

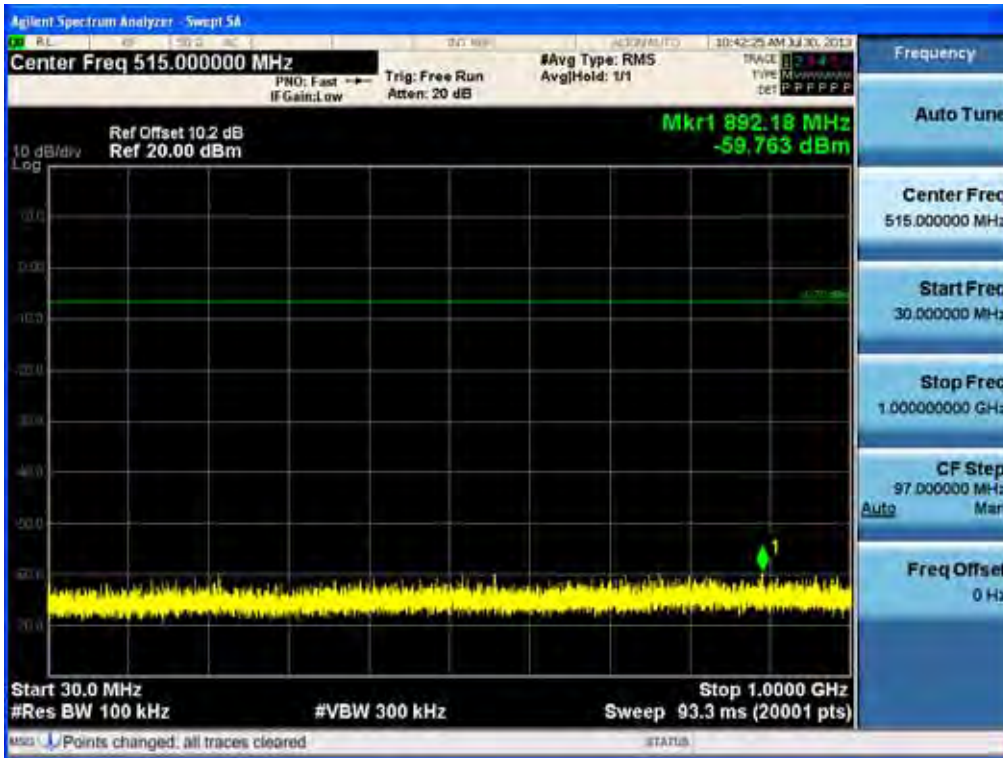
Conducted Spurious Emission (802.11b-CH1)



Conducted Spurious Emission (802.11b-CH6)



### Conducted Spurious Emission (802.11b-CH11)



### Conducted Spurious Emission (802.11g-CH1)

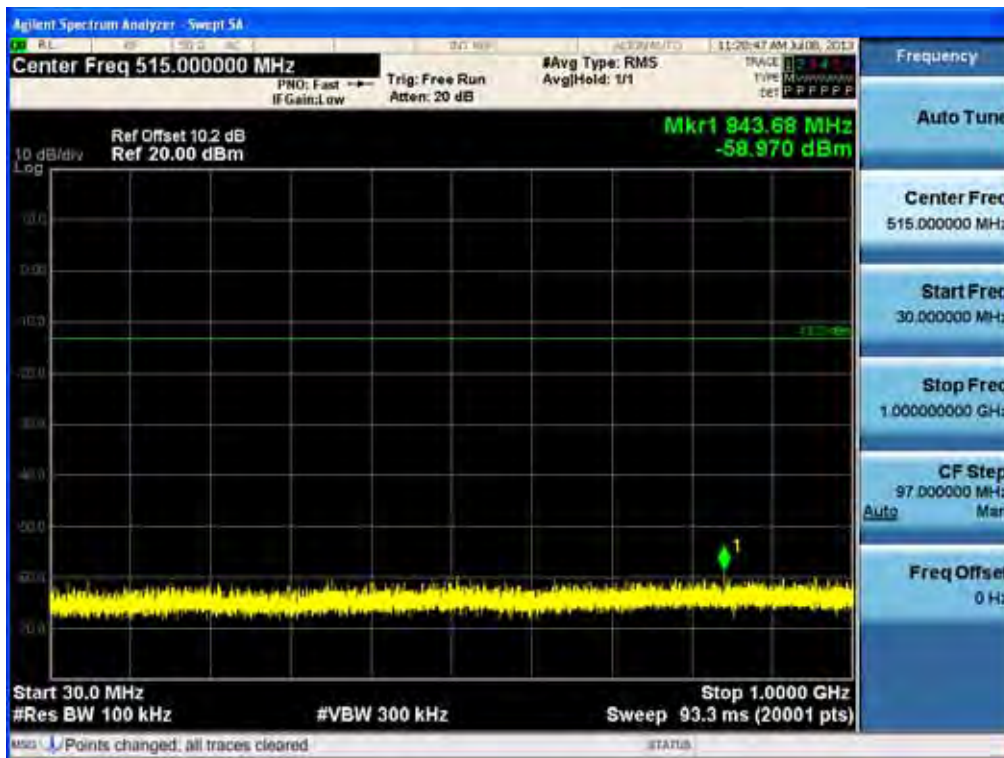


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821

### Conducted Spurious Emission (802.11g-CH6)



### Conducted Spurious Emission (802.11g-CH11)

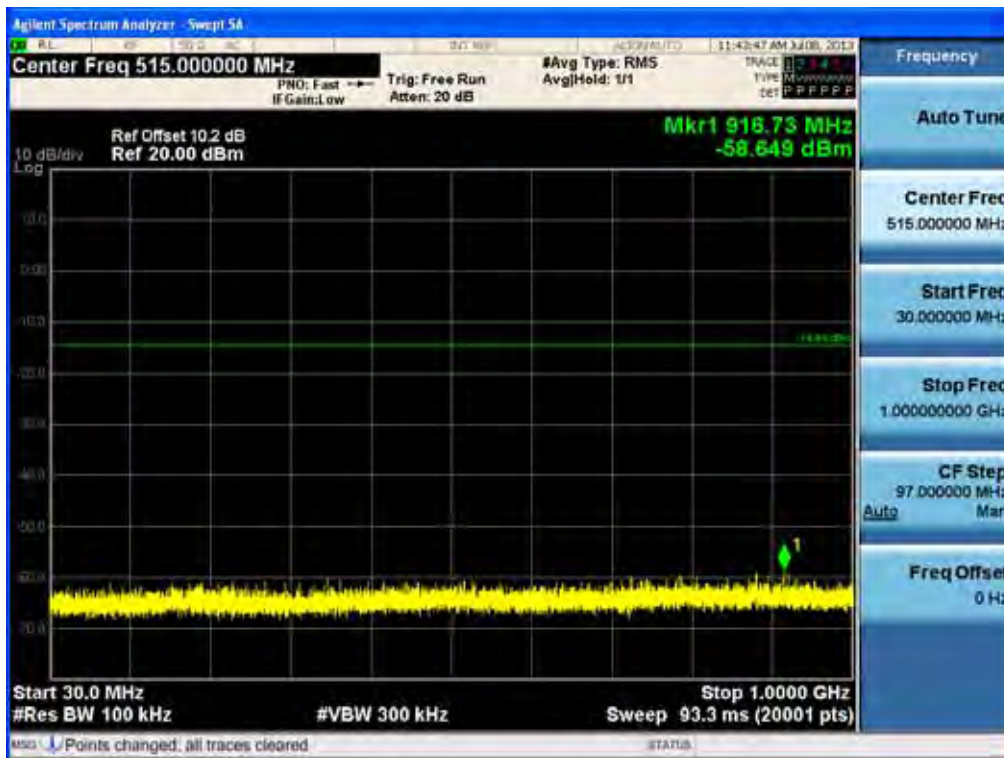


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11n-CH1)

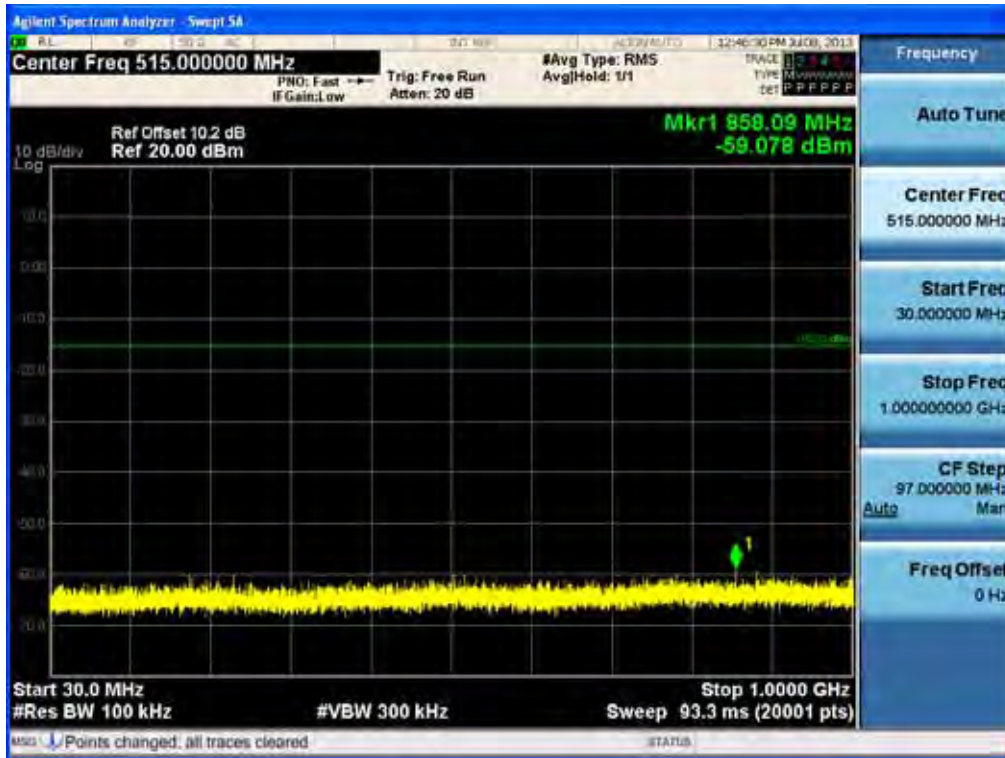


### Conducted Spurious Emission (802.11n-CH6)

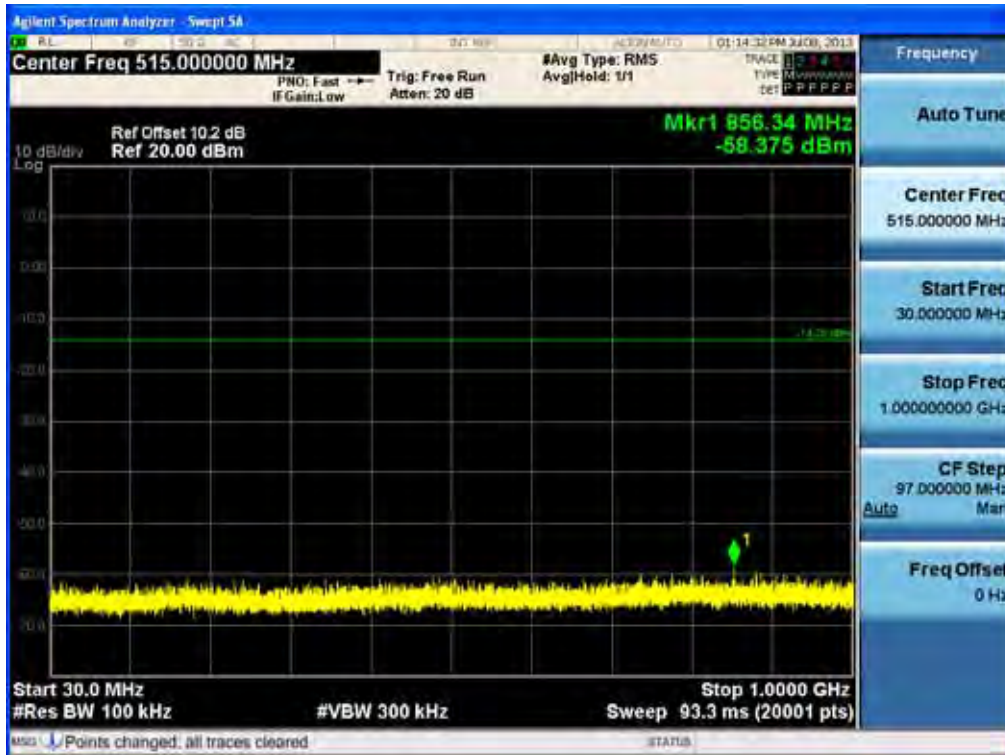


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

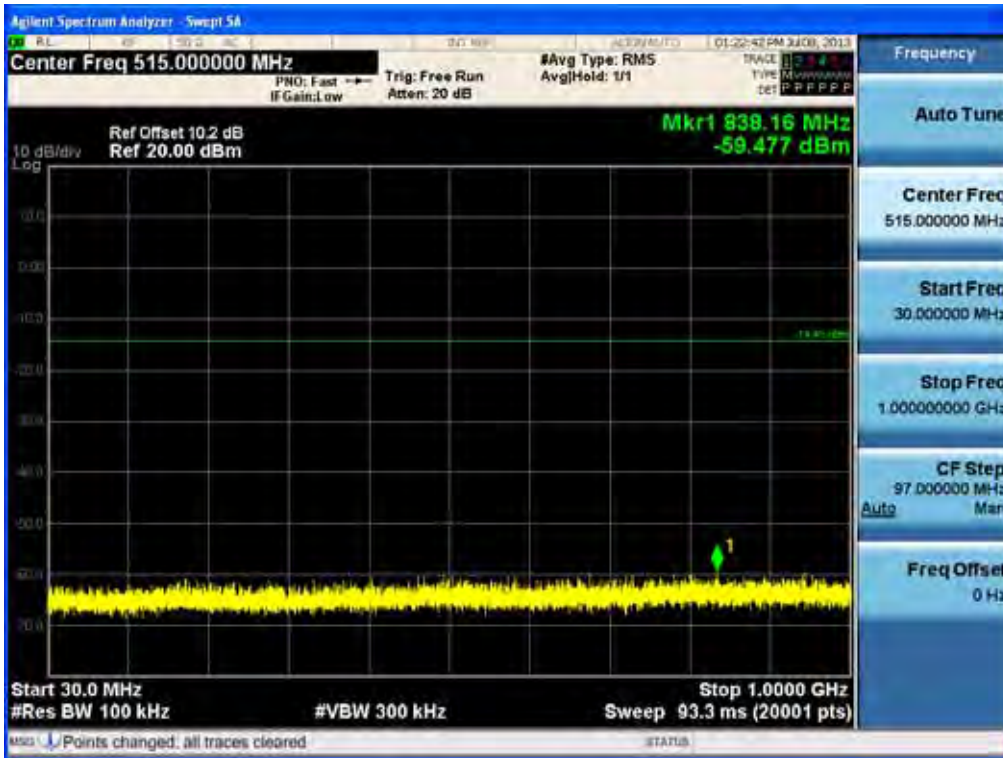
### Conducted Spurious Emission (802.11n-CH11)



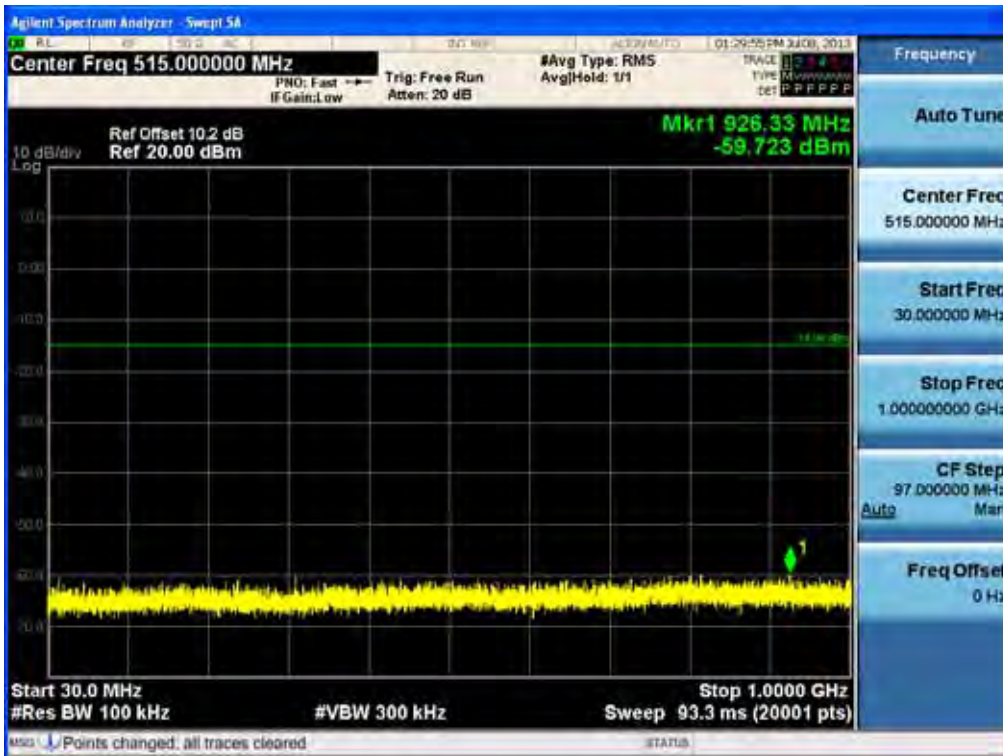
### Conducted Spurious Emission (802.11ac-CH1)



### Conducted Spurious Emission (802.11ac-CH6)

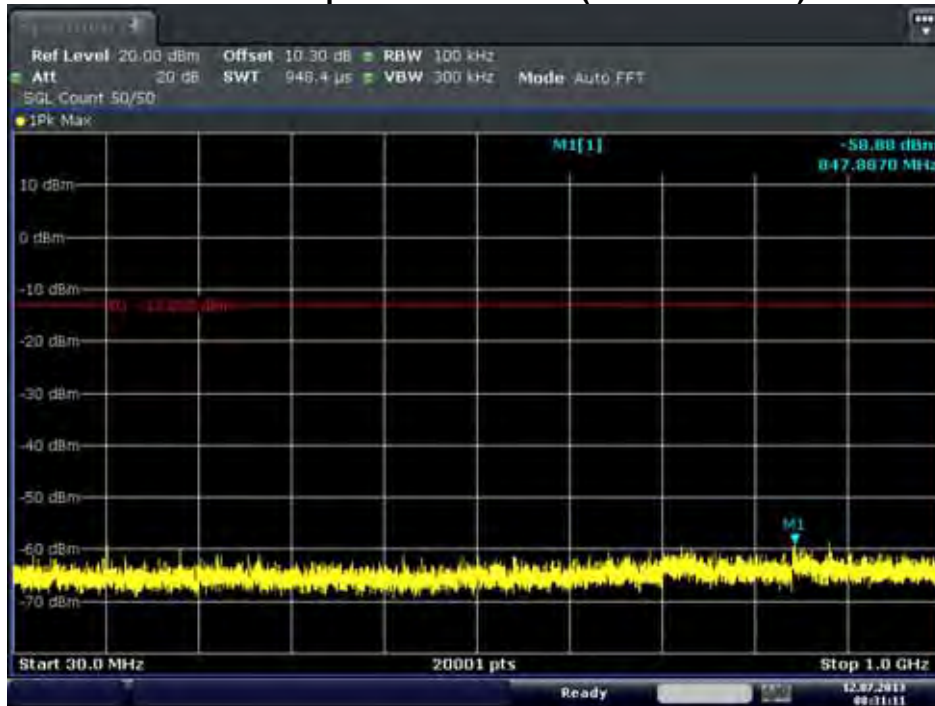


### Conducted Spurious Emission (802.11ac-CH11)



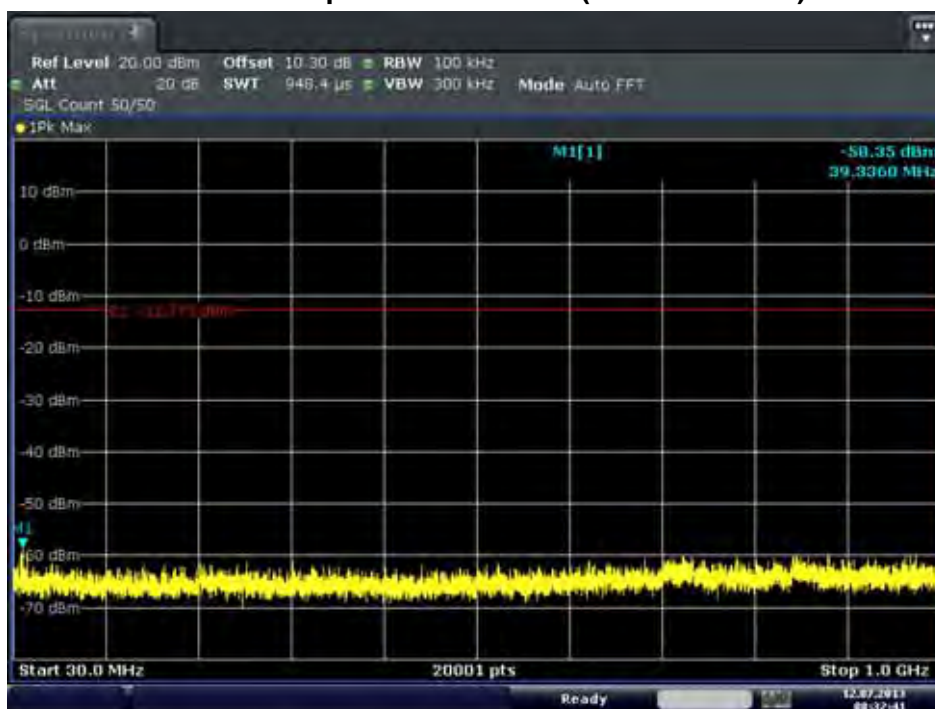
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11a-CH149)



Date: 12, JUL, 2013 08:31:11

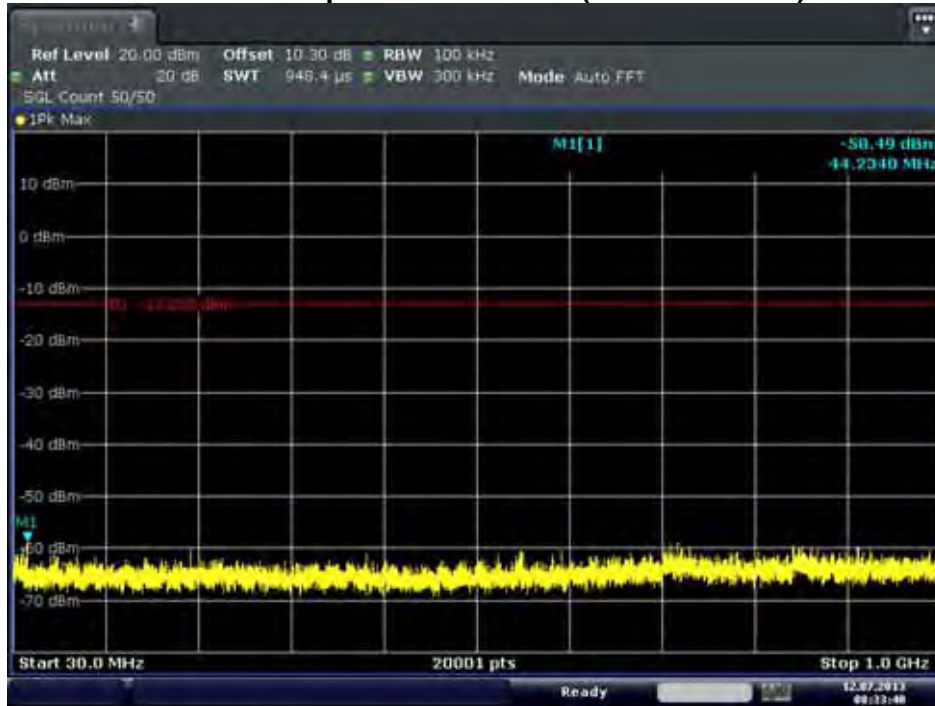
### Conducted Spurious Emission (802.11a-CH157)



Date: 12, JUL, 2013 08:32:41

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11a-CH165)

