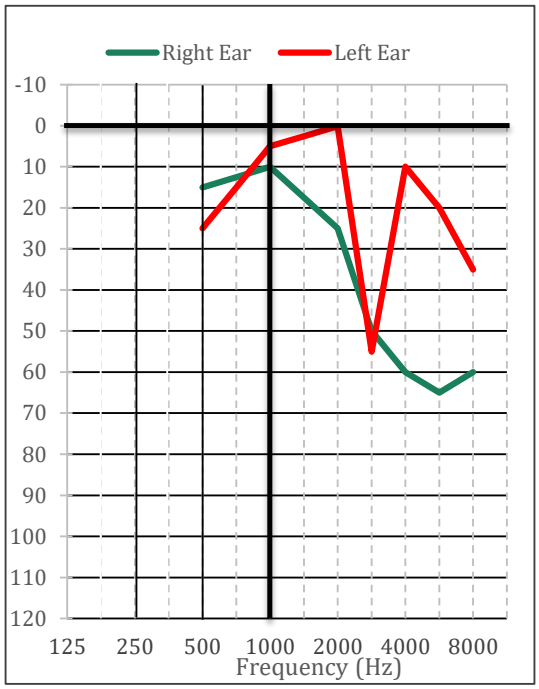
Military Noise Induced Hearing Loss

Client Name	Example
Gender	Male
Date of Birth	27/12/1970
Date of Audiogram	17/07/2020
Source of Audiogram	Example
Reason for Audiogram	M-NIHL
Age at date of audiogram	49
TDH39 headphones used?	Yes
Bekesy correction required?	Yes

Data set ISO 7029 2017



Hearing Threshold Levels (HTLs)	0.5	1	2	3	4	6	8
Measured HTLs for Right Ear	10.0	5.0	20.0	45.0	55.0	70.0	55.0
Measured HTLs for Left Ear	20.0	0.0	-5.0	54.0	5.0	25.0	30.0

Selected Percentile
50
50

Adjustment for TDH39 Headphones							
Adjusted HTLs for Right Ear	10.0	5.0	20.0	45.0	55.0	64.0	55.0
Adjusted HTLs for Left Ear	20.0	0.0	-5.0	54.0	5.0	19.0	30.0

Adjustment for Bekesy Correction							
Adjusted HTLs for Right Ear +3dB	13.0	8.0	23.0	48.0	58.0	67.0	58.0
Adjusted HTLs for Left Ear +3dB	23.0	3.0	-2.0	57.0	8.0	22.0	33.0
Adjusted HTLs for Right Ear - rounded up to nearest 5dB	15.0	10.0	25.0	50.0	60.0	65.0	60.0
Adjusted HTLs for Left Ear - rounded up to nearest 5dB	25.0	5.0	0.1	55.0	10.0	20.0	35.0

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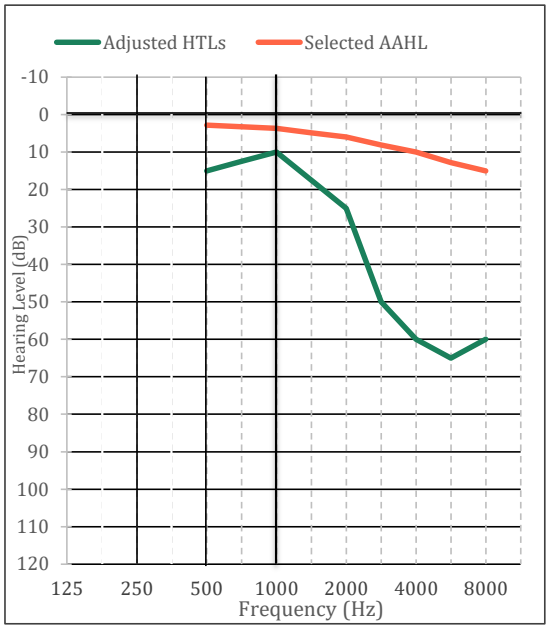
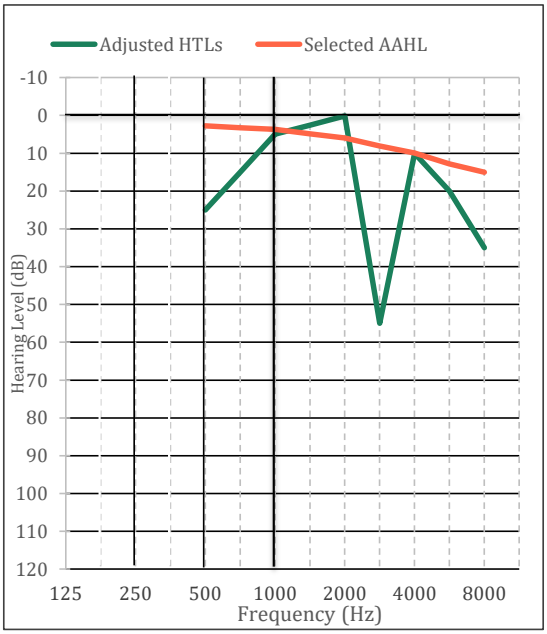
Right Ear (HTLs vs Selected AAHL)



	0.5	1	2	3	4	6	8	kHz
Adjusted HTLs	15.0	10.0	25.0	50.0	60.0	65.0	60.0	dB
Selected AAHL	2.8	3.7	6.0	8.1	10.0	12.8	15.0	dB

