

Noise Labelling

An integrated approach to noise reduction



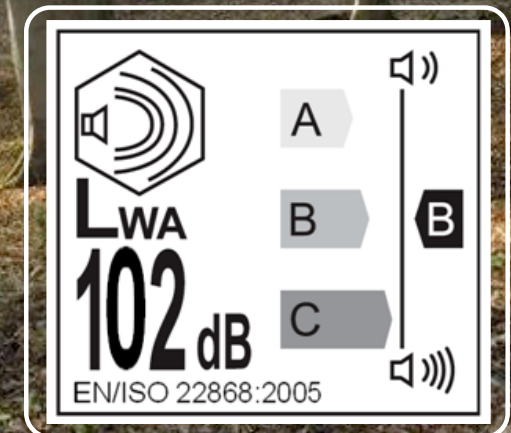
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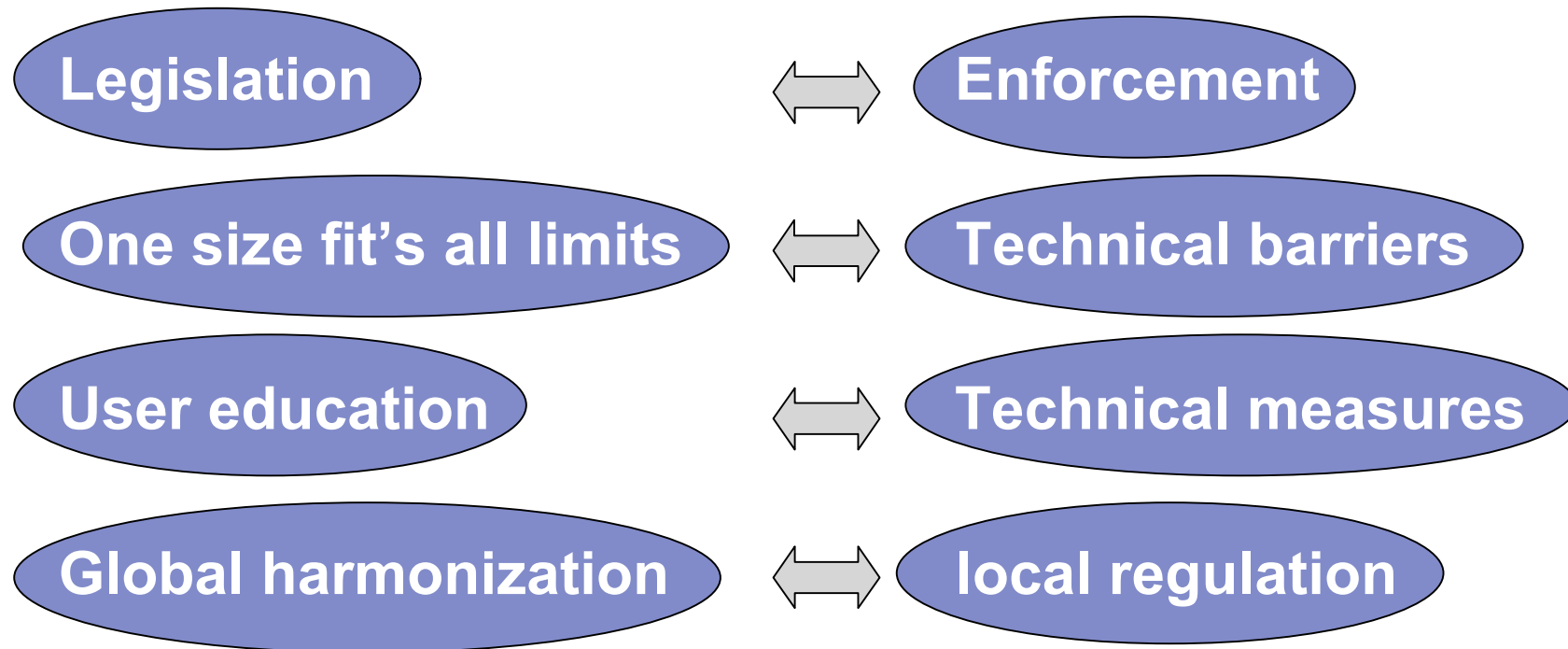
Function Manager Product Certification and Standardization