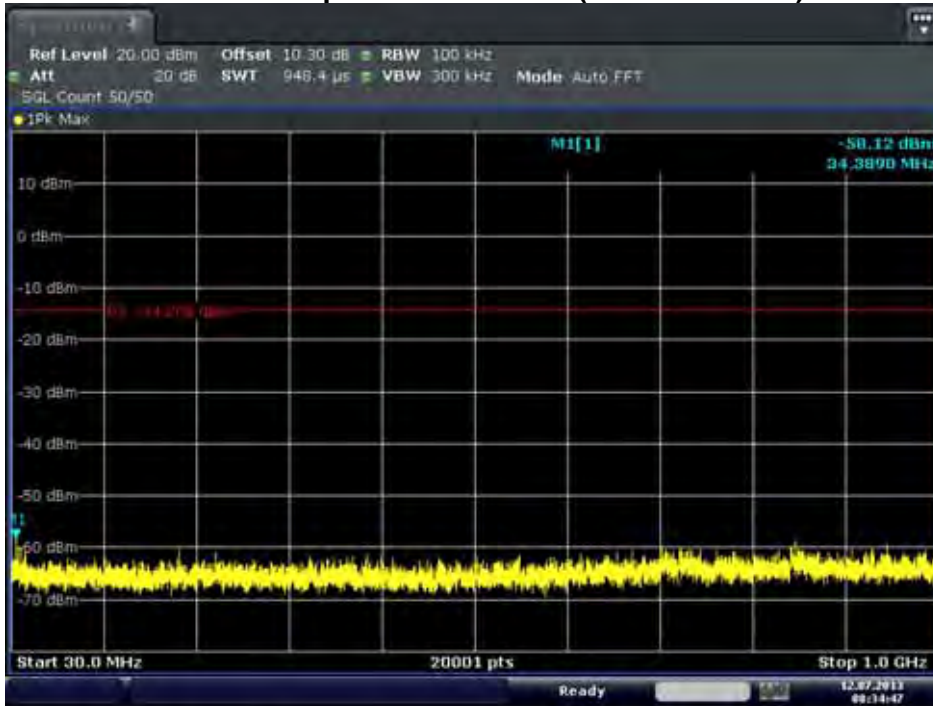


Date: 12.JUL.2013 08:33:48

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

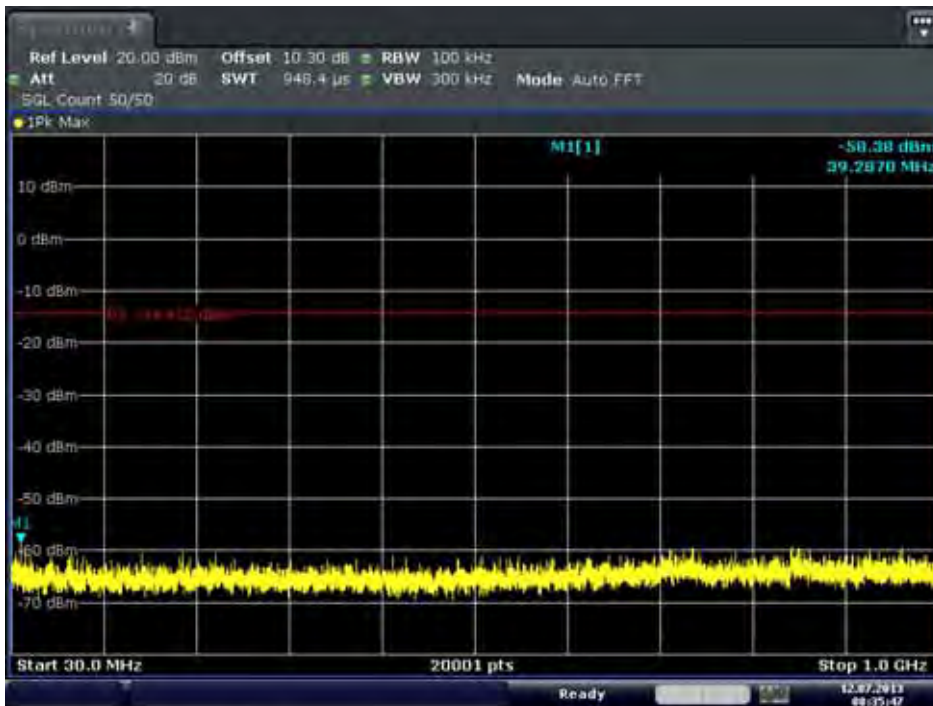


**Conducted Spurious Emission (802.11n-CH149)**



Date: 12, JUL, 2013 08:34:47

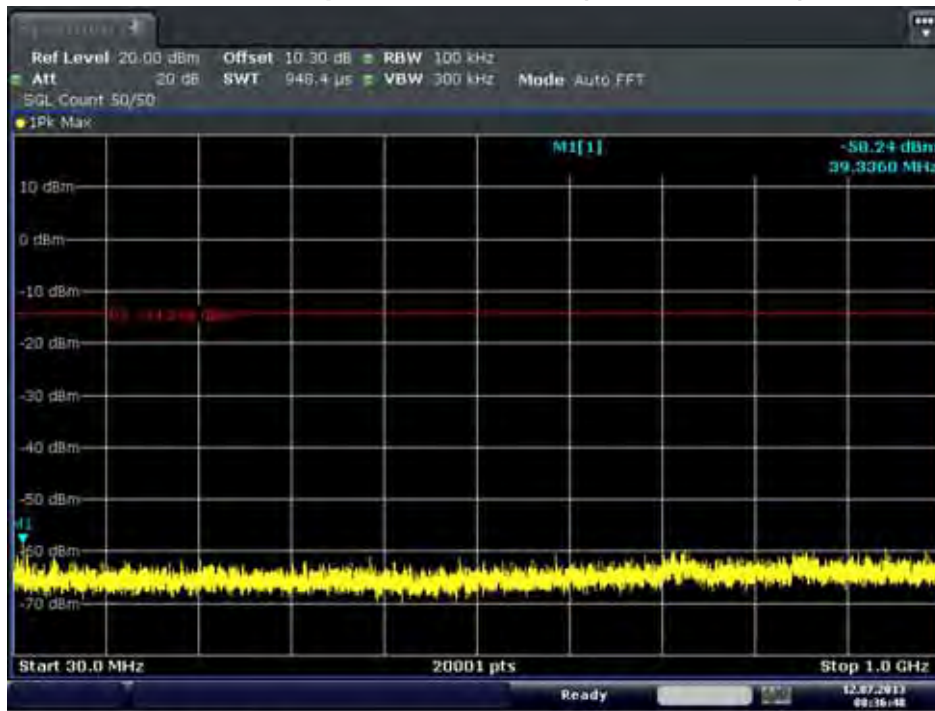
**Conducted Spurious Emission (802.11n-CH157)**



Date: 12, JUL, 2013 08:35:47

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

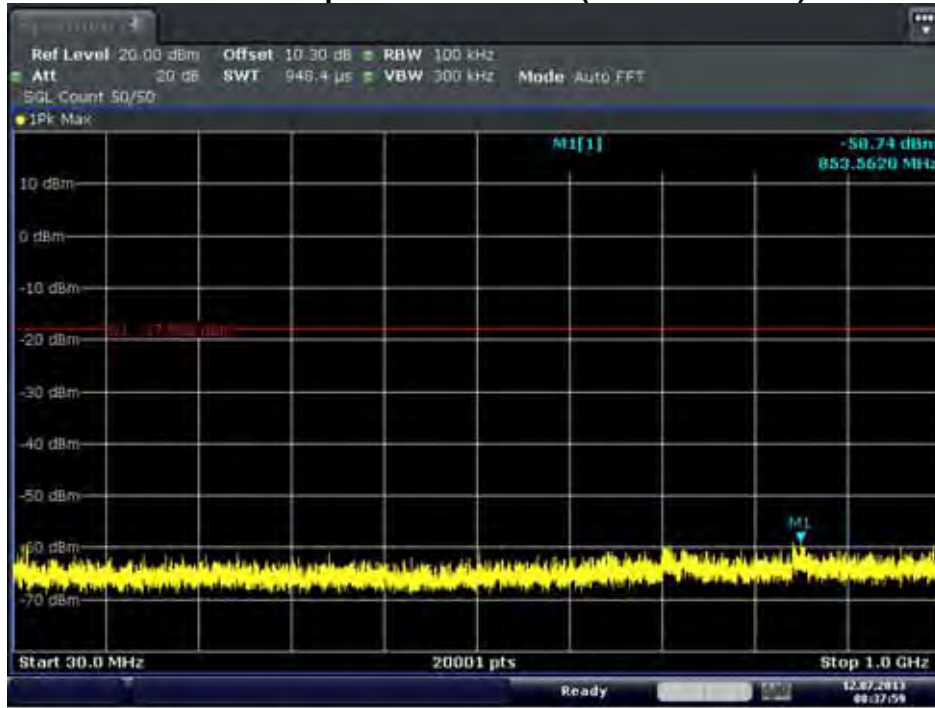
### Conducted Spurious Emission (802.11n-CH165)



Date: 12, JUL, 2013 09:36:48

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821

**Conducted Spurious Emission (802.11n-CH151)**



Date: 12, JUL, 2013 08:37:59

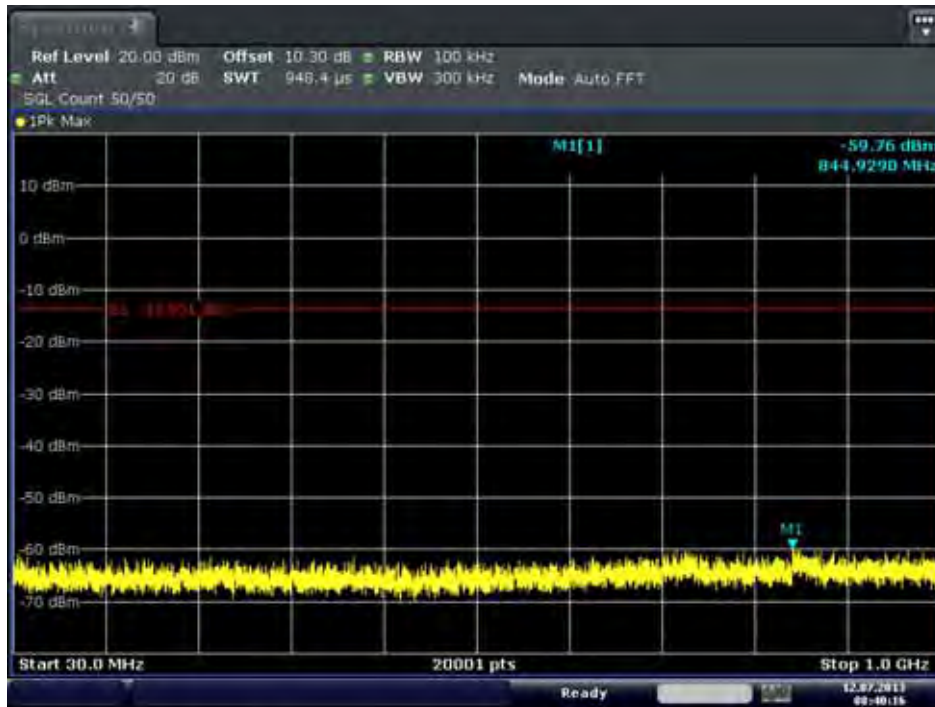
**Conducted Spurious Emission (802.11n-CH159)**



Date: 12, JUL, 2013 08:38:59

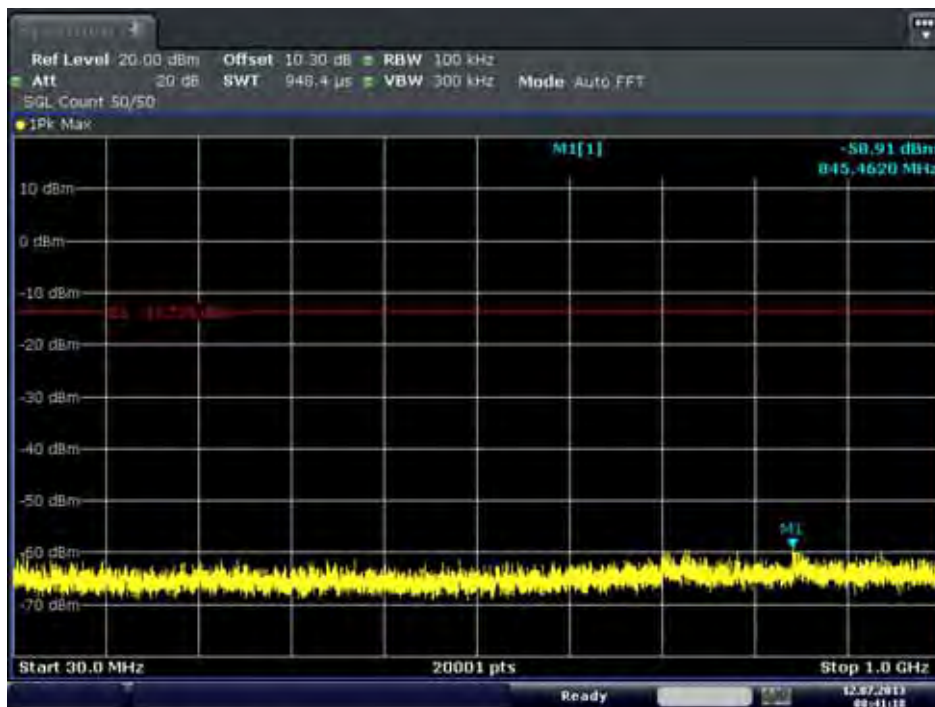
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH149) 20 MHz BW



Date: 12, JUL, 2013 08:40:18

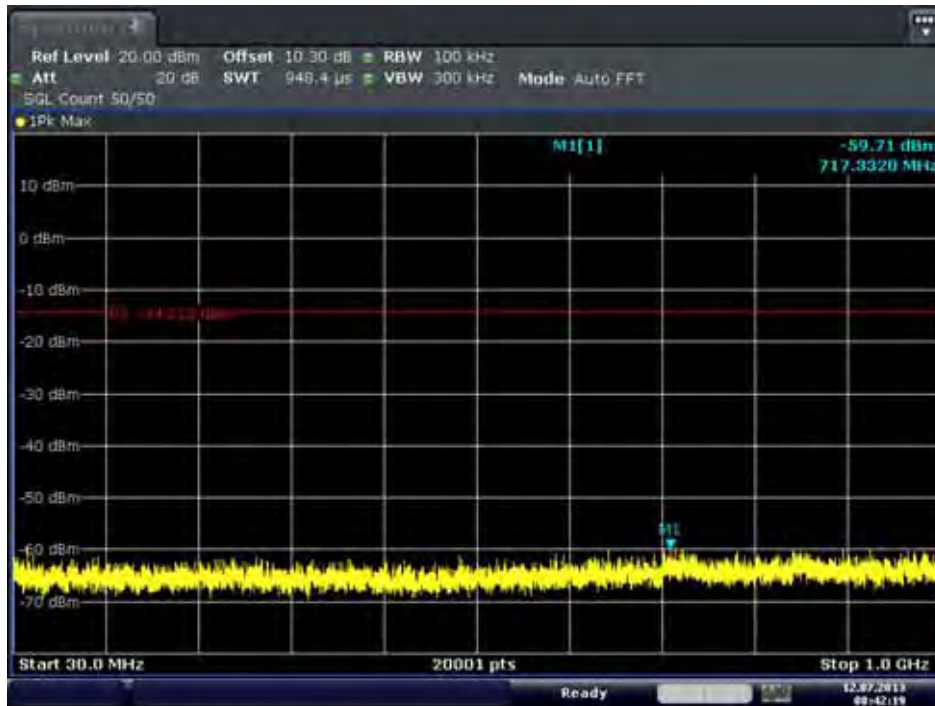
### Conducted Spurious Emission (802.11ac-CH157) 20 MHz BW



Date: 12, JUL, 2013 08:41:18

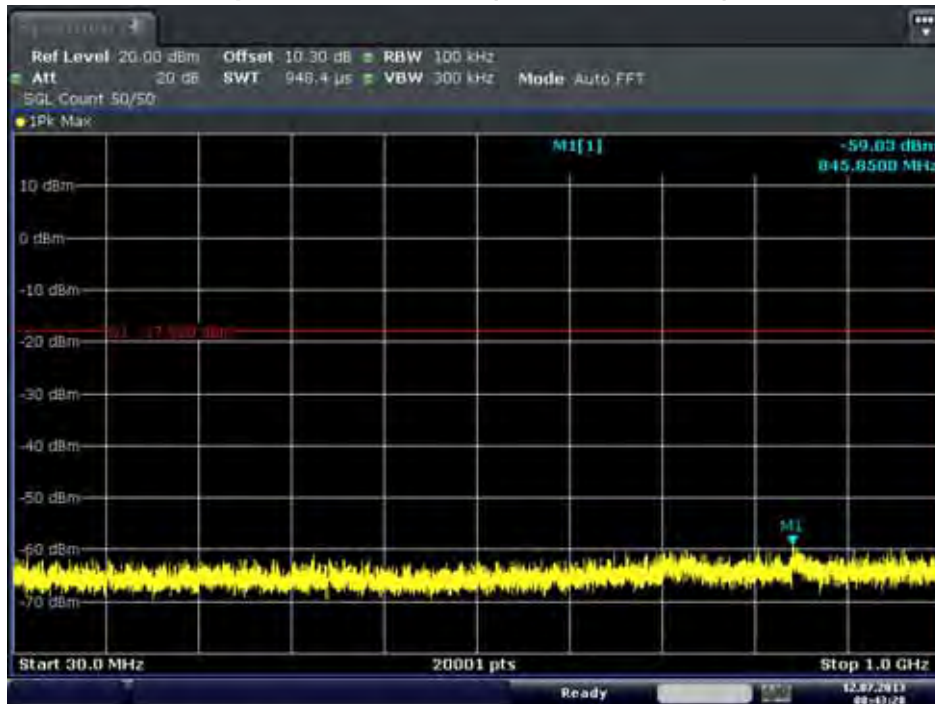
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH165) 20 MHz BW



Date: 12, JUL, 2013 08:42:19

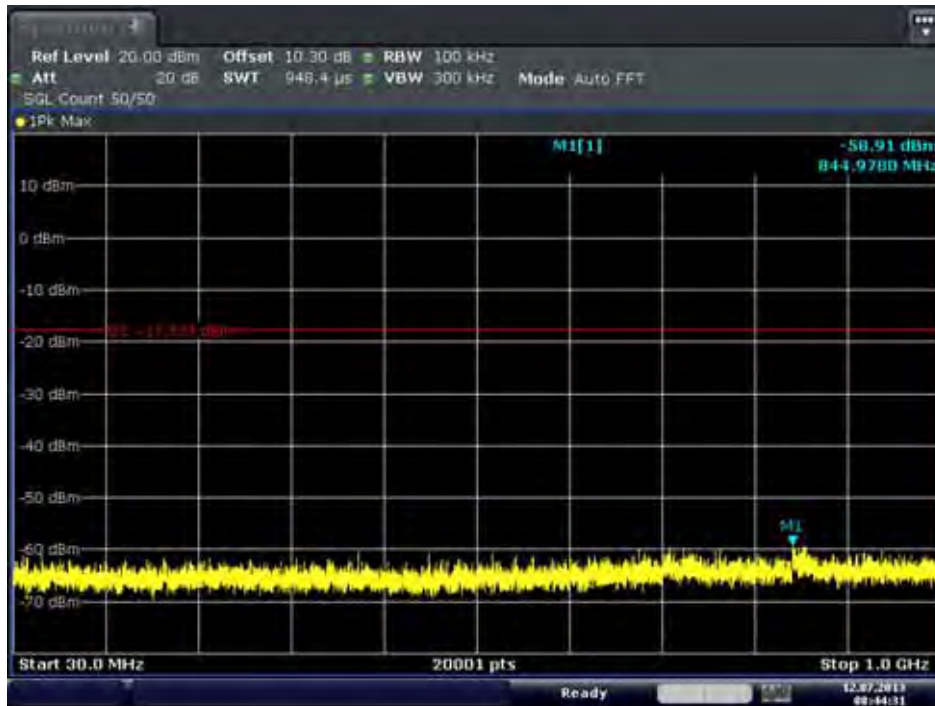
### Conducted Spurious Emission (802.11ac-CH151) 40 MHz BW



Date: 12, JUL, 2013 08:43:28

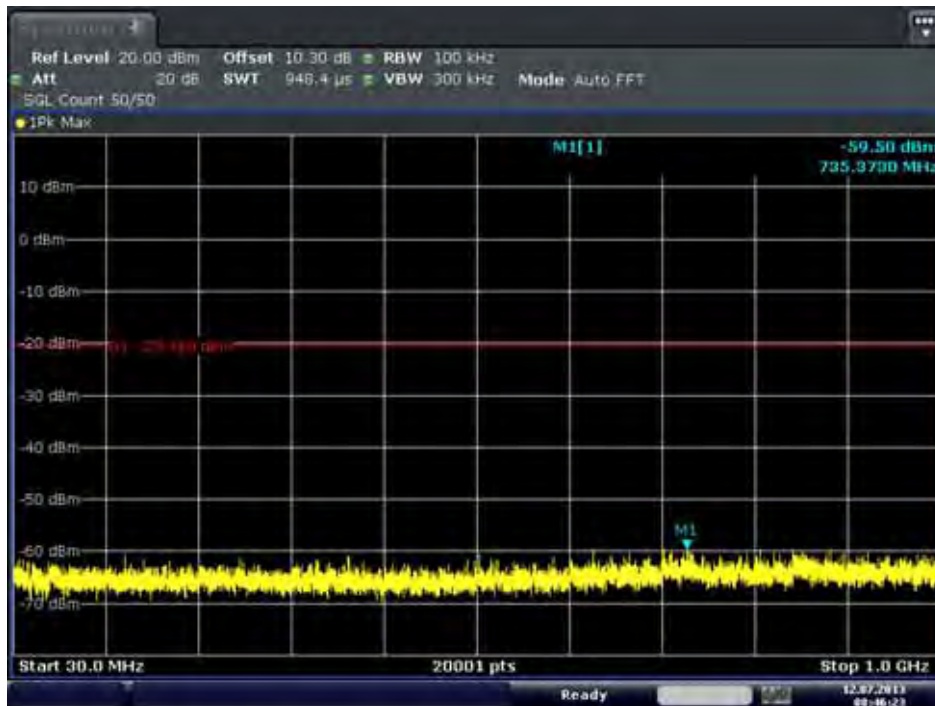
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH159) 40 MHz BW



Date: 12, JUL, 2013 08:44:31

### Conducted Spurious Emission (802.11ac-CH155) 80 MHz BW

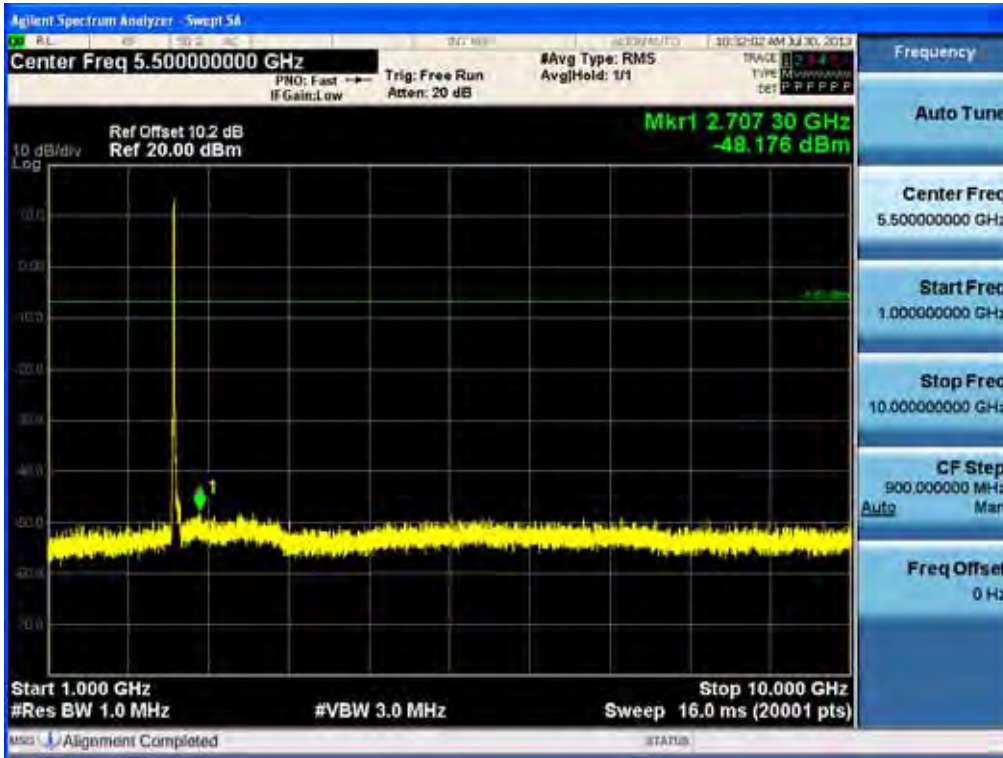


Date: 12, JUL, 2013 08:46:23

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

1 GHz ~ 10 GHz

Conducted Spurious Emission (802.11b-CH1)

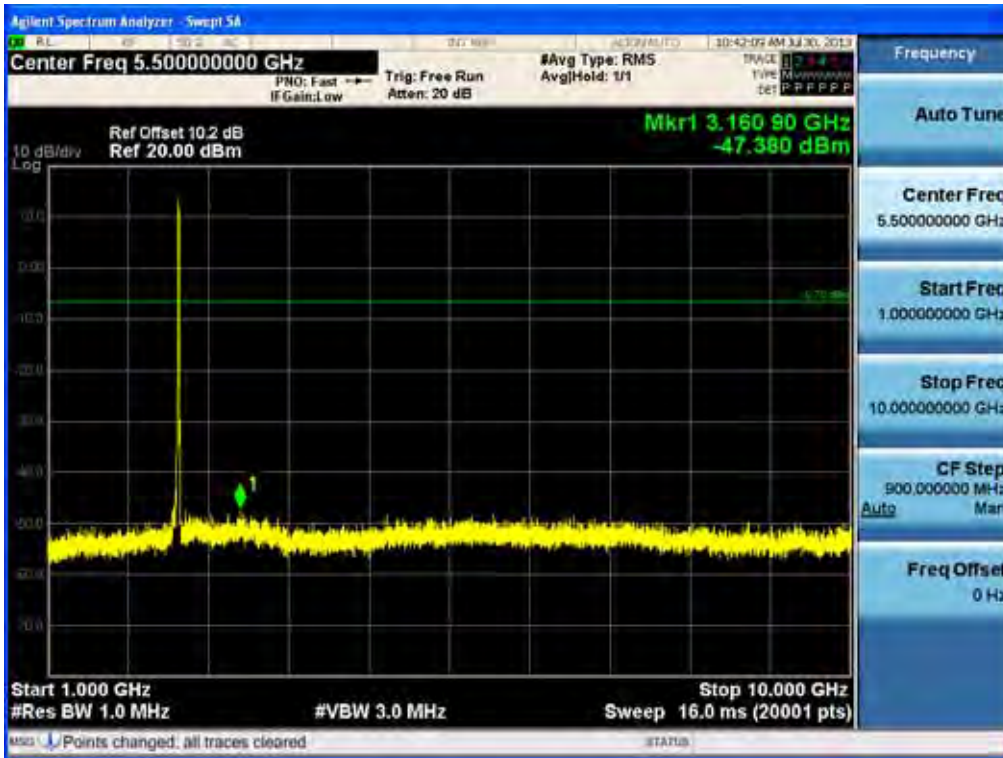


Conducted Spurious Emission (802.11b-CH6)

