

## **ANNEX A**

### **STATEMENT OF WORK**

**Inmarsat-Based Services: Bandwidth on Demand L-BAND Services, Bandwidth on Demand KA-BAND Services (Global Xpress), Dedicated Capacity Services and Associated Equipment**

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# 1 SECTION 1 - INTRODUCTION

## 1.1 INMARSAT-BASED SERVICES

1.1.1 Shared Services Canada (SSC) has a requirement for the continued and as-and-when required provision and operation of Inmarsat Bandwidth-on-Demand (BOD) Services; Dedicated Capacity Services; Terrestrial and Value-Added Services; and Relevant Components by SSC and its partner organizations / clients.

1.1.2 The Government of Canada has over one thousand (1000) satellite terminals that use a variety of these Inmarsat services.

The Inmarsat Bandwidth-on-Demand L services are as followed:

<b>Service Description</b>	<b>Radio Frequencies</b>
Broadband Global Area Network (BGAN) Services	L-Band
BGAN Link Services	L-Band
Swiftbroadband (SBB) Services	L-Band
FleetBroadband (FBB) Services	L-Band
BGAN Machine-to-Machine (M2M) Services	L-Band
Global Satellite Phone Services (GSPS)	L-Band
Isatphone Link / FleetOne Services	L-Band
C Services	L-Band
Swift64 Services	L-Band
IsatData Pro (IDP) Services	L-Band

The Inmarsat Bandwidth-on-Demand KA-band services are as followed:

<b>Service Description</b>	<b>Radio Frequencies</b>
Global Xpress (GX) Services	Ka-Band

The Inmarsat Dedicated Capacity services are as followed:

<b>Service Description</b>	<b>Radio Frequencies</b>
Assured Access (AA) Services	L-Band
L-TAC Services	L-Band
Military KA (Mil-Ka) Services	Ka-Band

The Inmarsat Terrestrial and Related Value-Added services are as followed:

<b>Service Description</b>
Terrestrial Backhaul Connectivity Services
Colocation and Network Hosting Services
Inmarsat MobileLink Services
Voice IP Connectivity Services

## 1.2 DIVISION OF DOCUMENT INTO SECTIONS

1.2.1 This Statement of Work is divided into the following ten (10) Sections:

- a) Section 1 – Introduction
- b) Section 2 – Inmarsat Bandwidth on Demand (BOD) Services
- c) Section 3 – Inmarsat Bandwidth on Demand Terminal Requirements
- d) Section 4 – Inmarsat Dedicated Capacity Services
- e) Section 5 – Inmarsat Dedicated Capacity Terminal Requirements
- f) Section 6 – Terrestrial and Related Value-Added Services

- g) Section 7 – Training and Configuration Services
- h) Section 8 – Installation and Repair Services
- i) Section 9 – Operational Requirements
- j) Section 10 – Secure Web Portal Access
- k) Section 11 – Glossary and Definitions

## 2 SECTION 2 - INMARSAT BANDWIDTH ON DEMAND (BOD) SERVICES

### 2.1 INMARSAT BGAN AND BGAN LINK SERVICES

2.1.1 The Contractor's Inmarsat Land Portable BGAN and BGAN Link Services must provide the following service functionalities:

- a) Background class IP shared up to 492Kbps (maximum bearer rate) – both transmit and receive;
- b) Streaming IP at 32Kbps using public internet – both transmit and receive;
- c) Streaming IP at 64Kbps using public internet – both transmit and receive;
- d) Streaming IP at 128Kbps using public internet – both transmit and receive;
- e) Streaming IP at 256Kbps using public internet – both transmit and receive;
- f) Streaming IP at 384Kbps using public internet – both transmit and receive;
- g) Streaming HDR service at 650Kbps using public internet – both transmit and receive;
- h) Streaming Half HDR service at 325 Kbps using public internet – both transmit and receive;
- i) Circuit-Switched Voice (4Kbps);
- j) Fax Group 4 (64Kbps);
- k) 3.1KHz Audio;
- l) Data (ISDN, 56/64Kbps); and
- m) Short Message Service (SMS)

2.1.2 The Contractor's Inmarsat BGAN and BGAN Link Services must also provide the following service functionalities:

- a) Voice Mail;
- b) Call Waiting;
- c) Call Barring;
- d) Call Hold; or
- e) Call Forward.

2.1.3 The Contractor must ensure that the BGAN service carries Virtual Private Network (VPN) traffic using VPN products based on IPSEC, L2TP, PPTP, SSL and L2F protocols.

2.1.4 The Contractor must allow the Client to be assigned a public dynamic or public static IP address for any BGAN portable terminal on request.

2.1.5 The Contractor must provide different Inmarsat BGAN Shared Corporate Allowance Plan (SCAP) bundle service plans.

### 2.2 INMARSAT FLEETBROADBAND (FBB) SERVICES

2.2.1 The Contractor's Inmarsat Fleetbroadband (FBB) Service must provide the following service functionalities:

- a) Background class IP shared up to 432Kbps (maximum bearer rate) – both transmit and receive;
- b) Streaming IP at 32Kbps using public internet – both transmit and receive;
- c) Streaming IP at 64Kbps using public internet – both transmit and receive;
- d) Streaming IP at 128Kbps using public internet – both transmit and receive;
- e) Streaming IP at 256Kbps using public internet – both transmit and receive;
- f) Circuit-Switched Voice (4Kbps);
- g) Fax Group 4 (64Kbps);

- h) 3.1KHz Audio;
- i) Data (ISDN, 56/64Kbps); and
- j) Short Message Service (SMS)

2.2.2 The Contractor's Inmarsat FBB Service must also provide the following service functionalities:

- a) Voice Mail;
- b) Call Waiting;
- c) Call Barring;
- d) Call Hold; or
- e) Call Forward.

2.2.3 The Contractor must ensure that the FBB service carries Virtual Private Network (VPN) traffic using VPN products based on IPsec, L2TP, PPTP, SSL and L2F protocols.

