SoftNoise
DEVELOPERS PREDICTOR & LIMA

PRODUCT INFORMATION:

PREDICTOR™–LIMA™ SOFTWARE SUITE VERSION 2021

The Predictor-LimA Software Suite is the complete solution for all environmental noise projects. Noise predictions for industry, roads, railways, aircraft and wind turbines are all supported. The software is used by acoustic consultants, environmental authorities, heavy industries and educational institutes.

The suite bundles the intuitive Predictor GUI and flexible LimA GUI in one powerful, integrated, state-of-the-art package that provides the best solution for whichever project you have, from small-scale industrial situations to large-scale city noise mapping. Predictor-LimA use the state-of-the-art LimA calculation cores with huge capacity and high calculation speed so that you get results quickly while reducing your investment in computing power.

Depending on the task, you can use the GUI that suits you and the task best for efficient, powerful environmental noise prediction and analysis. The suite allows you to do most of your projects quickly and easily, with the intuitive functionality of Predictor and the flexibility of LimA. In addition, the LimA system provides the tools to fully integrate environmental noise predictions in other Geographical Information Systems (GISs).

USE AND FEATURES

Uses

- Environmental noise prediction, mapping, management, action planning and impact assessment
- Noise prediction for industry, road traffic, rail traffic, air traffic and wind turbines
- Fulfilment of European Commission directives such as Environmental Noise Directive (2002/49/EC) in accordance with Guidelines on Revised Interim Computation Methods (2003/613/EC) and revised Annex II (Directive 2015/996/EC)
- Fulfilment of Industrial Emissions (IPPC) Directive 2010/75/EU and similar
- Integration in other (GIS/management) systems
- Educational purposes

Features

- User friendly and easy to learn
- Fast and accurate calculations, extremely powerful and professional
- State-of-the-art 64-bit and WMS support for direct use of online georeferenced maps as background maps
- Time-saving integrated and automated bookkeeping for model data and results
- Automated reverse engineering and instant noise maps using noise measurements to help create accurate noise calculations
- Make use of automated workflows (import, clean, calculate, plot, etc.) to reduce the risk of human error on larger projects
- Multi-PC modeling mode in all configurations is a very cost-effective solution for multi-person use

THE SOFTWARE SUITE

The suite bundles the following software in one state-of-the-art software package:

- Predictor: Intuitive GUI for environmental noise prediction and mapping; uses the powerful LimA calculation cores. Predictor supports 20 calculation standards.
- LimA: Modular and flexible GUI for environmental noise prediction and mapping. LimA supports 30 calculation standards.
- Acoustic Determinator: Software for the determination of sound power levels according to several Measurement methods including ISO 3744, 3746 and 8297.

Predictor and LimA can be used as separate stand-alone applications or as one integrated application by using the Analyst method in Predictor. Because Predictor and LimA both use the same fast LimA calculation cores, there is no difference in calculation speed or capacity.

The suite offers three implementations:

1. Predictor: For all calculation standards supported by Predictor. With the intuitive and powerful Predictor user interface, projects that require the calculation standards supported by Predictor, can be handled quickly and easily.
2. LimA: For calculation standards not supported by Predictor. In addition to the calculation standards supported by Predictor, LimA also supports German and Central European standards.
3. LimA integrated in other (GIS) systems: For implementing environmental noise calculation and analysis functionality in other systems. Modular and flexible, LimA is the preferred software for system integration.

Acoustic Determinator can be used as stand-alone software as well as in conjunction with Predictor and LimA.

FAST AND ACCURATE CALCULATIONS

Predictor and LimA use LimA calculation cores – Among the Fastest on the Market

Predictor and LimA use LimA's state-of-the-art calculation cores, which have been independently proven to be the fastest calculation cores available for Calculation of Road and Traffic Noise (CRTN) calculations. LimA calculation cores have a huge capacity, high calculation speed and support 64-bit systems, for even the most demanding tasks, providing results quickly while reducing your investment in computing power.

Accurate Calculations using the method of projection – Unique 3D Geometry Analysis

The 'method of projection' used in the LimA calculation cores is widely seen as the most accurate approach to source segmentation in environmental acoustics. Stapelfeldt introduced it to the market with LimA in 1989, and since then it has been included in all major commercial calculation software. Unlike other software, however, Predictor and LimA also apply this method for reflection analysis, so that this is also analysed in 3D. Another unique feature is the geometry analysis for lateral diffraction – this allows you to find the shortest sound path in complex 3D situations.

Fig. 1 The method of projection ensures correct segmentation (in 3D) into sections with the same propagation conditions. Results are less sensitive to small changes in receiver point position. These factors lead to more realistic results
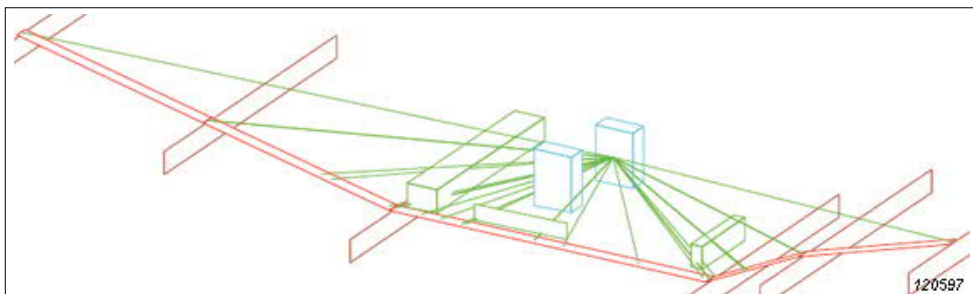
Fast Learning Curve

