

FCC ID:

HCT CO., LTD.

CERTIFICATE OF COMPLIANCE

FCC Certification Date of Issue:

Applicant Name:	Date of Issue:
Pantech Co., Ltd.	August 14, 2012
	Test Site/Locat
Address:	HCT CO., LTD.,
Pantech Bldg, I-2, DMC, Sangam-dong, Mapo-gu,	Icheon-si, Kyun
Seoul, 121-792, Korea	Report No.: HC

JYCCDMAPTL21

August 14, 2012 Test Site/Location: HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon, Icheon-si, Kyunggi-Do, Korea Report No.: HCTR1208FR13

HCT FRN: 0005866421

APPLICANT:	Pantech Co., Ltd.
FCC Model(s):	CDMA PTL21
EUT Type:	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC
FCC Classification:	Licensed Portable Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§22, §24, §2
Tx Frequency:	824.20 - 848.80 MHz (GSM850) 826.40 - 846.60 MHz (WCDMA850) 1 850.20 - 1 909.80 MHz (GSM1900) 1 852.4 – 1 907.6 MHz (WCDMA1900)
Rx Frequency:	869.20 - 893.80 MHz (GSM850) 871.40 - 891.60 (WCDMA850) 1 930.20 - 1 989.80 MHz (GSM1900) 1 932.4 – 1 987.6 MHz (WCDMA1900)
Max. RF Output Power:	0.631 W ERP GSM850 (28.00 dBm) / 0.721 W EIRP GSM1900 (28.58 dBm) 0.218 W ERP WCDMA850 (23.38 dBm) / 0.298 W EIRP WCDMA1900 (24.74 dBm)
Emission Designator(s):	243 KGXW (GSM850) 242 KGXW (GSM1900) 4M18F9W (WCDMA850) 4M17F9W (WCDMA1900)

The measurements shown in this report were made in accordance with the procedures specified in §2.947. 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)

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Report prepared by : Jae Chul Shin Test engineer of RF Team

Approved by : Chang Seok Choi Manager of RF Team

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1208FR13	August 14, 2012	First Approval Report

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	Pantech Co., Ltd.
Address:	Pantech Bldg, I-2, DMC, Sangam-dong, Mapo-gu, Seoul, 121-792, Korea
FCC ID:	JYCCDMAPTL21
Application Type:	Certification
FCC Classification:	Licensed Portable Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§22, §24, §2
EUT Type:	GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC
FCC Model(s):	CDMA PTL21
Tx Frequency:	824.20 - 848.80 MHz (GSM850) 826.40 - 846.60 MHz (WCDMA850) 1 850.20 - 1 909.80 MHz (GSM1900) 1 852.4 – 1 907.6 MHz (WCDMA1900)
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Max. RF Output Power:	0.631 W ERP GSM850 (28.00 dBm) / 0.721 W EIRP GSM1900 (28.58 dBm) 0.218 W ERP WCDMA850 (23.38 dBm) / 0.298 W EIRP WCDMA1900 (24.74 dBm)
Emission Designator(s):	243 KGXW (GSM850) 242 KGXW (GSM1900) 4M18F9W (WCDMA850) 4M17F9W (WCDMA1900)
Date(s) of Tests:	July 13, 2012 ~ August 10, 2012
Antenna Specification	Manufacturer: ARRO CO.LTD
	Antenna type: INTERNAL Antenna
	Peak Gain: GSM850/WCDMA850 : -0.65 dBi
	GSM1900/WCDMA1900 : -0.31 dBi

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2. INTRODUCTION

2.1. EUT DESCRIPTION

The Pantech Co., Ltd. CDMA PTL21 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC consists of GSM850, GSM1900, WCDMA850, WCDMA1900, GPRS Class10 and HSDPA.

2.2. MEASURING 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 equipment, which is traceable to recognized national standards.

2.3. TEST FACILITY

The Fully-anechoic chamber and conducted measurement facility used to collect the radiated data are located at the 105-1, Jangam-ri , Majang-Myeon, Icheon-si, 467-811, KOREA.

The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated March 02, 2011 (Registration Number: 90661)

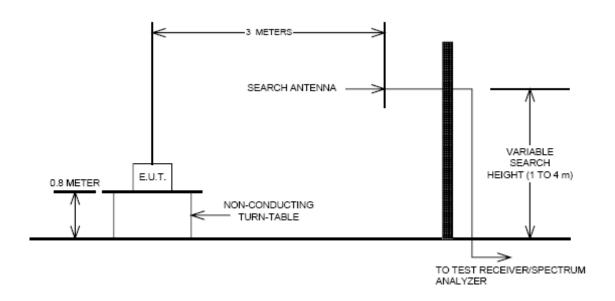
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3. DESCRIPTION OF TESTS

3.1 EFFECTIVE RADIATED POWER/EQUIVALENT ISOTROPIC RADIATED POWER

Test Set-up



Radiated emission measurements were performed at an Fully-anechoic chamber.

The equipment under test is placed on a non-conductive table 3-meters from the receive antenna. A turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration

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3.2 PEAK- TO- AVERAGE RATIO

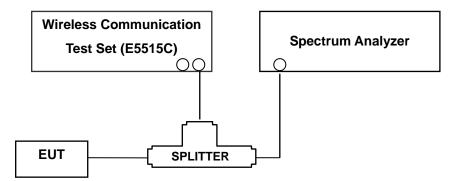
A peak to average ratio measurement is performed at the conducted port of the EUT. For CDMA and WCDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level. For GSM signals, an average and a peak trace are used on a spectrum analyzer to determine the largest deviation between the average and the peak power of the EUT in a bandwidth greater than the emission bandwidth. Plots of the EUT's Peak- to- Average Ratio are shown herein.

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3.3 OCCUPIED BANDWIDTH.

Test set-up



(Configuration of conducted Emission measurement)

The width of a frequency band such that, below the lower and above the upper frequency limits, the mean powers emitted are each equal to a specified percentage 0.5 % of the total mean power of a given emission.

Test Procedure

The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 3 channels(low, middle and high operational range.)

The conducted occupied bandwidth used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The communication simulator station system controlled a EUT to export maximum output power under transmission mode and specific channel frequency. Use OBW measurement function of Spectrum analyzer to measure 99 % occupied bandwidth

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3.4 SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL.

Test Procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer.

On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10 log(P) dB. The RBW settings used in the testing are greater than 1 % of the occupied bw. The 1 MHz RBW was used to scan from 10 MHz to 10 GHz. (GSM1900 Mode: 10 MHz to 20 GHz). A display line was placed at – 13 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

- Band Edge Requirement : According to FCC 22.917 , 24.238(a) specified that power of any emission outside of The authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

The EUT makes a call to the communication simulator. The power was measured with R&S Spectrum Analyzer. All measurements were done at 2 channels(low and high operational frequency range.)

The band edge measurement used the power splitter via EUT RF power connector between simulation base station and spectrum analyzer.

The center frequency of spectrum is the band edge frequency and span is 1MHz RB of the spectrum is 3KHz and VB of the spectrum is 3KHz (GSM)

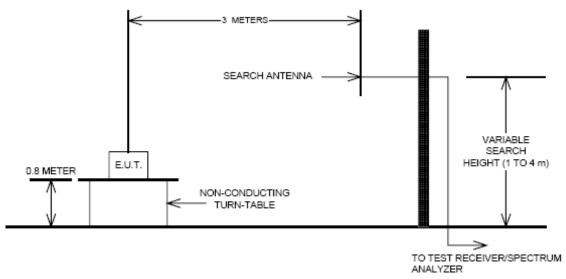
The center frequency of spectrum is the band edge frequency and span is 5MHz RB of the spectrum is 100KHz and VB of the spectrum is 100KHz(WCDMA)

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3.5 RADIATED SPURIOUS AND HARMONIC EMISSIONS

Test Set-up



The measurement facilities used for this test have been documented in previous filings with the commission pursuant to section § 2.948. The Fully-anechoic chamber meets requirements in ANSI C63.4 –2003. A mast capable of lifting the receiving antenna from a height of one to four meters is used together with a rotatable platform mounted at three from the antenna mast.

- 1) The unit mounted on a turntable 1.5 m × 1.0 m × 0.80 m is 0.8 meter above test site ground level.
- 2) During the emission test, the turntable is rotated and the EUT is manipulated to find the configuration resulting in maximum emission under normal condition of installation and operation.
- 3) The antenna height and polarization are also varied from 1 to 4 meters until the maximum signal is found.
- 4) The spectrum shall be scanned up to the 10th harmonic of the fundamental frequency.

Test Procedure

The equipment under test is placed on a non-conductive table 3-meters from the receive antenna. A turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

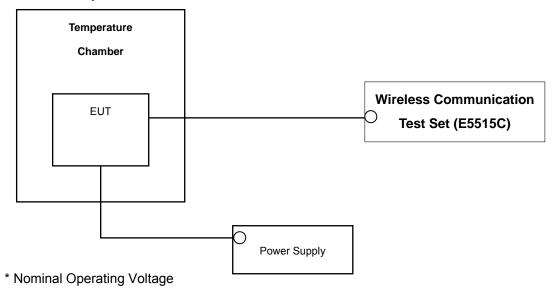
The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

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3.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

Test Set-up



Test Procedure

The frequency stability of the transmitter is measured by:

a.) Temperature: The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification — the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within \pm 0.000 25 %(\pm 2.5 ppm) of the center frequency.

