01dB WebMonitoring
Technical Datasheet

01dB WebMonitoring is a simple and efficient solution for environmental noise & vibration monitoring. For a fixed monthly fee and a 3 month minimum rental period, 01dB offers an extensive range of on-demand services:

- *supply of monitoring terminals with pre-set parameters,*
- *data storage and back-up on the Cloud,*
- *periodic system checks and remote maintenance,*
- *availability of measured data through a customizable website,*
- *real-time alarms based on thresholds for quick decision making.*

Cost effective, reliable and versatile, 01dB WebMonitoring takes the hard work out of monitoring and lets you focus on data and results.

CUSTOMER BENEFITS

Simplified implementation and management of monitoring
- No IT structure required
- No management of phone subscription
- Supply of plug & play monitoring terminals
- Simple and user-friendly Web interface (no training required)
- 24/7 information available from any computer or mobile device

Enhanced productivity
- Class-1 reliability of data measured by 01dB terminals
- Fast implementation of Web interface
- Automatic calculation of recomposed indicators and publishing of synthetic results using a colour code (red, orange, green)
- Fast data analysis using the 01dB HeatMap visual tool
- Alarm management from the Web interface
- Automated reports about user-selected periods (day, week, month, year, etc.)

Cost control
- Fixed monthly cost per terminal, all services included
- No hardware investment (monitoring terminal and computer hardware)
- Project cost splitting over the entire monitoring period
- Capacity to address projects requiring several terminals over a short period of time
- Unlimited number of terminals, sites and users

MAIN APPLICATIONS

The 01dB WebMonitoring service offer applies to all types of monitoring projects. It can be used to measure, monitor and manage noise and vibration in multiple applications:

- construction sites
- urban areas
- places playing music
- industrial sites
- airports and airfields
- heliports
- road infrastructures
- rail infrastructures
- wind farms
- recreational activities...

THE 01DB WEBMONITORING OFFER

01dB WebMonitoring is a performing service offer allowing for the fast implementation and optimum management of noise and vibration monitoring systems. Its purpose is to free the users from the technical requirements related to monitoring (network deployment, computer management, on-site maintenance), but also to decrease operating costs.

To reach this objective, ACOEM has implemented, since 2007, a "Monitoring" department that supervises all operations, from pre-sales consulting to on-site monitoring. This expertise has allowed developing performing measurement terminals (DUO, CUBE), as well as Web services suited to the requirements of each type of monitoring.

01dB WebMonitoring offers unrivalled service quality that guarantees reliable data to the customer without compromise on metrology. This is a sound basis for automatic calculations and/or expert analysis achieved by an acoustic consultant
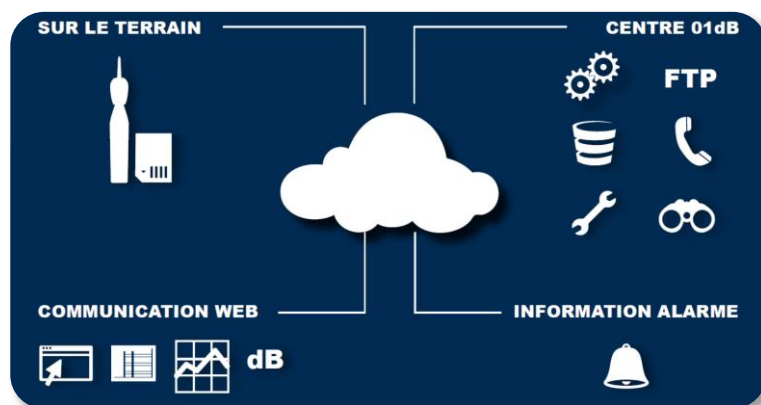

Figure 1: Principles of 01dB WebMonitoring

PRINCIPLE: SIMPLE AND EFFICIENT!

A noise and vibration monitoring project is defined with several parameters:

- Number of measurement terminals (noise and/or vibration)
- Indicators to measure and store
- Indicators to compute and display
- Alarm thresholds (if required)
- On-site installation
- Maintenance requirements
- …

All these parameters are taken into account by the ACOEM teams of specialists so as to optimise the monitoring system proposed to the customer.

Based on a monthly fee, the customer will benefit from:

- One or several metrological measurement terminals (checked and calibrated before shipping)
- Secured access (private or public) to a customised Web interface containing the transferred elements (indicators, alarm thresholds, pictures of the monitored site etc.)
- A bundle of associated Web services (data backups, access to FTP server, etc.)
- Related associated maintenance services (calibration, standard hardware replacement, etc.)

As an option, ACOEM can also handle installation and dismounting of the terminals, on-site maintenance, customisation of the Web interface to comply with the customer's graphic style guide, etc.

You system is already operational, focus on the analysis of your monitoring data!

HARDWARE: NO COMPROMISE ON MEASUREMENT

As part of the 01dB WebMonitoring offer, ACOEM provides one or several measurement terminals for the entire monitoring period. Calibrated by our metrological laboratory, checked and set up by the "Monitoring" department, they benefit from all the functions required for monitoring (remote verification, automatic data transfer, 3G modem with subscription card, etc.).

Noise measurement terminal models are class-1 approved and include outdoor microphone units. Measured data are then reliable and highest quality.

An optional weather station can be directly connected to a noise measurement terminal to allow for the simultaneous measurement of up to 6 different parameters (wind direction and speed, temperature, rain intensity, etc.).

