

INTERFACE REVISION NOTICE (IRN)

Note: Repeat this Signature Page for each document signatory.

Affected ICD: ICD-GPS-240 Rev A	IRN Number IRN-240A-004	Date: 06-SEP-2017
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Authority: RFC-00351	PIRN Number PIRN-240A-004	Date: 02-AUG-2017
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CLASSIFIED BY: N/A
DECLASSIFY ON: N/A

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

Reason For Change (Driver):

Currently the Operational Advisories (OA) that are published and archived contain plane/slot descriptions that are not in agreement with the constellation definition provided to the public in the Standard Positioning Service Performance Standard (SPSPS). 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.

Description of Change:

~~Modify public documents to rectify OA discrepancy as suggested by Public Interface Control Working Group (ICWG) participants, stakeholders, and key members.~~

GPS directorate is proposing to remove OA section 1, Satellites, Planes, and Clocks (CS=Cesium RB=Rubidium) in ICD-GPS-870 for Public ICWG 2018. RFC-351 will just be addressing United States Coast Guard (USCG)/Admin comments (mostly to update POC contact info).

APPROVED:

With Comments: Yes No

With Exceptions: Yes No

50 OG

Adam Edwards

7 Dec 17

Name of Approving Organization

Authorized Signature

Date

DISTRIBUTION STATEMENT A: Approved For Public Release; Distribution Is Unlimited

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

INTERFACE REVISION NOTICE (IRN)

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APPROVED:		
<div style="border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;"><p>With Comments: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p><p>With Exceptions: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p></div>		
Coast Guard Navigation Center	 <small>Digitally signed by MOOSE.ELLIS.HENRY.1139985911 DN: c=US, o=U.S. Government, ou=DoD, ou=PKI, ou=USCG, cn=MOOSE.ELLIS.HENRY.1139985911 Date: 2017.12.08 14:42:56 -0500</small>	<u>8 Dec 2017</u>
Name of Approving Organization	Authorized Signature	Date
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Description of Change:

~~Modify public documents to rectify OA discrepancy as suggested by Public Interface Control Working Group (ICWG) participants, stakeholders, and key members.~~

GPS directorate is proposing to remove OA section 1, Satellites, Planes, and Clocks (CS=Cesium RB=Rubidium) in ICD-GPS-870 for Public ICWG 2018. RFC-351 will just be addressing United States Coast Guard (USCG)/Admin comments (mostly to update POC contact info).

APPROVED:

With Comments: Yes No

With Exceptions: Yes No

LOCKHEED MARTIN GCS

Name of Approving Organization

Jeffrey A. Kestelbeck

Authorized Signature

1/2/18

Date

DISTRIBUTION STATEMENT A: Approved For Public Release; Distribution Is Unlimited

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Interface Control Contractor:
Engility (GPS SE&I)
200 N. Sepulveda Blvd., Suite 1800
El Segundo, CA 90245

CODE IDENT 66RP1

ICD240-108 :

Section Number :

10.1.3.0-4

WAS :

```
1.      NANU TYPE: GENERAL
*** GENERAL MESSAGE TO ALL GPS USERS ***

MESSAGE WRITTEN IN PARAGRAPH FORM

*** GENERAL MESSAGE TO ALL GPS USERS ***
```

Figure 10-1 General Message Format

Redlines :

```
1.      NANU TYPE: GENERAL
*** GENERAL MESSAGE TO ALL GPS USERS ***

MESSAGE WRITTEN IN PARAGRAPH FORM

*** GENERAL MESSAGE TO ALL GPS USERS ***
NANU DTG: 140649Z FEB 2016
```

Figure 10-1 General Message Format

IS :

```
1.      NANU TYPE: GENERAL
*** GENERAL MESSAGE TO ALL GPS USERS ***

MESSAGE WRITTEN IN PARAGRAPH FORM

*** GENERAL MESSAGE TO ALL GPS USERS ***
NANU DTG: 140649Z FEB 2016
```

Figure 10-1 General Message Format

ICD240-115 :

Section Number :

10.1.4.0-5

WAS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYSS
SUBJ: SVN XX (PRN XX) LAUNCH JDAY JJJ
1.  NANU TYPE: LAUNCH
    NANU NUMBER: YYYYSS
    NANU DTG: HHHHDDZ MMM 2007
    SVN: XX
    PRN: XX
    LAUNCH JDAY: JJJ
    LAUNCH TIME ZULU: HHHH

2.  GPS SATELLITE SVN XX (PRN XX) WAS LAUNCHED ON JDAY JJJ A USABINIT NANU WILL BE SENT WHEN THE
    SATELLITE IS SET ACTIVE TO SERVICE.

3.  POC: CIVILIAN - NAVCEN AT 703-313-5900, HTTP://WWW.NAVCEN.USCG.GOV
    MILITARY - GPS OPERATIONS CENTER AT HTTP://gps.afspc.af.mil/GPSOC, DSN 560-2541, COMM 719-567-
    2541, GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://gps.afspc.af.mil
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276- 9994.
    COMM 805-606-9994. JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-2 LAUNCH NANU Message Template

Redlines :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYSSS
SUBJ: SVN XX (PRN XX) LAUNCH JDAY JJJ
1.   NANU TYPE: LAUNCH
     NANU NUMBER: YYYYSSS
     NANU DTG: HHHHDDZ MMM 2007
     SVN: XX
     PRN: XX
     LAUNCH JDAY: JJJ
     LAUNCH TIME ZULU: HHHH

2.   GPS SATELLITE SVN XX (PRN XX) WAS LAUNCHED ON JDAY JJJ A USABINIT NANU WILL BE SENT WHEN THE SATELLITE IS SET ACTIVE TO SERVICE.

3.   POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
     CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air-traffic/nas/gps-reports/,
     MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
     GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
     MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-2 LAUNCH NANU Message Template

IS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYSSS
SUBJ: SVN XX (PRN XX) LAUNCH JDAY JJJ
1.   NANU TYPE: LAUNCH
     NANU NUMBER: YYYYSSS
     NANU DTG: HHHHDDZ MMM 2007
     SVN: XX
     PRN: XX
     LAUNCH JDAY: JJJ
     LAUNCH TIME ZULU: HHHH

2.   GPS SATELLITE SVN XX (PRN XX) WAS LAUNCHED ON JDAY JJJ A USABINIT NANU WILL BE SENT WHEN THE SATELLITE IS SET ACTIVE TO SERVICE.

