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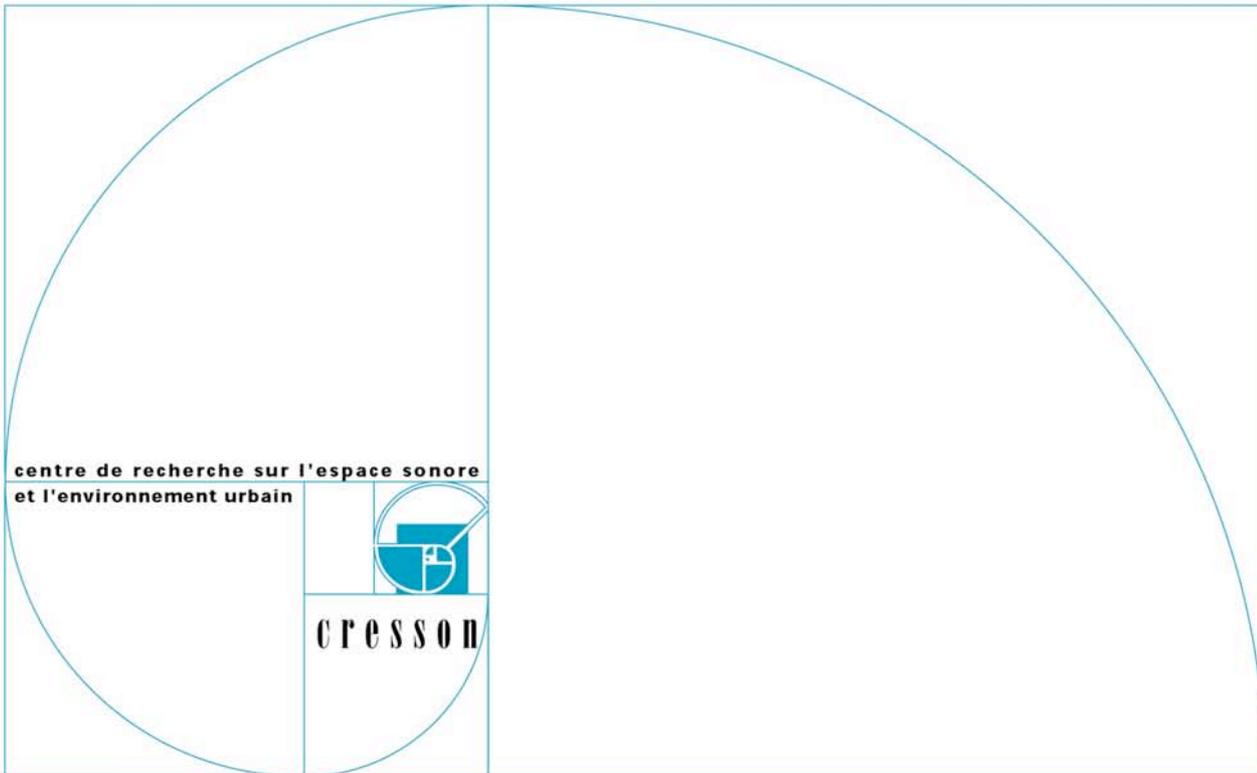
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## Street listening. A Characterisation of the Sound Environment : the "qualified listening in motion" method

Nicolas Tixier – 2002



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## Street listening

### A characterisation of the sound environment: The «qualified listening in motion» method

*Nicolas Tixier*

#### Introduction

**W**e have been developing an approach based on a more qualitative study of the sound environment which will complement in a preparatory fashion the usual metrological surveying techniques used in urban acoustics. It is directly based on the notion of atmosphere (called “ambiance” in French<sup>1</sup>) and the descriptive and interpretative tools: the sound effects<sup>2</sup>. This method was developed in collaboration with Nicolas Boyer under the direction of Jean-François Augoyard. It has been used in an exploratory fashion in several research projects<sup>3-4</sup> with the interdisciplinary collaboration of other laboratories [physical characterisation, numeric simulation]. Two sites were used for this study: the Vigny-Musset district in Grenoble (Isère), and the Port au Blé district in Rezé (Loire-Atlantique).