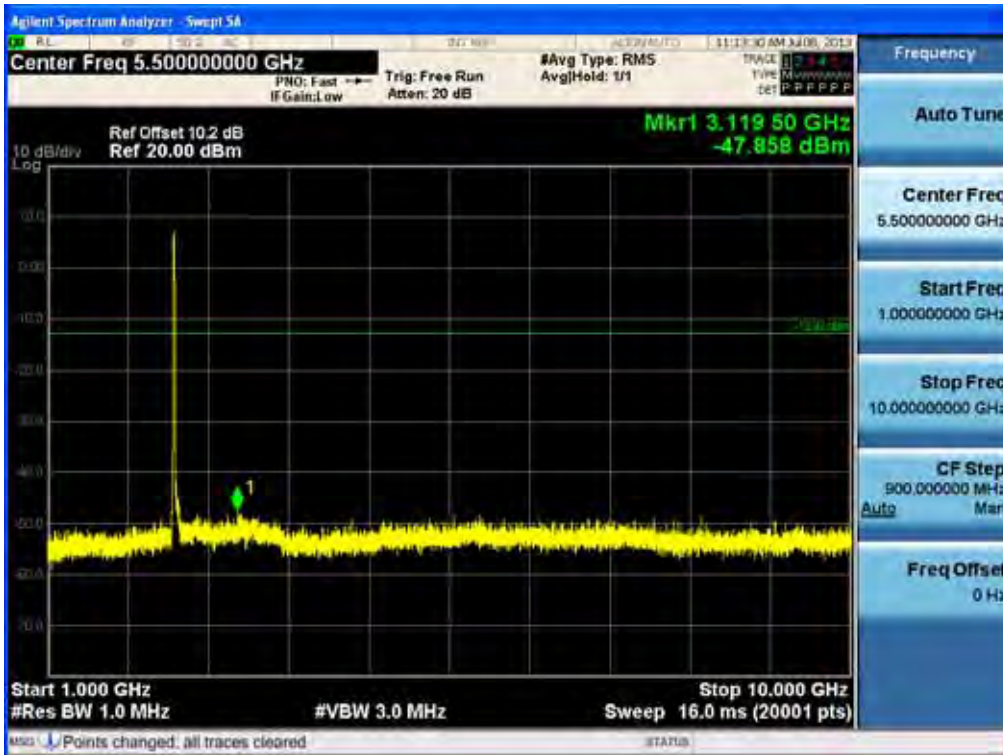


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11b-CH11)



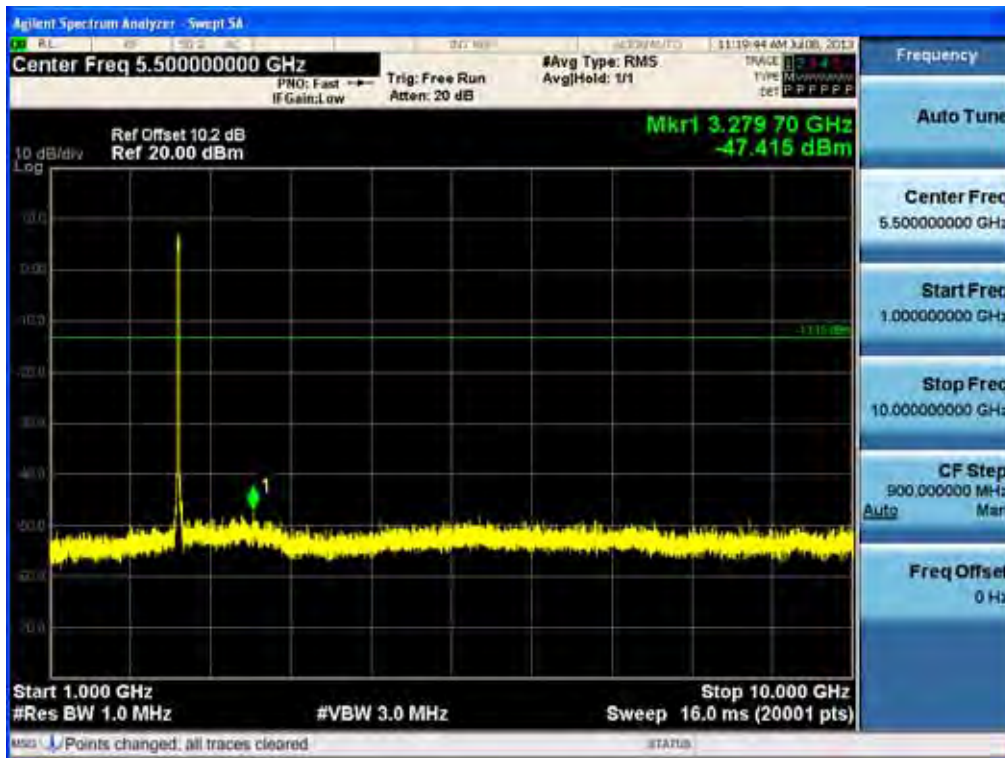
### Conducted Spurious Emission (802.11g-CH1)



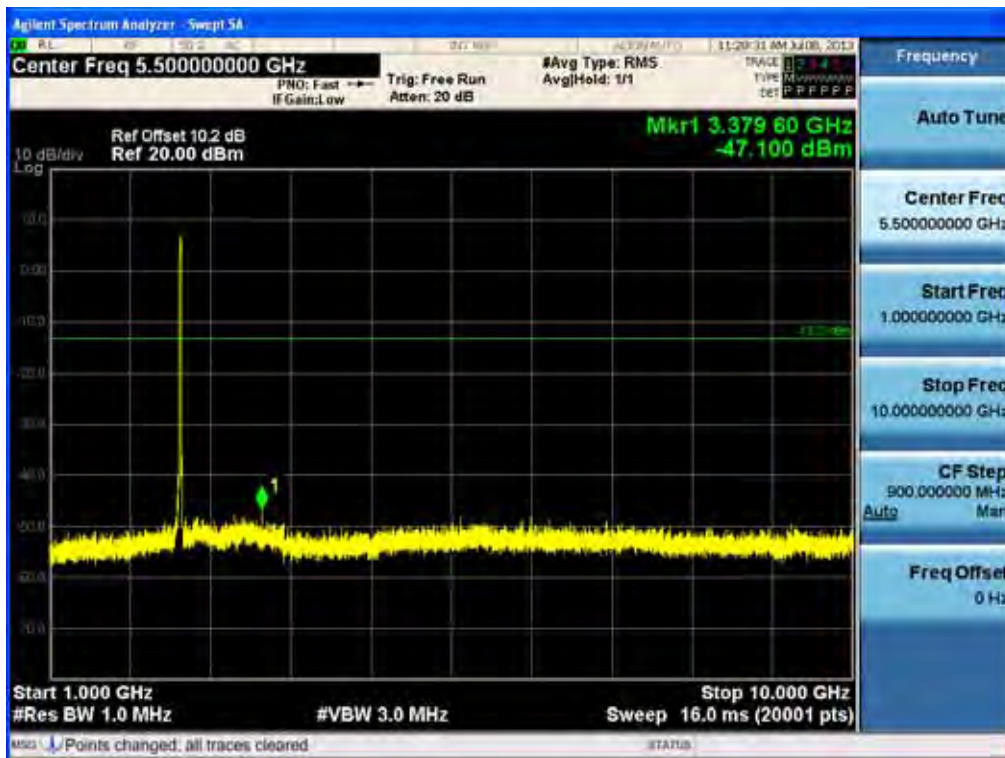
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821



### Conducted Spurious Emission (802.11g-CH6)

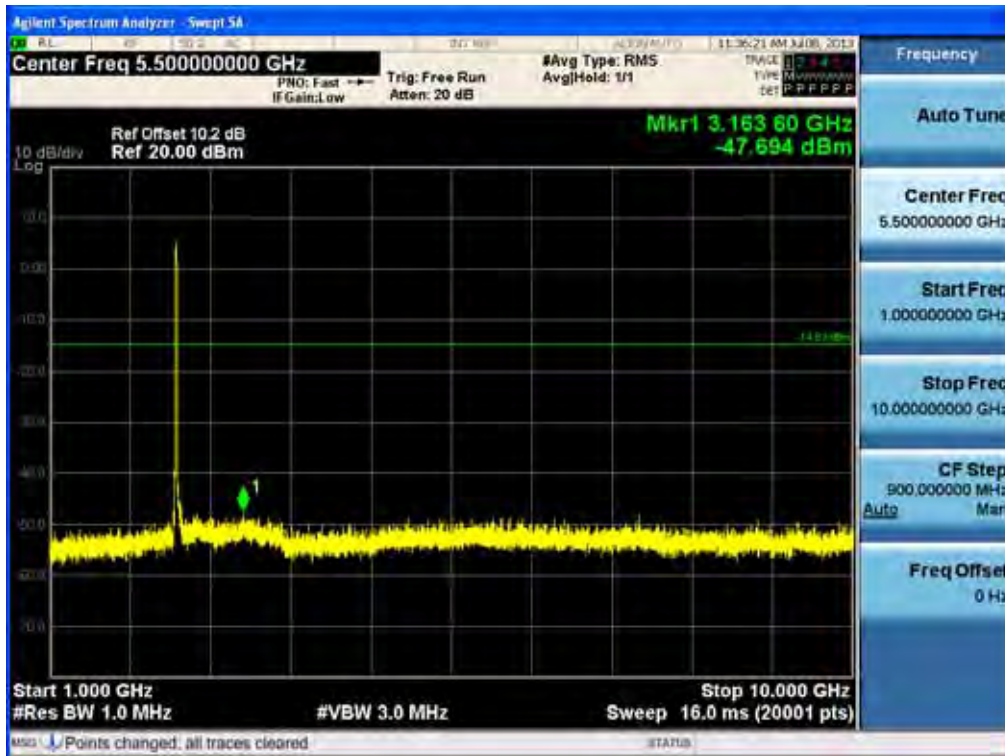


### Conducted Spurious Emission (802.11g-CH11)

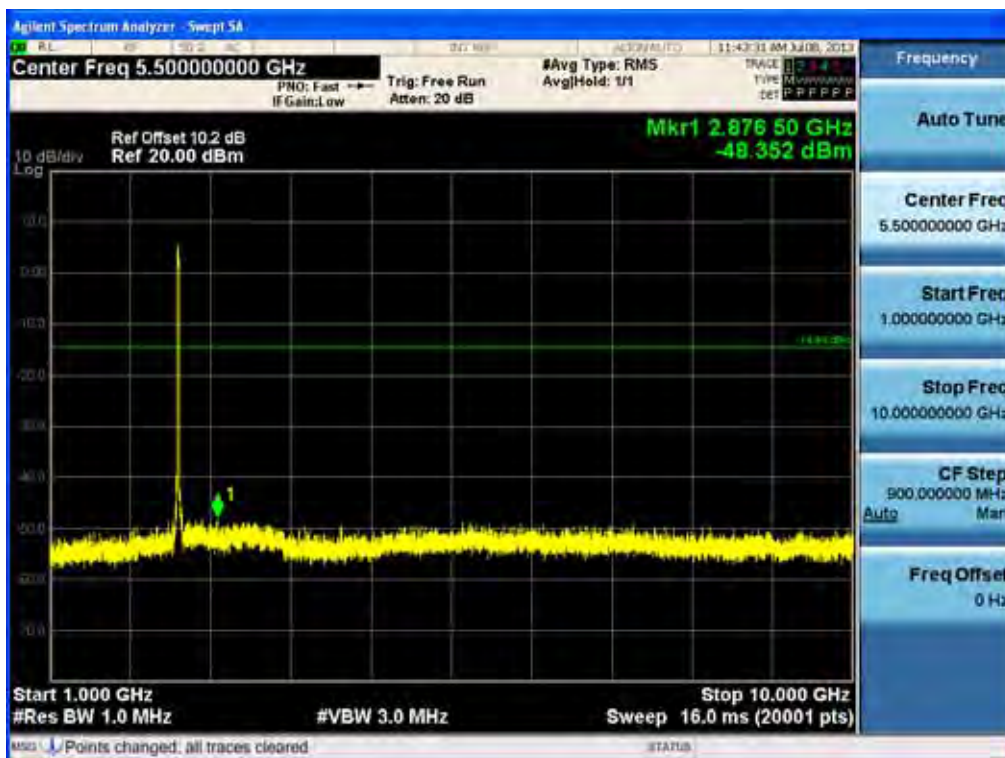


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

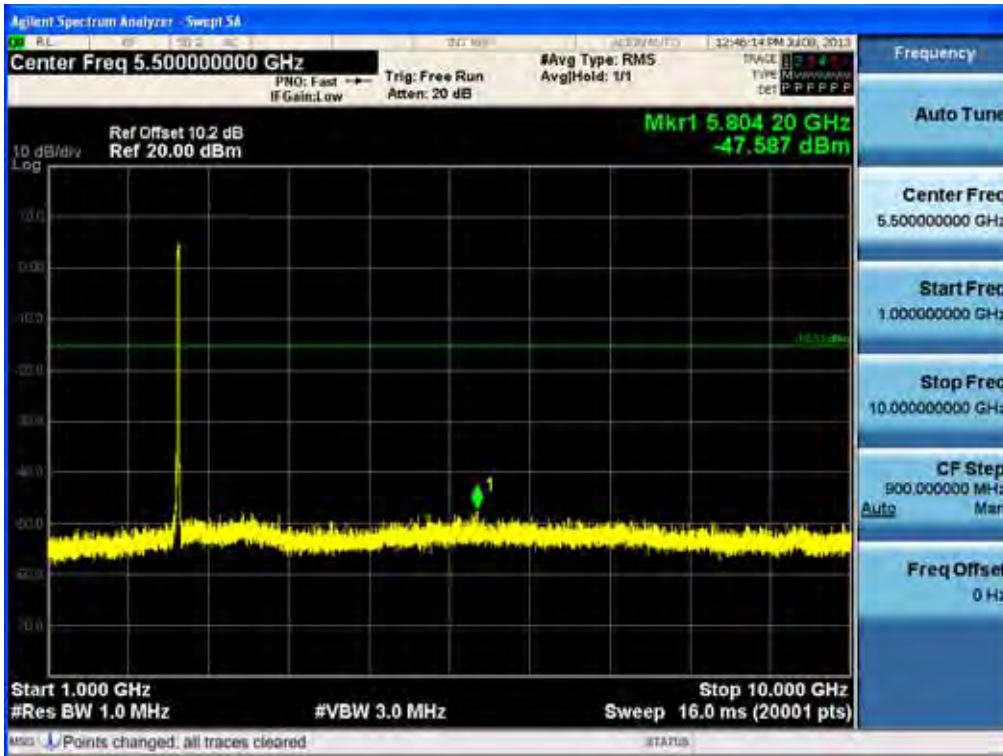
### Conducted Spurious Emission (802.11n-CH1)



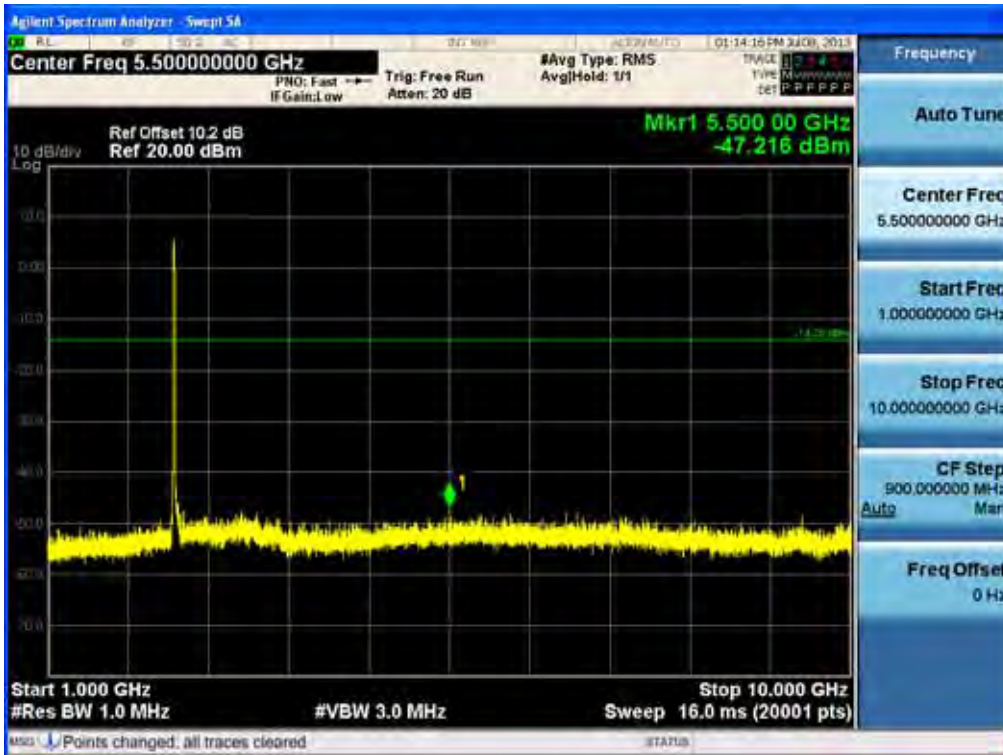
### Conducted Spurious Emission (802.11n-CH6)



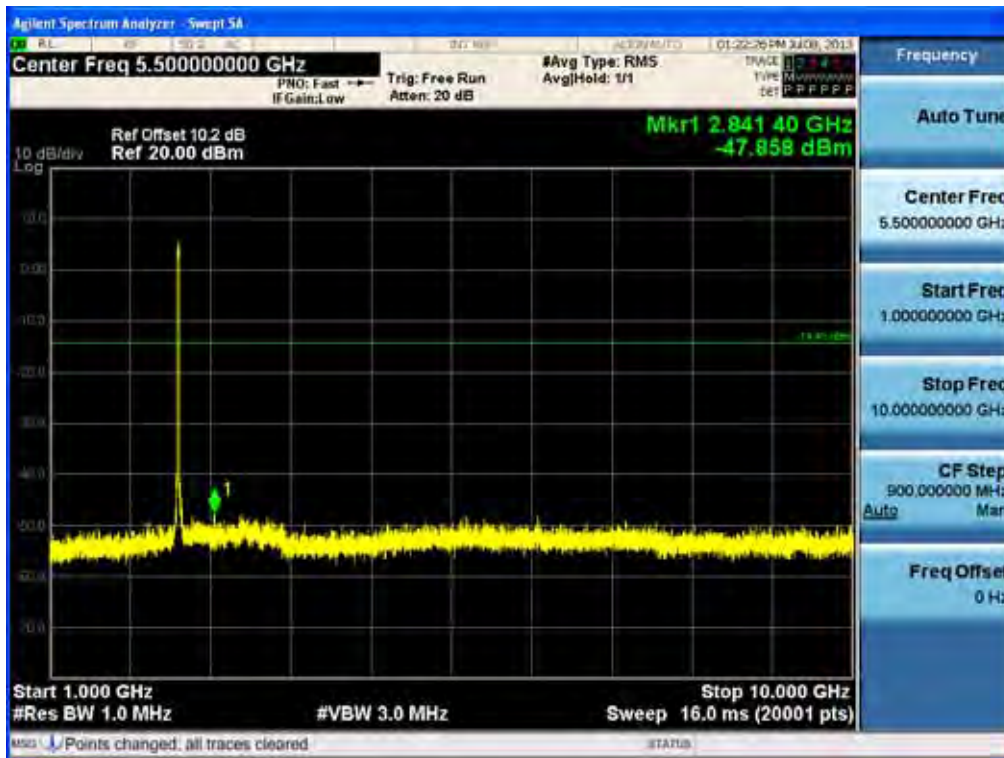
### Conducted Spurious Emission (802.11n-CH11)



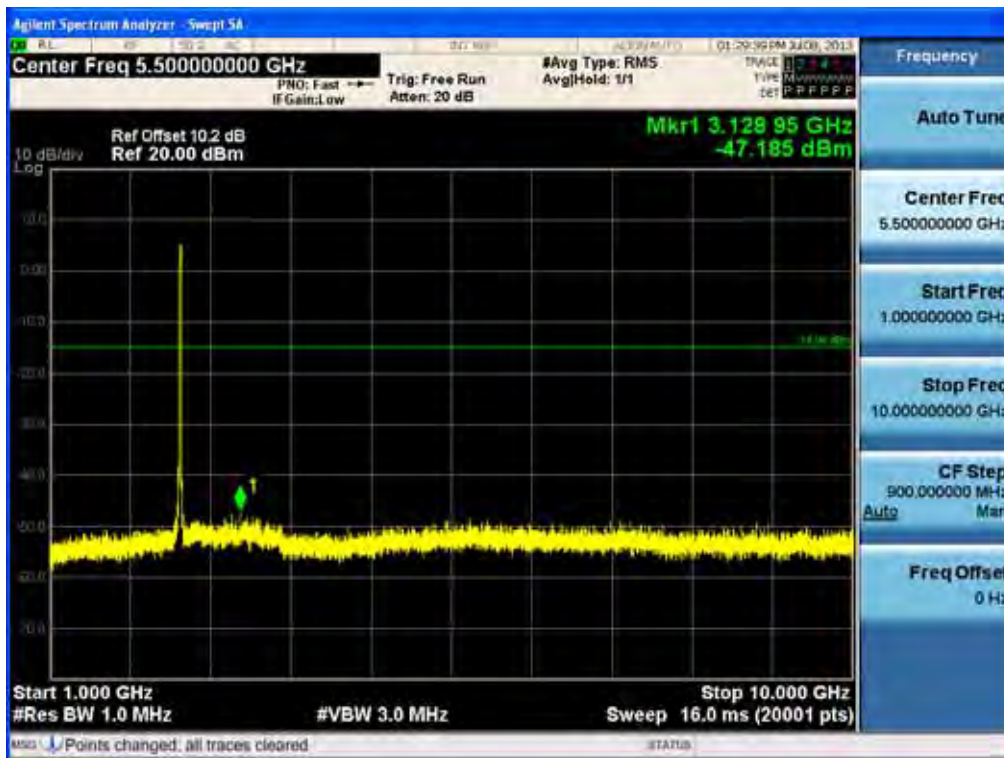
### Conducted Spurious Emission (802.11ac-CH1)



### Conducted Spurious Emission (802.11ac-CH6)

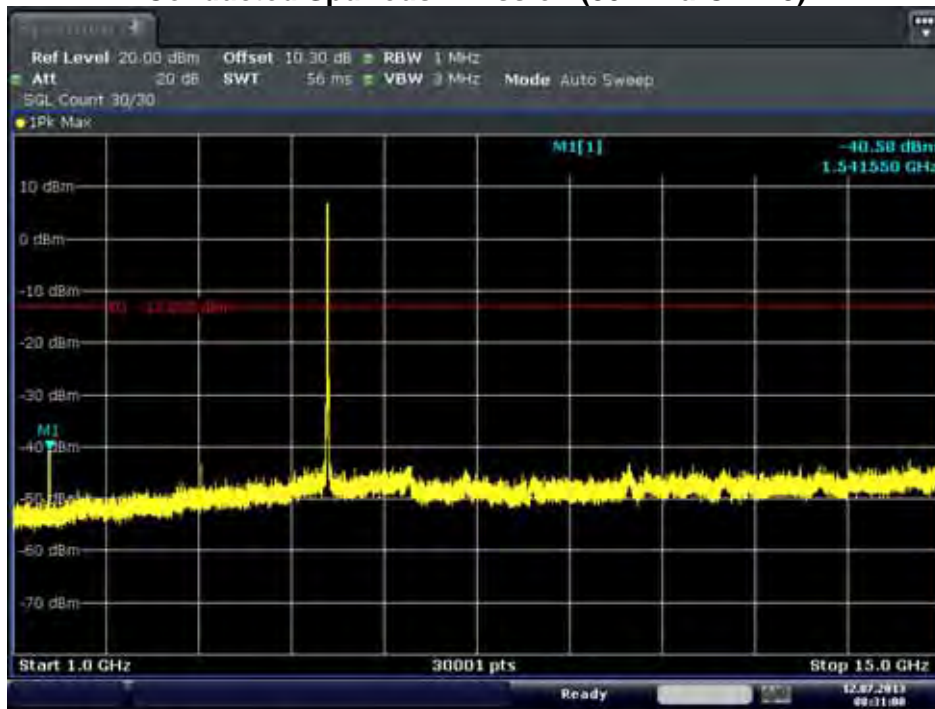


### Conducted Spurious Emission (802.11ac-CH11)



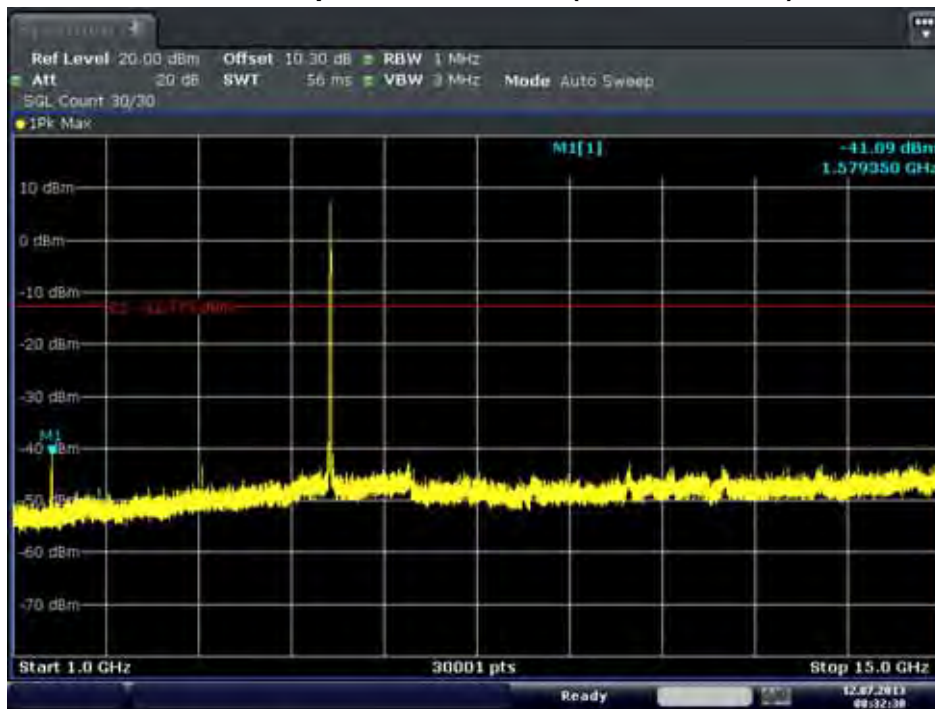
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**Conducted Spurious Emission (802.11a-CH149)**



