

## **OICA comments on document GRSP/2006/7 presented by the USA**

### **Introduction**

OICA wishes to warmly congratulate the chair of the informal group for the efficient and hard work, enabling the GRSP Informal group to submit a draft gtr as an official document to the 39<sup>th</sup> session of GRSP, meeting the agreed timeline and fully reflecting the intensive discussions and the decisions taken by the group.

OICA also welcomes the very active contributions by all participants in the informal group in this extremely difficult subject.

The expert from the US has now submitted, in ECE/TRANS/WP29/GRSP/2006/7, additional comments and clarifications, which can generally be supported, since they further improve the rationale as contained in the Preamble of the draft gtr.

OICA however has serious concerns with 3 important issues raised by the US, since the statements by the US, who actively participated in all meetings of the informal group, fully contradict the discussions and the agreements of the group; these points were studied and debated at length, and the conclusions were recorded in document GRSP/2006/2.

OICA is therefore convinced that the proposal submitted by the informal group (document ECE/TRANS/WP29/GRSP/2006/2) fully reflects the conclusions of the group and that the current scope and technical requirements of the draft gtr should be kept unchanged. The US proposals contained in document GRSP/2006/7 can be fully supported, except for the following as explained below.

### **OICA comments on ECE/TRANS/WP29/GRSP/2006/7**

#### **Part A – STATEMENT OF TECHNICAL RATIONALE AND JUSTIFICATION**

**Section V, paragraph (b) – Applicability**, keep the text of ECE/TRANS/WP29/2006/2 unchanged

#### **Justification:**

OICA is of the opinion that the complete US proposed text does not reflect the conclusions of the informal group and should therefore not be taken up in the draft gtr.

The informal group has never agreed to have an applicability with a weight limit above 2.5 t or, even more so, an applicability to all vehicle categories, without any weight limit.

The informal group clearly and repeatedly agreed that the applicability of the gtr should be limited to category 1-1 and some category 2 vehicles (namely those having the same front shape as the corresponding category 1-1 vehicle), with a gross vehicle mass (GVM) limited to 2.5 tonnes. At the very end of the last meeting of the informal group, the US however insisted to place the mass limitations for these vehicles between square brackets, insisting that this mass limitation might need to be raised to 3.5 tonnes. The US consequently requested some more time to study this issue and the group agreed with this request.

The US in document GRSP/2006/7 however now proposes to apply the gtr to all vehicle categories, without any restriction, leaving it up to the individual Contracting Parties to the 98 Agreement to restrict application nationally; this idea was however clearly rejected by the very large majority of the group, which supported the current text, with the understanding that individual Contracting Parties could see benefit in expanding the applicability to vehicle categories of other masses. The philosophy retained by the informal group is consequently the exact contrary of the US proposal.

In addition, Category 1-2 vehicles were never discussed during the 10 meetings of the informal group, because of the clear understanding that such vehicles are buses and could consequently not be included in the draft gtr for a multitude of obvious reasons.

The US proposal would also allow any Contracting Party to implement the gtr as it is, with the result that any vehicle above 2.5 t and all trucks and buses would have to be withdrawn from sale in that country.

Finally, the US proposal is in conflict with the requirements set out in the 98 Agreement, whose purpose is, among others, "To ensure that objective consideration is given to the analysis of best available technology, relative benefits and cost effectiveness as appropriate in developing global technical regulations" (see Article 1).

The Terms of Reference of the Informal Group (INF GR PS/2) also clearly refer to Article 6, § 6.3.4 of the 98 Agreement, which requires, for the development of global technical regulations, consideration of technical and economic feasibility, examination of benefits, and comparison of potential cost effectiveness with other approaches.

The US proposal does not meet these requirements of the 98 Agreement and OICA considers it unacceptable to arbitrarily extend the application of a gtr without such intensive studies as required by the 98 Agreement. The draft gtr, as proposed, was developed using the available study work on "classical" passenger cars and this is reflected in the proposed applicability. Other vehicles were never investigated till now and there is consequently no information as to the technical feasibility and cost/effectiveness for these vehicles.

