

## **ICG SYSTEMS WORKING GROUP**

### **Global and Regional Navigation Satellite Systems, Signals and Services**

### **Intersession Meeting**

**United Nations (UN) Vienna International Centre (VIC)**

**Vienna, Austria**

**07-10 June 2016**

### **AGENDA**

#### **June 7, 1500-1730**

#### **Review and Approval of Agenda and Opening Remarks**

*Sergey REVNIVYKH & David TURNER*

#### **GNSS Provider Updates**

*System Providers*

- 1) Beidou (BDS)
- 2) Galileo
- 3) GLONASS
- 4) GPS
- 5) QZSS
- 6) IRNSS

#### **Compatibility and Spectrum**

- 1) Report of the "Seminar on GNSS Spectrum Protection and Interference Detection Mitigation" during the December 2015 UN OOSA ICG Expert's Meeting\*

*Takahiro MITOME & Dominic HAYES*

*\* Note – Initiates Implementation of **Recommendation 9A.3.3:***

*The ICG Executive Secretariat, in coordination with the IDM taskforce, should organize United Nations workshops on RNSS spectrum protection and IDM for governments of user community member nations in order to protect the worldwide utility and benefits of GNSS.*

- *A proposal focused on educating UN member state administrations regarding RNSS spectrum management approaches and IDM capabilities will be developed for consideration by the ICG*

## DRAFT

- *Participating member state administration representatives will be encouraged to Provide information as to whether it is legal within their country to: manufacture, sell domestically, export, import, purchase, own, or use GNSS jammers*
- 2) Report of the 5<sup>th</sup> IDM Workshop, Changsha, China, May 17, 2016  
*Rick HAMILTON & Weimin ZHEN*
- 3) Update on Implementation of WG-S ICG-10 Recommendation 2  
*Sergey REVNIVYKH & David TURNER*

### ***Recommendation 2: UN COPUOS Agenda Item on Spectrum Protection and IDM***

*Working Group [A] should prepare a presentation on its spectrum protection and IDM activities for the February 2016 session of the UN COPUOS STSC.*

*Under this agenda item, Member States will be asked to report:*

- *National RNSS Spectrum Allocations and consistency with ITU Allocations*
- *Regulations regarding Non-licensed emissions limits from RF emitters and non-emitters*
- *Planned or existing Laws and Regulations related to the manufacture, sale, export, import, purchase, ownership, and use of GNSS jammers*
- *Domestic efforts to detect and mitigate GNSS interference*

## **June 8, 0900-1300**

### **Parallel Meetings of the *Compatibility & Spectrum* and *Interoperability and Service Provision* Sub-Working Groups**

#### **Compatibility & Spectrum (Suggested Topics)**

*Takahiro MITOME, Dominic HAYES*

- 1) Review status of recommendation 9A.2.1 implementation:  
*Review existing electromagnetic emissions limits from all non-licensed transmitters (for example, hairdryers, escalators) in all RNSS bands and determine whether existing unwanted emissions limits are sufficient to protect GNSS reception.*

- 2) Review status of ICG-10 **recommendation 1**: Campaign of Protection of RNSS operations

*The ICG recommends that GNSS providers and GNSS user community member states promote the implementation of protection measures for GNSS operations in their nations and/or regions as well as other parts of the world.*

- 3) Review status of ICG Recommendation 9A.3.1

*The ICG recommends that GNSS providers and GNSS user community member states evaluate existing and emerging interference detection, localization, and characterization capabilities and consider developing, testing and implementing these or similar capabilities in their nations or regions of the world*

- 4) Review status of ICG Recommendation 9A.3.2

*System providers and user community member states are encouraged to work with industry groups to determine if standards for crowd sourcing interference detection and localization techniques should be developed and cost-effectively implemented by mobile telecom service providers*

## **Interoperability and Service Provision (Suggested Topics)**

*Xiaochun LU, Jeff AUERBACH*

- 1) Status of **Performance Standard** development

- a. **Major Activities to date:** It was agreed to develop a standard template for all open signals in all frequency bands.
- b. **Status:** At WG-A in ICG-10, the status of each system provider's system Performance Standards was reviewed.

