



INSTITUTE OF FORENSIC SCIENCE
GUJARAT FORENSIC SCIENCES UNIVERSITY

SECTOR 18/A, NEAR POLICE BHAVAN, GANDHINAGAR, GUJARAT - 382 007

IFS/13/ BPJ&BPH/09/512/2013

BALLISTICS EVALUATION REPORT

IFS File No.	IFS/13/BPJ&BPH/09
Date of Report	10/10/2013
User request Letter No.	Your letter dated: 03/10/2013
Acceptance of tender No.:	Not Applicable
Dates of Trials	10/10/2013
Armor Type	Bullet proof two Helmets, two HAP+SAP and one SAP
Manufacture / Supplier	BSST
User	Not Applicable

(Dr. M.S. Dahiya)
Director

Note

1. The test results of ballistics evaluation of two Helmets, two HAP+SAP and one SAP submitted by BSST are as per the sheet attached here with.
2. The test articles were brought to IFS, Gandhinagar by the user's representative as per their own specifications / fabrication process.
3. IFS, Gandhinagar is not responsible, directly / indirectly, for the quality of production lots being manufactured by the firm.
4. The report is valid only for the particular HELMET, HAP+SAP and SAP evaluated against the specified ammunition & publication of these results in any abridges form is not allowed without written approval from Director, IFS, Gandhinagar.
5. The tested samples are returned back to the user's representative along with the test report after ballistics evaluation.
6. The test procedure is followed as per the NIJ standards.
7. Mr. V. V. Sharma was also present at the time of test firing.

COMPLIANCE TEST -03

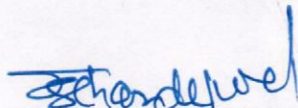
A) BASIC DETAILS

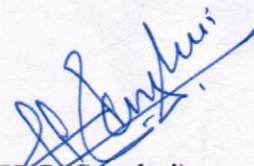
IFS Test Sample ID:	IFS-13-BPJ-09-BSST-03	Trial Date:	10/10/2013
Armour Type:	SAP	Manufacture Ref. ID:	--
Type of Firearm:	9MM FMJ Z5557	Type of Ammunition:	9 mm x 19 mm Make:KF
BFS Acceptance Criteria:	BFS \leq 25 mm	HAP ID:	--
Type of Test:	Dry	Time In: --	Time Out: --
Reference Velocity:	415 \pm 15m/s	Distance:	5 m
Room Temperature:	26.4°C	Humidity:	72.6%

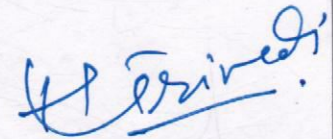
B) BALLISTICS EVALUATION DATA


Shot No	Time	Fair/ Unfair	Angle of Firing	Velocity (m/sec)	Perforated/ Not Perforated	BFS (mm)	Remarks
1	17:47	Fair	90°	410.66	Not perforated	19.88	Passed
2	17:50	Fair	90°	407.38	Not perforated	18.57	Passed
3	17:52	Fair	90°	408.83	Not perforated	16.11	Passed
4	17:53	Unfair	90°	396.49	Not perforated	15.41	Passed
5	17:55	Fair	90°	412.98	Not perforated	18.54	Passed
6	17:57	Fair	90°	424.10	Not perforated	18.39	Passed

Trial Officers, IFS, Gandhinagar


(S.G. Khandelwal)
Dy. Director


(H. P. Sanghvi)
Assistant Director


(H. J. Trivedi)
Scientific Officer


(Dr. M.S. Dahija)
Director
IFS, GFSU,
Gandhinagar

Manufacturer's Representative(s) witnessed the trials

Mr. V.V.Sharma
Ballistic Safety Systems Technology India Pvt. Ltd.
Rangareddy, A.

Photographs of all shots are given in a CD attached with the report

COMPLIANCE TEST -01

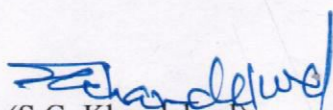
A) BASIC DETAILS

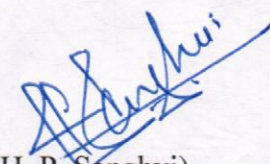
IFS Test Sample ID:	IFS-13-BPJ-09-BSST-01	Trial Date:	10/10/2013		
Armour Type:	HAP (Tencate) + SAP (Back)	Manufacture Ref. ID:	--		
Type of Firearm:	AK-47 GC1721	Type of Ammunition:	7.62 x 39 mm Make:KF		
BFS Acceptance Criteria:	BFS \leq 25 mm	HAP ID:	--		
Type of Test:	Dry	Time In:	--	Time Out:	--
Reference Velocity:	700 \pm 15m/s	Distance:	10 m		
Room Temperature:	26.4°C	Humidity:	70.0%		

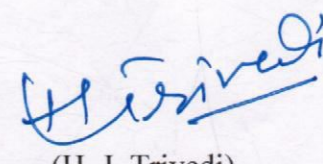
B) BALLISTICS EVALUATION DATA

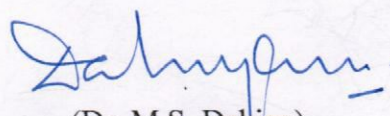
Shot No	Time	Fair/ Unfair	Angle of Firing	Velocity (m/sec)	Perforated/ Not Perforated	BFS (mm)	Remarks
1	15.56	Fair	90°	700.23	Not perforated	16.85	Passed
2	16.00	Fair	90°	707.11	Not perforated	20.98	Passed
3	16.02	Fair	90°	709.06	Not perforated	21.92	Passed
4	16.03	Fair	90°	699.64	Not perforated	20.32	Passed
5	16.05	Fair	90°	707.96	Not perforated	24.55	Passed
6	16.07	Fair	90°	700.13	Not perforated	24.81	Passed

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Ballistic Safety Systems Technology India Pvt. Ltd.
Rangareddy, A.

