

# HCT CO., LTD.

## CERTIFICATE OF COMPLIANCE

#### **FCC Certification**

Applicant Name:	Date of Issue:
Pantech Co., Ltd.	June 09, 2011
Address:	Test Site/Location:
DMC I-2, PANTECH R&D Center Sang Am dong, Mapogu,	HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-
121-792, Korea	si, Kyunggi-Do, Korea
	Report No.: HCTR1106FR14

HCT FRN: 0005866421

FCC ID:	JYCP9060
APPLICANT:	Pantech Co., Ltd.
FCC Model(s): EUT Type:	P9060 Quad band GSM/WCDMA Phone with Bluetooth&WLAN
Max. RF Output Power:	Wi-Fi 802.11b(21.86 dBm) / Wi-Fi 802.11g (19.54 dBm) ) / Wi-Fi 802.11n (18.62 dBm)
Frequency Range:	2412 MHz -2462 MHz
Modulation type	CCK/DSSS/OFDM
FCC Classification:	Digital Transmission System(DTS)
FCC Rule Part(s):	Part 15.247

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

ee

Report prepared by : Jong Seok Lee Test engineer of RF Team

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Approved by : Sang Jun Lee Manager of RF Team

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# **Version**

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1106FR14	June 09, 2011	- First Approval Report

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Applicant:	Pantech Co., Ltd.
Address:	DMC I-2, PANTECH R&D Center Sang Am dong, Mapogu, 121-792, Korea
FCC ID:	JYCP9060
EUT Type:	Quad band GSM/WCDMA Phone with Bluetooth&WLAN
Model Name:	P9060
Date(s) of Tests:	May 03, 2011 ~ June 09, 2011
Contact person:	Name: In Youl Lee Phone #: +82-2-2070-1397
Place of Tests:	HCT Co., Ltd. 105-1, Jangam-ri , Majang-Myeon, Icheon-si, Kyunggi-Do, 467-811, KOREA. (IC Recognition No. : 5944A-3)

## 2. EUT DESCRIPTION

ЕИТ Туре	Quad band GSM/WCDMA Phone with Bluetooth&WLAN
Model Name	P9060
Power Supply	DC 3.7 V
Battery type	Li-ion Battery(Standard)
Frequency Range	TX: 2412 MHz ~ 2462 MHz
	RX: 2412 MHz ~ 2462 MHz
Max. RF Output Power:	Wi-Fi 802.11b(21.86 dBm) / Wi-Fi 802.11g (19.54 dBm) ) / Wi-Fi 802.11n (18.62 dBm)
Modulation Type	DSSS/CCK(802.11b), OFDM(802.11g, 802.11n)
Antenna Specification	Manufacturer: Advanced Technology & communications
	Antenna type: FPCB PIFA Antenna
	Peak Gain : -0.11 dBi

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### 3. TEST METHODOLOGY

The measurement procedure described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical and Electronic Equipment in the Range of 9kHz to 40GHz(ANSI C63.4-2003)

#### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

#### **3.2 EUT EXERCISE**

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

#### **3.3 GENERAL TEST PROCEDURES**

#### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version :2003) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

#### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version: 2003)

#### **3.4 DESCRIPTION OF TEST MODES**

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Channel low, mid and high with highest data rate (worst case) is chosen for full testing.

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## 4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

## 5. FACILITIES AND ACCREDITATIONS

#### **5.1 FACILITIES**

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, 467-811, Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2003) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated March 02, 2011 (Registration Number: 90661)

#### **5.2 EQUIPMENT**

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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#### According to FCC 47 CFR §15.203:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

\* The antennas of this E.U.T are permanently attached.

\*The E.U.T Complies with the requirement of §15.203

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### 7. TEST RESULT

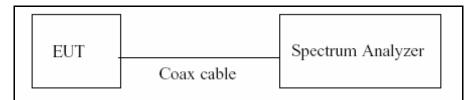
#### 7.1 6dB BANDWIDTH MEASUREMENT (802.11b/g/n)

#### Test Requirements and limit, §15.247(a)(2)

The bandwidth at 6dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the receive antenna while the EUT is operating in transmission mode at the appropriate frequencies.

The minimum permissible 6dB bandwidth is 500 kHz.

#### **TEST CONFIGURATION**



#### TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

RBW: 100 kHz

VBW: 100 kHz

SPAN: 40 MHz

#### TEST RESULTS

#### Conducted 6dB Bandwidth Measurements for 802.11b

802.11b Mode		Measured Bandwidth	Minimum Bandwidth	
Frequency [MHz]	Channel No.	[MHz]	[MHz]	Pass / Fail
2412	1	7.579	0.500	Pass
2437	6	7.881	0.500	Pass
2462	11	7.492	0.500	Pass

Conducted 6dB Bandwidth Measurements for 802.11g

802.11g Mode		Measured Bandwidth	Minimum Bandwidth	
Frequency [MHz]	Channel No.	[MHz]	[MHz]	Pass / Fail
2412	1	15.127	0.500	Pass
2437	6	15.174	0.500	Pass
2462	11	14.785	0.500	Pass

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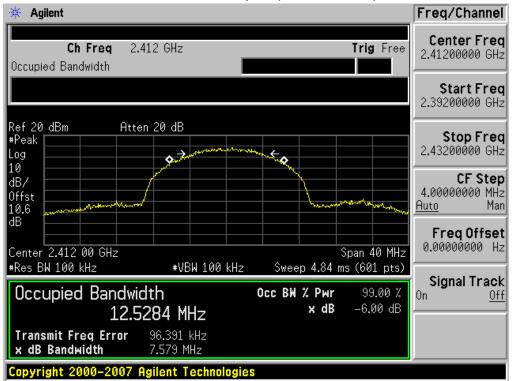
802.11n Mode		Measured Bandwidth	Minimum Bandwidth	
Frequency [MHz]	Channel No.	[MHz]	[MHz]	Pass / Fail
2412	1	15.172	0.500	Pass
2437	6	15.710	0.500	Pass
2462	11	15.396	0.500	Pass

#### Conducted 6dB Bandwidth Measurements for 802.11n

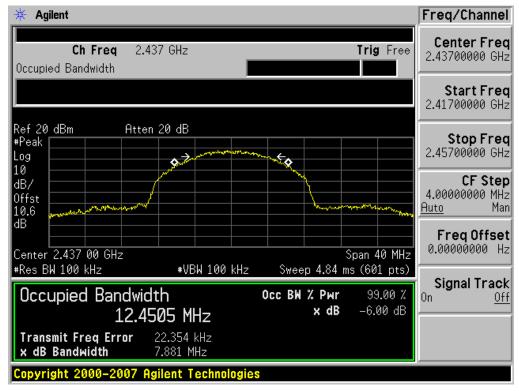
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#### 6dB Bandwidth plot (802.11b-CH 1)



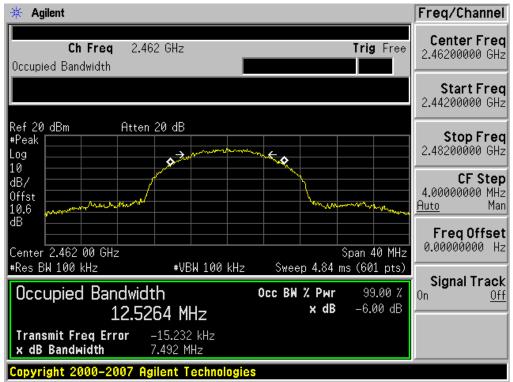
#### 6dB Bandwidth plot (802.11b-CH 6)



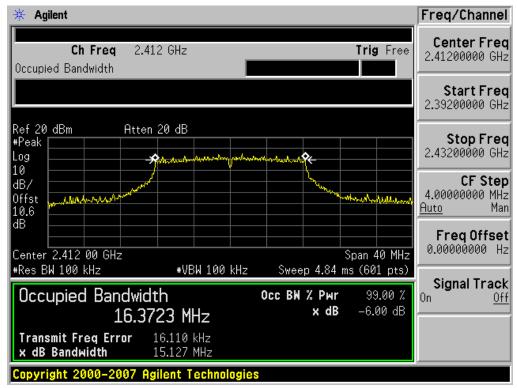
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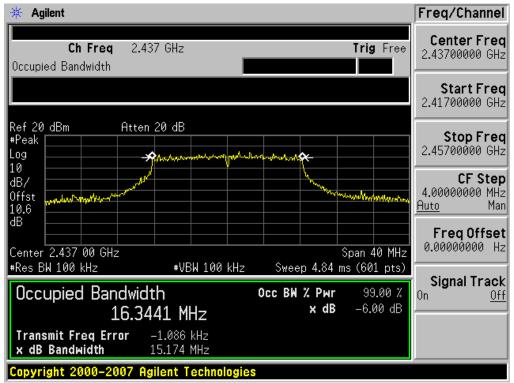
#### 6dB Bandwidth plot (802.11g-CH 1)



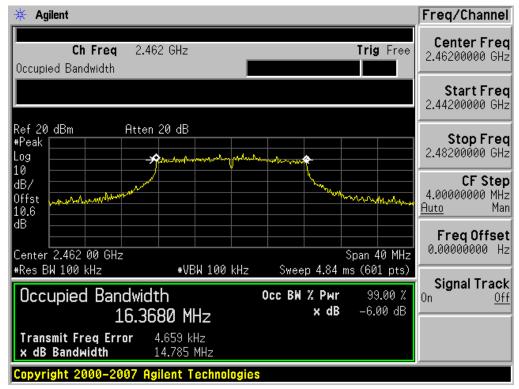
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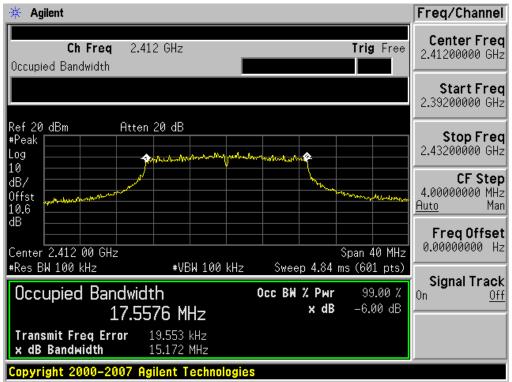
#### 6dB Bandwidth plot (802.11g-CH 11)



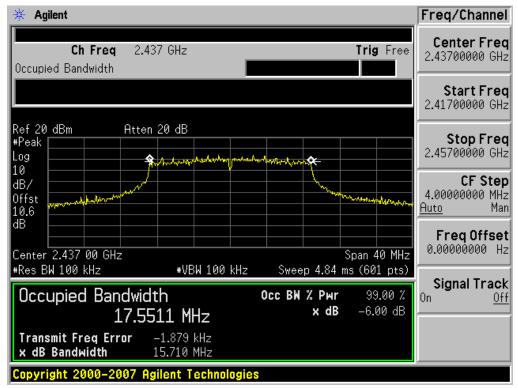
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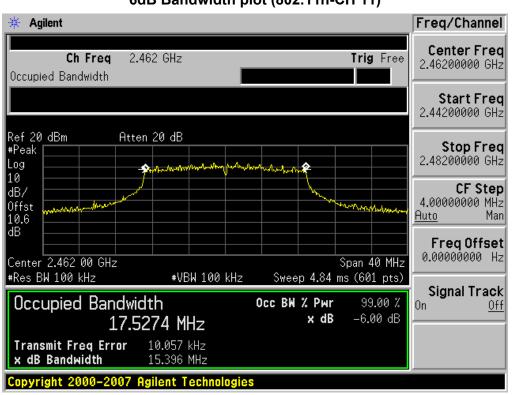


#### 6dB Bandwidth plot (802.11n-CH 6)



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#### 6dB Bandwidth plot (802.11n-CH 11)

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#### 7.2 OUTPUT POWER MEASUREMENT (802.11b/g/n)

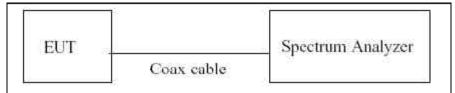
#### Test Requirements and limit, §15.247(b)(3)

A transmitter antenna terminal of EUT is connected to the input of a Spectrum Analyzer.

Measurement is made while the EUT is operating in transmission mode at the appropriate frequencies.

