



ICG International Committee on
Global Navigation Satellite Systems

**ICG WORKING GROUP A
MEETING ON GNSS INTEROPERABILITY
Global and Regional Navigation Satellite Systems and Satellite-based
Augmentations**

30-31 July 2009

***United Nations Office at Vienna/United Nations Office for Outer Space Affairs
Vienna International Center
Wagramerstrasse 5, 1400 Vienna, Austria***

AGENDA

DAY 1 – July 30

0900 Arrival, Security Processing, and Coffee

0930 Opening Remarks Working Group A Co-Chairs

0940 Review of the Workshop Agenda

0945-1115 SESSION 1 – GNSS Providers –

System Updates - All system providers will very briefly present any new information since the March workshop focused on interoperability issues and addressing the following system/service characteristics:

- A. Current and planned signals
- B. System time and geodetic reference frame standards
- C. Performance standards versus actual performance
- D. Services Provided and Provision Policies
- E. Timetable for system deployment and operation

Note: Presentations and background material based on updates of ICG-3 presentations should be made available to participants ahead of time to minimize the amount of time required for Provider presentations

1130-1300 SESSION 2a — GNSS Applications

Leaders from the receiver Industry, Academia or organizations representing users or producers will give brief summaries of their application sector with an emphasis on the importance of GNSS signal and service interoperability from their perspectives, taking into account:

- Presentations by system providers at ICG-3 and subsequent meetings;
- The ICG Providers Forum working definition of interoperability (see attachment);
- Summary record of the Munich Workshop on Interoperability (March 09)

1300 Lunch

1400-1530 SESSION 2b — GNSS Applications (continued)

1530-1700 SESSION 3 — Review of Interoperability Survey results

The Co-chairs of WG A will present the results to date of the completed surveys from users and industry focused on the use of multiple constellations and interoperability from their perspective.

Initial reactions from the working group to the data collected will be sought

DAY 2 — July 31

0900 Arrival, Security Processing, and Coffee

0930-1100 SESSION 4 — Co-Chair Perspectives on Presentations, Discussions, and Surveys

Based on the presentations in Sessions 1 and 2 and the discussions of the survey results in Session 3, the Co-Chairs will present their initial report on Interoperability be prepared for presentation to the ICG at its 4th meeting in Saint-Petersburg, Russia, September 14-18, 2009.

1100-1300 SESSION 5 – Working Group Discussions

The Co-chairs of WG-A will facilitate further working group discussion and deliberation on the draft initial report on interoperability and discuss the status of other working group actions in preparation for ICG-4

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ATTACHMENT*

* From the Report of the Third Meeting of the International Committee on Global Navigation Satellite Systems (ICG) Providers Forum

Providers Forum Working Principles of Compatibility and Interoperability and their Further Definition

Global and regional system providers agreed that at a minimum, all GNSS signals and services must be compatible. To the maximum extent possible, open signals and services should also be interoperable, in order to maximize benefit to all GNSS users. For many applications, common carrier frequencies are essential to interoperability, and commonality of other signal characteristics is desirable. In some cases, carrier frequency diversity may be preferable to improve performance. The Providers Forum will continue to investigate the benefits of carrier frequency commonality and diversity, as well as compatibility and interoperability, as these latter terms are defined below.

Interoperability refers to the ability of global and regional navigation satellite systems and augmentations and the services they provide to be used together to provide better capabilities at the user level than would be achieved by relying solely on the open signals of one system.

- Interoperability allows navigation with signals from different systems with minimal additional receiver cost or complexity.
- Multiple constellations broadcasting interoperable open signals will result in improved observed geometry, increasing end user accuracy everywhere and improving service availability in environments where satellite visibility is often obscured.
- Geodetic reference frames realization and system time steerage standards should adhere to existing international standards to the maximum extent practical.
- Any additional solutions to improve interoperability are encouraged.

Compatibility refers to the ability of global and regional navigation satellite systems and augmentations to be used separately or together without causing unacceptable interference and/or other harm to an individual system and/or service.

- The International Telecommunication Union (ITU) provides a framework for discussions on radiofrequency compatibility. Radiofrequency compatibility should involve thorough consideration of detailed technical factors, including effects on receiver noise floor and cross-correlation between interfering and desired signals.
- Compatibility should also respect spectral separation between each system's authorized service signals and other systems' signals. Recognizing that some signal overlap may be unavoidable, discussions among providers concerned will establish the framework for determining a mutually-acceptable solution.
- Any additional solutions to improve compatibility should be encouraged.