Webinar: Guidelines for Good Cinema Sound

1) **Are there EASE files for the cinema speakers?**

   QSC Cinema speakers are easy to aim and position in the room. Due to the similarity of the application and the well-behaved coverage of the speakers, QSC does not provide EASE data for the DCS range. For screen channel aiming advice, please see the QSC blog post at: https://blogs.qsc.com/cinema/2020/04/30/aim-to-please/.

2) **Can you share the link for the Loudspeaker Directivity webinar Barry mentioned?**

   The QSC Webinars can be found at https://blogs.qsc.com/cinema/wfh-recording/.

3) **What is your best recommendation for maximum peak sound pressure (both A and C weighted) we should allow in our auditoriums?**

   Since reference level in a Cinema is 85 dB-SPL at -20 dB-FS, the theoretical peak level is 105 dB from each channel. What is more important to consider is the duration of the peaks and the amount of distortion. A short term gunshot in a quiet scene is a great effect to involve the audience in the story but a 20 minute long gun battle may be hard to take, especially if the sound is distorted. Using high quality speakers and installing them correctly can reduce many volume related complaints that are often caused by excessive distortion. A measurement based on Leq is a better way to judge level since it takes into account loud and soft scenes over time, rather than looking at one large peak. For more information about Leq, check out the site on trailer volume at: https://www.tasatrailers.org/whatis.html. If you have a Q-SYS system in your cinema, check out this SPL logging plug-in: https://www.forwardthinkingdesigns.com/spl-logger.

4) **What's the next trade show that QSC expects they'll be able to attend?**

   QSC is scheduled to attend ShowEast in October and CineAsia in December. Please check with the show Organizers, Film Expo Group, for the latest updates at: http://www.filmexpos.com/.

5) **How does QSC select speakers and amplifiers for 7.1 and Atmos applications?**

   QSC takes many criteria into account when selecting amplifiers and speakers for a specific cinema. A simple calculation of power and sensitivity is not likely to yield the best results, as it makes assumptions that are not valid in the real world and it may not yield the most economical amplifier configuration, especially with multi-channel amplifiers. On the positive side, the ideal inverse square law, which applies to a point source radiating in free space, yields an attenuation with distance that is much larger than what we measure in a real cinema with real speakers. Using 15Log(D) is much closer than 20Log(D) in real rooms. It is not unusual to estimate 6 dB greater attenuation

than actual, resulting in specifying four times more power than required. Also on the positive side, amplifier peak voltage capability is more important than sine wave power ratings, so smaller “rated” amps may actually play louder in the real world. See my blog post on DPA-Q amps for more information: https://blogs.qsc.com/cinema/2020/04/23/an-inside-look-at-dpa-q/. On the negative side, loudspeaker sensitivity and power ratings are sometimes “optimistic” and it is definitely not correct to assume the speaker will get 20 dB louder if 20 dB more power is applied and that it will sound good at rated power. In general, QSC prefers to have bigger and better speakers, rather than high powered amps and smaller speakers as the preferred method for achieving great sound. See our online app guide for examples of QSC recommended systems for a variety of room sizes and performance levels.

http://appguide.qsccinema.com/_layouts/15/qsc/welcome.aspx

6) **When adding multiple subwoofers in a cluster, should the subs be clustered in the center of the screen or off-center?**

Slightly off-center is the preferred location. It prevents having the subs the same distance from the left and right walls and can reduce peaks and dips in the room due to reflections and cancelations.

7) **In a short room with seats (too) close to the screen, would you place the screen speakers lower than the recommended 5/8 of picture height or tilt the horns more downwards?**

In general, I would try to keep the height at 5/8’s and tilt the horns down a bit. If the tilt is too extreme, then consider lowering the speakers a little to keep the tilt below about 5 degrees.