

	Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
	Measurement Date(s):	May 12, 22 - 23, 2008	Test Report Revision No.:	Revision 1.0
	Measurement Standard(s):	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132 & RSS-133	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## RF MEASUREMENT REPORT (FCC/IC)


### ELECTROMAGNETIC COMPATIBILITY (EMC)

<b>APPLICANT</b>	GENERAL DYNAMICS ITRONIX CORPORATION		
<b>DEVICE UNDER TEST (DUT)</b>	DUAL-BAND CDMA/EVDO MINI-PCI EXPRESS CARD		
<b>DEVICE MODEL(S)</b>	IX-MC5725		
<b>DEVICE IDENTIFIER(S)</b>	<b>FCC ID:</b>	KBCIX-MC5725	<b>IC:</b> 1943A-MC5725
<b>HOST PC</b>	GD ITRONIX CORP. RUGGED HANDHELD PC MODEL: IX750		
<b>APPLICATION TYPE</b>	Class II Permissive Change to Limited Modular Approval		
<b>DESCRIPTION OF CHANGE(S)</b>	Add IX750 Host PC		
<b>STANDARD(S) &amp; PROCEDURE(S)</b>	FCC 47 CFR	Part 2	
		Part 22 Subpart H	
		Part 24 Subpart E	
	Industry Canada	RSS-132 Issue 2	
		RSS-133 Issue 4	
		RSS-GEN Issue 2	
ANSI	TIA/EIA-603-C-2004		
<b>FCC DEVICE CLASSIFICATION(S)</b>	PCS Licensed Transmitter (PCB)	47 CFR §24 Subpart E	
<b>IC DEVICE CLASSIFICATION(S)</b>	2 GHz Personal Communication Services	RSS-133 Issue 4	
	800 MHz Cellular Telephones Employing New Technologies	RSS-132 Issue 2	
<b>DATE(S) OF EVALUATION(S)</b>	May 12, 22 - 23, 2008		
<b>TEST REPORT SERIAL NO.</b>	050508KBC-T901-E24C		
<b>TEST REPORT REVISION NO.</b>	Revision 1.0	Initial Release	June 12, 2008
<b>TEST REPORT SIGNATORIES</b>	Sean Johnston	Lab Manager	Celltech Labs Inc.
<b>TEST LAB AND LOCATION</b>	Celltech Compliance Testing and Engineering Lab		
	21-364 Loughheed Road, Kelowna, B.C. V1X 7R8 Canada		
<b>TEST LAB CONTACT INFO.</b>	Tel.: 250-765-7650		Fax: 250-765-7645
	info@celltechlabs.com		www.celltechlabs.com


<b>Applicant:</b>	GD Itronix Corporation	<b>FCC ID:</b>	KBCIX-MC5725	<b>IC:</b>	1943A-MC5725	
<b>DUT Model:</b>	IX-MC5725	<b>DUT Type:</b>	Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC			
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## DECLARATION OF COMPLIANCE ELECTROMAGNETIC COMPATIBILITY

<b>Test Lab Information</b>	<b>Name</b>	<b>CELLTECH LABS INC.</b>							
	<b>Address</b>	21-364 Lougheed Road, Kelowna B.C. V1X 7R8 Canada							
<b>Test Lab Registration No.(s)</b>	<b>FCC</b>	714830							
	<b>IC</b>	3874A-1							
<b>Applicant Information</b>	<b>Name</b>	<b>GENERAL DYNAMICS ITRONIX CORPORATION</b>							
	<b>Address</b>	12825 E. Mirabeau Parkway, Spokane Valley, WA 92216 USA							
<b>Standard(s) &amp; Procedure(s)</b>	<b>FCC</b>	47 CFR Part 2	47 CFR Part 22 Subpart H	47 CFR Part 24 Subpart E					
	<b>IC</b>	RSS-132 Issue 2	RSS-133 Issue 4	RSS-Gen Issue 2					
	<b>ANSI</b>	TIA/EIA-603-C-2004							
<b>Device Classification(s)</b>	<b>FCC</b>	PCS Licensed Transmitter (PCB)			47 CFR §24(E)				
	<b>IC</b>	2 GHz Personal Communication Services			RSS-133 Issue 4				
		800 MHz Cellular Telephones Employing New Technologies			RSS-132 Issue 2				
<b>Application Type</b>	<b>FCC/IC</b>	Class II Permissive Change	Add New Host PC - GD Itronix Corp. Rugged Handheld PC Model: IX750						
<b>Device Identifier(s)</b>	<b>FCC ID:</b>	KBCIX-MC5725	<b>IC:</b>	1943A-MC5725	<b>Model</b>	IX-MC5725			
<b>Device Under Test (DUT)</b>	Dual-Band CDMA/EVDO Embedded PC Card		<b>Modes</b>	CDMA 1xRTT	1xEv-Do Rev. 0	1xEv-DO Rev. A			
<b>Host PC Description</b>	Rugged Handheld PC Model: IX750		<b>Manufacturer</b>	General Dynamics Itronix Corporation					
<b>Co-located Transmitter(s)</b>	IX-WL3945 802.11abg WLAN	FCC ID: KBCIX-WL3945	IC: 1943A-WL3945	No co-transmission with IX-MC5725					
	IX-EYXFDC Class 2 Bluetooth	FCC ID: KBCIX-EYXFDC	IC: 1943A-EYXFDC	Co-transmission with IX-MC5725					
<b>Test Sample Serial No.(s)</b>	IX-MC5725	D240508313520	Production Unit	IX750 Host PC	ZZGEG8059ZZ7258	Identical Prototype			
<b>Transmit Frequency Range(s)</b>	<b>Cell Band</b>	824.70 - 848.31 MHz		<b>PCS Band</b>	1851.25 - 1908.75 MHz				
<b>Max. RF Output Power Tested</b>	<b>Band</b>	<b>Mode</b>	<b>Frequency</b>	<b>Channel</b>	<b>dBm</b>	<b>Watts</b>	<b>Method</b>		
			1851.25 MHz	25	20.72	0.118	EIRP		
			1880.00 MHz	600	21.72	0.149	EIRP		
	PCS	1xEv-Do Rev. 0 (RTAP, 153.6 kbps)	1908.75 MHz	1175	19.72	0.094	EIRP		
			Cellular	1xEv-Do Rev. 0 (RTAP, 153.6 kbps)	824.70 MHz	1013	21.30	0.135	ERP
					836.52 MHz	384	24.40	0.275	ERP
848.31 MHz	777	24.60			0.288	ERP			
<b>Antenna Type(s) Tested</b>	Internal - Top Right Side of LCD Display		Manufacturer: Pulse		Model: W3530				
<b>Power Source(s) Tested</b>	Lithium-ion Rechargeable Smart Battery (Standard Capacity)		7.4V	4.0Ah	Model: IX750-29WHR				
	AC Power Adapter		Manufactured by Delta Electronics Inc.		Model: ADP-48HB B				
<p>This wireless device has demonstrated compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR Rule Parts 2, 22H, 24E; Industry Canada RSS-132 Issue 2, RSS 133 Issue 4, RSS-GEN and ANSI TIA/EIA-603-C-2004.</p> <p>I attest to the accuracy of data. All measurements were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.</p> <p>The results and statements contained in this report pertain only to the device(s) evaluated.</p> <p>This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc.</p>									
<b>Test Report Approved By</b>			<b>Sean Johnston</b>	<b>Celltech Labs Inc.</b>					



