Retlif Testing Laboratories

101 New Boston Road, Goffstown, NH 03045
603-497-4600 - Fax: 603-497-5281

CORPORATE OFFICE
795 Marconi Avenue
Ronkonkoma, NY 11779
631-737-1500 Fax 631-737-1497
(A NY Corporation)

BRANCH LABORATORIES
3131 Detwiler Road
Harleysville, PA 19438
215-256-4133 Fax 215-256-4130

WASHINGTON
REGULATORY OFFICE
703-533-1614 Fax 703-533-1612

MEMBER ACIL

FCC Report of Measurements
on

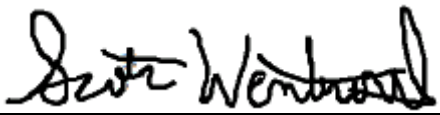
ActiLink Plus Personal USB Transceiver
Part Number: 710-00026-02
FCC ID: O9DALP

Customer Name:	Fitlinxx
Customer P.O.:	28248-N
Date of Report:	March 5, 2009
Test Results No.:	R-5140N
Test Start Date:	February 11, 2009
Test Finish Date:	February 12, 2009
Test Technician:	Matthew Seamans
Laboratory Supervisor:	Todd Hannemann
Branch Manager:	Scott Wentworth
Results Prepared By:	Jamie Ramsey
Government Source Inspection:	N/A

Certification and Signatures

We certify that these Test Results are true results obtained from the tests of the equipment stated, and relates only to the equipment tested. We further certify that the measurements shown in this Test Results package were made in accordance with the procedures indicated and vouch for the qualifications of all Retlif Testing Laboratories personnel taking them.

Todd Hannemann
Laboratory Supervisor



Scott Wentworth
Branch Manager

Non-Warranty Provision
The testing services have been performed, findings obtained and reports prepared in accordance with generally accepted laboratory principles and practices. This warranty is in lieu of all others, either expressed or implied.

Non-Endorsement
This test report contains only findings and results arrived at after employing the specific test procedures and standards listed herein. It is not intended to constitute a recommendation, endorsement or certification of the product or material tested. This test report may not be used by the client to claim product endorsement by NVLAP, NIST or any agency of the U.S. Government.

Revision History

Revisions to this document are listed below; the latest revised document supersedes all previous issues of this document.

Revision	Date	Pages Affected
-	March 5, 2009	Original Release

Test Program Summary

Job Number:	R-5140N
Applicant:	Fitlinxx
Address:	452 Westport Avenue
	Norwalk, CT 06851
Manufacturer:	Fitlinxx
Test Sample:	ActiLink Plus Personal USB Transceiver
Brand Name:	Fitlinxx
Part Number:	710-00026-02
Model Number:	ActiLink Plus
Serial Number:	HHRN-00512-02160
Type:	RF Transceiver
Power Requirements:	5VDC via host PC USB Port
Frequency Band of Operation:	2400 to 2483.5MHz
Frequency of Operation:	2429.0MHz
FCC ID:	O9DALP
Applicable Rule Section:	15.249
Modular Requirements:	N/A

Test Specification:
FCC Rules and Regulations Part 15, Subpart C, Paragraph 15.249

Test Procedure:
ANSI C63.4:2003

Purpose:
The objective of this test program was to demonstrate compliance of the ActiLink Plus Personal USB Transceiver to the requirements of FCC Part 15.249.

Test Methods:
The following table depicts the test methods that were performed on the EUT and the corresponding test results:

Testing Date(s)	Test Method	Test Results
2/11/09	15.249 (a) Fundamental & Harmonic Emissions	Complied
2/11/09	15.249 (d) Out of Band/Bandedge Emissions	Complied
2/11/09	15.249 (e) Peak Field Strength	Complied
2/12/09	15.207 (a) AC Line Conducted Emissions	Complied

Test Sample Description:

- The ActiLink Plus Personal USB Transceiver is designed to interface a PC with the Fitlinxx Bodylan RF Network via 2.429GHz Radio Link and transmit data to the network.

Antenna Description:

- The device uses an integral PCB etch antenna with a gain of approximately 1dB and has no connection for an external antenna.

