4.3.2. Navigation module requirements Document AECS-07-02e

AECS 7th. meeting

Paris, 25-27 February 2015

Position determination if AECS is **fitted** with multi-GNSS receiver

- Supporting **at least 3 GNSS** including:
  - GLONASS
  - Galileo
  - GPS
- Capability to reception and process **SBAS signals**
- Positioning capabilities shall be demonstrated by performing a **reduced set of test methods**
- Tests can be performed conveniently:
  - Simulated GNSS signals per the test methods (no need for time-consuming complex field tests)
  - Either on the AECD unit or directly on the GNSS receiver being a part of the AECD

Position determination if AECS is **fitted** with multi-GNSS receiver

- Simplified list of the **GNSS test methods** proposed by:

    1. Messages output
    2. Positioning accuracy in static/dynamic mode
    3. Movement in urban canyons
    4. Time to first fix
    5. Re-acquisition time
    6. Receiver sensitivity
    7. ~~Radio frequency interferences~~
    8. ~~Field tests/complex scenarios~~

- **Test simplification** agreed between parties (Russian Fed. and EC) and taking into account the opinion of external experts (GNSS Task Force)

Position determination if AECS is **fitted** with multi-GNSS receiver

- **General requirements** for the navigation module:

  - Horizontal position:
    - Open sky conditions shall not exceed 15 m
    - Urban canyons conditions shall not exceed 40 m
    - PDOP not more than 2.5 and 4 respectively
    - 95% of the measurements done
    - Speed up to 140 km/h

  - Sensitivity at receiver shall be:
    - Acquisition: at least minus 144 dBm
    - Tracking: at least minus 155 dBm
    - Reacquisition: at least minus 150 dBm

  - Time to first fix not exceed:
    - 60 sec for signal level down to minus 130 dBm
    - 300 sec for signal level down to minus 140 dBm

  - Re-acquisition time after block out of 60 sec not exceed:
    - 20 sec at signal level down to minus 130 dBm

Position determination if AECS is **not fitted** with multi-GNSS receiver

- AECD shall comply with the <u>various</u> requirements and tests methods from the Contracting Party national regulations