NAVLABS

USING MODERNIZED-GPS NOISE MODELS

MODERNIZED-GPS NOISE encapsulates - within Tapestry - RF "noise-like" models designed for the Modernized User Equipment (MUE) operational field environment testing. Specifically to this task, the NAVLABS DS400 Modernized GPS Constellation Simulator provides;

64 / 58 L_1 C/A P L_2 C P / L_1 C/A P M L_2 C P M CHANNELS.

- All Channels can be assigned to Modernized Noise Output
- Channels are separable into 2 Outputs providing a relative J/S = 100

The provided models are;

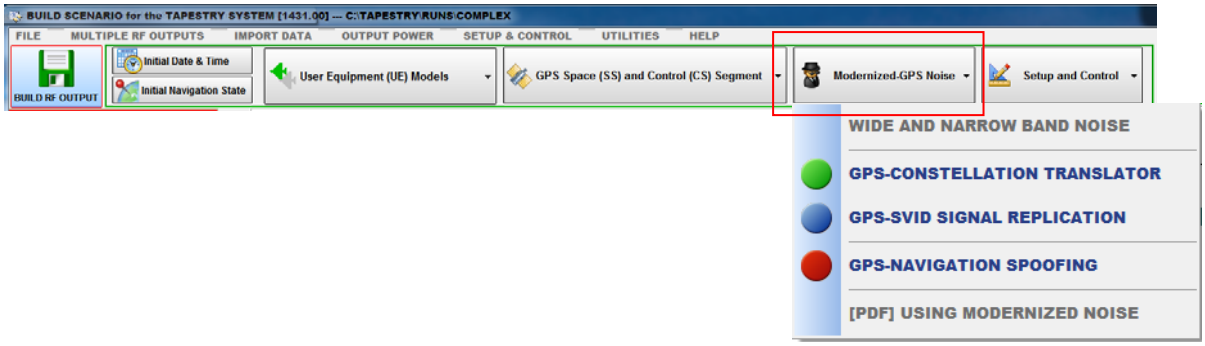
- **WIDE & NARROW BAND NOISE**
  50 MHz WBGN and NB Noise programmable J/S.

- **GPS SIGNAL REPLICATION**
  Simulating an external process that measures-and-processes a subset of the composite GPS Satellite signals-set and then rebroadcasts them.

- **GPS SIGNAL TRANSLATOR**
  Simulating an external process that measures a complete GPS-Satellite signal-set and rebroadcasts it.

- **NAVIGATION SPOOFING**
  Simulating an external process that broadcasts a complete GPS constellation signal-set that if tracked by the UE causes erroneous PVT.

