

## HCT CO., LTD.

### CERTIFICATE OF COMPLIANCE

#### **FCC Certification**

#### **Applicant Name:**

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

#### Address:

1000 Sylvan Avenue, Englewood Cliffs NJ 07632

Date of Issue: April 16, 2013 Test Site/Location: HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, Korea Report No.: HCTR1304FR04-1

HCT FRN: 0005866421

### FCC ID : ZNFE440G

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

FCC Model(s):	LG-E440g
Additional FCC Model(s):	LGE440g, E440g
EUT Type:	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11b/g/n
Max. RF Output Power:	6.92 dBm (4.92 mW)
Frequency Range:	2402 MHz - 2480 MHz (Bluetooth)
Modulation type	GFSK(Normal), $\pi$ /4DQPSK and 8DPSK(EDR)
FCC Classification:	FCC Part 15 Spread Spectrum Transmitter
FCC Rule Part(s):	Part 15 subpart C 15.247

Engineering Statement:

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT CO., LTD. Certifies that no party to this application has subject to a denial of Federal benefits that includes FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

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

Approved bý : Chang Seok Choi Manager of RF Team

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# <u>Version</u>

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1304FR04	April 05, 2013	- First Approval Report
HCTR1304FR04-1	April 16, 2013	- Retest (Used RMS or linear averaging modes.)

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### **1. GENERAL INFORMATION**

Applicant:	LG Electronics MobileComm U.S.A., Inc.
Address:	1000 Sylvan Avenue, Englewood Cliffs NJ 07632
FCC ID:	ZNFE440G
EUT Type:	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n
Model name(s):	LG-E440g
Model name(s): Additional Model name(s):	LG-E440g LGE440g, E440g

### 2. EUT DESCRIPTION

EUT Type	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n
FCC Model Name	LG-E440g
Additional FCC Model Name	LGE440g, E440g
Power Supply	DC 3.7 V
Battery type	Li-ion Battery(Standard)
Frequency Range	2402 MHz - 2480 MHz (Bluetooth)
Transmit Power	6.92 dBm (4.92 mW)
BT Operating Mode	Normal, EDR, AFH
Modulation Type	GFSK(Normal), π/4DQPSK and 8DPSK(EDR)
Modulation Technique	FHSS
Number of Channels	79Channels, Minimum 20 Channels(AFH)
Antenna Specification	Manufacturer: KOMATECH Co., Ltd.
	Antenna type: Internal Antenna
	Peak Gain : 2.64 dBi

#### **※ 15.247 Requirements for Bluetooth transmitter**

• This Bluetooth module has been tested by a Bluetooth Qualification Lab, and we confirm the following:

1) This system is hopping pseudo-randomly.

2) Each frequency is used equally on the average by each transmitter.

3) The receiver input bandwidths that match the hopping channel bandwidths of their corresponding transmitters

4) The receiver shifts frequencies in synchronization with the transmitted signals.

• 15.247(g): The system, consisting of both the transmitter and the receiver, must be designed to comply with all of the regulations in this Section 15.247 should the transmitter be presented with a continuous data (or information) stream.

• 15.247(h): The coordination of frequency hopping systems in any other manner for the express purpose of avoiding the simultaneous occupancy of individual hopping frequencies by multiple transmitters is not permitted.

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### 3. TEST METHODOLOGY

The measurement procedure described in the American National Standard for Testing Unlicensed Wireless Devices(ANSI C63.4-2003) and FCC Public Notice DA 00-705 dated March 30, 2000 entitled "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems" were used in the measurement of the LG Electronics MobileComm U.S.A., Inc. GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n FCC ID: ZNFE440G

### **3.1 EUT CONFIGURATION**

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### 3.2 EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

### 3.3 GENERAL TEST PROCEDURES

### **Conducted Emissions**

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version :2003) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

### **Radiated Emissions**

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 13.1.4.1 of ANSI C63.4. (Version: 2003). To record the final measurements, the analyzer detector function was set to CISPR quasi-peak mode and the bandwidth of the spectrum analyzer was set to 120 kHz for frequencies below 1 GHz or 1 MHz for frequencies above 1 GHz. For average measurements above 1 GHz, the analyzer was set to peak detector with a reduced VBW setting(RBW = 1 MHz, VBW = 1/T Hz, where T = Pulse width).

### **Conducted Antenna Terminal**

See Section from 8.1 to 8.6.1.(DA 00-705)

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### 3.4 DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel low, mid and high with highest data rate (worst case) is chosen for full testing.

### 4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipments, which is traceable to recognized national standards.

### 5. FACILITIES AND ACCREDITATIONS

### 5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, 467-811, Korea. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2003) and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated March 02, 2011 (Registration Number: 90661)

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 6. ANTENNA REQUIREMENTS

### According to FCC 47 CFR §15.203:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

\* The antennas of this E.U.T are permanently attached.

\*The E.U.T Complies with the requirement of §15.203

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### 7. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
20 dB Bandwidth	§15.247(a)(1)(ii) or (iii)	NA		PASS
Occupied Bandwidth	NA	NA		NA
Conducted Maximum Peak Output Power	§15.247(b)(1)	< 1 Watts		PASS
Carrier Frequency Separation	§15.247(a)(1)	>25 kHz or >2/3 of the 20dB BW		PASS
Number of Hopping Frequencies	§15.247(a)(1)(iii)	>15	CONDUCTED	PASS
Time of Occupancy	§15.247(a)(1)(iii)	<400 ms		PASS
Conducted Spurious Emissions	§15.247(d)	$< 20 \ \rm dB$ for all out-of band emissions		PASS
Band Edge(Out of Band Emissions)	§15.247(d)	< 20 dB for all out-of band emissions		PASS
AC Power line Conducted Emissions	§15.207(a)	cf. Section 8.7		PASS
Radiated Spurious Emissions	§15.247(d), 15.205, 15.209	cf. Section 8.6.2	BADIATED	PASS
Radiated Restricted Band Edge	§15.247(d), 15.205, 15.209	cf. Section 8.6.3	RADIATED	PASS

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## 8. FCC PART 15.247 REQUIREMENTS

### 8.1 PEAK POWER

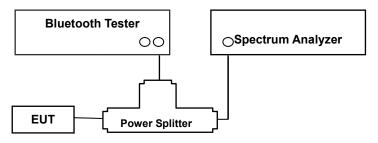
### LIMIT

The maximum peak output power of the intentional radiator shall not exceed the following:

1. For frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt.

2. The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi.

### **Test Configuration**



### **TEST PROCEDURE**

The transmitter output is connected to the Spectrum Analyzer. The Spectrum Analyzer is set to the peak detector mode. This test is performed with hopping off.

The Spectrum Analyzer is set to (DA 00-705)

- 1. Span = 2 MHz (GFSK) / 5 MHz ( $\pi$ /4DQPSK and 8DPSK)
- 2. RBW = 1 MHz (GFSK) / 3 MHz ( $\pi$ /4DQPSK and 8DPSK)
- 3. VBW = 1 MHz (GFSK) / 3 MHz ( $\pi$ /4DQPSK and 8DPSK)
- 4. Sweep = auto
- 5. Trace = max hold
- 6. Detector function = peak
- 7. Packet type= DH5 (GFSK) / 2-DH5 (π/4DQPSK) / 3-DH5 (8DPSK)

### SAMPLE CALCULATION

Output Power = Spectrum Reading Power + Power Splitter loss + Cable loss(2 ea)

= 10 dBm + 6 dB + 1.5 dB = 17.5 dBm

Note :

- 1. Spectrum reading values are not plot data. The power results in plot is already including the actual values of loss for the splitter and cable combination.
- 2. Spectrum offset = Power Splitter loss + Cable loss

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 We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the splitter and cable combination is 7.18 dB at 2402 MHz and is 7.23 dB at 2480 MHz.
So, 7.2 dB is offset. And the offset gap in the 2.4 GHz range do not affect the conducted peak power final

result

#### **TEST RESULTS**

No non-compliance noted

#### **Test Data**

Channel	Frequency		Output Power (GFSK)		Output Power (8DPSK)		t Power QPSK)	Limit	Result
	(MHz)	(dBm)	(mW)	(dBm)	(mW)	(dBm)	(mW)	(W)	
Low	2402	6.58	4.55	6.19	4.16	5.98	3.96		PASS
Mid	2441	6.53	4.50	6.21	4.18	5.97	3.95	1	PASS
High	2480	6.92	4.92	6.64	4.61	6.40	4.37		PASS

