



HCT CO., LTD.

CERTIFICATE OF COMPLIANCE FCC Certification

Applicant Name: LG Electronics MobileComm U.S.A., Inc.	Date of Issue: July 30, 2013
Address: 1000 Sylvan Avenue, Englewood Cliffs NJ 07632	Test Site/Location: HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, Korea
	Report No.: HCTR1306FR25-1
	HCT FRN: 0005866421

FCC ID : ZNFL01F

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

FCC Model(s): L-01F
EUT Type: Cellular/PCS GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)
Max. RF Output Power: Wi-Fi 802.11a (5180~5240) (12.97 dBm)/ Wi-Fi 802.11a (5260~5320) (13.30 dBm)/
Wi-Fi 802.11a (5500~5700) (12.13 dBm)/ Wi-Fi 802.11n_20 MHz BW (5180~5240) (11.88 dBm)/
Wi-Fi 802.11n_20 MHz BW(5260~5320)(12.24 dBm)/ Wi-Fi 802.11n_20 MHz BW(5500~5700)(11.54 dBm)/
Wi-Fi 802.11n_40 MHz BW(5190~5230) (12.06 dBm)/ Wi-Fi 802.11n_40 MHz BW (5270~5310) (12.44 dBm)/
Wi-Fi 802.11n_40 MHz BW (5510~5670) (11.41 dBm)/ Wi-Fi 802.11ac (5180~5240) (11.05 dBm)/
Wi-Fi 802.11ac (5260~5320) (11.26 dBm)/ Wi-Fi 802.11ac (5500~5720) (10.47 dBm)/
Wi-Fi 802.11ac (5190~5230) (10.91 dBm)/ Wi-Fi 802.11ac (5270~5310) (11.19 dBm)/
Wi-Fi 802.11ac (5510~5710) (10.47 dBm)/ Wi-Fi 802.11ac (5210) (10.83 dBm)/
Wi-Fi 802.11ac (5290) (10.72 dBm)/ Wi-Fi 802.11ac (5530~5690) (9.83 dBm)

Frequency Range: 20 MHz BW: 5180 MHz - 5240 MHz (UNII 1)/ 5260 MHz - 5320 MHz (UNII 2)/
5500 MHz - 5700 MHz (UNII 2e)
40 MHz BW: 5190 MHz - 5230 MHz (UNII 1)/ 5270 MHz - 5310 MHz (UNII 2)/
5510 MHz - 5670 MHz (UNII 2e)
80 MHz BW: 5210 MHz(UNII 1)/ 5290 MHz(UNII 2)/ 5530 MHz - 5690 MHz(UNII 2e)

Modulation type OFDM

FCC Classification: Unlicensed National Information Infrastructure(UNII)

FCC Rule Part(s): Part 15.407

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
: Jae Chul Shin
Test engineer of RF Team

Approved by
: Chang Seok Choi
Manager of RF Team

This report only responds to the tested sample and may not be reproduced, except in full, without written approval of the HCT Co., Ltd.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F



Version

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1306FR25	July 25, 2013	- First Approval Report
HCTR1306FR25-1	July 30, 2013	- Retest 26 dB BW for 802.11ac_80 MHz BW

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL01F

Table of Contents

1. GENERAL INFORMATION	4
2. EUT DESCRIPTION	4
3. TEST METHODOLOGY	5
3.1 EUT CONFIGURATION	5
3.2 EUT EXERCISE	5
3.3 GENERAL TEST PROCEDURES	5
3.4 DESCRIPTION OF TEST MODES	5
4. INSTRUMENT CALIBRATION.....	6
5. FACILITIES AND ACCREDITATIONS	6
5.1 FACILITIES	6
5.2 EQUIPMENT	6
6. ANTENNA REQUIREMENTS	6
7. SUMMARY OF TEST RESULTS	7
8. TEST RESULT	8
8.1 DUTY CYCLE.....	8
8.2 26 dB BANDWIDTH MEASUREMENT	1 1
8.3 OUTPUT POWER MEASUREMENT.....	4 3
8.4 POWER SPECTRAL DENSITY	1 4 4
8.5 PEAK EXCURSION RATIO.....	1 5 9
8.6 FREQUENCY STABILITY	1 8 6
8.7 RADIATED MEASUREMENT.....	1 9 5
8.7.1 RADIATED SPURIOUS EMISSIONS.....	1 9 5
8.7.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS	2 4 6
8.8 POWERLINE CONDUCTED EMISSIONS	2 5 7
9. LIST OF TEST EQUIPMENT	2 6 2

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F



1. GENERAL INFORMATION

Applicant: LG Electronics MobileComm U.S.A., Inc.
Address: 1000 Sylvan Avenue, Englewood Cliffs NJ 07632
FCC ID: ZNFL01F
EUT Type: Cellular/PCS GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)
Model name(s): L-01F
Date(s) of Tests: June 05, 2013 ~ July 30, 2013
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

EUT Type	Cellular/PCS GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	
FCC Model Name	L-01F	
Power Supply	DC 3.8 V	
Frequency Range	TX_20 MHz BW: 40 MHz BW: 80 MHz BW: RX_20 MHz BW: 40 MHz BW: 80 MHz BW:	5180 MHz - 5240 MHz (UNII 1)/ 5260 MHz - 5320 MHz (UNII 2)/ 5500 MHz - 5700 MHz (UNII 2e) where) Not supported 5600 MHz – 5640 MHz 5190 MHz - 5230 MHz (UNII 1)/ 5270 MHz - 5310 MHz (UNII 2)/ 5510 MHz - 5670 MHz (UNII 2e) where) Not supported 5590 MHz – 5630 MHz 5210 MHz(UNII 1)/ 5290 MHz(UNII 2)/ 5530 MHz - 5690 MHz(UNII 2e) where) Not supported 5610 MHz 5180 MHz - 5240 MHz (UNII 1)/ 5260 MHz - 5320 MHz (UNII 2)/ 5500 MHz - 5700 MHz (UNII 2e) where) Not supported 5580 MHz – 5640 MHz 5190 MHz - 5230 MHz (UNII 1)/ 5270 MHz - 5310 MHz (UNII 2)/ 5510 MHz - 5670 MHz (UNII 2e) where) Not supported 5580 MHz – 5640 MHz 5210 MHz(UNII 1)/ 5290 MHz(UNII 2)/ 5530 MHz - 5690 MHz(UNII 2e) Where) Not supported 5610 MHz
Max. RF Output Power:	Wi-Fi 802.11a (5180~5240) (12.97 dBm)/ Wi-Fi 802.11a (5260~5320) (13.30 dBm)/ Wi-Fi 802.11a (5500~5700) (12.13 dBm)/ Wi-Fi 802.11n_20 MHz BW (5180~5240) (11.88 dBm)/ Wi-Fi 802.11n_20 MHz BW(5260~5320)(12.24 dBm)/ Wi-Fi 802.11n_20 MHz BW(5500~5700)(11.54 dBm)/ Wi-Fi 802.11n_40 MHz BW(5190~5230) (12.06 dBm)/ Wi-Fi 802.11n_40 MHz BW (5270~5310) (12.44 dBm)/ Wi-Fi 802.11n_40 MHz BW (5510~5670) (11.41 dBm)/ Wi-Fi 802.11ac (5180~5240) (11.05 dBm)/ Wi-Fi 802.11ac (5260~5320) (11.26 dBm)/ Wi-Fi 802.11ac (5500~5720) (10.47 dBm)/ Wi-Fi 802.11ac (5190~5230) (10.91 dBm)/ Wi-Fi 802.11ac (5270~5310) (11.19 dBm)/ Wi-Fi 802.11ac (5510~5710) (10.47 dBm)/ Wi-Fi 802.11ac (5210) (10.83 dBm)/ Wi-Fi 802.11ac (5290) (10.72 dBm)/ Wi-Fi 802.11ac (5530~5690) (9.83 dBm)	
Modulation Type	OFDM(802.11a, 802.11n, 802.11ac)	
Antenna Specification	Manufacturer: acetchnology A Antenna type: Built-in Antenna Peak Gain : -2.45 dBi	

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL01F



3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D01 General UNII Test Procedures v01r03 dated April 08, 2013 entitled “ Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.4-2003) – Part 15, Subpart E” 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 15.407 under the FCC Rules Part 15 Subpart E.

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)

Conducted Antenna Terminal

See Section from 8.1 to 8.4.(KDB 789033)

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.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F



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."

6. ANTENNA REQUIREMENTS

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

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

7. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
TRANSMITTER MODE(TX)				
26dB Bandwidth	NA	NA	CONDUCTED	PASS
Maximum Conducted Output Power	§15.407(a)(1)	< 4+10 log ₁₀ (BW) dBm (5150-5250 MHz) < 11+10 log ₁₀ (BW) dBm (5250-5350 MHz) < 11+10 log ₁₀ (BW) dBm (5470-5725 MHz)		PASS
Peak Power Spectral Density	§15.407(a)(1), (5)	<4 dBm/ MHz (5150-5250) <11 dBm/ MHz (5250-5350) <11 dBm/ MHz (5470-5725)		PASS
Peak Excursion	§15.407(a)(6)	<13 dB/ MHz maximum difference		PASS
Frequency Stability	§15.407(g)	NA		PASS
Undesirable Emissions	§15.407(b)(1), (2), (3)	<-27 dBm/ MHz EIRP (5150-5350 MHz, 5470-5725 MHz)	RADIATED	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 5.407(b)(1), (5), (6)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207	<FCC 15.207 limits	LINE CONDUCTED	PASS

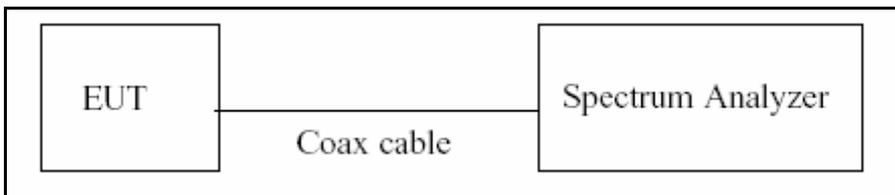
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

8. TEST RESULT

8.1 DUTY CYCLE

The zero-span mode on a spectrum analyzer or EMI receiver, if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on and off times of the transmitted signal. Set the center frequency of the instrument to the center frequency of the transmission. Set $RBW \geq EBW$ if possible; otherwise, set RBW to the largest available value. Set $VBW \geq RBW$. Set detector = peak or average. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in section B)1)a), and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We tested according to the zero-span measurement method, B)2) in KDB 789033(issued 04/08/2013)

The largest available value of RBW is 8 MHz and VBW is 50 MHz. The zero-span method of measuring duty cycle shall not be used if $T \leq 6.25$ microseconds. ($50/6.25 = 8$)

The zero-span method was used because all measured T data are > 6.25 microseconds and both RBW and VBW are $> 50/T$.

1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz (\geq RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on} / T_{total} and Duty Cycle Factor = $10 * \log(1/Duty\ Cycle)$

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

Duty Cycle Factor

Mode	Data Rate	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor
802.11a Mode	6	2.056	2.162	0.95097132	0.218
	9	1.375	1.483	0.92717465	0.328
	12	1.034	1.142	0.90542907	0.431
	18	0.694	0.803	0.86368729	0.636
	24	0.524	0.633	0.82814229	0.819
	36	0.356	0.464	0.76752210	1.149
	48	0.268	0.376	0.71280277	1.470
	54	0.240	0.348	0.68967501	1.614
802.11n Mode 20 MHz BW	6.5	1.909	2.019	0.94551758	0.243
	13	0.972	1.080	0.90037037	0.456
	19.5	0.657	0.764	0.85942408	0.658
	26	0.496	0.607	0.81803198	0.872
	39	0.343	0.451	0.76109139	1.186
	52	0.264	0.372	0.71059710	1.484
	58.5	0.239	0.348	0.68737417	1.628
	65	0.220	0.328	0.67155067	1.729
802.11n Mode 40 MHz BW	13.5	0.943	1.042	0.90537428	0.432
	27	0.492	0.591	0.83155758	0.801
	40.5	0.339	0.438	0.77374429	1.114
	54	0.264	0.363	0.72692202	1.385
	81	0.188	0.288	0.65472879	1.839
	108	0.152	0.252	0.60428232	2.188
	121.5	0.140	0.240	0.58573217	2.323
	135	0.128	0.228	0.56389987	2.488

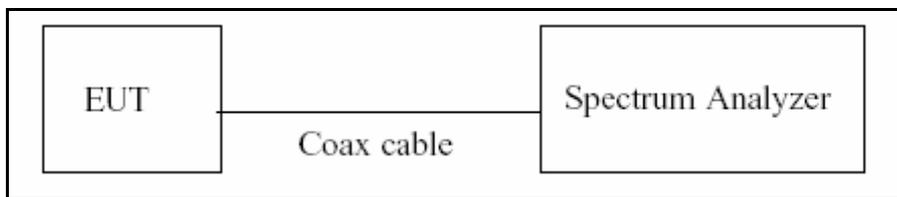
Mode	Data Rate	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11ac_20 MHz BW	6.5	1.924	2.031	0.94731659	0.235
	13	0.980	1.088	0.90110294	0.452
	19.5	0.663	0.772	0.85821572	0.664
	26	0.509	0.616	0.82591751	0.831
	39	0.356	0.456	0.78031134	1.077
	52	0.280	0.379	0.73872924	1.315
	58.5	0.253	0.352	0.71822576	1.437
	65	0.233	0.332	0.70123606	1.541
	78	0.200	0.300	0.66666667	1.761
802.11ac_40 MHz BW	13.5	0.952	1.051	0.90570885	0.430
	27	0.496	0.596	0.83271812	0.795
	40.5	0.343	0.443	0.77396797	1.113
	54	0.269	0.368	0.73048681	1.364
	81	0.192	0.292	0.65786767	1.819
	108	0.156	0.256	0.61039469	2.144
	121.5	0.145	0.244	0.59318555	2.268
	135	0.133	0.232	0.57247627	2.422
	162	0.117	0.216	0.54035250	2.673
	180	0.113	0.212	0.53041018	2.754
802.11ac_80 MHz BW	29.3	0.460	0.558	0.82449857	0.838
	58.5	0.252	0.351	0.71758336	1.441
	87.8	0.181	0.279	0.64625850	1.896
	117	0.149	0.248	0.60080808	2.213
	175.5	0.112	0.211	0.52960682	2.760
	234	0.097	0.196	0.49544990	3.050
	263.3	0.089	0.188	0.47200000	3.261
	292.5	0.085	0.184	0.46072985	3.366
	351	0.077	0.176	0.43772080	3.588
	390	0.073	0.172	0.42645688	3.701

8.2 26 dB BANDWIDTH MEASUREMENT

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033(issued 04/08/2013), at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26 dB bandwidth.

The 26 dB bandwidth is used to determine the conducted power limits.

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to(Page 3 in KDB 789033, issued 04/08/2013)

9. RBW = approximately 1 % of the emission bandwidth
10. VBW > RBW
11. Detector = Peak
12. Trace mode = max hold
13. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F



TEST RESULTS

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	20.38	N/A	Pass
5200	40	20.39	N/A	Pass
5240	48	20.30	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	19.87	N/A	Pass
5300	60	20.24	N/A	Pass
5320	64	20.32	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11a

802.11a Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	20.32	N/A	Pass
5580	116	20.38	N/A	Pass
5700	140	20.17	N/A	Pass

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



TEST RESULTS

20 MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	20.57	N/A	Pass
5200	40	20.88	N/A	Pass
5240	48	20.83	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	19.96	N/A	Pass
5300	60	20.69	N/A	Pass
5320	64	20.67	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	20.70	N/A	Pass
5580	116	20.78	N/A	Pass
5700	140	20.95	N/A	Pass

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F

Conducted 26 dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5190	38	39.65	N/A	Pass
5230	46	39.46	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5270	54	39.61	N/A	Pass
5310	62	39.56	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11n

802.11n Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	39.61	N/A	Pass
5550	110	39.53	N/A	Pass
5670	134	39.37	N/A	Pass



TEST RESULTS

20 MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5180	36	20.64	N/A	Pass
5200	40	20.80	N/A	Pass
5240	48	20.67	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5260	52	19.96	N/A	Pass
5300	60	20.62	N/A	Pass
5320	64	20.90	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5500	100	20.61	N/A	Pass
5580	116	20.59	N/A	Pass
5700	140	20.78	N/A	Pass

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5190	38	39.829	N/A	Pass
5230	46	39.602	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5270	54	39.525	N/A	Pass
5310	62	39.771	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5510	102	39.728	N/A	Pass
5550	110	39.838	N/A	Pass
5670	134	39.723	N/A	Pass

80 MHz BW

Conducted 26 dB Bandwidth Measurements for 802.11ac

802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5210	42	80.44	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac

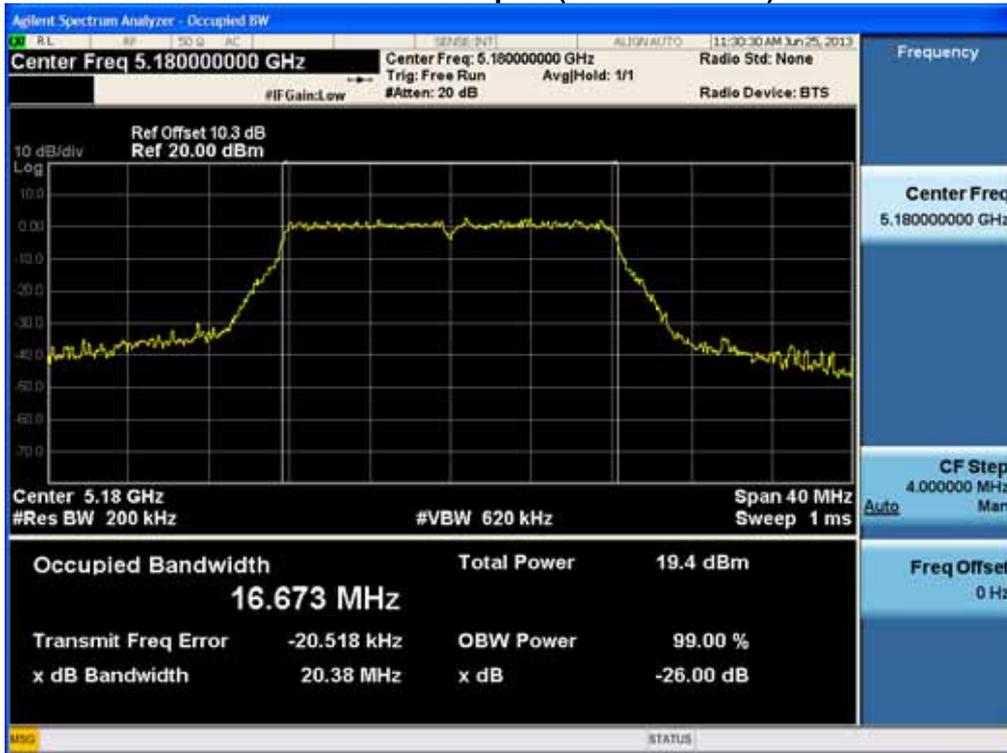
802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5290	58	79.96	N/A	Pass

Conducted 26 dB Bandwidth Measurements for 802.11ac

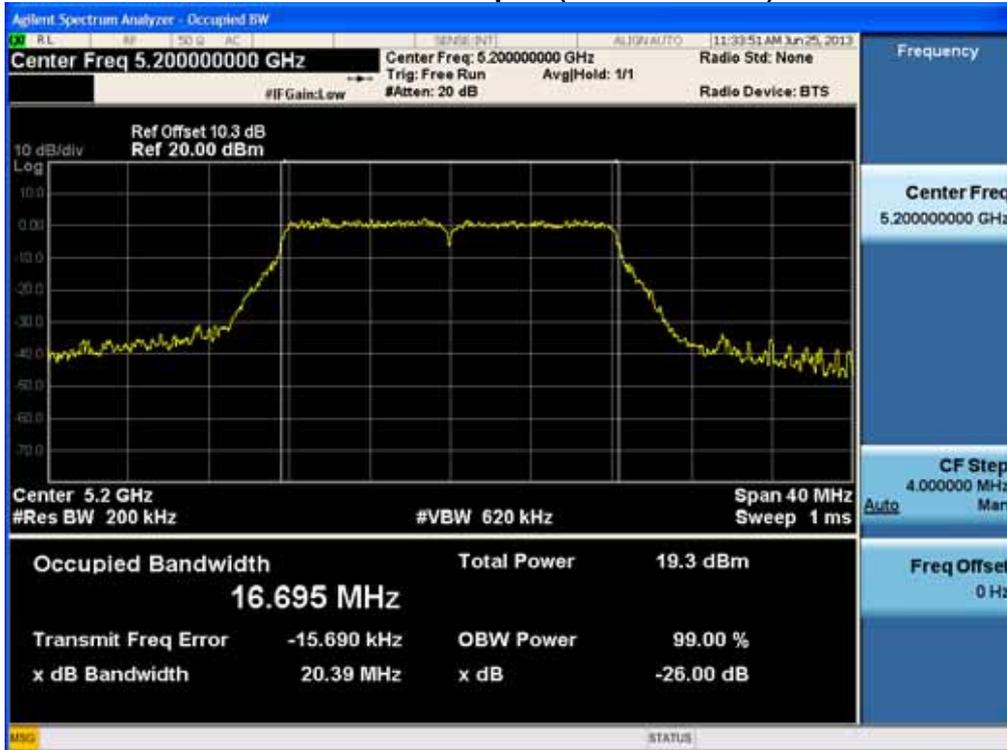
802.11ac Mode		Measured Bandwidth [MHz]	Minimum Bandwidth [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5530	106	80.75	N/A	Pass
5690	138	80.49	N/A	Pass

