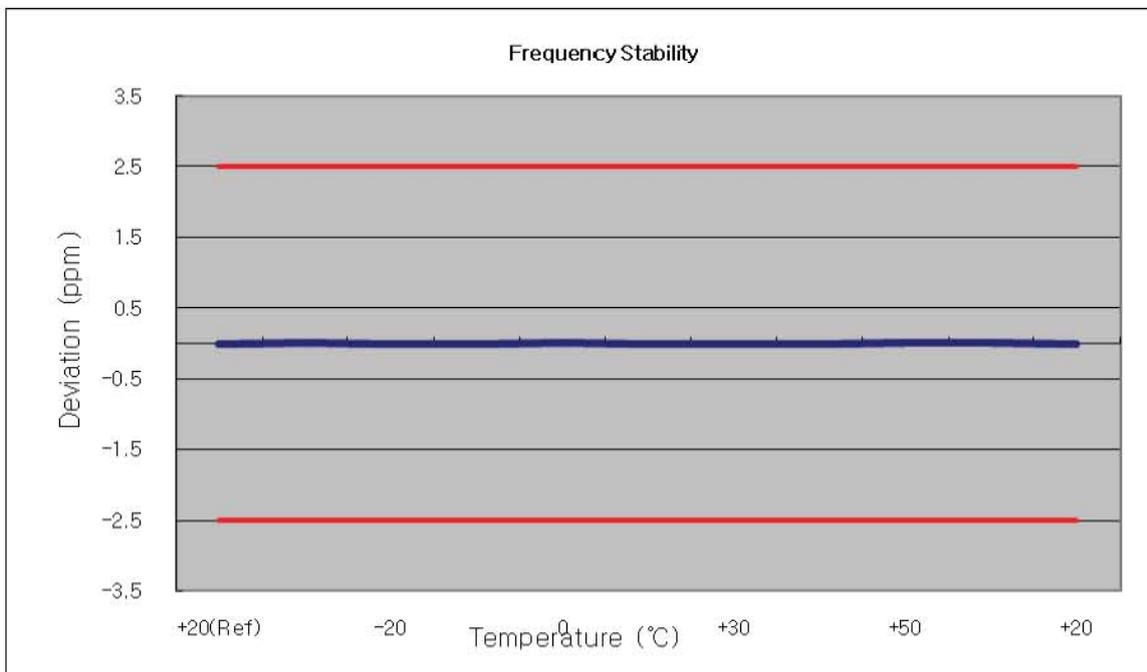


## 7.7 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

### 7.7.1 FREQUENCY STABILITY (GSM850)

- ▣ OPERATING FREQUENCY: 836,600,000 Hz
- ▣ CHANNEL: 190
- ▣ REFERENCE VOLTAGE: 3.7 VDC
- ▣ DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

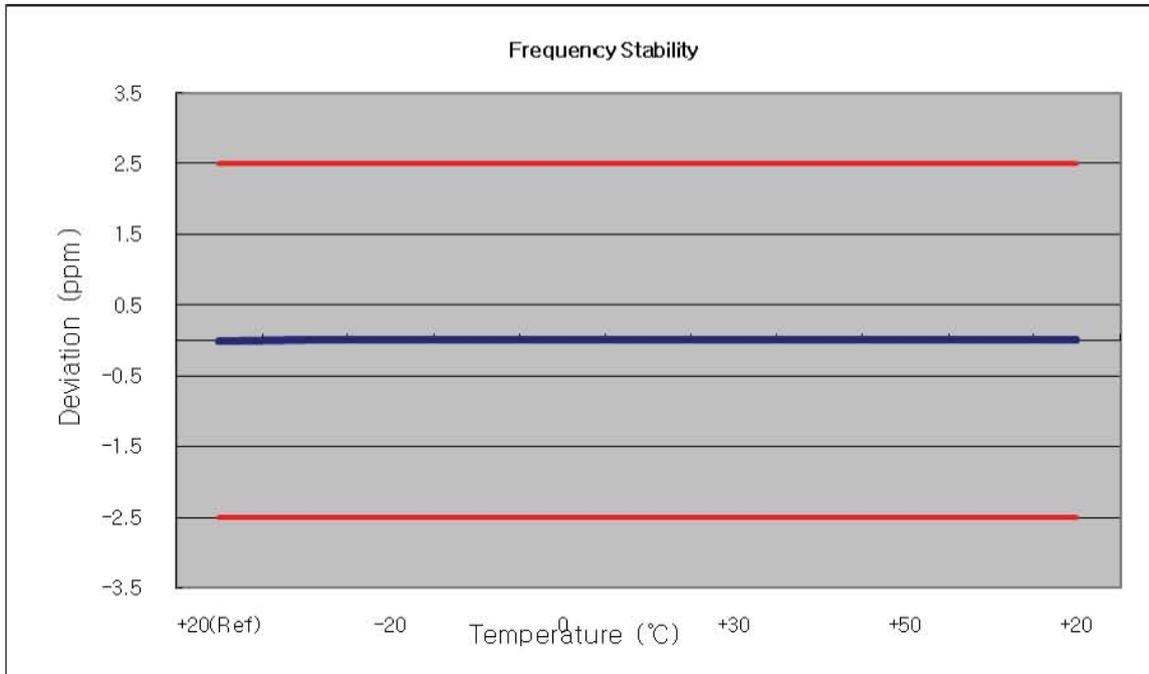
Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	836 599 992	0	0.000 000	0.000
100%		-30	836 600 001	9.38	0.000 001	0.011
100%		-20	836 599 978	-13.42	-0.000 002	-0.016
100%		-10	836 599 980	-11.23	-0.000 001	-0.013
100%		0	836 599 999	7.68	0.000 001	0.009
100%		+10	836 599 982	-10.09	-0.000 001	-0.012
100%		+30	836 599 978	-13.23	-0.000 002	-0.016
100%		+40	836 599 980	-11.88	-0.000 001	-0.014
100%		+50	836 599 999	7.77	0.000 001	0.009
115%		4.255	+20	836 600 001	8.85	0.000 001
Batt. Endpoint	3.400	+20	836 599 983	-8.37	-0.000 001	-0.010



### 7.7.2 FREQUENCY STABILITY (GSM1900)

- ▣ OPERATING FREQUENCY: 1880,000,000 Hz
- ▣ CHANNEL: 661
- ▣ REFERENCE VOLTAGE: 3.7 VDC
- ▣ DEVIATION LIM IT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	1879 999 981	0	0.000 000	0.000
100%		-30	1880 000 004	23.04	0.000 001	0.012
100%		-20	1879 999 997	16.59	0.000 001	0.009
100%		-10	1880 000 003	22.52	0.000 001	0.012
100%		0	1879 999 991	10.40	0.000 001	0.006
100%		+10	1880 000 000	19.23	0.000 001	0.010
100%		+30	1879 999 999	18.01	0.000 001	0.010
100%		+40	1880 000 002	21.03	0.000 001	0.011
100%		+50	1880 000 005	23.97	0.000 001	0.013
115%		4.255	+20	1879 999 994	13.02	0.000 001
Batt. Endpoint	3.400	+20	1879 999 998	17.54	0.000 001	0.009





