

Directionality

– Basic

Directional microphones within hearing instruments help your patients hear better in noisy environments. They improve the signal-to-noise ratio by being more sensitive to sounds from certain directions and less sensitive to sounds from other directions.

Technology

Directionality relates to the capability of a microphone within a hearing instrument to sense and suppress sounds coming from various directions. We can illustrate this in a polar plot.

Omni-directional

Omni-directional microphones are equally sensitive to sounds coming from all directions.

Directional

Directional microphones suppress sounds coming from some directions and are sensitive to sounds coming from one direction only.



For example:

When Sue is driving a car with children in the back seat she needs to hear sounds coming from the front for safe driving and also from the back to monitor the children. A hearing instrument with appropriate directional microphones makes the relevant sounds audible to Sue and suppresses unwanted sounds.

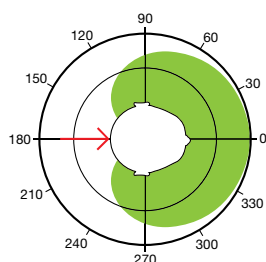
Jargon Buster

The **signal-to-noise ratio** refers to the loudness of the signal of interest compared to the loudness of the background noise source.

A **polar plot** shows the directions that a microphone senses and suppresses sounds. This is relevant for basic and advanced directional technologies.

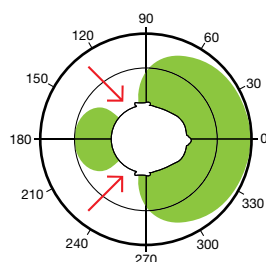
Cardiod

- Most sensitive to sounds from the front
- Most sensitive to sounds from the sides
- Suppresses sounds from the back, particularly at 180 degrees



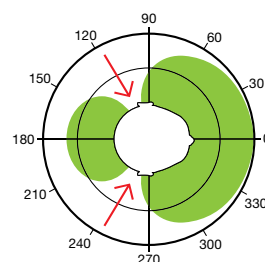
Supercardiod

- Most sensitive to sounds from the front
- Sensitive to sounds from the back
- Suppresses sounds from the sides



Hypercardiod

- Most sensitive to sounds from the front
- Sensitive to sounds from the back – more sensitive than 'supercardiod'
- Suppresses sounds from the sides



Bi-directional

- Most sensitive to sounds from the front
- Most sensitive to sounds from the back
- Suppresses sounds from the sides

