
How does PCAS compare to TIS?

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TIS, or Traffic Information Service, refers to the broadcast and receiving of traffic information from Ground-Based Transmitters (GBTs) via a transmitted RF signal. Contained in this signal is the information ATC uses to display traffic within the service area. TIS offers some advantages, but a few disadvantages when comparing to the way PCAS delivers traffic information.

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- * TIS offers a fairly comprehensive view of traffic, usually displayed onto a moving map. However, TIS information is limited to the service area, or area in which GBTs are equipped to send a TIS signal. As of this printing, less than 50 TIS stations exist in the US. In addition, the Mode S TIS broadcast is being scaled down in preparation for a new datalink, ADS-B. Once outside the service area, traffic is unavailable. PCAS, on the other hand, is not tied to a ground-based service. Traffic displayed on the PCAS screen is detected and computed independently of a ground-based service. In fact, the only thing PCAS needs to function is a Mode C transponder in the other aircraft (which all other collision avoidance systems need as well), which makes PCAS truly a peer-to-peer system.

- * TIS requires a Mode S transponder and a way to visually display the traffic information, usually on an MFD. While the end result is clear and concise, the cost of such systems and installation can be expensive for general aviation. PCAS is completely self-contained and does not require any additional hardware to function. It's portable as well, meaning that it can be taken from aircraft to aircraft, or removed for security.

- * PCAS can derive its information from both ground-based interrogations as well as TCAS-equipped aircraft flying overhead. Considering the ground clutter limitations of RADAR, PCAS often gets more information from TCAS interrogations than ground RADAR, especially when flying low to the ground. TIS is a ground-RADAR-based only, and aircraft flying below the RADAR horizon will not be detected.

- * PCAS information is updated as soon as the target transponder sends information, which is usually several times per RADAR sweep or TCAS interrogation. TIS information must be processed through several ground systems, rebroadcast, received and displayed. Traffic information, particularly altitude information, can have considerable delays.

- * One other consideration is range calculation. PCAS displays slant range, or true distance, in estimated miles. TIS displays range from an overhead-view perspective. For example, if the target aircraft is 2500 feet directly above you, the closest PCAS will show the traffic is 0.5 NM. TIS would show the traffic on top of your position in a 2-D fashion. However, TIS range calculations are time-based, which can be more accurate at distance. The relative altitude would be indicated the same on TIS as with PCAS.

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