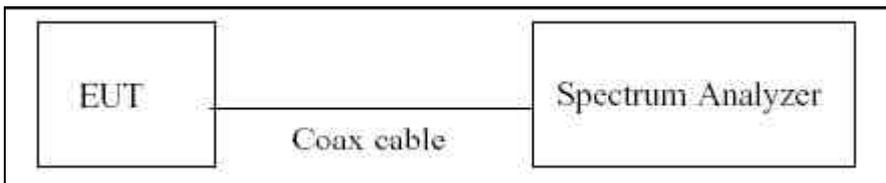


## 8.4 PEAK EXCURSION RATIO

The spectrum analyzer was connected to the antenna terminal while the EUT was operating in the continuous transmission mode at the appropriate center frequencies. The largest permissible difference between the modulation envelope(measured using a peak hold function) and the maximum conducted output power 13 dB/MHz.

### TEST CONFIGURATION



### TEST PROCEDURE

We tested according to KDB 789033(issued 03/05/2012).

The spectrum analyzer is set to :

1. Span = Set the span to view the entire emission bandwidth.
2. RBW = 1 MHz
3. VBW = 3 MHz
4. Sweep = Auto couple
5. Detector Mode = Peak
6. Trace Mode = Max hold
7. Use the procedure to measure the PPSD
8. Compute the ratio of the maximum of the peak-max-hold spectrum to the PPSD.

Note :

1. The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss
3. We apply to the offset in the 5.2 GHz, 5.3 GHz and 5.6 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is below table.

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

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

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

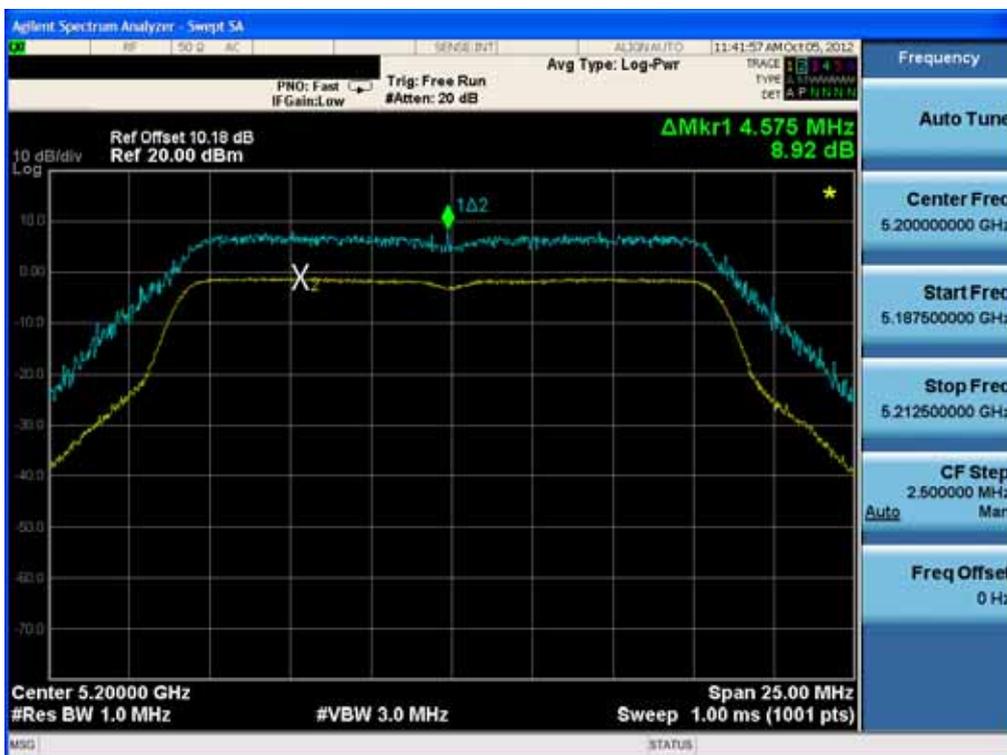
<b>FCC PT.15.247 TEST REPORT</b>		<b>FCC CERTIFICATION REPORT</b>		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
<b>Test Report No.</b> HCTR1210R21-3	<b>Date of Issue:</b> October 24, 2012	<b>EUT Type:</b> Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)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

RESULT PLOTS

Peak Excursion Ratio (802.11a-CH 36)



Peak Excursion Ratio (802.11a-CH 40)



