



CONAMA2012
CONGRESO NACIONAL DEL MEDIO AMBIENTE



29 November 2012, Madrid

**Speaking the same language on noise exposure in Europe:
the outcome of phase A of CNOSSOS-EU process**



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Joint Research Centre

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The reasons behind CNOSSOS-EU



Common noise assessment methods are *foreseen* by the END

In article 6 of the Directive it is stated that: “*common assessment methods for the determination of L_{den} and L_{night} shall be established by the Commission in accordance with the procedure laid down in Article 13(2) [regulatory committee] through a revision of Annex II*”.

- for ensuring consistency for noise exposure data among Europe
- to achieve accuracy, precision and credibility of the assessment performed throughout the EU and in the estimation of the population exposure



Common noise assessment methods are *needed!* (1/2)

1. Outcome of exercise on equivalency conducted by DG JRC (2008)

Concerning the compliance of the EU MS to Art. 6 of the Environmental Noise Directive (END):

- 7 MS were assessed to be compliant with Art. 6 of the END for all noise assessment methods used
- 5 MS were assessed to be non-compliant with Art. 6 of the END for at least one noise assessment method
- For 15 MS it was impossible to determine their compliance with Art. 6 of the END for at least one noise assessment method because they did not provide enough information to allow assessing whether their national methods are equivalent to the interim ones.



Common noise assessment methods are *needed!* (2/2)

2. Analysis of 1st round SNM data show possible inconsistencies

INPUT DATA:

- ❖ Definition of agglomerations
- ❖ Definition of relevant year for data collection
- ❖ Quality of geographical and topographical data
- ❖ Availability of meteorological data
- ❖ Quality and extent of noise source data
- ❖ Quality of demographic data

ASSESSMENT METHODS:

- ❖ Methods of assigning noise levels to buildings
- ❖ Noise calculation methods

SOFTWARE:

- ❖ Software implementations for existing noise calculation method

END USERS:

- ❖ Software settings



The CNOSSOS-EU process



The CNOSSOS-EU process





CNOSSOS-EU preparatory phase



CNOSSOS-EU *preparatory phase* (March 2009 – May 2010)

Preliminary version of CNOSSOS-EU:

1. Workshop on "*The target quality and input values requirements for European noise mapping*"
2. Debate about a '*fit for purpose*' framework for common noise assessment methods
3. A literature survey on existing noise mapping methods available in Europe, USA and Japan
4. Requirements and criteria to be applied for the selection of the common assessment methods
5. Evaluation of and pre-selection among existing noise assessment methods
6. Selection of specific components via a series of ad hoc meetings / benchmarks
7. Draft report discussed with EU MS (Noise Regulatory Committee, 11 June 2010)



CNOSSOS-EU phase A

Development of CNOSSOS-EU methodological framework



CNOSSOS-EU *formal* phase (since November 2010)

Formal development of CNOSSOS-EU:

1. Involvement of the Noise Regulatory Committee (since June 2010)
2. Setup of the CNOSSOS-EU Technical Committee with representatives of the EU MS appointed via the Noise Regulatory Committee (since November 2010)
3. Phase A (November 2010 - March 2012): development of CNOSSOS-EU methodological framework for strategic noise mapping
4. Phase B (July 2012 – 2015): CNOSSOS-EU tools & validation, practical implementation in EU MS
5. Implementing Act to revise Annex II of the END

CNOSSOS-EU Technical Committee Working Groups

PHASE A

Nov. 2010 – March 2012

CNOSSOS-EU WG/DT 1	"Quality framework"
CNOSSOS-EU WG/DT 2	"Road traffic noise source emission"
CNOSSOS-EU WG/DT 3	"Railway traffic noise source emission"
CNOSSOS-EU WG/DT 4	"Aircraft noise prediction"
CNOSSOS-EU WG/DT 5	"Sound propagation and industrial noise source emission"
CNOSSOS-EU WG/DT 6	"Good practice guidelines"
CNOSSOS-EU WG/DT 9	"Revised Electronic Noise Data Reporting Mechanism"
CNOSSOS-EU WG/DT 10	"Assigning noise levels and population to buildings"

Development of
CNOSSOS-EU
methodological
framework
for
strategic noise mapping

CNOSSOS-EU Technical Committee Working Groups

PHASE B

2012 - 2016

CNOSSOS-EU WG/DT 6 "Good practice guidelines"

CNOSSOS-EU WG/DT 7 "CNOSSOS-EU database"

CNOSSOS-EU WG/DT 8 "CNOSSOS-EU reference software"

CNOSSOS-EU WG/DT 11 "Burden of disease estimation"

CNOSSOS-EU WG/DT 12 "Pilot studies for CNOSSOS-EU validation"