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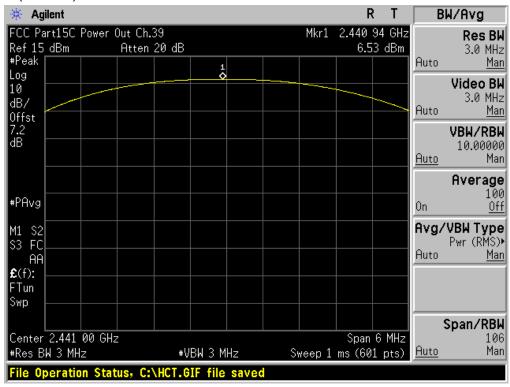


#### Test Plots (GFSK) Peak Power (Low-CH)

FCC Part15C Power Out Ch.	A			-	W/Avg
	.0 20 dB	Mkr1	2.401 94 GHz 6.58 dBm		Res Bl 3.0 MHz
#Peak Log				Auto	Mar Video Bl
10 dB/ 0ffst				Auto	3.0 MH: <u>Mai</u>
Offst 7.2 dB				<u>Auto</u>	VBW/RBJ 10.0000 Ma
#PAvg				On	Average 10 <u>Of</u>
M1 S2 S3 FC AA				<b>Avg∕</b> Auto	<b>YBW Type</b> Pwr (RMS) Ma
€(f): FTun Swp					
Center 2.402 00 GHz			Span 6 MHz		Span/RBJ 100
*Res BW 3 MHz File Operation Status, C:	₩VBW 3 MHz			<u>Auto</u>	Mai

### Test Plots (GFSK)

Peak Power (Mid-CH)



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### Test Plots (GFSK) Peak Power (High-CH)

🔆 Agilent				RT	B	W/Avg
FCC Part15C Power ( Ref 15 dBm	Dut Ch.78 Atten 20 dB		Mkr1	2.479 91 GHz 6.92 dBm	_	Res BW 3.0 MHz
#Peak Log					Auto	Mar Video BW
10 dB/ Offst					Auto	3.0 MHz <u>Mar</u>
0ffst 7.2 dB					<u>Auto</u>	VBW/RBW 10.00000 Mar
#PAvg					On	Average 100 <u>Off</u>
M1 S2 S3 FC AA					<b>Avg∕</b> Auto	<b>VBW Type</b> Pwr (RMS) <sup>,</sup> <u>Mar</u>
£(f): FTun Swp						
						Span/RBW
Center 2.480 00 GHz #Res BW 3 MHz		BW 3 MHz	Sweep 1	Span 6 MHz ms (601 pts)	<u>Auto</u>	106 Mar
File Operation Stat	us, C:\HCT.G	IF file save				

### Test Plots (8DPSK)

Peak Power (Low-CH)



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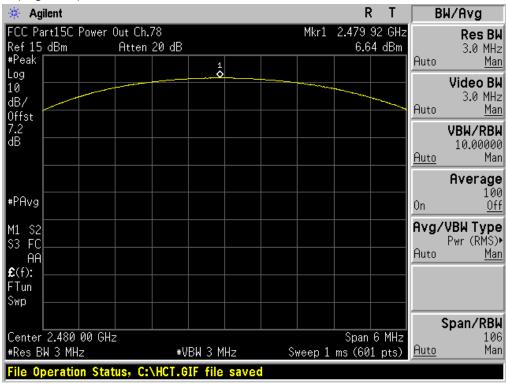


#### Test Plots (8DPSK) Peak Power (Mid-CH)

🔆 Agilent				R	Т	B	W/Avg
FCC Part15C Powe Ref 15 dBm	r Out Ch.39 Atten 20 dB		Mkr1	2.440 9 6.21	7 GHz dBm		Res BW 3.0 MHz
#Peak		1				Auto	Man
Log 10 dB/ Offst		<u> </u>				Auto	Video BW 3.0 MHz <u>Mar</u>
7.2 dB						<u>Auto</u>	VBW/RBW 10.00000 Mar
#PAvg						On	Average 100 <u>Off</u>
M1 S2 S3 FC AA						<b>Avg∕</b> Auto	<b>′VBW Type</b> Pwr (RMS) <u>Mar</u>
£(f): FTun Swp							
							Span/RBk
Center 2.441 00 G #Res BW 3 MHz		BW 3 MHz	Sweep 1	Span 6 ms (601		<u>Auto</u>	106 Mar
File Operation St	atus, C:\HCT.G	IF file saved					

### Test Plots (8DPSK)

Peak Power (High-CH)



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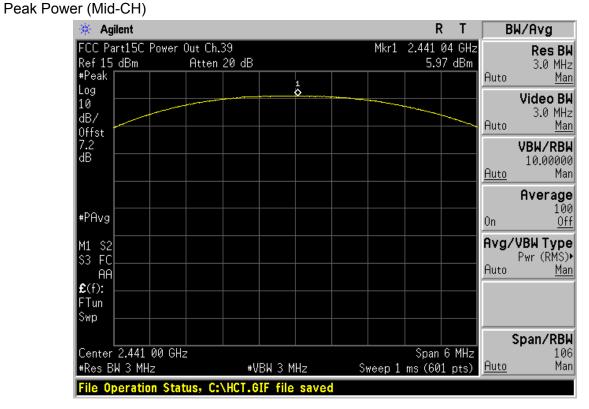


### Test Plots (π/4DQPSK)

Peak Power (Low-CH)

🔆 Agilent			RT	BW	/Avg
FCC Part15C Power Out Ch		Mkr1	2.402 00 GHz		Res BW
Ref 15 dBm Atten #Peak	20 dB		5.98 dBm	0	3.0 MHz
Log				Auto	<u>Man</u>
10					Video BW
dB/				Auto	3.0 MHz Man
Offst					
7.2 dB					VBW/RBW 10.00000
				Auto	Man
					Average
					100 I
#PAvg				0n	<u> 0ff</u>
M1 S2				Ava/V	ВW Туре
\$3 FC					°wr (RMS)⊧
AA				Auto	<u>Man</u>
<b>£</b> (f):					
FTun					
Swp					
				S	pan/RBW
Center 2.402 00 GHz #Res BW 3 MHz	₩VBW 3 MHz	Sucon 1	Span 6 MHz ms (601 pts)	Auto	106 Man
			ms (001 pts)	<u></u>	nan
File Operation Status, C:	AHUI.GIF file sa	vea			

### Test Plots (π/4DQPSK)



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### Test Plots ( $\pi$ /4DQPSK)

Peak Power (High-CH)

🔆 Agilent				RT	BW/Avg
FCC Part15C Powe			Mkr1	2.480 04 GHz	Res BW
Ref 15 dBm	Atten 20 dB			6.40 dBm	3.0 MHz
#Peak Log					Auto <u>Man</u>
10					Video BW
dB/					3.0 MHz Auto Man
Offst					
7.2 dB					VBW/RBW
					10.00000 <u>Auto</u> Man
					Average 100
#PAvg					On Off
M1 S2 S3 FC					Avg/VBW Type Pwr (RMS)•
AA					Auto Man
<b>£</b> (f):					
FTun					
Swp					
					Span/RBW
Center 2.480 00 G				Span 6 MHz	106
≢Res BW 3 MHz	#\	/BW 3 MHz	Sweep 1	ms (601 pts)	<u>Auto</u> Man
File Operation St	tatus, C:\HCT.(	IF file saved			

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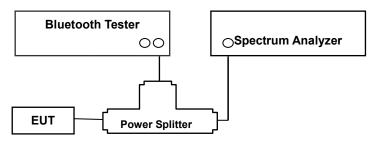


### 8.2 BAND EDGES

### LIMIT

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

### **Test Configuration**



### TEST PROCEDURE

### This test is performed with hopping off and hopping on.

The Spectrum Analyzer is set to (DA 00-705)

- 1. Span = 8 MHz / 10 MHz (with hopping)
- 2. RBW = 100 kHz
- 3. VBW = 300 kHz
- 4. Sweep = auto
- 5. Detector Mode = Peak
- 6. Trace = max hold

### **TEST RESULTS**

See attached.

