

Recording Options for 2021 GCNA Congress

1. Handheld recording device

The Zoom H4n Pro is an excellent handheld audio recorder. It costs between \$200 and \$300 on most websites, and it's a step up in quality from a smartphone recording. Other handheld recording devices would likely perform similarly. The main downside is that the batteries can run out extremely quickly, sometimes within an hour. Rechargeable batteries are strongly recommended.

You can record audio with a handheld device in the bell chamber, and you can connect the device to your smartphone using a USB hub in order to record audio and video simultaneously and supply power (solving the battery problem). This is essentially a cheap version of option 2 below. For details, see Roy Lee's GCNA posting: <https://www.gcna.org/member-postings/10107089##10107089>. Alternatively, you can combine and line up video and audio later using most if not all video editing softwares (e.g., iMovie, Final Cut Pro, Adobe Premiere Rush, Adobe Premiere Pro, Windows Photos, PowerDirector, DaVinci Resolve, etc.).

2. Microphone installation

Recording on installed microphones is arguably the most convenient, and the sound quality is likely even better than using a handheld device assuming the mics are well placed and balanced. The mics should be placed closer to the higher pitched bells, and they need to be protected from the elements (one possibility is acoustically transparent rain covers). Four mics seems to be a common setup, but it's possible to get a good recording with even just one.

Shure SM57 (instrumental) and SM58 (vocal) microphones provide an excellent balance of quality and durability, and they only cost roughly \$100 each. You could also use pressure zone microphones (PZM) like the Crown PZM-30D to perhaps achieve slightly better quality, but these cost around \$400 dollars and may sacrifice durability. The primary advantage with PZM mics is that they eliminate interference from reflected sound waves. You will also need a mixer (e.g., Allen & Heath ZED-10), and you may want a loudspeaker next to the keyboard if it's otherwise difficult to hear the bells (e.g., QSC K8.2).

There are undoubtedly other options out there, but the Shure SM57/58 and the Crown PZMs seem to be the most common. Both have been successfully installed in multiple carillon towers.

With installed microphones you could also manually combine the audio with a video recording, but if you decide to do an installation, you should consider installing a video camera as well so that you can livestream. Any wide angle video camera with HDMI output should suffice. Two possible platforms for streaming are Wirecast and Boxcast.

3. Smartphone Recording

It's possible to make a decent recording with some smartphones (in some towers). You can record audio in the bell chamber, or if the console is quiet enough, you might even be able to record audio and video in the playing cabin. However, smartphones often capture only a narrow dynamic range, so this option is highly discouraged.