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Laboratory Test Report

Manufacturer Data:
USPA
9011 Lake Worth Road
Lake Worth, FL 33467

Contact: Duncan Huyler
Phone: 800 232 8772 x 123

Report Date: August 3, 2016

Test Report Number: R8745 Rev.2
Revision: Clarified deviations to standard, added pass comment to data sheets.
Revision Date: October 25, 2016

Laboratory Technician: Jonathan Ziegler
Laboratory Supervisor: Mel Cook
Technical Director: P. David Halstead

Test Type: NOCSAE DOC.050 "Standard Performance Specification for Newly Manufactured Polo Helmets" and ASTM F 1163- "Protective Headgear Used in Horse Sports and Horseback Riding"

Deviations from Standards: The helmets were evaluated only for the ambient and elevated temperature conditions. The test protocol was developed prior to testing in conjunction with the customer. Labeling requirements were not evaluated.

Subject: Five each polo helmets of eight models sized to fit the 7¼ headform, received on June 6, 2016, June 17, 2016, July 5, 2016 and September 23, 2016 in new condition for evaluation. This report describes results obtained from testing performed on the submitted samples noted above.

Test Results: Refer to attached data sheet for details on readings observed during the impacts.

Notice: This report only describes results obtained from testing performed on the submitted samples noted above.

	Test Standard	
Model	**NOCSAE ND050**	**ASTM F 1163**
La Martina Pro Evo 1	Noncompliant/As Tested	Compliant/As Tested
Falcon Star	Noncompliant/As Tested	Noncompliant/As Tested
Falcon Ultra	Noncompliant/As Tested	Noncompliant/As Tested
Charles Owen Palermo	Noncompliant/As Tested	Compliant/As Tested
Casablanca NV 3Point	Noncompliant/As Tested	Noncompliant/As Tested
La Martina JM S13	Noncompliant/As Tested	Compliant/As Tested
Polo Gear Extreme	Noncompliant/As Tested	Noncompliant/As Tested
GPA Polo FL 2X	Noncompliant/As Tested	Compliant/As Tested

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Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-A				**Manufacturer:**	La Martina	
Date Testing Completed:	8/2/2016				**Model:**	Pro Evo 1	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Pass	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	490	119	18.41	764	171	18.29	625	148	18.34	800	167	17.97	450	94	18.44

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	839	148	18.17	744	138	18.33

Comments: Random location: Upper Rear (Stem 3, Rot 5)

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Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-A			**Manufacturer:**	La Martina	
Date Testing Completed:	8/2/2016			**Model:**	Pro Evo 1	
Lab Conditions:	74.5	°F	49.5 %RH	**Size:**	59	
Technician:	J. Ziegler			**Date Code:**	n/a	
Headform:	RMM 334			**Sample #:**	2	
				Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	258	87	11.79	355	106	11.72	191	76	11.69	309	107	11.39	431	129	11.47
17.94	1796	259	18.01	1825	234	18.19	1062	196	18.32	1002	184	18.36	1290	247	18.46
17.94							1669	245	18.19	1430	216	18.36			

Helmet#3 High Temperature Drops:

Drop Velocity	Top			Random			Rear			Side (Stem 3, Rot 5)		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	380	99	11.37	262	92	11.43	1061	193	18.33	708	159	18.29
17.94	2054	259	18.19	1445	212	18.36	1747	254	18.33	1349	216	18.23
17.94												

Comments: Random location: Upper Rear (Stem 3, Rot 5)

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Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-B				**Manufacturer:**	Falcon	
Date Testing Completed:	8/2/2016				**Model:**	Star	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	1238	201	18.33	879	177	18.28	1068	222	17.93	1282	242	18.21	596	186	18.39

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	1238	170	18.22	1819	252	18.33

Comments: Random location: Upper Rear (Stem 3, Rot 5)

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Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-B				**Manufacturer:**	Falcon	
Date Testing Completed:	8/2/2016				**Model:**	Star	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	2	
					Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	202	75	11.53	246	84	11.58	126	61	11.49	287	122	11.65	369	120	11.42
17.94	959	171	18.12	1827	231	18.17	829	184	18.31	1366	230	18.4	1945	255	18.42
17.94	1162	179	18.22				931	193	18.28						