Note :

- 1. The results in plot is already including the actual values of loss for the splitter and cable combination.
- 2. Spectrum offset = Power Splitter loss + Cable loss
- 3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the splitter and cable combination is 7.18 dB at 2402 MHz and is 7.23 dB at 2480 MHz. So, 7.2 dB is offset. And the offset gap in the 2.4 GHz range do not affect the band edge measurement final result.

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### Test Data

### - Without hopping

Outside Frequency	GFSK	8DPSK	π/4DQPSK	PSK Margin				
Band	(dB)	(dB)	(dB)	(dBc)	GFSK	8DPSK	π/4DQPSK	Result
Band	(UB)	(UB)	(UD)	(UDC)	(dBc)	(dBc)	(dBc)	
Lower	56.12	56.54	56.90	20	36.12	36.54	36.90	PASS
Upper	62.53	63.04	62.67	20	42.53	43.04	42.67	PASS

### - With hopping

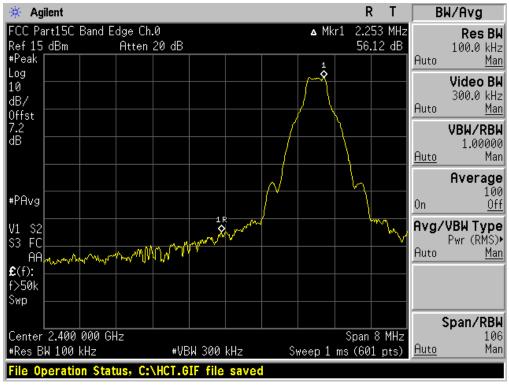
Outside Frequency	GFSK	8DPSK	π/4DQPSK	SK Margin				
Band	(dB)	(dB)	(dB)	(dBc)	GFSK	8DPSK	π/4DQPSK	Result
Dana	(ub)	(UD)	(0.5)	(ubc)	(dBc)	(dBc)	(dBc)	
Lower	56.64	55.97	54.70	20	36.64	35.97	34.70	PASS
Upper	59.77	58.34	58.23	20	39.77	38.34	38.23	PASS

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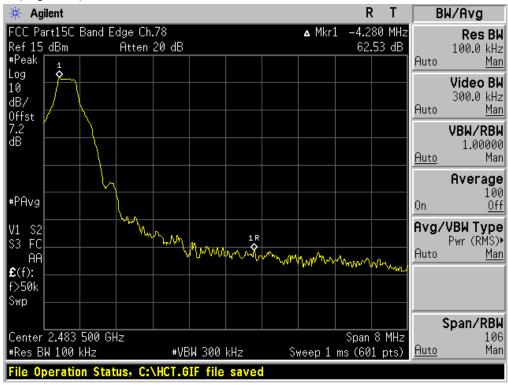


### Test Plots without hopping (GFSK)

Band Edges (Low-CH)



### Test Plots without hopping (GFSK) Band Edges (High-CH)

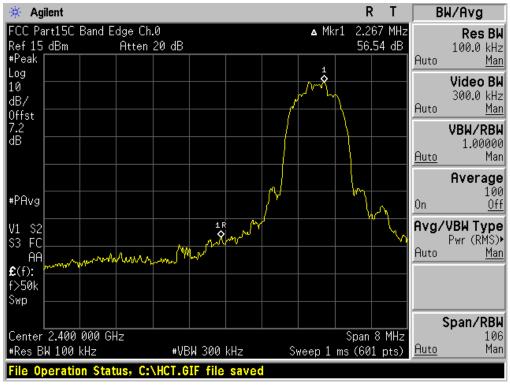


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr			
Test Report No. HCTR1304FR04-1	Date of Issue: April 16, 2013	EUT Type: GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	FCC ID: ZNFE440G			
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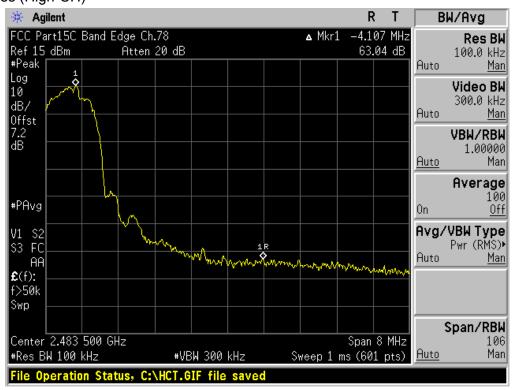


### Test Plots without hopping (8DPSK)

Band Edges (Low-CH)



### Test Plots without hopping (8DPSK) Band Edges (High-CH)

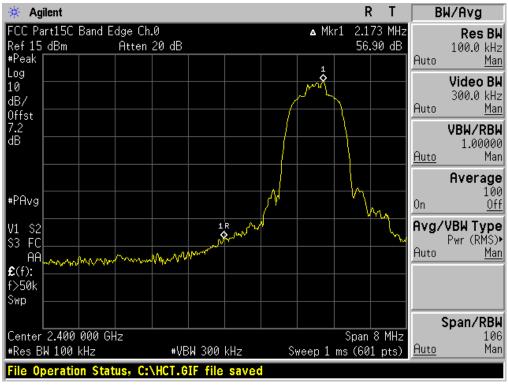


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr			
Test Report No. HCTR1304FR04-1	Date of Issue: April 16, 2013	EUT Type: GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	FCC ID: ZNFE440G			
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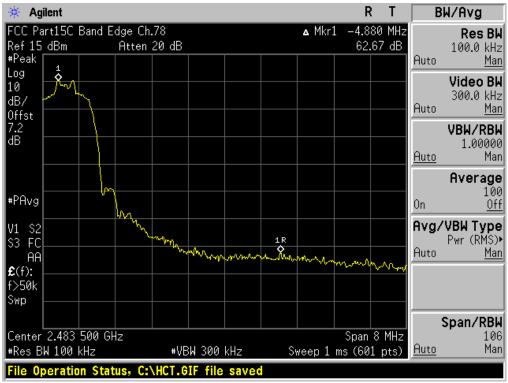


### Test Plots without hopping ( $\pi$ /4DQPSK)

Band Edges (Low-CH)



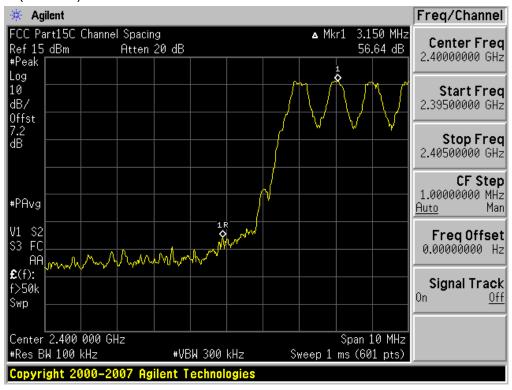
### Test Plots without hopping ( $\pi$ /4DQPSK) Band Edges (High-CH)



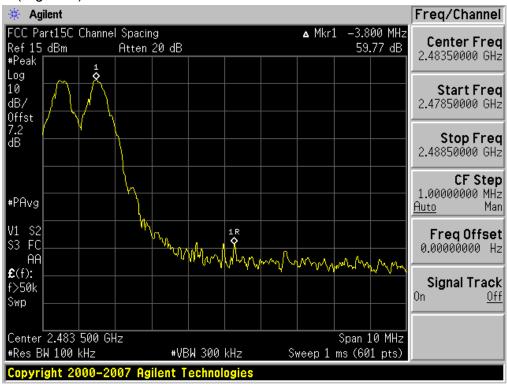
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr			
Test Report No. HCTR1304FR04-1	Date of Issue: April 16, 2013	EUT Type: GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	FCC ID: ZNFE440G			
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### Test Plots with hopping (GFSK) Band Edges (Low-CH)



