Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

RETURN BIDS TO:
RETOURNER LES SOUMISSIONS À:

Bid Receiving - PWGSC / Réception des soumissions - TPSGC
11 Laurier St. / 11, rue Laurier
Place du Portage , Phase III
Core 0B2 / Noyau 0B2
Gatineau
Québec
K1A 0S5
Bid Fax: (819) 997-9776

Revision to a Request for a Standing Offer
Révision à une demande d'offre à commandes

National Individual Standing Offer (NISO)

Offre à commandes individuelle nationale (OCIN)

The referenced document is hereby revised; unless otherwise indicated, all other terms and conditions of the Offer remain the same.

Ce document est par la présente révisé; sauf indication contraire, les modalités de l'offre demeurent les mêmes.

Comments - Commentaires

Vendor/Firm Name and Address
Raison sociale et adresse du fournisseur/de l'entrepreneur

Issuing Office - Bureau de distribution
Electronics, Simulators and Defence Systems Div.
/Division des systèmes électroniques et des systèmes de simulation et de défense
11 Laurier St. / 11, rue Laurier
8C2, Place du Portage
Gatineau
Québec
K1A 0S5

Title - Sujet
STANDING OFFER FOR RACONS FOR CCG

Solicitation No. - N° de l'invitation F7047-160018/A	**Date** 2017-02-15
Client Reference No. - N° de référence du client F7047-160018	**Amendment No. - N° modif.** 002
File No. - N° de dossier 103qf.F7047-160018	**CCC No./N° CCC - FMS No./N° VME**

GETS Reference No. - N° de référence de SEAG
PW-$$QF-103-26131

Date of Original Request for Standing Offer
Date de la demande de l'offre à commandes originale 2017-01-11

Solicitation Closes - L'invitation prend fin
at - à 02:00 PM
on - le 2017-02-22

Time Zone
Fuseau horaire
Eastern Standard Time EST

Address Enquiries to: - Adresser toutes questions à: Eddy, Kathie	**Buyer Id - Id de l'acheteur** 103qf
Telephone No. - N° de téléphone (819) 420-1747 ( )	**FAX No. - N° de FAX** (819) 956-5650

Delivery Required - Livraison exigée

Destination - of Goods, Services, and Construction:
Destination - des biens, services et construction:

Security - Sécurité
This revision does not change the security requirements of the Offer.
Cette révision ne change pas les besoins en matière de sécurité de la présente offre.

Instructions: See Herein

Instructions: Voir aux présentes

Acknowledgement copy required **Accusé de réception requis**	**Yes - Oui** ☐	**No - Non** ☐

The Offeror hereby acknowledges this revision to its Offer.
Le proposant constate, par la présente, cette révision à son offre.

Signature **Date**

Name and title of person authorized to sign on behalf of offeror. (type or print)
Nom et titre de la personne autorisée à signer au nom du proposant.
(taper ou écrire en caractères d'imprimerie)

For the Minister - Pour le Ministre

Canada

Solicitation amendment # 002 is raised to respond to the following questions from industry:

Question # 001:

The price is to include “DDP destination,shipping and handling, Canadian customs duties and excise taxes”. If the price includes the prepaid cost why is there an instruction to make a separate item on the invoice with transportation cost?

Answer # 001: At Request for Standing Offer – Article 7 – Shipping Instructions – Delivery at Destination

Delete: In its entirety.

Insert:

7. Shipping Instructions - Delivery at Destination

Goods must be consigned to the destination specified in the Call-up and delivered:

Delivered Duty Paid (DDP), (destination address to be included in the Call-up), Incoterms 2000 for shipments from a commercial contractor.

The Contractor must ship the goods prepaid, including all delivery charges to (destination address to be included in the Call-up).

Question # 002:

The Duty cycle ON time should have a minimum on-time that is at least as long as it takes for a radar antenna to make one sweep, which for most radars is under four seconds. Setting ON time less than this runs the risk of the racon not responding to radars. In other words, an ON time setting of zero would mean that the racon will not respond to any radars. Will racons that do not allow the operator to make this mistake (setting ON time to zero) be accepted? Or, would the CCG please consider changing the minimum ON time to four seconds?

Answer # 002:

The minimum ON time is 4 s and the specifications should read as such. There is an error of transcription in the English performance specification and 2 errors of transcription in the French performance specification.