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

### Peak Excursion Ratio (802.11a-CH 48)

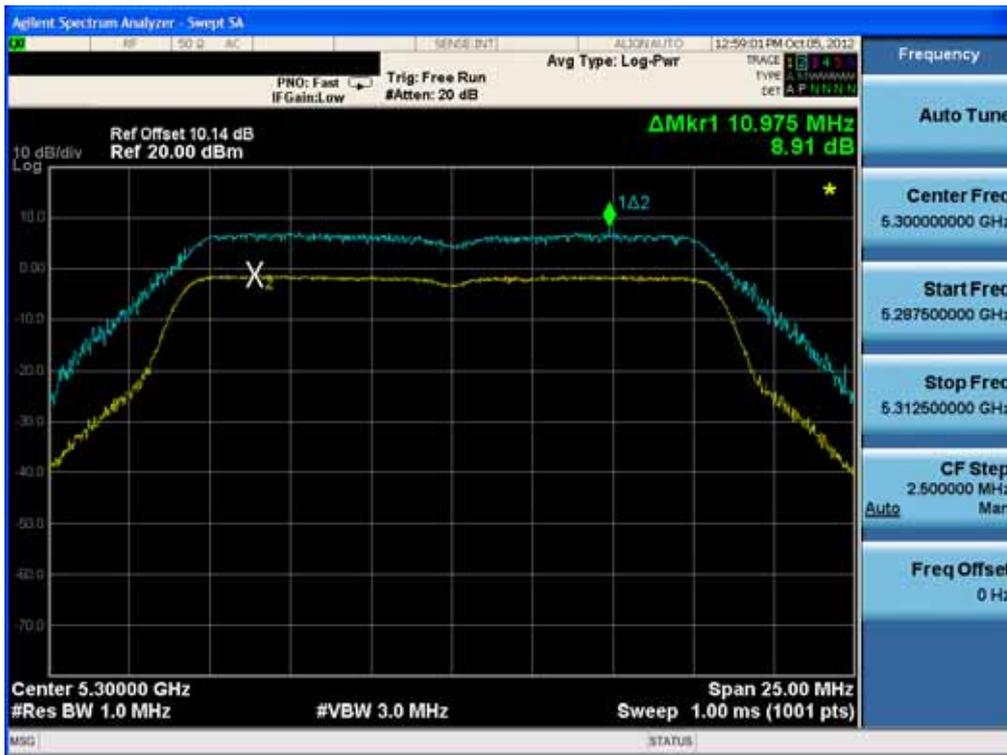


### Peak Excursion Ratio (802.11a-CH 52)

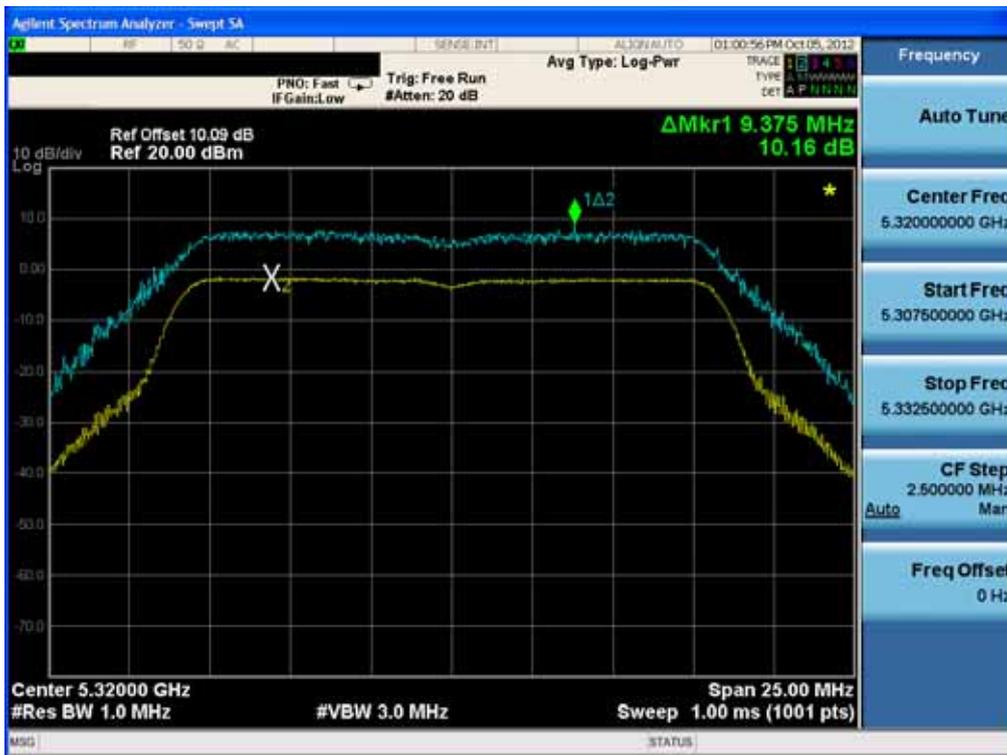


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

### Peak Excursion Ratio (802.11a-CH 60)

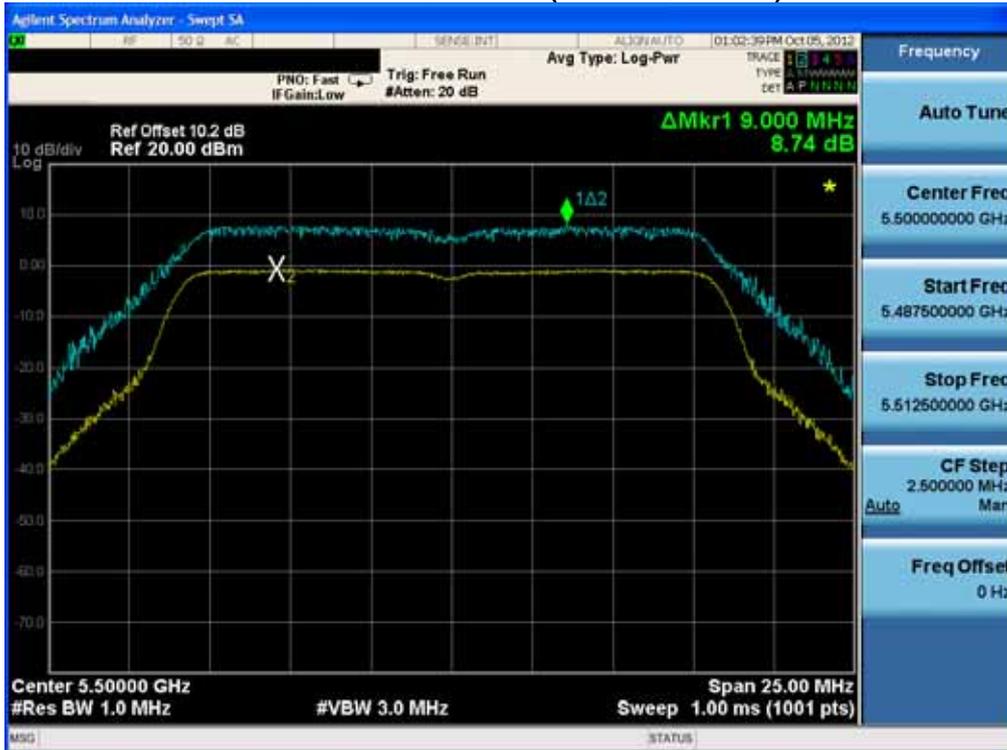


### Peak Excursion Ratio (802.11a-CH 64)



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

### Peak Excursion Ratio (802.11a-CH 100)



### Peak Excursion Ratio (802.11a-CH 116)



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

### Peak Excursion Ratio (802.11a-CH 140)

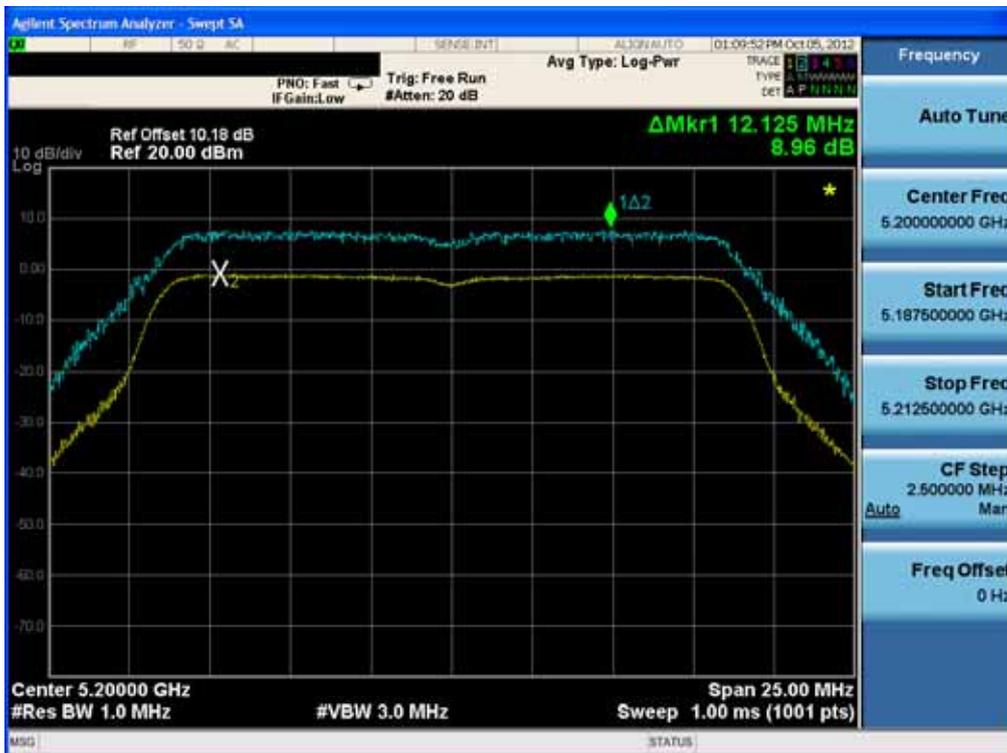


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Peak Excursion Ratio (802.11n-CH 36)

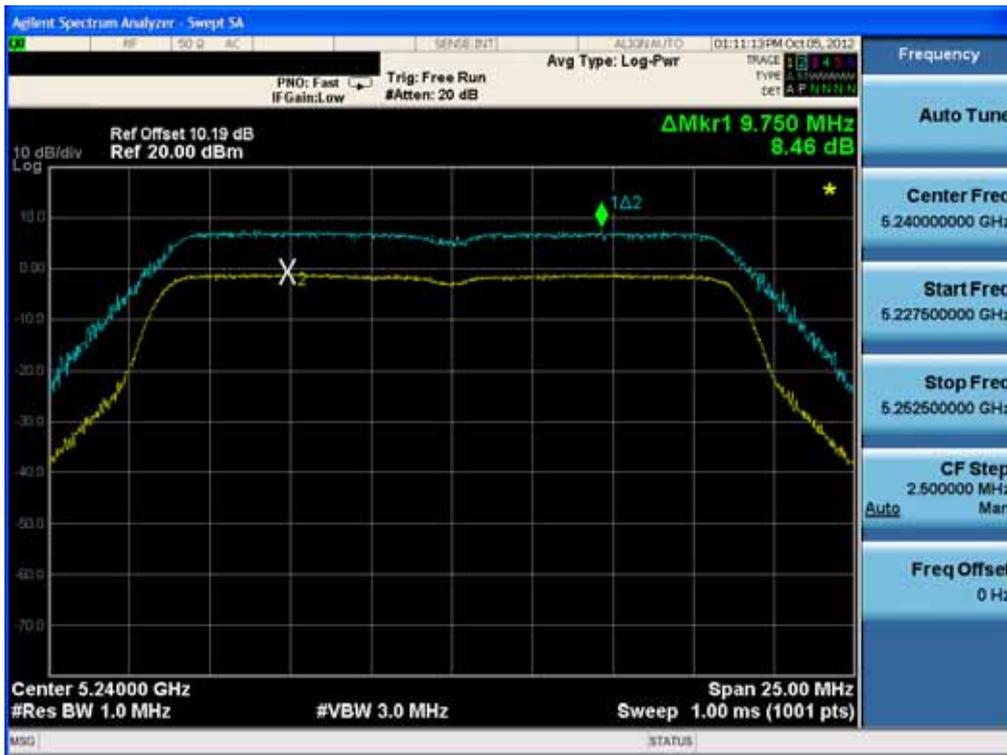


Peak Excursion Ratio (802.11n-CH 40)

