

HCT CO., LTD.

CERTIFICATE OF COMPLIANCE FCC Certification

Applicant Name:
Franklin Technology Inc.

Address:
906 JEI Platz 459-11 Gasan-Dong, Gumcheon-Gu,
Seoul, Korea

Date of Issue:
September 16, 2013

Test Site/Location:
HCT CO., LTD., 105-1, Jangam-ri, Majang-Myeon,
Icheon-si, Kyunggi-Do, Korea

Report No.: HCTR1309FR08

HCT FRN: 0005866421

FCC ID: XHG-FDM650

APPLICANT: Franklin Technology Inc.

FCC Model(s): FDM-650

EUT Type: CDMA 1xEVDO Data Modem

FCC Classification: PCS Licensed Transmitter (PCB)

FCC Rule Part(s): §22, §2

Tx Frequency: 824.70 — 848.31 MHz (CDMA)

Rx Frequency: 869.70 — 893.31 MHz (CDMA)


Max. RF Output Power: Vertical : 0.813 W CDMA (29.10 dBm)/ 0.807 W CDMA EVDO (29.07 dBm)

Horizontal : 0.420 W CDMA (26.23 dBm)/ 0.479 W CDMA EVDO (26.80 dBm)

Emission Designator(s): 1M28F9W (CDMA), 1M28F9W (CDMA EVDO)

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)



Report prepared by
: Kyung Soo Kang
Test engineer of RF Team



Approved by
: Chang Seok Choi
Manager of RF Team

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FCC CERTIFICATION REPORT			www.hct.co.kr
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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1309FR08	September 16, 2013	- First Approval Report

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name: Franklin Technology Inc.

Address: 906 JEI Platz 459-11 Gasan-Dong, Gumcheon-Gu, Seoul, Korea

FCC ID: XHG-FDM650

Application Type: Certification

FCC Classification: PCS Licensed Transmitter (PCB)

FCC Rule Part(s): §22, §2

EUT Type: CDMA 1xEVDO Data Modem

FCC Model(s): FDM-650

Tx Frequency: 824.70 — 848.31 MHz (CDMA)

Rx Frequency: 869.70 — 893.31 MHz (CDMA)

Max. RF Output Power: Vertical : 0.813 W CDMA (29.10 dBm)/ 0.807 W CDMA EVDO (29.07 dBm)
Horizontal : 0.420 W CDMA (26.23 dBm)/ 0.479 W CDMA EVDO (26.80 dBm)

Emission Designator(s): 1M28F9W (CDMA), 1M28F9W (CDMA EVDO)

Date(s) of Tests: September 05, 2013 ~ September 09, 2013

Antenna Specification Manufacturer: Percsson Communication Equipment Co., Ltd
Antenna type: Dipole Antenna
Peak Gain: 1.07 dBi

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2. INTRODUCTION

2.1. EUT DESCRIPTION

The FDM-650CDMA 1xEVDO Data Modem consists of Cellular CDMA, 1xRTT and EVDO Rev.A.

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 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 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 ERP/EIRP RADIATED POWER AND RADIATED SPURIOUS EMISSIONS

Note: ERP(Effective Radiated Power), EIRP(Effective Isotropic Radiated Power)

Test Procedure

Radiated emission measurements are performed in the Fully-anechoic chamber. The equipment under test is placed on a non-conductive table 3-meters away from the receive antenna in accordance with ANSI/TIA-603-C-2004 Clause 2.2.17. The turntable is rotated through 360 degrees, and the receiving antenna scans in order to determine the level of the maximized emission. The level and position of the maximized emission is recorded with the spectrum analyzer using a positive peak detector.

A half wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator and the previously recorded signal was duplicated.

The power is calculated by the following formula;

$$P_{d(dBm)} = P_{g(dBm)} - \text{cable loss (dB)} + \text{antenna gain (dB)}$$

Where: P_d is the dipole equivalent power and P_g is the generator output power into the substitution antenna.

The maximum EIRP is calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps are repeated with the receiving antenna in both vertical and horizontal polarization. the difference between the gain of the horn and an isotropic antenna are taken into consideration

Radiated spurious emissions

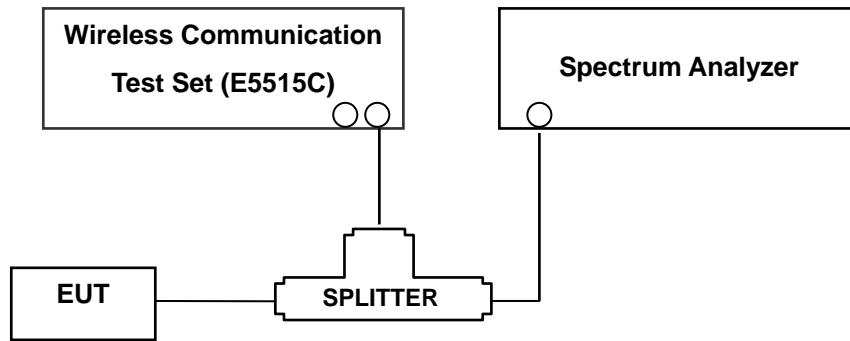
Frequency Range : 30 MHz ~ 10th Harmonics of highest channel fundamental frequency.

Note : This device was tested under all R.C.s and S.O.s and worst case is reported with 'All Up' power control bits.

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3.2 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

Note : This device was tested under all R.C.s and S.O.s and worst case is reported with 'All Up' power control bits.

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3.3 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.

Measurements of all out of band are made on RBW = 1MHz and VBW \geq 3 MHz in the worst case despite RBW = 100 kHz and VBW \geq 300 kHz upon 1 GHz.

- RBW = 1 MHz
- VBW \geq 3 MHz
- Detector = Peak
- Trace Mode = max hold
- Sweep time = auto
- Number of points in sweep $\geq 2 * \text{Span} / \text{RBW}$

- 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.

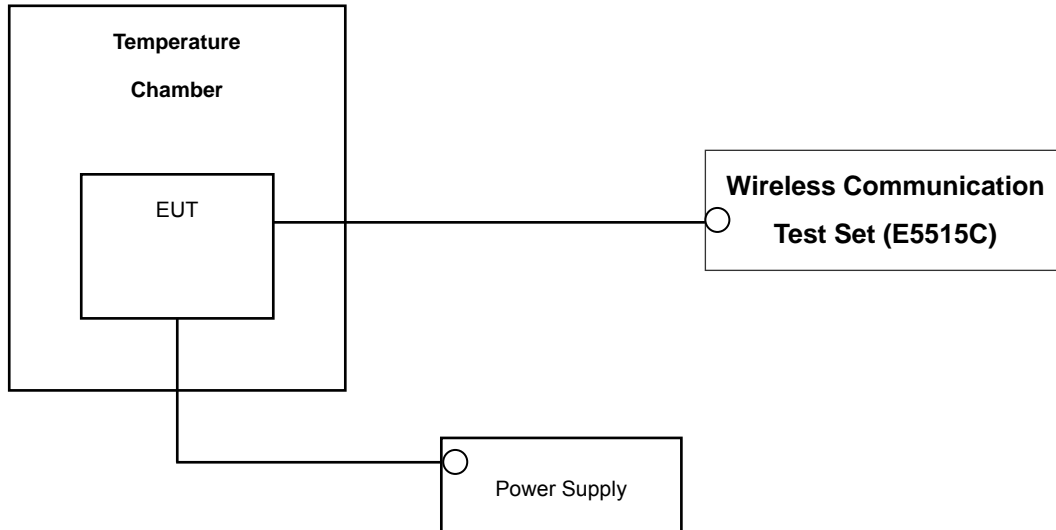
NOTES: The analyzer plot offsets were determined by below conditions.

- For CDMA, total offset 26.3 dBm = 20 dBm attenuator + 6 dBm Splitter + 0.3 dBm RF cables,

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3.4 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

Test Set-up



* Nominal Operating Voltage

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 $\pm 0.00025\%$ (± 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 half-hour is provided to allow stabilization of the equipment at each temperature level.

Note : This device was tested under all R.C.s and S.O.s and worst case is reported with ‘All Up’ power control bits.

