REPORT NUMBER: 208-MGA-2007-019

VEHICLE SAFETY COMPLIANCE TESTING
FOR
FMVSS 208, OCCUPANT CRASH PROTECTION
FMVSS 212, WINDSHIELD MOUNTING
FMVSS 219, WINDSHIELD INTRUSION (PARTIAL)
FMVSS 301, FUEL SYSTEM INTEGRITY

BAYERISCHE MOTORENWERKE AG
2007 BMW MINI COOPER PASSENGER CAR
NHTSA NO.: C70511

PREPARED BY:
MGA RESEARCH CORPORATION
5000 WARREN ROAD
BURLINGTON, WI 53105

TEST DATES: OCTOBER 11, 2007 – MARCH 4, 2008

FINAL REPORT DATE: APRIL 30, 2008

FINAL REPORT

PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
OFFICE OF ENFORCEMENT
OFFICE OF VEHICLE SAFETY COMPLIANCE
1200 NEW JERSEY AVENUE, S.E., NVS-220
WASHINGTON, D.C. 20590

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Prepared by: Jeff Lewandowski Date: April 30, 2008
Jeff Lewandowski, Project Engineer

Reviewed by: David Winkelbauer Date: April 30, 2008
David Winkelbauer, Facility Director

FINAL REPORT ACCEPTED BY OVSC:

Accepted By: Charla R. Case

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SECTION 1

PURPOSE OF COMPLIANCE TESTS

The tests performed are part of a program conducted for the National Highway Traffic Safety Administration (NHTSA) by MGA Research Corporation (MGA) under Contract No. DTNH22-03-D-11002. The purpose of this test was to determine whether the subject vehicle, a 2007 BMW Mini Cooper, NHTSA No. C70511, meets certain performance requirements of FMVSS 208, "Occupant Crash Protection"; FMVSS 212, "Windshield Mounting"; FMVSS 219, "Windshield Zone Intrusion"; and FMVSS 301, "Fuel System Integrity". The compliance test was conducted in accordance with OVSC Laboratory Test Procedure No. TP208-13 dated July 27, 2005.

SECTION 2

TESTS PERFORMED

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance

NHTSA No.: C70511
Test Dates: 10/11/07 – 3/4/08

The following checked items indicate the tests that were performed:

- [X] 1. Rear outboard seating position seat belts (S4.1.1.2(b) & (S4.2.4)
- [X] 2. Air bag labels (S4.5.1)
- [X] 3. Readiness indicator (S4.5.2)
- [X] 4. Passenger air bag manual cut-off device (S4.5.4)
- [X] 5. Lap belt lockability (S7.1.1.5)
- [X] 6. Seat belt warning system (S7.3)
- [X] 7. Seat belt contact force (S7.4.4)
- [X] 8. Seat belt latch plate access (S7.4.4)
- [X] 9. Seat belt retraction (S7.4.5)
- [X] 10. Seat belt guides and hardware (S7.4.6)
- [X] 11. Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R)
- [X] 12. Suppression tests with newborn infant (Part 572, Subpart K)
- [ ] 13. Suppression tests with 3-year-old dummy (Part 572, Subpart P)
- [ ] 14. Suppression tests with 6-year-old dummy (Part 572, Subpart N)
- [X] 15. Test of reactivation of the passenger air bag system with an unbelted 5th percentile female human
- [ ] 16. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R)
- [X] 17. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P)
- [X] 18. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N)
- [X] 19. Low risk deployment test with 5th female dummy (Part 572, Subpart O)
- [X] 20. Impact Tests
  - [ ] Frontal Oblique
    - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
  - [X] Frontal 0°
    - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
    - [X] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))

[X] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
[ ] Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
[ ] Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
[ ] 40% Offset 0° Belted 5th female dummy driver and passenger (0 to 40 kmph) (S18.1)

[ ] 21. Sled Test: Unbelted 50th male dummy driver and passenger (S13)
[ ] 22. FMVSS 204 Indicant Test
[X] 23. FMVSS 212 Indicant Test
[X] 24. FMVSS 219 Indicant Test
[X] 25. FMVSS 301 Frontal Indicant Test

For the crash tests, the vehicle was instrumented with 8 accelerometers. The accelerometer data from the vehicle and dummies were sampled at 10,000 samples per second and processed as specified in SAE J211/1 MAR95 and FMVSS 208, S4.13.

The dynamic tests were recorded using high-speed film and high-speed digital video.

The vehicle appears to meet all of the performance requirements to which it was tested.

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 2/20/08

5th Percentile Female Low Risk Deployments

5th Percentile Female SN 124 Position 1 (Chin On Module) 2-20-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	20
Peak Nij (Nte)	1.0	0.6
Time (ms)	NA	10.3
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	7.9
Peak Nij (Nce)	1.0	0.4
Time (ms)	NA	12.4
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	132.0
Neck Tension	2070 N	1722
Neck Compression	2520 N	299
Chest g	60 g	3
Chest Displacement	52 mm	3
Left Femur	6805 N	102
Right Femur	6805 N	81

Second stage fire time of 255 ms; Injuries calculated on 0 ms to 380 ms

5th Percentile Female SN 125 Position 2 (Chin On Rim) 2-20-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	5
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	15.0
Peak Nij (Ntf)	1.0	0.1
Time (ms)	NA	29.0
Peak Nij (Nce)	1.0	0.3
Time (ms)	NA	17.3
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	260.7
Neck Tension	2070 N	545
Neck Compression	2520 N	137
Chest g	60 g	20
Chest Displacement	52 mm	13
Left Femur	6805 N	18
Right Femur	6805 N	26

Second stage fire time of 255 ms; Injuries calculated on 0 ms to 380 ms

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Dates: 2/20/08 & 2/21/08

3-Year-Old Low Risk Deployments

3-Year-Old SN 031 Position 1 (Chest On Instrument Panel) 2-21-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	60
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	100.0
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	38.7
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	0.8
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	29.9
Neck Tension	1130 N	276
Neck Compression	1380 N	62
Chest g	55 g	23
Chest Displacement	34 mm	5

Second stage fire time of 255 ms; Injuries calculated on 0 ms to 100 ms

3-Year-Old SN 031 Position 2 (Head On Instrument Panel) 2-20-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	4
Peak Nij (Nte)	1.0	0.0
Time (ms)	NA	14.6
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	11.7
Peak Nij (Nce)	1.0	0.7
Time (ms)	NA	37.2
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	95.8
Neck Tension	1130 N	33
Neck Compression	1380 N	945
Chest g	55 g	9
Chest Displacement	34 mm	0

Second stage fire time of 255 ms; Injuries calculated on 0 ms to 100 ms

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 2/21/08

6-Year-Old Low Risk Deployments

6-Year-Old SN 155 Position 1 (Chest On Instrument Panel) 2-21-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	25
Peak Nij (Nte)	1.0	0.1
Time (ms)	NA	53.6
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	39.3
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	8.6
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	22.0
Neck Tension	1490 N	563
Neck Compression	1820 N	54
Chest g	60 g	15
Chest Displacement	40 mm	8

Second stage fire time of 255 ms; Injuries calculated on 0 ms to 100 ms

6-Year-Old SN 155 Position 2 (Head On Instrument Panel) 2-21-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	1
Peak Nij (Nte)	1.0	0.1
Time (ms)	NA	19.3
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	14.8
Peak Nij (Nce)	1.0	0.7
Time (ms)	NA	47.2
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	11.3
Neck Tension	1490 N	39
Neck Compression	1820 N	724
Chest g	60 g	5
Chest Displacement	40 mm	0

Second stage fire time of 255 ms; Injuries calculated on 0 ms to 100 ms

SECTION 3

INJURY RESULT SUMMARY FOR FMVSS 208 TESTS

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08

40 kmph Frontal Crash

Impact Angle: Zero degrees

Belted Dummies: ___Yes _X_ No
Speed Range: ___ 0 to 40 kmph _X_ 32 to 40 kmph
___ 0 to 48 kmph ___ 0 to 56 kmph

Test Speed: 39.9 kmph Test Weight: 1404.8 kg

Driver Dummy: ___5th female _X_50th male
Passenger Dummy: ___5th female _X_50th male

50th Percentile Male Frontal Crash Test
Vehicles certified to S5.1.1(b)(1), S5.1.1(b)(2), S5.1.2(a)(2), or S5.1.2(b)

Injury Criteria	Max. Allowable Injury Assessment Values	Driver	Passenger
HIC15	700	40	113
N_{te}	1.0	0.7	0.3
N_{tf}	1.0	0.0	0.4
N_{ce}	1.0	0.4	0.2
N_{cf}	1.0	0.0	0.1
Neck Tension	4170 N	2739	1631
Neck Compression	4000 N	964	443
Chest g	60 g	39	45
Chest Displacement	63 mm	21	11
Left Femur	10,000 N	5032	7057
Right Femur	10,000 N	5385	5158

SECTION 4

DISCUSSION OF TESTS

Test Vehicle:	2007 BMW Mini Cooper	NHTSA No.:	C70511
Test Program:	FMVSS 208 Compliance	Test Dates:	10/11/07 – 3/4/08

A blanket and visor were not used in the suppression testing because they did not affect the sensing system used on the vehicle.

The BMW Mini Cooper passenger airbag suppression telltale light is off when the passenger seat is empty. In two installations of child restraint systems (CRS) the suppression system classified them as an empty seat; therefore the telltale light was off. These installations are as follows:
Graco Infant 8457 with base; Unbelted forward and rear facing with12 month old
Evenflo Medallion 254; Unbelted forward and rear facing with12 month old

A diagnostic tool supplied by BMW was used to verify that the airbag was suppressed while the telltale light was off in these installations.

There was no valid data after 20 msec on the Bottom of Engine (X) accelerometer during the frontal impact crash test.

SECTION 5

TEST DATA SHEETS

Test Vehicle:	2007 BMW Mini Cooper	NHTSA No.:	C70511
Test Program:	FMVSS 208 Compliance	Test Dates:	10/11/07 – 3/4/08

DATA SHEET 1

COTR VEHICLE WORK ORDER

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance

NHTSA No.: C70511
Test Dates: 10/11/07 - 3/4/08

COTR Signature: Charles R. Case

Test to be performed for this vehicle are checked below:

X	1.	Rear Outboard Seating Position Seat Belts (S4.1.2(b)) & (S4.2.4)
X	2.	Air Bag Labels (S4.5.1)
X	3.	Readiness Indicator (S4.5.2)
X	4.	Passenger Air Bag Manual Cut-off Device (S4.5.4)
X	5.	Lap Belt Lockability (S7.1.1.5)
X	6.	Seat Belt Warning System (S7.3)
X	7.	Seat Belt Contact Force (S7.4.4)
X	8.	Seat Belt Latch Plate Access (S7.4.4)
X	9.	Seat Belt Retraction (S7.4.5)
X	10.	Seat Belt Guides and Hardware (S7.4.6)
X	11.	Suppression tests with 12-month-old CRABI dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

X	Britax Handle with Care 191	X	Full Rearward	X	Mid Position	X	Full Forward
	Century Assura 4553		Full Rearward		Mid Position		Full Forward
	Century Avanta SE 41530		Full Rearward		Mid Position		Full Forward
	Century Smart Fit 4543		Full Rearward		Mid Position		Full Forward
	Cosco Arriva 02727		Full Rearward		Mid Position		Full Forward
	Cosco Opus 35 02603		Full Rearward		Mid Position		Full Forward
	Evenflo Discovery Adjust Right 212		Full Rearward		Mid Position		Full Forward
X	Evenflo First Choice 204	X	Full Rearward	X	Mid Position	X	Full Forward
	Evenflo On My Way Position Right V 282		Full Rearward		Mid Position		Full Forward
X	Graco Infant 8457	X	Full Rearward	X	Mid Position	X	Full Forward

Section C

X	Britax Roundabout 161	X	Full Rearward	X	Mid Position	X	Full Forward
X	Century Encore 4612	X	Full Rearward	X	Mid Position	X	Full Forward
	Century STE 1000 4416		Full Rearward		Mid Position		Full Forward
	Cosco Olympian 02803		Full Rearward		Mid Position		Full Forward
	Cosco Touriva 02519		Full Rearward		Mid Position		Full Forward
	Evenflo Horizon V 425		Full Rearward		Mid Position		Full Forward
X	Evenflo Medallion 254	X	Full Rearward	X	Mid Position	X	Full Forward

X	12.	Suppression tests with newborn infant (Part 572, Subpart K) using the following indicated child restraints.

Section A

X	Cosco Dream Ride 02-719	X	Full Rearward	X	Mid Position	X	Full Forward

	13.	Suppression tests with 3-year-old dummy (Part 572, Subpart P) using the following indicated child restraints where a child restraint is required.

Section C

Britax Roundabout 161	Full Rearward	Mid Position	Full Forward
Century Encore 4612	Full Rearward	Mid Position	Full Forward
Century STE 1000 4416	Full Rearward	Mid Position	Full Forward
Cosco Olympian 02803	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Horizon V 425	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward

Section D

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Century Next Step 4920	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 02-442	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward

14. Suppression tests with representative 3-year-old child using the following indicated child restraints where a child restraint is required. (Appendix H, Data Sheet 16H and 17H)

Section C

Britax Roundabout 161	Full Rearward	Mid Position	Full Forward
Century Encore 4612	Full Rearward	Mid Position	Full Forward
Century STE 1000 4416	Full Rearward	Mid Position	Full Forward
Cosco Olympian 02803	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Horizon V 425	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward

Section D

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Century Next Step 4920	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 02-442	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward

15. Suppression tests with 3-year-old dummy (Part 572, Subpart P) in the following Forward, Middle, and Rearward seat track positions

- Sitting on seat with back against seat back (S22.2.2.1)
- Sitting on seat with back against reclined seat back (S22.2.2.2)
- Sitting on seat with back not against seat back (S22.2.2.3)
- Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
- Standing on seat, facing forward (S22.2.2.5)
- Kneeling on seat facing forward (S22.2.2.6)
- Kneeling on seat facing rearward (S22.2.2.7)
- Lying on seat (S22.2.2.8)

16. Suppression tests with representative 3-year-old child in the following positions

- Sitting on seat with back against seat back (S22.2.2.1)
- Sitting on seat with back against reclined seat back (S22.2.2.2)
- Sitting on seat with back not against seat back (S22.2.2.3)
- Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
- Standing on seat, facing forward (S22.2.2.5)
- Kneeling on seat facing forward (S22.2.2.6)
- Kneeling on seat facing rearward (S22.2.2.7)
- Lying on seat (S22.2.2.8)

17. Suppression tests with 6-year-old dummy (Part 572, Subpart N) using the following indicated child restraints where a child restraint is required.

Section D

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Century Next Step 4920	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 02-442	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward

18. Suppression tests with representative 6-year-old child using the following indicated child restraints where a child restraint is required.

Section D

Britax Roadster 9004	Full Rearward	Mid Position	Full Forward
Century Next Step 4920	Full Rearward	Mid Position	Full Forward
Cosco High Back Booster 02-442	Full Rearward	Mid Position	Full Forward
Evenflo Right Fit 245	Full Rearward	Mid Position	Full Forward

19. Suppression tests with 6-year-old dummy (Part 572, Subpart N) in the following Forward, Middle, and Rearward seat track positions

- Sitting on seat with back against seat back (S22.2.2.1)
- Sitting on seat with back against reclined seat back (S22.2.2.2)
- Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
- Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

20. Suppression tests with representative 6-year-old child in the following positions

- Sitting on seat with back against seat back (S22.2.2.1)
- Sitting on seat with back against reclined seat back (S22.2.2.2)
- Sitting on seat edge, spine vertical, hands by the child's side (S22.2.2.4)
- Sitting back in the seat and leaning on the right front passenger door (S24.2.3)

21. Test of Reactivation of the Passenger Air Bag System with an Unbelted 5th percentile female dummy (S20.3, 22.3, S24.3). Perform this test after the following suppression tests: After each restraint.

X 22. Test of Reactivation of the passenger air bag system with a representative 5th percentile female (S20.3, 22.3, S24.3). Perform this test after the following suppression tests:

23. Low risk deployment test with 12-month-old dummy (Part 572, Subpart R) using the following indicated child restraints.

Section B

Britax Handle with Care 191	Full Rearward	Mid Position	Full Forward
Century Assura 4553	Full Rearward	Mid Position	Full Forward
Century Avanta SE 41530	Full Rearward	Mid Position	Full Forward
Century Smart Fit 4543	Full Rearward	Mid Position	Full Forward
Cosco Arriva 02727	Full Rearward	Mid Position	Full Forward
Cosco Opus 35 02603	Full Rearward	Mid Position	Full Forward
Evenflo Discovery Adjust Right 212	Full Rearward	Mid Position	Full Forward
Evenflo First Choice 204	Full Rearward	Mid Position	Full Forward
Evenflo On My Way Position Right V 282	Full Rearward	Mid Position	Full Forward
Graco Infant 8457	Full Rearward	Mid Position	Full Forward

Section C

Britax Roundabout 161	Full Rearward	Mid Position	Full Forward
Century Encore 4612	Full Rearward	Mid Position	Full Forward
Century STE 1000 4416	Full Rearward	Mid Position	Full Forward
Cosco Olympian 02803	Full Rearward	Mid Position	Full Forward
Cosco Touriva 02519	Full Rearward	Mid Position	Full Forward
Evenflo Horizon V 425	Full Rearward	Mid Position	Full Forward
Evenflo Medallion 254	Full Rearward	Mid Position	Full Forward

- [X] 24. Low risk deployment test with 3-year-old dummy (Part 572, Subpart P) in the following positions
  - [X] Position 1
  - [X] Position 2
- [X] 25. Low risk deployment test with 6-year-old dummy (Part 572, Subpart N) in the following positions
  - [X] Position 1
  - [X] Position 2
- [X] 26. Low risk deployment test with 5th percentile female dummy (Part 572, Subpart O) in the following positions
  - [X] Position 1
  - [X] Position 2
- [X] 27. Impact Tests
  - [ ] Frontal Oblique – Test Speed:
    - [ ] Belted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.1(a))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a)(1))
    - [ ] Unbelted 50th male dummy driver and passenger (32 to 40 kmph) (S5.1.2(a) (1) or S5.1.2(b))
  - [X] Frontal 0° - Test Speed: 39.9 kmph
    - [ ] Belted 50th male dummy driver (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 50th male dummy passenger (0 to 48 kmph) (S5.1.1.(b)(1) or S5.1.1(a))
    - [ ] Belted 5th female dummy driver (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 5th female dummy passenger (0 to 48 kmph) (S16.1(a))
    - [ ] Belted 50th male dummy driver and passenger (0 to 56 kmph) (S5.1.1.(b)(2))
    - [ ] Unbelted 50th male dummy driver and passenger (0 to 48 kmph) (S5.1.2(a) (1))
    - [X] Unbelted 50th male dummy driver (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [X] Unbelted 50th male dummy passenger (32 to 40 kmph) (S5.1.2.(a)(2) or S5.1.2(b))
    - [ ] Unbelted 5th female dummy driver (32 to 40 kmph) (S16.1(b))
    - [ ] Unbelted 5th female dummy passenger (32 to 40 kmph) (S16.1(b))
  - [ ] 40% Offset 0° Belted 5th female dummy driver and passenger (0 to 40 kmph) (S18.1) – Test Speed:
- [ ] 28. Sled Test: Unbelted 50th male dummy driver and passenger (S13)
- [ ] 29. FMVSS 204 Indicant Test
- [X] 30. FMVSS 212 Indicant Test
- [X] 31. FMVSS 219 Indicant Test
- [X] 32. FMVSS 301 Frontal Indicant Test

DATA SHEET 2

REPORT OF VEHICLE CONDITION

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance

NHTSA No.: C70511
Test Dates: 10/11/07 – 3/4/08

CONTRACT NO.: DTNH22-03-D-11002 Date: 3/10/08

FROM (Lab and rep name): MGA Research Corporation

TO: NHTSA, OVSC (NVS-220)

PURPOSE: (X) Initial Receipt ( ) Received via Transfer (X) Present vehicle condition

MODEL YEAR/MAKE/MODEL/BODY STYLE:	2007 BMW Mini Cooper Sedan		
MANUFACTURE DATE:	07/07		
NHTSA NO.	C70511	GVWR:	1525 kg (3362 lbs)
BODY COLOR:	Blue	GAWR (Fr):	875 kg (1929 lbs)
VIN:	WMWMF33587TU61574	GAWR (Rr):	755 kg (1664 lbs)

ODOMETER READINGS:	ARRIVAL (miles):	40	DATE:	9/27/07
	COMPLETION (miles):	47	DATE:	3/4/08
PURCHASE PRICE: ($)	21,250			
DEALER'S NAME:	International Autos, 2400 S. 108th St., Milwaukee, WI 53227			

A. All options listed on window sticker are present on the test vehicle:
_X_Yes ___No

B. Tires and wheel rims are new and the same as listed: _X_Yes ___No

C. There are no dents or other interior or exterior flaws: _X_Yes ___No

D. The vehicle has been properly prepared and is in running condition:
_X_Yes ___No

E. Keyless remote is available and working: _X_ Yes ___No

F. The glove box contains an owner's manual, warranty document, consumer information, and extra set of keys: _X_Yes ___No

G. Proper fuel filler cap is supplied on the test vehicle: _X_Yes ___No

H. Using permanent marker, identify vehicle with NHTSA number and FMVSS test type(s) on roof line above driver door or for school buses, place a placard with NHTSA number inside the windshield and to the exterior front and rear side of bus:
_X_Yes ___No

I. Place vehicle in storage area: _X_Yes ___No

J. Inspect the vehicle's interior and exterior, including all windows, seats, doors, etc. to confirm that each system is complete and functional per the manufacturer's specifications. Any damage, misadjustment, or other unusual condition that could influence the test program or test results shall be recorded. Report any abnormal condition to the NHTSA COTR before beginning any test:
_X_Vehicle OK ___Conditions reported below

REPORT OF VEHICLE CONDITION AT THE COMPLETION OF TESTING

LIST OF FMVSS TESTS PERFORMED BY THIS LAB: FMVSS 208, 212, 219, 301

VEHICLE: 2007 BMW Mini Cooper NHTSA NO. C70511

REMARKS:

Equipment that is no longer on the test vehicle as noted on previous page:

Spare tire, jack and tools, rear seat bottom, and trunk interior

Explanation for equipment removal:

Components removed for instrumentation installation and to meet target weight.

Test Vehicle Condition:

25 mph frontal impact damage- front suspension & structure damaged, hood & front quarter panels damaged, radiator damaged, air bags & pretensioners deployed, Stoddard in fuel system

RECORDED BY: Jeff Lewandowski DATE: 3/10/2008

APPROVED BY: David Winkelbauer DATE: 3/10/2008

########## ##########

RELEASE OF TEST VEHICLE

The vehicle described above is released from MGA to be delivered to:

Date: Time: Odometer:

Lab Rep's Signature:

Title:

Carrier/Customer Rep:

Date:

DATA SHEET 3

CERTIFICATION LABEL AND TIRE PLACARD INFORMATION

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

Certification Label	
Manufacturer:	Bayerische Motorenwerke AG
Date of Manufacture:	07/07
VIN:	WMWMF33587TU61574
Vehicle Certified As (Pass. Car/MPV/Truck/Bus):	Passenger Car
Front Axle GVWR:	875 kg (1929 lbs)
Rear Axle GVWR:	755 kg (1664 lbs)
Total GVWR:	1525 kg (3362 lbs)

Tire Placard	
Not applicable, vehicle is not a passenger car and does not have a tire placard.	Passenger Car
This is not a passenger car, but all or part of this information is still contained on a vehicle label and is reported here.	Passenger Car
Vehicle Capacity Weight:	370 kg (816 lbs)
Designated Seating Capacity Front:	2
Designated Seating Capacity Rear:	2
Total Designated Seating Capacity:	4
Recommended Cold Tire Inflation Pressure Front:	230 kpa (33 psi)
Recommended Cold Tire Inflation Pressure Rear:	230 kpa (33 psi)
Recommended Tire Size:	175/65 R15

Signature:

Date: 3/4/08

DATA SHEET 4

REAR OUTBOARD SEATING POSITION SEAT BELTS

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jeff Lewandowski

NHTSA No.: C70511
Test Date: 10/11/07

	Yes	No
Do all rear outboard seating positions have Type 2 seat belts?	X	

If NO, describe the seat belt installed, the seat location, and any other information about the seat that would explain why a Type 2 seat belt was not installed.

REMARKS:

Signature: Jeff Lewandowski

Date: 10/11/07

DATA SHEET 5

AIR BAG LABELS (S4.5.1)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/11/07
Test Technician: Jeff Lewandowski

[X] 1. Air bag maintenance label and owner's manual instructions: (S4.5.1(a))

[X] 1.1 Does the manufacturer recommend periodic maintenance or replacement of the air bag?

[ ] Yes, go to 1.2
[X] No – go to 2

[ ] 1.2 Does the vehicle have a label specifying air bag maintenance or replacement?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.3 Does the label contain one of the following?

[ ] Yes – Pass
[ ] No – Fail

Check applicable schedule:

__Schedule on label specifies month and year (Record date_____)

__ Schedule on label specified vehicle mileage (Record mileage_____)

__ Schedule on label specifies interval measured from date on certification label (Record interval_____)

[ ] 1.4 Is the label permanently affixed within the passenger compartment such that it cannot be removed without destroying or defacing the label or the sunvisor? (3/19/01 legal interpretation to Todd Mitchell)

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.5 Is the label lettered in English?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.6 Is the label in block capitals and numerals?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.7 Are the letters and numerals at least 3/32 inches high?

[ ] Yes – Pass
[ ] No – Fail

[ ] 1.8 Does the owner's manual set forth the recommended schedule for maintenance or replacement?

[X] 2. Does the owner's manual: (S4.5.1(f))

[X] 2.1 Include a description of the vehicle's air bag system in an easily understandable format?

[X] Yes – Pass
[ ] No – Fail

[X] 2.2 Include a statement that the vehicle is equipped with an air bag and a lap/shoulder belt at the front outboard seating position?

[X] Yes – Pass
[ ] No – Fail

X 2.3 Include a statement that the air bag is a supplemental restraint at the front outboard seating position?

X Yes – Pass
No – Fail

X 2.4 Emphasize that all occupants, including the driver, should always wear their seat belts whether or not an air bag is also provided at their seating positions to minimize the risk of severe injury or death in the event of a crash?

X Yes – Pass
No – Fail

X 2.5 Provide any necessary precautions regarding the proper positioning of occupants, including children, at seating positions equipped with air bags to ensure maximum safety protection for those occupants?

X Yes – Pass
No – Fail

X 2.6 Explain that no objects should be placed over or near the air bag on the steering wheel or on the instrument panel, because any such objects could cause harm if the vehicle is in a crash severe enough to cause the air bag to inflate?

X Yes – Pass
No – Fail

X 2.7 Is the vehicle certified to meet the requirements of S14.5, S15, S17, S19, S21, S23, and S25? (Obtain answer from COTR) (S4.5.1(f)(2))

X Yes – (Go to 2.7.1)
No – (Go to 3.)

X 2.7.1 Explain the proper functioning of the advanced air bag system? (S4.5.1(f)(2))

X Yes – Pass
No – Fail

X 2.7.2 Provide a summary of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2))

X Yes – Pass
No – Fail

X 2.7.3 Present and explain the main components of the advanced passenger air bag system? (S4.5.1(f)(2)(i))

X Yes – Pass
No – Fail

X 2.7.4 Explain how the components function together as part of the advanced passenger air bag system? (S4.5.1(f)(2)(ii))

X Yes – Pass
No – Fail

X 2.7.5 Contain the basic requirements for proper operation, including an explanation of the actions that may affect the proper functioning of the system? (S4.5.1(f)(2)(iii))

X Yes – Pass
No – Fail

X 2.7.6 Is the vehicle certified to the requirements of S19.2, S21.2, or 23.2 (automatic suppression)?

X Yes, continue with 2.7.6
No, go to 2.7.7

X 2.7.6.1 Contain a complete description of the passenger air bag suppression system installed in the vehicle, including a discussion of any suppression zone? (S4.5.1(f)(2)(iv))

X Yes – Pass
No – Fail

[X] 2.7.6.2 Discuss the telltale light, specifying its location in the vehicle and explaining when the light is illuminated?

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.7 Explain the interaction of the advanced passenger air bag system with other vehicle components, such as seat belts, seats or other components? (S4.5.1(f)(2)(v))

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.8 Summarize the expected outcomes when child restraint systems, children and small teenagers or adults are both properly and improperly positioned in the passenger seat, including cautionary advice against improper placement of child restraint systems? (S4.5.1(f)(2)(vi))

[X] Yes – Pass
[ ] No – Fail

[X] 2.7.9 Provide information on how to contact the vehicle manufacturer concerning modifications for persons with disabilities that my affect the advanced air bag system? (S4.5.1(f)(2)(vii))

[X] Yes – Pass
[ ] No – Fail

[X] 3. Sun Visor Air Bag Warning Label (S4.5.1(b)) Check only one of the following:

[ ] The vehicle is not certified to meet the requirements of S19, S21, and S23 (Obtain answer from COTR) (S4.5.1(b)(1)) Go to 3.1 and skip 3.2

[X] The vehicle is certified to meet the requirements of S19, S21, and S23 on 9/1/03 or later. (Obtain answer from COTR) (S4.5.1(b)(3)) Go to 3.2 and skip 3.1

[ ] 3.1 Vehicles not certified to meet the requirements of S19, S21, and S23.

[ ] 3.1.1 Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or sun visor? (S4.5.1(b)(1)) (3/19/01 legal interpretation to Todd Mitchell)

[ ] Driver Side, Yes – Pass
[ ] Driver Side, No – Fail
[ ] Passenger Side, Yes – Pass
[ ] Passenger Side, No – Fail

3.1.2 Does the label conform in content to the label shown in either Figure 6A or 6B (Figure 6b is for vehicles with passenger air bag on-off switches), as appropriate, at each front outboard seating position? (S4.5.1(b)(1)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(1)(iv))

Figure 6a. Sun Visor Label Visible When Visor is in Down Position.

Figure 6b. Sun Visor Label Visible When Visor is in Down Position.

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

3.1.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(1)(i))

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

3.1.4 Is the message area white with black text? (S4.5.1(b)(1)(ii))

- Driver Side, Yes – Pass
- Driver Side, No – Fail
- Passenger Side, Yes – Pass
- Passenger Side, No – Fail

	3.1.5	Is the message area at least 30 cm^2? (S4.5.1(b)(1)(ii)) **The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label and on the top by line that borders the yellow heading area. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)** Driver Side: Length_____, Width_____ Passenger Side: Length_____, Width_____ Actual message area _____ cm^2 Driver Side, Yes – Pass Driver Side, No – Fail Passenger Side, Yes – Pass Passenger Side, No – Fail
	3.1.6	Is the pictogram black with a red circle and slash on a white background? (S4.5.1(b)(2)(iii)) Driver Side, Yes – Pass Driver Side, No – Fail Passenger Side, Yes – Pass Passenger Side, No – Fail
	3.1.7	Is the pictogram at least 30 mm in diameter? (S4.5.1(b)(2)(iii)) Actual diameter_____mm Driver Side, Yes – Pass Driver Side, No – Fail Passenger Side, Yes – Pass Passenger Side, No – Fail
X	3.2	Vehicles certified to meet the requirements of S19, S21, and S23 on 9/1/03 and later. (S4.5.1(b)(3))
X	3.2.1	Is the label permanently affixed (including permanent marking on the visor material or molding into the visor material) to either side of the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(b)(3)) (3/19/01 legal interpretation to Todd Mitchell) X Driver Side, Yes – Pass Driver Side, No – Fail X Passenger Side, Yes – Pass Passenger Side, No – Fail

X 3.2.2 Does the label conform in content to the label shown in Figure 11 at each front outboard seating position? (S4.5.1(b)(2)) (Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(b)(3)(iv)) Vehicles without back seats or the back seat is too small to accommodate a rear-facing child restraint may omit the statement "Never put a rear-facing child seat in the front."(S4.5.1(b)(3)(v))

Figure 11. Sun Visor Label Visible when Visor is in Down Position.

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.2.3 Is the label heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(b)(3)(i))

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.2.4 Is the message area white with black text? (S4.5.1(b)(3)(ii))

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.2.5 Is the message area at least 30 cm^2? (S4.5.1(b)(3)(ii)) The message area consists of the total label area minus the yellow heading area and the pictogram. The pictogram is enclosed on the left side and bottom by the edge of the label. The top edge of the pictogram area is defined by a horizontal line midway between the uppermost edge of the pictogram and the lowermost edge of the text. The right side of the pictogram is defined by a vertical line midway between the rightmost edge of the pictogram and the left most edge of the text, including any bullets. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Driver Side: Length 8.0 cm, Width 4.0 cm

Passenger Side: Length 8.0 cm, Width 4.0 cm

Actual message area 32.0 cm^2

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.2.6 Is the pictogram black on a white background? (S4.5.1(b)(3)(iii)

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.2.7 Is the pictogram at least 30 mm (1.2 inches) in length? (S4.5.1(b)(3)(iii))

Driver Side: Length 35 mm

Passenger Side: Length 35 mm

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.3 Is the same side of the sun visor that contains the air bag warning label free of other information with the exception of the air bag maintenance label and/or the rollover-warning label? (S4.5.1(b)(5)(i))

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.4 Is the sun visor free of other information about air bags or the need to wear seat belts with the exception of the air bag alert label and/or the rollover-warning label? (S4.5.1(b)(5)(ii))

X Driver Side, Yes – Pass
Driver Side, No – Fail
X Passenger Side, Yes – Pass
Passenger Side, No – Fail

X 3.5 Does the driver side visor contain a rollover-warning label on the same side of the visor as the air bag warning label?

__ Yes, go to 3.5.1

X No, go to 4 (skipping 3.5.1 through 3.5 3)

3.5.1 Are both the rollover-warning label and the air bag warning label surrounded by a continuous solid-lined border?

___ Yes, go to 3.5.2 and skip 3.5.3

__ No, go to 3.5.3 and skip 3.5.2

3.5.2 Is the shortest distance from the border of the rollover label to the border of the air bag warning label at least 1 cm? (575.105 (d)(1)(iv)(B))

_____ actual distance

3.5.3 Is the shortest distance from any of the lettering or graphics on the rollover-warning label to any of the lettering or graphics of the air bag warning label at least 3 cm? (575.105 (d)(1)(iv)(A))

_____actual distance
__Yes-Pass __No-FAIL

X 4. Air Bag Alert Label (S4.5.1(c) (A “Rollover Warning Label” or “Rollover Alert Label” may be on the same side of the driver’s sun visor as the “Air Bag Alert Label.” 575.105(d))

X 4.1 Is the sun visor warning label visible when the sun visor is in the stowed position?

X **If yes for driver and passenger, go to 5**.

X Driver Side, Yes

Driver Side, No

X Passenger Side, Yes

Passenger Side, No

4.2 Is the air bag alert label permanently affixed (including permanent marking on the visor material or molding into the visor material) to the sun visor at each front outboard seating position such that it cannot be removed without destroying or defacing the label or the sun visor? (S4.5.1(c)) (3/19/01 legal interpretation to Todd Mitchell)

Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

Passenger Side, No – Fail

4.3 Is the air bag alert label visible when the visor is in the stowed position? (S4.5.1(c))

Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

Passenger Side, No – Fail

4.4 Does the label conform in content to the label shown in Figure 6C? (S4.5.1(c))

Figure 6c. Sun Visor Label Visible When Visor is in Up Position.

Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

Passenger Side, No – Fail

4.5 Is the message area black with yellow text? (S4.5.1(c)(1)

Driver Side, Yes – Pass

Driver Side, No – Fail

Passenger Side, Yes – Pass

Passenger Side, No – Fail

	4.6	Is the message area at least 20 cm^2? (S4.5.1(c)(1)) The message area consists of the black part of the label. Driver Side: Length_____, Width_____ Passenger Side: Length_____, Width_____ Actual message area _____ cm^2 ☐ Driver Side, Yes – Pass ☐ Driver Side, No – Fail ☐ Passenger Side, Yes – Pass ☐ Passenger Side, No – Fail
	4.7	Is the pictogram black with a red circle and slash on a white background? (S4.5.1(c)(2)) ☐ Driver Side, Yes – Pass ☐ Driver Side, No – Fail ☐ Passenger Side, Yes – Pass ☐ Passenger Side, No – Fail
	4.8	Is the pictogram at least 20 mm in diameter? (S4.5.1(c)(2)) Driver Side Diameter ___mm Passenger Side Diameter ___mm ☐ Driver Side, Yes – Pass ☐ Driver Side, No – Fail ☐ Passenger Side, Yes – Pass ☐ Passenger Side, No – Fail
X	5.	Label on the Dashboard
X	5.1	Is the vehicle certified to meet the requirements of S19, S21, and S23? (Obtain answer from COTR) (S4.5.1(e)(3)) ☒ Yes, go to 5.1.1 and **skip 5.2** ☐ No, go to 5.2, skipping 5.1.1 through 5.1.6
X	5.1.1	Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(3)) ☒ Yes – Pass ☐ No – Fail
X	5.1.2	Is the label clearly visible from all front seating positions? (S4.5.1(e)(3)) ☒ Yes – Pass ☐ No - Fail

X 5.1.3 Does the label conform in content to the label shown in Figure 12? (S4.5.1(e)(3))
Vehicles without back seats may omit the statement: "The back seat is the safest place for children." Vehicles without back seats or too small to accommodate a rear-facing child restraint consistent with S4.5.4.1 as determined in DATA SHEET 7 may omit the statement "Never put a rear-facing child seat in the front." (S4.5.1(e)(3)(iii)))

X Yes – Pass

No - Fail

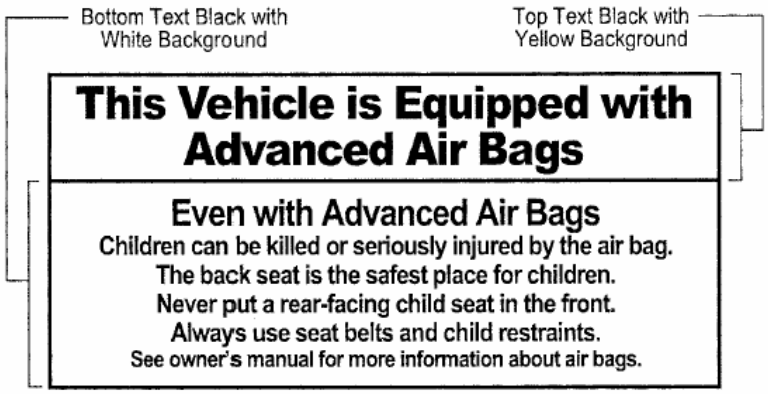


Figure 12. Removable Label on Dash.

X 5.1.4 Is the heading area yellow with black text? (S4.5.1(e)(3)(i)

X Yes – Pass

No - Fail

X 5.1.5 Is the message white with black text? (S4.5.1(e)(3)(ii))

X Yes – Pass

No - Fail

X 5.1.6 Is the message area at least 30 cm^2? (S4.5.1(e)(3)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Length 10.5 cm Width 3.0 cm

Actual message area 31.5 cm^2

X Yes – Pass

No - Fail

5.2 Does the vehicle have a label on the dash or steering wheel hub? (S4.5.1(e)(1))

Yes – Pass

No - Fail

5.2.1 Is the label clearly visible from all front seating positions? (S4.5.1(e)(1))

Yes – Pass

No - Fail

5.2.2 Does the label conform in content to the label shown in Figure 7? (S4.5.1(e)(1)(iii)) Vehicles without back seats may omit the statement: "The back seat is the safest place for children." (S4.5.1(e)(1)(iii))

Yes – Pass

No - Fail

Figure 7. Removable Label on Dash.

5.2.3 Is the heading area yellow with the word "WARNING" and the alert symbol in black? (S4.5.1(e)(1)(i)

Yes – Pass

No - Fail

5.2.4 Is the message white with black text? (S4.5.1(e)(1)(ii))

Yes – Pass

No - Fail

5.2.5 Is the message area at least 30 cm^2? (S4.5.1(e)(1)(ii)) The message area consists of the total label area minus the yellow heading area. (See 5/6/03 interpretation to Gerald Plante on behalf of Subaru)

Length_____, Width_____

Actual message area _____ cm^2

Yes – Pass

No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lenaughan

Date: 10/11/07

DATA SHEET 6

FMVSS 208 READINESS INDICATOR (S4.5.2)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/11/07
Test Technician: Jeff Lewandowski

An occupant restraint system that deploys in the event of a crash shall have a monitoring system with a readiness indicator. A totally mechanical system is exempt from this requirement. (11/8/94 legal interpretation to Lawrence F. Hennegerger on behalf of Breed)

[X] 1. Is the system totally mechanical? If Yes, this data sheet is complete.
- [ ] Yes
- [X] No

[X] 2. Describe the location of the readiness indicator: *On speedometer cluster*

[X] 3. Is the readiness indicator clearly visible to the driver?
- [X] Yes – Pass
- [ ] No - Fail

[X] 4. Is a list of the elements in the occupant restraint system, being monitored by the readiness indicator, provided on a label or in the owner's manual?
- [X] Yes – Pass
- [ ] No - Fail

[X] 5. Does the vehicle have an on-off switch for the passenger air bag?
- [ ] If Yes, go to 6
- [X] If No, this form is complete.

[ ] 6. Is the air bag readiness indicator off when the passenger air bag switch is in the off position?
- [ ] Yes – Pass
- [ ] No - Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lewandowski

Date: 10/11/07

DATA SHEET 7

PASSENGER AIR BAG MANUAL CUT-OFF DEVICE (S4.5.4)

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jeff Lewandowski

NHTSA No.: C70511
Test Date: 10/11/07

[X] 1. Is the vehicle equipped with an on-off switch that deactivates the air bag installed at the right front outboard seating position?

- [ ] Yes, go to 2
- [X] No, this sheet is complete

[ ] 2. Does the vehicle have any forward-facing rear designated seating positions? (S4.5.4.1(a))

- [ ] Yes, go to 3
- [ ] No, go to 4

[ ] 3. Verification there is room for a child restraint in the rear seat behind the driver's seat. (S4.5.4.1(b))

[ ] 3.1 Using all the controls that affect the fore-aft movement of the seat, move the seat to the rearmost position. Mark this position.

- [ ] N/A, the seat does not have fore-aft adjustment

[ ] 3.2 Using all the controls that affect the fore-aft movement of the seat, move the seat to the foremost position. Mark this position.

- [ ] N/A, the seat does not have fore-aft adjustment

[ ] 3.3 Move the seat to the middle of the foremost and rearmost positions. (S8.1.2)

- [ ] N/A, the seat does not have a fore-aft adjustment

[ ] 3.4 If the driver's seat height is adjustable, use all the controls that affect height to put it in the lowest position while maintaining the middle fore-aft position. (S8.1.2)

- [ ] N/A, No seat height adjustment

[ ] 3.5 Position the driver's seat adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)

- [ ] N/A, No lumbar adjustment

[ ] 3.6 The driver's seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1(b) and S8.1.3)

- [ ] N/A, No seat back angle adjustment
- [ ] Manufacturer's design driver's seat back angle _____
- [ ] Tested driver's seat back angle _____

[ ] 3.7 Is the driver seat a bucket seat?

[ ] __ Yes, go to 3.7.1 and skip 3.7.2.
[ ] __ No, go to 3.7.2 and skip 3.7.1.

[ ] 3.7.1 Bucket seats:

[ ] 3.7.1.1 Locate and mark a vertical Plane B through the longitudinal centerline of the driver's seat cushion. The longitudinal centerline of a bucket seat cushion is determined at SgRP. (S16.3.1.10) (S4.5.4.1(b)(1))

3.7.1.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion behind the driver's seat. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the driver's seat.

____ mm distance
__less than 720 mm – Pass
__more than 720 mm – **FAIL**
Go to 4

3.2 Bench seats (including split bench seats):

3.7.2.1 Locate and mark a vertical Plane B through the center of the steering wheel parallel to the vehicle longitudinal centerline. (S4.5.4.1(b)(2))

3.7.2.2 Locate the longitudinal horizontal line in plane B that is tangent to the highest point of the rear seat cushion. Measure along this line from the front of the seat back of the rear seat to the rear of the seat back of the front seat.

____ mm distance
__less than 720 mm – Pass
__more than 720 mm - **FAIL**
Go to 4

4. Does the device turn the air bag on and off using the vehicle's ignition key? (S4.5.4.2)

Yes – Pass
No – Fail

5. Is the on-off device separate from the ignition switch? (S4.5.4.2)

Yes – Pass
No – Fail

6. Is there a telltale light that comes on when the passenger air bag is turned off? (S4.5.4.2)

Yes – Pass
No – Fail

7. Telltale light (S4.5.4.3)

7.1 Is the light yellow? S4.5.4.3(a))

Yes – Pass
No – Fail

7.2 Are the words "PASSENGER AIR BAG OFF" or "PASS AIR BAG OFF" (S4.5.4.3(b))

7.2.1 on the telltale?

Yes – Pass, go to 7.3
No – go to 7.2.2

7.2.2 within 25 mm of the telltale?

Measurement from the edge of the telltale light (mm):

Yes – Pass
No – Fail

7.3 Does the telltale remain illuminated while the air bag is turned off? (S4.5.4.3c)) (Leave the air bag off for 5 minutes.)

Yes – Pass
No – Fail

7.4 Is the telltale illuminated while the air bag is turned on? (S4.5.4.3(d))

- Yes – Fail
- No – Pass

7.5 Is the telltale combined with the air bag readiness indicator? (S4.5.4.3(e))

- Yes – Fail
- No – Pass

8. Owner's Manual

8.1 Does the owner's manual contain complete instructions on the operation of the on-off switch? (S4.5.4.4(a))

- Yes – Pass
- No – Fail

8.2 Does the owner's manual contain a statement that the on-off switch should only be used when a member of one of the following risk groups is occupying the right front passenger seating position? (S4.5.4.4(b))

Infants:	there is no back seat
	the rear seat is too small to accommodate a child restraint
	there is a medical condition that must be monitored constantly
Children aged 1 to 12:	there is no back seat
	space is not always available in the rear seat
	there is a medical condition that must be monitored constantly
Medical condition:	medical risk causes special risk for passenger
	greater risk for harm than with the air bag on

- Yes – Pass
- No – Fail

8.3 Does the owner's manual contain a warning about the safety consequences of using the on-off switch at other times?

- Yes – Pass
- No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lewandowski

Date: 10/11/07

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/11/07
Test Technician: Jeff Lewandowski

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Front Passenger

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: FULL AFT (S7.1.1.5(c)(1)) (Any position is acceptable)
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Place any adjustable seat belt anchorage in the lowest adjustment position.
		X N/A The anchorage is not adjustable.
X	5.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	6.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	7.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	8.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 8.1
		No, go to 9.
X	8.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail

X 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 57 inches

X 11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 12°

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 30 ½ inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15lbs./sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 31 inches

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle 12° spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B 22 inches

[X] 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 15lb/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B 22 ¼ inches (S7.1.1.5(c)(6))

[X] 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

[X] 14-13 = 31 – 30 ½ = ½ inch

[X] 18-17 = 22 ¼ - 22 = ¼ inch

[X] Yes – Pass

[ ] No – Fail

[X] 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

[X] 10-14 = 57 - 31 = 26 inches

[X] 10-18 = 57 - 22 ¼ = 34 ¾ inches

[X] Yes – Pass

[ ] No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lenardowski

Date: 10/11/07

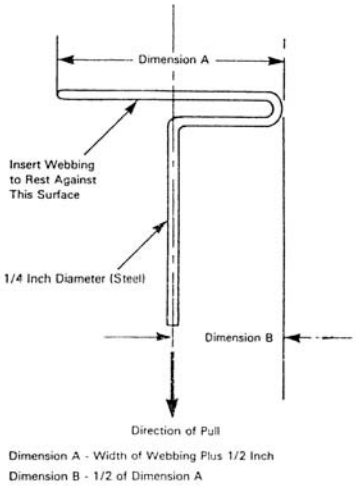


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jeff Lewandowski
NHTSA No.: C70511
Test Date: 10/11/07

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Left Rear Passenger

		N/A – no retractor is at this position
		N/A – the retractor is an automatic locking retractor ONLY
X	1.	Record test fore-aft seat position: (S7.1.1.5(c)(1)) (Any position is acceptable) FIXED
X	2.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	3.	Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))
		X Yes – Pass
		No – Fail
X	4.	Place any adjustable seat belt anchorage in the lowest adjustment position.
		X N/A The anchorage is not adjustable.
X	5.	Buckle the seat belt. (S7.1.1.5(c)(1))
X	6.	Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))
X	7.	Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))
X	8.	Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?
		X Yes, go to 8.1
		No, go to 9.
X	8.1	Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))
		X Yes – Pass
		No – Fail

X 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 60 inches

X 11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 12°

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 34 ½ inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15 lbs/sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 35 inches

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle 12° (spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B 24 ¼ inches

X 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 15 lbs/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B 25 ¼ inches (S7.1.1.5(c)(6))

X 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

X 14-13 = 35 – 34 ½ = ½ inch

X 18-17 = 25 ¼ - 24 ¼ = 1 inch

X Yes – Pass

☐ No – Fail

X 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

X 10-14 = 60 - 35 = 25 inches

X 10-18 = 60 - 25 ¼ = 34 ¾ inches

X Yes – Pass

☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lenaughan

Date: 10/11/07

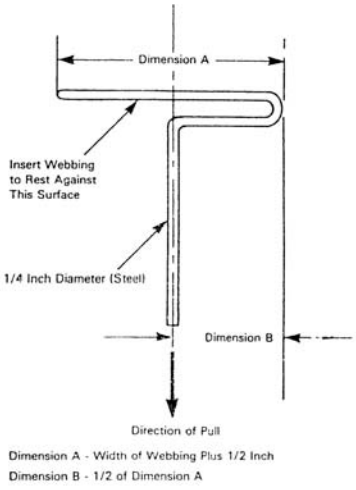


Figure 5. - Webbing Tension Pull Device

DATA SHEET 8

LAP BELT LOCKABILITY
Passenger cars, trucks, buses, and multipurpose passenger Vehicles with a GVWR of 10,000 pounds or less. (S7.1.1.5)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/11/07
Test Technician: Jeff Lewandowski

Complete one of these forms for **each** designated seating position that can be adjusted to forward-facing or that is a forward-facing seat, other than the driver's seat (S7.1.1.5(a), **and** that has seat belt retractors that are not solely automatic locking retractors. (S7.1.1.5(c))

DESIGNATED SEATING POSITION:	Right Rear Passenger

[ ] N/A – no retractor is at this position

[ ] N/A – the retractor is an automatic locking retractor ONLY

[X] 1. Record test fore-aft seat position: FIXED (S7.1.1.5(c)(1)) (Any position is acceptable)

[X] 2. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** have to be attached by the vehicle user to the seat belt webbing, retractor, or any other part of the vehicle. (S7.1.1.5 (a))

[X] Yes – Pass

[ ] No – Fail

[X] 3. Does the lap belt portion of the seat belt in the forward-facing seat or seat that can be adjusted to forward-facing consist of a locking device that does **NOT** require inverting, twisting or deforming of the belt webbing. (S7.1.1.5 (a))

[X] Yes – Pass

[ ] No – Fail

[X] 4. Place any adjustable seat belt anchorage in the lowest adjustment position.

[X] N/A The anchorage is not adjustable.

[X] 5. Buckle the seat belt. (S7.1.1.5(c)(1))

[X] 6. Locate a reference point A on the seat belt buckle. (S7.1.1.5(c)(2))

[X] 7. Locate a reference point B on the attachment hardware or retractor assembly at the other end of the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

[X] 8. Does the vehicle user need to take some action to activate the locking feature on the lap belt portion of the seat belt in any forward-facing seat or seat that can be adjusted to forward-facing?

[X] Yes, go to 8.1

[ ] No, go to 9.

[X] 8.1 Does the vehicle owner's manual include a description in words and/or diagrams describing how to activate the locking feature so that the seat belt assembly can tightly secure a child restraint system and how to deactivate the locking feature to remove the child restraint system. (S7.1.1.5(b))

[X] Yes – Pass

[ ] No – Fail

X 9. Adjust the lap belt or lap belt portion of the seat belt assembly according to any procedures recommended in the vehicle owner's manual to activate any locking feature so that the webbing between points A and B is at the maximum length allowed by the belt system. (S7.1.1.5(c)(2) & S7.1.1.5(c)(1))

X 10. Measure and record the distance between points A and B along the longitudinal centerline of the webbing for the lap belt or lap belt portion of the seat belt assembly. (S7.1.1.5(c)(2))

X Measured distance between A and B (inches): 58 inches

X 11. Readjust the belt system so that the webbing between points A and B is at 1/2 the maximum length of the webbing. (S7.1.1.5(c)(3))

X 12. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

X Measured force application angle (Spec. 5-15 degrees): 12°

X 13. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

X Measured distance between A and B (inches): 33 ¼ inches

X 14. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

X Record onset rate (lb/sec) (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5)): 15 lbs/sec

X Measured distance between A and B (inches) (S7.1.1.5(c)(6)): 34 inches

X 15. Let the seat belt webbing retract to its minimum length with the seat belt still buckled

X 16. To the lap belt or lap belt portion of the seat belt assembly, apply a preload of 10 pounds using the webbing tension pull device in Figure 5. Apply the load in a vertical plane parallel to the longitudinal axis of the vehicle and passing through the seating reference point of the designated seating position. Apply the preload in a horizontal direction toward the front of the vehicle with a force application angle of not less than 5 degrees nor more than 15 degrees above the horizontal. (S7.1.1.5(c)(4))

Measured force application angle 12° (spec. 5 - 15 degrees)

X 17. Measure the length between points A and B along the longitudinal centerline of the webbing while the preload is being applied. (S7.1.1.5(c)(4))

Measured distance between A and B 24 inches

X 18. Increase the load to 50 pounds at a rate of no more than 50 pounds per second. Attain the load in not more than 5 seconds. (If webbing sensitive emergency locking retractors are installed as part of the lap belt or lap belt portion of the seat belt assembly, apply the load at a rate less than the threshold value for lock-up specified by the manufacturer.) Maintain the load for at least 5 seconds. Measure and record the distance between points A and B along the longitudinal centerline of the webbing. (S7.1.1.5(c)(5))

Record onset rate 15 lbs/sec (spec. 10 to 50 lb/sec) (S7.1.1.5(c)(5))

Measured distance between A and B 25 inches (S7.1.1.5(c)(6))

X 19. Subtract the measurement in 13 from the measurement in 14 and the measurement in 17 from the measurement in 18. Is the difference 2 inches or less for both? (S7.1.1.5(c)(7))

X 14-13 = 34 – 33 ¼ = ¾ inch

X 18-17 = 25 - 24 = 1 inch

X Yes – Pass

No – Fail

X 20. Subtract the measurement in 14 from the measurement in 10 and the measurement in 18 from the measurement in 10. Is the difference 3 inches or more for both? (S7.1.1.5(c)(8))

X 10-14 = 58 - 34 = 24 inches

X 10-18 = 58 - 25 = 33 inches

X Yes – Pass

No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lenaughan

Date: 10/11/07

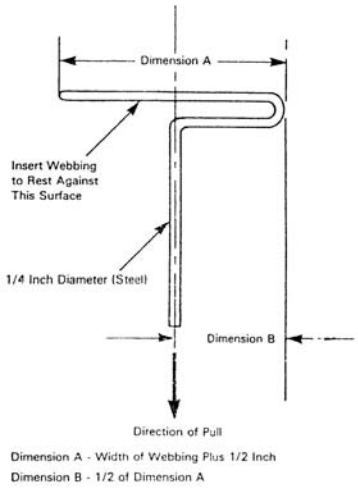


Figure 5. - Webbing Tension Pull Device

DATA SHEET 9

FMVSS 208 SEAT BELT WARNING SYSTEM CHECK (S7.3)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/11/07
Test Technician: Jeff Lewandowski

X	1.	The occupant is in the driver's seat.
X	2.	The seat belt is in the stowed position.
X	3.	The key is in the "on" or "start" position.
X	4.	The time duration of the audible signal beginning with key "on" or "start" is
X		Seconds: 5
X	5.	The occupant is in the driver's seat.
X	6.	The seat belt is in the stowed position.
X	7.	The key is in the "on" or "start" position.
X	8.	The time duration of the warning light beginning with key "on" or "start" is
X		Seconds: Stays On
X	9.	The occupant is in the driver's seat.
X	10.	The seat belt is in the latched position and with at least 4 inches of belt webbing extended.
X	11.	The key is in the "on" or "start" position.
X	12.	The time duration of the warning light beginning with key "on" or "start" is
X		Seconds: 0
X	13.	Complete the following table with the data from 4, 8, and 12 to determine which option is used.

		Warning light	Warning light specification	Audible signal	Audible signal specification*
S7.3 (a)(1)	Belt stowed & key on or start	Item 8: Stays On	60 seconds minimum	Item 4: 5	4 to 8 seconds
S7.3 (a)(2)	Belt latched & key on or start	Item 12: 0	4 to 8 seconds		
	Belt stowed & key on or start	Item 8: Stays On	4 to 8 seconds	Item 4: 5	4 to 8 seconds

* 49 USCS @ 30124 does NOT allow an audible signal to operate for more than 8 seconds.
A voluntary audible signal after the 4 to 8 second required signal may be provided. It must be differentiated from the required signal (5/25/2001 legal interpretation to Longacre and Associates).

[X] 14. The seat belt warning system meets the requirements of (manufacturers may comply with either section)

- [X] S7.3 (a)(1)
- [ ] S7.3 (a)(2)
- [ ] FAIL – does not meet the requirements of either option

[X] 15. Note wording of visual warning: (S7.3(a)(1) and S7.3(a)(2))

- [ ] Fasten seat belts
- [ ] Fasten belts
- [X] Symbol 101 -
- [ ] FAIL – does not use any of the above wording or symbol

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lewandowski

Date: 10/11/07

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/15/07
Test Technician: Jeff Lewandowski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger

[X] 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes, this form is complete
- [X] No, continue with this check sheet

[X] 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
- [X] N/A, no lumbar adjustment

[X] 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
- [X] N/A, no additional support adjustment

[X] 4. Is the fore-aft position of the seat adjustable?
- [X] No- go to 5
- [ ] Yes – Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2

[X] 5. Is the seat back angle adjustable?
- [X] No- go to 6
- [ ] Yes-Use the seat back angle determined in Data Sheet 14.2

[X] 6. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

[X] 7. Fasten the seat belt latch.

[X] 8. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

[X] 9. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

[X] Contact Force (lb): 0.4
- [X] 0.0 to 0.7 pounds – Pass 0.4 lbs.
- [ ] Greater than 0.7 pounds - Fail

REMARKS:

Signature: Jeff Lewandowski

Date: 10/15/07

DATA SHEET 10

BELT CONTACT FORCE (S7.4.3)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/15/07
Test Technician: Jeff Lewandowski

Test all Type 2 seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger

X 1. Does the vehicle incorporate a webbing tension-relieving device?
- [ ] Yes, this form is complete
- [X] No, continue with this check sheet

X 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
- [X] N/A, no lumbar adjustment

X 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
- [X] N/A, no additional support adjustment

X 4. Is the fore-aft position of the seat adjustable?
- [X] No- go to 5
- [ ] Yes – Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2

X 5. Is the seat back angle adjustable?
- [X] No- go to 6
- [ ] Yes-Use the seat back angle determined in Data Sheet 14.2

X 6. Position the test dummies according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

X 7. Fasten the seat belt latch.

X 8. Pull either 12 inches of belt webbing or the maximum available amount of belt webbing, whichever is less, from the retractor and then release it, allowing the belt webbing to return to the dummy's chest.

X 9. Locate the point where the centerline of the upper torso belt webbing crosses the midsagittal line on the dummy's chest. At that point pull the belt webbing out 3 inches from the dummy's chest and release until it is within one inch from the dummy's chest. (S10.8) Using a force measuring gage with a full scale range of no more than 1.5 pounds, measure the contact force perpendicular to the dummy's chest exerted by the belt webbing.

X Contact Force (lb): 0.4
- [X] 0.0 to 0.7 pounds – Pass 0.4 lbs.
- [ ] Greater than 0.7 pounds - Fail

REMARKS:

Signature: Jeff Lewandowski

Date: 10/15/07

DATA SHEET 11

LATCH PLATE ACCESS (S7.4.4)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/15/07
Test Technician: Jeff Lewandowski

Test all front outboard seat belts **other than those in** walk-in van-type vehicles and those at front outboard designated seating positions in **passenger cars**. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car

1. Put the seat in the forwardmost fore-aft and full down height position determined in Data Sheet 14.2. (S10.7)
2. Put the seat back angle in the position determined in Data Sheet 14.2.
3. Position the test dummy using the procedures in Appendix F. (Some modifications to the positioning procedure may need to be made because the seat is in its forward most position. Note on the Appendix F positioning check sheet any deviations necessary to position the Part 572, Subpart E dummy.) **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**
4. Position the adjustable seat belt anchorage in the manufacturer's nominal design position for a 50th percentile adult male occupant.
5. Attach the inboard reach string to the base of the head following the instructions on Figure 3.
6. Attach the outboard reach string to the torso sheath following the instructions on Figure 3.
7. Place the latch plate in the stowed position.
8. Extend inboard reach string in front of the dummy and then backward and outboard to the latch plate to generate an arc of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
   - Yes – Pass
   - No
9. Extend outboard reach string in front of the dummy and then backward and outboard to the latch plate to generate arcs of the reach envelope of the test dummy's arms. Is the latch plate within the reach envelope?
   - Yes – Pass
   - No
10. Is the latch plate within the inboard (item 10) or outboard (item 11) reach envelope?
    - Yes – Pass
    - No – Fail
11. Using the clearance test block, specified in Figure 4, is there sufficient clearance between the vehicle seat and the side of vehicle interior to allow the test block to move unhindered to the latch plate or buckle?
    - Yes – Pass
    - No – Fail

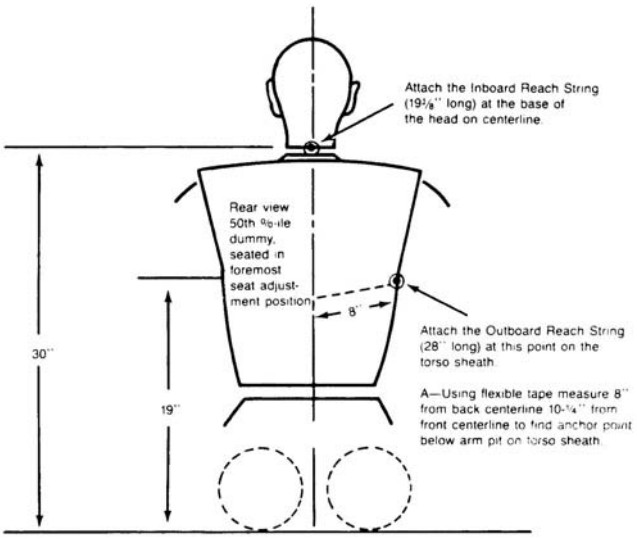


Figure 3. Location of Anchoring Points for Latchplate Reach Limiting Chains or Strings to Test for Latchplate Accessibility Using Subpart E Test Device

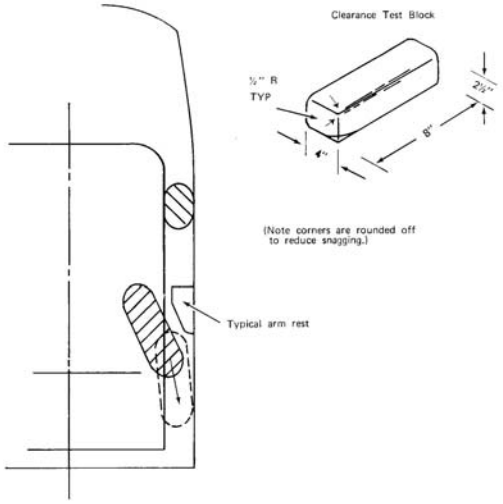


Figure 4—USE OF CLEARANCE TEST BLOCK TO DETERMINE HAND/ARM ACCESS

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Leverenz

Date: 10/15/07

DATA SHEET 12

SEAT BELT RETRACTION (S7.4.5)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/15/07
Test Technician: Jeff Lewandowski

Test all front outboard seat belts other than those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Not Applicable For Any Position - Passenger Car

[X] 1. Is the vehicle a passenger car or walk-in van-type vehicle?

[X] Yes, this form is complete
[ ] No

[ ] 2. Put the seat in the mid fore-aft and full down height position determined in Data Sheet 14.2. (S8.1.2)

[ ] 3. Put the seat back angle in the position determined in Data Sheet 14.2. (8.1.3)

[ ] 4. Position the Part 572 Subpart E test dummy according to dummy position placement instructions in Appendix F. **Complete the Appendix F check sheets, but include them in the test report ONLY if there is a test failure.**

[ ] 5. Fasten the seat belt around the dummy.

[ ] 6. Remove all slack from the lap belt portion. (S10.9)

[ ] N/A, the seat does not have a fore-aft adjustment

[ ] 7. Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

[ ] 8. Apply a 2 to 4 pound tension load to the lap belt. (S10.9)

Pound load applied:

[ ] 9. Is the belt system equipped with a tension relieving device?

[ ] __Yes, continue
[ ] __No, go to 12

[ ] 10. Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9).

[ ] 11. Check the statement that applies to this test vehicle:

[ ] 11.1 The torso and lap belt webbing of the seat belt system automatically retracts to a stowed position when the adjacent vehicle door is in an open position and the seat belt latch plate is released.

[ ] Yes – Pass go to 12
[ ] No – go to 11.2

11.2 The torso and lap belt webbing of the seat belt system automatically retracts when the seat belt latch plate is released.

[ ] Yes – Pass go to 12
[ ] No – go to 11.3

11.3
[ ] Neither 11.1 nor 11.2 apply.
[ ] Fail

☐ 12. With the webbing and hardware in the stowed position are the webbing and hardware prevented from being pinched when the door is closed?

- ☐ Yes – Pass
- ☐ No – Fail

☐ 13. If this test vehicle has an open body (without doors) and has a belt system with a tension-relieving device, does the belt system fully retract when the tension-relieving device is deactivated?

- ☐ N/A – Not an open body vehicle
- ☐ Yes – Pass
- ☐ No – Fail

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Leverlough

Date: 10/15/07

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/15/07
Test Technician: Jeff Lewandowski

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Left Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))

- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))

- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))

- [ ] Yes, go to 5
- [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))

- [ ] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.

- [ ] Seat belt latch plate
- [ ] Buckle
- [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?

- [ ] Yes – Pass
- [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)

- [ ] Yes – Pass
- [ ] No – Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- Yes – Pass
- No – Fail

9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- Yes – Pass
- No – Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- Yes – Pass
- No – Fail
- N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lewandowski

Date: 10/15/07

DATA SHEET 13

SEAT BELT GUIDES AND HARDWARE (S7.4.6)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/15/07
Test Technician: Jeff Lewandowski

Test seat belts except those in walk-in van-type vehicles and those at front outboard designated seating positions in passenger cars. Complete a form for each applicable seat belt.

DESIGNATED SEATING POSITION:	Right Rear Passenger

[X] 1. Is the seat cushion movable so that the seat back serves a function other than seating? (S7.4.6.1 (b))
- [ ] Yes, this form is complete
- [X] No, go to 2

[X] 2. Is the seat removable? (S7.4.6.1(b))
- [ ] Yes, this form is complete
- [X] No, go to 3

[X] 3. Is the seat movable so that the space formerly occupied by the seat can be used for a secondary function? (S7.4.6.1(b))
- [ ] Yes, this form is complete
- [X] No, go to 4

[X] 4. Is the webbing designed to pass through the seat cushion or between the seat cushion and seat back? (S7.4.6.1(a))
- [ ] Yes, go to 5
- [X] No, this form is complete

[ ] 5. Does one of the following three parts, the seat belt latch plate, the buckle, or the seat belt webbing, stay on top of or above the seat cushion under normal conditions (i.e., conditions other than when belt hardware is intentionally pushed behind the seat by a vehicle occupant)? (S7.4.6.1(a))
- [ ] Yes – Pass
- [ ] No – Fail

Identify the part(s) on top or above the seat.
- [ ] Seat belt latch plate
- [ ] Buckle
- [ ] Seat belt webbing

[ ] 6. Are the remaining two seat belt parts accessible under normal conditions?
- [ ] Yes – Pass
- [ ] No – Fail

[ ] 7. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the belt is completely retracted or, if the belt is nonretractable, the belt is unlatched. (S7.4.6.2)
- [ ] Yes – Pass
- [ ] No – Fail

8. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat is moved to any position to which it is designed to be adjusted. (S7.4.6.2)

- Yes – Pass
- No – Fail

9. The buckle and latch plate do not pass through the guides or conduits provided and fall behind the seat when the seat back, if foldable, is folded forward as far as possible and then moved backward into position. (S7.4.6.2)

- Yes – Pass
- No – Fail

10. Is the inboard receptacle end of the seat belt assembly, installed in the front outboard designated seating position, accessible with the center armrest in any position to which it can be adjusted (without moving the armrest)? (S7.4.6.2)

- Yes – Pass
- No – Fail
- N/A – Rear seat

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jeff Lewandowski

Date: 10/15/07

DATA SHEET 14

MARKING OF REFERENCE POINTS FOR VARIOUS TEST POSITIONS AND POINTS

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 2/20/08
Test Technician: Brian Roach

DATA SHEET 14.1

MARKING OF REFERENCE POINTS FOR 5th FEMALE

X Driver Seat __Passenger Seat

1. Seat Position

X 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1, S22.1.7.1)
X N/A – No lumbar adjustment

X 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1, S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)
X N/A – No additional support adjustment

X 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04 interpretation to Toyota)
X N/A – No adjustable leg support system

X 1.4 **Mark** a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)

X 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point. (S16.3.1.13)

X 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)

X 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S20..1.9.3)
X N/A – No independent fore-aft seat cushion adjustment

X 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle. (S16.2.10.3.1)
Maximum angle 5.5 Nose down
Minimum angle 1.4 Nose down
Mid-angle 3.4 Nose down

X 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.8. (S16.2.10.3.1)
__N/A – No seat height adjustment

X 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

X 1.11 Use only the controls that primarily move the seat in the fore-aft direction to **mark** for future reference the fore-aft seat positions. **Mark** each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

X 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.

X 1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)

__N/A – No seat height adjustment. Go to 1.18

X 1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.

X 1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)

X 1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.18. Visually **mark** for future reference the seat back angle at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)

__ N/A – No seat back angle adjustment

Manufacturer's design seat back angle 25.0° Torso Angle With H-Point

X 1.19. Is the seat a bucket seat?

X Yes, go to 1.20 and skip 1.21

__No, go to 1.21 and skip 1.20

X 1.20 Bucket seats:

Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)

__1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):

__1.21.1 Driver Seat

Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

__1.21.2 Passenger Seat

Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) _____

2. Head Restraint Position

__N/A Vehicle contains automatic head restraints.

__N/A, there is no head restraint adjustment

X 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)

Vertical height of head restraint 200 mm

Mid-point height 100 mm

Brian Roach _____ 2/20/08

I certify that I have read and performed each instruction. Date

DATA SHEET 14.1

MARKING OF REFERENCE POINTS FOR 5th FEMALE

__Driver Seat X Passenger Seat

1. Seat Position

X 1.1 Position the seat's adjustable lumbar supports so that the lumbar supports are in the lowest, retracted or deflated adjustment positions. (S16.2.10.1, S20.1.9.1, S20.4.1, S22.1.7.1)
X N/A – No lumbar adjustment

X 1.2 Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2, S20.1.9.2, S20.4.1, S22.1.7.1, S22.4.2.1, S22.4.3.1, S24.4.2.1, S26.2.3, S26.3.1)
X N/A – No additional support adjustment

X 1.3 Position an adjustable leg support system in its rearmost position. (8/27/04 interpretation to Toyota)
X N/A – No adjustable leg support system

X 1.4 **Mark** a point (seat cushion reference point) on the side of the seat cushion that is between 150 mm and 250 mm from the front edge of the seat cushion. (S16.3.1.12)

X 1.5 Draw a line (seat cushion reference line) through the seat cushion reference point. (S16.3.1.13)

X 1.6 Use only the controls that primarily move the seat in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S22.1.7.3)

X 1.7 If the seat cushion adjusts fore-aft, independent of the seat back, use only the controls that primarily move the seat cushion in the fore-aft direction to move the seat cushion reference point to the rearmost position. (S16.2.10.3.1, S20..1.9.3)
X N/A – No independent fore-aft seat cushion adjustment

X 1.8 Use any part of any control, other than the parts just used for fore-aft positioning, to determine the range of angles of the seat cushion reference line and to set the seat cushion reference line at the mid-angle. (S16.2.10.3.1)
Maximum angle 5.3 Nose Down
Minimum angle 1.2 Nose Down
Mid-angle 3.2 Nose Down

X 1.9 If the seat and/or seat cushion height is adjustable, use any part of any control other than the parts which primarily move the seat or seat cushion fore-aft, to put the seat cushion reference point in its lowest position with the seat cushion reference line angle at the mid-angle found in 1.8. (S16.2.10.3.1)
X N/A – No seat height adjustment

X 1.10 Use only the controls that primarily move the seat in the fore-aft direction to verify the seat is in the rearmost position.

X 1.11 Use only the controls that primarily move the seat in the fore-aft direction to **mark** for future reference the fore-aft seat positions. **Mark** each position so that there is a visual indication when the seat is at a particular position. For manual seats, move the seat forward one detent at a time and **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost.

X 1.12 Use only the controls that primarily move the seat in the fore-aft direction to place the seat in the rearmost position.

X 1.13 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S22.4.3.1, S24.1.2, S24.3.1, S24.4.3.1, S26.2.3, S26.3.1)

__ N/A – No seat height adjustment. Go to 1.18

X 1.14 Use only the controls that primarily move the seat and/or seat cushion in the fore-aft direction to place the seat in the mid-fore-aft position.

X 1.15 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.16 Use only the control that change the seat in the fore-aft direction to place the seat in the foremost position. (S16.2.10.3.2)

X 1.17 Use any part of any control, other than the parts which primarily move the seat or seat cushion fore-aft, to find and visually **mark** for future reference the maximum, minimum, and middle height of the seat cushion reference point with the seat cushion reference line at the mid-angle determined in 1.8. (S16.2.10.3.3, S20.1.9.4, S22.1.2, S22.1.7.4, S22.3.1, S24.1.2, S24.3.1)

X 1.18. Visually **mark** for future reference the seat back angle at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer for the rearmost, mid, and foremost seat positions. (S20.1.9.5, S22.1.7.5, S22.4.2.1, S22.4.3.1, S24.1.2, S24.4.2.1, S26.2.3, S26.3.1)

__ N/A – No seat back angle adjustment

Manufacturer's design seat back angle 25.0° Torso Angle With H-Point

X 1.19. Is the seat a bucket seat?

X Yes, go to 1.20 and skip 1.21

__No, go to 1.21 and skip 1.20

X 1.20 Bucket seats:

Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S16.3.1.10 & S20.1.10)

__1.21 Bench seats (complete ONLY the one that is applicable to the seat being marked):

__1.21.1 Driver Seat

Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface.

__1.21.2 Passenger Seat

Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S20.2.1.3, S22.2.1.3, S24.2.3, S20.4.4, S22.2.2.1(b), S22.2.2.3(b), S22.2.2.4(a), S22.2.2.5(a), S22.2.2.6(a), S22.2.2.7(a), S24.2.3(a))

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. (The vertical plane through this longitudinal centerline is Plane B for suppression.) _____

2. Head Restraint Position

__N/A Vehicle contains automatic head restraints.

__N/A, there is no head restraint adjustment

X 2.1 Adjust the head restraint to its lowest position. (S16.2.10.2, S20.1.9.6 S20.4.1, S22.1.7.6, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.2 All adjustments of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. **Mark** the foremost position. (S16.2.10.2 & S16.3.4.4 & S20.1.9.6, S20.4.1, S22.4.2.1, S22.4.3.1, S24.4.3.1, S26.2.3, S26.3.1)

X 2.3 Measure the vertical distance from the top most point of the head restraint to the bottom most point. Locate and **mark** a horizontal plane through the midpoint of this distance. (S16.3.4.3)

Vertical height of head restraint 200 mm

Mid-point height 100 mm

Jeff Lewandowski 10/15/07

I certify that I have read and performed each instruction. Date

DATA SHEET 14.2

MARKING OF REFERENCE POINTS FOR 50TH MALE

X Driver Seat __Passenger Seat _____Other seat

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
X N/A – No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
X N/A – No additional support adjustment

X 3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interp to Hogan and Hartson)

X 6. Move the seat to the mid position.

X 7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position for future reference. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 8. Visually **mark** for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.

__ N/A – No seat back angle adjustment
X Previously marked during Data Sheet 14.1 go to 9
Manufacturer's design seat back angle 25.0° Torso Angle With H-Point

X 9. Is the seat a bucket seat?
X Previously marked during data sheet 14.1. This form is complete.
__Yes, go to 10 and skip 11
__No, go to 11 and skip 10

__10. Bucket seats:
Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__11. Bench seats (complete ONLY the one that is applicable to the seat being marked):

__11.1 Driver Seat
Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

__11.2 Passenger Seat
Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)
Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____
Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

I certify that I have read and performed each instruction.

Signature: Joe Fleck Date: 3/4/08

DATA SHEET 14.2

MARKING OF REFERENCE POINTS FOR 50TH MALE

__ Driver Seat X Passenger Seat _____Other seat

X 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
__N/A – No lumbar adjustment

X 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S16.2.10.2)
__ N/A – No additional support adjustment

X 3. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the rearmost position. **Mark** this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 4. Use all the seat controls that have any affect on the fore-aft movement of the seat to move the seat cushion to the foremost position. **Mark** this position for future reference. (8/31/95 legal interp to Hogan and Hartson)

X 5. **Mark** each fore-aft position so that there is a visual indication when the seat is at a particular position. For manual seats, **mark** each detent. For power seats, **mark** only the rearmost, middle, and foremost positions. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the closest adjustment position to the rear of the mid-point), and R for rearmost. Determine the mid fore-aft seat position based on the foremost and rearmost positions determined in items 3 and 4. (8/31/95 legal interp to Hogan and Hartson)

X 6. Move the seat to the mid position.

X 7. While maintaining the mid position, move the seat to its lowest position. **Mark** the height position for future reference. For seats with adjustable seat cushions, use the manufacturer's recommended seat cushion angle for determining the lowest height position.

X 8. Visually **mark** for future reference the seat back angle, if adjustable, at the manufacturer's nominal design riding position for a **50th percentile adult male** in the manner specified by the manufacturer.

__ N/A – No seat back angle adjustment
X Previously marked during Data Sheet 14.1 go to 9
Manufacturer's design seat back angle 25.0° Torso Angle With H-Point

X 9. Is the seat a bucket seat?
X Previously marked during data sheet 14.1. This form is complete.
__Yes, go to 10 and skip 11
__No, go to 11 and skip 10

__10. Bucket seats:
Locate and **mark** for future reference the longitudinal centerline of the seat cushion. The intersection of the vertical longitudinal plane that passes through the SgRP and the seat cushion upper surface determines the longitudinal centerline of a bucket seat cushion. (S10.4.1.2 and S16.3.1.10)

__11. Bench seats (complete ONLY the one that is applicable to the seat being marked):

__11.1 Driver Seat
Locate and **mark** for future reference the longitudinal line on the seat cushion that marks the intersection of the vertical longitudinal plane through the centerline of the steering wheel and the seat cushion upper surface. (S10.4.1.1)

__11.2 Passenger Seat

Locate and **mark** for future reference the longitudinal centerline of the passenger seat cushion. The longitudinal centerline is the same distance from the longitudinal centerline of the vehicle as the center of the steering wheel. (S10.4.1.1)

Record the distance from the longitudinal centerline of the vehicle to the center of the steering wheel. _____

Record the distance from the longitudinal centerline of the vehicle to the longitudinal centerline of the seat cushion. _____

I certify that I have read and performed each instruction.

Signature: _____ Date: 3/4/08

DATA SHEET 14.3

MARKING OF REFERENCE POINTS FOR STEERING WHEEL

X 1. Is the steering wheel adjustable up and down and/or in and out?
X Yes – go to 2
__No – this form is complete

X 2. Find and **mark** for future reference each up and down position. Label three of the positions with the following: H for highest, M for mid-position (if there is no mid-position, label the next lowest adjustment position), and L for lowest.
__N/A – steering wheel is not adjustable up and down

X 3. Find and **mark** for future references each in and out position. Label three of the positions with the following: F for foremost, M for mid-position (if there is no mid-position, label the next rearmost adjustment position), and R for rearmost.
__N/A – steering wheel is not adjustable in and out.

I certify that I have read and performed each instruction.

Signature: Brian Roach Date: 2/20/08

DATA SHEET 14.4

MARKING OF REFERENCE POINTS FOR DRIVER LOW RISK DEPLOYMENT

X Position 1 X Position 2

X 1. Position the steering wheel so the front wheels are in the straight-ahead position. (S26.2.1)

X 2. Position any adjustable parts of the steering controls to the mid-position as determined in Data Sheet 14.3 above. If a mid-position adjustment is not achievable, position the controls to the next lowest detent position. (S26.2.1)

X 3. Locate and **mark** the point that is defined by the intersection of the steering wheel cover and a line between the volumetric center of the smallest volume that can encompass the folded undeployed air bag and the volumetric center of the static fully inflated air bag. The vertical plane parallel to the vehicle longitudinal centerline through this point is referred to as "Plane E." (Check determination method below.) (S26.2.2)
Measurements with respect to measurement reference points:

_____

The longitudinal centerline of the air bag was used.

_____

__Point determined using manufacturer's information supplied by the COTR .
(Include manufacturer's information in the test report.)
OR
X Point determined by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

X 4. Locate the highest point of the air bag module cover. The horizontal plane through this point is referred to as "Plane F." (Check determination method below.) (S26.2.6)
Measurements with respect to measurement reference points:

_____

The top of the air bag module cover was used.

_____

__Point determined using manufacturer's information supplied by the COTR .
(Include manufacturer's information in the test report.)
OR
X Point determined by test lab personnel and approved by the COTR.
(Include supporting documentation in the test report.)

Brian Roach _____ 2/20/08

I certify that I have read and performed each instruction. Date

DATA SHEET 14.5

MARKING OF REFERENCE POINTS FOR PASSENGER LOW RISK DEPLOYMENT

X Position 1 X Position 2

X Locate and **mark** the point that is defined by the intersection of the instrument panel and a line between the volumetric center of the smallest volume that can encompass the folded undeployed air bag and the volumetric center of the static fully inflated air bag. (S22.4.1.2, S24.4.1.2) The horizontal plane thru this point is referred to as “Plane C” (S22.4.1.4 and S24.4.1.4). The vertical plane parallel to the vehicle longitudinal centerline and through this point is referred to as “Plane D" (S22.4.1.3 and S24.4.1.3). (Check determination method below.) Measurements with respect to measurement reference points:

_____

_____

X Point determined using manufacturer’s information supplied by the COTR . (Include manufacturer’s information in the test report.) See Appendix D-39

OR

__ Point determined by test lab personnel and approved by the COTR. (Include supporting documentation in the test report.)

Brian Roach _____ 2/20/08

I certify that I have read and performed each instruction. Date

DATA SHEET 15

H-POINT DETERMINATION FOR 50TH PERCENTILE MALE DUMMY

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08
Test Technician: Joe Fleck

X Driver Designated Seating Position __Passenger Designated Seating Position

X 1. Place the seat in the mid-fore-aft position and full down position, with the head restraint full down and the seat back in the manufacturer's nominal design riding position for the 50th percentile male as determined during the completion of Data Sheet 14.2.
X 2. Place a 910 mm^2 piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in^2 and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.
X 3. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in Data Sheet 14.1 or 14.2.
X 4. Install the lower leg, and foot segments.
X 5. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.
X 6. Leg and foot placement
X 6.1 Driver Designated Seating Position
X 6.1.1 Insert the pin so that the foot angle is never less than 87 degrees.
X 6.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.
X 6.1.2 Adjust the left leg to be the same distance from H-point machine centerline as the right leg.
X 6.1.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
X Foot on toe board
__Foot on floor pan
__6.2 Passenger Designated Seating Position
__6.2.1 Insert the pin so that the foot angle is never less than 87 degrees.
__6.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.
__6.2.3 With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
__Foot on toe board
__Foot on floor pan.
__6.2.3 With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
__Foot on toe board
__Foot on floor pan
X 7. Apply the lower leg weights.
X 8. Apply the thigh weights.

X 9. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.
X 10. Repositioning the back pan
X 10.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back.
X The seat pan does not slide rearward. Go to 10.2
X 10.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.
X 11. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.
X 12. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.
X 13. Carefully return the back pan to the seat back.
X 14. Install the right and left buttock weights.
X 15. Install the eight torso weights alternately the installation between right and left.
X 16. Tilt the back pan forward until the stop is contacted.
X 17. Rock the H-point from side to side over a 10degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.
X 18. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.
X 19. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.
X 20. Without applying a forward or lateral load lift the left foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.
X 21. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor or toe board.
X 22. Is the seat pan level?
X Yes. Go to 24
__No. Go to 23
__23. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.
X 24. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.
X 25. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

Force Application	Hip Angle
1	94
2	96
3	96
4	
5	

X 26. Is the H-point machine level?
X Yes, go to 27.
__No, relevel. Go back to step 16 and repeat using a new data sheet.
X 27. Record the H-point location.
Describe and mark the measuring reference point.

Driver H-Point	
HP to Floor Z	146
HP to Hinge X	727
HP to Sill Y	200
HP to Striker X	365
HP to Dash X	701
HP to Header Z	798

H-Point Machine	
Left Knee	127
Right Knee	125
Left Foot Angle	96°
Right Foot Angle	87°
Left Leg	125
Right Leg	125
Hip Angle	96°
Back Angle	25°

I certify that I have read and performed each instruction.

Signature: _____ Date: 3/4/08

DATA SHEET 15

H-POINT DETERMINATION FOR 50TH PERCENTLE MALE DUMMY

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08
Test Technician: Joe Fleck

__Driver Designated Seating Position X Passenger Designated Seating Position

X 1. Place the seat in the mid-fore-aft position and full down position, with the head restraint full down and the seat back in the manufacturer's nominal design riding position for the 50th percentile male as determined during the completion of Data Sheet 14.2.
X 2. Place a 910 mm^2 piece of muslin cotton cloth over the seat area. (The muslin cloth shall be comparable to 48 threads/in^2 and density of 2.85 lb/yd.) Tuck the muslin cloth in a sufficient amount to prevent hammocking of the material.
X 3. Place the seat and back assembly of the H-Point machine at the centerline of the seat as determined in Data Sheet 14.1 or 14.2.
X 4. Install the lower leg, and foot segments.
X 5. Set the length of the lower leg segment at 16.3 inches and the length of the thigh bar at 15.8 inches.
X 6. Leg and foot placement
__6.1Driver Designated Seating Position
__6.1.1 Insert the pin so that the foot angle is never less than 87 degrees.
__6.1.2 Place the right foot on the undepressed accelerator pedal with the sole of the foot on the pedal and the heel as far forward as allowable. Do not place the heel on the toe board.
__6.1.2Adjust the left leg to be the same distance from H-point machine centerline as the right leg.
__6.1.3With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
__Foot on toe board
__Foot on floor pan
X 6.2Passenger Designated Seating Position
X 6.2.1 Insert the pin so that the foot angle is never less than 87 degrees.
X 6.2.2 Space the lower legs 10.6 inches apart, equally spaced about the centerline of the H-point machine.
X 6.2.3With the T-bar level, place the left foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
X Foot on toe board
__Foot on floor pan.
X 6.2.3With the T-bar level, place the right foot on the toe board with the rearmost point of the heel resting on the floor pan as close as possible to the point of intersection of the planes described by the toe board and the floor pan and not on the wheelwell projection. If the foot cannot be positioned on the toe board, set it on the floor pan.
X Foot on toe board
__Foot on floor pan
X 7. Apply the lower leg weights.

X 8. Apply the thigh weights.
X 9. Tilt the back pan forward against the forward stop and draw the H-point machine away from the seatback using the T-bar.
X 10. Repositioning the back pan
X 10.1 Allow the H-point machine to slide rearward until a forward horizontal restraining load on the T-bar is no longer required due to the seat pan contacting the seat back.
X The seat pan does not slide rearward. Go to 10.2
X 10.2 Slide the H-point machine rearward by a horizontal rearward load applied at the T-bar until the seat pan contacts the seat back.
X 11. Apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.
X 12. Again apply a 10 kg load at the intersection of the hip angle quadrant and the T-bar housing along a line from the above intersection to a point just above the thigh bar housing.
X 13. Carefully return the back pan to the seat back.
X 14. Install the right and left buttock weights.
X 15. Install the eight torso weights alternately the installation between right and left.
X 16. Tilt the back pan forward until the stop is contacted.
X 17. Rock the H-point from side to side over a 10degree arc (5 degrees to each side of the vertical centerline) for three complete cycles. Restrain the T-bar during rocking so that the seat pan does not change position. Minimize any inadvertent exterior loads applied in a vertical or fore-aft direction. The feet are free to move during this rocking motion.
X 18. Without applying a forward or lateral load lift the right foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.
X 19. Lower the right foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor, toe board, or undepressed accelerator pedal.
X 20. Without applying a forward or lateral load lift the left foot off the floor the minimum amount necessary until no additional forward foot movement is obtained.
X 21. Lower the left foot until the heel is in contact with the floor pan and the ball of the foot is in contact with the floor or toe board.
X 22. Is the seat pan level?
X Yes. Go to 24
__No. Go to 23
__23. Apply a sufficient lateral load to the top of the seatback pan to level the H-point machine seat pan on the seat.
X 24. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, return the seatback pan to the seatback.
X 25. Holding the T-bar to prevent the H-point from sliding forward on the seat cushion, apply sufficient rearward force perpendicular to the back angle bar just above the torso weights to increase the hip angle 3 degrees. Minimize the exterior downward or side forces applied to the H-point machine. Release the force. Repeat this step until the hip angle readout is identical. Complete as many force applications as necessary and record the results in the following table:

Force Application	Hip Angle
1	98
2	98
3	100
4	
5	

X 26. Is the H-point machine level?
X Yes, go to 27.
__No, relevel. Go back to step 16 and repeat using a new data sheet.
X 27. Record the H-point location.
Describe and mark the measuring reference point.

Passenger H-Point	
HP to Floor Z	151
HP to Hinge X	721
HP to Sill Y	202
HP to Striker X	372
HP to Dash X	690
HP to Header Z	790

H-Point Machine	
Left Knee	135
Right Knee	134
Left Foot Angle	108°
Right Foot Angle	102°
Left Leg	132
Right Leg	132
Hip Angle	100°
Back Angle	25°

I certify that I have read and performed each instruction.

