



NoiseCapture party

Implementation protocol



Summary

- Introduction on noise pollution
- Presentation of the NoiseCapture application
- Installation of the application
- Smartphone calibration
- Definition of teams
- Definition of the areas to be covered
- Good practices

The NoiseCapture app



Why?

To have a more realistic assessment of outdoor sound environments, based on measurement rather than simulation.

Principle of operation

- Measure the sound in the environment using a smartphone.
- Collaboratively feed a global database
- Participate in an "Open Science" approach



Key figures of the application

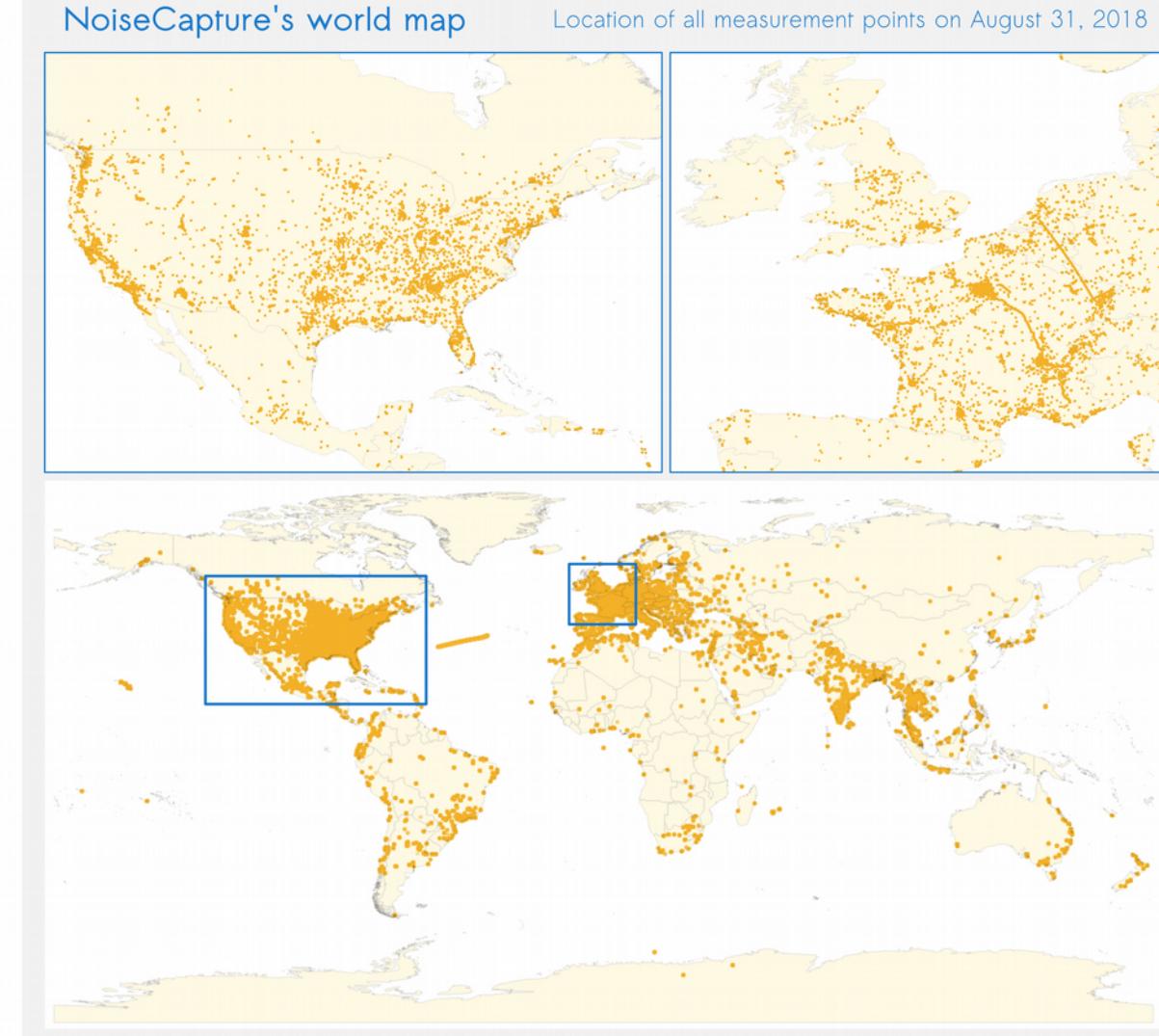


NoiseCapture's first birthday

September 1, 2017
to August 31, 2018

Made by

	Countries
Total number	189
	Contributors
Total number	27 927
	Points
Total number	20 931 061
	Open raw data
Total .zip size	489 mb
	Official Parties
Total number	10
http://noise-planet.org	
Free Android app	
Respect privacy	
Made by research	

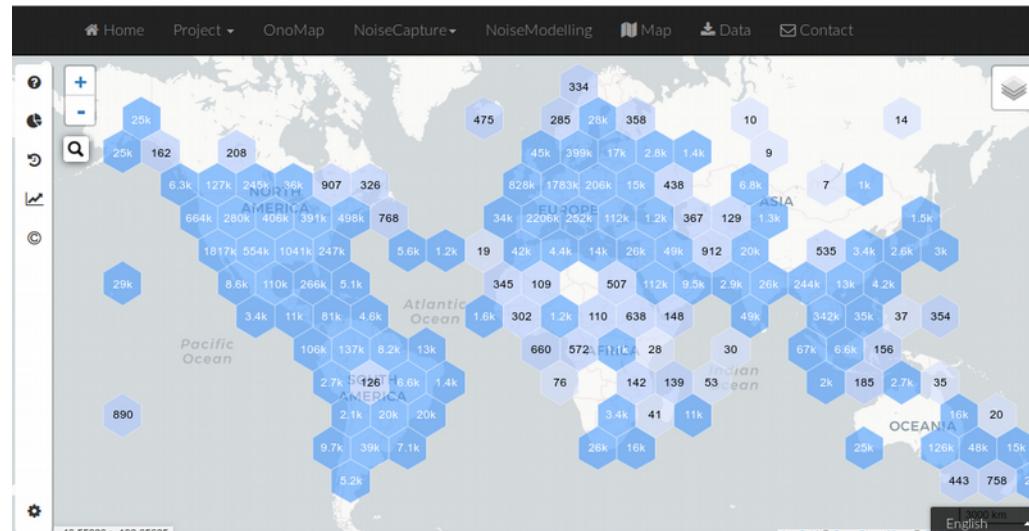


The NoiseCapture app



In practice

- 1) The user takes a measurement of his or her sound environment.
- 2) Once the measurement is complete, the user describes (optionally) the measurement.
- 3) The measurement, described, is transmitted via the Internet to the servers of the NoiseCapture team, then analyzed.
- 4) The resulting data feeds into a global database that is accessible either:
 - 1) In an interactive map: <http://noise-planet.org/map.html>
 - 2) In the form of raw data, freely reusable: <http://data.noise-planet.org/>