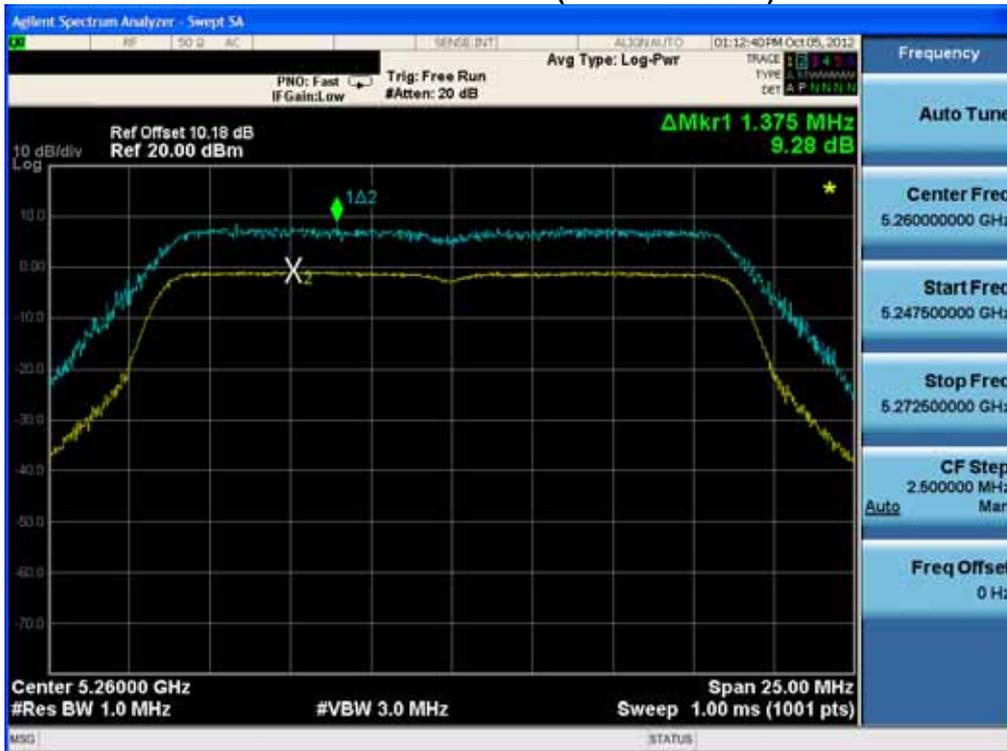


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

### Peak Excursion Ratio (802.11n-CH 48)

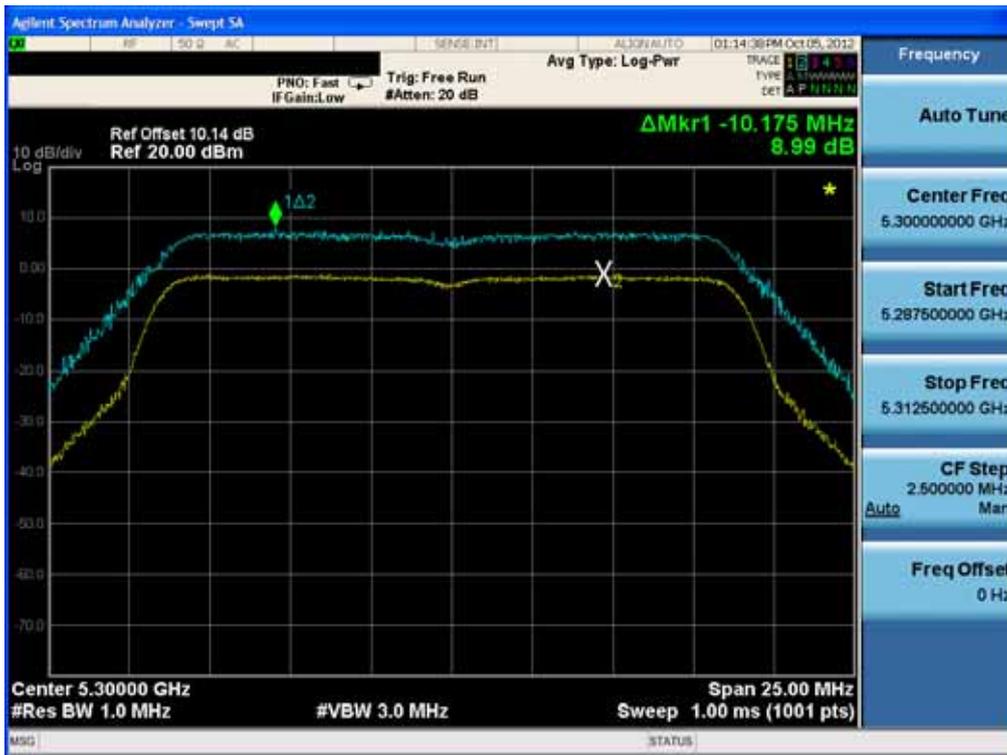


### Peak Excursion Ratio (802.11n-CH 52)



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

### Peak Excursion Ratio (802.11n-CH 60)



### Peak Excursion Ratio (802.11n-CH 64)

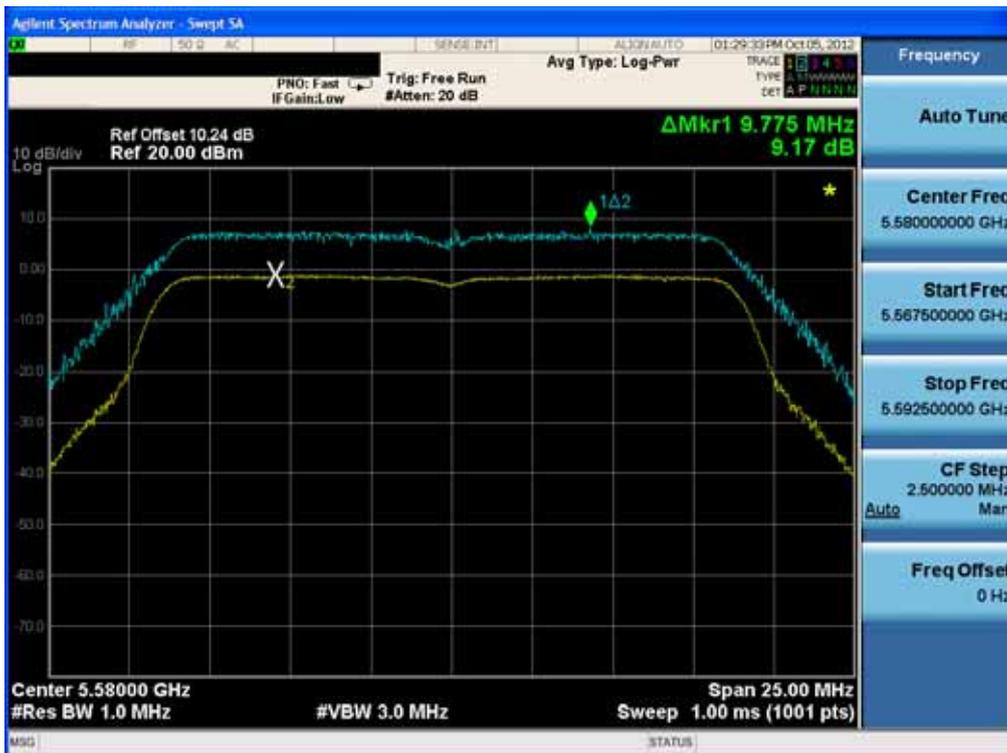


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

### Peak Excursion Ratio (802.11n-CH 100)

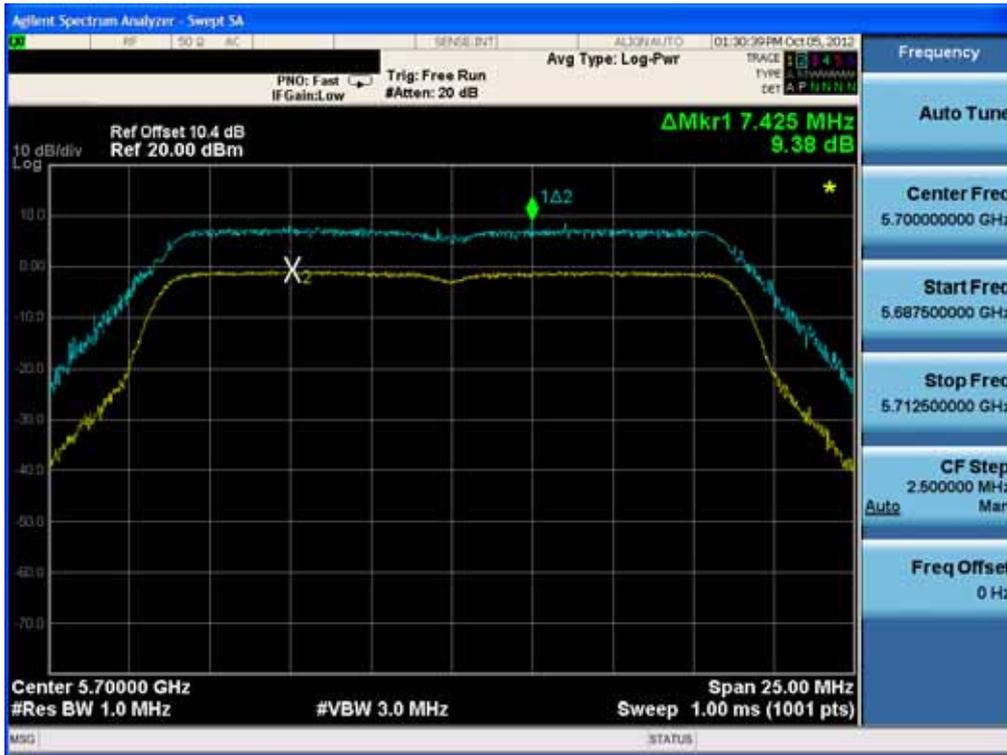


### Peak Excursion Ratio (802.11n-CH 116)



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

### Peak Excursion Ratio (802.11n-CH 140)

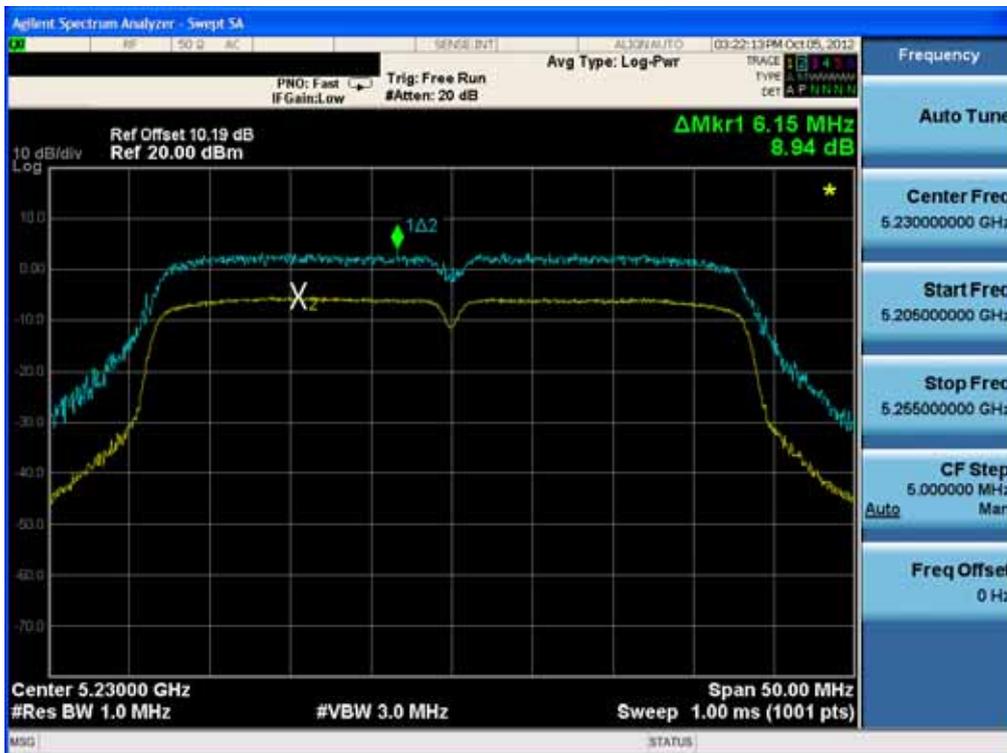


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

Peak Excursion Ratio (802.11n-CH 38)



Peak Excursion Ratio (802.11n-CH 46)

