

RESULT PLOTS-Average

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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

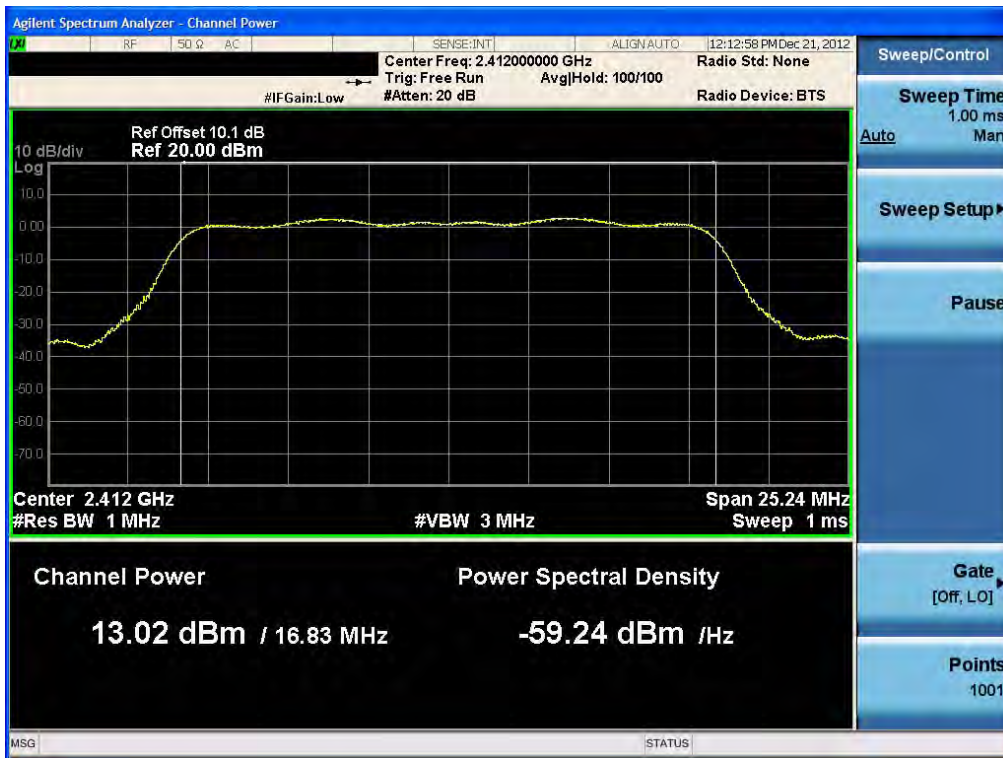


Conducted Output Power (802.11g-CH 1) 9Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC			FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC			FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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

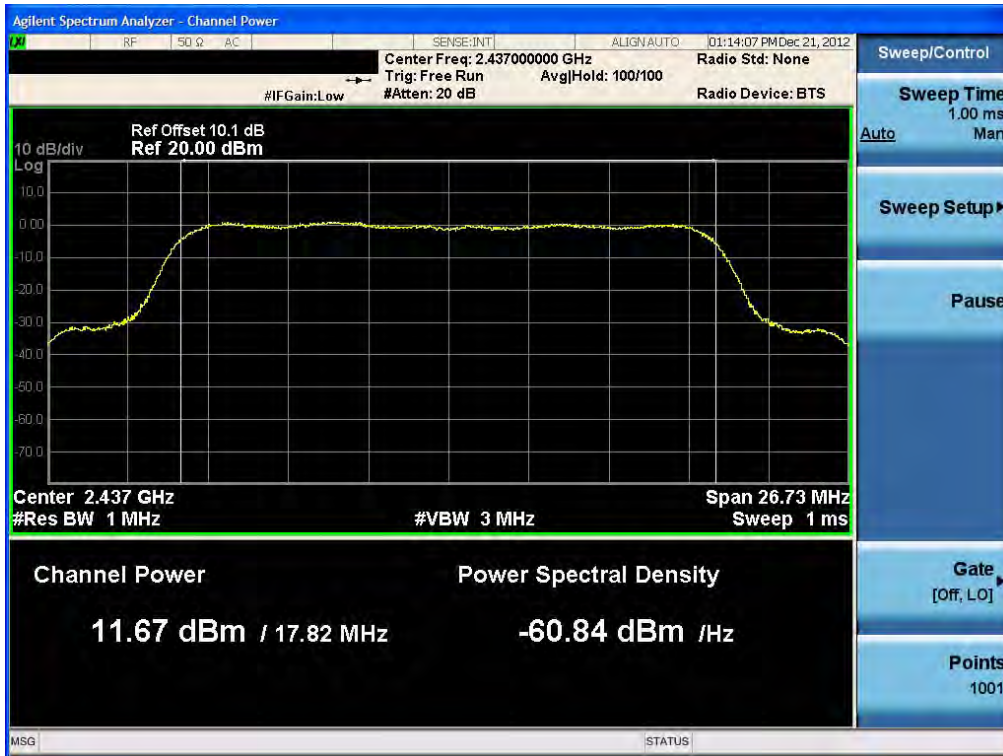


Conducted Output Power (802.11n-CH 6) 52Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC			FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

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



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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC		FCC ID: ZNFP710

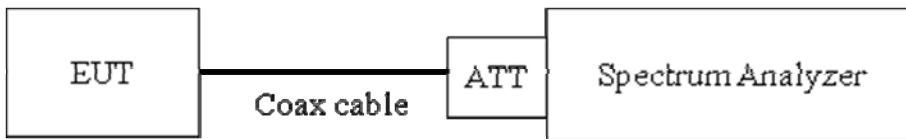
8.3 POWER SPECTRAL DENSITY (802.11b/g/n)

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 ANSI 63.10 (issued 2009).

