

HCT CO., LTD.

CERTIFICATE OF COMPLIANCE

FCC Certification

Applicant Name:

LG Electronics MobileComm U.S.A., Inc.

Address:

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue: November 19, 2012 Test Site/Location: HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, Korea Report No.: HCTR1211FR05

HCT FRN: 0005866421

FCC ID : ZNFE615F

APPLICANT : LG Electronics MobileComm U.S.A., Inc.

FCC Model(s):	LG-E615f
Additional FCC Model(s):	LG-E615F, E615f, E615F, LGE615f, LGE615F
EUT Type:	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN
Max. RF Output Power:	Wi-Fi 802.11b(23.84 dBm) / Wi-Fi 802.11g (20.16 dBm) / Wi-Fi 802.11n (18.94 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)

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

Approved by

Manager of RF Team

: Sang Jun Lee

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Version

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HCTR1211FR05	November 19, 2012	- First Approval Report

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EUT Type: Model name(s):	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN LG-E615f
Additional Model name(s): Date(s) of Tests:	LG-E615F, E615f, E615F, LGE615f, LGE615F November 16, 2012 ~ November 18, 2012
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

ЕUT Туре	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN			
FCC Model Name	LG-E615f			
Additional	LG-E615F, E	LG-E615F, E615f, E615F, LGE615f, LGE615F		
FCC Model Name				
Power Supply	DC 3.7 V			
Battery type	Li-ion Battery	Li-ion Battery(Standard)		
Frequency Range	TX: 2412 MHz ~ 2462 MHz			
	RX: 2412 MF	lz ~ 2462 MHz		
Max. RF Output Power	Peak	Wi-Fi 802.11b(23.84 dBm) / Wi-Fi 802.11g (20.16 dBm) / Wi-Fi 802.11n (18.94 dBm)		
	Average	Wi-Fi 802.11b(17.29 dBm) / Wi-Fi 802.11g (11.65 dBm) / Wi-Fi 802.11n (10.18 dBm)		
Modulation Type	DSSS/CCK(802.11b), OFDM(802.11g, 802.11n)			
Antenna Specification	Manufacturer: Mobitech			
	Antenna type	Antenna type: Built-in Antenna		
	Peak Gain : ·	1.15 dBi		

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3. TEST METHODOLOGY

The measurement procedure described in the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.10-2009), 2012 entitled "Guidance for Performing Compliance Measurements on Digital Transmission Systems(DTS) Operating Under §15.247" were used in the measurement.

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 6.2 of ANSI C63.10. (Version :2009) 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 6.3 of ANSI C63.10. (Version: 2009).

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. SUMMARY TEST OF RESULTS

Test Description	FCC Part Section(s)	FCC Part Section(s) Test Limit		Test Result
6 dB Bandwidth	§15.247(a)(2)	> 500 kHz		PASS
Conducted Maximum Peak Output Power	§15.247(b)(3)	< 1 Watt		PASS
Power Spectral Density	§15.247(e)	< 8 dBm / 3 kHz Band	CONDUCTED	PASS
Band Edge(Out of Band Emissions)	§15.247(d)	Conducted < 20 dBc		PASS
AC Power line Conducted Emissions	§15.207	cf. Section 8.6		PASS
Radiated Spurious Emissions	§15.205, 15.209	cf. Section 8.5.1	RADIATED	PASS
Radiated Restricted Band Edge	§15.247(d), 15.205, 15.209	cf. Section 8.5.2	RADIATED	PASS

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8. TEST RESULT

8.1 6dB BANDWIDTH (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

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TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. The Spectrum Analyzer is set to (Procedure 6.9.1 in ANSI 63.10)

RBW = 1 - 5 % of DTS BW VBW = 3 * RBWSPAN = The span range for the SA display shall be between two times and five times the OBW. Detector = Peak Trace mode = max hold Sweep = auto couple

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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	8.501	0.500	Pass
2437	6	8.542	0.500	Pass
2462	11	8.509	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	16.430	0.500	Pass
2437	6	16.410	0.500	Pass
2462	11	16.420	0.500	Pass