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4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
Agilent	E9327A/ Power Sensor	MY4442009	Annual	04/16/2014
MITEQ	AMF-6D-001180-35-20P/AMP	1081666	Annual	09/11/2013
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	04/25/2014
Wainwright	WHK3.3/18G-10EF/H.P.F	1	Annual	04/25/2014
Hewlett Packard	11667B / Power Splitter	10126	Annual	11/07/2013
Digital	EP-3010/ Power Supply	3110117	Annual	11/07/2013
Schwarzbeck	UHAP/ Dipole Antenna	557	Biennial	03/05/2015
Schwarzbeck	UHAP/ Dipole Antenna	558	Biennial	05/03/2015
Korea Engineering	KR-1005L / Chamber	KRAB05063-3CH	Annual	11/07/2013
Schwarzbeck	BBHA 9120D/ Horn Antenna	147	Biennial	05/15/2014
Schwarzbeck	BBHA 9120D/ Horn Antenna	937	Biennial	10/17/2013
Agilent	E4440A/Spectrum Analyzer	US45303008	Annual	04/25/2014
WEINSCHTEL	ATTENUATOR	BR0592	Annual	11/07/2013
REOHDE&SCHWARZ	FSV40/Spectrum Analyzer	1307.9002K40-100931-NK	Annual	06/10/2014
Agilent	8960 (E5515C)/ Base Station	GB44400269	Annual	02/14/2014

5. SUMMARY OF TEST RESULTS

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

6. SAMPLE CALCULATION

A. ERP Sample Calculation

Mode	Ch./ Freq.		Measured Level(dBm)	Substitute LEVEL(dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
	channel	Freq.(MHz)						W	dBm
CDMA	384	836.52	-21.38	38.80	-10.54	0.96	V	0.537	27.30

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

- 1) The EUT mounted on a non-conductive tunnable is 0.8 meter above test site ground level.
- 2) During the test , the turn table is rotated 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

CDMA Emission Designator

Emission Designator = 1M27F9W

CDMA BW = 1.27 MHz (Measured at the 99% power bandwidth)

F = Frequency Modulation

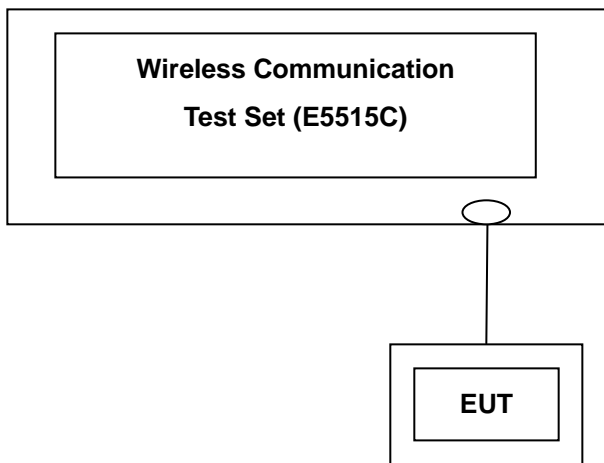
9 = Composite Digital Info

W = Combination (Audio/Data)

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.



Band	Channel	SO2	SO2	SO55	SO55	TDSO SO32	1xEVDO Rev.O	1xEVDO Rev.O	1xEVDO Rev.1	1xEVDO Rev.1
		RC1/1 (dBm)	RC3/3 (dBm)	RC1/1 (dBm)	RC3/3 (dBm)	RC3/3 (dBm)	(FTAP)	(RTAP)	(FETAP)	(RETAP)
CDMA	1013	23.43	23.51	23.47	23.41	23.43	23.74	23.70	23.61	23.58
	384	23.74	23.85	23.75	23.73	23.72	23.81	23.77	23.77	23.60
	777	23.53	23.49	23.44	23.35	23.41	23.52	23.64	23.72	23.46

(Maximum Conducted Output Powers)

Note : Detecting mode is average.

7.2 OCCUPIED BANDWIDTH

Band	Channel	Frequency(MHz)	Data (MHz)
CDMA	1013	824.70	1.2826
	384	836.52	1.2766
	777	848.31	1.2734
CDMA EVDO	1013	824.70	1.2768

- Plots of the EUT's Occupied Bandwidth are shown Page 21 ~ 22.

7.3 CONDUCTED SPURIOUS EMISSIONS

Band	Channel	Frequency of Maximum Harmonic (GHz)	Maximum Data (dBm)
CDMA	1013	4.742800	-29.32
	384	4.571830	-28.31
	777	4.730380	-29.51

- Plots of the EUT's Conducted Spurious Emissions are shown Page 27 ~ 29.

7.3.1 Band Edge

- Plots of the EUT's Band Edge are shown Page 23 ~ 26.

7.4 EFFECTIVE RADIATED POWER OUTPUT

(CDMA Mode) – Ant. Vertical

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute LEVEL (dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
	channel	Freq.(MHz)						W	dBm
CDMA	1013	824.70	-19.11	40.66	-10.61	0.95	V	0.813	29.10
	384	836.52	-23.57	36.61	-10.54	0.96	V	0.324	25.11
	777	848.31	-21.64	38.78	-10.47	1.10	V	0.526	27.21
EVDO	1013	824.70	-19.14	40.63	-10.61	0.95	V	0.807	29.07
	384	836.52	-21.80	38.38	-10.54	0.96	V	0.488	26.88
	777	848.31	-20.26	40.16	-10.47	1.10	V	0.723	28.59

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 3-meters from the receive antenna. 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 = 5MHz. For AMPS, GSM, and NADC TDMA 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. 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 in x plane in CDMA mode. Also worst case of detecting Antenna is in vertical polarization in CDMA mode.

The EVDO mode testing were performed using FETAP on Rev.A because FETAP on Rev.A is highest power in EVDO mode.

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(CDMA Mode) – Ant. Horizontal

Mode	Ch./ Freq.		Measured Level (dBm)	Substitute LEVEL (dBm)	Ant. Gain (dBd)	C.L	Pol.	ERP	
	channel	Freq.(MHz)						W	dBm
CDMA	1013	824.70	-21.98	37.79	-10.61	0.95	H	0.420	26.23
	384	836.52	-25.14	35.04	-10.54	0.96	H	0.226	23.54
	777	848.31	-24.31	36.11	-10.47	1.10	H	0.284	24.54
EVDO	1013	824.70	-21.41	38.36	-10.61	0.95	H	0.479	26.80
	384	836.52	-24.22	35.96	-10.54	0.96	H	0.279	24.46
	777	848.31	-22.49	37.93	-10.47	1.10	H	0.433	26.36

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. 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 = 5MHz. For AMPS, GSM, and NADC TDMA 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. 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 in z plane in CDMA mode. Also worst case of detecting Antenna is in horizontal polarization in CDMA mode.

The EVDO mode testing were performed using FETAP on Rev.A because FETAP on Rev.A is highest power in EVDO mode.

7.5 RADIATED SPURIOUS EMISSIONS

(CDMA Mode) – Ant. Vertical

MEASURED OUTPUT POWER: 29.10 dBm = 0.813 W

MODULATION SIGNAL: CDMA

DISTANCE: 3 meters

LIMIT: $43 + 10 \log_{10}(W) =$ 42.10 dBc

Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBd)	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
1013	1,649.40	-37.97	9.20	-46.96	1.18	H	-38.94	68.04
	2,474.10	-51.41	10.55	-57.45	1.62	H	-48.52	77.62
	3,298.80	-56.78	12.06	-62.81	1.99	V	-52.74	81.84
384	1,673.04	-32.14	9.37	-41.29	1.20	H	-33.12	62.22
	2,509.56	-53.87	10.66	-59.81	1.65	H	-50.80	79.90
	3,346.08	-50.41	12.24	-56.95	2.00	H	-46.71	75.81
777	1,696.62	-34.37	9.49	-43.54	1.20	H	-35.25	64.35
	2,544.93	-52.61	10.76	-58.30	1.65	V	-49.19	78.29
	3,393.24	-45.39	12.37	-52.07	1.99	H	-41.69	70.79

- NOTES:**
1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:
 2. We are performed all frequency to 10th harmonics from 30 MHz. Measurements above show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
 3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

(CDMA Mode) – Ant. Horizontal

MEASURED OUTPUT POWER: 26.80 dBm = 0.479 W
 MODULATION SIGNAL: CDMA EVDO
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10}(W) =$ 39.80 dBc

