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Sound Pressure Levels. (SPLs)

The weighting you choose, **changes** what the meter is telling you. As a Sound Engineer it's your job to know how to read your meter. Having this ability will help meet County/Town Codes & Noise Ordinances as well as protect the hearing of others while inside closed spaces.

The meter I use is the [American Recorder SPL-8810](#). It measures lows from 30dB to 100dB and highs from 60dB to 130dB. It can measure both A & C weighted as well as both Slow and Fast Time Weighting. It can be hand held or mounted on a mic stand.

A-Weighted SPL (dBA)

What it does

- Mimics human hearing at lower to moderate levels
- Strongly reduces low frequencies (bass) and slightly reduces very high frequencies
- Emphasizes the midrange where speech intelligibility lives

What it's best for

- Speech clarity
- General "how loud does this feel to people?"
- OSHA / long-term exposure measurements
- Most city noise and workplace standards

What it can hide

- Excessive low-frequency energy (kick drum, bass, subs)
- Room rumble or HVAC noise

Think of A-weighting as, "what does the average person perceive as loud".

C-Weighted SPL (dBc)

What it does

- Much flatter frequency response
- Includes low frequencies and sub energy
- Only slightly rolls off extreme highs

What it's best for

- Music with full bandwidth
- Evaluating bass and subwoofer impact
- Measuring peak levels
- Checking if the room is being over-driven at low frequencies

What it reveals

- Boominess
- Excessive low-end buildup
- Structural stress levels

Think of C-weighting as, “How much actual acoustic energy is in the room”.

Which One Should You Use in a Church?

Use A-Weighted (dBA) when:

- Monitoring overall congregational comfort
- Focusing on spoken word / sermons
- Comparing levels week to week
- Training volunteers
- Checking compliance with internal SPL guidelines

Typical church target (**very general**):

- Spoken word: 65–75 dBA
- Contemporary worship: 80–90 dBA

Use C-Weighted (dBc) when:

- Running full worship bands

- Evaluating kick, bass, synths, and subs
- Checking low-frequency buildup in the room
- Measuring peak levels

Common insight: If dBA looks fine but the room feels overwhelming, use the dBC. The bass is usually the culprit.

Best Practice for Church Audio

Use BOTH if your meter allows it:

Situation	Use
Sermon & speech	A-weighted
Worship music	A-weighted + C-weighted
Subwoofer tuning	C-weighted
Peak monitoring	C-weighted (Fast or Peak)

A very useful rule of thumb:

- If C-weighted is more than ~15–20 dB higher than A-weighted, you likely have too much low-frequency energy in the room.

Recommendation

For inside a church:

- Primary meter: A-weighted (Slow)
- Secondary check: C-weighted (Fast or Peak)

This gives you comfort + truth so you don't have to keep explaining yourself to people who claim it's too loud, just to watch you move a fader that has no function and they tell you, "That's Perfect". ;-)