

EN ISO 9612

Prevention of hearing risks connected to the exposure of noise

The **DIAG.Lexd® software** facilitates the analysis, in respect to the EN ISO 9612 standard, and measures the exposure to noise experienced by workers, by offering the following advantages :

♦ **interface with simple and guided processing**, also adapted to :

- > internal services of prevention,
- > inter-company services,
- > official bodies of control,

♦ **optimization** of the number of the measurements and thus of time and cost of investigation thanks to the grouping of the staff in Groups of Homogeneous Noise Exposure (GEH),

♦ **checking** of automatic of the validity of the measurements,

♦ **diagnosis** of the sound exposure with the possibility of identifying the most harmful activity,

♦ **updating** of results with automatic calculation,

♦ **publishing** of the results in the form of :

- > synthetic classification of the staff,
- > detailed index card per person,
- > index card detailed by GEH Noise.

Equipment configuration :

- 100% PC compatible,
- Recommended memory 512 MO,
- CD-Rom drive and hard disk,
- Windows 7, Vista, XP



Since July 19th, 2006, **the 2006-892 decree** has modified the employment legislation concerning the prescriptions of safety and health in case of exposure of workers to the risks due to the noise, and it **fixes the new levels of exposure limits and values activating legal procedures**. This decree is the transposition into French law of **the directive 2003/10/CE of the European Parliament of February 6th, 2003**.

This decree specifies that **noise protection** must be taken into account in the calculation of the exposure.

Besides since May 29th, 2009, the standard **EN ISO 9612** demands the evaluation of the medium-term risk and **the carrying out an analysis on groups of homogeneous exposure** with consideration of the uncertainties in the calculation of exposure.

Stemming from the experience of several tens of thousands of measurements at work stations, **the DIAG.Lexd® software** was conceived by GAMBA Acoustique et Associés to allow the people who have responsibility for these measures (prevention services, hygiene and safety, occupational medicine, official bodies of control, etc.) **to diagnose easily the exposure to noise and to publish rapidly the analyses corresponding to the standard**.

We offer you **DIAG.Lexd®** which completely covers these changes :

- ✓ Creation of homogeneous groups of exposure site by site, ...
- ✓ Calculation in compliance with the **European directive**,
- ✓ Comparison and analysis (EN ISO 9612) of results by group or department,
- ✓ Creation of a data bank of **noise protection**,
- ✓ Calculation of the exposure of the **Groups of Homogeneous exposure** with consideration for individual noise protection,
- ✓ **Evaluation of the impact** of irregular wearing of protection and the analysis of the risk.

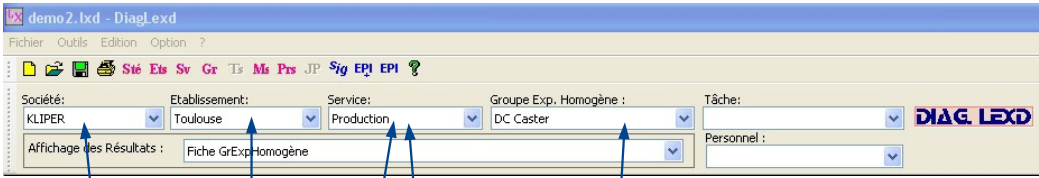
This software is designed for confirmed specialists as well as people who have no particular skills in acoustics nor in statistical analysis.

GROUPE GAMBA

User parameters settings, control structured by your information

It is adapted to internal services of prevention, as well as to inter-company services and to bodies of control.