3.   POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
     CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air-traffic/nas/gps-reports/,
     MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
     GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
     MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-2 LAUNCH NANU Message Template

ICD240-117 :

Section Number :

10.1.4.0-6

WAS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYJJJ
SUBJ: SVNXX (PRNXX) DECOMMISSIONING JDAY JJJ/HHHH
1.  NANU TYPE: DECOM
    NANU NUMBER: YYYYSSS
    NANU DTG: HHHHDDZ MMM YYYY
    REFERENCE NANU: YYYYSSS
    REF NANU DTG: HHHHDDZ MMM YYYY
    SVN: XX
    PRN: XX
    UNUSABLE START JDAY: JJJ
    UNUSABLE START TIME ZULU: HHHH
    UNUSABLE START CALENDAR DATE: DD MMM YYYY
    DECOMMISSIONING START JDAY: JJJ
    DECOMMISSIONING START TIME ZULU: HHHH
    DECOMMISSIONING START CALENDAR DATE: DD MMM YYYY

2.  CONDITION: GPS SATELLITE SVNXX (PRNXX) WAS UNUSABLE AS OF JDAY JJJ (DD MMM YYYY) AND REMOVED
    FROM THE GPS CONSTELLATION ON JDAY JJJ (DD MMM YYYY) AT HHHH ZULU.

3.  POC: CIVILIAN - NAVCEN AT 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV
    MILITARY - GPS OPERATIONS CENTER at HTTP://GPS.AFSPC.AF.MIL/GPSOC,
    DSN 560-2541, COMM 719-567-2541, GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTPS://GPS.AFSPC.AF.MIL
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994,
    COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-3 DECOM NANU Message Template

Redlines :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYJJJ
SUBJ: SVNXX (PRNXX) DECOMMISSIONING JDAY JJJ/HHHH
1.  NANU TYPE: DECOM
    NANU NUMBER: YYYYSSS
    NANU DTG: HHHHDDZ MMM YYYY
    REFERENCE NANU: YYYYSSS
    REF NANU DTG: HHHHDDZ MMM YYYY
    SVN: XX
    PRN: XX
    UNUSABLE START JDAY: JJJ
    UNUSABLE START TIME ZULU: HHHH
    UNUSABLE START CALENDAR DATE: DD MMM YYYY
    DECOMMISSIONING START JDAY: JJJ
    DECOMMISSIONING START TIME ZULU: HHHH
    DECOMMISSIONING START CALENDAR DATE: DD MMM YYYY

2.  CONDITION: GPS SATELLITE SVNXX (PRNXX) WAS UNUSABLE AS OF JDAY JJJ (DD MMM YYYY) AND REMOVED
    FROM THE GPS CONSTELLATION ON JDAY JJJ (DD MMM YYYY) AT HHHH ZULU.

3.  POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
    CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air\_traffic/nas/gps\_reports/,
    MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
    GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-3 DECOM NANU Message Template

IS :

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYJJJ
SUBJ: SVNXX (PRNXX) DECOMMISSIONING JDAY JJJ/HHHH
1.  NANU TYPE: DECOM
    NANU NUMBER: YYYYSSS
    NANU DTG: HHHHDDZ MMM YYYY
    REFERENCE NANU: YYYYSSS
    REF NANU DTG: HHHHDDZ MMM YYYY
    SVN: XX
    PRN: XX
    UNUSABLE START JDAY: JJJ
    UNUSABLE START TIME ZULU: HHHH
    UNUSABLE START CALENDAR DATE: DD MMM YYYY
    DECOMMISSIONING START JDAY: JJJ
    DECOMMISSIONING START TIME ZUU: HHHH
    DECOMMISSIONING START CALENDAR DATE: DD MMM YYYY

2.  CONDITION: GPS SATELLITE SVNXX (PRNXX) WAS UNUSABLE AS OF JDAY JJJ (DD MMM YYYY) AND REMOVED
    FROM THE GPS CONSTELLATION ON JDAY JJJ (DD MMM YYYY) AT HHHH ZULU.

3.  POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
    CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air\_traffic/nas/gps\_reports/,
    MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
    GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
    MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-3 DECOM NANU Message Template

ICD240-125 :

Section Number :

10.3.0-1

WAS :

The NANU message structure for all messages, except the General, LAUNCH and DECOM messages, is based on a tabular format that simplifies the readability of data. A template for these messages is illustrated in Figure 10-4. These messages are arranged into a header and three sections. The following paragraphs explain this message format in more detail.

```

NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYYNNN
SUBJ: SVNxx (PRNXX) FORECAST OUTAGE JDAY JJJ/HHMM - JDAY JJJ/HHMM
1. NANU TYPE: FCSTDV
   NANU NUMBER: YYYYYNNN
   NANU DTG: DDHHMMZ MMM YYYY
   REFERENCE NANU: YYYYYNNN
   REF NANU DTG: DDHHMMZ MMM YYYY
   SVN: XX
   PRN: XX
   START JDAY: JJJ
   START TIME ZULU: HHMM
   START CALENDAR DATE: DD MMM YYYY
   STOP JDAY: JJJ
   STOP TIME ZULU: HHMM
   STOP CALENDAR DATE: DD MMM YYYY

2. CONDITION: GPS SATELLITE SVNXX (PRNXX) WILL BE UNUSABLE ON JDAY JJJ
   (DD MMM YYYY) BEGINNING HHMM ZULU UNTIL JDAY JJJ (DD MMM YYYY) ENDING HHMM ZULU.

3. POC: CIVILIAN - NAVCEN AT (703)313-5900, HTTP://WWW.NAVCEN.USCG.GOV
   MILITARY - GPS Operations Center at HTTP://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541,
   COMM 719-567-2541, GPS_SUPPORT@SCHRIEVER.AF.MIL, HTTPS://GPS.AFSPC.AF.MIL
   MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994,
   COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL

```

Figure 10-4 NANU Message Template

Redlines :

The NANU message structure for all messages, except the General, LAUNCH and DECOM messages, is based on a tabular format that simplifies the readability of data. A template for these messages is illustrated in Figure 10-4. These messages are arranged into a header and three sections. The following paragraphs explain this message format in more detail.

```

NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYYNNN
SUBJ: SVNxx (PRNXX) FORECAST OUTAGE JDAY JJJ/HHMM JDAY JJJ/HHMM
1. NANU TYPE: FCSTDV
   NANU NUMBER: YYYYYNNN
   NANU DTG: DDHHMMZ MMM YYYY
   REFERENCE NANU: YYYYYNNN
   REF NANU DTG: DDHHMMZ MMM YYYY
   SVN: XX
   PRN: XX
   START JDAY: JJJ
   START TIME ZULU: HHMM
   START CALENDAR DATE: DD MMM YYYY
   STOP JDAY: JJJ
   STOP TIME ZULU: HHMM
   STOP CALENDAR DATE: DD MMM YYYY

2. CONDITION: GPS SATELLITE SVNXX (PRNXX) WILL BE UNUSABLE ON JDAY JJJ
   (DD MMM YYYY) BEGINNING HHMMZULU UNTIL JDAY JJJ (DD MMM YYYY) ENDING HHMM ZULU.

3. POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
   CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air\_traffic/nas/gps\_reports/,
   MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
   GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
   MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL

```

Figure 10-4 NANU Message Template

IS :

