

Test Report Serial No.:	040505KBC-F632-E15EW	Report Issue No.		E632EW-032906-R0	
Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

## **ELECTROMAGNETIC COMPATIBILITY**

## **EMC TEST REPORT**

FCC 47 CFR PART 15 SUBPART E & INDUSTRY CANADA RSS-210 ISSUE 6

**FOR** 

**ITRONIX CORPORATION** 

**MODEL: IX325-CWL** 

**IX325 SERIES RUGGED TABLET PC** 

WITH

CISCO AIR-CB21AG-A-K9 802.11ABG WLAN (PCMCIA)

FCC ID: KBCIX325-CWL

IC: 1943A-IX325ab

Test Report Serial Number 040505KBC-F632-E15EW

Test Report Issue No. E632EW-032906-R0

#### **Test Lab**

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



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## **DECLARATION OF COMPLIANCE**

Test Lab CELLTECH LABS INC.

Testing and Engineering Services

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**Phone:** 250-448-7047 **Fax:** 250-448-7048

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**Applicant** ITRONIX CORPORATION

12825 E. Mirabeau Parkway Spokane Valley, WA 99216

United States

comabo.com	_							
FCC:	714830		IC:	3874				
FCC:	§15.407; §2.1091; §	1.1310	IC:	RSS-210 Issue 6 Annex 8				
FCC:			IC:	Low Power License-Exempt Transmitter				
FCC: ID:	KBCIX325-CWL		1943A-IX325ab					
DUT Description:								
IX325-CWL								
Rugged Table	et PC							
Cisco AIR-CE	321AG-A-K9 802.11al	og WLAN (PCN	MCIA)					
802 11a	5180 - 5250 MHz (U	INII-1)						
002.114	5250 - 5320 MHz (UNII-2)							
6/9/12/18	6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps							
0.0385 Watts - 15.85 dBm - Channel 36 (5180 MHz) - 6 Mbps								
111.10 dBuV/m (PK) @ 3 meters - Channel 64 (5320 MHz, 1000 kHz RBW)								
63.52 dBuV/n	63.52 dBuV/m (AV) @ 3 meters - Channel 64 (15957.15 MHz, 1000 kHz RBW)							
-31.28 dBm -	-31.28 dBm - Channel 36 (54 Mbps, 25982.08 MHz)							
-68.55 dBm - Channel 64 (25050.83 MHz)								
OFDM (Ortho	gonal Frequency Divi	sion Multiplexi	ng)					
BPSK, QPSK	BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, CCK							
Dual-band Di	versity Monopole Ante	enna (embedde	ed on F	PC Card PCB)				
Stationary: 75 Watt AC Power Adapter								
11.1 V Internal Lithium-ion Battery, 3600 mAh (Model: T8M-E)								
	FCC: FCC: FCC: ID:  IX325-CWL Rugged Table Cisco AIR-CE 802.11a  6 / 9 / 12 / 18  0.0385 Watts  111.10 dBuV/ 63.52 dBuV/n  -31.28 dBm -  -68.55 dBm -  OFDM (Orthor BPSK, QPSK Dual-band Di Stationary: 75	FCC: §15.407; §2.1091; § FCC: Unlicensed National Infrastructure TX (NI FCC: ID: KBCIX325-CWL  IX325-CWL Rugged Tablet PC Cisco AIR-CB21AG-A-K9 802.11al 802.11a 5180 - 5250 MHz (U 5250 - 5320 MHz (U 6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mb 0.0385 Watts - 15.85 dBm - Channel 111.10 dBuV/m (PK) @ 3 meters - 63.52 dBuV/m (AV) @ 3 meters - 0 -31.28 dBm - Channel 36 (54 Mbps) -68.55 dBm - Channel 64 (25050.8  OFDM (Orthogonal Frequency Divi BPSK, QPSK, 16QAM, 64QAM, Di Dual-band Diversity Monopole Ante Stationary: 75 Watt AC Power Ada	FCC: §15.407; §2.1091; §1.1310  FCC: Unlicensed National Information Infrastructure TX (NII)  FCC: ID: KBCIX325-CWL  IX325-CWL  Rugged Tablet PC  Cisco AIR-CB21AG-A-K9 802.11abg WLAN (PCN 5180 - 5250 MHz (UNII-1)  5250 - 5320 MHz (UNII-2)  6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps  0.0385 Watts - 15.85 dBm - Channel 36 (5180 Minum 11.10 dBuV/m (PK) @ 3 meters - Channel 64 (19.3.52 dBuV/m (AV) @ 3 meters - Channel 64 (19.3.5	FCC: §15.407; §2.1091; §1.1310 IC:  FCC: Unlicensed National Information Infrastructure TX (NII)  FCC: ID: KBCIX325-CWL IC:  IX325-CWL  Rugged Tablet PC  Cisco AIR-CB21AG-A-K9 802.11abg WLAN (PCMCIA)  802.11a  5180 - 5250 MHz (UNII-1)  5250 - 5320 MHz (UNII-2)  6 / 9 / 12 / 18 / 24 / 36 / 48 / 54 Mbps  0.0385 Watts - 15.85 dBm - Channel 36 (5180 MHz) - 6  111.10 dBuV/m (PK) @ 3 meters - Channel 64 (5320 M  63.52 dBuV/m (AV) @ 3 meters - Channel 64 (15957.15)  -31.28 dBm - Channel 36 (54 Mbps, 25982.08 MHz)  -68.55 dBm - Channel 64 (25050.83 MHz)  OFDM (Orthogonal Frequency Division Multiplexing)  BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, CCK  Dual-band Diversity Monopole Antenna (embedded on F  Stationary: 75 Watt AC Power Adapter				

<sup>\*</sup>Emission with lowest margin to the applicable limit

Applicant:	Itroni	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	ged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN				L DYNAMICS COMPANY
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11.1 V External Second Lithium-ion Battery, 3600 mAh (Model: T8S-E)



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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

## **ATTESTATIONS**

This wireless device has demonstrated compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in FCC 47 CFR Part 15E and Industry Canada RSS-210 Issue 6.

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.

Duane M. Friesen, C.E.T.

EMC Manager

Celltech Labs Inc.



Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	<b>ITRONIX</b>		
Model(s):	IX325-	CWL	IX325 Se	ries Rugged					L DYNAMICS COMPANY
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Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	RONIX®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	s Rugged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN				
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	TEST SUMMARY									
Appendix	Test Description	Test Description Procedure Reference Limit Reference		Test Start Date	Test End Date	Result				
	Refere	nced Standard: FCC CF	R Title 47 Part 15							
В	26 dB / 99% Emission Bandwidth	FCC DA 02-2138	Reference only	24Oct05	24Oct05	na				
С	Transmitter Output Power	FCC DA 02-2138	§15.407(a) (1), (2)	24Oct05	24Oct05	Pass				
D	Peak Excursion Ratio	FCC DA 02-2138	§15.407(a) (6)	24Oct05	24Oct05	Pass				
Е	Conducted Transmitter Spurious Emissions	RSS-GEN 7.2.3.1	Reference only	14Nov05	14Nov05	na				
G	Radiated Spurious Emissions	FCC 97-114	§15.407(b) (1), (2) & (6)	3Oct05	25Oct05	Pass				
Н	Restricted Band Emissions	FCC 97-114	§15.407 (b) (6) §15.205 (a), (b) §15.209 (a)	3Oct05	18Nov05	Pass				
ı	Peak Power Spectral Density	FCC DA 02-2138	§15.407(a) (1) & (2)	25Oct05	25Oct05	Pass				
J	Conducted Powerline Emissions	ANSI C63.4	§15.407 (b) (6) §15.207	16Nov05	16Novl05	Pass				
	Ref	erenced Standard: IC RS	SS-210 Issue 6							
В	26 dB / 99% Emission Bandwidth	RSS-GEN 4.4.1	Reference only	24Oct05	24Oct05	Pass				
С	Transmitter Output Power	RSS-210 Annex 9.2 §(1)&(2); RSS-GEN 4.6	RSS-210 Annex 9.2 §(1)&(2)	24Oct05	24Oct05	Pass				
E	Conducted Transmitter Spurious Emissions	RSS-GEN 7.2.3.1	Reference only	14Nov05	14Nov05	na				
F	Conducted Receiver Spurious Emissions	RSS-GEN 7.2.3.1	RSS-GEN §6 (b)	15Nov05	17Nov05	Pass				
G	Radiated Spurious Emissions	RSS-212, ANSI C63.4	RSS-210 Annex 9.3 §(1)&(2)	3Oct05	25Oct05	Pass				
Н	Restricted Band Emissions	RSS-212, ANSI C63.4	RSS-210 §2.2	3Oct05	18Nov05	Pass				
I	Peak Power Spectral Density	RSS-210 § 10	RSS-210 Annex 9.5 §(1) & (2), §(b)	25Oct05	25Oct05	Pass				
J	Conducted Powerline Emissions	RSS-212, ANSI C63.4	RSS-GEN 7.2.2	16Nov05	16Novl05	Pass				

## **REVISION LOG**

Issue No.	Description	Implemented By	Implementation Date	
E632EW-032906-R0	Initial Release	Jonathan Hughes	29Mar06	

## **SIGNATORIES**

Prepared By	D =	December 02, 2005
Name/Title	Duane M. Friesen, C.E.T. / EMC Manager	Date
Reviewed By	GH-	March 29, 2006
Name/Title	Jonathan Hughes / General Manager	Date

Applicant:	Itroni	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
Model(s):							L DYNAMICS COMPANY		
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## 1.0 **SCOPE**

This report outlines the measurements made and results collected during the electromagnetic emissions testing of the Itronix Corporation Model: IX325-CWL Rugged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN PCMCIA Card utilizing an embedded dual-band diversity PCB antenna. As defined by the manufacturer, the WLAN is designed to operate in North America with the 5180-5320 MHz band addressed in this report. The 2412-2462 MHz and 5745-5825 MHz operating bands are addressed in a separate report for Subpart E of the requirements. 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 E and Industry Canada RSS-210 Issue 6.

## 2.0 REFERENCES

## 2.1 Normative References

ANSI/ISO 17025:1999 General Requirements for competence of testing and calibration labor
--

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 2:2005 Code of Federal Regulations

Title 47: Telecommunication

Part 2: Frequency Allocations and Radio Treaty Matters:

General Rules and Regulations

CFR Title 47 Part 15:2005 Code of Federal Regulations

Title 47: Telecommunication

Part 15: Radio Frequency Devices

FCC Public Notice DA 00-705 Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems

March 30, 2000

FCC Public Notice DA 02-2138 Measurement Procedure Updated for Peak Transmit Power in the Unlicensed

National Information Infrastructure (U-NII) Bands

August 30, 2002

FCC Knowledge Database Pub. 558074 (May 10, 2005)

IC Spectrum Management & Telecommunications Policy

Radio Standards Specification

RSS-GEN 4.4.1 General Requirements and Information for Certification of

Radiocommunication Equipment - Issue 1, September 2005

RSS-212 Issue 1 (Provisional) - Test Facilities & Test Methods for Radio Equipment RSS-210 Issue 6 - Low Power Licence-Exempt Radiocommunication Devices -

September 2005

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

Apparatus (All Frequency Bands) - November 2005

Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):							L DYNAMICS COMPANY	
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## **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

HP Hewlett Packard
HPF High Pass Filter
Hpol Horizontal Polarization
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
TPC Transmit Power Control
VBW Video Bandwidth
Vpol Vertical Polarization

WLAN Wireless Local Area Network

Applicant:	Itron	tronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	<b>ITRONIX</b> °	
Model(s):								L DYNAMICS COMPANY	
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## 3.0 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 to the requirements set forth in ANSI C63.4 and are filed and are listed with the FCC under Registration Number 714830 and Industry Canada under File Number IC 3874.

## 4.0 GENERAL INFORMATION

## 4.1 Applicant Information

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

## 4.2 DUT Description

The DUT consisted of the Itronix Rugged Tablet PC Model: IX325-CWL with Cisco AIR-CB21AG-A-K9 802.11abg WLAN PCMCIA Card installed in the PCMCIA slot. The embedded dual-band monopole diversity PCB antenna is located at the protruding end of the PCMCIA card. Photographs of the DUT placement and construction are shown in Appendix A.

Device:	Rugged Ta	Rugged Tablet PC							
Model:	IX325-CW	X325-CWL							
Serial Number:	ZZGEG50	ZGEG5073ZZ9781							
Identifier(s):	FCC ID:	FCC ID: KBCIX325-CWL IC: 1943A-IX325ab							
	Delta Elect	ronics 75 Watt AC-DC Power Supply Mode	I: ADP-7	75 FB B Rev 00 (S/N: UCT030200307)					
Power Source(s):	Internal Lithium-ion 11.1 V 3600 mAh Battery Model: T8M-E								
	External Se	econd Lithium-ion 11.1 V 3600 mAh Battery	Model:	T8S-E					

Device:	WLAN PCI	WLAN PCMCIA Card (802.11abg)							
Model:	CISCO AIF	SISCO AIR-CB21AG-A-K9							
Serial No(s):	FOC0853N	OC0853N07U, FOC0852NKWN							
Rule Part(s):	FCC:	§15.247; §2.1091; §1.1310	IC:	RSS-210 Issue 6 Annex 8					
Classification:	FCC ID:	Low Power License-Exempt Transmitter							
Power Source:	Powered f	Powered from the internal PC power supply							

Device:	Embedded Dual-Band Monopole Diversity PCB antenna (Transmit/Receive & Receive)
Model:	n/a (Integral to AIR-CB21AG-A-K9 WLAN PCB)
Gain:	2.0 dBi (horizontal)

1	Applicant:	Itron	ronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
	Model(s):	: IX325-CWL IX325 Se		ries Rugged	ies Rugged Tablet PC with Cisco AIR-CB21AG-A-				ENERAL DYNAMICS COMPANY	
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## 4.3 Co-Located Equipment

Device:	GPS Receiver Module
Model:	Leadtek Model LR9805

Device:	GPS Antenna (Receive only)
Model:	Sarantel 101401040/2004UK

## 4.4 Cable Descriptions

ROUTING		Length	Model	Terminations		Shield Type	Shield Termination		Suppression
From	То	m		End 1	End 2		End 1	End 2	
PC modem port	Unterminated	1.0	n/a	RJ-11	RJ-11	None	na	na	None

## 4.5 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					
	K8255	Keyboard					
Sanwa Supply	MA-MBUSB	Mouse					

## 4.6 Clock Frequencies

## 4.6.1 DUT Clock Frequencies

Device:	Rugged Tablet PC
Clocks:	n/a
Name:	WLAN PCMCIA Card
Clocks:	n/a
Name:	PCB Antenna (WLAN)
Clocks:	None

## 4.6.2 Co-Located Clock Frequencies

Device:	Peripherals
Clocks:	n/a

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	IX325-CWL IX325 Se		ries Rugged	es Rugged Tablet PC with Cisco AIR-CB21AG-A-				ERAL DYNAMICS COMPANY	
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## 4.7 Mode(s) of Operation Tested

Customer supplied the software was used to set the WLAN card in the appropriate mode, channel, and power level for the specific measurement. The following are the minimum settings used:

Tx Frequency Range:		Mode a: 5180 - 5250 MHz, 5250 - 5320 MHz Ch. 36 (5180 MHz), Ch. 52 (5260 MHz) & Ch. 64 (5320 MHz) measured unless otherwise noted				
Software Power Gain Settings:	802.11a set to	802.11a set to power setting of 17.0 / 0 for 6 mbps, 14.0 / 0 for 54 mbps				
	802.11a	6 Mbps	54 Mbps			
RF Peak Conducted Output Power Tested: <sup>1</sup>	5180 MHz 5260 MHz 5320 MHz	15.85 dBm 15.73 dBm 15.38 dBm	13.50 dBm 12.60 dBm 12.59 dBm			
Modes / Data Rates Tested: <sup>2</sup>	802.11a (6, 54 Mbps cho (6 Mbps determ			and used unless otherwise noted)		
Mode(s) of Operation:	OFDM	OFDM				
Modulation Type(s):	BPSK, QPSK,	BPSK, QPSK, 16QAM, 64QAM, DBPSK, DQPSK, CCK				
Power Source(s) Tested:	All tests were p			apter powering the DUT		

Note 1: Peak power measured and integrated per FCC Public Notice DA 02-2138 Peak conducted output power measurement Option 2, Method 1

Note 2: Turbo mode available at module level but not enabled when installed in IX325 Tablet PC per Itronix Corp.

Applicant:	Itron	Itronix Corporation		Itronix Corporation FCC ID: KBCIX325-CWL IC ID:		1943A-IX325ab	ITE	<b>SONIX</b> ®	
Model(s):	IX325-CWL IX325 Se			ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

#### 4.7.1 DUT Exercising Software Description

The DUT was configured and exercised using customer supplied test software that allows an operator to set the parameters of the WLAN operation. The settings used are described in each appendix. Unless otherwise noted the power gain settings were set as described in section 5.6 with the worst-case data rate as described in the same section. Software power settings were set as defined by the manufacturer for typical operation.

## 4.8 Configuration Description

The DUT was configured, as described by the client as being representative of what would be delivered to a final customer. This configuration included the WLAN and internal antenna as described in section 5.2 installed in a typical manner. More specific details may be included in each appendix.

#### 4.8.1 Configuration Justification

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

Prescan measurements were made with the WLAN in mode a. The lowest and highest bit rates where tested. The lowest, highest and mid-band channels in the lower frequency band applicable to mode a were investigated. In addition, the three orthogonal DUT orientations were used to determine worse case orientation. From this preliminary data, it was determined that the lowest rate, along with a "Short Edge Up" orientation produced the highest spurious emissions (or highest carrier if no significant difference in spurious emissions were found). Software power settings were made based on information received from the manufacturer. These settings were described as those needed to set the DUT to its highest marketed power. Unless otherwise specified in the applicable appendices, these settings (or higher) were used for the measurements described in this report.

## 5.0 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 less than or equal to the specified limits as defined. The pass/fail statements made in this report only apply to the unit tested.

