Spectralux
12335 134th Court NE
Redmond, WA 98052

Service Bulletin
SLCSB10302008

Spectralux GPS-SBAS Receiver Software Upgrade

AFFECTED P/N:

- Model Number NNL 3101-232, Part Number 13721-1
- Model Number NNL 3101-232, Part Number 13721-2
- Model Number NNL 3110, Part Number 13764-1
- Model Number NNL 3110, Part Number 13764-2

EFFECTIVITY:

☐	Ia: All Units. Not backward compatible
☒	Ib: All Units. Backward compatible
☐	IIa: Selected Units (List by Serial Number, Work Order #, or Mfg. Date). Not backward compatible
☐	IIb: Selected Units (List by Serial Number, Work Order #, or Mfg. Date). Backward compatible.

REASON:

The reason for this Service Bulletin is to notify Spectralux customers of changes made to the operational software contained in the FAA TSO-C145b approved GPS-SBAS Receivers noted above and to request the return of all the affected part numbers listed above to the Spectralux Corporation for upgrade.

The changes to the software for the GPS-SBAS Receivers, described below, have been submitted and Authorized to FAA TSO-C145c and, once incorporated, are identified by the assignment of the following new part numbers:

- Model Number NNL 3101-232, Part Number 13721-3 (TSO-C145c Authorized)
- Model Number NNL 3110, Part Number 13764-3 (TSO-C145c Authorized)

DESCRIPTION:

Per this Service Bulletin, all affected part numbers shall be returned to Spectralux for the software upgrade and unit re-identification.

- Part number 13721-1 and Part Number 13721-2 shall be returned to the Spectralux Corporation for upgrade to part number 13721-3.
- Part number 13764-1 and Part Number 13764-2 shall be returned to the Spectralux Corporation for upgrade to part number 13764-3.

Changes to the GPSB operational software are as follows. For more information, see document SAS-GPSB.

False Alert: Occasionally, the NexNav GPS-SBAS Receiver will generate a false alert message indicating to the FMS not to use the GPS position when, in fact, it is safe to use the GPS position. This does not have an impact on safety. The impact on operational performance is loss of solution due to the false alert at those instances.

Almanac Data Collection: Collection of Almanac data from GPS satellites takes longer if the receiver tracks an unhealthy satellite. This enhancement will allow the receiver to provide position in 75 seconds instead of 90. This does not have an impact on safety and the operational performance is marginally improved upon incorporation.

Multiple Service Providers: The receiver takes longer to transit from one Service Provider, say WAAS, to another, say EGNOS, when the aircraft flies from one Service Provider zone to another. This does not have an impact on the safety and the operational performance is marginally improved upon incorporation.

Variance Precision: To improve the precision of the variance associated with some measurements, one particular computation is performed in double precision in stead of single precision. During code review it was observed that there was loss in precision. This impacts Beta 3 units only and has no impact on Beta 1 units. This does not have an impact on safety and the operational performance is marginally improved upon incorporation.

Range Error Variance: In some situations; the computed range error variance is inaccurate by approximately 2 to 3 meters. As a result, the range error variance will appear as an inflated measurement, which if unacceptable, will be detected by the RAIM algorithm. This impacts Beta 1 and Beta 3 units. This does not have an impact on safety and the operational performance is marginally improved upon incorporation.

Integrity Alarm: During the LNAV/VNAV and LP/LPV phases of flight, the declaration of integrity alarm based on the VPL condition check against a fixed threshold has been removed. The Flight Management System (FMS) developed by the customer will perform the VPL condition check against different thresholds, since it allows the FMS the flexibility to increase or decrease the threshold for different decision heights. This is an enhancement request from the customer. This does not have an impact on safety or operational performance.

COMPLIANCE

The software changes addressed in this Service Bulletin are not related to a known safety condition and/or do not address an existing Advisory Circular (AD). Therefore, there is no requirement to incorporate this Service Bulletin by a given date. The incorporation date shall be determined by the operator/installer.

WARRANTY INFORMATION

This software upgrade is provided in accordance with the applicable Purchase Agreement entered into between the Spectralux Corporation and its customers.

FAA INVOLVEMENT

This Service Bulletin has been provided to the Seattle Aircraft Certification Office and the Manufacturing and Inspection District Office for notification purposes.

APPLICABILITY AND LIMITATIONS

All affected units shall be returned to Spectralux under the Return Material Authorization process. Spectralux will need the unit's serial number in order to assign an Return Material Authorization number. Contact Spectralux customer service prior to the return of any units.

Spectralux Corporation
Attention: Customer Service
12335 134th Court NE
Redmond, WA 98052
425-285-3000

This Service Bulletin does not provide authorization for installation of the Spectralux GPS-SBAS Receivers, Part Number 13721-3 and/or 13764-3 onto any aircraft. Authority to install Part Number 13721-3 and/or 13764-3 must be obtained by the operator/installer.

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MATERIALS, PARTS, AND SPECIAL EQUIPMENT
None. All upgrades are to be performed at the Spectralux facility in Redmond, Washington.

MANPOWER
Not applicable.

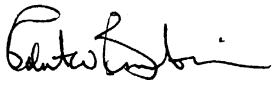
REFERENCES
SAS-GPSB Software Accomplishment Summary
BOM 13721-3 Bill of Materials for Model Number NNL 3101-232, Part Number 13721-3
BOM 13764-3 Bill of Materials for Model Number NNL 3110, Part Number 13764-3

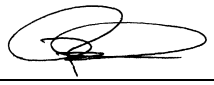
MODIFICATION PROCEDURE
Return Part Number 13721-1 or Part Number 13721-2 to the Spectralux Corporation for upgrade to Part Number 13721-3.

Return Part Number 13764-1 or Part Number 13764-2 to the Spectralux Corporation for upgrade to Part Number 13764-3.

APPROVALS:

Program Manager: 
Digitally signed by John Duzenack
DN: cn=John Duzenack, o=Program Manager, ou=Engineering, email=johnd@spectralux.com, c=US
Date: 2008.11.04 14:11:37 -08'00'

Director of Engineering: 
Digitally signed by Robert W Bernstein
DN: cn=Robert W Bernstein, o=Director of Engineering, ou=Engineering, email=bobb@spectralux.com, c=US
Date: 2008.11.04 14:36:04 -08'00'

Director of Quality: 
Digitally signed by Rondii Lynberg
DN: cn=Rondii Lynberg, o=Spectralux Corp., ou=Quality, email=rondiil@spectralux.com, c=US
Date: 2008.11.04 15:15:01 -08'00'