CHANGE NOTICE

Affected Document:	IRN/SCN Number	Date:
ICD-GPS-870 Rev D	IRN-ICD-870D-001	22-NOV-2019
Authority:	**Proposed Change Notice**	**Date:**
RFC-00395	PCN-ICD-870D_RFC395	12-APR-2019

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

Document Title: NAVSTAR Next Generation GPS Operational Control Segment (OCX) to User Support Community Interface

RFC Title: 2019 Public Document Proposed Changes

Reason For Change (Driver):
1. IS-GPS-705 identifies dual frequency users as "L1/L2" and "L1/L5 (recommended)". Users may interpret frequency pair (L2/L5) as a viable dual frequency; that is not recommended.
2. The user implementation community has identified equations in the Elements of Coordinates Systems tables in documents ICD-GPS-700 (non-public), IS-GPS-200, IS-GPS-705, and IS-GPS-800 that can benefit from an improvement.
3. ~~Documents IS-GPS-200, IS-GPS-705, IS-GPS 800, and ICD-GPS-700 (non-public) are not consistent in their definition of when to broadcast CNAV UTC data. These documents need to be made consistent.~~
4. ICD-GPS-870 Appendices 1-6 currently define an ASCII format for public release GPS products, the legacy format. The ICD states that modernized formats in XML will be defined. The ICD does not specifically call the current format legacy nor does it have placeholders for the modernized formats. Stakeholders could incorrectly assume that the ASCII format is the modernized format.
5. ICD-GPS-870 Appendices OCX provides a utility to convert modernized GPS products to the legacy, AEP-formatted GPS products. The legacy formats are characterized with default filenames, which are important for the public user community to interpret and process the GPS products. However, these default filenames are not described in ICD-GPS-870.
6. Public documents need clarification and clean-up, as identified in past Public ICWGs and as newly-identified changes of administrative nature.
7. 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 as well as the data provided by the National Geospatial-Intelligence Agency (NGA) (refer to http://earth-info.nga.mil/GandG/sathtml/satinfo.html). 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. (Moved from RFC-374)

Description of Change:
1. In IS-GPS-705, state operational use of the group of signals (L2/L5) is at the users own risk.
2. Recommend a different, less complicated kinematic formulation that improves the equations in the Elements of Coordinate Systems tables in the Signal in Space (SiS) documents.
3. No change was needed.
4. Deferred for future RFC.
5. ICD-GPS-870 stakeholders are relying on the default filenames used by AEP for their equivalent files. ICD-GPS-870 does not capture the default filenames. Need to document the default filenames to support stakeholders.
6. Provide clarity and clean up identified administrative changes in all public documents.
7. This topic was originally addressed in RFC-374 but needs to be re-addressed in order to update ICD-GPS-870 such that OCX produces an OA with section one set to the original data or set to "RESERVED."

Authored By: RE: Anthony Flores	Checked By: RE: Kevin Cano	
AUTHORIZED SIGNATURES	**REPRESENTING**	**DATE**
	GPS Directorate Space & Missile Systems Center (SMC) – LAAFB	
	HQ Air Force Space Command (AFSPC/50OG)	
	Department of Homeland Security (DHS), United States Coast Guard (USCG) Navigation Center (NAVCEN)	
	Department of Transportation (DOT) Federation Aviation Administration (FAA)	

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Interface Control Contractor:
SAIC (GPS SE&I)
200 N. Pacific Coast Highway, Suite 1800
El Segundo, CA 90245

CODE IDENT 66RP1

ICD870-23 :

Section Number :
2.1.0-6

WAS :

IS-GPS-200 Current Version	Navstar GPS Space Segment / Navigation User Interface
IS-GPS-705 Current Version	Navstar GPS Space Segment / User Segment L5 Interfaces
IS-GPS-800 Current Version	Navstar GPS Space Segment / User Segment L1C Interfaces
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)
2017	Federal Radionavigation Plan (Signatories: Department of Homeland Security, Department of Transportation, Department of Defense)
MFR 30 June 2011	Department of the Air Force, 50th Space Wing (AFSPC) Memorandum for Record - 2 SOPS GPS Public Release Policy
6 February 2003	DODI 8500.2, Information Assurance (IA) Implementation
4 May 2011	United States Department of Defense X.509 Certificate Policy

Redlines :

