![International Committee on Global Navigation Satellite Systems]

# ICG WORKING GROUP A
## Compatibility and Interoperability of Global and Regional Navigation Satellite Systems and Satellite-based Augmentations

## ICG-7 Meeting

### Beijing, China
### 4 – 9 November 2012

### AGENDA

### Wednesday, November 7, 0930-1300

- WG-A Co-chairs Opening Remarks

- Approval of the Agenda

## Session 1: GNSS Updates

1) System Provider Updates – additional information*
   - China
   - EU
   - India
   - Japan
   - Russia
   - U.S.

* Note: This is an opportunity for group discussion on any information relevant to WG-A that requires clarification or elaboration based on the system provider updates presented in the plenary session on Monday, November 5

## Session 2: GNSS Compatibility

1) PRESENTATION: The definitions and Methods of GNSS Open Service Performance Parameters

   *Jianwen LI (China), Surveying and Mapping Institute of Zhengzhou*

2) PRESENTATION: GNSS Open Service Performance Parameters Template

*Nate HOWARD (USA), GPS Directorate*

3) Conclusions, Actions, and Recommendation from the Intersessional Meeting

*Sergey REVNIVYKH, David TURNER*
*Takahiro MITOME, and Dominic HAYES*

Approval of proposed **Recommendation 7A.2.1**

*ICG members are encouraged to actively participate in the ITU-R and regional WRC-15 preparatory work on new IMT spectrum to ensure that proposals do not impact existing and future GNSS operations. Members may also consider forming links with other satellite groups already defending satellite spectrum.*

## Session 3: Spectrum Protection - Interference Detection, and Mitigation (IDM)

1) PRESENTATION: Integrated Monitoring of GNSS Interference and Standardization of Information Sharing in the Framework of ITU

*Weimin ZHEN (China) No. 22 Institute of China Electricity Company Technology*

2) PRESENTATION: Interference Reporting Form Currently Used in Russia

*Dmitry Aronov (Russia), Geizer-Telecom Company*

3) Report on outcomes of the IDM Workshop (June 2012)

*Jeff AUERBACH (USA), Takahiro MITOME (Japan)*

4) Actions, and Recommendation from the Intersessional Meeting

*Sergey REVNIVYKH, David TURNER*

Approval of proposed **Recommendation 7A.3.1 - Education & Outreach Regarding Sources of GNSS Interference**

*The ICG should develop educational material such as a downloadable pamphlet or other web content on sources of interference to GNSS. The material should include an explanation why radio navigation satellite services (RNSS) are different than radio communications services and more vulnerable to interference*

Approval of proposed **Recommendation 7A.3.2 - Continuation of IDM Workshops**

- *The ICG should sponsor additional GNSS Interference Detection & Mitigation (IDM) Workshops*
  - *System Providers and ICG participants are encouraged to identify experts to participate in the next workshop, scheduled to occur in Honolulu, Hawaii in conjunction with the ION Pacific PNT Meeting, April 22-25, 2013*
  - *Specific expertise desired includes:*
    - *ITU Radio Bureau officials*
    - *Spectrum Regulators from System Providers and Administrations in the Asia-Pacific Region*
    - *Representatives of the mobile telecommunications and automotive electronics industries utilizing GNSS*
    - *IGS and National GNSS reference station network developers*

## Session 4: Open Service Information Sharing and Service Performance Monitoring (International GNSS Monitoring and Assessment) - *Proposed Joint Session with WG's B&D*

1) PRESENTATION: Update on iGMAS

    *Xurong DONG (China) Academy of Equipment Command and Technology*

2) PRESENTATION: Update on the Multi-GNSS Asia (MGA) Demonstration Campaign

    *Satoshi KOGURE (Japan), JAXA*

3) PRESENTATION: GNSS Monitoring System in Russia

    *Igor Silvestrov (Russia), National Research Institute of Physical, Technical and Radio Engineering Measurements*

4) PRESENTATION: Signal Quality Monitoring

    *Valery Tyubalin (Russia), Institute of Space Device Engineering*

5) Report of the Sub-group on International GNSS Monitoring and Assessment

    *Satoshi KOGURE and Xurong DONG*

6)  Recommendation from the Intersessional Meeting

*Sergey REVNIVYKH, David TURNER*

Approval of proposed **Recommendation 7A.4.1**

- *Redefine the current IGMA sub-group of WG-A (with B & D participation) as an ICG Task Group.  Their task will be to:*
  - *Determine Service Parameters to Monitor*
  - *Determine what gaps exist in current monitoring*
  - *Recommend what should be monitored by:*
    - *Individual GNSS monitoring/control segments*
    - *Shared sites of 2 or more GNSS through bilateral agreements*
    - *Global monitoring of Multi-GNSS parameters*
  - *Propose Organizational Approach*
    - *Avoid Duplication?*
    - *Role of the current/planned IGS?*
    - *Relationship to the ICG?*

## Session 5: GNSS Interoperability - *Proposed Joint Session with WG's B&D*

1)  PRESENTATION: Research on GNSS Interoperability Mode

*Xiachun LU (China) National Time Service Center, Chinese Academy of Science*

2)  PRESENTATION: Suggestions on GNSS Time Scales Interoperability

*Igor Silvestrov (Russia), National Research Institute of Physical, Technical and Radio Engineering Measurements*

3)  Actions, and Recommendation from the Intersessional Meeting

*Sergey REVNIVYKH, David TURNER*

Approval of proposed **Recommendation7A.5.1**

- *Consistent with the principle of interoperability and its definition, and the implementation of previous ICG recommendations related to interoperability, **the ICG should host a user/industry workshop in conjunction with the ION Pacific PNT meeting, April 22-24 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:*
  - *Potential for a common third open service signal*
  - *Frequency diversity vs. frequency commonality*
  - *DOP improvement with the addition of $2^{nd}$, $3^{rd}$, $4^{th}$, $N^{th}$ global constellation*
  - *System provider time and geodetic reference frame implementation as described by the ICG WG-D templates*
  - *Potential opportunities to utilize existing or planned spare capacity in civil/open service or SBAS navigation messages in order to increase multi-GNSS interoperability*

## Thursday, November 8, 0930-1100

## Session 6: Conclusion

1) Any unfinished business

2) Final review of recommendations and WG-A Plenary Presentation

3) Closing remarks

4) Adjourn