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

## **APPENDICES**

Applicant:	Itron	tronix Corporation		rporation FCC ID: KBCIX325-CWL IC ID:		1943A-IX325ab	ITE	<b>SONIX</b> ®	
Model(s):	IX325-	IX325-CWL IX325 Se		ries Rugged	Tablet PC with Cisco All	R-CB21AG-A-			L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

Appendix A - DUT Photographs
Photograph A-1 - Front of IX325 Tablet PC Photograph

Photograph A-2 - Back of IX325 Tablet PC





Photograph A-3 - WLAN Card Installed (cover removed)







Applicant:	Itronix Corporation FCC ID: KBCIX325-CWL IC ID:		Itronix Corporation		IC ID:	1943A-IX325ab	ITI	<b>RONIX</b> °	
Model(s):	IX325-	IX325-CWL IX325 Se		ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Test Rule Part(s):	FCC 47 CFR §15.407 Industry Canada RSS-210 Is			da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

## **Appendix B - Emission Bandwidth Measurement**

B.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.407
Procedure Reference	FCC DA 02-2138 Appendix A - Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E - August 30, 2002 RSS-GEN 4.4.1 General Requirements and Information for Certification of Radiocommunication Equipment

B.2. LIMITS	
FCC CFR 47 §15.407 IC RSS-210 §Annex 9	No specified limit: Used for reference only and for determination of other specified limits

B.3. ENVIRONMENTAL CONDITIONS				
Temperature 25 ± 3 °C				
<b>Humidity</b> 35 <u>+</u> 5 % RH				
Barometric Pressure	uncontrolled			

B.4. EQUIPME	B.4. EQUIPMENT LIST										
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE						
00015	Agilent	E4408B	Spectrum Analyzer	24Jan05	24Jan06						
Customer supplied	n/a	n/a	1ft. RG223/U RF Cable	n/a	n/a						
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	na*	na						

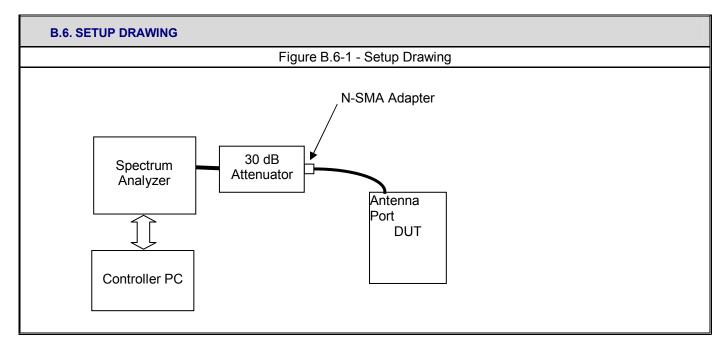
<sup>\*</sup>Verification made prior to measurement

Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
Model(s):	odel(s): IX325-CWL IX325 Series Rugged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN						L DYNAMICS COMPANY	
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

B.5. MEASUREMENT	EQUIPMENT SETUP
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in B.6.
Measurement Equipment Settings	To evaluate the emission bandwidth, software and a PC controller were used to set the spectrum analyzer using the following setting:  RBW – 300 kHz (~ 1% of EBW)  VBW – 1 MHz  Span – 50 MHz  Detector – Peak  Average – off  Trace - View  Offset – appropriate for external attenuation (-31.4 dB)
Measurement Procedure	A PC controller was used to record the spectrum analyzer display with the above settings. Software was used to determine the peak level and the points on either side of this peak that were 26 dB lower. The frequency difference between these two points was calculated and reported as the –26 dB emission bandwidth. The software also integrated the power within the span measured and determined frequency points along the trace that represents the first 0.05% and last 0.05% of the total power. Using these points as upper and lower limits, the band representing the center 99% of the power is determined and its width recorded as the 99% emission bandwidth.



## **B.7. DUT OPERATING DESCRIPTION**

Measurements were made at three channels throughout the lower band applicable for Mode a (5180 - 5320 MHz) with both the lowest and highest data rates. (6 & 54 mbps)

Applicant:	Itronix Corporation		ix Corporation FCC ID: KBCIX325-CWL IC ID:		1943A-IX325ab		<b>'RONIX</b> °	
Model(s):						L DYNAMICS COMPANY		
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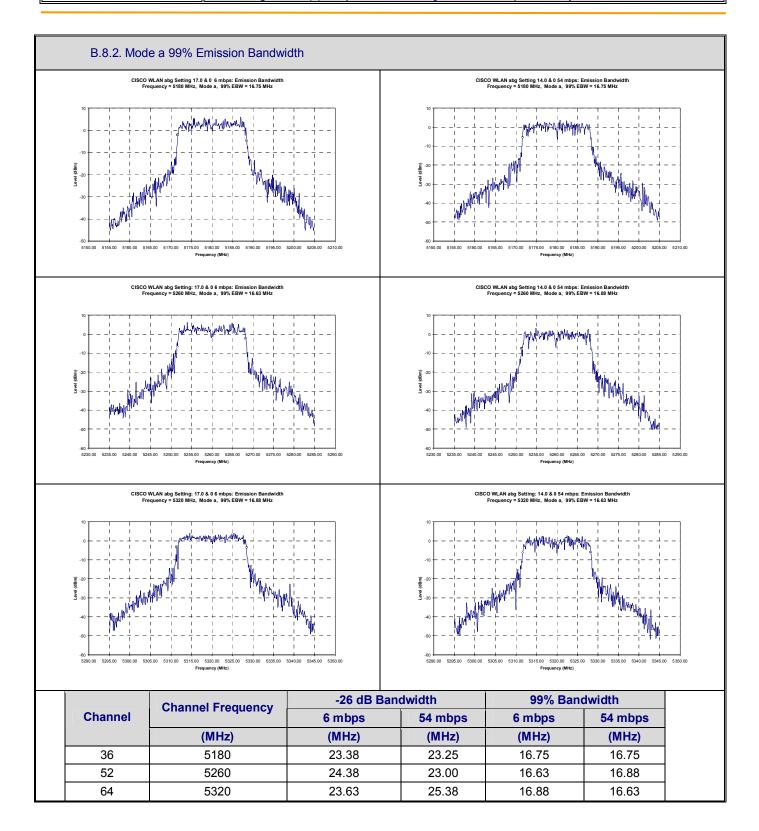
Test Report Serial No.:	040505KBC-F632-E15EW	R	eport Issue No.	E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

# **B.8. TEST RESULTS** B.8.1. Mode a -26 dB Emission Bandwidth CISCO WLAN abg Setting 17.0 & 0 6 mbps, Frequency = 5180 MHz, Mode a, -26 dB Emission Bandwidth = 23.38 MHz with an RBW of 300 kHz CISCO WLAN abg Setting 14.0 & 0 54 mbps, Frequency = 5180 MHz, Mode a, -26 dB Emission Bandwidth = 23.25 MHz with an RBW of 300 kHz mynderstyffertyfferende CISCO WLAN abg Setting: 17.0 & 0 6 mbps, Frequency = 5260 MHz, Mode a, -26 dB Emission Bandwidth = 24.38 MHz with an RBW of 300 kHz CISCO WLAN abg Setting 14.0 & 0 54 mbps, Frequency = 5260 MHz, Mode a, -26 dB Emission Bandwidth = 23.00 MHz with an RBW of 300 kHz 528.85 5233.88 5238.75 5248.76 5248.85 5253.89 5288.94 5283.99 5289.04 5274.09 5279.14 5284.20 5289.25 Proquency (MHz) 5228.63 5233.68 5238.73 5243.78 5248.83 5253.89 5258.94 5263.99 5269.04 5274.09 5279.14 5284.20 5289.25 Frequency (MHz) CISCO WLAN abg Setting: 17.0 & 0 6 mbps, Frequency = 5320 MHz, Mode a, -26 dB Emission Bandwidth = 23.63 MHz with an RBW of 300 kHz CISCO WLAN abg Setting: 14.0 & 0 54 mbps, Frequency = 5320 MHz, Mode a, -26 dB Emission Bandwidth = 25.38 MHz with an RBW of 300 kHz 5304.40 5309.45 5314.51 5319.56 5324.61 5329.66 5334.71 5339.77 5344.82 5349.87 Frequency (MHz) 5294.30 5299.35 5304.40 5309.45 5314.51 5319.56 5324.61 5329.66 5334.71 5339.77 5344.82 5349.87 Frequency (MHz)

	Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	RONIX
	Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPA
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874



Applicant:	Itroni	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	ablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN				L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

#### **B.9. PASS/FAIL**

No pass/fail criteria specified for this measurement. For reference only.

#### **B.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.

24Oct05

Date



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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

## **Appendix C - Transmitter Output Power Measurement**

C.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.407(a) (1), &(2)
Procedure Reference	FCC DA 02-2138 Appendix A - Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E - August 30, 2002 IC RSS-210 Annex 9.2 §(1)&(2) - Low-power License-exempt Radiocommunications Devices

C.2. LIMITS	
C.2.1. F	FCC CFR
§15.407(a) (1):	For the band 5.15 – 5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 50 mW or 4 dBm + 10logB, where B is the 26-dB emission bandwidth in MHz
§15.407(a) (2):	For the band 5.25 – 5.35 GHz, and 5.47 – 5.725 bands, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 250 mW or 11dBm + 10logB, where B is the 26 dB emission bandwidth in megahertz
C.2.2. I	C RSS-210 Note4
§A9.2 (1):	For the band 5150 – 5250 MHz, the maximum equivalent isotropic radiated output power (e.i.r.p.) shall not exceed 200 mW or 10 + 10logB, dBm, whichever is less. B is the 99% emission bandwidth in MHz
§A9.2 (2):	For the band 5205 – 5350 MHz, and 5470 – 5725 bands, the maximum conducted output power shall not exceed 250 mW or 11dBm + 10log <sub>10</sub> B, dBm, whichever is less The maximum e.i.r.p. shall not exceed 1.0 W or 17 + 10log <sub>10</sub> B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz

Note 1: The -26 dB & 99% emission bandwidth for each channel is outlined in Appendix B of this report.

Note 2: In reference to information provided by the manufacturer and outlined in section 4.2 of this report, the transmitting antenna used has a direction gain less than 6 dBi.

Note 3: Peak power spectral density is outlined in Appendix I of this report.

Note 4: In reference to IC RSS-Gen, 4.6 paragraph 4, conducted power measurements were made at the antenna port and the measured value applied to the e.i.r.p limit.

C.3. ENVIRONMENTAL CONDITIONS					
Temperature	25 <u>+</u> 3 °C				
Humidity	35 <u>+</u> 5 % RH				
Barometric Pressure	uncontrolled				

C.4. EQUIPMENT LIST												
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE							
00015	Agilent	E4408B	Spectrum Analyzer	24Jan05	24Jan06							
Customer supplied	n/a	n/a	1ft. RG223/U RF Cable	n/a	n/a							
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	na*	na							

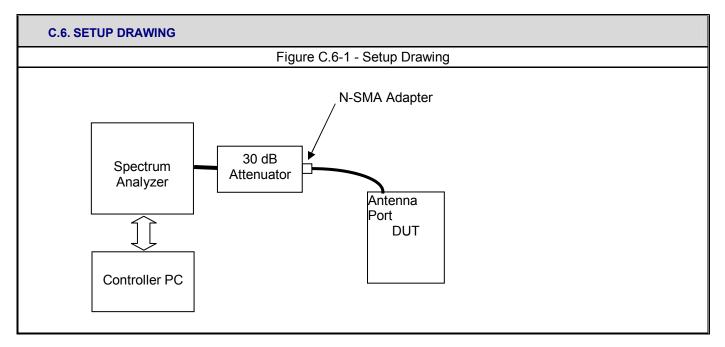
<sup>\*</sup>Verification made prior to measurement

Applicant:	Itronix Corporation FCC ID: KBCIX325-CWL IC ID:		onix Corporation		1943A-IX325ab	ITI	<b>SONIX</b> ®		
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All				L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

C.5. MEASUREMENT EQUIPMENT SETUP											
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in C.6.										
	To evaluate the maximum peak power, with the fo	ollowing spectrum analyzer settings were used:									
Measurement Equipment Settings	[x] Option 2 Method 1 RBW – 1 MHz VBW – 3 MHz Detector – Sample Display - Linear Averaging – On, Power, 100 traces Trace - Write Span -25 MHz Offset – appropriate for external attenuation	[ ] Option 2 Method 3 RBW – 1 MHz VBW – 3 MHz Detector – Sample Display - Linear Averaging – off Trace - Max Hold Span -25 MHz Offset – appropriate for external attenuation									
Measurement Procedure	A PC controller was used to record the spec	(-31.4 dB)  A PC controller was used to record the spectrum analyzer display with the above settings. Software was used to integrate the values recorded within the –26dB band. The resulting channel power was recorded and reported herein.									



#### **C.7. DUT OPERATING DESCRIPTION**

Measurements were made at three channels throughout the lower band applicable for Mode a (5180 - 5320 MHz) and at both the highest and lowest applicable data rates.

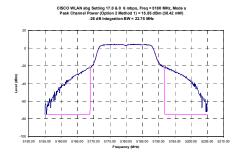
Applicant:	Itron	Itronix Corporation		x Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	<b>RONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	olet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN					
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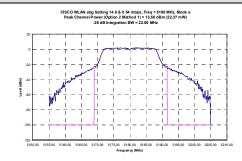


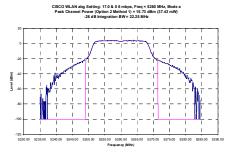
Test Report Serial No.:	040505KBC-F632-E15EW	R	eport Issue No.	E632EW-032906-R0
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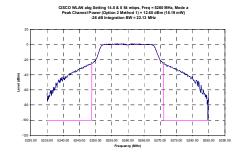
## **C.8. TEST RESULTS**

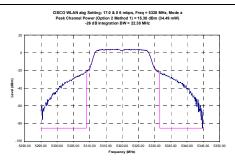
## C.8.1. Conducted Output Power (-26 dB Bandwidth)

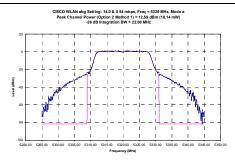












			802.11a										
Channel	Frequency	Duta I can conducted integre		Integration Bandwidth	•			Limit <sup>1</sup>					
	MHz	Mb/s	dBm	Watts	MHz	MHz	10logB	Lim	it 1 <sup>2</sup>	Limit 1 <sup>3</sup>		Pass/Fail	
	101112	IZ IVID/S CIDITI VV		Watto	101112	101112	WITIZ		dBm⁵	mW	dBm⁵		
CH36	5180	6	15.85	0.03840	22.75	23.38	13.69	4	17.69	50	17	Pass	
(Low)	3100	54	13.50	0.0224	22.50	23.25	13.66	4	17.66	50	17	Pass	
CH52	5260	6	15.73	0.0374	22.25	24.38	13.87	11	24.87	250	24	Pass	
(Mid)	3200	54	12.60	0.0182	22.13	23.00	13.62	11	24.62	250	24	Pass	
CH64	5320	6	15.38	0.0345	22.38	23.63	13.73	11	24.73	250	24	Pass	
(High)	3320	54	12.59	0.0181	22.00	25.38	14.04	11	25.04	250	24	Pass	

Note 1: Applicable limit is the minimum value between Limit 1 & Limit 2.

Note 2: Limit based on dBm<sup>4</sup> + 10logB = dBm<sup>5</sup>

Note 3: Limit based on 10log(mW) = dBm<sup>6</sup>

Applicant:	ltron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	Cisco AIR-CB21AG-A-K9 802.11abg WLAN			L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

#### C.8.2. Conducted Output Power (99% Bandwidth) CISCO WLAN abg Setting 17.0 & 0 6 mbps, Freq = 5180 MHz, Mode a Peak Channel Power (Option 2 Method 1) = 15.81 dBm (38.14 mW) CISCO WLAN abg Setting 14.0 & 0 54 mbps, Freq = 5180 MHz, Mode at Peak Channel Power (Option 2 Method 1) = 13.47 dBm (22.22 mW) 95% Integration BW = 17.50 MHz CISCO WLAN abg Setting 14.0 & 0 54 mbps, Freq = 5260 MHz, Mode a Peak Channel Power (Option 2 Method 1) = 12.56 dBm (18.02 mW) CISCO WLAN abg Setting 17.0 & 0 6 mbps, Freq = 5260 MHz, Mode a Peak Channel Power (Option 2 Method 1) = 15.69 dBm (37.07 mW) CISCO WLAN abg Setting 17.0 & 0 6 mbps, Freq = 5320 MHz, Mode a Peak Channel Power (Option 2 Method 1) = 15.34 dBm (34.16 mW) 99% Integration BW = 17.38 MHz CISCO WLAN abg Setting 14.0 & 0 54 mbps, Freq = 5320 MHz, Mode a Peak Channel Power (Option 2 Method 1) = 12.55 dBm (17.97 mW) 99% Integration BW = 17.38 MHz 802.11a **Frequency Peak Conducted** 99% dB Emission Data Integration Limit1 Bandwidth (B) Rate **Power** Bandwidth Channel Pass/Fail Limit 1<sup>2</sup> Limit 1<sup>3</sup> MHz Mb/s dBm Watts MHz MHz 10logB dBm<sup>6</sup> dBm<sup>4</sup> dBm<sup>5</sup> mW 6 15.81 0.0381 17.50 16.75 12.24 200 10 22.24 23 Pass **CH36** 5180 (Low) 16.75 54 13.47 0.0222 17.50 12.24 10 22.24 200 23 Pass Pass 6 15.69 0.0371 17.38 16.63 12.21 11 23.21 250 24 **CH52** 5260 (Mid) 17.38 16.88 54 12.56 0.0180 12.27 11 23.27 250 24 Pass 6 15.34 0.0342 17.38 16.88 12.27 11 23.27 250 24 Pass **CH64** 5320 (High) 12.55 0.0180 12.21 11 23.27 250 24 Pass 17.38 16.63

Note 1: Applicable limit is the minimum value between Limit 1 & Limit 2.

Note 2: Limit based on dBm<sup>4</sup> + 10logB = dBm<sup>5</sup> Note 3: Limit based on 10log(mW) = dBm<sup>6</sup>

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
Model(s):	IX325-							L DYNAMICS COMPANY	
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#### 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 15.407 (a) (1): The maximum conducted output power over the 5180 - 5250 MHz frequency range did not exceed 50 mW or 4 dBm+10logB (with B=EBW in MHz).

The maximum power within the 5180 - 5320 MHz frequency range was measured for Channel 36 (5180 MHz, 6 mbps) with a power of 15.85 dBm vs. a limit of 17 dBm (50 mW) [15.81 dBm vs. a limit of 22.24dBm (200 mW) for Industry Canada].

FCC 15.407 (a) (2): The maximum conducted output power over the 5250 - 5320 MHz frequency range did not exceed 250 mW or 11 dBm+10logB (with B=EBW in MHz).

The maximum power within the 5250 - 5320 MHz frequency range was measured for Channel 52 (5260 MHz, 6 mbps) with a power of 15.73 dBm vs. a limit of 24 dBm (250 mW) [15.69 dBm vs. a limit of 23.27dBm (250 mW) for Industry Canada].

