

Statement on

**EC Directive 2003/10/EC of the European Parliament and Council of
February 6, 2003**

- regarding headsets and communication equipment -

Since being published and becoming effective, the EC directive regarding noise in the workplace has caused constant irritations on account of multiple misinterpretations of these provisions.

When talking about different ratings, calculations and assessments, the noise level of 83 or 87 dB(A) at ear is mentioned repeatedly.

Unfortunately it must be noticed that in most cases rating and top level are confused. Thus it is repeatedly argued that the sound level at the ear may not exceed 87 dB(A).

This is not true!!!!

The sound level at the ear may not exceed 140 dB(C) referring to 20 μ Pa.

The boundary value of 87 dB(A) is the **rating level!!!!** , in other words the medium level over a defined time.

This however means that the maximum sound level may reach higher values provided that during the rating time periods of substantially lower values exist.

Example:

Outside noise:	130 dB(A)
Absorption through noise protector:	31 dB
Remaining level:	99 dB

According to widespread opinion, work under existing conditions would not be possible. If the reaction time is so short (30 min in this case) that a rating level of 87 dB(A) is not exceeded, there is no reason to disallow the use.

What does this mean for the operation of means of communication?

Preliminary Comment:

The above directive contains minimum requirements for the protection and safety of employees from the danger caused by the physical effect of noise.

The area "speech communication in noise" is not addressed in this directive.

To ensure adequate understanding of speech, the speech level should be on average at least 10 dB above noise level. (But this depends on several other factors).

According to widespread opinion the admissible level at the ear may not exceed 87 dB(A).

This would mean that in the case of a signal/background noise differential of 10 dB, the background noise (noise) may not exceed 75 dB(A).

If a noise protector with resulting absorption of 30 dB is applied, the outside level may not exceed 105 dB(A).

If this interpretation were followed, work with louder machines and appliances would become almost impossible. This does not only apply to the military, but also to the civil area.

The determinant of the rating level of the effective noise exposition is not the 87dB(A) level limit, but the noise dose, i.e. the medium rating level that is reached during the above speech transmission over a fixed time (rating time).

A speech signal of 140 dB(C) from the communication equipment can be a permissible level. However, this applies only if the medium speech level (rating level) does not exceed 87 dB(A).

Frequently it is demanded – due to ignorance of the facts or due to their misinterpretation – to limit the speech level of the communication equipment to 87 dB(A).

To limit speech transmissions to the exposition boundary value of 87 dB(A) (8hrs) cannot be endorsed because this does not take into account the dynamics of speech. With radio transmissions, it can easily be ± 20 dB and over, making the speech reception level, such as for security and police personnel, maintenance personnel of the air force, etc., if limited to 87 dB(A), dangerously low. In addition, speech that runs into a level limit can be very distorted and this constitutes an additional communication risk.

If the statutory rating sound level of 87 dB(A) is allowed, this may still result in top levels of approximately 105 dB. This presumes, however, that somebody is continuously talking the entire time. This should hardly be the case. There are always breaks between the sentences, possible questions and answers, etc., which must be considered as well and which further lower the rating level.

Peaks levels up to 110 dB(A) during speech transmission through communication equipment are therefore no problem.

In addition, such peak levels are already very uncomfortable so that the user will voluntarily reduce the volume of the equipment.

Rödermark, April 26, 2006