Figure 2: DUO Smart Noise Monitor

DATA THROUGHPUTS

Fast access to data is one of the essential features of noise and vibration monitoring systems.

Two visual display modes are available with 01dB WebMonitoring:

- **Real-time mode:** When you access the customised Web interface, you can view data in real time (noise, vibration, weather and alarms) originating from the measurement terminals. These data can be displayed in different forms: superposition on a map, time history, Spectrogram, etc.

- **Offline mode:** Raw data (e.g., measured with an integration time of 1 s) are transferred from the terminal to the server every 6 hours and aggregated by the 01dB WebMonitoring calculation engine in order to assess recomposed indicators: Lden, Ld, LAeq(1h), LMax(1h)… Aggregated data are displayed directly on the Web interface and thus available for further analysis. The transfer periodicity can be decreased from 6 hours to 30 minutes, thus providing users with faster update of the data displayed on the Web interface. Event detection and quick acknowledgement of alarms or possible complaints becomes possible within a shorter response time.

- **D+1 calculation:** Every 24 hours, the system recalculates all average data in order to update long-term indicators (day, week, month) and also to take into account the delayed arrival of measurements (e.g., in case of a failure of the 3G network).

Finally, with the 01dB WebMonitoring interface, the user has a genuine data management terminal that allows processing and analysing quickly all events under monitoring.

DATA MANAGEMENT

STORING AND SAVING

With 01dB WebMonitoring, (raw) measured data transferred by the monitoring terminals are stored and backed up in the ACOEM data hosting centre. Several redundant backups allow for maximum protection of the data related to each project.

The raw data and Web interface are stored online during the entire project life and up to 6 months after the end of the agreement. When this 6-month period is completed, the data and Web interface are deleted. Backup of the data before final deletion from the ACOEM servers is the Customer's responsibility.

ACOEM offers an optional backup of the Web interface over longer periods, as well as the backup of all data. Please contact us for more information.

USING RAW DATA

Raw data are available in 01dB file format (CMG, OPE, etc.) on an FTP server than can be accessed directly from the Web interface. Each user can retrieve and analyse data using the dBTRAIT software.

For customers who do not own a dBTRAIT licence, ACOEM provides the software for the entire duration of the project and for the next 6 months.
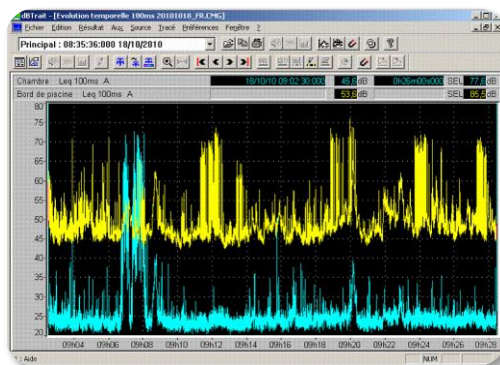

Figure 3: dBTRAIT software

The powerful dBTRAIT software offers advanced processing and analysis capabilities:

- Multi-curve display of the time history of overall and spectral indicators
- Calculation of average indicators: Leq over period, Lden
- Calculation on spectra: average spectrum, recomposition, etc.
- Statistical calculation: per source, per period, etc.
- Analysis of metrological signals: replay, 1/N octave, FFT, short Leq, etc.
- Manual coding, on threshold, cross correlation between channels
- Display of measurement sites on Google maps
- Export to Word and Excel

CONFIDENTIALITY OF YOUR DATA

All data (measurement files, transferred information, etc.) are entirely confidential and cannot be used by ACOEM or any third party without Customer's written authorization.

WEB INTERFACE

ALWAYS CONNECTED TO YOUR PROJECT

With 01dB WebMonitoring, ACOEM offers a simple and performing Web interface accessible to the different persons involved in a monitoring project. From any terminal (computer, tablet, smartphone, etc.) connected to the Internet, you can view all the information available, offline and real-time.
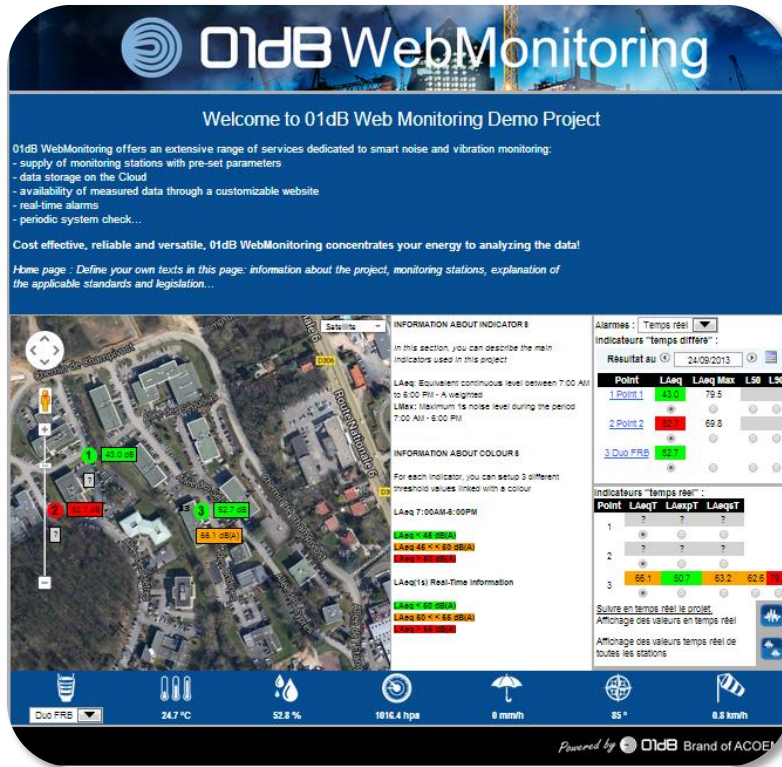

Figure 4: "Site" page on the Web interface

Available in 8 languages, the 01dB WebMonitoring interface is accessible upon customer's choice in private mode (which requires a user ID and a password) or in public mode.

In standard mode, a first level of customisation allows inserting a corporate logo and all information relative to the project (description, pictures of measurement points, hardware used, etc.).

As an option, the complete interface can be adapted to the Customer's graphic style guide. Please contact us for more information.

STRUCTURE OF THE WEB INTERFACE

The 01dB WebMonitoring interface consists of several pages:
- "Site": Set of measurement points presented on a geo-referenced map with main indicators and related follow-up tables.
- "Point": Offline information and graphics for each measurement point.
- "Station": Real time information for each measurement point.
- "Stations": Real-time information for all measurement points on the same page.

Navigation through the interface is intuitive: no training is required!

Using dynamic tabs in the different pages allows for a customised display to show essential information only.

DISPLAY ON A MAP

The "Site" page allows displaying the measurement points locations on a map. Points are positioned, either based on their GPS coordinates (standard 01dB terminals have built-in GPS), or manually by the administrator. Clicking on the point will display an associated image and a link to the "Point" page.

Each point is associated with 2 pieces of information relative to noise levels:

- an offline indicator of type LAeq 6h-22h: Information on a past day
- a real-time indicator of type LAeq(1s): Instant information originating from the terminals

These indicators can be individually selected by clicking on the tables located at the right of the map (see Figures 4 and 9).

Figure 5: Information on map

IMAGE SUPERPOSITION ON A MAP

In addition to the location information provided by the geographical map, 01dB WebMonitoring allows for the transparent superposition of other pieces of information. For instance, an essential application would be to superpose a noise map generated by a noise simulation software program. Acoustic indicators can then be compared with calculated indicators.
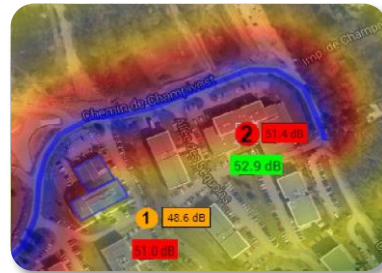

Figure 6: Superposition of a predictive map

01dB HeatMap AND OTHER GRAPHICS

01dB HeatMap is an exclusive feature by 01dB designed for the display of information within a monitoring project. Its purpose is to provide users with simple and visual information of the status of the indicators monitored during the project. For instance, one can quickly display whether opening and closing hours of a construction site are complying with the committed time table or identify time slots presenting violations of statutory thresholds. 01dB HeatMap provides the users with a genuine data explorer.

Figure 7: 01dB HeatMap and time history

Based on the hebdogram principle (colour display of average hourly levels versus week days), 01dB HeatMap offers advanced features and extends the possibilities offered by a classical hebdogram:

- Selection of the period on display: day, week, month, year
- Selection of recomposition versus period on display: 1 mn, 2 mn, 5 mn, 15 mn, 1 h, 24 h
- Selection of the indicator: average LAeq, LAMax, LA99, ALARM, meteorological data…

In addition, the 01dB WebMonitoring interface offers two other types of graphs to represent the measured and calculated indicators:

- Time history: visual display of up to 6 indicators superposed on 2 scales (logarithmic and linear) as contour lines versus time.
- Spectrogram: visual display of an indicator (average or statistical spectra) as a 2D time-frequency colour graph versus level.
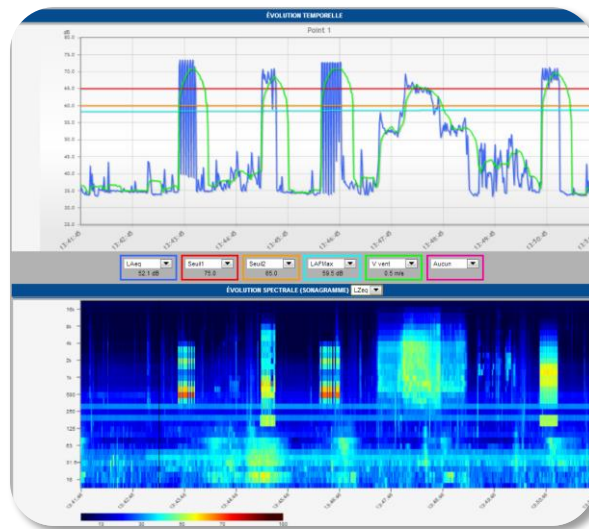

Figure 8: Time history and Spectrogram

In offline mode, the 3 types of graphics are synchronised based on the parameters selected in 01dB HeatMap. For instance, if the user selects Friday with a 15-minute recomposition, the other 2 graphs will be automatically updated so as to display the same duration and same recomposition. Associated indicators are automatically updated as well.

In real-time mode, the "Time history" and "Spectrogram" graphs are synchronised in real time (01dB HeatMap is not available in this mode).

On the time history, the user can select up to 5 other curves in addition to the main indicator. 2 curves may typically be used for alarm threshold values, but they can display other indicators. Two indicators with different units can be mixed (dB with acceleration in m/s², dB with wind speed in m/s, etc.)