Corrigendum 1

Section 7: Summary of requirements, table 6, line 4.2.4, is modified to state

Ref	Description		Requirement or Value	Proof of Compliance
4.2.4	Duty Cycle	Programmable	ON from 4 s to 60 s and OFF from 0 s to 60 s	Submit data

Delete: English version of Annex D and French Versions of Annex B and Annex D.

Insert: See attachments to this amendment.

**Note: There are no changes to the English version of Annex B – Performance Specifications. It is attached due to system requirements to attach the same number of documents in both English and French when posting to Buy and Sell.

All other terms and conditions remain unchanged.

Fisheries and Oceans Canada | Pêches et Océans Canada

Canadian Coast Guard | Garde côtière canadienne

EKME # 3678010

Integrated Technical Services

Safety First, Service Always

Radar Beacon (racon)

Performance specification

Canada

Published under the Authority of:
Integrated Technical Services Directorate
Fisheries and Oceans Canada
Canadian Coast Guard
Ottawa Ontario, K1A 0E6
http://intra.garde-cotiere.ca/ITS/Home

2ND EDITION, NOVEMBER 2016

Note: Older versions under EKME 3329464

DISPONIBLE EN FRANÇAIS: BALISE RADAR (RACON) – EXIGENCES DE RENDEMENT
MGCE 3678013

Record of Amendments

#	Date	Description	Initials
1.4	2015-02	1st edition (note document still has "draft" label)	LV
1.8	2015-08-07	1.1 Incorporation of Amendment 3 – 6	RM
2	2016-11	2nd edition	ASt-L

Approvals

Approval Signatures will be added here once scanned.
Les signatures d'approbation seront ajoutées ici une fois numérisées.

Table of Contents

List of Tables

Document Structure Management

1. Authority

This document is issued by the Director General, Integrated Technical Services the National Technical Authority of the Canadian Coast Guard (CCG) under delegation from the Deputy Minister, Fisheries and Oceans and the Commissioner of the Canadian Coast Guard.

2. Responsibility

The Director, Maritime and Civil Infrastructure and Environmental Response is responsible for:

i) the creation and promulgation of the document; and

ii) the identification of an Office of Primary Interest (OPI) who is responsible for the coordination and the content of the document.

The OPI is responsible for:

i) the validity and accuracy of the content;

ii) the availability of this information;

iii) the update as needed;

iv) the periodical revision; and

v) the follow-up of all requests, comments and/or suggestions received by the originator.

3. Inquiries and/or Revision Requests

All inquiries regarding this document, including suggestions for revision and requests for interpretation shall be addressed to:

Manager, Maritime and Civil Infrastructure
Canadian Coast Guard
200 Kent Street, Station 7W100
Ottawa, Ontario
K1A 0E6

All requests should be clear and concise; and reference the specific Section, Figure or Table.

Section 1 INTRODUCTION

This document outlines the Canadian Coast Guard's (CCG) specifications for radar beacons (racons). This section is informative.

1.1 STATEMENT OF OPERATIONAL REQUIREMENTS

"Radar beacon (racon): A transmitter-receiver associated with a fixed navigational mark which, when triggered by a radar, automatically returns a distinctive signal which can appear on the display of the triggering radar, providing range, bearing and identification information." (ITU, 2012)

This section describes in a general manner the needs of the Canadian Coast Guard (CCG) and conditions of operations for racons. As such this section makes no obligations on the part of manufacturers or bidders.

The CCG has a requirement for racons for use with both fixed and floating aids to navigation.

Racons are deployed in a harsh marine environment and are exposed to a wide range of ambient temperatures and humidity. They will be exposed to significant wind speeds, salt air, seawater spray, and ice loads. They will have continuous exposure to ultraviolet light that is typically encountered in the lower-to-mid Canadian latitudes. In heavy seas, racons may occasionally be immersed in seawater. They may be exposed to electromagnetic interference from radiating devices such as VHF radio as well as marine radar, and static discharges and induced, transient voltages that may occur because of nearby lightning strikes.

Once deployed, racons are left unattended for considerable periods of time. The CCG is looking for racons that operate under the specified conditions and have a minimum specified service life.

Racons will generally encounter shock and vibration when they are mounted on buoys as well as when they are transported on vessels to be deployed or retrieved.

