

Test Report S/N:	072804KBC-T539-E15B Issue 1			
Test Date(s):	21Sept04 - 14Oct04, 22Oct04			
Test Type(s):	FCC §15.247 IC RSS-210 Issue			
Lab Registration(s):	FCC #714830	IC Lab	File #3874	

FCC PART 15.247 EMC TEST REPORT FOR THE

ITRONIX RUGGED LAPTOP PC MODEL: IX260PROA775BT

WITH

CIRRONET BT2022 BLUETOOTH TRANSMITTER

AND

INTERNAL RANGESTAR SURFACE-MOUNT ANTENNA

CO-LOCATED WITH

INTEL PRO 2200BG 802.11B/G 2.4 GHz DSSS WLAN MINI-PCI CARD AND INTERNAL RANGESTAR SURFACE-MOUNT ANTENNA

CO-LOCATED WITH

SIERRA WIRELESS AIRCARD 775 DUAL-BAND GSM GPRS/EDGE PCMCIA MODEM AND EXTERNAL SWIVEL DIPOLE ANTENNA

TRSN 072804KBC-T539-E15B Issue 1.0

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

October 22, 2004



Test Report S/N:	072804KBC-T	Issue 1.0		
Test Date(s):	21Sept04 - 14Oct04, 22Oct04			
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5	
Lab Registration(s):	FCC #714830	IC Lab	File #3874	

DECLARATION OF COMPLIANCE									
Test Lab Phone:	CELLTECH LABS INC. Testing and Engineering Services 1955 Moss Court Kelowna, B.C. Canada V1Y 9L3 250-448-7047 250-448-7048			Applicant I	Inform	ation_	ITRONIX CORPORATION 801 South Stevens Street Spokane, WA 99204 United States		
Fax: e-mail:									
web site:			celltechlabs.com celltechlabs.com						
Laboratory Regi				FCC:	714830		IC:	IC 387	4
Rule Part(s):		FCC:	-	§15.247	7; §2.1091; §1.1310	<u> </u>	IC:	RSS-2	10 Issue 5
Device Classifica	tion:	FCC:		Spread	Spectrum Transmi	tter (DSS)	IC:	Low Po	ower Licence-Exempt Transmitter
Device Identification: FCC ID:		ID:	KBCIX260PROA775BT			IC:	1943A	-IX260Pe	
DUT Description:									
Model:			IX26	0PROA7	75BT				
Device Descripti	on:		Rugg	Rugged Laptop PC with internal Cirronet BT2022 Bluetooth Transmitter					
Co-located Trans	smitter(s): –			Pro 2200BG 802.11b/g 2.4 GHz DSSS WLAN Mini-PCI Card Wireless AirCard 775 Dual-Band PCS/Cellular GSM GPRS/EDGE PCMCIA Modem				
Tx Frequency Ra	ange:				MHz (Bluetooth)				
Max. RF Output					/ 15.61 dBm (Peak	Conducted)			
Mode(s) of Oper	ation:		Freq	uency H	opping Spread Spec	ctrum (FHSS)			
Modulation Type	e(s):		GFS	K 1 Mbp	s 0.5 BT Gaussian				
			Blue	tooth: Ra	angeStar P/N: 1009	929 Internal S	Surface-	Mount (ı	upper left rear edge of LCD Display)
Antenna Type(s)	:		WLA	N: Rang	geStar P/N: 100929	Internal Surf	ace-Mo	ount (upp	per right rear edge of LCD Display)
			GSN	1 GPRS/	EDGE: Itronix IX26	0+ External S	Swivel [Dipole (u	pper right side edge of LCD Display)
Power Supply:			90 W	/att AC F	Power Adapter				

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 Part 15.247 and Industry Canada RSS-210 Issue 5.

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.

Russell Pipe

Senior Compliance Technologist

Celltech Labs Inc.

Duane M. Friesen EMC Manager Celltech Labs Inc.



				-			-
Applicant:	Itronix Corporatio	n Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM						ITRONIX [®]	
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Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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	TEST SUMMARY							
	Referen	ced Standard: FCC CFF	R Title 47 Part 15					
Appendix	Test Description	Procedure Reference	Limit Reference	Test Start Date	Test End Date	Result		
В	Powerline Conducted Emissions	ANSI C63.4	§15.207	14Oct04	14Oct04	Pass		
С	Peak Conducted RF Power	FCC 97-114	§15.247 (b) (1)	21Sep04	21Sep04	Pass		
D	Adjacent Channel Separation	Note 1	§15.247 (a) (1)	Note 1	Note 1	Pass		
E	Number of Hopping Channels	Note 1	§15.247 (a) (1) (iii)	Note 1	Note 1	Pass		
F	Channel Dwell Time	Note 1	§15.247 (a) (1) §15.247 (a) (1) (iii)	Note 1	Note 1	Pass		
G	20 dB Bandwidth	Note 1	§15.247 (a) (1) (iii)	Note 1	Note 1	Pass		
Н	Radiated Spurious Emissions	FCC 97-114	§15.247(c)	22Sep04	01Oct04	Pass		
	radiated oparious Emissions	10001114	310.241(0)	2200p0+	22Oct04	1 000		
1	Restricted Band Emissions	FCC 97-114	§15.205 (a), (b)	22Sep04	01Oct04	Pass		
'	Nestricted Dand Emissions	1 00 97-114	§15.209 (a)	220ep04	22Oct04			
J	Maximum Permissible Exposure	FCC CFR 47 § 2.1091 IEEE Std C95.1-1999	§1.1310 Table 1 (b)	13Oct04	13Oct04	Pass		
	Refe	renced Standard: IC RS	S-210 Issue 5	_				
В	Powerline Conducted Emissions	RSS-212, ANSI C63.4	RSS-210 §6.6	14Oct04	14Oct04	Pass		
С	Peak Conducted RF Power	RSS-210 § 10	RSS-210 §6.2.2 (o)(a3)	21Sep04	21Sep04	Pass		
D	Adjacent Channel Separation	RSS-210 § 10	RSS-210 A1 §I (ii)	Note 1	Note 1	Pass		
Е	Number of Hopping Channels	RSS-210 § 10	RSS-210 A1 §I (ii)	Note 1	Note 1	Pass		
F	Channel Dwell Time	RSS-210 § 10	RSS-210 A1 §I (ii)	Note 1	Note 1	Pass		
G	20 dB Bandwidth	RSS-210 § 10	RSS-210 A1 §I (ii)	Note 1	Note 1	Pass		
Н	Radiated Spurious Emissions	RSS-212, ANSI C63.4	RSS-210 §6.2.2 (o)(e1)	22Sep04	01Oct04	Daga		
П	Radiated Spurious Emissions	K33-212, ANSI C03.4	R33-210 go.2.2 (0)(e1)	223ep04	22Oct04	Pass		
1	Restricted Band Emissions	RSS-212, ANSI C63.4	RSS-210 §6.3	22Sep04	01Oct04	Pass		
'	Restricted Darid Linissions	133-212, ANSI 603.4	N33-2 10 gu.3	223ep04	22Oct04	Газэ		
J	Maximum Permissible Exposure	RSS-102	RSS-210 §14 Safety Code 6 2.2.1(a) Table 5	13Oct04	13Oct04	Pass		

Note 1: The test procedures used and the results obtained are referenced to the ACS Test Report Number 03-0193-15BC.

REVISION LOG

Issue	Description	Implemented By	Implementation Date	
1.0	Initial Release	Jon Hughes	22Oct04	

SIGNATORIES

Prepared By	D2-	Oct. 22, 2004
Name/Title	Duane M. Friesen, C.E.T. / EMC Manager	Date
Approved By	GA-	Oct. 22, 2004
Name/Title	Jon Hughes / General Manager	Date

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe	
Rugged La	ptop PC with Cirronet	th Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM						
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Lab Registration(s):	FCC #714830	IC Lab	File #3874	

1.0 <u>SCOPE</u>

This report outlines the measurements made and results collected during electromagnetic emissions testing of the Itronix Corporation Rugged Laptop PC including the internal Cirronet BT2022 Bluetooth Transmitter with a Rangestar internal surface-mount antenna located in the upper rear left side of the LCD display. The DUT also incorporates an internal Intel Pro 2200BG 802.11b/g 2.4 GHz DSSS WLAN Mini-PCI Card with a Rangestar internal surface-mount antenna located in the upper rear right side of the LCD display. The DUT also incorporates an internal co-located internal Sierra Wireless AirCard 775 Dual-Band GSM GPRS/EDGE PCMCIA Modem with an external swivel dipole antenna located at the upper right side edge of the LCD display. The Cirronet BT2022 Bluetooth and the Intel Pro 2200BG 802.11b/g WLAN can transmit simultaneously. The Cirronet BT2022 Bluetooth and the Sierra Wireless AirCard 775 GSM GPRS/EDGE Modem can transmit simultaneously. The Intel Pro 2200BG 802.11b/g WLAN and the Sierra Wireless AirCard 775 GSM GPRS/EDGE PCMCIA Modem were disabled during the Cirronet BT2022 Bluetooth measurements referenced in this report. Please refer to the Supplementary EMC test reports for simultaneous transmit measurement data. The results were applied against the 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 15 subpart C.

2.0 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

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

IC Spectrum Management &

Radio Standards Specification

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

RSS-210 Issue 5 - Low Power Licence-Exempt Radiocommunication Devices:

November 2001 & Amendment November 30, 2002

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

ACS Test Report FCC Part 15 Certification Test Report

2.4 GHz Frequency Hopping Spread Spectrum (Modular Approval)

ACS Report Number 03-0193-15BC

Issue Date: January 5, 2004



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3.0 TERMS AND DEFINITIONS

AVG Average

CFR Code of Federal Regulations

dB decibel

dBmdB referenced to 1 mWdBuVdB referenced to 1 uVDUTDevice under TestdBcdB down from carrierEBWEmission Bandwidth

EMC Electromagnetic Compatibility

FCC Federal Communication Commission FHSS Frequency Hopping Spread Spectrum

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 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
ddress:	801 South Stevens Street
	Spokane, WA 99204
	United States

5.2 DUT Description

The DUT consisted of the Rugged Laptop PC with the Cirronet BT2022 Bluetooth Transmitter connected to the RangeStar Internal Surface-Mount Antenna installed in the upper left side edge of the LCD display. Co-located within the Rugged Laptop PC is an Intel Pro 2200BG 802.11b/g 2.4 GHz DSSS WLAN Mini-PCI Card connected to the RangeStar Internal Surface-Mount Antenna installed in the upper right side edge of the LCD display. The DUT also incorporates an internal co-located Sierra Wireless AirCard 775 Dual-Band GSM GPRS/EDGE PCMCIA Modem with external swivel dipole antenna located at the upper right side edge of the LCD display. Photographs of the DUT placement and construction are shown in Appendix A.

Device:	IX260+ Ru	IX260+ Rugged Laptop PC			
Model:	IX260PRO	IX260PROA775BT			
Serial Number:	ZZGEG419	ZZGEG4196ZZ6473			
Identifier(s):	FCC ID:	FCC ID: KBCIX260PROA775BT IC: 1943A-IX260Pe			
Power Source:	Delta Elect	Delta Electronics Model ADP-90AB Rev B 90 Watt AC-DC power supply			

Device:	2.4GHz FI	2.4GHz FHSS Bluetooth Transmitter					
Model:	Cirronet B	Cirronet BT2022					
Serial Number:	n/a	n/a					
Rule Part(s):	FCC:	§15.247; §2.1091; §1.1310	IC:	RSS-210 Issue 5			
Classification:	FCC: Spread Spectrum Transmitter (DSS) IC: Low Power Licence-Exempt Transmitte						
Power Source:	Powered fr	Powered from the internal PC power supply					

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

Applicant:	Itronix Corporat	on Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe		
Rugged Lap	ptop PC with Cirre	op PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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5.3 Co-Located Equipment

Device:	2.4GHz DSSS WLAN Mini-PCI Card (802.11b/g)
Model:	Intel Pro 2200BG
Serial Number:	06036C074ADC54906006
Antenna Type:	Internal Surface-Mount Antenna (upper right side edge of LCD display)
Model:	RangeStar P/N: 100929
Gain:	4.5 dBi

Device:	Dual-Band PCS/Cellular GSM GPRS/EDGE PCMCIA Modem
Model:	Sierra Wireless AirCard 775
Serial Number:	63013A85
Antenna Type:	External Swivel Dipole Antenna (upper right side edge of LCD display)
Model:	Itronix IX260+
Gain:	2.6 dBi

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

5.4 Cable Descriptions

ROUT	TING	Length	Model	Termin	ations	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

5.5 Support Equipment

The following equipment was used in support of the DUT.

CO-LOCATED SUPPORT EQUIPMENT LIST				
MANUFACTURER	IANUFACTURER 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		

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

5.6.1 <u>DUT Clock Frequencies</u>

Device:	Rugged Laptop PC
Clocks:	1.6 GHz processor
Device:	2.4GHz FHSS Cirronet Bluetooth
Clocks:	n/a
Device:	Internal Surface-Mount Antenna
Clocks:	None

5.6.2 Co-Located Clock Frequencies

Device:	Peripherals
Clocks:	n/a

5.7 Mode(s) of Operation Tested

Customer supplied software was used to place the Bluetooth radio module at the appropriate channel with the power level and modulation for the specific measurement.

TX Frequency Range	2402 - 2480 MHz Ch. 0 (2402 MHz), Ch. 39 (2441 MHz) & Ch. 78 (2480 MHz) measured unless otherwise noted)
Software Power Gain Settings	Ch. 0 - 250 / 40 Ch. 39 - 250 / 44 Ch. 78 - 220 / 45
RF Peak Conducted Output Power Tested	Ch. 0 - +15.40 dBm Ch. 39 - +15.61 dBm Ch. 78 - +15.34 dBm
Modulation Type	GFSK 0.5 BT Gaussian
Modulation Frequency	1000
Battery Type(s)	11.1V Lithium-lon, 6.0Ah (Model: A2121-2)

5.7.1 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 module's operation. The settings used are described in each appendix.



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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. 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.

Prescan measurements were made with the Bluetooth transmitter set at each of three frequencies describing the frequency band of operation; low (2402 MHz), mid (2441 MHz) and high (2480 MHz) to determine the highest emission present in each band. The transmit power setting for each of these frequencies was set to closely match that defined in the modular certification. A representative modulation of 1000 was applied when applicable. Unless otherwise specified in the applicable appendices, these settings were used for the measurements described in this report.

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.



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APPENDIX



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Appendix A - DUT Photographs

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

Photograph A-2 - Top of Closed IX260+ Laptop PC





Photograph A-3 - Left Side of Open IX260+ Laptop PC





Photograph A-4 - Right Side of Open IX260+ Laptop PC



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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	

^{*}Decreases 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



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B.5. MEASUREMENT EQUIPMENT SETUP				
MEASUREMENT EQUIPMENT CONNECTIONS	The conducted emissions were measured on each of the two AC powerline leads connected to the DUT's power supply brick. A two line LISN was used to make this measurement. A drawing of the equipment setup is shown in B.7			
MEASUREMENT EQUIPMENT SETTINGS	Each of the monitor ports from the 2-line LISN was connected in turn to the spectrum analyzer. The port not connected to the analyzer was terminated in a 50-ohm load. A pre-scan of the peak emission levels was made of the 150 kHz – 30 MHz range split into 4 equal frequency bands. The following were the instrumentation settings: Spectrum Analyzer: Start Frequency and Stop Frequency set by software for each of the four bands RBW: 100 kHz VBW: 300 kHz Sweep: 500 mS Quasi-Peak Adapter: Normal - Automatic Bandwidth Setting: 9 kHz The resulting data from each band was corrected and collected by software and presented in the graphical representations shown in B.9 for the two leads. A defined set of frequency points of interest on each lead were used by software to			
	optimize a set of readings for each type of detector (peak, quasi-peak and average). This data was corrected by the software and is presented in the tables shown in section B.9.			



Test Report S/N:	072804KBC-1	539-E15B	Issue 1.0
Test Date(s):	21Sept	t04 - 14Oct0	4, 22Oct04
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

B.6. SETUP PHOTOS

Photograph B-1 - AC Powerline Conducted Emission Configuration



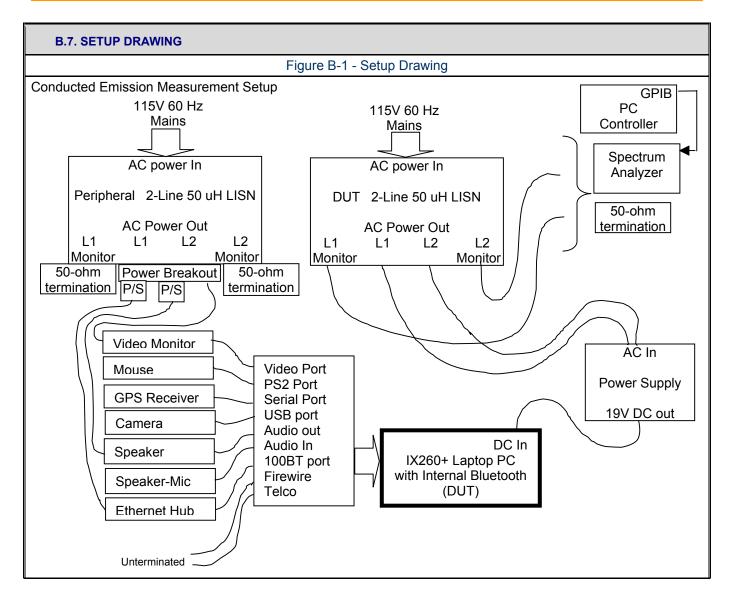
Photograph B-2 - AC Powerline Conducted Emission Cable Placement



Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Lap	ptop PC with Cirronet	th Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM					
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Test Report S/N:	072804KBC-T539-E15B		Issue 1.0
Test Date(s):	21Sept04 - 14Oct04, 22Oct04		
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874



B.8. DUT OPERATING DESCRIPTION			
Bluetooth	The Bluetooth transmitter was set to transmit at full power on Channel 39 (2441 MHz) with a 1000 modulation setting.		
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.		

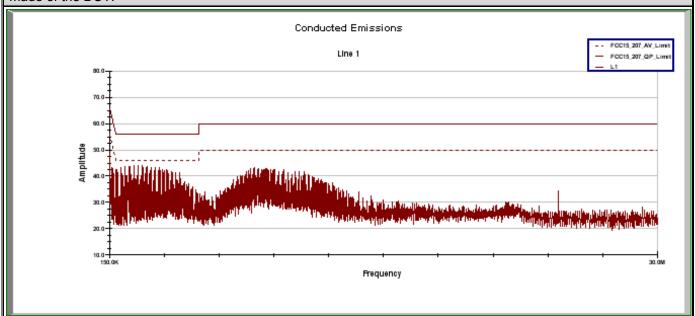
Applicant:	Itronix Corporation	Model: IX260PROA775BT FCC ID: KBCIX260PROA775BT I				IC ID:	1943A-IX260Pe
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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Test Report S/N:	072804KBC-T539-E15B Issue				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04				
Test Type(s):	FCC §15.247 IC RSS-210 Issue 5				
Lab Registration(s): FCC #714830 IC Lab File :					

B.9. TEST RESULTS

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

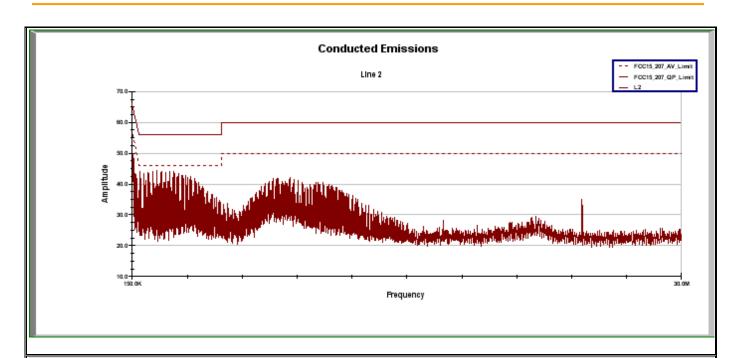


Celltech comp		Company: Product:	1072804KBC-T543-E158				Standard: Test Start Date: Test End Date:		14-Oct-04 14-Oct-04			
					Line	e 1 Conducte	d Emission	ıs				
requency	Und	corrected Rea	ding	Correction Factor	Corre	cted Emission	Level	Quasi-Peak Limit	Quasi-Peak Margin	Average Limit	Average Margin	Pass/Fail
	Peak	Quasi-Peak	Average	1 doloi	Peak	Quasi-Peak	Average	Lilling	margin	LIIIIL	Margin	rass/rall
MHz	dBu∀	dBu∀	dBu∀	dB	dBu∀	dBu∀	dBu∀	dBu∀	dB	dBu∀	dB	
0.159	50.40	47.24	45.54	1.98	52.38	49.22	47.52	65.53	16.31	55.53	8.01	Pass
1.251	43.60	43.04	43.15	0.31	43.91	43.35	43.46	56.00	12.66	46.00	2.55	Pass
1.252	43.80	43.14	43.29	0.30	44.10	43.44	43.59	56.00	12.56	46.00	2.41	Pass
1.486	44.00	43.19	43.32	0.29	44.29	43.48	43.61	56.00	12.52	46.00	2.39	Pass
1.718	43.80	43.15	43.18	0.29	44.09	43.44	43.47	56.00	12.57	46.00	2.54	Pass
1.722	44.00	43.34	43.50	0.28	44.29	43.63	43.78	56.00	12.38	46.00	2.22	Pass
1.957	44.10	43.25	43.34	0.28	44.38	43.53	43.62	56.00	12.47	46.00	2.38	Pass
8.055	43.40	41.99	39.94	0.32	43.72	42.31	40.26	60.00	17.69	50.00	9.74	Pass
		 evel (dBuV) BuV) - Corre				Correction	Factor (dB))				
,		,		,								

Applicant:	pplicant: Itronix Corporation Model: IX260PROA775BT FCC ID: KBCIX260PROA775BT II						
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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Test Report S/N:	072804KBC-T539-E15B Issue 1.0					
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue 5					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			



Ce	etili	ch	Company:		ttronix				Test Start D	ate:	14-Oct-04	
Testi	ng and Engineering	Services Lab	Product:		IX260+ with	Cirronet BT20:	22 Bluetooth		Test End Da	te:	14-Oct-04	
					Line	e 2 Conducte	d Emission	s				
Frequency	Und	corrected Rea	ding	Correction Factor	Corre	cted Emission	Level	Quasi-Peak Limit	Quasi-Peak Margin	Average Limit	Average Margin	Pass/Fail
	Peak	Quasi-Peak	Average	1 dotor	Peak	Quasi-Peak	Average		mar giri	Liiiik	mar giiri	r assar all
MHz	dBu∀	dBu∀	dBu∀	dB	dBu∀	dBu∀	dBu∀	dBu∀	dB	dBu∀	dB	
0.158	51.50	48.10	47.43	1.98	53.48	50.08	49.41	65.55	15.47	55.55	6.14	Pass
0.215	47.50	45.05	36.85	1.28	48.78	46.33	38.13	63.00	16.67	53.00	14.87	Pass
0.500	47.09	45.17	39.25	0.47	47.56	45.64	39.72	56.00	10.36	46.00	6.28	Pass
1.253	44.00	43.50	43.59	0.30	44.30	43.80	43.89	56.00	12.20	46.00	2.11	Pass
1.483	44.10	43.48	43.48	0.29	44.39	43.77	43.77	56.00	12.23	46.00	2.23	Pass
1.485	44.30	43.51	43.59	0.29	44.59	43.80	43.89	56.00	12.20	46.00	2.11	Pass
5.000	43.18	42.37	41.73	0.30	43.48	42.67	42.03	56.00	13.33	46.00	3.97	Pass
8.683	41.99	41.15	39.76	0.33	42.32	41.48	40.09	60.00	18.52	50.00	9.91	Pass
		evel (dBuV) : BuV) - Corre				Correction	Factor (dB)					

Applicant:	Itronix Corporation	ion Model: IX260PROA775BT FCC ID: KBCIX260PROA775BT IC		IC ID:	1943A-IX260Pe			
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM								
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Test Report S/N:	072804KBC-T539-E15B Issue 1.0					
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue 5					
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.

Duane M. Friesen, C.E.T.

EMC Manager Celltech Labs Inc.

12Oct04

Date



Test Report S/N:	072804KBC-T539-E15B Issue 1				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04				
Test Type(s):	FCC §15.247 IC RSS-210 Issue 5				
Lab Registration(s):	31 (7)				

Appendix C - Peak Conducted RF Output Power Measurement

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

C.2. LIMITS

C.2.1. FCC CFR 47

§15.247(b): The maximum peak output power of the intentional radiator shall not exceed the following: §15.247(b) (1) For frequency hopping systems operating in the 2400 – 2483.5 MHz band employing at least 75 hopping channels, and all frequency hopping systems in the 5725 – 5850 MHz bands: 1 Watt.*

Note: When a reference is made to conducted results outlined in the ACS test report they will be referenced to the conducted power measurements outlined in section 6.4 of that report. The conducted power measurements reported herein were made for correlation purposes and are applicable as references for the measurements described in this report.

