WS-05-04

EC WorldSID-5F Work Programme

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Status of Evaluation Activities

Introduction

- Aprosys rib instrumentation, biofidelity and injury risk work
  - 2D IR-Tracc developed and evaluated by FTSS
  - Most biofidelity test conditions completed, but ISO evaluating methods for scaling biofidelity tests for 5F dummies
    - If improved scaling method recommended, may need to repeat some Aprosys work
  - Preliminary injury risk functions developed, but
    - Not enough AIS 3+ PMHS tests replicated due to limitation on measurement range with 2D IR-Tracc
    - Even if IR-Tracc selected for use in regulation, may need an alternative measurement technology in order to calibrate the dummy injury risk curves

Status of Evaluation Activities

Introduction

- Results of WorldSID-50M evaluation for UK DfT
  - Presented in Berlin
  - Evaluation of multipoint measurement using TC WorldSID-50M RibEye dummy
    - IR-Tracc underestimated oblique / off-axis rib deflections

- Discussion at Berlin meeting
  - Multipoint measurement seemed to be of interest
    - UK, Australia, US all presented on this
    - More work required to understand how to use the extra information provided

- Discussion with NHTSA

Status of Evaluation Activities

Introduction

- Three areas of work proposed
  - Multi-point chest deflection measurement
  - Biofidelity
  - Injury risk

Status of Evaluation Activities

Multi-point chest deflection measurement

- Want to implement RibEye in WorldSID-5F
  - May improve measurement range cf. IR-Tracc
    - Allow more injury-level PMHS tests to be replicated
    - Improve the injury risk functions developed in Aprosys
  - Enable multi-point measurement
    - Assess off-axis and oblique impact
      - Several oblique PMHS test conditions could be replicated
      - Assess any measurement benefit in these conditions
    - Keep options open when assessing injury risk
      - Can calculate equivalent 2D and 1D IR-Tracc measurements and therefore risk functions
  - Demonstrate packaging challenges can be met

Status of Evaluation Activities

Multi-point chest deflection measurement

- Implementation progress
  - Nov/Dec 2010
    - Discussion with FTSS Delft and Boxboro Systems regarding implementation of RibEye in the WorldSID-5F
    - Full RibEye implementation probably too expensive and time consuming at this stage
    - Discussed implementing only on the thorax ribs
      - Proof of packaging
      - Contribution to thorax biofidelity and injury risk
  - Jan/Feb 2011
    - Discussion on hold due to difficulties at FTSS Delft
  - Current
    - Discussion restarted last week
    - Do not have a definite go / no go decision on RibEye yet

Status of Evaluation Activities

Multi-point chest deflection measurement

- Other work items
  - Review of RibEye as an instrument
    - Document evidence from information in the literature
    - Can undertake bench tests if any gaps identified, e.g.
      - Change of performance with ingress of dust/dirt
  - Review of evidence base for injury risk in oblique loading
    - Can the same injury risk functions be used at each measurement point?
    - What is the appropriate criterion?
      - Compression in the direction of impact? Can this be derived from RibEye / 2D IR-Tracc
      - Lateral compression?
      - Resultant compression?

Status of Evaluation Activities

General WorldSID-5F Evaluation

- Biofidelity
  - Contribute to ISO WG5 biofidelity test scaling activities
  - Conduct pendulum or sled tests as appropriate, e.g.
    - Oblique pendulum impactor biofidelity tests with RibEye

- Injury risk
  - Contribute to ISO WG6 injury risk scaling activities
  - Conduct pendulum or sled tests as appropriate, e.g.
    - Repeat Aprosys pendulum impactor tests with adjustable mass pendulum
    - If RibEye implemented, MCW oblique load plate sled tests

Do You Have Any Questions?

Thank you

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