<b>Applicant:</b>	<b>GD Itronix Corporation</b>	<b>FCC ID:</b>	<b>KBCIX-MC5725</b>	<b>IC:</b>	<b>1943A-MC5725</b>	
<b>DUT Model:</b>	<b>IX-MC5725</b>	<b>DUT Type:</b>	<b>Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC</b>			
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

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TEST SUMMARY						
Referenced Standard(s):		FCC CFR Title 47 Parts 2, 22 & 24				
Appendix	Test Description	Procedure Reference	Limit Reference	Test Start Date	Test End Date	Result
A	Conducted RF Output Power	FCC 97-114, §2.1046	N/A	May 12	May 12	N/A
B	Effective Radiated Power	ANSI/TIA/EIA-603-C	§22.913	May 22	May 22	Pass
	Effective Isotropic Radiated Power	ANSI/TIA/EIA-603-C	§24.232(c)	May 22	May 22	Pass
C	Radiated TX Spurious Emissions	ANSI/TIA/EIA-603-C	§22.917 (a)	May 23	May 23	Pass
			§24.238 (a)			
Referenced Standard(s):		IC RSS-132 Issue 2 & RSS-133 Issue 4				
A	Conducted RF Output Power	RSS-Gen §4.8	N/A	May 12	May 12	N/A
B	Effective Radiated Power	ANSI/TIA/EIA-603-C	SRSP-503 §5.1.3	May 22	May 22	Pass
	Effective Isotropic Radiated Power	ANSI/TIA/EIA-603-C	SRSP-510 §5.1.2	May 22	May 22	Pass
C	Radiated TX Spurious Emissions	RSS-Gen §4.9	RSS-132 §4.5	May 23	May 23	Pass
			RSS-133 §4.4			

### REVISION LOG

Revision	Description	Implemented By	Implementation Date
1.0	Initial Release	Jonathan Hughes	June 12, 2008

### SIGNATORIES

Prepared By		June 04, 2008
Name/Title	Sean Johnston / Lab Manager	Date

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## 1.0 SCOPE


This report outlines the measurements made and results collected during electromagnetic emissions testing of the General Dynamics Itronix Corporation Model: IX-MC5725 Dual-Band CDMA/EV-DO Mini-PCI Express Card installed in the IX750 Rugged Handheld PC utilizing the internal antenna installed in the top right side of the LCD display. The measurement results were applied against the applicable EMC requirements and limits outlined in the technical rules and regulations set forth in the Federal Communication's Commission Code of Federal Regulations Title 47 Parts 2, 22 Subpart H and 24 Subpart E; and Industry Canada Radio Standards Specification RSS-132 Issue 2, RSS-133 Issue 4 and RSS-GEN Issue 2.

## 2.0 REFERENCES

### 2.1 Normative References


ANSI/ISO 17025:2005	General Requirements for competence of testing and calibration laboratories
IEEE/ANSI C63.4:2003	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
IEEE/ANSI C95.1:2005	American National Standard Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields
ANSI/TIA/EIA-603-C:2004	Land Mobile FM or PM Communication Equipment Measurement and Performance Standards
CFR Title 47 Part 2:2007	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR Title 47 Part 22:2007	Code of Federal Regulations Title 47: Telecommunication Part 22: Public Mobile Services
CFR Title 47 Part 24:2007	Code of Federal Regulations Title 47: Telecommunication Part 24: Personal Communication Services
IC Spectrum Management & Telecommunications Policy	Radio Standards Specification RSS-132 Issue 2 - 800 MHz Cellular Telephones Employing New Technologies RSS-133 Issue 4 - 2 GHz Personal Communication Services RSS-Gen Issue 2 - General Requirements and Information for the Certification of Radiocommunication Equipment SRSP-503 Issue 6 - Technical Requirements for Cellular Radiotelephone Systems Operating in the Bands 824 - 849 MHz and 869 - 894 MHz SRSP-510 Issue 4 - Technical Requirements for Personal Communications Services in the Bands 1850 - 1910 MHz and 1930 - 1990 MHz

