

Test Report S/N:	072804KBC-T539-E24G/E15B			
Test Date(s):		07Dec04 - 16Dect04		
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133		
Lab Registration(s):	FCC #714830	IC Lab File #3874		

SUPPLEMENTARY EMC TEST REPORT FOR THE ITRONIX RUGGED LAPTOP PC MODEL: IX260PROA775BT WITH THE INTERNAL CIRRONET BT2022 BLUETOOTH TRANSMITTER UTILIZING THE INTERNAL RANGESTAR SURFACE-MOUNT ANTENNA (INSTALLED IN THE UPPER LEFT SIDE EDGE OF LCD DISPLAY) CO-TRANSMITTING WITH THE SIERRA WIRELESS AIRCARD 775 DUAL-BAND GSM GPRS/EDGE PCMCIA MODEM UTILIZING THE EXTERNAL SWIVEL DIPOLE ANTENNA

TRSN 072804KBC-T539-E24G/E15B Issue 1.0

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

December 17, 2004



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			DECLA	RATION OF	COMP	PLIA	NCE		
Test LabCELLTECH LABS INC. Testing and Engineering Service 1955 Moss Court Kelowna, B.C. Canada V1Y 9L3			es 3		App Info	licant rmatio	<u>n</u>	ITRONIX CORPORATION 801 South Stevens Street Spokane, WA 99204 United States	
Phone:	250-448	-7047	-7047						
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e-mail:	info@ce	lltechlabs.co	om						
web site:	www.cel	Itechlabs.co	m						
Laboratory Regis	stration No	o.(s):	FCC:	714830		IC:	IC 38	74	
Rule Part(s):		ECC:	Dual Band	d GSM		§2 ;	§22H;	§24E	
<u>Itule I urt(3).</u>		100.	Bluetooth	- FHSS		§15.	247; §2	2.1091;	§1.1310
Device Classificati	ion:	FCC	Dual Band	d GSM GPRS/I	EDGE	- PC	S Lice	nsed Tr	ansmitter (PCB)
Device orassinear	<u>ion.</u>	100.	Bluetooth - FHSS		- Pa	rt 15 Sj	oread S	Spectrum Transmitter (DSS)	
Device Identification: FCC ID: KBCIX			KBCIX260	260PROA775BT		IC II	IC ID: 1943A-IX260Pe		IX260Pe
DUT Description:									
Model: IX260PROA775BT									
Device Description	Device Description: Rugged Laptop PC v			with internal co-	located t	transn	nitters (s	simultar	neous transmit)
		Sierra W	ireless AirC	reless AirCard 775 Dual-Band GSM GPRS/EDGE PCMCIA Modem					
Internal Transmit	tter(s):	Cirronet	ropet RT2022 Bluetooth						
		Ontoriot				040	0 1411-		
Ty Frequency Ra	ndo(s).	Dual Band GSM			024.2 · 1950 2	24.2 - 040.0 MITZ 850.2 - 1000.8 MHz			
	inge(3).	Bluetoot	PCS 1850			190	19.0 IVII	12	
		Bluetoot	h	+16 20 dBm Peak Conducted					
Max. RF Output F	Power:	Didotoot		Cellular	+31.22	+31 22 dBm Peak Conducted			ted
		Dual Bar	nd GSM	PCS	+28.08	dBm	Peak (Conduct	ted
Bluetooth			h	GFSK 1 Mbp	s 0.5 B1	Gau	ssian		
Modulation Type	(s):	Dual Bar	nd GSM	GMSK					
A		Bluetoot	h	RangeStar P	/N: 1009	929 In	ternal S	Surface-	-Mount
Antenna Type(s):		Dual Bar	nd GSM	Itronix IX260	+ Extern	al Sw	ivel Dip	ole	
Power Supply:	Power Supply: 90 Watt AC Power Adapter, 11.1 V Lithium-ion B 12 V Vehicle Battery (for Vehicle Cradle)				Battery,	6.0 Ah	(Model: A2121-2),		

This wireless mobile 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 Parts 2, 15.247, 22H, 24E; Industry Canada RSS 133 Issue 2, RSS-132 Issue 1 (Provisional), RSS-210 Issue 5; and ANSI TIA/EIA-603-B-2002.

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.

This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Labs Inc. The results and statements contained in this report pertain only to the device(s) evaluated.

D. Pupe

Russell Pipe Senior Compliance Technologist Celltech Labs Inc.

Duane M. Friesen EMC Manager Celltech Labs Inc.



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 Applicant:
 Itronix Corporation
 Model:
 IX260PROA775BT
 FCC ID:
 KBCIX260PROA775BT
 IC ID:
 1943A-IX260Pe

 Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth
 IC ID:
 1943A-IX260Pe



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Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX
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TEST SUMMARY								
	Referenced Standard: FCC CFR Title 47 Parts 2, 15, 22 & 24							
<u>Appendix</u>	Test Description	Procedure Reference	Limit Reference	Test Start Date	Test End Date	<u>Result</u>		
В	Powerline Conducted Emissions	ANSI C63.4	§15.207	1Dec04	1Dec04	Pass		
С	Bluetooth Peak Conducted RF Output Power	FCC 97-114	§15.247(b) (3)	8Dec04	8Dec04	Pass		
D	Radiated Spurious Emissions	ANSI/TIA/EIA-603-B	§22.917 (a), §24.238 (a)	07Dec04	16Dec04	Pass		
E	Maximum Permissible Exposure	FCC CFR 47 § 2.1091 IEEE Std C95.1-1999	§1.1310 Table 1 (b)	15Dec04	15Dec04	Pass		
F	GSM Conducted RF Output Power	FCC 97-114	§2.1046	8Dec04	8Dec04	n/a		
	Referenced Star	ndard: IC RSS-210 Issue	e 5, RSS-132 & RSS-	133				
В	Powerline Conducted Emissions	RSS-212, ANSI C63.4	RSS-210 §6.6	1Dec04	1Dec04	Pass		
С	Bluetooth Peak Conducted RF Output Power	RSS-210 § 10	RSS-210 A1 §(I)(iv) RSS-210 §6.2.2 (o)(b)	8Dec04	8Dec04	Pass		
D	Radiated Spurious Emissions	ANSI/TIA/EIA-603-B	RSS-132 §4.4 RSS-133 §6.3	07Dec04	16Dec04	Pass		
E	Maximum Permissible Exposure	RSS-102	RSS-210 §14 Safety Code 6 2.2.1(a) Table 5	15Dec04	15Dec04	Pass		
F	GSM Conducted RF Output Power	ANSI/TIA/EIA-603-B	RSS-132 §4.4 RSS-133 §6.2	8Dec04	8Dec04	n/a		

REVISION LOG

Issue	Description	Implemented By	Implementation Date
1.0	Initial Release	Jon Hughes	17Dec04

SIGNATORIES

Prepared By:	2	Dec. 17, 2004
Name/Title	Duane M. Friesen, C.E.T. / EMC Manager	Date
Approved By:	GR-	Dec. 17, 2004
Name/Title	Jon Hughes / General Manager	Date

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
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1.0 <u>SCOPE</u>

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Itronix Corporation IX260+ Rugged Laptop PC with internal Cirronet BT2022 Bluetooth Transmitter cotransmitting with the Sierra Wireless AirCard 775 Dual-Band GSM GPRS/EDGE PCMCIA Modem. The Bluetooth transmitter was connected to the Rangestar internal surface-mount antenna located in the upper left side rear edge of the LCD display. The Dual-Band GSM Modem was connected to an external swivel dipole antenna located on the upper right side edge of the LCD display. The DUT also has the option of being mounted in a vehicle cradle, with the Dual-Band GSM Modem utilizing a vehicle-mount antenna. The vehicle antenna option was not considered to be worst case when investigating the co-transmitting effects, and therefore was not used in obtaining the data presented in this report. This report describes the inter-modulation product and related measurement results obtained with both transmitters installed in the IX260+ Rugged Laptop PC as described, and transmitting simultaneously. 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 Part 2, 15 subpart C, 22 subpart H and 24 subpart E; and Industry Canada Radio Standards Specification RSS-210, RSS-132, and RSS-133.

Applicant:	Itronix Corpor	ration M	/lodel:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth						ITRONIX"		
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2.0 <u>REFERENCES</u>

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-B:2002	Land Mobile FM or PM Communication Equipment Measurement and Performance Standards
CFR Title 47 Part 2:2003	Code of Federal Regulations Title 47: Telecommunication Part 2: Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
CFR Title 47 Part 15:2003	Code of Federal Regulations Title 47: Telecommunication Part 15: Radio Frequency Devices
CFR Title 47 Part 22:2003	Code of Federal Regulations Title 47: Telecommunication Part 22: Public Mobile Services
CFR Title 47 Part 24:2003	Code of Federal Regulations Title 47: Telecommunication Part 24: Personal Communication Services
IC Spectrum Management & Telecommunications Policy	Radio Standards Specification RSS-102 Issue 1 (Provisional) - Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields RSS-132 Issue 1 (Provisional) 800 MHz Cellular Telephones Employing New Technologies RSS-133 Issue 2, Revision 1 Personal Communication Services RSS-212 Issue 1 (Provisional) - Test Facilities & Test Methods for Radio Equipment RSS-210 Issue 5 - Low Power Licence-Exempt Radiocommunication Devices
Celltech Labs Test Report	EMC Test Report For the Model IX260+ Rugged Laptop PC with Sierra Wireless AirCard 775 Dual-Band GSM PCMCIA Modem Test Report Serial Number 072804KBC-T539-E24G Date: September 9, 2004
Celltech Labs Test Report	EMC Test Report For the Model IX260+ Rugged Laptop PC with Cirronet BT2022 Bluetooth Transmitter and Internal Antenna Test Report Serial Number 072804KBC-T539-E15B Date: October 22, 2004

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX"

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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
EMC	Electromagnetic Compatibility
FCC	Federal Communication Commission
FHSS	Frequency Hopping Spread Spectrum
GSM	Global Systems for a Mobility Communication
GPRS	General Packet Radio Service
HP	Hewlett Packard
HPF	High Pass Filter
Hpol	Horizontal Polarization
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
VBW	Video Bandwidth
Vpol	Vertical Polarization
WLAN	Wireless Local Area Network

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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:	801 South Stevens Street
	Spokane, WA 99204
	United States

5.2 DUT Description

The DUT consisted of the IX260+ Rugged Laptop PC containing a Cirronet BT2022 Bluetooth Transmitter connected to an Internal Surface-Mount Antenna installed in the upper left side rear edge of the LCD display. Co-located within the IX260+ Rugged Laptop PC was the Sierra Wireless AirCard 775 Dual-Band GSM GPRS/EDGE PCMCIA Modem connected to an External Swivel Dipole Antenna located on the upper right side edge of the LCD display. The DUT has the option of being mounted in a vehicle cradle, with the Dual-Band GSM Modem utilizing a vehicle-mount antenna. The vehicle antenna option was not considered to be worst case, and therefore was not used in obtaining the data presented in this report. Photographs of the DUT placement and construction are shown in Appendix A.

Device:	Rugged Laptop PC					
Model:	IX260PROA775BT					
Serial Number:	ZZGEG4196ZZ6494					
Identifier(s):	FCC ID: KBCIX260PROA775BT IC ID: 1943A-IX260Pe					
Power Source:	Delta Electronics Model ADP-90AB Rev B 90 Watt AC-DC power supply					

Device:	Dual-Ban	Dual-Band GSM GPRS/EDGE PCMCIA Modem						
Model:	Sierra Wir	Sierra Wireless AirCard 775						
Serial Number:	X0407270	X04072701619010						
Identifier(s):	FCC ID:	N7NAC775	N7NAC775 IC ID: 2417A-AC775					
Rule Part(s):	FCC:	§2.1091; §22.913, §22.917; §24.232(b), §24.238						
	IC:	RSS-133 Issue 2; RSS-132 Issue 1 (Provisional)						
FCC: PCS Licensed Transmitter (PCB)								
Classification(s):	IC:	800 MHz Cellular Telephones employing New Technologies (RSS-132)						
		2 GHz Personal Communication Services (RSS-133)						
Power Source:	Powered	wered from the internal PC power supply						

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX
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Device:	2.4GHz FH	2.4GHz FHSS Bluetooth Transmitter							
Model:	Cirronet B	Cirronet BT2022							
Serial Number:	n/a	n/a							
Identifier(s):	FCC ID:	HSW-BT2022M	IC:	4492A-BT2022M					
Rule Part(s):	FCC:	§15.247; §2.1091; §1.1310	IC:	RSS-210 Issue 5 - A1. 11/30/02					
Classification(s):	FCC:	FCC: Spread Spectrum Transmitter (DSS) IC: Low Power Licence-Exempt Transmitter							
Power Source:	Powered fr	Powered from the internal PC power supply							

Device:	External Mounted Swivel Dipole Antenna (GSM - upper right side edge of LCD display)
Model:	Itronix IX260+
Gain:	2.6 dBi

Device:	Internal Surface-Mount Antenna (Bluetooth - upper left side rear edge of LCD display)
Model:	RangeStar P/N: 100929
Gain:	4.5 dBi

5.3 Co-Located Equipment

Device:	GPS Receiver Module with attached Antenna (Receive only)
Model:	Leadtek P/N GPS9547

5.4 Cable Descriptions

ROU	TING	Length	Model	Terminations		Shield Type	Shield Termination		Suppression
From	То	m		End 1	End 2		End 1	End 2	
PC Fire Wire Port	Unterminated	1.0	Copartner E119932	IEEE-1528	Fire wire	n/a	n/a	n/a	None
PC modem port	Unterminated	1.0	n/a	RJ-11	RJ-11	None	na	na	None
PC Ethernet Port	Ethernet Hub	1.0	n/a	RJ-45	RJ-45	None	na	na	None

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5.5 Support Equipment

The following equipment was used in support of the DUT.

Co-located Support Equipment List					
Manufacturer	Model	Description			
D-Link	DE-809TC/	Ethernet hub			
YNG YUH	YP-040	Hub power supply			
MLi	699	Speakers			
Polk Audio	n/a	Speaker-microphone			
DeLorme	Tripmate	GPS Receiver			
Intel	CS-430	Camera			
Logitech	M-S34	Mouse			

5.6 Clock Frequencies

5.6.1 DUT Clock Frequencies

Device:	Rugged Laptop PC
Clocks:	1.6 GHz processor
Device:	2.4GHz FHSS Cirronet Bluetooth
Clocks:	n/a
Device:	Dual-Band GSM Modem
Clocks:	n/a
Device:	External Swivel Dipole Antenna
Clocks:	None
Device:	Internal Surface-Mount Antenna
Clocks:	None

5.6.2 Co-Located Clock Frequencies

Device:	Peripherals
Clocks:	n/a

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5.7 Mode(s) of Operation Tested

5.7.1 Dual-Band GSM GPRS/EDGE Modem

Customer supplied software was used to set the GSM Modem to the appropriate channel and power level for the specific measurement. To insure no in-band anomalies were present, prescan measurements were made with the GSM modem set to each of the low, mid and high channels in each band while the Bluetooth was cotransmitting. Final measurements were made with the GSM modem set for each of the low and high channels in each band. The following settings where used for each channel.

