

COOL
& LOW NOISE
ASPHALT PROJET
LIFE

—
The noise radar project

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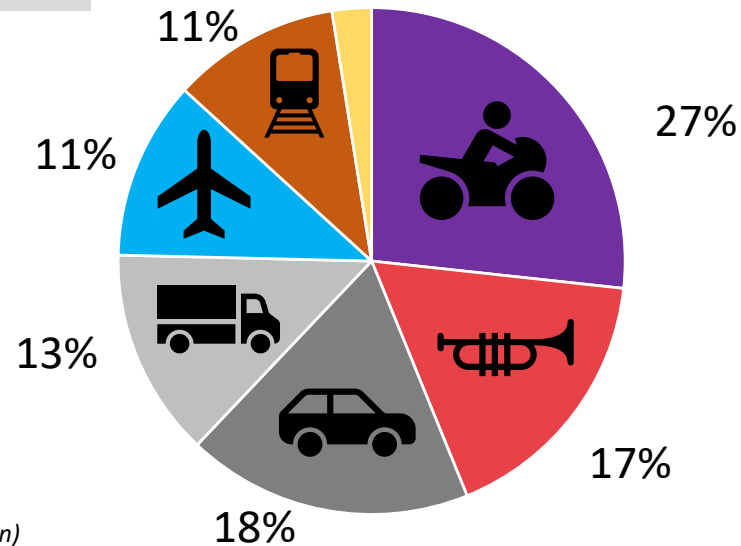
**Context:
Road noise perception**



Study carried out by CREDOC for Bruitparif (2021)

- 30% of the Paris region's residents quote road traffic as the primary cause of noise annoyance when they are at home
- Among noises emitted by transport, noise peaks annoy the population the most, especially motorized two-wheelers and horns

Generally speaking, when it comes to transport-related noise, which one annoys you the most?



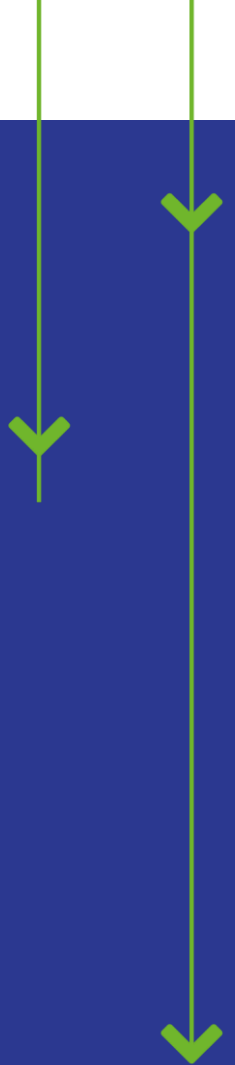
Source : Study carried out by CREDOC for Bruitparif, 2021
(3000 respondents among residents of the Île-de-France region)

Tackle too noisy vehicles: an important issue to reduce noise pollution

- Noise standards in application for the approval of vehicles can be exceeded in actual traffic conditions due to offending behaviour or illegal transformation of the vehicles
- Noisy vehicles ($L_{Amax} > 80$ dBA) – they represent between 1% and 15% of the vehicles detected - can contribute up to 20% to 55% of total noise
- Few controls carried out by the police due to a lack of human and material resources
- **French Mobility Orientation Law (article 92) (24/12/2019) has introduced an experiment of automatic control of vehicle noise emission levels**
- 60% of French people say they are in favour of installing noise radars
- 18% of the inhabitants of Paris region even consider this action to be a priority in the fight against road noise

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The French experiment



2. THE FRENCH EXPERIMENT

Start: 04/01/2022



8 sites among 7 pilot communities in France

- Urban areas: the cities of Paris, Toulouse and Nice
- Peri-urban areas: the cities of Bron (near Lyon), Villeneuve-le-Roi and Rueil-Malmaison (in Great Paris Metropolitan area)
- Rural area: Haute Vallée de Chevreuse (in Paris Region)

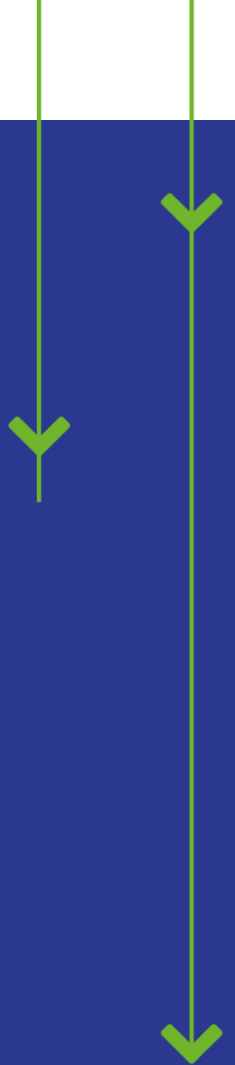
3 prototypes of noise radars designed by three different companies (including Bruitparif)