Section 2 APPLICABLE DOCUMENTS

2.1 REFERENCED PUBLICATIONS, SPECIFICATIONS AND STANDARDS

The documents listed in this section form an integral part of the CCG requirements to the extent they are referenced in this Performance Specification.

2.1.1 ITU (International Telecommunication Union). 2013-02-01. *Recommendation ITU-R M.824-4 (02/2013) – Technical parameters of Radar Beacons*. (accessed 2016-07-08) https://www.itu.int/rec/R-REC-M.824-4-201302-I/en

2.1.2 IALA. *Recommendation R-101 – Recommendation on Marine Radar Beacons (Racons)*. Ed. 2 (2004-12). (accessed 2016-07-08) http://www.iala-aism.org/products/publications/0407091215/maritime-radar-beacons-racons-r-101

2.1.3 IEC (International Electrotechnical Commission). 2002-08-14. 60945:2002 Ed. 4 Maritime navigation and radiocommunication equipment and systems - General requirements - Methods of testing and required test results. (accessed 2016-08-07) https://webstore.iec.ch/publication/3959

2.1.4 IEC 60529:1989+AMD1:1999+AMD2:2013 and CSV/COR2:2015 *Degrees of protection provided by enclosures (IP Code)*. (accessed 2016-07-08) https://webstore.iec.ch/publication/2452

2.2 OTHER REFERENCED DOCUMENTS

2.2.1 ITU. 2012. Radio regulations, Section IV. Radio Stations and Systems – Article 1.103, definition: radar beacon (racon).

2.3 ORDER OF PRECEDENCE

2.3.1 In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been made.

Section 3 COMPATIBILITY REQUIREMENTS FOR RACONS

The racon must comply with the following recommended racon Performance standards:

3.1 Recommendation ITU-R M.824-4 of the International Telecommunication Union – Technical parameters of Radar Beacons (racons)

3.2 Recommendation R-101 of the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA)– Recommendation on Marine Radar Beacons (racons)

Section 4 PERFORMANCE REQUIREMENTS – ELECTRONICS

The following tables summarize both the mandatory and optional technical requirements. Mandatory requirements are presented in Table 1 and rated requirements in Table 2.

Note: Racons are not regarded as ship borne equipment. As such, RSS-238 does not apply and racons do not require certification.

Note: The RSS-GEN standard, under the Radiocommunication Act, RSC (1985), c. R-2, must be applied along with another RSS. In the specific case of the racon, no other RSS applies. Hence, RSS-GEN does not apply.

Table 1: Performance requirements – electronics

ID	Item Description		Requirement or Value
4.1	Operating Frequency	a) X-band range	9300 MHz[1] to 9500 MHz
4.2		b) S-band range	2900 MHz to 3100 MHz
4.3	Polarization	a) X-band	Horizontal
4.4		b) S-band	Horizontal and Vertical
4.5	Time to detect pulse width	a) Minimum	50 ns
4.6		b) Maximum	2000 ns (2 µs)
4.7	Response Time Delay	Maximum	0.7 µs (700 ns)
4.8	Frequency Response Accuracy	a) Long Radar Pulses	± 1.5 MHz
4.9		b) Short Radar Pulses	± 3.5 MHz
4.10	Side Lobe Suppression (SLS)	X and S bands	Dual Token SLS
4.11	System Sensitivity	a) X-band	-10 dBm to - 40 dBm
4.12		b) S-band	-10 dBm to - 32 dBm

[1] There is contradiction between Annex Table 1, Recommendation R-101r1, December 2000 from IALA and the ITU-R M-824-4, although the IALA Standard refers to the ITU Standard. The industry standard is 9300 MHz to 9500 MHz.

ID	Item Description		Requirement or Value
4.13	Response Code	Programmable	Minimum 4 Morse code characters
4.14	Gain	X and S band range	0 dBi to 9 dBi
4.15	Output Power to Antenna	Range	0.5 W to 1.0 W
4.16	Blocking Period	Maximum	100 µs
4.17	Vertical Divergence	X and S bands	10° or more at -3 dB points
4.18	Nominal Power Consumption	a) Standby	0.75 W
4.19		b) Active	1.00 W
4.20	Operation Power (Voltage)	Range	9 Vdc to 36 Vdc
4.21	Quiescent Period	Programmable	0 s to 60 s
4.22	Active Period	Programmable	6 s to 48 s
4.23	Response Scaling	Range	4 µs to 38 µs.
4.24	Duty Cycle	Programmable	ON from 4 s to 60 s and OFF from 0 s to 60 s
4.25	Duty Suppression	Required	The racon shall have duty suppression feature so that if no radar signals are detected in the first 4 seconds of a duty cycle the racon will sleep for the remainder of the duty cycle
4.26	Extended Duty Suppression	Required	Extended Duty Suppression shall be available as a user selected function to allow the racon to remain in sleep mode for more than one duty cycle.
4.27	Built-In-Test (BIT)	Required	BIT capability available