Helmet#3 High Temperature Drops:

Drop Velocity	Top			Random			Rear			Side (Stem 3, Rot 5)		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	366	111	11.69	401	129	11.54	1454	223	18.32	763	152	18.17
17.94	1870	248	18.32	2394	369	18.24				823	167	18.18
17.94												

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-C			**Manufacturer:**	Falcon
Date Testing Completed:	8/2/2016			**Model:**	Ultra
Lab Conditions:	74.5	°F	49.5 %RH	**Size:**	59
Technician:	J. Ziegler			**Date Code:**	n/a
Headform:	RMM 334			**Sample #:**	1
				Pass/Fail:	Pass

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	652	150	18.36	453	128	18.34	517	142	18.02	447	117	18.06	374	102	18.34

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	787	142	18.23	1106	171	18.33

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-C				**Manufacturer:**	Falcon	
Date Testing Completed:	8/2/2016				**Model:**	Ultra	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	138	64	11.57	141	69	11.7	113	59	11.54	113	65	11.49	154	75	11.45
17.94	815	152	18.19	1195	200	18.19	594	136	18.32	707	161	18.19	778	161	18.51
17.94	1128	187	18.1	1624	237	18.2	792	157	18.17	735	161	18.25	823	157	18.31

Helmet#3 High Temperature Drops:

Drop Velocity	Top			Random			Rear			Side (Stem 3, Rot 5)		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	237	73	11.64	162	79	11.47	917	167	18.37	529	139	18.17
17.94	1294	187	18.24	917	163	18.32	1066	186	18.38	698	159	18.17
17.94				1374	198	18.34						

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-D				**Manufacturer:**	Charles Owen	
Date Testing Completed:	8/2/2016				**Model:**	Palermo	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Pass	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	404	99	18.3	421	113	18.32	373	106	18.02	718	161	18.32	653	146	18.31

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	659	129	18.22	688	137	18.33

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-D			**Manufacturer:**	Charles Owen	
Date Testing Completed:	8/2/2016			**Model:**	Palermo	
Lab Conditions:	74.5	°F	49.5 %RH	**Size:**	59	
Technician:	J. Ziegler			**Date Code:**	n/a	
Headform:	RMM 334			**Sample #:**	2	
				Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	271	93	11.62	325	95	11.68	230	91	11.47	273	98	11.46	324	106	11.44
17.94	983	171	18.01	1112	173	18.07	958	168	18.18	1116	200	18.34	1415	210	18.27
17.94	1456	220	18.08	1550	212	18.17	1300	200	18.11	2233	285	18.25			

Helmet#3 High Temperature Drops:

Drop Velocity	Top			Random			Rear			Side (Stem 3, Rot 5)		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	287	84	11.5	291	92	11.53	1150	184	18.31	836	157	18.19
17.94	1204	175	18.18	1109	187	18.24	2123	267	18.38	847	154	18.08
17.94	1966	245	18.2	1495	213	18.34						

Comments: Random location: Upper Rear (Stem 3, Rot 5)

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Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-E				**Manufacturer:**	Casablanca	
Date Testing Completed:	8/2/2016				**Model:**	NV 3 Point	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	2712	368	18.38	1826	290	18.36	1703	266	18.07	2193	285	18.31	1721	249	18.32

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	1785	217	18.24	1096	184	16.5*

Comments: Random location: Upper Rear (Stem 3, Rot 5)

*Impact recorded is less than range specified in standard.

