



FORSBERG POSITIONING OPTIONS

DCVG

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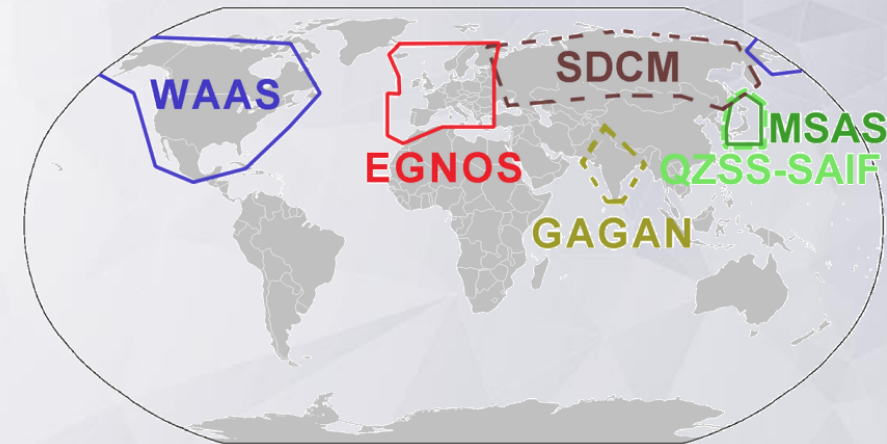
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CURRENT DCVG SOLUTION

ReACT-RNS

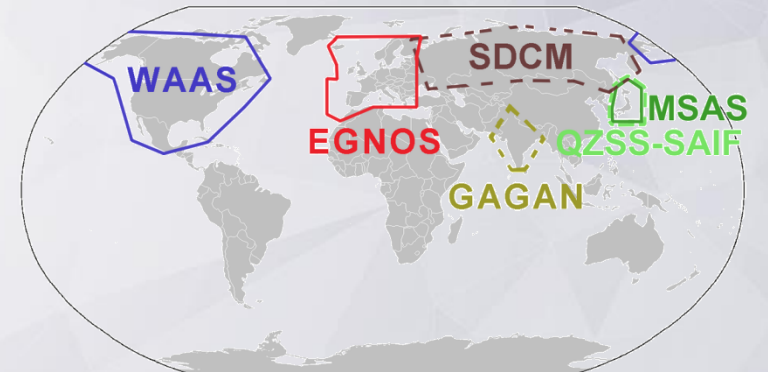
- GPS L1 only
Accuracy of 1.5m, 0.6m (SBAS), 0.4m (DGPS)
- 10Hz Positions