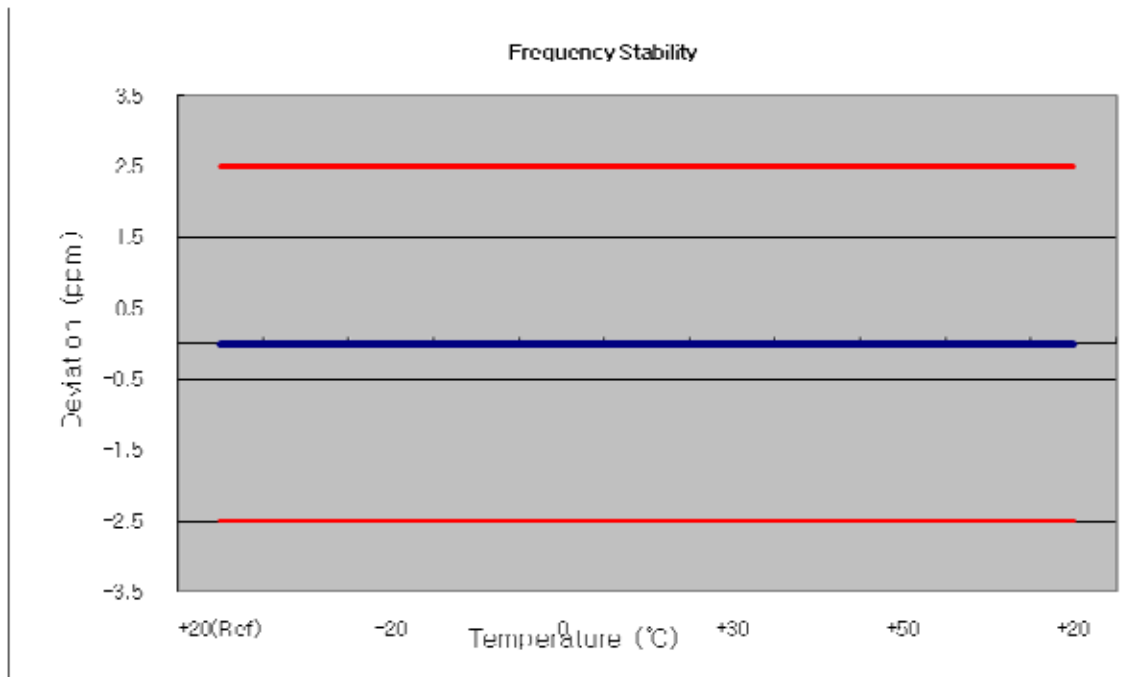
Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBd)	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
1013	1,649.40	-30.81	9.20	-39.80	1.18	H	-31.78	58.58
	2,474.10	-50.17	10.55	-56.21	1.62	H	-47.28	74.08
	3,298.80	-54.11	12.06	-60.14	1.99	H	-50.07	76.87
384	1,673.04	-30.08	9.37	-39.23	1.20	H	-31.06	57.86
	2,509.56	-54.93	10.66	-60.87	1.65	H	-51.86	78.66
	3,346.08	-46.37	12.24	-52.91	2.00	H	-42.67	69.47
777	1,696.62	-33.95	9.49	-43.12	1.20	H	-34.83	61.63
	2,544.93	-49.06	10.76	-54.75	1.65	V	-45.64	72.44
	3,393.24	-44.97	12.37	-51.65	1.99	H	-41.27	68.07

- NOTES:**
1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:
 2. We are performed all frequency to 10th harmonics from 30 MHz. Measurements above show only up to 3 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
 3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

7.6 FREQUENCY STABILITY / VARIATION OF AMBIENT TEMPERATURE

OPERATING FREQUENCY: 836,520,000 Hz
 CHANNEL: 384
 REFERENCE VOLTAGE: 12.0 VDC
 DEVIATION LIMIT: ± 0.000 25 % or 2.5 ppm

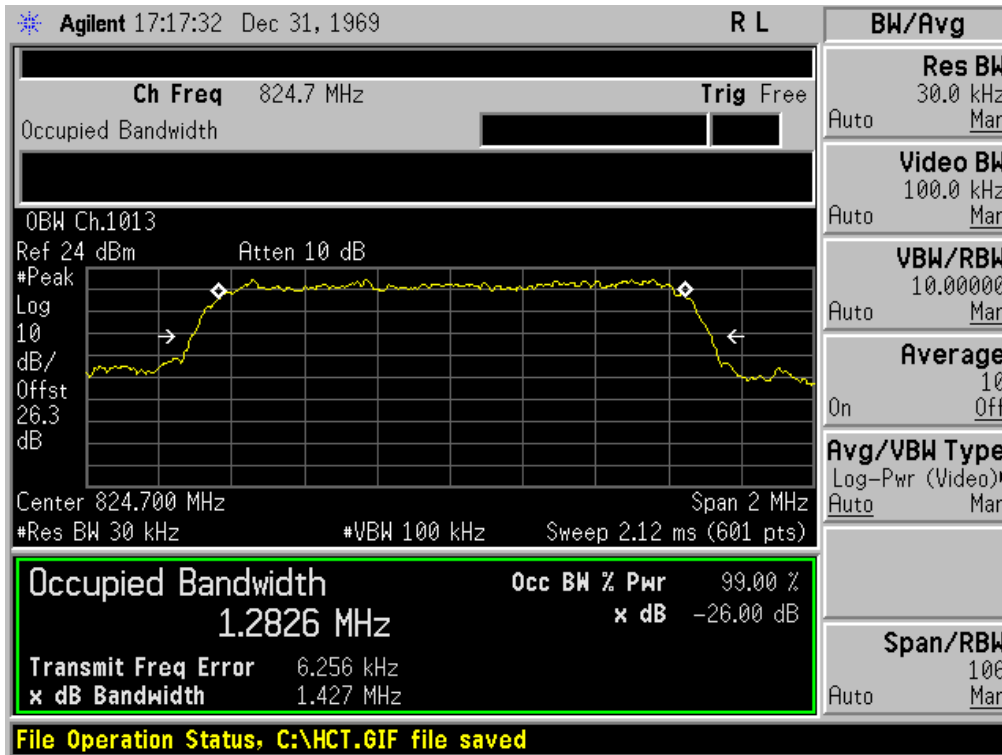
Voltage (%)	Power (VDC)	Temp. ()	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	12.0	+20(Ref)	836 520 006	0	0.000 000	0.000
100%		-30	836 520 001	-4.22	-0.000 001	-0.005
100%		-20	836 520 001	-4.43	-0.000 001	-0.005
100%		-10	836 520 003	-2.43	0.000 000	-0.003
100%		0	836 520 002	-3.26	0.000 000	-0.004
100%		+10	836 520 003	-2.40	0.000 000	-0.003
100%		+30	836 520 002	-3.55	0.000 000	-0.004
100%		+40	836 520 003	-2.23	0.000 000	-0.003
100%		+50	836 520 003	-2.90	0.000 000	-0.003
115%		13.8	+20	836 520 003	-2.70	0.000 000
85%	10.2	+20	836 520 004	-2.05	0.000 000	-0.002