DATE: 12.JUL.2013 08:31:08

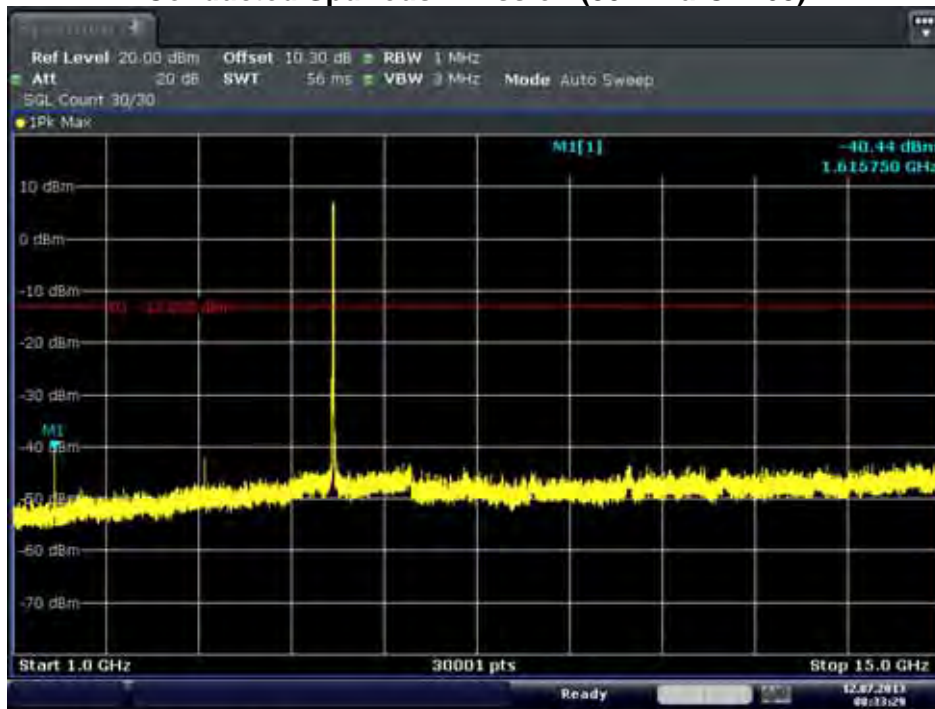
**Conducted Spurious Emission (802.11a-CH157)**



DATE: 12.JUL.2013 08:32:38

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

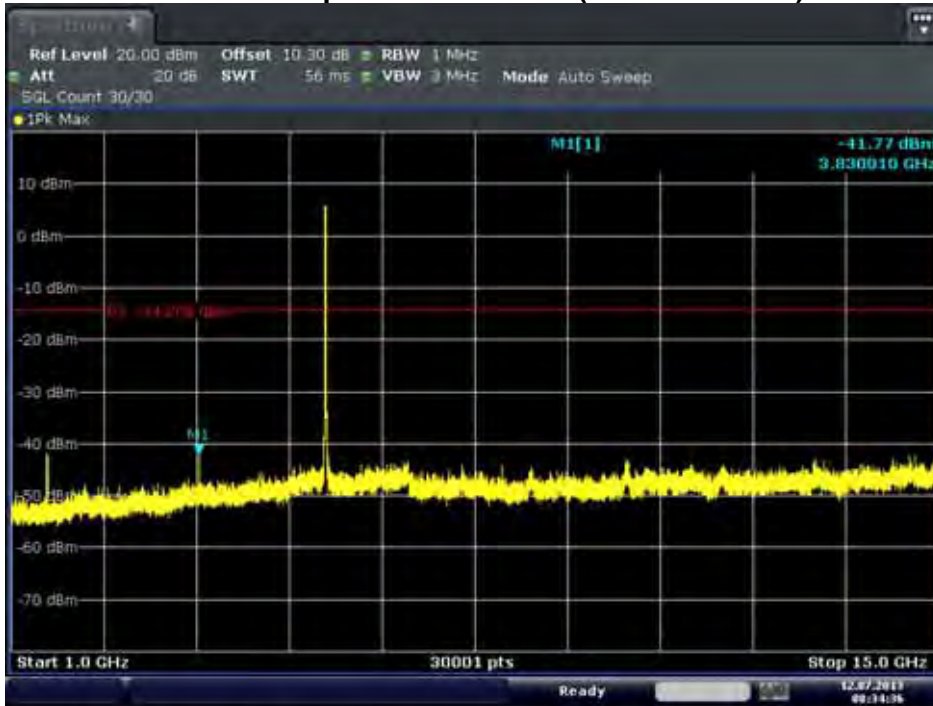
### Conducted Spurious Emission (802.11a-CH165)



Date: 12, JUL, 2013 08:33:25

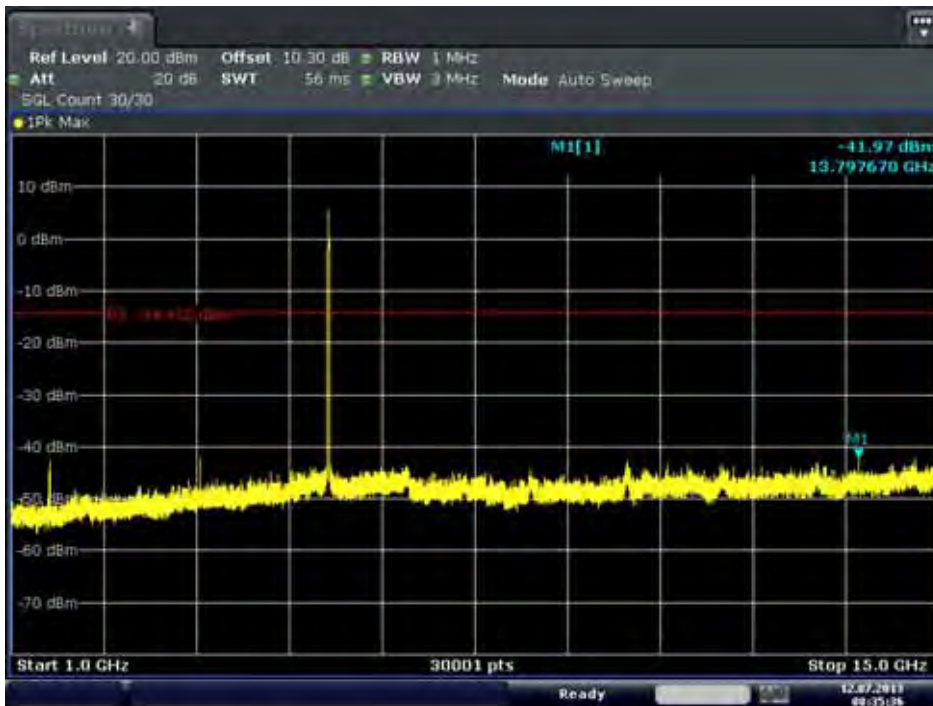
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**Conducted Spurious Emission (802.11n-CH149)**



DATE: 12, JUL, 2013 08:14:38

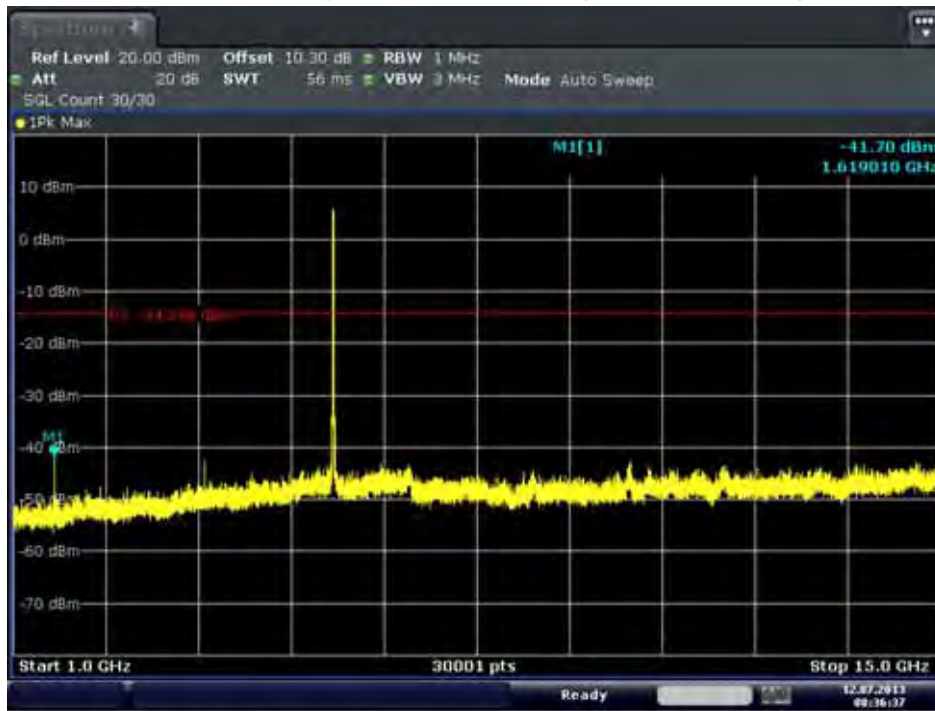
**Conducted Spurious Emission (802.11n-CH157)**



DATE: 12, JUL, 2013 08:15:38

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF0821

### Conducted Spurious Emission (802.11n-CH165)

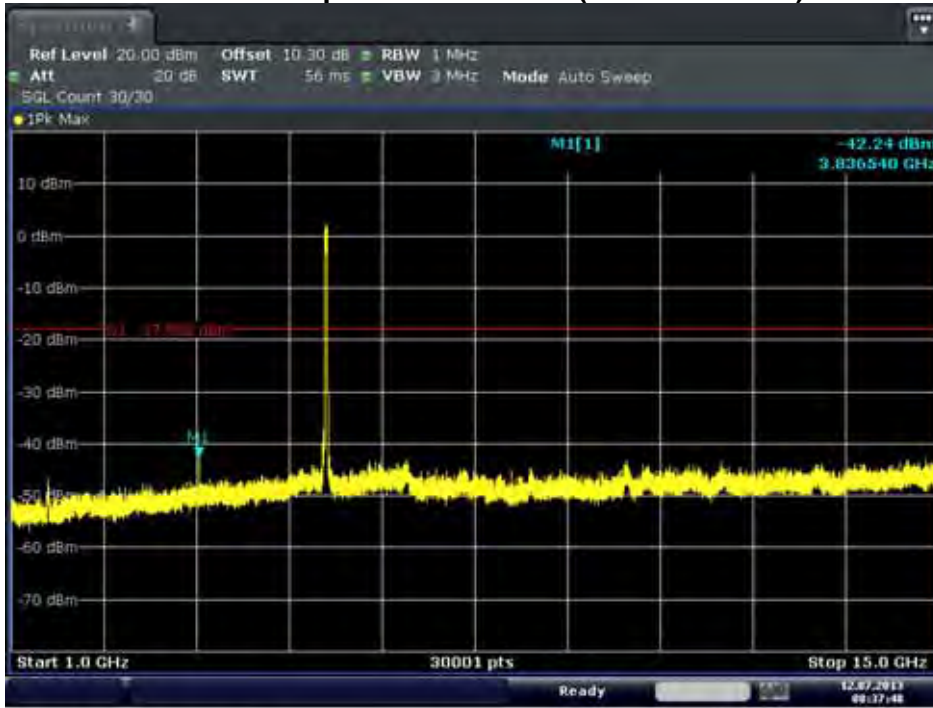


Date: 12,08,2013 09:36:37

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

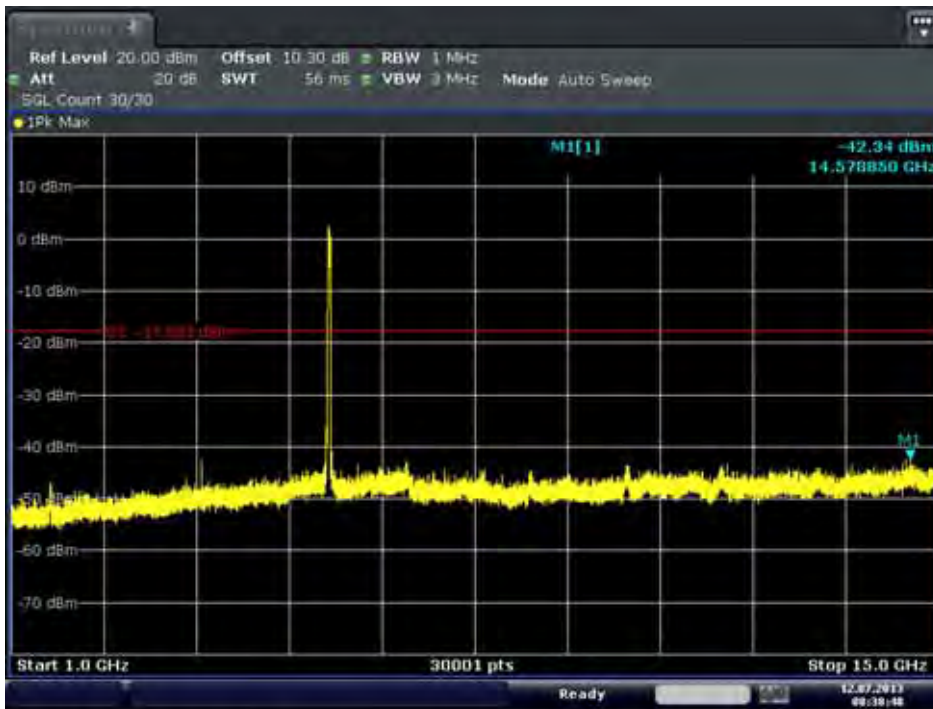


**Conducted Spurious Emission (802.11n-CH151)**



Date: 12.JUL.2013 09:17:47

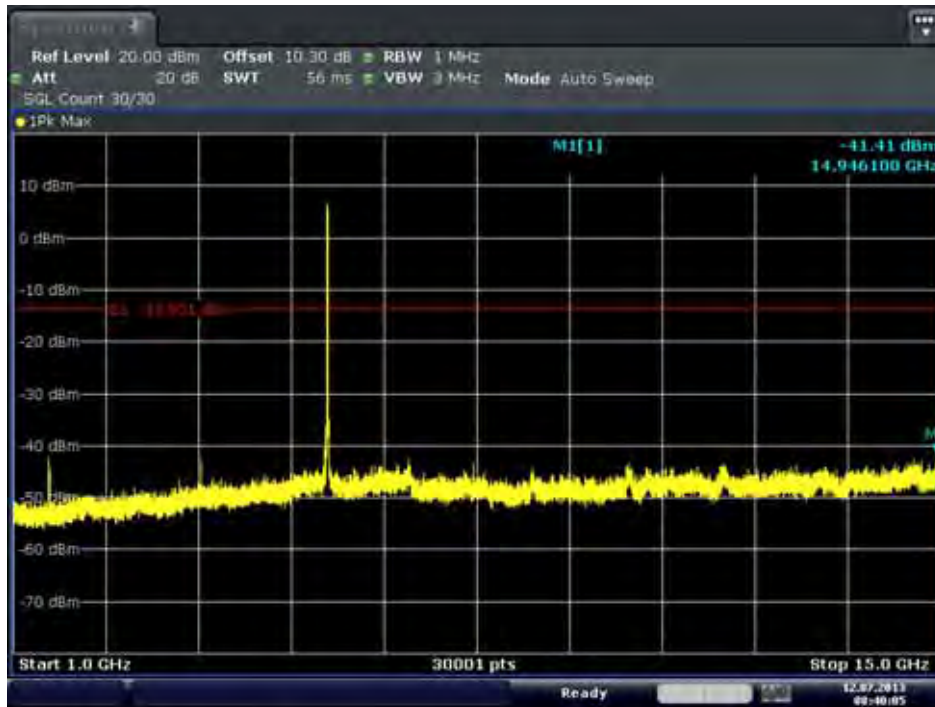
**Conducted Spurious Emission (802.11n-CH159)**



Date: 12.JUL.2013 09:18:48

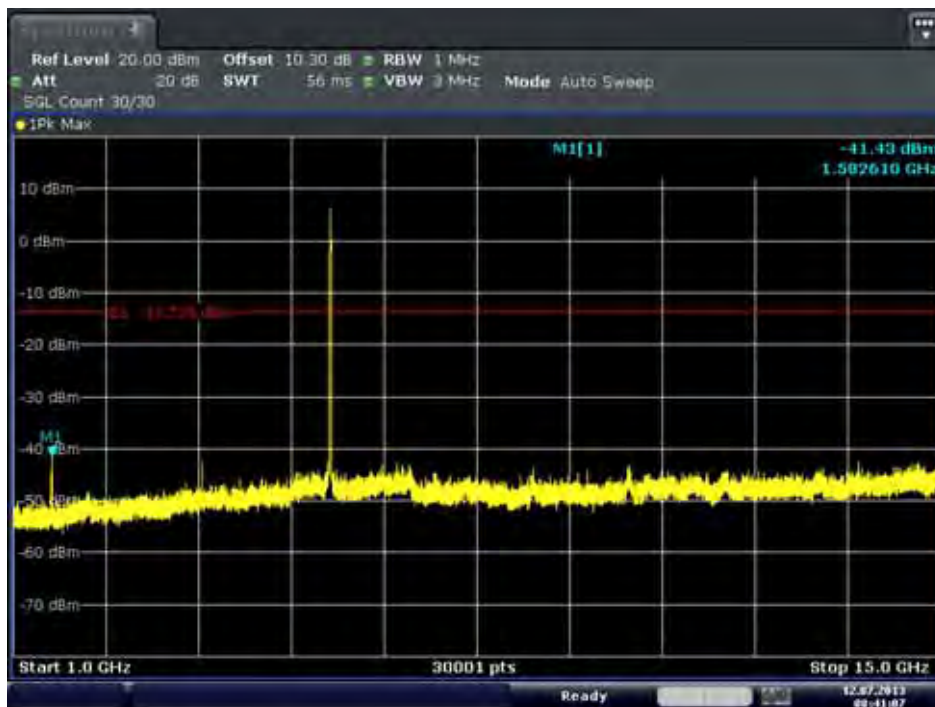
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH149) 20 MHz BW



Date: 12, JUL, 2013 08:40:05

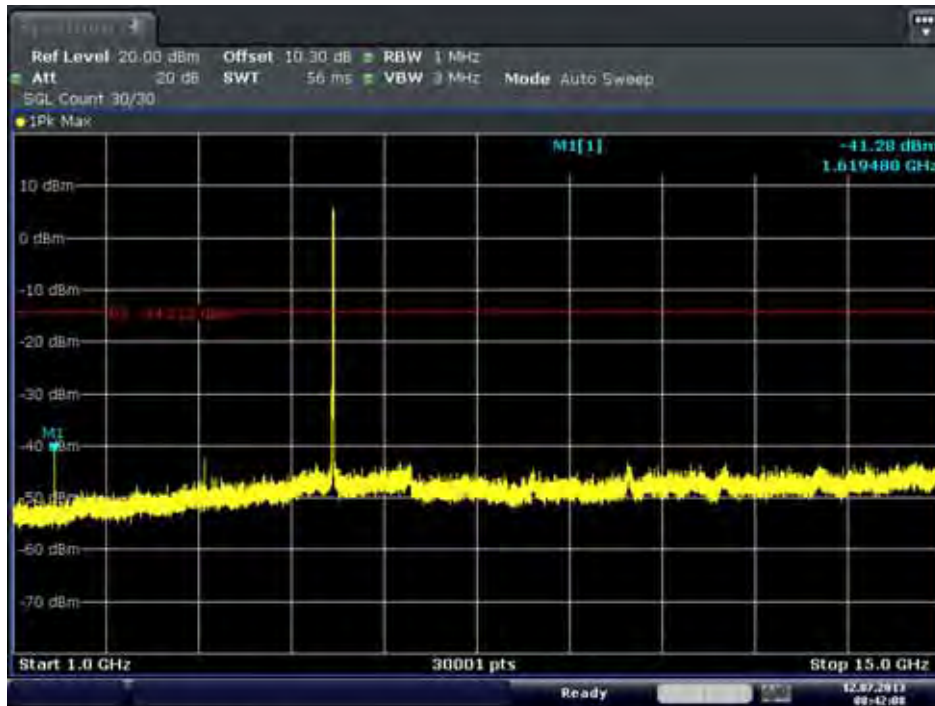
### Conducted Spurious Emission (802.11ac-CH157) 20 MHz BW



Date: 12, JUL, 2013 08:41:07

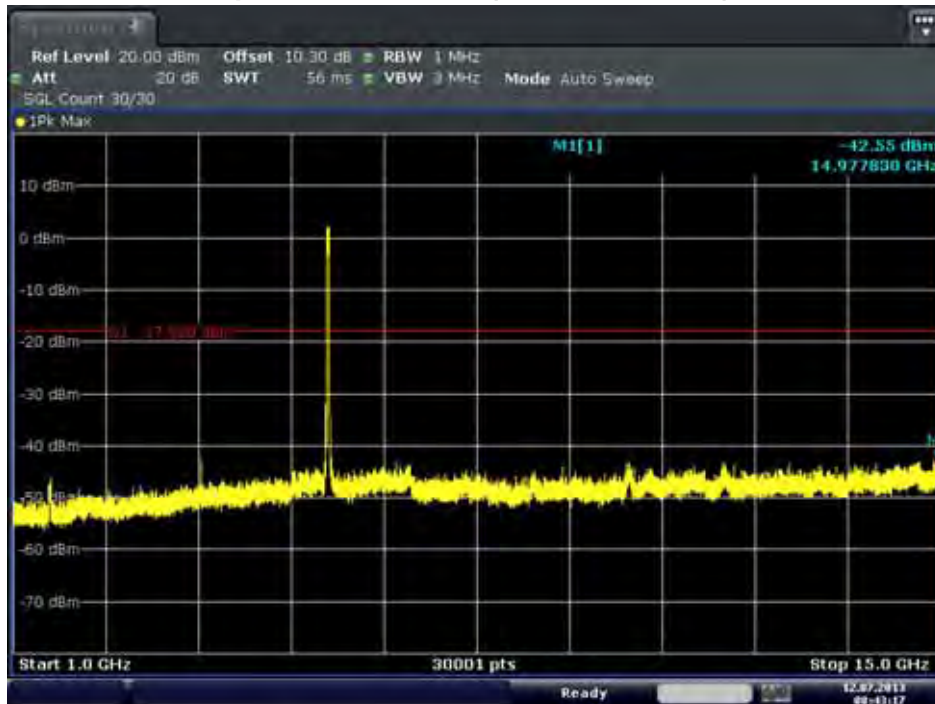
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH165) 20 MHz BW



Date: 12,07,2013 08:42:08

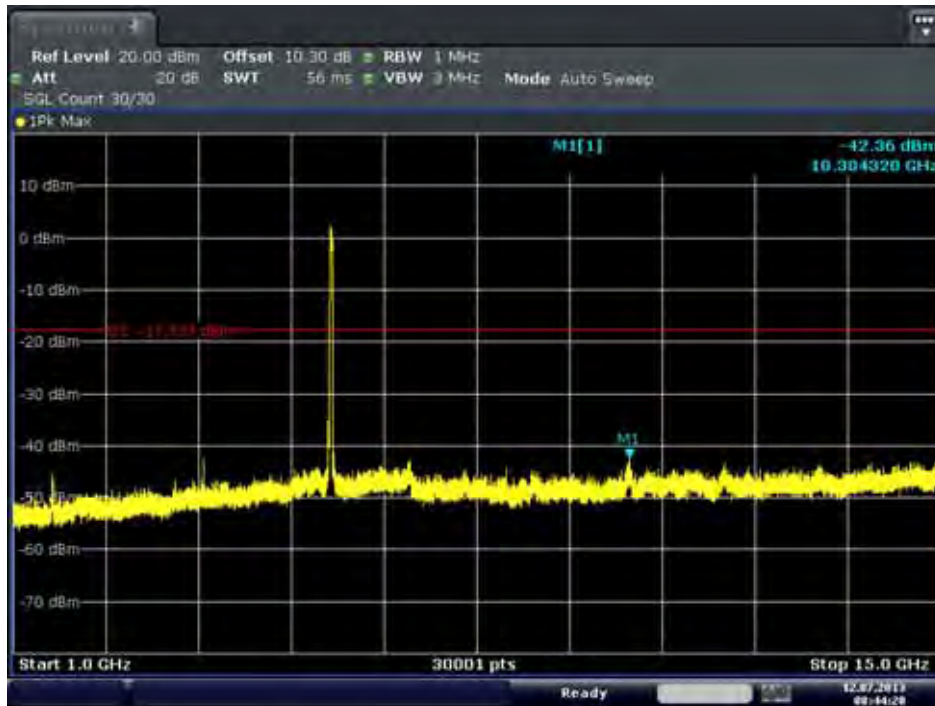
### Conducted Spurious Emission (802.11ac-CH151) 40 MHz BW



