



Audio Levels  
for *FIRST* Events  
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# Audio Levels for *FIRST* Events

This document describes guidelines for establishing audio levels at *FIRST* events that can create excitement with spectator safety and comfort in mind.

Event managers are responsible for ensuring that the amplified audio is at an appropriate level. This is performed through the configuration of acoustic systems, communicating expectations with DJs and audio crew members, as well as monitoring throughout the event.

There is not “one size fits all” configuration as each event and venue is unique in terms of the:

- Inherent acoustic properties of the space
- Size of the crowd and audience generated noise at various times during the event
- Event agenda and associated exposure time intervals to various sound levels
- Amplified speaker installed location (both field and pit areas)
- Individuals managing the audio levels
- Variation of individual announcer voices and microphone positioning during the event

In addition, there are several inputs that will need to be adjusted to the proper volume. These inputs may include, but are not limited to, the Emcee, the play-by-play announcer, the DJ or music, the game sounds including videos and animations, pit announcements, and various presenters for ceremonies.

Guidelines for managing sound levels at events:

- Comply with all local regulations regarding event noise exposure limits
- Place speakers at least 7' (2 meters) above the ground
- Where practical, do not have audience members seated or located within 10 feet (3 meters) of speakers with an absolute minimum distance of 3 feet (1 meter)
- Maintain 'A-weighted' sound levels of 90 dBA or lower over the duration of the event in all parts of the venue, including audience, pit, and field areas
- Maintain sound levels of 80 dBA or lower during normal game play (e.g. qualifiers) with increase (not to exceed 90 dBA) during specific times such as prior to alliance selection, playoff matches, finals, and other periods of increased excitement.

- Perform sound checks during event preparation and conduct periodic sampling from various locations during the event to monitor sound levels
- Drop music levels during speaking (team introductions, matches, etc.) so that the emcees and game announcers do not have to talk “over” music at a higher level to be heard. This will also make it easier for teams to communicate with each other during competition.
- Schedule specific breaks each morning, lunchtime and afternoon with no music being played or music at a relatively low volume (less than 70 dbA)
- If possible, established dedicated “quieter” seating areas where speakers are not pointed in that direction
- Make foam earplugs available (for example, at safety glass stations and pit admin), or advise teams to bring their own
- Limit the number of pit announcements by consolidating information when possible