Signature: Joe Fleck Date: 3/4/08

DATA SHEET 16

AIR BAG SUPPRESSION TELLTALE (S19.2.2)

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 10/16/07
Test Technician: Jeff Lewandowski

X 1. Is the vehicle certified to any suppression performance standards of FMVSS 208?
X Yes – go to 2
__No – this form is complete

X 2. Does telltale emit yellow light when the air bag is suppressed? (S19.2.2(a))
X Yes - Pass ___**NO – FAIL**

X 3. Are the words "PASSENGER AIR BAG OFF" or "PASS AIR BAG OFF" (S19.2.2(b))

X 3.1 on the telltale? (S19.2.2(b))
X Yes – Pass, go to 4
__No – go to 3.2

__3.2 Within 25 mm of the telltale? (S19.2.2(b)) 2_ mm from the edge of the telltale light
___Yes - Pass ___**NO – FAIL**

X 4. Is the telltale separate from the air bag readiness indicator? (S19.2.2(c))
X Yes - Pass ___**NO – FAIL**

X 5. Is the telltale within the interior of the vehicle? (S19.2.2(d))
X Yes - Pass ___**NO – FAIL**

X 6 Is the telltale forward of and above the design H-point of both the driver's and the front outboard passenger's seat when the seats are in their forwardmost seating positions? (S19.2.2(d))
X Yes - Pass ___**NO – FAIL**

X 7. Is the telltale away from surfaces that can be used for temporary or permanent storage of objects that could obscure the telltale from either the driver's or front outboard passenger's view? (S19.2.2(d))
X Yes - Pass ___**NO – FAIL**

X 8. Is the telltale located so that it is not obscured from the driver or front outboard passenger by a rear-facing child restraint in Appendix A installed in the front outboard passenger seat? (S19.2.2(d))
X Yes - Pass ___**NO – FAIL**

X 9. Is the telltale visible or recognizable during the night? (S19.2.2(e))
X Yes - Pass ___**NO – FAIL**

X 10. Is the telltale visible or recognizable during the day? (S19.2.2(e))
X Yes - Pass ___**NO – FAIL**

X 11. If there is a visibility adjustment, do all the adjustment levels make the telltale visible and recognizable? (S19.2.2(g))
X N/A-No visibility adjustment
___Yes - Pass ___**NO – FAIL**

X 12. Does the telltale remain illuminated while the air bag is suppressed? (S19.2.2(h)) (Leave the air bag suppressed for 5 minutes.)
X Yes - Pass ___**NO – FAIL**

X 13. Is the telltale off while the air bag is activated? (S19.2.2(h)) (Leave the air bag activated for 5 minutes.)
X Yes - Pass ___**NO – FAIL**

Jeff Lewandowski 10/16/07

I certify that I have read and performed each instruction. Date

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Handle With Care 191
DATE OF MANUFACTURE:	5-26-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward	133	Suppressed
	Middle	133	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 1 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Forward position. (Human Identification Code 036; 49.5 kg 149.9 cm)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	First Choice 204
DATE OF MANUFACTURE:	6-20-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward 10 *	127	Suppressed
	Middle	128	Suppressed
	Rearward	130	Suppressed
Unbelted Rear Facing	Forward	N/A	Won't Fit
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward 8 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Middle position. (Human Identification Code 036; 49.5 kg 149.9 cm)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: _X_On ___ Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward 3 *	130	Suppressed
	Middle	131	Suppressed
	Rearward	129	Suppressed
Unbelted Rear Facing	Forward 5 *	N/A	No Light **
	Middle	N/A	No Light **
	Rearward	N/A	No Light **
Unbelted Forward Facing	Forward 5 *	N/A	No Light **
	Middle	N/A	No Light **
	Rearward	N/A	No Light **

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

** The BMW Mini passenger air bag suppression telltale light is off when the passenger seat is empty. In unbelted positions the suppression system classified the Graco Infant 8457 as an empty seat; therefore the telltale light was off. A diagnostic tool supplied by BMW was used to verify that the airbag was suppressed in these cases.

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section B Rear Facing CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Graco
CHILD RESTRAINT MODEL:	Infant 8457
DATE OF MANUFACTURE:	8-31-2000

Base: __On _X_Off __N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Rear Facing	Forward 5 *	130	Suppressed
	Middle	132	Suppressed
	Rearward	131	Suppressed
Unbelted Rear Facing	Forward 7 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Rearward position. (Human Identification Code 036; 49.5 kg 149.9 cm)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Britax
CHILD RESTRAINT MODEL:	Roundabout 161
DATE OF MANUFACTURE:	7-21-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	130	Suppressed
	Middle	127	Suppressed
	Rearward	129	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	129	Suppressed
	Middle	133	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Rearward position. (Human Identification Code 036; 49.5 kg 149.9 cm)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Century
CHILD RESTRAINT MODEL:	Encore 4612
DATE OF MANUFACTURE:	8-16-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	127	Suppressed
	Middle	133	Suppressed
	Rearward	131	Suppressed
Unbelted Forward Facing	Forward	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed
Belted Rear Facing	Forward	131	Suppressed
	Middle	131	Suppressed
	Rearward	128	Suppressed
Unbelted Rear Facing	Forward 1 *	N/A	Suppressed
	Middle	N/A	Suppressed
	Rearward	N/A	Suppressed

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Middle position. (Human Identification Code 036; 49.5 kg 149.9 cm)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

DATA SHEET 17 SUMMARY

Suppression Test Using 12-month-old CRABI Dummy (Part 572, Subpart R)
Section C Forward Facing Convertible CRS

NHTSA NO.:	C70511	TEST DATE:	10/16/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	12 Month Old	DUMMY SERIAL NO.:	062

CHILD RESTRAINT NAME:	Evenflo
CHILD RESTRAINT MODEL:	Medallion 254
DATE OF MANUFACTURE:	6-1-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket was not used in the suppression testing because it did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Cinch Load (N)	Result
Belted Forward Facing	Forward	130	Suppressed
	Middle	130	Suppressed
	Rearward	127	Suppressed
Unbelted Forward Facing	Forward	N/A	No Light **
	Middle	N/A	No Light **
	Rearward	N/A	No Light **
Belted Rear Facing	Forward	129	Suppressed
	Middle	128	Suppressed
	Rearward	133	Suppressed
Unbelted Rear Facing	Forward 1 *	N/A	No Light **
	Middle	N/A	No Light **
	Rearward	N/A	No Light **

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Forward position. (Human Identification Code 036; 49.5 kg 149.9 cm)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

** The BMW Mini passenger air bag suppression telltale light is off when the passenger seat is empty. In unbelted positions the suppression system classified the Evenflo Medallion 254 as an empty seat; therefore the telltale light was off. A diagnostic tool supplied by BMW was used to verify that the airbag was suppressed in these cases.

DATA SHEET 18 SUMMARY

Suppression Test Using Newborn Infant Dummy (Part 572, Subpart K)
Section A Car Bed

NHTSA NO.:	C70511	TEST DATE:	10/11/07
LABORATORY:	MGA	TECHNICIANS:	JL
DUMMY TYPE:	Newborn Infant	DUMMY SERIAL NO.:	003

CAR BED NAME:	Cosco
CAR BED MODEL:	Dream Ride 02-719
DATE OF MANUFACTURE:	6-16-2000

Base: __On __Off _X_N/A-Restraint does not have a removable base
(A car bed with a removable base shall be treated as two separate models, i.e. this form and test procedure will be completed with the base on and then repeated on a new form with the base off.

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Manufacturer's specified anchorage position: Fixed
Tested anchorage position: Fixed

A blanket and visor were not used in the suppression testing because they did not affect the weight sensing system used on the vehicle.

Test Summary

Seat Belt	Seat Slide	Result
Belted	Forward	Won't Fit
	Middle	Won't Fit
	Rearward	Suppressed

Successful Unbelted Representative 5th Percentile Female Reactivation was performed with the seat in the Rearward position. (Human Identification Code 036; 49.5 kg 149.9 cm)

* The CRS would not fit in this Forward Seat Slide position. If there is a number in the Seat Slide column, it indicates the fore-aft detent position with respect to the foremost position. (1 = Full Forward; 23 = Full Rearward; 23 total Seat Slide detents)

DATA SHEET 25 SUMMARY

Low Risk Deployment Tests Using an Unbelted 3-Year-Old
Dummy (Part 572, Subpart P) (S22)
Position 1 – Chest On Instrument Panel (S22.4.2)

NHTSA NO.:	C70511	TEST DATE:	2/21/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	3-Year-Old	DUMMY SERIAL NO.:	031

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Tested seat position: Full Aft

Thorax cavity angle: 0.0°
Thigh angle: 45.8°
Point 1 height: 3 mm Above Plane C Air Bag Height

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	255.0	255.1

3-Year-Old SN 031 Position 1 (Chest on Instrument Panel) 2-21-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	60
Peak Nij (Nte)	1.0	0.2
Time (ms)	NA	100.0
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	38.7
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	0.8
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	29.9
Neck Tension	1130 N	276
Neck Compression	1380 N	62
Chest g	55 g	23
Chest Displacement	34 mm	5

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

A new air bag and instrument panel cover was used for this deployment.

DATA SHEET 26 SUMMARY

Low Risk Deployment Tests Using an Unbelted 3-Year-Old
Dummy (Part 572, Subpart P) (S22)
Position 2 – Head On Instrument Panel (S22.4.3)

NHTSA NO.:	C70511	TEST DATE:	2/20/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	3-Year-Old	DUMMY SERIAL NO.:	031

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Tested seat position: Full Forward

Thorax cavity angle: 0.0°
Thigh angle: 10.0°

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	255.0	255.2

3-Year-Old SN 031 Position 2 (Head on Instrument Panel) 2-20-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	570	4
Peak Nij (Nte)	1.0	0.0
Time (ms)	NA	14.6
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	11.7
Peak Nij (Nce)	1.0	0.7
Time (ms)	NA	37.2
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	95.8
Neck Tension	1130 N	33
Neck Compression	1380 N	945
Chest g	55 g	9
Chest Displacement	34 mm	0

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

The original equipment parts were used for this deployment.

DATA SHEET 27 SUMMARY

Low Risk Deployment Tests Using an Unbelted 6-Year-Old
Dummy (Part 572, Subpart P) (S24)
Position 1 – Chest On Instrument Panel (S24.4.2)

NHTSA NO.:	C70511	TEST DATE:	2/21/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	6-Year-Old	DUMMY SERIAL NO.:	155

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Tested seat position: Full Aft

Thorax cavity angle: 6.0°
Point 1 height: 10 mm Below Plane C Air Bag Height
(ATD contacted the roof)

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	255.0	255.2

6-Year-Old SN 155 Position 1 (Chest on Instrument Panel) 2-21-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	25
Peak Nij (Nte)	1.0	0.1
Time (ms)	NA	53.6
Peak Nij (Ntf)	1.0	0.2
Time (ms)	NA	39.3
Peak Nij (Nce)	1.0	0.0
Time (ms)	NA	8.6
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	22.0
Neck Tension	1490 N	563
Neck Compression	1820 N	54
Chest g	60 g	15
Chest Displacement	40 mm	8

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

A new air bag and instrument panel cover was used for this deployment.

DATA SHEET 28 SUMMARY

Low Risk Deployment Tests Using an Unbelted 6-Year-Old
Dummy (Part 572, Subpart N) (S24)
Position 2 – Head On Instrument Panel (S24.4.3)

NHTSA NO.:	C70511	TEST DATE:	2/21/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	6-Year-Old	DUMMY SERIAL NO.:	155

Manufacturer's design seat back angle: 25.0° Torso Angle With H-Point
Tested seat back angle: 25.0° Torso Angle With H-Point
Tested seat position: Full Forward

Thorax cavity angle: 20.7°
Thigh angle: 12°

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	255.0	255.1

6-Year-Old SN 155 Position 2 (Head on Instrument Panel) 2-21-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	1
Peak Nij (Nte)	1.0	0.1
Time (ms)	NA	19.3
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	14.8
Peak Nij (Nce)	1.0	0.7
Time (ms)	NA	47.2
Peak Nij (Ncf)	1.0	0.1
Time (ms)	NA	11.3
Neck Tension	1490 N	39
Neck Compression	1820 N	724
Chest g	60 g	5
Chest Displacement	40 mm	0

Calculated on data recorded for 100 ms after the initial deployment of the air bag. (S4.11(b))

A new air bag and instrument panel cover was used for this deployment.

DATA SHEET 29 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 1 - Chin On Module (S26.2)

NHTSA NO.:	C70511	TEST DATE:	2/20/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	5th Percentile Female	DUMMY SERIAL NO.:	124

Manufacturer's design seat back angle: 25.0° Torso with H point
Tested seat back angle: 25.0° Torso with H point
Tested seat position: Full Aft

Tested steering wheel angle: 21.7°
Thorax cavity angle: 27.7°
Bottom of chin height: 0 mm Above Module

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	255.0	255.2

5th Percentile Female SN 124 Position 1 (Chin On Module) 2-20-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	20
Peak Nij (Nte)	1.0	0.6
Time (ms)	NA	10.3
Peak Nij (Ntf)	1.0	0.0
Time (ms)	NA	7.9
Peak Nij (Nce)	1.0	0.4
Time (ms)	NA	12.4
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	132.0
Neck Tension	2070 N	1722
Neck Compression	2520 N	299
Chest g	60 g	3
Chest Displacement	52 mm	3
Left Femur	6805 N	102
Right Femur	6805 N	81

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 255 ms; Injuries calculated on 0 ms to 380 ms

The original equipment parts were used for this deployment.

DATA SHEET 30 SUMMARY

Low Risk Deployment Tests Using an Unbelted 5th Percentile Female
Dummy (Part 572, Subpart O) (S26)
Position 2 - Chin On Rim (S26.3)

NHTSA NO.:	C70511	TEST DATE:	2/20/08
LABORATORY:	MGA	TECHNICIANS:	BR
DUMMY TYPE:	5th Percentile Female	DUMMY SERIAL NO.:	125

Manufacturer's design seat back angle: 25.0° Torso with H point
Tested seat back angle: 25.0° Torso with H point
Tested seat position: Full Aft

Tested steering wheel angle: 21.7°
Thorax cavity angle: 27.6°
Chin Point height: 0 mm Below Steering Wheel Target
Note: The chin on rim steering wheel target is 10 mm below the highest point on the steering wheel

Air Bag Deployment Timing

Stage No.	Firing time (ms)	Recorded firing time (ms)
1	0.0	0.0
2	255.0	255.1

5th Percentile Female SN 125 Position 2 (Chin On Rim) 2-20-08

Injury Criteria	Max. Allowable Injury Assessment Values	Measured Value
HIC15	700	5
Peak Nij (Nte)	1.0	0.4
Time (ms)	NA	15.0
Peak Nij (Ntf)	1.0	0.1
Time (ms)	NA	29.0
Peak Nij (Nce)	1.0	0.3
Time (ms)	NA	17.3
Peak Nij (Ncf)	1.0	0.0
Time (ms)	NA	260.7
Neck Tension	2070 N	545
Neck Compression	2520 N	137
Chest g	60 g	20
Chest Displacement	52 mm	13
Left Femur	6805 N	18
Right Femur	6805 N	26

Calculated on data recorded for 125 ms after the initiation of the final stage of air bag deployment designed to deploy in any full frontal rigid barrier crash up to 26 km/h. (S4.11(d))
Second stage fire time of 255 ms; Injuries calculated on 0 ms to 380 ms

A new air bag; and original equipment steering column and steering wheel were used for this deployment.

DATA SHEET 32

VEHICLE WEIGHT, FUEL TANK, AND ATTITUDE DATA

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

X 1. Fill the transmission with transmission fluid to the satisfactory range.

X 2. Drain fuel from vehicle

X 3. Run the engine until fuel remaining in the fuel delivery system is used and the engine stops.

X 4. Record the useable fuel tank capacity supplied by the COTR

X Useable Fuel Tank Capacity supplied by COTR: 50.0 liters (13.2 gallons)

X 5. Record the fuel tank capacity supplied in the owner's manual.

X Useable Fuel Tank Capacity in owner's manual: 50.0 liters (13.2 gallons)

X 6. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," or gasoline, fill the fuel tank.

X Amount Added: 50.0 liters (13.2 gallons)

X 7. Fill the coolant system to capacity.

X 8. Fill the engine with motor oil to the Max. mark on the dip stick.

X 9. Fill the brake reservoir with brake fluid to its normal level.

X 10. Fill the windshield washer reservoir to capacity.

X 11. Inflate the tires to the tire pressure on the tire placard. If no tire placard is available, inflate the tires to the recommended pressure in the owner's manual.

Tire placard pressure:	RF:	33 psi	LF:	33 psi	RR:	33 psi	LR:	33 psi
Owner's manual pressure:	RF:	33 psi	LF:	33 psi	RR:	33 psi	LR:	33 psi
Actual inflated pressure:	RF:	33 psi	LF:	33 psi	RR:	33 psi	LR:	33 psi

X 12. Record the vehicle weight at each wheel to determine the unloaded vehicle weight (UVW), i.e. "as delivered" weight).

Right Front (kg):	349.7	Right Rear (kg):	235.9
Left Front (kg):	343.4	Left Rear (kg):	226.8
Total Front (kg):	693.1	Total Rear (kg):	462.7
% Total Weight:	60.0	% Total Weight:	40.0
UVW = TOTAL FRONT PLUS TOTAL REAR (KG):			1155.8

X 13. UVW Test Vehicle Attitude: (All dimensions in millimeters)

X 13.1 Mark a point on the vehicle above the center of each wheel.

X 13.2 Place the vehicle on a level surface.

X 13.3 Measure perpendicular to the level surface to the 4 points marked on the body and record the measurements

RF:	644	LF:	648	RR:	654	LR:	651

X 14. Calculate the Rated Cargo and Luggage Weight (RCLW): 98 kg

X 14.1 Does the vehicle have the vehicle capacity weight (VCW) on the certification label or tire placard?

X X Yes, go to 14.3

No, go to 14.2

14.2 VCW = Gross Vehicle Weight – UVW

VCW = _____ - _____ = _____

X 14.3 VCW = 370 kg (816 lbs)

X 14.4 Does the certification or tire placard contain the Designated Seating Capacity (DSC)?

X Yes, go to 14.6

No, go to 14.5 and skip 14.6

14.5 DSC = Total number of seat belt assemblies = _____

X 14.6 DSC = 4

X 14.7 RCLW = VCW – (68 kg x DSC) = 370 kg - (68 kg x 4) = 98 kg

X 14.8 Is the vehicle certified as a truck, MPV or bus (see the certification label on the door jamb)?

Yes, if the calculated RCLW is greater than 136 kg, use 136 kg as the RCLW. (S8.1.1)

X No, use the RCLW calculated in 14.7

X 15. Fully Loaded Weight (100% fuel fill): 1409.8 kg

X 15.1 Place the appropriate test dummy in both front outboard seating positions.

Driver: __ 5th female X 50th male
Passenger: __ 5th female X 50th male

X 15.2 Load the vehicle with the RCLW from 14.7 or 14.8 whichever is applicable.

X 15.3 Place the RCLW in the cargo area. Center the load over the longitudinal centerline of the vehicle. (S8.1.1 (d))

X 15.4 Record the vehicle weight at each wheel to determine the Fully Loaded Weight.

Right Front (kg):	389.6	Right Rear (kg):	324.8
Left Front (kg):	383.3	Left Rear (kg):	312.1
Total Front (kg):	772.9	Total Rear (kg):	636.9
% Total Weight:	54.9	% Total Weight:	45.1
% GVW	57.4	% GVW	49.5
(% GVW = Axle GVW divided by Vehicle GVW)			
Fully Loaded Weight = Total Front Plus Total Rear (kg):			1409.8

X 16. Fully Loaded Test Vehicle Attitude: (All dimensions in millimeters)

X 16.1 Place the vehicle on a level surface.

X 16.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13.1 above) and record the measurements

RF:	634	LF:	636	RR:	610	LR:	610

X 17. Drain the fuel system

X 18. Using purple dyed Stoddard solvent having the physical and chemical properties of Type 1 solvent or cleaning fluid, Table 1, ASTM Standard D484-71, "Standard Specifications for Hydrocarbon Dry-cleaning Solvents," fill the fuel tank to 92 - 94 percent of useable capacity.

X Fuel tank capacity x .94 = 50.0 liters (13.2 gallons) x .94 = 47.0 liters (12.4 gallons)

X Amount added 47.0 liters (12.4 gallons) 94.0%

X 19. Crank the engine to fill the fuel delivery system with Stoddard solvent

X 20. Calculate the test weight range.

X 20.1 Calculated Weight = UVW (see 12 above) + RCLW (see 14 above) + 2x(dummy weight)

1409.8 kg = 1155.8 kg + 98.0 kg + 156.0 kg

X 20.2 Test Weight Range = Calculated Weight (- 4.5 kg, - 9 kg.)
Max. Test Weight = Calculated Test Weight – 4.5 kg = 1405.3 kg
Min. Test Weight = Calculated Test Weight – 9 kg = 1400.8 kg

X 21. Remove the RCLW from the cargo area.

X 22. Drain transmission fluid, engine coolant, motor oil, and windshield washer fluid from the test vehicle so that Stoddard solvent leakage from the fuel system will be evident.

X 23. Vehicle Components Removed For Weight Reduction:
Spare tire, tool and jack, wheel covers, and trunk interior

X 24. Secure the equipment and ballast in the load carrying area and distribute it, as nearly as possible, to obtain the proportion of axle weight indicated by the gross axle weight ratings and center it over the longitudinal centerline of the vehicle.

X 25. If necessary, add ballast to achieve the actual test weight.

N/A

X Weight of Ballast: 59.0 kg

X 26. Ballast, including test equipment, must be contained so that it will not shift during the impact event or interfere with data collection or interfere with high-speed film recordings or affect the structural integrity of the vehicle or do anything else to affect test results. Care must be taken to assure that any attachment hardware added to the vehicle is not in the vicinity of the fuel tank or lines.

X 27. Record the vehicle weight at each wheel to determine the actual test weight.

Right Front (kg):	389.6	Right Rear (kg):	323.9
Left Front (kg):	381.9	Left Rear (kg):	309.4
Total Front (kg):	771.5	Total Rear (kg):	633.3
% Total Weight:	54.9	% Total Weight:	45.1
% GVW	57.4	% GVW	49.5
(% GVW = Axle GVW divided by Vehicle GVW)			
TOTAL FRONT PLUS TOTAL REAR (kg):			1404.8

X 28. Is the test weight between the Max. Weight and the Min. Weight (See 20.2)?

X Yes

No, explain why not.

X 29. Test Weight Vehicle Attitude: (all dimensions in millimeters)

X 29.1 Place the vehicle on a level surface

X 29.2 Measure perpendicular to the level surface to the 4 points marked on the body (see 13 above) and record the measurements

RF:	635	LF:	637	RR:	612	LR:	616

X 30. Summary of test attitude

X 30.1 AS DELIVERED:

RF:	644	LF:	648	RR:	654	LR:	651

AS TESTED:

RF:	635	LF:	637	RR:	612	LR:	616

FULLY LOADED:

RF:	634	LF:	636	RR:	610	LR:	610

X 30.2 Is the “as tested” test attitude equal to or between the “fully loaded” and “as delivered” attitude?

X Yes

No, explain why not.

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jamie Costa Date: 3/4/08

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENT

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

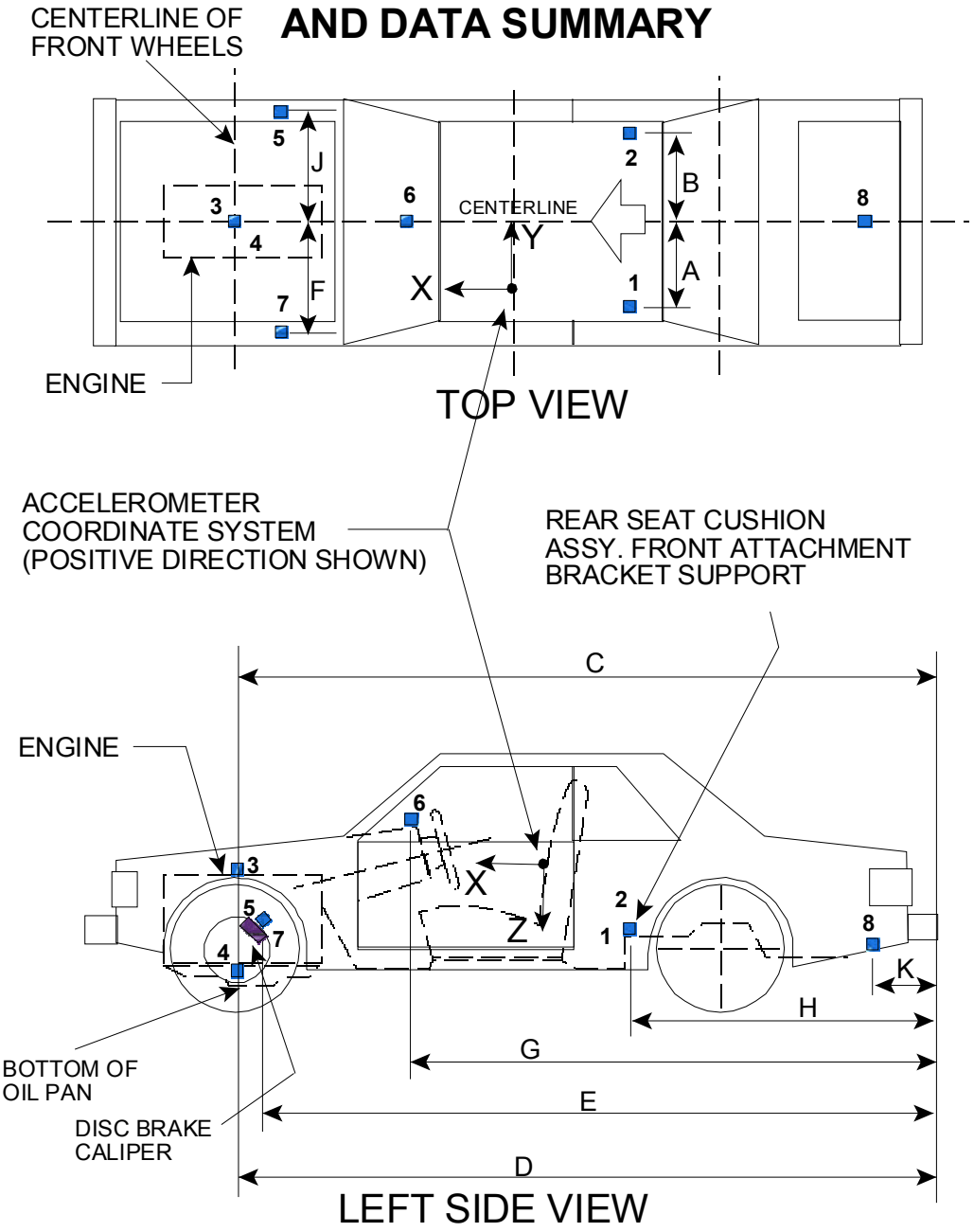
X	1.	Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the left front outboard seating position intersects the left rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
X	2.	Find the location where the vertical plane parallel to the longitudinal centerline of the vehicle and through the center of the right front outboard seating position intersects the right rear seat cross member. Install an accelerometer at this intersection on the rear seat cross member to record x-direction accelerations. Record the location on the following chart.
X	3.	Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect at the top of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart.
X	4.	Find the location where a vertical plane through the longitudinal centerline of the vehicle and a vertical transverse plane through the center of the two wheels on opposite sides of the engine intersect the bottom of the engine. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
X	5.	Install an accelerometer on the right front brake caliper to record x-direction accelerations. Record the location on the following chart
X	6.	Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the top of the instrument panel. Install an accelerometer at this intersection to record x-direction accelerations. Record the location on the following chart
X	7.	Install an accelerometer on the left front brake caliper to record x-direction accelerations. Record the location on the following chart
X	8.	Find the location where a vertical plane through the longitudinal centerline of the vehicle intersects the floor of the trunk. Install an accelerometer on the trunk floor at this intersection to record z-direction accelerations. Record the location on the following chart

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jamie Aide Date: 3/4/08

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY



Dimensions Corresponding To The Letters “A” Through “K” (Excluding “I”) Are Recorded In The Table On The Following Page.
Accelerometers Corresponding To The Numbers 1 Through 8 Are Specified On The Preceding Page.

DATA SHEET 33

VEHICLE ACCELEROMETER LOCATION AND MEASUREMENTS

DIMENSION	LENGTH (mm)	
PRETEST VALUES		
A (LH Rear Seat Xmbr)	291	
B (RH Rear Seat Xmbr)	300	
C (Engine Top)	3121	
D (Engine Bottom)	3158	
E (Caliper)	Right Side: 3105	Left Side: 3105
F (Left Caliper)	651	
G (IP)	2422	
H (Seat)	1303	
J (Right Caliper)	651	
K (Trunk)	550	
POST TEST VALUES		
A (LH Rear Seat Xmbr)	291	
B (RH Rear Seat Xmbr)	300	
C (Engine Top)	3109	
D (Engine Bottom)	3120	
E (Caliper)	Right Side: 3101	Left Side: 3100
F (Left Caliper)	650	
G (IP)	2422	
H (Seat)	1303	
J (Right Caliper)	652	
K (Trunk)	550	

DATA SHEET 34

PHOTOGRAPHIC TARGETS

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

X	1.	FMVSS 208 vehicle targeting requirements (See Figures 28A and 28B)
X	1.1	Targets A1 and A2 are on flat rectangular panels.
X	1.2	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the front on the outboard sides of A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted at the back on the outboard sides of on A1 and A2. The center of each circular target is 100 mm from the one next to it.
X		Distance between targets (mm): 100 mm
X	1.4	The distance between the first circular target at the front of A1 and A2 and the last circular target at the back of A1 and A2 is at least 915 mm.
X		Distance between the first and last circular targets (mm): 915 mm
X	1.5	Firmly fix target A1 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy.
X	1.6	Firmly fix target A2 on the vehicle roof in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy.
X	1.7	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the driver door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 613 mm
X	1.8	Two circular targets (C1 and C2) at least 90 mm in diameter and with black and yellow quadrants are mounted on the outside of the passenger door. The centers of each circular target are at least 610 mm apart.
X		Distance between targets (mm): 613 mm
X	1.9	Place tape with squares having alternating colors on the top portion of the steering wheel.
X	1.10	Chalk the bottom portion of the steering wheel
X	1.11	Is this an offset test?
		Yes, continue with this section
X		No, go to 2.
	1.12	Measure the width of the vehicle.
		Vehicle width (mm):

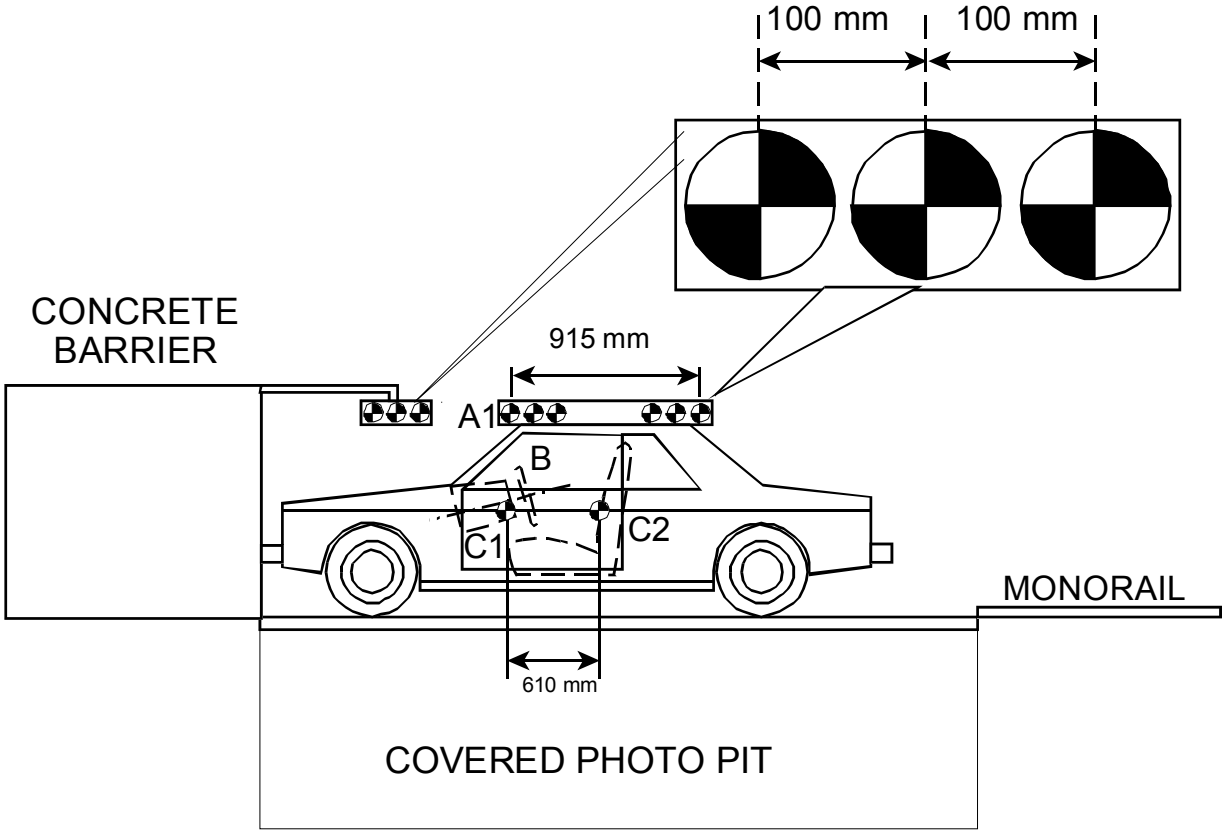
	1.13	Find the centerline of the vehicle. (½ of the vehicle width)
	1.14	Find the line parallel to the centerline of the vehicle and 0.1 x vehicle width from the centerline of the vehicle.
	1.15	Apply 25 mm wide tape with alternating black and yellow squares parallel to and on each side of the line found in 1.14. The edge of each tape shall be 50 mm from the line found in 1.14. The tape shall extend from the bottom of the bumper to the front edge of the windshield. (Figure 28D
X	2.	Barrier Targeting
X	2.1	Fix two stationary targets D1 and D2 to the barrier as shown in the Figure 28A. One target is in the vertical longitudinal plane that is coincident with the midsagittal plane of the driver dummy. The other is in the vertical longitudinal plane that is coincident with the midsagittal plane of the passenger dummy
X	2.2	Targets D1 and D2 are on a rectangular panel.
X	2.3	Three circular targets at least 90 mm in diameter and with black and yellow quadrants are mounted on the sides of the rectangular panel away from the longitudinal centerline of the vehicle. The center of each circular target is 100 mm from the one next to it.
X		Distance between circular targets on D1 (mm): 100 mm
X		Distance between circular targets on D2 (mm): 100 mm
X	3.	FMVSS 208 Dummy Targeting Requirements
X	3.1	Place a circular target with black and yellow quadrants on both sides of the driver dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.2	Place a circular target with black and yellow quadrants on both sides of the passenger dummy head as close as possible to the center of gravity of the head in the x and z direction (relative to the measuring directions of the accelerometers).
X	3.3	Place a circular target with black and yellow quadrants on the outboard shoulder of the driver dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	3.4	Place a circular target with black and yellow quadrants on the outboard shoulder of the passenger dummy. Place the target as high up on the arm as possible at the intersection of the arm and shoulder. The sleeve of the shirt on the dummy may be cut to make the target visible, but do not remove any material.
X	4.	FMVSS 204 Targeting Requirements
X	4.1	Is an FMVSS 204 indicant test ordered on the “COTR Vehicle Work Order?”
		Yes, continue with this form.
X		No, this form is complete.
	4.2	Resection panel (Figure 28C)
	4.2.1	The panel deviates no more than 6 mm from perfect flatness when suspended vertically
	4.2.2	The 8 targets on the panel are circular targets at least 90 mm in diameter and with black and yellow quadrants.
	4.2.3	The center of each of the 4 outer targets are placed within 1 mm of the corners of a square measuring 914 mm on each side.
	4.2.4	Locate another square with 228 mm sides and with the center of this square coincident with the center of the 914 mm square.
	4.2.5	The center of the 4 inner targets are placed at the midpoints of each of the 228 mm sides.

	4.3	Place a circular target at least 90 mm in diameter and with black and yellow quadrants on a material (cardboard, metal, etc.) that can be taped to the top of the steering column.
	4.4	Tape the target from 4.3 to the top of the steering column in a manner that does not interfere with the movement of the steering column in a crash

I certify that I have read and performed each instruction.

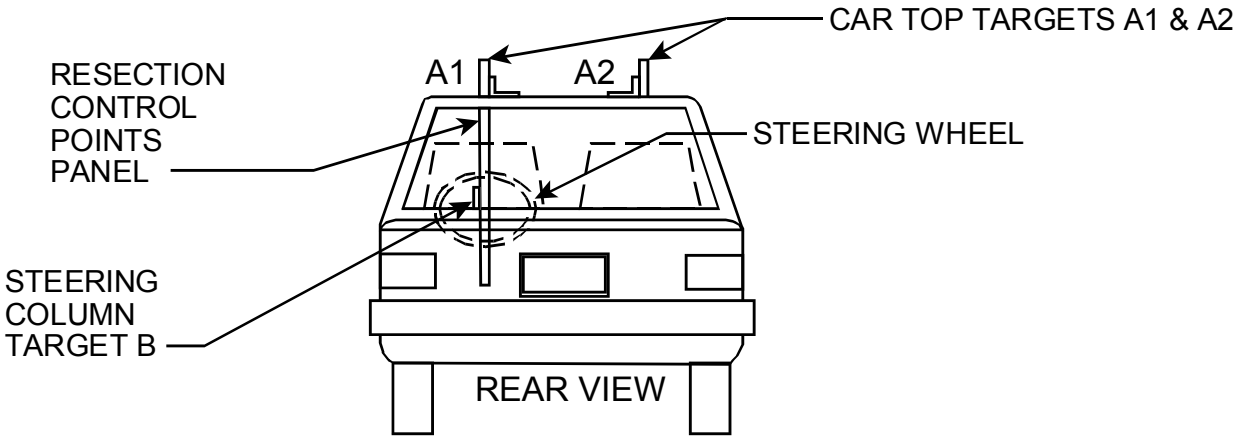
Signature: Date: 3/4/08

REFERENCE PHOTO TARGETS

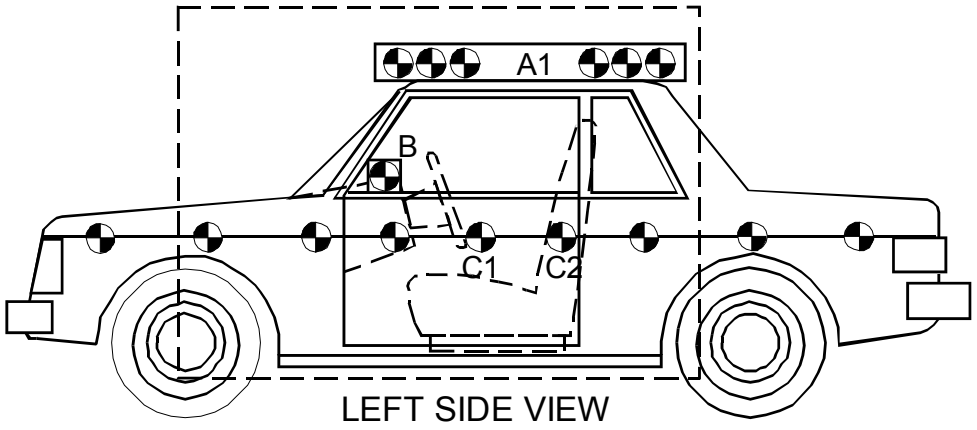


LEFT SIDE VIEW

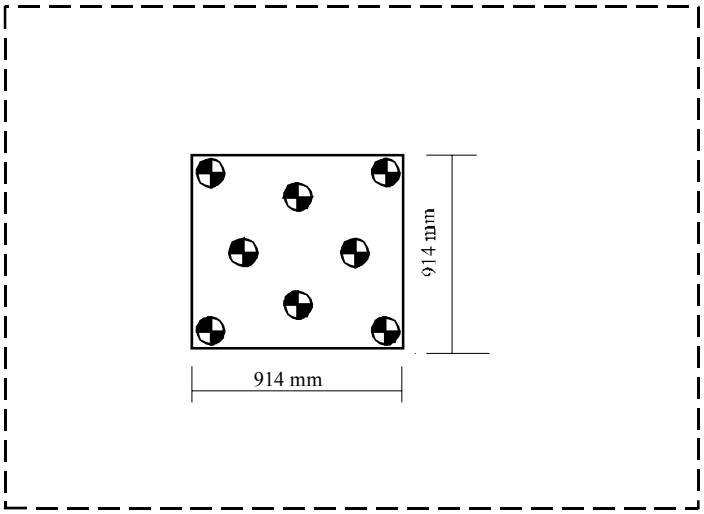
RESECTION PANEL TARGETING ALIGNMENT



TEST RUN STEERING COLUMN CAMERA VIEW OF TYPICAL TIME ZERO VEHICLE POSITION



PRE-RUN STEERING COLUMN HIGH SPEED CAMERA VIEW



LEFT SIDE VIEW

DATA SHEET 35

CAMERA LOCATIONS

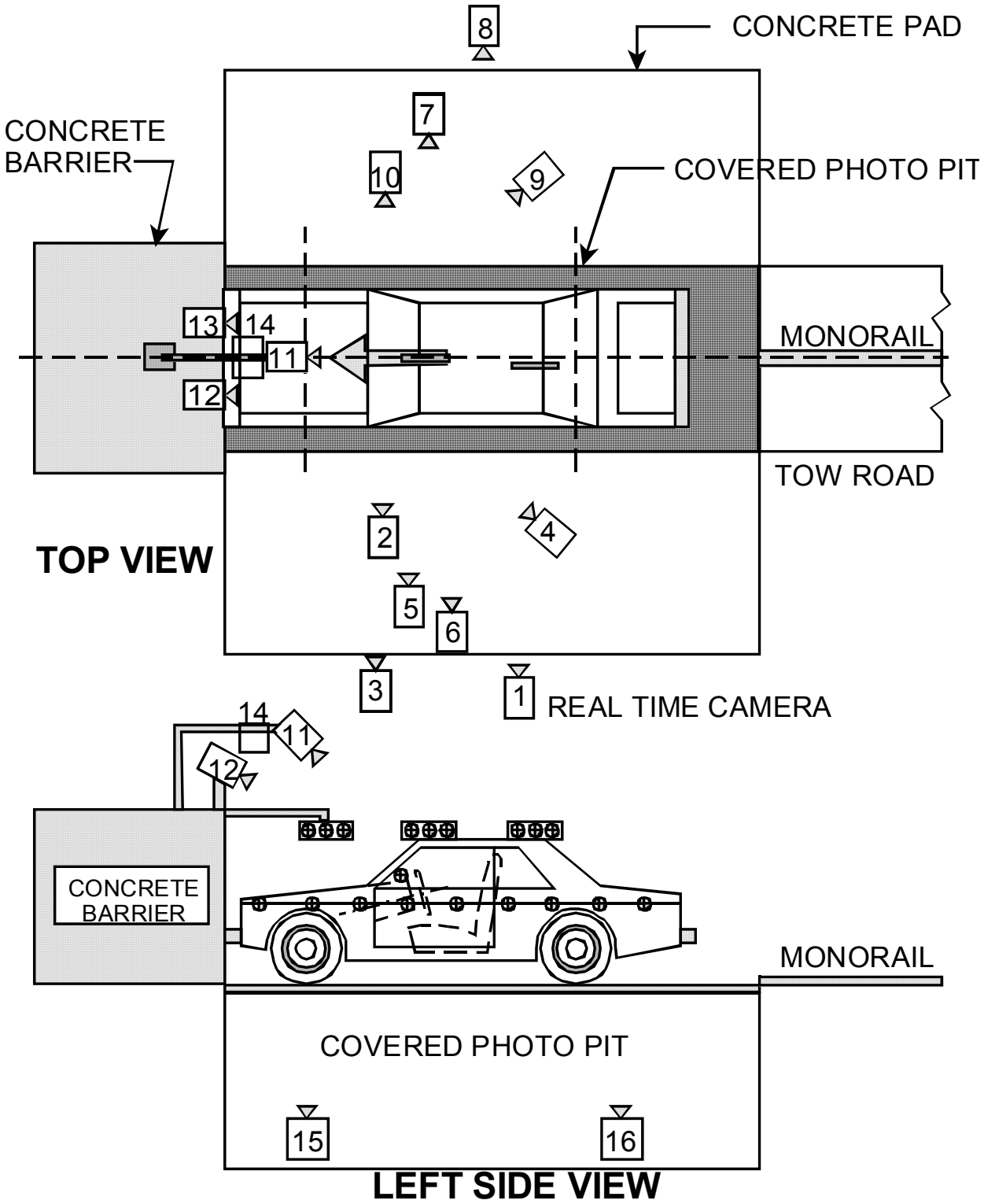
Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance

NHTSA No.: C70511
Test Date: 3/4/08
Time: 10:25 am

CAMERA NO.	VIEW	CAMERA POSITIONS (mm) *			LENS (mm)	SPEED (fps)
		X	Y	Z		
1	Real Time Left Side View				13	24
2	Left Side View (Barrier face to front seat backs)	800	-5000	1070	24	1000
3	Left Side View (Driver)	1000	-6280	1220	35	1000
4	Left Side View (B-post aimed toward center of steering wheel)	6450	-5060	2055	50	1000
5	Left Side View (Steering Column)	1070	-4570	1190	25	1000
6	Left Side View (Steering Column)	1065	-4570	790	25	1000
7	Right Side View (Overall)	1460	6080	1120	24	1000
8	Right Side View (Passenger)	1065	5555	1420	35	1000
9	Right Side View (Angle)	6430	4960	1945	50	1000
10	Right Side View (Front door)	680	4115	1040	24	1000
11	Front View Windshield	-285	0	3000	12.5	1000
12	Front View Driver	-135	-470	2510	24	1000
13	Front View Passenger	-110	420	2490	24	1000
14	Overhead Barrier Impact View	1340	0	4630	19	1000
15	Pit Camera Engine View	1260	0	-3150	24	1000
16	Pit Camera Fuel Tank View	2685	0	-3150	24	1000

*COORDINATES:
+X - forward of impact plane
+Y - right of monorail centerline
+Z - above ground level

CAMERA POSITIONS FOR FMVSS 208



DATA SHEET 36

APPENDIX F
DUMMY POSITIONING PROCEDURES
FOR DRIVER TEST DUMMY CONFORMING TO SUBPART E OF PART 572

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08
Test Technician: Joe Fleck

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

_X_ 1. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
X N/A – No lumbar adjustment

_X_ 2. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S20.1.8.2)
X N/A – No additional support adjustment

_X_ 3. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S20.1.9.3)
X N/A – No independent fore-aft seat cushion adjustment

_X_ 4. Use the seat markings determined during the completion of Data Sheet 14 to set the mid-fore-aft position, full down height position and the seat cushion angle. (S8.1.2)

_X_ 5. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

__N/A – No seat back angle adjustment
Manufacturer's design seat back angle 25.0° Torso Angle With H-Point
Tested seat back angle 25.0° Torso Angle With H-Point

_X_ 6. If adjustable, set the head restraint at the full up and full forward position. Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. (S8.1.3)
X N/A – No head restraint adjustment

_X_ 7. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
X N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. Fixed
Tested anchorage position Fixed (Unbelted Test)

_X_ 8. Place the adjustable accelerator pedal in the full forward position.
X N/A – the accelerator pedal is not adjustable.

X 9. Set the steering wheel hub at the geometric center of the full range of driving positions including any telescoping positions as determined in data sheet 14.

X 10. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 1.18 of Data Sheet 14 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

X 11. Rest the thighs on the seat cushion. (S10.5)

X 12. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage.

Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
.160 horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
.080 vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
22.6° pelvic angle (20^o to 25^o)

X 13. Is the head level within $\pm$ 0.5^o? (S10.1)
X Yes, go to 14
_ No, go to 13.1

__ 13.1 Adjust the position of the H-point. (S10.1)

__ 13.2 Is the head level within $\pm$ 0.5^o? (S10.1)
__ Yes, record the following, then go to 15. __ No, go to 13.3
____ horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ pelvic angle (20^o to 25^o) (S10.4.2.2)

__ 13.3 Adjust the pelvic angle. (S10.1)

__ 13.4 Is the head level within $\pm$ 0.5^o? (S10.1)
__ Yes, record the following, then go to 14. __ No, go to 13.5
____ horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____ pelvic angle (20^o to 25^o) (S10.4.2.2)

__13.5 Adjust the neck bracket of the dummy the minimum amount necessary from the non-adjusted "0" setting until the head is level within ± 0.5°. (S10.1)
Record the following, then go to 14 (The neck bracket was moved one notch)
__ horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__ vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__ pelvic angle (20° to 25°)

_X_ 14. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
10.6" measured distance (10.6 inches) (S10.5)

_X_ 15. Can the right foot be placed on the accelerator?
X Yes, go to 15.1 and skip 15.2
__No, go to 15.2

_X_ 15.1. To the extent practicable keep the right thigh and the leg in a vertical plane (S10.5) while resting the foot on the undepressed accelerator pedal with the rearmost point of the heel on the floor pan in the plane of the pedal. (S10.6.1.1)

__15.2 Initially set the foot perpendicular to the leg and then place it as far forward as possible in the direction of the pedal centerline with the rearmost point of the heel resting on the floor pan. (S10.6.1.1)

__15.2.1 Move the adjustable pedal to its most rearward position or until the right foot is flat on the pedal, whichever occurs first. (S10.6.1.1)
__N/A – the accelerator pedal is not adjustable

_X_ 16. Does the vehicle have a foot rest?
X Yes, go to 16.1
__No, go to 16.2

_X_ 16.1 With the left thigh and leg in a vertical plane, place the foot on the foot rest with the heel resting on the floor pan. (S10.6.1.2)

_X_ 16.1.1 Is the left foot elevated above the right foot?
__Yes, go to 16.1.2 and position the foot off the foot rest
X No, go to 17

__16.1.2 Check the ONLY one of the following that applies

__The foot reaches the toeboard without adjusting the foot or leg. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard, skip 16.1.3 (S10.6.1.2)

__The foot reaches the toeboard but contacts the brake or clutch pedal and must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg to avoid pedal contact, skip 16.1.3 (S10.6.1.2)

__The foot reaches the toeboard but contacts the brake or clutch pedal and the foot and leg must be rotated to avoid pedal contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5) and place the foot on the toeboard. The foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact, skip 16.1.3 (S10.6.1.2)

__N/A – the foot does not reach the toeboard, go to 16.1.3

__16.1.3 Check the ONLY one of the following that applies

__The foot did not contact the brake or clutch pedal. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan. (S10.6.1.2)

__The foot did contact the brake or clutch pedal and the foot was rotated to avoid contact. To the extent practicable keep the left thigh and the leg in a vertical longitudinal plane (S10.5). Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot the minimum amount to avoid pedal contact. (S10.6.1.2)

__The foot did contact the brake or clutch pedal and the foot was rotated about the leg and the leg was rotated outboard about the hip the minimum distance necessary to avoid pedal contact. Set the foot perpendicular to the leg and place it as far forward as possible with the heel resting on the floor pan and rotate the foot about the leg and the thigh and leg outboard about the hip the minimum distance necessary to avoid pedal contact. (S10.6.1.2)

X 17. Place the right upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

X 18. Is the driver seat belt used for this test?
__Yes, continue
X No, go to 19

__18.1 Fasten the seat belt around the dummy.

__18.2 Remove all slack from the lap belt portion. (S10.9)

__18.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

__18.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
____pound load applied

__18.5 Is the belt system equipped with a tension-relieving device?
__Yes, continue
__No, go to 19

__18.6 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9).

_X_ 19. Place the left upper arm adjacent to the torso with the centerline as close to a vertical plane as possible. (S10.2.1)

_X_ 20. Place the right hand with the palm in contact with the steering wheel at the rim's horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

_X_ 21. Place the left hand with the palm in contact with the steering wheel at the rim's horizontal centerline and with the thumb over the steering wheel. (S10.3.1)

_X_ 22. Tape the thumb of each hand to the steering wheel by using masking tape with a width of 0.25 inch. The length of the tape shall only be enough to go around the thumb and steering wheel one time.

REMARKS:

I certify that I have read and performed each instruction.

Signature: Joe Fleck Date: 3/4/08

APPENDIX F

DUMMY POSITIONING PROCEDURES FOR PASSENGER TEST DUMMY CONFORMING TO SUBPART E OF PART 572

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08
Test Technician: Tim Bratz

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

_X_ 1. The seat is a bench seat for which the adjustments have already been made for the driver and there are no independent adjustments that can be made for the passenger. Go to 7.
X N/A- the passenger seat adjusts independently of the driver seat.

_X_ 2. Position the seat's adjustable lumbar supports so that the lumbar support is in its lowest, retracted or deflated adjustment position. (S8.1.3)
X N/A – No lumbar adjustment

_X_ 3. Position any adjustable parts of the seat that provide additional support so that they are in the lowest or most open adjustment position. (S20.1.8.2)
X N/A – No additional support adjustment

_X_ 4. If the seat cushion adjusts fore and aft, independent of the seat back, set this adjustment to the full rearward position. (S20.1.9.3)
X N/A – No independent fore-aft seat cushion adjustment

_X_ 5. Use the seat markings determined during the completion of Data Sheet 14 to set the mid-fore-aft position, full down height position and the seat cushion angle. (S8.1.2)

_X_ 6. The seat back angle, if adjustable, is set at the manufacturer's nominal design riding position for a 50th percentile adult male in the manner specified by the manufacturer. (S4.5.4.1 (b) and S8.1.3)

__N/A – No seat back angle adjustment
Manufacturer's design seat back angle 25.0° Torso Angle With H-Point
Tested seat back angle 25.0° Torso Angle With H-Point

_X_ 7. If adjustable, set the head restraint at the full up and full forward position. Any adjustment of the head restraint shall be used to position it full forward. For example, if it rotates, rotate it such that the head restraint extends as far forward as possible. (S8.1.3)
__N/A – No head restraint adjustment

X 8. Place any adjustable seat belt anchorages at the vehicle manufacturer's nominal design position for a 50th percentile adult male occupant (S8.1.3)
__N/A – No adjustable upper seat belt anchorage
Manufacturer's specified anchorage position. Fixed
Tested anchorage position Fixed (Unbelted Test)
__ N/A - the seat does not have a fore-aft adjustment

X 9. Place the dummy in the seat such that the midsagittal plane is coincident with the longitudinal seat cushion markings as determined in item 2.19 of Data Sheet 14 and the upper torso rests against the seat back. (S10.4.1.1 & S10.4.1.2)

X 10. Rest the thighs on the seat cushion. (S10.5)

X 11. Position the H-point of the dummy within 0.5 inch of the vertical dimension and 0.5 inch of the horizontal dimension of a point 0.25 inch below the H-point determined by using the equipment and procedures specified in SAE J826 (APR 1980). (S10.4.2.1) Then measure the pelvic angle with respect to the horizontal using the pelvic angle gage.

Adjust the dummy position until these three measurements are within the specifications. (S10.4.2.1 and S10.4.2.2)
.198 horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
.118 vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
23.4° pelvic angle (20^o to 25^o)

X 12. Is the head level within $\pm$ 0.5^o? (S10.1)
X Yes, go to 13
__No, go to 12.1

__12.1 Adjust the position of the H-point. (S10.1 and S10.4.2.1)

__12.2 Is the head level within $\pm$ 0.5^o? (S10.1)
__Yes, record the following, then go to 13. X No, go to 12.3
____horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____pelvic angle (20^o to 25^o) (S10.4.2.2)

__12.3 Adjust the pelvic angle. (S10.1)

__12.4 Is the head level within $\pm$ 0.5^o? (S10.1)
__Yes, record the following, then go to 13. X No, go to 12.5
____horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
____pelvic angle (20^o to 25^o) (S10.4.2.2)

__12.5 Adjust the neck bracket of the dummy the minimum amount necessary from the non-adjusted "0" setting until the head is level within ± 0.5°. (S10.1)
Record the following, then go to 13 (The neck bracket was moved four notches)
__horizontal inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__vertical inches from the point 0.25 below the determined H-point (0.5 inch max.) (S10.4.2.1)
__pelvic angle (20° to 25°) (S10.4.2.2)

X 13. Set the distance between the outboard knee clevis flange surfaces at 10.6 inches.
10.6" measured distance (10.6 inches) (S10.5)

X 14. Check the only one of the following that applies:

X To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, place the feet on the toeboard with the heels resting on the floor pan as close as possible to the intersection of the floor pan and toeboard.

__The feet cannot be placed flat on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan.

__The vehicle has a wheelhouse projection. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heels resting on the floor pan. Do not set the feet on the wheelhouse projection.

__The vehicle has a wheelhouse projection and the feet cannot be placed on the toeboard. To the extent practicable keep the left thigh and leg in a vertical plane and the right thigh and leg in a vertical plane, set the feet perpendicular to the legs and place them as far forward as possible with the heel resting on the floor pan. . Do not set the feet on the wheelhouse projection.

X 15. Place the left upper arm in contact with the seat back and side of the torso. (S10.2.2)

X 16. Is the passenger seat belt used for this test?
__Yes, continue
X No, go to 17

__16.1 Fasten the seat belt around the dummy.

__16.2 Remove all slack from the lap belt portion. (S10.9)

__16.3 Pull the upper torso webbing out of the retractor and allow it to retract; repeat this four times. (S10.9)

__16.4 Apply a 2 to 4 pound tension load to the lap belt. (S10.9)
____pound load applied

__16.5 Is the belt system equipped with a tension relieving device?
__Yes, continue
__No, go to 17

__16.6 Introduce the maximum amount of slack into the upper torso bet that is recommended by the vehicle manufacturer in the vehicle owner's manual. (S10.9). Go to 17.

X 17. Place the right upper arm in contact with the seat back and side of the torso. (S10.2.2)

X 18. Place the left hand palm in contact with the outside of the left thigh and the little finger in contact with the seat cushion. (S10.3.2)

X 19. Place the right hand palm in contact with the outside of the right thigh and the little finger in contact with the seat cushion. (S10.3.2)

REMARKS:

I certify that I have read and performed each instruction.

Signature: Date: 3/4/08

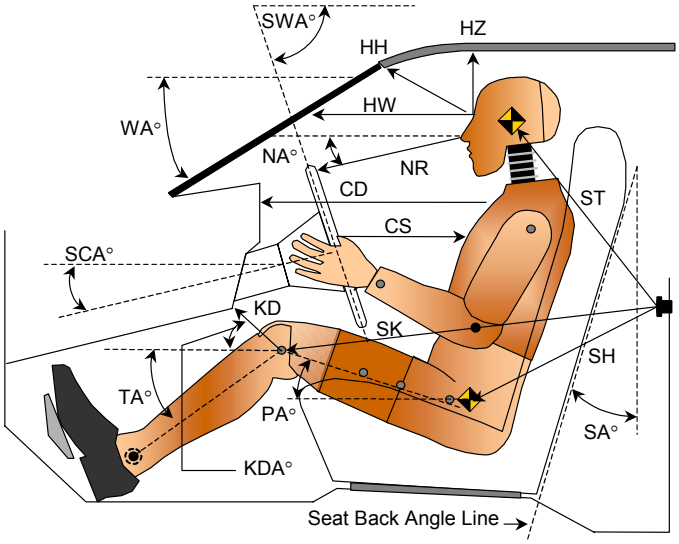
DATA SHEET 37

DUMMY MEASUREMENTS

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Joe Fleck

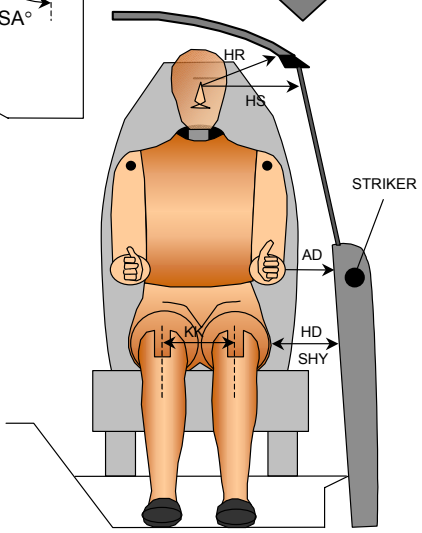
NHTSA No.: C70511
Test Date: 3/4/08

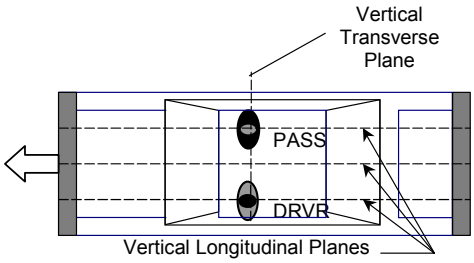
DUMMY MEASUREMENTS FOR FRONT SEAT OCCUPANTS



CD	Chest to Dash
CS	Chest to Steering Wheel Hub
HH	Head to Header
HW	Head to Windshield
HZ	Head to Roof
KDA	Knee to Dash Angle
KDL	Left Knee to Dash
KDR	Right Knee to Dash
NA	Nose to Rim Angle
NR	Nose to Rim
PA	Pelvic Angle
RA	Rim to Abdomen
SA	Seat Back Angle
SCA	Steering Column Angle
SH	Striker to H-Point
SK	Striker to Knee
ST	Striker to Head
SWA	Steering Wheel Angle
TA	Tibial Angle
WA	Windshield Angle

AD	Arm to Door
HD	H-Point to Door
HR	Head to Side Header
HS	Head to Side Window
KK	Knee to Knee
SHY	Striker to H-Point (Y Axis)





DATA SHEET 37

DUMMY MEASUREMENTS

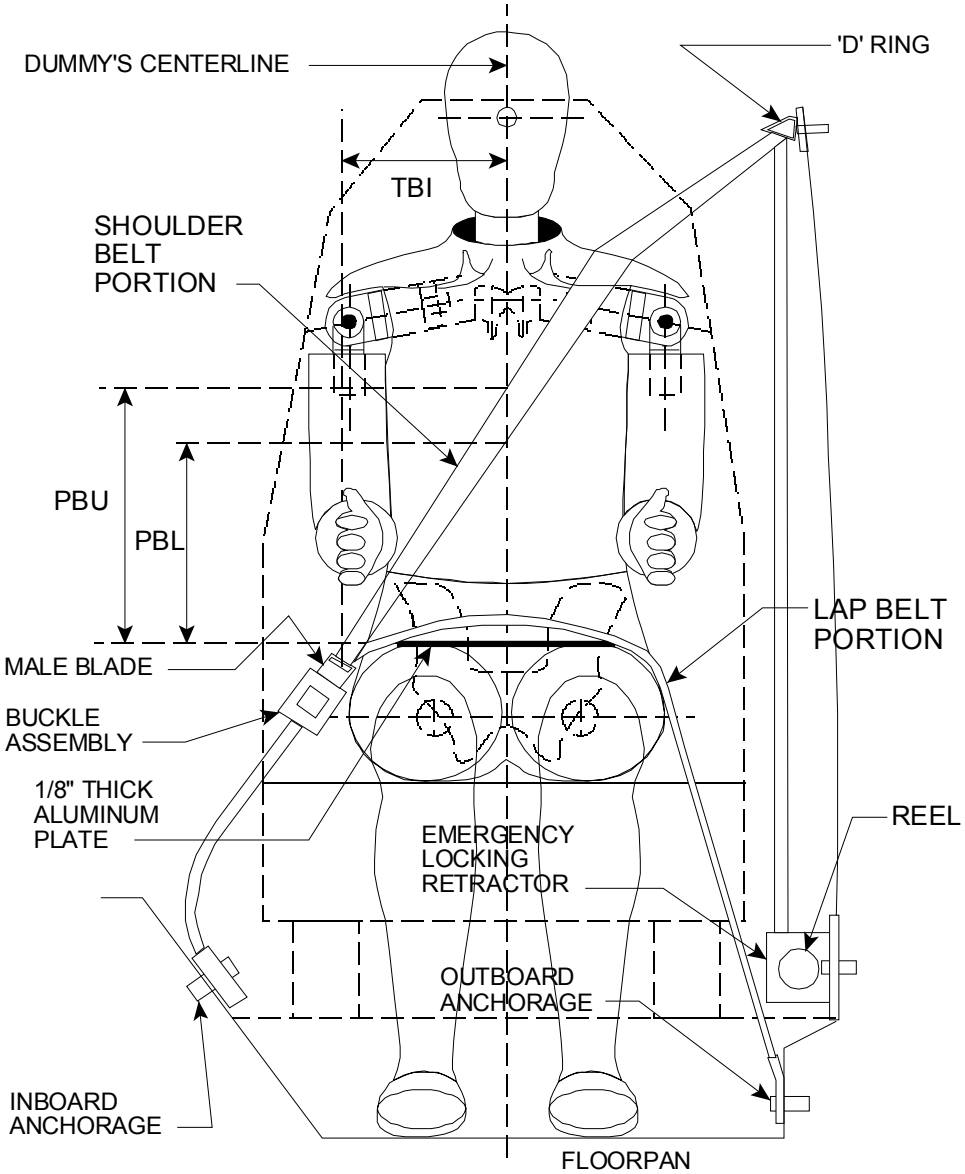
Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Joe Fleck

NHTSA No.: C70511
Test Date: 3/4/08

TEST DUMMY POSITION MEASUREMENTS

Code	Measurement Description	Driver SN 312		Passenger SN 340	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA	Windshield Angle		39.8		
SWA	Steering Wheel Angle		68.8		
SCA	Steering Column Angle		21.5		
SA	Seat Back Angle (On Headrest)		6.5		6.7
HZ	Head to Roof (Z)	175		194	
HH	Head to Header	621	11.7	604	13.7
HW	Head to Windshield	775	0.0	763	0.0
HR	Head to Side Header (Y)	190		203	
NR	Nose to Rim	405	9.1		
CD	Chest to Dash	531		509	
CS	Chest to Steering Hub	310	3.0		
RA	Rim to Abdomen	213	0.0		
KDL	Left Knee to Dash	213	28.0	184	
KDR	Right Knee to Dash	180		214	28.7
PA	Pelvic Angle		22.6		23.4
TA	Tibia Angle		39.0		42.2
KK	Knee to Knee (Y)	315		270	
SK	Striker to Knee	724	96.3	749	97.5
ST	Striker to Head	479	28.8	492	30.5
SH	Striker to H-Point	424	121.0	424	120.1
SHY	Striker to H-Point (Y)	223		216	
HS	Head to Side Window	292		291	
HD	H-Point to Door (Y)	113		121	
AD	Arm to Door (Y)	118		132	
AA	Ankle to Ankle	290		227	

SEAT BELT POSITIONING DATA



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	N/A	N/A
PBL - Top surface of reference to belt lower edge	mm	N/A	N/A

DATA SHEET 38

CRASH TEST

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08
Test Technician: Joe Fleck

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

X 1. Vehicle underbody painted
X 2. The speed measuring devices are in place and functioning.
X 3. The speed measuring devices are 1.0 m from the barrier (spec. 1.5m) and 30 cm from the barrier (spec. is 30 cm)
X 4. Convertible top is in the closed position.

X N/A, not a convertible

X 5. Instrumentation and wires are placed so the motion of the dummies during impact is not affected.
X 6. Tires inflated to pressure on tire placard or if it does not have a tire placard because it is not a passenger car, then inflated to the tire pressure specified in the owner information.

230 kpa front left tire	230 kpa specified on tire placard or in owner information
230 kpa front right tire	230 kpa specified on tire placard or in owner information
230 kpa rear left tire	230 kpa specified on tire placard or in owner information
230 kpa rear right tire	230 kpa specified on tire placard or in owner information

X 7. Time zero contacts on barrier in place.
X 8. Pre test zero and shunt calibration adjustments performed and recorded
X 9. Dummy temperature meets requirements of section 12.2 of the test procedure.
X 10. Vehicle hood closed and latched
X 11. Transmission placed in neutral
X 12. Parking brake off
X 13. Ignition in the ON position
X 14. Doors closed and latched but not locked
X 15. Posttest zero and shunt calibration checks performed and recorded
X 16. Actual test speed 39.9 kmph
X 17. Vehicle rebound from the barrier 243 cm
X 18. Describe whether the doors open after the test and what method is used to open the doors.

X Left Front Door: Door remained closed and latched; Door opened without tools
X Right Front Door: Door remained closed and latched; Door opened without tools
X Left Rear Door: Door remained closed and latched; Door opened without tools
X Right Rear Door: Door remained closed and latched; Door opened without tools

X 19. Describe the contact points of the dummy with the interior of the vehicle.

X Driver Dummy: Head to Air Bag and Headrest; Chest to Air Bag; Knees to Knee Bolster

X Passenger Dummy: Head to Air Bag, A-pillar, and Visor; Chest to Air Bag; Knees to Glove Box

REMARKS:

I certify that I have read and performed each instruction.

Signature: Joe Fleck Date: 3/4/08

DATA SHEET NO. 40

ACCIDENT INVESTIGATION MEASUREMENTS

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

Vehicle Year/Make/Model/Body Style:	2007 BMW Mini Cooper Passenger Car
VIN:	WMWMF33587TU61574
Wheelbase:	2465 mm
Build Date:	07/07
Vehicle Size Category:	2
Test Weight:	1404.8 kg
Front Overhang:	562 mm
Overall Width:	1626 mm
Overall Length Center:	3682 mm

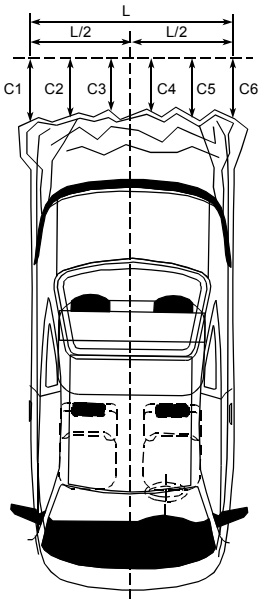
Accelerometer Data	
Location:	As per measurements on Data Sheet 33
Linearity:	>99.9%

Integration Algorithm:	Trapezoidal
Vehicle Impact Speed:	39.9 kmph
Time of Separation:	101.2 ms
Velocity Change:	45.2 kmph

CRUSH PROFILE

Collision Deformation Classification: 12FDEW6
Midpoint of Damage: Vehicle Longitudinal Centerline
Damage Region Length (mm): 1126
Impact Mode: Frontal Barrier

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	3600	3488	112
C2	Crush zone 2 at left side	mm	3654	3482	172
C3	Crush zone 3 at left side	mm	3676	3469	207
C4	Crush zone 4 at right side	mm	3678	3463	215
C5	Crush zone 5 at right side	mm	3656	3479	177
C6	Crush zone 6 at right side	mm	3604	3484	120



REMARKS:

I certify that I have read and performed each instruction.

Signature: _____ Date: 3/4/08

DATA SHEET 41

WINDSHIELD MOUNTING (FMVSS 212)

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

1. Pre-Crash

[X] 1.1 Describe from visual inspection how the windshield is mounted and describe any trim material.

Retained with glue
Rubber trim

[X] 1.2 Mark the longitudinal centerline of the windshield

[X] 1.3 Measure pre-crash A, B, and C for the left side and record in the chart below.

[X] 1.4 Measure pre-crash C, D, and E for the right side and record in the chart below.

[X] 1.5 Measure from the edge of the retainer or molding to the edge of the windshield.

[X] Dimension G (mm): 4 mm

2. Post Crash

[X] 2.1 Can a single thickness of copier type paper (as small a piece as necessary) slide between the windshield and the vehicle body?

[X] No – Pass. Skip to the table of measurements, complete it by repeating the pre-crash measurements in the post crash column, and calculate the retention percentage, which will be 100%.

[ ] Yes, go to 2.2

[ ] 2.2 Visibly mark the beginning and end of the portions of the periphery where the paper slides between the windshield and the vehicle body.

[ ] 2.3 Measure and record post-crash A, B, C, D, E, and F such that the measurements do not include any of the parts of the windshield where the paper slides between the windshield and the vehicle body.

[ ] 2.4 Calculate and record the percent retention for the right and left side of the windshield.

[ ] 2.5 Is total right side percent retention less than 75%?

[ ] Yes, Fail

[ ] No, Pass

[ ] 2.6 Is total left side percent retention less than 75%?

[ ] Yes, Fail

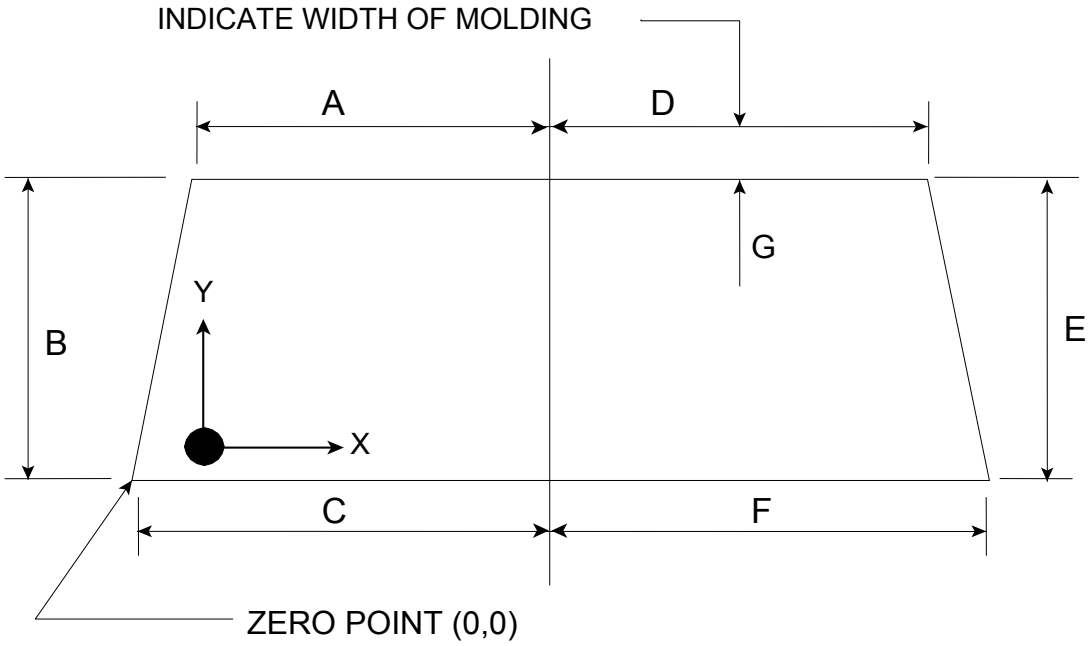
[ ] No, Pass

WINDSHIELD RETENTION MEASUREMENTS

	Dimension	Pre-Crash (mm)	Post-Crash (mm)	Percent Retention (Post-Test ÷ Pre-Crash)
Left Side	A	557	557	100%
	B	547	547	100%
	C	725	725	100%
	Total	1829	1829	100%
Right Side	D	557	557	100%
	E	547	547	100%
	F	725	725	100%
	Total	1829	1829	100%

Indicate area of mounting failure. NONE

FRONT VIEW OF WINDSHIELD



REMARKS:

I certify that I have read and performed each instruction.

Signature: _____ Date: 3/4/08

DATA SHEET 42

WINDSHIELD ZONE INTRUSION (FMVSS 219)

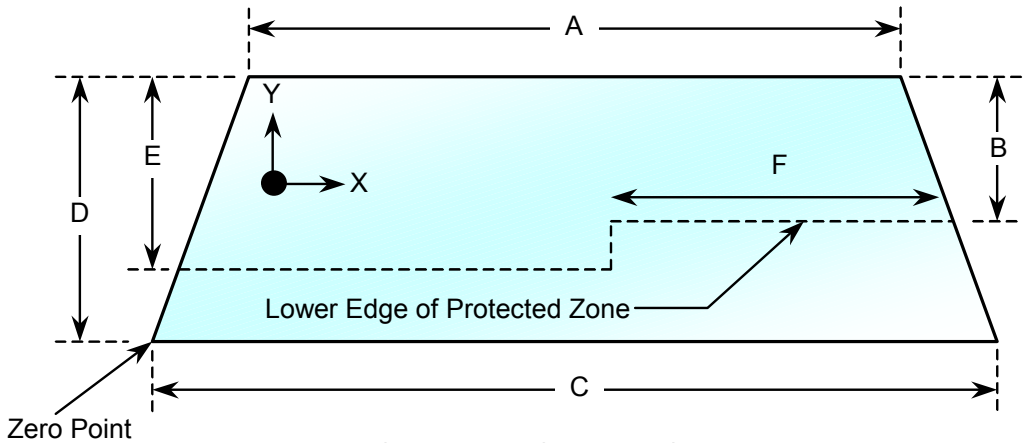
Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Jamie Aide

NHTSA No.: C70511
Test Date: 3/4/08

IMPACT ANGLE:	Zero Degrees		
BELTED DUMMIES (YES/NO):	No		
TEST SPEED:	_X_ 32 to 40 kmph	__ 0 to 48 kmph	__ 0 to 56 kmph
DRIVER DUMMY:	__ 5th female	_X_ 50th male	
PASSENGER DUMMY:	__ 5th female	_X_ 50th male	

X	1.	Place a 165 mm diameter rigid sphere, with a mass of 6.8 kg on the instrument panel so that it is simultaneously touching the instrument panel and the windshield. (571.219 S6.1(a))
X	2.	Roll the sphere from one side of the windshield to the other while marking on the windshield where the sphere contacts the windshield. (571.219 S6.1(b))
X	3.	From the outermost contactable points on the windshield draw a horizontal line to the edges of the windshield. (571.219 S6.1(b))
X	4.	Draw a line on the inner surface of the windshield that is 13 mm below the line determined in items 2 and 3
X	5.	After the crash test, record any points where a part of the exterior of the vehicle has marked, penetrated, or broken the windshield.

Provide all dimensions necessary to reproduce the protected area.



FRONT VIEW OF WINDSHIELD

WINDSHIELD DIMENSIONS

Item	Units	Value
A	mm	1114
B	mm	365
C	mm	1451
D	mm	547
E	mm	560
F	mm	583

AREA OF PROTECTED ZONE FAILURES:

B. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one which is normally in contact with the windshield.

X	Y
NONE	

C. Provide coordinates of the area beneath the protected zone template that the inner surface of the windshield was penetrated by a vehicle component.

X	Y
NONE	

REMARKS:

I certify that I have read and performed each instruction.

