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EUT: Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE



Electromagnetic Compatibility

# **EMC** Report

for

Product Description: Integrated Wireless Bezel, Wireless Gateway Adapter

Model: X - Wire

**Applicant: Fast Inc.** 

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

Test Report Prübericht Nr.	Number: 30661157.001 Wire.doc	Fast X-		Tes	t Report Su	mmary
	Inc. Honeyspot Road ford, CT 06615-7147	Tel: (203) 380 Fax: (203) 377 Email: svreela	-8187	com	Stan Vreeland	d
Type of Equipment: Gegenstand der Prüful	Integrated Wireless Bezel, Wireless	Gateway Adapt	ter			
Model Number: Bezeichnung:	( - Wire		Trademar Ursprungs		(FAS	<b>5T.</b> )°
Standards: Prufgrundlage	See details below		Date of te	sting:	May 17-18,	2006
Standard Number	Description	Severity	Level or Lir	nit	Minimum Acceptable Performance Criteria	Summary Result
FCC Part 15.249	Operation within the abnds 902-928 MHz, 2400-2483.5MHz, 5725- 5875MHz and 24.0-24.25GHz	As per section	n 15.249 a)		NA	Complied
FCC Part 15.207	Conducted Limits	As per section	n 15.207a)		NA	Complied
FCC Part 15.209	Radiated Emissions Limtis; general requirements	As per section	n 15.209 a)		NA	Complied
FCC Part 15.215 (c)	Frequency Stability	Containment between 2400			NA	Complied
Place of Test: Prüfort		TUV Rheinland of 12 Common Newtown, CT on the Info-new@tuv.com//wwwtuv.com	erce Road, 06470 USA Phone: (20			
Test Result: Prüfergebnis Unit presented for testing complied with criteria shown above. Additional Information is contained in the following pages.						
<b>Tested By:</b> Der Sachverständige	Dieter Baldamus	Check geprüft	ed By:		Bruce Fagle	у
August 14, 2007 <b>Date, Signatur</b> Datum, Unterschrift		Dat	ust 14, 2007 <b>e, Signat</b> m, Untersch			

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# 2. Measuring Equipment Used

Manufacturer	Model	Serial Number	Calibrated	Calibration Period (Months)
California	5001iX-CTS-EOS-OMNI-411-413-160-			
Instruments	5073	HK53766	08/12/05	12
Emco	3115	9402-4226	08/30/05	12
Emco	3146, 200 - 1000 MHz	9309-3689	03/30/06	12
Emco	3108	2234	08/03/05	12
Schaffner	CBL6112B	2539	03/11/05	12
		3330A00125,		
Hewlett Packard	HP 8546A, 85460A	3325A00134	03/13/06	12
Schwarzbeck	NSLK 8126A (4 x 25A)	8126277	02/28/06	12

# 2.1 Traceability

All measurement equipment calibrations are traceable to NIST or where calibration is performed outside the United States, to equivalent nationally recognized standards organizations.

#### 2.2 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

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#### 2.3 Measurement Uncertainty

	The estimated combined standard uncertainty for ESD immunity measurements is $\pm$ 4.1%.
	The estimated combined standard uncertainty for radiated immunity measurements is ± 2.7dB.
	The estimated combined standard uncertainty for EFT fast transient immunity measurements is $\pm$ 5.8%.
	The estimated combined standard uncertainty for surge immunity measurements is ± 8.0%.
	The estimated combined standard uncertainty for conducted immunity measurements is $\pm$ 1.5dB.
	The estimated combined standard uncertainty for power frequency magnetic field immunity measurements is $\pm$ 0.58%.
	The estimated combined standard uncertainty for voltage variation and interruption measurements is $\pm 4.3\%$ .
	The estimated combined standard uncertainty for damped oscillatory wave immunity measurements is $\pm$ 8.7%.
$\boxtimes$	The estimated combined standard uncertainty for radiated emissions measurements is ± 1.6 dB.
$\boxtimes$	The estimated combined standard uncertainty for conducted emissions measurements is ± 1.2dB.
	The estimated combined standard uncertainty for harmonic current and flicker measurements is ± 11.6%.

#### 2.4 Location of original data

The original copies of all test data taken during actual testing were attached at Appendix B of this report and delivered to the applicant. A copy has been retained in the TUV Rheinland file for certification follow-up purposes.

# 2.5 Status of facility used for testing

The TUV Rheinland of North America EMC test facility located at 12 Commerce Road, Newtown, CT, USA is listed on the US Federal Communications Commission list of facilities approved to perform measurements and has been audited and found acceptable by TUV Rheinland GmbH, Cologne, Germany, a competent body in the European Union.

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# 2.6 Software and templates

~	Description	Type *	Version	File Name	Date	Author
	95/54/EC Broad Band measurement	ET	20050413	Car-Broad.xlt	13-Apr-05	Baldamus
	95/54/EC Narrow Band measurement	ET	20050413	Car-Narr.xlt	13-Apr-05	Baldamus
	FCC 15.109(b) Class A radiated emissions	ET	20050413	REFCC15A.xlt	13-Apr-05	Baldamus
	FCC 15.109(a) Class B radiated emissions	ET	20050413	REFCC15B.xlt	13-Apr-05	Baldamus
	FCC 18.03 (a) Conducted Emissions on mains	ET	20050413	CEFCC18.03a.xlt	·	
	EN55103, Conducted emissions for Signal & Control		20050413		40.4.05	5
	Ports, DC Power Ports, Environment E4	ET		CE103IO.xlt	13-Apr-05	Baldamus
	EN55103, Conducted emissions, as above except for	гт	20050413	OF Clares 400 Lult	40 4 05	Daldami
	use with Current Clamp	ET		CE_Clamp103-I.xlt	13-Apr-05	Baldamus
	EN55013, Antenna Terminal Voltage	ET	20050413	ANT_TERM20.xlt	13-Apr-05	Baldamus
	EN55022 / FCC 15.107(b) Class A conducted emissions	ET	20050413	CE22_A.xlt	13-Apr-05	Baldamus
	EN55022 / FCC 15.107(a) Class B conducted emissions	ET	20050413	CE22_B.xlt	13-Apr-05	Baldamus
	EN55022A Conducted emissions for Telecom Class A	ET	20050413	CE22A_TELCO.xlt	13-Apr-05	Baldamus
	EN55022B Conducted emissions for Telecom Class B	ET	20050413	CE22B_TELCO.xlt	13-Apr-05	Baldamus
	EN55022A Conducted emissions for Telecom Class A	ET	20050413	CE22A_TELCO_	42 4 05	Baldamus
	for Category 5 Lan	E1		CAT5.xlt	13-Apr-05	
П	EN55022B Conducted emissions for Telecom Class B	ET	20050413	CE22B_TELCO_	13-Apr-05	Baldamus
	for Category 5 Lan			CAT5.xlt	13-Apr-05	
	EN55011 Class A conducted emissions Group 1	ET	20050413	CE11_1A.xlt	13-Apr-05	Baldamus
	EN55011 Class A conducted emissions Group 1	ET	20050413	CE11_2A.xlt	13-Apr-05	Baldamus
	EN55011 Class B conducted emissions Group 1	ET	20050413	CE11_1B.xlt	13-Apr-05	Baldamus
	EN55011 Class B conducted emissions Group 1	ET	20050413	CE11_2B.xlt	13-Apr-05	Baldamus
	EN55014 Conducted emissions	ET	20050413	CE14-1.xlt	13-Apr-05	Baldamus
	EN55103-1 Magnetic Fields Emissions	ET	20050413	MagF55103.xlt	13-Apr-05	Baldamus
	EN55014 Disturbance Power Measurements for Household and Similar Equipments	ET	20050413	DP14-1.xlt	13-Apr-05	Baldamus
П	CISPR12 Radiated Emissions	ET	20050413	CISPR12.xlt	13-Apr-05	Baldamus
$\vdash$	EN55022 / FCC 15.109(g) Class A Radiated Emissions	ET	20050413	RE22 1A.xlt	13-Apr-05	Baldamus
H	EN55022 / FCC 15.109(g) Class B Radiated Emissions	ET	20050413	RE22_1B.xlt	13-Apr-05	Baldamus
┝╫╴	EN55011 Class A Group 1 Radiated Emissions test	ET	20050413	RE11_1A.xlt	13-Apr-05	Baldamus
H	EN55011 Class B Group 1 Radiated Emissions test	ET	20050413	RE11_1A.xit	13-Apr-05	Baldamus
	EN55011 Class A Group 1 Radiated Emissions test	ET	20050413	RE11_2A.xlt	13-Apr-05	Baldamus
	EN55011 Class B Group 1 Radiated Emissions test	ET	20050413	RE11_2A.xit	13-Apr-05	Baldamus
H	IEC 61000-4-3 Radiated immunity test	V	020322V/H3	RI_PLAY1.vee	22-Mar-02	Gaudette
	IEC 61000-4-3 Radiated immunity field setup	V	19990906	RI_CAL1.vee	06-Aug-99	Dwyer
H	IEC 61000-4-3 Radiated infiniting field setup	CE	Ver 3.0	CEWARE32	1998	Keytek
H	IEC 61000-4-4 Burst (Fast Transient) test	S	Ver 2.31 c	WinModula	2004	Schaffner
	IEC 61000-4-4 Burst (Fast Translent) test	CE	Ver 2.31 C	CEWARE32	1998	Kevtek
	IEC 61000-4-5 Surge test	S	Ver 3.0 Ver 2.31 c	WinModula	2004	Schaffner
H	IEC 61000-4-5 Surge test IEC 61000-4-6 Conducted immunity test	V	19990915	CI-PLAY1.vee	15-Sep-99	Dwyer
片	IEC 61000-4-6 Conducted immunity test field setup	V	19980220	CI_CAL.vee	20-Feb-98	Dwyer
	IEC 61000-4-6 Conducted immunity test field setup	CE	Ver 3.0	CEWARE32	1998	Keytek
	IEC 61000-4-11 Voltage dip/short Interruptions	S	Ver 2.31 c	WinModula	2004	Schaffner
$\vdash$	IEC 61000-4-11 Voltage dip/short Interruptions	CI	CTS 3.0.19	lec1000-3-2	04-Apr-04	Cal. Inst.
片	IEC 61000-3-2 Harmonics	CI	CTS 3.0.19	lec1000-3-2	04-Apr-04 04-Apr-04	Cal. Inst.
oxdot	IEC 01000-3-3 FIICKEI	U	C13 3.0.19	1601000-3-3	04-Apr-04	Cai. Inst.

