
This screen tells you that the Vibraphone ASB10 is turned on, and is starting up


After a few seconds, the following screen appears. It provides access to the ASB10 menus.

**Setting the date and time**

**By clicking on this icon, you can access the date and time setting.**

**This is important especially in the case of making records.**

**By entering the date and time you can better identify your recordings.**

**The date and time setting is defined as follows:**


**Date is composed of three parts: day, month and year.**
**Time is composed of three parts: hours, minutes and seconds.**
**To edit a field, you must keep pressing it.**
**The element to be modified is then displayed in red as follows:**


When holding an item it is displayed in red. After, one click on the other elements is enough. In red, the value can be changed by clicking on + or -. To change between morning and afternoon, clicking on AM or PM changes the value from one to the other. Once you have made the changes, click on the arrow to exit.

**Pairing sensors**

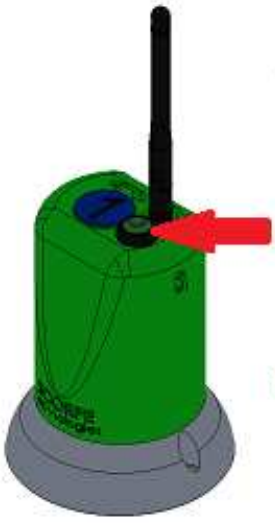
By clicking on this icon, you access the pairing sensors menu.

This menu allows you to connect the sensors to the control box.

This step must be implemented when starting the product for the first time or when a sensor must be replaced for any reason.

The screen on which you arrive is as follows:


**Be careful, you have to pair the sensors one by one. Make sure it is well charged. It is recommended to start with the 1 blue, 2 blue and so on. Here the 4 icons are grayed so the 4 sensors are not paired.**
**To pair them, you must first put the sensor in pairing mode as follows:**



**First, take the sensor that corresponds to the one you want to pair with the control box = take the 1 blue sensor and pair it to the 1 blue line of the control box.**

**Turn on the sensor by pressing the green button for 3 seconds. The led lights up. (To switch off the sensor, same operation, press and hold for 3 seconds. The led goes off).**

**The led indicates several states of the sensor:**

**1 °) The led is off, the sensor is off.**

**2 °) The led flashes slowly (100ms ON / 1900ms OFF), the sensor is charging.**

**3 °) The led flashes rapidly (500ms ON / 500ms OFF), the sensor waits for the pairing order.**

**4 °) The led flashes twice (20ms ON / 160ms OFF / 20ms ON / 800ms OFF), the sensor is being paired.**

**5 °) The led is lit fixed, the sensor is paired and active.**

**6 °) The led flashes slowly (20ms ON / 980ms OFF), the sensor is out of range of the control box (visible in the control box).**

Now turn on the sensor you want to connect to the control box. In our case, 1 blue.

Press and hold the power button for 3 seconds.

When you turn on the sensor, you have three possibilities:

- The sensor led flashes quickly, it must be paired.

- The led flashes twice, the sensor is connecting to the box. We must wait until the led becomes fixed.

- The led is fixed, the sensor is connected to the control box and is active.

To pair the sensors whose led flashes quickly, proceed as follows:


Press and hold the dimmed 1 blue icon. The icon will flash. Briefly press the sensor power-on button, which flashes rapidly. After 2 to 3 seconds the led stops flashing and becomes fixed. 1 blue icon on the control box is not dimmed no more.
It now appears as follows:


**This screen indicates that the sensor of the 1 blue line is well paired with the control box. Proceed in the same way to pair the other sensors.**
**This operation is to be done once. When the ASB10 and its sensors (one by one) are turned back on, it reconnects automatically.**


**This display allows you, by simply pressing the flag of your choice to consult the instructions and search methods in the language corresponding to the small flag materialized on the screen.**

**Once the language is selected by pressing the chosen flag, the user manual and the search modes appear on the screen, on a display similar to the screen below:**

**Help and embedded job modes of ASB10**

**By clicking on this icon, you access the embedded job modes of ASB10 in different languages.**

**You also access the recommended search methods of the ASB10.**


**When you have paired all the sensors, your display should be as above (the 4 icons are no longer dimmed and the sensor leds are fixed).**
**To exit this menu, click on the exit arrow at the bottom left.**


Just scroll through the text using the arrow positioned on the right side of the screen up or down depending on the direction you want to scroll. Once the user manual has been consulted, via the return icon, you return to the home page.