CNOSSOS-EU WG/DT 13 "Help desk and training for EU MS"

CNOSSOS-EU
tools and validation
&
practical implementation
in EU-27





CNOSSOS-EU working and review schedule – Phase A

CNOSSOS-EU WGs' meetings:

- WG 1 (*Quality framework*), 13 January 2011, 29-30 November 2011
- WG 2 (*Road traffic noise source emission*), 12-13 January 2011, 16-17 May 2011, 17-18 October 2011
- WG 3 (*Railway traffic noise emission*), 12-13 January 2011
- WG 4 (*Aircraft noise prediction*): 16-17 February 2011, 19-20 May 2011
- WG 5 (*Sound propagation and industrial noise*): 11-12 January 2011, 14-15 April 2011 (restricted) 21-22 June 2011
- WG 6 (*Guidance on competence use*): 15-16 February 2011
- WG 9 (*Data reporting mechanism*): 11-12 January 2012
- WG 10 (*Assigning noise levels and population to buildings*): 14 February 2011

CNOSSOS-EU Technical Committee meetings:

- 1st meeting, 15-16 November 2010
- 2nd meeting, 23-24 June 2011

CNOSSOS-EU working and review schedule – Phase A

CNOSSOS-EU discussed with by EU MS:

- Three Noise Regulatory meetings:
13 December 2010, 18 May and 29 September 2011

CNOSSOS-EU reviewed by EU MS:

- Two Noise Regulatory meetings: 18 May and 29 September 2011
- Written feedback in the period: October 2011-November 2011



CNOSSOS-EU (phase A) Final Event

16 July 2012, Bruxelles

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Monday, 16 July 2012

Centre Albert Borschette – Room 0C

- | | |
|-------------|--|
| 14:15–14:20 | Welcome
<i>Thomas Verheye, DG ENV</i> |
| 14:20–14:45 | The CNOSSOS-EU process
<i>Stelios Kephelopoulos, JRC-IHCP</i> |
| 14:45–15:00 | Quality Framework
<i>Paul de Vos, DHV</i> |
| 15:00–15:20 | Road traffic noise emission source
<i>Fabienne Anfonso Lédée, IFSTAR</i> |
| 15:20–15:40 | Railway traffic noise emission source
<i>Marco Paviotti, DG ENV</i> |
| 15:40–16:00 | Aircraft noise prediction
<i>Darren Rhodes, CAA</i> |
| 16:00–16:20 | Sound propagation and industrial noise
<i>Marco Paviotti, DG ENV</i> |
| 16:20–16:40 | Good practice guidelines
<i>Simon Shilton, Acustica Ltd.</i> |
| 16:40–17:00 | Assigning noise levels and population to buildings
<i>Christian Popp, LÄRMKONTOR GmbH</i> |
| 17:00–17:15 | Next steps towards Phase B
<i>DG ENV</i> |
| 17:15–17:50 | Discussion
<i>Moderator: Konstantinos Vagiatis, UTH</i> |
| 17:50–18:00 | CLOSURE: Representative from Cyprus Presidency
<i>Kyriakos Psychas, Environment Attaché</i> |
| 18:00–19:00 | Cocktail & light buffet offered by JRC |



Contributors to CNOSSOS-EU (Phase A)



More than 150 noise experts from the EU MS, European Agencies, EEA, WHO, NGOs and European Commission Services have been involved and contributed to the CNOSSOS-EU process so far



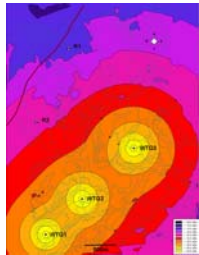
CNOSSOS-EU: Quality Framework



- How accurate does the assessment need to be?
- So: which input parameters do we have to collect and with which accuracy in order to achieve the accuracy of the total assessment?
- So: how much effort is involved and is that worth the trouble?
- Can we simplify and where?



CNOSSOS-EU: Quality Framework



● Scope of noise mapping

- develop a **consistent** method of assessment capable of providing **comparable** results from the strategic noise mapping carried out by EU Member States to fulfil their obligations under the END
- definition of noise sources and identification of essential parameters in relation to propagation and exposure assessment requirements

● Database process

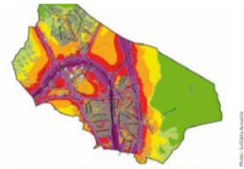
the process of developing and the QA of the CNOSSOS-EU databases of input parameters

● Simplifications and overall accuracy of the system

balancing over a number of criteria: *precision, accuracy, reproducibility, comparability, equivalency, plausibility, consistency, quality, representativeness, cost*