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

C.4. EQUIPMENT LIST								
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE			
00015	Agilent	E4408B	Spectrum Analyzer	29Dec03	29Dec04			
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	08Jul04*	24Jun05			

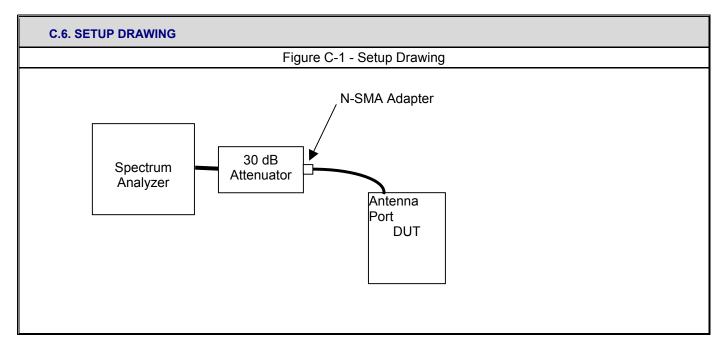
^{*}Attenuator verified with power meter prior to use

^{*}Appendix E results confirm the number of hopping channels is at least 75.



Test Report S/N:	072804KBC-1	539-E15B	Issue 1.0
Test Date(s):	21Sept	t04 - 14Oct0	4, 22Oct04
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

C.5. MEASUREMENT	C.5. MEASUREMENT EQUIPMENT SETUP		
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in C.6.		
Measurement Equipment Settings	The power is measured within the band with the following spectrum analyzer settings: RBW – 100 kHz VBW – 1 MHz Detector – Peak Average – Power		



C.7. DUT OPERATING DESCRIPTION

The unmodulated carrier was set to each of the three frequencies representing the frequency band of operation.



Test Report S/N:	072804KBC-1	539-E15B	Issue 1.0
Test Date(s):	21Sept	t04 - 14Oct0	4, 22Oct04
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

C.8. TEST RESULTS				
Channel	Frequency	Peak Conducted Power Limit		Limit
le .	MHz	dBm	Watts	Watts
Low	2402	15.40	.0347	1
Mid	2441	15.61	.0364	1
High	2480	15.34	.0342	1

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) (1): The peak power did not exceed 1 Watt.

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.

Duane M. Friesen, C.E.T.

EMC Manager Celltech Labs Inc.

14Oct04 Date



Test Report S/N:	072804KBC-1	539-E15B	Issue 1.0
Test Date(s):	21Sept	t04 - 14Oct0	4, 22Oct04
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

Appendix D - Adjacent Channel Separation

D.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.247 (a) (1)
Test Reference	ACS Test Report: FCC Part 15 Certification Test Report - FCC ID: HSW-BT2022M 2.4 GHz Frequency Hopping Spread Spectrum (Modular Approval) ACS Report Number 03-0193-15BC Issue Date: January 5, 2004

D.2. LIMITS

§15.247(a) (1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or 20 dB bandwidth of the hopping channel, whichever is greater.

Note: The 20 dB bandwidth of the hopping channel is described to be 1 MHz as outlined in section 6.5.4 of the ACS report. Therefore the channel separation must be 1 MHz.

D.3. TEST PROCEDURE & RESULTS

The test method used to show compliance to the applicable parts and the results obtained are outlined in the ACS reference test report number 03-0193-15BC section 6.5.1. A channel separation of 1.0 MHz was reported for all channels.

D.4. PASS/FAIL



Test Report S/N:	072804KBC-T539-E15B lss		Issue 1.0
Test Date(s):	21Sept04 - 14Oct04, 22Oct04		
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

Appendix E - Number of Hopping Channels

E.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.247 (a) (1) (iii)
Test Reference	ACS Test Report: FCC Part 15 Certification Test Report - FCC ID: HSW-BT2022M 2.4 GHz Frequency Hopping Spread Spectrum (Modular Approval) ACS Report Number 03-0193-15BC Issue Date: January 5, 2004

E.2. LIMITS

§15.247 (a) (1) (iii): Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

E.3. TEST PROCEDURE & RESULTS

The test method used to show compliance to the applicable parts and the results obtained are outlined in the ACS reference test report number 03-0193-15BC section 6.5.2

The results outlined in the reference test report show that the number of hopping channels is at least 75; which implies an applicable power limit of 1 watt be applied to the results outlined in Appendix C.

E.4. PASS/FAIL



Test Report S/N:	072804KBC-1	539-E15B	Issue 1.0
Test Date(s):	21Sept	t04 - 14Oct0	4, 22Oct04
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

Appendix F - Channel Dwell Time

F.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.247 (a) (1), FCC CFR 47 §15.247 (a) (1) (iii)
Test Reference	ACS Test Report: FCC Part 15 Certification Test Report - FCC ID: HSW-BT2022M 2.4 GHz Frequency Hopping Spread Spectrum (Modular Approval) ACS Report Number 03-0193-15BC Issue Date: January 5, 2004

F.2. LIMITS

§15.247 (a) (1):The system shall hop to channel frequencies that are selected at the hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. §15.247 (a) (1) (iii):The average time of occupancy on any channel shall be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

F.3. TEST PROCEDURE & RESULTS

The test method used to show compliance to the applicable parts and the results obtained are outlined in the ACS reference test report number 03-0193-15BC section 6.5.3. A channel dwell of 10 mS each 20 seconds was reported.

F.4. PASS/FAIL



Test Report S/N:	072804KBC-1	539-E15B	Issue 1.0
Test Date(s):	21Sept	t04 - 14Oct0	4, 22Oct04
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5
Lab Registration(s):	FCC #714830	IC Lab	File #3874

Appendix G - 20 dB Bandwidth Measurement

G.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.247 (a) (1) (iii)
Test Reference	ACS Test Report: FCC Part 15 Certification Test Report - FCC ID: HSW-BT2022M 2.4 GHz Frequency Hopping Spread Spectrum (Modular Approval) ACS Report Number 03-0193-15BC Issue Date: January 5, 2004

G.2. LIMITS

§15.247 (a) (1) (iii): Frequency hopping systems in the 2400 – 2483.5 MHz band shall use at least 15 non-overlapping channels.

Note: The channel width as referenced in the results outlined in Appendix C and D is 1 MHz, therefore to be non-overlapping, the 20 dB bandwidth must be no greater than 1 MHz for the system to comply.

G.3. TEST PROCEDURE & RESULTS

The test method used to show compliance to the applicable parts and the results obtained are outlined in the ACS reference test report number 03-0193-15BC section 6.5.4. A 20 dB bandwidth measurement of 1 MHz was reported.

G.4. PASS/FAIL



Test Report S/N:	072804KBC-1	Issue 1.0				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue					
Lab Registration(s):	FCC #714830	File #3874				

Appendix H - Radiated Spurious Emissions Measurement

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

H.2. LIMITS

H.2.1. FCC CFR 47

§15.247 (c): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in 15.209 (a) is not required.

Note:

Spurious emissions within the restricted bands are reported in Appendix I.

The maximum carrier field strength @ 3m was determined to be in the horizontal orientation with transmitter set for the mid channel (2441 MHz). The field strength in this configuration was 108.31 dBuV/m and was used as the limit reference. Therefore the calculated limit used was 88.31 dBuV/m (Limit (dBuV/m) = 108.31 (dBuV/m) – 20 dB) for the horizontal polarization and 83.21 dBuV/m (Limit (dBuV/m) = 103.21 (dBuV/m) – 20 dB) for vertical.

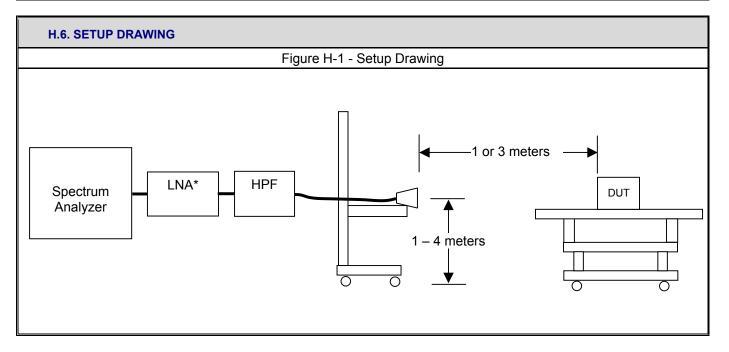
H.3. ENVIRONMENTAL CONDITIONS						
Temperature 27.4 +/- 2 °C						
Humidity	33 +/- 2 %					
Barometric Pressure	96.24 +/- 0.2 kPa					

H.4. EQUIPME	H.4. EQUIPMENT LIST													
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE									
00072	EMCO	2075	Mini-mast	n/a	n/a									
00073	EMCO	2080	2080 Turn Table											
00071	EMCO	2090	Multi-Device Controller	n/a	n/a									
00035	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									
00048	Gore	65474	Microwave Cable	20May04	20May05									
00030	HP	83017A	LNA	20May04	20May05									



