

Acoustic guitar

An acoustic guitar can be surprisingly hard to record. The starting point should be a single microphone aimed at a point somewhere between the end of the sound hole and the 12th fret. You will always find a sweet spot there, requiring only a minimum of EQ to give a satisfying recording. If the guitar's radiation pattern is not too complex, you can use a spaced pair, usually placed following the 3 to 1 rule: the distance between the mics should be 3 times the distance between each mic and the source. If the radiation pattern is very complex, a coincident pair is often a better choice. In any case, a distance between the guitar and the mic of at least one foot is recommended. Distant recordings of acoustic guitars can be spectacular if the acoustics of the room are pleasant. Guitars, and all source-material: find the sweet spot.

Recommendations:

CHI: SD-O or SD-C or C-LOL-12 or C-LOL-251

Bass Amp

The mic is usually placed at a 90° angle to the cabinet's grille. The position itself is very important and moving the mic by a fraction of an inch will change the sound sometimes dramatically. The distance from the cabinet has a big impact on the frequency response when using a directional mic: proximity effect especially if the cabinet is front ported, can be dramatic. The center of each speaker cone will have a brighter, more present and less warm balance and as the mic is moved towards the edge of the cone, the sound will become more mellow and rounder.

Recommendations:

CHI: C-LOL-47 or C-LOL-67

Bass Drum

Tuning the kick drum is vital to get the desired sound. Once the kick drum is properly set up, miking experiments can start. The two schools are "dry" and "roomy". For a "dry" approach, the mic will be peeking inside the drum or it will be placed inside, looking at the beater. If the front skin doesn't

have a hole, the mic can be placed very close to the skin. For a “roomy” approach, place the mic higher and farther. A meter high and 2 meters away is not unusual. A hybrid approach can be used, by bringing either channel up to help the other (either making the dry a bit wider and deeper, or adding definition to the distant mic).

Recommendations:

CHI: C-LOL-47 or C-LOL-67

Cello

The best spot to place the mic is usually about neck and body joint height, in front of the Cello, looking straight. Aiming a little bit up or down will give more or less bow noise. Distance can be critical in live/reverberant rooms, where ambient to direct sound ratio and proximity effect will play an important role in getting the desired image. Placing the mic a little bit to the side, looking either straight or at the F-hole will give a more mellow tone with less attack and more body.

Recommendations:

CHI: SD-C or C-LOL-47

Choir

A Choir will require a stereo pair to obtain the full power it gives in real life. A spaced pair is usually preferred over a coincident pair. Distance is totally up to the engineer and will greatly depend on the acoustics and the desired amount of ambiance heard on the recording. Omnis can be helpful in getting a nice natural sound but cardioids are the first choice of most engineers to get at least some balance control between the reverberation of the space and the direct sound. When a choir is recorded with other musicians in the room, cardioids or super-cardioids may be better choice omni's.

Recommendations:

CHI: SD-O or SD-C or SD-H

Clarinet

Clarinet can produce a lot of valve noise and the instrument should be properly prepared for recording (oil where needed). The soft tone from a clarinet often asks for an equally soft microphone and the engineer should be careful when picking the mic: if the overall sound is too bright, it might bring up unwanted parts of the sound in the high frequencies. If the mic sounds too soft/dark, the resulting recording might lack life and detail. Clarinet is usually miked from several inches to a few feet away, to give a good sense of fullness and depth.

Recommendations:

CHI: SD-C

Classical orchestra

A full orchestra can be recorded with a very simple and minimalist stereo setup if the acoustics and the overall balance of the orchestra are good. Walking around the room looking at the orchestra will help finding the best position for a coincident pair. If a spaced pair is chosen, a considerable amount of time could be required to achieve the right stereo image, depth of field, overall balance and direct to reverberant sound ratio. Spot or Group miking of an orchestra is a more modern and now common way of working and will give good results if the various mics have been placed carefully. They should give a natural sound but also shouldn't interfere with other channels when brought up in the mix. Checking phase correlation is vital when dealing with so many sources and microphones and the sources happen to be part of a whole. Sometimes, ambient mics are added to a closed mic setup to add reverberation and depth.

Recommendations:

CHI: SD-O or SD-C or C-LOL-12 or C-LOL-251

Flute

Flutes can have a very delicate sound and their harmonic content can easily get disrupted by acoustic or electronic noise. A low noise microphone with high output and a cardioid or hypercardioid pattern should be tried first and picked to give the proper sound. Mellow sounding mics can be used for

a 60's texture but usually, a relatively bright mic will be picked. The mic will usually be aimed at the body of the flute, about half way down. Aiming too close to the mouth will give too much "breath" although it can be the desired effect.

Recommendations:

CHI: SD-C or SD HC

Grand Piano

A Grand will need a nice sounding room to develop its full potential. Getting a realistic sound can be a challenge if the room is too small but using a touch of extra reverb on the recording can give some depth and space to a seemingly dry recording. The most common way to mic a Grand is by using a stereo pair looking down at the soundboard. A coincident setup will be more focused and a spaced pair will sound more spacious. Extra mics are sometimes added to pick up body resonance and of course room mics are quite common too. When balancing the mics in the mix, it's important to check phase correlation and moving the mics a little bit before recording to make sure there's no major phase cancellations taking place will save a lot of time during mixing, trying to save an otherwise nice recording.