Predictor has the most intuitive interface available. More than any other noise calculation software, Predictor has been designed according to the Windows® software design guide, helping you to be familiar with it from the very start. Predictor's intuitive interface and well organized project structure is designed to guide and support you, so you can spend your time more efficiently and focus on the project and not on the software. All scenarios and action plans are maintained within one Predictor project. This enables you to focus on your work and not spend valuable time searching for the correct files on the network.
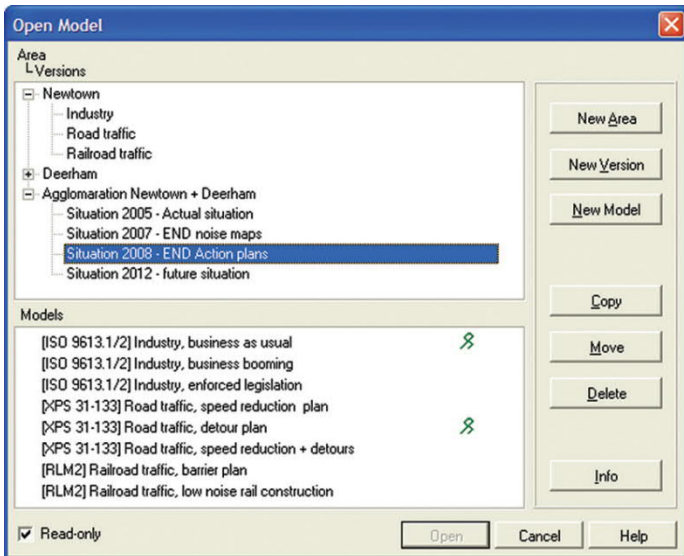

Fig. 2 The unique Model Manager is the central point for all data access in a Predictor project

Fig. 3 The intuitive multi-model view enables you to have several models open at the same time

Accurate and Straightforward Modelling

Predictor's intuitive functionality, including powerful (GIS) import and 2D/3D edit options, will enable you to handle all kind of projects in an efficient manner. Complex situations with undulating terrain, flyovers, bridges and indoor/outdoor calculations, or large projects with thousands of objects, can be set up just as easily and straightforwardly as a simple noise map for an industry or a stretch of road.

Time-saving Integrated Bookkeeping for Model Data and Results

Any noise calculation project comprises both input data and results, requiring a consistency between the two at all times, so that the results you report are what you modelled. To ensure this consistency, Predictor monitors the results at all times and new input data are validated immediately at entry time. This unique and automated validation feature not only reduces recalculation time but, more importantly, ensures that results are always up-to-date and consistent with the input data. This is unlike any other noise calculation software.

Powerful Result Analysis and What-if Scenarios

By using intuitive tables, Predictor ranks the individual noise sources (or groups of noise sources) on demand, clearly showing the importance of each source (or group of sources). Predictor immediately makes available what-if results, for example, "What if the speed of traffic is increased from 10 km/h to 100 km/h?" Or, "What happens if all exhaust ventilators are reduced by 6 dB?" This functionality enables rapid troubleshooting and notifications on noise reduction activities.

Integrated GIS functionality for demographic analysis

Within a Predictor project Analyst models can be created. An Analyst model enables you to obtain data that is required according to the EU Environmental Noise Directive without the need for an expensive GIS system. Cumulative and difference maps can be created. All maps can be confronted with demographic GIS data files to determine noise exposure (of people/dwellings). Calculated results from different calculation software can be imported.
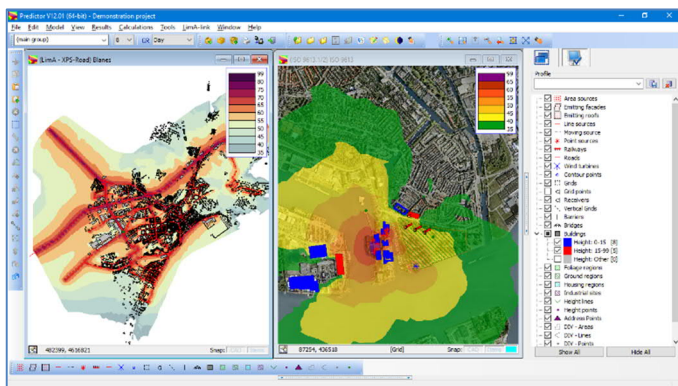
Fig. 4 (Left) Model view with multi-layer DXF background as snap option for items (buildings, roads etc.), enabling faster modelling

Fig. 5 (Right) Model view of Arnhem, Holland, with 70,000 buildings and 2500 roads on a satellite image as background
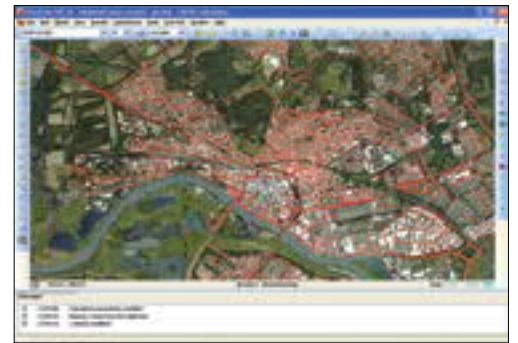

