Objective: To establish reference hearing threshold levels for chirps and frequency-specific chirps. Design: Hearing thresholds were determined monaurally for broad-band chirps and octave-band chirps using the Etymotic Research, ER-3A insert earphone. The chirps were presented using two repetition rates, 20 and 90 stimuli/s, and with alternating polarity in blocks of one second duration. The test procedure and test conditions were in accordance with the recommendations given in ISO 389-9 (2009). The ascending method (ISO 8253-1, 2010) was applied using a step size of 5 dB. The chirps were played back from a Tucker Davies Technologies System II, and a Matlab program controlled the test setup. The results are specified in dB peak-to-peak equivalent threshold sound pressure levels (dB peETSPL). Study sample: The test group consisted of 25 otologically-normal young adults (age 18–25 years). Results: The results are in good agreement with the results from another investigation of hearing thresholds using the same chirp stimuli, and the values for the octave-band chirps are in line with the standardized reference values for corresponding tone bursts (ISO 389-6, 2007). Conclusions: The results of the present investigation are relevant for the international standard on short duration signals, ISO 389-6 (2007).