

RESULT PLOTS (5260 MHz ~5320 MHz)

Conducted Output Power (802.11n-CH 52) 6.5 Mbps



Conducted Output Power (802.11n-CH 52) 13 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 52) 19.5 Mbps



Conducted Output Power (802.11n-CH 52) 26 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 52) 39 Mbps



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



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 52) 58.5 Mbps

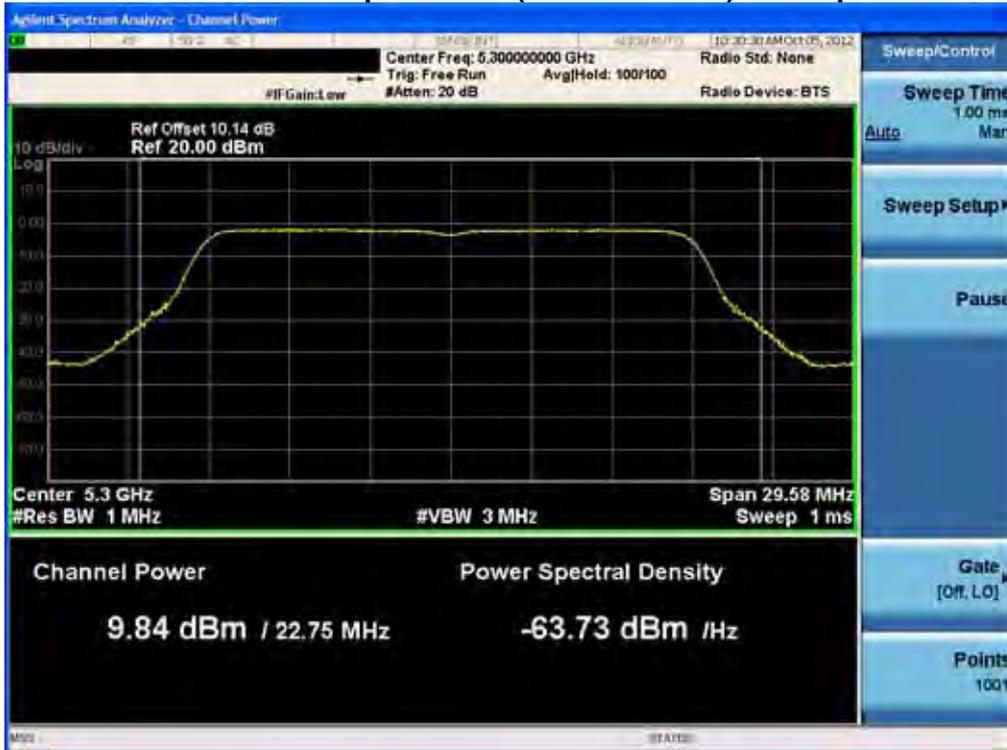


Conducted Output Power (802.11n-CH 52) 65 Mbps



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Conducted Output Power (802.11n-CH 60) 6.5 Mbps



Conducted Output Power (802.11n-CH 60) 13 Mbps



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Conducted Output Power (802.11n-CH 60) 19.5 Mbps



Conducted Output Power (802.11n-CH 60) 26 Mbps



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Conducted Output Power (802.11n-CH 60) 39 Mbps



Conducted Output Power (802.11n-CH 60) 52 Mbps



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Conducted Output Power (802.11n-CH 60) 58.5 Mbps



Conducted Output Power (802.11n-CH 60) 65 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 64) 6.5 Mbps



Conducted Output Power (802.11n-CH 64) 13 Mbps



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Conducted Output Power (802.11n-CH 64) 19.5 Mbps



Conducted Output Power (802.11n-CH 64) 26 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 64) 39 Mbps



Conducted Output Power (802.11n-CH 64) 52 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 64) 58.5 Mbps



Conducted Output Power (802.11n-CH 64) 65 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

RESULT PLOTS (5500 MHz ~5700 MHz)

