RETLIF TESTING LABORATORIES TEST REPORT R-4534N February 8, 2006

FCC COMPLIANCE TEST REPORT ON

FERRARIS RESPIRATORY, INC.
PEAK FLOW METER WITH WIRELESS TRANSCEIVER
MODEL: PIKO-1
FCC ID: TQTPIKOBL1

APPLICANT MANUI	FACTURER
Ferraris Respiratory, Inc. 901 Front Street Louisville, CO 80027	

TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.249

TEST PROCEDURE: ANSI C63.4:2003

TEST SAMPLE DESCRIPTION

BRANDNAME: eSense

MODEL: Piko-1

TYPE: Peak Flow Meter with Wireless Transceiver

POWER REQUIREMENTS: 3VDCD via Internal Battery

FREQUENCY BAND OF OPERATION: 2400 to 2483.5MHz

FREQUENCY OF OPERATION: 2425.15MHz

FCC ID: TQTPIKOBL1

APPLICABLE RULE SECTION: Part 15, Subpart C, Section 15.249

TESTS PERFORMED

15.249 (a) Fundamental & Harmonic Emissions

15.249 (d)/15.209 Out of Band/Bandedge Emissions

15.249 (e) Peak Field Strength

TEST SAMPLE DESCRIPTION

The EUT is a Peak Flow Meter with Wireless Transceiver Transmitting at 2425.15MHz. The intended application is to interface the Peak Flow Meter via 2.4GHz Radio Link with a PDA in order to transfer data packets. This device is powered by 3VDC via internal battery with no connection to AC mains.

ANTENNA DESCRIPTION

The device uses an internal PCB antenna and thus has no connection for external antenna.

TEST SAMPLE / TEST RESULTS SUMMARY

- The fundamental field strength at 2415.25MHz did not exceed 50mV/M at a test distance of 3 meters. The maximum measured peak field strength was 67.39dBuV.
- The field strength of harmonic emissions did not exceed $500\mu V/M$.
- 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 peak field strength of the fundamental emission did not exceed the maximum permitted average field strength by more than 20dB.
- Radiated Emissions from the EUT were measured in all three axis. Worst case emissions were found with the EUT in the "Y" Axis. The attached Radiated Emissions test data is representative of this worst case orientation.

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 placed on a 80cm high wooden test stand which was located 3 meters from the test antenna on an FCC listed open area test site. Emissions from the EUT were maximized by rotating the test sample and adjusting the test sample orientation and antenna polarization. The maximized field strength of each observed emission was measured, recorded and compared to the specified limits of 15.249/15.209 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.

EQUIPMENT LIST

Fundamental Field Strength, Harmonics and Out of Band Emissions

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due
3430	Horn Antenna	MCS Corporation	18 GHz - 26.5 GHz	K-5039	1/25/2005	1/25/2006
4029B	Test Site Attenuation	Retlif	3 / 10 Meters	RNH	12/3/2004	12/3/2005
4984B	High Gain Horn	Microlab/FXR	1.7 - 2.6 GHz	R638A	1/25/2005	1/25/2006
4984C	High Gain Horn	Microlab/FXR	2.6 - 3.95 GHz	S638A	1/25/2005	1/25/2006
4984D	High Gain Horn	Microlab/FXR	3.95 - 5.85 GHz	H638A	1/25/2005	1/25/2006
4984E	High Gain Horn	Microlab/FXR	5.8 - 8.2 GHz	C638A	1/25/2005	1/25/2006
4984F	High Gain Horn	Microlab/FXR	8.2 - 12.4 GHz	X638A	1/25/2005	1/25/2006
4984G	High Gain Horn	Microlab/FXR	12.4 GHz - 18 GHz	Y638A	1/25/2005	1/25/2006
713	EMI Test Receiver	Rohde & Schwarz	20 Hz - 26.5 GHz	ESI26	3/22/2005	3/22/2006
R120	Preamplifier	Hewlett Packard	1.0 -26.5 GHz	8449B	7/08/2005	7/08/2006
4202	Biconilog	EMCO	26 MHz - 2 GHz	3142	12/13/2004	12/13/2005

