

# TRANSIENT NONLINEAR RESPONSE PROGRAMME VALIDATION EXPERIMENT WITH HSFV-1 ON SHALLOW LATERAL TRACK IRREGULARITIES

The Transient Non-linear Response Programme (TNRP) has been developed to predict vehicle response time histories for any defined track shape taking into account all system non-linearities. Whilst successful validation attempts have been carried out, attempts to validate the TNRP predictions for the 4-wheeled vehicle HSFV-1 on cyclically side-cut track were unsuccessful. This was potentially due to:

- Unaccounted friction in the vehicle suspension
- Imprecision in the theoretical method
- An inadequate description of the very complex track geometry.

In light of this a further validation experiment was conducted using HSFV-1, rebuilt to a flexicoil suspension design in an attempt to minimise suspension friction. The track used for the tests was simpler than in the initial experiments.

The report describes the validation experiment and presents the results of the theoretical / experimental comparison.