Information about your Vibraphone ASB10.

By pressing this icon, you will be able to know:

- The serial number of your ASB10
- The date of manufacture of your ASB10
- The telephone number of the Scorpe Technologies after-sales service
- The software version of your ASB10

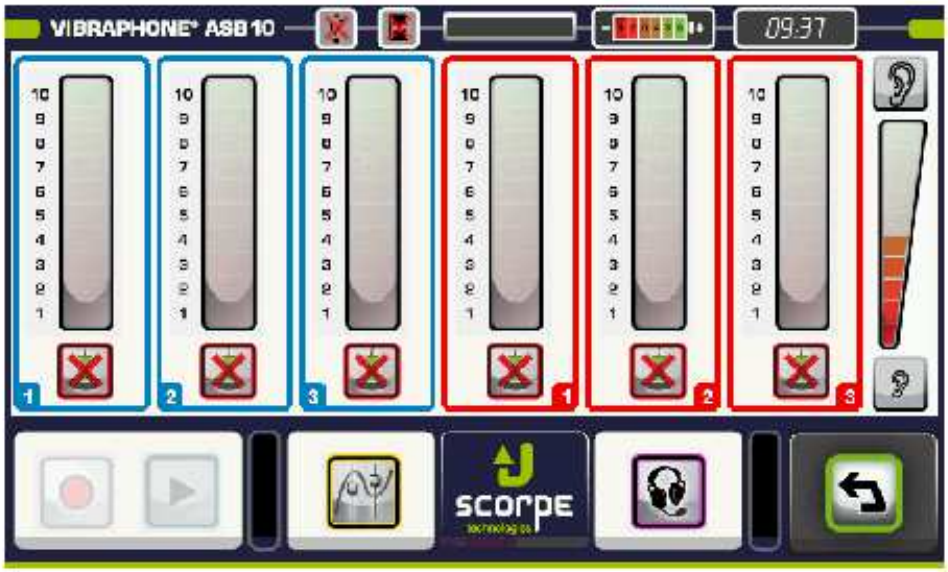
This display is only informative. The values are not editable.
The data are as follows:


**After viewing this display, you can return to the main menu by pressing the return icon on the left side of the screen.**


**Search display**

**After connecting your sensors and headset, press the ON icon.**

**You access the search display, which looks like this:**




**Here is the description and function of the different icons on the display:**

**The USB icon indicates the presence or absence of a USB connection. Basic, the USB port is not activated.**

**The SD icon indicates the presence or absence of an SD card in the designated slot. The SD card is used to record the desired sequences using the ASB10 recording function.**

**The record icon allows you to start and stop a recording. When the icon is in its "dimmed" version, it means that your recording is in progress.**

**The play icon on the search display provides access to the recordings on your SD memory card. By pressing the icon in "full color" version, you access the following menu:**


**To access this menu, you must have done a record before.**
**To play the recordings, you have to press the play icon in front of the recording you want to play. When the icon is "dimmed" it means that your recording is playing.**

**The filter icon provides access to the high-pass ; low pass and bandpass filter setting menu.**

**This menu is as follows:**


To use these menus, proceed as follows:

The high pass filter eliminates the bass sounds. Decreasing the value of this filter is to reduce the amount of bass sound perceived by the sensors, leaving only high-pitched sounds.

The low pass filter helps eliminate high-pitched sounds. Decreasing the value of this filter reduces the amount of high-pitched sounds heard by the sensors, leaving only the bass sounds.

The bandpass filter eliminates both bass and high-pitched sounds, leaving only a band on which sounds are heard. The more we reduce the value of this filter, the more bandwith on which the sensors perceive sounds will reduce.

There are three forms of filters that you can enable or disable.