### Test Plots with hopping (GFSK) Band Edges (High-CH)

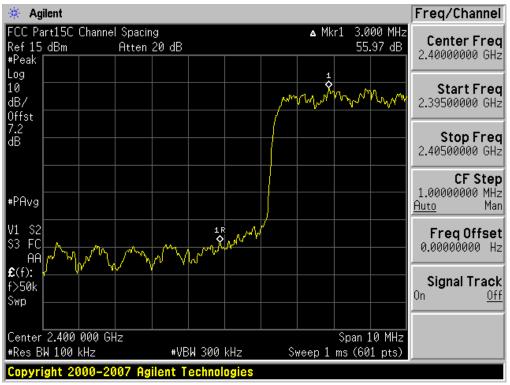


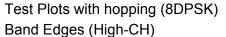
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	www.hct.co.kr			
Test Report No. HCTR1304FR04-1	Date of Issue: April 16, 2013	EUT Type: GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	FCC ID: ZNFE440G			
	Page 20 of 80					

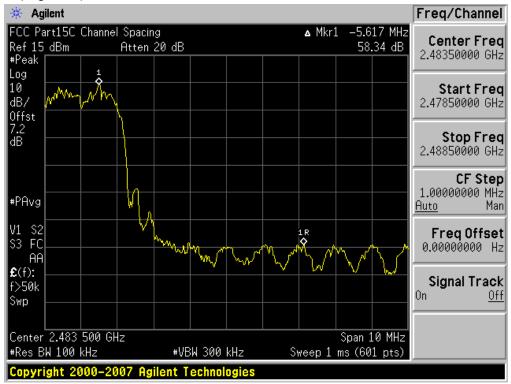


### Test Plots with hopping (8DPSK)

Band Edges (Low-CH)





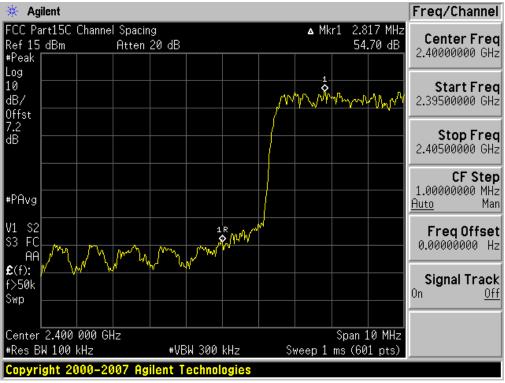


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G
		Bage 21 of 80	

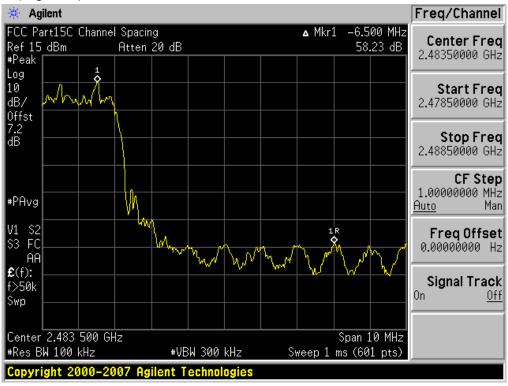


### Test Plots with hopping ( $\pi$ /4DQPSK)

Band Edges (Low-CH)



### Test Plots with hopping ( $\pi$ /4DQPSK) Band Edges (High-CH)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G		

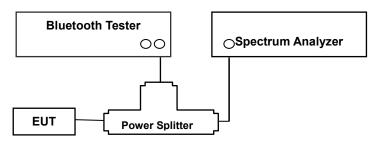


# 8.3 FREQUENCY SEPARATION / OCCUPIED BANDWIDTH (99% BW)

### LIMIT

According to §15.247(a)(1), Frequency hopping systems operating in the 2400–2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater.

### **Test Configuration**



### **TEST PROCEDURE**

The Channel Separation test is performed with hopping on. And the 20 dB Bandwidth test is performed with hopping off.

The Spectrum Analyzer is set to (DA 00-705)

- 1. Span = 3 MHz
- 2. RBW = 30 kHz
- 3. VBW = 100 kHz
- 4. Sweep = auto
- 5. Detector function = peak
- 6. Trace = max hold

The trace was allowed to stabilize. The marker-delta function was used to determine the separation between the peaks of the adjacent channels.

### **TEST RESULTS**

No non-compliance noted

FCC PT.15.247 TEST REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G



#### Test Data

Cha	Channel Separation (kHz)		20dB Bandwidth (kHz)			Limit	Result	
GFSK	8DPSK	π/4DQPSK	Channel	GFSK	8DPSK	4DQPSK	(kHz)	
			Low CH	941.7	1280.0	1278.0	>25 or	
995	1000	995	Middle CH	942.8	1253.0	1257.0	>2/3 of the	Pass
			High CH	941.6	1280.0	1279.0	20dB BW	

### Occupied Bandwidth (99% BW)

99% BW (kHz)							
Channel GFSK 8DPSK 4DQPSK							
Low CH	868.6	1159.3	1154.5				
Middle CH	868.7	1146.4	1155.3				
High CH	873.2	1159.4	1154.3				

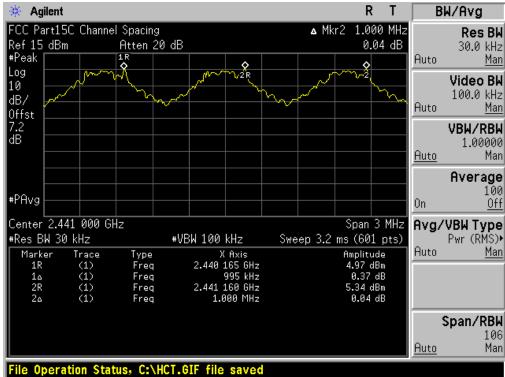
Note : We can not know what use channel in AFH mode. So, we can not test in AFH mode. Also, if the test performs some channel in AFH mode, the test result is not different with normal mode.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		
Test Report No.	Date of Issue:	EUT Type: GSM/WCDMA Phone with Bluetooth3.0. WIFI802.11 b/a/n	FCC ID:
HCTR1304FR04-1	April 16, 2013	ZNFE440G	

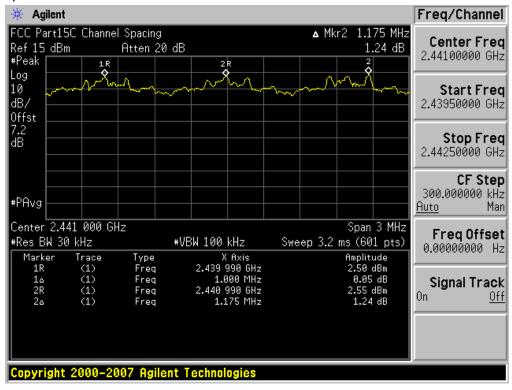


### Test Plots (GFSK)

**Channel Separation** 



#### Test Plots (8DPSK) Channel Separation

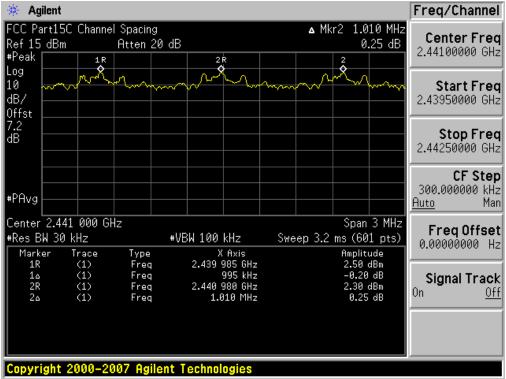


FCC PT.15.247 TEST REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1304FR04-1	April 16, 2013 GSMWCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n			



### Test Plots (π/4DQPSK)

### **Channel Separation**



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1304FR04-1	April 16, 2013 GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n			



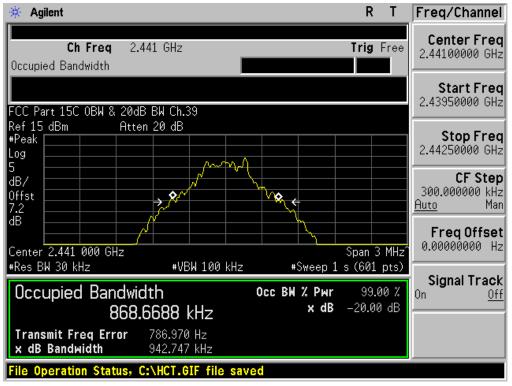
### Test Plots (GFSK)

20 dB Bandwidth & Occupied Bandwidth (Low-CH)



### Test Plots (GFSK)

20 dB Bandwidth & Occupied Bandwidth (Mid-CH)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr	
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1304FR04-1	April 16, 2013 GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n			