Estonia.zip	2018-06-20 05:13	12K
Ethiopia.zip	2018-05-15 12:06	255K
Faroe Islands.zip	2018-05-15 12:06	3.3K
Finland.zip	2018-09-28 05:21	1.6M
France.zip	2018-10-03 05:29	170M
French Guiana.zip	2018-06-08 05:09	120K
French Polynesia.zip	2018-09-24 05:23	52K



The NoiseCapture app



Good to know

- Free application
- Anonymous application:
 - No account creation
 - No personal information
 - No sound recording → impossible to reconstruct discussions from measurements
- Open-source application → possibility to modify and reuse it
- Made by research (see <http://noise-planet.org/members.html>)

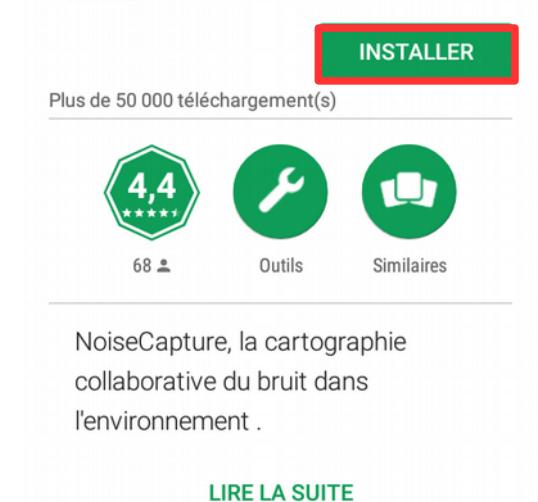
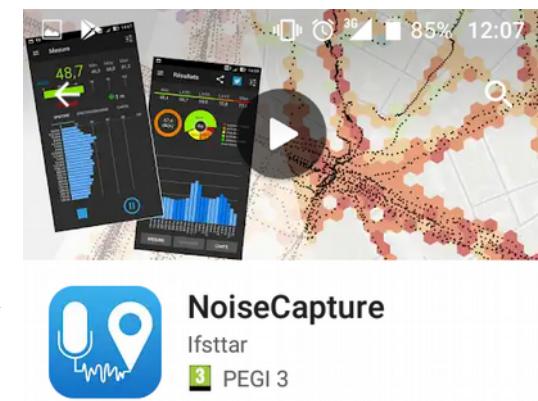
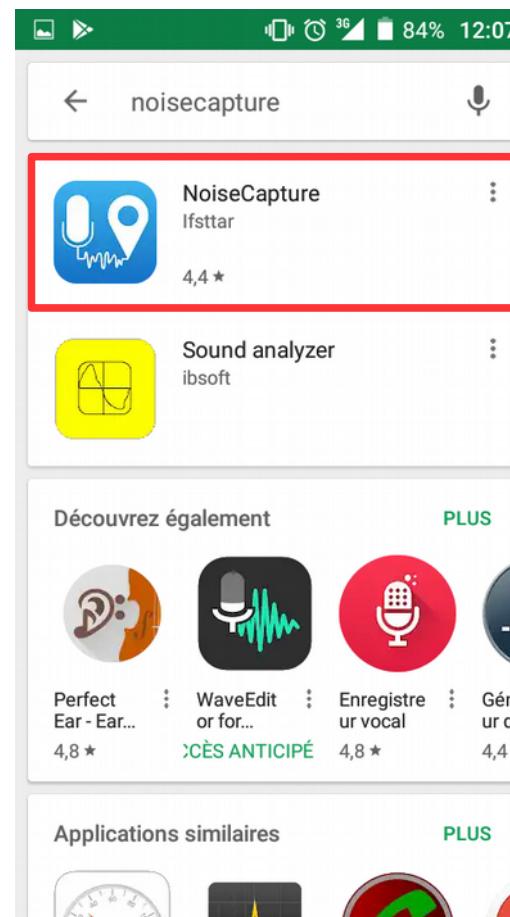
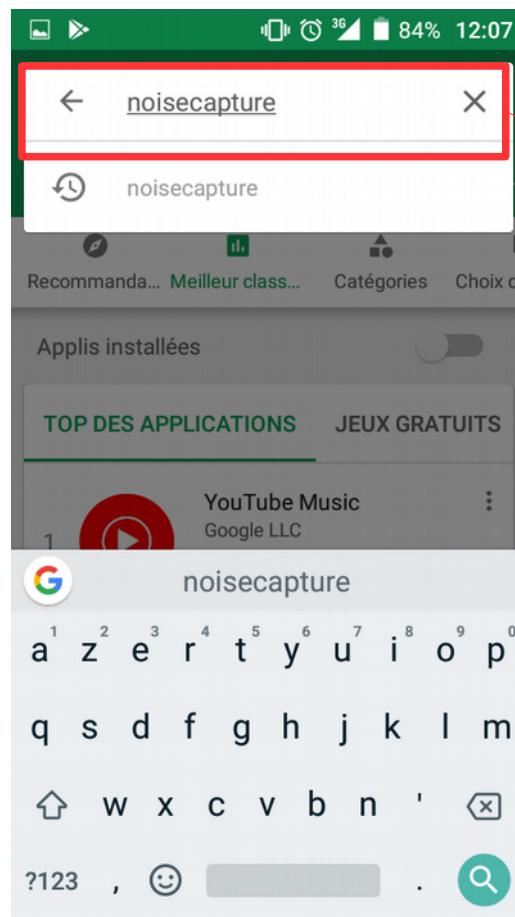
Prerequisites

- Only for Android smartphone
- Have a GPS
- Have Internet access (Wifi/3G/4G/4G/...) to transmit the measurements to the community