5.7.1.1 Cellular GSM

TX Frequency Range:	824.2 – 848.8 MHz Ch. 128 (824.200 MHz) & Ch. 251 (848.800 MHz) measured unless otherwise noted					
Software Power Gain Settings:	The supplied software set the power for maximum rated output power.					
RF Peak Conducted Output Power Tested:	Ch. 128 - +31.12 dBm Ch. 251 - +31.22 dBm					
Battery Type(s):	11.1V Lithium-ion, 6.0Ah (Model: A2121-2)					
Modulation Type:	GMSK					

5.7.1.2 PCS GSM

TX Frequency Range:	1850.2 – 1909.8 MHz Ch. 512 (1850.2 MHz) & Ch. 810 (1909.8 MHz) measured unless otherwise noted				
Software Power Gain Settings:	The supplied software set the power for maximum rated output power.				
RF Peak Conducted Output Power Tested:	Ch. 512 - +27.94 dBm Ch. 810 - +28.08 dBm				
Battery Type(s):	11.1V Lithium-ion, 6.0Ah (Model: A2121-2)				
Modulation Type:	GMSK				

5.7.2 Bluetooth Transmitter

Customer supplied software was used to set the Bluetooth transmitter to the appropriate mode, power level and modulation for the specific measurement. During the co-transmission testing, the Bluetooth transmitter was placed in hopping mode with the following settings:

TX Frequency Range:	2402 – 2480 MHz					
Software Power Gain Settings:	220 /45 *gain settings used during hopping mode					
RF Peak Conducted Output Power Tested:	Ch. 0 - +16.29 dBm Ch. 39 - +15.83 dBm Ch. 78 - +15.10 dBm					
Modulation Type(s):	GFSK 0.5 BT Gaussian					

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5.7.3 DUT Exercising Software Description

The DUT was configured and exercised using customer supplied test software that allowed an operator to set the parameters of the Bluetooth transmitter and Dual-Band GSM modem operation. The settings used are described in each appendix. More specific information on the configuration and exercising can be found in the referenced single-transmit test reports.

5.8 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 swivel dipole antenna orientation can be user configured, prescan evaluations were made to determine the configuration that resulted in the highest emissions. A "horizontal, pointing back" orientation was used for the cellular band, "vertical, pointing up" was used for the PCS band. More specific details may be included in each appendix.

5.8.1 Configuration Justification

The DUT was tested in a configuration described by the client as being worse case but typical of normal use. The system is available for use while installed in a mobile cradle, using a vehicular mounted dipole antenna and the resulting measurements using this configuration were investigated and reported in the single transmitting report. Given that the use of the mobile antenna resulted in greater separation in transmit antennas and lower dominant transmit power, only the worse case configuration using the swivel dipole antenna was used to investigate the co-transmission effects reported herein.

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.

Applicant:	Itronix Corporation	on Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe	
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth								
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Test Report S/N:	072804KBC-T539-E24G/E15B						
Test Date(s):		07Dec04 - 16Dect04					
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133					
Lab Registration(s):	FCC #714830	IC Lab File #3874					

APPENDIX

Applicant:	Itronix Corp	oration	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth								ITRONIX
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Test Report S/N:	072804KBC-T539-E24G/E15B						
Test Date(s):	07Dec04 - 16Dect04						
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133					
Lab Registration(s):	FCC #714830	IC Lab File #3874					

Appendix A - DUT Photographs

	• •
*	

Photograph A-1 - Front of Open IX260+ Laptop PC

Photograph A-3 - Dual-Band GSM Modem Location



Dual-Band GSM Modem PCMCIA Card

Photograph A-2 - Side of Open IX260+ Laptop PC



Photograph A-4 - Bluetooth Transmitter Location

Applicant:	Itronix C	orporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX	
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Test Report S/N:	072804KBC-T539-E24G/E15B		
Test Date(s):		07Dec04 - 16Dect04	
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Lab Registration(s):	FCC #714830	IC Lab File #3874	

Photograph A-5 - Dual-Band GSM PCMCIA Modem

Photograph A-6 - Bluetooth Transmitter

Photograph A-7 - Surface-Mount Antenna Placement

Applicant:	Itronix Corporatio	n Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							
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Test Report S/N:	072804KBC-T539-E24G/E15B		
Test Date(s):		07Dec04 - 16Dect04	
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133	
Lab Registration(s):	FCC #714830	IC Lab File #3874	

Appendix B - Conducted Powerline Emissions Measurement

B.1. REFERENCES	
Normative Reference Standard	CFR 47 FCC Part 15 §15.207
Procedure Reference	ANSI C63.4

B.2. LIMITS

§15.207: Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each powerline and ground at the power terminal.

Frequency of Emission (MHz)	Conducted Limit (dBuV)		
	Quasi-Peak	Average	
0.15 – 0.5	66 to 56*	56 to 46*	
0.50 – 5.0	56	46	
5.0 - 30.0	60	50	

*Decrease with the logarithm of the frequency

B.3. ENVIRONMENTAL CONDITIONS				
Temperature	+26 <u>+</u> 5 °C			
Humidity	31 % <u>+</u> 10% RH			
Barometric Pressure	101.4 kpa			

B.4. EQUIPMENT LIST							
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE		
00063	HP	85662A	Spectrum Analyzer Display	na	na		
00051	HP	8566B	Spectrum Analyzer RF Section	18May04	18May05		
00049	HP	85650A	Quasi-Peak Adapter	18May04	18May05		
00047	HP	85685A	Preselector	18May04	18May05		
00083	EMCO	3825/2	Line Impedance Stabilization Network	29Apr04	29Apr05		
00084	EMCO	3825/2	Line Impedance Stabilization Network	29Apr04	29Apr05		

Applicant:	Itronix Corpora	tion Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX
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Test Date(s):		07Dec04 - 16Dect04	
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Lab Registration(s):	FCC #714830	IC Lab File #3874	

MEASUREMENT EQUIPMENT CONNECTIONS The connections	conducted emissions were measured on each of the two AC powerline leads ected to the DUT's power supply brick. A two line LISN was used to make this surement. A drawing of the equipment setup is shown in B.7
MEASUREMENT EQUIPMENT SETTINGS Qua The pres A de poptir	h of the monitor ports from the 2-line LISN was connected in turn to the spectrum yzer. The port not connected to the analyzer was terminated in a 50-ohm load. A scan of the peak emission levels was made of the 150 kHz – 30 MHz range split into jual frequency bands. The following were the instrumentation settings: ctrum Analyzer: Start Frequency and Stop Frequency set by software for each of the four bands RBW: 100 kHz VBW: 300 kHz Sweep: 500 mS si-Peak Adapter: Normal - Automatic Bandwidth Setting: 9 kHz resulting data from each band was corrected and collected by software and eented in the graphical representations shown in B.9 for the two leads.

Applicant:	Itronix Corp	oration	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth						ITRONIX		
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Test Report S/N:	072804KBC-T539-E24G/E15B				
Test Date(s):		07Dec04 - 16Dect04			
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133			
Lab Registration(s):	FCC #714830	IC Lab File #3874			

B.6. SETUP PHOTOS	
Photograph B-1 - AC Powerline Conducted Emission Configuration	
Photograph B-2 - AC Powerline Conducted Emission Cable Placement	

Applicant:	Itronix Corporatio	n Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							
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Test Report S/N:	072804KBC-T539-E24G/E15B				
Test Date(s):		07Dec04 - 16Dect04			
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133			
Lab Registration(s):	FCC #714830	IC Lab File #3874			

B.8. DUT OPERATING DESCRIPTION						
Bluetooth	While hopping channels, the Bluetooth transmitter was set to transmit a data stream with a max. power setting equivalent to that described in the referenced single-transmit test report.					
Dual-Band GSM	The Dual-Band GSM modem was set to transmit on the channel with the highest radiated power with power settings equivalent to that described in the referenced single-transmit test report.					
PC	Other than operating the Bluetooth software and running MS windows, no PC exercising was performed.					
Peripherals	All peripherals were active, but no specific traffic was initiated.					