## 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.

24Oct05

Date

	Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITF
	Model(s):	odel(s): IX325-CWL IX325 Series Rugged Tablet PC with Cisco AIR-CB21/				R-CB21AG-A	K9 802.11abg WLAN	A GENERAL
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Test Report Serial No.:	040505KBC-F632-E15EW	Report Issue No.		E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

## **Appendix D - Peak Excursion Ratio Measurement**

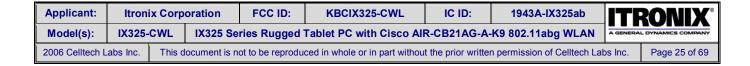
D.1. REFERENCES	
Normative Reference Standard	FCC CFR 47§15.407 (a) (6)
Procedure Reference	FCC DA 02-2138 Appendix A - Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E August 30, 2002

D.2. LIMITS	
FCC CFR 47§15.407 (a) (6)	The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

D.3. ENVIRONMENTAL CONDITIONS					
Temperature	25 <u>+</u> 3 °C				
Humidity	35 <u>+</u> 5 % RH				
Barometric Pressure	uncontrolled				

D.4. EQUIPMENT LIST										
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE					
00015	Agilent	E4408B	Spectrum Analyzer	24Jan05	24Jan06					
Customer supplied	n/a	n/a	1ft. RG223/U RF Cable	n/a	n/a					
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	na*	na					

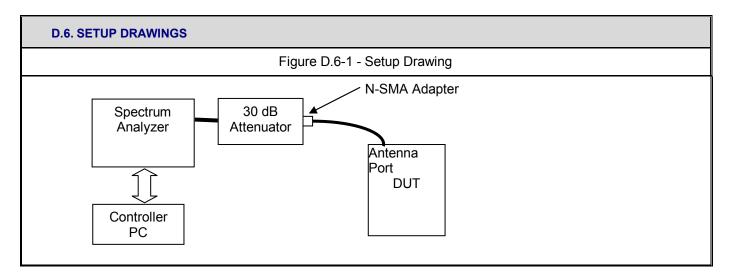
<sup>\*</sup>Verification made prior to measurement





Test Report Serial No.:	040505KBC-F632-E15EW	R	eport Issue No.	E632EW-032906-R0	
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

D.5. MEASUREMENT EQUIPMENT SETUP							
MEASUREMENT EQUIPMENT CONNECTIONS	he equipment was connected as shown in the setup drawing in D.6.						
	To evaluate the peak excursion ratio, two measur	ements need to be made.					
	Trace 1 Settings:  RBW – 1 MHz  VBW – 3 MHz  Detector – Peak  Averaging – off  Max Hold – on						
MEASUREMENT	Trace 2 Settings:						
EQUIPMENT SETTINGS	[x] Option 2 Method 1 RBW – 1 MHz VBW – 3 MHz Detector – Sample Display - Linear Averaging – On, Power, 100 traces Trace - Write Span -25 MHz Offset – appropriate for external attenuation (-31.4 dB)	[x] Option 2 Method 1 RBW – 1 MHz VBW – 3 MHz Detector – Sample Display - Linear Averaging – off Trace - Max Hold Span -25 MHz Offset – appropriate for external attenuation (-31.4 dB)					
Measurement Procedure		A PC controller was used to record the spectrum analyzer display with the above settings. Software was used to determine the difference between the two traces at the maximum peak value					



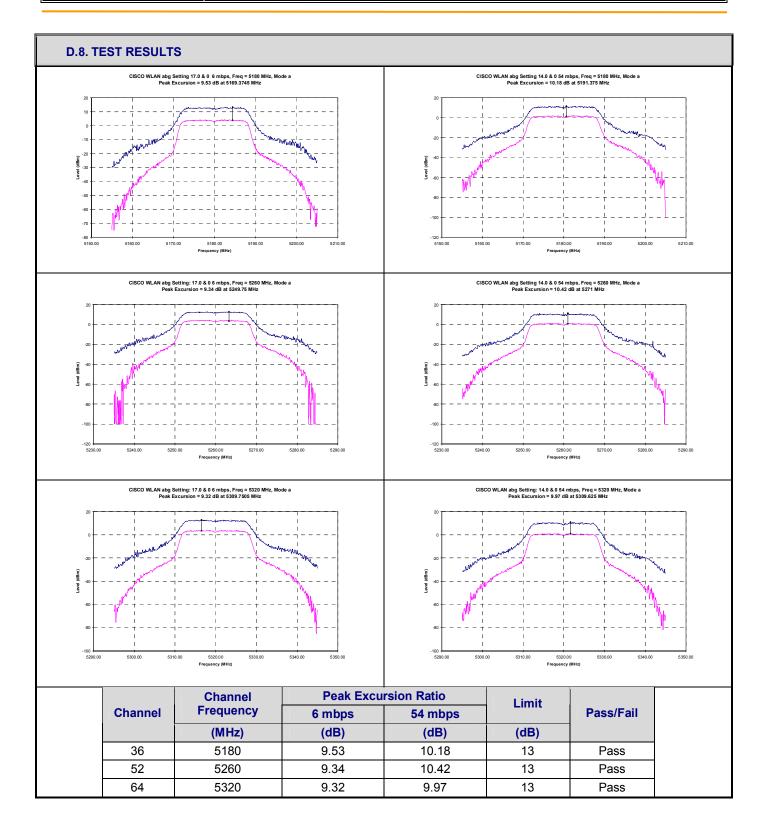
## **D.7. DUT OPERATING DESCRIPTION**

Measurements were made at three channels throughout the lower band applicable for Mode a (5180 - 5320 MHz) with the lowest and highest data rates.

Applicant:	Itron	Itronix Corporation		tion FCC ID: KBCIX325-CWL IC ID:		IC ID:	1943A-IX325ab	<b>ITRONIX</b> °	
Model(s):							L DYNAMICS COMPANY		
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Test Report Serial No.:	040505KBC-F632-E15EW	R	eport Issue No.	E632EW-032906-R0
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874



Applicant:	ltron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	<b>RONIX</b> °
Model(s):	IX325-CWL IX325 Se		ries Rugged	ies Rugged Tablet PC with Cisco AIR-CB21AG-A-				L DYNAMICS COMPANY	
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Test Report Serial No.:	Report Serial No.: 040505KBC-F632-E15EW Report Issue No.		E632EW-032906-R0		
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

#### D.9. PASS/FAIL

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

FCC CFR 47§15.407 (a) (6): The ratio of the peak excursion of the modulation envelope (measured using a peak hold function) to the maximum conducted output power (measured as specified above) shall not exceed 13 dB across any 1 MHz bandwidth or the emission bandwidth whichever is less.

A maximum peak excursion of 10.42 dB was the highest measurement determined and was found at 5271 MHz with Channel 52 transmitting.

#### D.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.

24Oct05

Date

Applicant:	Itron	tronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
Model(s):	Model(s): IX325-CWL IX325 Se		IX325 Se	ries Rugged Tablet PC with Cisco AIR-CB21AG-A-K9					L DYNAMICS COMPANY
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Test Rule Part(s): FCC 47 CFR §15.40			Industry Cana	da RSS-210 Issue 6	
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

## **Appendix E - Conducted Transmitter Spurious Emissions Measurement**

E.1. REFERENCES	
Normative Reference Standard	IC RSS-210§A9.3 (1) (2)
Procedure Reference	IC RSS-GEN§4.7

E.2. LIMITS	
IC RSS-210§A9.3 (1) (2)*	(1) For transmitters operating in the 5150 – 5250 MHz band: all emissions outside of the 5150 - 5350 MHz band shall not exceed –27 dBm/MHz e.i.r.p.
10 Noo-2109A9.5 (1) (2)	(2) For transmitters operating in the 5250 – 5350 MHz band: all emissions outside of the 5150 – 5350 GHz band shall not exceed an EIRP of –27 dBm/MHz

<sup>\*</sup>Reference only

E.3. ENVIRONMENTAL CONDITIONS					
Temperature	25 <u>+</u> 3 °C				
Humidity	35 <u>+</u> 5 % RH				
Barometric Pressure	uncontrolled				

E.4. EQUIPMENT LIST									
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE				
00015	Agilent	E4408B	Spectrum Analyzer	24Jan05	24Jan06				
Customer supplied	n/a	n/a	1ft. RG223/U RF Cable	n/a	n/a				
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	na*	na				

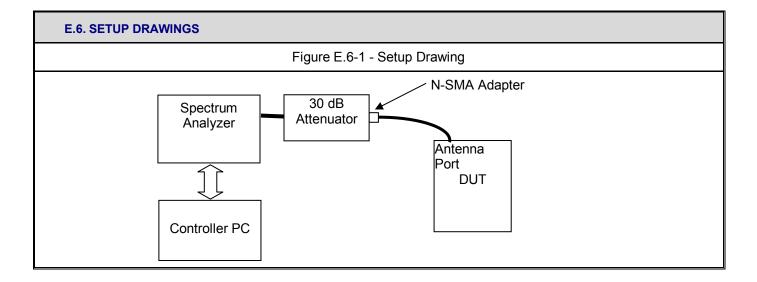
<sup>\*</sup>Verification made prior to measurement

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	IT	<b>RONIX</b> ®
Model(s):	s): IX325-CWL IX325 Se			ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			AL DYNAMICS COMPANY
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Test Report Serial No.:	040505KBC-F632-E15EW Report Is		eport Issue No.	E632EW-032906-R0			
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006			
Test Rule Part(s):	Test Rule Part(s): FCC 47 CFR §15.407			Industry Canada RSS-210 Issue 6			
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874			

E.5. MEASUREMENT	E.5. MEASUREMENT EQUIPMENT SETUP							
MEASUREMENT EQUIPMENT CONNECTIONS	The equipment was connected as shown in the setup drawing in E.6.							
MEASUREMENT EQUIPMENT SETTINGS	RBW – 1 MHz VBW – 1 MHz Span – Carrier region – 0.6 MHz / 5 bands, Outside carrier region - 22 GHz / 12 bands Detector – Peak Averaging – off Max Hold – on							
Measurement Procedure	A PC controller was used to record the spectrum analyzer display with the above settings. It was used to set the spans and collect the data. Software was used to present a graphical presentation of the combined data collected for each channel.							



## **E.7. DUT OPERATING DESCRIPTION**

Measurements were made at three channels throughout the lower band applicable for Mode a (5180 - 5320 MHz) and at both the highest and lowest applicable data rates.

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	s): IX325-CWL IX325 Se			ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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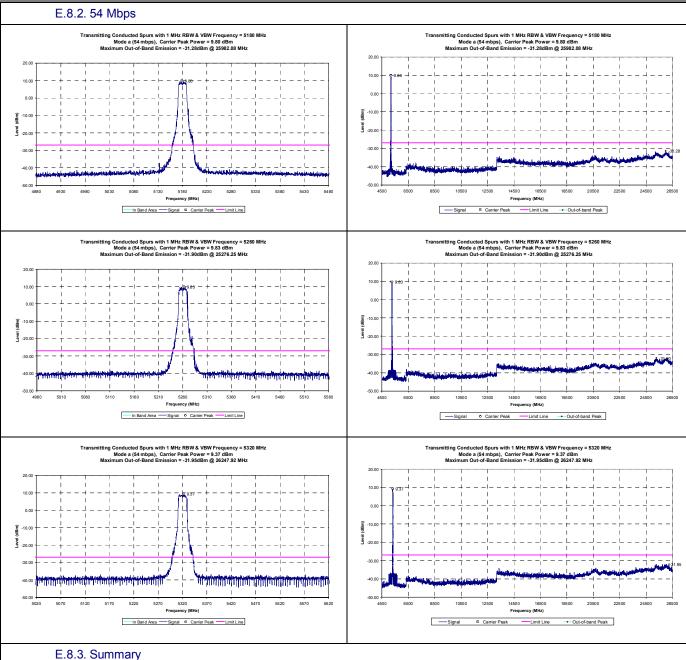
Test Report Serial No.:	040505KBC-F632-E15EW	Re	eport Issue No.	E632EW-032906-R0	
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

## **E.8. TEST RESULTS** E.8.1. 6 Mbps Transmitting Conducted Spurs with 1 MHz RBW & VBW Frequency = 5180 MHz Mode a (6 mbps), Carrier Peak Power = 11.59 dBm Maximum Out-of-Band Emission = -32.19dBm @ 25280.83 MHz Transmitting Conducted Spurs with 1 MHz RBW & VBW Frequency = 5180 MHz Mode a (6 mbps), Carrier Peak Power = 11.59 dBm Maximum Out-of-Band Emission = -32.19dBm @ 25280.83 MHz **ամանական արևանություն և հա** 22500 5130 5180 5230 Frequency (MHz) In Band Area — Signal S Carrier Peak Transmitting Conducted Spurs with 1 MHz RBW & VBW Frequency = 5260 MHz Mode a (6 mbps), Carrier Peak Power = 11.86 dBm Maximum Out-of-Band Emission = -32.14dBm @ 25230.42 MHz Transmitting Conducted Spurs with 1 MHz RBW & VBW Frequency = 5260 MHz Mode a (6 mbps), Carrier Peak Power = 11.86 dBm Maximum Out-of-Band Emission = -32.14dBm @ 25230.42 MHz -10.00 -20.00 In Band Area — Signal © Carrier Peak — Limit Line --- Signal → Out-of-band Peak Carrier Peak Limit Line Transmitting Conducted Spurs with 1 MHz RBW & VBW Frequency = 5320 MHz Mode a (6 mbps), Carrier Peak Power = 11.38 dBm Maximum Out-of-Band Emission = -31.45dBm @ 26133.33 MHz Transmitting Conducted Spurs with 1 MHz RBW & VBW Frequency = 5320 MHz Mode a (6 mbps), Carrier Peak Power = 11.38 dBm Maximum Out-of-Band Emission = -31.45dBm @ 26133.33 MHz -30.00 5220 5320 5370 Frequency (MHz) Frequency (MHz) Limit Line → Out-of-band Peak

Applicant:	Itronix Corporation		Itronix Co		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
						L DYNAMICS COMPANY				
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Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874



E.8.3. Summary	
----------------	--

	Channel	Channel	Highest Conducted Out-of-band Transmit Spurious Emission				
		Frequency	6 mbps		54 mbps		
		(MHz)	Frequency (MHz)	Level (dBm)	Frequency (MHz)	Level (dBm)	
	36	5180	25280.83	-32.19	25982.08	-31.28	
	52	5260	25230.42	-32.14	25276.25	-31.90	
	64	5320	26133.33	-31.45	26247.92	-31.95	

Applicant:	Itronix Corporation		Itronix C		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):						L DYNAMICS COMPANY				
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874	

#### E.9. PASS/FAIL

The conducted transmitter spurious emissions measurements were made for reference only for use in the determination of final OATS field strength measurements.

#### E.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.

14Nov05

Date



Test Report Serial No.:	040505KBC-F632-E15EW	Re	eport Issue No.	E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

## **Appendix F - Conducted Receiver Spurious Emissions Measurement**

F.1. REFERENCES	
Normative Reference Standard	IC RSS-GEN§6 (b)
Procedure Reference	IC RSS-GEN§4.8 (b)

F.2. LIMITS	
IC RSS-GEN§6	(b) If a conducted measurement is made, no spurious output signals appearing at the antenna terminals shall exceed 2 nanowatts per 4 kHz spurious frequency in the band 30-1000 MHz, or 5 nanowatts above 1 GHz.

F.3. ENVIRONMENTAL CONDITIONS			
Temperature	25 <u>+</u> 3 °C		
Humidity	35 <u>+</u> 5 % RH		
Barometric Pressure	uncontrolled		

F.4. EQUIPMENT LIST									
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE				
00015	Agilent	E4408B	Spectrum Analyzer	24Jan05	24Jan06				
Customer supplied	n/a	n/a	1ft. RG223/U RF Cable	n/a	n/a				
00076	Pasternack	PE7014-30	2x2dB 2 Watt Attenuator	na*	na				

<sup>\*</sup>Verification made prior to measurement

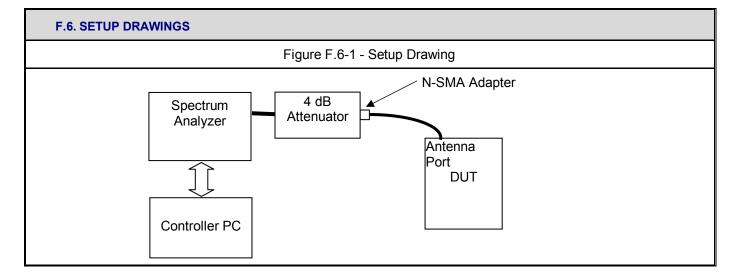
Applicant:	Itronix Corporation			FCC ID:	KBCIX325-CWL	CWL IC ID: 1943A-IX325ab			<b>ITRONIX</b> °	
Model(s):	IX325-	CWL	IX325 Se	ies Rugged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN			A GENERAL DYNAMICS COMPANY			
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Test Rule Part(s):	FCC 47 CFR §15.407	Industry Cana		da RSS-210 Issue 6	
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 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	RBW – 100 kHz* VBW – 1 MHz Span – Carrier region – 0.6 MHz / 5 bands, Outside carrier region - 22 GHz / 12 bands Detector – Peak Averaging – off Max Hold – on Sweeps - 20							
Measurement Procedure	A PC controller was used to record the spectrum analyzer display with the above settings. It was used to set the spans and collect the data. Software was used to present a graphical presentation of the combined data collected for each channel.							

<sup>\*100</sup> kHz RBW vs. 4 kHz (specified in the reference document) used to reduce test time



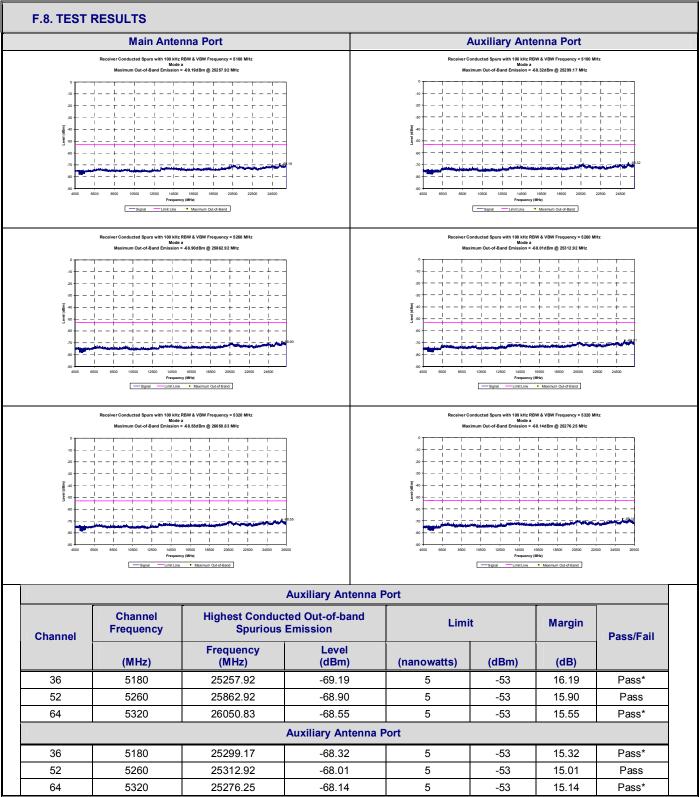
#### F.7. DUT OPERATING DESCRIPTION

Measurements were made at three channels throughout the lower band applicable for Mode a (5180 - 5320 MHz), (low and high for reference only). Measurements were made at both available receive antenna ports.

Applicant:	Itronix Corporation			FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	<b>ITRONIX</b> °	
Model(s):	IX325-CWL IX325 Se							A GENERAL DYNAMICS COMPANY	
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6	
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	



\*Reference only

Applicant:	Itronix Corporation			FCC ID:	KBCIX325-CWL	IC ID: 1943A-IX325ab			<b>ITRONIX</b> °	
Model(s):	IX325-	CWL	IX325 Se				A GENERAL DYNAMICS COMPANY			
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

#### F.9. PASS/FAIL

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

IC RSS-GEN (6) (b): If a conducted measurement is made, no spurious output signals appearing at the antenna terminals shall exceed 2 nanowatts per 4 kHz spurious frequency in the band 30-1000 MHz, or 5 nanowatts above 1 GHz.

No emissions where measured below 1 GHz. The emission above 1 GHz, with the lowest margin was measured at 25862.92 MHz, with a level of –68.90 dBm vs. the limit of -53 dBm (5 nW), resulting in a 15.90 dB margin for the main antenna port and –68.01 dBm @ 25312.92 MHz vs the limit of –53 dBm (5 nW) for the auxiliary antenna port resulting in a 15.01 dB margin.