Finally, many "high front" vehicles, where the bonnet leading edge is rearward of the 1000 mm wrap-around line, would fall in the category of vehicles above 2.5t GVW. An example of such vehicles is shown in Annex 1. Such high front vehicles clearly would have extremely severe difficulties to meet the proposed requirements and no technical solution is known at this time. As a matter of fact, such vehicles were never considered in detail during the development of the proposed gtr and it is in addition very doubtful that the accident scenarios (pedestrian kinematics and injuries), as validated for "classical" passenger cars, would be the same for these high front vehicles.

For all the above reasons, OICA considers that the applicability proposed in the draft gtr should be retained, as it reflects the current state of the art in scientific knowledge.

However, OICA also understands that the US has some reservations to the agreed applicability, due to its possible fleet composition which might be different from other countries or regions. It is exactly for this reason that the informal group agreed that individual Contracting Parties might wish, when implementing the gtr in their national legislation, to expand the application, taking however into account the fact that the procedures and requirements as spelled out in the draft gtr have not yet been validated for such vehicles. Consequently, it might be appropriate to foresee a possible extension of the applicability of the gtr in a second step (e.g. as an amendment of the gtr), after detailed study of the technical feasibility and of cost/benefit analysis. Such study might be proposed to WP29/AC.3 when submitting the draft gtr for voting. This would allow the current draft gtr to proceed without further delay, and would also hopefully alleviate the US concerns. Possibly such study could also revisit the issue of vehicle shape, such that the application of the gtr would better take this important parameter into account, rather than focusing on a straightforward mass limitation which only partly addresses the problems encountered by some vehicle categories, such as those with a high hood.

## Part B – TEXT OF THE REGULATION

**§4.1.2. - Upper legform to bumper**, keep the text of ECE/TRANS/WP29/2006/2 unchanged

### **Justification:**

OICA believes that the US request for square brackets around this whole paragraph is based on a misunderstanding, since the full explanation of this upper legform to bumper test and its rationale are detailed in the preamble, Section VII, part "(c) upper legform test for high bumpers" (starting on page 23); it also includes amongst others the explanation of the injury criteria.

The need to differentiate between high and low bumpers is explained in the preamble, Section VII, paragraph 2 on page 20.

Finally, all data requested by US were duly presented at the 10th meeting of the informal group and are contained in document INF/GR/PS/175 Rev2.

The informal group reviewed all these issues in detail, with the conclusion (see INF/GR/PS/188 - Draft meeting minutes of the 10th meeting, pages 7, 9 and 10) to agree with the text as proposed in GRSP/2006/2.

**§5.2.3. - HIC requirement**, keep the text of ECE/TRANS/WP29/2006/2 unchanged.

### **Justification:**

OICA believes that the US request for square brackets in this paragraph is based on a misunderstanding.

The US justification (Attachment 3 to document GRSP2006/07) is not new and was presented to the informal group as INF/GR/PS/132. However, these test results do not constitute acceptable evidence for the US proposals, because the tests were performed under conditions very different to those proposed in the draft gtr:

- a) Impact speed at 32 km/h (instead of 35 km/h)
- b) Different impact angles compared to the draft gtr

Basically, the US test conditions were based on the original IHRA recommendations, which the informal group recognized as substantially less stringent than the draft gtr.

Moreover, even taking into account these lenient test conditions, US concluded in INF GR/PS/132 that "HIC<1000 everywhere will be difficult to meet". The US consequently implicitly recognized the need for relaxation zones and it is difficult to understand the current US statements.

The informal group discussed at length this whole issue and complete technical details for the relaxation zones and for the HIC 1700 limit were presented to the informal group in document INF/GR/PS/176 Rev2. These data cannot be simply rejected or overlooked, since they even contain, among others, type approval data of vehicles tested in accordance with the EU Phase 1 Directive on Pedestrian Protection. Also data from the Japanese NCAP test program are included.