Test Sample/Test Results Summary:

- The maximized fundamental field strength at 2429 MHz did not exceed 50 m V/M (94dBµV) at a test distance of 3 meters. The measured maximized average field strength was 74.15dBµV.
- The field strength of observed harmonic emissions did not exceed 500 µ V/M. No harmonic emissions were observed within 10dB of the specified limit at 3 meter or 1 meter test distances beyond the second harmonic (4858 MHz).
- The field strength of non-harmonic out of band/bandedge emissions were attenuated more than 50dB below the level of the fundamental or to the limits of 15.209 as applicable. No out of band spurious emissions were observed within 10dB of the specified limit at 3 meter or 1 meter test distances.
- The maximized peak field strength of the emissions did not exceed the maximum permitted average field strength by more than 20 dB.
- Radiated Emissions from the EUT were measured with the EUT plugged into the USB port of the host PC which is its only useable orientation.
- Conducted Emissions from the EUT/Host PC did not exceed the limits of 15.207 (a).

Measurement Procedures:

15.249 (a/d) Field Strength of Fundamental, Harmonic and Out of Band/Band Edge Emissions

The field strength of the fundamental, harmonic and out of band/bandedge emissions were measured. The EUT was plugged into the USB port of the host PC which was placed on a 80cm high wooden test stand located 3 meters from the test antenna on a FCC listed open area test site. Emissions from the EUT were maximized by rotating the turntable and adjusting the antenna polarization. The field strength of each observed emissions was measured, recorded and compared to the specified limits of 15.249 (a)/(d)/15.209 as appropriate. Peak field strength of emissions were measured, recorded and verified to meet the specified limit (limit corresponds to 20dB above the maximum permitted average limit). When necessary, the marker/delta method was used to verify bandedge compliance.

15.207 (a) AC Line Conducted Emissions

The EUT was plugged into the USB port of the host PC which was placed on a 0.8m high wooden test stand above the floor of the test area (ground plane). The rear of the EUT was aligned flush with the rear of the test stand. The test stand was situated such that the EUT was located 0.4m from all other grounded surfaces. The power cord of the host PC was connected to an artificial mains network (LISN). The spectrum analyzer was connected to the RF Port of the LISN and peak/quasipeak and average measurements were taken in the frequency range of 150kHz to 30MHz on each the hot and neutral leads.

Test Setup Photographs

Test Photographs
Fundamental Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Harmonic Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Harmonic Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Harmonic Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Harmonic Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Harmonic Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Photographs
Out of Band Emissions

Test Setup, Horizontal Polarization

Test Photographs
Bandedge Emissions

Test Setup, Horizontal Polarization

Test Setup, Vertical Polarization

Test Photographs
Conducted Emissions

Test Setup, Conducted Emissions

Equipment Lists

Fundamental Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	1/21/2009	1/21/2010
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	1/31/2009	1/31/2010
4029B	Test Site Attenuation	Retlif	3 / 10 Meters	RNH	7/21/2008	7/21/2009
4962	Attenuator	Narda	DC - 18 GHz	757C-20dB	5/21/2008	5/21/2009
4984B	High Gain Horn	Microlab/FXR	1.7 - 2.6 GHz	R638A	1/21/2009	1/21/2010
5070	EMI Test Receiver	Rohde & Schwarz	20 Hz - 40 GHz	ESIB40	1/14/2009	1/14/2010

Harmonic Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	1/21/2009	1/21/2010
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	1/31/2009	1/31/2010
3430	Horn Antenna	MCS Corporation	18 GHz - 26.5 GHz	K-5039	1/12/2009	1/21/2010
4029B	Test Site Attenuation	Retlif	3 / 10 Meters	RNH	7/21/2008	7/21/2009
4984D	High Gain Horn	Microlab/FXR	3.95 - 5.85 GHz	H638A	1/21/2009	1/21/2010
4984E	High Gain Horn	Microlab/FXR	5.8 - 8.2 GHz	C638A	1/21/2009	1/21/2010
4984F	High Gain Horn	Microlab/FXR	8.2 - 12.4 GHz	X638A	1/21/2009	1/21/2010
4984G	High Gain Horn	Microlab/FXR	12.4 GHz - 18 GHz	Y638A	1/21/2009	1/21/2010
5070	EMI Test Receiver	Rohde & Schwarz	20 Hz - 40 GHz	ESIB40	1/14/2009	1/14/2010
5072	Preamplifier	Miteq	18 GHz-40 GHz	JS4-18004000-30	1/10/2009	1/10/2010