#### 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.

Duane M. Friesen, C.E.T.

EMC Manager Celltech Labs Inc.

15Nov05

Date



Test Report Serial No.:	040505KBC-F632-E15EW	Report Issue No.		E632EW-032906-R0	
Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canada Lab File # IC 3874		

#### **Appendix G - Radiated Spurious Emissions Measurement**

G.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.407(b) (1) & (2)*
Procedure Reference	ANSI C63.4; FCC 97-114

<sup>\*</sup>Compliance to the requirements of FCC CFR 47 §15.407(b) (6) is outlined in Appendix H, as the limits are the same as the restricted bands.

#### G.2. LIMITS

#### G.2.1. FCC CFR 47

Undesirable Emissions Limits: ..... the peak emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

#### FCC CFR 47 §15.407(b)

- (1) For transmitters operating in the 5.15 5.25 GHz band: all emissions outside of the 5.15 5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz\*.
- (2) For transmitters operating in the 5.25 5.35 GHz band: all emissions outside of the 5.15 5.35 GHz band shall not exceed an EIRP of –27 dBm/MHz\*...
- (6) Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.

<sup>\*</sup> Free space field strengths were calculated and used as field strength limits using the following formulae: Field Strength (dBuV/m) = 20 \* log (sqrt [((30 \* Power (watts)) / (distance (m) ^2 \* 10<sup>6</sup>)]) Resulting in a field strength limit of 68.23 dBuV/m when measured with a RBW of 1 MHz.

	$\sim$	$\sim$	$\sim$		17	21	_	200
_	U	$\overline{}$	$\cup r$	$\boldsymbol{\kappa}$	41	QΙ	O.	209

Frequency	Field Strength		Measurement Distance
MHz	uV/m	dBuv/m	Meters
.009 - 0.490	2400/F(kHz)	48.52 – 13.80	300
0.490 - 1.705	24000/F(kHz)	33.80 – 22.97	30
1.705 – 30.0	30	29.54	30
30 – 88	100	40.00	3
88 – 216	150	43.52	3
216 - 960	200	46.02	3
Above 960	500	53.98	3
30 – 88 88 – 216 216 - 960	100 150 200	40.00 43.52 46.02	3 3 3

(b) In the emission table above, the tighter limit applies at the band edges.

Note: Spurious emissions within the restricted bands are reported in Appendix H.

G.3. ENVIRONMENTAL CONDITIONS				
Temperature	uncontrolled			
Humidity	uncontrolled			
Barometric Pressure	uncontrolled			

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
Model(s):							L DYNAMICS COMPANY		
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Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canada Lab File # IC 3874		

G	G.4. EQUIPMENT LIST									
	RECEIVING EQUIPMENT									
ID	ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE				
1	00072	EMCO	2075	Mini-mast	na	na				
2	00073	EMCO	2080	Turn Table	na	na				
3	00071	EMCO	2090	Multi-Device Controller	na	na				
4	00085	EMCO	6502	Loop Antenna	12Aug05	12Aug06				
5	00050	Chase	CBL-6111A	Bilog Antenna	08Feb05	08Feb06				
6	00034	ETS	3115	Double Ridged Guide Horn	11Aug05	11Aug06				
7	00161/00166	Waveline	899/801-KF	Standard Gain Horn	na	na				
8	00163	Waveline	899	Standard Gain Horn	na	Na				
9	00051	HP	8566B	Spectrum Analyzer RF Section	12Apr05	12Apr06				
10	00049	HP	85650A	Quasi-Peak Adapter	13Apr05	13Apr06				
11	00047	HP	85685A	RF Preselector	13Apr05	13Apr06				
12	00015	Agilent	4408B	Spectrum Analyzer	24Jan05	24Jan06				
13	00115	Miteq	J54-00102600-35-5A	LNA	08Jun04	08Jun06				
14	00093	Microtronics	HPM50111	High Pass Filter	08Jun04	08Dec05				
15	00119	INMAT	18AH-10	10dB attenuator	08Jun04	08Dec05				
16	00192	Agilent	8493C	6dB attenuator	01Jul05	01Jul06				
17	00038	Agilent	8493C	3dB attenuator	01Jul05	01Jul06				
18	000048	GORE	n/a	Microwave Cable (RX)	28Mar05	28Mar06				
19	00121	Andrew	FSJ4-50B	Microwave Cable (RX)	12Aug05	12Aug06				
20	00130	Andrew	FSJ1-50A	Microwave Cable (RX)	12Aug05	12Aug06				
21	00088	HP	11970A	Harmonic mixer	na	na				
22	00094	HP	11975A	Preamplifier	na	na				

Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	<b>RONIX</b> °	
Model(s): IX325-CWL IX325 S			IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			AL DYNAMICS COMPANY
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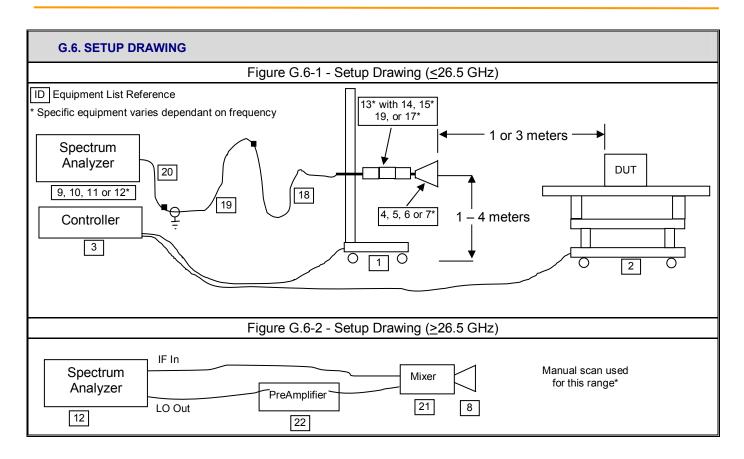
Test Report Serial No.:	040505KBC-F632-E15EW	Report Issue No.		E632EW-032906-R0	
Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canada Lab File # IC 3874		

G.5. MEASUREM	ENT EQUIPMENT SET	UP						
	The measurement equipment was connected as shown in the G.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:							
	Frequency Range	Spectrum Analyzer Asset #	LNA/Filter/Attenuator Asset #	Antenna Asset #				
	10kHz - 30 MHz	00051/00049/00047	none	00085				
	30 MHz – 1 GHz	00051/00049/00047	none	00050				
	1 GHz – 2 GHz	00051/00047	none	00034				
MEASUREMENT EQUIPMENT	2 GHz – 3 GHz*	00051	00119/00192/00038/00115	00034				
CONNECTIONS	3 GHz – 7 GHz*	00051	00093/00119/00192/00038/ 00115	00034				
	7 GHz – 18 GHz	00015	00093/00119/00192/00038/ 00115	00034				
	18 GHz – 26.5 GHz	00015	00115	00161/00166				
	26.5 GHz – 40 GHz	00051	none	00088/00163				
	* Attenuators used as required							
	The spectrum analyzer was set to the following settings:							
	Frequency Range	e RBW	VBW	Detector				
	MHz	kHz	kHz	20100101				
MEASUREMENT	0.009 - 0.150	0.200	10	Peak*				
EQUIPMENT	0.150 - 30	9	30	Peak*				
SETTINGS	30 – 1000	100	300	Peak*				
	> 1000	1000	1000	Peak*				
	with a peak detector		QP limit was applied to meas Average measurements we					

	Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	RONIX
	Model(s): IX325-CWL IX325 Se			IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPA
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874



Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	<b>RONIX</b> °
Model(s): IX325-CWL IX325 Series Rugged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11abg WLAN								L DYNAMICS COMPANY
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#### **G.7. SETUP PHOTOGRAPHS**

Photograph G.7-1- 3115 Horn @ 3 m



Photograph G.7-2- Waveline Horn with LNA @ 1m



Photograph G.7-3- DUT Configuration



### **G.8. DUT OPERATING DESCRIPTION**

The worst-case data rate was determined from prescan investigations. Measurements were made at three channels throughout the lower band applicable for Mode a.

Applicant:	t: Itronix Corporation			FCC ID:	KBCIX325-CWL	IC ID:	ITE	<b>RONIX</b> °
Model(s):								L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

#### **G.9. TEST RESULTS**

### G.9.1. Mode a (lower band) - Channel 36 Out-of-Band Spurious Emission Field Strengths @ Specified Distance (not within restricted bands)

(0	Celltech			Project Number Company: Product:	:	Itronix						Standard:         FCC15.407t           Test Start Date:         3-Oct-05           Test End Date:         25-Oct-05					
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV		dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
UNII-CH36	Н	3	Bilog SN1607	913.95	26.40	*	23.88	4.13	0.00	28.01	54.41	PK	3.00	0.00	66.02	11.61	PASS
UNII-CH36	Н	3	Bilog SN1607	913.95	14.20	*	23.88	4.13	0.00	28.01	42.21	QP	3.00	0.00	46.02	3.81	PASS
UNII-CH36	Н	3	Horn SN6267	1886.91	30.30	*	27.09	5.92	0.00	33.01	63.31	PK*	3.00	0.00	68.23	4.92	PASS
UNII-CH36	Н	1	Horn SN6267	10359.38	45.72		38.10	7.84	-16.50	29.43	75.15	PK	3.00	9.54	97.77	22.62	PASS
UNII-CH36	Н	1	Horn SN6267	10360.00	34.46		38.10	7.84	-22.50	23.43	57.89	AV	3.00	9.54	77.77	19.88	PASS
UNII-CH36	Н	1	Horn SN6267	13423.10	39.04	*	40.44	9.25	-31.38	18.31	57.35	PK*	3.00	9.54	77.77	20.42	PASS
UNII-CH36	Н	1	Waveline_899	25899.70	39.16		40.50	15.00	-35.53	19.97	59.13	PK*	3.00	9.54	77.77	18.64	PASS
UNII-CH36	٧	3	Bilog SN1607	122.07	24.20	*	11.88	2.11	0.00	13.99	38.19	PK*	3.00	0.00	43.52	5.33	PASS
UNII-CH36	V	3	Bilog SN1607	317.95	25.10	*	14.16	2.65	0.00	16.81	41.91	PK*	3.00	0.00	46.02	4.11	PASS
UNII-CH36	٧	3	Bilog SN1607	450.01	24.00	*	17.50	2.86	0.00	20.36	44.36	PK*	3.00	0.00	46.02	1.66	PASS
UNII-CH36	V	3	Bilog SN1607	815.72	24.90	*	22.66	3.94	0.00	26.60	51.50	PK	3.00	0.00	66.02	14.52	PASS
UNII-CH36	٧	3	Bilog SN1607	815.72	13.70	*	22.66	3.94	0.00	26.60	40.30	QP	3.00	0.00	46.02	5.72	PASS
UNII-CH36	٧	3	Bilog SN1607	844.43	25.80	*	23.08	4.00	0.00	27.08	52.88	PK	3.00	0.00	66.02	13.14	PASS
UNII-CH36	٧	3	Bilog SN1607	844.43	13.90	*	23.08	4.00	0.00	27.08	40.98	QP	3.00	0.00	46.02	5.04	PASS
UNII-CH36	V	3	Horn SN6267	3462.85	45.10		31.07	8.60	-32.11	7.55	52.65	PK*	3.00	0.00	68.23	15.58	PASS
UNII-CH36	٧	1	Horn SN6267	10357.70	42.06		38.10	7.84	-22.50	23.43	65.49	PK*	3.00	9.54	77.77	12.28	PASS
UNII-CH36	٧	1	Horn SN6267	14517.65	39.88	*	41.68	9.75	-31.60	19.84	59.72	PK*	3.00	9.54	77.77	18.06	PASS
UNII-CH36	٧	1	Waveline 899	25899.70	39.90		40.50	15.00	-35.53	19.97	59.87	PK*	3.00	9.54	77.77	17.90	PASS

For frequency bands above 26.5 GHz, manual scans at a 1-2 cm distance were made with no emissions observed.

#### Notes:

\*PK denotes QP or Average limits applied to emissions measured with a peak detector

**BOLD** signifies the highest signal measured near a carrier harmonic frequency

No DUT emissions levels were measured above those reported

\*Field Strength limit derived from using the free space formulae with the EIRP Limit

#### Formulae:

Total CF = Antenna Factor + Cable Factor + Other Factor (Amplifier Gain, filter loss, etc)

Field Strength = SA Reading + Total CF

Limit Distance Correction = 40\*log(d1/d2) for F<30 MHz, 20\*log(d1/d2) for F> 30 MHz:

where d1 is the measurement distance, d2 is the published limit distance

Limit = Specified Limit + Limit Distance Correction

Margin = Limit - Field Strength

Field Strength Limit =  $20*LOG((SQRT((30*(10^{(EIRP /10))/1000)/(d1^{2}))*1000000))$ 

where d1 is the measurement distance in meters, EIRP is the EIRP limit in dBm

	Applicant:	olicant: Itronix Corporat			FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITF	<u> </u>
	Model(s):									L DYNA
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Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

#### G.9.2. Mode a (Channel 52) - Out-of-Band Spurious Emission Field Strengths @ Specified Distance (not within restricted bands)

(6	ell-	tec	h	Project Number Company: Product:	:	632 Itron IX32	ix !5 with CIS(	CO a/b/g V	VLAN		Standard: Test Start D Test End Da		FCC15.407 3-Oct-05 25-Oct-05	b			
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV		dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
UNII-CH52	Н	3	Bilog SN1607	810.31	26.00	*	22.61	3.90	0.00	26.51	52.51	PK	3.00	0.00	66.02	13.51	PASS
UNII-CH52	Н	3	Bilog SN1607	810.31	13.70	*	22.61	3.90	0.00	26.51	40.21	QP	3.00	0.00	46.02	5.81	PASS
UNII-CH52	Н	3	Bilog SN1607	839.10	25.30	*	22.85	3.98	0.00	26.83	52.13	PK	3.00	0.00	66.02	13.89	PASS
UNII-CH52	Н	3	Bilog SN1607	839.10	13.90	*	22.85	3.98	0.00	26.83	40.73	QP	3.00	0.00	46.02	5.29	PASS
UNII-CH52	Н	3	Bilog SN1607	850.51	25.40	*	23.31	4.04	0.00	27.35	52.75	PK	3.00	0.00	66.02	13.27	PASS
UNII-CH52	Н	3	Bilog SN1607	850.51	13.90	*	23.31	4.04	0.00	27.35	41.25	QP	3.00	0.00	46.02	4.77	PASS
UNII-CH52	Н	3	Horn SN6267	1889.56	33.10	*	27.10	5.92	0.00	33.02	66.12	PK*	3.00	0.00	68.23	2.11	PASS
UNII-CH52	Н	3	Horn SN6267	3504.05	53.70		31.16	8.64	-32.14	7.67	61.37	PK*	3.00	0.00	68.23	6.86	PASS
UNII-CH52	Н	1	Horn SN6267	10527.00	38.99		38.06	7.91	-10.49	35.49	74.48	PK*	3.00	9.54	77.77	3.29	PASS
UNII-CH52	Н	1	Waveline_899	26298.10	37.70		40.50	15.34	-35.53	20.31	58.01	PK*	3.00	9.54	77.77	19.76	PASS
UNII-CH52	٧	3	Bilog SN1607	174.17	25.10	*	10.07	2.29	0.00	12.36	37.46	PK*	3.00	0.00	43.52	6.06	PASS
UNII-CH52	٧	3	Bilog SN1607	450.63	25.10	*	17.50	2.87	0.00	20.37	45.47	PK	3.00	0.00	66.02	20.55	PASS
UNII-CH52	٧	3	Bilog SN1607	450.63	13.90	*	17.50	2.87	0.00	20.37	34.27	QP	3.00	0.00	46.02	11.75	PASS
UNII-CH52	٧	3	Bilog SN1607	678.55	25.30	*	20.90	3.63	0.00	24.53	49.83	PK	3.00	0.00	66.02	16.19	PASS
UNII-CH52	٧	3	Bilog SN1607	678.55	13.60	*	20.90	3.63	0.00	24.53	38.13	QP	3.00	0.00	46.02	7.89	PASS
UNII-CH52	٧	3	Bilog SN1607	815.57	25.60	*	22.67	3.94	0.00	26.61	52.21	PK	3.00	0.00	66.02	13.81	PASS
UNII-CH52	٧	3	Bilog SN1607	815.57	13.60	*	22.67	3.94	0.00	26.61	40.21	QP	3.00	0.00	46.02	5.81	PASS
UNII-CH52	٧	3	Bilog SN1607	829.60	25.90	*	22.30	3.99	0.00	26.29	52.19	PK	3.00	0.00	66.02	13.83	PASS
UNII-CH52	٧	3	Bilog SN1607	829.60	13.90	*	22.30	3.99	0.00	26.29	40.19	QP	3.00	0.00	46.02	5.83	PASS
UNII-CH52	٧	3	Bilog SN1607	911.11	26.80	*	23.82	4.14	0.00	27.96	54.76	PK	3.00	0.00	66.02	11.26	PASS
UNII-CH52	٧	3	Bilog SN1607	911.11	14.10	*	23.82	4.14	0.00	27.96	42.06	QP	3.00	0.00	46.02	3.96	PASS
UNII-CH52	٧	3	Bilog SN1607	928.73	26.20	*	24.45	4.11	0.00	28.56	54.76	PK	3.00	0.00	66.02	11.26	PASS
UNII-CH52	٧	3	Bilog SN1607	928.73	13.90	*	24.45	4.11	0.00	28.56	42.46	QP	3.00	0.00	46.02	3.56	PASS
UNII-CH52	٧	3	Bilog SN1607	951.53	24.40	*	24.92	4.21	0.00	29.13	53.53	PK	3.00	0.00	66.02	12.49	PASS
UNII-CH52	٧	3	Bilog SN1607	951.53	13.50	*	24.92	4.21	0.00	29.13	42.63	QP	3.00	0.00	46.02	3.39	PASS
UNII-CH52	٧	3	Horn SN6267	1896.71	30.05	*	27.13	5.93	0.00	33.06	63.11	PK*	3.00	0.00	68.23	5.12	PASS
UNII-CH52	٧	3	Horn SN6267	3503.90	51.70		31.16	8.64	-32.14	7.67	59.37	PK*	3.00	0.00	68.23	8.86	PASS
UNII-CH52	٧	1	Horn SN6267	10518.13	37.32		38.06	7.91	-16.49	29.48	66.80	PK*	3.00	9.54	77.77	10.97	PASS
UNII-CH52	٧	1	Horn SN6267	14395.40	39.81	*	41.67	9.70	-31.42	19.95	59.76	PK*	3.00	9.54	77.77	18.02	PASS
UNII-CH52	٧	1	Waveline 899	26298.10	38.74		40.50	15.34	-35.53	20.31	59.05	PK*	3.00	9.54	77.77	18.72	PASS

For frequency bands above 26.5 GHz, manual scans at a 1-2 cm distance were made with no emissions observed.

