CHANGE NOTICE

Affected Document: ICD-GPS-240B	**IRN/SCN Number** XXX-XXXX-XXX	**Date:** DD-MMM-YYYY
Authority: RFC-00374	**Proposed Change Notice** ICD240B_RFC374	**Date:** 11-MAY-2018

CLASSIFIED BY: N/A
DECLASSIFY ON: N/A

Document Title: NAVSTAR GPS Control Segment to User Support Community Interface

RFC Title: 2018 Proposed Changes to the Public Documents

Reason For Change (Driver):
The following 2 topics were deferred from the 2017 Public ICWG and will now be resolved by this RFC.

1. Currently the Operational Advisories (OAs) that are published and archived contain plane/slot descriptions that are not in the constellation definition provided to the public in the SPS Performance Standard. The OA does not have the capability to correctly publish information regarding fore/aft position since moving to the 24+3 constellation with three expanded slots. In addition, the Points of Contact of the OA are not represented in a way that allows for efficient updates. This is a continuation of RFC-351, which was CCB-approved on 8-Jan-2018.
2. The linkage between different timing systems is not properly captured in the current technical baseline. With the current documentation, MNAV and CNAV users will calculate the wrong UT1 time immediately following a leap second change. This affects user applications that require high precision pointing, which may include optical telescopes or any military system with this requirement. Documents affected: IS-GPS-200, IS-GPS-705, and IS-GPS-800. The topic was part of RFC-354, which will be superseded due to the inclusion of this topic in this RFC.

The following topic resolves 3 document clean-up related activities:

3. a) Signal-in-space topics need clarification, as identified by the public in past Public ICWGs. Documents affected: IS-GPS-200 and IS-GPS-705. b) There were some administrative errors found during the UpRev process of the public documents. c) Contractor signatories are required for government-controlled documents. (Pre-RFCs 718, 819, 861)

Description of Change:

1. Modify the OA as agreed to in ICD-GPS-870.
2. The proposed changes to the impacted technical baseline documents would correctly calculate UT1 during a leap second transition.
3. a) Provide clarity for the list of signal-in-space topics identified by the public in documents IS-GPS-200 and IS-GPS-705. b) Clean up identified administrative changes in all public documents. c) Remove required contractor signatories from government-controlled documents.

Authored By: RE: Philip Kwan	**Checked By: RE: Jennifer Lemus**	
AUTHORIZED SIGNATURES	**REPRESENTING**	**DATE**
	GPS Directorate Space & Missile Systems Center (SMC) – LAAFB	
See Section XX OR See Next Page	HQ Air Force Space Command (AFSPC/50 OG)	
See Section XX OR See Next Page	Department of Homeland Security (DHS), United States Coast Guard (USCG), Navigation Center (NAVCEN)	

CHANGE NOTICE		
Note: Repeat this Signature Page for each document signatory.		

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RFC Title: 2018 Proposed Changes to the Public Documents

APPROVED BY:

With Comments: Yes ☐ No ☐

With Exceptions: Yes ☐ No ☐

_____   _____   _____
  Name of Approving Organization   Authorized Signature   Date
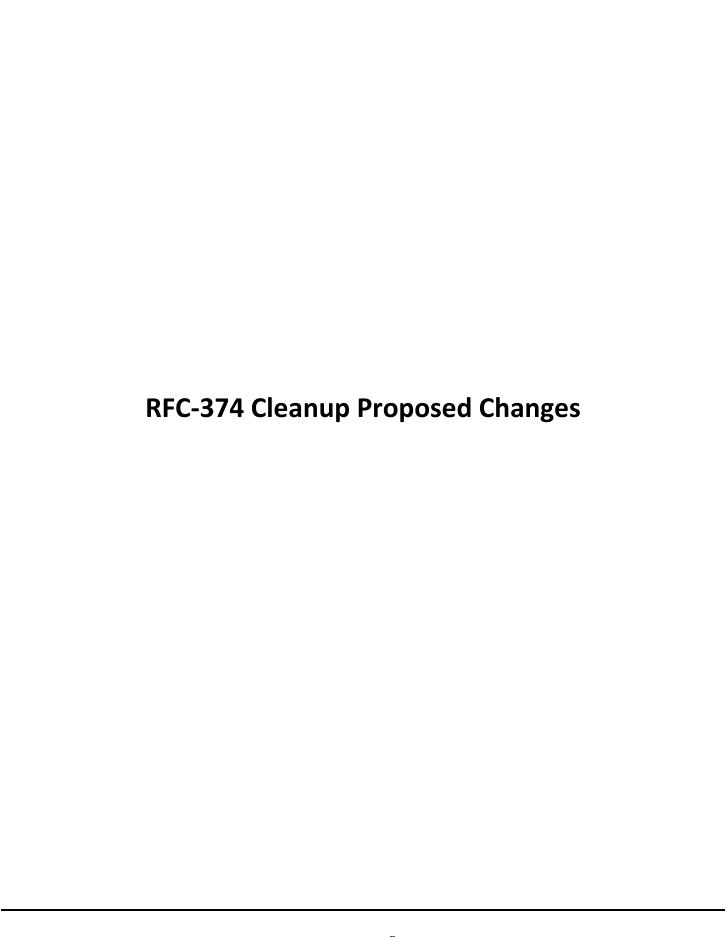
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THIS DOCUMENT SPECIFIES TECHNICAL REQUIREMENTS AND NOTHING HEREIN CONTAINED SHALL BE DEEMED TO ALTER THE TERMS OF ANY CONTRACT OR PURCHASE ORDER BETWEEN ALL PARTIES AFFECTED.	Interface Control Contractor: Engility (GPS SE&I) 200 N. Sepulveda Blvd., Suite 1800 El Segundo, CA 90245
	CODE IDENT 66RP1

