



***U.S. Government International
Activities Addressing GPS/GNSS
Interference and Jammer
Proliferation***

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U.S. National Space Policy

Space-Based PNT Guideline: Maintain leadership in the service, provision, and use of GNSS

- Provide civil GPS services, free of direct user charges
 - Available on a continuous, worldwide basis
 - Maintain constellation consistent with published performance standards and interface specifications
 - Foreign PNT services may be used to augment and strengthen the resiliency of GPS
- Encourage global ***compatibility*** and ***interoperability*** with GPS
- Promote transparency in civil service provision
- Enable market access to industry
- **Support international activities to detect and mitigate harmful interference**



Bilateral Efforts Against GPS/GNSS Jammers

- **Bilateral expressions of concern about GPS/GNSS jammers**
 - *U.S. Federal Communications Commission (FCC)* consulting with counterparts around the world
 - *State Department Office of International Communications & Information Policy (EB/CIP)* works with U.S. FCC to raise awareness of dangers of GPS/GNSS jamming devices
 - EB/CIP will add an agenda item on GPS/GNSS jamming and jamming devices to future Information Communications Technology (ICT) bilateral meetings
- **Direct State Department Demarches** to nations requesting action on manufacture, export, marketing, or banning of GPS/GNSS jammers are also an available tool
 - Not used to date



Some Bilateral Fora Where GPS/GNSS Interference Issues Have Been Raised

- ***U.S.- Russia Space Security Dialogue***
- ***Japan-U.S. GNSS Consultations***
 - Discussions regarding U.S. concern about Indoor Messaging Service (IMES) and potential for interference with GPS signals
 - Japan continues experimental development of IMES, and restricts deployment to Japan
- ***U.S. Discussions with the EU***
 - Concern expressed to EC DG Enterprise & Industry regarding possible action by European Telecommunications Standards Institute to allow pseudolites or GPS repeaters for indoor applications



Multilateral Efforts - APEC

- **APEC GNSS Implementation Team (GIT) meeting 18 July 2013, Indonesia:** The GIT reviewed the Draft APEC Transportation Ministerial Meeting - 8 statement, in particular Section 10 that covers GNSS
- The GIT revised Section 10 to state:
 - *Recognizing the importance of Global Navigation Satellite System (GNSS) applications in achieving seamless intermodal transportation to enhance safety, security, and sustainability, we support the work of the GNSS Implementation Team (GIT) and encourage continued efforts by each economy to develop capabilities for GNSS interference detection and mitigation to **ensure the protection of GNSS from interference.***
- The revised text was provided to the APEC Transportation Working Group (TPTWG) Lead Shepherd and to the Intermodal Experts Group Chair and Deputy Chair



Multilateral Efforts - ICG (1)

- **Original Work Plan of the International Committee on GNSS** included an action to develop a strategy for support of mechanisms to detect and mitigate sources of electromagnetic interference, taking existing regulatory mechanisms into consideration
- Action was taken up by the **ICG Providers Forum** with support from the **Working Group on Compatibility and Interoperability (WG-A)**
- In addition, Providers have agreed to:
 - Pursue the protection of radio-navigation satellite services (RNSS) spectrum through appropriate domestic and international regulation
 - When necessary and appropriate, share their views on RNSS spectrum issues and related agenda items under consideration by the International Telecommunication Union (ITU) and its working parties



Multilateral Efforts - ICG (2)

- **First ICG/Interference Detection and Mitigation (IDM) Workshop, Vienna, June 2012**
 - Recommendation to develop educational material on sources of interference to GNSS
 - Recommendation that ICG member states identify a suitable GNSS monitoring site or operations center to be recognized by the ITU as an official part of its international interference monitoring network
- **Second ICG/IDM Workshop, Honolulu, April 2013**
 - GNSS providers should study the issue of critical infrastructure and the importance of GNSS service to national critical infrastructure
 - Recommendation for participants to seek information on interference reporting forms used within their countries to lead to a meaningful discussion on developing a standardized way to report interference
 - Agreement that protecting RNSS users against interference as a regulatory matter is ultimately a national responsibility that is carried out in conformity with ITU rules



ICG-8 Recommendation 8A.3.1

Education & Outreach Regarding Sources of GNSS Interference

The ICG should develop educational material such as a downloadable pamphlet or other web content on sources of interference to GNSS. The material should include an explanation why radio navigation satellite services (RNSS) are different than radio communications services and more vulnerable to interference, and will emphasize the importance of GNSS services to critical public and private sector functions, infrastructure, and economic activity

The WG-A Task Force on Interference Detection will lead the development of sample educational material on GNSS Interference for ICG consideration



ICG-8 Recommendation 8A.3.2

Working Group A should form a **Task Force on GNSS Interference Detection** reporting procedures and system development

- Initially, the task force will focus on developing a common set of information to be reported to GNSS civil service centers
- Next, the task force will focus on establishing routine communications among the centers
- Finally the task force will develop guidelines for common capabilities to be considered in the development of future national IDM networks

The Next IDM Workshop will take place 14-15 July 2014
in Geneva, hosted by the ITU



Multilateral Efforts - ICAO

- In 2012, North Korea jammed GPS signals for several days around U.S.-South Korea military exercises
- South Korea led an effort at the **International Civil Aviation Organization** (ICAO) to ask North Korea to not jam GPS signals for sake of airline safety
 - This effort was supported by the United States
 - North Korea would not accept a letter of complaint from South Korea on this issue



Summary

- U.S. Department of State's Office of Communication Information Policy is working closely with the U.S. FCC to raise awareness in bilateral fora of the problems posed, and propose possible solutions for, GPS/GNSS jamming
- U.S. Department of State's Office of Space & Advanced Technology is also working in bilateral as well as multilateral fora like the ICG to raise awareness of the problem of GPS/GNSS interference
- Mitigation through existing regulation, education and awareness, and the pursuit of cooperative IDM are being pursued by GNSS Providers