Time Period and Procedure:

The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

1. The equipment is turned on in a "standby" condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.

2. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one halfhour is provided to allow stabilization of the equipment at each temperature level. **NOTE: The EUT is tested down to the battery endpoint.**

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4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
Agilent	N9020A	MY51110020	Annual	09/23/2012
Agilent	E9327A/ Power Sensor	MY4442009	Annual	05/02/2013
R&S	CMW500/ Base Station	1201.0002K50_116858	Annual	01/17/2013
MITEQ	AMF-6D-001180-35-20P/AMP	1081666	Annual	09/24/2012
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	05/02/2013
Wainwright	WHK3.3/18G-10EF/H.P.F	18G-10EF/H.P.F 1		05/02/2013
Hewlett Packard	11667B / Power Splitter	10126	Annual	11/04/2012
Digital	EP-3010/ Power Supply	3110117 A		11/07/2012
Schwarzbeck	UHAP/ Dipole Antenna	557	Biennial	03/11/2013
Schwarzbeck	UHAP/ Dipole Antenna	558	Biennial	03/11/2013
Korea Engineering	KR-1005L / Chamber	KRAB05063-3CH	Annual	11/07/2012
Schwarzbeck	BBHA 9120D/ Horn Antenna	BBHA 9120D/ Horn Antenna 296 B		02/20/2014
Agilent	E4440A/Spectrum Analyzer	US45303008 Ann		05/02/2013
WEINSCHEL	ATTENUATOR	BR0592	Annual	11/07/2012
REOHDE&SCHWARZ	FSP30/Spectrum Analyzer	839117/011	Annual	02/09/2013
Agilent	8960 (E5515C)/ Base Station	GB44400269	Annual	02/10/2013

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5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049, 22.917(a), 24.238(a)	Occupied Bandwidth	N/A		PASS
2.1051, 22.917(a), 24.238(a)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions		PASS
2.1046	Conducted Output Power	-	CONDUCTED	PASS
24.232(d)	Peak- to- Average Ratio	< 13 dB		PASS
2.1055, 22.355, 24.235	Frequency stability / variation of ambient temperature	< 2.5 ppm		PASS
22.913(a)(2)	Effective Radiated Power	< 7 Watts max. ERP		PASS
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS
2.1053, 22.917(a), 24.238(a)	Radiated Spurious and Harmonic Emissions	< 43 + 10log10 (P[Watts]) for all out-of band emissions		PASS

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6. SAMPLE CALCULATION

A. ERP Sample Calculation

Mode	Ch./ Freq.		Measured	Substitude	Ant. Gain	C.L	Pol.	ERP	
Mode	channel	Freq.(MHz)	Level(dBm)	LEVEL(dBm)	Ant. Gain	U.L	POI.	w	dBm
GSM850	128	824.20	-11.56	34.28	-8.32	1.17	Н	0.30	24.79

ERP = SubstitudeLEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a non-conductive tuntable is 0.8 meter above test site ground level.

2) During the test, the turn table is rotated and the antenna height is also varied from 1 to 4 meters until the maximum signal is found.

3) Record the field strength meter's level.

4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.

5) Increase the signal generator output till the field strength meter's level is equal to the item (3).

6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power (**ERP**).

B. Emission Designator

GSM Emission Designator

Emission Designator = 249KGXW

GSM BW = 249 kHz

G = Phase Modulation

X = Cases not otherwise covered

W = Combination (Audio/Data)

WCDMA Emission Designator

Emission Designator = 4M17F9W

WCDMA BW = 4.17 MHz

- F = Frequency Modulation
- 9 = Composite Digital Info
- W = Combination (Audio/Data)

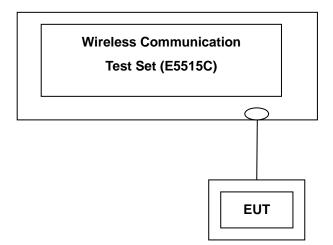
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7. TEST DATA

7.1 CONDUCTED OUTPUT POWER

A base station simulator was used to establish communication with the EUT. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported. Conducted Output Powers of EUT are reported below.



Test Result

		Voice	GPRS	S Data
Band	Channel	GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)
GSM	128	32.44	32.44	31.88
850	190	32.74	32.68	32.10
000	251	32.75	32.68	32.08
GSM	512	29.38	29.38	29.36
1900	661	29.26	29.26	29.23
1300	810	29.36	29.36	29.31

(GSM Conducted Maximum Output Powers)

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3GPP		3GPP 34.121	Cel	lular Band [d	Bm]	
Release	Mode	Subtest	UL 4132 (826.4)	UL 4183 (836.6)	UL 4233 (846.6)	MPR
Version			DL 4357	DL 4408	DL 4458	
99	WCDMA	12.2 kbps RMC	23.00	23.04	23.11	-
99	WCDMA	12.2 kbps AMR	23.03	23.02	23.12	-
5	HSDPA	Subtest 1	22.97	23.05	23.18	0

3GPP		3GPP 34.121	P	CS Band [dBr	n]	
Release Mode		Subtest	UL 9262 (1852.4)	UL 9400 (1880.0)	UL 9538 (1907.6)	MPR
VEISIOII			DL 9662	DL 9800	DL 9938	
99	WCDMA	12.2 kbps RMC	23.34	23.43	23.45	-
99	WCDMA	12.2 kbps AMR	23.35	23.43	23.39	-
5	HSDPA	Subtest 1	23.45	23.42	23.40	0

(WCDMA Conducted Output Powers)

Note : Detecting mode is average.

7.2 PEAK-TO-AVERAGE RATIO

- Plots of the EUT's Peak- to- Average Ratio are shown Page 33, 36.

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7.3 OCCUPIED BANDWIDTH

Band	Channel	Frequency(MHz)	Data (GSM: kHz / WCDMA : MHz)	
	128	824.20	242.7863	
GSM850	190	836.60	241.1871	
	251	848.80	242.7799	
	512	1850.20	240.8017	
GSM1900	661	1880.00	242.1870	
	810	1909.80	241.6620	
	4132	826.40	4.1825	
WCDMA850	4183	836.60	4.1579	
	4233	846.60	4.1331	
	9262	1852.40	4.1574	
WCDMA1900	9400	1880.00	4.1678	
	9538	1907.60	4.1574	

- Plots of the EUT's Occupied Bandwidth are shown Page 30 ~ 32, 33 ~ 36.

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7.4 CONDUCTED SPURIOUS EMISSIONS

Band	Channel	Frequency of Maximum Harmonic (GHz)	Maximum Data (dBm)
	128	6.8250	-29.45
GSM850	190	7.1000	-30.43
	251	7.1500	-30.20
	512	14.4530	-34.51
GSM1900	661	14.2400	-34.26
	810	13.6270	-34.89
	4132	1.6520	-40.03
WCDMA850	4183	7.1125	-40.10
	4233	7.7125	-40.65
	9262	3.7090	-36.57
WCDMA1900	9400	13.9200	-37.51
	9538	3.8150	-37.16

- Plots of the EUT's Conducted Spurious Emissions are shown Page 45 ~ 56.

7.4.1 BAND EDGE

- Plots of the EUT's Band Edge are shown Page 37 ~ 44.

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7.5 EFFECTIVE RADIATED POWER OUTPUT (GSM / WCDMA)

(GSM850 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain	<u></u>	Dol	ER	Р
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBd)	C.L Pol.		W	dBm
128	824.20	-8.87	40.06	-10.54	1.61	V	0.618	27.91
190	836.60	-8.75	40.17	-10.50	1.67	V	0.631	28.00
251	848.80	-9.17	39.89	-10.47	1.64	V	0.600	27.78

(WCDMA850 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain	C.L	Pol.	ER	Р
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBd)	U.L	P0I.	W	dBm
4132	826.40	-14.05	34.88	-10.54	1.61	V	0.187	22.73
4183	836.60	-14.32	34.60	-10.50	1.67	V	0.175	22.43
4233	846.60	-13.38	35.50	-10.47	1.65	V	0.218	23.38

Note: Standard batteries are the only options for this phone. And a peak detector is used.

NOTES:

Effective Radiated Power Output Measurements by Substitution Method

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a non-conductive styrofoam resin table table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is y plane in GSM850 and WCDMA850 mode. Also worst case of detecting Antenna is vertical polarization in GSM850 and WCDMA850 mode.

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7.6 EQUIVALENT ISOTROPIC RADIATED POWER (GSM / WCDMA)

(GSM1900 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain	C.L Pol.		Ell	RP
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBi)	U.L	P0I.	W	dBm
512	1,850.20	-13.25	18.69	10.23	1.78	Н	0.518	27.14
661	1,880.00	-12.69	19.44	10.25	1.77	Н	0.619	27.92
810	1,909.80	-12.16	20.04	10.29	1.75	Н	0.721	28.58

(WCDMA1900 Mode)

Ch./	Freq.	Measured	Substitude	Ant. Gain	C.L	Pol.	EI	RP
channel	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBi)	C.L	FUI.	w	dBm
9262	1,852.40	-15.88	16.06	10.23	1.78	Н	0.282	24.51
9400	1,880.00	-15.87	16.26	10.25	1.77	Н	0.298	24.74
9538	1,907.60	-17.41	14.79	10.29	1.75	Н	0.215	23.33

Note: Standard batteries are the only options for this phone. And a peak detector is used.

NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a non-conductive styrofoam resin table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Inactive at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. This unit was tested with its standard battery. Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is x plane in GSM1900 and WCDMA1900 mode. Also worst case of detecting Antenna is in horizontal polarization in GSM1900 and WCDMA1900 mode.