Date: 12,07,2013 08:43:17

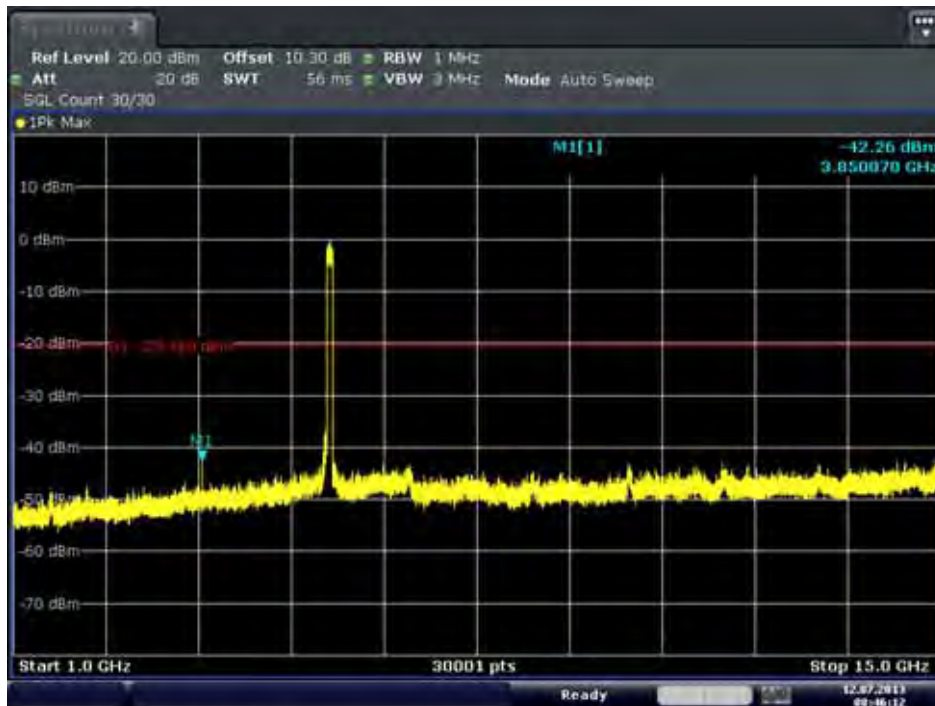
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH159) 40 MHz BW



Date: 12, JUL, 2013 08:44:20

### Conducted Spurious Emission (802.11ac-CH155) 80 MHz BW



Date: 12, JUL, 2013 08:46:12

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

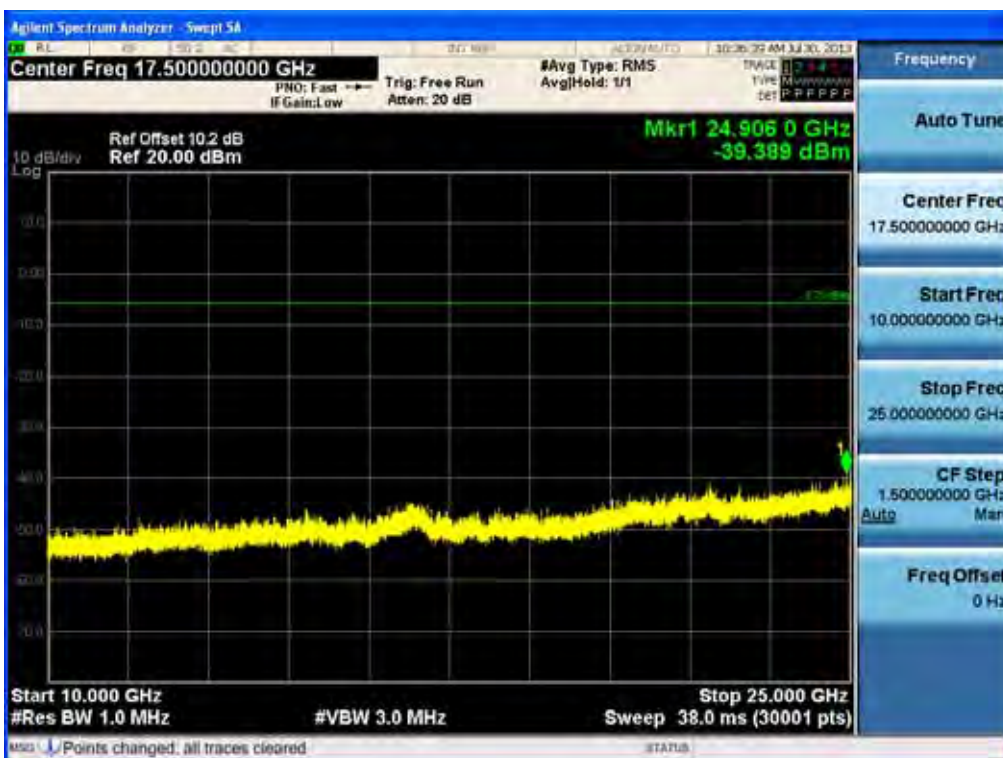


10 GHz ~ 25 GHz

Conducted Spurious Emission (802.11b-CH1)



Conducted Spurious Emission (802.11b-CH6)

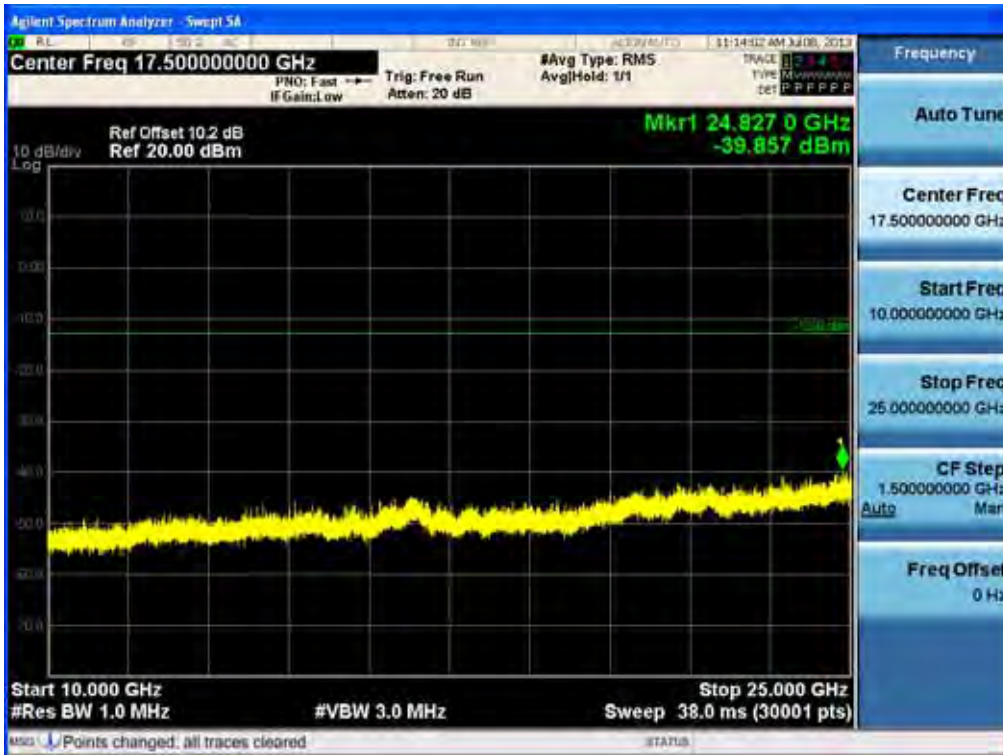


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11b-CH11)



### Conducted Spurious Emission (802.11g-CH1)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11g-CH6)

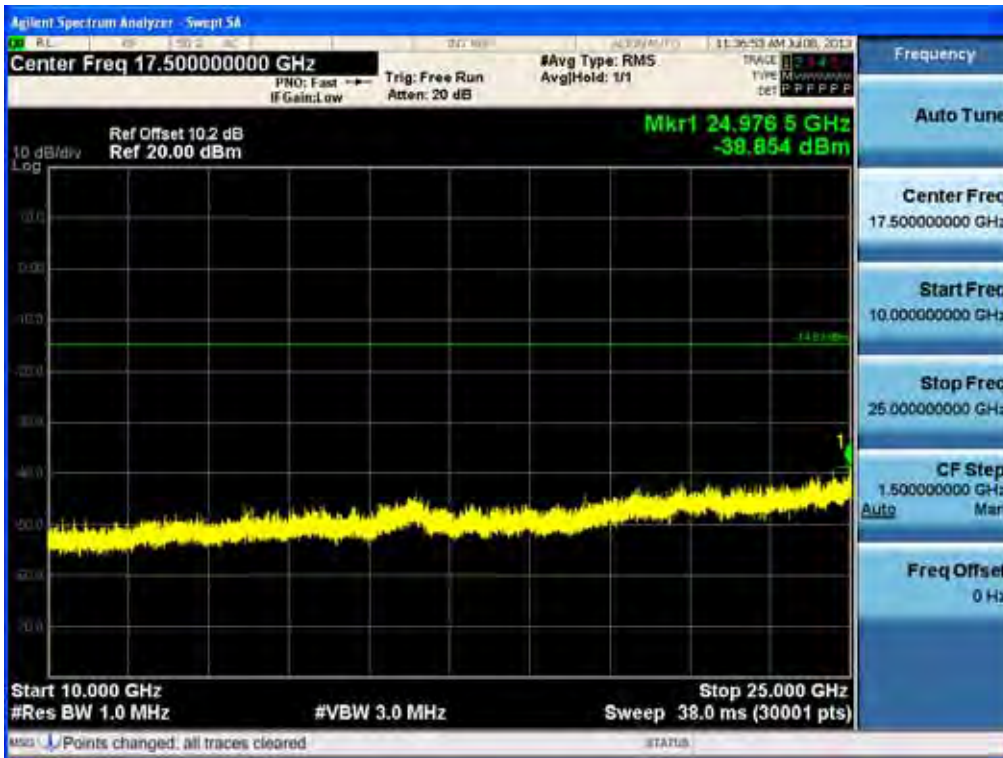


### Conducted Spurious Emission (802.11g-CH11)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11n-CH1)



### Conducted Spurious Emission (802.11n-CH6)



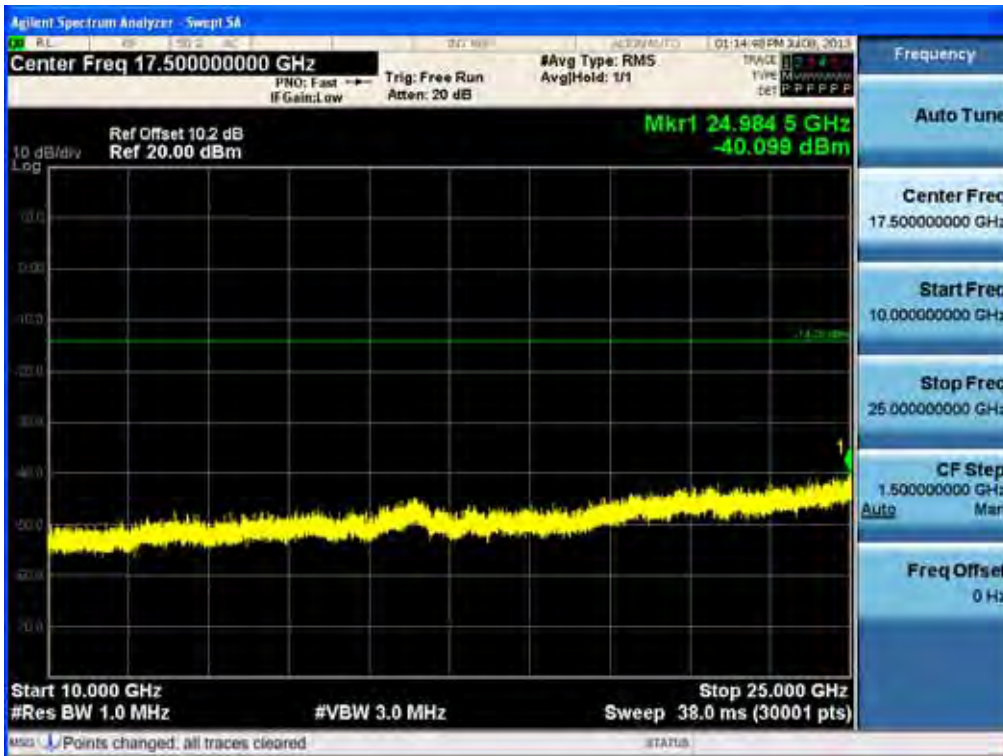
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821



### Conducted Spurious Emission (802.11n-CH11)

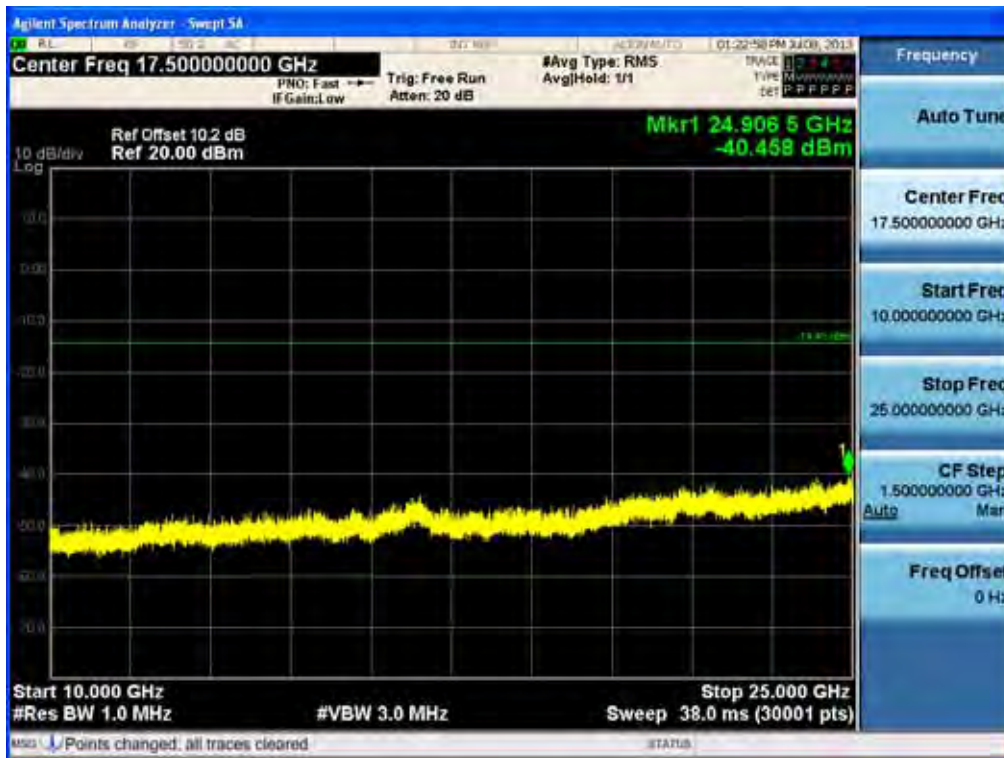


### Conducted Spurious Emission (802.11ac-CH1) 20 MHz BW

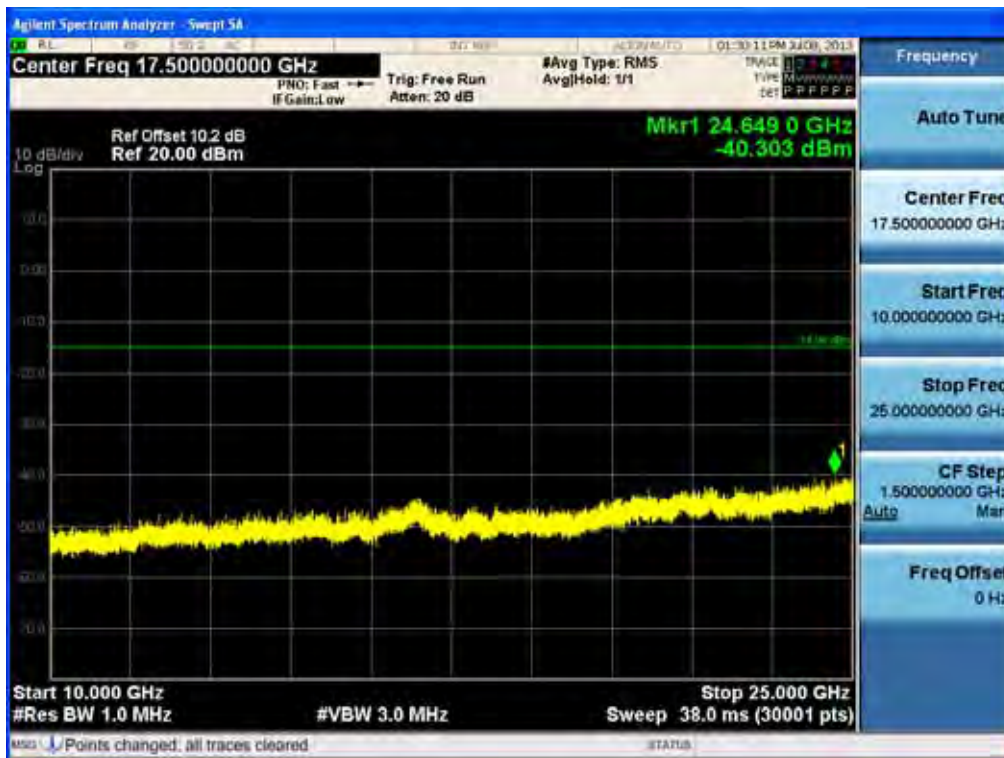


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH6) 20 MHz BW



### Conducted Spurious Emission (802.11ac-CH11) 20 MHz BW



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**Conducted Spurious Emission (802.11a-CH149)**



Date: 12, JUL, 2013 08:31:25

**Conducted Spurious Emission (802.11a-CH157)**



Date: 12, JUL, 2013 08:32:55

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11a-CH165)



Date: 12.JUL.2013 08:33:54

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF0821

**Conducted Spurious Emission (802.11n-CH149)**



Date: 12, JUL, 2013 09:35:01

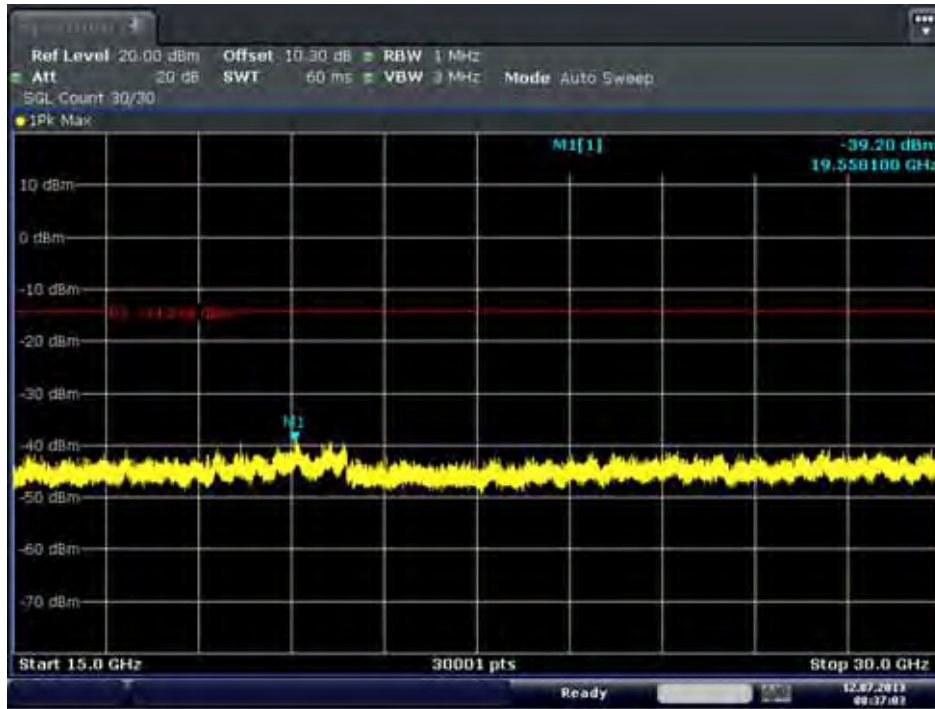
**Conducted Spurious Emission (802.11n-CH157)**



Date: 12, JUL, 2013 09:36:01

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821

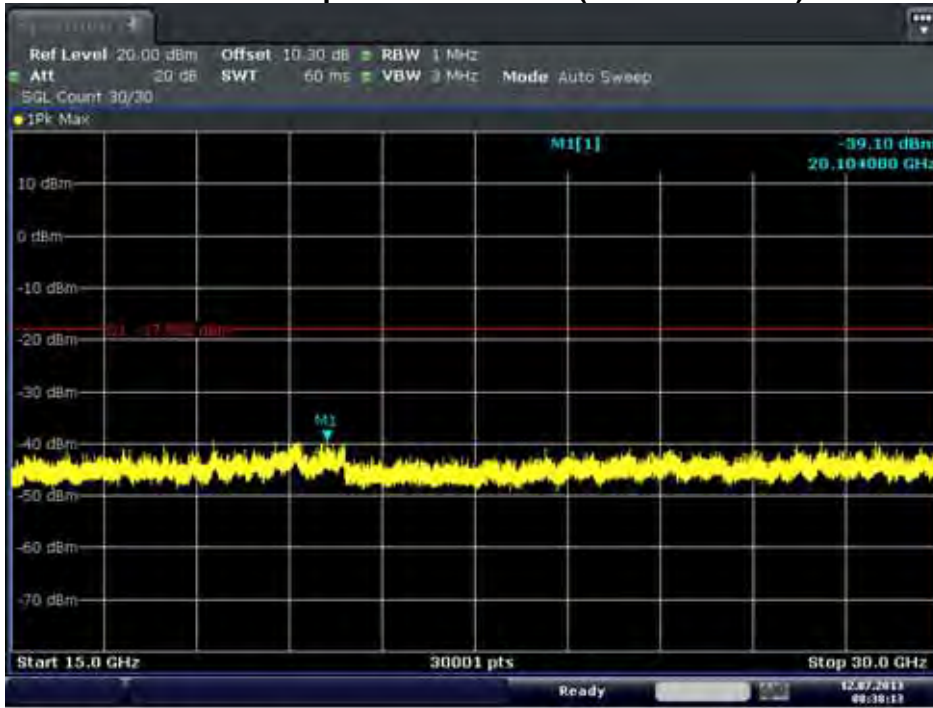
### Conducted Spurious Emission (802.11n-CH165)



Date: 12,08,2013 09:37:03

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**Conducted Spurious Emission (802.11n-CH151)**