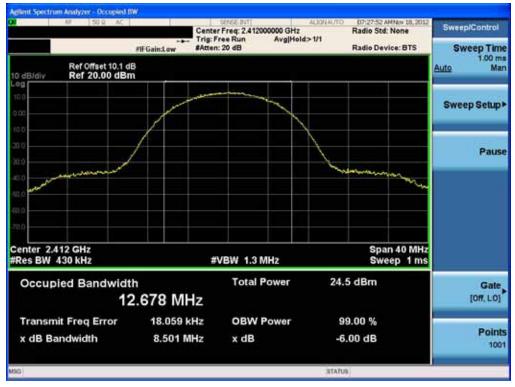
Conducted 6dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth	Minimum Bandwidth		
Frequency [MHz]	Channel No.	[MHz]	[MHz]	Pass / Fail	
2412	1	17.460	0.500	Pass	
2437	6	17.360	0.500	Pass	
2462	11	17.370	0.500	Pass	

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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 (802.11b-CH 11)



6dB Bandwidth plot (802.11g-CH 1)



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n Analyzer - Occupied BW 07:31:13 AMNew 18, 2012 Radio Std: None Center Freq: 2.437000000 GHz Trig: Free Run Avg|Hold Sweep/Control Avg|Hold>1/1 Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 10.1 dB Ref 20.00 dBm Auto 0 dB/div Sweep Setup> Pause multer million construction monately land Span 40 MHz Sweep 1 ms Center 2.437 GHz #Res BW 430 kHz #VBW 1.3 MHz Occupied Bandwidth **Total Power** 19.6 dBm Gate, 16.818 MHz [Off, LO] -65.269 kHz **OBW Power** Transmit Freq Error 99.00 % Points x dB x dB Bandwidth 16.41 MHz -6.00 dB 1001 STATUS

6dB Bandwidth plot (802.11g-CH 6)

6dB Bandwidth plot (802.11g-CH 11)



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6dB Bandwidth plot (802.11n-CH 1)

6dB Bandwidth plot (802.11n-CH 6)



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M //F _50 Q ∧/C	Cente Trig: F	r Freq: 2.462000000 GHz ree Run Avg Hold : 20 dB	Radio	42 AMNew 10, 2012 Std: None Device: BTS	Sweep/Control Sweep Time
Ref Offset 10,1 d					1.00 ms Auto Man
					Sweep Setup
20.0				4	Pause
410				he company	
Center 2.462 GHz #Res BW 430 kHz	#	VBW 1.3 MHz		pan 40 MHz weep 1 ms	
Occupied Bandwidt		Total Power	18.4 dBm		Gate [Off, LO]
Transmit Freq Error x dB Bandwidth	-57.914 kHz 17.37 MHz	OBW Power x dB	99.00 % -6.00 dB		Points 1001
80			STATUS		

6dB Bandwidth plot (802.11n-CH 11)

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8.2 OUTPUT POWER (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

ы. г. г. т.

The transmitter output is connected to the Spectrum Analyzer. We use the spectrum analyzer's integrated band power measurement function. We tested according to ANSI 63.10 This EUT TX condition is actual operating mode(not near 100 % duty cycle) by WLAN test program.

The Spectrum Analyzer is set to

- Peak Power (Procedure 6.10.2.1 in ANCI 63.10)
 RBW = 1 MHz
 VBW = 3 MHz
 SPAN = Set the span just large enough to capture the emission
 Detector Mode = Peak
 Integrated bandwidth = EBW
 Sweep = auto couple
 Trace Mode = max hold
 Turn averaging off
- Average Power (Procedure 6.10.3.1 in ANSI 63.10)
 - RBW = 1 MHz
 - VBW = 3 MHz

SPAN = Set span to encompass the entire EBW of the signal.

Detector Mode = Use sample detector if bin width

(i.e., span/number of points in spectrum display) < 0.5 RBW.

Otherwise, use peak detector

Integrated bandwidth = EBW

Sweep = auto couple

Sweep Point = 1001

Trace average across 100 traces in power averaging mode.

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Sample Calculation

Output Power = Reading Value + ATT loss + Cable loss(1 ea)

= 10 dBm + 10 dB + 0.8 dB = 20.8 dBm

Note :

- 1. Spectrum reading values are not plot data. The power 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 conducted peak power final result.