Left Ear (HTLs vs Selected AAHL)



	0.5	1	2	3	4	6	8	kHz
Adjusted HTLs	25.0	5.0	0.1	55.0	10.0	20.0	35.0	dB
Selected AAHL	2.8	3.7	6.0	8.1	10.0	12.8	15.0	dB

LawCalc

Client Name	Example
Gender	Male
Date of Birth	27/12/1970
Date of Audiogram	17/07/2020
Age at date of audiogram	49
Source of Audiogram	Example
Reason for Audiogram	M-NIHL
TDH39 headphones used? Y/N	Yes
Optional Beksey Correction	Yes

Right Ear

Selected Percentile	50						
Frequency	**0.5kHz**	**1kHz**	**2kHz**	**3kHz**	**4kHz**	**6kHz**	**8kHz**
Hearing threshold level, dB HL (#)	15.0	10.0	25.0	50.0	60.0	65.0	*60.0*
Median Age Associated Hearing Loss (AAHL), dB HL	2.8	3.7	6.0	8.1	10.0	12.8	*15.0*
Requirement R1 met?				*Yes*	*Yes*	*Yes*	*Yes*
Requirement R2a met?				*No*	*No*	*Yes*	
Requirement R2b met?					*Yes*	*Yes*	*Yes*
Requirement R1 and R2a or R2b met i.e. Military NIHL?				**No**	**Yes**	**Yes**	**Yes**
Age-associated hearing loss (AAHL). Selected percentile, dB HL	2.8	3.7	6.0	8.1	10.0	12.8	15.0
Estimated noise-induced hearing loss(NIHL),dB	12.2	6.3	19.0	41.9	50.0	52.2	45.0
Set NIHL to 0 if NIHL < 0	12.2	6.3	19.0	41.9	50.0	52.2	45.0
Estimated Mean M-NIHL at 1, 2, and 3 kHz, dB	**22.4**						
Estimated Mean M-NIHL at 1, 2, and 4 kHz, dB	**25.1**						

Left Ear

Selected Percentile	50						
Frequency	**0.5kHz**	**1kHz**	**2kHz**	**3kHz**	**4kHz**	**6kHz**	**8kHz**
Hearing threshold level, dB HL (#)	25.0	5.0	0.1	55.0	10.0	20.0	*35.0*
Median Age Associated Hearing Loss (AAHL), dB HL	2.8	3.7	6.0	8.1	10.0	12.8	*15.0*
Requirement R1 met?				*Yes*	*No*	*Yes*	*Yes*
Requirement R2a met?				*Yes*	*No*	*No*	
Requirement R2b met?					*No*	*No*	*Yes*
Requirement R1 and R2a or R2b met i.e. Military NIHL?				**Yes**	**No**	**No**	**Yes**
Age-associated hearing loss (AAHL). Selected percentile, dB HL	2.8	3.7	6.0	8.1	10.0	12.8	15.0
Estimated noise-induced hearing loss (NIHL), dB	22.2	1.3	-5.9	46.9	0.0	7.2	20.0
Set NIHL to 0 if NIHL < 0	22.2	1.3	0.0	46.9	0.0	7.2	20.0
Estimated Mean M-NIHL at 1, 2, and 3 kHz, dB	**16.1**						
Estimated Mean M-NIHL at 1, 2, and 4 kHz, dB	**0.4**						

(#) - Adjusted when necessary for use of TDH 39 headphones and Beksey

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Notes:

1 The calculations are based on a comparison with the data derived from the "Statistical distribution of hearing thresholds related to age and gender" (ISO 7029:2017).

2 The values shown are all calculated to at least 2 decimal points throughout the process.

3 The diagnosis and quantification of military NIHL set out above is based on the paper by Professor B C J Moore FRS. Diagnosis and quantification of military noise-induced hearing loss J. Acoust. Soc. Am. 148 (2), August 2020.

4 The methodology provides estimates of military noise induced hearing loss for each ear.

5 Some Experts may wish to use a binaural assessment of M-NIHL. The binaural loss set out below is 4/5 of the smaller loss plus 1/5 of the greater loss. The binaural assessment is not part of the methodology set out in Moore 2020.

6 The estimated Binaural M-NIHL averaged over 1,2&3kHz is about 17 dB

7 The estimated Binaural M-NIHL averaged over 1,2&4kHz is about 5 dB

8 The estimated Binaural M-NIHL loss at 4kHz is 10 dB

9 The Pure Tone Average calculations at 2kHz and 4kHz ($PTA_{2,4}$) set out below, are based on 'Speech reception in quiet and in noisy conditions by individuals with noise-induced hearing loss in relation to their tone audiogram'. Smoorenburg. J.Acoust.Soc.Am.91(1) January 1992

	Right Ear	Left Ear
Pure Tone Average at 2kHz and 4kHz (PTA $_{2,4}$) dB	42.5	5.1
Age Related (PTA $_{2,4}$) dB	8.0	8.0
The percentage of sentences that the Claimant will hear incorrectly in background noise due to noise exposure.	59%	-5%

10 Some experts may consider a binaural assessment reflects the impairment of the Claimant, as usually understanding speech in noisy situations depends on the use of both ears.

The estimate of the Claimant's overall ability to understand sentences in noise has decreased by at least	8%