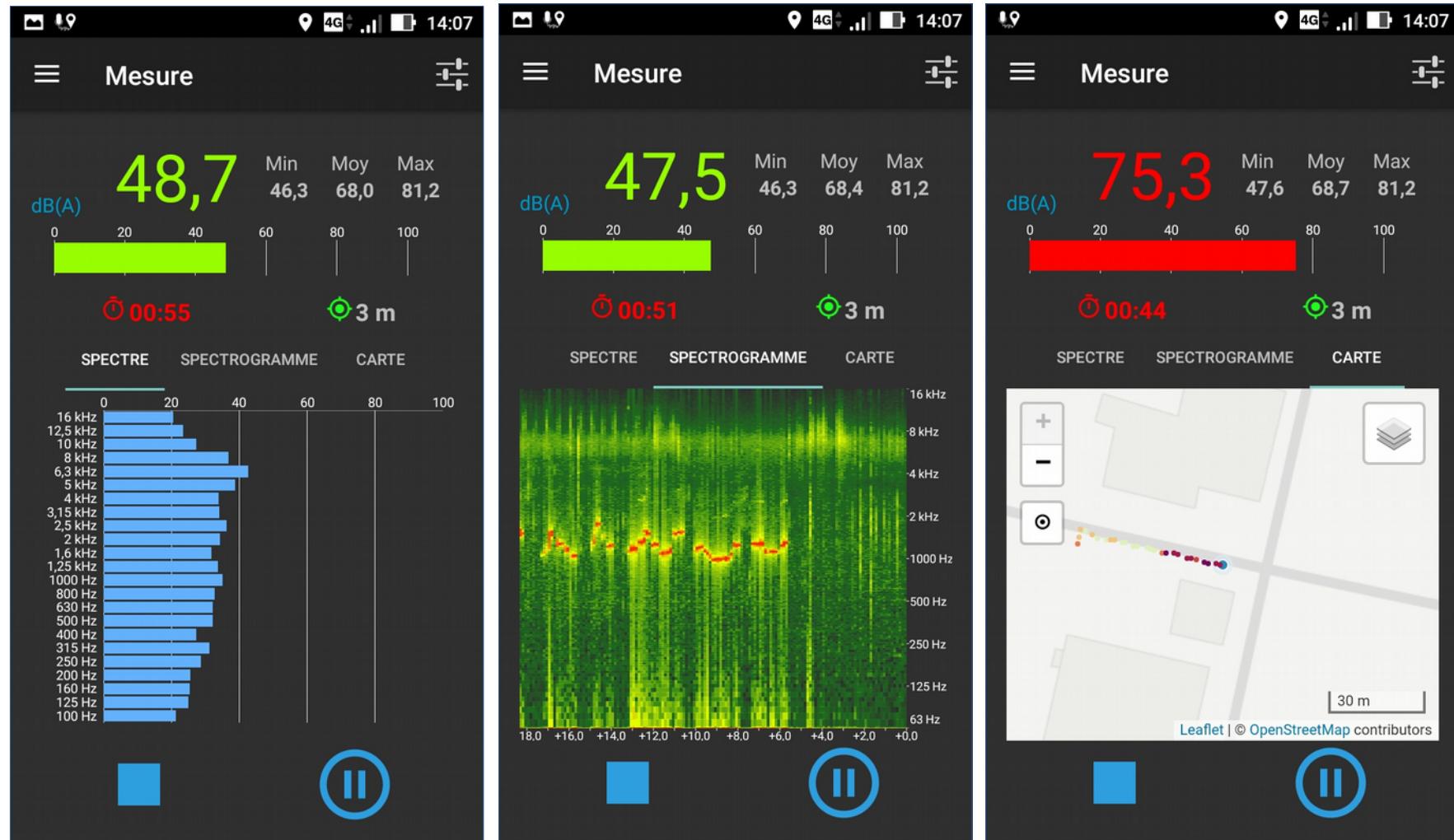
Install NoiseCapture

- Go to the Google Play store
- Search « NoiseCapture »