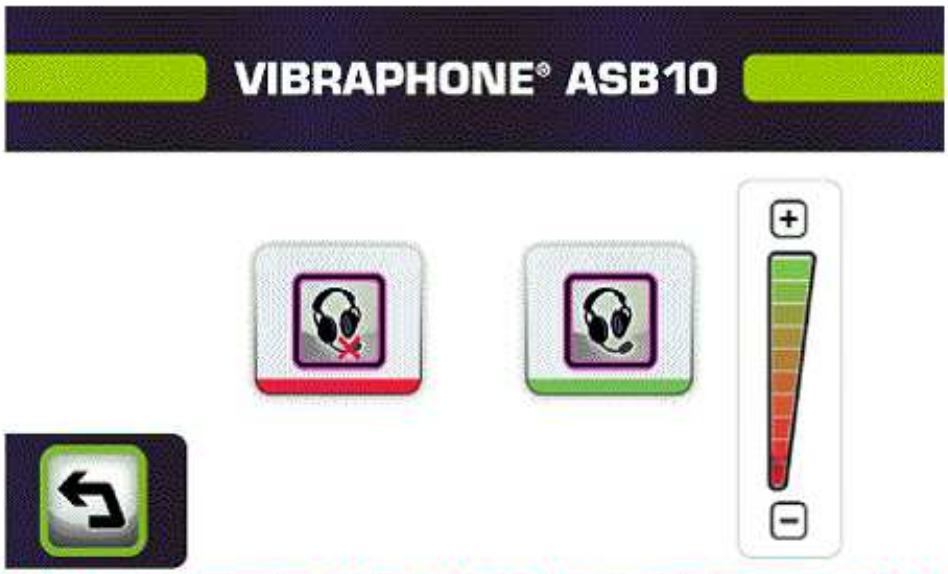
By default, when a filter is activated, its value is at maximum.
(= no filter applied)

By pressing the + or - icons you can adjust the value of each filter.

Once the filters are set to your liking, you can return to the main screen by pressing the exit icon from the menu.

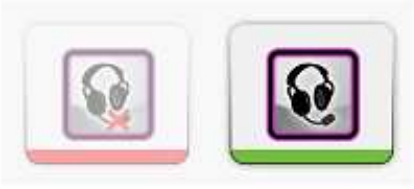
This icon provides access to the communication menu.

This menu is as follows:




From this screen, you can choose the type of communication you want to have. Either hear only the victim, or hear the victim and be able to communicate with her.

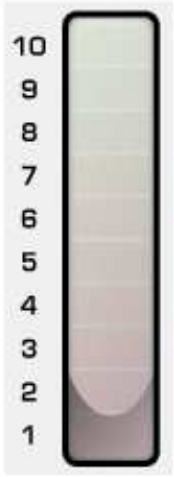
In this configuration, the microphone is not engaged, so rescuers can hear the victim, but the victim can not hear the rescuers.



In this configuration, the rescuers' microphone is on, allowing them to speak with the buried victim to ensure their attention or health status.

The volume adjustment in the headphones is done using the arrows on the right side of the screen

## Reading the bargraphs




The bargraphs make it possible to locate the intensity of the signal perceived by each of the sensors connected to the ASB10.

They are graduated from 1 to 10. 1 represents the intensity of the weakest signal perceived by the sensor, and 10, the strongest intensity.

The value of these bar graphs will oscillate whenever a sound will be perceived, in order to achieve a strongest possible signal to all connected sensors to indicate the position of the buried victim.

The bargraphs oscillate only when a signal is perceived by a connected sensor, and that it is activated on the ASB10.

This icon signals to the user that he has cut off the display of the sensor signal on the line concerned.

This icon signals to the user that the concerned line where a sensor is connected is able to display a signal.

## Observations:

Being able to cut a sensor during the operation, in the case of use with 4 or 6 sensors can isolate the sound of a single sensor on one side of the helmet for better analysis.

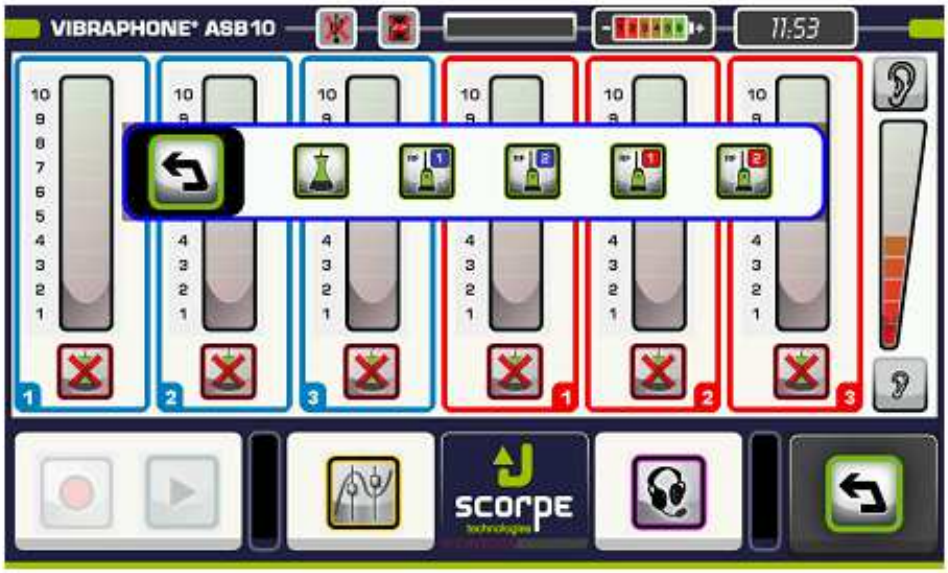
The bargraphs representing the sensors are classified into two categories. The sensors on the left in blue (numbered from 1 to 3) and the sensors on the right in red (also numbered from 1 to 3).