#### The maximum permissible conducted output power is 1 Watt.

#### **TEST CONFIGURATION**



#### TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to RBW: 1 MHz VBW: 1 MHz SPAN: 40 MHz Detector Mode = Peak

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802.11b Mode		Rate	Measured	Limit
Frequency[MHz]	Channel No.	(Mbps)	Power(dBm)	(dBm)
		1 Mbps	18.15	30
2412	1	2 Mbps	18.54	30
2412	1	5.5 Mbps	20.19	30
		11 Mbps	21.86	30
		1 Mbps	18.10	30
2427	•	2 Mbps	18.28	30
2437	6	5.5 Mbps	20.47	30
		11 Mbps	21.67	30
		1 Mbps	17.93	30
2462	11	2 Mbps	18.28	30
		5.5 Mbps	20.07	30
		11 Mbps	21.76	30

#### Conducted Output Power Measurements (802.11b Mode)

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#### Conducted Output Power Measurements (802.11g Mode)

802.11g Mode		Rate	Measured	Limit
Frequency[MHz]	Channel No.	(Mbps)	Power(dBm)	(dBm)
		6 Mbps	19.12	30
		9 Mbps	18.89	30
		12 Mbps	19.19	30
2412	1	18 Mbps	18.87	30
2412	1	24 Mbps	19.22	30
		36 Mbps	19.43	30
		48 Mbps	19.54	30
		54 Mbps	19.50	30
		6 Mbps	18.82	30
	6	9 Mbps	18.84	30
		12 Mbps	19.08	30
2437		18 Mbps	18.77	30
2437		24 Mbps	19.34	30
		36 Mbps	19.52	30
		48 Mbps	19.32	30
		54 Mbps	19.37	30
		6 Mbps	18.70	30
		9 Mbps	18.69	30
		12 Mbps	18.93	30
2462	11	18 Mbps	18.58	30
2402		24 Mbps	19.20	30
		36 Mbps	19.13	30
		48 Mbps	19.23	30
		54 Mbps	19.22	30

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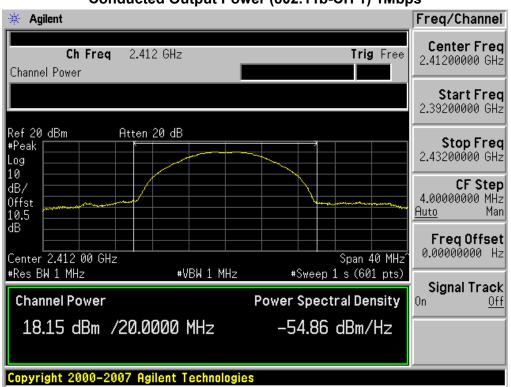


#### Conducted Output Power Measurements (802.11n Mode)

802.11n Mode		Rate	Measured	Limit
Frequency[MHz]	Channel No.	(Mbps)	Power(dBm)	(dBm)
		6.5 Mbps	18.32	30
		13 Mbps	18.24	30
		19.5 Mbps	18.18	30
2412	4	26 Mbps	18.37	30
2412	1	39 Mbps	18.54	30
		52 Mbps	18.62	30
		58.5 Mbps	18.60	30
		65 Mbps	18.27	30
		6.5 Mbps	18.14	30
	6	13 Mbps	18.20	30
		19.5 Mbps	18.00	30
2437		26 Mbps	18.27	30
2437		39 Mbps	18.43	30
		52 Mbps	18.27	30
		58.5 Mbps	18.33	30
		65 Mbps	18.20	30
		6.5 Mbps	18.03	30
		13 Mbps	18.13	30
		19.5 Mbps	17.92	30
2462	11	26 Mbps	18.20	30
2402	11	39 Mbps	18.26	30
		52 Mbps	18.24	30
		58.5 Mbps	18.20	30
		65 Mbps	18.22	30

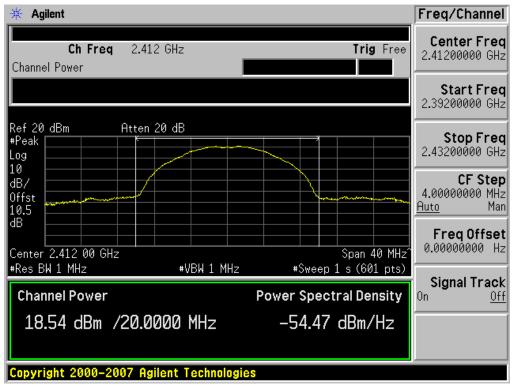
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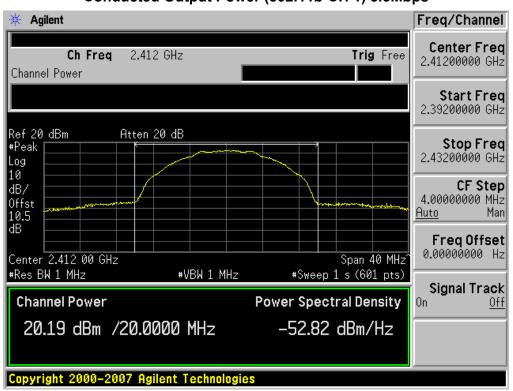
#### Conducted Output Power (802.11b-CH 1) 1Mbps





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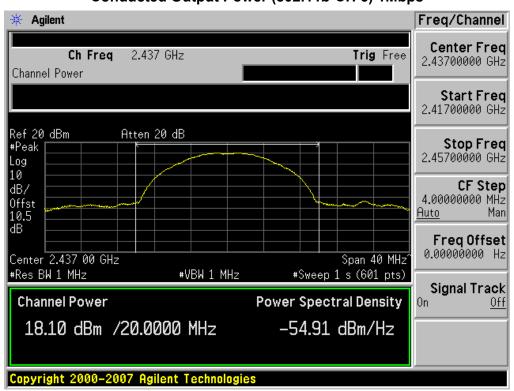
#### 🔆 Agilent Freq/Channel **Center Freq** Ch Freq 2.412 GHz Trig Free 2.41200000 GHz Channel Power Start Freq 2.39200000 GHz Ref 20 dBm #Peak Atten 20 dB Stop Freq 2.43200000 GHz Log 10 **CF** Step dB/ 4.00000000 MHz Offst 10.5 Auto Man dB Freq Offset 0.00000000 Hz Center 2.412 00 GHz Span 40 MHz #Res BW 1 MHz #VBW 1 MHz #Sweep 1 s (601 pts) Signal Track **Channel Power Power Spectral Density** 0n Off 21.86 dBm /20.0000 MHz -51.15 dBm/Hz

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

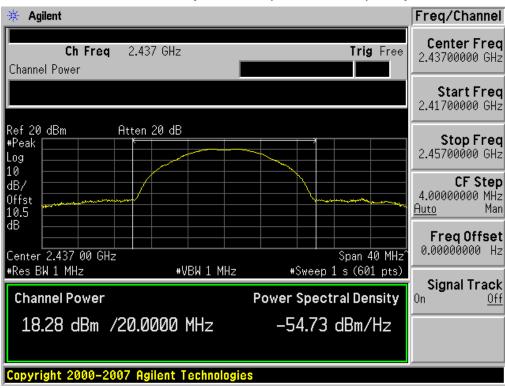
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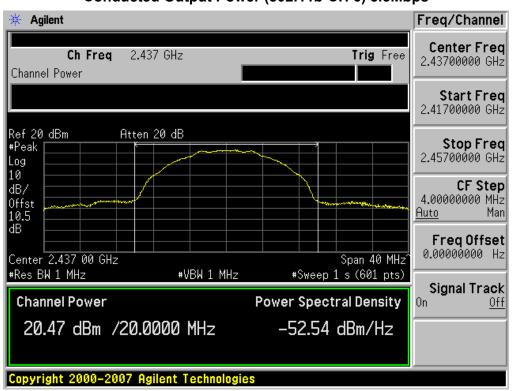
#### Conducted Output Power (802.11b-CH 6) 1Mbps



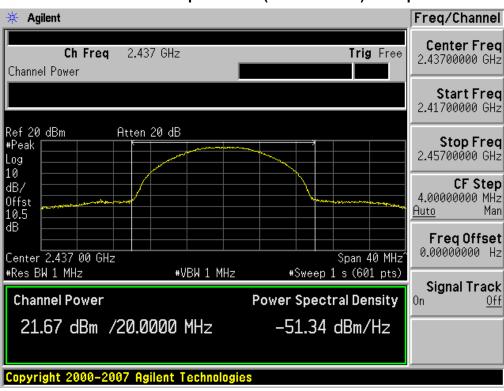
Conducted Output Power (802.11b-CH 6) 2Mbps

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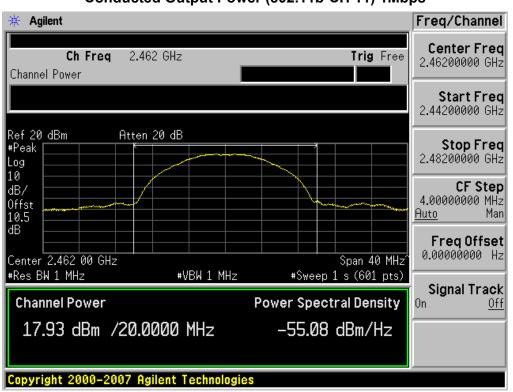
#### Conducted Output Power (802.11b-CH 6) 5.5Mbps



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

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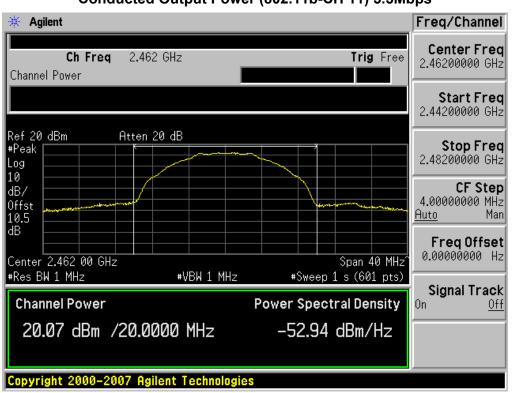
#### Conducted Output Power (802.11b-CH 11) 1Mbps

#### 🔆 Agilent Freq/Channel **Center Freq** Ch Freq 2.462 GHz Trig Free 2.46200000 GHz Channel Power Start Freq 2.44200000 GHz Ref 20 dBm #Peak Atten 20 dB Stop Freq 2.48200000 GHz Log 10 **CF** Step dB/ 4.00000000 MHz Offst 10.5 Auto Man dB Freq Offset 0.00000000 Hz Center 2.462 00 GHz Span 40 MHz #Res BW 1 MHz #Sweep 1 s (601 pts) #VBW 1 MHz Signal Track **Channel Power Power Spectral Density** 0n Off 18.28 dBm /20.0000 MHz -54.73 dBm/Hz Copyright 2000-2007 Agilent Technologies

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

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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060		
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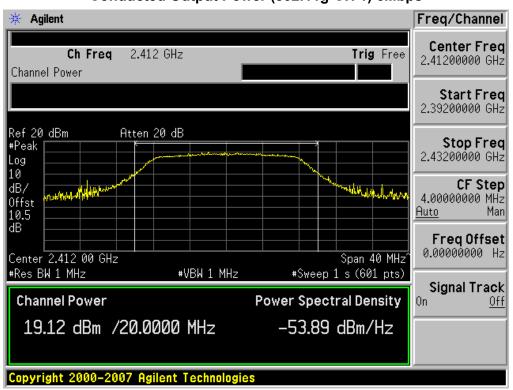
#### Conducted Output Power (802.11b-CH 11) 5.5Mbps

Conduct		= (002.11D-01111) 11W	she
🔆 Agilent			Freq/Channel
Ch Freq 2. Channel Power	462 GHz	Trig Free	Center Freq 2.46200000 GHz
			<b>Start Freq</b> 2.44200000 GHz
Ref 20 dBm Atte #Peak F Log 10	en 20 dB		<b>Stop Freq</b> 2.48200000 GHz
dB/ Offst 10.5			<b>CF Step</b> 4.00000000 MHz <u>Auto</u> Man
dB Center 2.462 00 GHz		Span 40 MHz	Freq Offset 0.00000000 Hz
#Res BW 1 MHz	₩VBW 1 MHz	#Sweep 1 s (601 pts)	Signal Track
Channel Power		Power Spectral Density	On <u>Off</u>
21.76 dBm /20	.0000 MHz	-51.25 dBm/Hz	
Copyright 2000-2007	Agilent Technologie	S	/