Table 2: Rated performance requirements – electronics

ID	Item Description		Requirement or Value
4.28	Proportional scaling	Selectable Yes or No	Feature to maintain a relatively constant racon image on the radar screen. Without this feature, every time the scale is changed for a longer range, the racon trace would be halved, progressively making it more difficult for the mariner to identify it at such.
4.29	Date calendar	Optional	Used to turn the unit ON and OFF for seasonal use applications.
4.30	NT Radar	Optional	Capacity to be activated by solid-state radar (NT Radar). Or capacity to be easily upgraded to meet this requirement in the future. Def: The NT radar has continuous wave modulated in frequency (FM/CW), solid-state, low power and inexpensive which used digital signal processing techniques to mitigate display clutter associated with the conventional radars.
4.31		Optional	Returning racons to a manufacturer for refit (IALA Recommendation e-NAV-146 On Strategy for Maintaining Racon Service Capability discusses NT radars does not offer guidance for racons. The methods for upgrading are not currently specified.)

Section 5 PERFORMANCE REQUIREMENTS – OTHER TECHNICAL

Table 3 presents additional technical requirements that include both physical requirements and minimum service life. Sections 5.1, 5.3, 5.4, 5.5, 5.8, and 5.9 (with "*") also have associated rated components.

Table 3: Performance requirements – other technical

ID	Item Description		Requirement or Value
5.1	Communication port*[2]	Required	A communication port, such as a serial interface, infrared device or other, used for external diagnostics, programming, and alarm outputs is required. A system built into the racon is a rated benefit (i.e. no external hardware to install or maintain).
5.2	Handling	Required	Minimum of one handle for lifting and hoisting
5.3	Diameter*	Maximum	500 mm
5.4	Height*	Maximum	1000 mm
5.5	Weight*	Maximum	25 kg
5.6	Markings	Required	The racon shall be identified with the following information, permanently engraved on a name plate and always visible. 1. Manufacturer Name 2. Date of Manufacturer 3. Model Number 4. Serial number 5. Rated Voltage/Amperage 6. Band Designation 7. NT Ready (yes/no) All markings shall be legible for the entire racon service life.

[2] The CCG prefers models that are smaller and easier to maneuver.

ID	Item Description		Requirement or Value
5.7	Mounting	Required	The base of the unit shall either be equipped with the two bolting patterns, as follows (rated option): 1. 4 holes, 16 mm ± 1 mm diameter bolt holes, equally spaced on a 200mm diameter bolt circle; and, 2. 3 holes, x 16 mm ± 1 mm diameter bolt holes, equally spaced on a 200 mm diameter bolt circle. 3. Or, be supplied with an adapter plate with the requisite two bolting patterns described above (less desirable option) Note, bolt holes must be located directly in the base of the unit with an access to both sides.
5.8	Service Life	Minimum	10 y
5.9	Mean Time Between Failures	Minimum	5 y

Section 6 PERFORMANCE REQUIREMENTS – ENVIRONMENT

The following table summarizes the environmental conditions in which the unit must be capable of operating. The racon shall be in accordance with IEC 60945 Edition 4, as shown here.

Section 6.11 in Table 4 below also has a rated requirement. For racons that have a rating of IP 68, the manufacturer's conditions under which the racon can be continuously immersed are stated.

