Automated OCS Testing Report at the Bacardi Invitational

Requesting Use

The US Snipe Class requested and was granted a waiver to Snipe Class rule 5.1 which governs allowable electronics. This is the second test of such a system. The test report for the first test is located here. As noted in the request, only a limited set of device functions would be enabled. The Vakaros system is configurable and supports the concept of “profiles” that enable only a specific set of functions. The Snipe Class requested a profile that contains only these functions:

- Heading
- Timer
- OCS notification (yes/no) at the start

In addition, it was requested that we survey competitors about their experience and report the results. This document satisfies this requirement.

Set Up

All units were configured similar to the last test with a profile that provides only the heading and timer data. Unlike for the Bacardi Invitational, mast mounting was not permitted. The distance from the bow to the unit for each boat manufacturer (Jibe Tech, Persson, DB etc) was measured in the prior test and was used during the event setup.

System Use

The process for each race was as follows:

1. The RC started the timer at some time greater than the warning signal, typically about 10+ minutes.
2. The RC followed the procedures in RRS 26.
3. At the start, the Vakaros system either displays a set of green LEDs or a large “OCS” on the display.

4. If you receive the green LEDs, you have started properly and can continue. If you receive the “OCS” you return and after completely clearing the line the “OCS” is replaced with”CLEAR”.
5. At the start, the timer begins to count up to show the elapsed race time.
6. When the boat crosses the line, the word “FINISH” is displayed on the unit.
7. There were procedures outlined in the race documents for off nominal situations in case the system in total was not functioning or if individual units were not functioning.

Comments and Lessons Learned

In general this test was also very successful. Most people thought it was a positive experience and it provided for faster and more fair races. There were some minor glitches with individual units and in the first race there was an issue with interference of the race committee signal boat mast that required reverting to standard RRS 26 process without Race Sense. But that technical issue was solved prior to the second race and used for the rest of the series without systemic issues.

Again, the main concerns about the system are the total and ongoing costs (there is a recurring subscription fee to use Race Sense 2), the fact that it is early in the technology cycle and that there are some improvements that need to be made to the hardware and software. The sailors who are engineers or scientists who have used the system believe that a set of open standards needs to be established in this domain to enable interoperability between vendors before the Class widely adopts such a system. Or more simply put, we do not want to be reliant on a single company solution.

The most notable comment from the Race Committee came from the PRO and had to do with communicating with competitors on the water. Prior to the event, she was very strongly in favor of using VHF radios to communicate with competitors. Even though she is very familiar with the Snipe Class rules and has run Snipe regattas at the top level, it took some persuasion on our part to get her agreement to use Race Sense without VHF communications. There were some comments about the accuracy of the system from both competitors and the Race Committee.

Based on the survey results, I find the following lessons learned:

Lesson: RRS 26 should be followed even with the use of this system both for a visual for competitors on the water and as a backup.

Lesson: Adequate contingencies need to be in place in case of failure of the technology. Radios are the most effective and efficient, but at a minimum flags should be used and be unique and not overlap with other common flags used by the Snipe Class.

Lesson: If you need to restart your unit, ensure it is done in close proximity to the RC boat to ensure it adequately rejoins the network.

Lesson: Due to the high degree of technological understanding needed to configure and troubleshoot problems, it is imperative that there is a dedicated on-site individual to handle the logistics of any loaned or rented equipment and that person must be a technical expert in order to handle tech support.

Lesson: The Class needs to better understand and verify the accuracy of any system.

Lesson: The locations of the units either need to be standardized or standardized configurations be made to easily allow for a limited selection of locations.

Lesson: Test the system on various types of signal boats before an event to insure there are no unexpected interference issues with the type of boats used.

Survey Results

Again, a Google Form was used to create a question survey. This was the same survey used for the Bacardi Invitational except I added a question to identify who the submitter was (skipper, crew, race committee, volunteer) so that the survey could be more widely distributed to get a wider range of perspectives while allowing us to understand who is answering. 35 boats were registered and 44 people responded to the survey.