In addition, new data have recently been received from the Alliance of Automobile Manufacturers in the US. These data are attached in Annex 2. The tests were performed exactly in accordance with the draft gtr specifications and show that a large portion, approximately 19%, of the impacts resulted in HIC values above 1700 and only 44% below 1000. Additionally if considering a 20% compliance margin, necessary in any certification scheme, approximately 32% of the tested impacts result in HIC above 1360 (20% below the HIC 1700 limit) and only 27% below 800.

It is also interesting to note that the attached data also indicate that the test conditions of the draft gtr are up to 65% more severe than those used by the US to justify the proposal in GRSP/2006/7.

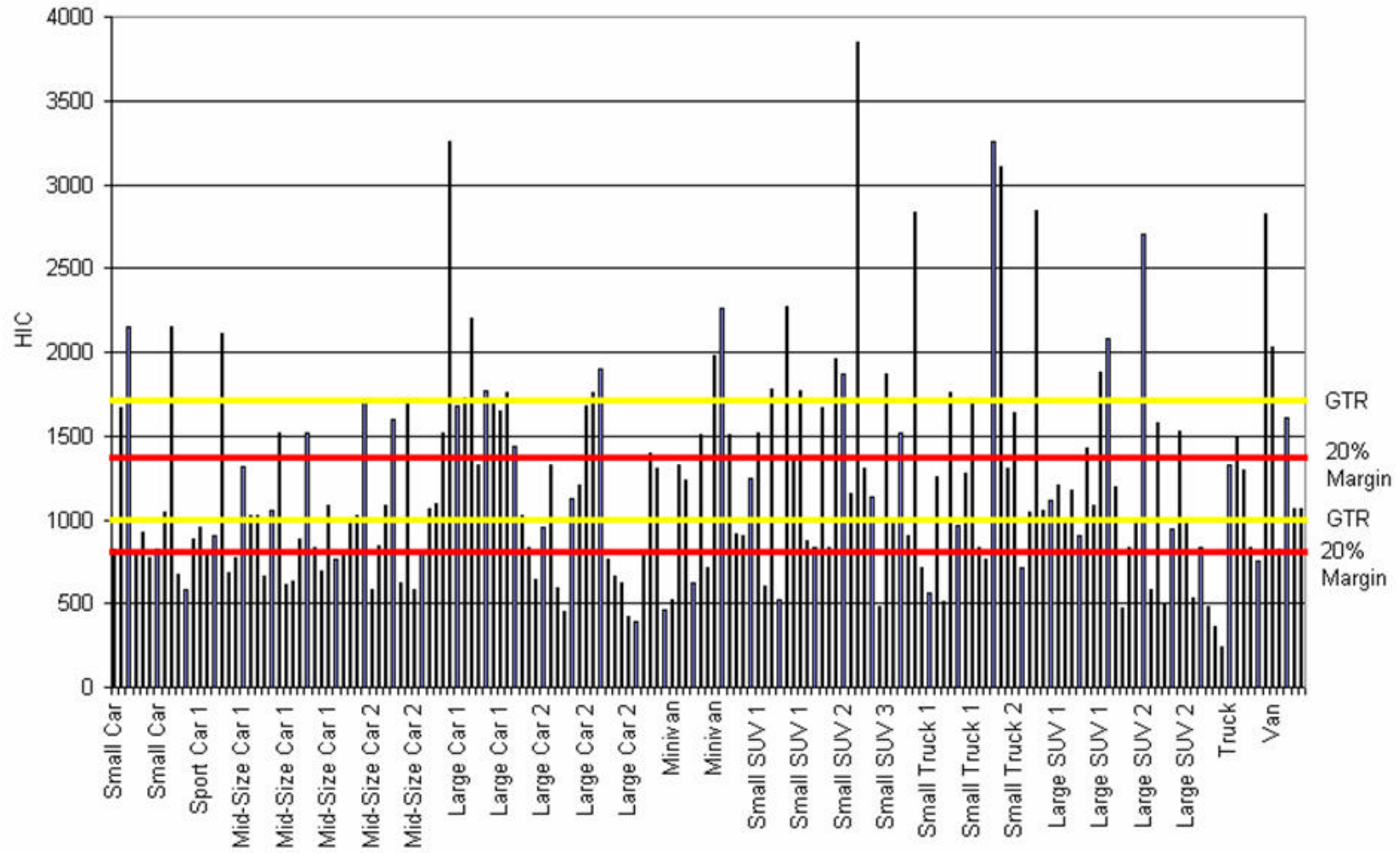
Finally, OICA has difficulties to understand the statement in the US justification, requesting data for the windscreen, since the windscreen is not included in the technical requirements of the gtr.