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7.7 RADIATED SPURIOUS EMISSIONS 7.7.1 RADIATED SPURIOUS EMISSIONS (GSM850)

MEASURED OUTPUT POWER:	28.00 dBm = 0.631 W

MODULATION SIGNAL: GSM850

DISTANCE:

■ LIMIT: - (43 + 10 log10 (W)) = _____ - 41.00 dBc

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBd)	<u>Substitute</u> Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
	1,648.40	-35.82	9.69	-45.11	1.71	Н	-37.13	-65.13
128 (824.2)	2,472.60	-36.85	10.56	-42.69	2.08	Н	-34.21	-62.21
	3,296.80	-46.92	11.84	-53.06	2.45	V	-43.67	-71.67
	1,673.20	-34.45	9.82	-44.06	1.74	Н	-35.98	-63.98
190 (836.6)	2,509.80	-35.04	10.57	-41.01	2.11	Н	-32.55	-60.55
	3,346.40	-45.19	11.96	-51.85	2.48	V	-42.37	-70.37
	1,697.60	-33.60	10.01	-43.02	1.70	Н	-34.71	-62.71
251 (848.8)	2,546.40	-35.87	10.60	-41.65	2.13	Н	-33.18	-61.18
	3,395.20	-46.20	12.09	-52.82	2.53	V	-43.26	-71.26

3 meters

NOTES: <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u> according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for <u>all channel.</u>

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7.7.2 RADIATED SPURIOUS EMISSIONS (GSM1900)

MEASURED OUTPUT POWER: 28.58 dBm = 0.721 W

MODULATION SIGNAL:
 <u>GSM1900</u>

DISTANCE:

LIMIT: - (43 + 10 log10 (W)) = - 41.58 dBc

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBi)	<u>Substitute</u> Level [dBm]	C.L	Pol.	EIRP (dBm)	dBc
	3,700.40	-32.66	12.50	-37.63	2.55	Н	-27.68	-56.26
512 (1850.2)	5,550.60	-42.87	13.04	-41.94	3.17	Н	-32.07	-60.65
	7,400.80	-52.03	11.10	-40.93	3.54	Н	-33.37	-61.95
	3,760.00	-29.20	12.54	-33.88	2.60	Н	-23.94	-52.52
661 (1880.0)	5,640.00	-43.38	13.05	-41.84	3.21	Н	-32.00	-60.58
	7,520.00	-51.40	10.99	-40.89	3.72	V	-33.62	-62.20
	3,819.60	-29.31	12.59	-33.75	2.59	Н	-23.75	-52.33
810 (1909.8)	5,729.40	-44.49	13.07	-42.46	3.35	Н	-32.74	-61.32
	7,639.20	-48.94	11.06	-38.96	3.23	V	-31.13	-59.71

3 meters

NOTES: <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u>

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for <u>all channel.</u>

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7.7.3 RADIATED SPURIOUS EMISSIONS (WCDMA850)

MEASURED OUTPUT POWER: 23.38 dBm = 0.218 W

MODULATION SIGNAL: WCDMA850

DISTANCE:

LIMIT: - (43 + 10 log10 (W)) = - 36.38 dBc

Ch.	Freq.(MHz)	Measured Level	Ant. Gain (dBd)	<u>Substitute</u> Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
	1,652.80	-54.43	9.69	-63.72	1.71	V	-55.74	-79.12
4,132 (826.4)	2,479.20	_	-	-	-	-	-	_
	3,305.60	_	-	-	-	-	_	_
	1,673.20	-49.95	9.82	-59.56	1.74	V	-51.48	-74.86
4,183 (836.6)	2,509.80	_	_	_	_	_	_	_
	3,346.40	_	_	-	-	-	_	_
	1,693.20	-49.55	10.01	-58.97	1.70	Н	-50.66	-74.04
4,233 (846.6)	2,539.80	-54.67	10.60	-60.45	2.13	V	-51.98	-75.36
	3,386.40	_	_	_	_	_	_	-

3 meters

NOTES: <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u>

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for <u>all channel.</u>

FCC CERTIFICATION REPORT						
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7.7.4 RADIATED SPURIOUS EMISSIONS (WCDMA1900)

- MEASURED OUTPUT POWER: 24.74 dBm = 0.298 W
- MODULATION SIGNAL: WCDMA1900
- DISTANCE:
- LIMIT: (43 + 10 log10 (W)) = 37.74 dBc

Ch.	Freq.(MHz)	<u>Measured Level</u> [dBm]	Ant. Gain (dBi)	<u>Substitute</u> Level [dBm]	C.L	Pol.	EIRP (dBm)	dBc
	3,704.80	-38.17	12.50	-43.14	2.55	Н	-33.19	-57.93
9262	5,557.20	-49.46	13.00	-48.51	3.19	Н	-38.70	-63.44
	7,409.60	-55.54	11.09	-44.53	3.60	V	-37.04	-61.78
	3,760.00	-37.86	12.54	-42.54	2.60	Н	-32.60	-57.34
9400	5,640.00	-55.07	13.05	-53.53	3.21	Н	-43.69	-68.43
	7,520.00	-54.68	10.99	-44.17	3.72	V	-36.90	-61.64
	3,815.20	-37.44	12.59	-41.88	2.59	Н	-31.88	-56.62
9538	5,722.80	-53.52	13.07	-51.30	3.35	Н	-41.58	-66.32
	7,630.40	-54.21	11.05	-44.23	3.22	V	-36.40	-61.14

3 meters

NOTES: <u>1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method</u>

according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for <u>all channel.</u>

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7.8 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE 7.8.1 FREQUENCY STABILITY (GSM850)

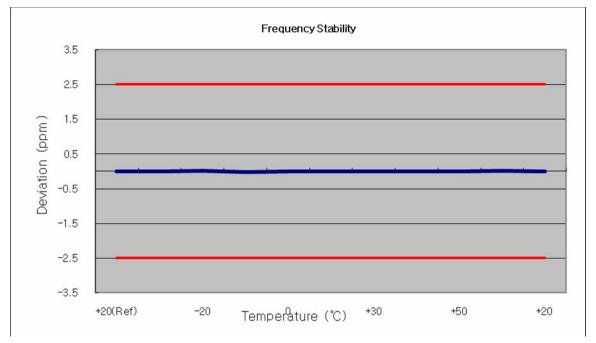
- OPERATING FREQUENCY: 836,600,000 Hz
- CHANNEL:

REFERENCE VOLTAGE: <u>3.7 VDC</u>

DEVIATION LIM IT:

± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	222
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	836 599 994	0	0.000 000	0.000
100%		-30	836 599 984	-10.24	-0.000 001	-0.012
100%		-20	836 600 000	6.11	0.000 001	0.007
100%		-10	836 599 983	-11.62	-0.000 001	-0.014
100%	3.700	0	836 599 984	-10.36	-0.000 001	-0.012
100%		+10	836 599 988	-5.85	-0.000 001	-0.007
100%		+30	836 599 989	-5.48	-0.000 001	-0.007
100%		+40	836 599 986	-8.51	-0.000 001	-0.010
100%		+50	836 599 987	-7.08	-0.000 001	-0.008
115%	4.255	+20	836 600 001	6.59	0.000 001	0.008
Batt. Endpoint	3.400	+20	836 599 988	-5.89	-0.000 001	-0.007



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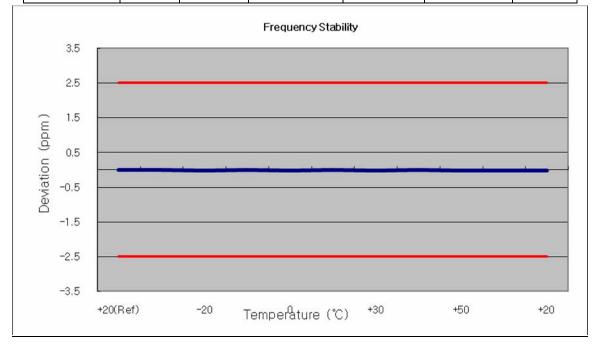


7.8.2 FREQUENCY STABILITY (GSM1900)

- OPERATING FREQUENCY: 1880,000,000 Hz
- CHANNEL:
- REFERENCE VOLTAGE: <u>3.7 VDC</u>
- DEVIATION LIM IT:

± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	1880 000 024	0	0.000 000	0.000
100%		-30	1880 000 005	-18.89	-0.000 001	-0.010
100%		-20	1879 999 999	-25.57	-0.000 001	-0.014
100%		-10	1880 000 003	-21.31	-0.000 001	-0.011
100%	3.700	0	1879 999 998	-25.91	-0.000 001	-0.014
100%		+10	1880 000 005	-19.75	-0.000 001	-0.011
100%		+30	1879 999 993	-31.20	-0.000 002	-0.017
100%		+40	1880 000 001	-23.20	-0.000 001	-0.012
100%		+50	1879 999 999	-25.24	-0.000 001	-0.013
115%	4.255	+20	1879 999 988	-36.60	-0.000 002	-0.019
Batt. Endpoint	3.400	+20	1879 999 997	-27.37	-0.000 001	-0.015



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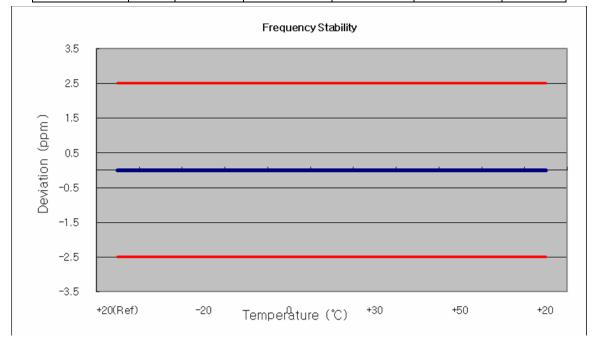


7.8.3 FREQUENCY STABILITY (WCDMA850)

- OPERATING FREQUENCY: 836,600,000 Hz
- CHANNEL:
- REFERENCE VOLTAGE: <u>3.7 VDC</u>
- DEVIATION LIM IT:

± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	836 599 998	0	0.000 000	0.000
100%		-30	836 599 997	-2.57	0.000 000	-0.003
100%		-20	836 599 998	-2.30	0.000 000	-0.003
100%		-10	836 599 998	-2.26	0.000 000	-0.003
100%	3.700	0	836 599 998	-2.01	0.000 000	-0.002
100%		+10	836 599 998	-2.28	0.000 000	-0.003
100%		+30	836 599 998	-1.70	0.000 000	-0.002
100%		+40	836 599 998	-2.01	0.000 000	-0.002
100%		+50	836 600 002	2.30	0.000 000	0.003
115%	4.255	+20	836 599 998	-2.39	0.000 000	-0.003
Batt. Endpoint	3.400	+20	836 599 998	-1.58	0.000 000	-0.002



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HCTR1208FR13 August 14, 2012 GSM/WCDMA/CDMA/FIONE WITH Bidefootn/WLAN/NFC J				

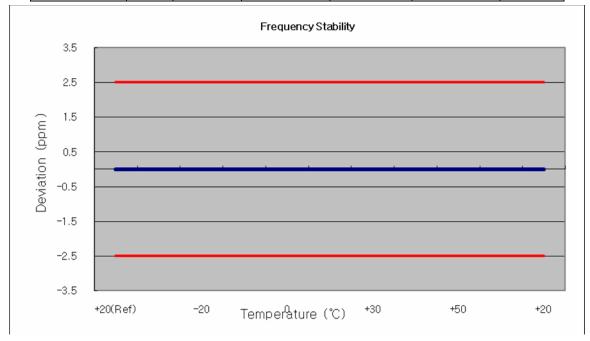


7.8.4 FREQUENCY STABILITY (WCDMA1900)

- OPERATING FREQUENCY: 1,880,000,000 Hz
- CHANNEL:
- REFERENCE VOLTAGE: <u>3.7 VDC</u>
- DEVIATION LIM IT:

± 0.000 25 % or 2.5 ppm

Voltage	Power	Temp.	Frequency	Frequency	Deviation	
(%)	(VDC)	(°°)	(Hz)	Error (Hz)	(%)	ppm
100%		+20(Ref)	1880 000 008	0	0.000 000	0.000
100%		-30	1879 999 991	-9.24	0.000 000	-0.005
100%		-20	1879 999 989	-10.63	-0.000 001	-0.006
100%		-10	1879 999 992	-8.44	0.000 000	-0.004
100%	3.700	0	1879 999 991	-9.23	0.000 000	-0.005
100%		+10	1879 999 991	-8.91	0.000 000	-0.005
100%		+30	1879 999 991	-8.79	0.000 000	-0.005
100%		+40	1879 999 988	-12.43	-0.000 001	-0.007
100%		+50	1879 999 991	-8.82	0.000 000	-0.005
115%	4.255	+20	1879 999 991	-8.77	0.000 000	-0.005
Batt. Endpoint	3.400	+20	1879 999 991	-8.71	0.000 000	-0.005



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8. TEST PLOTS

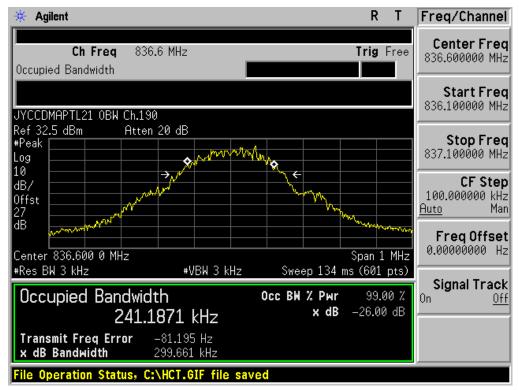
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GSM850 MODE (128 CH.) Occupied Bandwidth



■ GSM850 MODE (190 CH.) Occupied Bandwidth



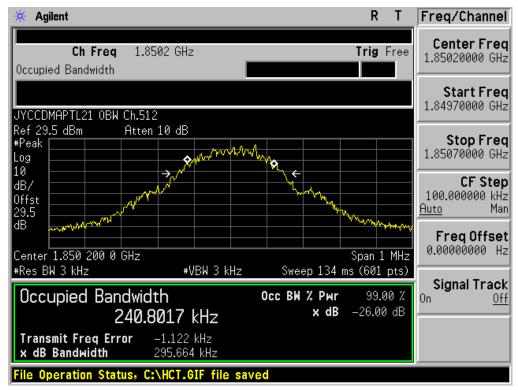
FCC CERTIFICATION REPORT					
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GSM850 MODE (251 CH.) Occupied Bandwidth



■ GSM1900 MODE (512 CH.) Occupied Bandwidth



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■ GSM1900 MODE (661 CH.) Occupied Bandwidth

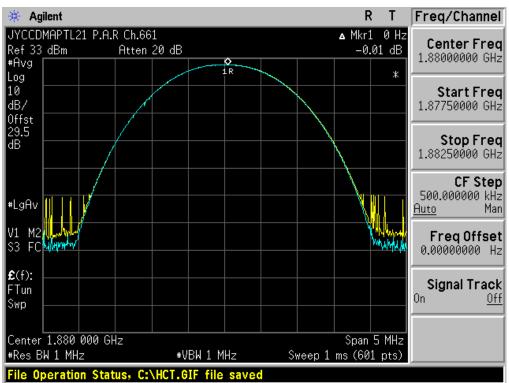


■ GSM1900 MODE (810 CH.) Occupied Bandwidth



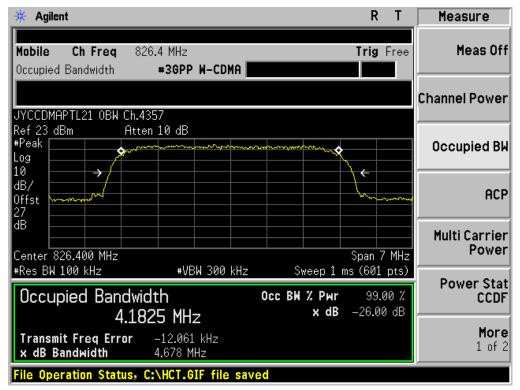
	FCC CERTIFICATION REPORT			
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■ GSM1900 MODE (661 CH.) Peak-to-Average Ratio

■ WCDMA850 MODE (4132 CH.) Occupied Bandwidth



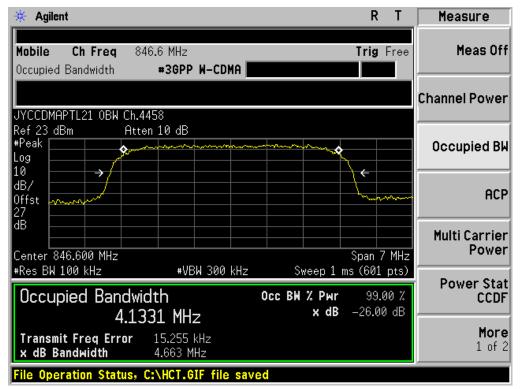
FCC CERTIFICATION REPORT					
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■ WCDMA850 MODE (4183 CH.) Occupied Bandwidth

🔆 Agilent R T Measure Meas Off Mobile Ch Freq 836.6 MHz Trig Free **#3GPP W-CDMA** Occupied Bandwidth Channel Power JYCCDMAPTL21 OBW Ch.4408 Ref 23 dBm #Peak Atten 10 dB Occupied BW Log 10 ⇒ ÷ dB/ ACP Offst 27 Λ.... dB Multi Carrier Power Center 836.600 MHz Span 7 MHz #Res BW 100 kHz Sweep 1 ms (601 pts) #VBW 300 kHz Power Stat Occupied Bandwidth Occ BW % Pwr 99.00 % CCDF x dB -26.00 dB 4.1579 MHz More **Transmit Freq Error** -21.691 kHz 1 of 2 x dB Bandwidth 4.696 MHz le Operation Status, C:\HCT.GIF file saved

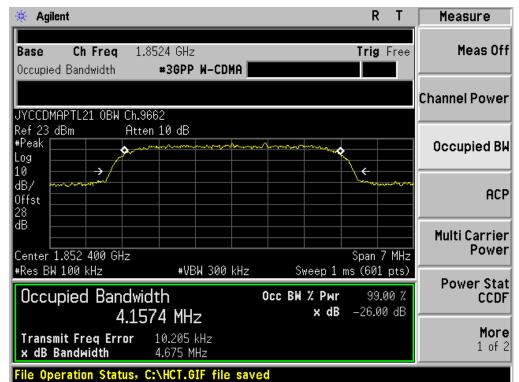
■ WCDMA850MODE (4233 CH.) Occupied Bandwidth



