

Recommendation 2.1 for Committee Decision

Prepared by: Working Group A

Date of Submission: 8 September 2011

Issue Title: Continuation of WG-A compatibility subgroup

Background/Brief Description of the Issue:

In June 2010, a Providers-only workshop on compatibility was conducted and a sub-group was formed to investigate organizational models relevant to multilateral coordination of GNSS compatibility. At ICG-5, the Committee recommended to continue the work of the sub-group on organizational models and procedures for multilateral discussions on GNSS compatibility.

Discussion/Analyses:

Following ICG-5, the subgroup met twice on, 25 February 2011 in Geneva and on 8 June 2011, in Vienna. During its last meeting, the subgroup developed draft terms of reference (see the annex) and presented them at the ICG WG-A meeting on 9 June 2011. WG-A members agreed on the relevance of those ToR and on the usefulness of continuing the work of the subgroup.

Recommendation:

To continue the activities of the WG-A Compatibility subgroup in accordance with the ToR as attached. The subgroup will assess compatibility issues to support the development of Common Signal Characteristics Reference Assumptions, which are recommended by ICG-5 Recommendation 6. The subgroup will also initiate discussions and collaboration on open service GNSS performance parameters, including definitions and calculation methods, as requested by ICG-6 WG-A recommendation 4.1.

Annex

Draft Terms of Reference of the WG –A Compatibility Sub-Group

Noting:

- a) the importance of cooperation related to civil satellite-based PNT and value-added services;
- b) the unique and irreplaceable role of bilateral coordination under ITU procedures;
- c) the increasing importance of multilateral information exchange among GNSS systems;

Considering:

- a) that at ICG-5, WG-A recommended the creation of a subgroup to investigate multilateral discussions for GNSS compatibility;
- b) that at ICG-6, the committee endorsed a recommendation from WG-A to continue studying the various issues of compatibility that are of concern to all parties;
- c) that the terms of reference should be reviewed at least annually to determine if the subgroup should continue to exist, and if so, to maintain current relevance;

Deciding:

- a) that English will be the official language for the conduct of its meetings and its documentation;
- d) that the two Co-Chairs are appointed by Working Group A [for a period of one year], to organize the work to be conducted during meetings and to guide the discussions during meetings;
- e) that the sub group shall only work on the compatibility issues that are agreed to by WG-A;

The WG-A Compatibility Subgroup will:

1. work on the compatibility issues as approved by WG-A and define work plans for the corresponding issues;
2. express its agreed results in the form of findings, reports, or whatever form may be appropriate for the case;
3. provide proposals of compatibility issues to WG-A, for discussion and decisions.

Recommendation 3.1 for Committee Decision

Prepared by: Working Group A

Date of Submission: 8 September 2011

Issue Title: Proposed workshop on GNSS Spectrum Protection and Interference
Detection and Mitigation for ICG Providers' Forum Member Consideration

Background/Brief Description of the Issue:

ICG Terms of Reference work plan includes the means to: “establish, as mutually agreed and on an ad hoc basis, working groups to investigate specific areas of interest, cooperation and coordination.” Also, the work plan of the Providers Forum contains the provision to consider GNSS Interference detection and mitigation. This proposal (attached), sets forth the description of a workshop focused on spectrum protection and interference detection and mitigation for GNSS.

Discussion/Analyses:

As current and emerging GNSS systems become more and more useful for world-wide economic benefit and efficiencies in operations, it is becoming more important for Providers to work together to protect users of these GNSS signals from harmful interference. A Proposed Agenda for the workshop has been developed based on experience and concerns related to GNSS IDM. The issues to be discussed include regulatory, policy, operational and technical aspects. Specifically, the proposed agenda suggests discussion of the following subjects: RNSS Spectrum Protection Overview; Sources of interference; Update from current Providers; Current and future information sharing, dissemination, collaboration and standardization; Case Studies, Workshop views and recommendations. One of the desired outcomes of this workshop will be to address the next steps for collaboration on IDM, especially on possible technical concepts for interference detection and monitoring and the forecast and observation of harmful space weather effects. This may include establishing additional workshops and/or case studies to examine in more detail some additional aspects of IDM, to include: joint GNSS IDM monitoring, communication and exchange of information, possible development of (recommended) standards for interference detection devices, development of a mechanism for interference source monitoring and mitigation within the ICG, and the exchange of information related to space weather forecasting.