The NANU message structure for all messages, except the General, LAUNCH and DECOM messages, is based on a tabular format that simplifies the readability of data. A template for these messages is illustrated in Figure 10-4. These messages are arranged into a header and three sections. The following paragraphs explain this message format in more detail.

```
NOTICE ADVISORY TO NAVSTAR USERS (NANU) YYYYNNN
SUBJ: SVNxx (PRNXX) FORECAST OUTAGE JDAY JJJ/HHMM JDAY JJJ/HHMM
1. NANU TYPE: FCSTDV
   NANU NUMBER: YYYYNNN
   NANU DTG: DDHHMMZ MMM YYYY
   REFERENCE NANU: YYYYNNN
   REF NANU DTG: DDHHMMZ MMM YYYY
   SVN: XX
   PRN: XX
   START JDAY: JJJ
   START TIME ZULU: HHMM
   START CALENDAR DATE: DD MMM YYYY
   STOP JDAY: JJJ
   STOP TIME ZULU: HHMM
   STOP CALENDAR DATE: DD MMM YYYY
2. CONDITION: GPS SATELLITE SVNXX (PRNXX) WILL BE UNUSABLE ON JDAY JJJ
   (DD MMM YYYY) BEGINNING HHMMZULU UNTIL JDAY JJJ (DD MMM YYYY) ENDING HHMM ZULU.
3. POC: CIVIL NON-AVIATION - NAVCEN at 703-313-5900, HTTPS://WWW.NAVCEN.USCG.GOV,
   CIVIL AVIATION - FAA Satellite Operations Group at 540-422-4178, https://www.faa.gov/air\_traffic/nas/gps\_reports/,
   MILITARY - GPS Operations Center at HTTPS://GPS.AFSPC.AF.MIL/GPSOC, DSN 560-2541, COMM 719-567-2493,
   GPS\_SUPPORT@SCHRIEVER.AF.MIL, HTTP://WWW.SCHRIEVER.AF.MIL/GPS,
   MILITARY ALTERNATE - JOINT SPACE OPERATIONS CENTER, DSN 276-9994, COMM 805-606-9994, JSPOCCOMBATOPS@VANDENBERG.AF.MIL
```

Figure 10-4 NANU Message Template

ICD240-160 :

Section Number :

20.1.0-2

WAS :

```
UNCLASSIFIED
GPS OPERATIONAL ADVISORY          086.0A1
SUBJ: GPS STATUS                  27 MAR 2XXX

1. SATELLITES, PLANES, AND CLOCKS (CS=CESIUM RB=RUBIDIUM)
A. BLOCK I   : NONE
B. BLOCK II  : PRNS  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14
  PLANE      : SLOT B2, D1, C2, D4, B6, C5, A6, A3, A1, E3, D2, B4, F3, F1
  CLOCK      :        RB, RB, CS, RB, RB, RB, RB, CS, CS, CS, RB, RB, RB, RB
  BLOCK II   : PRNS 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
  PLANE      : SLOT F2, B1, C4, E4, C3, E1, D3, E2, F4, D5, A5, F5, A4, B3
  CLOCK      :        RB, CS, RB, RB, CS, RB
C. BLOCK III : PRNS 29, 30, 31, 32
  PLANE      : SLOT C1, B5, A2, E5
  CLOCK      :        RB, RB, RB, RB

2. CURRENT ADVISORIES AND FORECASTS :
A. FORECASTS:          FOR SEVEN DAYS AFTER EVENT CONCLUDES.
NANU      MSG DATE/TIME      PRN  TYPE      SUMMARY (JDAY/ZULU TIME START - STOP)

2XXX022   261836Z MAR 2XXX   18  FCSTDV   092/1600-093/0630
B. ADVISORIES:
NANU      MSG DATE/TIME      PRN  TYPE      SUMMARY (JDAY/ZULU TIME START - STOP)

C. GENERAL:
NANU      MSG DATE/TIME      PRN  TYPE      SUMMARY (JDAY/ZULU TIME START - STOP)

2XXX020   202158Z MAR 2XXX           GENERAL   /-/
2XXX021   241836Z MAR 2XXX   32  LAUNCH   /-/
2XXX023   262212Z MAR 2XXX           GENERAL   /-/

3. REMAKRS:
A. THE POINT OF CONTACT FOR GPS MILITARY OPERATIONAL SUPPORT IS THE GPS
OPERATIONS CENTER AT (XXX)XXX-XXXX OR DSN XXX-XXXX
B. CIVILIAN:  FOR INFORMATION, CONTACT US COAST GUARD NAVCEN AT
COMMERCIAL (XXX)XXX-XXXX 24 HOURS DAILY AND INTERNET
HTTP://WWW.NAVCEN.USCG.GOV
C. MILITARY SUPPORT WEBPAGES CAN BE FOUND AT THE FOLLOWING
HTTPS://GPS.AFSPC.AF.MIL/GPS OR HTTP://GPS.AFSPC.AF.MIL/GPSOC
```

Figure 20-1 Sample Operational Advisory

Redlines :

```
UNCLASSIFIED
GPS OPERATIONAL ADVISORY          086.0A1
SUBJ: GPS STATUS                   27 MAR 2XXX

1. SATELLITES, PLANES, AND CLOCKS (CS=CESIUM RB=RUBIDIUM)
A. BLOCK I : NONE
B. BLOCK II : PRNS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
  PLANE      : SLOT B2, D1, C2, D4, B6, C5, A6, A3, A1, E3, D2, B4, F3, F1
  CLOCK      :      RB, RB, CS, RB, RB, RB, RB, CS, CS, CS, RB, RB, RB, RB
  BLOCK II   : PRNS 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
  PLANE      : SLOT F2, B1, C4, E4, C3, E1, D3, E2, F4, D5, A5, F5, A4, B3
  CLOCK      :      RB, CS, RB, RB, CS, RB
C. BLOCK III: PRNS 29, 30, 31, 32
  PLANE      : SLOT C1, B5, A2, E5
  CLOCK      :      RB, RB, RB, RB

2. CURRENT ADVISORIES AND FORECASTS:
A. FORECASTS:                      FOR SEVEN DAYS AFTER EVENT CONCLUDES.
NANU      MSG DATE/TIME      PRN  TYPE      SUMMARY (JDAY/ZULU TIME START - STOP)

2XXX022   261836Z MAR 2XXX    18  FCSTDV   092/1600-093/0630
B. ADVISORIES:
NANU      MSG DATE/TIME      PRN  TYPE      SUMMARY (JDAY/ZULU TIME START - STOP)

C. GENERAL:
NANU      MSG DATE/TIME      PRN  TYPE      SUMMARY (JDAY/ZULU TIME START - STOP)

2XXX020   202158Z MAR 2XXX          GENERAL  /-/
2XXX021   241836Z MAR 2XXX    32  LAUNCH   /-/
2XXX023   262212Z MAR 2XXX          GENERAL  /-/

3. REMAKRS:
A. THE POINT OF CONTACT FOR GPS MILITARY OPERATIONAL SUPPORT IS THE GPS
OPERATIONS CENTER AT (XXX)XXX-XXXX OR DSN XXX-XXXX
B. CIVIL NON-AVIATION:  FOR INFORMATION, CONTACT US COAST GUARD NAVCEN AT COMMERCIAL 703-
313-5900 24 HOURS DAILY AND INTERNET HTTPS://WWW.NAVCEN.USCG.GOV.
C. CIVIL AVIATION: FAA SATELLITE OPERATIONS GROUP AT 540-422-4178,
HTTPS://WWW.FAA.GOV/AIR_TRAFFIC/NAS/GPS_REPORTS/
D. MILITARY SUPPORT WEBPAGES CAN BE FOUND AT THE FOLLOWING
HTTPS://GPS.AFSPC.AF.MIL/GPS OR HTTPS://GPS.AFSPC.AF.MIL/GPSOC
```

