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**SOLICITATION AMENDMENT  
MODIFICATION DE L'INVITATION**

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

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

**Comments - Commentaires**

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

**Issuing Office - Bureau de distribution**  
TPSGC - PWGSC  
601 - 1550 Avenue d'Estimauville  
Québec  
Québec  
G1J 0C7

<b>Title - Sujet</b> Directional Broadband VHF Antenna	
<b>Solicitation No. - N° de l'invitation</b> F3063-181401/A	<b>Amendment No. - N° modif.</b> 001
<b>Client Reference No. - N° de référence du client</b> F3063-181401	<b>Date</b> 2019-01-11
<b>GETS Reference No. - N° de référence de SEAG</b> PW-\$QCW-028-17579	
<b>File No. - N° de dossier</b> QCW-8-41125 (028)	<b>CCC No./N° CCC - FMS No./N° VME</b>
<b>Solicitation Closes - L'invitation prend fin</b> <b>at - à 02:00 PM</b> <b>on - le 2019-01-30</b>	<b>Time Zone</b> <b>Fuseau horaire</b> Heure Normale du l'Est HNE
<b>F.O.B. - F.A.B.</b> Specified Herein - Précisé dans les présentes	
<b>Plant-Usine:</b> <input type="checkbox"/> <b>Destination:</b> <input type="checkbox"/> <b>Other-Autre:</b> <input checked="" type="checkbox"/>	
<b>Address Enquiries to: - Adresser toutes questions à:</b> - Simoneau, Steve	<b>Buyer Id - Id de l'acheteur</b> qcw028
<b>Telephone No. - N° de téléphone</b> (418) 649-2816 ( )	<b>FAX No. - N° de FAX</b> (418) 648-2209
<b>Destination - of Goods, Services, and Construction:</b> <b>Destination - des biens, services et construction:</b> Garde côtière canadienne - MPO 101 Boulevard Champlain, Québec, Québec, G1K7Y7	

**Instructions: See Herein**

**Instructions: Voir aux présentes**

<b>Delivery Required - Livraison exigée</b>	<b>Delivery Offered - Livraison proposée</b>
<b>Vendor/Firm Name and Address</b> <b>Raison sociale et adresse du fournisseur/de l'entrepreneur</b>	
<b>Telephone No. - N° de téléphone</b> <b>Facsimile No. - N° de télécopieur</b>	
<b>Name and title of person authorized to sign on behalf of Vendor/Firm</b> <b>(type or print)</b> <b>Nom et titre de la personne autorisée à signer au nom du fournisseur/ de l'entrepreneur (taper ou écrire en caractères d'imprimerie)</b>	
<b>Signature</b>	<b>Date</b>

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## AMENDMENT 001

Included in the present amendment:

1. Questions 1 to 7
2. Modification to the specifications

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### 1. Question 1 to 7

#### Question 1:

Is there a specific model of VHF Panel antenna that was used as a template for this design?

#### Answer 1:

No. Generic Broadband panel VHF Antennas have been used to analyze our needs as they generally require much less tower space than exposed dipole antennas.

#### Question 2:

Is it expected that multiple VHF Panel antennas around the tower will be required to provide the 360° coverage pattern?

#### Answer 2:

According to the "Statement of Requirement" document in Section 1, it is clearly stated « *Following a brief needs analysis, we agreed that the antennas should be designed to be mounted in an array of 2, one on top of the other (stack), in addition to covering a 120-degree sector, this will give a total of 3 groups of 2 antennas for each of the 3 required sets to achieve the required 360 degree coverage. However, any other arrangement that satisfies our needs will be accepted.* »

#### Question 3:

There is no beamwidth cited for the VHF antenna, can you comment on what is expected here?

#### Answer 3:

Depending on the RF coverage required, it is important that the combination of antennas can achieve an omnidirectional coverage of 360 degrees.

#### Question 4:

Was the inherent loss of the RF splitter considered in the dBi gain requirements of the antenna(s) ?

#### Answer 4:

No, the gain in dBi is for an antenna arrangement.

#### Question 5:

Ref to sec 4.4.1 there are several input variables missing to be able to reliably calculate the RSL @ 40km. Tx power, whether RF splitters are employed, frequency, gain of receiving antenna, feedline of receiving antenna system, consideration to topography etc.

Answer 5:

- TX power at the transmitter: 100 W (50 dBm)
- Frequency: 156.8 MHz
- RF filtration loss: 4.8 dB
- Transmission line: Commscope Andrew AVA5-50 - Cable length: 106 m
- Cabling Loss: 1.55 dB
- Gain of the receiving antenna: unitary
- Topography: Line of sight unobstructed and over salt water
- Projected height of antenna 1: 58 m (190 ft) AGL / 110 m (360 ft) ASL

Question 6:

Is the antenna system to be mounted around the outside of the tower or is top-mounting an option?

Answer 6:

The side-mount assembly type is mandatory. Every antenna system will have to be mounted around the outside of the tower.

Question 7:

It would help to know the application of this radio system and the performance expectations. We have concerns the use of RF power dividers is inefficient and can cause deep coverage nulls and other unwanted effects. The detail in the tower drawing isn't visible enough to determine if a proper phasing harness can be used.

Answer 7:

We use Motorola MTR2000 transmitters / receivers with a maximum power of 100 W to provide analog voice communications services to Canadian and International marine customers. The required RF coverage must meet IMO and ITU International standards for marine communication. The required standard in a VHF zone is 40 nautical miles from any coast served by a coast station. Currently, we use Broadband type VHF panel antennas on each side of the transmission tower to cover a 360 degree radius and the loss and undesirable effects through the use of power divider are negligible.

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**2. Modification to the specifications:**

1. Article 4.1 of Annex A – Statement or Requirement

**DELETE**

As described in the context in section 1, the supplier must deliver item 4.1 in sufficient quantity and meeting the requirements described in section 3 to provide a radio signal level of at least 0,4  $\mu$ V at a distance of 40 kilometers from the transmission tower over an area of 360 degrees.

**INSERT**

As described in the context in section 1, the supplier must deliver item 4.1 in sufficient quantity and meeting the requirements described in section 3 to provide a radio signal level of at least 0,4  $\mu$ V at a distance of **40 nautical miles from any coast served** by the transmission tower over an area of 360 degrees.

## 2. Table 2 of Annex C – Compliance Matrix

### DELETE:

Item	Mandatory Technica Criteria	Compliance	Technical Reference
4.1	The proposed configuration must provide a radio signal level of at least 0,4 $\mu$ V at a distance of 40 kilometers from the transmission tower over an area of 360 degrees.		

### INSERT:

Item	Mandatory Technica Criteria	Compliance	Technical Reference
4.1	The proposed configuration must provide a radio signal level of at least 0,4 $\mu$ V at a distance of 40 nautical miles from any coast served by the transmission tower over an area of 360 degrees.		

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**ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED**