

Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006	
Date(s) of Evaluation:	luation: April 25 - July 31, 2006 Report Revision No.:		Revision 1.1	
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada Lab File #3874		

ELECTROMAGNETIC COMPATIBILITY

EMC TEST REPORT

FCC 47 CFR PART 22 SUBPART H FCC 47 CFR PART 24 SUBPART E

FOR

ITRONIX CORPORATION

MODEL: IX325-AC860

IX325 SERIES RUGGED TABLET PC

WITH INTERNAL

DUAL-BAND GSM/GPRS/EDGE/UMTS PCMCIA MODEM

FCC ID: KBCIX325-AC860

IC ID: 1943A-IX325g

Test Report Serial No.
042406KBC-T740-E24GWC

Test Report Revision No.

Revision 1.1 (Second Release)

Test Lab and Location

Celltech Compliance Testing & Engineering Lab (Celltech Labs Inc.) 1955 Moss Court Kelowna, BC Canada V1Y 9L3

Company:	Itron	ix Corpora	ation FCC ID:		KBCIX325-AC860	IC ID:	1943A-IX325g	IT	RONIX [®]
Model(s):								AL DYNAMICS COMPANY	
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	DECLARATION OF COMPLIANCE															
Test Lab and Location							mpany ormation	1282 Spol	25 E. N	CORPORATION dirabeau Parkwa alley, WA 9921 tes	ау					
Phone:	250-448	3-7047	Fax: 250-448-7048													
E-mail:	info@c	elltechlab	s.com	Web	site:	www.	celltechl	abs.	com							
Lab Registration	No.(s):	FCC:	714830)				ŀ	C:	IC 3	3874					
Rule Part(s):		FCC:	§2; §22	2H; §2	§24E IC:			RS	S-132 Issu	e 2, RSS-133 Issue 3						
Device Classifica	tion:	FCC:	PCS Li	cense	ed Trans	mitter	(PCB)	10	C:	800	MHz Cellu	lar Telep	ohones	Employing Nev	√Te	chnologies
		. 55.	PCS Licensed Transmitter (PCB) IC:			2 GHz Personal Communication Services										
Device Identifica	tion:	FCC:	KBCIX:	325-A	C860			IC:		194	3A-IX325g					
Device Des	scription	:		Ru	gged Ta	blet Po			Dev	rice N	/lodel(s):		IX325-AC860			
Internal Trans	mitter Ty	/pe:	Dual	I-Band	d GSM/	GPRS/I	/EDGE/UMTS PCM			ICIA	Modem	Sierra Wireless Model: AirCard 860			ard 860	
Transmit Freque	Transmit Frequency Range(s):				RS/EDGE Cellular Ba		ular Ban	d	824.	24.2 - 848.8 MHz			PCS Band 1850.2 - 1909		9.8 MHz	
·	3 (2)			UMTS Cellular Ba			_									
Receive Freque	Receive Frequency Range(s):				RS/EDGE Cellular Ban		-				PCS		1930.2 -			
				UMTS						91.6 MHz	PCS		1932.4 - 1987.5 MHz			
Maximum RF	Conduc	ted	GPR9	_	Cellular Band 32.2						PCS		28.63 dBm		0.729 Watts	
Output Powe	r Measur	ed:	EDGE		Cellular Band 26.89				0.489 Watts PCS Ban 0.251 Watts PCS Ban			25.73 dBm		0.374 Watts		
			UMTS GPRS		Cellular Band 24.00 dBm			-				23.00 dBm		0.200 Watts		
Max. ERP/EIR	P Moseu	rod:	EDGE	-	Cellular Band 29.00				0.794 Watts PCS Ban			30.24 dBm		1.06 Watts		
WIGA. ENF/EIN	r Weasu	ieu.	UMTS		Cellular Band 27.21 d Cellular Band 22.18 d				0.526 Watts PCS Ban			30.37 dBm 23.07 dBm		1.09 Watts 0.203 Watts		
GSM Trans	mit Class		Class	_	Cellula					0.165 Watts PCS Bar						
GSM Multis			Class	_	2	Uplink		ieu		GPRS and GSM services using only one service at Max. Source-Based Time-Averaged Duty Cycle:		al a	25%			
GSM Pow			GPRS		_		PRS 190	٥.	1				E2	EDGE 190	n·	E2
WCDMA Po			UMTS		_		1TS 190	-						υ. 	100%	
WCDMA Uplir			OWIT	5 000.		<u> </u>	Channel		3	3 Maximum Duty Cycle: 100% 1 DPDCH Channel			100 /0			
Modulation Ty				GF	PRS: GN		onamici		EDGE: 8-PSK UMTS: WCDMA			DMA				
Antenna Typ			Eyt		Hinged		ole	Sierra Wireless attached to AirCar								
Internal Bat	` '		LXU		ithium-i		0.0				V, 3600 m			Model:		
Power Source										1	75 Watt			Model: AE		
Tower cource(s) resteu.		AC Power Adapter			75 vv att				Model. ADI -731 D D							

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 3; and ANSI TIA/EIA-603-C-2004.

I attest to the accuracy of the data. All measurements reported herein were performed by me or were 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.

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Test Report Approved By:

Spencer Watson

EMC Lab Manager

Celltech Labs Inc.







Company:	Itron	ix Corporation		FCC ID:	KBCIX325-AC860 IC ID: 1943A-IX32		1943A-IX325g	IT	RONIX [®]
Model(s):							AL DYNAMICS COMPANY		
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Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada Lab File #3874		

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	TEST SUMMARY									
	Referenced Standard(s): FCC CFR Title 47 Parts 2, 22 & 24									
<u>Appendix</u>	Test Description	Procedure Reference	Limit Reference	Test Start Date	Test End Date	Result				
Α	Conducted RF Output Power	FCC 97-114, §2.1046	N/A	25Apr06	25Apr06	N/A				
В	Effective Radiated Power Effective Isotropic Radiated Power	ANSI/TIA/EIA-603-C	§22.913 §24.232(b)	27Jun06	27Jun06	Pass				
С	Radiated Spurious Emissions	ANSI/TIA/EIA-603-C	§22.917 (a), §24.238 (a)	27Jul06	31Jul06	Pass				
	Referenced Standard(s): IC RSS-132 Issue 2 & RSS-133 Issue 3									
Α	Conducted RF Output Power	ANSI/TIA/EIA-603-C	N/A	25Apr06	25Apr06	N/A				
В	Effective Radiated Power Effective Isotropic Radiated Power	ANSI/TIA/EIA-603-C	RSS-132 §4.4 RSS-133 §6.4	27Jun06	27Jun06	Pass				
С	Radiated Spurious Emissions	ANSI/TIA/EIA-603-C	RSS-132 §4.5 RSS-133 §6.5	27Jul06	31Jul06	Pass				

REVISION LOG

Revision	Description	Implemented By	Implementation Date
1.0	Initial Release	Jonathan Hughes	October 10, 2006
1.1	2 nd Release - removed incorrect statement from Section 5.4	Jonathan Hughes	October 12, 2006

SIGNATORIES

Prepared By:	Spenier Watson	August 11, 2006
Name/Title:	Spencer Watson / EMC Manager	Date
Reviewed By:	THE -	October 12, 2006
Name/Title:	Jonathan Hughes / General Manager	Date

Company:	Itron	Itronix Corporation		FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	IT	RONIX [®]
Model(s):	IX325-AC860 IX325			Rugged Tab	et PC with Dual-Band GS	M/GPRS/ED	GE/UMTS Modem		AL DYNAMICS COMPANY
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1.0 SCOPE

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Itronix Corporation Model: IX325-AC860 Rugged Tablet PC utilizing the Sierra Wireless AirCard 860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem. The Sierra Wireless AirCard 860 external hinged monopole antenna was connected to the PCMCIA Card. 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 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, and RSS-133 Issue 3.

