

**Table 1-2.** Unless otherwise specified (e.g., “near left ear”), all measurements were taken at 3 meters for a large number of musicians (inner two quartiles) using differing styles of playing and different instruments.

<i>Musical instruments at 3 meters (at 0° azimuth)</i>	<i>dBA</i>
Normal piano practice	60–90
Loud piano practice	70–105
Keyboards (electric)	60–110
Vocalist	70–85
Chamber music (classical)	70–92
Violin/viola (near left ear)	85–105
Violin/viola	80–90
Cello	80–104
Acoustic bass	70–94
Clarinet	68–82
Oboe	74–102
Saxophone	75–110
Flute (near right ear)	98–114
Flute	92–105
Piccolo (near right ear)	102–118
Piccolo	96–112 <sup>1</sup>
French horn	92–104
Trombone	90–106
Trumpet	88–108
Tympani and bass drum	74–94
Percussion (at left ear near high hat)	68–94; peak 125 dB SPL
Amplified guitar (using in-ear monitoring)	100–106
Amplified guitar (using wedge loudspeaker monitoring)	105–112
Symphonic music	86–102
Amplified rock music	102–108
MP-3 player (volume 6/10)	94
MP-3 player (full-on volume)	105

<sup>1</sup>With a peak level of 126 dB SPL, piccolo players are banned from my office!

*Note.* From “How Loud Is that Musical Instrument?” by M Chasin, 2006, *Hearing Review*, 13(3), p. 26. Used with permission.

Figure 1.2 (Chasin, 2009)