CURRENT DCVG SOLUTION

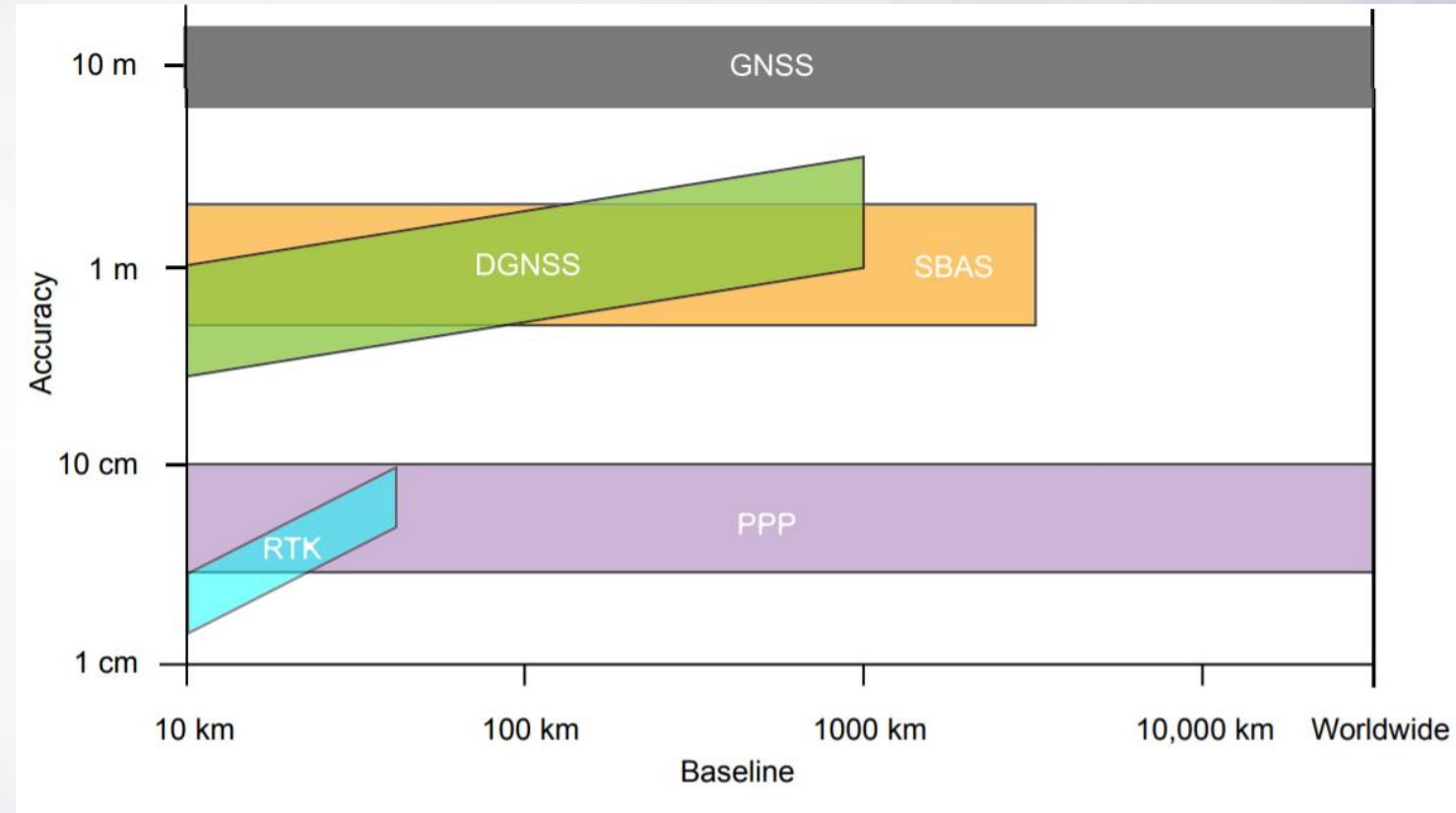
ReACT-QNS

- GPS + GLONASS L1+L2
Accuracy of 1.5m or ~0.6m RMS (SBAS)
- TerraStar PPP corrections
- 20Hz Positions