Figure 20-1 Sample Operational Advisory

IS :

```
UNCLASSIFIED
GPS OPERATIONAL ADVISORY          086.0A1
SUBJ: GPS STATUS                  27 MAR 2XXX

1. SATELLITES, PLANES, AND CLOCKS (CS=CESIUM RB=RUBIDIUM)
A. BLOCK I : NONE
B. BLOCK II : PRNS 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
  PLANE : SLOT B2, D1, C2, D4, B6, C5, A6, A3, A1, E3, D2, B4, F3, F1
  CLOCK : RB, RB, CS, RB, RB, RB, RB, CS, CS, CS, RB, RB, RB, RB
  BLOCK II : PRNS 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28
  PLANE : SLOT F2, B1, C4, E4, C3, E1, D3, E2, F4, D5, A5, F5, A4, B3
  CLOCK : RB, CS, RB, RB, CS, RB
C. BLOCK III: PRNS 29, 30, 31, 32
  PLANE : SLOT C1, B5, A2, E5
  CLOCK : RB, RB, RB, RB

2. CURRENT ADVISORIES AND FORECASTS:
A. FORECASTS: FOR SEVEN DAYS AFTER EVENT CONCLUDES.
NANU MSG DATE/TIME PRN TYPE SUMMARY (JDAY/ZULU TIME START - STOP)

2XXX022 261836Z MAR 2XXX 18 FCSTDV 092/1600-093/0630
B. ADVISORIES:
NANU MSG DATE/TIME PRN TYPE SUMMARY (JDAY/ZULU TIME START - STOP)

C. GENERAL:
NANU MSG DATE/TIME PRN TYPE SUMMARY (JDAY/ZULU TIME START - STOP)

2XXX020 202158Z MAR 2XXX GENERAL /-/
2XXX021 241836Z MAR 2XXX 32 LAUNCH /-/
2XXX023 262212Z MAR 2XXX GENERAL /-/

3. REMAKRS:
A. THE POINT OF CONTACT FOR GPS MILITARY OPERATIONAL SUPPORT IS THE GPS
OPERATIONS CENTER AT (XXX)XXX-XXXX OR DSN XXX-XXXX
B. CIVIL NON-AVIATION: FOR INFORMATION, CONTACT US COAST GUARD NAVCEN AT COMMERCIAL 703-
313-5900 24 HOURS DAILY AND INTERNET HTTPS://WWW.NAVCEN.USCG.GOV.
C. CIVIL AVIATION: FAA SATELLITE OPERATIONS GROUP AT 540-422-4178,
HTTPS://WWW.FAA.GOV/AIR_TRAFFIC/NAS/GPS_REPORTS/
D. MILITARY SUPPORT WEBPAGES CAN BE FOUND AT THE FOLLOWING
HTTPS://GPS.AFSPC.AF.MIL/GPS OR HTTPS://GPS.AFSPC.AF.MIL/GPSOC
```

Figure 20-1 Sample Operational Advisory

ICD240-294 :

Section Number :

30.0-1

WAS :

Following is a list of the rules or protocols for the SOF data.

Usage Rules

1. The SOF always contains fields identifying creation date/time and reference date/time.
2. A new SOF is built each time a NANU is issued.
3. The latency of the SOF initially may be 15-20 minutes, and is driven by operational procedures and workload.

File Naming Convention

The most recently built SOF is given a standard name that contains the creation date/time and the file format version number, 'yyyy_ddd_hhmmss_vnn.sof', where yyyy is the year, ddd is the Jday (day of year starting with 1), hhmmss is the hour/minute/second UTC, and nn is the file format version number. The file format version number will increment sequentially whenever the file format changes.

Dissemination Methods

Unclassified Web Site. The GPSOC maintains a Web site accessible to unclassified users worldwide. The current SOF is posted at a conspicuous spot on this Web site for download.

Classification

The SOF is Unclassified and approved for public release. [Reference GPS Security Classification Guide, 30 Sep 2008, Topic Number 700.7.10]

Format

The SOF is formatted in XML according to the format below. The data type definition (DTD), the data format, and the data field definitions are provided.

A sample SOF with an internal DTD is as follows:

SOF DTD

```
<?xml version="1.0"?>
```

```
<!DOCTYPE GPSISFILE [
```

```
    <!ELEMENT  
(CREATION,REFERENCE,(PREDICTED|CURRENT|HISTORICAL)+)>
```

GPSISFILE

```
    <!ELEMENT CREATION EMPTY>
```

<!ELEMENT REFERENCE EMPTY>
<!ELEMENT PREDICTED EMPTY>
<!ELEMENT CURRENT EMPTY>
<!ELEMENT HISTORICAL EMPTY>

<!ATTLIST GPSISFILE FILEID CDATA #FIXED "SOF">
<!ATTLIST GPSISFILE SYSID CDATA #FIXED "GPS">
<!ATTLIST GPSISFILE VERSION CDATA #REQUIRED>

<!ATTLIST CREATION YEAR CDATA #REQUIRED>
<!ATTLIST CREATION DOY CDATA #REQUIRED>
<!ATTLIST CREATION HR CDATA #REQUIRED>
<!ATTLIST CREATION MIN CDATA #REQUIRED>
<!ATTLIST CREATION SEC CDATA #REQUIRED>

<!ATTLIST REFERENCE YEAR CDATA #REQUIRED>
<!ATTLIST REFERENCE DOY CDATA #REQUIRED>
<!ATTLIST REFERENCE HR CDATA #REQUIRED>
<!ATTLIST REFERENCE MIN CDATA #REQUIRED>
<!ATTLIST REFERENCE SEC CDATA #REQUIRED>