REAL-TIME INFORMATION

IN CLOSE CONTACTWITH YOUR PROJECT

Many monitoring projects (construction sites, racing circuits, etc.) require real-time access to the display of noise, vibration, weather indicators and/or occupation-oriented alarms. 01dB WebMonitoring includes many functions to help each user with the real-time monitoring of his/her project activity. Based on this information, he/she will then be able to decide on specific actions in order to manage his/her noise and/or vibration impact: stop of a noisy phase in a construction site, decrease of the number of cars allowed on a racing circuit, etc.

01dB WebMonitoring allows for real-time display in different forms as a:

- Superposition on a geographical map
- table
- time history
- Spectrogram (frequency history versus time)

ON-DEMAND AND PERMANENT REAL-TIME

Each 01dB WebMonitoring project benefits from the on-demand real-time display function. With a simple click, the user can trigger the measurement terminals to transfer the indicators in real time and thus view the main indicators (LAeq(1s), sliding LAeq, wind speed, etc.) on the Web interface. In this configuration, the user cannot view any event that occurred before his/her login to the system.

In addition, 01dB WebMonitoring offers a "continuous real time" option that allows, once connected to the project website, to view the last 30 minutes elapsed (stored in a buffer memory). In this case, the user can easily detect the event that triggered the alarm when analyzing the time history of the incriminated point.

INFORMATION ON GEOGRAPHICAL MAP

A geographical map displayed on the "Site" page of the Web interface allows viewing the position of each measurement point with a tag containing a real-time indicator. This indicator can be associated with threshold values; their violation leads to a colour change for the background of the tag (green, orange or red).

This indicator is also available in a table located on the right of the map; upon threshold overstepping the background colour changes correspondingly.

01dB powerful noise monitoring terminals allow for simultaneous recording and sending of multiple indicators. The user can then display these indicators in the table as shown on Figure 9. In this case, he/she can select the indicator displayed on the map by clicking directly on the picture.
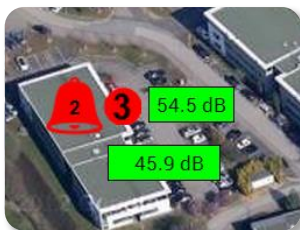
Figure 9: Table of real-time indicators

Figure 10: Alarm information

The information on occupation-oriented alarms is also available in real time on the map. A colour bell (green, orange or red) indicates the number of alarms counted since the last acknowledgement (see the alarm-dedicated chapter for more details). The background of the point number will reflect the alarm status.

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REAL-TIME TIME HISTORY

With 01dB WebMonitoring, the user can access the indicators time history in real time. Two options are available:

- View the main indicator for all project points on the "Stations" page
- View the "Station" page devoted to a single point

In the latter case, the user can follow up to 6 indicators in real time simultaneously. The "Station" page also allows displaying a Spectrogram in real time, as well as weather information associated to the selected point whenever available ». In case such weather information is available from a different location, it can be accessed using the pull-down list available in the weather banner).
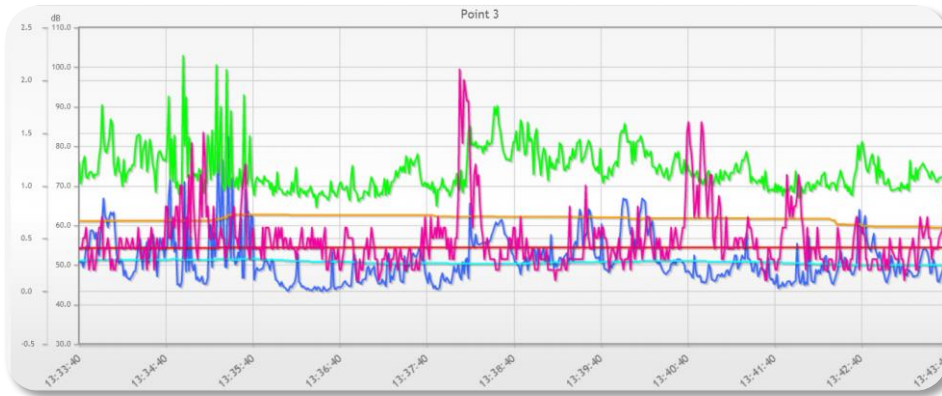

Figure 11: Real-time time history (6 indicators)

SPECTROGRAM

01dB WebMonitoring allows for the real-time display of the frequency representation of the levels measured versus time. It consists of a Spectrogram with time plotted along the x axis while frequency appears along the y axis. The corresponding indicator level is represented by a colour scale assigned to each third octave band.
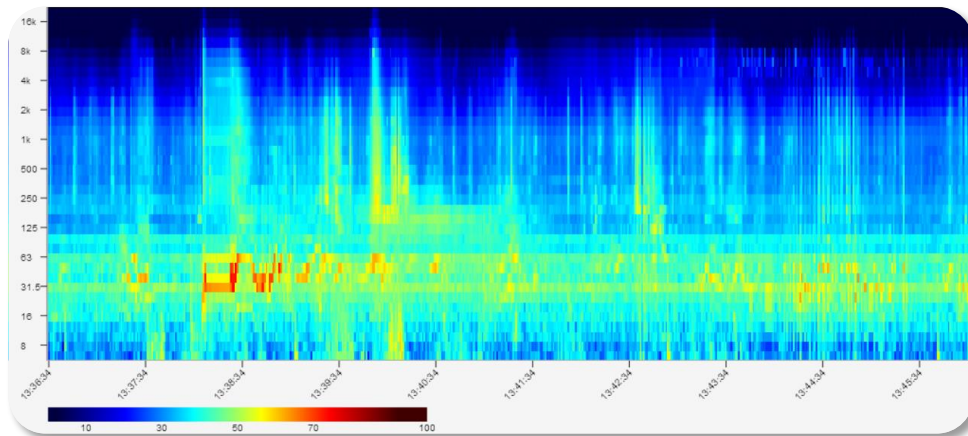

