Public Works and Government Services Canada

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Bid Fax: (819) 997-9776

Revision to a Request for a Standing Offer

Révision à une demande d'offre à commandes

National Master Standing Offer (NMSO)

Offre à commandes principale et nationale (OCPN)

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
Defence Communications Division. (QD)
11 Laurier St./11, rue Laurier
Place du Portage, Phase III, 8C2
Gatineau, Québec K1A 0S5

Title - Sujet 4.9 GHZ 5.9 GHZ RADIO POINT TO POIN	
Solicitation No. - N° de l'invitation M7594-131471/B	**Date** 2013-07-25
Client Reference No. - N° de référence du client M7594-131471	**Amendment No. - N° modif.** 005
File No. - N° de dossier 008qd.M7594-131471	**CCC No./N° CCC - FMS No./N° VME**
GETS Reference No. - N° de référence de SEAG PW-$$QD-008-23820	
Date of Original Request for Standing Offer **Date de la demande de l'offre à commandes originale**	2013-06-12
Solicitation Closes - L'invitation prend fin **at - à 02:00 PM** **on - le 2013-08-06**	**Time Zone** **Fuseau horaire** Eastern Daylight Saving Time EDT
Address Enquiries to: - Adresser toutes questions à: Van Dusen, Eric	**Buyer Id - Id de l'acheteur** 008qd
Telephone No. - N° de téléphone (819) 956-5816 ( )	**FAX No. - N° de FAX** (819) 956-0636
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

This amendment 005 is raised to incorporate a new Statement of Requirement.

Delete old Statement of Requirement in its entirety.

Insert, in liu of the new Statement of Requirement.

ALL OTHER TERMS AND CONDITIONS REMAIN UNCHANGED.

RCMP·GRC

ROYAL CANADIAN MOUNTED POLICE • GENDARMERIE ROYALE DU CANADA

Point to Point (PTP)

Microwave Backhaul

S.O.R.

Mobile Communications Services

Date July 11 2013

Version 4.1

1 Global Requirements – Introduction

1.1 This requirement is for Point to Point (PTP) microwave and RF radios in the 4.9 GHz, 5.8 GHz Bands

1.2 The radio is of current manufacture

1.3 The PTP radio meets all configurations listed. Eg: integrated radios and connectorized radios (with access to antenna connectors) are specified in this SOR.

1.4 The radio is supported with parts and or spares for a period of five (5) years

1.5 The radio uses Internet Protocol (IP) Ethernet connectivity

1.6 The radio meets encryption and security requirements specified herein

1.7 The radio meets all environmental and performance requirements specified herein

1.8 The radio provides remote monitoring and software system management capabilities specified herein

1.9 The radio must be supplied in pairs in order to form a link (each radio has both transmitters and receivers)

2 Global Requirements for Standards compliance

2.1 The PTP radio must adhere to the current applicable Industry Canada Spectrum Management and Telecommunications Radio Standards (http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/h_sf06129.html) as listed below:

2.1.1 RSS-111 Issue 3 Broadband public safety equipment operating in the band 4940-4990 MHz

2.1.2 RSS-210 Issue 8 License-exempt Radio Apparatus (all frequency bands): Category 1 equipment

2.2 The PTP radio must be compliant to IEEE 802.3i-1990 for 10BASE-T

2.3 The radio must be compliant to IEEE 802.3u-1995 for 100BASE-T

3 Global Requirements for Networking, Interfaces

3.1 The radio must comply with IEEE 802.3 Ethernet protocol transport standards

3.2 The radio must include functionality for configuration as a OSI Layer 2 Bridge

3.3 The radio must be manageable via an IP address

4 Global Requirements for Management & Security requirements

4.1 Requirements for Encryption

4.1.1 The PTP radio must offer the functionality to be upgraded to the (AES 256 bits) Federal Information Processing Standards (FIPS) publication 197, November 26, 2001

4.1.2 The AES option must be able to be installed via a software or firmware upgrade by local technicians

4.2 The PTP radio must include the functionality for role-based access control

4.2.1 The PTP radio must support the following authentication method for configuration management:

4.2.1.1 Must be compliant to the Remote Authentication Dial In User Service (RADIUS) protocol for centralized Authentication, Authorization and Accounting (AAA)

4.2.1.2 RADIUS must support fallback mode

4.2.1.3 Must provide the functionality to define rights and profiles in order to assign a minimum of three (3) separate roles