<!ATTLIST PREDICTED SVID CDATA #REQUIRED>
<!ATTLIST PREDICTED SVN CDATA #REQUIRED>
<!ATTLIST PREDICTED NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST PREDICTED TYPE (FCSTDV|FCSTMX) #REQUIRED>
<!ATTLIST PREDICTED REFERENCE CDATA #REQUIRED>
<!ATTLIST PREDICTED START_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED START_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED START_SEC CDATA #REQUIRED>
<!ATTLIST PREDICTED END_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED END_HR CDATA #REQUIRED>

```

<!ATTLIST PREDICTED_END_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED_END_SEC CDATA #REQUIRED>

<!ATTLIST CURRENT_SVID CDATA #REQUIRED>
<!ATTLIST CURRENT_SVN CDATA #REQUIRED>
<!ATTLIST CURRENT_NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST CURRENT_TYPE CDATA #FIXED "UNUSUFN">
<!ATTLIST CURRENT_REFERENCE CDATA #REQUIRED>
<!ATTLIST CURRENT_START_YEAR CDATA #REQUIRED>
<!ATTLIST CURRENT_START_DOY CDATA #REQUIRED>
<!ATTLIST CURRENT_START_HR CDATA #REQUIRED>
<!ATTLIST CURRENT_START_MIN CDATA #REQUIRED>
<!ATTLIST CURRENT_START_SEC CDATA #REQUIRED>

<!ATTLIST HISTORICAL_SVID CDATA #REQUIRED>
<!ATTLIST HISTORICAL_SVN CDATA #REQUIRED>
<!ATTLIST HISTORICAL_NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST HISTORICAL_TYPE (FCSTSUMM|UNUSABLE|UNUNOREF)
#REQUIRED>
<!ATTLIST HISTORICAL_REFERENCE CDATA #REQUIRED>
<!ATTLIST HISTORICAL_START_YEAR CDATA #REQUIRED>
<!ATTLIST HISTORICAL_START_DOY CDATA #REQUIRED>
<!ATTLIST HISTORICAL_START_HR CDATA #REQUIRED>
<!ATTLIST HISTORICAL_START_MIN CDATA #REQUIRED>
<!ATTLIST HISTORICAL_START_SEC CDATA #REQUIRED>
<!ATTLIST HISTORICAL_END_YEAR CDATA #REQUIRED>
<!ATTLIST HISTORICAL_END_DOY CDATA #REQUIRED>
<!ATTLIST HISTORICAL_END_HR CDATA #REQUIRED>
<!ATTLIST HISTORICAL_END_MIN CDATA #REQUIRED>
<!ATTLIST HISTORICAL_END_SEC CDATA #REQUIRED>
]>

```

SOF Structure

```
<?xml version="1.0"?>
```

```
<GPSISFILE FILEID="SOF" SYSID="GPS" VERSION="2">
<CREATION YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />
<REFERENCE YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />
```

```
<PREDICTED
```

```
  SVID="9" SVN="39"
  NAME="NANU" TYPE="FCSTMX" REFERENCE="2004094"
  START_YEAR="2004"  START_DOY="229"  START_HR="12"  START_MIN="0"
  START_SEC="0"
  END_YEAR="2004"  END_DOY="230"  END_HR="0"  END_MIN="0"  END_SEC="0"
/>
```

```
<CURRENT
```

```
  SVID="31" SVN="31"
  NAME="NANU" TYPE="UNUSUFN" REFERENCE="2004101"
  START_YEAR="2004"  START_DOY="257"  START_HR="5"
  START_MIN="50"  START_SEC="0"
/>
```

```
<HISTORICAL
```

```
  SVID="27" SVN="27"
  NAME="NANU" TYPE="UNUSABLE" REFERENCE="2004100"
  START_YEAR="2004"  START_DOY="242"  START_HR="1"  START_MIN="32"
  START_SEC="0"
  END_YEAR="2004"  END_DOY="243"  END_HR="19"  END_MIN="12"
  END_SEC="0"
/>
```

```
</GPSISFILE>
```

All times are UTC TIME (ZULU) unless otherwise specified. DOY is day of year (same as JDAY); 1=1 January, 366 is valid for leap year

'GPSISFILE' FILE INFORMATION

Occurs once per file

FILEID is always 'SOF'

SYSID is always 'GPS'

VERSION is the version number of the file. The version text should be an integer version number.
Example: 2

CREATION indicates date/time of file creation. Time is computer time (UTC time zone).

REFERENCE indicates date/time to which SOF data applies. For example, if January 10, 2003 1550Z is the REFERENCE time then Satellite Outage information will be collected up to and including that time, including past, current, and predicted information. The REFERENCE time is set to be the date/time of the most recent NANU incorporated into the SOF.

'SOF_RECORD' INFORMATION

Occurs multiple times per file, once for each predicted, current or historical satellite outage issued by the REFERENCE data/time.

There are three types of SOF records.

PREDICTED identifies predicted outages as of the REFERENCE time.

CURRENT identifies any active outages as of the REFERENCE time, along with the time the outage began.

HISTORICAL identifies actual outages that have taken place prior to the REFERENCE time.

SVID - reusable identifier for each satellite in identified system. For GPS the SVID shall be the PRN.

SVN (Satellite Vehicle Number) – unique sequential number associated with satellite-specific program is an integer. For GPS this is assigned by the US Air Force.

PREDICTED record fields

NAME – Alphanumeric indicator of outage source (currently 'NANU'). GOCGIS used when no NANU has been issued, yet outage is predicted or a GENERAL NANU has been issued that affects this outage.

TYPE – If NAME=NANU, then the choices are FCSTDV, FCSTMX. If a FCSTEXTD, then implemented as original type (FCSTDV or FCSTMX) with start date/time the same as in the FCSTEXTD and end date/time fixed twenty years out. If FCSTRESCD, then implemented as original type with dates/times as in the FCSTRESCD NANU. If a FCSTCANC type NANU is issued, the original type will be deleted from the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTDV issued with number 2003010, then REFERENCE=2003010. As another example, if there is a FCSTMX issued with number 2003047, followed by a FCSTEXTD with number 2003050, then REFERENCE=2003050.

CURRENT record fields

NAME – Alphanumeric indicator of outage source (currently ‘NANU’).

TYPE – If NAME=NANU, then the choices are UNUSUFN and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as a UNUSUFN with the start date/time as 0000Z on the first day the satellite appears in the almanac.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a UNUSUFN issued with number 2003049, then REFERENCE=2003049.

HISTORICAL record fields

NAME –Alphanumeric indicator of outage source (currently NANU).

TYPE – If NAME=NANU, then the choices are FCSTSUMM, UNUSABLE, UNUNOREF, USABINIT, and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as an UNUSABLE with stop dates/times as in the USABINIT and the start date/time as 0000Z on the first day the satellite appears in the almanac. This closes out the UNUSUFN that was implemented earlier for the GENERAL launch message. If the NANU is initially issued as a GENERAL decommission it will be implemented in the SOF as an UNUSABLE with the decommission date/time as the end date/time. If a GENERAL NANU is issued which cancels a previous NANU, the previous NANU will not appear in the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTSUMM issued with number 2003051, then REFERENCE=2003051.