2.2.4 The Contractor must allow the Client to be assigned a public dynamic or public static IP address for any FBB maritime terminal on request.

2.2.5 The Contractor must provide different Inmarsat BGAN Shared Corporate Allowance Plan (SCAP) bundle service plans.

### 2.3 **INMARSAT SWIFTBROADBAND (SBB) SERVICES**

2.3.1 The Contractor's Inmarsat Swiftbroadband (SBB) Service must also provide the following service functionalities:

- a) Background class IP shared up to 432Kbps (maximum bearer rate) – both transmit and receive;
- b) Streaming IP at 32Kbps using public internet – both transmit and receive;
- c) Streaming IP at 64Kbps using public internet – both transmit and receive;
- d) Streaming IP at 128Kbps using public internet – both transmit and receive;
- e) Circuit-Switched Voice (4Kbps);
- f) Fax Group 4 (64Kbps);
- g) 3.1KHz Audio;
- h) Data (ISDN, 56/64Kbps); and
- i) Short Message Service (SMS)

2.3.2 The Contractor's Inmarsat SBB Service must also provide the following service functionalities:

- a) Voice Mail;
- b) Call Waiting;
- c) Call Barring;
- d) Call Hold; or
- e) Call Forward.

2.3.3 The Contractor must ensure that the SBB service carries Virtual Private Network (VPN) traffic using VPN products based on IPSEC, L2TP, PPTP, SSL and L2F protocols.

2.3.4 The Contractor must allow the Client to be assigned a public dynamic or public static IP address for any SBB aeronautical terminal on request.

### 2.4 **INMARSAT BGAN MACHINE-TO-MACHINE (M2M) SERVICES**

2.4.1 The Contractor's Inmarsat BGAN M2M service must provide the following service functionalities:

- a) Background class IP shared up to 464/448 Kbps (Down/Up) (maximum bearer rate) – both transmit and receive; and
- b) Short Message Service (SMS)

- 2.4.2 The Contractor's Inmarsat BGAN Service must also provide the following service functionalities:
- a) Remote Terminal Management; and
  - b) Remote firmware upgrades.
- 2.4.3 The Contractor must ensure that the BGAN M2M service carries, Virtual Private Network (VPN) traffic using a number of protocols, Voice over IP (VOIP), Internet IP, and Email.
- 2.4.4 The Contractor must allow the Client to be assigned a public dynamic or public static IP address for any BGAN fixed terminal on request.

## 2.5 **INMARSAT GSPS, ISATPHONE LINK, FLEETPHONE AND FLEETONE SERVICES**

- 2.5.1 The Contractor's Inmarsat GSP, Isatphone Link and Fleetphone Services must provide the following service functionalities:
- a) Circuit-Switched Voice (2.4Kbps);
  - b) Circuit-Switched Data (2.4Kbps); and
  - c) Short Message Service (SMS)
- 2.5.2 The Contractor must provide different Inmarsat GSPS Shared Corporate Allowance Plan (SCAP) bundle service plans.

## 2.6 **INMARSAT C SERVICES**

- 2.6.1 The Contractor's Inmarsat C Services must include the following service functionalities:
- a) Electronic mail (E-Mail);
  - b) Group 3 Facsimile (Fax);
  - c) Telex (50 Baud)
  - d) Store and forward messaging (2-way);
  - e) Packet Data (X.25);
  - f) Data Polling (Shore-to-Ship);
  - g) Global Maritime Distress and Safety System (GMDSS); and
  - h) Global Positioning System (GPS) tracking.
- 2.6.2 Canada has certain partner organizations, as part of their mandate, registered with their respective international governing body, to deliver weather or search and rescue requests as part of maintaining safety at sea. The Contractor's Inmarsat C broadcast service also known as EGC Safety net service must include the following service functionalities:
- a) The delivery of weather reports / warnings and Search and Rescue requests/messages to specific circular area or Navigation areas to ships targeted or configured to receive these messages equipped with an Inmarsat C terminal.
  - b) The service must be provided by either registering a specific e-mail address or have a username and password in order to deliver the intended message.

## 2.7 **INMARSAT SWIFT64 SERVICES**

- 2.7.1 The Contractor's Inmarsat Swift64 must include the following service functionalities:
- a) Circuit-Switched Voice (4.8Kbps);
  - b) Group 3 Facsimile (Fax) (2.4Kbps);
  - c) Group 4 Facsimile (Fax) (64Kbps);
  - d) Circuit-Switched Data (2.4Kbps);
  - e) Integrated Services Digital Network (ISDN);
  - f) Mobile Packet Data Service (MPDS, up to 64Kbps); and
  - g) 3.1kHz Audio.

## 2.8 **INMARSAT ISATDATA PRO (IDP) SERVICES**

2.8.1 The Contractor's Inmarsat IsatData Pro (IDP) Services must include the following service functionalities:

- a) Send data up to 6400 bytes;
- b) Receive data up to 10,000 bytes
- c) Ability to provide gateway activation;
- d) Ability to provide mobile terminal activation;
- e) Ability to provide group ID activation;
- f) Ability to offer different Data pooled plans;
- g) Ability to offer different group broadcast plans;
- h) Ability to associated Mobile ID(s) to logical Mailbox;
- i) Each communication session must be rounding step of 10 bytes; and
- j) Minimum message size is 15 bytes with one-byte increment.

## 2.9 **INMARSAT GLOBAL XPRESS (GX) SERVICES**

2.9.1 The Global Xpress service must be provided to offer varying orderable throughput speeds with a maximum information rate (MIR) ranging from 256Kbps to 20480Kbps or greater and available in selectable increments within that range.

2.9.2 The Global Xpress service must be provided to offer a varying orderable throughput speeds with a committed information rate (CIR) ranging from 32Kbps to 5120Kbps or greater and available in selectable increments within that range.

2.9.3 Where high availability of services for a maritime installation is required, the Global Xpress (GX) service must offer the option with a capability to automatically fail-over to Fleetbroadband whenever the GX is not accessible due to extreme environmental conditions and return the service to GX when the environmental conditions return to normal.