Conducted Output Power (802.11n-CH 100) 6.5 Mbps



Conducted Output Power (802.11n-CH 100) 13 Mbps



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Conducted Output Power (802.11n-CH 100) 19.5 Mbps



Conducted Output Power (802.11n-CH 100) 26 Mbps



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Conducted Output Power (802.11n-CH 100) 39 Mbps



Conducted Output Power (802.11n-CH 100) 52 Mbps



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Conducted Output Power (802.11n-CH 100) 58.5 Mbps



Conducted Output Power (802.11n-CH 100) 65 Mbps



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Conducted Output Power (802.11n-CH 116) 6.5 Mbps



Conducted Output Power (802.11n-CH 116) 13 Mbps



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Conducted Output Power (802.11n-CH 116) 19.5 Mbps



Conducted Output Power (802.11n-CH 116) 26 Mbps



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Conducted Output Power (802.11n-CH 116) 39 Mbps



Conducted Output Power (802.11n-CH 116) 52 Mbps



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Conducted Output Power (802.11n-CH 116) 58.5 Mbps



Conducted Output Power (802.11n-CH 116) 65 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 140) 6.5 Mbps



Conducted Output Power (802.11n-CH 140) 13 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 140) 19.5 Mbps



Conducted Output Power (802.11n-CH 140) 26 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 140) 39 Mbps



Conducted Output Power (802.11n-CH 140) 52 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 140) 58.5 Mbps



Conducted Output Power (802.11n-CH 140) 65 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E



40 MHz BW

RESULT PLOTS (5190 MHz ~5230 MHz)

Conducted Output Power (802.11n-CH 36) 13.5 Mbps



Conducted Output Power (802.11n-CH 36) 27 Mbps



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Conducted Output Power (802.11n-CH 36) 40.5 Mbps



Conducted Output Power (802.11n-CH 36) 54 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 36) 81 Mbps



Conducted Output Power (802.11n-CH 36) 108 Mbps



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Conducted Output Power (802.11n-CH 36) 121.5 Mbps



Conducted Output Power (802.11n-CH 36) 135 Mbps



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Conducted Output Power (802.11n-CH 36) 13.5 Mbps



Conducted Output Power (802.11n-CH 36) 27 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 36) 40.5 Mbps



Conducted Output Power (802.11n-CH 36) 54 Mbps



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Conducted Output Power (802.11n-CH 36) 81 Mbps



Conducted Output Power (802.11n-CH 36) 108 Mbps



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Conducted Output Power (802.11n-CH 36) 121.5 Mbps



Conducted Output Power (802.11n-CH 36) 135 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

RESULT PLOTS (5270 MHz ~5310 MHz)

Conducted Output Power (802.11n-CH 52) 13.5 Mbps



Conducted Output Power (802.11n-CH 52) 27 Mbps



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Conducted Output Power (802.11n-CH 52) 40.5 Mbps



Conducted Output Power (802.11n-CH 52) 54 Mbps



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Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Conducted Output Power (802.11n-CH 52) 81 Mbps



Conducted Output Power (802.11n-CH 52) 108 Mbps



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Conducted Output Power (802.11n-CH 52) 121.5 Mbps



Conducted Output Power (802.11n-CH 60) 135 Mbps



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Conducted Output Power (802.11n-CH 52) 13.5 Mbps