#### Methodology

Approaching a “sound atmosphere” (“ambiances sonores”) involves an interdisciplinary process taking into account both the physical and the constructed dimensions of the space, as well as the social and perceptive dimensions of the users. We

will thus make the triple postulate of an approach which will be: urban, in situ and dynamic. Our qualified-listening (*écoute qualifiée*) method stems directly from the method of the commented city walks<sup>5</sup> by Jean-Paul Thibaud.

The commented city walks can be illustrated by the three verbs of action: “to walk, to perceive and to describe”. Moreover, they are adapted to three main hypotheses in order to apprehend our sensible environment:

1. To reaffirm the importance of context in the survey’s system. This concerns a reintroduction of a double contextual dimension that is often absent within sensible studies as well as urban and pragmatic dimensions: i.e. the way we act in a city. This is to be done in situation, in context and through the action of walking with the purpose of participating in the emergence of these sound phenomena.
2. A relationship between the order of description and the order of perception, which concerns the recognition of the habitants’ competence in describing the environment where they live.
3. The order of perception concerns the habitants’ mobility, therefore the choice of a dynamic situation for the approach.

Jean-Paul Thibaud states that it’s more a question of avoiding a scholarly and disengaged description, than of aiming at an ordinary and participatory one.

This proposed method is an adaptation of the method of the commented city walks. This adaptation can be differentiated through three principal aspects :

1. the focusing on the description of the sonic environment ;
2. the demands of a technical system ;
3. a final form that articulates different types of materials.

The next step, after an architectural and urban survey, is to obtain the reports of what is perceived whilst moving, thanks to a recording device and acoustic amplification.

Fig. 1: Walking, listening and describing.



The *listening subject* is fitted out with two systems of synchronised recording equipment:

- The amplified listening apparatus: a directional microphone + a pole that the listener directs himself + D.A.T. recording of the sound environment + headphones (the band is adjusted to dB(A) level to enable a later metrological analysis).
- Comments: a small lapel mounted microphone + Dictaphone recording of the descriptions.

This technical apparatus, thanks to the emphasis it lays on the surrounding sounds, helps the participant to speak of what is usually taken for granted and is thus difficult to express, namely our everyday sound environment. This equipment generates a paradoxical situation, since one at the same time is outside the context (we are listening with headphones), but also within the context (one listening while walking in the city). The distance between these two ambivalent situations which take place simultaneously facilitates the verbalisation and the concentration of the entire process.

A researcher accompanies the participants in order to guide them and to encourage them to speak if necessary. His presence is sometimes necessary to put the comments into context and to note their relative importance. The participants are mainly selected on the basis of their connections – or lack of them – to the studied

space: lodgings, work, shops, school, walks, gardens... They go round the circuits at different times of the day, on different days, and even in different weather conditions. By the amount of the repetitions within the comments of fifteen candidates, it is soon clear that it's very possible to circumscribe the different phenomena. The instruction before starting the course is simple: i.e. to say what one hears and to comment on it. In order to help a person, if that is necessary, the researcher can specify that he/she can list the sound phenomena. When possible, try to qualify them and explain the relations they maintain with the city, the people or oneself. It's also necessary for the candidates, from time to time, to describe their location precisely in order to facilitate the phase of the analysis.