POSITIONING UPGRADE OPTIONS

- PPP – TerraStar-L
- PPP – TerraStar-C PRO
- RTK
- Post-Processing

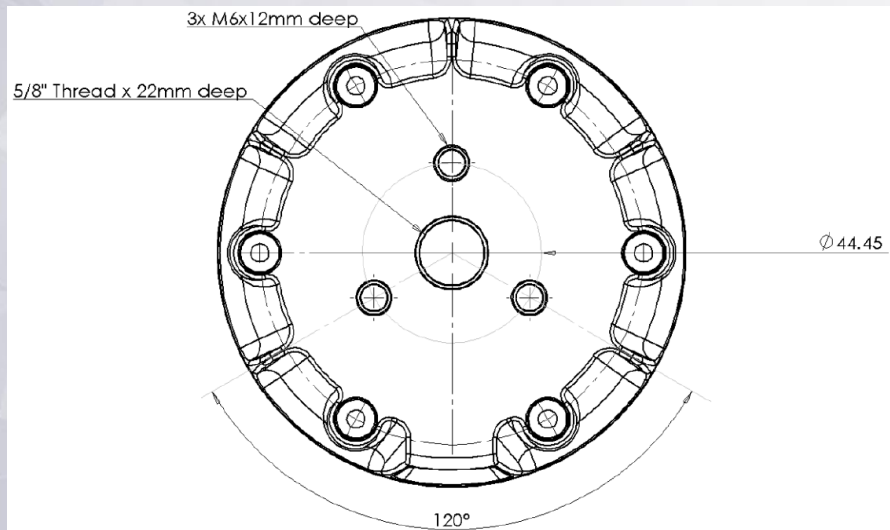


REACT+

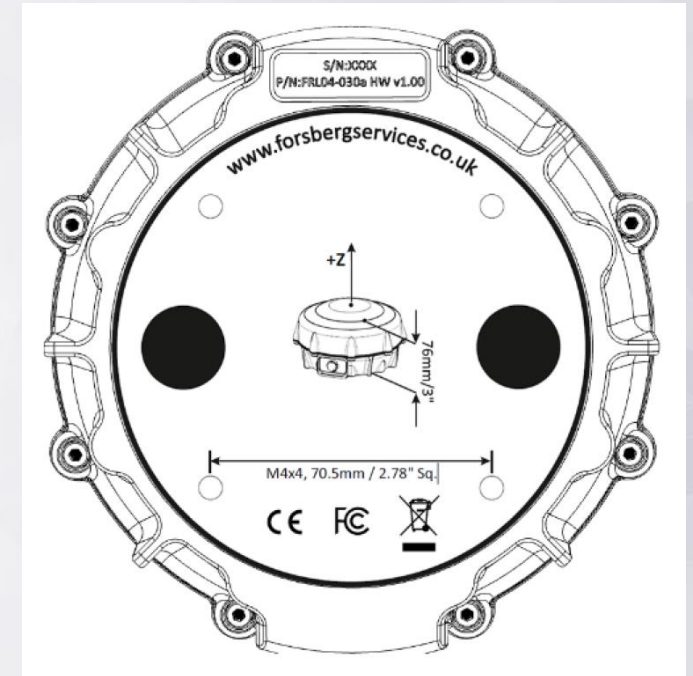
- Same architecture as ReACT
- Improved antenna element for more stable phase-centre
- Improved LBand PPP accuracy
- Supports GPS, GLONASS, Galileo, BeiDou



ReACT MOUNTING



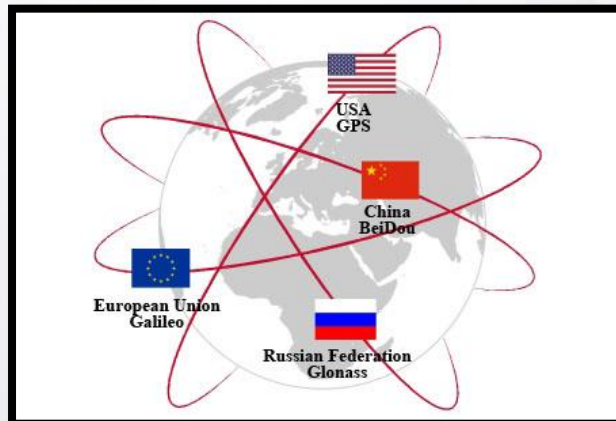
ReACT
5/8" Thread
3x M3 Inserts



ReACT+
2x Magnets
4x M4 inserts

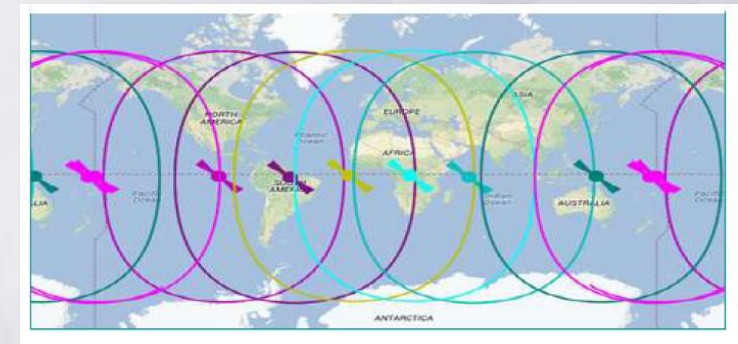
ALTERNATE POSITIONING OPTIONS – MULTI-CONSTELLATION

- Adding a second Constellation increases the satellites in Sky-view. A minimum of x4 satellites are required to obtain a 3D fix (position).
- Adding an additional constellation reduces the likelihood for large positional errors due to satellite skyview.
- Overall positional accuracy is not generally increased.



