Testing Results

Leap Second Testing
Model Name: XLi P/N 1510-602 and 1510-652
Firmware Version: Project revision 2.1
GPS receiver 87-8028-2 v1.20
Date Tested: November 2008

The following leap second testing results provide time of year information across the boundary between December 31, 2008, and January 1, 2009 (UTC time). This includes, but is not limited to, handling of the time information provided via the unit's output ports. Note: since 2008 is a leap year the leap second will be added at the end of the 366th day.

Please see Field Service Bulletin 098-50620-003 for details on an issue that could have affected the leap second insertion on XLi's with GPS receivers with part number 87-8028-2.

All testing below has been done on an XLi running firmware Project revision 2.1, which resolves the above issue. If you are running a version of firmware that is lower than this Symmetricom highly recommends that you download the latest version for your XLi at: http://www.symmetricom.com/support/online-support/ttm-product-support/software-downloads/

Symmetricom products that report time information will do so as described below. The system time and all of its related outputs should increment time monotonically except for the following discontinuity, which is expected:

1. December 31st, 2008 23:59:59
2. December 31st, 2008 23:59:60 (some clocks may display a repeated value of 59 sec)
3. January 1st, 2009 00:00:00

XLi's locked to GPS:
For the below tests, the simulation time was started on December 31st, 2008 at 22:30 and allowed to run until January 1st, 2009 at 00:15, for a total simulation time of 1 hour and 45 minutes.
The leap second is handled as follows on the XLi's IRIG, serial and NTP server ports:

Output on IRIG port with IEEE 1344 enabled:	**Output on serial port (via F08 command) or on IRIG port without 1344 enabled:**
366:23:59:58	366:23:59:58
366:23:59:59	366:23:59:59
366:23:59:60	366:23:59:59
001:00:00:00	001:00:00:00
001:00:00:01	001:00:00:01

Output on optional NTP server:
The NTP server correctly sets the Leap Indicator pending bits in packets served.

XLi's locked to an IRIG source:
IEEE 1344 compliant IRIG source:
When the XLi is locked to an IEEE 1344 compliant IRIG source that correctly sets the leap second pending bit, the XLi will set the leap second pending bit on its IEEE 1344 compliant outputs and add the leap second to its IRIG output as shown above. The NTP server correctly sets the Leap Indicator pending bits in packets served.

Non-IEEE 1344 compliant IRIG source:
Assuming the incoming IRIG source abruptly adds a leap second at the end of the UTC day on Dec. 31st, 2008 the XLi will lose lock to its source for approximately 5 seconds. After this time it will relock to the IRIG source and operation will proceed as normal. NTP packets served by the XLi during this time will have their Leap Indicator bits set to 3, designating that the XLi is not synchronized.
If your XLi is running Project revision 2.1, a pending leap second can be added via the function 67 command. For further information on this command, please see page 86 of the XLi manual.

Symmetricom is not responsible for the correct processing of this information by any external program or device, only the transition from the year 2008 to the year 2009 as provided by the unit's output ports.

Symmetricom, Inc. is making every effort to provide accurate and up-to-date information on the Leap Second readiness of its products. This information reflects the current results of compliance tests of standard products and may be updated or changed without notice as testing continues. This information is published for our customers' assistance only. An overall assessment and plan based on particular needs is our customers' responsibility. Symmetricom disclaims any implied warranties of merchantability and fitness for a particular purpose and makes no express warranties except as may be stated in its written agreement with its customers. In no event is Symmetricom liable for any indirect, special, or consequential damages. Liability is limited to the purchase price of the product.