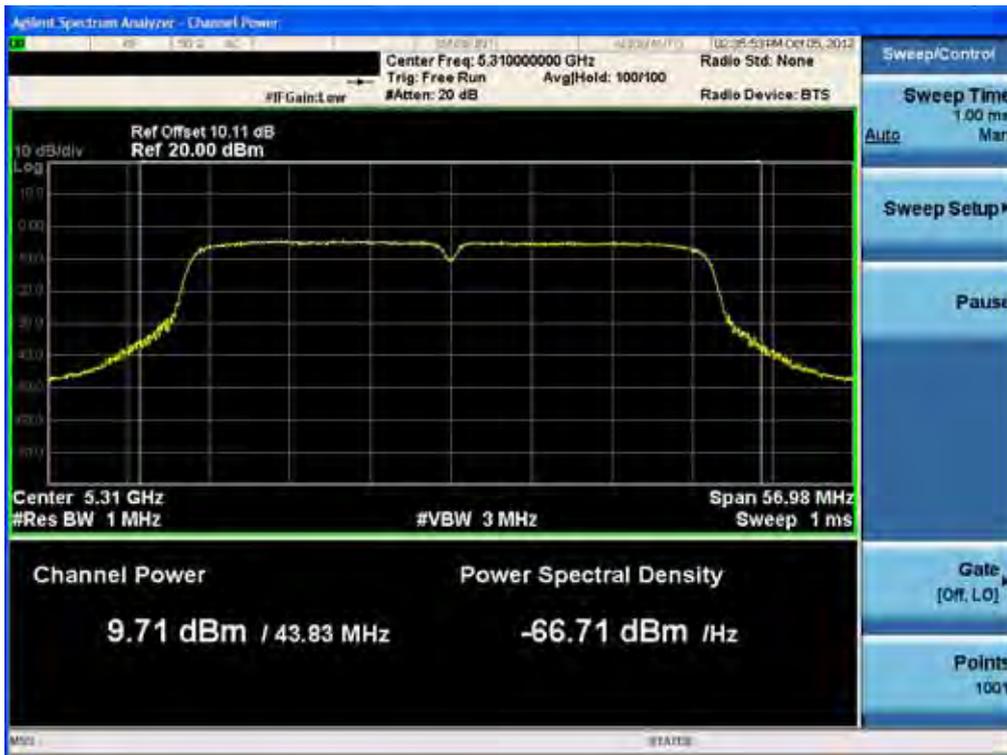


Conducted Output Power (802.11n-CH 52) 27 Mbps



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Conducted Output Power (802.11n-CH 52) 40.5 Mbps



Conducted Output Power (802.11n-CH 52) 54 Mbps



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Conducted Output Power (802.11n-CH 52) 81 Mbps



Conducted Output Power (802.11n-CH 52) 108 Mbps



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Conducted Output Power (802.11n-CH 52) 121.5 Mbps



Conducted Output Power (802.11n-CH 60) 135 Mbps



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RESULT PLOTS (5510 MHz ~5670 MHz)

Conducted Output Power (802.11n-CH 100) 13.5 Mbps



Conducted Output Power (802.11n-CH 100) 27 Mbps



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Conducted Output Power (802.11n-CH 100) 40.5 Mbps



Conducted Output Power (802.11n-CH 100) 54 Mbps



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Conducted Output Power (802.11n-CH 100) 81 Mbps



Conducted Output Power (802.11n-CH 100) 108 Mbps



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Conducted Output Power (802.11n-CH 100) 135 Mbps



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Conducted Output Power (802.11n-CH 100) 27 Mbps



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Conducted Output Power (802.11n-CH 100) 40.5 Mbps



Conducted Output Power (802.11n-CH 100) 54 Mbps



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Conducted Output Power (802.11n-CH 100) 81 Mbps



Conducted Output Power (802.11n-CH 100) 108 Mbps



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Conducted Output Power (802.11n-CH 100) 135 Mbps



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Conducted Output Power (802.11n-CH 100) 121.5 Mbps



Conducted Output Power (802.11n-CH 100) 135 Mbps

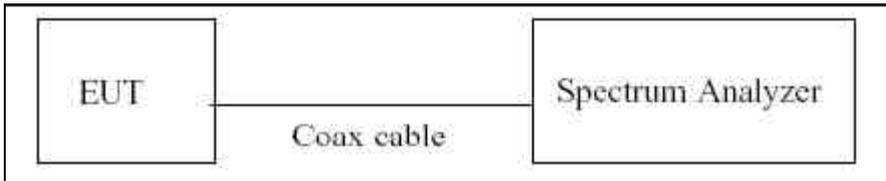


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8.3 POWER SPECTRAL DENSITY

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. The maximum permissible peak power spectral density is 4 dBm/ MHz in the 5.15 GHz – 5.25 GHz band and 11 dBm/ MHz in the 5.25 GHz – 5.35 GHz and 5.47 GHz – 5.725 GHz bands