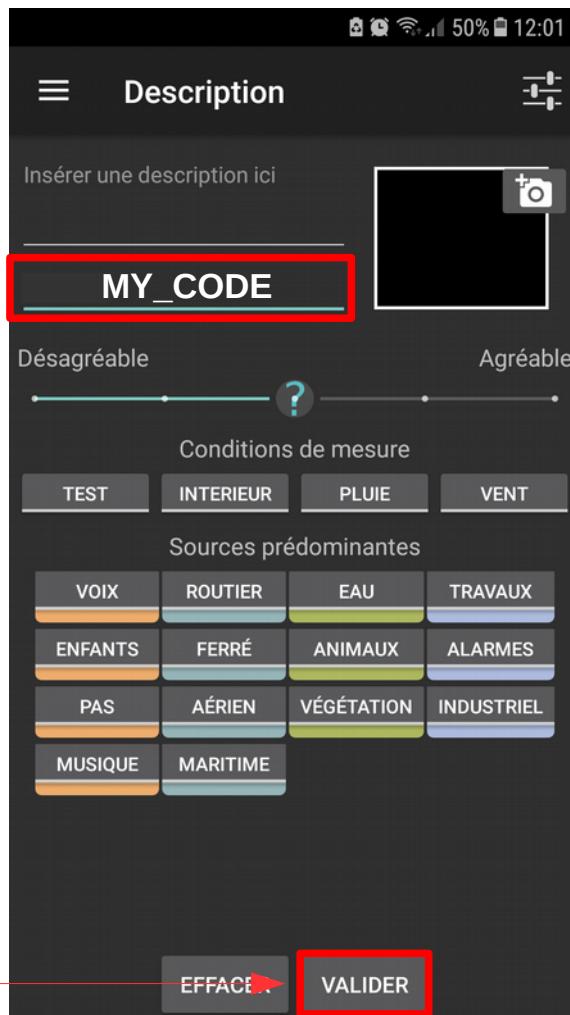
NoiseCapture Interface

Measurement page



NoiseCapture Interface

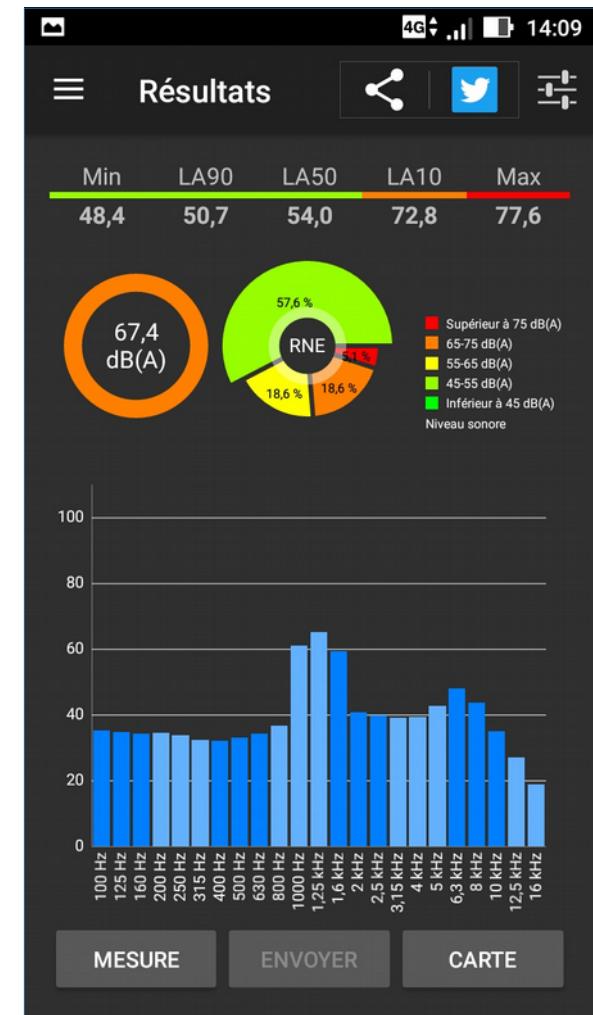
Description page



Add the party code
(replace « MY_CODE » by your own)

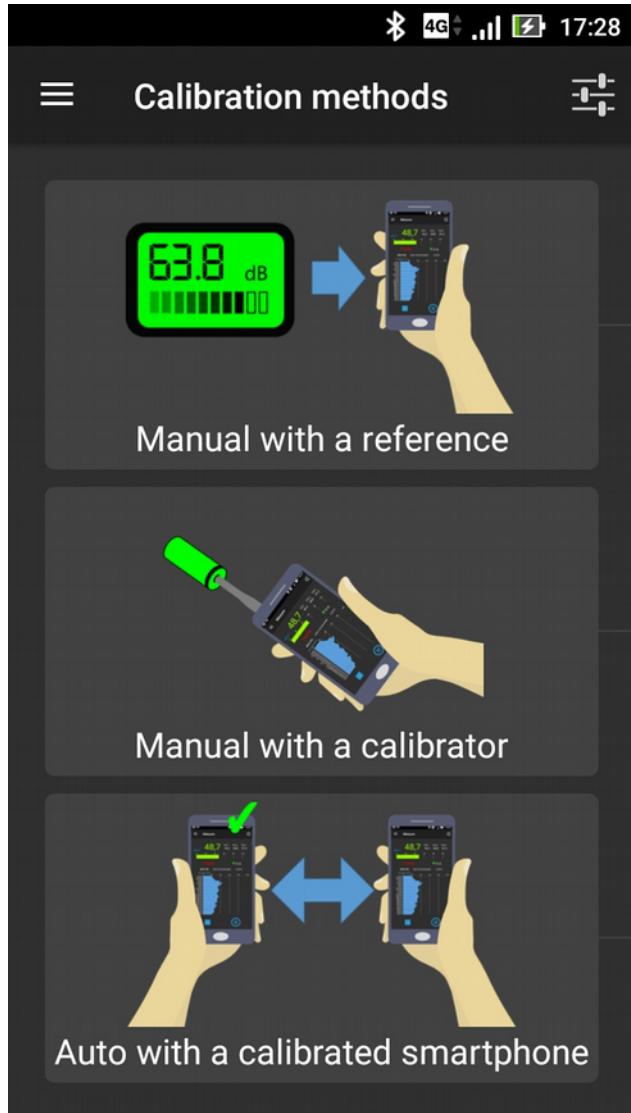
Confirm to transmit the measurement

Result page



Smartphone calibration

→ The calibration process is fully documented here : http://noise-planet.org/noisecapture_calibration.html



1
Manual calibration from a reference device

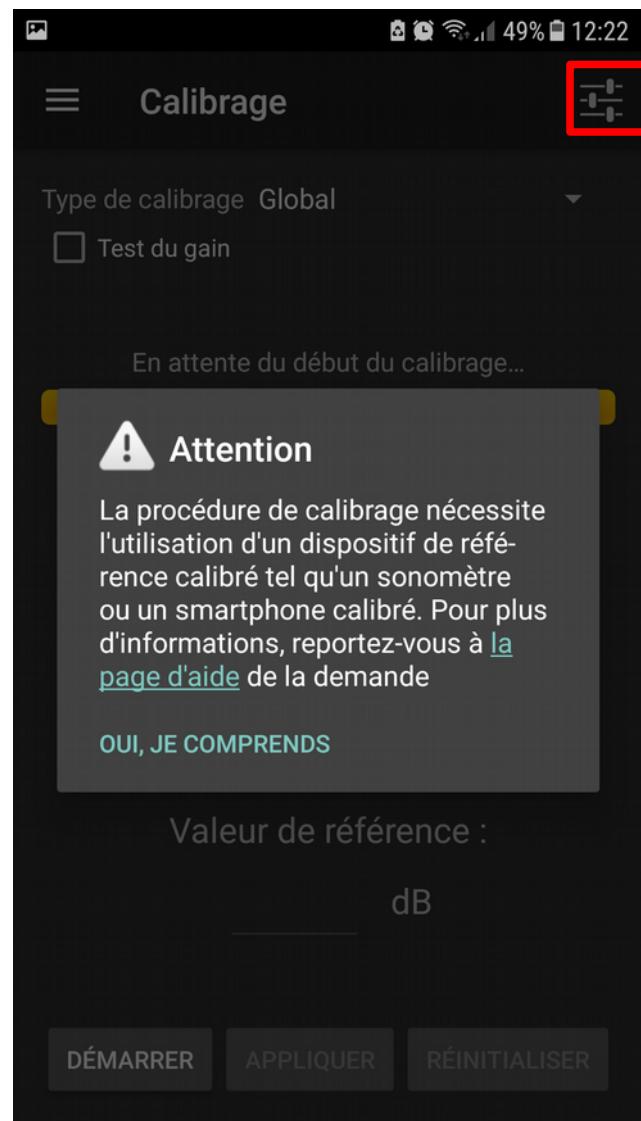
2
Manual calibration from a calibrator device