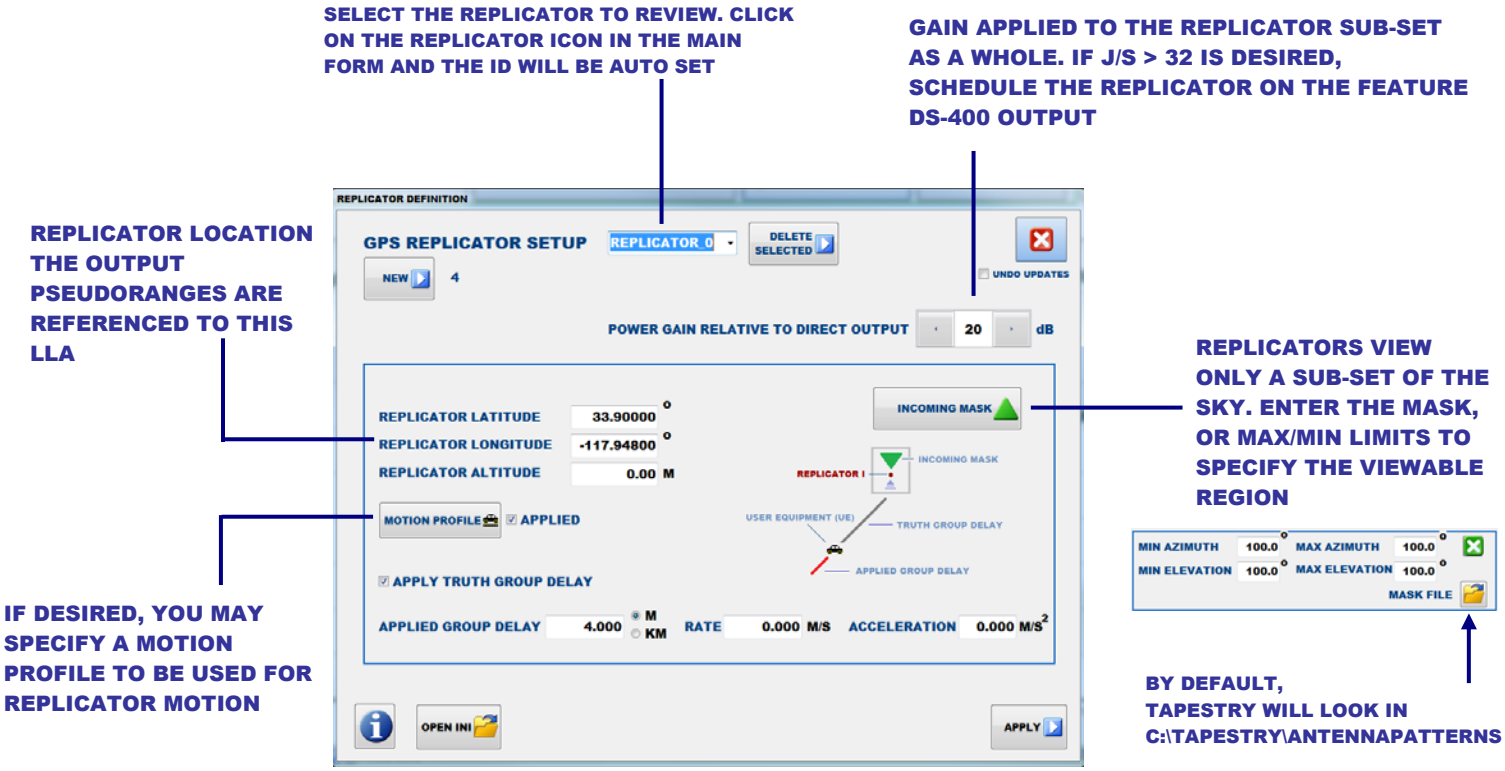
The use of each model is discussed subsequently.



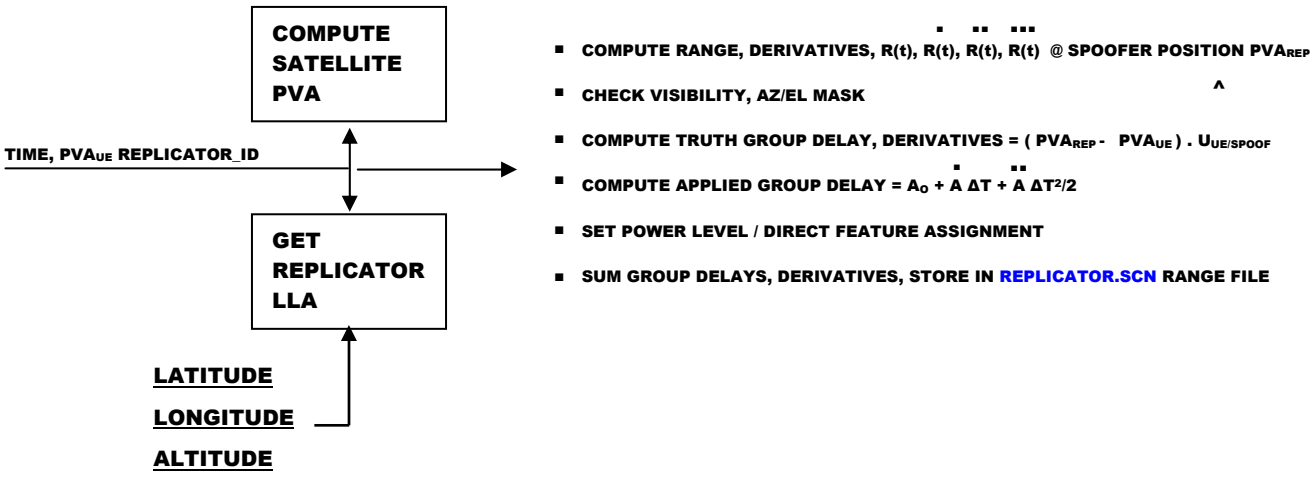
GPS-SVID SIGNAL REPLICATION

As illustrated, a GPS Signal Replicator is not a bent pipe. Instead, the Replicator gathers a partial set of the visible GPS signals and rebroadcasts the partial set elsewhere. Within Tapestry, *elsewhere* is located at the User Equipment UE; Vehicle I.

