réf. **GNSS-FUTURE**
Code OACI 179
ENAC - **SINA**

Receiver Signal Processing for Future GNSS Signals

FORMATION EN ANGLAIS

DURÉE
2 jours

PLACES OFFERTES
40

DATES ET LIEUX
No session in 2016, recast in progress

CONDITIONS DE PARTICIPATION
Frais pédagogiques :
Catégorie B
- 2017 : 756 €

Informations pratiques :
voir en fin de catalogue

CONTACT ADMINISTRATIF ENAC
formationcontinue@enac.fr

Bulletin d'inscription obligatoire :
voir en fin de catalogue

Objectifs

This course provides an overview of future GNSS signal processing and the many aspects that affect GNSS receiver design and performance. The course starts with a reminder of future GNSS signal structures, and then addresses the important features to consider for future GNSS signals acquisition and tracking. This course also investigates specific receiver tracking architectures dedicated to future civil GNSS signals, and then characterizes the resistance of these signals towards multipath and interference environments with respect to GPS C/A.

Participants concernés

Engineers and executives.

Contenu

Review of civil GNSS signals
- Transmitted civil GNSS signals on L1/E1 and L5/E5 bands:
- GPS: L1 C/A, L1C (TMBOC) and L5
- Galileo: E1 OS (CBOC) and E5 (AltBOC)

The correlation operation
- Correlator output model,
- GPS and Galileo main correlation functions,
- Correlation losses

Acquisition of future GNSS signals
- Review of typical acquisition performance criteria
- Joint data/pilot acquisition detectors,
- Performance of MBOC signals acquisition and extension to other signals,
- Introduction to secondary code acquisition strategies

Phase tracking of future GNSS signals
- Phase tracking based on the pilot channel,
- Phase tracking performance

Code tracking of future GNSS signals
- Use of the pilot channel and secondary code for code tracking,
- Investigation of basic BOC tracking schemes (architecture, performance in thermal noise, tracking ambiguity problem),
- Tracking of BOC-based signals : MBOC/AltBOC (architecture, performance in thermal noise, tracking ambiguity problem)

Advanced code tracking architectures
- MBOC tracking for narrow-band and wide-band receivers
- AltBOC tracking for wide-band and verywide-band receivers
- Introduction to typical tracking techniques against BOC-related tracking ambiguity

Multipath effects on the tracking of future civil GNSS signals
- Typical multipath model
- Carrier tracking multipath envelopes and general performance
- Code tracking multipath envelopes and general performance

Interference effects on the tracking of future civil GNSS signals
- Main interference threats and models in L1 and E5 bands
- Future GNSS signals capability to mitigate continuous wave, narrow- and wide-band interference on the L1 band.

RESPONSABLE(S) DU STAGE
Anaïs MARTINEAU *[Systèmes Informatiques]*

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- Pulsed interference effects and mitigation on GPS L5 and Galileo E5a/E5b

For information only : 12 hours

RESPONSABLE(S) DU STAGE

Anaïs MARTINEAU *[Systèmes Informatiques]*