<b>Applicant:</b>	<b>GD Itronix Corporation</b>	<b>FCC ID:</b>	<b>KBCIX-MC5725</b>	<b>IC:</b>	<b>1943A-MC5725</b>	
<b>DUT Model:</b>	<b>IX-MC5725</b>	<b>DUT Type:</b>	<b>Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC</b>			
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### 3.0 TERMS AND DEFINITIONS

AV	Average
CDMA	Code Division Multiple Access
CFR	Code of Federal Regulations
dB	decibel
dBm	dB referenced to 1 mW
dBuV	dB referenced to 1 uV
DUT	Device Under Test
dBc	dB down from carrier
EBW	Emission Bandwidth
EDGE	Enhanced Data Rates for GSM Evolution
EIRP	Effective Isotropic Radiated Power
EMC	Electromagnetic Compatibility
ERP	Effective Radiated Power
EV-DO	Evolution - Data Optimized
FCC	Federal Communications Commission
FHSS	Frequency Hopping Spread Spectrum
GSM	Global Systems for Mobile Communication
GMRS	General Mobile Radio Service
GPRS	General Packet Radio Service
HP	Hewlett Packard
HPF	High Pass Filter
Hpol	Horizontal Polarization
HSDPA	High Speed Downlink Packet Access
HSUPA	High Speed Uplink Packet Access
Hz	Hertz
IC	Industry Canada
kHz	kilohertz
LNA	Low Noise Amplifier
m	meter
MHz	Megahertz
Mbps	megabits per second
na	not applicable
n/a	not available
PK	Peak
PPSD	Peak Power Spectral Density
QP	Quasi-peak
RBW	Resolution Bandwidth
R&S	Rohde & Schwarz
RSS	Radio Standard Specification
SA	Spectrum Analyzer
UMTS	Universal Mobile Telecommunications System
VBW	Video Bandwidth
Vpol	Vertical Polarization
WCDMA	Wide CDMA

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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

#### 4.0 FACILITIES AND ACCREDITATIONS

The facilities used in collecting the test results outlined in this report are located at 21-364 Lougheed Road, Kelowna, British Columbia, Canada V1X 7R8. The radiated emissions site conforms to the requirements set forth in ANSI C63.4 and is filed and listed with the FCC under Registration Number 714830 and Industry Canada under File Number IC 3874A-1.

#### 5.0 GENERAL INFORMATION

##### 5.1 Applicant Information

<b>Company Name</b>	<b>GENERAL DYNAMICS ITRONIX CORPORATION</b>
<b>Address</b>	12825 E. Mirabeau Parkway
	Spokane Valley, WA 99216
	United States

##### 5.2 DUT Description


The DUT consisted of the Sierra Wireless MC5725 Dual-Band CDMA/EV-DO Mini-PCI Express Card installed in the General Dynamics Itronix Corporation IX750 Rugged Handheld PC.

<b>Device Type</b>	Dual-Band CDMA/EV-DO Mini-PCI Card	<b>Model</b>	IX-MC5725	<b>Serial No.</b>	D240508313520
<b>Host PC Type</b>	Rugged Handheld PC	<b>Model</b>	IX750	<b>Serial No.</b>	ZZGEG8059ZZ7258
<b>PC Card Manufacturer</b>	Sierra Wireless Inc.	<b>Host PC Manufacturer</b>	General Dynamics Itronix Corporation		
<b>Device Identifier(s)</b>	<b>FCC ID:</b> KBCIX-MC5725	<b>IC:</b>	1943A-MC5725		
<b>Battery Type(s)</b>	Lithium-ion Rechargeable Smart Battery	7.4V	4.0Ah	Model: IX750-29WHR	
<b>Co-located Transmitter</b>	IX-WL3945 802.11a/b/g WLAN Mini-PCI Card		Does not co-transmit with IX-MC5725		
	IX-EYXFDC Class 2 Bluetooth Module		Does co-transmit with IX-MC5725		
<b>Power Source Tested</b>	AC Power Adapter	Delta Electronics Inc.		Model: ADP-48HB B	
<b>Antenna Type Tested</b>	Internal (Top Right Side of LCD Display)		Manufacturer: Pulse	Model: W3530	

##### 5.3 Rule Part(s) & Classification(s)

<b>Rule Part(s) Applied</b>	<b>FCC</b>	47 CFR §2; §22(H), §24(E)
	<b>IC</b>	RSS-132 Issue 2, RSS-133 Issue 4, RSS-Gen Issue 2
<b>Device Classification(s)</b>	<b>FCC</b>	PCS Licensed Transmitter (PCB)
	<b>IC</b>	800 MHz Cellular Telephones employing New Technologies (RSS-132)
		2 GHz Personal Communication Services (RSS-133)



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## 5.4 Mode(s) of Operation Tested

### 5.4.1 Dual-Band CDMA/EV-DO Modem

Measurements were made with the DUT set to the low, mid and high channel in each band or on a worst-case channel for the measurement, as determined by prescan evaluations.

#### 5.4.1.1 Cellular CDMA/EV-DO

<b>Transmitter Frequency Range</b>	824.70 - 848.31 MHz		
<b>Transmitter Test Channels</b>	Ch. 1013 (824.70 MHz) - Low	Ch. 384 (836.52 MHz) - Mid	Ch. 777 (848.31 MHz) - High
<b>Software Power Gain Settings</b>	Set by CDMA communications test set for "all ups"		
<b>Modulation Type(s)</b>	QPSK		

#### 5.4.1.2 PCS CDMA/EV-DO

<b>Transmitter Frequency Range</b>	1851.25 - 1908.75 MHz		
<b>Transmitter Test Channels</b>	Ch. 25 (1851.25 MHz) - Low	Ch. 600 (1880.00 MHz) - Mid	Ch. 1175 (1908.75 MHz) - High
<b>Software Power Gain Settings</b>	Set by CDMA communications test set for "all ups"		
<b>Modulation Type(s)</b>	QPSK		

## 5.5 Configuration Description

EV-DO transmission in Rev. 0 RTAP mode was utilized as worst-case power mode for both cellular and PCS bands.