2.9.4 The Contractor must make all the necessary efforts to provide customized Global Xpress service plans that will meet SSC's and its partner organizations monthly, seasonal and yearly requirements.

## 3 **SECTION 3 - INMARSAT BANDWIDTH ON DEMAND TERMINAL REQUIREMENTS**

### 3.1 **GENERAL**

3.1.1 The Contractor must provide terminals, as and when requested, and on-going terminal support.

3.1.2 The Contractor must offer terminal installation services for fixed, vehicular and maritime terminal classes anywhere in Canada. The Technical Authority will issue the necessary Service Order for the Contractor to perform any required installation services.

3.1.3 The terminal equipment supplied must be type-approved by Canada and Inmarsat.

3.1.4 As and when requested by the Technical Authority, the Contractor must provide a Recommended Spare Parts List for each category of type-approved terminal being provided under this Contract.

3.1.5 All equipment and relevant components must include one (1) year parts and labor warranty free from manufacturer defects. Warranty start when the equipment, components and/or accessories have been delivered to the end customer.



- 3.1.6 For each of the equipment, components and accessories the manufacturer End-of-Sale (EOS) / Support and End-of-Life announcement must not have been communicated to the general public.
- 3.1.7 All equipment, components and accessories must be in its original packaging, (i.e. not refurbished / used / pre-owned) and include all manufacturer specified package content.
- 3.1.8 The Contractor must provide technical support, including problem management for all equipment, components and accessories listed under Annex B and the Published Price List (PPL).
- 3.1.9 The Contractor must offer Inmarsat type approved terminals and associated equipment for the following Inmarsat services and types of environments:
  - a) Inmarsat BGAN – for Land Transportable use;
  - b) Inmarsat BGAN – Vehicular use;
  - c) Inmarsat FBB for Maritime use;
  - d) Inmarsat BGAN M2M for Land Stationary use;
  - e) Inmarsat GSPS for Handheld use;
  - f) Inmarsat IsatPhone Class I for Land Stationary use;
  - g) Inmarsat IsatPhone Class II for Land Stationary use;
  - h) Inmarsat FleetPhone Class I for Maritime use;
  - i) Inmarsat FleetPhone Class II for Maritime use;
  - j) Inmarsat Mini-C for Maritime use;
- 3.1.10 “Land Transportable” is defined as self-contained, rechargeable, portable units, with a maximum travel weight of 4.5 kilograms. These units are normally used at a fixed location in a “stop-and-talk/data exchange” mode, after being set up for operation. Self-tracking antenna systems are normally not required; however, interface capability to an antenna system suitable for mobile applications is desirable.
- 3.1.11 “Maritime” is defined as DC-powered, vessel-based, marine operation systems designed to be used while vessels are in motion using self-tracking or omni-directional antenna systems.
- 3.1.12 “Vehicular” is defined as DC-powered, vehicle-based, land operation systems designed to be used while vehicles are in motion using self-tracking or omni-directional antenna systems.
- 3.1.13 “Handheld” is defined as rechargeable, battery powered, lightweight and compact enough to be used in a hand-held configuration.
- 3.1.14 “Land Stationary” is defined as terminals that are installed stationary on land.

## 3.2 **BGAN TRANSPORTABLE CLASS I**

- 3.2.1 The Contract must offer Transportable Inmarsat-BGAN Class I Terminal Equipment
- 3.2.2 Each Class I BGAN terminal must allow the user to use the following functions:
  - a) Standard background class IP throughput up to 492Kbps transmit and receive;
  - b) Streaming IP throughput rates up to 384Kbps;
  - c) High Data Rates (HDR) up to 650Kbps;
  - d) 3.1 KHz Audio channel;
  - e) 4Kbps voice; and
  - f) Simultaneous voice and data communications.
- 3.2.3 Each terminal must include:
  - a) Detachable antenna to operate at a distance of 100m away from the transceiver;
  - b) Transceiver;

- c) Battery so that terminal can be operated as an autonomous device;
- d) Power supply for 110/220 VAC operation (voltage auto-sensing preferable) to run off outlet and to charge the battery within the terminal;
- e) RJ-11 connectivity for telephone devices;
- f) Ethernet RJ-45 connectivity;
- g) Documentation; and
- h) All necessary software.

3.2.4 While operating as an autonomous device, the terminal must be able to transmit for a minimum of 1 hour on a fully charged set of batteries;

3.2.5 The terminal must have an Ingress protection rating of at least 52 which has some level of protection against solid particles the size of dust and a liquid protection against dripping water. The antenna must have an Ingress protection rating of at least 55 which has some level of protection against solid particles the size of dust and a liquid protection against water projected from jets.

3.2.6 The Contractor must offer the following accessories for the BGAN Transportable Class I Terminal:

- a) Car Charger;
- b) Pole Mount Kit;
- c) Battery;
- d) Carry Case;
- e) 10 Meter Cable;
- f) 30 Meter Cable;
- g) 60 Meter Cable;
- h) 100 Meter Cable; and
- i) Antenna.

### 3.3 **BGAN TRANSPORTABLE CLASS II**

3.3.1 The Contract must offer Transportable Inmarsat-BGAN Class I Terminal Equipment

3.3.2 Each Class I BGAN terminal must allow the user to use the following functions:

- g) Standard background class IP throughput up to 448Kbps transmit and 464Kbps receive;
- h) Streaming IP throughput rates up to 128Kbps;
- i) High Data Rates (HDR) up to 650Kbps;
- j) 3.1 KHz Audio channel;
- k) 4Kbps voice; and
- l) Simultaneous voice and data communications.

3.3.3 Each terminal must include:

- i) Detachable antenna to operate at a distance of 100m away from the transceiver;
- j) Transceiver;
- k) Battery so that terminal can be operated as an autonomous device;
- l) Power supply for 110/220 VAC operation (voltage auto-sensing preferable) to run off outlet and to charge the battery within the terminal;
- m) Ethernet RJ-45 connectivity;
- n) Documentation; and
- o) All necessary software.

