

INSTRUCTIONS

Using the Voice Tracker™ Array Microphone for VoIP Telephony and conferencing

Background

One of the big issues for VoIP telephony and conferencing is to eliminate the acoustic echo that a far end talker hears when his voice is picked up by the near end microphone. One way to minimize the problem is echo cancellation, which is often used in conventional conferencing. However, echo cancellation hardware is often expensive, reducing one of the benefits of VoIP. Therefore, many VoIP setups use headset microphones because by placing the speaker in the earpiece, the sound from the far-end talker does not get coupled into the microphone.

The Voice Tracker™ Array microphone can eliminate the acoustic echo by spatially locating the near end talkers and far end talker (through the speaker) and using the intelligence in its internal processor (DSP) to “receive” only the near end talkers.

Because of the Voice Tracker™ Array’s high sensitivity and background noise filtering, it can cover large rooms, and can be used for conferencing as well as single user VoIP telephony.

Mode Switch set up for VoIP telephony & conferencing

To eliminate acoustic echo, the Voice Tracker™ Array microphone must have its field switch set to narrow and the LDS switch set to “On”.

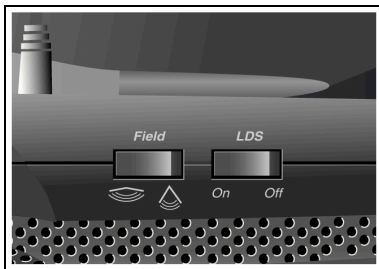


Figure 1 – Field and LDS™ Switches

When the LDS™ switch is set to “On”, the Voice Tracker™ will turn off during periods of silence. The array turns on again very quickly when the user resumes talking (Voice Activation).

When used together with the narrow (+/- 45 degree) field of view, the LDS™ can be employed to ignore unwanted sounds. Once the talker pauses and the Voice Tracker™ turns off, the array will only turn on again when sounds come from within the +/- 45 degree listening area (see Figure 2).

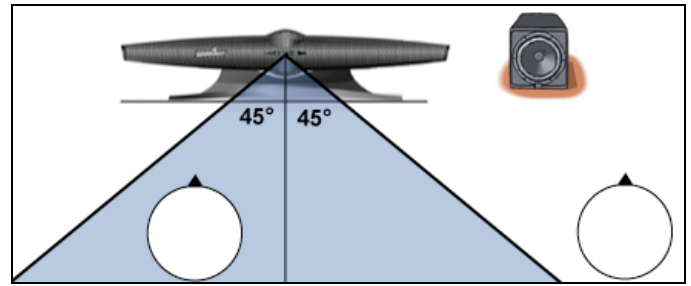


Figure 2 – Listening Area

If the incoming talker’s speech is played through loudspeakers positioned outside the +/- 45 degree listening area, the array will turn off when only the far-end talker is active, thereby eliminating far end echo.

Positioning for Single User telephony

Place the Voice Tracker™ Array microphone under or on top of the monitor, facing the talker. Place the speaker in line with the long axis of the Voice Tracker (see figure 3) to assure that the speaker is well outside the field of view.

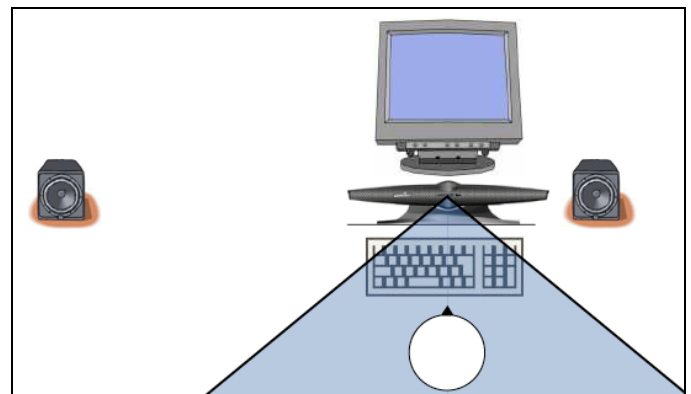


Figure 3 – Single User set up

Note, that if you use dual speakers, they should be placed asymmetrically, so the Voice Tracker™ does not think their sound is coming from a virtual position between the two speakers, which would be in the field of view.

A useful way to confirm that the speaker is positioned correctly is to play a recording through the speaker and move it around until the green lights on the front of the Voice Tracker™ stay off. When the lights are off, that means the array is not passing the signal to the PC

Positioning for Conferencing/Collaboration

There are many possible layouts that are suitable for conferencing. Keep in mind that the Voice Tracker is very sensitive and can be placed far from the participants. It is often necessary to do so to “cover” all the participants in the +/- 45 degree field of view. When the Voice Tracker is 10 feet away from the participants, they can be spread across a 20 foot “base” of the cone shaped field of view.

