Development of Method for “Evaluation Of Frontal Offset/Oblique Crash Test Conditions”

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- Frontal crashes
- Vehicle-to-vehicle
- Two vehicle
- Both vehicles inspected
Parameters Examined

- Relative angle
- Overlap
- DVD
- Cmax
Case 1 – Right Offset
Case 2 – Left Offset
Case 3 – Left Offset Oblique
Case 4 – Center–to-left Offset Oblique
Case 5 – Full Frontal
Case 6 – Right Offset Oblique
Case 7 – Center-to-right Offset Oblique
Case 8 – Left Full Oblique
Case 9 – Right Full Oblique
Example Logic for Case 3

-90 < ANGREL_S < -10 #AND#
CMAX_S = C1 #OR# DVD_S < 0
#AND#
CMAX_P = C1,C2,C3,C4, OR C5
Percentage of NASS Two Vehicle Crashes

Vehicle Involvement by Case Type
Unweighted & Weighted Cases

Preliminary Data
Distribution of Minor and Moderate Injuries by Case

Distribution of AIS 1 and 2 Injuries
95-99 NASS

Preliminary Data
Distribution of Leg Injuries

Distribution of AIS 1-3 Leg Injuries
95 - 99 NASS

Preliminary Data
Case 3 and Case 4 Crash Test Results

Percent of Average IARV for 3 Crashes
(Injury Assessment Reference Value)

Percent IARV

0%  50%  100%  150%  200%

HIC  NIJ  CH  CTI  FEM  TIB

Case 3 car  Case 4 car
Distribution of Overlap Percent

Percentage Distribution of Overlap %
For Case 3 Vehicles

Preliminary Data
Distribution of Angle

Percentage Distribution of Angle
For Case 3 Vehicles

Cumulative Percent

Preliminary Data
Summary

- **New methodology** to evaluate crash conditions

- **Preliminary data:**
  - Predominate crash is left oblique
  - More minor and moderate injuries in left oblique crashes
  - Most leg injuries in left-oblique, center-to-left corner, and left offset crashes