2.0 REFERENCES

2.1 Normative References

2.1 Normative References	
ANSI/ISO 17025:1999	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 Std C95.1:1999	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 2:2005	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR Title 47 Part 22:2005	Code of Federal Regulations Title 47: Telecommunication Part 22: Public Mobile Services
CFR Title 47 Part 24:2005	Code of Federal Regulations Title 47: Telecommunication Part 24: Personal Communication Services
IC Spectrum Management &	Radio Standards Specification

Telecommunications Policy

RSS-102 Issue 2 - Radio Frequency Exposure Compliance of Radiocommunication

Apparatus (All Frequency Bands)

RSS-132 Issue 2 - 800 MHz Cellular Telephones Employing New Technologies

RSS-133 Issue 3 - 2 GHz Personal Communication Services

RSS-212 Issue 1 (Provisional) - Test Facilities & Test Methods for Radio Equipment RSS-Gen Issue 1 - 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



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3.0 TERMS AND DEFINITIONS

ΑV Average

CDMA Code Division Multiple Access CFR Code of Federal Regulations

decibel dB

dBm dB referenced to 1 mW dB referenced to 1 uV dBuV Device under Test DUT dBc dB down from carrier **EBW Emission Bandwidth**

Enhanced Data Rates for GSM Evolution **EDGE EIRP** Effective Isotropic Radiated Power **EMC Electromagnetic Compatibility ERP** Effective Radiated Power

FCC Federal Communication Commission Frequency Hopping Spread Spectrum **FHSS GSM** Global Systems for Mobile Communication

GPRS General Packet Radio Service

HP Hewlett Packard **HPF** High Pass Filter Horizontal Polarization **Hpol**

Hz Hertz

Industry Canada IC

kHz kilohertz

Low Noise Amplifier LNA

meter m Megahertz MHz

megabits per second Mbps not applicable na not available n/a

PK Peak

PPSD Peak Power Spectral Density

Quasi-peak QΡ

Resolution Bandwidth **RBW** R&S Rohde & Schwarz

RSS Radio Standard Specification

SA Spectrum Analyzer

UMTS Universal Mobile Telecommunications System

Video Bandwidth **VBW** logV Vertical Polarization

WCDMA Wide CDMA



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4.0 FACILITIES AND ACCREDITATIONS

The facilities used in collecting the test results outlined in this report are located at 1955 Moss Court, Kelowna, British Columbia, Canada, V1Y 9L3. The radiated and conducted emissions sites conform with the requirements set forth in ANSI C63.4 and are filed and listed with the FCC under Registration Number 714830 and Industry Canada under File Number IC 3874.

5.0 GENERAL INFORMATION

5.1 Applicant Information

Company Name:	Itronix Corporation
Address:	12825 E. Mirabeau Parkway
	Spokane Valley, WA 99216
	United States

5.2 DUT Description

The DUT consisted of the IX325 Rugged Tablet PC utilizing the internal Sierra Wireless AirCard 860 Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem with external hinged monopole antenna on the PCMCIA Card.

Device under Test:	IX325 Rug	IX325 Rugged Tablet PC							
Model(s):	IX325-AC	860	Serial Number:		ZZGEG5073ZZ9784				
Identifier(s):	FCC ID:	KBCIX325-AC860	IC:	1943A-IX32	5g				
Internal Battery:	11.1V Lith	11.1V Lithium-ion Battery, 3.6Ah (Model: T8M-E)							
Power Source Tested:	75 Watt A	75 Watt AC Power Adapter (Delta Electronics Inc. Model: ADP-75FB B)							

Internal Transmitter:	Dual-Ba	Dual-Band GSM/GPRS/EDGE/UMTS PCMCIA Modem						
Manufacturer/Model:	Sierra V	Vireless AirCard 860	Serial Number:	357806000465210				
Rule Part(s) Tested:	FCC:	§2.1091; §22.913, §22.917; §24	4.232(b), §24.238					
rtaio i art(o) rootoa.	IC:	RSS-132 Issue 2, RSS-133 Issue 3						
	FCC:	PCS Licensed Transmitter (PCB)						
Device Classification(s):	IC:	800 MHz Cellular Telephones employing New Technologies (RSS-132)						
	10.	2 GHz Personal Communication Services (RSS-133)						

Antenna Type:	External Hinged Monopole Antenna
Model:	Sierra Wireless AirCard 860 Antenna

Company:	Itronix Corporation		FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	IT	RONIX ®
Model(s):					AL DYNAMICS COMPANY			
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5.3 Mode(s) of Operation Tested

Of the three modes, GPRS, EDGE and UMTS, GPRS and EDGE were considered similar in modulation type, channel frequency and relative power level. G-TEM measurements were made in all three modes of operation and the worst case for GPRS and EDGE was chosen for prescan measurements.

5.3.1 Dual-Band GPRS

Customer supplied software was used to set the GPRS mode to the appropriate channel and power level for the specific measurement. Between PCS band GPRS and EDGE modes, PCS GPRS was found to have higher radiated emissions when tested in a G-TEM and therefore prescan measurements were made with the PCS GPRS band set to the low, mid and high channels. Final measurements were made of all significant emissions. Between Cell band GPRS and EDGE modes, Cell band EDGE was found to have higher radiated emissions when tested in a G-TEM and therefore prescan measurements were made with the Cell band EDGE mode set to the low, mid and high channels. The following settings where used for each channel during G-TEM testing and all other tests performed.

5.3.1.1 Cellular GPRS

Transmit Frequency Range:	824.2 - 848.8 MHz Ch. 128 (824.200 MHz), Ch. 190 (836.600 MHz) & Ch. 251 (848.800 MHz)
Power Gain Settings:	The proprietary Sierra Wireless Procomm Plus test script was utilized to set the RF output power to maximum
Modulation Type:	GMSK

5.3.1.2 PCS GPRS

Transmit Frequency Range:	1850.2 - 1909.8 MHz Ch. 512 (1850.2 MHz), Ch. 661 (1880.0) & Ch. 810 (1909.8 MHz)	
Power Gain Settings:	The proprietary Sierra Wireless Procomm Plus test script was utilized to set the RF output power to maximum	
Modulation Type:	GMSK	

5.3.2 Dual-Band EDGE

Customer supplied software was used to set the EDGE mode to the appropriate channel and power level for the specific measurement. Between PCS band GPRS and EDGE modes, PCS GPRS was found to have higher radiated emissions when tested in a G-TEM and therefore prescan measurements were made with the PCS GPRS band set to the low, mid and high channels. Final measurements were made of all significant emissions. Between Cell band GPRS and EDGE modes, Cell band EDGE was found to have higher radiated emissions when tested in a G-TEM and therefore prescan measurements were made with the Cell band EDGE mode set to the low, mid and high channels. The following settings where used for each channel during G-TEM testing and all other tests performed.