ANDREAS STIHL AG & Co. KG, Waiblingen, Germany



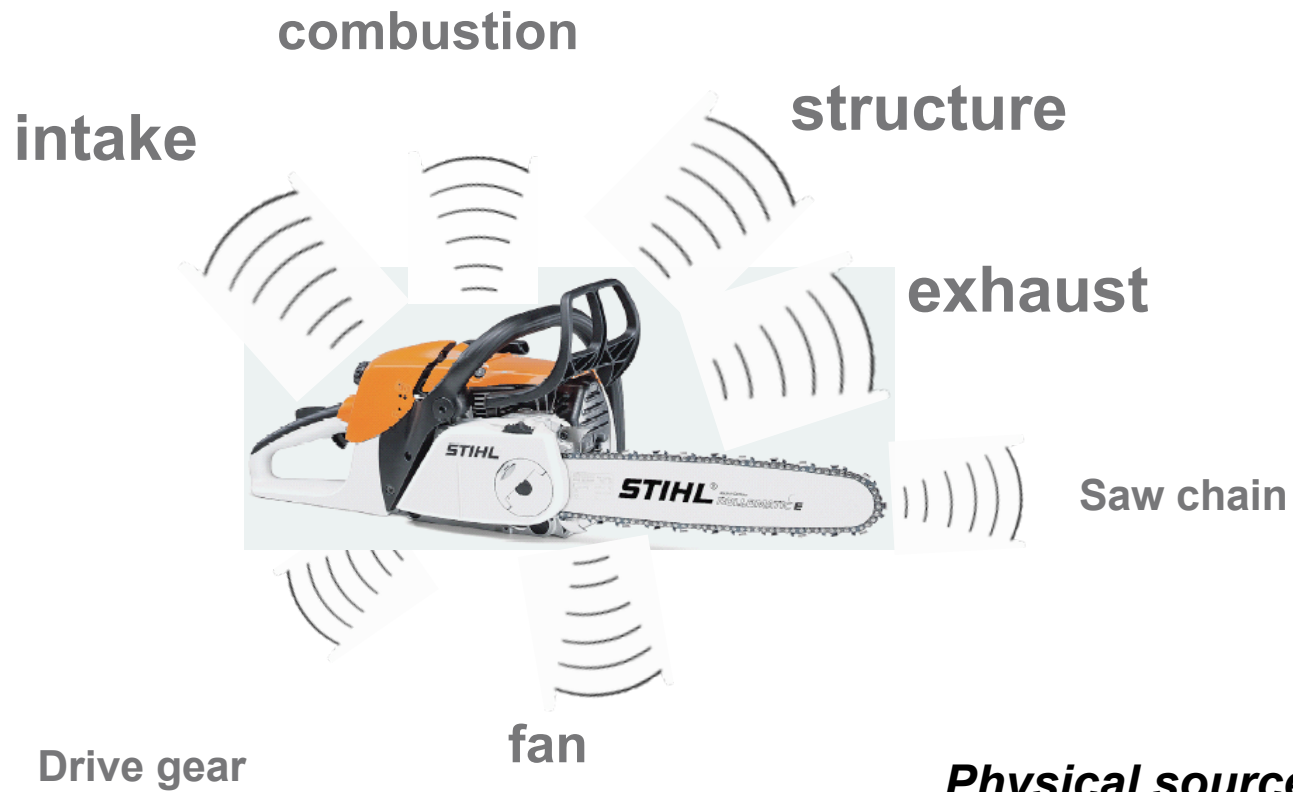
- Political objectives / complexity of noise
 - Current approach EU Outdoor Noise Directive
 - Noise Declaration Proposal from INCE-USA
 - Alternative approach
 - Discussion

Complexity of noise / political objectives



Noise: A general problem?

Complexity of sound sources



Physical sources of sound

Noise: A general problem?

When “sound” becomes “noise” – one dimension: usage area



■ “Sound” is a *physical figure*

85%
Rural area



■ “Noise” is *context-dependent*

Vs.

10%
Suburban area



Vs.

5%
Urban area



Noise: A general problem?

Factors that promote noise disturbance

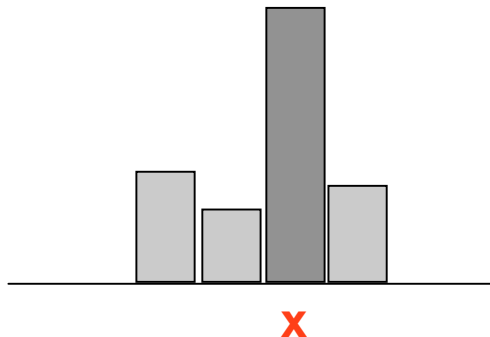
- **Three factors** are needed to justify introduction of noise limits
- Only if **all three** are fulfilled a limit is justified

High noise level



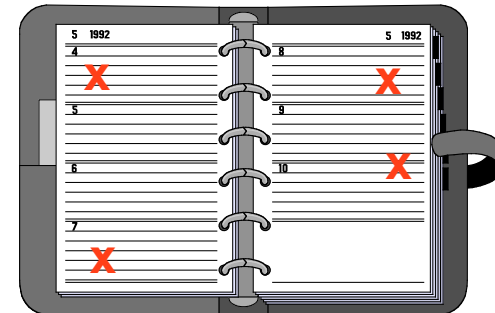
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High product population



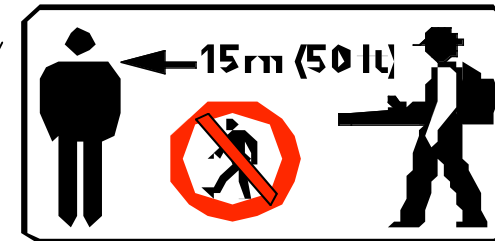
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High exposition in urban areas



Usage profile – education is needed!

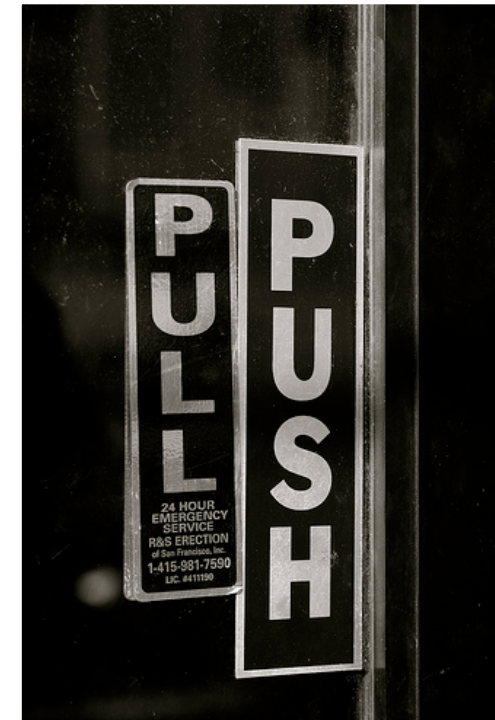
Example for misuse of a machine



- **Behaviour / Application issues**
 - **Distance** to bystanders
 - **Manipulation** of machines
 - **Ignorance** of time restrictions
 - **Practical application** of machine (e.g. engine speed, ...)

