



**GPS Innovation
Alliance**



GPS Industry Perspectives

61st Meeting of the Civil GPS Service Interface Committee

J. David Grossman, Executive Director, GPSIA

September 21, 2021

GPSIA Brings Together Numerous Companies and Organizations That Provide or Support Innovative Location-Related Services

Founding Members



JOHN DEERE



Trimble

GARMIN™

Other Members



Collins Aerospace

LOCKHEED MARTIN



Cal/Amp®



**Raytheon
Technologies**



L3HARRIS

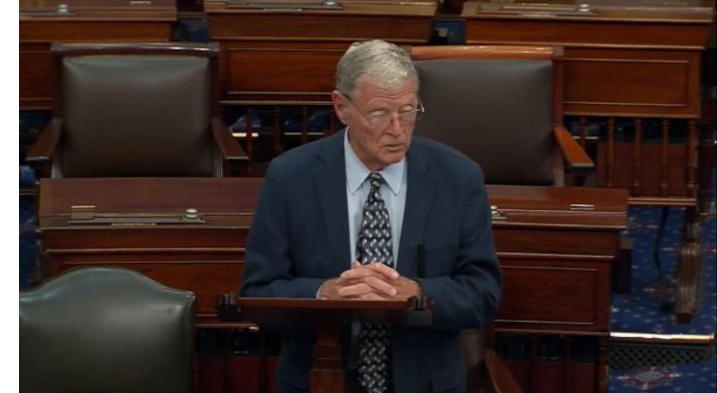
Apple

GPSIA Affiliates



GPS-Related Activity on Capitol Hill

- ▶ RETAIN GPS & Satellite Communications Act (S.2166 and H.R. 4634)
 - ▶ Bipartisan, bicameral legislation introduced by Senators Jim Inhofe (R-OK), Tammy Duckworth (D-IL) and Mike Rounds (R-SD) and Reps. Jim Cooper (D-TN) and Mike Turner (R-OH)
 - ▶ Civil GPS users (*i.e.*, first responders, farmers, pilots, state & local governments) impacted by Ligado's network should not incur costs to repair or replace equipment
 - ▶ Legislation places these costs with Ligado, as the license holder and source of interference



Please note: Given their litigation settlement agreements with Ligado, Garmin and Deere (for the purpose of this meeting) are not taking a position on the issues on this slide, and GPSIA is not speaking for them in discussing them.

GPS-Related Activity on Capitol Hill

- ▶ National Defense Authorization Act (NDAA) FY22
 - ▶ Amendment offered by Rep. Mike Turner (R-OH) during the House Armed Services Committee markup on September 1, 2021
 - ▶ Requires the Defense Secretary to provide National Security Council, the Secretary Commerce, and the Commissioners of the FCC with a classified briefing RE:
 - ▶ “the potential for harmful interference to the Global Positioning System, or other tactical or strategic systems of the Department of Defense, from commercial terrestrial operations and mobile satellite services using the 1525–1559 megahertz band and the 1626.5–1660.5 megahertz band.”
 - ▶ Amendment adopted by voice vote

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Other Relevant Legislation on Capitol Hill

- ▶ H.R. 3784, the Advancing IoT for Precision Agriculture Act of 2021
 - ▶ as amended, adds "Global Positioning System-based applications;" under the list of existing technologies to be studied by the Government Accountability Office (GAO)
 - ▶ Rep. Jerry McNerney (D-CA): "Accurate, reliable and continuously available GPS, enables farmers to increase crop yields, cost efficiencies, and environmental sustainability through the precise application of seed, water, fertilizers and pesticides. GPS is also used for protecting animal health. In practice, GPS helps farmers waste less seed, requires less fertilizer, less fuel, less pesticide; and ultimately has better crop yields."
- ▶ H.R.3113 and S.904, MAPLand Act
 - ▶ recognizes the role that GPS technology plays in improving access to our nation's public lands.