Figure 12: Real-time Spectrogram

The Spectrogram allows, among other, for the efficient monitoring of a noise event with a pronounced frequency tone. The user can thus get a better understanding and interpretation of the monitored activity.

ACOEM Group

WEATHER DATA

A weather station can be connected to a noise monitoring terminal, collected data are then simultaneous transferred and perfectly synchronised with the acoustic indicators. These data are available in real time or in offline mode in different forms:

- Weather banner indicators in real time on the "Site" page and on the "Station" pages
- Weather banner indicators on the "Point" pages in offline mode
- Real time display of time history on the "Station" page
- Time history on the "Point" pages in offline mode

Figure 13: Weather banner

The following weather indicators are available in real time:

Wind speed	●
Wind direction	●
Air temperature	●
Relative humidity	●
Rain intensity	●
Barometric pressure	●

Figure 14: Weather station

MANAGEMENT OF OCCUPATION-ORIENTED ALARMS

ANTICIPATING PROBLEMS

The monitoring of a project does not only consist in measuring and observing noise and/or vibration levels. It is indeed necessary to act rapidly in order to anticipate problems: residents' complaints, damages to buildings, etc. To do so, some indicators must be monitored and compared in real time with thresholds the definition of which can be more or less complex. A violation of these threshold values automatically results in one or several actions, such as:
- Sending of an e-mail
- Text notification messaging
- Signal recording
- Event coding
- Triggering of a warning light or sound alarm...

With 01dB WebMonitoring, the user has a set of powerful tools that will help him/her keeping the project activity compliant with the objectives (integrity of individuals and/or neighbouring buildings).

PERFORMING INDICATORS

Prior to threshold definition the adequate indicators must be selected. In addition to standard indicators (LAeq(1s), 1/3rd band spectra, etc.), ACOEM offers with all monitoring terminals of 01dB brand (DUO, CUBE, OPER@, dB4, etc.), a series of relevant indicators particularly suited to monitoring applications:
- sliding LAeq level with sliding duration programmable per period,
- sliding Ln level with sliding duration programmable per period,
- exposure level, assessed for each integration time taking into account a predefined background noise level over the integration period,
- spectrum template in third octave, etc.

01dB WebMonitoring offers multiple possibilities in combining all indicators available, so as to always find the right combination meeting the project requirements.

UNLIMITED THRESHOLD DEFINITION

The selection of the indicator/threshold pair is essential to control the activity of a project. Depending on the project type, one can use existing regulations, guidelines or most often an acoustician's experience. The required definition can thus vary from a simple threshold to a more complex combination of indicators.

To meet the requirements of these multiple requests, 01dB WebMonitoring relies on a powerful threshold definition available with each of the 01dB measurement terminals. The principle relies on an event configuration that contains one or several triggers (depending on the selected option).

To define a trigger, the user can select among the parameters stored at the integration time (IT), in addition to the advanced indicators defined above, and each frequency band or even weather parameters.

Each trigger is defined by 7 different parameters (start and end threshold, pre/post-trigger delays, etc.). Furthermore, each trigger can be defined over a restricted period (typically 1 hour), which allows then to create up to 24 different triggers over an entire day.
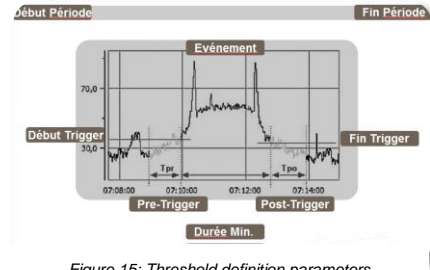

Figure 15: Threshold definition parameters

With the Advanced Trigger option, 5 triggers can be associated with logical operators (AND / OR) to define an event. This option allows creating up to 5 events, the activation of which can be programmed for each day within a week (e.g., different thresholds for Saturdays and Sundays).

When the conditions of a trigger are fulfilled, the associated event will induce different actions: recording of the audio signal, parallel recording using a faster integration time, control of a TTL output, etc.. In parallel the information is sent to the central server connected to 01dB WebMonitoring.

CENTRALISATION AND OPTIMISATION OF ALARMS

01dB WebMonitoring centralises all the alarms coming from the different terminals active on a project and send alarm information to a predefined distribution list using different communication means: E-mail, SMS, etc. All information is stored in a database, the content of which is available for each measurement point and for the entire project.

The transferred information includes the type of alarm, the project name, the measurement terminal that issued the alarm, the point (in case of a multichannel system) and the alarm date.
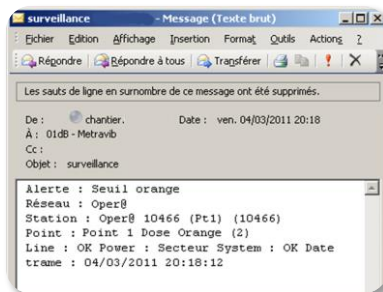

Figure 16: Sample e-mail associated with an alarm

This centralisation process also allows optimising the management of threshold violations and avoiding false alarms. Stopping a noisy phase in a construction site can result in significant expenses. Today, most systems use alarms triggered on basic thresholds that can lead to untimely interruption of the construction work.