Systematic approach to noise reduction

- **Social and environmental target:**
→ Reduced noise exposure
- **Two generic ways:**
 - **Market push**
(regulation, limits)
 - **Market pull**
(transparency, demand)



Summary

Context for noise regulation



- Mission:

*To find **intelligent ways** to meet both **customer demands** (application) and **environmental needs**.*

- To be **efficient**, noise regulation should utilize

both market push and pull effects

- **Noise** is highly **context-dependent**

- Not only the **physical sound** creates “noise” but more important,

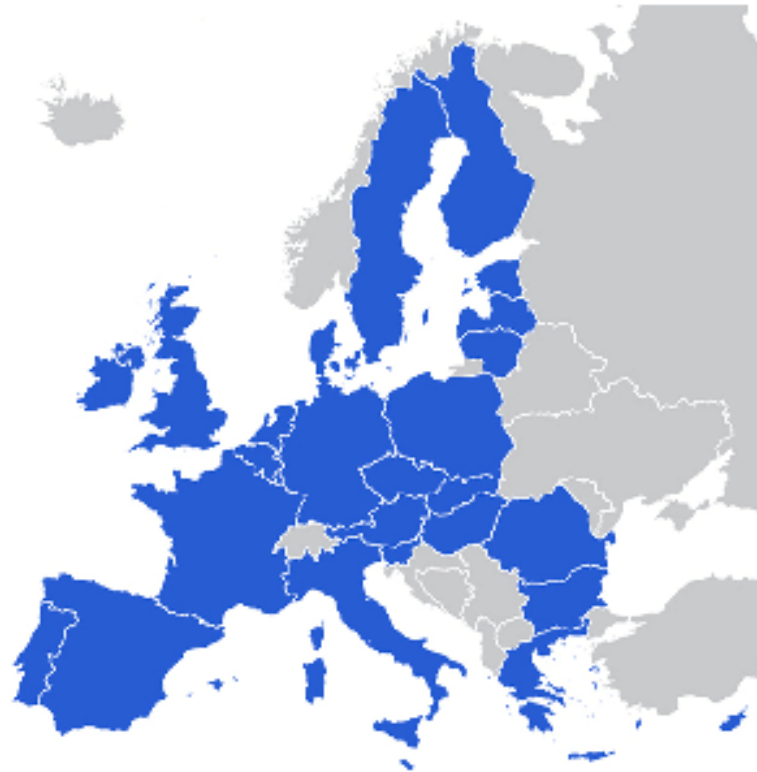
- **Area of application,**

- **Usage profile** (time of day, length of time, “sense” of application (misuse)),

- **Psychological factors** (personal involvement e.g. loud music, noise reflects powerful machine, ...).

Current approach

EU outdoor noise directive (OND)



2000/14/EC

3.7.2000 [EN] Official Journal of the European Communities L 162/1

I

(Acts whose publication is obligatory)

DIRECTIVE 2000/14/EC OF THE EUROPEAN PARLIAMT AND OF THE COUNCIL

of 8 May 2000

on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors

THE EUROPEAN PARLIAMT AND THE COUNCIL OF THE EUROPEAN UNION

Having regard to the Treaty establishing the European Community, and in particular Article 95 thereof,

Having regard to the proposal from the Commission⁽¹⁾,

Having regard to the opinion of the Economic and Social Committee⁽²⁾,

Acting in accordance with the procedure laid down in Article 251 of the Treaty⁽³⁾,

Whereas:

(1) Within the framework of the internal market requirements for the noise emission by equipment for use outdoors have to be harmonised in order to prevent obstacles to the free movement of such equipment. Reducing permissible noise levels for such equipment will protect the health and well-being of citizens as well as protect the environment. The public should also be provided with information on the noise emitted by such equipment.

(2) Community legislation concerning noise emission by equipment for use outdoors has consisted to date of the following nine directives covering some types of construction machinery and lawnmowers: Council Directive 79/113/EEC of 19 December 1978 on the approximation of the laws of the Member States relating to the determination of the noise emission of construction plant and equipment⁽⁴⁾, Council Directive 84/532/EEC of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of compressors⁽⁵⁾, Council Directive 84/534/EEC of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of tower cranes⁽⁶⁾, Council Directive 84/535/EEC of 17 September 1984 on the approximation of the laws of the Member States relating to the permissible sound power level of welding

⁽¹⁾ OJ C 124, 22.4.1998, p. 1.
⁽²⁾ OJ C 407, 23.12.1998, p. 18.
⁽³⁾ Opinion of the European Parliament of 1 April 1998 (OJ C 138, 4.5.1998, p. 84), Council common position of 24 January 2000 (OJ C 53, 22.2.2000, p. 1) and Decision of the European Parliament of 15 March 2000.
⁽⁴⁾ OJ L 33, 8.2.1979, p. 15. Directive as last amended by Commission Directive 85/405/EEC (OJ L 233, 30.8.1985, p. 9).
⁽⁵⁾ OJ L 300, 19.11.1984, p. 111. Directive as amended by Directive 89/645/EEC (OJ L 382, 31.12.1988, p. 42).
⁽⁶⁾ OJ L 300, 19.11.1984, p. 123. Directive as amended by Commission Directive 85/406/EEC (OJ L 233, 30.8.1985, p. 11).
⁽⁷⁾ OJ L 300, 19.11.1984, p. 130. Directive as amended by Directive 87/405/EEC (OJ L 220, 8.8.1987, p. 60).