CNOSSOS-EU: Road traffic noise source emission



- 1. Frequency distribution
 - ✓ 1/3 octave or 1/1 octave band?
 - ✓ At which stage to introduce spectra distribution
- 2. Number of vehicle classes and associated parameters
 - ✓ Description of the classes
 - ✓ Vehicle flow per time period and per category of vehicle
 - ✓ Speed per category of vehicle
- 3. Number and location of equivalent sources
- 4. Number of line sources
- 5. Emission data and road surface correction data
 - ✓ How to derive values and translate existing national data
 - ✓ Age effect of road surface
- 6. Other parameters and model settings
 - ✓ Acceleration & road gradients
 - ✓ Regional corrections
 - ✓ Source directivity



CNOSSOS-EU: Railway traffic noise source emission



- Model flexibility to further expand and/or enhance specific railway noise sources
- Inclusion/exclusion of station and depot noise
- Degree of complexity versus accuracy of the assessment and level of computational time
- Possible simplifications to be adopted for allowing the CNOSSOS-EU methodological framework to be applied for strategic noise mapping as first priority
- Input data availability and quality requirements across the EU MS
- Definition and handling of default values for railway noise sources
- Methodology for setting up a database of input values for railway noise



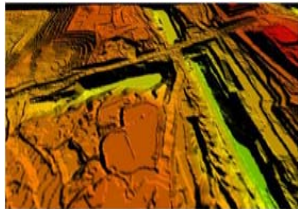
CNOSSOS-EU: Railway traffic noise source emission



- Classification of trains
- Inclusion of trams and light railways
- Classification of tracks
- Minimum speed
- Rolling noise
- Squeal noise
- Braking noise, traction noise
- Impact noise
- Aerodynamic noise
- Conversion of national databases into CNOSSOS-EU compatible format
- Other parameters and model settings



CNOSSOS-EU: Sound propagation and industrial noise



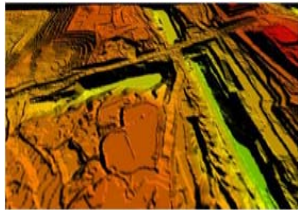
$$\begin{aligned}
 \Phi &= \sum P_i \Delta A & E &= mc^2 & E &= 13.6 \frac{Z^2}{n^2} \text{ (eV)} & \Delta X & \\
 E &= N \frac{\Delta \Phi}{\Delta t} & v &= \sqrt{v_0^2 + v^2} & r &= 38 \frac{a^3}{(\Delta t)^2} & p &= \frac{\Delta X}{Z} \\
 E &= -\frac{\Delta \Phi}{\Delta t} & L &= I_0 \sqrt{1 + \frac{v^2}{c^2}} & p &= \frac{h}{\lambda} & p &= \frac{h}{\lambda} \\
 V &= 1 \frac{X}{\Delta t} & E &= h f & E &= \frac{p^2}{2m} + V(x) & N &= N_0 \left(\frac{1}{2} \right)^{N_0} \\
 X_0 &= \frac{1}{\omega C} & h f &= \omega_0 + \frac{1}{2} m v^2 & \omega(x) &= \sqrt{V(x)} & N &= N_0 \left(\frac{1}{2} \right)^{N_0} \\
 X_1 &= \omega L & h &= 6.63 (10)^{-34} \text{ Js} & \Delta p &= \hbar \frac{2\pi}{\lambda} \\
 \omega_0 &= \sqrt{\frac{V}{\mu}} & \Delta p &= \hbar \frac{2\pi}{\lambda} & \Delta p &= \hbar \frac{2\pi}{\lambda} \\
 c &= \lambda f & \Delta p &= \hbar \frac{2\pi}{\lambda} & \Delta p &= \hbar \frac{2\pi}{\lambda} \\
 c &= 3 \cdot 10^8 \text{ m/s} & \Delta p &= \hbar \frac{2\pi}{\lambda} & \Delta p &= \hbar \frac{2\pi}{\lambda} \\
 \omega &= \frac{1}{2} \omega_0^2 + \frac{1}{2} \omega_1^2 & \Delta p &= \hbar \frac{2\pi}{\lambda} & \Delta p &= \hbar \frac{2\pi}{\lambda} \\
 \theta &= 0, \quad n = \frac{V}{V_0} & m &= \frac{1}{\omega} & \Delta p &= \hbar \frac{2\pi}{\lambda} \\
 n_1 \sin(\theta_1) &= n_2 \sin(\theta_2) & f &= \frac{1}{\omega} & \Delta p &= \hbar \frac{2\pi}{\lambda}
 \end{aligned}$$