3 phases:

- From 01/2022 to 10/2022: a « blank » test phase without fines
- From 11/2022 to ?/2023: type approval legal metrology
- From ?/2023 to ?+6months : real test phase with fines (€135)

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Hydra: the Bruitparif noise radar prototype



Tested in three pilot sites in Paris region



Paris
Urban

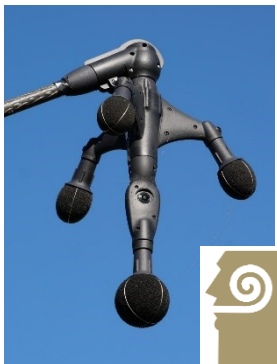
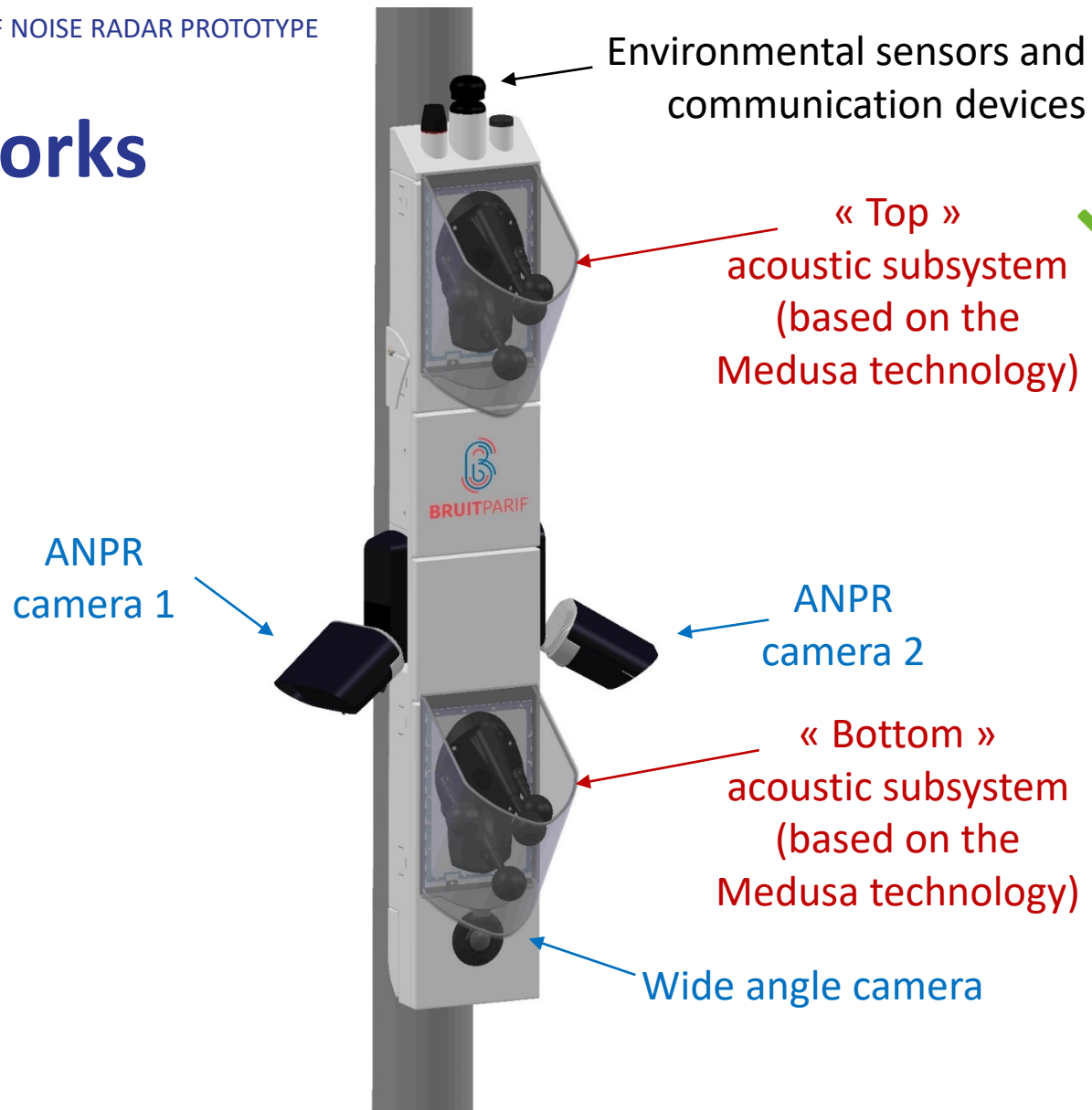