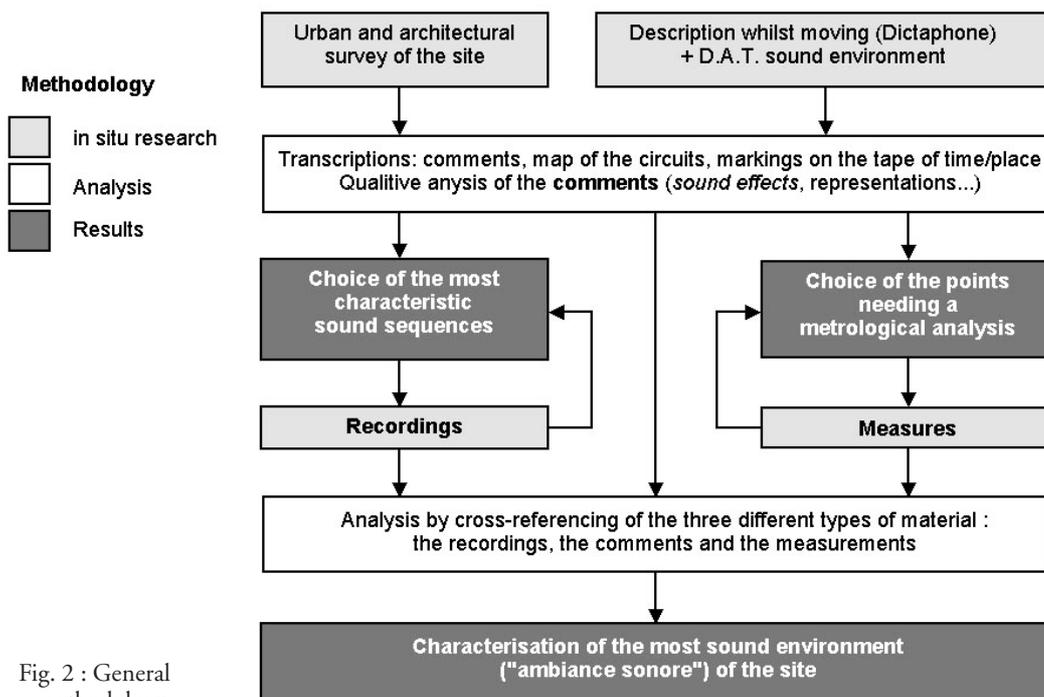


Fig. 2 : General methodology.

## Analysis

The qualitative analysis of the participant's comments in response to the built environment is done by following a technique called "table and scissors" (la table et les ciseaux) (a phrase coined by Y. Chalas<sup>6</sup>). This technique is often used for the construction of typologies, and in figurative analysis (analyse figurative). The sequencing into meaningful entities is done by following five modes of apprehending sounds. The first three correspond to three of the four ways of listening listed by Pierre Schaeffer<sup>7</sup> namely: **hearing** (unprocessed sounds, "ouïr"), **attending** (qualitative perception or perceptions qualifiées, "entendre") and **listening** (indications, "écouter"). The fourth listening modality is the **comprehending** ("comprendre"): it corresponds to the researchers ability of listening. The analysis of the comments implies the adjunction of two more criteria: the sounds directly linked to the participant's statements which qualify the sound space in a more general way. This second stage enables us to list the qualities and the sound phenomena according to the different spaces and transitions studied. This enables us to select what is major and sufficiently recurrent within the sound environment to record and to measure the characteristics of these phenomena, in a third stage. Finally, an analysis combining these three types of data (comments, recordings and measurements) allows us to specify the more noteworthy sound atmospheres of the site.

It is important to pay attention to one certain point of the method. The process of walking engages a general articulation between different spaces. This change causes different events and facilitate the description of sound spaces by the appearance of contrast, i.e. effect of cut, continuity, ubiquity, etc. Thus the discourse carries alternative of what occurs, what occurred and what will occur (I will hear that...) and of what will not occur. In other words, the dynamics of the city walks which permit the mixing between the spatial and temporal sonic spaces, allows the development of the characteristics of the crossing places. This advantage implies also a disadvantage, since this methodology appears less adapted to describe homogeneous environments.

### Example

To illustrate this method, here is a simplified example of two “mask” effects on a short sequence taken from the Nantes study (Rez ). The participant walks along a two lane road lined with low buildings, skirts a rather busy roundabout, walks away from it, then along a pavement, to finally enter an open-space where there is a tram stop.