RESULT PLOTS

26 dB Bandwidth plot (802.11a-CH 36)

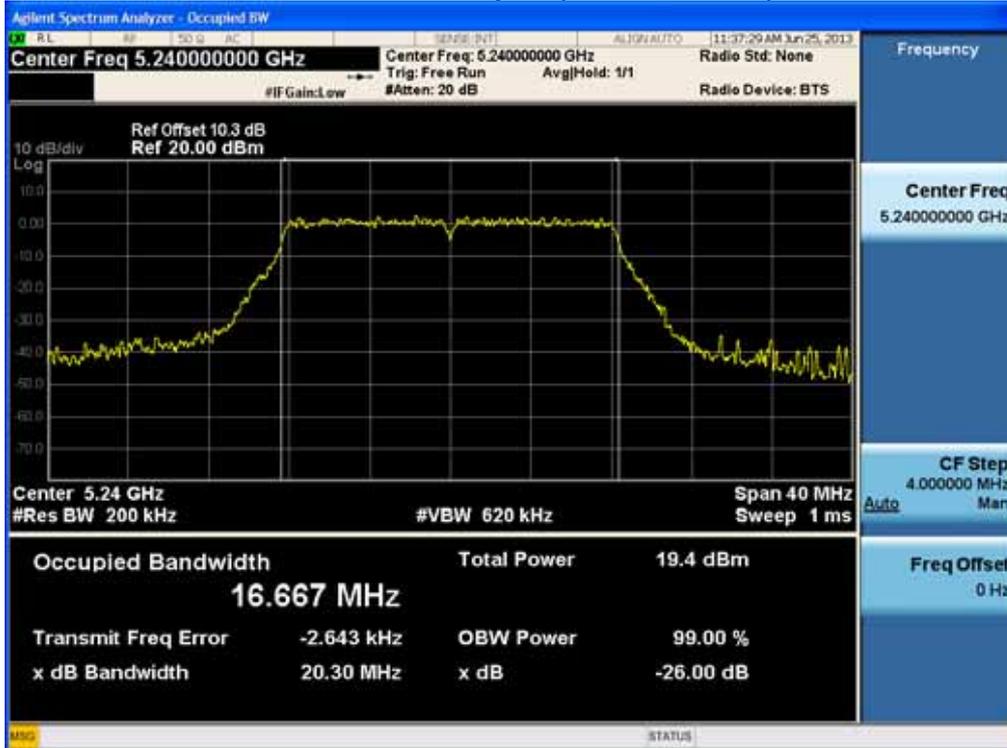


26 dB Bandwidth plot (802.11a-CH 40)

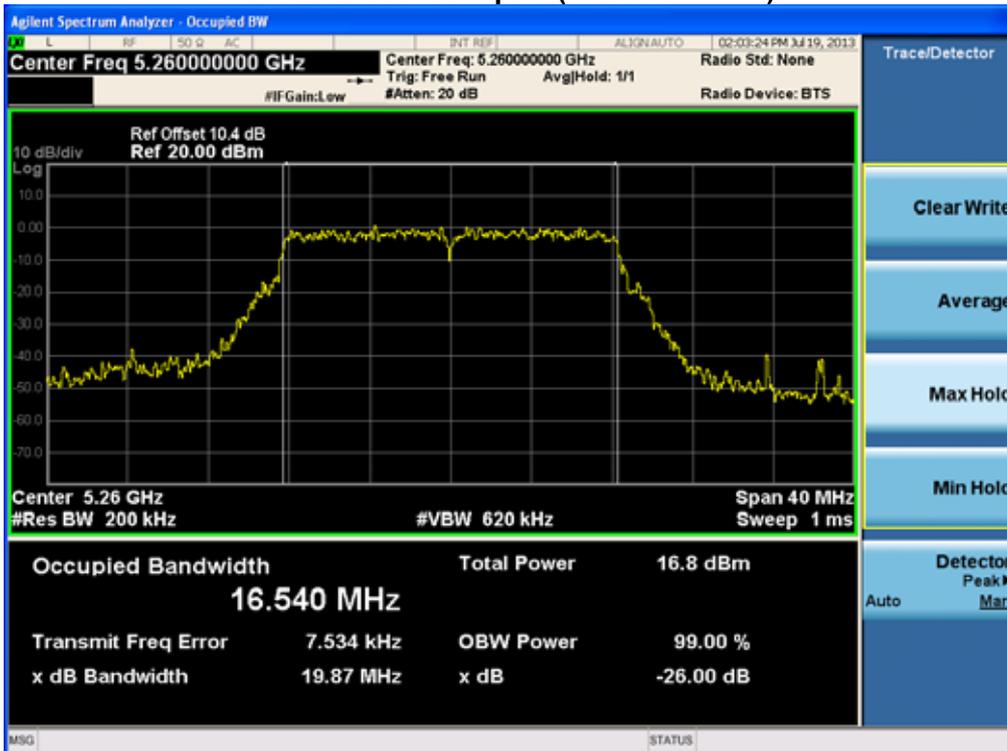


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11a-CH 48)

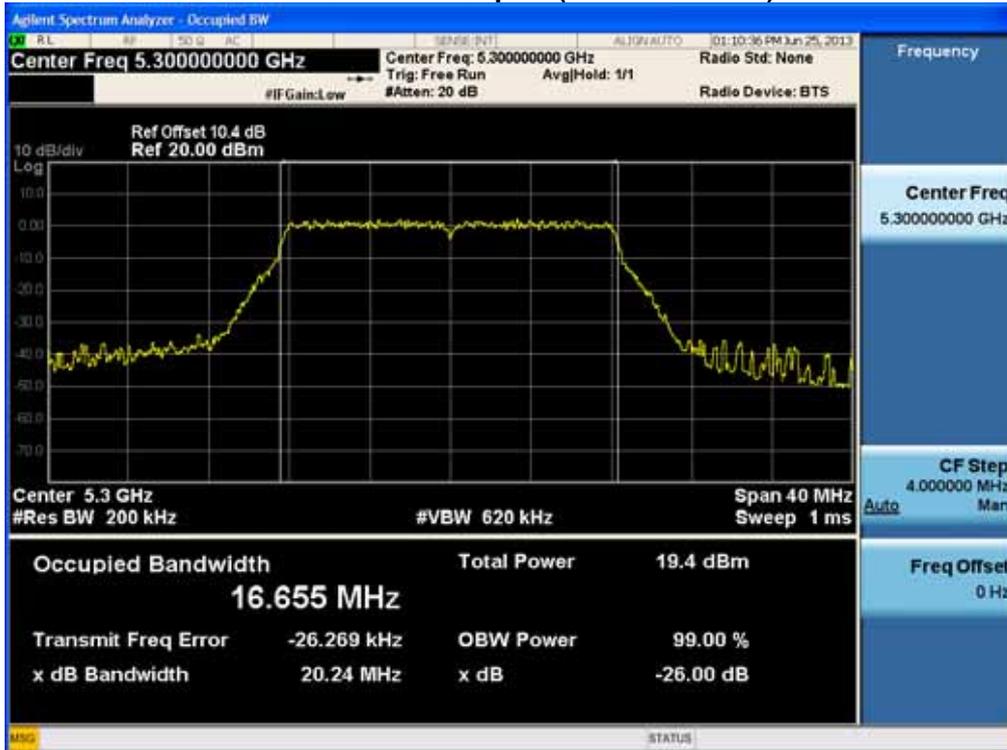


26 dB Bandwidth plot (802.11a-CH 52)

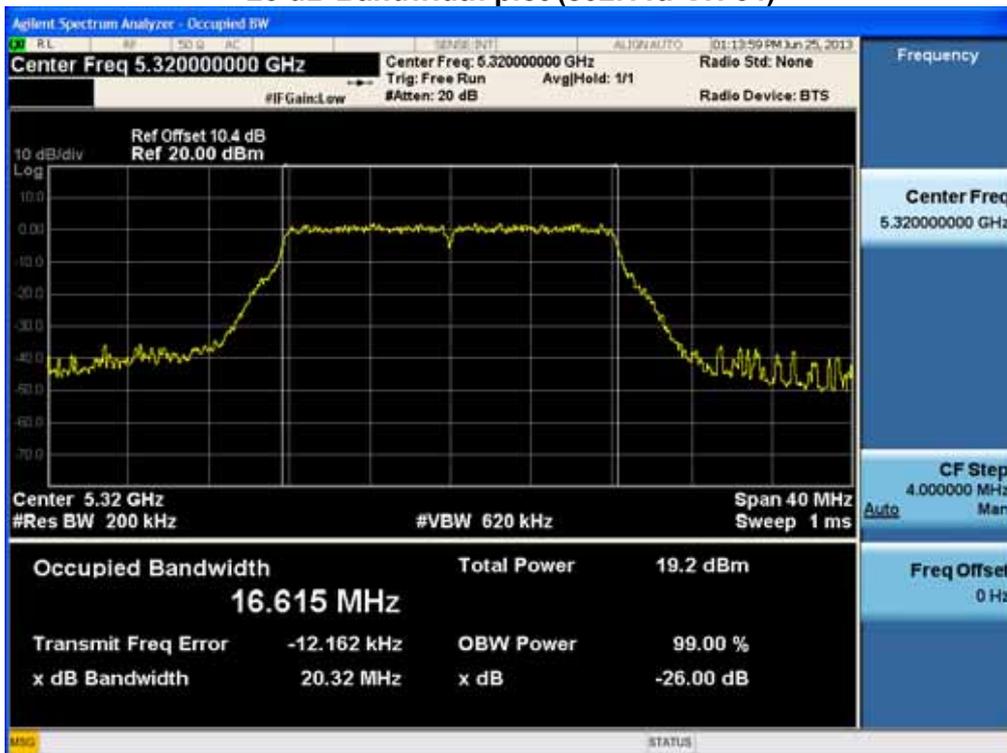


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11a-CH 60)

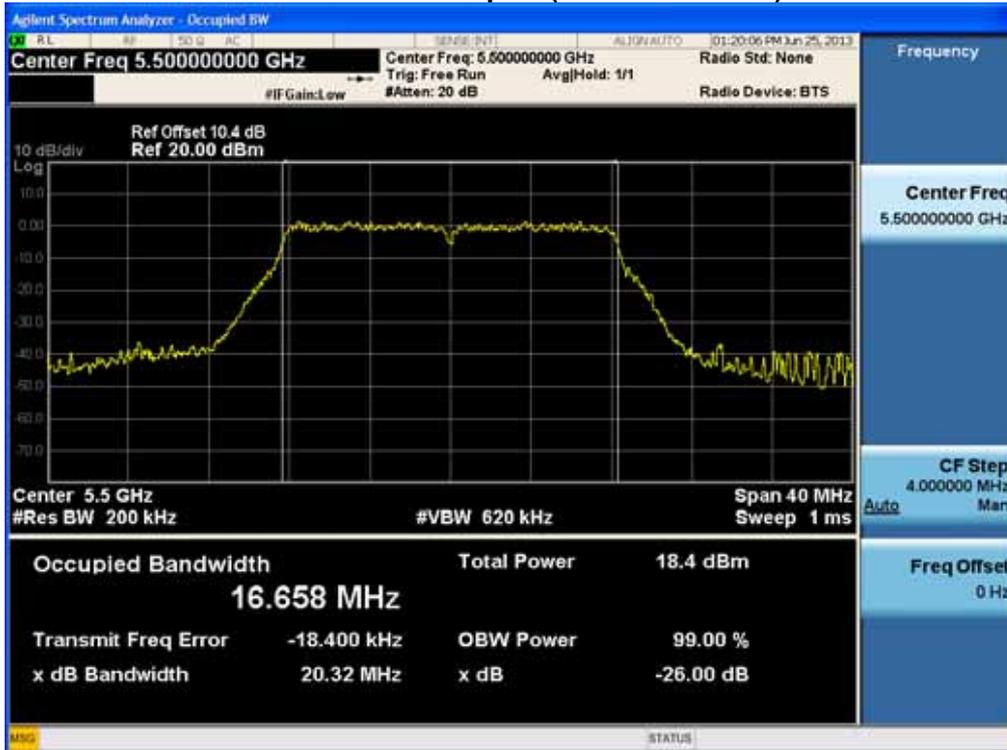


26 dB Bandwidth plot (802.11a-CH 64)

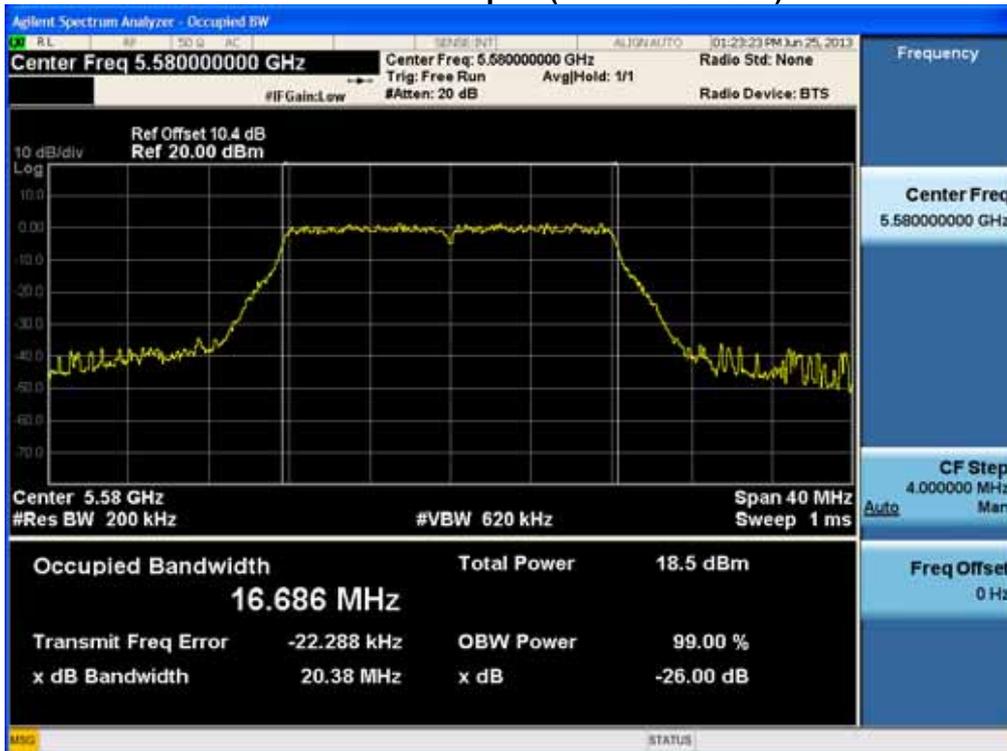


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11a-CH 100)

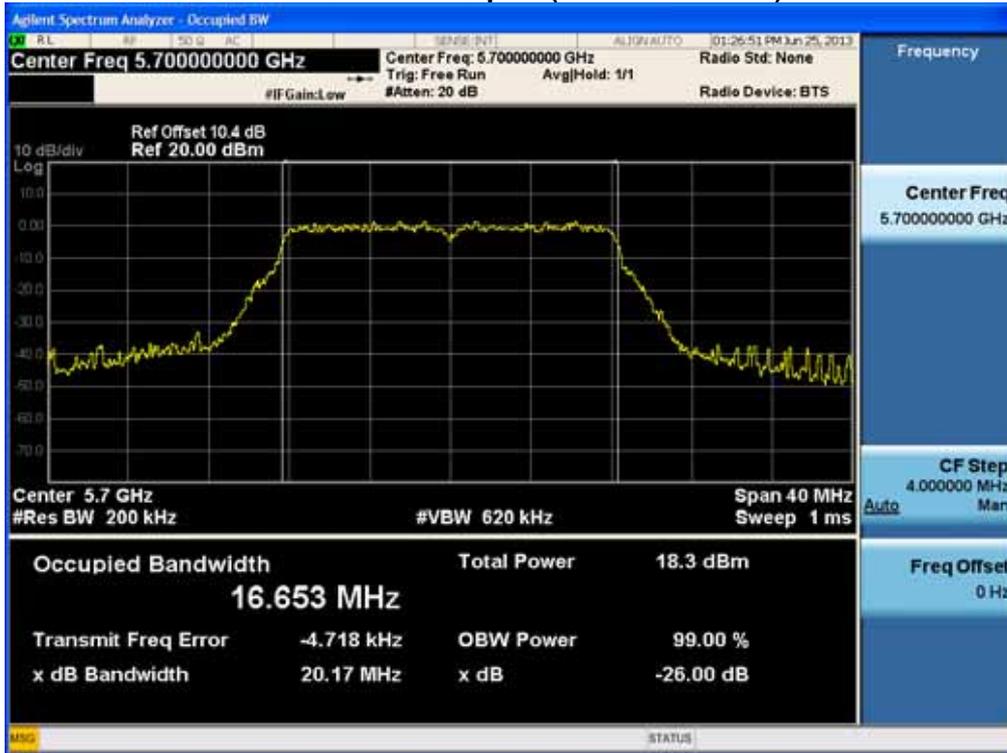


26 dB Bandwidth plot (802.11a-CH 116)



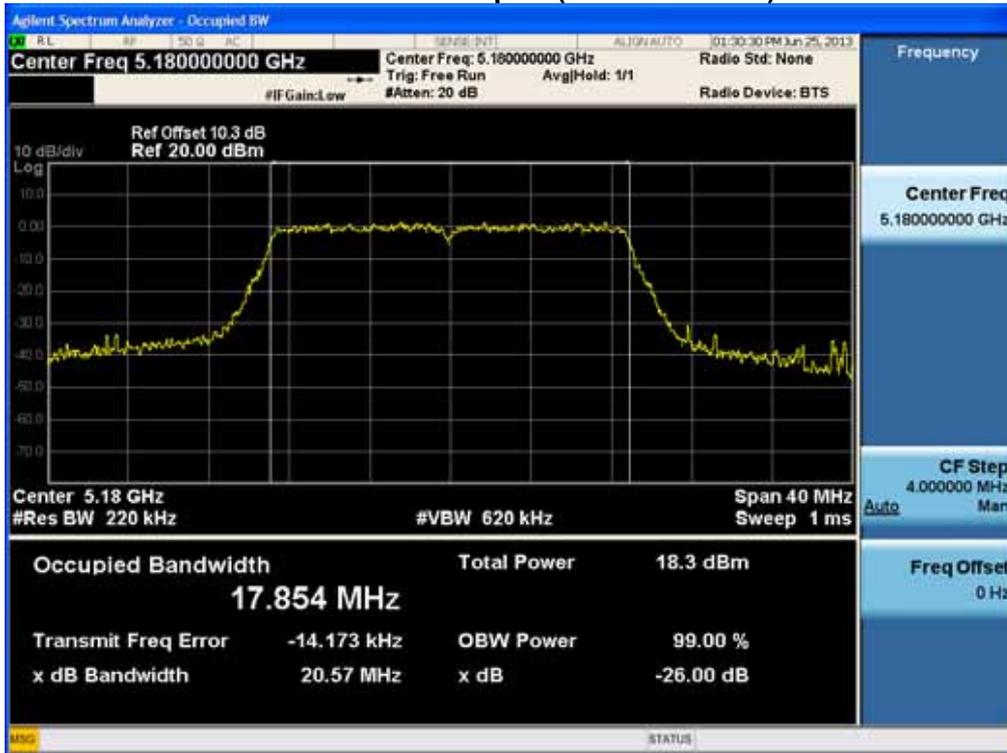
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11a-CH 140)

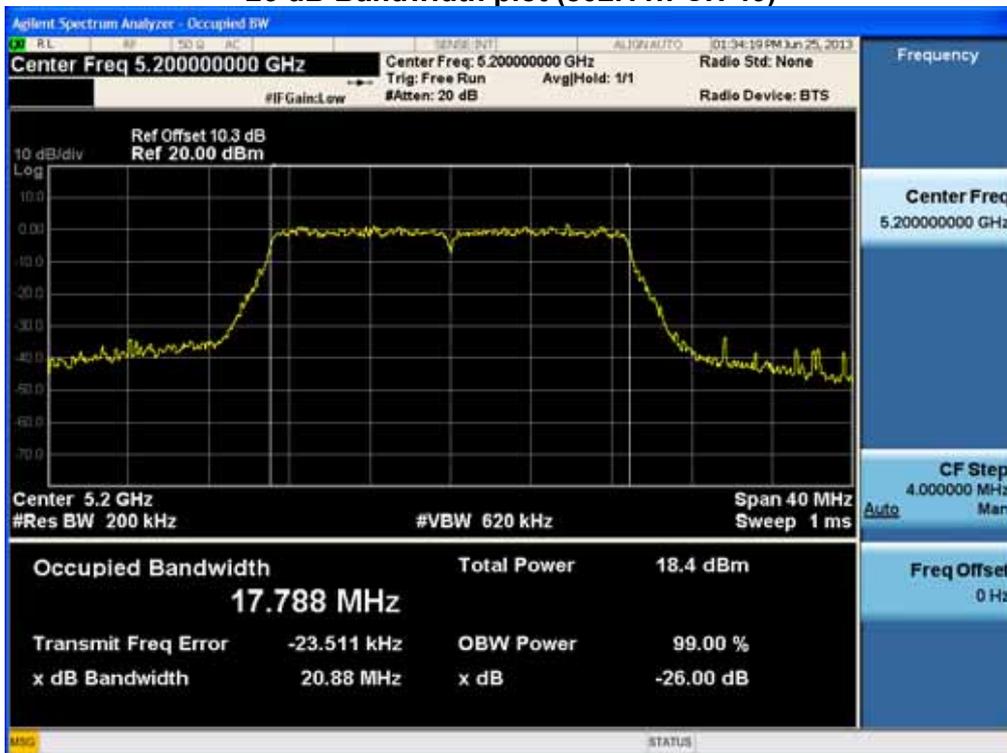


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 36)