3.3.4 While operating as an autonomous device, the terminal must be able to transmit for a minimum of 1 hour on a fully charged set of batteries;

3.3.5 The terminal must have an Ingress protection rating of at least 54 which has some level of protection against solid particles the size of dust and a liquid protection against splashing water.

- 3.3.6 The Contractor must offer the following accessories for the BGAN Transportable Class I Terminal:
- a) Car Charger;
  - b) Pole Mount Kit; and
  - c) Battery.

### 3.4 **BGAN VEHICLE CLASS I**

- 3.4.1 The Contractor must offer Vehicular Inmarsat-BGAN Class I Terminal Equipment.
- 3.4.2 Each Vehicle Class I BGAN terminal must allow the user to use the following functions:
- a) Standard background class IP throughput up to 492Kbps transmit and receive;
  - b) Streaming IP throughput rates up to 384Kbps;
  - c) 3.1KHz Audio channel;
  - d) 4Kbps voice;
  - e) Simultaneous voice and data communications.
- 3.4.3 Each terminal must include:
- a) Vehicular tracking antenna;
  - b) Transceiver;
  - c) Ethernet RJ-45 connectivity;
  - d) RJ-11 connectivity for telephone devices;
  - e) Documentation; and
  - f) All necessary software.
- 3.4.4 The antenna must have an Ingress protection rating of at least 56 which has some level of protection against solid particles the size of dust and a liquid protection against water projected in powerful water jets.
- 3.4.5 The Contractor must offer a 70 Meter Antenna Cable as an accessory for the BGAN Vehicular Class I Terminal.

### 3.5 **BGAN VEHICLE CLASS II**

- 3.5.1 The Contractor must offer Vehicular Inmarsat-BGAN Class II Terminal Equipment.
- 3.5.2 Each Vehicle Class II BGAN terminal must allow the user to use the following functions:
- f) Standard background class IP throughput up to 448Kbps transmit and 464Kbps receive;
  - g) Streaming IP throughput rates up to 128Kbps;
  - h) 3.1KHz Audio channel;
  - i) 4Kbps voice;
  - j) Simultaneous voice and data communications.
- 3.5.3 The antenna must have an Ingress protection rating of at least 56 which has some level of protection against solid particles the size of dust and a liquid protection against water projected in powerful water jets.
- 3.5.4 Each terminal must include:
- g) Vehicular tracking antenna;
  - h) Transceiver;
  - i) Ethernet RJ-45 connectivity;
  - j) RJ-11 connectivity for telephone devices;
  - k) Documentation; and
  - l) All necessary software.

3.5.5 The antenna must have an Ingress protection rating of at least 56 which has some level of protection against solid particles the size of dust and a liquid protection against water projected in powerful water jets.

3.5.6 The Contractor must offer the following accessories for the BGAN Vehicular Class II Terminal

- a) Push-to-Talk accessory box and cables; and
- b) Push-to-Talk server.

### 3.6 **FBB MARITIME CLASS I**

3.6.1 The Contractor must offer FBB Maritime Class I Terminal Equipment

3.6.2 Each FBB Maritime Class I terminal must allow the user to use the following functions:

- a) Standard background class IP throughput up to 432Kbps transmit and receive;
- b) Streaming IP throughput rates up to 256Kbps;
- c) 3.1KHz Audio channel;
- d) 56/64Kbps ISDN;
- e) 4Kbps voice; and
- f) Simultaneous voice and data communications.

3.6.3 Each terminal must include:

- a) Maritime tracking antenna;
- b) Wall mountable transceiver and rack mountable versions;
- c) Ethernet RJ-45 connectivity;
- d) RJ-11 connectivity for telephone devices;
- e) Documentation; and
- f) All necessary software.

3.6.4 The antenna must have an Ingress protection rating of at least 6 for liquid protection as would be water projection in powerful water jets.

3.6.5 The Contractor must offer the following accessories for the FBB Maritime Class I Terminal:

- a) AC/DC Power Supply;
- b) Mast Mount Kit;
- c) 20 Meter LMR 240 Antenna Cable;
- d) 25 Meter LMR 240 Antenna Cable;
- e) 30 Meter LMR 240 Antenna Cable;
- f) 40 Meter LMR 240 Antenna Cable;
- g) 50 Meter LMR 240 Antenna Cable;
- h) 20 Meter LMR 400 Antenna Cable;
- i) 25 Meter LMR 400 Antenna Cable;
- j) 30 Meter LMR 400 Antenna Cable;
- k) 40 Meter LMR 400 Antenna Cable;
- l) 50 Meter LMR 400 Antenna Cable;
- m) Maritime handset;
- n) Below Deck Unit;
- o) Antenna;
- p) Multi-Voice 4 port terminal adapter ; and
- q) Multi-Voice 8 port terminal adapter.

### 3.7 **FBB MARITIME CLASS II**

3.7.1 The Contractor must offer FBB Maritime Class II Terminal Equipment

3.7.2 Each FBB Maritime Class II terminal must allow the user to use the following functions:

- a) Standard background class IP throughput up to 284Kbps transmit and receive;
- b) Streaming IP throughput rates up to 128Kbps;
- c) 3.1KHz Audio channel;
- d) 56/64Kbps ISDN;
- e) 4Kbps voice; and
- f) Simultaneous voice and data communications.

3.7.3 Each terminal must include:

- a) Maritime tracking antenna;
- b) Wall mountable transceiver and rack mountable versions;
- c) Ethernet RJ-45 connectivity;
- d) RJ-11 connectivity for telephone devices;
- e) Documentation; and
- f) All necessary software.

3.7.4 The antenna must have an Ingress protection rating of at least 6 for liquid protection as would be water projection in powerful water jets.

3.7.5 The Contractor must offer the following accessories for the FBB Maritime Class I Terminal:

- a) AC/DC Power Supply;
- b) Mast Mount Kit;
- c) 20 Meter LMR 240 Antenna Cable;
- d) 25 Meter LMR 240 Antenna Cable;
- e) 30 Meter LMR 240 Antenna Cable;
- f) 40 Meter LMR 240 Antenna Cable;
- g) 50 Meter LMR 240 Antenna Cable;
- h) 20 Meter LMR 400 Antenna Cable;
- i) 25 Meter LMR 400 Antenna Cable;
- j) 30 Meter LMR 400 Antenna Cable;
- k) 40 Meter LMR 400 Antenna Cable;
- l) 50 Meter LMR 400 Antenna Cable;
- m) Maritime handset;
- n) Below Deck Unit;
- o) Antenna; and
- p) Multi-Voice 4 port terminal adapter.

### 3.8 **FBB MARITIME CLASS III**

3.8.1 The Contractor must offer FBB Maritime Class III Terminal Equipment

3.8.2 Each FBB Maritime Class III terminal must allow the user to use the following functions:

- a) Standard background class IP throughput up to 150Kbps transmit and receive;
- b) 3.1KHz Audio channel;
- c) 4Kbps voice; and
- d) Simultaneous voice and data communications.

3.8.3 Each terminal must include:

- a) Maritime tracking antenna;
- b) Wall mountable transceiver and rack mountable versions;
- c) Ethernet RJ-45 connectivity;
- d) RJ-11 connectivity for telephone devices;
- e) Documentation; and
- f) All necessary software.

3.8.4 The antenna must have an Ingress protection rating of at least 6 for liquid protection as would be water projection in powerful water jets.

3.8.5 The Contractor must offer the following accessories for the FBB Maritime Class I Terminal:

- a) AC/DC Power Supply;
- b) Mast Mount Kit;
- c) 20 Meter LMR 240 Antenna Cable;
- d) 25 Meter LMR 240 Antenna Cable;
- e) 30 Meter LMR 240 Antenna Cable;
- f) 40 Meter LMR 240 Antenna Cable;
- g) 50 Meter LMR 240 Antenna Cable;
- h) Maritime handset;
- i) Multi-Voice 4 port terminal adapter ; and
- j) Multi-Voice 8 port terminal adapter.

### 3.9 **BGAN M2M LAND STATIONARY TERMINAL**

3.9.1 The Contractor must offer Land Stationary Inmarsat-BGAN M2M Terminal Equipment.

3.9.2 Each BGAN M2M Land Stationary terminal must allow the terminal to operate remotely and send/receive data through a standard background class IP throughput up to 448Kbps transmit and receive data session.

3.9.3 Each terminal must include:

- a) Antenna;
- b) 10 Meters antenna cable;
- c) Transceiver;
- d) Ethernet RJ-45 connectivity;
- e) Documentation; and
- f) All necessary software.

3.9.4 The terminal must have an Ingress protection rating of at least 65 for the Antenna and IP 40 for the Transceiver.

3.9.5 The Contractor must offer the following accessories for the BGAN M2M Land Stationary Terminal:

- a) Transceiver mounting strap;
- b) Antenna fixed mount kit; and
- c) Antenna azimuth elevation bracket.

### 3.10 **GSPS HANDHELD CLASS**

3.10.1 The Contractor must offer Handheld Inmarsat-GSPS Class Terminal Equipment.

3.10.2 Each Handheld GSPS terminal provided must allow the user to use the following functions:

- a) Operate 2.4Kbps voice and data;
- b) Send and receive SMS messages;
- c) Enable the operator to view GPS location information; and
- d) Pair with Bluetooth devices.

3.10.3 Each Terminal must include:

- a) Handheld device with integrated antenna;
- b) Battery so that the terminal can be operated as an autonomous device;
- c) Power supply for 110/220 VAC operation (voltage auto-sensing preferable) to run off outlet and to charge the battery within the terminal;

- d) Power supply for 12 VDC operation;
  - e) Documentation; and
  - f) All necessary software.
- 3.10.4 While operating as an autonomous device, the terminal must be able to transmit for a minimum of 6 hours on a fully charged battery.
- 3.10.5 The terminal must have an Ingress protection rating of at least 65.
- 3.10.6 The Contractor must offer the following accessories for the GSPS Handheld Class Terminal.
- a) Carry case;
  - b) Battery;
  - c) AC Charger;
  - d) Car Charger;
  - e) Marine Docking Station with Antenna;
  - f) Vehicular Docking Station with Antenna;
  - g) Land Docking Station with Antenna;
  - h) Docking station handset.

### 3.11 **INMARSAT FLEETPHONE CLASS I FOR MARITIME USE**

- 3.11.1 The Contractor must offer Fleetphone Maritime Class 1 Terminal Equipment
- 3.11.2 Each Fleetphone Maritime Class I terminal provided must allow the user to use the following functions:
- a) Operate 2.4Kbps voice and data; and
  - b) Send and receive SMS messages.
- 3.11.3 Each terminal must include:
- a) Transceiver;
  - b) Tracking antenna for Maritime use;
  - c) RJ-11 connectivity;
  - d) Power Supply for 110/220 VAC operating (voltage auto-sensing preferable) to run of outlet;
  - e) 10-32VDC Power Cable;
  - f) Documentation; and
  - g) All necessary software.
- 3.11.4 The terminal must have an Ingress protection rating of at least 53 which has some level of protection against solid particles the size of dust and liquid protection against spraying water falling at 60 degrees.

### 3.12 **INMARSAT FLEETPHONE CLASS II FOR MARITIME USE**

- 3.12.1 The Contractor must offer Fleetphone Maritime Class 1 Terminal Equipment
- 3.12.2 Each Fleetphone Maritime Class II terminal provided must allow the user to use the following functions:
- c) Operate 2.4Kbps voice and data; and
  - d) Send and receive SMS messages.
- 3.12.3 Each terminal must include:
- h) Transceiver including handset, keypad and display;
  - i) Tracking antenna for Maritime use;
  - j) RJ-11 connectivity;
  - k) Power Supply for 110/220 VAC operating (voltage auto-sensing preferable) to run of outlet;

- l) 10-32VDC Power Cable;
- m) Documentation; and
- n) All necessary software.