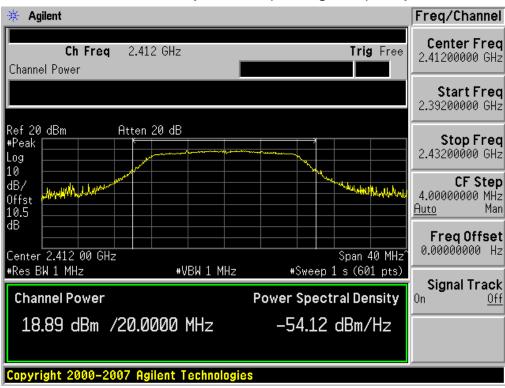
Conducted Output Power (802.11b-CH 11) 11Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
		Page 2.4 of 83	





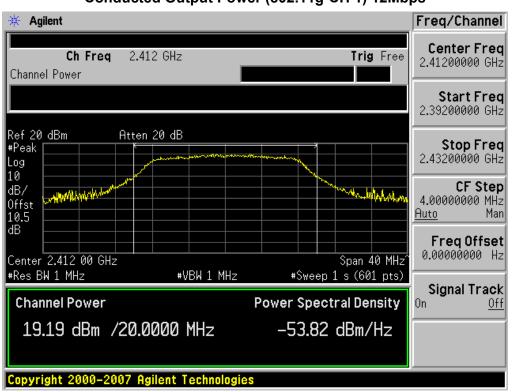
#### Conducted Output Power (802.11g-CH 1) 6Mbps



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

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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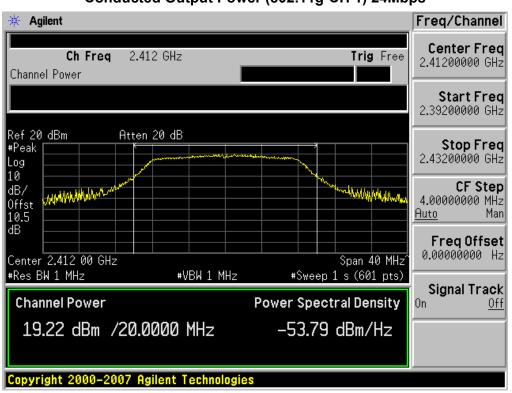
#### Conducted Output Power (802.11g-CH 1) 12Mbps

🔆 Agilent			Freq/Channel
Ch Freq 2.412 GHz Channel Power		Trig Free	Center Freq 2.41200000 GHz
			Start Freq 2.39200000 GHz
Ref 20 dBm Atten 20 dB #Peak Log 10	and the second		<b>Stop Freq</b> 2.43200000 GHz
dB/ Offst 10.5		non the the Market Address	<b>CF Step</b> 4.00000000 MHz <u>Auto</u> Man
dB Center 2.412 00 GHz #Res BW 1 MHz #VB	W 1 MHz #Swe	Span 40 MHz^ ep 1 s (601 pts)	FreqOffset 0.00000000 Hz
Channel Power		ectral Density	<b>Signal Track</b> On <u>Off</u>
18.87 dBm /20.0000 M	Hz –54.1	.4 dBm/Hz	
Copyright 2000-2007 Agilent Te	chnologies		

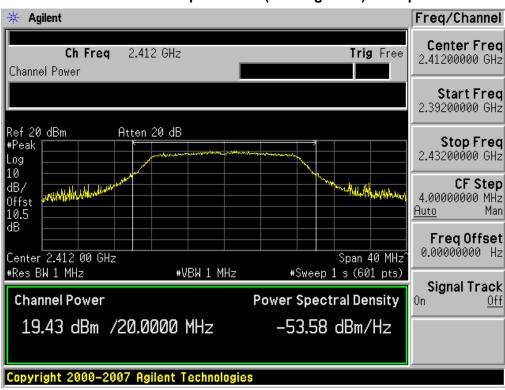
Conducted Output Power (802.11q-CH 1) 18Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060		
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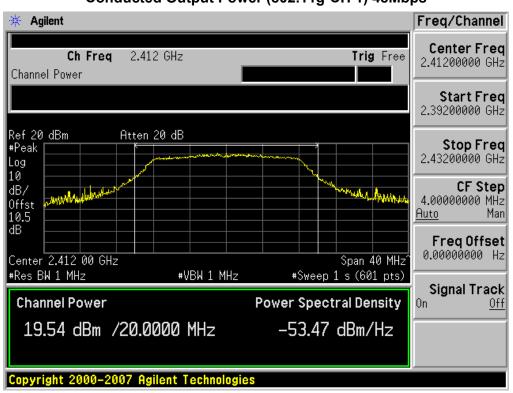
#### Conducted Output Power (802.11g-CH 1) 24Mbps



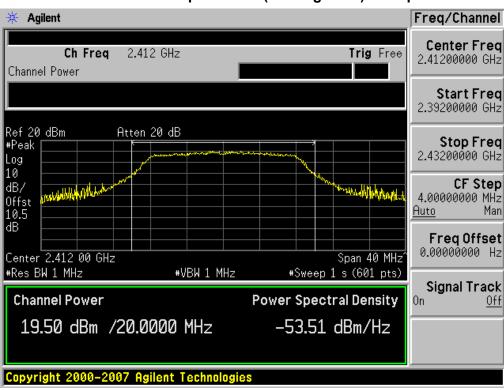
Conducted Output Power (802.11g-CH 1) 36Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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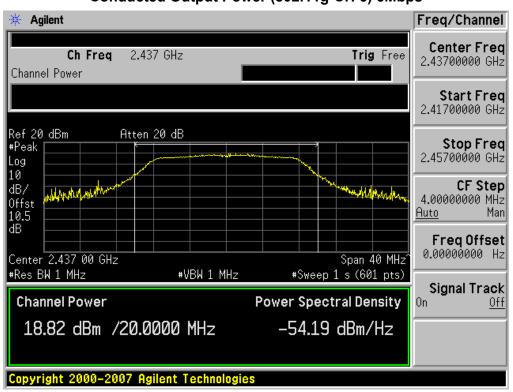
#### Conducted Output Power (802.11g-CH 1) 48Mbps



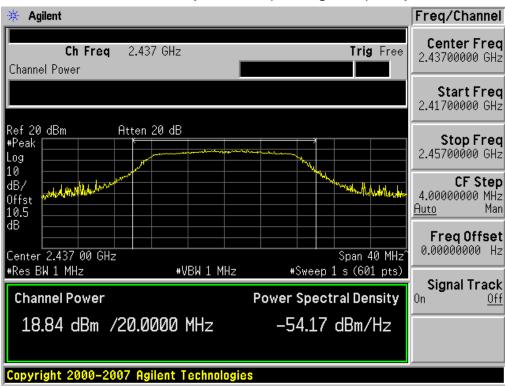
Conducted Output Power (802.11g-CH 1) 54Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060		
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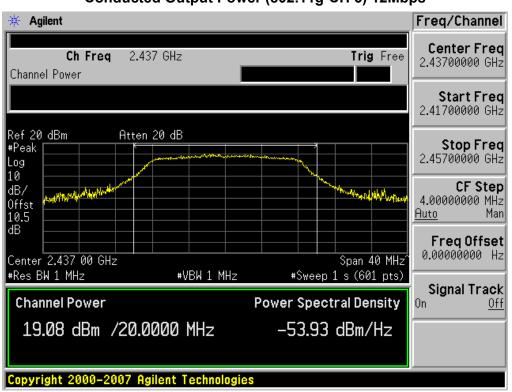
#### Conducted Output Power (802.11g-CH 6) 6Mbps



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

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060		
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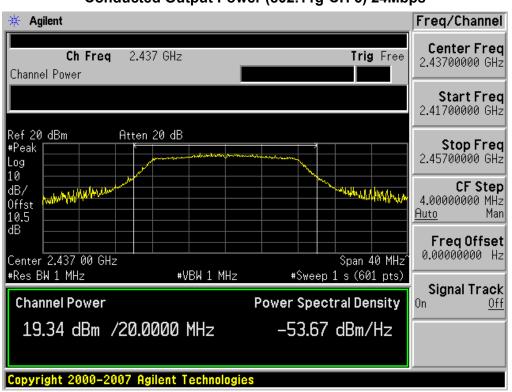
#### Conducted Output Power (802.11g-CH 6) 12Mbps

	libps
🔆 Agilent	Freq/Channel
Ch Freq 2.437 GHz Trig Fr Channel Power	ee 2.43700000 GHz
	Start Freq 2.41700000 GHz
Ref 20 dBm Atten 20 dB #Peak Log 10	Stop Freq 2.45700000 GHz
dB/ Offst 10.5	CF Step 4.00000000 MHz <u>Auto</u> Man
dB Center 2.437 00 GHz #Res BW 1 MHz Span 40 M #VBW 1 MHz #VBW 1 MHz	
Channel Power Power Spectral Densit	y On <u>Off</u>
18.77 dBm /20.0000 MHz -54.24 dBm/Hz	
Copyright 2000–2007 Agilent Technologies	

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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
		Page 3 0 of 83	





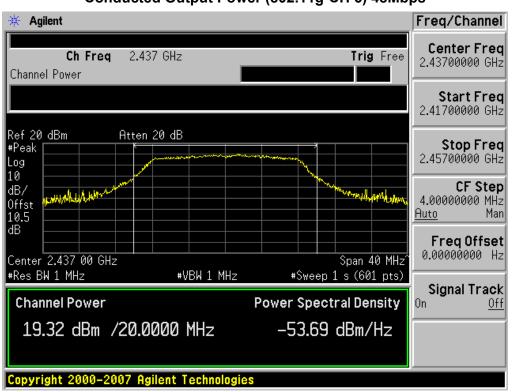
#### Conducted Output Power (802.11g-CH 6) 24Mbps

	wer (002.11g-0110) 30wibps
🔆 Agilent	Freq/Channel
Ch Freq 2.437 GHz Channel Power	Trig Free 2.43700000 GHz
	Start Freq 2.41700000 GHz
Ref 20 dBm Atten 20 dB #Peak Log 10	Stop Freq 2.45700000 GHz
dB/ Offst 10.5	CF Step 4.00000000 MHz <u>Auto</u> Man
dB	Span 40 MHz <sup>2</sup> Freq Offset 0.00000000 Hz
#Res BW 1 MHz #VBW 1 MHz Channel Power	#Sweep 1 s (601 pts) Signal Track On <u>Off</u>
19.52 dBm /20.0000 MHz	-53.49 dBm/Hz
Copyright 2000–2007 Agilent Technolog	ies

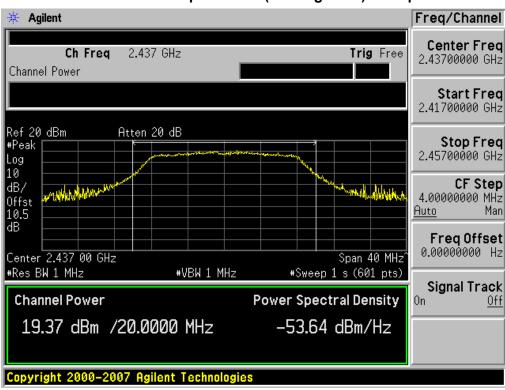
Conducted Output Power (802.11g-CH 6) 36Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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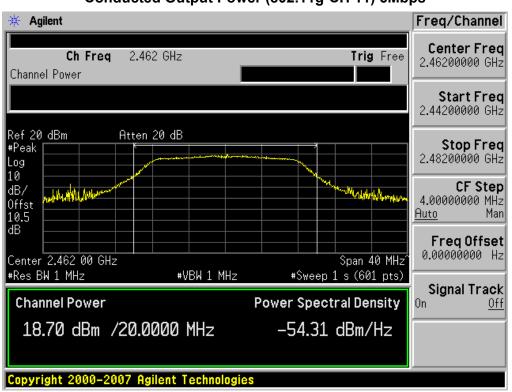
#### Conducted Output Power (802.11g-CH 6) 48Mbps



