This Request for Information (RFI) is not a request for Proposal (RFP), no contract will be awarded following receipt of information, and there are no commitments with respect to future purchases or contracts.

TITLE

Development of a novel foveal and panoramic night vision binocular.

Objective

The objective of this request for information is to evaluate both the feasibility and the cost of developing and delivering one prototype: a foveal panoramic night vision binocular. The proposed final solution must be free of any restrictions issued by a foreign government or entity (excluding the I2 tubes used).

Background

Research and developments efforts are required to develop a compact, lightweight and panoramic (≥100° field of view) foveal binocular for night vision. To achieve this goal, novel optical designs are needed, both for the objective and the eye piece, to give panoramic capability as close as possible to natural vision (distorsion minimized, 1X magnification) to the user.

Targeted specifications

We present here the basic specifications of the desired panoramic binocular free of any restrictions issued by a foreign government or entity (excluding the I2 tubes used):

Specification	Value	Comments
Compatible with I2 tubes	18 mm of diameter (imaging surface) maximum resolution 64 lp/mm Physical dimensions: 36.75 mm dia, length of 30.4 mm.	
Spectral range of the I2 tube	From 400 to 900 nm	
Total field of view	≥ 100°	
Stereoscopic field of view	≥ 40°	
Focus	From 18 inches to infinity	
Equivalent F-number	< 1.1 everywhere on the image plane	
Resolution of the system	See figure 1	To be used as a guide.
Equivalent magnification	X1	
Perceived Distortion	Perceived distortion by the user should be minimal. 5% perceived distortion can be used as a guide.	
Eye span adjustment	52 mm to 72 mm	
Eye relief	25 mm	
Dioptre	Possibility to clip-on dioptre correction (from +2 to -6)	
Maximum weight	650 g	(without batteries)

Specification	Value	Comments
Maximum length (from eye-piece to objective)	4.5”	
Maximum width	6.0”	
Maximum height	3.75”	
Type of batteries	AA	
Autonomy	8 hours with two AA batteries inside the binocular	Possibility to add external battery pack
Rugged design	Up to Mil-810F specifications, including immersion down to 20 m.	
Operating temperature	-32° to 52°C	

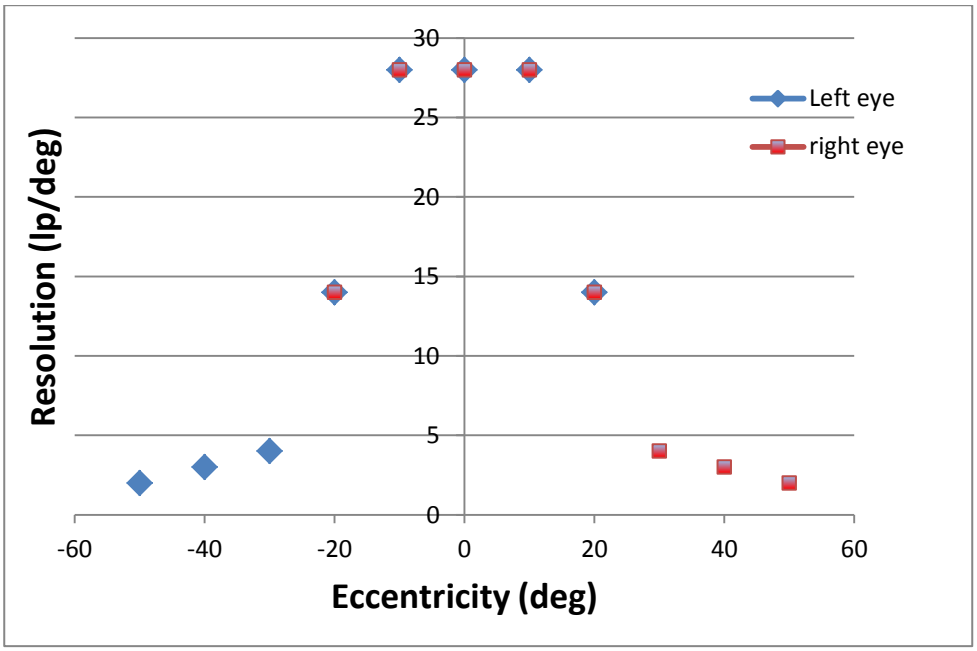

Figure 1. Resolution of the system as a function of eccentricity. Resolution is defined as the maximum spatial frequency (in lp/deg) where the modulation transfer function of the system is greater than zero (MTF > 0).

Questions about your company:

Answers to the following questions shall provide information regarding the technical challenges of this Request For Information project as well as important commercial and budget considerations.

Note: All the information provided will be treated as confidential; it will not be shared with competitors or any other organization outside DND. Companies responding to this Request for Information should identify potential partners, if there is a need to augment or complement existing company expertise.

Does your company have expertise in:

- Night vision goggle development.
- Panoramic optical design and fabrication.
- Design and fabrication of military EO systems.

Technical questions:

In general terms, can you propose a technical approach to achieve the stated goal?

Based on your expertise, are the preliminary specifications achievable? If not, why? Can they be improved upon, especially in regards to weight, field-of view and resolution?

Can you identify other important technical aspects that must be considered?

Budget questions and commercial considerations:

What are your estimation of the cost and the time frame of this development effort? Can a preliminary schedule and cash phasing be presented?

Can you identify other important commercial aspects that must be considered?

Can you send us any additional documentation (presentation, report and brochure) relevant to this development effort?

Document submission

Suppliers interested in responding should send their responses (preferably by email) to :

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Attn: Mr. Frédérik Sansfaçon
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Documents may be submitted in either official language of Canada (English or French).