3
Automatic calibration from a calibrated smartphone

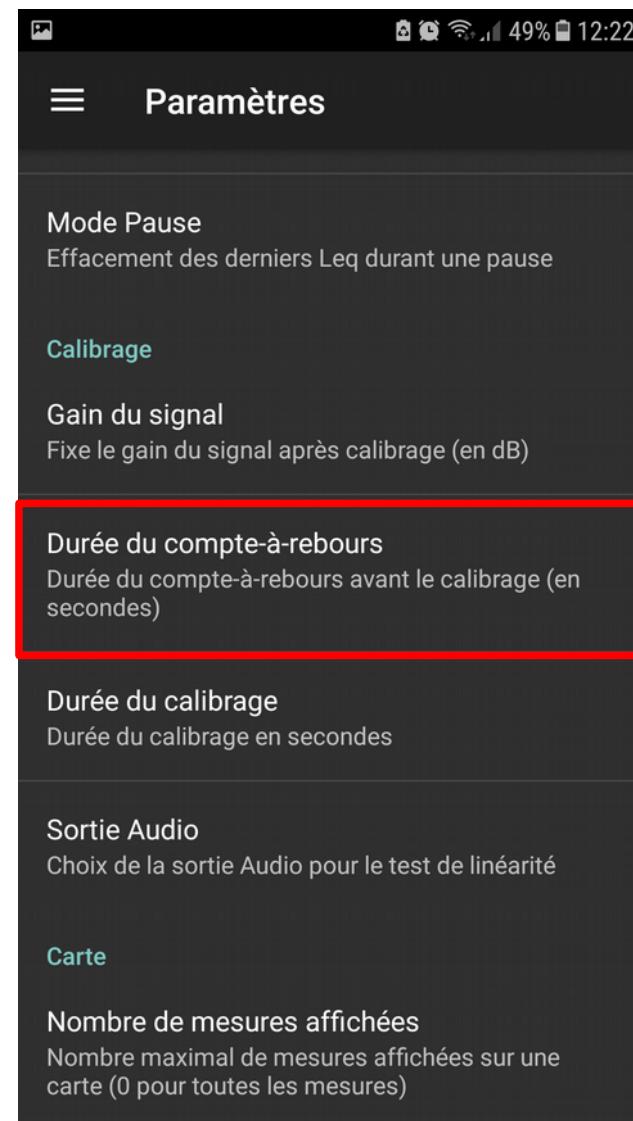
Smartphone calibration

Parametrization

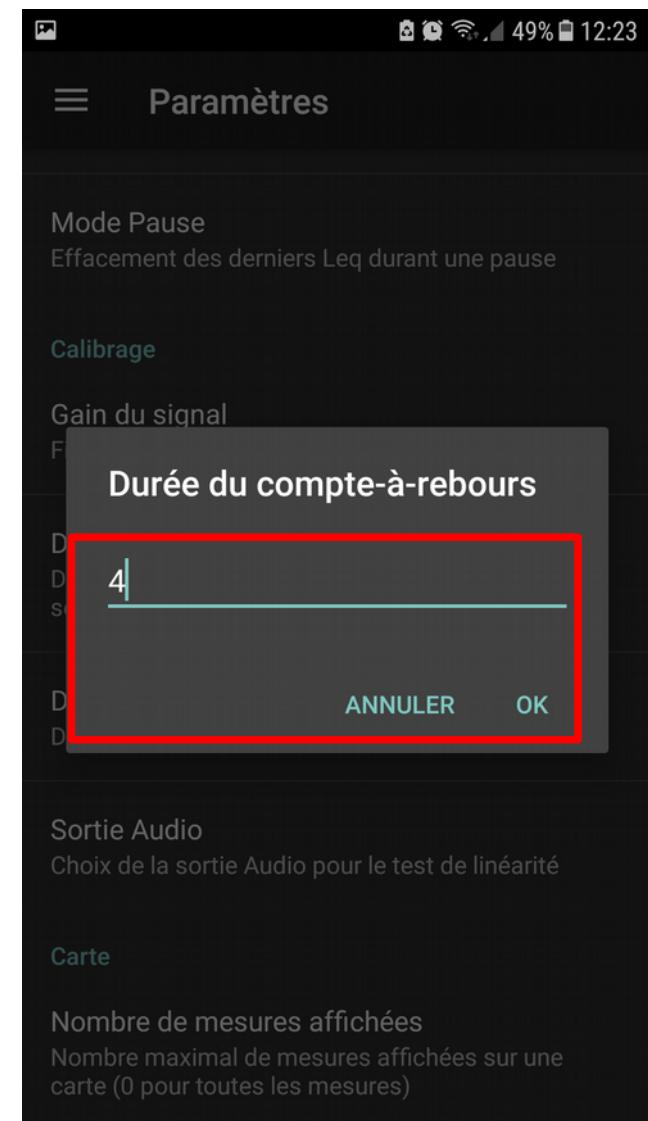
Define the parameters



Duration of the countdown



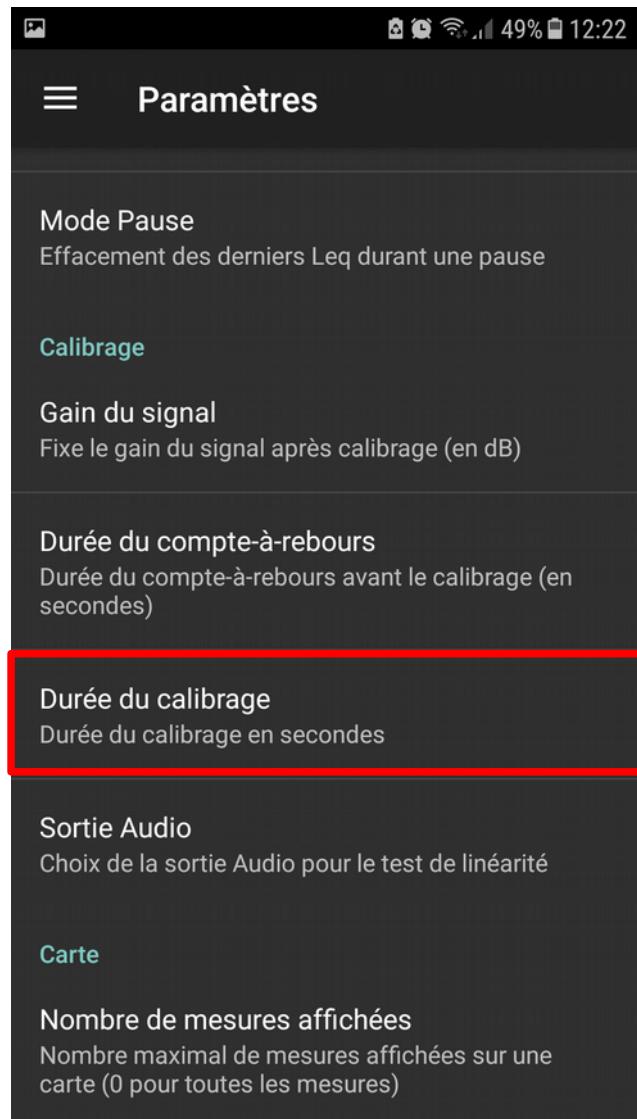
Set 4s



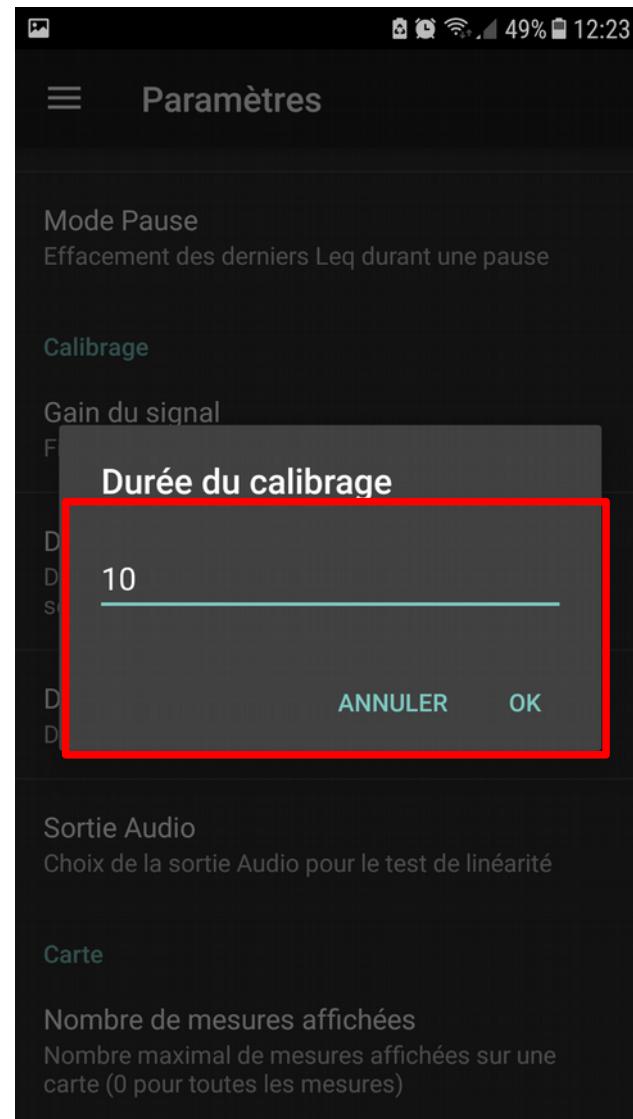
Smartphone calibration

Parametrization

Calibration duration

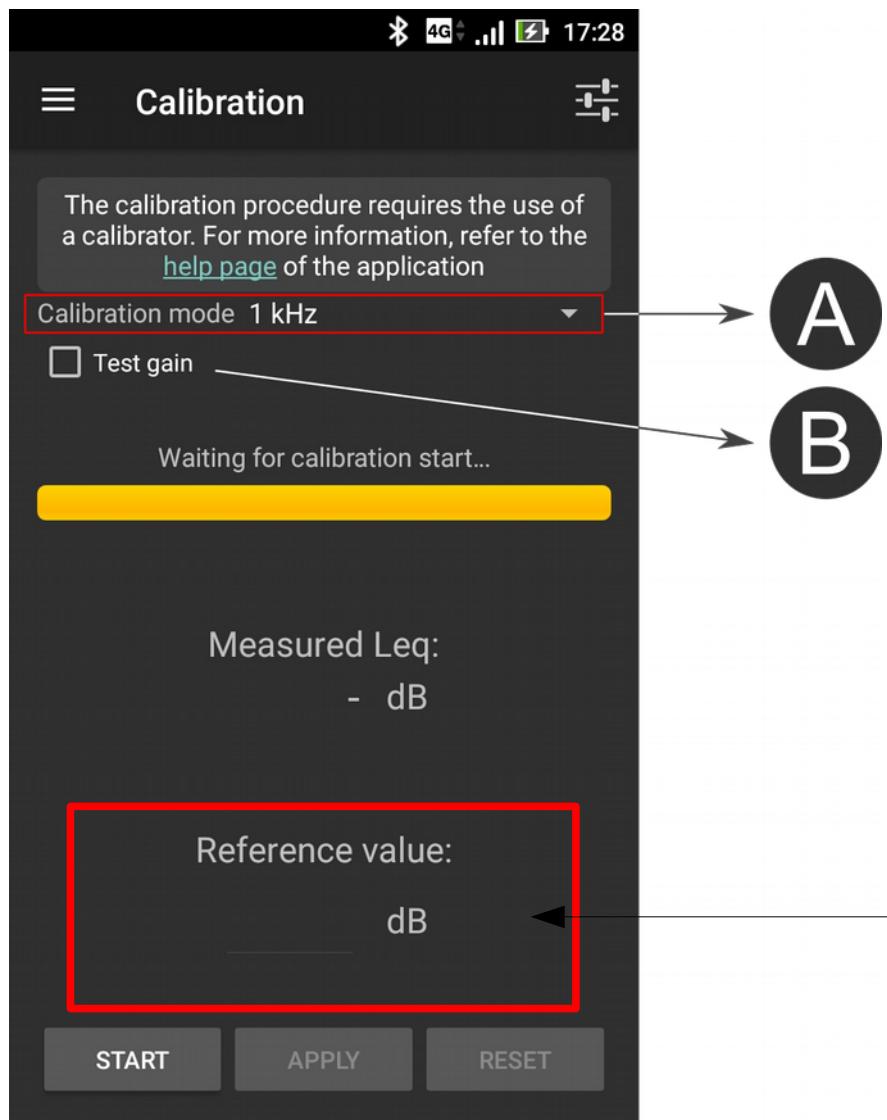


Set 10s



Smartphone calibration

Manual calibration (1) or (2)



1/ In the 'Calibration mode' list ("A" on the illustration), choose the frequency on which you want to perform the calibration. If you calibrate from a reference device (e.g. sound level meter), you can also choose 'Global' from the list to calibrate over the entire measurement spectrum. In the latter case, remember to configure the reference device to perform a measurement in the same frequency band as your smartphone.