TEST CONFIGURATION



TEST PROCEDURE

The spectrum analyzer is set to :

RBW = 1 MHz

VBW = 3 MHz

SPAN = to encompass the entire EBW of the signal

Sweep Time = auto

Sweep Point = 1001

Detector Mode = Average

Trace average at least 100 traces in power averaging(RMS) mode

Sample Calculation

$$\begin{aligned}
 \text{PSD} &= \text{Reading Value} + \text{ATT loss} + \text{Cable loss}(1 \text{ ea}) \\
 &= -5 \text{ dBm} + 10 \text{ dB} + 0.8 \text{ dB} = 15.8 \text{ dBm}
 \end{aligned}$$

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 5.2 GHz, 5.3 GHz and 5.6 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is below table.

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Band	Frequency(MHz)	Loss(dB)
UNII 1	5180	10.26
	5190	10.22
	5200	10.18
	5230	10.19
	5240	10.19
UNII 2	5260	10.18
	5270	10.17
	5300	10.14
	5310	10.11
	5320	10.09
UNII 3	5500	10.20
	5510	10.20
	5550	10.23
	5580	10.24
	5670	10.36
	5700	10.40

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

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TEST RESULTS

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36	802.11a	-0.549	4	Pass
5200	40		-1.052	4	Pass
5240	48		-0.505	4	Pass
5260	52	802.11a	-0.811	11	Pass
5300	60		-1.211	11	Pass
5320	64		-1.609	11	Pass
5500	100	802.11a	-0.717	11	Pass
5580	116		-0.320	11	Pass
5700	140		-0.082	11	Pass

Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Power Density (dBm)	Limit (dBm)	Pass/Fail
5180	36	802.11n_20MHz BW	-1.022	4	Pass
5200	40		-0.937	4	Pass
5240	48		-0.711	4	Pass
5260	52	802.11n_20MHz BW	-0.768	11	Pass
5300	60		-1.100	11	Pass
5320	64		-1.563	11	Pass
5500	100	802.11n_20MHz BW	-1.315	11	Pass
5580	116		-1.082	11	Pass
5700	140		-0.803	11	Pass

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Conducted Power Density Measurements

Frequency (MHz)	Channel No.	Mode	Test Result		
			Power Density (dBm)	Limit (dBm)	Pass/Fail
5190	38	802.11n_40	-4.003	4	Pass
5230	46	MHz BW	-5.321	4	Pass
5270	54	802.11n_40	-5.764	4	Pass
5310	62	MHz BW	-3.444	11	Pass
5510	102	802.11n_40 MHz BW	-3.828	11	Pass
5550	110		-3.207	11	Pass
5670	134		-3.093	11	Pass