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-E	**Manufacturer:**	Casablanca
Date Testing Completed:	8/2/2016	**Model:**	NV 3 Point
Lab Conditions:	74.5 °F 49.5 %RH	**Size:**	59
Technician:	J. Ziegler	**Date Code:**	n/a
Headform:	RMM 334	**Sample #:**	1
		Pass/Fail:	Fail

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	193	79	11.6	395	125	11.67	110	54	11.46	138	64	11.49	69	41	11.43
17.94	2202	297	18.11	3287	380	18.09	1142	215	18.25	2109	301	18.4	2033	276	18.24
17.94							1472	250	18.25						

Helmet#3 High Temperature Drops:

Drop Velocity	Top			Random			Rear			Side (Stem 3, Rot 5)		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	288	89	11.53	148	62	11.44	1597	235	18.31	825	181	18.15
17.94	2076	237	18.21	2059	256	18.36				1652	258	18.23
17.94												

Comments: Random location: Upper Rear (Stem 3, Rot 5)

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Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-F				**Manufacturer:**	La Martina	
Date Testing Completed:	8/2/2016				**Model:**	JM S13	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	59	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Pass	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	544	121	18.37	665	158	18.23	498	123	18.07	858	179	18.13	468	107	18.34

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	786	149	18.27	919	149	18.31

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-F			**Manufacturer:**	La Martina	
Date Testing Completed:	8/2/2016			**Model:**	JM S13	
Lab Conditions:	74.5	°F	49.5 %RH	**Size:**	59	
Technician:	J. Ziegler			**Date Code:**	n/a	
Headform:	RMM 334			**Sample #:**	2	
				Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	320	104	11.56	357	107	11.51	243	107	11.55	325	110	11.47	351	105	11.47
17.94	1150	178	18.26	1722	222	18.13	1067	194	18.39	1109	185	18.45	1230	234	18.38
17.94	1460	211	18.14				1538	243	18.25	1439	215	18.15			

Helmet#3 High Temperature Drops:

Drop Velocity	Top			Random			Rear			Side (Stem 3, Rot 5)		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	462	127	11.62	374	114	11.44	1059	191	18.32	754	161	18.13
17.94	1852	255	18.27	1555	233	18.29	1421	223	18.32	1604	235	18.2
17.94												

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Reproduction of this report shall be in full; partial reproduction is prohibited.

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-G				**Manufacturer:**	Polo Gear	
Date Testing Completed:	8/2/2016				**Model:**	Extreme	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	58	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	1	
					Pass/Fail:	Pass	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#1 Ambient Temperature Drops:

Drop Velocity	Front Equestrian Anvil			Front Boss Equestrian Anvil			Side Equestrian Anvil			Rear Boss Equestrian Anvil			Rear Hemi Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
17.94	824	165	18.34	289	87	18.27	671	162	17.97	531	138	18.17	550	123	18.38

Drop Velocity	Top Equestrian Anvil			Random Equestrian Anvil		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
17.94	686	115	18.24	628	142	18.34

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-G				**Manufacturer:**	Polo Gear	
Date Testing Completed:	8/2/2016				**Model:**	Extreme	
Lab Conditions:	74.5	°F	49.5	%RH	**Size:**	58	
Technician:	J. Ziegler				**Date Code:**	n/a	
Headform:	RMM 334				**Sample #:**	2	
					Pass/Fail:	Fail	

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	541	164	9.47
18	540	164	9.50
18	534	164	9.53

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	531	160	9.47
18	533	161	9.54
18	531	161	9.58

Summary:

	SI	GS
Avg. Before	538	164
Avg. After	532	161
% Difference	1.2%	2.0%

Helmet#2 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	195	84	11.59	218	81	11.52	118	59	11.47	269	110	11.46	370	124	11.43
17.94	697	132	18.24	937	168	18.17	756	157	18.34	1188	202	18.4	1299	216	18.36
17.94	1038	176	18.21	1224	195	18.15	813	160	18.16	1396	224	18.29			

Drop Velocity	Top			Random		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity
11.34	279	86	11.5	307	103	11.44
17.94	963	135	18.18	735	166	18.23
17.94	961	141	18.15	995	168	18.27

Helmet#3 High Temperature Drops:

	Rear			Side (Stem 3, Rot 5)		
	SI	GS	Velocity	SI	GS	Velocity
	819	156	18.24	306	91	18.13
	1065	183	18.29	644	137	18.15

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Reproduction of this report shall be in full; partial reproduction is prohibited.

