

# Michael & Associates, Inc.

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October 18, 2005 Hearing Protective Device Test Report Number Q936A Revision 0



Herhild De Mexico, S.A  
Attn: Ing. Carlos Olivares  
Guerrero Nte. 2820-A  
Monterrey, N.L. 64500  
Mexico

Lab Code 100427  
Date of Sample Test: 10/8/05-10/18/05  
Date of Sample Receipt: 10/5/05


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 Herhild blue reusable plug (test ID Q936A). The specified threshold measurement data were obtained using ten normal-hearing listeners, six male and four female. 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 S12.6-1997. These accreditation criteria encompass the requirements of international standards ISO 9002:1994 (ANSI / ASQC Q92-1987) and ISO / IEC Guide 17025. This report may only be reproduced or transmitted electronically in its entirety. This report shall not be used to claim product endorsement by NIST, 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.*

  
\_\_\_\_\_  
Kevin Michael, Ph.D.  
President

10/18/05  
\_\_\_\_\_  
Date

Individual and Summary Attenuation Data for  
Hearing Protective Devices

Test Method: ANSI S3.19-1974  
 Manufacturer: Herhild  
 Model: Blue reusable

Position: Insert  
 Date: 10/18/05  
 Test ID # Q936A

SUBJECT	FREQUENCY IN HERTZ								
	125	250	500	1000	2000	3150	4000	6300	8000
1	21	26	30	30	36	41	40	39	42
	27	27	29	28	35	44	40	41	43
	24	24	27	38	37	41	39	41	44
2	35	35	36	33	41	46	45	44	38
	28	25	30	30	30	42	47	43	42
	28	34	39	29	36	37	40	41	36
3	29	30	36	33	33	40	38	37	43
	25	25	31	31	30	31	32	33	35
	25	24	28	30	31	36	35	38	43
4	30	36	35	32	39	48	48	48	48
	23	25	27	30	34	42	44	43	47
	23	27	28	30	31	39	42	45	47
5	32	26	26	25	36	41	38	44	51
	29	24	26	26	34	41	40	42	45
	24	22	24	24	33	39	37	40	47
6	27	33	28	30	30	43	38	49	48
	31	36	30	30	30	43	37	44	45
	29	33	32	29	31	38	39	42	48
7	29	33	34	34	38	43	46	48	46
	22	24	26	28	31	38	43	47	48
	29	30	36	29	36	41	49	48	43
8	25	26	27	26	31	36	35	40	36
	22	23	25	25	30	37	36	36	35
	24	23	27	27	30	32	33	32	29
9	35	34	37	30	32	44	44	45	48
	29	30	31	28	31	40	40	42	47
	24	27	28	26	30	45	46	48	48
10	37	40	41	37	40	43	47	45	41
	36	37	37	36	37	45	44	41	41
	33	34	31	37	42	36	38	41	43
MEANS	27.9	29.0	30.7	30.0	33.9	40.4	40.6	42.2	43.2
STD. DEV.	4.4	5.1	4.6	3.7	3.7	3.9	4.5	4.3	5.1

NRR = 26 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: Herhild  
Model: Blue reusable  
Position: Insert

Date: 10/18/05  
Test ID: Q936A

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	27.9	56.9	4.4
250	29.0		5.1
500	30.7		4.6
1000	30.0		3.7
2000	33.9	175.6	3.7
3150	40.4		3.9
4000	40.6		4.5
6300	42.2	85.4	4.3
8000	43.2		5.1

Test Item: Q936A



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 S12.6-1997 by the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP).

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

*10/18/05*  
Date

# Michael & Associates, Inc.

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October 25, 2005



Lab Code 100427

Herhild De Mexico, S.A  
Attn: Ing. Carlos Olivares  
Guerrero Nte. 2820-A  
Monterrey, N.L. 64500  
Mexico

## Invoice #15067

A complete NRR evaluation was performed on the Herhild blue reusable plug (test ID Q936A).  
All tests were performed according to ANSI S3.19-1974.

**Cost per test..... \$2800**

**Total due..... \$2800**

A handwritten signature in cursive script, appearing to read "Kevin L. Michael", is written above a horizontal line.

Kevin L. Michael, Ph.D.  
President

All amounts due 30 days after billing date. A service charge of 1.25% per month will be added to past due accounts, which is an annual rate of 15%.