Workplan of the Providers' Forum[1]

In order to accomplish the objectives of the Providers' Forum as described in the terms of reference, the members of the Providers' Forum have agreed to pursue the following actions.

Promotion of compatibility and interoperability

1. The principles of compatibility and interoperability and their definition were adopted at the first meeting of the Providers' Forum, held in Bangalore, India, in 2007 (A/AC.105/901). At the third meeting of the Providers' Forum, held in Pasadena, California, United States of America, in 2008, these principles and their definition were updated (see appendix). The Providers' Forum will continue to refine these principles of compatibility and interoperability and their definition.

2. The providers will actively support the actions of the International Committee on Global Navigation Systems (ICG) Working Group on Systems, Signals and Services, which is focused on achieving compatibility and interoperability among the global navigation satellite systems (GNSS). This may include sponsoring and participating in workshops and meetings designed to solicit input from GNSS users. It may also require elaboration on an approach for quantitative evaluation.

3. The providers will draft individual reports on their respective planned or operating systems and the policies and procedures that govern their service provision, consistent with the template for information sharing:

   (a) The reports will be consolidated and maintained by the ICG Executive Secretariat on behalf of the providers and updates will be provided at least annually in preparation for each major meeting of ICG;

   (b) The reports will emphasize each provider's current and planned efforts to ensure compatibility and interoperability among the global, regional and augmentation system components of the global system of navigation satellite systems.

Open service information dissemination

4. Consistent with the principle of transparency in the provision of open services, each individual provider will strive to publish and disseminate all signal and system information necessary to allow manufacturers to design and develop GNSS receivers on a non- discriminatory basis.

5. Based on individual publication of open service signal information, the Providers' Forum will consider templates for sharing and disseminating information as developed by the ICG Working Group on ***Systems, Signals and Services***.

Service performance monitoring

6. Providers will consider the development and discussion of proposals to widely monitor the performance of their open signals and provide timely updates to users regarding critical performance characteristics such as timing accuracy, positioning accuracy and service availability.

[1] The paragraphs 2 (Promotion of compatibility and interoperability), 5 (Open Service information dissemination) and 9 (Spectrum protection: interference detection and mitigation) were modified (highlighted in Bold Italic) as proposed and adopted at the Twenty First Meeting of the Providers' Forum

7. These discussions should focus on potential cooperation in the development of the necessary ground infrastructure to monitor signal and service performance for open services, recognizing that the actual implementation of this infrastructure is subject to the budgetary limitations of each system provider, and the completion of provider-to-provider agreements as necessary and appropriate.

Spectrum protection: interference detection and mitigation

8. The Providers' Forum will pursue the protection of radio-navigation satellite services (RNSS) spectrum through appropriate domestic and international regulation. When necessary and appropriate, providers will share their views on RNSS spectrum issues and related agenda items under consideration by the International Telecommunication Union and its working parties.

9. In addition, the Providers' Forum will pursue the development of a strategy to detect and mitigate interference in GNSS worldwide by supporting the efforts of the ICG Working Group on ***Systems, Signals and Services*** in this regard. This could lead to concrete proposals for detecting interference.

10. This workplan will be reviewed on an annual basis and revised as necessary in order to address important issues that require the attention and focus of system providers.

Appendix

ICG/PF/WP/SEP2009

Providers' Forum principles of compatibility and interoperability and their further definition

Global and regional system providers agreed that at a minimum, all global navigation satellite systems (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 of compatibility and interoperability, as these latter terms are defined below:

(a) *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:

(i) Interoperability allows navigation with signals from different systems with minimal additional receiver cost or complexity;

(ii) 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;

(iii) Geodetic reference frames realization and system time steerage standards should adhere to existing international standards to the maximum extent practical;

(iv) Any additional solutions to improve interoperability should be encouraged.

(b) *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:

(i) 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;

(ii) 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;

(iii) Any additional solutions to improve compatibility should be encouraged.