#### Notes:

\*PK denotes QP or Average limits applied to emissions measured with a peak detector

BOLD signifies the highest signal measured near a carrier harmonic frequency

No DUT emissions levels were measured above those reported

\*Field Strength limit derived from using the free space formulae with the EIRP Limit

#### Formulae:

Total CF = Antenna Factor + Cable Factor + Other Factor (Amplifier Gain, filter loss, etc)

Field Strength = SA Reading + Total CF

Limit Distance Correction = 40\*log(d1/d2) for F<30 MHz, 20\*log(d1/d2) for F> 30 MHz:

where d1 is the measurement distance, d2 is the published limit distance

Limit = Specified Limit + Limit Distance Correction

Margin = Limit - Field Strength

Field Strength Limit = 20\*LOG((SQRT((30\*(10^(EIRP /10))/1000)/(d1^2))\*1000000))

where d1 is the measurement distance in meters, EIRP is the EIRP limit in dBm

Applicant:	Itronix Corporation			FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	
Model(s):									L DYNAMICS COMPANY
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

#### G.9.3. Mode a (Channel 64) - Out-of-Band Spurious Emission Field Strengths @ Specified Distance (not within restricted bands)

(6	Project Number: Company: Product:				:	632 Itronix IX325 with CISCO a/b/g WLAN			Test Start Date: 3-Oct-0		FCC15.407 3-Oct-05 25-Oct-05	b					
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV		dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	ĺ
UNII-CH64	Н	3	Bilog SN1607	839.84	25.60	*	22.89	3.97	0.00	26.86	52.46	PK	3.00	0.00	66.02	13.56	PASS
UNII-CH64	Н	3	Bilog SN1607	839.84	13.90	*	22.89	3.97	0.00	26.86	40.76	QP	3.00	0.00	46.02	5.26	PASS
UNII-CH64	Н	3	Horn SN6267	1889.77	30.25	*	27.10	5.93	0.00	33.02	63.27	PK*	3.00	0.00	68.23	4.95	PASS
UNII-CH64	Н	3	Horn SN6267	3467.23	45.80		31.08	8.58	-32.11	7.55	53.35	PK*	3.00	0.00	68.23	14.88	PASS
UNII-CH64	Н	3	Horn SN6267	3546.36	51.60		31.27	8.73	-32.17	7.84	59.44	PK*	3.00	0.00	68.23	8.79	PASS
UNII-CH64	V	3	Bilog SN1607	449.98	25.40	*	17.50	2.86	0.00	20.36	45.76	PK	3.00	0.00	66.02	20.26	PASS
UNII-CH64	٧	3	Bilog SN1607	449.98	13.90	*	17.50	2.86	0.00	20.36	34.26	QP	3.00	0.00	46.02	11.76	PASS
UNII-CH64	V	3	Bilog SN1607	811.09	25.80	*	22.62	3.90	0.00	26.53	52.33	PK	3.00	0.00	66.02	13.69	PASS
UNII-CH64	V	3	Bilog SN1607	811.09	13.80	*	22.62	3.90	0.00	26.53	40.33	QP	3.00	0.00	46.02	5.69	PASS
UNII-CH64	٧	3	Bilog SN1607	815.30	25.60	*	22.68	3.94	0.00	26.62	52.22	PK	3.00	0.00	66.02	13.80	PASS
UNII-CH64	٧	3	Bilog SN1607	815.30	13.90	*	22.68	3.94	0.00	26.62	40.52	QP	3.00	0.00	46.02	5.50	PASS
UNII-CH64	٧	3	Bilog SN1607	833.72	25.40	*	22.52	3.97	0.00	26.49	51.89	PK	3.00	0.00	66.02	14.13	PASS
UNII-CH64	٧	3	Bilog SN1607	833.72	13.80	*	22.52	3.97	0.00	26.49	40.29	QP	3.00	0.00	46.02	5.73	PASS
UNII-CH64	٧	3	Bilog SN1607	839.93	25.60	*	22.90	3.97	0.00	26.87	52.47	PK	3.00	0.00	66.02	13.55	PASS
UNII-CH64	V	3	Bilog SN1607	839.93	13.90	*	22.90	3.97	0.00	26.87	40.77	QP	3.00	0.00	46.02	5.25	PASS
UNII-CH64	٧	3	Bilog SN1607	928.74	26.80	*	24.45	4.11	0.00	28.56	55.36	PK	3.00	0.00	66.02	10.66	PASS
UNII-CH64	٧	3	Bilog SN1607	928.74	13.80	*	24.45	4.11	0.00	28.56	42.36	QP	3.00	0.00	46.02	3.66	PASS
UNII-CH64	٧	3	Horn SN6267	2393.51	34.75	*	28.18	6.79	-23.16	11.82	46.57	PK*	3.00	0.00	68.23	21.66	PASS
UNII-CH64	٧	3	Horn SN6267	3431.44	45.50		31.00	8.51	-32.14	7.37	52.87	PK*	3.00	0.00	68.23	15.36	PASS
UNII-CH64	٧	3	Horn SN6267	5698.00	40.20	*	34.23	11.93	-32.22	13.94	54.14	PK*	3.00	0.00	68.23	14.09	PASS
UNII-CH64	V	3	Horn SN6267	6840.00	34.10	*	34.94	13.32	-32.18	16.08	50.18	PK*	3.00	0.00	68.23	18.05	PASS

For frequency bands above 26.5 GHz, manual scans at a 1-2 cm distance were made with no emissions observed.

#### Notes:

\*PK denotes QP or Average limits applied to emissions measured with a peak detector

BOLD signifies the highest signal measured near a carrier harmonic frequency

No DUT emissions levels were measured above those reported

\*Field Strength limit derived from using the free space formulae with the EIRP Limit

#### Formulae:

Total CF = Antenna Factor + Cable Factor + Other Factor (Amplifier Gain, filter loss, etc)

Field Strength = SA Reading + Total CF

Limit Distance Correction = 40\*log(d1/d2) for F<30 MHz, 20\*log(d1/d2) for F> 30 MHz:

where d1 is the measurement distance, d2 is the published limit distance

Limit = Specified Limit + Limit Distance Correction

Margin = Limit - Field Strength

 $Field \ Strength \ Limit = 20*LOG((SQRT((30*(10^{(EIRP /10))/1000)/(d1^{(2))*1000000})))$ 

where d1 is the measurement distance in meters, EIRP is the EIRP limit in dBm

Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	IC ID: 1943A-IX325ab CB21AG-A-K9 802.11abg WLAN	ITI
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A		
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874	

#### G.10. PASS/FAIL

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

FCC 15.407 (b) (1, 2): All emissions outside the 5.15 - 5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.

The emission above 1 GHz, outside a restricted band, with the lowest margin to the theoretical limit was measured at 3 meters, in the horizontal polarization with Channel 52 transmitting. The frequency was 1889.56 MHz, with a corrected peak field strength of 66.12 dBuV/m vs. the calculated average limit of 68.23 dBuV/m, resulting in a 2.11 dB margin.

FCC 15.407 (b) (6): Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in Section 15.209.

The emission below 1 GHz, outside a restricted band, with the lowest margin to the limit was measured at 3 meters, in the vertical polarization with Channel 36 transmitting. The frequency was 450.01 MHz, with a corrected peak field strength of 44.36 dBuV/m vs. the average limit of 46.02 dBuV/m, resulting in a 1.66 dB margin.

#### G.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

U W. Pyse

Celltech Labs Inc.

25Oct05

Date



Test Report Serial No.:	040505KBC-F632-E15EW	505KBC-F632-E15EW Report Issue No.		E632EW-032906-R0	
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

#### **Appendix H - Restricted Band Emissions Measurement**

H.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.407 (b) (6) (FCC CFR 47 §15.209 (a)), FCC CFR 47 §15.407 (b) (7) (FCC CFR 47 §15.205 (a) (b))
Procedure Reference	FCC 97-114

H.2. LIMI	ITS						
FCC CFR 47 §15.407	(b) (6) Unwanted emissions below 1 15.209	GHz must com	ply with the g	eneral field strengti	h limits set forth in Section		
FCC CFR 47 §15.209	(a) Except as provided elsewhere in field strength levels specified in the f		ne emissions f	rom an intentional i	radiator shall not exceed the		
	Frequency Field Strength Measurement Distance						
	MHz	uV/m		dBuv/m	Meters		
	.009 – 0.490	2400/F(kHz	) 48.	52 – 13.80	300		
	0.490 – 1.705	24000/F(kHz	z) 33.	80 – 22.97	30		
	1.705 – 30.0	30		29.54	30		
	30 – 88	100		40.00	3		
	88 – 216	150		43.52	3		
	216 - 960	200		46.02	3		
	Above 960	500		53.98	3		
FCC CFR 47 §15.407	(b) (7) The provisions of Section 15.2	205 of this part	apply to inten	tional radiators ope	erating under this section.		
FCC CFR 47 §15.205	(a) Except as shown in paragraph (d frequency bands listed below:	) of this section	, only spuriou	s emissions are pe	rmitted in any of the		
	MHz		MHz	MHz	GHz		
	0.090-0.110 10.495-0.505 2.1735-2.1905 4.125-4.128 4.17725-4.17775 4.20725-4.20775 6.215-6.218 6.26775-6.26825 6.31175-6.31225 8.291-8.294 8.362-8.366 8.37625-8.38675 8.41425-8.41475 12.29-12.293 12.51975-12.52025 12.57675-12.57725	16.6 16.8 156.52	16.42–16.423 9475–16.69525 0425–16.80475 25.5–25.67 37.5–38.25 73–74.6 74.8–75.2 108–121.94 123–138 149.9–150.05 475–156.52525 156.7–156.9 12.0125–167.17 167.72–173.2 240–285 322–335.4	399.9-4 608-6 960-12 1300-14 1435-162 1645.5-164 1660-17 1718.8-172 2200-23 2310-23 2483.5-25 2655-29 3260-33 3345.8-33 3600-44	114 5.35–5.46 140 7.25–7.75 27 8.025–8.5 3.5 9.0–9.2 6.5 9.3–9.5 110 10.6–12.7 2.2 13.25–13.4 100 14.47–14.5 190 15.35–16.2 17.7–21.4 22.01–23.12 23.6–24.0 31.2–31.8 36.43–36.5		
	<sup>1</sup> Until February 1, 1999, this restricted <sup>2</sup> Above 38.6	band shall be 0.49	90–0.510 MHz.		<b>'</b>		

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency
bands shall not exceed the limits shown in 15.209. At frequencies equal to or less than 1000 MHz, compliance with the
limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak
detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the
average value of the measured emissions. The provisions of 15.35 apply to these measurements.

Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	<b>ITRONIX</b> °		
Model(s):						L DYNAMICS COMPANY			
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H.3. ENVIRONMENTAL COND	DITIONS
Temperature	uncontrolled
Humidity	uncontrolled
Barometric Pressure	uncontrolled

Н.	H.4. EQUIPMENT LIST											
			RECEIVING EQUI	PMENT								
ID	ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE						
1	00072	EMCO	2075	Mini-mast	na	na						
2	00073	EMCO	2080	Turn Table	na	na						
3	00071	EMCO	2090	Multi-Device Controller	na	na						
4	00085	EMCO	6502	Loop Antenna	12Aug05	12Aug06						
5	00050	Chase	CBL-6111A	Bilog Antenna	08Feb05	08Feb06						
6	00034	ETS	3115	Double Ridged Guide Horn	11Aug05	11Aug06						
7	00161/00166	Waveline	899/801-KF	Standard Gain Horn	na	na						
8	00163	Waveline	899	Standard Gain Horn	na	Na						
9	00051	HP	8566B	Spectrum Analyzer RF Section	12Apr05	12Apr06						
10	00049	HP	85650A	Quasi-Peak Adapter	13Apr05	13Apr06						
11	00047	HP	85685A	RF Preselector	13Apr05	13Apr06						
12	00015	Agilent	4408B	Spectrum Analyzer	24Jan05	24Jan06						
13	00115	Miteq	J54-00102600-35-5A	LNA	08Jun04	08Jun06						
14	00093	Microtronics	HPM50111	High Pass Filter	08Jun04	08Dec05						
15	00119	INMAT	18AH-10	10dB attenuator	08Jun04	08Dec05						
16	00192	Agilent	8493C	6dB attenuator	01Jul05	01Jul06						
17	00038	Agilent	8493C	3dB attenuator	01Jul05	01Jul06						
18	00048	GORE	n/a	Microwave Cable (RX)	28Mar05	28Mar06						
19	00121	Andrew	FSJ4-50B	Microwave Cable (RX)	12Aug05	12Aug06						
20	00130	Andrew	FSJ1-50A	Microwave Cable (RX)	12Aug05	12Aug06						
21	00088	HP	11970A	Harmonic mixer	na	na						
22	00094	HP	11975A	Preamplifier	na	na						

Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITI	<b>RONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

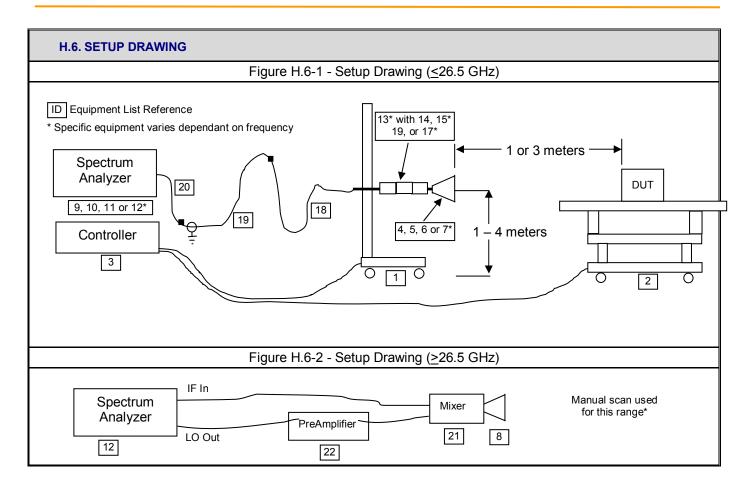
H.5. MEASUREMI	ENT EQUIPMENT SET	UP								
			own in the H.6. A number of anges in which each antenna was							
	Frequency Range	Spectrum Analyzer Asset #	LNA/Filter/Attenuator Asset #	Antenna Asset #						
	10kHz - 30 MHz	00051/00049/00047	none	00085						
	30 MHz – 1 GHz	00051/00049/00047	none	00050						
MEASUREMENT	1 GHz – 2 GHz	00051/00047	none	00034						
EQUIPMENT	2 GHz – 3 GHz	00051	00119/00192/00038/00115	00034						
CONNECTIONS	3 GHz – 7 GHz*	00051	00093/00119/00192/00038/ 00115	00034						
	7 GHz – 18 GHz	00015	00093/00119/00192/00038/ 00115	00161/00166						
	18 GHz – 26.5 GHz	00015	00115	00161/00166						
	26.5 GHz – 40 GHz	00051	none	00088/00163						
	* Attenuators used as required									
	The spectrum analyzer was set to the following settings:									
	Frequency Range	e RBW	VBW	Detector						
	MHz	kHz	kHz	2010010						
MEASUREMENT	0.009 - 0.150	0.200	10	Peak*						
EQUIPMENT	0.150 - 30	9	30	Peak*						
SETTINGS	30 – 1000	100	300	Peak*						
	> 1000	1000*	1000	Peak*						
	*As a worst-case measurement, the average/QP limit was applied to measurements made with a peak detector, unless otherwise noted. Average measurements were performed with video averaging using a VBW of 30 Hz.									

Applicant:	Itroni	x Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab
Model(s):	IX325-CWL IX325 Se			ries Rugged	Tablet PC with Cisco All	R-CB21AG-A	K9 802.11abg WLAN





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Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	KBCIX325-CWL IC ID: 1943A-IX325ab				
Model(s):	Model(s): IX325-CWL IX325 S				Tablet PC with Cisco All	R-CB21AG-A			RONIX®
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#### H.7. SETUP PHOTOGRAPHS

Photograph H-1 - Loop Antenna (10kHz - 30 MHz) @ 3m

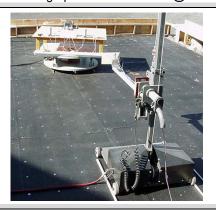
Photograph H-2 - Bilog Antenna (30 MHz - 1 GHz) @ 3m



Photograph H-3 - 3115 Horn @ 3 m



Photograph H-4 - 3115 Horn with LNA/Filter @ 1m



Photograph H-5 - Waveline Horn with LNA @ 1m



Photograph H-6 - DUT Configuration





#### H.8. DUT OPERATING DESCRIPTION

The worst-case data rate was determined from prescan investigations. Measurements were made at three channels throughout the lower band applicable for Mode a.

Applicant:	Itronix Corporation			FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A-			L DYNAMICS COMPANY
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#### H.9. TEST RESULTS

#### H.9.1. Mode a (lower band) - Fundamental Field Strengths @ Specified Distance (1 MHz RBW)

Celltech

Project Number: 632 Company: Itronix

Product: IX325 with CISCO a/b/g WLAN

Standard: FCC15.407a
Test Start Date: 3-Oct-05
Test End Date: 18-Nov-05

				Short e	edge Up 17.0 l	Mode	a1 6 mbps C	arrier Field St	rengths				
Channel	Polarity	Measurement Distance	Antenna	Frequency	SA Level	Noise Floor	AF	CL	Other	Total CF	Field Strength	Detector	RBW
		m		MHz	dBuV		dB/m	dB	dB	dB/m	dBuV/m		kHz
UNII-CH36	Н	3	Horn SN6267	5180.00	63.85		33.70	11.32	0.00	45.03	108.88	PK	1000
UNII-CH36	Н	3	Horn SN6267	5180.00	53.95		33.70	11.32	0.00	45.03	98.98	AV	1000
UNII-CH36	٧	3	Horn SN6267	5180.00	59.50		33.70	11.32	0.00	45.03	104.53	PK	1000
UNII-CH36	٧	3	Horn SN6267	5180.00	48.95		33.70	11.32	0.00	45.03	93.98	AV	1000
UNII-CH52	Н	3	Horn SN6267	5260.00	63.75		33.82	11.31	0.00	45.13	108.88	PK	1000
UNII-CH52	Η	3	Horn SN6267	5260.00	53.25		33.82	11.31	0.00	45.13	98.38	AV	1000
UNII-CH52	٧	3	Horn SN6267	5260.00	59.60		33.82	11.31	0.00	45.13	104.73	PK	1000
UNII-CH52	٧	3	Horn SN6267	5260.00	48.80		33.82	11.31	0.00	45.13	93.93	AV	1000
UNII-CH64	Н	3	Horn SN6267	5320.00	65.30		33.91	11.89	0.00	45.80	111.10	PK	1000
UNII-CH64	Н	3	Horn SN6267	5320.00	54.90		33.91	11.89	0.00	45.80	100.70	AV	1000
UNII-CH64	٧	3	Horn SN6267	5320.00	60.35		33.91	11.89	0.00	45.80	106.15	PK	1000
UNII-CH64	٧	3	Horn SN6267	5320.00	49.10		33.91	11.89	0.00	45.80	94.90	AV	1000

Formulae:

Total CF = AF + CL + Other

Field Strength = SA Level + Total CF

Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	KBCIX325-CWL IC ID: 1943A-IX325ab			
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A-			RONIX®
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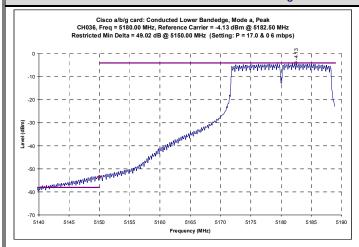