01dB WebMonitoring integrates the following smart features:

2 alarm levels

For each indicator, the user can define 2 types of alarm: orange, then red. Reaching the first alarm (orange) will result in text messaging information to the managers who will decide whether they keep working while risking to reach the red alarm (which is general lead to penalties) or if they prefer engaging in a less noisy activity.
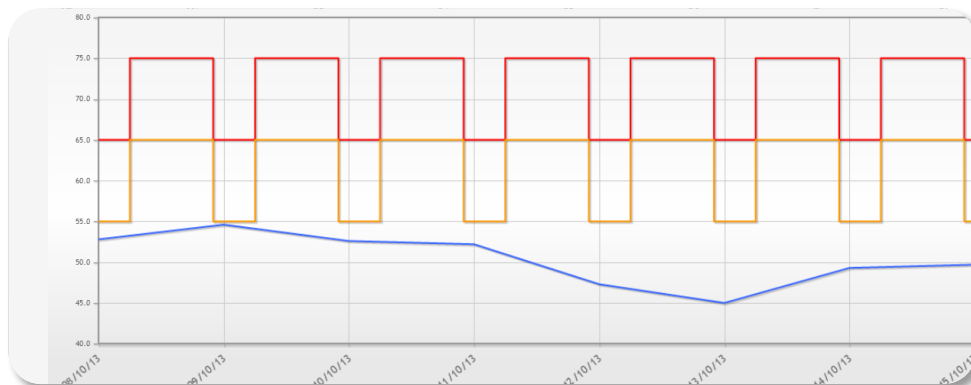

Figure 17: LAeq time history with Red and Orange thresholds

Orange and red thresholds can be based on the same indicator with 2 different levels (e.g., 75 dB(A) and80 dB(A)) or on 2 different, but complementary, indicators. For instance, a sliding LAeq can be set to 10 mn as an orange alarm to take into account events with a high level over a short period, while a dose indicator over the daily duration of the construction site might be better suited as a red alarm.

Alarm counter

01dB WebMonitoring also allows using an alarm counter. For instance, the switch to red alarm mode can be triggered only if the orange alarm has been violated X times. This is especially interesting for impulse noises or for repeated vibration shocks.

Alarm combination

Another powerful function delivered by 01dB WebMonitoring is the combination of alarms issued by different terminals. Typically, the violation of a sound level at a point located on the property boundary of a construction site can be due to the impact of the site or to another noisy event occurring outside (e.g., road traffic). In order to decrease possible errors, an additional alarm can be defined dedicated to checking the vibration originating from the construction site. The combination of both alarms (noise and vibration) using an "AND" condition will trigger more reliable information than a single one based on noise information.

MANAGEMENT FROM THE WEB INTERFACE IN OFFLINE MODE

The user can manage the alarms directly from the available Web interface. As a matter of fact the user can visualize directly on the « Site » page each monitored location and related alarms identified with a colored bell (according to the current alarm status). The bell icon also indicates the number of alarms recorded since the last acknowledgement by the user.

Figure 18: Alarm

By clicking on the bell, the user will gain access to a window in which he/she can add comments about each alarm and acknowledge it (hence confirm that the alarm has been taken into account, and will be stored in the database). Comment inputs will be inserted in the reports available for each measurement point.
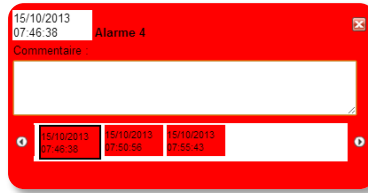
Figure 19: Alarm acknowledgement window

The user can decide if he/she prefers to view the information in real time (the bell icon will blink if the alarm is orange or red) or in offline mode by selecting a day in the monitoring history. In this latter case, the icon will remain steady and the total number of alarms recorded over the selected day will be displayed inside the bell.

MANAGEMENT FROM THE WEB INTERFACE IN OFFLINE MODE

Alarms are visible in the 01dB HeatMap table displayed on the "Point" page. Clicking on a cell of this table will open the alarm manager. The user will then be able to comment each alarm identified in the selected period.

