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RETLIF TESTING LABORATORIES
TEST REPORT R-3945N
May 1, 2002

FCC PART 15 COMPLIANCE TEST REPORT
ON

ORTOVOX X1 AVALANCHE TRANSCEIVER
FCC ID: KF5ORTOVOXX1

APPLICANT	MANUFACTURER
Ortovox Sportarikel GmbH Rotwandweg 5 D-82024 Taufkirchen Germany	SAME

TEST SPECIFICATION: FCC Rules and Regulations Part 15, Subpart C, Para. 15.209

TEST PROCEDURE: ANSI C63.4:1992

TEST SAMPLE DESCRIPTION

BRANDNAME: Ortovox MODEL: X1

TYPE: Avalanche Transceiver

POWER REQUIREMENTS: 3VDC Internal Battery (tested with new battery installed)

FREQUENCY OF OPERATION: 457kHz

MODULATION: Pulsed

FCC ID: KF5ORTOVOXX1

APPLICABLE RULE SECTION: Part 15, Subpart C, Section 15.209

TESTS PERFORMED

Field Strength of Fundamental Emission 457kHz

Field Strength of Spurious Emissions 450kHz-1GHz

TEST SAMPLE OPERATION

The Ortovox Model X1 Avalanche Transceiver is used to locate avalanche victims. It is manually activated by the user and is manually switched between transmit and receive modes. When in transmit mode it will transmit continuously at 457kHz.

TEST SAMPLE / TEST PROGRAM

15.203 ANTENNA REQUIREMENTS
The device uses a permanently attached internal ferrite antenna. The antenna is totally enclosed inside the case.

15.205 RESTRICTED BANDS OF OPERATION
No emissions from the EUT were observed in any of the restricted bands.

15.207 CONDUCTED EMISSIONS
Not applicable (battery operated device).

15.209 RADIATED EMISSIONS
Fundamental Frequency
.457MHz
Out of Band, Spurious, Harmonics
450kHz - 1000MHz

No spurious emissions were observed within 20dB of the specified limit at a test distance of 3 meters throughout the required frequency range. The measurements taken at 457kHz were performed at 3 meters and extrapolated to the 300 meter limit using the 40dB/decade extrapolation factor specified for frequencies less than 30MHz.

Determination of Field Strength Limit:

Fundamental Frequency: 457kHz

Where F = the frequency in kHz, the formula for calculating the maximum permitted fundamental field strength at 300 meters is:

2400/(F)

2400/(457) = 5.25uV/M

Unwanted emissions cannot exceed the level of the fundamental emissions.

Duty Cycle:

No Duty Cycle Factor was used. The test sample was operating at close to 100% duty cycle and the maximized peak signal of the 457kHz fundamental frequency met the average limit specified in 15.209.

TEST RESULTS

The maximized peak field strength at 457kHz was below the average limit specified in 15.209 and therefore also met the peak emission requirement specified in 15.35. No harmonic or spurious emissions were observed.

Radiated Emissions Equipment List

EN	Type	Manufacturer	Description	Model No.	Cal Date	Due Date
4029	Test Site	Retlif	3/10 Meter	RNH	8/3/01	8/3/02
3207	Loop Antenna, Active	EMCO	10 kHz - 30 MHz	6502	5/6/01	5/6/02
4202	Biconilog	EMCO	26 MHz - 2 GHz	3142	7/16/01	7/16/02
4986	EMI Test Receiver	Rhode & Schwarz	20 Hz – 26.5GHz	ES126	6/9/01	6/9/02

RETLIF TESTING LABORATORIES

EMISSIONS DATA SHEET

Test Method:	Radiated Emissions 450 kHz to 1 GHz		
Customer:	Ortovox	Job No:	R-3945N
Test Sample:	Avalanche Transceiver		
Model No:	x1	Serial No:	3
Test Specification:	FCC Part 15, Subpart C Paragraph: 15.209		
Operating Mode:	Transmitting		
Technician:	T. Firkowski DV	Date:	4/15/02
Notes:	Test Distance: 3 Meters Detector used: Peak		

Test Frequency	Axis	Uncorrected Reading	Correction Factor	Duty Cycle Factor	Corrected Reading	Distance Factor	Corrected Reading		Converted Reading	Average Limit at 300 Meters
MHz	X,Y,Z	dBuV	dB	dB	dBuV/m	dB	dBuV/m		uV/m	uV/m

Radiated Emission Limit (Per 15.209)

0.457	X	73.87	9.10	0.00	82.97	-80.00	2.97		1.41	5.00
0.457	Y	73.51	9.10	0.00	82.61	-80.00	2.61		1.35	5.00
0.457	Z	59.16	9.10	0.00	68.26	-80.00	-11.74		0.26	5.00
I	-	-	-	-	-	-	-		-	-
I	-	-	-	-	-	-	-		-	-
I	-	-	-	-	-	-	-		-	-
I	-	-	-	-	-	-	-		-	-
1000.00	-	-	-	-	-	-	-		-	-

The frequency range from 450 kHz to 1 GHz was scanned. No other EUT emissions were observed within 20 dB of the limit at 3 meters.