Out of Band Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	1/21/2009	1/21/2010
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	1/31/2009	1/31/2010
3430	Horn Antenna	MCS Corporation	18 GHz - 26.5 GHz	K-5039	1/12/2009	1/21/2010
4029B	Test Site Attenuation	Retlif	3 / 10 Meters	RNH	7/21/2008	7/21/2009
4962	Attenuator	Narda	DC - 18 GHz	757C-20dB	5/21/2008	5/21/2009
4984A	High Gain Horn	Microlab/FXR	1.0 - 1.7 GHz	L638A	1/21/2009	1/21/2010
4984B	High Gain Horn	Microlab/FXR	1.7 - 2.6 GHz	R638A	1/21/2009	1/21/2010
4984C	High Gain Horn	Microlab/FXR	2.6 - 3.95 GHz	S638A	1/21/2009	1/21/2010
4984D	High Gain Horn	Microlab/FXR	3.95 - 5.85 GHz	H638A	1/21/2009	1/21/2010
4984E	High Gain Horn	Microlab/FXR	5.8 - 8.2 GHz	C638A	1/21/2009	1/21/2010
4984F	High Gain Horn	Microlab/FXR	8.2 - 12.4 GHz	X638A	1/21/2009	1/21/2010
4984G	High Gain Horn	Microlab/FXR	12.4 GHz - 18 GHz	Y638A	1/21/2009	1/21/2010
5070	EMI Test Receiver	Rohde & Schwarz	20 Hz - 40 GHz	ESIB40	1/14/2009	1/14/2010
5072	Preamplifier	Miteq	18 GHz-40 GHz	JS4-18004000-30	1/10/2009	1/10/2010
5053	Biconilog	EMCO	26 MHz - 3 GHz	3142C	10/4/2008	11/4/2009

Equipment Lists (continued)

Bandedge Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
3116	Pre-Amplifier	Miteq	0.1 GHz - 18 GHz	AFS42-35	1/21/2009	1/21/2010
3117	Power Supply	B&K Precision	0-30 Vdc, 3.0 A	1630	1/31/2009	1/31/2010
4029B	Test Site Attenuation	Retlif	3 / 10 Meters	RNH	7/21/2008	7/21/2009
4962	Attenuator	Narda	DC - 18 GHz	757C-20dB	5/21/2008	5/21/2009
4984B	High Gain Horn	Microlab/FXR	1.7 - 2.6 GHz	R638A	1/21/2009	1/21/2010
5070	EMI Test Receiver	Rohde & Schwarz	20 Hz - 40 GHz	ESIB40	1/14/2009	1/14/2010
4984C	High Gain Horn	Microlab/FXR	2.6 - 3.95 GHz	S638A	1/21/2009	1/21/2010

Conducted Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
7032	LISN	Rohde & Schwarz	10 kHz - 30 MHz	ESH 3-Z5	12/16/2008	12/16/2009
5030B	10 DB Atten. (50 ohm)	Narda	DC - 12.4 GHz	757C-10	1/20/2009	1/20/2010
R425B	Spectrum Analyzer	Agilent	100 Hz - 26.5 GHz	E7405A;A	4/11/2008	4/11/2009

Test Data

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Fundamental Field Strength & Harmonics		
Customer:	Fitlinxx	**Job No:**	R-5140N
Test Sample:	The ActiLink Plus Personal USB Transceiver		
Model No:	ActiLink Plus	**Serial No:**	HHRN-00512-02160
Test Specification:	FCC Part 15 Paragraph: 15.249 (a)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	**Date:**	2/11/2009
Notes:	Average Readings to Average Limits		

Transmit Frequency	Test Frequency	Antenna Position	Meter Reading	Correction Factor		Corrected Reading			Converted Reading	Limit at 3 Meters
MHz	MHz	Polarization	dBuV	dB		dBuV/m			uV/m	uV/m
2429.00	2429.00	V/Y	88.65	-14.50		74.15			5099.18	50000.00
	4858.00	V/Y	48.59	-10.44		38.15			80.82	500.00
	7287.00	-	-	-		-			-	500.00
	9716.00	-	-	-		-			-	500.00
	12145.00	-	-	-		-			-	500.00
	14574.00	-	-	-		-			-	500.00
	17003.00	-	-	-		-			-	500.00
	19432.00	-	-	-		-			-	500.00
	21861.00	-	-	-		-			-	500.00
	24290.00	-	-	-		-			-	500.00

At the harmonic frequencies where no meter reading is recorded, there was no harmonic observed above the baseline noise of the spectrum analyzer which was a minimum of 10 dB below the limit.