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

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

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TEST RESULTS-Peak

Conducted Output Power Measurements (802.11b Mode)

802.11b Mode		Rate	Measured	Limit
Frequency[MHz]	Channel No.	(Mbps)	Power(dBm)	(dBm)
		1 Mbps	20.36	30
2412	4	2 Mbps	20.63	30
2412	1	5.5 Mbps	22.27	30
		11 Mbps	23.77	30
	6	1 Mbps	20.17	30
0407		2 Mbps	20.47	30
2437		5.5 Mbps	22.02	30
		11 Mbps	23.49	30
	11	1 Mbps	20.51	30
2462		2 Mbps	20.71	30
2462		5.5 Mbps	22.26	30
		11 Mbps	23.84	30

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Conducted Output Power Measurements (802.11g Mode)

802.11g	802.11g Mode		Measured	Limit
Frequency[MHz]	Channel No.	(Mbps)	Power(dBm)	(dBm)
		6 Mbps	19.19	30
		9 Mbps	19.69	30
		12 Mbps	19.58	30
0440	4	18 Mbps	19.98	30
2412	1	24 Mbps	20.05	30
		36 Mbps	20.16	30
		48 Mbps	20.10	30
		54 Mbps	20.02	30
	6	6 Mbps	19.33	30
		9 Mbps	19.34	30
		12 Mbps	19.76	30
2437		18 Mbps	19.39	30
2437		24 Mbps	19.78	30
		36 Mbps	19.71	30
		48 Mbps	19.93	30
		54 Mbps	20.07	30
		6 Mbps	19.25	30
		9 Mbps	19.13	30
		12 Mbps	19.30	30
2462	11	18 Mbps	19.45	30
2402	11	24 Mbps	19.51	30
		36 Mbps	19.54	30
		48 Mbps	20.16	30
		54 Mbps	19.71	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	18.04	30
		13 Mbps	18.13	30
		19.5 Mbps	17.89	30
0440	4	26 Mbps	18.42	30
2412	1	39 Mbps	18.34	30
		52 Mbps	18.36	30
		58.5 Mbps	18.33	30
		65 Mbps	18.51	30
		6.5 Mbps	18.07	30
	6	13 Mbps	18.27	30
		19.5 Mbps	18.21	30
0407		26 Mbps	18.48	30
2437		39 Mbps	18.94	30
		52 Mbps	18.32	30
		58.5 Mbps	18.56	30
		65 Mbps	18.75	30
		6.5 Mbps	18.41	30
		13 Mbps	18.18	30
		19.5 Mbps	18.19	30
2462	14	26 Mbps	18.91	30
2462	11	39 Mbps	18.62	30
		52 Mbps	18.69	30
		58.5 Mbps	18.56	30
		65 Mbps	18.58	30

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802.11b Mode		Rate	Measured	Limit
Frequency[MHz]	Channel No.	(Mbps)	Power(dBm)	(dBm)
		1 Mbps	17.14	30
2412	4	2 Mbps	16.93	30
2412	1	5.5 Mbps	17.19	30
		11 Mbps	17.02	30
	6	1 Mbps	16.90	30
		2 Mbps	16.74	30
2437		5.5 Mbps	17.00	30
		11 Mbps	16.70	30
	11	1 Mbps	17.17	30
2462		2 Mbps	16.96	30
		5.5 Mbps	17.29	30
		11 Mbps	17.08	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	11.65	30
		9 Mbps	11.22	30
		12 Mbps	11.54	30
0440		18 Mbps	11.39	30
2412	1	24 Mbps	11.27	30
		36 Mbps	10.82	30
		48 Mbps	10.56	30
		54 Mbps	10.32	30
		6 Mbps	11.46	30
	6	9 Mbps	11.57	30
		12 Mbps	11.53	30
0.407		18 Mbps	11.27	30
2437		24 Mbps	11.00	30
		36 Mbps	10.80	30
		48 Mbps	10.41	30
		54 Mbps	10.18	30
		6 Mbps	11.34	30
		9 Mbps	10.97	30
		12 Mbps	10.98	30
2462	44	18 Mbps	10.81	30
2462	11	24 Mbps	10.64	30
		36 Mbps	10.23	30
		48 Mbps	9.92	30
		54 Mbps	9.86	30