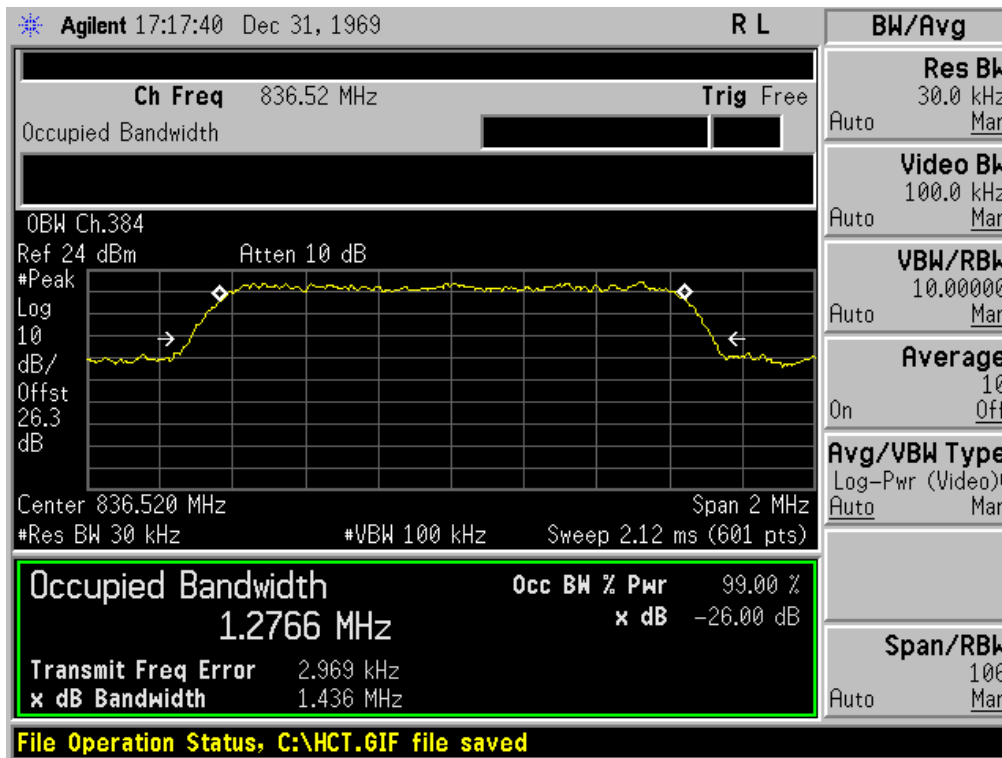
8. TEST PLOTS

FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1309FR08	Date of Issue: September 16, 2013	EUT Type: CDMA 1xEVDO Data Modem	FCC ID: XHG-FDM650

■ CDMA MODE (1013 CH.) Occupied Bandwidth



■ CDMA MODE (384 CH.) Occupied Bandwidth

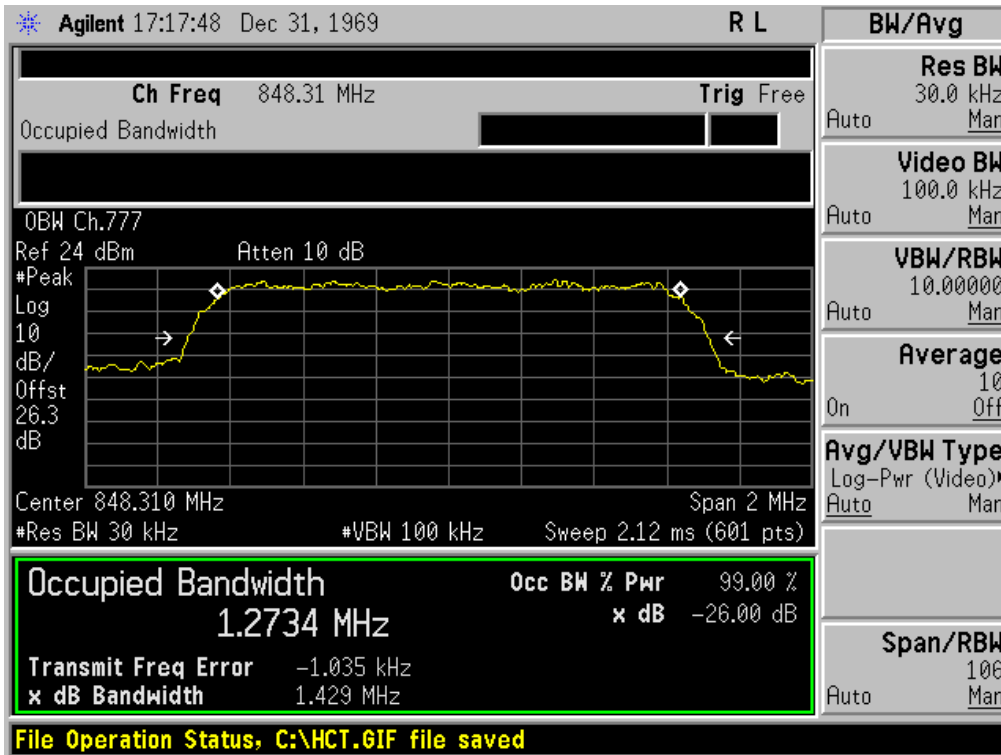


FCC CERTIFICATION REPORT

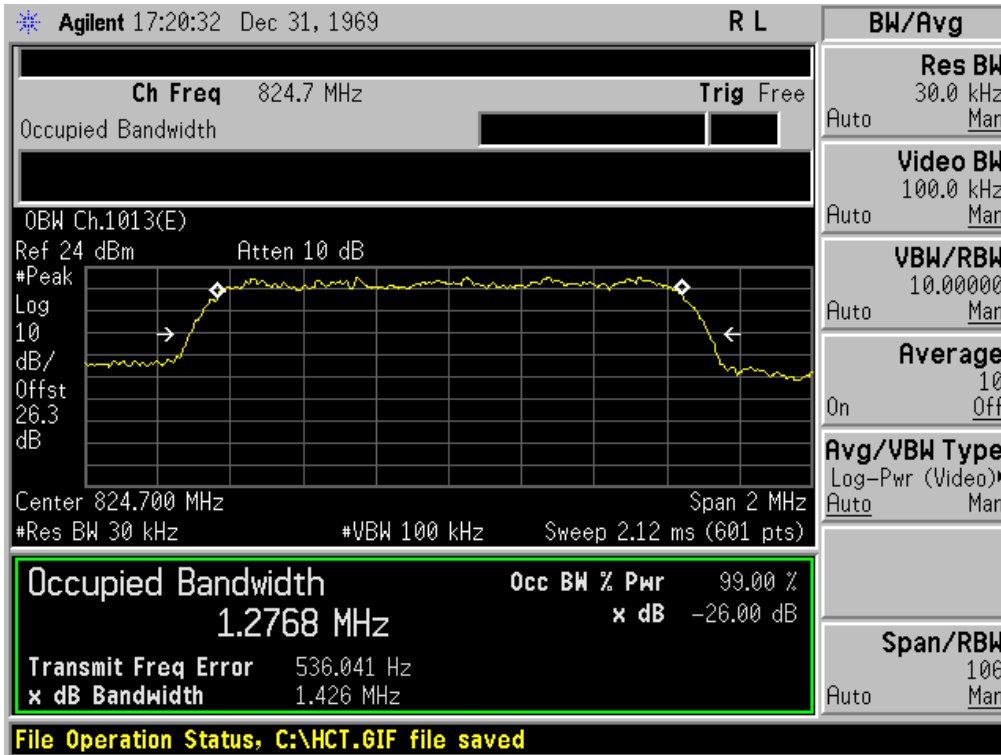
www.hct.co.kr

Test Report No. HCTR1309FR08	Date of Issue: September 16, 2013	EUT Type: CDMA 1xEVDO Data Modem	FCC ID: XHG-FDM650
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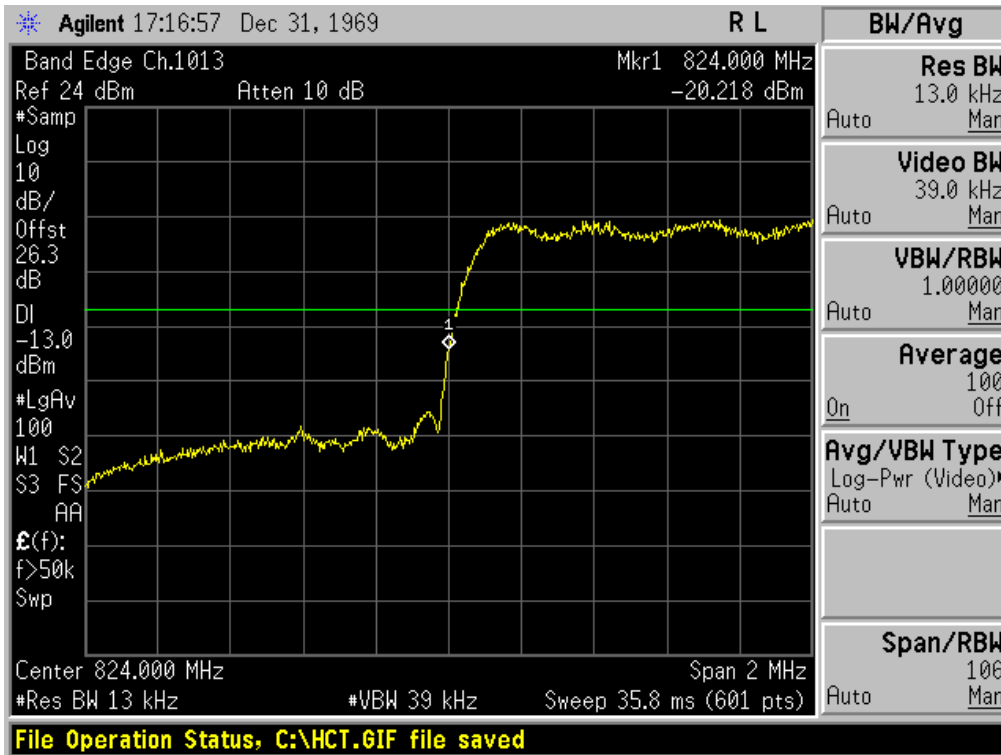
■ CDMA MODE (777 CH.) Occupied Bandwidth