For the Replicated GPS Signal Set, the RF output at the UE; Vehicle I, is computed as follows;



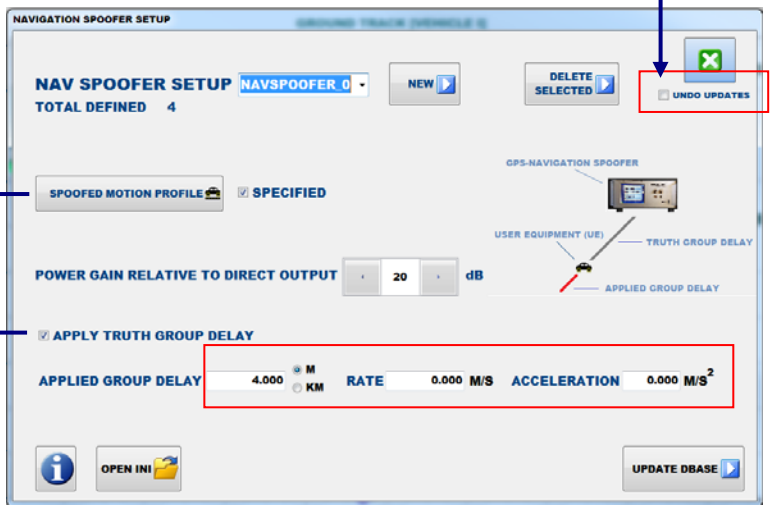
For the Replicated GPS Signal Set, the RF output at the UE; Vehicle I, is computed as follows;



GPS-NAVIGATION SPOOFING

IF YOU WANT TO QUIT, NOT SAVING THE CHANGES MADE TO THE DBASE, SET THIS CHECKBOX AND THE ORIGINAL INI FILE WILL BE RETAINED.

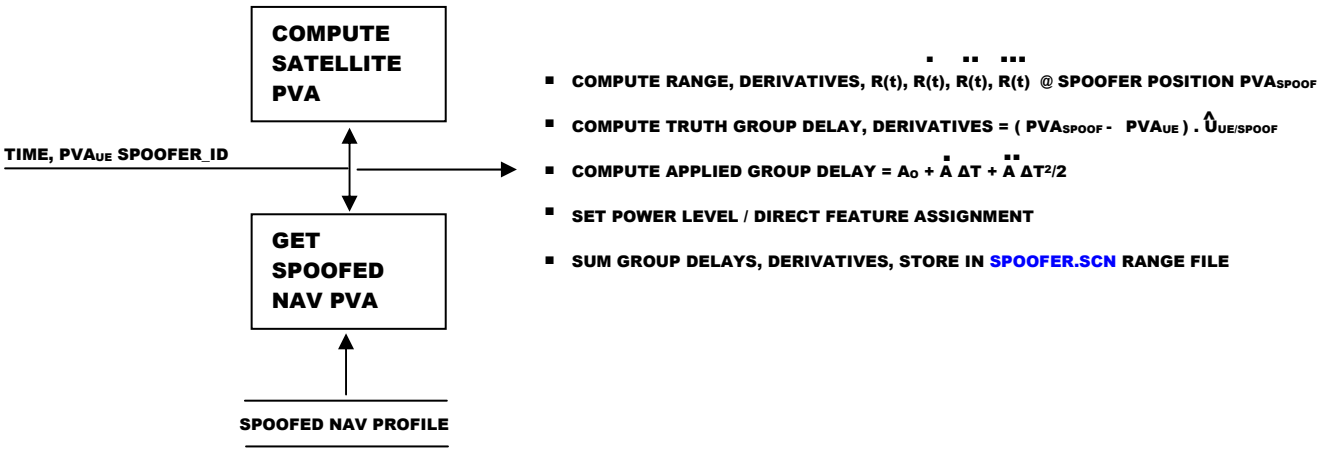
THE NAVIGATION SPOOFER REQUIRES A "SPOOFING" FILE. THIS IS THE NAVIGATION PROFILE THE SPOOFER BROADCASTS TO THE UE



