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**HEADQUARTERS  
PHILIPPINE ARMY  
OFFICE OF THE ARMY CHIEF QUARTERMASTER  
Fort Andres Bonifacio, Metro Manila**

**TEST AND EVALUATION PROCEDURE**

**MILITARY BINOCULAR, COMPACT PHILIPPINE ARMY, MODEL 1  
QM SPEC NR IE-22MBCM1 dtd 7 August 2017 (Interim)**

**SECTION 1 – GENERAL**

1. **AUTHORITY:** The Test and Evaluation (T&E) is being conducted in relation with the provisions of the RA 9184.
2. **OBJECTIVE:** The objective of this Test and Evaluation Procedure is to determine the conformance of the submitted sample to the Technical Specification of Military Binocular, Compact PA, Model 1 that was set forth by the Philippine Army.
3. **SCOPE:** This particular Test & Evaluation Procedure will be applicable on the Military Binocular, Compact PA, Model 1 as part of the Post Qualification and Test Acceptance procedure.
4. **METHODOLOGY:** The tests consist of physical (*visual, tactile & dimensional*) inspection, laboratory test, functional test and other Test specified herein. Records and brochure check will also be conducted as appropriate. The physical inspection of the sample can be conducted at Manufacturer's/supplier facilities.
5. **TEST CRITERIA:** The rating that will be applied is based on the maximum number of allowable defects (*LLD Nr SC-07-04 dtd 25 October 2007*) and sampling procedures in accordance to MIL STD 105E.

**SECTION 2 – PROCEDURES**

**1. PHYSICAL INSPECTION**

1.1 Purpose: To determine the conformance of the physical characteristics of Military Binoculars, Compact PA, Model 1 to the required specifications.

1.2 Procedure:

1.2.1 Visually and manually inspect the components of the Military Binoculars, Compact, PA, Model 1.

1.2.2 Examination of contents of the brochures, literature and instruction manuals and warranty information vis-à-vis product specification.

1.2.3 Measure the dimensions and weight of the Military Binoculars, Compact PA, Model 1.

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1.2.4 Actual test of the clarity and usage on the operational function of the Military Binoculars, Compact, PA, Model 1.

### 1.3 Standard:

#### 1.3.1 Design

1.3.1.1 Shall be compact design and comfortable for long-time observation. Olive drab in color.

1.3.1.2 Magnification – 8x

1.3.1.3 Shall have 30 to 42 Objective Lens Diameter

#### 1.3.2 Operating Requirements

1.3.2.1 Field of View – The Field of View at 1,000 meters shall indicate not less than 340 feet (104 meters).

1.3.2.2 Exit Pupil Diameter of not less than 3.0 mm. and has complete circular shape.

1.3.2.3 Eye relief distance shall be ranging from 11 mm to 21 mm.

1.3.2.3.1 It shall provide good field of view to users wearing eyeglasses and shall have comfort during observation

#### 1.3.3 Mechanical Requirements

1.3.3.1 It shall be central focus or an Individual focusing system.

1.3.3.2 It shall have diopter adjustment for focusing adjustment to compensate difference.

1.3.3.3 It shall have a twist-up or folded down eyecups with ergonomic design. It shall provide protection against incidental light to block troublesome reflections and ensure an extremely bright image.

1.3.3.4 The eyecups shall indicate that it is made of silicone.

1.3.3.5 It shall allow the ocular lenses closer or further apart for adjustment of Interpupillary Distance (IPD).

1.3.3.6 The IPD shall be fitted and adjusted with sufficient tightness, and the hinge lubricant shall be of such consistency that the interpupillary distance shall be maintained.



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#### 1.3.4 Optical Requirements

##### 1.3.4.1 Prism

1.3.4.1.1 It shall indicate Porro prism and using glass type of BAK – 4.

1.3.4.1.2 It shall indicate a higher refractive index rate of not less than 1.55.

1.3.4.1.3 It shall provide brighter, color, rich and sharper edges of the periphery.

1.3.4.1.4 The user shall not experience eyestrain and headaches on prolong use of the binocular.

##### 1.3.4.2 Optical Coatings

1.3.4.2.1 It shall indicate that the lenses and glass (prism) had applied fully Multi-Coated anti – reflections coating both inner and outer surface of the lenses.

1.3.4.2.2 It shall show no signs of “ghost images” of bright objects, dim picture, washed-out images and poor observing experience.

#### 1.3.5 Dimension and Weight

1.3.5.1 The dimension shall be  $11.5 \pm 1.5$  cm high X  $17.5 \pm 1.5$  cm wide X  $6.5 \pm 1.5$  cm long (depth).

1.3.5.2 The weight shall not be more than 680 grams excluding accessories and attachments.

#### 1.3.6 Carrying Case

1.3.6.1 It shall be soft carrying case olive drab in color.

1.3.6.2 It shall have sliding shoulder pad for added comfort and can be adjusted for length with the buckles. The back side of the case shall have a loop that enables the case to attach to the hip.

1.3.6.3 The lid that folds over the top of the case is closed with a plastic quick release buckle which can be adjusted for length.

1.3.6.4 It shall have a single elasticated pocket for placement of few small items as well as cleaning cloth.

1.3.6.5 The binocular shall fit perfectly to the bag and shall be easy to close the lid with all lens cover attached to the binocular.

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### 1.3.7 Rain Guard

1.3.7.1 It shall have a soft rubber rain guard that has flexible bridge in between the two cups which takes up the slack can fix to the eyecups regardless of the IPD setting.