When using the ASB10 with two sensors these will be connected to the 1 blue and the 1 red. For use with 4 sensors, they will be connected to the 1 and 2 blue and 1 and 2 red. For use with 6 sensors, on all available ports.

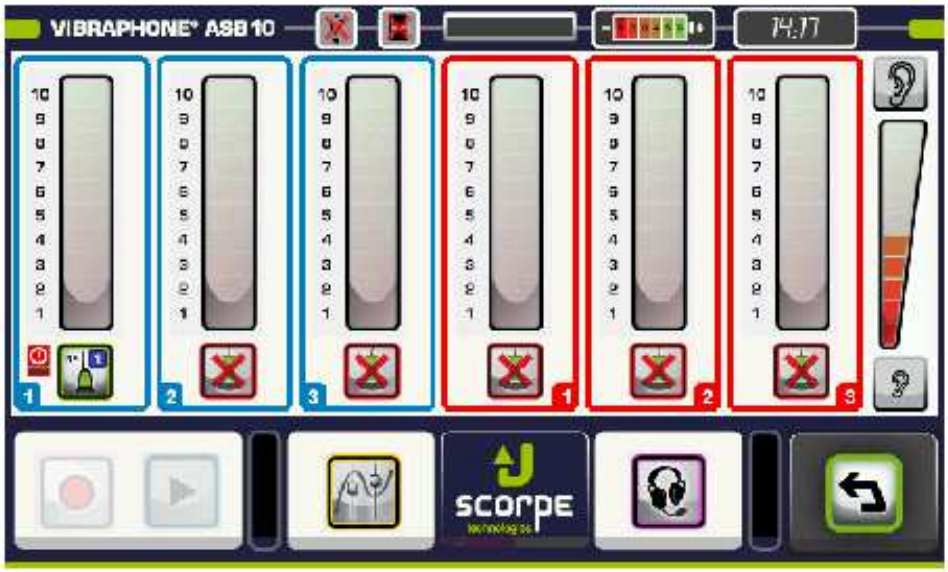
**Assign a wireless sensor to a display line**