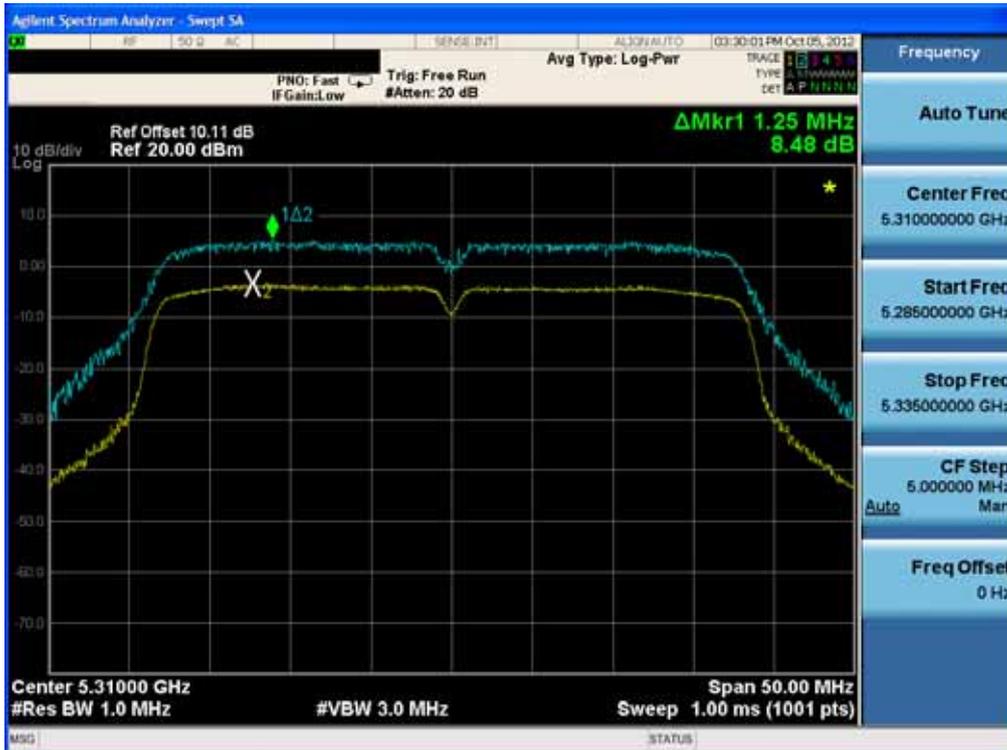


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1210R21-3	Date of Issue: October 24, 2012	EUT Type: Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)	FCC ID: ZNFL02E

### Peak Excursion Ratio (802.11n-CH 54)

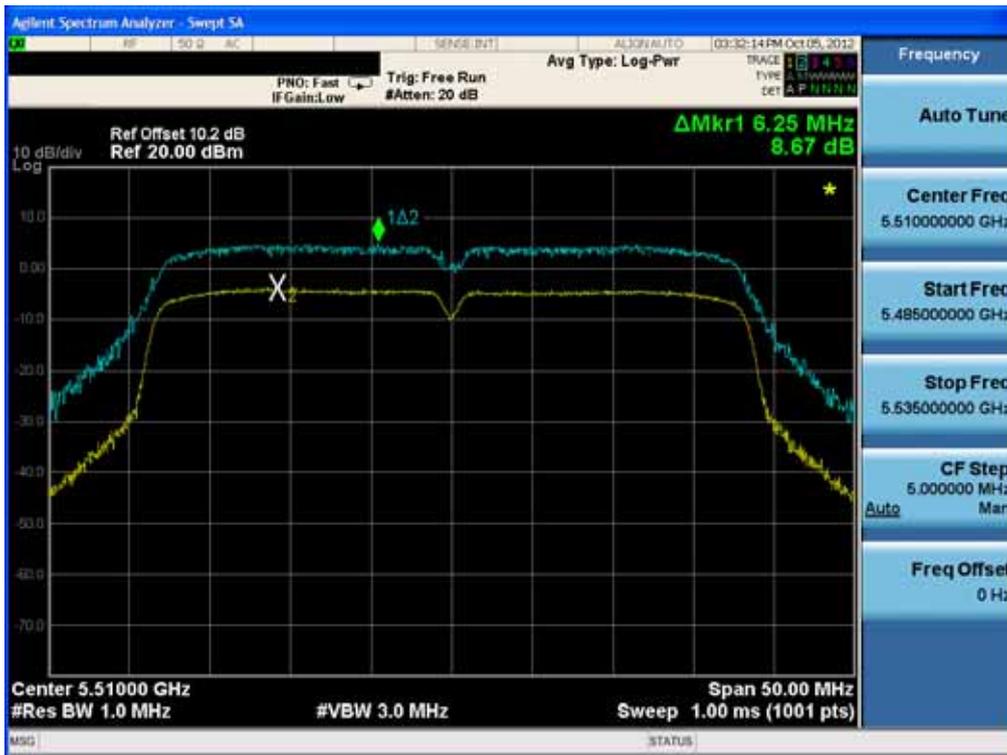


### Peak Excursion Ratio (802.11n-CH 62)



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

### Peak Excursion Ratio (802.11n-CH 102)



### Peak Excursion Ratio (802.11n-CH 110)



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

### Peak Excursion Ratio (802.11n-CH 134)



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

## 8.5 FREQUENCY STABILITY.

The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 and 50 . The temperature was incremented by 10 intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.