Format Changes

Changes to file formats are implemented as follows:

1. Files implementing a new format have the VERSION attribute of the GPSISFILE element incremented. Version 1 files encoded the file version in the filename. For example, a file with a previous format may have a name like 2004_202_145503_v01.sof. Later file versions encode the version both in the filename, and the XML VERSION attribute. The filenames of the new file versions look like 2004_202_145503_v02.sof.
2. If a new file format is implemented, both the old and the new file formats will be posted to the web site location for a transition period.
3. The old file format will be posted for six months, and then be removed. This provides time for users to adapt to the new file format.
4. Notifications of file format changes, with samples of the new format, will be published to www.GPS.gov when they are final.

Redlines :

Following is a list of the rules or protocols for the SOF data.

Usage Rules

1. The SOF always contains fields identifying creation date/time and reference date/time.
2. A new SOF is built each time a NANU is issued.
3. The latency of the SOF initially may be 15-20 minutes, and is driven by operational procedures and workload.

File Naming Convention

The most recently built SOF is given a standard name that contains the creation date/time and the file format version number, 'yyyy_ddd_hhmmss_vnn.sof', where yyyy is the year, ddd is the Jday (day of year starting with 1), hhmmss is the hour/minute/second UTC, and nn is the file format version number. The file format version number will increment sequentially whenever the file format changes.

Dissemination Methods

Unclassified Web Site. The GPSOC maintains a Web site accessible to unclassified [military](#) users worldwide. The current SOF is posted at a conspicuous spot on this Web site for [download](#). [All other worldwide, civil users may download the SOF from the U.S Coast Guard Navigation Center Web site.](#)

Classification

The SOF is Unclassified and approved for public release. [Reference GPS Security Classification Guide, 30 Sep 2008, Topic Number 700.7.10]

Format

The SOF is formatted in XML according to the format below. The data type definition (DTD), the data format, and the data field definitions are provided.

A sample SOF with an internal DTD is as follows ([NOTE: if GPSIS is no longer used to generate the file, the file source tag "GPSISFILE" may be changed](#)):

SOF DTD

```
<?xml version="1.0"?>
<!DOCTYPE GPSISFILE [
    <!ELEMENT
(CREATION,REFERENCE,(PREDICTED|CURRENT|HISTORICAL)+)>
    <!ELEMENT CREATION EMPTY>
    <!ELEMENT REFERENCE EMPTY>
    <!ELEMENT PREDICTED EMPTY>
    <!ELEMENT CURRENT EMPTY>
    <!ELEMENT HISTORICAL EMPTY>

    <!ATTLIST GPSISFILE FILEID CDATA #FIXED "SOF">
    <!ATTLIST GPSISFILE SYSID CDATA #FIXED "GPS">
    <!ATTLIST GPSISFILE VERSION CDATA #REQUIRED>
```

<!ATTLIST CREATION YEAR CDATA #REQUIRED>
<!ATTLIST CREATION DOY CDATA #REQUIRED>
<!ATTLIST CREATION HR CDATA #REQUIRED>
<!ATTLIST CREATION MIN CDATA #REQUIRED>
<!ATTLIST CREATION SEC CDATA #REQUIRED>

<!ATTLIST REFERENCE YEAR CDATA #REQUIRED>
<!ATTLIST REFERENCE DOY CDATA #REQUIRED>
<!ATTLIST REFERENCE HR CDATA #REQUIRED>
<!ATTLIST REFERENCE MIN CDATA #REQUIRED>
<!ATTLIST REFERENCE SEC CDATA #REQUIRED>

<!ATTLIST PREDICTED SVID CDATA #REQUIRED>
<!ATTLIST PREDICTED SVN CDATA #REQUIRED>
<!ATTLIST PREDICTED NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST PREDICTED TYPE (FCSTDV|FCSTMX) #REQUIRED>
<!ATTLIST PREDICTED REFERENCE CDATA #REQUIRED>
<!ATTLIST PREDICTED START_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED START_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED START_SEC CDATA #REQUIRED>
<!ATTLIST PREDICTED END_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED END_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED END_SEC CDATA #REQUIRED>

<!ATTLIST CURRENT SVID CDATA #REQUIRED>
<!ATTLIST CURRENT SVN CDATA #REQUIRED>
<!ATTLIST CURRENT NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST CURRENT TYPE CDATA #FIXED "UNUSUFN">
<!ATTLIST CURRENT REFERENCE CDATA #REQUIRED>
<!ATTLIST CURRENT START_YEAR CDATA #REQUIRED>

```

<!ATTLIST CURRENT START_DOY CDATA #REQUIRED>
<!ATTLIST CURRENT START_HR CDATA #REQUIRED>
<!ATTLIST CURRENT START_MIN CDATA #REQUIRED>
<!ATTLIST CURRENT START_SEC CDATA #REQUIRED>

<!ATTLIST HISTORICAL SVID CDATA #REQUIRED>
<!ATTLIST HISTORICAL SVN CDATA #REQUIRED>
<!ATTLIST HISTORICAL NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST HISTORICAL TYPE (FCSTSUMM|UNUSABLE|UNUNOREF)
#REQUIRED>
<!ATTLIST HISTORICAL REFERENCE CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_YEAR CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_DOY CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_HR CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_MIN CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_SEC CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_YEAR CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_DOY CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_HR CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_MIN CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_SEC CDATA #REQUIRED>
]>

```

SOF Structure

```

<?xml version="1.0"?>
<GPSISFILE FILEID="SOF" SYSID="GPS" VERSION="2">
<CREATION YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />
<REFERENCE YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />

<PREDICTED
SVID="9" SVN="39"
NAME="NANU" TYPE="FCSTMX" REFERENCE="2004094"
START_YEAR="2004" START_DOY="229" START_HR="12" START_MIN="0"
START_SEC="0"
END_YEAR="2004" END_DOY="230" END_HR="0" END_MIN="0" END_SEC="0"

```

/>

<CURRENT

SVID="31" SVN="31"

NAME="NANU" TYPE="UNUSUFN" REFERENCE="2004101"

START_YEAR="2004" START_DOY="257" START_HR="5" START_MIN="50"
START_SEC="0"

/>

<HISTORICAL

SVID="27" SVN="27"

NAME="NANU" TYPE="UNUSABLE" REFERENCE="2004100"

START_YEAR="2004" START_DOY="242" START_HR="1" START_MIN="32"
START_SEC="0"

END_YEAR="2004" END_DOY="243" END_HR="19" END_MIN="12" END_SEC="0"

/>

</GPSISFILE>

All times are UTC TIME (ZULU) unless otherwise specified. DOY is day of year (same as JDAY); 1=1 January, 366 is valid for leap year

'GPSISFILE' FILE INFORMATION

Occurs once per file

FILEID is always 'SOF'

SYSID is always 'GPS'

VERSION is the version number of the file. The version text should be an integer version number.
Example: 2

CREATION indicates date/time of file creation. Time is computer time (UTC time zone).

REFERENCE indicates date/time to which SOF data applies. For example, if January 10, 2003 1550Z is the REFERENCE time then Satellite Outage information will be collected up to and including that time, including past, current, and predicted information. The REFERENCE time is set to be the date/time of the most recent NANU incorporated into the SOF.