Applicant: Itron	Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PO	with Sierra Wi	reless AC77	5 Dual-Band GSM Mo	odem & Cirr	onet BT2022 Bluetooth		ITRONIX

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Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133			
Lab Registration(s):	FCC #714830	IC Lab File #3874			

B.9. TEST RESULTS

Following are peak emission plots and tabular data describing the peak, quasi-peak and average measurements made of the DUT.

Applicant:	Itronix Cor	poration	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX	
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Test Report S/N:	072804KBC-T539-E24G/E15B				
Test Date(s):		07Dec04 - 16Dect04			
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133			
Lab Registration(s):	FCC #714830	IC Lab File #3874			

Applicant:	Itronix C	Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth						ITRONIX		
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Test Report S/N:	072804KBC-T539-E24G/E15B					
Test Date(s):		07Dec04 - 16Dect04				
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133				
Lab Registration(s):	FCC #714830	IC Lab 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 as follows: The RF voltage measured in reference to ground on each of the power line conductors does not exceed the limits as outline in FCC 15.207.

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.

Pusal D. Pupe

Russell Pipe Senior Compliance Technologist Celltech Labs Inc.

> 1Dec04 Date

 Applicant:
 Itronix Corporation
 Model:
 IX260PROA775BT
 FCC ID:
 KBCIX260PROA775BT
 IC ID:
 1943A-IX260Pe

 Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth
 IC ID:
 1943A-IX260Pe

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Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133				
Lab Registration(s):	FCC #714830	IC Lab File #3874				

Appendix C - Bluetooth Peak Conducted RF Output Power Measurement

C.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.247(b) (3)
Procedure Reference	FCC 97-114

C.2. LIMITS C.2.1. FCC CFR §15.247(b): The maximum peak output power of the intentional radiator shall not exceed the following: §15.247(b) (3) For system using digital modulation in the 902 – 928 MHz, 2400 – 2483.5 MHz, and 5725 – 5850 MHz bands: 1 Watt. *This measurement was made as a reference to determine the effects the co-transmission of the GSM Modem made to the output RF power of the Bluetooth transmitter. The single transmit RF conducted output power levels were reported as: Peak Conducted Power Channel Frequency MHz dBm Watts 0 2402 16.33 .0429 15.84 39 2441 .0384 78 2480 15.16 .0328

C.3. ENVIRONMENTAL CONDITIONS					
Temperature	25.2 +/- 2 °C				
Humidity	35 +/- 2 %				
Barometric Pressure	Barometric Pressure 96.34 kPa				

C.4. EQUIPMENT LIST								
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE			
00007	Gigatronics	8652A	Power Meter	18Oct04	18Oct05			
00013	Gigatronics	80701A	Power Sensor	11Oct04	11Oct05			
00075	Alpha Wire-J	9223	2ft. RG223/U RF Cable	08Jul04*	24Jun05			
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	08Jul04*	24Jun05			

*Cable and attenuator verified with power meter prior to use

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
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Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133				
Lab Registration(s):	FCC #714830	IC Lab File #3874				

C.5. MEASUREMENT EQUIPMENT SETUP							
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in C.6.						
Measurement Equipment Settings	To evaluate the maximum peak power, the power meter was set using the following setting: Mode: MAP						

C.6. SETUP DRAWING

C.7. DUT OPERATING DESCRIPTION

With the AC775 transmitting on the channel with the highest conducted power, Bluetooth measurements were made at three channels throughout the band, Low Channel (0) (2402 MHz), Mid Channel (39) (2441 MHz), High Channel (78) (2480 MHz).

C.8. TEST RESULTS					
Channel	Frequency	Peak Condu	icted Power	Limit	
	MHz	dBm	Watts	Watts	
0 (Low)	2402	16.29	.0426	1	
39 (Mid)	2441	15.83	.0383	1	
79 (High)	2480	15.10	.0324	1	

Applicant: Itronix (Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC w	top PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth					ITRONIX"	
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Lab Registration(s):	FCC #714830	IC Lab 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 15.247 (b) (3): The peak power did not exceed 1 Watt.

As a reference with the single transmit configuration, the conducted power levels varied minimally with the GSM transmitter active.

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.

Jusul W. Pupe

Russell Pipe Senior Compliance Technologist Celltech Labs Inc.

> 8Dec04 Date

Applicant:	Itronix C	orporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth					ITRONIX			
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Lab Registration(s):	FCC #714830	IC Lab File #3874				

Appendix D - Radiated Spurious Emissions Measurement

D.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.247(c)
Procedure Reference	ANSI C63.4; FCC 97-114

D.2. LIMITS	
D.2.1. FC	C CFR 47
FCC CFR 47 §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 CFR 47 §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.

* In reference to FCC Interpretation Database Item 20020405-001, the above limits are applied to all spurious emissions attributed to the composite device.

D.3. ENVIRONMENTAL CONDITIONS

Temperature	27.4 +/- 2 °C
Humidity	33 +/- 2 %
Barometric Pressure	96.24 +/- 0.2 kPa

D.4. EQUIPMEN	IT 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	30Apr04	30Apr05
00055	EMCO	3121C	Dipole Antenna	4Dec03	4Dec05
00034	ETS	3115	Double Ridged Guide Horn	24Mar04	24Mar05
00036	ETS	3115	Double Ridged Guide Horn	24Mar04	24Mar05
00202	ETS	3160-09	Small Horn Antenna	27May04	27Jun05
00015	Agilent	E4408B	Spectrum Analyzer	29Dec03	29Dec04
00049	HP	8566B	Spectrum Analyzer RF Section	18May04	18May05
00049	HP	85650A	Quasi-peak Adapter	18May04	18May05
00047	HP	85685A	RF Preselector	18May04	18May05
00048	Gore	65474	Microwave Cable	20May04	20May05
00030	HP	83017A	LNA	20May04	20May05
00006	R & S	SMR 20	Signal Generator (10MHz-40GHz)	30Apr04	30Apr05
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
00008	Gigatronics	8652A	Power Meter	30Apr04	30Apr05
00010	Gigatronics	80701A	Power Sensor	30Apr04	30Apr05

Applicant: Itro	nix Corporation	orporation Model: IX260PROA775BT FCC ID: KBCIX260PROA775BT IC ID: 1943A-IX260Pe th Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth Image: Comparison of the second sec											
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth													
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Lab Registration(s):	FCC #714830	IC Lab File #3874

D.5. MEASURE	MENT EQUIPMENT SETUP											
MEASUREMENT EQUIPMENT	For the field strength measurer number of antennas were used antenna was used are as follow antenna and fed from a CW sig being investigated.	For the field strength measurements, the measurement equipment was connected as shown in D.6. A number of antennas were used to cover the applicable frequency range tested ¹ . The ranges in which e 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 emiss being investigated.										
CONNECTIONS	Frequency	Range	RX Antenna	TX Antenna								
	30 MHz –	1GHz	Bilog	Dipole								
	1 GHz – 18	3 GHz	ETS 3115 Horn	ETS 3115 Horn								
	For the spurious out-of-band emissions, the spectrum analyzer was set to the following settings:											
	Mode	RBW	VBW	Detector								
		kHz	kHz									
	Cellular	100	300	Peak								
SETTINGS	PCS	1000	1000	Peak								
SETTINGS	Note 1: Only ranges where int	ter-modulation products	might occur were investigat	ed.								
	For the block-edge delta-marker radiated measurements, the spectrum analyzer was set for 30 kHz RBW and VBW and the delta marker applied to radiated carrier levels measured at a 3-meter distance with the resolutions as defined above.											