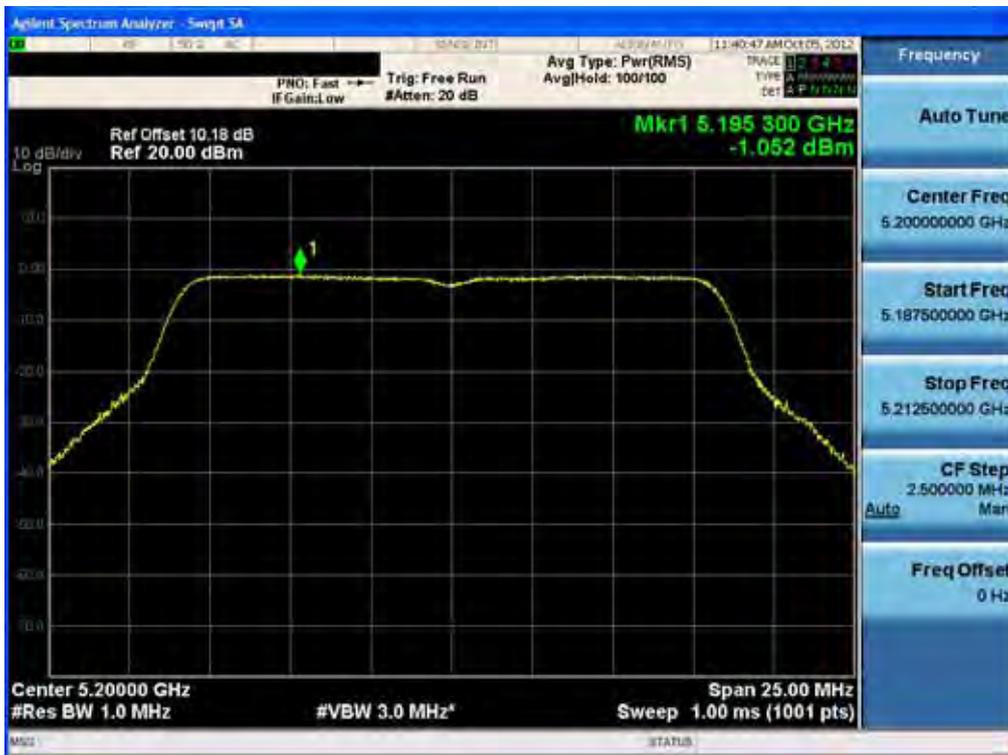
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

RESULT PLOTS

Power Spectral Density (802.11a-CH 36)



Power Spectral Density (802.11a-CH 40)



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Power Spectral Density (802.11a-CH 48)



Power Spectral Density (802.11a-CH 52)



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Power Spectral Density (802.11a-CH 60)



Power Spectral Density (802.11a-CH 64)



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Power Spectral Density (802.11a-CH 100)



Power Spectral Density (802.11a-CH 116)



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Power Spectral Density (802.11a-CH 140)



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Power Spectral Density (802.11n-CH 36)



Power Spectral Density (802.11n-CH 40)



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Power Spectral Density (802.11n-CH 48)



Power Spectral Density (802.11n-CH 52)



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Power Spectral Density (802.11n-CH 60)



Power Spectral Density (802.11n-CH 64)



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Power Spectral Density (802.11n-CH 100)



Power Spectral Density (802.11n-CH 116)



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Power Spectral Density (802.11n-CH 140)



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Power Spectral Density (802.11n-CH 38)



Power Spectral Density (802.11n-CH 46)

