

EXPRESSION OF INTEREST

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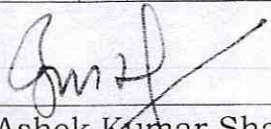
The Sub-group of Technical Experts constituted by MHA vide their letter No. IV-24011/12/2011-Prov-I dated 13 Jun 2012, No. IV-24011/12/2011-Prov-I dated 28 Dec 2012 & UO No. IV-24011/12/2011-Prov-I- 350 dated 27 Jun 2013 held its meeting at BSF Headquarters on 03rd Jan 2018, 12th Sep 2018, 01st November 2018 and 11th January 2019 to formulate the Qualitative Requirement of 'Digital Night Vision Goggles (Standard/Basic Version)'.

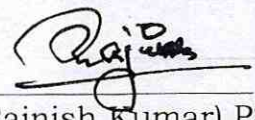
QUALITATIVE REQUIREMENTS OF DIGITAL NIGHT VISION GOGGLES
(STANDARD/BASIC VERSION)

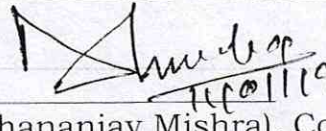
S/No.	SPECIFICATIONS
1	General
a	DNVG standalone allows a complete hands free operations and no blurred vision with normal head movements.
b	The ergonomic design should allow comfortable use in motion, even during extended operation.
c	Live firing or a flash bang should not create a blinding or blackout condition.
d	DNVG standalone will facilitate locating and identifying targets during night and in dark closed rooms/buildings in built up area.
e	Should have High Quality monochrome view for better target recognition and faster decision time.
f	Instant dark to light or light to dark conditions should be compensated by the device and the user should be unaffected.
SPECIFICATION (OPERATION AND MAINTENANCE)	
2	Technology :- Goggle with advanced photo sensitive sensors using highly sophisticated software algorithms and real time computing without any (image intensifier) II tube.
3	Image Capturing :- Full Digital Night Vision Sensor System with resolution of 60 to 65 IP/mm or better.
4	Detection Range :- 100 Meter or better for human target
5.	Field replaceable 2X lens for static viewing.
6	Diopter Adjustment :- -3 to +3 diopter.
7	Light Sensitivity :- 0.00029 Lux up to daylight, passive operation.
8	Infrared Illuminator :-
a	Should have pre selective modes for active and passive IR control.
b	There should be minimum 3 selective modes : i) ON/OFF, ii) Dim IR, iii) Full IR
9	Focus :- 30 cm to infinity.
10	Field of View :-
a	56 Deg \pm 2 Deg with .8 X Lens.
b	43 Deg \pm 2 Deg with 1 X Lens.
c	16 Deg \pm 2 Deg with 2 X Lens.

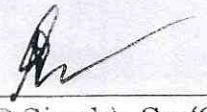
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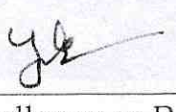
11	Wearing Capability :-
a	The DNVG should fully interface with combat and law enforcement helmet and can be worn underneath a visor.
b	Can be worn with or without helmet just like a tactical goggle.
12	Operating Conditions :- The goggle can be used in night as well as daylight without harming the system and even without realizing the difference in picture quality as compared to night operation.
13	Operational Life and Operating Time :-
a	The operational life of DNVG should be min 5 years.
b	More than 7 hrs with fully charged battery (on IR mode).
14	Battery indicator :- Should have suitable low battery indication, to indicate low battery status.
15	Battery Type :- Lithium Ion/Lithium Polymer
16	Operating Temperature :- -20 ⁰ C to +55 ⁰ C (OEM to provide a compliance certificate).
17	Ruggedness :- As per MIL STD 810F or equivalent standards.
18	Weight :- Weight of DNVG Goggles should not exceed 500 gms (including accessories and battery).
Miscellaneous :-	
19	Accessories :- The accessories to be provided :-
a	Battery Pack -01
b	Battery Charger- 01
c	User Manual (Quick Guide)- 01
d	Goggle Cleaning Kit-01
e	Rugged Carrying Case -01
	Optional Accessories :-
a	2 X filed replaceable lens.
b	Additional battery pack.
c	Video output on a RJ45 or USB Port