**To do this, keep pressing the signal display icon:**

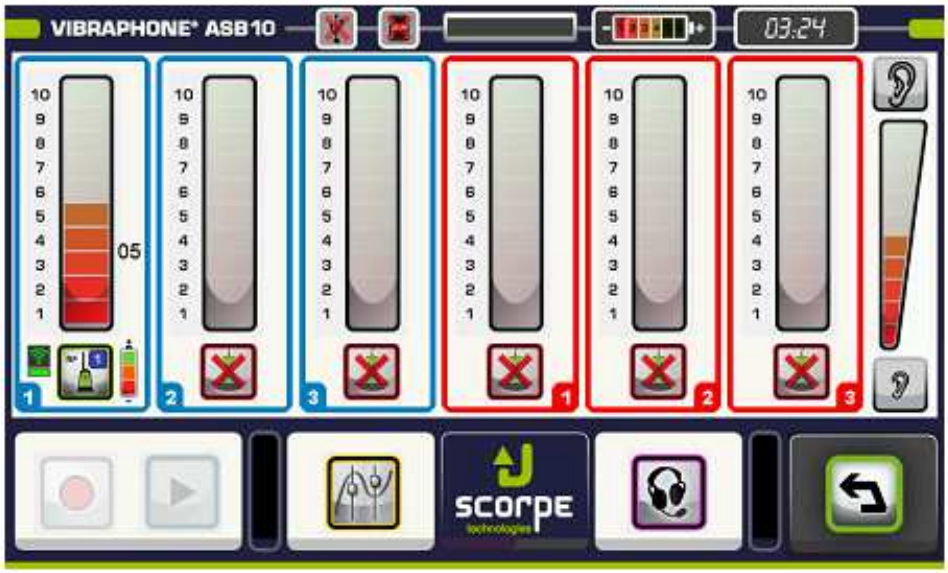
**The following display appears :**



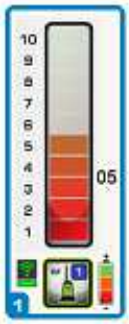

**Each sensor has a number and a color.**
**For easier use, assign wireless sensor 1 blue to line 1 blue. Assign the other sensors in the same way. Once selected the sensor appears as follows:**




When the sensor is assigned to the line, it connects to the control box in wifi. The logo on the left of the sensor indicates that there is no signal. After a few seconds, the sensor status changes. It is displayed as follows:




The icon on the left of the sensor icon changes state. The control unit and the sensor are connected together. The icon on the right of the sensor icon gives the charge level of the sensor.




**The "05" on the right of the bargraph indicates that the sensor has taken into account the sound level established with this menu (level 5 out of 10 possible):**

**If we summarize, each sensor has 3 levels of verification on the control box (charge level, wifi signal state, sound level of the signal)**

| | |
|---|---|
| 1 | Stereo headphone jack |
| 2 | Switching on / off the device |
| 3 | Operation indicator of the device |
| 4 | Status witness |
| 5 | Microphone / speaker socket |
| 6 | Red / Right vibration sensor sockets |
| 7 | Blue / Left vibration sensor sockets |
| 8 | Touch screen control |
| 9 | USB plug |
| 10 | USB plug |
| 11 | SD card reader |
| 12 | External power supply connector to charge the battery |
| 13 | Ethernet socket |

## Location method

**The localization is done in two stages:**

**1 °) The detection: it is a question here of knowing if there is or not a living victim buried. Crisscross the area in a 10m band, place the sensors at regular locations until you hear a human noise.**

**2 °) The location: a victim has been detected, we now want to know precisely where it is. Sweep the area more tightly.**

**To be sure to probe all the places and locate the victims accurately, we must act with method.**

**Define three levels of sound:**

**The level "0" is the absence of a perceived sound signal.**

**The level "1" is a perceived sound signal, without it being identified as of human origin (may be a parasite).**

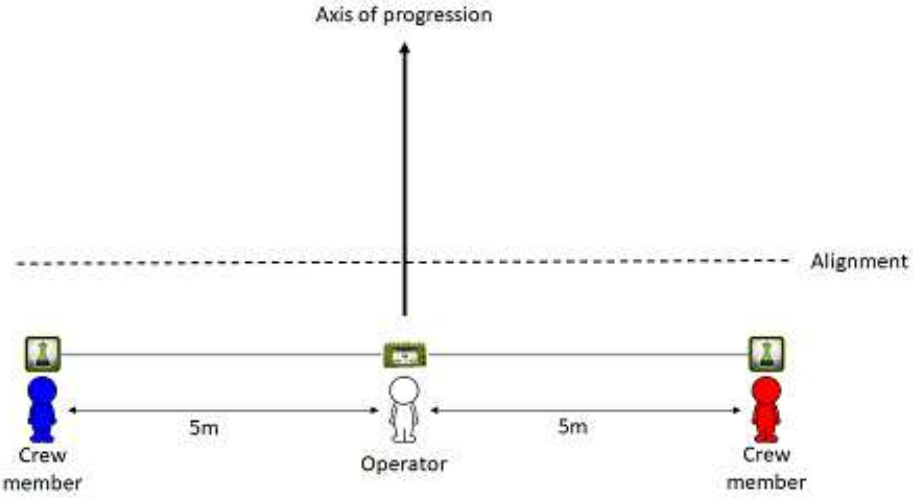
**Level "2" is a perceived sound signal identified as being of human origin.**