2/ Press the START button.

- Before calibration starts, you have a warm-up time that can help you to prepare your calibration (prepare to turn on the reference device, if necessary).

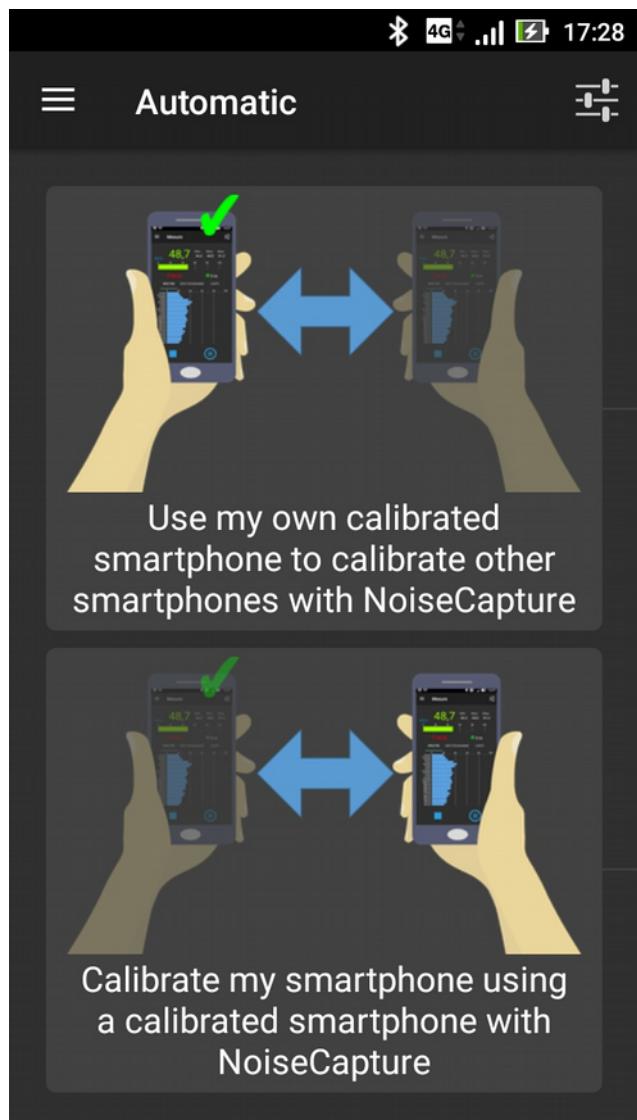
- Then, the calibration measurement starts for a given duration. For a better accuracy, the measurement duration should be the same both for the smartphone and for the reference device.

3/ Once the measurement is done, enter the Reference value (from the reference device) in the edit box and press the APPLY button.

4/ If you do not want to apply the correction factor, you can press the RESET button to perform a new calibration or you can leave the Calibration activity.

Smartphone calibration

Automatic calibration (3)



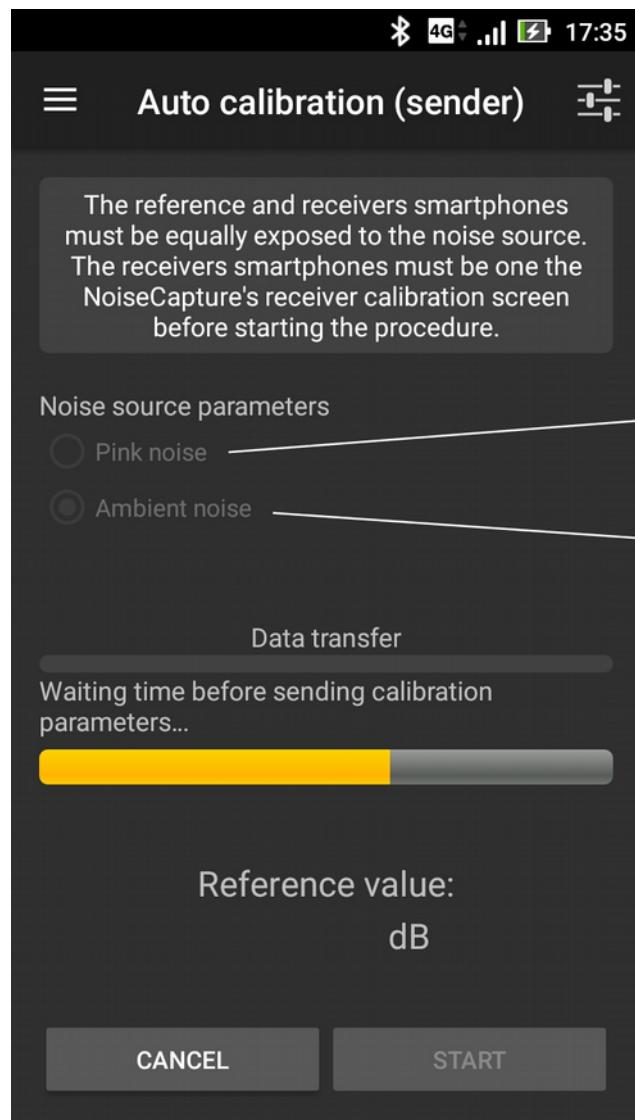
In this method, a smartphone already calibrated with NoiseCapture, can calibrate one or more smartphones. On the side of the microphones to be calibrated, the procedure is fully automatic. The entire system is controlled by the reference smartphone.

→ The reference smartphone must be in "transmitter" mode.

→ The smartphones to be calibrated must be in "receiver" mode.

