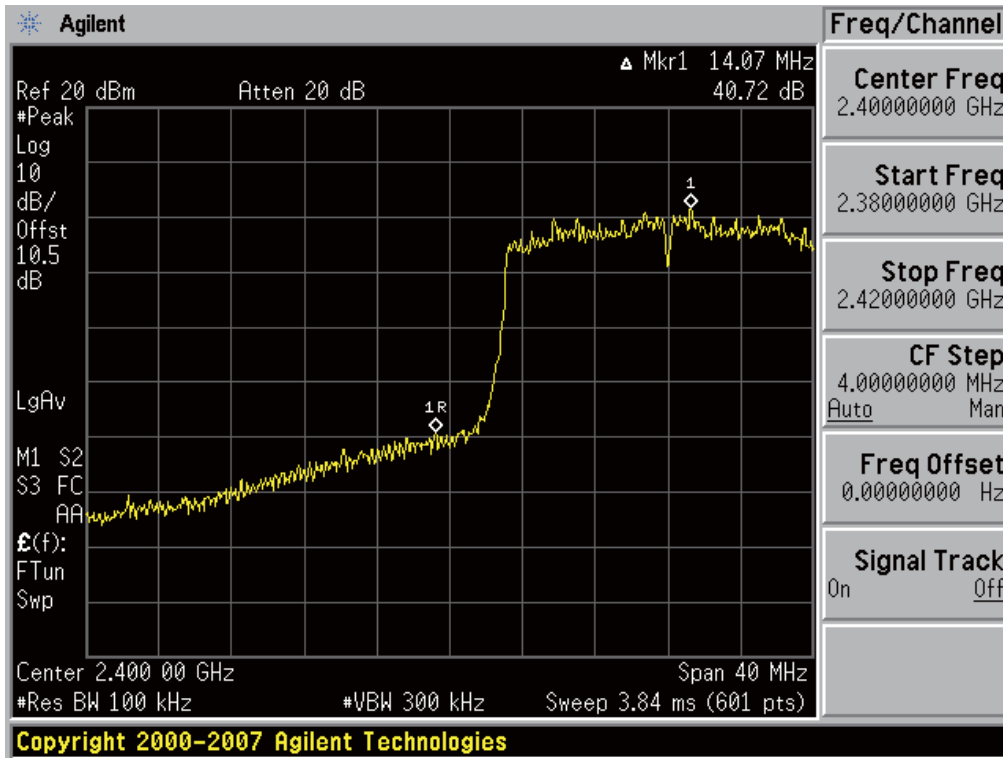
BandEdge (802.11g-CH1)



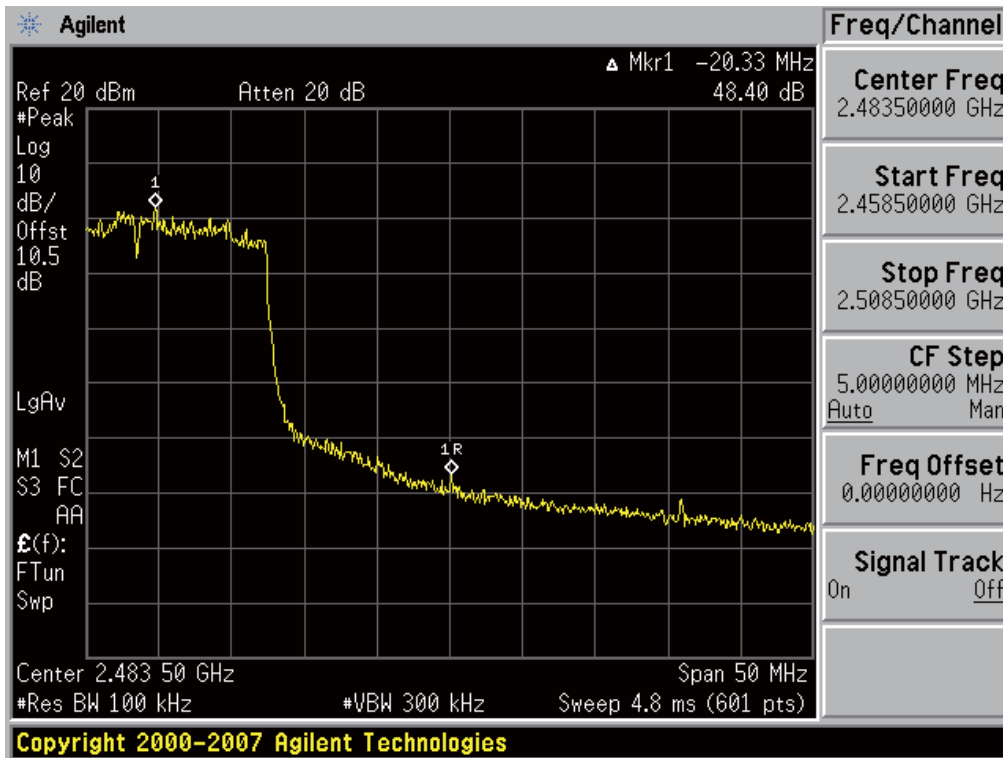
BandEdge (802.11g-CH11)



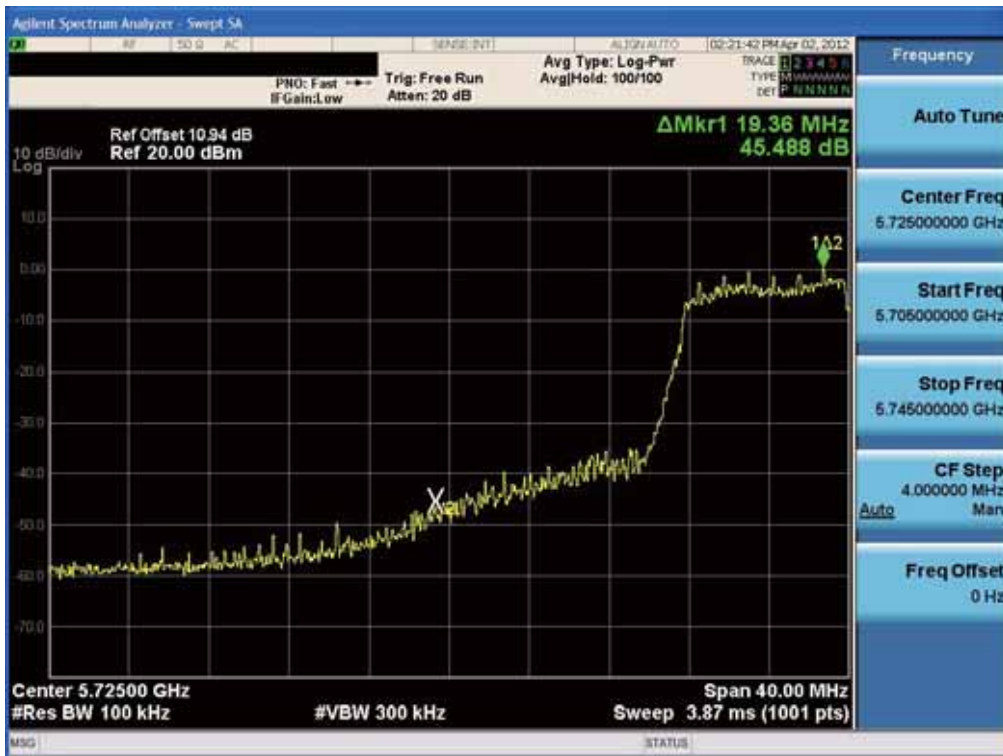
BandEdge (802.11n-CH1)



BandEdge (802.11n-CH11)



BandEdge (802.11a-CH 149)



BandEdge (802.11a-CH 165)

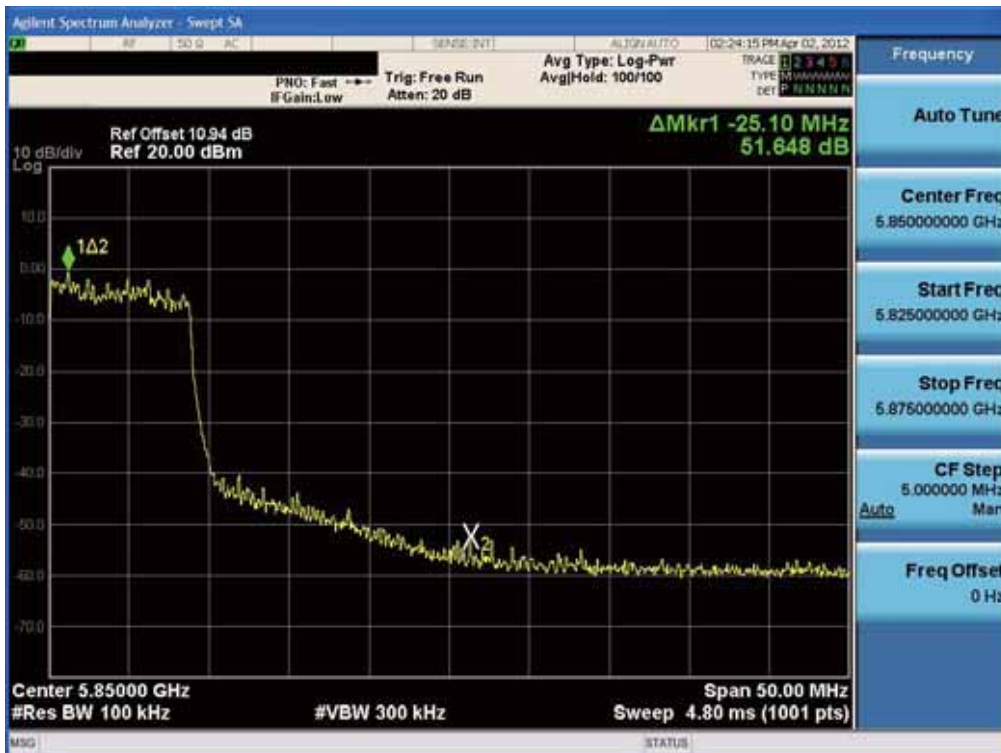


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

BandEdge (802.11n-CH 149)

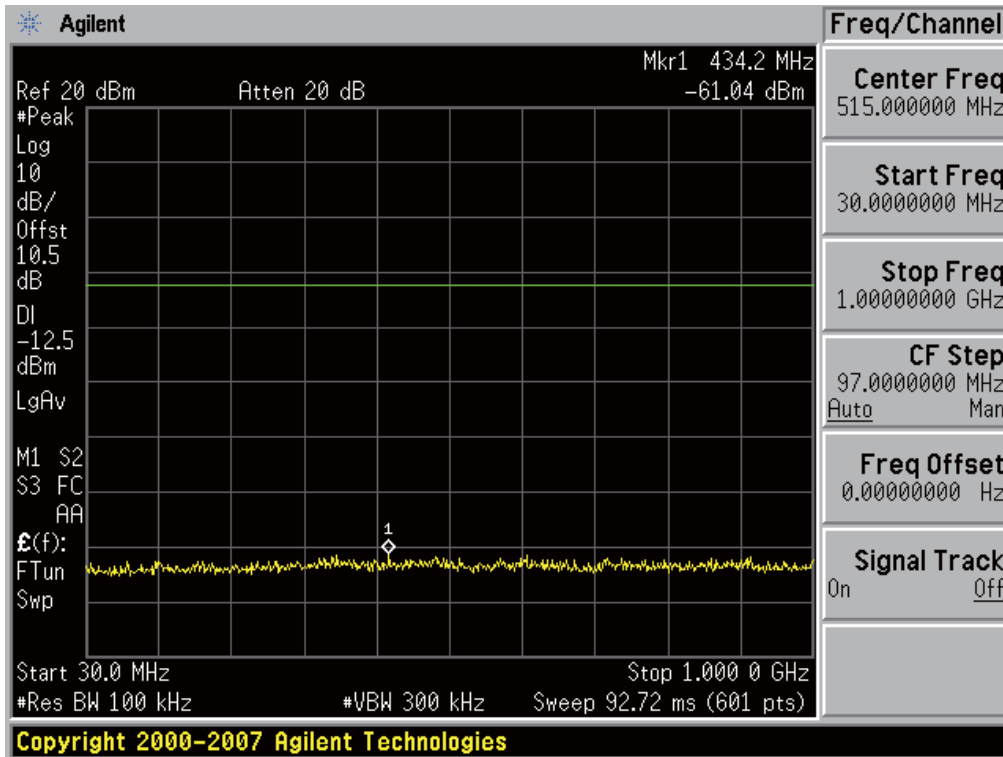


BandEdge (802.11n-CH 165)