### 5.5.1 Configuration Justification


The DUT was tested in a configuration described by the client as being typical of normal use.

### 5.5.2 Transmitter Configuration(s)


<b>Optional Co-located Transmitter Configurations</b>	802.11abg WLAN Mini-PCI Card	Model: IX-WL3945	FCC ID: KBCIX-WL3945	IC: 1943A-WL3945
	Class 2 Bluetooth Module	Model: IX-EYXFDC	FCC ID: KBCIX-EYXFDC	IC: 1943A-EYXFDC
	The co-located transmitters do not share common antennas.			
	The IX-MC5725 and IX-WL3945 WLAN do not co-transmit (please refer to applicant's attestation letter).			
	The IX-MC5725 CDMA and IX-EYXFDC Bluetooth can co-transmit. Co-transmit radiated spurious emissions were investigated and found to be in compliance. Distance between CDMA and Bluetooth antennas: 7 cm			

## 6.0 PASS/FAIL CRITERIA

Unless otherwise noted in the Appendices, the pass/fail criteria is the limit set forth in the reference standards. The DUT is considered to have passed the requirements if the data collected during the described measurement procedure is no greater than the specified limits as defined. The pass/fail statements made in this report only apply to the unit tested.

<b>Applicant:</b>	<b>GD Itronix Corporation</b>	<b>FCC ID:</b>	<b>KBCIX-MC5725</b>	<b>IC:</b>	<b>1943A-MC5725</b>	
<b>DUT Model:</b>	<b>IX-MC5725</b>	<b>DUT Type:</b>	<b>Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC</b>			
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### Appendix A - Conducted RF Output Power Measurement

#### A.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §2.1046(b)
<b>Procedure Reference</b>	FCC 97-114

#### A.2 LIMITS

##### A.2.1 FCC CFR 47

FCC CFR 47 §2.1046 (b)	For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as follows. In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.
------------------------	---

\*ERP and EIRP limits are specified in Appendix B.

#### A.3 ENVIRONMENTAL CONDITIONS

<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa


#### A.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr09
none	Agilent	8960A	Radio Communications Test Set	27May07	13Jun09
00007	Gigatronics	8652A	Power Meter	23Apr08	23Apr09
00014	Gigatronics	80701A	Power Sensor	23Apr08	23Apr09
00078	Pasternack	PE2214-20	Directional Coupler 1-18 GHz	n/a*	n/a*

\*Verified with power meter prior to use

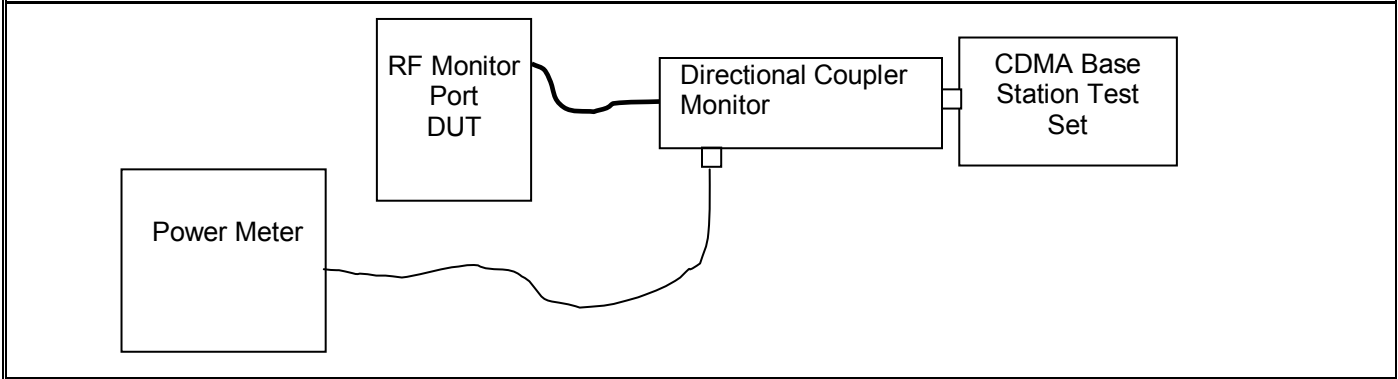
#### A.5 MEASUREMENT EQUIPMENT SETUP

<b>Equipment Connections</b>	The equipment was connected as shown in the setup drawing in A.6.
<b>Equipment Settings</b>	Offset - set to include loss through cable and directional coupler.
<b>Measurement Procedure</b>	The channel was set on the base station and the resulting power measurement recorded and reported herein.

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## A.6 SETUP DRAWING


Figure A.6-1 - Setup Drawing



## A.7 DUT OPERATING DESCRIPTION

Power measurements were made in the cellular and PCS bands with the DUT set appropriately as described in Section 5.4. Power measurements were made in CDMA1xRTT, 1xEVDO Rev. 0 and Rev. A modes and the worst-case mode is reported.

Applicant:	GD Itronix Corporation	FCC ID:	KBCIX-MC5725	IC:	1943A-MC5725	
DUT Model:	IX-MC5725	DUT Type:	Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC			
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	Measurement Date(s):	May 12, 22 - 23, 2008	Test Report Revision No.:	Revision 1.0
	Measurement Standard(s):	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132 & RSS-133	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## A.8 TEST RESULTS

### A 8.1 1xEV-DO Rev. 0

#### Power Measurement Procedures

This procedure assumes the Agilent 8960 Series 10 E5515C Wireless Communications Test Set contains the following applications installed and with valid license.