- Outdoor noise directive uses both instruments...
 - Market **push effects** → Noise limits (Article 12, 2000/14/EC)
 - Market **pull effects** (in theory) → Noise labelling (Article 13, 2000/14/EC)

- ... to address the following political objectives
 - **Protection of environment**
 - **Free movement of goods**
 - **Informed consumer choice**
 - Enable local or national **regulation on use** or **economic instruments**.

Limitations/ recommendations

TNO Nomeval report on revision of OND

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■ Limitations

- “The **market surveillance** of the directive is generally considered **insufficient** and leads to **unfair competition** from non-compliant suppliers who make less costs.” (TNO report p. 3)
- “Most importantly, without **market surveillance** the Directive is **ineffective** as costs are incurred by industry complying to the Directive, whilst at the same time they may lose market share to non-compliant companies.” (TNO report p. 5)
- “**Information for consumers** do not live up to expectations.” (TNO report 241)

■ Key recommendations (TNO report p. 244)

- “**Market surveillance is essential** for the directive to be effective
- The **noise label** should be made **more understandable** for consumers
- The market for **low noise products** should be **stimulated**
- **Noise reduction** should be **balanced** with requirements for gas emissions, public health and costs”

NOMEVAL - Noise of Machinery – Evaluation of Directive 2000/14/EC

Study on the experience in the implementation and administration of Directive 2000/14/EC relating to the noise emission in the environment by equipment for use outdoors

FINAL REPORT
12 December 2007

Assignor:
European Commission
Enterprise and Industry Directorate-General
Mechanical, Electrical and Telecom Equipment,
Unit ENTR I/4EU
Tender No. ENTR/05/105
Contract No. 2006 / SI2.449579



- Current approach does not:
 - Lead to **fair competition** due to lack of market surveillance
 - ensure **transparency** to the consumer
 - stimulate **market** for less noisy equipment
(because information on label is not interpreted correctly)
 - balance **integrated equipment requirements**
 - efficiently protect the **environment**

Noise label schemes



What about national labels?



<http://www.svanen.se/Svanen/>



<http://www.blauer-engel.de/>

■ Pros of national labels

- **Nationally well recognized**
- **Voluntary** schemes
- Might stimulate **innovation**
- Give **orientation** to customers

■ Cons of national labels

- Not appropriate for “global” products – **limited coverage**
- Only common in **some member states** – limited impact
- **Mixture** of environmental criteria – no focus on noise.
- Only available for **some products**



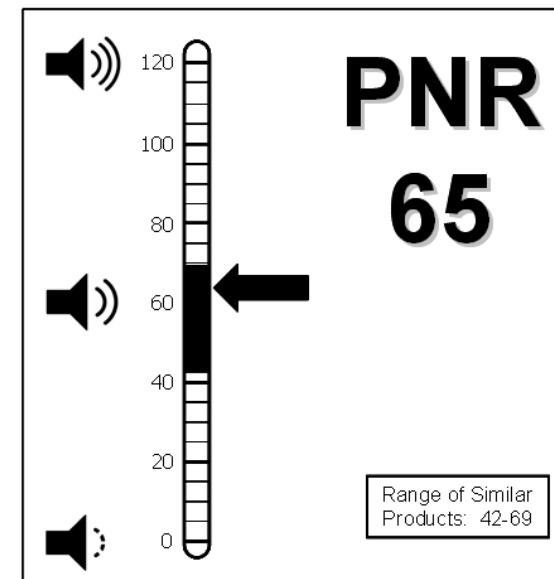
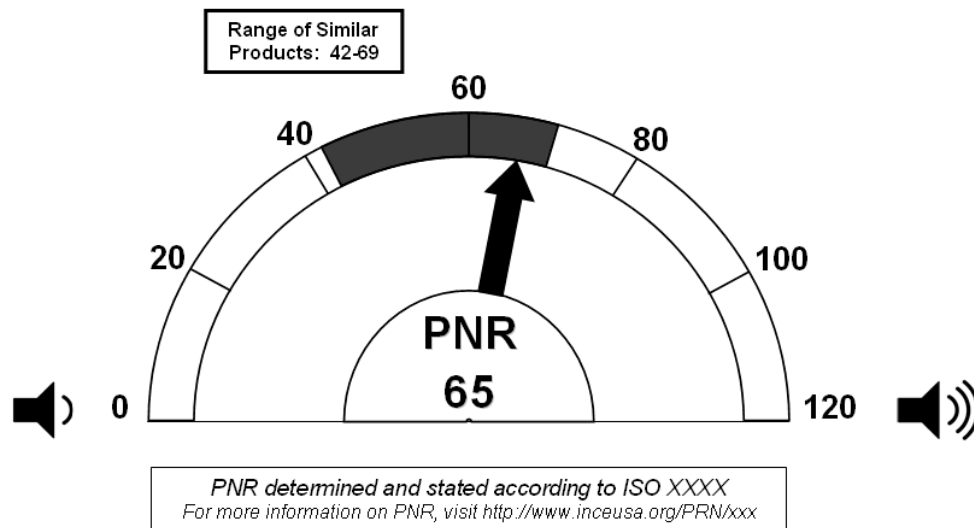
■ Pros of EU labels