Set up A: Voice Tracker at far end of the Table

Placing the Voice Tracker & speaker at the far end gets them out of the way, and the +/- 45 degree field of view will cover most of the table. See Figure 4.

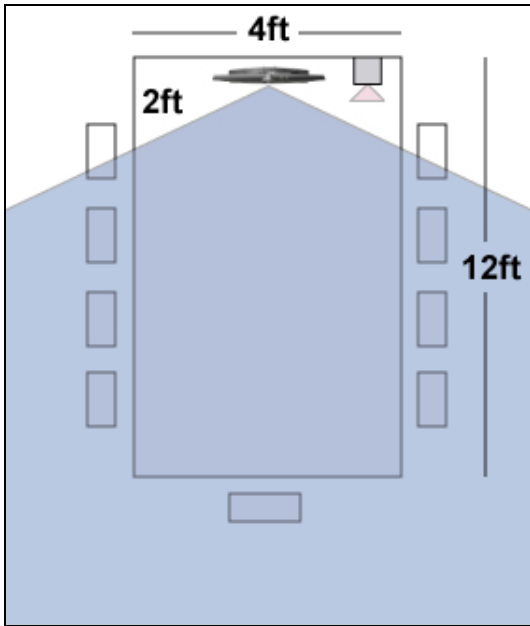


Figure 4: Voice Tracker™ at far end

Set up B: Voice Tracker placed in the front, near the “chairman”.

The Voice Tracker™ and speaker can be placed near the front on the table, facing away from the “chairman”. The Voice Tracker™ will pickup sound from behind as well as from the front. Be sure that the “chairman” stays within the back projection of the +/- 45 degree field of view. See Fig 5

Set up C: Voice Tracker™ placed on table along wall behind “chairman”

Another way of getting the Voice Tracker™ away from the participants (to assure coverage of all participants) is to place it and the speaker along the front wall, perhaps on a table. See figure 6

The effects of reverberation

If the room is highly reverberant, sounds from the speaker can bounce around and appear to be coming from within the narrow field of view, ruining the echo elimination effect. Try repositioning the speaker, using the green light to show when the Voice Tracker™ ignored these sounds successfully. Carpets, curtains, etc. to reduce reverberation will help.

Keeping the speaker close to the Voice Tracker™ usually helps.

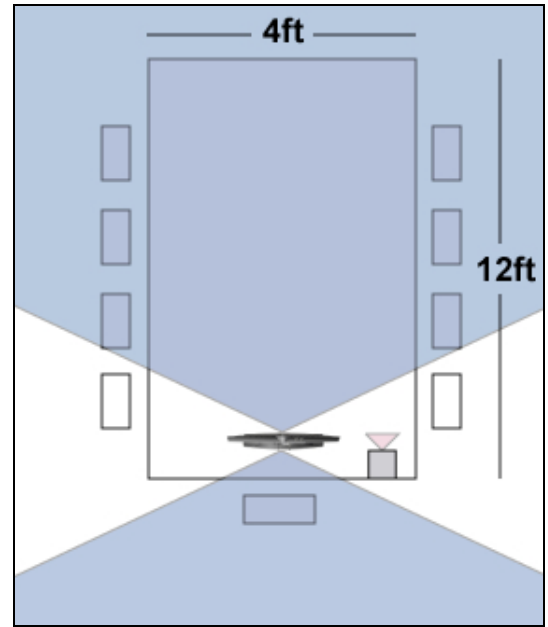


Figure 5: Voice Tracker™ at front end

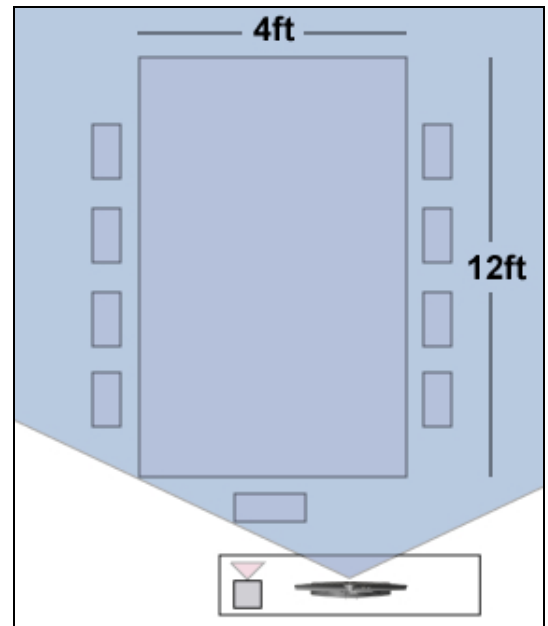


Figure 6: Voice Tracker™ near front wall

If you have further questions, e-mail us at CustomerService@AcousticMagic.com or call 978 440 9384.



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