<b><u>Application</u></b>	<b><u>Rev. License</u></b>
---------------------------	----------------------------

1xEV-DO Terminal Test	A.07.13, L
-----------------------	------------

#### FTAP

- Call Setup → Shift & Preset
- Protocol Rev → 0 (1xEV-DO)
- Application Config → Enhanced Test Application Protocol → FTAP
- FTAP Rate → 307.2 kbps (2 Slot, QPSK)
- Access Network Info → Cell Parameters → Sector ID → (Didn't Need One) → Subnet Mask → 0
- Generator Info → Termination Parameters → Max Forward Packet Duration → 16 Slots
- Rvs Power Ctrl → All Bits Up (to get the maximum power)


#### RTAP

- Call Setup → Shift & Preset
- Protocol Rev → 0 (1xEV-DO)
- Application Config → Enhanced Test Application Protocol → RTAP
- RTAP Rate → 153.6 kbps
- Access Network Info → Cell Parameters → Sector ID → (Didn't Need One) → Subnet Mask → 0
- Generator Info → Termination Parameters → Max Forward Packet Duration → 16 Slots
- Rvs Power Ctrl → All Bits Up (to get the maximum power)

Average Conducted Power Measurements								
1xEv-Do Rev. 0								
Band	Freq. (MHz)	Channel	FTAP			RTAP		
			Rate (kbps)	dBm	Watts	Rate (kbps)	dBm	Watts
PCS	1851.25	25	307.2 (2 slot)	-	-	153.6	24.95	0.313
	1880.00	600		24.9	0.309		25.0	0.316
	1908.75	1175		-	-		24.8	0.302
Cellular	824.70	1013	307.2 (2 slot)	-	-	153.6	24.6	0.288
	836.52	384		23.5	0.224		24.6	0.288
	848.31	777		-	-		24.5	0.282

Note: Average conducted output power is reported to correlate output power levels with the SAR RF Exposure evaluation.

<b>Applicant:</b>	<b>GD Itronix Corporation</b>	<b>FCC ID:</b>	<b>KBCIX-MC5725</b>	<b>IC:</b>	<b>1943A-MC5725</b>	
<b>DUT Model:</b>	<b>IX-MC5725</b>	<b>DUT Type:</b>	<b>Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC</b>			
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### A.9 PASS/FAIL

There is no pass/fail criterion for this measurement.

### A.10 SIGN-OFF


I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.




Sean Johnston  
Lab Manager  
Celltech Labs Inc.

May 12, 2008

Date

Applicant:	GD Itronix Corporation	FCC ID:	KBCIX-MC5725	IC:	1943A-MC5725	
DUT Model:	IX-MC5725	DUT Type:	Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC			
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

**Appendix B - Effective Radiated Power / Effective Isotropic Radiated Power Measurement**

**B.1 REFERENCES**

<b>Normative Reference Standard</b>	FCC CFR 47 §22.913 (a)(2), FCC CFR 47 §24.232 (c)
<b>Procedure Reference</b>	ANSI/TIA/EIA-603-C

**B.2 LIMITS**

**B.2.1 FCC CFR 47**


FCC CFR 47 §22.913 (a)(2)	(a)(2) <i>Maximum ERP. .... The ERP of mobile transmitters and auxiliary transmitters must not exceed 7 Watts.</i>
FCC CFR 47 §24.232 (c)	(c) <i>Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.</i>

**B.3 ENVIRONMENTAL CONDITIONS**

<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

**B.4 EQUIPMENT LIST**

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr09
00050	Chase	CBL-6111A	Bilog Antenna	15Mar07	15Mar09
00055	EMCO	3121C	Dipole Antenna	04Apr07	04Apr09
00034	ETS	3115	Double Ridged Guide Horn	03Apr06	03Apr09
00035	ETS	3115	Double Ridged Guide Horn	03Aug05	03Aug08
00051	HP	8566B	Spectrum Analyzer RF Section	09Apr08	09Apr09
00049	HP	85650A	Quasi-peak Adapter	09Apr08	09Apr09
00047	HP	85685A	RF Preselector	09Apr08	09Apr09
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	06Apr08	06Apr09
00114	Amplifier Research	DC7154	Directional Coupler (0.8-4.2 GHz)	n/a	n/a
00078	Pasternack	PE2214-20	Directional Coupler (1-18 GHz)	n/a	n/a
00106	Amplifier Research	5S1G4	Power Amplifier (5W, 800MHz-4.2GHz)	n/a	n/a
00041	Amplifier Research	10W1000C	Power Amplifier (0.5 - 1 GHz)	n/a	n/a
00007	Gigatronics	8652A	Power Meter	23Apr08	23Apr09
00014	Gigatronics	80701A	Power Sensor	23Apr08	23Apr09
80012	Agilent	8960A	Radio Communications Test Set	27May08	13Jun09