Date: [12, JUL, 2013] 08:38:13

**Conducted Spurious Emission (802.11n-CH159)**



Date: [12, JUL, 2013] 08:38:13

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821

### Conducted Spurious Emission (802.11ac-CH149) 20 MHz BW



Date: 12,07,2013 08:40:38

### Conducted Spurious Emission (802.11ac-CH157) 20 MHz BW



Date: 12,07,2013 08:41:32

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

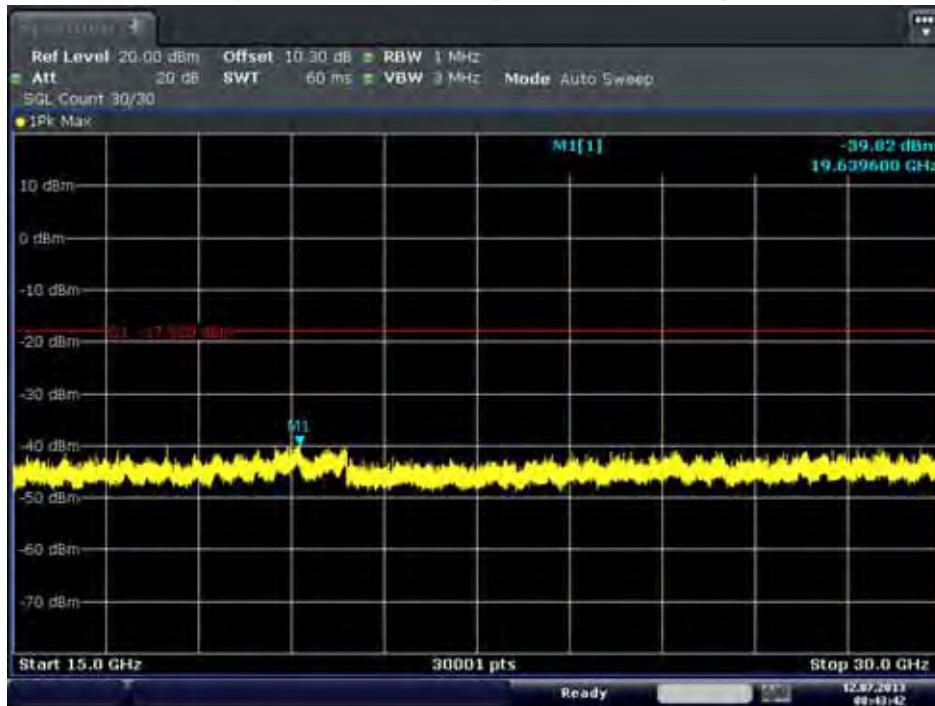


### Conducted Spurious Emission (802.11ac-CH165) 20 MHz BW



Date: 12,09,2013 08:42:33

### Conducted Spurious Emission (802.11ac-CH151) 40 MHz BW



Date: 12,09,2013 08:43:42

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH159) 40 MHz BW



Date: 12, JUL, 2013 08:44:45

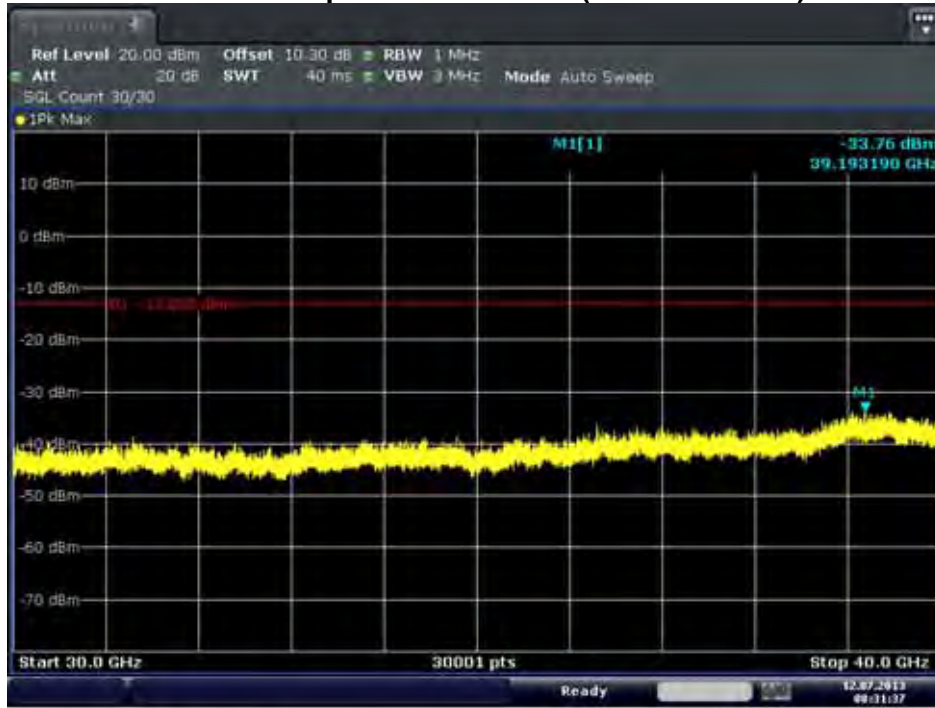
### Conducted Spurious Emission (802.11ac-CH155) 80 MHz BW



Date: 12, JUL, 2013 08:46:37

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**Conducted Spurious Emission (802.11a-CH149)**



Date: 12, JUL, 2013 08:31:37

**Conducted Spurious Emission (802.11a-CH157)**



Date: 12, JUL, 2013 08:31:07

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11a-CH165)



Date: 12, JUL, 2013 08:34:08

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**Conducted Spurious Emission (802.11n-CH149)**



Date: [12, JUL, 2013] 08:35:13

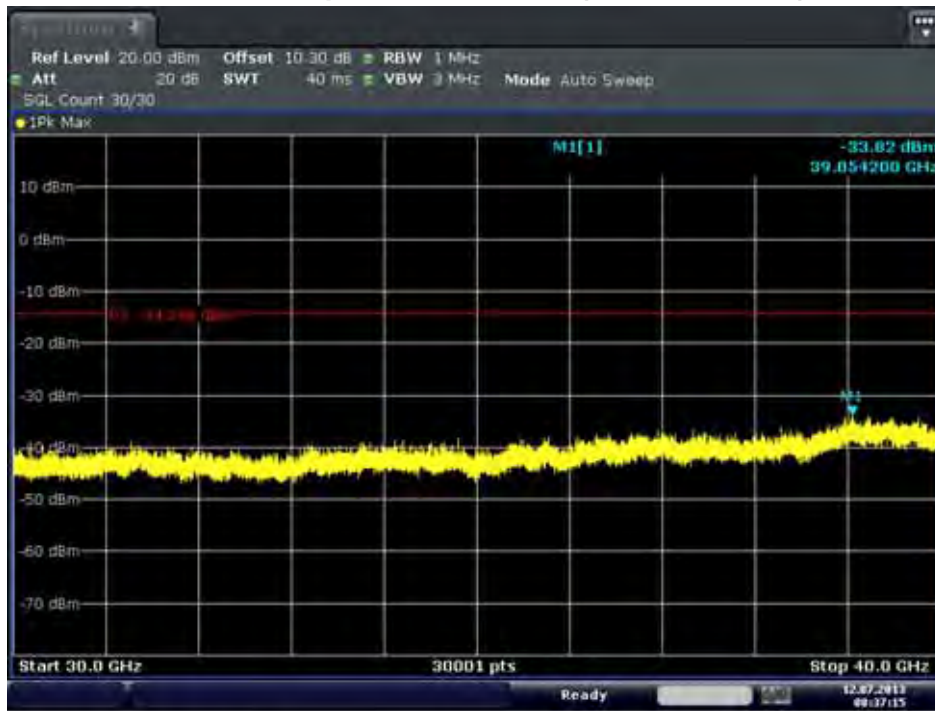
**Conducted Spurious Emission (802.11n-CH157)**



Date: [12, JUL, 2013] 08:36:13

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

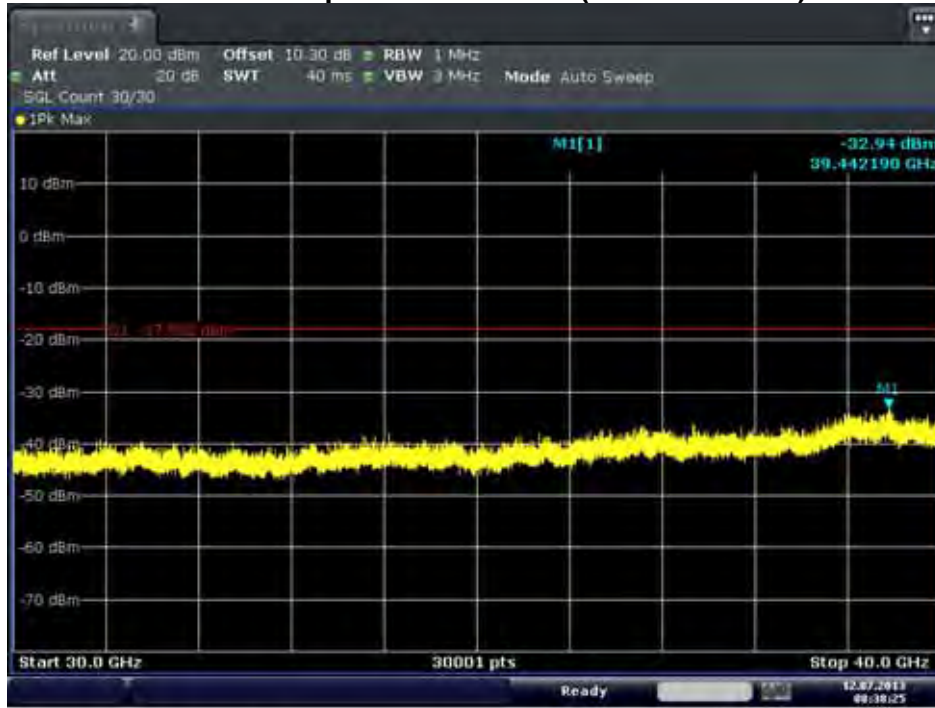
### Conducted Spurious Emission (802.11n-CH165)



Date: 12,08,2013 09:37:15

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821

**Conducted Spurious Emission (802.11n-CH151)**



Date: [12, JUL, 2013] 08:38:25

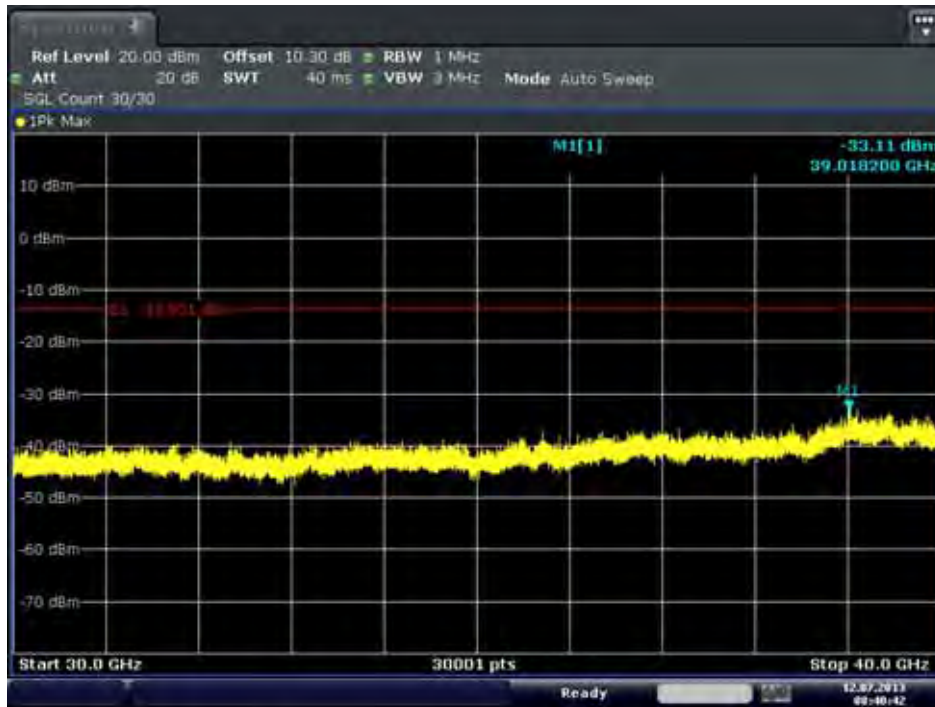
**Conducted Spurious Emission (802.11n-CH159)**



Date: [12, JUL, 2013] 08:38:25

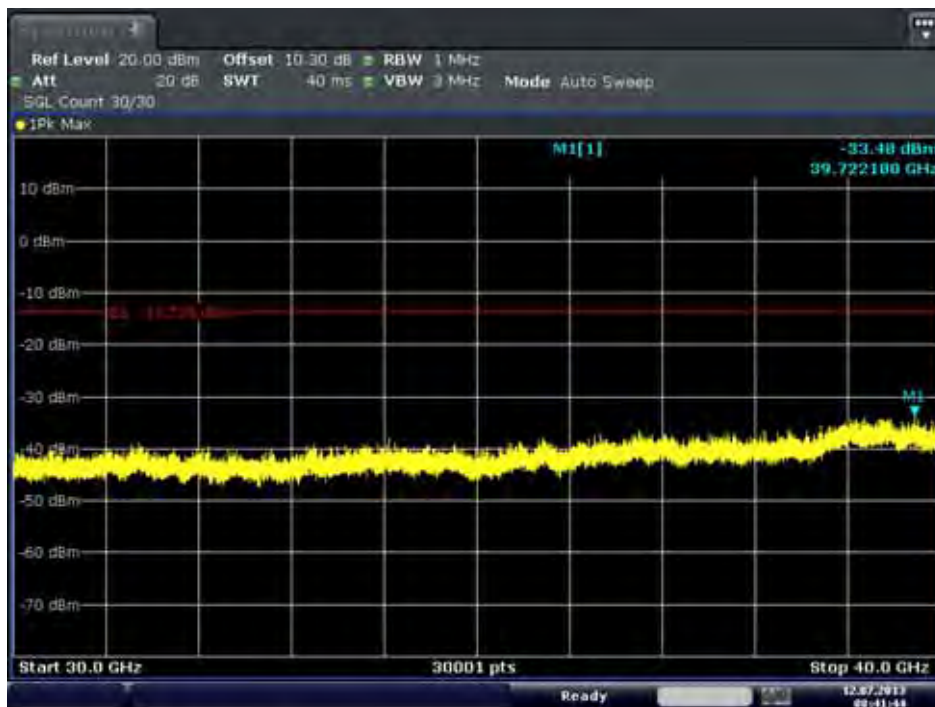
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH149) 20 MHz BW



Date: 12.07.2013 08:40:42

### Conducted Spurious Emission (802.11ac-CH157) 20 MHz BW

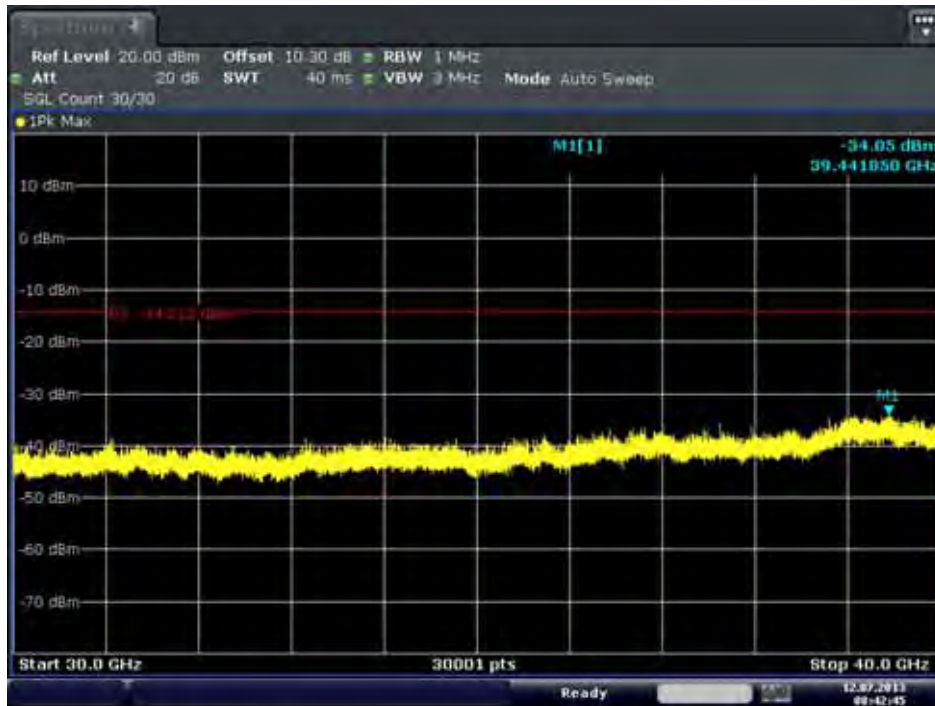


Date: 12.07.2013 08:41:44

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

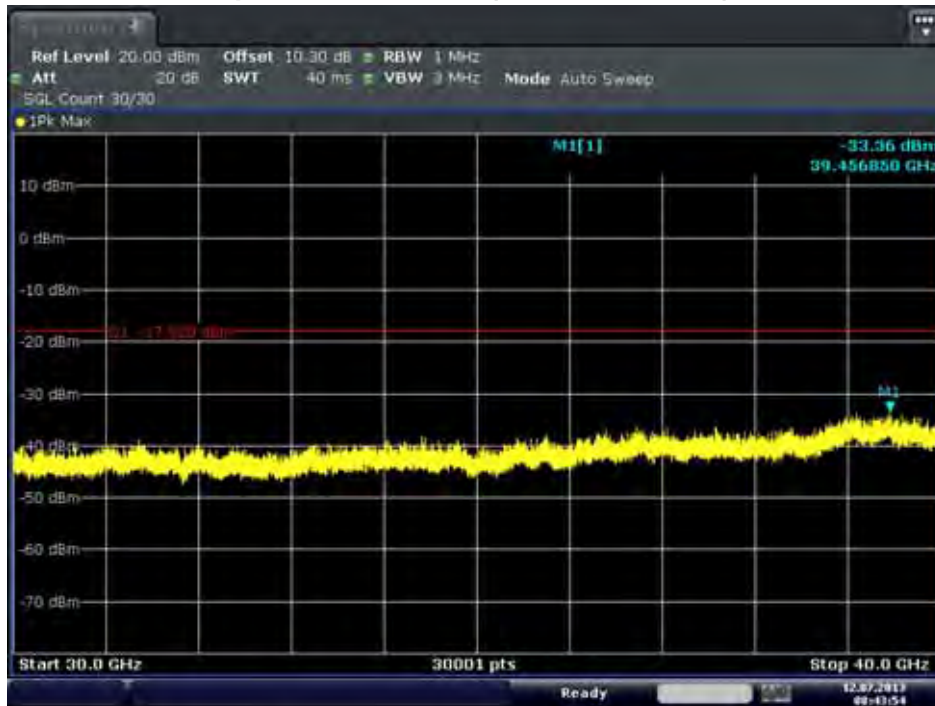


### Conducted Spurious Emission (802.11ac-CH165) 20 MHz BW



Date: [2, JUL, 2013] 08:42:45

### Conducted Spurious Emission (802.11ac-CH151) 40 MHz BW



Date: [2, JUL, 2013] 08:43:54

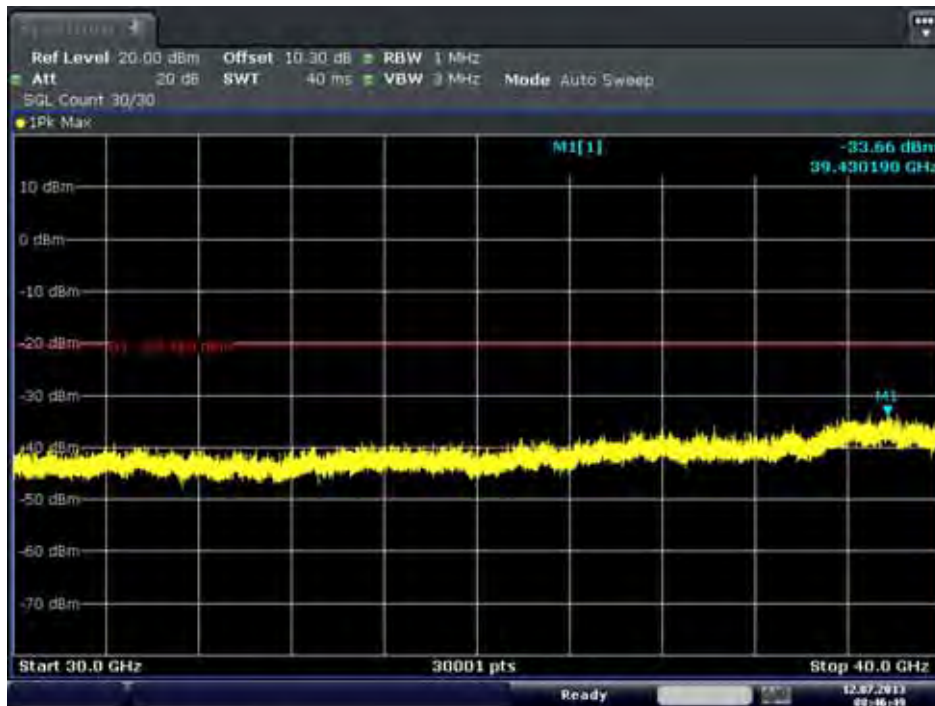
FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

### Conducted Spurious Emission (802.11ac-CH159) 40 MHz BW



Date: 12, JUL, 2013 08:44:55

### Conducted Spurious Emission (802.11ac-CH155) 80 MHz BW



Date: 12, JUL, 2013 08:46:45

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821



## 8.6 RADIATED MEASUREMENT.

### 8.6.1 RADIATED SPURIOUS EMISSIONS.

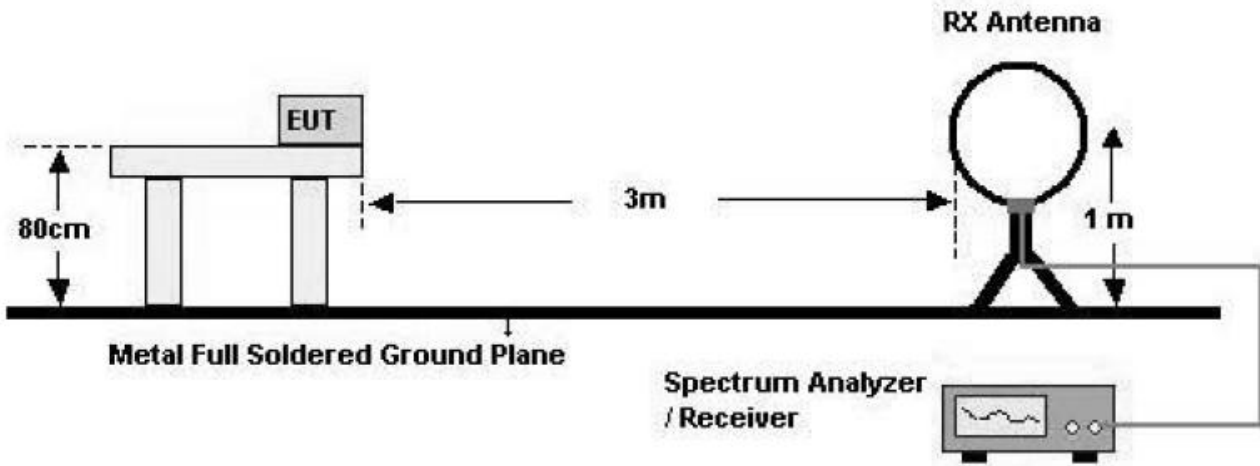
Test Requirements and limit, §15.205, §15.209

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

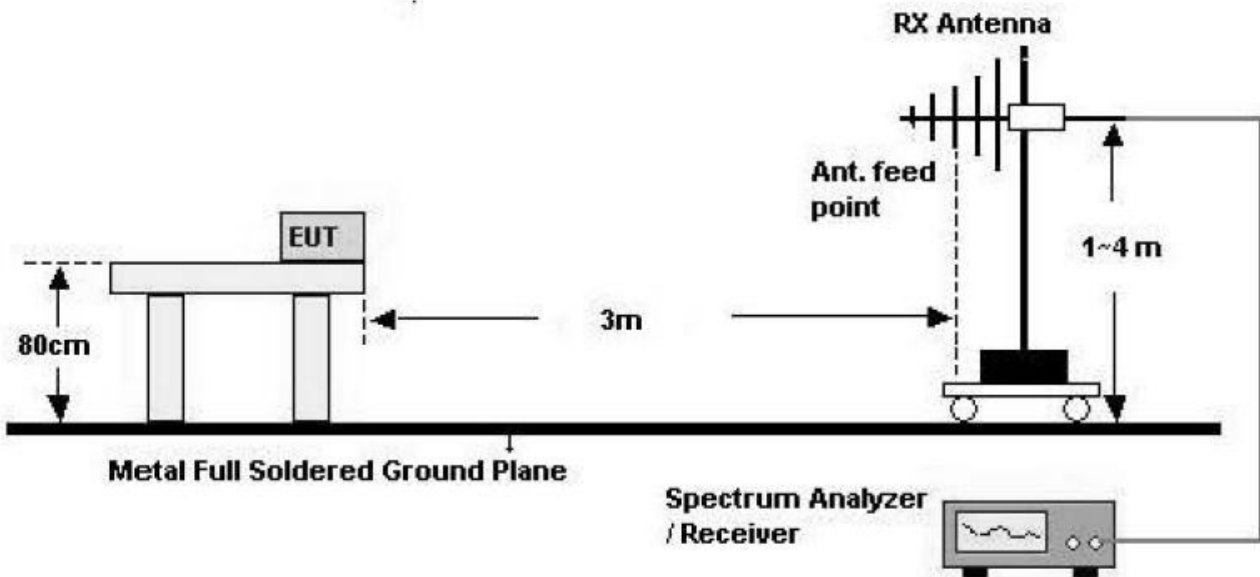
<b>FCC PT.15.247 TEST REPORT</b>	<b>FCC CERTIFICATION REPORT</b>		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
<b>Test Report No.</b> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	<b>FCC ID:</b> ZNFD821

## Test Configuration

### Below 30 MHz

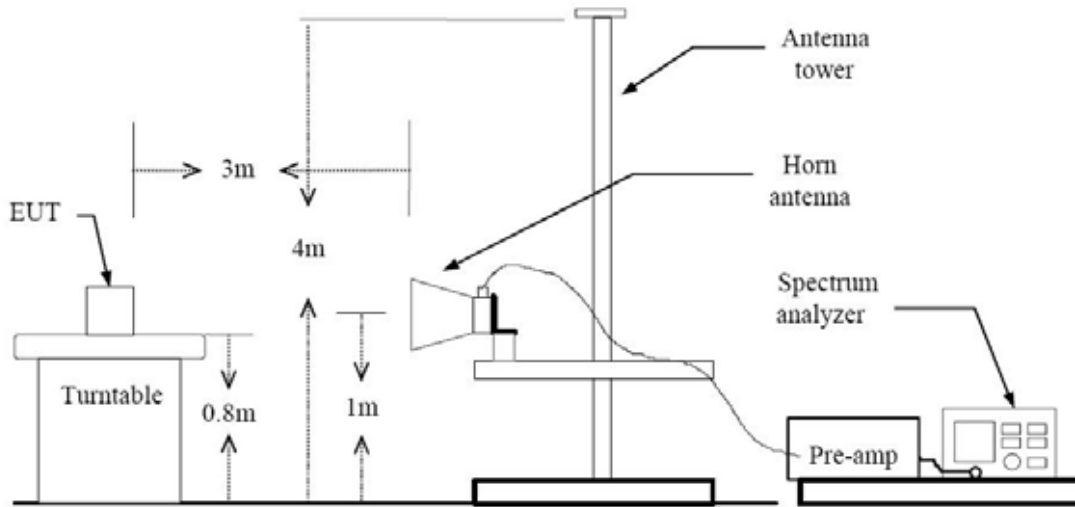


### 30 MHz - 1 GHz



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821

**Above 1 GHz**



**TEST PROCEDURE USED**

ANSI C63.4(20023)

Method 12.2.4 in KDB 558074, issued 04/09/2013 (Peak)

Method 12.2.5.1 in KDB 558074, issued 04/09/2013(Average Case 1)

Method 12.2.5.3 in KDB 558074, issued 04/09/2013(Average Case 2)

**Spectrum Setting**

**- Peak**

Peak emission levels are measured by setting the instrument as follows:

RBW = cf. Table 1.