- Number of reflections
- 1/3 octave band or 1/1 octave band?
- Complexity of terrain configuration to be taken into account by the model
- Clarification on the “non-coherent” methodology used
- Directivity requirements for interfacing the source parts
- Model flexibility to further expand and/or enhance
- Degree of complexity versus accuracy of the assessment and computational time
- Possible simplifications to be adopted for the industrial noise source emission and sound propagation parts to allow for the application of the CNOSSOS-EU methodological framework in strategic noise mapping as first priority



CNOSSOS-EU: Sound propagation and industrial noise



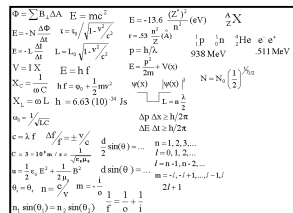
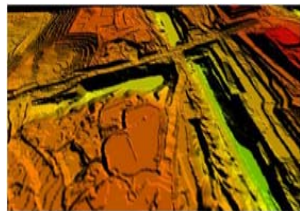
$$\begin{aligned}
 \Phi &= \sum P_i \Delta A & E &= mc^2 & E &= 13.6 \frac{Z^2}{n^2} (\text{eV}) & \Delta X \\
 E &= \lambda \frac{\Delta \Phi}{\Delta t} & v &= \sqrt{1 - \frac{v^2}{c^2}} & r &= 3a \frac{a^2}{(a^2 - b^2)^{3/2}} & \frac{\Delta X}{Z} \\
 E &= -\frac{\Delta \Phi}{\Delta x} & L &= L_0 \sqrt{1 - \frac{v^2}{c^2}} & p &= \frac{h}{\lambda} & |p \rangle \quad |n \rangle \quad |He \rangle \quad |e \rangle \\
 V &= \frac{1}{\omega C} & E &= hf & E &= \frac{p^2}{2m} + V(x) & 938 \text{ MeV} \quad 511 \text{ MeV} \\
 X_C &= \frac{1}{\omega C} & hf &= \omega_0 + \frac{1}{2} m v^2 & \sqrt{X} &= \sqrt{Y} & N = N_0 \left(\frac{1}{2} \right)^{N_0} \\
 X_L &= \omega L & h &= 6.63 \cdot 10^{-34} \text{ Js} & \frac{1}{L} &= \frac{1}{L_0} + \frac{1}{L_1} \\
 \omega &= \sqrt{\frac{1}{LC}} & \Delta p & \Delta x \geq \frac{h}{2\pi} & \Delta p & \Delta x \geq \frac{h}{2\pi} \\
 c &= \lambda f & \Delta f & \Delta t \geq \frac{1}{2\pi} & \Delta f & \Delta t \geq \frac{1}{2\pi} \\
 c &= 3 \cdot 10^8 \text{ m/s} & \sin \theta &= \dots & l &= 0, 1, 2, \dots \\
 \frac{1}{2} &= \frac{1}{2} \frac{a^2 + b^2}{a^2 - b^2} & d \sin \theta &= \dots & l &= -l, -l+1, \dots, -1, 0, 1, \dots, l-1, l \\
 \theta &= 0 & n &= \frac{2l+1}{2} & m &= -l, -l+1, \dots, l-1, l \\
 n, \sin(\theta) &= n, \sin(\theta) & f &= \frac{1}{\sigma} \frac{1}{\sigma} & f &= \frac{1}{\sigma} \frac{1}{\sigma}
 \end{aligned}$$



- Input data availability and quality requirements across the EU MS
- Definition and handling of default values for industrial noise emission source and sound propagation
- Methodology for setting up a database of input values for industrial noise emission source
- Elements/inputs to be handled by CNOSSOS-EU WG6 on “Good practice guidelines” which should be fixed within the CNOSSOS-EU methodology boundaries for consistency and completeness.



CNOSSOS-EU: Sound propagation and industrial noise

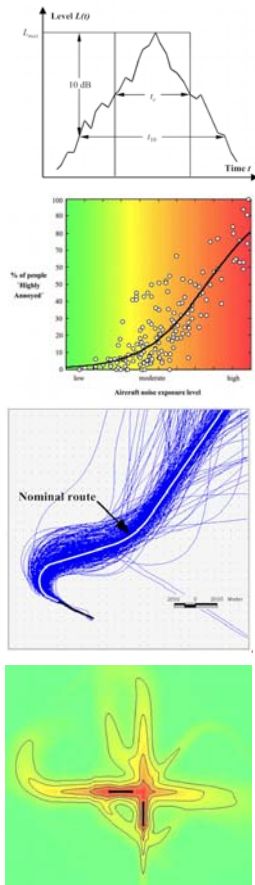


The selection of the sound propagation part

- Considering a cost-benefit based evaluation of the three methods qualified (i.e., HARMONOISE P2P Version 2.020, NMPB 2008, ISO 9613-2) evaluated across the six indicators/criteria (*precision, accuracy, computational speed, flexibility, simplicity and number of parameters*) and on the basis of a limited set of ideal and real test cases, a good compromise for efficiently employing an assessment method for strategic noise mapping purposes is to use NMPB 2008 as the propagation part of the CNOSSOS-EU framework.
- However, the performance of this module should be thoroughly tested and validated in the context of Phase B of the CNOSSOS-EU roadmap, especially in relation to accuracy requirements.