Fig. 6 (Left) 2D Cross section with noise contours of a shooting range with 3D source directivity and hanging barriers

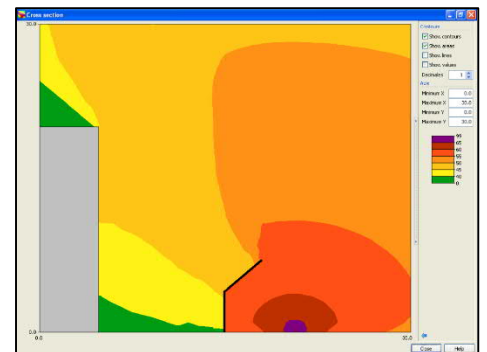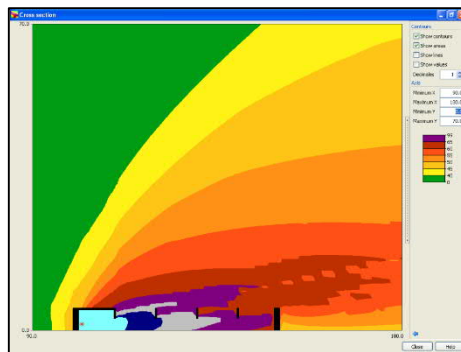Fig. 7 (Right) 2D Cross section with noise contours of road with a cantilever barrier

Fig. 8 (Left) 3D view of Blanes in Spain with terrain model. Items such as buildings are mapped on top of the terrain model making it easy to create real-life models from the input data

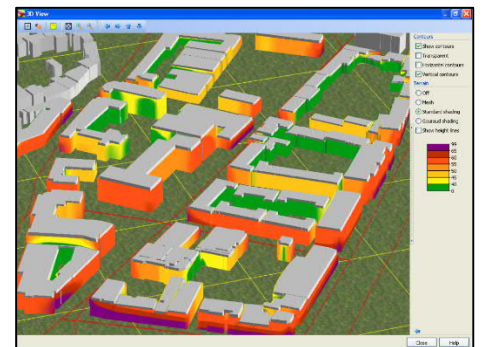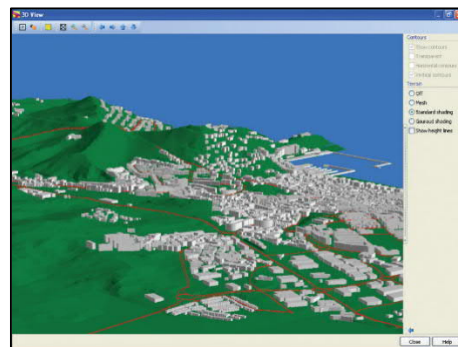Fig. 9 (Right) 3D view with vertical contours on the facades of buildings

Fig. 10 (Left) Wind turbine database with option to calculate sound power level based on IEC 61400–11. Equivalent sound power level at turbine height, calculated *using various different* parameters: turbine height, cut-in and cut-out speed, etc.

Fig. 11 (Right) 3D model: wind turbine noise contours

LIMA SOFTWARE FEATURES AND BENEFITS

Software Concept

LimA's software design has been built on an open structure that provides a high level of customization. Different tasks are handled by different modules and can, therefore, be delegated to other processors or machines. Also, the geometry manipulation tools, which are provided in the graphical user interface, can be used for parallel background processing for large projects that need to handle millions of objects.

While a single model file may be limited in its size, depending on the operating system, it is no problem for LimA to deal with model data stored in thousands of files. LimA modules run under Windows® desktop and server systems, either 32- or 64-bit.

Flexibility

With the LimA concept, many different regulations for environmental acoustic analysis are supported. In addition, it offers the chance to use the user-defined model data for other purposes, for example, solar radiation or air pollution analysis. Efficiency in setting up large data models is ensured by a range of external data formats, which are supported in both importing and exporting, among them CityGML, the INSPIRE* conforming standard of the Open Geospatial Consortium, Inc. (OGC®). A comprehensive set of data manipulation tools help to refine raw data that cannot be directly used for acoustic analysis. To customize data, you can introduce your own object types, define new attributes and configure online help and input selection. Even introducing a customized DLL for manipulating attribute content based on user input is possible.

Extensibility

LimA's software architecture and its extremely fast calculation speed make it the preferred software for integration with other tools. LimA modules can run behind external software with interface tools to other solutions. Tools and functionality include:

- LimAarc: Plug-in tool for ArcGIS®
- On-demand noise mapping Day, Evening, Night (Oden): Server based user interface for noise calculation via the Internet

- GKZ Organizer: Provides automated processing of noise maps, starting with collecting model data from Web Service, then calculates noise and exposure, prepares results graphics and finally reports
- MapWindow GIS: An Open Source GIS tool. It can be used to set up LimA models, display results and organize calculation requests
- Linux support: Nearly all LimA modules are available for Linux-based operating systems

Macro Ability

LimA's user interface supports menu driven interaction as well as command line input. Individual commands can be combined to powerful "one line" sequences or written to macro files, thus allowing use in any project. Commands support a range of functionalities:

- Geometry manipulation
- Attribute manipulation
- Handling of variables
- External file I/O
- Search loops, IF and WHILE constructions, calling of other macros

Where more complex data manipulation is needed, it is good practice to design the intended workflow by writing a macro and applying it to the model data. This ensures a clear and documented overview over the whole process, avoids tedious work, and, if needed, the job can be redone by a simple button click. For large amounts of data, this approach is far more efficient than conventional Windows® techniques.

Workflows

Macros may call up processes by other LimA or third-party software, wait for results and then continue their job. Thus, workflows can organize the whole noise mapping task including uploading data via the Web Feature Service; preprocessing model data; calculating grid, facade and QA values; converting results into graphics and statistics; and uploading results. Other workflows may, for instance: compare two alternative facade calculations; find the worst noise level for each building; mark this position in a graphic and label the noise level and its change; create a tabular list; and plot and export the results to a shape file.

* Infrastructure for Spatial Information in Europe (INSPIRE)

LIMA USER INTERFACE AND INTEGRATION EXAMPLES

Fig. 12 (Left) Model view with calculated noise contours in a stadium using 3D loudspeaker directivity
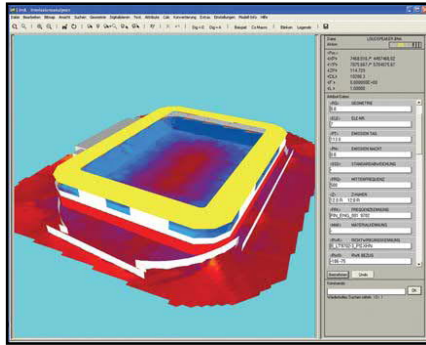
Fig. 13 (Right) Model view with estimated sound power levels of unknown sources at three heights for a petrochemical plant using reverse engineering
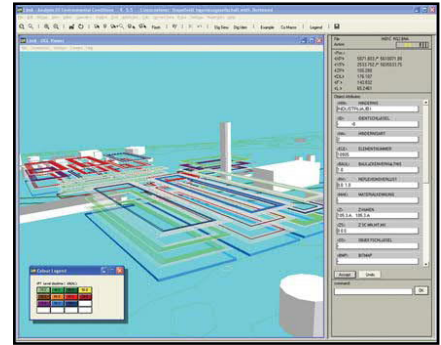
Fig. 14 (Left) Model view showing coloured buildings. The colours represent the most relevant Noise Emitter *Group, for example, a specific* road or industrial compound Fig. 15 (Right) Overview of a 40,000 km2 area that was split up in 10×10 km tiles for automated data *refinement by LimA macros*
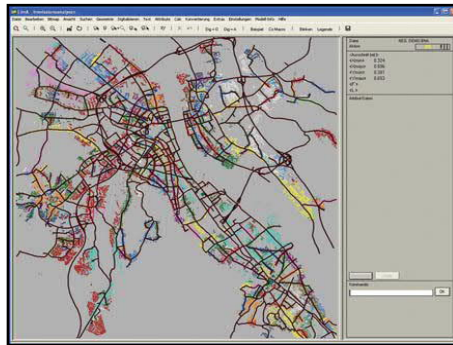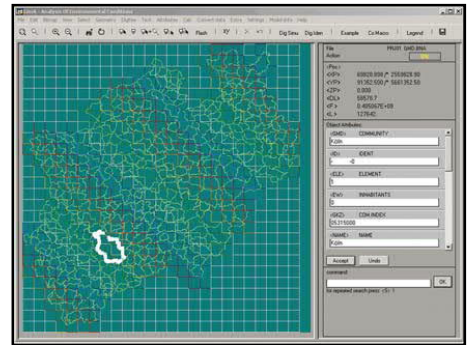
Fig. 16 (Left) Example of the ODEN web-based user *interface showing 3D LimA* model data on a satellite image
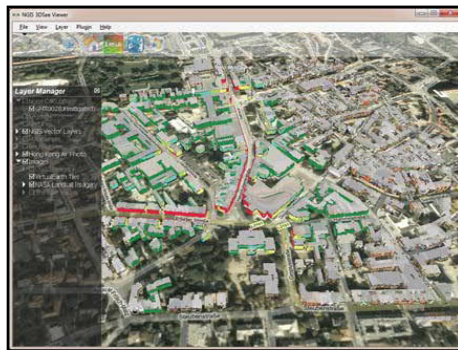
Fig. 17 (Right) Example of *the LimAarc (ArcGIS plug- in* tool) user interface showing *3D LimA model data and* calculated contours using *external LimA modules*

Fig. 18 (Left) Model view with air quality contours as *a result of linking LimA with freeware AUSTAL*

Fig. 19 (Right) *LimA 3D view* with Google Maps™ image projected onto the terrain

CONFIGURATIONS

The Predictor-LimA software suite is available in 5 configurations to match various applications and budgets. All configurations include the intuitive Predictor GUI, SourceDB with the Imagine Sound Power database and the Wind turbine catalogue. All configurations include a network modelling license, allowing modelling with the Predictor system on all PCs linked to the network.
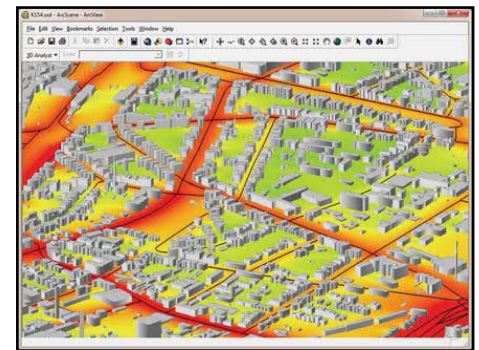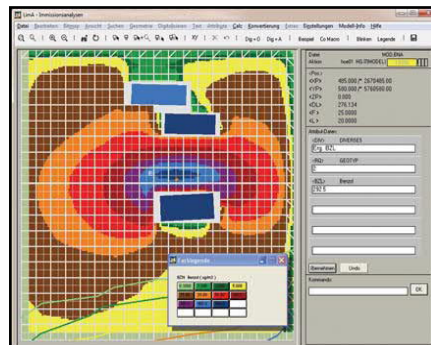
Configurations