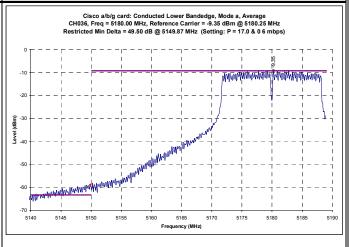
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#### H.9.2. Mode a (lower band) - Lower Band-edge Emission Field Strengths @ Specified Distance

#### Channel 36 Mode a - Conducted Peak Band-edge Plots

#### Channel 36 Mode a - Conducted Average Band-edge Plots





#### Channel 36 Mode a - Calculated Band-edge (Restricted) Field Strengths

	BU Card Short edge Up 17.0&0 Mode a1 6 mbps													
Channel	Polarity	Distance	Frequency	Carrier Radiated Field Strength	Delta Marker	Calculated Bandedge Field Strength	Duty Cycle Correction	Corrected Bandedge Field Strength	Specified Limit	Specified Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m	MHz	dBuV/m	dB	dBuV/m	dB	dBuV/m	dBuV/m	m	dB	dBuV/m	dB	
UNII-CH36	Н	3	5150.00	108.88	49.02	59.86	0.00	59.86	73.98	3.00	0.00	73.98	14.12	PASS
UNII-CH36	Н	3	5149.87	98.98	49.50	49.48	0.00	49.48	53.98	3.00	0.00	53.98	4.50	PASS
UNII-CH36	٧	3	5150.00	104.53	49.02	55.51	0.00	55.51	73.98	3.00	0.00	73.98	18.47	PASS
UNII-CH36	٧	3	5149.87	93.98	49.50	44.48	0.00	44.48	53.98	3.00	0.00	53.98	9.50	PASS

Calculated Bandedge Field Strength (dBuV/m) = Carrier Radiated Field Strength (dBuV/m) + Delta Marker (dB) Duty Cycle Correction (dB) = 20 \* log (time on / total time)

Corrected Bandedge Field Strength (dBuV/m) = Calculated Bandedge Field Strength (dBuV/m) + Duty Cycle Correction (dB)

Limit Distance Correction = 20 \* log (measurement distance / limit distance )

Calculated Limit (dBuV/m) = Specified Limit (dBuV/m) + Limit Distance Correction (dB)

Margin (dB) = Corrected Limit (dBuV/m) – Corrected Bandedge Field Strength (dBuV/m)

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

Applicant:	ltron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	K9 802.11abg WLAN		L DYNAMICS COMPANY		
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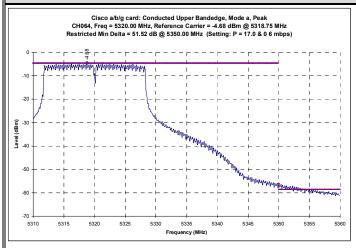


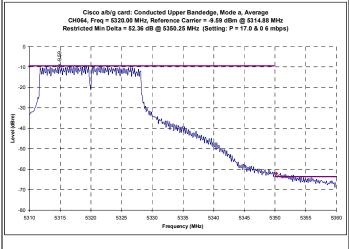
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#### H.9.3. Mode a (lower band, 6 mbps) - Upper Band-edge Emission Field Strengths @ Specified Distance

#### Channel 64 Mode a - Conducted Peak Band-edge Plots

#### Channel 64 Mode a - Conducted Average Band-edge Plots





#### Channel 64 Mode a - Calculated Band-edge (Restricted) Field Strengths

						BU Card S	hort edge Up	17.0&0 Mod	de a1 6 mbps	3				
Channel	Polarity	Distance	Frequency	Carrier Radiated Field Strength	Delta Marker	Calculated Bandedge Field Strength	Duty Cycle Correction	0	Specified Limit	Specified Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m	MHz	dBuV/m	dB	dBuV/m	dB	dBuV/m	dBuV/m	m	dB	dBuV/m	dB	
UNII-CH64	Н	3	5350.00	111.10	51.52	59.58	0.00	59.58	73.98	3.00	0.00	73.98	14.39	PASS
UNII-CH64	Н	3	5350.25	100.70	52.36	48.34	0.00	48.34	53.98	3.00	0.00	53.98	5.63	PASS
UNII-CH64	٧	3	5350.00	106.15	51.52	54.63	0.00	54.63	73.98	3.00	0.00	73.98	19.34	PASS
UNII-CH64	٧	3	5350.25	94.90	52.36	42.54	0.00	42.54	53.98	3.00	0.00	53.98	11.43	PASS

#### Formulae:

Calculated Bandedge Field Strength (dBuV/m) = Carrier Radiated Field Strength (dBuV/m) + Delta Marker (dB)

Duty Cycle Correction (dB) = 20 \* log (time on / total time)

Corrected Bandedge Field Strength (dBuV/m) = Calculated Bandedge Field Strength (dBuV/m) + Duty Cycle Correction (dB)

Limit Distance Correction = 20 \* log (measurement distance / limit distance )

Calculated Limit (dBuV/m) = Specified Limit (dBuV/m) + Limit Distance Correction (dB)

Margin (dB) = Corrected Limit (dBuV/m) – Corrected Bandedge Field Strength (dBuV/m)

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

Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Test Report Serial No.:	040505KBC-F632-E15EW	R	eport Issue No.	E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

## H.9.4. Mode a (lower band) - Channel 36 Out-of-Band Spurious Emission Field Strengths @ Specified Distance (within restricted bands)

	•			Duningt Number		632					Ctondoud.		FCC15.407	h			1
	411.		-la	Project Number	r:						Standard:			U			Ų
	elli	te	en en	Company:		Itron					Test Start D		3-Oct-05				
Ter	sting and Er	gineering Se	nvices Lat	Product:		IX32	5 with CISO	CO a/b/g V	VLAN		Test End Da	ate:	25-Oct-05				
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF	RxCL	Other Rx	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV	1	dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
UNII-CH36	н	3	Bilog SN1607	405.11	25.30	*	16.90	2.80	0.00	19.71	45.01	PK	3.00	0.00	66.02	21.01	PASS
UNII-CH36	Н	3	Bilog SN1607	405.11	13.80	*	16.90	2.80	0.00	19.71	33.51	QP	3.00	0.00	46.02	12.51	PASS
UNII-CH36	Н	3	Horn SN6267	1060.50	22.35	*	24.57	4.42	0.00	28.98	51.33	AV	3.00	0.00	53.98	2.65	PASS
UNII-CH36	Н	3	Horn SN6267	1189.29	28.60	*	24.83	4.66	0.00	29.50	58.10	PK	3.00	0.00	73.98	15.88	PASS
UNII-CH36	Н	3	Horn SN6267	1184.00	16.00	*	24.82	4.66	0.00	29.48	45.48	AV	3.00	0.00	53.98	8.50	PASS
UNII-CH36	Н	3	Horn SN6267	1393.97	34.35	*	25.26	5.04	0.00	30.31	64.66	PK	3.00	0.00	73.98	9.32	PASS
UNII-CH36	Н	3	Horn SN6267	1393.29	16.60	*	25.26	5.04	0.00	30.30	46.90	AV	3.00	0.00	53.98	7.08	PASS
UNII-CH36	Н	3	Horn SN6267	1528.17	32.90	*	25.60	5.29	0.00	30.89	63.79	PK	3.00	0.00	73.98	10.19	PASS
UNII-CH36	Н	3	Horn SN6267	1525.24	16.65	*	25.59	5.28	0.00	30.87	47.52	AV	3.00	0.00	53.98	6.46	PASS
UNII-CH36	Н	3	Horn SN6267	1700.91	32.50	*	26.32	5.63	0.00	31.95	64.45	PK	3.00	0.00	73.98	9.53	PASS
UNII-CH36	Н	3	Horn SN6267	1708.40	16.30	*	26.35	5.64	0.00	31.98	48.28	AV	3.00	0.00	53.98	5.70	PASS
UNII-CH36	Н	1	Horn SN6267	2364.97	34.35	*	28.13	6.72	-23.16	11.69	46.04	PK*	3.00	9.54	63.52	17.48	PASS
UNII-CH36	Н	1	Horn SN6267	2489.89	36.10	*	28.33	6.94	-23.15	12.13	48.23	PK*	3.00	9.54	63.52	15.29	PASS
UNII-CH36	Н	3	Horn SN6267	5395.58	33.50	*	34.03	11.97	-32.17	13.83	47.33	PK*	3.00	0.00	53.98	6.65	PASS
UNII-CH36	Н	1	Horn SN6267	8354.55	38.34	*	37.37	6.91	-32.06	12.22	50.56	PK*	3.00	9.54	63.52	12.96	PASS
UNII-CH36	Н	1	Horn SN6267	15420.50	39.16	*	38.11	10.17	-32.36	15.91	55.07	PK*	3.00	9.54	63.52	8.45	PASS
UNII-CH36	Н	1	Horn SN6267	15541.05	39.95		37.74	10.22	-11.02	36.94	76.89	PK	3.00	9.54	83.52	6.63	PASS
UNII-CH36	Н	1	Horn SN6267	15539.50	24.90		37.74	10.22	-11.02	36.94	61.84	AV	3.00	9.54	63.52	1.68	PASS
UNII-CH36	Н	1	Horn SN6267	17795.30	38.52		45.87	11.09	-33.38	23.57	62.09	PK	3.00	9.54	83.52	21.43	PASS
UNII-CH36	Н	1	Horn SN6267	17790.65	28.03		45.83	11.09	-33.38	23.53	51.56	AV	3.00	9.54	63.52	11.96	PASS
UNII-CH36	Н	1	Waveline_899	20720.00	38.67		40.30	12.16	-35.59	16.87	55.54	PK*	3.00	9.54	63.52	7.98	PASS
UNII-CH36	Н	1	Waveline_899	23612.90	39.63		40.40	13.22	-35.56	18.07	57.70	PK*	3.00	9.54	63.52	5.83	PASS
UNII-CH36	V	3	Bilog SN1607	135.74	23.70	*	12.31	2.17	0.00	14.48	38.18	PK*	3.00	0.00	43.52	5.34	PASS
UNII-CH36	٧	3	Horn SN6267	1058.70	30.30	*	24.56	4.41	0.00	28.97	59.27	PK	3.00	0.00	73.98	14.71	PASS
UNII-CH36	٧	3	Horn SN6267	1054.60	16.00	*	24.55	4.41	0.00	28.96	44.96	AV	3.00	0.00	53.98	9.02	PASS
UNII-CH36	٧	3	Horn SN6267	1124.46	35.50	*	24.70	4.56	0.00	29.25	64.75	PK	3.00	0.00	73.98	9.22	PASS
UNII-CH36	٧	3	Horn SN6267	1123.69	16.05	*	24.70	4.56	0.00	29.25	45.30	AV	3.00	0.00	53.98	8.68	PASS
UNII-CH36	٧	3	Horn SN6267	1159.74	29.55	*	24.77	4.63	0.00	29.41	58.96	PK	3.00	0.00	73.98	15.02	PASS
UNII-CH36	V	3	Horn SN6267	1150.35	16.05	*	24.75	4.59	0.00	29.34	45.39	AV	3.00	0.00	53.98	8.59	PASS
UNII-CH36	٧	3	Horn SN6267	1520.51	30.60	*	25.57	5.27	0.00	30.83	61.43	PK	3.00	0.00	73.98	12.55	PASS
UNII-CH36	٧	3	Horn SN6267	1518.09	16.20	*	25.56	5.26	0.00	30.82	47.02	AV	3.00	0.00	53.98	6.96	PASS
UNII-CH36	٧	3	Horn SN6267	1689.27	30.15	*	26.27	5.59	0.00	31.86	62.01	PK	3.00	0.00	73.98	11.97	PASS
UNII-CH36	٧	3	Horn SN6267	1690.98	16.30	*	26.27	5.60	0.00	31.87	48.17	AV	3.00	0.00	53.98	5.81	PASS
UNII-CH36	٧	1	Horn SN6267	2275.65	39.10		27.99	6.59	-23.16	11.42	50.52	PK*	3.00	9.54	63.52	13.00	PASS
UNII-CH36	٧	1	Horn SN6267	2327.22	35.95	*	28.07	6.66	-23.17	11.56	47.51	PK*	3.00	9.54	63.52	16.01	PASS
UNII-CH36	٧	1	Horn SN6267	2807.18	34.50	*	29.40	7.50	-23.12	13.78	48.28	PK*	3.00	9.54	63.52	15.24	PASS
UNII-CH36	V	1	Horn SN6267	2813.04	34.35	*	29.42	7.51	-23.13	13.80	48.15	PK*	3.00	9.54	63.52	15.37	PASS
UNII-CH36	٧	3	Horn SN6267	5393.08	35.80	*	34.02	11.93	-32.17	13.79	49.59	PK*	3.00	0.00	53.98	4.39	PASS
UNII-CH36	٧	1	Horn SN6267	9021.55	39.13	*	37.96	7.22	-32.06	13.12	52.25	PK*	3.00	9.54	63.52	11.27	PASS
UNII-CH36	٧	1	Horn SN6267	11603.85	38.35	*	38.69	8.41	-31.82	15.28	53.63	PK*	3.00	9.54	63.52	9.89	PASS
UNII-CH36	٧	1	Horn SN6267	15372.55	38.60	*	38.31	10.15	-32.34	16.12	54.72	PK*	3.00	9.54	63.52	8.81	PASS
UNII-CH36	٧	1	Horn SN6267	17915.45	38.39	*	46.94	11.13	-33.45	24.63	63.02	PK	3.00	9.54	83.52	20.50	PASS
UNII-CH36	٧	1	Horn SN6267	17921.70	28.06	*	47.00	11.14	-33.46	24.68	52.74	AV	3.00	9.54	63.52	10.78	PASS
UNII-CH36	٧	1	Waveline_899	20684.15	40.29		40.30	12.15	-35.59	16.86	57.15	PK*	3.00	9.54	63.52	6.37	PASS
UNII-CH36	V	1	Waveline_899	23732.00	39.82		40.40	13.27	-35.56	18.11	57.93	PK*	3.00	9.54	63.52	5.59	PASS

For frequency bands above 26.5 GHz, manual scans at a 1-2 cm distance were made with no emissions observed.

#### Notes:

\*PK denotes QP or Average limits applied to emissions measured with a peak detector

BOLD signifies the highest signal measured near a carrier harmonic frequency

No DUT emissions levels were measured above those reported

#### Formulae:

Total CF = Antenna Factor + Cable Factor + Other Factor (Amplifier Gain, filter loss, etc)

Field Strength = SA Reading + Total CF

Limit Distance Correction = 40\*log(d1/d2) for F<30 MHz, 20\*log(d1/d2) for F> 30 MHz:

where d1 is the measurement distance, d2 is the published limit distance

Limit = Specified Limit + Limit Distance Correction

No out-of-band emissions attributed to the DUT were measured within the restricted bands above the levels noted.

Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> °
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All			L DYNAMICS COMPANY	
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Test Report Serial No.:	040505KBC-F632-E15EW	Re	eport Issue No.	E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

# H.9.5. Mode a (lower band) - Channel 52 Out-of-Band Spurious Emission Field Strengths @ Specified Distance (within restricted bands)