Table 4: Performance requirements – environment

ID	Item Description	Requirement or Value
6.1	Operating Temperature	-40° C to +55° C
6.2	Wind	Up to 160 km/h
6.3	Ice accumulation	Up to 40 mm
6.4	Dry Heat	IEC 60945 Edition 4 – Section 8.2
6.5	Damp Heat	IEC 60945 Edition 4 – Section 8.3
6.6	Vibration	IEC 60945 Edition 4 – Section 8.7
6.7	Rain and spray	IEC 60945 Edition 4 – Section 8. 8
6.8	Thermal Shock	IEC 60945 Edition 4 – Section 8.10
6.9	Solar Radiation	IEC 60945 Edition 4 – Section 8.10
6.10	Corrosive Conditions	IEC 60945 Edition 4 – Section 8.12
6.11	Immersion	IP 67

Annex D – Racon Evaluation Framework

Radar Beacons

National Individual Standing Offer

F7047-160018

Annex D - Racon Evaluation Framework

Introduction

The Canadian Coast Guard (CCG) has initiated a competitive process for awarding a Standing Offer to a qualified supplier for radar beacons (Racons).

Proposals will be evaluated in accordance with the evaluation framework described in this document and the Annex E – Phased Bid Compliance Process.

Evaluation Process

This bid evaluation framework will be used to evaluate the Bidder's proposal to satisfy the requirements of the racons for the Canadian Coast Guard.

The evaluation process is separated into two segments: 1) Mandatory, and 2) Rated Requirements.

The mandatory requirements must be met in order for the Bidders proposal to be further considered for the evaluation of the rated requirements. The phased bid process is further detailed in Annex E. If after the phased approach, the vendor has not met mandatory requirement(s), this will result in the proposal being eliminated.

For the purposes of this solicitation, mandatory requirements are those requirements identified in the Solicitation that the Bidder "shall", "will" or "must" satisfy.

The Rated Criteria are based on the features of the Bidder's response that are beyond the minimum mandatory requirements stated in the Annex B - Performance Specification (Technical). These features are assessed and scored to determine the proposal's added value above the mandatory requirements.

The proposals will be evaluated in the following order:

1. Evaluation of the proposal – All Terms and Conditions of the Request for Standing Offer (RFSO) have been met;
2. Evaluation of the Mandatory Requirement's for the Annex B - Performance Specification as detailed in Appendices A1;
3. Evaluation of the Rated Requirements for the Annex B - Performance Specification as detailed in Appendices B1;

4. Price

Selection methodology

Proposals meeting all the mandatory criteria will be assessed for compliance with the rated criteria.

The technical score is the sum of the scores assigned to the individual rated criteria. The maximum possible score is as follows:

Section	Points Allocated
Technical Rated (Annex A2 – Based on the Performance Specification)	—
• **Rated performance requirements – electronics**	45
• **Rated performance requirements – other technical**	70
• **Rated performance requirements – environment**	10
Total Max. Available Points	125

The total rated Management/Technical score will constitute 40% of the overall bid evaluation. The price section will constitute 60% of the overall bid evaluation.

The method for rating the bids is the highest combined rating according to the formula below.

$$score_{bidder} = 0.6 \times \frac{price_{lowest}}{price_{bidder}} + 0.4 \times \frac{score_{bidder}}{total\ possible\ score}$$

Where,

$score_{bidder}$	is a value between 0 and 1.
$price_{lowest}$	is the lowest price of all compliant bids.
$price_{bidder}$	is the price offered by a bidder.
$score_{bidder}$	is the total score earned by a bidder.
total possible score	is the highest score possible.

The Bidder with the highest final score will be the winner of this bid selection process.

Bidder Instructions:

To demonstrate that they have met the mandatory technical criteria, Bidders are required to provide the following with their proposal:

- A clear statement of compliance with all the “shall,” “will,” and “must” statements in the Annex B - Performance Specification;
- The Bidder shall complete the tables found in Appendices A1 and B1 in full. All statements shall be clear indicating where within the bid proposal, the section, page number and paragraph, the evidence required for meeting compliancy is found and must be put in the column labelled “Compliant/Non- Compliant” in the tables found in Appendices A1 and B1;
- The evidence that they meet all the mandatory criteria of the RFSO.

METHODS OF VERIFICATION

There are several methods available to verify requirements. These methods are explained below.

Acknowledge

The bidder shall provide a narrative that clearly demonstrates that they have read and understand the information presented in the documentation.

State/statement of compliance

The bidder shall provide a narrative that clearly demonstrates that the requirements are met. Drawings, schematics, and other documents and data may be included in support of the narrative.

Submit data

The bidder shall submit data in the form of reports, drawings, schematics, and other documents sufficient to demonstrate that the requirements are met.