Villeneuve-le-Roi
Peri-urban



Vallée de Chevreuse
Rural

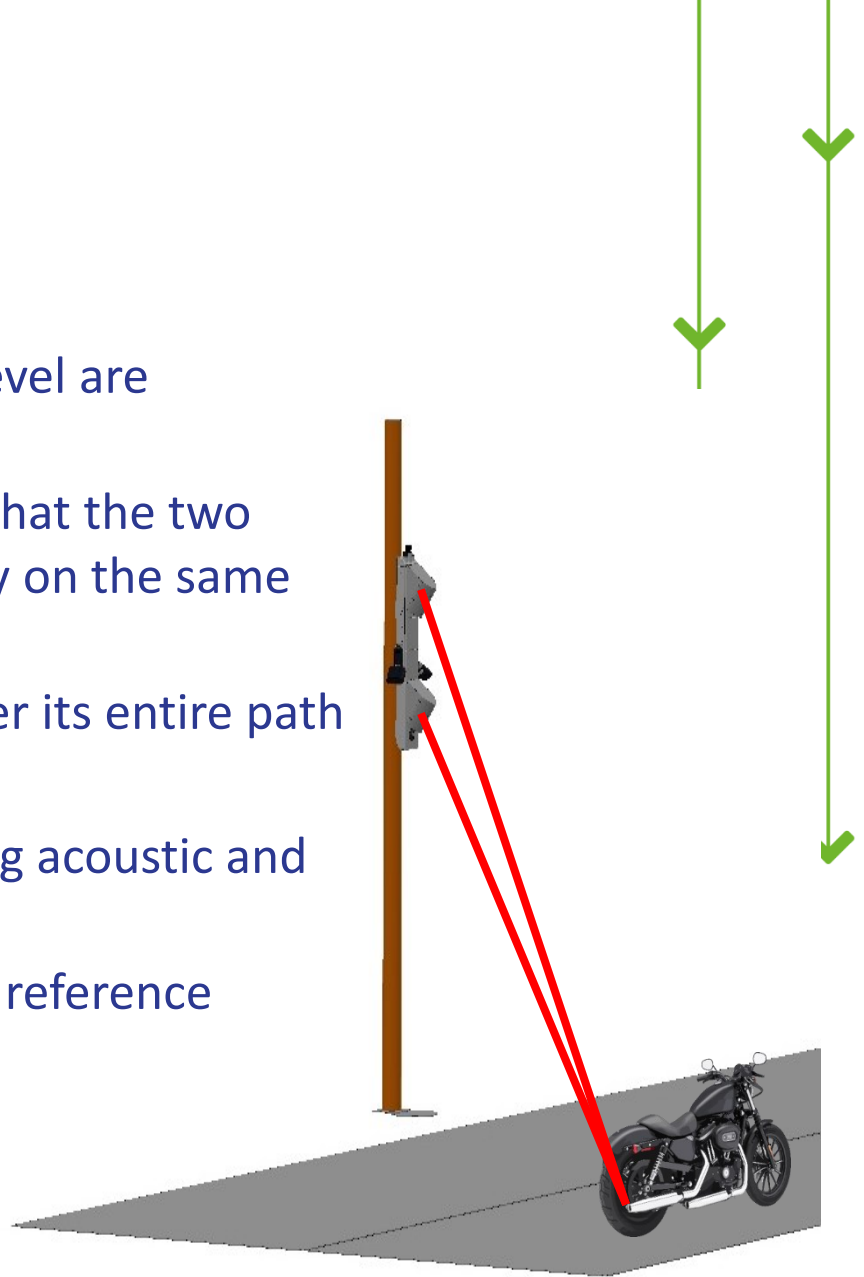
How it works



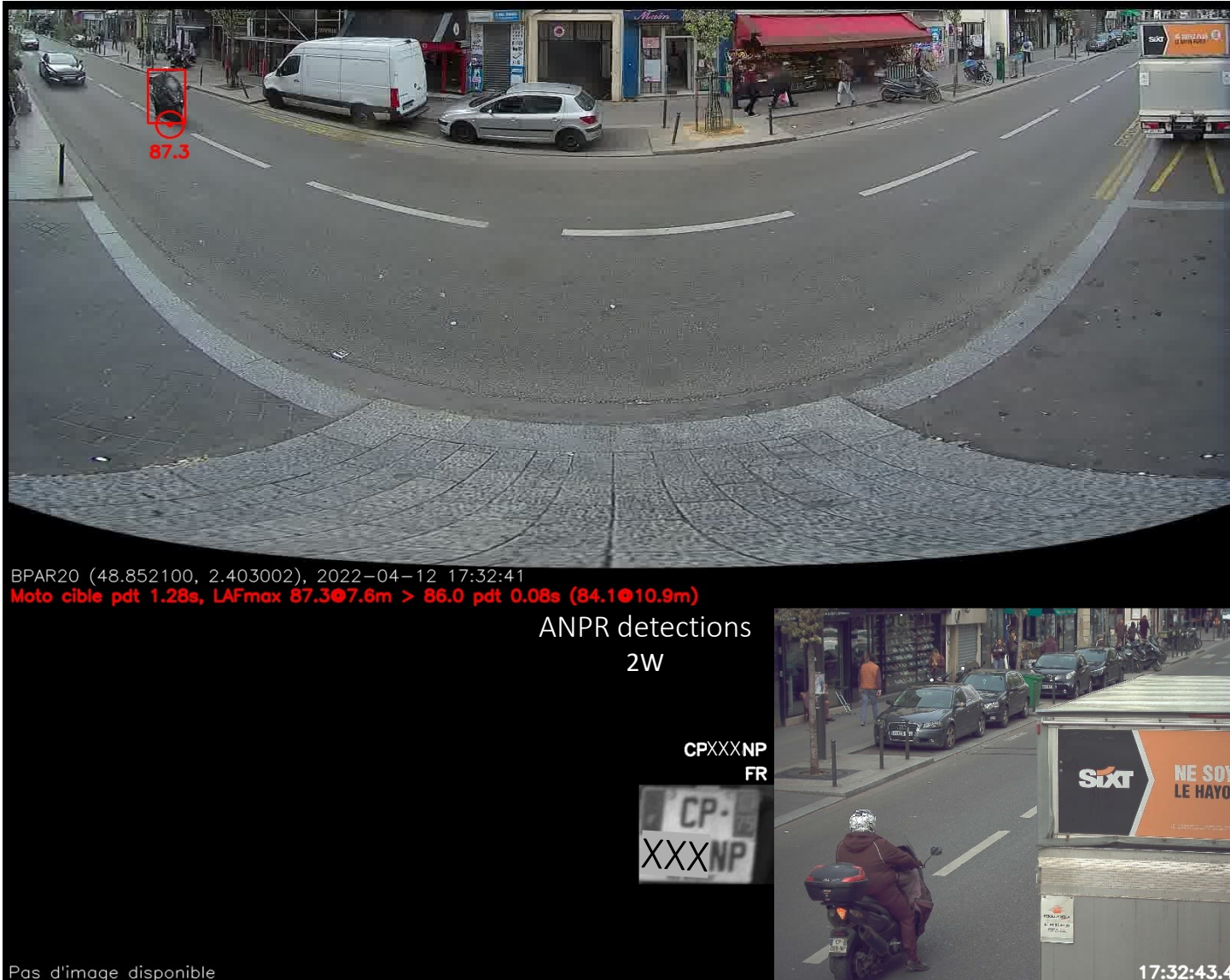
LAUREAT 2019
DECIBEL D'OR

How it works

- Direction of sound arrival and noise level are calculated every 40 ms
- To be valid, a measurement requires that the two acoustic systems focus simultaneously on the same source
- Noisiest acoustic source is tracked over its entire path
- All vehicles are tracked by video
- Target vehicle is identified by matching acoustic and video
- Noise level is calculated at a standard reference distance (7,6 m)



3. HYDRA: THE BRUITPARIF NOISE RADAR PROTOTYPE



3. HYDRA: THE BRUITPARIF NOISE RADAR PROTOTYPE



BPAR20 (48.852100, 2.403002), 2022-04-10 01:51:12
Voiture cible pdt 0.28s, LAFmax 88.1@7.6m > 86.0 pdt 0.16s (83.0@13.6m)