'SOF_RECORD' INFORMATION

Occurs multiple times per file, once for each predicted, current or historical satellite outage issued by the REFERENCE data/time.

There are three types of SOF records.

PREDICTED identifies predicted outages as of the REFERENCE time.

CURRENT identifies any active outages as of the REFERENCE time, along with the time the outage began.

HISTORICAL identifies actual outages that have taken place prior to the REFERENCE time.

SVID - reusable identifier for each satellite in identified system. For GPS the SVID shall be the PRN.

SVN (Satellite Vehicle Number) – unique sequential number associated with satellite-specific program is an integer. For GPS this is assigned by the US Air Force.

PREDICTED record fields

NAME – Alphanumeric indicator of outage source (currently ‘NANU’). GOCGIS used when no NANU has been issued, yet outage is predicted or a GENERAL NANU has been issued that affects this outage.

TYPE – If NAME=NANU, then the choices are FCSTDV, FCSTMX. If a FCSTEXTD, then implemented as original type (FCSTDV or FCSTMX) with start date/time the same as in the FCSTEXTD and end date/time fixed twenty years out. If FCSTRESCD, then implemented as original type with dates/times as in the FCSTRESCD NANU. If a FCSTCANC type NANU is issued, the original type will be deleted from the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTDV issued with number 2003010, then REFERENCE=2003010. As another example, if there is a FCSTMX issued with number 2003047, followed by a FCSTEXTD with number 2003050, then REFERENCE=2003050.

CURRENT record fields

NAME – Alphanumeric indicator of outage source (currently ‘NANU’).

TYPE – If NAME=NANU, then the choices are UNUSUFN and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as a UNUSUFN with the start date/time as 0000Z on the first day the satellite appears in the almanac.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a UNUSUFN issued with number 2003049, then REFERENCE=2003049.

HISTORICAL record fields

NAME – Alphanumeric indicator of outage source (currently NANU).

TYPE – If NAME=NANU, then the choices are FCSTSUMM, UNUSABLE, UNUNOREF, USABINIT, and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as an UNUSABLE with stop dates/times as in the USABINIT and the start date/time as 0000Z on the first day the satellite appears in the almanac. This closes out the UNUSUFN that was implemented earlier for the GENERAL launch message. If the NANU is initially issued as a GENERAL decommission it will be implemented in the SOF as an UNUSABLE with the decommission date/time as the end date/time. If a GENERAL NANU is issued which cancels a previous NANU, the previous NANU will not appear in the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTSUMM issued with number 2003051, then REFERENCE=2003051.

Format Changes

Changes to file formats are implemented as follows:

1. Files implementing a new format have the VERSION attribute of the GPSISFILE element incremented. Version 1 files encoded the file version in the filename. For example, a file with a previous format may have a name like 2004_202_145503_v01.sof. Later file versions encode the version both in the filename, and the XML VERSION attribute. The filenames of the new file versions look like 2004_202_145503_v02.sof.
2. If a new file format is implemented, both the old and the new file formats will be posted to the web site location for a transition period.
3. The old file format will be posted for six months, and then be removed. This provides time for users to adapt to the new file format.
4. Notifications of file format changes, with samples of the new format, will be published to www.GPS.gov when they are final.

IS :

Following is a list of the rules or protocols for the SOF data.

Usage Rules

1. The SOF always contains fields identifying creation date/time and reference date/time.
2. A new SOF is built each time a NANU is issued.
3. The latency of the SOF initially may be 15-20 minutes, and is driven by operational procedures and workload.

File Naming Convention

The most recently built SOF is given a standard name that contains the creation date/time and the file format version number, ‘yyyy_ddd_hhmmss_vnn.sof’, where yyyy is the year, ddd is the Jday (day of year starting with 1), hhmmss is the hour/minute/second UTC, and nn is the file format version number. The file format version number will increment sequentially whenever the file format changes.

Dissemination Methods

Unclassified Web Site. The GPSOC maintains a Web site accessible to unclassified military users worldwide. The current SOF is posted at a conspicuous spot on this Web site for download. All other worldwide, civil users may download the SOF from the U.S Coast Guard Navigation Center Web site.

Classification

The SOF is Unclassified and approved for public release. [Reference GPS Security Classification Guide, 30 Sep 2008, Topic Number 700.7.10]

Format

The SOF is formatted in XML according to the format below. The data type definition (DTD), the data format, and the data field definitions are provided.

A sample SOF with an internal DTD is as follows (NOTE: if GPSIS is no longer used to generate the file, the file source tag "GPSISFILE" may be changed):

SOF DTD

```
<?xml version="1.0"?>
<!DOCTYPE GPSISFILE [
    <!ELEMENT                                GPSISFILE
(CREATION,REFERENCE,(PREDICTED|CURRENT|HISTORICAL)+)>
    <!ELEMENT CREATION EMPTY>
    <!ELEMENT REFERENCE EMPTY>
    <!ELEMENT PREDICTED EMPTY>
    <!ELEMENT CURRENT EMPTY>
    <!ELEMENT HISTORICAL EMPTY>

    <!ATTLIST GPSISFILE FILEID CDATA #FIXED "SOF">
    <!ATTLIST GPSISFILE SYSID CDATA #FIXED "GPS">
    <!ATTLIST GPSISFILE VERSION CDATA #REQUIRED>

    <!ATTLIST CREATION YEAR CDATA #REQUIRED>
    <!ATTLIST CREATION DOY CDATA #REQUIRED>
    <!ATTLIST CREATION HR CDATA #REQUIRED>
    <!ATTLIST CREATION MIN CDATA #REQUIRED>
    <!ATTLIST CREATION SEC CDATA #REQUIRED>
```

<!ATTLIST REFERENCE YEAR CDATA #REQUIRED>
<!ATTLIST REFERENCE DOY CDATA #REQUIRED>
<!ATTLIST REFERENCE HR CDATA #REQUIRED>
<!ATTLIST REFERENCE MIN CDATA #REQUIRED>
<!ATTLIST REFERENCE SEC CDATA #REQUIRED>

<!ATTLIST PREDICTED SVID CDATA #REQUIRED>
<!ATTLIST PREDICTED SVN CDATA #REQUIRED>
<!ATTLIST PREDICTED NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST PREDICTED TYPE (FCSTDV|FCSTMX) #REQUIRED>
<!ATTLIST PREDICTED REFERENCE CDATA #REQUIRED>
<!ATTLIST PREDICTED START_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED START_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED START_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED START_SEC CDATA #REQUIRED>
<!ATTLIST PREDICTED END_YEAR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_DOY CDATA #REQUIRED>
<!ATTLIST PREDICTED END_HR CDATA #REQUIRED>
<!ATTLIST PREDICTED END_MIN CDATA #REQUIRED>
<!ATTLIST PREDICTED END_SEC CDATA #REQUIRED>