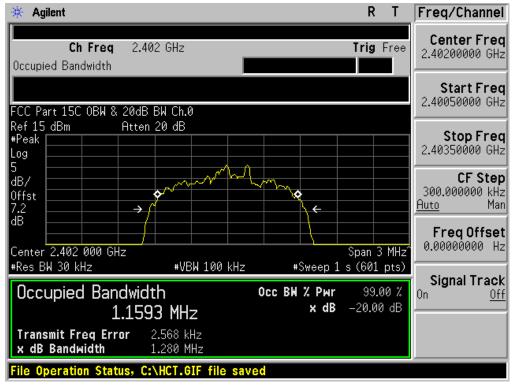
### Test Plots (GFSK)

20 dB Bandwidth & Occupied Bandwidth (High-CH)



### Test Plots (8DPSK)

20 dB Bandwidth & Occupied Bandwidth (Low-CH)

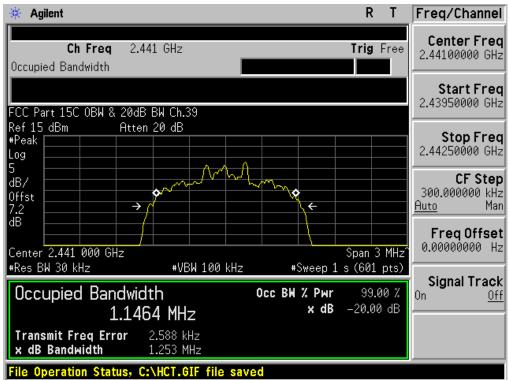


FCC PT.15.247 TEST REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1304FR04-1	April 16, 2013 GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n Z			
Dage 29 of 90				



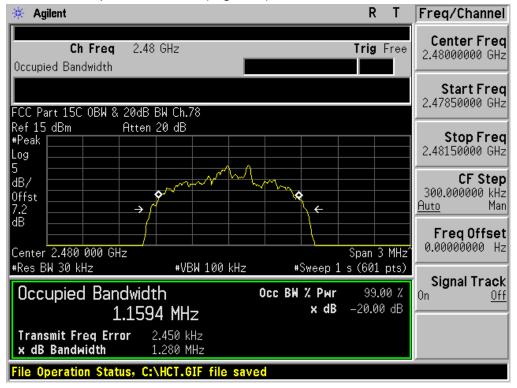
Test Plots (8DPSK)

20 dB Bandwidth & Occupied Bandwidth (Mid-CH)



### Test Plots (8DPSK)

20 dB Bandwidth & Occupied Bandwidth (High-CH)

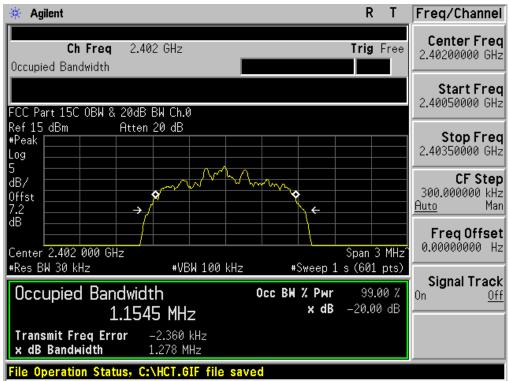


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT			
Test Report No. HCTR1304FR04-1	Date of Issue:     EUT Type:       April 16, 2013     GSM/WCDMA Phone with Bluetooth3.0. WIFI802.11 b/g/n		FCC ID: ZNFE440G	
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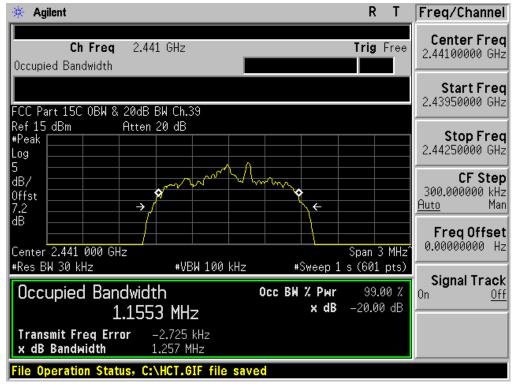
Test Plots (π/4DQPSK)

20 dB Bandwidth & Occupied Bandwidth (Low-CH)



### Test Plots (π/4DQPSK)

20 dB Bandwidth & Occupied Bandwidth (Mid-CH)

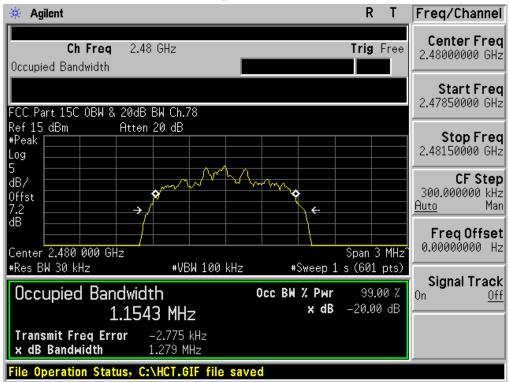


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT				
Test Report No. HCTR1304FR04-1	Date of Issue: EUT Type:		FCC ID: ZNFE440G		
HUTRIS04FR04-1	, , , , , , , , , , , , , , , , , , ,				
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Test Plots (π/4DQPSK)

20 dB Bandwidth & Occupied Bandwidth (High-CH)



FCC PT.15.247 TEST REPORT		www.hct.co.kr		
Test Report No.	Date of Issue:	EUT Type:	FCC ID:	
HCTR1304FR04-1	April 16, 2013 GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n			

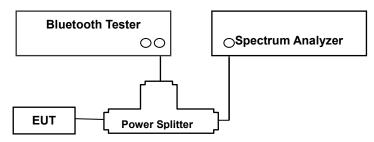


### 8.4 NUMBER OF HOPPING FREQUENCY

#### LIMIT

According to 15.247(a)(1)(iii), Frequency hopping systems operating in the 2400 MHz ~ 2483.5 MHz bands shall use at least 15 hopping frequencies.

#### **Test Configuration**



#### **TEST PROCEDURE**

The Bluetooth frequency hopping function of the EUT was enabled.

The Spectrum Analyzer is set to (DA 00-705)

- 1. Span = the frequency band of operation (Start = 2400 MHz, Stop = 2483.5 MHz)
- 2. RBW = 300 kHz
- 3. VBW = 300 kHz
- 4. Sweep = auto
- 5. Detector function = peak
- 6. Trace = max hold

The trace was allowed to stabilize.

#### **TEST RESULTS**

No non-compliance noted

#### Test Data

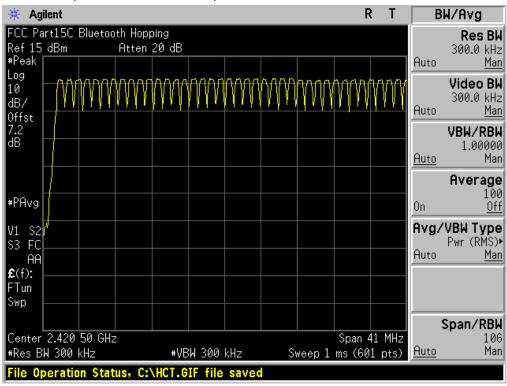
	Result (No. of CH)		1	Decult
GFSK	8DPSK	π/4DQPSK	Limit	Result
79	79	79	>15	Pass

Note : In case of AFH mode, minimum number of hopping channels is 20.

