

SOUND ATTENUATION  
OF HEARING PROTECTORS  
BS EN 24869-1 : 1993  
ISO 4869-1 : 1990

CLIENT: INSPEC Laboratories Limited  
West View  
Cumbers Drive  
Ness  
South Wirral  
L64 4AU

YOUR ORDER NO: 930402/2

TYPE OF HEARING PROTECTOR: Ear-plug

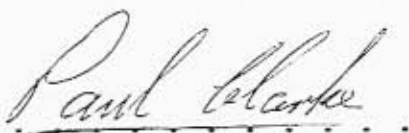
MODEL: QD-1 (Standard & large size)

SUPPLIER: Howard Leight Industries Europe

DATE RECEIVED: 6 April 1993

DATE OF TESTS: 6/14/19 April 1993

Signed:

  
P. CLARKE

Approved

  
J. McLOUGHLIN

#### INTRODUCTION:

BS EN 24869-1 : ISO 4869-1 specifies a subjective method for measuring the attenuation of hearing protectors at the threshold of hearing. This method, including details of the test signals, site, equipment, subjects and procedure, was applied to the samples tested and the results are presented, as required by the Standard, on the following pages of this Report.

For complete details of the method, please refer to BS EN 24869-1 : ISO 4869-1.

#### TEST SIGNALS, SITE AND EQUIPMENT:

The facilities used for this test are located within the Department of Applied Acoustics at the University of Salford.

#### TEST SUBJECTS:

The 16 test subjects comprised both males and females and covered a wide age range. All subjects were audiometrically screened in accordance with Clause 4.4.1 of BS EN 24869-1 prior to the test. They also satisfied the requirements of Clauses 4.4.2 and 4.4.3.

#### FITTING:

The ear-plugs tested were supplied in two sizes: standard and large. Test subjects were instructed to practice fit both models and to select the appropriate size. Manufacturer's instructions were followed during the fitting of the hearing protectors.

#### TEST PROCEDURE:

34 pairs of standard sized plugs and 32 pairs of large sized plugs were supplied by the client. Samples were selected for test at random. Each test subject's protected threshold was assessed once.

The procedures specified in Clause 4.5 were followed.

#### RESULTS:

See the attached sheet for the attenuation data for each individual subject.

#### OBSERVATIONS:

Several subjects were unable to achieve a good fit from either of the sizes provided. These subjects were excluded from the test and were replaced by other subjects who complied with the requirements of clauses 4.4.1, 4.4.2 and 4.4.3.

Model QD-1  
 Attenuation results (values in dB) See below  
 Test Reference No HP-93-4-1

Subject	Model	FREQUENCY (Hz)							
		63	125	250	500	1K	2K	4K	8K
G.K.	Standard	26	30	24	28	32	24	45	46
D.S.	Standard	16	20	21	22	22	32	43	47
P.U.	Standard	24	22	26	23	32	36	47	45
D.O.	Standard	32	38	44	38	38	40	51	42
A.D.	Standard	34	36	33	38	36	40	51	43
J.L.	Standard	31	32	30	38	33	35	47	42
S.M.	Standard	29	40	36	40	34	35	44	50
D.Mc.	Standard	31	38	34	32	32	40	44	44
J.Mc.	Standard	23	22	20	24	24	28	46	47
P.R.	Standard	22	28	28	27	26	24	44	42
J.W.	Standard	29	29	30	27	32	29	41	38
A.S.	Standard	14	21	19	21	24	37	22	42
L.P.	Standard	32	31	30	36	28	32	45	46
T.C.	Large	18	18	28	17	21	28	34	43
S.H.	Standard	26	32	32	30	32	35	44	52
D.W.	Standard	30	27	26	24	26	34	44	43

Mean Attenuation	26.1	29.0	28.8	29.1	29.5	33.1	43.3	44.5
Standard Deviation	6.1	6.9	6.4	7.2	5.1	5.3	6.9	3.4
Assumed Protection	20.0	22.1	22.4	21.9	24.4	27.8	36.4	41.1

SNR 28

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