5.3.2.1 Cellular EDGE

Transmit Frequency Range:	824.2 - 848.8 MHz Ch. 128 (824.200 MHz), Ch. 190 (836.600 MHz) & Ch. 251 (848.800 MHz)	
Power Gain Settings:	The proprietary Sierra Wireless Procomm Plus test script was utilized to set the RF output power to maximum	
Modulation Type:	8-PSK	

Company:	Itror	nix Corporation		FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	ITI	RONIX °
Model(s):	IX325	325-AC860 IX325		ugged Tabl	et PC with Dual-Band GS	M/GPRS/ED			AL DYNAMICS COMPANY
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5.3.2.2 PCS EDGE

Transmit Frequency Range:	1850.2 - 1909.8 MHz Ch. 512 (1850.2 MHz), Ch. 661 (1880.0 MHz) & Ch. 810 (1909.8 MHz)
Power Gain Settings:	The proprietary Sierra Wireless Procomm Plus test script was utilized to set the RF output power to maximum
Modulation Type:	8-PSK

5.3.3 Dual-Band UMTS

The Anritsu MT8820A Radio Communications Test Set was used to set the UMTS mode to the appropriate channel and power level for the specific measurement via air-link. Prescan measurements were made with the UMTS mode set to the low, mid and high channels for each band. Final measurements were made of all significant emissions. The following settings were used for each channel.

5.3.3.1 Cellular UMTS

Transmit Frequency Range:	826.4 - 846.6 MHz Ch. 4132 (826.4 MHz), Ch. 4182 (836.4 MHz) & Ch. 4233 (846.6 MHz)
Power Gain Settings:	The maximum output power setting was established using the Anritsu 8820A Radio Communications Test Set in "All Up Bits" power control mode
Modulation Type:	WCDMA

5.3.3.2 PCS UMTS

Transmit Frequency Range:	1852.4 - 1907.5 MHz Ch. 9262 (1852.4 MHz), Ch. 9400 (1880.0 MHz) & Ch. 9538 (1907.5 MHz)	
Power Gain Settings:	The maximum output power setting was established using the Anritsu 8820A Radio Communications Test Set in "All Up Bits" power control mode	
Modulation Type:	WCDMA	

5.4 Configuration Description

The DUT was configured, as described by the client as being representative of what would be delivered to a final customer. Because the Tablet PC orientation can be user configured (0 degrees "landscape" or -90 degrees "portrait"), prescan evaluations were made to determine the configuration that resulted in the highest emissions. This prescan evaluation indicated that tablet carrier field strengths were maximized during cellular operation with the unit placed flat with the LCD facing up and the hinged monopole antenna positioned perpendicular with the ground plane. Maximized carrier field strengths during PCS operation occurred with the antenna edge of the tablet facing up and the hinged monopole antenna positioned parallel with the ground plane. More specific details may be included in each appendix.

5.4.1 Configuration Justification

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

6.0 PASS/FAIL CRITERIA

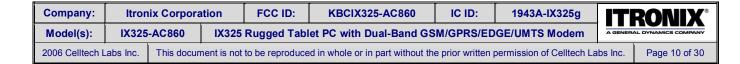
Unless otherwise noted in the Appendices, the pass/fail criteria is the limit set forth in the reference standards. A DUT is considered to have passed the requirements, if the data collected during the described measurement procedure is no greater than the specified limits as defined. The pass/fail statements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

Company	:	Itron	onix Corporation		FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	ITI	RONIX °
Model(s):		IX325	X325-AC860 IX325		Rugged Tabl	let PC with Dual-Band GS	M/GPRS/ED			AL DYNAMICS COMPANY
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APPENDICES





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Appendix A - Conducted RF Output Power Measurement

A.1 REFERENCES	
Normative Reference Standard	FCC CFR 47 §2.1046 (a)
Procedure Reference	FCC 97-114

A.2 LIMITS

A.2.1 FCC CFR 47

FCC CFR 47 §2.1046 (a)

For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tuneup procedures to give the values of current and voltage on the circuit elements specified in §2.1033(c) (8).

*ERP and EIRP limits are specified in Appendix B.

A.3 ENVIRONMENTAL CONDITIONS		
Temperature	25 +/- 5 °C	
Humidity	40 +/- 10 %	
Barometric Pressure	101 +/- 3 kPa	

A.4 EQUIPMENT LIST							
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE		
00110	Gigatronics	8652A	Power Meter	12Apr06	12Apr07		
00011	Gigatronics	80701A	Power Sensor	03Feb06	03Feb07		
00012	Gigatronics	80701A	Power Sensor	12Sept05	12Sept06		
00102	Pasternack	PE7015-3010	30 dB Attenuator	n/a*	n/a*		
00208	Anritsu	MT8820A	Radio Communications Test Set	06Jun06	06Jun07		
00078	Pasternack	PE2214-20	Directional Coupler 1-18 GHz	n/a*	n/a*		

^{*}Verified with power meter prior to use

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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133	
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

A.5 MEASUREMENT EC	A.5 MEASUREMENT EQUIPMENT SETUP					
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in A.6.					
Measurement Equipment Settings - GPRS and EDGE	Power Meter Settings: Mode - BAP Frequency compensation set for carrier frequency Offset set appropriately for attenuator characteristics					
Measurement Procedure - GPRS and EDGE	The RF conducted output power levels for both PCS and cellular bands in both GPRS and EDGE modes were measured at the DUT antenna connector port using a Gigatronics 8652A Universal Power Meter in burst average power mode. An offset was entered into the power meter to correct for the losses of the attenuator and cable installed between the transmitter output port and the power sensor input. The proprietary Sierra Wireless Procomm Plus test script was used to set the DUT to transmit at maximum output power level as described in section 5.3 of this report. All subsequent tests were performed using the same device setup procedures.					
Measurement Equipment Settings - UMTS	Power Meter Settings: Mode - MAP Frequency compensation set for carrier frequency Offset set appropriately for attenuator characteristics					
Measurement Procedure - UMTS	The RF conducted output power levels for both PCS and cellular bands were measured at the DUT antenna connector port using a Gigatronics 8652A Universal Power Meter in modulated average power mode. An offset was entered into the power meter to correct for the losses of the directional coupler and cable installed between the transmitter output port and the power sensor input. The Anritsu Radio Communications Test Set was utilized to set the DUT to transmit at maximum output power level as described in section 5.3 of this report. All subsequent tests were performed using the device setup procedures.					
PROCEDURES USED TO ESTABLISH TEST SIGNAL (UMTS)	The following settings were used to configure the Anritsu MT8820A Communications Test Set: Instrument Information					

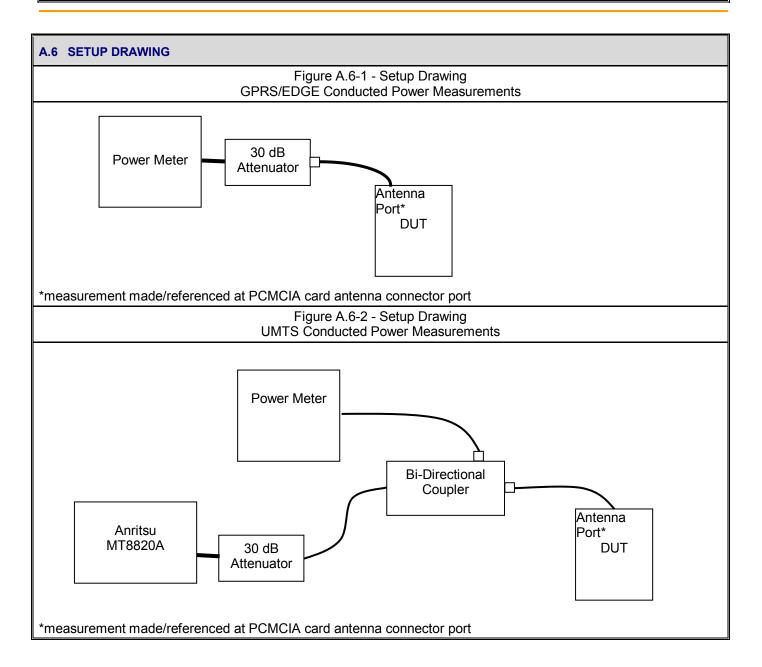
Company:	Itror	Itronix Corporation		FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	IT
Model(s):	IX325	IX325-AC860 IX325		Rugged Tab	let PC with Dual-Band GS	M/GPRS/ED	GE/UMTS Modem	A GENERA
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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006	
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1	
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada I	ab File #3874	





Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada I	ab File #3874

A.7 DUT OPERATING DESCRIPTION

Power measurements were made in the cellular and PCS bands, with the DUT set appropriately as described in section 5.3.