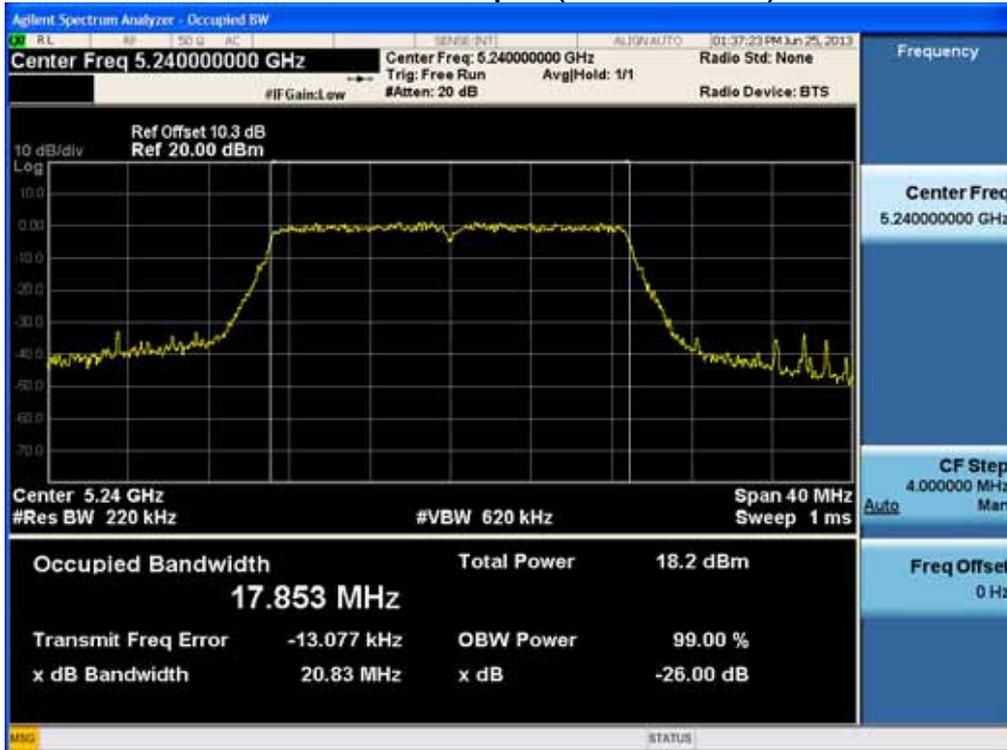


26 dB Bandwidth plot (802.11n-CH 40)

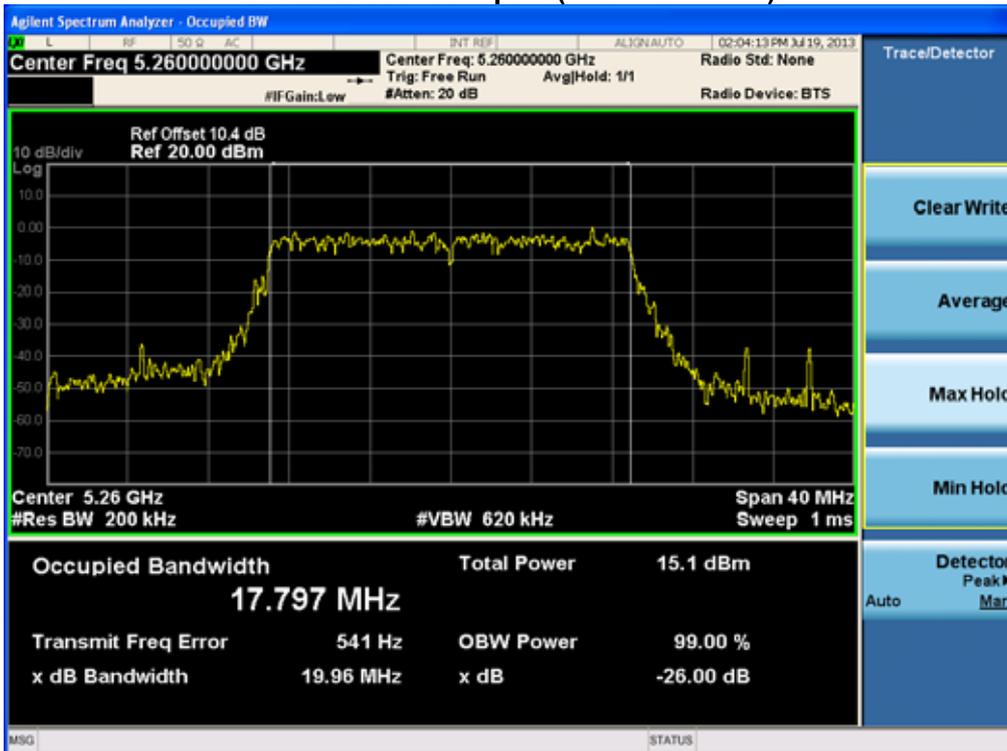


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica) GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 48)

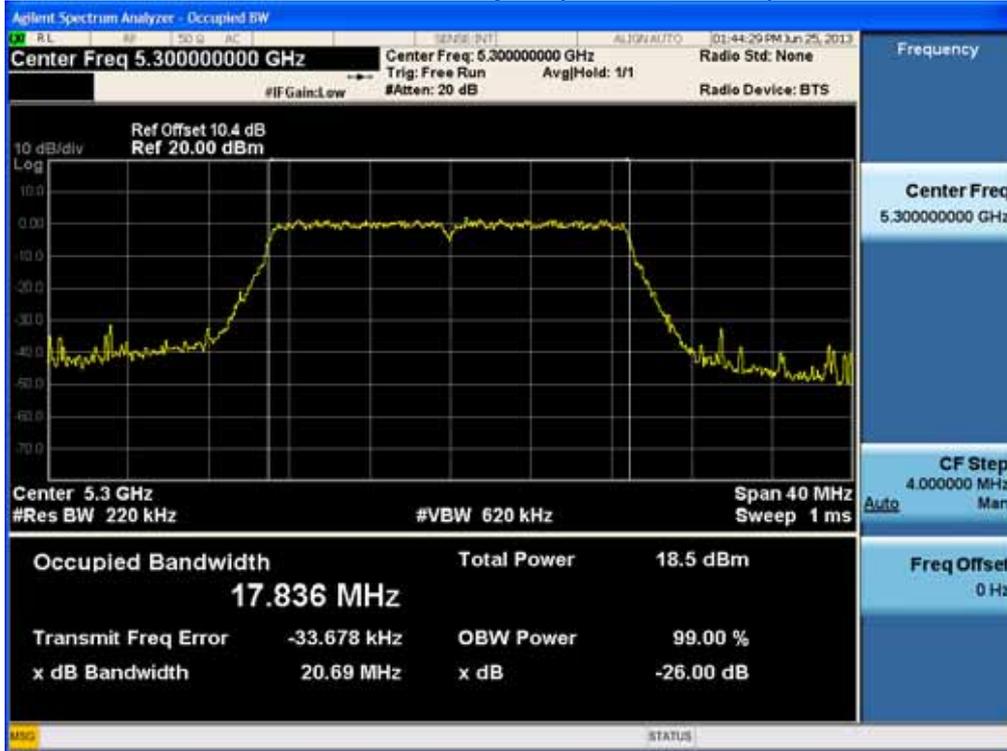


26 dB Bandwidth plot (802.11n-CH 52)

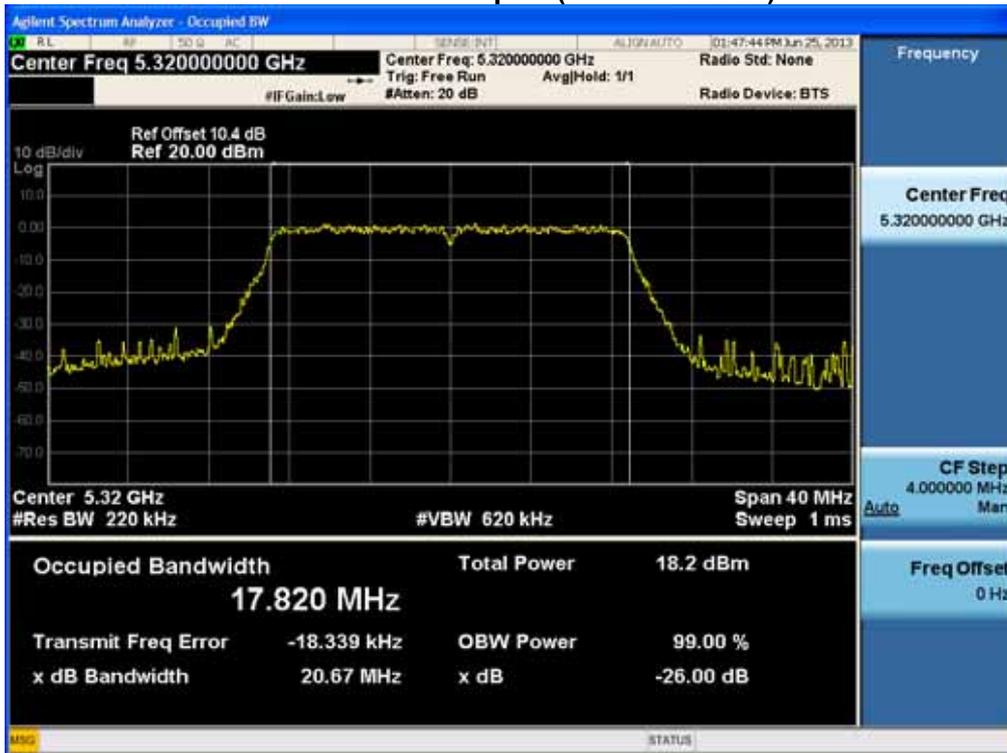


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 60)

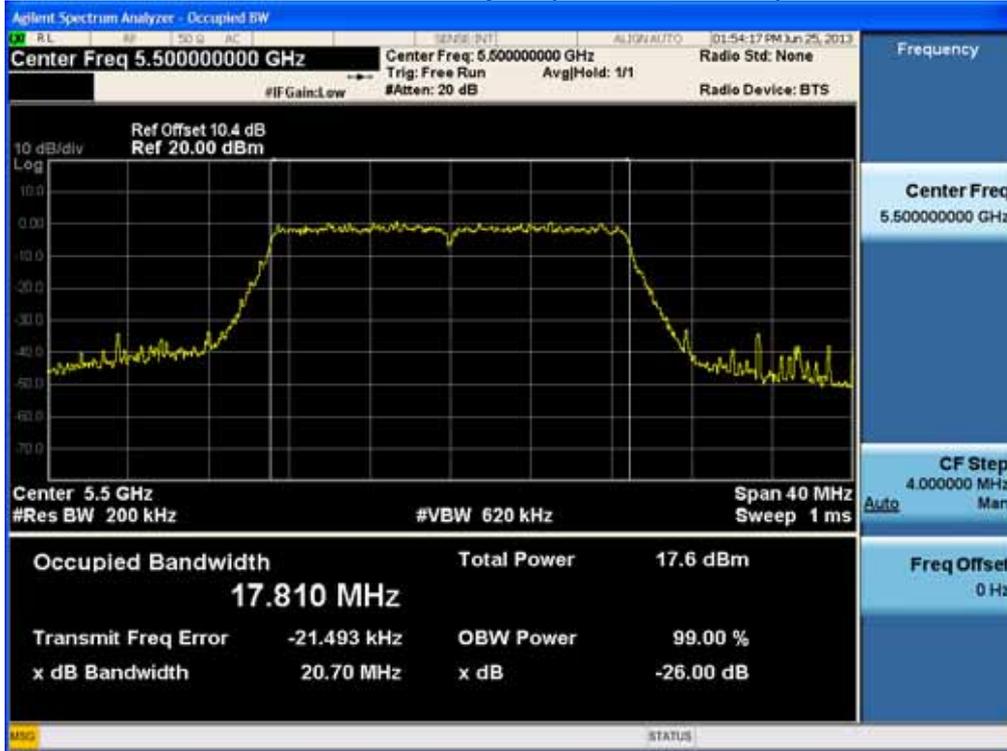


26 dB Bandwidth plot (802.11n-CH 64)

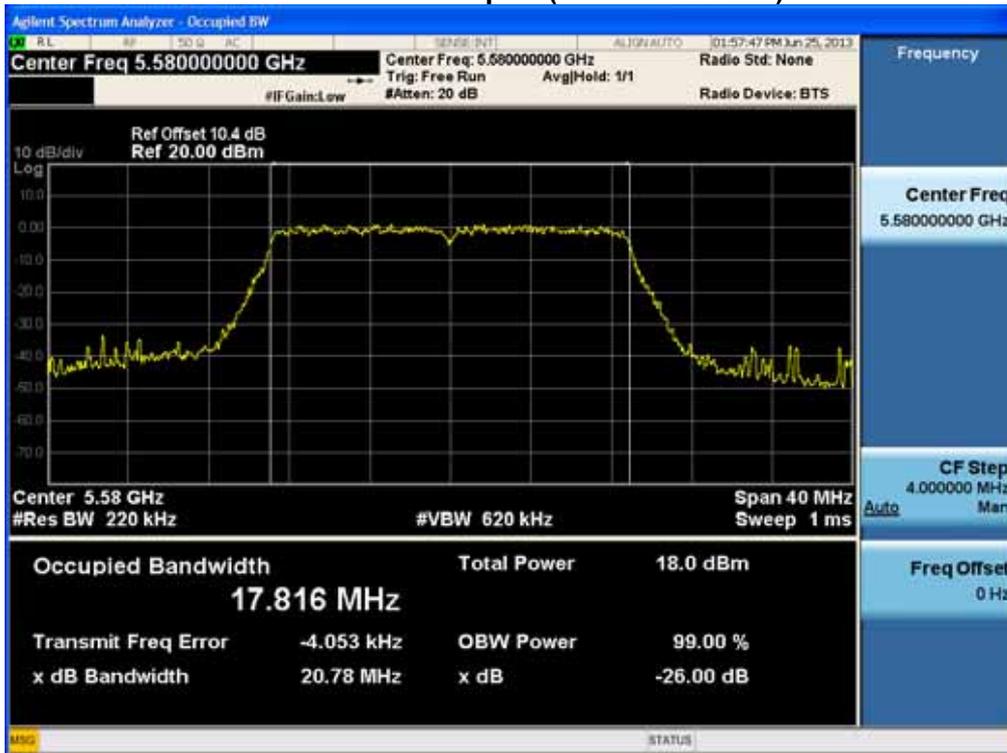


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 100)

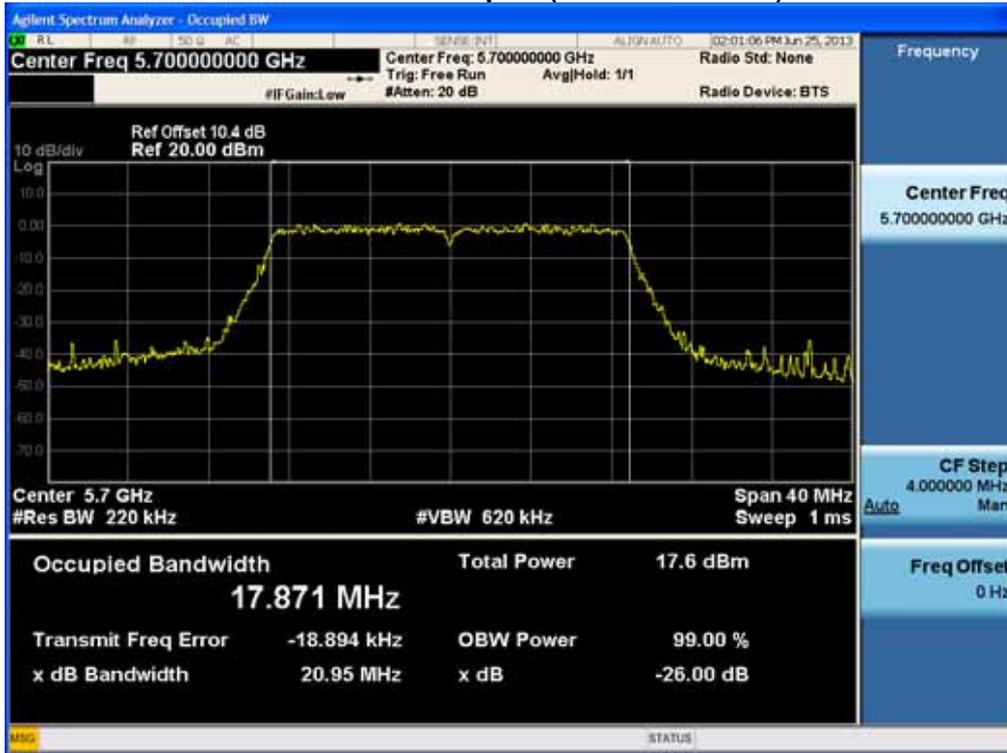


26 dB Bandwidth plot (802.11n-CH 116)



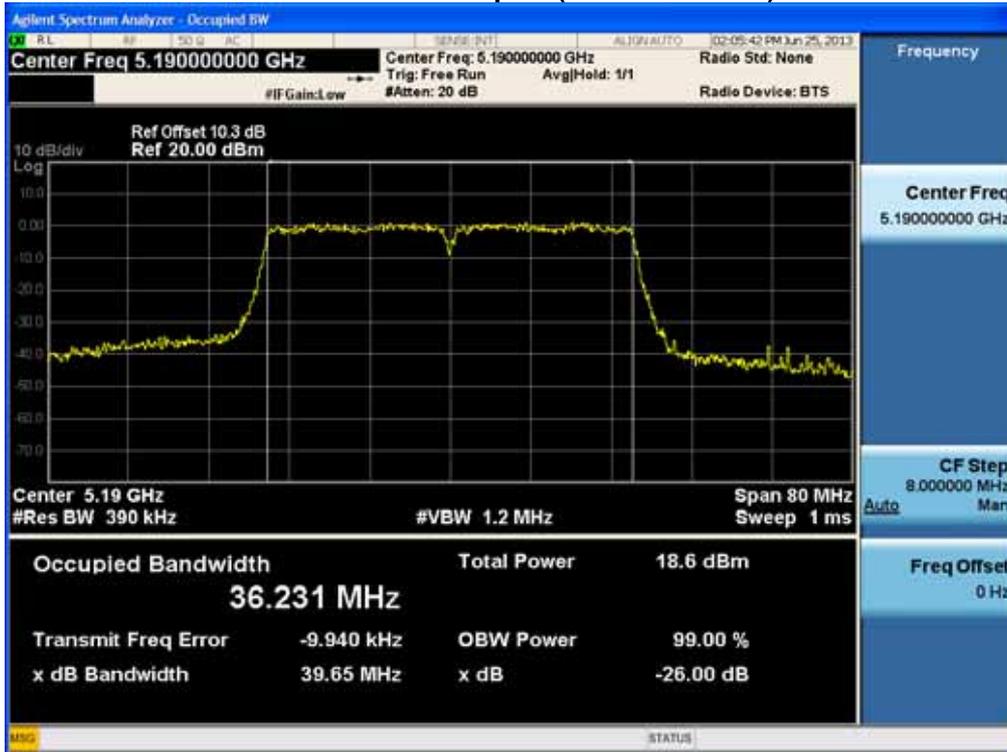
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 140)

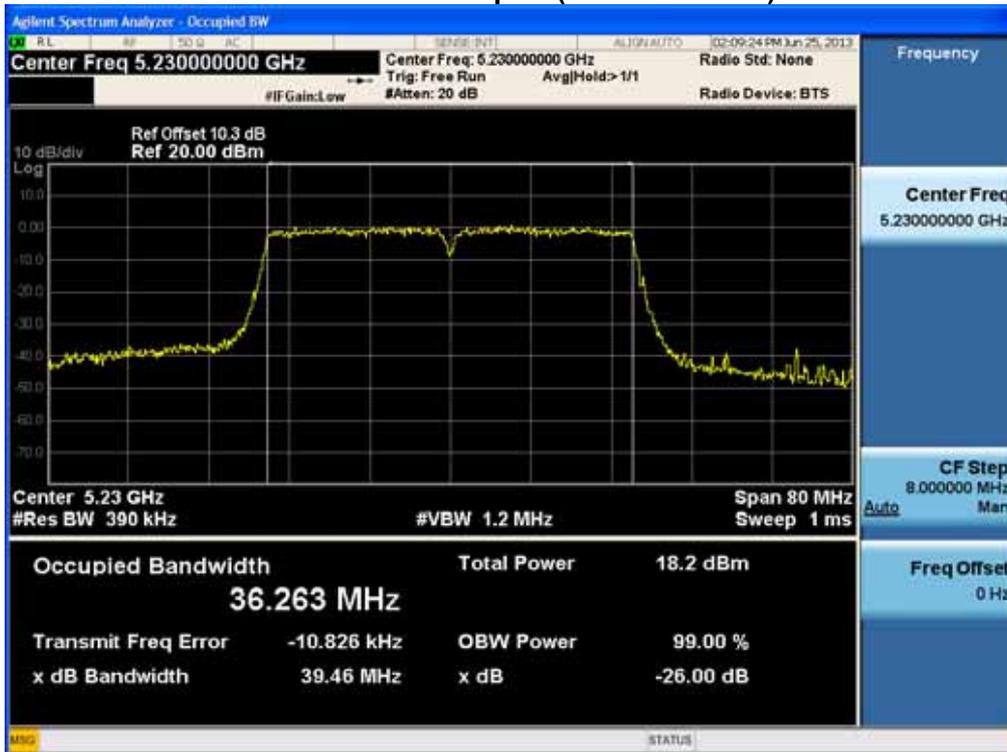


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 38)