Applicant:	Itronix (Corporation	IC ID: 1943A-IX260Pe					
Rugged Lap	otop PC w	ith Sierra Wir	eless AC77	5 Dual-Band GSM Mo	odem & Cirr	onet BT2022 Bluetooth	Ó	ITRONIX
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Lab Registration(s):	FCC #714830	IC Lab File #3874							

D.8. DUT OPERATING DESCRIPTION

Measurements were made of the bands that may contain inter-modulation products with both the Bluetooth and GSM radios transmitting. Measurements were made for each combination of low and high GSM channel transmitting while the Bluetooth was in hopping mode. The Bluetooth power setting was set to worse case (highest recorded conducted power) with the GSM modem power settings equivalent to those described in the referenced single-transmit test reports.

D.9. TEST RESULTS

All significant inter-modulations products or representative noise floor levels with field strengths within 20 dB of the theoretical limit were substituted and reported herein. The GSM block-edge is also presented. All Bluetooth band-edge measurements were greater than 20 dB below the applicable limit, so are not presented. All other spurious emissions are described in the appropriate sections in the individual reports referenced.

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Lap	otop PC with Sierra Wir	eless AC77	5 Dual-Band GSM Mo	odem & Cirr	onet BT2022 Bluetooth	Ŵ	ITRONIX

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Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133
Lab Registration(s):	FCC #714830	IC Lab File #3874

	9.1. Cellular GSM			SM C	Project N Company Product:	vumber:	vels	172804KBC-T54 tronix AC775 with Cirro	1-E24G/E15B					Star Tes Tes	ndard: t Start Da t End Da	ate: te:	FCC22.9 7-Dec-04 16-Dec-0	13]
								AC	775 with Blue	tooth Carrie	r Power Leve	els							
	Polarity	At used to be a substitution of a substitution o		tution a Type	Carrier	Fre	quency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	Carrie	er ERP Lev	rel	ERP L	.imit	Margin	Pass/Fail	
		m					MHz	dBuV/m	dBuV	dBm	dBi	dBm	Wa	itts (dBm	Watts	dB		
	н	3	B_31	21C	128	8	24.20	128.05	102.90	35.23	1.29	34.38	2.7	74 3	8.45	7.00	4.07	PASS	
	н	3	B_31	21C	251	8	48.80	128.19	102.60	33.82	1.59	33.27	2.1	12 3	8.45	7.00	5.18	PASS	
	V	3	B_31	21C	128	8	24.20	120.15	95.00	27.49	1.29	26.64	0.4	61 3	8.45	7.00	11.81	PASS	
	V	3	B_31	21C	251	8	48.80	119.09	93.50	24.98	1.59	24.43	0.2	77 3	8.45	7.00	14.02	PASS	
D.9.2	2. PC	cs c	SM	Carr	rier L	evel:	S Imber:	072804KBC-1 Itronix AC775 with C	541-E24G/E15B	_				Standard: Test Start Test End D	Date: Date:	FCC24.2: 7-Dec-04 16-Dec-0	32b 4	1	
		_							AC775 with Plue	tooth Carrier	Rower Lovela								
		A terms Type			tution a Type	Carrier	Frequency	Corrected Field Strengt	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	Carrier Ell	RP Level	EIRF	• Limit	Margin	Pass/Fail		
			m				MHz	dBuV/m	dBuV	dBm	dBi	dBm	Watts	dBm	Watts	dB			
			H 3	Horn SN	N6276	512	1850.20	124.85	92.90	15.13	6.67	21.80	0.151	33.01	2.00	11.21	PASS		
		ΙH	п 3 V 3	Hom SN	N0276	810 512	1909.80	118.75	90.50	13.03	0.08 6.67	19./1	0.105	33.01	2.00	12.79	PASS		
			v 3	Horn SN	N6276	810	1909.80	118.65	86.40	13.86	6.68	20.22	0.113	33.01	2.00	12.47	PASS		
			Note: Horn Form	Antenna u ulae:	ised for su	bstitution													

Applicant:	Itronix Co	orporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth								ITRONIX"
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Test Report S/N:	072804KBC-T539-E24G/E15B					
Test Date(s):		07Dec04 - 16Dect04				
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133				
Lab Registration(s):	FCC #714830	IC Lab File #3874				

