

## Appendix B: Loudspeaker calibration

The calibration of the loudspeaker (JBL Xtrem2, Northridge, CA, USA) was achieved onsite at Pararé camp (French Guiana, France) in a dry room, regulated in temperature and humidity. The calibration consisted in emitting a 0-20 kHz white noise during 22 s with the desired broadband frequency response with an equivalent sound level  $L_{eq}$  of 86 dB SPL at 50 cm. The sound level was measured by a calibrated sound level meter (SVANTEK 977A, Warsaw, Poland). The distance between the loudspeaker and the sound level meter was 50 cm. The loudspeaker was in the same configuration as during the propagation experiment: internal battery use, bluetooth connection, control with a smartphone (Sony Xperia, Tokyo, Japan) with the application PowerAmp full version for Android (<https://tinyurl.com/e2azc2mz>)

The results of the calibration are shown in Fig B-1.

To correct the frequency response of the loudspeaker, we convolved the signal (in our case a white noise) with a compensation FIR filter so that the frequency response of the loudspeaker was flat at  $\pm 6$  dB.

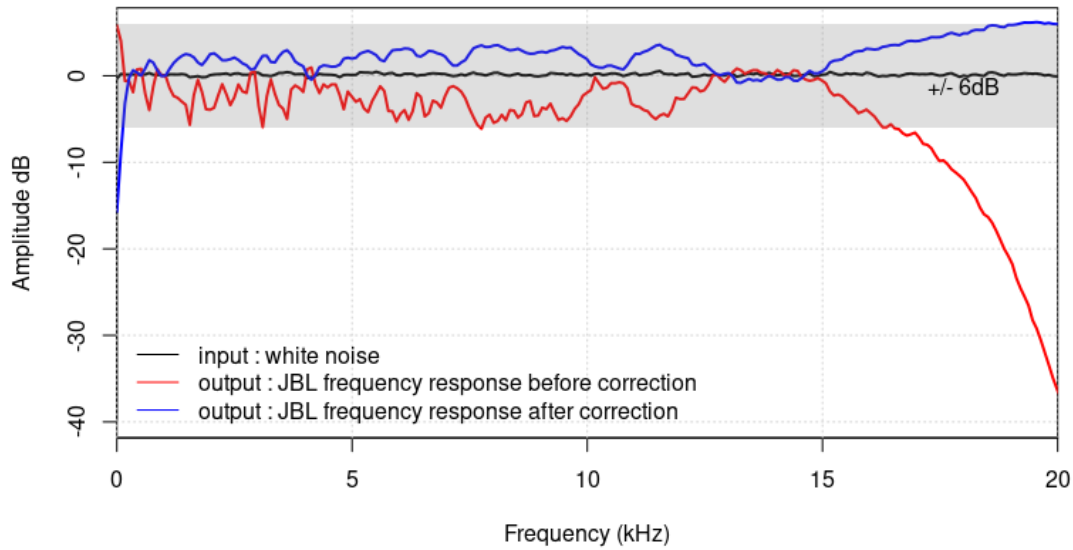


Figure B-1: White noise excitation input (black) to estimate the loudspeaker (JBL Xtrem2) frequency response before (red) and after (blue) correction of the frequency response of the loudspeaker.