

U.S. Coast Guard Navigation Center

**CGSIC
NAVCEN User Update**

17 September 2019

Miami, FL



**Lieutenant
Commander
Harold Kiffer**



**Homeland
Security**

*U.S. Department of
Homeland Security*
**United States
Coast Guard**



GPS Week Number Rollover

- Extensive public outreach
 - CGSIC Bulletins
 - Broadcast Notice to Mariners
 - US Air Force guidance/recommendations
 - DHS guidance/recommendations
- Government coordinated testing to test equipment readiness for WNRO
 - US Air Force
 - DHS
 - Equipment manufacturers



NAVIGATION CENTER

The Navigation Center of Excellence

U.S. Department of Homeland Security

UNITED STATES COAST GUARD



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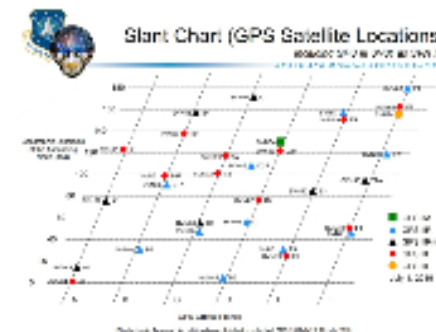
GPS

- Report a GPS Problem
- GPS Problem Report Status
- NANUs, Almanacs, & OPS Advisories
- GPS Service Interruptions
- GPS Technical References
- CGSIC Information
- Email Message Subscriptions (Free)
- [Space Wx & Precise Ephemeris Data](#)
- GPS Policy and References
 - More Information on GPS.gov:
 - Civil Navigation Message (CNAV)
 - General GPS Overview
 - GPS Augmentation Systems
 - GPS Mapping Problems
 - GPS Modernization
 - Frequently Asked Questions (FAQ)

NOTE: The Global Positioning System Directorate has approved a change to the Navstar GPS Control Segment to User Support Community Interfaces (ICD-GPS-240 and ICD-GPS-870) which will remove GPS satellite plane/slot and clock information from the Operational Advisory message. This change proposal was approved by the GPS Interface Control Working Group in December of 2018. SVN/PRN, Block Type, and NANU details will continue to be included.

A depiction of the GPS constellation of satellites with slot and plane designations is provided here as an easy to read graphic for use by the GPS user community.

[Print-friendly](#)



[Click image for full size page.](#)

GPS CONSTELLATION STATUS FOR 09/03/2019

Plane	Slot	SVN	PRN	Block-Type	Clock	Outage Date	Nanu-Type	Nanu-Subject
A	1	65	24	IIF	CS			
A	2	52	31	IIR-M	RB			
A	3	64	30	IIF	RB			