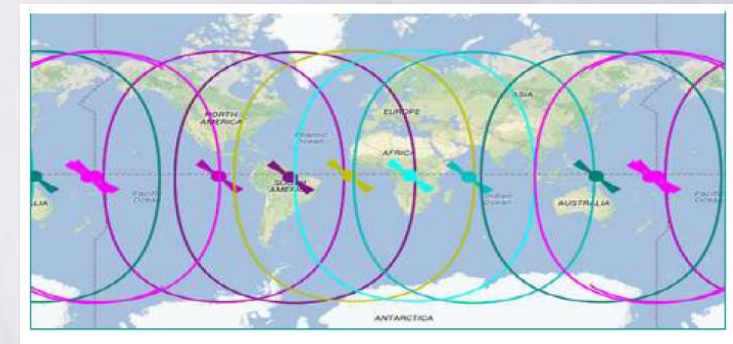
ALTERNATE POSITIONING OPTIONS – TERRASTAR

- PPP (Precise Point Positioning) Satellite-delivered corrections
- Geostationary satellites broadcast PPP, and requires line of sight to the receiver. PPP delivery will also be available over the web (not ready yet).
- Requires L1L2 GPS and GLONASS enabled receiver and L-Band antenna
- ReACT+ supports TerraStar-L and TerraStar-C PRO
- Accuracy and Convergence time:
 - TerraStar-L: 40cm (50cm <5 min)
 - TerraStar-C PRO: 2.5cm <18 min (Using GPS, GLONASS, Galileo and BeiDou)
 - TerraStar-C: 4cm ~30 min (Uses GPS and GLONASS)



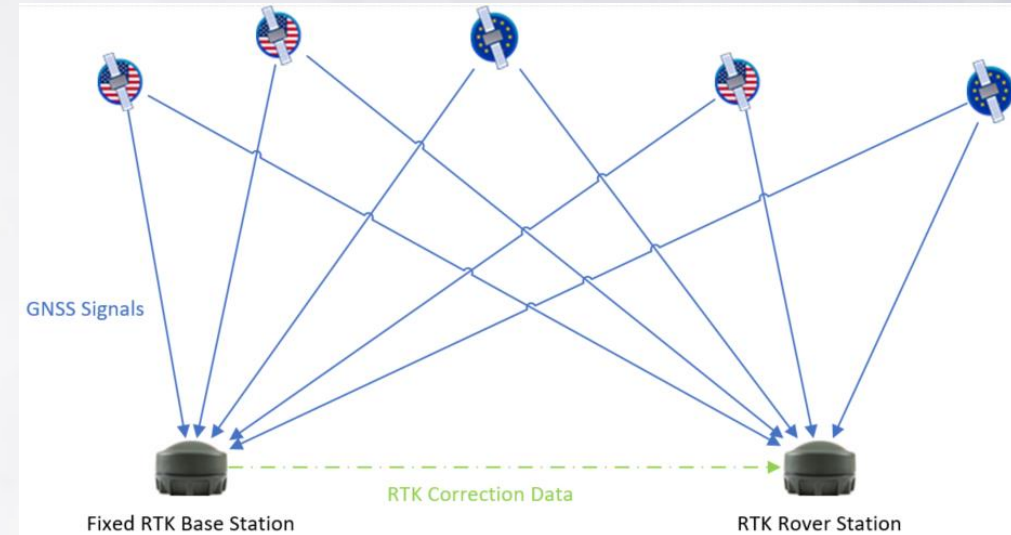
ALTERNATE POSITIONING OPTIONS – TERRASTAR

- Multiple licence options:
 - Global or Regional
 - 1 month to 3 year options
- Licence is tied to a specific receiver serial number