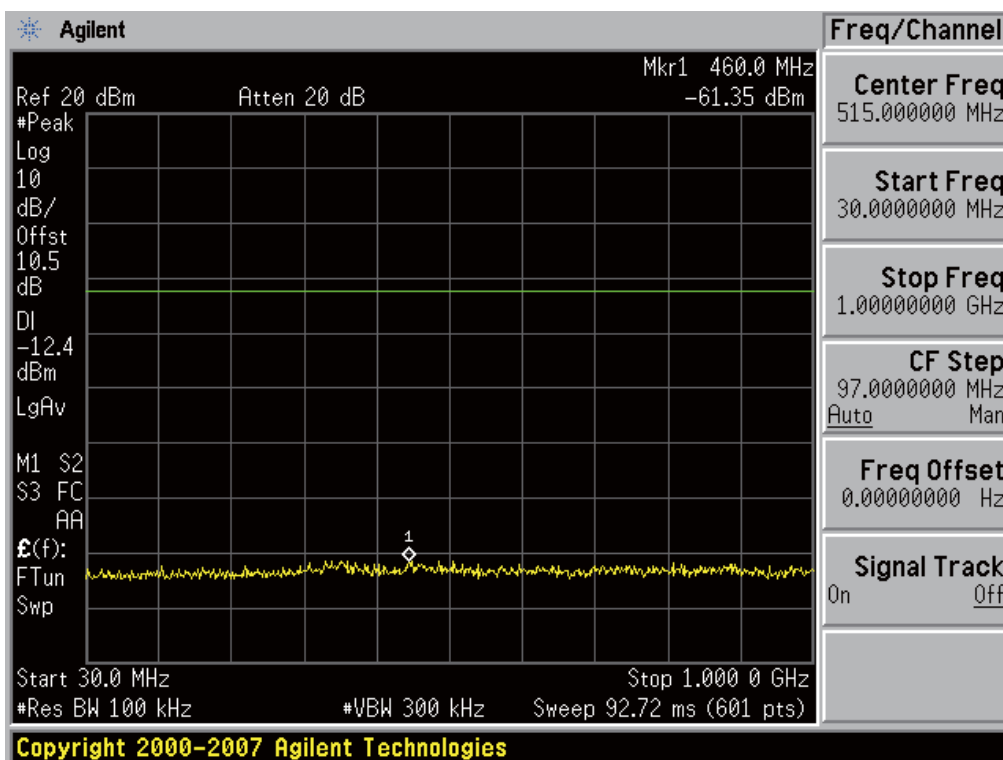


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Spurious Emission (802.11b-CH1)

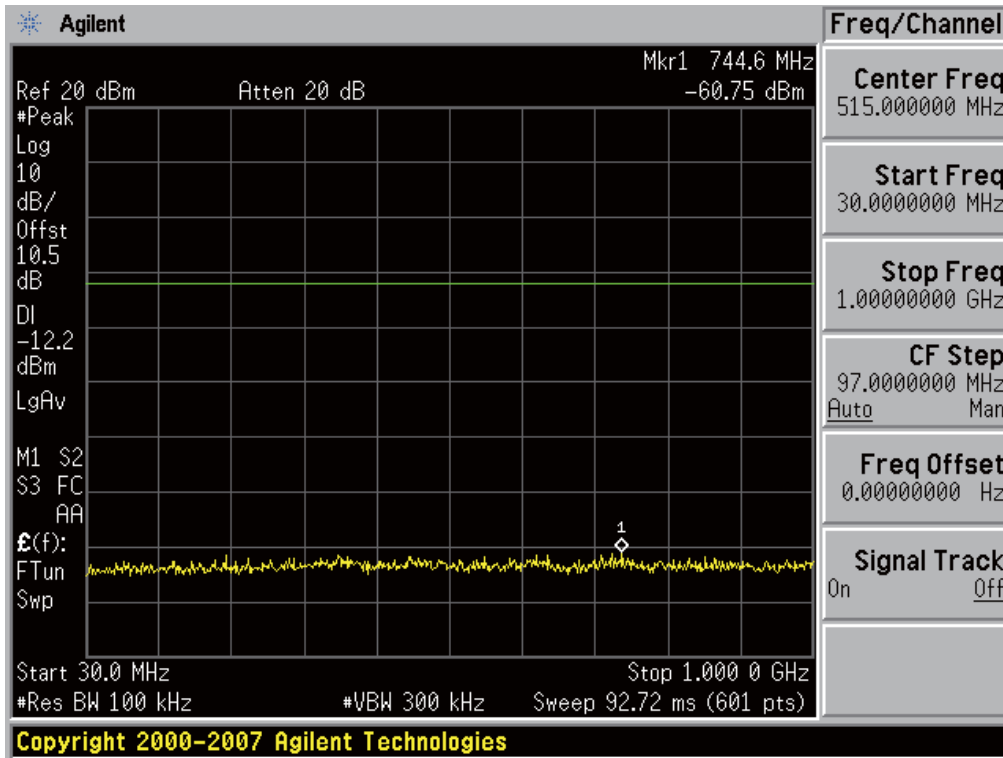


Conducted Spurious Emission (802.11b-CH6)

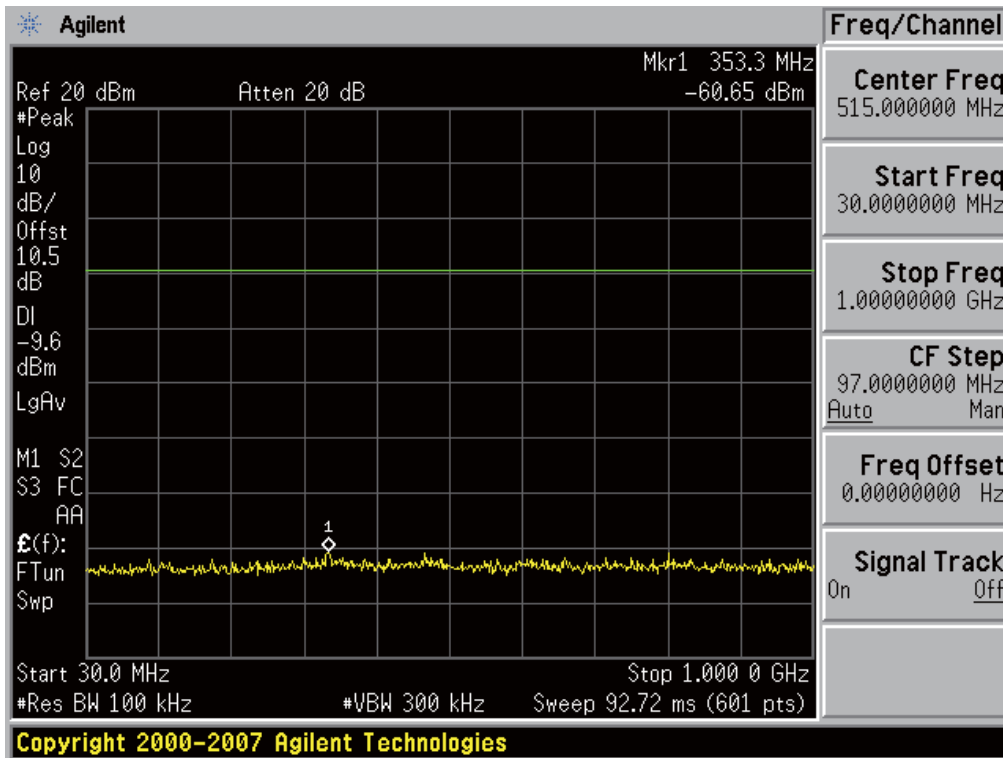


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11b-CH11)

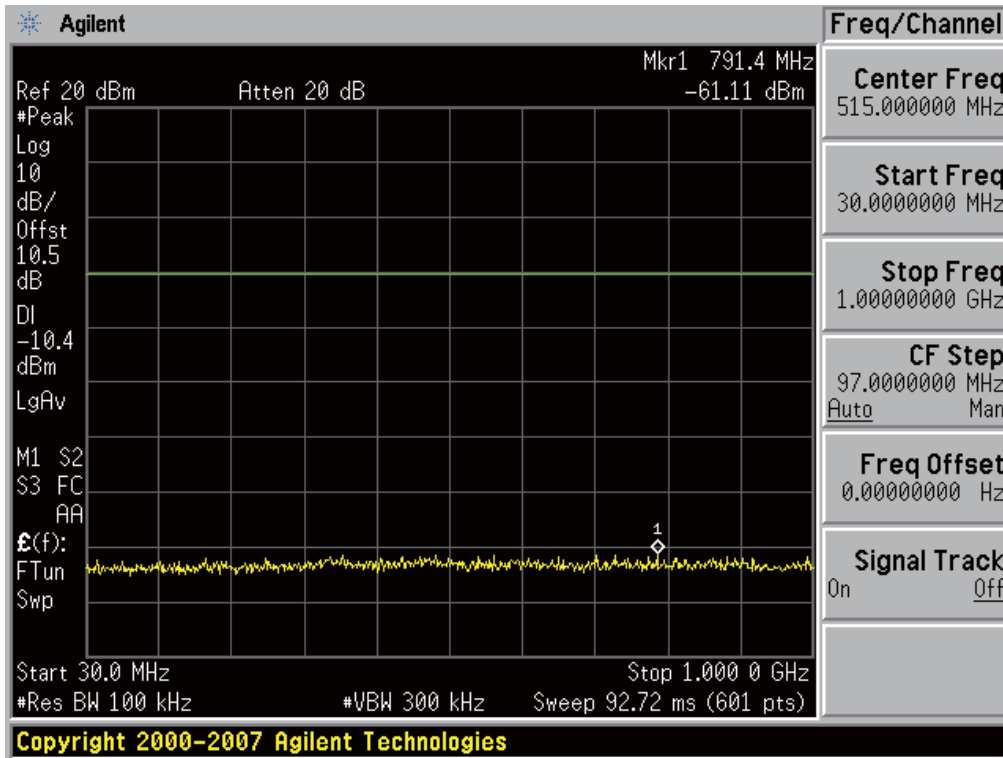


Conducted Spurious Emission (802.11g-CH11)

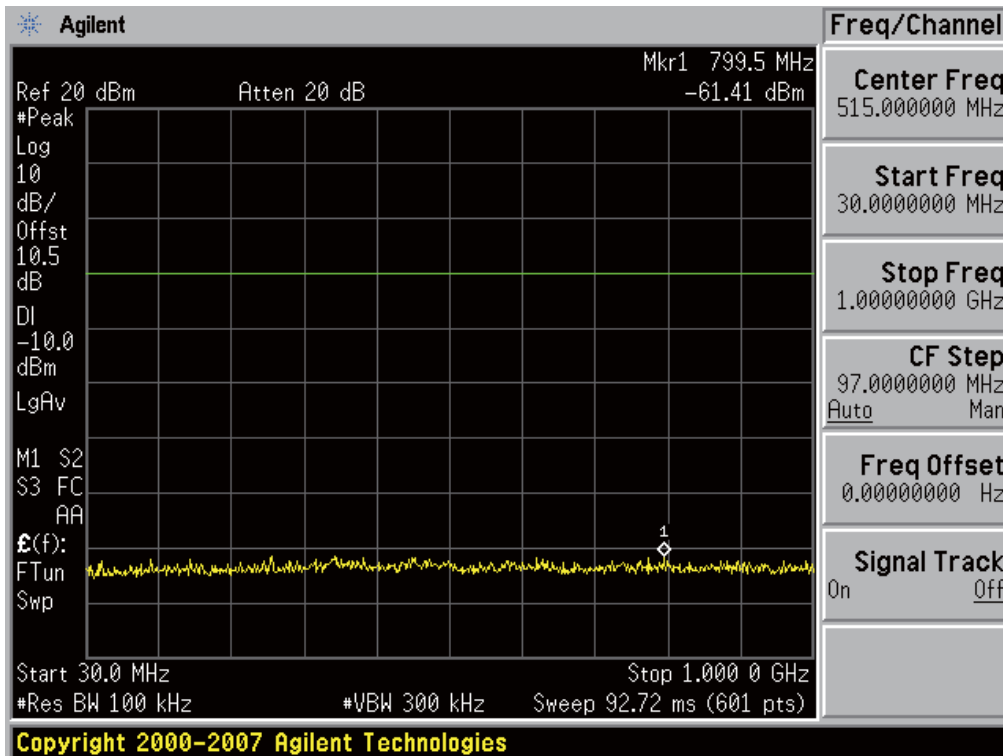


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11g-CH6)

