



Document No:	Bulletin No 4
Date:	25/4/2026
Time:	12:00pm
Subject:	GPS Statement of Accuracy
From:	Clerk of Course
To:	All Competitors
Number of Pages:	3
Attachments:	None

*This supplements regulation N. Running of the Event*

## **RHINO CHARGE 2026**

### **OFFICIAL STATEMENT**

*GPS Tracking Accuracy & Results Precision*

#### **1. BACKGROUND**

The Rhino Charge is a distance-based competition in which the result for each competing vehicle is determined by the total distance driven between a set of control posts within the allotted competition time. Unlike time-based motorsport events, the precision of recorded distances is therefore the single most critical element of the results process.

Because of the remote terrain, the physical risks inherent in the event, and the regulatory requirement to locate each vehicle in real time throughout the competition, all cars must carry a device that simultaneously provides live satellite tracking and records a continuous GPS log for subsequent results processing. Identifying equipment that meets both requirements to a high standard is technically challenging.

#### **2. CURRENT TRACKING TECHNOLOGY**

For a number of years the Rhino Charge has used IDP devices supplied by RiverCross as the primary results and tracking instrument. These devices fulfil the mandatory real-time communications requirement effectively and have a proven operational record in the field. We will continue to use the IDP devices for this Charge.

As a replacement for the very much outdated Fox backup devices, we will be deploying a new device this year, the FTC961. The FTC is a fully self-contained device with integrated antenna and onboard communication. This means that we will be able to get real-time updates throughout the Charge.

Under optimal conditions these new devices operate to a stated accuracy of  $\pm 1.8$  metres. Whilst that figure may appear modest in isolation, it is important to understand that GPS positional error is cumulative. Over a competition in which a vehicle may travel in excess of 30 kilometres across up to ten hours of continuous data logging, small per-point errors compound to produce a materially larger uncertainty in the final distance figure

Additionally, all GPS receivers - regardless of manufacturer or specification - are subject to positional jitter caused by atmospheric conditions, signal multipath, and satellite geometry.



These effects are transient and unpredictable, and cannot be eliminated entirely by hardware improvements alone.

### 3. DATA PROCESSING & FILTERING

Raw GPS logs are not used directly for results computation. All data collected during the competition is subjected to a standardised suite of filters designed to identify and remove the most common classes of anomaly, including signal dropout, unrealistic velocity spikes, and atmospheric jitter.

Critically, these filters are applied identically to every competing vehicle without exception. No manual adjustment is made to the output for any individual car.

Whilst this process resolves most anomalies present in the raw data, it cannot improve the underlying positional accuracy of the hardware. Based upon the filtering that is applied, the Results Team assessed that the maximum achievable accuracy of any computed distance figure for the 2026 Rhino Charge is:

**± 100 metres on overall recorded distance**

This tolerance represents the practical limit of what the current technology, combined with best-practice data processing, is capable of delivering. The uniform application of identical filters ensures that, whilst the absolute figure may carry this margin of uncertainty, the results are probabilistically fair and consistent across the entire field.

### 4. POLICY ON DISTANCE DISPUTES

In light of the above, and to maintain a fair and efficient results process, the following policy applies to all distance-related disputes for the RC2026 event:

- (a) The Stewards and Clerk of the Course will not consider any distance dispute where the claimed discrepancy is less than 100 metres in overall recorded distance.
- (b) This threshold applies equally to all secondary results categories, including but not limited to Tiger Lines and the Gauntlet.
- (c) Any dispute that does not meet this threshold will be dismissed at first instance and will not proceed to a formal hearing.
- (d) The Organiser acknowledges that differences below this threshold may have implications for competitive bragging rights; however, such differences fall entirely within the measurement uncertainty of the system and cannot be adjudicated with confidence.
- (e) In the event that a primary result (e.g. Overall, Victor Ludorum) is decided by less than the maximum accuracy threshold, the event Organising Committee will present a tied distance outcome.
- (f) Competitors are reminded that under rule N4b. *“The overall winner will be the entrant who visits the most Checkpoints in the prescribed manner. Where the number of Checkpoints visited by two or more competitors is equal, the advantage will go to the entrant who has covered the shortest distance. If the distance covered is still equal, the overall time taken to cover the recorded distance will be the tie break.”*

### 5. FUTURE DEVELOPMENT



The Organising Committee recognises that the  $\pm 100$  metre tolerance is a significant limitation and is actively developing solutions to improve both the positional accuracy and the communications performance of the tracking system for future events.

As improved devices are introduced and validated, this Statement will be revised to reflect the best accuracy that the Organiser is satisfied can be reliably and consistently achieved across the entire field. Competitor eligibility thresholds for disputes will be adjusted accordingly.

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*This Bulletin is issued under the authority of the Rhino Charge Organising Committee and takes effect immediately upon publication.*

A handwritten signature in black ink, appearing to be "Don White", written in a cursive style.

*Don White*

**Clerk of Course**