RFC-374 Cleanup Proposed Changes

Section Number :
1.3.0-6

WAS :
The Boeing Company

Redlines :
<DELETED OBJECT>

IS :
<DELETED OBJECT>

Rationale :
4/10/2018: Propose removing contractor signatories from these documents because they are GPS-directorate controlled.

ICD240-38 :

Section Number :
2.1.0-15

WAS :

IS-GPS-200 Current Version	Navstar GPS Space Segment/Navigation User Interface
GP-03-001 14 November 2003	GPS Interface Control Working Group (ICWG) Charter
MOA February 1992	Memorandum of Agreement Between the United States Coast Guard and the United States Space Command, "Distribution of Navstar Global Positioning System (GPS) Status Information" (Signatories: USCG/G-NRN and USSPC/DOO)
MOA February 1996	Support Agreement Between the United States Coast Guard and the United States Air Force Space Command, "Distribution of Navstar Global Positioning System (GPS) Status Information" (Signatories: Commanding Officer NAVCEN and AFSPC/DOO)
MOA February 2010	Memorandum of Agreement between the Joint Functional Component Command for Space; the US Coast Guard Navigation Center and the FAA National Operations Control Center with respect to the Support of Users of the Navstar Global Positioning System
MOA June 2014	Interagency Memorandum of Agreement with Respect to Support of Users of the Navstar Global Positioning System (GPS)

Redlines :

IS-GPS-200 Current Version	Navstar GPS Space Segment/Navigation User Interface
GP-03-001 Current Version~~14 November 2003~~	GPS Interface Control Working Group (ICWG) Charter
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~~MOA~~ ~~February 2010~~	~~Memorandum of Agreement between the Joint Functional Component Command for Space; the US Coast Guard Navigation Center and the FAA National Operations Control Center with respect to the Support of Users of the Navstar Global Positioning System~~
MOA Current Version~~2014~~	Interagency Memorandum of Agreement with Respect to Support of Users of the Navstar Global Positioning System (GPS)

IS :

IS-GPS-200 Current Version	Navstar GPS Space Segment/Navigation User Interface
GP-03-001 Current Version	GPS Interface Control Working Group (ICWG) Charter
MOA Current Version	Interagency Memorandum of Agreement with Respect to Support of Users of the Navstar Global Positioning System (GPS)

Rationale :

5/9/2018: Update the "Other Publications" to include the most current versions. All prior versions of the MOA need to be removed because they have been superseded by the most recent version.

ICD240-128 :

Section Number :
10.3.1.0-1

WAS :
The first line of the header includes the title "NOTICE ADVISORY TO NAVSTAR USERS (NANU)" and the assigned identification (ID) number for that NANU message. The ID number consists of the four-digit year followed by a sequentially assigned three-digit number which begins at 001 for the first NANU on the first day of a new year. The second line identifies the subject of the message including the Space Vehicle Number (SVN), SV Pseudo Random Noise (PRN) number, type of message, and effective dates for the event. The date is in Julian day-of-year format (JDAY), numbered from 001 to 366, and the time is Zulu referenced in a 24-hour, two digit hour (HH), two digit minute (MM) format. The NANU header is illustrated in Figure 10-5.