**The level "3" is a sound signal clearly perceived and clearly of human origin.**

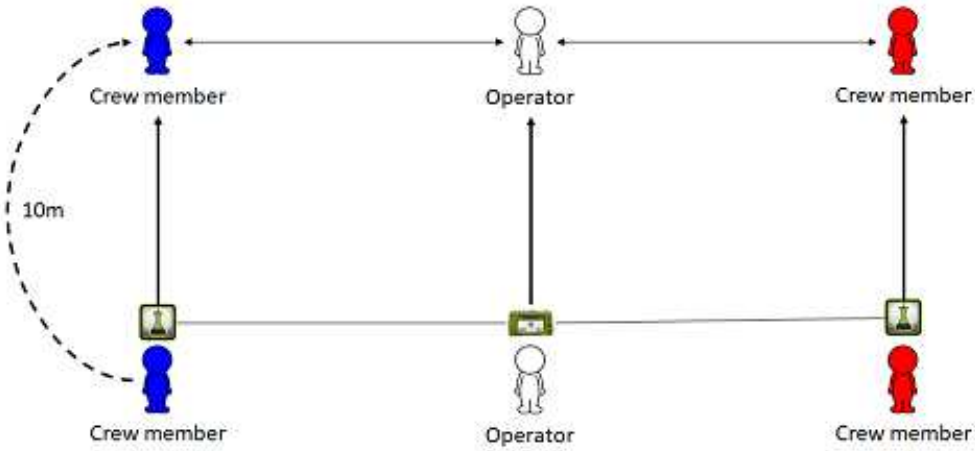
**The team consists of one operator and two crew members (two, four or six depending on the number of sensors used) each in charge of a call weight and a sensor. The operator listens in the headphones perceived sound signals and raises the corresponding position of the sensors.**

**The operator positions the sensors: to "silence on call!" then "call!", the team members launch the call signal. Then, the operator hears the sound signals emitted by the victim in response to the call signals. These sound signals are perceived by the sensors, and reported both on the screen and in the operator's helmet.**

**Then you have to define a progression axis: the sensors are placed at a distance of 10 m from each other. The sensors and the operator are aligned perpendicular to the axis of progression. Team members and operators are in the following situation:**

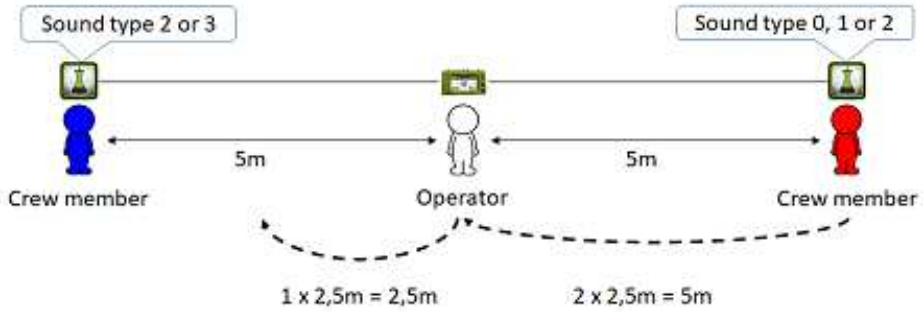



**As long as we do not perceive any sound of human origin (0 or 1) on the two sensors, the device progresses through 10m bonds as follows:**

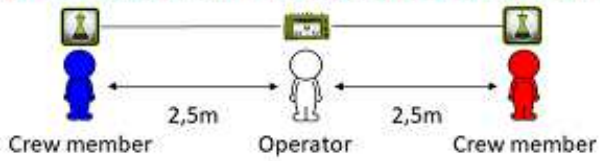



**Next step :**

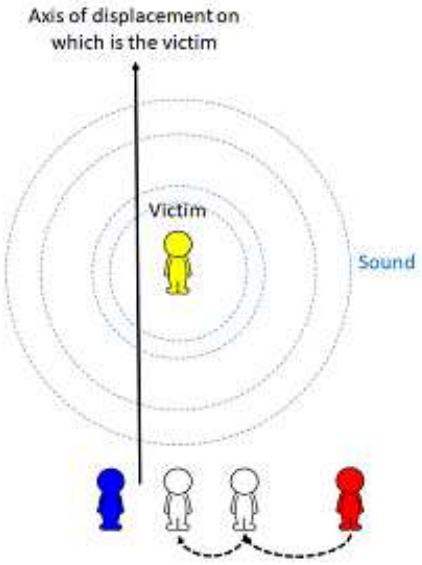
**one of the sensors (the blue for example) perceives a type 2 sound louder than the other sensor (or perceives a sound of type 2 but the other sensor does not perceive it), the blue sensor serves as a reference and has to remain in place. We compare the red sensor by dichotomy (we divide the distance between the two sensors by 2 at each step).You get a move as follows:**



