



International Committee on
Global Navigation Satellite Systems

ICG and Interoperability

IGNSS Conference

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ICG International Committee on
Global Navigation Satellite Systems

Interoperability Tasks from WG-A Work Plan

- Consistent with the principle of interoperability and its definition, **consider the perspective of various user applications and equipment manufacturers**
- **Continue efforts to survey** industry and user community experts
- **Sponsor and participate in workshops and meetings** designed to solicit GNSS user input



Recommendation From ICG-7 (2012)

- Consistent with the principle of interoperability and its definition, and the implementation of previous ICG recommendations related to interoperability, the ICG should host an interoperability workshop in conjunction with the ION Pacific PNT meeting, April 22-25 2013.
- **The ICG will request inputs from potential participants prior to the workshop through existing web sites related to GNSS information dissemination, conferences, major PNT organizations and events.**
- The following interoperability subjects may be addressed:
 1. **Potential for a common third open service signal**
 2. **Frequency diversity vs. frequency commonality**
 3. DOP improvement with the addition of 2nd, 3rd, 4th, Nth global constellation
 4. System provider **time and geodetic reference** frame implementation as described by the ICG WG-D templates
 5. Potential opportunities to **utilize existing or planned spare capacity in civil/open service or SBAS navigation messages in order to increase multi-GNSS interoperability**



Workshop Objectives

- Obtain user/industry perspective and opinions on GNSS interoperability
- Focus on obtaining feedback that benefits GNSS Providers
 - Input on signal type and design
 - Suggestions to improve interoperability in multi-GNSS



Example Questions Posed to Industry

- Do you prefer all new CDMA signals at “L1” to be centered at 1575.42 MHz or have some of them elsewhere, e.g., at 1602 MHz?
- To assure only “good” signals, should GNSS providers agree on minimum international signal quality standards and agree to provide only signals meeting the standard?
- Should the international community strive to protect all GNSS signal bands from terrestrial signal interference?



Recommendation From ICG-8 (2013)

Interoperability Task Force

Consistent with the principle of interoperability and its definition, and the implementation of previous ICG recommendations related to interoperability, Working Group A should form a task force to complete efforts to collect and analyze user community and industry views on interoperability

- The task force will analyze the results of the April 2013 interoperability workshop and adjust the questions for industry accordingly, in preparation for additional workshops to be hosted by each system provider*
- The results of each workshop will be consolidated and analyzed by the Task Force in preparation for the 2014 intersessional meeting of Working Group A and ICG-9*



Interoperability Workshops Hosted by GNSS Providers

- **U.S.** hosted workshop – April 2013, Honolulu
- **Russia** hosted workshop – April 2014, Moscow
- **China** hosted workshop – May 2014, Nanjing
- **Japan** hosted workshop – August 2014, Osaka
- **EU** hosted workshop – March 2015



Workshop Results and Analysis

- Providers presented their own view of the results and analysis of the workshops to the ICG
 - Differences due to variances in the way the workshops were conducted
- Questions and answers grouped together based on type of question



Task Force Agreement on Way Forward

- Agreement/disagreement in answers could be useful information for Providers
- Relevance of questions may be more important than the detailed answers
- Only if a Provider considers making changes would further investigation be beneficial
- Emphasis on what the questions and answers mean to each Provider
- Review and discuss questions to identify potential recommendations on interoperability



