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Michael & Associates, Inc.

January 18, 2002

Hearing Protective Device Test Report Number Q307A Revision 1



3M OH&ESD

Attn: Ted Madison

3M Center, Building 260-3B-11

Saint Paul MN 55144-1000

Date of Sample Receipt: 1/9/02

Date of Sample Test: 1/10/02-1/17/02

Attenuation measurements have been performed according to the American National Standards Institute (ANSI) Specifications, ANSI S3.19-1974, using the experimenter-fit protocol, on the 3M corded 1270 (78-8124-2450-1 rev1) (test ID Q307A). The specified threshold measurement data were obtained using ten normal-hearing listeners, six male and four female, with ages ranging from 19 to 45 years. These listeners were selected from a standby group of about 35 volunteers, mostly graduate students, who regularly serve as listeners for measurements of this kind.

The measurements were made in a room designed for this purpose. All acoustic characteristics of the room meet the requirements outlined in ANSI S3.19-1974. The ambient noise levels in this room are below the limits specified in ANSI S3.19-1974, and open ear thresholds are used on a continuing basis to monitor the background noise levels. An automatic recording attenuator was used to record both open and occluded ear thresholds.

Each of ten subjects was tested three times at each of nine test frequencies. The attached Tables show grand mean attenuation values in decibels (dB) for each test signal along with group attenuation values. Standard deviations (S.D.) for the 30 different attenuation determinations for each test signal are also given. The results presented in this report pertain to the samples tested only.

Michael & Associates is accredited by the National Institute of Standards and Technology (NIST) National Laboratory Accreditation Program (NVLAP) for tests performed according to ANSI S3.19-1974 and ANSI S12.6-1984. These accreditation criteria encompass the requirements of international standards ISO 9002:1994 (ANSI / ASQC Q92-1987), ISO / IEC Guide 25:1990, and ISO / IEC Guide 58:1993 as suppliers of test results. This report may only be reproduced or transmitted electronically in its entirety. This report shall not be used to claim product endorsement by NVLAP or by any agency of the U.S. Government. All measurement equipment are calibrated with instrumentation traceable to the NIST.

Use these laboratory-derived attenuation data for comparison purposes only. The amount of protection afforded in field use is often significantly lower depending on how the protectors are fitted and worn.

A handwritten signature in black ink, appearing to read "Kevin Michael".

Kevin Michael, Ph.D.
President

1/18/02

Date

Individual and Summary Attenuation Data for Hearing Protective Devices

Test Method: ANSI S3.19-1974

Manufacturer: 3M

Model: 78-8124-2450-1 (rev 1)

Position: Insert

Date: 1/18/02

Test ID # Q307A

FREQUENCY IN HERTZ

SUBJECT	125	250	500	1000	2000	3150	4000	6300	8000
1	31	31	31	30	33	31	38	46	47
	27	25	33	34	35	38	44	46	49
	35	34	36	32	37	31	37	43	47
	20	21	23	29	32	31	36	32	31
2	23	24	24	30	32	35	35	36	37
	23	22	24	31	31	34	36	37	35
	26	29	30	37	40	35	35	41	38
3	21	26	30	32	38	36	39	37	40
	21	25	33	30	33	34	35	36	40
	28	31	33	37	40	39	37	45	42
4	30	31	32	36	41	40	41	46	44
	31	30	28	30	32	34	35	43	43
	29	29	38	40	33	35	34	35	39
5	27	29	32	43	36	36	32	36	37
	24	29	38	36	35	38	30	34	47
	27	26	28	32	36	38	36	36	36
6	28	26	28	32	32	31	35	33	35
	26	26	31	33	33	34	36	37	38
	33	35	39	40	38	36	30	41	40
7	30	28	33	42	38	39	37	40	41
	32	33	34	35	37	36	32	35	40
	26	29	34	28	29	33	36	40	51
8	25	30	35	27	28	31	31	38	51
	29	31	37	31	28	35	37	43	52
	33	36	33	34	35	38	33	43	46
9	32	32	33	35	39	41	36	42	46
	35	41	41	37	36	30	33	50	47
	36	39	33	33	30	38	41	41	40
10	37	38	41	35	35	42	46	42	43
	39	39	38	34	33	41	45	44	47
MEANS	28.7	30.1	32.8	33.8	34.5	35.6	36.2	39.9	42.2
STD. DEV.	5.0	5.0	4.6	4.1	3.5	3.4	4.0	4.5	5.3

NRR = 24 dB

Use these laboratory-derived data for comparison purposes only. The amount of protection afforded in field use is often significantly lower depending on how the protectors are fitted and worn.

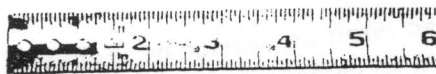
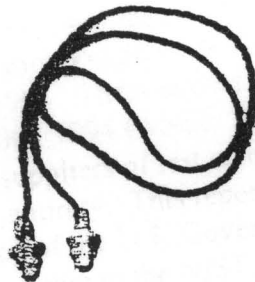
Manufacturer: 3M
Model: 78-8124-2450-1 (rev 1)
Position: Insert

Date: 1/18/02
Test ID: Q307A

Measurements were made according to American National Standards Institute Specifications ANSI S3.19-1974.

Center Frequency in Hz	Mean Attenuation in dB	Group Attenuation in dB	Standard Deviation in dB
125	28.7	58.9	5.0
250	30.1		5.0
500	32.8		4.6
1000	33.8		4.1
2000	34.5	172.9	3.5
3150	35.6		3.4
4000	36.2		4.0
6300	39.9	82.1	4.5
8000	42.2		5.3

Test Item: Q307A



These data were obtained through measurements made at the laboratories of Michael & Associates, Inc., State College, PA, USA. Michael & Associates, Inc., is accredited to test to ANSI S3.19-1974 and ANSI S12.6-1984 by the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP).

Kevin L. Michael
Kevin L. Michael, Ph.D.
President

1/18/02
Date