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-H	**Manufacturer:**	GPA
Date Testing Completed:	10/3/2016	**Model:**	Polo FL 2X
Lab Conditions:	72.3 / 52.1	**Size:**	7 1/4
Technician:	J. Ziegler	**Date Code:**	Sept-16
Headform:	RMM 334	**Sample #:**	1-NOCSAE
		Pass/Fail:	Pass

Equipment Check-out:

Before Helmet Test:

Drop Height (inches)	Front Boss SI	Front Boss GS	Front Boss Velocity
18	512	158	9.48
18	513	158	9.43
18	508	158	9.37

After Helmet Test:

Drop Height (inches)	Front Boss SI	Front Boss GS	Front Boss Velocity
18	509	159	9.34
18	517	157	9.36
18	513	157	9.47

Summary:

	SI	GS
Avg. Before	511	158
Avg. After	513	158
% Difference	0.4%	0.2%

Helmet#1 Ambient Temperature Drops:

Drop Velocity (ft/s)	Front (Stem 3, Rot 5) Equestrian Anvil SI	GS	Velocity	Front Boss (Stem 3, Rot 5) Equestrian Anvil SI	GS	Velocity	Side Equestrian Anvil SI	GS	Velocity	Rear Boss Equestrian Anvil SI	GS	Velocity	Rear Hemi Anvil SI	GS	Velocity
17.94	682	139	18.3	513	131	18.18	296	97	18.01	440	108	18.22	1078	193	18.51

Drop Velocity (ft/s)	Top Equestrian Anvil SI	GS	Velocity	Random Equestrian Anvil SI	GS	Velocity
17.94	538	109	18.06	638	128	18.19

Comments: Random location: Upper Rear (Stem 3, Rot 5)

Reproduction of this report shall be in full; partial reproduction is prohibited.

Polo Helmet Shock Attenuation Test
NOCSAE ND 050

Control Number:	R8745-H	**Manufacturer:**	GPA
Date Testing Completed:	10/3/2016	**Model:**	Polo FL 2X
Lab Conditions:	72.3 / 52.1	**Size:**	7 1/4
Technician:	J. Ziegler	**Date Code:**	Sept-16
Headform:	RMM 334	**Sample #:**	2-NOCSAE and 3-NOCSAE
		Pass/Fail:	Fail

Equipment Check-out:

Before Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	512	158	9.48
18	513	158	9.43
18	508	158	9.37

After Helmet Test:

Drop Height	Front Boss		
(inches)	SI	GS	Velocity
18	509	159	9.34
18	517	157	9.36
18	513	157	9.47

Summary:

	SI	GS
Avg. Before	511	158
Avg. After	513	158
% Difference	0.4%	0.2%

Helmet#3 Ambient Temperature Drops:

Drop Velocity	Front Boss (Stem 1, Rot 1)			Front (Stem 1, Rot 1)			Side (Stem 3, Rot 5)			Rear Boss			Rear		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	264	85	11.8	325	98	11.6	244	94	11.49	224	84	11.55	407	126	11.53
17.94	1194	189	17.85	1835	248	18.09	1081	193	18.2	998	173	18.32	1697	252	18.3
17.94	1825	250	18				1729	256	18.29	1831	261	18.22			

Helmet#2 High Temperature Drops:

Drop Velocity	Top			Random			Front (Stem 1, Rot 1)			Rear Boss		
(ft/s)	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity	SI	GS	Velocity
11.34	327	85	11.7	311	99	11.73	1089	175	18.11	684	144	18.37
17.94	1595	205	18.26	1522	201	18.19	2502	307	17.66	1518	230	18.03
17.94												

Comments: Random location: Upper Rear (Stem 3, Rot 5)

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IMPACT LAB
SUMMARY TEST REPORT