IS-GPS-200 Current Version	Navstar GPS Space Segment / Navigation User Interface
IS-GPS-705 Current Version	Navstar GPS Space Segment / User Segment L5 Interfaces
IS-GPS-800 Current Version	Navstar GPS Space Segment / User Segment L1C Interfaces
GP-03-001 Current Version	~~GPS Interface Control Working Group (ICWG) Charter~~ <u>GPS Adjudication Working Group (AWG) and Rough Order of Magnitude (ROM)/ Impact Assessment (IA) Charter</u>
MOA Current Version	Interagency Memorandum of Agreement with Respect to Support of Users of the Navstar Global Positioning System (GPS)
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IS-GPS-200 Current Version	Navstar GPS Space Segment / Navigation User Interface
IS-GPS-705 Current Version	Navstar GPS Space Segment / User Segment L5 Interfaces
IS-GPS-800 Current Version	Navstar GPS Space Segment / User Segment L1C Interfaces
GP-03-001 Current Version	GPS Adjudication Working Group (AWG) and Rough Order of Magnitude (ROM)/ Impact Assessment (IA) Charter
MOA Current Version	Interagency Memorandum of Agreement with Respect to Support of Users of the Navstar Global Positioning System (GPS)
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ICD870-738 :

Insertion after object ICD870-674

Given validated inputs, the Validate and Transform Utility will use XSLT stylesheets to produce the desired output format as listed in Table 3-III.

Section Number :
3.1.0-26

WAS :
N/A

Redlines :
<INSERTED OBJECT>

IS :
The Validate and Transform Utility will output default filenames IAW Table 3-II.

ICD870-722 :

Section Number :
3.1.0-31

WAS :
Table 3-II not used

Redlines :
Table 3-II ~~not~~Default ~~used~~Filenames for Transformed Products

IS :
Table 3-II Default Filenames for Transformed Products

ICD870-739 :

Insertion after object ICD870-722 (See Previous)

Section Number :

3.1.0-32

WAS :

N/A

Redlines :

<INSERTED OBJECT>

IS :

Legacy File Type (see Appendix ICD-GPS-870 Appendix 1-5)	Default Filename
NANU File (NANU)	yyyyNNN.nnu (see note 1 and 2 and 3)
Operational Advisory (OA)	yyyy_ddd.oa1 (see note 1 and 3)
SEM Almanac (PRN 1-32)	yyyy_ddd.al3 (see note 1 and 3)
SEM Almanac (PRN 1-63)	yyyy_ddd.bl3 (see note 1 and 3)
YUMA Almanac (PRN 1-32)	yyyy_ddd.alm (see note 1 and 3)
YUMA Almanac (PRN 1-63)	yyyy_ddd.blm (see note 1 and 3)
Anti-Spoof Status (AS) (PRN 1-32)	AS_yyyy_ddd.txt (see note 1 and 3)
Anti-Spoof Status AS2 (PRN 1-63)	AS2_yyyy_ddd.txt (see note 1 and 3)
Extended Signal Health Status	yyyy_ddd.ale (see note 1 and 3)
Satellite Outage File (SOF)	YYYY_DDD_HHMMSS_vnn.sof

Note 1:
- **yyyy is the year**
- **ddd is the 3 digit Julian day of year, zero-filled with a range from 001 to 366 beginning January 1**
- **hhmmss is the hour/minute/second UTC with hh range from 00 to 24 and with mm and ss range from 00 to 59**

Note 2:
- **NNN – sequentially assigned three-digit NANU ID number which begins at 001 for the first NANU of a new year. The ID number is incremented for each new NANU up to a maximum of 999 in any given calendar year, after which the ID number rolls over and begins numbering subsequent NANUs beginning with 001.**

Note 3:
- **The file is named with the reference date/time that the original GPS product was created by the CS.**

Note 4:
- **The nn is the file format version number and ranges from 01-09.**

ICD870-740 :
Insertion below object ICD870-726

30 APPENDIX 3: SATELLITE OUTAGE FILE (SOF) FORMAT

Section Number :
30.1

WAS :
N/A

Redlines :
<INSERTED OBJECT>

IS :
Appendix 3 describes the SOF format.

ICD870-259 :

Section Number :
50.1.0-3

WAS :
Table 50-I

Modernized Civil Signal	L1C	L2C	L5
Reference Document	IS-GPS-800	IS-GPS-200	IS-GPS-705
Applicable SV Block/Iteration	III	IIR-M, IIF, III	IIF, III

Redlines :
Table 50-I

Modernized Civil Signal	L1C	L2C	L5
Reference Document	IS-GPS-800	IS-GPS-200	IS-GPS-705
Applicable SV Block/Iteration	III, IIIF	IIR-M, IIF, III, IIIF	IIF, III, IIIF

IS :

Table 50-I

Modernized Civil Signal	L1C	L2C	L5
Reference Document	IS-GPS-800	IS-GPS-200	IS-GPS-705
Applicable SV Block/Iteration	III, IIIF	IIR-M, IIF, III, IIIF	IIF, III, IIIF