EGNOS verification guidelines
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How to ensure your equipment is using EGNOS corrections (1/9)

Step 1:
Be sure that your device is EGNOS compatible and it is correctly configured
How to ensure your equipment is using EGNOS corrections (2/9)

STEP 1

EGNOS compatibility: Look for “SBAS” and “EGNOS” words in datasheets

Examples of devices specifications

<table>
<thead>
<tr>
<th>PRODUCT FEATURE</th>
<th>AgGPS® 162 RECEIVER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Signal Tracked</td>
<td>L1, SBAS (WAAS, EGNOS, MSAS)</td>
</tr>
<tr>
<td>Maximum Number of Satellites Tracked</td>
<td>12 + 3 SBAS</td>
</tr>
<tr>
<td>DGPS Accuracy</td>
<td>± 8-12 inch pass-to-pass</td>
</tr>
<tr>
<td>Position Fix Update Rate (sec)</td>
<td>1 Hz, 5 Hz</td>
</tr>
<tr>
<td>Cold Start</td>
<td>&lt; 2.5 Minutes</td>
</tr>
<tr>
<td>Warm Start</td>
<td>&lt; 30 Seconds</td>
</tr>
<tr>
<td>Re-acquisition</td>
<td>&lt; 5 Seconds</td>
</tr>
<tr>
<td>NMEA Messages</td>
<td>ALM, GGA, GLL, GSA, GSV, PTLNLD, RMC, VTG, ZDA, GRS, GST, GGK, PTLNLSM</td>
</tr>
<tr>
<td>Antenna Type</td>
<td>L1 GPS</td>
</tr>
<tr>
<td>Baud Rate</td>
<td>4,800 — 115,200</td>
</tr>
</tbody>
</table>
How to ensure your equipment is using EGNOS corrections (3/9)

**STEP 1**

EGNOS configuration: Check the equipment’s user manual, look for “SBAS/EGNOS” and “configuration” words.

It can be helpful to consult these free material explaining how to configure EGNOS:

- **MAPPING & SURVEYING**
  - How to configure EGNOS on your mapping/GIS receiver: step-by-step guide

- **AGRICULTURE**
  - How to configure (some) EGNOS receivers for Agriculture

Remember to check which are the current operational EGNOS satellites consulting the [EGNOS User Support Website](https://www.egnossupport.com) and/or [EGNOS APP](https://www.egnossupport.com/app).

After Step 1 you should know if your equipment is EGNOS compatible and it is correctly configured to use EGNOS corrections.
Step 2:
Check in the device user manual if there is any information displayed on the device screen in relation with the PRNs tracked
How to ensure your equipment is using EGNOS corrections (5/9)

**STEP 2**

Usually the Signal to Noise ratio (SNR) for each satellite tracked is displayed on the screen (the higher the bar the higher SNR experienced by the device). Look for EGNOS GEO operational PRNs(*).

Check EGNOS the User Support Website and/or EGNOS APP to find PRNs for operational EGNOS satellites

(*) Some devices display NMEA PRN codes that are the satellite PRN minus 87.

After Step 2 you should know if your equipment is tracking EGNOS satellites. To be 100% sure that EGNOS corrections are being used in PVT computation go to Step 3.
How to ensure your equipment is using EGNOS corrections (6/9)

Step 3:
If the device does not display on the screen any information about the PRNs tracked
How to ensure your equipment is using EGNOS corrections (7/9)

**STEP 3**

- Check the specifications and user manual to confirm if the device outputs NMEA sentences (and how to command the logging of such sentences)
- Log NMEA sentences and look for command \$GGA
- The output of the **GGA** NMEA sentence shall be checked, especially the field so called “Fix quality”. If it appears a 2, then the equipment is using SBAS/EGNOS in the PVT solution

After Step 3 you should know if your equipment is tracking and using EGNOS satellites in PVT solution
How to ensure your equipment is using EGNOS corrections (8/9)

Step 4:
If steps 2 & 3 are not feasible, verify the accuracy obtained with EGNOS
(see slide #14)
How to ensure your equipment is using EGNOS corrections (9/9)

Step 5:
If any of the previous steps are not feasible, please contact the receiver’s manufacturer user support channel
• How to ensure your equipment is using EGNOS corrections in the PVT solution (slide #4)

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• Summary of useful links (slide #18)
How to check from which EGNOS geostationary satellite the equipment is receiving EGNOS corrections

Usually the Signal to Noise ratio (SMR) for each satellite tracked is displayed on the screen (the higher the bar the higher SNR experienced by the device). Look for EGNOS GEO operational PRNs. See slide #7

- Check the specifications and user manual to confirm if the device outputs NMEA sentences (and how to command the logging of such sentences).
- Log NMEA sentences and look for command $GGA
- The output of the GGA NMEA sentence shall be checked, especially the field so called “Fix quality”. If it appears a 2, then the equipment is using SBAS/EGNOS in the PVT solution. See slide #9

After performing the checks described in slides #7 and #9 you should know if your equipment is tracking and using EGNOS satellites in PVT solution.
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How to test the error obtained with your equipment when using EGNOS

You can verify whether EGNOS corrections are being applied by placing your receiver at a well-known position (with known coordinates):

• Perform a measurement campaign of 15-30 min configuring the device in “GPS only mode” and log the PVT file
• Just after (or in parallel if you have two devices), perform another measurement campaign of 15-30 min configuring the equipment in “EGNOS-enabled mode”
• Assure that the coordinates of the known-position are in the same geographic coordinates that your device sorts out the PVT solution and compare both
• Compute the error done in each set of measurements, and then compare both sets of errors. The ones obtained with EGNOS should be smaller that the ones obtained with using just GPS (specially noticeable in the vertical component)

NOTE: it is not possible to compute with NMEA sentences the real error the PVT solution has. In some devices, it is provided an estimated accuracy (by means of proprietary sentences, implemented by each manufacturer and not even in all their models)
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Summary of useful EGNOS links

- EGNOS User Support Website: [http://egnos-user-support.essp-sas.eu](http://egnos-user-support.essp-sas.eu)
- Service Notices (e.g. PRN modifications)
- Real-time performance:
  - EGNOS vs GPS
  - EDAS
- Historical performance
- Guidance material
- Visibility maps
- EGNOS bulletin
- EGNOS helpdesk
- EGNOS APP [Android & iOS](http://egnos-user-support.essp-sas.eu)
QUESTIONS AND ANSWERS

http://egnos-user-support.essp-sas.eu

egnos-helpdesk@essp-sas.eu

+34 911 236 555 (H24/7)

www.essp-sas.eu

Corporate Video