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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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	9.99	30
		13 Mbps	9.50	30
		19.5 Mbps	9.53	30
0.440		26 Mbps	9.34	30
2412	1	39 Mbps	9.10	30
		52 Mbps	8.83	30
		58.5 Mbps	8.63	30
		65 Mbps	8.60	30
		6.5 Mbps	9.94	30
		13 Mbps	9.91	30
	6	19.5 Mbps	9.29	30
0407		26 Mbps	9.52	30
2437		39 Mbps	9.22	30
		52 Mbps	8.83	30
		58.5 Mbps	8.77	30
		65 Mbps	8.81	30
		6.5 Mbps	10.18	30
		13 Mbps	10.02	30
		19.5 Mbps	9.93	30
2462	44	26 Mbps	9.58	30
2462	11	39 Mbps	9.36	30
		52 Mbps	9.16	30
		58.5 Mbps	8.91	30
		65 Mbps	8.70	30

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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RESULT PLOTS-Peak



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

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



FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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alyzer - Channel Pow D7:50:38 AMNew 18, 2012 Radio Std: None Center Freq: 2.437000000 GHz Trig: Free Run Avg[Hold: 1/1 #IFGain:Low #Atten: 20 dB Sweep/Control Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 10.1 dB Ref 20.00 dBm Auto 0 dB/div Sweep Setup> Pause Span 19.04 MHz Sweep 1 ms Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Gate **Channel Power Power Spectral Density** [Off, LO] 20.17 dBm / 12.69 MHz -50.86 dBm /Hz Points 1001 STATUS

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.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F		
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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n Analyzer - Channel Po D7-51-28 AMNew 18, 2012 Radio Std: None Center Freq: 2.452000000 GHz Trig: Free Run Avg[Hold: 1/1 #IFGain:Low #Atten: 20 dB Sweep/Control Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 10.1 dB Ref 20.00 dBm Auto 0 dB/div Sweep Setup> Pause Span 19.06 MHz Sweep 1 ms Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Gate **Channel Power Power Spectral Density** [Off, LO] -50.54 dBm /Hz 20.51 dBm / 12.71 MHz Points 1001 STATUS

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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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Conducted Output Power (802.11b-CH 11) 5.5Mbps

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



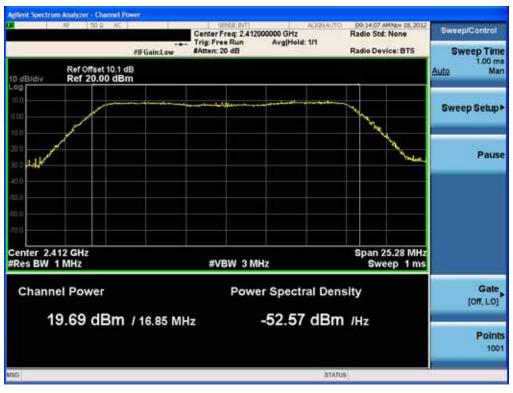
FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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Conducted Output Power (802.11g-CH 1) 6Mbps

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



FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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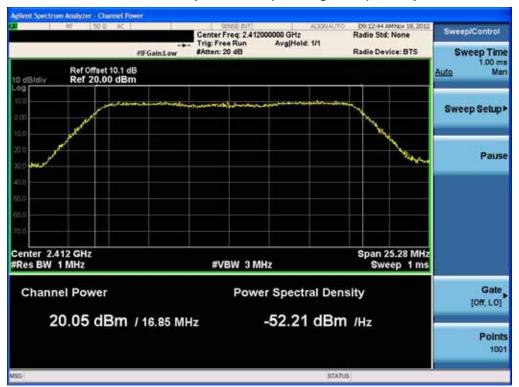
Conducted Output Power (802.11g-CH 1) 12Mbps