VBW  $\geq$  3 x RBW.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweeps to continue until the trace stabilizes.

(Note that the required measurement time may be longer for low duty cycle applications).

**Table 1 —RBW as a function of frequency**

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

**- Average**

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Case 1

If the EUT can be configured or modified to transmit continuously (duty cycle ≥ 98 percent then the average emission levels shall be measured using the following method (with EUT transmitting continuously).

RBW = 1 MHz (unless otherwise specified).

VBW ≥ 3 x RBW.

Detector = RMS, if span/(# of points in sweep) ≤ (RBW/2). Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.

Averaging type = power (i.e., RMS).

- 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
- 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.

Sweep time = auto.

Perform a trace average of at least 100 traces.

Case 2

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is not constant (i.e., duty cycle variations exceed ± 2 percent), then the following procedure shall be used:

Set RBW = 1 MHz.

Set VBW ≥ 1/T.

Video bandwidth mode or display mode

- 1) The instrument shall be set to ensure that video filtering is applied in the power domain. Typically, this requires setting the detector mode to RMS and setting the Average-VBW Type to Power (RMS).
- 2) As an alternative, the instrument may be set to linear detector mode. Ensure that video filtering is applied in linear voltage domain (rather than in a log or dB domain). Some instruments require linear display mode in order to accomplish this. Others have a setting for Average-VBW Type, which can be set to "Voltage" regardless of the display mode.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow max hold to run for at least 50 times (1/duty cycle) traces.

Note :

- 1. We used the case 1 for 802.11b mode and the case 2 for 802.11a/g/n\_20/n\_40/ac\_20/ac\_40/ac\_80 to perform the average filed strength measurements for RSE and radiated band edge test.
- 2. The actual setting value of VBW for 802.11a/g/n\_20/n\_40/ac\_20/ac\_40/ac\_80.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821

Mode	Worst Data rate (Mbps)	T <sub>on</sub> (ms)	T <sub>total</sub> (ms)	Duty Cycle (%)	VBW(1/T) (Hz)	The actual setting value of VBW (Hz)
a	6	2.605	2.165	95.38	383.9	1000
g	6	2.605	2.165	95.38	383.9	1000
n_20	6.5	1.920	2.020	95.05	520.8	1000
n_40	13.5	0.945	1.047	90.26	1058.2	3000
2.4 GHz band ac_20	6.5	1.930	2.035	94.84	518.1	1000
5.8 GHz band ac_20	6.5	1.930	2.035	94.84	518.1	1000
ac_40	13.5	0.952	1.052	90.49	1050.4	3000
ac_80	29.3	0.460	0.560	82.14	2173.9	3000

## TEST RESULTS

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821

**9 kHz – 30MHz**

**Operation Mode:** Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB $\mu$ V/m	dBm /m	dBm	(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.





## TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB $\mu$ V/m	dBm /m	dBm	(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.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821



**Above 1 GHz**

**Stand alone**

Operation Mode: 802.11 b  
 Transfer Rate: 1 Mbps  
 Operating Frequency: 2412  
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	52.33	-4.25	V	48.08	73.98	25.90	PK
4824	40.34	-4.25	V	36.09	53.98	17.89	AV
7236	53.73	5.21	V	58.94	73.98	15.04	PK
7236	41.39	5.21	V	46.60	53.98	7.38	AV
4824	53.14	-4.25	H	48.89	73.98	25.09	PK
4824	42.23	-4.25	H	37.98	53.98	16.00	AV
7236	53.67	5.21	H	58.88	73.98	15.10	PK
7236	41.44	5.21	H	46.65	53.98	7.33	AV

Operation Mode: 802.11 g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2412  
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	52.42	-4.25	V	48.17	73.98	25.81	PK
4824	38.59	-4.25	V	34.34	53.98	19.64	AV
7236	54.09	5.21	V	59.30	73.98	14.68	PK
7236	39.67	5.21	V	44.88	53.98	9.10	AV
4824	52.69	-4.25	H	48.44	73.98	25.54	PK
4824	38.51	-4.25	H	34.26	53.98	19.72	AV
7236	53.84	5.21	H	59.05	73.98	14.93	PK
7236	39.54	5.21	H	44.75	53.98	9.23	AV



Operation Mode: 802.11 n  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412  
 Channel No.: 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	52.86	-4.25	V	48.61	73.98	25.37	PK
4824	38.56	-4.25	V	34.31	53.98	19.67	AV
7236	53.23	5.21	V	58.44	73.98	15.54	PK
7236	39.50	5.21	V	44.71	53.98	9.27	AV
4824	53.55	-4.25	H	49.30	73.98	24.68	PK
4824	38.62	-4.25	H	34.37	53.98	19.61	AV
7236	53.34	5.21	H	58.55	73.98	15.43	PK
7236	39.72	5.21	H	44.93	53.98	9.05	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412  
 Channel No.: 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	51.85	-4.25	V	47.60	73.98	26.38	PK
4824	38.53	-4.25	V	34.28	53.98	19.70	AV
7236	53.28	5.21	V	58.49	73.98	15.49	PK
7236	39.56	5.21	V	44.77	53.98	9.21	AV
4824	51.92	-4.25	H	47.67	73.98	26.31	PK
4824	38.55	-4.25	H	34.30	53.98	19.68	AV
7236	53.28	5.21	H	58.49	73.98	15.49	PK
7236	39.55	5.21	H	44.76	53.98	9.22	AV

**Notes:**

11. 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.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



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. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b

<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> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	<b>FCC ID:</b> ZNFD821



Transfer Rate: 1 Mbps  
 Operating Frequency 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	51.93	-3.93	V	48.00	73.98	25.98	PK
4874	39.70	-3.93	V	35.77	53.98	18.21	AV
7311	53.31	4.97	V	58.28	73.98	15.70	PK
7311	41.31	4.97	V	46.28	53.98	7.70	AV
4874	52.82	-3.93	H	48.89	73.98	25.09	PK
4874	42.25	-3.93	H	38.32	53.98	15.66	AV
7311	53.24	4.97	H	58.21	73.98	15.77	PK
7311	41.20	4.97	H	46.17	53.98	7.81	AV

Operation Mode: 802.11 g  
 Transfer Rate: 6 Mbps  
 Operating Frequency 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	52.14	-3.93	V	48.21	73.98	25.77	PK
4874	38.10	-3.93	V	34.17	53.98	19.81	AV
7311	54.08	4.97	V	59.05	73.98	14.93	PK
7311	41.29	4.97	V	46.26	53.98	7.72	AV
4874	51.84	-3.93	H	47.91	73.98	26.07	PK
4874	38.05	-3.93	H	34.12	53.98	19.86	AV
7311	54.14	4.97	H	59.11	73.98	14.87	PK
7311	41.24	4.97	H	46.21	53.98	7.77	AV

Operation Mode: 802.11 n

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Transfer Rate: 6.5 Mbps  
 Operating Frequency 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	51.87	-3.93	V	47.94	73.98	26.04	PK
4874	38.05	-3.93	V	34.12	53.98	19.86	AV
7311	54.15	4.97	V	59.12	73.98	14.86	PK
7311	41.30	4.97	V	46.27	53.98	7.71	AV
4874	51.91	-3.93	H	47.98	73.98	26.00	PK
4874	38.11	-3.93	H	34.18	53.98	19.80	AV
7311	53.87	4.97	H	58.84	73.98	15.14	PK
7311	41.31	4.97	H	46.28	53.98	7.70	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	52.00	-3.93	V	48.07	73.98	25.91	PK
4874	38.11	-3.93	V	34.18	53.98	19.80	AV
7311	54.07	4.97	V	59.04	73.98	14.94	PK
7311	41.37	4.97	V	46.34	53.98	7.64	AV
4874	51.88	-3.93	H	47.95	73.98	26.03	PK
4874	38.08	-3.93	H	34.15	53.98	19.83	AV
7311	53.77	4.97	H	58.74	73.98	15.24	PK
7311	41.25	4.97	H	46.22	53.98	7.76	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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821



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. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
- 6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b  
Transfer Rate: 1 Mbps

<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> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	<b>FCC ID:</b> ZNFD821



Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	52.10	-3.75	V	48.35	73.98	25.63	PK
4924	40.20	-3.75	V	36.45	53.98	17.53	AV
7386	53.26	5.60	V	58.86	73.98	15.12	PK
7386	41.14	5.60	V	46.74	53.98	7.24	AV
4924	52.91	-3.75	H	49.16	73.98	24.82	PK
4924	43.27	-3.75	H	39.52	53.98	14.46	AV
7386	52.56	5.60	H	58.16	73.98	15.82	PK
7386	41.15	5.60	H	46.75	53.98	7.23	AV

Operation Mode: 802.11 g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	51.50	-3.75	V	47.75	73.98	26.23	PK
4924	37.70	-3.75	V	33.95	53.98	20.03	AV
7386	52.85	5.60	V	58.45	73.98	15.53	PK
7386	39.35	5.60	V	44.95	53.98	9.03	AV
4924	52.10	-3.75	H	48.35	73.98	25.63	PK
4924	37.88	-3.75	H	34.13	53.98	19.85	AV
7386	53.69	5.60	H	59.29	73.98	14.69	PK
7386	39.44	5.60	H	45.04	53.98	8.94	AV

Operation Mode: 802.11 n  
 Transfer Rate: 6.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821





Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	51.37	-3.75	V	47.62	73.98	26.36	PK
4924	37.72	-3.75	V	33.97	53.98	20.01	AV
7386	52.67	5.60	V	58.27	73.98	15.71	PK
7386	39.31	5.60	V	44.91	53.98	9.07	AV
4924	51.39	-3.75	H	47.64	73.98	26.34	PK
4924	37.83	-3.75	H	34.08	53.98	19.90	AV
7386	53.15	5.60	H	58.75	73.98	15.23	PK
7386	39.47	5.60	H	45.07	53.98	8.91	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2462  
 Channel No.: 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	51.44	-3.75	V	47.69	73.98	26.29	PK
4924	37.68	-3.75	V	33.93	53.98	20.05	AV
7386	52.71	5.60	V	58.31	73.98	15.67	PK
7386	39.34	5.60	V	44.94	53.98	9.04	AV
4924	51.52	-3.75	H	47.77	73.98	26.21	PK
4924	37.78	-3.75	H	34.03	53.98	19.95	AV
7386	53.46	5.60	H	59.06	73.98	14.92	PK
7386	39.44	5.60	H	45.04	53.98	8.94	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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821



in Actual FS column.

- 4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain
- 5. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
- 6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band : 5.8 GHz  
Operation Mode: 802.11 a  
Transfer Rate: 6 Mbps

<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> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		<b>FCC ID:</b> ZNFD821



Operating Frequency 5745 MHz  
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	41.04	11.22	V	52.26	73.98	21.72	PK
11490	28.47	11.22	V	39.69	53.98	14.29	AV
11490	41.40	11.22	H	52.62	73.98	21.36	PK
11490	29.62	11.22	H	40.84	53.98	13.14	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. We have done 802.11a mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band : 5.8 GHz  
 Operation Mode: 802.11 a  
 Transfer Rate: 6 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Operating Frequency 5785 MHz  
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	41.55	11.71	V	53.26	73.98	20.72	PK
11570	28.01	11.71	V	39.72	53.98	14.26	AV
11570	40.67	11.71	H	52.37	73.98	21.61	PK
11570	29.43	11.71	H	41.14	53.98	12.84	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. We have done 802.11a mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band : 5.8 GHz  
 Operation Mode: 802.11 a  
 Transfer Rate: 6 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Operating Frequency 5825 MHz  
 Channel No. 165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	41.36	11.34	V	52.70	73.98	21.28	PK
11650	29.04	11.34	V	40.38	53.98	13.60	AV
11650	40.77	11.34	H	52.11	73.98	21.87	PK
11650	29.40	11.34	H	40.74	53.98	13.24	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. We have done 802.11a mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band : 5.8 GHz  
 Operation Mode: 802.11 n\_20 MHz BW  
 Transfer Rate: 6.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Operating Frequency 5745 MHz  
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	40.50	11.22	V	51.72	73.98	22.26	PK
11490	27.86	11.22	V	39.08	53.98	14.90	AV
11490	41.50	11.22	H	52.72	73.98	21.26	PK
11490	29.53	11.22	H	40.75	53.98	13.23	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. We have done 802.11n\_20 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band : 5.8 GHz  
 Operation Mode: 802.11 n\_20 MHz BW  
 Transfer Rate: 6.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Operating Frequency 5785 MHz  
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	40.25	11.71	V	51.96	73.98	22.02	PK
11570	27.88	11.71	V	39.59	53.98	14.39	AV
11570	40.41	11.71	H	52.12	73.98	21.86	PK
11570	29.09	11.71	H	40.80	53.98	13.18	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. We have done 802.11n\_20 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band : 5.8 GHz  
 Operation Mode: 802.11 n\_20 MHz BW  
 Transfer Rate: 6.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Operating Frequency 5825 MHz  
 Channel No. 165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	40.27	11.34	V	51.61	73.98	22.37	PK
11650	28.28	11.34	V	39.62	53.98	14.36	AV
11650	40.18	11.34	H	51.52	73.98	22.46	PK
11650	29.48	11.34	H	40.82	53.98	13.16	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. We have done 802.11n\_20 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band : 5.8 GHz  
 Operation Mode: 802.11 n\_40 MHz BW  
 Transfer Rate: 13.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821





Operating Frequency 5755 MHz  
 Channel No. 151 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11510	40.43	11.53	V	51.96	73.98	22.02	PK
11510	28.19	11.53	V	39.72	53.98	14.26	AV
11510	40.60	11.53	H	52.13	73.98	21.85	PK
11510	30.13	11.53	H	41.66	53.98	12.32	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. We have done 802.11n\_40 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band : 5.8 GHz  
 Operation Mode: 802.11 n\_40 MHz BW  
 Transfer Rate: 13.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Operating Frequency 5795 MHz  
 Channel No. 159 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11590	39.92	11.64	V	51.56	73.98	22.42	PK
11590	28.02	11.64	V	39.66	53.98	14.32	AV
11590	40.24	11.64	H	51.88	73.98	22.10	PK
11590	29.45	11.64	H	41.09	53.98	12.89	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. We have done 802.11n\_40 MHz BW mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_20 MHz BW  
 Transfer Rate: 6.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Operating Frequency 5745 MHz  
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	40.87	11.22	V	52.09	73.98	21.89	PK
11490	27.96	11.22	V	39.18	53.98	14.80	AV
17235	45.02	18.82	V	63.84	68.2	4.36	PK
11490	40.62	11.22	H	51.84	73.98	22.14	PK
11490	29.28	11.22	H	40.50	53.98	13.48	AV
17235	45.25	18.82	H	64.07	68.2	4.13	PK

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_20 MHz BW  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency 5785 MHz  
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	40.55	11.71	V	52.26	73.98	21.72	PK
11570	27.68	11.71	V	39.39	53.98	14.59	AV
17355	44.49	18.94	V	63.43	68.2	4.77	PK
11570	40.23	11.71	H	51.94	73.98	22.04	PK
11570	29.18	11.71	H	40.89	53.98	13.09	AV
17355	45.19	18.94	H	64.13	68.2	4.07	PK

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_20 MHz BW  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency 5825 MHz

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821

Channel No. 165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	40.48	11.34	V	51.82	73.98	22.16	PK
11650	28.41	11.34	V	39.75	53.98	14.23	AV
17475	45.34	19.52	V	64.86	68.2	3.34	PK
11650	40.01	11.34	H	51.35	73.98	22.63	PK
11650	29.34	11.34	H	40.68	53.98	13.30	AV
17475	45.56	19.52	H	65.08	68.2	3.12	PK

**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. We have done 802.11ac mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_40 MHz BW  
 Transfer Rate: 13.5 Mbps  
 Operating Frequency 5755 MHz

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821

Channel No. 151 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11510	40.48	11.53	V	52.01	73.98	21.97	PK
11510	28.14	11.53	V	39.67	53.98	14.31	AV
17265	45.59	18.46	V	64.05	68.2	4.15	PK
11510	40.78	11.53	H	52.31	73.98	21.67	PK
11510	30.17	11.53	H	41.70	53.98	12.28	AV
17265	45.57	18.46	H	64.03	68.2	4.17	PK

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_40 MHz BW  
 Transfer Rate: 13.5 Mbps  
 Operating Frequency 5795 MHz  
 Channel No. 159 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11590	40.25	11.64	V	51.89	73.98	22.09	PK
11590	27.89	11.64	V	39.53	53.98	14.45	AV
17385	45.76	18.91	V	64.67	68.2	3.53	PK
11590	40.16	11.64	H	51.80	73.98	22.18	PK
11590	29.66	11.64	H	41.30	53.98	12.68	AV
17385	45.62	18.91	H	64.53	68.2	3.67	PK

Band : UNII 4  
 Operation Mode: 802.11 ac \_80 MHz BW  
 Transfer Rate: 29.3 Mbps  
 Operating Frequency 5775 MHz  
 Channel No. 155 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11550	39.87	11.50	V	51.37	73.98	22.61	PK
11550	28.04	11.50	V	39.54	53.98	14.44	AV
17325	44.78	18.90	V	63.68	68.2	4.52	PK
11550	40.11	11.50	H	51.61	73.98	22.37	PK
11550	29.33	11.50	H	40.83	53.98	13.15	AV
17325	44.57	18.90	H	63.47	68.2	4.73	PK

**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. We have done 802.11ac mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821



**With Wireless Charger**

Operation Mode: 802.11 b  
 Transfer Rate: 1 Mbps  
 Operating Frequency: 2412  
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	51.78	-4.25	V	47.53	73.98	26.45	PK
4824	40.23	-4.25	V	35.98	53.98	18.00	AV
7236	53.24	5.21	V	58.45	73.98	15.53	PK
7236	41.25	5.21	V	46.46	53.98	7.52	AV
4824	52.04	-4.25	H	47.79	73.98	26.19	PK
4824	40.12	-4.25	H	35.87	53.98	18.11	AV
7236	52.51	5.21	H	57.72	73.98	16.26	PK
7236	41.45	5.21	H	46.66	53.98	7.32	AV

Operation Mode: 802.11 g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2412  
 Channel No. 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	51.42	-4.25	V	47.17	73.98	26.81	PK
4824	37.86	-4.25	V	33.61	53.98	20.37	AV
7236	52.14	5.21	V	57.35	73.98	16.63	PK
7236	38.98	5.21	V	44.19	53.98	9.79	AV
4824	51.59	-4.25	H	47.34	73.98	26.64	PK
4824	37.90	-4.25	H	33.65	53.98	20.33	AV
7236	52.57	5.21	H	57.78	73.98	16.20	PK
7236	39.02	5.21	H	44.23	53.98	9.75	AV



Operation Mode: 802.11 n  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412  
 Channel No.: 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	51.75	-4.25	V	47.50	73.98	26.48	PK
4824	37.95	-4.25	V	33.70	53.98	20.28	AV
7236	52.78	5.21	V	57.99	73.98	15.99	PK
7236	39.21	5.21	V	44.42	53.98	9.56	AV
4824	51.83	-4.25	H	47.58	73.98	26.40	PK
4824	38.10	-4.25	H	33.85	53.98	20.13	AV
7236	52.90	5.21	H	58.11	73.98	15.87	PK
7236	39.35	5.21	H	44.56	53.98	9.42	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412  
 Channel No.: 01 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4824	51.92	-4.25	V	47.67	73.98	26.31	PK
4824	37.89	-4.25	V	33.64	53.98	20.34	AV
7236	51.87	5.21	V	57.08	73.98	16.90	PK
7236	38.94	5.21	V	44.15	53.98	9.83	AV
4824	52.05	-4.25	H	47.80	73.98	26.18	PK
4824	37.97	-4.25	H	33.72	53.98	20.26	AV
7236	52.10	5.21	H	57.31	73.98	16.67	PK
7236	39.03	5.21	H	44.24	53.98	9.74	AV

**Notes:**

- Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
- 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.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821





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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b

<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> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	<b>FCC ID:</b> ZNFD821



Transfer Rate: 1 Mbps  
 Operating Frequency 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	51.48	-3.93	V	47.55	73.98	26.43	PK
4874	39.85	-3.93	V	35.92	53.98	18.06	AV
7311	52.56	4.97	V	57.53	73.98	16.45	PK
7311	41.14	4.97	V	46.11	53.98	7.87	AV
4874	51.86	-3.93	H	47.93	73.98	26.05	PK
4874	39.78	-3.93	H	35.85	53.98	18.13	AV
7311	52.86	4.97	H	57.83	73.98	16.15	PK
7311	41.23	4.97	H	46.20	53.98	7.78	AV

Operation Mode: 802.11 g  
 Transfer Rate: 6 Mbps  
 Operating Frequency 2437  
 Channel No. 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	51.10	-3.93	V	47.17	73.98	26.81	PK
4874	37.56	-3.93	V	33.63	53.98	20.35	AV
7311	52.84	4.97	V	57.81	73.98	16.17	PK
7311	39.21	4.97	V	44.18	53.98	9.80	AV
4874	51.11	-3.93	H	47.18	73.98	26.80	PK
4874	37.55	-3.93	H	33.62	53.98	20.36	AV
7311	52.97	4.97	H	57.94	73.98	16.04	PK
7311	39.23	4.97	H	44.20	53.98	9.78	AV



Operation Mode: 802.11 n  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2437  
 Channel No.: 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	51.46	-3.93	V	47.53	73.98	26.45	PK
4874	37.51	-3.93	V	33.58	53.98	20.40	AV
7311	52.48	4.97	V	57.45	73.98	16.53	PK
7311	38.99	4.97	V	43.96	53.98	10.02	AV
4874	51.55	-3.93	H	47.62	73.98	26.36	PK
4874	37.73	-3.93	H	33.80	53.98	20.18	AV
7311	52.56	4.97	H	57.53	73.98	16.45	PK
7311	39.08	4.97	H	44.05	53.98	9.93	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2437  
 Channel No.: 06 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4874	51.21	-3.93	V	47.28	73.98	26.70	PK
4874	37.46	-3.93	V	33.53	53.98	20.45	AV
7311	52.74	4.97	V	57.71	73.98	16.27	PK
7311	38.92	4.97	V	43.89	53.98	10.09	AV
4874	51.29	-3.93	H	47.36	73.98	26.62	PK
4874	37.53	-3.93	H	33.60	53.98	20.38	AV
7311	52.80	4.97	H	57.77	73.98	16.21	PK
7311	39.02	4.97	H	43.99	53.98	9.99	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.

