



FEDERAL PUBLIC SERVICE
MJSP - FEDERAL POLICE
POLICE LOGISTICS CONTROL SERVICE - SECOL / DPC / CGPLAM / DLOG / PF

ANNEX II
TESTS ON SAMPLES OF BALLISTIC VESTS

Samples of waistcoats requested from the bid phase winner will be subject to the following criteria:

- TYPE "A" TESTS - Adjustment of the vest to the body;
- TYPE "B" TESTS - Functionality;
- TYPE "C" TESTS - Perforation and Backface Signature (Depth of trauma); and
- TYPE "D" TESTS - Ballistic Limit.

TYPE "A" TEST	The purpose of this test is to verify the fit of the vest to the policemen body while standing or sitting in a static position or moving the upper, lower limbs and trunk or performing the basic positions of weaponry and shooting (positions 1, 2, 3 and 4 presented in the attached assessment instrument)
A1	Adjustment of the vest at neck height when the officer is standing still
A2	Adjustment of the vest in the lateral / axillary region when the officer is standing still
A3	Adjustment of the vest in the shoulder area when the officer is standing still
A4	Adjustment of the vest in the chest area when the officer is standing still
A5	Adjustment of the vest in the waist area when the officer is standing still
A6	Full length of the vest when the officer is standing still
A7	Adjustment of the vest at neck height when the officer is sitting still
A8	Adjustment of the vest in the lateral / axillary region when the officer is sitting still
A9	Adjustment of the vest in the shoulder area when the officer is sitting still
A10	Adjustment of the vest in the chest area when the officer is sitting still
A11	Adjustment of the vest in the waist area when the officer is sitting still
A12	Full length of the vest when the officer is sitting still

TYPE "B" TEST	This test aims to verify the ability of the policemen to perform typical tasks of his profession without restriction of joint range when wearing the ballistic vest
B1	Put on and remove the vest
B2	Draw pistol, simulate shooting at a front target, then holster the firearm
B3	Cross-draw TASER, simulate shooting at a front target, then holster the device
B4	Handling of equipments alternately, positioning them in the modular structures of the vest or the operating belt, according to the preference of the policeman. Remove, simulate use and replace spare magazine, communication radio, first aid kit, flashlight and retractable stick
B5	Put on, remove and adjust shoes wearing the vest
B6	Boarding a vehicle in the front seat, fastening the seat belt, taking off the seat belt and getting off the vehicle
B7	Boarding a vehicle in the back seat, fastening the seat belt, taking off the seat belt and getting off the vehicle
B8	Perform "personal search"
B9	Simulate firing from the position 3 with a long gun and return to the position 3

EVALUATION PROCEDURES FOR TYPE "A" AND "B" TESTS

The evaluation on the samples of the ballistic vests will be carried out by 10 (ten) Federal Police with at least 4 four years of professional experience, chosen by the National Police Academy.

The samples provided must have an indication of the height and / or body size for which the vest is appropriate. For example, the size M of the vest is indicated for individuals with a height of 1.70 m to 1.80 m, and so on.

Each activity related to Tests A and B will be performed as many times as the officer deems necessary to indicate the vest score on the Likert Scale described below.

In addition to the ballistic vest, the officer will carry out personal equipments (armament, bandoliers, garment belts, first aid kit, among others), in the configuration that suits him best.

The material made available for testing must come without manufacturer's trademark identification. The tests will be applied with "blind" masking, which means, the evaluators will not be informed which brand of the vest will be used. As a result of this masking, the process will be made confidential so, the appraisers do not know the company ranked first in the event.

Other bidding participants are allowed to watch the tests that will be performed on the samples, if they wish to do so.

The procedures related to the tests will be directed by the coordinators / teachers of the operational axis disciplines of the

National Police Academy.

Likert Scale for TYPE "A" TEST:

- Fits very badly (1);
- Fits badly (2);
- Indifferent (3);
- Fits well (4); and
- Fits very well (5).

Likert Scale for TYPE "B" TEST:

- Very difficult to perform (1);
- Difficult to perform (2);
- Indifferent to performing (3);
- Easy to perform (4); and
- Very easy to perform (5).

The test grade (NT) will be the arithmetic mean of the marks given by the evaluators for each type "A" and "B" tests. For example, the test grade "A1" (NT_{A1}) will be the arithmetic mean of the grade given by all evaluators in this item.

The final grade of the vest (NF) will be the arithmetic mean of all NTs.

The vest will be disqualified if it has an NT less than 3.0 points in any of the type "A" or "B" tests or an NF less than 3.5 points.

Annex III of this Term of Reference sets out the evaluation sheets that will be used.

TYPE "C" TEST	This test aims to verify the fulfillment of P-B.F.S criteria (perforation and backface signature). The maximum admitted trauma will be 44 mm per panel, according to the table below.				
	Panel Condition	Number of Panels	Test Ammo	Shots per Panel	Approval Criteria (for each panel)
P-B.F.S (perforation and backface signature)	New	2	.357 SIG FMJ FN <i>Speer</i>	6	BFS \leq 44mm (shots 1, 2 and 3, and no perforations (all shots).
			.44 Magnum SJHP <i>Speer</i>	6	
	Conditioned	2	.357 SIG FMJ FN <i>Speer</i>	6	Angle of incidence/impact location - same as NIJ 0101.06
			.44 Magnum SJHP <i>Speer</i>	6	

TYPE "D" TEST	This test aims to verify the attendance of the V_{50} (ballistic limit).		
	Panels Condition	Test Ammo	Approval Criterion
V_{50} (ballistic limit)	New	9 mm Luger ETOG (124 gr), manufacturer CBC	$V_{50} \geq 480$ m/s
Such limit will be determined according to the test protocol specified in MIL STD 662F.			
The stopping criterion for calculating the ballistic limit will be as follows: Obtaining 3 pairs (total and partial perforations) with velocity range up to 38 m/s; or obtaining 5 pairs (total and partial perforations) with speed range up to 45 m/s.			
Shots must be fired against the plastiline and have a minimum distance of 2.5 "(two and a half inches) from each other and 3" (three inches) from the edge of the panel.			

EVALUATION PROCEDURES FOR TYPE "C" AND "D" TESTS

The tests will be performed according to NIJ Standard - 0101.06, but the number of test samples will be reduced to 04 (four) vests, and 02 (two) vests will be used for p-B.F.S. testing and up to 02 (two) vests for ballistic limit test. All these vests are the same as those used in Tests A and B. If it is not possible to determine the ballistic limit, within the defined criteria, the Federal Police reserves the right to request more samples to complete the test.

The panels will be chosen by the Federal Police representatives that will accompany the tests.

Any bidder that fails to meet the minimum standards set in these tests will be disqualified.

The New Samples: Ballistic Vests with their respective covers (inner and outer layers) will be immersed in water before the test in accordance with protocol defined in NIJ 0101.06, section 7.8.2 - ARMOR SUBMERSION, and should maintain their protection level.

The Conditioned Samples: The ballistic vest (s) with their respective covers (inner and outer layers) will be conditioned in a tumbling process according to the protocol defined in NIJ 0101.06, section 5 - FLEXIBLE ARMOR CONDITIONING PROTOCOL, and should maintain their protection level.



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