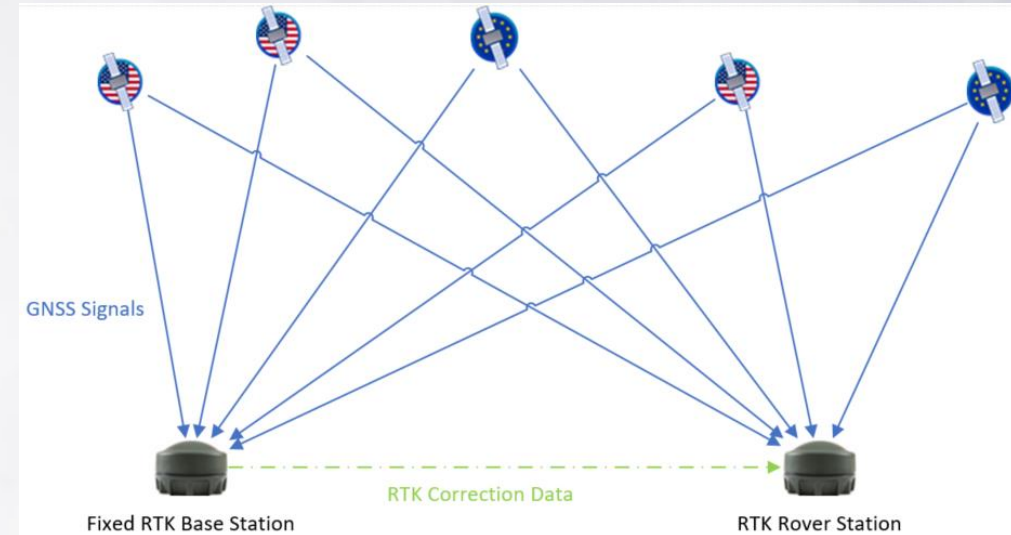
ALTERNATE POSITIONING OPTIONS – RTK

- Uses a fixed base station to create a real-time error measurement/correction message
- Requires at least 5 common satellites at the base and rover
- Network RTK (e.g. Leica SmartNet) can deliver corrections over an internet link
- Can use 1 or more constellations
- Accuracy = 1 cm + 1 ppm
- Effective up to ~40km from base station



ALTERNATE POSITIONING OPTIONS – RTK

- RTK enabled receiver can use corrections from any source
- Position availability is “near-instant”



OEM7 INTERFERENCE TOOLKIT



IN-BAND

- Within the band of GNSS signal
- Intentional jammer and other RF spectrum users (Legal & Non-Legal).



NEAR-BAND

- Close to the band of GNSS signal
- Legal transmissions e.g. GlobalStar and long-range air traffic control radar.