- **EU wide**
- **Voluntary** schemes
- Might stimulate **innovation**
- Give **orientation** to customers

■ Cons of EU labels

- **Mixture** of environmental criteria – no focus on noise.
- Only available for **some products**

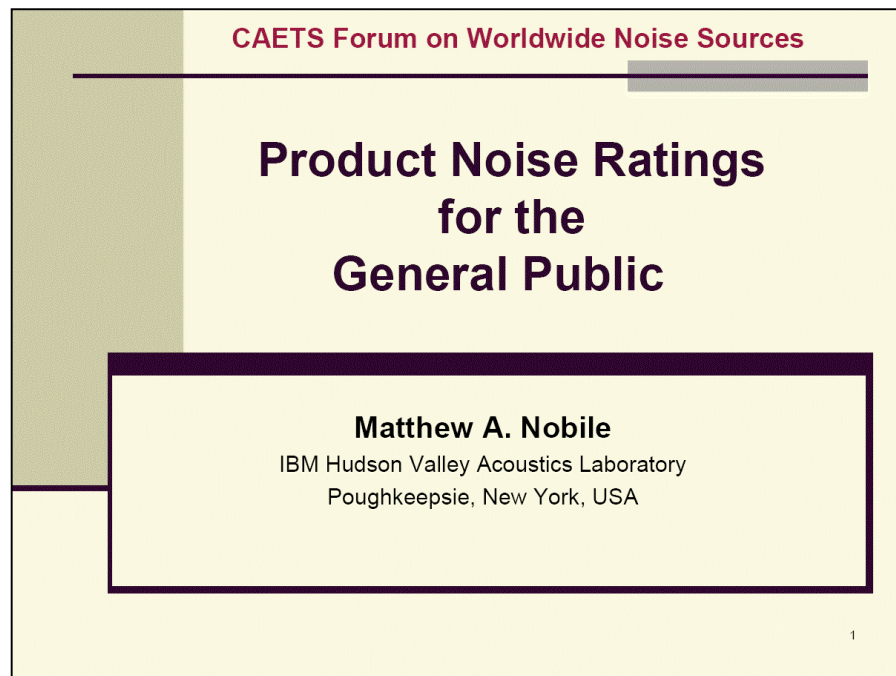
First constructive approach Noise Declaration Proposal from INCE-USA



More information on Product Noise Ratings and what the PNR value means can be found at <http://www.xxx.yyy/noise/PNR.html>

Product noise ratings for the General Public

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- By INCE-USA
<http://www.inceusa.org/>
Institute of Noise Control Engineering
- Presented initially at CAETS Forum in Ottawa 2009, Aug.
<http://www.caets.org/>
International council of the academies of engineering and technological science
- Matthew A. Nobile
(IBM Hudson Valley Acoustics Laboratory
Poughkeepsie, New York, USA)

Necessary information on Declaration

(according to the INCE-USA presentation)

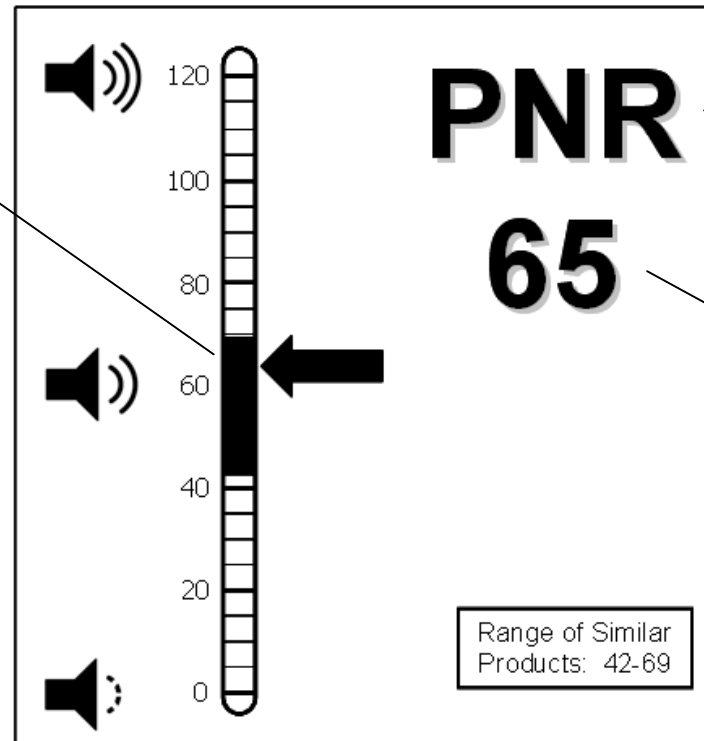


- **How loud** is this product?
- How loud is this product **compared to similar products**?

Noise Declaration Proposal from INCE-USA



How loud compared to others?