## 8. TEST PLOTS

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

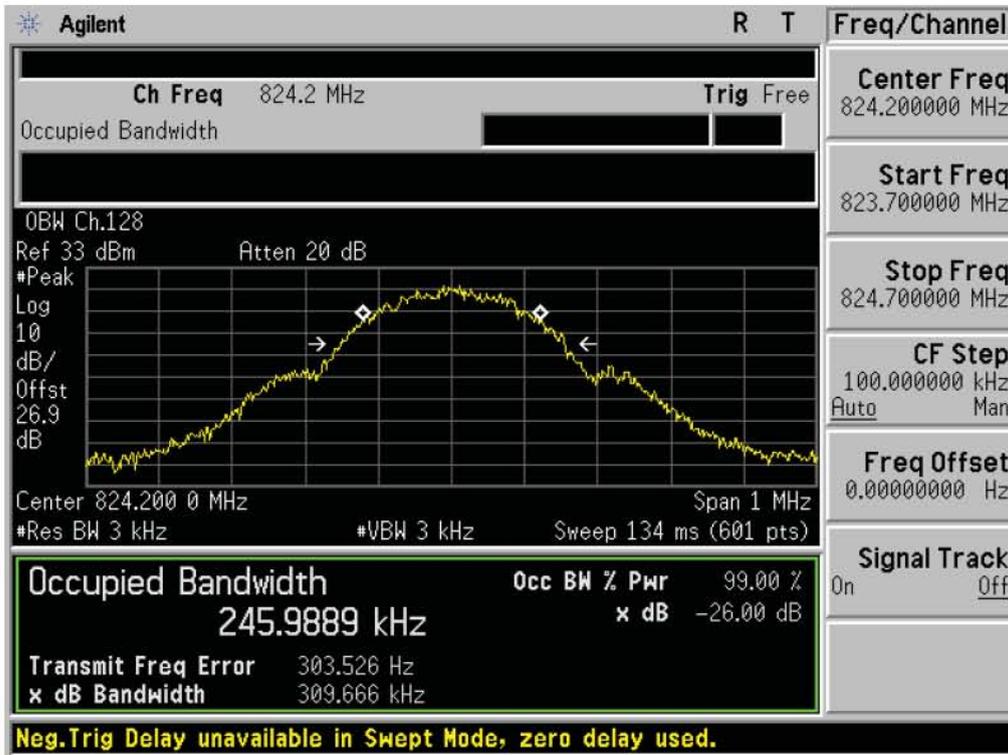
**Test Report No.**  
HCTR1305FR16

**Date of Issue:**  
May 24, 2013

**EUT Type:**  
Cellular/PCS GSM/GPRS Phone with Bluetooth

**FCC ID:**  
ZNFC297

■ GSM850 MODE (128 CH.) Occupied Bandwidth



■ GSM850 MODE (190 CH.) Occupied Bandwidth



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

■ GSM850 MODE (251 CH.) Occupied Bandwidth



■ GSM1900 MODE (512 CH.) Occupied Bandwidth



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

■ GSM1900 MODE (661 CH.) Occupied Bandwidth



■ GSM1900 MODE (810 CH.) Occupied Bandwidth



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

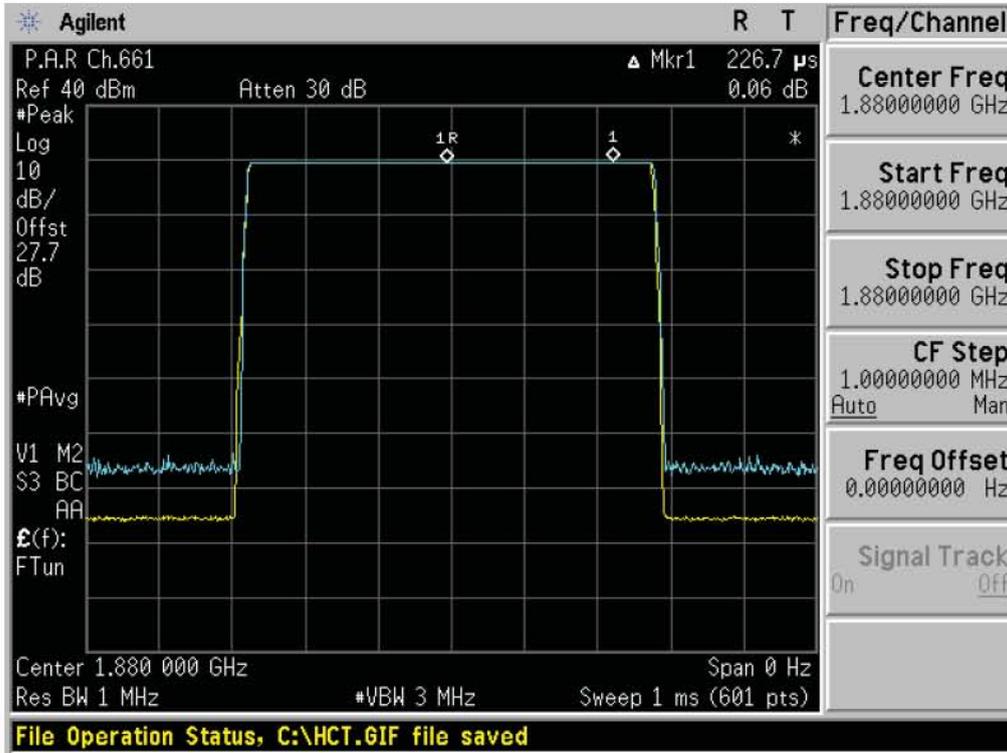
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

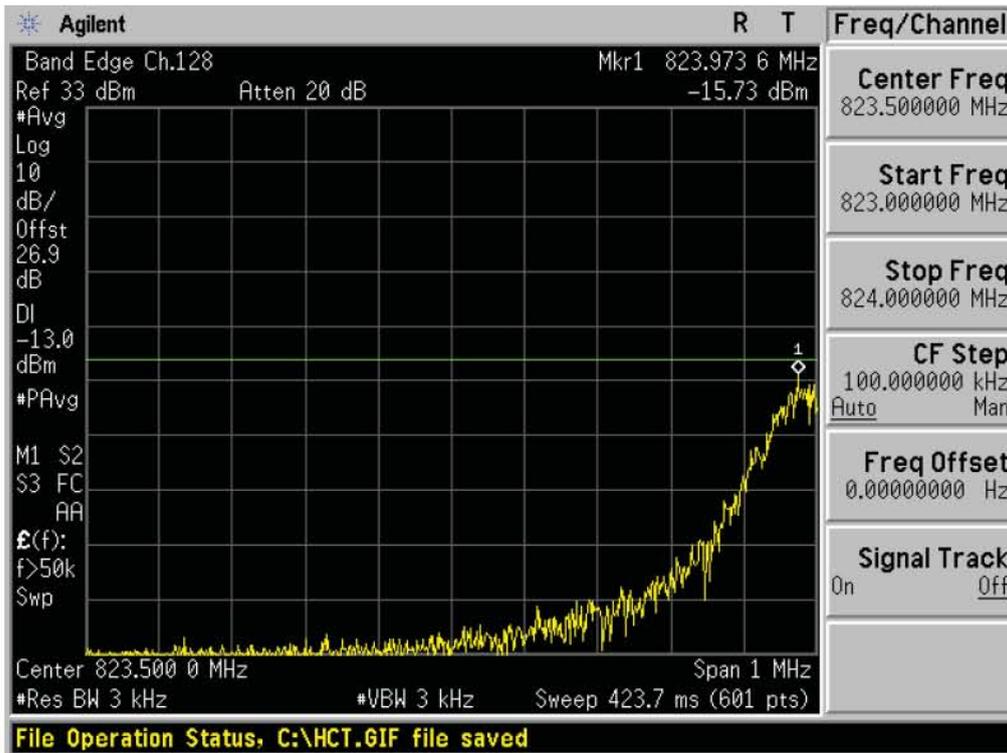
EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

