**Transfer Function Format and Use**

Transfer functions are amplitude calibration files associated with the specific HARP equipment used to collect a given acoustic recording dataset. Correct use of transfer functions is critical for providing absolute measured sound pressure received levels in standard acoustic measurement units, and for comparing signals within and between deployments. HARP recording hardware is typically designed and configured to achieve a relatively flat frequency response (i.e., +/- 1 dB) across the recording frequency band, but some frequency dependence remains at the low frequency end for ‘whitening’ the spectrum and at the high frequency end for providing anti-alias protection from very high frequency signals. The frequency-dependent amplitude calibration transfer function is quantified via laboratory, calibration facility, and manufacturer measurements and is provided as text files.

Transfer function text files (.tf) format has the first column as Frequency (Hz) and the second column as the amplitude conversion for that frequency or 'Transfer Function (TF’)in units dB re 1 μPa/count. HARP XWAV amplitude units are reported in counts, such that spectrum level calculations result in units dB re 1 counts2/Hz. The frequency dependent TF values are added at each frequency to these raw spectrum levels to provide absolute spectrum sound pressure levels in standard acoustic units dB re 1 μPa2/Hz

e.g. TF file:

1 106.0

2 94.8

3 89.0

4 85.4

5 83.0

…

…

…

80000 89.4

85000 93.1

90000 96.9

95000 101.5

100000 106.2

Please Note:

* Transfer functions are estimates of recording system’s true sensitivity, and are being continuously evaluated and improvedby Scripps Institution of Oceanographyresearchersand **are subject to change without notice**. Transfer function values below 20 Hz and above 90 kHz are under review and may change to improve accuracy.
* Please use caution when comparing amplitudes between sites, years and other recording equipment. Differences may be linked to equipment variability, uncertainty, and calibration methods rather than scientifically valid findings.
* Additional detail on sensor sensitivities, designs, and calibrations are provided in PDFs associated with each TF file.