Recommendation:

It is recommended that ICG conduct a two day workshop, with another half-day to finalize recommendations, focusing on GNSS Spectrum Protection, Interference Detection and Mitigation, and international cooperation. The location of the proposed workshop, to be conducted no earlier than March 2012, is to be determined. It is also recommended that follow-up meetings, workshops, and/or case studies, and potential establishment of a platform for international technical cooperation, may be discussed and agreed upon as a result of this initial workshop.

Recommendation 4.1 for Committee Decision

Prepared by: Working Group A

Date of Submission: 8 September 2011

Issue Title: Consensus on Open Service GNSS performance parameters, including Definitions and Calculation Methods

Background/Brief Description of the Issue:

According to the current work plan, the working group will develop a template that individual GNSS providers may consider using in their publication of signal and system information, the policies of provision, and the minimum levels of performance offered for open services. Before a template for open service performance can be developed, the goal is to reach consensus on a minimum set of parameters common to all GNSS open services.

Moreover, each system has its own definitions and calculation methods for the performance parameters, which may be different from each other. It is recommended that the definitions and calculation methods of the performance parameters be clarified and discussed in order to facilitate the subsequent work on the template.

Discussion/Analyses:

- Parameters of each Performance Document (PD) will address the Open Service (OS) provided by each provider.
- The definitions and calculation methods of open service GNSS performance parameters should be provided by each system provider and discussed by all interested participants in order to achieve a common understanding. The OS PD values may change over time – as determined by the GNSS provider.
- Providers may choose to define additional parameters for their respective open services or for additional services they intend to provide.

Recommendation:

The Compatibility sub-group of WG-A, with participation from all interested system providers will initiate the necessary discussions and collaboration, including the issue of definitions and calculation methods of the performance parameters. Names of participants should be provided to the WG-A sub-group Chairs as soon as possible.

Recommendation 4.2 for Committee Decision

Prepared by: Working Group A

Date of Submission: 8 September 2011

Issue Title: International GNSS Monitoring and Assessment

Background/Brief Description of the Issue:

The Providers Forum has agreed to 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. As stated in its work plan, Working Group A will support this activity by focusing on potential cooperation in the development of the necessary ground infrastructure to monitor signal and service performance for open services.

To ensure the service quality, consistent with common open service performance parameters, and realize the ultimate goal of interoperable GNSS open services signals, it is desirable to carry out monitoring and assessment on GNSS open services. An important approach is to determine if international GNSS Monitoring and Assessment requires a single new system, an architecture created by several national systems or through the use of an existing global network such as the one utilized by the International GNSS Service (IGS).

Discussion/Analyses:

Several multi-GNSS monitoring network activities are underway. For example, Preliminary experience includes BeiDou monitoring and assessment, the long-term successful operation of IGS, and the achievements in GNSS signal monitoring and assessment made by Stanford University, DLR, Information Analysis Center of Roscosmos, and others.

China is developing the International GNSS Monitoring and Assessment System (iGMAS).

Japan has also initiated a project known as Multi-GNSS Demonstration Campaign, which is actively seeking proposals for monitoring sites to host GPS/GLONASS/Galileo/QZSS receivers that have already been procured by JAXA.

Future plans for IGS network upgrades to include multi-GNSS receivers should also be investigated, and the support and participation of all GNSS providers will be very beneficial for global monitoring and assessment

Recommendation:

To monitor and assess GNSS open services worldwide, a subgroup of WG-A, with participation from WG-B and WG-D should be formed to develop a proposal to optimize existing and planned capabilities, and identify additional activities necessary for international GNSS Monitoring and Assessment.