Change Topic: Public Signals-in-Space (SiS) Updates

This change package accommodates the text changes to support the proposed solution (see table below) within the public Signals-in-Space (SiS) documents. All comments must be submitted in Comments Resolution Matrix (CRM) form.

The columns in the WAS/IS table following this page are defined below:

Section Number: This number indicates the location of the text change within the document.

Proposed Heading: Contains existing and/or proposed changes to section titles and/or the titles to new sections

(WAS) <Document Title>: Contains the baseline text of the impacted document.

Proposed Object Text: Contains proposed changes to baseline text.

Proposed Rationale: Contains the supporting information to explain the reason for the proposed changes.

PROBLEM STATEMENT:
There are seven areas of obsolete/ambiguous language in the Signals-in-Space (SiS) specifications (mean anomaly equation, convolutional encoding, LNAV special messages reference, Universal Coordinated Time Offset Error (UTCOE), User Range Accuracy (URA) Note #3, Right Ascension Angle Language, and the signal health versus navigation data terminology). If this language were interpreted incorrectly it could result in UE developers designing receivers that don't work.
SOLUTION: *(Proposed)*
Resolve the obsolete/ambiguous language in the areas above to avoid the potential for misinterpretation.
Note: For the changes with respect to IS-GPS-800B, IRN-001 there are ***two*** areas that are being amended: i. Coordinated Universal Coordinated Time Offset Error (UTCOE), (1 proposed change)

ii. Signal health versus navigation data terminology), (1 proposed change)

Start of WAS/IS for IS-GPS-800B, IRN-001 Changes

Section Number	IS-GPS-800 RevB IRN001 (17 Apr 2012) Navstar GPS Space Segment/User Segment L1C Interface	Proposed Public Signals-in-Space (SiS) Updates Object Text	Proposed Rationale
3.4.1	The L1C message (henceforth referred to as CNAV-2) contains the requisite data for relating GPS time to UTC. The accuracy of this data during the transmission interval shall be such that it relates GPS time to UTC (USNO) to within 1.5 nanoseconds (RMS over 30 days). This data is generated by the GPS CS; therefore, the accuracy of this relationship may degrade if for some reason the GPS CS is unable to upload data to a SV. Propagation delay errors and receiver equipment biases unique to the user add to this time transfer uncertainty.	The L1C message (henceforth referred to as CNAV-2) contains the requisite data for relating GPS time to UTC. ~~The accuracy of this data during the transmission interval shall be such that it relates GPS time to UTC (USNO) to within 1.5 nanoseconds (RMS over 30 days).~~ This data is generated by the GPS CS; therefore, the accuracy of this relationship may degrade if for some reason the GPS CS is unable to upload data to a SV. Propagation delay errors and receiver equipment biases unique to the user add to this time transfer uncertainty.	The text “The accuracy of this data during the transmission interval shall be such that it relates GPS time to UTC (USNO) to within 1.5 nanoseconds (RMS over 30 days)" has been deleted. The rationale is that the time accuracy stated (1.5 nanoseconds (RMS over 30 days)) is not aligned to the PPS PS and the SPS PS (40ns).
3.5.4.3.4	The three, one-bit, health indication in bits 44, 45 and 46 of subframe 3, page 4 and bits 31, 32 and 33 of each packet of reduced almanac refers to the L1, L2, and L5 signals of the SV whose PRN number is specified in the message or in the packet. For each health indicator, a “0” signifies that all navigation data are valid and “1” signifies that some or all navigation data are invalid. The predicted health data will be updated at the time of upload when a new reduced almanac has been built by the CS. The transmitted health data may not correspond to the actual health of the transmitting SV or other SVs in the constellation.	The three, one-bit, health indication in bits 44, 45 and 46 of subframe 3, page 4 and bits 31, 32 and 33 of each packet of reduced almanac refers to the L1, L2, and L5 signals of the SV whose PRN number is specified in the message or in the packet. For each health indicator, a “0” signifies that all ~~navigation~~signals ~~data~~on the associated frequency are ~~valid~~okay and “1” signifies that some or all ~~navigation~~signals ~~data~~on the associated frequency are ~~invalid~~bad. The predicted health data will be updated at the time of upload when a new reduced almanac has been built by the CS. The transmitted health data may not correspond to the actual health of the transmitting SV or other SVs in the constellation.	The current language states that "For each health indicator, a “0” signifies that all navigation data are okay and “1” signifies that some or all navigation data are bad." This language is misleading in that it implies that one bit designated with a "1" means that all navigation data (L1, L2, and L5) are bad, which may not be true. Recommended text clarifies that a “1” signifies that some or all signals on the associated frequency are bad. The terms "valid" and "invalid" have also been changed to "okay" and "bad" to be consistent with IS-GPS-200 and IS-GPS-705.

End of WAS/IS for IS-GPS-800B, IRN-001 Changes