(Cell	tech	Project Nu Company: Product:	imber:	072804KBC-T5 Itronix AC775 with Cir	v41-E24G/E15B			Standard: Test Start D Test End Da	ate: ite:	FCC22.917 7-Dec-04 16-Dec-04	1
					AC775 with	n Bluetooth Spu	rious Emissi	ons				
Polarity	Distance	Substitution Antenna Type	Carrier	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	Emission ERP Level	ERP Limit	Margin	Pass/Fai
	m			MHz	dBuV/m	dBuV	dBm	dBi	dBm	dBm*	dB	
Н	3	B_3121C	CH128	824.00	72.15	47.00	-24.80	1.28	-23.52	-13.00	10.52	PASS
V	3	B_3121C	CH128	824.00	67.05	41.90	-26.60	1.28	-25.32	-13.00	12.32	PASS
V	3	B_3121C B_3121C	CH251	849.00	67.69	42.10	-19.40	1.59	-17.81	-13.00	12.19	PASS
	Note: Dipol Only Form	e Antenna used fo emissions with fie ulae:	r substitutio d strengths	n within 20 dB of 1	the theoretical lin	nit were substitut	ed and report	ed herein.				
			Project Nu	umber:	072804KBC-TE	41-E24G/E15B	opping)		Standard:		FCC22.917	7
(Cel		Project Nu Company: Product:	imber:	072804KBC-TE ltronix AC775 with Cir	JETOOTN HC	ipping)	ons	Standard: Test Start D Test End Da	ate: te:	FCC22.917 7-Dec-04 16-Dec-04	7
Polarity	Distance	Substitution Antenna Type	Project Nu Company: Product:	Frequency	072804KBC-T5 Itronix AC775 with Cir AC775 with Corrected Field Strength	id1-E24G/E15B ronet Bluetooth Bluetooth Sput Substituted SA Signal Level (uncorrected)	rious Emissi Power Applied to Antenna	ons Antenna Gain	Standard: Test Start D Test End Da Emission ERP Level	ate: te: ERP Limit	FCC22.917 7-Dec-04 16-Dec-04 Margin	7 Pass/Fail
Polarity	Distance	Substitution Antenna Type	Project Nu Company: Product:	Frequency MHz	072804KBC-TE Itronix AC775 with Cir AC775 with Corrected Field Strength	41-E24G/E15B internet Bluetooth Bluetooth Sput Substituted SA Signal Level (uncorrected)	rious Emissi Power Applied to Antenna dBm	ons Antenna Gain dBi	Standard: Test Start D Test End Da Emission ERP Level dBm	ate: te: ERP Limit dBm*	FCC22.917 7-Dec-04 16-Dec-04 Margin dB	7 Pass/Fail
c I Polarity	C B Distance	Substitution Antenna Type	Project Nu Company: Product:	Frequency MHz 1648.40	072804KBC-TE Itronix AC775 with Cir AC775 with Cir Corrected Field Strength dBuV/m 64.36	Jetooth Ho 341-E24G/E15B ronet Bluetooth a Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.00	rious Emissi Power Applied to Antenna dBm -45.99 -28.64	ons Antenna Gain dBi 6.35	Standard: Test Start D Test End Da Emission ERP Level dBm -41.78	ate: te: ERP Limit dBm* -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14	Pass/Fail
< I I Polarity	Distance	Substitution Antenna Type Horn SN6267 Horn SN6267	Project Nu Company: Product:	Ellular GS	072804KBC-TE Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52	Jetooth Ho 541-E24G/E15B ronet Bluetooth 1 Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.90 35.80	rious Emissi Power Applied to Antenna dBm -45.99 -38.61 -43.56	ons Antenna Gain dBi 6.35 8.61 6.34	Standard: Test Start D Test End Da Emission ERP Level dBm -41.78 -32.14 -37.22	ate: te: ERP Limit dBm* -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22	Pass/Fail PASS PASS PASS
< I I Polarity	Distance Distance	Substitution Antenna Type Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267	Project Nu Company: Product: CH128 CH128 CH128 CH128 CH128	Ellular GS mber: Frequency MHz 1648.40 4933.00 1640.00 1648.40	072804KBC-TE Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52 64.66	JETOOTIT HC 541-E24G/E15B ronet Bluetooth 1 Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.90 35.80 33.90	rious Emissi Power Applied to Antenna dBm -45.99 -38.61 -43.56 -45.79	ons Antenna Gain dBi 6.35 8.61 6.34 6.35	Standard: Test Start D Test End Da Emission ERP Level dBm -41.78 -32.14 -37.22 -39.44	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44	Pass/Fail PASS PASS PASS PASS
< < < I I Polarity	Distance Distance	Substitution Antenna Type Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267	Project Nu Company: Product: CH128 CH128 CH128 CH128 CH128 CH128	Ellular GS mber: Frequency MHz 1648.40 4933.00 1640.00 1648.40 7219.25	072804KBC-TE Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52 64.66 67.07	Jetooth Ho 541-E24G/E15B ronet Bluetooth 1 Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.90 35.80 33.90 58.20	rious Emissi Power Applied to Antenna -45.99 -38.61 -43.56 -45.79 -38.73	ons Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12	Standard: Test Start D Test End Da ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61	Pass/Fail PASS PASS PASS PASS PASS PASS
<pre>< < < I I Polarity</pre>	Distance Distance Distance	Substitution Antenna Type Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267	Project Nu Company: Product: Product: CH128 CH128 CH128 CH128 CH128 CH128 CH128	Ellular GS mber: Frequency MHz 1648.40 4933.00 1648.40 7219.25 7254.25	072804KBC-T5 Itronix AC775 with Cir AC775 with Cir Corrected Field Strength dBuV/m 64.36 64.06 66.52 64.66 67.07 68.11	Jetooth Ho 541-E24G/E158 ronet Bluetooth Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.90 35.80 33.90 58.20 59.10	rious Emissi Power Applied to Antenna -45.99 -38.61 -43.56 -45.79 -38.73 -37.46	ons Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12 9.10	Standard: Test Start D Test End Da ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61 -28.36	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61 15.36	Pass/Fail PASS PASS PASS PASS PASS PASS PASS
т < < < < ± T	Distance Distance Distance	Substitution Antenna Type Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267	Project Nu Company: Product: Product: CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128	Ellular GS mber: Frequency MHz 1648.40 4933.00 1640.00 1648.40 7219.25 7254.25 1579.00	072804KBC-T5 Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52 64.66 67.07 68.11 66.20	Jetooth Ho 541-E24G/E158 ronet Bluetooth 1 Bluetooth Spu Substituted SA Signal Level (uncorrected) 33.60 58.90 35.80 33.90 56.20 59.10 35.80	rious Emissi Power Applied to Antenna dBm -45.99 -38.61 -43.56 -45.79 -38.73 -37.46 -37.46	Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12 9.10 9.10 6.28	Standard: Test Start D Test End Da ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61 -28.36 -37.03	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61 15.36 24.03	Pass/Fail PASS PASS PASS PASS PASS PASS PASS PAS
Ξ Ξ Ξ Ξ Polarity Ξ	Distance	Substitution Antenna Type Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267	Project Ni Company: Product: Product: Product: CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128	Ellular GS mber: Frequency MHz 1648.40 4933.00 1640.00 1648.40 7219.25 7254.25 1579.00 1697.00 1997.00	072804KBC-T5 Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52 64.66 67.07 68.11 66.20 69.34	Jetooth Ho 541-E24G/E15B ronet Bluetooth Bluetooth Spu Substituted A Signal Level (uncorrected) dBuV 33.60 58.90 35.80 33.90 58.20 58.20 58.20 58.20 58.20 33.5.80 33.80 33.80 33.80 33.90 58.20 58	rious Emissi Power Applied to Antenna dBm -45.99 -38.61 -43.56 -45.79 -38.73 -37.46 	Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12 9.10 6.28 6.40	Standard: Test Start D Test End Da ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61 -28.36 -37.03 -34.24	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61 15.36 24.03 21.24	Pass/Fail PASS PASS PASS PASS PASS PASS PASS PAS
	Distance	Substitution Antenna Type Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267 Horn SN6267	Project Ni Company: Product: Product: Product: CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128 CH128	Ellular GS imber: Frequency MHz 1648.40 4933.00 1640.00 1648.40 7219.25 7254.25 1579.00 1697.00 1697.00 4242.50	072804KBC-T5 Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52 64.66 67.07 68.11 66.20 69.34 65.27	Jetooth Ho i41-E24G/E15B ronet Bluetooth Bluetooth Spu Substituted A Signal Level (uncorrected) dBuV 33.60 58.90 35.80 33.90 58.20 58.20 58.20 59.10 35.80 38.30 51.50	rious Emissi Power Applied to Antenna dBm -45.99 -38.61 -43.56 -45.79 -38.73 -37.46 - - - - - - - - - - - - - - - - - - -	Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12 9.10 6.28 6.40 8.34	Standard: Test Start D Test End Da ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61 -28.36 -37.03 -34.24 -31.34	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61 15.36 24.03 21.24 18.34	Pass/Fail PASS PASS PASS PASS PASS PASS PASS PAS
	Distance Distance	Substitution Antenna Type Horn SN6267 Horn SN6267	Project Nu Company: Product: Product: CH128 CH12	Ellular GS mber: Frequency MHz 1648.40 4933.00 1648.40 1648.40 7219.25 7254.25 1579.00 1697.00 4242.50 4956.50 1697.00	072804KBC-T5 Itronix AC775 with Cir AC775 with Cir Corrected Field Strength dBuV/m 64.36 64.06 66.52 64.66 67.07 68.11 66.20 69.34 65.27 64.71 65.27	Jetooth Ho 541-E24G/E15B ronet Bluetooth 1 Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.90 35.80 33.90 58.20 59.10 35.80 33.90 58.20 59.10 35.80 38.30 51.50 49.50 34.80	rious Emissi Power Applied to Antenna dBm -45.99 -38.61 -43.56 -45.79 -38.73 -37.46 -43.31 -40.64 -39.68 -39.22 -43.64	ons Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12 9.10 6.28 6.40 8.34 8.61 6.40	Standard: Test Start D Test End Da Emission ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61 -28.36 -37.03 -34.24 -31.34 -31.34 -37.24	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61 15.36 24.03 21.24 18.34 17.61 24.24	Pass/Fail PASS PASS PASS PASS PASS PASS PASS PAS
< I I I I I I < < < < I I Polarity	Certain Control Contro	Substitution Antenna Type Horn SN6267 Horn SN6267	Project Nu Company: Product: Product: Product: CH128 C	Ellular GS mber: Frequency MHz 1648.40 4933.00 1640.00 1648.40 7219.25 7254.25 1579.00 1697.00 4242.50 4956.50 1697.00	072804KBC-T5 Itronix AC775 with Cir AC775 with Cir Corrected Field Strength 64.36 64.06 66.52 64.66 67.07 68.11 66.20 69.34 65.27 64.71 65.84	Jetooth Ho 541-E24G/E15B ronet Bluetooth 1 Bluetooth Spu Substituted SA Signal Level (uncorrected) dBuV 33.60 58.90 35.80 36.80 36.90 36.80 36.90 36.80 36.90 36.80 36.90 36.80 3	rious Emissi Power Applied to Antenna 45.99 -38.61 -43.56 -45.79 -38.73 -37.46 -43.31 -40.64 -39.68 -39.68 -39.22 -43.64	Antenna Gain dBi 6.35 8.61 6.34 6.35 9.12 9.10 6.28 6.40 8.34 8.61 6.40	Standard: Test Start D Test End Da ERP Level dBm -41.78 -32.14 -37.22 -39.44 -29.61 -28.36 -37.03 -34.24 -31.34 -30.61 -37.24	ate: te: ERP Limit dBm* -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	FCC22.917 7-Dec-04 16-Dec-04 16-Dec-04 Margin dB 28.78 19.14 24.22 26.44 16.61 15.36 24.03 21.24 18.34 17.61 24.24	Pass/Fail PASS PASS PASS PASS PASS PASS PASS PAS