1.3.7.2 The rain guards shall have two loops (one on each strap) for attachment to the neck strap.

### 1.3.8 Lens Cover

1.3.8.1 It shall have soft rubber or plastic objective lens cover on tethered caps that loops over the objective end of the tubular barrel or attached to the central pivot of a binocular that allows the caps to hang when it is taken off.

### 1.3.9 Neck Strap/harness

1.3.9.1 Shall have well-padded neck strap and a neck strap attachment. The strap shall have slider plastic buckle that enables to adjust the length of the strap.

1.3.9.2 It shall be attached/connected to the binocular by a quick release buckle.

1.3.9.3 The strap shall have slider plastic buckle that enables to adjust the length of the strap and it shall be attached/connected to the binocular by a quick release buckle.

1.3.9.4 The color shall be similar to the exterior body of the binocular.

1.3.10 It shall be provided with a cleaning kit with a minimum of Lens cleaning brush, lens cleaning solution and a microfiber cleaning cloth.

1.3.11 Instruction Manual and Warranty Information - the manual shall contain all the basic information/instruction needed, which includes but not limited to the parts of the binocular, instruction for use, setting the diopter, focusing, eyecup adjustment, cleaning as well as care and storage.

1.3.12 The binocular shall have a built-in horizontal and vertical scale reticle.

1.3.13 The binocular shall have serial number that is permanent and visible on the item.

1.3.14 The objective lens shall be well protected by a protruding body that shield it from potential scratching, rain and dust.

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1.3.15 The hinges of the binoculars shall be so designed as to permit the adjustment of the interocular distance.

1.3.15.1 It shall be fitted and adjusted with sufficient tightness, and the hinge lubricant shall be of such consistency that the interpupillary distance shall be maintained.

1.3.16 The adjustment in the eyepiece shall be of rotating focusing type and shall be capable of being focused independently.

1.3.17 The focusing system shall be adjusted only once to each user's individual acuity.

1.3.18 The binocular shall be free from foreign particle or dust on the inside part of the binocular that affect the observation of the user.

## 2. LABORATORY TEST

2.1 Purpose: To determine the conformance of the submitted prototype samples or samples taken at random on the required specifications.

2.2 Procedure: Subject each sample to laboratory test at SGS In-house method.

2.3 Standard: The prototype sample shall conform to the environmental requirements set forth by the specification.

  
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TEST PARAMETERS	REQUIREMENTS	TEST METHOD (SGS In-House method)
Material (Protective Coating)	The housing shall have a protective NBR (Nitrile Butadiene Rubber) armor coating for durability, slip-proof and protection against the hardest environmental conditions	FTIR –ASTM E1252
Housing/Chassis	The housing or chassis materials shall be fabricated with Polycarbonate, Magnesium alloy or Aluminum alloy	
Shockproofness	Shall withstand the shocks and jars without damage, no derangement of any of the parts and functions and impairment of its adjustments beyond acceptable limits.	MIL-STD 810 Method 516 - Drop
Waterproof	The complete binocular shall prevent moisture from getting inside and no damage or adverse effect to the performance of the binocular directly or indirectly.	IPX7 – IEC 60529
Fog proof*	It shall show no sign of fogging on the ocular lens and objective lenses and inside of the binocular.	
Low and High Temperature	It shall show no sign of glass breakage or other physical failure and function. It shall provide consistently sharp, clear and fog-free images after subjected to the required test method.	MIL-STD 810 Method 502 (24 hours) – Low Temperature
		MIL-STD 810 Method 501 (24 hours) – High Temperature
Corrosion Resistant	It shall show no evidence of corrosion that will damage or adversely affect performance of the binocular directly or indirectly after undergoing a simulated seawater environment prescribed in the test procedure.	ASTM B117 (24 hours)

\*Note: The result of waterproof test using the prescribed test method can be used.

*P. M. King*

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**Table 1 – ALLOCATION OF SAMPLES**


METHODOLOGY	REQUIRED SAMPLES
1. Physical Inspection	One (1) set of Sample (brand new) with complete accessories
2. Dimensional Test	
3. Functional Test	
4. Laboratory Test:	
a. Coating/chassis material	One (1) Binocular
b. Shockproofness	One (1) Binocular
c. Waterproof/Fogproof	One (1) Binocular
d. Low Temperature	One (1) Binocular
e. High Temperature	One (1) Binocular
f. Corrosion Resistant	One (1) Binocular

Prepared by:

Technical Working Group for Binocular:

  
 RICHARD T RUFFY  
 Colonel QMS (GSC) PA  
 Chairperson


MAJ FREDDIE T MESA JR  
 MAJ (INF) PA  
 Vice-Chairperson

  
 ACHENAR A LABORDO  
 MAJ (QMS) PA  
 Member, Technical Rep

NORLEO G ADDULAM  
 MAJ (OS) PA  
 Member, End-User Rep

GLENN D SOLEDAD  
 MAJ (SC) PA  
 Member, End-User Rep


MICHAEL REY L BAUTISTA  
 MAJ (CE) PA  
 Member, Financial Rep

  
 ANNALITE S GIROY  
 MAJ (QMS) PA  
 Member TOS, Rep

JEFREY V CARO  
 CPT (FS) PA  
 Member, Ascorm Rep

ROLLY A JUAQUIN  
 CPT (QMS) PA  
 Member, End User Rep

WESLEY T CAMPILIS  
 CPT (QMS) PA  
 Member, End-User Rep

  
 MARK M AQUINO  
 CPT (JAGS) PA  
 Member, Legal Rep

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