Recommendations:

CHI: SD-C or SD-O

Guitar Amp

Many great guitar sounds have been achieved by using multiple mics during recording. A typical setup consists of a close mic almost touching the front grille, a distant mic from a few inches to a few meters away, and perhaps one or two room mics, to capture room resonances. The close mic is usually placed at an angle to the cabinet's grille, the more you turn it off axis and towards the edge of the cabinet, the less attack you get and the sound will become more mellow and rounder. Aiming at the center of the cone gives a very midrange rich, aggressive sound and moving the close mic by a

fraction of an inch will change the sound dramatically. The distant mic should be used to give a more natural sound but for a realistic image, a spaced pair of mics will usually have to be brought up in the mix, panned left and right. These ambient mics will give the unique room “sub” resonance which is needed to make the recording feel like the real thing.

Recommendations:

CHI: C-LOL-47 or C-LOL-67

Hi-Hat

Spot miking of the HH is straight forward: place the microphone where it won't be hit by the drummer, looking down at the HH. Move it around to obtain a good balance between good a tone, low leakage from the rest of the kit, and of course playing comfort. You can usually get in close without proximity effect being a problem, since the energy is concentrated in the higher midrange to very top end of the sonic spectrum.

Recommendations:

CHI: SD-C or SD-HC

Overhead miking

A spaced stereo pair is the classic setup for overhead recording. The pair can be relatively close to the kit, approx 1meter or less from the cymbals, or in a larger room, 2 or 3 meters away. Placing the pair further up will give a more natural the image and overall sound. For a more focused and precise but less spacious image, a coincident pair can be used and is often chosen for Jazz Kits. In fact, Jazz kits can be recorded with one or two judiciously placed microphones. Note: Sometimes, the Hi Hat mic becomes the second overhead in a stereo setup. It is important to remain open and flexible when miking a drum kit and do the required mic placement changes to achieve the desired sound.

Recommendations:

CHI: SD-C or SD-O or C-LOL-12 or C-LOL-67

Saxophones

The Sax family covers a surprisingly wide spectrum. The mic should be chosen to react to the range of the instrument so a very bright mic might not be the best choice for a dark, mellow baritone sax. However, a slightly dark mic can work wonders on a screechy Alto. The mic will usually be relatively close to the source but far enough so that the player's movements don't result in sudden changes of sound, as the mic is static. A distance of a couple of feet is a good starting point, high enough to be able to "look down" a bit at the bell. The mic can point straight at the horn at a 90° angle for maximum attack and "wind", or it can look up for a lighter sound or down for a mellower response. As with all other instruments using valves, mechanical tuning and lubrication are vital to avoid unwanted noises.

Recommendations:

CHI: C-LOL-67 or C-LOL-47

Snare Drum

Snare drums can be miked with a single mic on top or one on top and one on the bottom, pointed at the snares. Bringing up the bottom mic to compliment the overall tone of the top mic can help achieving a realistic sound. The bottom mic is usually phase reversed but it can be used without phase reversal if the combined sound is satisfactory. A relatively bright mic will help getting the attack of the snare drum. The distance from the snare drum will once again influence the bass response as proximity effect will increase as the mic is placed closer to the drum. This can add body and impact but will also increase low frequency leakage from the rest of the kit.

Recommendations:

CHI: SD-C or SD-HC

Tom

Individually Miking Toms, if required, is achieved with 2 directional microphones placed to give the best compromise between good tonal balance and rejection from the rest of the kit or with a single mic, either

cardioid pointing at the Toms or a bidirectional placed closer, between the Toms. Once again proximity effect is noticeable and can be used to get a full but clean sound as attenuating LF response with EQ will also reduce the level of the leakage from the kick etc. The Floor Tom can be miked the same way. It has more depth and lower frequencies than either Tom-Tom and will have more resonances.

Recommendations:

CHI: SD-C or C-LOL-67 or C-LOL-47

Trombone

Trombone is not hard to record, and a good tone is usually obtained easily. A single directional mic aimed at the bell will do. The mic shouldn't be too close as trombone players tend to move even during steady rhythm parts due to the necessary slide movements and this could result in audible changes in timbre if the mic is too close to the source. A couple of feet should be considered a strict minimum.

Recommendations:

CHI: C-LOL-67 or C-LOL-47

Trumpet

Trumpet can generate high SPL and will usually require switching the pad on when using a condenser mic. Aiming the mic directly at the bell at a short distance will give an aggressive, raspy and usually harsh tone unless the mic has a mellow response to start with. Some trumpet parts should indeed be miked from a distance to fit properly in the mix. Muted trumpet miked up close can give a very midrange rich, retro sound that might be just what the song/mix needs.

Recommendations:

CHI: C-LOL-67 or C-LOL-47

Viola and Violin

Viola and Violin are very similar and only differ in their range and overtones. The miking technique is usually the same, keeping in mind that some players move quite a bit, the mic should not be too close and should rather be placed on a mic stand above head, looking down at the instrument, ideally somewhere between the bridge and the middle of the neck. Since the player will move it's useless to look for the sweet spot and once again, a certain distance should be kept between the mic and the instrument. Choosing a mic that works well with the instrument's harmonic content is very important.

Recommendations:

CHI: SD-C or SD-O or C-LOL-12

Vocals

The typical setup is a choice of large diaphragm mics, compared in the control room to be able to pick the best match for the voice and the song. Distance can be an inch to several inches depending on the desired effect. Pads are rarely needed but when close miking a loud singer it's safer to switch the pad on, if only to make sure the head amp won't distort on peaks.

Recommendations:

CHI: C-LOL-12 or C-LOL-47 or C-LOL-67 or C-LOL-251