Predictor-LimA Advanced (Type 7810-B):
Enables you to calculate advanced-sized models for industry, road, rail and wind turbines. All methods supported by Predictor and LimA are included, including the CNOSSOS method. Acoustic Determinator is included to ease creation of sources with real life noise data. The advanced configuration is the ideal and complete configuration for authorities and consultants who are doing assessment and nose mapping studies for large city wide areas. The advanced configuration is the preferred configuration for creating EU strategic noise maps.

Predictor-LimA Plus (Type 7810-A):
Enables you to calculate plus-sized models for industry, road, rail and wind turbines. All methods supported by Predictor and LimA are included, including the CNOSSOS method. Acoustic Determinator is included to ease creation of sources with real life noise data. The Standard Plus configuration is the ideal and complete configuration for authorities, consultants, wind farm developers and educational institutes who are doing assessment and impact studies for larger areas.

Predictor-LimA Standard (Type 7810-G):
Enables you to calculate standard-sized models for industry, road, rail and wind turbines. All methods supported by Predictor and LimA are included, including the CNOSSOS method. The Standard configuration is the ideal and complete configuration for authorities, consultants, wind farm developers and educational institutes who are doing assessment and impact studies for smaller areas.

Predictor Basic Plus (Type 7810-C):
Enables you to calculate plus-sized models for industry, road, rail and wind turbines. All methods supported by Predictor, except for the CNOSSOS method, are included such as ISO 9613, CRTN, Harmonoise, NMPB-2008 and RMR. The Basic Plus configuration is the ideal configuration for consultants and wind farm developers who are doing assessment and impact studies for larger areas.

Predictor Basic Standard (Type 7810-I):
Enables you to calculate standard-sized models for industry, road, rail and wind turbines. All methods supported by Predictor, except for the CNOSSOS method, are included such as ISO 9613, CRTN, Harmonoise, NMPB-2008 and RMR. The Basic configuration is the ideal configuration for consultants and wind farm developers who are doing assessment and impact studies for smaller areas.

Predictor-LimA Cloud Calculation Service (add-on)
The Predictor-LimA Cloud Calculation Service enables the use of the fully automated cloud calculation option in Predictor. It provides you with fast and secure calculations without any investments in hardware or IT. Cloud calculations can be used anywhere and by multiple users at the same time, no HASP key needed. The service uses a modern and secure ISO 27001 certified scalable infrastructure and has been developed especially for large models and EU noise mapping projects.

Fig. 20 Work from home, the office or any other location with the Cloud Calculation Service. No HASP key needed
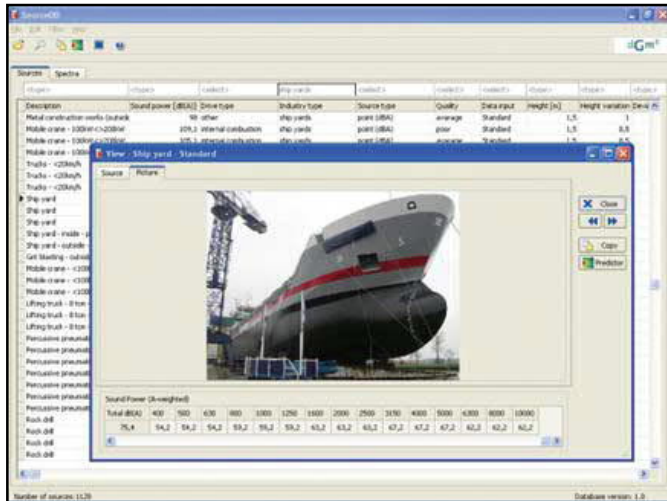
ADD-ON OPTIONS

Fig. 21 Example of SourceDB window showing a shipyard in the Imagine database with an average sound power level of 72.4 dB/m²

Fig. 22 Example of Acoustic Determinator window showing the project tree structure and the internal acoustic spreadsheet for dB averaging, cumulating and spectra weighting

SourceDB (Included with all Configurations):
SourceDB is a convenient software for maintaining databases with 1/3-octave sound power levels for industrial sources. Sources can be points, lines or areas. Additional information like drive type and industry type can added as well as measurement conditions and pictures. Formulas can be stored in the database to calculate the sound power level using a powerful script programming language. With the Copy to Predictor option, sound powers can be used directly in a Predictor model.

The software also includes the Imagine database, developed for the European "Improved Methods for the Assessment of the Generic Impact of Noise in the Environment" (IMAGINE) project. The software also includes industrial noise sources and supplies data for applications in situations where measurement results cannot be used.

The sources range from specific individual noise sources (for example, a fork lift truck) to sound power levels for types of industry as a whole. For each source, formulas can be found that can be used to predict sound power levels based on power consumption, rpm, etc.