4.2.1.4 Must support individual user names and passwords in fallback mode

4.2.2 The PTP radio must include the functionality to modify and disable a user account

4.2.3 The management system must provide automatic updates:

4.2.3.1 To the system topology map when a device is added to the wireless network

4.2.3.2 Must provide the capability to upload firmware revisions

4.2.4 The system management must include the functionality to perform software downloads to upgrade previously deployed PTP radio

4.2.5 The system management must include the functionality for a single point interface for full Fault, Configuration, Accounting, Performance and Security (FCAPS) functionality for all radio elements

4.2.6 The PTP radio must include the functionality to provide a secure management interface via Hypertext Transfer Protocol Secure HTTPS (TLS 1.0+) and be RADIUS compliant

4.2.7 The PTP radio must provide remote monitoring that is compatible with the Simple Network Management Protocol (SNMP) V2 and V3 (or be upgradeable to V3 within 1 year of contract award)

4.2.7.1 Vendor must supply MIB (Management Information Base) files

4.2.7.2 Must support SNMP trap

4.3 The PTP radio must provide the functionality to manually enter GPS location co-ordinates in its information tables.

4.3.1 The GPS data must be remotely viewable in order to remotely locate and manage the deployed PTP radio.

5 Global Requirements for Diagnostic requirements

5.1 The PTP radio must provide the functionality for a diagnostic tool as listed below:

5.1.1 The following information should be available through SNMP:

5.1.1.1 Transmit power

5.1.1.2 Receive signal strength

5.1.1.3 TX & RX channel numbers

5.1.1.4 Range

5.1.1.5 Modulation mode

5.1.1.6 Link loss

5.1.2 The diagnostic tool must provide the functionality to do RF and Microwave spectral analysis

5.1.3 The diagnostic tool must provide the functionality to record the noise level and statistical information of a given radio link

5.1.4 The diagnostic tool must provide the functionality to record signal strengths variations of all locations and statistical information of a given radio link

5.1.5 The diagnostic tool must provide the functionality to quantify the network data bandwidth of a given radio link

5.1.6 The diagnostic tool must provide the functionality to remotely download and save the captured statistical RF and throughput data for technical evaluation

5.1.7 The diagnostics tool must provide functionality for alarms and event logging

6 Global Requirements for Quality of Service (QoS)

6.1 The PTP radio must provide the functionality to support 802.1Q

6.1.1 The PTP radio must provide the functionality for support of IEEE 802.1p

6.1.2 The PTP radio must include the functionality for discernible QoS with a minimum of four (4) separate levels to map over multiple prioritization queues

7 Global Requirements for Reliability, Environmental

7.1 The PTP radio must meet a minimum of 87600 Hours (10 years) Mean Time Between Failure (MTBF) while deployed in operational and environmental conditions as specified herein

7.2 The PTP Out-Door-Unit (ODU) must operate in the following environmental requirements:

7.2.1 Temperature (operating): – 40° Celsius to +60° Celsius

7.2.2 Humidity (operating): 95% condensing

7.2.3 Compliant to Ingress Protection 66 (IP66)

7.3 Each PTP radio must be supplied with two (2) lightning protection modules (LPM)

7.3.1 One (1) external LPM is required to protect the PTP radio installed on the tower

7.3.2 One (1) external LPM is required to protect shelter and cabling equipment inside the shelter

7.4 The PTP radio must meet Canadian Standards Association (CSA) C22.2 and UL60950-1 for protection and safety

8 Global Requirement for Software

8.1 The PTP radio must include software that will be installed on Personal computers that will be used for the provisioning, support and management of the PTP radio and must be compatible with the Windows 7 Operating System

8.1.1 Software must include maintenance and support services for a period of five (5) years

8.2 Firmware upgrades for the PTP radio must be provided, at no additional cost, for a period of five (5) years

9 Global Requirement for Cabling and related accessories

9.1 The PTP radio must be provided with an indoor power supply rated for nominal 120 VAC operation

9.1.1 The power supply must provide the functionality for one (1) standard Ethernet port, and one Power over Ethernet (PoE) port

9.1.2 The power supply must provide the functionality for identical Ethernet data rates on the Power over Ethernet (PoE) port and PTP radio Ethernet connection points

9.2 The PTP radio must offer the following CAT5E cables:

9.2.1 25 foot cable

9.2.2 50 foot cable

9.2.3 100 foot cable

9.2.4 200 foot cable

9.2.5 300 foot cable

9.3 CAT5E cable must meet all the following requirements:

9.3.1 **Meet environment requirements detailed in of section 7 of the Statement of Work (SOW)**

9.3.2 **100+/-15 ohms characteristic impedance**

9.3.3 **Must be compliant to: ANSI/TIA/EIA-568-B.2 standards (transmission integrity)**