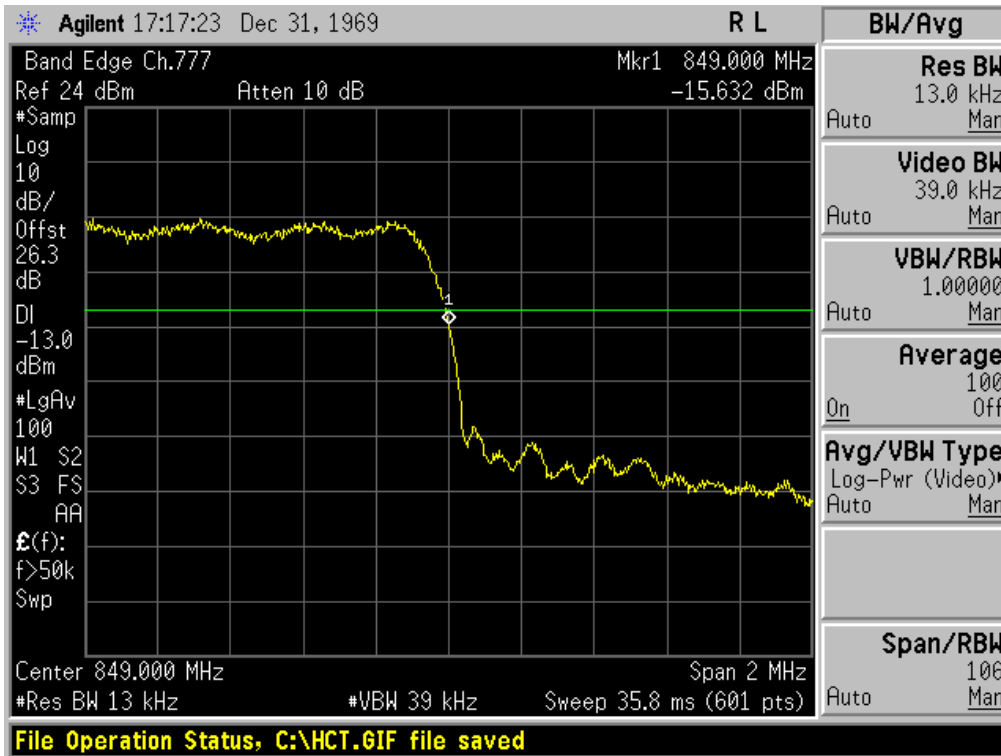
■ CDMA EVDO MODE (1013 CH.) Occupied Bandwidth