GPS – new revision is underway

BDS – released

Galileo – underway

GLONASS – approval stage

QZSS – underway

Performance Standard Template Draft proposed by US and agreed between participants to be used as a basis for further development, Calculation Methods proposed by Russia for revision and comments. Comments and inputs from China and Japan received at inter-sessional meeting.

c. **Way Forward proposed at ICG-10:**

- Providers should focus on:
  - developing and updating their Systems' Performance Standards
  - reporting their progress and any problematic issues at WG-A meetings
  - participating in creating a Performance Standard Template for all GNSS considering it as a reference document defining minimal set of parameters (and calculation methods) all providers agreed on to be used for monitoring and assessment as well as the guidelines for new GNSS or RNSS providers.
- The collaboration with International GNSS Monitoring and Assessment Task Force should also be continued

2) Open Service Information Sharing and Service Performance Monitoring  
**(International GNSS Monitoring and Assessment Task Force)**

a. Report of the International GNSS Monitoring and Assessment Task Force

b. Review status of ICG-10 joint **recommendation 3:** ICG Open Service Monitoring Information Portal

*WG-A recommends that existing monitoring service centers for GNSS open services establish a link to the new ICG portal designed by the ICG Secretariat.*

- *This portal will allow GNSS users worldwide to easily find GNSS monitoring information and products by just looking for the ICG webpage.*
- *Eventually, open service monitoring and analysis centers linked to the ICG portal will use an ICG-recommended list of open service parameters to be monitored that are defined and calculated using accepted techniques and procedures based on a consensus among GNSS service providers.*

c. Review status of ICG-10 **recommendation 4:** IGMA - IGS Joint Trial Project

*The ICG recommends that the IGMA TF and IGS initiate a joint trial project that will demonstrate a global GNSS Monitoring and Assessment capability*

*In advance of launching the joint trial project, the following items are to be determined:*

- *ToR for the Trial project*
- *Status of Trial Project and list of participating organizations (existing monitoring systems and/or providers), operation modes*

## DRAFT

- *Short list of stations to be used in Trial Project, providing 1X coverage (to provide collecting all measurement data from all satellites of all GNSS)*
- *Requirements for receivers and related equipment*
- *Short list of monitored parameters for Trial Project and calculation methods for them*
- *Organizational procedures (reference data validation for parameters calculations, measurement data exchange, monitoring results exchange, etc.)*

*An example of IGMA - IGS joint Trial project as a reference for making further definition:*

- *IGS is well placed to establish a Trial Project for IGMA*
- *Invite participation from existing non-IGS analysis groups, networks and data centres,*
- *Develop benchmarking between Groups and generate analysis products*

*Cross sharing between existing IGS functional streams and IGMA activities benefit both*

- 3) Report of the prior **Interoperability Task Force** to include summary and recommendations from the Russia and China Workshops
  - a. Presentations
  - b. Review status previous discussion on Center Frequency of New CDMA Signals, and potential future recommendation
  - c. Review status of previous discussion on Protection from Provider Signal Patents, and potential future recommendation
  - d. Proposals on next steps related to Interoperability

## **June 8, 1500-1730**

### **Participation in Meeting of WG-B**

- 1) **Space Service Volume** Update
- 2) Additional Topics to be determined by WG-B

## **June 9, 0930-1300**

### **Reports from the *Compatibility & Spectrum* and *Interoperability and Service Provision* Sub-Working Groups**

- 1) Compatibility & Spectrum

*Takahiro MITOME, Dominic HAYES*

- 2) Interoperability and Service Provision

*Xiaochun LU, Jeff AUERBACH*

## **June 9, 1430-1730**

### **Review and Consensus on Working Group Actions and Recommendations**

- 1) Compatibility and Spectrum Actions and New Recommendations

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

- 2) Interoperability and Service Provision Actions and new recommendations

*Xiaochun LU, Jeff AUERBACH, Sergey REVNIVYKH & David TURNER*

## **June 10, 0900-1230**

### **Additional Working Group Business and Intersessional Meeting Conclusions**

- 1) Discussion on **System-of-System Operations** – Tasks or Actions?

- Orbital Debris Mitigation
- Orbit Deconfliction
- Constellation Optimization for performance improvement

- 2) Additional unfinished business

- 3) Review of proposed Inter-sessional recommendations and actions

- 4) Review of Systems WG schedule leading to ICG-11

Adjourn