

**WAAS Technical Report**  
**William J. Hughes Technical Center**  
**Pomona, New Jersey**  
**3/29/09**

*Author(s): David A. Nelthropp*

**DR# 78:** False WAAS satellite alert for PRN 29 on 3/29/09 (Week 1525 Day 0)

**GPS Week/Day: Week 1525 Day 0 (3/29/09)**

**Discussion:**

WAAS broadcast a satellite alert for PRN 29 on both GEO data streams on 3/29/09 at 57764 seconds GPS time of week. The alert changed the UDREI from 5 to 14 (Not Monitored) and the UDREI for PRN 29 remained at 14 for 260 seconds before it returned to 5. During times of the alert there was no loss of L1 or L2 code/carrier tracking from any of the 38 WAAS receivers being evaluated. Also the range errors for 12 WAAS receivers evaluated did not exhibit any reduced accuracy during the SV alert time period.

A review of the WAAS Performance Monitoring C&V Status showed no monitor trips for PRN 29 on 3/29/09. A review of PRN 29 SPS performance evaluation showed normal tracking and range accuracy during the alert time period.

There was no apparent degradation in PRN 29 satellite signal that would prevent it from being used for navigation therefor a false WAAS satellite alert for PRN 29 was broadcast.

**Conclusions:**

Satellite PRN 29 broadcast Ephemeris history is shown in Table 1. There was a broadcast of two valid ephemeride within 164 seconds between IODE 6 and IODE 7. The WAAS system is required to delay the broadcast of new long corrections for new ephemeris (IOD = 6) for 2 to 4 minutes to allow all users to acquire new satellite ephemeris data. Table 2 shows the WAAS long correction broadcast history for PRN 29. During the required delay period the second valid ephemeris (IOD = 7) was broadcast by PRN 29. This ephemeris scenario although unusual, since ephemeris with IODE = 6 had a short expiration time 127 seconds (Table 1), all the ephemeris were valid for navigation by users.

Table 1. GPS Satellite PRN 29 Ephemeris History

Time Received	Previous IODE	IOD	Previous TOE	TOE	Time to expiration
50419	98	99	50400	57600	-7181
57457	99	6	57600	57584	-127
57621	6	7	57584	64784	-7163

Table 2 WAAS Fast & Long Correction History for Satellite PRN 29

Time of Fast	UDREI	UDRE	Time of Validity Long	IODE	Time of Applicability Long
57749	5	3.00	57643	99	57504
57755	5	3.00	57751	6	57760
57764	14	175.00	57751	6	57760
58007	14	175.00	58006	7	58016
58025	5	3.00	58006	7	58016