Signature: Jamie Costa Date: 3/4/08

DATA SHEET 43

FUEL SYSTEM INTEGRITY (FMVSS 301)

Test Vehicle: 2007 BMW Mini Cooper
Test Program: FMVSS 208 Compliance
Test Technician: Joe Fleck

NHTSA No.: C70511
Test Date: 3/4/08

TYPE OF IMPACT:	25 mph Unbelted Flat Frontal

Stoddard Solvent Spillage Measurements

A. From impact until vehicle motion ceases: 0.0 grams
(Maximum Allowable = 28 grams)

B. For the 5 minute period after motion ceases: 0.0 grams
(Maximum Allowable = 142 grams)

C. For the following 25 minutes: 0.0 grams
(Maximum Allowable = 28 grams/minute)

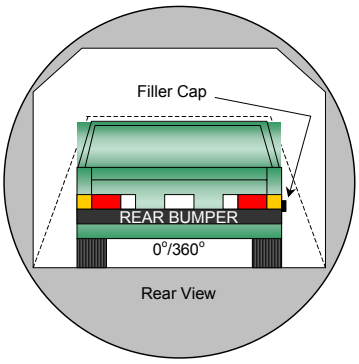
D. Spillage: NONE

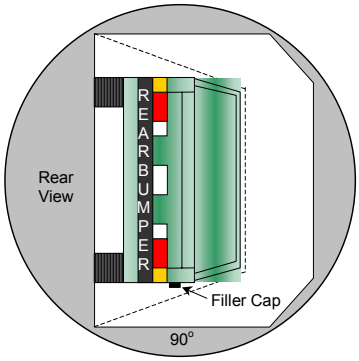
REMARKS: NO SPILLAGE

DATA SHEET NO. 43

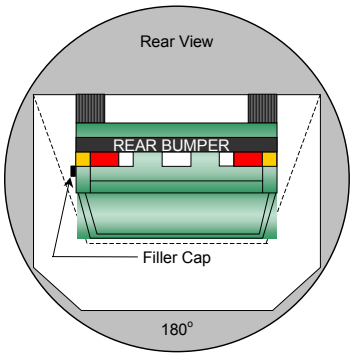
FMVSS 301 STATIC ROLLOVER DATA

Test Vehicle: 2007 BMW Mini Cooper NHTSA No.: C70511
Test Program: FMVSS 208 Compliance Test Date: 3/4/08

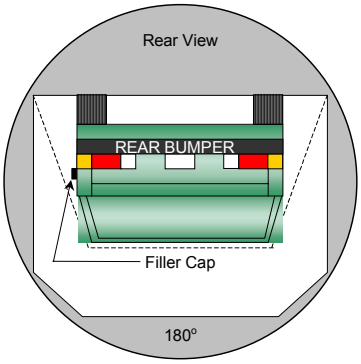




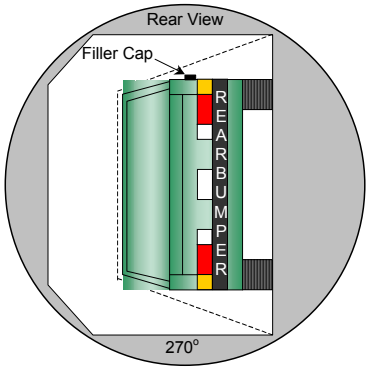
0° to 90°

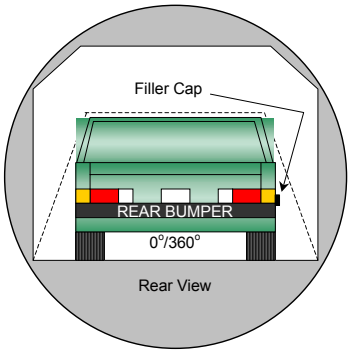


90° to 180°



180° to 270°





270° to 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations: **None**

Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (grams)
0° to 90°	121	305	0.0
90° to 180°	117	305	0.0
180° to 270°	111	305	0.0
270° to 360°	119	305	0.0

APPENDIX A

CRASH TEST DATA

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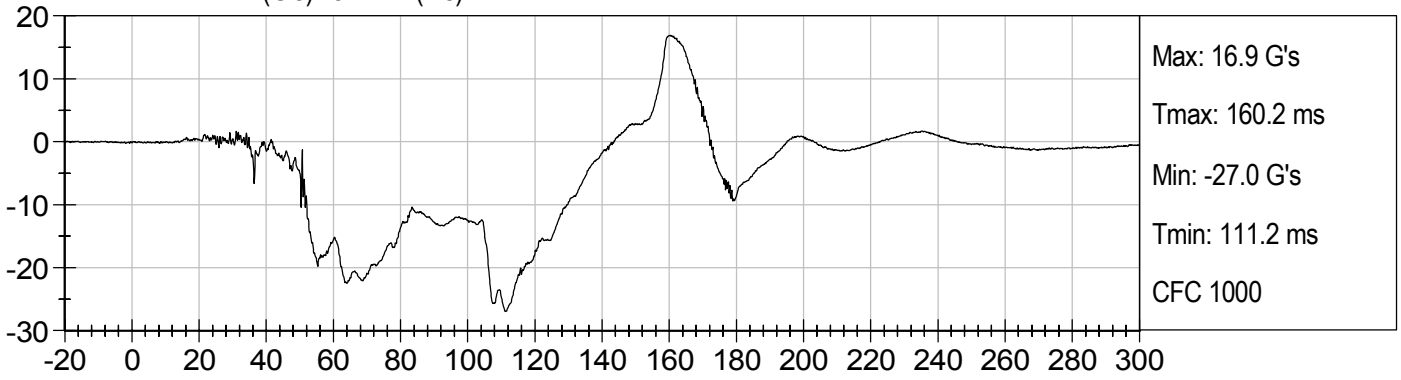
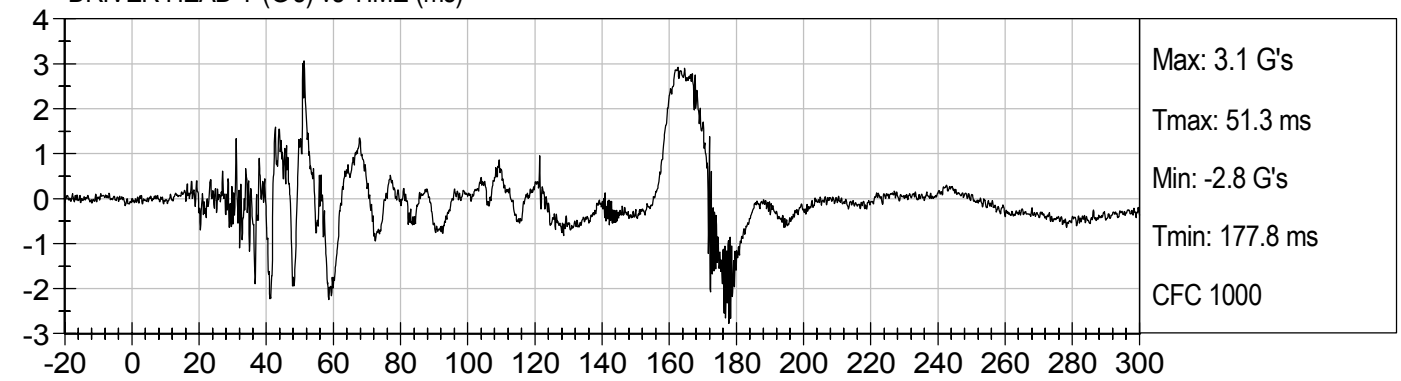
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

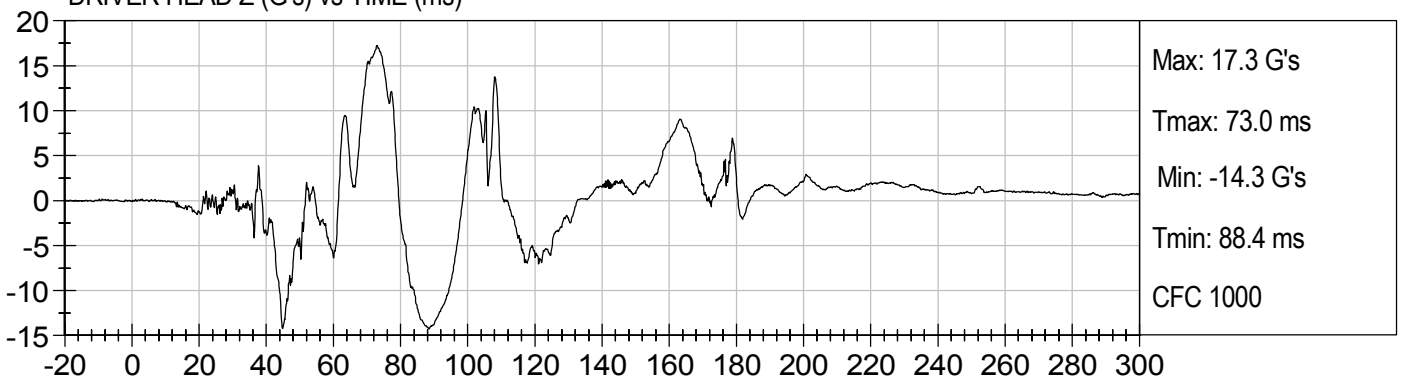
DRIVER HEAD X (G's) vs TIME (ms)



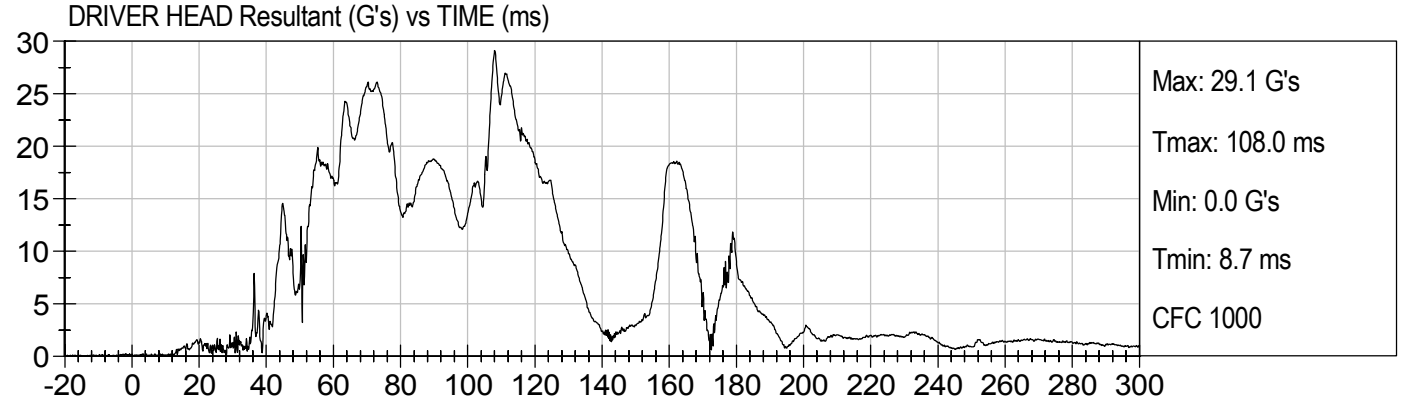
DRIVER HEAD Y (G's) vs TIME (ms)



DRIVER HEAD Z (G's) vs TIME (ms)



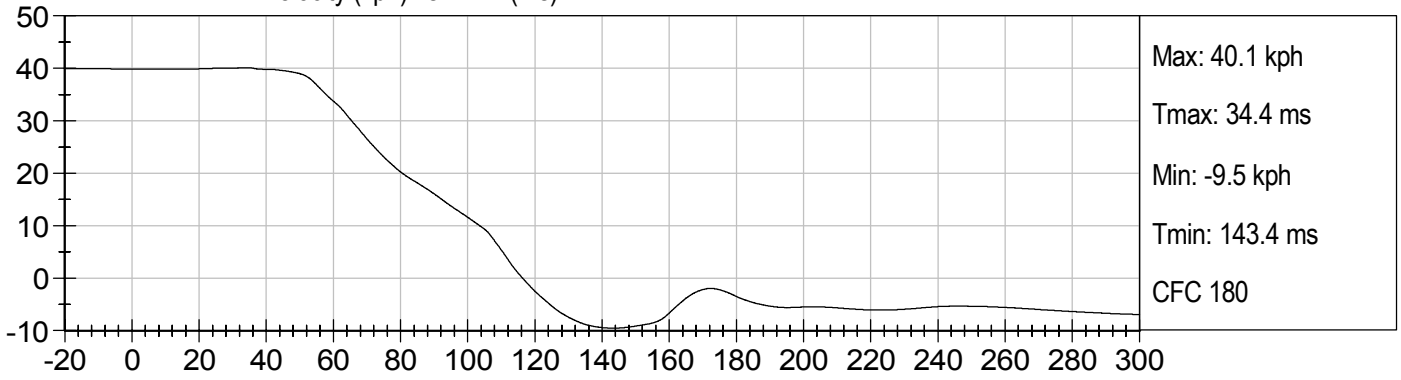
DRIVER HEAD Resultant (G's) vs TIME (ms)



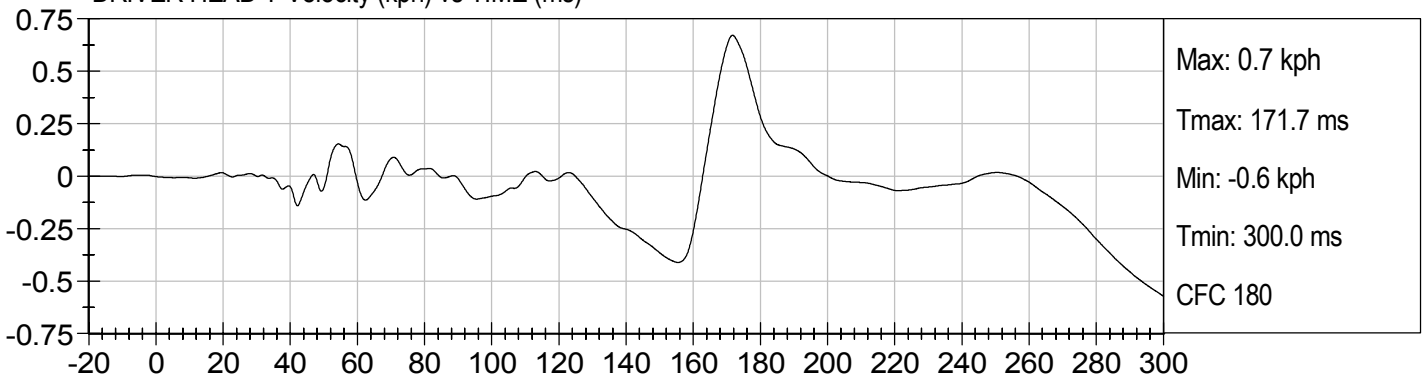
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

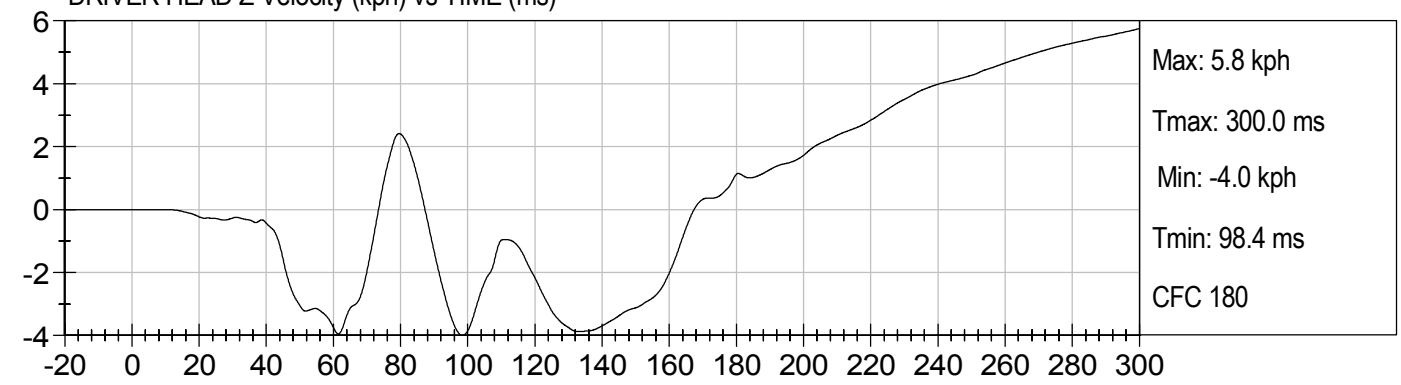
DRIVER HEAD X Velocity (kph) vs TIME (ms)



DRIVER HEAD Y Velocity (kph) vs TIME (ms)



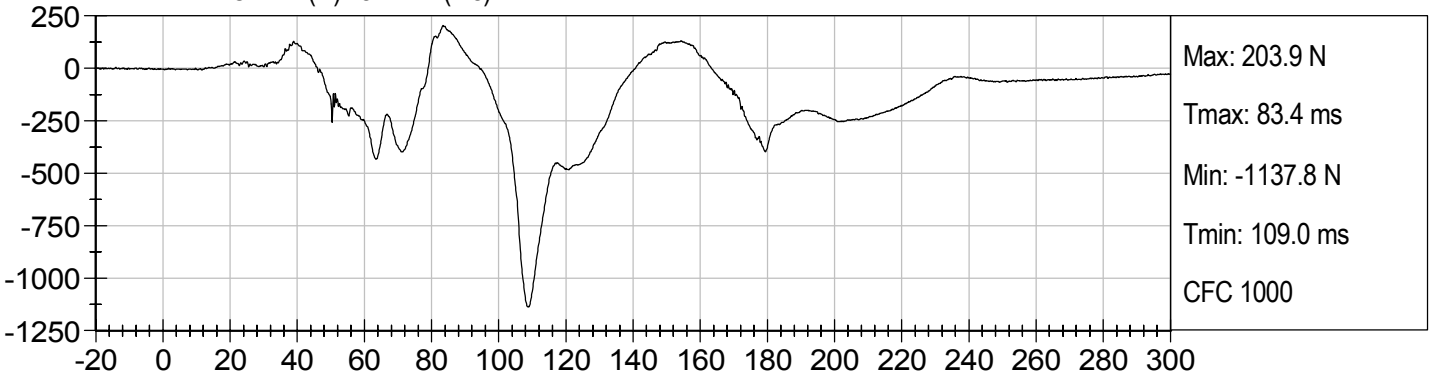
DRIVER HEAD Z Velocity (kph) vs TIME (ms)



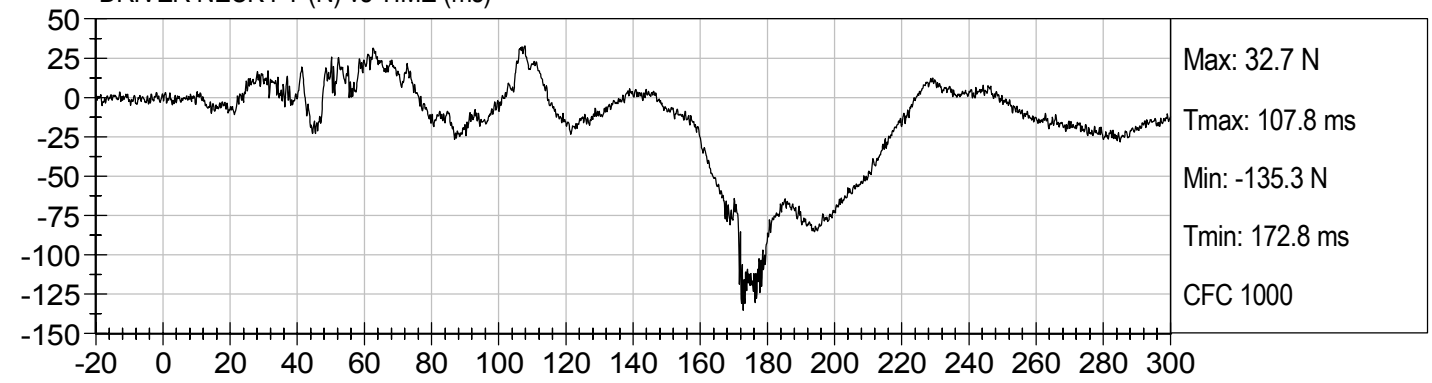
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

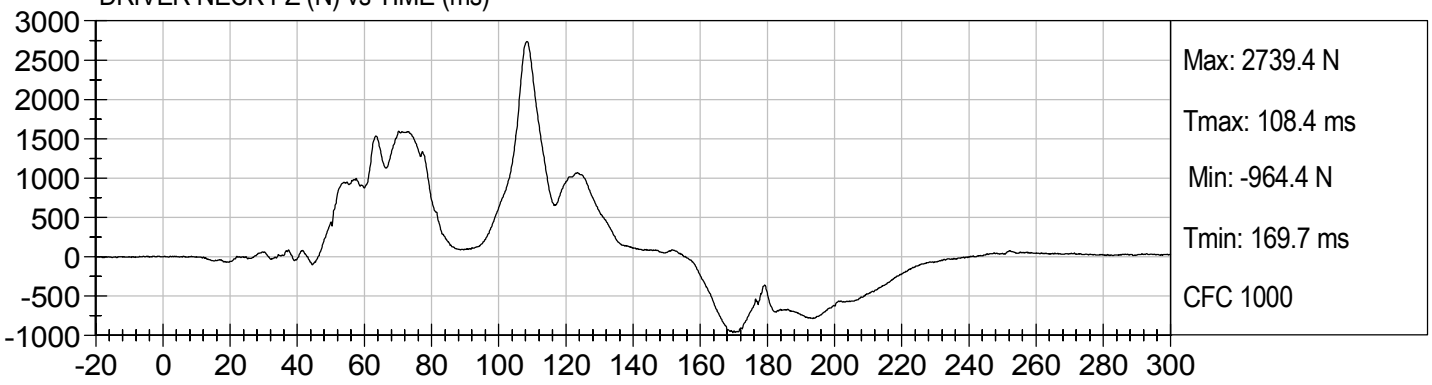
DRIVER NECK FX (N) vs TIME (ms)



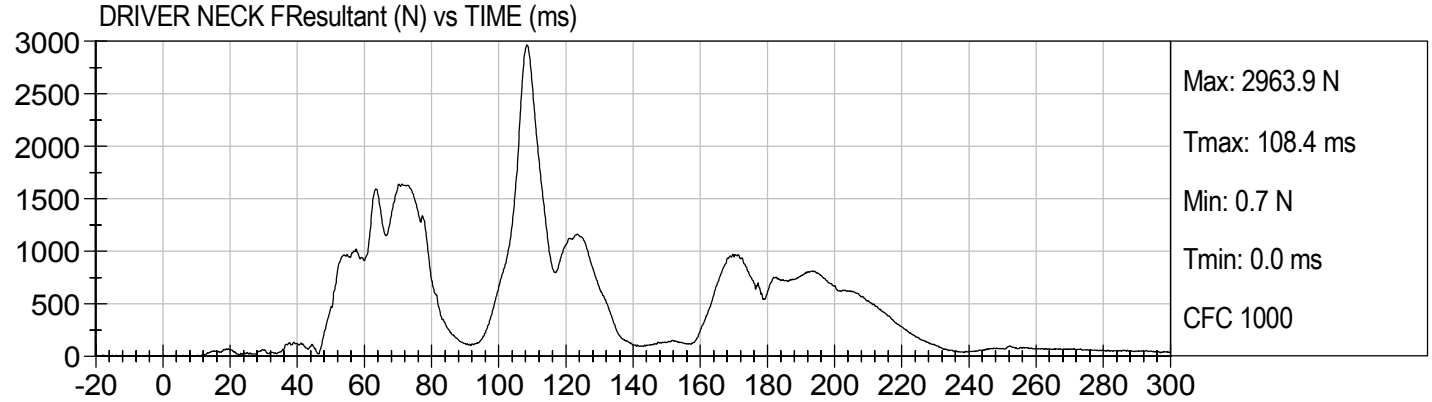
DRIVER NECK FY (N) vs TIME (ms)



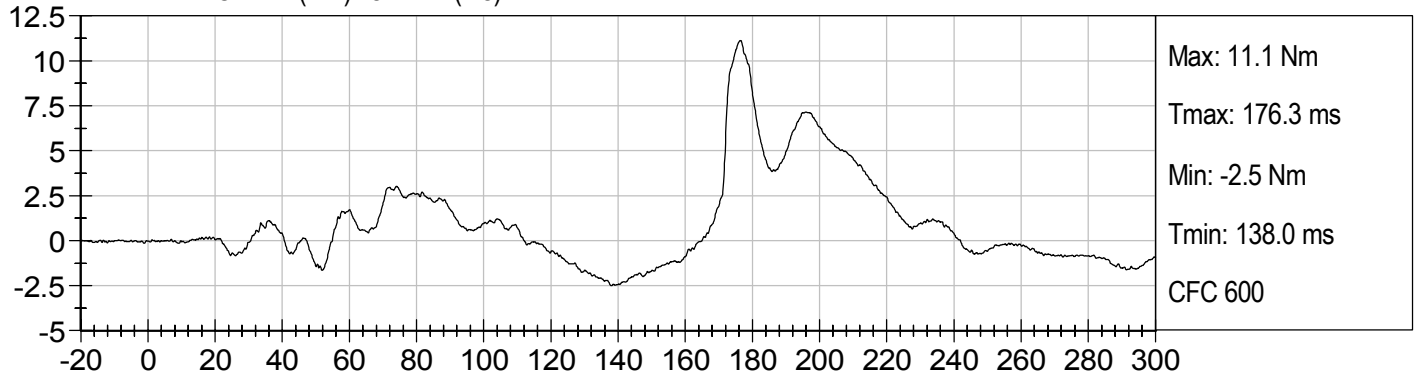
DRIVER NECK FZ (N) vs TIME (ms)



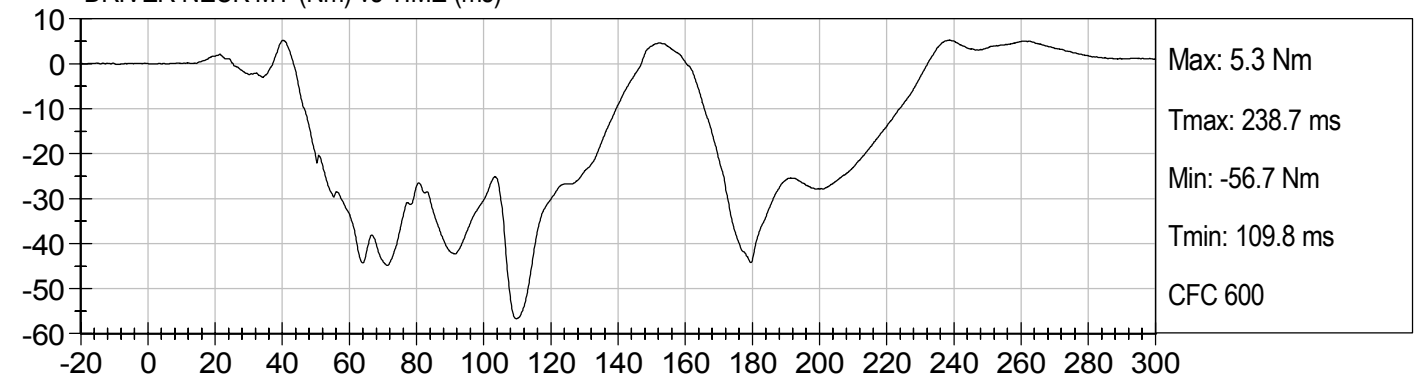
DRIVER NECK FResultant (N) vs TIME (ms)



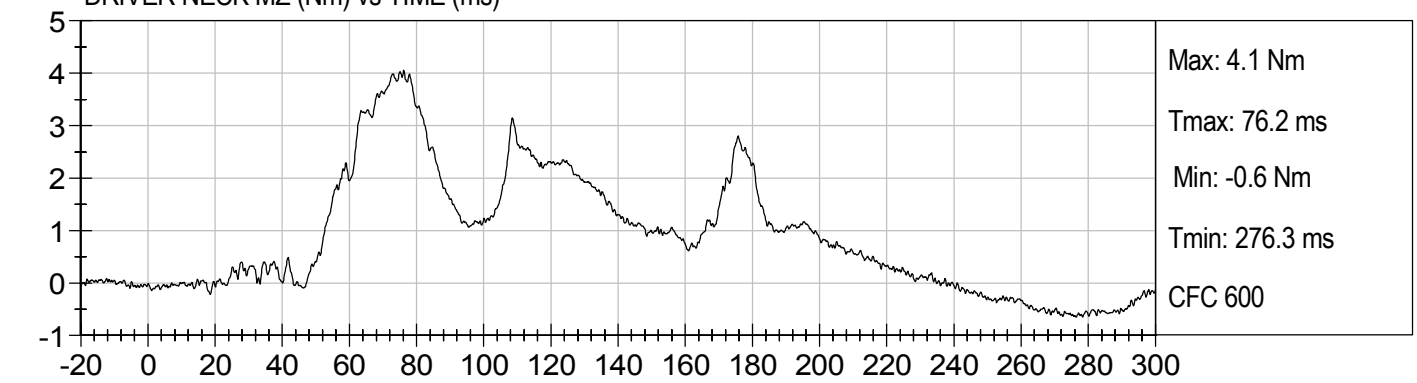
DRIVER NECK MX (Nm) vs TIME (ms)



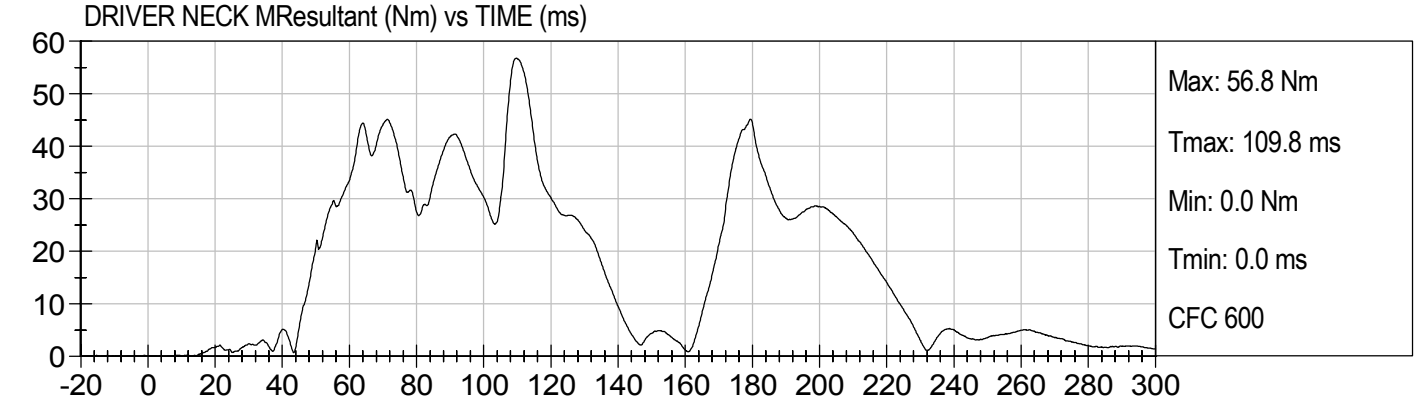
DRIVER NECK MY (Nm) vs TIME (ms)



DRIVER NECK MZ (Nm) vs TIME (ms)



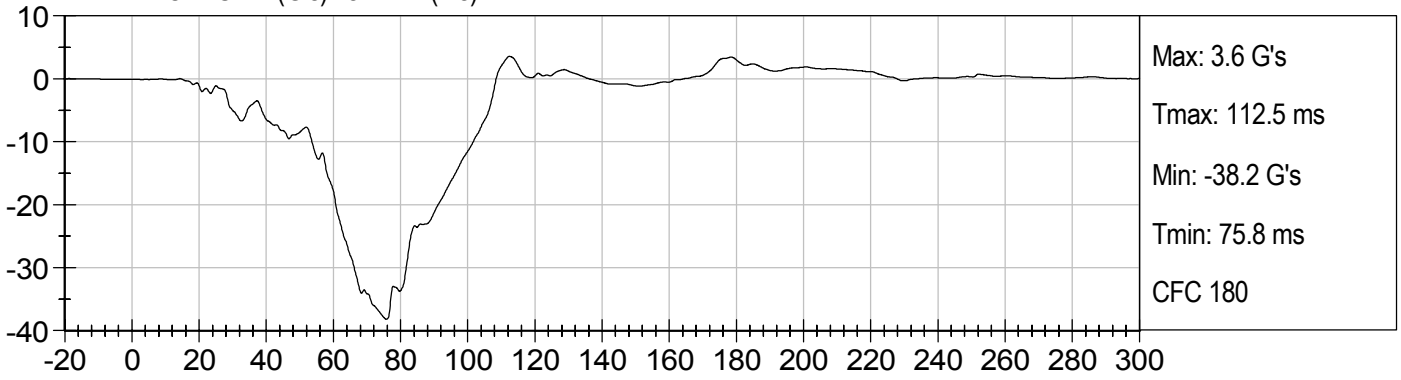
DRIVER NECK MResultant (Nm) vs TIME (ms)



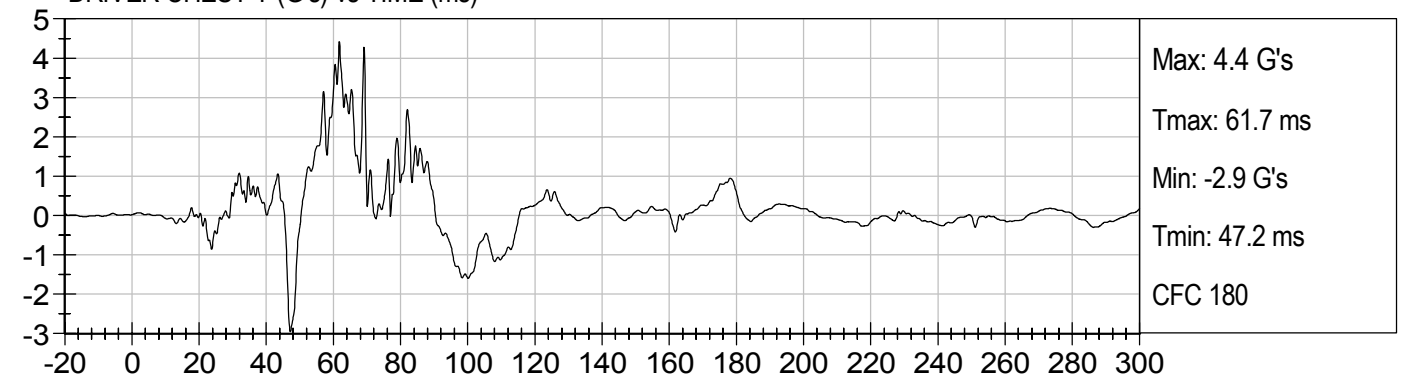
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

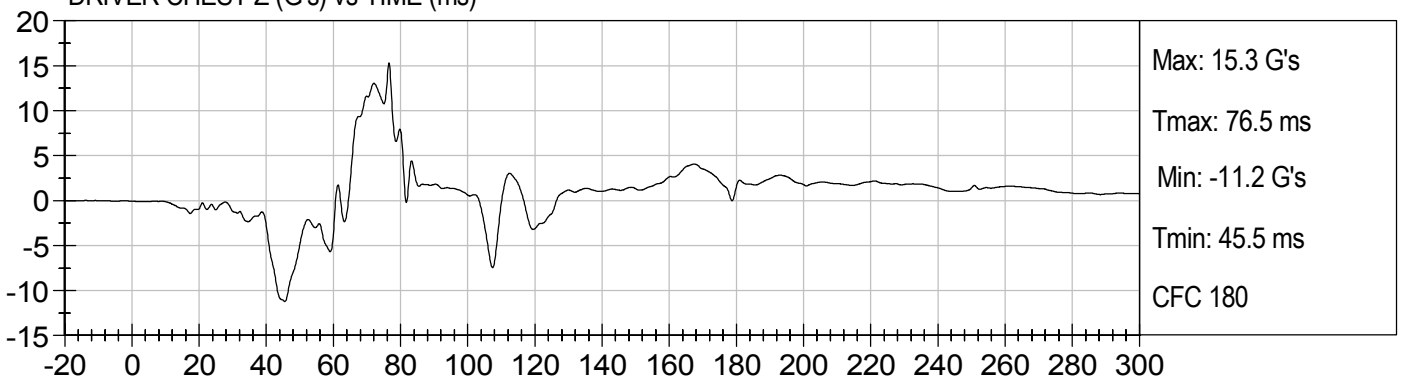
DRIVER CHEST X (G's) vs TIME (ms)



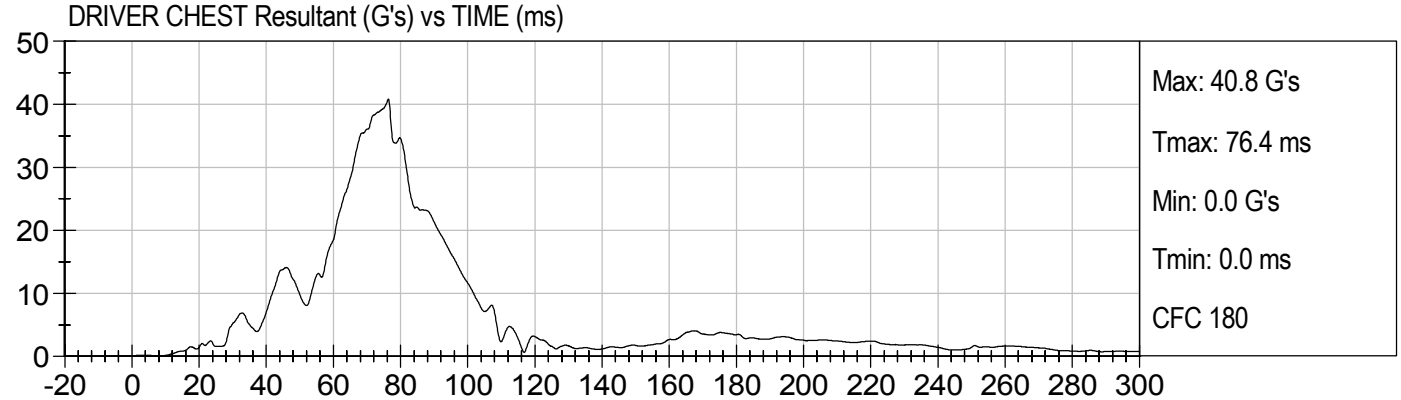
DRIVER CHEST Y (G's) vs TIME (ms)



DRIVER CHEST Z (G's) vs TIME (ms)



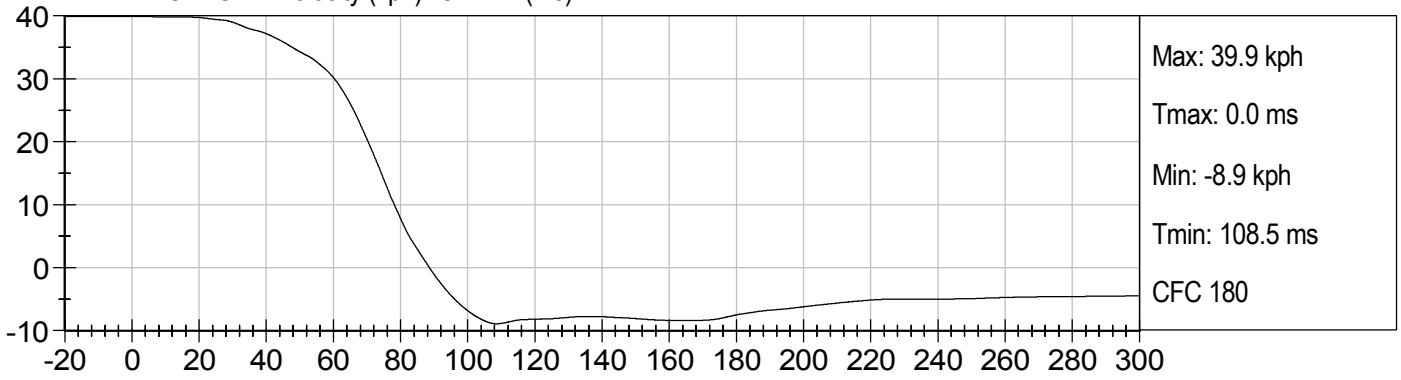
DRIVER CHEST Resultant (G's) vs TIME (ms)



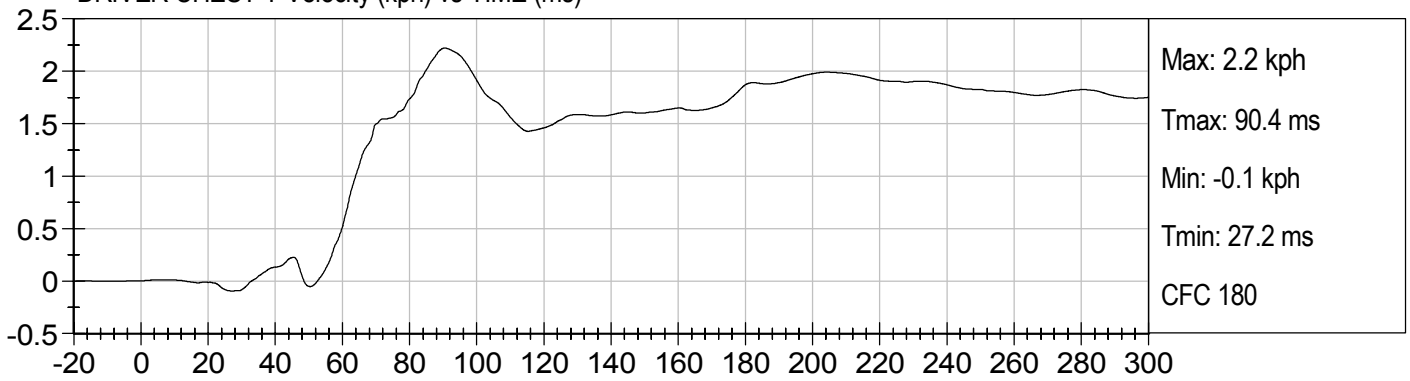
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

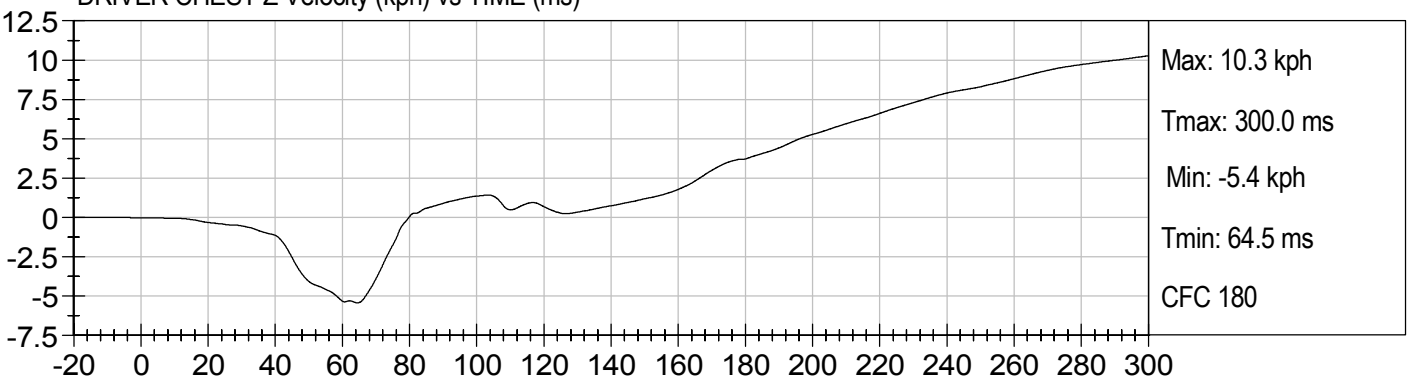
DRIVER CHEST X Velocity (kph) vs TIME (ms)



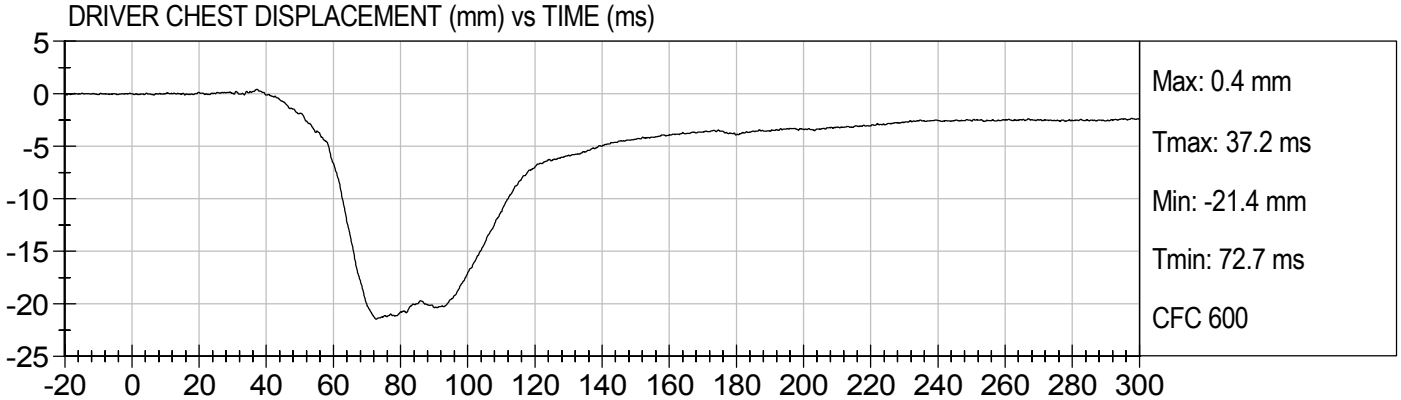
DRIVER CHEST Y Velocity (kph) vs TIME (ms)



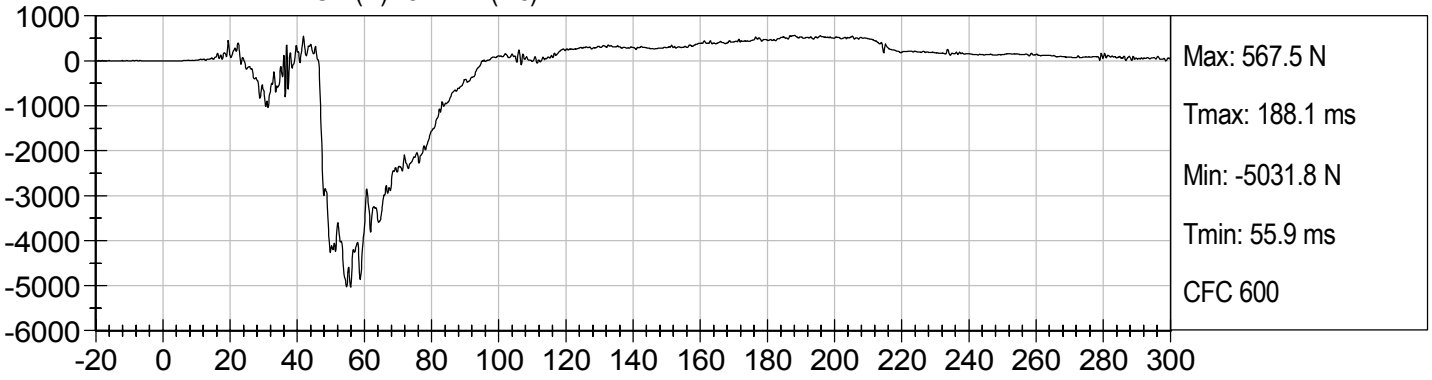
DRIVER CHEST Z Velocity (kph) vs TIME (ms)



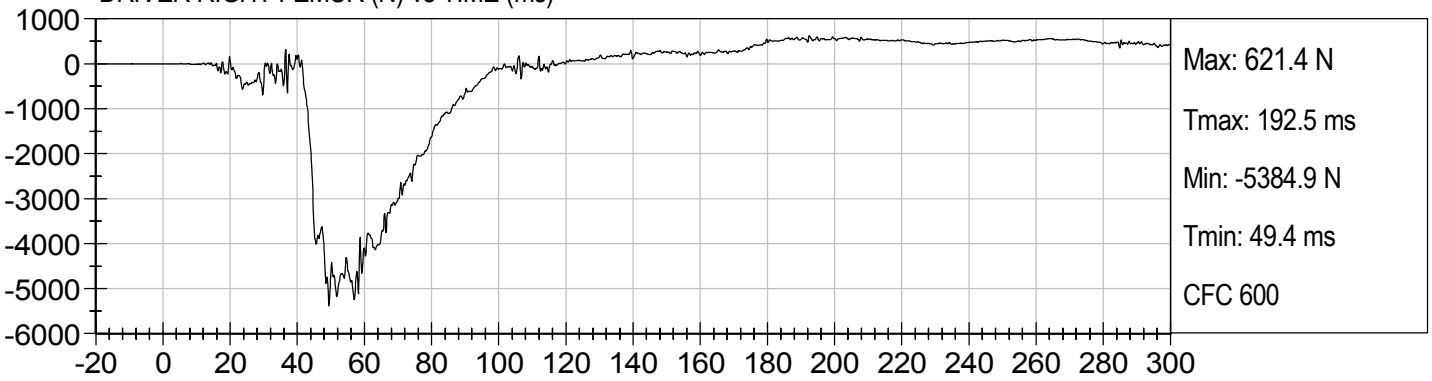
DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



DRIVER LEFT FEMUR (N) vs TIME (ms)



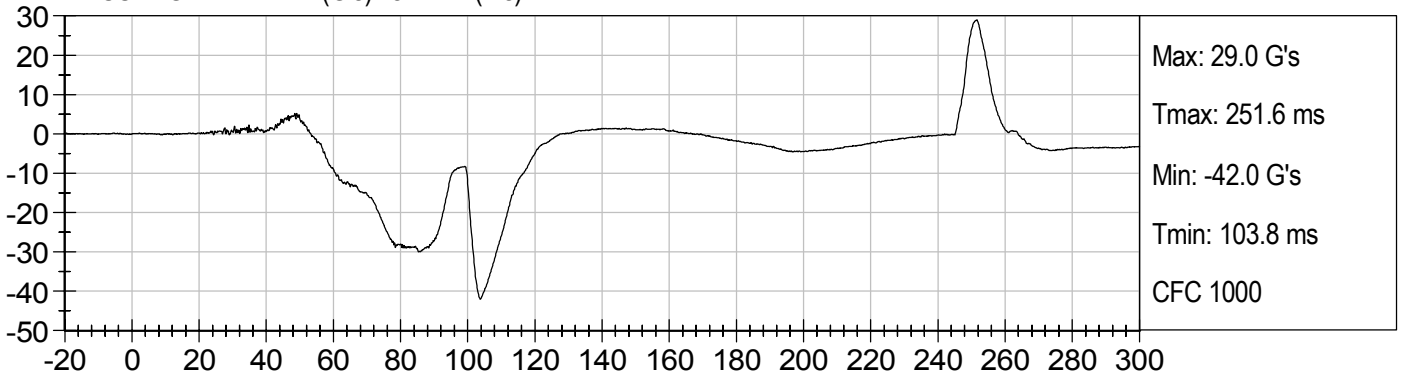
DRIVER RIGHT FEMUR (N) vs TIME (ms)



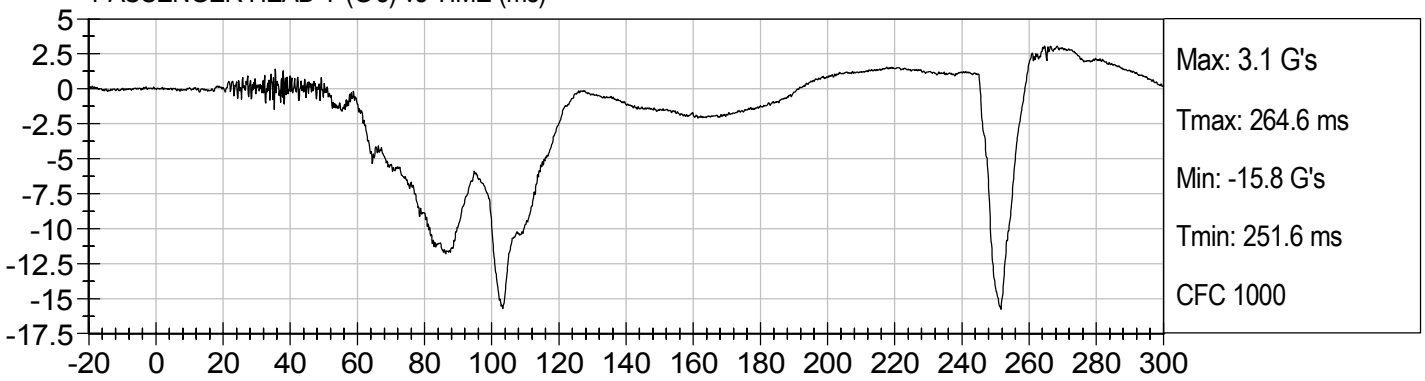
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

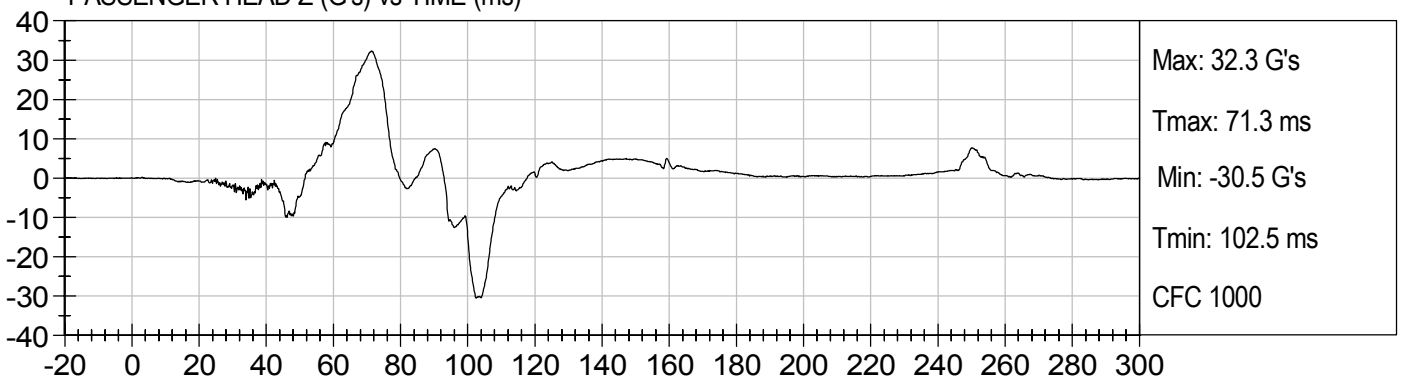
PASSENGER HEAD X (G's) vs TIME (ms)



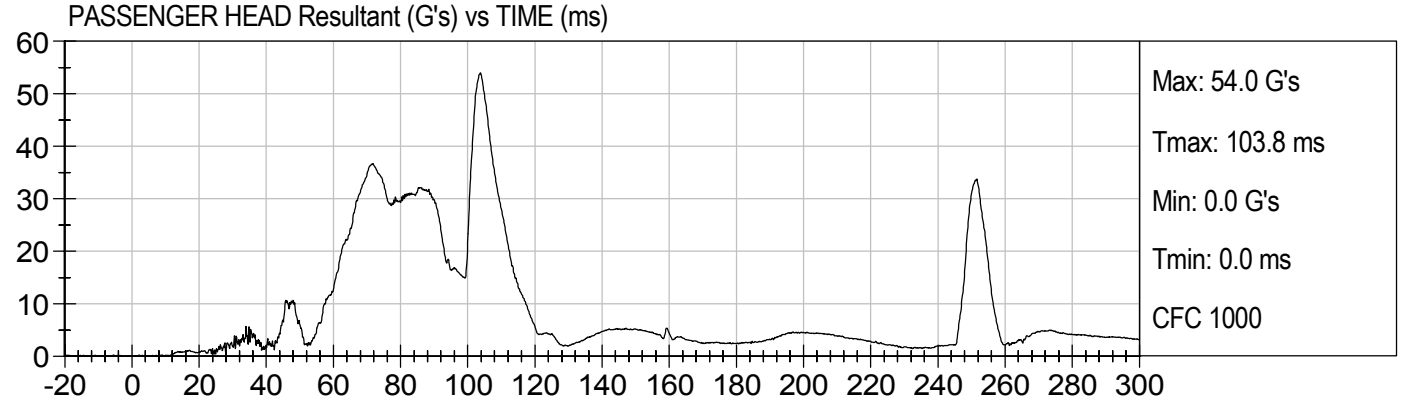
PASSENGER HEAD Y (G's) vs TIME (ms)



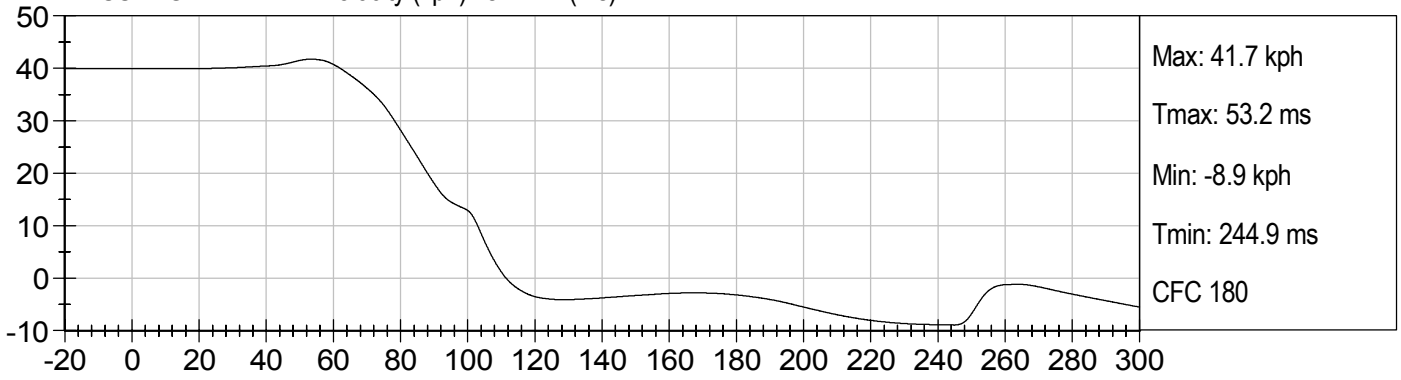
PASSENGER HEAD Z (G's) vs TIME (ms)



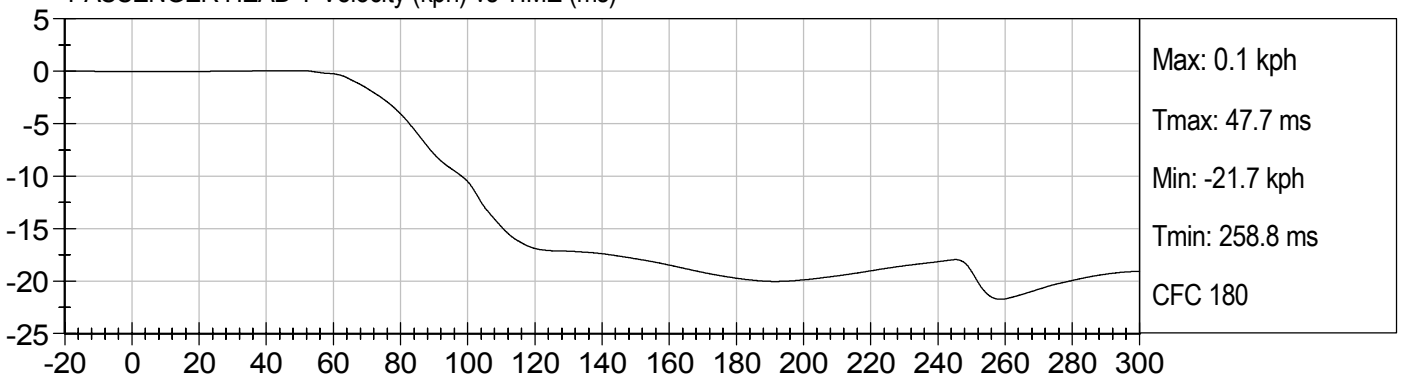
PASSENGER HEAD Resultant (G's) vs TIME (ms)



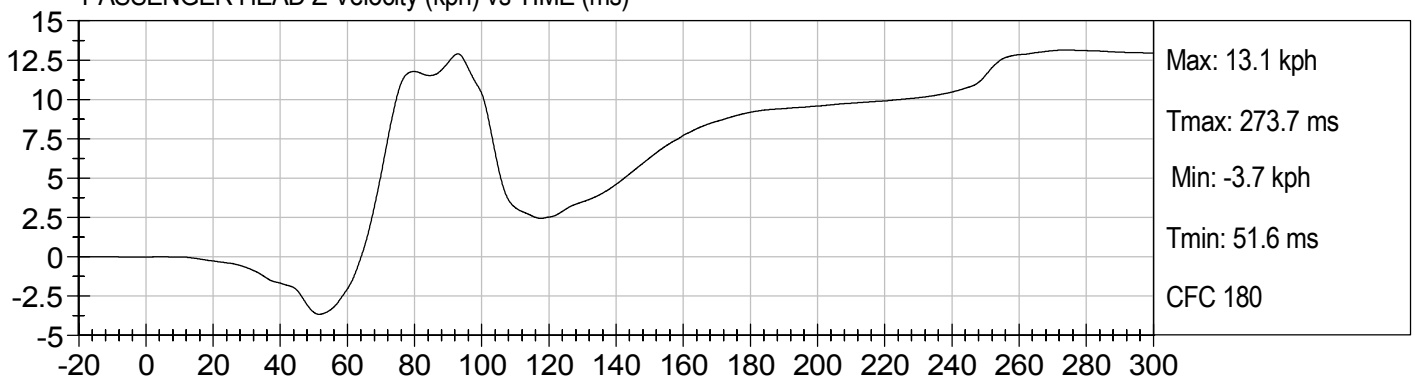
PASSENGER HEAD X Velocity (kph) vs TIME (ms)



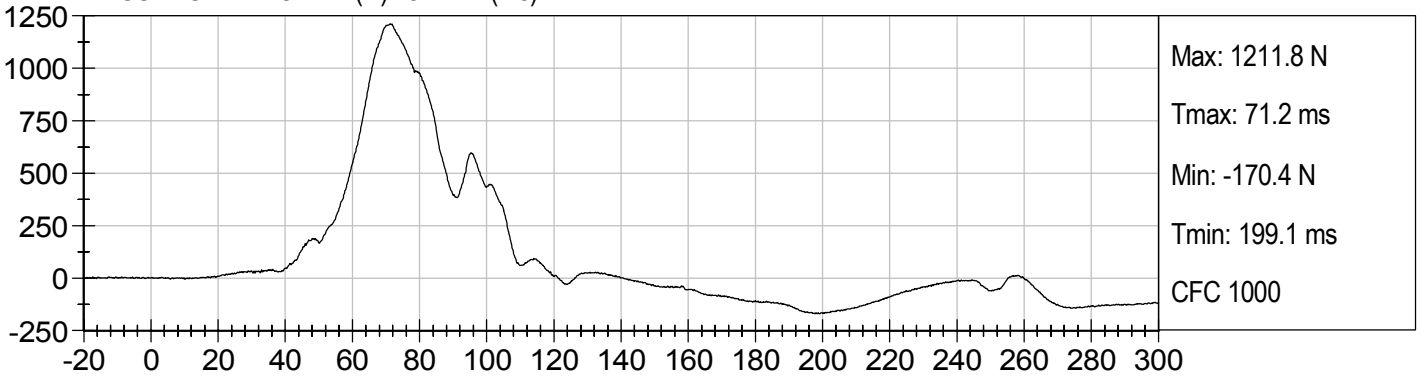
PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



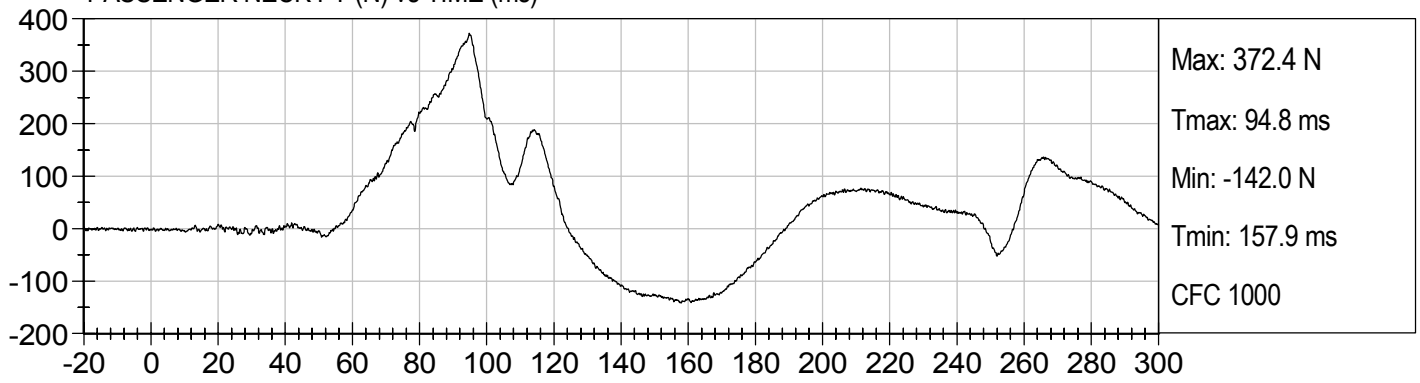
PASSENGER HEAD Z Velocity (kph) vs TIME (ms)



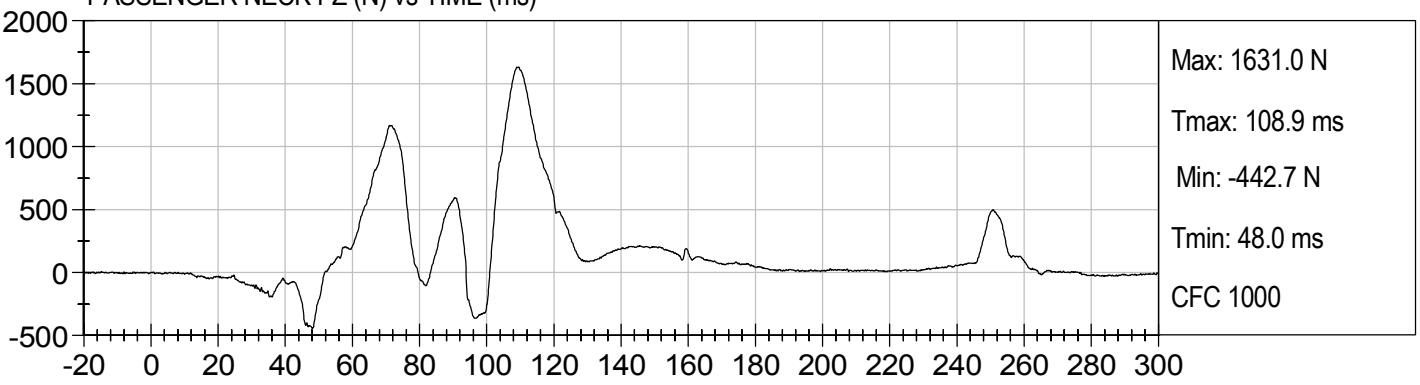
PASSENGER NECK FX (N) vs TIME (ms)



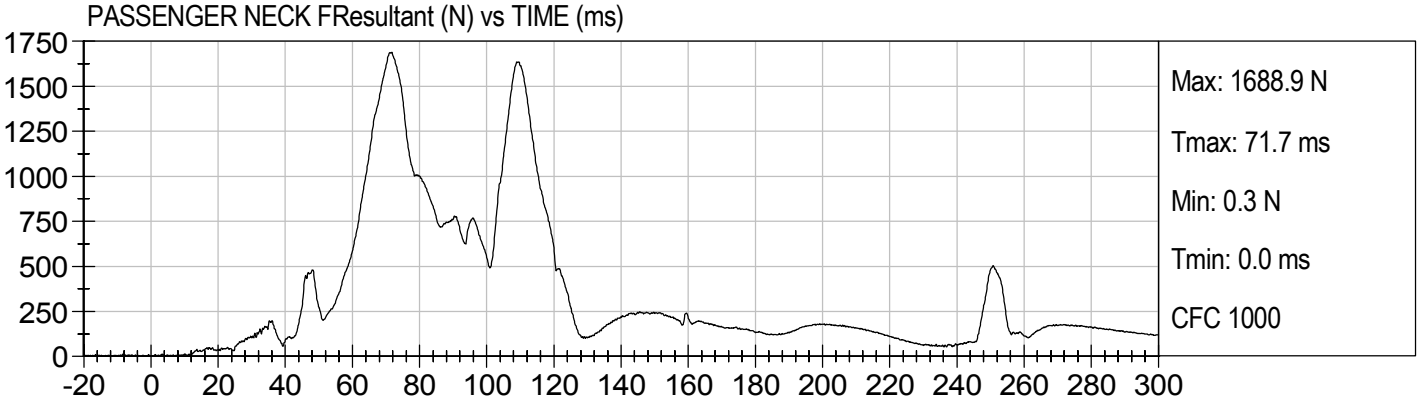
PASSENGER NECK FY (N) vs TIME (ms)



PASSENGER NECK FZ (N) vs TIME (ms)



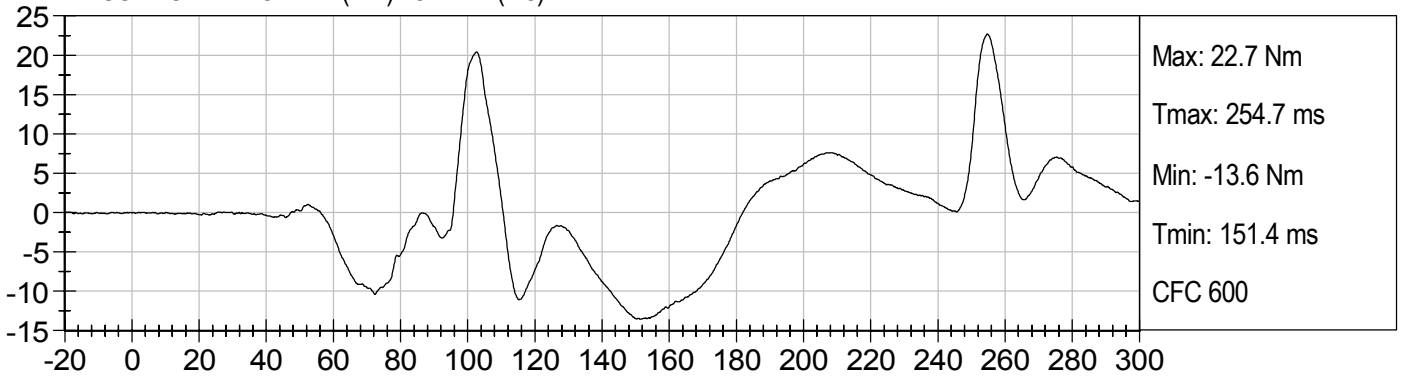
PASSENGER NECK FResultant (N) vs TIME (ms)



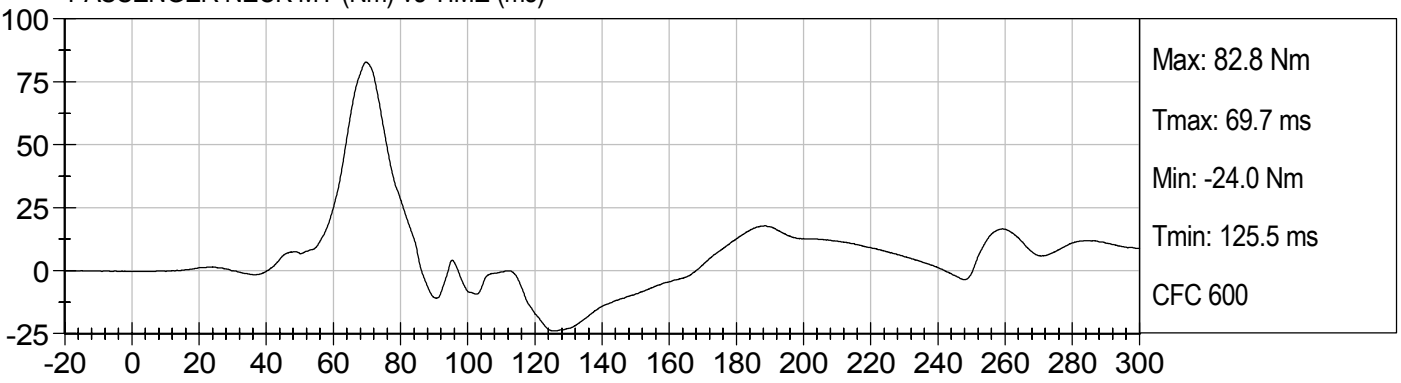
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

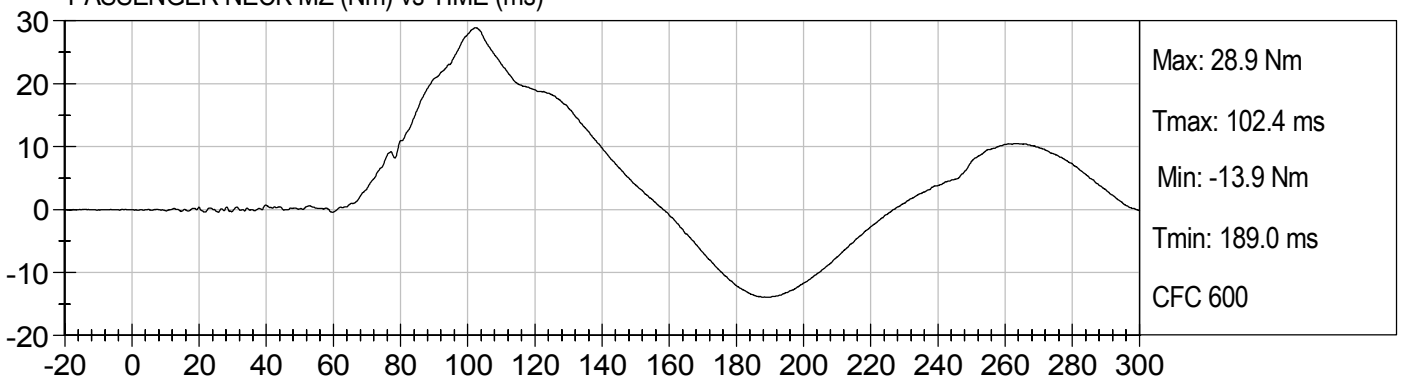
PASSENGER NECK MX (Nm) vs TIME (ms)



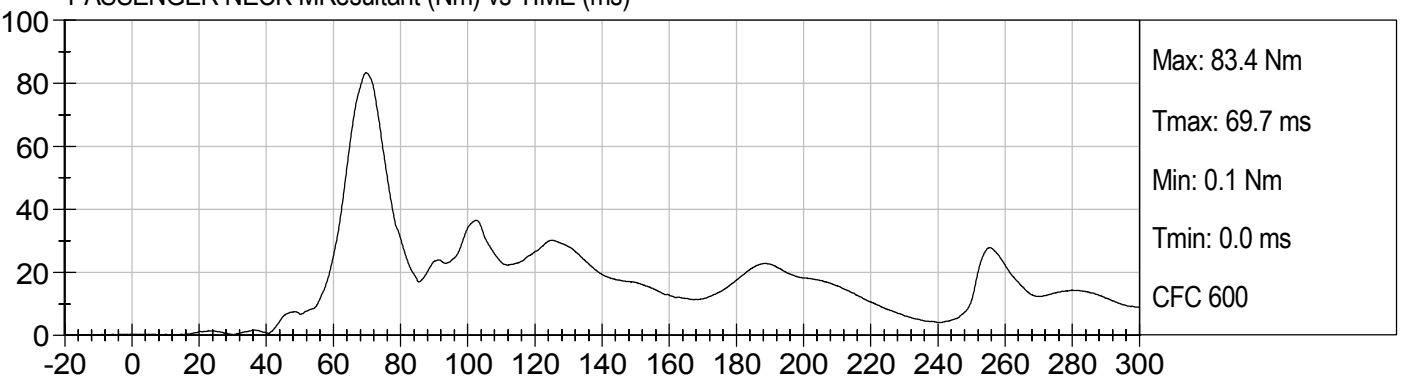
PASSENGER NECK MY (Nm) vs TIME (ms)



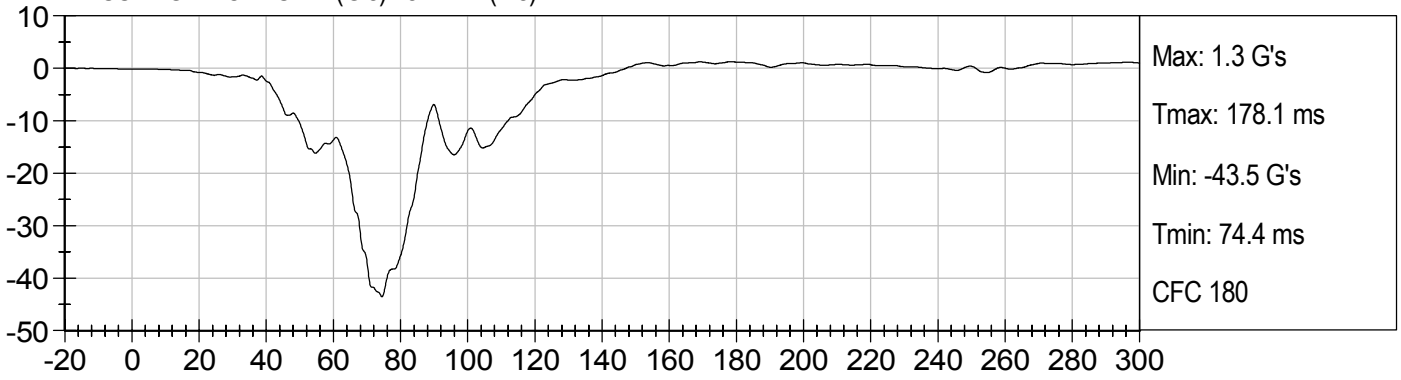
PASSENGER NECK MZ (Nm) vs TIME (ms)



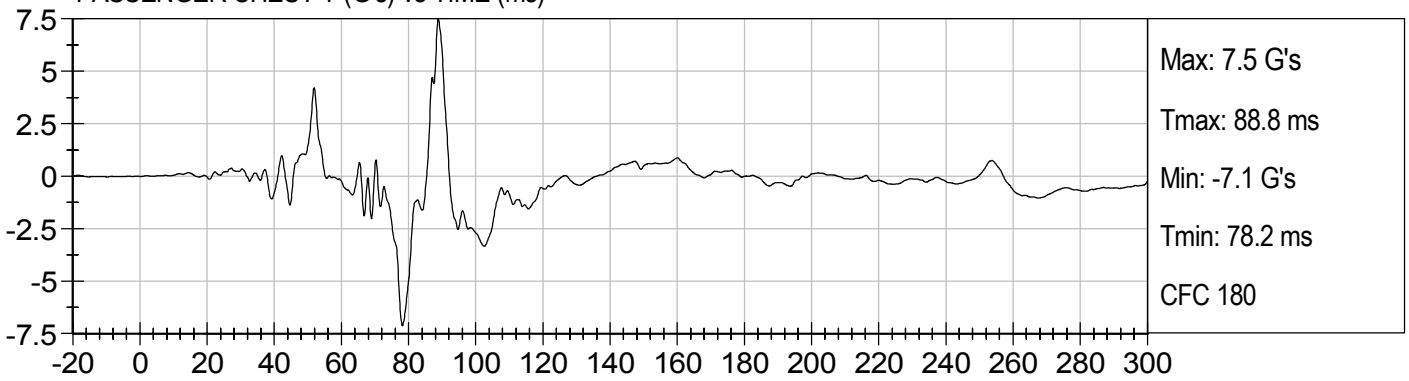
PASSENGER NECK MResultant (Nm) vs TIME (ms)



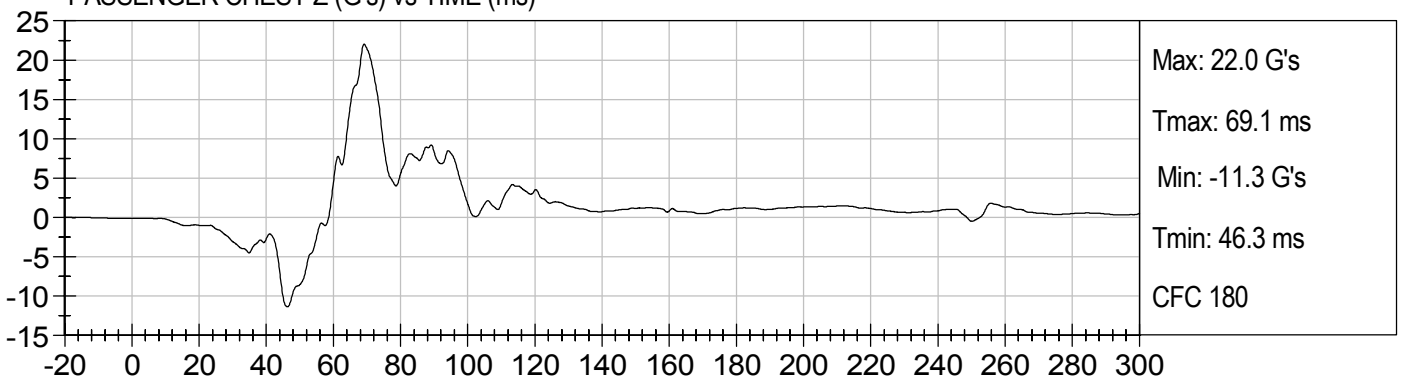
PASSENGER CHEST X (G's) vs TIME (ms)



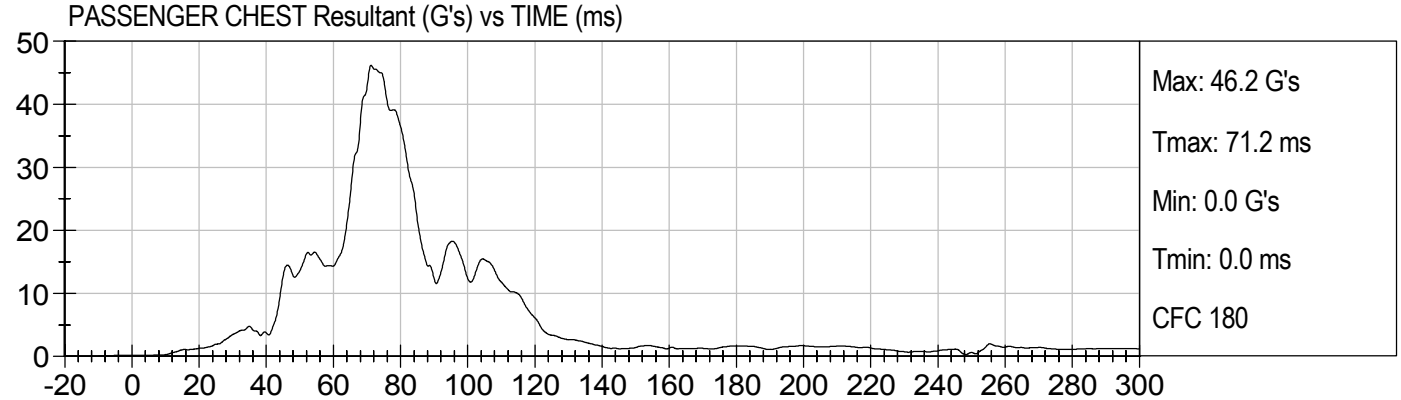
PASSENGER CHEST Y (G's) vs TIME (ms)



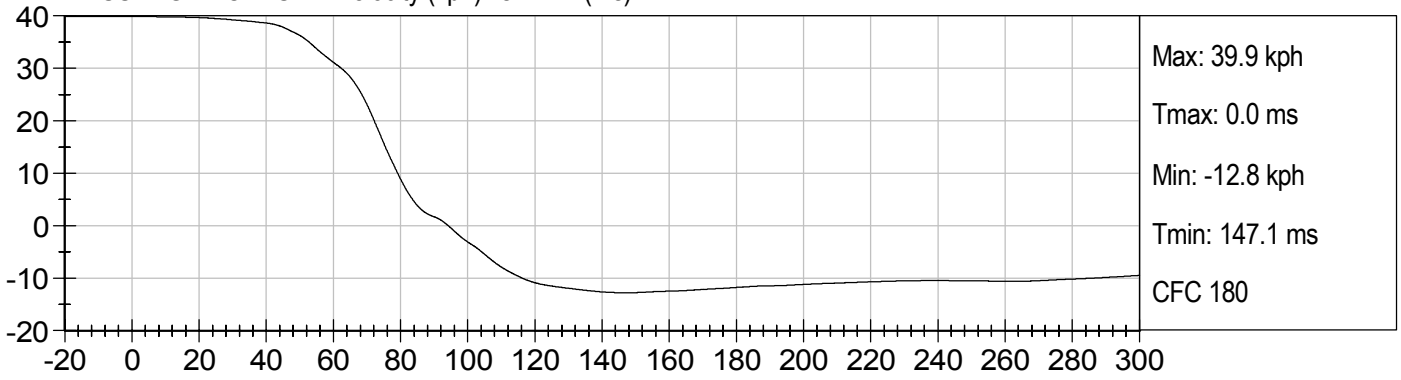
PASSENGER CHEST Z (G's) vs TIME (ms)



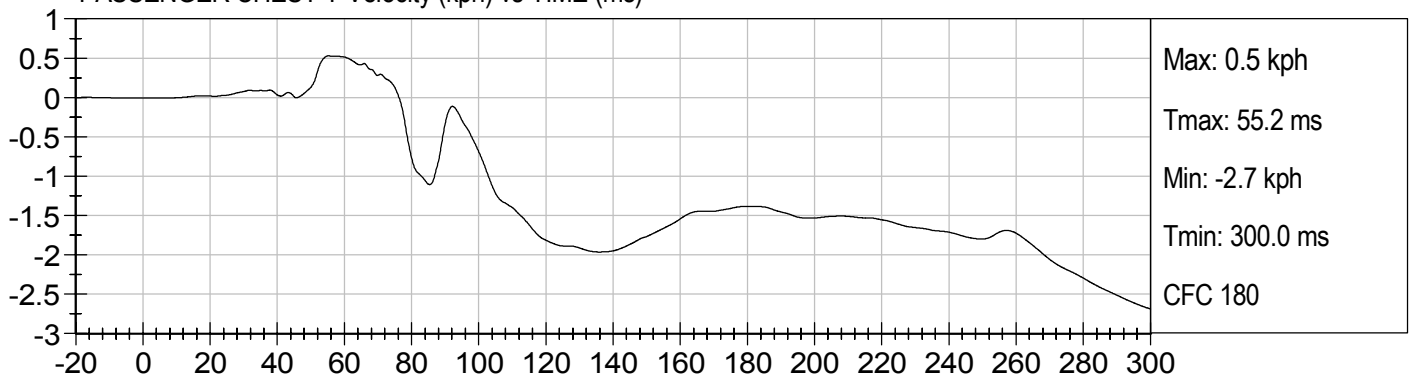
PASSENGER CHEST Resultant (G's) vs TIME (ms)



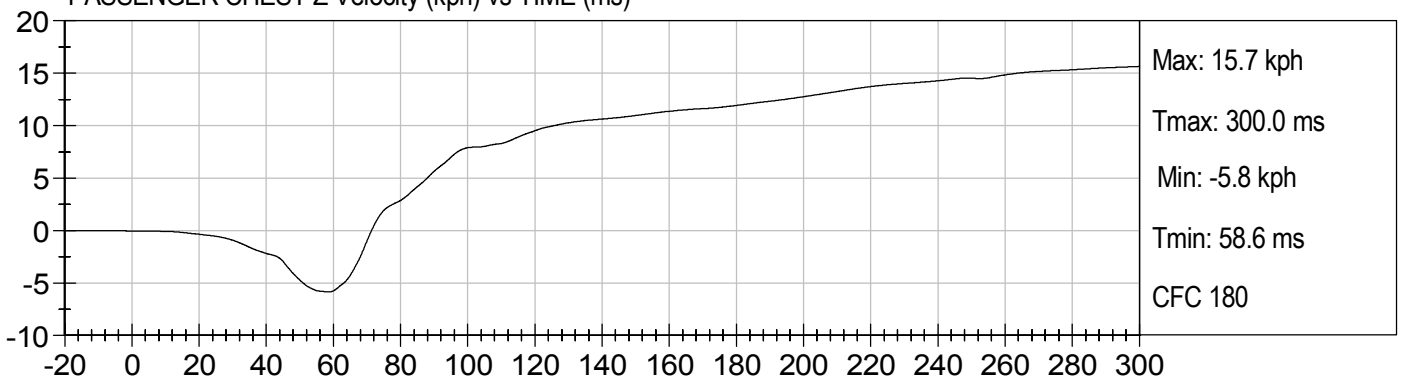
PASSENGER CHEST X Velocity (kph) vs TIME (ms)



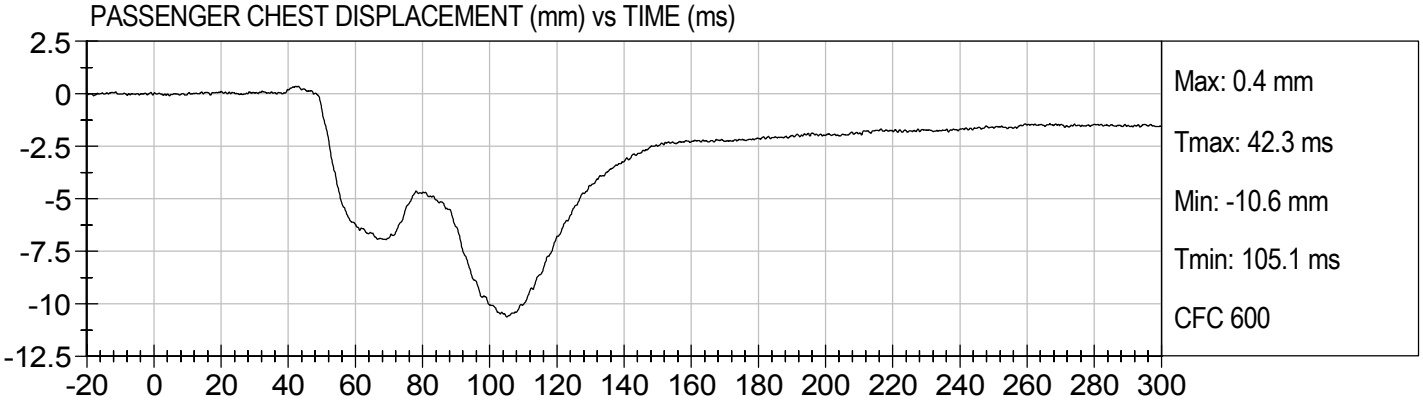
PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



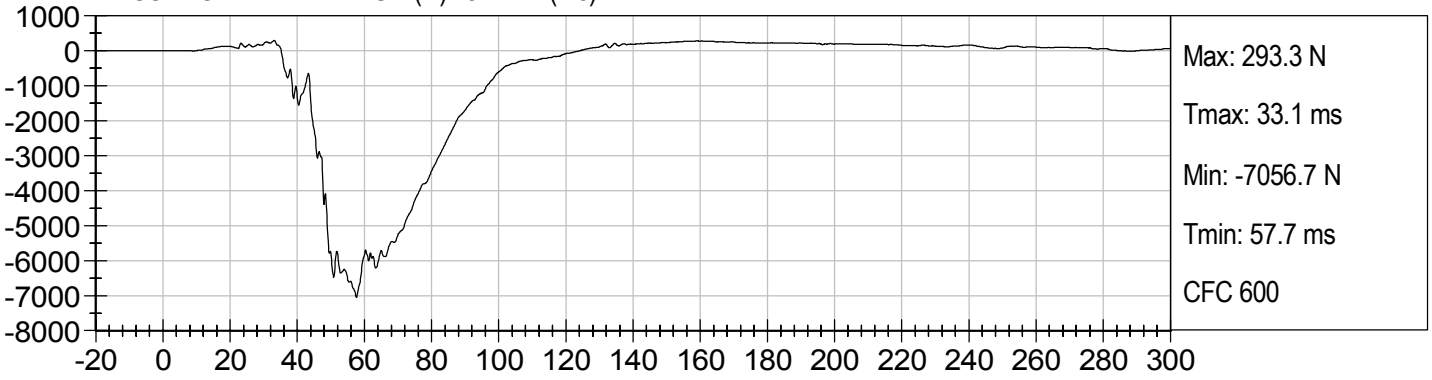
PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



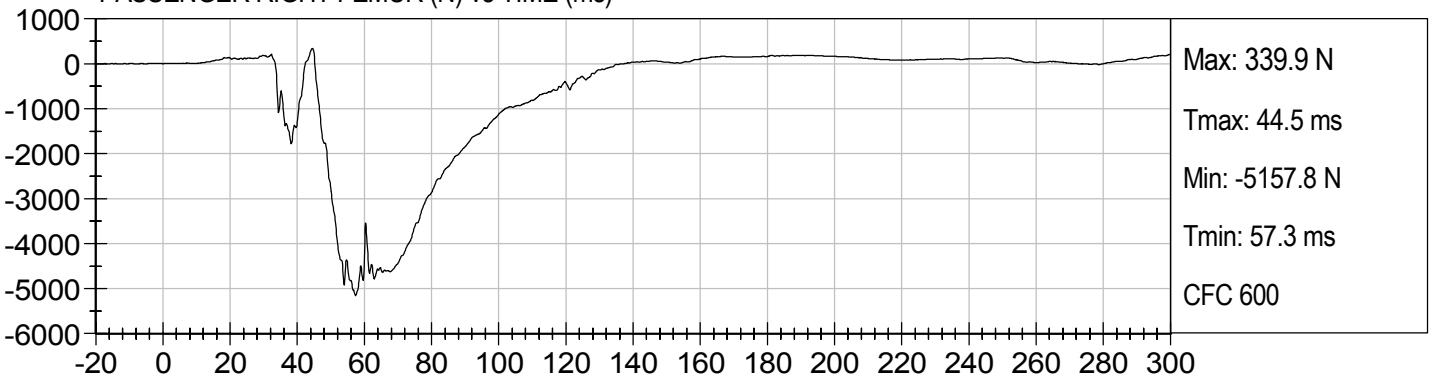
PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

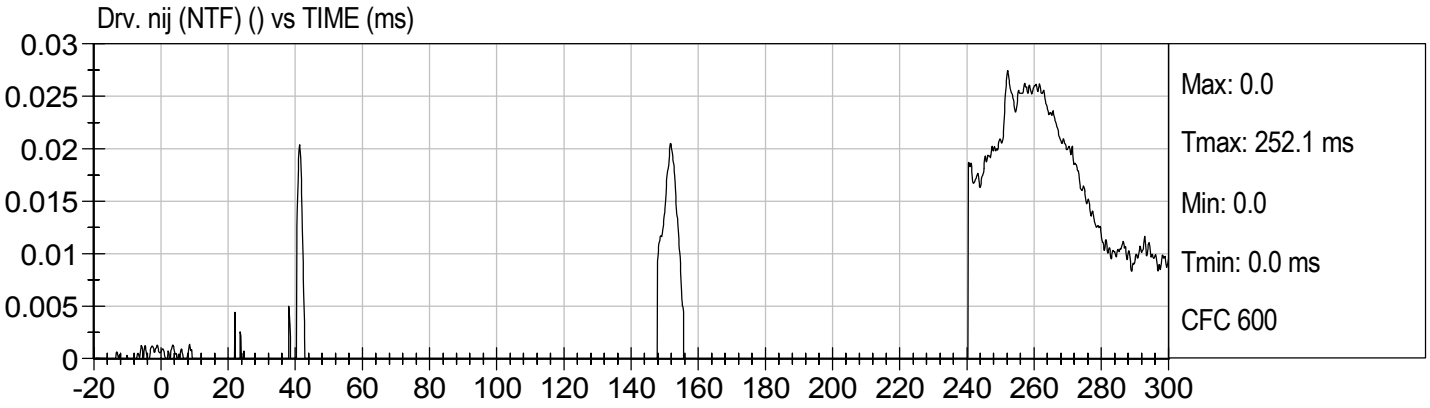


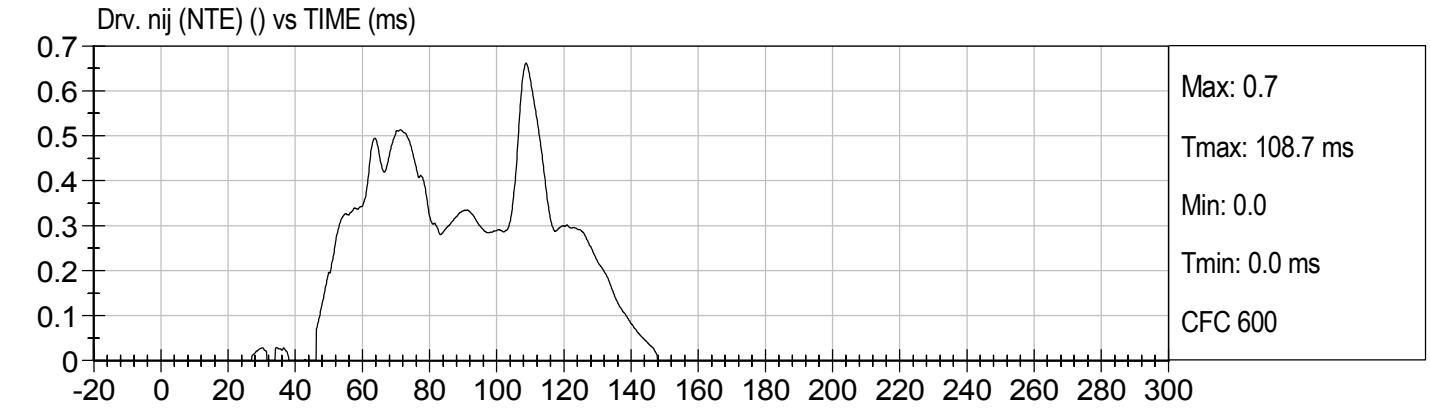
PASSENGER LEFT FEMUR (N) vs TIME (ms)

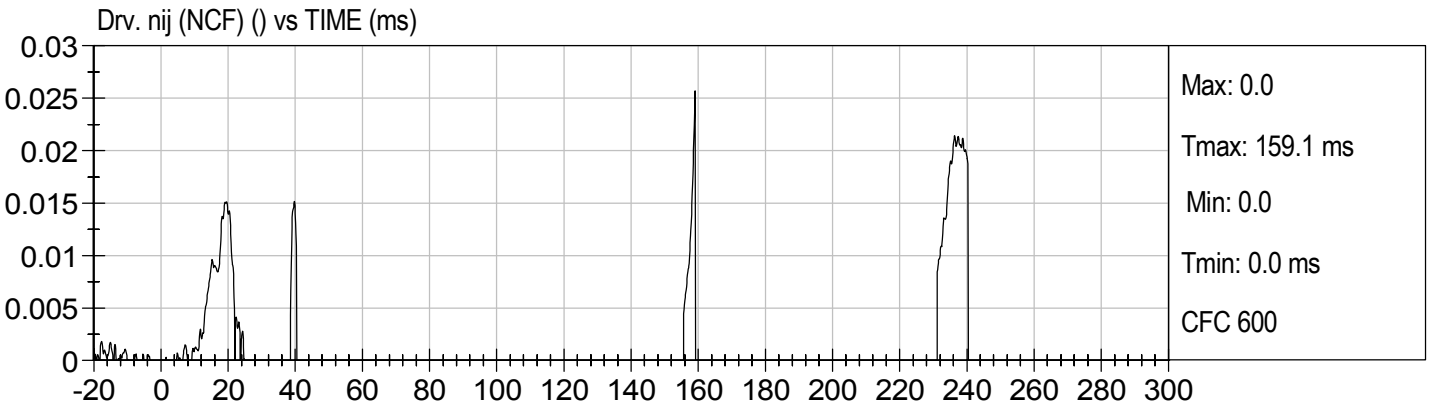


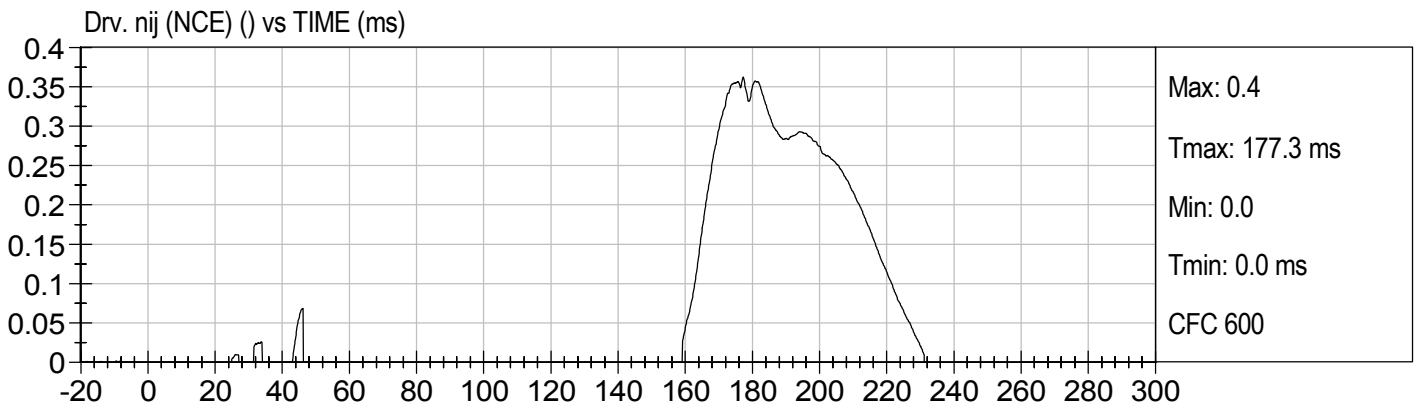
PASSENGER RIGHT FEMUR (N) vs TIME (ms)

