Canarie AAP-03 "Shared Spaces" Project Milestone 3 Report
Appendix 3
Report on Latency of Final System
Jeremy Cooperstock

Latency Measurements
The most recent timing measurements we conducted indicated that we should be able to maintain software-related latency to a maximum of 30ms beyond the hardware delays introduced purely by the camera and plasma display. Note, however, that further tests are required after the stability problems have been resolved. Current numbers are as follows:

- "camera-to-plasma" (direct cable connection): 65 ms
- "loopback video" (HD-SDI acquired and displayed through our software): 105 ms
- "one-way network video, full-frame mode" (HD-SDI over IP): 125 ms
- "one-way network video, 15 chunks per frame" (HD-SDI over IP): 95 ms

An additional problem arose with respect to low latency audio transmission. Due either to a subtle interface change in the more recent versions of ALSA included with the 2.6 kernel or possibly, a coding bug on our part, we find that CPU load explodes when the ALSA library is invoked in a non-OSS-emulation mode. For the present, we are avoiding this problem by running the sound system in OSS mode, but we hope to resolve this issue shortly and return to native ALSA support, which we expect will help further reduce audio latency.