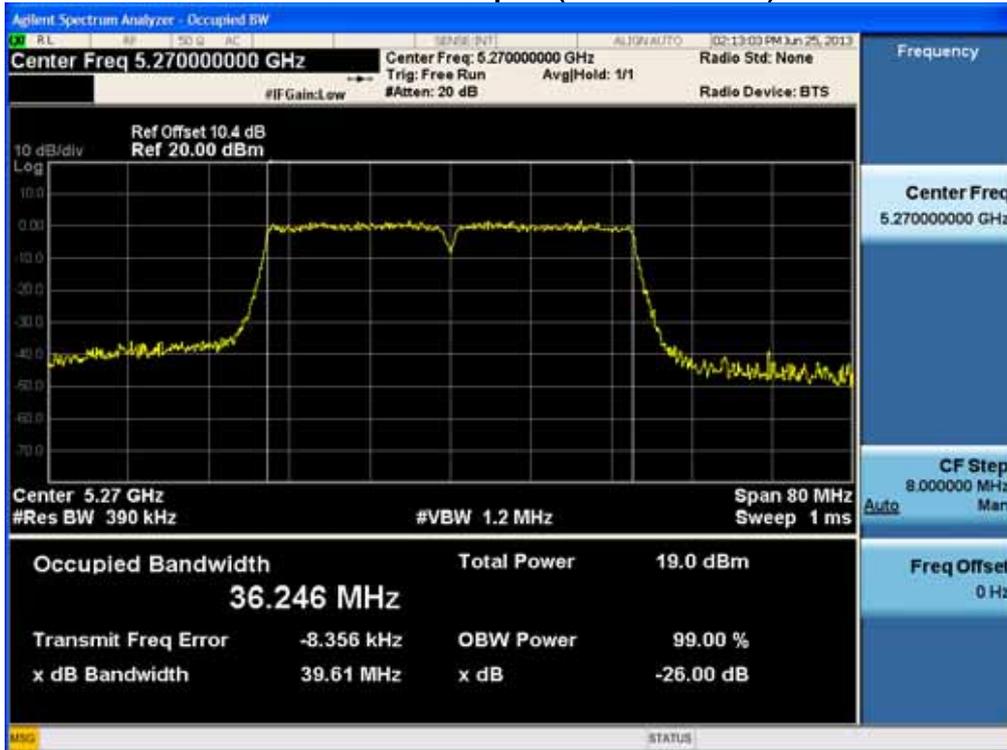


26 dB Bandwidth plot (802.11n-CH 46)

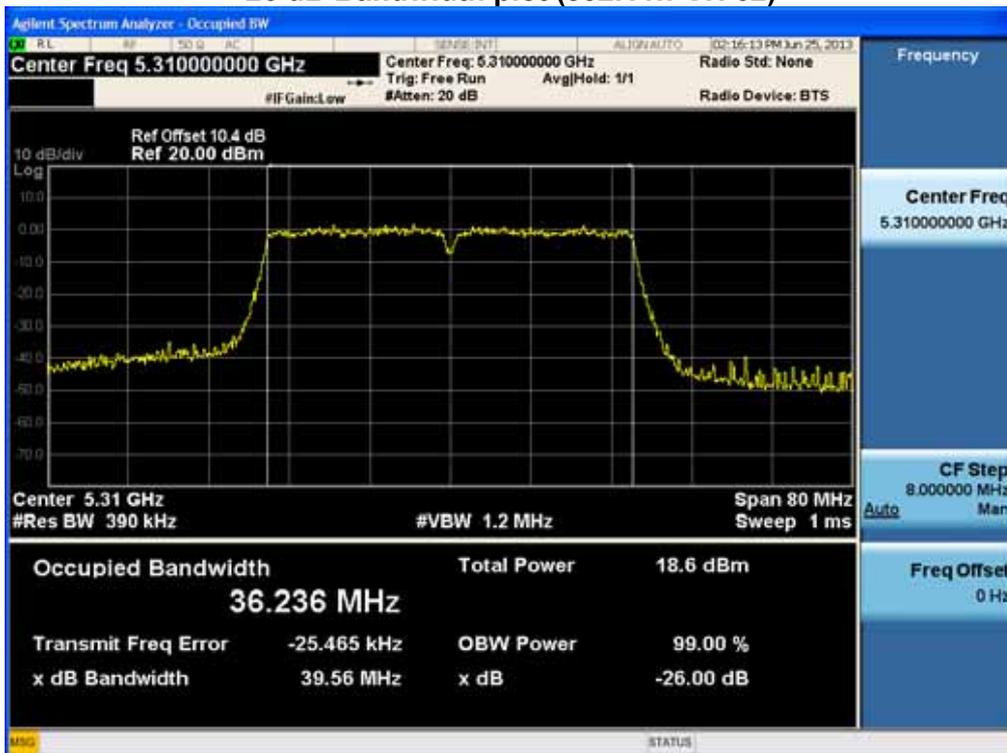


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 54)

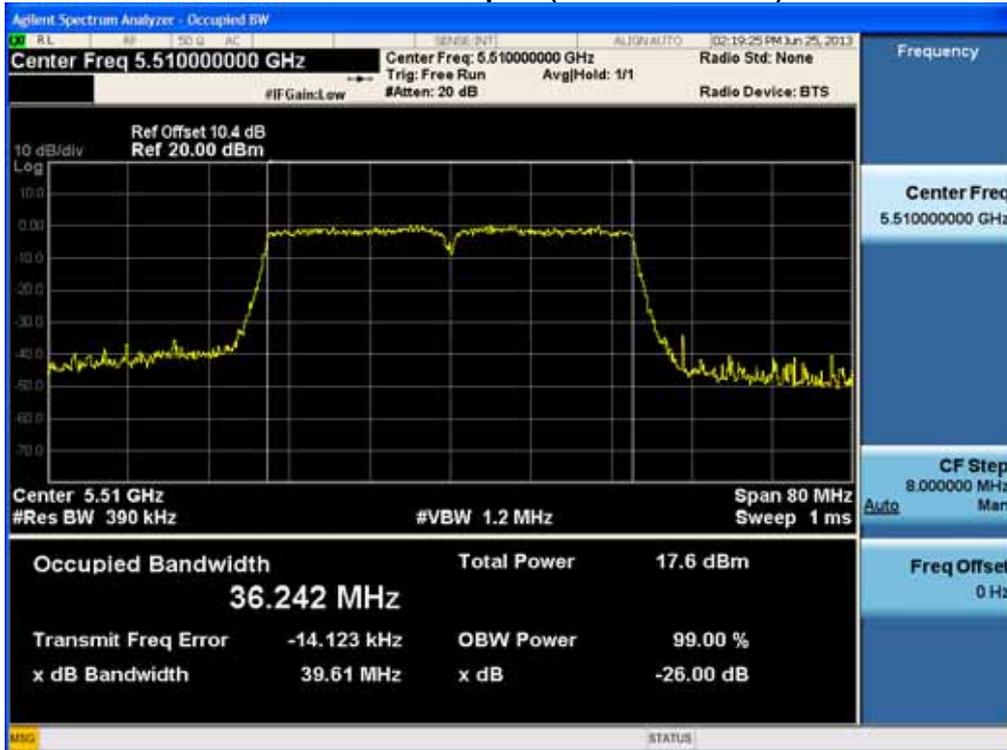


26 dB Bandwidth plot (802.11n-CH 62)

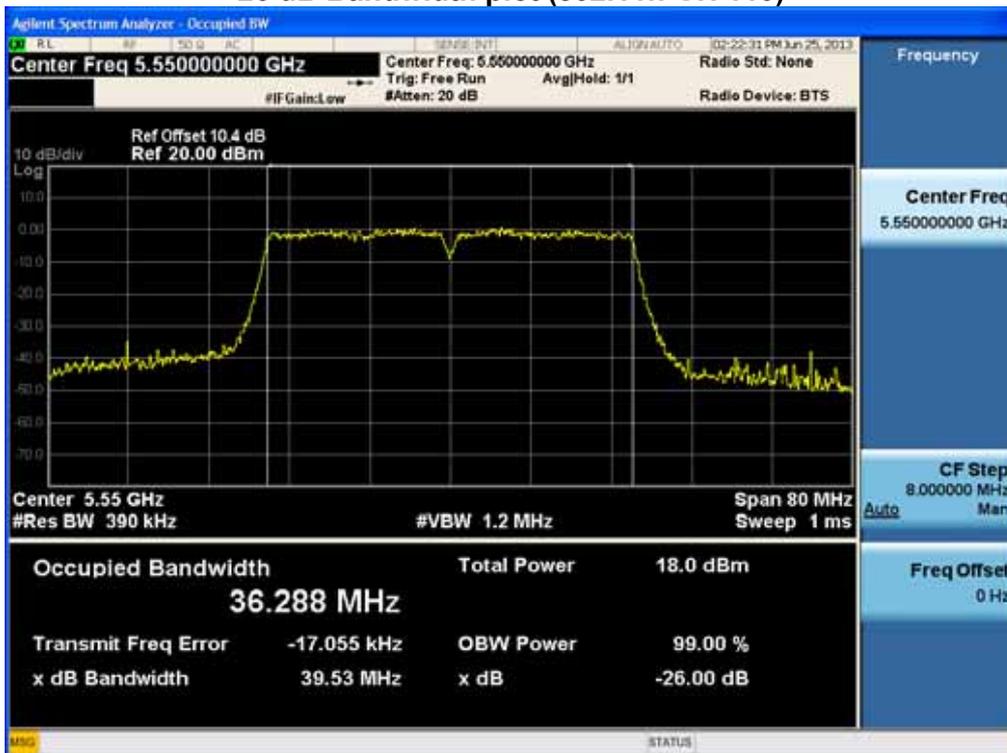


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica) GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 102)

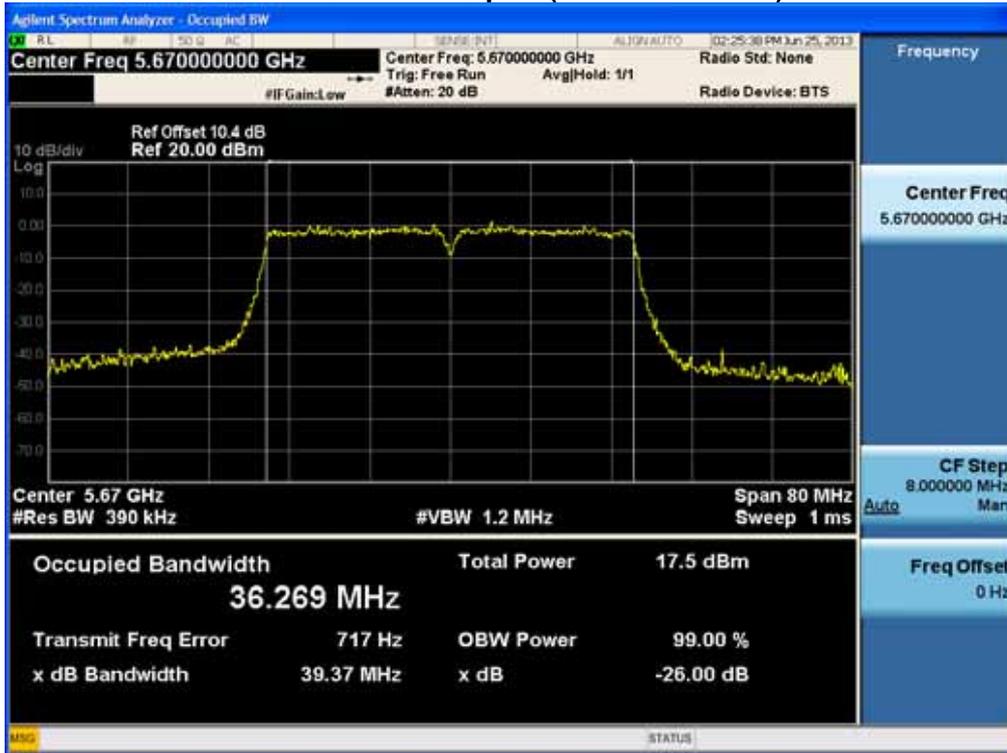


26 dB Bandwidth plot (802.11n-CH 110)



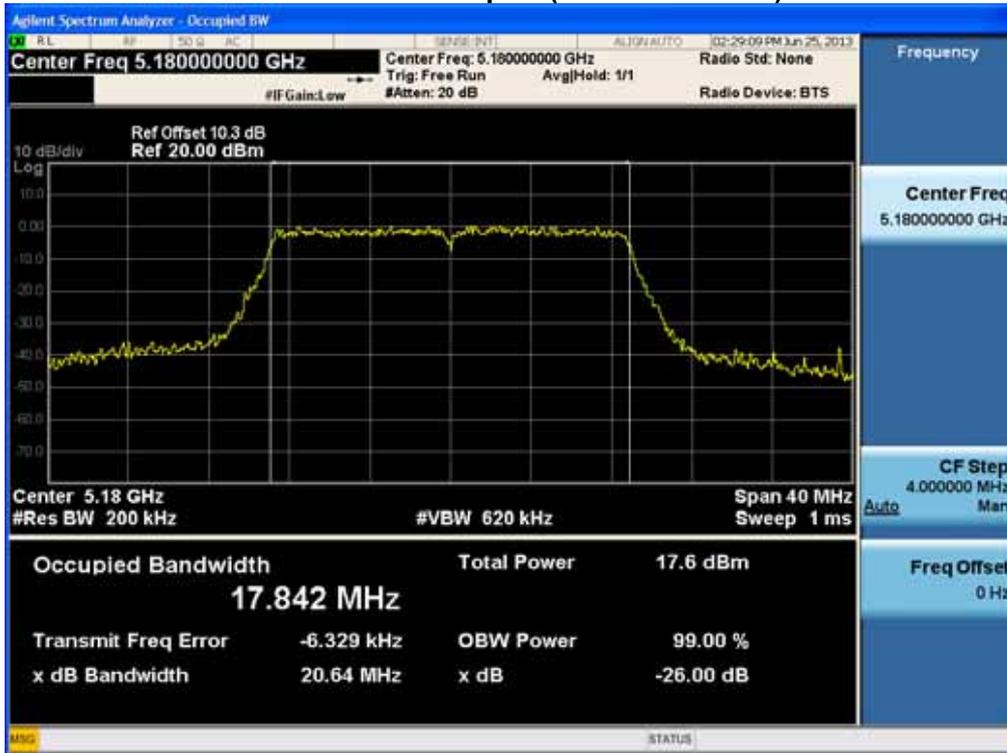
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11n-CH 134)

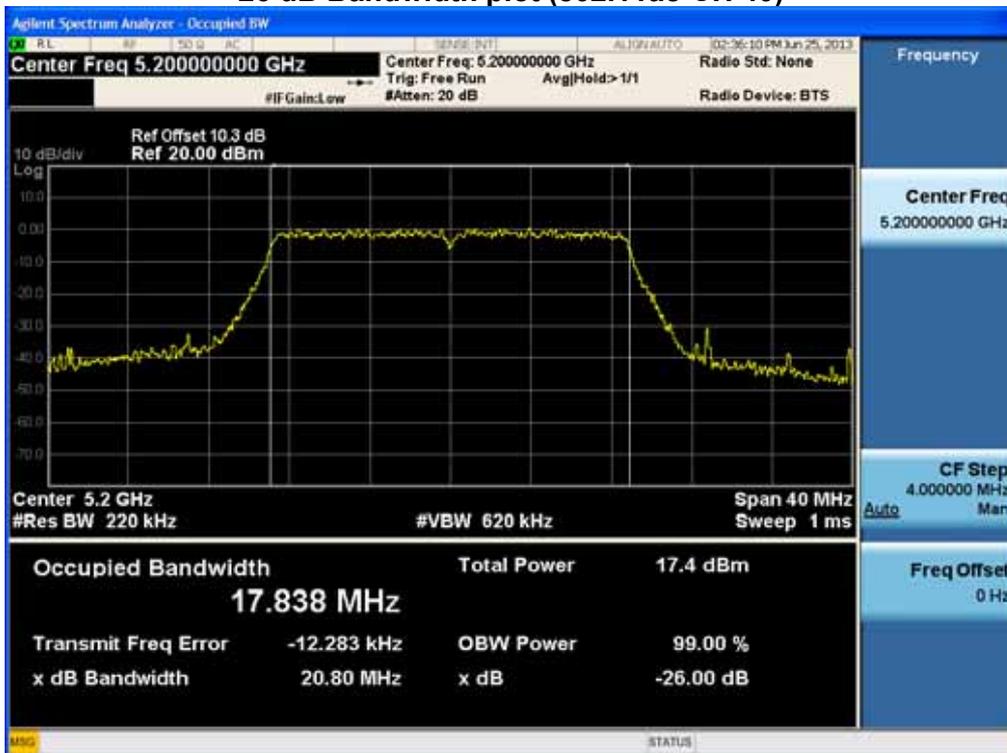


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 36)

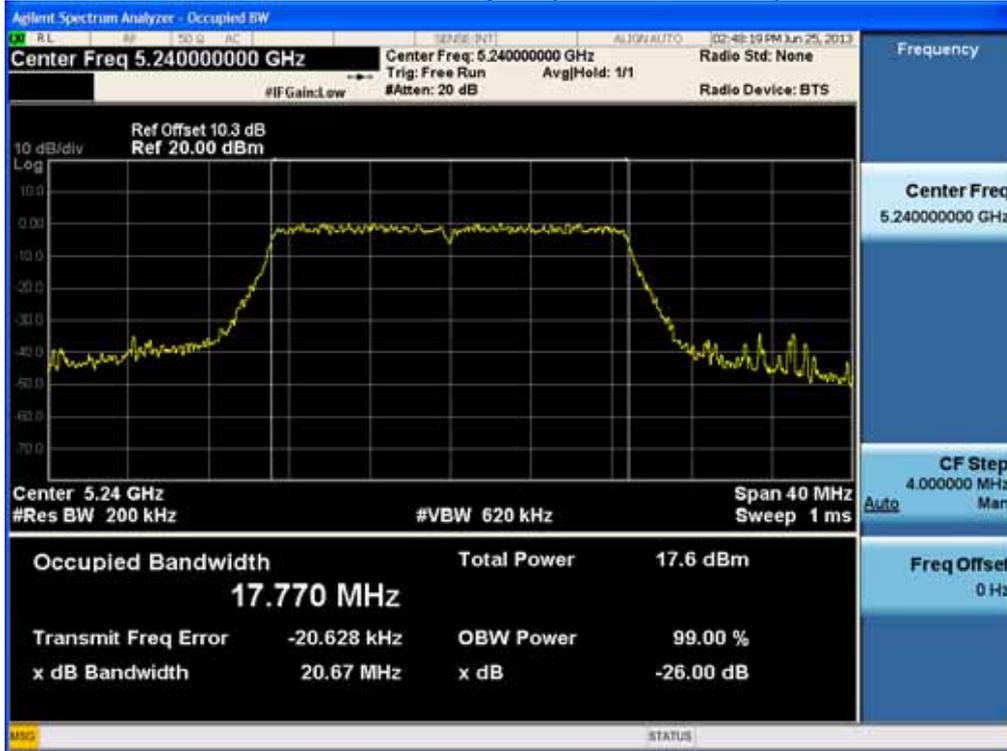


26 dB Bandwidth plot (802.11ac-CH 40)

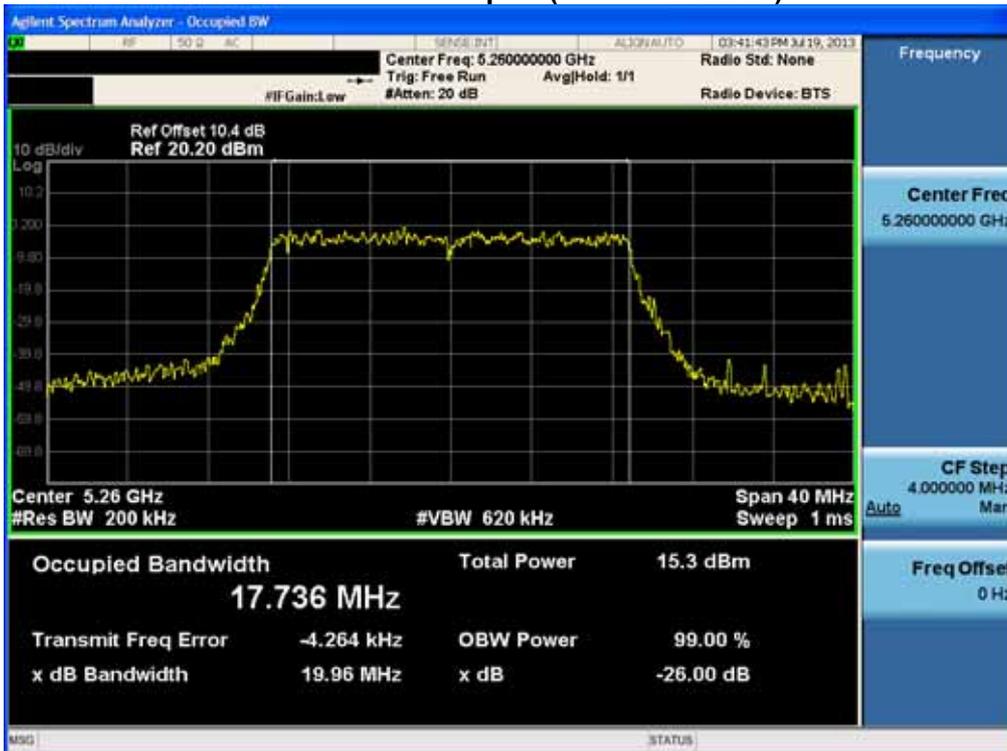


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 48)