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



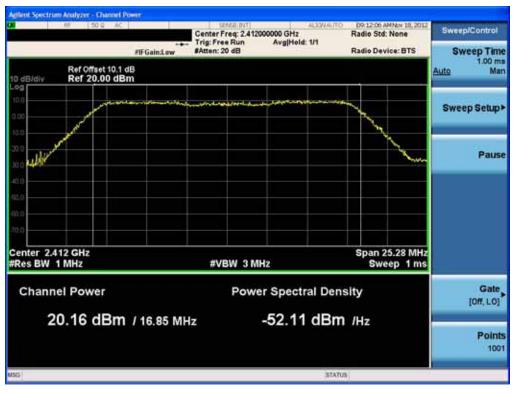
FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:		FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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Conducted Output Power (802.11g-CH 1) 24Mbps

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:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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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:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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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:	
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F	
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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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:	
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		
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Conducted Output Power (802.11g-CH 11) 6Mbps

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



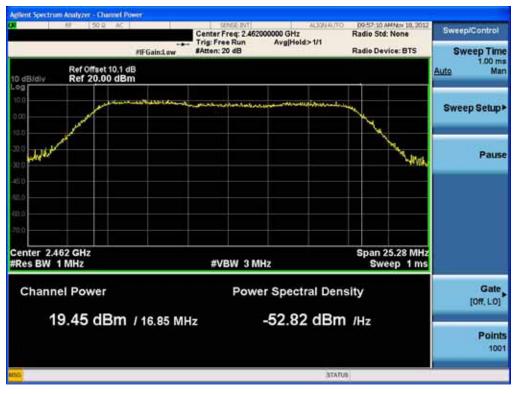
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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Conducted 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	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1211FR05	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		ZNFE615F	
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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.	Date of Issue:	ЕИТ Туре:	FCC ID: ZNFE615F
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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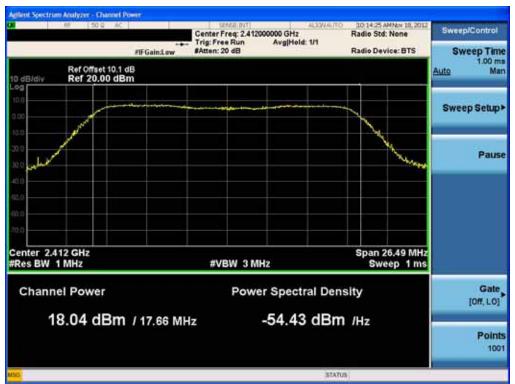
Conducted Output Power (802.11g-CH 11) 48Mbps

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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:		FCC ID: ZNFE615F
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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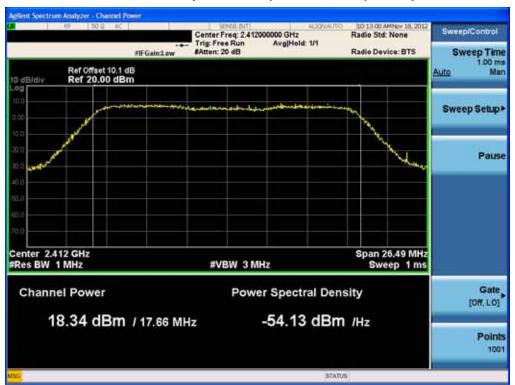
Conducted Output Power (802.11n-CH 1) 19.5Mbps

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



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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Conducted Output Power (802.11n-CH 1) 39Mbps

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



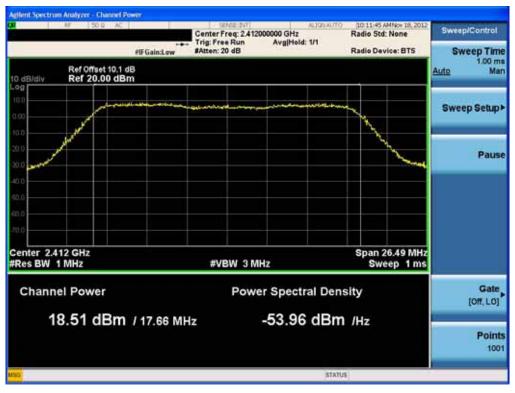
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
		Page 4 4 of 124	