3.12.4 The terminal must have an Ingress protection rating of at least 53 which has some level of protection against solid particles the size of dust and liquid protection against spraying water falling at 60 degrees.

### 3.13 **INMARSAT GSPS, ISATPHONE AND FLEETPHONE ACCESSORIES**

3.13.1 The Contractor must also offer the following accessories:

- a) Land Stationary 10m antenna cable kit;
- b) Land Stationary 20m antenna cable kit;
- c) Land Stationary 30m antenna cable kit;
- d) Land Stationary 40m antenna cable kit;
- e) Land Stationary 50m antenna cable kit;
- f) Vehicular/Maritime 6m antenna cable kit;
- g) Vehicular/Maritime 12m antenna cable kit;
- h) Vehicular/Maritime or Maritime Class I and II 18m through 100m antenna cable kits;
- i) 20m antenna cable kit with surge suppression GPS/GSPS including 1.5m fly lead; and
- j) 30m antenna cable kit with surge suppression GPS/GSPS including 1.5 fly lead.

### 3.14 **INMARSAT MINI-C LRIT MARITIME**

3.14.1 The Contractor must offer Maritime Inmarsat Mini-C LRIT Terminal Equipment.

3.14.2 Each terminal must allow the user to use the following functions:

- a) E-Mail;
- b) Position reporting & polling; and
- c) X.25.

3.14.3 Each Maritime Inmarsat Mini-C terminal provided under this Contract must include:

- a) Marine Above Deck Unit (ADU); and
- b) All required accessories, software and documentation to be operated and used for message handling.

### 3.15 **INMARSAT MINI-C DISTRESS MARITIME**

3.15.1 The Contractor must offer Maritime Inmarsat Mini-C Distress Terminal Equipment.

3.15.2 Each terminal must allow the user to use the following functions:

- a) E-Mail;
- b) Position reporting & polling; and
- c) X.25.

3.15.3 Each Maritime Inmarsat Mini-C terminal provided under this Contract must include:

- a) Marine Above Deck Unit (ADU);
- b) Alarm panel and
- c) All required accessories, software and documentation to be operated and used for message handling.

### 3.16 **INMARSAT MINI-C SSAS MARITIME**

3.16.1 The Contractor must offer Maritime Inmarsat Mini-C SSAS Terminal Equipment.



3.16.2 Each terminal must allow the user to use the following functions:

- a) E-Mail;
- b) Position reporting & polling; and
- c) X.25.

3.16.3 Each Maritime Inmarsat Mini-C terminal provided under this Contract must include:

- a) Marine Above Deck Unit (ADU);
- b) Terminal Control Unit and
- c) All required accessories, software and documentation to be operated and used for message handling.

### 3.17 **INMARSAT MINI-C GMDSS MARITIME**

3.17.1 The Contractor must offer Maritime Inmarsat Mini-C GMDSS Terminal Equipment.

3.17.2 Each terminal must allow the user to use the following functions:

- a) E-Mail;
- b) Position reporting & polling; and
- c) X.25.

3.17.3 Each Maritime Inmarsat Mini-C terminal provided under this Contract must include:

- a) Marine Above Deck Unit (ADU);
- b) Terminal Control Unit;
- c) Alarm panel; and
- d) All required accessories, software and documentation to be operated and used for message handling.

### 3.18 **INMARSAT MINI-C MARITIME ACCESSORIES**

3.18.1 The Contractor must offer the following accessories for the Mini-C Maritime terminals

- a) AC/DC Power Supply and Charger;
- b) GMDSS alarm panel;
- c) Terminal Control Unit;
- d) 6 Meter device cable;
- e) 20 Meter device cable;
- f) 6 Meter power cable;
- g) 30 Meter power cable; and
- h) Pole Mount Kit.

### 3.19 **SUBSCRIBER IDENTIFY MODULE (SIM)**

3.19.1 The Contractor must offer standard Subscriber Identity Module (SIM) cards, which are plastic cards with a Personal Identity Digit (PID), for Inmarsat BGAN, FBB, SBB, BGAN M2M, GSPS and Isatphone Services.

3.19.2 The Contractor must also provide Discrete Operation SIM cards that have the Global Positioning System reporting function disabled for use in BGAN, FBB and SBB terminals.