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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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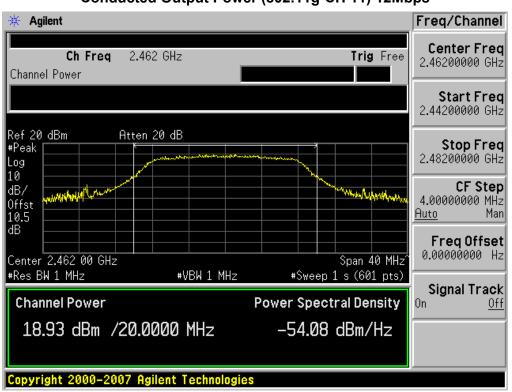
#### Conducted Output Power (802.11g-CH 11) 6Mbps

	ower (002.11g-01111) 3110p3
🔆 Agilent	Freq/Channel
Ch Freq 2.462 GHz Channel Power	Trig Free Center Freq 2.46200000 GHz
	Start Freq 2.44200000 GHz
Ref 20 dBm Atten 20 dB #Peak Log 10	2.48200000 GHz
dB/ Offst 10.5	CF Step 4.00000000 MHz <u>Auto</u> Man
dB Center 2.462 00 GHz #Res BW 1 MHz #VBW 1 MH	Span 40 MHz <sup>^</sup> Freq Offset           4z         #Sweep 1 s (601 pts)
Channel Power	Power Spectral Density On <u>Off</u>
18.69 dBm /20.0000 MHz	-54.32 dBm/Hz
Copyright 2000–2007 Agilent Technolo	gies

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

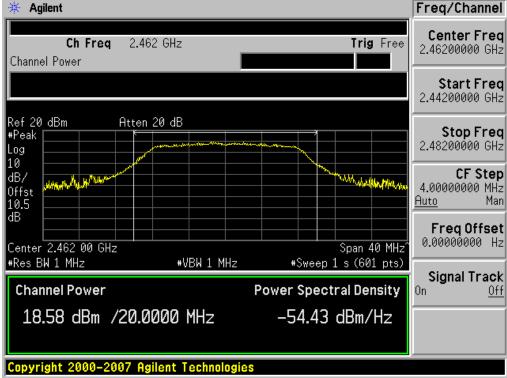
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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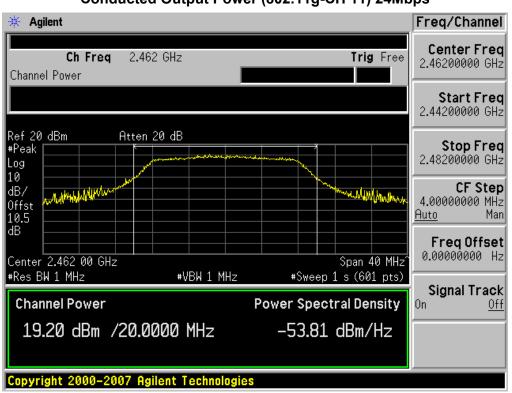
#### Conducted Output Power (802.11g-CH 11) 12Mbps

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



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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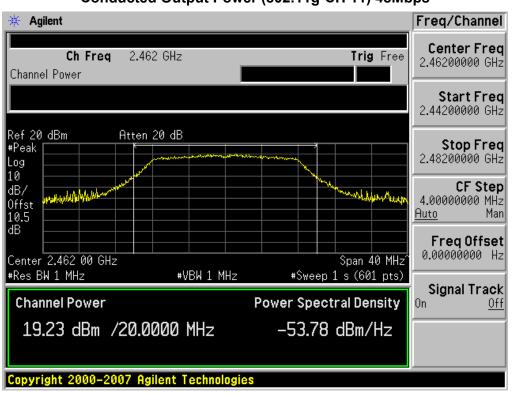
#### Conducted Output Power (802.11g-CH 11) 24Mbps

#### 🔆 Agilent Freq/Channel **Center Freq** Ch Freq 2.462 GHz Trig Free 2.46200000 GHz Channel Power Start Freq 2.44200000 GHz Ref 20 dBm #Peak Atten 20 dB Stop Freq 2.48200000 GHz Log 10 **CF** Step on the first of the second dB/ handing ditan. 4.00000000 MHz Offst Auto Man 0.5 dB Freq Offset 0.00000000 Hz Center 2.462 00 GHz Span 40 MHz #Sweep 1 s (601 pts) #Res BW 1 MHz #VBW 1 MHz Signal Track **Channel Power Power Spectral Density** 0n Off 19.13 dBm /20.0000 MHz -53.88 dBm/Hz Copyright 2000-2007 Agilent Technologies

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

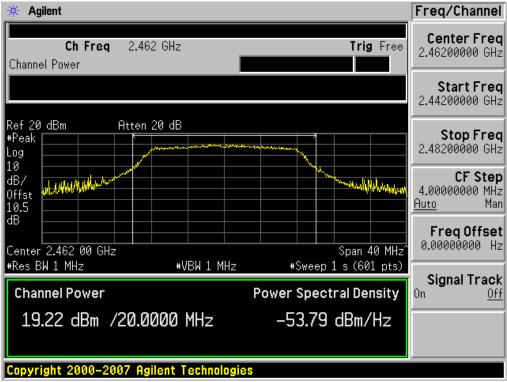
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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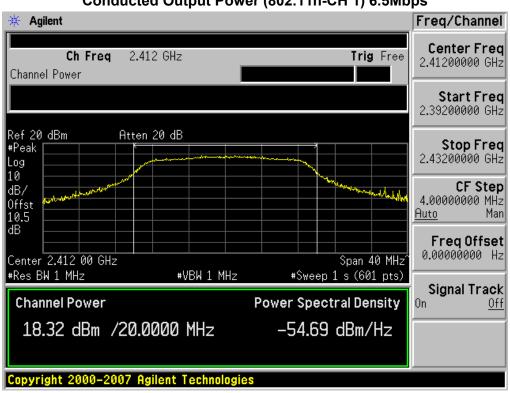
#### Conducted Output Power (802.11g-CH 11) 48Mbps

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



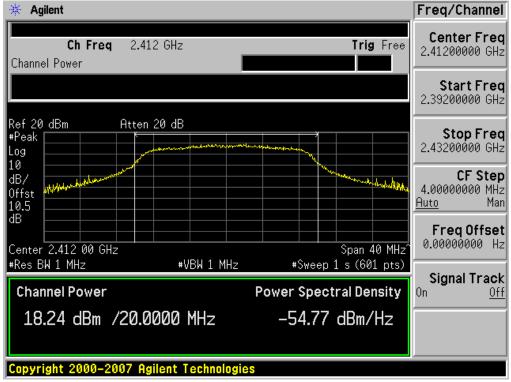
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT <u>www.hct.co.kr</u>		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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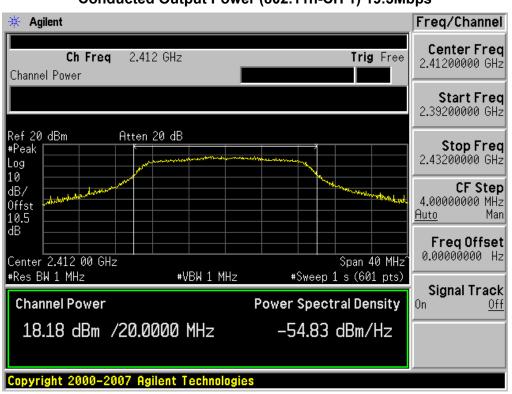
#### Conducted Output Power (802.11n-CH 1) 6.5Mbps



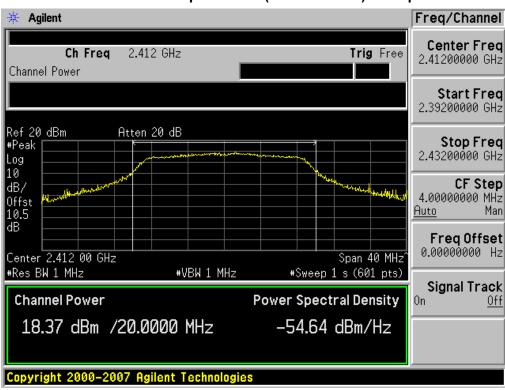


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1106FR14	June 09, 2011 Quad band GSM/WCDMA Phone with Bluetooth&WLAN		JYCP9060	
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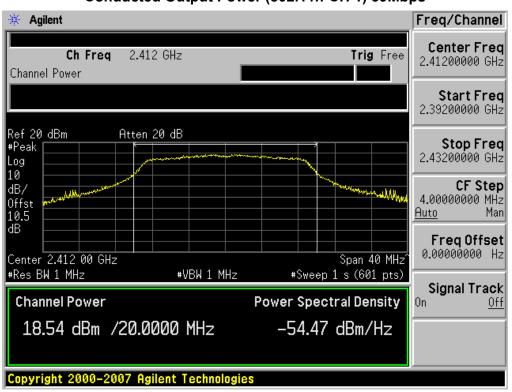
#### Conducted Output Power (802.11n-CH 1) 19.5Mbps



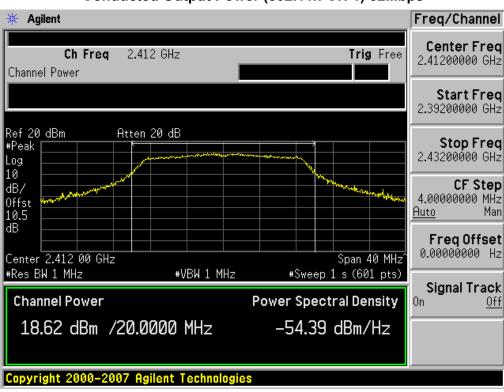
Conducted Output Power (802.11n-CH 1) 26Mbps

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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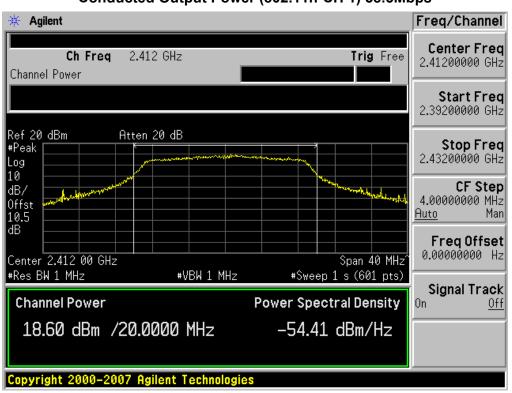
#### Conducted Output Power (802.11n-CH 1) 39Mbps



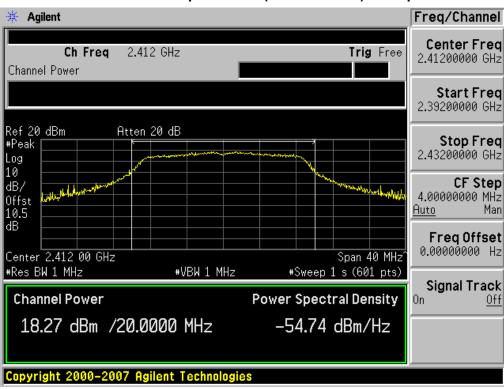
Conducted Output Power (802.11n-CH 1) 52Mbps

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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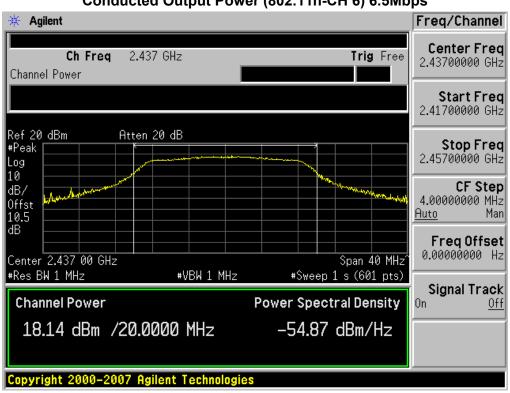
#### Conducted Output Power (802.11n-CH 1) 58.5Mbps



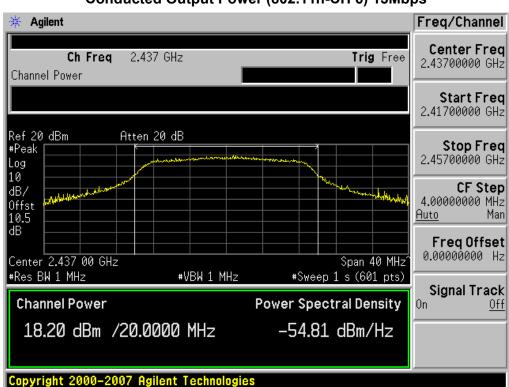
Conducted Output Power (802.11n-CH 1) 65Mbps

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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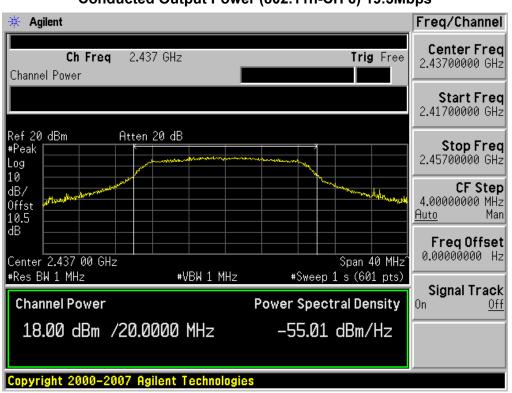
#### Conducted Output Power (802.11n-CH 6) 6.5Mbps