The spectrum analyzer is set to :

Span = 20 MHz(For devices with a nominal 40 MHz BW, 50 MHz span will be needed)

Reference level = 20 dBm

Attenuation = 0 dB (add internal attenuation, if necessary)

Sweep time = Auto Coupled

RBW = 3 kHz

VBW = 10 kHz

Detector = Peak

MKR = Center Frequency

Trace = Clear write

Set the TRACE to MAX HOLD, and after the trace stabilizes, the TRACE to VIEW.

SET the marker on the peak of the signal and then adjust the center frequency of the spectrum analyzer to the marker frequency.

After viewing the EUT waveform on the spectrum analyzer, perform the following spectrum analyzer functions to capture the trace

Span = 300 kHz

Sweep time = 100 s

Trace = Max hold

MKR = Peak Search

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC			FCC ID: ZNFP710

■ **Sample Calculation**

$$\begin{aligned} \text{PSD} &= \text{Reading Value} + \text{ATT loss} + \text{Cable loss}(1 \text{ ea}) \\ &= -5 \text{ dBm} + 10 \text{ dB} + 0.8 \text{ dB} = -4.2 \text{ dBm} \end{aligned}$$

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 below table.

So, 10.1 dB is offset. And the offset gap in the 2.4 GHz range do not affect the power spectral density final result.

Band	Frequency(MHz)	Loss(dB)
2.4 GHz	2412	10.11
	2437	10.10
	2462	10.12

(Actual value of loss for the attenuator and cable combination)

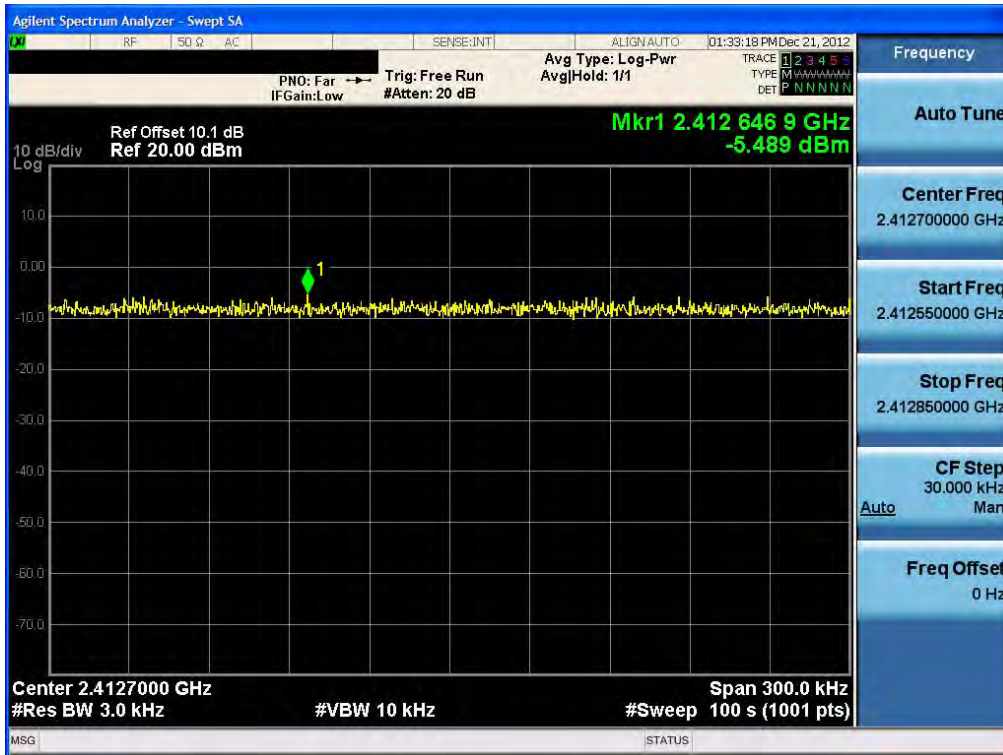
■ **TEST RESULTS**

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			PSD (dBm)	Limit (dBm)	Pass/Fail
2412	1	802.11b	-5.489	8	Pass
2437	6		-4.997	8	Pass
2462	11		-4.805	8	Pass
2412	1	802.11g	-11.057	8	Pass
2437	6		-11.275	8	Pass
2462	11		-9.841	8	Pass
2412	1	802.11n	-11.861	8	Pass
2437	6		-11.874	8	Pass
2462	11		-12.583	8	Pass

RESULT PLOTS

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
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

Power Spectral Density (802.11g-CH 6)



Power Spectral Density (802.11g-CH11)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA Phone with	FCC ID: ZNFP710

Power Spectral Density (802.11n-CH 1)



Power Spectral Density (802.11n-CH 6)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				www.hct.co.kr	
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS Bluetooth/WLAN/NFC	WCDMA/HSDPA/HSUPA	Phone	with	FCC ID: ZNFP710	

Power Spectral Density (802.11n-CH11)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				www.hct.co.kr	
Test Report No. HCTR1301FR23-1	Date of Issue: February 07, 2013	EUT Type: Cellular/PCS GSM/GPRS/EDGE Rx only/PCS WCDMA/HSDPA/HSUPA Phone with Bluetooth/WLAN/NFC				FCC ID: ZNFP710	