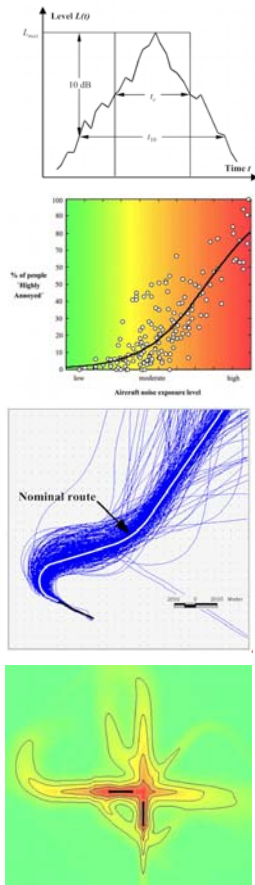
CNOSSOS-EU: Aircraft noise prediction



- Clarification of the aerodromes and airports covered by the Directive (Article 3 item (p))
- Fixed-wing aircraft noise calculation methodology and noise performance database
- General aviation noise and performance database
- Rotary aircraft (helicopter) noise calculation methodology and noise performance
- Military aircraft noise calculation methodology and noise & performance database
- Definition of fixed-wing aircraft ground noise
- Ground noise calculation methodology
- Ground noise and performance database
- Average meteo conditions for day, evening & night periods



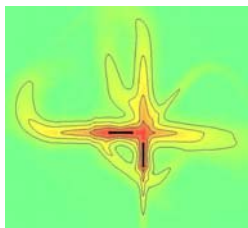
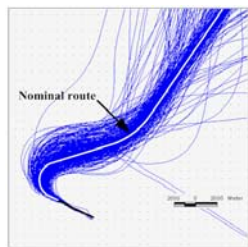
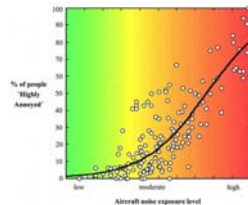
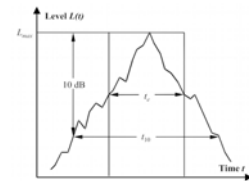
CNOSSOS-EU: Aircraft noise prediction



- Two previous candidate methodologies and databases reviewed:
 - AzB 2008 and database
 - ECAC Doc. 29 3rd Edition and ICAO ANP database
- Both models have their strengths and weaknesses
- Methodology needs to be aligned with Directive 2002/30/EC, requires assessment of detailed fleet changes and noise abatement procedures
- AzB database could be developed in time to meet needs of 2002/30/EC, but not within the CNOSSOS-EU (phase A) timescale
- ECAC Doc. 29 3rd Edition is consistent with ICAO Doc. 9911. As an agency of the Commission, EASA will use the CNOSSOS-EU methodology for European regulatory impact assessment, e.g. changes to ICAO noise standards.
- There is therefore a need to ensure the CNOSSOS-EU method is aligned with the ICAO method.
- Annex II Recommendation: ECAC Doc. 29 3rd Edition, 2005 and the ICAO ANP database version 2, 2012.



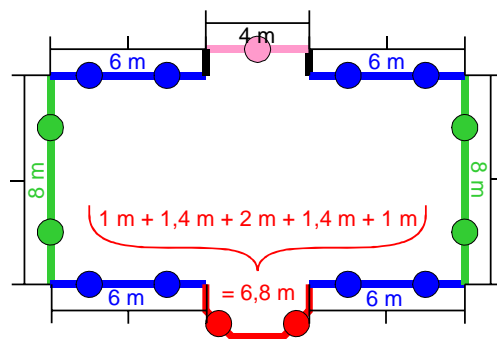
CNOSSOS-EU: Aircraft noise prediction



- It is recognised the insufficient coverage in ICAO ANP database
- It is recommended that the AzB 2008 general aviation noise and performance data is used to supplement the ICAO ANP database
- Data will need to be converted into the ANP database format