Report Number: R8745-A,B,C,D,E,F,G
Test Date: 8/1/2016

Prepared For: USPA

Tested By: Jonathan Ziegler

Technician: Mel Cook

Engineer: David Halstead

Test Standard: ASTM F1163-15

IMPACT TEST SUMMARY

SESSION # 1

Test Date: 8/1/2016 Test Standard: **ASTM F1163-15**
Tested By: Jonathan Ziegler

MODEL IDENTIFICATION

Helmet #	Sample I.D. #	Model/I.D.	Size	Headform
U00001	A1	La Martina, Pro Evo 1	59	ISO, Size J
U00002	A2	La Martina, Pro Evo 1	59	ISO, Size J
U00003	B1	Falcon, Star	59	ISO, Size J
U00004	B2	Falcon, Star	59	ISO, Size J
U00005	C1	Falcon, Ultra	59	ISO, Size J
U00006	C2	Falcon, Ultra	59	ISO, Size J
U00007	D1	Charles Owen, Palermo	59	ISO, Size J
U00008	D2	Charles Owen, Palermo	59	ISO, Size J
U00009	E1	Casablanca, NV 3Point	59	ISO, Size J
U00010	E2	Casablanca, NV 3Point	59	ISO, Size J
U00011	F1	La Martina, JM S13	59	ISO, Size J
U00012	F2	La Martina, JM S13	59	ISO, Size J
U00013	G1	Polo Gear, Extreme	58	ISO, Size J
U00014	G2	Polo Gear, Extreme	58	ISO, Size J

PRE-TEST & POST-TEST CALIBRATION CHECK

Systems Check	Trial Drop	Velocity (m/s)	Drop Height (m)	Peak G	Milliseconds @ 150 G	Milliseconds @ 200 G
Pre-Test	1	5.45	1.50	393.7	2.7	2.3
	2	5.45	1.50	392.5	2.7	2.3
	3	5.45	1.50	390.2	2.7	2.3
Pre-Test Average				392.1		
Post-Test	1	5.46	1.50	395.5	2.7	2.3
	2	5.44	1.50	389.5	2.8	2.4
	3	5.44	1.50	392.3	2.8	2.3
Post-Test Average				392.4		
Difference Between Pre-Test & Post-Test Average				-0.3		

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IMPACT TEST SUMMARY (continued....)

SESSION # 1 (continued....)