Test Report S/N:	072804KBC-T539-E15B				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04				
Test Type(s):	FCC §15.247 IC RSS-210 Issue				
Lab Registration(s):	FCC #714830	IC Lab	File #3874		

MEASUREMENT	The measurement equipment was connected as shown in H.6. A number of antennas were used to cover the applicable frequency range test. The ranges in which each antenna was used are as follows:								
EQUIPMENT	Frequency	Range	Antenna						
CONNECTIONS	1 GHz – 1	8 GHz	ETS 3115 H	orn					
	18 GHz– 2	26GHz	ETS 3160-09	Horn					
	The spectrum analyzer was set to the following settings:								
	Frequency Range	RBW	VBW	Detector					
	MHz	kHz	kHz	20,00,0,					
MEASUREMENT EQUIPMENT	> 1000	1000 ¹	1000	Peak ²					
SETTINGS	> 1000 1000 ¹ 1000 Peak ² Note 1: As a worse case measurement, when suitable margin could be realized, the applicable limit was applied to measurements made with a peak detector using a 1 MHz RBW. When an average measurement was reported, it was made with 100 kHz RBW using video average with a VBW of 1 Hz.								



Applicant:	Itronix Corporation	poration Model: IX260PROA775BT FCC ID: KBCIX260PROA		KBCIX260PROA775BT	IC ID:	1943A-IX260Pe	
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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Test Report S/N:	072804KBC-1	Issue 1.0				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

H.7. SETUP PHOTOGRAPHS

Photograph H-1 - 3115 Horn Antenna (1–18GHz)



Photograph H-2 - 3160-09 Horn Antenna (18-26GHz)



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H.8. DUT OPERATING DESCRIPTION

Measurements were made at three channels throughout the band, Low Channel (2402 MHz), Mid Channel (2441 MHz), High Channel (2480 MHz). The configuration used was with a gain setting of 250/40 for the low channel, 250/44 for mid channel and 220/45 for the high channel. The modulation was set to 1000. As a worse case, the band-edge measurements were made of the low and high channels with data stream modulation.



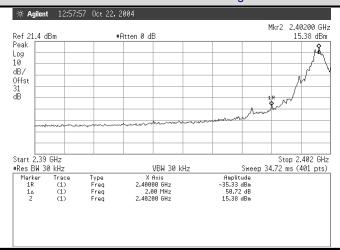
Test Report S/N:	072804KBC-1	Issue 1.0				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

H.9. TEST RESULTS

H.9.1. Lower Band-edge Emission Field Strengths @ Specified Distance

Note: (Upper Band-edge (Restricted) is in Appendix I)

Channel 0 - Conducted Band-edge Plots



Channel 0 - Radiated Carrier Field Strengths

Polarity	Distance	Rx Antenna	Channel	Frequency	SA Level	Rx AF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector
	m			MHz	dBuV	dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AVG)
Н	3	Horn SN6276	0	2402.00	83.90	30.24	3.48	0.00	33.72	117.62	PK
Н	3	Horn SN6276	0	2402.00	42.30	30.24	3.48	0.00	33.72	76.02	AV
٧	3	Horn SN6276	0	2402.00	75.50	30.24	3.48	0.00	33.72	109.22	PK
٧	3	Horn SN6276	0	2402.00	38.70	30.24	3.48	0.00	33.72	72.42	AV

Channel 0 - Calculated Band-edge (Out-of-Band) Field Strengths

Polarity	Distance	Rx Antenna	Channel	Frequency	Carrier Radiated Field Strength	Detector	Marker- Delta	Calculated Bandedge Field Strength	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
	m			MHz	dBuV/m		dB	dBuV/m	m	dB	dBuV/m	dB	
Н	3	Horn SN6276	0	2400.0	117.62	PK	50.72	66.9	3	0	97.62	30.72	Pass
Н	3	Horn SN6276	0	2400.0	76.02	AV	50.72	25.3	3	0	56.02	30.72	Pass
٧	3	Horn SN6276	0	2400.0	109.22	PK	50.72	58.5	3	0	97.62	39.12	Pass
٧	3	Horn SN6276	0	2400.0	72.42	AV	50.72	21.7	3	0	56.02	34.32	Pass

Formulae:

 $Total\ CF\ (dB) = Antenna\ Factor\ (dB) +\ Cable\ Factor\ (dB) +\ Other\ Factor\ (Amplifier\ Gain,\ Filter\ Loss,\ etc)\ (dB)$

Field Strength (dBuV/m) = SA Reading (dBuV) + Total CF (dB/m)

Limit Distance Correction (dB) = 40 * log(d1/d2) for f < 30 MHz, 20*log(d1/d2) for f > 30 MHz; where d1 is the measurement distance and d2 is the published limit Limit (dBuV/m) = Published Limit (dBuV/m) + Limit Distance Correction (dB)

Margin (dB) = Limit (dBuV/m) - Field Strength (dBuV/m)

Note: Measurements and calculation reference the Marker-Delta Method Described in FCC Public Notice DA 00-705

Applicant:	Itronix Cor	rporation Model: IX2		oration Model: IX260PROA775BT FCC ID: KBCIX260PROA		KBCIX260PROA775BT	IC ID:	1943A-IX260Pe	
Rugged La		(ITRONIX)							
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Test Report S/N:	072804KBC-1	Issue 1.0				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5			
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

H.9.2. Spurious Emission Field Strengths @ Specified Distance

Celltech

Company 072804KBC-T543-E15B Product:

IX260+ with Bluetooth

FCC15.247c Standard: Test Start Date: 21Sep04 Test End Date: 12Oct04

									IX2	60+ with Blueto	ooth							
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF	Rx CL	Other Rx	*Duty Cycle Correction	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV		dB/m	dB	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
BT-Low	Н	3	Horn SN6276	2000.00	14.40	х	29.60	3.18	0.00	-20.00	12.78	27.18	PK	3.00	0.00	88.31	61.13	PASS
BT-Low	Н	3	Horn SN6276	7206.72	52.40		38.17	6.21	-34.32	-20.00	-9.94	42.46	PK	3.00	0.00	88.31	45.85	PASS
BT-Low	Н	1	Horn SN6276	17986.00	44.90		45.86	10.43	-32.01	-20.00	4.28	49.18	PK	3.00	9.54	97.85	48.68	PASS
BT-Low	٧	3	Horn SN6276	2000.00	17.00	х	29.60	3.18	0.00	-20.00	12.78	29.78	PK	3.00	0.00	83.21	53.43	PASS
BT-Low	٧	3	Horn SN6276	4804.58	52.70		35.31	4.96	-34.08	-20.00	-13.81	38.89	PK	3.00	0.00	83.21	44.32	PASS
BT-Low	٧	3	Horn SN6276	4804.46	50.80		35.31	4.96	-34.08	-20.00	-13.81	36.99	PK	3.00	0.00	83.21	46.22	PASS
BT-Low	٧	3	Horn SN6276	7207.22	57.30		38.17	6.21	-34.32	-20.00	-9.93	47.37	PK	3.00	0.00	83.21	35.85	PASS
BT-Low	٧	1	Horn SN6276	17874.00	44.50		45.52	10.28	-32.09	-20.00	3.71	48.21	PK	3.00	9.54	92.75	44.54	PASS
BT-Mid	Н	3	Horn SN6276	2000.00	14.40	х	29.60	3.18	0.00	-20.00	12.78	27.18	PK	3.00	0.00	88.31	61.13	PASS
BT-Mid	Н	3	Horn SN6276	4882.41	55.90		35.46	5.04	-34.09	-20.00	-13.59	42.31	PK	3.00	0.00	88.31	46.00	PASS
BT-Mid	Н	3	Horn SN6276	7323.65	50.00		38.38	6.32	-34.32	-20.00	-9.62	40.38	PK	3.00	0.00	88.31	47.93	PASS
BT-Mid	Н	1	Horn SN6276	17992.00	44.50		45.88	10.45	-32.01	-20.00	4.32	48.82	PK	3.00	9.54	97.85	49.03	PASS
BT-Mid	V	3	Horn SN6276	2000.00	17.00	х	29.60	3.18	0.00	-20.00	12.78	29.78	PK	3.00	0.00	83.21	53.43	PASS
BT-Mid	٧	3	Horn SN6276	4882.23	49.80		35.46	5.04	-34.09	-20.00	-13.59	36.21	PK	3.00	0.00	83.21	47.00	PASS
BT-Mid	٧	3	Horn SN6276	7323.74	55.80		38.38	6.32	-34.32	-20.00	-9.62	46.18	PK	3.00	0.00	83.21	37.03	PASS
BT-Mid	V	3	Horn SN6276	9764.87	49.40		40.30	7.41	-34.25	-20.00	-6.54	42.86	PK	3.00	0.00	83.21	40.35	PASS
BT-Mid	٧	1	Horn SN6276	18000.00	43.90		45.90	10.48	-32.00	-20.00	4.38	48.28	PK	3.00	9.54	92.75	44.47	PASS
BT-High	Н	3	Horn SN6276	2000.00	14.40	х	29.60	3.18	0.00	-20.00	12.78	27.18	PK	3.00	0.00	88.31	61.13	PASS
BT-High	Н	3	Horn SN6276	4960.48	52.20		35.62	5.06	-34.10	-20.00	-13.42	38.78	PK	3.00	0.00	88.31	49.53	PASS
BT-High	Н	1	Horn SN6276	17862.00	44.70		45.49	10.28	-32.10	-20.00	3.67	48.37	PK	3.00	9.54	97.85	49.49	PASS
BT-High	V	3	Horn SN6276	2000.00	17.00	х	29.60	3.18	0.00	-20.00	12.78	29.78	PK	3.00	0.00	83.21	53.43	PASS
BT-High	٧	3	Horn SN6276	4960.39	50.80		35.62	5.06	-34.10	-20.00	-13.42	37.38	PK	3.00	0.00	83.21	45.83	PASS
BT-High	٧	3	Horn SN6276	7440.88	49.80		38.59	6.43	-34.32	-20.00	-9.29	40.51	PK	3.00	0.00	83.21	42.70	PASS
BT-High	٧	1	Horn SN6276	17936.00	44.70		45.71	10.28	-32.04	-20.00	3.94	48.64	PK	3.00	9.54	92.75	44.11	PASS

