WAAS Technical Report
William J. Hughes Technical Center
Pomona, New Jersey
9/21/2005

Author(s): Choon Ooi

DR# 18: Inaccurate GPS satellite measurements from Houston and Chicago G2 Receivers.

GPS Week/Day: Week 1338 Day 1 (8/29/2005)
Week 1338 Day 4 (9/1/2005)
Week 1339 Day 1 (9/5/2005)

Discussion:

On week 1338 day 1, Houston thread 1 G2 receiver produced inaccurate GPS satellite measurements on PRN 9. Status of the measurements for PRN 9 was set to good during the events. The satellite pseudo range at GPS time 94333 (2:12:13 GMT) was offset by 1 C/A code chip, which is approximately 300000 meters. The receiver continued to track PRN 9 for another 14786 seconds with the offset until it was finally dropped below the mask angle at GPS time 109119 (6:18:39 GMT).

Two similar events have occurred at Chicago thread 1 G2 receiver on week 1338 day 4 and week 1339 day 1. The receiver had inaccurate GPS satellite measurements on PRN 16 and 20 respectably. During the event on week 1338 day 4, the tracking of PRN 16 was offset by 4 C/A code chips, which is approximately 1200000 meters, when good measurements status was reported. It lasted for about 3407 seconds starting from GPS time 377661 (8:54:22 GMT) until PRN 16 was dropped from the solution.

Similarly, on week 1339 day 1, the tracking of PRN 20 was offset by 2 C/A code chips, which is approximately 600000 meters when good measurements status was reported. This event lasted for about 7659 seconds starting from GPS time 90110 (1:1:50 GMT) then again on GPS time 97830 (3:10:30 GMT) for 5550 seconds.

Conclusion

Both Houston and Chicago thread 1 G2 receivers had inaccurate GPS satellites measurements with measurements status reported was good. The anomaly started when the receiver started tracking and using the inaccurate satellite measurements and the anomaly was gone immediately after the satellite was dropped from the solution.