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b

<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> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	<b>FCC ID:</b> ZNFD821



Transfer Rate: 1 Mbps  
 Operating Frequency 2462  
 Channel No. 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	51.01	-3.75	V	47.26	73.98	26.72	PK
4924	39.45	-3.75	V	35.70	53.98	18.28	AV
7386	52.72	5.60	V	58.32	73.98	15.66	PK
7386	40.95	5.60	V	46.55	53.98	7.43	AV
4924	50.88	-3.75	H	47.13	73.98	26.85	PK
4924	39.58	-3.75	H	35.83	53.98	18.15	AV
7386	52.87	5.60	H	58.47	73.98	15.51	PK
7386	41.18	5.60	H	46.78	53.98	7.20	AV

Operation Mode: 802.11 g  
 Transfer Rate: 6 Mbps  
 Operating Frequency 2462  
 Channel No. 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	50.89	-3.75	V	47.14	73.98	26.84	PK
4924	37.59	-3.75	V	33.84	53.98	20.14	AV
7386	38.78	5.60	V	44.38	73.98	29.60	PK
7386	38.89	5.60	V	44.49	53.98	9.49	AV
4924	50.96	-3.75	H	47.21	73.98	26.77	PK
4924	37.63	-3.75	H	33.88	53.98	20.10	AV
7386	53.16	5.60	H	58.76	73.98	15.22	PK
7386	39.05	5.60	H	44.65	53.98	9.33	AV

Operation Mode: 802.11 n

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Transfer Rate:	6.5 Mbps
Operating Frequency	2462
Channel No.	11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	50.64	-3.75	V	46.89	73.98	27.09	PK
4924	37.24	-3.75	V	33.49	53.98	20.49	AV
7386	52.49	5.60	V	58.09	73.98	15.89	PK
7386	38.89	5.60	V	44.49	53.98	9.49	AV
4924	50.75	-3.75	H	47.00	73.98	26.98	PK
4924	37.32	-3.75	H	33.57	53.98	20.41	AV
7386	52.51	5.60	H	58.11	73.98	15.87	PK
7386	38.97	5.60	H	44.57	53.98	9.41	AV

Operation Mode:	802.11ac
Transfer Rate:	6.5 Mbps
Operating Frequency	2462
Channel No.	11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
4924	51.66	-3.75	V	47.91	73.98	26.07	PK
4924	37.26	-3.75	V	33.51	53.98	20.47	AV
7386	53.87	5.60	V	59.47	73.98	14.51	PK
7386	38.93	5.60	V	44.53	53.98	9.45	AV
4924	51.79	-3.75	H	48.04	73.98	25.94	PK
4924	37.31	-3.75	H	33.56	53.98	20.42	AV
7386	53.00	5.60	H	58.60	73.98	15.38	PK
7386	39.02	5.60	H	44.62	53.98	9.36	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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821



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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
- 6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band : 5.8 GHz  
Operation Mode: 802.11 a

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Transfer Rate:	6 Mbps
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	40.12	11.22	V	51.34	73.98	22.64	PK
11490	27.67	11.22	V	38.89	53.98	15.09	AV
11490	40.54	11.22	H	51.76	73.98	22.22	PK
11490	28.76	11.22	H	39.98	53.98	14.00	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 a

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821





Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	40.68	11.71	V	52.39	73.98	21.59	PK
11570	27.15	11.71	V	38.86	53.98	15.12	AV
11570	39.83	11.71	H	51.54	73.98	22.44	PK
11570	28.51	11.71	H	40.22	53.98	13.76	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 a

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	40.52	11.34	V	51.86	73.98	22.12	PK
11650	28.15	11.34	V	39.49	53.98	14.49	AV
11650	39.86	11.34	H	51.20	73.98	22.78	PK
11650	28.54	11.34	H	39.88	53.98	14.10	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band :	5.8 GHz
Operation Mode:	802.11 n_20 MHz BW

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Transfer Rate:	6.5 Mbps
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	39.62	11.22	V	50.84	73.98	23.14	PK
11490	27.00	11.22	V	38.22	53.98	15.76	AV
11490	40.66	11.22	H	51.88	73.98	22.10	PK
11490	28.47	11.22	H	39.69	53.98	14.29	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	5.8 GHz
Operation Mode:	802.11 n_20 MHz BW

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Transfer Rate:	6.5 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	39.37	11.71	V	51.08	73.98	22.90	PK
11570	26.97	11.71	V	38.68	53.98	15.30	AV
11570	39.54	11.71	H	51.25	73.98	22.73	PK
11570	28.16	11.71	H	39.87	53.98	14.11	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	5.8 GHz
Operation Mode:	802.11 n_20 MHz BW

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Transfer Rate:	6.5 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	39.42	11.34	V	50.76	73.98	23.22	PK
11650	27.39	11.34	V	38.73	53.98	15.25	AV
11650	39.33	11.34	H	50.67	73.98	23.31	PK
11650	28.67	11.34	H	40.01	53.98	13.97	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	5.8 GHz
Operation Mode:	802.11 n_40 MHz BW

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF821



Transfer Rate:	13.5 Mbps
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11510	39.54	11.53	V	51.07	73.98	22.91	PK
11510	27.26	11.53	V	38.79	53.98	15.19	AV
11510	39.66	11.53	H	51.19	73.98	22.79	PK
11510	29.19	11.53	H	40.72	53.98	13.26	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	5.8 GHz
Operation Mode:	802.11 n_40 MHz BW

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Transfer Rate:	13.5 Mbps
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11590	39.02	11.64	V	50.66	73.98	23.32	PK
11590	27.17	11.64	V	38.81	53.98	15.17	AV
11590	39.36	11.64	H	51.00	73.98	22.98	PK
11590	28.59	11.64	H	40.23	53.98	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. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna

Band :	5.8 GHz
Operation Mode:	802.11 ac_20 MHz BW

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Transfer Rate: 6.5 Mbps  
 Operating Frequency 5745 MHz  
 Channel No. 149 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11490	39.89	11.22	V	51.11	73.98	22.87	PK
11490	27.05	11.22	V	38.27	53.98	15.71	AV
17235	45.03	18.82	V	63.85	68.2	4.35	PK
11490	39.77	11.22	H	50.99	73.98	22.99	PK
11490	28.36	11.22	H	39.58	53.98	14.40	AV
17235	45.75	18.82	H	64.57	68.2	3.63	PK

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_20 MHz BW  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency 5785 MHz  
 Channel No. 157 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11570	39.55	11.71	V	51.26	73.98	22.72	PK
11570	26.76	11.71	V	38.47	53.98	15.51	AV
17355	44.98	18.94	V	63.92	68.2	4.28	PK
11570	39.31	11.71	H	51.02	73.98	22.96	PK
11570	28.26	11.71	H	39.97	53.98	14.01	AV
17355	45.20	18.94	H	64.14	68.2	4.06	PK

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_20 MHz BW  
 Transfer Rate: 6.5 Mbps

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821





Operating Frequency 5825 MHz  
 Channel No. 165 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11650	39.64	11.34	V	50.98	73.98	23.00	PK
11650	27.59	11.34	V	38.93	53.98	15.05	AV
17475	45.20	19.52	V	64.72	68.2	3.48	PK
11650	39.20	11.34	H	50.54	73.98	23.44	PK
11650	28.54	11.34	H	39.88	53.98	14.10	AV
17475	45.13	19.52	H	64.65	68.2	3.55	PK

**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. We have done 802.11ac mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_40 MHz BW  
 Transfer Rate: 13.5 Mbps

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNF0821



Operating Frequency 5755 MHz  
 Channel No. 151 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11510	39.56	11.53	V	51.09	73.98	22.89	PK
11510	27.25	11.53	V	38.78	53.98	15.20	AV
17265	44.76	18.46	V	63.22	68.2	4.98	PK
11510	39.94	11.53	H	51.47	73.98	22.51	PK
11510	29.31	11.53	H	40.84	53.98	13.14	AV
17265	44.70	18.46	H	63.16	68.2	5.04	PK

Band : 5.8 GHz  
 Operation Mode: 802.11 ac\_40 MHz BW  
 Transfer Rate: 13.5 Mbps  
 Operating Frequency 5795 MHz  
 Channel No. 159 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11590	39.37	11.64	V	51.01	73.98	22.97	PK
11590	26.90	11.64	V	38.54	53.98	15.44	AV
17385	44.51	18.91	V	63.42	68.2	4.68	PK
11590	39.29	11.64	H	50.93	73.98	23.05	PK
11590	28.67	11.64	H	40.31	53.98	13.67	AV
17385	44.93	18.91	H	63.84	68.2	4.36	PK

Band : UNII 4  
 Operation Mode: 802.11 ac\_80 MHz BW  
 Transfer Rate: 29.3 Mbps  
 Operating Frequency 5775 MHz

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821

Channel No. 155 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL-AMP G [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
11550	38.96	11.50	V	50.46	73.98	23.52	PK
11550	27.22	11.50	V	38.72	53.98	15.26	AV
17325	44.81	18.90	V	63.71	68.2	4.49	PK
11550	39.30	11.50	H	50.80	73.98	23.18	PK
11550	28.51	11.50	H	40.01	53.98	13.97	AV
17325	44.75	18.90	H	63.65	68.2	4.55	PK

**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. We have done 802.11ac mode and all data rate. Worst data rate is the lowest data of each mode
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna
7. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.

**8.6.2 RADIATED RESTRICTED BAND EDGES**

**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

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821



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)).

**Stand alone**

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	25.43	33.90	H	59.33	73.98	14.65	PK
2390.0	12.34	33.90	H	46.24	53.98	7.74	AV
2390.0	25.51	33.90	V	59.41	73.98	14.57	PK
2390.0	11.92	33.90	V	45.82	53.98	8.16	AV
2483.5	26.72	33.99	H	60.71	73.98	13.27	PK
2483.5	12.58	33.99	H	46.57	53.98	7.41	AV
2483.5	25.29	33.99	V	59.28	73.98	14.70	PK
2483.5	11.98	33.99	V	45.97	53.98	8.01	AV

Operation Mode: 802.11b  
 Transfer Rate: 1 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	26.03	33.90	H	59.93	73.98	14.05	PK
2390.0	15.05	33.90	H	48.95	53.98	5.03	AV
2390.0	26.01	33.90	V	59.91	73.98	14.07	PK
2390.0	13.70	33.90	V	47.60	53.98	6.38	AV
2483.5	26.84	33.99	H	60.83	73.98	13.15	PK
2483.5	15.86	33.99	H	49.85	53.98	4.13	AV
2483.5	25.98	33.99	V	59.97	73.98	14.01	PK
2483.5	13.99	33.99	V	47.98	53.98	6.00	AV

Operation Mode: 802.11n  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	26.04	33.90	H	59.94	73.98	14.04	PK
2390.0	12.29	33.90	H	46.19	53.98	7.79	AV
2390.0	25.57	33.90	V	59.47	73.98	14.51	PK
2390.0	11.90	33.90	V	45.80	53.98	8.18	AV
2483.5	33.49	33.99	H	67.48	73.98	6.50	PK
2483.5	12.23	33.99	H	46.22	53.98	7.76	AV
2483.5	25.44	33.99	V	59.43	73.98	14.55	PK
2483.5	11.86	33.99	V	45.85	53.98	8.13	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading dBuV	AN.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	30.94	33.90	H	64.84	73.98	9.14	PK
2390.0	12.58	33.90	H	46.48	53.98	7.50	AV
2390.0	25.69	33.90	V	59.59	73.98	14.39	PK
2390.0	11.99	33.90	V	45.89	53.98	8.09	AV
2483.5	33.49	33.99	H	67.48	73.98	6.50	PK
2483.5	12.40	33.99	H	46.39	53.98	7.59	AV
2483.5	27.83	33.99	V	61.82	73.98	12.16	PK
2483.5	11.92	33.99	V	45.91	53.98	8.07	AV

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Band: 5.8 GHz

Operation Mode: 802.11ac\_20 MHz

Transfer Rate: 6.5 Mbps

Operating Frequency 5825 MHz

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821

Channel No. 165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp Gain [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
*5850	63.47	0.94	H	64.41	68.2	3.79	PK
*5850	64.09	0.94	V	65.03	68.2	3.17	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.
5. “\*” is radiated band edge test frequency(not restricted band emissions).

Band: 5.8 GHz  
 Operation Mode: 802.11ac\_40 MHz  
 Transfer Rate: 13.5 Mbps  
 Operating Frequency 5795 MHz

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821

Channel No. 159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp Gain [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
*5850	54.57	0.94	H	55.51	68.2	12.69	PK
*5850	54.64	0.94	V	55.58	68.2	12.62	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.
5. “\*” is radiated band edge test frequency(not restricted band emissions).

Band: 5.8 GHz  
 Operation Mode: 802.11ac\_80 MHz  
 Transfer Rate: 29.3 Mbps  
 Operating Frequency 5775 MHz

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Channel No. 155 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp Gain [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
*5850	58.44	0.94	H	59.38	68.2	8.82	PK
*5850	59.89	0.94	V	60.83	68.2	7.37	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.
5. “\*” is radiated band edge test frequency(not restricted band emissions).



**With Wireless Charger**

Operation Mode: 802.11g  
 Transfer Rate: 6 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	25.17	33.90	H	59.07	73.98	14.91	PK
2390.0	12.24	33.90	H	46.14	53.98	7.84	AV
2390.0	25.12	33.90	V	59.02	73.98	14.96	PK
2390.0	12.02	33.90	V	45.92	53.98	8.06	AV
2483.5	25.11	33.99	H	59.10	73.98	14.88	PK
2483.5	12.12	33.99	H	46.11	53.98	7.87	AV
2483.5	24.56	33.99	V	58.55	73.98	15.43	PK
2483.5	11.84	33.99	V	45.83	53.98	8.15	AV

Operation Mode: 802.11b  
 Transfer Rate: 1 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	25.55	33.90	H	59.45	73.98	14.53	PK
2390.0	14.98	33.90	H	48.88	53.98	5.10	AV
2390.0	25.15	33.90	V	59.05	73.98	14.93	PK
2390.0	14.23	33.90	V	48.13	53.98	5.85	AV
2483.5	25.78	33.99	H	59.77	73.98	14.21	PK
2483.5	15.22	33.99	H	49.21	53.98	4.77	AV
2483.5	25.23	33.99	V	59.22	73.98	14.76	PK
2483.5	14.97	33.99	V	48.96	53.98	5.02	AV



Operation Mode: 802.11n  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading [dBuV/m]	AN.+CL [dBm]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	25.87	33.90	H	59.77	73.98	14.21	PK
2390.0	12.11	33.90	H	46.01	53.98	7.97	AV
2390.0	25.10	33.90	V	59.00	73.98	14.98	PK
2390.0	11.89	33.90	V	45.79	53.98	8.19	AV
2483.5	25.86	33.99	H	59.85	73.98	14.13	PK
2483.5	11.90	33.99	H	45.89	53.98	8.09	AV
2483.5	25.49	33.99	V	59.48	73.98	14.50	PK
2483.5	11.87	33.99	V	45.86	53.98	8.12	AV

Operation Mode: 802.11ac  
 Transfer Rate: 6.5 Mbps  
 Operating Frequency: 2412 MHz, 2462 MHz  
 Channel No. 01 Ch, 11 Ch

Frequency [MHz]	Reading dBuV	AN.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
2390.0	25.51	33.90	H	59.41	73.98	14.57	PK
2390.0	12.29	33.90	H	46.19	53.98	7.79	AV
2390.0	25.41	33.90	V	59.31	73.98	14.67	PK
2390.0	12.01	33.90	V	45.91	53.98	8.07	AV
2483.5	25.78	33.99	H	59.77	73.98	14.21	PK
2483.5	12.08	33.99	H	46.07	53.98	7.91	AV
2483.5	25.51	33.99	V	59.50	73.98	14.48	PK
2483.5	11.98	33.99	V	45.97	53.98	8.01	AV

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. 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. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Band:	5.8 GHz
Operation Mode:	802.11ac_20 MHz
Transfer Rate:	6.5 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp Gain [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
*5850	62.59	0.94	H	63.53	68.2	4.67	PK
*5850	64.17	0.94	V	65.11	68.2	3.09	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.
5. “\*” is radiated band edge test frequency(not restricted band emissions).

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821



Band:	5.8 GHz
Operation Mode:	802.11ac_40 MHz
Transfer Rate:	13.5 Mbps
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp Gain [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
*5850	53.66	0.94	H	54.6	68.2	13.6	PK
*5850	53.73	0.94	V	54.67	68.2	13.53	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.
5. “\*” is radiated band edge test frequency(not restricted band emissions).

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNF821



Band:	5.8 GHz
Operation Mode:	802.11ac_80 MHz
Transfer Rate:	29.3 Mbps
Operating Frequency	5775 MHz
Channel No.	155 Ch

Frequency [MHz]	Reading dBuV	AN.+CL-Amp Gain [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Detect
*5850	57.54	0.94	H	58.48	68.2	9.72	PK
*5850	58.96	0.94	V	59.90	68.2	8.30	PK

**Notes:**

1. Total = Reading Value + Antenna Factor + Cable Loss
2. We have done 802.11b/g/n/ac mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
4. In case of 802.11ac, we applied the limit of spurious emissions according to KDB 644545 D02 Alternative Guidance for 802.11ac v01.
5. “\*” is radiated band edge test frequency(not restricted band emissions).

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC		FCC ID: ZNFD821

## 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 ground plane.
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 11 Mbps, Ch.11 and 802.11b. Because 802.11b mode is worst case.

## RESULT PLOTS

### Conducted Emissions (Line 1)

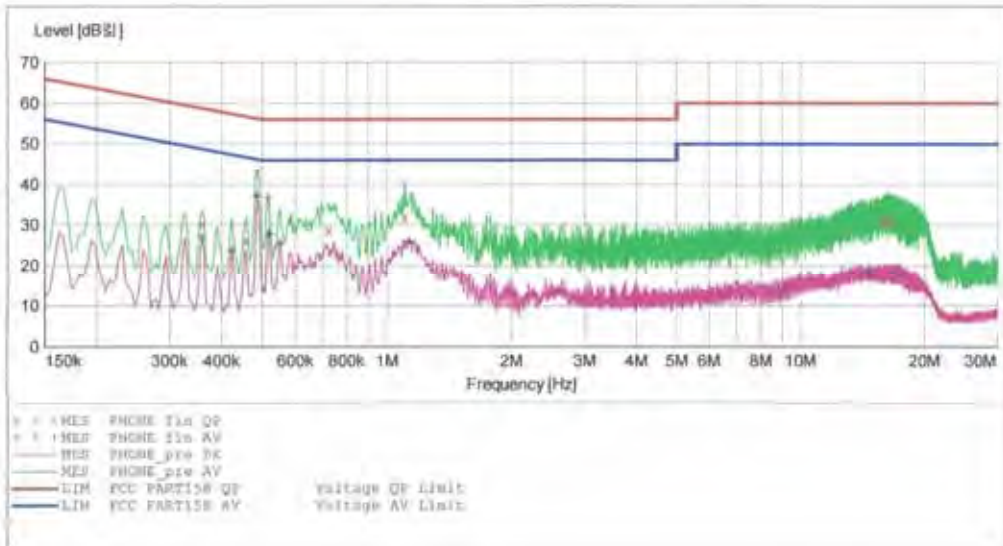
HCT

EMC

EUT: LGD821  
 Manufacturer: LG  
 Operating Condition: WLAN MODE  
 Test Site: SHIELD ROOM  
 Operator: KI YOON  
 Test Specification: FCC PART15 B  
 Comment: H

**SCAN TABLE: "FCC CLASS B(H)"**

Start Frequency	Stop Frequency	Step Width	Short Description	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	KN22 CLASS B	MaxPeak	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz		Average	10.0 ms	9 kHz	None
5.0 MHz	30.0 MHz	4.0 kHz		MaxPeak	10.0 ms	9 kHz	None
				Average			



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

2013-07-15 3:00오-후

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.358001	30.30	9.8	59	28.4	---	---
0.458001	26.30	9.8	57	30.4	---	---
0.486001	43.00	9.8	56	13.2	---	---
0.516000	36.20	9.8	56	19.8	---	---
0.724000	28.80	9.8	56	27.2	---	---
1.104000	31.90	9.9	56	24.1	---	---
15.992000	30.80	10.8	60	29.2	---	---
16.436000	30.90	10.8	60	29.1	---	---
16.464000	31.00	10.8	60	29.0	---	---



MEASUREMENT RESULT: "PHONE\_fin AV"

2013-07-15 3:00오.후

Frequency MHz	Level dB <sub>μV</sub>	Transd dB	Limit dB <sub>μV</sub>	Margin dB	Line	PE
0.358001	26.90	9.8	49	21.9	---	---
0.422001	23.80	9.8	47	23.6	---	---
0.486001	37.20	9.8	46	9.0	---	---
0.520000	27.70	9.8	46	18.3	---	---
0.552000	25.50	9.8	46	20.5	---	---
1.132000	26.00	9.9	46	20.0	---	---
9.036000	14.30	10.4	50	35.7	---	---
14.600000	18.10	10.7	50	31.9	---	---
16.980000	17.80	10.8	50	32.2	---	---

## Conducted Emissions (Line 2)

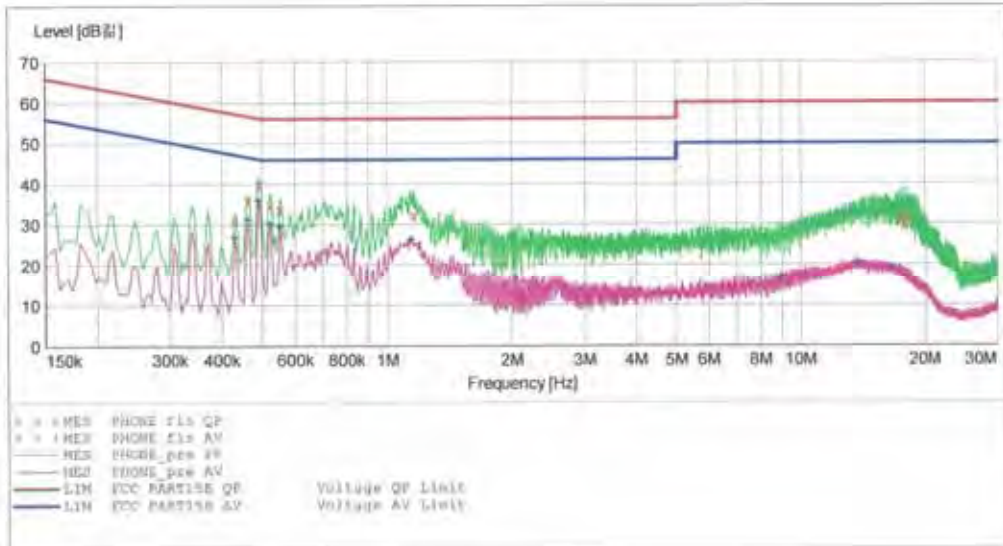
HCT

EMC

EUT: LGD821  
 Manufacturer: LG  
 Operating Condition: WLAN MODE  
 Test Site: SHIELD ROOM  
 Operator: KI YOON  
 Test Specification: FCC PART15 B  
 Comment: N

**SCAN TABLE: "FCC CLASS B(N)"**

Start Frequency	Stop Frequency	Step Width	Short Description	Detector	Meas. Time	IF Bandw.	Transducer
150.0 kHz	500.0 kHz	4.0 kHz	KN22 CLASS B	MaxPeak	10.0 ms	9 kHz	None
500.0 kHz	5.0 MHz	4.0 kHz		Average			
5.0 MHz	30.0 MHz	4.0 kHz		MaxPeak	10.0 ms	9 kHz	None
				Average			
				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
0.430001	30.90	10.0	57	26.3	---	---
0.462001	35.80	10.0	57	20.9	---	---
0.490001	39.80	10.0	56	16.4	---	---
0.524000	34.60	10.0	56	21.4	---	---
0.552000	33.60	10.0	56	22.4	---	---
1.160000	32.20	10.1	56	23.8	---	---
17.464000	31.20	11.1	60	28.8	---	---
17.776000	29.80	11.2	60	30.2	---	---
17.992000	31.90	11.2	60	28.1	---	---

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

2013-07-15 3:53오-후

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.430001	26.80	10.0	47	20.5	---	---
0.462001	31.20	10.0	47	15.5	---	---
0.490001	36.00	10.0	46	10.2	---	---
0.524000	30.00	10.0	46	16.0	---	---
0.552000	29.60	10.0	46	16.4	---	---
1.140000	26.20	10.1	46	19.8	---	---
8.964000	16.60	10.6	50	33.4	---	---
13.608000	20.30	10.9	50	29.7	---	---
16.692000	19.20	11.1	50	30.8	---	---

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		<a href="http://www.hct.co.kr">www.hct.co.kr</a>
Test Report No. HCTR1308FR42-1	Date of Issue: September 06, 2013	EUT Type: GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	FCC ID: ZNFD821

## 9. LIST OF TEST EQUIPMENT

Manufacturer	Model / Equipment	Calibration Interval	Calibration Due	Serial No.
Rohde & Schwarz	ENV216/ LISN	Annual	02/06/2014	100073
Schwarzbeck	VULB 9160/ TRILOG Antenna	Biennial	12/17/2014	3150
Rohde & Schwarz	ESI 40 / EMI TEST RECEIVER	Annual	04/16/2014	831564103
Agilent	E4440A/ Spectrum Analyzer	Annual	04/25/2014	US45303008
Agilent	N9020A/ SIGNAL ANALYZER	Annual	05/14/2014	MY51110063
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	04/16/2014	667624
CERNEX	CBL26405040 / POWER AMP	Annual	04/16/2014	19660
Schwarzbeck	BBHA 9120D/ Horn Antenna	Biennial	10/17/2013	937
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	Biennial	10/30/2014	BBHA9170124
Rohde & Schwarz	FSP / Spectrum Analyzer	Annual	02/08/2014	839117/011
Agilent	E4416A /Power Meter	Annual	11/07/2013	GB41291412
Agilent	E9327A /POWER SENSOR	Annual	04/16/2014	MY4442009
Wainwright Instrument	WHF3.0/18G-10EF / High Pass Filter	Annual	02/08/2014	F6
Wainwright Instrument	WHNX6.0/26.5G-6SS / High Pass Filter	Annual	04/16/2014	1
Wainwright Instrument	WHNX7.0/18G-8SS / High Pass Filter	Annual	04/16/2014	29
Wainwright Instrument	WRCJ2400/2483.5-2370/2520-60/14SS / Band Reject Filter	Annual	03/19/2014	1
Hewlett Packard	11636B/Power Divider	Annual	11/07/2013	11377
Agilent	87300B/Directional Coupler	Annual	12/24/2013	3116A03621
Hewlett Packard	11667B / Power Splitter	Annual	05/29/2014	05001
DIGITAL	EP-3010 /DC POWER SUPPLY	Annual	11/07/2013	3110117
ITECH	IT6720 / DC POWER SUPPLY	Annual	11/07/2013	010002156287001199
TESCOM	TC-3000C / BLUETOOTH TESTER	Annual	04/24/2014	3000C000276
Rohde & Schwarz	CBT / BLUETOOTH TESTER	Annual	04/25/2014	100422
EMCO	6502.LOOP ANTENNA	Biennial	01/11/2014	9009-2536
CERNEX	CBLU1183540 / POWER AMP	Annual	07/24/2014	21691
Agilent	8493C / Attenuator(10 dB)	Annual	07/24/2014	76649
WEINSCHL	2-3 / Attenuator(3 dB)	Annual	11/07/2013	BR0617

<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> HCTR1308FR42-1	<b>Date of Issue:</b> September 06, 2013	<b>EUT Type:</b> GSM/WCDMA/LTE Phone with Bluetooth, WLAN(2.4GHz & 5GHz) and NFC	<b>FCC ID:</b> ZNF821