<sup>\*</sup> ET = Excel Template, V = Agilent (HP) Vee Program, S= Schaffner Program, CI = California Instruments, H= Haefely Trench, CE= CE Master Program

As decribed in QP 090923

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter

**Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

#### 3. Test Plan

Refer to the test plan at appendix A.

# 4. Description of Equipment Tested

#### 4.1 General Description of Equipment

See General Description of the Equipment in the test plan at appendix A.

# 5. Equipment Specifications

#### 5.1 Technical Data

See Equipment Specifications in the test plan at Appendix A.

# 5.2 Physical Data

See Equipment Specifications in the test plan at Appendix A.

#### 6. Reason for this Test

**New Product** 

# 7. Configuration and Mode of Operation

# 7.1 Configuration

See Configuration in the test plan at appendix A.

# 7.2 Mode of Operation

See Mode of Operation in the test plan at appendix A.

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#### 8. Performance Criteria

#### 8.1 Pass Criteria

For emissions tests, the EUT is considered to pass a test or standard if the measured level is less than or equal to the applicable limit.

For immunity tests, the EUT is considered to pass a test if it meets the minimum performance criteria described in the test plan.

#### 8.2 Fail Criteria

For emissions tests, the EUT is considered to fail a test or standard if the measured level is greater than the applicable limit.

For immunity tests, the EUT is considered to fail a test if it does not meet the minimum performance criteria described in the test plan.

The details of the performance criteria used for immunity assessment are contained in the test plan at Appendix A.

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# 9. Operation within the bands 902-928 MHz, 2400-2483.5 MHz, 5725-5875 MHz, and 24.0-24.25 GHz.

#### 9.1.1 Test Basis

FCC part 15.249

#### 9.1.2 Test Specifications

#### 9.1.3 Test Procedure

The test of the fundamental and the harmonics emissions were performed using the procedures of ANSI C63.4: 2003. Cables configuration, controls and modes of operation were manipulated to obtain the maximum emissions level.

The emissions testing was first performed at a distance of 3 meters in the semi-anechoic chamber in order to identify the specific frequencies at which measurement should be made in the OATS. The EUT was then taken for measurement at 3 meters in OATS for a final measurement.

The frequency range from 2.4 GHz to 24,000 GHz was investigated. The lowest, middle and highest frequency were selected to perform this test.

The input voltage was varied between 85% and 115% of the nominal value.

The antenna is fixed and internal to the PCB board and therefore can not be modified.

The photographs at appendix B show the worst-case emissions configuration.

#### 9.1.4 Deviations from Standard Test Procedures

None

#### 9.1.5 Test Results

All final radiated emissions measurements were below (in compliance) the limits specified in the standard.

The result of the preliminary (semi-anechoic chamber), final (OATS) measurements and the maximum emissions measurements as well as the field strength and all correction factor calculation are shown in a tables.

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Adapter **Model:** X-Wire

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#### 9.1.6 Test Plots and Tables

NOTES:		Measurement						
		- Lower Frequency es for final test)						
11:09:23 1E FAY 200E		FKR 2.39990 GHz	Sa					
REF 107.0 aB <sub>L</sub> V	AT 10 dB		<u>- v</u>					
FEAK ENC	ANALYZER BE712D REV A.Ø	).Ø1						
10 (c)	HP 1987 - 1992							
aB/								
PARKER 2.39990 GHz GE.GE OB <sub>L</sub> V								
		N. I						
h. Hadda	Mary Mary	V. W.						
VA SB SC FC CDER	Mad n		AND MALLON					
CENTER 2.404B0 GHz		SFAN 20.00 FHz						
₹RES BM 1.0 FHZ								
Measuren	Measurement shows level using peak detector and 1MHz Resolution BW							
ANTENNA/COUPLER:								
☐ 9124 Bicon ☐ 3146 Log Per	☐ 3109 Bicon ☐ 3115 Horn	☐ CBL6140 X-Wing ☐ MDS–21 Clamp	☐ NNB-4/63TL LISN ☐ NNB-4/200X LISN					
⊠ 3106 Horn	CBL6112B Bilog	NSLK 8126 LISN	Other					
MEAS TYPE:	POLARIZATION:	DISTANCE:	LOCATION:					
Radiated Prescan	✓ Vertical		OATS					
Radiated Final Conducted	Horizontal Line	10 Meter Meter	Semi-Anechoic Shielded Room					
☐ Disturbance Power	Neutral	NA	☐ Factory Floor					
Other	□ NA		Other					

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NOTES:									
		2nd H	mission Marmonic - See tables	Lower	Frequ	ency			
	10 1E FAY 200E					e 1 - 100 (100 (100 (100 (100 (100 (100 (	00000 80000		
1757	B 29	1000 1000000			,	FKR 4.B1			
REF 107.	.β αΒμν	AT 10 aB	1 1	1		E i	2.14 aB <sub>L</sub> '	<u>v</u>	
FEAK									
LDG 10	(4)	(5)	N N			2	×	:v	
aB/									
	65	49							
	MARKER 4.B1121 GHz								
	52.14 aBLV								
		Is Is				×	8		
133									
VA SB		- ul	4 - 48				80		
SC FC	and when the same	III.A	Mayoraka	My .		mulmon			
CDRR	party out the separate of which	and the same		· Company	an war	money	www	Marine Marine	
18									
CENTER 4	1.B111E GHz					SPAN 28	, ρρ FHz		
ं स	₹RES BM 1.0 FHZ ₹VBM 3 FHZ ₹SMP 801 meec								
	Measurement shows level using peak detector and 1MHz Resolution BW								
	ivicasurement shows level using peak detector and Tivinz Resolution by								
ANTENNA/COUPLER:									
9124 Bid		3109 Bicon				0 X-Win		=	3-4/63TL LISN
☐ 3146 Lo ☐ 3106 Ho		☐ 3115 Horn☐ CBL6112B	Rilog			1 Clamp 126 LISI		Oth	3-4/200X LISN
△ 3100 HO	)						N		ei
MEAS TYP		POLARIZATION	ON:		TANCI			LOCA	
Radiate		<b>⊠</b> Vertical			Meter				
Radiate		Horizontal Line		<b>  ¹</b>	0 Mete	er eter			ni-Anechoic elded Room
	ance Power	Neutral			IVIE	, <del>C</del> I			tory Floor
Other_		□ NA		_ ''				Oth	•
				1					