PNR = Product Noise Rating (Bases on Sound Power)

How loud is it? (Additionally, the scale itself gives a relative indication)

More information on Product Noise Ratings and what the PNR value means can be found at <http://www.xxx.yyy/noise/PNR.html>

- The PNR value and visual icon presents **valuable information** to the customer
- The scale 0 – 120 defines the **overall scale**.
- Scale *could* be **misinterpreted** by non professionals (e.g. 12 less means 10% less noise...).
- It is **not clear**, how the “**range of similar products**” is determined (only true for a fixed point in time).
- It is a logarithmic scale presented in a **linear scale** (difference is underestimated)

Appropriate scope for noise labelling?

Current scope of 2000/14/EC – very broad and diverse



Potential scope for new noise labelling

Focus on consumer products

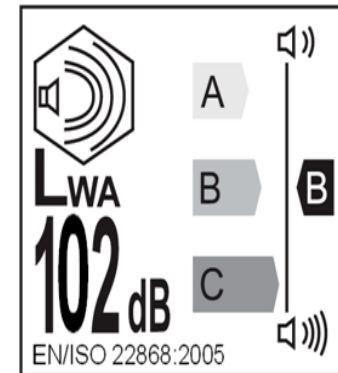


The next step in evolution

→ consumer products

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New noise label



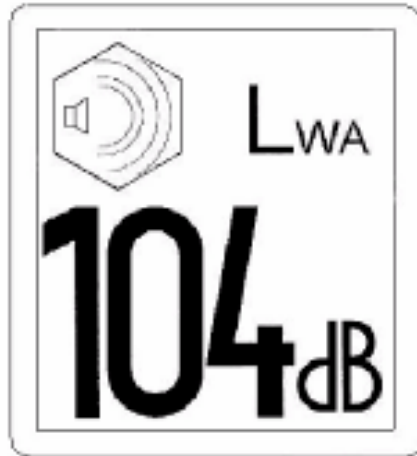
Complementary classification

Objective is to...

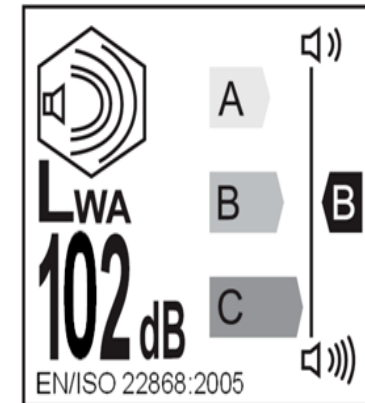
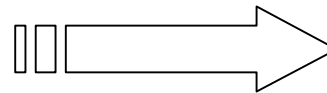


- **Avoid “one size fits all” limits**
- **Balance product requirements**
- **Enable customers** to choose quieter products with understandable communication
- **Use** established and effective **market instruments**
- **Clarify** which **noise level** can be considered high, medium or low.