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COMPLIANCE TEST -02

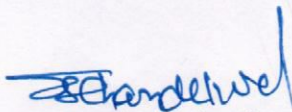
A) BASIC DETAILS


IFS Test Sample ID:	IFS-13-BPJ-09-BSST-02	Trial Date:	10/10/2013
Armour Type:	HAP (Tencate) + SAP (Back)	Manufacture Ref. ID:	--
Type of Firearm:	SLR 18058714	Type of Ammunition:	7.62 x 51 mm Make:KF
BFS Acceptance Criteria:	BFS \leq 25 mm	HAP ID:	--
Type of Test:	Dry	Time In: --	Time Out: --
Reference Velocity:	838 \pm 15m/s	Distance:	10 m
Room Temperature:	26.4°C	Humidity:	72.6%

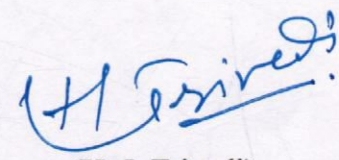
B) BALLISTICS EVALUATION DATA

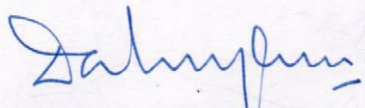
Shot No	Time	Fair/ Unfair	Angle of Firing	Velocity (m/sec)	Perforated/ Not Perforated	BFS (mm)	Remarks
1	16:52	Fair	90°	833.12	Not perforated	15.14	Passed
2	16:55	Fair	90°	836.05	Not perforated	22.63	Passed
3	16:57	Fair	90°	841.82	Not perforated	24.95	Passed
4	16:58	Fair	90°	825.90	Not perforated	25.60	Passed
5	17:01	Fair	90°	823.52	Not perforated	21.68	Passed
6	17:02	Fair	90°	844.52	Not perforated	24.81	Passed

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COMPLIANCE TEST -02

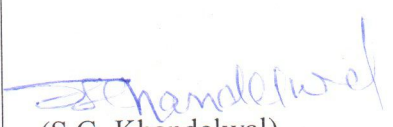
IFS Test Sample ID:	IFS-13-BPH-09-BSST-02	Trial Date:	10/10/2013		
Armour Type:	HELMET with harness	Manufacture Ref. ID:	Busch India BH5 58-60 cm		
Type of Firearm:	9 MM Carbine No. Z 5557	Type of Ammunition:	9mm x 19mm		
BFS Acceptance Criteria:	BFS \leq 13 mm	HAP ID:	--		
Type of Test:	Dry	Time In:	--	Time Out:	--
Reference Velocity:	415 \pm 15m/s	Distance:	5m		
Room Temperature:	24.4°C	Humidity:	55.2%		

A) BASIC DETAILS

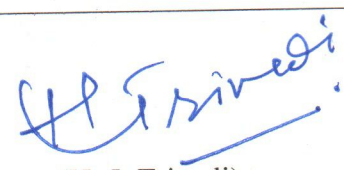
B) BALLISTICS EVALUATION DATA

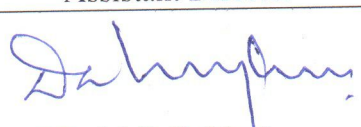
Shot No	Time	Fair/ Unfair	Angle of Firing	Velocity (m/sec)	Perforated/ Not Perforated	BFS (mm)
1	13:06	Fair	90°	419.37	Not perforated	6.58
2	13:09	Fair	90°	399.26	Not perforated	5.67
3	13:12	Fair	90°	408.10	Not perforated	0.14
4	13:15	Fair	90°	425.85	Not perforated	0.13
5	13:34	Fair	90°	415.127	Not perforated	Negligible
6	13:37	Fair	90°	418.76	Not perforated	Negligible
7	13:41	Fair	90°	412.08	Not perforated	Negligible
8	13:49	Fair	90°	406.80	Not perforated	Negligible

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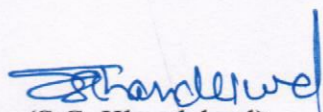
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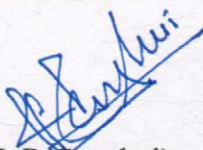
DIMENSIONS

Sr. No.	Identification No.	Length (cm)	Breadth (cm)	Thickness (cm)	Weight (kg)
1	IFS-13-BPH-09-BSST-01	-	-	-	1.184
2	IFS-13-BPH-09-BSST-02	-	-	-	1.646
3	IFS-13-BPJ-09-BSST-01	29.5	24.5	2.0	2.182
4	IFS-13-BPJ-09-BSST-02	29.5	24.5	2.5	2.150
5	IFS-13-BPJ-09-BSST-03	44	58	-	0.884

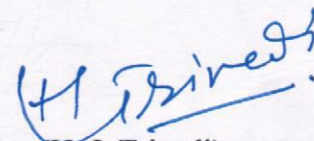
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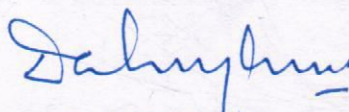
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