I summarize the results below, but since these results were more detailed than the prior survey, it is worth reviewing them in the spreadsheet to better understand the comments:

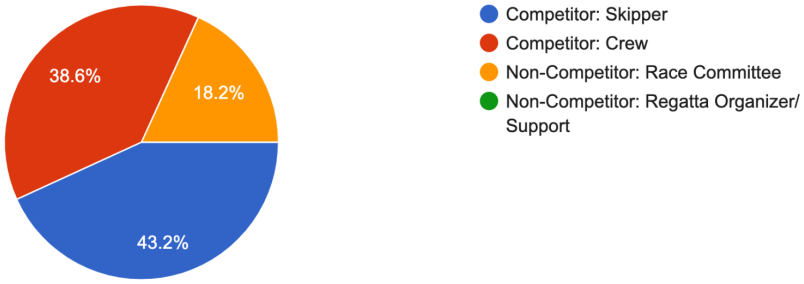
https://docs.google.com/spreadsheets/d/1AjLJpo9pVAzpwOT8GHMA4AlmabRFs1UQpzuf77E65jQ/edit?usp=sharing

In order to distribute these results broadly, I anonymized the results by removing the contact information from the results spreadsheet. I can provide a version that personally identifies the responders to a limited audience.

Question 1:

What was your role in the DonQ (pick the best one)?

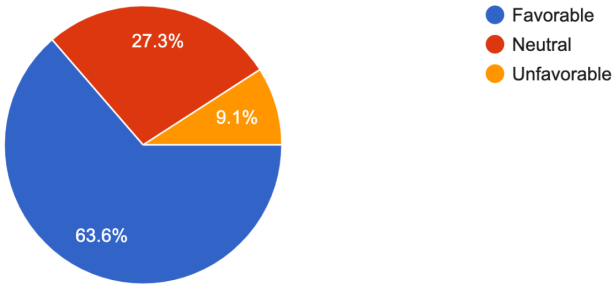
44 responses



Question 2:

What was your overall experience with using Vakaros as a starting system?

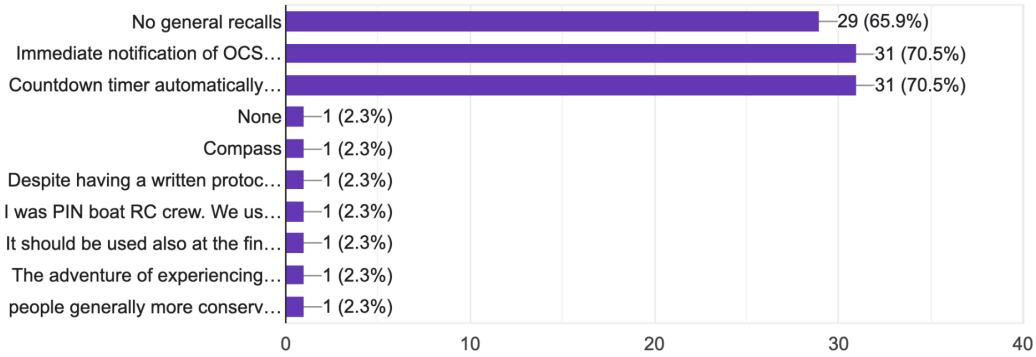
44 responses



Question 3:

In what ways did you think the racing experience was enhanced (check all that apply):

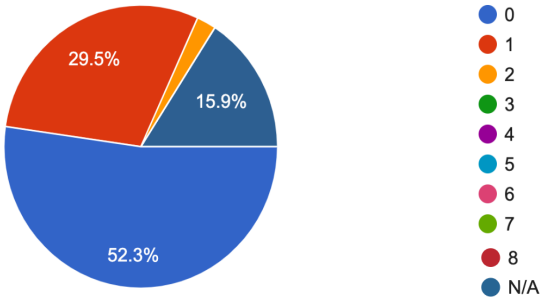
44 responses



Question 4:

How many times were you called over early by the Vakaros system?

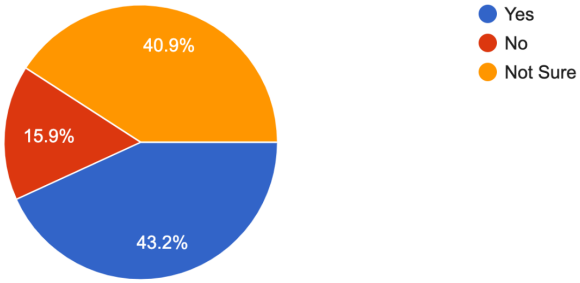
44 responses



Question 5:

Did you think the system called the line accurately?