Acoustic Determinator (Included with Predictor-LimA Software Types 7810-A/B):
Acoustic Determinator is used to determine the sound power levels of industrial noise sources by measuring the sound pressure level according to ISO 3744, ISO 3746 and ISO 8297, as well as eight Dutch calculation methods (see Fig. 22). The sound power levels calculated in Acoustic Determinator can be exported to SourceDB or used directly as input for a noise source in a Predictor model.

Fig. 23 The Analyst method is included in all configurations. It allows accumulation and analysis of calculated noise maps

Analyst Method (Included in all Predictor-LimA configurations):

This method has advanced GIS-like functionality for organising, accumulating, viewing, analysing and exporting of noise maps (Fig. 23).

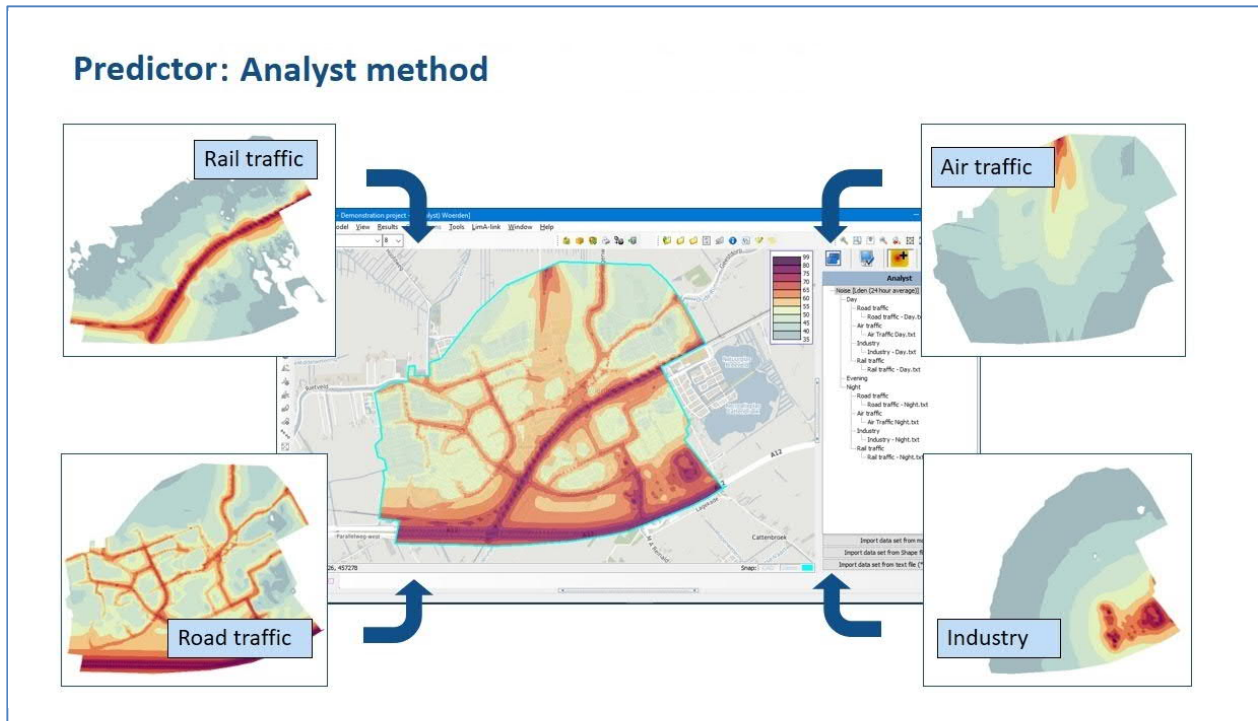The Analyst method enables you to obtain data that is required according to the EU Environmental Noise Directive without the need for an expensive GIS system. Cumulated and difference maps can be created. All maps can be combined with demographic GIS data files to determine noise exposure. Calculated results from different calculation software can be imported and combined.

Optional Software Packages

- LimA Aircraft Module BZ-5441: Enables calculation of aircraft noise in accordance with ECAC Doc. 29 and the German AzB method, and allows simulation of a moving point source
- LimA Graphical User Interface BZ-5700: Enables use of LimA on a second computer for the creation and viewing of models and results created using the main Predictor-LimA software suite

Customized Versions and Add-ons

Upon request, customized versions and add-ons can be developed for all software within the Predictor and LimA software suite. Examples of customer-specific add-ons for LimA:

- Single file convertors for: ArcGIS, ArcView®, ArcInfo®, Atlas GIS™, GeoMedia®, MapInfo®, MOSS/MX, SICAD® SD, SICAD SQD, SoundPLAN® (ASCII), VISUM®, ESZI and GRANIS
- LimA s_{ol}: Solar radiation and shadowing analysis
- AUSTAL, IMMIS$_{net}$, IMMIS$_{Luft}$: Air quality and meteorological modelling modules
- Support of Web Feature Services (WFS-T) and Web Coverage Services (WCS), in order to exchange data with external servers via the Internet
- Automated macros for advanced geometrical handling.

SUPPORT AND SERVICES

Maintenance

All 1-year rental and perpetual configurations include 1 year maintenance. Maintenance includes upgrades and questions regarding installation and software warning and error messages. The maintenance can be renewed per year, which ensures you have the latest updates and best supported tools. Maintenance will save you money because renewals cost less than single upgrades.