Periods containing alarms are also shown on the time history with coloured areas (emphasis on orange and red alarms only). It is then easy to display measurement information (noise, vibration, etc.) and the corresponding alarms over the selected period of time. This further improves the overall efficiency of the monitoring process managed by the user.
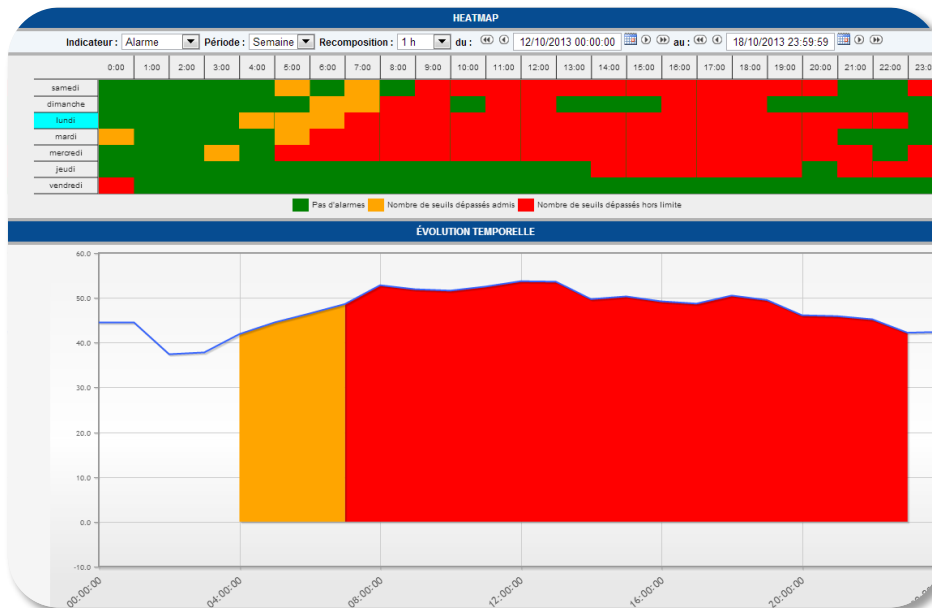

Figure 20: 01dB HeatMap and time history with alarm information

REPORTING

SUMMARY PAGE

The summary page available from the page associated with each measurement point gives an overview of a selected indicator's amplitude distribution over a user-defined period of time. Display parameters can be set to the user's convenience (for instance to focus on a certain amplitude range only).

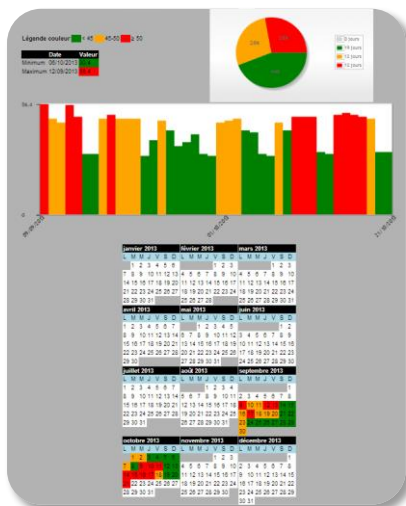The example below shows how the Lden indicator yearly distribution, with a level ranging from 55 to 60 dB.

Figure 21: Summary page over a 50-day period

POINT REPORT

From the "Point" page, one can generate a customisable report in Word format (PDF and JPG formats are also available).

With a few clicks, the user can set up his/her "Point" page with essential information relative a selected period. One simple click is then enough to generate a standard report or a report customised with a specific graphic charter depending on the customer's requirements.
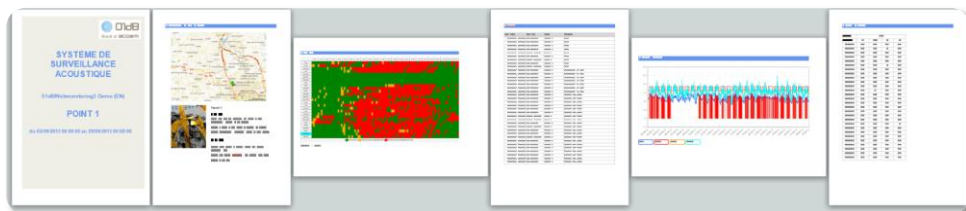

Figure 22: Comprehensive report on a point

The report summarises the following information:
- Location of the considered measurement point(s) and related description
- 01dB HeatMap over the period displaying the indicators selected by the user
- List of alarms over the selected period of time
- Time history of selected indicators
- Table of indicators

As the report can be generated in Word format, users can make changes and add information that is not directly available on the 01dB WebMonitoring Web interface.

ASSOCIATED SERVICES

The services vary depending on the countries. Please contact ACOEM or one of our official distributors for more information.

STANDARD SERVICES

For a single monthly fee per monitoring terminal, 01dB WebMonitoring integrates all the following standard services:

- Provisioning of a calibrated, checked, predefined, ready-to-use measurement terminal (accessories and 3G subscription included)
- Standard replacement of the complete or part of the monitoring terminal in case of a failure
- Set-up of the Web interface in standard mode (publishing of indicators every 6 hours, on 1mn, 15mn, 1h and 24h basis, and in real time on request) including information provided by the customer (information on project, pictures of measurement points, desired indicators, etc.).
- Management of raw data over the entire cycle: transfer from measurement terminals to the server, storage and backup, provisioning on FTP server.
- Management of the IT system
- Automated processing of raw data for aggregation and display on the Web interface
- Availability of one or several accesses to the Web interface over the entire monitoring period and up to 6 months thereafter.
- Availability of the dBTRAIT software for raw data processing
- Periodic management of the monitoring terminals and global system for verification of the proper operating and receiving of all data
- Customer service for all questions regarding the project

OPTIONAL SERVICES

As an option (monthly fee or fixed amount), ACOEM offers the following services:

- On-site installation of the monitoring terminals
- On-site maintenance within 72 h
- Periodic on-site maintenance (including calibration)
- "PROTECTION" option allowing for the payment of a fixed and predefined amount only in case of theft or degradation
- Dismounting of the monitoring terminals
- Provision of a 6-sensor weather station
- Web interface in "ADVANCED" mode (data publishing every 30 minutes, continuous real time with a 30min buffer, advanced indicators, etc.)
- Customisation of the graphic charter of the Web interface

SERVICES ASSOCIATED WITH YOUR OWN HARDWARE

For any customer owning a 01dB measurement terminal (DUO, CUBE, OPER@, etc.) compatible with 01dB WebMonitoring services, ACOEM offers the possibility to use all related Web services (data management, Web interface, etc.).