Mission Areas

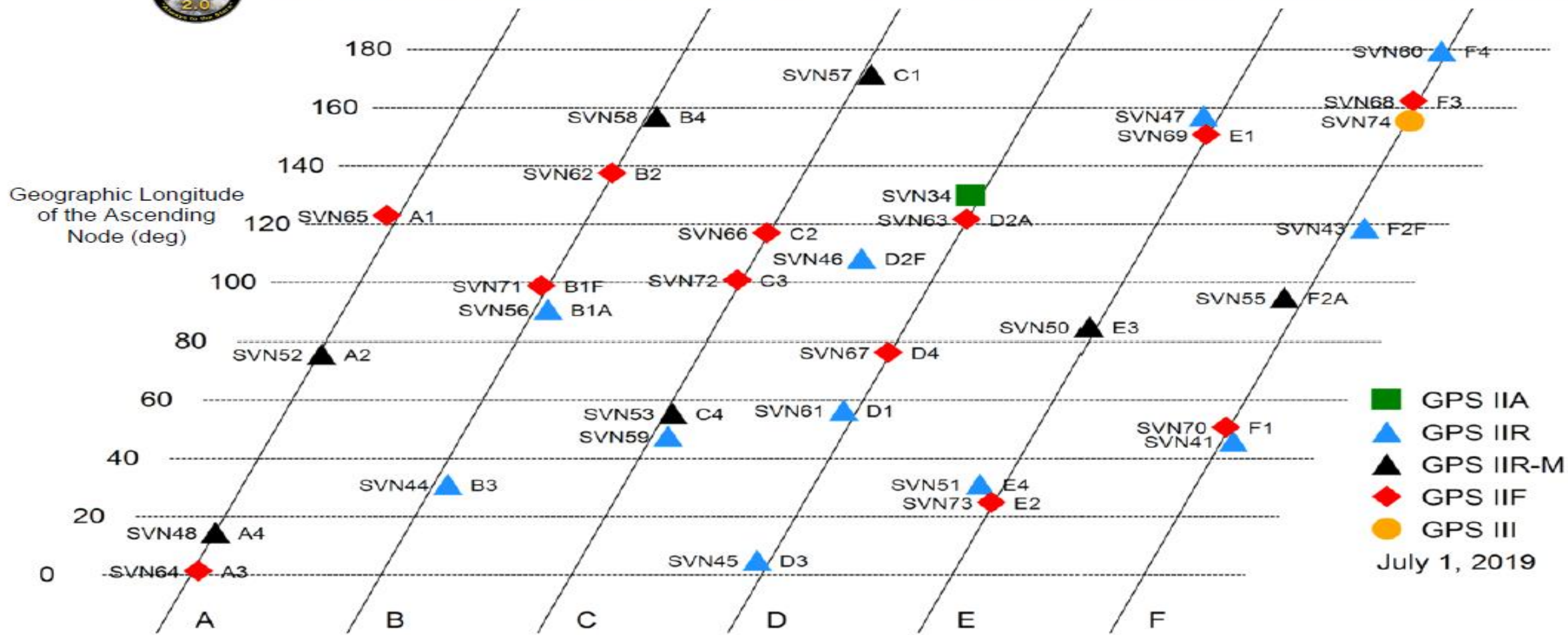
- [AIS - Are You In Compliance?](#)
- [AIS Data Request](#)
- [AIS - Types, Messages, Etc.](#)



Slant Chart (GPS Satellite Locations)