A.8 TEST RESULTS						
Mode	Channel	Frequency	Conduct	Conducted Power		
	128	824.2 MHz	+31.75 dBm	1.50 Watts		
Cellular GPRS	190	836.6 MHz	+31.84 dBm	1.53 Watts		
	251	848.8 MHz	+32.28 dBm	1.69 Watts		
	128	824.2 MHz	+26.68 dBm	0.466 Watts		
Cellular EDGE	190	836.6 MHz	+26.89 dBm	0.489 Watts		
	251	848.8 MHz	+26.72 dBm	0.470 Watts		
	4132	826.4 MHz	+23.80 dBm	0.240 Watts		
Cellular UMTS	4182	836.4 MHz	+23.90 dBm	0.245 Watts		
	4233	846.6 MHz	+24.00 dBm	0.251 Watts		
	512	1850.2 MHz	+28.42 dBm	0.695 Watts		
PCS GPRS	661	1880.0 MHz	+28.63 dBm	0.729 Watts		
	810	1909.8 MHz	+28.54 dBm	0.714 Watts		
	512	1850.2 MHz	+25.53 dBm	0.357 Watts		
PCS EDGE	661	1880.0 MHz	+25.73 dBm	0.374 Watts		
	810	1909.8 MHz	+25.55 dBm	0.359 Watts		
	9262	1852.4 MHz	+22.33 dBm	0.171 Watts		
PCS UMTS	9400	1880.0 MHz	+23.00 dBm	0.200 Watts		
	9538	1907.5 MHz	+22.70 dBm	0.186 Watts		

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.

Spencer Watson EMC Lab Manager Celltech Labs Inc.

April 25, 2006

Date

Spencer Watson

Company:	Itron	nix Corporation		FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	IT	RONIX °
Model(s):	IX325	-AC860					AL DYNAMICS COMPANY		
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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006	
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1	
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874	

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

B.1 REFERENCES	
Normative Reference Standard	FCC CFR 47 §22.913 (a), FCC CFR 47 §24.232 (b)
Procedure Reference	ANSI/TIA/EIA-603-C

B.2 LIMITS	
B.2.1 FCC CFR 4	7
FCC CFR 47 §22.913 (a)	(a) Maximum ERP The ERP of mobile transmitters and auxiliary transmitters must not exceed 7 Watts.
FCC CFR 47 §24.232 (b)	(b) 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.

B.3 ENVIRONMENTAL CONDITIONS							
Temperature	25 +/- 5 °C						
Humidity	40 +/- 10 %						
Barometric Pressure	101 +/- 3 kPa						

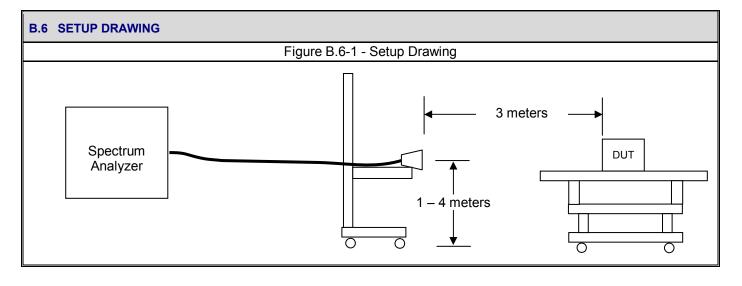
B.4 EQUIPMENT	LIST				
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00050	Chase	CBL-6111A	Bilog Antenna	04Apr06	04Apr07
00055	EMCO	3121C	Dipole Antenna	04Apr06	04Apr07
00034	ETS	3115	Double Ridged Guide Horn	11Aug05	11Aug07
00035	ETS	3115	Double Ridged Guide Horn	03Apr06	03Apr08
00161	Waveline	899	Standard Gain Horn Antenna	n/a	n/a
00051	HP	8566B	Spectrum Analyzer RF Section	04Apr06	04Apr07
00049	HP	85650A	Quasi-peak Adapter	04Apr06	04Apr07
00047	HP	85685A	RF Preselector	05Apr06	05Apr07
00048	Gore	65474	Microwave Cable	16Aug05	16Aug06
00006	R&S	SMR 20	Signal Generator (10MHz-40GHz)	06Apr06	06Apr07
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
00110	Gigatronics	8652A	Power Meter	12Apr06	12Apr07
00011	Gigatronics	80701A	Power Sensor	03Feb06	03Feb07
00208	Anritsu	MT8820A	Radio Communication Test Set	06Jun06	06Jun07

Comp	oany:	y: Itronix Corporation FCC ID: KBCIX325-AC860 IC ID: 1943A-IX3					1943A-IX325g	IT	RONIX [®]	
Mode	Model(s): IX325-AC860 IX32				Rugged Tab	et PC with Dual-Band GS	M/GPRS/ED	GE/UMTS Modem		AL DYNAMICS COMPANY
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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date: October 1			
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1		
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada I	ab File #3874		

B.5 MEASUREMENT EQUIPMENT SETUP										
MEASUREMENT EQUIPMENT	number of antennas were used antenna was used are as follow	For the field strength measurements, the measurement equipment was connected as shown in B.6. number of antennas were used to cover the applicable frequency range tested. The ranges in which ea antenna was used are as follows. For the final substitutions, the DUT was replaced with the appropria antenna and fed from a CW signal source sufficient to replicate the received field strength of the emissibeing investigated.								
CONNECTIONS	Frequency F	Range	RX Antenna	TX Antenna						
	30 MHz - 1	GHz	Bilog	Dipole						
	1 GHz - 18	GHz	ETS 3115 Horn	ETS 3115 Horn						
	For the spurious out-of-band e	emissions, the spectrum a	nalyzer was set to the foll	owing settings:						
MEASUREMENT	Mode	RBW	VBW	Detector						
EQUIPMENT SETTINGS		kHz	kHz							
SETTINGS	Cellular	100	300	Peak						
	PCS 1000		1000	Peak						



Company:	ny: Itronix Corporation FCC ID: KBCIX325-AC860 IC ID: 1943A-IX32				1943A-IX325g	ITI	RONIX ®		
Model(s):									AL DYNAMICS COMPANY
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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006			
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1			
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133				
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada Lab File #3874				

B.7 SETUP PHOTOGRAPHS

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Photograph B.7-1 - Bilog Receive Antenna with DUT Antenna - DUT "Landscape" Configuration



Photograph B.7-2 - Horn Receive Antenna with DUT Antenna - DUT "Portrait" Configuration



Photograph B.7-3 - Dipole Substitution Setup



Photograph B.7-4 - Horn Substitution Setup



Company:	Itronix Corpora	ation	FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g
Model(s):	IX325-AC860	IX325	Rugged Tabl	let PC with Dual-Band GS	M/GPRS/ED	GE/UMTS Modem



Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

SETUP PHOTOGRAPHS (CONTINUED)

Photograph B.7-5 - Bilog Receive Antenna with DUT Antenna - DUT "LCD Face-Up" Configuration



