



POSPac LiDAR QC Tools for UAV

FREQUENTLY ASKED QUESTIONS

1. WHAT ARE LIDAR QC TOOLS FOR UAV?

The LiDAR QC Tools for UAV are software modules available in POSPac 8.4. They have been designed to improve the robustness and accuracy of UAV LiDAR payloads built with Applanix Direct Georeferencing solutions including Trimble APX UAV boards and POSPac UAV.

2. WHAT THEY ARE CAPABLE OF DOING?

The LiDAR tools will precisely estimate the boresight misalignment angles between the IMU and the LiDAR frame. In addition, the tools can perform corrections to the trajectory (position and orientation) used to generate the point cloud, based on a global point cloud adjustment. An LAS point cloud generator is also included to aid in visualizing results.

3. HOW DOES IT WORK?

LiDAR QC creates Voxels (3D pixels) from the LiDAR data and match these in overlap regions. It then runs an iterative least squares adjustment using the matched points to solve for the constant IMU boresight angles, and optionally, makes corrections to the trajectory (position and orientation) used to generate the points. The boresight misalignment angles are ready to be applied in third-party software with either the original or corrected trajectory file. Alternatively, a new trajectory file can be exported with the boresights applied.

4. WHAT ARE THE LIMITATIONS?

There are no limitations, but optimal accuracy is subject to LiDAR noise, captured scenery, and payload integration quality. Current support is limited to UAV payloads and projects only.

5. ARE THERE DIFFERENT LICENSES?

Yes, there are two different licenses available inside POSPac. The first license supports boresighting only, while the second license supports both boresighting and trajectory adjustment. Point cloud generation is included with both licenses.

6. CAN THE TOOLS BE RUN AUTOMATICALLY?

Absolutely, the tools are completely integrated into the post-processing workflow for single "push-button" operation using the POSPac batch-processing mode.

7. ARE THE LIDAR QC TOOLS FOR UAV SUPPORTED IN POSPAC MMS?

Yes, they are supported in both POSPac MMS and POSPac UAV.

8. WHAT INFORMATION DO I NEED TO PROVIDE?

You should provide the navigation/raw GNSS and IMU data logged by the Trimble APX board, along with the timetagged LiDAR data in the local frame of the LiDAR. The LiDAR QC Tools support a generic LiDAR format. They can be run either using the extracted real-time trajectory or the post-processed (SBET) trajectory.

9. WHAT ARE THE COMPUTER REQUIREMENTS?

The LiDAR QC Tools for UAV, as part of POSPac, run on Windows machines. It is recommended to have a modern Intel-based Core i7 processor with a minimum of 32 GB of RAM and a fast solid state drive (SSD) with at least 100GB of free storage when the tools are running. Processing efficiency is also improved if the raw LiDAR measurements are separated into multiple files of about 1GB in size.

10. HOW I CAN PURCHASE LIDAR QC TOOLS FOR UAV?

These modules are available through Applanix distribution channels. Please contact the sales representative for your region: <https://www.applanix.com/contact.htm>

11. CAN I HAVE A DEMO LICENSE?

Yes, it is possible to have a temporary demo license activated, assuming you already have POSPac version 8.4 or later. The tools are not compatible with previous versions of POSPac. Please contact our Customer Support department for details: <https://www.applanix.com/contact.htm#support>