Premium Support

Questions regarding the use of the software as well as model reviews on data consistency and obvious modelling errors are handled within Premium Support. Premium Support includes in total 3 hours of support. This includes answering support questions by email, model reviews and on-line Q/A sessions. A model review will result in a list of findings and recommendations from our experts.

We recommend all new users of Predictor-LimA to include Premium Support for the first year. It will speed up the learning process and it will increase the quality of your models.

Online training

Online training can be purchased in units of 3 hours. We recommend to start with 3 hours. As preparation for an online training the trainee is asked to supply a list of subjects and/or questions. We will group the items on the list in sections that belong to each other. The training will be done based on the list. The training will be given in separate sessions of 1 hour. Every session will be recorded and send as a mp4 file directly after the session. A maximum of 1 session per day will be given. In this way the trainee has time to digest the information and come up with new subjects/questions to be put on the list. Online training can be purchased in our web shop.

SPECIFICATIONS – PREDICTOR SOFTWARE VERSION 2021

PROJECT

File: Open, close, zip, install demonstration project, list recently used projects

Model Manager: Areas, versions, models

Import: Items from QSI/SHP/MIF/DXF/TXT/GMF; measurements from Sound Level Meter Types 2260/2250; models from Predictor projects

Export: Items to QSI/SHP/MIF/TXT/GMF/KML (Google Earth); results to SHP/DXF/TXT/KML; model to Predictor project.

MODEL

Model Information: Method, make final option, model boundaries

Sources: Wind turbine, point source, line source, area source, emitting facade, emitting roof, moving point source, road, railway

Objects: Barrier (including cantilever option), bridge, building, foliage region, ground region, housing region, industrial site

Ground Model: Height line, height point

Calculation Points: Receiver, horizontal grid, vertical grid, contour point

Miscellaneous: DIV point, DIV line, DIV area, address point, GPS point

Groups: Unlimited nested grouping structure for sources

Periods: Time periods for day, evening, night and compound (Lden) period

EDIT

- Undo/redo, delete, copy/paste/paste special (as other item), snap (with offset to items or DXF background), move, rotate, rescale and simplify
- Multi-edit, polyline/polygon edit (add/insert/ remove node, swap nodes, break/join/connect)
- Search and select (on item attributes), select (all, from active group, invert, group, ungroup, window, within user-defined area)
- Batch create items (parallel items/contour points around sources/ receivers on facades)
- Import from SourceDB (sound power database), Import from Acoustic Determinator, add receiver or source from measurement

VIEWING AND VERIFICATION

- Display options, backgrounds (SHP/MIF/DXF/DWG/BMP/JPG), Georeference (bitmap calibration)
- Zoom (in/out/window/previous/selection/extents/pan)
  - Multi-model view, 3D view with edit option, cross-section view, measure distance view
- List of items, list of item history
- Check model, check links, remove duplicates
- Select background model, compare foreground

  and back ground model (items)

CALCULATION

- Cloud Calculation, Local Calculation, Batch calculation, Selective calculation (hor. grids/vert. grids/ receivers, contour points), Test calculation (with export to SHP for displaying propagation paths), ground model calculation
- Calculation settings: meteorological correction, ground attenuation, optimization (fetching radius, dynamic error margin), air absorption, order of reflection, result storage (source/group/total)

RESULTS AND SCENARIO COMPARISONS

- Table of results, table of comparisons (results/control values), table of control, control values, group reductions
- Contours (transparent/cumulated/difference), result labels, active period, active group
- Building results (on address points)

REPORTING

Print Results: From all result tables with interactive preview of selected receivers, number of sources, ranking, columns, groups and group reductions (Printer/PDF/RTF/XLS/BMP/JPG/WMF)

Print Items: With re-usable item profiles (Printer/PDF/RTF/XLS/BMP/JPG/WMF)

Print Model: With interactive preview and re-usable print templates (Printer/PDF)

TOOLS

Windcatalogue, SourceDB, Acoustic Determinator

SPECIFICATIONS – LIMA SOFTWARE VERSION 2021

PROJECT

- Customized project settings, based on configurable template
- Bookkeeping of user actions in user related log files as well as central project log file
- Selectable sub-sets of objects and regulations
- Support of automated merge of data setup or modified by several people in parallel
- Customizable template files preset dialog menus depending on intended task
- Automated workflows support fully automated processing of complex tasked
- Semi-automated workflows can guide user action
- User-defined DLL will support any kind of object attribute manipulation (for example, design emission model based on new object "bus lane" with extra attributes)
- Tracking of model modifications, using attributes such as User, Date, Period of validity, Origin of data, Modification index

INPUT

- Digitize data on screen or on tableau
- Attribute input supports database link, text list link (using Ident of up to 64 characters)
- Command loops help to efficiently edit large number of objects (for example, add 3 m height to all buildings of height 12 m in a certain region)
- More than 40 "Geometry Processing Features" (simple ones such as "move polygon" or complex ones such as "concatenate facade segments into buildings")
- Supporting the most complex terrain modelling features (contour lines, embankments, escarpment edges, terrain construction lines (reshaping terrain, e.g., along planed road), regular or irregular grid)

Macros: Support complex geometry processing (e.g., "create embankment along a number of adjacent non-parallel 3D railway tracks" or "pass on attribute information to matching objects")