Total CF (dB) = Antenna Factor (dB)+ Cable Factor (dB) + Other Factor (Amplifier Gain, Filter Loss, etc) (dB)

Field Strength (dBuV/m) = SA Reading (dBuV) + Total CF (dB/m)

Limit Distance Correction (dB) = 40 * log(d1/d2) for f < 30 MHz, 20*log(d1/d2) for f > 30 MHz; where d1 is the measurement distance and d2 is the published limit distance

Limit (dBuV/m) = Published Limit (dBuV/m) + Limit Distance Correction (dB)

 $Margin \; (dB) = Limit \; (dBuV/m) \; - \; Field \; Strength \; (dBuV/m)$

Duty Cycle Correction (dB) = 20 * log (duty cycle ratio*)

Duty Cycle ratio = maximum time on in any 100 mS period (in mS) / 100 mS

*DUT duty cyle = 10 mS in each 10 seconds

*The frequency points reported, describe the highest emission measured in each of the ranges tested and are used to describe the measured spectrum as a whole. Emissions that may be present in the restricted bands are evaluated against the appropriate limits in Appendix I. No out-of-band emissions were measured above the levels noted.



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Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5			
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

H.10. PASS/FAIL

In reference to the results outlined in H.9, the DUT passes the requirements as stated in the reference standards as follows: FCC 15.247 (c): All emissions within any 100 kHz bandwidth outside the operating frequency band are greater than 20 dB below the maximum 100 kHz bandwidth signal within the operating band.

H.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.

Russell Pipe

Senior Compliance Technologist

sull W. Pupe

Celltech Labs Inc.

22Oct04

Date



Test Report S/N:	072804KBC-1	Issue 1.0				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5			
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

Appendix I - Restricted Band Emissions Measurement

I.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.205 (a) (b), FCC CFR 47 §15.209 (a)
Procedure Reference	FCC 97-114

I.2. LIMITS								
FCC CFR 47 §15.205	(a) Except as shown in paragraph (d) of frequency bands listed below:	f this section, only spurious	emissions are permitt	ed in any of the				
	MHz	MHz	MHz	GHz				
	0.090-0.110	16.69475–16.69525 16.80425–16.80475 25.5–25.67 37.5–38.25 73–74.6 74.8–75.2 108–121.94 123–138 149.9–150.05 156.52475–156.9 162.0125–167.17 167.72–173.2 240–285 322–335.4 shall be 0.490–0.510 MHz. and (e), the field strength of in 15.209. At frequencies endemonstrated using measured by compliance with the endemonstrated endemonstrated with the endemonstrated wit	equal to or less than 10 irement instrumentation mission limits in Sect	000 MHz, compliance n employing a CISPR tion 15.209 shall be				
FCC CFR 47 §15.209	(a) Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:							
	Frequency	Field Strength	Measure	ement Distance				
	MHz	uV/m		Meters				
	.009 – 0.490	2400/F(kHz)		300				
	0.490 – 1.705	24000/F(kHz)		30				
	1.705 – 30.0	30		30				
	30 – 88	100		3				
	88 – 216	150		3				
	216 - 960	200		3				
	Above 960	500		3				
	(b) In the emission table above, the tigh	nter limit applies at the band	l edges.					

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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Test Date(s):	21Sept04 - 14Oct04, 22Oct04				
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5		
Lab Registration(s):	FCC #714830	IC Lab	File #3874		

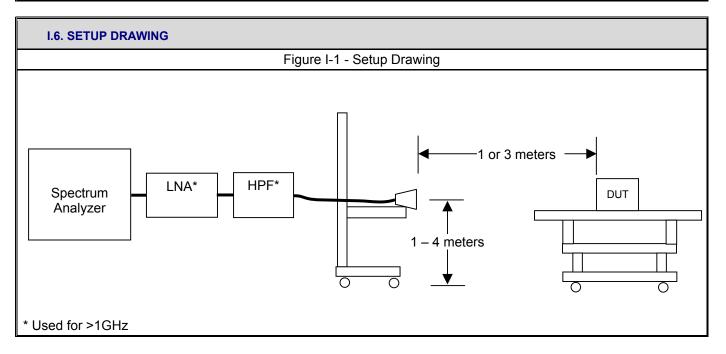
I.3. ENVIRONMENTAL CONDITIONS				
Temperature	27.4 +/- 2 °C			
Humidity	33 +/- 2 %			
Barometric Pressure	96.24 +/- 0.2 kPa			

I.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		
00085	EMCO	6502	Loop Antenna	10Aug04	10Aug05		
00050	Chase	CBL-6111A	Bilog Antenna	30Apr04	30Apr05		
00035	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		



Test Report S/N:	072804KBC-T	Issue 1.0				
Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247	IC RSS-2	210 Issue 5			
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

	The measurement equipment was connected as shown in I.6. A number of antennas were used to cover the applicable frequency range test. The ranges in which each antenna was used are as follows:								
MEASUREMENT	Frequency	Range		Antenna					
EQUIPMENT	10 kHz – 30	0 MHz		EMCO 6502 Loop					
CONNECTIONS	30 MHz – 1	1 GHz		CBL-6111A Bilog					
	1 GHz – 18	3 GHz		ETS 3115 Horn					
	18 GHz– 2	6GHz		ETS 3160-09 Horn					
	The spectrum analyzer was set to the following settings:								
	Frequency Range	requency Range RBW VBW Quasi-		Quasi-Peak BW	Detector				
	MHz	kHz	kHz	kHz	20100101				
	0.01 - 0.15	3 ¹	30	0.2	Peak ²				
MEASUREMENT	0.15 – 30	100 ¹	300	3	Peak ²				
EQUIPMENT SETTINGS	30 – 1000	1000 ¹	300	120	Peak ²				
SETTINGS	> 1000	1000	1000	na	Peak ²				
	Note 1: The Quasi-peak adapter was placed in normal for all measurements below 1000 MHz, therefore its bandwidths take precedence. Note 2: As a worse case measurement, when suitable margin could be realized, the average limit was applied to measurements made with a peak detector.								