National Academies Independent Technical Study of FCC's Ligado Decision

- ▶ Section 1662 of the FY21 NDAA required an ad hoc committee of the National Academies of Sciences, Engineering, and Medicine to provide “an independent technical review of the order and authorization adopted by the Federal Communications Commission on April 19, 2020 (FCC 20-48)”
- ▶ Provisional committee appointments announced on August 31
- ▶ Kickoff meeting held yesterday (September 20), with a closed session taking place today (September 21)

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GPS & Infrastructure Modernization

- ▶ August 2021: U.S. Senate passes bipartisan *Infrastructure Investment and Jobs Act*
- ▶ GPS technology play a prominent role in this package, including mapping locations for electric vehicle (EV) chargers, enabling safer, more efficient operation of construction vehicles, and providing the precise timing needed to bring wireless broadband to unserved and underserved communities, just to name a few.
 - ▶ \$20 million to accelerate the implementation and deployment of advanced digital construction management systems
 - ▶ \$100 million/yr for 5 years for “Strengthening Mobility and Revolutionizing Transportation Grant” program (GPS data used to support efficient goods movement identified as being an eligible use for grant funds)

Congressional GPS Caucus

- ▶ Founded in 2019 by Senators Tammy Duckworth (D-IL) and Joni Ernst (R-IA) and Reps. Don Bacon (R-NE) and former Rep. Dave Loebsack (D-IA).
- ▶ In May 2021, House GPS Caucus co-chairs for the 117th Congress, Reps. Mikie Sherrill (D-NJ) and Don Bacon (R-NE) participated in a GPSIA-organized webinar entitled “GPS, Drones & Firefighting”

Featured Remarks
House GPS Caucus Co-Chairs:



Rep. Mikie Sherrill (D-NJ)



Rep. Don Bacon (R-NE)

Enhancing PNT Resiliency

- ▶ Increasing PNT resiliency is not just about investing in complementary technologies – it’s also about GPS modernization
 - ▶ Challenge: In the last six years, China has launched 35 of its Beidou navigation satellites, while the U.S. launched just 8 GPS satellites. In 2020, the U.S. launched two GPS III satellites
 - ▶ Recommendation: Accelerate the fielding and launch of the modernized GPS III and IIF satellites to remain the global “Gold Standard”
- ▶ Select classes of GPS receivers operating in areas with a high likelihood of experiencing jamming or spoofing can also be made more resilient through certain regulated techniques and technologies.
 - ▶ Challenge: U.S. regs limits domestic commercial use of technologies like beamforming and/or nulling as applied to open service GPS signals
 - ▶ Recommendation: Congress should enact legislation requiring the examination of this issue and ultimately removing current restrictions on using these “hardening” capabilities outside of the DoD

Spectrum Policy in the Biden-Harris Administration

- ▶ On February 16, 2021, GPSIA sent a letter to Mr. Brian Deese Director of the White House National Economic Council
- ▶ Inter-agency disputes involving spectrum are not unique to GPS
- ▶ GPSIA recommendations for enhancing the federal spectrum decision-making process:
 - ▶ Update the 2003 MOU between the FCC and NTIA
 - ▶ FCC's Office of Engineering & Technology should maintain a detailee from one of the federal agencies responsible for managing the GPS program
 - ▶ Add an electrical engineer or computer scientist on staff of each FCC Commissioner

In-Band Terrestrial Transmissions in GPS Band

- ▶ GPSIA continues to monitor proposals that seek to provide PNT in GPS challenged environments (*e.g.*, underground facilities, tunnels etc.) to ensure they do not result in interference or spoofing to GPS
- ▶ To prevent interference to GPS, these services must be able to guarantee protection against signal leakage to areas outside tunnels
- ▶ The FCC should enforce its existing Part 15 requirements to ensure that such systems operate consistently with those parameters



GPS Innovation Alliance

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