OUT OF BAND HARMONICS

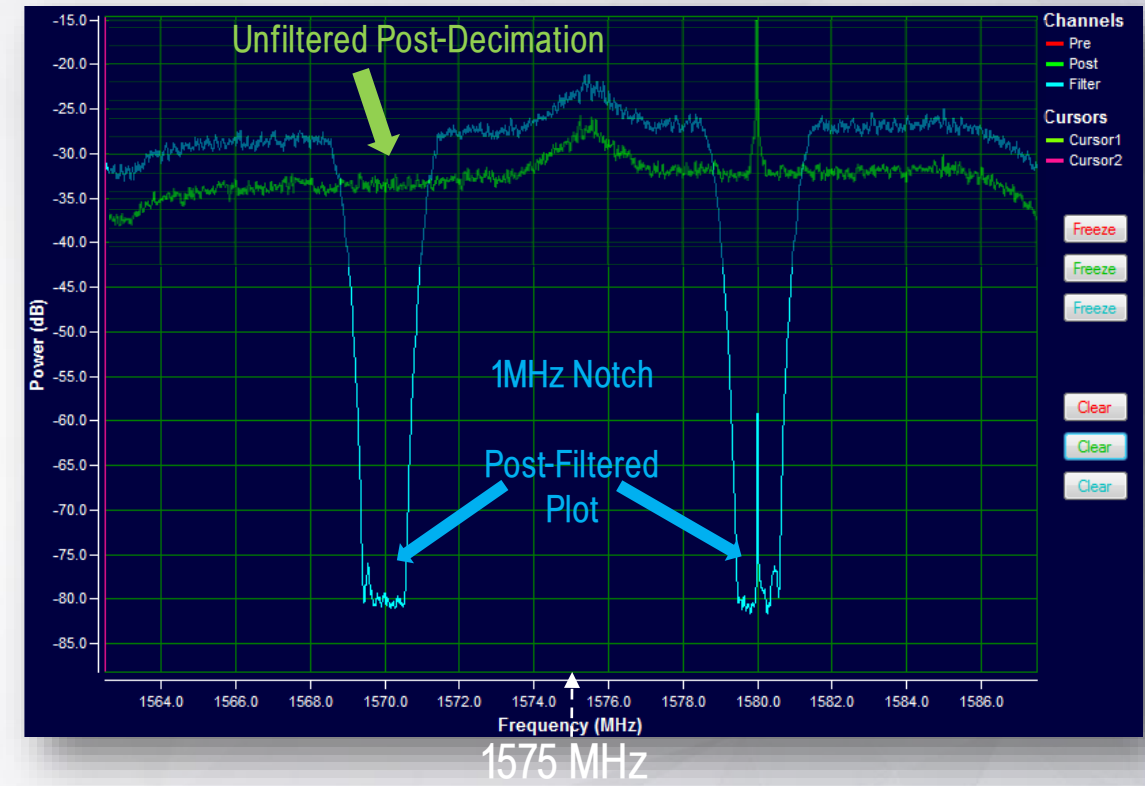
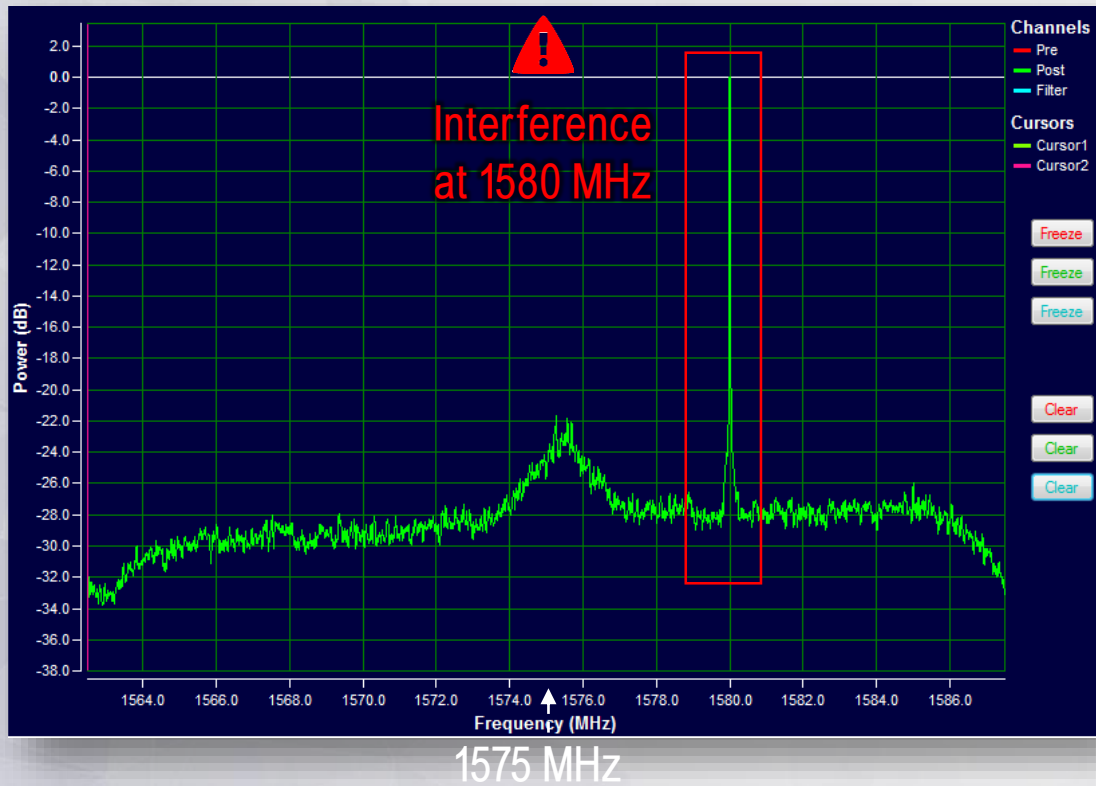
- Far removed transmitters that may have spurious harmonic emissions overlapping GNSS band.

SELF INTERFERENCE

- Electronic integration on occasions requires solving in-band, near-band and out of band harmonics from within the products themselves.



OEM7 INTERFERENCE TOOLKIT



OEM7 INTERFERENCE TOOLKIT – CUSTOMER CASE STUDY

- LIDAR electronics Exposed
- Service Access door closed
- Camera power supply switched off