DATA SUMMARY

Helmet #	Sample I.D. #	Condition	Impact Location	Anvil	Drop Height (m)	Impact Velocity (m/s)	Impact Energy (J)	Accel. Peak (g)	Milliseconds @ 150 G	Milliseconds @ 200 G	C of R	Note
U00001	A1	Ambient	CR	Flat	1.89	6.07	86.6	228	3.0	1.2	0.40	Pass
U00001	A1	Ambient	RR	Flat	1.89	6.05	86.0	231	2.6	1.6	0.40	Pass
U00001	A1	Ambient	FR	Hazrd	1.31	5.08	60.7	171	0.9	0.0	0.35	Pass
U00001	A1	Ambient	LF	Hazrd	1.31	5.06	60.2	141	0.0	0.0	0.36	Pass
U00002	A2	Hot	CR	Flat	1.89	6.02	85.2	195	2.3	0.0	0.35	Pass
U00002	A2	Hot	RR	Flat	1.89	6.05	86.0	216	2.3	1.0	0.37	Pass
U00002	A2	Hot	FR	Hazrd	1.31	5.06	60.2	290	1.3	1.0	0.27	Pass
U00002	A2	Hot	LF	Hazrd	1.31	5.08	60.7	231	1.2	0.5	0.28	Pass
U00003	B1	Ambient	CR	Flat	1.89	6.04	85.7	472	1.9	1.6	0.32	*Fail*
U00003	B1	Ambient	RR	Flat	1.89	6.01	84.9	275	2.5	1.4	0.38	Pass
U00003	B1	Ambient	FR	Hazrd	1.31	5.06	60.2	298	1.9	1.3	0.26	Tested[1]
U00003	B1	Ambient	LF	Hazrd	1.31	5.05	59.9	288	1.4	0.9	0.28	Pass
U00004	B2	Hot	CR	Flat	1.89	6.02	85.2	472	1.2	1.1	0.03	*Fail*
U00004	B2	Hot	RR	Flat	1.89	6.05	86.0	472	1.3	1.1	0.26	*Fail*
U00004	B2	Hot	FR	Hazrd	1.31	5.04	59.7	297	1.9	1.7	0.24	Tested[1]
U00004	B2	Hot	LF	Hazrd	1.31	5.05	59.9	366	1.5	1.2	0.27	*Fail*
U00005	C1	Ambient	CR	Flat	1.89	6.01	84.9	227	2.5	1.3	0.27	Pass
U00005	C1	Ambient	RR	Flat	1.89	6.02	85.2	178	1.7	0.0	0.23	Pass
U00005	C1	Ambient	FR	Hazrd	1.31	5.05	59.9	248	1.1	0.7	0.20	Pass
U00005	C1	Ambient	LF	Hazrd	1.31	5.06	60.2	172	1.2	0.0	0.30	Pass
U00006	C2	Hot	CR	Flat	1.89	6.02	85.2	472	1.5	1.2	0.23	*Fail*
U00006	C2	Hot	RR	Flat	1.89	6.05	86.0	472	1.5	1.2	0.25	*Fail*
U00006	C2	Hot	FR	Hazrd	1.31	5.04	59.7	309	1.4	1.1	0.24	*Fail*
U00006	C2	Hot	LF	Hazrd	1.31	5.06	60.2	350	1.4	1.0	0.27	*Fail*
U00007	D1	Ambient	CR	Flat	1.89	6.05	86.0	189	3.0	0.0	0.31	Pass
U00007	D1	Ambient	RR	Flat	1.89	6.02	85.2	182	2.2	0.0	0.36	Pass
U00007	D1	Ambient	FR	Hazrd	1.31	5.02	59.2	118	0.0	0.0	0.31	Pass
U00007	D1	Ambient	LF	Hazrd	1.31	5.07	60.4	130	0.0	0.0	0.29	Pass
U00008	D2	Hot	CR	Flat	1.89	6.04	85.7	199	3.0	0.0	0.35	Pass
U00008	D2	Hot	RR	Flat	1.89	6.04	85.7	188	2.7	0.0	0.39	Pass
U00008	D2	Hot	FR	Hazrd	1.31	5.05	59.9	103	0.0	0.0	0.27	Pass
U00008	D2	Hot	LF	Hazrd	1.31	5.05	59.9	152	0.3	0.0	0.31	Pass
U00009	E1	Ambient	CR	Flat	1.89	6.04	85.7	472	1.9	1.4	0.47	*Fail*
U00009	E1	Ambient	RR	Flat	1.89	6.02	85.2	452	1.6	1.2	0.33	*Fail*
U00009	E1	Ambient	FR	Hazrd	1.31	5.04	59.7	344	1.7	1.6	0.21	*Fail*
U00009	E1	Ambient	LF	Hazrd	1.31	5.06	60.2	353	1.2	1.0	0.14	*Fail*
U00011	F1	Ambient	CR	Flat	1.89	6.02	85.2	255	3.1	2.3	0.45	Pass
U00011	F1	Ambient	RR	Flat	1.89	6.01	84.9	213	2.9	1.1	0.37	Pass
U00011	F1	Ambient	FR	Hazrd	1.31	5.03	59.5	147	0.0	0.0	0.39	Pass
U00011	F1	Ambient	LF	Hazrd	1.31	5.07	60.4	141	0.0	0.0	0.39	Pass
U00012	F2	Hot	CR	Flat	1.89	6.02	85.2	227	3.4	1.4	0.45	Pass
U00012	F2	Hot	RR	Flat	1.89	6.04	85.7	221	2.4	1.3	0.40	Pass
U00012	F2	Hot	FR	Hazrd	1.31	5.04	59.7	269	1.0	0.7	0.32	Pass
U00012	F2	Hot	LF	Hazrd	1.31	5.06	60.2	263	1.2	0.8	0.35	Pass
U00013	G1	Ambient	CR	Flat	1.89	6.01	84.9	194	3.1	0.0	0.43	Pass
U00013	G1	Ambient	RR	Flat	1.89	6.04	85.7	136	0.0	0.0	0.32	Pass
U00013	G1	Ambient	FR	Hazrd	1.31	5.05	59.9	324	1.5	1.1	0.31	*Fail*
U00013	G1	Ambient	LF	Hazrd	1.31	5.06	60.2	133	0.0	0.0	0.31	Pass
U00014	G2	Hot	CR	Flat	1.89	6.02	85.2	168	1.1	0.0	0.49	Pass
U00014	G2	Hot	RR	Flat	1.89	6.04	85.7	144	0.0	0.0	0.38	Pass
U00014	G2	Hot	FR	Hazrd	1.31	5.02	59.2	283	1.3	1.0	0.35	Pass
U00014	G2	Hot	LF	Hazrd	1.31	5.05	59.9	190	1.1	0.0	0.41	Pass

LEGEND: Helmet Position: FR=Front LF=Left RG=Right
RR=Rear CR=Crown OT=Other

[1] The compliance of this impact is inconclusive due to the peak (g) value is within the system's estimated uncertainty.

HELMET ROTATION TEST RESULTS

Helmet #: U00001 Sample I.D. #: A1 Result: **PASSED**
Comments:

Helmet #: U00003 Sample I.D. #: B1 Result: **PASSED**
Comments:

Helmet #: U00005 Sample I.D. #: C1 Result: **PASSED**
Comments:

Helmet #: U00007 Sample I.D. #: D1 Result: **PASSED**
Comments:

Helmet #: U00009 Sample I.D. #: E1 Result: **FAILED**
Comments: Strap pulled out of retention adjustment buckle.

Helmet #: U00011 Sample I.D. #: F1 Result: **PASSED**
Comments:

Helmet #: U00013 Sample I.D. #: G1 Result: **PASSED**
Comments:

IMPACT LAB
SUMMARY TEST REPORT

Report Number: R8745-H
Test Date: 10/3/2016

Prepared For: USPA

Tested By: Jonathan Ziegler

Technician: Mel Cook

Engineer: David Halstead

Test Standard: ASTM F1163-15

IMPACT TEST SUMMARY

SESSION # 1

Test Date: 10/3/2016 Test Standard: **ASTM F1163-15**
Tested By: Jonathan Ziegler

MODEL IDENTIFICATION

Helmet #	Sample I.D. #	Model/I.D.	Size	Headform
U00101	H1	Polo FL 2X	7 1/4	ISO, Size J
U00102	H2	Polo FL 2X	7 1/4	ISO, Size J

PRE-TEST & POST-TEST CALIBRATION CHECK

Systems Check	Trial Drop	Velocity (m/s)	Drop Height (m)	Peak G	Milliseconds @ 150 G	Milliseconds @ 200 G
Pre-Test	1	5.44	1.50	391.6	2.8	2.2
	2	5.45	1.50	386.2	2.7	2.3
	3	5.45	1.50	389.1	2.7	2.3
Pre-Test Average				389.0		
Post-Test	1	5.43	1.50	388.8	2.7	2.3
	2	5.42	1.50	390.9	2.7	2.3
	3	5.42	1.50	390.2	2.8	2.3
Post-Test Average				390.0		
Difference Between Pre-Test & Post-Test Average				-1.0		