CNOSSOS-EU: Assigning noise levels and population to buildings



1. The **definition** of population, buildings and dwellings, the residential use and the meaning of a façade was clarified and fixed
2. For strategic noise mapping purposes, the main target for population assignment is **buildings for "residential" use**
3. If a **detailed distribution of population over the dwelling units of a building** is available, this is recommended to be used
4. For strategic noise mapping purposes, the **equal distribution** principle is recommended to be used instead of the **most exposed façade**
5. For action planning purposes,
 - the significant **seasonal variability of population** is recommended to be taken into account (e.g., tourist places during summer)
 - it is recommended to use more detailed information on **real distribution of people** in dwellings and possibly also heights other than **4 m** above ground



CNOSSOS-EU: Good practice guidelines

Resolution 1: The aim of the CNOSSOS-EU guidelines is two-fold:

- To provide **mandatory guidance** for the application of CNOSSOS-EU for strategic noise mapping; and
- To provide **guidance, advice and shared best practice** for the application of CNOSSOS-EU for noise action planning.



CNOSSOS-EU: Good practice guidelines

Resolution 2: The content of the CNOSSOS-EU guidelines:

- Should cover the **complete process of strategic noise mapping**, from defining agglomerations and major sources, through to reporting results;
- Should indicate the impact of **differences in quality of input data**;
- Should provide instructions on the evaluation of emission data:
- how to import national databases into CNOSSOS-EU
- how to introduce new data
- Should be **flexible** to accommodate local and regional variations (complex situations such as valley zones); and
- Will need to be **managed, updated and extended** as necessary as application, experience and expertise in CNOSSOS-EU grows in the future, potentially under the control of proposed CNOSSOS-EU WG13 (Help desk and training of EU MS).



CNOSSOS-EU: Good practice guidelines

Resolution 3: The end users were identified

WHO?	NEEDS?
National authority	understand the financial costs, the complexity and the number of organisations within the MS who need to be involved within the process of implementing the directive including transposition
Competent authority	coordination, management and production of the result data of strategic noise mapping or action plans
Technical practitioner	run the project (data collection and handling, operating software, operating calculation, producing result files)
Data provider	provide the appropriate input data
Reporting coordinator at MS towards the EC	collect relevant information from the competent authorities



CNOSSOS-EU: Good practice guidelines

Resolution 4: The website concept

The concept aims to deliver the following benefits:

- Multi-user authoring
- Instant reviewing
- Managed publication
- User focused content
- User feedback
- Project tracking
- Search
- Filtered views



CNOSSOS-EU: Good practice guidelines

Resolution 5: Five embedded levels of use

- **Level 0: “Overview”**: Framework description of the method, aimed at general public and politicians
- **Level 1: “The assessment process”**: Explanations for the environmental offices and managers of the process at MS level
- **Level 2: “Description”**: General explanation of input data requirements and use of the method. Aimed at persons performing the noise mapping calculations
- **Level 3: “Toolkit”**: Exact list of inputs to be used in the calculation
- **Level 4: “Details”**: Hints of the settings and input values, clarification of specific issues, data format tools for National databases conversion, tools for introducing new values, use of measurements



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- [F.A.Q.](#)

not enough data selected!

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News

Jul 5, 2010
[New guideline online](#)
Category: General
Posted by: reinavi

This is the text for the new guideline news.

Home

Whereas the direct consequences of noise pollution lead to permanent hearing loss and impairments, the indirect health effects encompass a wide range of health complications resulting from increased anxiety, psychological distress, depression, and communication problems. In chronic cases this can result in cardiovascular problems.

The report highlights that:

- One in three Europeans experience annoyance during the daytime and one in five has disturbed sleep at night because of noise from roads, railways and airports.
- Traffic-related noise accounts for over 1 million healthy years of life lost annually to ill health, disability or early death in the western countries in the WHO European Region.

The report which was released on 30 March 2011 reviews the evidence of health effects consequent to noise exposure and estimates the burden of disease in western European countries. It also provides guidance on how best to quantify risks from environmental noise.

In order to reduce the health effects of environmental noise, the European Commission, the WHO/Europe and the European Environment Agency are collaborating closely to improve implementation of the 2010 [Parma Declaration](#) and the European Union's noise-related directives. JRC, on behalf of the European Commission's Environment Directorate-General, develops and coordinates the common noise assessment methodological framework (CNOSSOS-EU).

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Level 0

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 - Roads - Hints
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- Industrial noise source emission
- Aircraft noise source emission
- Sound propagation
- GIS and dataset specifications
- Noise levels calculations
- Measurements
- Reporting of Results
- Public Participation
- My mapping

Level 1

Road noise source emission

CNOSSOS-EU is a framework of methods, which allows a two-level application according to the objective of the assessment. The first simplified level of application allows performing an overall impact assessment of exposure to noise in the context of strategic noise mapping as required by the END with reasonable approximations. At the second more sophisticated level of application, which requires a more precise determination of the noise levels, CNOSSOS-EU can also be used by the EU MS on a voluntary basis in its detailed version to assess the effectiveness of actions plans and potential new noise reduction measures.

