

ACOUSTICS2008/2583
**Dolphin modulation rate transfer functions resulting from
exposure to frequency modulated signals**

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Frequency modulated (FM) signals are useful in audiometric studies where the test environment contributes to multipath interference and produces spatial variations in the sound pressure field. Rhythmic FM stimuli are useful in evoked potential audiometry because of the auditory steady state response (ASSR) that is created within the auditory system. Although some research on dolphin ASSRs resulting from rhythmic FM signals has been performed, relationships between modulation depth, modulation rate, and ASSR amplitude have not been fully explored. To address this, two dolphins were exposed to rhythmic FM signals (120 dB SPL and center frequency=40 kHz) and the resulting ASSR recorded. The modulation depth (peak-to-peak) and modulation rate were varied from 0.1-10% and 200-2500 Hz, respectively. A total of 512 epochs were recorded for each stimulus presentation and the averaged waveform was analyzed in the frequency domain. The amplitude peak corresponding to the modulation rate was used to create the modulation rate transfer function (MRTF). Both dolphins showed a MRTF peak at a 1 kHz modulation rate, while one dolphin showed a second peak at 500 Hz. The use of rhythmic FM signals in ASSR studies may be a useful for testing in less than ideal acoustic environments.