

August 3, 2020

James Clayton Owens, Esq.
Acting Administrator
National Highway Traffic Safety Administration
1200 New Jersey Avenue, S.E.
Washington, D.C. 20590

RE: Anthropomorphic Test Devices, HIII 5th Percentile Female Test Dummy;
Incorporation by Reference

REF: 85 Fed. Reg. 106 (June 2, 2020)(Docket No. NHTSA 2019-0023)

Dear Mr. Owens:

On behalf of the members of the Alliance for Automotive Innovation (Auto Innovators), this letter provides additional Hybrid III 5th Percentile Female Test Dummy (HIII-5F) chest jacket measurement data and information regarding additional actions and information we plan to provide in a supplemental submission.

Appendix A provides additional dimensional measurements of new and used SAE harmonized chest jackets taken on an ATD, beyond those provided in our February 24, 2020 comments. Collectively, of the 22 jackets measured (4 new, 16 used, and 2 not reported) only 7 conformed to the proposed measurement specifications. These measurements were obtained before NHTSA posted its April 2020, chest jacket measurement procedure and, thus, do not provide variability information for measurements taken using that procedure. However, these additional data demonstrate the need to further examine the proposed dimensions and tolerances, as well as means to reduce measurement variability.

The limited subset of on-ATD measurements taken by the Innovators contains a considerable number of ATD jackets which do not meet the proposed measurement tolerances. Since these measurements were not taken using NHTSA's proposed procedure (as the document was unavailable at the time), we are unable to comment on the merits thereof or whether the procedure would resolve the exceedances measured. Notwithstanding, it is possible that some of the measurement references and tolerances may need to be revised to accommodate achievable manufacturing tolerances and measurement variability.

Innovators are currently exploring ways to reduce measurement variability and are consulting with Humanetics to evaluate the potential benefits for taking physical measurements using a mandrel. It is expected that taking these measurements on a dimensionally stable mandrel would reduce this variability. This is consistent with suggestions from the original

group working on the SAE harmonized jacket who proposed using a mandrel to reduce one source of measurement variability.

In addition, Innovators is developing recommendations for measurements that should be specified for an inspection test that should be provided for reference only. The extensive measurements proposed by NHTSA would over-burden ATD labs if added to the qualification procedures for the ATD. Innovators plan on conducting a series of limited measurements of jackets on the ATD and a mandrel to compare the variability of measurements. These data and our recommendations for which of the proposed physical dimensions should be specified and how they should be measured will be provided in a supplemental submission. In the meantime, Innovators would be pleased to schedule a call with the agency to discuss these activities in more detail.

Auto Innovators appreciates this opportunity to provide these comments.

Sincerely,
ALLIANCE FOR AUTOMOTIVE INNOVATION



Scott Schmidt
Senior Director, Vehicle Safety

cc:

R. Posten
P. Martin
O. Matheke

Appendix A

Proposed Specifications - Jacket on ATD

			A-pt (Left) X	A-pt (Left) Y	A-pt (Left) Z**	A-pt (Right) X	A-pt (Right) Y	A-pt (Right) Z**	Circumference at B-B ↓	Y-Height #	Pelvis Circumference at Z †	
Proposed Specification (880105-355-H)	(in)		9.21	2.68	10.43	9.21	-2.68	10.43	33.86	4.33	30.50	
	(mm)		233.93	68.07	264.92	233.93	-68.07	264.92	860.04	109.98	774.70	
	Tolerance	(in)		9.61	3.08	10.83	9.61	-2.28	10.83	34.06	4.63	31.10
		(mm)		244.09	78.23	275.08	244.09	-57.91	275.08	865.00	117.60	789.94
Tolerance	(in)		8.81	2.28	10.03	8.81	-3.08	10.03	33.66	4.03	29.90	
	(mm)		223.77	57.91	254.76	223.77	-78.23	254.76	854.96	102.36	759.46	
Member A *	EF2414 (New)	(in)		9.40	2.70	8.25	9.20	-2.80	8.38	34.25	NA	30.75
		(mm)		238.76	68.58	209.55	233.68	-71.12	212.73	869.95	NA	781.05
	EI6141 (New)	(in)		9.10	2.70	9.00	9.00	-2.70	9.25	34.13	NA	30.75
		(mm)		231.14	68.58	228.60	228.60	-68.58	234.95	866.78	NA	781.05
	DO5112 (Used, Made on 9/2013)	(in)		9.00	2.60	8.75	9.00	-2.70	8.50	34.00	NA	30.75
		(mm)		228.60	66.04	222.25	228.60	-68.58	215.90	863.60	NA	781.05
Member B	DS0380 Humanetics (Used)	(in)		9.21	2.60	10.10	9.13	-2.64	10.12	34.13	4.50	30.75
		(mm)		234.00	66.00	256.50	232.00	-67.00	257.00	867.00	114.30	772.00
	DS6638 Humanetics (Used)	(in)		9.25	2.66	10.31	9.11	-2.66	10.31	33.74	4.25	30.39
		(mm)		235.00	67.50	262.00	231.50	-67.50	262.00	857.00	107.95	772.00
	DR8948 Humanetics (Used)	(in)		9.25	2.64	10.35	9.09	-2.68	10.35	33.82	4.25	30.39
		(mm)		235.00	67.00	263.00	231.00	-68.00	263.00	859.00	107.95	772.00
	EM8809 Humanetics (New)	(in)		8.98	2.64	10.24	9.13	-2.58	10.28	34.37	4.11	30.39
		(mm)		228.00	67.00	260.00	232.00	-65.50	261.00	873.00	104.39	772.00
Member C	OP7982 (Used)	(in)		9.49	2.74	10.51	9.41	-2.62	10.59	34.17	NA	30.28
		(mm)		241.00	69.50	267.00	239.00	-66.50	269.00	868.00	NA	769.00
	DV1857 (Used)	(in)		9.57	2.72	10.43	9.37	-2.66	10.51	34.21	NA	30.32
		(mm)		243.00	69.00	265.00	238.00	-67.50	267.00	869.00	NA	770.00
Member D	EN5756 (New)	(in)										
		(mm)		234.00	63.00	NA	234.00	-60.00	NA	862.00	NA	771.00
	EH1084 (Used)	(in)										
		(mm)		234.00	63.00	NA	234.00	-60.00	NA	862.00	NA	772.00
Member E	DV2465 (Used)	(in)		9.33	2.64	8.86	9.37	-2.64	8.66	33.98	2.40	30.79
		(mm)		237.00	67.00	225.00	238.00	-67.00	220.00	863.00	61.00	782.00
	DV4650 (Used)	(in)		9.29	2.72	8.78	9.25	-2.70	8.86	33.70	2.56	30.79
		(mm)		236.00	69.00	223.00	235.00	-68.50	225.00	856.00	65.00	782.00
	EA4791 (Used)	(in)		9.37	2.64	8.90	9.29	-2.64	8.90	33.86	2.68	30.79
		(mm)		238.00	67.00	226.00	236.00	-67.00	226.00	860.00	68.00	782.00
	EF3305 (Used)	(in)		9.41	2.62	8.66	9.41	-2.66	8.64	34.06	2.44	30.79
		(mm)		239.00	66.50	220.00	239.00	-67.50	219.50	865.00	62.00	782.00
F	DQ1564 *** (Used)	(in)										
		(mm)		235.00	69.00	255.00	235.00	-69.00	255.00	865.00	110.00	780.00
Member G	DW8754 **** (Used)	(in)										
		(mm)		236.00	67.00	273.00	237.00	-68.00	275.00	860.00	116.00	790.00
	EF4977 **** (Used)	(in)										
		(mm)		241.00	69.00	272.00	232.00	-65.00	273.00	857.00	115.00	795.00
	DR8637 **** (Used)	(in)										
		(mm)		239.00	67.00	278.00	233.00	-68.00	277.00	857.00	118.50	784.00
DW8749 **** (Used)	(in)											
	(mm)		237.00	67.00	273.00	237.00	-67.00	273.00	857.00	115.00	784.00	
Member H	N890	(in)		9.45	2.76	9.96	9.45	2.60	10.35	33.94	4.49	30.79
		(mm)		240.00	70.00	253.00	240.00	66.00	263.00	862.00	114.00	782.00
	N896	(in)		9.41	2.76	10.16	9.21	2.52	10.35	33.98	4.41	30.47
		(mm)		239.00	70.00	258.00	234.00	64.00	263.00	863.00	112.00	774.00

Notes on following page.

Notes:

- * Member A used same dummy for all three sets of jacket on ATD measurements
- ** A-Point Z-distance was measured from the H-Point.
- *** Note that there are three measurements (Jacket on ATD) that are subject to measurement error due to dummy movement. They are:
 - A-pt (Left) - Z**
 - A-pt (Right) – Z
 - Y-Height of lower edge at anterior-most point on dummy mid-line
- **** Different dummy was used for all four sets of jacket on ATD measurements
- ¥ Circumference at B-B is measured 10.4 in (264 mm) above H-point
- # Y-Height of lower edge at anterior-most point on dummy mid-line
- § Circumference at Z is measured 6.5 in (165 mm) above table