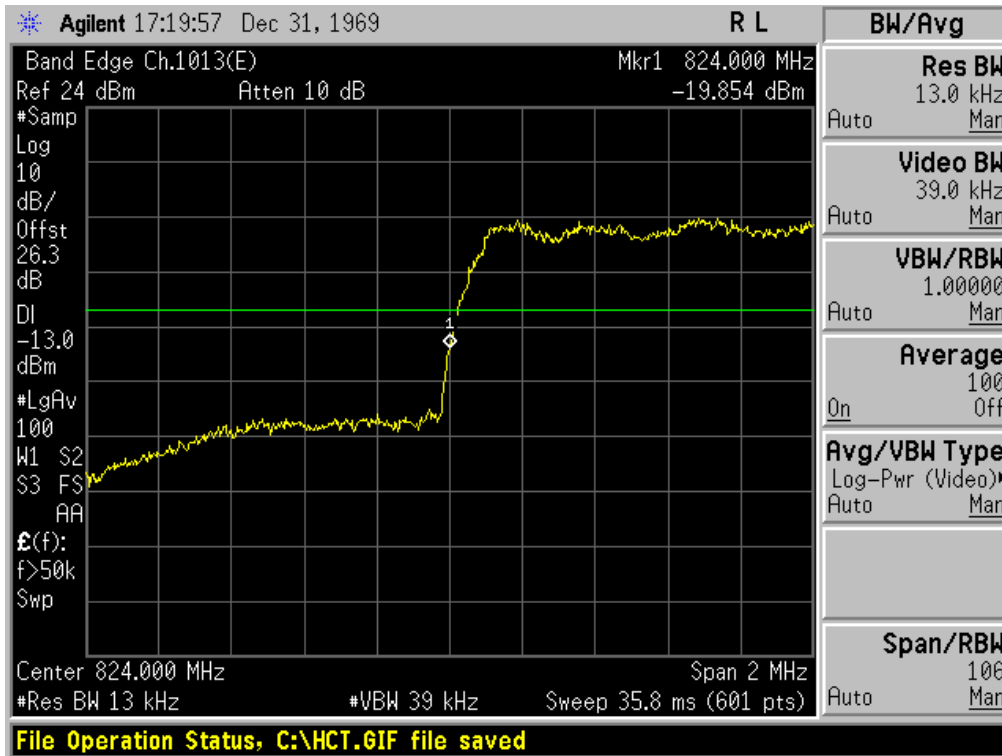
■ CDMA MODE (1013 CH.) Block Edge



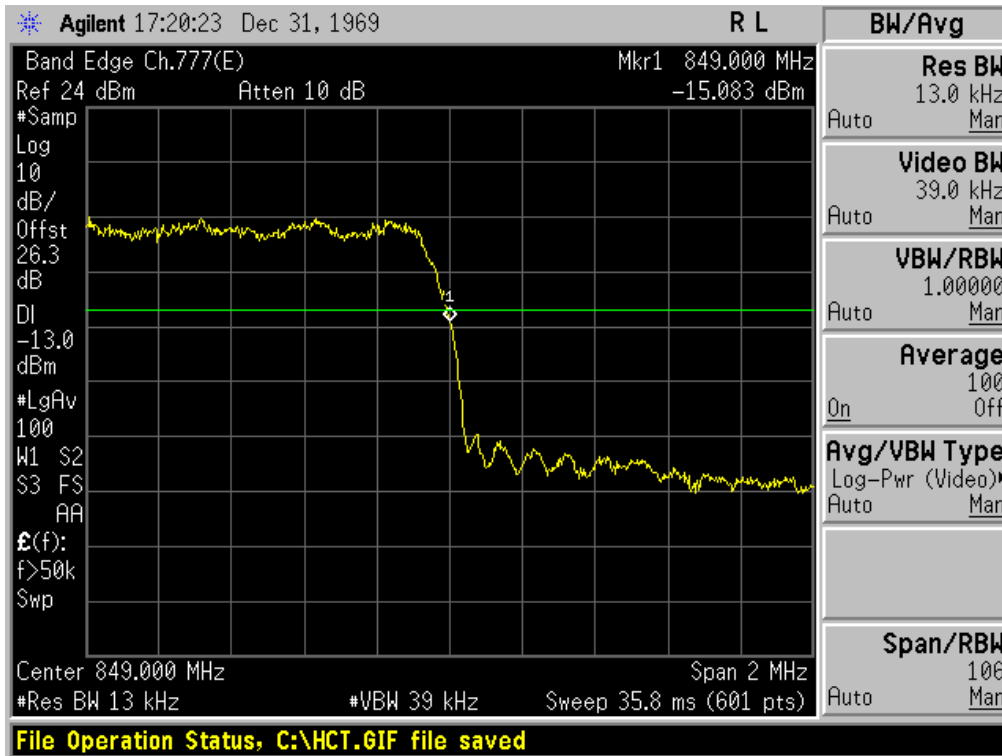
■ CDMA MODE (777 CH.) Block Edge



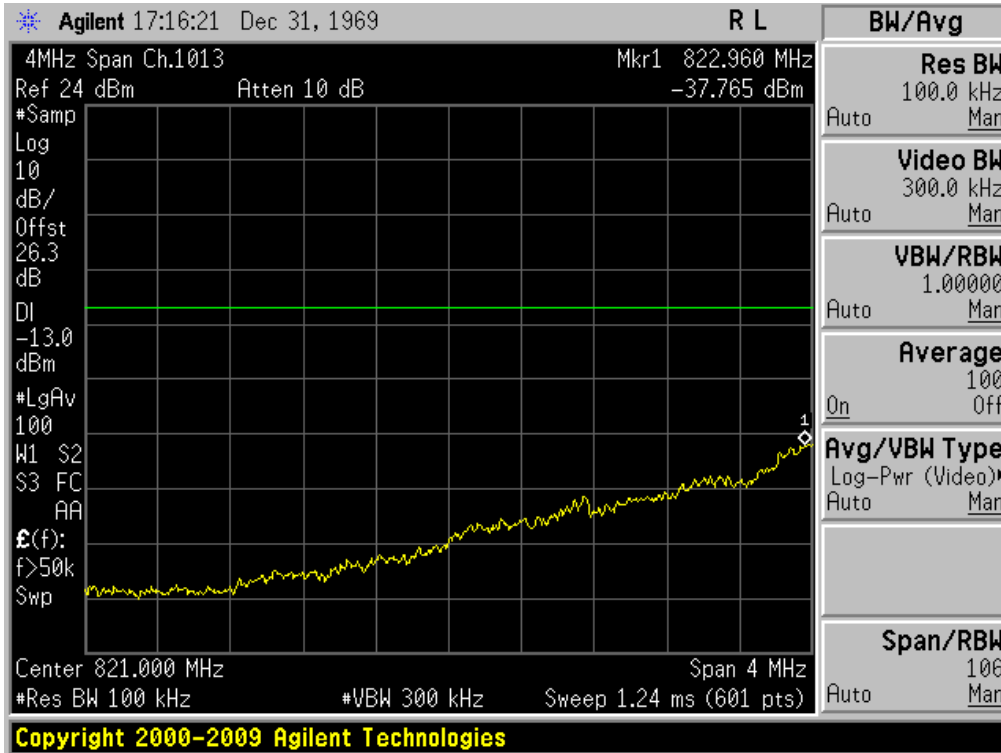
■ CDMA EVDO MODE (1013 CH.) Block Edge



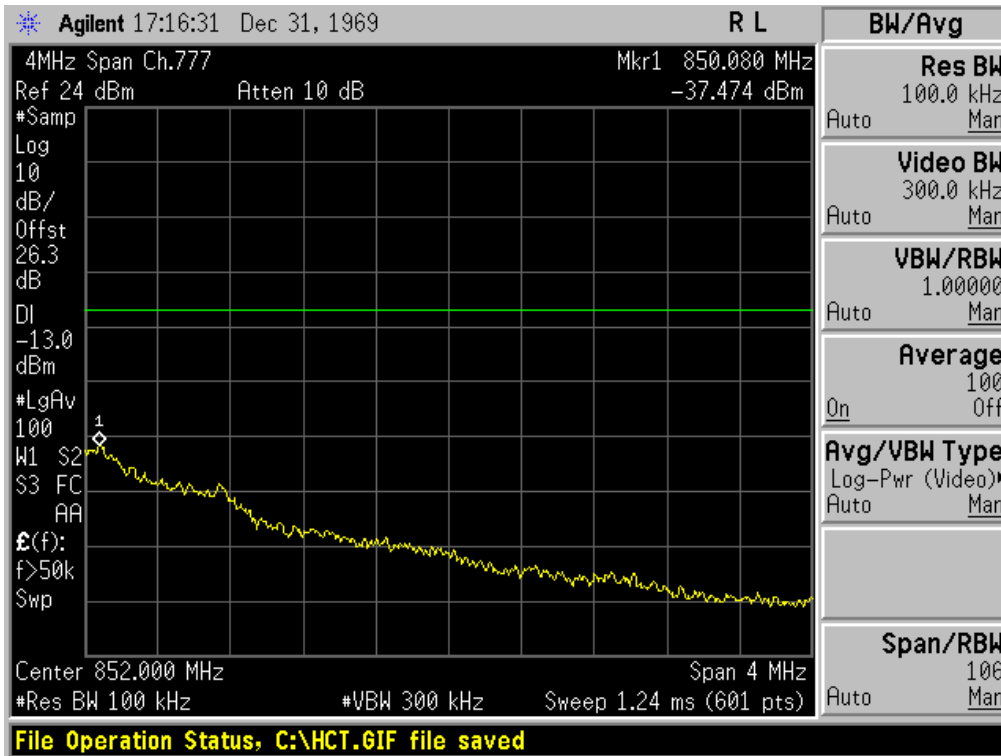
■ CDMA EVDO MODE (777 CH.) Block Edge



■ CDMA MODE (1013 CH.) 4 MHz Span

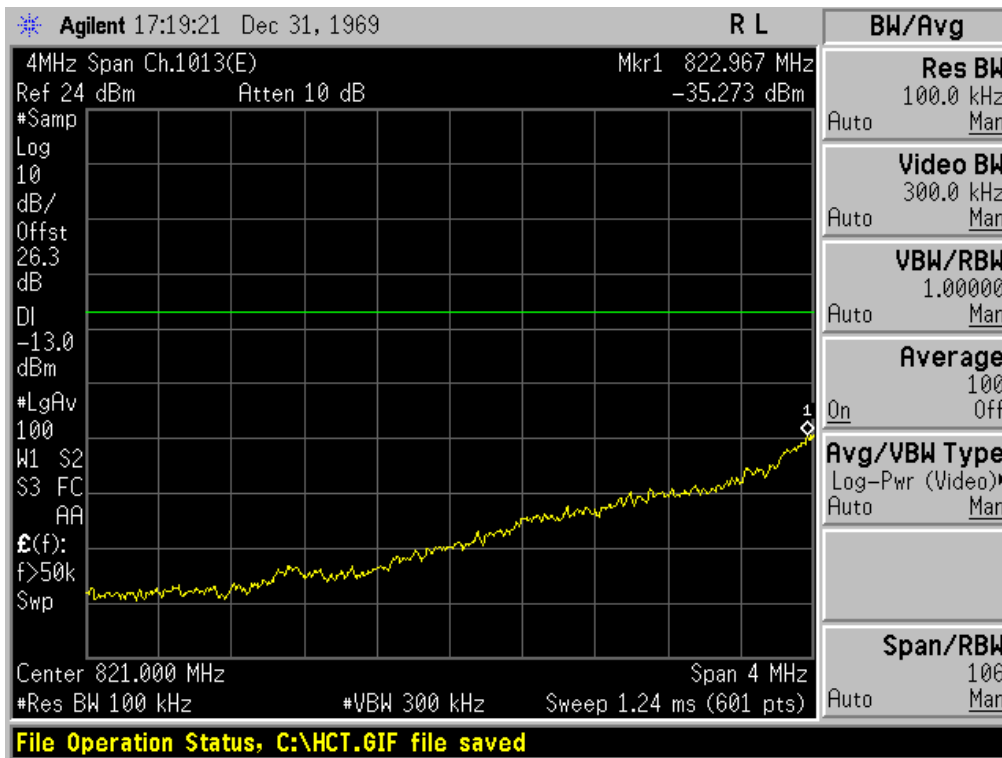


■ CDMA MODE (777 CH.) 4 MHz Span

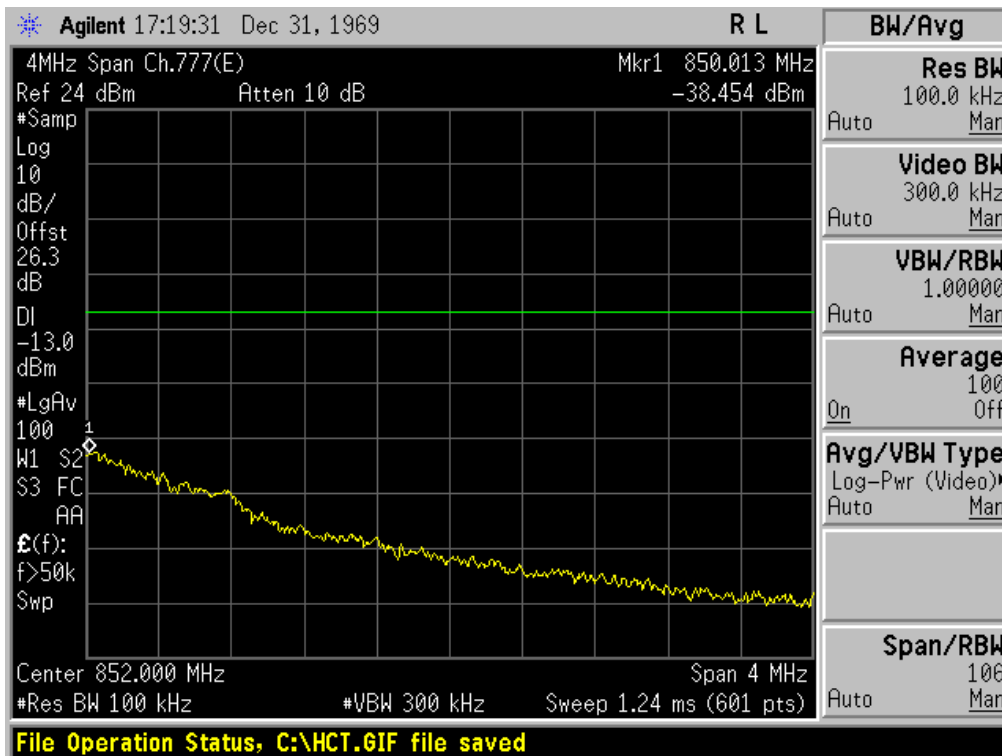


FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1309FR08	Date of Issue: September 16, 2013	EUT Type: CDMA 1xEVDO Data Modem	FCC ID: XHG-FDM650

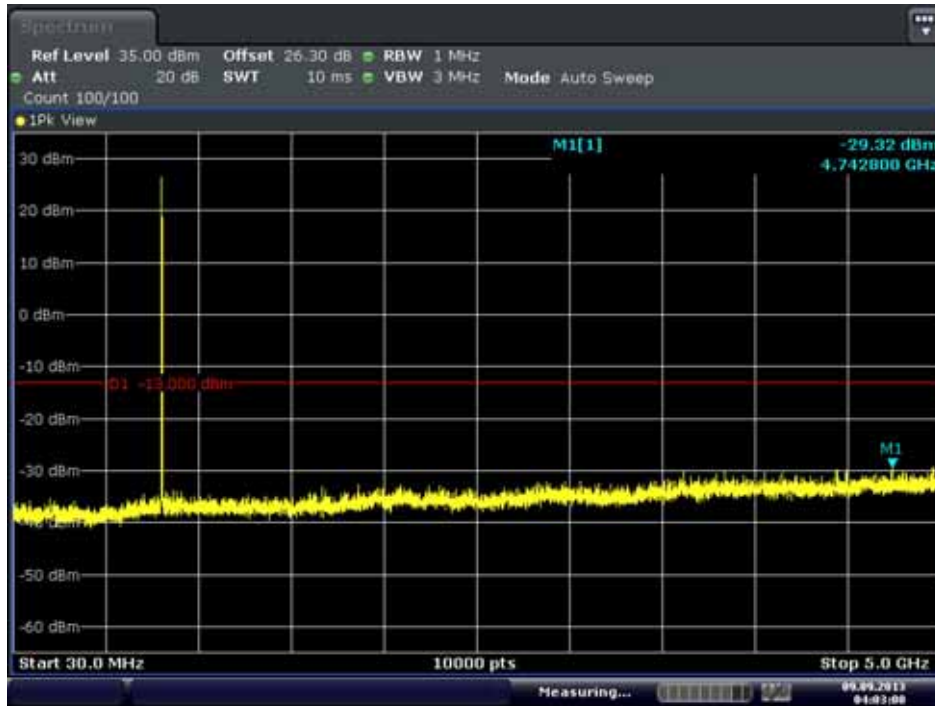
■ CDMA EVDO MODE (1013 CH.) 4 MHz Span



■ CDMA EVDO MODE (777 CH.) 4 MHz Span

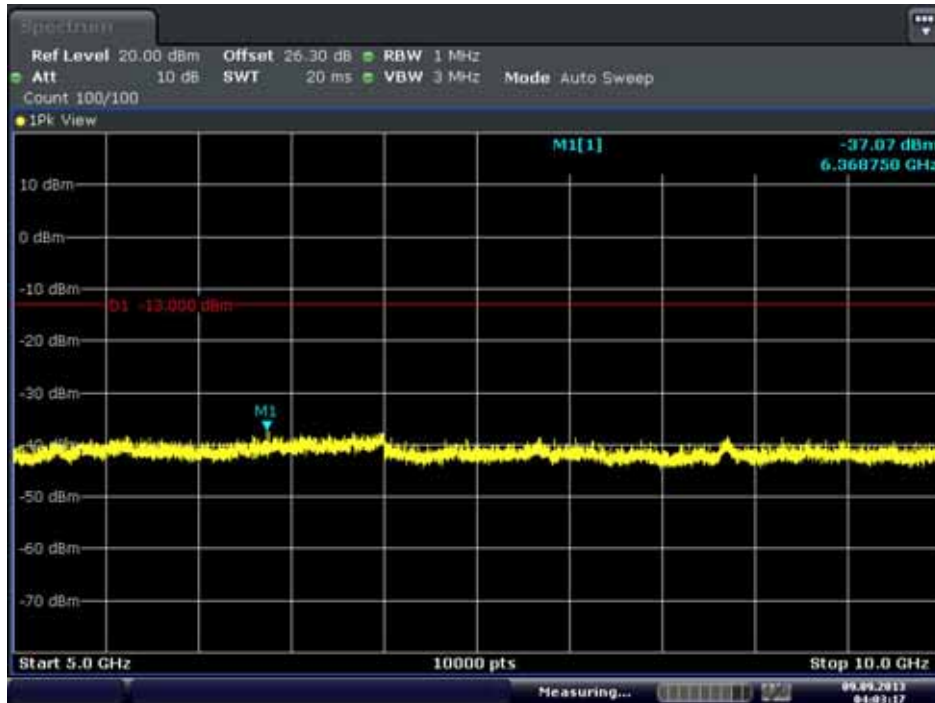


■ CDMA MODE (1013 CH.) Conducted Spurious Emissions - 1



Date: 9.SEP.2013 04:03:00

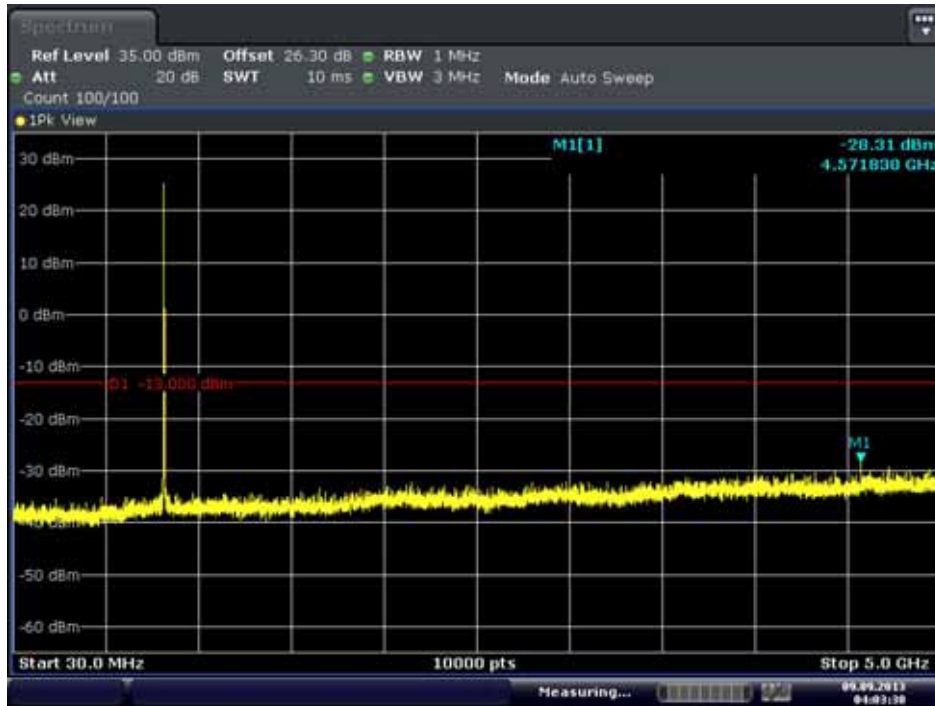
■ CDMA MODE (1013 CH.) Conducted Spurious Emissions - 2