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Peak Field Strength		
Customer:	Fitlinxx	**Job No:**	R-5140N
Test Sample:	The ActiLink Plus Personal USB Transceiver		
Model No:	ActiLink Plus	**Serial No:**	HHRN-00512-02160
Test Specification:	FCC Part 15 Paragraph: 15.249 (e)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	**Date:**	2/11/2009
Notes:	Peak Readings to Peak Limits(20dB above average limits)		

Transmit Frequency	Test Frequency	Antenna/EUT Position	Meter Reading	Correction Factor		Corrected Reading			Converted Reading	Limit at 3 Meters
MHz	MHz	Polarization/Axis	dBuV	dB		dBuV/m			uV/m	uVm
2429.00	2429.00	V/Y	102.50	-14.50		88.00			25118.86	500000.00
	4858.00	V/X	50.63	-10.44		40.19			102.21	5000.00
	7287.00	-	-	-		-			-	5000.00
	9716.00	-	-	-		-			-	5000.00
	12145.00	-	-	-		-			-	5000.00
	14574.00	-	-	-		-			-	5000.00
	17003.00	-	-	-		-			-	5000.00
	19432.00	-	-	-		-			-	5000.00
	21861.00	-	-	-		-			-	5000.00
	24290.00	-	-	-		-			-	5000.00

At the harmonic frequencies where no meter reading is recorded, there was no harmonic observed above the baseline noise of the spectrum analyzer which was a minimum of 10 dB below the limit.

RETLIF TESTING LABORATORIES

TABULAR DATA SHEET

Test Method:	Band Edge		
Customer:	Fitlinxx	**Job No:**	R-5140N
Test Sample:	The ActiLink Plus Personal USB Transceiver		
Model No:	ActiLink Plus	**Serial No:**	HHRN-00512-02160
Test Specification:	FCC Part 15 Paragraph: 15.249 (d)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	**Date:**	2/11/2009
Notes:	Peak Readings Test Distance 3 Meters		

Test Frequency		Meter Reading	Correction Factor			Corrected Reading		Limit		
MHz		dBuV	dB			dBuV/m		dBuV/m		
2400.00		61.22	-14.50			46.72		54.0		
2483.50		50.60	-14.50			36.10		54.0		

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	**Out of Band Radiated Emissions 30 MHz to 25 GHz**		
Customer	Fitsense Technology	**Job No.**	R-5140N
Test Sample	The ActiLink Plus Personal USB Transceiver		
Model No.	ActiLink Plus	**Serial No.**	HHRN-00512-02160
Test Specification:	FCC Part 15 Subpart C Paragraph: 15.249 (d)		
Operating Mode:	Continuously Transmitting		
Technician:	M.Seamans	**Date:**	February 11, 2009
Notes:	Test Distance: 3 Meters		

Test Frequency	Antenna Position	Turntable Position	Uncorrected Reading	Correction Factor	Corrected Reading					Limit at 3 Meters
MHz	(H/V) - Height	Degrees	dBuV	dB	dBuV/m					dBuV/m
30.00	-	-	-	-	-					40.0
|	-	-	-	-	-					|
88.00	-	-	-	-	-					40.0
88.00	-	-	-	-	-					43.5
|	-	-	-	-	-					|
216.00	-	-	-	-	-					43.5
216.00	-	-	-	-	-					46.0
|	-	-	-	-	-					|
960.00	-	-	-	-	-					46.0
960.00	-	-	-	-	-					54.0
|	-	-	-	-	-					|
25000.00	-	-	-	-	-					54.0

