

Cardio respiratory Polygraphy with advanced analyses for ENT



SOMNOscreen™ plus

- Full cardio respiratory screening
- Upgradeable to a full portable polysomnography system
- Up to 58 channels

Recording of snore with the
High Sampling Microphone



Special Features for the ENT field

- **High Sampling Rate:** For the best recording of respiratory sounds a high sampling rate of the signal is required. Since the usual 100 Hz are not sufficient for this application, the SOMNOscreen™ plus offers a sampling rate of up to 4 kHz.
- **Recording of snoring sounds with the appropriate sensor type:** Highest quality of signals thanks to a dedicated, specialized microphone with excellent frequency characteristics. Stuck-on microphones are less suitable, due to the higher attenuation during the transmission of sound through the body.
- **Audio playback of the snoring sounds:** The additional possibility to acoustically replay the snoring sound directly from the raw data in the DOMINO analysis software allows a subjective judgement of the respiratory sound during the analysis.
- **FFT frequency analysis** allows a modern and easy analysis of respiratory sounds as well as the analysis of all other recorded signals.

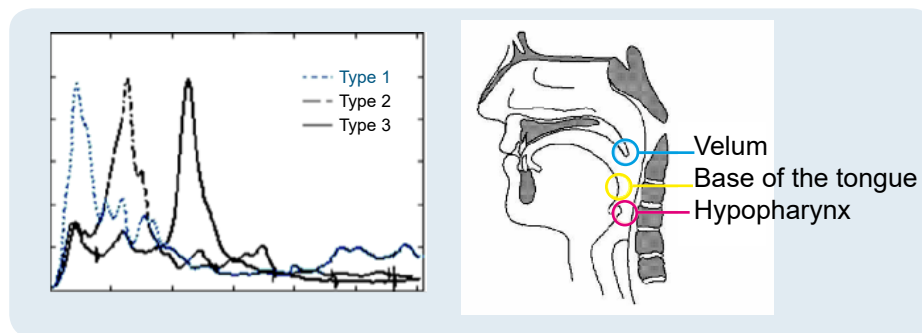
Applicable for snoring topography!

Snoring Topography

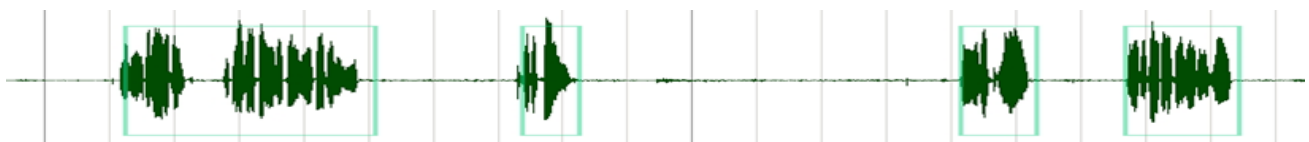
Snoring is handled as a leading symptom for the diagnosis of OSAS according to ICSD 780.53-0 and of the primary, simple snoring according to ICSD 780.53-1. Basically three types of snoring sounds can be distinguished (1):

- ▶ **Type 1 - Velum snorers (nasal breathing):** Very regular and harmonic snoring sound, often intensifying, without apneas, that classifies the chronic snorer. In the frequency spectrum mostly deep frequencies with overtones, that are mainly created in the obstructed soft palate, are predominant.
- ▶ **Type 2 - Velum snorers (mouth breathing):** See type 1
- ▶ **Type 3 - Base of the tongue snorers:** Highly characteristic for apneic persons! There are hardly any harmonic waves or overtones in the frequency analysis. Instead of this, higher frequency sounds, that result from the obstruction of the tongue base, can be found. This snoring is irregular, inharmonious, up to abrupt, which indicates the reopening of the respiratory tract at the end of an apnea.

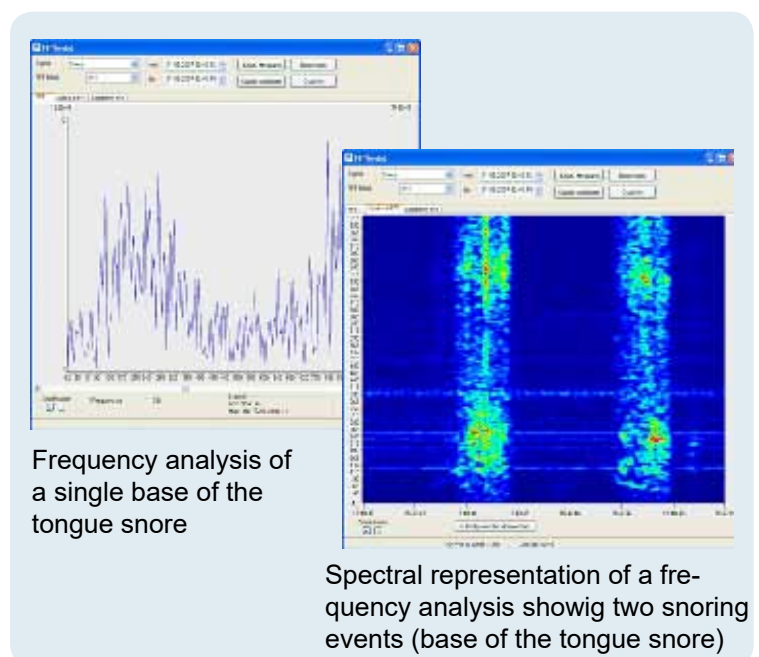
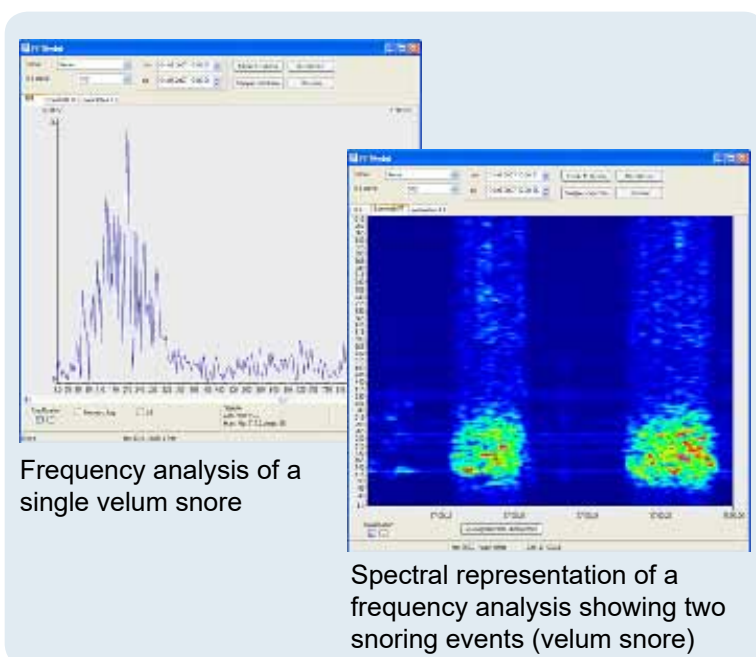
There are approaches in different papers (1) (2) to determine the type of snoring with the help of the frequency analysis. In practical routine, however, this proved to be too complex until now*.



Frequency analyses for ENTs



Snoring signal as raw data recorded with the microphone



* Literature: (1) Dr. med Jürgen Schäfer HNO Klinik Ulm 1988
(2) Prof. Dr. C. Herbold Uni Bonn 1999