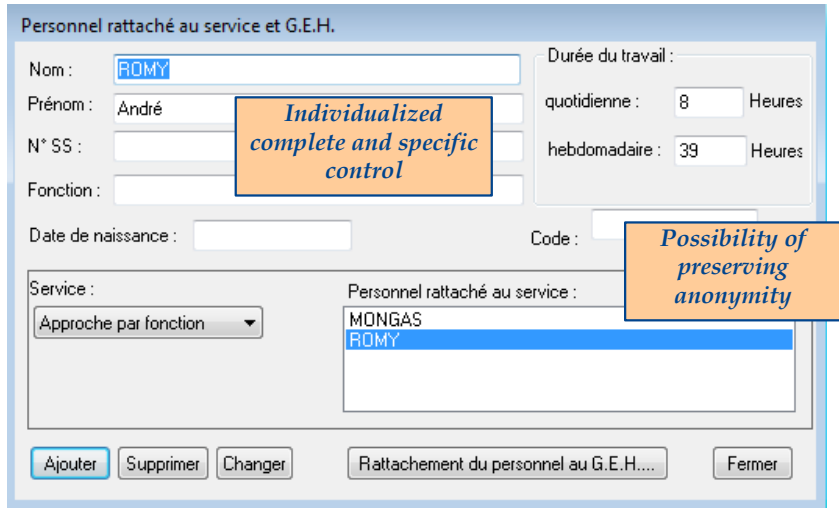
Processing following a treelike structure adapted to your organization



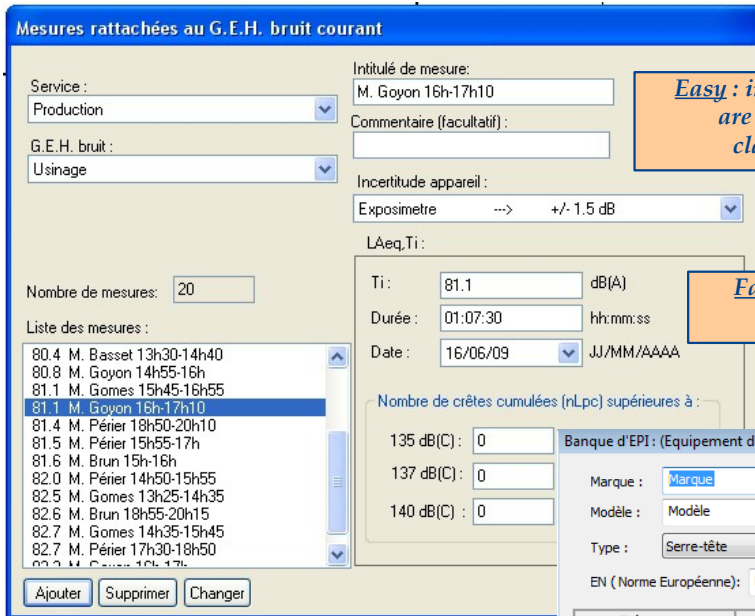
Definition of the internal structures concerned

Definition of the GEH by department

Processing of the information concerning staff :



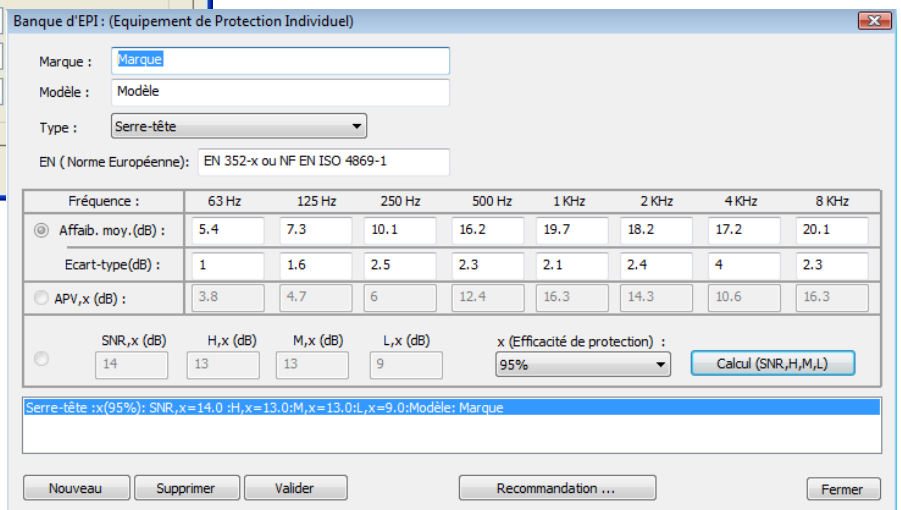
Easy, fast and safe processing of various measured parameters :