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

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



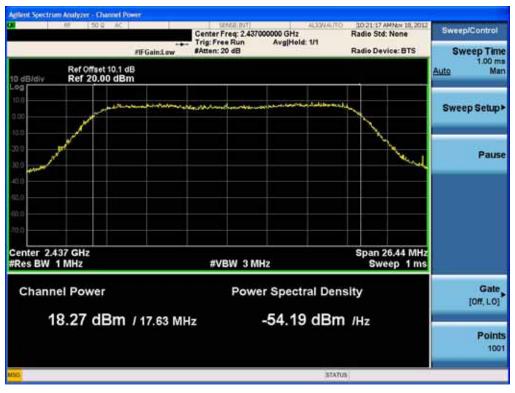
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F	
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Conducted Output Power (802.11n-CH 6) 6.5Mbps

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



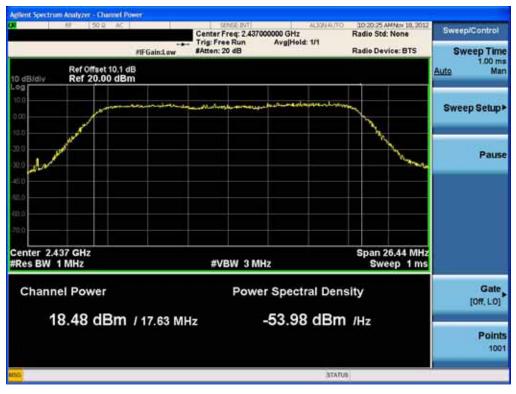
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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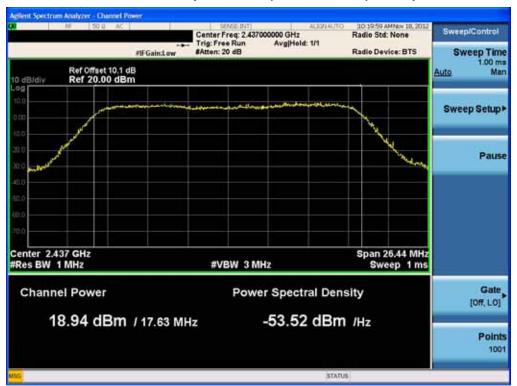
Conducted Output Power (802.11n-CH 6) 19.5Mbps

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: ZNFE615F
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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Conducted Output Power (802.11n-CH 6) 39Mbps

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



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Test Report No.	Date of Issue:	ЕИТ Туре:	FCC ID:
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Conducted Output Power (802.11n-CH 6) 58.5Mbps

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



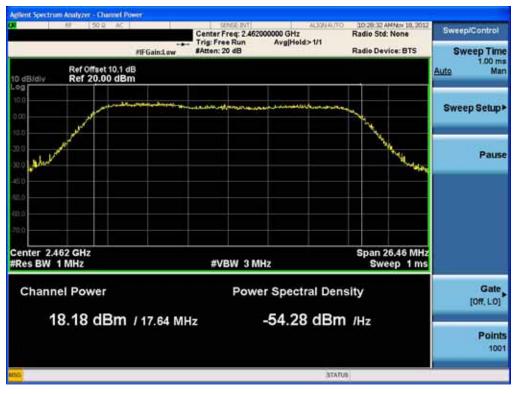
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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Conducted 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.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1211FR05	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		ZNFE615F	
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Conducted Output Power (802.11n-CH 11) 19.5Mbps

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



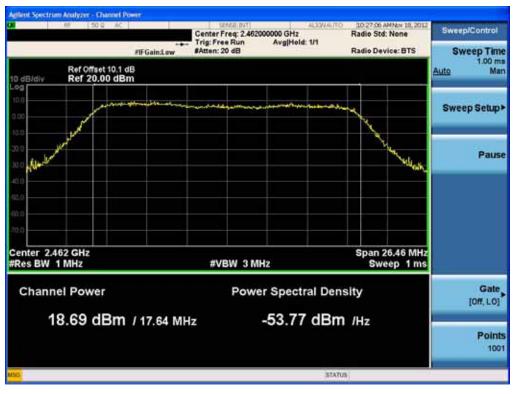
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1211FR05	Date of Issue: November 19, 2012		
		Page 5.1 of 124	ZNFE615F