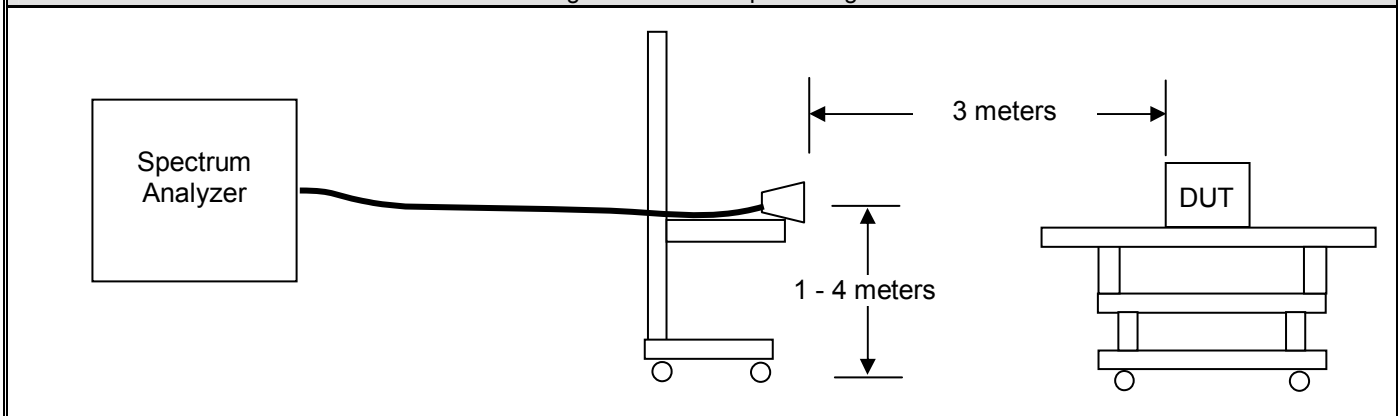
	Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
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	Measurement Standard(s):	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132 & RSS-133	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### B.5 MEASUREMENT EQUIPMENT SETUP

<b>MEASUREMENT EQUIPMENT CONNECTIONS</b>	For the field strength measurements, the measurement equipment was connected as shown in B.6. A number of antennas were used to cover the applicable frequency range tested. The ranges in which each antenna was used are as follows. For the final substitutions, the DUT was replaced with the appropriate antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated.			
	Frequency Range	RX Antenna	TX Antenna	
	30 MHz - 1GHz	Bilog	Dipole	
	1 GHz - 18 GHz	ETS 3115 Horn	ETS 3115 Horn	
<b>MEASUREMENT EQUIPMENT SETTINGS</b>	For measuring the radiated field strength of the fundamental CDMA signal, the spectrum analyzer was set to the following settings:			
	Mode	RBW	VBW	Detector
		MHz	MHz	
	Cellular	3	3	Peak
PCS	3	3	Peak	


### B.6 SETUP DRAWING

Figure B.6-1 - Setup Drawing



### B.7 DUT OPERATING DESCRIPTION

Measurements were made for the low, mid and high channels for both the cellular and PCS bands at maximum power level as described in Appendix A.

<b>Applicant:</b>	GD Itronix Corporation	<b>FCC ID:</b>	KBCIX-MC5725	<b>IC:</b>	1943A-MC5725	
<b>DUT Model:</b>	IX-MC5725	<b>DUT Type:</b>	Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC			
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Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
Measurement Date(s):	May 12, 22 - 23, 2008	Test Report Revision No.:	Revision 1.0
Measurement Standard(s):	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132 & RSS-133	
Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### B.8 SETUP PHOTOGRAPHS

Photograph B.8-1 - Bilog Receive Antenna - DUT LCD Open



Photograph B.8-2 - Horn Receive Antenna - DUT LCD Open




Photograph B.8-3 - Dipole Substitution Setup



Photograph B.8-4 - Horn Substitution Setup





 Testing and Engineering Services Lab	Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## B.9 TEST RESULTS

### B.9.1 Carrier Levels

#### B.9.1.1 Cellular Band Carrier Levels

Frequency (MHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBd)	Polarization (V/H)	ERP		Limit	Margin	Pass/Fail
					Watts	dBm			
824.70	92.5	23.3	-2.0	V	0.135	21.30	38	16.7	Pass
824.70	90.5	21.2	-1.0	H	0.105	20.20	38	17.8	Pass
836.52	94.3	26.4	-2.0	V	0.275	24.40	38	13.6	Pass
836.52	92.1	23.8	-1.0	H	0.191	22.80	38	15.2	Pass
848.31	95.0	26.6	-2.0	V	0.288	24.60	38	13.4	Pass
848.31	91.9	23.6	-1.0	H	0.182	22.60	38	15.4	Pass

#### B.9.1.2 PCS Band Carrier Levels

Frequency (MHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	EIRP		Limit	Margin	Pass/Fail
					Watts	dBm			
1851.25	89.3	14.5	8.4	V	0.118	20.72	33	12.28	Pass
1851.25	86.7	13.6	8.4	H	0.096	19.82	33	13.18	Pass
1880.00	88.7	15.5	8.4	V	0.149	21.72	33	11.28	Pass
1880.00	84.3	13.9	8.4	H	0.103	20.12	33	12.88	Pass
1908.75	84.7	13.5	8.4	V	0.094	19.72	33	13.28	Pass
1908.75	81.7	13.1	8.4	H	0.086	19.32	33	13.68	Pass


## B.10 PASS/FAIL

In reference to the results outlined in B.9, the DUT passes the requirements as stated in the reference standards.

## B.11 SIGN-OFF

I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.