Open Data Structure: For background or project related database for:
- Meteorological data
- Emission Spectra
- Reflection and transmission loss
- Directivity including frequency related and omnidirectional (5/10 degree resolution) directivity of loudspeakers

Import/Export: Vector/attribute data from DXF (AutoCAD®), SHAPE (GIS), measurement data from Brüel & Kjaer Sound Level Meters Types 2260/2250, TNM (FHWA), KML (Google Earth), Predictor models

VIEWING AND VERIFICATION
- Bitmaps in foreground or background
- Colour and pen coding according to attributes
- Automated guidance to objects recognized as critical during model setup in calculation core
- 3D OpenGL viewing with moving camera on track or automated collection of screenshots for sensitive positions
- Video-style display of changes in noise maps (for example, aircraft bypass)
- Automated statistics on objects and attribute content
- Manipulation of objects can be automatically reported to any text file

REPORTING AND EXPORT
- Create plots in HPGL or EMF format
- Export results to KML
- Create all kinds of statistics with built-in general statistics tools
- Analysis of quality of results, depending on calculation parameters, according to DIN 45687

CALCULATION
- Supports a wide range of regulation, octaves and 1/3-octaves
- 24 emission attributes to calculate hourly data for a whole day

- Generate separate result columns to document influence of groups of sources
- User control of result quality while tuning speed
- Server concept for up to 250 LimA servers in a network environment
- Scalable report tables offer deep insight into calculation, separately showing detailed geometry parameters of the sound path for each reflection and listing relevant reflectors. Also supporting visual check
- During each calculation a model file is created which keeps track of the data how it has been used after all internal processing
- Wide range of analysis features, including:
- Reverse Engineering defines source levels from measurements in complex environment with respect to background noise, multiple unknown sources (octaves supported)
- Fixing quotas to optimize industrial land use next to settlements
- Uncertainty analysis with respect to a range of influences
- Optimizing barriers (also grouped barriers) with respect to interaction of screening effects
- Non-stationary sources (checking for worth or best position)
- Finding optimal positions for a source with respect to surround settlements (find suitable wind park position)
- Create "logical" noise maps, showing the areas where certain sources or "noise emitter groups" contribute the dominant noise level
- Instant Noise Map, using measurement to automatically adjust a noise map

RECOMMENDED PC FOR PREDICTOR-LIMA SOFTWARE SUITE TYPE 7810

Operating System: Microsoft® Windows® 10, 64-bit
Graphics Adaptor: Intel or Nvidia
RAM: 8 GB for most projects. 32 GB for large noise mapping projects
Drive Space: At least 1 GB of free disk space, plus disk space used as a working area
Note: Predictor-LimA can be used with Windows® 7, Windows® 8 or Windows® 10 (32 or 64 bit)

CONFIGURATION OVERVIEW

	Type 7810-B	Type 7810-A	Type 7810-G	Type 7810-C	Type 7810-I
Name	Predictor-LimA Advanced	Predictor-LimA Plus	Predictor-LimA Standard	Predictor Basic Plus	Predictor Basic Standard
Calculation Method*	All Predictor and LimA methods Incl. CNOSSOS	All Predictor and LimA methods incl. CNOSSOS	All Predictor and LimA methods Incl. CNOSSOS	All Predictor methods excluding CNOSSOS	All Predictor methods excluding CNOSSOS
Model Size**	Advanced	Plus	Standard	Plus	Standard
Cores***	8	4	2	4	2
Predictor GUI	√	√	√	√	√
LimA GUI	√	√	√	X	X
Acoustic Determinator Type	√	√	O	O	O
Predictor-LimA Cloud Calculation Service	O	O	O	O	O
LimA Aircraft Module BZ-5441	O	O	O	X	X
LimA Graphic User Interface BZ-5700	O	O	O	X	X
LimAarc ArcGIS Plug-in WT-9686	O	O	O	X	X
Key: √ included, X not included, O optional add on					

* Methods implemented in Predictor: Analyst, CNOSSOS, Harmonoise, ISO 9613 (Full octave, 1/3 octave and Road), CRTN (UK/NZ/TRL), DAL 32, RMR – SRM2 (1996 and 2012), NMPB – 2008 (road/rail), XPS 31 – 133 (road/rail), BS 5228, HJ2.4-2009, TNM (32 bit), ENM-link (32bit);

* Methods implemented in LimA: CNOSSOS, Harmonoise, ISO 9613, CRTN, DAL 32, RMR – SRM2, NMPB – 2008, XPS 31 – 133, BS 5228, MSZ 15036, RLS 90, RLS 19, DIN 18005, RVS 3.02, UT2.1 – 302, VDI 2714 – 2720 – 2571, OAL 28, SCHALL 03 (1990 and 2014), AKUSTIK 04, TRANSRAPID, OAL 20, CRN, MSZ 2904, VBUS, VBUSch, VBUF and VBUI

** Size per model without tiling:

Advanced: 200,000 emittors and 1,000,000 obstacle or terrain edges;

Plus: 12,000 emittors and 60,000 obstacle edges and 1,000,000 obstacle or terrain edges;

Standard: 4,000 emittors and 20,000 obstacle edges and 1,000,000 obstacle or terrain edges.

*** The maximum number of logical processors (cores) used for the calculation.

FOR MORE INFORMATION VISIT WWW.SOFTNOISE.COM