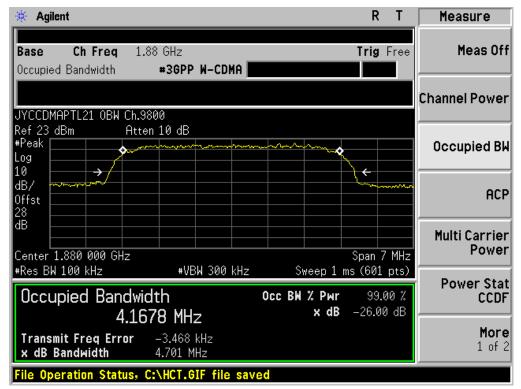
	FCC CERTIFICATION REPORT			www.hct.co.kr	
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		FCC ID: JYCCDMAPTL21	
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■ WCDMA1900 MODE (9262 CH.) Occupied Bandwidth



■ WCDMA1900 MODE (9400 CH.) Occupied Bandwidth



FCC CERTIFICATION REPORT					
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🔆 Agilent R T Measure Meas Off Base Ch Freq 1.8524 GHz Trig Free *3GPP W-CDMA Occupied Bandwidth **Channel Power** JYCCDMAPTL21 OBW Ch.9662 Atten 10 dB Ref 23 dBm #Peak Occupied BW ÷ Log 10 \rightarrow ÷ dB/ ACP Offst 28 dB Multi Carrier Power Center 1.852 400 GHz Span 7 MHz Sweep 1 ms (601 pts) #Res BW 100 kHz #VBW 300 kHz Power Stat Occupied Bandwidth Occ BW % Pwr 99.00 % CCDF -26.00 dB x dB

■ WCDMA1900 MODE (9538 CH.) Occupied Bandwidth

File Operation Status, C:\HCT.GIF file saved

Transmit Freq Error

x dB Bandwidth

4.1574 MHz

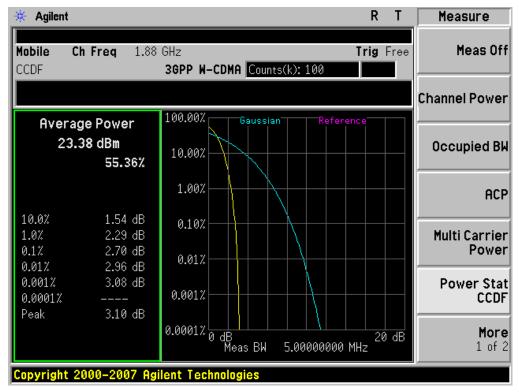
10.205 kHz

4.675 MHz

WCDMA1900 MODE (9400 CH.) Peak-to-Average Ratio

More

1 of 2



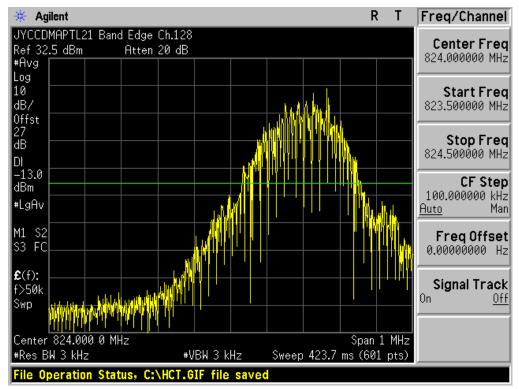
FCC CERTIFICATION REPORT						
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		FCC ID: JYCCDMAPTL21		
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			0		
🔆 Agilent			R	Т	Freq/Channel
JYCCDMAPTL21 Ban Ref 32.5 dBm #Avg	d Edge Ch.128 Atten 20 dB		Mkr1 823.996 –16.25		Center Freq 823.500000 MHz
Log 10 dB/ Offst					Start Freq 823.000000 MHz
27 dB DI					Stop Freq 824.000000 MHz
-13.0 dBm #LgAv					CF Step 100.000000 kHz <u>Auto</u> Man
M1 S2 S3 FC					Freq Offset 0.00000000 Hz
£(f): f>50k Swp	ala tu da sha ku tu	ndiantine na ministrativa			Signal Track On <u>Off</u>
Center 823.500 0 M			Span 1		
#Res BW 3 kHz	#VBW 3		423.7 ms (601	pts)	
File Operation Stat	tus, C:\HCT.GIF fil	e saved			

■ GSM850 MODE (128 CH.) Block Edge 1

■ GSM850 MODE (128 CH.) Block Edge 2



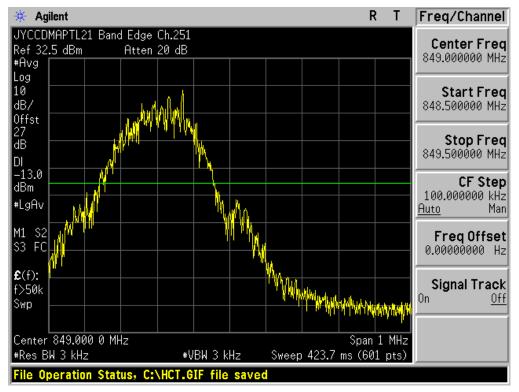
FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
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		()	9	
🔆 Agilent			RT	Freq/Channel
JYCCDMAPTL21 Band Edge Ref 32.5 dBm Atten #Avg		Mkr1	849.019 8 MHz -19.30 dBm	Center Freq 849.500000 MHz
Log 10 dB/ 0ffst				Start Freq 849.000000 MHz
27 dB DI				Stop Freq 850.000000 MHz
-13.0 dBm 1 #LgAv				CF Step 100.000000 kHz <u>Auto</u> Man
M1 S2 S3 FC				Freq Offset 0.00000000 Hz
£(f): f>50k Swp	Maria Maria ang dan	wali wanikuti katali waliki	Muunzaharkanku alaar	Signal Track On <u>Off</u>
Center 849.500 0 MHz #Res BW 3 kHz	#VBW 3 kHz	Sweep 423.	7 ms (601 pts)	
File Operation Status, C:	HCT.GIF file sa	ived		

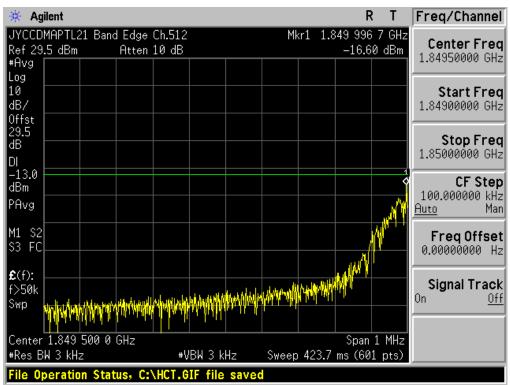
■ GSM850 MODE (251 CH.) Block Edge 1

■ GSM850 MODE (251 CH.) Block Edge 2



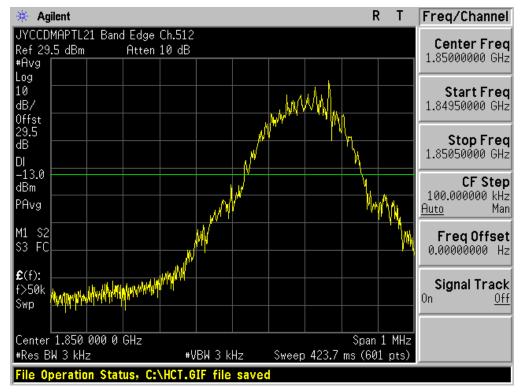
FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
		Page 38 of 56		





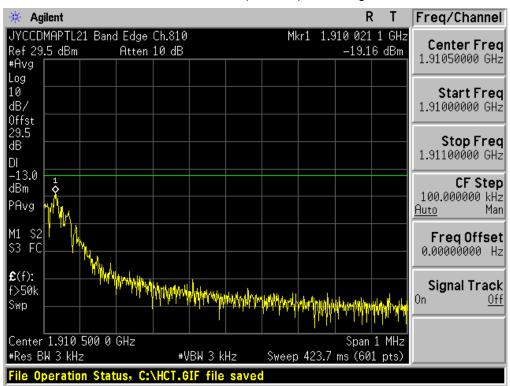
■ GSM1900 MODE (512 CH.) Block Edge 1

■ GSM1900 MODE (512 CH.) Block Edge 2



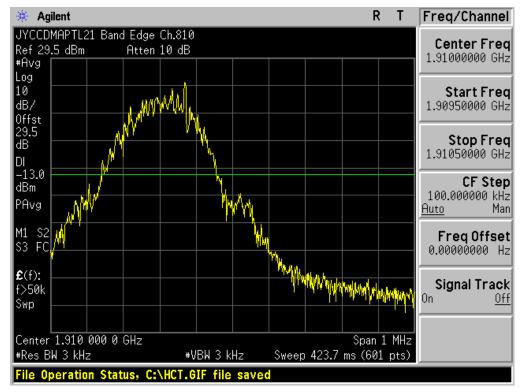
FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
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■ GSM1900 MODE (810 CH.) Block Edge 1