New noise labelling

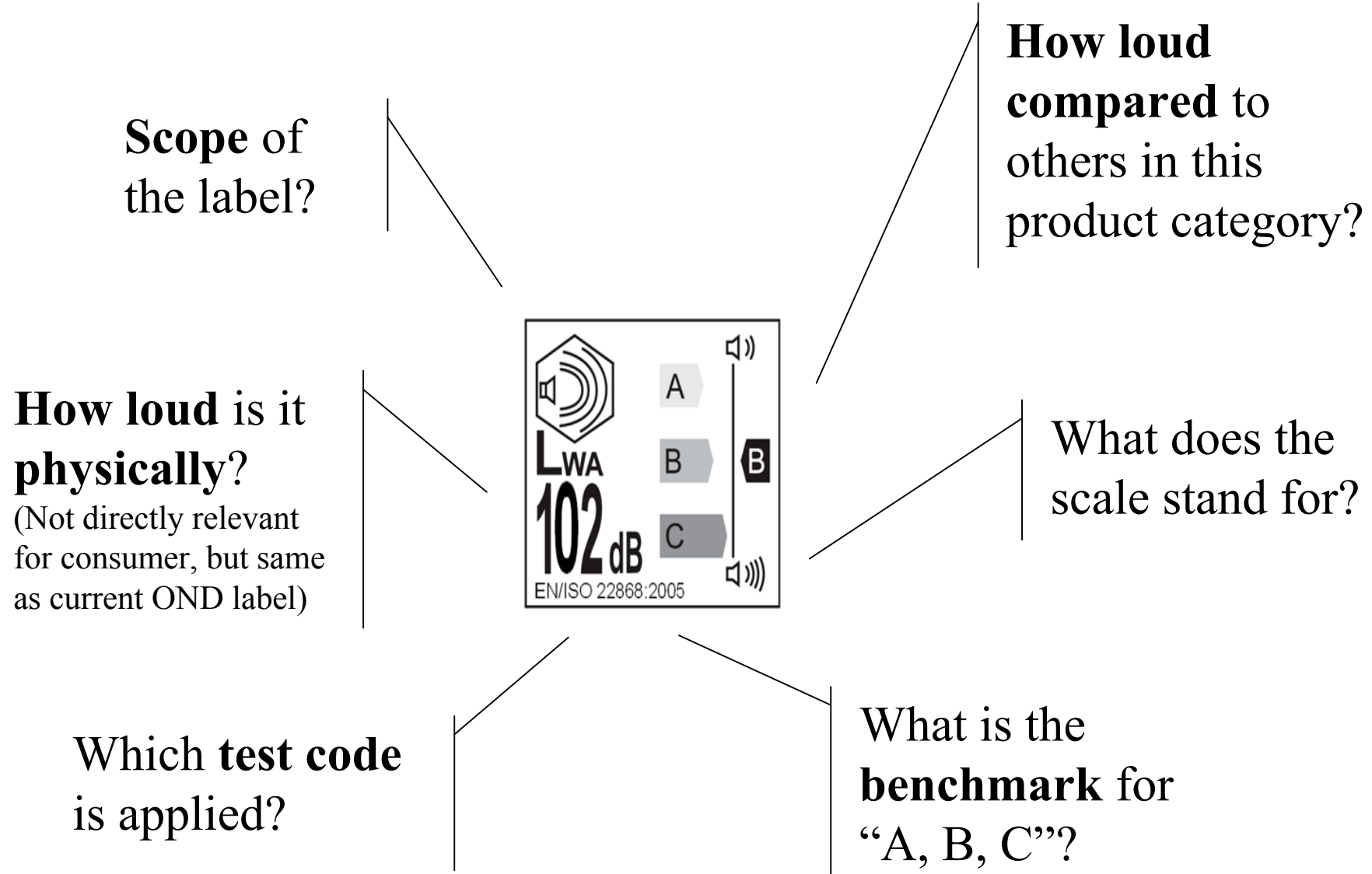


Current Information
for customers
2000/14/EC

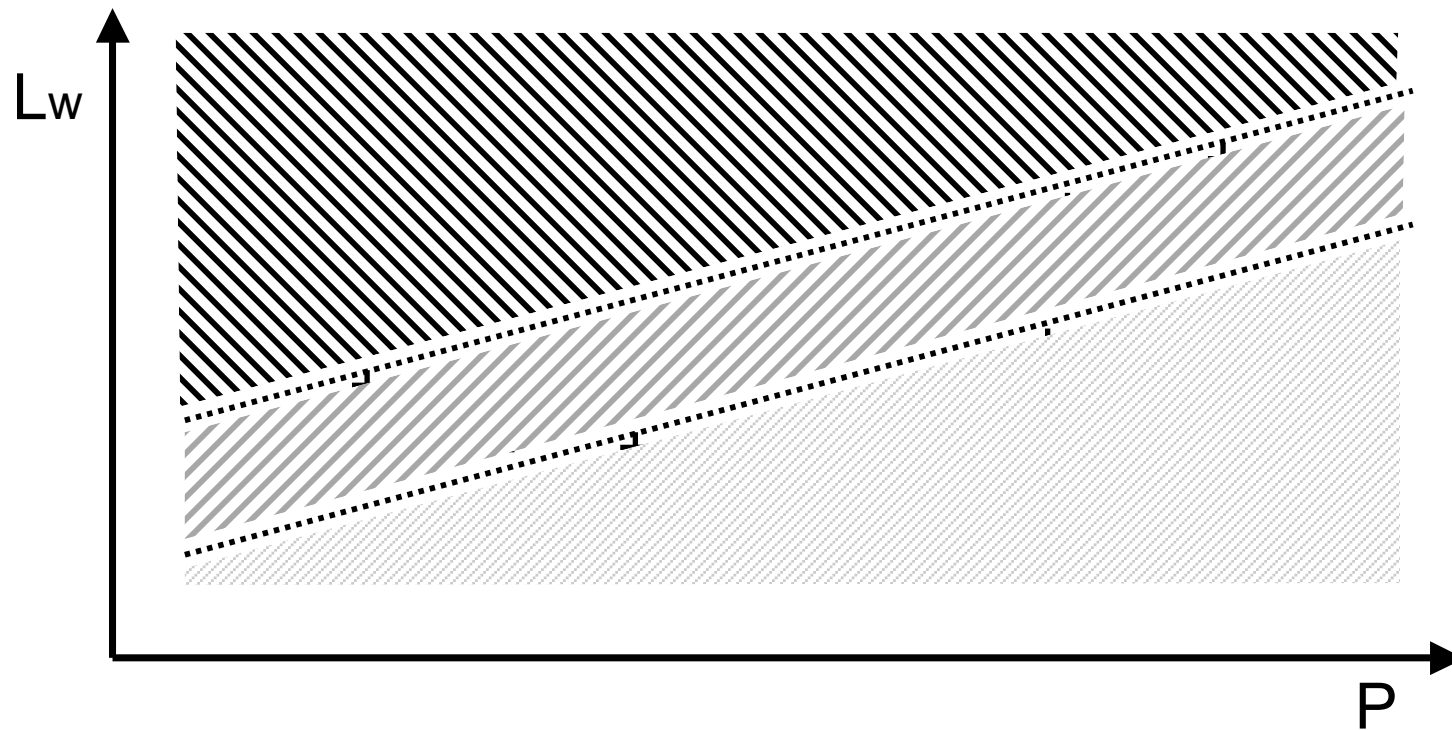


New noise label

- Targets:
 - Same **size** as current label
 - Same **information** as current label
 - Black and white to avoid additional **costs**
 - No **written text** because of language issues
 - Corresponding **test code**



Definition of noise classes and test code to be included in international standards for each product category