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Sierra Wireless AC775 Dual-Band GSM Modem & Cirronet BT2022 Bluetooth							ITRONIX
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Test Report S/N:	072804KBC-T539-E24G/E15B					
Test Date(s):		07Dec04 - 16Dect04				
Test Type:	FCC §2, §15.247, §22H, §24E	IC RSS-210/132/133				
Lab Registration(s):	FCC #714830	IC Lab File #3874				

	Q	elltech	Project I Compan Product	Number: ıy: :	072804KBC-T Itronix AC775 with Cir	541-E24G/E15B rronet Bluetooth			Standard: Test Start Da Test End Dat	te: e:	FCC24.238 7-Dec-04 16-Dec-04	
		_		-	AC775 with	h Bluetooth Spu	rious Emissi	ons				
	Polarity	Substitution Antenna Type	Carrier	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	Emission EIRP Level	EIRP Limit	Margin	Pass/Fail
	H f	m 3 Horn SN6276 3 Horn SN6276	CH512 CH512	MHz 1850.00 1850.00	dBuV/m 72.65 72.35	dBuV 40.70 40.40	dBm -34.90 -34.70	dBi 6.67 6.67	dBm -28.23 -28.03	dBm* -13.00 -13.00	dB 15.23 15.03	PASS PASS
	H :	3 Horn SN6276	CH810	1910.00	70.15	37.90	-31.00	6.68	-24.32	-13.00	11.32	PASS
	Fo Ell	ote: om Antenna used fr ly emissions with f ormulae: RP Level (dBm) = l argin (dB) = Limit (d	or substitutio ield strength Power applio IBm) - Leve	on is within 20 dB of ed to Antenna (dB I (dBm)	the theoretical lir m) + Antenna Ga	mit were substitut ain (dBi)	ted and reported	ed herein.				
irio	us E	Emissions liech	(PCS Project No Company	GSM wit	h Blueto 072804KBC-T5 Itronix	oth Hopp 541-E24G/E15B	bing)		Standard: Test Start D	Date:	FCC24.23 7-Dec-04	8
	bela per	rfogiweig Sevinal II	Product:		AC775 with Cir	ronet Bluetooth			Test End Da	ate:	16-Dec-04	
Polarity	Distance	Substitution Antenna Type	Carrier	Frequency	Corrected Field Strength	Substituted SA Signal Level (uncorrected)	Power Applied to Antenna	Antenna Gain	Emission EIRP Level	EIRP Limit	t Margin	Pass/Fail
н	m 3	Horn SN6276	CH512	MHz 4856 75	dBuV/m	dBuV	dBm	dBi	dBm	dBm*	dB	PASS
н	3	Horn SN6276	CH512	4947.75	68.79	53.60	-34.79	8.51	-26.28	-13.00	13.28	PASS
Н	3	Horn SN6276 Horn SN6276	CH512 CH512	7350.50 7399.50	63.59 65.39	44.40 46.10	-41.81 -41.27	9.09	-32.72	-13.00	19.72 19.21	PASS
н	3	Horn SN6276	CH512	9251.00	63.57	41.80	-40.89	9.30	-31.59	-13.00	18.59	PASS
V	3	Horn SN6276 Horn SN6276	CH512 CH512	6752.00 7268.25	62.46 67.03	44.70 48.00	-45.25	9.45 9.14	-35.80	-13.00	22.80	PASS
	3	Horn SN6276	CH512	7399.50	63.69	44.40	-47.67	9.06	-38.61	-13.00	25.61	PASS
V	3	Horn SN6276 Horn SN6276	CH512 CH512	8295.50 9251.00	67.12 63.37	46.70 41.60	-47.40 -44.82	9.32 9.30	-38.08 -35.52	-13.00 -13.00	25.08 22.52	PASS PASS
V V V		Hom CNC070	CU040	3930 75	62.02	50.10	39 50	7 67	30.05	12.00	17.95	DVCC
V V V	2	110111 3110270	011010	4940.75	67.48	52.30	-33.50	8.51	-24.99	-13.00	11.99	PASS
V V H H	3 3	Horn SN6276	CH810			44.60		0.05	-30.25	-13.00	17.25	PASS
V V H H H	3 3 3	Horn SN6276 Horn SN6276	CH810 CH810	7417.00	63.95	45.00	-39.30	9.05	24.05	10.00	24.05	· PASS
> > > н н н н н	3 3 3 3 3	Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276	CH810 CH810 CH810 CH810	7417.00 7637.50 9548.50	63.95 65.54 65.02	45.80 43.10	-39.30 -43.90 -39.58	9.05 9.05 9.54	-34.85 -30.04	-13.00 -13.00	21.85 17.04	PASS
> > > H H H H Z	3 3 3 3 3 3	Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276	CH810 CH810 CH810 CH810 CH810	7417.00 7637.50 9548.50 3819.00	63.95 65.54 65.02 62.92	45.80 43.10 50.10	-39.30 -43.90 -39.58 -39.74	9.05 9.05 9.54 7.67	-34.85 -30.04 -32.07	-13.00 -13.00 -13.00	21.85 17.04 19.07	PASS
> > > < н н н н н н н > > > > < < < < < < < < < < < < < < < <	3 3 3 3 3 3 3 3 3 3 3	Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276	CH810 CH810 CH810 CH810 CH810 CH810 CH810	7417.00 7637.50 9548.50 3819.00 3820.75 7207.00	63.95 65.54 65.02 62.92 63.12 65.02	45.80 43.10 50.10 50.30 46.20	-39.30 -43.90 -39.58 -39.74 -39.53 -43.36	9.05 9.05 9.54 7.67 7.67 9.18	-34.85 -30.04 -32.07 -31.86 -34.18	-13.00 -13.00 -13.00 -13.00 -13.00	21.85 17.04 19.07 18.86 21.18	PASS PASS PASS PASS
	3 3 3 3 3 3 3 3 3 3 3 3	Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276	CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810	7417.00 7637.50 9548.50 3819.00 3820.75 7207.00 7268.25	63.95 65.54 65.02 62.92 63.12 65.02 63.63	44.80 45.80 43.10 50.10 50.30 46.20 44.60	-39.30 -43.90 -39.58 -39.74 -39.53 -43.36 -45.31	9.05 9.05 9.54 7.67 7.67 9.18 9.14	-34.85 -30.04 -32.07 -31.86 -34.18 -36.17	-13.00 -13.00 -13.00 -13.00 -13.00 -13.00	21.85 17.04 19.07 18.86 21.18 23.17	PASS PASS PASS PASS PASS PASS
V V V H H H H H V V V V V V V V V V V V	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276 Horn SN6276	CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810	7417.00 7637.50 9548.50 3819.00 3820.75 7207.00 7268.25 7637.50 8757.50	63.95 65.54 65.02 62.92 63.12 65.02 63.63 65.14 64.13	43.00 45.80 43.10 50.10 50.30 46.20 44.60 45.40 43.10	-39.30 -43.90 -39.58 -39.74 -39.53 -43.36 -45.31 -46.33 -51.90	9.05 9.05 9.54 7.67 9.18 9.14 9.05 9.25	-34.85 -30.04 -32.07 -31.86 -34.18 -36.17 -37.28 -42.65	-13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	21.85 17.04 19.07 18.86 21.18 23.17 24.28 29.65	PASS PASS PASS PASS PASS PASS PASS
V V H H H H V V V V V V V V V V V	3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	Horn SN6276 Horn SN6276	CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810 CH810	7417.00 7637.50 9548.50 3819.00 3820.75 7207.00 7268.25 7637.50 8757.50 8757.50 9548.50	63.95 65.54 65.02 62.92 63.12 65.02 63.63 65.14 64.13 64.62	45.80 45.80 50.10 50.30 46.20 44.60 45.40 43.10 42.70	-39.30 -43.90 -39.58 -39.74 -39.53 -43.36 -45.31 -46.33 -51.90 -43.14	9.05 9.05 9.54 7.67 7.67 9.18 9.14 9.05 9.25 9.25 9.54	-34.85 -30.04 -32.07 -31.86 -34.18 -36.17 -37.28 -42.65 -33.60 -22.17	-13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00 -13.00	21.85 17.04 19.07 18.86 21.18 23.17 24.28 29.65 20.60 20.47	PASS PASS PASS PASS PASS PASS PASS PASS