ANPR detections

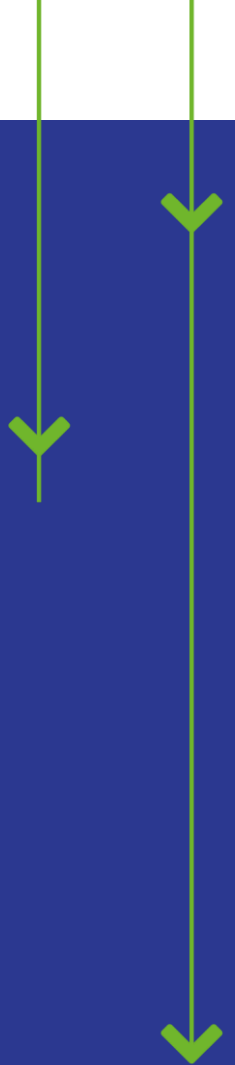
Car
Mercedes - Class A

WPXXXXG
PL



4

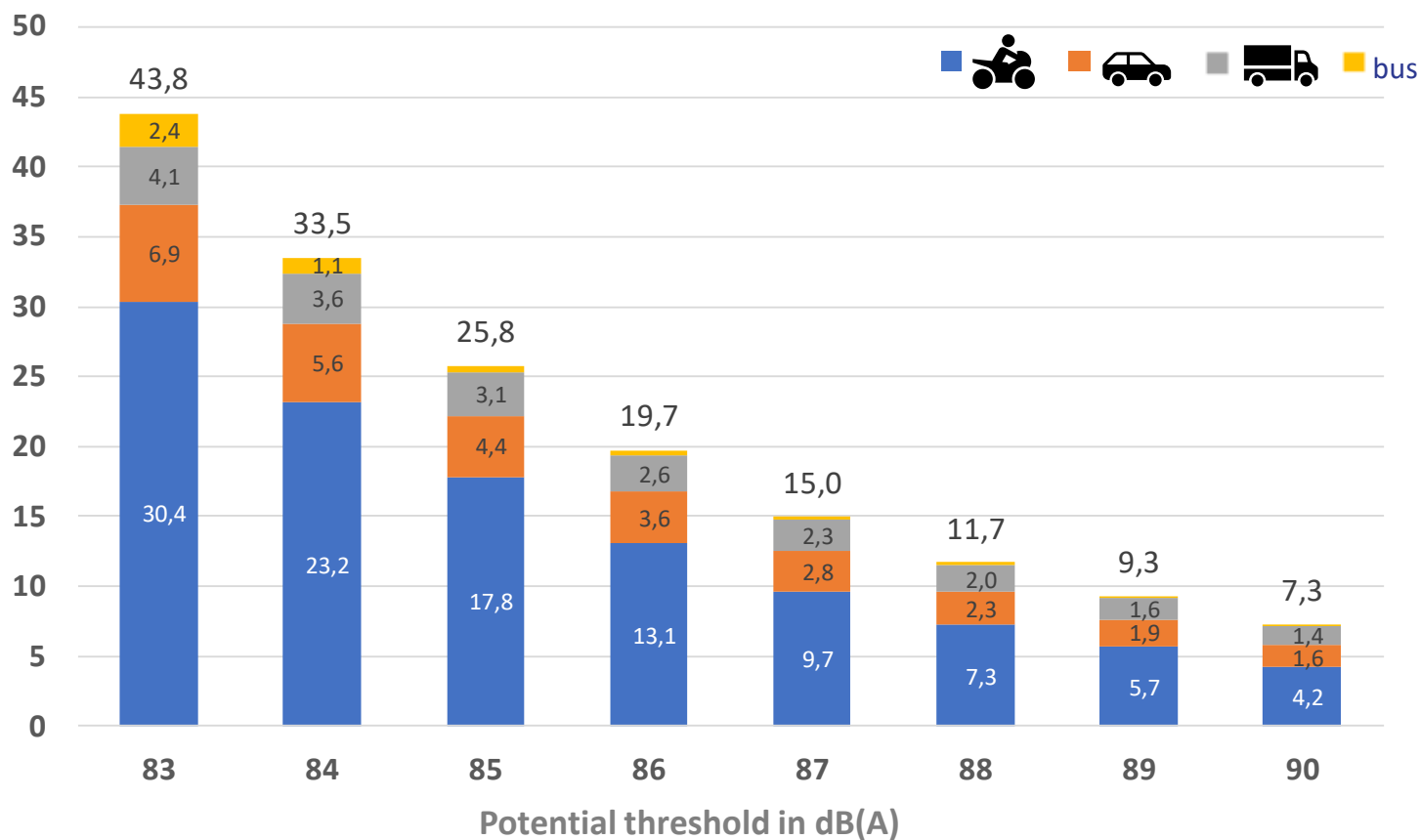
First results



First results

Paris 20ème

Average number of exceedances per day depending of the threshold



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Perspectives



Perspectives

- Possible emergence of operational noise control radar in France from 2024
- Will permit to reinforce controls against too noisy drivers but also to develop the awareness of the general public
- Complementary devices such as educational noise radar should certainly be multiplied at the same time
- The technological development of noise radar will also permit to improve scientific understanding of road noise



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Thanks a lot for your attention
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