

# **GBAS Cross Correlation**

## **Action Item 24**

RTCA SC-159  
Working Group 4

Rick Cassell  
Engility/FAA ANG-C32  
October 8-9, 2014

# Cross-Correlation and Satellite Acquisition

- ACTION 24: Add reference to DO-229D cross-correlation impact on acquisition
- DO-229D (Para. 2.1.1.2)
  - “The equipment shall not mistake one GPS satellite for another due to cross-correlation during acquisition or reacquisition. An acceptable means of preventing cross-correlation effects during acquisition is to reject GPS satellite ranging data if there is a 3000 km separation between satellite positions derived from the almanac and broadcast ephemerides.”
- DO-253C does not have equivalent requirement
- WG-4 meeting in March agreed to add requirement

# Proposed Change to DO-253C

- Add new paragraph in section 2.3.6.4 GPS Signal Processing
- 2.3.6.4.6 Cross-Correlation Impact on GPS Satellite Acquisition
  - The equipment shall not mistake one GPS satellite for another due to cross-correlation during acquisition or reacquisition. An acceptable means of preventing cross-correlation effects during acquisition is to reject GPS satellite ranging data if there is a 3000 km separation between satellite positions derived from the almanac and broadcast ephemerides.

# Proposed Test Requirement

Table 2-22 Test Cross-Reference Matrix

Paragraph	Designator	Test Paragraph	Test Method	Requirement Summary	Pass/Fail Criteria
2.3.6.4.6 Cross Correlation Impact on GPS Satellite Acquisition	[XXX]	-----	I or T	Equipment does not acquire wrong GPS satellite due to cross-correlation	Requirement Met