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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		ZNFE615F
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RESULT PLOTS-Average



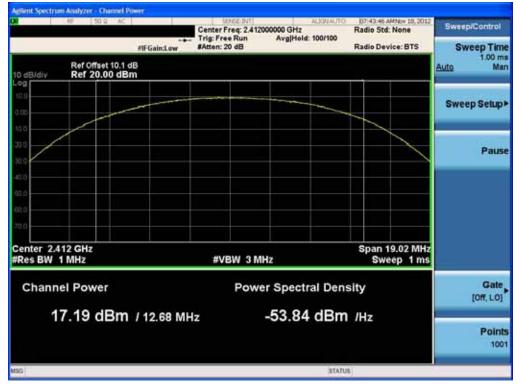


Conducted Output Power (802.11b-CH 1) 2Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	wember 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		ZNFE615F
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n Analyzer - Channel Pow 07:46:18 AMNov 18, 2012 Radio Std: None Center Freq: 2.437000000 GHz Trig: Free Run Avg|Hold Sweep/Control Avg|Hold>100/100 Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 10.1 dB Ref 20.00 dBm Auto 0 dB/div Sweep Setup> Pause Span 19.04 MHz Sweep 1 ms Center 2.437 GHz #Res BW 1 MHz #VBW 3 MHz Gate **Channel Power Power Spectral Density** [Off, LO] -54.14 dBm /Hz 16.90 dBm / 12.69 MHz Points 1001 STATUS

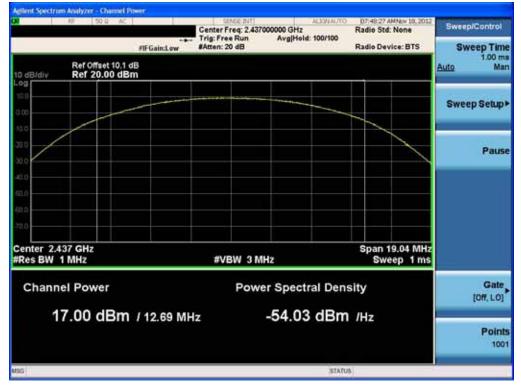
Conducted Output Power (802.11b-CH 6) 1Mbps

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



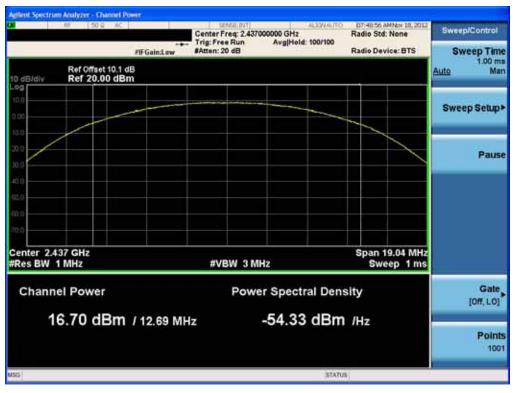
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:		FCC ID:
HCTR1211FR05	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		ZNFE615F
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Conducted Output 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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN		ZNFE615F
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m Analyzer - Channel Pow D7-55-29 AMNew 18, 2012 Radio Std: None Center Freq: 2.462000000 GHz Trig: Free Run Avg|Hold Sweep/Control Avg|Hold: 100/100 Radio Device: BTS Sweep Time 1.00 ms Man Ref Offset 10.1 dB Ref 20.00 dBm Auto 0 dB/div 00 Sweep Setup> Pause Span 19.06 MHz Sweep 1 ms Center 2.462 GHz #Res BW 1 MHz #VBW 3 MHz Gate **Channel Power Power Spectral Density** [Off, LO] 17.17 dBm / 12.71 MHz -53.88 dBm /Hz Points 1001 STATUS

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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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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.	Date of Issue:	EUT Type:	FCC ID:
HCTR1211FR05	November 19, 2012	Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	ZNFE615F
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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:
HCTR1211FR05	November 19, 2012	November 19, 2012 Cellular/PCS GSM/GPRS/EDGE(RX Only) Cellular/WCDMA/HSDPA Phone with Bluetooth, WLAN	
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