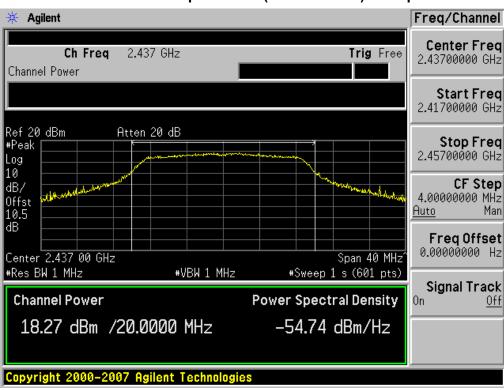
Conducted Output Power (802.11n-CH 6) 13Mbps

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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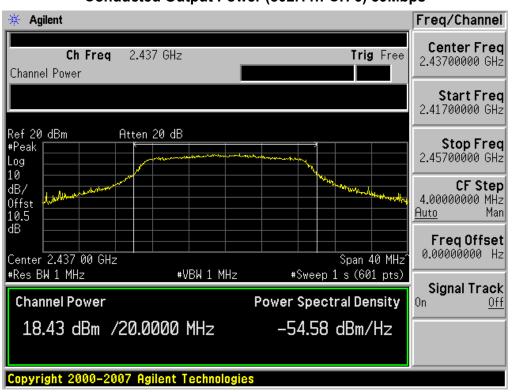
#### Conducted Output Power (802.11n-CH 6) 19.5Mbps



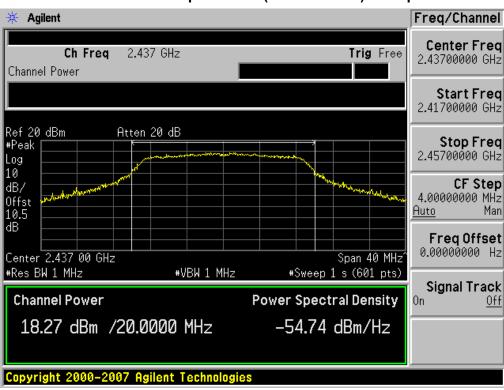
Conducted Output Power (802.11n-CH 6) 26Mbps

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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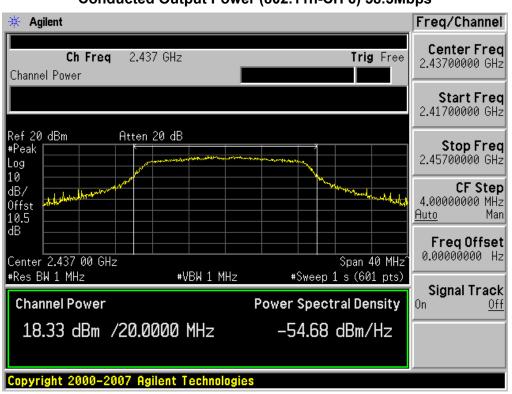
#### Conducted Output Power (802.11n-CH 6) 39Mbps



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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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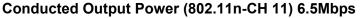
#### Conducted Output Power (802.11n-CH 6) 58.5Mbps

#### 🔆 Agilent Freq/Channel **Center Freq** Ch Freq 2.437 GHz Trig Free 2.43700000 GHz Channel Power Start Freq 2.41700000 GHz Ref 20 dBm Atten 20 dB Stop Freq #Peak 2.45700000 GHz Log 10 **CF** Step dB/ J. 4.00000000 MHz Offst Auto Man 0.5 dB Freq Offset 0.00000000 Hz Center 2.437 00 GHz Span 40 MHz #Sweep 1 s (601 pts) #Res BW 1 MHz #VBW 1 MHz Signal Track **Channel Power Power Spectral Density** 0n Off 18.20 dBm /20.0000 MHz -54.81 dBm/Hz Copyright 2000-2007 Agilent Technologies

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

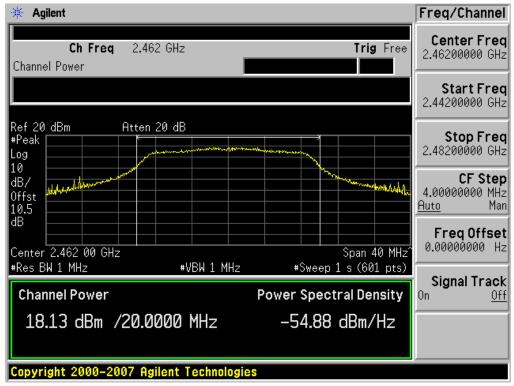
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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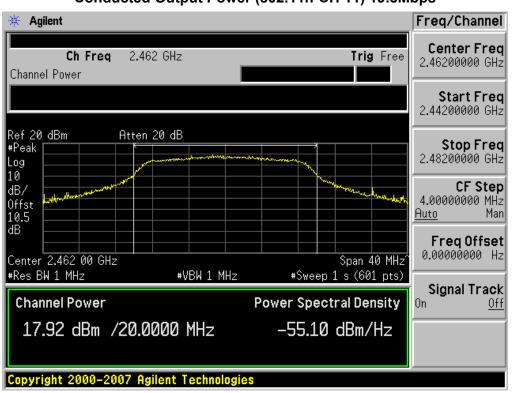
* Agilent		Freq/Channel		
Ch Freq 2.462 GHz Channel Power	Trig Free	Center Freq 2.46200000 GHz		
		<b>Start Freq</b> 2.44200000 GHz		
Ref 20 dBm Atten 20 dB #Peak Log 10		<b>Stop Freq</b> 2.48200000 GHz		
dB/ Offst 10.5	and the second sec	<b>CF Step</b> 4.0000000 MHz <u>Auto</u> Man		
dB	Span 40 MHz	FreqOffset 0.00000000 Hz		
#Res BW 1 MHz #VBW 1 MHz	#Sweep 1 s (601 pts)	Signal Track		
Channel Power	Power Spectral Density	On <u>Off</u>		
18.03 dBm /20.0000 MHz	-54.98 dBm/Hz			
Copyright 2000–2007 Agilent Technologies				



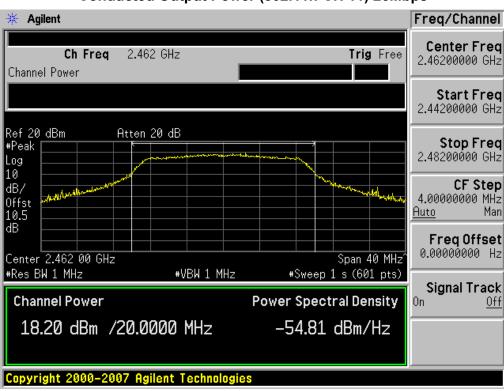


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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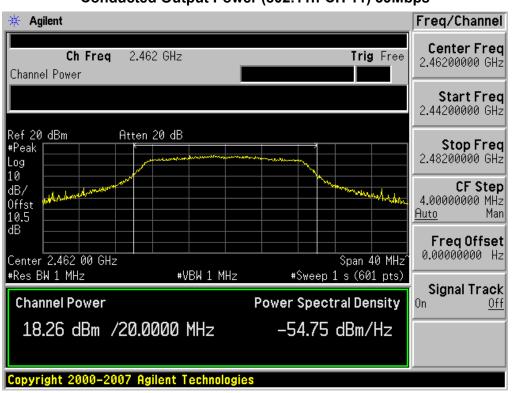
#### Conducted Output Power (802.11n-CH 11) 19.5Mbps



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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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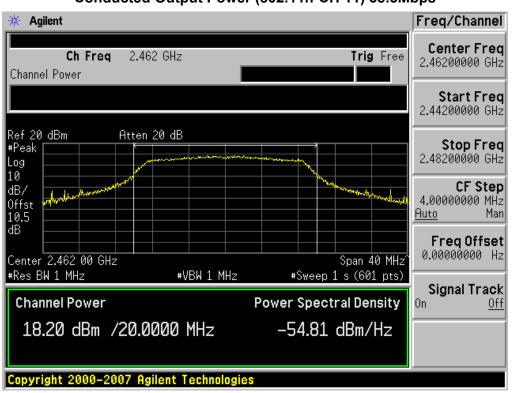
#### Conducted Output Power (802.11n-CH 11) 39Mbps

#### 🔆 Agilent Freq/Channel **Center Freq** Ch Freq 2.462 GHz Trig Free 2.46200000 GHz Channel Power Start Freq 2.44200000 GHz Ref 20 dBm #Peak Atten 20 dB Stop Freq 2.48200000 GHz Log 10 **CF** Step dB/ 4.00000000 MHz Offst 10.5 Auto Man dB Freq Offset 0.00000000 Hz Center 2.462 00 GHz Span 40 MHz #Res BW 1 MHz #Sweep 1 s (601 pts) #VBW 1 MHz Signal Track **Channel Power Power Spectral Density** 0n Off 18.24 dBm /20.0000 MHz -54.77 dBm/Hz Copyright 2000-2007 Agilent Technologies

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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060	
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#### Conducted Output Power (802.11n-CH 11) 58.5Mbps

#### 🔆 Agilent Freq/Channel **Center Freq** Ch Freq 2.462 GHz Trig Free 2.46200000 GHz Channel Power Start Freq 2.44200000 GHz Ref 20 dBm #Peak Atten 20 dB Stop Freq 2.48200000 GHz Log 10 **CF** Step dB/ 1 well idad ed 4.00000000 MHz Offst Auto Man 0.5 dB Freq Offset 0.00000000 Hz Center 2.462 00 GHz Span 40 MHz #Sweep 1 s (601 pts) #Res BW 1 MHz #VBW 1 MHz Signal Track **Channel Power Power Spectral Density** 0n Off 18.22 dBm /20.0000 MHz -54.80 dBm/Hz Copyright 2000-2007 Agilent Technologies

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

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
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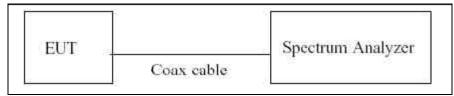
### 7.3 POWER SPECTRAL DENSITY (802.11b/g/n)

#### Test Requirements and limit, §15.247(e)

The peak power 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 transmitter power density average over 1-second interval shall not be greater than 8dBm in any 3kHz BW.

#### **TEST CONFIGURATION**



#### TEST PROCEDURE

The spectrum analyzer is set to :

- 1. Span = 300 kHz
- 2. RBW = 3 kHz (7 dB/div)
- 3. VBW = 3 kHz
- 4. Sweep = 100 sec
- 5. Detector Mode = Peak

#### TEST RESULTS

#### **Conducted Power Density Measurements**

			Test Result	
Frequency (MHz)	Channel No.	Mode	Power Density (dBm)	Pass/Fail
2412	1		-6.72	Pass
2437	6	802.11b	-6.03	Pass
2462	11		-6.93	Pass
2412	1		-9.22	Pass
2437	6	802.11g	-9.38	Pass
2462	11		-9.30	Pass
2412	1		-11.32	Pass
2437	6	802.11n	-10.68	Pass
2462	11		-11.82	Pass

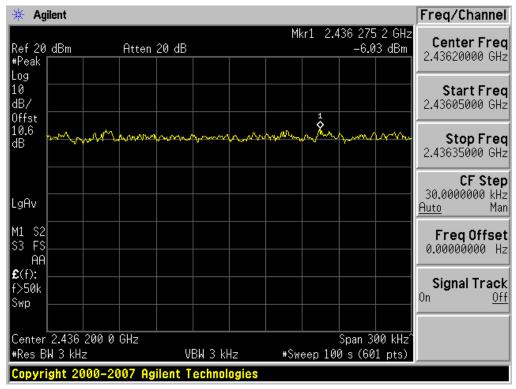
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
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🔆 Agilent					Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB		Mkr1 2.4	11 459 6 GHz -6.72 dBm	Center Freq 2.41146667 GHz
_og L0 dB/ Dffst		1			<b>Start Fred</b> 2.41131667 GHz
10.6 Amarian JB	Jogomen and the start of the st	~~~~~	m	many	<b>Stop Fred</b> 2.41161667 GHz
_gAv					<b>CF Step</b> 30.0000000 kH: <u>Auto</u> Ma
M1 S2 S3 FS AA					Freq Offse 0.00000000 Hz
€(f): F>50k Swp					<b>Signal Tracl</b> On <u>Of</u>
Center 2.411 466 #Res BW 3 kHz		W 3 kHz		Span 300 kHz^ 0 s (601 pts)	
Copyright 2000	-2007 Agilent Te	chnologies			