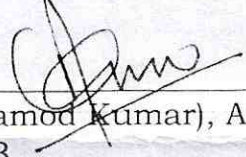

(Ashok Kumar Sharma)
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(Rajnish Kumar), PSO
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(Dhananjay Mishra), Comdt
SIW, BSF

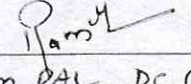

(J P Singh), Sc 'G'
IRDE, DRDO



(Malleswara Rao), Nb/Sub
52 SAG, NSG


(Pramod Kumar), AC
SSB

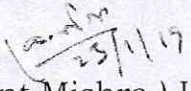

(Ravindra Kumar Meel), DC
CISF


(Nb Sub Jeet Singh)
AR


(Ram Pal), DC (T)
ITBP


(SI/RM Subhas Roy)
SIW BSF

APPROVED/ NOT APPROVED


(Rajni Kant Mishra) IPS
DIRECTOR GENERAL
BORDER SECURITY FORCE

TRIAL DIRECTIVES OF DIGITAL NIGHT VISION GOGGLE (STANDARD/BASIC VERSION)

SL NO	SPECIFICATIONS	Trial procedure suggested for BOOs	Result expected / desired	Complied / Not Complied
1.	General			
	a) DNVG standalone allows a complete hands free operations and no blurred vision with normal head movements.	To be checked by Board of officers.	The DNVG's should be as per the requirement mentioned the QR's.	
	b) The ergonomic design should allow comfortable use in motion, even during extended operation.	To be checked by Board of officers.	The DNVG's should be as per the requirement mentioned the QR's.	
	c) Live firing or a flash bang should not create a blinding or blackout condition.	To be checked by Board of officers.	The DNVG's should be as per the requirement mentioned the QR's.	
	d) DNVG standalone will facilitate locating and identifying targets during night and in dark closed rooms/buildings in built up area.	To be checked by Board of officers.	The DNVG's should be as per the requirement mentioned the QR's.	
	e) Should have High Quality monochrome view for better target recognition and faster decision time.	To be checked by Board of officers.	The DNVG's should be as per the requirement mentioned the QR's.	
	f) Instant dark to light or light to dark conditions should be compensated by the device and the user should be unaffected.	To be checked by Board of officers.	The DNVG's should be as per the requirement mentioned the QR's.	
SPECIFICATION (OPERATION AND MAINTENANCE)				
2.	Technology :- Goggle with advanced photo sensitive sensors using highly sophisticated software algorithms and real time computing without any (image intensifier) II tube.	To be checked by verifying the supporting documents provided by the OEM.	The DNVG's should be as per the requirement mentioned the QR's.	
3.	Image Capturing :- Full Digital Night Vision Sensor System with resolution of 60 to 65 IP/mm or better.	To be checked by verifying the supporting documents provided by the OEM.	The DNVG's sensor system should be as per the requirement mentioned the QR's.	
4.	Detection Range – 100 Mtr or better for human target	To be checked by Board of officers.	The system must detect the target at desired range.	