Including GPS III SV01 as SVN 74

SPACE AND MISSILE SYSTEMS CENTER



- GPS IIA
 - ▲ GPS IIR
 - ▲ GPS IIR-M
 - ◆ GPS IIF
 - GPS III
- July 1, 2019

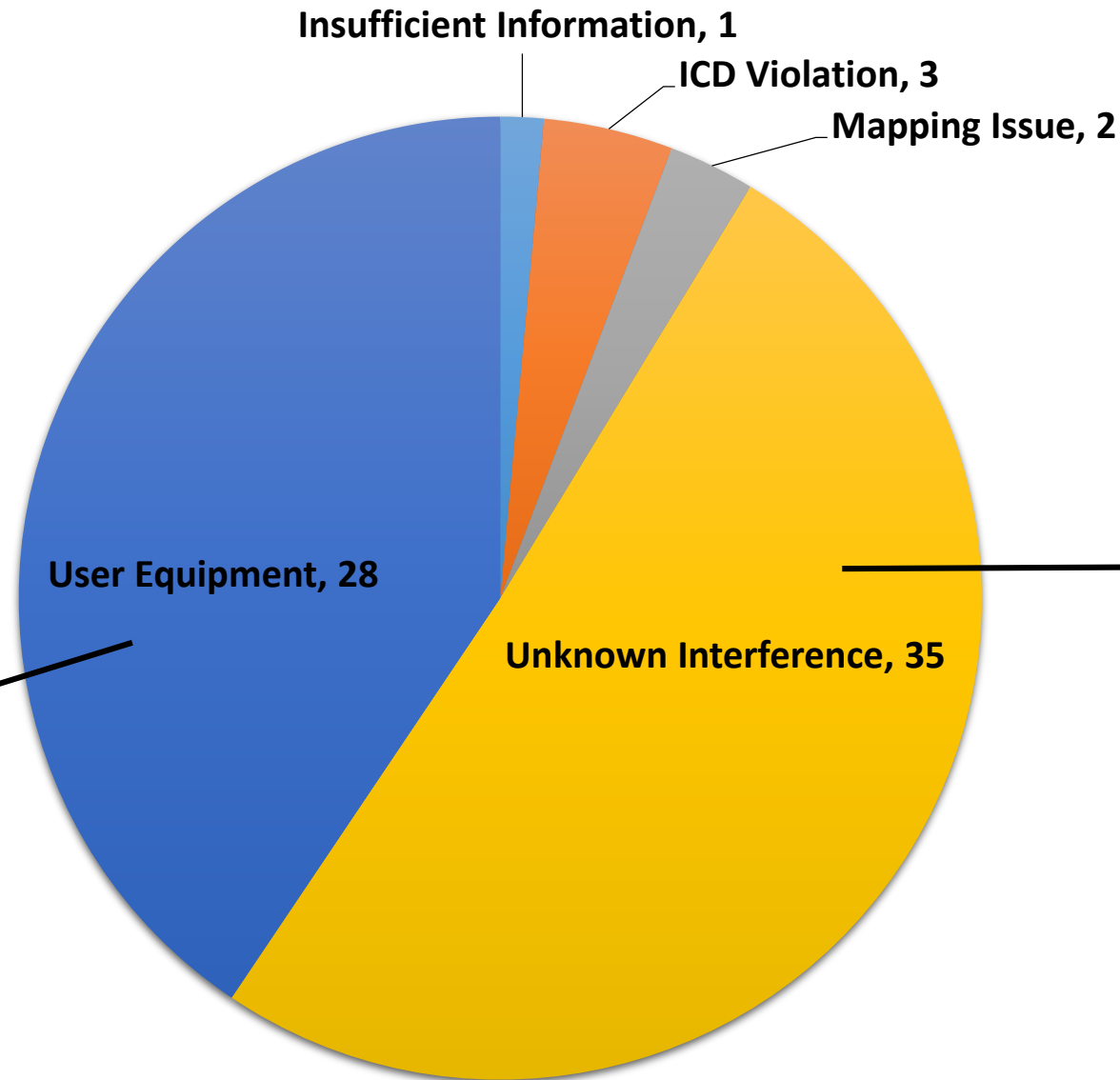
Predicted Ephemeris and Broadcast Navigation Data

- April 16, 2019: Challenge to GPS Security Classification and Declassification Guide approved
- Two long sought files, generated by the ground control segment, have been declassified to “Releasable to the Public”
 - GPS Predicted Ephemeris/State Vector Data File (PRED)
 - GPS Broadcast Navigation Data File (NAV)
- Generated every 15 minutes, automation not possible till OCX comes online
- Until then, NAVCEN may be able to package an entire day worth of 15 minute files and publish once per day
- NAVCEN seeking comments on value to GPS community

Authorized GPS Testing

- Planned, authorized government GPS testing has seen:
 - 32% annual increase since 2015
 - More diverse locations nationwide
 - Extended testing periods
- Continue to coordinate approvals and publicize authorized testing