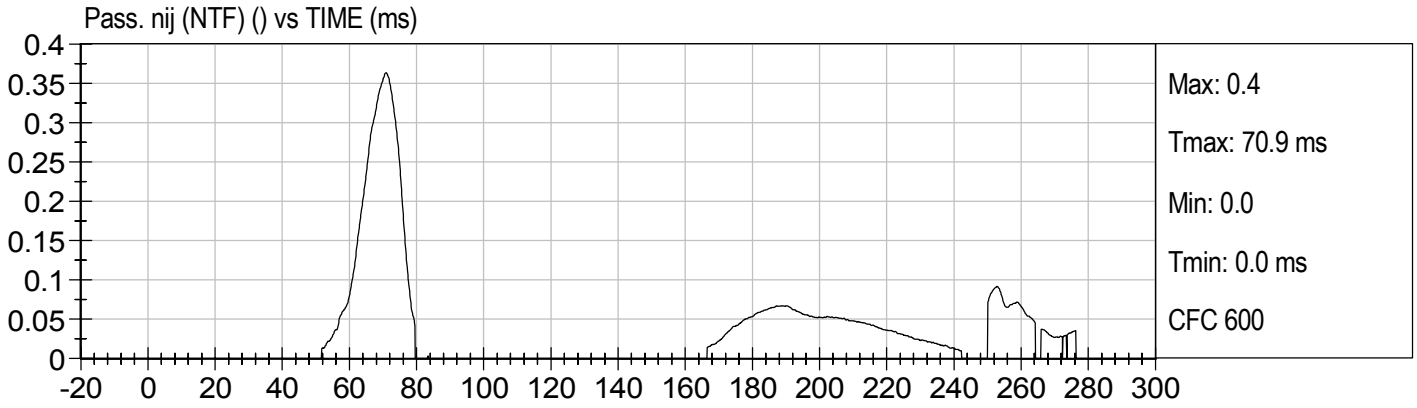


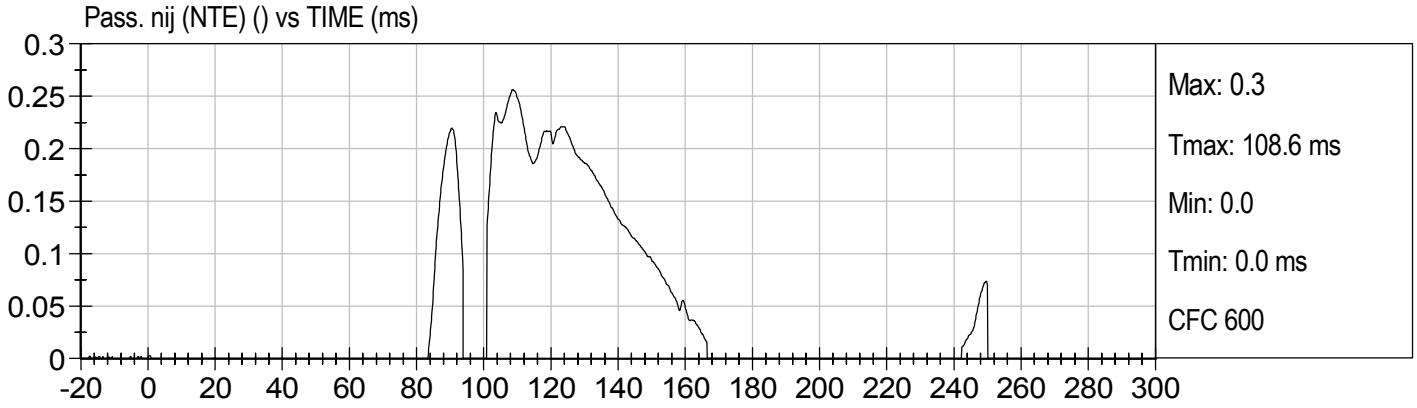

Drv. nij (NTF) () vs TIME (ms)
0.03
0.025
0.02
0.015
0.01
0.005
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.0
Tmax: 252.1 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

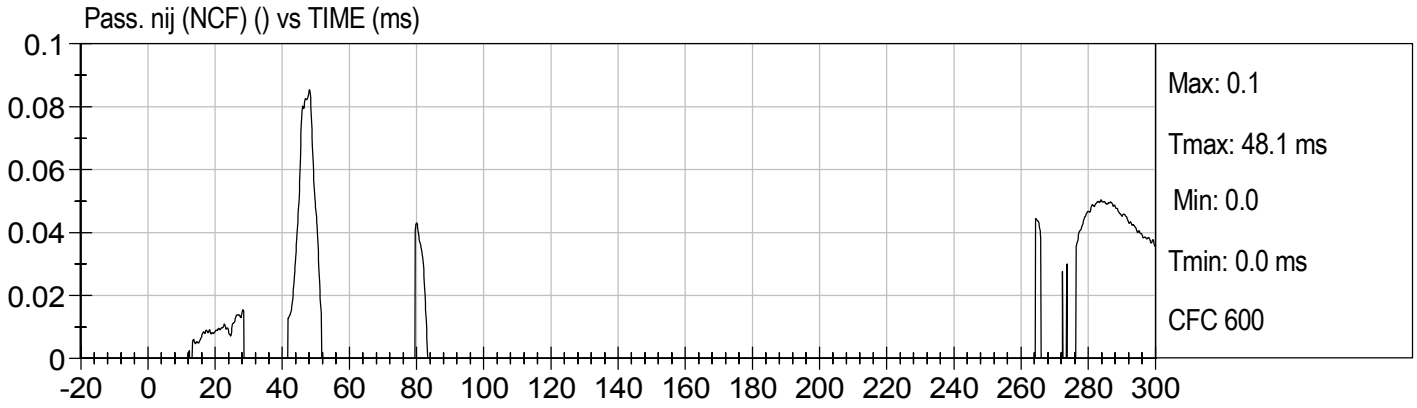

Drv. nij (NTE) () vs TIME (ms)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.7
Tmax: 108.7 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

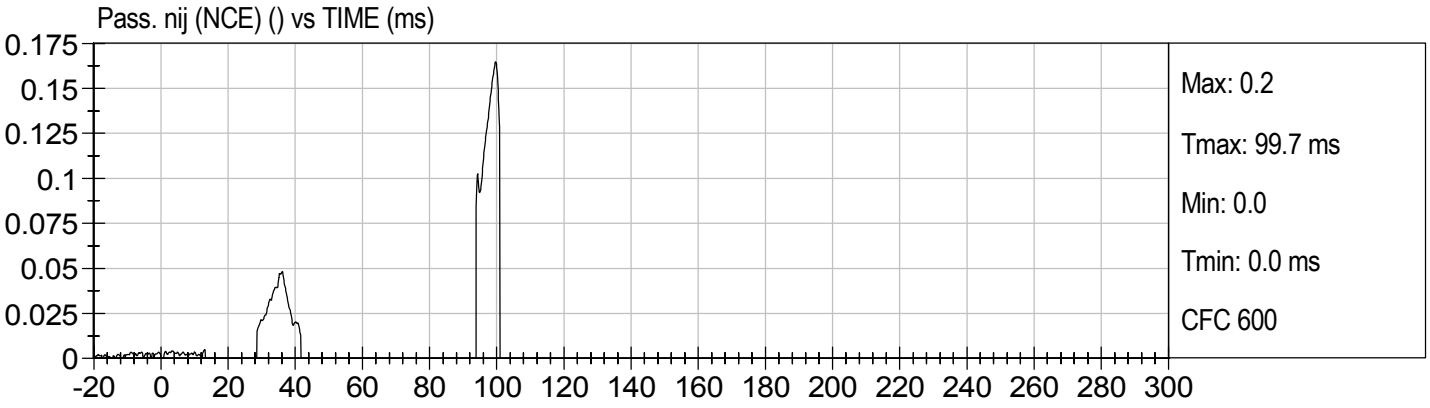

Drv. nij (NCF) () vs TIME (ms)
0.03
0.025
0.02
0.015
0.01
0.005
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.0
Tmax: 159.1 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600


Drv. nij (NCE) () vs TIME (ms)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.4
Tmax: 177.3 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

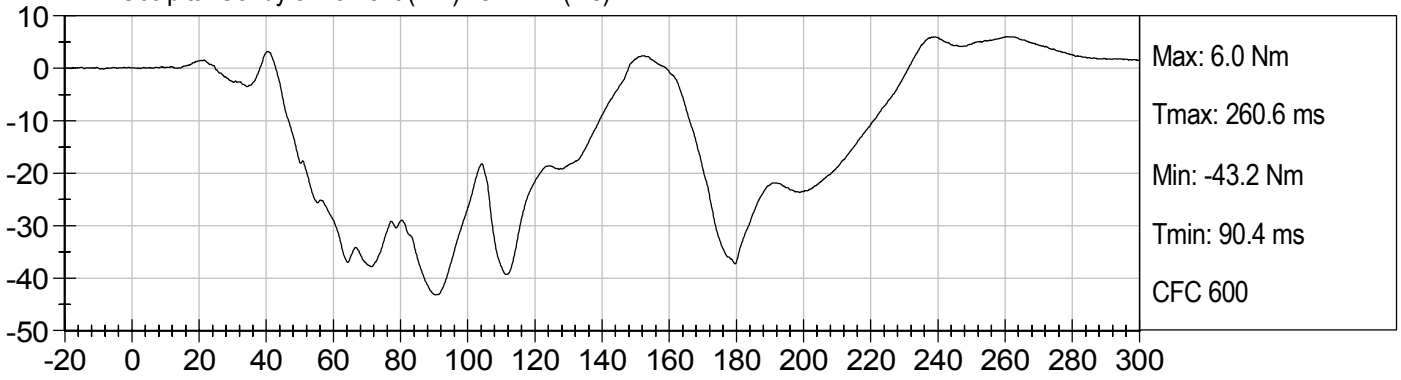

Pass. nij (NTF) () vs TIME (ms)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.4
Tmax: 70.9 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600


Pass. nij (NTE) () vs TIME (ms)
0.3
0.25
0.2
0.15
0.1
0.05
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.3
Tmax: 108.6 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

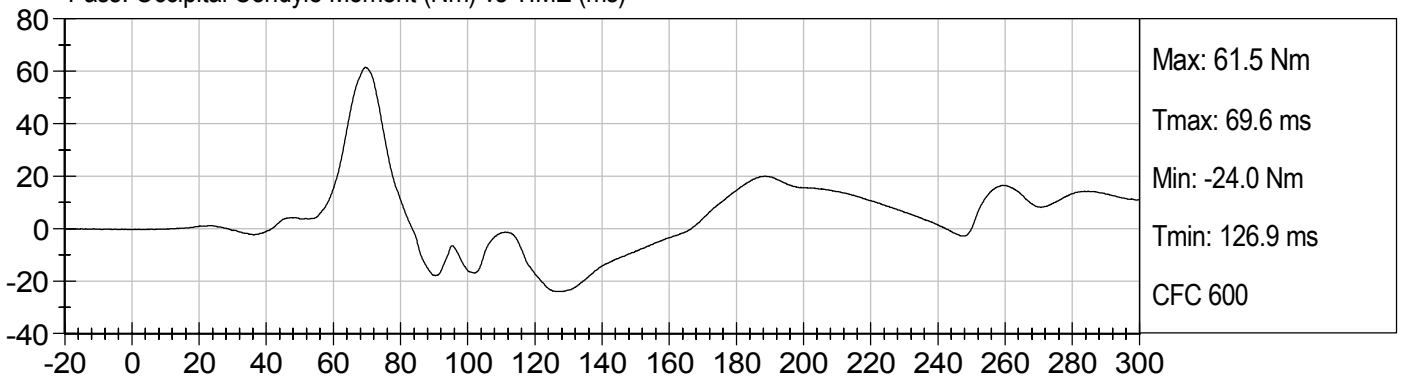

Pass. nij (NCF) () vs TIME (ms)
0.1
0.08
0.06
0.04
0.02
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.1
Tmax: 48.1 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600


Pass. nij (NCE) () vs TIME (ms)
0.175
0.15
0.125
0.1
0.075
0.05
0.025
0
-20 0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300
Max: 0.2
Tmax: 99.7 ms
Min: 0.0
Tmin: 0.0 ms
CFC 600

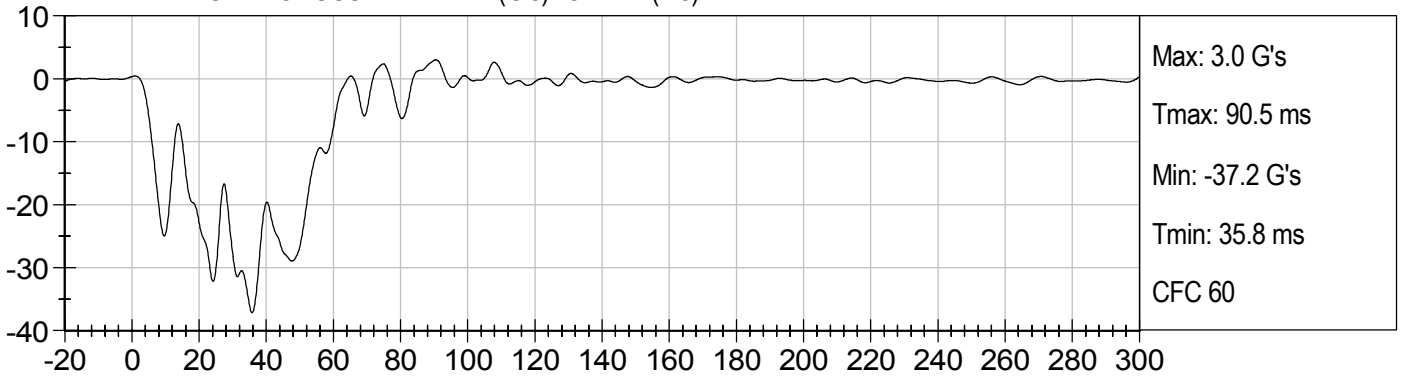
Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



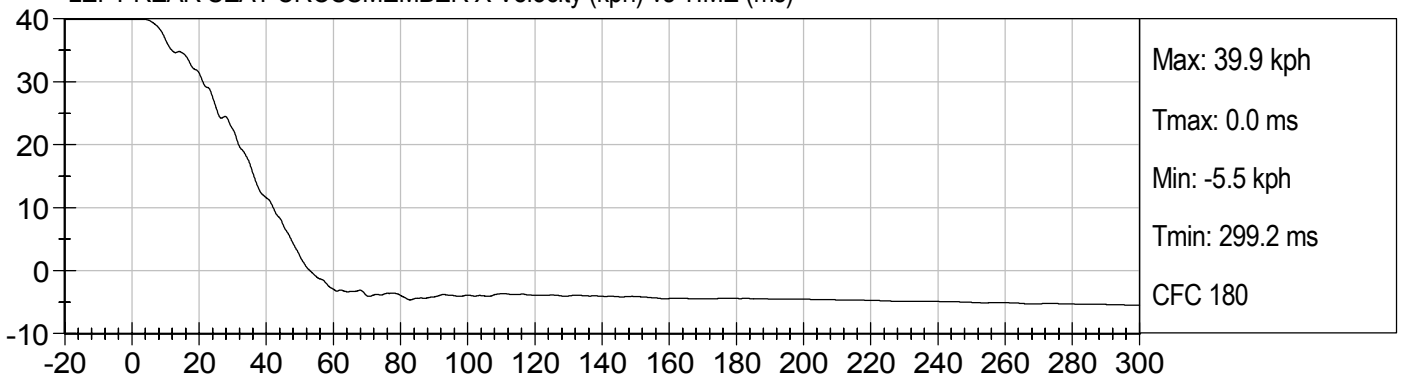
Pass. Occipital Condyle Moment (Nm) vs TIME (ms)



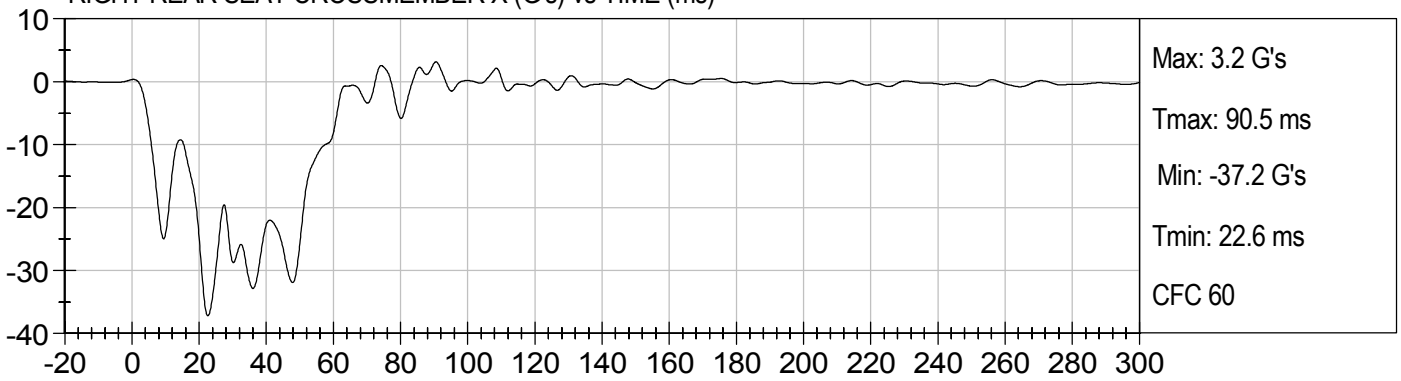
LEFT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



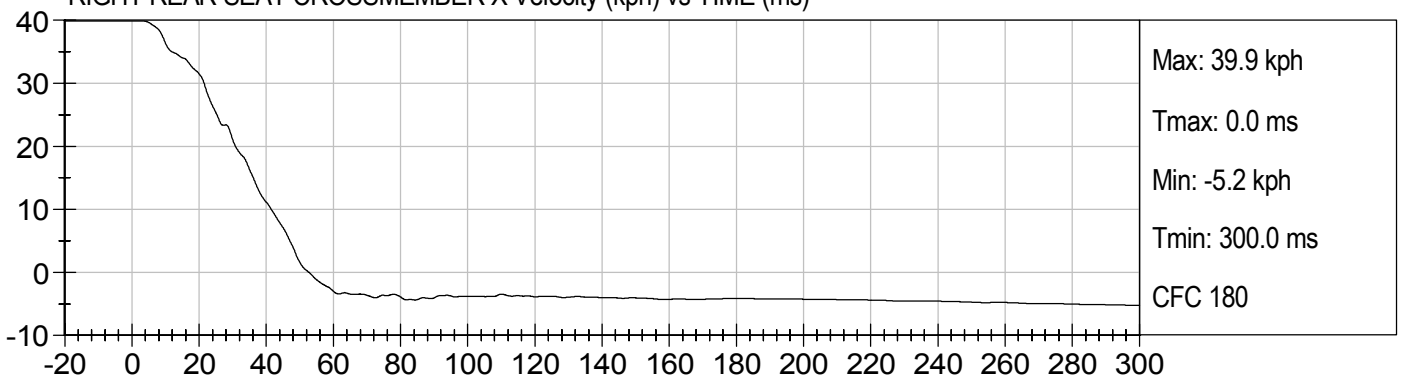
LEFT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



RIGHT REAR SEAT CROSSMEMBER X (G's) vs TIME (ms)



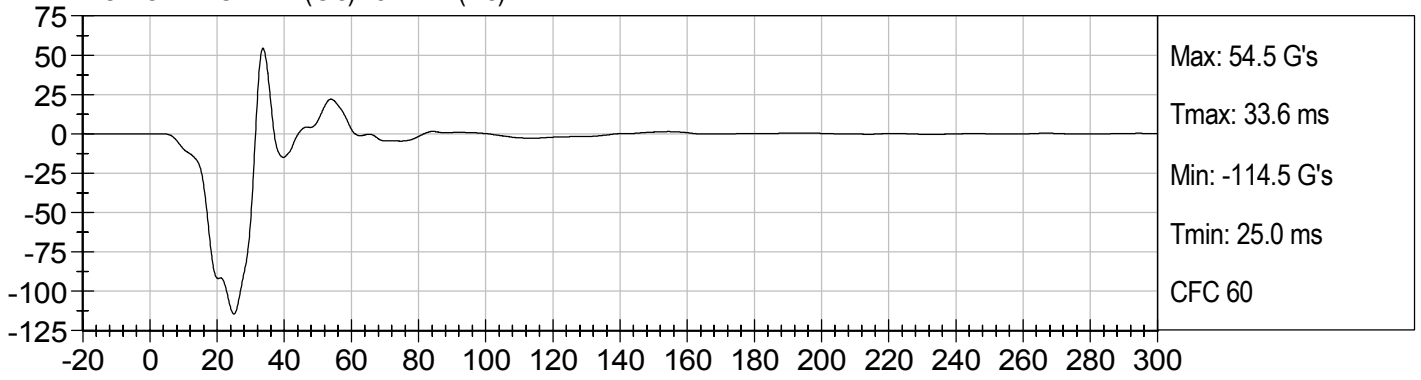
RIGHT REAR SEAT CROSSMEMBER X Velocity (kph) vs TIME (ms)



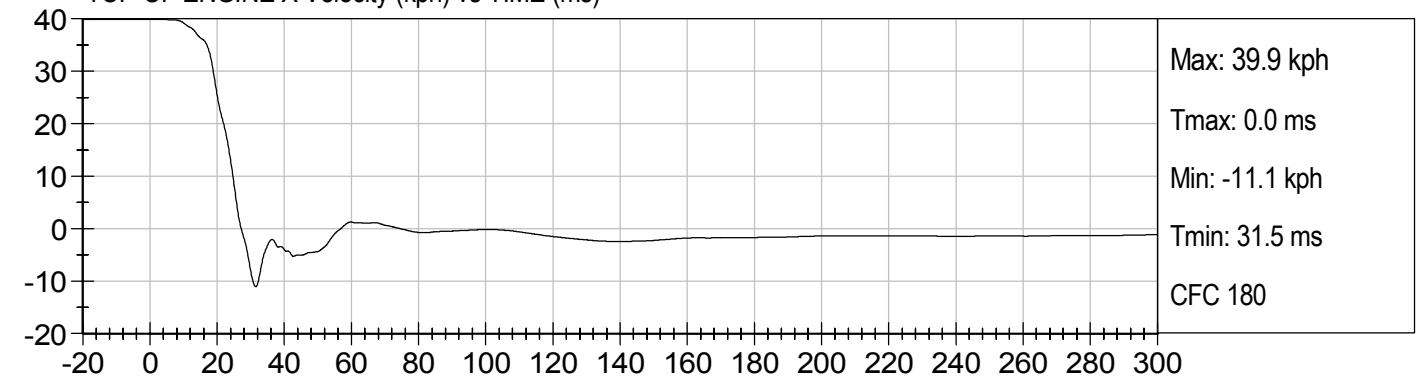
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

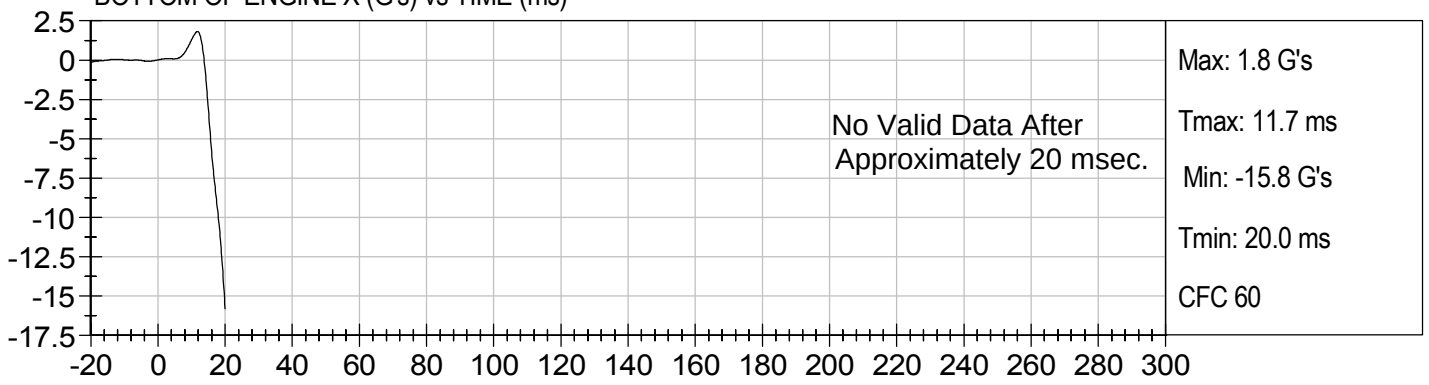
TOP OF ENGINE X (G's) vs TIME (ms)



TOP OF ENGINE X Velocity (kph) vs TIME (ms)



BOTTOM OF ENGINE X (G's) vs TIME (ms)



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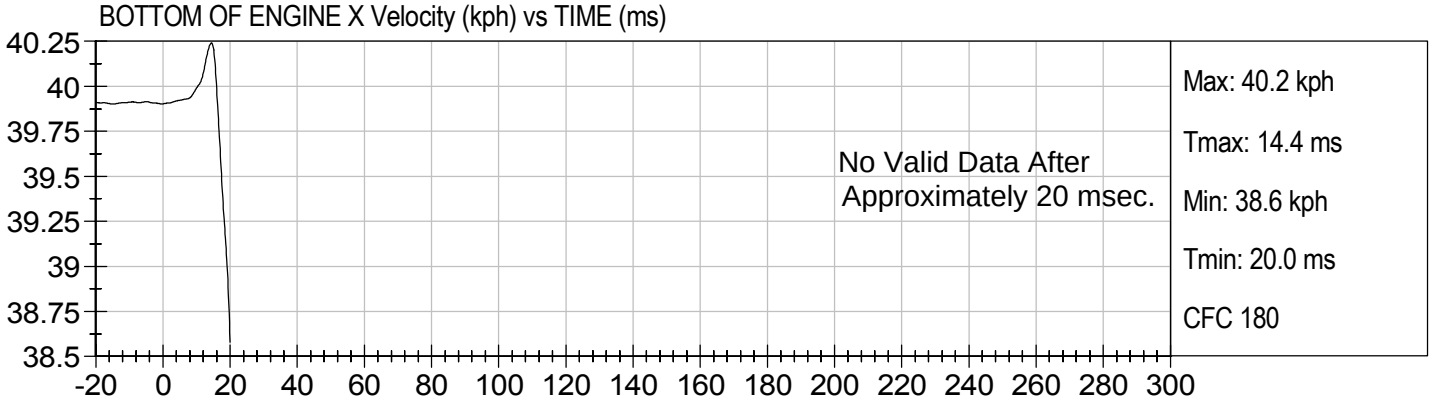
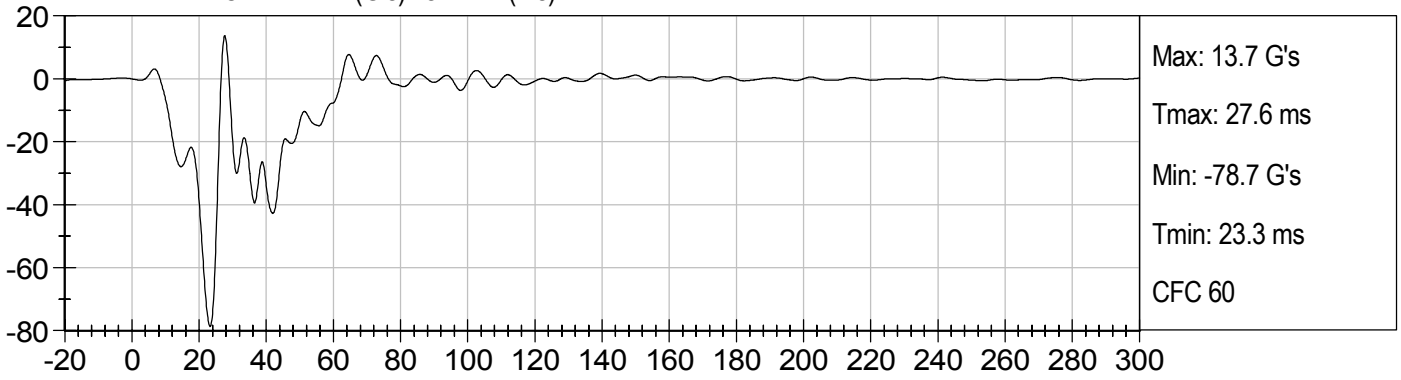


LEFT BRAKE CALIPER X (G's) vs TIME (ms)



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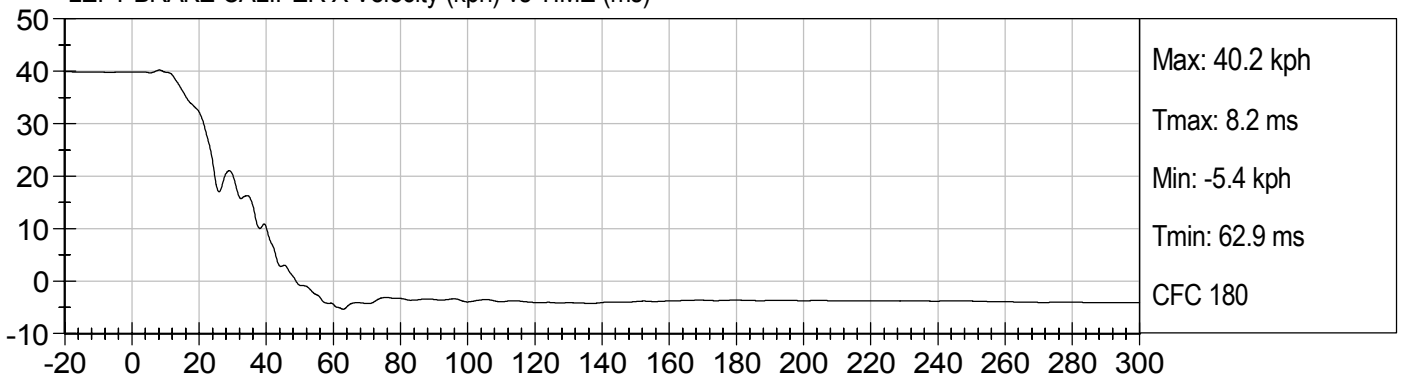
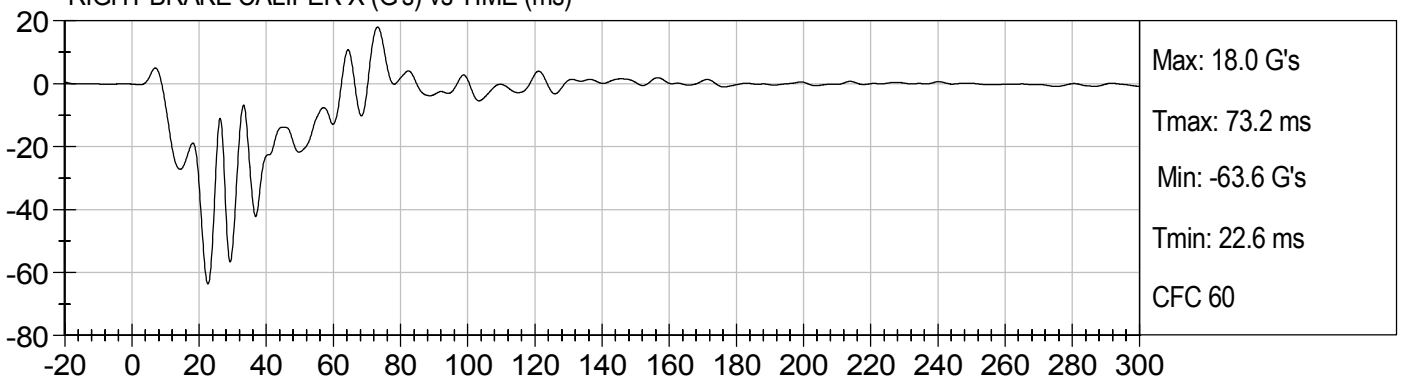


RIGHT BRAKE CALIPER X (G's) vs TIME (ms)



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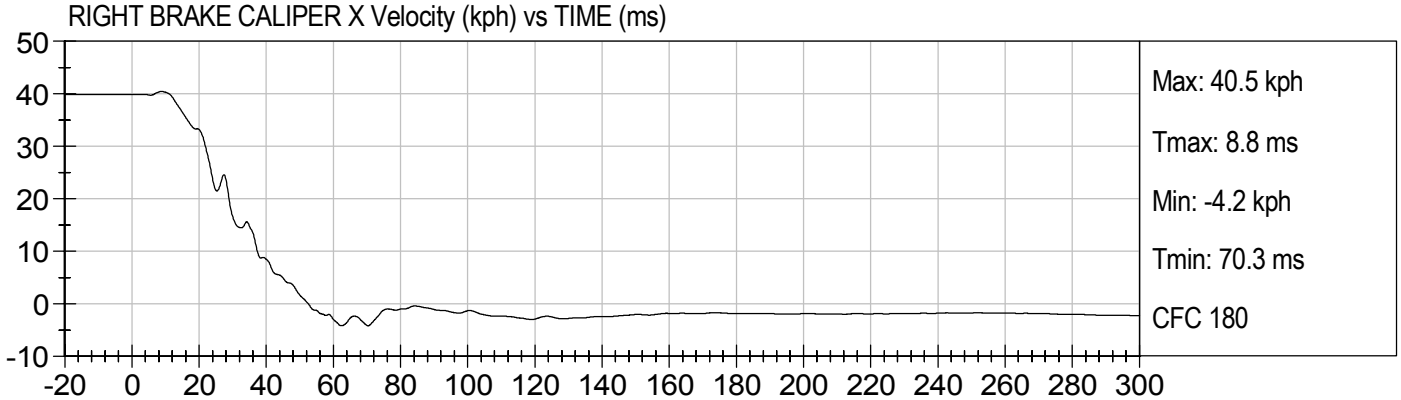
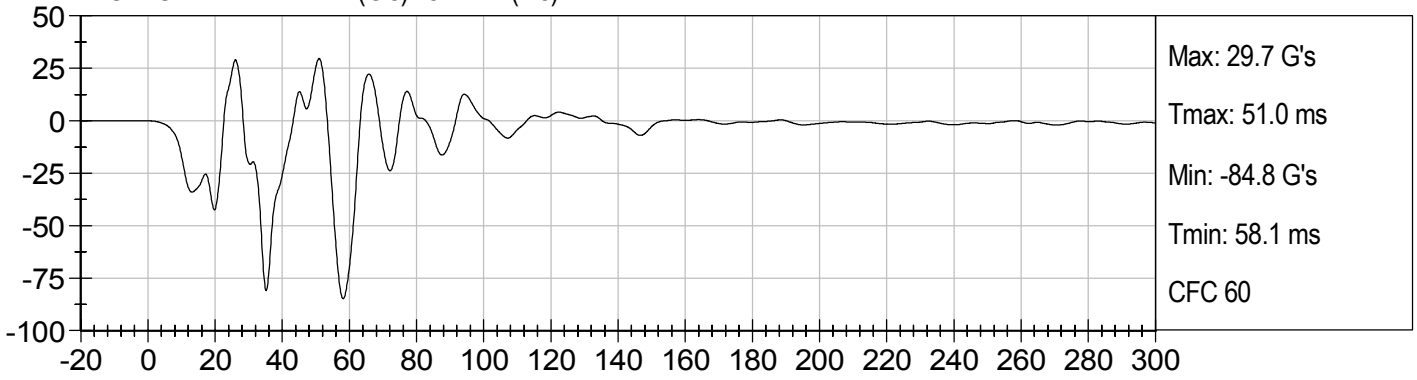


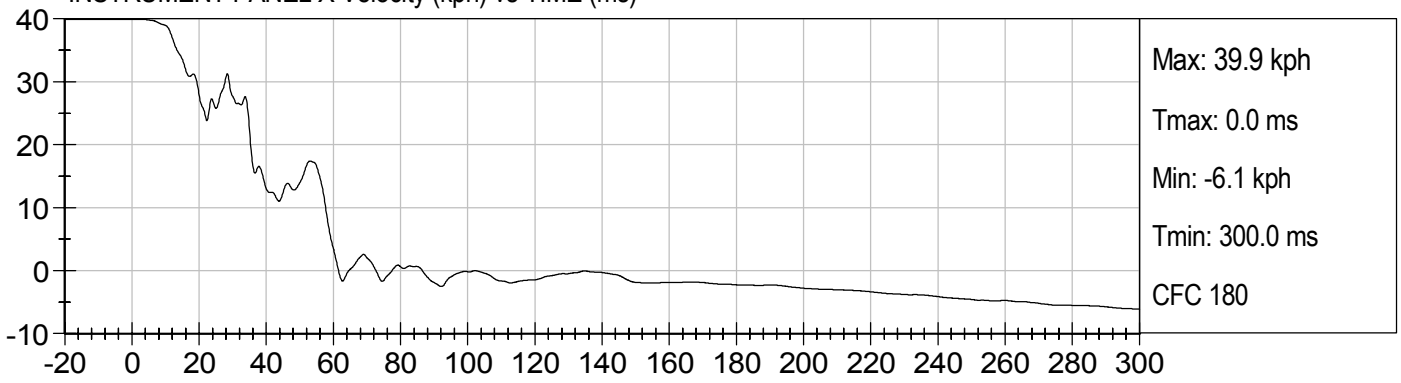
25 MPH FRONTAL UNBELTED
2007 BMW MINI COOPER (C70511)

Test Date: 03/04/2008
Speed: 24.8 mph (39.9 km/h)

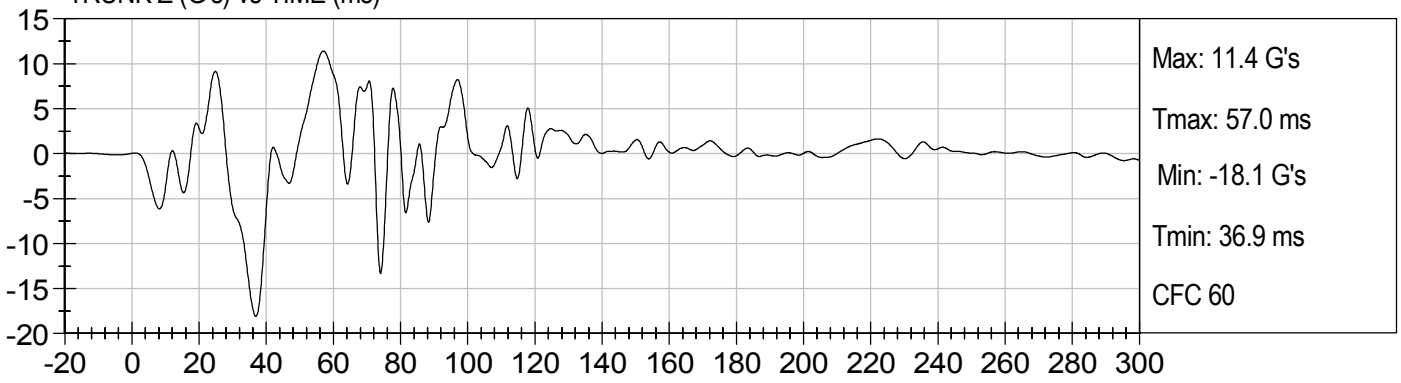
INSTRUMENT PANEL X (G's) vs TIME (ms)



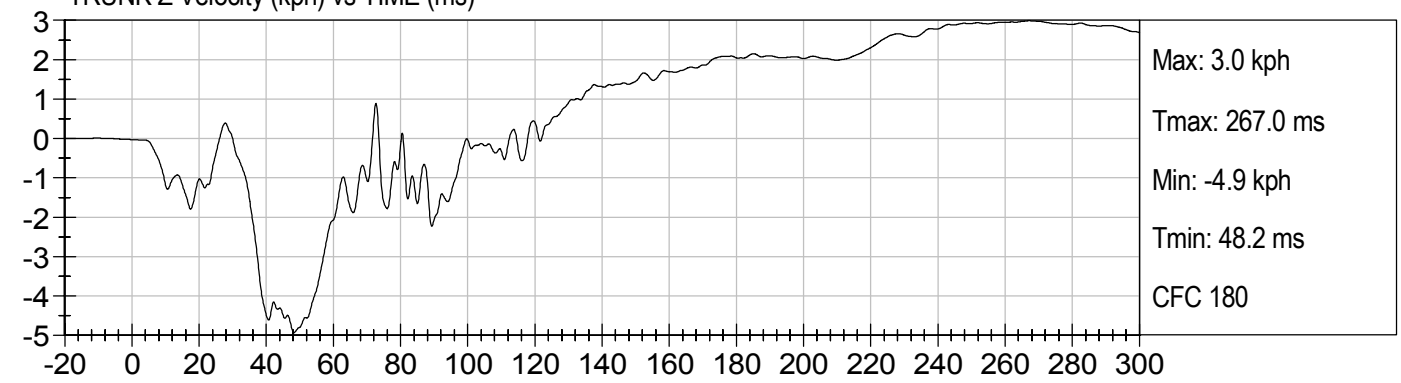
INSTRUMENT PANEL X Velocity (kph) vs TIME (ms)



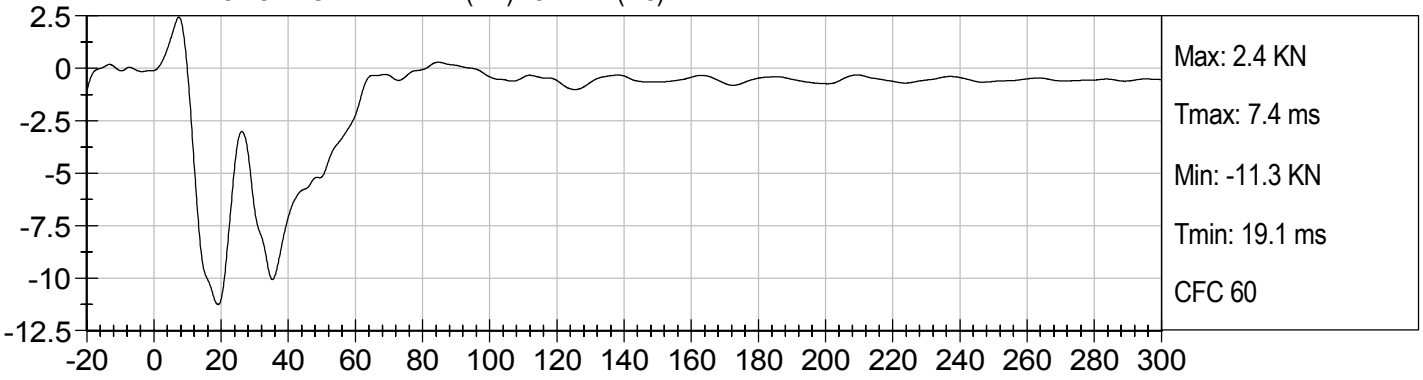
TRUNK Z (G's) vs TIME (ms)



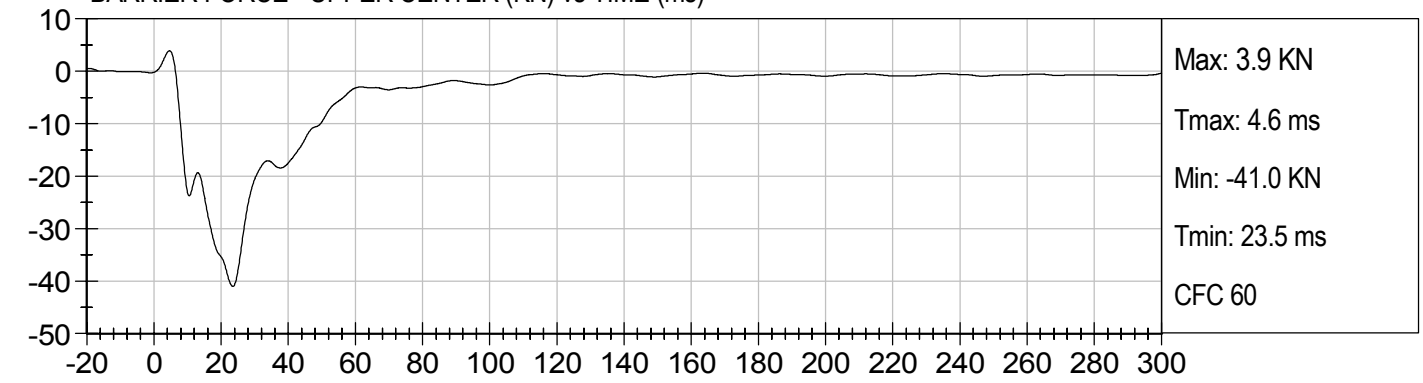
TRUNK Z Velocity (kph) vs TIME (ms)



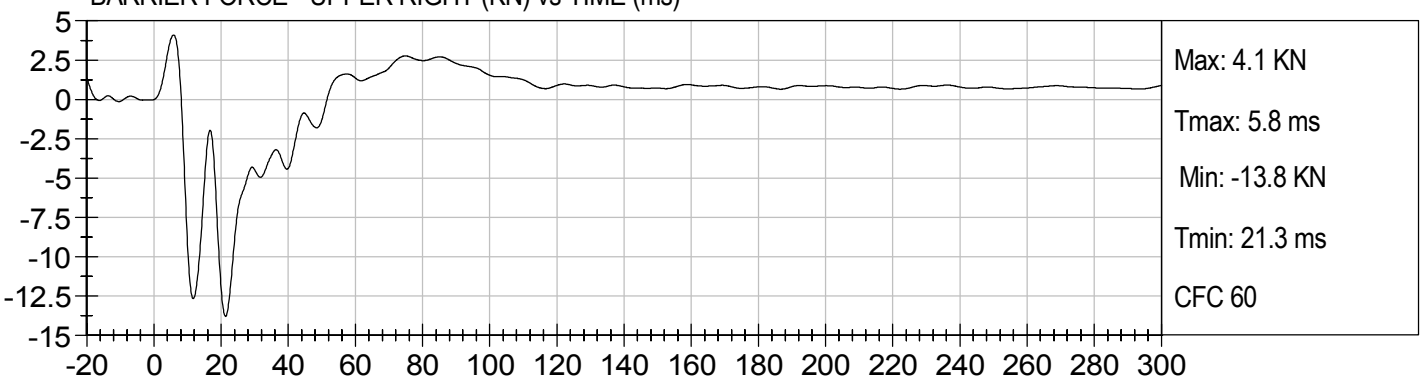
BARRIER FORCE - UPPER LEFT (KN) vs TIME (ms)



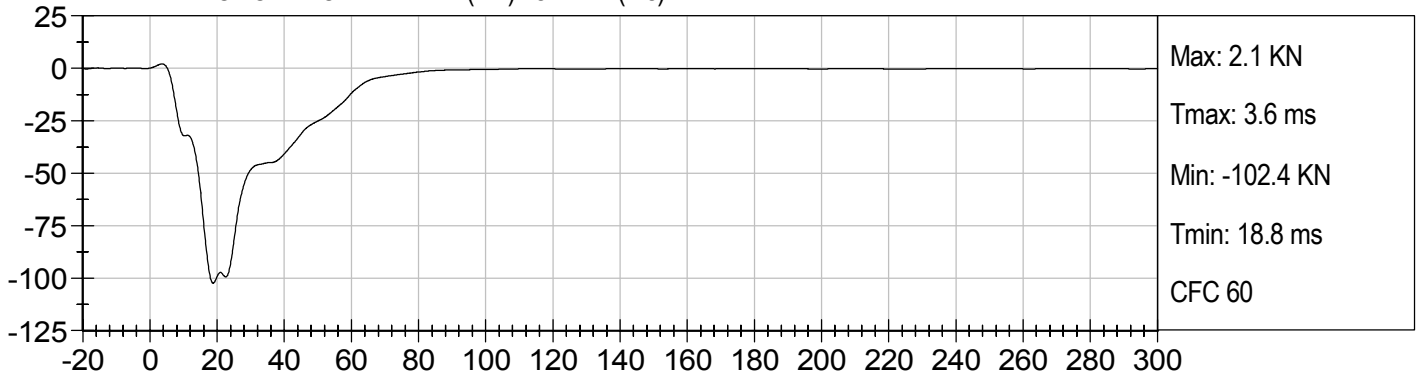
BARRIER FORCE - UPPER CENTER (KN) vs TIME (ms)



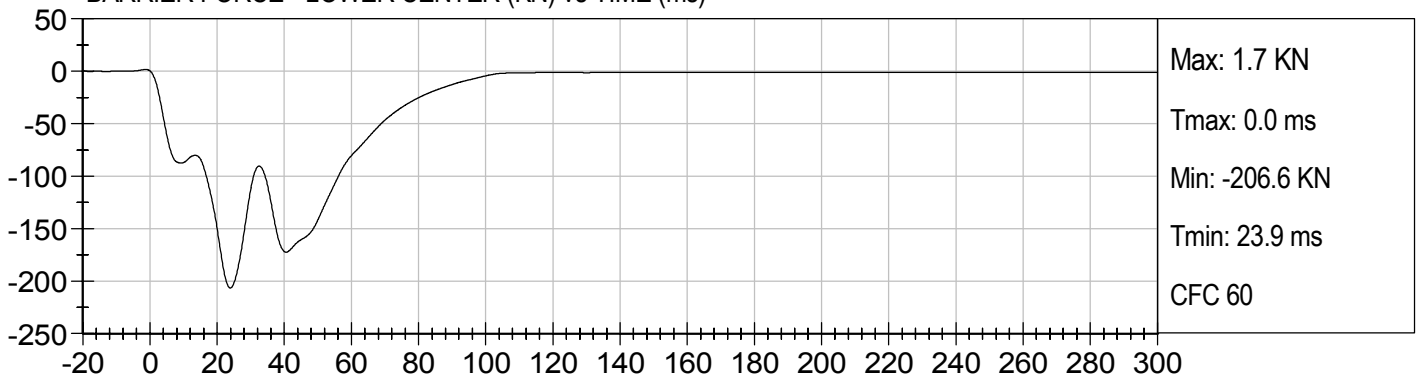
BARRIER FORCE - UPPER RIGHT (KN) vs TIME (ms)



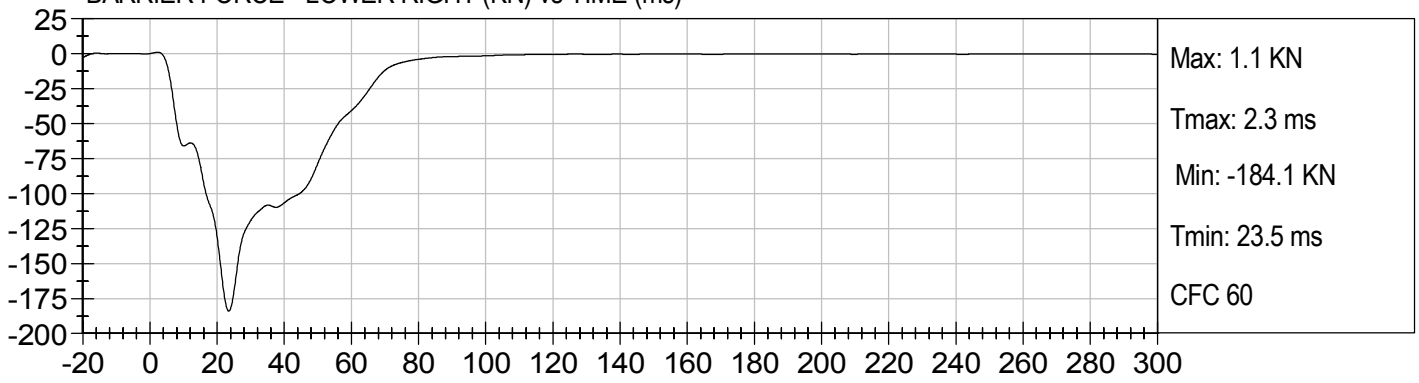
BARRIER FORCE - LOWER LEFT (KN) vs TIME (ms)



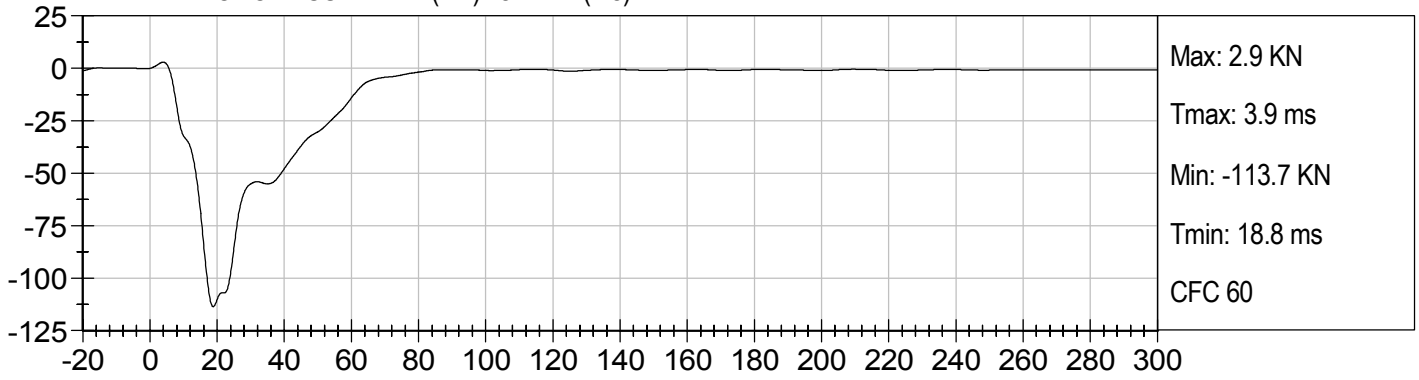
BARRIER FORCE - LOWER CENTER (KN) vs TIME (ms)



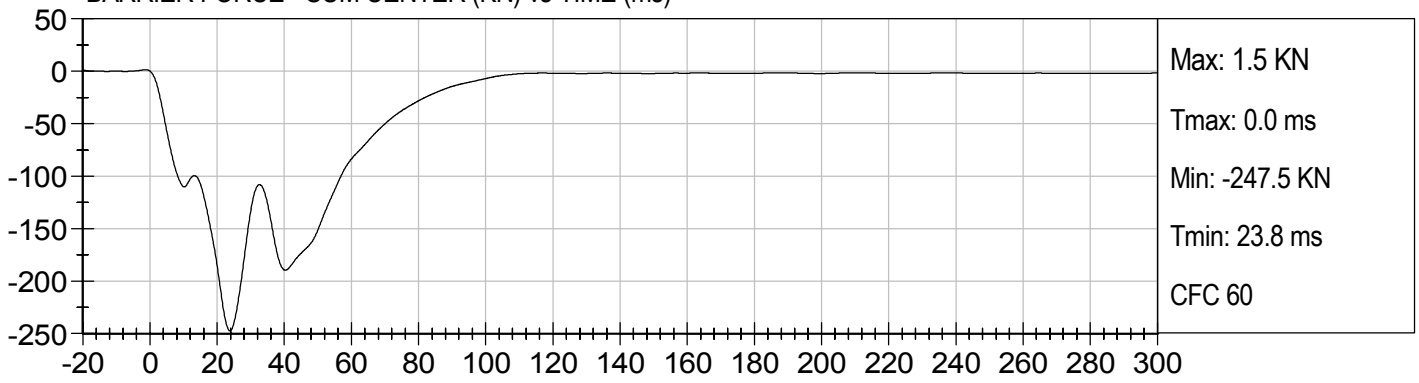
BARRIER FORCE - LOWER RIGHT (KN) vs TIME (ms)



BARRIER FORCE - SUM LEFT (KN) vs TIME (ms)



BARRIER FORCE - SUM CENTER (KN) vs TIME (ms)



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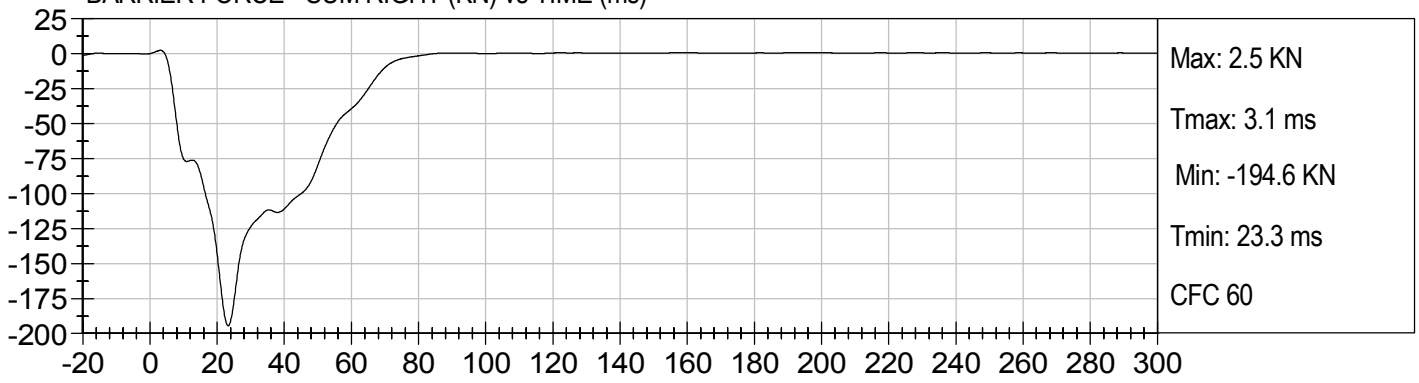

BARRIER FORCE - SUM ALL (KN) vs TIME (ms)

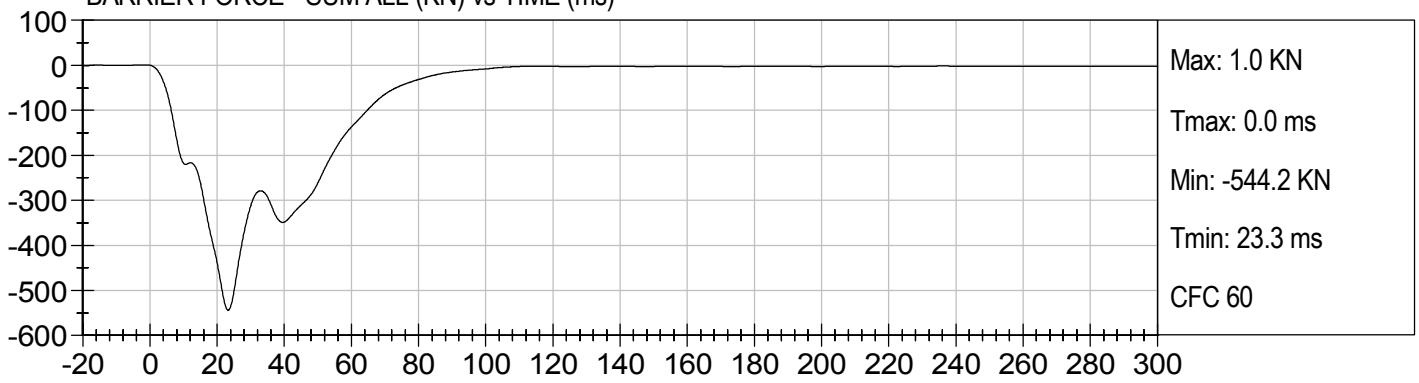

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Figure No. 182. 6YO P2 Passenger Chest Displacement vs. Time B-48

Figure No. 183. Fire Voltage #1 vs. Time B-49

Figure No. 184. Fire Current #1 vs. Time B-49

Figure No. 185. Fire Voltage #2 vs. Time B-49

Figure No. 186. Fire Current #2 vs. Time B-49

Figure No. 187. 6YO P2 Passenger Nij (N_{TF}) vs. Time B-50

Figure No. 188. 6YO P2 Passenger Nij (N_{TE}) vs. Time B-50

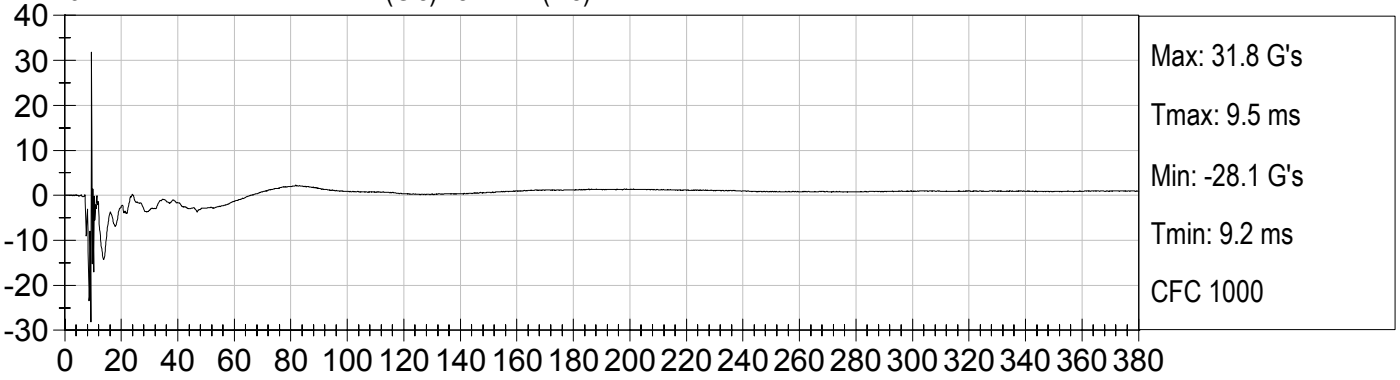
Figure No. 189. 6YO P2 Passenger Nij (N_{CF}) vs. Time B-50

Figure No. 190. 6YO P2 Passenger Nij (N_{CE}) vs. Time B-50

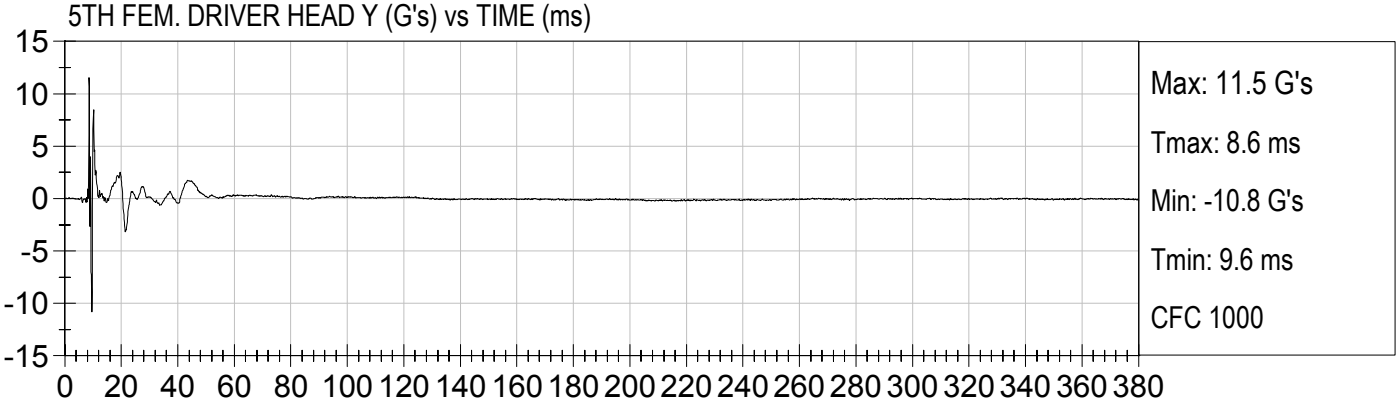
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P1)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

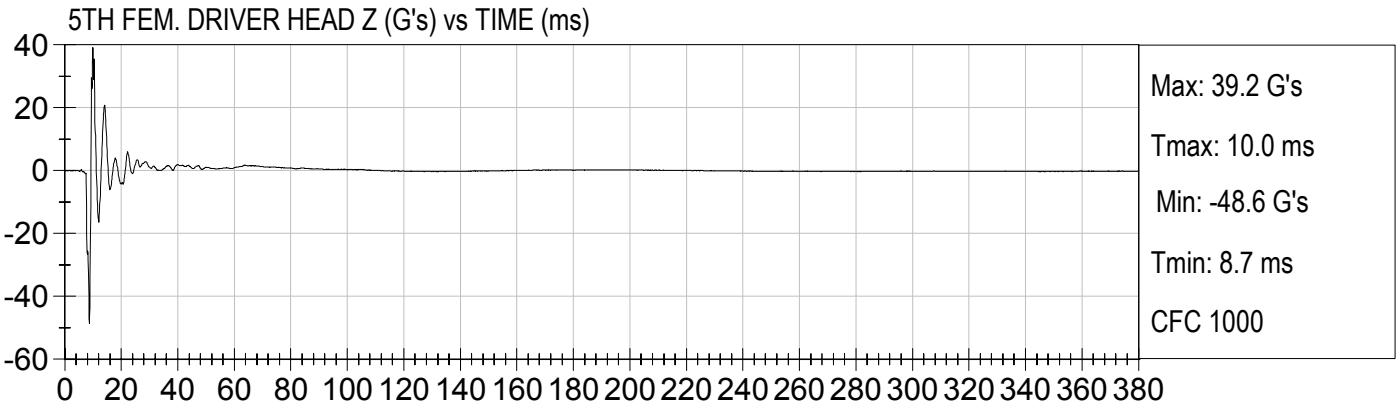
5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)



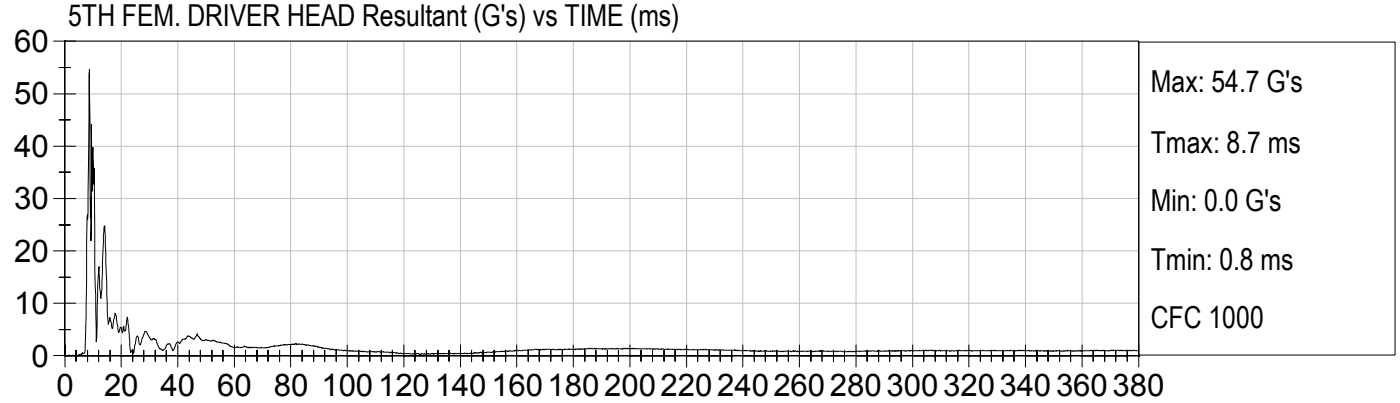
5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)

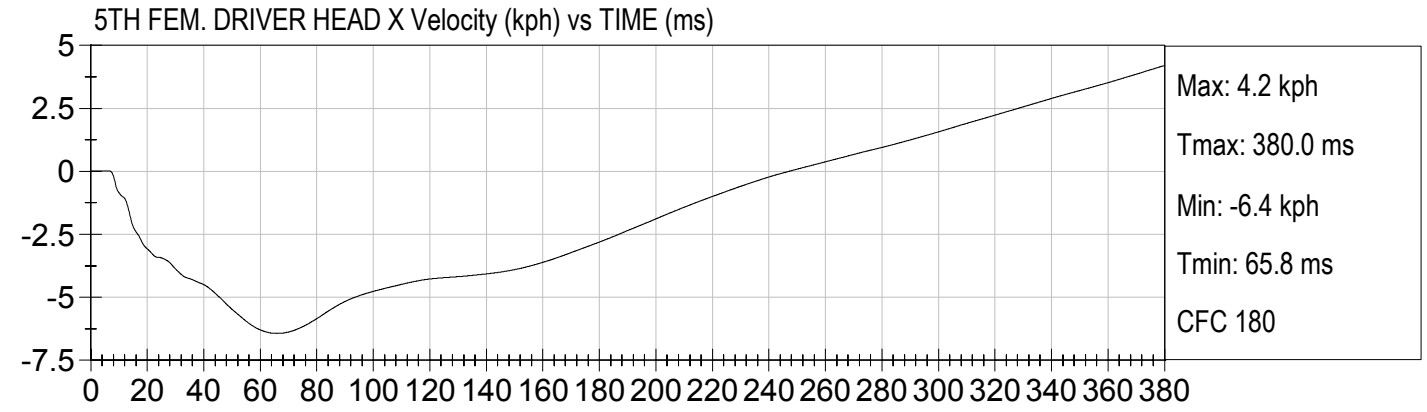


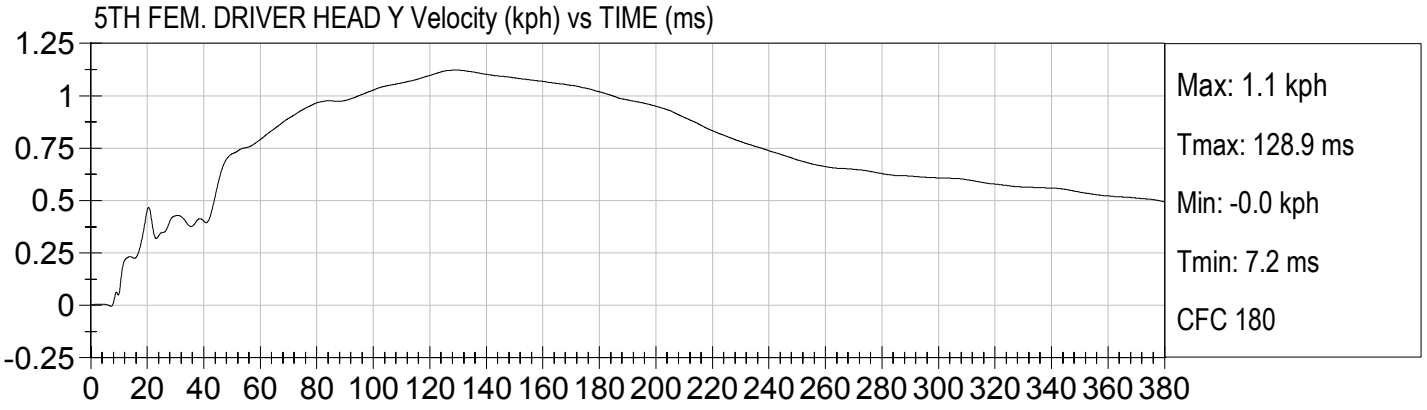
5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)

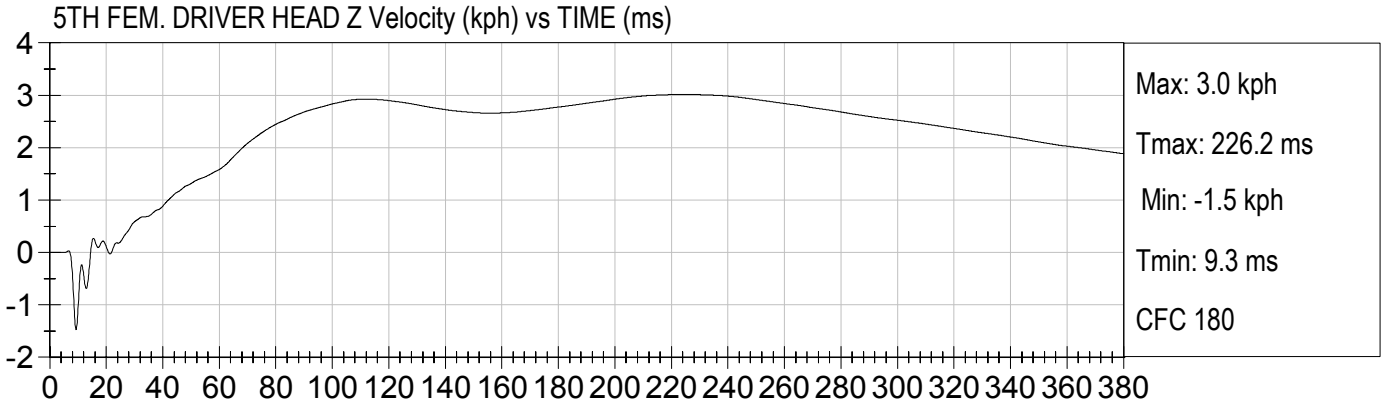


5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)




5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)
5
2.5
0
-2.5
-5
-7.5
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 4.2 kph
Tmax: 380.0 ms
Min: -6.4 kph
Tmin: 65.8 ms
CFC 180

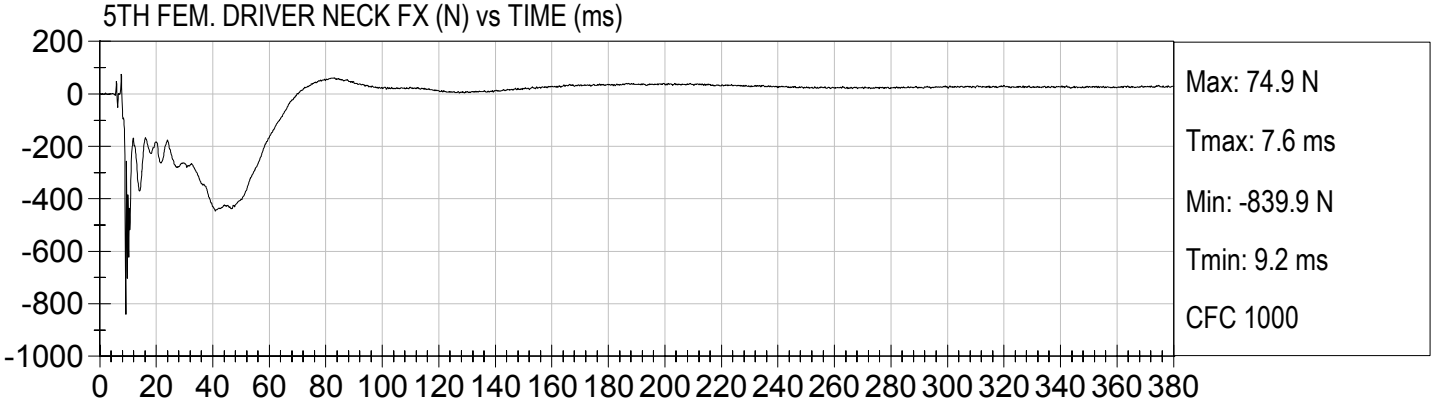

5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)
1.25
1
0.75
0.5
0.25
0
-0.25
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 1.1 kph
Tmax: 128.9 ms
Min: -0.0 kph
Tmin: 7.2 ms
CFC 180


5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)
4
3
2
1
0
-1
-2
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 3.0 kph
Tmax: 226.2 ms
Min: -1.5 kph
Tmin: 9.3 ms
CFC 180

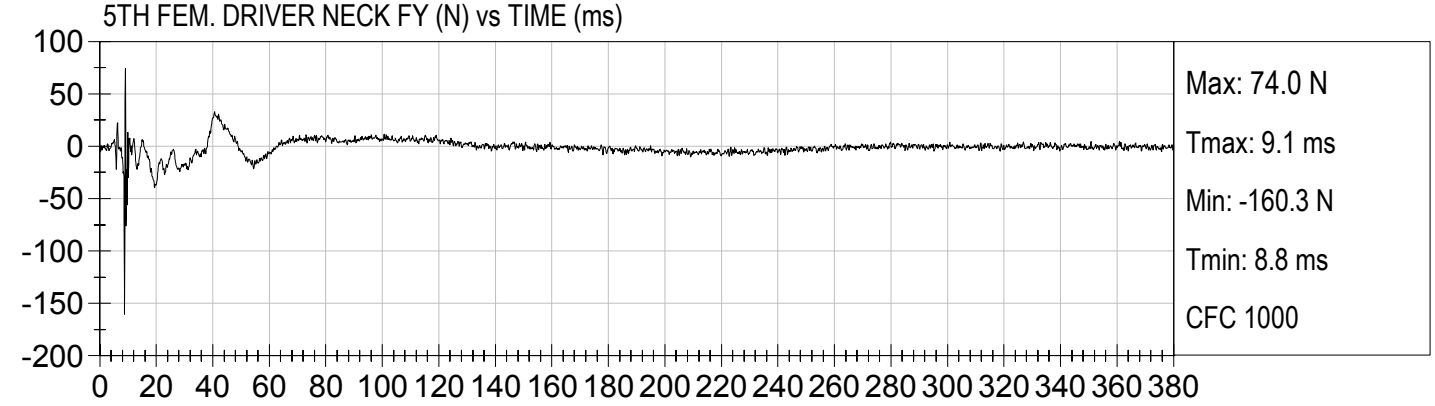
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P1)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

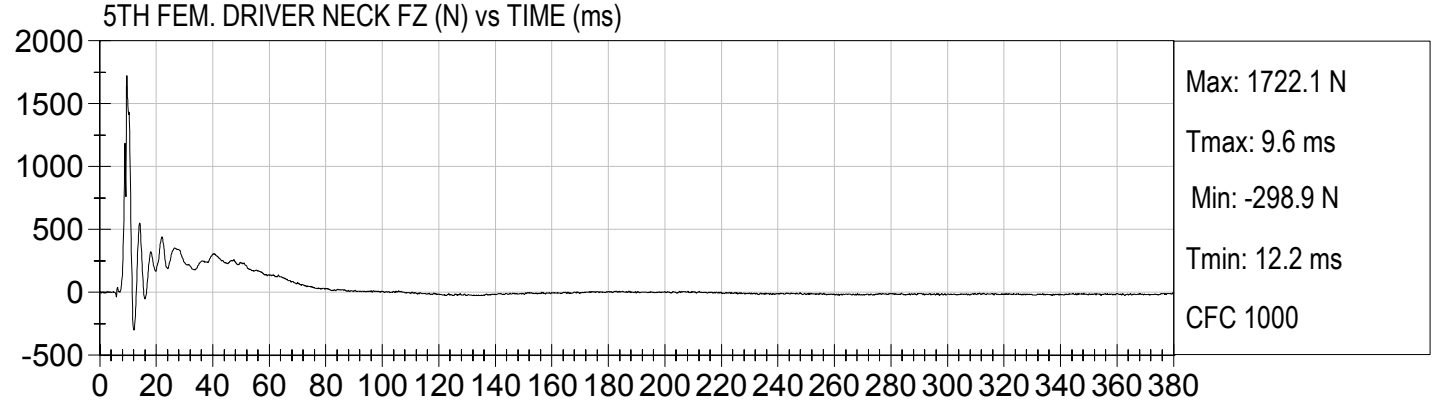
5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



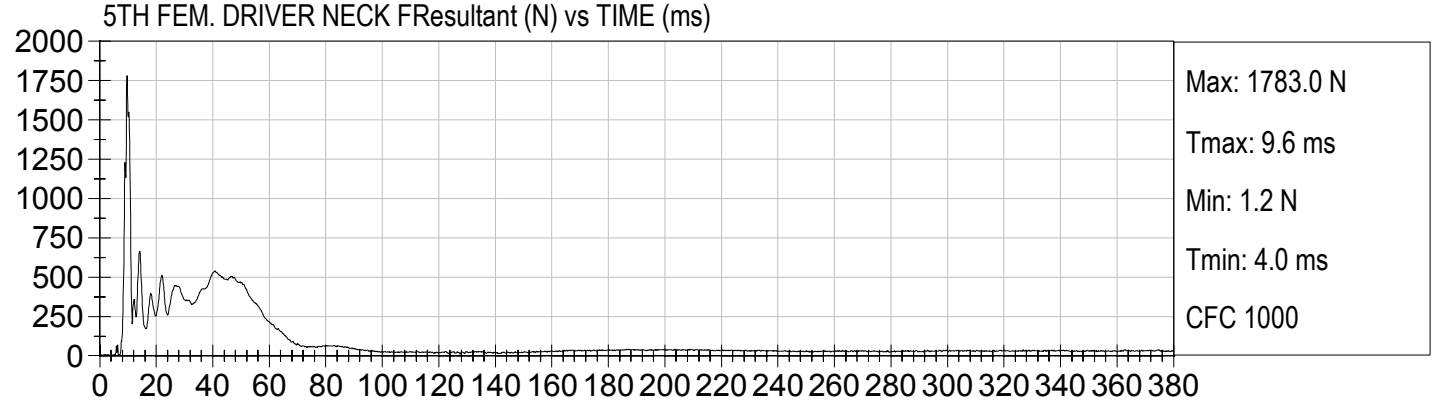
5TH FEM. DRIVER NECK FY (N) vs TIME (ms)



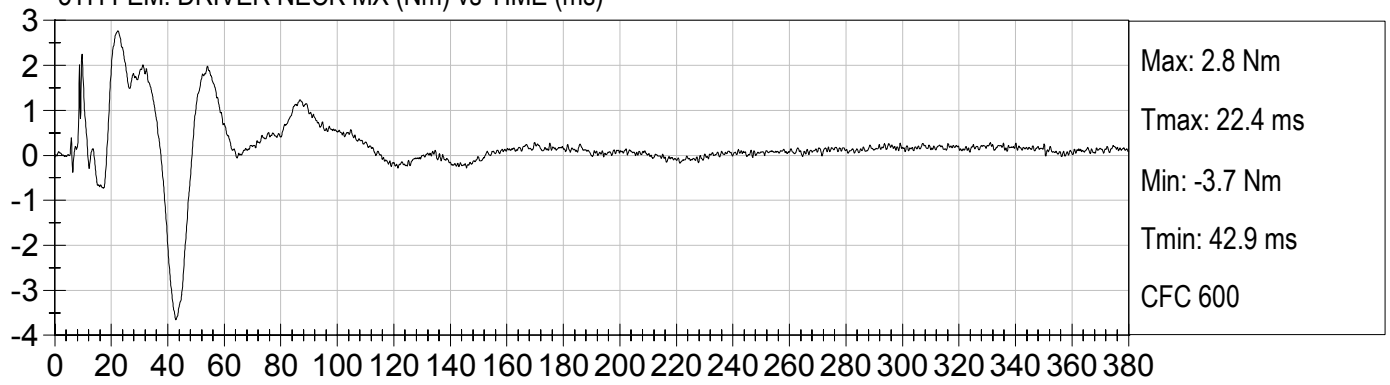
5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)



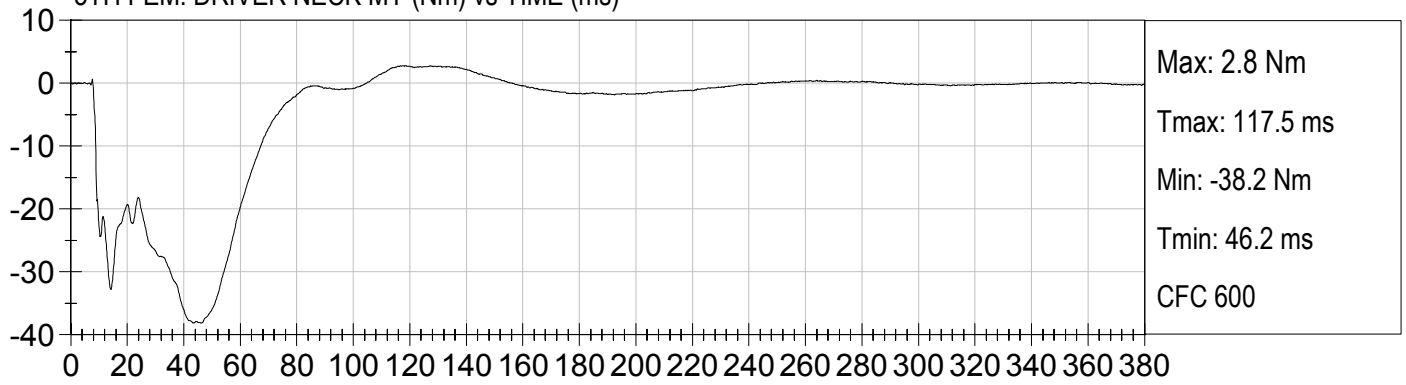
5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)



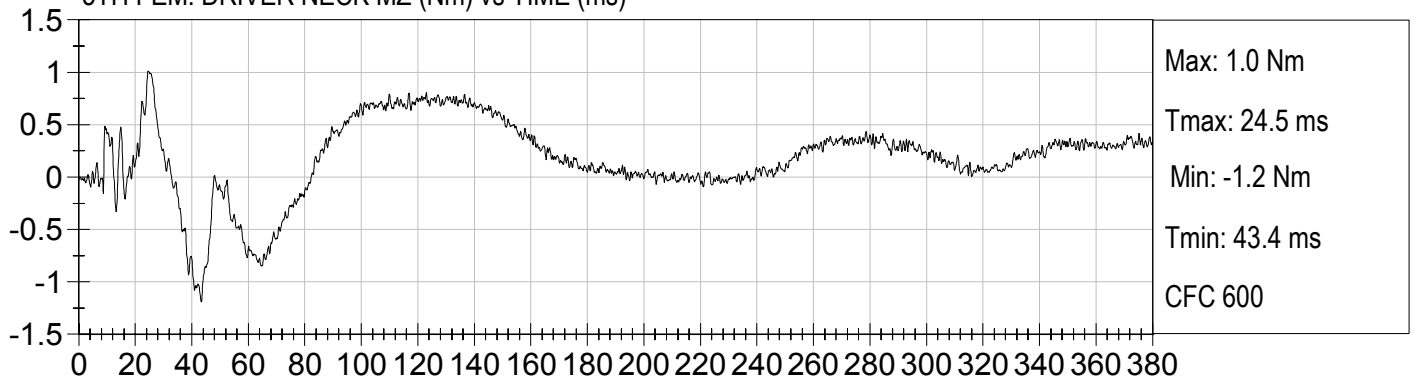
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



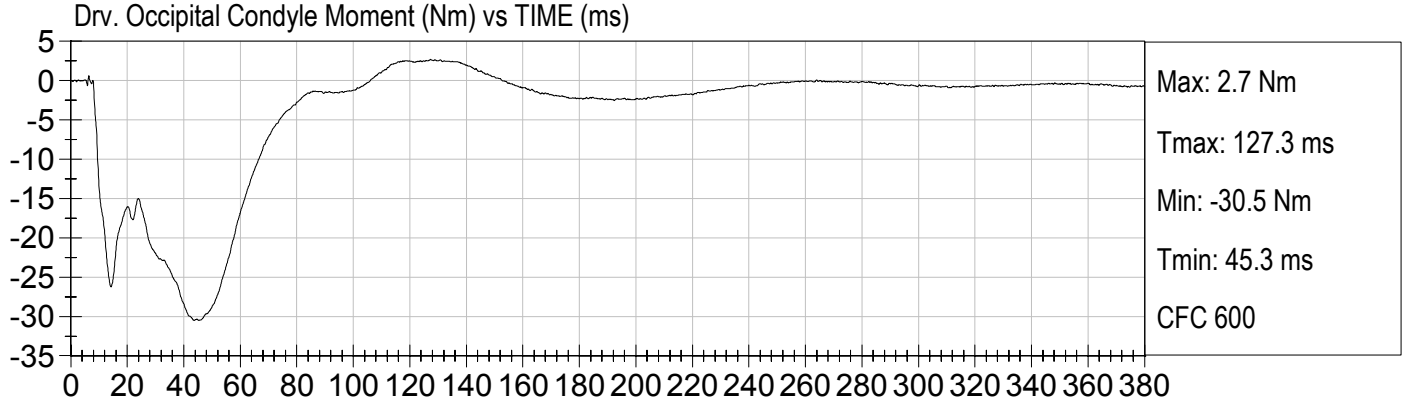
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)



5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



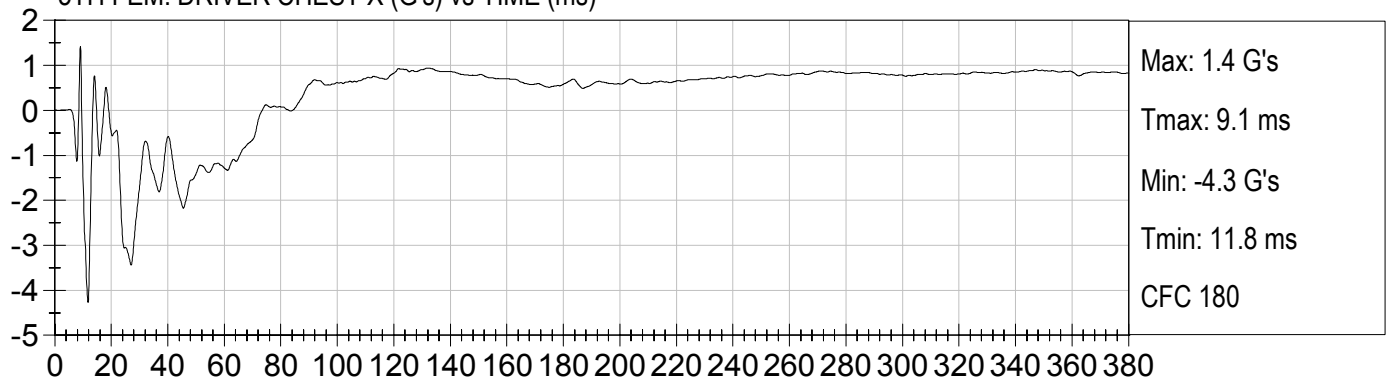
Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



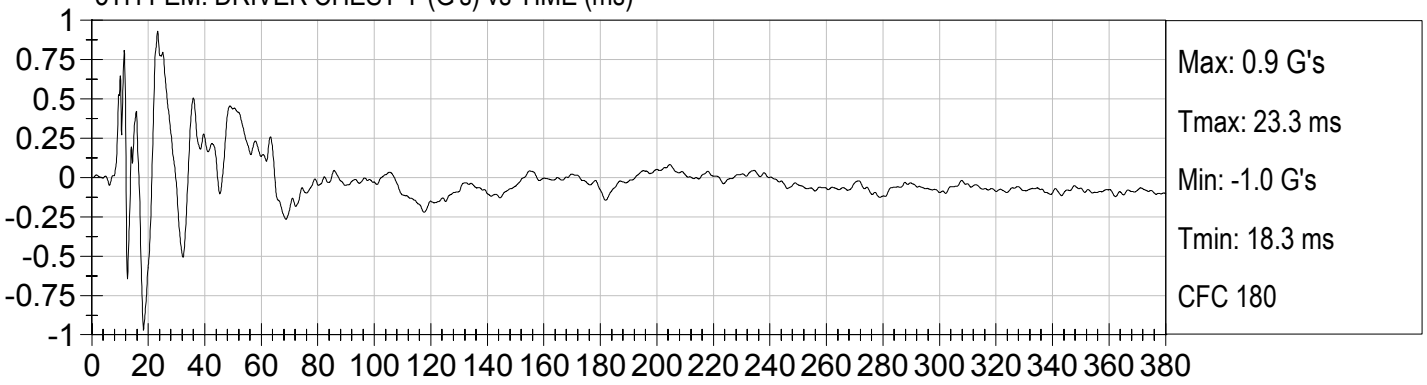
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P1)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

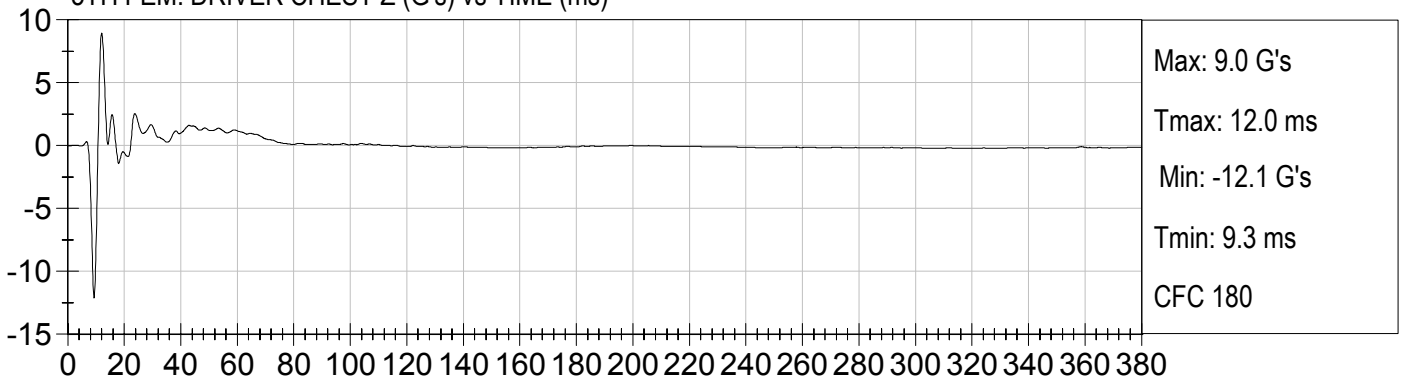
5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)