Each 01dB customer can thus decide to invest in the purchase of additional equipment or to subscribe to a full monthly offer.

The "NEVER STOP" offer allows ensuring maintenance of the customer equipment over the entire monitoring period (standard replacement during the repair phase of a faulty equipment)

TECHNICAL SPECIFICATIONS

Standard and advanced configuration

01dB Webmonitoring can be configured in 2 modes: Standard and Advanced. The Advanced mode allows getting access to more indicators in real time or offline (LBeq, LCeq, aggregation interval (2mn, 5mn…). The parameters which are available only with the Advanced mode are shown in.*italics* Please ask for more details about customized configurations. .

Real time mode

The available indicators are displayed according to the integration time (IT) relative to each monitoring terminal: Ranging between 1s and 3600 s, a typical IT is 1s. The corresponding data are available on the real-time pages (last 30 minutes)

Display forms
- Tag on a map with geo-localization
- Table form
- Time domain evolution (up to 6 curves)
- Spectrogram

Acoustic indicators
- LXeq(DI) [dB] : X = A, *B, C, Z*
- LZeqF(DI) Hz [dB] : LZeq 6.3 Hz … LZeq 20 kHz
- LXpeak(DI) [dB] : X = C, *Z*
- LXYTMinMax(DI) [dB] :
  - X = A, B, C, Z
  - Y = S, F, I
- LXYeq(DI) [dB] :
  - X = A, B, C, Z
  - Y = S, F, I
- LAeqsT(DI) [dB] (sliding LAeq)
- LnsT(DI) [dB] (sliding LN)
- LAexPT(DI) [dB] (nose exposure level)
- LXYTd [dB] : LAFT3, LAIT3, LAFT5, LAIT5

Vibration indicators
- AW(DI) [m/s²] : A lin, *AWd*, AWk*, AWf*, AWh*, AWc*, AWe*, AWj*, AWb*, AWm**
- PPV(DI) [mm/s] : *PPVx, PPVy, PPVz,* PPV
- PVS*(DI) [mm/s]
- V(DI) [mm/s]
- D(DI) [µm]

* : computed values based on spectral data

Weather indicators
- WindS(ti) [m/s]
- WindD(ti) [°]
- T°(ti) [°C]
- P(ti) [hPa]
- RainINT(ti) [mm/h]
- Humidity(ti) [%]

Alarms
- Alarm counter
- 2 user defined threshold values (level, number, periods)

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Offline mode

Measurement data are used to calculate so-called aggregated data. The calculation process is based on data collected during periods of 6 hours (Publication every 15 min with the Advanced mode). Data are available on the « Site » and « Point » pages.

Display forms
- Tag on a map with geo-localization
- Table form
- 01dB HeatMap
- Time domain evolution (up to 6 curves)
- Spectrogram

Aggregation periods ti
- 1; 2; 5; 10; 15; 30; 60 min and 24 hours

Acoustic indicators
- LXYTd [dB] : X = A, *B, C, Z*
- LAeqMin(ti) [dB], LAeqMax(ti) [dB]
- L jour [dB]
- L soir [dB]
- L nuit [dB]
- LDEN
- LZeqF(ti) Hz [dB] : LZeq 6.3 Hz … LZeq 20 kHz
- LAN(ti) [dB] : N = 1, 10, 50, 90, 99
- *LZNF(ti) [dB] :*
  - *N = 1, 10, 50, 90, 99*
  - *LZN 6.3Hz … LZN 20kHz*
- LXpeak(ti) [dB] : X = C, *Z*
- *LXYTMinMax(ti) [dB] :*
  - *X = A, B, C, Z*
  - *Y = S, F, I*
- *LXYeq(ti) [dB] :*
  - *X = A, B, C, Z*
  - *Y = S, F, I*
- LAeqsT(ti) [dB]
- LnsT(ti) [dB]
- LAexPT(ti) [dB]
- *LXYTd(ti) [dB] : LAFT3, LAIT3, LAFT5, LAIT5*

Vibration indicators
- AW(ti) [m/s²] : A lin, *AWd*, AWk*, AWf*, AWh*, AWc*, AWe*, AWj*, AWb*, AWm**
- PPV(ti) [mm/s] : *PPVx, PPVy, PPVz,* PPV
- PVS*(ti) [mm/s]
- V(ti) [mm/s]
- D(ti) [µm]

* : computed values based on spectral data

Weather indicators
- WindS(ti) [m/s]
- WindD(ti) [°]
- T°(ti) [°C]
- P(ti) [hPa]
- RainINT(ti) [mm/h]
- Humidity(ti) [%]

About ACOEM

ACOEM Group
Reduce your environmental impact

In today's fast-moving world, the environment is increasingly impacted. The ACOEM Group is committed to sustainable development and help companies and public authorities limit their environmental impact by offering products and services that:

- Prevent and control air, noise and vibration pollution
- Increase the productivity and reliability of industrial machinery
- Contribute to the development of effective, robust & noiseless products
- Protect soldiers, sites and vehicles in military theaters of operation

Across the world, ACOEM's 670 employees innovate in the measurement, analysis and control of all environmental parameters through the 01dB, ECOTECH, ONEPROD, FIXTURLASER, MEAX and METRAVIB brands.

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