2019 GPS Problem Reports



15 appeared related to Week Number Rollover

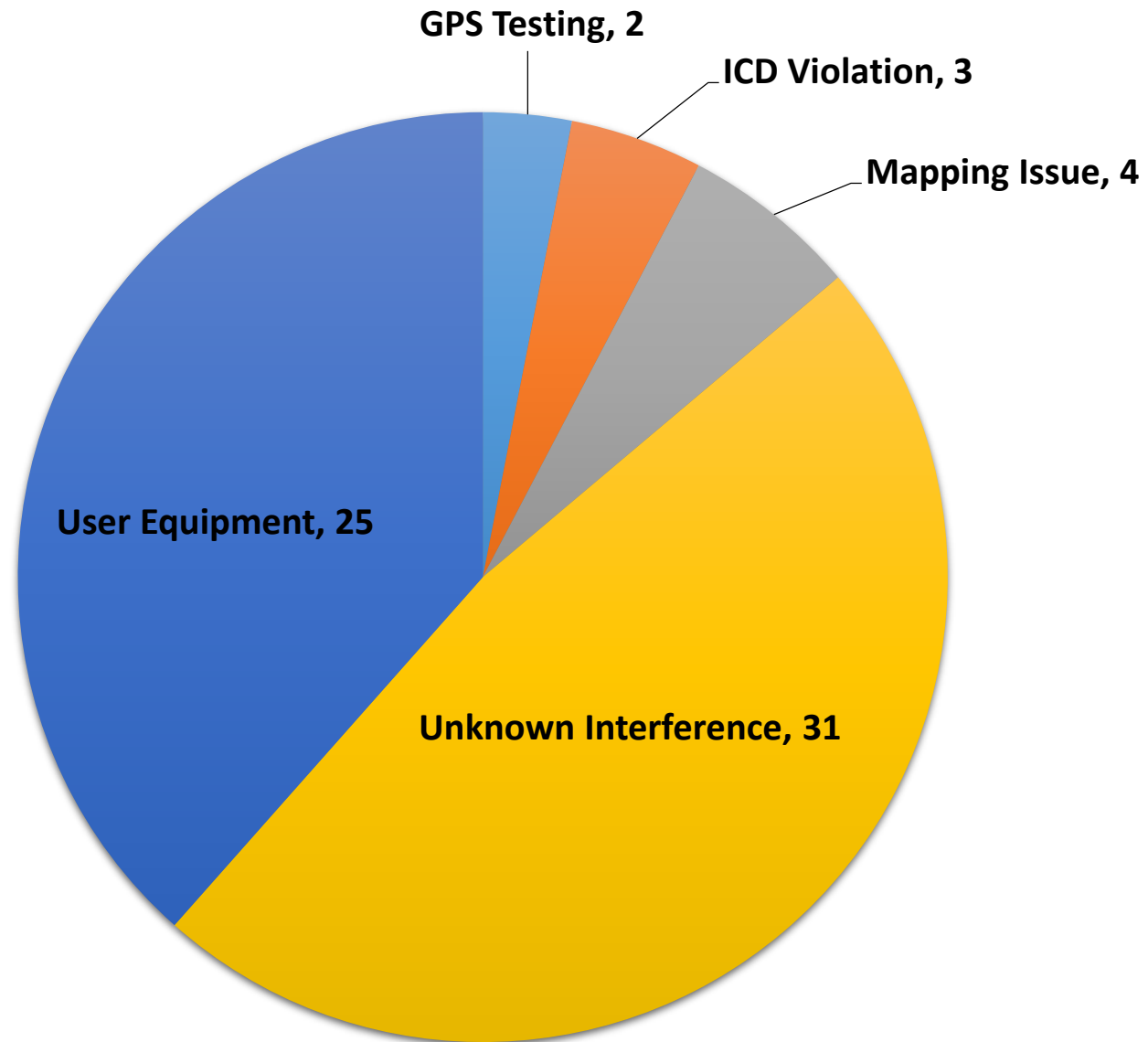
OCONUS (27)

- Maritime (24)
 - Egypt (9)
 - Malta/Libya (7)
 - China (3)
 - Yemen
 - Lebanon
 - Ukraine
 - Cyprus
 - Greece
- Land (3)
 - Germany
 - Spain
 - India

CONUS (8)

- Maritime (5)
 - Mobile, AL (4)
 - Pensacola, FL
- Land (3)
 - Abilene, TX
 - Carson City, NV
 - Puerto Rico

2018 GPS Problem Reports



Problem Report Status <https://navcen.uscg.gov/?Do=GPSReportStatus>



- GPS**
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- Mission Areas**
- AIS - Are You In Compliance?
 - AIS Data Request
 - AIS - Types, Messages, Etc.
 - Global Positioning System (Civil Support)
 - CGSIC Information
 - Long Range Identification and Tracking
 - Nationwide DGPS
 - LORAN C (archive)

- Maritime Safety**
- Maritime Safety Information Distribution
 - Local Notices to Mariners
 - Light List Volumes
 - Navigation Rules - Amalgamated
 - Maritime Telecommunications
 - PAWSA
 - International Ice Patrol (IIP)
 - Public Notices for Bridges
 - Nav Pubs and Documents
 - Vessel Traffic Services
 - USCG Homeport Website
 - Coast Guard Safety Alerts (uscg.mil)

- Subscribe / Report (free)**
- Subscription Services / RSS (free)

GPS Problem Reports Status


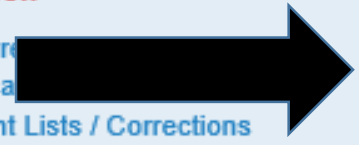
Civil GPS Users are encouraged to submit reports of GPS problems to NAVCEN. A form to submit reports can be found on our [GPS Problem Reporting](#) webpage. Some information from those reports is shared here along with input from interagency partners and the most likely cause of the report.

Descriptions for each of the fields is at the [bottom of the page](#).

* Fields are as provided by the reporting source and are unedited.

*Date/Time of Disruption	Date Submitted	Location	*Type	Description	Cause	NAVCEN Date Closed
08/30/2019 08:23 GMT	08/23/2019	Aarhus, Denmark	Timing	<p>We observe pps (pulse per second)outages on several installations in Denmark, Iceland and Finland. The issue started around the 30 of July. Probably earlier but not that frequent. The number of outages have increased now and become severe. We observe 4 time windows during the day at which outages occur at all installations at most days since 30 of July: 03:04 - 04:06 07:37 - 07:49 18:23 - 18:53 21:08 - 21:30 (all times in UTC) The start time of the outages drifts by about 4 minutes at each day compared to the previous day.</p> <p>NAVCEN: The GPS Operations Center reviewed the GPS Constellation and Control Segment, there are no known anomalies that might affect GPS signal integrity at the time and vicinity of the reported problem. Space weather was reviewed and found unlikely to have impacted GPS performance. There were no authorized GPS tests in the area. No correlating reports from other users or interagency partners.</p> <p>User encouraged to contact their equipment manufacturer for assistance. NAVCEN requested additional information, including any information from their equipment manufacturer but the reporting source has not responded.</p>	User Equipment	
				<p>User: NAL Research is a manufacturer of portable Iridium devices with built-in GPS receivers. Over the last week we have experienced intermittent but regular interruptions of our GPS reception.</p> <p>NAVCEN: The GPS Operations Center</p>		

(FedRamp = Federal Risk and Authorization Management Program)



FedRAMP

[CONTINUE](#)

- Miss
- Marit

- AIS
- AIS
- AIS
- Glo
- CGS
- Lon
- Nat
- LOP
- Mar
- Loc
- Ligh
- Nav
- Mar
- PAWSA
- International Ice Patrol (IIP)
- Public Notices for Bridges
- Nav Pubs and Documents
- Vessel Traffic Services



- System
- Global Maritime Distress and Safety System
- CG Nat'l Distress System
- Digital Selective Calling
- Vessel Traffic Services
- Radionavigation Pubs
- Radio Watch Requirements
- Ports and Waterways Safety Assessment (PAWSA)
- Port Access Route Studies (PARS)

• In an effort to modernize the GPS constellation, modifications are being made to the GPS space and ground control segment. These changes should be transparent to IS-GPS-200 compliant receivers, however, commercial and

NAVCEN Contact Information

Navigation Information Service

<http://www.navcen.uscg.gov>

E-mail: nisws@navcen.uscg.mil

Phone: +1 703 313 5900

Fax: +1 703 313 5920

Civil GPS Service Interface Committee Secretariat

E-mail: rick.hamilton@uscg.mil