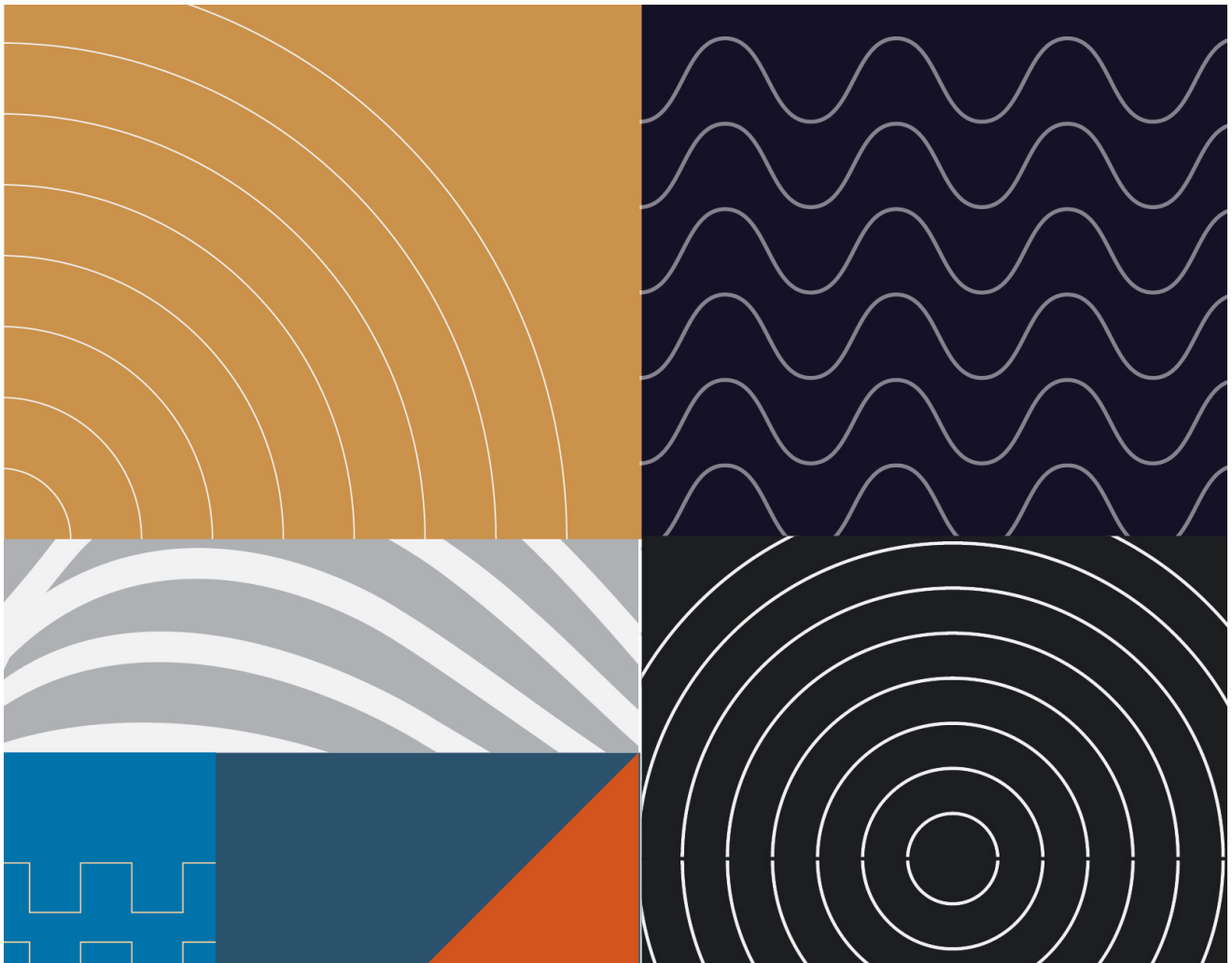




WHITEPAPERS

Overcoming The Pitfalls Of Poor Audio



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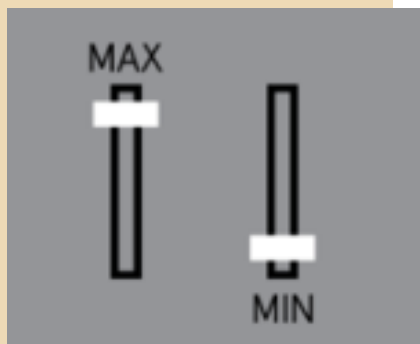
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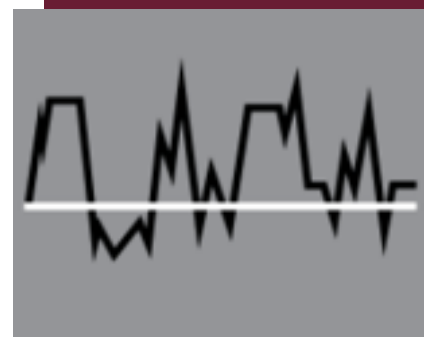
Overcoming The Pitfalls Of Poor Audio

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...

- The 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...

- The resonant frequency of the speaker is too high
- The size of the speaker is too small
- Not enough enclosure volume for the speaker



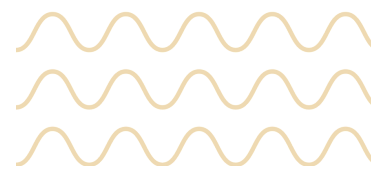
When there's echo and feedback, it means...

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

Making Sound Decisions

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

Taking the time to consider your product's audio while in the conceptual phase of product design is crucial to delivering a 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



130dB -
Pneumatic drill

120dB -
Airport

100dB -
Inside underground train

90dB -
Bus interior

80dB -
Busy residential road

70dB -
Conversational speech

40dB -
Bedroom

10dB -
Threshold of hearing

0dB

Sound pressure level