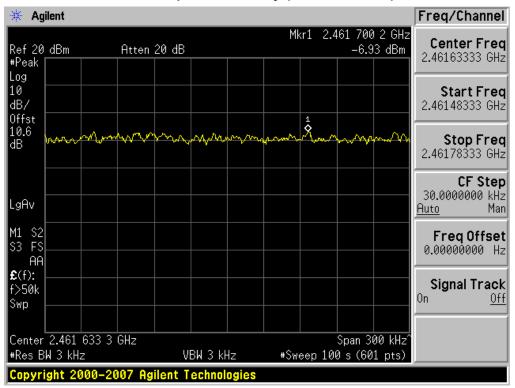
#### Power Spectral Density (802.11b-CH 1)

Power Spectral Density (802.11b-CH 6)



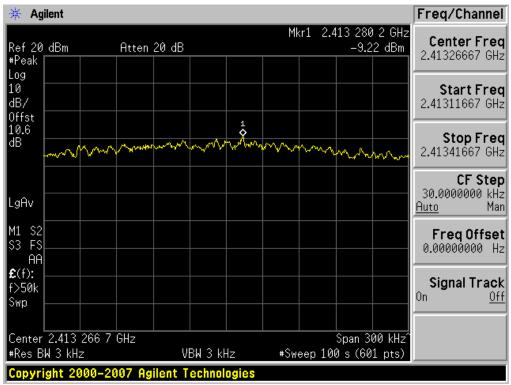
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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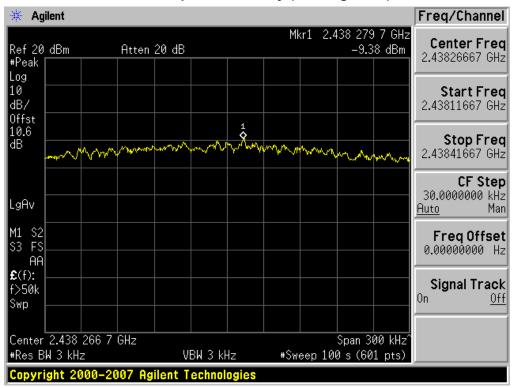
#### Power Spectral Density (802.11b-CH 11)





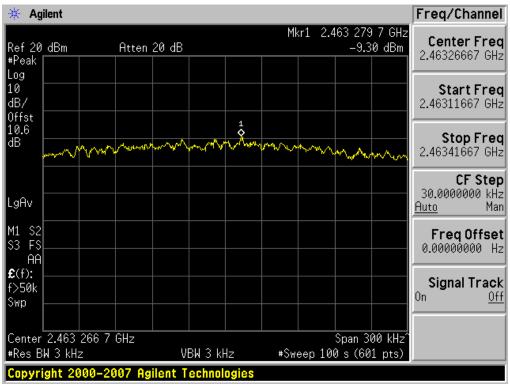
FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No. HCTR1106FR14	Date of Issue: June 09, 2011	EUT Type: Quad band GSM/WCDMA Phone with Bluetooth&WLAN	FCC ID: JYCP9060
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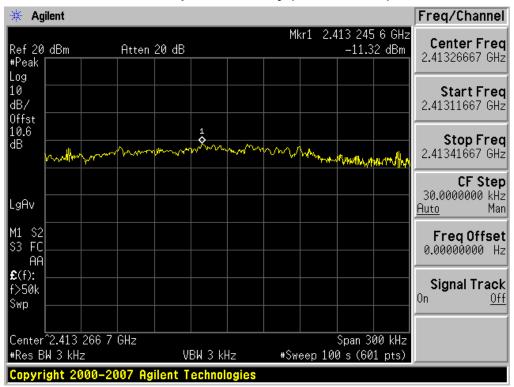
#### Power Spectral Density (802.11g-CH 6)





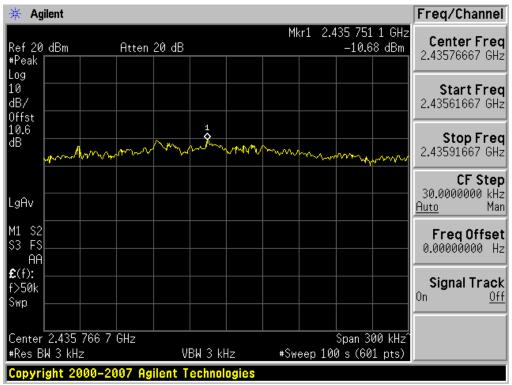
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
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#### Power Spectral Density (802.11n-CH 1)





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🔆 Agilent			Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB	Mkr1 2.463 246 6 -11.82	Contor Lroa
-og LØ dB/ Dffst			<b>Start Freq</b> 2.46311667 GHz
IO.6 JB		man mar	<b>Stop Freq</b> 2.46341667 GHz
_gAv			<b>CF Step</b> 30.0000000 kHz <u>Auto</u> Mar
M1 S2 S3 FS AA			Freq Offset 0.00000000 Hz
€(f): F>50k Swp			<b>Signal Track</b> On <u>Off</u>
Center 2.463 266 #Res BW 3 kHz	7 GHz VBW 3	Span 300 kHz #Sweep 100 s (601	

### Power Spectral Density (802.11n-CH11)

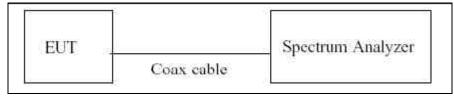
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
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## 7.4 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS Test Requirements and limit, §15.247(d)

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB 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 §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)).

#### **TEST CONFIGURATION**



### TEST PROCEDURE

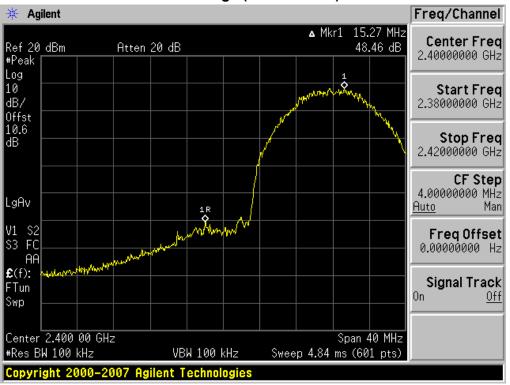
The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

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.

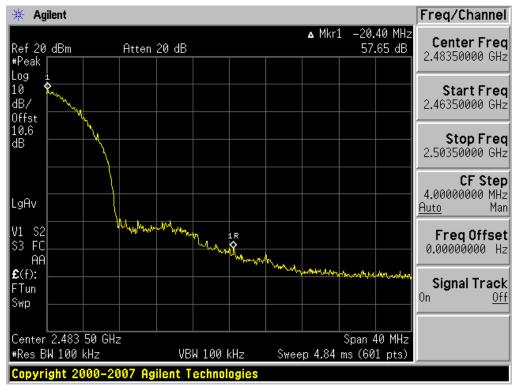
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		
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BandEdge (802.11b-CH1)

BandEdge (802.11b-CH11)



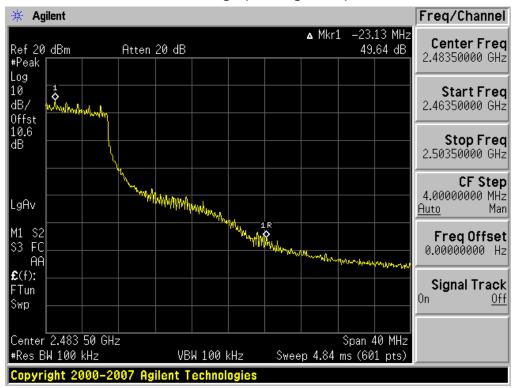
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
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#### \*\* Agilent Freq/Channel ▲ Mkr1 13.53 MHz **Center Freq** Atten 20 dB 34.84 dB Ref 20 dBm 2.40000000 GHz #Peak Log -1-10 Start Freq dB/ 2.38000000 GHz Offst 10.6 Stop Freq dB 2.42000000 GHz **CF** Step 1 R 4.00000000 MHz work Will Myrell LgAv <u>Auto</u> Man holy V1 S2 S3 FC Freq Offset 0.0000000 Hz hadm SAMANAM AA **£**(f): Signal Track FTun 0n <u> 0ff</u> Swp Span 40 MHz Center 2.400 00 GHz #Res BW 100 kHz VBW 100 kHz Sweep 4.84 ms (601 pts) Copyright 2000-2007 Agilent Technologie

#### BandEdge (802.11g-CH1)

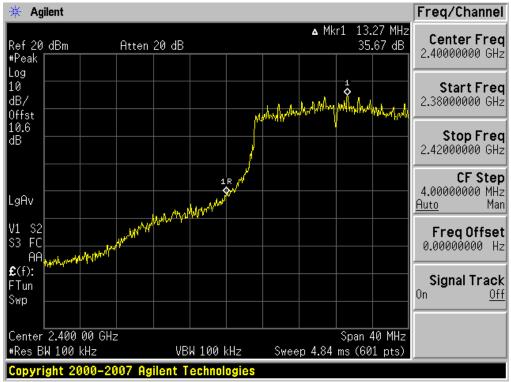
#### BandEdge (802.11g-CH11)



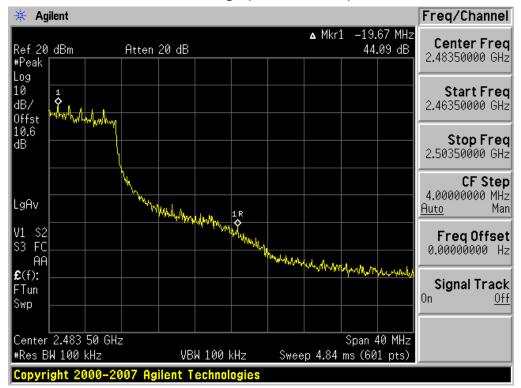
FCC PT.15.247 TEST REPORT		www.hct.co.kr				
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#### BandEdge (802.11n-CH1)



BandEdge (802.11n-CH11)



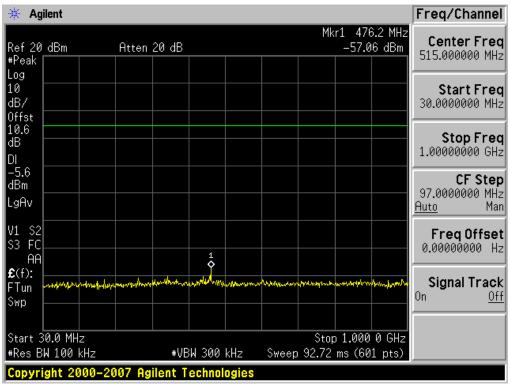
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
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				•			511 (00			
🔆 Agilent										Freq/Channel
Ref 20 dBm #Peak		Atten	20 dB				Mk		2.0 MHz 31 dBm	Center Frec 515.000000 MHz
Log 10 dB/ Offst										Start Fred 30.0000000 MHz
10.6 dB DI										<b>Stop Frec</b> 1.00000000 GHz
-4.8 dBm LgAv										<b>CF Step</b> 97.0000000 MHz <u>Auto</u> Mar
V1 S2 S3 FC AA				 \$						Freq Offse 0.00000000 H:
€(f): FTun ₩₩₩₩₩ Swp	contraction of the	unhyddyllou	provide and the second s	mutur	ana ang ang ang ang ang ang ang ang ang	kontrakat, perspe	derland <sup>(Ben</sup> erstor	and a second	u de	Signal Track <sup>On <u>Of</u></sup>
			#VB	3W 300	kHz	Sweep			0 GHz 1 pts)	