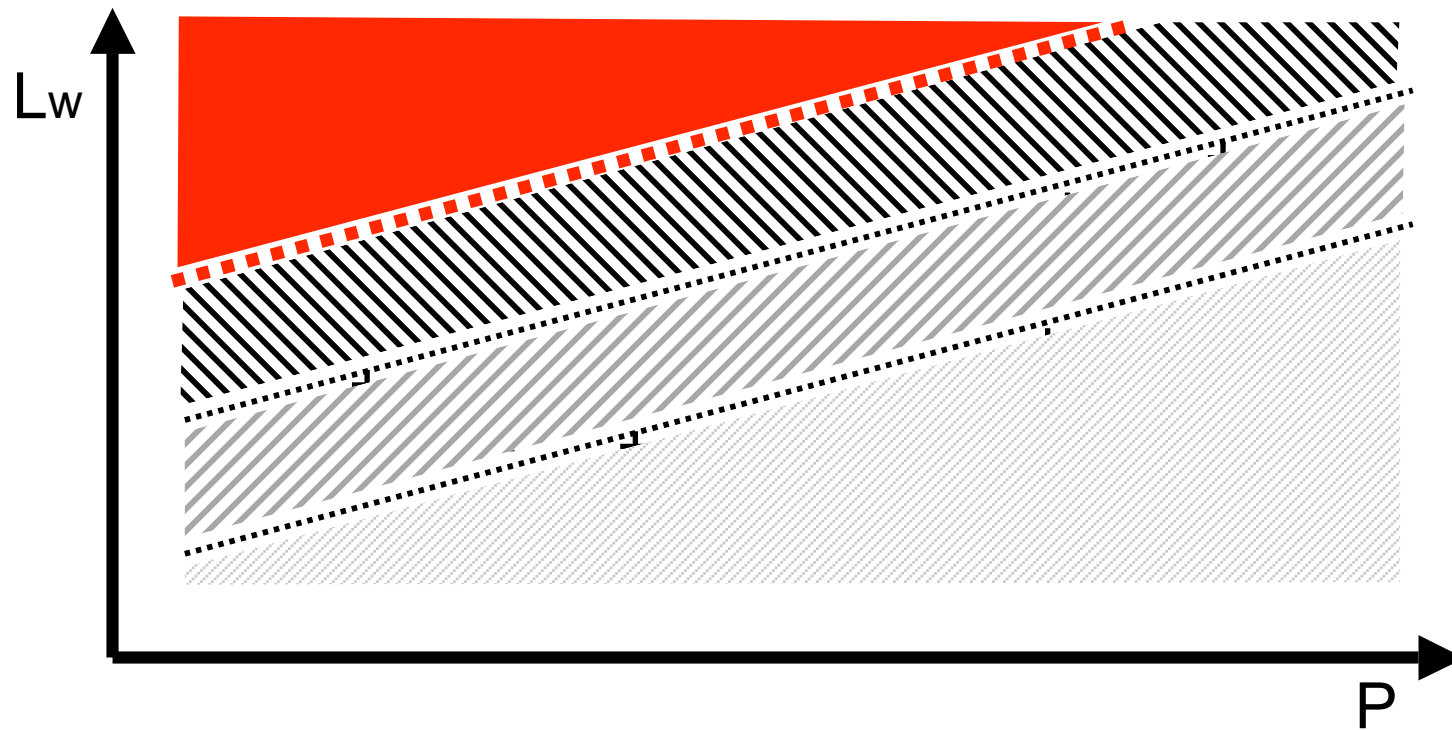
Area for...
Class C (25%)
Class B (50%)
Class A (25%)

Definition of noise classes

Optional combination with “top cap”



Optional
“Top Cap”



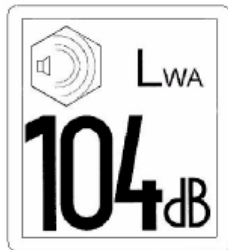
Area for...

Class C (25%)

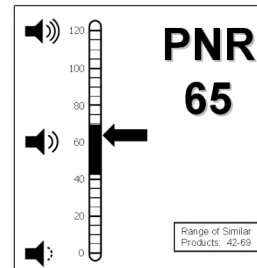
Class B (50%)

Class A (25%)

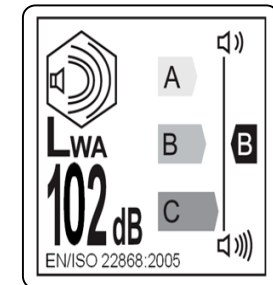
Comparison



- Pros
 - **Established** in the EU
 - Gives **Sound Power** level on the machine
- Cons
 - Absolute value is **not understood**
 - **No relative information** given
 - **Reference** not clear, slow adjustment



- Pros
 - Gives **absolute and relative information**
 - **No decibel**, which are unfamiliar to consumers
 - Shows **overall noise level scale**
- Cons
 - Determination of **“Range of Products”** (benchmark) not clear
 - Only true for a **fixed point** in time

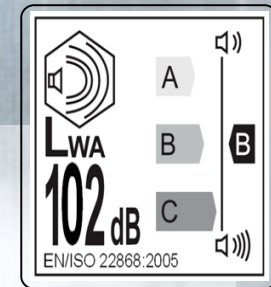


- Pros
 - **Message** to the customer (A, B, C) is **always the same** for **all products**
 - Gives **absolute and relative** information
 - Easy **“Adjustment to state of the art”**
 - Clear **purchasing guidance**
- Cons
 - **Only few standards** available with “state of the art” information

Summary complementary classification new noise labelling

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- The noise labelling takes effect on **three levels**
 - Provides **minimum standards** for placing on the market
(in combination with top cap)
 - ➔ *In line with **CE** - concept*
 - Provides straight- forward **customer information**
 - ➔ *Stimulates market- forces*
 - Provides **best-in-class** information
 - ➔ *Causes pull- effect in combination with incentives similar to the European “top-runner” concept*



Thank you!

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We need...