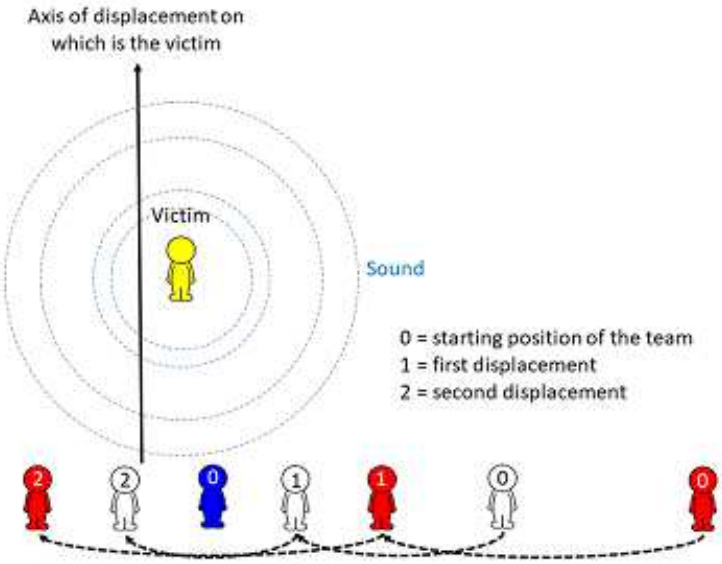

**Following this displacement, the operator and the team members are in the following position:**




**This brings the red sensor closer to the blue sensor until the perceived volume is the same in both sensors. It is therefore appropriate that the two sensors are on the same field (which conducts the sound in the same way). We then know that the victim is on the mediator of the segment formed by the two sensors as follows:**




**If at 2m from the blue sensor, the red sensor still does not perceive the sound as loud as the blue sensor is that the victim is on the other side of the blue sensor as follows:**

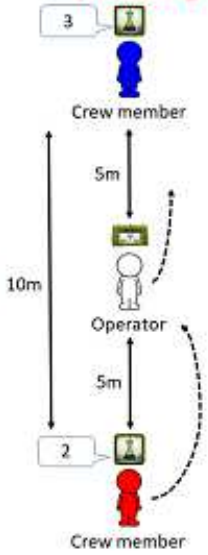



**At the start the team is at position (0). The blue sensor has the strongest signal. The operator and the red sensor is getting closer to blue in half (1). The red sensor signal is still not as strong as blue. The victim is on the other side (2). The operator and the red sensor switches to the other side.**

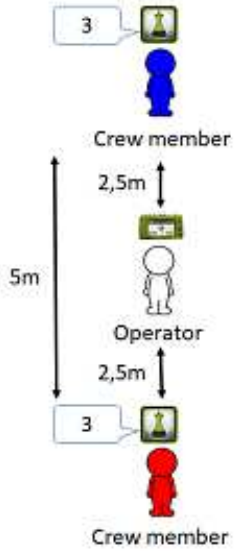
**Next step: location on the axis.**

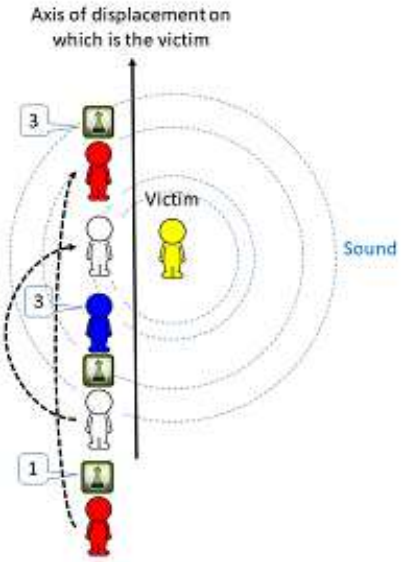
**The operator is placed in the middle of the segment formed by the two sensors at 10 m from each other on a defined axis. The sensor that perceives the strongest signal (here blue) becomes a reference sensor; the other progresses towards him with a dichotomy (reducing the distance by half).**