Easy : input fields are clearly clarified

Fast : the repetitive information is proposed by default

Unique : Data bank of Noise protection



A precise and complete diagnosis in clear language :

Validity of the GEH Noise : the DIAG.Lexd® software verifies the hypotheses of homogeneity of the groups

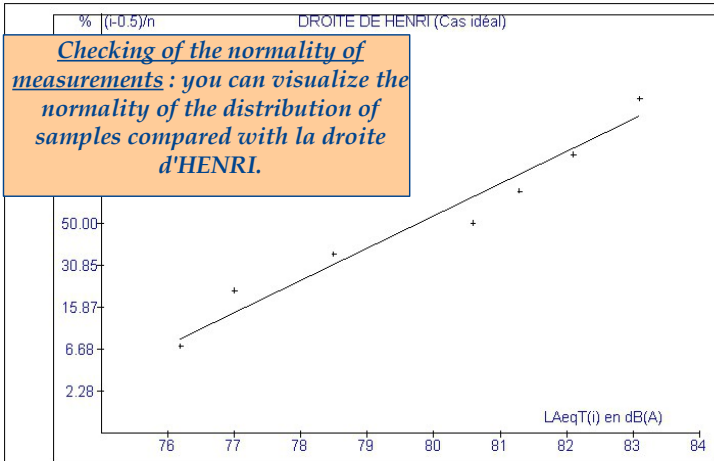
DIAGNOSTIC DE G.E.H. BRUIT (DC Caster)
Société (KLIPER)
Etablissement (Toulouse)
Service (Production)

Clearly clarified diagnosis : the DIAG.Lexd® software warns against the identified incapacities. It gives a complete diagnosis of every GEH Noise.

Validité des mesurages: Rien à signaler.

Diagnostic détaillé :

- 1) Ancienneté des mesurages: Les mesurages ont moins de cinq ans.
- 2) Durée des mesurages: Les durées des mesures sont conformes à la norme (EN ISO 9612). La durée cumulée des mesures est valable pour un effectif total du GEH inférieur ou égal à 10 membres.
- 3) Homogénéité du groupe: Le groupe semble homogène.
- 4) Nombre de mesurages: Le nombre de mesurages est conforme à la norme (EN ISO 9612).
- 5) Diagnostic Lpc: Aucun dépassement de seuil 135 dB(C) n'a été observé pendant la durée des mesures. Aucun dépassement de seuil 140 dB(C) n'a été observé pendant la durée des mesures.



Checking of the normality of measurements : you can visualize the normality of the distribution of samples compared with la droite d'HENRI.

Test de normalité (Shapiro-Wilk): Hypothèse de normalité est acceptée

The test SHAPIRO WILK test confirms that the hypothesis of normality can be accepted or rejected

Nombre de membres du GEH	4
Te : Durée effective totale de la journée	7:30:00 (h:m:s)
Durée cumulée des mesures	7:31:20 (h:m:s)
Nombre d'échantillons	7
Incertitude Type (u1)	2.6 dB(A)
Incertitude de l'instrument (u2)	1.5 dB(A)
Exposimetre	
Incertitude de l'échantillonnage (c1u1)	1.7 dB(A)
Incertitude élargie (U) (niv. de conf. 95%)	4.1 dB(A)
Moyenne énergétique des mesures (Lp,A,eqT)	80.5 dB(A)
Lex,8h	80.2 dB(A)
L*ex,8h (avec Incertitude élargie [U])	84.3 dB(A)

Nombre dépassements CRETES		
>=135	>=137	>=140
0	0	0

Statistical analysis of the samples of measure, according to the indications of the NF EN ISO 9612.

EPI(Serre-tête :x(95%):Modèle : Marque) est porté à 47.0% avec :

f(Hz)	63	125	250	500	1000	2000	4000	8000	SNR(dB)	H(dB)	M(dB)	L(dB)
APV(dB)	3.8	4.7	6.0	12.4	16.3	14.3	10.6	16.3	14.0	13.0	13.0	9.0

(**) Nombre de crêtes constaté sur la durée totale de mesurage.