DATA SUMMARY

Helmet #	Sample I.D. #	Condition	Impact Location	Anvil	Drop Height (m)	Impact Velocity (m/s)	Impact Energy (J)	Accel. Peak (g)	Milliseconds @ 150 G	Milliseconds @ 200 G	C of R	Note
U00101	**H1**	**Ambient**	**CR**	**Flat**	**1.89**	**6.02**	**85.2**	**221**	**3.0**	**0.9**	**0.32**	**Pass**
U00101	**H1**	**Ambient**	**RR**	**Flat**	**1.89**	**6.05**	**86.0**	**240**	**2.7**	**1.7**	**0.30**	**Pass**
U00101	**H1**	**Ambient**	**FR**	**Hazrd**	**1.31**	**5.06**	**60.2**	**170**	**0.9**	**0.0**	**0.28**	**Pass**
U00101	**H1**	**Ambient**	**LF**	**Hazrd**	**1.31**	**5.07**	**60.4**	**121**	**0.0**	**0.0**	**0.26**	**Pass**
U00102	**H2**	**Hot**	**CR**	**Flat**	**1.89**	**6.01**	**84.9**	**221**	**2.8**	**1.2**	**0.30**	**Pass**
U00102	**H2**	**Hot**	**RR**	**Flat**	**1.89**	**6.07**	**86.6**	**228**	**2.5**	**1.6**	**0.28**	**Pass**
U00102	**H2**	**Hot**	**FR**	**Hazrd**	**1.31**	**5.02**	**59.2**	**159**	**0.7**	**0.0**	**0.28**	**Pass**
U00102	**H2**	**Hot**	**LF**	**Hazrd**	**1.31**	**5.08**	**60.7**	**124**	**0.0**	**0.0**	**0.26**	**Pass**

LEGEND: Helmet Position: FR=Front LF=Left RG=Right
RR=Rear CR=Crown OT=Other

HELMET ROTATION TEST RESULTS

Helmet #: U00101 Sample I.D. #: H1 Result: **PASSED**
Comments:

Photos:

A5

LA MARTINA
Evolution Series®
Polo Helmets
In order to guarantee an optimum performance, the helmet must fit closely and the harness must always be correctly adjusted and used according to the appropriate instructions supplied by the manufacturer.
This helmet is designed to absorb some of the energy of a blow by partial destruction of the shell or protective padding material, or both.
Wearing this helmet may not always avoid fatal events or permanent injuries. This would depend on the event circumstances.
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LaMartinaTechnical Dept.
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ALL RIGTHS RESERVED

B5

Always inspect the inside and outside of the helmet as well as chin straps before and after use.
This helmet will not prevent all injuries a player might receive while participating in polo.
Severe head, neck and brain injury or death may occur to you despite wearing this helmet.
You may become paralyzed. Do not use this helmet if the shell is cracked or deformed; or if the interior padding is deteriorated.
PROPER FITTING GUIDELINES:
•Helmet should fit snug to head
•Helmet must not be loose fitting or too tight to cause discomfort
•Chin strap should be pulled tight to prevent movement of helmet when worn
When wearing helmet, visor should be parallel to the ground for proper coverage.
repairs or modifications whatsoever should made to the helmet following any significant

FALCON
Star

C5

Always inspect the inside and outside of the helmet as well as chin straps before and after use.
This helmet will not prevent all injuries
a player might receive while participating in polo.
Severe head, neck and brain injury or death may occur to you despite wearing this helmet.
You may become paralyzed. Do not use this helmet if the shell is cracked or deformed; or if the interior padding is deteriorated.
PROPER FITTING GUIDELINES:
•Helmet should fit snug to head
•Helmet must not be loose fitting or too tight to cause discomfort
•Chin strap should be pulled tight to prevent movement of helmet when worn
When wearing helmet, visor should be parallel to the ground for proper coverage.
repairs or modifications whatsoever should made to the helmet following any significant

Ultra

palermo
WARNING
For maximum protection this helmet shall fit closely and the harness shall always be correctly adjusted and used according to the user instruction.
This hat is designed to absorb some of the energy of a blow by partial destruction of the shell or protective padding material, or both. This damage may not be visible and therefore any hat which suffers an impact should be discarded and replaced by a new one.
Do not dry clean or expose to heat.
Manufacturing informatio under headband.
PAS 015: 2011
BS EN 1384: 1997
Licence No. KM30685
This helmet is designed for horse riding
Made in Britain
CE
by charles owen

Casablanca

AUTHENTIC
POLO GEAR
MADE IN ARGENTINA
M

GPA
Feel Safe

Model POLO FL 2X
Date sept-16
S/N UK/ 16094039