

Update on ABR guidance relating to the use of notch filters (effective 01/04/2014)

The current (2013) NHSP ABR guidance states:

5.5 Notch filter

This will not be required under normal recording conditions and with good electrode practice as 50Hz mains artefact should be absent or minimal. If mains artefact levels are high it is better to identify and remove the source of the problem rather than rely on the use of the notch filter, which may distort or attenuate the slower components of the recorded ABR waveform. However if there is an unusual and exceptional degree of mains interference which cannot be eliminated the temporary use of a notch filter is preferable to raising the high pass filter or abandoning the test. When a notch filter is used this must be noted in the clinical report.

A recent study investigating the effects of using a notch filter on the newborn ABR has been accepted for publication by the International Journal of Audiology (The effect of notch filtering on the waveform of the newborn auditory brainstem response. Lightfoot, Ferm, Hall & Evans) and its conclusions allow us to modify the guidance used by testers and peer reviewers.

New guidance:

5.5 Notch filter

This will not be required under normal recording conditions and with good electrode practice as 50Hz mains artefact should be absent or minimal. If mains artefact levels are high it is better to identify and remove the source of the problem rather than rely on the use of the notch filter. However if there is an unusual and exceptional degree of mains interference which cannot be eliminated the temporary use of a notch filter is preferable to raising the high pass filter or abandoning the test. When a notch filter is used this must be noted in the clinical report. The available evidence is that notch filtering does not distort the newborn ABR, with the exception of testing at 500 Hz where waveform distortion has been observed and could compromise waveform interpretation. At 500 Hz therefore the notch filter must not be used.