■ GSM1900 MODE (810 CH.) Block Edge 2



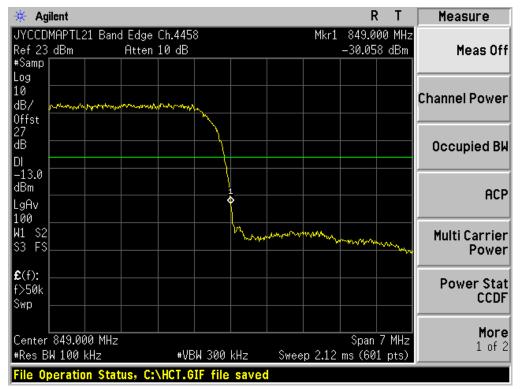
FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
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🔆 Agilent					R	Т	Measure
JYCCDMAPTL21 Band E				Mkr1 82			
Ref23 dBm A ⊬Samp I	tten 10 dB			-28	3.577	dBm	Meas Off
.og							
.0 IB/		, ma	and the street of	www.	mm	-	Channel Power
)ffst 27		and the second sec					
iB							Occupied Bk
-13.0 HBm		1					ACP
.gAv							
11 S2	water the second of the	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					Multi Carrier
S3 FS							Power
S(f):							
>50k							Power Stat CCDF
Śwp							CUDF
							More
Center 824.000 MHz					pan 7		1 of 2
Res BW 100 kHz	#VBW	300 kHz	Sweep	2.12 ms	(601	pts)	

■ WCDMA850 MODE (4132 CH.) Block Edge

■ WCDMA850MODE (4233 CH.) Block Edge



FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
		Page 41 of 56	·	



🔆 Agilent				R	Т	Measure
JYCCDMAPTL21 4Mł				823.00		
Ref 23 dBm	Atten 10 dB			18.581	dBm	Meas Off
#Samp Log						
10						01
dB/						Channel Power
)ffst						
27 18						On a survival DI
					1	Occupied Bl
-13.0					\$	ł
dBm					de la constante da c	000
LgAv					1	ACF
100			and the second s	AP-TYPAYANT		
v1 S2	and and makering	where the second s				Multi Carrie
S3 FC						Power
€(f):						
Tun						Power Stat
Swp						CCDF
Center 821.000 MH:	,			Span 4	MH-2	More
Res BW 1 MHz		W 1 MHz	Sweep 1 m			1 of 3
le Operation Sta			onoop-1 m		1.00%	

■ WCDMA850 MODE (4132 CH.) – 4 MHz Span

■ WCDMA850MODE (4233 CH.) – 4 MHz Span

🔆 Agilent				R	Т	Measure
JYCCDMAPTL21 4MHz Ref 23 dBm #Samp	Span Ch.445 Atten 10 dB	8	Mkr1	850.013 -19.357		Meas Off
Log 10 dB/ 0ffst						Channel Power
27 dB DI <u>1</u>						Occupied BW
-13.0 dBm LgAv 100	and water and a free free					ACP
W1 S2 S3 FC			"http://www.warana	under de contra de la contra	Anstrukyiv	Multi Carrier Power
£(f): FTun Swp						Power Stat CCDF
Center 852.000 MHz #Res BW 1 MHz	#\	/BW 1 MHz	Sweep 1	Span 4 ms (601		More 1 of 2
File Operation Statu	us, C:\HCT.G	IF file save	d			

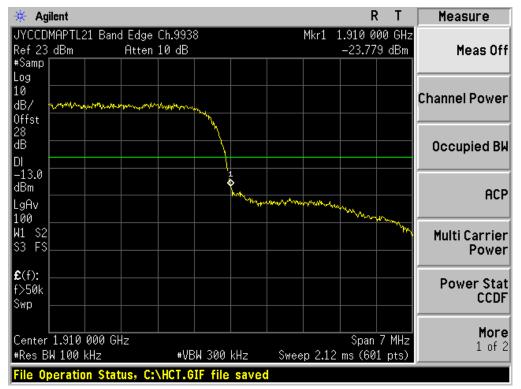
FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
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🔆 Agilent						RT	Measure
JYCCDMAPTL21 Ba				Mkr1		000 GHz	
Ref 23 dBm #Samp	Atten 10	dB			-23.9	010 dBm	Meas Off
Log							
10 dB/				<i>۱</i>	way and	warman	Channel Power
Offst 🛛			June .				
28 dB			+/+			_	Occupied BW
							occupied bh
-13.0 dBm			1				000
LgAv 100	monorten	Markan Cardy and Markan					ACP
W1 S2/							Multi Carrier
\$3 FS							Power
£(f):							
f>50k							Power Stat CCDF
Swp							
							More
Center 1.850 000 (#Res BW 100 kHz	θHz	#VBW 300		Sweep 2.		in 7 MHz	1 of 2
File Operation Sta				oweep Z.	12 1115 (0	ν σι μισ)	

■ WCDMA1900 MODE (9262 CH.) Block Edge

■ WCDMA1900 MODE (9538 CH.) Block Edge



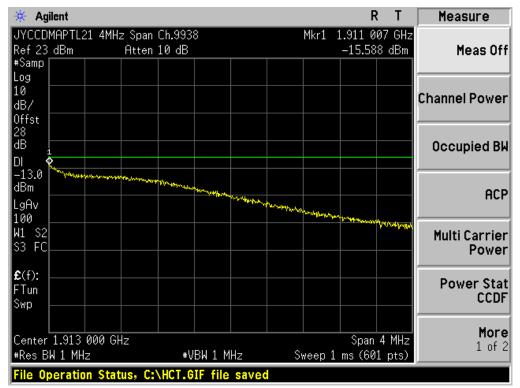
	FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21		
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🔆 Agilent					R	Т	Measure
JYCCDMAPTL21 4M				Mkr1	1.849 00		
Ref 23 dBm	Atten 10	0 dB			-16.448	dBm	Meas Off
#Samp Log							
10							01
dB/							Channel Power
Offst 🛛 👘							
28 dB							On a united DU
DI							Occupied Bk
-13.0					a hada antarah Ale	Warner	
dBm			and and the second	and the state of t			000
LgAv 100	an on which we are the	notoen policination of the					ACP
W1 S2							Multi Carrier
S3 FC							Power
£(f):							Power Stat
FTun Swp							CCDF
owh							
							More
Center 1.847 000	GHz		41.1	~ 4	Span 4		1 of 2
#Res BW 1 MHz		#VBW 1		Sweep 1	. ms (601	pts)	
File Operation St	atus, C:\	ICT.GIF file	e saved				

■ WCDMA1900 MODE (9262 CH.) – 4 MHz Span

■ WCDMA1900 MODE (9538 CH.) – 4 MHz Span



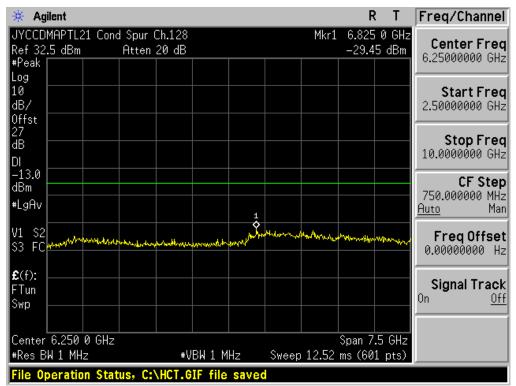
FCC CERTIFICATION REPORT						
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21			
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🔆 Agilent		RT	Freq/Channel
+Peak	Ch.128 20 dB	Mkr1 2.372 GHz -34.36 dBm	Center Freq 1.26500000 GHz
.og L0 JB/ Dffst			Start Freq 30.0000000 MHz
27 18 01			Stop Freq 2.50000000 GHz
-13.0 HBm #LgAv			CF Step 247.000000 MHz <u>Auto</u> Mar
11 S2 53 FC	hi hannan thu datha ha taria		Freq Offse 0.00000000 H:
E(f): -Tun Gwp			Signal Tracl ^{On <u>Of</u>}
Center 1.265 GHz +Res BW 1 MHz	#VBW 1 MHz	Span 2.47 GHz Sweep 4.12 ms (601 pts)	

■ GSM850 MODE (128 CH.) Conducted Spurious Emissions1

■ GSM850 MODE (128 CH.) Conducted Spurious Emissions2



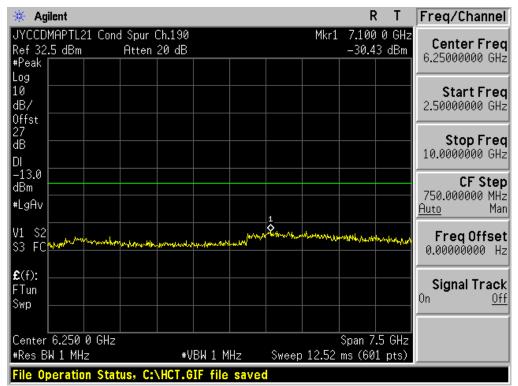
FCC CERTIFICATION REPORT						
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21			
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🔆 Agilent			RT	Freq/Channel
#Peak	Ch.190 n 20 dB		2.471 GHz 3.26 dBm	Center Freq 1.26500000 GHz
Log 10 dB/ Offst				Start Freq 30.0000000 MHz
27 dB DI				Stop Fred 2.50000000 GHz
-13.0 dBm				CF Step 247.000000 MHz <u>Auto</u> Mar
/1 \$2 53 FC	then the strange where the	an and the second state of the		Freq Offse 0.00000000 H:
C(f): =Tun Swp				Signal Tracl On <u>Of</u>
Center 1.265 GHz #Res BW 1 MHz	#VBW 1 MHz	Span Span Span Span Streep 4.12 ms (2.47 GHz 601 pts)	