### 3.20 **INMARSAT GLOBAL XPRESS MARITIME 60**

3.20.1 The Contractor must offer a Maritime Inmarsat Global Xpress 60 Terminal Equipment.

3.20.2 Each Inmarsat Global Xpress Maritime 60 terminal provided under this Contract must include:

- a) 3-axis stabilized 60-65cm reflector dish antenna system capable of being installed on a vessel allowing for communication while on the move at sea;
  - b) Ka-Band feed assembly;
  - c) Ka-Band LNB configured for circular polarized signals;
  - d) Integrated Inmarsat GX core module; and
  - e) All required accessories, software and documentation.
- 3.20.3 The Contractor must offer field replacement parts for the Maritime Inmarsat Global Xpress 60 terminal equipment.
- 3.21 INMARSAT GLOBAL XPRESS MARITIME 100**
- 3.21.1 The Contractor must offer a Maritime Inmarsat Global Xpress 100 Terminal Equipment.
- 3.21.2 Each Inmarsat Global Xpress Maritime 100 terminal provided under this Contract must include:
- a) 3-axis stabilized 95-105cm reflector dish antenna system capable of being installed on a vessel allowing for communication while on the move at sea;
  - b) Ka-Band feed assembly;
  - c) Ka-Band LNB configured for circular polarized signals;
  - d) Integrated Inmarsat GX core module; and
  - e) All required accessories, software and documentation.
- 3.21.3 The Contractor must offer field replacement parts for the Maritime Inmarsat Global Xpress 100 terminal equipment.
- 3.22 INMARSAT GLOBAL XPRESS MANPACK 60**
- 3.22.1 The Contractor must offer a Manpack Inmarsat Global Xpress 60 Terminal Equipment.
- 3.22.2 Each Inmarsat Global Xpress Manpack 60 terminal provided under this Contract must include:
- a) Adjustable, collapsible tripod mounted 60-65cm reflector dish antenna system capable of being transported easily and weighing under 14kg;
  - b) Ka-Band feed assembly;
  - c) Ka-Band NLB configured for circular polarized signals;
  - d) Capable of being powered by battery power with voltage ranging from 10 – 36 VDC;
  - e) Integrated Inmarsat GX core module;
  - f) Soft carrying case; and
  - g) All required accessories, software and documentation.
- 3.23 INMARSAT GLOBAL XPRESS FLY-AWAY 75 AUTO**
- 3.23.1 The Contractor must offer an auto satellite acquiring Fly-Away Inmarsat Global Xpress 75 Terminal Equipment.
- 3.23.2 Each Inmarsat Global Xpress Fly-Away 75 Auto terminal provided under this Contract must include:
- a) Adjustable, collapsible tripod mounted 75-80cm reflector dish antenna system capable of being transported easily and weighing under 32kg;
  - b) Auto acquire electronics to easily acquire the satellite signal;
  - c) Ka-Band feed assembly;
  - d) Ka-Band NLB configured for circular polarized signals;
  - e) Capable of being powered by battery power with voltage ranging from 18 – 32 VDC;
  - f) Integrated Inmarsat GX core module;
  - g) Soft carrying case; and
  - h) All required accessories, software and documentation.

### 3.24 **INMARSAT GLOBAL XPRESS TRANSPORTABLE 120 AUTO**

3.24.1 The Contractor must offer an auto satellite acquiring Transportable Inmarsat Global Xpress 120 Terminal Equipment.

3.24.2 Each Inmarsat Global Xpress Transportable 120 Auto terminal provided under this Contract must include:

- a) Adjustable, collapsible tripod mounted 120cm reflector dish antenna system capable of being transported and weighing under 55kg;
- b) Auto acquire electronics to easily acquire the satellite signal;
- c) Ka-Band feed assembly;
- d) Ka-Band LNB configured for circular polarized signals;
- e) Integrated Inmarsat GX core module;
- f) Hard shell carrying cases; and
- g) All required accessories, software and documentation.

### 3.25 **INMARSAT GLOBAL XPRESS VEHICULAR 100**

3.25.1 The Contractor must offer a vehicular mountable Inmarsat Global Xpress 100 Terminal Equipment.

3.25.2 Each Inmarsat Global Xpress Vehicular 100 terminal provided under this Contract must include:

- a) 100cm reflector dish deployable antenna system capable of being installed on a vehicle and weighing under 60kg;
- b) System electronics to allow stowing and deploying of antenna and to auto acquire the satellite signal;
- c) Ka-Band feed assembly;
- d) Ka-Band LNB configured for circular polarized signals;
- e) Integrated Inmarsat GX core module; and
- f) All required accessories, software and documentation.

### 3.26 **INMARSAT GLOBAL XPRESS MODEM**

3.26.1 The Contractor must offer a Global Xpress Modem to allow access to the Global Xpress services.

3.26.2 Each Inmarsat Global Xpress Modem provided under this Contract must include:

- a) A Global Xpress Modem;
- b) Power cord; and
- c) All required accessories, software and documentation.

### 3.27 **TERMINAL SOFTWARE UPDATES**

3.27.1 The Contractor must update, at no additional cost, all software that is licensed under this Contract, including the firmware, for use with any Inmarsat terminal equipment. The Contractor must provide these updates either by providing the Technical Authority with a USB with the updates or by providing access to a Web site from which the updates can be downloaded (from either the appropriate manufacturer's Web site or the Contractor's Web site).

## 4 **SECTION 4 - INMARSAT DEDICATED CAPACITY SERVICES**

### 4.1 **INMARSAT ASSURED ACCESS (AA) SERVICES**

4.1.1 The Contractor must provide, upon request and based on availability, dedicated Assured Access (AA) channel capacity as well as dedicated terrestrial links to provide end-to-end

connectivity between an MDP (located anywhere in the world) and a CFDP (located in Canada), providing AA Blocks shared amongst an AA Group(s) globally:

- 4.1.2 The AA Group(s) must be provided in a way to allow a number of Inmarsat active SIM cards to share the following orderable throughput speeds:
- a) 64Kbps
  - b) 128Kbps
  - c) 192Kbps
  - d) 256Kbps
  - e) 320Kbps
  - f) 384Kbps
  - g) 448Kbps; and
  - h) 512Kbps.
- 4.1.3 The maximum bandwidth for an AA group must be able to be increased, upon request, with a 1-month minimum term for temporary operational requirements.
- 4.1.4 The AA group(s) must provide assured connectivity to the MDPs based on the AA Group(s) configured in at least 15 identified spot beams as well as contended access anywhere else in the world. The contractor must allow the re-allocation of the 15 spot beams when requested to support specific operation requirements.
- 4.1.5 The AA Group(s) must be provided for the following three (3) Inmarsat Services:
- a) Fleetbroadband;
  - b) BGAN;
  - c) Swiftbroadband.

## 4.2 **INMARSAT L-TAC DEDICATED CAPACITY SERVICES**

- 4.2.1 The Contractor must provide, upon request and based on availability, L-TAC Dedicated Capacity Services with the following service functionalities:
- a) Interconnection between a UHF tactical radio and an Inmarsat L-TAC terminal to provide uplink and interconnection between other tactical units;
  - b) Be provided in 25Khz channels that can be subdivided in 5 channels each of 5KHx bandwidth;
  - c) Be provided in two types of coverage: Regional or Spot beam coverage;
  - d) Provide voice and low rate data transport capability for the tactical radio.
- 4.2.2 The Contractor must provide, upon request, the capability to carry the traffic over dedicated terrestrial links back to a CFDP.