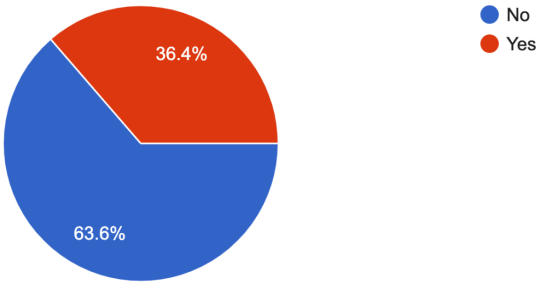
44 responses



Question 6:

Did you have any technical issues with your unit?

44 responses

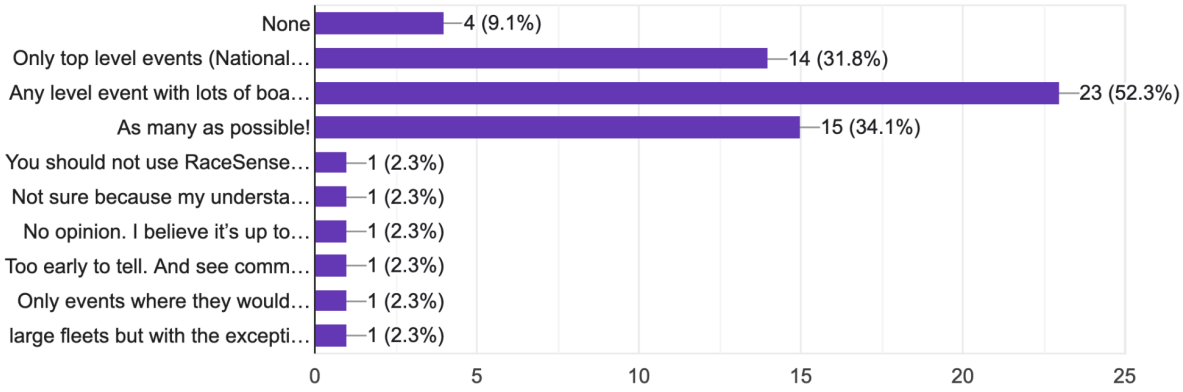


If you had issues with your unit, please describe them: [See spreadsheet for detailed responses](#).

Question 7

If this or similar system were to be approved by the class, what types of events would you like to see it used (check any)?

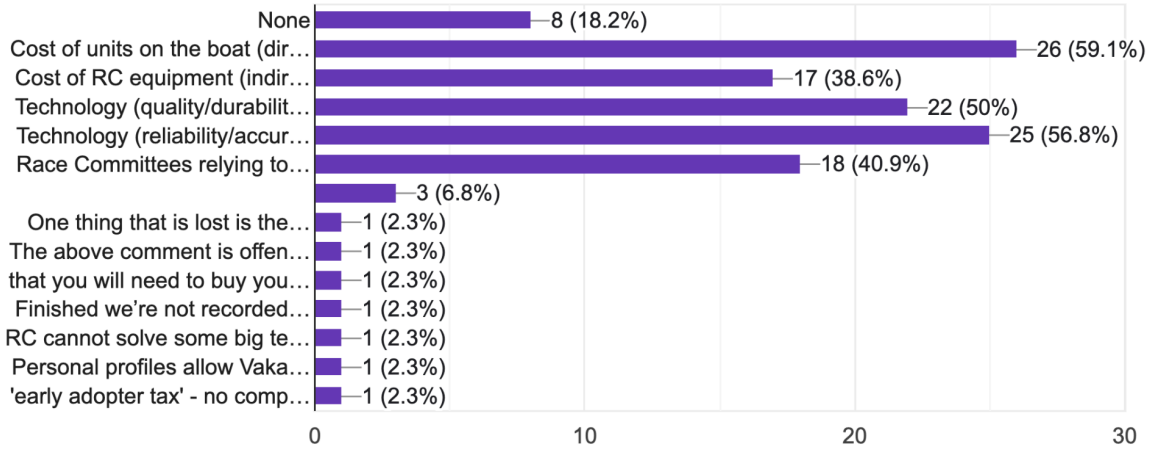
44 responses



Question 8:

What are the main concerns with using such a system in the future (check all that apply):

44 responses



If Other, please specify: [See spreadsheet for detailed responses](#).

Question 9:

Please provide any other feedback, for or against or any other comments. For example, did you think it changed the game? If so, how? See spreadsheet for detailed responses.

Question 10:

If additional performance data such as track, speed etc for all competitors were made available after the event to everyone, would you be in favor of publishing it?

39 responses