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Example of "high front vehicle"



### GTR Feasibility - Alliance Head Test Results



# Performance summary to 20% margin of GTR

less than or equal to 800 HIC ■

between 800 and 1360 HIC ■

greater than or equal to 1360 HIC ■

small car

point	location	HIC (20% margin)
2	air box	820
3	fender bkt attachment	1670
4	right hinge	2150
5	left strut att. or high power train feature	790
6	latch area	920
7	Battery or BEC	770
8	1700 WAD or rearmost - cnt of wiper	820
9	tie bar	1050
10	left hinge	2150

small truck

point	location	HIC (20% margin)
1	manifold	710
2	air intake	560
3	fender bkt attachment	1260
5	lift bracket	510
6	latch area	1760
7	battery	960
9	bump stop	1280
10	hinge	1690

van

point	location	HIC (20% margin)
1	cnt of wiper	830
2	air box	750
3	fender bkt attachment	2820
4	right hinge	2030
6	latch area	820
8	hood rear flange	1610
9	bump stop	1070
10	hinge	1070

mid size car

point	location	HIC (20% margin)
1	1700 WAD - cnt of wiper	580
2	air box	840
3	fender bkt attachment	1090
4	right hinge	1600
5	strut or power train feature	620
6	latch area	1720
7	Battery or BEC	580
8	1700 WAD - cnt of wiper	790
9	bump stop	1070
10	left hinge	1100

small truck

point	location	HIC (20% margin)
1	cnt of wiper	830
2	air box	760
3	fender bkt attachment	3260
4	hinge	3110
5	strut attach.	1310
6	latch area	1640
7	battery	710
8	hood rear flange	1050
10	hinge	2840
11	fender	1060

SUV

point	location	HIC (20% margin)
2	air intake	830
5	fluid reservoir @ 1700 WAD	580
4	hinge	2700
10	front tie bar	1010
7	engine intake	490
1	engine cover	470
6	hood latch	1580
9	bump stop	1530
8	rear fender	940
3	mid fender	980

large car

point	location	HIC (20% margin)
1	tower to tower brace	1520
2	manifold	3260
3	fender bkt attachment	1680
4	hinge	1730
5	strut attach.	2200
6	radiator bolt	1330
7	engine bolt	1770
8	shock tower	1710
10	hinge	1650
11	tower to tower brace	1760