Consideration of EPI (Equipment of Individual Protection)

Jugement professionnel : Sylvie GARMON
Dépassements Lpc: La probabilité statistique d'avoir des dépassements des seuils Lpc n'est pas négligeable, mais néanmoins vu l'analyse du processus de travail pour ce GEH, on peut émettre l'hypothèse que les dépassements de seuils de Lpc sont non-significatifs.

Intitule de mesure Commentaire	Date (jj.mm:aa)	Durée (h:m:s)	LAeq,TI dB(A)	Nombre de CRETES dB(C)		
				>=135	>=137	>=140
8H25-10H00 M. Labobie	16/6/2007	01:30:00	79.9	0	0	0
10H00-11H30 M. Labobie	16/6/2007	01:30:00	83.2	0	0	0
12H30-14H00 M. Labobie	16/6/2007	01:30:00	83.3	2	1	1
10H_11H30 M. Atsarias	16/6/2007	01:30:00	80.9	0	0	0
14H00-16H00 M. Labobie	16/6/2007	02:00:00	77.5	0	0	0
11H30-12H00/13H-14H30 M. Atsarias	16/6/2007	02:00:00	80.3	0	0	0
14H30-16H00 M. Atsarias	16/6/2007	01:30:00	88.2	0	0	0

Reminder of the measures : synthetic vision of all the parameters necessary for diagnosis

The publishing of the prevention oriented results : exclusive

Synthetic index card :

It facilitates the publishing of the annual report of the company doctor. It allows the classification of the staff in relation to warning levels and in relation to danger defined by the regulations.

ANALYSE PAR SERVICE

Société (KLIPER) Etablissement (Toulouse) Service (Production)							
G.E.H. rattaché au service	Effectifs Constatés	Effectifs Max. autorisés	Durées des mesures(h:m:s)	L*ex,8h en dB(A)	Nombre de CRETES dB(C)		
					>=135	>=137	>=140
Usinage	15	41	23:38:30	83.8 / 80.8	0	0	0
DC Caster	4	10	7:31:20	84.3	0	0	0
Découpe jet d'eau	1	8		83.4			0
CUMUL :	20	/	37:57:45	/	/	/	/

Detailed index card per person :

It can be inserted into the medical file.

NIVEAU D'EXPOSITION DU PERSONNEL

Société (KLIPER) Etablissement (Toulouse) Service (Production)							
NOM: ROMY PRENOM: Bernard						A diagnosis in clear, detailed and complete language	
Exposition quotidienne au bruit : Les valeurs d'exposition inférieures sont dépassées.							

G.E.H. rattaché (Commentaire)	%Temps	Te Durée(h:m:s)	Lp*,A,eqTe dB(A)	U dB(A)	Contribution	Nombre de crêtes dB(C)**		
						>=135	>=137	>=140
Usinage	50.00%	7:30:00	84.1	3.1	81.1	0	0	0
DC Caster	50.00%	7:30:00	84.6	4.1	81.6	0	0	0
CUMUL :	100.00%	7:30:00	84.4	/	/	/	/	/
L*ex,8h = 84.4 dB(A)								
L*ex,8h (avec port d'EPI) = 83.2 dB(A)								

Discovery of the activity whose contribution to the total exposure is strongest

	Niveau d'exposition sonore dB(A), 8h	Valeurs crêtes dB(C)
Valeurs d'exposition inférieures(V.E.Inf.)	80	135
Diagnostic	Dépassé	pas dépassé
Valeurs d'exposition supérieures(V.E.Sup.)	85	137
Diagnostic	pas dépassé	pas dépassé
Valeurs limites d'expositions(V.L.E.)	87	140
Diagnostic	pas dépassé	pas dépassé

EPI(Bouchon :x(95%):Soft : EAR) est porté à 50.0% dans GEH (Usinage) avec :

f(Hz)	63	125	250	500	1000	2000	4000	8000	SNR(dB)	H(dB)	M(dB)	L(dB)
APV(dB)	20.1	25.1	24.8	31.5	33.1	27.8	37.0	40.7	33.0	31.0	31.0	28.0

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