Photograph B.7-6 - DUT "LCD Face-Up" Configuration Close-up



Photograph B.7-7 - DUT "Landscape" Configuration Close-up



Photograph B.7-8 - DUT "Portrait" Configuration Close-up



B.8 DUT OPERATING DESCRIPTION

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

Company:	ny: Itronix Corporation FCC ID: KBCIX325-AC860 IC ID: 1943A-I)				1943A-IX325g	IT	RONIX [®]		
Model(s):	IX325	-AC860	IX325	Rugged Tabl	et PC with Dual-Band GS	M/GPRS/ED	GE/UMTS Modem		AL DYNAMICS COMPANY
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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

B.9 TEST RESULTS

B.9.1 Carrier Levels (Attached Hinged Monopole Antenna)

B.9.1.1 Cellular GPRS Carrier Levels

Celltech

 Project Number:
 740
 Standard:
 FCC22.913

 Company:
 Itronix
 Test Start Date:
 27-Jun-06

 Product:
 IX325 with AC860
 Test End Date:
 27-Jun-06

Configur	ration	Polarity	Distance	Carrier Channel	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	ERP Limit		Margin	Pass/ Fail		ERP Carrier vel
Orientation	Accessory		m	ပိ	MHz	dBuV/m	dBuV	dBm	dBd	dBm	Watts	dB		dBm	milliWatts
					Portable 0	GPRS Cellu	lar Band Rad	diated Car	rier Powe	er Level	S				
Long Edge Up	None	Н	3	128	824.2000	126.52	100.00	27.33	-1.45	38.45	7.00	12.57	PASS	25.88	387.58
Long Edge Up	None	٧	3	128	824.2000	123.92	97.40	23.94	-1.45	38.45	7.00	15.96	PASS	22.49	177.57
Long Edge Up	None	Н	3	190	836.6000	127.16	100.30	28.86	-1.35	38.45	7.00	10.94	PASS	27.51	564.00
Long Edge Up	None	V	3	190	836.6000	124.86	98.00	25.47	-1.35	38.45	7.00	14.33	PASS	24.12	258.39
Long Edge Up	None	Н	3	251	848.8000	128.32	101.20	30.25	-1.25	38.45	7.00	9.45	PASS	29.00	794.40
Long Edge Up	None	٧	3	251	848.8000	126.12	99.00	27.10	-1.25	38.45	7.00	12.60	PASS	25.85	384.63

Note:

Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)

The DUT was measured in 3 orientations with respect to the receive antenna, only the orientation with the highest Radiated Power results is shown here.

Note: "Long Edge Up" ("Landscape") Device Orientation

B.9.1.2 PCS GPRS Carrier Levels

Celltech Reting and Engineering Services Lat
 Project Number:
 740
 Standard:
 FCC24.232b

 Company:
 Itronix
 Test Start Date:
 27-Jun-06

 Product:
 IX325 with AC860
 Test End Date:
 27-Jun-06

Configu	ration	Polarity	Distance	Carrier Channel	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	EIRP	Limit	Margin	Pass/F ail		EIRP Carrier evel
Orientation	Accessory		m	Ca	MHz	dBuV/m	dBuV	dBm	dBi	dBm	Watts	dB		dBm	milliWatts
					Portable	GPRS PC	S Band Radi	ated Carri	er Power	Levels					
Long Edge Up	None	Н	3	512	1850.2000	126.01	93.20	20.61	8.72	33.01	2.00	3.68	PASS	29.33	857.09
Long Edge Up	None	V	3	512	1850.2000	117.31	84.50	10.58	8.72	33.01	2.00	13.71	PASS	19.30	85.12
Long Edge Up	None	Н	3	661	1880.0000	125.87	92.90	21.48	8.76	33.01	2.00	2.77	PASS	30.24	1055.84
Long Edge Up	None	٧	3	661	1880.0000	118.27	85.30	12.10	8.76	33.01	2.00	12.15	PASS	20.86	121.79
Long Edge Up	None	Н	3	810	1909.8000	124.34	91.20	20.24	8.79	33.01	2.00	3.98	PASS	29.03	800.16
Long Edge Up	None	٧	3	810	1909.8000	119.94	86.80	14.50	8.79	33.01	2.00	9.72	PASS	23.29	213.39

Note:

Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)

The DUT was measured in 3 orientations with respect to the receive antenna, only the orientation with the highest Radiated Power results is shown here.

Note: "Long Edge Up" ("Landscape") Device Orientation

Company: Itronix Corporation FCC ID: KBCIX325-AC860 IC ID: 1943A-IX325g

Model(s): IX325-AC860 IX325 Rugged Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS Modem



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Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

B.9.2 Carrier Levels (Attached Hinged Monopole Antenna)

B.9.2.1 Cellular EDGE Carrier Levels

Celltech

FCC22.913 **Project Number:** Test Start Date: 27-Jun-06 Itronix Company: IX325 with AC860 Test End Date: 27-Jun-06 Product:

Configu	ration	Polarity	Distance	ırier Channel	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	ERP	Limit	Margin	Pass/ Fail		ERP Carrier evel
Orientation	Accessory		m	Ca	MHz	dBuV/m	dBuV	dBm	dBd	dBm	Watts	dB		dBm	milliWatts
					Portable E	DGE Cellu	lar Band Rad	diated Car	rier Pow	er Level	s				
Face Up	None	Н	3	128	824.2000	125.22	98.70	26.03	-1.45	38.45	7.00	13.87	PASS	24.58	287.32
Face Up	None	٧	3	128	824.2000	121.42	94.90	21.44	-1.45	38.45	7.00	18.46	PASS	19.99	99.85
Face Up	None	Н	3	190	836.6000	125.46	98.60	27.16	-1.35	38.45	7.00	12.64	PASS	25.81	381.31
Face Up	None	٧	3	190	836.6000	122.66	95.80	23.27	-1.35	38.45	7.00	16.53	PASS	21.92	155.70
Face Up	None	Н	3	251	848.8000	126.52	99.40	28.46	-1.25	38.45	7.00	11.24	PASS	27.21	526.07
Face Up	None	٧	3	251	848.8000	123.12	96.00	24.10	-1.25	38.45	7.00	15.60	PASS	22.85	192.77

Note:

Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)

The DUT was measured in 3 orientations with respect to the receive antenna, only the orientation with the highest Radiated Power results is shown here.

Note: "Face Up" ("LCD Display-Up") Device Orientation

B.9.2.2 PCS EDGE Carrier Levels

Celltech

FCC24.232b **Project Number:** Standard: Company: Test Start Date: 27-Jun-06 27-Jun-06 IX325 with AC860 Product: Test End Date:

Configu	ration	Polarity	Distance	ırier Channel	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	EIRP	Limit	Margin	Pass/F ail		EIRP Carrier evel
Orientation	Accessory		m	Ca	MHz	dBuV/m	dBuV	dBm	dBi	dBm	Watts	dB		dBm	milliWatts
					Portable	EDGE PC	S Band Radia	ated Carri	er Power	Levels					
Short Edge Up	None	Н	3	512	1850.2000	126.21	93.40	20.81	8.72	33.01	2.00	3.48	PASS	29.53	897.48
Short Edge Up	None	٧	3	512	1850.2000	114.11	81.30	7.38	8.72	33.01	2.00	16.91	PASS	16.10	40.74
Short Edge Up	None	Н	3	661	1880.0000	125.97	93.00	21.58	8.76	33.01	2.00	2.67	PASS	30.34	1080.44
Short Edge Up	None	٧	3	661	1880.0000	116.27	83.30	9.88	8.76	33.01	2.00	14.37	PASS	18.64	73.05
Short Edge Up	None	Н	3	810	1909.8000	125.64	92.50	21.58	8.79	33.01	2.00	2.64	PASS	30.37	1089.37
Short Edge Up	None	٧	3	810	1909.8000	116.14	83.00	10.57	8.79	33.01	2.00	13.65	PASS	19.36	86.33