	)	(4)	V21	Project Number	r:	632					Standard:		FCC15.407	b			
	الد	tec	h	Company:		Itron	nix				Test Start D	Date:	3-Oct-05				Ï
	esting and E	ngineering Se	vices Lat	Product:			25 with CISO	CO a/b/g V	VLAN		Test End Da		25-Oct-05				
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	Rx AF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV	1	dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
UNII-CH52	Н	3	Bilog SN1607	125.02	24.40		12.00	2.11	0.00	14.11	38.51	PK*	3.00	0.00	43.52	5.01	PASS
UNII-CH52	Н	3	Bilog SN1607	408.31	25.80	*	17.03	2.81	0.00	19.84	45.64	PK	3.00	0.00	66.02	20.38	PASS
UNII-CH52	Н	3	Bilog SN1607	408.31	13.80	*	17.03	2.81	0.00	19.84	33.64	QP	3.00	0.00	46.02	12.38	PASS
UNII-CH52	Н	3	Horn SN6267	1077.95	32.35	*	24.60	4.48	0.00	29.08	61.43	PK	3.00	0.00	73.98	12.55	PASS
UNII-CH52	Н	3	Horn SN6267	1075.04	16.05	*	24.60	4.47	0.00	29.06	45.11	AV	3.00	0.00	53.98	8.87	PASS
UNII-CH52	Н	3	Horn SN6267	1171.65	31.35	*	24.80	4.64	0.00	29.44	60.79	PK	3.00	0.00	73.98	13.19	PASS
UNII-CH52	Н	3	Horn SN6267	1164.09	16.05	*	24.78	4.64	0.00	29.42	45.47	AV	3.00	0.00	53.98	8.51	PASS
UNII-CH52 UNII-CH52	H	3	Horn SN6267 Horn SN6267	1213.42 1208.76	31.50 16.10	*	24.88 24.87	4.71 4.70	0.00	29.59 29.57	61.09 45.67	PK AV	3.00	0.00	73.98 53.98	12.89 8.31	PASS PASS
UNII-CH52	Н.	3	Horn SN6267	1345.69	31.35	*	25.16	4.70	0.00	30.13	61.48	PK	3.00	0.00	73.98	12.50	PASS
UNII-CH52	Н.	3	Horn SN6267	1342.53	16.25	*	25.15	4.96	0.00	30.12	46.37	AV	3.00	0.00	53.98	7.61	PASS
UNII-CH52	Н	3	Horn SN6267	1478.27	29.45	*	25.44	5.19	0.00	30.63	60.08	PK	3.00	0.00	73.98	13.90	PASS
UNII-CH52	Н	3	Horn SN6267	1473.01	16.20	*	25.43	5.19	0.00	30.61	46.81	AV	3.00	0.00	53.98	7.17	PASS
UNII-CH52	Н	3	Horn SN6267	1586.22	31.20	*	25.84	5.38	0.00	31.22	62.42	PK	3.00	0.00	73.98	11.55	PASS
UNII-CH52	Н	3	Horn SN6267	1584.71	16.30	*	25.83	5.38	0.00	31.22	47.52	AV	3.00	0.00	53.98	6.46	PASS
UNII-CH52	Н	3	Horn SN6267	2341.55	35.25	*	28.10	6.69	-23.17	11.61	46.86	PK*	3.00	0.00	53.98	7.12	PASS
UNII-CH52	Н	3	Horn SN6267	2684.31	35.15 34.45	Ť	28.98	7.26	-23.14	13.10	48.25	PK*	3.00	0.00	53.98	5.73	PASS
UNII-CH52 UNII-CH52	H	3	Horn SN6267 Horn SN6267	2874.42 4940.00	38.70	*	29.63 33.29	7.62 10.77	-23.11 -32.30	14.13 11.77	48.58 50.47	PK*	3.00	0.00	53.98 53.98	5.40 3.51	PASS PASS
UNII-CH52	Н.	1	Horn SN6267	11521.75	38.52	*	38.66	8.37	-31.85	15.18	53.70	PK*	3.00	9.54	63.52	9.82	PASS
UNII-CH52	Н	1	Horn SN6267	13391.05	39.88		40.36	9.23	-31.43	18.16	58.04	PK*	3.00	9.54	63.52	5.48	PASS
UNII-CH52	Н	1	Horn SN6267	15460.00	38.67	*	37.95	10.19	-32.35	15.78	54.45	PK*	3.00	9.54	63.52	9.07	PASS
UNII-CH52	Н	1	Horn SN6267	15779.08	36.74		37.48	10.33	-11.16	36.65	73.39	PK	3.00	9.54	83.52	10.13	PASS
UNII-CH52	Н	1	Horn SN6267	15566.35	28.00		37.71	10.23	-17.01	30.93	58.93	AV	3.00	9.54	63.52	4.59	PASS
UNII-CH52	Н	1	Horn SN6267	17977.45	38.74	*	47.50	11.16	-33.43	25.22	63.96	PK	3.00	9.54	83.52	19.56	PASS
UNII-CH52	Н	1	Horn SN6267	17982.20	28.16	*	47.54	11.16	-33.43	25.27	53.43	AV	3.00	9.54	63.52	10.09	PASS
UNII-CH52 UNII-CH52	H	1	Waveline_899 Waveline 899	20567.50 <b>21038.80</b>	39.96 38.21		40.30 40.30	12.11 12.28	-35.59 -35.59	16.81 16.99	56.77 55.20	PK*	3.00	9.54 9.54	63.52 63.52	6.75 8.32	PASS PASS
UNII-CH52	Н	1	Waveline 899	23818.45	39.97		40.40	13.30	-35.55	18.14	58.11	PK*	3.00	9.54	63.52	5.41	PASS
UNII-CH52	V	3	Bilog SN1607	325.90	25.10	*	14.44	2.65	0.00	17.08	42.18	PK*	3.00	0.00	46.02	3.84	PASS
UNII-CH52	٧	3	Horn SN6267	1556.39	31.80	*	25.72	5.34	0.00	31.05	62.85	PK	3.00	0.00	73.98	11.12	PASS
UNII-CH52	V	3	Horn SN6267	1550.02	16.25	*	25.69	5.33	0.00	31.02	47.27	AV	3.00	0.00	53.98	6.71	PASS
UNII-CH52	٧	3	Horn SN6267	1707.55	29.55	*	26.34	5.63	0.00	31.98	61.53	PK	3.00	0.00	73.98	12.45	PASS
UNII-CH52	V	3	Horn SN6267	1703.13	16.30	*	26.33	5.63	0.00	31.96	48.26	AV	3.00	0.00	53.98	5.72	PASS
UNII-CH52	٧	3	Horn SN6267	2236.23	35.20	*	27.93	6.53	-23.17	11.29	46.49	PK*	3.00	0.00	53.98	7.49	PASS
UNII-CH52	V	3	Horn SN6267	2353.52	38.25 34.40	-	28.12	6.70	-23.17	11.65	49.90 48.35	PK*	3.00	0.00	53.98 53.98	4.08 5.63	PASS PASS
UNII-CH52 UNII-CH52	V	3	Horn SN6267 Horn SN6267	2847.61 4906.11	36.00	*	29.54 33.21	7.53 10.66	-23.12 -32.29	13.95 11.58	48.35	PK*	3.00	0.00	53.98	6.40	PASS
UNII-CH52	V	3	Horn SN6267	4906.11	40.30	$\vdash$	33.33	10.78	-32.29	11.83	52.13	PK*	3.00	0.00	53.98	1.85	PASS
UNII-CH52	٧	3	Horn SN6267	5042.18	42.30		33.49	10.97	-32.25	12.22	54.52	PK	3.00	0.00	73.98	19.46	PASS
UNII-CH52	٧	3	Horn SN6267	5042.18	25.70	T	33.49	10.97	-32.25	12.22	37.92	AV	3.00	0.00	53.98	16.06	PASS
UNII-CH52	٧	3	Horn SN6267	5394.60	36.80	*	34.03	11.95	-32.17	13.81	50.61	PK*	3.00	0.00	53.98	3.37	PASS
UNII-CH52	٧	1	Horn SN6267	8302.95	38.73	*	37.29	6.89	-32.07	12.12	50.85	PK*	3.00	9.54	63.52	12.68	PASS
UNII-CH52	٧	1	Horn SN6267	11495.80	38.43	*	38.65	8.36	-31.87	15.13	53.56	PK*	3.00	9.54	63.52	9.96	PASS
UNII-CH52	٧	1	Horn SN6267	13389.10	39.65	*	40.35	9.23	-31.43	18.15	57.80	PK*	3.00	9.54	63.52	5.72	PASS
UNII-CH52 UNII-CH52	V	1	Horn SN6267 Horn SN6267	15358.40 <b>15773.40</b>	39.88 38.82	Ĥ	38.36 37.49	10.14 10.33	-32.33 -17.17	16.17 30.65	56.05 69.47	PK* PK	3.00	9.54 9.54	63.52 83.52	7.47 14.05	PASS PASS
UNII-CH52	V	1	Horn SN6267	15773.40 15782.50	27.92	H	37.49	10.33	-17.17	30.65	58.57	AV	3.00	9.54	63.52	4.95	PASS
UNII-CH52	V	1	Horn SN6267	17983.90	39.10	*	47.56	11.16	-33.43	25.28	64.38	PK	3.00	9.54	83.52	19.14	PASS
UNII-CH52	V	1	Horn SN6267	17987.85	28.29	*	47.59	11.16	-33.44	25.32	53.61	AV	3.00	9.54	63.52	9.92	PASS
UNII-CH52	٧	1	Waveline_899	21038.80	38.10		40.30	12.28	-35.59	16.99	55.09	PK*	3.00	9.54	63.52	8.43	PASS
UNII-CH52	٧	1	Waveline_899	23920.95	39.81		40.40	13.34	-35.55	18.18	57.99	PK*	3.00	9.54	63.52	5.53	PASS

For frequency bands above 26.5 GHz, manual scans at a 1-2 cm distance were made with no emissions observed.

Same notes as H.9.1

Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	1943A-IX325ab	ITE	<b>RONIX</b> ®	
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A-			L DYNAMICS COMPANY
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Test Report Serial No.:	040505KBC-F632-E15EW	Re	eport Issue No.	E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Re	port Issue Date:	March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

# H.9.6. Mode a (lower band) - Channel 64 Out-of-Band Spurious Emission Field Strengths @ Specified Distance (within restricted bands)

	<b>)</b>			Project Number	r:	632					Standard:		FCC15.407	b			
	الع	te	ch	Company:		Itror	nix				Test Start D	Date:	3-Oct-05				1
	ecting and E	gineering Se	nices Lat	Product:		IX32	25 with CIS	CO a/b/g V	VLAN		Test End Da	ate:	25-Oct-05				
Channel	Polarity	Distance	Rx Antenna	Frequency	SA Level	Noise Floor	RxAF	Rx CL	Other Rx	Total Rx CF	Field Strength	Detector	Limit Distance	Limit Distance Correction	Calculated Limit	Margin	Pass/Fail
		m		MHz	dBuV	1	dB/m	dB	dB	dB/m	dBuV/m	(PK/QP/AV)	m	dB	dBuV/m	dB	
UNII-CH64	Н	3	Bilog SN1607	332.58	26.90	*	14.70	2.65	0.00	17.35	44.25	PK	3.00	0.00	66.02	21.77	PASS
UNII-CH64	Н	3	Bilog SN1607	332.58	14.20	*	14.70	2.65	0.00	17.35	31.55	QP	3.00	0.00	46.02	14.47	PASS
UNII-CH64	Н	3	Bilog SN1607	403.97	25.90	*	16.86	2.80	0.00	19.66	45.56	PK	3.00	0.00	66.02	20.46	PASS
UNII-CH64	Н	3	Bilog SN1607	403.97	13.90	*	16.86	2.80	0.00	19.66	33.56	QP	3.00	0.00	46.02	12.46	PASS
UNII-CH64	Н	3	Horn SN6267	1041.48	29.70	*	24.53	4.39	0.00	28.92	58.62	PK	3.00	0.00	73.98	15.36	PASS
UNII-CH64	Н	3	Horn SN6267	1040.13	16.05	*	24.52	4.39	0.00	28.91	44.96	AV	3.00	0.00	53.98	9.02	PASS
UNII-CH64	Н	3	Horn SN6267	1061.16	29.60	<u> </u>	24.57	4.42	0.00	28.98	58.58	PK	3.00	0.00	73.98	15.39	PASS PASS
UNII-CH64 UNII-CH64	H	3	Horn SN6267 Horn SN6267	1064.12 1101.86	16.05 29.55	·	24.57 24.65	4.43 4.50	0.00	29.00 29.15	45.05 58.70	AV PK	3.00	0.00	53.98 73.98	8.93 15.28	PASS
UNII-CH64	Н	3	Horn SN6267	1101.00	16.05	*	24.65	4.49	0.00	29.13	45.19	AV	3.00	0.00	53.98	8.79	PASS
UNII-CH64	Н.	3	Horn SN6267	1344.95	30.85	*	25.16	4.96	0.00	30.12	60.97	PK	3.00	0.00	73.98	13.01	PASS
UNII-CH64	Н	3	Horn SN6267	1340.55	16.20	*	25.15	4.96	0.00	30.12	46.31	AV	3.00	0.00	53.98	7.67	PASS
UNII-CH64	Н	3	Horn SN6267	1506.77	29.55	*	25.51	5.26	0.00	30.77	60.32	PK	3.00	0.00	73.98	13.66	PASS
UNII-CH64	Н	3	Horn SN6267	1505.96	16.25	*	25.51	5.26	0.00	30.76	47.01	AV	3.00	0.00	53.98	6.97	PASS
UNII-CH64	Н	3	Horn SN6267	1709.67	29.85	*	26.35	5.64	0.00	31.99	61.84	PK	3.00	0.00	73.98	12.14	PASS
UNII-CH64	Н	3	Horn SN6267	1704.74	16.35	*	26.33	5.63	0.00	31.96	48.31	AV	3.00	0.00	53.98	5.67	PASS
UNII-CH64	Н	3	Horn SN6267	2274.60	35.10	*	27.99	6.59	-23.16	11.42	46.52	PK*	3.00	0.00	53.98	7.46	PASS
UNII-CH64	Н	3	Horn SN6267	2744.48	33.95	*	29.18	7.36	-23.12	13.42	47.37	PK*	3.00	0.00	53.98	6.61	PASS
UNII-CH64	Н	3	Horn SN6267	4953.55	45.40	*	33.32	10.78	-32.28	11.82	57.22	PK	3.00	0.00	73.98	16.76	PASS
UNII-CH64	Н	3	Horn SN6267	4953.55	20.80	<u> </u>	33.32	10.78	-32.28	11.82	32.62	AV	3.00	0.00	53.98	21.36	PASS
UNII-CH64 UNII-CH64	H	3	Horn SN6267 Horn SN6267	5111.95 5111.95	43.60 25.70	Ť	33.60 33.60	11.13 11.13	-32.22 -32.22	12.51 12.51	56.11 38.21	PK AV	3.00	0.00	73.98 53.98	17.87 15.77	PASS PASS
UNII-CH64	Н	3	Horn SN6267	5428.54	30.50	*	34.08	11.13	-32.22	13.66	44.16	PK*	3.00	0.00	53.98	9.82	PASS
UNII-CH64	Н	1	Horn SN6267	9060.40	39.02	*	37.96	7.24	-32.13	13.13	52.15	PK*	3.00	9.54	63.52	11.37	PASS
UNII-CH64	Н	1	Horn SN6267	9407.60	38.27	*	37.90	7.40	-32.02	13.28	51.55	PK*	3.00	9.54	63.52	11.98	PASS
UNII-CH64	Н	1	Horn SN6267	10642.60	45.24		38.10	7.97	-16.45	29.61	74.85	PK	3.00	9.54	83.52	8.67	PASS
UNII-CH64	Н	1	Horn SN6267	10640.55	32.96	1	38.09	7.97	-16.45	29.61	62.57	AV	3.00	9.54	63.52	0.95	PASS
UNII-CH64	Н	1	Horn SN6267	13346.40	39.97	*	40.24	9.21	-31.53	17.92	57.89	PK*	3.00	9.54	63.52	5.63	PASS
UNII-CH64	Н	1	Horn SN6267	15471.00	39.81	*	37.91	10.19	-32.37	15.72	55.53	PK*	3.00	9.54	63.52	7.99	PASS
UNII-CH64	Н	1	Horn SN6267	15956.30	49.77		37.28	10.41	-17.25	30.45	80.22	PK	3.00	9.54	83.52	3.30	PASS
UNII-CH64	Н	1	Horn SN6267	15957.15	29.60		37.28	10.41	-14.25	33.45	63.05	AV	3.00	9.54	63.52	0.47	PASS
UNII-CH64	Н	1	Horn SN6267	17811.10	38.73	*	46.01	11.10	-33.40	23.71	62.44	PK*	3.00	9.54	63.52	1.08	PASS
UNII-CH64	Н	1	Waveline_899	20676.45	40.57	_	40.30	12.15	-35.59	16.85	57.42	PK*	3.00	9.54	63.52	6.10	PASS
UNII-CH64 UNII-CH64	H	1	Waveline_899 Waveline 899	21277.80 23982.25	39.01 39.99	-	40.30 40.40	12.37 13.37	-35.58 -35.55	17.08 18.21	56.09 58.20	PK*	3.00	9.54 9.54	63.52 63.52	7.43 5.32	PASS PASS
UNII-CH64	V	3	Horn SN6267	1061.71	29.65		24.57	4.42	0.00	28.99	58.64	PK	3.00	0.00	73.98	15.34	PASS
UNII-CH64	V	3	Horn SN6267	1061.71	16.05	*	24.57	4.42	0.00	28.99	45.03	AV	3.00	0.00	53.98	8.95	PASS
UNII-CH64	V	3	Horn SN6267	1131.57	31.70	*	24.71	4.42	0.00	29.26	60.96	PK	3.00	0.00	73.98	13.02	PASS
UNII-CH64	٧	3	Horn SN6267	1134.68	16.10	*	24.72	4.55	0.00	29.27	45.37	AV	3.00	0.00	53.98	8.61	PASS
UNII-CH64	٧	3	Horn SN6267	1147.34	29.65	*	24.75	4.58	0.00	29.32	58.97	PK	3.00	0.00	73.98	15.01	PASS
UNII-CH64	٧	3	Horn SN6267	1150.54	16.10	*	24.75	4.59	0.00	29.34	45.44	AV	3.00	0.00	53.98	8.53	PASS
UNII-CH64	٧	3	Horn SN6267	1206.93	29.35	*	24.87	4.70	0.00	29.57	58.92	PK	3.00	0.00	73.98	15.06	PASS
UNII-CH64	٧	3	Horn SN6267	1201.43	16.10	*	24.86	4.68	0.00	29.54	45.64	AV	3.00	0.00	53.98	8.33	PASS
UNII-CH64	٧	3	Horn SN6267	1466.24	32.00	*	25.41	5.18	0.00	30.59	62.59	PK	3.00	0.00	73.98	11.39	PASS
UNII-CH64	٧	3	Horn SN6267	1459.38	16.20	*	25.40	5.17	0.00	30.57	46.77	AV	3.00	0.00	53.98	7.21	PASS
UNII-CH64	٧	3	Horn SN6267	2342.09	35.30	Ť	28.10	6.69	-23.17	11.61	46.91	PK*	3.00	0.00	53.98	7.07	PASS
UNII-CH64	V	3	Horn SN6267	3818.41	31.70	Ė	32.00	9.21	-32.29	8.92	40.62	PK*	3.00	0.00	53.98	13.36	PASS
UNII-CH64 UNII-CH64	V	3	Horn SN6267 Horn SN6267	4954.85 4954.85	50.50 22.70	┢	33.33 33.33	10.78 10.78	-32.27 -32.27	11.83 11.83	62.33 34.53	PK AV	3.00	0.00	73.98 53.98	11.65 19.45	PASS PASS
UNII-CH64	V	1	Horn SN6267	9138.45	38.89	*	37.94	7.28	-32.27	13.15	52.04	PK*	3.00	9.54	63.52	11.48	PASS
UNII-CH64	٧	1	Horn SN6267	10640.10	38.65	T	38.09	7.20	-13.45	32.61	71.26	PK	3.00	9.54	83.52	12.26	PASS
UNII-CH64	v	1	Horn SN6267	10640.35	27.75		38.09	7.97	-13.45	32.61	60.36	AV	3.00	9.54	63.52	3.16	PASS
UNII-CH64	٧	1	Horn SN6267	13335.50	39.79	*	40.21	9.21	-31.54	17.88	57.67	PK*	3.00	9.54	63.52	5.85	PASS
UNII-CH64	٧	1	Horn SN6267	15442.80	39.47	*	38.02	10.18	-32.33	15.86	55.33	PK*	3.00	9.54	63.52	8.19	PASS
UNII-CH64	٧	1	Horn SN6267	15961.10	38.56		37.28	10.42	-14.25	33.45	72.01	PK	3.00	9.54	83.52	11.52	PASS
UNII-CH64	٧	1	Horn SN6267	15968.20	29.06	L	37.27	10.42	-14.26	33.43	62.49	AV	3.00	9.54	63.52	1.03	PASS
UNII-CH64	٧	1	Horn SN6267	17982.30	39.10	*	47.54	11.16	-33.43	25.27	64.37	PK	3.00	9.54	83.52	19.15	PASS
UNII-CH64	٧	1	Horn SN6267	17983.90	28.33	*	47.56	11.16	-33.43	25.28	53.61	AV	3.00	9.54	63.52	9.91	PASS
UNII-CH64	٧	1	Waveline_899	20515.75	39.97	├-	40.30	12.09	-35.59	16.79	56.76	PK*	3.00	9.54	63.52	6.76	PASS
UNII-CH64	V	1	Waveline_899	21277.80	37.76	┢	40.30	12.37	-35.58	17.08	54.84	PK*	3.00	9.54	63.52	8.68	PASS
UNII-CH64	V	1	Waveline_899	22737.40 23918.80	39.57 40.00	┢	40.40	12.90	-35.57 -35.55	17.73 18.18	57.30	PK*	3.00	9.54 9.54	63.52 63.52	6.22 5.34	PASS PASS
UNII-CH64	V		Waveline_899	23910.00	40.00		40.40	13.34	-30.00	10.10	58.18	PN.	3.00	9.04	03.32	5.34	PASS

For frequency bands above 26.5 GHz, manual scans at a 1-2 cm distance were made with no emissions observed.

Notes the same as H.9.1

Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab		<b>RONIX</b> °	
Model(s): IX325-CWL IX325 S			IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Test Rule Part(s):	FCC 47 CFR §15.407	Industry Cana		da RSS-210 Issue 6	
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canada Lab File # IC 38		

#### 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 15.205 (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.

The emission within a restricted band, with the lowest margin to the limit was measured at 1 meter, in the horizontal polarization with Channel 64 transmitting. The frequency was 15957.15 MHz, with a corrected average field strength of 63.05 dBuV/m vs. the average limit of 63.52 dBuV/m, resulting in a 0.47 dB margin.

#### 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

Visull W. Ryse

Celltech Labs Inc.

