CHANGE NOTICE

Affected Document:	**IRN/SCN Number**	**Date:**
ICD-GPS-870 Rev D	IRN-ICD-870D-003	10-DEC-2019
Authority:	**Proposed Change Notice**	**Date:**
RFC-00403	PCN-ICD-870D_RFC403	18-OCT-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: Health Bit Clarification

Reason For Change (Driver):

The CNAV (L2C and L5) & CNAV-2 (L1C) health summary bits for L1, L2, and L5 are not clearly defined and can be interpreted in multiple ways. There are only 3 bits available to summarize multiple codes and data, so more information is needed to determine the health of each signal.

(Pre-RFC-788)
Note: Topic was previously introduced in RFC-374 (2018 Public Document Changes)

Description of Change:

1. Specify that the L1, L2, and L5 health summary bits apply to the codes and data on the carriers as described in the Signal-in-Space (SIS) documents. Requires fix to message types.
2. Clarify that the health bit indication will be given relative to the capabilities of the SV as designated by the SV Configuration code.
3. Provide a new section to provide guidance to users on how to interpret the various health indicators in SIS documents.
4. Provide SV Configuration on CNAV-2 (L1C) for users

Authored By: RE: Jennifer Lemus **Checked By: RE: Edgar Valenzuela**

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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CODE IDENT 66RP1

ICD870-260 :

Section Number :
50.1.0-4

WAS :
IS-GPS-200, Section 30.3.3.1.1.2, defines the signal health of L1, L2 and L5 as follows: “the three, one-bit, health indication in bits 52 through 54 of message type 10 refers to the L1, L2, and L5 signals of the transmitting SV. The health of each signal is indicated by:
0 = Signal OK,
1 = Signal bad or unavailable

Redlines :
~~IS-GPS-200, Section 30.3.3.1.1.2, defines the signal~~The health ~~of~~indications for L1, L2, and L5 ~~as follows: “the three, one-bit, health~~are ~~indication~~defined in ~~bits 52 through 54 of message type 10 refers to the L1, L2~~IS-GPS-200, ~~and L5 signals of the transmitting~~paragraph ~~SV~~30. ~~The health of each signal is indicated by:~~

~~0 = Signal OK,~~

3.3.1 ~~= Signal bad or unavailable~~.1.2.

IS :
The health indications for L1, L2, and L5 are defined in IS-GPS-200, paragraph 30.3.3.1.1.2.

ICD870-266 :

Section Number :
50.1.0-10

WAS :

Line No.	Parameter Name	Description	Units	Range	Accuracy	Resolution
1	Number of records	The number of satellite ESHS records contained in the file	Records	00 to 63	1	2 significant digits
	Blank space for format spacing					
	Name of ESHS file	Descriptive name for the ESHS 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 data in the file	Weeks	0 to 1023*	1	4 significant characters
	Blank space for format spacing					
	GPS Time of Applicability	The number of seconds since the beginning of the Almanac reference week for all data in the file.	Seconds	0 to 602,112	1	6 significant characters
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. It is equivalent to the Space Vehicle identification (SVID) number of the SV.	None	01-63	N/A	2 significant digits
R-2	SVN	The SV reference number. Unique sequential number associated with each satellite.	None	000-255 (000 denotes this field is empty)	N/A	3 significant digits
R-3	L1C/L2C/L5 Health Status	The health status of the L1C/L2C/L5 signals, defined as follows: 0 = Signal OK 1 = Signal bad or unavailable	None	0-7 in binary format (000, 001, 010, 011, 100, 101, 110, 111)	N/A	3 significant characters
R-4	Blank Line for Format Spacing					

*GPS Week Number as distributed by the CS is a modulo 1024 (0-1023) decimal number representing the modulo 1024 binary week number broadcast from an SV (see IS-GPS-200). Some user applications (such as the SEM program) may require the user to replace the modulo 1024 week number in this format with the full decimal week number (e.g., 0-65,535) in order to determine the correct calendar date of the Almanac.

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Line No.	Parameter Name	Description	Units	Range	Accuracy	Resolution
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R-2	SVN	The SV reference number. Unique sequential number associated with each satellite.	None	000-255 (000 denotes this field is empty)	N/A	3 significant digits
R-3	L1~~C~~/L2~~C~~/L5 Health Status	The health status of the L1~~C~~/L2~~C~~/L5 ~~signals~~carrier is~~,~~ defined ~~as follows: 0 = Signal OK, 1 = Signal bad or unavailable~~ in section 30.3.3.1.1.2 of IS-GPS-200.	None	0-7 in binary format (000, 001, 010, 011, 100, 101, 110, 111)	N/A	3 significant characters
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R-3	L1/L2/L5 Health Status	The health status of the L1/L2/L5 carrier is defined in section 30.3.3.1.1.2 of IS-GPS-200.	None	0-7 in binary format (000, 001, 010, 011, 100, 101, 110, 111)	N/A	3 significant characters
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