Jackson Labs

ENGINEERING CHANGE NOTIFICATION FORM

ECN: 80200525	REV: 1	ISSUE DATE: 6/15/2015

TYPE OF CHANGE: Firmware Modification

DETAILED DESCRIPTION OF CHANGE:
Firmware release 0.73 for CSAC boards and 2.44 for FireFly-II related models includes improvements in handling leap second events and additional SCPI query commands that provide information on the pending leap second. For models with fixed position timing receivers, this firmware release also corrects an issue with obtaining a GPS fix if the unit is power-cycled while airborne.

REASON FOR CHANGE:
Functionality improvements, added features and bug fixes.

PRODUCTS AFFECTED:

Firmware Version	Model
Firmware 0.72 and previous versions for CSAC **Firmware 2.43 and previous versions for FireFly-II related products.**	CSAC [1] HD CSAC [1] LN CSAC [2] DROR-II [2] DROR-IIA [3] FireFly-IIA FireFly-1C ULN-1100 ULN-2550 LC_1x1 Single Oven LC_1x1 Double Oven Mini-JLT

Notes:
[1] Requires CSAC GPSDO firmware variant
[2] Requires LN CSAC firmware variant
[3] Requires DROR-IIA firmware variant

AVAILABILITY:

MILESTONE	DATE
ECN release for firmware release files	6/15/2015

Release 0.73 for CSAC based boards and 2.44 for FireFly-II related models provide the following improvements:

Issue 1:

For one second during an actual leap second event, the UTC time output has a 1 second error. This error is corrected in the following second when the unit has GPS reception.

Resolution:

Firmware 0.73 for CSAC and 2.44 for FireFly-II related models uses the pending leap second data provided by the GPS receiver to output the correct UTC time during a leap second event. GPS reception is required to initially obtain UTC time and the pending leap second data, but the unit outputs the correct UTC time during a leap second event even if GPS reception is lost.

Issue 2:

Pending leap second information is not available to the user.

Resolution:

Firmware 0.73 for CSAC and 2.44 for FireFly-II related models adds the ptime:leap? query command that responds with the current leap second offset and pending leap second date and duration. The output is in the format

> LEAPSECOND PENDING : 1
> LEAPSECOND ACCUMULATED : 16
> LEAPSECOND DATE : 2015,6,30
> LEAPSECOND DURATION : 61

Individual parameters can also be queried separately with the ptime:leap:pending?, ptime:leap:accumulated?, ptime:leap:date? and ptime:leap:duration? commands.

Issue 3:

For models with fixed position timing receivers and when operating with airborne dynamics, the unit may fail to obtain a GPS fix after being power cycled. This issue only occurs with airborne dynamics and not with land- or sea-based dynamics.

Resolution:

Firmware 0.73 for CSAC and 2.44 for Mini-JLT corrects this issue on power-up allowing the unit to obtain a GPS fix while airborne.

REFERENCE DOCUMENTS/ATTACHMENTS:

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PLEASE CONTACT JACKSON LABS TECHNOLOGIES, INC. WITH ANY QUESTIONS