Smartphone calibration

Automatic calibration (3)



On the **reference smartphone**:

→ Choose the source signal:

(1) "Pink noise" : in this case, the smartphone generates a reference signal. It is necessary to use a sound source connected wirelessly with the reference smartphone, the source being at equal distance from all smartphones;

- 1
- 2

(2) "Ambient noise" : Environmental noise is used for calibration. The sound level must be sufficiently high and the sound field must be relatively "diffuse".

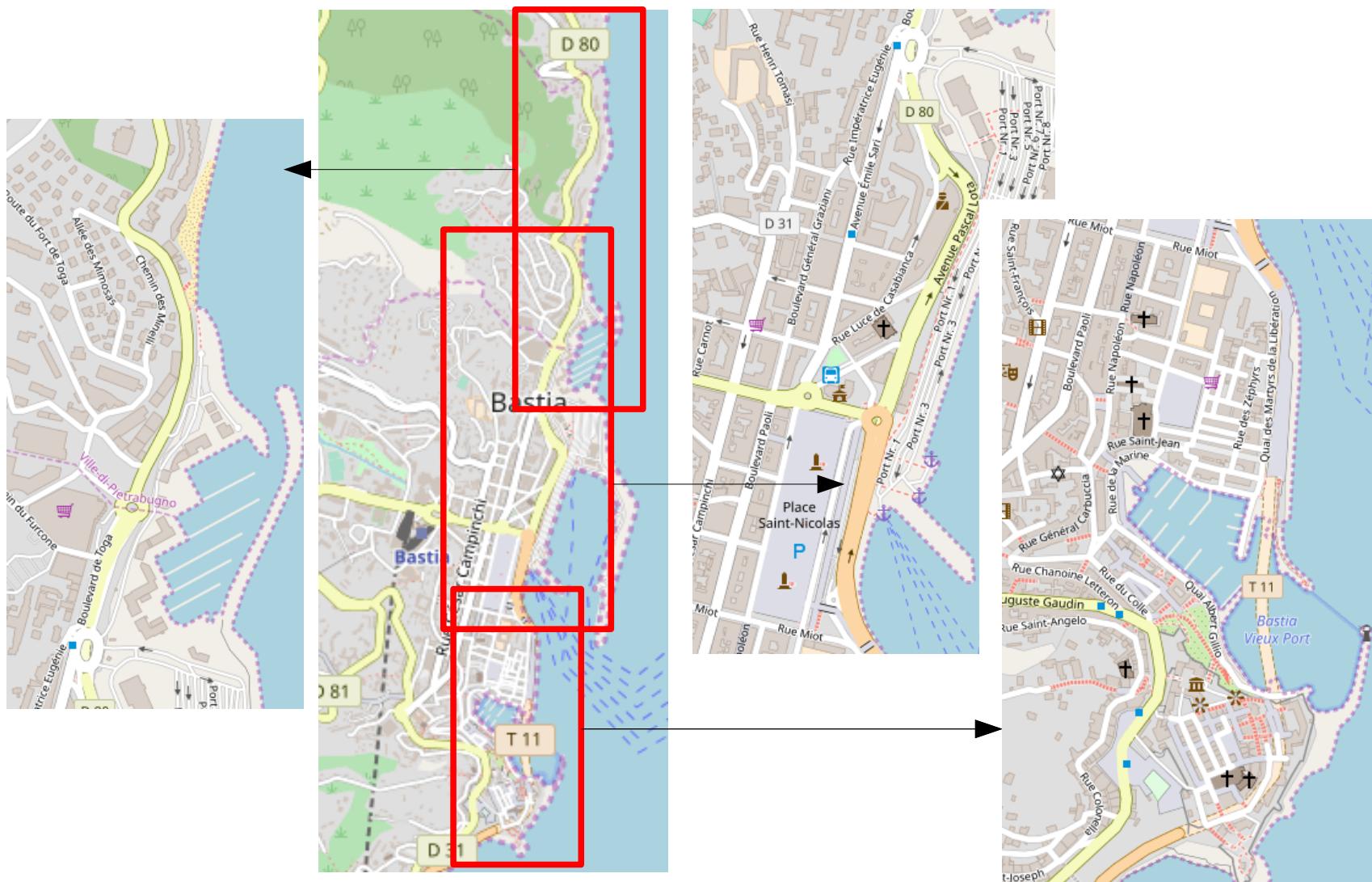
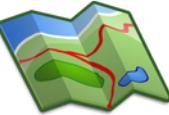
→ Press START; the rest of the procedure is automatic. If needed, you can cancel the current calibration with the CANCEL button.

Teams



- If you wish, create teams to perform measurements in a fun way (*« who will do the most measurements? »*)
- A team covers an area
- If there is not enough smartphone in the team,
 - the person making the measurement tries to stay slightly away from the group so as not to "pollute" the measurement with the discussions.
 - regularly, the wearer of the smartphone changes.
 - at the end of each measurement, the group meets to define the atmosphere of the measurement (description page in the application)

Definition of the areas to be covered



On large areas (e.g city, university, ...) divide into smaller sub-areas and assign one team for each of them.

Good practices



The measure

- The measurement must be carried out outside the buildings,
- The smartphone must not be in the pocket. It must be held in the hand,
- The microphone of the smartphone must not be hidden,
- Perform a noise measurement, without making noise yourself!
- Do not take measurements in the rain or in windy weather,
- It is possible to use an external microphone of better quality and calibrated.

Good practices



Conditions of the measure

- Feel free to move around (walking) during the same measurement, but try not to add any noise that would be related to your movement (avoid on two wheels or in the car).
- The duration of a measurement is an important point: choose a measurement over a long period of time (several tens of seconds), rather than several measurements of a short duration.
- **One measurement per sound environment.** If, during the journey, the atmosphere changes (e. g. from a quiet to a noisy area), it is preferable to stop the measurement when the atmosphere changes. This way it will be possible to describe the two atmospheres differently.

Cautionary statement



Keep in mind that this type of tool will never replace professional equipment and the expertise of an acoustician.

For more information



Feel free to visit <http://noise-planet.org/> and the page dedicated to NoiseCapture (<http://noise-planet.org/noisecapture.html>)

The interactive map is visible here:

http://noise-planet.org/map_noisecapture/index.html

Contact

For any questions, please contact us by email at
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@Noise_Planet

