



EXPERT AUDIO / VIDEO SOLUTIONS SINCE 1976

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Subject: Relative Loudness of 1500 Series Intercom Systems

Most cities and municipalities publish written Loudness Ordinances that specify certain limits on performance of devices that produce ambient sound in their local environment. These Ordinances are designed to limit the overall noise level in the community from machinery, engines, loud music, sirens, heavy street traffic and so forth in order to protect the citizens from hearing loss and general distraction. Typically, an Ordinance would contain a maximum loudness or volume limit specification expressed in Decibels at a certain distance from the source of the noise producing device. The specification typically references loudness as Sound Pressure Level or SPL.

Our Series 1500 Series Intercom Systems are designed for use in drive-up banking and pharmacy applications where clear, intelligible two-way speech between the service provider and customer is required to conduct business transactions. Each system uses microphones and speakers powered by amplification circuits to achieve clear human speech between the two parties at reasonable volume levels within the limits of published loudness ordinances. Overall volume levels of each system may be adjusted to establish clear speech in almost any environment to a maximum level.

The maximum level or specification for loudness (SPL) of a 1500 Series Intercom system adjusted for the highest possible output level is 90dB @ 1 meter.

Typically though, most systems are adjusted to operate in the 72 – 76dB range at 1 (one) meter though sometimes a little louder in high ambient noise environments. It is also important to understand that as one moves further away from the sound source (the outside speaker), the SPL level drops by 6dB when the distance doubles. So, the maximum SPL at 2 meters would be 84dB and at 4 meters 78dB, etc.

Good, impartial information about the relative loudness is available on-line at:

<http://www.gcaudio.com/resources/howtos/loudness.html>

One can also calculate the effect of distance on SPL at:

<http://www.crownaudio.com/inverse-square-law.htm>

Should there be specification or performance questions about ordinance compliance, please feel free to contact me directly.

A handwritten signature in black ink that reads 'Bob Sollee'.

Bob Sollee  
President