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



■ GSM850 MODE (128 CH.) Block Edge 1



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

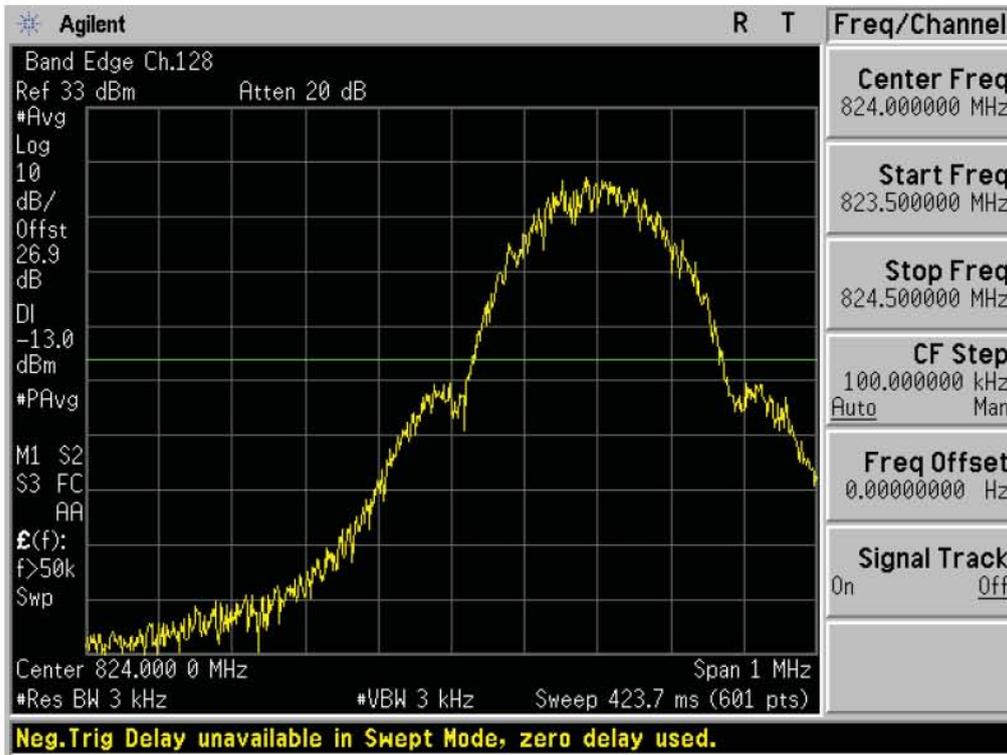
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

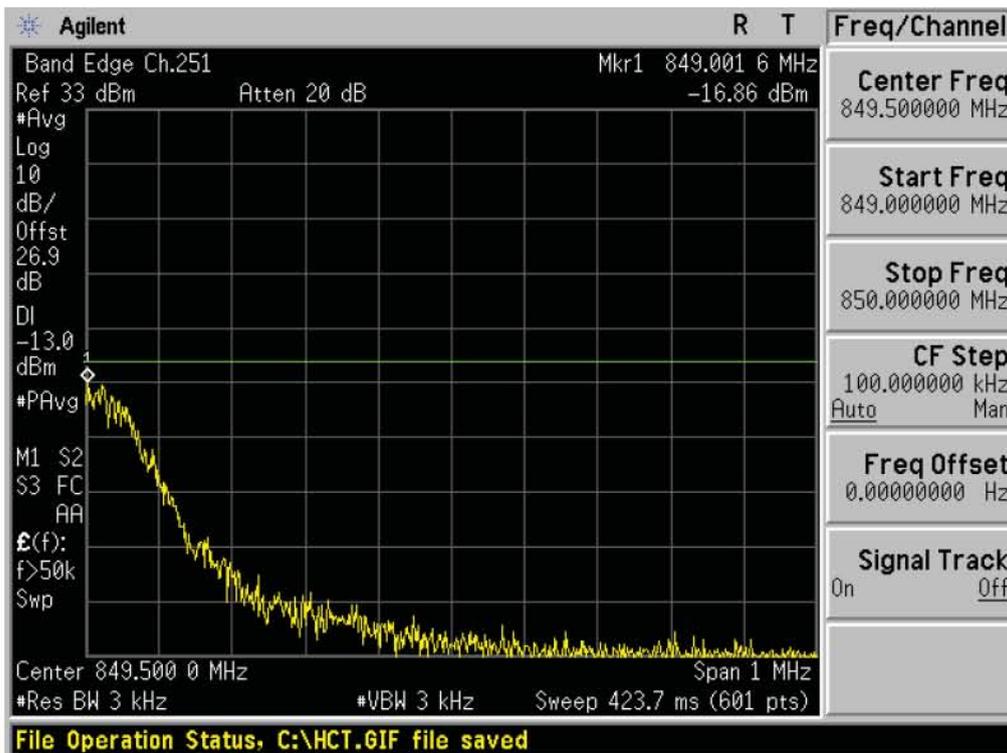
EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