sport car

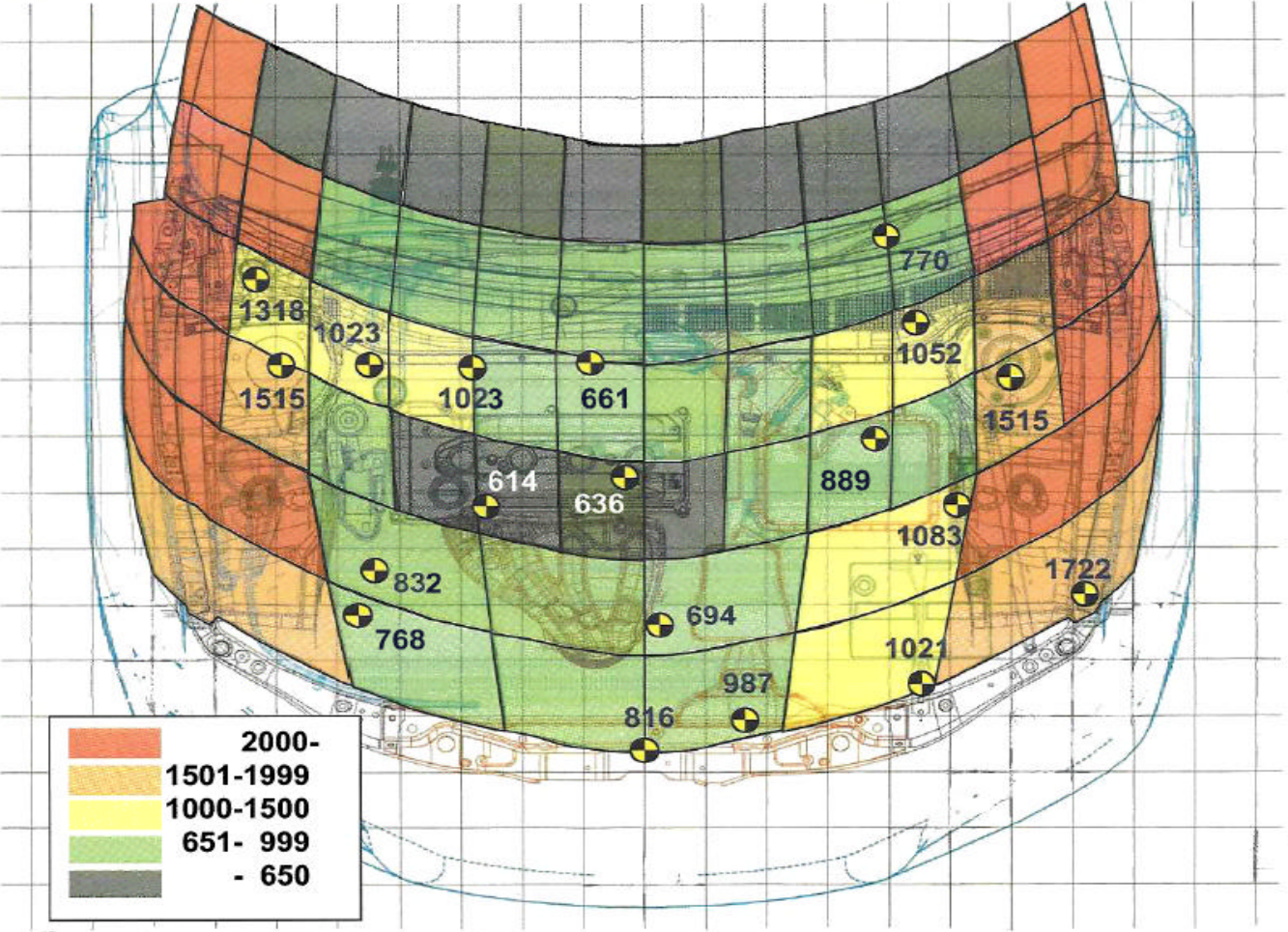
point	location	HIC (20% margin)
1	cnt of wiper	670
2	air box	580
5	hood feature	880
7	battery	950
8	hood rear	780
10	rear hood attachment bracket	900
12	rear hood attachment mechanism	2110
13	front hood attachment	680

minivan

point	location	HIC (20% margin)
1	1700 WAD - hood stiff.	460
2	hood center	520
3	fender attachment	1330
4	hinge - child - angled surf.	1240
5	1700 WAD - hood stiff.	620
6	latch	1510
7	BEC	710
9	bump stop	2260
10	hinge - adult	1510
8	head lamp	1980