<!ATTLIST CURRENT SVID CDATA #REQUIRED>
<!ATTLIST CURRENT SVN CDATA #REQUIRED>
<!ATTLIST CURRENT NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST CURRENT TYPE CDATA #FIXED "UNUSUFN">
<!ATTLIST CURRENT REFERENCE CDATA #REQUIRED>
<!ATTLIST CURRENT START_YEAR CDATA #REQUIRED>
<!ATTLIST CURRENT START_DOY CDATA #REQUIRED>
<!ATTLIST CURRENT START_HR CDATA #REQUIRED>
<!ATTLIST CURRENT START_MIN CDATA #REQUIRED>
<!ATTLIST CURRENT START_SEC CDATA #REQUIRED>

<!ATTLIST HISTORICAL SVID CDATA #REQUIRED>

```

<!ATTLIST HISTORICAL SVN CDATA #REQUIRED>
<!ATTLIST HISTORICAL NAME (NANU|GOCGIS|USER_DEFINED) #REQUIRED>
<!ATTLIST HISTORICAL TYPE (FCSTSUMM|UNUSABLE|UNUNOREF)
#REQUIRED>
<!ATTLIST HISTORICAL REFERENCE CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_YEAR CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_DOY CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_HR CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_MIN CDATA #REQUIRED>
<!ATTLIST HISTORICAL START_SEC CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_YEAR CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_DOY CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_HR CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_MIN CDATA #REQUIRED>
<!ATTLIST HISTORICAL END_SEC CDATA #REQUIRED>
]>

```

SOF Structure

```

<?xml version="1.0"?>
<GPSISFILE FILEID="SOF" SYSID="GPS" VERSION="2">
<CREATION YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />
<REFERENCE YEAR="2004" DOY="257" HR="11" MIN="2" SEC="11" />

```

<PREDICTED

```

SVID="9" SVN="39"
NAME="NANU" TYPE="FCSTMX" REFERENCE="2004094"
START_YEAR="2004" START_DOY="229" START_HR="12" START_MIN="0"
START_SEC="0"
END_YEAR="2004" END_DOY="230" END_HR="0" END_MIN="0" END_SEC="0"
/>

```

<CURRENT

```

SVID="31" SVN="31"
NAME="NANU" TYPE="UNUSUFN" REFERENCE="2004101"

```

```
START_YEAR="2004"      START_DOY="257"      START_HR="5"
START_MIN="50" START_SEC="0"
```

```
/>
```

```
<HISTORICAL
```

```
SVID="27" SVN="27"
```

```
NAME="NANU" TYPE="UNUSABLE" REFERENCE="2004100"
```

```
START_YEAR="2004" START_DOY="242" START_HR="1" START_MIN="32"
START_SEC="0"
```

```
END_YEAR="2004"      END_DOY="243"      END_HR="19"      END_MIN="12"
END_SEC="0"
```

```
/>
```

```
</GPSISFILE>
```

All times are UTC TIME (ZULU) unless otherwise specified. DOY is day of year (same as JDAY); 1=1 January, 366 is valid for leap year

'GPSISFILE' FILE INFORMATION

Occurs once per file

FILEID is always 'SOF'

SYSID is always 'GPS'

VERSION is the version number of the file. The version text should be an integer version number.
Example: 2

CREATION indicates date/time of file creation. Time is computer time (UTC time zone).

REFERENCE indicates date/time to which SOF data applies. For example, if January 10, 2003 1550Z is the REFERENCE time then Satellite Outage information will be collected up to and including that time, including past, current, and predicted information. The REFERENCE time is set to be the date/time of the most recent NANU incorporated into the SOF.

'SOF_RECORD' INFORMATION

Occurs multiple times per file, once for each predicted, current or historical satellite outage issued by the REFERENCE data/time.

There are three types of SOF records.

PREDICTED identifies predicted outages as of the REFERENCE time.

CURRENT identifies any active outages as of the REFERENCE time, along with the time the outage began.

HISTORICAL identifies actual outages that have taken place prior to the REFERENCE time.

SVID - reusable identifier for each satellite in identified system. For GPS the SVID shall be the PRN.

SVN (Satellite Vehicle Number) – unique sequential number associated with satellite-specific program is an integer. For GPS this is assigned by the US Air Force.

PREDICTED record fields

NAME – Alphanumeric indicator of outage source (currently ‘NANU’). GOCGIS used when no NANU has been issued, yet outage is predicted or a GENERAL NANU has been issued that affects this outage.

TYPE – If NAME=NANU, then the choices are FCSTDV, FCSTMX. If a FCSTEXTD, then implemented as original type (FCSTDV or FCSTMX) with start date/time the same as in the FCSTEXTD and end date/time fixed twenty years out. If FCSTRESCD, then implemented as original type with dates/times as in the FCSTRESCD NANU. If a FCSTCANC type NANU is issued, the original type will be deleted from the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTDV issued with number 2003010, then REFERENCE=2003010. As another example, if there is a FCSTMX issued with number 2003047, followed by a FCSTEXTD with number 2003050, then REFERENCE=2003050.

CURRENT record fields

NAME – Alphanumeric indicator of outage source (currently ‘NANU’).

TYPE – If NAME=NANU, then the choices are UNUSUFN and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as a UNUSUFN with the start date/time as 0000Z on the first day the satellite appears in the almanac.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a UNUSUFN issued with number 2003049, then REFERENCE=2003049.

HISTORICAL record fields

NAME – Alphanumeric indicator of outage source (currently NANU).

TYPE – If NAME=NANU, then the choices are FCSTSUMM, UNUSABLE, UNUNOREF, USABINIT, and GENERAL. If NANU is initially issued as a GENERAL launch message, then it will be implemented in the SOF as an UNUSABLE with stop dates/times as in the USABINIT and the start date/time as 0000Z on the first day the satellite appears in the almanac. This closes out the UNUSUFN that was implemented earlier for the GENERAL launch message. If the NANU is initially issued as a GENERAL decommission it will be implemented in the SOF as an

UNUSABLE with the decommission date/time as the end date/time. If a GENERAL NANU is issued which cancels a previous NANU, the previous NANU will not appear in the SOF.

REFERENCE – reference info. If NAME=NANU this will be the NANU number of the last valid NANU associated with this outage. For example, if there is a FCSTSUMM issued with number 2003051, then REFERENCE=2003051.

Format Changes

Changes to file formats are implemented as follows:

1. Files implementing a new format have the VERSION attribute of the GPSISFILE element incremented. Version 1 files encoded the file version in the filename. For example, a file with a previous format may have a name like 2004_202_145503_v01.sof. Later file versions encode the version both in the filename, and the XML VERSION attribute. The filenames of the new file versions look like 2004_202_145503_v02.sof.
 2. If a new file format is implemented, both the old and the new file formats will be posted to the web site location for a transition period.
 3. The old file format will be posted for six months, and then be removed. This provides time for users to adapt to the new file format.
 4. Notifications of file format changes, with samples of the new format, will be published to www.GPS.gov when they are final.
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