

V-06 OBC Opened Node Timing Test-Setting the Time Offset

MEASURING and SETTING CLOCK DELAY

Expect an offset of $(1\text{sec} \times 2 \times 10^8 \text{ ms}^{-1}) (\text{fiber-length m})$

STEP1: SYNC GPS TO THE SHORE CLOCK

#CKA address the shore clock

!GS have it send a #[gps-time]@ on the second and then unaddress

#CKA!S1 turn GPS sync on

STEP2: SYNC SEA TO SHORE CLOCK

#C01A address the sea clock

!T set in time mode

#CKA address the shore clock

?T have shore clock send the time

#C01A re-address the sea clock

?T display the sea clock time

STEP 3: LOG THE CURRENT SEA AND SHORE CLOCK TIMES

#CKA address the shore clock

!EC01A<cr> sends a #C01A!E@ to the SEA clock and then unaddresses. This will cause the SEA clock to Echo an @ back

#CKA re-address the shore clock

?L2 display last two entries in the log

The log simply writes a timestamp anytime it sees an @. In this case the @ sent by the shore (CKA) writes the first entry and the one sent back from C01A writes the second entry

STEP 4: CALCULATE THE RELATIVE TIME OFFSET FROM SEA TO SHORE

the log will contain 2 lines with the times reported by the sea and shore clocks:

0000 19:49:19.590766

0000 19:49:19.576920

diff = (difference of times above) = 13846

round-trip = diff - 0.013333 = 513 (where 0.013333 is the pre programed delay for ring-around)

light-delay = round-trip / 2 = 256

STEP5: SET SEA CLOCK DELAY

#C01A address the SEA clock

?O display offset

!O0256 set light-delay from above