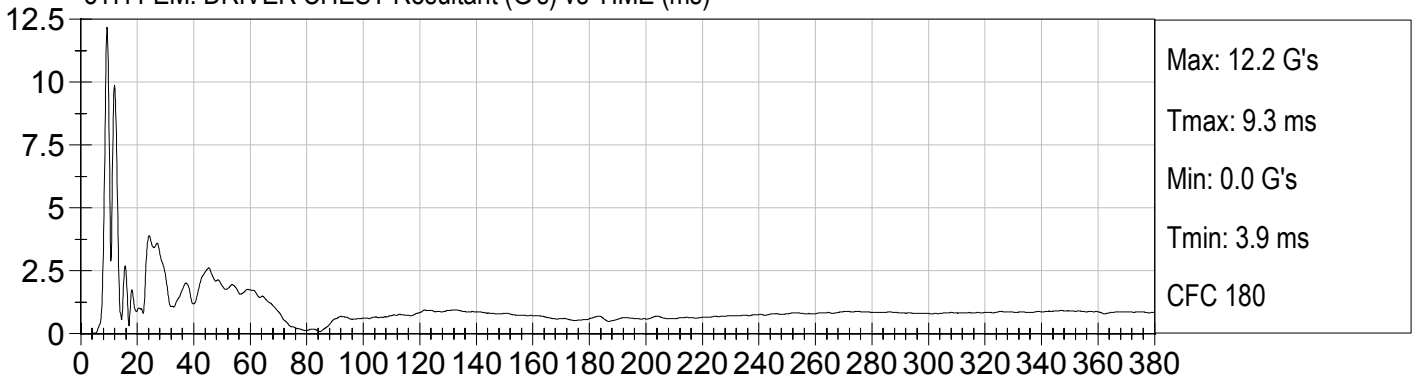
5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)



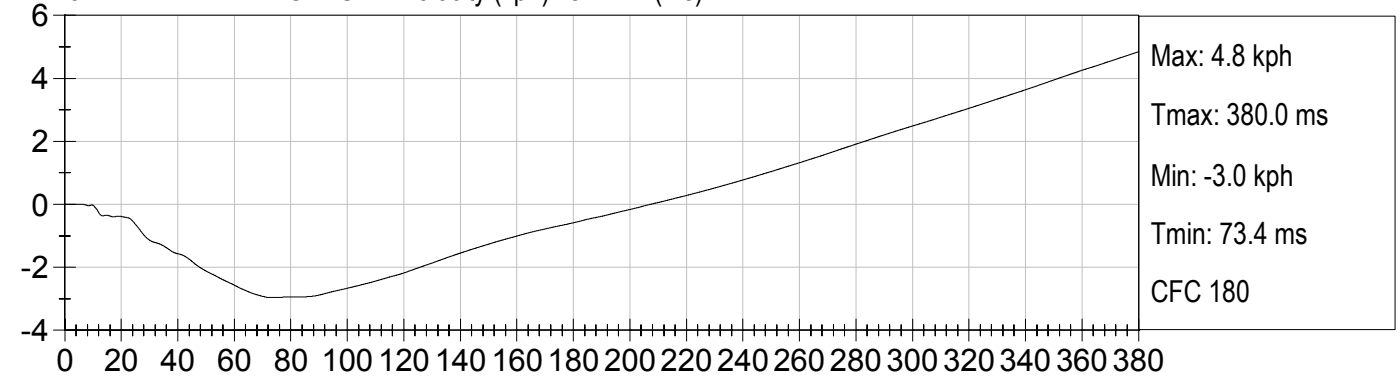
5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)



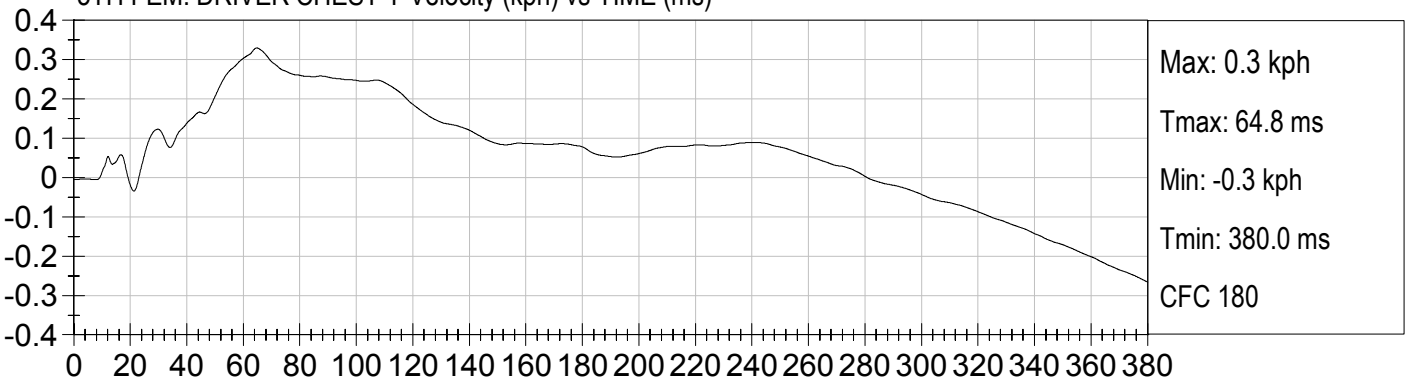
5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)



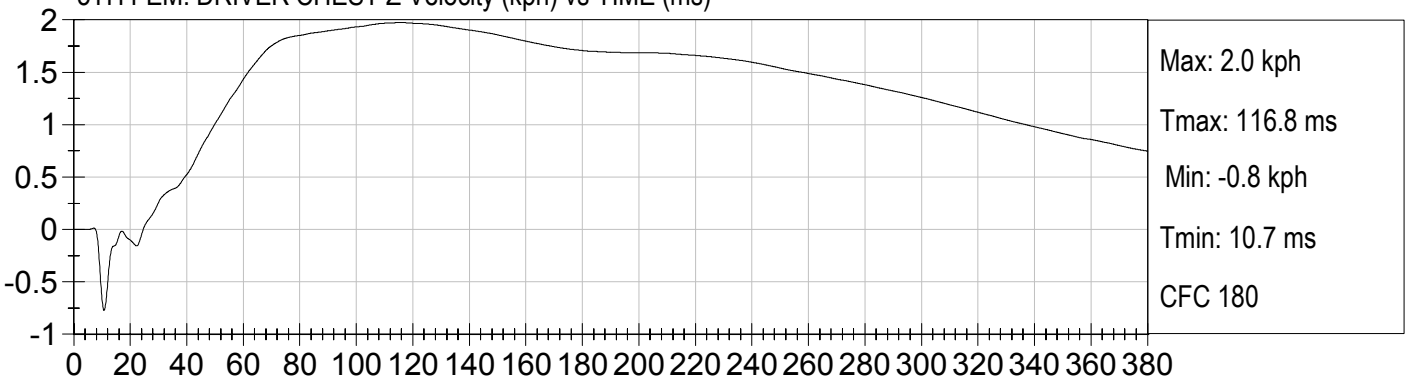
5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



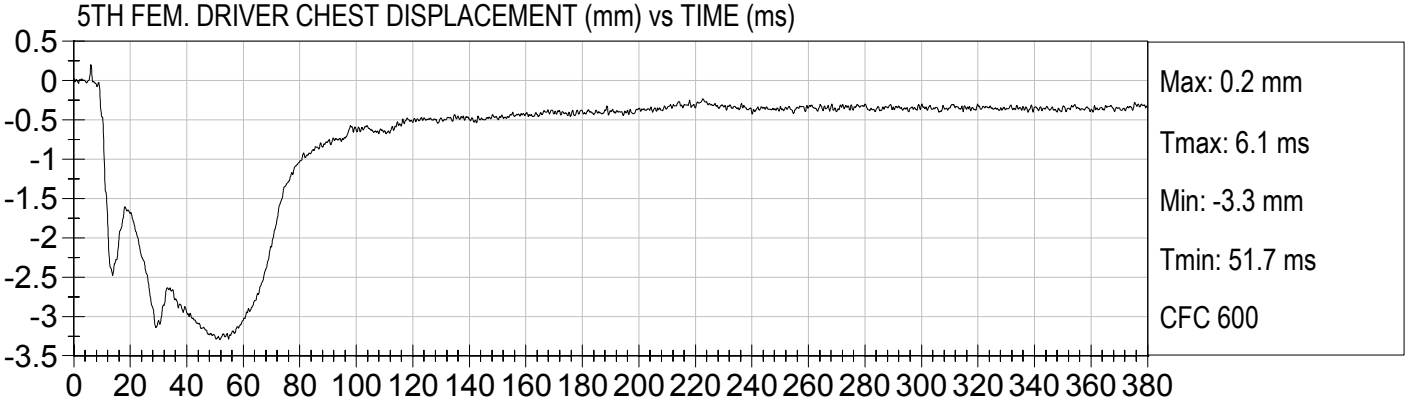
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)



5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)



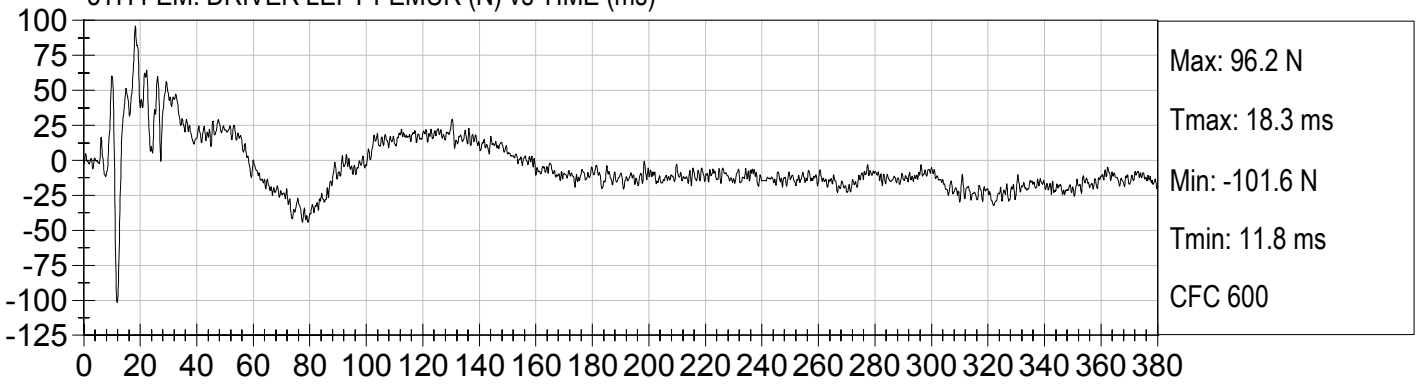
5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



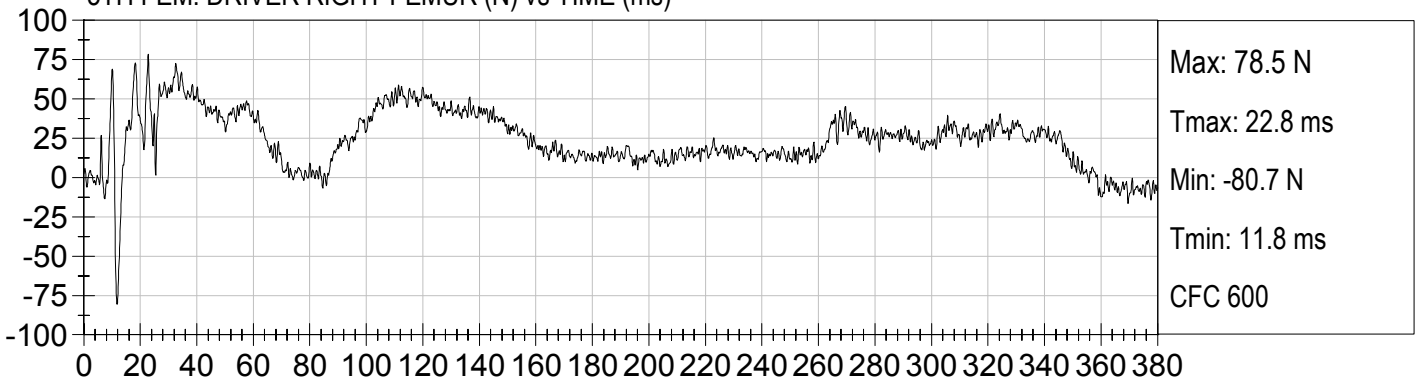
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P1)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)



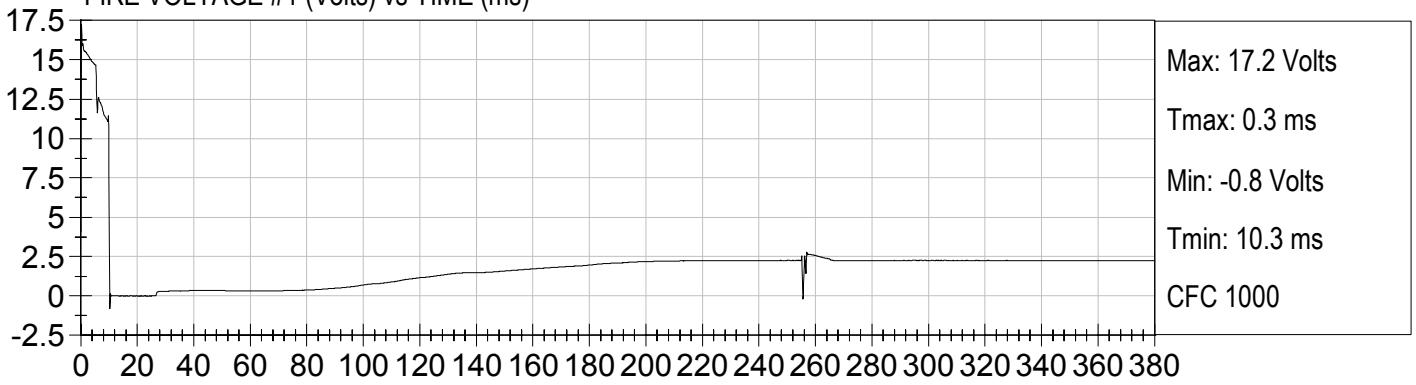
5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)



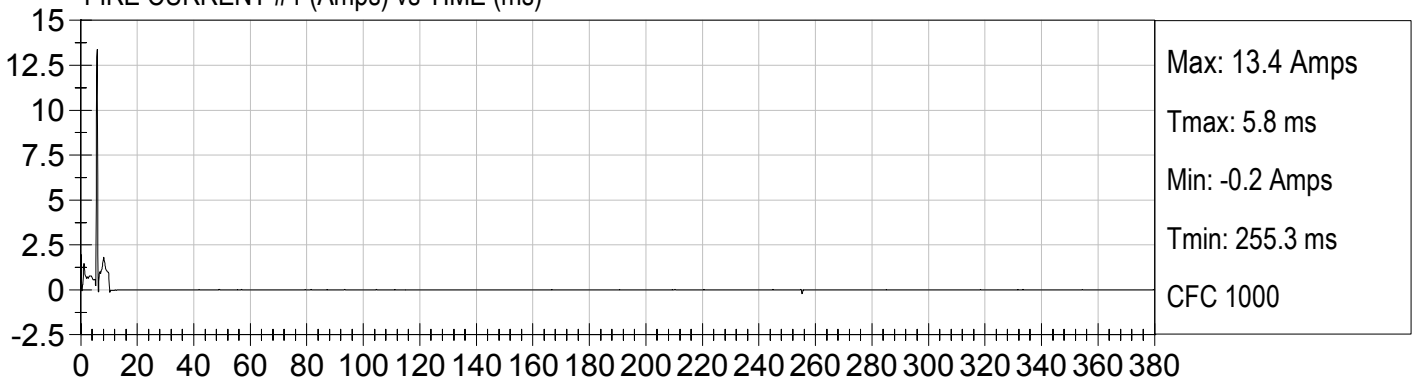
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P1)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

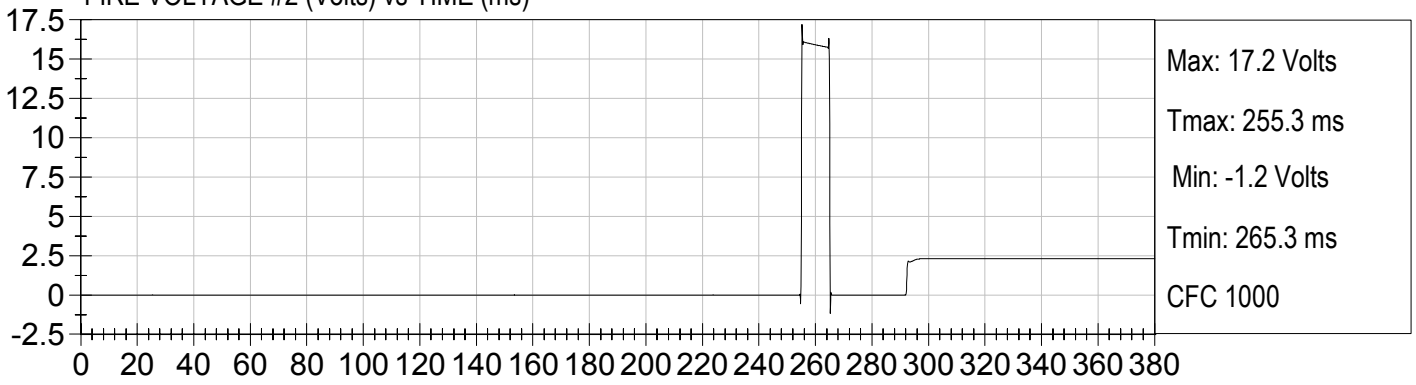
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



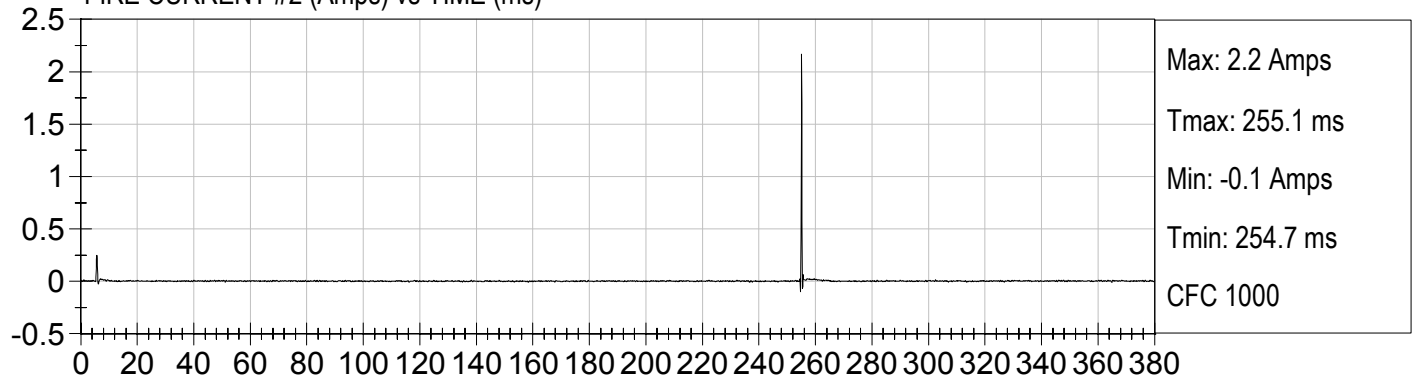
FIRE CURRENT #1 (Amps) vs TIME (ms)

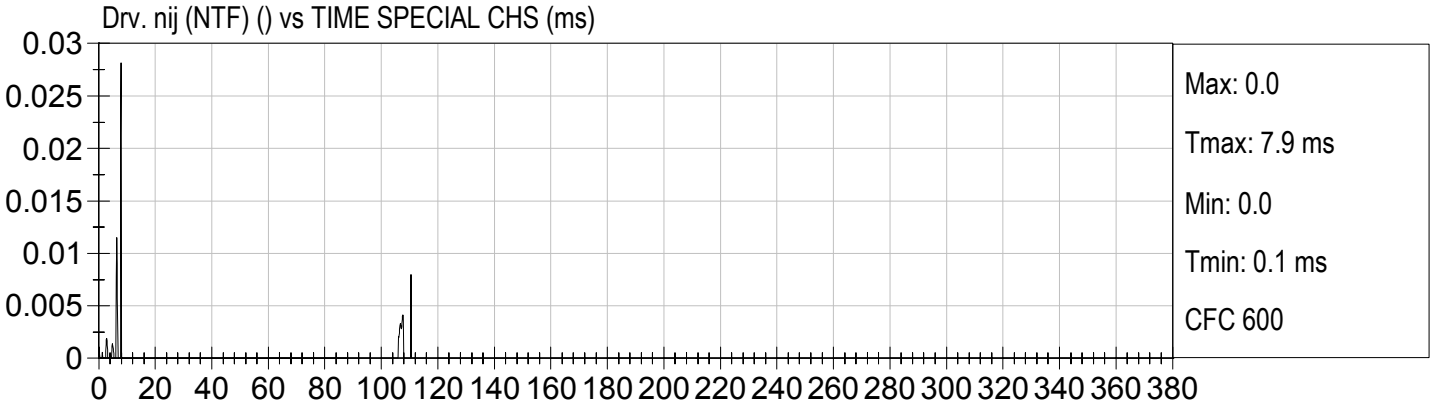


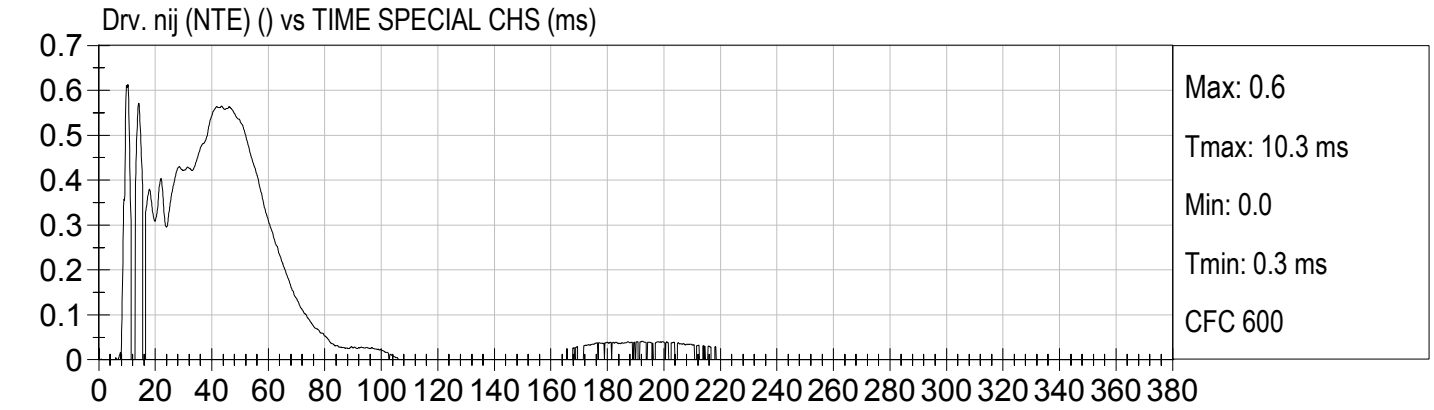
FIRE VOLTAGE #2 (Volts) vs TIME (ms)

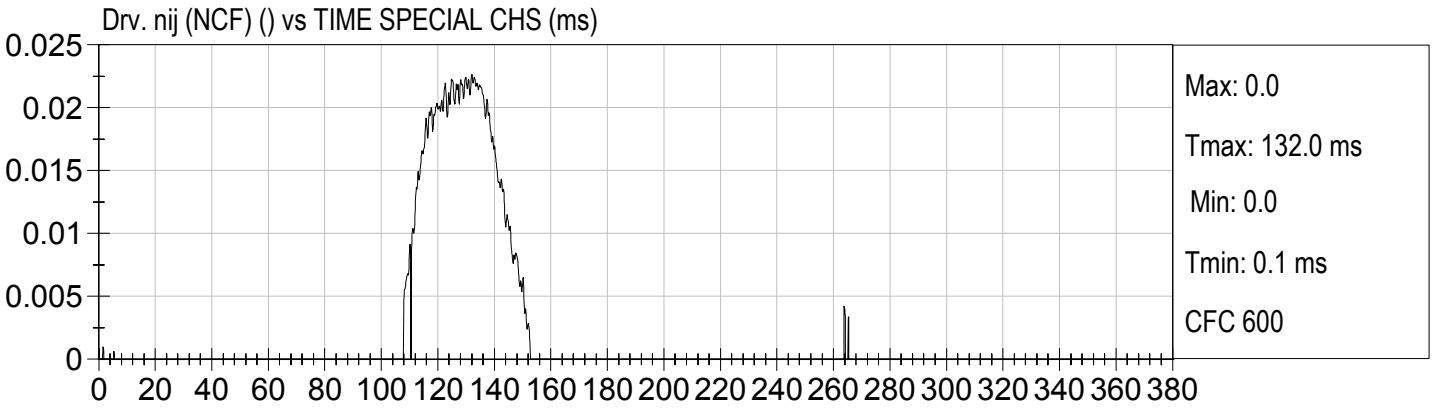


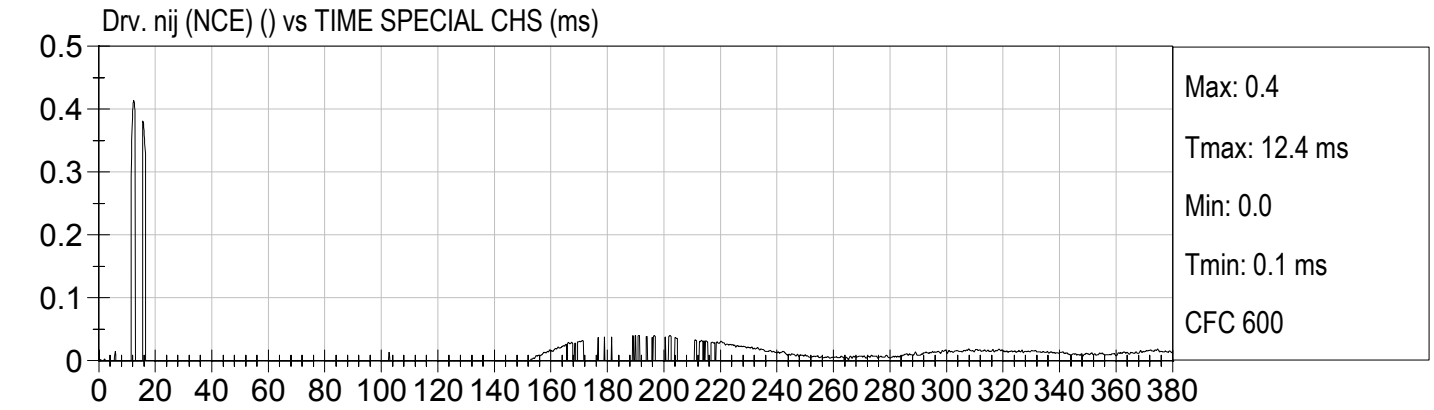
FIRE CURRENT #2 (Amps) vs TIME (ms)



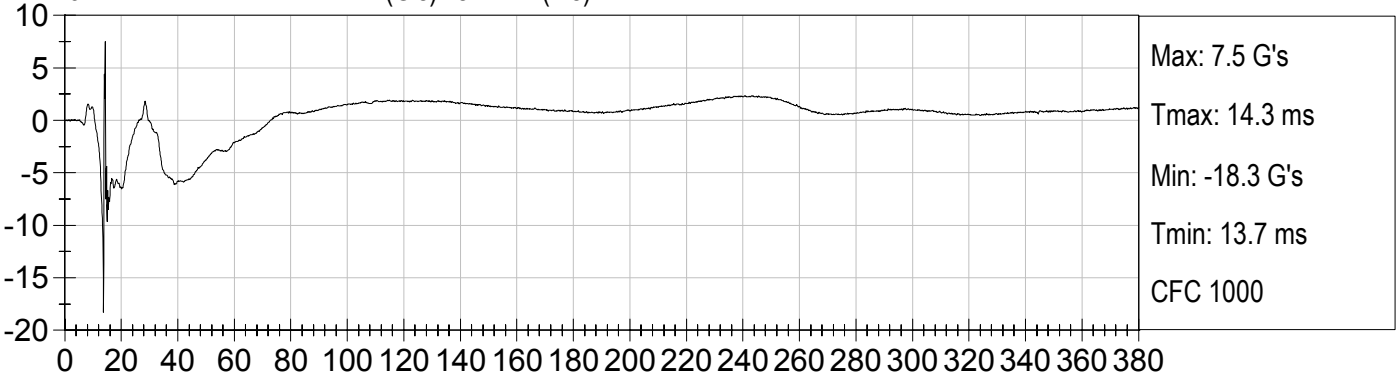

Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)
0.03
0.025
0.02
0.015
0.01
0.005
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.0
Tmax: 7.9 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600


Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.6
Tmax: 10.3 ms
Min: 0.0
Tmin: 0.3 ms
CFC 600

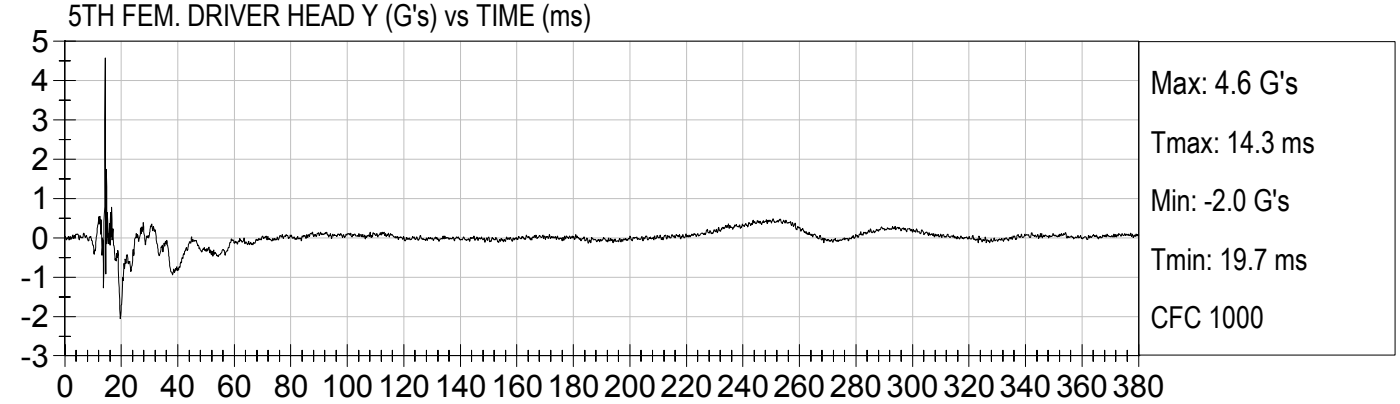

Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)
0.025
0.02
0.015
0.01
0.005
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.0
Tmax: 132.0 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600


Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)
0.5
0.4
0.3
0.2
0.1
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.4
Tmax: 12.4 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

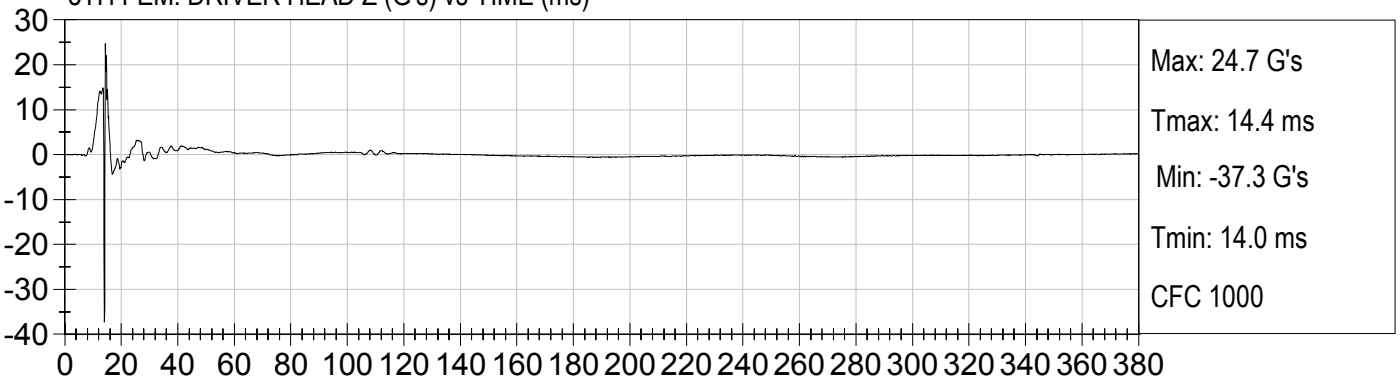
5TH FEM. DRIVER HEAD X (G's) vs TIME (ms)



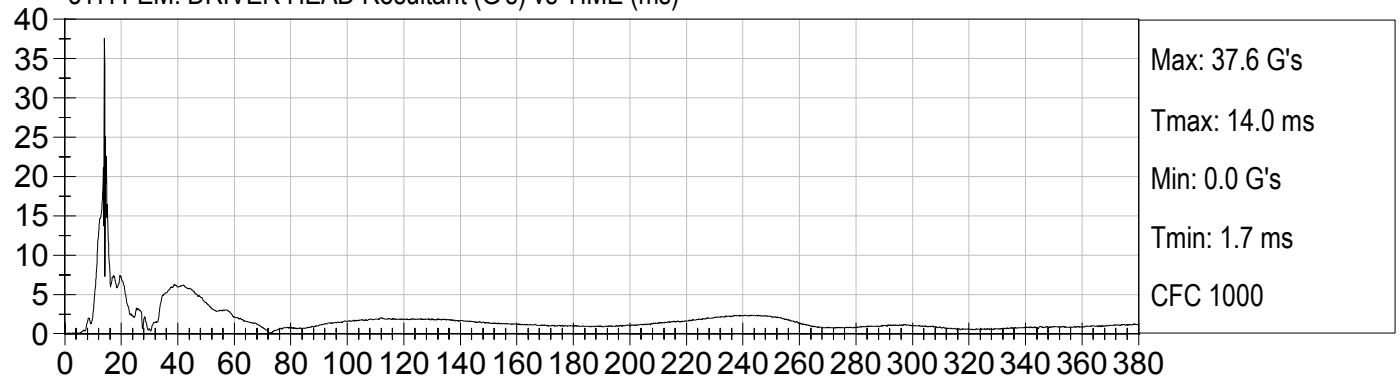
5TH FEM. DRIVER HEAD Y (G's) vs TIME (ms)

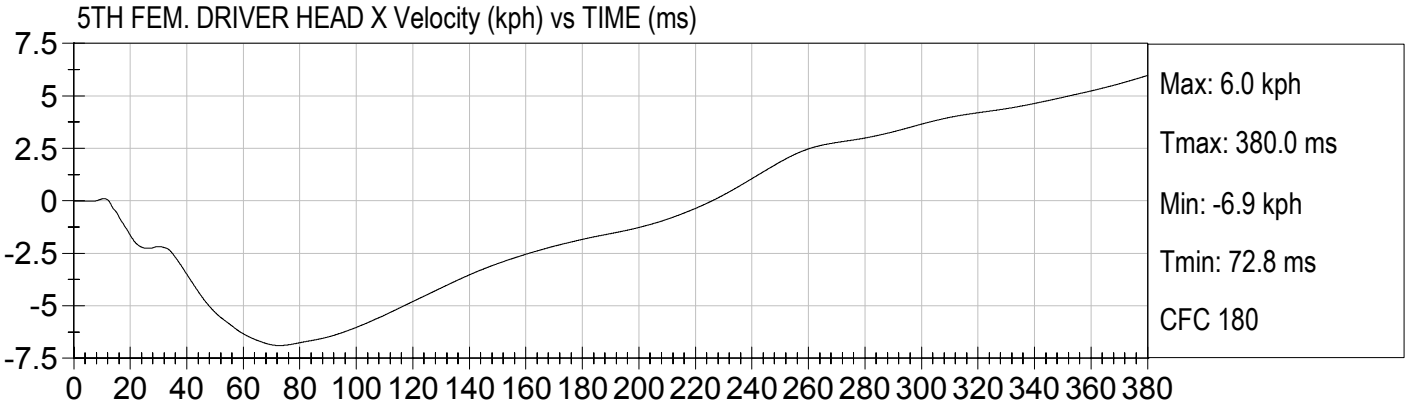


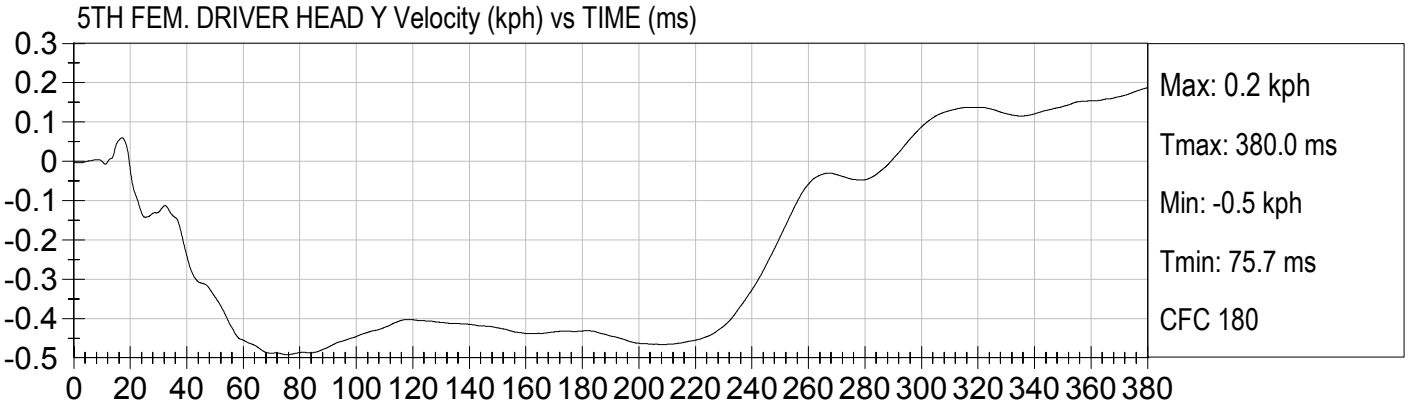
5TH FEM. DRIVER HEAD Z (G's) vs TIME (ms)

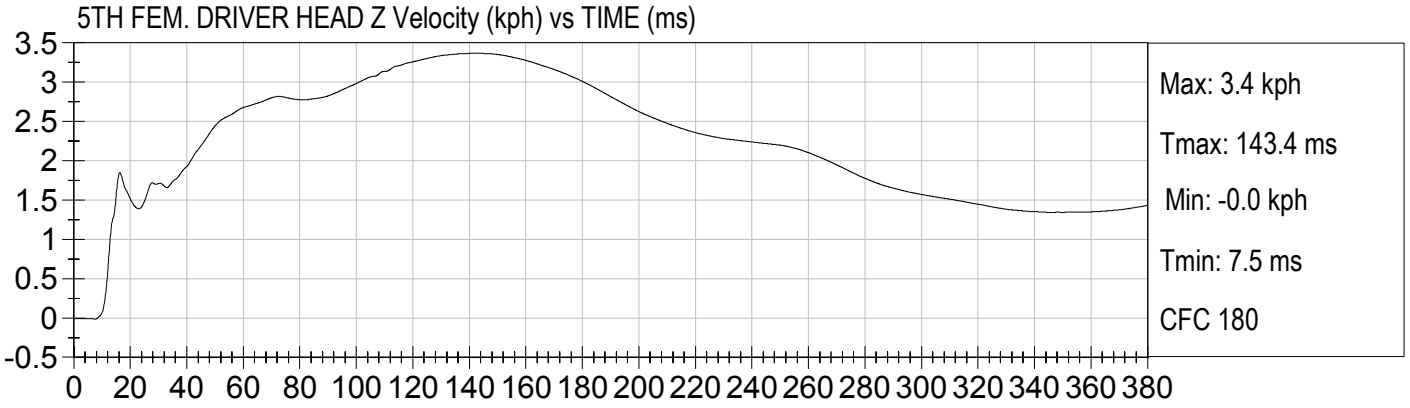


5TH FEM. DRIVER HEAD Resultant (G's) vs TIME (ms)




5TH FEM. DRIVER HEAD X Velocity (kph) vs TIME (ms)
7.5
5
2.5
0
-2.5
-5
-7.5
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 6.0 kph
Tmax: 380.0 ms
Min: -6.9 kph
Tmin: 72.8 ms
CFC 180

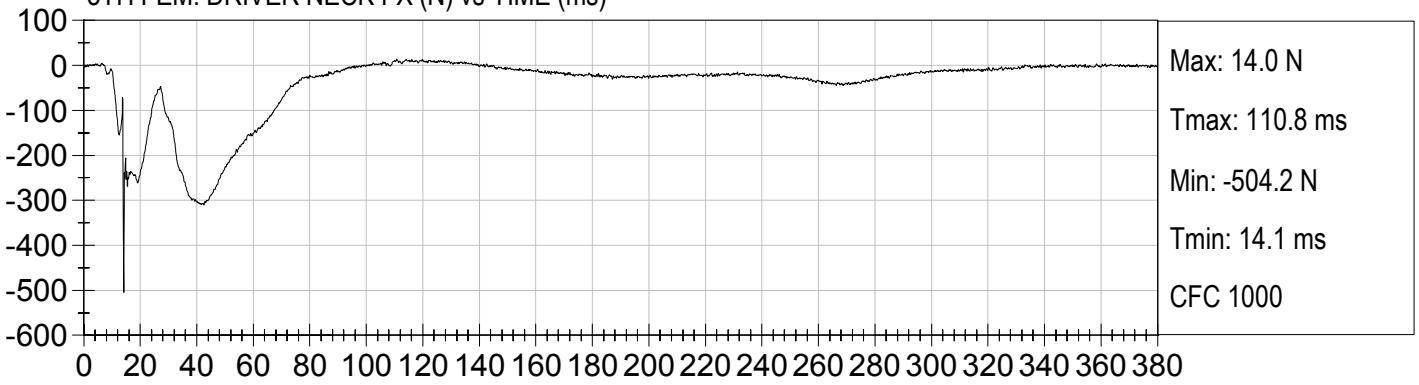

5TH FEM. DRIVER HEAD Y Velocity (kph) vs TIME (ms)
0.3
0.2
0.1
0
-0.1
-0.2
-0.3
-0.4
-0.5
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.2 kph
Tmax: 380.0 ms
Min: -0.5 kph
Tmin: 75.7 ms
CFC 180


5TH FEM. DRIVER HEAD Z Velocity (kph) vs TIME (ms)
3.5
3
2.5
2
1.5
1
0.5
0
-0.5
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 3.4 kph
Tmax: 143.4 ms
Min: -0.0 kph
Tmin: 7.5 ms
CFC 180

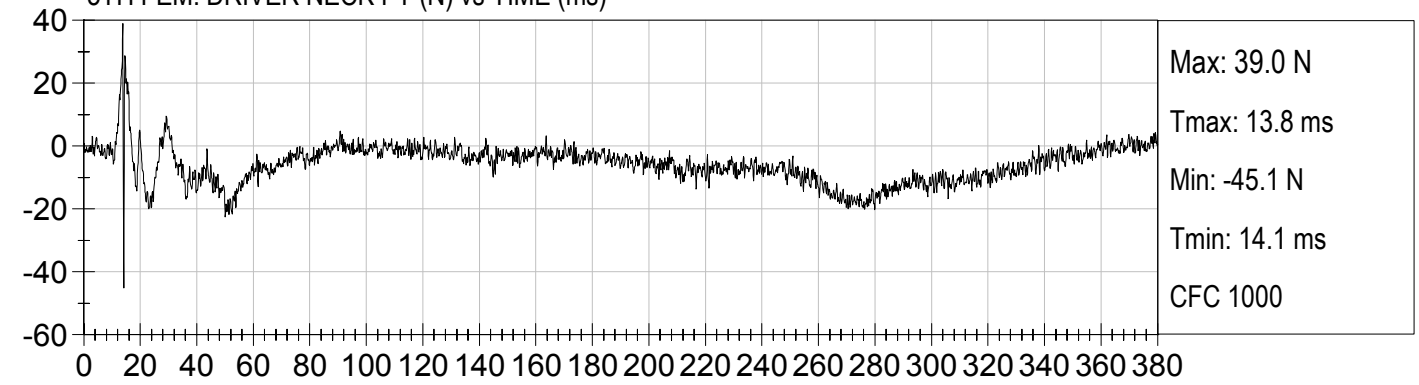
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P2)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

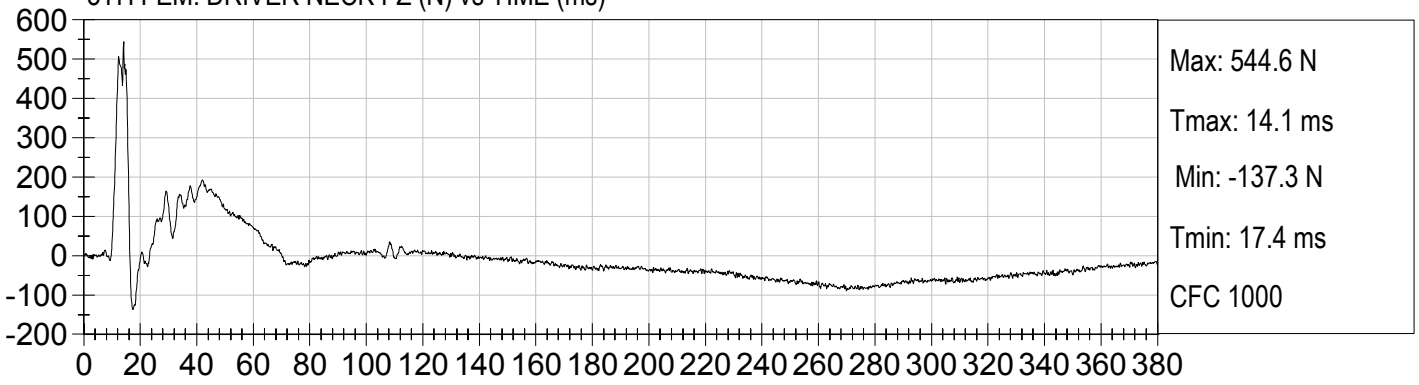
5TH FEM. DRIVER NECK FX (N) vs TIME (ms)



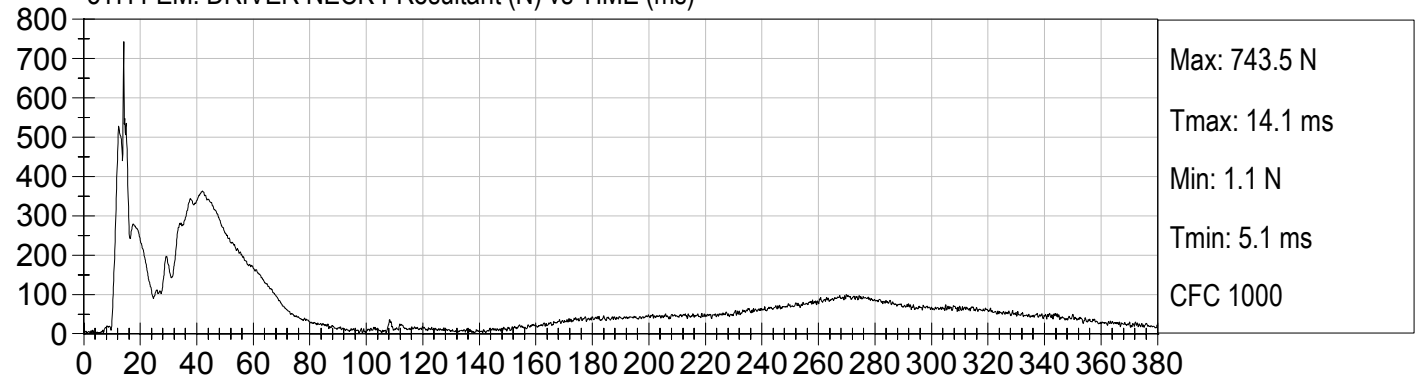
5TH FEM. DRIVER NECK FY (N) vs TIME (ms)



5TH FEM. DRIVER NECK FZ (N) vs TIME (ms)



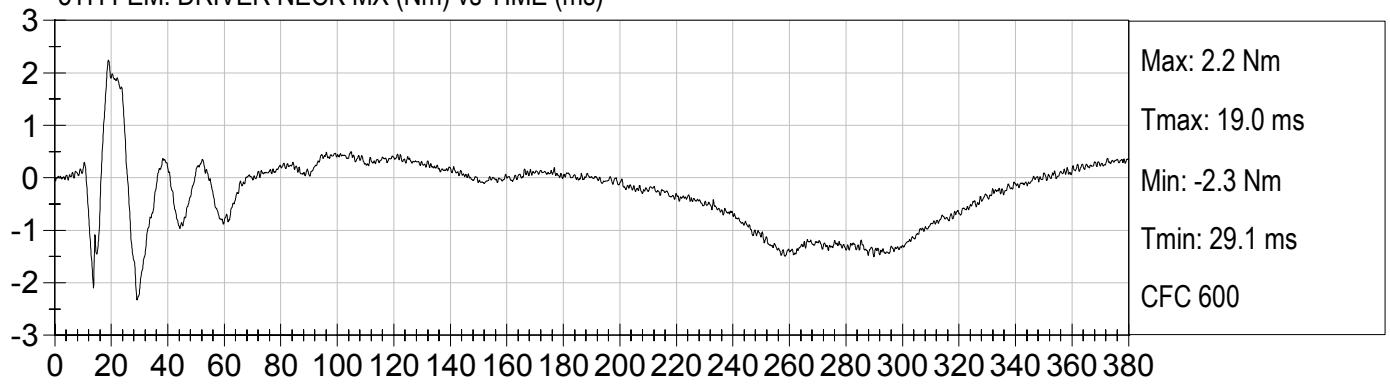
5TH FEM. DRIVER NECK FResultant (N) vs TIME (ms)



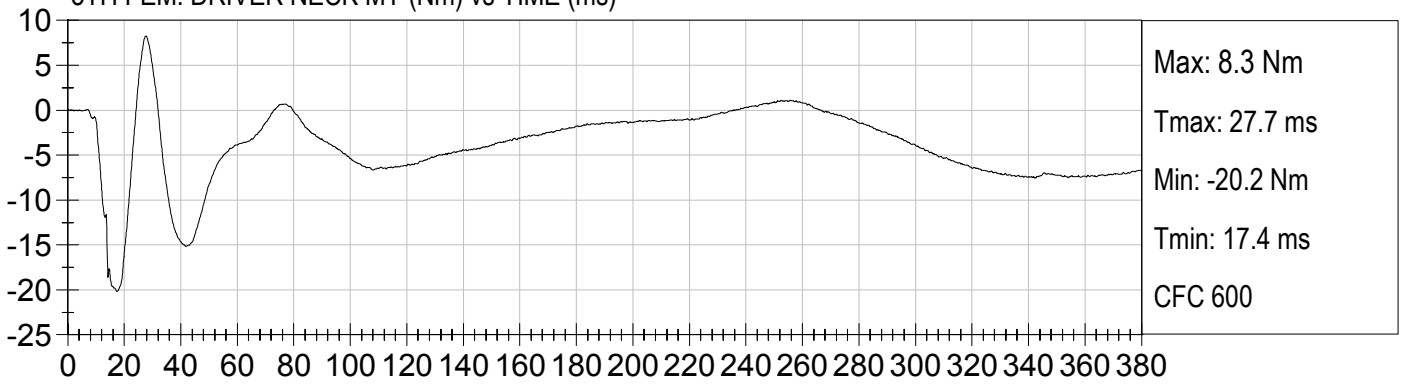
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P2)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

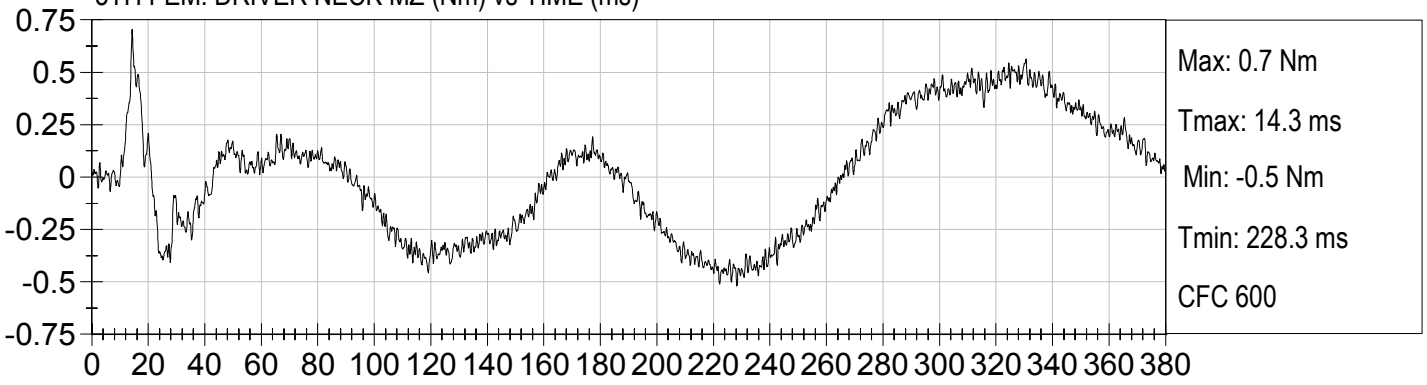
5TH FEM. DRIVER NECK MX (Nm) vs TIME (ms)



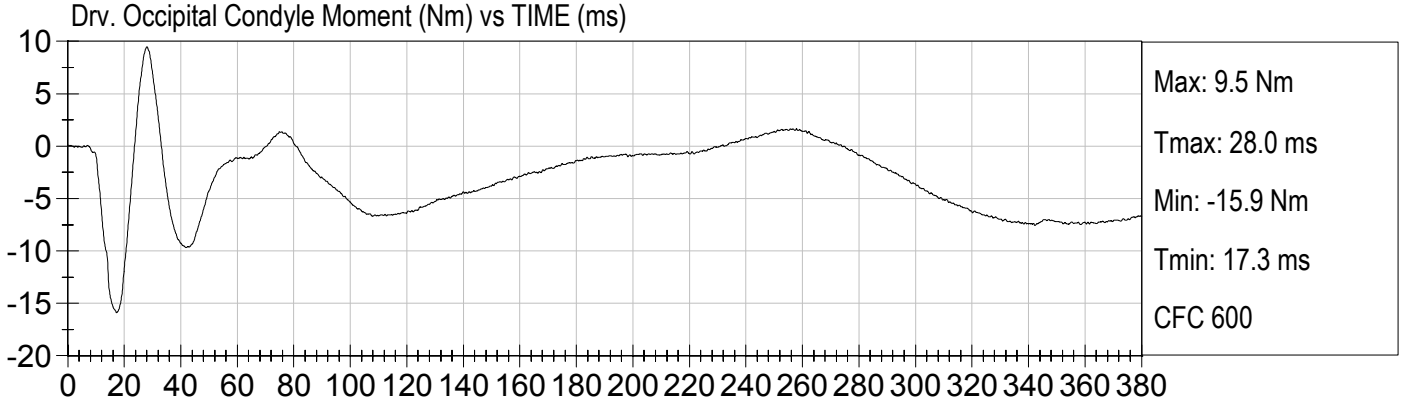
5TH FEM. DRIVER NECK MY (Nm) vs TIME (ms)



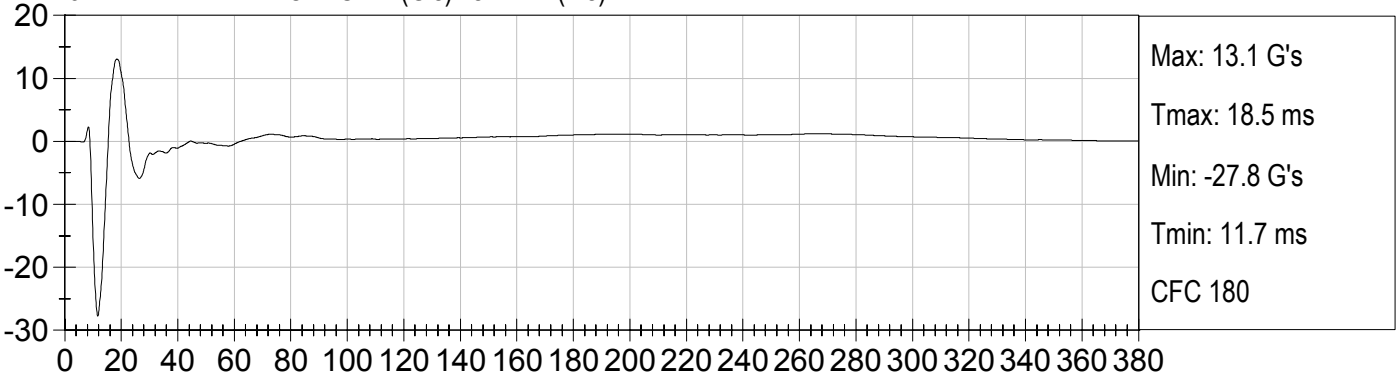
5TH FEM. DRIVER NECK MZ (Nm) vs TIME (ms)



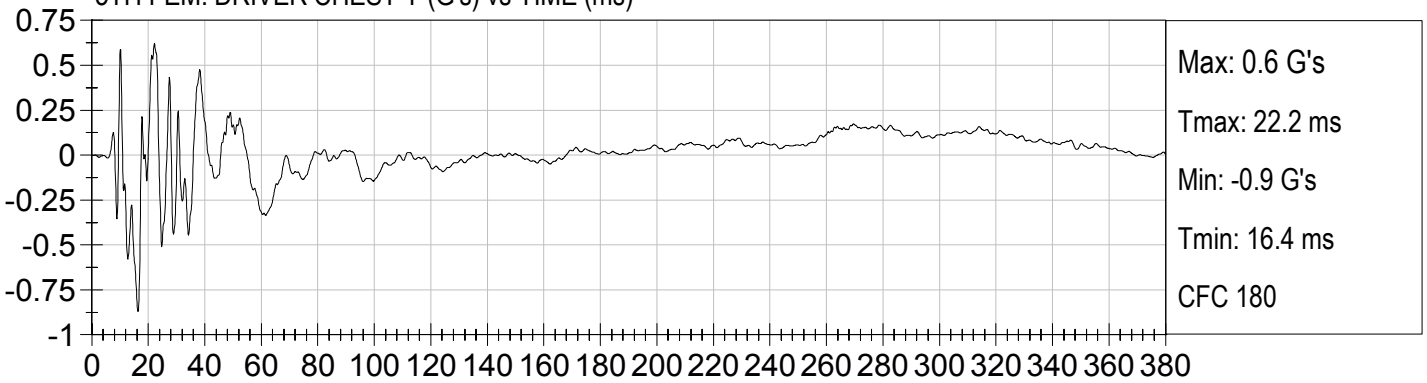
Drv. Occipital Condyle Moment (Nm) vs TIME (ms)



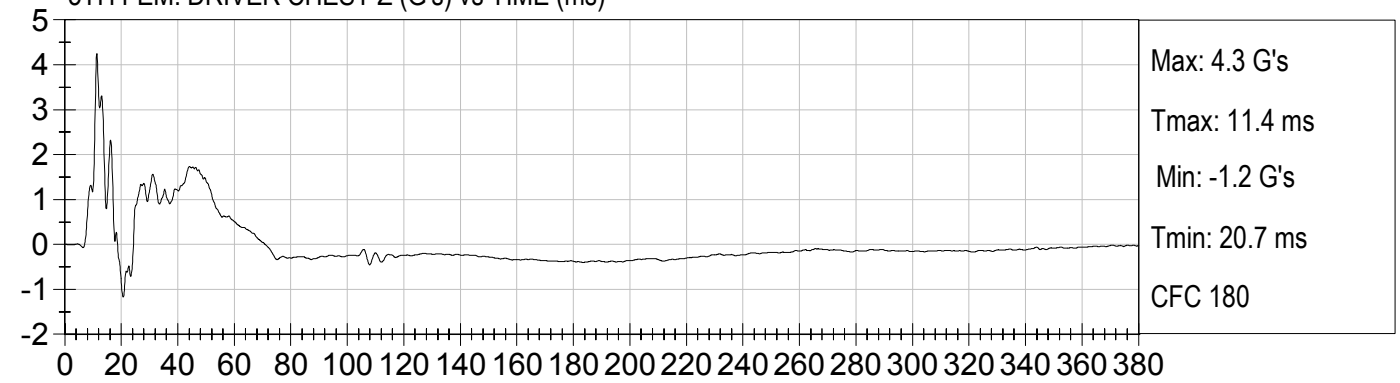
5TH FEM. DRIVER CHEST X (G's) vs TIME (ms)



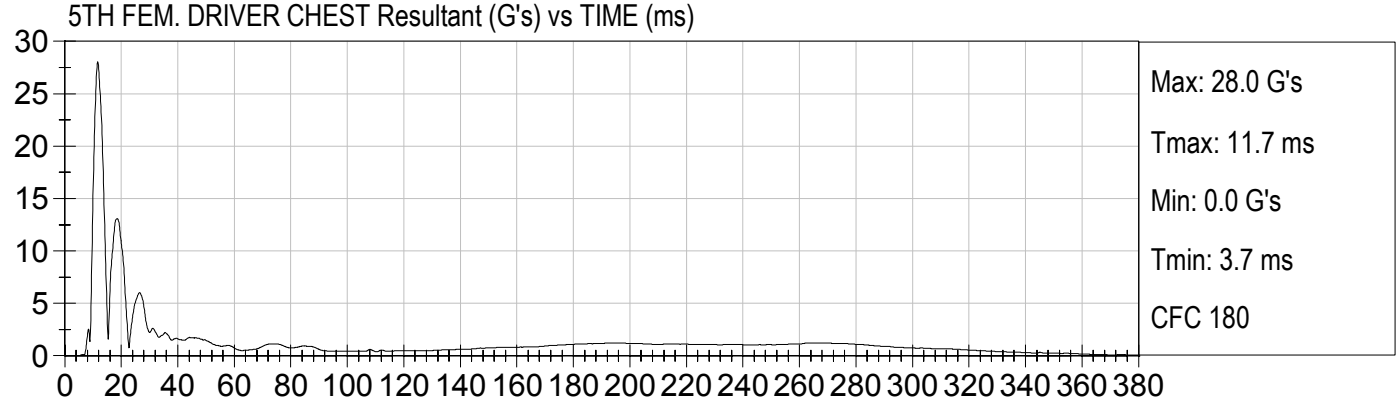
5TH FEM. DRIVER CHEST Y (G's) vs TIME (ms)



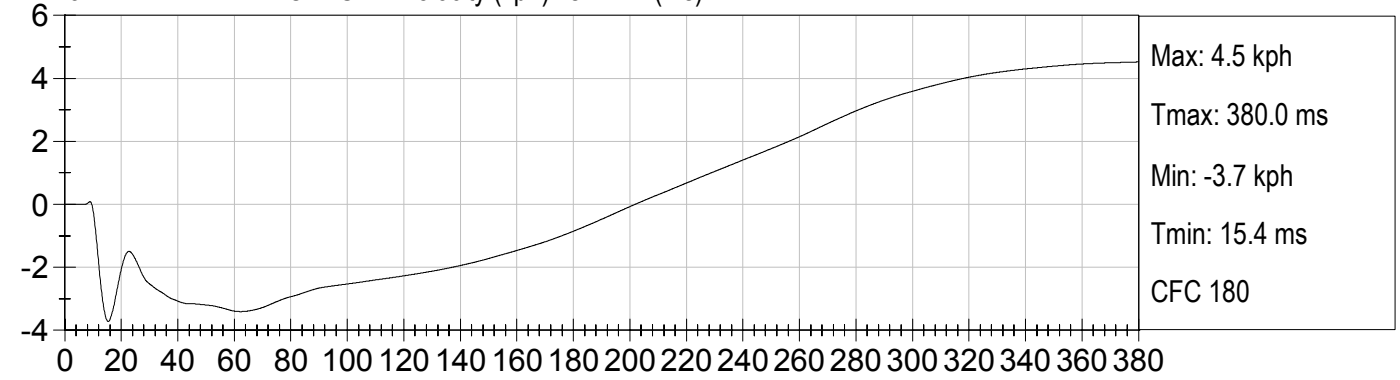
5TH FEM. DRIVER CHEST Z (G's) vs TIME (ms)



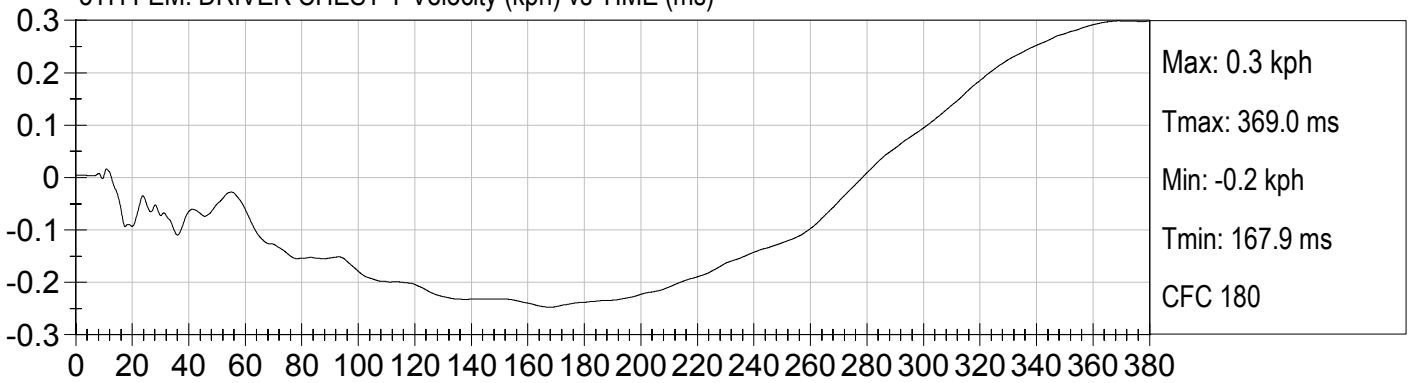
5TH FEM. DRIVER CHEST Resultant (G's) vs TIME (ms)



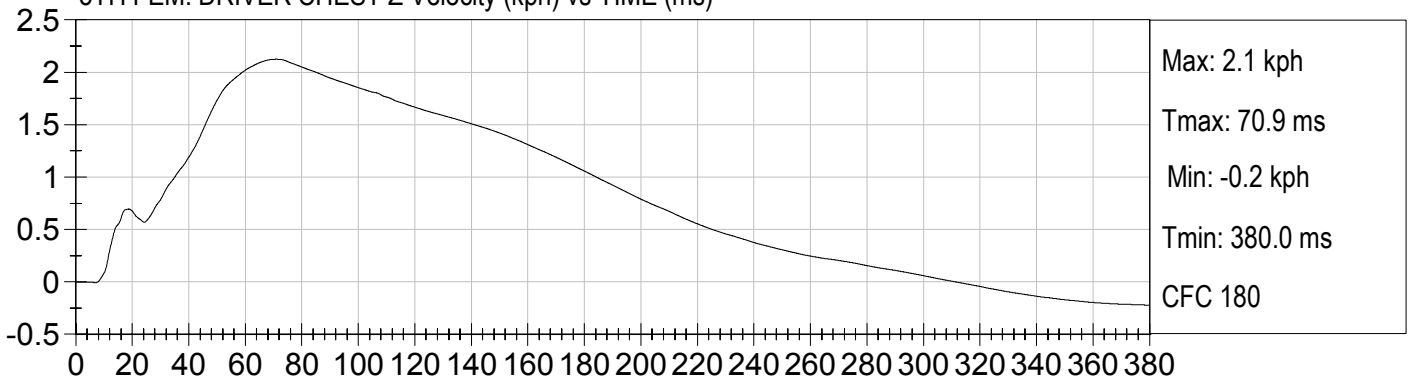
5TH FEM. DRIVER CHEST X Velocity (kph) vs TIME (ms)



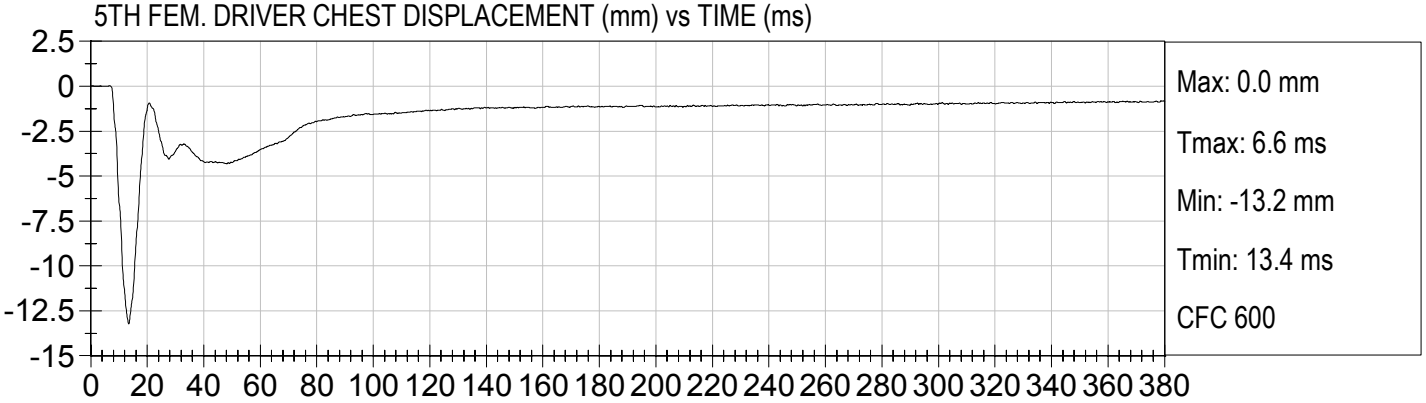
5TH FEM. DRIVER CHEST Y Velocity (kph) vs TIME (ms)



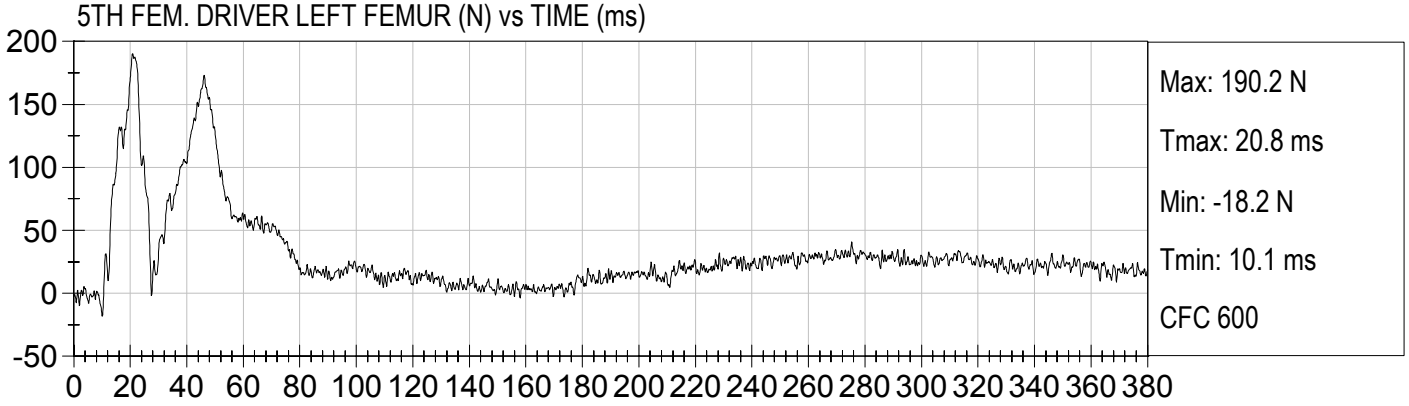
5TH FEM. DRIVER CHEST Z Velocity (kph) vs TIME (ms)



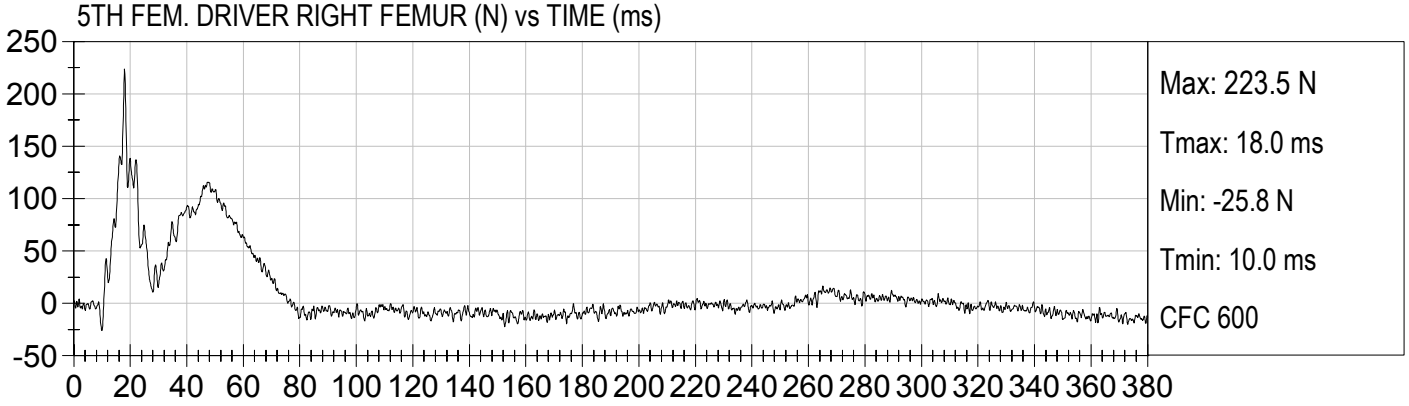
5TH FEM. DRIVER CHEST DISPLACEMENT (mm) vs TIME (ms)



5TH FEM. DRIVER LEFT FEMUR (N) vs TIME (ms)



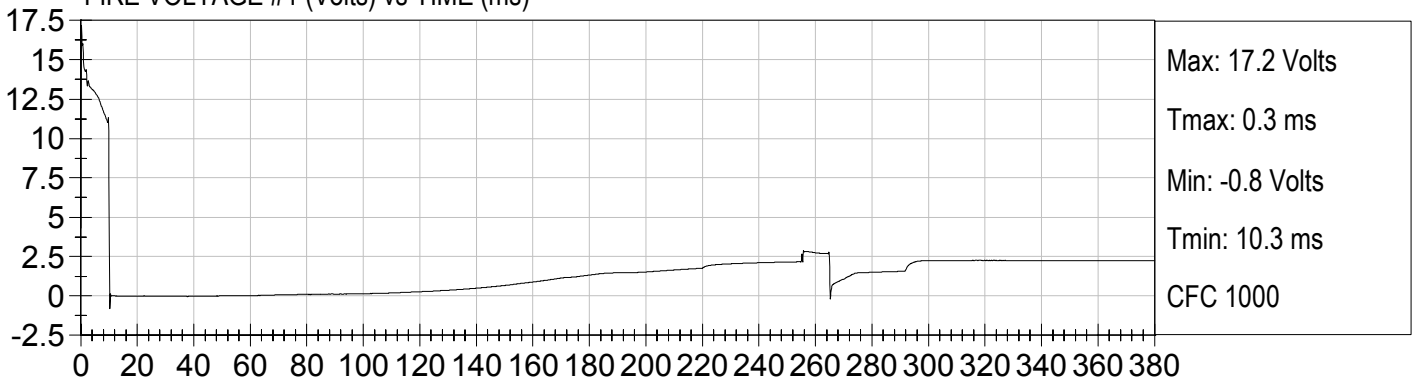
5TH FEM. DRIVER RIGHT FEMUR (N) vs TIME (ms)



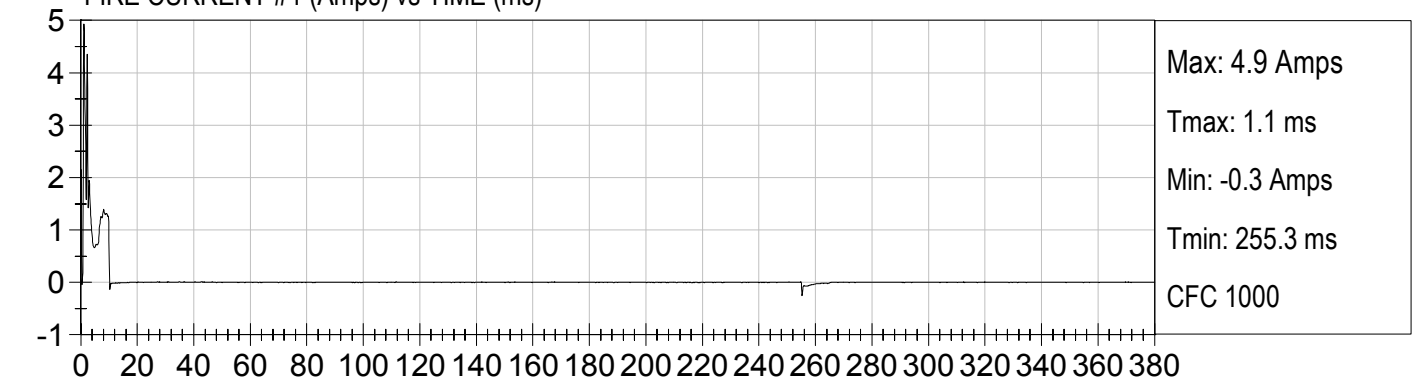
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (5th P2)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

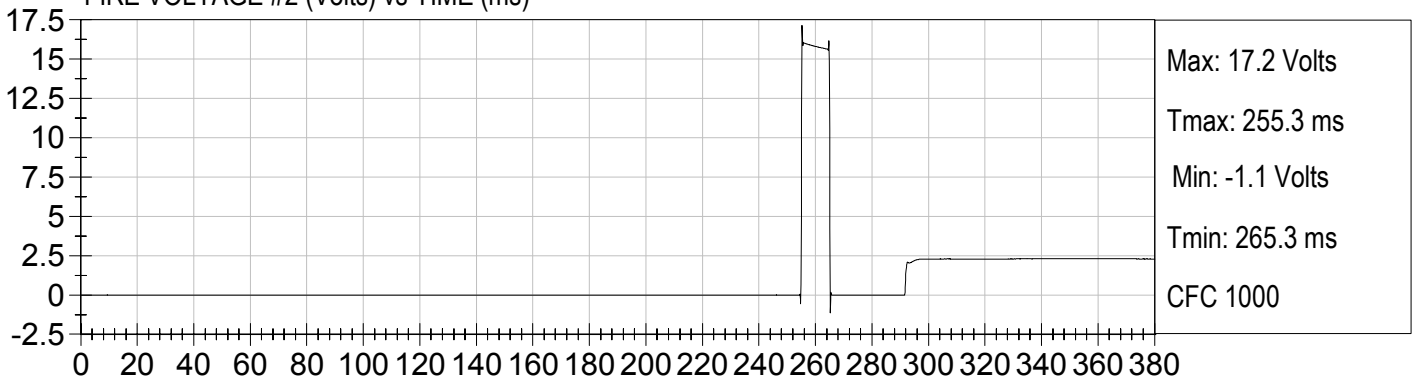
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



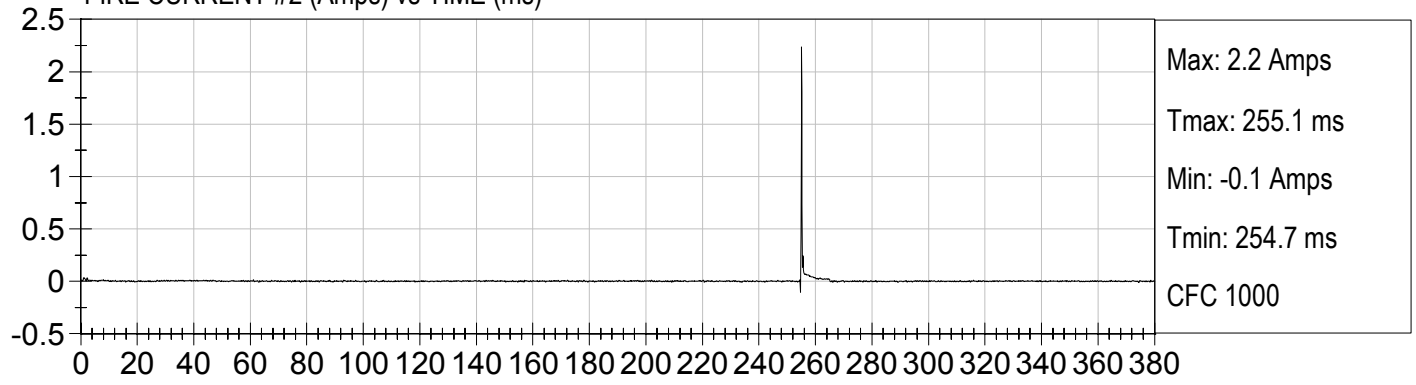
FIRE CURRENT #1 (Amps) vs TIME (ms)

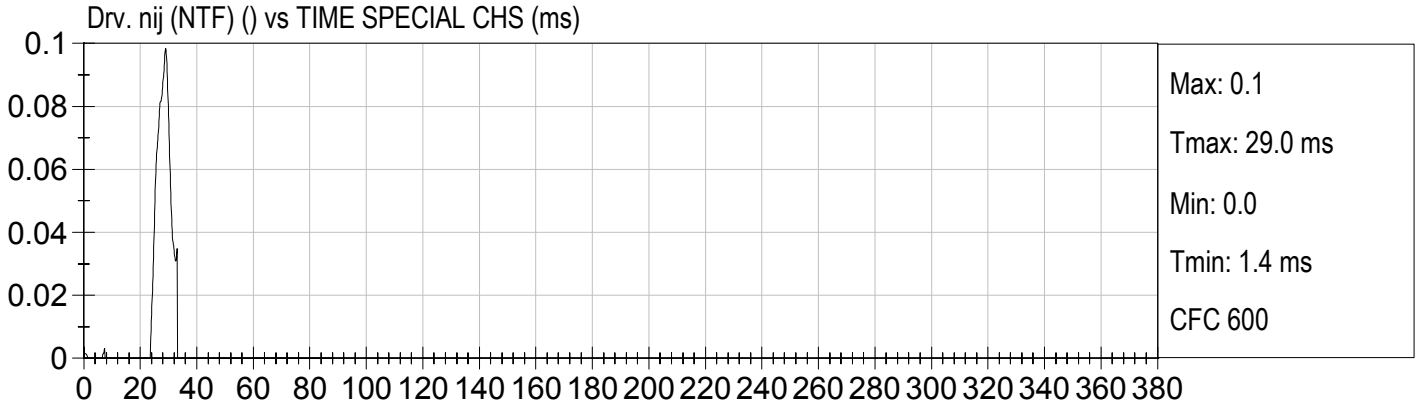


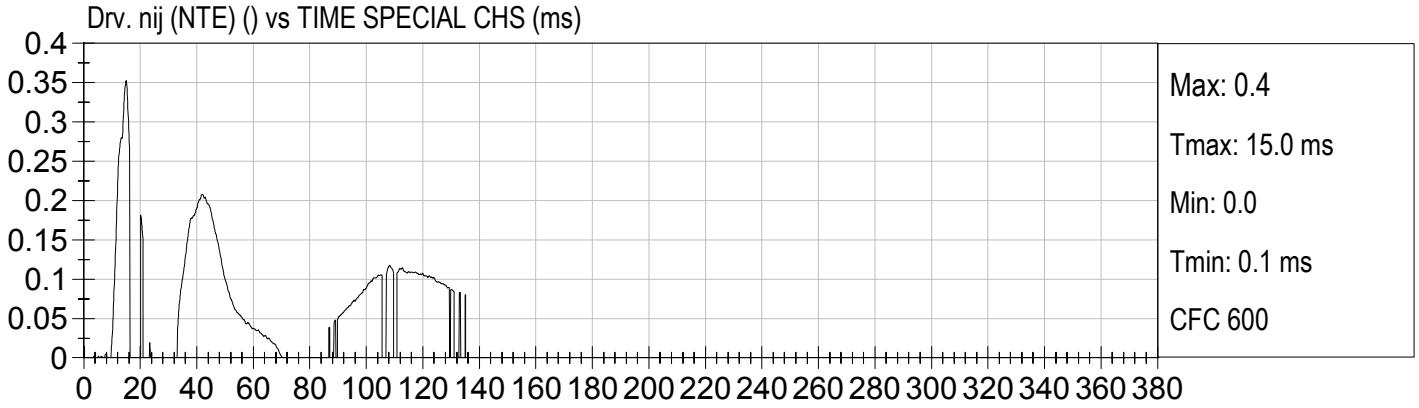
FIRE VOLTAGE #2 (Volts) vs TIME (ms)

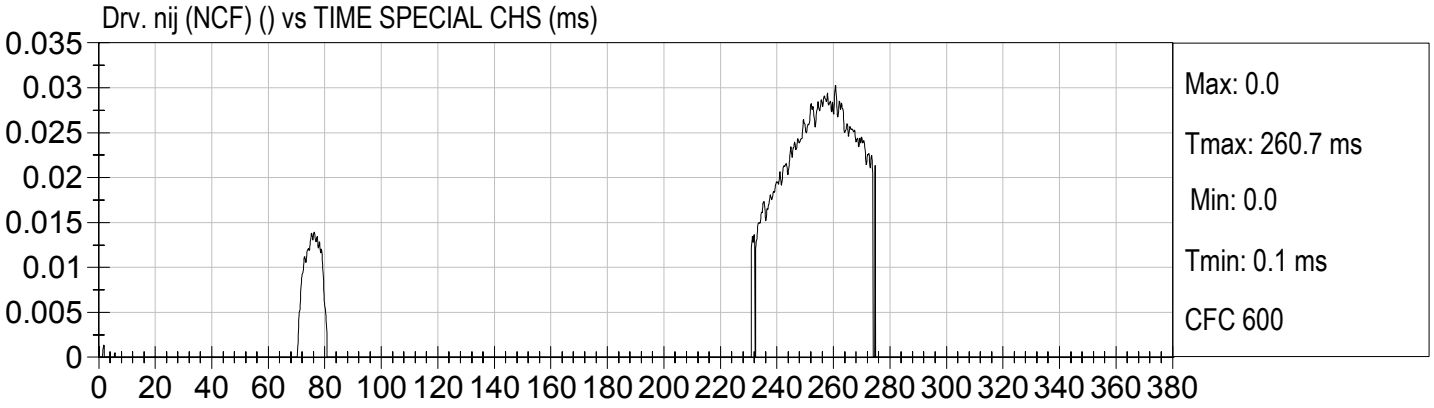


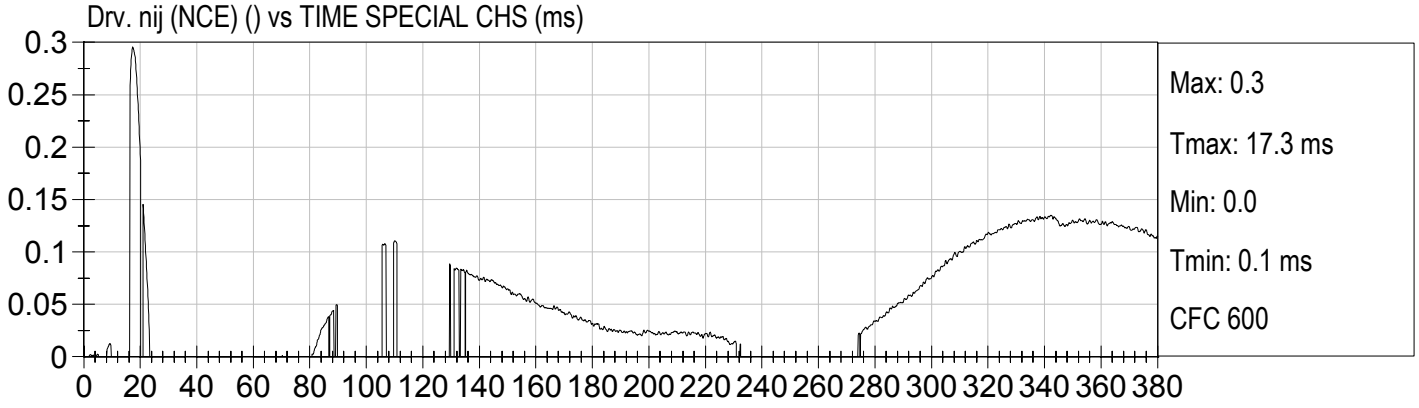
FIRE CURRENT #2 (Amps) vs TIME (ms)




Drv. nij (NTF) () vs TIME SPECIAL CHS (ms)
0.1
0.08
0.06
0.04
0.02
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.1
Tmax: 29.0 ms
Min: 0.0
Tmin: 1.4 ms
CFC 600


Drv. nij (NTE) () vs TIME SPECIAL CHS (ms)
0.4
0.35
0.3
0.25
0.2
0.15
0.1
0.05
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.4
Tmax: 15.0 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600


Drv. nij (NCF) () vs TIME SPECIAL CHS (ms)
0.035
0.03
0.025
0.02
0.015
0.01
0.005
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.0
Tmax: 260.7 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

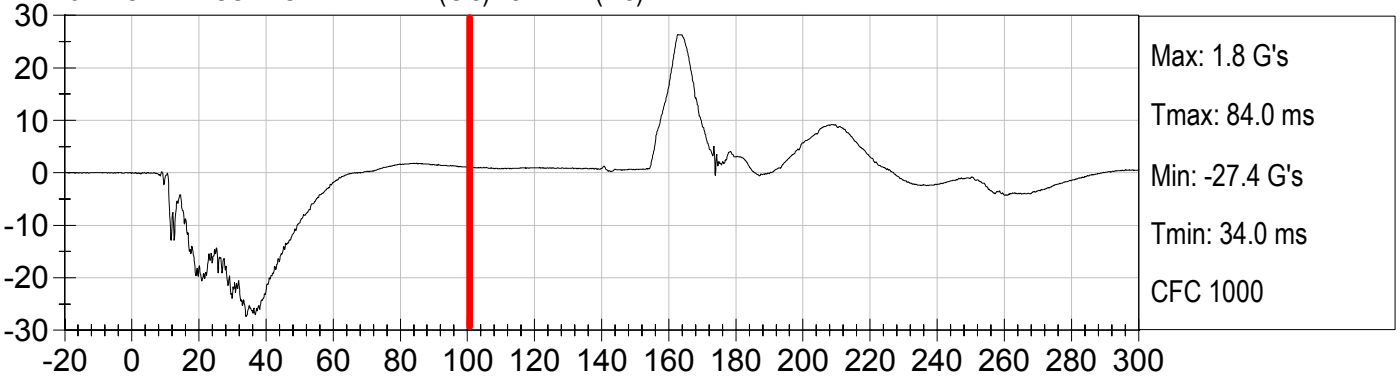

Drv. nij (NCE) () vs TIME SPECIAL CHS (ms)
0.3
0.25
0.2
0.15
0.1
0.05
0
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 360 380
Max: 0.3
Tmax: 17.3 ms
Min: 0.0
Tmin: 0.1 ms
CFC 600

LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

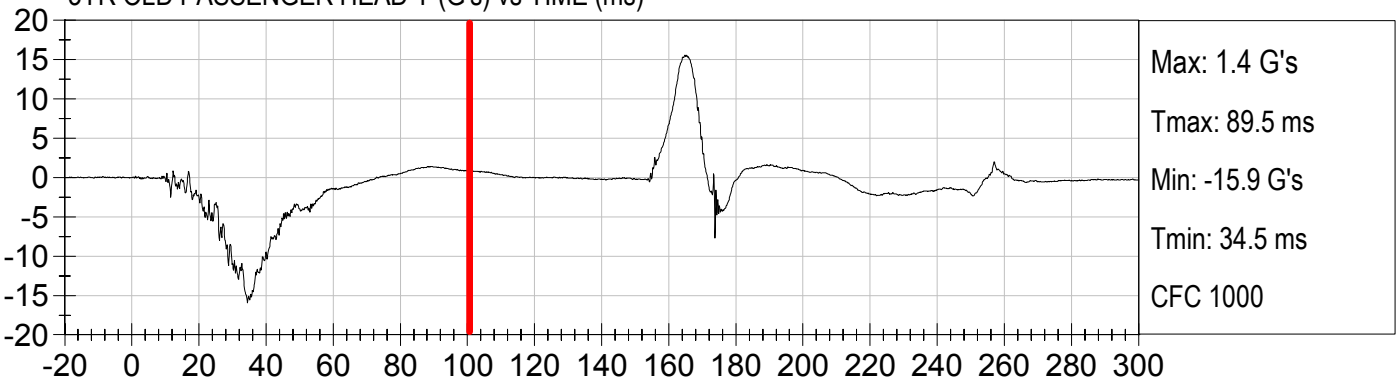
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

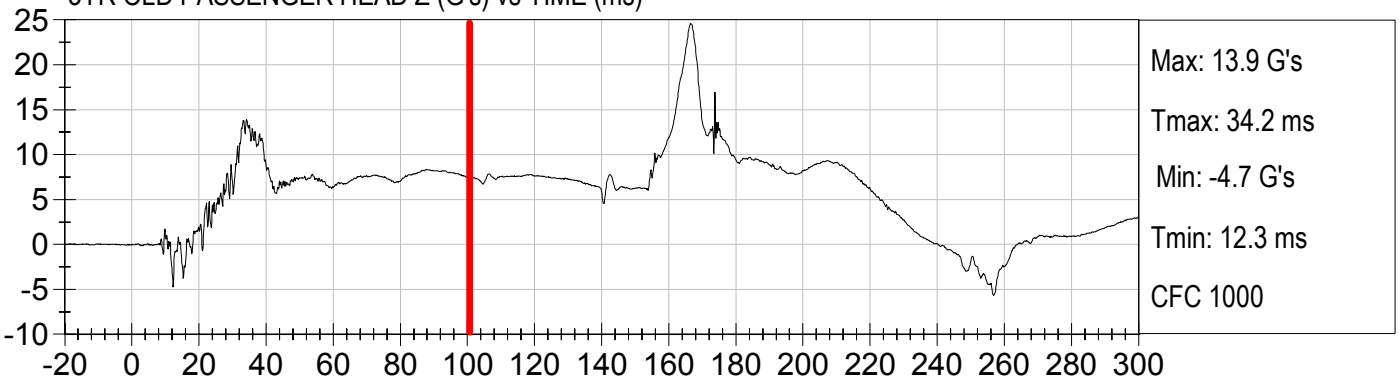
3YR OLD PASSENGER HEAD X (G's) vs TIME (ms)



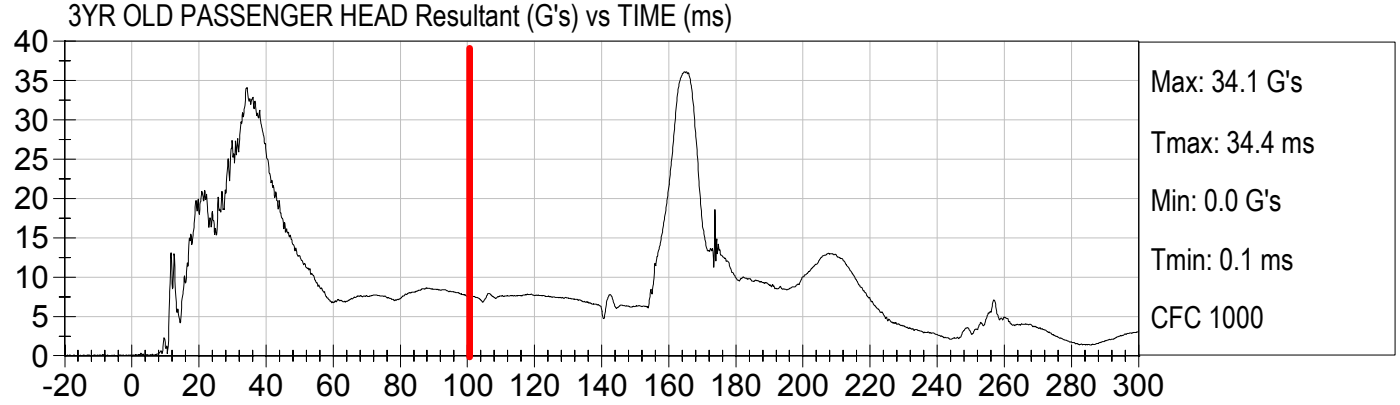
3YR OLD PASSENGER HEAD Y (G's) vs TIME (ms)



3YR OLD PASSENGER HEAD Z (G's) vs TIME (ms)



3YR OLD PASSENGER HEAD Resultant (G's) vs TIME (ms)

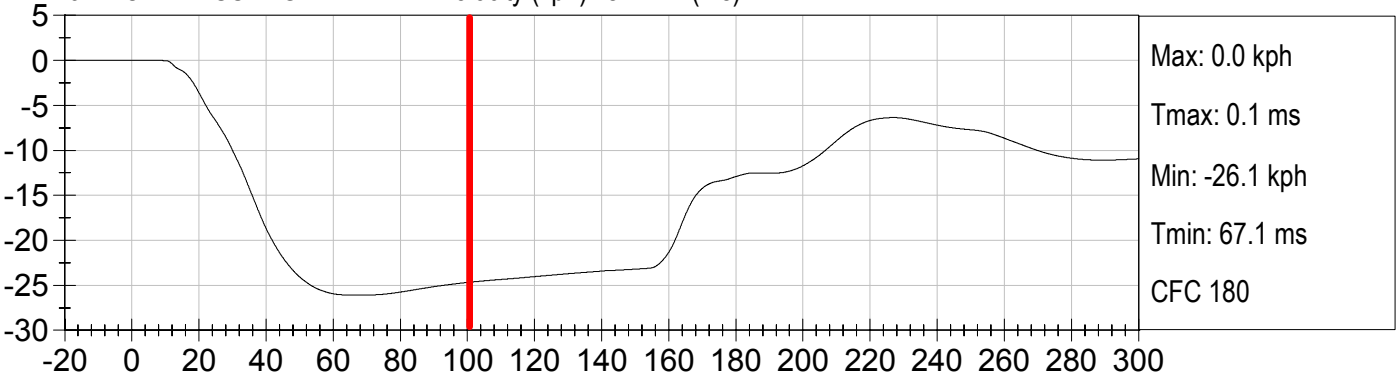


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

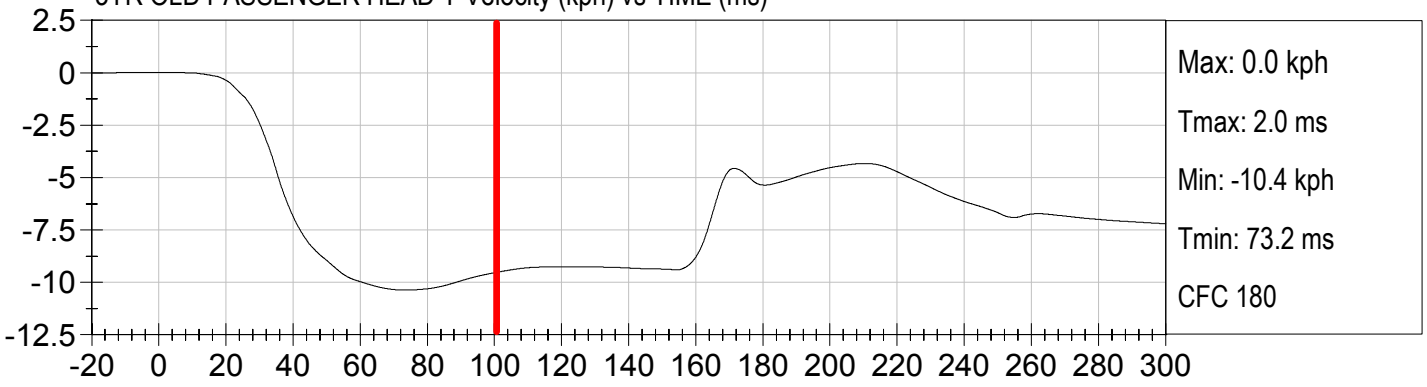
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

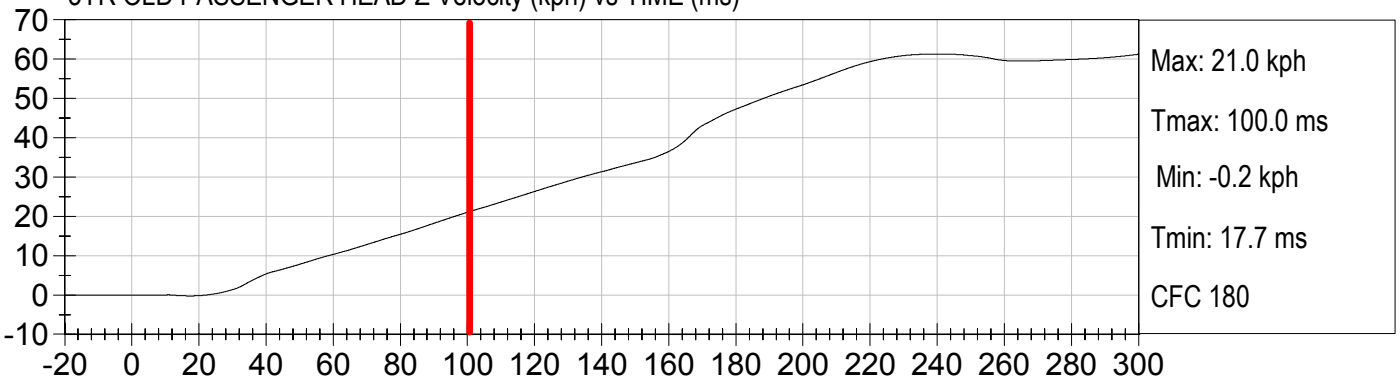
3YR OLD PASSENGER HEAD X Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER HEAD Z Velocity (kph) vs TIME (ms)

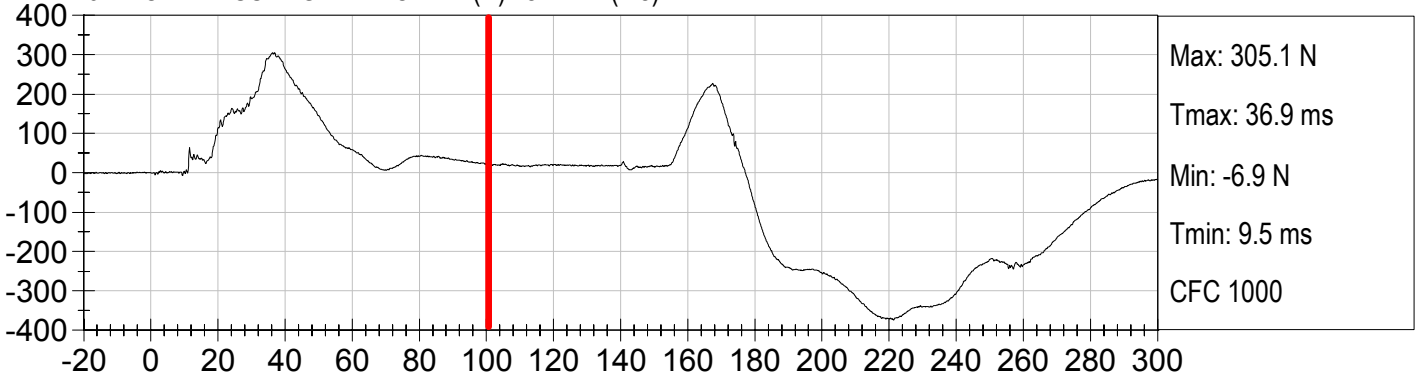


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

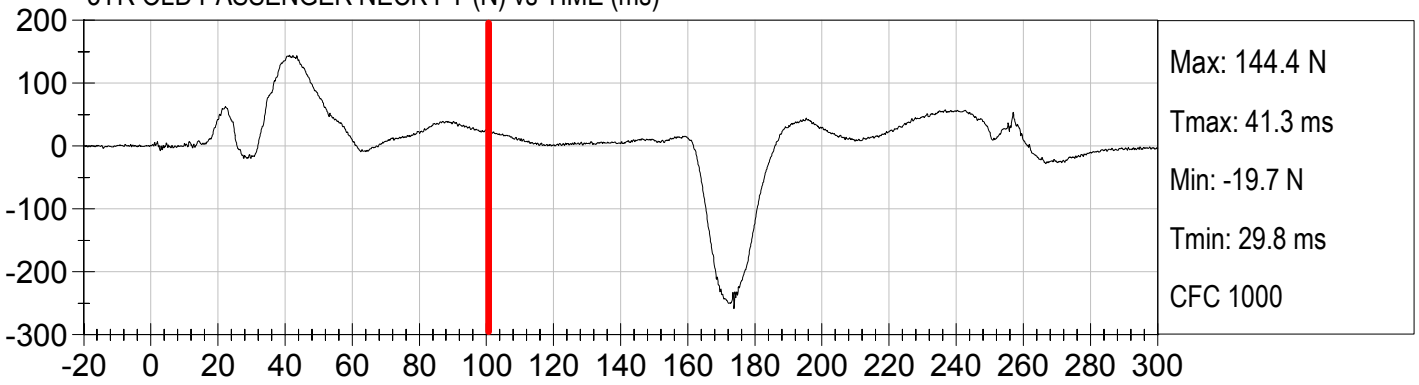
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

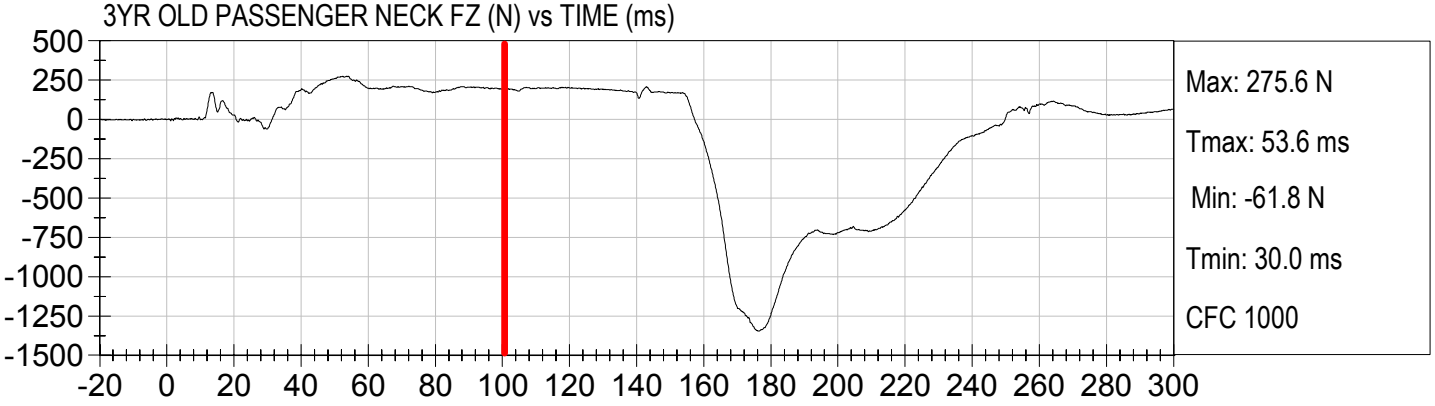
3YR OLD PASSENGER NECK FX (N) vs TIME (ms)



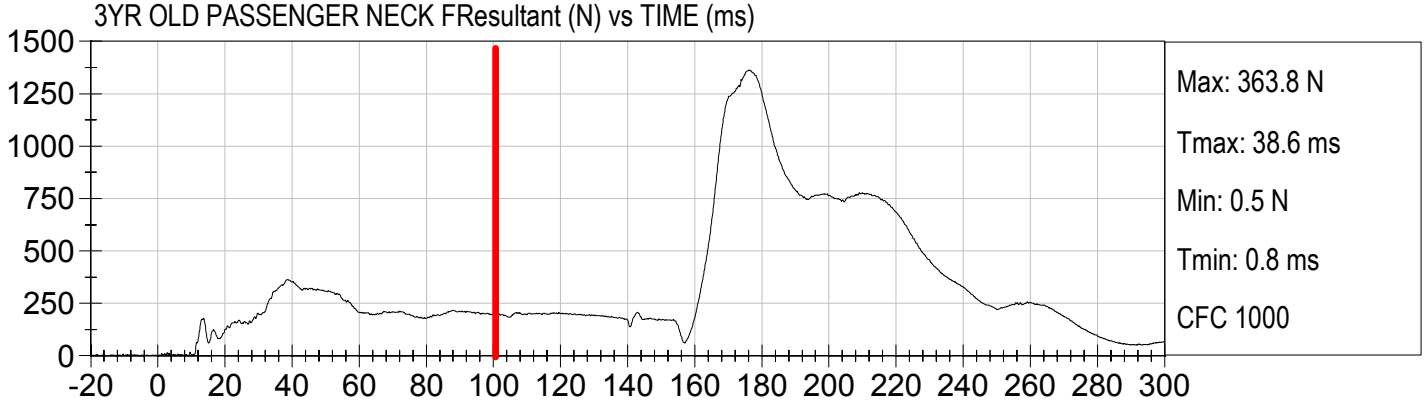
3YR OLD PASSENGER NECK FY (N) vs TIME (ms)



3YR OLD PASSENGER NECK FZ (N) vs TIME (ms)



3YR OLD PASSENGER NECK FResultant (N) vs TIME (ms)

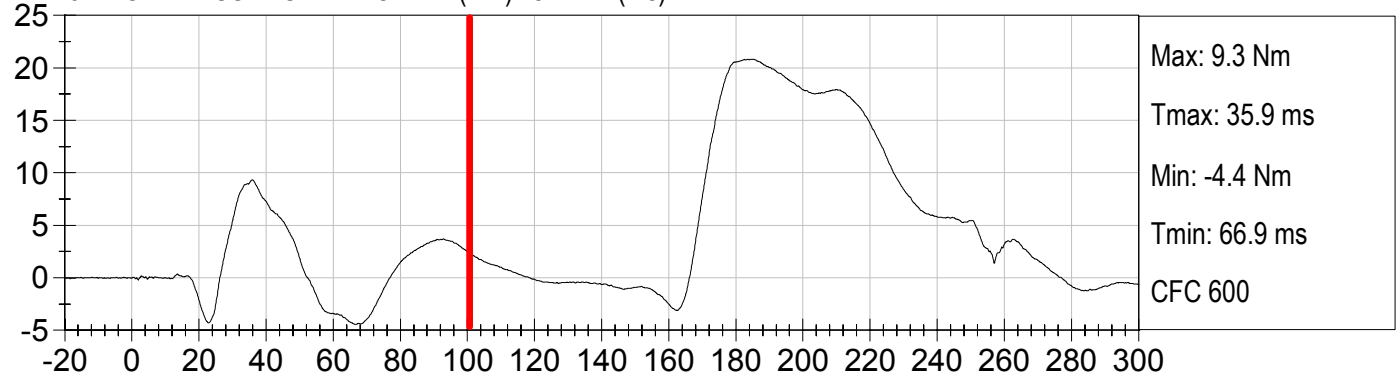


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

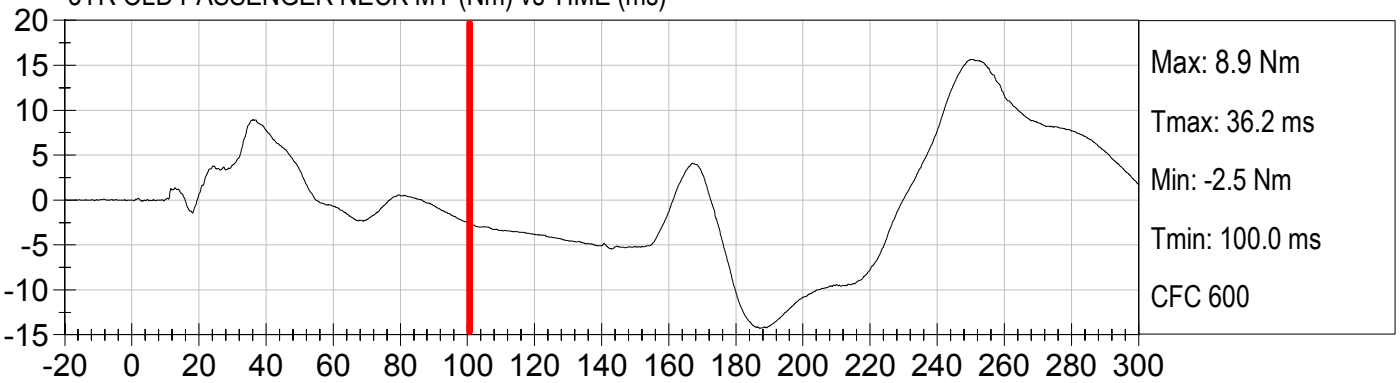
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

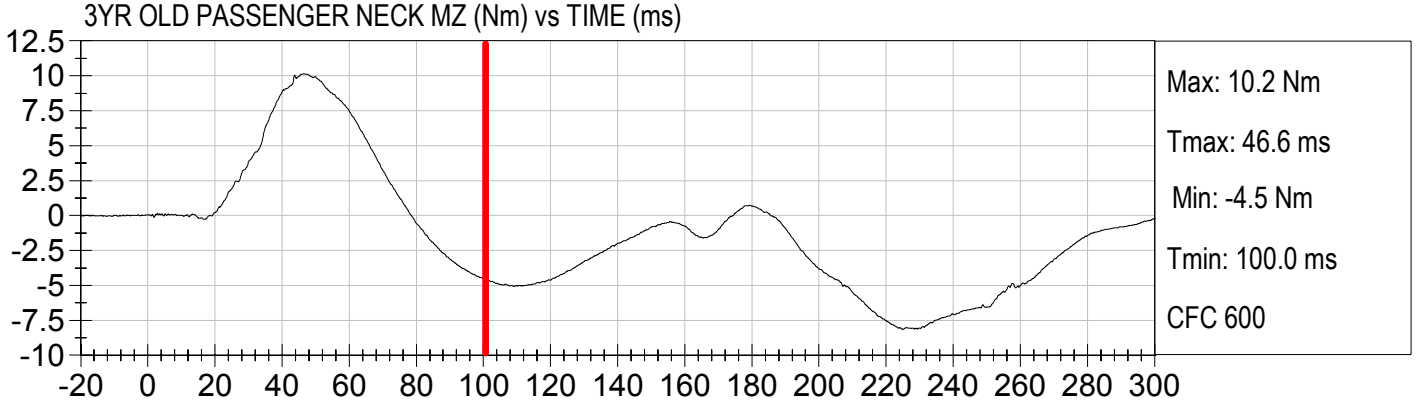
3YR OLD PASSENGER NECK MX (Nm) vs TIME (ms)



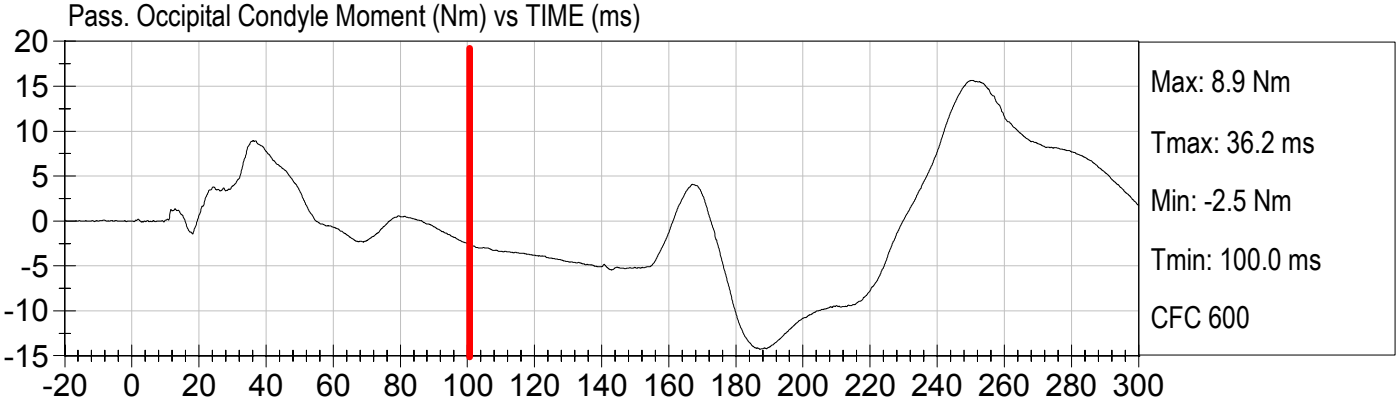
3YR OLD PASSENGER NECK MY (Nm) vs TIME (ms)



3YR OLD PASSENGER NECK MZ (Nm) vs TIME (ms)



Pass. Occipital Condyle Moment (Nm) vs TIME (ms)

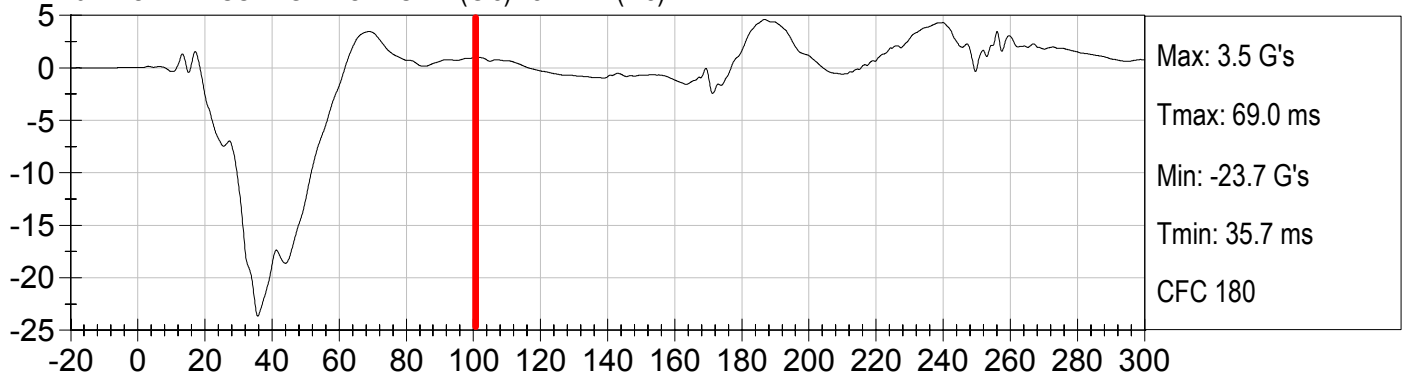


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

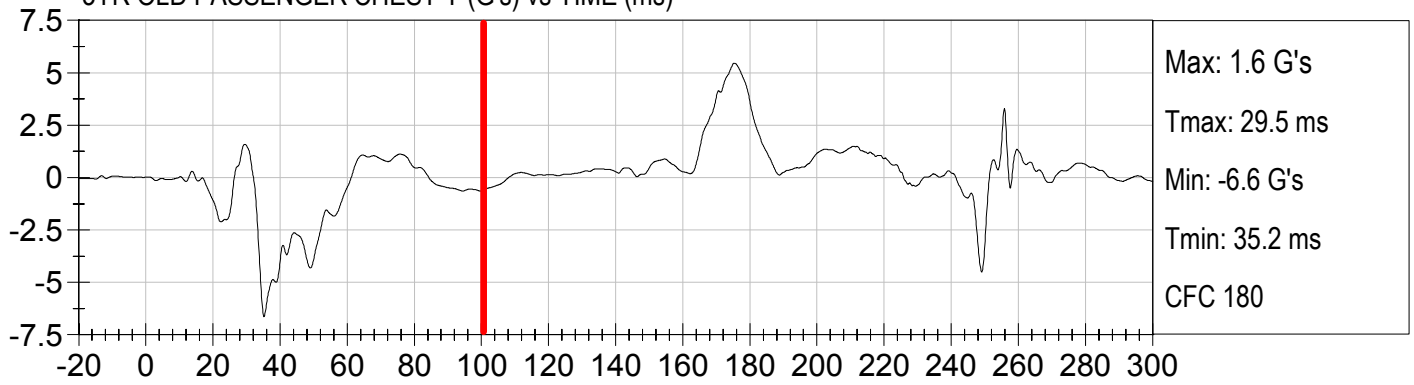
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

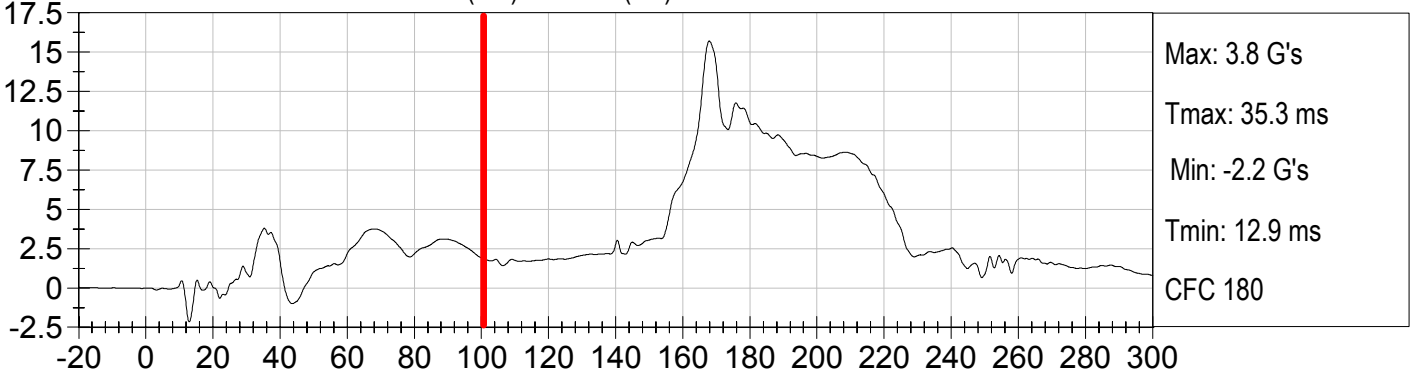
3YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



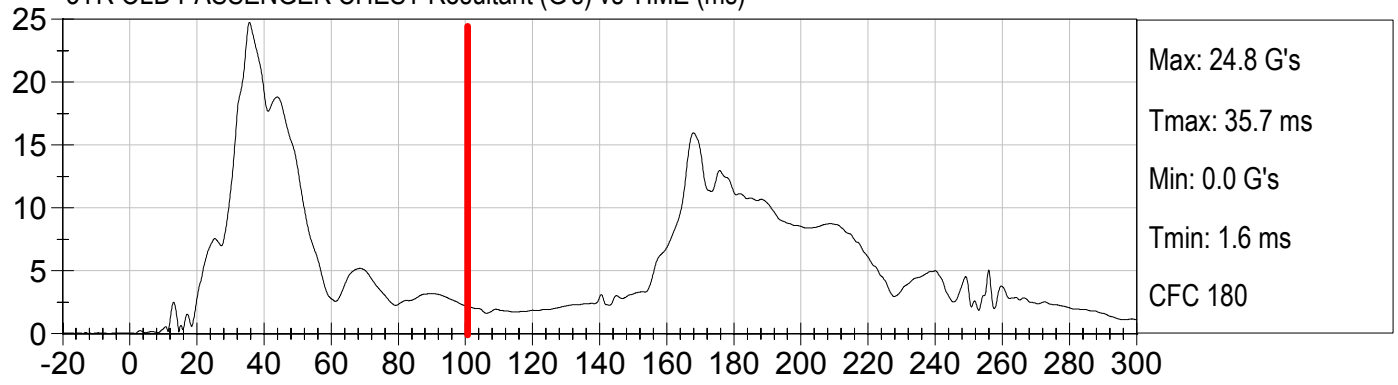
3YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



3YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



3YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)

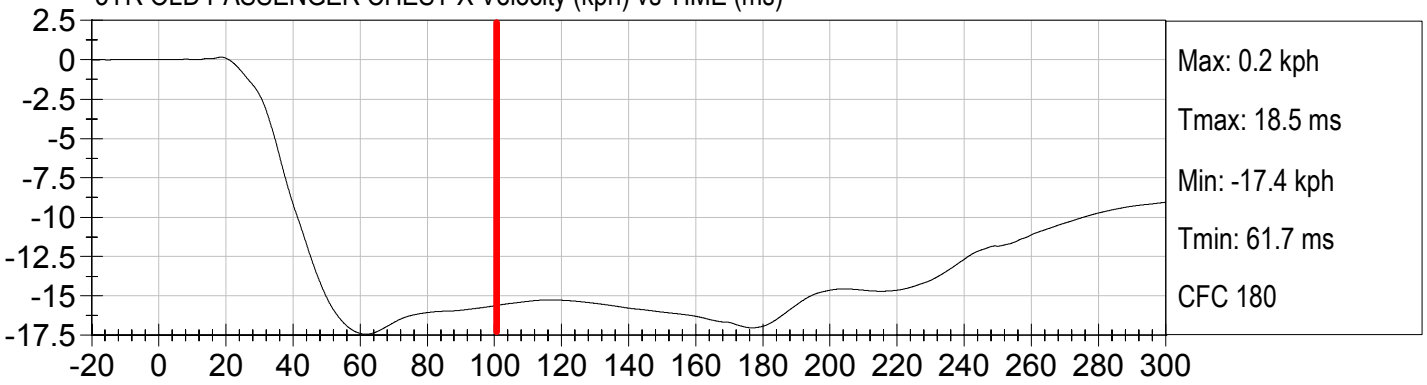


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

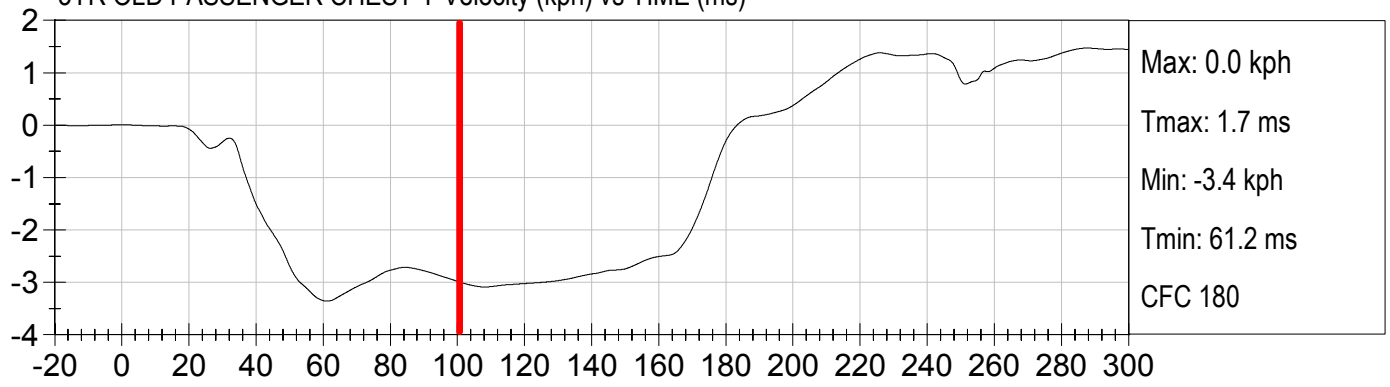
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

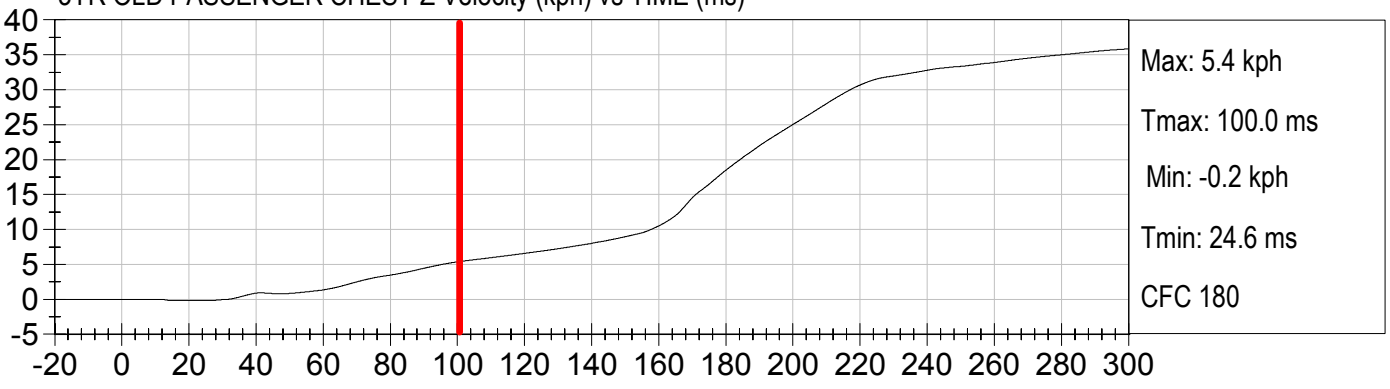
3YR OLD PASSENGER CHEST X Velocity (kph) vs TIME (ms)



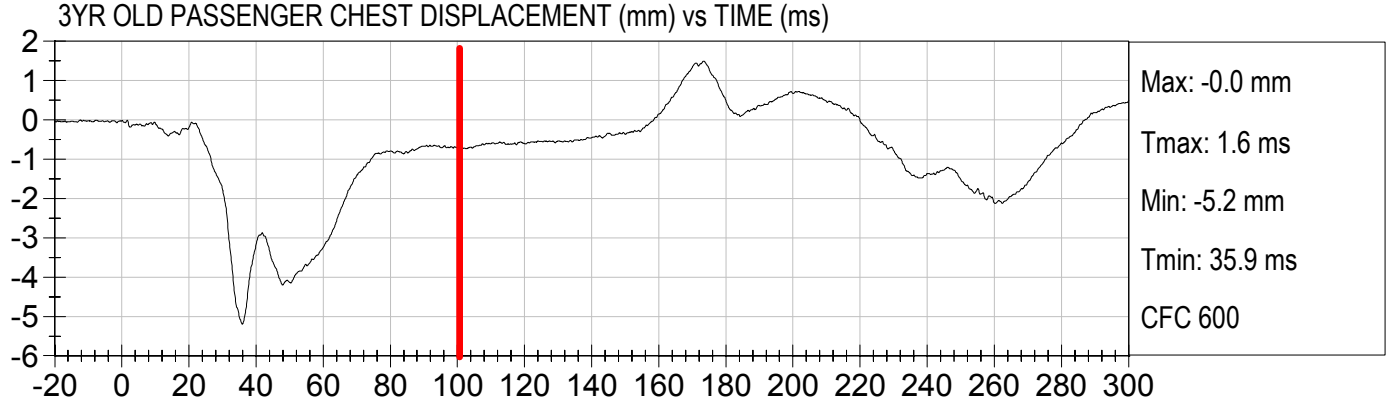
3YR OLD PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

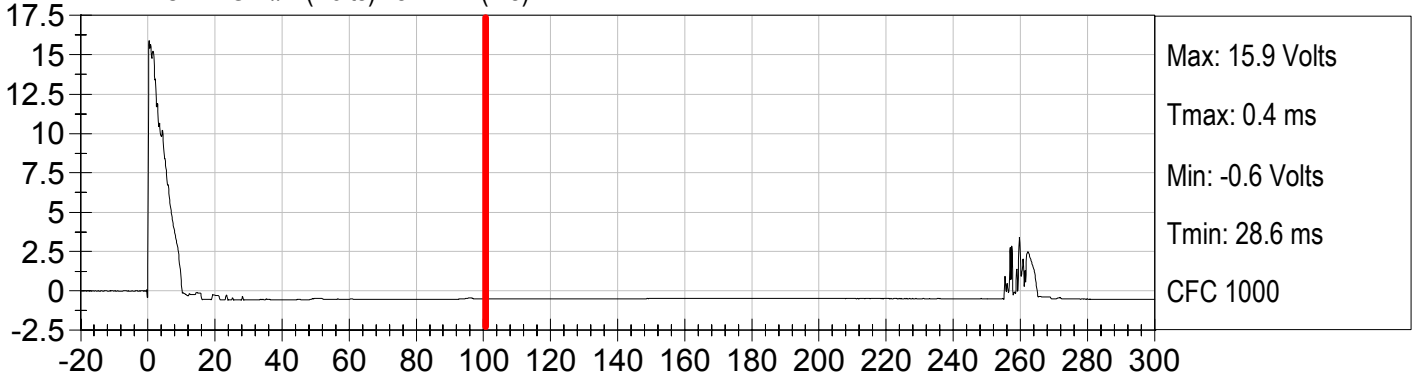


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P1)

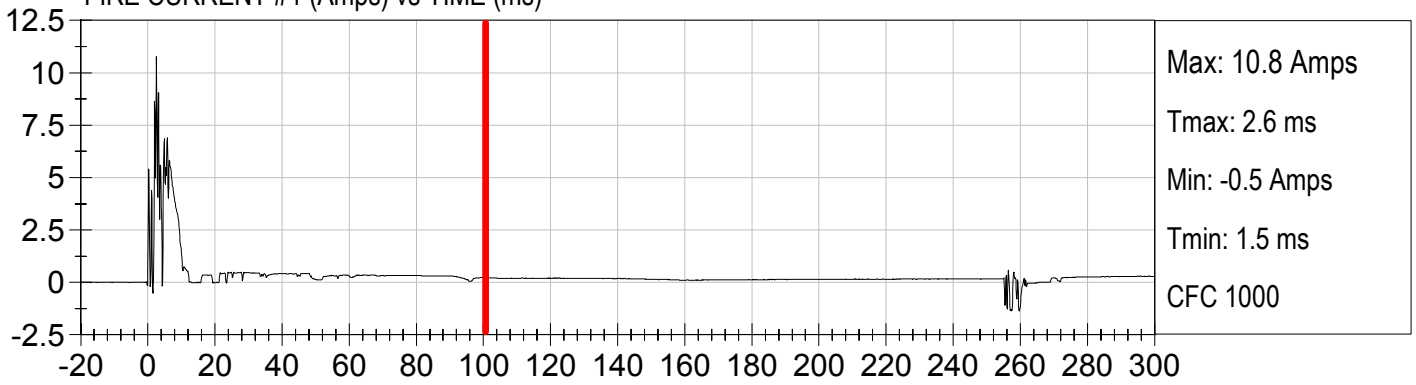
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

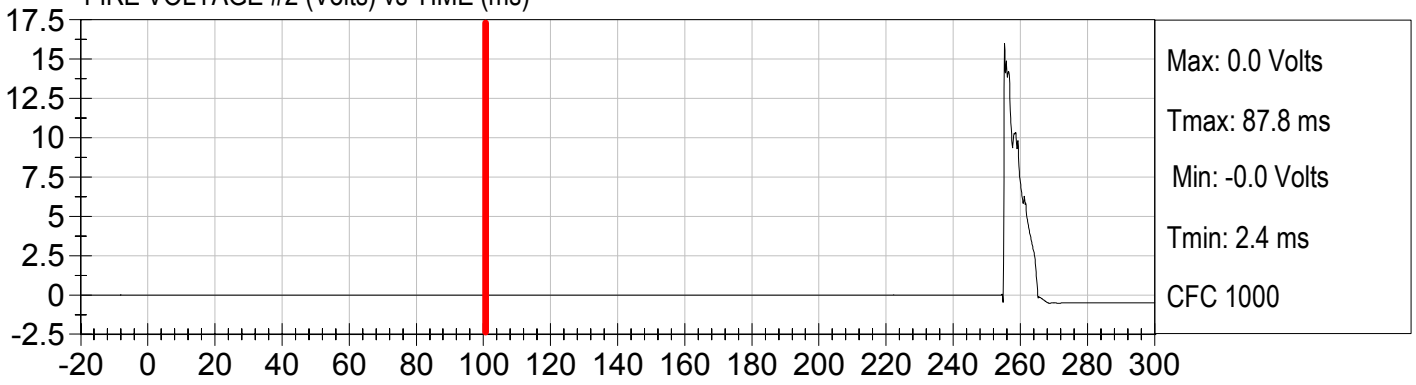
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



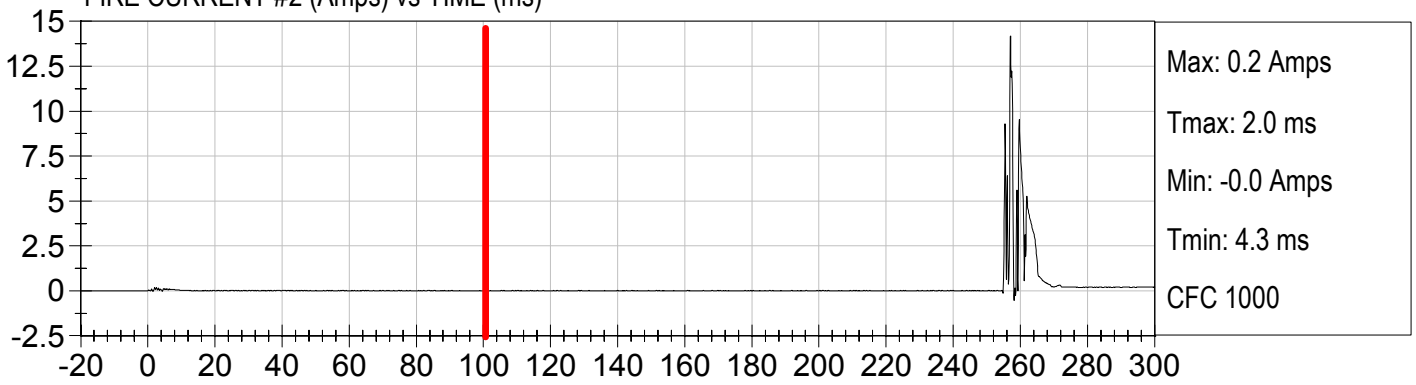
FIRE CURRENT #1 (Amps) vs TIME (ms)



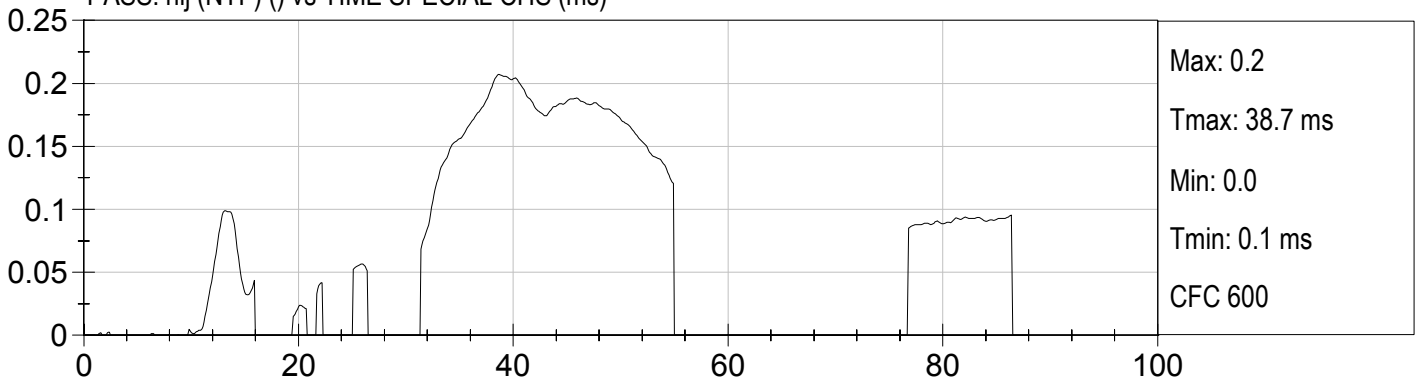
FIRE VOLTAGE #2 (Volts) vs TIME (ms)



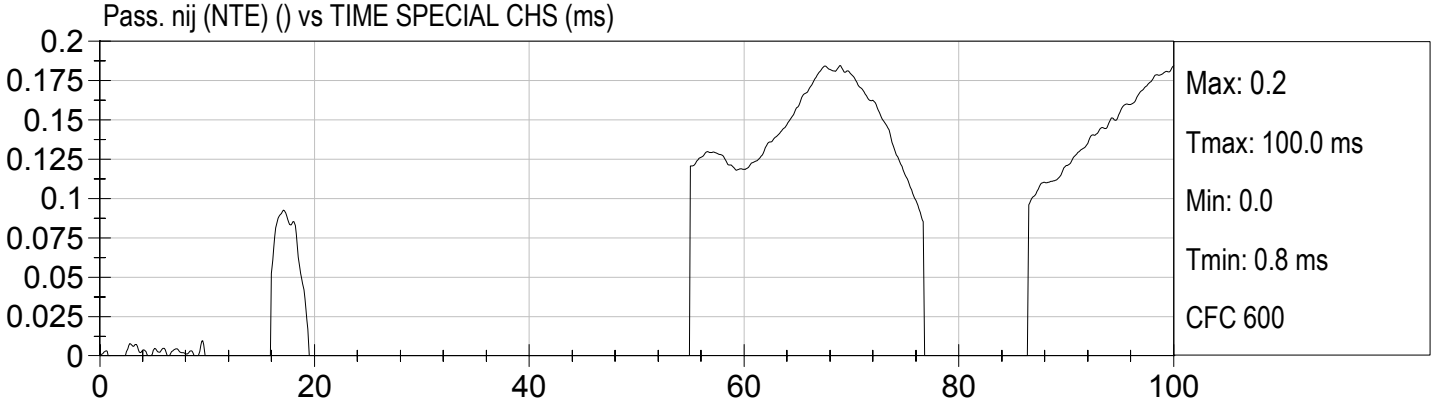
FIRE CURRENT #2 (Amps) vs TIME (ms)



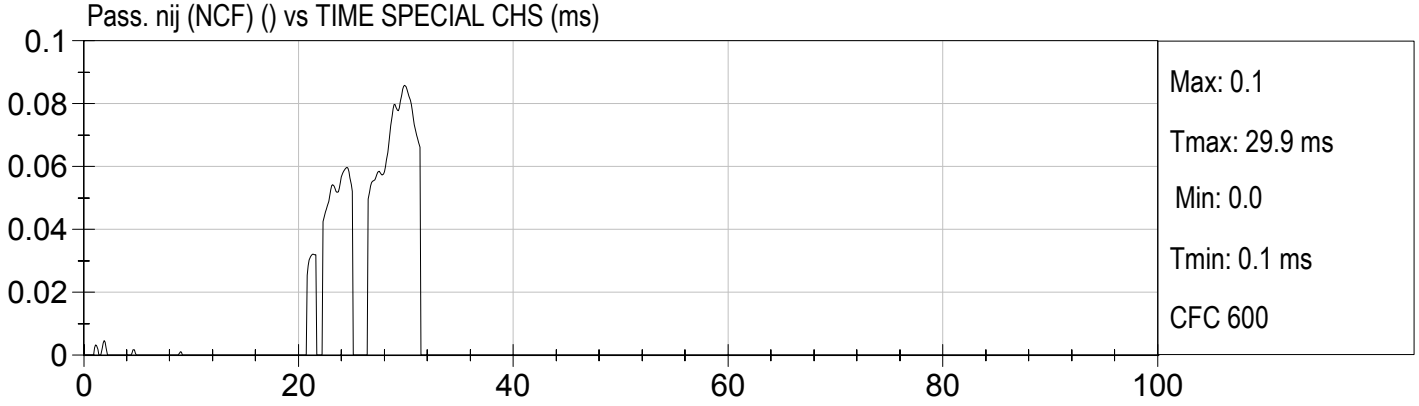
PASS. nij (NTF) () vs TIME SPECIAL CHS (ms)



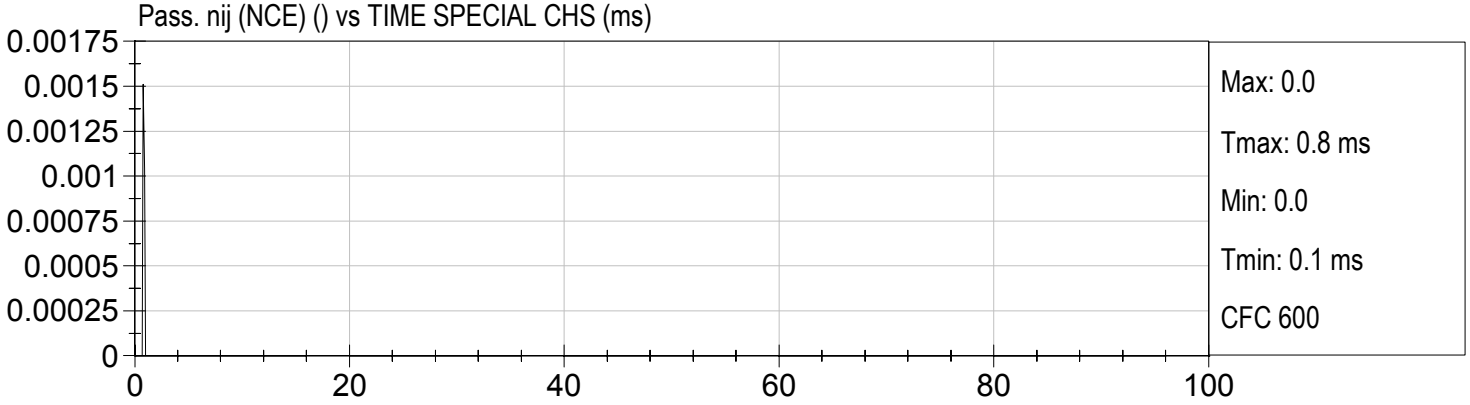
Pass. nij (NTE) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCF) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCE) () vs TIME SPECIAL CHS (ms)

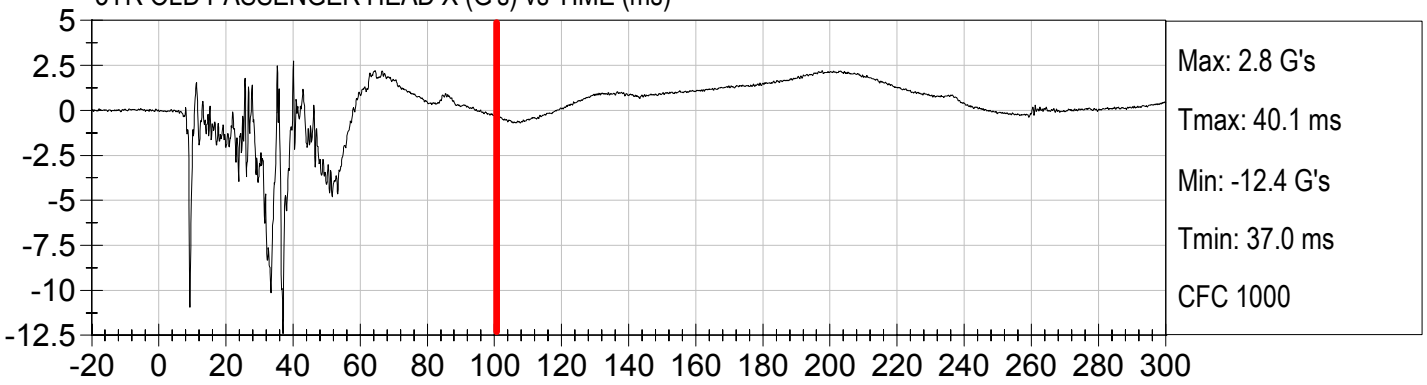


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

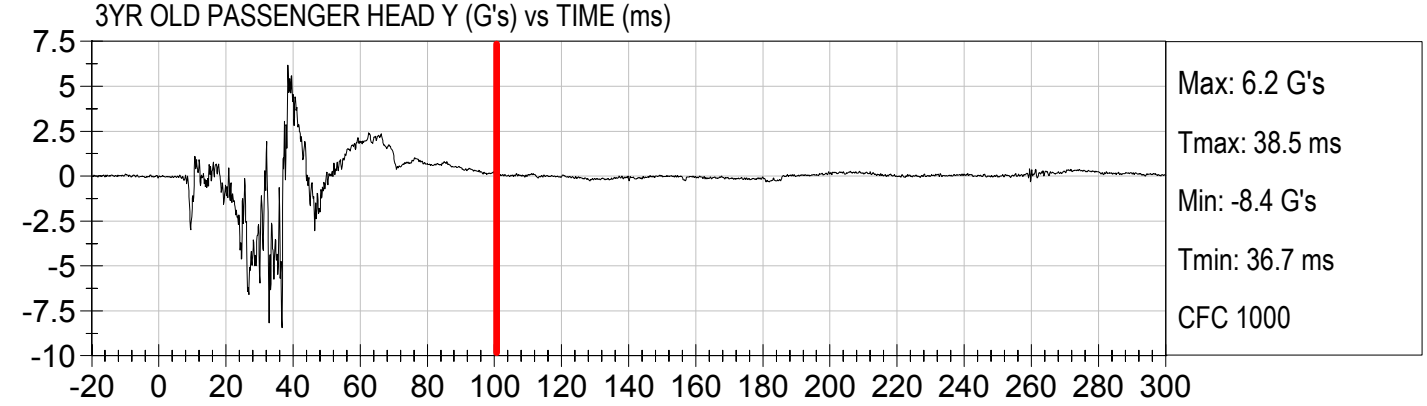
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

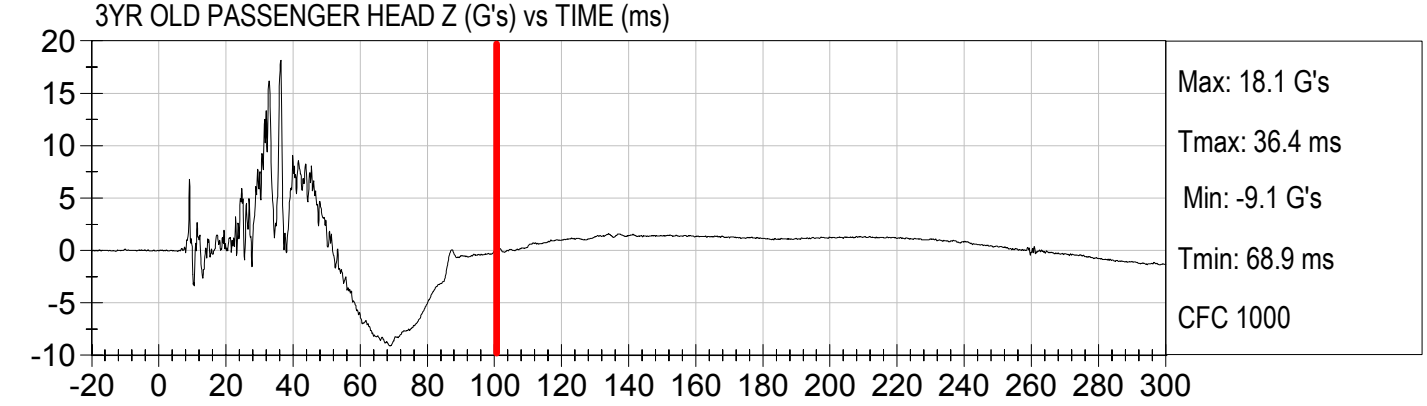
3YR OLD PASSENGER HEAD X (G's) vs TIME (ms)



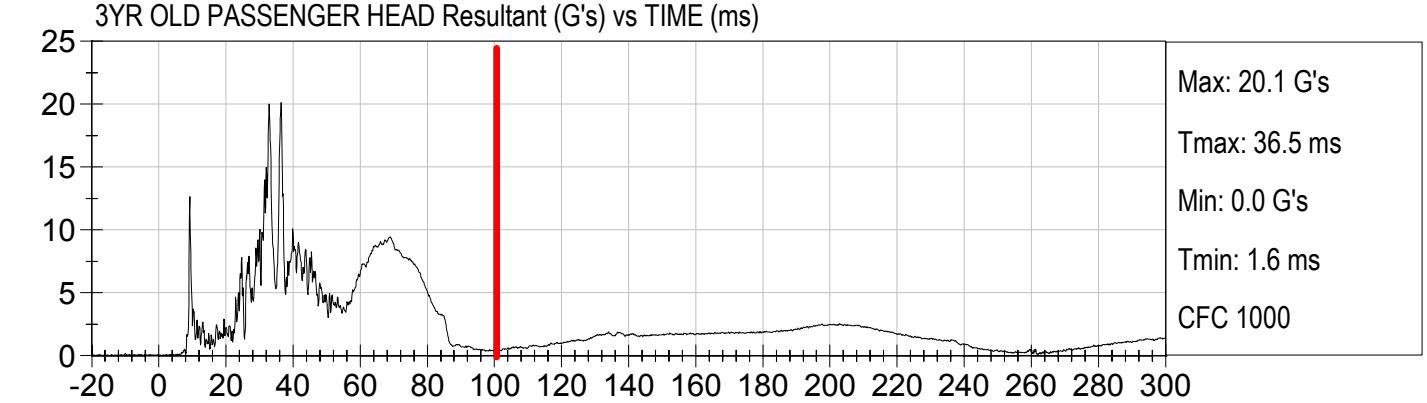
3YR OLD PASSENGER HEAD Y (G's) vs TIME (ms)



3YR OLD PASSENGER HEAD Z (G's) vs TIME (ms)



3YR OLD PASSENGER HEAD Resultant (G's) vs TIME (ms)

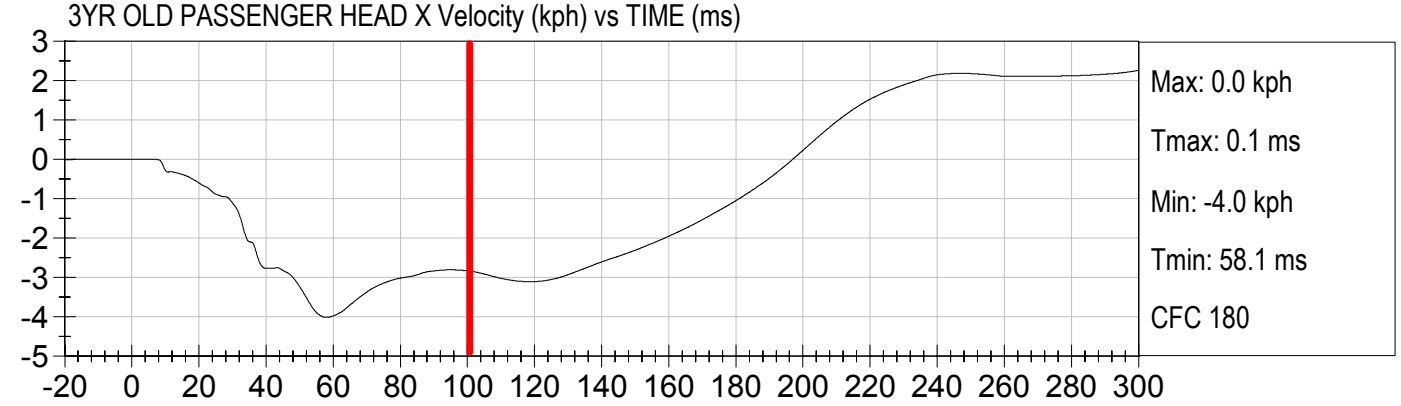


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

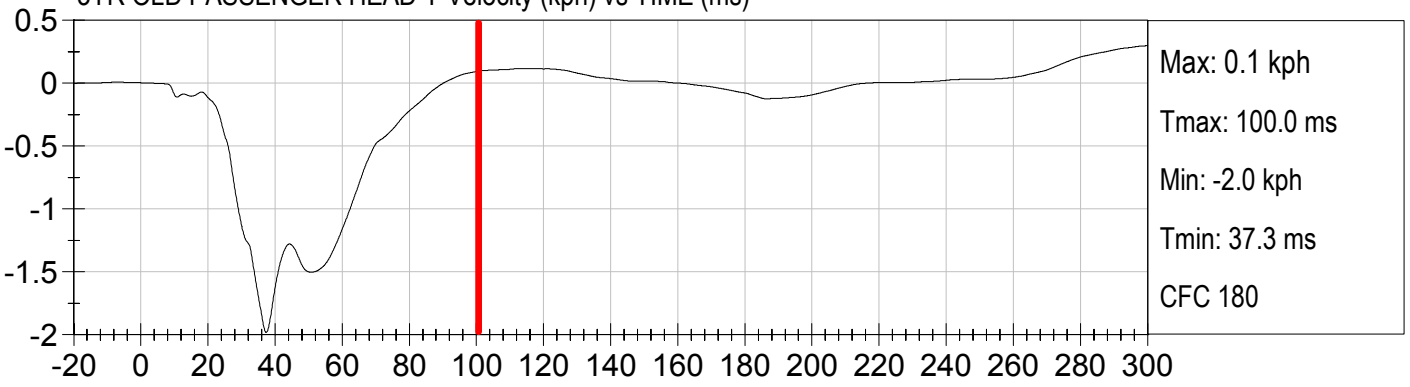
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

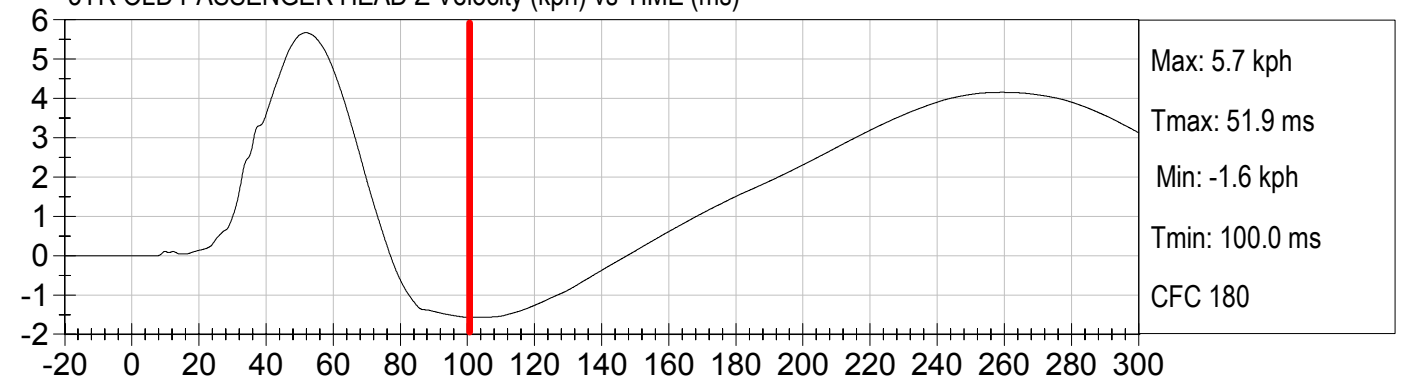
3YR OLD PASSENGER HEAD X Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER HEAD Z Velocity (kph) vs TIME (ms)

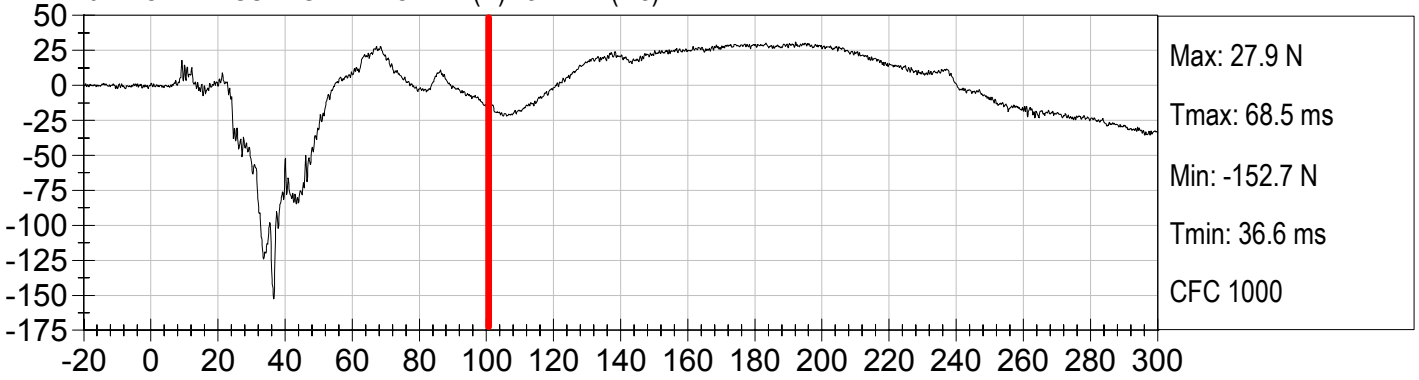


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

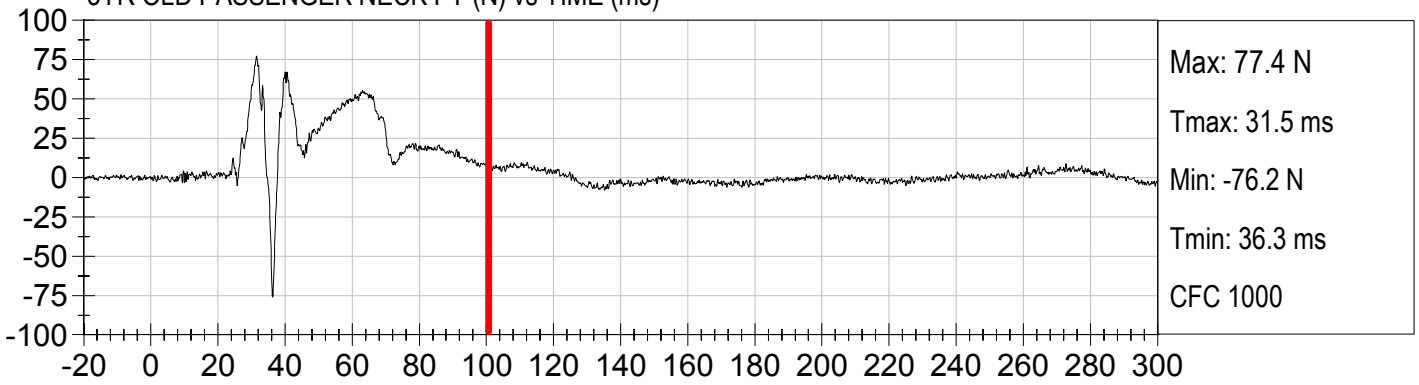
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

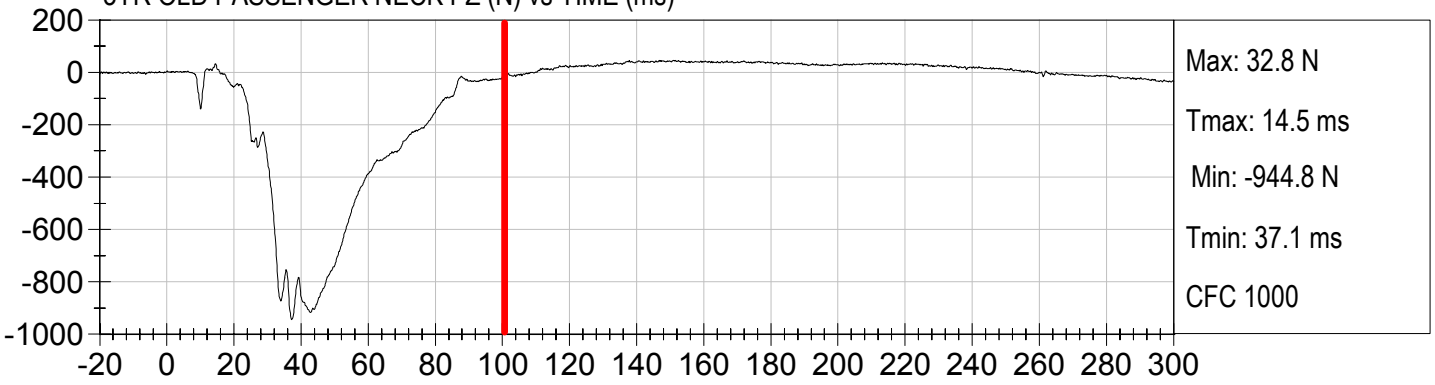
3YR OLD PASSENGER NECK FX (N) vs TIME (ms)



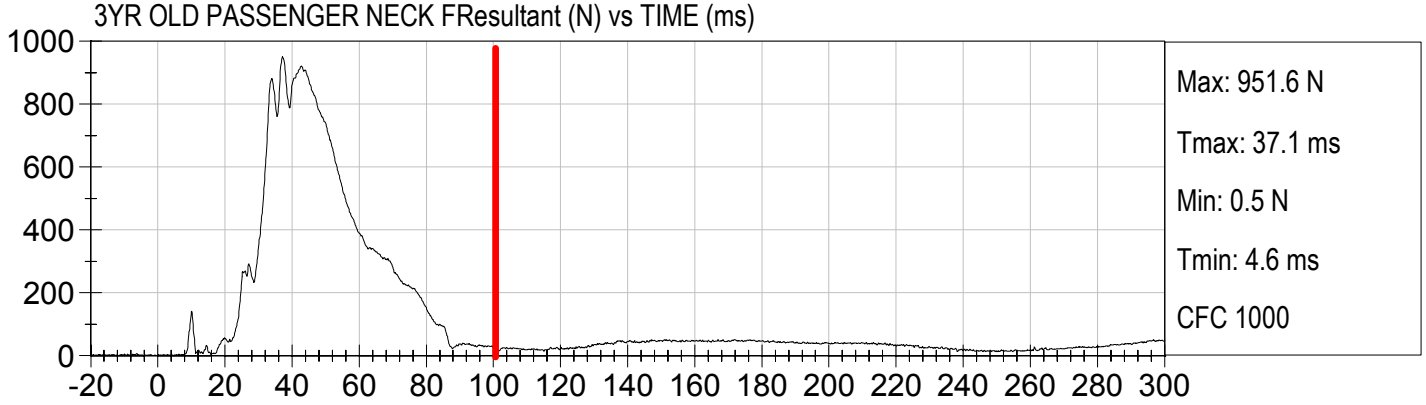
3YR OLD PASSENGER NECK FY (N) vs TIME (ms)



3YR OLD PASSENGER NECK FZ (N) vs TIME (ms)



3YR OLD PASSENGER NECK FResultant (N) vs TIME (ms)

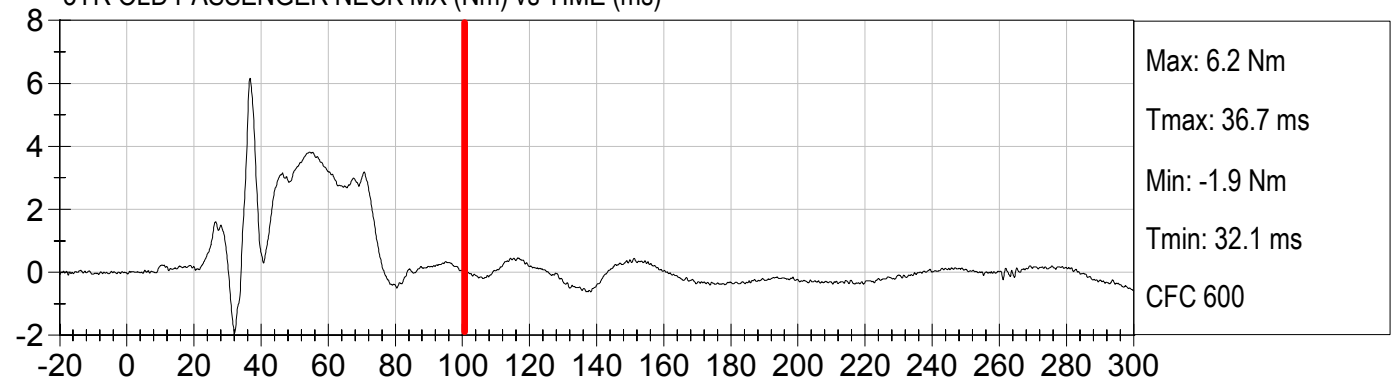


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

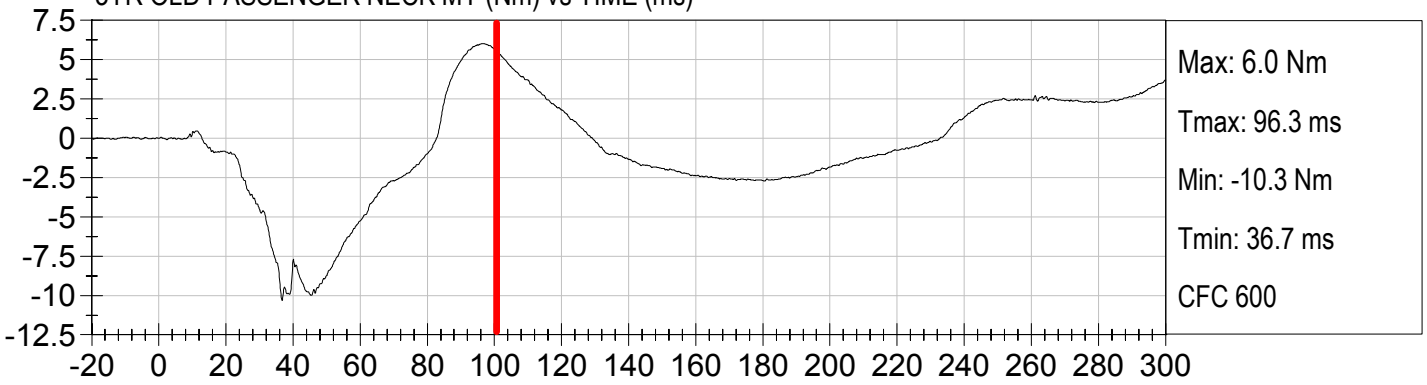
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

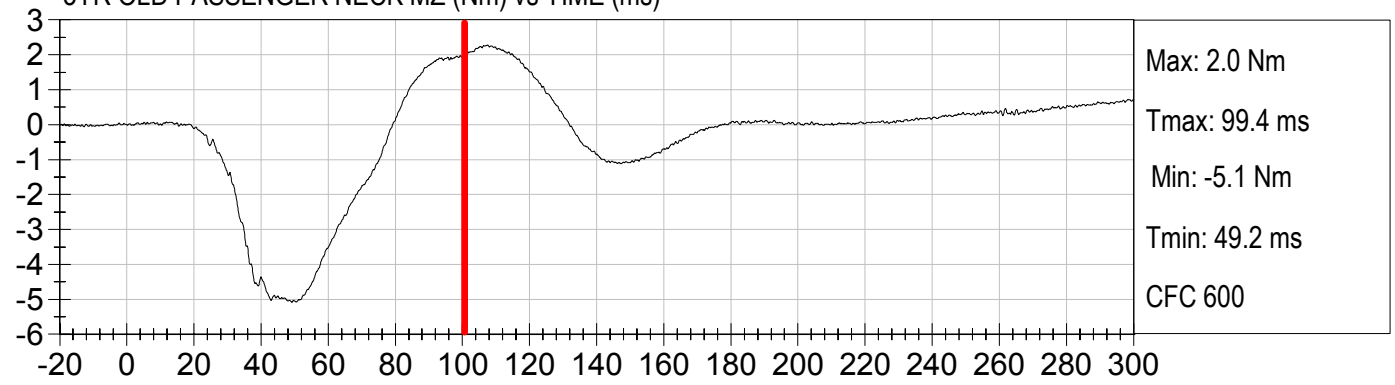
3YR OLD PASSENGER NECK MX (Nm) vs TIME (ms)



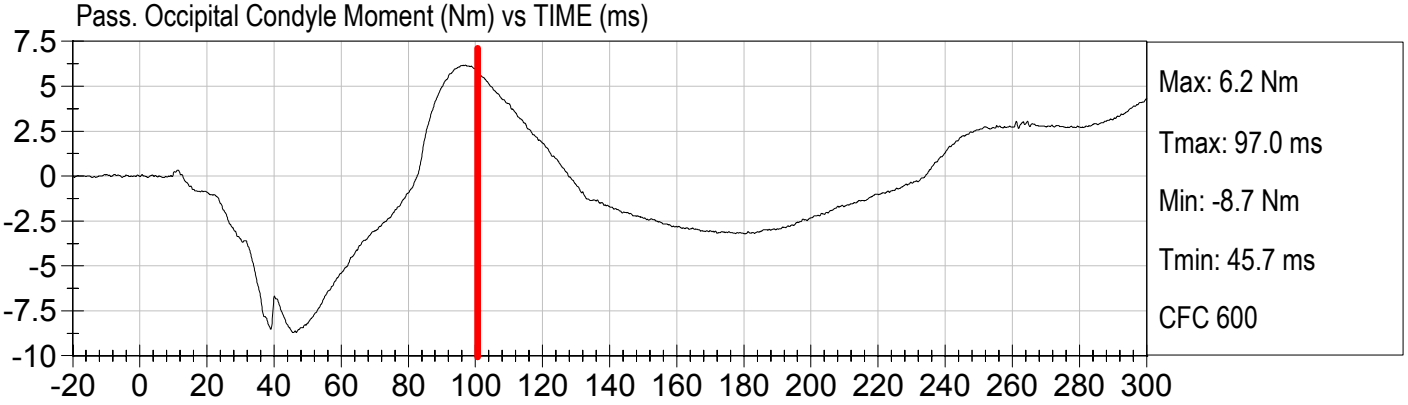
3YR OLD PASSENGER NECK MY (Nm) vs TIME (ms)



3YR OLD PASSENGER NECK MZ (Nm) vs TIME (ms)



Pass. Occipital Condyle Moment (Nm) vs TIME (ms)

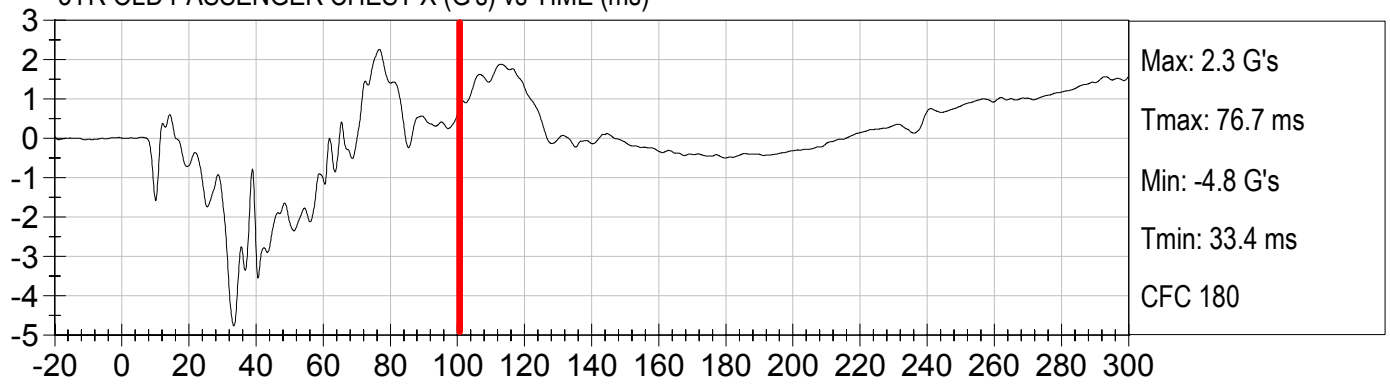


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

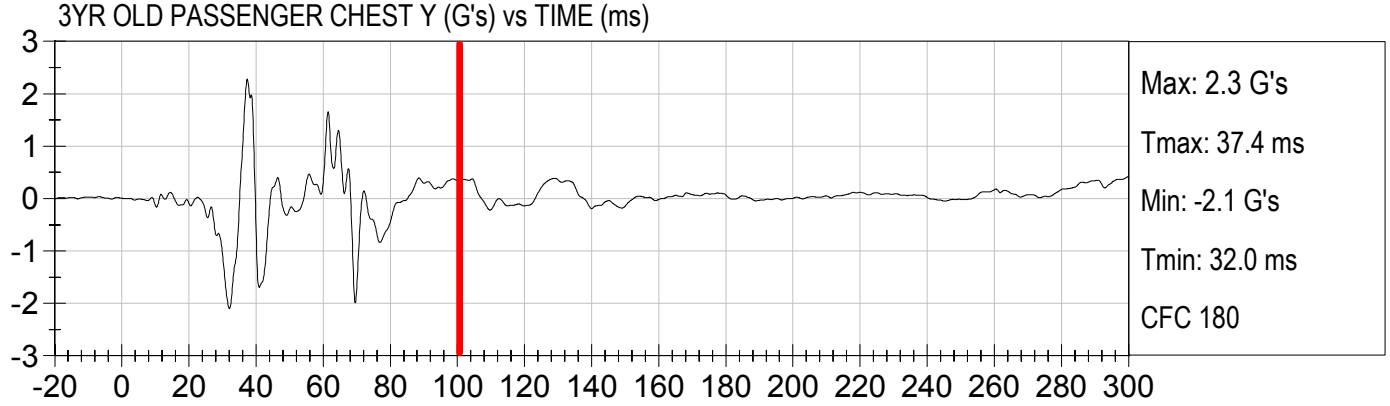
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

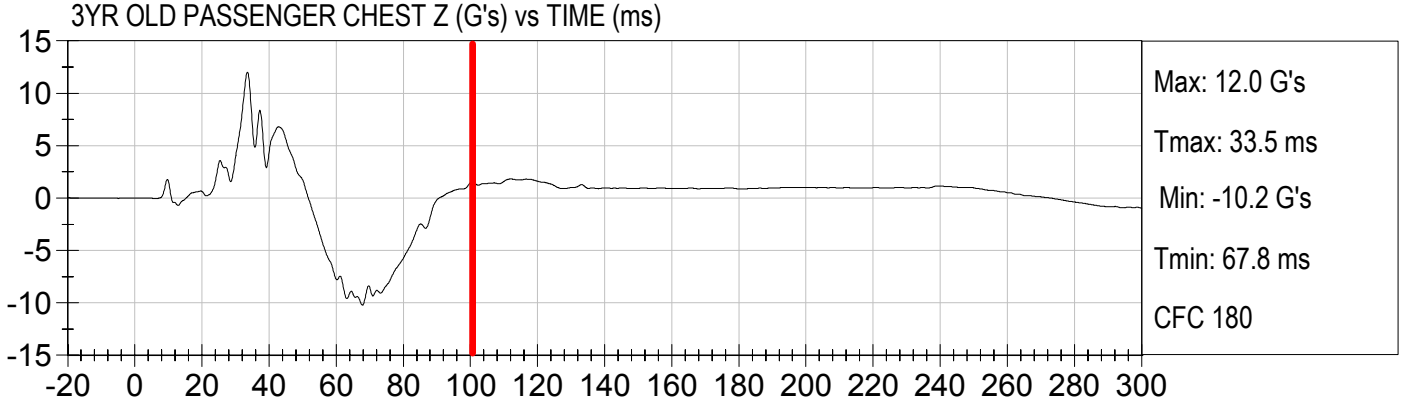
3YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



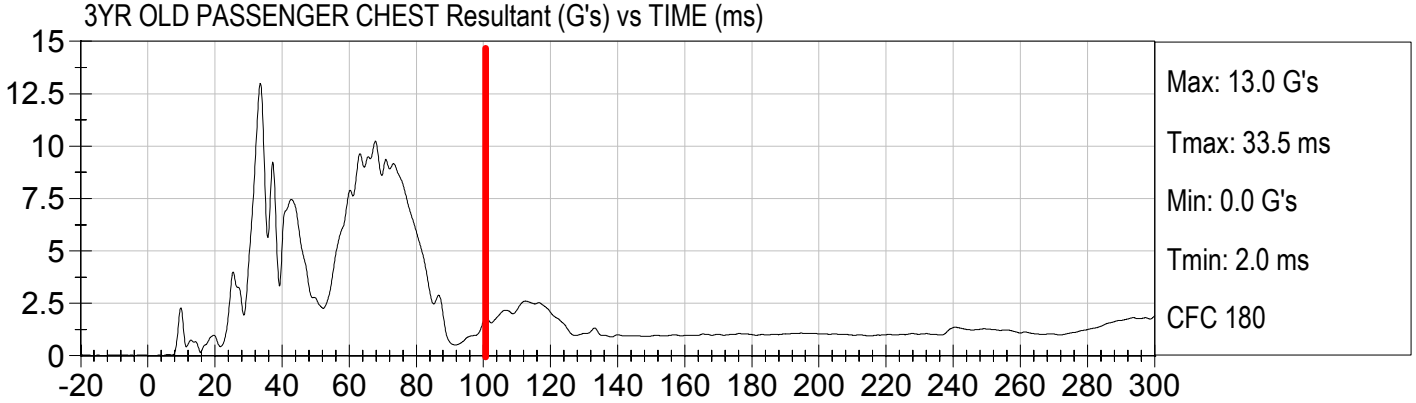
3YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



3YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



3YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)