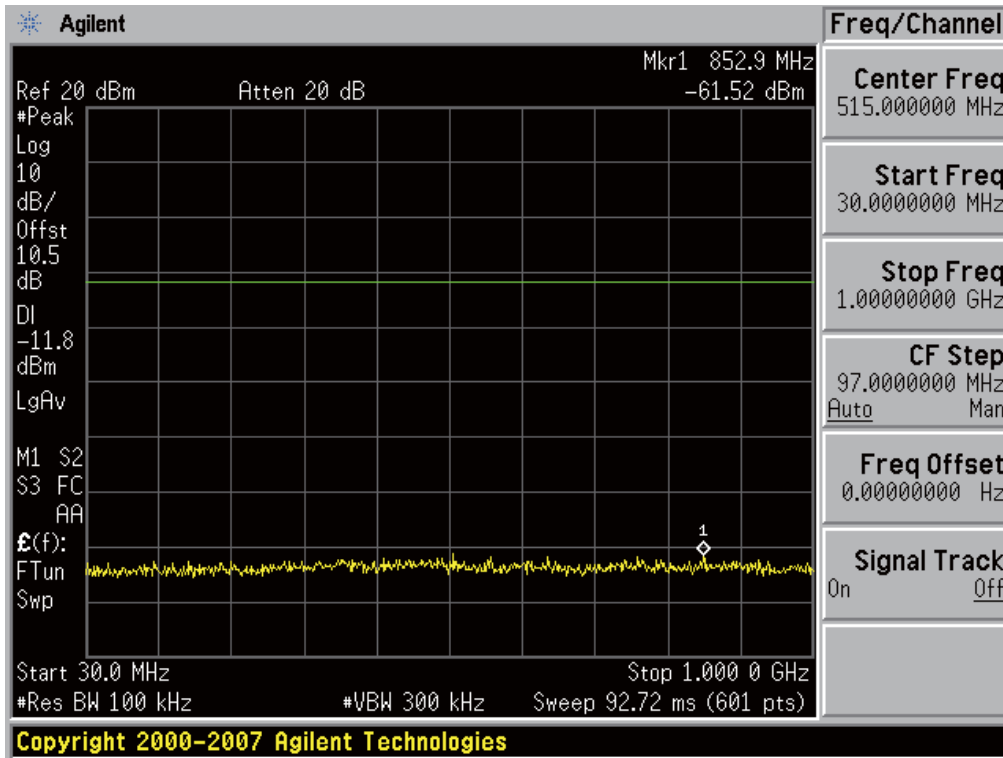


Conducted Spurious Emission (802.11g-CH11)

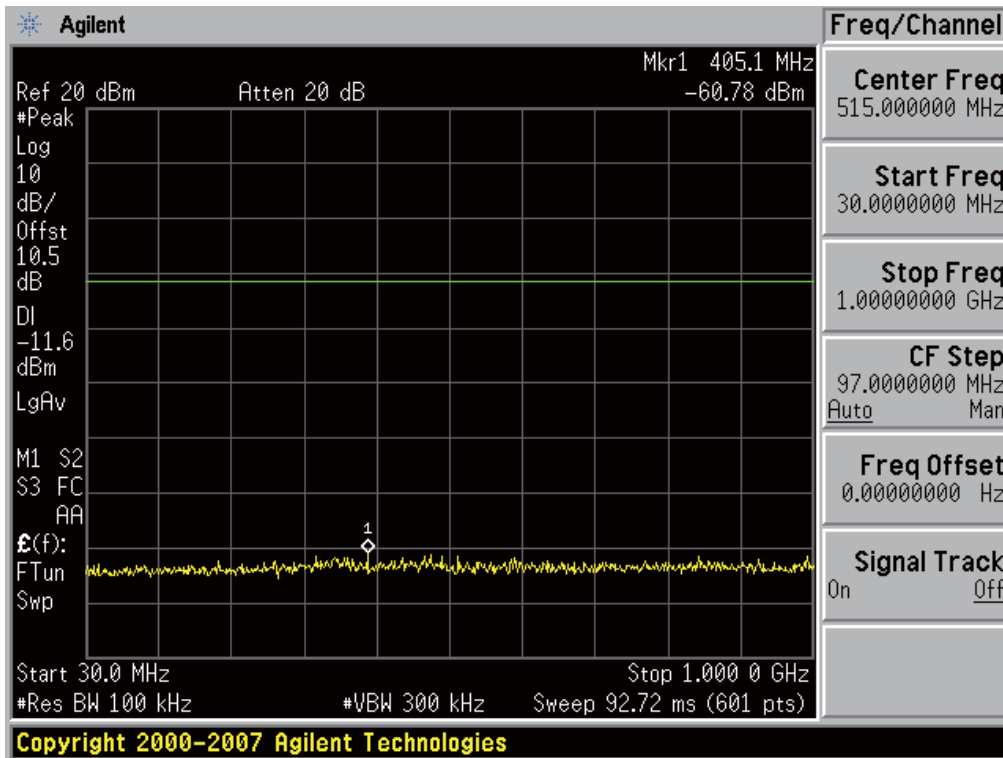


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11n-CH1)

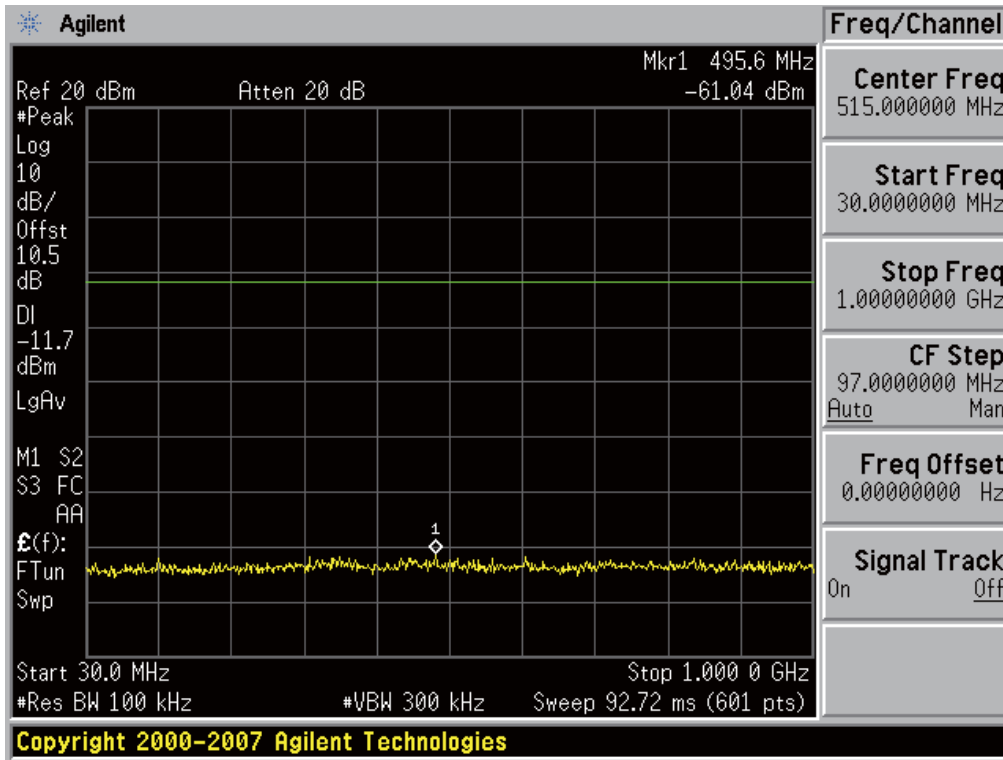


Conducted Spurious Emission (802.11n-CH6)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

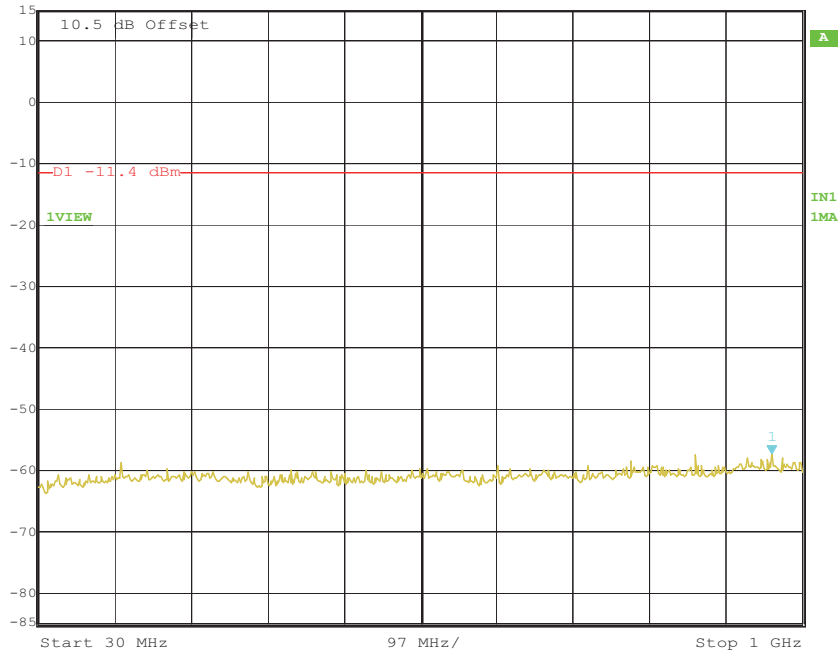
Conducted Spurious Emission (802.11n-CH11)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11a-CH149)

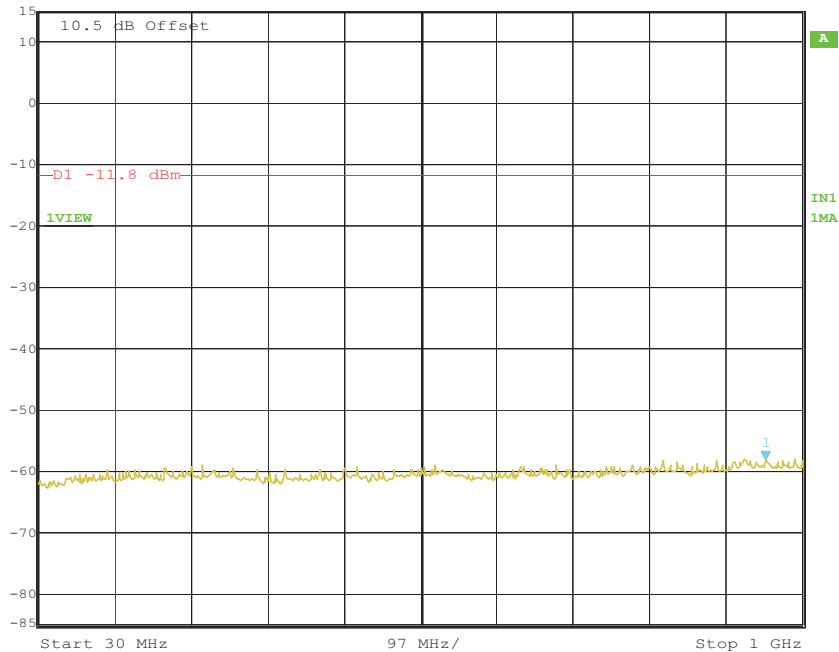
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl -57.43 dBm VBW 300 kHz
 15 dBm 961.12224449 MHz SWT 245 ms Unit dBm



Date: 25.APR.2012 20:25:03

Conducted Spurious Emission (802.11a-CH157)

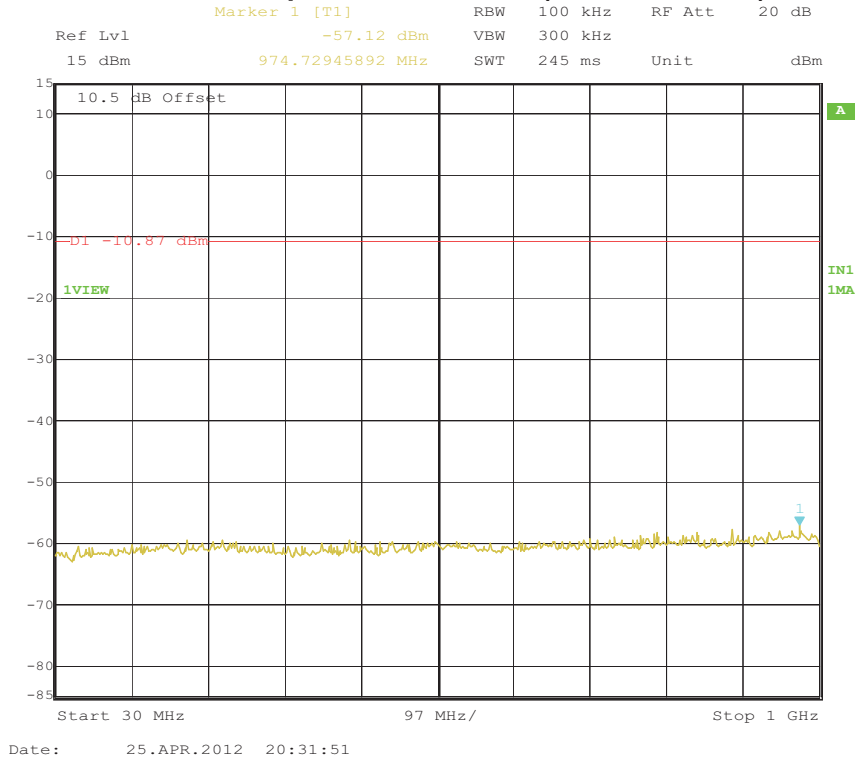
Marker 1 [T1] RBW 100 kHz RF Att 20 dB
 Ref Lvl -58.18 dBm VBW 300 kHz
 15 dBm 953.34669339 MHz SWT 245 ms Unit dBm



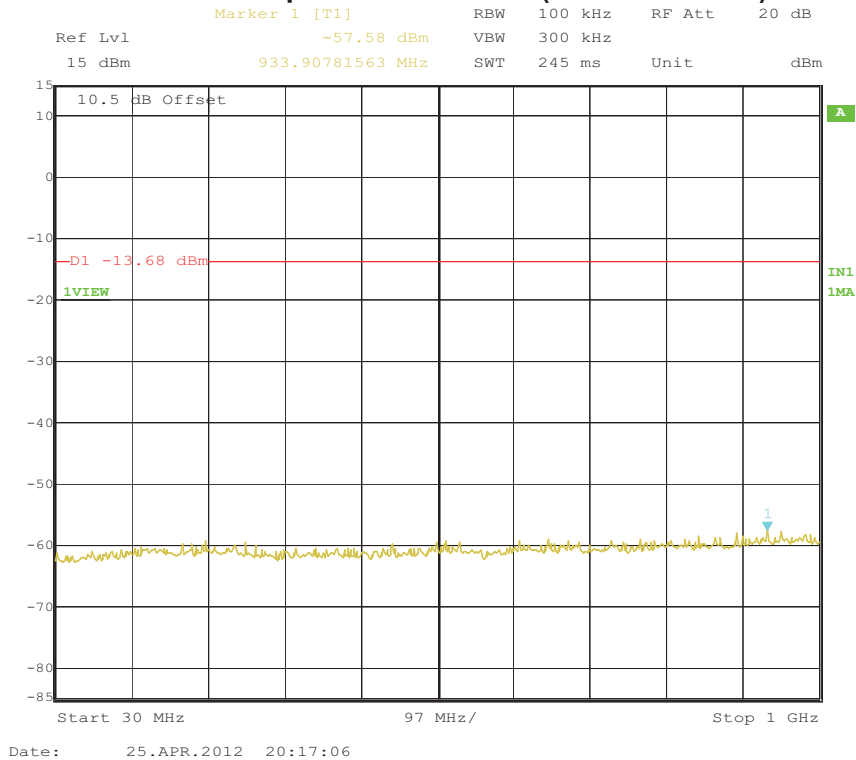
Date: 25.APR.2012 20:29:18

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11a-CH165)

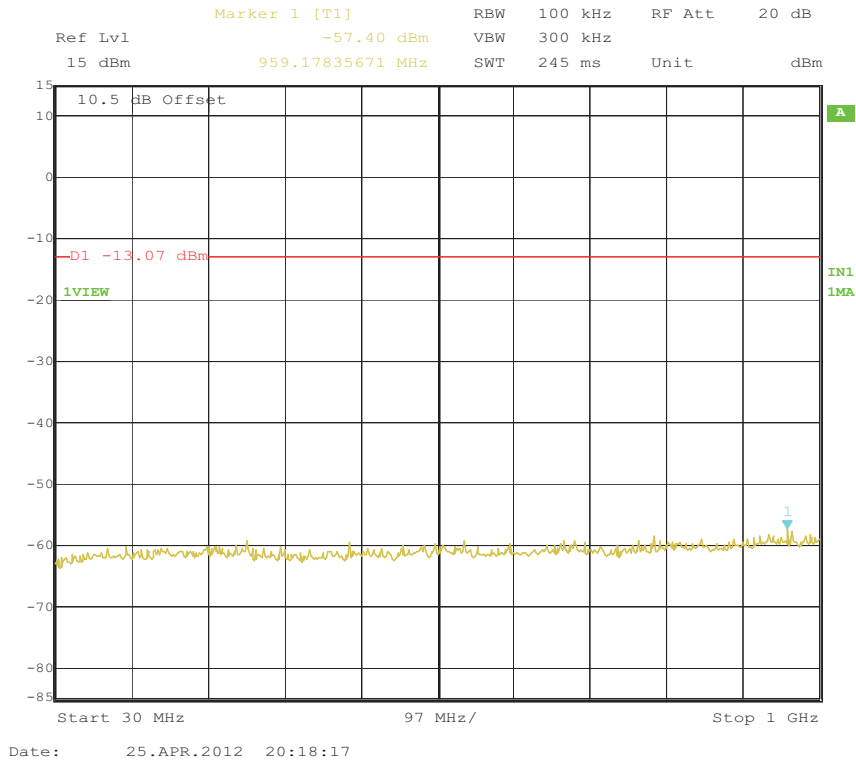


Conducted Spurious Emission (802.11n-CH149)

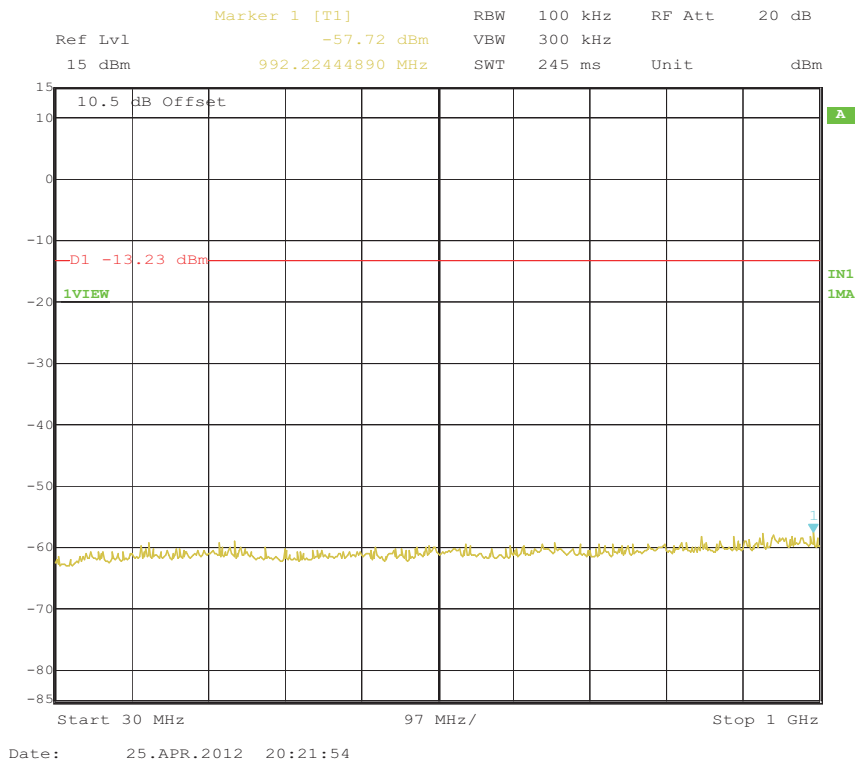


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Spurious Emission (802.11n-CH157)

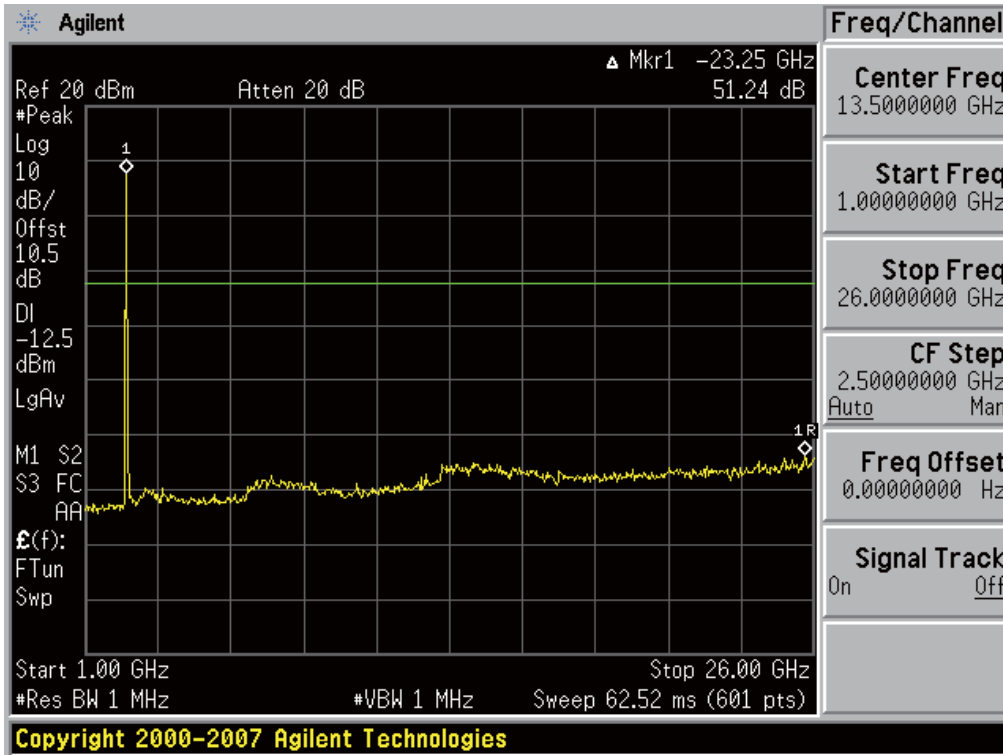


Conducted Spurious Emission (802.11n-CH165)

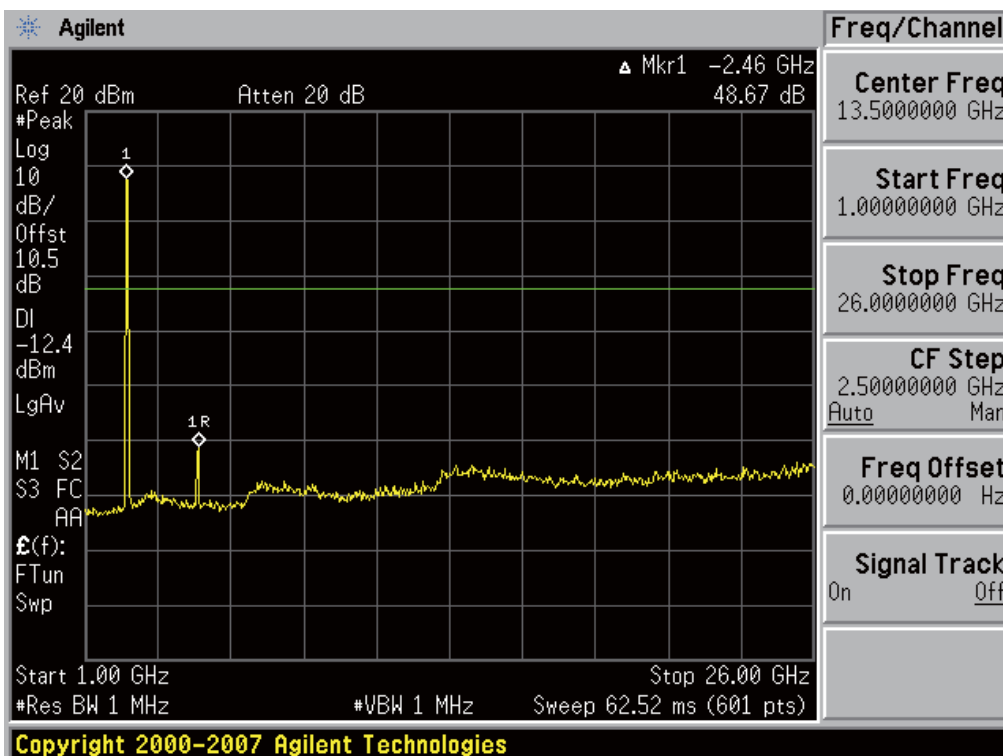


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Spurious Emission (802.11b-CH1)