■ GSM850 MODE (128 CH.) Block Edge 2



■ GSM850 MODE (251 CH.) Block Edge 1



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

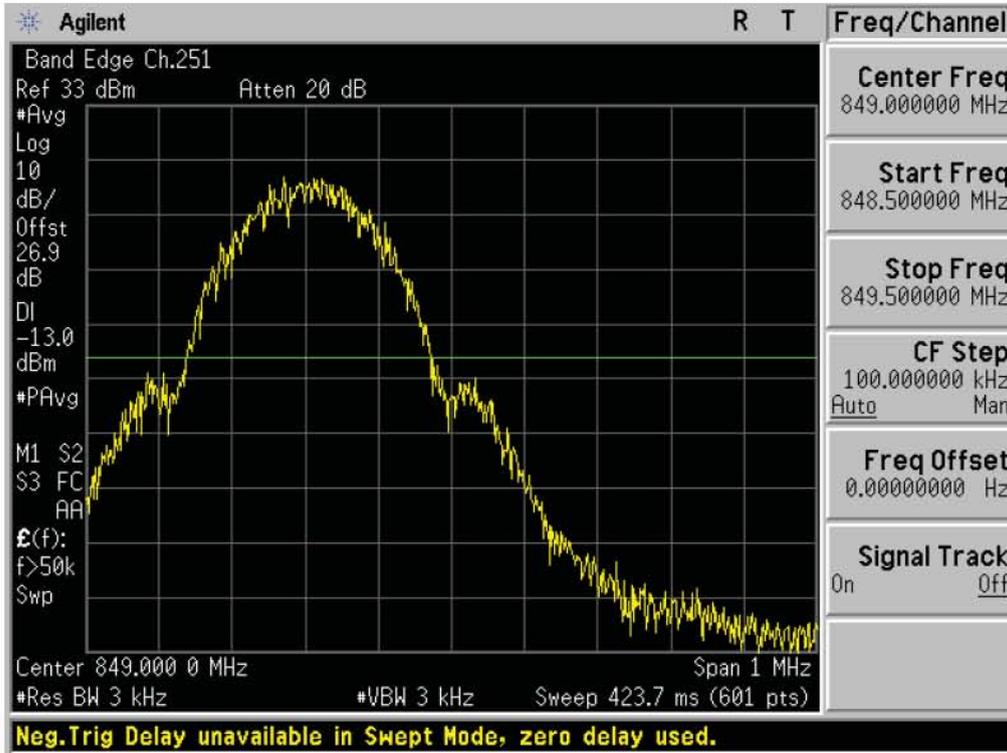
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

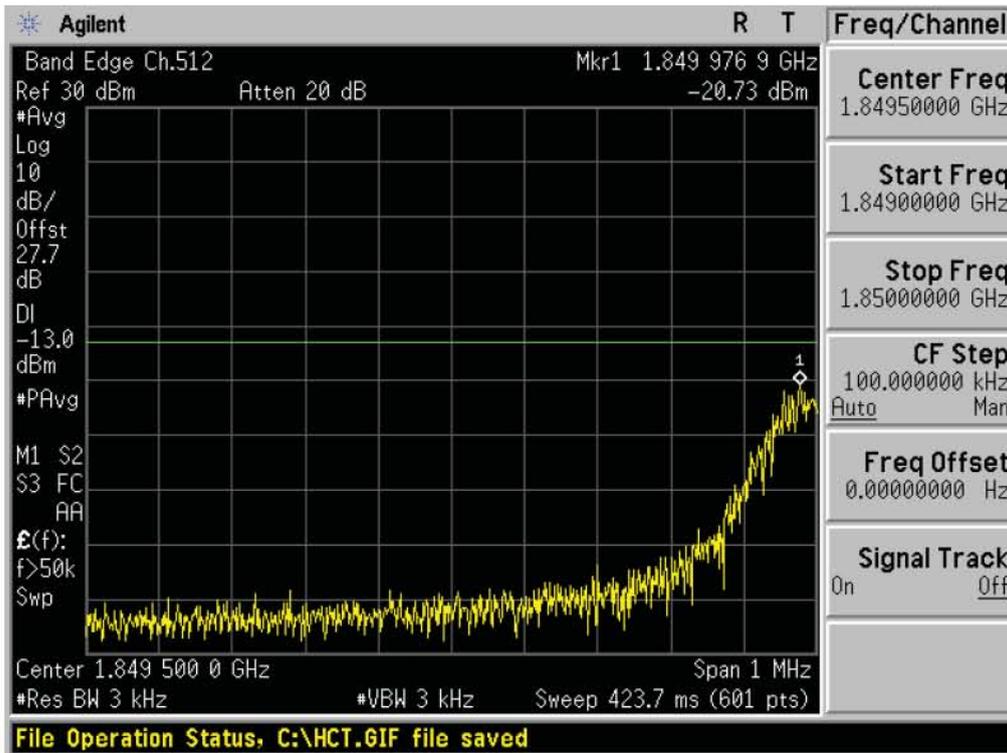
EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

■ GSM850 MODE (251 CH.) Block Edge 2



■ GSM1900 MODE (512 CH.) Block Edge 1



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

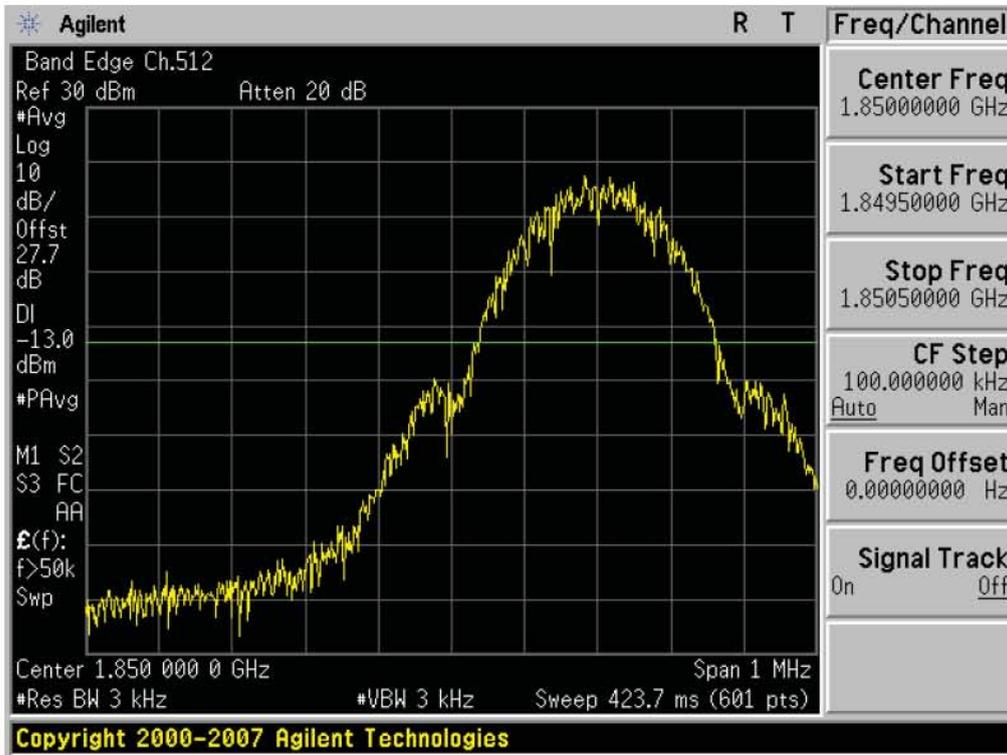
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