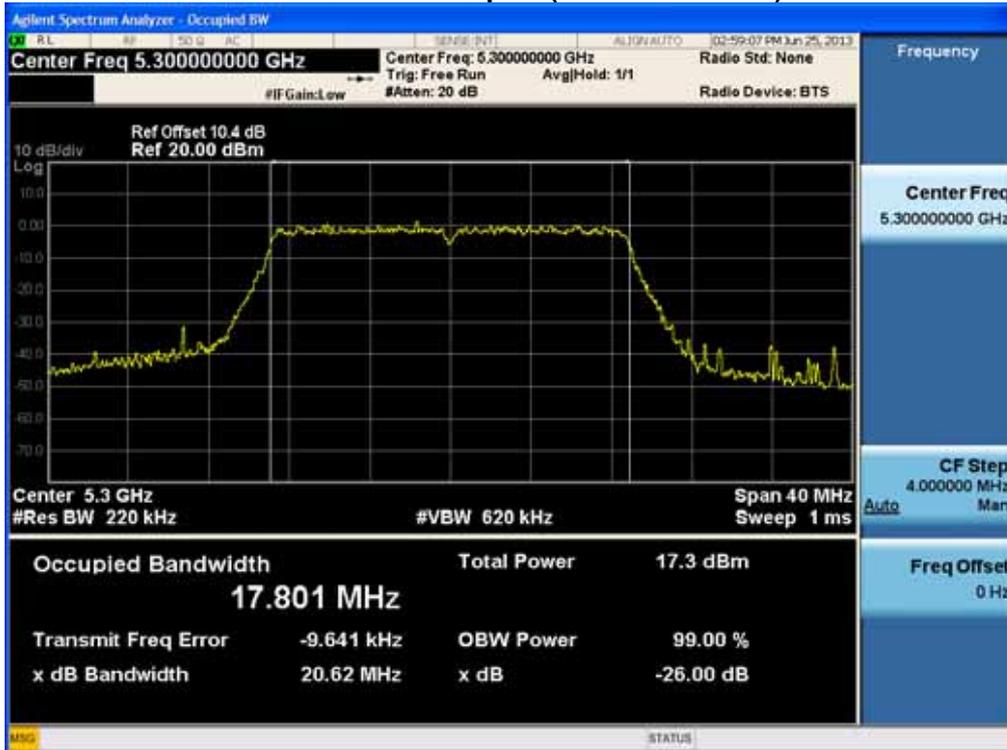


26 dB Bandwidth plot (802.11ac-CH 52)

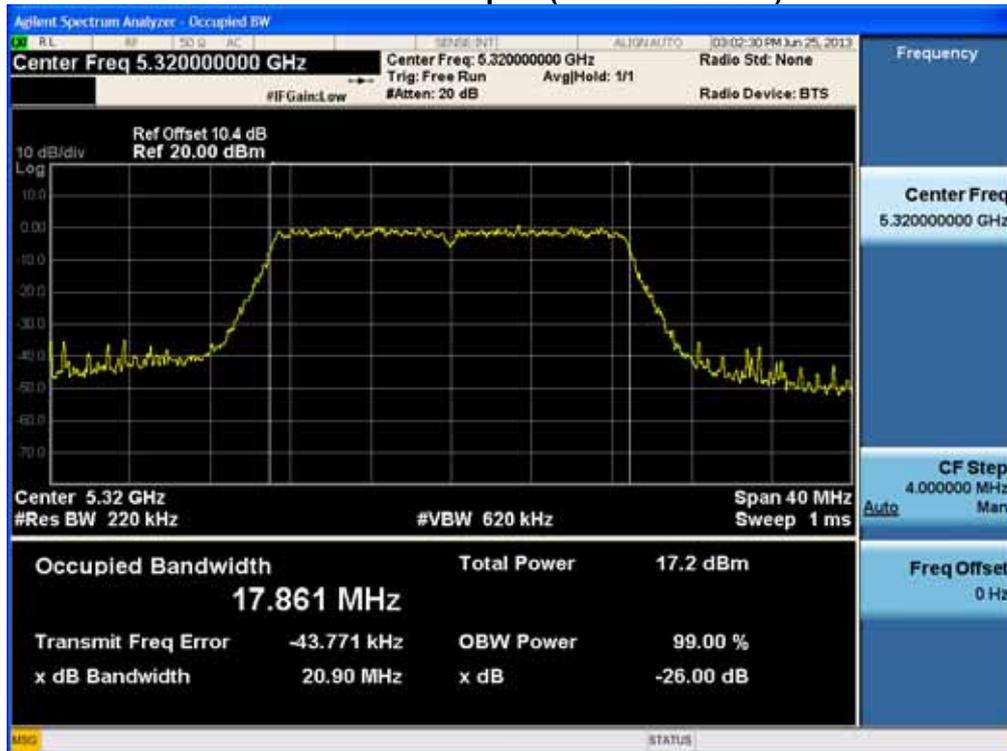


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 60)

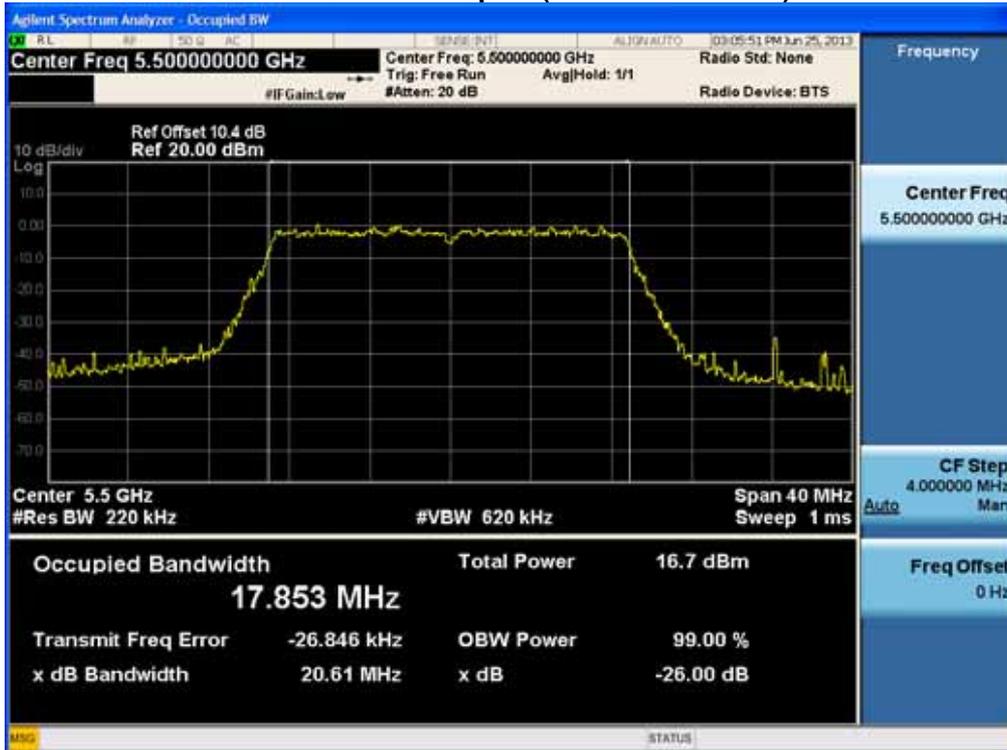


26 dB Bandwidth plot (802.11ac-CH 64)

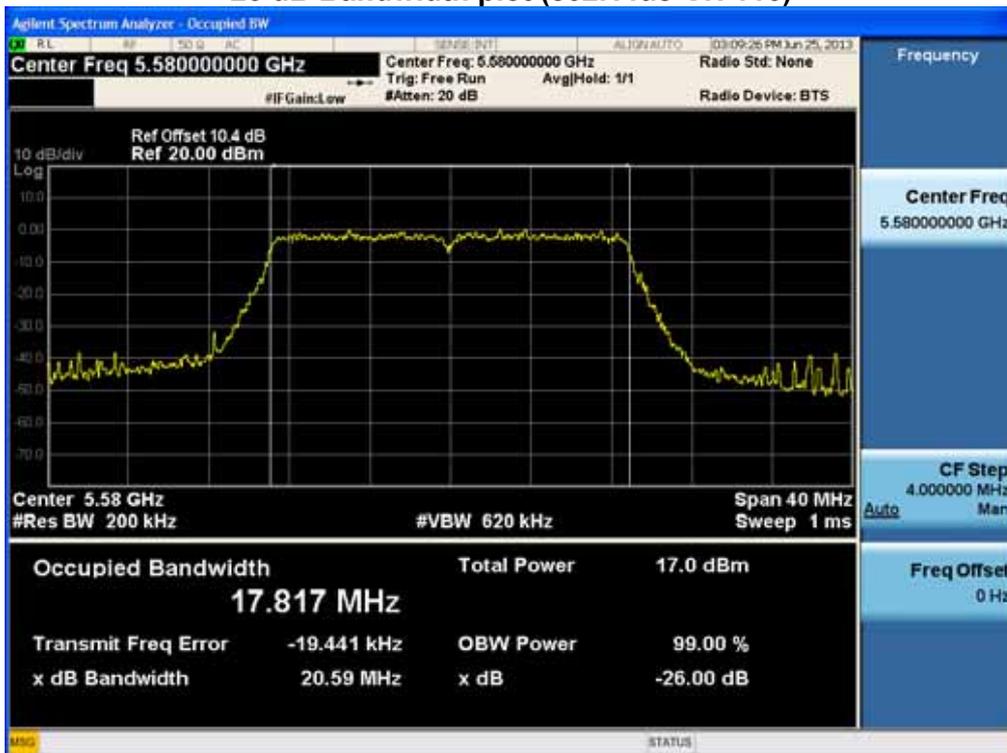


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 100)

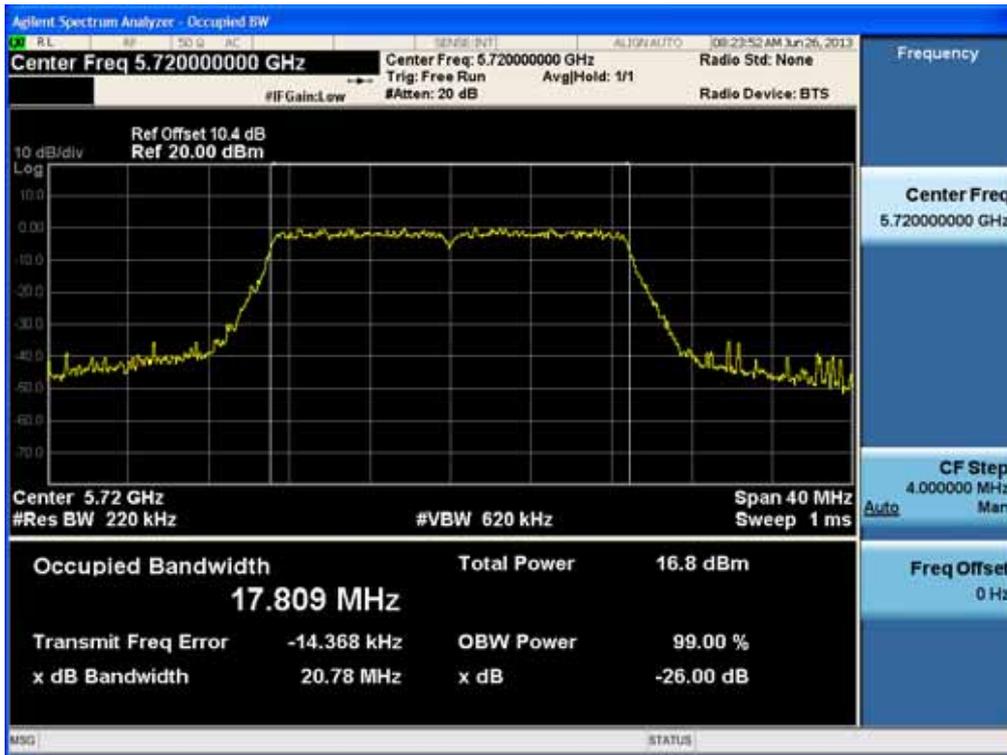


26 dB Bandwidth plot (802.11ac-CH 116)



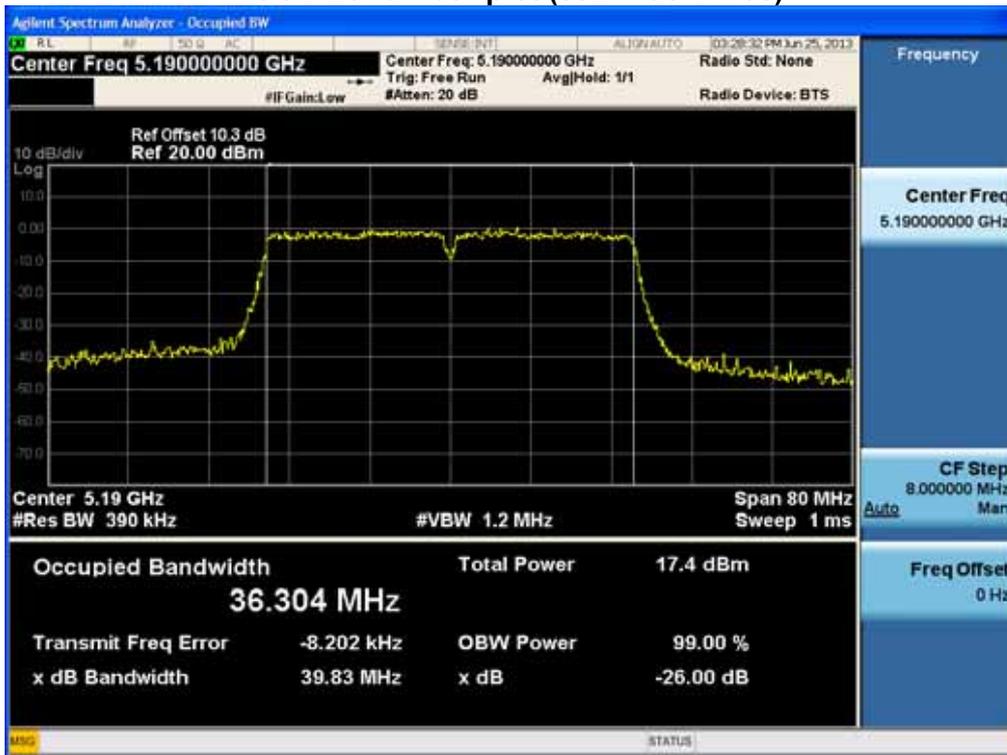
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 140)

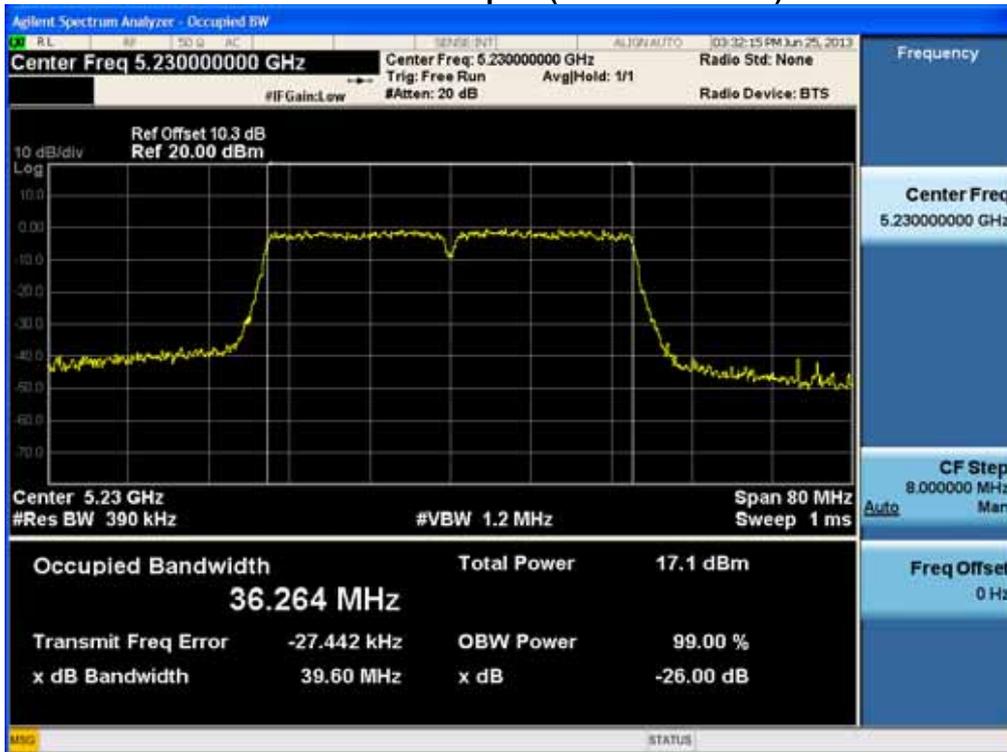


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 38)

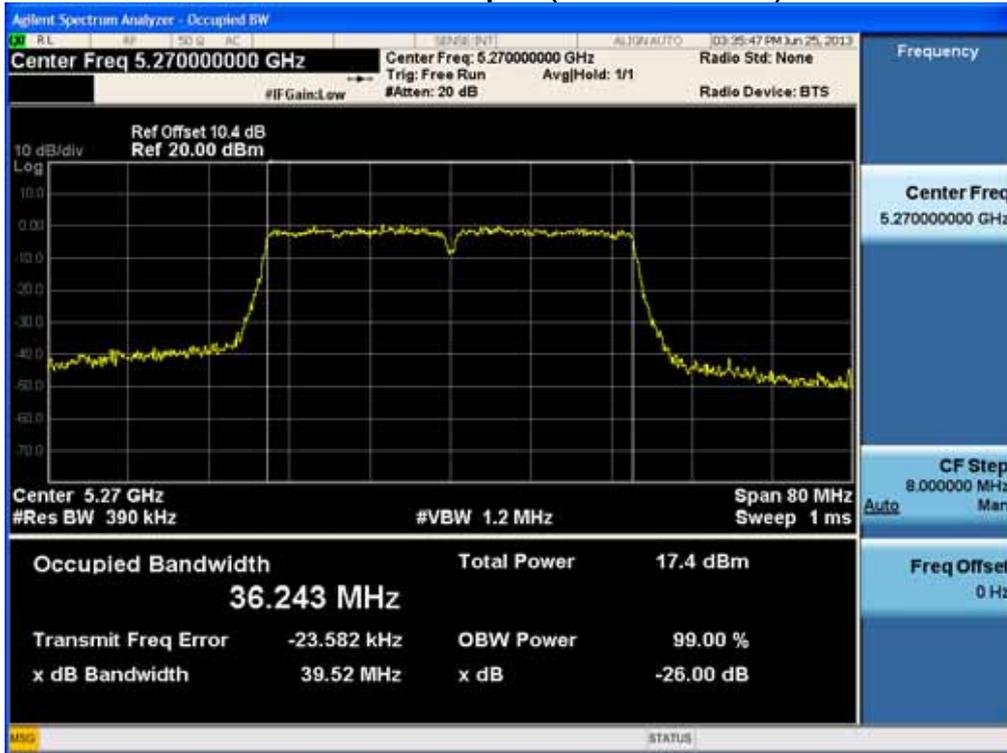


26 dB Bandwidth plot (802.11ac-CH 46)

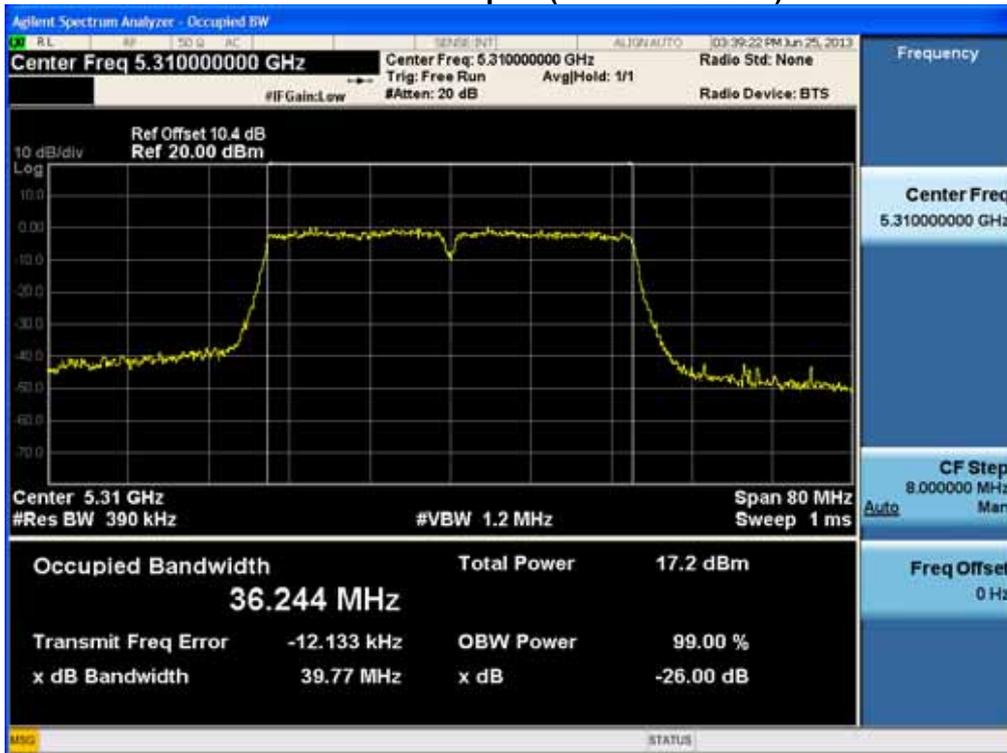


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 54)