# 35km/h Head impact test results for a Mid-size sedan



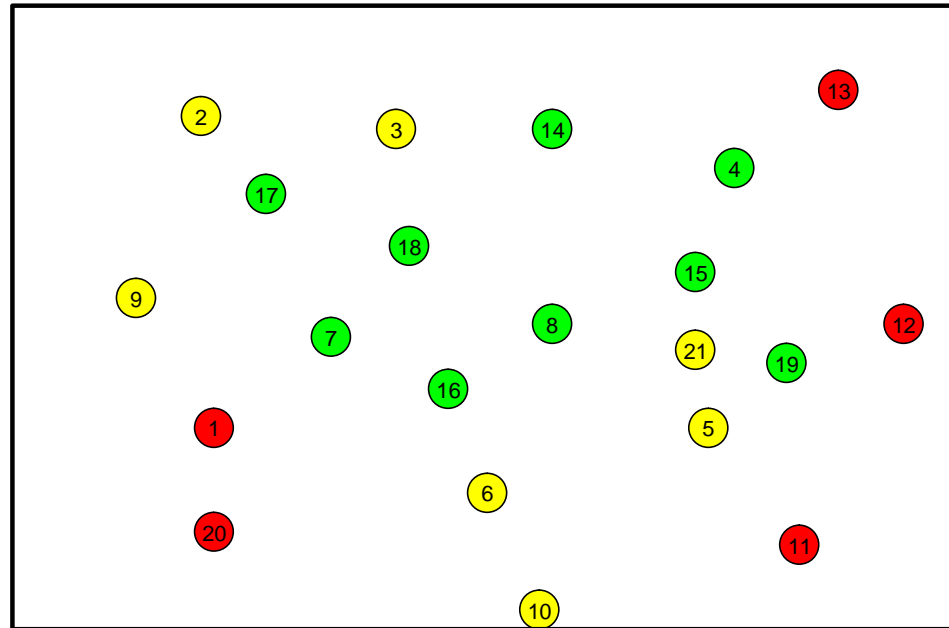


# Large Car impact locations and performance, 20% margin

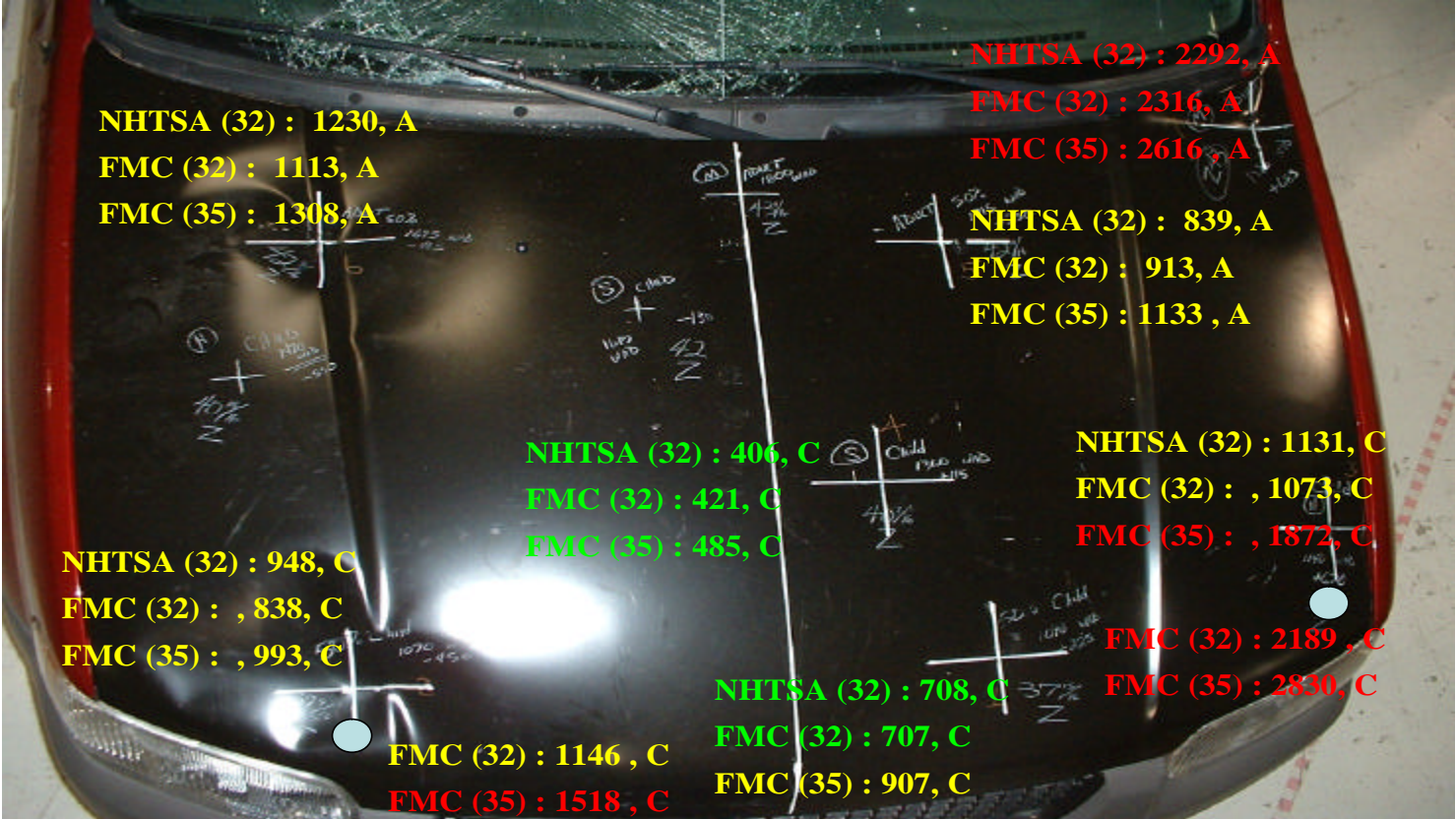
Test #	HIC - 15
4	645
7	590
8	455
14	767
15	663
16	623
17	418
18	388
19	780