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G
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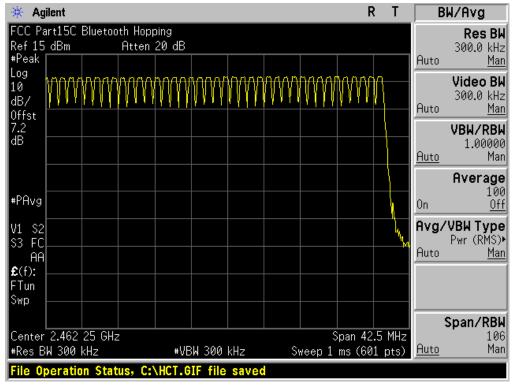


#### Test Plots (GFSK) Number of Channels (2.4 GHz - 2.441 GHz)



### Test Plots (GFSK)

Number of Channels (2.441 GHz - 2.4835 GHz)

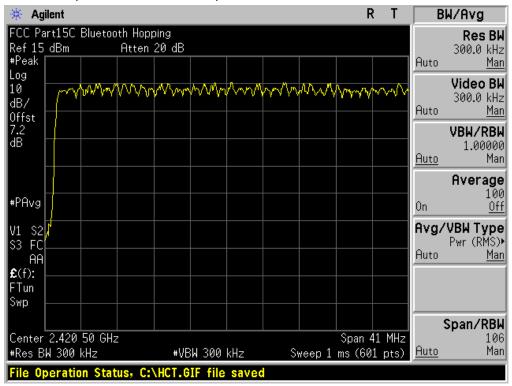


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G



### Test Plots (8DPSK)

Number of Channels (2.4 GHz - 2.441 GHz)



### Test Plots (8DPSK)

Number of Channels (2.441 GHz - 2.4835 GHz)

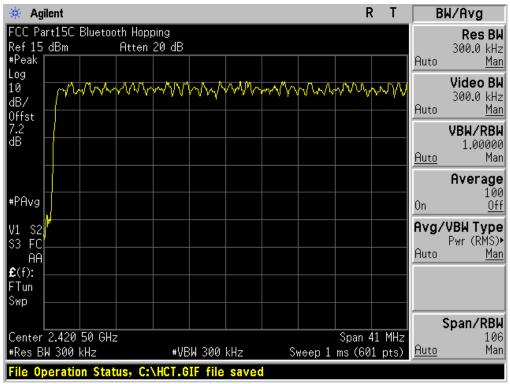


FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G



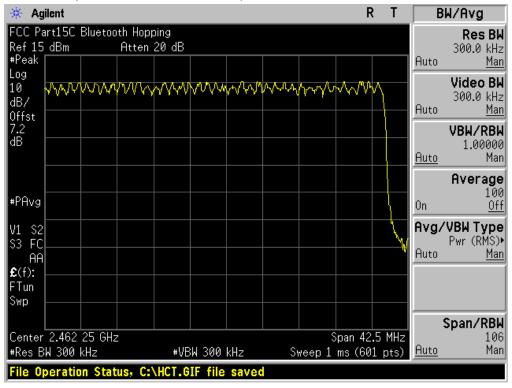
Test Plots (π/4DQPSK)

Number of Channels (2.4 GHz - 2.441 GHz)



### Test Plots (π/4DQPSK)

Number of Channels (2.441 GHz - 2.4835 GHz)



FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G

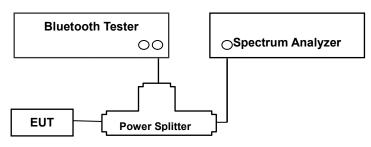


### 8.5 TIME OF OCCUPANCY (DWELL TIME)

#### LIMIT

According to \$15.247(a)(1)(iii), Frequency hopping systems operating in the 2400 MHz ~ 2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

### **Test Configuration**



### **TEST PROCEDURE**

This test is performed with hopping off.

EUT was set to transmit the longest packet type (DH5)

The Spectrum Analyzer is set to ( DA 00-705 )

- 1. Span = zero span
- 2. RBW = 1 MHz
- 3. VBW = 1 MHz
- 4. Sweep = as necessary to capture the entire dwell time per channel
- 5. Detector function = peak
- 6. Trace = max hold

The marker-delta function was used to determine the dwell time.

### Normal Mode / EDR Mode

**DH 5**(The longest packet type for GFSK) CH Mid : 2.875 \* (1600/6)/79 \* 31.6 = 306.67 (ms)**2-DH 5**(The longest packet type for  $\pi/4DQPSK$ ) CH Mid : 2.875 \* (1600/6)/79 \* 31.6 = 306.67 (ms)**3-DH 5**(The longest packet type for 8DPSK) CH Mid : 2.883 \* (1600/6)/79 \* 31.6 = 307.52 (ms)

### AFH Mode

DH 5(The longest packet type for GFSK)

CH Mid : 2.875 \* (800/6)/20 \* 8.0 = 153.33 (ms)

**2-DH 5**(The longest packet type for  $\pi$ /4DQPSK)

FCC PT.15.247 TEST REPORT	FCC CERTIFICATION REPORT		www.hct.co.kr
Test Report No.	Date of Issue:	EUT Type:	FCC ID:
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G



CH Mid : 2.875 \* (800/6)/20 \* 8.0 = 153.33 (ms) **3-DH 5**(The longest packet type for 8DPSK) CH Mid : 2.883 \* (800/6)/20 \* 8.0 = 153.76 (ms)

Note :

A DH5 Packet need 5 time slot for transmitting and 1 time slot for receiving. Then the system makes worst case 1600/6 hops per second with 79 channels. So the system have each channel 3.3755 times per second and so for 31.6 seconds the system have 106.7 times of appearance. Each tx-time per appearance of DH5 is 2.883 ms. Dwell time = Tx-time \* 106.7

#### **TEST RESULTS**

See the table.

Channel	Pulse Ti	me (ms)	Total of D	)well (ms)	Period Time Limit		Result
Channer	GFSK	8DPSK	GFSK	8DPSK	(s)	(ms)	Nesuit
Low	2.875	2.883	306.67	307.52	31.6		PASS
Mid	2.875	2.883	306.67	307.52	31.6	400	PASS
High	2.875	2.875	306.67	306.67	31.6		PASS

Channel	Pulse Time (ms) π/4D0	Total of Dwell (ms) QPSK	Period Time (s)	Limit (ms)	Result
Low	2.875	306.67	31.6	400	PASS
Mid	2.875	306.67	31.6		PASS
High	2.875	306.67	31.6		PASS

FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT			
Test Report No.	Date of Issue:	EUT Type:	FCC ID:		
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G		
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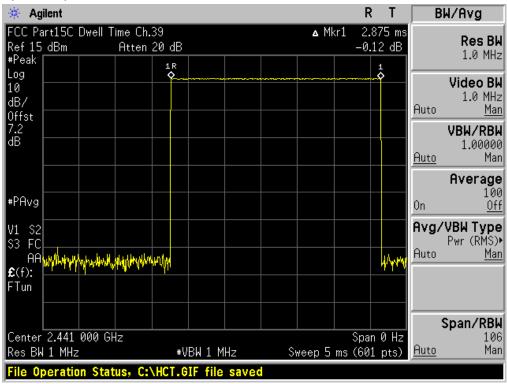


#### Test Plots (GFSK) Dwell Time (Low-CH)

🔆 Agilent					F	2 T	E	W/Avg
#Peak 1	Ch.0 en 20 dB LR			∆ Mki		875 ms .21 dB		Res BW 1.0 MHz
Log 10 dB/	Ŷ				Ŷ		Auto	<b>Video BW</b> 1.0 MHz <u>Man</u>
Offst 7.2 dB							<u>Auto</u>	VBW/RBW 1.00000 Man
#PAvg							On	Average 100 <u>Off</u>
V1 S2 S3 FC AA/Manay/MW/whata/Mw					al all	hanna	<b>Avg∕</b> Auto	<b>∕VBWType</b> Pwr(RMS)∙ <u>Man</u>
E(f): FTun								
Center 2.402 000 GHz Res BW 1 MHz	#\	/BW 1 MH		Sweep 5 r		n 0 Hz 1 pts)	<u>Auto</u>	<b>Span/RBW</b> 106 Man
File Operation Status,	C:\HCT.0	IF file	saved					

## Test Plots (GFSK)

Dwell Time (Mid-CH)



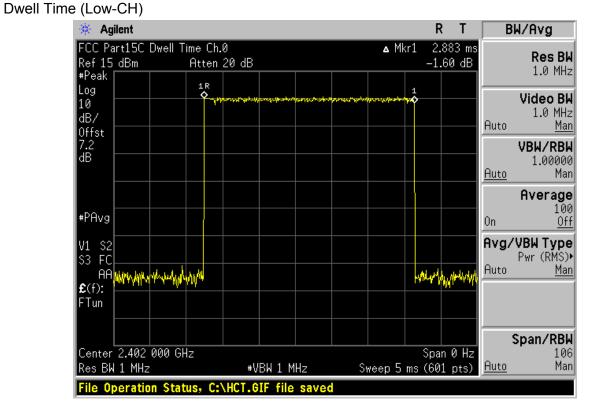
FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G			