Note:

Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)

The DUT was measured in 3 orientations with respect to the receive antenna, only the orientation with the highest Radiated Power results is shown here

Note: "Short Edge Up" ("Portrait") Device Orientation

Company: **Itronix Corporation** FCC ID: **KBCIX325-AC860** IC ID: 1943A-IX325g Model(s): IX325-AC860 IX325 Rugged Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS Modem



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Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

B.9.3 Carrier Levels (Attached Hinged Monopole Antenna)

B.9.3.1 Cellular UMTS Carrier Levels

Celltech Testry and Engineering Services Late
 Project Number:
 740
 Standard:
 FCC22.913

 Company:
 Itronix
 Test Start Date:
 27-Jun-06

 Product:
 IX325 with AC860
 Test End Date:
 27-Jun-06

Configu	ration	Polarity	Distance	arrier Channel	Frequency	Corrected Field Strength Substituted SA Signal Level (uncorrected) Antenna Gain ERP Limit Margin	Margin	Pass/ Fail	Measured ERP Carrier Level						
Orientation	Accessory		m	Ca	MHz	dBuV/m	dBuV	dBm	dBd	dBm	Watts	dB		dBm	milliWatts
					Portable W	CDMA Cell	ular Band Ra	adiated Ca	rrier Pov	ver Leve	els				
Face Up	None	Н	3	4132	826.4000	118.36	91.80	19.16	-1.43	38.45	7.00	20.72	PASS	17.73	59.31
Face Up	None	V	3	4132	826.4000	117.66	91.10	17.59	-1.43	38.45	7.00	22.29	PASS	16.16	41.32
Face Up	None	Н	3	4182	836.4000	121.26	94.40	22.96	-1.35	38.45	7.00	16.84	PASS	21.61	144.92
Face Up	None	V	3	4182	836.4000	120.76	93.90	21.37	-1.35	38.45	7.00	18.43	PASS	20.02	100.49
Face Up	None	Н	3	4233	846.6000	121.49	94.40	23.45	-1.27	38.45	7.00	16.27	PASS	22.18	165.30
Face Up	None	٧	3	4233	846.6000	121.09	94.00	22.10	-1.27	38.45	7.00	17.62	PASS	20.83	121.14

Note:

Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)

The DUT was measured in 3 orientations with respect to the receive antenna, only the orientation with the highest Radiated Power results is shown here.

Note: "Face Up" ("LCD Display-Up") Device Orientation

B.9.3.2 PCS UMTS Carrier Levels

Celltech

 Project Number:
 740
 Standard:
 FCC24.232b

 Company:
 Itronix
 Test Start Date:
 27-Jun-06

 Product:
 IX325 with AC860
 Test End Date:
 27-Jun-06

Configu	ration	Polarity	Distance	Carrier Channel	Frequency	Corrected Field Strength Substituted SA Signal Level (uncorrected) Antenna Gain EIRP Limit Margi	RP Limit Margin		Pass/F ail		EIRP Carrier evel				
Orientation	Accessory		m	ပိ	MHz	dBuV/m	dBuV	dBm	dBi	dBm	Watts	dB		dBm	milliWatts
					Portable	WCDMA PO	S Band Rad	iated Carr	ier Powe	r Levels	3				
Long Edge Up	None	Н	3	9262	1852.4000	117.92	85.10	12.37	8.72	33.01	2.00	10.32	PASS	21.09	128.61
Long Edge Up	None	٧	3	9262	1852.4000	120.82	88.00	14.35	8.72	33.01	2.00	7.42	PASS	23.07	202.90
Long Edge Up	None	Н	3	9400	1880.0000	115.87	82.90	11.45	8.76	33.01	2.00	12.37	PASS	20.21	104.86
Long Edge Up	None	٧	3	9400	1880.0000	119.57	86.60	13.66	8.76	33.01	2.00	8.67	PASS	22.42	174.42
Long Edge Up	None	Н	3	9538	1907.5000	116.02	82.90	11.97	8.79	33.01	2.00	12.22	PASS	20.76	119.10
Long Edge Up	None	٧	3	9538	1907.5000	119.52	86.40	14.10	8.79	33.01	2.00	8.72	PASS	22.89	194.49

Note:

Measured ERP Carrier Level (dBm) = Power Applied to Antenna (dBm) + Antenna Gain (dBd)

The DUT was measured in 3 orientations with respect to the receive antenna, only the orientation with the highest Radiated Power results is shown here.

Note: "Long Edge Up" ("Landscape") Device Orientation

 Company:
 Itronix Corporation
 FCC ID:
 KBCIX325-AC860
 IC ID:
 1943A-IX325g

 Model(s):
 IX325-AC860
 IX325 Rugged Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS Modem





Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

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.

Spencer Watson EMC Lab Manager Celltech Labs Inc.

June 27, 2006

Spencer Watson

Date



Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RS	S-132, RSS-133
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

Appendix C - Radiated Spurious Emissions Measurement

C.1 REFERENCES	
Normative Reference Standard	FCC CFR 47 §22.917(a), FCC CFR 47 §24.238(a)
Procedure Reference	ANSI/TIA/EIA-603-C

C.2 LIMITS	
C.2.1 FCC CFR 47	
FCC CFR 47 §22.917 & §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.3 ENVIRONMENTAL CONDITION	DNS
Temperature	25 +/- 5 °C
Humidity	40 +/- 10 %
Barometric Pressure	101 +/- 3 kPa

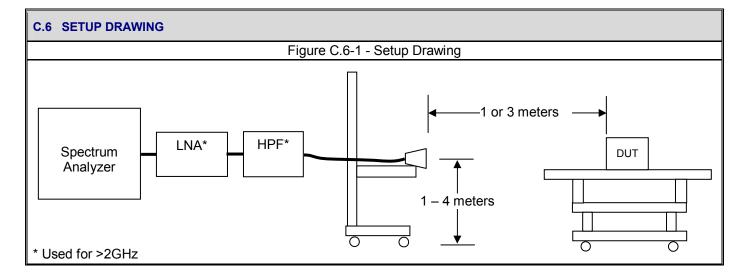
C.4 EQUIPMENT I	LIST				
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE
00072	EMCO	2075	Mini-mast	n/a	n/a
00073	EMCO	2080	Turn Table	n/a	n/a
00071	EMCO	2090	Multi-Device Controller	n/a	n/a
00050	Chase	CBL-6111A	Bilog Antenna	04Apr06	04Apr07
00055	EMCO	3121C	Dipole Antenna	04Apr06	04Apr07
00034	ETS	3115	Double Ridged Guide Horn	11Aug05	11Aug07
00035	ETS	3115	Double Ridged Guide Horn	03Apr06	03Apr08
00161	Waveline	899	Standard Gain Horn Antenna	n/a	n/a
00051	HP	8566B	Spectrum Analyzer RF Section	04Apr06	04Apr07
00049	HP	85650A	Quasi-peak Adapter	04Apr06	04Apr07
00047	HP	85685A	RF Preselector	05Apr06	05Apr07
00048	Gore	65474	Microwave Cable	16Aug05	16Aug06
00115	Miteq	J54-00102600-35-5A	LNA	18Apr06	18Apr07
00006	R&S	SMR 20	Signal Generator (10MHz-40GHz)	06Apr06	06Apr07
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
00110	Gigatronics	8652A	Power Meter	12Apr06	12Apr07
00011	Gigatronics	80701A	Power Sensor	03Feb06	03Feb07
00208	Anritsu	MT8820A	Radio Communication Analyzer	06Jun06	06Jun07