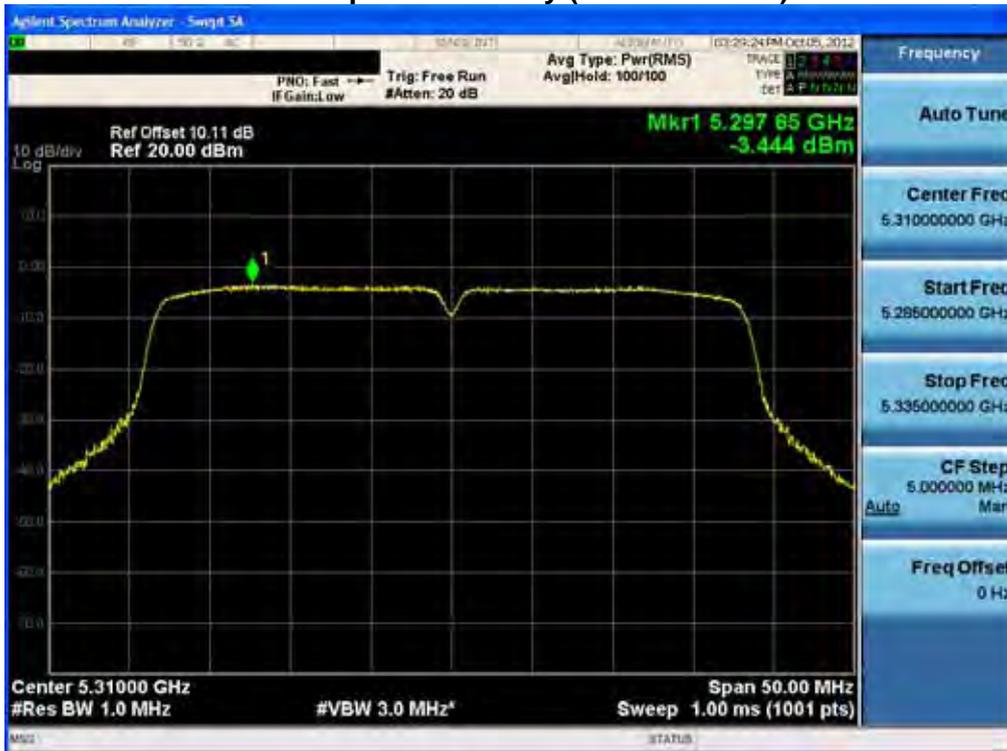


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
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Power Spectral Density (802.11n-CH 54)



Power Spectral Density (802.11n-CH 62)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
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Power Spectral Density (802.11n-CH 102)

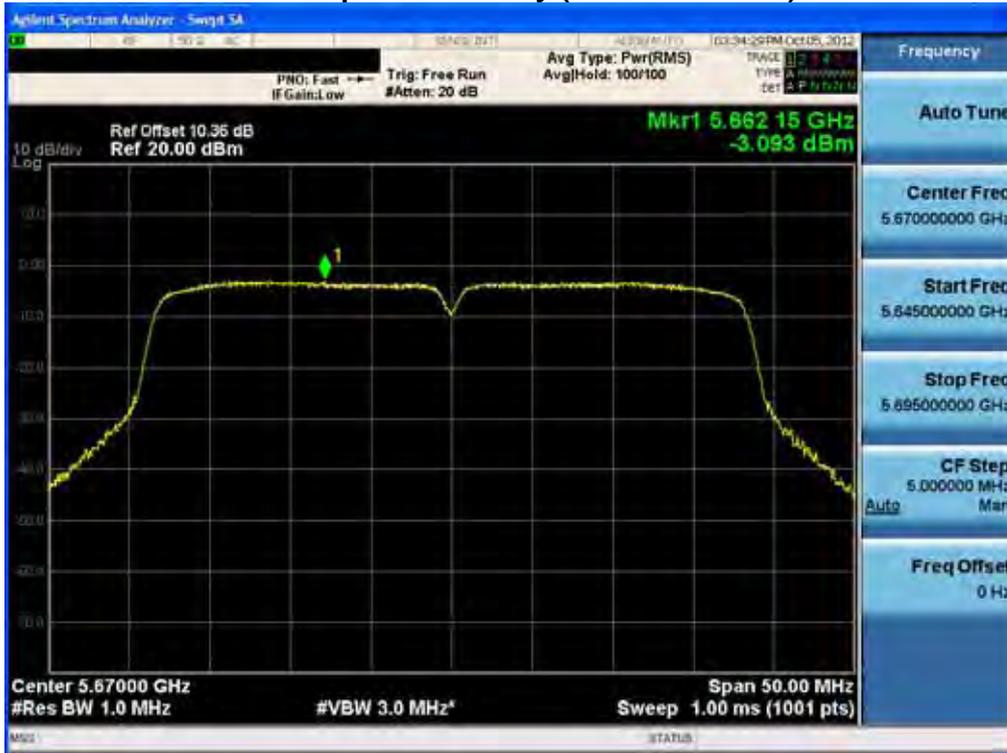


Power Spectral Density (802.11n-CH 110)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Power Spectral Density (802.11n-CH 134)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
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