5.	Field replaceable 2X lens for static viewing.	To be checked by verifying the OEM certificate confirming the same.	Lens should be as per the requirement mentioned in the QRs.	
6.	Dioptr Adjustment :- -3 to +3 diopter.	The firm should submit national/international accredited Lab test report for this aspect. In case test report is not available, the veracity of the same be checked from the concerned lab.	The DNVG's diopter adjustment should be as per the requirement mentioned the QR's.	
7.	Light Sensitivity : 0.00029 Lux up to daylight, passive operation.	To be checked by verifying the OEM certificate confirming the same.	Light sensitivity should be as per the requirement mentioned the QR's.	
8.	Infrared Illuminator :-			
	a) Should have pre selective modes for active and passive IR control.	To be checked physically by the board members by switching the goggle in passive mode and active mode by controlling the IR with the rotating potentiometer.	The DNVG's infrared Illuminator should be as per the requirement mentioned the QR's.	
	b) There should be minimum 3 selective modes :			
	i) ON/OFF			
	ii) Dim IR			
	iii) Full IR			
9.	Focus : 30 cm to infinity.	To be checked by Board of officers.	The target at a distance from 30 meters or above must be focused easily.	
10.	Field of View :-	To be physically checked in the Lab as per the procedure	The DNVG's field of view should be as per the requirement mentioned the QR's.	
	a 56 Deg \pm 2 Deg with .8 X Lens.			
	b 43 Deg \pm 2 Deg with 1 X Lens.			
	c 16 Deg \pm 2 Deg with 2 X Lens.			
11.	Wearing Capability :-			
	a The DNVG should fully interface with combat and law enforcement helmet and can be worn underneath a visor.	To be physically checked by board of Officer.	The DNVG's wearing capability should be as per the requirement mentioned the QR's.	
	b Can be worn with or without helmet just like a tactical goggle.			

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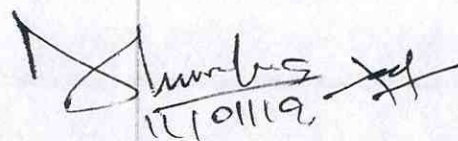
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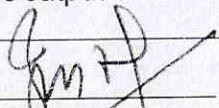
12.	Operating Conditions :- The goggle can be used in night as well as daylight without harming the system and even without realizing the difference in picture quality as compared to night operation.	Check the certificate submitted by the firm in respect of the system accuracy under different environments or under harsh weather conditions.	The certificate submitted by the firm must confirm the same.	
13.	Operational Life and Operating Time :-			
a	The operational life of the DNVG should be min 5 years.	To be checked by verifying the supporting documents provided by the OEM.	The certificate submitted by the firm must confirm the same.	
b	More than 7 hrs with fully charged battery (on IR mode).	To be physically checked by BOO.	Battery life should not be less than 07 Hrs.	
14.	Battery indicator :- Should have suitable low battery indication, to indicate low battery status.	To be physically checked by board of Officer.	Battery indicator should be as per the requirement mentioned the QR's.	
15.	Battery Type :- Lithium Ion/Lithium Polymer	To be physically checked by board of Officer.	Batteries should be as per the requirement mentioned the QR's.	
16.	Operating Temperature :- -20°C to $+55^{\circ}\text{C}$ (OEM to provide a compliance certificate).	The firm has to submit National / international accredited Lab report / certificate in respect of the same.	The DNVG must be operable in Operating temperature: -20°C to $\pm 55^{\circ}\text{C}$.	
17.	Ruggedness :- As per MIL STD 810F or equivalent standards.	Check the National/ International accredited lab certificate/report in respect of DNVG ruggedness, comply with Mil STD 810 F or better.	National/International accredited lab certificate/report must confirm the same. of the same may be	
18.	Weight :- Weight of DNVG Goggles should not exceed 500 gms (including accessories and battery).	BOO to measure the weight with the help of weighing machine.	The weight of DNVG Goggles should not be more than 500 gms including accessories.	

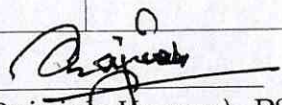



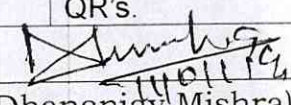



Miscellaneous :-


19.	Accessories :- The accessories to be provided :-	To be physically checked by board of Officer.	The DNVG's accessories should be as per the requirement mentioned the QR's.	
a	Battery Pack -01			
b	Battery Charger- 01			
c	User Manual (Quick Guide)- 01			
d	Goggle Cleaning Kit-01			
e	Rugged Carrying Case -01			
Optional Accessories :-				
a	2 X field replaceable lens.	To be physically checked by board of Officer.	The DNVG's accessories should be as per the requirement mentioned the QR's.	
b	Additional battery pack.			
c	Video output on a RJ45 or USB port			



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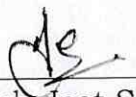

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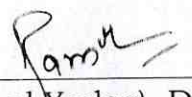

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