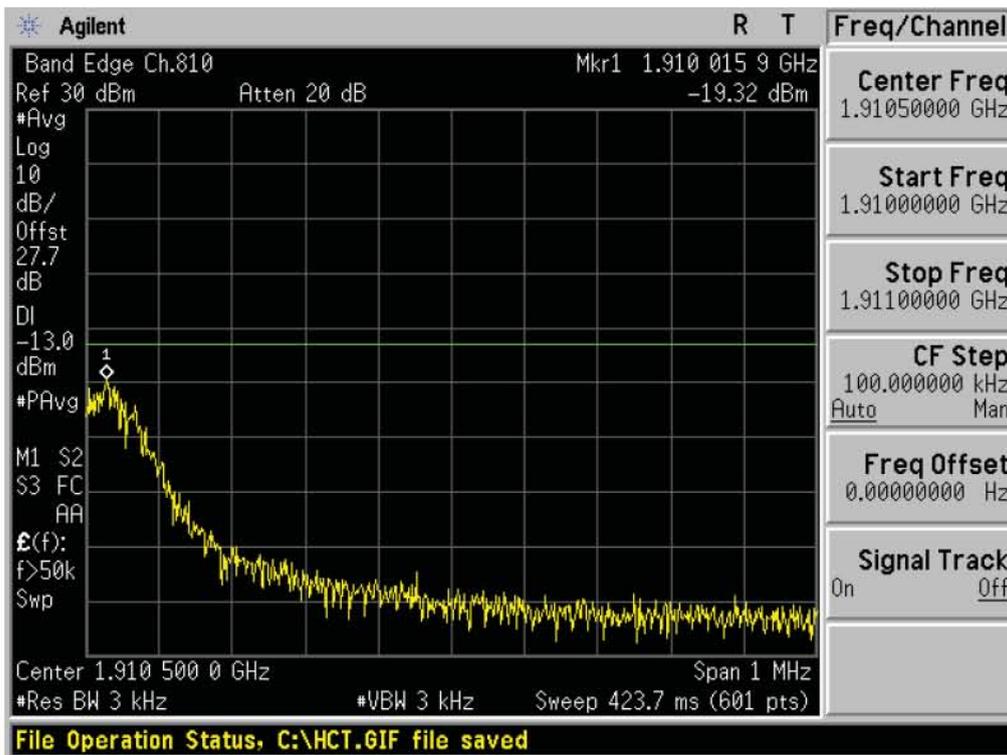
EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNF0297

■ GSM1900 MODE (512 CH.) Block Edge 2



■ GSM1900 MODE (810 CH.) Block Edge 1



FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

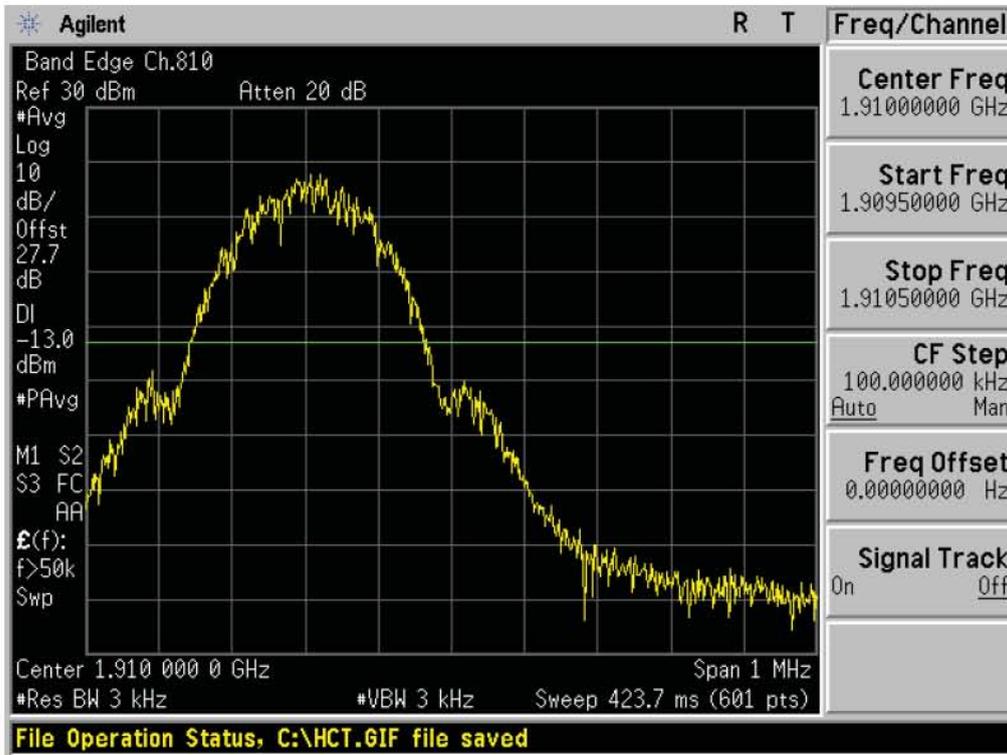
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

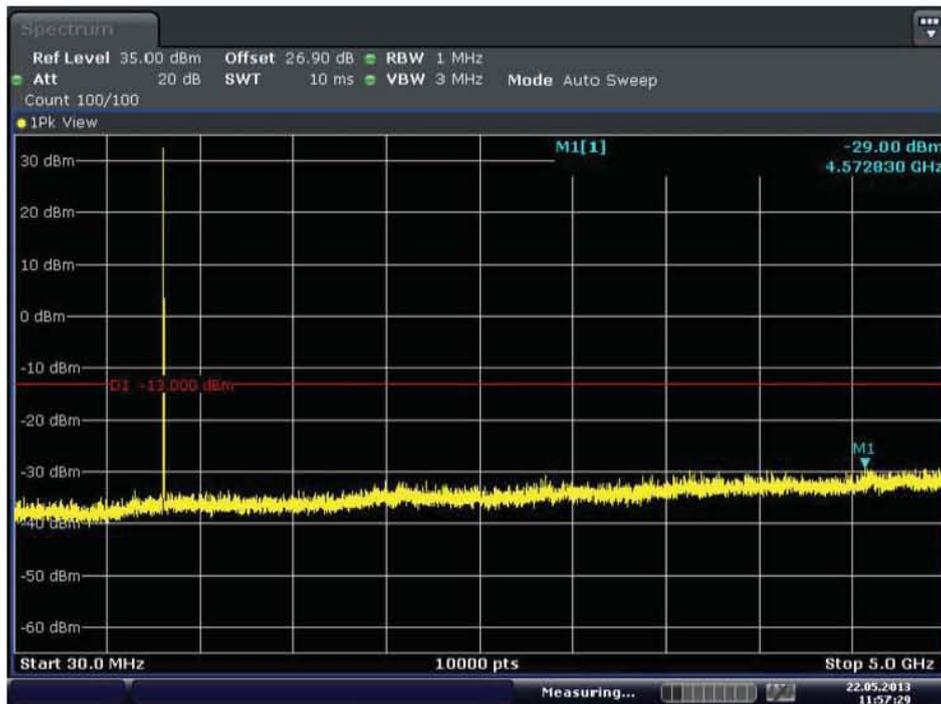
EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