### 20 MHz BW

OPERATING FREQUENCY: 5,200,000,000 Hz  
 CHANNEL: 40  
 REFERENCE VOLTAGE: 3.8 VDC

Voltage (%)	Power (VDC)	Temp. ( )	Frequency (kHz)	Frequency Error (kHz)
100%	3.800	+20(Ref)	5 199 963	-37.5
100%		-30	5 199 960	-40.1
100%		-20	5 200 042	42.1
100%		-10	5 199 965	-35.1
100%		0	5 199 949	-51.2
100%		+10	5 200 026	26.3
100%		+30	5 199 968	-32.4
100%		+40	5 199 959	-40.6
100%		+50	5 199 962	-38.4
115%		4.370	+20	5 200 047
Batt. Endpoint	3.500	+20	5 200 047	47.1



OPERATING FREQUENCY: 5,300,000,000 Hz  
 CHANNEL: 60  
 REFERENCE VOLTAGE: 3.8 VDC

Voltage (%)	Power (VDC)	Temp. ( )	Frequency (kHz)	Frequency Error (kHz)
100%	3.800	+20(Ref)	5 299 962	-38.0
100%		-30	5 299 967	-32.8
100%		-20	5 299 957	-43.4
100%		-10	5 299 952	-48.1
100%		0	5 299 958	-42.4
100%		+10	5 300 040	40.3
100%		+30	5 299 957	-42.9
100%		+40	5 299 963	-37.2
100%		+50	5 299 968	-31.6
115%		4.370	+20	5 299 966
Batt. Endpoint	3.500	+20	5 300 042	41.6

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



OPERATING FREQUENCY: 5,580,000,000 Hz  
 CHANNEL: 116  
 REFERENCE VOLTAGE: 3.8 VDC

Voltage (%)	Power (VDC)	Temp. ( )	Frequency (kHz)	Frequency Error (kHz)
100%	3.800	+20(Ref)	5 599 958	-42.0
100%		-30	5 599 955	-45.0
100%		-20	5 599 954	-46.2
100%		-10	5 599 963	-37.3
100%		0	5 599 949	-51.2
100%		+10	5 600 039	39.3
100%		+30	5 599 962	-38.4
100%		+40	5 599 953	-47.4
100%		+50	5 600 040	40.0
115%		4.370	+20	5 600 049
Batt. Endpoint	3.500	+20	5 600 046	46.0

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



**40 MHz BW**

OPERATING FREQUENCY: 5,190,000,000 Hz  
 CHANNEL: 38  
 REFERENCE VOLTAGE: 3.8 VDC

Voltage (%)	Power (VDC)	Temp. ( )	Frequency (kHz)	Frequency Error (kHz)
100%	3.800	+20(Ref)	5 189 959	-41.0
100%		-30	5 190 041	41.3
100%		-20	5 190 041	41.2
100%		-10	5 190 036	36.4
100%		0	5 189 950	-50.2
100%		+10	5 190 027	27.3
100%		+30	5 190 034	33.6
100%		+40	5 189 962	-38.4
100%		+50	5 190 038	37.5
115%		4.370	+20	5 189 956
Batt. Endpoint	3.500	+20	5 190 048	48.1

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



OPERATING FREQUENCY: 5,310,000,000 Hz  
 CHANNEL: 62  
 REFERENCE VOLTAGE: 3.8 VDC

Voltage (%)	Power (VDC)	Temp. ( )	Frequency (kHz)	Frequency Error (kHz)
100%	3.800	+20(Ref)	5 309 957	-43.5
100%		-30	5 309 967	-33.2
100%		-20	5 309 958	-42.5
100%		-10	5 309 956	-44.4
100%		0	5 310 040	40.2
100%		+10	5 310 039	39.4
100%		+30	5 310 041	40.6
100%		+40	5 309 962	-38.4
100%		+50	5 309 966	-33.6
115%		4.370	+20	5 310 033
Batt. Endpoint	3.500	+20	5 310 045	45.2

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



OPERATING FREQUENCY: 5,510,000,000 Hz  
 CHANNEL: 102  
 REFERENCE VOLTAGE: 3.8 VDC

Voltage (%)	Power (VDC)	Temp. ( )	Frequency (kHz)	Frequency Error (kHz)
100%	3.800	+20(Ref)	5 509 955	-45.0
100%		-30	5 510 046	46.2
100%		-20	5 510 047	47.4
100%		-10	5 510 040	39.5
100%		0	5 510 044	44.2
100%		+10	5 509 957	-42.7
100%		+30	5 509 962	-37.6
100%		+40	5 510 046	45.7
100%		+50	5 510 044	44.2
115%		4.370	+20	005 510 046
Batt. Endpoint	3.500	+20	005 509 958	-42.0

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



**8.6 RADIATED MEASUREMENT.**

**8.6.1 RADIATED SPURIOUS EMISSIONS.**

**Test Requirements and limit, §15.205, §15.209, §15.407**

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

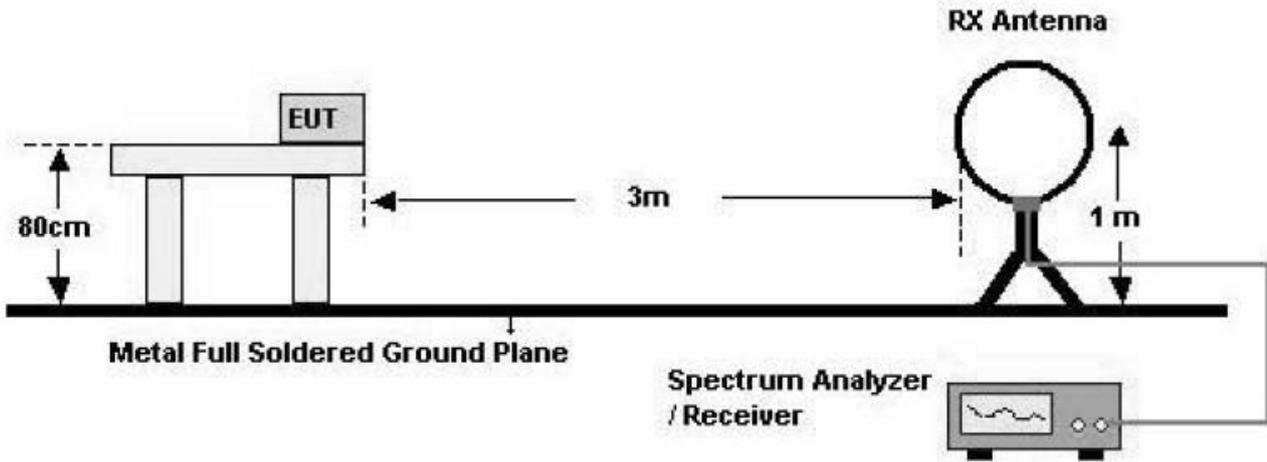
**§15.407, KDB 789033**

All harmonics that do not lie in a restricted band are subject to a peak limit of -27 dBm/MHz. At a distance of 3 meters the field strength limit in dBµV/m can be determined by adding a “conversion” factor of 95.2 dB to the EIRP limit of -27 dBm/MHz to obtain the limit for out of band spurious emissions of 68.2 dBµV/m.