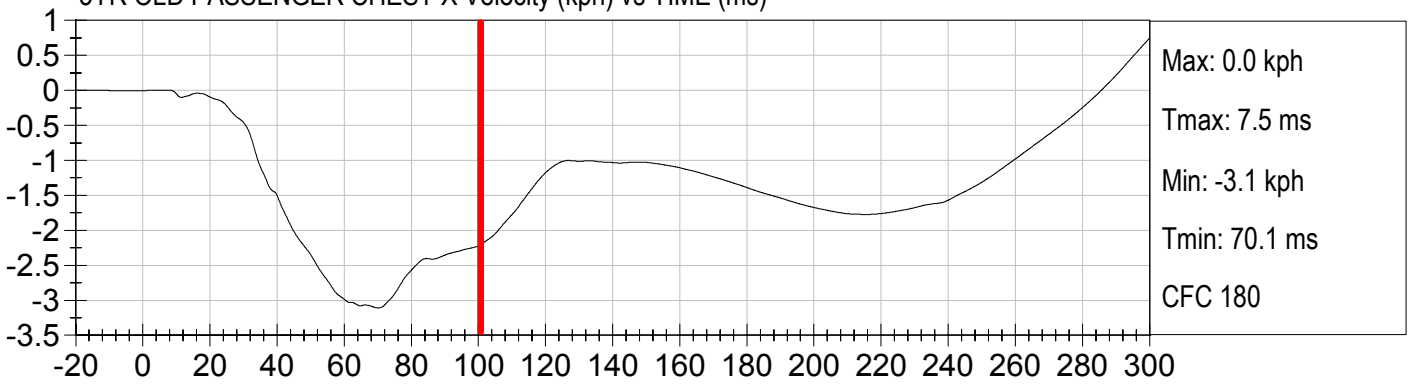


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

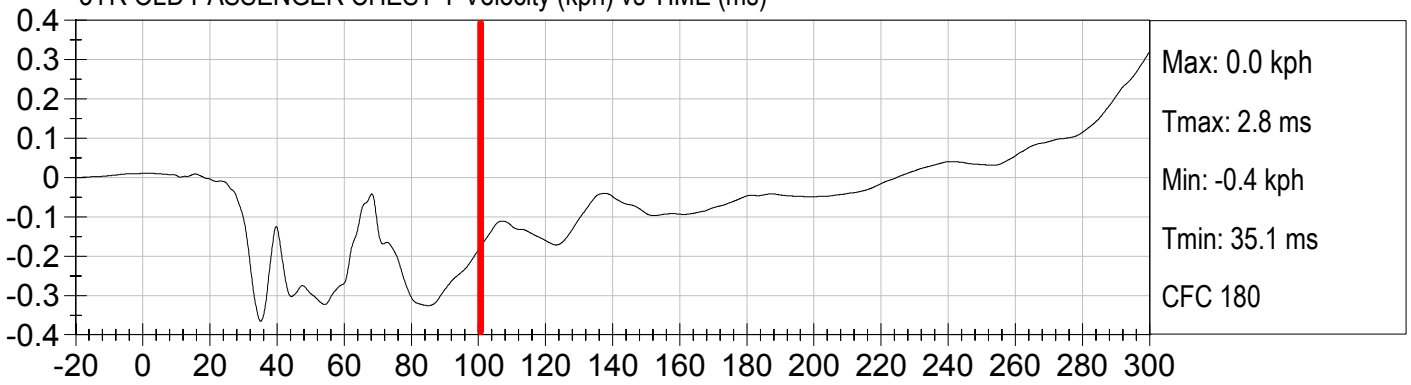
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

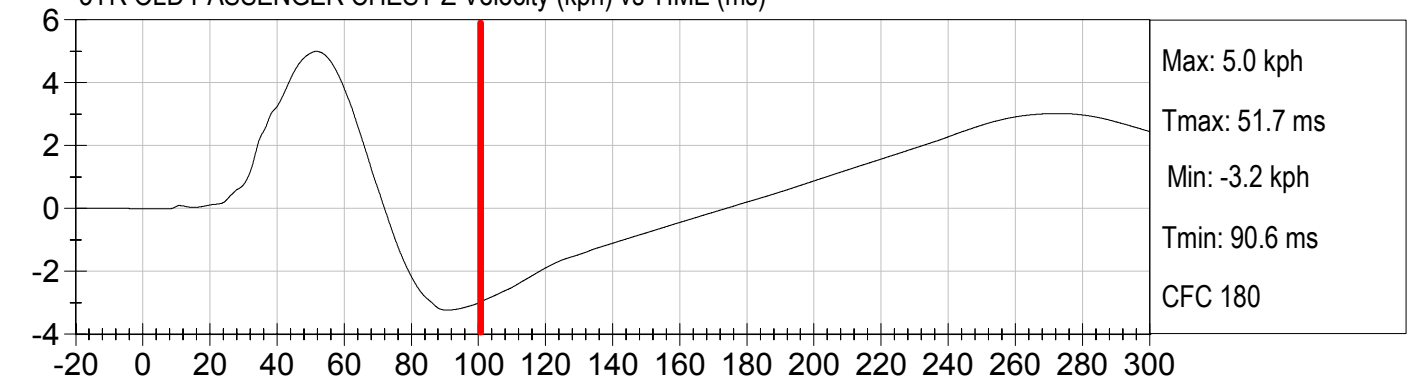
3YR OLD PASSENGER CHEST X Velocity (kph) vs TIME (ms)



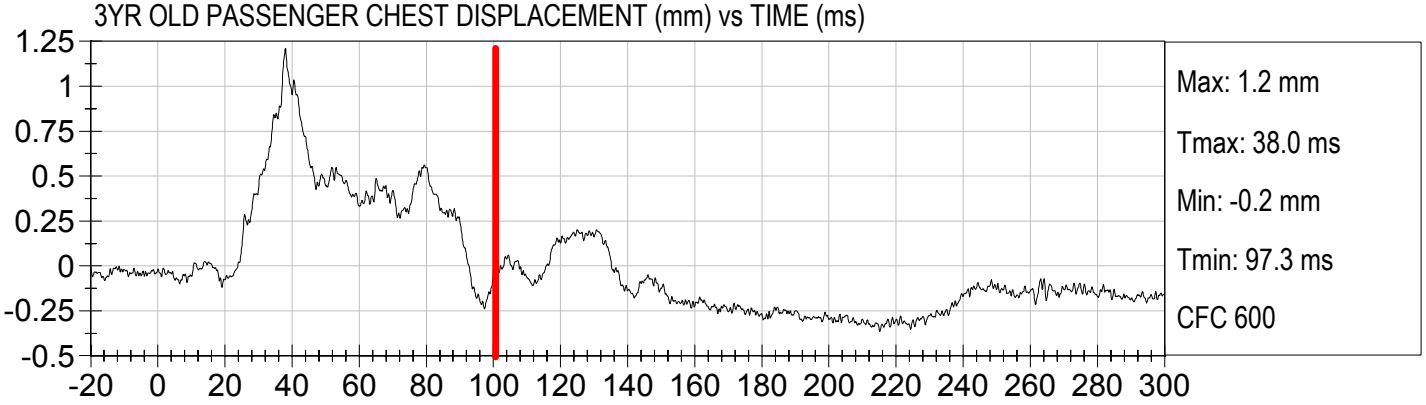
3YR OLD PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



3YR OLD PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

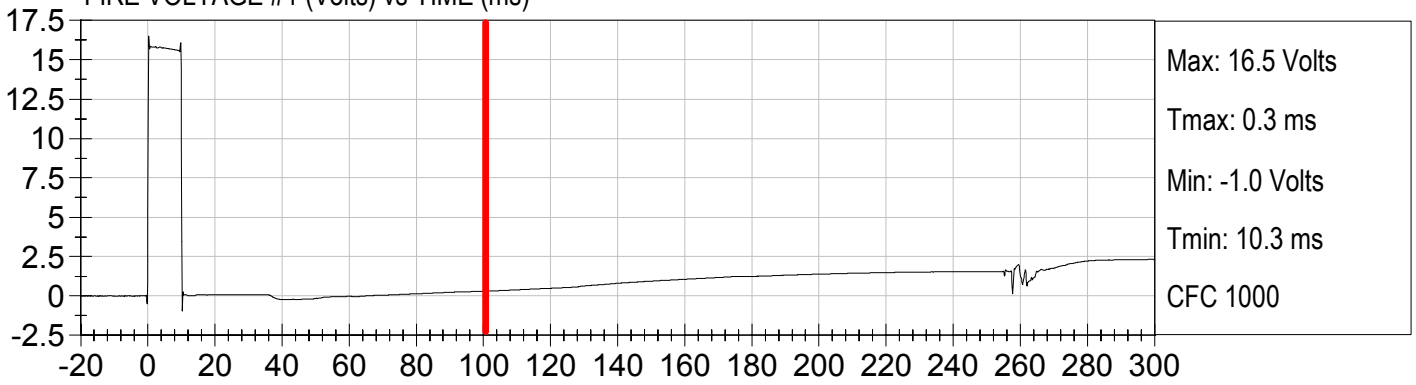


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

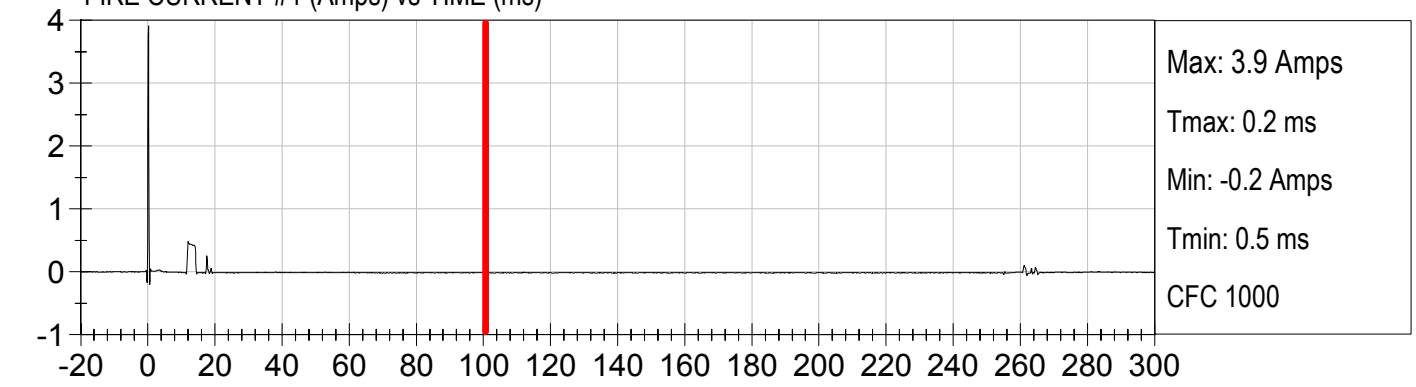
Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

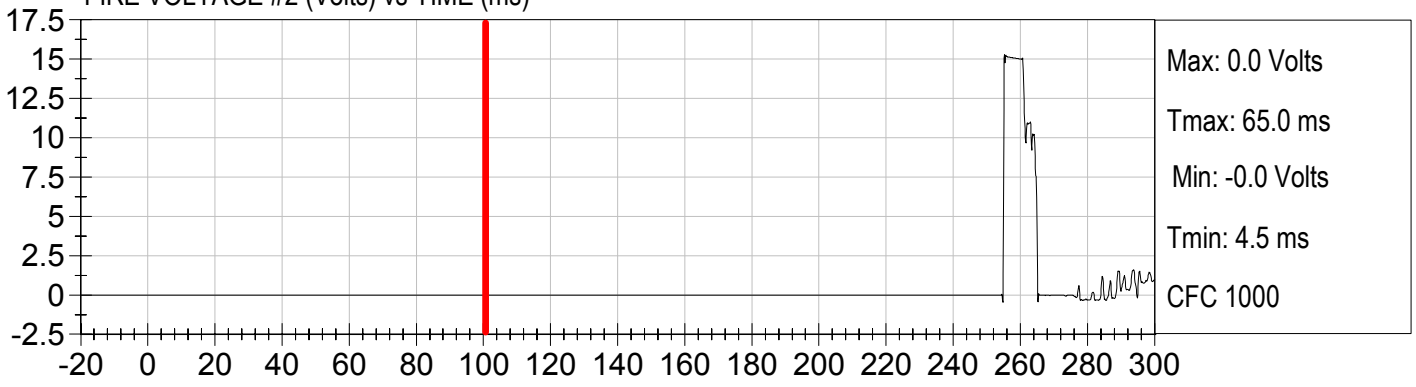
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



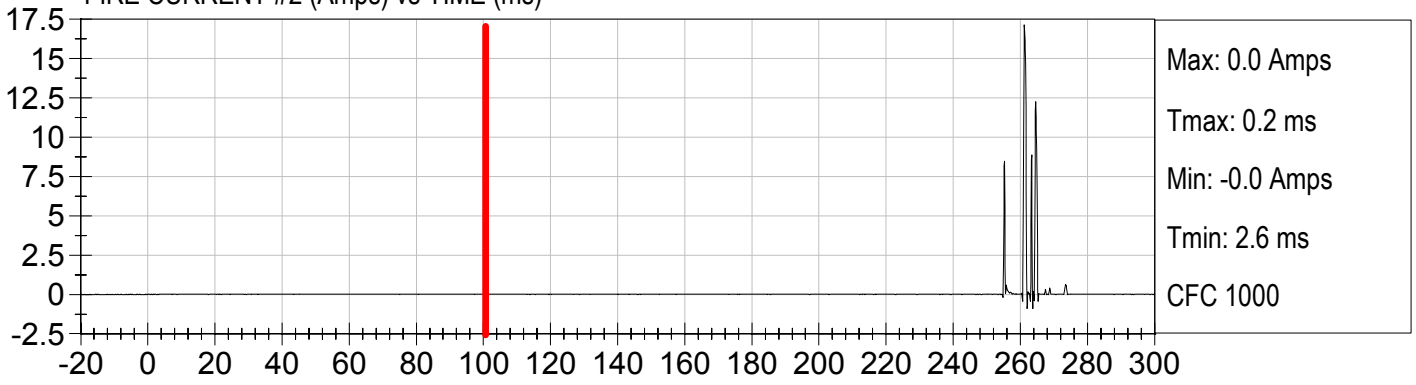
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)



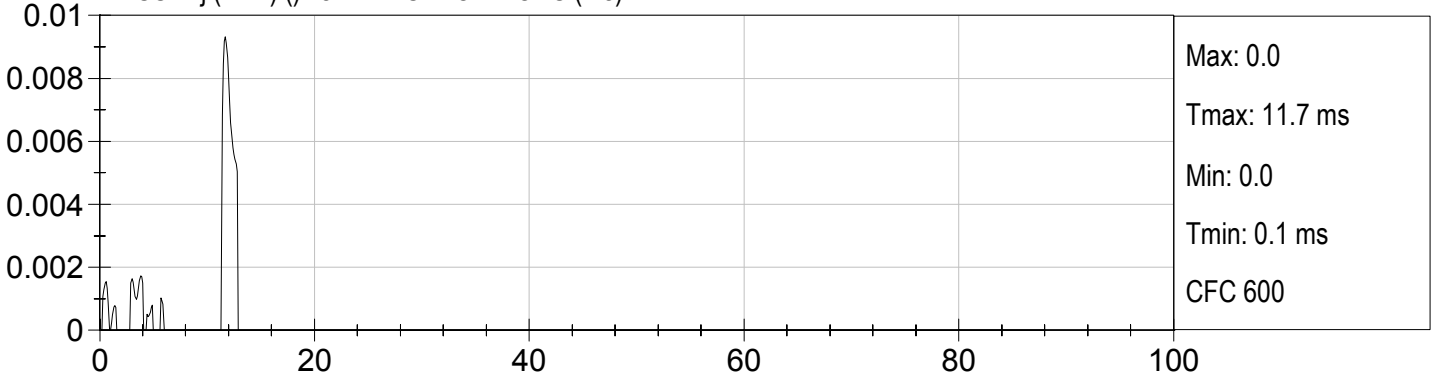
FIRE CURRENT #2 (Amps) vs TIME (ms)



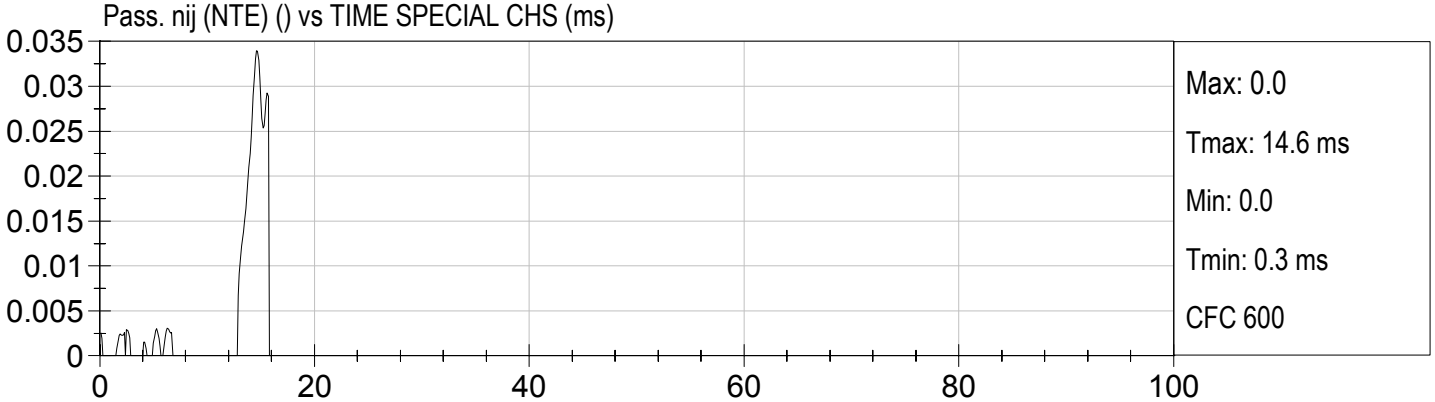
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (3YO P2)

Test Date: 2/20/08
Speed: 0.0 mph (0.0 km/h)

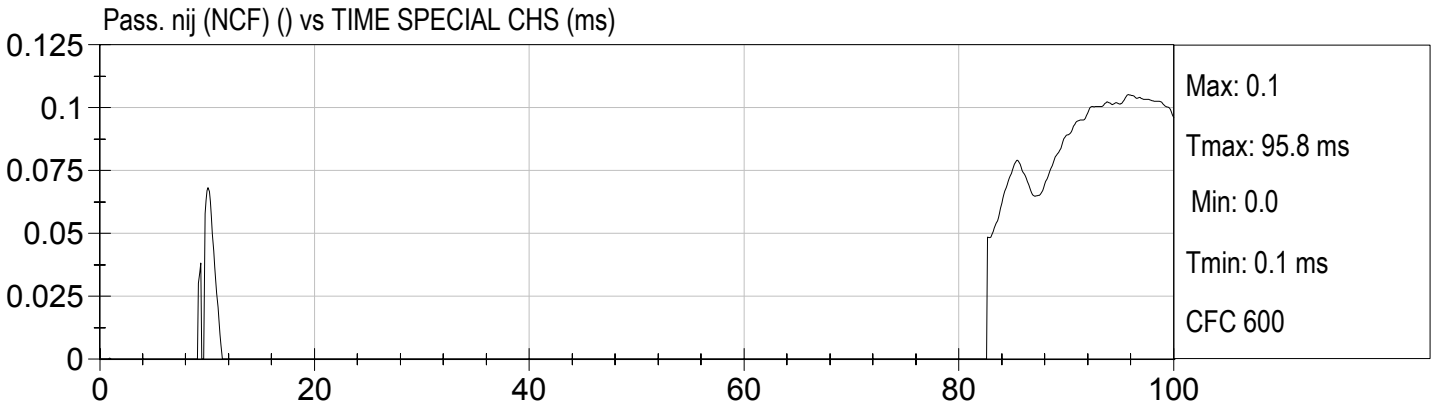
PASS. nij (NTF) () vs TIME SPECIAL CHS (ms)



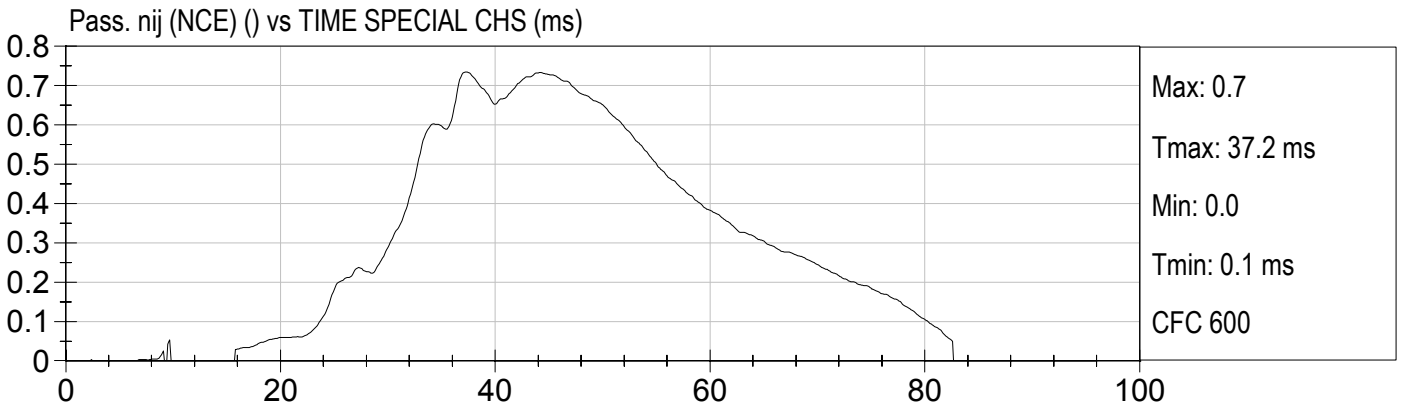
Pass. nij (NTE) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCF) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCE) () vs TIME SPECIAL CHS (ms)

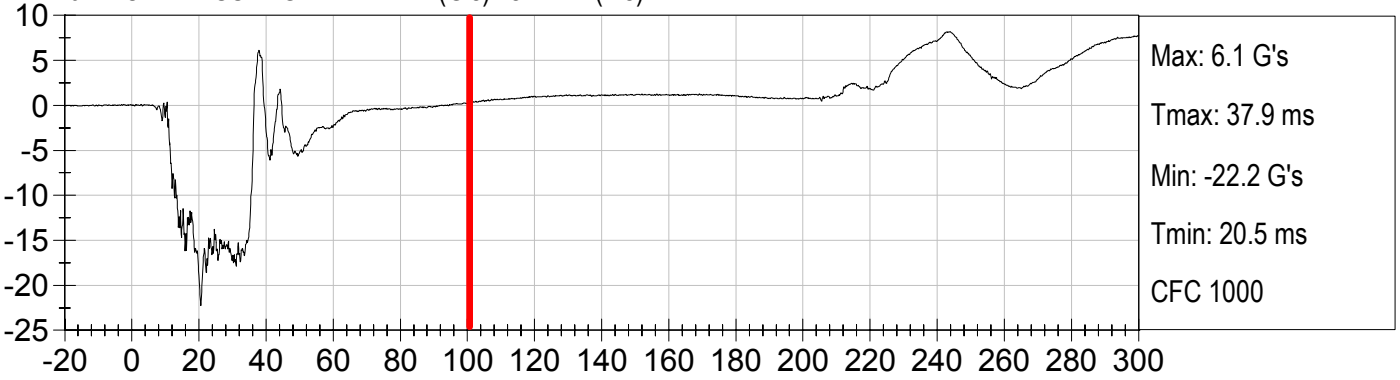


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

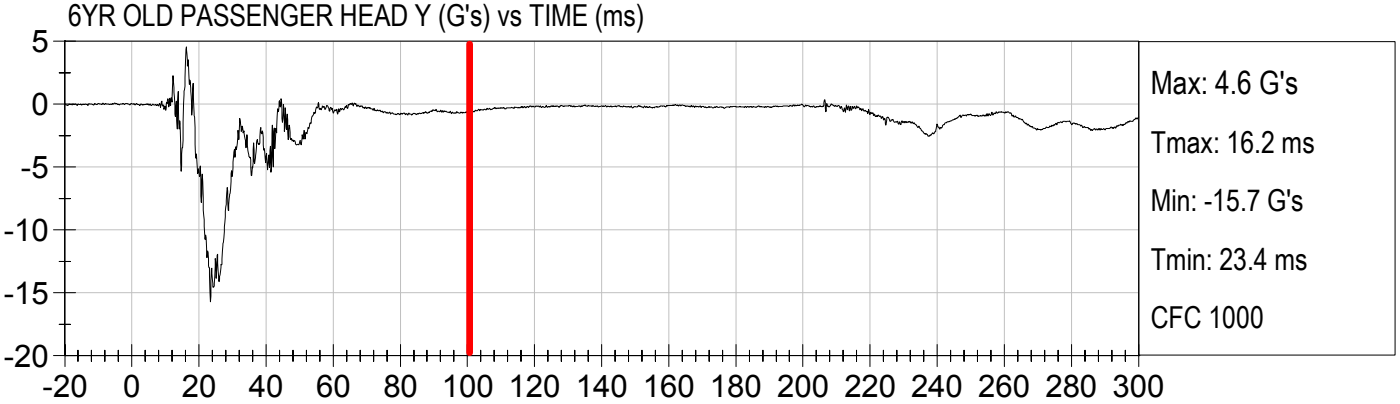
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

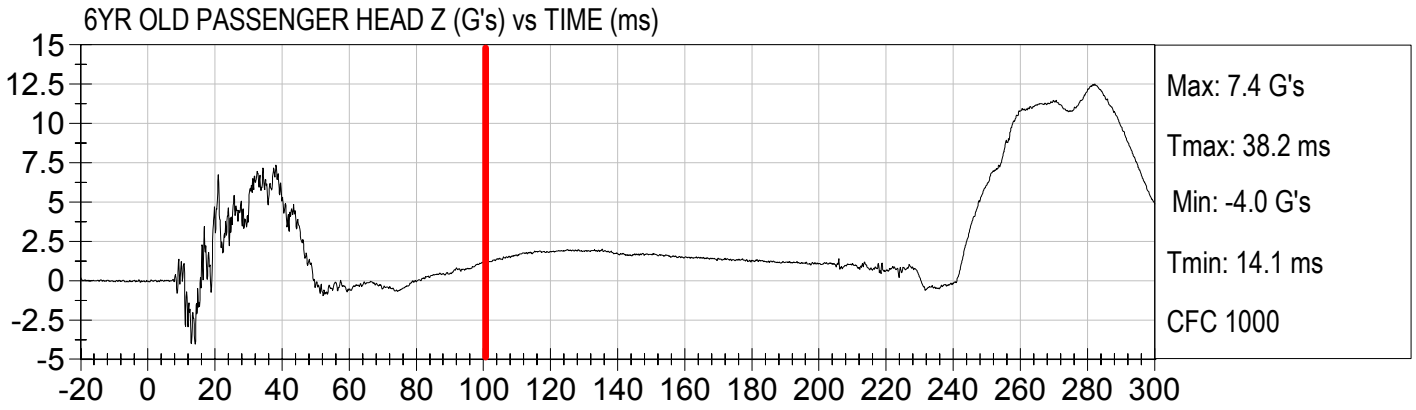
6YR OLD PASSENGER HEAD X (G's) vs TIME (ms)



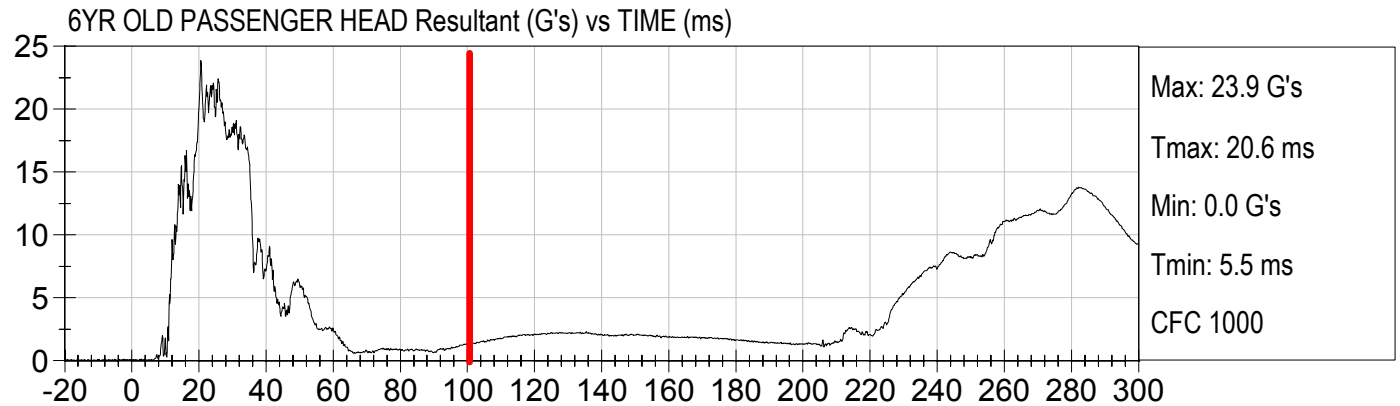
6YR OLD PASSENGER HEAD Y (G's) vs TIME (ms)



6YR OLD PASSENGER HEAD Z (G's) vs TIME (ms)



6YR OLD PASSENGER HEAD Resultant (G's) vs TIME (ms)

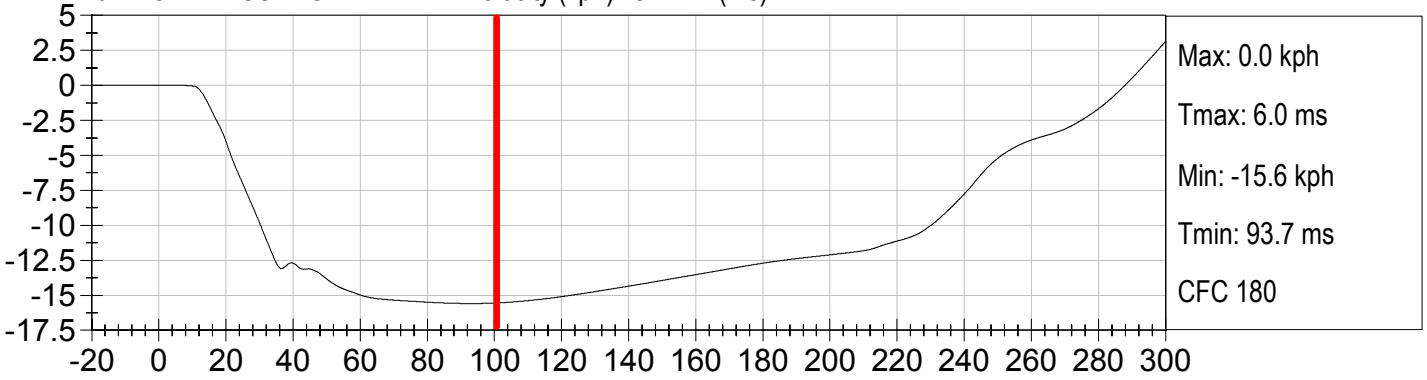


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

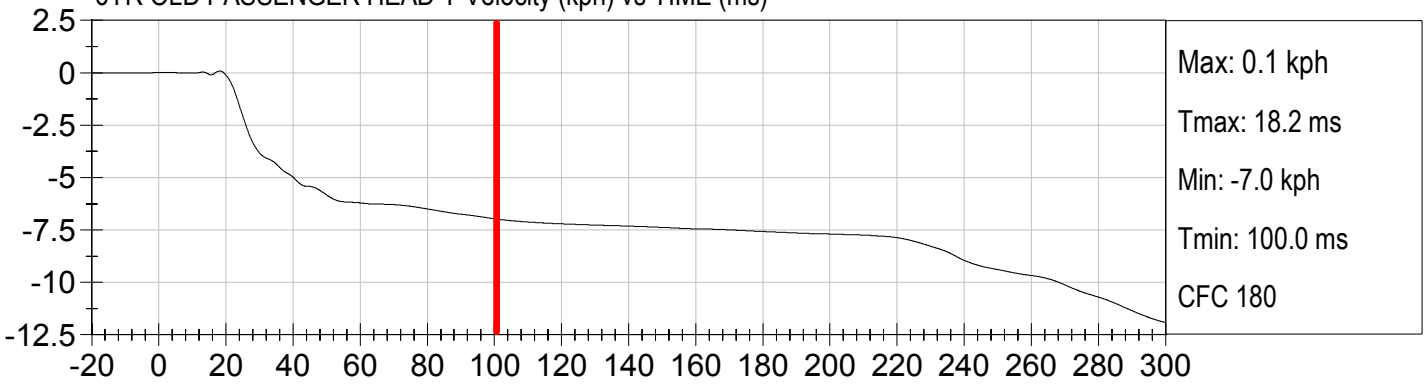
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

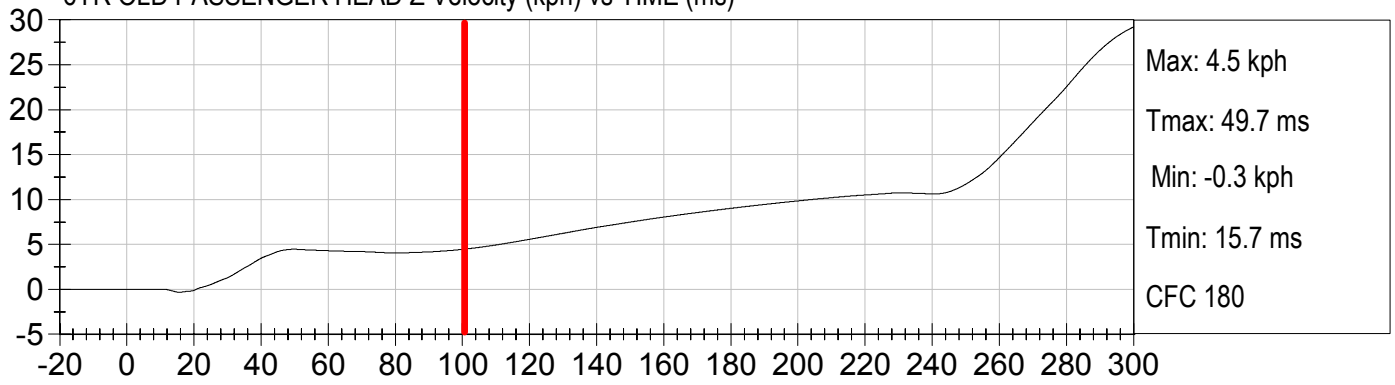
6YR OLD PASSENGER HEAD X Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER HEAD Z Velocity (kph) vs TIME (ms)

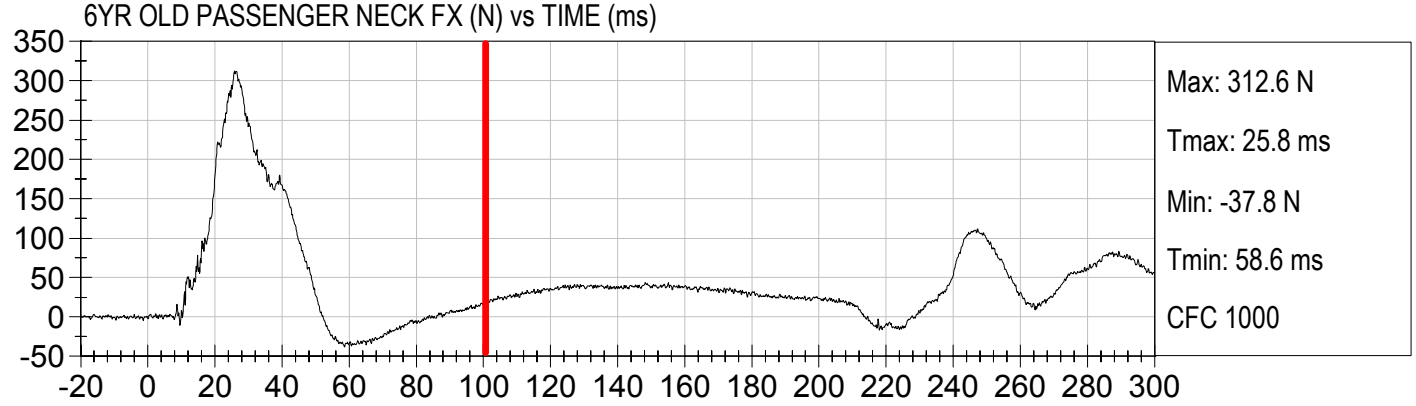


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

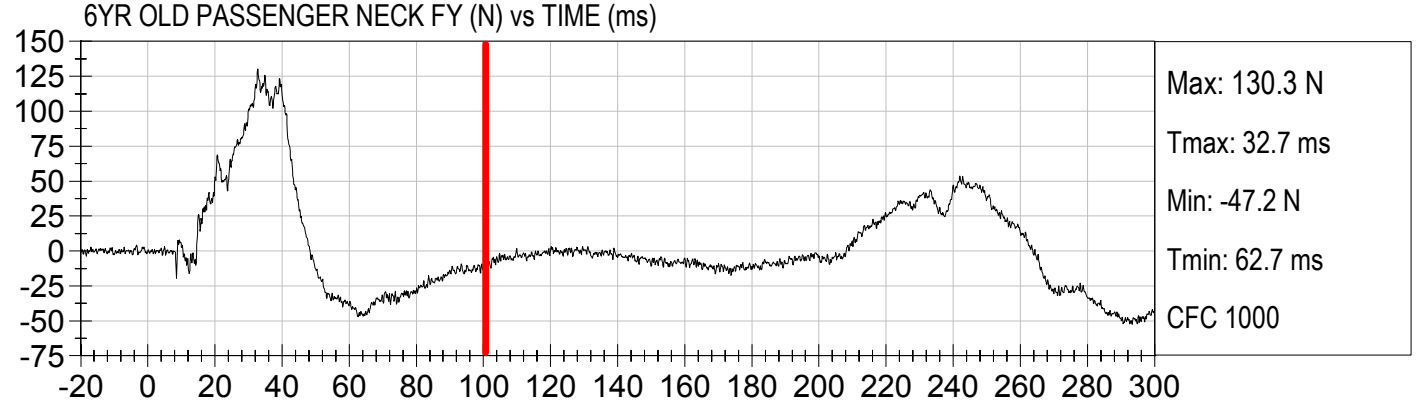
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

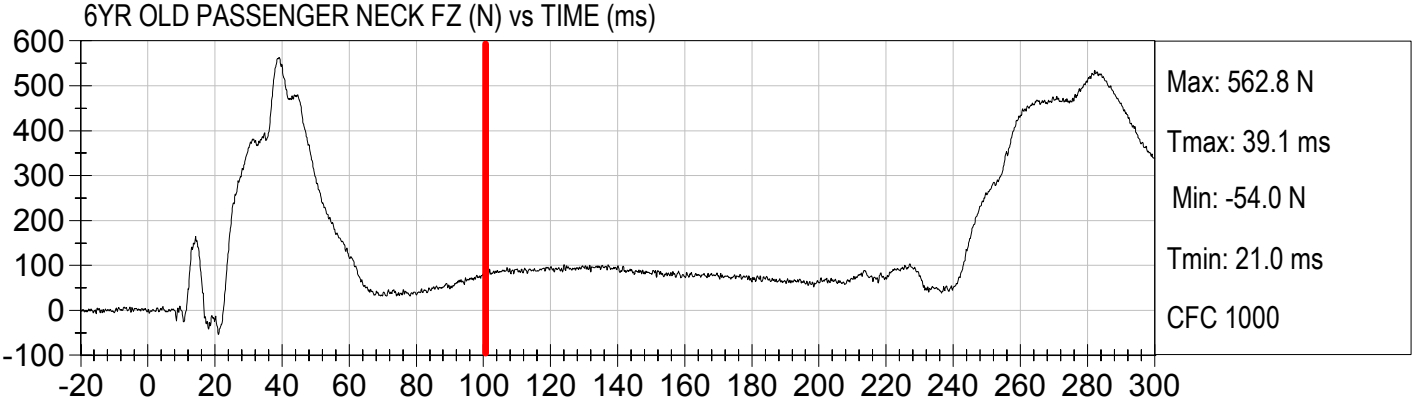
6YR OLD PASSENGER NECK FX (N) vs TIME (ms)



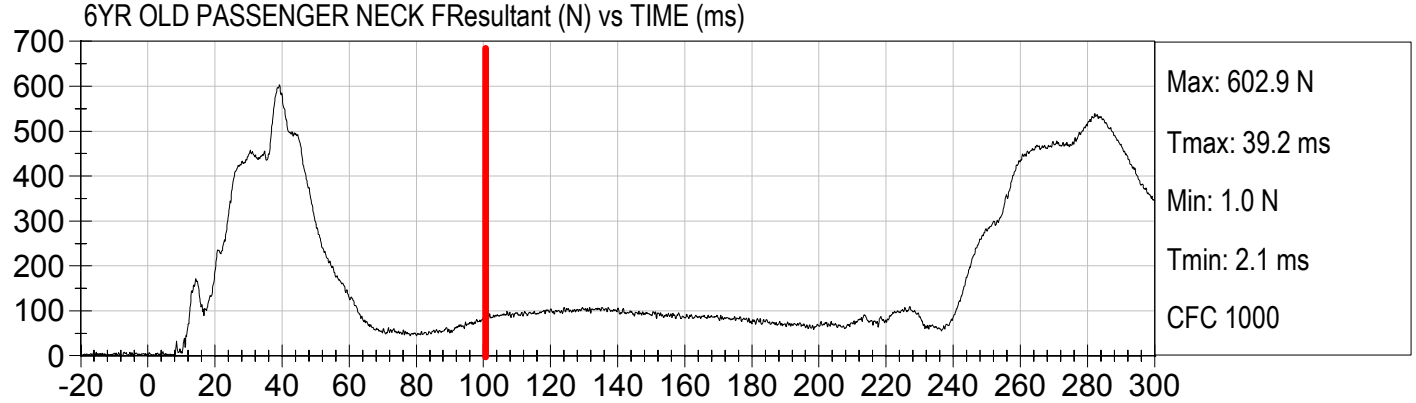
6YR OLD PASSENGER NECK FY (N) vs TIME (ms)



6YR OLD PASSENGER NECK FZ (N) vs TIME (ms)



6YR OLD PASSENGER NECK FResultant (N) vs TIME (ms)

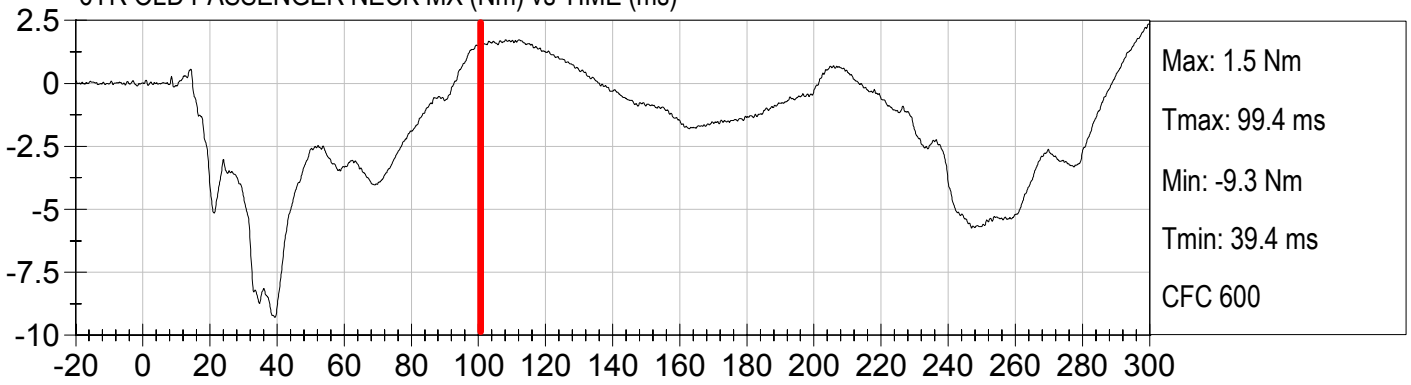


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

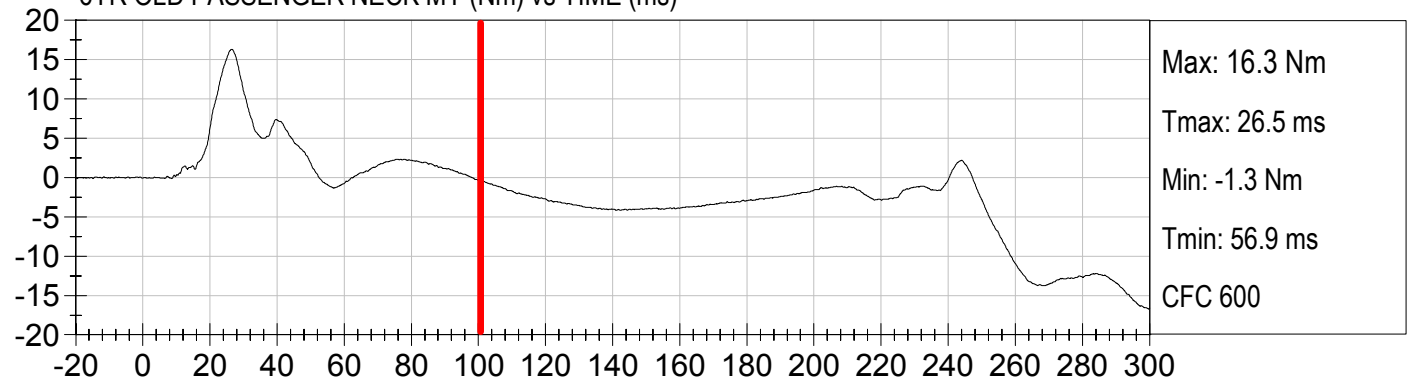
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

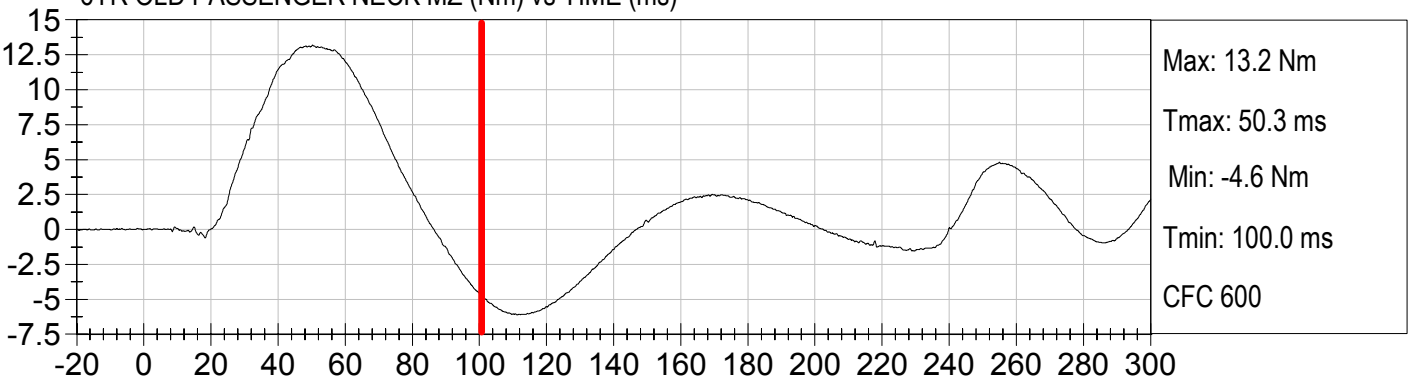
6YR OLD PASSENGER NECK MX (Nm) vs TIME (ms)



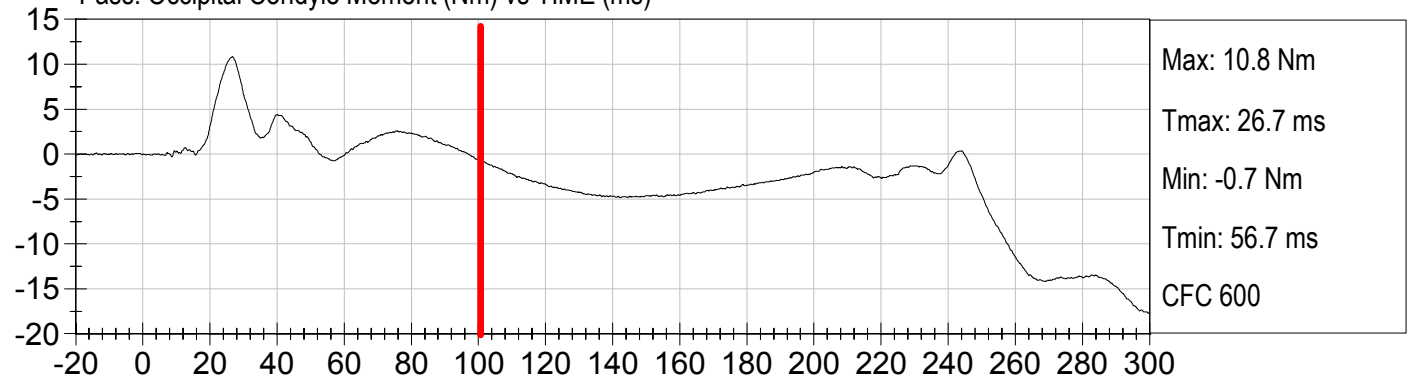
6YR OLD PASSENGER NECK MY (Nm) vs TIME (ms)



6YR OLD PASSENGER NECK MZ (Nm) vs TIME (ms)



Pass. Occipital Condyle Moment (Nm) vs TIME (ms)

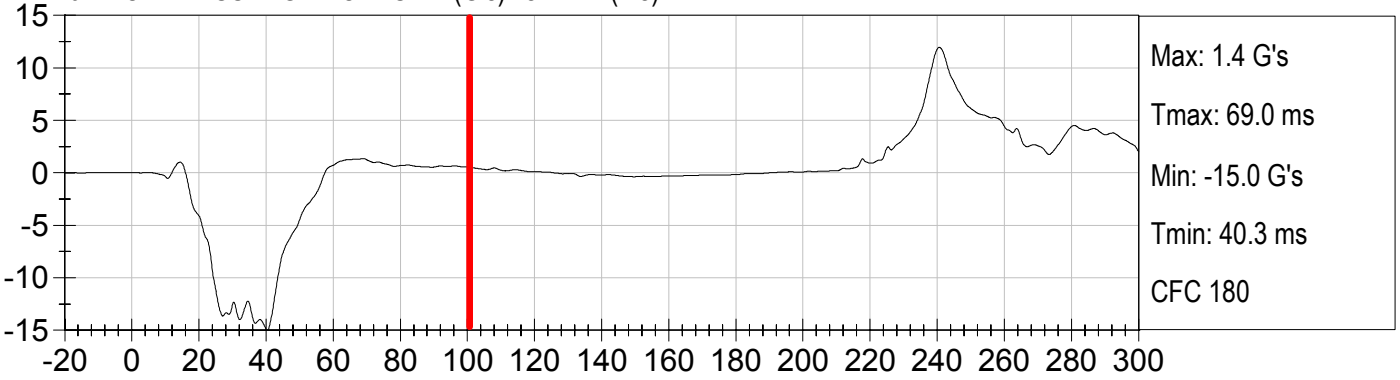


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

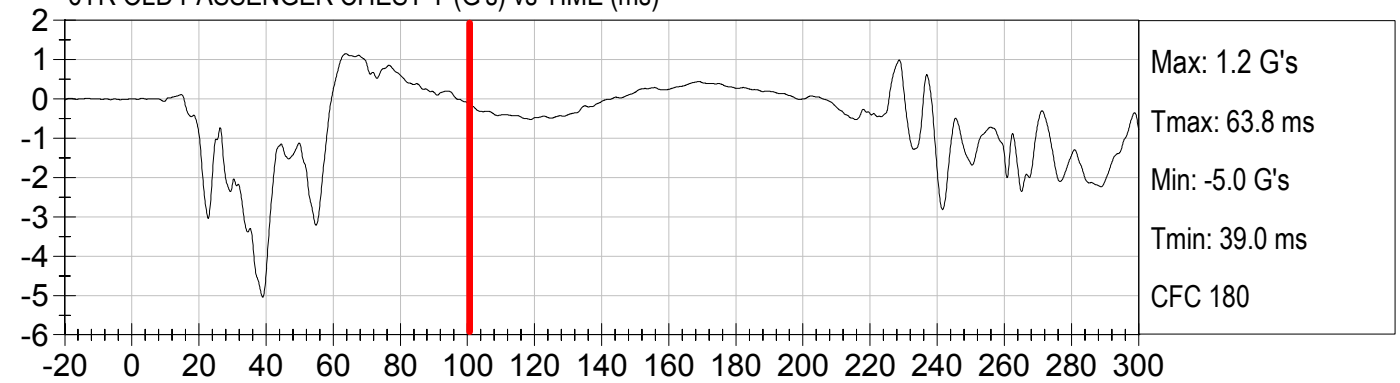
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

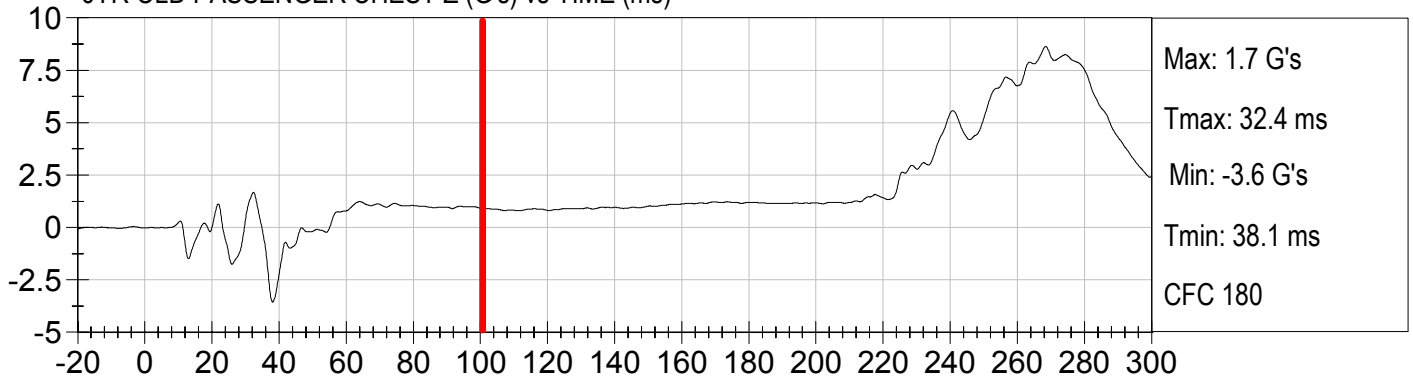
6YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



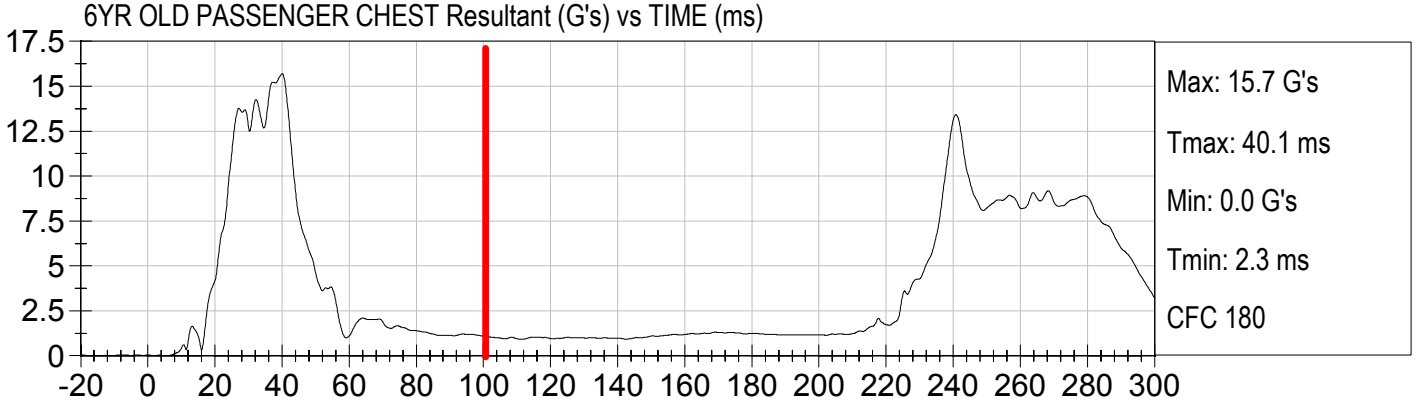
6YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



6YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



6YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)

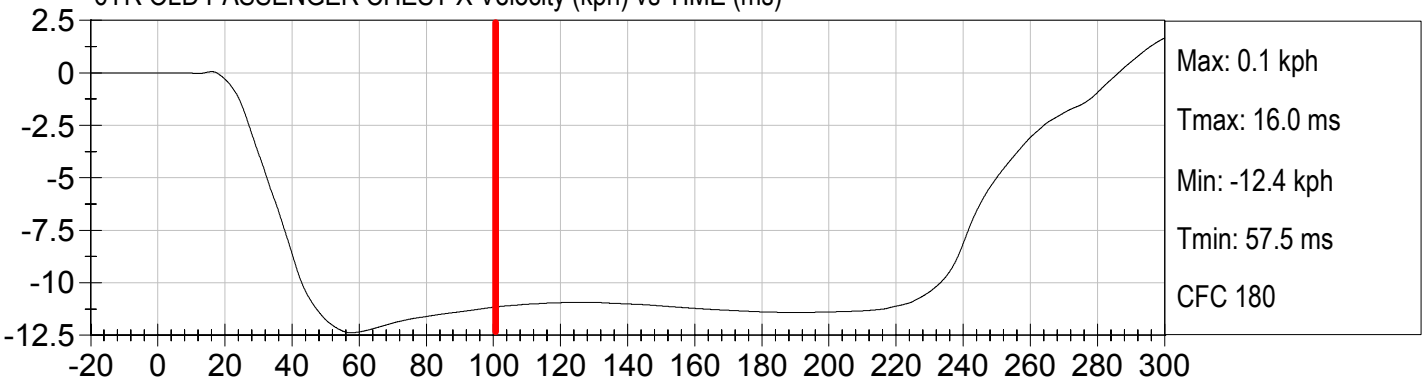


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

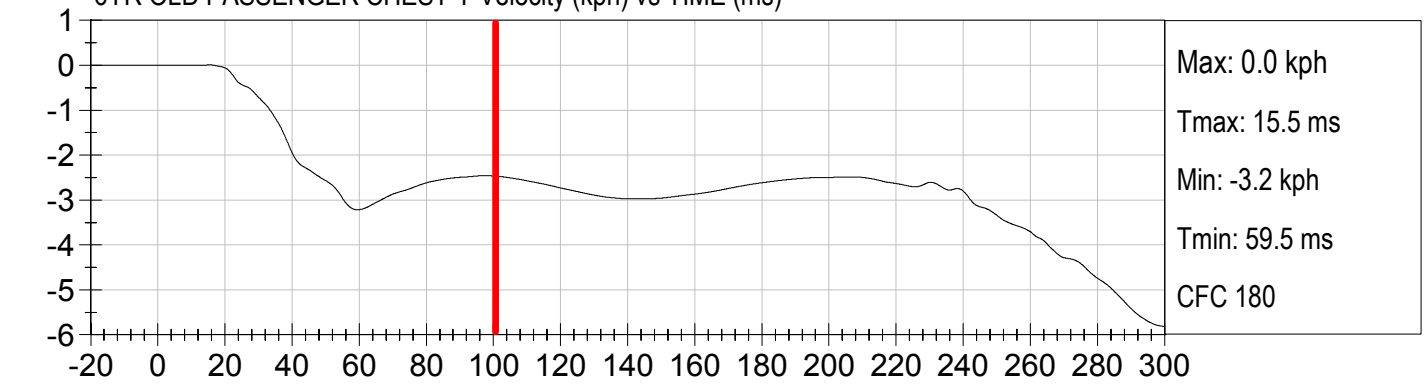
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

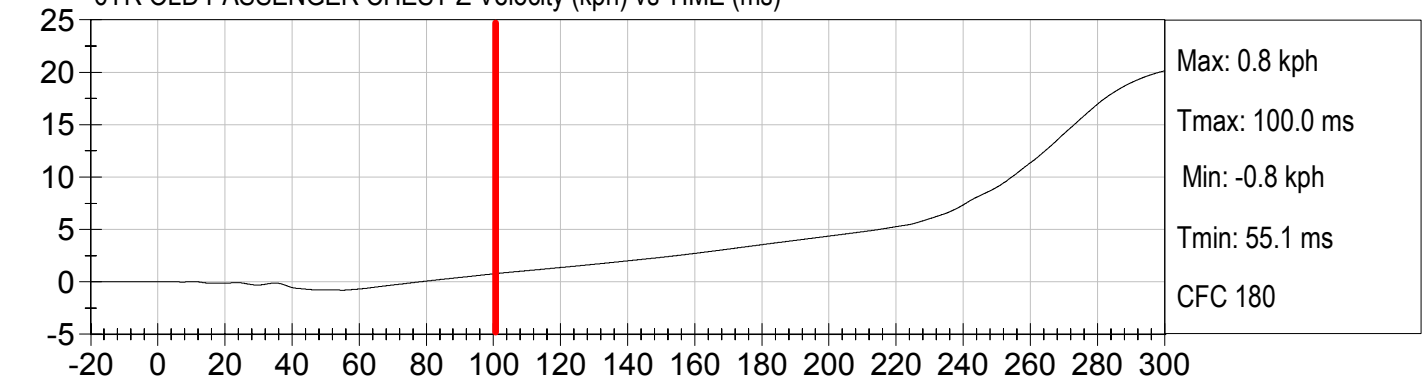
6YR OLD PASSENGER CHEST X Velocity (kph) vs TIME (ms)



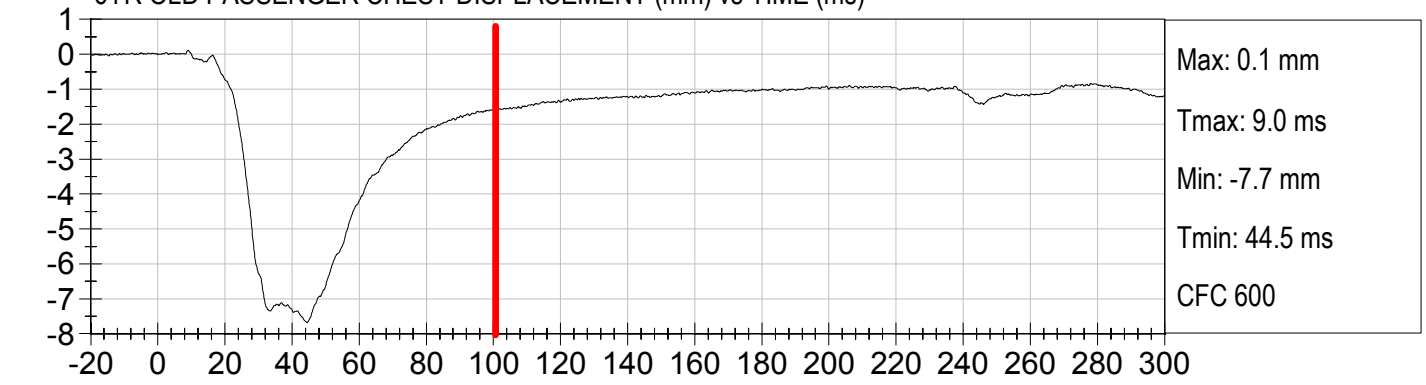
6YR OLD PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

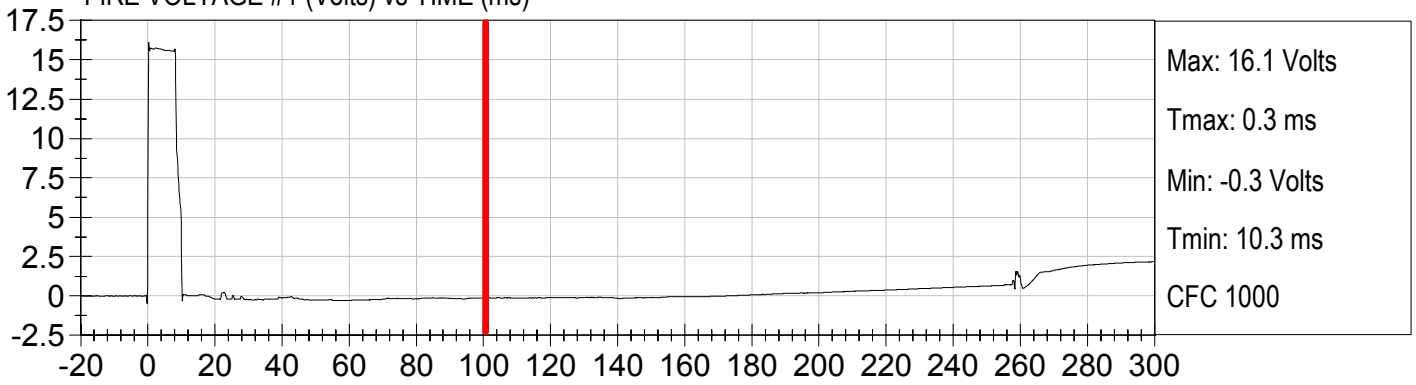


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P1)

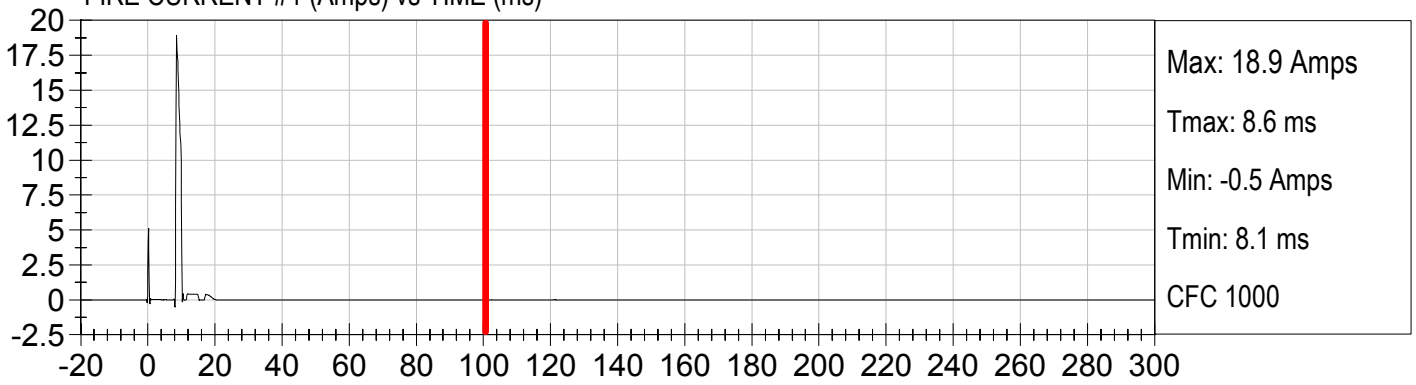
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

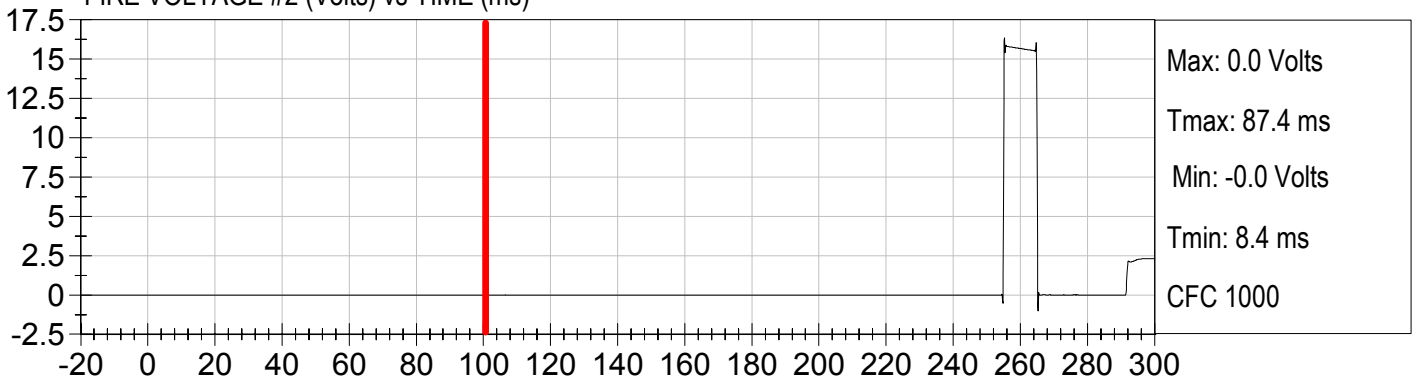
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



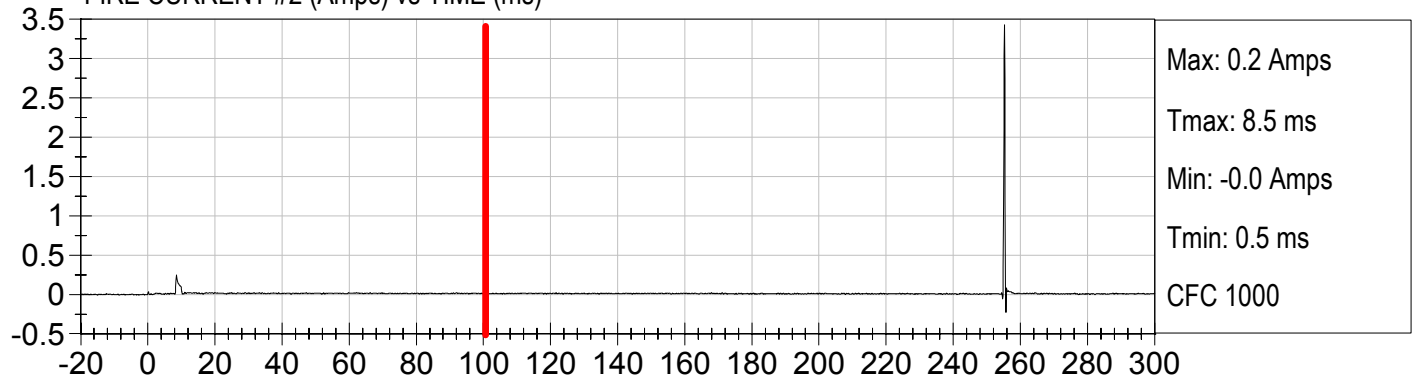
FIRE CURRENT #1 (Amps) vs TIME (ms)



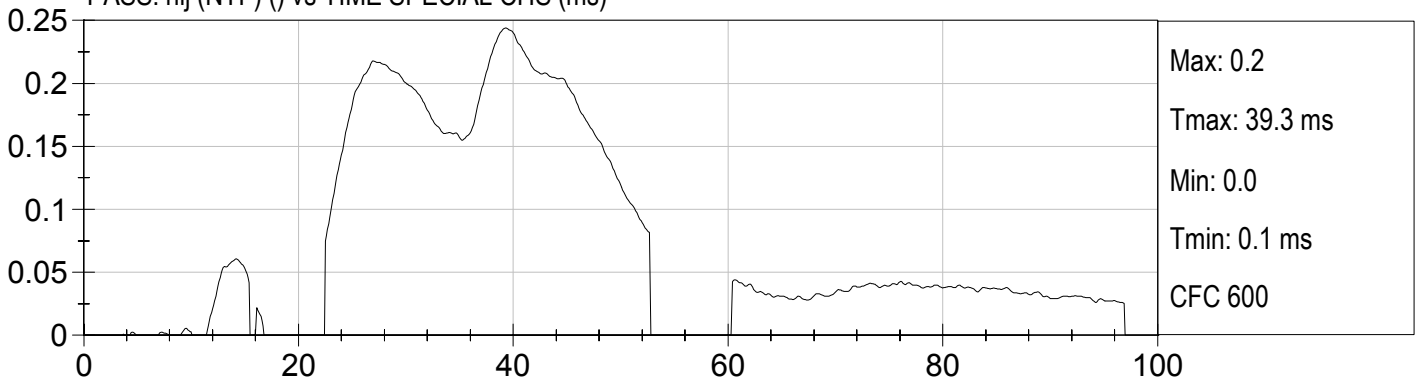
FIRE VOLTAGE #2 (Volts) vs TIME (ms)



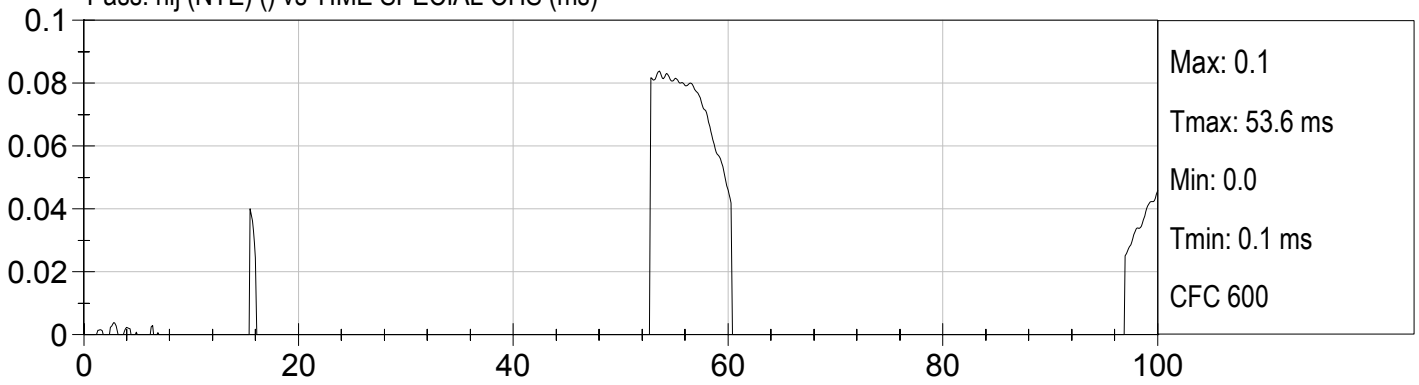
FIRE CURRENT #2 (Amps) vs TIME (ms)



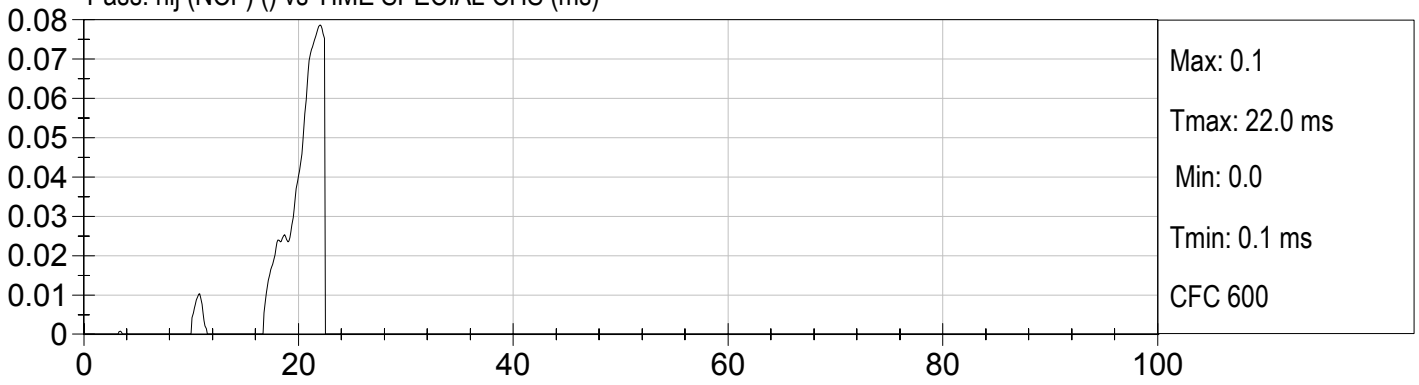
PASS. nij (NTF) () vs TIME SPECIAL CHS (ms)



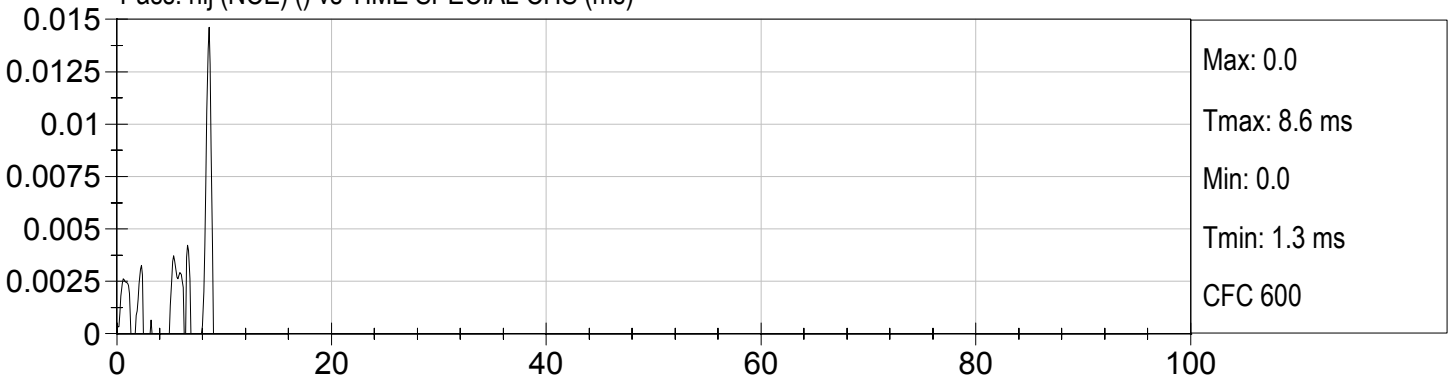
Pass. nij (NTE) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCF) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCE) () vs TIME SPECIAL CHS (ms)

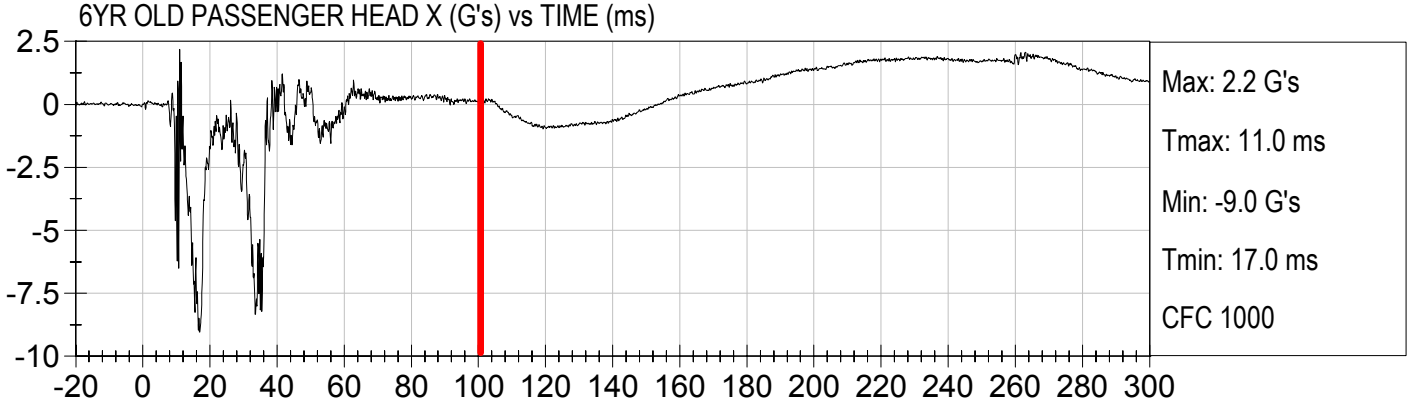


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

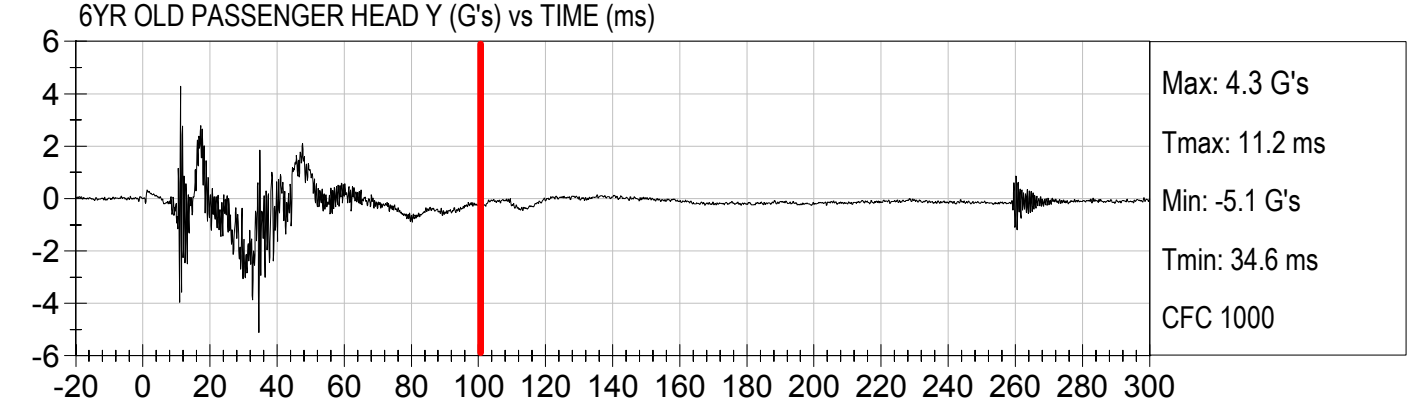
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

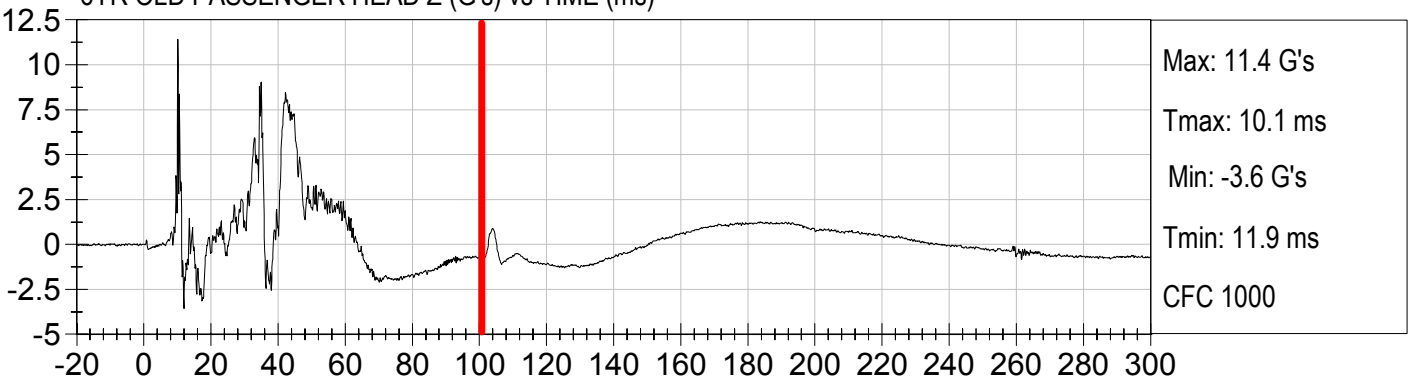
6YR OLD PASSENGER HEAD X (G's) vs TIME (ms)



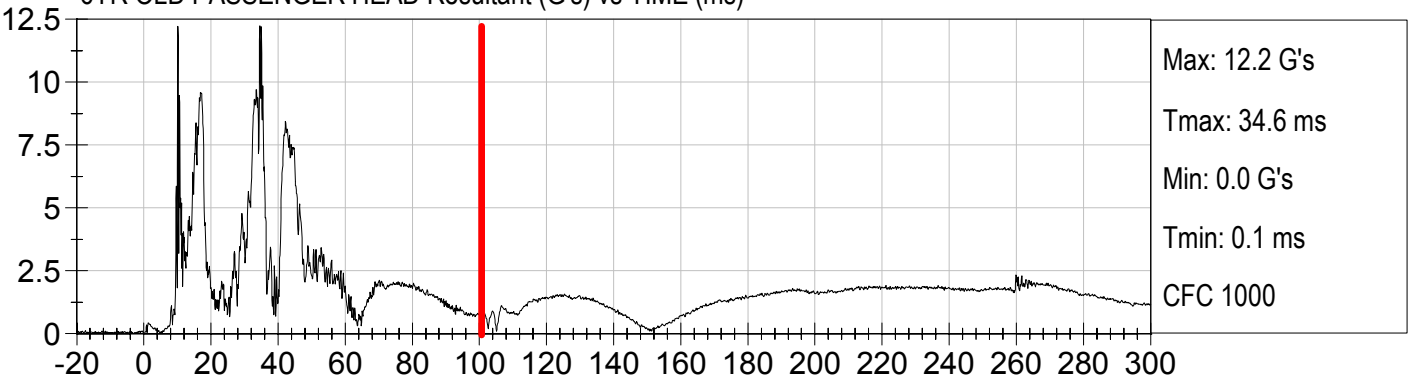
6YR OLD PASSENGER HEAD Y (G's) vs TIME (ms)



6YR OLD PASSENGER HEAD Z (G's) vs TIME (ms)



6YR OLD PASSENGER HEAD Resultant (G's) vs TIME (ms)

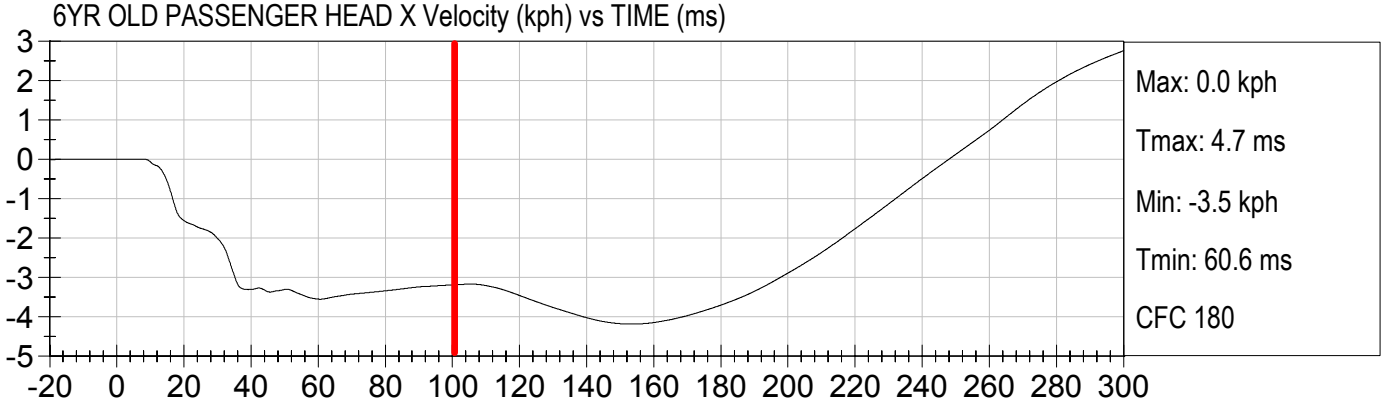


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

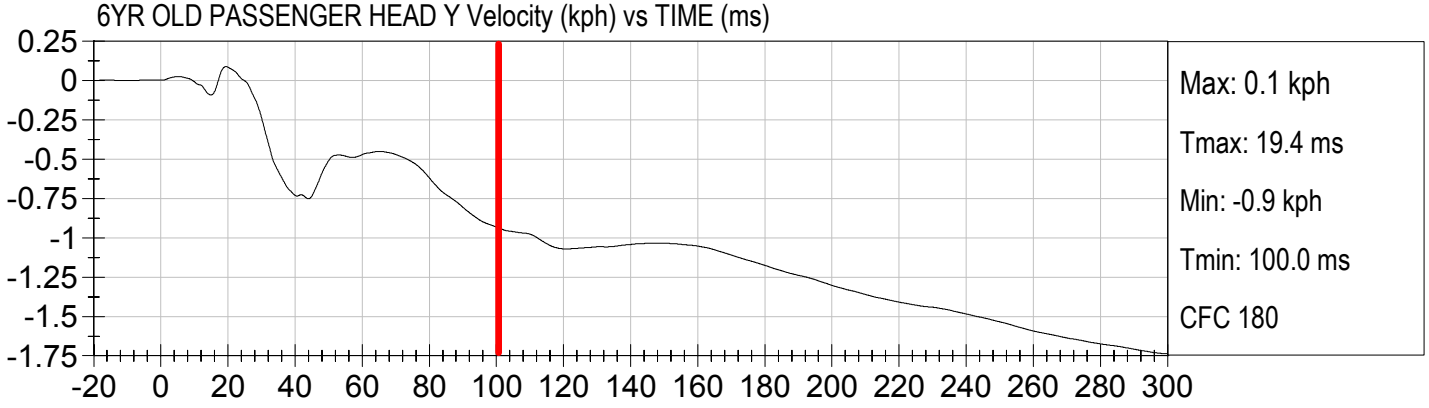
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

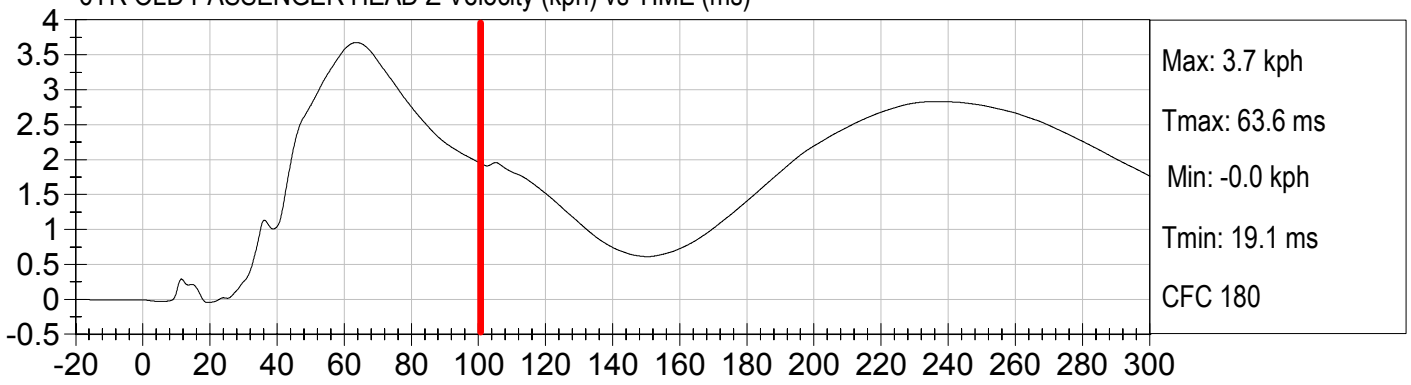
6YR OLD PASSENGER HEAD X Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER HEAD Y Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER HEAD Z Velocity (kph) vs TIME (ms)

