



**AEGIS**<sup>®</sup>  
The Seatbelt of Maternity



# CRASH WORTHINESS TESTING REPORT

## PURPOSE

The AEGIS Neonate Medical Wrap "AEGIS" was tested at Calspan Corporation, an industry respected independent testing facility in May 2018 to test the crash worthiness of the AEGIS Neonate Medical Wrap for the use of transporting an infant skin to skin and hands-free with mother via ground ambulance.

## TEST PERAMETERS

The Society of Automotive Engineers (SAE) Standards were developed as an industry accepted method of testing ambulance cots for safety. They define the acceleration (G-force), velocity and displacement for the test standards. Cots are expected to meet these standards in order to be considered generally safe for use.

The AEGIS was tested to SAE standards with deviations on an instrumented dummy weighing 170 pounds with a non-instrument baby dummy weighing 8 lbs. A Stryker test cot was utilized for these tests. The deviations from the SAE standard tests were a raised head rest to a 44 degree angle, and the addition of the ABEO strap to form an H harness across the chest of the adult dummy. We utilized a support for the head rest since we were crashing the same cot multiple times. We were not testing the cot, we were testing the AEGIS to securely restrain the infant and the ABEO strap to securely restrain the adult to reduce the risk of injury at the same acceleration, velocity, and displacement as required by the cots.

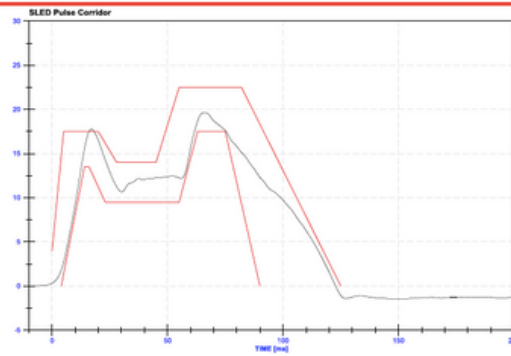
## SLED PULSE

We tested for frontal, rear and side impact collisions. The graphs below show our frontal, rear and side collisions meet the same testing standard for acceleration, velocity, and displacement as the SAE Standards for cots. Please note on two of the SLED Pulse graphs, the results peak above the corridor perimeter. It is generally acceptable by industry standards to peak above the corridor and still be considered compliant.

Testing May 2018  
Report Date July 1, 2019  
[www.saplacor.com](http://www.saplacor.com)

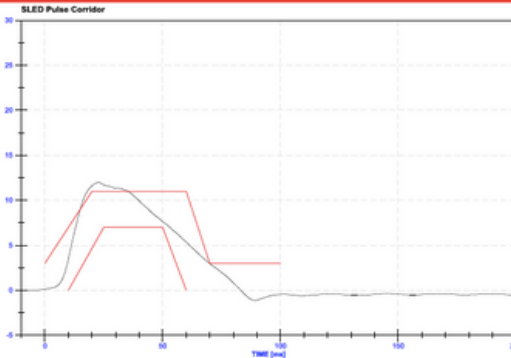


FRONTAL COLLISION  
SLED DATA  
SAE J2917



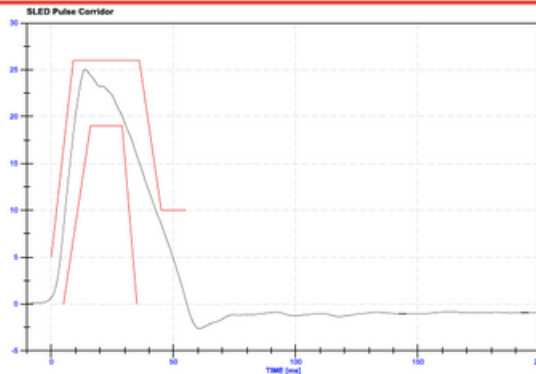
	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	19.64	64.2	CFC 60	S0SLED000000ACXD
SLED Velocity (mph)	31.13	121.2	CFC 180	S0SLED000000VAXC
SLED Displacement (ft)	10.45	300.0	CFC 180	S0SLED000000DVXC

REAR COLLISION  
SLED DATA  
SAE J3044



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	25.05	13.9	CFC 60	S0SLED000000ACXD
SLED Velocity (mph)	17.56	55.3	CFC 180	S0SLED000000VAXC
SLED Displacement (ft)	5.978	300.0	CFC 180	S0SLED000000DVXC

SIDE COLLISION  
SLED DATA  
SAE J2956



	Maximum	Time (ms)	Filter Class	Legend
SLED Acceleration (G's)	25.05	13.9	CFC 60	S0SLED000000ACXD
SLED Velocity (mph)	17.56	55.3	CFC 180	S0SLED000000VAXC
SLED Displacement (ft)	5.978	300.0	CFC 180	S0SLED000000DVXC



## CRITICAL INJURY VALUES

The critical injury values in the tables below show the measurements on the instrumented dummy (mother), the time during the impacts these measurements were calculated and the duration of these measurements. The first column titled **Limit** are the standard limits for crash testing according to SAE Cot standards as well as FMVSS 213 car seat standards. These are typical car crash limits and accepted by industry as proven standards. The **Value** column represents the measurement results from the adult instrumented dummy. Critical injury values must be under the limits to be safe for market. The two most important **Values** on the charts below are the Head Injury (36 milliseconds) and the Resultant Chest Clip.