9.3.4 **CAT5E cable must be provide with a PVC black jacket that is flame retardant, weather proof for Ingress Protection 66 (IP66), sunlight and abrasion resistant**

9.3.5 **The PTP radio supplied with CAT5E cables must be provided with RJ 45 Cable Gland(s) at each connection point in order to weather proof Ingress Protection 66 (IP66) the installation**

10 Technical Specifications for PTP radio - Dual band (4.9 & 5.8 GHz)

10.1 The PTP radio must operate in the 4.9 GHz (Public Safety licensed) and 5.8 GHz (un-licensed) bands on the same model

10.2 The PTP radio must have two hardware configurations:

10.2.1 Configuration one (1): the PTP radio must have an RF N type connector(s)

10.2.2 Configuration two (2): the PTP radio must have an integrated panel antenna with at least a gain of 18 dbi

10.3 The bidder must include dual polarized, 4.9-5.8 GHz range, 2 feet or less, external dish with a gain of at least 28 db

10.4 The bidder must include a dual polarized, 4.9-5.8 GHz, 4 feet or less, external dish with a gain of at least 32 db

10.5 The bidder must include a dual polarized, 4.9-5.8 GHz range, external flat panel antenna with a gain of at least 21dbi

10.6 The PTP radio must include the 4.9 GHz and 5.8 GHz bands of operation in one (1) integrated physical radio that provides the functionality to be programmed through software and operate in the different bands.

10.6.1 All software licenses or software keys must be supplied to enable the full functionality of the dual band PTP radio

10.6.2 The PTP radio operating at 4.9 GHz or 5.8 GHz must provide the functionality to operate with one antenna that can function at both stated frequency bands

10.6.3 The PTP radio must be supplied with heavy duty mounting hardware suitable for tower mounting

10.6.4 The mounting hardware must be designed in such a way to sustain the PTP radio on a tower at wind speeds up to 190 km/hour

10.7 The PTP radio must be provided with a grounding kit

10.7.1 Grounding kits must include all necessary supplies to ground the radio, CAT5E cable and the power supply

10.8 High priority traffic must meet a round trip latency of less than 10 ms

10.8.1 Round trip latency is defined as the total time to ping a PTP radio with 32 bytes of data

10.9 The PTP radio must include the functionality for Multiple-In & Multiple-Out (MIMO)

10.9.1 All antennas supplied must be dual polarized (Horizontal and Vertical)

10.10 The PTP radio must include the functionality of a variable audible tone to aid in the link alignment process

10.10.1 The audible tone must be able to be enable or disabled

10.11 The PTP radio must include the functionality to work in Orthogonal Frequency-Division Multiplexing (OFDM) mode to permit Non-Line of Sight (NLOS) deployments

10.12 The channel bandwidth (BW) setting of the PTP radio must include the functionality to be programmable for 4.9 and 5.8 GHz frequency bands

10.13 Channel bandwidth programmability must include the following settings:

10.13.1 5 MHz

10.13.2 10 MHz

10.13.3 20 MHz

10.14 The PTP radio must provide the functionality to permit Ethernet Data rates of up to 100 Mbps

10.14.1 The PTP radio must provide the functionality to seamlessly operate and provide connectivity with a T1 interface (1.544 Mbps, full duplex, B8ZS line coding) over a 55 km Line of Sight (LOS) link

10.15 The PTP radio must provide the functionality to operate with a minimum data rate of 5 Mbps over a 55 km Line of Sight (LOS) link

10.16 The PTP radio must include the functionality to meet the maximum transmit power: programmable up to +25 dBm as per RSS-210 Annex 8, Section 8.4, sub-sections 8.4 (3) and 8.4 (5)

10.17 Receive sensitivity: must be equal or better than -95 dBm (5 MHz BW)

10.18 The PTP radio must provide the following functionalities:

10.18.1 Dynamic Time Division Duplex (TDD) implementation per link

10.18.2 Dynamic Adaptive Modulation per link

10.18.3 Dynamic Frequency Selection

10.18.4 To be manually programmed to a fixed Frequency Channel of operation

10.18.5 To be manually programmed to a fixed Modulation Type

10.18.6 To be manually programmed to a fixed Transmit Power Level

10.19 The PTP radio must include the functionality to synchronize communication frames with the Global Positioning System (GPS) timing

10.19.1 The GPS feature must be selectable to be turned on or off

10.20 The PTP radio must provide the functionality for configurable Network connection to 10/100 Mbps Ethernet with an RJ 45 connector