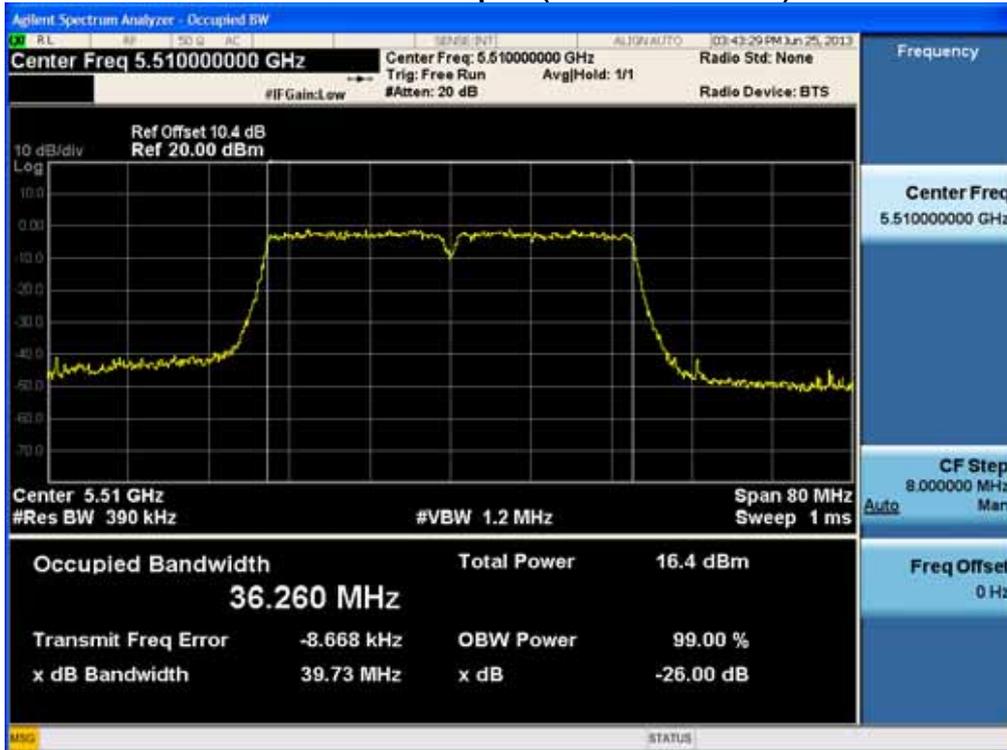


26 dB Bandwidth plot (802.11ac-CH 62)

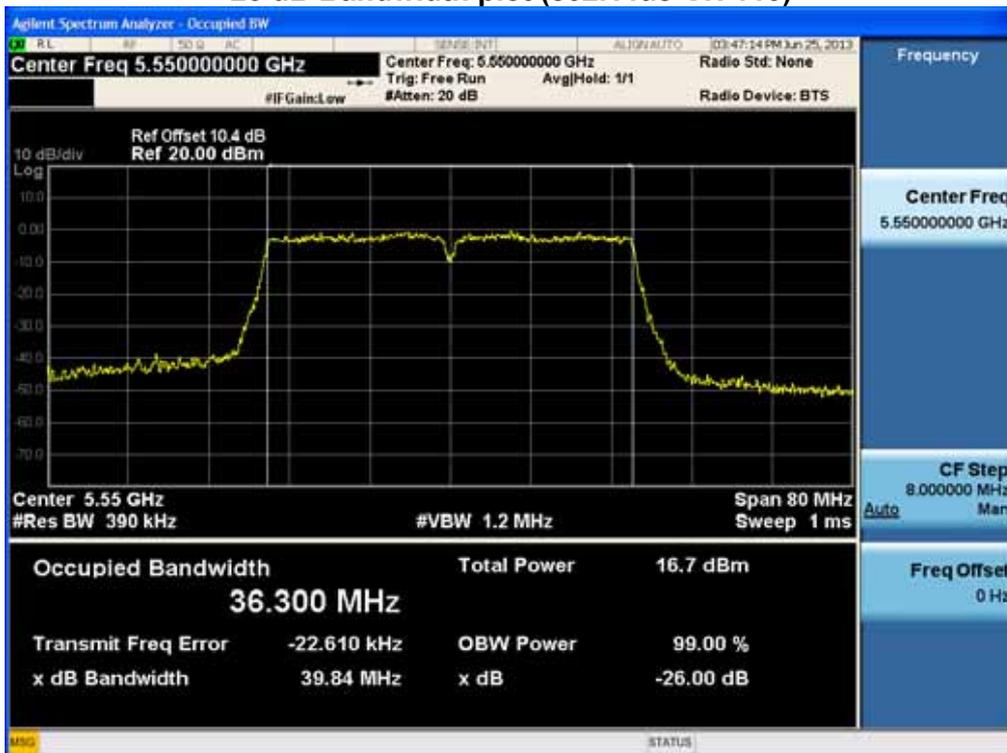


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 102)

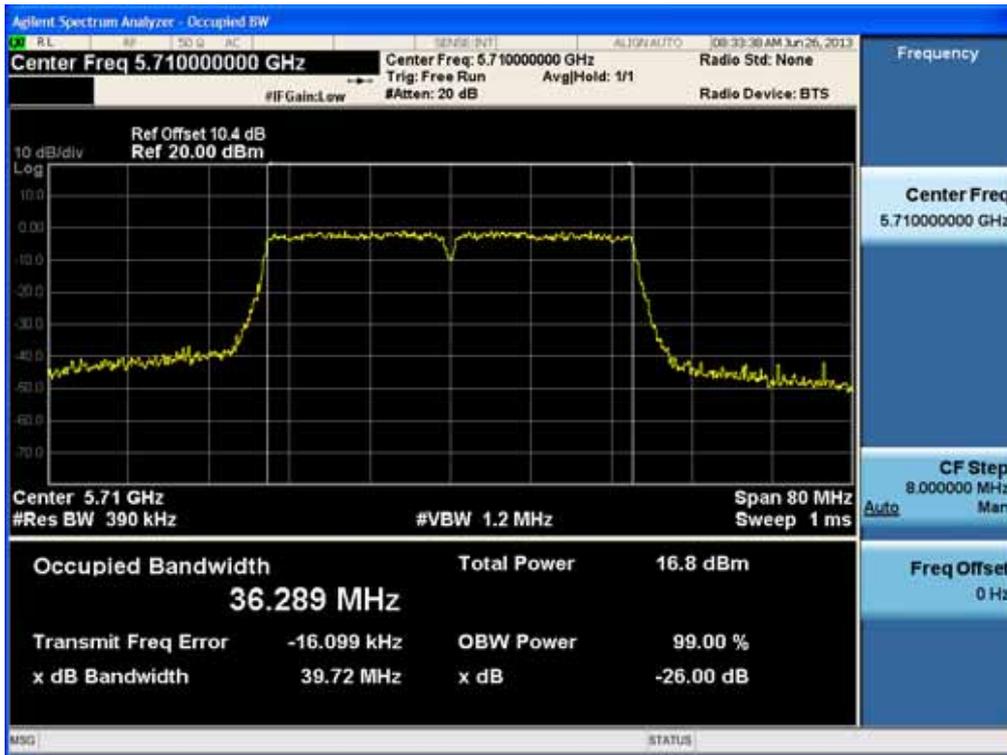


26 dB Bandwidth plot (802.11ac-CH 110)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

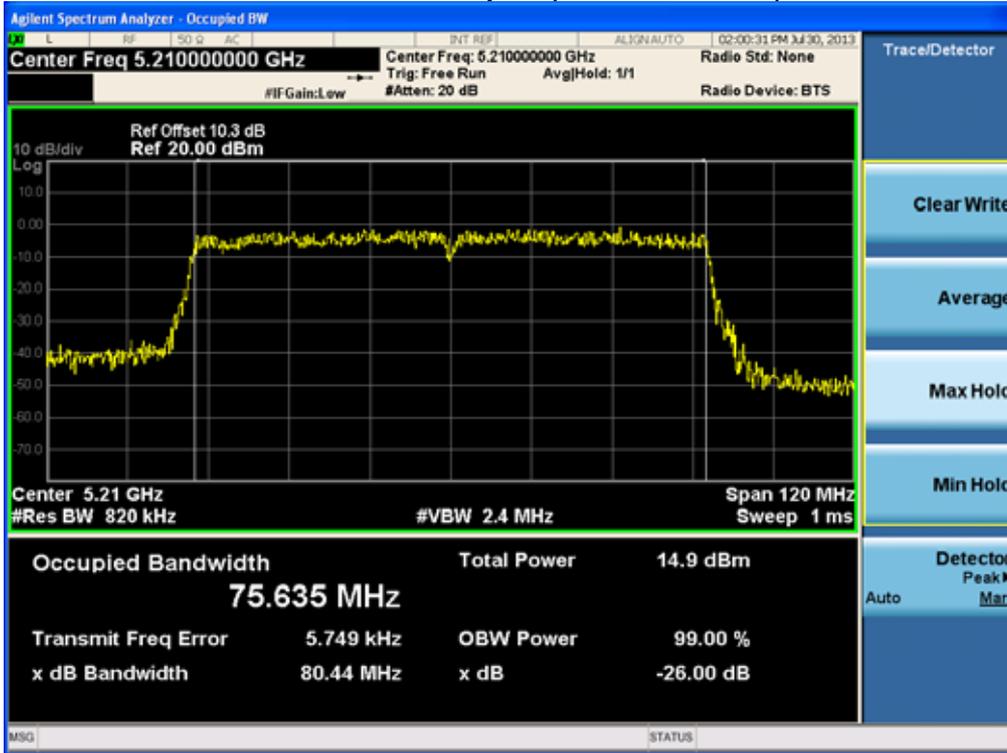
26 dB Bandwidth plot (802.11ac-CH 134)



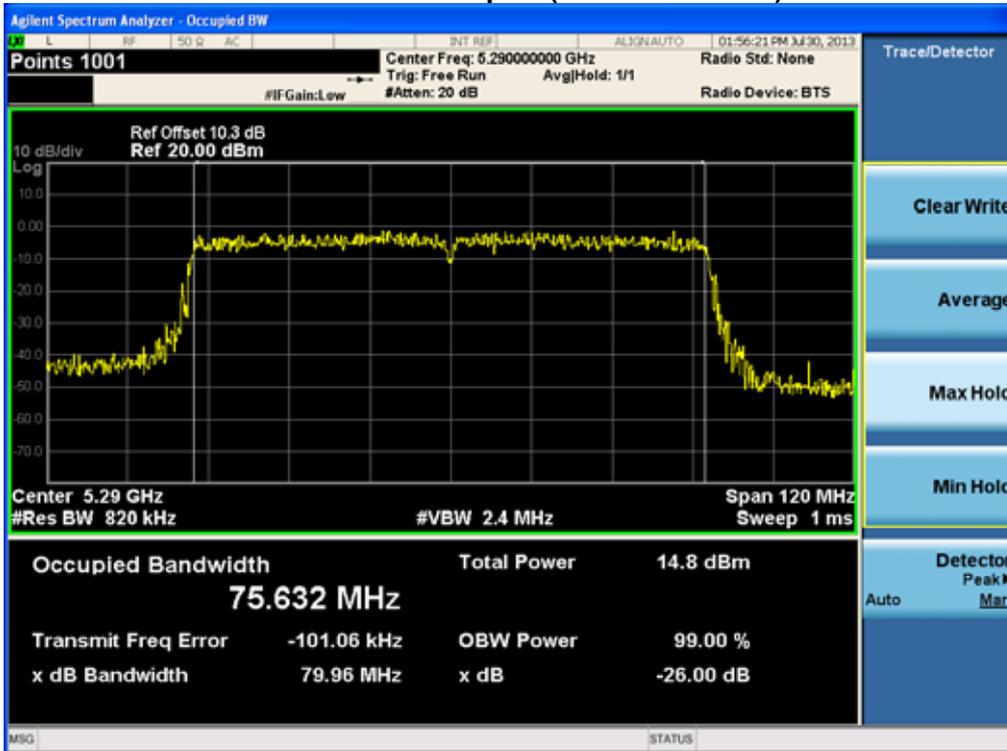
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

80 MHz BW

26 dB Bandwidth plot (802.11ac-CH 42)

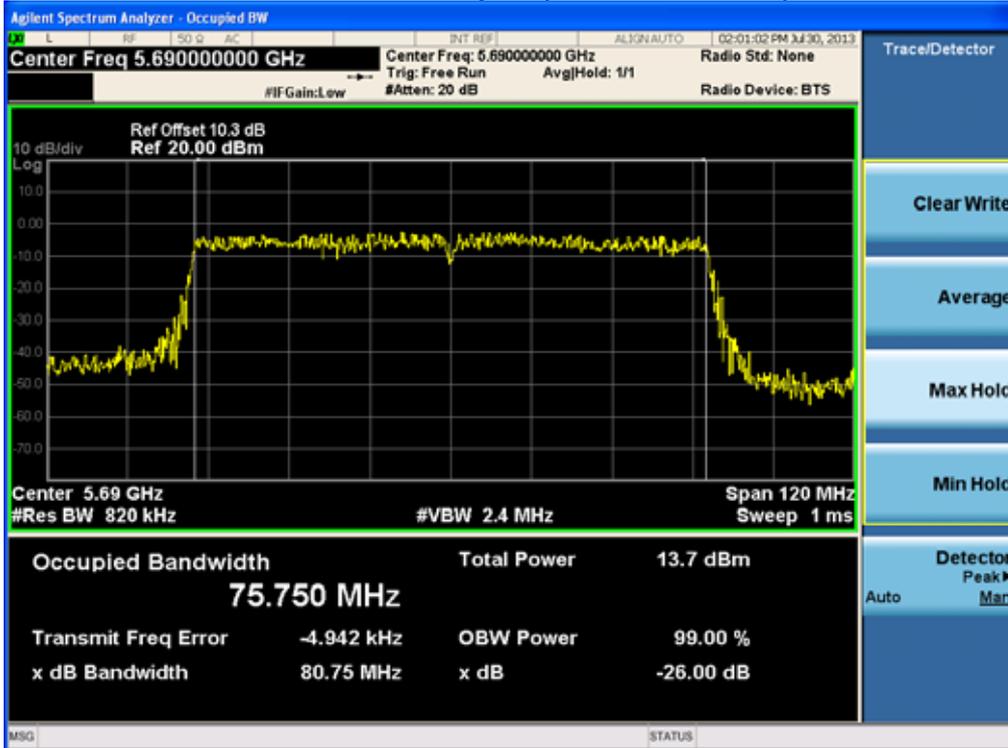


26 dB Bandwidth plot (802.11ac-CH 58)

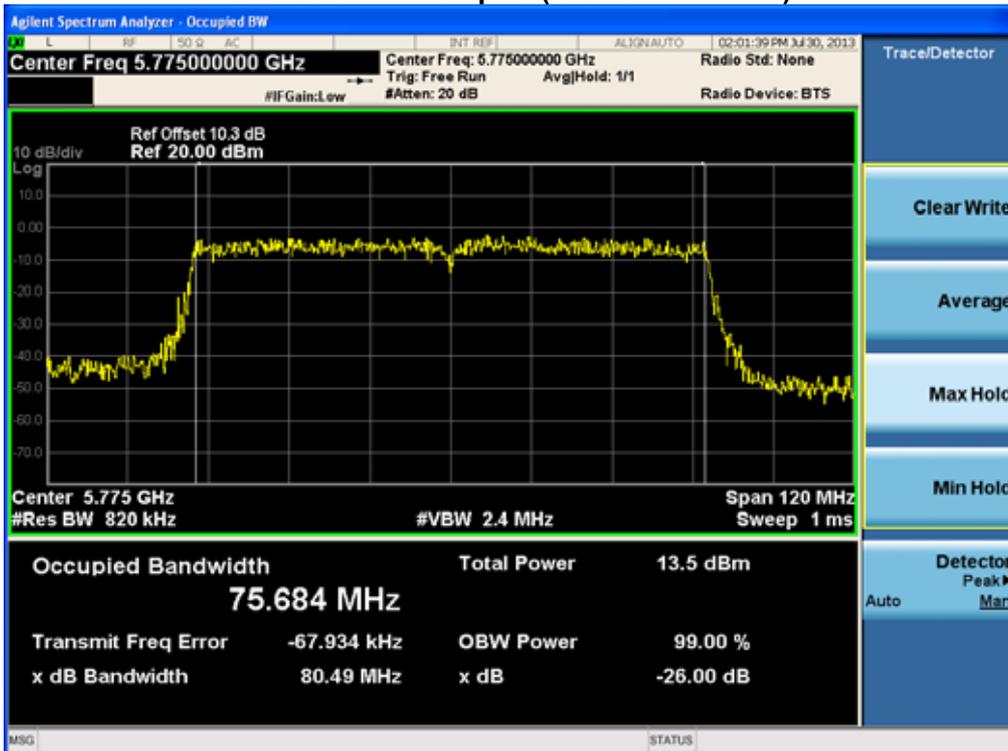


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

26 dB Bandwidth plot (802.11ac-CH 106)



26 dB Bandwidth plot (802.11ac-CH 138)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

8.3 OUTPUT POWER MEASUREMENT

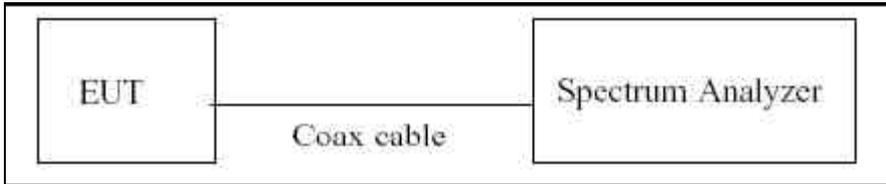
Test Requirements and limit, §15.247(b)(3)

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. In the 5.15 – 5.25 GHz band, the maximum permissible conducted output power is the lesser of 50 mW ((16.99 dBm) and $4 \text{ dBm} + 10 \log_{10} (26 \text{ dB BW})$ frequencies. In the 5.25 – 5.35 GHz band, the maximum permissible conducted output power is the lesser of 250 mW (23.98 dBm) and $11 \text{ dBm} + 10 \log_{10} (26 \text{ dB BW})$ frequencies. In the 5.47 – 5.725 GHz band, the maximum permissible conducted output power is the lesser of 250 mW (23.98 dBm) and $11 \text{ dBm} + 10 \log_{10} (26 \text{ dB BW})$

- Limit : 802.11a_UNII-1 = 16.99 dBm
- 802.11n_UNII-1_20 MHz BW = 16.99 dBm
- 802.11n_UNII-1_40 MHz BW = 16.99 dBm
- 802.11ac_UNII-1_20 MHz BW =16.99 dBm
- 802.11ac_UNII-1_40 MHz BW =16.99 dBm
- 802.11ac_UNII-1_80 MHz BW =16.99 dBm
- 802.11a_UNII-2 = 23.98 dBm
- 802.11n_UNII-2_20 MHz BW = 23.98dBm
- 802.11n_UNII-2_40 MHz BW = 23.98 dBm
- 802.11ac_UNII-2_20 MHz BW =23.98 dBm
- 802.11ac_UNII-2_40 MHz BW =23.98 dBm
- 802.11ac_UNII-2_80 MHz BW =23.98 dBm
- 802.11a_UNII-3 = 23.98dBm
- 802.11n_UNII-3_20 MHz BW = 23.98 dBm
- 802.11n_UNII-3_40 MHz BW = 23.98 dBm
- 802.11ac_UNII-3_20 MHz BW =23.98 dBm
- 802.11ac_UNII-3_40 MHz BW =23.98 dBm
- 802.11ac_UNII-3_80 MHz BW =23.98 dBm

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output is connected to the Spectrum Analyzer. We use the spectrum analyzer's integrated band power measurement function. We tested according to Method SA-2 in KDB 789033(issued 04/08/2013).

The Spectrum Analyzer is set to

- Average Power
 1. Measure the duty cycle.
 2. Set span to encompass the 26 dB EBW of the signal.
 3. RBW = 1 MHz.
 4. VBW \geq 3 MHz.
 5. Number of points in sweep \geq 2*span/RBW.
 6. Sweep time = auto.
 7. Detector = RMS.
 8. Do not use sweep triggering. Allow the sweep to "free run".
 9. Trace average at least 100 traces in power averaging(RMS) mode
 10. Integrated bandwidth = OBW
 11. Add $10\log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

Sample Calculation

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

Output Power = 10 dBm + 10 dB + 0.8 dB + 0.21 dB = 21.01 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 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.