### HEAD INJURY (36 milliseconds)

The industry standard limit is 1,000 for the head injury (36 milliseconds), the results data from the instrumented dummy for frontal, rear, and side collisions are highlighted on the tables below. As you can see the results (**272.2, 41.2, 43.9**) from the instrumented dummy are far below the head injury (36 ms) limit of **1,000**.

### RESULTANT CHEST CLIP (ABEO)

The industry standard limit is **60** for the resultant chest clip. The data from the instrumented dummy for frontal, rear, and side collisions are highlighted on the tables below. As you can see the results (**30.2, 13.3, 29.3**) from the instrumented dummy are far below (the resultant chest clip limit of **60**).

## FRONTAL COLLISION



SaplaCor SA05-18-002  
Bench A

Test Date:  
5/2/2018

Critical Injury Values

Test Parameter	Limit	Value	Time 1 msec	Time 2 msec	Duration
Head Injury (15 ms)	-	202.1	81.9	96.9	15
Head Injury (36 ms)	1000	272.2	71.2	102.6	36
Head Clip (3 ms)	80	50.5	91.7	94.9	3.2
Head Max	80	57.7	0.0	0.0	0.0
Nij Tension-Flex	1.00	0.195	71.8	-	-
Nij Tension-Ext	1.00	0.628	87.4	-	-
Nij Comp-Flex	1.00	0.158	60.3	-	-
Nij Comp-Ext	1.00	0.552	34.4	-	-
Resultant Chest Clip	60	30.2	80.1	83.1	3.0
Chest Max	60	36.7	0.0	0.0	0.0



# REAR COLLISION



Saplacor SA05-18-003  
Bench A

Test Date:  
5/2/2018

## Critical Injury Values

Test Parameter	Limit	Value	Time 1 msec	Time 2 msec	Duration
Head Injury (15 ms)	-	41.2	214.5	216.6	15
Head Injury (36 ms)	1000	41.2	214.5	216.6	36
Head Clip (3 ms)	80	25.6	232.0	235.0	3.0
Head Max	80	67.0	0.0	0.0	0.0
Nij Tension-Flex	1.00	0.094	220.7	-	-
Nij Tension-Ext	1.00	0.070	214.7	-	-
Nij Comp-Flex	1.00	0.128	257.3	-	-
Nij Comp-Ext	1.00	0.107	67.4	-	-
Resultant Chest Clip	60	13.3	57.9	60.9	3.0
Chest Max	60	13.7	0.0	0.0	0.0

# SIDE COLLISION



Saplacor SA05-18-004  
Bench A

Test Date:  
5/2/2018

## Critical Injury Values

Test Parameter	Limit	Value	Time 1 msec	Time 2 msec	Duration
Head Injury (15 ms)	-	33.2	206.6	209.8	15
Head Injury (36 ms)	1000	43.9	91.9	127.9	36
Head Clip (3 ms)	80	25.6	206.6	209.6	3.0
Head Max	80	53.2	0.0	0.0	0.0
Nij Tension-Flex	1.00	0.126	110.5	-	-
Nij Tension-Ext	1.00	0.300	210.2	-	-
Nij Comp-Flex	1.00	0.012	28.5	-	-
Nij Comp-Ext	1.00	0.049	64.5	-	-
Resultant Chest Clip	60	29.3	60.3	63.3	3.0
Chest Max	60	30.2	0.0	0.0	0.0

## CONCLUSION

The Award-winning AEGIS Neonate Wrap is the most innovative device on the market to safely transport mother and infant together (skin to skin and hands-free) with a single ambulance and crew. The testing of the AEGIS Neonate Wrap shows it was tested at the same SAE standards (with deviations) as ambulance cots are required to pass to be deemed marketable and safe for use. The Critical Injury Values results are significantly lower than the industry limit to be deemed marketable and safe for use. We are confident the AEGIS Neonate Wrap will revolutionize ambulance safety for infants globally.

## FOR MORE INFORMATION

To view our crash testing video please visit our website at [www.saplacor.com](http://www.saplacor.com).  
The direct link is <https://saplacor.com/pages/ambulance-transport>