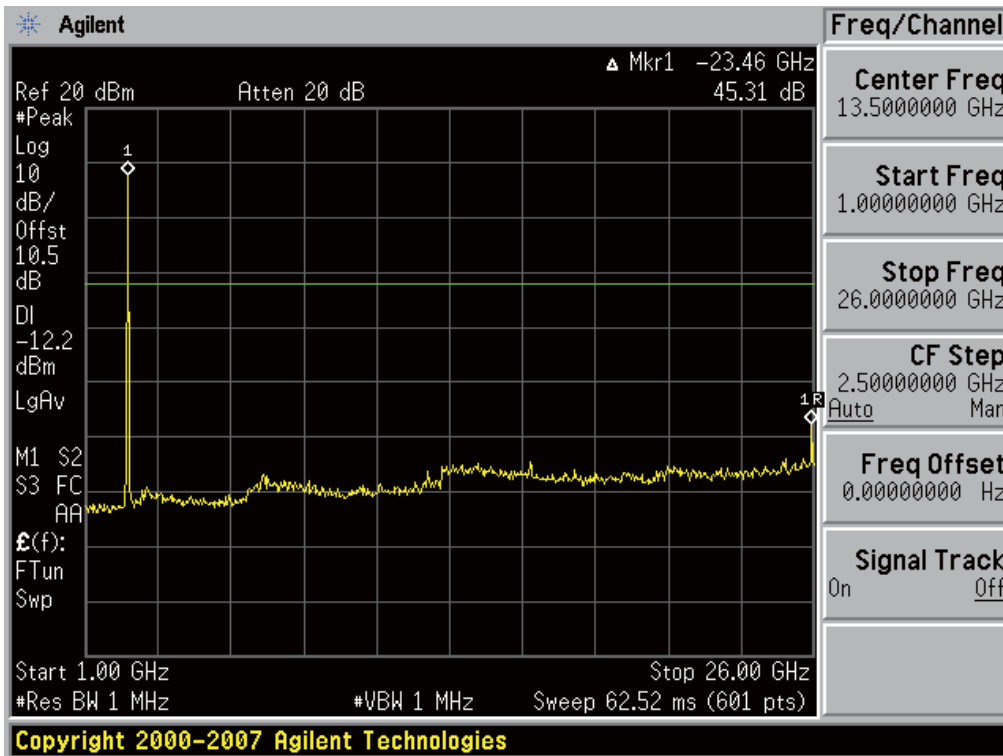


Conducted Spurious Emission (802.11b-CH6)

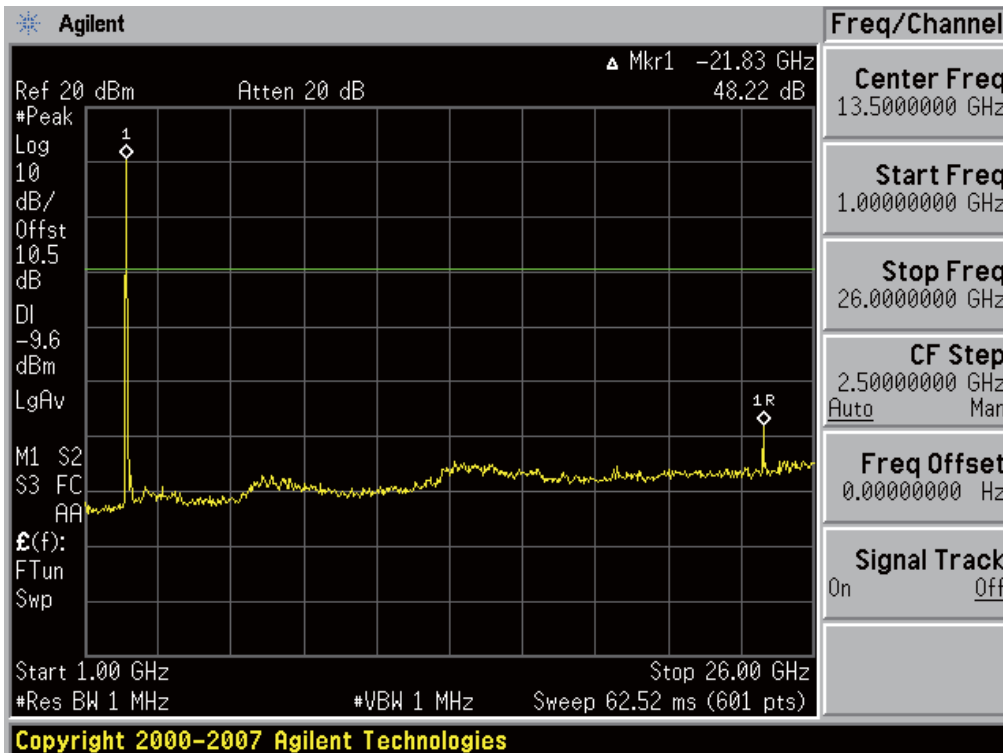


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11b-CH11)

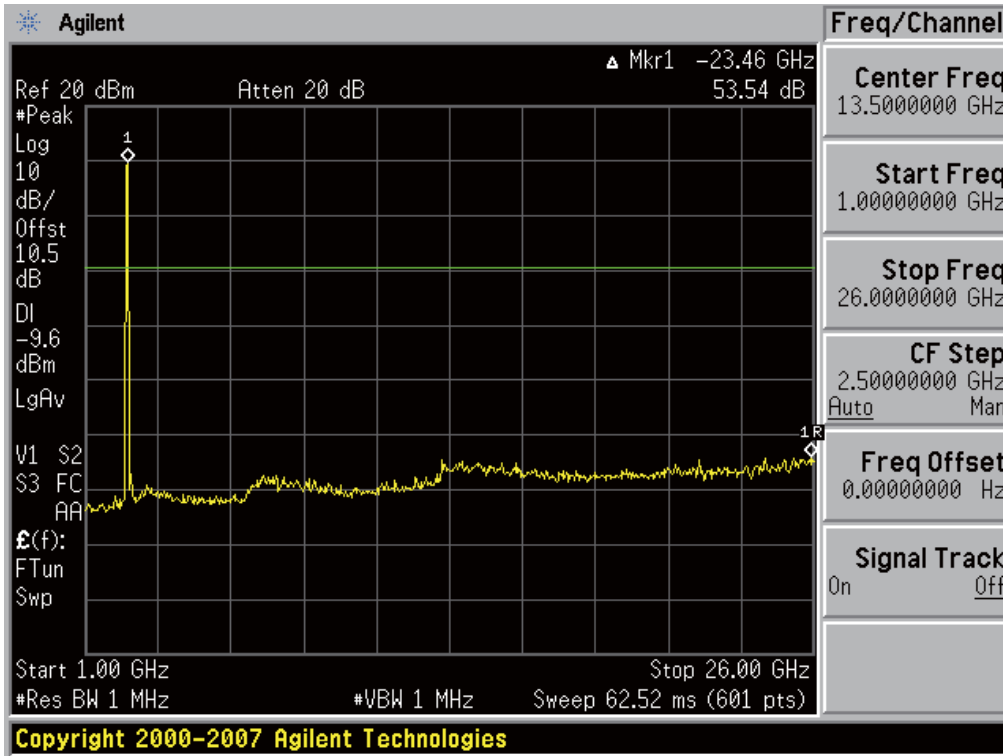


Conducted Spurious Emission (802.11g-CH1)

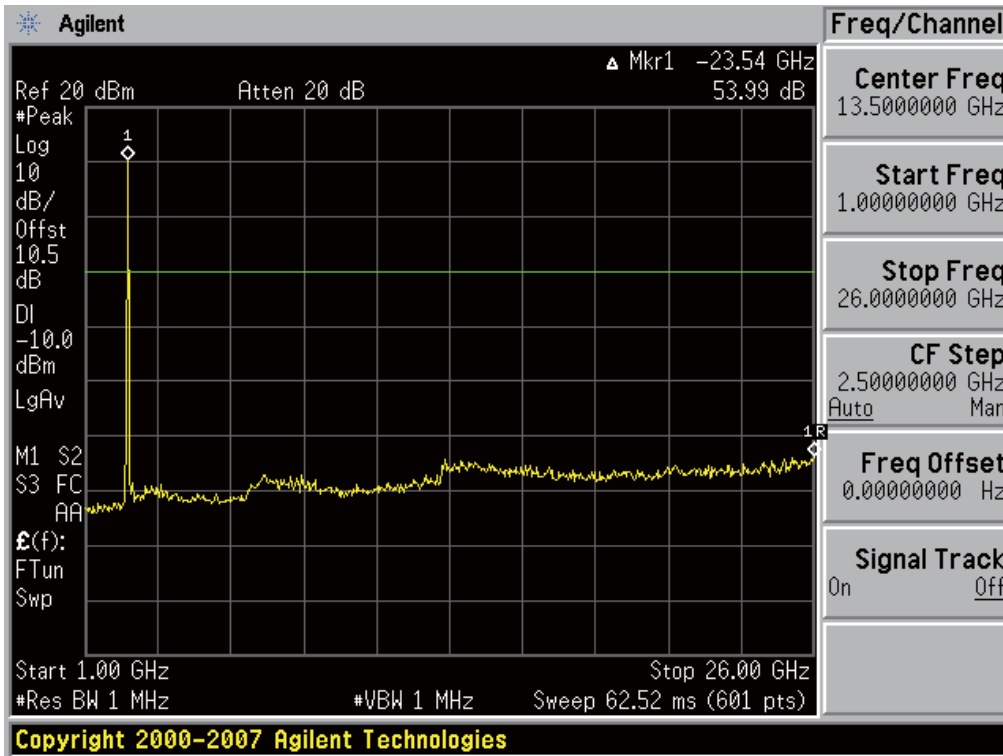


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

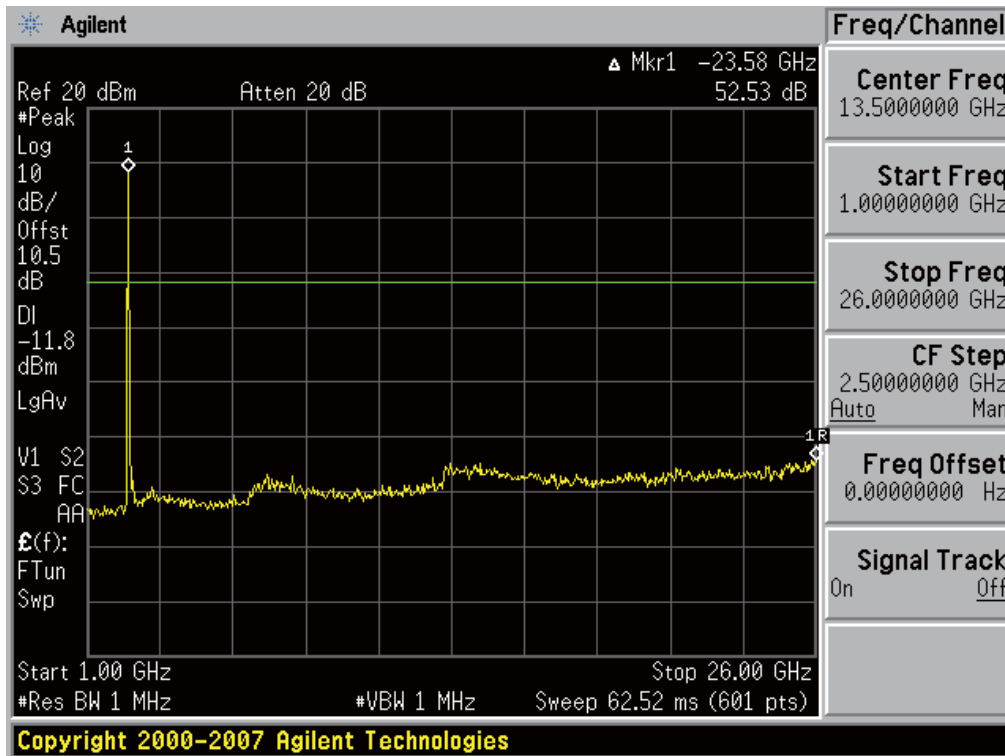
Conducted Spurious Emission (802.11g-CH6)