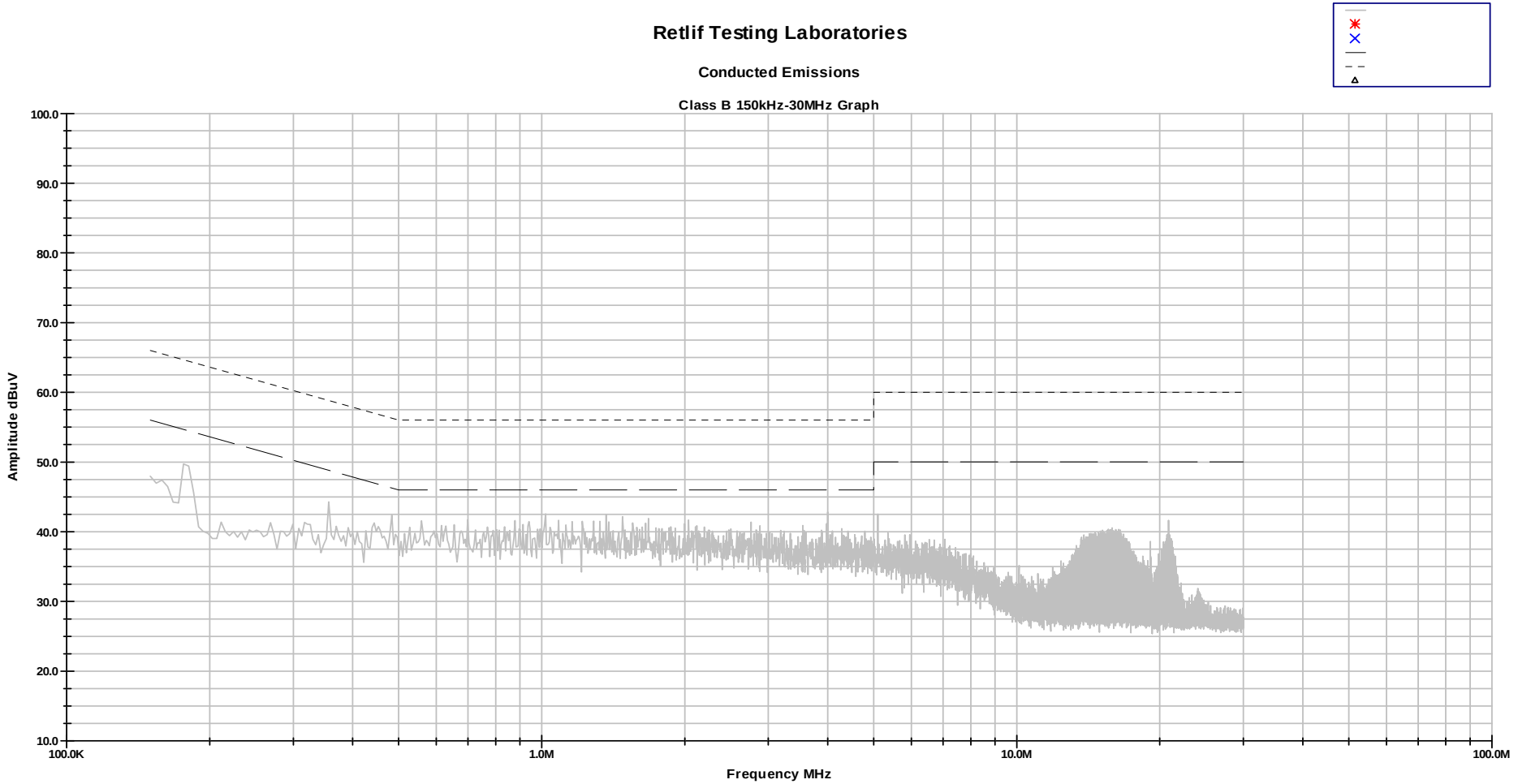
No EUT emissions within 10 dB of the specified test limit were observed at the specified test distance throughout the given frequency spectrum.

