

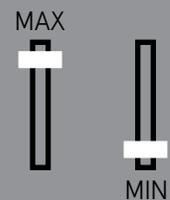
4 PITFALLS OF POOR AUDIO

Audio is a differentiator that can make or break user experience.

In an increasingly crowded marketplace, with more than 8 billion connected smartphones, tablets, PCs, TVs, TV boxes and other bits of audio hardware, there's more customers than ever before demanding an instant connection with a product. When poor user experience translates into lost sales, avoid these four major pitfalls when it comes to audio.

When audio is **too quiet/too loud**, it means...

- Ambient noise level was not considered
- Wrong size acoustic component chosen
- Wrong frequency or frequencies selected for tone



If there's **distorted sound/amplifier clipping**, it means...

- Wrong input level to the amplifier
- Amplifier gain is set too low or high
- Not enough amplifier power

If audio has a **thin, tinny sound**, it means...

- Resonant frequency of the speaker is too high
- Size of the speaker is too small
- Not enough enclosure volume for the speaker



When there's **echo and feedback**, it means...

- Microphone placed too close to the speaker
- Microphone mounted to the same PCB as speaker
- Microphone and speaker mechanically coupled to same surface

MAKING SOUND DECISIONS

Audio is a differentiator that can make or break user experience.

Taking the time to consider your product's audio while in the conceptual phase of product design is crucial to delivering strong user experience.

HERE ARE THE 6 MAJOR CONSIDERATIONS FOR AN AUDIO PLAN:

1

Consider the ambient environment in which your product will be used

2

Establish the audio component dimensional envelope early on

3

Reference the audio component's SPL rating and distance

4

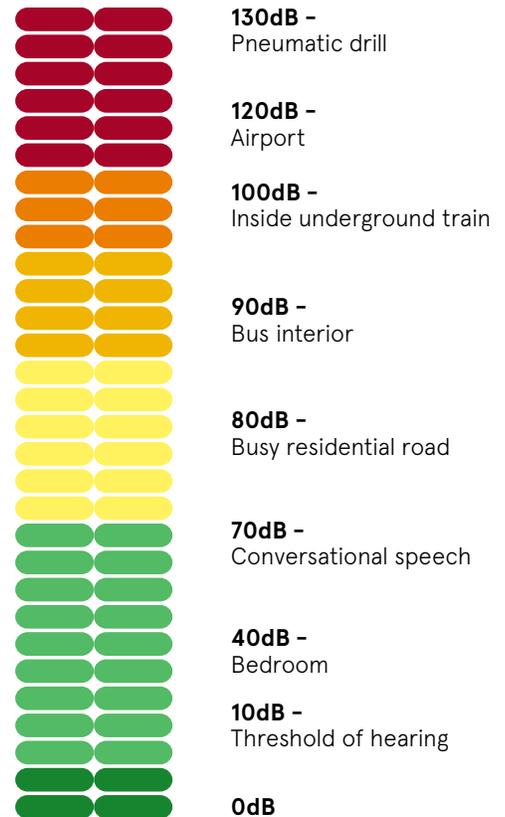
Budget for more power than what you might use

5

Choose a larger amplifier than what you might need

6

Test your audio performance before closing the mechanical and electrical design



Sound pressure level