Test Report S/N:	072804KBC-1	Issue 1.0				
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Test Type(s):	FCC §15.247 IC RSS-210 Issue					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

I.7. SETUP PHOTOGRAPHS

Photograph I-1 - Loop Antenna (10kHz - 30MHz)

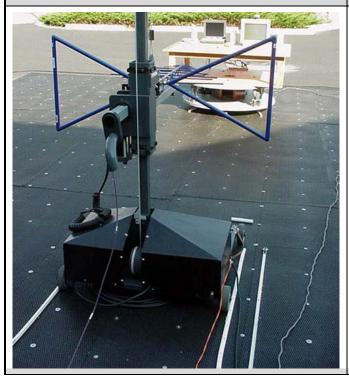


Photograph I-2 - Bilog Antenna (30MHz - 1 GHz)



Photograph I-3 - Horizontal Polarization (30MHz - 1 GHz)







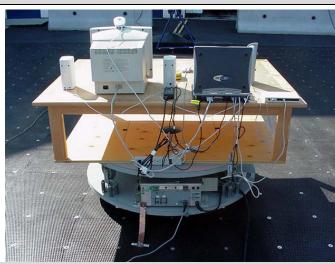


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Test Type(s):	FCC §15.247 IC RSS-210 Issue :					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

Photograph I-5 - Front of Radiated Emission Configuration







I.8. DUT OPERATING DESCRIPTION

Measurements were made at three channels throughout the band, Low Channel (2402 MHz), Mid Channel (2441 MHz), High Channel (2480 MHz). The configuration used was with a gain setting of 250/40 for the low channel, 250/44 for mid channel and 220/45 for the high channel. The modulation was set to 1000. As a worse case, the band-edge measurements were made of the low and high channels with data stream modulation.



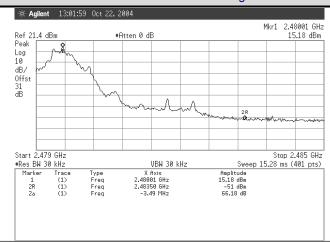
Test Report S/N:	072804KBC-1	Issue 1.0				
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Test Type(s):	FCC §15.247 IC RSS-210 Issue 5					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

I.9. TEST RESULTS

1.9.1. Upper Band-edge Emission Field Strengths @ Specified Distance

Note: (Lower Band-edge (Out-of-Band) is in Appendix H)

Channel 79 - Conducted Band-edge Plots



Channel 0 - Radiated Carrier Field Strengths

Polarity	Distance	Rx Antenna	Channel	Frequency	SA Level	Rx AF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector
	m			MHz	dBuV	dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AVG)
Н	3	Horn SN6276	79	2480.00	83.00	30.37	3.51	0.00	33.88	116.88	PK
Н	3	Horn SN6276	79	2480.00	41.80	30.37	3.51	0.00	33.88	75.68	AV
٧	3	Horn SN6276	79	2480.00	76.70	30.37	3.51	0.00	33.88	110.58	PK
٧	3	Horn SN6276	79	2480.00	39.10	30.37	3.51	0.00	33.88	72.98	AV

Channel 0 - Calculated Band-edge (Out-of-Band) Field Strengths

Polarity	Distance	Rx Antenna	Channel	Frequency	Carrier Radiated Field Strength	Detector	Marker- Delta	Calculated Bandedge Field Strength	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
	m			MHz	dBuV/m		dB	dBuV/m	m	dB	dBuV/m	dB	
Н	3	Horn SN6276	79	2483.5	116.88	PK	66.18	50.7	3	0	73.98	23.28	Pass
Н	3	Horn SN6276	79	2483.5	75.68	AV	66.18	9.5	3	0	53.98	44.48	Pass
٧	3	Horn SN6276	79	2483.5	110.58	PK	66.18	44.4	3	0	73.98	29.58	Pass
٧	3	Horn SN6276	79	2483.5	72.98	AV	66.18	6.8	3	0	53.98	47.18	Pass

Formulae:

Total CF (dB) = Antenna Factor (dB) + Cable Factor (dB) + Other Factor (Amplifier Gain, Filter Loss, etc) (dB)

Field Strength (dBuV/m) = SA Reading (dBuV) + Total CF (dB/m)

Limit Distance Correction (dB) = 40 * log(d1/d2) for f < 30 MHz, 20*log(d1/d2) for f > 30 MHz, where d1 is the measurement distance and d2 is the published limit Limit (dBuV/m) = Published Limit (dBuV/m) + Limit Distance Correction (dB)

Margin (dB) = Limit (dBuV/m) - Field Strength (dBuV/m)

Note: Measurements and calculation reference the Marker-Delta Method Described in FCC Public Notice DA 00-705

Applicant:	Itronix Corporation	tion Model: IX260PROA775BT FCC ID: KE		KBCIX260PROA775BT	IC ID:	1943A-IX260Pe			
Rugged La	ptop PC with Cirronet	Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM							
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Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue :					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

I.9.2. Spurious Emission Field Strengths @ Specified Distance

Celltech

Company: 072804KBC-T543-E15B
Product: Itronix

ILIOIIIX

IX260+ with Bluetooth

 Standard:
 FCC15.209

 Test Start Date:
 21Sep04

 Test End Date:
 12Oct04

	IX260+ with Bluetooth																	
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF		Other Rx	*Duty Cycle Correction	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV		dB/m	dB	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
BT-Low	Н	3	Horn SN6276	2000.00	14.40	Х	29.60	3.18	0.00	-20.00	12.78	27.18	PK	3.00	0.00	53.98	26.80	PASS
BT-Low	Н	3	Horn SN6276	2390.00	36.40		30.22	3.47	0.00	-20.00	13.69	50.09	PK	3.00	0.00	53.98	3.89	PASS
BT-Low	Н	3	Horn SN6276	2483.00	50.90		30.37	3.51	-20.26	-20.00	-6.37	44.53	PK	3.00	0.00	53.98	9.45	PASS
BT-Low	Н	3	Horn SN6276	7206.72	52.40		38.17	6.21	-34.32	-20.00	-9.94	42.46	PK	3.00	0.00	53.98	11.52	PASS
BT-Low	Н	1	Horn SN6276	17986.00	44.90		45.86	10.43	-32.01	-20.00	4.28	49.18	PK	3.00	9.54	63.52	14.35	PASS
BT-Low	V	3	Horn SN6276	2000.00	17.00	Х	29.60	3.18	0.00	-20.00	12.78	29.78	PK	3.00	0.00	53.98	24.20	PASS
BT-Low	V	3	Horn SN6276	2390.00	29.20		30.22	3.47	0.00	-20.00	13.69	42.89	PK	3.00	0.00	53.98	11.09	PASS
BT-Low	V	3	Horn SN6276	2483.00	44.00		30.37	3.51	-20.26	-20.00	-6.37	37.63	PK	3.00	0.00	53.98	16.35	PASS
BT-Low	V	3	Horn SN6276	4804.58	52.70		35.31	4.96	-34.08	-20.00	-13.81	38.89	PK	3.00	0.00	53.98	15.09	PASS
BT-Low	V	3	Horn SN6276	4804.46	50.80		35.31	4.96	-34.08	-20.00	-13.81	36.99	PK	3.00	0.00	53.98	16.99	PASS
BT-Low	V	3	Horn SN6276	7207.22	57.30		38.17	6.21	-34.32	-20.00	-9.93	47.37	PK	3.00	0.00	53.98	6.61	PASS
BT-Low	٧	1	Horn SN6276	17874.00	44.50		45.52	10.28	-32.09	-20.00	3.71	48.21	PK	3.00	9.54	63.52	15.31	PASS
BT-Mid	Н	3	Horn SN6276	2000.00	14.40	Х	29.60	3.18	0.00	-20.00	12.78	27.18	PK	3.00	0.00	53.98	26.80	PASS
BT-Mid	Н	3	Horn SN6276	2390.00	47.20		30.22	3.47	-20.40	-20.00	-6.71	40.49	PK	3.00	0.00	53.98	13.49	PASS
BT-Mid	Н	3	Horn SN6276	2483.50	51.60		30.37	3.51	-20.26	-20.00	-6.37	45.23	PK	3.00	0.00	53.98	8.75	PASS
BT-Mid	Н	3	Horn SN6276	4882.41	55.90		35.46	5.04	-34.09	-20.00	-13.59	42.31	PK	3.00	0.00	53.98	11.67	PASS
BT-Mid	Н	3	Horn SN6276	7323.65	50.00		38.38	6.32	-34.32	-20.00	-9.62	40.38	PK	3.00	0.00	53.98	13.60	PASS
BT-Mid	Н	1	Horn SN6276	17992.00	44.50		45.88	10.45	-32.01	-20.00	4.32	48.82	PK	3.00	9.54	63.52	14.70	PASS
BT-Mid	٧	3	Horn SN6276	2000.00	17.00	Х	29.60	3.18	0.00	-20.00	12.78	29.78	PK	3.00	0.00	53.98	24.20	PASS
BT-Mid	V	3	Horn SN6276	2390.00	50.30		30.22	3.47	-20.40	-20.00	-6.71	43.59	PK	3.00	0.00	53.98	10.39	PASS
BT-Mid	V	3	Horn SN6276	2483.50	45.90		30.37	3.51	-20.26	-20.00	-6.37	39.53	PK	3.00	0.00	53.98	14.45	PASS
BT-Mid	V	3	Horn SN6276	4882.23	49.80		35.46	5.04	-34.09	-20.00	-13.59	36.21	PK	3.00	0.00	53.98	17.77	PASS
BT-Mid	V	3	Horn SN6276	7323.74	55.80		38.38	6.32	-34.32	-20.00	-9.62	46.18	PK	3.00	0.00	53.98	7.80	PASS
BT-Mid	V	3	Horn SN6276	9764.87	49.40		40.30	7.41	-34.25	-20.00	-6.54	42.86	PK	3.00	0.00	53.98	11.12	PASS
BT-Mid	٧	1	Horn SN6276	18000.00	43.90		45.90	10.48	-32.00	-20.00	4.38	48.28	PK	3.00	9.54	63.52	15.24	PASS
DTUE	١	_		0000.00	44.40	—	00.00	0.46	0.00	20.00	40.76	07.46	DIC	0.00	0.00	50.00	00.00	DAGO
BT-High	Н	3	Horn SN6276	2000.00	14.40	х	29.60	3.18	0.00	-20.00	12.78	27.18	PK PK	3.00	0.00	53.98	26.80	PASS
BT-High	Н	3	Horn SN6276	2390.00	50.50	\vdash	30.22	3.47	-20.40	-20.00	-6.71	43.79		3.00	0.00	53.98	10.19	PASS
BT-High	Н	3	Horn SN6276	2483.50	46.40	\vdash	30.37	3.51	0.00	-20.00	13.89	60.29	PK	3.00	0.00	73.98	13.69	PASS
BT-High	Н	3	Horn SN6276	2483.50	26.60	\vdash	30.37	3.51	0.00	-20.00	13.89	40.49	PK	3.00	0.00	53.98	13.49	PASS
BT-High	Н	3	Horn SN6276	4960.48 17862.00	52.20	\vdash	35.62	5.06	-34.10 -32.10	-20.00 -20.00	-13.42 3.67	38.78	PK PK	3.00	0.00 9.54	53.98 63.52	15.19	PASS PASS
BT-High	H V	3	Horn SN6276 Horn SN6276	2000.00	44.70	L,	45.49 29.60	10.28	0.00	-20.00		48.37 29.78	PK PK	3.00		53.52	15.16	PASS
BT-High	V	3	Horn SN6276	2390.00	17.00 48.00	х	30.22	3.18	-20.40	-20.00	12.78 -6.71	41.29	PK PK	3.00	0.00	53.98	24.20 12.69	PASS
BT-High BT-High	V	3	Horn SN6276	2483.50	48.00	\vdash	30.22	3.47	0.00	-20.00	13.89	54.19	PK PK	3.00	0.00	73.98	12.69	PASS
BT-High	V	3	Horn SN6276	2483.50	24.10	\vdash	30.37	3.51	0.00	-20.00	13.89	37.99	AV	3.00	0.00	53.98	15.99	PASS
BT-High	V	3	Horn SN6276	4960.39	50.80	Н	35.62	5.06	-34.10	-20.00	-13.42	37.99	PK	3.00	0.00	53.98	16.59	PASS
BT-High	V	3	Horn SN6276	7440.88	49.80	\vdash	38.59	6.43	-34.10	-20.00	-9.29	40.51	PK PK	3.00	0.00	53.98	13.47	PASS
BT-High	V	1	Horn SN6276	17936.00	44.70	\vdash	45.71	10.28	-34.32	-20.00	3.94	48.64	PK PK	3.00	9.54	63.52	14.88	PASS
DI-HIGH	v	_	110111 31102/0	17930.00	44.70	ш	+0./ I	10.20	-32.04	-20.00	3.84	40.04	FN	3.00	9.04	03.32	14.00	FMOO