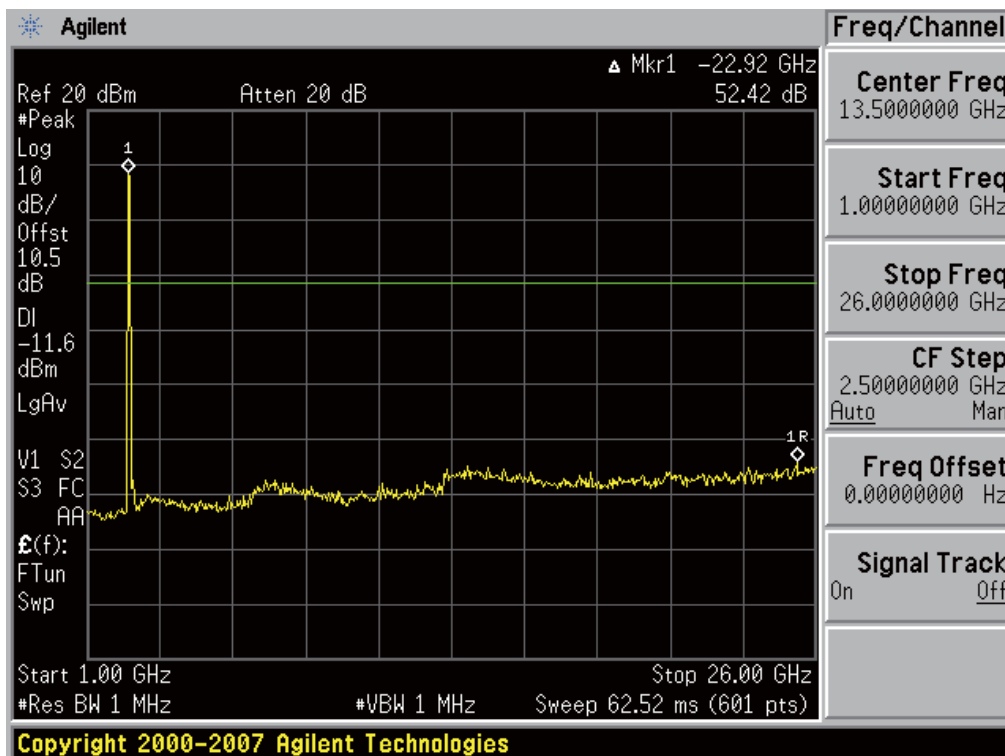
Conducted Spurious Emission (802.11g-CH11)



Conducted Spurious Emission (802.11n-CH1)

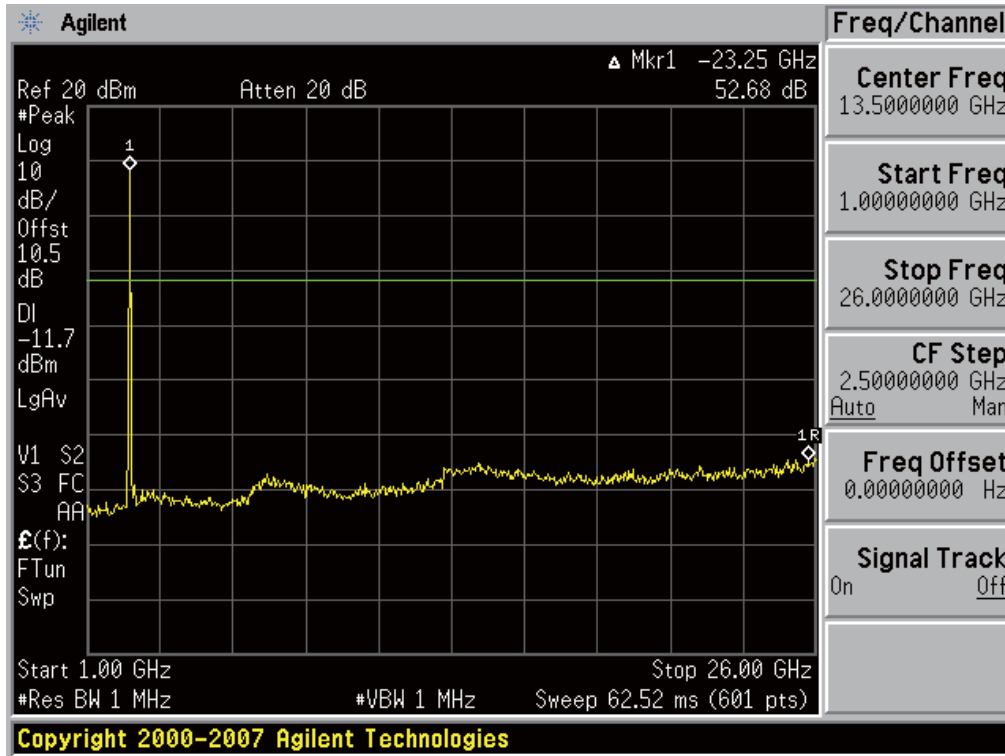


Conducted Spurious Emission (802.11n-CH6)



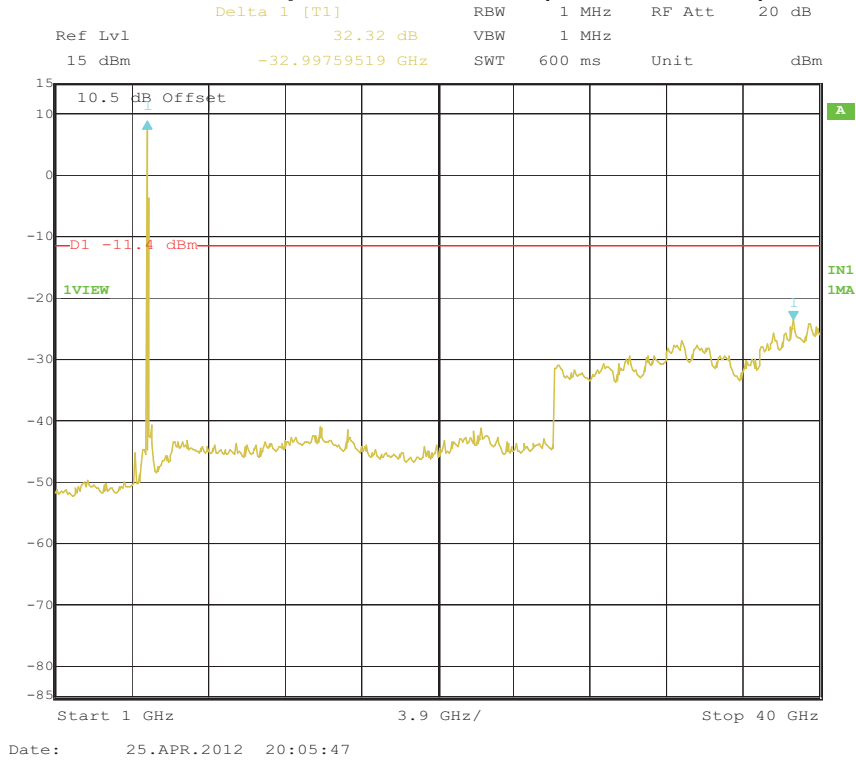
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11n-CH11)

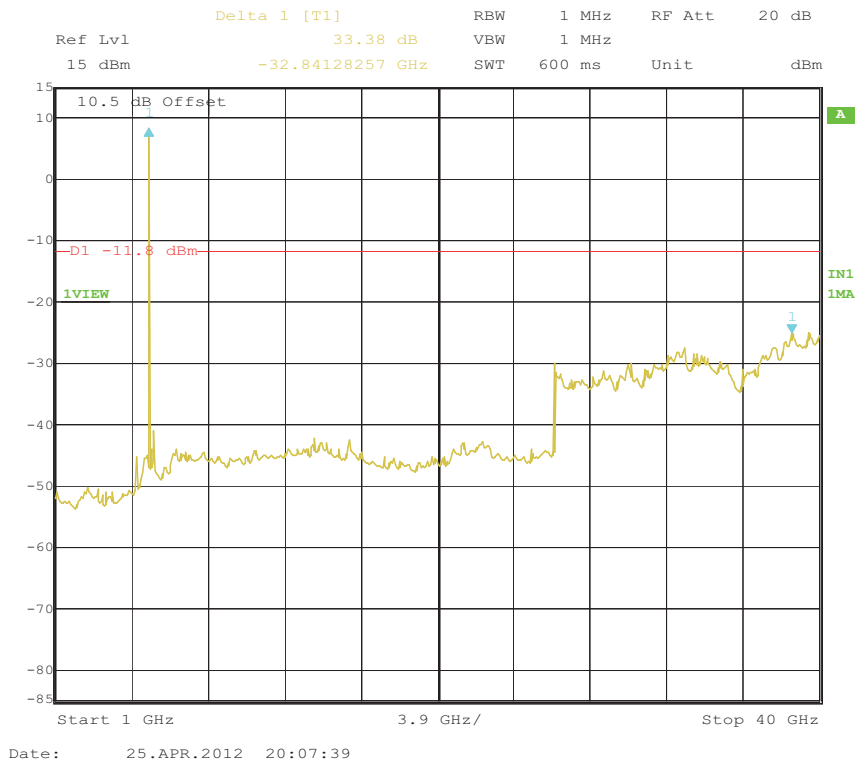


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Conducted Spurious Emission (802.11a-CH149)

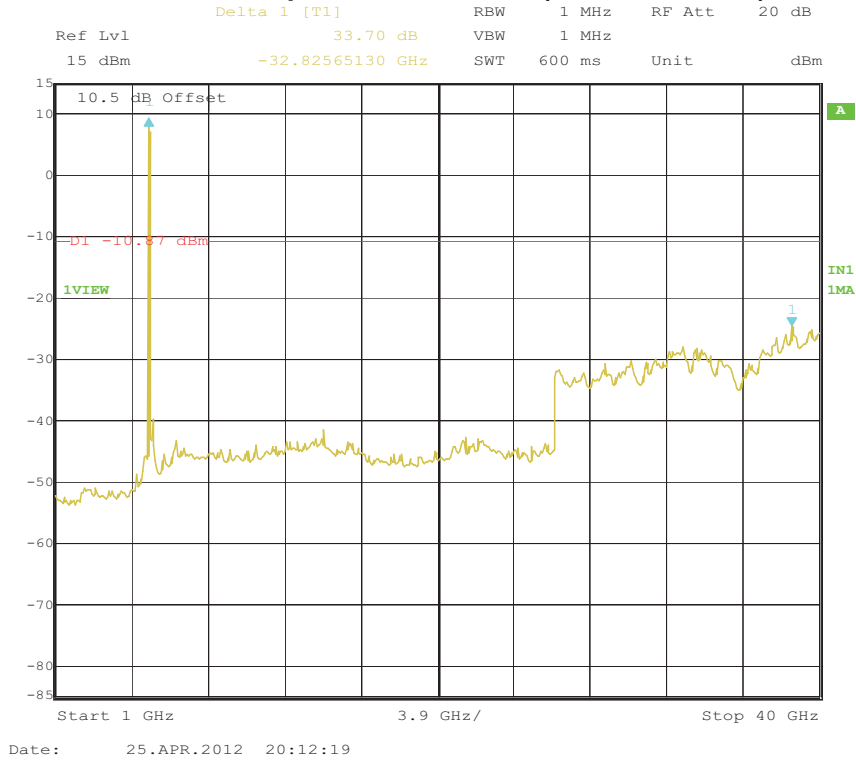


Conducted Spurious Emission (802.11a-CH157)

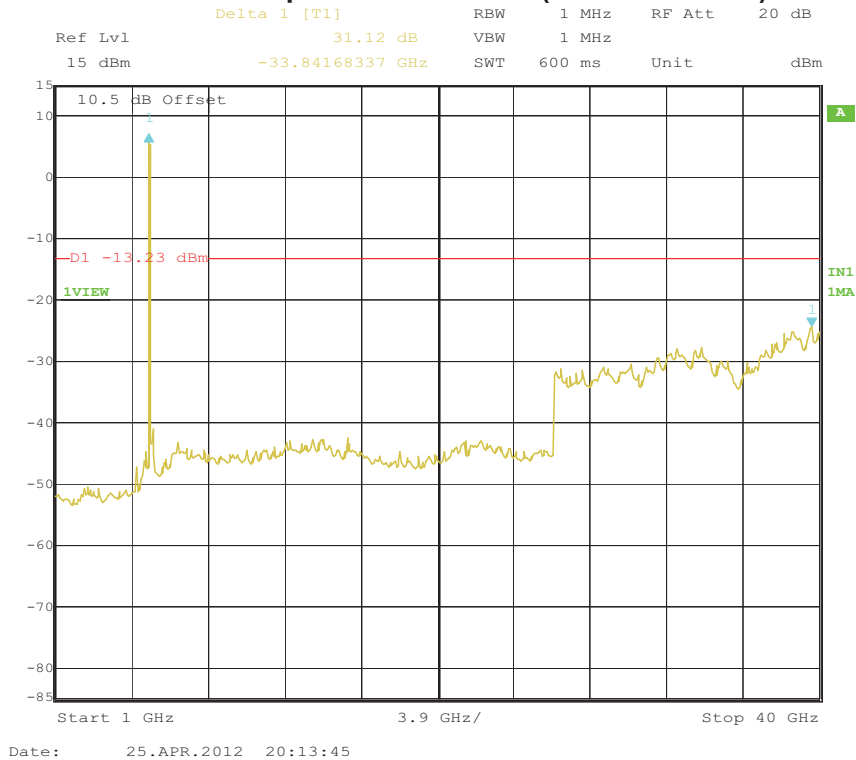


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11a-CH165)

