ICG WORKING GROUP S
Systems, Signals, and Services
ICG-15 Meeting
Vienna, Austria
27-30 September 2021
AGENDA

Monday, 27 September

1000-1230 Subgroup Meetings

Wednesday, 29 September

0930-0945 Introduction
1) WG-S Co-chairs Opening Remarks
2) Approval of the Agenda
3) WG-S Events in 2021

0945-1015 GNSS System Provider Updates*
1) BeiDou (BDS)
2) Galileo
3) GLONASS
4) GPS
5) QZSS
6) IRNSS/NAVIC
   a. Presentation: Overview of new NavIC L1 SPS Signal structure, Modulation and CEMIC Scheme
   
   D. UPADHYAY & V. BHADOURIA, SAC/ISRO, India

* Note: This is an opportunity for group discussion on any information relevant to WG-S that requires clarification or elaboration based on the system provider updates presented in the plenary session on Tuesday, 28 September.
1015-1100  GNSS Compatibility & Spectrum (IDM Standards and Information Exchange)

1) PRESENTATIONS
   a. The method of GNSS Interference Detection in Civil Aviation
      Weimin ZHEN, China
   b. Pseudolite based navigation systems for aviation applications: An update
      Ashish SHUKLA, SAC/ISRO, India

2) IDM Task Force Report
   Rick HAMILTON, Weimin ZHEN

3) Review Actions, Recommendations and Next Steps

1100-1120  Coffee Break

1120-1230  GNSS Compatibility & Spectrum (Signal Compatibility and Spectrum Protection)

1) PRESENTATIONS
   a. Protection from out of band emissions and need for Regulation in S-Band Navigation: NavIC Experience
      GHANSHYAM & P. PATIDAR, URSC&SAC/ISRO, India
   b. Focus on WRC-23: Topics Relevant to GNSS
      Hon Fai NG, International Telecommunication Union

2) Review previous recommendations and actions

Recommendation 14S.1: Spectrum Protection Booklet

   Recommends:
   1. that the WG-S Compatibility and Spectrum subgroup, in coordination with the ICG Secretariat, produce a draft booklet on GNSS/RNSS Spectrum Protection based on the briefing material used for the ongoing spectrum seminars:
      • Fundamentals of GNSS
      • Interference and Spectrum Management
      • Interference Threats
      • Methods of Interference Detection and Mitigation
      • Current Interference Challenges
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2. that the ICG consider formal endorsement of the draft booklet at a future meeting

1230-1330 Lunch

1330-1430 System-of-Systems Operation (Orbital Debris Mitigation)

1) PRESENTATIONS
   a. IGSO De-Orbit Way
      Mari Yuzawa GOTO, Japan
   b. Study on Disposal Options of BDS EOL Satellites
      ZHOU Jing, China
   c. IADC MEO Report
      Manuel METZ, IADC

2) Discussion of IADC Report (November 2020)
   David TURNER, U.S. & Sergey REVNIVYKH, Russia

3) Actions, Next Steps

1430-1500 Interoperability & Service Standards (Open Service Standards)

1) PRESENTATIONS
   a. Novel interleaved Z4 linear PRN codes for NavIC L1-SPS
      Sugandh MISHRA & D DHARMAPA, SAC&ISTARAC/ISRO, India
   b. Navigation Messaging Service and Authentication for NavIC SPS: An Update
      A. DWIVEDI & Hemraj SHAU, URSC&SAC/ISRO, India

2) Update from the Performance Standards Team
   Alexey BOLKUNOV, Russia & Sasha MITELMAN, U.S.

3) Review Actions, Next Steps

1500-1520 Coffee Break

1520-1550 Joint Working Group Session (S, B, C & D invited): Open Service Information Sharing and Service
AGENDA

Performance Monitoring (International GNSS Monitoring and Assessment)

1) PRESENTATIONS
   a. Status Update of IGMA-IGS activities
      Tim SPRINGER, ESA

2) Report of the IGMA Task Force (WG-S)
   Satoshi KOGURE, Shuli SONG

3) Review Actions and Next Steps

1550-1630 Joint Working Group Session (S, B, C & D invited):
Precise Point Positioning (PPP) Interoperability

1) PRESENTATIONS
   a. Introduction and Application of BDS PPP Service
      XU Xiaojun, China

2) Update from the PPP Task Force (WG-S)
   Rui HIROKAWA, Japan, Simon REYNOLDS, Australia & Ignacio
   FERNANDEZ-HERNANDEZ, EU

3) Review Actions, Next Steps

1630-1730 Joint Working Group Session (S, B, C & D invited):
Interoperability & Service Standards (Multi-GNSS Interoperability – Timing)

1) Review previous discussions, actions from WG-S
   Jeff AUERBACH, U.S. & Xiaochun LU, China

2) PRESENTATIONS
   a. Time interoperability and the CCTF Recommendation
      G. PETIT, P. DEFRAIGNE, BIPM

   b. NavIC-Galileo Time offset determination: An update
      Anu AARORA, ISTRAC/ISRO, India

   c. New results of single station GNSS to GNSS time offsets and the offsets
      prediction
      H. YUAN, NTSC, China
AGENDA

3) New Considerations, actions, next steps

1730-1800  Joint Working Group Session (S, B, C & D invited): Geodetic References
1) Discussion led/organized by WG-D

Thursday, 30 September

Interoperability (Receiver)
0900-0930
1) PRESENTATIONS
   a. Configurable NavIC Payload Signal Integrity & Coherency Test Receiver
      Rakesh BIJARNIYA, SAC/ISRO, India
   b. Novel Modulation, Coding and Soft decoding algorithms for NavIC L1 Receivers
      Deepak MISHRA, SAC/ISRO, India

0930-1000  GNSS Compatibility & Spectrum
1) Report of the Compatibility & Spectrum Sub-Group
   Dominic HAYES, EU & Takahiro MITOME, Japan
2) Review Recommendations, actions and next steps

1000-1030  Interoperability & Service Standards
1) Report of the Subgroup Co-chairs
   Jeff AUERBACH, U.S. & Xiaochun LU, China
2) Review recommendations, actions and other discussion items

1030-1100  Refinement of the WG-S Report to the Committee and Providers Forum
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1100-1120  Coffee Break

1120-1230  Review and Consensus on Working Group Actions and Recommendations; Review Final WG-S Report to the Committee and Providers Forum

1) Compatibility and Spectrum Actions and Recommendations
   *Takahiro MITOME, Dominic HAYES, Sergey REVNIVYKH & David TURNER*

2) Interoperability and Service Provision Actions and Recommendations
   *Xiaochun LU, Jeff AUERBACH, Sergey REVNIVYKH & David TURNER*

3) Review of Co-Chairs Presentation to the ICG Plenary
4) Possible Times and Locations for Intersessional Meeting(s)
5) Closing Remarks
   *David TURNER, U.S. & Sergey REVNIVYKH, Russia*

1230-1330  Lunch