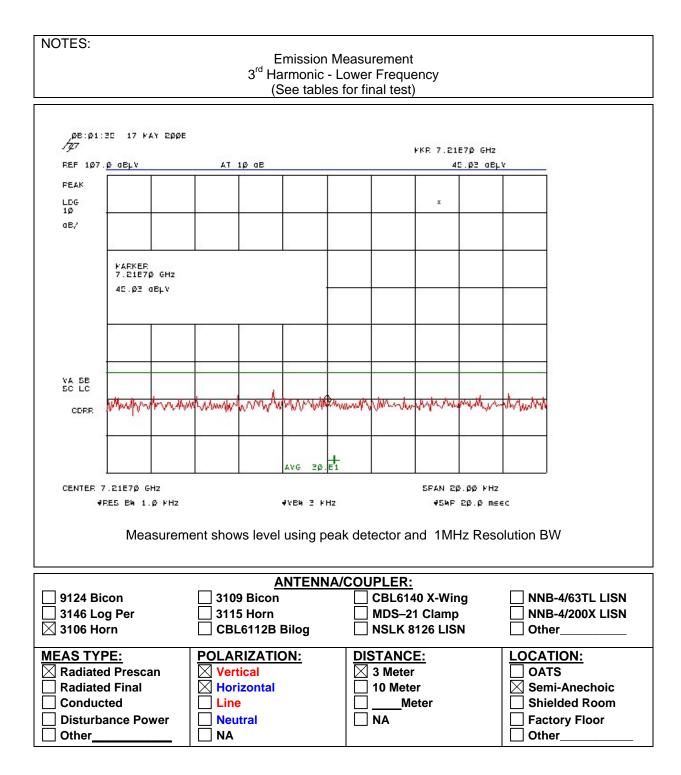
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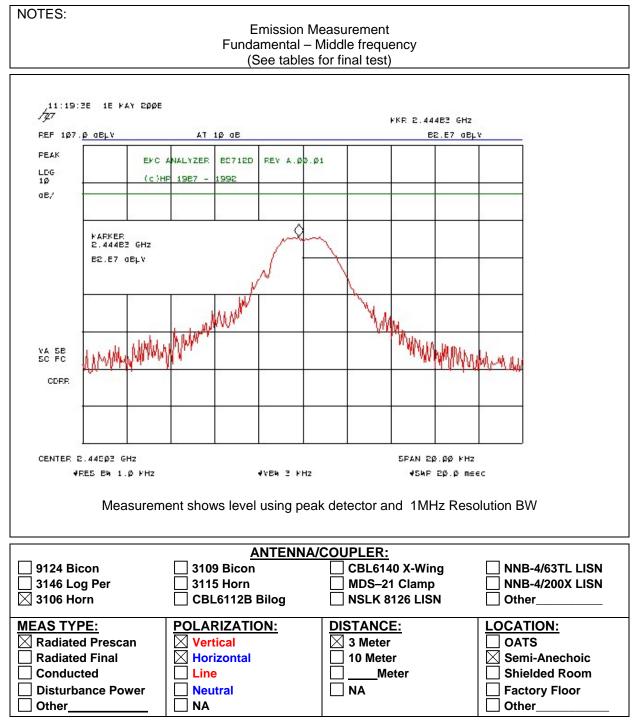
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NOTES:		2 <sup>nd</sup> Harmoni	on Measurement c- Middle Frequency bles for final test)	
/7/7 REF 107.	42 1E FAY 200E 0 0ELV	AT 10 dB	FKR 4.88901 49.27	GHz <sup>7</sup> авь v
PEAK LDG 10 aB/			x	
	FARKER 4.889Ø1 GHz 49.27 dB <sub>L</sub> V			
VA SB SC FC		di a una di Andrewa di Land	Ang ann manual m	Lumn
CDRR		AVG 3		
	.BB91E GHZ RES BW 1.0 FHZ	4VBW 3	SFAN 20.00 FHZ SMF 20	FHZ .β m∈ec
	Measurem	ent shows level using	peak detector and 1MHz F	Resolution BW
3146 Lo	ANTENNA/COUPLER:         □ 9124 Bicon       □ 3109 Bicon       □ CBL6140 X-Wing       □ NNB-4/63TL LISN         □ 3146 Log Per       □ 3115 Horn       □ MDS-21 Clamp       □ NNB-4/200X LISN         □ 3106 Horn       □ CBL6112B Bilog       □ NSLK 8126 LISN       □ Other			
MEAS TYF  Radiated Radiated Conduct Disturbation Other	d Prescan d Final ted ance Power	POLARIZATION:  Vertical Horizontal Line Neutral NA	DISTANCE:  3 Meter 10 Meter Meter NA	LOCATION:  OATS Semi-Anechoic Shielded Room Factory Floor Other

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NOTES:				easuremer				
				liddle Freq for final tes				
0.000.000								
TYT	14 17 ΓΑΥ 200Ε				⊬KR 7.3337β			
PEF 107.	.β αΒμν	AT 10 aB			4E.2	B aB <sub>L</sub> V		
PEAK								
LDG 1p	(6)	(c) (c) (c)	2 22	122	12			
aB/	65 65	88 88 88						
	FARKER 7.3337Ø GHz							
	4E.2B aB <sub>L</sub> V			- P	× ×			
	80							
	0 0							
VA SB SC LC	market delegan	July Brown and a	Mark Name			Ma		
CDRR	and the stand	1 00 00 00 00 00 00 00 00 00 00 00 00 00	and the day	Mark .	04	7.00.		
8	10, 10,	0. 0.				<del>-  </del>		
		4	VG 3β.Ε1					
CENTER 7	7.2327Ø GHz				SPAN 20.0	3 FHz		
.41	₹RES BM 1.0 FHZ							
	Measurement shows level using peak detector and 1MHz Resolution BW							
ANTENNA/COUPLER:								
9124 Bio		3109 Bicon		CBL61	40 X-Wing	NNB-4/63TL L		
☐ 3146 Lo ☐ 3106 Ho		☐ 3115 Horn☐ CBL6112B B	ilog		21 Clamp 8126 LISN	☐ NNB-4/200X L☐ Other	ISN	
MEAS TYP		POLARIZATIO	<u>N:</u>	DISTANC		LOCATION:		
Radiate Radiate		<ul><li>✓ Vertical</li><li>✓ Horizontal</li></ul>		3 Mete		OATS Semi-Anecho	io	
Conduc		Line			ter Neter	Shielded Roo		
Disturba	ance Power	Neutral		□ NA		Factory Floor		
Other_		□ NA				Other		