■ GSM1900 MODE (810 CH.) Block Edge 2



■ GSM850 MODE (128 CH.) Conducted Spurious Emissions1



Date: 22.MAY.2013 11:57:27

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

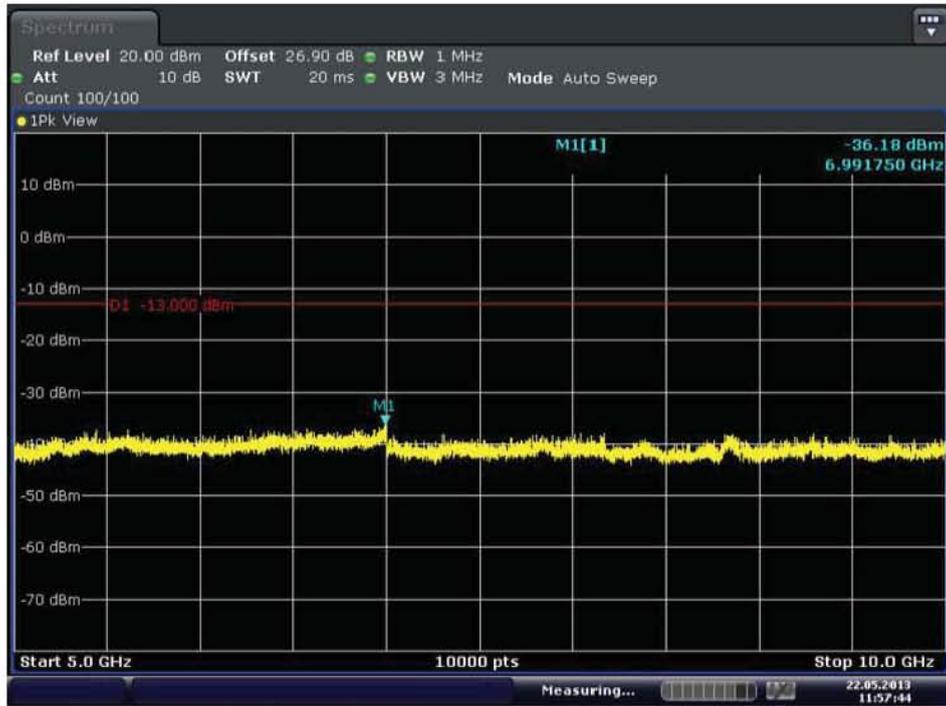
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

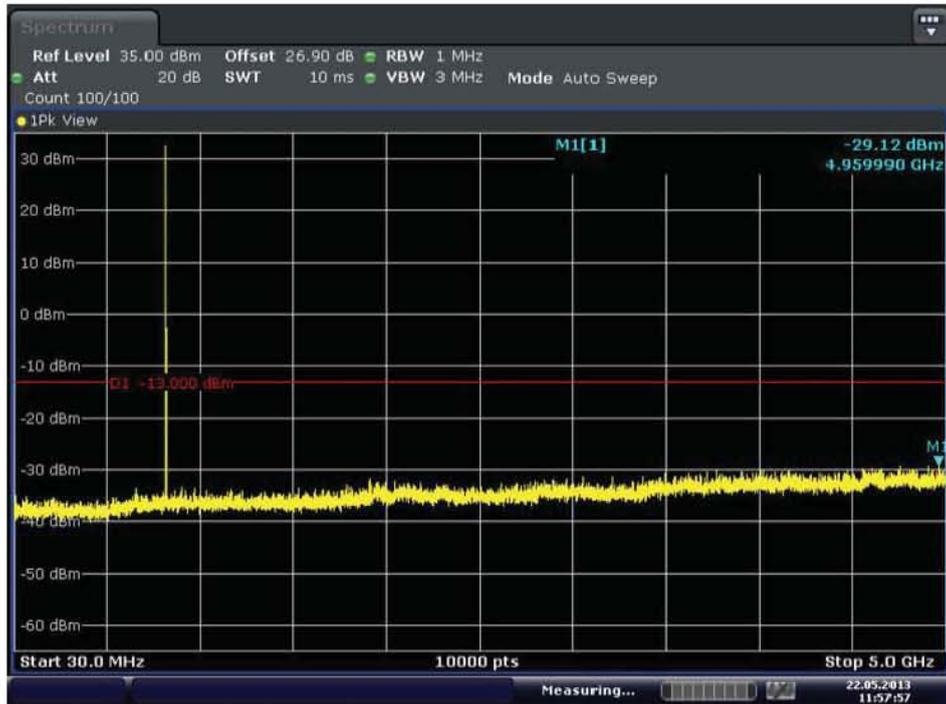
FCC ID:  
ZNFC297

■ GSM850 MODE (128 CH.) Conducted Spurious Emissions2



Date: 22.MAY.2013 11:57:43

■ GSM850 MODE (190 CH.) Conducted Spurious Emissions1



Date: 22.MAY.2013 11:57:57

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

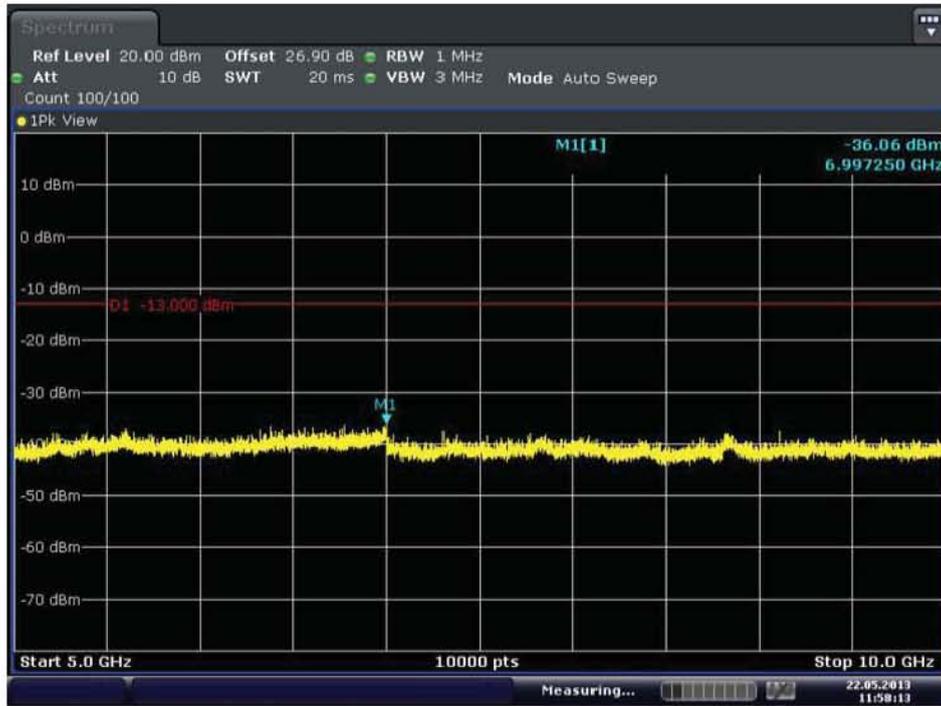
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

