

Anechoic Chamber

The anechoic chamber is located on the New Mexico State University campus in the Klipsch School of Electrical and Computer Engineering. Fig. 1 shows the anechoic chamber.



(a)



(b)



(c)

Figure 1: Anechoic chamber viewed from (a) right door, (b) left door, and (c) back left wall.

Recording Conditions

Extremely quiet
Minimal reverberation

Recording Equipment

- (1) Dell Dimension XPS R400 PC (Pentium II @ 400MHz, 128MB RAM, 40GB disk, Windows 98)
(www.dell.com)
- (1) Echo Layla 20-bit multitrack recording system (www.echoaudio.com)
- (2) Shure omni-directional microphone Model VP64A2 (www.shure.com)
- (2) Applied Research And Technology (ART) Professional processor series tube preamp (www.artroch.com)
- (2) Balanced (XLR) microphone cables from microphones to preamps
- (2) Balanced (XLR) microphone cables from preamps to Layla

Recording/Editing Software

Syntrillium Software Corporation's Cool Edit Pro v1.2 for recording and (www.syntrillium.com)
Aurora Plug-in vx.x for Cool Edit pro for impulse response measurements (aurora.ramsete.com/aurora/)
Mathwork's MATLAB v5.2 for editing signals to desired lengths (www.mathworks.com)
SoundApp PPC v2.7.3 for sample rate conversion to 16kHz from 48kHz (www-cs-students.stanford.edu/~franke/SoundApp/)

Recording Setup

Fig. 2 shows the schematic of recording setup with dimensions. Two omni-directional microphones are located on each end of the chamber from the side walls. Two speakers each are standing between the side wall and microphone and are facing each other. Recording system is placed outside the anechoic chamber. A three-minute recording sampled at 48kHz, 16 bit resolution was done for each of the following scenarios:

Recording 1 – Male speaker on right side of chamber, male speaker on left side of chamber

Recording 2 – Male speaker on right side of chamber, female speaker on left side of chamber

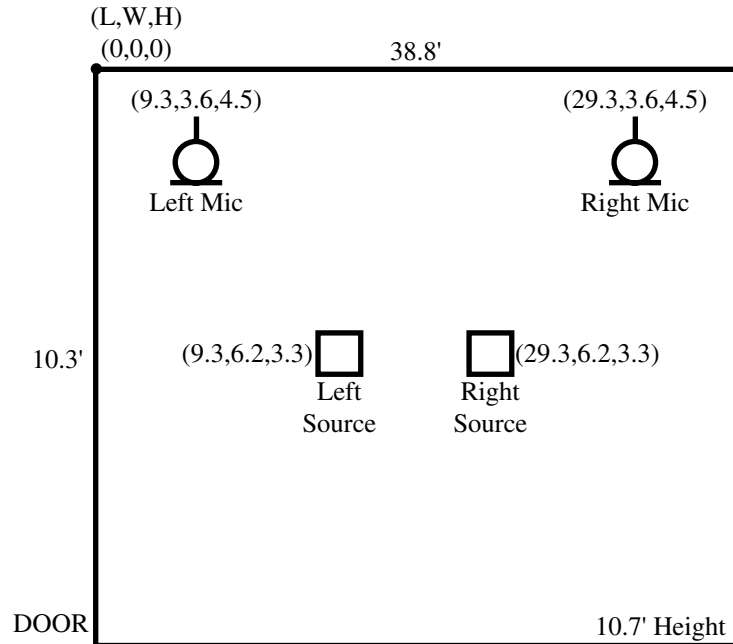


Figure 2: Schematic of recording setup.

Available Files

The file naming scheme is as follows.

aaaaaaaa_bc_dd_eee_fff.wav

a = Acoustic environment

b = (L)eft or (R)ight microphone

c = (C)lip-on or (O)mnidirectional Microphone

d = (M)ale(M)ale, (M)ale(F)emale, (F)emale(F)emale, (B)ackground(N)oise

e = fs, (16k) or (48k)

f = duration, (15) or (180) seconds

Files available for this recording environment are listed below.

Recording 1	Recording 2
Anechoic_LO_MM_16k_15.wav	Anechoic_LO_MF_16k_15.wav
Anechoic_LO_MM_16k_180.wav	Anechoic_LO_MF_16k_180.wav
Anechoic_LO_MM_48k_15.wav	Anechoic_LO_MF_48k_15.wav
Anechoic_LO_MM_48k_180.wav	Anechoic_LO_MF_48k_180.wav
Anechoic_RO_MM_16k_15.wav	Anechoic_RO_MF_16k_15.wav
Anechoic_RO_MM_16k_180.wav	Anechoic_RO_MF_16k_180.wav
Anechoic_RO_MM_48k_15.wav	Anechoic_RO_MF_48k_15.wav
Anechoic_RO_MM_48k_180.wav	Anechoic_RO_MF_48k_180.wav

Room Impulse Response Measurement

The Aurora plug-in for Cool Edit Pro utilizes a Chirp (sinusoidal sweep) stimulus in order to compute room impulse responses for the direct channels (left speaker to left microphone and right speaker to right microphone) and for the cross channels (left speaker to right microphone and right speaker to left microphone). Responses are sampled at 48kHz. Files are named Anechoic_ImpResp_16k_ji.wav where *ji* refers to the response from source (speaker) *i* to microphone *j*.