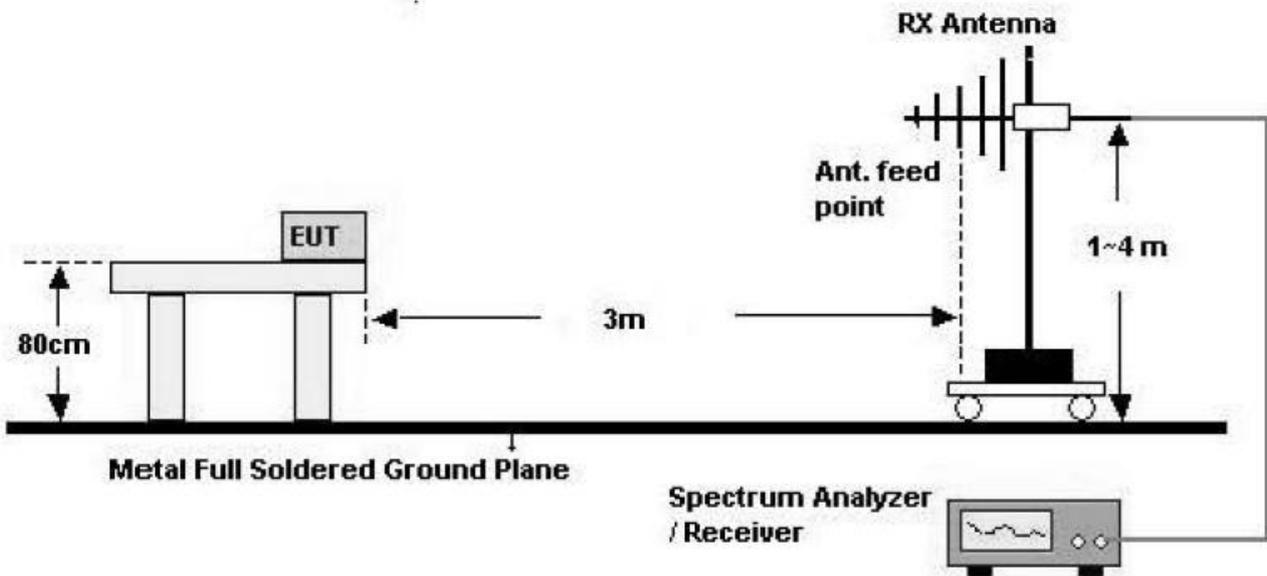
<b>FCC PT.15.247 TEST REPORT</b>	<b>FCC CERTIFICATION REPORT</b>		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
<b>Test Report No.</b> HCTR1210R21-3	<b>Date of Issue:</b> October 24, 2012	<b>EUT Type:</b> Cellular/PCS GSM/GPRS and Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth, WLAN and NFC(Felica)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

## Test Configuration

### Below 30 MHz

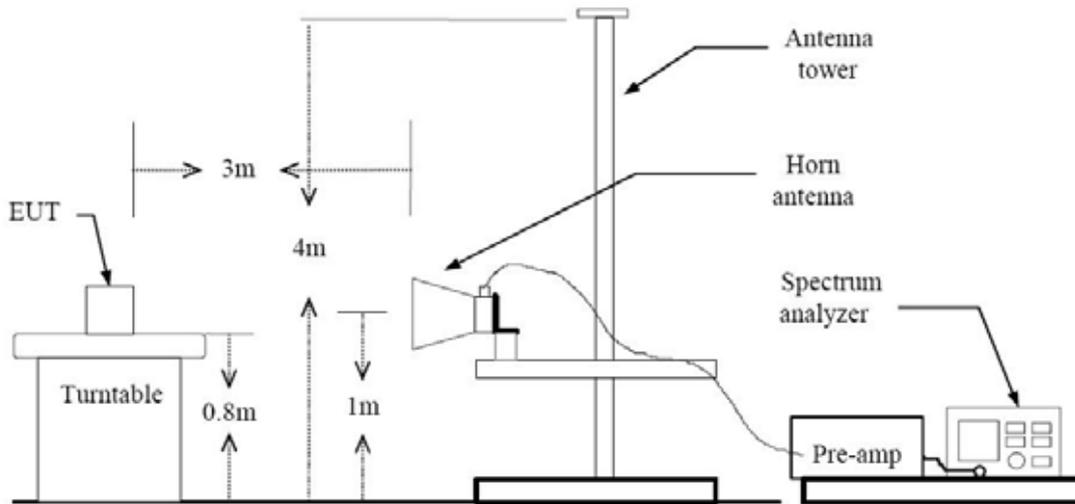


### 30 MHz - 1 GHz



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

## Above 1 GHz



## TEST PROCEDURE

1. We performed the peak and average field strength measurement in according to ANSI 63.10. (G.3.c in KDB 789033)
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until the measurements for all frequencies are complete.
8. This EUT TX condition is actual operating mode(with a duty cycle of greater than or equal to 98%) by WLAN test program.

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



## TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

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

### Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



## TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

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

### Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



**Above 1 GHz**

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10360	45.01	9.33	V	54.34	68.2	13.86	PK
10360	35.60	9.33	V	44.93	54.0	9.07	AV
15540	44.18	14.61	V	58.79	74.0	15.21	PK
15540	31.00	14.61	V	45.61	54.0	8.39	AV
10360	44.26	9.33	H	53.59	68.2	14.61	PK
10360	35.85	9.33	H	45.18	54.0	8.82	AV
15540	44.63	14.61	H	59.24	74.0	14.76	PK
15540	31.02	14.61	H	45.63	54.0	8.37	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces

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



- 6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
- 7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10400	44.15	10.13	V	54.28	68.2	13.92	PK
10400	34.02	10.13	V	44.15	54.0	9.85	AV
15600	45.60	14.60	V	60.20	74.0	13.80	PK
15600	31.27	14.60	V	45.87	54.0	8.13	AV
10400	43.41	10.13	H	53.54	68.2	14.66	PK
10400	35.11	10.13	H	45.24	54.0	8.76	AV
15600	45.32	14.60	H	59.92	74.0	14.08	PK
15600	31.20	14.60	H	45.80	54.0	8.20	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10480	44.27	10.20	V	54.47	68.2	13.73	PK
10480	32.97	10.20	V	43.17	54.0	10.83	AV
15720	47.03	13.47	V	60.50	74.0	13.50	PK
15720	32.33	13.47	V	45.80	54.0	8.20	AV
10480	44.18	10.20	H	54.38	68.2	13.82	PK
10480	34.42	10.20	H	44.62	54.0	9.38	AV
15720	46.30	13.47	H	59.77	74.0	14.23	PK
15720	32.66	13.47	H	46.13	54.0	7.87	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10380	43.47	9.70	V	53.17	68.2	15.03	PK
10380	32.44	9.70	V	42.14	54.0	11.86	AV
15570	44.66	14.62	V	59.28	74.0	14.72	PK
15570	30.98	14.62	V	45.60	54.0	8.40	AV
10380	43.28	9.70	H	52.98	68.2	15.22	PK
10380	34.44	9.70	H	44.14	54.0	9.86	AV
15570	44.60	14.62	H	59.22	74.0	14.78	PK
15570	31.05	14.62	H	45.67	54.0	8.33	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 1
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5230 MHz
Channel No.	46 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10460	41.78	10.26	V	52.04	68.2	16.16	PK
10460	31.75	10.26	V	42.01	54.0	11.99	AV
15690	45.70	14.33	V	60.03	74.0	13.97	PK
15690	32.11	14.33	V	46.44	54.0	7.56	AV
10460	43.15	10.26	H	53.41	68.2	14.79	PK
10460	34.01	10.26	H	44.27	54.0	9.73	AV
15690	45.43	14.33	H	59.76	74.0	14.24	PK
15690	32.14	14.33	H	46.47	54.0	7.53	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10520	45.11	10.38	V	55.49	68.2	12.71	PK
10520	32.33	10.38	V	42.71	54.0	11.29	AV
15780	45.46	14.38	V	59.84	74.0	14.16	PK
15780	32.50	14.38	V	46.88	54.0	7.12	AV
10520	44.42	10.38	H	54.80	68.2	13.40	PK
10520	34.80	10.38	H	45.18	54.0	8.82	AV
15780	45.50	14.38	H	59.88	74.0	14.12	PK
15780	32.47	14.38	H	46.85	54.0	7.15	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10600	43.88	10.39	V	54.27	74.0	19.73	PK
10600	30.86	10.39	V	41.25	54.0	12.75	AV
15900	44.30	14.00	V	58.30	74.0	15.70	PK
15900	30.63	14.00	V	44.63	54.0	9.37	AV
10600	44.27	10.39	H	54.66	74.0	19.34	PK
10600	33.53	10.39	H	43.92	54.0	10.08	AV
15900	44.56	14.00	H	58.56	74.0	15.44	PK
15900	31.00	14.00	H	45.00	54.0	9.00	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 2
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10640	44.23	10.50	V	54.73	74	19.27	PK
10640	32.18	10.50	V	42.68	54	11.32	AV
15960	44.06	14.27	V	58.33	74	15.67	PK
15960	30.42	14.27	V	44.69	54	9.31	AV
10640	44.88	10.50	H	55.38	74	18.62	PK
10640	34.10	10.50	H	44.60	54	9.40	AV
15960	43.36	14.27	H	57.63	74	16.37	PK
15960	30.86	14.27	H	45.13	54	8.87	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5270 MHz
Channel No.	54 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10540	42.61	10.55	V	53.16	68.2	15.04	PK
10540	31.40	10.55	V	41.95	54.0	12.05	AV
15810	45.25	14.26	V	59.51	74.0	14.49	PK
15810	31.65	14.26	V	45.91	54.0	8.09	AV
10540	43.04	10.55	H	53.59	68.2	14.61	PK
10540	33.92	10.55	H	44.47	54.0	9.53	AV
15810	45.12	14.26	H	59.38	74.0	14.62	PK
15810	31.66	14.26	H	45.92	54.0	8.08	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 2
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
10620	43	10.25	V	53.25	74.0	20.75	PK
10620	29.74	10.25	V	39.99	54.0	14.01	AV
15930	44.03	13.62	V	57.65	74.0	16.35	PK
15930	30.31	13.62	V	43.93	54.0	10.07	AV
10620	43.2	10.25	H	53.45	74.0	20.55	PK
10620	32.68	10.25	H	42.93	54.0	11.07	AV
15930	43.52	13.62	H	57.14	74.0	16.86	PK
15930	30.37	13.62	H	43.99	54.0	10.01	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11000	52.62	11.28	V	63.90	74.0	10.10	PK
11000	37.22	11.28	V	48.50	54.0	5.50	AV
16500	45.86	14.19	V	60.05	68.2	8.15	PK
16500	32.43	14.19	V	46.62	54.0	7.38	AV
11000	51.94	11.28	H	63.22	74.0	10.78	PK
11000	35.84	11.28	H	47.12	54.0	6.88	AV
16500	45.34	14.19	H	59.53	68.2	8.67	PK
16500	32.09	14.19	H	46.28	54.0	7.72	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5580 MHz
Channel No.	116 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11160	51.37	11.10	V	62.47	74.0	11.53	PK
11160	35.95	11.10	V	47.05	54.0	6.95	AV
16740	45.20	15.70	V	60.90	68.2	7.30	PK
16740	31.60	15.70	V	47.30	54.0	6.70	AV
11160	50.85	11.10	H	61.95	74.0	12.05	PK
11160	35.10	11.10	H	46.20	54.0	7.80	AV
16740	44.28	15.70	H	59.98	68.2	8.22	PK
16740	31.47	15.70	H	47.17	54.0	6.83	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5700 MHz
Channel No.	140 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11400	48.10	10.97	V	59.07	74.0	14.93	PK
11400	37.55	10.97	V	48.52	54.0	5.48	AV
17100	45.77	17.82	V	63.59	68.2	4.61	PK
17100	31.46	17.82	V	49.28	54.0	4.72	AV
11400	49.93	10.97	H	60.90	74.0	13.10	PK
11400	38.07	10.97	H	49.04	54.0	4.96	AV
17100	44.53	17.82	H	62.35	68.2	5.85	PK
17100	31.26	17.82	H	49.08	54.0	4.92	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11020	45.29	11.28	V	56.57	74.0	17.43	PK
11020	30.38	11.28	V	41.66	54.0	12.34	AV
16530	44.76	8.83	V	53.59	68.2	14.61	PK
16530	31.40	8.83	V	40.23	54.0	13.77	AV
11020	43.55	11.28	H	54.83	74.0	19.17	PK
11020	32.23	11.28	H	43.51	54.0	10.49	AV
16530	44.31	8.83	H	53.14	68.2	15.06	PK
16530	31.42	8.83	H	40.25	54.0	13.75	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5550 MHz
Channel No.	110 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11100	42.61	11.56	V	54.17	74.0	19.83	PK
11100	30.91	11.56	V	42.47	54.0	11.53	AV
16650	44.56	14.98	V	59.54	68.2	8.66	PK
16650	31.41	14.98	V	46.39	54.0	7.61	AV
11100	44.19	11.56	H	55.75	74.0	18.25	PK
11100	32.33	11.56	H	43.89	54.0	10.11	AV
16650	44.99	14.98	H	59.97	68.2	8.23	PK
16650	31.36	14.98	H	46.34	54.0	7.66	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5670 MHz
Channel No.	134 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp G. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11340	43.22	10.86	V	54.08	74.0	19.92	PK
11340	36.20	10.86	V	47.06	54.0	6.94	AV
17010	45.50	18.15	V	63.65	68.2	4.55	PK
17010	31.06	18.15	V	49.21	54.0	4.79	AV
11340	46.25	10.86	H	57.11	74.0	16.89	PK
11340	36.84	10.86	H	47.70	54.0	6.30	AV
17010	44.80	18.15	H	62.95	68.2	5.25	PK
17010	31.05	18.15	H	49.20	54.0	4.80	AV