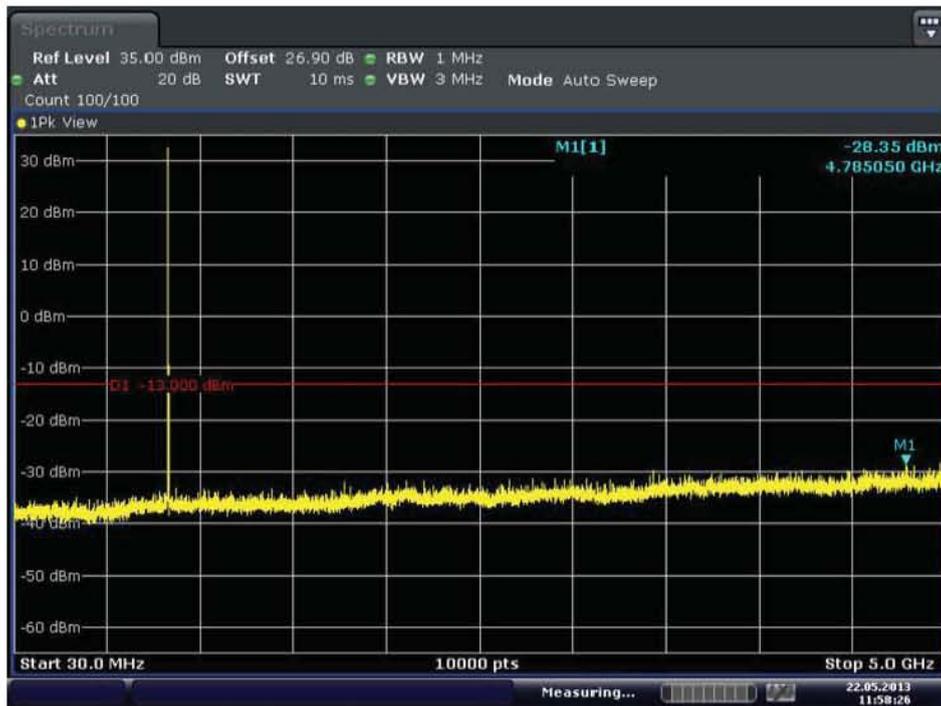
FCC ID:  
ZNF0297

■ GSM850 MODE (190 CH.) Conducted Spurious Emissions2



Date: 22.MAY.2013 11:58:13

■ GSM850 MODE (251 CH.) Conducted Spurious Emissions1



Date: 22.MAY.2013 11:58:26

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

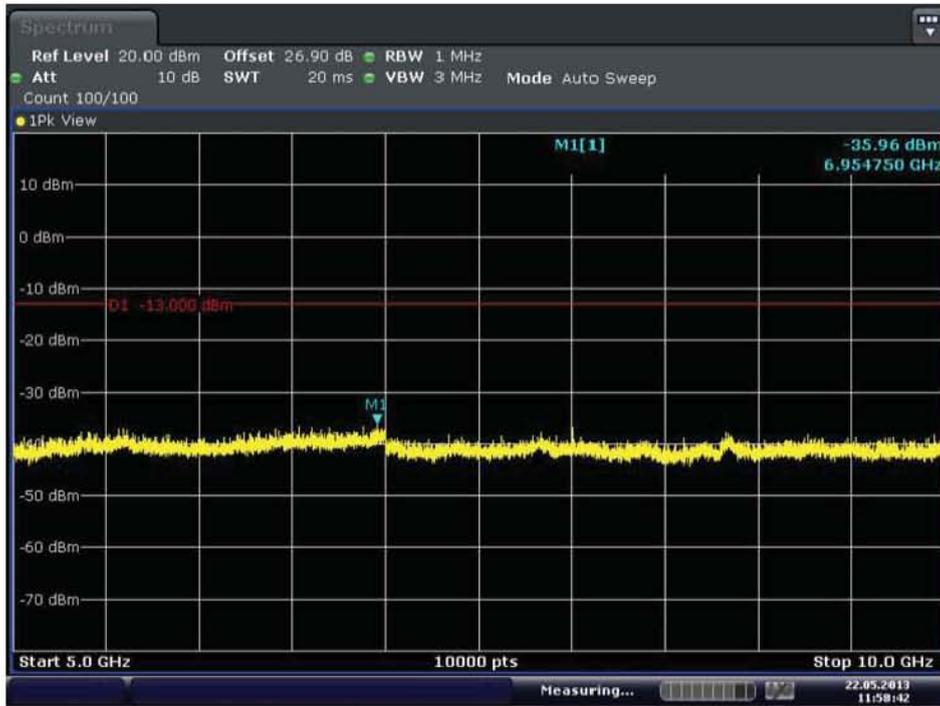
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

