NOAA UAS Working Group
Marine debris surveys, Northwestern Hawaiian Islands

Description of Control Station
(Revised 7/29/2007)

The control station encompasses the transceiver and PC ground station. The user
interface of the UAS will be through a software program that can be loaded on a laptop
computer. The communication is bidirectional. Before the flight, the proposed route of
flight is uploaded directly from the software interface into the onboard computer which
controls the UA. Once the UA is launched and under autonomous control, direct
controller interface is done via radio link. The UA's positional and attitudinal data is
transmitted back to the ground station for complete flight location and flight parameter
following and monitoring. The ground control personnel can adjust the flight path via the
computer interface and radio link back to the UA. The ground station can also display a
"moving map" with icons depicting the UA, the proposed route of flight, the actual UA
track and the ground station location. The relative separation and headings between the
UA and the ground station are provided and continuously updated.

Figures 1 and 2 show the current controller interface for the base station. Much of the
UAS control software is built on open source code with ATI propriety APIs.

Figure 1: Flight parameter interface

Figure 2: Controller interface