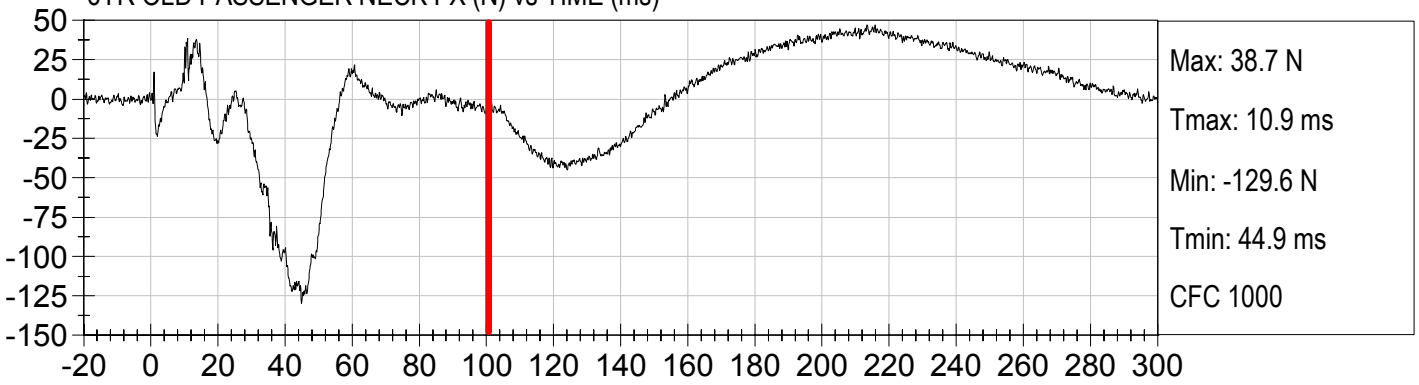


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

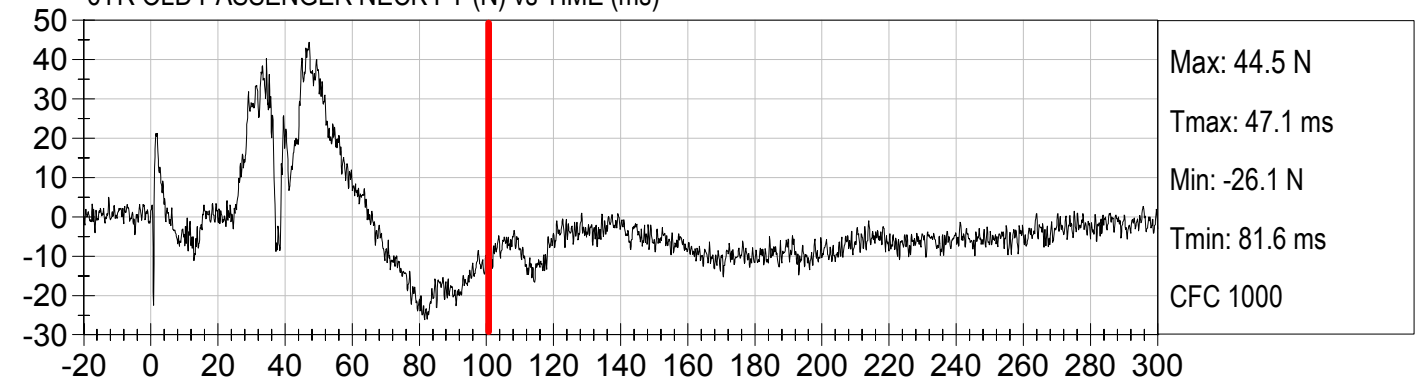
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

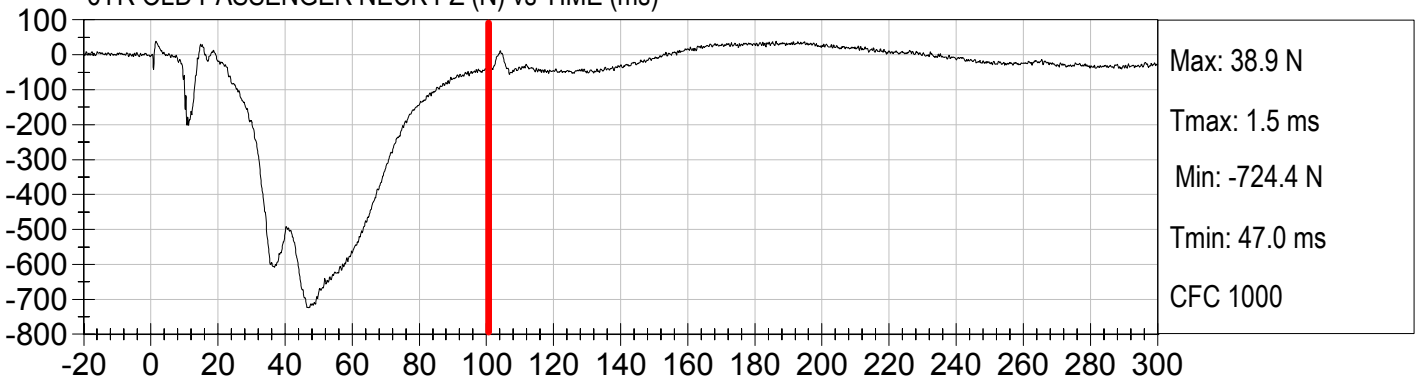
6YR OLD PASSENGER NECK FX (N) vs TIME (ms)



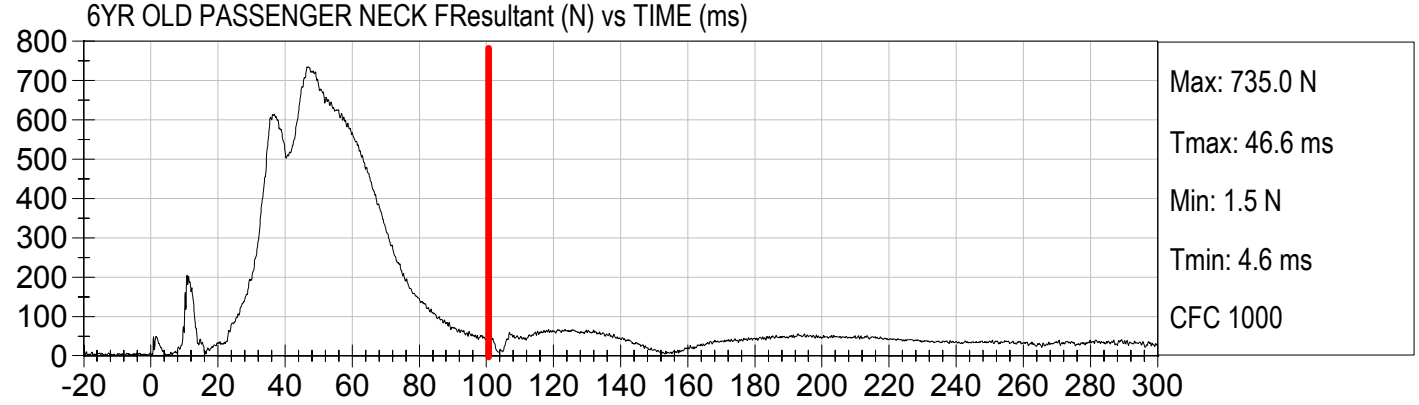
6YR OLD PASSENGER NECK FY (N) vs TIME (ms)



6YR OLD PASSENGER NECK FZ (N) vs TIME (ms)



6YR OLD PASSENGER NECK FResultant (N) vs TIME (ms)

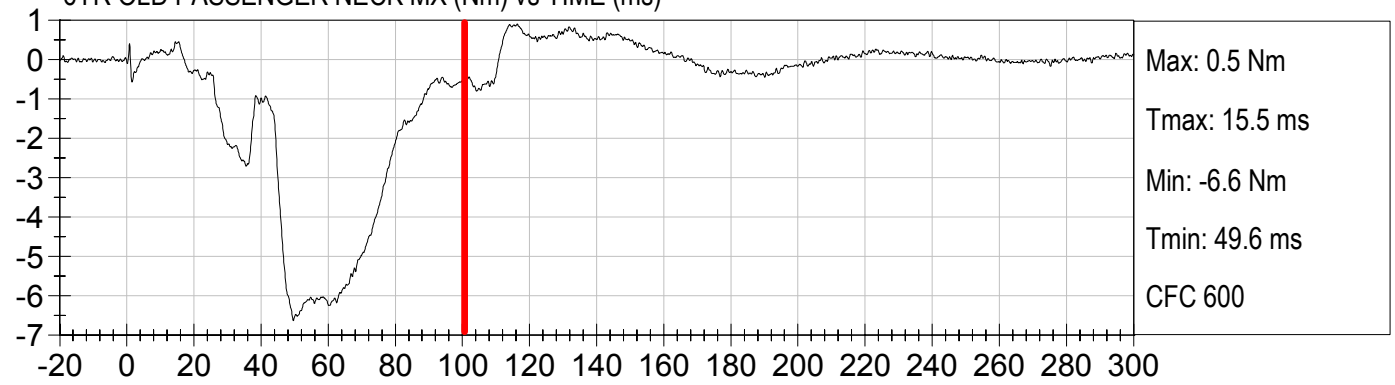


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

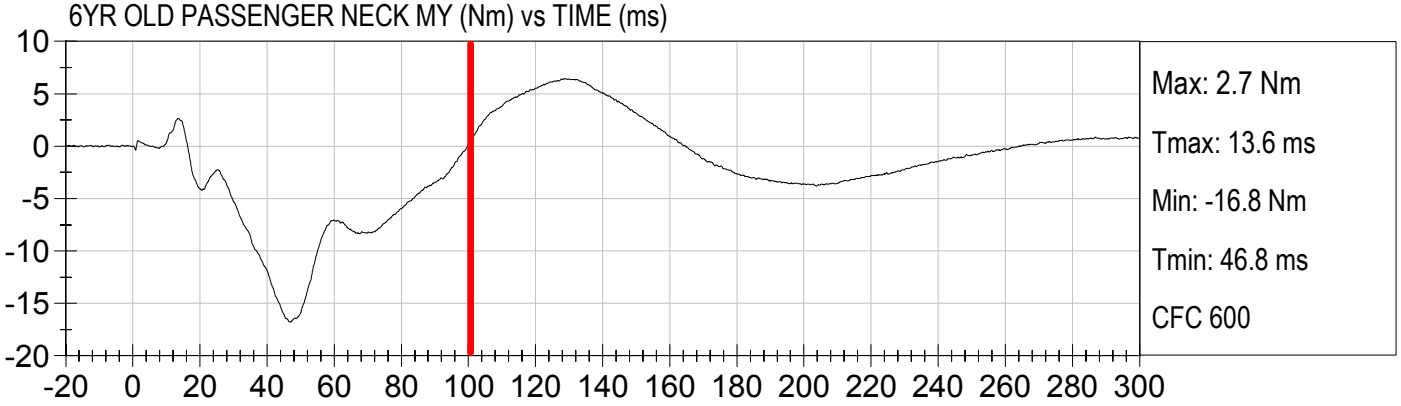
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

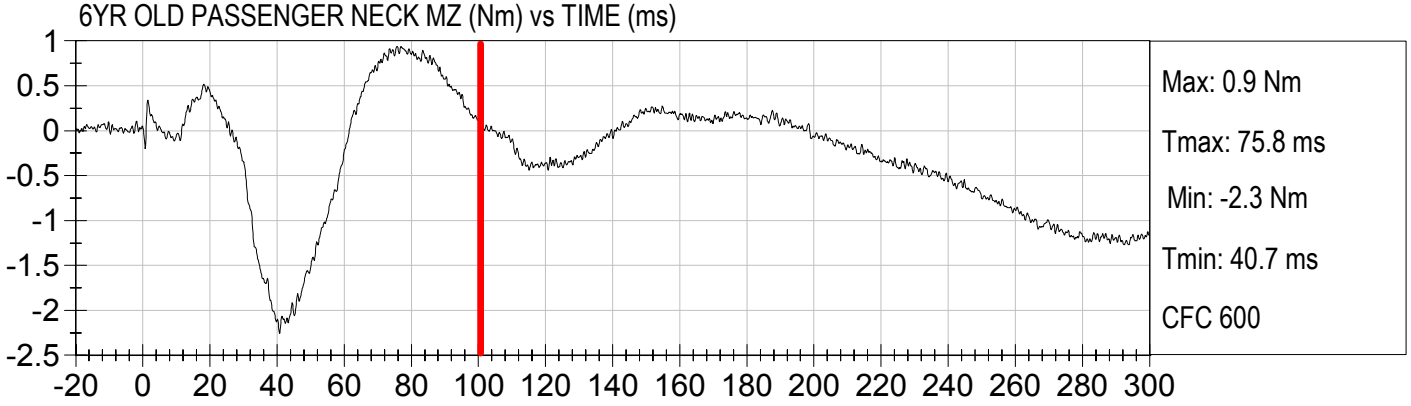
6YR OLD PASSENGER NECK MX (Nm) vs TIME (ms)



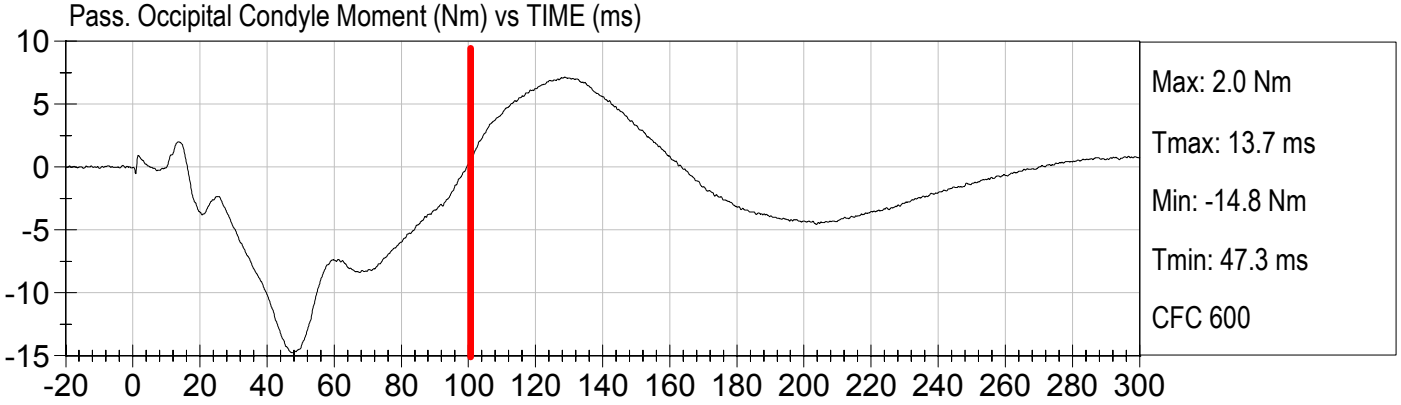
6YR OLD PASSENGER NECK MY (Nm) vs TIME (ms)



6YR OLD PASSENGER NECK MZ (Nm) vs TIME (ms)



Pass. Occipital Condyle Moment (Nm) vs TIME (ms)

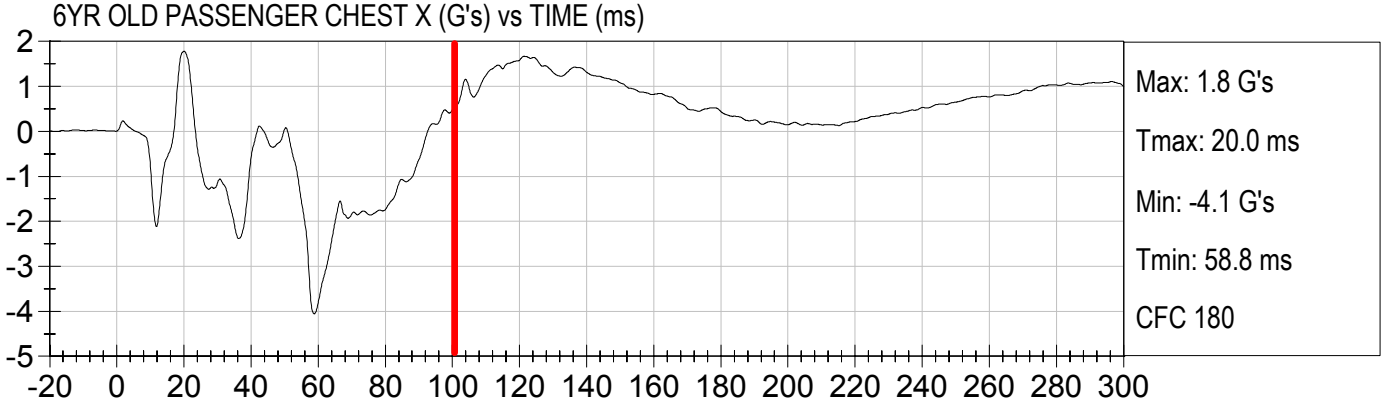


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

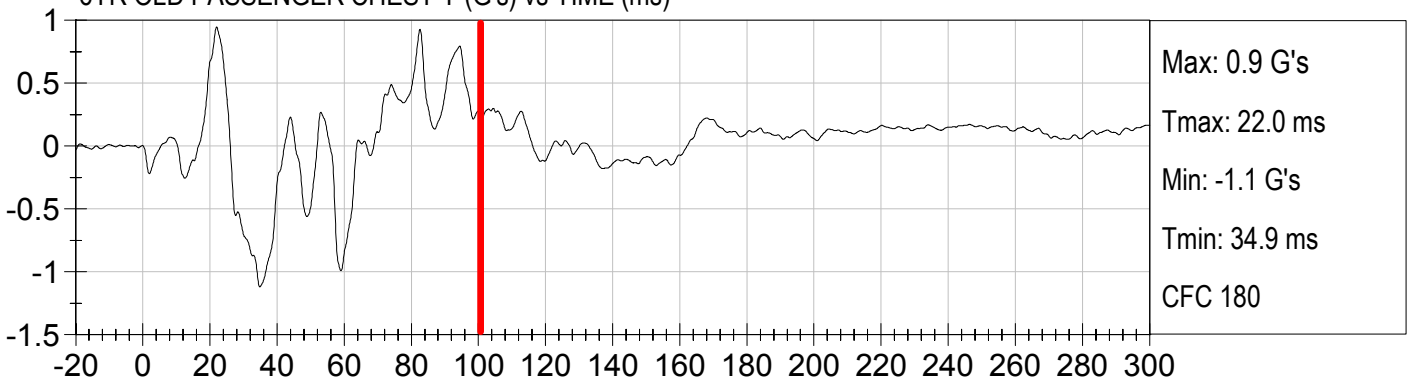
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

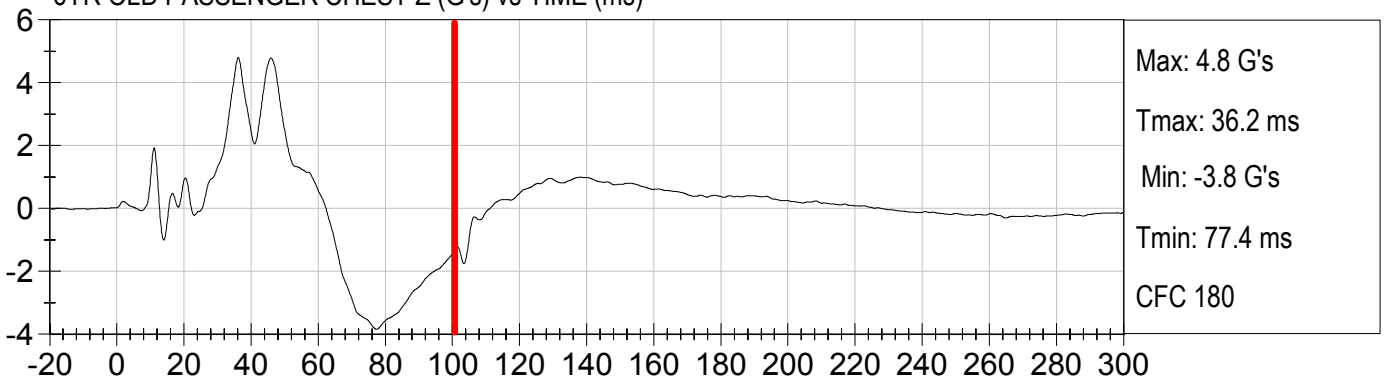
6YR OLD PASSENGER CHEST X (G's) vs TIME (ms)



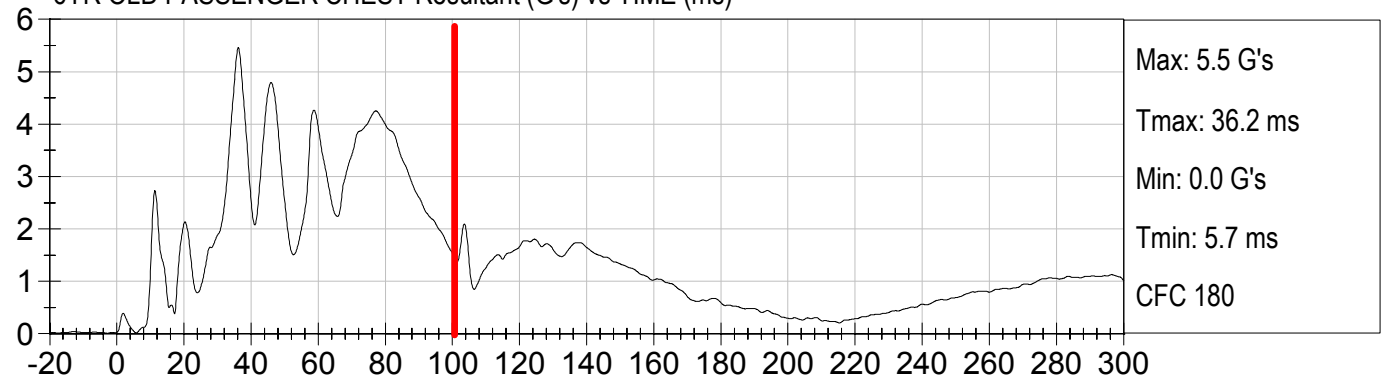
6YR OLD PASSENGER CHEST Y (G's) vs TIME (ms)



6YR OLD PASSENGER CHEST Z (G's) vs TIME (ms)



6YR OLD PASSENGER CHEST Resultant (G's) vs TIME (ms)

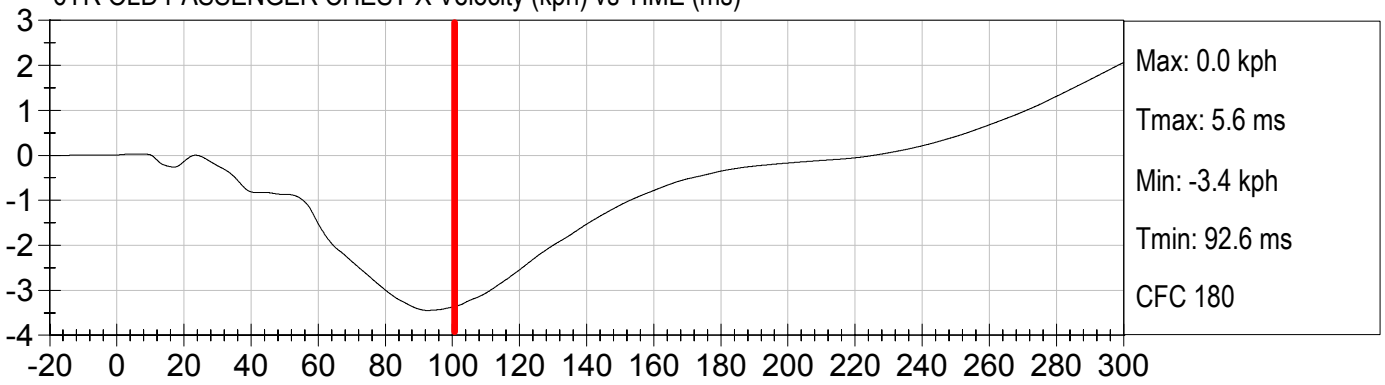


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

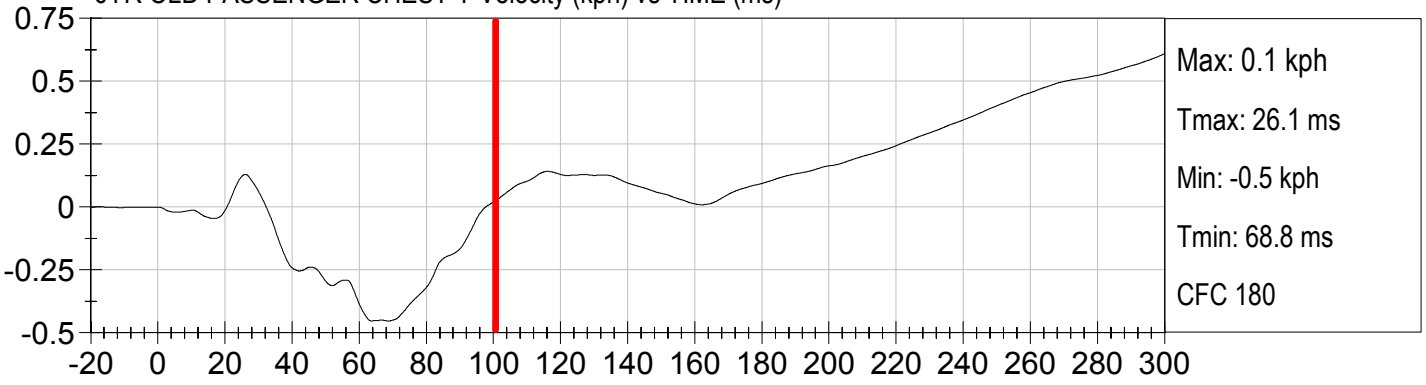
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

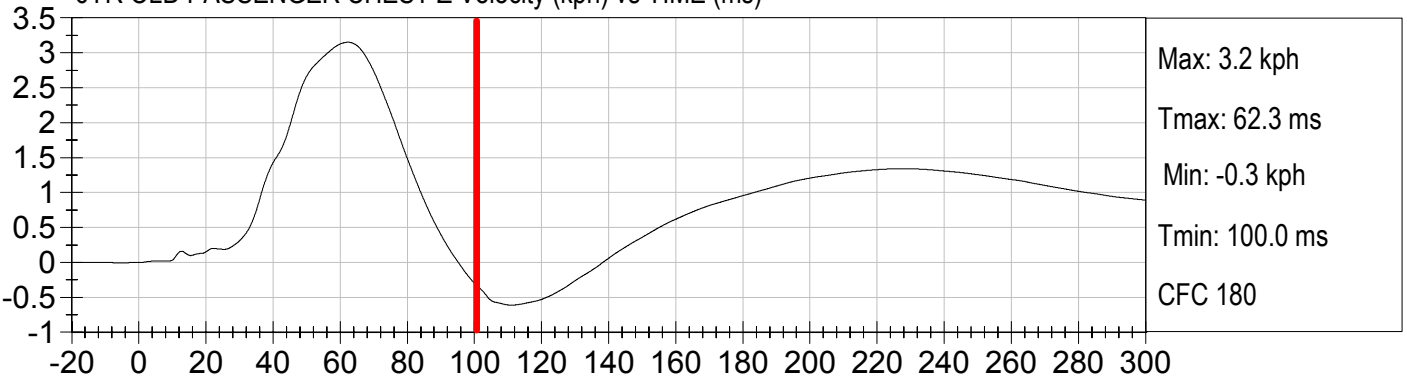
6YR OLD PASSENGER CHEST X Velocity (kph) vs TIME (ms)



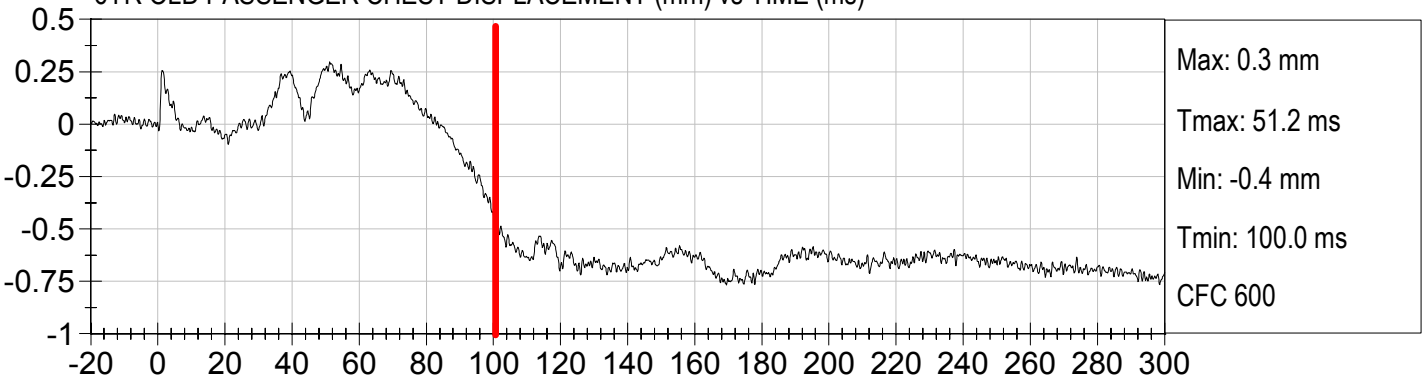
6YR OLD PASSENGER CHEST Y Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER CHEST Z Velocity (kph) vs TIME (ms)



6YR OLD PASSENGER CHEST DISPLACEMENT (mm) vs TIME (ms)

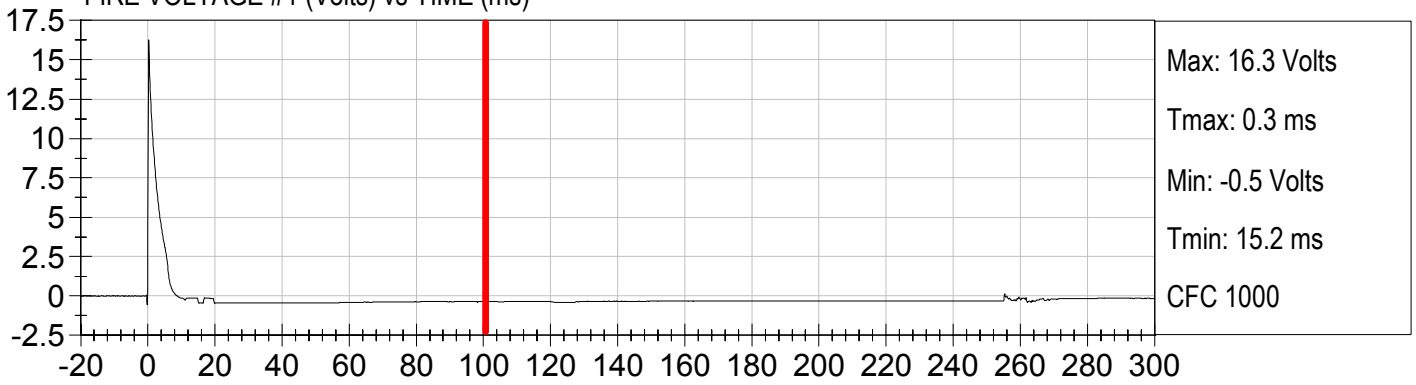


LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

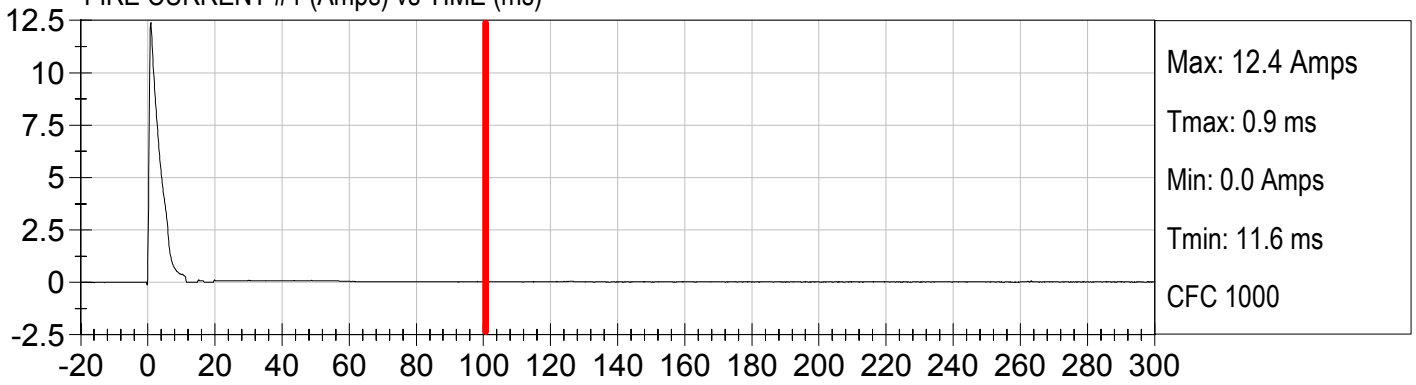
Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

Injury Values Calculated between 0ms and 100ms

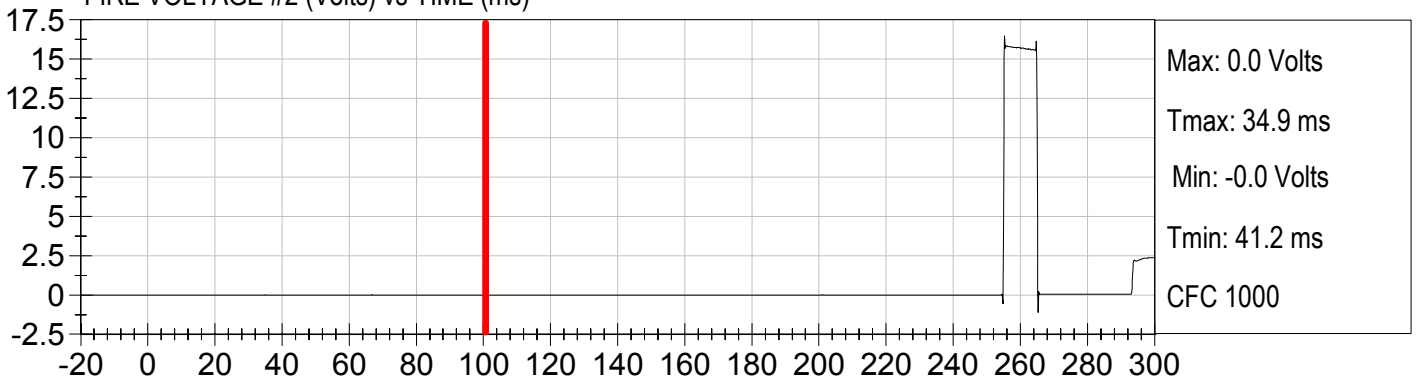
FIRE VOLTAGE #1 (Volts) vs TIME (ms)



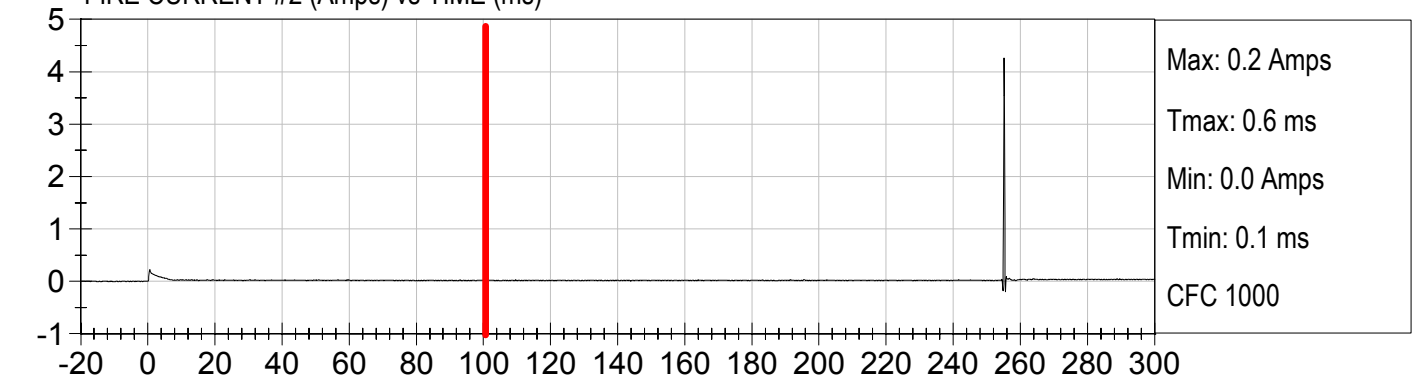
FIRE CURRENT #1 (Amps) vs TIME (ms)



FIRE VOLTAGE #2 (Volts) vs TIME (ms)



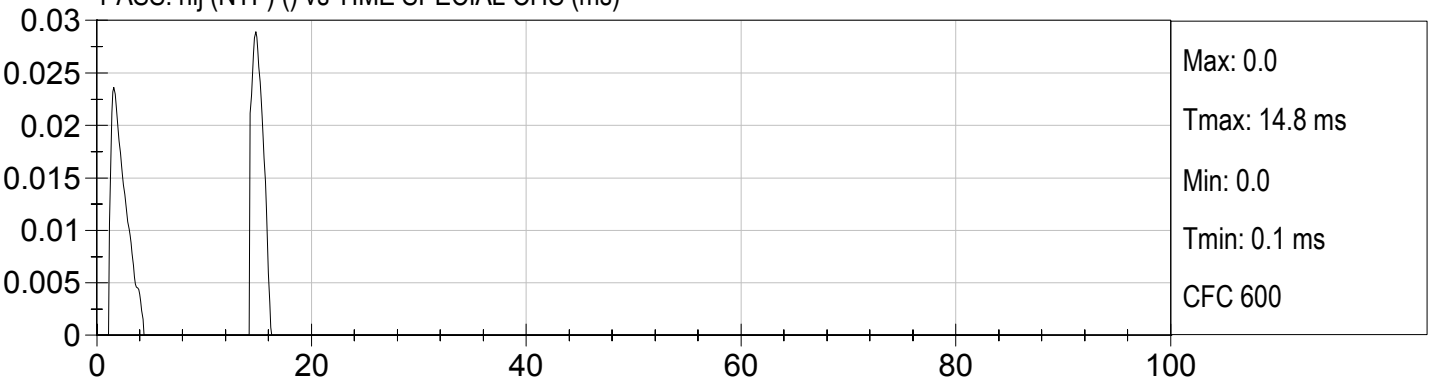
FIRE CURRENT #2 (Amps) vs TIME (ms)



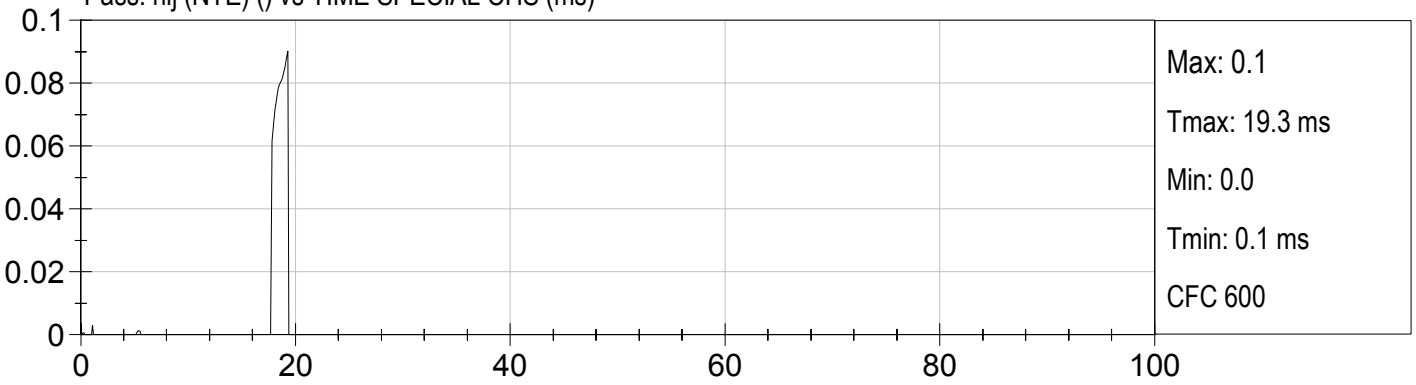
LOW RISK DEPLOYMENT
2007 BMW MINI COOPER (C70511) (6YO P2)

Test Date: 2/21/08
Speed: 0.0 mph (0.0 km/h)

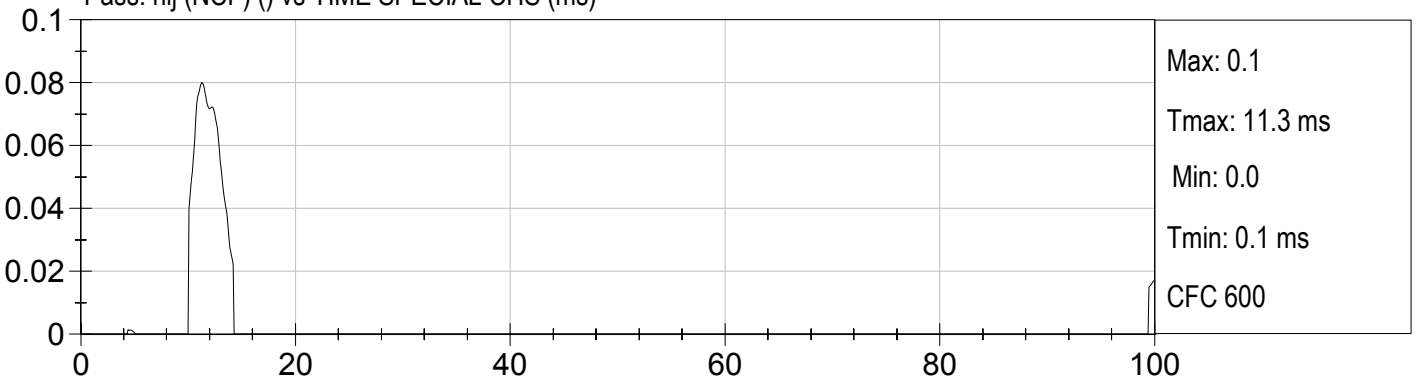
PASS. nij (NTF) () vs TIME SPECIAL CHS (ms)



Pass. nij (NTE) () vs TIME SPECIAL CHS (ms)



Pass. nij (NCF) () vs TIME SPECIAL CHS (ms)



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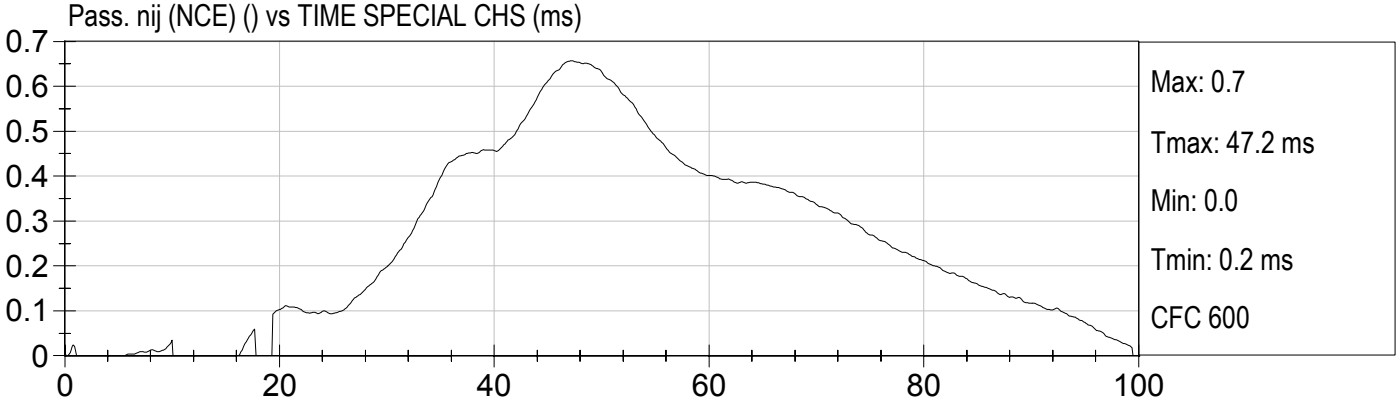

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Vehicle Certification Label

Tire Placard

Pre-Test Front View of Test Vehicle

Pre-Test Left Side View of Test Vehicle

Post-Test Left Side View of Test Vehicle

Post-Test Right Side View of Test Vehicle

Pre-Test Right Front Three-Quarter View of Test Vehicle

Post-Test Right Front Three-Quarter View of Test Vehicle

Pre-Test Left Front Three-Quarter View of Test Vehicle

Post-Test Left Front Three-Quarter View of Test Vehicle

Pre-Test Right Rear Three-Quarter View of Test Vehicle

Post-Test Right Rear Three-Quarter View of Test Vehicle

Pre-Test Left Rear Three-Quarter View of Test Vehicle

Post-Test Left Rear Three-Quarter View of Test Vehicle

Pre-Test Rear View of Test Vehicle

Post-Test Rear View of Test Vehicle

Pre-Test Windshield View

Post-Test Windshield View

Pre-Test Engine Compartment View

Post-Test Engine Compartment View

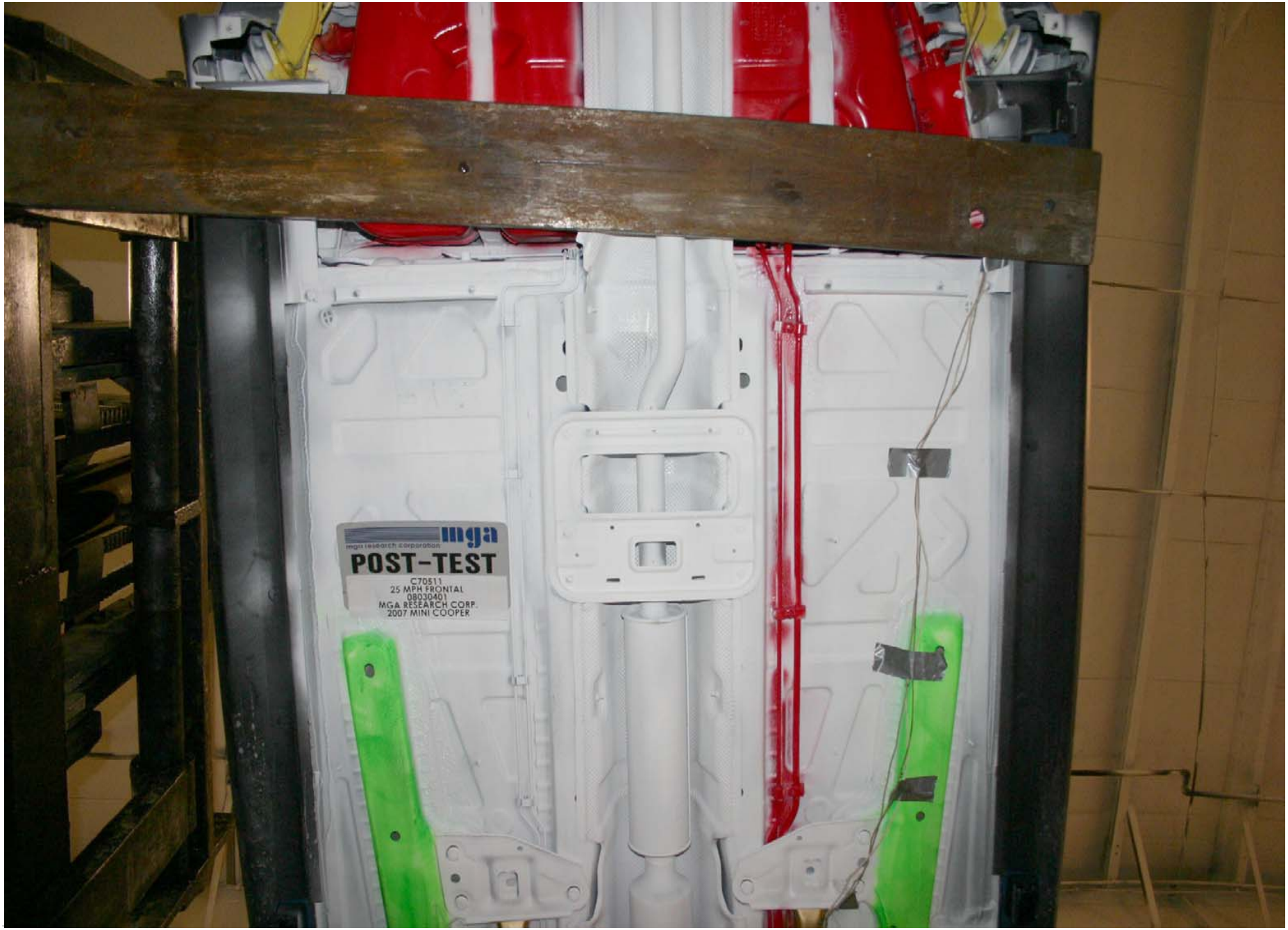
Pre-Test Fuel Filler Cap View

Post-Test Fuel Filler Cap View

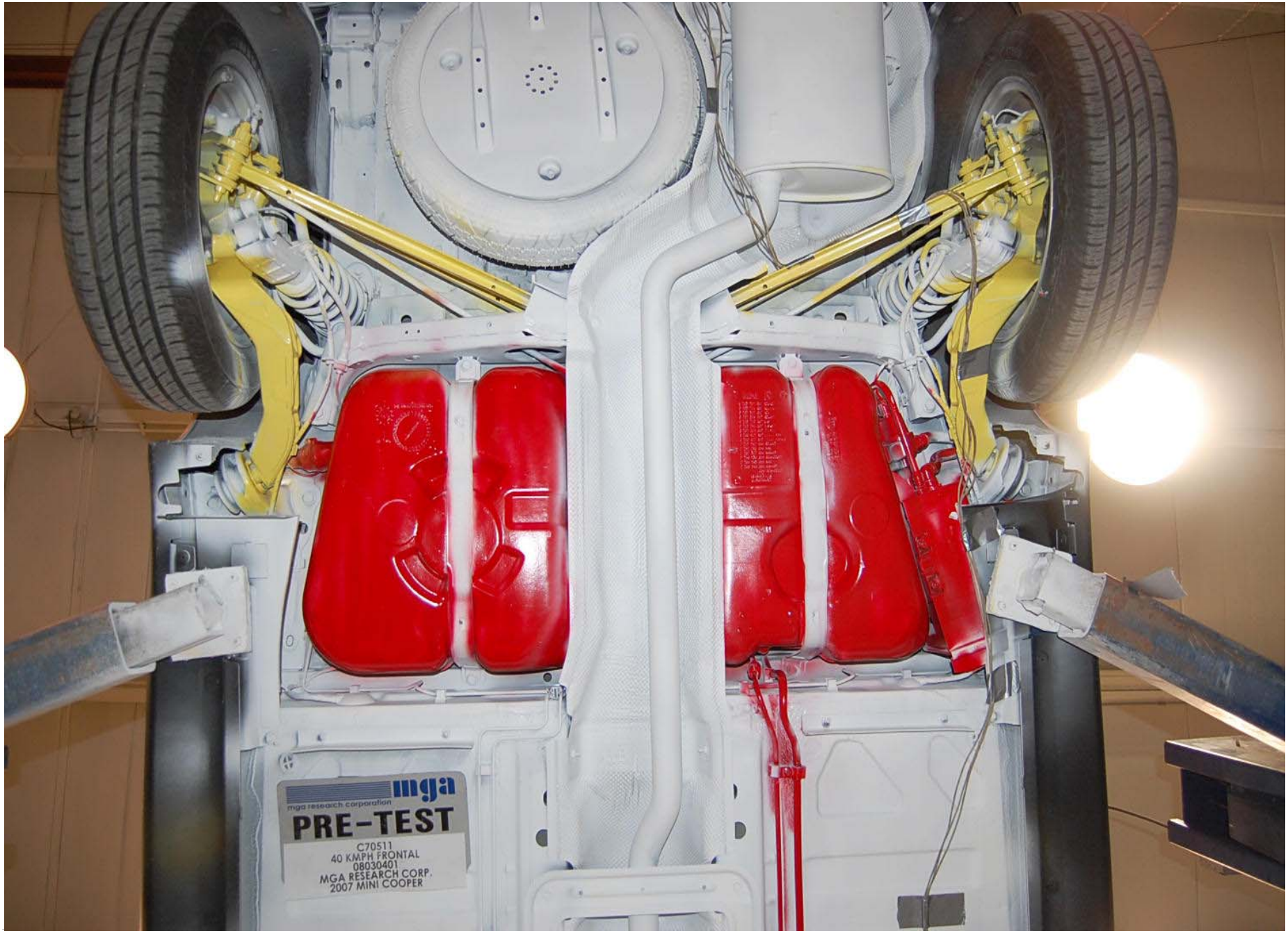
Pre-Test Front Underbody View

Post-Test Front Underbody View

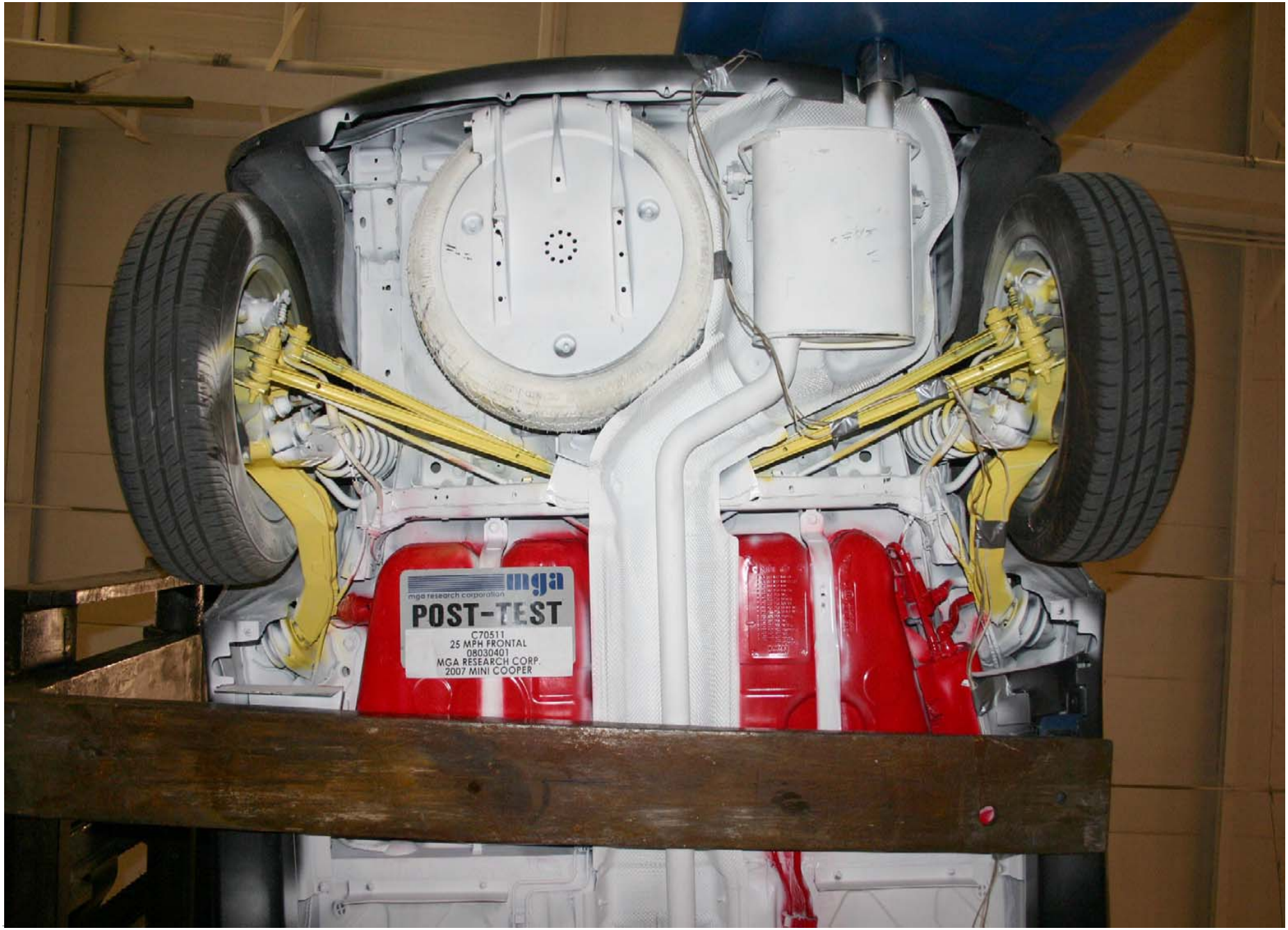
Pre-Test Mid Underbody View



Post-Test Mid Underbody View



Pre-Test Rear Underbody View

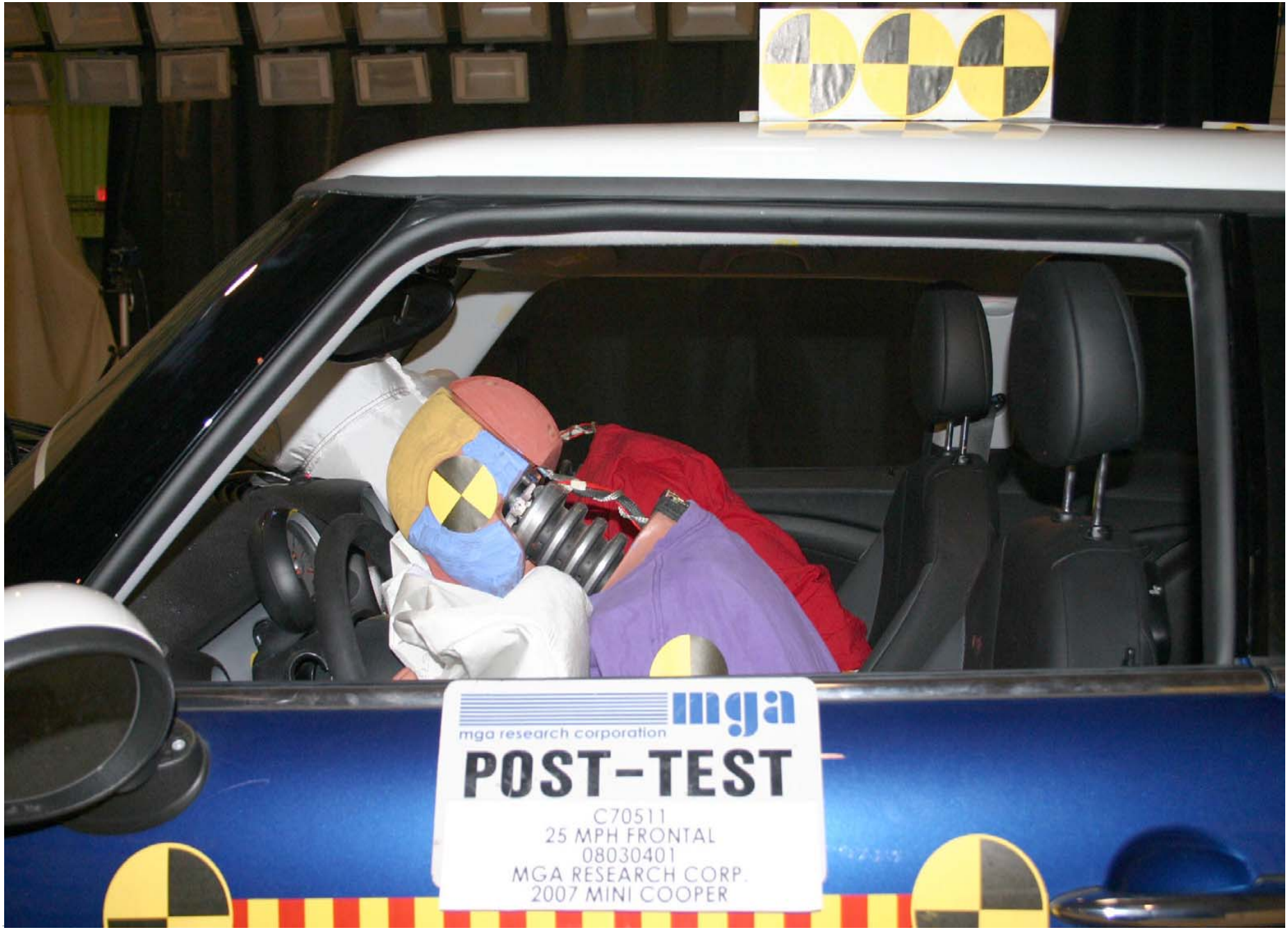


Post-Test Rear Underbody View

Pre-Test Driver Dummy Front View (head position)

Post-Test Driver Dummy Front View (head position)

Pre-Test Driver Dummy Position Left Side View



Post-Test Driver Dummy Position Left Side View

Pre-Test Driver Dummy Position Left Side View (Door Open)

Post-Test Driver Dummy Position Left Side View (Door Open)

Pre-Test Driver Dummy Seat Position

Post-Test Driver Dummy Seat Position

Pre-Test Driver Dummy Feet Position

Post-Test Driver Dummy Feet Position

Pre-Test Driver Side Knee Bolster View

Post-Test Driver Side Knee Bolster View

Post-Test Driver Dummy Airbag Contact

Post-Test Driver Dummy Head Contact (Header & visor)

Post-Test Driver Dummy Knee Contact Left Side View

Post-Test Driver Dummy Knee Contact Right Side View

Pre-Test Passenger Dummy Front View (head position)

Post-Test Passenger Dummy Front View (head position)

Pre-Test Passenger Dummy Position Right Side View

Post-Test Passenger Dummy Position Right Side View

Pre-Test Passenger Dummy Position Right Side View (Door Open)

Post-Test Passenger Dummy Position Right Side View (Door Open)

Pre-Test Passenger Dummy Seat Position

Post-Test Passenger Dummy Seat Position

Pre-Test Passenger Dummy Feet Position

Post-Test Passenger Dummy Feet Position

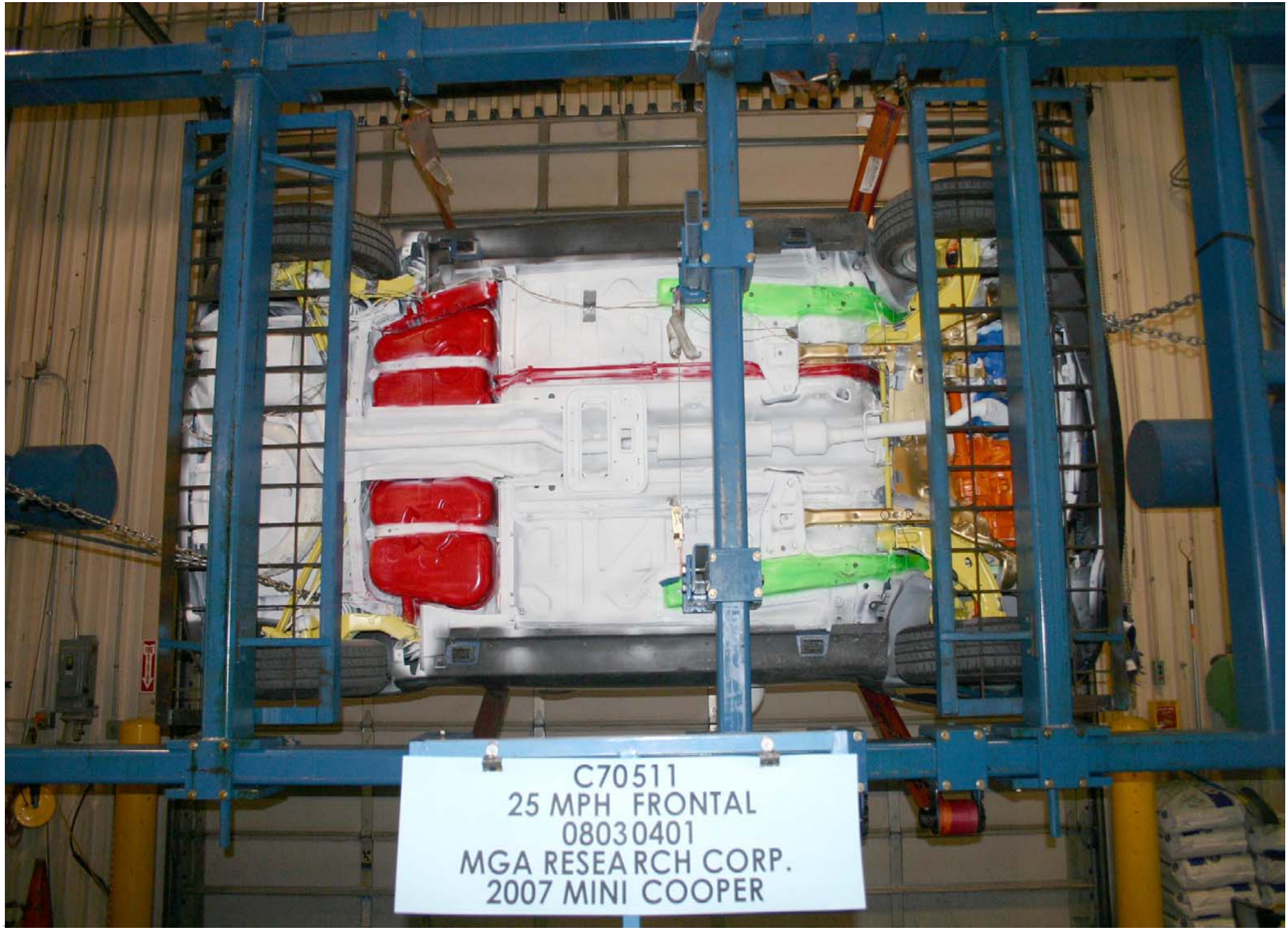
Pre-Test Passenger Side Knee Bolster View

Post-Test Passenger Side Knee Bolster View

Post-Test Passenger Dummy Head Contact View (visor & C-pillar)

Post-Test Passenger Dummy Knee Contact

Post-Test Passenger Dummy Airbag Contact

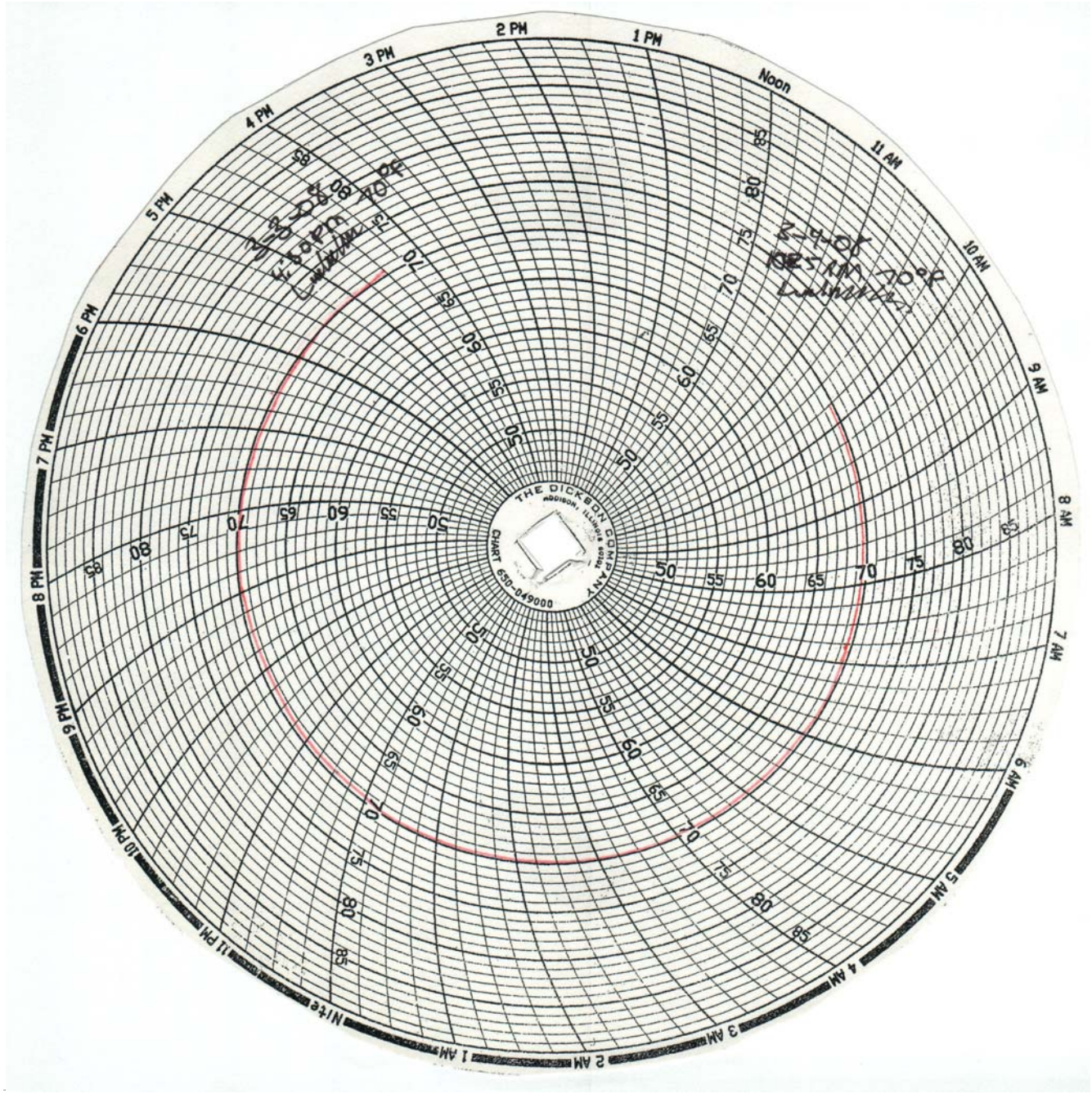


Rollover 90 Degrees

Rollover 180 Degrees

Rollover 270 Degrees

Rollover 360 Degrees



Temperature Plot

Vehicle in Relation to The Load Cell Grid

APPENDIX D

LOW RISK PHOTOGRAPHS

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Pre-Test 5th Fem. P1 Driver Dummy Left Side View

Post-Test 5th Fem. P1 Driver Dummy Left Side View

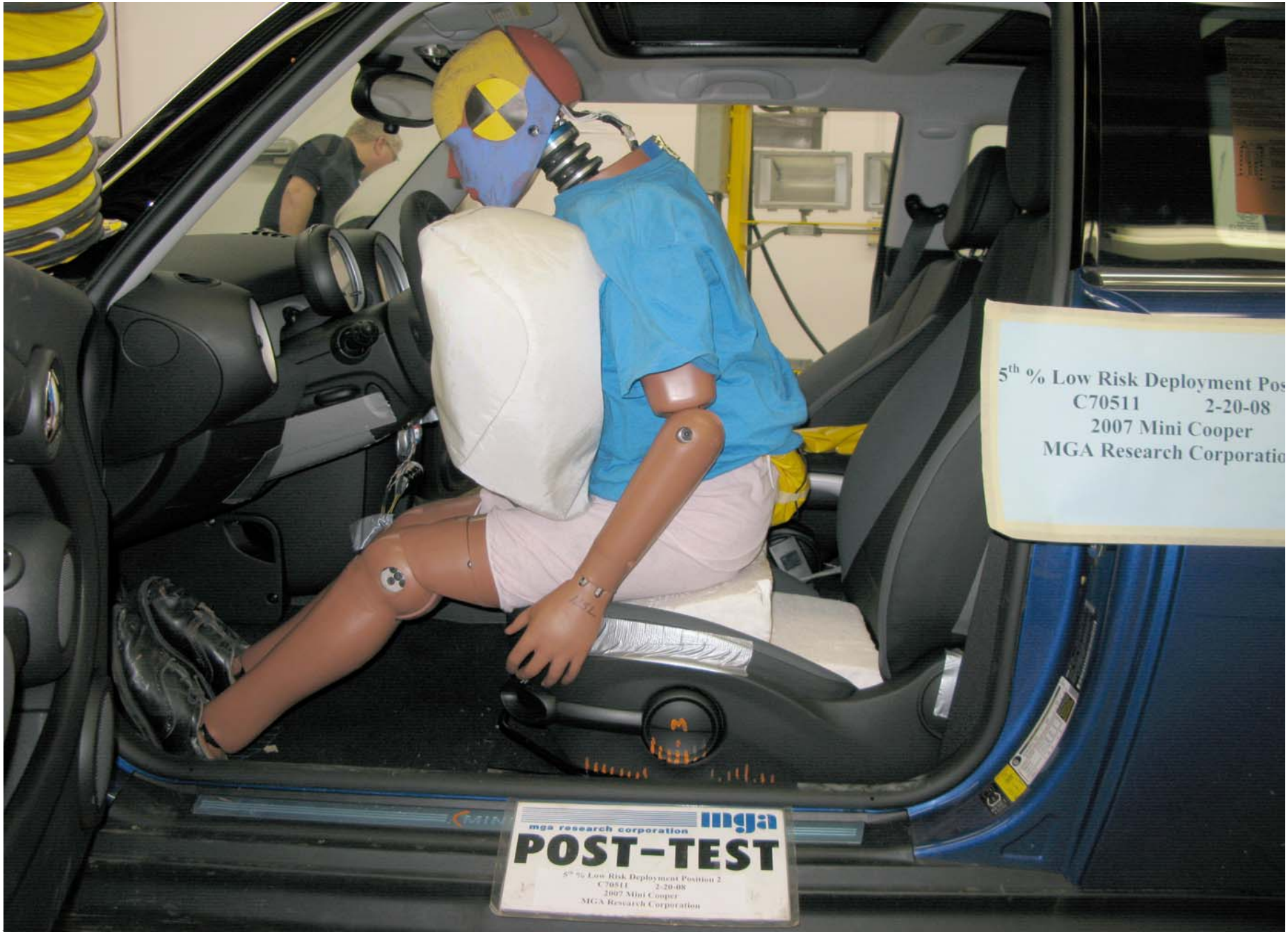
Pre-Test 5th Fem. P1 Driver Dummy Right Side View

Post-Test 5th Fem. P1 Driver Dummy Right Side View

Post-Test 5th Fem. P1 Driver Dummy Airbag Left Side View

Post-Test 5th Fem. P1 Driver Dummy Airbag Right Side View

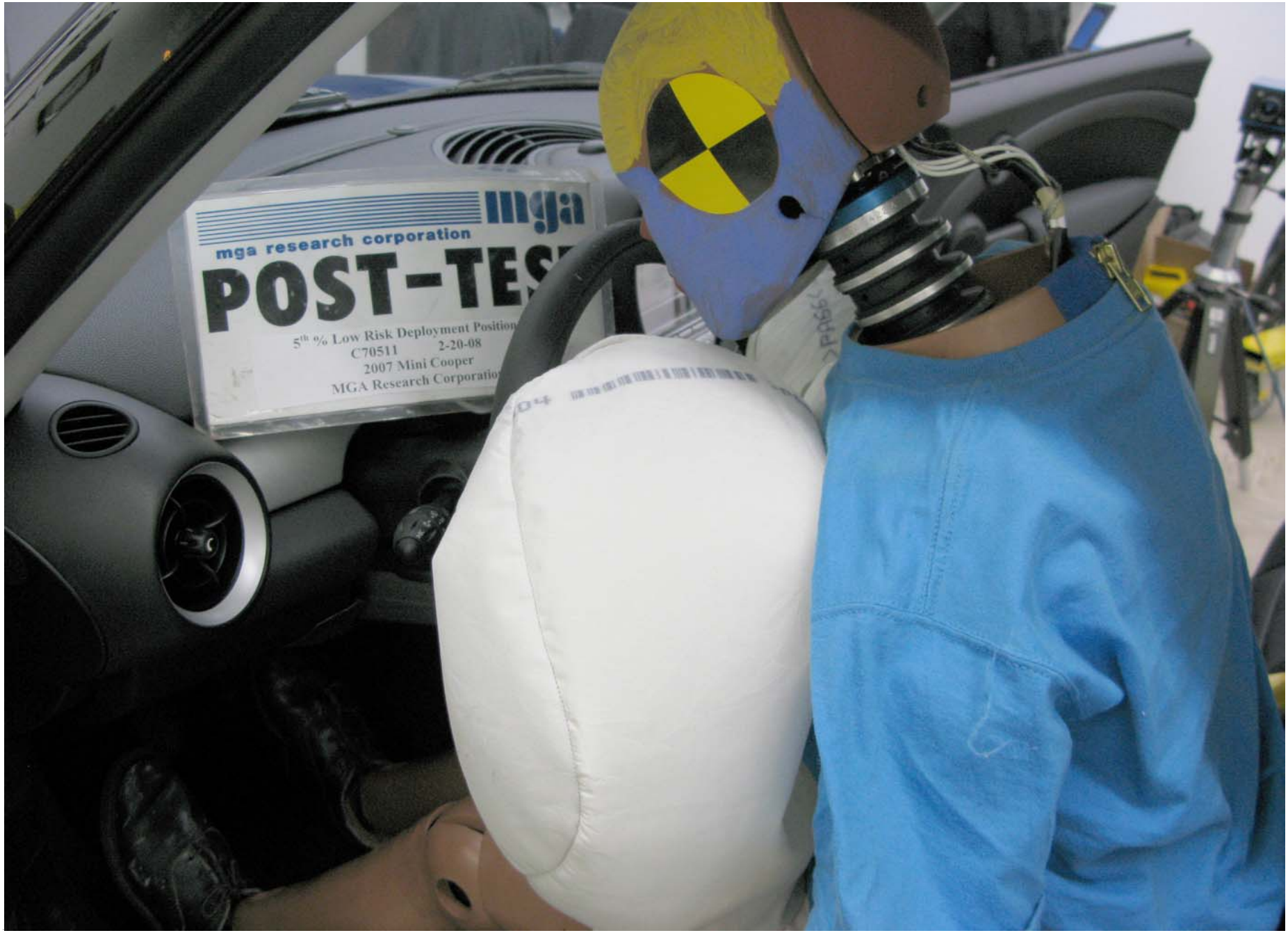
Pre-Test 5th Fem. P2 Driver Dummy Left Side View



Post-Test 5th Fem. P2 Driver Dummy Left Side View

Pre-Test 5th Fem. P2 Driver Dummy Right Side View

Post-Test 5th Fem. P2 Driver Dummy Right Side View



Post-Test 5th Fem. P2 Driver Dummy Airbag Left Side View

Post-Test 5th Fem. P2 Driver Dummy Airbag Right Side View

Pre-Test 3YO P1 Passenger Dummy Left Side View

Post-Test 3YO P1 Passenger Dummy Left Side View

Pre-Test 3YO P1 Passenger Dummy Right Side View

Post-Test 3YO P1 Passenger Dummy Right Side View

Post-Test 3YO P1 Passenger Dummy Airbag Left Side View

Post-Test 3YO P1 Passenger Dummy Airbag Right Side View

Post-Test 3YO P1 Passenger Dummy Head Contact View

Pre-Test 3YO P2 Passenger Dummy Left Side View

Post-Test 3YO P2 Passenger Dummy Left Side View

Pre-Test 3YO P2 Passenger Dummy Right Side View

Post-Test 3YO P2 Passenger Dummy Right Side View

Post-Test 3YO P2 Passenger Dummy Airbag Left Side View

Post-Test 3YO P2 Passenger Dummy Airbag Right Side View

Pre-Test 6YO P1 Passenger Dummy Left Side View

Post-Test 6YO P1 Passenger Dummy Left Side View

Pre-Test 6YO P1 Passenger Dummy Right Side View

Post-Test 6YO P1 Passenger Dummy Right Side View

Post-Test 6YO P1 Passenger Dummy Airbag Left Side View

Post-Test 6YO P1 Passenger Dummy Airbag Right Side View

Post-Test 6YO P1 Passenger Dummy Contact

Post-Test 6YO P1 Passenger Dummy Head Contact

Pre-Test 6YO P2 Passenger Dummy Left Side View

Post-Test 6YO P2 Passenger Dummy Left Side View

Pre-Test 6YO P2 Passenger Dummy Right Side View

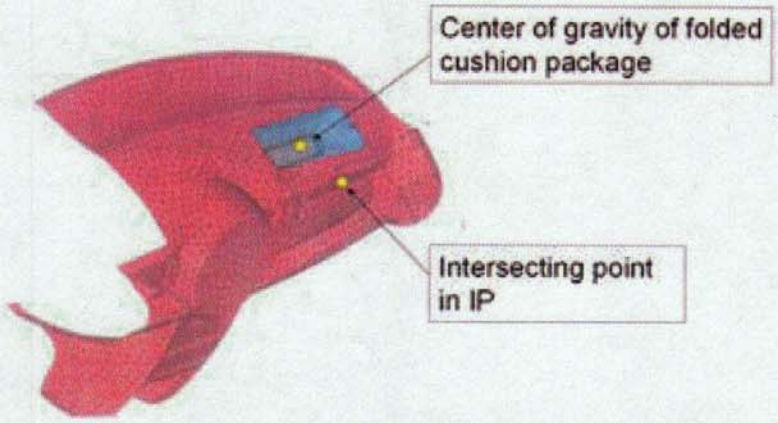
Post-Test 6YO P2 Passenger Dummy Right Side View

Post-Test 6YO P2 Passenger Dummy Airbag Left Side View

Determination of passenger airbag center of gravity. Below are the coordinates of the deployed airbag in vehicle at 0,1 bar

x=0.84163
y=0.31431
y=0.69684

The corresponding intersecting point in the IP is (See picture below):
x=699,9
y=325,4
z=653,3



Passenger Geometric Center (2007 BMW Mini Cooper)

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Cosco Dream Ride Car Bed With Belt, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Rearward Seat Track

Britax Handle With Care 191 With Belt, Forward Seat Track

Britax Handle With Care 191 With Belt, Middle Seat Track

Britax Handle With Care 191 With Belt, Rearward Seat Track

Britax Handle With Care 191 Unbelted, Forward Seat Track

Britax Handle With Care 191 Unbelted, Middle Seat Track

Britax Handle With Care 191 Unbelted, Rearward Seat Track

Britax Handle With Care 191 Forward Facing Unbelted, Forward Seat Track

Britax Handle With Care 191 Forward Facing Unbelted, Middle Seat Track

Britax Handle With Care 191 Forward Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Forward Seat Track

Evenflo First Choice 204 With Belt, Forward Seat Track

Evenflo First Choice 204 With Belt, Middle Seat Track

Evenflo First Choice 204 With Belt, Rearward Seat Track

Evenflo First Choice 204 Unbelted, Middle Seat Track

Evenflo First Choice 204 Unbelted, Rearward Seat Track

Evenflo First Choice 204 Forward Facing Unbelted, Forward Seat Track

Evenflo First Choice 204 Forward Facing Unbelted, Middle Seat Track

Evenflo First Choice 204 Forward Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation, Middle Seat Track

Graco Infant W/ Base With Belt, Forward Seat Track

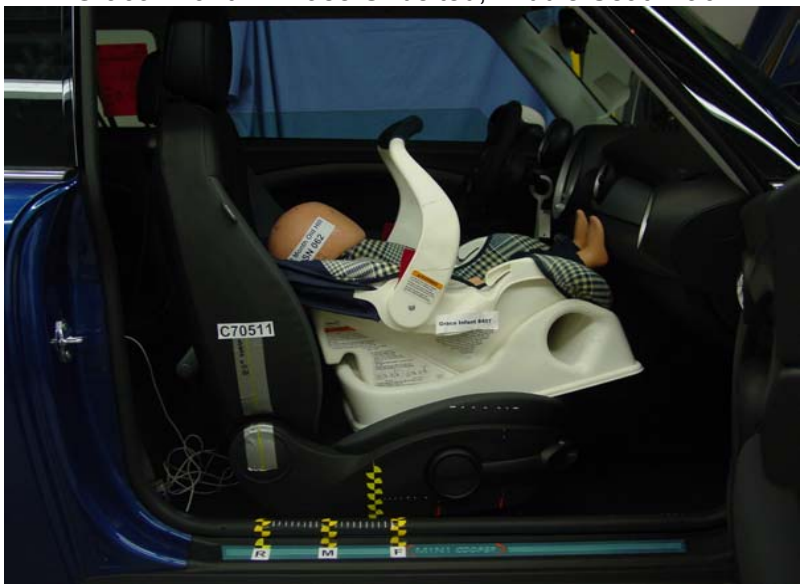
Graco Infant W/ Base With Belt, Middle Seat Track

Graco Infant W/ Base With Belt, Rearward Seat Track

Graco Infant W/ Base Unbelted, Forward Seat Track

Graco Infant W/ Base Unbelted, Middle Seat Track

Graco Infant W/ Base Unbelted, Rearward Seat Track



Graco Infant W/ Base Forward Facing Unbelted, Forward Seat Track

Graco Infant W/ Base Forward Facing Unbelted, Middle Seat Track

Graco Infant W/ Base Forward Facing Unbelted, Rearward Seat Track

Graco Infant W/O Base With Belt, Forward Seat Track

Graco Infant W/O Base With Belt, Middle Seat Track

Graco Infant W/O Base With Belt, Rearward Seat Track

Graco Infant W/O Base Unbelted, Forward Seat Track

Graco Infant W/O Base Unbelted, Middle Seat Track

Graco Infant W/O Base Unbelted, Rearward Seat Track

Graco Infant W/O Base Forward Facing Unbelted, Forward Seat Track

Graco Infant W/O Base Forward Facing Unbelted,
Middle Seat Track

Graco Infant W/O Base Forward Facing Unbelted,
Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

Britax Roundabout 161 Forward Facing With Belt, Forward Seat Track

Britax Roundabout 161 Forward Facing With Belt, Middle Seat Track

Britax Roundabout 161 Forward Facing With Belt, Rearward Seat Track

Britax Roundabout 161 Forward Facing Unbelted, Forward Seat Track

Britax Roundabout 161 Forward Facing Unbelted, Middle Seat Track

Britax Roundabout 161 Forward Facing Unbelted, Rearward Seat Track

Britax Roundabout 161 Rear Facing With Belt, Forward Seat Track

Britax Roundabout 161 Rear Facing With Belt, Middle Seat Track

Britax Roundabout 161 Rear Facing With Belt, Rearward Seat Track

Britax Roundabout 161 Rear Facing Unbelted, Forward Seat Track

Britax Roundabout 161 Rear Facing Unbelted, Middle Seat Track

Britax Roundabout 161 Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Rearward Seat Track

Century Encore Forward Facing With Belt, Forward Seat Track

Century Encore Forward Facing With Belt, Middle Seat Track

Century Encore Forward Facing With Belt, Rearward Seat Track

Century Encore Forward Facing Unbelted, Forward Seat Track

Century Encore Forward Facing Unbelted, Middle Seat Track

Century Encore Forward Facing Unbelted, Rearward Seat Track

Century Encore Rear Facing With Belt, Forward Seat Track

Century Encore Rear Facing With Belt, Middle Seat Track

Century Encore Rear Facing With Belt, Rearward Seat Track

Century Encore Rear Facing Unbelted, Forward Seat Track

Century Encore Rear Facing Unbelted, Middle Seat Track

Century Encore Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Middle Seat Track

Evenflo Medallion 254 Forward Facing With Belt, Forward Seat Track

Evenflo Medallion 254 Forward Facing With Belt, Middle Seat Track

Evenflo Medallion 254 Forward Facing With Belt, Rearward Seat Track

Evenflo Medallion 254 Forward Facing Unbelted, Forward Seat Track

Evenflo Medallion 254 Forward Facing Unbelted,
Middle Seat Track

Evenflo Medallion 254 Forward Facing Unbelted,
Rearward Seat Track

Evenflo Medallion 254 Rear Facing With Belt,
Forward Seat Track

Evenflo Medallion 254 Rear Facing With Belt,
Middle Seat Track

Evenflo Medallion 254 Rear Facing With Belt, Rearward Seat Track

Evenflo Medallion 254 Rear Facing Unbelted, Forward Seat Track

Evenflo Medallion 254 Rear Facing Unbelted, Middle Seat Track

Evenflo Medallion 254 Rear Facing Unbelted, Rearward Seat Track

Unbelted 5th Percentile Female Reactivation,
Forward Seat Track

APPENDIX F

INSTRUMENTATION CALIBRATION

INSTRUMENTS FOR DRIVER DUMMY NO. 312

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AH5J3	Endevco	02/21/08
Head Y	C12853	Endevco	02/21/08
Head Z	C12881	Endevco	02/21/08
Neck Load Cell	606	Denton	01/30/08
Chest X	C13046	Endevco	02/21/08
Chest Y	C10686	Endevco	02/21/08
Chest Z	AGH74	Endevco	02/21/08
Chest Displacement	312	Servo	02/21/08
Left Femur Load Cell	1362	Denton	10/11/07
Right Femur Load Cell	1361	Denton	10/11/07

INSTRUMENTS FOR PASSENGER DUMMY NO. 340

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	AH5N9	Endevco	02/21/08
Head Y	AH5L1	Endevco	02/21/08
Head Z	C12811	Endevco	02/21/08
Neck Load Cell	1561	Denton	09/19/07
Chest X	AGH11	Endevco	02/21/08
Chest Y	AH5H6	Endevco	02/21/08
Chest Z	AL6Y2	Endevco	02/21/08
Chest Displacement	340	Servo	02/21/08
Left Femur Load Cell	86	Denton	08/31/07
Right Femur Load Cell	85	Denton	08/31/07

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO. 124 (P1)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P52176	Endevco	02/19/08
Head Y	P52175	Endevco	02/19/08
Head Z	P52177	Endevco	02/19/08
Neck Load Cell	1561	Denton	09/19/07
Chest X	P22805	Endevco	02/19/08
Chest Y	P52148	Endevco	02/19/08
Chest Z	P52147	Endevco	02/19/08
Chest Displacement	124	Servo	02/12/08
Left Femur Load Cell	959	GSE	02/13/08
Right Femur Load Cell	950	GSE	02/13/08

INSTRUMENTS FOR LOW RISK 5TH FEMALE DUMMY NO. 125 (P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	P49490	Endevco	02/19/08
Head Y	P49487	Endevco	02/19/08
Head Z	P49225	Endevco	02/19/08
Neck Load Cell	1021	Denton	12/20/07
Chest X	P48386	Endevco	02/19/08
Chest Y	P48388	Endevco	02/19/08
Chest Z	P48387	Endevco	02/19/08
Chest Displacement	125	Servo	02/12/08
Left Femur Load Cell	9428	FTSS	11/08/07
Right Femur Load Cell	9427	FTSS	11/08/07

INSTRUMENTS FOR LOW RISK 3 YEAR OLD CHILD DUMMY NO. 031 (P1 & P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	A11-Z02	Entran	10/02/07
Head Y	F29-X46	Entran	10/02/07
Head Z	ET21164	Entran	09/25/07
Neck Load Cell	210	Denton	12/12/07
Chest X	D12-X02	Entran	09/04/07
Chest Y	F09-N09	Entran	09/04/07
Chest Z	ET21252	Entran	09/25/07
Chest Displacement	031	Servo	12/11/07

INSTRUMENTS FOR LOW RISK 6 YEAR OLD CHILD DUMMY NO. 155 (P1 & P2)

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Head X	B05-J08	Entran	12/12/07
Head Y	A29-N17	Entran	12/12/07
Head Z	C24-A03	Entran	12/12/07
Neck Load Cell	253	Denton	09/20/07
Chest X	P52144	Endevco	01/15/08
Chest Y	G22-D16	Entran	01/15/08
Chest Z	G21-M14	Entran	01/15/08
Chest Displacement	155	Servo	02/08/08

VEHICLE INSTRUMENTS

	SERIAL NO.	MANUFACTURER	CALIBRATION DATE
Left Rear Seat Crossmember X	G22-D20	Entran	01/24/08
Right Rear Seat Crossmember X	G06-X10	Entran	11/06/07
Top of Engine X	P26988	Endevco	02/06/08
Bottom of Engine X	J13630	Endevco	10/16/07
Left Brake Caliper X	AHWK8	Endevco	01/09/08
Right Brake Caliper X	P24154	Endevco	02/06/08
Instrument Panel X	A22-R12	Entran	10/16/07
Trunk Z	A22-R08	Entran	10/16/07