#### Conducted Spurious Emission (802.11b-CH1)





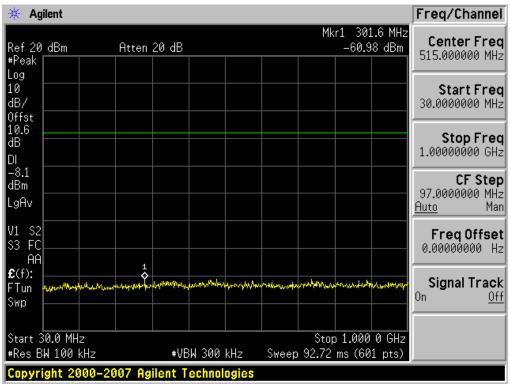
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT					
Test Report No.	Date of Issue:	EUT Type:	FCC ID:				
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060				
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🔆 Agilent						Freq/Channel
Ref 20 dBm #Peak	Atten 20 dB				2.1 MHz 69 dBm	Center Freq 515.000000 MHz
-og LØ dB/ Dffst						<b>Start Freq</b> 30.0000000 MHz
10.6 dB DI						<b>Stop Freq</b> 1.00000000 GHz
-6.3 dBm _gAv						<b>CF Step</b> 97.0000000 MHz <u>Auto</u> Mar
V1 S2 S3 FC AA		1 \$				Freq Offse 0.00000000 H:
€(f): Tun ∽∽∽∽∽∽∽∽∽ Swp	na fan generalen til blen per an	n	nanahamanaham	uninger antiques	the files, we they are	<b>Signal Track</b> On <u>Of</u>
Start 30.0 MHz #Res BW 100 kHz	#VB	W 300 kHz		Stop 1.000 2.72 ms (60		

#### Conducted Spurious Emission (802.11b-CH11)





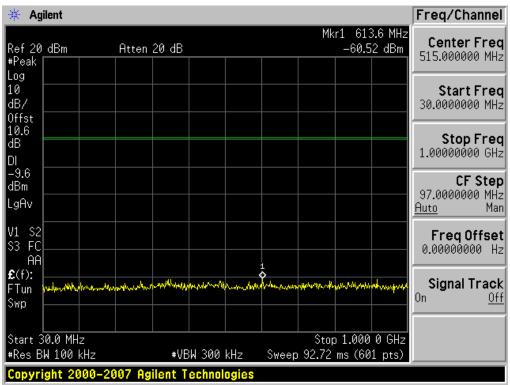
FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060
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🗧 Agilent					Freq/Channel
ef 20 dBm Peak	Atten 20 dB		Mk	r1 371.1 MHz -60.81 dBm	Center Fred 515.000000 MH:
og Ø B/ ffst					Start Fre 30.0000000 MH
0.6 B II					Stop Fre 1.00000000 GH
7.7 Bm gAv					<b>CF Stej</b> 97.0000000 MH <u>Auto</u> Ma
1 S2 3 FC AA					<b>Freq Offse</b> 0.00000000 H
:(f): Tun տուսիվակիս wp	and annow the second second	non siljen Marthage Adapentife	alaraman yan serhati daaksi	yendahan Manadayan na an Ma	<b>Signal Trac</b> On <u>Of</u>
tart 30.0 MHz Res BW 100 kHz	#VB	W 300 kHz		p 1.000 0 GHz ms (601 pts)	

#### Conducted Spurious Emission (802.11g-CH6)





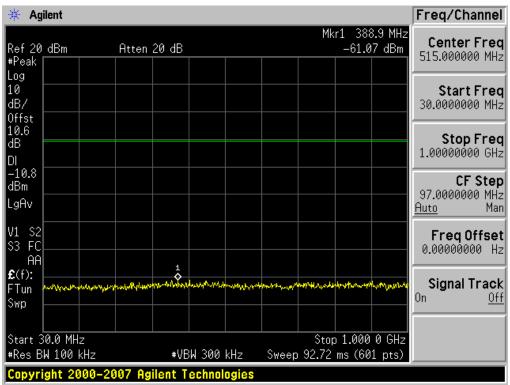
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT					
Test Report No.	Date of Issue:	EUT Type:	FCC ID:				
HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060				
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🗧 Agilent					Freq/Channel
ef 20 dBm Peak	Atten 20 dB		Mk	r1 374.4 MHz -61.34 dBm	Center Frec 515.000000 MHz
og 0 IB/ Iffst					Start Fred 30.0000000 MH:
0.6 IB )I					Stop Fred 1.00000000 GHz
-10.3 IBm gAv					<b>CF Step</b> 97.0000000 MH; <u>Auto</u> Mai
1 S2 3 FC					Freq Offse 0.00000000 H:
(f):	under verlage Annual	-Jev <sup>an</sup> ser <sup>te</sup> renderendereder	hadalaan daalkada ahaa	randitionscriptionspecture	<b>Signal Tracl</b> On <u>Of</u>
tart 30.0 MHz Res BW 100 kHz	#V	300 kHz		o 1.000 0 GHz ms (601 pts)	

#### Conducted Spurious Emission (802.11n-CH1)





FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
Test Report No. HCTR1106FR14	Date of Issue: June 09, 2011	EUT Type: Quad band GSM/WCDMA Phone with Bluetooth&WLAN	FCC ID: JYCP9060		
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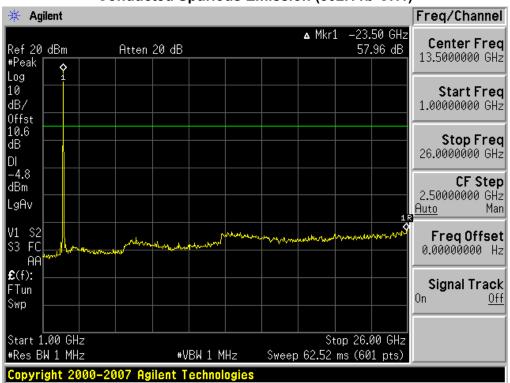
🗧 Agilent					Freq/Channel
ef 20 dBm Peak	Atten 20 dB		MI	kr1 424.5 MHz -60.95 dBm	Center Frec 515.000000 MHz
.og 0 IB/ )ffst					Start Fred 30.0000000 MHz
.0.6 IB )I					Stop Frec 1.00000000 GHz
-9.2 IBm gAv					<b>CF Step</b> 97.0000000 MH: <u>Auto</u> Mai
/1 S2 3 FC AA					Freq Offse 0.00000000 Hi
C(f): Tun dana and an	y any density of the section of the	1 wilipper M. Mark Jarob J. W	hudens and a strain of the str	d had the address of a strate	<b>Signal Tracl</b> <sup>On <u>Of</u></sup>
itart 30.0 MHz Res BW 100 kHz	#V	BW 300 kHz		p 1.000 0 GHz ms (601 pts)	

### Conducted Spurious Emission (802.11n-CH11)

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT					
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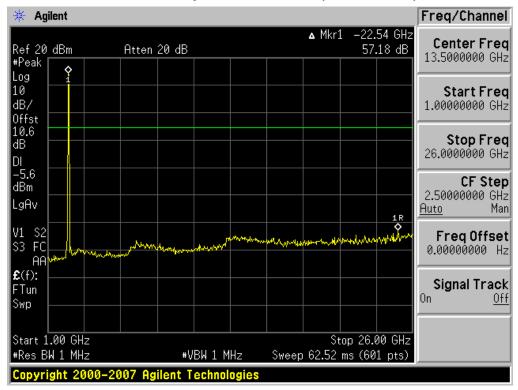


1 GHz ~ 26 GHz



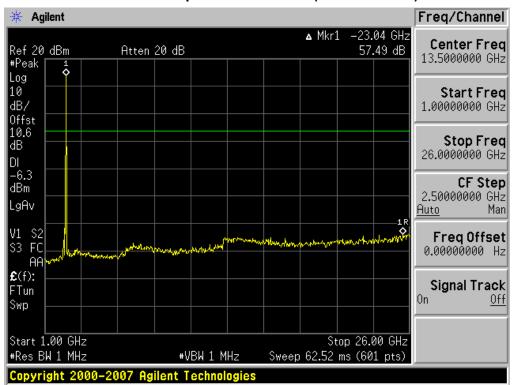


Conducted Spurious Emission (802.11b-CH6)



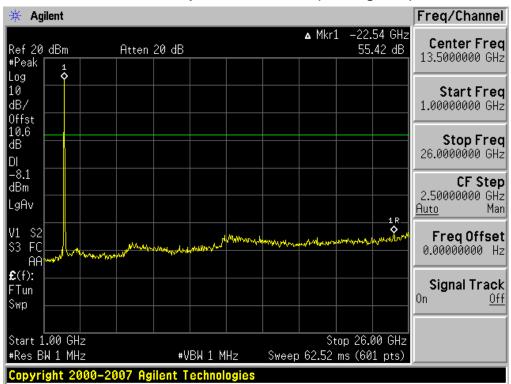
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr		
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HCTR1106FR14	June 09, 2011	Quad band GSM/WCDMA Phone with Bluetooth&WLAN	JYCP9060		
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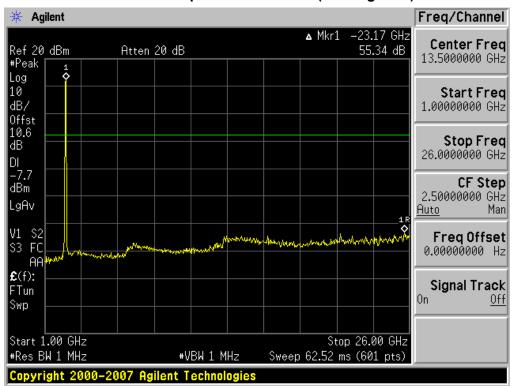
#### Conducted Spurious Emission (802.11b-CH11)





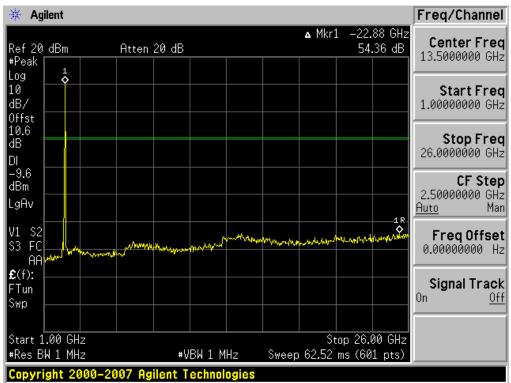
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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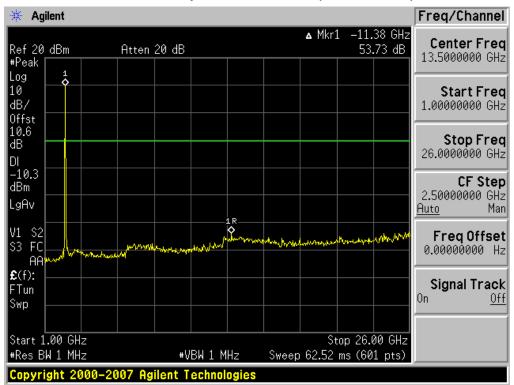
#### Conducted Spurious Emission (802.11g-CH6)





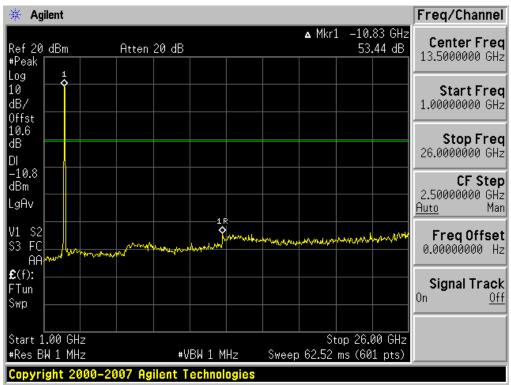
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
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#### Conducted Spurious Emission (802.11n-CH1)





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🖗 Agilent			Freq/Channel
Ref 20 dBm Peak	Atten 20 dB	▲ Mkr1 -23.50 GHz 52.22 dB	Center Fred 13.5000000 GHz
.og <mark>\$</mark> 10 1B/ Dffst			Start Frec 1.00000000 GHz
(0.6 HB DI -9.2			<b>Stop Fred</b> 26.0000000 GHz
-9.2 18m .gAv		1	<b>CF Step</b> 2.50000000 GH: <u>Auto</u> Ma
/1 S2 S3 FC AB	www.	water water and appropriate a sum of the could	Freq Offse 0.00000000 Hi
E(f): Tun Swp			Signal Traci <sup>On <u>Of</u></sup>
Start 1.00 GHz #Res BW 1 MHz	+VBW 1 MHz	Stop 26.00 GHz Stop 26.00 GHz Sweep 62.52 ms (601 pts)	

### Conducted Spurious Emission (802.11n-CH11)

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# 7.5 RADIATED MEASUREMENT. 7.5.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209

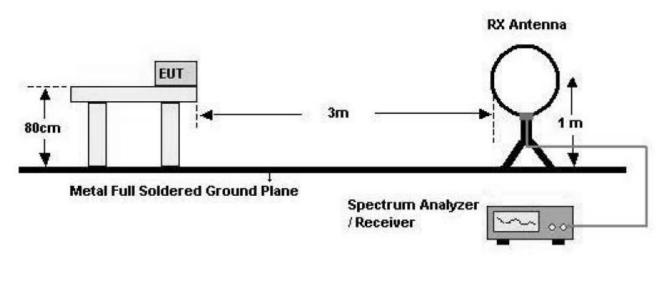
Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

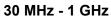
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
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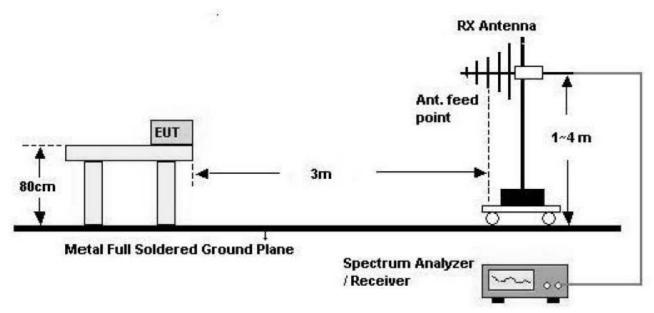


### **Test Configuration**

#### **Below 30 MHz**

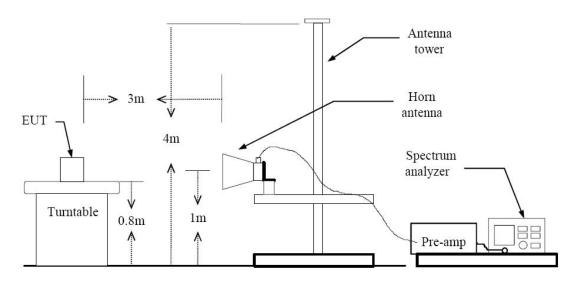






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#### **TEST PROCEDURE**

- 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.