2	1022
3	831
5	954
6	1323
9	1127
10	1208
21	1303

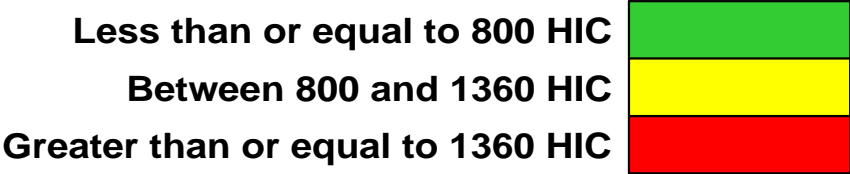
1	1437
11	1678
12	1756
13	1896
20	1400



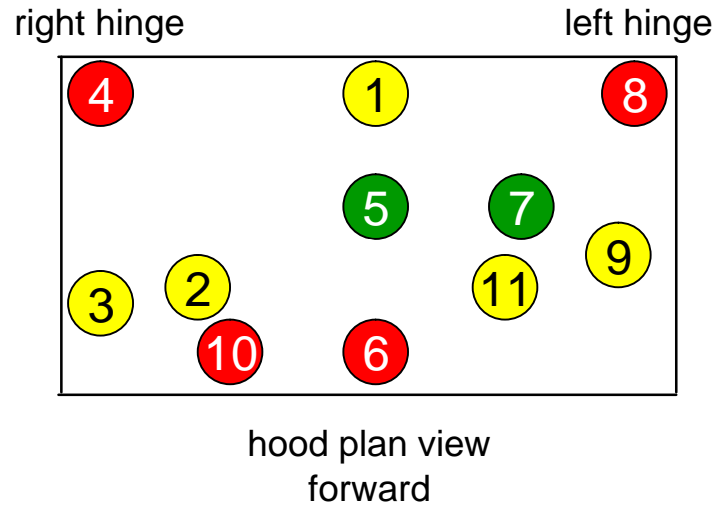
# FMC TEST on 2004 ESCAPE – GVW 2050 kg



## NEW GTR PROTOCOL

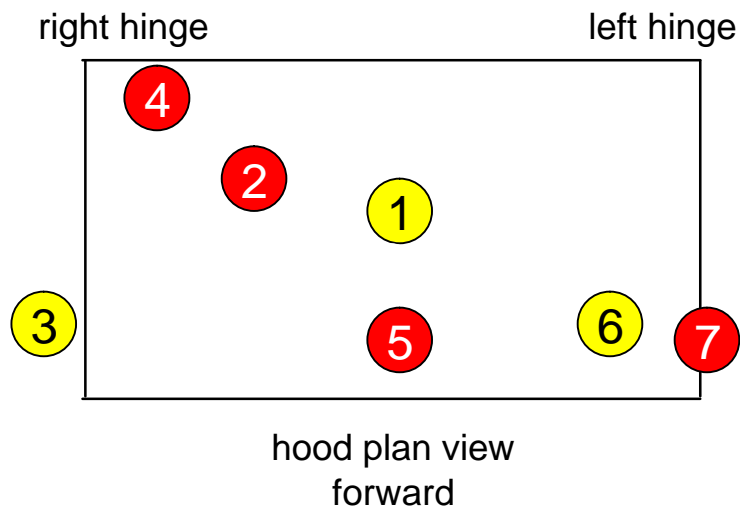


## Small SUV1 impact locations and performance, 20% margin



point	location	speed	HIC
1	2000 WAD or rearmost	35 kph	917
2	1250 WAD air box	35 kph	906
3	WAD1200 over fender	35 kph	1250
4	right hinge	35 kph	1520
5	1500 WAD engine cover	35 kph	604
6	1175 WAD cooling module	35 kph	1779
7	1500 WAD battery	35 kph	521
8	left hinge and wiper	35 kph	2270
9	1375 WAD hood near fender	35 kph	1350
10	1175 WAD	35 kph	1765
11	1250 WAD over fuse box	35 kph	870

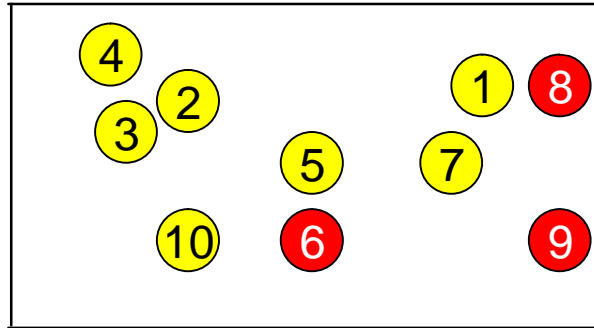
## Small SUV2 impact locations and performance, 20% margin



point	location	speed	HIC
1	Center of hood	35 kph	838
2	Forward of hinge	35 kph	1670
