

HCT CO., LTD.

CERTIFICATE OF COMPLIANCE FCC Class II Permissive Change

Applicant Name:
M Seven System Ltd.

Address:
24F, Trust Tower Bldg., 275-7, Yangjae 2-Dong, Seoul,
Korea(137-739)

Date of Issue:
March 03, 2011

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

Test Report No.: HCTR1102FR05-1

HCT FRN: 0005866421

IC Recognition No.: IC 5944A-2

FCC ID : XOECDMRF101B

APPLICANT : M Seven System Ltd.

Model(s): 28235591

EUT Type: Dual Band CDMA 1x / GPS(Module)

Tx Frequency: 824.70 — 848.31 MHz (CDMA)
1 851.25 — 1 908.75 MHz (PCS CDMA)

Rx Frequency: 869.70 — 893.31 MHz (CDMA)
1 931.25 — 1 988.75 MHz (PCS CDMA)

FCC Classification: PCS Licensed Transmitter (PCB)

FCC Rule Part(s): §22, §24, §2

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

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCTR1102FR05	February 23, 2011	- First Approval Report
HCTR1102FR05-1	March 03, 2011	- Radiated Spurious and Harmonic Emissions Report For Permissive Change

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name: M Seven System Ltd.

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FCC ID: XOECDMRF101B

Application Type: FCC Class II Permissive Change

FCC Classification: PCS Licensed Transmitter (PCB)

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Rx Frequency: 869.70 — 893.31 MHz (CDMA)
1 931.25 — 1 988.75 MHz (PCS CDMA)

Antenna Specification Manufacturer: HANWOOL TECHNOLOGY
Antenna type: monopole Antenna
Peak Gain: -2.00 dBi

Date(s) of Tests: February 01, 2011 ~ February 07, 2011

2. INTRODUCTION

2.1. EUT DESCRIPTION

The M Seven System Ltd. 28235591 Dual Band CDMA 1x / GPS(Module) consists of Cellular CDMA and PCS.

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.

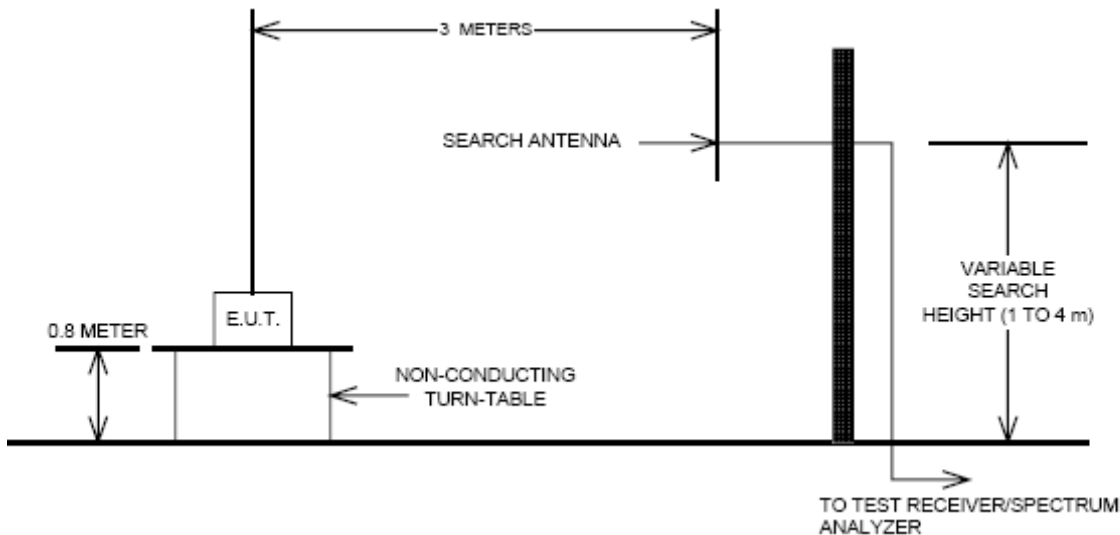
2.3. TEST FACILITY

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 June 10, 2009 (Registration Number: 90661)

3. DESCRIPTION OF TESTS

3.1 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 SAC(Semi-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 styrofoam platform mounted at three from the antenna mast.