**At the beginning :**




**After displacement :**




**We thus locate the victim to a meter.**

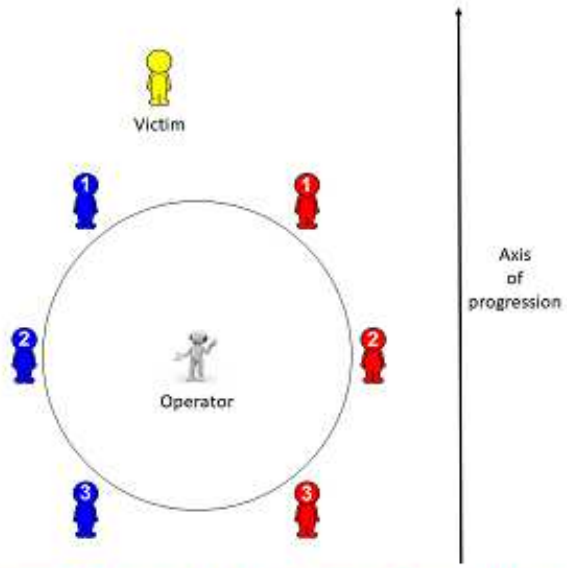
**The circle search method:**

**The team consists of an operator and six crew members each in charge of a call weight and a sensor. The operator listens in the headphones the perceived sound signals and raises the corresponding position of the sensors.**

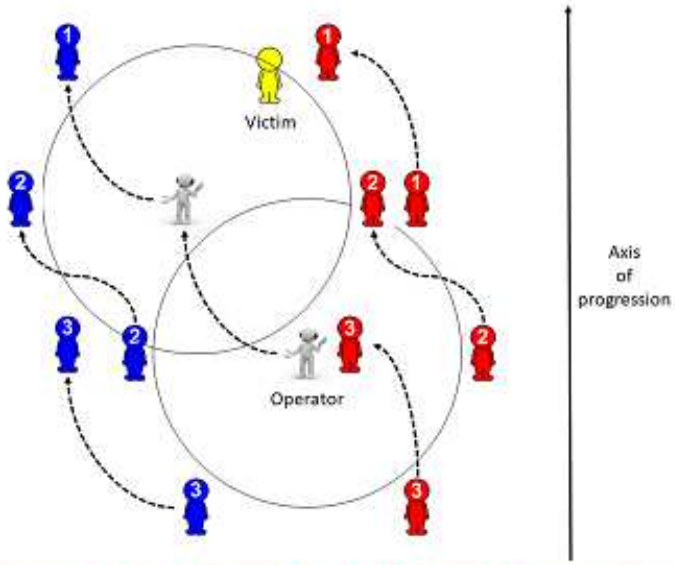
**The operator places the crew. With the commands "Silence on Call!" Then "Call!", The team members start the call signal. Then, the operator hears the sound signals emitted by the victim in response to the call signals. These sound signals are perceived by the sensors.**

**The sensors are divided according to colors and numbers. Three sensors numbered from one to three of blue colors and three sensors numbered from one to three of red color. Each color corresponds to one side of the headset (blue = left ear, red = right ear).**

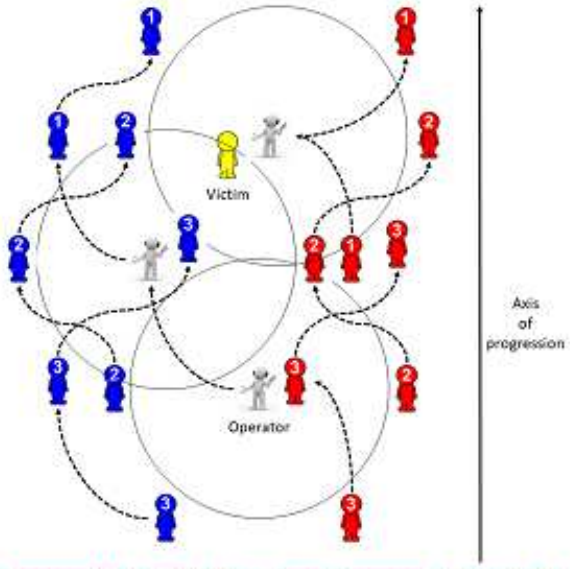
**The operator deploys the holders of sensors in circle around him with a maximum radius of 8m as follows:**




**In this case, the sensors 1 blue and 1 red detect a signal. We will then use the point that captures the most important signal (1 blue) as the new center of the search circle as expressed below:**




**After this movement, the red sensor 1 will be the one that will capture the strongest signal. We then renew the operation of moving the operator according to the same principle. This gives us the situation below:**




**The displacement is repeated until the signal sensed by all the sensors is an equivalent intensity which means that the operator is over the victim.**