



International Committee on  
Global Navigation Satellite Systems

# **ICG Experts Meeting: Seminar on GNSS Spectrum Protection and Interference Detection and Mitigation**

## **Course Introduction**

**16-17 December 2015**

# History

- Pre-ICG Action Team on GNSS (1999-2005)
  - Regional Meetings 2000-2003
  - Fall 2004: 1<sup>st</sup> effort to develop Workplan for ICG
    - Spectrum protection and Interference detection and mitigation (IDM) drafted into ICG Workplan from the beginning
- Proposal by U.S. for Educational Seminar on Spectrum Protection and IDM at Final Pre-ICG Experts Meeting in 2005
  - Never took place until now!



# Purpose of this Workshop

Describe the importance of GNSS spectrum protection at the National level, and what you can do to reap the benefits of GNSS

# Session Agenda: Wednesday Morning

09:00 – 18:00	<b>SESSION 5 – Seminar on GNSS Spectrum Protection and Interference Detection and Mitigation</b>
	<b>I. OVERVIEW</b>
09:00	Course Introduction, <i>Jeffrey AUERBACH, United States</i>
09:30	Participant Introductions ( <i>Country, GNSS Use Within Country</i> ), <i>Tom STANSELL, United States, Dominic HAYES, European Union, Takahiro MITOME, Japan</i>
10:30 – 10:50	Coffee Break
	<b>II. INTRODUCTION TO GNSS</b>
10:50	History, <i>Tom STANSELL, United States</i>
11:10	How GNSS Works and Applications, <i>Dominic HAYES, European Union</i>
11:30	GNSS Signals, Spectra, and Receiver Fundamentals, <i>Tom STANSELL, United States</i>
11:50	Why GNSS is so Weak vs Terrestrial Signals - Why it is Vulnerable, <i>Dominic HAYES, European Union</i>
12:10	Three Ways Interference Affects GNSS, <i>David CHOI, United States</i>
12:30 – 13:45	Lunch Break



# Session Agenda: Wednesday Afternoon

## III. SPECTRUM MANAGEMENT

- |               |   |
|---------------|---|
| 13:45         | What is Spectrum Management and Why Do It, <i>Dominic HAYES, European Union</i>   |
| 14:00         | Introduction to International Telecommunication Union (ITU), <i>Attila MATAS, ITU</i>   |
| 14:15         | RNSS Aspects of ITU Plus Relevant Results of WRC-15, <i>Attila MATAS, ITU</i>   |
| 14:35         | Introduction to National Spectrum Agencies and National Applications, <i>Dominic HAYES, European Union, David CHOI, United States, Takahiro MITOME, Japan</i> |
| 15:05         | Possible Emissions in GNSS Frequency Bands Other than GNSS Signals, <i>Takahiro MITOME, Japan</i>   |
| 15:25         | Proliferation of GNSS Jammer Devices, <i>Tom STANSELL, United States</i>  |
| 15:40         | Adjacent Band Interference Concerns, <i>Dominic HAYES, European Union</i>   |
| 16:00 – 16:20 | Coffee Break  |
| 16:20         | Q&A Session, <i>Rick HAMILTON, United States, Jeffrey AUERBACH, United States</i>   |
| 17:20         | Conclusion: Summary and Take-Away, <i>David CHOI, United States</i>   |
| 17:50         | Adjourn   |

# Session Agenda: Thursday Morning

09:00 – 13:00 **SESSION 5 – Seminar on GNSS Spectrum Protection and Interference Detection and Mitigation (continues)**

09:00 Introduction, *Jeffrey AUERBACH, United States*

09:10 Interactive Discussion: What Was Learned; What Is Needed, *David CHOI, United States*

## **IV. SPECTRUM PROTECTION**

09:40 What is Meant by Spectrum "Protection", *Dominic HAYES, European Union*

10:00 ITU Role in Interference Enforcement, *Attila MATAS, ITU*

10:15 ICG Activities and its Role in Spectrum Protection and Interference Detection and Mitigation, *Jeffrey AUERBACH, United States*

10:30 The Ultra-Wide Band Example and a Place to Start, *Tom STANSELL, United States*

11:00 – 11:20 Coffee Break

## **V. INTERFERENCE DETECTION AND MITIGATION**

11:20 Interference Detection Concepts, *Tom STANSELL, United States*

11:40 Interference Detection and Mitigation and GNSS Jammers, *Rick HAMILTON, United States*

12:10 Canadian and Australian Legal Sanctions, *Christos RIZOS, Australia*

## **VI. SUMMARY/INTERACTIVE DISCUSSION**

12:25 Summary and Q&A Session (*Meeting Participants*)



# Contributors

- Jeffery AUERBACH
- David CHOI
- Rick HAMILTON
- Dominic HAYES
- Attila MATAS
- Takahiro MITOME
- Tom STANSELL





International Committee on  
Global Navigation Satellite Systems

# Participant Introductions