Date: 9.SEP.2013 04:03:17

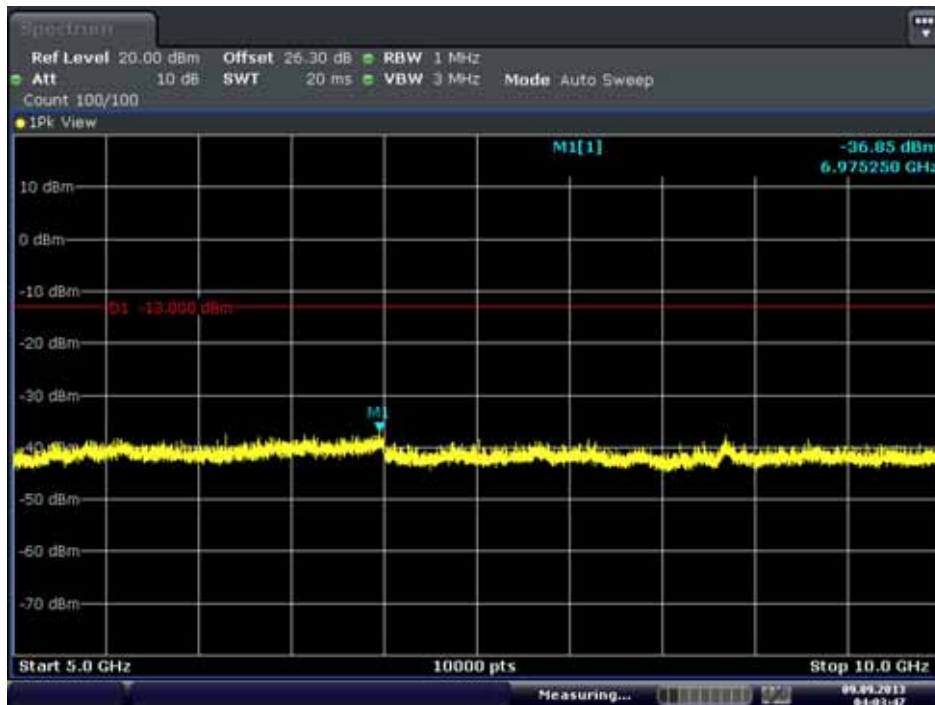
FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1309FR08	Date of Issue: September 16, 2013	EUT Type: CDMA 1xEVDO Data Modem	FCC ID: XHG-FDM650

■ CDMA MODE (384 CH.) Conducted Spurious Emissions - 1



Date: 9. SEP. 2013 04:03:30

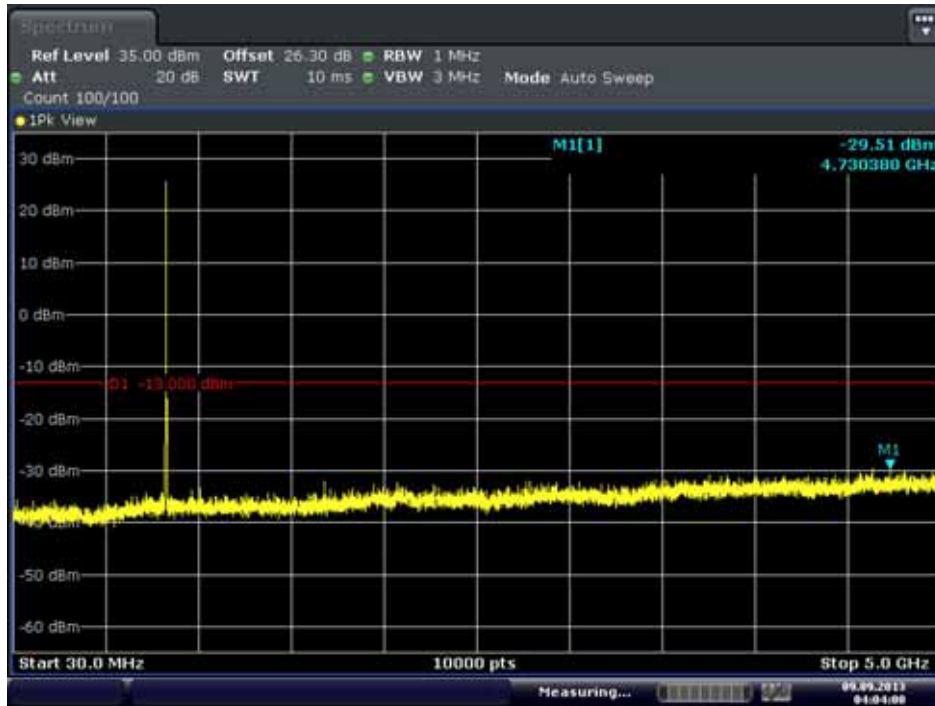
■ CDMA MODE (384 CH.) Conducted Spurious Emissions - 2



Date: 9. SEP. 2013 04:03:47

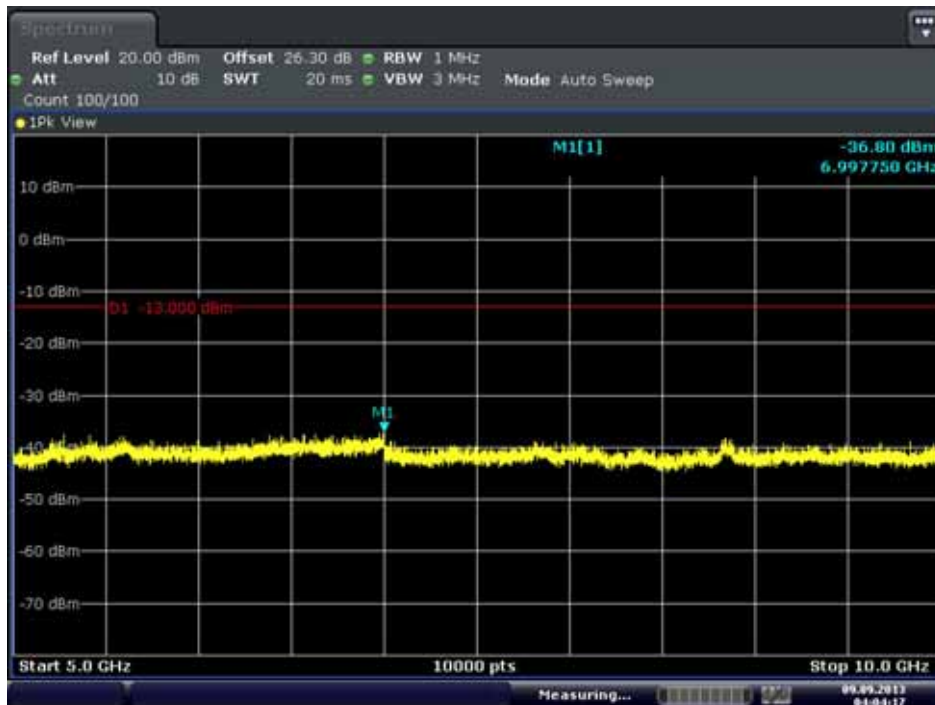
FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1309FR08	Date of Issue: September 16, 2013	EUT Type: CDMA 1xEVDO Data Modem	FCC ID: XHG-FDM650

■ CDMA MODE (777 CH.) Conducted Spurious Emissions - 1



Date: 9.SEP.2013 04:04:00

■ CDMA MODE (777 CH.) Conducted Spurious Emissions - 2



Date: 9.SEP.2013 04:04:17

FCC CERTIFICATION REPORT			www.hct.co.kr
Test Report No. HCTR1309FR08	Date of Issue: September 16, 2013	EUT Type: CDMA 1xEVDO Data Modem	FCC ID: XHG-FDM650