AB function check for OBS, using Acquisition Test Box **OBS S/N** 501

Date 12 March 2014 **Operator** DLD **Glass OPEN** ____ **or SEALED** ✓

Initial test setup

- if necessary, open command window in appropriate experiments "prep" directory
- connect 3 Broadband test cables to Acquisition Test Box (ATB)
- connect a power supply set to 13.5V, >1A to banana plugs on ATB
- connect a signal generator set to 1 Hz 200 mVrms (into Hi-Z) to BNC on ATB
- GPS clock with good signal available, with rev 2 clock check cable hooked up

Connections for each AB

- connect AB to wallbox, turn on shore power
- start obsterm in command prompt by typing "`obsterm.py -px -snn`" where *x* is the com port and *nn* is the OBS serial number. Record COM 31C
- address AC board (^aa), note if Q330 is powered ✓ or not ____
- if not powered, turn Q330 on (^ap1); after several seconds address AC board again (^aa)
- start Willard; "Status|Quickview", "Status|Misc. Analog", "Status|GPS Status"
- open "Configuration|Configuration Cloning" and check if A or B sensor package A
- connect battery and Sensor 2 (close to GPS) penetrators to ATB
- if configuration is for A sensor package, then all 3 Guralp LEDs should light; if B, then all 3 LEDs should be dark ✓
- connect Sensor 1 penetrator into ATB; Center LED (Amber) should go active for ~7 sec ____

Test

- confirm that both SAIL LEDS (VA and GU) in ATB are lit ✓
- in obsterm, press ^b to send a break, confirm that both SAIL LEDs go out for 1 sec ✓
- set switch in ATB to DPG, record voltage from meter (~2.3 V) 2.37
- set switch in ATB to SEISMOMETER, record voltage from meter (~15 V) 15.05
- in Quick view record select Volts

	Ch 1	Ch 2	Ch 3	Ch4
Record RMSmV	197.36	197.51	197.48	107.58
Record AVGmV	-0.7	-1.6	-2.0	+0.4
Record WIN (counts)	233483	233482	233485	128082

- confirm ch 1,2,3 RMS ~200mV, ch 4 RMS ~110mV, all AVG ~0mV ✓
- record mass positions 1 3.8 2 2.5 3 1.4 (~1.3, 2.5, 3.8)
- In Commands|Sensor Control, select Sensor A Centering and hit apply
  Confirm Center LED (Amber) goes active for duration set in Willard ✓
- Repeat process for Sensor A Lock (Green LED) ✓
- Repeat process for Sensor A Unlock (Red LED) ✓
- turn off shore power, disconnect shore cable ✓
- confirm Willard stops (cancel cmd) ✓
- confirm Q330 is still operating (lights on Q330) ✓
- confirm SAIL lights in ATB still lit ✓
- record SEISMOMETER voltage from meter (~12.5V) 12.59
- reconnect shore cable
- check Q330 current (^aa, IQ330 ~ 75 mA) 74 mA
- turn on shore power, re-register in Willard ✓

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Check standard timing system
- when Q330 is locked to GPS (100%), set timebase: ^as0, ^a8, ^r, ^as1 17:14:58
- change Q330 to use Seascan: Configuration|GPS|Ext Seascan
- confirm Q330 tracks: 1-D, ~ -20 µs or +1100 µs, 90%; record phase −22 µs
- change Q330 back to Internal GPS

Check backup external timing system (optional for sealed AB)
- in Willard, turn off RS232 export (Configuration | GPS | None | Apply)
- disconnect Ethernet cable from wallbox
- note TB address from last AC sd command TB90
- change AC settings ^ae0, ^as0, ^a@1, ^at1
- type ^t to switch to Timebase mode (2400-N-8-1)
- set timebase to bad time: #TB*yy*<space>, !U<CR>, !T000111111 @ <CR>
- check that time is 000:11:11:xx, using #TB*yy*?T<CR> 11:11:21
- connect clock check cable to wallbox
- unlock timebase (#TB*yy* <space> !U <enter>)
- set clock to next minute(!T001hhmm00 no terminator), record date/time 17:19
- after next minute, check time manually (#TB*yy*?T<enter>) 17:19:09
- type ^t to switch back to AC mode (9600-N-8-1)
- change AC settings ^at0, ^a@0, ^as1
- do external clock check(^g, enter GPS clock comm port <enter>, then "0" <enter>)
  Confirm that Seascan time matches GPS clock time 03/12/2014 17:20:06
  Record "OBS-GPS" offset, should be ~ -20 µs or +1100 µs −0.000020
- swap clock check cable for Ethernet cable at wallbox
- resume normal Ethernet operation (^ae1)
- re-register with Willard, restart Quickview re-sync, re-register not needed
- change Q330 to Ext Seascan, confirm Q330 tracks, record phase −18 µs
- confirm that this phase matches "OBS-GPS" measured by the external clock above
- change Q330 back to Internal GPS, with RS-232 Import/Export, Apply

Finishing up
- close Willard
- disconnect AB penetrators to the ATB
- if system is to be moved immediately, send ^am1, ^as0, ^ap0, then send ^aa to verify that sm=1, ss=0, sp=0, IQ330 ~ 0 mA
- close obsterm (^xy)