Band	Frequency(MHz)	Loss(dB)
UNII 1	5180	10.30
	5190	10.29
	5200	10.28
	5230	10.29
	5240	10.34
UNII 2	5260	10.37
	5270	10.38
	5300	10.40
	5310	10.39
	5320	10.39
UNII 2e	5500	10.35
	5510	10.36
	5550	10.41
	5580	10.43
	5670	10.43

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

TEST RESULTS

Conducted Output Power Measurements (802.11a Mode: 5180~5240)

802.11a Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6	12.75	0.218	12.97	16.99
		9	12.53	0.328	12.85	16.99
		12	12.35	0.431	12.78	16.99
		18	12.17	0.636	12.81	16.99
		24	11.94	0.819	12.76	16.99
		36	11.57	1.149	12.72	16.99
		48	11.47	1.470	12.94	16.99
		54	11.27	1.614	12.88	16.99
5200	40	6	12.68	0.218	12.90	16.99
		9	12.51	0.328	12.84	16.99
		12	12.31	0.431	12.74	16.99
		18	12.05	0.636	12.69	16.99
		24	11.86	0.819	12.68	16.99
		36	11.56	1.149	12.71	16.99
		48	11.42	1.470	12.89	16.99
		54	11.13	1.614	12.74	16.99
5240	48	6	12.67	0.218	12.89	16.99
		9	12.55	0.328	12.88	16.99
		12	12.27	0.431	12.70	16.99
		18	12.06	0.636	12.70	16.99
		24	11.81	0.819	12.63	16.99
		36	11.53	1.149	12.68	16.99
		48	11.35	1.470	12.82	16.99
		54	11.06	1.614	12.67	16.99

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11a Mode: 5260~5320)

802.11a Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6	13.08	0.218	13.30	23.98
		9	12.80	0.328	13.13	23.98
		12	12.63	0.431	13.06	23.98
		18	12.50	0.636	13.14	23.98
		24	12.37	0.819	13.19	23.98
		36	11.94	1.149	13.09	23.98
		48	11.82	1.470	13.29	23.98
		54	11.39	1.614	13.00	23.98
5300	60	6	12.62	0.218	12.84	23.98
		9	12.49	0.328	12.82	23.98
		12	12.25	0.431	12.68	23.98
		18	12.07	0.636	12.71	23.98
		24	11.81	0.819	12.63	23.98
		36	11.46	1.149	12.61	23.98
		48	11.33	1.470	12.80	23.98
		54	11.14	1.614	12.75	23.98
5320	64	6	12.53	0.218	12.75	23.98
		9	12.20	0.328	12.53	23.98
		12	12.04	0.431	12.47	23.98
		18	11.77	0.636	12.41	23.98
		24	11.56	0.819	12.38	23.98
		36	11.27	1.149	12.42	23.98
		48	10.61	1.470	12.08	23.98
		54	10.68	1.614	12.29	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11a Mode: 5500~5700)

802.11a Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6	11.75	0.218	11.97	23.98
		9	11.50	0.328	11.83	23.98
		12	11.42	0.431	11.85	23.98
		18	11.21	0.636	11.85	23.98
		24	10.93	0.819	11.75	23.98
		36	10.76	1.149	11.91	23.98
		48	10.56	1.470	12.03	23.98
		54	10.29	1.614	11.91	23.98
5580	116	6	11.78	0.218	12.00	23.98
		9	11.55	0.328	11.88	23.98
		12	11.54	0.431	11.97	23.98
		18	11.37	0.636	12.01	23.98
		24	11.16	0.819	11.98	23.98
		36	10.91	1.149	12.06	23.98
		48	10.65	1.470	12.12	23.98
		54	10.51	1.614	12.13	23.98
5700	140	6	11.58	0.218	11.80	23.98
		9	11.51	0.328	11.84	23.98
		12	11.48	0.431	11.91	23.98
		18	11.30	0.636	11.94	23.98
		24	11.13	0.819	11.95	23.98
		36	10.78	1.149	11.93	23.98
		48	10.58	1.470	12.05	23.98
		54	10.36	1.614	11.97	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



20 MHz BW

Conducted Output Power Measurements (802.11n Mode: 5180~5240)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6.5	11.64	0.243	11.88	16.99
		13	11.23	0.456	11.69	16.99
		19.5	10.92	0.658	11.58	16.99
		26	10.83	0.872	11.70	16.99
		39	10.51	1.186	11.70	16.99
		52	10.24	1.484	11.72	16.99
		58.5	10.09	1.628	11.72	16.99
		65	9.98	1.729	11.71	16.99
5200	40	6.5	11.48	0.243	11.72	16.99
		13	11.08	0.456	11.54	16.99
		19.5	10.98	0.658	11.63	16.99
		26	10.68	0.872	11.55	16.99
		39	10.41	1.186	11.59	16.99
		52	10.08	1.484	11.56	16.99
		58.5	10.10	1.628	11.73	16.99
		65	9.93	1.729	11.66	16.99
5240	48	6.5	11.60	0.243	11.85	16.99
		13	11.14	0.456	11.60	16.99
		19.5	10.95	0.658	11.61	16.99
		26	10.74	0.872	11.62	16.99
		39	10.46	1.186	11.65	16.99
		52	10.12	1.484	11.60	16.99
		58.5	10.00	1.628	11.63	16.99
		65	9.95	1.729	11.68	16.99

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F

Conducted Output Power Measurements (802.11n Mode: 5260~5320)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6.5	12.00	0.243	12.24	23.98
		13	11.41	0.456	11.87	23.98
		19.5	11.30	0.658	11.96	23.98
		26	11.06	0.872	11.93	23.98
		39	10.68	1.186	11.87	23.98
		52	10.48	1.484	11.96	23.98
		58.5	10.35	1.628	11.98	23.98
		65	10.39	1.729	12.12	23.98
5300	60	6.5	11.67	0.243	11.91	23.98
		13	11.38	0.456	11.84	23.98
		19.5	11.17	0.658	11.83	23.98
		26	10.93	0.872	11.80	23.98
		39	10.62	1.186	11.80	23.98
		52	10.44	1.484	11.92	23.98
		58.5	10.27	1.628	11.90	23.98
		65	10.07	1.729	11.79	23.98
5320	64	6.5	11.45	0.243	11.69	23.98
		13	11.13	0.456	11.59	23.98
		19.5	10.87	0.658	11.53	23.98
		26	10.71	0.872	11.58	23.98
		39	10.43	1.186	11.61	23.98
		52	10.21	1.484	11.69	23.98
		58.5	10.05	1.628	11.68	23.98
		65	9.84	1.729	11.57	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11n Mode: 5500~5700)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6.5	10.97	0.243	11.21	23.98
		13	10.79	0.456	11.24	23.98
		19.5	10.58	0.658	11.24	23.98
		26	10.39	0.872	11.26	23.98
		39	10.08	1.186	11.27	23.98
		52	9.77	1.484	11.25	23.98
		58.5	9.58	1.628	11.21	23.98
		65	9.59	1.729	11.32	23.98
5580	116	6.5	11.13	0.243	11.38	23.98
		13	10.97	0.456	11.43	23.98
		19.5	10.76	0.658	11.42	23.98
		26	10.60	0.872	11.47	23.98
		39	10.36	1.186	11.54	23.98
		52	10.01	1.484	11.50	23.98
		58.5	9.88	1.628	11.51	23.98
		65	9.79	1.729	11.52	23.98
5700	140	6.5	10.84	0.243	11.08	23.98
		13	10.76	0.456	11.22	23.98
		19.5	10.61	0.658	11.27	23.98
		26	10.38	0.872	11.25	23.98
		39	10.13	1.186	11.32	23.98
		52	9.83	1.484	11.32	23.98
		58.5	9.74	1.628	11.37	23.98
		65	9.61	1.729	11.34	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



40 MHz BW

Conducted Output Power Measurements (802.11n Mode: 5190~5230)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	13.5	11.62	0.432	12.05	16.99
		27	10.85	0.801	11.65	16.99
		40.5	10.91	1.114	12.03	16.99
		54	10.52	1.385	11.91	16.99
		81	10.22	1.839	12.06	16.99
		108	9.39	2.188	11.57	16.99
		121.5	9.35	2.323	11.68	16.99
		135	9.42	2.488	11.91	16.99
5230	46	13.5	11.11	0.432	11.54	16.99
		27	11.01	0.801	11.81	16.99
		40.5	10.71	1.114	11.83	16.99
		54	10.35	1.385	11.73	16.99
		81	9.94	1.839	11.78	16.99
		108	9.58	2.188	11.77	16.99
		121.5	9.46	2.323	11.78	16.99
		135	8.89	2.488	11.38	16.99

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11n Mode: 5270~5310)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5270	54	13.5	12.01	0.432	12.44	23.98
		27	11.21	0.801	12.01	23.98
		40.5	10.87	1.114	11.99	23.98
		54	11.00	1.385	12.38	23.98
		81	10.29	1.839	12.13	23.98
		108	9.67	2.188	11.86	23.98
		121.5	9.56	2.323	11.88	23.98
		135	9.79	2.488	12.28	23.98
5310	62	13.5	11.57	0.432	12.01	23.98
		27	10.75	0.801	11.55	23.98
		40.5	10.36	1.114	11.47	23.98
		54	10.40	1.385	11.79	23.98
		81	9.57	1.839	11.41	23.98
		108	9.26	2.188	11.45	23.98
		121.5	9.59	2.323	11.91	23.98
		135	9.37	2.488	11.86	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F

Conducted Output Power Measurements (802.11n Mode: 5510~5670)

802.11n Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5510	102	13.5	10.54	0.432	10.97	23.98
		27	10.55	0.801	11.35	23.98
		40.5	10.03	1.114	11.14	23.98
		54	9.38	1.385	10.77	23.98
		81	9.36	1.839	11.20	23.98
		108	8.94	2.188	11.13	23.98
		121.5	8.87	2.323	11.20	23.98
		135	8.41	2.488	10.89	23.98
5550	110	13.5	10.98	0.432	11.41	23.98
		27	10.55	0.801	11.36	23.98
		40.5	10.08	1.114	11.19	23.98
		54	9.66	1.385	11.05	23.98
		81	9.45	1.839	11.29	23.98
		108	9.03	2.188	11.22	23.98
		121.5	8.84	2.323	11.16	23.98
		135	8.63	2.488	11.12	23.98
5670	134	13.5	10.52	0.432	10.95	23.98
		27	10.13	0.801	10.93	23.98
		40.5	9.82	1.114	10.93	23.98
		54	9.45	1.385	10.84	23.98
		81	9.05	1.839	10.89	23.98
		108	8.67	2.188	10.86	23.98
		121.5	8.57	2.323	10.89	23.98
		135	8.48	2.488	10.96	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



20 MHz BW

Conducted Output Power Measurements (802.11ac Mode: 5180~5240)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5180	36	6.5	10.82	0.235	11.05	16.99
		13	10.36	0.452	10.81	16.99
		19.5	10.21	0.664	10.88	16.99
		26	9.98	0.831	10.81	16.99
		39	9.74	1.077	10.82	16.99
		52	9.45	1.315	10.76	16.99
		58.5	9.40	1.437	10.84	16.99
		65	9.35	1.541	10.89	16.99
5200	40	78	8.91	1.761	10.67	16.99
		6.5	10.75	0.235	10.99	16.99
		13	10.27	0.452	10.72	16.99
		19.5	10.30	0.664	10.96	16.99
		26	9.97	0.831	10.80	16.99
		39	9.68	1.077	10.76	16.99
		52	9.37	1.315	10.68	16.99
		58.5	9.33	1.437	10.77	16.99
5240	48	65	9.21	1.541	10.75	16.99
		78	8.94	1.761	10.70	16.99
		6.5	10.62	0.235	10.86	16.99
		13	10.36	0.452	10.81	16.99
		19.5	10.02	0.664	10.68	16.99
		26	9.82	0.831	10.65	16.99
		39	9.54	1.077	10.62	16.99
		52	9.29	1.315	10.61	16.99
58.5	9.08	1.437	10.51	16.99		
65	8.98	1.541	10.52	16.99		
78	8.77	1.761	10.53	16.99		

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11ac Mode: 5260~5320)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5260	52	6.5	11.02	0.235	11.26	23.98
		13	10.65	0.452	11.10	23.98
		19.5	10.43	0.664	11.09	23.98
		26	10.17	0.831	11.00	23.98
		39	9.90	1.077	10.98	23.98
		52	9.59	1.315	10.91	23.98
		58.5	9.56	1.437	11.00	23.98
		65	9.34	1.541	10.88	23.98
		78	9.23	1.761	10.99	23.98
5300	60	6.5	10.56	0.235	10.80	23.98
		13	10.31	0.452	10.76	23.98
		19.5	9.95	0.664	10.62	23.98
		26	9.89	0.831	10.72	23.98
		39	9.57	1.077	10.65	23.98
		52	9.45	1.315	10.76	23.98
		58.5	9.09	1.437	10.53	23.98
		65	9.01	1.541	10.55	23.98
		78	8.94	1.761	10.70	23.98
5320	64	6.5	10.43	0.235	10.67	23.98
		13	10.11	0.452	10.56	23.98
		19.5	10.00	0.664	10.66	23.98
		26	9.76	0.831	10.59	23.98
		39	9.37	1.077	10.45	23.98
		52	9.10	1.315	10.41	23.98
		58.5	9.11	1.437	10.54	23.98
		65	8.85	1.541	10.39	23.98
		78	8.65	1.761	10.41	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11ac Mode: 5500~5720)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5500	100	6.5	10.03	0.235	10.26	23.98
		13	9.87	0.452	10.32	23.98
		19.5	9.64	0.664	10.31	23.98
		26	9.41	0.831	10.24	23.98
		39	9.11	1.077	10.19	23.98
		52	8.80	1.315	10.12	23.98
		58.5	8.75	1.437	10.18	23.98
		65	8.60	1.541	10.14	23.98
		78	8.40	1.761	10.16	23.98
5580	116	6.5	10.11	0.235	10.35	23.98
		13	10.02	0.452	10.47	23.98
		19.5	9.79	0.664	10.45	23.98
		26	9.55	0.831	10.38	23.98
		39	9.31	1.077	10.39	23.98
		52	9.00	1.315	10.31	23.98
		58.5	8.88	1.437	10.32	23.98
		65	8.84	1.541	10.38	23.98
		78	8.67	1.761	10.43	23.98
5720	144	6.5	9.93	0.235	10.16	23.98
		13	9.77	0.452	10.22	23.98
		19.5	9.71	0.664	10.37	23.98
		26	9.55	0.831	10.38	23.98
		39	9.20	1.077	10.27	23.98
		52	9.06	1.315	10.37	23.98
		58.5	8.89	1.437	10.33	23.98
		65	8.82	1.541	10.36	23.98
		78	8.51	1.761	10.27	23.98

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F



40 MHz BW

Conducted Output Power Measurements (802.11ac Mode: 5190~5230)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5190	38	13.5	10.25	0.430	10.68	16.99
		27	9.84	0.795	10.63	16.99
		40.5	9.75	1.113	10.87	16.99
		54	9.55	1.364	10.91	16.99
		81	9.01	1.819	10.83	16.99
		108	8.72	2.144	10.86	16.99
		121.5	8.61	2.268	10.88	16.99
		135	8.08	2.422	10.50	16.99
		162	8.21	2.673	10.88	16.99
		180	7.73	2.754	10.48	16.99
5230	46	13.5	10.07	0.430	10.50	16.99
		27	9.63	0.795	10.43	16.99
		40.5	9.20	1.113	10.32	16.99
		54	8.86	1.364	10.22	16.99
		81	8.30	1.819	10.12	16.99
		108	8.11	2.144	10.25	16.99
		121.5	8.26	2.268	10.53	16.99
		135	8.13	2.422	10.55	16.99
		162	7.78	2.673	10.45	16.99
		180	7.35	2.754	10.10	16.99

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11ac Mode: 5270~5310)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5270	54	13.5	10.26	0.430	10.69	23.98
		27	9.82	0.795	10.62	23.98
		40.5	9.56	1.113	10.68	23.98
		54	9.64	1.364	11.00	23.98
		81	8.86	1.819	10.68	23.98
		108	9.05	2.144	11.19	23.98
		121.5	8.86	2.268	11.13	23.98
		135	8.35	2.422	10.77	23.98
		162	8.02	2.673	10.70	23.98
		180	7.97	2.754	10.72	23.98
5310	62	13.5	10.42	0.430	10.85	23.98
		27	9.47	0.795	10.26	23.98
		40.5	9.22	1.113	10.33	23.98
		54	9.30	1.364	10.66	23.98
		81	8.79	1.819	10.61	23.98
		108	8.02	2.144	10.16	23.98
		121.5	8.38	2.268	10.65	23.98
		135	7.79	2.422	10.21	23.98
		162	8.01	2.673	10.68	23.98
		180	7.47	2.754	10.22	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



Conducted Output Power Measurements (802.11ac Mode: 5510~5670)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5510	102	13.5	9.43	0.430	9.86	23.98
		27	8.71	0.795	9.50	23.98
		40.5	8.77	1.113	9.88	23.98
		54	8.20	1.364	9.57	23.98
		81	8.25	1.819	10.07	23.98
		108	7.58	2.144	9.73	23.98
		121.5	7.50	2.268	9.77	23.98
		135	7.60	2.422	10.02	23.98
		162	7.29	2.673	9.96	23.98
		180	7.24	2.754	9.99	23.98
5550	110	13.5	9.70	0.430	10.13	23.98
		27	9.28	0.795	10.07	23.98
		40.5	9.00	1.113	10.12	23.98
		54	8.88	1.364	10.25	23.98
		81	8.58	1.819	10.40	23.98
		108	8.18	2.144	10.32	23.98
		121.5	7.97	2.268	10.24	23.98
		135	8.05	2.422	10.47	23.98
		162	7.57	2.673	10.25	23.98
		180	7.52	2.754	10.27	23.98
5710	142	13.5	9.81	0.430	10.24	23.98
		27	9.41	0.795	10.21	23.98
		40.5	9.11	1.113	10.22	23.98
		54	8.82	1.364	10.18	23.98
		81	8.07	1.819	9.89	23.98
		108	7.90	2.144	10.05	23.98
		121.5	7.71	2.268	9.97	23.98
		135	7.68	2.422	10.10	23.98
		162	7.32	2.673	9.99	23.98
		180	7.28	2.754	10.03	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



80 MHz BW

Conducted Output Power Measurements (802.11ac Mode: 5210)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5210	42	29.3	9.99	0.838	10.83	16.99
		58.5	9.36	1.441	10.80	16.99
		87.8	8.88	1.896	10.78	16.99
		117	8.50	2.213	10.72	16.99
		175.5	8.04	2.760	10.80	16.99
		234	7.68	3.050	10.73	16.99
		263.3	7.44	3.261	10.71	16.99
		292.5	7.42	3.366	10.78	16.99
		351	7.14	3.588	10.73	16.99
		390	6.97	3.701	10.67	16.99

Conducted Output Power Measurements (802.11ac Mode: 5290)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5290	58	29.3	9.84	0.838	10.68	23.98
		58.5	9.28	1.441	10.72	23.98
		87.8	8.82	1.896	10.72	23.98
		117	8.29	2.213	10.50	23.98
		175.5	7.43	2.760	10.19	23.98
		234	7.14	3.050	10.19	23.98
		263.3	6.94	3.261	10.20	23.98
		292.5	6.88	3.366	10.25	23.98
		351	6.62	3.588	10.21	23.98
		390	6.47	3.701	10.17	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F



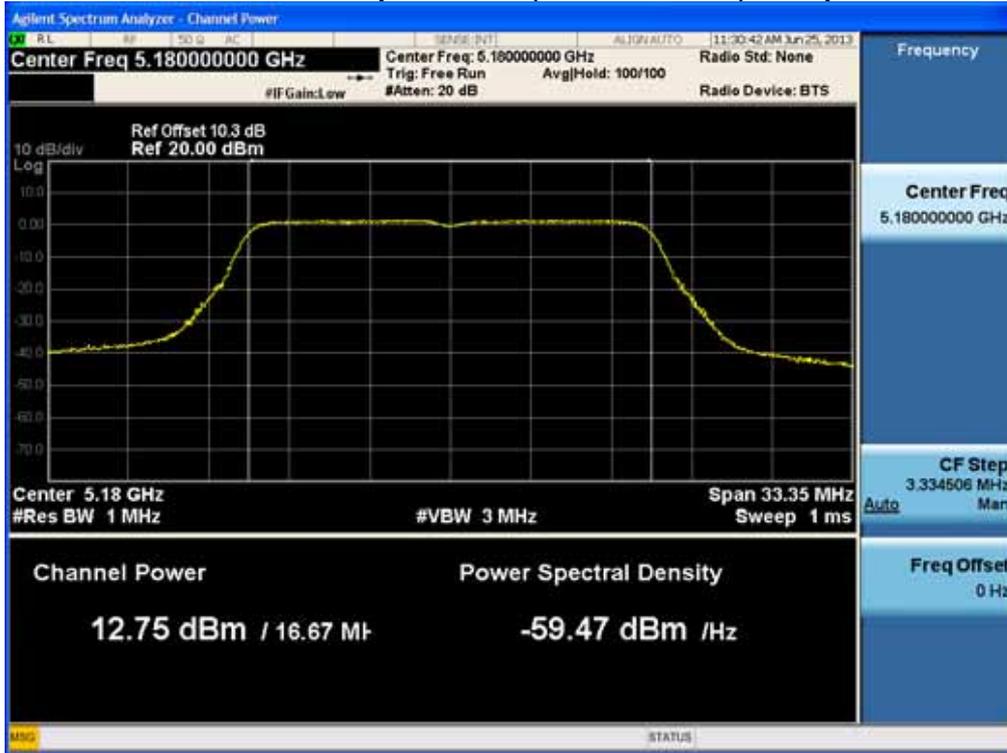
Conducted Output Power Measurements (802.11ac Mode: 5530~5690)

