



PACIFIC CUP 2024

The FUN Race to Hawaii



Starlink Recommendations

Background

For the 2024 Pacific Cup race the Pacific Cup Equipment Requirements (PCER) were amended to allow Starlink as a solution for Satellite Voice. Specifically:

PC 3.9.c Satellite Voice is replaced by:

A boat shall have an Iridium or Inmarsat voice communication system (e.g., phone or "GO!"), **or a Starlink system with a Voice over IP (VoIP) solution**, operable from below deck with an external antenna, preprogrammed with race, medical, and safety telephone numbers as specified by the Communications Plan and powered or rechargeable from the boat's electrical system.

We have learned that the use of Starlink in the ocean may have issues boats should be aware of and be prepared to deal with.

Recent Starlink Experience in Ocean Races

There were about ten boats in the 2023 Transpac race that used Starlink successfully; there were some issues uncovered that are relevant.

In the event that there is a problem with your connection while at sea, you should know that Starlink doesn't have any traditional email or phone support. It is limited to a 'customer support' ticket system that requires an Internet connection to access. This isn't useful if Starlink is the only means of connecting to the Internet because without an internet connection there is not any way to open a ticket.

Starlink has several service plans, ranging from Standard for household, Priority for Business, Mobile for RVs, and Mobile Priority for maritime. Only the Mobile Priority is designed to be used in the ocean. There is some evidence that if plans other than Mobile Priority are used in the ocean Starlink will disable the service. It will, of course, work well on the dock or near shore, but maybe turned off once offshore.

Although there are several external antennas that work with the different Starlink service plans (Standard, Standard Actuated, High Performance, and Flat High Performance), only the Flat High performance is

recommended for maritime usage because it has a wider field of view that allows it to see more satellites and is designed for permanent installation in extreme environments. It is the only antenna Starlink designates for in-motion usage, thus use of any other antenna may cause service to stop. We acknowledge there are plenty of reports of the terrestrial antennas working at sea, but people have started receiving warnings that service will be discontinued offshore.

Satellite Voice using VoIP

Starlink only provides an Internet data service. The Pacific Cup Notice Race Amendment 1 allows use of a VoIP solution with a Starlink system to meet the requirement for Satellite Voice.

There are several VoIP systems that appear to work with Starlink. Examples include Ooma and Magic Jack. Other approaches like WiFi Calling may work reliably but are largely untested and require a smart phone capable of this service.

- Magic Jack (VOIP hardware, USB powered, requires an analog phone handset)
- Ooma (VOIP hardware, requires an Ooma phone or an analog phone handset, 5v power circular connector will require additional voltage regulator)
- WiFi Calling (VOIP smartphone with cellular service provider support for wifi calling)

PC-based solutions may also work. Whichever telephony solution a competitor chooses is their responsibility.

Other allowed satellite services include a satellite voice system. These include Imarset and Iridium (Go, Exec, or Handset).

Recommendations

1. A backup system in case the Starlink fails or if there is a problem with the subscription. Examples of this are an Iridium Go for voice and email. Some satellite systems have Internet access and can be used to file a Starlink ticket (Iridium Go does not).
2. Starlink Mobile Priority service plan. This is the plan that Starlink says is needed in the ocean. The use of any other plan might result in service being terminated by Starlink.
3. Flat High Performance external antenna. This is the antenna that Starlink designates for in-motion usage. Other antennas might work, but the service level will be reduced or may not be allowed by Starlink.
4. VoIP system, see Additional Resources below.

No redress or relief will be granted to a competitor for failure of a system, recommended or not.

Additional Resources

MagicJack hardware and service

<https://www.magicjack.com/account/mjLandingpages.do?page=index>

Ooma: How to add home phone service to Starlink satellite internet,

<https://www.ooma.com/blog/home-phone/add-home-phone-service-to-starlink/>

Starlink VOIP Setup: Your guide to dialing through the sky, <https://www.illumy.com/starlink-voip-setup/>

Starlink WiFi Calling – Does it Work – With Hands on Data

<https://turbo-speed-wifi.com/starlink-wifi-calling/>

Wifi calling overview

<https://www.techtarget.com/whatis/definition/Wi-Fi-calling#:~:text=Wi%2DFi%20calling%20works%20th%20rough,by%20the%20smartphone%20to%20work>