**Notes:**

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
5. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
6. We have done 802.11a, 802.11n\_20 MHz BW test. Worst case is 6 Mbps in 802.11a.
7. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



## 8.6.2 RADIATED RESTRICTED BAND EDGE MEASUREMENTS

### Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in section 15.209(a) (See section 15.205(c)).

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5150	66.76	3.63	H	70.39	74	3.61	PK
5150	42.74	3.63	H	46.37	54	7.63	AV
5150	67.50	3.63	V	71.13	74	2.87	PK
5150	43.32	3.63	V	46.95	54	7.05	AV

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



Band : UNII 2  
 Operation Mode: 802.11 a  
 Transfer Rate: 6 Mbps  
 Operating Frequency 5320 MHz  
 Channel No. 64 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5350	61.24	4.45	H	65.69	74	8.31	PK
5350	39.01	4.45	H	43.46	54	10.54	AV
5350	60.90	4.45	V	65.35	74	8.65	PK
5350	38.06	4.45	V	42.51	54	11.49	AV

Band : UNII 3  
 Operation Mode: 802.11 a  
 Transfer Rate: 6 Mbps  
 Operating Frequency 5500 MHz  
 Channel No. 100 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5460	52.23	5.54	H	57.77	68.2	10.43	PK
5460	36.00	5.54	H	41.54	54.0	12.46	AV
5460	49.48	5.54	V	55.02	68.2	13.18	PK
5460	35.64	5.54	V	41.18	54.0	12.82	AV

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT
2. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle ≥ 98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold

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



(vii) Trace = 50 traces

3. We have done 802.11a/n\_20 MHz BW mode test. . Worst case of EUT is 6 Mbps in 802.11a.

4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



Band : UNII 1  
 Operation Mode: 802.11n\_40 MHz BW  
 Transfer Rate: 13.5 Mbps  
 Operating Frequency 5190 MHz  
 Channel No. 38 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5350	64.81	3.63	H	68.44	74	5.56	PK
5350	44.27	3.63	H	47.90	54	6.10	AV
5350	65.88	3.63	V	69.51	74	4.49	PK
5350	44.48	3.63	V	48.11	54	5.89	AV

Band : UNII 2  
 Operation Mode: 802.11n\_40 MHz BW  
 Transfer Rate: 13.5 Mbps  
 Operating Frequency 5310 MHz  
 Channel No. 62 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5350	63.5	4.45	H	67.95	74	6.05	PK
5350	38.97	4.45	H	43.42	54	10.58	AV
5350	59.03	4.45	V	63.48	74	10.52	PK
5350	38.41	4.45	V	42.86	54	11.14	AV

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



Band :	UNII 3
Operation Mode:	802.11n_40 MHz BW
Transfer Rate:	13.5 Mbps
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Reading dBuV	AN.+CL+AMP+ATT. [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
5460	54.41	5.54	H	59.95	74	14.05	PK
5460	36.49	5.54	H	42.03	54	11.97	AV
5460	50.26	5.54	V	55.80	74	18.20	PK
5460	35.81	5.54	V	41.35	54	12.65	AV

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + ATT
2. Spectrum setting:
  - a. Peak Setting 1 GHz – 40 GHz, RBW = 1 MHz, VBW = 3 MHz.
  - b. AV Setting 1 GHz – 40 GHz
    - (i) RBW = 1 MHz
    - (ii) VBW = 10 Hz.(Duty Cycle  $\geq$  98 percent)
    - (iii) Detector = Peak
    - (iv) Sweep Time = auto
    - (v) Trace Mode = max hold
    - (vi) Trace = 50 traces
3. We have done 802.11a/n\_20 MHz BW mode test. . Worst case of EUT is 6 Mbps in 802.11a.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

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



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



## 8.7 POWERLINE CONDUCTED EMISSIONS

### Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference groundplane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors – Quasi Peak and Average Detector.
5. We are performed the AC Power Line Conducted Emission test for 13 Mbps, Ch.140 and 802.11n mode in UNII 3. Because 802.11n mode in UNII 3 is worst case.