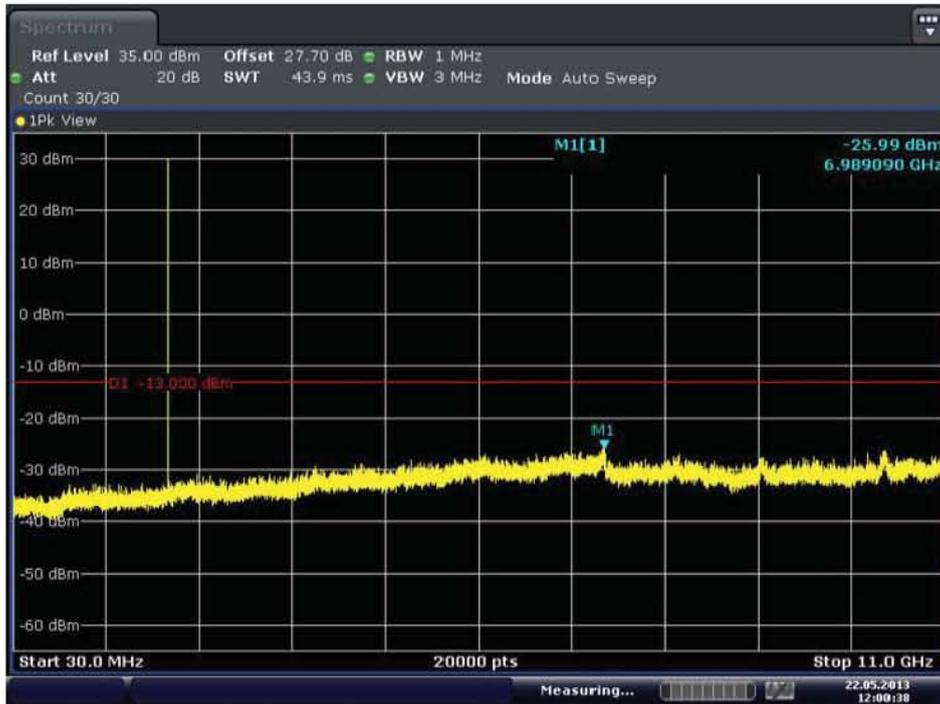
FCC ID:  
ZNFC297

■ GSM850 MODE (251 CH.) Conducted Spurious Emissions2



Date: 22.MAY.2013 11:58:42

■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions1



Date: 22.MAY.2013 12:00:38

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

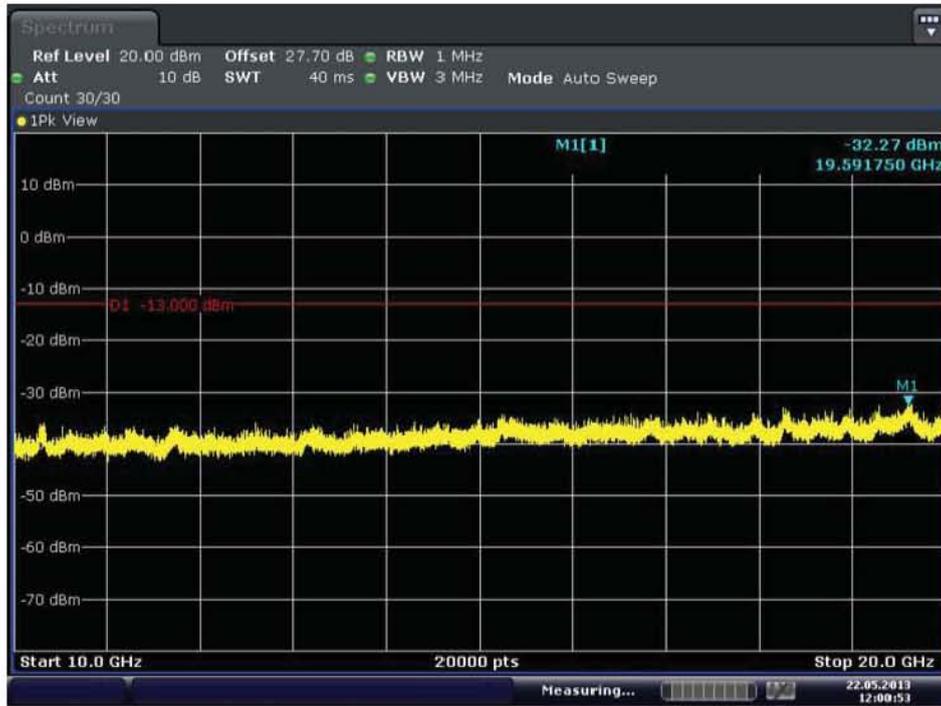
Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

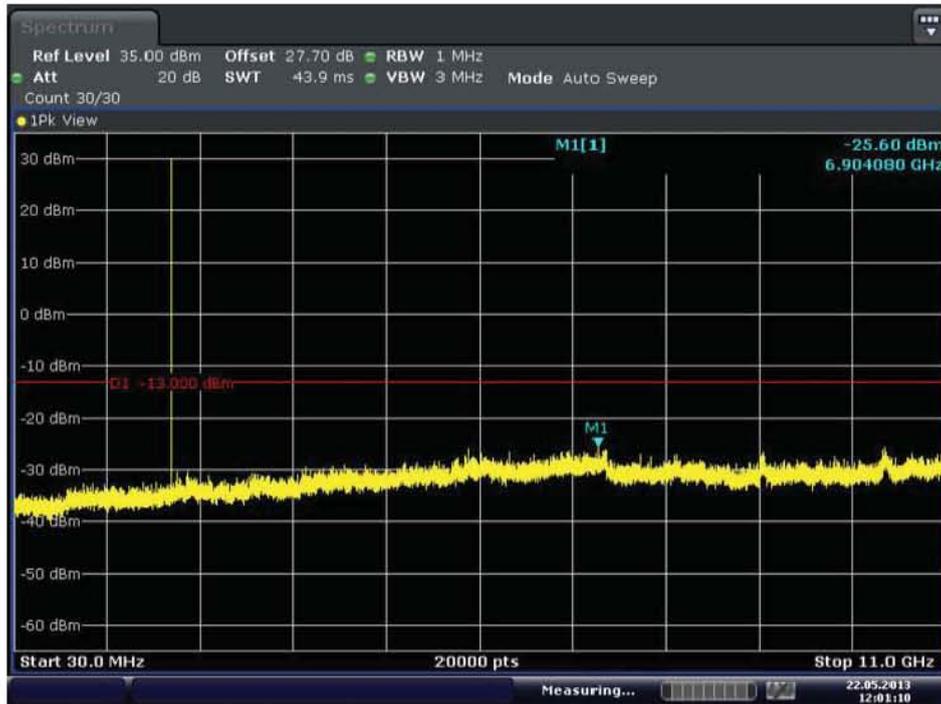
FCC ID:  
ZNFC297

■ GSM1900 MODE (512 CH.) Conducted Spurious Emissions2



Date: 22.MAY.2013 12:00:53

■ GSM1900 MODE (661 CH) Conducted Spurious Emissions1



Date: 22.MAY.2013 12:01:10

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

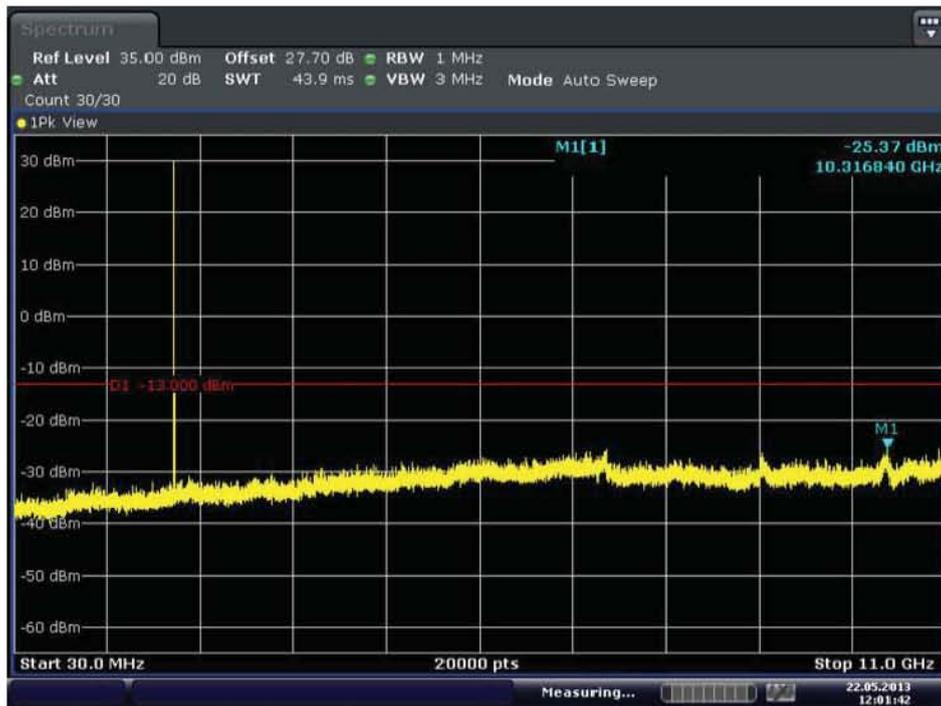
Test Report No. HCTR1305FR16	Date of Issue: May 24, 2013	EUT Type: Cellular/PCS GSM/GPRS Phone with Bluetooth	FCC ID: ZNFC297
---------------------------------	--------------------------------	---	--------------------

■ GSM1900 MODE (661 CH.) Conducted Spurious Emissions2



Date: 22.MAY.2013 12:01:25

■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions1



Date: 22.MAY.2013 12:01:42

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297

■ GSM1900 MODE (810 CH.) Conducted Spurious Emissions2



Date: 22.MAY.2013 12:01:57

FCC CERTIFICATION REPORT

[www.hct.co.kr](http://www.hct.co.kr)

Test Report No.  
HCTR1305FR16

Date of Issue:  
May 24, 2013

EUT Type:  
Cellular/PCS GSM/GPRS Phone with Bluetooth

FCC ID:  
ZNFC297