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#### 9 kHz – 30MHz

#### Operation Mode: Normal Mode

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

- 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

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### Below 1 GHz

**Operation Mode:** 802.11b Mode (Channel : 1, Data rate : 11 Mbps)

Frequency	Reading	Ant. Factor	Cable Loss	ANT POL	Total	Limit	Margin
MHz	dBuV	dB/m	dB	(H/V)	dBuV/m	dBuV/m	dB
37.2	10.05	12.62	0.53	V	23.2	40.0	16.8
128.3	14.63	11.62	1.15	Н	27.4	43.5	16.1
216.5	12.57	10.80	1.53	Н	24.9	46.0	21.1
332.7	10.12	14.30	1.98	Н	26.4	46.0	19.6
480.0	17.53	17.35	2.42	Н	37.3	46.0	8.7
960.0	10.80	23.78	3.62	V	38.2	46.0	7.8

- 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 802.11b Mode, 802.11g and 802.11n mode test. Worst case of EUT is 802.11b Mode.

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

Frequency	Reading	AN.+CL-AMP G	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
4824	55.42	-3.81	V	51.61	74	22.39	PK
4824	47.15	-3.81	V	43.34	54	10.66	AV
7236	49.65	5.17	V	54.82	74	19.18	PK
7236	36.96	5.17	V	42.13	54	11.87	AV
4824	57.84	-3.81	Н	54.03	74	19.97	PK
4824	51.88	-3.81	Н	48.07	54	5.93	AV
7236	48.89	5.17	Н	54.06	74	19.94	PK
7236	37.92	5.17	Н	43.09	54	10.91	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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. 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.
- 5. We have done 802.11b, 802.11g and 802.11n test. Worst case of EUT is 1 Mbps in 802.11b.

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

Frequency	Reading	AN.+CL-AMP G	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
4874	53.20	-3.72	V	49.48	74	24.52	PK
4874	41.65	-3.72	V	37.93	54	16.07	AV
7311	50.43	5.53	V	55.96	74	18.04	PK
7311	40.11	5.53	V	45.64	54	8.36	AV
4874	53.58	-3.72	Н	49.86	74	24.14	PK
4874	42.88	-3.72	Н	39.16	54	14.84	AV
7311	50.33	5.53	Н	55.86	74	18.14	PK
7311	39.95	5.53	Н	45.48	54	8.52	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 1000 MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
- 4. 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.
- 5. We have done 802.11b, 802.11g and 802.11n test. Worst case of EUT is 1 Mbps in 802.11b.

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

Frequency	Reading	AN.+CL-AMP G	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
4924	53.42	-3.58	V	49.84	74	24.16	PK
4924	43.28	-3.58	V	39.70	54	14.30	AV
7386	51.98	6.15	V	58.13	74	15.87	PK
7386	43.71	6.15	V	49.86	54	4.14	AV
4924	53.08	-3.58	Н	49.50	74	24.50	PK
4924	42.92	-3.58	Н	39.34	54	14.66	AV
7386	52.80	6.15	Н	58.95	74	15.05	PK
7386	44.24	6.15	Н	50.39	54	3.61	AV

- 1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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 > 20dB 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. Spectrum setting:
  - a. Peak Setting 1 GHz 26 GHz, RBW = 1 MHz, VBW = 1 MH.
  - b. AV Setting 1 GHz 26 GHz, RBW = 1 MHz, VBW = 10 Hz.
- 5. We have done 802.11b, 802.11g and 802.11n test. Worst case of EUT is 1 Mbps in 802.11b.

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### 7.5.2 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:	802.11 n	
Transfer Rate:	6.5 Mbps	
Operating Frequency	2412 MHz, 2462 MHz	
Channel No.	01 Ch, 11 Ch	

Frequency	Reading	AN.+CL	ANT. POL	Total	Limit	Margin	
[MHz]	dBuV	[dB]	[H/V]	[dBuV/m]	[dBuV/m]	[dB]	Detect
2390.0	37.70	33.25	Н	70.95	74	3.05	PK
2390.0	16.09	33.25	Н	49.34	54	4.66	AV
2390.0	37.54	33.25	V	70.79	74	3.21	PK
2390.0	15.24	33.25	V	48.49	54	5.51	AV
2483.5	37.31	33.73	Н	71.04	74	2.96	PK
2483.5	16.93	33.73	Н	50.66	54	3.34	AV
2483.5	34.09	33.73	V	67.82	74	6.18	PK
2483.5	14.42	33.73	V	48.15	54	5.85	AV

- 1. 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.
- 2. We have done 802.11b, 802.11g and 802.11n test. Worst case of EUT is 6.5 Mbps in 802.11n.

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# 7.6 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:

	Limits (dBµV)			
Frequency Range (MHz)	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 groundplane.
- 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.

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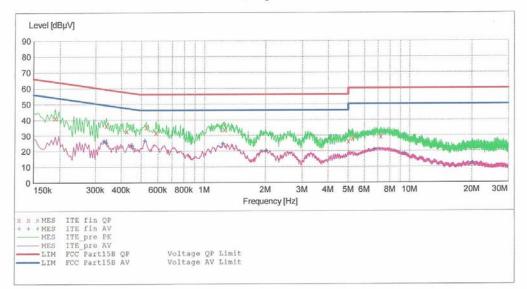


#### HCT EMC

EUT:	P9060
Manufacturer:	PANTECH
Operating Condition:	WLAN MODE
Test Site:	SHIELD ROOM
Operator:	JS-LEE
Test Specification:	N
Comment:	H

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

Short Desc	ription:	F	CC PART 15	CLASS B		
Start	Stop	Step	Detector	Meas.	IF	Transducer
Frequency	Frequency	Width		Time	Bandw.	
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
500.0 kHz	5 0 M/1-	4.0 kHz	Average MaxPeak	10.0 ms	0 647	None
500.0 KHZ	5.0 MHZ	4.0 KH2	Average	10.0 105	5 KI12	None
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



#### MEASUREMENT RESULT: "ITE fin QP"

6/9/2011	9:29A	М					
Freque	ncy MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.190	010	41.20	10.3	64	22.8		
0.338	010	36.40	10.3	59	22.8		
0.426	010	32.80	10.3	57	24.6		
0.528	000	35.40	10.3	56	20.6		
0.588	000	31.90	10.3	56	24.1		
1.256	000	33.90	10.4	56	22.1		
5.020	000	26.30	10.7	60	33.7		
5.260	000	28.40	10.7	60	31.6		
7.224	000	29.30	11.0	60	30.7		

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#### MEASUREMENT RESULT: "ITE\_fin AV"

6/9/2011 9	:29AM					
Frequenc MH	**:	Transd dB	Limit dBµV	Margin dB	Line	PE
0.33001	0 26.30	10.3	50	23.1		
0.33801	0 25.30	10.3	49	23.9		
0.45001	0 23.60	10.3	47	23.2		
0.52000	0 26.70	10.3	46	19.3		
1.24000	0 24.80	10.4	46	21.2		
2.02400	0 20.20	10.4	46	25.8		
6.72000	0 20.90	10.9	50	29.1		
9.45600	0 17.90	11.0	50	32.1		
20.08400	0 12.10	11.7	50	37.9		

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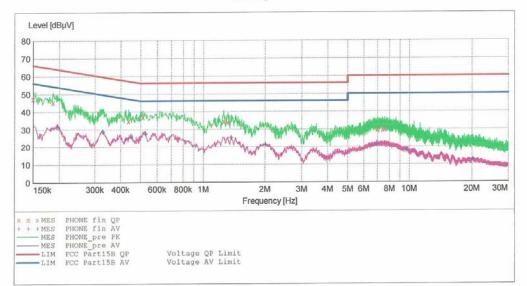
HCT

#### EMC

EUT: Manufacturer: Operating Condition:	P9060 PANTECH WLAN MODE
Test Site: Operator:	SHIELD ROOM
Test Specification: Comment:	Н

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

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



#### MEASUREMENT RESULT: "PHONE\_fin QP"

6/9/2011	9:26	AM					
Freque	ncy	Level	Transd	Limit	Margin	Line	PE
1	MHz	dBµV	dB	dBµV	dB		
0.150	010	47.20	10.1	66	18.8		
0.187	S. (17) (3)	45.30	10.1	64	18.8		
0.437		34.80	10.1	57	22.3		
0.512		37.00	10.1	56	19.0		
1.260		34.50	10.2	56	21.5		
1.320	000	33.90	10.2	56	22.1		
6.984	000	29.80	10.8	60	30.2		
7.408	000	29.60	10.8	60	30.4		
7.596	000	30.00	10.8	60	30.0		

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#### MEASUREMENT RESULT: "PHONE\_fin AV"

PE	Line	Margin	Limit	Transd	Level	Frequency
7 77	DING	2				
		dB	dBµV	dB	dBµV	MHz
		22.6	54	10.1	31.10	0.197010
		20.8	50	10.1	28.70	0.328010
		20.9	47	10.1	26.00	0.448010
		18.7	46	10.1	27.30	0.528000
		20.7	46	10.2	25.30	1.372000
		24.6	46	10.2	21.40	2.016000
		28.6	50	10.8	21.40	6.928000
		31.7	50	10.9	18.30	9.692000
		37.9	50	11.9	12.10	20.260000

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# 8. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.	
Rohde & Schwarz ESH2-Z5/ LISN		Annual	02/01/2012	861741/013	
Schwarzbeck	VULB 9168/ TRILOG Antenna	Biennial	02/09/2013	9168-200	
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	10/25/2011	375.8810.352	
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	Annual	09/29/2011	10094	
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	09/23/2011	296	
Rohde & Schwarz	FSP30 / Spectrum Analyzer	Annual	03/23/2012	839117/011	
Agilent	E4440A / Spectrum Analyzer	Annual	05/02/2012	US45303008	
Agilent	E4416A /Power Meter	Annual	01/04/2012	GB41291412	
Agilent	E9327A /POWER SENSOR	Annual	05/02/2012	MY4442009	
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	Annual	05/02/2012	1	
Wainwright Instrument	WRCJ2400/2483.5-2370/2520- 60/14SS / Band Reject Filter	Annual	05/02/2012	1	
Hewlett Packard	11636B/Power Divider	Annual	12/29/2011	11377	
Hewlett Packard	11667B / Power Spliter	Annual	11/08/2011	10126	
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	01/04/2012	3110117	
ITECH	ECH IT6720 / DC POWER SUPPLY		12/01/2011	010002156287001199	
TESCOM	SCOM TC-3000A / BLUETOOTH TESTER		01/10/2012	3000A490112	
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	05/02/2012	100422	
EMCO	MCO 6502.LOOP ANTENNA		01/13/2012	9009-2536	

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