Formulae:

Total CF (dB) = Antenna Factor (dB)+ Cable Factor (dB) + Other Factor (Amplifier Gain, Filter Loss, etc) (dB)

Field Strength (dBuV/m) = SA Reading (dBuV) + Total CF (dB/m)

 $\label{limit Distance Correction (dB) = 40 * log(d1/d2) for f < 30 MHz, \\ 20*log(d1/d2) for f > 30 MHz; \\ \text{where d1 is the measurement distance and d2 is the published limit distance}$

Limit (dBuV/m) = Published Limit (dBuV/m) + Limit Distance Correction (dB)

 $Margin \ (dB) = Limit \ (dBuV/m) - Field \ Strength \ (dBuV/m)$

Duty Cycle Correction (dB) = 20 * log (duty cycle ratio*)

Duty Cycle ratio = maximum time on in any 100 mS period (in mS) / 100 mS $\,$

*DUT duty cyle = 10 mS in each 10 seconds

*The frequency points reported, describe the highest emission measured in each of the ranges tested and are used to describe the measured spectrum as a whole. Though a frequency point detailed may not be in a restricted band, it was the highest emission present in the band measured therefore infers that all emissions that may be present within the restricted bands are in compliance if it is in compliance.



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Test Date(s):	21Sept04 - 14Oct04, 22Oct04					
Test Type(s):	FCC §15.247 IC RSS-210 Issue :					
Lab Registration(s):	FCC #714830	IC Lab	File #3874			

I.10. PASS/FAIL

In reference to the results outlined in I.9, the DUT passes the requirements as stated in the reference standards as follows: FCC 15.205 (a) (b) and 15.209 (a): No emissions were measured within the restricted bands as outlined in 15.205 that exceeded the limits stated in 15.209.

I.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.

Russell Pipe

Senior Compliance Technologist

Purul W. Pupe

Celltech Labs Inc.

22Oct04

Date



Test Report S/N:	072804KBC-1	Issue 1.0				
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Appendix J - Maximum Permissible Exposure Calculation

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

J.2. LIMITS	
FCC CFR 47§1.1310 Table 1(b)	1.0 mW/cm ²

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

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

J.5. MEASUREMENT EQUIPMENT SETUP					
MEASUREMENT EQUIPMENT CONNECTIONS	The results described herein were determined by the following calculation, so no measurement equipment was used.				
MEASUREMENT EQUIPMENT SETTINGS	na				

J.6. SETUP PHOTOS	
na	

J.7. SETUP DRAWINGS	
na	

J.8. DUT OPERATING DESCRIPTION	
na	

Applicant:	Itronix Corporation	Model:	IX260PROA775BT	FCC ID:	KBCIX260PROA775BT	IC ID:	1943A-IX260Pe
Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM						ITRONIX.	
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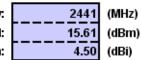
Test Report S/N:	072804KBC-T539-E15B		Issue 1.0
Test Date(s):	21Sept04 - 14Oct04, 22Oct04		
Test Type(s):	FCC §15.247 IC RSS-210 Issue 5		
Lab Registration(s):	FCC #714830	IC Lab	File #3874

J.9. EVALUATION RESULTS

Calculation:

Rangestar Internal Surface-Mount Antenna:

Tx Frequency: RF Output Power at Antenna Input Terminal: Antenna gain:



S= 1.00 (mW/cm^2) P= 36.3915 (mW) G= 2.82 (numeric)

R = 2.86 (cm)

S at 20cm: 0.02038259 (mW/cm^2)

Formulae:

S = PG $4\pi R^2$

where: S = Power Density Limit

P = Power Applied to the Antenna

 $R = \sqrt{\frac{P}{A_{\pi}S}}$ G = Numeric Antenna Gain R = Distance from Antenna

Results:

И							
	Channel	Channel RF Conducted Output Power Antenna Gain		MPE Distance	Power Density at 20 cm	Power Density Limit	
ĺ		dBm	dBi	cm	mW/cm ²	mW/cm ²	
	39	15.61	4.5	2.86	0.020	1.0	

Applicant: Itronix Corporation | Model: | IX260PROA775BT | FCC ID: | KBCIX260PROA775BT | IC ID: | 1943A-IX260Pe Rugged Laptop PC with Cirronet BT2022 Bluetooth, Intel Pro 2200BG 802.11b/g WLAN, & AirCard 775 GSM | 2004 Celltech Labs Inc. | This document is not to be reproduced in whole or in part without the written permission of Celltech Labs Inc. | 43 of 45



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

J.10. PASS/FAIL

In reference to the results outlined in J.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 1 mW/cm².

J.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.

09Oct04

Date



Test Report S/N:	072804KBC-T539-E15B		Issue 1.0	
Test Date(s):	21Sept04 - 14Oct04, 22Oct04			
Test Type(s):	FCC §15.247 IC RSS-210 Issue 5			
Lab Registration(s):	FCC #714830 IC Lab File #387			

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