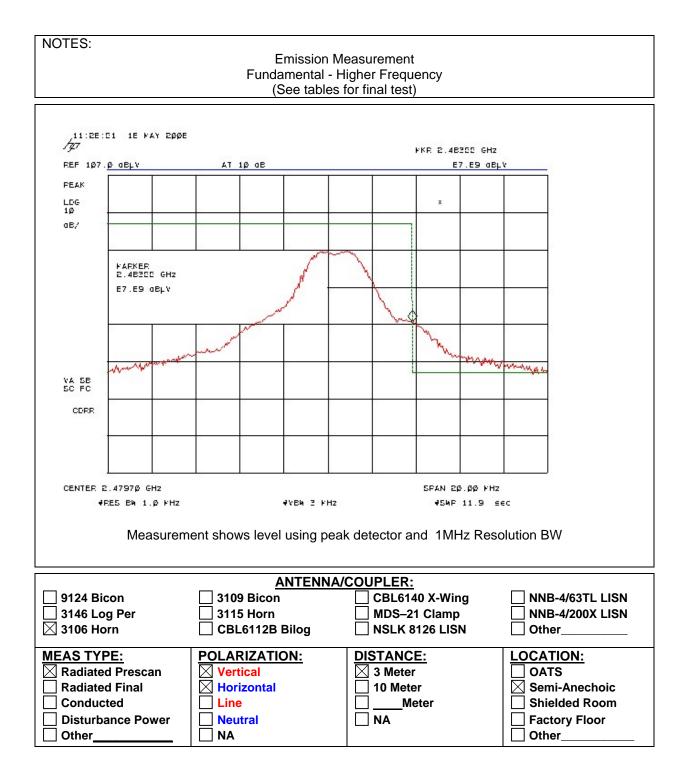
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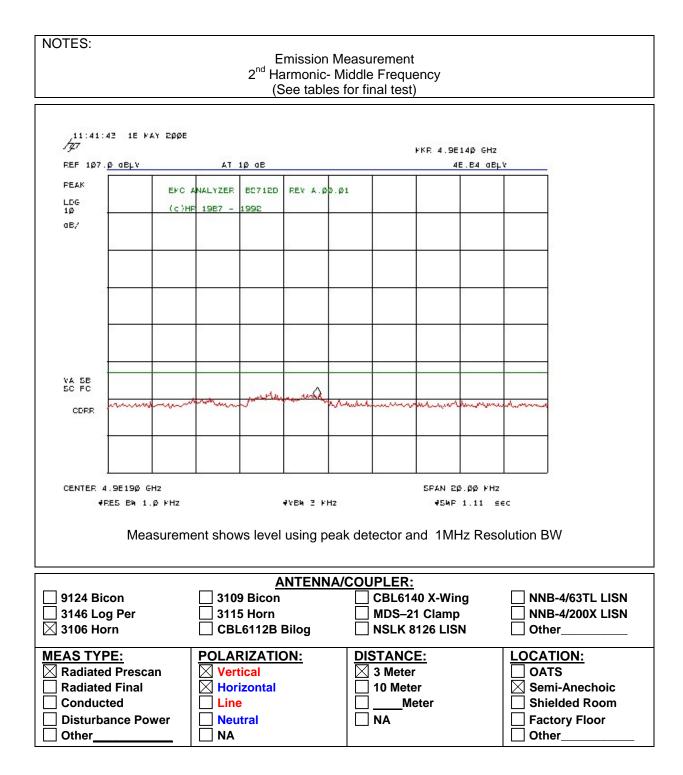
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NOTES:		3 <sup>rd</sup> Harmor	sion Measurement nic – Middle Frequency ables for final test)					
08:02: /J/ REF 107. FEAK LDG 10 08/	42 17 ΚΑΥ 200E Ø αΒ <sub>μ</sub> ν	AT 10 aE	FKR 7.44	12EØ GHZ 7.Ø9 dB <sub>L</sub> V				
VA SB SC LC	CENTER 7.442EØ GHZ	mannama	water and a feet as been	anharrolla hozarga				
	.442EØ GHZ RES BW 1.0 FHZ			P.PP ⊩Hz ⊇P.P m∈∈c				
	Measurement shows level using peak detector and 1MHz Resolution BW							
3146 Lo	ANTENNA/COUPLER:           ☐ 9124 Bicon         ☐ 3109 Bicon         ☐ CBL6140 X-Wing         ☐ NNB-4/63TL LISN           ☐ 3146 Log Per         ☐ 3115 Horn         ☐ MDS-21 Clamp         ☐ NNB-4/200X LISN           ☐ 3106 Horn         ☐ CBL6112B Bilog         ☐ NSLK 8126 LISN         ☐ Other			NNB-4/200X LISN				
MEAS TYPE Radiate Radiate Conduc Disturba Other	d Prescan d Final ted ance Power	POLARIZATION: Vertical Horizontal Line Neutral NA	DISTANCE:  3 Meter  10 Meter  Meter  NA	LOCATION:  OATS Semi-Anechoic Shielded Room Factory Floor Other				

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Other

EUT: Integrated Wireless Bezel, Gateway

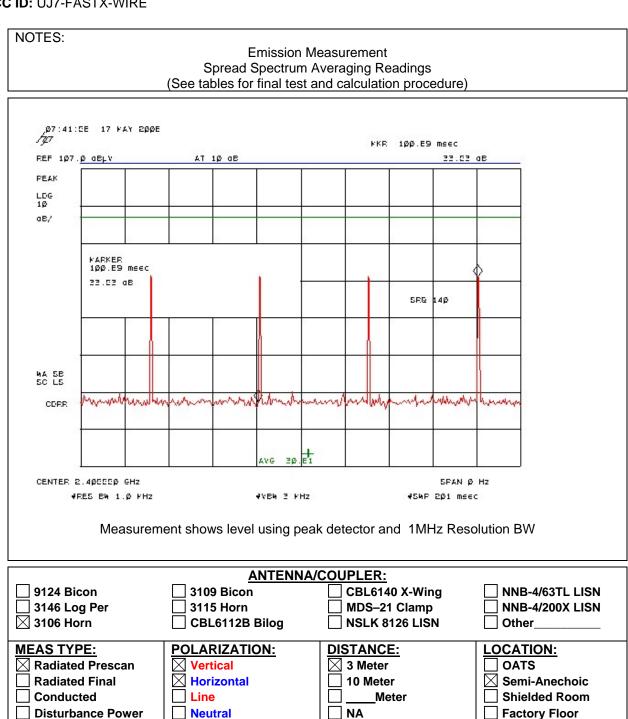
Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

**Disturbance Power** 

NA

Other



The test results contained in this report refer exclusively to the product(s) presented for testing. No liability may be assumed for models or products not referred to herein. This test report may not be published or duplicated in part without permission of the testing body. This test report by itself does not constitute authorization for the use of any TUV Rheinland test mark. This report must not be used by the applicant to claim product endorsement by TUV Rheinland, NVLAP or any agency of the U.S. Government.

■ NA

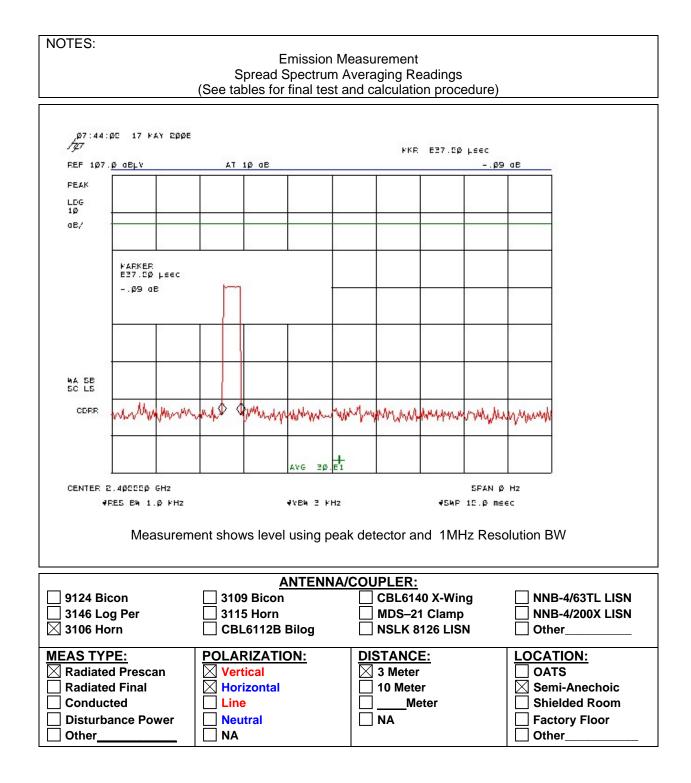
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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE



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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

ions Measure 47 CFR 15,249	Radiated Emissions Measurements Standard: 47 CFR 15 249				Pres	Prescan/Final: Final	Final		Date:	Date: 5/17/2006	
FAST - X Wire					3	Distance: 3.0m	3.0m		File:	File: 06051701.xls	xls
:		П									
Measured Level	_	$\dashv$									
Antenna + Cable Correction	Antenna + Cable Sorrection					Average Δ					
Factor +	Factor +		Peak			હ					
			Limit +20dB of		(Peak +	(Peak + + +				Antonno	
MoT I	_	_ ~	Average	Average	Factors -	Factors -			Angle	Height	
Peak Note) included in	$\rightarrow$		Limit)	Limit	Limit)		Result	Polarization	(degrees)	(meters)	Comment
		- 1									
53.98 11.40		` I	114.00	94.00	-10.73	-28.62	Complied	Vertical	10	1.20	
65.76 27.87 11.40	11.40		74.00	54.00	3.16	-14.73	Complied	Vertical	14	1.25	at bandedge
13.17 12.28			74.00	54.00	-10.66	-28.55	Complied	Vertical	5	1.20	2nd Harmonic
52.29   14.40   15.00			74.00	54.00	-6.71	-24.60	Complied	Vertical	358	1.10	3rd Harmonic
87.78 49.89 11.40 1		-	114.00	94.00	-14.82	-32.71	Complied	Vertical	359	1.00	
53.08   15.19   12.93   7		~	74.00	54.00	-7.99	-25.88	Complied	Vertical	1	1.20	2nd Harmonic
12.68 15.00		'~	74.00	54.00	-8.43	-26.32	Complied	Vertical	356	1.24	3rd Harmonic
48.52 11.40		-	114.00	94.00	-16.19	-34.08	Complied	Vertical	359	1.15	
11.40		'~	74.00	54.00	4.87	-13.02	Complied	Vertical	16	1.10	at bandedge
46.67 8.78 12.90			74.00	54.00	-14.43	-32.32	Complied	Vertical	10	1.00	2nd Harmonic
47.09 9.20 15.00			74.00	54.00	-11.91	-29.80	Complied	Vertical	15	1.00	3rd Harmonic
TUV Rheinland of North America, Inc. 12 Commerce Road New		8	Newtown, CT 06470	06470	Tel: (203) 426-0888	l	Fax: (203) 426-4009	600			
Awerage Values were calculated based on the duty cycle of the transmission frequency	w cycle of th	₽	e transmis	ssion fred	iencv						
	2000	-		5	5						
Average Value = 20 Log of (Peak Value (in mV)* Masured Duty cycle proportion)	Value (in m\	17-1	/)* Masure	d Duty cy	cle proporti	ou)					
where Measured Duty Cycle Propotion is 0.6375msec*2/100ms= 1.275%	otion is 0.637	Įχ	5msec*2	/100ms= 1	1 275%						

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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

#### 9.2 Conducted Emissions

#### 9.2.1 Test Basis

FCC part 15.207

# **9.2.2 Test Specifications**

As Per section 15.207 (a)

#### 9.2.3 Test Procedure

Conducted emissions tests were performed using the procedures of ANSI C63.4 including methods for signal maximizations and EUT configuration. The photos included with the report show the EUT in its maximized configuration. The frequency range from 0.15 to 30 MHz was investigated for conducted emissions.

Conducted emissions were performed AC120V/60Hz

Conducted Emissions measurements were performed in the shielded room using procedures specified in the test plan and standard. The photographs at appendix C show the worst-case emissions configuration.

#### **9.2.4 Deviations from Standard Test Procedures**

None

#### 9.2.5 Test Results

All conducted emissions, were below (in compliance with) the limits specified in section a). The results of the conducted emissions measurements and the maximum emissions are shown in a table.

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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

#### 9.2.6 Test Plots and Tables

NOTES:	Conducted Conducted Emissic				
(%) 16:42:09 MAY 1 FAST XW]RE 1 MARKER 22.59 MHz 52.14 dB"V	19, 2006 20VAC/60HZ	ACTV DET: PEAK MEAS DET: PEAK QP MKR 22.5 52.14			
LDG REF 80.0 dBu  10  dB/ ATN 10 dB  Signal Adde  VA VB SC FC ACDRR  START 150 kHz L #JF BW 9.0 kg	Hz AVG BW 3Ø 1	STOP 30.0	) sec		
ANTENNA/COUPLER:           9124 Bicon         3109 Bicon         CBL6140 X-Wing         NNB-4/63TL LISN           3146 Log Per         3115 Horn         MDS-21 Clamp         NNB-4/200X LISN					
Radiated Prescan Radiated Final Conducted	CBL6112B Bilog  POLARIZATION: Vertical Horizontal Line Neutral NA	NSLK 8126 LISN  DISTANCE:	Other  LOCATION: □ OATS □ Semi-Anechoic □ Shielded Room □ Factory Floor □ Other		

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

			Mode													CF00 Bulk Danicad 1064 bD03
		xls	Average Result		Complied	Complied	Complied	Complied	Complied	Complied	Complied	Complied	Complied	Complied		TO 47 B COSO
	5/17/2006	06051703.xls	Awg Δ	8	-33.03	-46.74	-32.69	-18.60	-32.94	-43.93	-32.12	-43.27	-20.77	-18.75		
	Date:	File: xls	QP Result		Complied	Complied	Complied	Complied	Complied	Complied	Complied	Complied	Complied	Complied		Newtown CT 06470 Tel-(203) 426-0888 Fax: (203) 426-4009
			ΩPΔ	뜅	-32.41	-36.94	31.95	-11.20	-32.31	98.89 8.89	31.39	-44.31	-29.33	-11.00		426-0888 F
			Conductor		Line	Line	Line	Line	Neutral	Neutral	Neutral	Neutral	Neutral	Neutral		Tel:0031
			Avg Limit Conductor	√ngp	51.24	47.76	46.00	90.09	51.24	48.16	46.00	46.00	46.00	50.00		CT 06470
			Avg Amp QP Limit	ABuV.	61.24	92'.79	56.00	90.09	61.24	58.16	56.00	56.00	56.00	60.00		Newtown (
		50Hz	Avg Amp	∧ngp	18.21	1.02	13.31	31.40	18.30	4.23	13.88	2.73	25.23	31.25		- Pood
		Tuner) - 230V/50Hz	QP Amp	∆ngp	28.83	20.82	24.05	48.80	28.93	22.36	24.61	11.69	26.67	49.00		12 Commerce Boad
surements	5.207		Peak Amp	4BuV	30.69	27.61	26.14	53.29	30.82	23.69	26.29	19.79	28.49	53.18	amus	ı
ssions Me	FCC Part 15.207	Russound	Freq	MHz	0.2662	0.4044	0.5315	22.2934	0.2659	0.3855	0.5307	0.8071	4.0003	22.5597	Dieter Baldamus	f North Am
Conducted Emissions Measurements	Standard:	Device Tested: Russound - ST 2 (FM	Signal Num		_	2	m	4	5	9	7	00	6	10	Tested by:	TIIV Pheinland of North America Inc

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

#### 9.3 Radiated Emissions

#### 9.3.1 Test Basis

FCC part 15.209

#### **9.3.2 Test Specifications**

As Per section 15.207 (a)

#### 9.3.3 Test Procedure

Radiated emissions tests were performed using the procedures of ANSI C63.4 including methods for signal maximizations and EUT configuration.

The frequency range from 30MHz to 24,000 GHz was investigated for radiated emissions.

Radiated emissions testing was first performed at a distance of 3 meters in the semi-anechoic chamber in order to identify the specific frequencies at which measurement should be made in the OATS. The EUT was then taken for measurements at 10 meters in OATS. The results of both tests can be found in appendix B.

Frequencies in the restricted bands of operation as stated in the FCC Part 15.205.

The photographs at appendix C show the worst-case emissions configuration.

#### 9.3.4 Deviations from Standard Test Procedures

None

#### 9.3.5 Test Results

All final radiated emissions measurements were below (in compliance) the limits specified in section 15.209. No emissions were found above 10MHz.

The result of the preliminary (semi-anechoic chamber), final (OATS) measurements and the maximum emissions measurements are shown in a tables.