Test

The bidder shall submit the results of tests of the bid product, previously performed in its own facility or by other accredited independent labs or agencies to demonstrate that the requirements are met. The tests must conform to provisions as applicable.

Appendix A1 – Mandatory Requirements

Note: References in the tables below are in reference to the Annex B - Performance Specification.

Ref	Item Description	Requirement or Value	Proof of Compliance	Compliant/Non-Compliant
3.1	Recommendation of the International Telecommunication Union-Technical parameters of Radar Beacons (racons)	ITU-R M.824-4	Submit data	
3.2	Recommendation of the international Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) – Recommendation on Marine Radar Beacons (racons)	R-101	Submit data	

Ref	Description		Requirement or Value	Proof of Compliance	Compliant /Non-Compliant
4.1	Operating Frequency	a) X-band range	9300 Mhz to 9500 Mhz	Submit data	
4.2		b) S-band range	2900 Mhz to 3100 Mhz	Submit data	
4.3	Polarization	a) X-band	Horizontal	Submit data	
4.4		b) S-band	Horizontal and Vertical	Submit data	
4.5	Time to detect pulse width	a) Minimum	50 ns	Test	
4.6		b) Maximum	2000 ns (2 µs)	Test	
4.7	Response Time Delay	Maximum	0.7 µs (700 ns)	Test	
4.8	Frequency Response Accuracy	a) Long radar pulses	± 1.5 Mhz	Test	
4.9		b) Short radar pulses	± 3.5 Mhz	Test	
4.10	Side Lobe Suppression (SLS)	X and S bands	Dual Token SLS	Submit data	
4.11	System Sensitivity	a) X-band	-10 dBm to - 40 dBm	Test	
4.12		b) S-band	-10 dBm to - 32 dBm	Test	
4.13	Response Code	Programmable	Minimum 4 Morse Code Characters	Submit data	
4.14	Gain	X and S band range	0 dBi to 9 dBi	Test	
4.15	Output Power to Antenna	Range	0.5 W to 1.0 W	Test	
4.16	Blocking Period	Maximum	100 µs	Test	
4.17	Vertical Divergence	X and S bands	10° or more at -3 dB points	Test	
4.18		a) Standby	0.75 W	Submit data	

Ref	Description		Requirement or Value	Proof of Compliance	Compliant /Non-Compliant
4.19	Nominal Power Consumption	b) Active	1.00 W	Submit data	
4.20	Operation Power (Voltage)	Range	9 Vdc to 36 Vdc	Submit data	
4.21	Quiescent Period	Programmable	0 s to 60 s	Submit data	
4.22	Active Period	Programmable	6 s to 48 s	Submit data	
4.23	Response Scaling	Range	4 µs to 38 µs.	Submit data	
4.24	Duty Cycle	Programmable	ON from 40 s to 60 s and OFF from 0 s to 60 s	Submit data	
4.25	Duty Suppression	Required	The racon shall have duty suppression feature so that if no radar signals are detected in the first 4 seconds of a duty cycle the racon will sleep for the remainder of the duty cycle	Submit data	
4.26	Extended Duty Suppression	Required	Extended Duty Suppression shall be available as a user selected function to allow the racon to remain in sleep mode for more than one duty cycle.	Submit data	
4.27	Built-In-Test (BIT)	Required	BIT capability available	Submit data	

Ref	Item Description	Requirement	Value	Proof of Compliance	Compliant/Non-Compliant
5.1	System diagnostic communication method	Required	A system communication method available	Submit data	
5.2	Handling	Required	Minimum one lifting handle present	Submit data	
5.3	Diameter	Maximum	500 mm	Submit data	
5.4	Height	Maximum	1000 mm	Submit data	
5.5	Weight	Maximum	25 kg	Submit data	
5.6	Markings	Required	Information permanently engraved; Always visible; Durable for entire service life.	Submit data	
5.7	Mounting	Required	CCG bolting patterns present; or, Adaptor plate provided (within weight tolerances)	Submit data	
5.8	Service Life	Minimum	10 y	Submit data	
5.9	Mean Time Between Failures (MTBF)	Minimum	5 y	Submit data	