Data Sheet 1 of 1 R-5140N

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

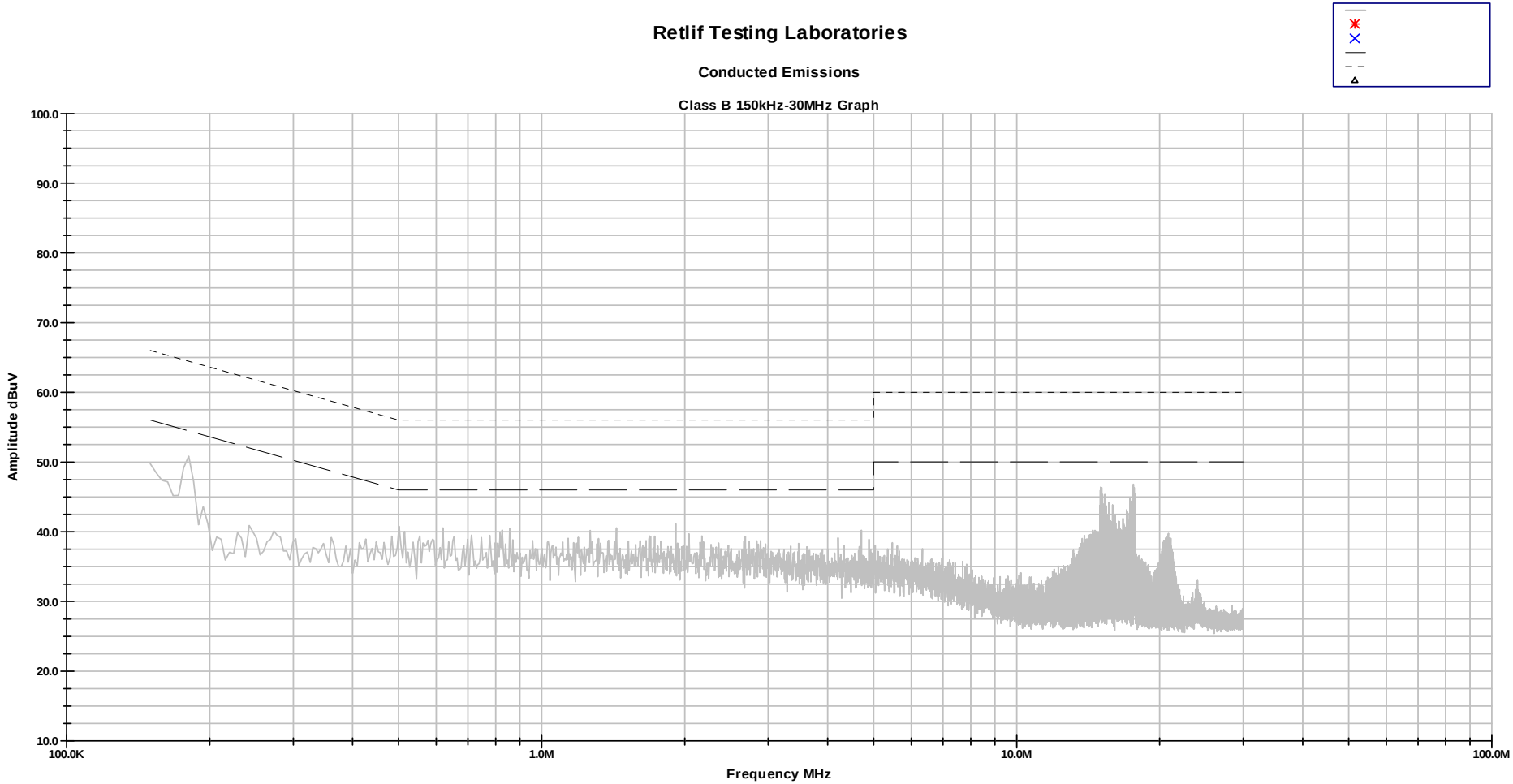
Test Method:	**Conducted Emissions 150 kHz to 30 MHz**				
Customer:	Fitlinxx	**Test Sample:**	The ActiLink Plus Personal USB Transceiver	**Job No:**	R-5140N
Model No:	ActiLink Plus	**Serial No:**	HHRN-00512-02160	**Technician:**	T. Hannemann
Test Specification:	FCC Part 15	15.207		**Date:**	February 12, 2009
Operating Mode:	Continuously Transmitting				
Notes:	Lead Tested: 120 V 60 Hz Hot to the Host PC Peak Readings				



RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	**Conducted Emissions 150 kHz to 30 MHz**				
Customer:	Fitlinxx	**Test Sample:**	The ActiLink Plus Personal USB Transceiver	**Job No:**	R-5140N
Model No:	ActiLink Plus	**Serial No:**	HHRN-00512-02160	**Technician:**	T. Hannemann
Test Specification:	FCC Part 15	15.207		**Date:**	February 12, 2009
Operating Mode:	Continuously Transmitting				
Notes:	Lead Tested: 120 V 60 Hz Neutral to the Host PC Peak Readings				



Data Sheet 2 of 2 **R-5140N**