Plots and the tabulated data are at Appendix B.

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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

# 9.3.6 Test Plots and Tables

NOTES:	Radiated Emissions Prescan 30MHz-300MHz						
(例)13:17:00 MAY 18, 2006 MFR: FAST MODEL:X W]RE PRESCAN MARKER ACTV DET: PEAK 109.0 MHz MEAS DET: PEAK QP AVG 49.54 dBμV/m MKR 109.0 MHz ドラ,54 dBμV/m							
	F 70.0 df	3µV/m			PREAMP ON		
10 dB/ #ATN 0 dB				4			
VA VB 404 SC FC ACORR START 30	F BW 120	kHz AUG E			P 300.0 MHz WP 253 msec Ok Resolution BW		
ANTENNA/COUPLER:         □ 9124 Bicon       □ 3109 Bicon       □ CBL6140 X-Wing       □ NNB-4/63TL LIS         □ 3146 Log Per       □ 3115 Horn       □ MDS-21 Clamp       □ NNB-4/200X LIS         □ 3106 Horn       □ CBL6112B Bilog       □ NSLK 8126 LISN       □ Other							
MEAS TYPE:  Radiated Pr Radiated Fi Conducted Disturbance Other	rescan inal	POLARIZATION:  Vertical Horizontal Line Neutral NA		DISTANCE:  3 Meter 10 Meter Meter NA	LOCATION:  ☐ OATS ☐ Semi-Anechoic ☐ Shielded Room ☐ Factory Floor ☐ Other		

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

NOTES:  Radiated Emissions Prescan 300MHz-1000MHz							
[∰] 13:18:55 MAY 18, 2006  MFR: FAST MODEL:X W]RE PRESCAN  MARKER  531.6 MHz  MEAS DET: PEAK QP AVG  28.79 dBµV/m  28.79 dBµV/m							
LOG REF 70.0	dBuV∕m	PRE	EAMP ON				
10 dB/ #ATN 0 dB							
VA VB SC FC	Lacement de la companya della companya de la companya de la companya della compan	man land y departed was a series	atherine h				
]F BW 12	START 300.0 MHz  JF BW 120 kHz  AVG BW 300 kHz  STOP 1.0000 GHz SWP 656 msec  Measurement shows level using peak detector and 120kHz Resolution BW						
ANTENNA/COUPLER:							
☐ 9124 Bicon       ☐ 3109 Bicon       ☐ CBL6140 X-Wing       ☐ NNB-4/63TL LISI         ☐ 3146 Log Per       ☐ 3115 Horn       ☐ MDS-21 Clamp       ☐ NNB-4/200X LISI         ☐ 3106 Horn       ☐ CBL6112B Bilog       ☐ NSLK 8126 LISN       ☐ Other							
MEAS TYPE:  Radiated Prescan Radiated Final Conducted Disturbance Power Other_	POLARIZATION:  Vertical  Horizontal  Line  Neutral  NA	DISTANCE:  3 Meter  10 Meter  Meter  NA	LOCATION:  OATS Semi-Anechoic Shielded Room Factory Floor Other				

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

NOTES:		issions Prescan z- 2GHz	
(%) 11:46:04 MA MFR: FAST MARKER 1.985 GHz 38.64 dB <sub>µ</sub> V	Y 17, 2006 MODEL:X W]RE PRE	ACTV DET: PEAK MEAS DET: PEAK G MKR 1	JP AVG .985 GHz Y dBμV/m
LDG REF 70.0 d 10 dB/ #ATN 0 dB	BμU/m	P.F.	REAMP DN
WA MB SC FC ACORR	tongoccus de anternancia que anternativa de la constitución de la cons	soloharandunaman dundun —	
START 1.000 GHz Jf BW 1.0	MHz AVG BW 3	MHz #SWP3	
☐ 9124 Bicon ☐ 3146 Log Per ☑ 3106 Horn	ANTENNA  3109 Bicon  3115 Horn  CBL6112B Bilog	VCOUPLER:  CBL6140 X-Wing  MDS–21 Clamp  NSLK 8126 LISN	NNB-4/63TL LISN NNB-4/200X LISN Other
MEAS TYPE:  Radiated Prescan Radiated Final Conducted Disturbance Power Other	POLARIZATION:  Vertical Horizontal Line Neutral NA	DISTANCE: 	LOCATION:  OATS Semi-Anechoic Shielded Room Factory Floor Other

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

NOTES:								
	Radiated Emissions Prescan 2.5GHz- 2.8GHz							
GHz								
10:21:09 18 FAY 2008		FKR 2.4080 GH	-					
REF 1β7. <u>β αΒμν</u>	AT 10 aB	E9.B1 aB						
PEAK								
LDG 10								
aB/								
FARKER 2.4000 GHz								
E9.81 aB <sub>L</sub> V	<b>♦</b>	5FG 14P						
VA VB SC LC								
CDER MANAGEMAN CONCENTAL	santa da se da contra c	the cartinative of the second	of almost associated					
START 2.0000 GHZ	<b>4</b> VE4 3 FHz	STOP 2.8000 GHz √SWP 20.0 m						
40.05 D4 1.8 FH2	1104 2 7112	45-1F CK.K III	===					
Measurem	nent shows level using pea	k detector and 1MHz Res	olution BW					
ANTENNA/COUPLER:								
9124 Bicon	3109 Bicon	CBL6140 X-Wing	NNB-4/63TL LISN					
☐ 3146 Log Per ☐ 3106 Horn	☐ 3115 Horn ☐ CBL6112B Bilog	☐ MDS–21 Clamp ☐ NSLK 8126 LISN	NNB-4/200X LISN Other					
MEAS TYPE:	POLARIZATION:	DISTANCE:	LOCATION:					
☐ Radiated Prescan     ☐ Radiated Final	<ul><li>✓ Vertical</li><li>✓ Horizontal</li></ul>	3 Meter 10 Meter	OATS Semi-Anechoic					
Conducted	Line	Meter	Shielded Room					
☐ Disturbance Power ☐ Other	Neutral NA	□ NA	Factory Floor Other					

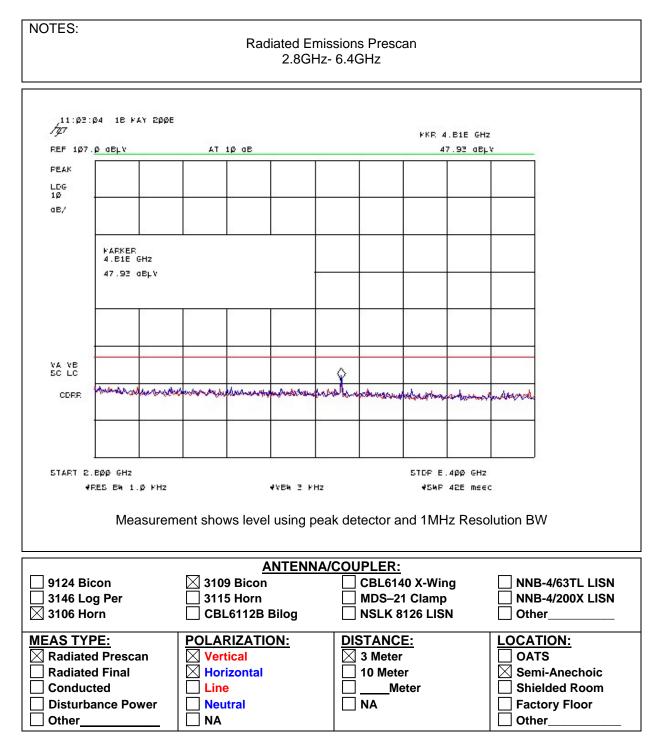
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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE



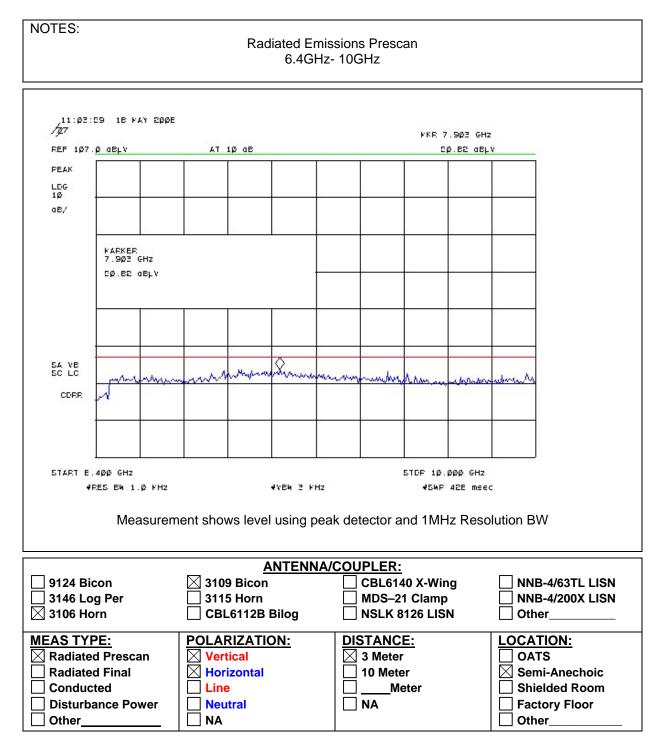
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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE



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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

# 9.4 Frequency Stability

#### 9.4.1 Test Basis

FCC part 15.215

# **9.4.2 Test Specifications**

As Per section 15.215 (c)

#### 9.4.3 Test Procedure

The EUT was placed in an environmental temperature test chamber, supplied with the AC power adapter and a small receiving antenna connected to a spectrum analyzer which is located outside the chamber.

The temperature is raised ti the highest remperature specified and allowed sufficient time to stabilize. While mainting a constant temperature inside the environmental chamber, the carrier signal was measured after 40 minutes. The process is repeated for the lowest temperature specified and with 10 degrees centigrade increments between extremes thereafter.

#### 9.4.4 Deviations from Standard Test Procedures

None

#### 9.4.5 Test Results

Temperature	Low Channel (2402)		High Chani (248	Results	
°C	-20dB freq	∆BE MHz	-20dB freq	∆BE MHz	Results
0	2401.6847	1.6847	2480.3247	3.1753	Complied
10	2401.1645	1.1645	2480.3287	3.1713	Complied
20	2401.5457	1.5457	2480.3195	3.1805	Complied
30	2041.6558	1.6558	2480.3264	3.1736	Complied

Note: Low Band Edge (BE) = 2400MHz High Band Edge (BE) = 2483.5MHz

All emissions, were within (in compliance with) the limits specified in the standard

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

# **APPENDIX A: TEST PLAN**

Electro-Magnetic Compatibility (EMC)
Test Plan for

Product Description: Integrated Wireless Bezel, Wireless Gateway Adapter

Model: X - Wire Applicant: Fast Inc.

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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

#### 10. TEST PLAN SUMMARY

Product Description: Integrated Wireless Bezel, Wireless Gateway Adapter

Model: X - Wire Serial Number: Not Serialized

Applicant: Fast Inc.

905 Honeyspot Road Stratford, CT 06615-7147

Contact: Stan Vreeland

Telephone: (203) 380-3510 Fax: (203) 377-8187

e-mail: svreeland@fastinc.com

#### 10.1 Test Pan Overview

Standard Number	Description	Severity Level or Limit	Minimum Acceptable Performance Criteria
FCC Part 15.249	Operation within the abnds 902-928 MHz, 2400-2483.5MHz, 5725-5875MHz and 24.0-24.25GHz	As per section 15.249 a)	NA
FCC Part 15.207	Conducted Limits	As per section 15.207a)	NA
FCC Part 15.209	Radiated Emissions Limtis; general requirements	As per section 15.209 a)	NA
FCC Part 15.215 (c )	Frequency Stability	Containment of 20dB bandwith between 2400 and 2483.5	NA

#### 10.2 Miscellaneous Information:

This test plan is intended to cover the EMC Directive requirements for the X - Wire when used in an light industrial environment.

This test plan is intended for use by the manufacturer for making a Declaration of Conformity. It is not intended for use with a Technical Construction File. This test plan does not constitute authorization for the use of any TUV Rheinland test mark. A copy of this test plan is kept on file by TUV Rheinland, Newtown CT

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

# 10.3 General Description of the EUT

(FAST.) Xwire products allow foodservice operators to connect multiple appliances and timers efficiently for synchronizing food equipment and monitoring inventory levels, energy consumption and usage levels. They can be used to link together existing (FAST.) equipped appliances and timers and other communications-enabled appliances, either controlled by kitchen automation software or just connected point-to-point.

# 10.4 Equipment Specifications

#### 10.4.1 Technical Data

Input Voltage Rating: 24 VAC (from 120V/24VAC transformer)

Input Current Rating: 1.67 Amps Max

Frequency Rating 50Hz
Power Rating: 40 Watts

Voltage and frequency of

supply during test: 120V/60Hz

#### 10.4.2 Physical Data

EUT Dimensions: 5 cm (W) x 5 cm (D) x 12 cm (H)

EUT Weight: 0.1 kg

EUT tested will be Configured as shown in the following diagram:

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**EUT:** Integrated Wireless Bezel, Gateway

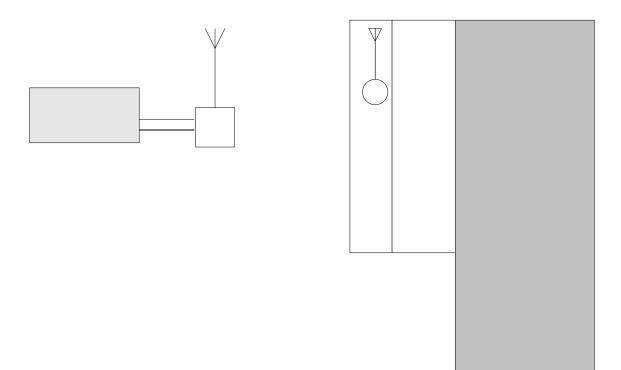
Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

# 10.5 Configuration and Mode of Operation

#### 10.5.1 Configuration

# FAST X-Wire System Block Diagram



Cable	Description	Shielding	Length	Tested
1	Mains Cable	No	1.2m	Yes
2	Controller cables	No	0.3m	No
3	Receiver Mains	No	1.2m	No

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

#### **10.5.2** Mode of operation

The FAST Inc. X-Wire system is intended to be used as a wireless data collection system. Each system consists of a X-Wire Wireless Gateway device and one or more X-Wire bezel or universal units attached to an appliance controller. The Gateway device may be attached to a computer via a USB connection. The appliance connected devices communicate information back to the Gateway regarding number of cooks performed, times, temperature or any other available information about the appliance to which it is connected. The computer can then extract that data from the Gateway to be formatted and stored in a database. (See Block Diagram below)

Each device in the system contains the same transceiver circuitry. The transceiver consists of an 802.15.4 compliant RF transceiver operating at 2.4 GHz IEEE designed for low-power and low-voltage applications. The antenna implemented in all devices is an inverted F type that is embedded into the printed circuit board. A separate microcontroller is connected to the transceiver to run the application specific firmware.

During the test, the EUT was turned on sending a constant signal to a receiver. The transmitter has a switch were three channels can be selected these channels were set to the lowest, middle and highes frequency between 2400 GHz abnd 2483.5 MHz. Each of these channels were tested for compliance.

#### 10.5.3 Descriptions of performance criteria specific to EUT for Immunity assessment

No Immunity testing is required by FCC

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

#### 10.6 Emissions Test Plan

Sections:

(a) Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

- (b) Fixed, point-to-point operation as referred to in this paragraph shall be limited to systems employing a fixed transmitter transmitting to a fixed remote location. Point-to-multipoint systems, omnidirectional applications, and multiple co-located intentional radiators transmitting the same information are not allowed.
- (c) Field strength limits are specified at a distance of 3 meters.
- (d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Sec. 15.209, whichever is the lesser attenuation.
- (e) As shown in Sec. 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter (128dBuV/m) at 3 meters along the antenna azimuth.
- (f) Parties considering the manufacture, importation, marketing or operation of equipment under this section should also note the requirement in Sec. 15.37(d).