Ref	Item Description	Requirement or Value	Proof of Compliance	Compliant/ Non-Compliant
6.1	Operating Temperature	-40° C to +55° C	Test	
6.2	Wind	Up to160 km/h	Test	
6.3	Ice accumulation	Up to 40 mm	Test	
6.4	Dry Heat	IEC 60945 Edition 4 – Section 8.2	Test	
6.5	Damp Heat	IEC 60945 Edition 4 – Section 8.3	Test	
6.6	Vibration	IEC 60945 Edition 4 – Section 8.7	Test	
6.7	Rain and spray	IEC 60945 Edition 4 – Section 8. 8	Test	
6.8	Thermal Shock	IEC 60945 Edition 4 – Section 8.10	Test	
6.9	Solar Radiation	IEC 60945 Edition 4 – Section 8.10	Test	
6.10	Corrosive Conditions	IEC 60945 Edition 4 – Section 8.12	Test	
***6.11**	Immersion	IP 67 minimum	Test	

***Note:** Section **Error! Reference source not found.**~~6.11~~ also has a rated requirement. For racons that have a rating of IP 68, the manufacturer's conditions under which the racon can be continuously immersed are stated.

Appendix B1 - Rated Requirements

Note: References 4.28-4.31 in this table are in reference to the Annex B - Performance Specification.

Ref	Description	Requirement or Value	Proof of Compliance	Requirement and Results	Points	Score
4.28	Signal code proportion	Feature is selectable: Yes or No	Submit data	Yes No	5 0	
4.29	Date calendar	Used to turn the unit ON and OFF for seasonal use applications.	Submit data	Yes No	10 0	
4.30	NT Radar	Racon has or can be easily upgraded to have the capacity to be activated by solid-state radar (NT Radar).	Submit data	Yes No	20 0	
4.31		Racon sent to manufacturer for upgrade	State	Yes No	10 0	

Rated performance requirements; 4.28 - 4.31; **Score**: _____ (max =45)

Note: References 5.1-5.9 in this table are in reference to the Annex B - Performance Specification.

	Description			Proof of Compliance	Requirement and Results	Points	Score
5.1	System diagnostic communication method	System built into the racon.		Submit data	Built-in External	15 0	
5.3	Diameter (ø)	Max = 500 mm	Small, more maneuverable models.	Submit data	ø < 300 mm 301 mm to 400 mm 401 mm to 500 mm	10 5 1	
5.4	Height (H)	Max = 1000 mm		Submit data	H < 800 mm 801 mm to 900 mm 901 mm to 1000 mm	10 5 1	
5.5	Weight (W)	Max = 25 kg		Submit data	W ≤ 10 kg 10.1 kg to 15 kg 15.1 kg to 20 kg	10 5 1	
5.7	Mounting	System does not have a unit mounting adaptor plate.		Submit data	No adaptor Adaptor[2]	15 0	
5.8	Service Life (SL)	Min = 10 y	Points are awarded for a longer service life.	Submit data	SL ≥ 15 y 12 y to 14.9 y 10 y to 11.9 y	5 3 1	

	Description			Proof of Compliance	Requirement and Results	Points	Score
5.9	MTBF[1](T_F)	Min = 5 y	Points are awarded for a longer MTBF value.	Submit data	$T_F \geq 10$ y 7 y to 9.9 y 5 y to 6.9 y	5 3 1	

Rated performance requirements; 5.1-5.9; **Score:** _____ (max =70)

Points for IP68 are awarded as follows:

- 3 points are awarded for meeting IP68.
- 7 additional points are available and are awarded on a linearly scaled basis between the shallowest submersion depth amongst all bidders and the deepest submersion depth amongst all bidders.
- Points are given according to the following formula:

$$Points_{awarded} = \left(\frac{(10-3)}{(depth_{deepest} - depth_{shallowest})}\right) \times (depth_{bidder} - depth_{shallowest}) + 3$$

Where

$depth_{deepest}$ = the deepest depth of all bidders,

$depth_{shallowest}$ = the shallowest depth of all bidders,

$depth_{bidder}$ = actual depth of a bidder submitting for this rated item.

Note: For racons that have a listing of IP 68, the manufacturer's conditions under which the racon can be continuously immersed shall be stated.

[1] Mean time between failures

[2] Adaptor plate supplied is to have the requisite two bolting patterns.

Ref	Description	Requirement or Value	Proof of Compliance	Results	Points	Score
6.11	Immersion	IP 68	Test	Max Min No	10 3 0	

Rated performance requirements; 6.11; **Score**: _____ (max =10)

Total rated scores: _____ (max =125)