For road noise, the methods allows calculation of noise levels of:

- Motorized road traffic sources, such as passenger cars, delivery vans and lorries, using standard infrastructure (road) including typical pavement types, both on main highroads, local and regional roads.

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not enough data selected!

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Speed - TOOLKIT

Available information	Complexity	Accuracy	Cost	Use
Speed for day, evening and night	Low	<0.5 dB	Low	<input type="radio"/>
Speed for each hour of the day	Low	<0.5 dB	Medium	<input checked="" type="radio"/>
Speed for day and night	Low	<0.5 dB	High	<input type="radio"/>
Traffic speed for an 18-hour day or a full 24-hour day (or longer period of time)	Low	1 dB	High	<input type="radio"/>
Speed for weekdays	Low	<0.5 dB	High	<input type="radio"/>

Available information	Complexity	Accuracy	Cost	Use
+/-5 km/h	High	<0.5 dB	Medium	<input type="radio"/>
+/-10 km/h	Low	1 dB	Medium	<input checked="" type="radio"/>
+/-20 km/h	Low	2 dB	Low	<input type="radio"/>

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Speed - DETAILS

General discussion

It will generally be impractical for Member States to make traffic flow, composition and speed measurements for all the roads covered by the END. Therefore, it is likely that most Member States will use traffic models as the basis of obtaining a lot of this data for strategic noise mapping purposes (especially for agglomerations). These models often only provide peak hour flow and composition data and journey time speeds³. Such data cannot be used directly for the calculation of the Lden and Lnight indicators and, therefore, need to be factored to provide long-term day, evening and night data. There are several possibilities for doing this, for example, by using the traffic data that has been measured to develop, validate or maintain a traffic model. From such measurements it may be possible to produce conversion factors for various categories of roads that can then be used to estimate the day, evening and night-time flow on these roads. Alternatively, such conversion factors could be developed from long-term flow and speed measurement studies specifically undertaken for this purpose.

Road traffic models often provide traffic speeds that are based on journey times. These speeds include the delay experienced at junctions, traffic lights etc. For strategic noise mapping, the average speed on free flowing sections of the road is generally required.

Traffic flows and speeds are frequently not readily available for every lane of multi-lane road corridors and occasionally may not even be available for each direction. Alternative ways of assigning flows and speeds in such circumstances are discussed below: Assignment by lane. Where data is available for each lane of a multi-lane corridor and this shows that there is a significant difference between the traffic data for each lane it may be appropriate to assign different data to each lane. It may be important to do this where reception points are close to the road or when the immediate surroundings of the road may have a strong influence on noise propagation (for example, where a road is in a cutting or on an embankment). Assignment by direction. This is normally necessary and particularly so when it is known that traffic data for the different directions are significantly different or when the road gradient may significantly affect the noise emission (as determined by the model being used but typically when the gradient is greater than 3%). Assignment by road. In this case a combined two-way flow is assigned to a multi-lane road (normally to the centre line of the road corridor). This is generally only acceptable for strategic assessment when the road gradient is not important (as determined by the model being used but typically when the gradient is less than 3%).

Annex IV (3) of the END indicates that noise maps for agglomerations have to place a special emphasis on road traffic. A strict interpretation of the END could mean that all roads in agglomerations have to be mapped. However, no advice is provided on how to deal with speed on low flow roads where reliable flow data is unavailable, or indeed on which low flow roads need to be mapped.

Low flow roads

Traffic flow data is unlikely to be available for every road in an agglomeration, especially for low flow roads, but the END implies that all roads have to be taken into account and mapped, in these areas. There appear to be three possible solutions to this problem, which have varying degrees of associated complexity, accuracy and expense. They are as follows: 1. Obtain and use accurate traffic flow data from a traffic flow model and/or traffic counts for all roads, including low flow roads. This is

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News

Jul 5, 2010
[New guideline online](#)
 Category: General
 Posted by: reinavi
 This is the text for the new guideline news.