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Lab Registration(s):	FCC #714830	IC Lab File #3874				

D.10. PASS/FAIL

In reference to the results outlined in D.9, 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 $43 + 10 \log(P) dB$.

D.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.

sull W. Pupe

Russell Pipe Senior Compliance Technologist Celltech Labs Inc.

16Dec04 Date

Applicant:	Itronix Co	rporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
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Lab Registration(s):	FCC #714830	IC Lab File #3874				

Appendix E - Maximum Permissible Exposure Calculation

E.1. REFERENCES	
Normative Reference Standard	FCC CFR 47§1.1310 IEEE Std C95.1-1999
Procedure Reference	FCC CFR 47§2.1091

E.2. LIMITS		
	Frequency	Power Density
FCC CFR 47§1.1310 Table 1(b)	300 – 1500 MHz	f/1500 mW/cm ²
	1500 – 100,000 MHz	1.0 mW/cm ²

E.3. ENVIRONMENTAL CONDITIONS				
Temperature	na			
Humidity	na			
Barometric Pressure	na			

E.4. EQUIPMENT LIST									
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE				
na									

E.5. MEASUREMENT EQUIPMENT SETUP					
MEASUREMENT EQUIPMENT CONNECTIONS	The results described herein were determined by calculations, so no measurement equipment was used. The power measurements for each radio used in these calculations were made with the system co-transmitting as described in Appendix C and F of this report.				
MEASUREMENT EQUIPMENT SETTINGS	na				

E.6. SETUP PHOTOS

na

E.7. SETUP DRAWINGS

na

E.8. DUT OPERATING DESCRIPTION					
Bluetooth	The maximum Bluetooth conducted power used for these calculations was measured on Channel 0, with a power setting of 220/45 while the Dual-Band GSM Modem was transmitting on Channel 128.				
Dual-Band GSM	The maximum GSM Modem conducted power in each band, used for these calculations was measured on Channel 251 for cellular and Channel 810 for PCS, with the Bluetooth in hopping mode.				

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Results:								
Mode	So Tir RF Or	ource-Based ne-Averaged F Conducted utput Power	Ante	nna Gain	MPE Distance	e Power Den	sity at 20 cm	Power Density Limit
		dBm		dBi	cm	mV	V/cm ²	mW/cm ²
Bluetooth (CH0)		16.29		4.5	3.09	0.0	0238	1.0
Cellular - GSM		28.21		2.6	13.02	0.2	2395	0.57
PCS -GSM		25.07		2.6	6.82	0.1	1162	1.0
E.9.2. Co	-Trar	nsmit MPE Calc	ulations	;				
		Radio		20 cm Po	ower Density	Ratio	Limit	
				m	W/cm ²	(S/Limit)	mW/cm ²	
		GSM Cellular		0	.2395	0.4232	0.57	
Blueto		Bluetoo	th	0	.0238	0.0238	1	
				Sum =	0.4470	1		
	Radio			20 cm Po	ower Density	Ratio	Limit	
			m	W/cm ²	(S/Limit)	mW/cm ²		
GSM PC		S	0	.1162	0.1162	1		
Bluetoo		th	0	.0238	0.0238	1		
					Sum =	0.1400	1	

E.10. PASS/FAIL

In reference to the results outlined in E.9 the DUT passes the requirements as stated in the reference standards as follows: 1) The DUT must comply with the minimum spacing requirement of 20 cm to ensure an exposure of not more than f/1500 (0.57) mW/cm² for frequencies between 300 and 1500 MHz and 1 mW/cm² for frequencies between 1500 and 100,000 MHz.

E.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.

Duane M. Friesen, C.E.T. EMC Manager Celltech Labs Inc.

15Dec04 Date

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
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Appendix F - GSM Conducted RF Output Power Measurement

F.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §2.1046
Procedure Reference	FCC CFR 47 §2.1046

F.2. LIMITS

For reference only to compare the effect the bluetooth transmitter co-transmitting had on the GSM transmitter power. Single transmit conducted powers:

Mode	Channel	Frequency	Conducted Power
Cellular GSM	128	824.2 MHz	+31.73 dBm
	190	836.6 MHz	+31.61 dBm
	251	848.8 MHz	+31.71 dBm
PCS GSM	512	1850.2 MHz	+28.51 dBm
	661	1880.0 MHz	+28.55 dBm
	810	1909.8 MHz	+28.63 dBm

F.3. ENVIRONMENTAL CONDITIONS			
Temperature	25.2 +/- 2 °C		
Humidity	35 +/- 2 %		
Barometric Pressure	96.34 kPa		

F.4. EQUIPMENT LIST									
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE				
80000	Gigatronics	8652A	Power Meter	30Apr04	30Apr05				
00010	Gigatronics	80701A	Power Sensor	30Apr04	30Apr05				
00012	Gigatronics	80701A	Power Sensor	30Apr04	30Apr05				
00107	HP	8491C	Attenuator	n/a	n/a				

*Cable and attenuator verified with power meter prior to use

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Lab Registration(s):	FCC #714830	IC Lab File #3874			

F.5. MEASUREMENT EQUIPMENT SETUP				
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in F.6.			
Measurement Equipment Settings	Power Meter Settings: Mode – MAP Frequency compensation set for carrier frequency Offset set appropriately for carrier frequency and attenuator characteristics			
Measurement Procedure	The RF conducted power levels for both PCS and cellular bands were measured at the DUT antenna connector port using a Gigatronics 8652A Universal Power Meter in mean 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 DUT test software was used to set it to transmit in the GSM "always up" power control mode. All subsequent tests were performed using the same power measurement procedures.			

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Lab Registration(s):	FCC #714830	IC Lab File #3874			

F.7. DUT OPERATING DESCRIPTION

During this evaluation, the Bluetooth transmitter was set to co-transmit in a hopping mode as described in section 5.7.2. Power measurements were then made of each channel in both the cellular and PCS bands, with the GSM modem set appropriately as described in section 5.7.1

– 0	TEOT	DECU	I TO
- F.ð	. IESI	RESU	LIS

Mode	Channel	Frequency	Conducted Power
Cellular GSM	128	824.2 MHz	+31.12 dBm
	190	836.6 MHz	+31.18 dBm
	251	848.8 MHz	+31.22 dBm
PCS GSM	512	1850.2 MHz	+27.94 dBm
	661	1880.0 MHz	+28.05 dBm
	810	1909.8 MHz	+28.08 dBm

F.9. PASS/FAIL

As a reference with the single transmit conducted RF power levels, the output of the GSM transmitter was reduced by a maximum of 0.61 dB when co-transmitting with the Bluetooth transmitter.

F.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.

W. Pupe

Russell Pipe Senior Compliance Technologist Celltech Labs Inc.

> 8Dec04 Date

Applicant:	Itronix Corp	oration	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
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END OF DOCUMENT

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