### Test Plots (GFSK) Dwell Time (High-CH)

🔆 Agilent		RT	BW/Avg
#Doold	.78 20 dB	∆ Mkr1 2.875 ms -0.16 dB	ResBW 1.0 MHz
Log <b>5</b> 10 dB/			Video BW 1.0 MHz Auto Man
0ffst 7.2 dB			<b>VBW/RBW</b> 1.00000 <u>Auto</u> Man
#PAvg			<b>Average</b> 100 On <u>Off</u>
V1 S2 S3 FC PAP		and the second sec	Avg/VBWType Pwr(RMS)► Auto <u>Man</u>
£(f): FTun			Span/RBW
Center 2.480 000 GHz Res BW 1 MHz File Operation Status, C	#VBW 1 MHz	Span 0 Hz Sweep 5 ms (601 pts)	106 Auto Man

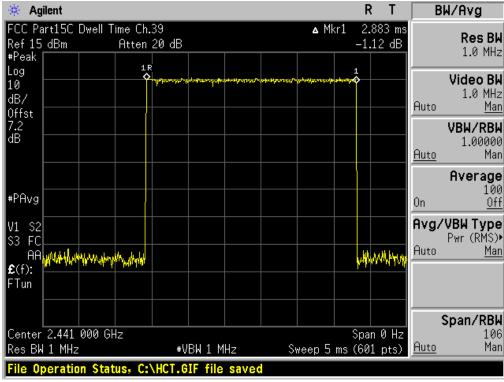
# Test Plots (8DPSK)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G			
	Dage 20 of 90					



#### Test Plots (8DPSK) Dwell Time (Mid-CH)



# Test Plots (8DPSK)

Dwell Time (High-CH)

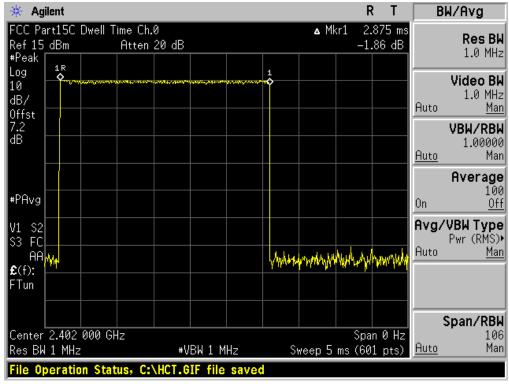


FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G			

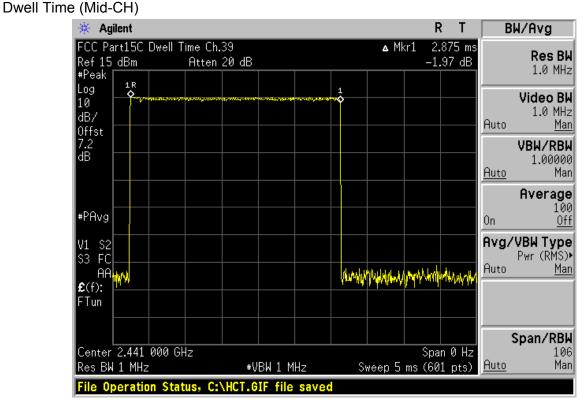


### Test Plots (π/4DQPSK)

Dwell Time (Low-CH)



# Test Plots (π/4DQPSK)



FCC PT.15.247 TEST REPORT		FCC CERTIFICATION REPORT				
Test Report No.	Date of Issue:	EUT Type:	FCC ID:			
HCTR1304FR04-1	April 16, 2013	GSM/WCDMA Phone with Bluetooth3.0, WIFI802.11 b/g/n	ZNFE440G			



# Test Plots (π/4DQPSK)

Dwell Time (High-CH)

🔆 Agilent			F	₹ T	BW.	/Avg
FCC Part15C Dwell Tim				.875 ms		Res BW
#Peak	itten 20 dB		-0	.85 dB		1.0 MHz
Log 1R						/ideo BW
10 dB/						1.0 MHz
Offst					Auto	<u>Man</u>
7.2 dB					V	BW/RBW
ad in the second se					Auto	1.00000 Man
					· ·	<b>lverage</b> 100
#PAvg					On	<u> 0ff</u>
V1 S2					Avg/V	ВW Туре
\$3 FC					P Auto	wr (RMS)► Man
θΑ <mark>γγγγ</mark> £(f):		WW	twind the states	w filming the	Παιυ	<u>rian</u>
FTun						
					St	oan/RBW
Center 2.480 000 GHz				n 0 Hz		106
Res BW 1 MHz	#VBW 1		weep 5 ms (60	1 pts)	Huto	Man
File Operation Status	s, C:\HCT.GIF fi	le saved				

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### **8.6 SPURIOUS EMISSIONS**

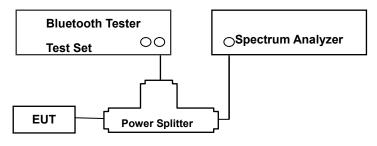
### 8.6.1 CONDUCTED SPURIOUS EMISSIONS

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

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.205(c)).

# Limit : 20 dBc

#### Test Configuration



### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer.

The Spectrum Analyzer is set to (DA 00-705)

- Span = wide enough to capture the peak level of the in-band emission and all spurious emissions(e.g.,harmonics) from the lowest frequency generated in the EUT up through the 10<sup>th</sup> harmonic.
- 2. RBW = 100 kHz(Upon 1 GHz = 1 MHz)
- 3. VBW  $\geq$  300 kHz(Upon 1 GHz = 3 MHz)
- 4. Sweep = auto
- 5. Sweep point ≥ 2\*span/RBW
- 5. Detector function = peak

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6. Trace = max hold

Measurements are made over the 30 MHz to 26 GHz range with the transmitter set to the lowest, middle, and highest channels.

This test is performed with hopping off.

#### **TEST RESULTS**

No non-compliance noted. FACTORS FOR FREQUENCY

Freq(MHz)	Factor(dB)
30	10.01
100	10.02
200	10.10
300	10.09
400	10.13
500	10.21
600	10.13
700	10.31
800	10.18
900	10.30
1000	10.17
2000	8.53
2400*	7.18
2500*	7.21
3000	8.59
4000	10.02
5000	9.88
6000	5.70
7000	10.21
8000	6.13
9000	8.79
10000	12.46
11000	8.11
12000	9.52
13000	8.98
14000	8.13
15000	11.82
16000	6.92
17000	13.23
18000	10.25
19000	10.28
20000	9.10
21000	10.94
22000	11.54
23000	8.81
24000	11.71
25000	9.37
26000	9.34

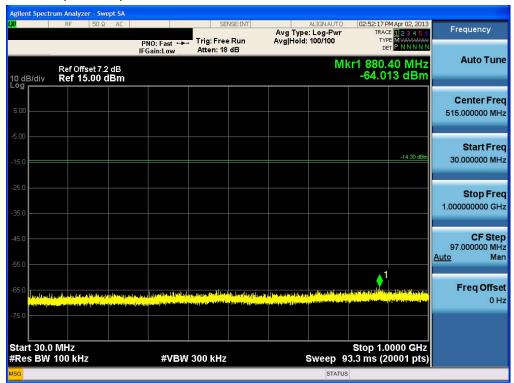
Note : 1. "" is fundamental frequency range.