Company:	Itror	Itronix Corporation FCC ID:		on FCC ID: KBCIX325-AC860 IC ID: 1943A-IX325g					RONIX [®]	
Model(s):	IX325	-AC860	IX325	Rugged Tabl	et PC with Dual-Band GS		AL DYNAMICS COMPANY			
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Date(s) of Evaluation:	April 25 - July 31, 2006	Report Revision No.:	Revision 1.1	
Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada I	ab File #3874	

C.5 MEASUREMENT EQUIPMENT SETUP										
MEASUREMENT EQUIPMENT CONNECTIONS	For the field strength measure number of antennas were used antenna was used are show appropriate antenna and fed from the emission being investigated.	I to cover the applicable fin below. For the final om a CW signal source s	requency range tested. T substitutions, the DUT	he ranges in which each was replaced with the						
	Frequency I	Range	RX Antenna	TX Antenna						
COMMECTIONS	30 MHz - 1	GHz	Bilog	Dipole						
	1 GHz - 18	GHz	ETS 3115 Horn	ETS 3115 Horn						
	18 GHz - 20) GHz	Waveline 899 Horn	Waveline 899 Horn						
	For the spurious out-of-band emissions, the spectrum analyzer was set to the following settings:									
	Mode	RBW	VBW	Detector						
MEASUREMENT		kHz	kHz							
EQUIPMENT	Cellular < 1 GHz	100	300	Peak*						
SETTINGS	Cellular > 1 GHz	1000	1000	Peak*						
	PCS	1000	1000	Peak*						
	*Where the peak emission exc averaging	ceeded the average limit,	an average measurement	was made using video						



C.7 DUT OPERATING DESCRIPTION

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

Company:	Itror	ix Corpora	tion	FCC ID:	KBCIX325-AC860	IC ID:	1943A-IX325g	IT	RONIX [®]
Model(s):	IX325	-AC860							AL DYNAMICS COMPANY
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Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006	
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Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874	

C.8 TEST RESULTS

The spurious measurements detailed in this section are referenced to the carrier levels set forth in Appendix B of this report:

C.8.1 Spurious Emissions (Attached Hinged Monopole Antenna)

C.8.1.1 Cellular EDGE Spurious Emissions

Celltech

Project Number: 7
Company: It

740 Itronix IX325 with AC860 Standard: Test Start Date: FCC22.917 27-Jul-06

Test End Date: 31-Jul-06

Polarity	Distance	Substitution Antenna Type	Carrier Channel	Frequency	Corrected Field Strength	Maximized SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	ERP Emission Level	Limit	Margin	Pass/Fail
	m			MHz	dBuV/m	dBuV	dBm	dBi	dBm	dBm or dBuV/m*	dB	1
Н	3	none	128	1648.26	56.01	24.40	n/a	n/a	n/a	84.4*	28.4*	PASS*
Н	3	none	128	2466.47	49.06	37.00	n/a	n/a	n/a	84.4*	35.3*	PASS*
Н	3	none	128	3292.24	37.86	31.00	n/a	n/a	n/a	84.4*	46.5*	PASS*
Н	3	none	190	1673.87	59.25	27.50	n/a	n/a	n/a	84.4*	25.1*	PASS*
Н	3	none	190	2509.80	44.70	32.50	n/a	n/a	n/a	84.4*	39.7*	PASS*
Н	3	none	190	3346.40	38.26	31.20	n/a	n/a	n/a	84.4*	46.1*	PASS*
Н	3	none	251	1697.43	65.12	33.20	n/a	n/a	n/a	84.4*	19.2*	PASS*
Н	3	none	251	1697.43	41.41	9.49	n/a	n/a	n/a	84.4*	43.0*	PASS*
Н	3	none	251	2546.40	45.71	33.30	n/a	n/a	n/a	84.4*	38.7*	PASS*
Н	3	none	251	3395.20	38.52	31.30	n/a	n/a	n/a	84.4*	45.8*	PASS*
٧	3	none	128	1648.51	55.51	23.90	n/a	n/a	n/a	84.4*	28.9*	PASS*
٧	3	none	128	2470.13	61.87	49.80	n/a	n/a	n/a	84.4*	22.5*	PASS*
٧	3	none	128	2470.13	32.37	20.30	n/a	n/a	n/a	84.4*	52.0*	PASS*
٧	3	none	128	3296.80	44.60	37.70	n/a	n/a	n/a	84.4*	39.8*	PASS*
٧	3	none	190	1673.93	58.85	27.10	n/a	n/a	n/a	84.4*	25.5*	PASS*
٧	3	none	190	2509.80	44.70	32.50	n/a	n/a	n/a	84.4*	39.7*	PASS*
٧	3	none	190	3346.40	46.66	39.60	n/a	n/a	n/a	84.4*	37.7*	PASS*
٧	3	none	251	1697.60	62.92	31.00	n/a	n/a	n/a	84.4*	21.4*	PASS*
٧	3	none	251	1697.60	40.82	8.90	n/a	n/a	n/a	84.4*	43.5*	PASS*
٧	3	none	251	2546.23	46.71	34.30	n/a	n/a	n/a	84.4*	37.7*	PASS*
V	3	none	251	3395.20	38.62	31.40	n/a	n/a	n/a	84.4*	45.7*	PASS*

^{*}The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier with field strengths within 20 dB of the theoretical limit. All other emissions attributed to the EUT had field strengths greater than 20 dB below the theoretical limit and substitutions were not made.

 Company:
 Itronix Corporation
 FCC ID:
 KBCIX325-AC860
 IC ID:
 1943A-IX325g

 Model(s):
 IX325-AC860
 IX325 Rugged Tablet PC with Dual-Band GSM/GPRS/EDGE/UMTS Modem





Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006	
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Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874	

C.8.1.2 PCS GPRS Spurious Emissions



Project Number: 740
Company: Itron
Product: IX32

740 Itronix IX325 with AC860 Standard: Test Start Date: FCC24.238

Test Start Date: 27-Jul-06
Test End Date: 31-Jul-06

Polarity	Distance	Substitution Antenna Type	Carrier Channel	Frequency	Corrected Field Strength	Maximized SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	EIRP Emission Level	Limit	Margin	Pass/Fail
	m			MHz	dBuV/m	dBuV	dBm	dBi	dBm	dBm or dBuV/m*	dB	
Н	3	none	512	3700.33	42.51	34.00	n/a	n/a	n/a	82.2*	39.7*	PASS*
Н	3	none	512	5550.60	45.09	31.00	n/a	n/a	n/a	82.2*	37.1*	PASS*
Н	1	none	512	7400.80	49.80	39.28	n/a	n/a	n/a	91.8*	42.0*	PASS*
Н	3	none	661	3760.33	39.69	31.10	n/a	n/a	n/a	82.2*	42.5*	PASS*
Н	3	none	661	5640.00	42.75	28.60	n/a	n/a	n/a	82.2*	39.5*	PASS*
Н	1	none	661	7520.00	50.10	39.20	n/a	n/a	n/a	91.8*	41.7*	PASS*
Н	3	none	810	3819.66	40.63	31.70	n/a	n/a	n/a	82.2*	41.6*	PASS*
Н	3	none	810	5729.46	47.01	33.00	n/a	n/a	n/a	82.2*	35.2*	PASS*
Н	1	none	810	7639.20	50.90	39.89	n/a	n/a	n/a	91.8*	40.9*	PASS*
٧	3	none	512	3700.40	48.31	39.80	n/a	n/a	n/a	82.2*	33.9*	PASS*
٧	3	none	512	5550.60	44.89	30.80	n/a	n/a	n/a	82.2*	37.3*	PASS*
٧	1	none	512	7400.40	51.65	41.13	n/a	n/a	n/a	91.8*	40.1*	PASS*
٧	3	none	661	3760.00	40.19	31.60	n/a	n/a	n/a	82.2*	42.0*	PASS*
٧	3	none	661	5640.00	43.25	29.10	n/a	n/a	n/a	82.2*	39.0*	PASS*
٧	1	none	661	7520.50	52.65	41.75	n/a	n/a	n/a	91.8*	39.1*	PASS*
٧	3	none	810	3819.22	39.52	30.60	n/a	n/a	n/a	82.2*	42.7*	PASS*
٧	3	none	810	5729.40	49.51	35.50	n/a	n/a	n/a	82.2*	32.7*	PASS*
V	1	none	810	7639.20	49.84	38.83	n/a	n/a	n/a	91.8*	41.9*	PASS*

^{*}The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier with field strengths within 20 dB of the theoretical limit. All other emissions attributed to the EUT had field strengths greater than 20 dB below the theoretical limit and substitutions were not made.







Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006	
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Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874	

C.8.1.3 Cellular UMTS Spurious Emissions



Project Number: 740 Company: Itronix

IX325 with AC860

Test Start Date:
Test End Date:

FCC22.917 27-Jul-06 31-Jul-06

Polarity	Distance	Substitution Antenna Type	Carrier Channel	Frequency	Corrected Field Strength	Maximized SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	ERP Emission Level	Limit	Margin	Pass/Fail
	m			MHz	dBuV/m	dBuV	dBm	dBi	dBm	dBm or dBuV/m*	dB	
Н	3	none	4132	1652.80	48.13	16.50	n/a	n/a	n/a	84.4*	36.2*	PASS*
Н	3	none	4132	2479.20	43.09	31.00	n/a	n/a	n/a	84.4*	41.3*	PASS*
Н	3	none	4132	3305.60	38.71	31.80	n/a	n/a	n/a	84.4*	45.7*	PASS*
Н	3	none	4182	1675.21	53.76	22.00	n/a	n/a	n/a	84.4*	30.6*	PASS*
Н	3	none	4182	2509.20	44.70	32.50	n/a	n/a	n/a	84.4*	39.7*	PASS*
Н	3	none	4182	3345.60	38.06	31.00	n/a	n/a	n/a	84.4*	46.3*	PASS*
Н	3	none	4233	1690.88	52.57	20.70	n/a	n/a	n/a	84.4*	31.8*	PASS*
Н	3	none	4233	2539.80	44.98	32.60	n/a	n/a	n/a	84.4*	39.4*	PASS*
Н	3	none	4233	3386.40	38.62	31.40	n/a	n/a	n/a	84.4*	45.8*	PASS*
V	3	none	4132	1652.80	48.03	16.40	n/a	n/a	n/a	84.4*	36.3*	PASS*
٧	3	none	4132	2479.20	44.49	32.40	n/a	n/a	n/a	84.4*	39.9*	PASS*
٧	3	none	4132	3305.60	38.61	31.70	n/a	n/a	n/a	84.4*	45.8*	PASS*
V	3	none	4182	1675.28	52.26	20.50	n/a	n/a	n/a	84.4*	32.1*	PASS*
V	3	none	4182	2509.20	44.00	31.80	n/a	n/a	n/a	84.4*	40.4*	PASS*
V	3	none	4182	3345.60	38.26	31.20	n/a	n/a	n/a	84.4*	46.1*	PASS*
V	3	none	4233	1691.00	50.97	19.10	n/a	n/a	n/a	84.4*	33.4*	PASS*
V	3	none	4233	2539.80	45.18	32.80	n/a	n/a	n/a	84.4*	39.2*	PASS*
V	3	none	4233	3386.40	39.12	31.90	n/a	n/a	n/a	84.4*	45.3*	PASS*

^{*}The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier with field strengths within 20 dB of the theoretical limit. All other emissions attributed to the EUT had field strengths greater than 20 dB below the theoretical limit and substitutions were not made.





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Test Standard(s) Applied:	FCC 47 CFR §2, §22H, §24E	Industry Canada RSS-132, RSS-133		
Test Lab Registration(s):	FCC Lab Registration #714830	30 Industry Canada Lab File #387		

C.8.1.4 PCS UMTS Spurious Emissions



Project Number: 740 Company: Itron

Itronix IX325 with AC860 Standard: Test Start Date: FCC24.238

Test Start Date: 27-Jul-06
Test End Date: 31-Jul-06

Polarity	Distance	Substitution Antenna Type	Carrier Channel	Frequency	Corrected Field Strength	Maximized SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	EIRP Emission Level	Limit	Margin	Pass/Fail
	m			MHz	dBuV/m	dBuV	dBm	dBi	dBm	dBm or dBuV/m*	dB	
Н	3	none	9262	3704.80	39.19	30.70	n/a	n/a	n/a	82.2*	43.0*	PASS*
Н	3	none	9262	5557.20	44.94	30.70	n/a	n/a	n/a	82.2*	37.3*	PASS*
Η	1	none	9262	7409.60	50.66	40.11	n/a	n/a	n/a	91.8*	41.1*	PASS*
Н	3	none	9400	3760.00	39.99	31.40	n/a	n/a	n/a	82.2*	42.2*	PASS*
Η	3	none	9400	5640.00	45.35	31.20	n/a	n/a	n/a	82.2*	36.9*	PASS*
Η	1	none	9400	7520.00	51.42	40.52	n/a	n/a	n/a	91.8*	40.4*	PASS*
Н	3	none	9538	3816.85	41.70	32.80	n/a	n/a	n/a	82.2*	40.5*	PASS*
Н	3	none	9538	5727.25	49.20	35.20	n/a	n/a	n/a	82.2*	33.0*	PASS*
Η	1	none	9538	7630.00	51.16	40.16	n/a	n/a	n/a	91.8*	40.6*	PASS*
٧	3	none	9262	3704.80	37.69	29.20	n/a	n/a	n/a	82.2*	44.5*	PASS*
٧	3	none	9262	5557.20	44.74	30.50	n/a	n/a	n/a	82.2*	37.5*	PASS*
٧	1	none	9262	7409.60	50.44	39.89	n/a	n/a	n/a	91.8*	41.3*	PASS*
٧	3	none	9400	3760.00	39.69	31.10	n/a	n/a	n/a	82.2*	42.5*	PASS*
٧	3	none	9400	5640.00	45.85	31.70	n/a	n/a	n/a	82.2*	36.4*	PASS*
٧	1	none	9400	7520.00	51.09	40.19	n/a	n/a	n/a	91.8*	40.7*	PASS*
٧	3	none	9538	3815.00	41.49	32.60	n/a	n/a	n/a	82.2*	40.7*	PASS*
٧	3	none	9538	5727.31	45.90	31.90	n/a	n/a	n/a	82.2*	36.3*	PASS*
٧	1	none	9538	7630.00	51.13	40.13	n/a	n/a	n/a	91.8*	40.6*	PASS*

^{*}The emissions reported above represent the highest emissions or noise floor measured within the frequency band of 30MHz and the 10th harmonic of the carrier with field strengths within 20 dB of the theoretical limit. All other emissions attributed to the EUT had field strengths greater than 20 dB below the theoretical limit and substitutions were not made.







Test Report Serial No.:	042406KBC-T740-E24GWC	Report Issue Date:	October 12, 2006
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Test Lab Registration(s):	FCC Lab Registration #714830	Industry Canada L	ab File #3874

C.9 PASS/FAIL

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

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.

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.

Spencer Watson **EMC Lab Manager** Celltech Labs Inc.

July 31, 2006

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