■ GSM850 MODE (190 CH.) Conducted Spurious Emissions1

■ GSM850 MODE (190 CH.) Conducted Spurious Emissions2



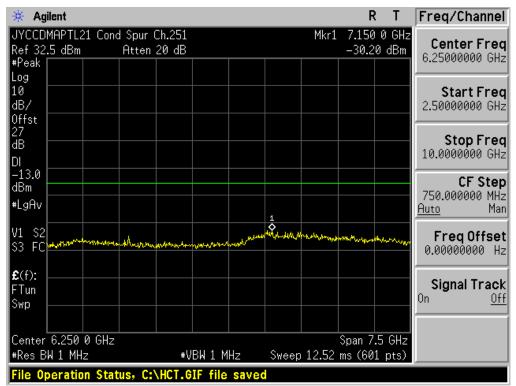
FCC CERTIFICATION REPORT						
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21			
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🔆 Agilent		RT	Freq/Channel		
#Peak	ur Ch.251 en 20 dB	Mkr1 2.484 GHz -33.68 dBm	Center Freq 1.26500000 GHz		
Log 10 dB/ Offst			Start Freq 30.0000000 MHz		
27 dB DI			Stop Fred 2.50000000 GHz		
-13.0 dBm #LgAv			CF Step 247.000000 MHz <u>Auto</u> Mar		
J1 S2 S3 FC	un des man de la companya de la comp	na faren and the second contract of the second s	Freq Offse 0.00000000 H		
€(f): FTun Swp			Signal Tracl On <u>Of</u>		
Center 1.265 GHz #Res BW 1 MHz	#VBW 1 MHz	Span 2.47 GHz Sweep 4.12 ms (601 pts)			
File Operation Status,	C:\HCT.GIF file sav	ed			

■ GSM850 MODE (251 CH.) Conducted Spurious Emissions1

■ GSM850 MODE (251 CH.) Conducted Spurious Emissions2



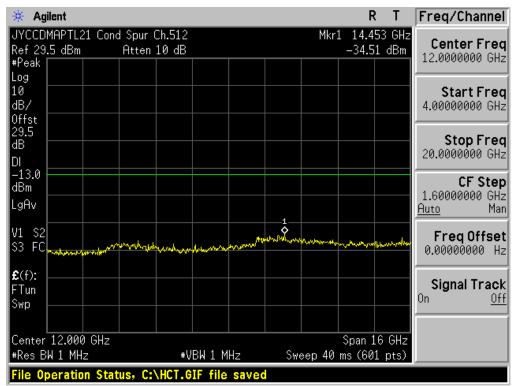
FCC CERTIFICATION REPORT						
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		FCC ID: JYCCDMAPTL21		
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K Agilent				R	Т	Freq/Channel
YCCDMAPTL21 Cond Spur	Ch.512			. 3.371		Contor From
	10 dB			-38.42	dBm	Center Frec 2.01500000 GHz
Peak						2.01300000 0112
og Ø						Stort From
IB/						Start Fred 30.0000000 MHz
)ffst						
9.5						Stop Ero
IB IIII						Stop Free 4.00000000 GH;
						4.00000000 011.
-13.0 HBm						CF Step
gAv						397.000000 MH <u>Auto</u> Ma
1 S2				1		Freq Offse
3 FC			and the starting	\$	and the second second	0.00000000 H;
manderson and and and and and and and and and an	wannaadhaan madel la	and the second and the second shi	Arthoda sources of a			
(f):						Signal Tracl
Tun						On Of
Gwp dwg						<u></u>
Center 2.015 GHz				an 3.97		
Res BW 1 MHz	#VBW 1	MHz Sv	√eep 6.64 m	s (601	pts)	

■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions1

■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions2



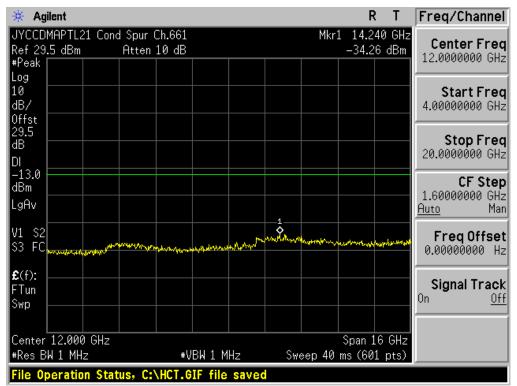
FCC CERTIFICATION REPORT						
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🔆 Agilent				R	Т	Freq/Channel
Peak	Spur Ch.661 Atten 10 dB		Mkr	1 3.318 -38.45		Center Fred 2.01500000 GHz
.og L0 HB/ Dffst						Start Frec 30.0000000 MHz
29.5 HB DI						Stop Fred 4.00000000 GH:
-13.0 18m .gAv						CF Step 397.000000 MHz <u>Auto</u> Mar
/1 \$2 53 FC	hereingeneteringetige	J. marine and marine	Saltage of Strategy and a strategy of the stra	1 ••••••••••••	hannan	Freq Offse 0.00000000 Hi
E(f): Tun Swp						Signal Tracl On <u>Of</u>
Center 2.015 GHz Res BW 1 MHz	#VBW	1 MU-7	Silveep 6.64	pan 3.97		
ile Operation Stat			5meep 0.04 1	113 (UUI	ρ(3)	

■ GSM1900 MODE (661 CH) Conducted Spurious Emissions1

■ GSM1900 MODE (661 CH.) Conducted Spurious Emissions2



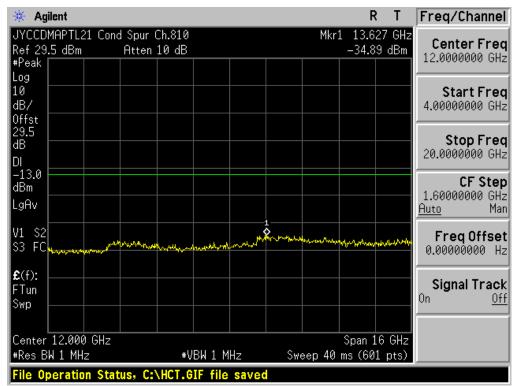
	FCC CERTIFICATION REPORT <u>www.hct.co.kt</u>							
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R T Freq/Channel					ilent	🔆 Agi
Mkr1 3.080 GHz -38.58 dBm 2.01500000 GHz			Ch.810 10 dB		MAPTL21 (.5 dBm	Ref 29. ‡Peak
Start Fred 30.000000 MH						∟og 10 dB/ Offst
Stop Free 4.00000000 GH						29.5 #B DI
CF Ste 397.000000 MH <u>Auto</u> Ma						-13.0 ¦Bm .gAv
Freq Offse 0.00000000 H	man and a state of the state of	antheododd ywr	berry hall the provide	hautamatina		1 S2 3 FC
Signal Trac On <u>Of</u>						C(f): Tun Swp
Span 3.97 GHz 64 ms (601 pts)	Sween	BW 1 M	#V	z	2.015 GH2 W 1 MHz	
Span 3.97 GHz 64 ms (601 pts)		BW 1 M IF file		z Status, C:	W 1 MHz	#Res B

■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions1

■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions2



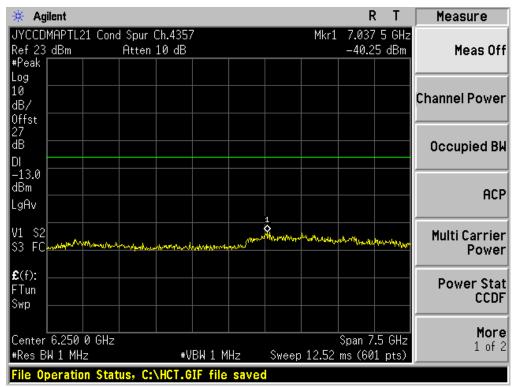
	FCC CERTIFICATION REPORT <u>www.hct.co.kr</u>							
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21					
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🔆 Agilent							F	₹ Т	Measure
JYCCDMAPTL21 (Mk		52 GHz	
Ref 23 dBm	Atten	10 dB					-40.0	13 dBm	Meas Off
#Peak Log									
10									
dB/									Channel Power
Offst									
27									
dB									Occupied B
-13.0 dBm									
LgAv									ACP
		li I			1				
V1 S2					¢				Multi Carrier
S3 FC	when you wanter	y lung	Million	Harpen and	destantion	handaraha	whent	Warmen and	Power
£ (f):									Power Stat
FTun									CCDF
Swp									
									More
Center 1.265 GHz	7							47 GHz	1 of 2
#Res BW 1 MHz		#VE	3W 1 M	Hz	Swee	ep 4. 12	ms (60	1 pts)	
File Operation S	tatus, C:	HCT.GI	F file	saved					

■ WCDMA850 MODE (4132 CH.) Conducted Spurious Emissions1

■ WCDMA850 MODE (4132 CH.) Conducted Spurious Emissions2



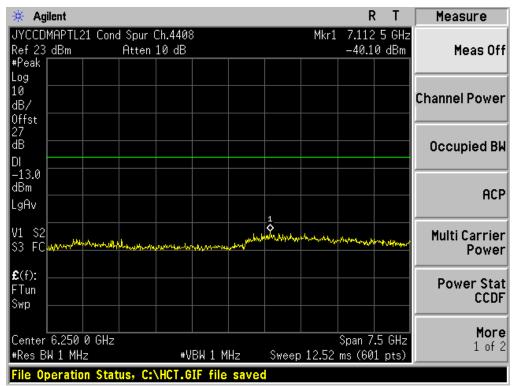
	FCC CERTIFICATION REPORT <u>www.hct.co.kr</u>							
Test Report No. Date of Issue: EUT Type: I HCTR1208FR13 August 14, 2012 GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC J								
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🔆 Agilent		RT	Measure
JYCCDMAPTL21 Cond Spur		Mkr1 1.673 GHz	
Ref23_dBm Atter	10 dB	-41.32 dBm	Meas Off
#Peak			
10 dB/			Channel Power
Offst			
27			
dB			Occupied BW
DI H			eeeupieu bii
-13.0			
dBm 🛛 👘			ACP
LgAv			HUP
V1 S2) Š		Multi Carrier
S3 FC	here and the second	marter and marter and a state of the second	Power
£(f):			Power Stat
FTun			CCDF
Swp			CODI
Center 1.265 GHz		Span 2.47 GHz	More
#Res BW 1 MHz	#VBW 1 MHz Swe	ep 4.12 ms (601 pts)	1 of 2
File Operation Status, C			