2. Factor = Cable loss + Splitter loss

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Test Plots (GFSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (Low-CH)



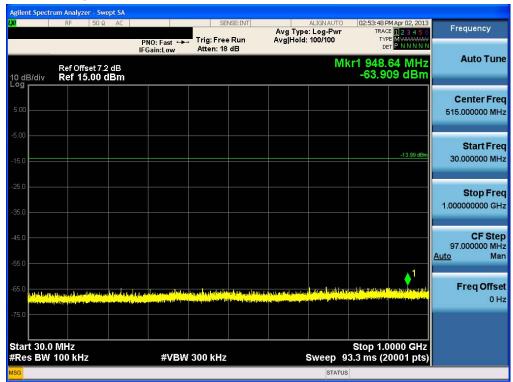
Test Plots (GFSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (Mid-CH)

					a content das stant	9			m Analyzer - Sv	gilent Spectr
Frequency	M Apr 02, 2013 E 1 2 3 4 5 6 E M WWWWWW	TRAC	LIGNAUTO	Avg Typ Avg Hold	NSE:INT			AC	RF   50 S	
Auto Tune	32 MHz 66 dBm	ں ( <b>r1 952</b> .		Avginoid		Atten: 18	PNO: Fast ↔ IFGain:Low	2 dB	Ref Offset 7. Ref 15.00	) dB/div
Center Fred 515.000000 MHz										og 5.00
Start Free 30.000000 MHz	-13.79 dBm									5.0
<b>Stop Fred</b> 1.000000000 GH:										15.0 15.0
CF Step 97.000000 MH: <u>Auto</u> Mar										i5:0
Freq Offse 0 H:	<b>∳</b> 1 Naturalansis	adalka illa baran		l obstationersteinen		lietzen idie difficie September 1995	les de la de la serificie en trad	l son the direct of	ladina (1. seitekitiki) ka a	201700 201700
	0000 GHz	Stop 1.0								5.0
	0001 pts)		Sweep 9			300 kHz	#VBV		00 KHZ	Res BW

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Test Plots (GFSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (High-CH)



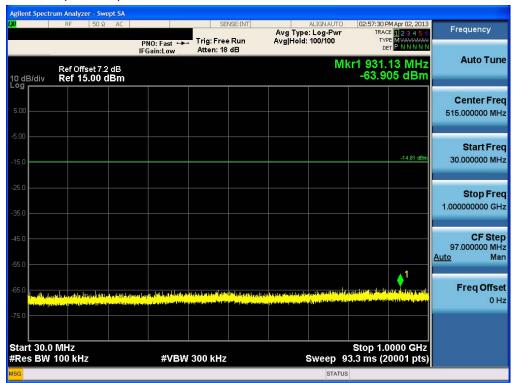
Test Plots (8DPSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (Low-CH)

Agilent Spectr	rum Analyzer - Sv RF 50 S	wept SA Ω AC			NSE:INT	20	ALIGN AUTO	00.55.50.0	MA 02, 2012	
L,AI	KF 50 S	AL AL				Avg Type Avg Hold:	: Log-Pwr	TRAC	M Apr 02, 2013 E 1 2 3 4 5 6 E M WANNAN	Frequency
10 dB/div	Ref Offset 7 Ref 15.00	.2 dB	PNO: Fast 🔸 IFGain:Low	Atten: 18		Avginoid.		DE (r1 758.1		Auto Tune
5.00										Center Fred 515.000000 MHz
-5.00									-15.75 dBm	Start Free 30.000000 MH:
-25.0										Stop Fred 1.000000000 GH
-45.0										<b>CF Step</b> 97.000000 MH <u>Auto</u> Ma
1 1 1 2 4 3 7 1 1 1 1 1 2 4 3 4 5 4 5 4	n in his of the first or best of	al activities de linde.	daarin dura da statel vala		alaria ( ). La la constanta da	A least the property	<mark>∳</mark> 1	t teals it is a traini		Freq Offse
-75.0	akopengi Lini Angelan na pangi kana kana kana kana kana kana kana kan		na ya na		a a fille and a state					
Start 30.0 #Res BW			#VBW	300 kHz			Sweep 9		000 GHz 0001 pts)	
MSG							STATUS			

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Test Plots (8DPSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (Mid-CH)



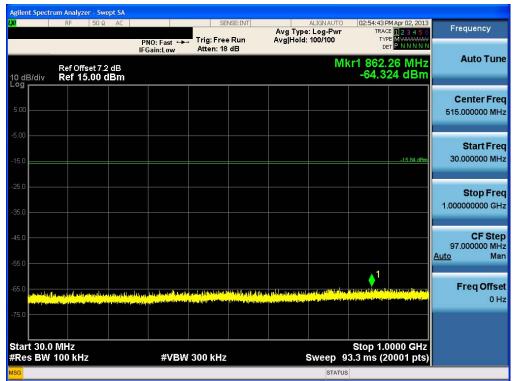
Test Plots (8DPSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (High-CH)

Agilent Spectr	r <mark>um Analyzer - Swept S</mark> RF 50 Ω A		SENSE:INT	ALIGNAUTO	03:02:49 PM Apr 02, 2013	
~	KF JU X A			Avg Type: Log-Pwr Avg Hold: 100/100	TRACE 1 2 3 4 5 1 TYPE M WWWWW	Frequency
		PNO: Fast +++ IFGain:Low	Atten: 18 dB		DET P NNNN kr1 863.38 MHz	
10 dB/div	Ref Offset 7.2 dB Ref 15.00 dBr			IVI	-64.091 dBm	
						Center Free
5.00						515.000000 MH:
-5.00						Start Free
-15.0					-15.05 dBm	30.000000 MHz
-25.0						Stop Free
-35.0						1.000000000 GH
-45.0						CF Ster
						97.000000 MH Auto Ma
-55.0					<u>1</u>	
-65.0	a si dua anni a sa sa sa an an an	de de subline aublineter (	adatan kulla salah dalah sa ni	an in dhi din ta buta dila sediduti lara		Freq Offset
-75.0	alaran digira ku sana dina dina dina di sa k		A DECEMBER OF A	inter de parte donte, de la biga parte de la construcción de la construcción de la construcción de la constru		_
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start 30.0 #Res BW		#VBW	300 kHz	Sweep 9	Stop 1.0000 GHz 3.3 ms (20001 pts	
//SG				STATUS	3	

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Test Plots ( $\pi$ /4DQPSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (Low-CH)



Test Plots (π/4DQPSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (Mid-CH)

	MAR- 00 0010	00.55.071			N ANTER AN ATT			pt SA AC	Analyzer - Swe	nt Spectru	Agilen XI
Frequency	M Apr 02, 2013 E 1 2 3 4 5 6 E M MANANA	TRAC	ALIGNAUTO		NSE:INT			AC	RF   50 Ω		<u>u</u>
Auto Tuno		⊳ kr1 893.		Avg Hold		Atten: 18	PNO: Fast ↔ IFGain:Low	dB	ef Offset 7.2 ef 15.00 d	B/div	
Center Free 515.000000 MH											Log 5.00
Start Free 30.000000 MH	-14,91 dBm										-5.00 -15.0
<b>Stop Fre</b> 1.000000000 GH											-25.0 -35.0
CF Ste 97.000000 M⊢ <u>Auto</u> Ma											45.0 55.0
Freq Offs 0 F	1 National States		, se do tel de trans	al a las statisticas (tagle al l agree for a geographic para)	all flattet lang så dets	an is didistri	lla kota tikon da takada		a ha dhalaladh a	risted in the	65.0
	0000 GHz 0001 pts)	Stop 1.0	Sweep 9			300 kHz	#VBM			rt 30.0 es BW /	
	ooo (p.co)		STATUS			000 NITZ	<i>«</i> 0 EIX				ISG

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		Data 10 ( 00	



Test Plots ( $\pi$ /4DQPSK) - 30 MHz - 1 GHz (RBW:100 kHz, VBW: 300 kHz) Spurious Emission (High-CH)

d	RF 50 Ω AC		SEI	NSE:INT		ALIGN AUTO	02:56:16 PM Apr 02, 201	
		PNO: Fast +++	Trig: Free Atten: 18		Avg Type Avg Hold	e: Log-Pwr : 100/100	TRACE 12345 TYPE MWWWW DET PNNNN	Ň
0 dB/div	Ref Offset 7.2 dB Ref 15.00 dBm					Mk	r1 556.95 MH: -63.785 dBn	
5.00								Center Fre 515.000000 MH
15.0							-15.35 dB	Start Fre 30.000000 MH
35.0								<b>Stop Fro</b> 1.000000000 Gl
45:0								CF Ste 97.000000 MI <u>Auto</u> M
65.0	, elevitede fot bissent i fotoles bis en estado Taragan participationes en elevite en elevite de la compacticación de	is an air for an loss of the literation.			trouble to the			Freq Offs 01
75.0 Start 30.0							Stop 1.0000 GH:	
Res BW		#VBW	300 kHz			Sweep 9:	3.3 ms (20001 pts	

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