- 1) The unit mounted on a styrofoam 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 styrofoam resin table 3-meters from the receive antenna. A styrofoam 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.

Note : This device was tested under all R.C.s and S.O.s and worst case is reported with RC1/SO55(CDMA) and RC3/SO55(PCS), with 'All Up' power control bits.

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4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
R&S	ESI40/ Spectrum Analyzer	831564/003	Annual	10/29/2011
Agilent	E4416A/ Power Meter	GB41291412	Annual	01/04/2012
Agilent	E9327A/ Power Sensor	MY4442009	Annual	07/23/2011
Agilent	8960 (E5515C)/ Base Station	GB44400269	Annual	02/10/2012
MITEQ	AMF-6D-001180-35-20P/AMP	990893	Annual	05/20/2011
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	06/25/2011
Wainwright	WHK3.3/18G-10EF/H.P.F	1	Annual	06/25/2011
Agilent	775D/ Dual Directional Coupler	12922	Annual	12/29/2011
Agilent	11636B/ Power Divider	11377	Annual	12/29/2011
Digital	EP-3010/ Power Supply	3110117	Annual	01/04/2012
Schwarzbeck	UHAP/ Dipole Antenna	949	Biennial	03/18/2012
Schwarzbeck	UHAP/ Dipole Antenna	950	Biennial	03/18/2012
Korea Engineering	KR-1005L / Chamber	KRAB07063-2CH	Annual	12/28/2011
Schwarzbeck	BBHA 9120D/ Horn Antenna	296	Biennial	09/23/2011
Schwarzbeck	BBHA 9120D/ Horn Antenna	147	Biennial	04/13/2012
Agilent	E4440A/Spectrum Analyzer	US45303008	Annual	06/09/2011

5. TEST DATA

5.1 RADIATED SPURIOUS EMISSIONS

5.1.1 RADIATED SPURIOUS EMISSIONS(CDMA Mode)

■ MEASURED OUTPUT POWER: 25.93 dBm = 0.392 W
 ■ MODULATION SIGNAL: CDMA
 ■ DISTANCE: 3 meters
 ■ LIMIT: - (43 + 10 log₁₀ (W)) = - 38.93 dBc

Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
1013	1,649.40	-56.50	7.09	-67.03	1.73	V	-61.67	-87.60
	2,474.10	-	-	-	-	-	-	-
	3,298.80	-	-	-	-	-	-	-
384	1,673.04	-58.29	7.23	-69.05	1.79	H	-63.61	-89.54
	2,509.56	-	-	-	-	-	-	-
	3,346.08	-	-	-	-	-	-	-
777	1,696.62	-55.26	7.41	-65.87	1.83	H	-60.29	-86.22
	2,544.93	-	-	-	-	-	-	-
	3,393.24	-	-	-	-	-	-	-

- NOTES:**
1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method 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 all channel.
 3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

5.1.2 RADIATED SPURIOUS EMISSIONS(PCS Mode)

- ☐ MEASURED OUTPUT POWER: 21.10 dBm = 0.129 W
☐ MODULATION SIGNAL: PCS CDMA
☐ DISTANCE: 3 meters
☐ LIMIT: - (43 + 10 log₁₀ (W)) = - 34.10 dBc

Ch.	Freq.(MHz)	Measured Level [dBm]	Ant. Gain	Substitute Level [dBm]	C.L	Pol.	EIRP (dBm)	dBc
25	3,702.50	-55.49	12.46	-61.76	2.73	V	-52.03	-73.13
	5,553.75	-	-	-	-	-	-	-
	7,405.00	-	-	-	-	-	-	-
600	3,760.00	-46.19	12.47	-52.16	2.73	V	-42.42	-63.52
	5,640.00	-	-	-	-	-	-	-
	7,520.00	-	-	-	-	-	-	-
1175	3,817.50	-41.06	12.49	-46.94	2.73	V	-37.18	-58.28
	5,726.25	-	-	-	-	-	-	-
	7,635.00	-	-	-	-	-	-	-

- NOTES:**
1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method 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 all channel.
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