Fig. 3 : [Bus + Tram: levels dB(A)] Two “mask” effects/ two different perceptions

Recording (D.A.T.)	Interesting expressions (extracts) (Dictaphone)	Description of the sound effect	Temporality Sequence	Indicative measurements	Synthesis Comments
...					
Flow of cars	-“... In fact, the cars make such a noise that any other sound is drowned out. I can see the tram, but I can't even hear it.” -“ a moped, but I did not really hear it. One can't hear any birds at all.” -“And so this is ... well there I could not say a thing, it was impossible to hear anything.”	“Mask” Continuum	Continuous	$L_{eq(10 s)} = 63 \text{ dB(A)}$ (during traffic)	The participants even stop talking (the cars drown their voices) and wait until the noise has died down or until they have walked further. In general people walk faster when skirting the roundabout.
...					
The tram goes by (It's arrival, bell rings, it brakes, the doors open, passengers get on and off, the doors close, it drives away)	-“ I can hear... yes, ... faintly hear the tram.” -“Now I can hear the tram going by.” -“The tram is pulling away, my ears are ringing slightly.” -“The tram bells.” -“Whirrrrrrr, it is pulling away, I can hear it clearly.” -“And here comes a tram... now ... it is slowing down...whizzzzz.... now, it is whistling again. It's stopping.”	Emergence Crescendo Signal “Mask”	Narrative Series of events	$L_{eq(10 s)} = 75 \text{ dB(A)}$ (when the tram comes) $L_{max} = 84 \text{ dB(A)}$	People note the tram's arrival far more than its departure. Narrative sequence.
...					

Fig. 4 : Cross-referencing of different types of material (extract)

There are two occurrences of the masking effect within this short walk linked to the passage of cars. The first one is generated by the traffic at the roundabout. It is characterised by several factors. First of all, people express it in a direct manner: *“the cars make such a noise any other sound is drowned out”*. Secondly, they also express it in a more indirect way, through its impregnation on the general context: *“I can see the tram but I can’t even hear it”*. Thirdly, it is noticeable when listening to the comments themselves that the subjects stop talking and only resume their commentary once they have left the roundabout. Fourthly it is recorded and fifthly it is characterised by a measurement. This effect is generally perceived as being a nuisance: people walk faster when they go past and this negative connotation is found in the different comments, going as far even as the obliteration of the identity of “the mask”: *“it is impossible to hear anything”*, when in fact one can clearly hear it.

On the contrary, the “mask” effect created by the tram’s arrival is never perceived as a nuisance whereas the noise level is clearly more important. The sound characteristics of the tramway and its use have the dual characteristic of forming a series of events limited in time (whereas car traffic partakes of a continuum) and part of a narrative (the series of events forming a meaningful sequence).

## Conclusion

The localisation and the characterisation of the meaningful sound phenomena allow a metrological economy, by answering the classical questions on the acoustic evaluation of a large urban zone: what should one measure, where, when, and using what types of measures and analysis? This complementary approach to the more classical techniques enable us to widen the field of the observable in acoustic metrology thanks to an interdisciplinary combination of the sound phenomenon (characterisation of the built surroundings, of the activities, urban perceptions, measures and temporality ...) Furthermore, the measurements and recordings only grasp certain dimensions of the perceived sound environment. Taking the walk-course as a basis, the urban speech and way of listening introduce fundamental parameters to the qualification of atmosphere, namely **the time dynamics and the interaction of the city dwellers to their surroundings**. This method can be easily adapted to the different places and purposes of the study.

But in conclusion, I'd like to point out one very important thing that appeared little by little during the studies : In classical surveys like questionnaires, it is the participants who give the informations that will be analysed. In this method, we have an exchange between the participant and the researcher : it is no ordinary action to listen and comment upon one's own everyday environment. For this reason, it is an "ecological" and "citizen" experience which transforms the participant's perception and social representations of their sound environment.

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Translator's note: "qualified listening" includes the idea of quality and of qualifying, describing. Principal translation: Anne-Marie Tatham. Acknowledgements: B. Hellstrom, J. Mc Oisans, J.-P. Thibaud.