Filtered View



Competent authority

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JRC Reference report on CNOSSOS-EU

Outcome of Phase A – (July 2012)



1. JRC Reference report on “*Common Noise Assessment methods in EU (CNOSSOS-EU) for strategic noise mapping*”
2. JRC Master report on “*Common Noise Assessment methods in EU (CNOSSOS-EU): outcome and resolutions of the CNOSSOS-EU Technical Committee & Working Groups*”

<http://publications.jrc.ec.europa.eu/repository/handle/111111111/26390>



environment

JRC Reference report on CNOSSOS-EU

- ❖ Outcome of Phase A – Description of core CNOSSOS-EU framework for strategic noise mapping (July 2012)
- ❖ May be revised during Phase B – Complete CNOSSOS-EU framework (2015)
 - Part 1: CNOSSOS-EU for strategic noise mapping (*mandatory*)
 - Part 2: CNOSSOS-EU for action planning (*voluntary*)
- ❖ Part 1: Basis for reviewing Annex II of the Noise Directive via European Commission's Implementing Act
- ❖ CNOSSOS-EU fully operational in the EU MS starting from the 3rd round of strategic noise mapping in Europe (2017)





CNOSSOS-EU phase B

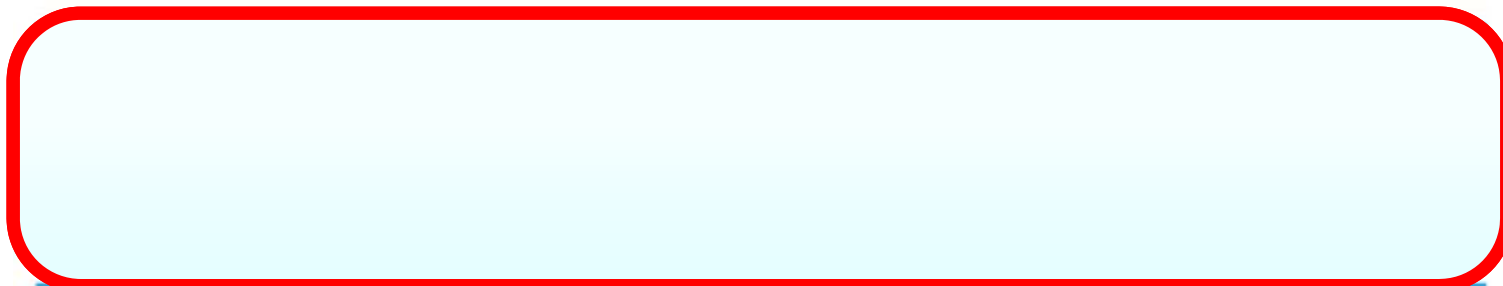
CNOSSOS-EU tools and validation



CNOSSOS-EU phase B just started:

- *A call for tender was launched in summer 2012 to cover the implementation aspects that require technical work (development of database for road, railway and industrial noise, open source code, validation, guidelines)*
- *COM intends to involve the EU MS in the validation process*

PHASE B



CNOSSOS-EU WG/DT 11 "Burden of disease estimation"



CNOSSOS-EU WG/DT 13 "Help desk and training for EU MS"





Indicative planning:

- completion of the methodology including databases for road, railway and industrial noise - *October 2013*
- validation and fine tuning (possibly with support of MS) - *February 2014*
- first presentation of a draft revised Annex II - *February 2014*
- finalisation of the revised Annex II and implementing decision - *June 2014*
- helpdesk supporting practitioners: *from 2014*





Validation of CNOSSOS-EU

Aimed at:

- giving the opportunity to the MS to test CNOSSOS-EU against: national methods; national databases; measurements (short & long term)
- if necessary fine tune the CNOSSOS-EU in line with the discussions of WG1, WG2, WG3, WG4 and WG5 of CNOSSOS-EU
- if deemed appropriate and necessary (to be discussed with the NRC) develop a set of benchmark test cases to support a quality assurance system for the commercial software implementing CNOSSOS-EU





Validation of CNOSSOS-EU

Possibly performed by means of:

- Collection of test cases in a common fiche proposed by COM on the basis of the technical assistance received by the tender
- The fiche will require specific and detailed information on the source description
- And the possible propagation paths that are required to be calculated over a single test case (the open source calculation core will be able to perform point to point calculation over a single propagation path)

Are MS willing to support COM in the validation process with their own resources? Replies by 7 September 2012.





CNOSSOS-EU implementing decision

Modification of Annex II of Directive 2002/49/EC



Modification of Annex II of Directive 2002/49/EC

- Discussions internal to the Commission services (legal issues) come to the conclusion that Annex II shall possibly not refer explicitly to external documents, but be “self-standing”
- Only the text contained in Annex II will be legally binding
- Supplementary information will have the status of guidance
- A first schematic draft was anticipated to the MS at the NRC of 29th September 2011
- A group of MS at the NRC volunteered and started a discussion on the legal text
- COM intends to prepare possible drafts and discuss them at the NRC during 2013, parallel to phase B of CNOSSOS-EU

Thank you for your attention

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in-house science service*

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