25Oct05

Date



Test Report Serial No.:	040505KBC-F632-E15EW	Report Issue No.		E632EW-032906-R0	
Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006	
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874	

### **Appendix I - Peak Power Spectral Density Measurement**

I.1. REFERENCES	
Normative Reference Standard	FCC CFR 47 §15.407(a) (1), &(2)
Procedure Reference	FCC DA 02-2138 Appendix A - Guidelines for Assessing Unlicensed National Information Infrastructure (U-NII) Devices - Part 15, Subpart E - August 30, 2002

I.2. LIMITS	
I.2.1. F	CC CFR
§15.407(a) (1):	For the band 5.15 – 5.25 GHz the peak spectral density shall not exceed 4 dBm in any 1-MHz band.
§15.407(a) (2):	For the band 5.25 – 5.35 GHz the peak spectral density shall not exceed 11 dBm in any 1-MHz band.
§15.407(h) (1):	A TPC mechanism is not required for systems with an e.i.r.p of less than 500 mW.*
1.2.2. 10	C RSS-210 Annex 9
A9.2 § (1):	For the band 5150 – 5250 MHz The e.i.r.p spectral density shall not exceed 10 dBm in any 1-MHz band.
A9.2 § (2):	For the band 5250 – 5305 MHz The e.i.r.p spectral density shall not exceed 11 dBm in any 1-MHz bandIn addition, devices with maximum e.i.r.p greater than 500 mW shall implement TPC*

<sup>\*</sup> The device has an e.i.r.p lower than 500 mW therefore implementation of TPC is not required, as the highest conducted power measured for these bands was 37.4 mW (FCC), 37.1 mW (IC).

I.3. ENVIRONMENTAL CONDITIONS					
Temperature	25 <u>+</u> 3 °C				
Humidity	35 <u>+</u> 5 % RH				
Barometric Pressure	uncontrolled				

I.4. EQUIPMENT LIST										
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE					
00015	Agilent	E4408B	Spectrum Analyzer	24Jan05	24Jan06					
Customer supplied	n/a	n/a	1ft. RG223/U RF Cable	n/a	n/a					
00076	Pasternack	PE7014-30	30dB 2 Watt Attenuator	na*	na*					

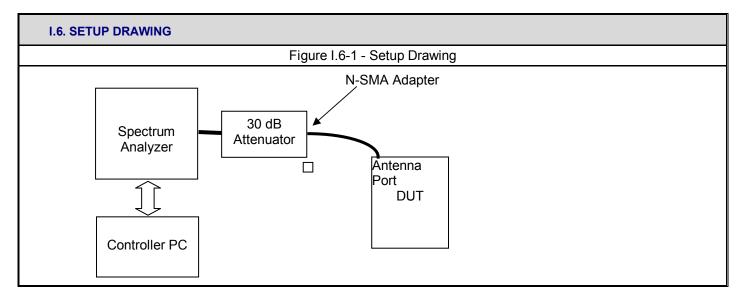
<sup>\*</sup>Verification made prior to measurement

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
Model(s):							L DYNAMICS COMPANY		
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Test Rule Part(s):	FCC 47 CFR §15.407	Industry Cana		da RSS-210 Issue 6	
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canada Lab File # IC 38		

I.5. MEASUREMENT EQUIPMENT SETUP							
Measurement Equipment Connections	The equipment was connected as shown in the setup drawing in I.6.						
	To evaluate the peak power spectral density, softw spectrum analyzer using the following setting:	are and a PC controller were used to set the					
Measurement Equipment Settings	[ ] Method 1 RBW – 1 MHz VBW – 3 MHz Detector – Peak Display - Log Averaging – On, Power, 100 traces Trace - Max Hold Span -25 MHz Offset – appropriate for external attenuation (-31.4 dB)	[x] Method 2 RBW – 1 MHz VBW – 3 MHz Detector – Sample Display - Log Averaging – On, Power, 100 traces Trace - Write Span -25 MHz Offset – appropriate for external attenuation (-31.4 dB)					
Measurement Procedure	A PC controller was used to record the spectrum analyzer display with the above settings as described in the FCC Appendix A Guidelines document.						



Applicant:	Itroni	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITRONIX	
Model(s):	Model(s): IX325-CWL IX325 Series Rugged Table			Tablet PC with Cisco Alf	R-CB21AG-A-			L DYNAMICS COMPANY	
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830	· · · · · · · · · · · · · · · · · · ·		da Lab File # IC 3874	

### I.7. TEST RESULTS I.7.1. Mode a (lower band) CISCO WLAN abg Setting 17.0 & 0 6 mbps, Freq = 5180 MHz, Mode a Maximum PPSD measured within any 1 MHz is 3.74 dBm/MHz CISCO WLAN abg Setting 14.0 & 0 54 mbps, Freq = 5180 MHz, Mode a Maximum PPSD measured within any 1 MHz is 1.41 dBm/MHz CISCO WLAN abg Setting: 17.0 & 0 6 mbps, Freq = 5260 MHz, Mode a Maximum PPSD measured within any 1 MHz is 3.29 dBm/MHz CISCO WLAN abg Setting 14.0 & 0 54 mbps, Freq = 5260 MHz, Mode a Maximum PPSD measured within any 1 MHz is 0.70 dBm/MHz CISCO WLAN abg Setting: 17.0 & 0 6 mbps, Freq = 5320 MHz, Mode a Maximum PPSD measured within any 1 MHz is 3.13 d Bm/MHz CISCO WLAN abg Setting: 14.0 & 0 54 mbps, Freq = 5320 MHz, Mode a Maximum PPSD measured within any 1 MHz is 0.82 d Bm/MHz **PPSD** Limit1 Channel **Frequency** Channel Pass / Fail **FCC** IC 6 mbps 54 mbps dBm<sup>3</sup> dBm<sup>3</sup> MHz dBm dBm 36 5180 3.74 1.41 4 10 Pass 0.70 52 5260 3.29 11 11 Pass 64 5320 3.13 0.82 11 11 Pass

Note 1: If the PPSD exceeds Limit 2 by more than 3 dB, the applicable Limit 3 is reduced by the amount it exceeds.

Note 2: Limit based on 10logB where B is the emission bandwidth

Applicant:	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	<b>ITRONIX</b>		
Model(s):	IX325-CWL IX325 S		IX325 Se	ries Rugged	ies Rugged Tablet PC with Cisco AIR-CB21AG-A-				L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 3874

#### I.8. PASS/FAIL

In reference to the results outlined in I.7, the DUT passes the requirements as stated in the reference standards as follows:

#### FCC 15.407 (a) (1):

For the band 5.15 - 5.25 GHz, the peak power spectral density shall not exceed +4 dBm in any 1 MHz band.

#### FCC 15.407 (a) (2):

For the band 5.25 - 5.35 GHz, the peak power spectral density shall not exceed +11 dBm in any 1 MHz band.

#### RSS 210 A9.2 (1):

For the band 5150 - 5250 MHz, the peak power spectral density shall not exceed +10 dBm in any 1 MHz band.

#### RSS 210 A9. 2 (2):

For the band 5250 - 5350 GHz, the peak power spectral density shall not exceed +11 dBm in any 1 MHz band.

The highest PPSD value measured within the 5.15 – 5.25 GHz band was 3.74 dBm/ MHz. The highest PPSD value measured within the 5.25 – 5.35 GHz band was 3.29 dBm/ MHz.

#### I.9. 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.

> 25Oct05 Date



Test Report Serial No.:	040505KBC-F632-E15EW	Report Issue No.		E632EW-032906-R0
Test Date(s):	03Oct05 - 18Nov05	Report Issue Date:		March 29, 2006
Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874

### **Appendix J - Conducted Powerline Emissions Measurement**

J.1. REFERENCES	
Normative Reference Standard	CFR 47 FCC Part 15 §15.407 (6) (CFR 47 FCC Part 15 §15.207)
Procedure Reference	ANSI C63.4

J.2. LIMITS								
§15.407(b) (6):		Further, any U-NII devices using an AC power line are required to comply also with the conducted limits set forth in Section 15.207.						
§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 E	mission (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					

<sup>\*</sup>Decreases logarithmically with frequency.

J.3. ENVIRONMENTAL CONDITIONS					
Temperature	25 <u>+</u> 3 ℃				
Humidity	35 <u>+</u> 5 % RH				
Barometric Pressure	uncontrolled				

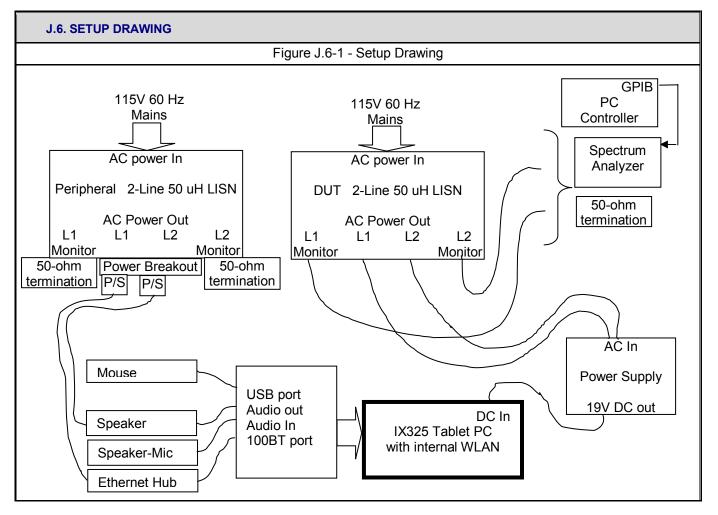
J.4. EQUIPMENT LIST									
ASSET NUMBER	MANUFACTURER	MODEL	DESCRIPTION	LAST CAL	CAL DUE				
00049	HP	85650A	Quasi-Peak Adapter	13Apr05	13Apr06				
00047	HP	85685A	RF Preselector	13Apr05	13Apr06				
00051	HP	8566B	Spectrum Analyzer RF Section	12Apr05	12Apr06				
00083	EMCO	3825/2	Line Impedance Stabilization Network	26Apr05	26Apr06				
00084	EMCO	3825/2	Line Impedance Stabilization Network	26Apr05	26Apr06				

	Applicant:	Itron	ix Corp	oration	FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	RON
							L DYNAMICS CO			
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Test Rule Part(s):	Test Rule Part(s): FCC 47 CFR §15.407			Industry Canada RSS-210 Issue 6		
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874		

J.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 J.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 prescan of the peak emission levels was made of the 150 kHz – 30 MHz range split into 4 equal frequency bands. The following were the spectrum analyzer settings:  Start Frequency and Stop Frequency set by software for each of the four bands RBW: 100 kHz VBW: 300 kHz Sweep: 500 mS The resulting data from each band was corrected and collected by software and presented in the graphical representations shown in J.9 for the two leads. The frequency points with peak values within 20 dB of the average limit were selected and software was used to control the analyzer to optimize the signal for each type of detector (peak, quasi-peak and average). This data was corrected by the software is presented in the tables shown in section J.9.						



Applicant:	Itroni	ix Corporation		FCC ID:	KBCIX325-CWL	IC ID: 1943A-IX325ab		ITE	<b>RONIX</b> °
Model(s):	odel(s): IX325-CWL IX325 Se			ries Rugged	Tablet PC with Cisco Alf	R-CB21AG-A-			L DYNAMICS COMPANY
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6	
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canada Lab File # IC 3874		

#### J.7. SETUP PHOTOS

Photograph J-1 - AC Powerline Conducted Emission Cable Placement

Photograph J-2 - AC Powerline Conducted Emission Configuration





J.8. DUT OPERA	ATING DESCRIPTION
WLAN:	The WLAN was set to transmit at full power on Channel 36, Mode a 6 Mb/s
PC:	Other than operating the WLAN software and running MS windows, no PC exercising was performed.
Peripherals:	All peripherals were active, but no specific traffic was initiated.

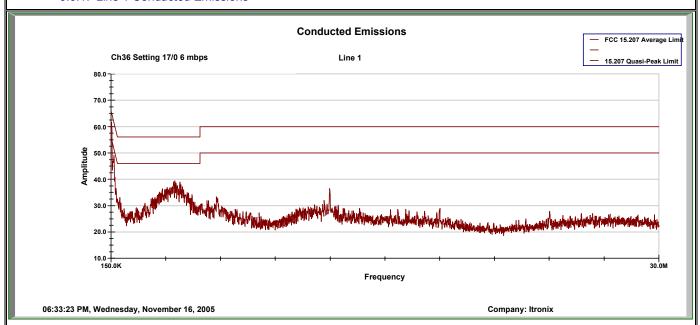
Applicant:	ltron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	<b>ITRONIX</b> °	
Model(s):	IX325-CWL IX325 S			ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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#### J.9. TEST RESULTS

#### J.9.1. Line 1 Conducted Emissions





Project Number: 632 Company: Itronix

Product: IX325 with CISCO a/b/g WLAN

Standard: Test Start Date:

Test End Date:

FCC 15.207 16-Nov-05 16-Nov-05

					Line 1 C	onducted Emi	ssions								
Frequency	Uncorrected Reading ency		Uncorrected Reading			Uncorrected Reading Correction Corrected Emission Level					Quasi-Peak Limit	Quasi-Peak Margin	Average Limit	Average Margin	Pass/Fail
	Peak	Quasi-Peak	Average	. doto	Peak	Quasi-Peak	Average	2	marg		11161 9111	1 633/1 611			
MHz	dBuV	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dBuV	dB				
0.159	67.50	55.99	28.80	-1.99	65.52	54.01	26.81	65.51	11.51	55.51	28.70	Pass			
0.172	65.30	54.07	25.59	-1.78	63.52	52.29	23.81	64.89	12.60	54.89	31.07	Pass			
0.179	63.30	52.76	25.20	-1.67	61.63	51.09	23.52	64.52	13.44	54.52	31.00	Pass			
0.188	62.20	51.60	24.61	-1.55	60.65	50.05	23.05	64.12	14.08	54.12	31.07	Pass			
0.204	61.10	50.78	36.60	-1.39	59.71	49.39	35.21	63.45	14.06	53.45	18.24	Pass			
0.208	60.00	49.53	23.01	-1.35	58.65	48.18	21.66	63.29	15.11	53.29	31.63	Pass			
3.653	45.50	30.85	15.24	-0.30	45.20	30.55	14.94	56.00	25.45	46.00	31.06	Pass			
17.919	35.70	22.51	17.17	-0.39	35.31	22.12	16.78	60.00	37.88	50.00	33.22	Pass			
23.950	33.90	17.56	10.96	-0.45	33.45	17.11	10.50	60.00	42.89	50.00	39.50	Pass			

Corrected Emission Level (dBuV) = Uncorrected Reading (dBuV) + Correction Factor (dB) Margin (dB) = Limit (dBuV) - Corrected Emission Level (dBuV)

#### Calculations

CF = Correction Factor

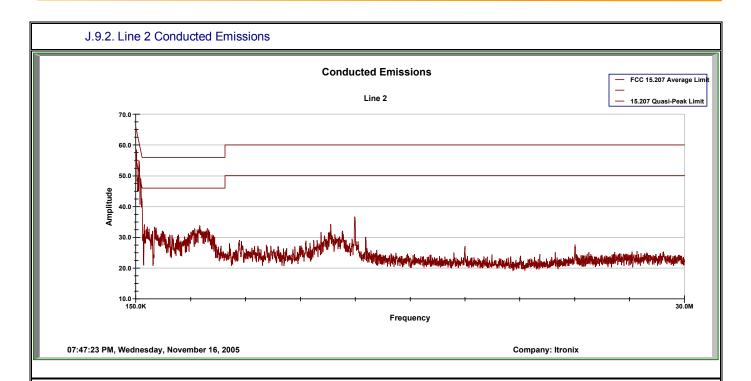
Emission Level = Measured Level + correction factor

Margin = Limit – Emission Level

Applicant:	Itron	ronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	IX325-CWL IX325 Series Rugged Tablet PC with Cisco AIR-CB21AG-A-K9 802.11ab								L DYNAMICS COMPANY
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Test Rule Part(s):	FCC 47 CFR §15.407		Industry Cana	da RSS-210 Issue 6
Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	da Lab File # IC 3874



Celltech
Testing and Engineering Services Lati

Project Number: 632 Company: Itronix

Product: IX325 with CISCO a/b/g WLAN

Standard: FCC 15.207
Test Start Date: 16-Nov-05

Test Start Date: 16-Nov-05
Test End Date: 16-Nov-05

					Line 2 C	onducted Emi	ssions					
Frequency	Uncorrected Reading			Correction Factor	Corrected Emission Level			Quasi-Peak Limit	Quasi-Peak Margin	Average Limit	Average Margin	Pass/Fail
	Peak	Quasi-Peak	Average	1 actor	Peak	Quasi-Peak	Average	Littlic	iviaigiii		iviaigiii	Fa55/Fall
MHz	dBuV	dBuV	dBuV	dB	dBuV	dBuV	dBuV	dBuV	dB	dBuV	dB	
0.156	67.20	56.05	28.92	-2.05	65.16	54.01	26.88	65.67	11.66	55.67	28.79	Pass
0.164	65.80	55.44	27.67	-1.91	63.89	53.53	25.76	65.26	11.73	55.26	29.50	Pass
0.171	64.10	53.74	25.93	-1.79	62.31	51.95	24.14	64.90	12.95	54.90	30.76	Pass
0.187	62.10	52.23	22.99	-1.58	60.53	50.66	21.41	64.15	13.50	54.15	32.74	Pass
0.196	61.40	50.56	22.33	-1.49	59.91	49.07	20.84	63.80	14.73	53.80	32.96	Pass
0.324	50.20	40.38	9.70	-0.74	49.46	39.64	8.96	59.60	19.96	49.60	40.64	Pass
0.335	51.80	42.23	37.43	-0.72	51.08	41.51	36.72	59.32	17.81	49.32	12.61	Pass
0.474	43.10	34.39	30.65	-0.50	42.60	33.89	30.15	56.44	22.55	46.44	16.29	Pass
11.999	43.70	42.17	40.97	-0.34	43.36	41.83	40.63	60.00	18.17	50.00	9.37	Pass
23.949	33.30	15.72	9.56	-0.44	32.86	15.28	9.12	60.00	44.72	50.00	40.88	Pass

Corrected Emission Level (dBuV) = Uncorrected Reading (dBuV) + Correction Factor (dB) Margin (dB) = Limit (dBuV) - Corrected Emission Level (dBuV)

#### Calculations

CF = Correction Factor

Emission Level = Measured Level + correction factor

Margin = Limit – Emission Level

Applicant:	Itron	Itronix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>RONIX</b> ®
Model(s):	IX325-	CWL	IX325 Se	ries Rugged	Tablet PC with Cisco All	R-CB21AG-A			L DYNAMICS COMPANY
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Lab Registration(s):	FCC Lab Reg. # 714830		Industry Canad	la Lab File # IC 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:

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.

The emission measured on Line 1 with the least margin to the limit measured with a QP detector at 0.159 MHz and a margin of 11.51 dB. The emission measured on Line 2 with the least margin to the limit was measured with a QP detector at 0.156 MHz with a margin of 11.66 dB.

#### 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.

Russell Pipe

Senior Compliance Technologist

M W. Pype

Celltech Labs Inc.

16Nov05

Date

Applicant:	Itron	onix Corporation		FCC ID:	KBCIX325-CWL	IC ID:	1943A-IX325ab	ITE	<b>SONIX</b> ®
Model(s):	IX325-CWL IX325 Series Rugged Tablet PC with Cisco AIR-CB21AG-A-						L DYNAMICS COMPANY		
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### **END OF DOCUMENT**

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Model(s):							L DYNAMICS COMPANY		
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