

Tone Burst ABR Settings

Auditory Brainstem Responses are usually acquired using click stimulation. However, click stimulation distributes the energy of the sound over the entire frequency spectrum and provides no frequency specific information. This specific information can be used to help with hearing aid fitting and other types of diagnosis.

- **Stimulus:** Tone Burst.
- **Envelope:** Exact Blackman.
- **Duration:** 5 cycles;
(microsecond duration values will vary based on tone frequency).
- **Masking:** optional.
- **Rate:** 27.7 per second.
- **Polarity:** alternating.
- **Transducers:** insert earphones.
- **Intensity:** 70 dB HL to start, then up or down in 10 dB steps for threshold search as needed.
- **Filters:** 30 to 3000 Hz.
- **Notch Filter:** OFF, turn ON only when power line noise is present.
- **Amplification (gain):** 100K.
- **Analysis Time window:** 0 to 40 millisecond for 500 Hz tones; 0 to 25 milliseconds for 1000 Hz and higher.
- **Sweeps:** 2048.
- **Electrode Placement:** ipsilateral or contralateral array.

Tone Burst Analysis

A tone burst series used for threshold detection is displayed in the following figure. The series shown is for a 500 Hz tone presented using the parameters similar to the ones outlined in the previous section.

Notice that the latency of the response increases as the intensity of stimulation is decreased. This is the expected behavior for the response.

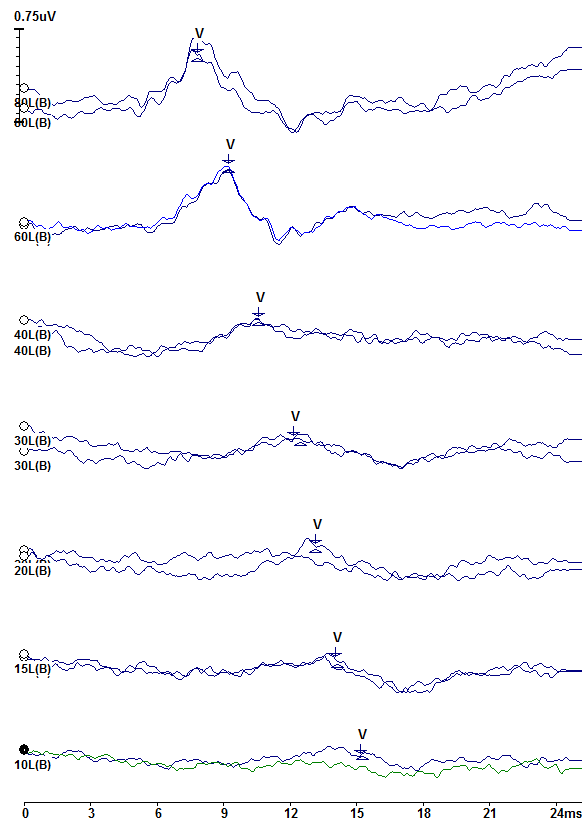


Fig.1 - 500 Hz evoked responses.

The following graph shows the relationship of latency with respect to frequency. Note that lower frequency tones have a higher latency value than higher frequency tones, reason why it is recommended to use a wider time window at lower frequencies.

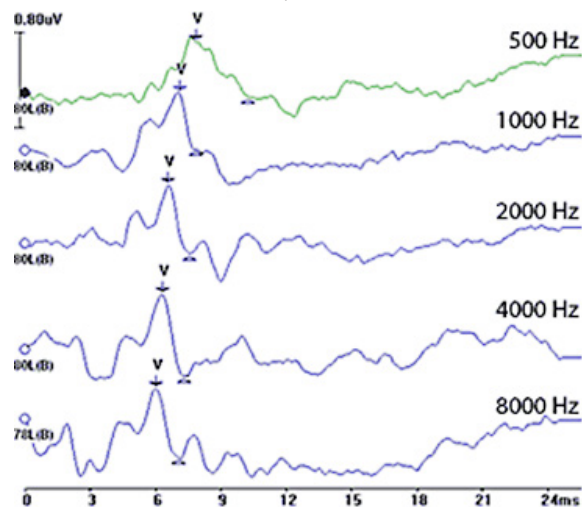


Fig.2 - Frequency comparison