WCDMA850 MODE (4183 CH.) Conducted Spurious Emissions1

■ WCDMA850 MODE (4183 CH.) Conducted Spurious Emissions2



	FCC CERTIFICATION REPORT <u>www.hct.co.kr</u>							
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21					
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🔆 Agilent		R	r Measure
#Peak	ur Ch.4458 en 10 dB	Mkr1 1.693 0 -42.38 dE	
Log 10 dB/			Channel Power
Offst 27 dB DI			Occupied BW
-13.0 dBm LgAv			ACP
V1 S2 S3 FC		and and a second and a second	Multi Carrier Power
£(f): FTun Swp			Power Stat CCDF
Center 1.265 GHz #Res BW 1 MHz	#VBW 1 MHz	Span 2.47 G Sweep 4.12 ms (601 pt	
File Operation Status,	C:\HCT.GIF file saved		

WCDMA850MODE (4233 CH.) Conducted Spurious Emissions1

■ WCDMA850MODE (4233 CH.) Conducted Spurious Emissions2

*Peak	🔆 Agilent	Measure	T	R								ilent	🔆 Ag
#Peak Log 10 dB/ Offst 27 dB DI -13.0 dBm LgAv V1 S2 S3 FC Channel Power S Multi Carr Power S					Mkr1			3			.21 Con		
Log Log Channel Power S		Bm Meas Off	5 dBm	-40.65		1	1		10 dB	Atten		dBm	
10 dB/ dB													
ab/ Offst 27 dB ab/ 27 dB ab/ 27 dB <td< td=""><td></td><th>Channel Bewon</th><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		Channel Bewon											
27 dB DI -13.0 dBm LgAv V1 \$2 \$3 FC LgAv E(f): ETun		Channel Power											
dB DI -13.0 dBm LgAv V1 \$2 \$3 FC and a many many many many many many many ma	Offst												Offst
DI -13.0 dBm LgAv V1 S2 S3 FC works and an	dB	Occupied BW											∠/ dB
dBm LgAv V1 \$2 \$3 FC where a second s													
LgAv V1 S2 S3 FC wyde Male and an	-13.0												-13.0
V1 S2 S3 FC And		ACP											
£(f): Power S	_gAv												LgAv
£(f): Power S	v1 s2	Multi Corrion											V1 S2
£(f): Power S		Power	howeness	where	Mat when we	ham generally loged	monther	- marker	Marchar	-	the manager		
ETun Power S													
		Power Stat											
		CCDF											
Swp	owh												owh
		More		~ 7									<u> </u>
Center 6.250 0 GHz Span 7.5 GHz 1 d #Res BW 1 MHz #VBW 1 MHz Sweep 12.52 ms (601 pts)						C	11.		الم				
File Operation Status, C:\HCT.GIF file saved		97 J	r pts)	IIIS (OUI	12.52								

	FCC CERTIFICATION REPORT <u>www.hct.co.kr</u>							
Test Report No. HCTR1208FR13								
		Page 53 of 56						



🔆 Agilent				R	Т	Measure
JYCCDMAPTL21 (Cond Spur Ch.9	662	M	kr1 3.70	09 GHz	ſ
Ref 23 dBm	Atten 10 🤇	₽B		-36.5	7 dBm	Meas Off
#Peak						
Log						
10						Channel Power
dB/						channerr ower
Offst 🛛						
28						
dB						Occupied BW
-13.0						
dBm						ACP
LgAv					1	
					1 (
V1 S2		I III	a succession	Mahan		Multi Carrier
S3 FC	and and the for a strategic of	warman marine	manyoundanner		en an de la factor d	Power
£ (f):						Power Stat
FTun 📔 👘						CCDF
Swp 📃 🚽						CUDF
Center 2.015 GHz				Span 3.9		More
#Res BW 1 MHz	<u></u>	#VBW 1 MHz				1 of 2
			Sweep 6.64	INS (60.	r pts)	
File Operation S	Status, C:\HC	.GIF file sav	ed			

■ WCDMA1900 MODE (9262 CH.) Conducted Spurious Emissions1

■ WCDMA1900 MODE (9262 CH.) Conducted Spurious Emissions2

🔆 Agilent							F	R T	Measure
JYCCDMAPTL21 Con Ref 23 dBm #Peak	d Spur (Atten		2			Mkr	1 14.4 -37.5	180 GH 56 dBr	
Log 10 dB/ 0ffst									Channel Power
dB DI -13.0									Occupied BW
-15.0 dBm LgAv					1				ACP
V1 S2 S3 FC	han and the	Mutherwood	www.	what	madre	nterren	n vite and a	h.H.h.~	Multi Carrier Power
£(f): FTun Swp									Power Stat CCDF
Center 12.000 GHz #Res BW 1 MHz		#V	BW 1 M	Hz	Sw.	eep 40	Span ms (60		
File Operation Sta	tus, C:'	HCT.G	IF file	saved					

FCC CERTIFICATION REPORT				
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21	
		Page 54 of 56		



🔆 Agilent						R	2 T	Measure
JYCCDMAPTL21	Cond Spur (Ch.9800			Mki	r1 3.7	55 GHz	ſ
Ref 23 dBm	Atten	10 dB				-38.0	8 dBm	Meas Off
#Peak								
Log								
10								Channel Power
dB/								channer rower
Offst								
28								
dB								Occupied BW
-13.0								
dBm								ACP
LgAv								
							$\stackrel{1}{\diamond}$	
V1 S2								Multi Carrier
S3 FC	enterfile frankrigerettenger,	Manushyalustan	and University	the work and the second	W-VP-W	4.4mm/www.par.uk	www.www.www.www.www.www.www.www.www.ww	Power
£ (f):								Power Stat
FTun								CCDF
Swp								CUDF
Center 2.015 GH						non 20	97 GHz	More
		III.	1 MHz	¢				1 of 2
#Res BW 1 MHz					ep 6.64	ms (60	r pts)	
File Operation	Status, C:	HCT.GIF	file sav	ed				

■ WCDMA1900 MODE (9400 CH.) Conducted Spurious Emissions1

■ WCDMA1900 MODE (9400 CH.) Conducted Spurious Emissions2

🔆 Agilent							R	? Т	Measure
JYCCDMAPTL21 Con Ref 23 dBm #Peak	d Spur (Atten)			Mkr1		20 GHz 1 dBm	
Log 10 dB/									Channel Power
0ffst 28 dB DI									Occupied Bk
-13.0 dBm LgAv					1				ACP
V1 S2 S3 FC	Marika and Mariata	www.week	matrickape	wing	,	ntolonadinya	n have	hpon station	Multi Carrier Power
£(f): FTun Swp									Power Stat CCDF
Center 12.000 GHz #Res BW 1 MHz		#V	BW 1 M	Hz	Sw	eep 40		l6 GHz 1 pts)	More 1 of 2
File Operation Sta	tus, C:'	HCT.6	IF file	save					

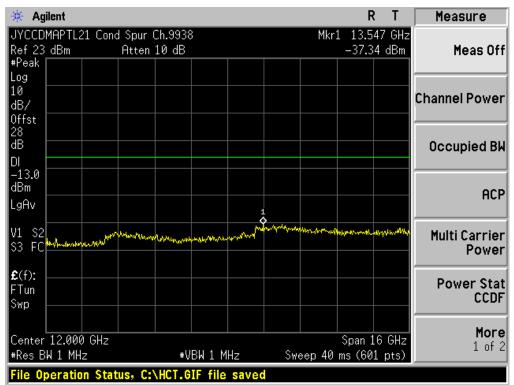
FCC CERTIFICATION REPORT						
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC	FCC ID: JYCCDMAPTL21			
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🔆 Agilent		RT	Measure
JYCCDMAPTL21 Cond Spu		Mkr1 3.815 GHz	
	10 dB	-37.16 dBm	Meas Off
#Peak			
Log 10			
dB/			Channel Power
Offst			
28			
dB			Occupied BW
DI			-
-13.0			
dBm			ACP
LgAv		1	
V1 S2			
V1 S2 S3 FC	and the second standard standards	Summer and A. M. Son Brand Son Son Sugar	Multi Carrier
	an a		Power
£ (f):			
FTun			Power Stat
Swp			CCDF
Center 2.015 GHz		Span 3.97 GHz	More
#Res BW 1 MHz	#VBW 1 MHz S	weep 6.64 ms (601 pts)	1 of 2
File Operation Status, (100p 0.04 m3 (001 p(3)	P

WCDMA1900 MODE (9538 CH.) Conducted Spurious Emissions1

■ WCDMA1900 MODE (9538 CH.) Conducted Spurious Emissions2



FCC CERTIFICATION REPORT					
Test Report No. HCTR1208FR13	Date of Issue: August 14, 2012	EUT Type: GSM/WCDMA/CDMA Phone with Bluetooth/WLAN/NFC		FCC ID: JYCCDMAPTL21	
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