ADDITIONAL (TO GEOMETRIC TRUTH) GROUP DELAY APPLIED TO THE PSEUDORANGE SET PRODUCED BY THE SPOOFER

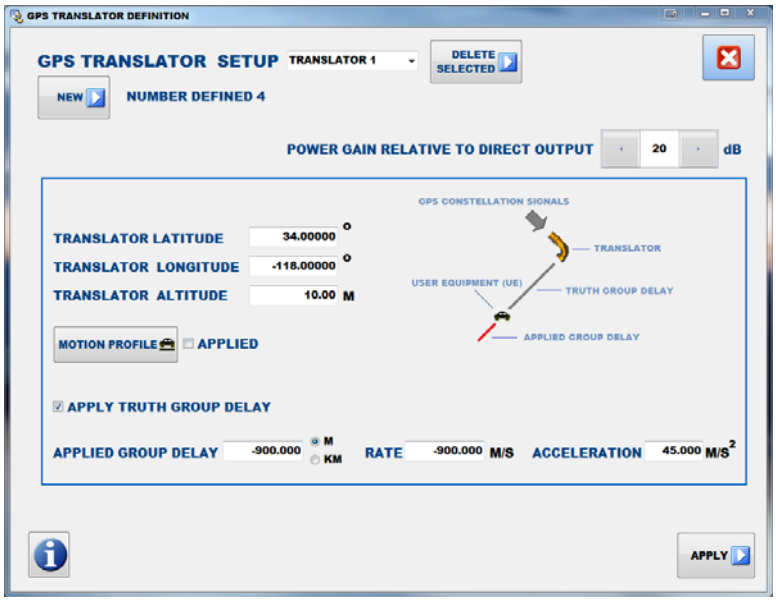
THE (INSTANTANEOUS) RANGE BETWEEN THE SPOOFING FILE AND THE UE IS COMPUTED AUTOMATICALLY AND APPLIED

For the GPS Navigation Spoofer, the RF output at the UE; Vehicle I, is computed as follows;

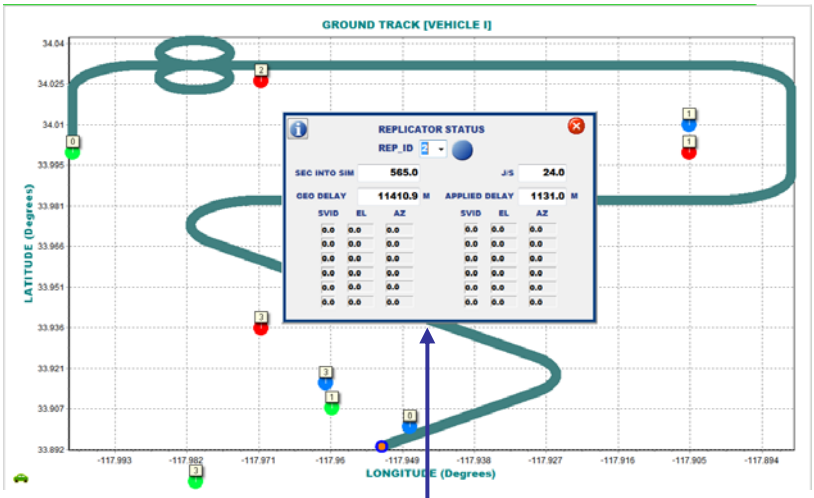


GPS-CONSTELLATION TRANSLATOR

As illustrated, a GPS Translator acts somewhat like a bent pipe. It measures the composite GPS signal-set from all visible SVIDS, and sends or directs it elsewhere. Within Tapestry, *elsewhere* is located at the User Equipment UE; Vehicle I.



For the Translator GPS Signal Set, the RF output at the UE; Vehicle I, is computed as follows;



(EXAMPLE) THERE ARE 4 SPOOFERS, 4 REPLICATORS, 4 TRANSLATORS. THEY ARE OVERLAID ON THE MAIN PLOT. CLICKING ON ONE OF THE ICONS PRESENTS THE POP-UP SHOWN.