RADIATED EMISSIONS SETUP PHOTOGRAPHS





RADIATED EMISSIONS TEST SETUP PHOTOGRAPHS





RADIATED EMISSIONS TEST SETUP PHOTOGRAPHS





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				TABUL	AR DATA	A SHEET						
Test Method		Fundamental Field Strength & Harmonics										
Customer:		Ferraris Respiratory Job No: R-4534N										
Test Sample		Peak Flow Meter										
Model No:		Piko-1 Serial No: E0095665										
Test Specific	ation:	FCC Part 15 Subpart C Paragraph: 15.249 (a)										
Operating Me	ode:	Continuously Transmitting										
Technician:		T. Firkowski				Date:	9/1/2005					
Notes:		Peak Reading	S									
Transmit	Test	Antenna/EUT	Meter	Correction		Corrected			Converted	Limit		
Frequency	Frequency	Position	Reading	Factor	<u> </u>	Reading			Reading	at 3 Meters		
MHz	. MHz	Polarization/Axis	dBuV	dB	<u></u>	dBuV/m			uV/m	uVm		
2425.15	2425.15	V/Y	43.19	24.20	<u> </u>	67.39			2341.53	50000.00		
·	4850.30 *7275.45	V/Y	20.41	25.50		45.91			197.47	500.00		
	*9700.60	-	<u>-</u>	-		-	-		•	500.00		
· · · · · · · · · · · · · · · · · · ·	*12125.75	-			<u> </u>	-			-	500.00 500.00		
	*14550.90	-			<u> </u>				-	500.00		
	*16976.05	_	_	-		-			-	500.00		
	*19401.20	-	-	-					_	500.00		
	*21826.35	-	-	-		-			-	500.00		
	*24251.50	-	-	-		_			-	500.00		
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	*No harmonic	emissions wer	re observed al	L bove the noise	floor of the te	 est equipment w	l hich was a min	imum of 10dB	<u> </u>	<u>.</u>		
	below the spe											
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Data Sheet	1 of 1									R-4534N		

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						A SHEET				
Test Method		Out of Band	Emissions 30							
Customer	Ferraris Respiratory						R-4534N			
Test Sample		Ferraris Respiratory Job No. R-4534N Peak Flow Meter								
Model No.		Piko-1 Serial No. E0095665								
Test Specific	ation:	FCC Part 15 Subpart C								
		Paragraph: 15.249 (d)								
Operating Mo	ode:	Continuously Transmitting								
Technician:		T. Firkowski			Q ₁	Date:	September 1,	2005		
Notes:	100	Test Distance	: 3 Meters		- 1					
		Detector: Qua	asi-Peak							
Test	Antenna	Turntable	Uncorrected	Correction	Corrected					Limit
Frequency	Position	Position	Reading	Factor	Reading		<u> </u>			at 3 Meters
30.00	(H/V) - Height	Degrees -	dBuV -	dB	dBuV/m					dBuV/m 40.0
1	-		-	-	-					1 40.0
88.00	-		-	_	<u>-</u>					40.0
88.00	_	-	-	-	-					43.5
	-	-	-	-	-					1
216.00	-	-	-	-	-					43.5
216.00	-	-	-	-	-					46.0
1	-	-	-	-	-					
960.00	-	-	-	-	-					46.0
960.00	-	-	-	-	-		·			54.0
26500.00		-	<u> </u>	-	-	-				54.0
20000.00										1 34.0
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	No EUT emis	L sions were ob:	served above t	L he noisefloor o	I of the test equ	I ipment which w	I as a minimum	of 10dB belov	v the limit	+
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Data Shee	t 1 of 1					,				R-4534N

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	6.75			TABUL	AR DATA	SHEET			ESS.	
Test Method	• 45 E	Band Edge Da	ta 2400MHz 1	to 2483.5MHz						
Customer:	100	Ferraris Respi	ratory			Job Not	R-4534N			
Test Sample		Peak Flow Meter								
Model No:		Piko-1 Serial No: E0095665								
Test Specific	cation:	FCC Part 15 Subpart C Paragraph: 15.209								
Operating M	ode;									
Technician:		T. Firkowski			9N	Date:	9/1/2005			
Notes:		Test Distance	= 3 Meters							
Band Edge		Antenna/EUT	Meter	Correction		Corrected			Converted	Limit
Frequency MHz		Position	Reading	Factor		Reading			Reading	at 3 Meters
2400.00		Polarization/Axis V/Y	dBuV 23.37	dB 24.10		dBuV/m			uV/m	uVm
2483.50		V/Y	20.11	24.10		47.47 46.91			236.32 221.56	500.00 500.00
2.00.00		1 77	20.11	24.40		40.91			221.30	300.00
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	The EUT is co	ompliant at the I	band edges w	rith 15.209 rad	iated emission	s limits.				
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Data Shee	t 1 of 1									R-4534N
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