Antenna Distance: Testing for radiated emissions shall be done at 3 meters in the Open Area Test Site

(OATS).

Fundamental

Frequency Range: 2,400 GHz to 2,483.5 MHz

Additional Information: A preliminary scan of the emissions will be performed in the 3m semi-anechoic

chamber.

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**TÜV**Rheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

# 10.7 Conducted Emissions Test Plan

Standard(s) to be applied	ed:	⊠ FCC part 15 Section 15.207(a)						
Test Ports:		Mains ⊠	Telecom					
Additional Information:			Test to be performed at 230V/50Hz for EN compliance and at 120V/60Hz for FCC compliance					
10.8 Radiated Em	ission	s Test Plan						
Standard(s) to be applied	ed:	☐ FCC part 15	5.209 as per sec	tion (a) and sect	ion 15.249 (e)			
Antenna Distance:	Testing (OATS	for radiated emissions shall be done at 10 meters in the Open Area Test Site						
Frequency range:	Shall b	e tested up to 24GHz.						
Additional Information: A prelii chamb		ninary scan of the emissions will be performed in the 3m semi-anechoic er.						
10.9 Frequency S	tability	,						
Standard(s) to be applied:		☐ FCC part 15						
Testing temperature:		⊠ 0°C	⊠10°C	⊠20°C	⊠30°C			
Frequency range:	Shall b	e tested at -20dl	B of lower (2402	MHz) and highe	r frequency (2480MHz)			
Additional Information:	None							

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

**APPENDIX B: PHOTOGRAPHS** 

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**EUT:** Integrated Wireless Bezel, Gateway

Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

Set up for Conducted Emissions Test



Setup for Radiated emissions Prescan in Anechoic Chamber



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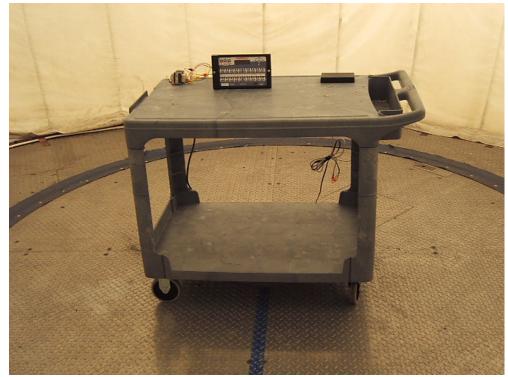
TÜVRheinland®
Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

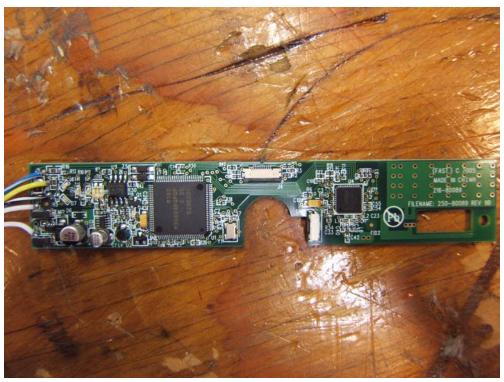
Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

Setup for Radiated emissions on 10 meter OATS – Final test



Internal View
Fast Wireless Bezel or
Unviersal



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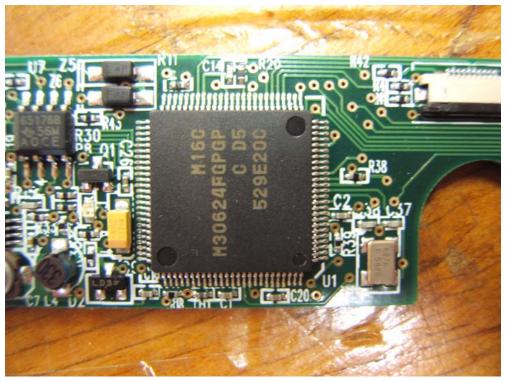
**TÜV**Rheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

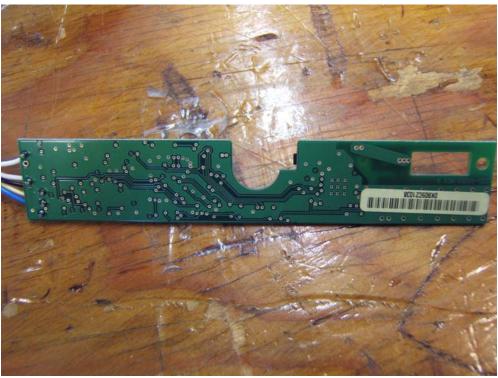
Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

Internal View
Fast Wireless Bezel or
Unviersal



Internal View Fast Wireless Bezel or Unviersal



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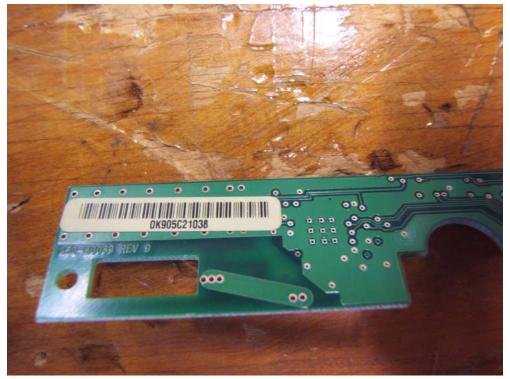
Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

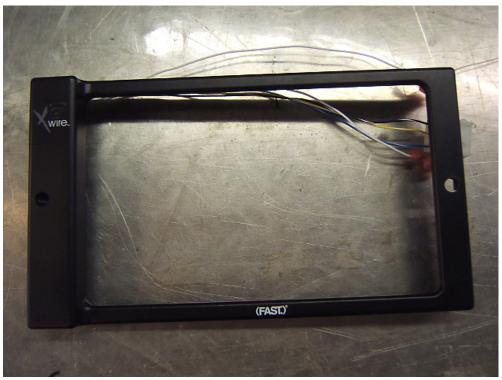
Adapter Model: X-Wire

FCC ID: UJ7-FASTX-WIRE

Internal view
Fast Wireless Bezel or
Unviersal



Internal View
Fast Wireless Bezel or
Unviersal



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TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

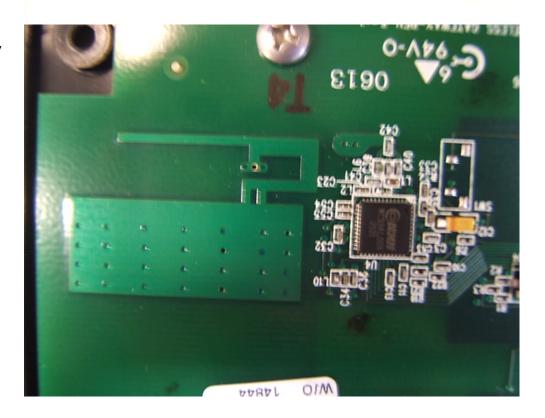
Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

Internal View Fast Wireless Gateway 216-80097-XX



Internal View Fast Wireless Gateway 216-80097-XX



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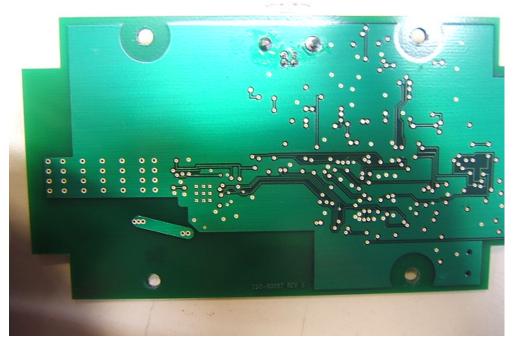
TÜVRheinland® Precisely Right.

**EUT:** Integrated Wireless Bezel, Gateway

Adapter **Model:** X-Wire

FCC ID: UJ7-FASTX-WIRE

Internal View Fast Wireless Gateway 216-80097-XX



Internal View Fast Wireless Gateway 216-80097-XX

