



## Testing of Hearing Protectors

Test item	<b>H510P3</b>
Type	<b>Earmuff attached to industrial helmet type G22C Peltor</b>
Customer	<b>Peltor AB L. Carlborg Box 2341, Malmsteng. 19 S-331 02 VÄRNAMO SWEDEN</b>
Applied methods	<b>EN 352-3:1993</b>

**Eero Korhonen**  
Technical Manager

**Esko Toppila**  
Senior Researcher

Tämän selosteen osittainen julkaiseminen on sallittu ainoastaan Työterveyslaitoksen kirjallisella luvalla. Testaustulokset pätevät ainoastaan testatuille näytteille. Tämän selosteen testit, joissa on merkintä: "Ei Mittatekniikan keskuksen FINAS-akkreditointia", eivät kuulu testauslaboratorion T013 akkreditoinnin piiriin.



**T013 (EN ISO/IEC 17025)**

This report shall not be reproduced except in full without the written approval of the Finnish Institute of Occupational Health. The testing is valid only for the tested items. Tests marked "Not FINAS Accredited" in this report are not included in the FINAS Accreditation field for T013 testing laboratory.



## 1. Description and identification of test items

Description                      Foam filled earmuff with yellow cups and black cushions  
Manufacturer                    Peltor AB

## 2. Scope of testing

### 2.1 Test items

Ten items were supplied by the customer 2002-01-10. Test items were intact.

### 2.2 Testing

The tests were performed during 2002-01-15-2002-02-29 in the Department of Physics testing laboratories. The tests were performed according to the standard EN 352-3.

## 3. Results

### 3.1 Adjustability

The nominal size of ear-muffs was measured from six specimens.  
Specimens were fitted to the test equipment as follows (the over-the-head position):

Test Height mm	Width mm		
	125	145	155
115	S	N	-
130	N	N	N
140	-	N	L

\* The internal apex of the headband did not touch the headband support pad.

Specimens satisfy the requirements in the small, normal and large size range.

### 3.2 Cup Rotation

Cup rotation was measured from six specimens. The ability of the cups to accommodate a range of angular movements was tested. The contact between the cushions of specimens and the plates was continuous throughout this range.

### 3.3 Headband force



The headband force was measured from six specimens. The mean value of headband force was 9.5 N for small head size (S), 11.2 N for normal head size (N) and 11.1 N for large head size (L). In all positions the headband force shall not be greater than 14 N.

### 3.4 Cushion pressure

Cushion pressure was measured from six specimens. The cushion pressure was 2900 Pa for small head size (S), 3400 Pa for normal head size (N) and 3300 Pa for large head size (L). In all cases the cushion pressure shall not be greater than 4500 Pa.

### 3.5 Resistance to damage when dropped

Resistance to damage when dropped was measured from specimen 1-6 in accordance with 7.7. The specimen did not crack or become detached

### 3.6 Resistance to low temperature (optional)

Not performed.

### 3.7 Change in the headband force

Six specimens were subject to headband flexing. After conditioning (60±5) min in (22±5) °C the headband force was measured again.

Specimen number	1	2	3	4	5	6
Change in headband force (%)	9	3	4	3	7	6

### 3.8 Insertion loss

Insertion loss was tested from ten specimens. The results are shown below.

Frequency (Hz)	63	125	250	500	1000	2000	3150	4000	6300	8000
Mean IL (dB)	17.9	17.0	28.1	42.5	38.8	40.4	41.8	45.9	38.3	40.6
St. dev (dB)	2.0	1.7	1.3	2.3	1.7	0.9	1.0	1.2	0.9	1.0

### 3.9 Resistance to leakage



Not performed.

### 3.10 Ignitability

Ignitability was tested from specimens numbered 5-6. Specimens did not ignite or continue to glow after removal of the heated rod.

### 3.11 Sound attenuation

Sound attenuation was tested from specimens numbered 1-4.

#### Sound attenuation characteristics

Frequency (Hz)	60	125	250	500	1000	2000	3150	4000	6300	8000
Mean	13.1	11.2	13.4	26.9	33.9	32.0	39.8	33.5	34.4	36.9
Stdev	2.3	2.0	1.9	1.8	1.9	2.4	2.5	1.8	2.1	1.8
APV	10.8	9.2	11.5	25.1	31.9	29.6	37.3	31.7	32.3	35.1

H=32 M=23 L=15 SNR=26NRR=21