



# GPS Performance Report Card

SPACE AND MISSILE SYSTEMS CENTER

- 2013 report now available on [gps.gov](http://www.gps.gov)
  - <http://www.gps.gov/systems/gps/performance/>
- This report measures GPS performance against GPS SPS PS assertions

Table 2.1: Summary of SPS PS Metrics Examined for 2013

SPSPS08 Section	SPS PS Metric	2013 Status
3.4.1 SIS URE Accuracy	≤ 7.8 m 95% Global average URE during normal operations over all AODs	✓+
	≤ 6.0 m 95% Global average URE during normal operations at zero AOD	✓+
	≤ 12.8 m 95% Global average URE during normal operations at any AOD	✓+
	≤ 30 m 99.94% Global average URE during normal operations	✓+
	≤ 30 m 99.79% Worst case single point average URE during normal operations	✓+
3.5.1 SIS Instantaneous URE Integrity	≤ $1 \times 10^{-5}$ Probability over any hour of exceeding the NTE tolerance without a timely alert	✓+
3.6.1 SIS Continuity - Unscheduled Failure Interruptions	≥ 0.9998 Probability over any hour of not losing the SPS SIS availability from the slot due to unscheduled interruption	✓+
3.7.1 SIS Per-Slot Availability	≥ 0.957 Probability that (a.) a slot in the baseline 24-slot will be occupied by a satellite broadcasting a healthy SPS SIS, or (b.) a slot in the expanded configuration will be occupied by a pair of satellites each broadcasting a healthy SIS	✓+
3.7.2 SIS Constellation Availability	≥ 0.98 Probability that at least 21 slots out of the 24 slots will be occupied by a satellite (or pair of satellites for expanded slots) broadcasting a healthy SIS	✓+
	≥ 0.99999 Probability that at least 20 slots out of the 24 slots will be occupied by a satellite (or pair of satellites for expanded slots) broadcasting a healthy SIS	✓+
3.7.3 Operational Satellite Counts	≥ 0.95 Probability that the constellation will have at least 24 operational satellites regardless of whether those operational satellites are located in slots or not	✓+
3.8.1 PDOP Availability	≥ 98% Global PDOP of 6 or less	✓+
	≥ 88% Worst site PDOP of 6 or less	✓+
3.8.2 Position Service Availability	≥ 99% Horizontal, average location	✓+
	≥ 90% Horizontal, worst-case location	
	≥ 90% Vertical, worst-case location	
3.8.3 Position Accuracy	≤ 9 m 95% Horizontal, global average	✓+
	≤ 15 m 95% Vertical, global average	
	≤ 17 m 95% Horizontal, worst site	
	≤ 37 m 95% Vertical, worst site	

✓+ - Met or Exceeded

Official U.S. Government information about the Global Positioning System (GPS) and related topics

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## GPS Performance

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he U.S. government is committed to providing GPS to the civilian community at the performance levels specified in the GPS Standard Positioning Service (SPS) Performance Standard (PS). [VIEW DOCUMENT](#) →

The following study, commissioned by the Air Force, confirms that, "in 2013 all of the SPS PS assertions examined were met or exceeded." The assertions evaluated include those associated with the accuracy, integrity, continuity, and availability of the GPS signal-in-space and the position performance standards.

**UTC Offset Anomaly**

On January 25-26, 2016, GPS users experienced a rare anomaly in operations. For several hours, multiple satellites broadcast information regarding the offset between GPS time and UTC in a manner that did not conform to the GPS signal interface

2013 GPS SPS Performance Analysis Download 2.4 MB