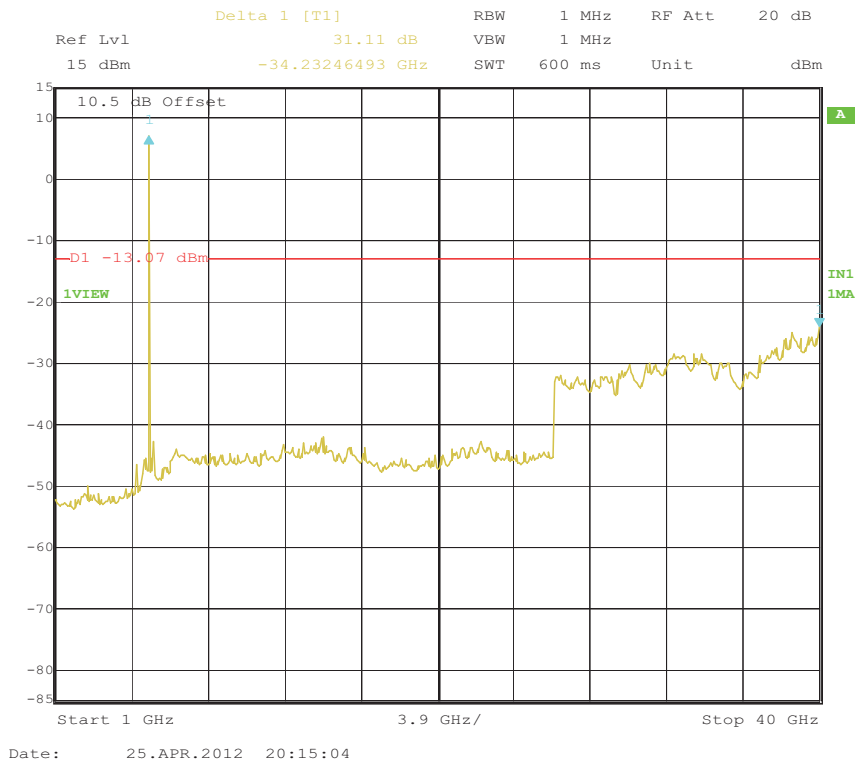


Conducted Spurious Emission (802.11n-CH149)

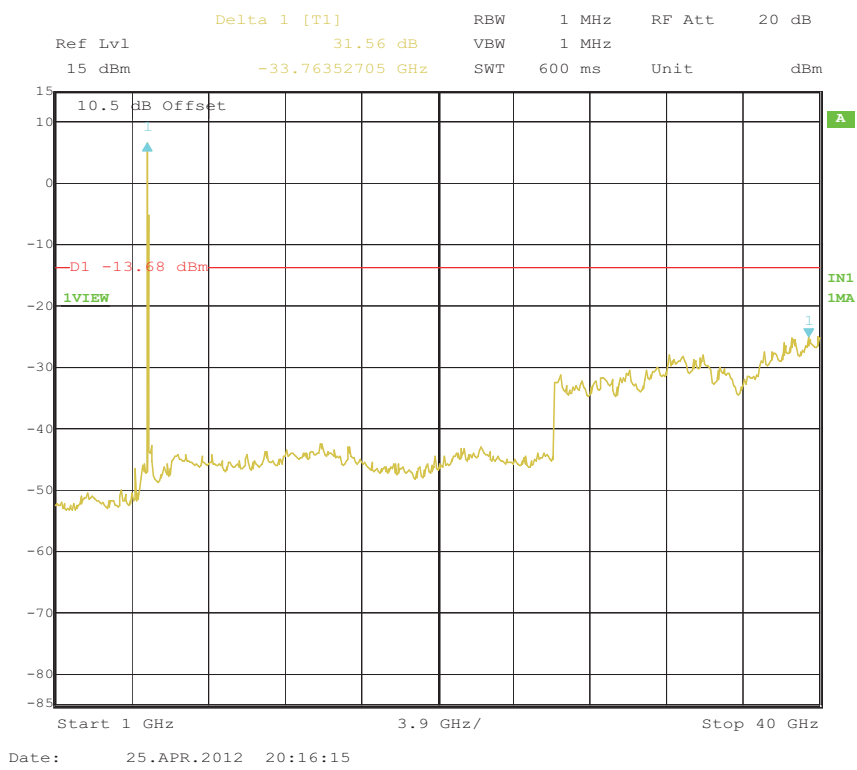


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Conducted Spurious Emission (802.11n-CH157)



Conducted Spurious Emission (802.11n-CH165)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

8.5 RADIATED MEASUREMENT.

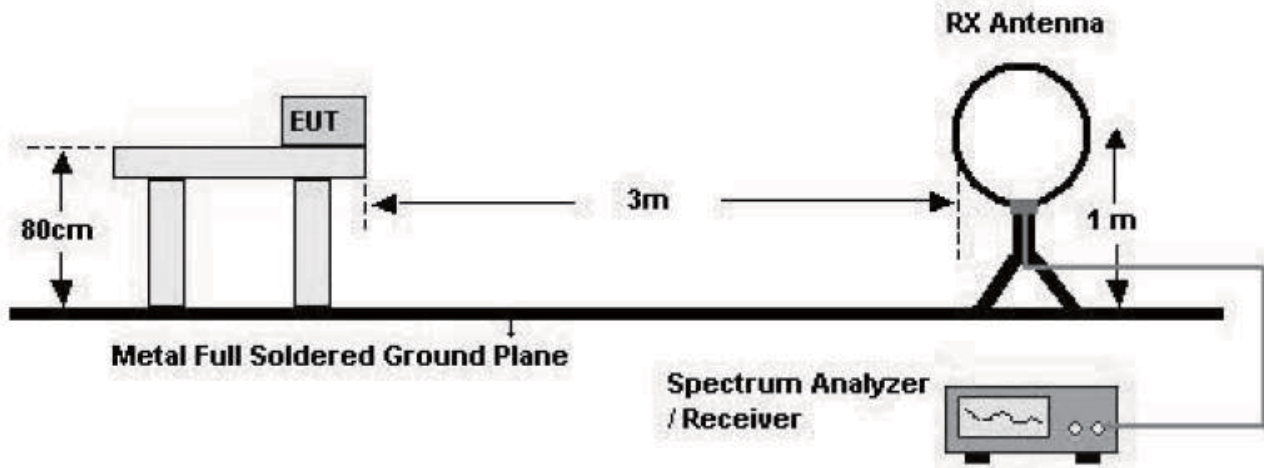
8.5.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209

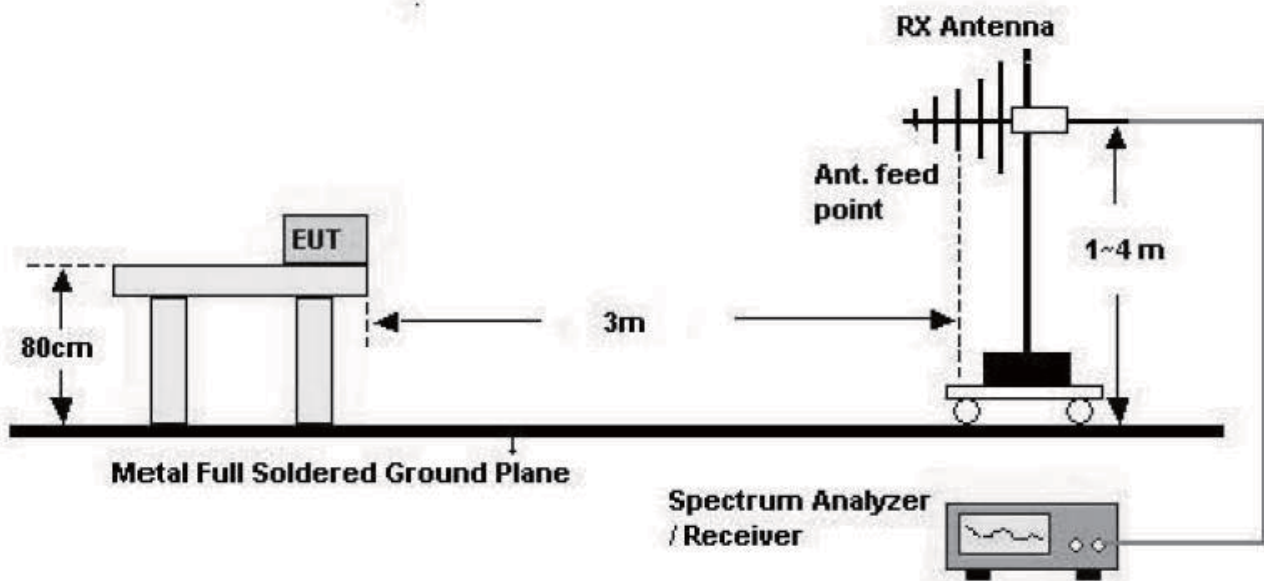
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

Below 30 MHz

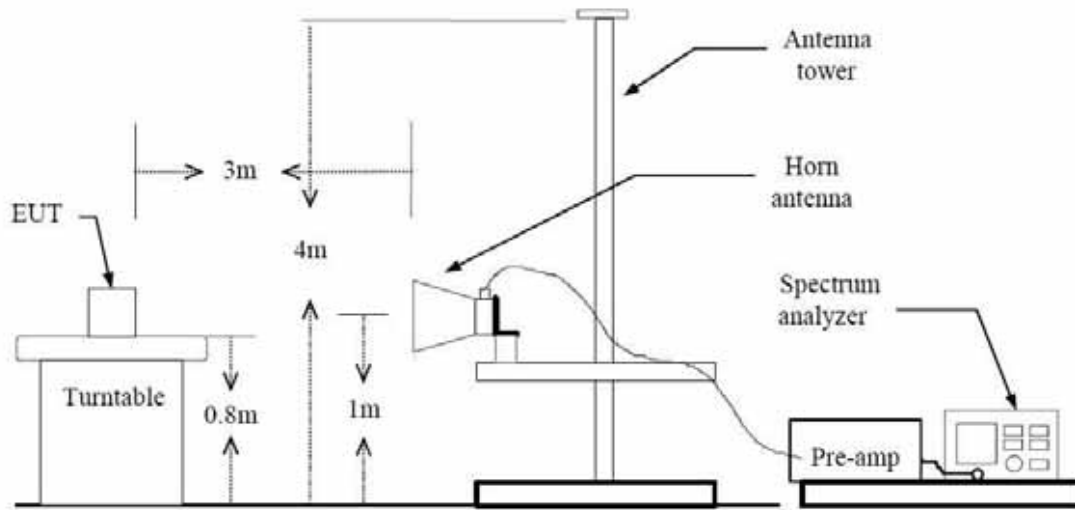


30 MHz - 1 GHz



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Above 1 GHz



TEST PROCEDURE

1. The EUT is placed on a turntable, which is 0.8 m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNFP880

Above 1 GHz

Operation Mode:	802.11 b
Transfer Rate:	1 Mbps
Operating Frequency	2412
Channel No.	01 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	54.03	-0.10	V	53.93	74	20.07	PK
4824	45.90	-0.10	V	45.80	54	8.20	AV
7236	48.85	10.13	V	58.98	74	15.02	PK
7236	35.14	10.13	V	45.27	54	8.73	AV
4824	56.42	-0.10	H	56.32	74	17.68	PK
4824	49.77	-0.10	H	49.67	54	4.33	AV
7236	48.30	10.13	H	58.43	74	15.57	PK
7236	35.18	10.13	H	45.31	54	8.69	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11b/g/n(2.4 GHz) mode test. Worst case of EUT is 1 Mbps in 802.11b.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.



Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2437
 Channel No. 06 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	54.71	0.13	V	54.84	74	19.16	PK
4874	47.07	0.13	V	47.20	54	6.80	AV
7311	48.79	10.01	V	58.80	74	15.20	PK
7311	35.42	10.01	V	45.43	54	8.57	AV
4874	55.20	0.13	H	55.33	74	18.67	PK
4874	48.22	0.13	H	48.35	54	5.65	AV
7311	48.90	10.01	H	58.91	74	15.09	PK
7311	35.25	10.01	H	45.26	54	8.74	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11b/g/n(2.4 GHz) mode test. Worst case of EUT is 1 Mbps in 802.11b.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1205FR16	Date of Issue: May 10, 2012	EUT Type: Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC	FCC ID: ZNF880

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2462
 Channel No. 11 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	53.84	0.45	V	54.29	74	19.71	PK
4924	47.24	0.45	V	47.69	54	6.31	AV
7386	48.37	10.17	V	58.54	74	15.46	PK
7386	35.21	10.17	V	45.38	54	8.62	AV
4924	53.48	0.45	H	53.93	74	20.07	PK
4924	46.18	0.45	H	46.63	54	7.37	AV
7386	48.56	10.17	H	58.73	74	15.27	PK
7386	35.17	10.17	H	45.34	54	8.66	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. We have done 802.11b/g/n(2.4 GHz) mode test. Worst case of EUT is 1 Mbps in 802.11b.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	46.20	10.64	V	56.84	74	17.16	PK
11490	29.98	10.64	V	40.62	54	13.38	AV
11490	46.98	10.64	H	57.62	74	16.38	PK
11490	30.16	10.64	H	40.80	54	13.20	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. Worst case of EUT is 6 Mbps in 802.11a_5.8 GHz.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	45.19	10.41	V	55.60	74	18.40	PK
11570	29.88	10.41	V	40.29	54	13.71	AV
11570	44.52	10.41	H	54.93	74	19.07	PK
11570	29.67	10.41	H	40.08	54	13.92	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. Worst case of EUT is 6 Mbps in 802.11a_5.8 GHz.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	42.95	10.24	V	53.19	74	20.81	PK
11650	27.57	10.24	V	37.81	54	16.19	AV
11650	44.55	10.24	H	54.79	74	19.21	PK
11650	27.89	10.24	H	38.13	54	15.87	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. Worst case of EUT is 6 Mbps in 802.11a_5.8 GHz.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 n
Transfer Rate:	6.5 Mbps
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	43.61	10.64	V	54.25	74	19.75	PK
11490	28.65	10.64	V	39.29	54	14.71	AV
11490	44.84	10.64	H	55.48	74	18.52	PK
11490	28.27	10.64	H	38.91	54	15.09	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. Worst case of EUT is 6.5 Mbps in 802.11n_5.8 GHz.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 n
Transfer Rate:	6.5 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	42.24	10.41	V	52.65	74	21.35	PK
11570	28.12	10.41	V	38.53	54	15.47	AV
11570	43.95	10.41	H	54.36	74	19.64	PK
11570	28.16	10.41	H	38.57	54	15.43	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. Worst case of EUT is 6.5 Mbps in 802.11n_5.8 GHz.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 n
Transfer Rate:	6.5 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	40.88	10.24	V	51.12	74	22.88	PK
11650	26.29	10.24	V	36.53	54	17.47	AV
11650	42.27	10.24	H	52.51	74	21.49	PK
11650	26.58	10.24	H	36.82	54	17.18	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
6. Worst case of EUT is 6.5 Mbps in 802.11n_5.8 GHz.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

8.5.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Operation Mode:	802.11g
Transfer Rate:	6 Mbps
Operating Frequency	2412 MHz, 2462 MHz
Channel No.	01 Ch, 11 Ch

Frequency [MHz]	Reading dBuV	AN.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	30.88	33.86	H	64.74	74	9.26	PK
2390.0	15.06	33.86	H	48.92	54	5.08	AV
2390.0	32.16	33.86	V	66.02	74	7.98	PK
2390.0	15.55	33.86	V	49.41	54	4.59	AV
2483.5	35.41	34.02	H	69.43	74	4.57	PK
2483.5	15.30	34.02	H	49.32	54	4.68	AV
2483.5	36.56	34.02	V	70.58	74	3.42	PK
2483.5	14.36	34.02	V	48.38	54	5.62	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss
2. Spectrum setting:
 - a. Peak Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 1 MHz.
 - b. AV Setting 1 GHz – 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
3. We have done 802.11b/g/n mode test. . Worst case of EUT is 6 Mbps in 802.11g

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8.6 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.
5. We are performed the AC Power Line Conducted Emission test for 54 Mbps, Ch.11 and 802.11g. Because 802.11g mode is worst case.

■ RESULT PLOTS

Conducted Emissions (Line 1)

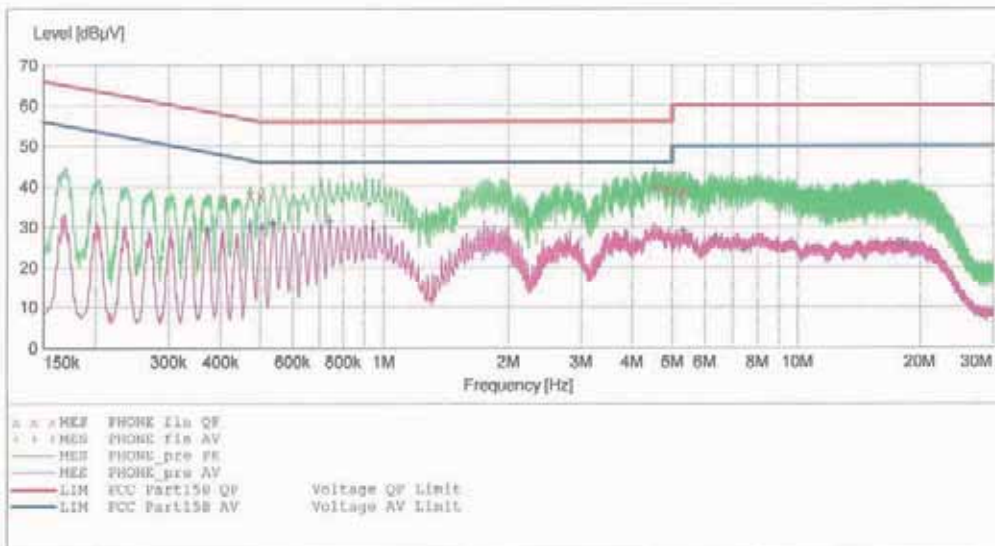
HCT

EMC

EUT: LG-P880
 Manufacturer: LG
 Operating Condition: WLAN MODE
 Test Site: SHIELD ROOM
 Operator: JS LEE
 Test Specification: FCC PART15 CLASS B
 Comment: H

SCAN TABLE: "FCC PART 15 B(H)"

Short Description:			FCC PART 15 CLASS B			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

4/3/2012 10:29AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Line	PE
0.406010	36.60	10.1	58	21.1	---	---
0.472010	38.00	10.1	57	18.5	---	---
0.499010	37.90	10.1	56	18.1	---	---
4.540000	40.20	10.5	56	15.8	---	---
4.744000	39.70	10.5	56	16.3	---	---
4.876000	39.40	10.5	56	16.6	---	---
5.080000	38.80	10.5	60	21.2	---	---
5.276000	37.80	10.6	60	22.2	---	---
5.348000	39.40	10.6	60	20.6	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

4/3/2012 10:29AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.370010	29.30	10.1	49	19.2	---	---
0.472010	30.50	10.1	47	16.0	---	---
0.500000	29.60	10.1	46	16.4	---	---
0.536000	30.80	10.1	46	15.2	---	---
0.740000	31.30	10.1	46	14.7	---	---
0.944000	29.40	10.1	46	16.6	---	---
5.316000	29.00	10.6	50	21.0	---	---
6.388000	27.20	10.7	50	22.8	---	---
18.088000	25.20	11.7	50	24.8	---	---

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Conducted Emissions (Line 2)

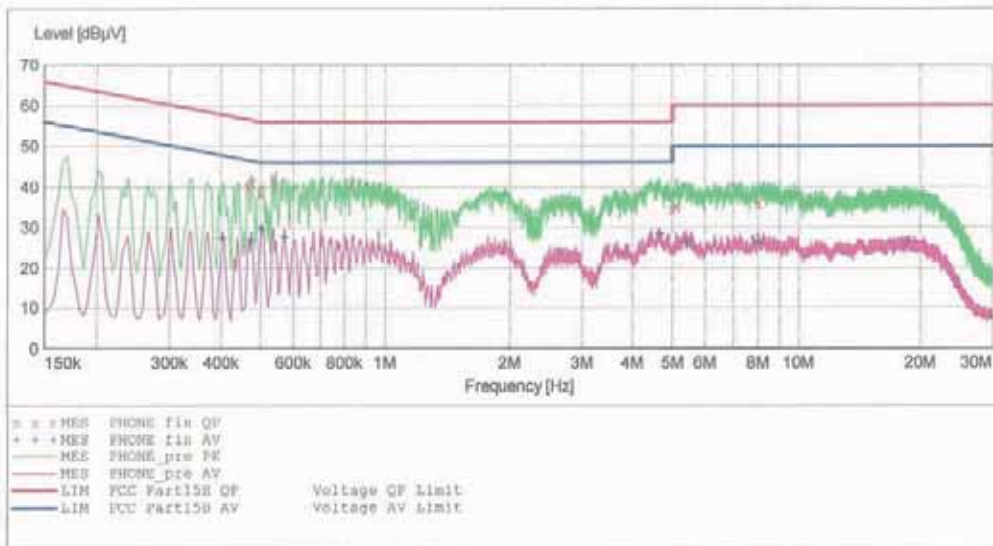
HCT

EMC

EUT: LG-P880
 Manufacturer: LG
 Operating Condition: WLAN MODE
 Test Site: SHIELD ROOM
 Operator: JS LEE
 Test Specification: FCC PART15 CLASS B
 Comment: N

SCAN TABLE: "FCC PART 15 B(N)"

Short Description:			FCC PART 15 CLASS B			
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



MEASUREMENT RESULT: "PHONE_fin QP"

4/3/2012 10:25AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.466010	40.10	10.3	57	16.5	---	---
0.474010	41.10	10.3	56	15.3	---	---
0.498010	38.40	10.3	56	17.7	---	---
0.536000	41.50	10.3	56	14.5	---	---
0.544000	40.40	10.3	56	15.6	---	---
0.836000	40.90	10.4	56	15.1	---	---
5.000000	34.50	10.7	56	21.5	---	---
5.112000	35.40	10.7	60	24.6	---	---
8.024000	36.00	11.0	60	24.0	---	---

MEASUREMENT RESULT: "PHONE_fin AV"

4/3/2012 10:25AM

Frequency MHz	Level dBμV	Transd dB	Limit dDμV	Margin dB	Line	PE
0.402010	27.20	10.3	48	20.6	---	---
0.474010	26.80	10.3	46	19.6	---	---
0.500000	29.90	10.3	46	16.1	---	---
0.504000	29.70	10.3	46	16.3	---	---
0.572000	27.70	10.3	46	18.3	---	---
4.676000	28.40	10.7	46	17.6	---	---
5.416000	26.20	10.8	50	23.8	---	---
8.020000	26.40	11.0	50	23.6	---	---
18.480000	26.10	11.6	50	23.9	---	---

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9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.
Rohde & Schwarz	ESH2-Z5/ LISN	Annual	02/03/2013	861741/013
Schwarzbeck	VULB 9168/ TRILOG Antenna	Biennial	02/09/2013	200
Rohde & Schwarz	ESI 40 / EMI TEST RECEIVER	Annual	05/26/2012	831564103
Agilent	E4440A/ Spectrum Analyzer	Annual	05/02/2013	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	Annual	09/23/2012	MY51110020
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
Rohde & Schwarz	ESH3-Z2/ PULSE LIMITER	Annual	08/01/2012	375.8810.352
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	Annual	09/19/2012	10094
MITEQ	AFS44-00102650-42-10P-44-PS/ POWER AMP	Annual	09/23/2012	1532439
MITEQ	AMF-6B-180265-35-10P / POWER AMP	Annual	04/16/2013	667624
CERNEX	CBL26405040 / POWER AMP	Annual	04/16/2013	19660
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	10/17/2013	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	Biennial	10/26/2012	BBHA9170342
Rohde & Schwarz	FSP / Spectrum Analyzer	Annual	02/09/2013	839117/011
Agilent	E4416A /Power Meter	Annual	11/07/2012	GB41291412
Agilent	E9327A /POWER SENSOR	Annual	05/02/2013	MY4442009
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	Annual	05/02/2013	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS/Band Reject Filter	Annual	05/02/2013	1
Hewlett Packard	11636B/Power Divider	Annual	11/07/2012	11377
Hewlett Packard	11667B / Power Splitter	Annual	11/04/2012	10126
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	11/07/2012	3110117
ITECH	IT6720 / DC POWER SUPPLY	Annual	11/07/2012	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	Annual	11/14/2012	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	05/02/2013	100422
EMCO	6502.LOOP ANTENNA	Biennial	01/11/2014	9009-2536
MITEQ	AMF-6D-001180-35-20P/ POWER AMP	Annual	12/26/2012	990893
Agilent	8493C / Attenuator(10 dB)	Annual	09/23/2012	76649

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