802.11ac Mode		Rate (Mbps)	Measured Power(dBm)	Duty Cycle Factor	Measured Power(dBm) + Duty Cycle Factor	Limit (dBm)
Frequency [MHz]	Channel No.					
5530	106	29.3	8.94	0.838	9.78	23.98
		58.5	8.39	1.441	9.83	23.98
		87.8	7.92	1.896	9.81	23.98
		117	7.55	2.213	9.76	23.98
		175.5	7.02	2.760	9.78	23.98
		234	6.69	3.050	9.74	23.98
		263.3	6.48	3.261	9.74	23.98
		292.5	6.37	3.366	9.74	23.98
		351	6.15	3.588	9.74	23.98
5690	138	29.3	8.68	0.838	9.52	23.98
		58.5	7.98	1.441	9.42	23.98
		87.8	7.50	1.896	9.40	23.98
		117	6.97	2.213	9.18	23.98
		175.5	6.60	2.760	9.36	23.98
		234	6.30	3.050	9.35	23.98
		263.3	6.10	3.261	9.36	23.98
		292.5	5.95	3.366	9.32	23.98
		351	5.69	3.588	9.28	23.98
		390	5.54	3.701	9.24	23.98

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and		FCC ID: ZNFL01F

RESULT PLOTS (5180 MHz ~5240 MHz)

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



Conducted Output Power (802.11a-CH 36) 9 Mbps

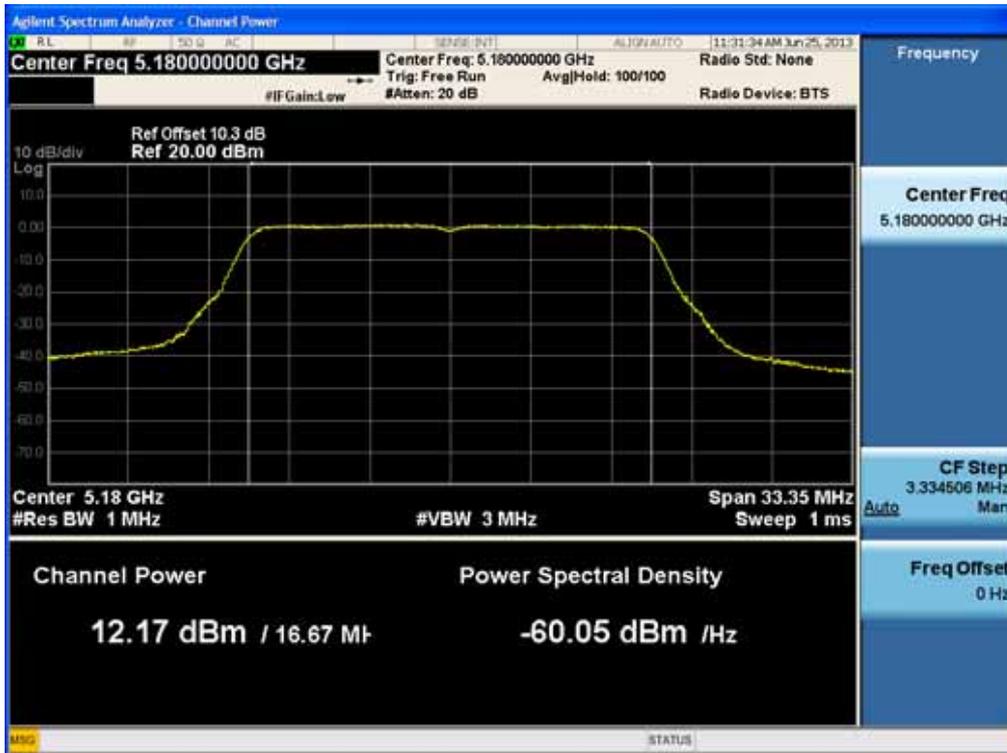


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

Conducted Output Power (802.11a-CH 36) 12 Mbps

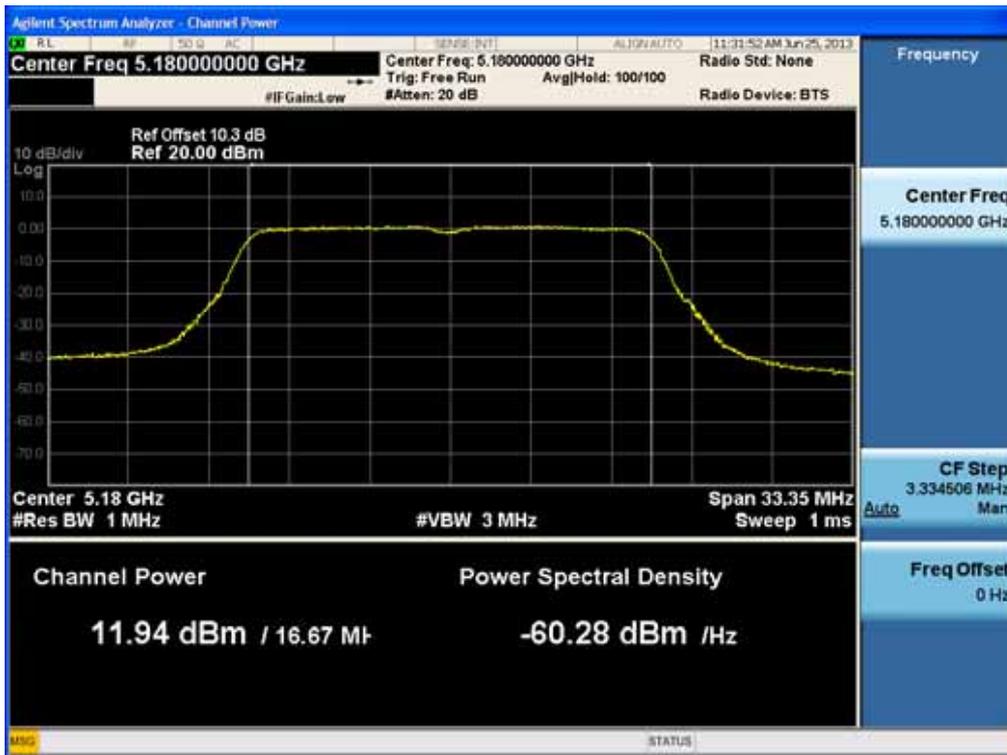


Conducted Output Power (802.11a-CH 36) 18 Mbps

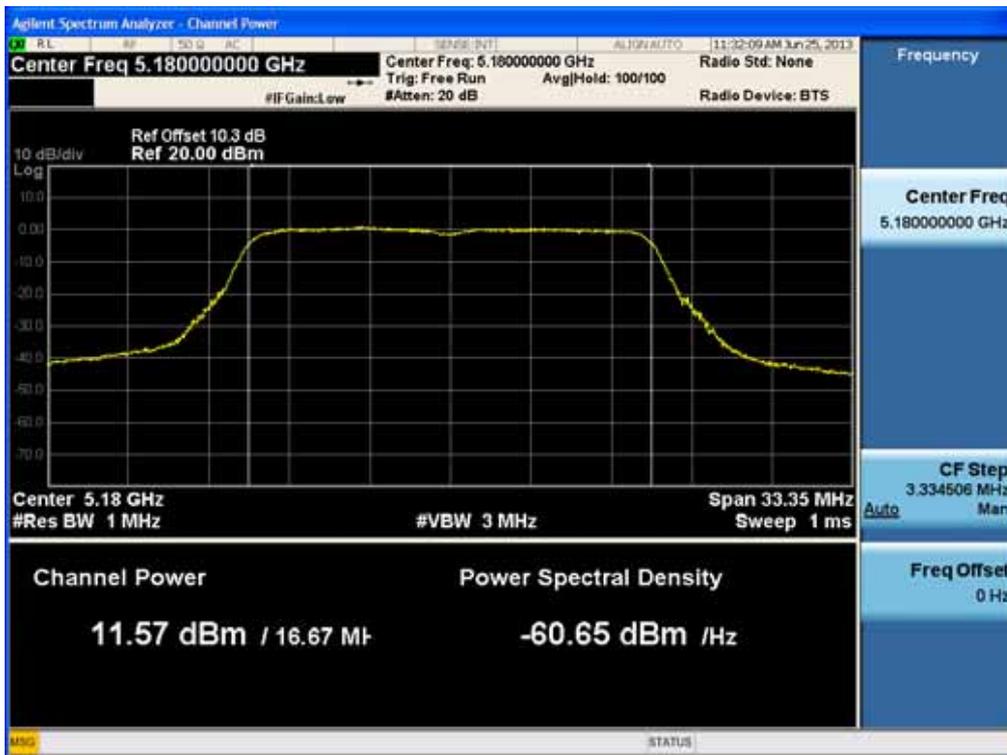


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

Conducted Output Power (802.11a-CH 36) 24 Mbps

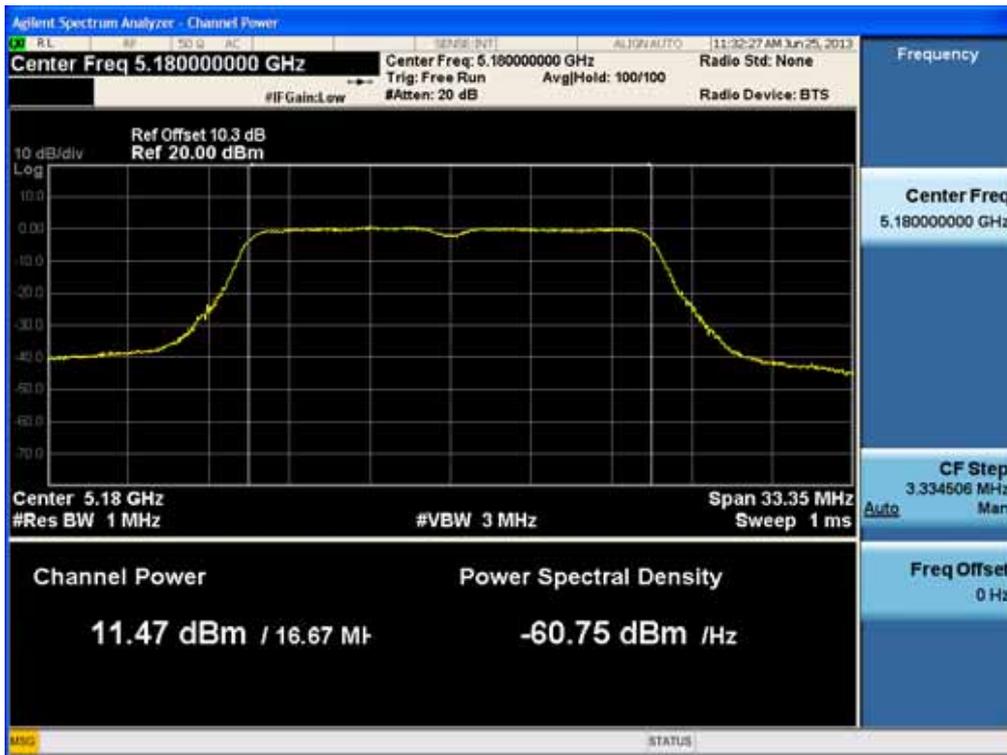


Conducted Output Power (802.11a-CH 36) 36 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

Conducted Output Power (802.11a-CH 36) 48 Mbps



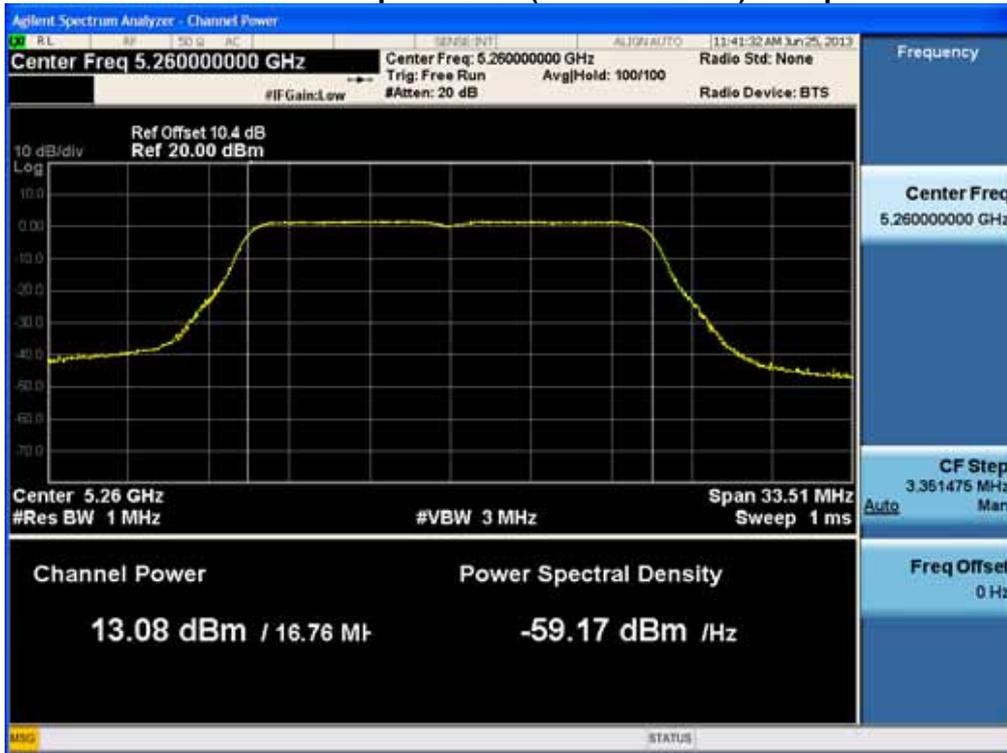
Conducted Output Power (802.11a-CH 36) 54 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

RESULT PLOTS (5260 MHz ~5320 MHz)

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

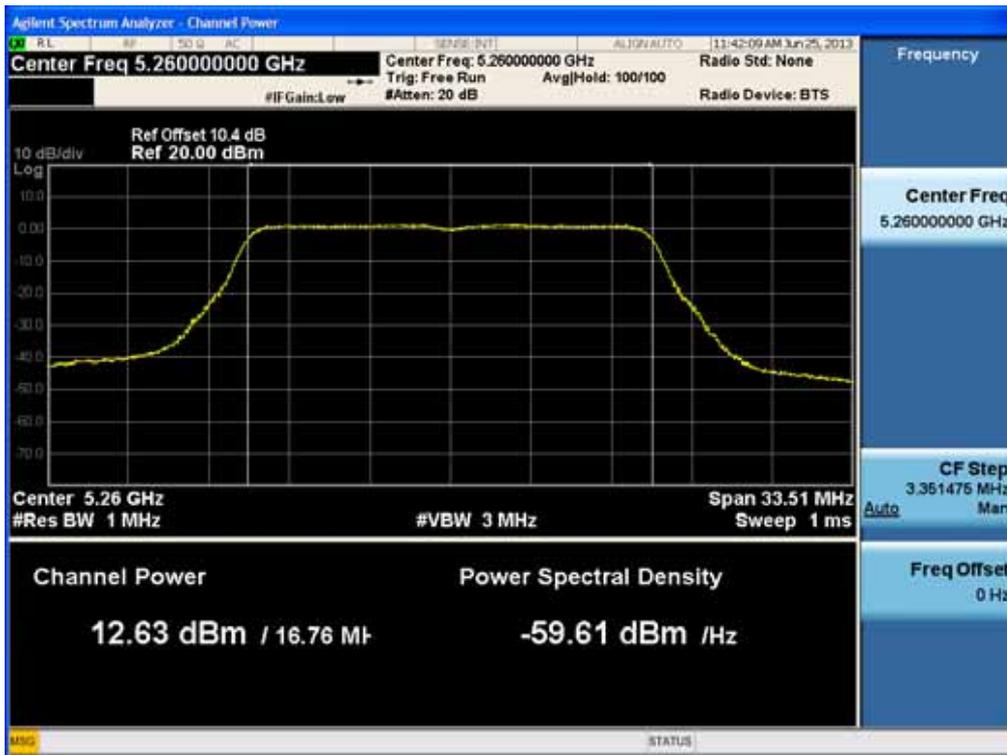


Conducted Output Power (802.11a-CH 52) 9 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F

Conducted Output Power (802.11a-CH 52) 12 Mbps



Conducted Output Power (802.11a-CH 52) 18 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

Conducted Output Power (802.11a-CH 52) 24 Mbps

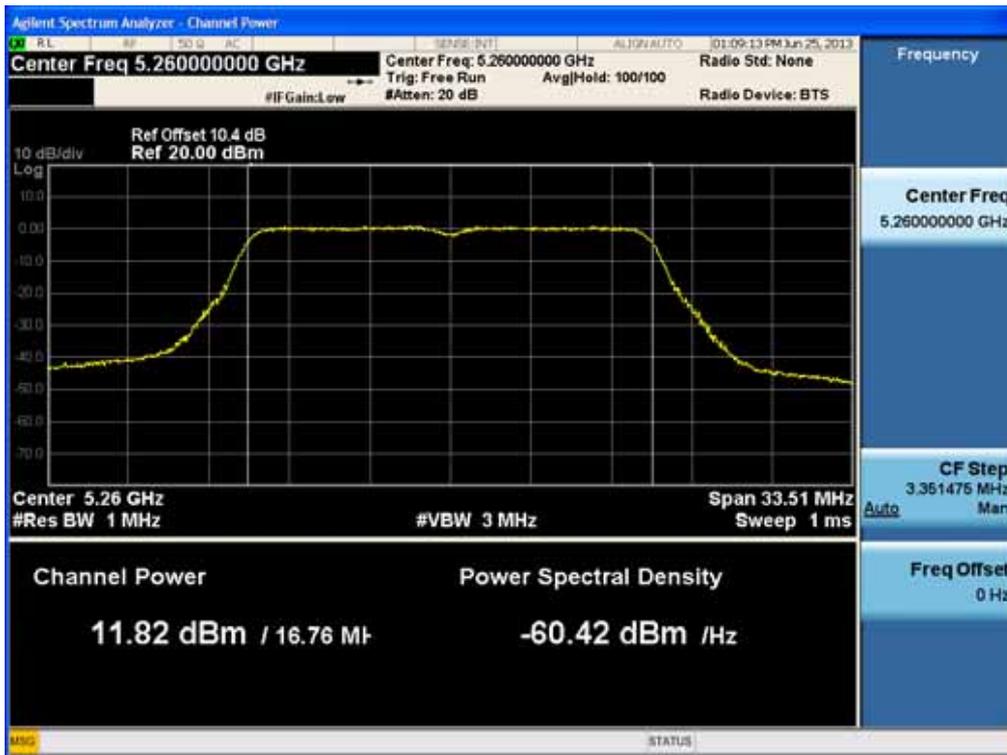


Conducted Output Power (802.11a-CH 52) 36 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

Conducted Output Power (802.11a-CH 52) 48 Mbps



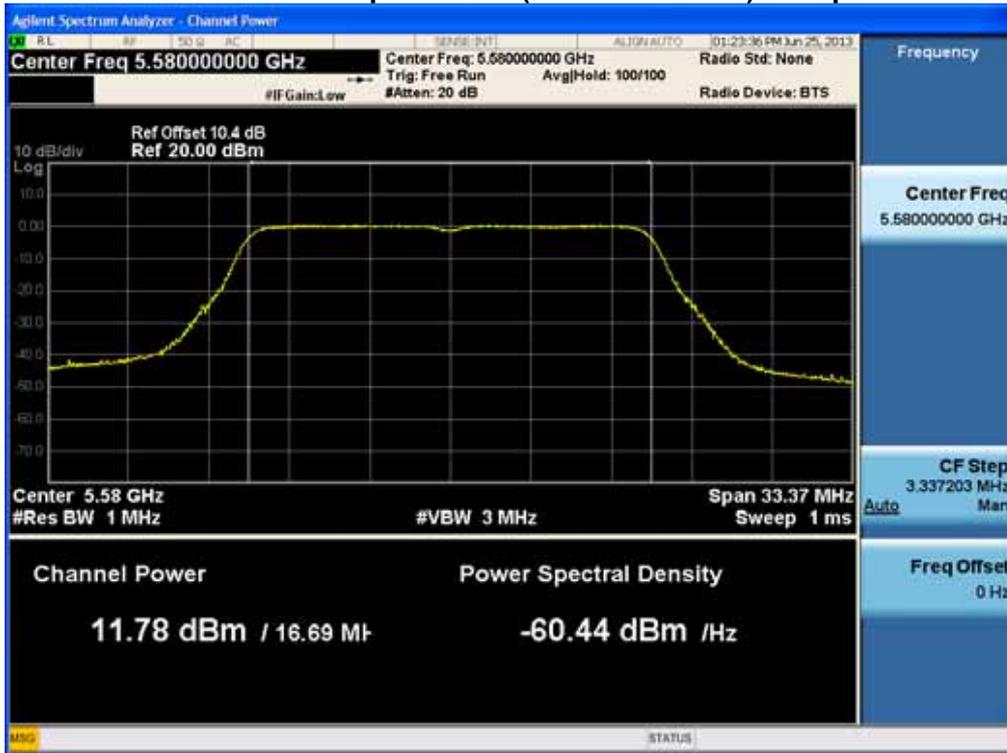
Conducted Output Power (802.11a-CH 52) 54 Mbps



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and	FCC ID: ZNFL01F

RESULT PLOTS (5500 MHz ~5700 MHz)

Conducted Output Power (802.11a-CH 116) 6 Mbps



Conducted Output Power (802.11a-CH 116) 9 Mbps



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No. HCTR1306FR25-1	Date of Issue: July 30, 2013	EUT Type: Cellular/PCS NFC(Felica)	GSM/GPRS/WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and FCC ID: ZNFL01F