Redlines :
The first line of the header includes the title "NOTICE ADVISORY TO NAVSTAR USERS (NANU)" and the assigned identification (ID) number for that NANU message. The ID number consists of the four-digit year followed by a sequentially assigned three-digit number which begins at 001 for the first NANU ~~on the first day~~ of a new year. The second line identifies the subject of the message including the Space Vehicle Number (SVN), SV Pseudo Random Noise (PRN) number, type of message, and effective dates for the event. The date is in Julian day-of-year format (JDAY), numbered from 001 to 366, and the time is Zulu referenced in a 24-hour, two digit hour (HH), two digit minute (MM) format. The NANU header is illustrated in Figure 10-5.

IS :
The first line of the header includes the title "NOTICE ADVISORY TO NAVSTAR USERS (NANU)" and the assigned identification (ID) number for that NANU message. The ID number consists of the four-digit year followed by a sequentially assigned three-digit number which begins at 001 for the first NANU of a new year. The second line identifies the subject of the message including the Space Vehicle Number (SVN), SV Pseudo Random Noise (PRN) number, type of message, and effective dates for the event. The date is in Julian day-of-year format (JDAY), numbered from 001 to 366, and the time is Zulu referenced in a 24-hour, two digit hour (HH), two digit minute (MM) format. The NANU header is illustrated in Figure 10-5.

Rationale :
5/9/2018: Update "first NANU on the first day of a new year" to "first NANU of a new year" because the first NANU of a new year may not necessarily occur on the first day of that year.

Section Number :

40.4.0-6

WAS :

Table 40-II Almanac Description (Sheet 1 of 2)

Line No.	Almanac Name	Description	Units	Range	Accuracy	Precision
1	Number of records	The number of satellite almanac records contained in the file	Records	0 to 32	1	2 significant digits
	Name of Almanac	Descriptive name for the Almanac in the file	N/A	Any combination of valid ASCII characters	N/A	24 significant characters
2	GPS Week Number	The almanac reference week number (WNa) for all almanac data in the file	Weeks	0 to 1024 *	1	4 significant digits
	GPS Time of Applicability	The number of seconds since the beginning of the almanac reference week. The almanac reference time (t_{oa}) for all almanac data in the file	Second	0 to 602,112	1	6 significant digits
3	Blank line for format spacing					
Record Format						
R-1	PRN Number	The satellite PRN number. This is a required data item as it is the GPS user's primary means of identifying GPS satellites	None	1 to 32	None	2 significant digits
R-2	SVN	The SV reference number. It is equivalent to the space vehicle identification (SVID) number of the SV	None	0 to 255 (zero denotes that this field is empty)	None	3 significant digits
R-3	Average URA Number	The satellite "average" URA** number. This is not an item in the raw almanac file but is based on the average URA value transmitted by this satellite in subframe 1. The URA is taken in the range of 730 hours	None	0 to 15	1	2 significant digits
R-4	Eccentricity	This defines the amount of the orbit deviation from a circular orbit (e)**	Unitless	0 to 3.125 E-2	4.77 E-7	7 significant digits
b	Inclination Offset	Satellite almanac orbital "inclination angle offset" (δ_i)** This does not include the 0.30 semicircle reference value (i_0)**	Semi circles	-6.25 E-2 to +6.25 E-2	1.91 E-6	7 significant digits

Redlines :

Table 40-II Almanac Description (Sheet 1 of 2)

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2	GPS Week Number	The almanac reference week number (WNa) for all almanac data in the file	Weeks	0 to 10234 *	1	4 significant digits
	GPS Time of Applicability	The number of seconds since the beginning of the almanac reference week. The almanac reference time (t_{oa}) for all almanac data in the file	Second	0 to 602,112	1	6 significant digits
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Record Format						
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Table 40-II Almanac Description (Sheet 1 of 2)

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2	GPS Week Number	The almanac reference week number (WNa) for all almanac data in the file	Weeks	0 to 1023 *	1	4 significant digits
	GPS Time of Applicability	The number of seconds since the beginning of the almanac reference week. The almanac reference time (t_{oa}) for all almanac data in the file	Second	0 to 602,112	1	6 significant digits
3	Blank line for format spacing					
Record Format						
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b	Inclination Offset	Satellite almanac orbital "inclination angle offset" (δ_i)** This does not include the 0.30 semicircle reference value (i_0)**	Semi circles	-6.25 E-2 to +6.25 E-2	1.91 E-6	7 significant digits

Rationale :

5/9/2018: The GPS Week Number range is actually from 0-1023 (due to the number being modulo 1024). This is also evidenced by the note at the bottom of Table 40-II: "GPS Week Number as distributed by the CS is a modulo 1024 (0-1023) decimal number…"