3	On fender flare	35 kph	838
4	Over plenum	35 kph	1956
5	Over cooling module	35 kph	1874
6	Outboard edge of hood	35 kph	1154
7	Over fender	35 kph	3851

## Large SUV impact locations and performance, 20% margin

right hinge                      left hinge

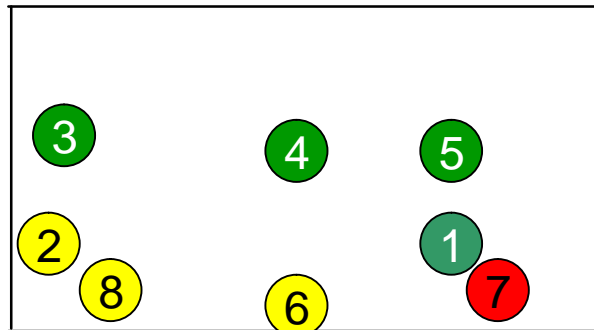


hood plan view  
forward

point	location	speed	HIC
1	1800 WAD	35 kph	1111
2	1800 WAD	35 kph	1207
3	1650 WAD	35 kph	1004
4	1950 WAD	35 kph	1177
5	1500 WAD	35 kph	908
6	1250 WAD	35 kph	1424
7	1500 WAD	35 kph	1085
8	1800 WAD	35 kph	1882
9	1250 WAD	35 kph	2076
10	1250 WAD	35 kph	1194

## Pickup Truck Impact locations and performance, 20% margin

right hinge                      left hinge



hood plan view  
forward

point	location	speed	HIC
1	1430 WAD	35 kph	533
2	1410 WAD	35 kph	835
3	1745 WAD	35 kph	484
4	1710 WAD	35 kph	360
5	1700 WAD	35 kph	243
6	BLER + 82.5	35 kph	1331
7	Over hood bump stop	35 kph	1498
8	Over cross member	35 kph	1296