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



**RESULT PLOTS**

**Conducted Emissions (Line 1)**

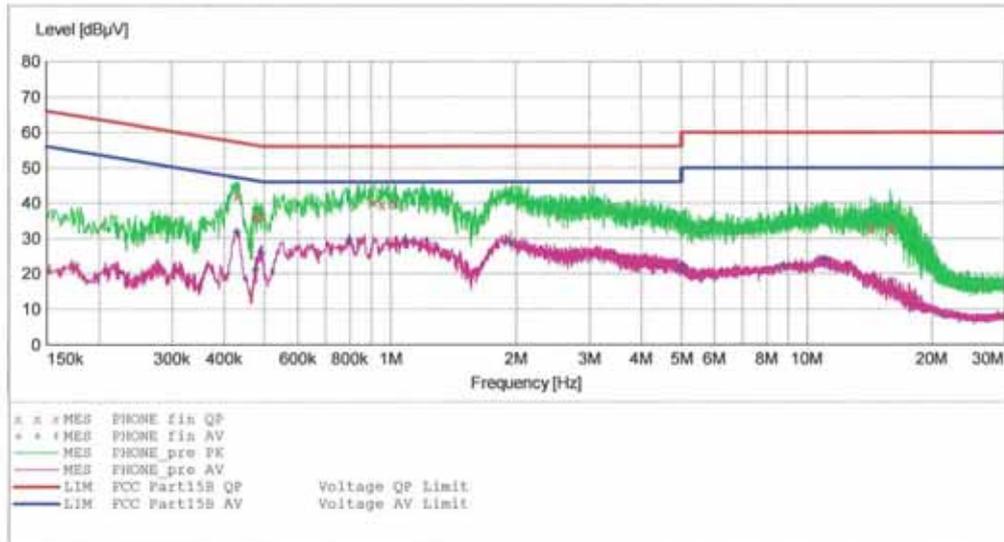
HCT

EMC

EUT: L-02E  
 Manufacturer: LG  
 Operating Condition: WLAN MODE (UNII)  
 Test Site: SHIELD ROOM  
 Operator: JS LEE  
 Test Specification: FCC PART 15 B  
 Comment: H

**SCAN TABLE: "FCC PART 15 B(H)"**

Start Frequency	Stop Frequency	Step Width	FCC PART 15 CLASS B Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	1.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



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

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.430010	42.20	9.8	57	15.1	---	---
0.476010	36.20	9.8	56	20.2	---	---
0.491010	36.50	9.8	56	19.7	---	---
0.912000	40.30	9.8	56	15.7	---	---
0.956000	39.50	9.8	56	16.5	---	---
1.028000	40.00	9.8	56	16.0	---	---
14.260000	33.00	10.9	60	27.0	---	---
15.856000	32.60	11.1	60	27.4	---	---
15.944000	32.90	11.1	60	27.1	---	---

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

MEASUREMENT RESULT: "PHONE\_fin AV"

10/10/2012 9:19AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.428010	31.90	9.8	47	15.4	---	---
0.476010	21.30	9.8	46	25.1	---	---
0.491010	26.10	9.8	46	20.0	---	---
0.800000	29.60	9.8	46	16.4	---	---
1.088000	29.40	9.8	46	16.6	---	---
1.940000	29.00	9.9	46	17.0	---	---
5.004000	21.50	10.2	50	28.5	---	---
8.816000	22.40	10.4	50	27.6	---	---
11.080000	24.10	10.6	50	25.9	---	---

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



**Conducted Emissions (Line 2)**

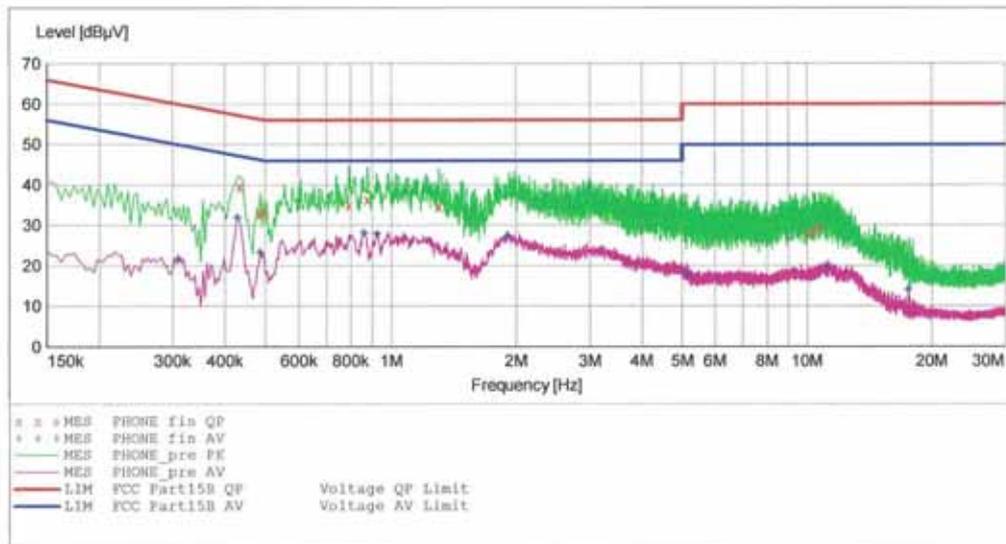
HCT

EMC

EUT: L-02E  
 Manufacturer: LG  
 Operating Condition: WLAN MODE(UNII)  
 Test Site: SHIELD ROOM  
 Operator: JS LEE  
 Test Specification: FCC PART 15 CLASS B  
 Comment: N

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

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
500.0 kHz	5.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			
5.0 MHz	30.0 MHz	4.0 kHz	MaxPeak	10.0 ms	9 kHz	None
			Average			



**MEASUREMENT RESULT: "PHONE\_fin\_QP"**

10/10/2012 9:15AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.434010	39.60	10.0	57	17.6	---	---
0.486010	32.90	10.0	56	23.3	---	---
0.494010	33.30	10.0	56	22.8	---	---
0.792000	35.00	10.0	56	21.0	---	---
0.880000	36.40	10.0	56	19.6	---	---
1.308000	34.60	10.0	56	21.4	---	---
10.032000	28.10	10.7	60	31.9	---	---
10.352000	28.70	10.7	60	31.3	---	---
10.720000	29.50	10.8	60	30.5	---	---

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

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

10/10/2012 9:15AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.310010	21.80	9.9	50	28.1	---	---
0.430010	31.90	10.0	47	15.4	---	---
0.486010	23.40	10.0	46	22.9	---	---
0.864000	28.20	10.0	46	17.8	---	---
0.924000	27.90	10.0	46	18.1	---	---
1.908000	27.40	10.1	46	18.6	---	---
5.132000	17.70	10.4	50	32.3	---	---
11.216000	19.90	10.8	50	30.1	---	---
17.580000	14.10	11.7	50	35.9	---	---

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

## 9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.
Rohde & Schwarz	ENV216/ LISN	Annual	02/09/2013	100073
Schwarzbeck	VULB 9168/ TRILOG Antenna	Biennial	02/09/2013	200
Rohde & Schwarz	ESI 40 / EMI TEST RECEIVER	Annual	05/03/2013	831564103
Agilent	E4440A/ Spectrum Analyzer	Annual	05/02/2013	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	Annual	07/31/2013	MY51110020
HD	MA240/ Antenna Position Tower	N/A	N/A	556
EMCO	1050/ Turn Table	N/A	N/A	114
HD GmbH	HD 100/ Controller	N/A	N/A	13
HD GmbH	KMS 560/ SlideBar	N/A	N/A	12
Rohde & Schwarz	SCU-18/ Signal Conditioning Unit	Annual	09/11/2013	10094
MITEQ	AMF-6B-180265-35-10P / POWER AMP	Annual	04/16/2013	667624
CERNEX	CBL26405040 / POWER AMP	Annual	04/16/2013	19660
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	10/17/2013	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	Biennial	10/26/2012	BBHA9170342
Rohde & Schwarz	FSP / Spectrum Analyzer	Annual	02/09/2013	839117/011
Agilent	E4416A /Power Meter	Annual	11/07/2012	GB41291412
Agilent	E9327A /POWER SENSOR	Annual	05/02/2013	MY4442009
Wainwright Instrument	WHF3.3/18G-10EF / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	Annual	05/02/2013	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	Annual	05/02/2013	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	Annual	05/02/2013	1
Hewlett Packard	11636B/Power Divider	Annual	11/07/2012	11377
Hewlett Packard	11667B / Power Splitter	Annual	06/05/2013	05001
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	11/07/2012	3110117
ITECH	IT6720 / DC POWER SUPPLY	Annual	11/07/2012	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	Annual	11/14/2012	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	05/02/2013	100422
EMCO	6502.LOOP ANTENNA	Biennial	01/11/2014	9009-2536
Agilent	8493C / Attenuator(10 dB)	Annual	07/30/2013	76649
WEINSCHHEL	2-3 / Attenuator(3 dB)	Annual	11/07/2013	BR0617
CERNEX	CBLU1183540 / POWER AMP	Annual	07/27/2013	21691

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