  
 Sean Johnston  
 Lab Manager  
 Celltech Labs Inc.  
 May 22, 2008  
 Date

 <b>Celltech</b> <small>Testing and Engineering Services Lab</small>	Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
	Measurement Date(s):	May 12, 22 - 23, 2008	Test Report Revision No.:	Revision 1.0
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### Appendix C - Radiated Spurious Emissions Measurement

#### C.1 REFERENCES

<b>Normative Reference Standard</b>	FCC CFR 47 §22.917(a), FCC CFR 47 §24.238(a)
<b>Procedure Reference</b>	ANSI/TIA/EIA-603-C

#### C.2 LIMITS

##### C.2.1 FCC CFR 47


FCC CFR 47 §22.917 & §24.238	(a) <i>Out of band emissions. The 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.</i>
------------------------------	---


#### C.3 ENVIRONMENTAL CONDITIONS

<b>Temperature</b>	25 +/- 5 °C
<b>Humidity</b>	40 +/- 10 %
<b>Barometric Pressure</b>	101 +/- 3 kPa

#### C.4 EQUIPMENT LIST

ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00015	HP	E4408B	Spectrum Analyzer	23Apr08	23Apr09
00050	Chase	CBL-6111A	Bilog Antenna	15Mar07	15Mar09
00055	EMCO	3121C	Dipole Antenna	04Apr07	04Apr09
00034	ETS	3115	Double Ridged Guide Horn	03Apr06	03Apr09
00035	ETS	3115	Double Ridged Guide Horn	03Aug05	03Aug08
00051	HP	8566B	Spectrum Analyzer RF Section	09Apr08	09Apr09
00049	HP	85650A	Quasi-peak Adapter	09Apr08	09Apr09
00047	HP	85685A	RF Preselector	09Apr08	09Apr09
00048	Gore	65474	Microwave Cable	n/a	n/a
00115	Miteq	J54-00102600-35-5A	LNA	18Apr06	18Apr09
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	06Apr08	06Apr09
00114	Amplifier Research	DC7154	Directional Coupler (0.8-4.2 GHz)	n/a	n/a
00078	Pasternack	PE2214-20	Directional Coupler (1-18 GHz)	n/a	n/a
00106	Amplifier Research	5S1G4	Power Amplifier (5W, 800MHz-4.2GHz)	n/a	n/a
00041	Amplifier Research	10W1000C	Power Amplifier (0.5 - 1 GHz)	n/a	n/a
00007	Gigatronics	8652A	Power Meter	23Apr08	23Apr09
00014	Gigatronics	80701A	Power Sensor	23Apr08	23Apr09
80012	Agilent	8960A	Radio Communications Test Set	27May07	13Jun09

<b>Applicant:</b>	<b>GD Itronix Corporation</b>	<b>FCC ID:</b>	<b>KBCIX-MC5725</b>	<b>IC:</b>	<b>1943A-MC5725</b>	
<b>DUT Model:</b>	<b>IX-MC5725</b>	<b>DUT Type:</b>	<b>Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC</b>			
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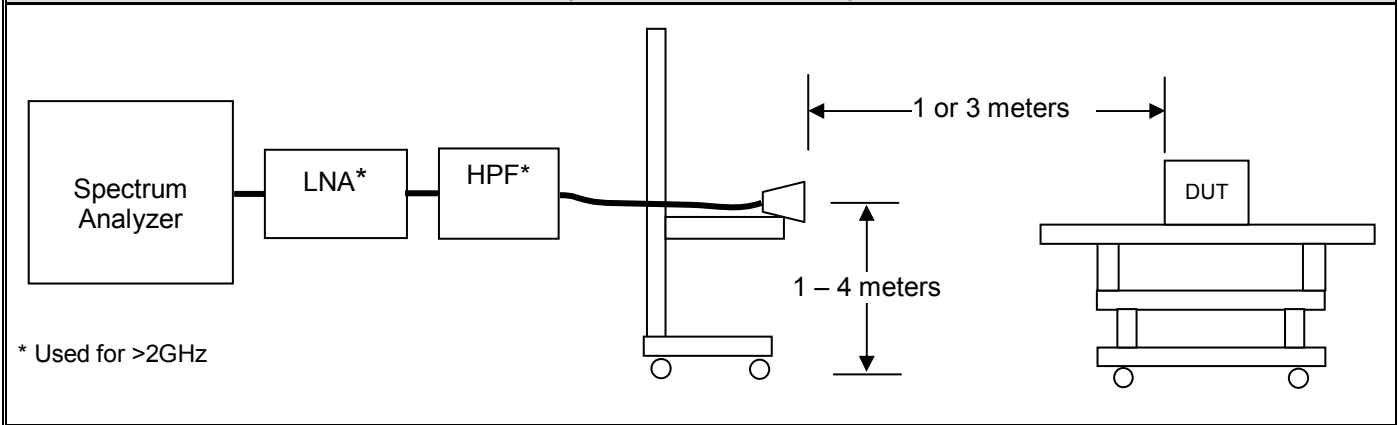
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### C.5 MEASUREMENT EQUIPMENT SETUP

<b>MEASUREMENT EQUIPMENT CONNECTIONS</b>	For the field strength measurements, the measurement equipment was connected as shown in C.6. A number of antennas were used to cover the applicable frequency range tested. The ranges in which each antenna was used are shown below. For the final substitutions, the DUT was replaced with the appropriate antenna and fed from a CW signal source sufficient to replicate the received field strength of the emission being investigated.			
	Frequency Range	RX Antenna	TX Antenna	
	30 MHz - 1GHz	Bilog	Dipole	
	1 GHz - 18 GHz	ETS 3115 Horn	ETS 3115 Horn	
<b>MEASUREMENT EQUIPMENT SETTINGS</b>	For the spurious out-of-band emissions, the spectrum analyzer was set to the following settings:			
	Mode	RBW	VBW	Detector
		kHz	kHz	
	Cellular < 1 GHz	100	300	Peak*
	Cellular > 1 GHz	1000	1000	Peak*
PCS	1000	1000	Peak*	
* For measurements made below 1 GHz where the peak emission exceeded the average limit, a Quasi-peak measurement was made. For measurements above 1 GHz where the peak emission exceeded the average limit, an average measurement was made using video averaging.				

### C.6 SETUP DRAWING

Figure C.6-1 - Setup Drawing



### C.7 DUT OPERATING DESCRIPTION

Measurements were made for the low, mid and high channels transmitting in the cellular and PCS bands at maximum power level as described in Appendix A.



Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
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Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

## C.8 TEST RESULTS

### C.8.1 Spurious Emissions

#### C.8.1.1 Cellular Band Spurious Emissions

##### Low Channel: 824.70 MHz

Measured output power: 21.3 dBm = 0.135 W, Limit:  $43+10\log(W)$ = 34.3dBc

Frequency (GHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	ERP (dBm)	dBc	Pass/Fail	Notes
<b>Ch. 1013</b>								
1.649	40.20	-37.50	8.40	V	-29.10	50.40	Pass	
3.299	32.30	n/a	8.40	V	n/a	n/a	Pass	Noise floor
4.124	33.00	n/a	8.40	V	n/a	n/a	Pass	Noise floor

##### Mid Channel: 836.52 MHz

Measured output power: 24.4 dBm = 0.275 W, Limit:  $43+10\log(W)$ = 37.4dBc

Frequency (GHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	ERP (dBm)	dBc	Pass/Fail	Notes
<b>Ch. 384</b>								
1.673	44.40	-33.60	8.40	V	-25.20	49.60	Pass	
3.346	32.20	n/a	8.40	V	n/a	n/a	Pass	Noise floor
4.183	34.10	n/a	8.40	V	n/a	n/a	Pass	Noise floor

##### High Channel: 848.31 MHz

Measured output power: 24.6 dBm = 0.288 W, Limit:  $43+10\log(W)$ = 37.6dBc

Frequency (GHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	ERP (dBm)	dBc	Pass/Fail	Notes
<b>Ch. 777</b>								
1.697	42.70	-35.50	8.40	V	-27.10	51.70	Pass	
2.545	32.20	n/a	8.40	V	n/a	n/a	Pass	Noise floor
3.393	33.40	n/a	8.40	V	n/a	n/a	Pass	Noise floor

\*The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10<sup>th</sup> harmonic of the carrier. All other emissions were at the noise floor and substitutions were not made.

Applicant:	GD Itronix Corporation	FCC ID:	KBCIX-MC5725	IC:	1943A-MC5725	GENERAL DYNAMICS Itronix
DUT Model:	IX-MC5725	DUT Type:	Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC			
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Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### C.8.1.2 PCS Band Spurious Emissions

#### Low Channel: 1851.25 MHz

Measured output power: 20.72 dBm = 0.118 W, Limit:  $43+10\log(W)$ = 33.7dBc

Frequency (GHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	EIRP (dBm)	dBc	Pass/Fail	Notes
<b>Ch. 25</b>								
3.702	32.10	n/a	9.80	V	n/a	n/a	Pass	Noise floor
7.405	36.30	n/a	11.20	V	n/a	n/a	Pass	Noise floor
9.257	37.50	n/a	11.80	V	n/a	n/a	Pass	Noise floor

#### Mid Channel: 1880.00 MHz

Measured output power: 21.72 dBm = 0.149 W, Limit:  $43+10\log(W)$ = 34.7dBc


Frequency (GHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	EIRP (dBm)	dBc	Pass/Fail	Notes
<b>Ch. 600</b>								
3.760	32.00	-33.60	9.80	V	n/a	n/a	Pass	Noise floor
7.520	36.40	n/a	11.20	V	n/a	n/a	Pass	Noise floor
9.400	37.30	n/a	11.80	V	n/a	n/a	Pass	Noise floor

#### High Channel: 1908.75 MHz

Measured output power: 19.72 dBm = 0.094 W, Limit:  $43+10\log(W)$ = 32.7dBc

Frequency (GHz)	Measured Level (dBuV)	Substitute Level (dBm)	Antenna Gain (dBi)	Polarization (V/H)	EIRP (dBm)	dBc	Pass/Fail	Notes
<b>Ch. 1175</b>								
3.818	39.50	-32.00	9.80	V	-22.20	41.82	Pass	
7.635	36.40	n/a	11.20	V	n/a	n/a	Pass	Noise floor
9.544	37.30	n/a	11.80	V	n/a	n/a	Pass	Noise floor

\*The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10<sup>th</sup> harmonic of the carrier. All other emissions were at the noise floor and substitutions were not made.

	Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
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	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

### C.9 PASS/FAIL

In reference to the results shown in C.8, the DUT passes the requirements as stated in the reference standards as follows:

1. FCC 22.917 (a) Out of band emissions. The 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.
2. FCC 24.238 (a): Out of band emissions. The 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.

### C.10 SIGN-OFF


I attest to the accuracy of the data. All measurements reported herein were performed by me and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements.




Sean Johnston  
Lab Manager  
Celltech Labs Inc.

May 23, 2008

Date

Applicant:	GD Itronix Corporation	FCC ID:	KBCIX-MC5725	IC:	1943A-MC5725	
DUT Model:	IX-MC5725	DUT Type:	Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC			
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	Test Report Serial No.:	050508KBC-T901-E24C	Test Report Issue Date:	June 12, 2008
	Measurement Date(s):	May 12, 22 - 23, 2008	Test Report Revision No.:	Revision 1.0
	Measurement Standard(s):	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132 & RSS-133	
	Test Lab Registration(s):	FCC Lab Registration #: 714830	Industry Canada Lab File #: IC 3874A-1	

END OF DOCUMENT

<b>Applicant:</b>	<b>GD Itronix Corporation</b>	<b>FCC ID:</b>	<b>KBCIX-MC5725</b>	<b>IC:</b>	<b>1943A-MC5725</b>	
<b>DUT Model:</b>	<b>IX-MC5725</b>	<b>DUT Type:</b>	<b>Dual-Band CDMA/EVDO Card in IX750 Rugged Handheld PC</b>			
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