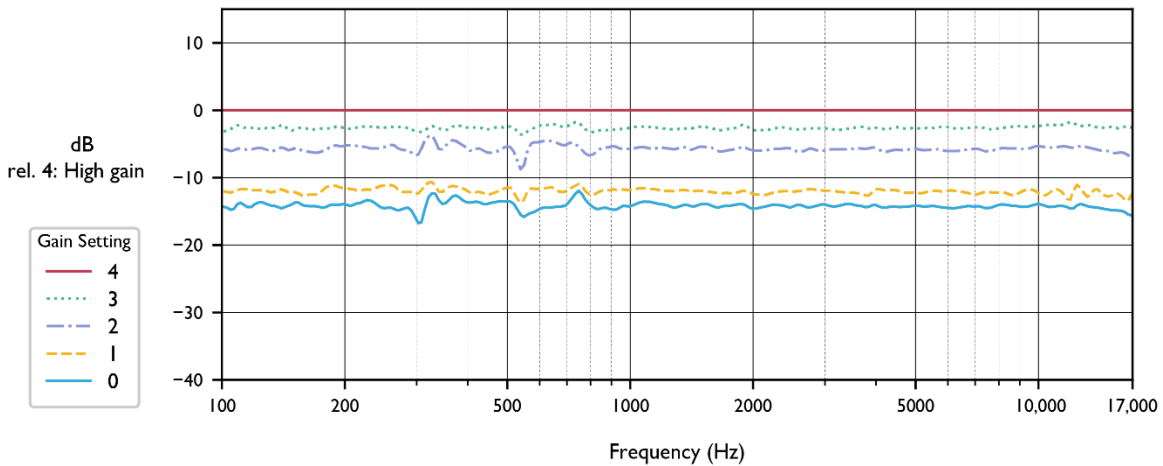


**Figure S1.** Frequency response variation between five AudioMoth devices without cases relative to Device 1017.



**Figure S2.** Frequency response for pink noise recorded at the 5 gain settings, relative to the highest gain setting.

**Table S1.** On-axis frequency response in each housing treatment, dB relative to “A: No Case” at 1kHz = 0dB

Treatment	100 Hz	200 Hz	500 Hz	1 kHz	2 kHz	5 kHz	10 kHz	15kHz
A: No Case	-3	0	0	0	2	7	5	8
B: Vacuum Bag	-6	-1	0	1	1	5	2	-4
C: Zip Lock	0	-4	-3	-4	-1	9	1	-15

**Table S2.** Individual results and overall average for the effect of sample rate on battery life.

Sample Rate (kHz)	AudioMoth 1 Hours of Audio	AudioMoth 2 Hours of Audio	AudioMoth 3 Hours of Audio	Average Hours of Audio
8	247	249	251	249
16	224	225	225	224
32	187	191	188	189
48	163	161	160	161
96 <sup>1</sup>	90	91	91	91

192 <sup>1</sup>	61	59	61	60
250 <sup>1</sup>	47	47	47	47
384 <sup>1</sup>	43	43	43	43

<sup>1</sup> Audio files at these sample rates filled the SD card before the batteries depleted, and required a second SD card to be inserted once the red and green LEDs began flashing.

**Table S3.** Individual results and overall average for the effect of gain setting on battery life.

Gain Setting	AudioMoth 1 Hours of Audio	AudioMoth 2 Hours of Audio	AudioMoth 3 Hours of Audio	Average Hours of Audio
Low	186	190	187	188
Low-medium	187	188	190	188
Medium	187	191	188	189
Medium-high	187	186	186	186
High	187	191	187	188

**Table S4.** Individual results and overall average for the effect of temperature on Procell alkaline battery life.

Temperature	AudioMoth 1 Hours of Audio	AudioMoth 2 Hours of Audio	AudioMoth 3 Hours of Audio	Average Hours of Audio
Room (20.5°C)	187	191	188	189
Fridge (3.4°C)	184	181	185	183
Freezer (-16.1°C)	105	103	99	102

**Table S5.** Individual results and overall average for the effect of temperature on Energizer lithium battery life.

Temperature	AudioMoth 1 Hours of Audio	AudioMoth 2 Hours of Audio	AudioMoth 3 Hours of Audio	Average Hours of Audio
Room (20.5°C)	228	236	239	234
Fridge (3.4°C)	244	239	241	241
Freezer (-16.1°C)	241	236	237	238