## 4.3 **INMARSAT MIL-KA BAND SERVICES (ON GLOBAL XPRESS)**

- 4.3.1 The Contractor must offer the Inmarsat 20MHz, 40MHz, 125MHz, 275MHz, 420MHz, and 730MHz of bandwidth from a given satellite within one of the steerable spot beams. Capacity will be subject to availability at time order.
- 4.3.2 The Contractor must offer the MIL-KA Band services in the following methods:
- a) Mil-Ka bandwidth;
  - b) Access to the iDirect Evolution hub and Hub Line Card (HLC) hosted at one GX Satellite Access Station (SAS) in each ocean region over Mil-Ka;
  - c) Hosted Government Furnished Equipment (GFE)line card at a selected Global Satellite Station (SAS) in one of the ocean regions over Mil-Ka;
  - d) Service B) requires the use of an existing hub in place to support the Interim Government plan (IGP), and services b) and c) require the feeder link, the existing Satellite Access Station antennas, MPLS connection to the NY POP and/or the internet at the regional POP.

## 5 SECTION 5 - INMARSAT DEDICATED CAPACITY TERMINAL REQUIREMENTS

### 5.1 GENERAL

- 5.1.1 The Contractor must provide terminals, as-and-when requested, and on-going terminal support.
- 5.1.2 The terminal equipment supplied must be type-approved by Canada and Inmarsat.
- 5.1.3 As-and-when requested by the Technical Authority, the Contractor must provide a recommended spare parts list for each category of type-approved terminal being provided under this contract.
- 5.1.4 All equipment and relevant components must include one (1) year parts and labor warranty free from manufacturer defects. Warranty start when the equipment, components and/or accessories have been delivered to the end customer.
- 5.1.5 For each of the equipment, components and accessories the manufacturer End-of-Sale (EOS) / Support and End-of-Life announcement must not have been communicated to the general public.
- 5.1.6 All equipment, components and accessories must be in its original packaging, (i.e. not refurbished / used / pre-owned) and include all manufacturer specified package content.
- 5.1.7 The Contractor must provide technical support, including problem management for all equipment, components and accessories listed under Annex B and the Published Price List (PPL).

### 5.2 INMARSAT L-TAC MANPACK

- 5.2.1 The Contractor must offer Manpack Inmarsat L-TAC terminal equipment able to operate with the following 3 Tactical Radio frequency bands:
  - a) UHF at 240 to 311MHz;
  - b) VHF Military at 58 to 88 MHz; and
  - c) VHF Commercial at 144 to 174MHz
- 5.2.2 Each Inmarsat L-TAC Manpack terminal provided under this Contract must include:
  - a) Small form factor L-band antenna no taller than 20cm and no wider than 15cm;
  - b) Upconverter applique capable of fitting in a backpack and no taller than 25cm, no wider than 10cm and no thicker than 3cm;
  - c) Power supply unit to provide regulated power to the applique;
  - d) Cable to connect antenna to the upconverter applique;
  - e) Cable to connect upconverter to Tactical Radio;
  - f) All required accessories, software and documentation.
- 5.2.3 Each terminal must allow the user to use the following functions;
  - a) Voice; and
  - b) Data

### 5.3 INMARSAT L-TAC VEHICULAR

- 5.3.1 The Contractor must offer Mobile Inmarsat L-TAC terminal equipment able to operate with the following 3 Tactical Radio frequency bands:
  - a) UHF at 240 to 311MHz;
  - b) VHF Military at 58 to 88 MHz; and
  - c) VHF Commercial at 144 to 174MHz

- 5.3.2 Each Inmarsat L-TAC Vehicular terminal provided under this Contract must include:
- a) Small form factor L-band antenna capable of being installed on a vehicle allowing for communications while on the move;
  - b) Upconverter applique for use in a vehicle;
  - c) Power supply unit to provide regulated power to the applique;
  - d) Cable to connect antenna to the upconverter applique;
  - e) Cable to connect upconverter to Tactical Radio;
  - f) All required accessories, software and documentation.

- 5.3.3 Each terminal must allow the user to use the following functions;
- a) Voice; and
  - b) Up to 64Kbps data

#### 5.4 **INMARSAT L-TAC MARITIME**

- 5.4.1 The Contractor must offer Maritime Inmarsat L-TAC terminal equipment able to operate with the following 3 Tactical Radio frequency bands:

- a) UHF at 240 to 311MHz;
- b) VHF Military at 58 to 88 MHz; and
- c) VHF Commercial at 144 to 174MHz

- 5.4.2 Each Inmarsat L-TAC Maritime terminal provided under this Contract must include:

- a) Small form factor L-band antenna capable of being installed on a vessel allowing for communications while on the move at sea;
- b) Upconverter applique for use in a vessel;
- c) Power supply unit to provide regulated power to the applique;
- d) Cable to connect antenna to the upconverter applique;
- e) Cable to connect upconverter to Tactical Radio;
- f) All required accessories, software and documentation.

- 5.4.3 Each terminal must allow the user to use the following functions;
- a) Voice; and
  - b) Up to 64Kbps data

#### 5.5 **INMARSAT L-TAC AERONAUTICAL**

- 5.5.1 The Contractor must offer Aeronautical Inmarsat L-TAC terminal equipment able to operate with the following 3 Tactical Radio frequency bands:

- a) UHF at 240 to 311MHz;
- b) VHF Military at 58 to 88 MHz; and
- c) VHF Commercial at 144 to 174MHz

- 5.5.2 Each Inmarsat L-TAC Aeronautical terminal provided under this Contract must include:

- a) Small form factor L-band antenna capable of being installed on a helicopter or a plane allowing for communications while on the move at sea;
- b) Upconverter applique for use in a plane or helicopter;
- c) Power supply unit to provide regulated power to the applique;
- d) Cable to connect antenna to the upconverter applique;
- e) Cable to connect upconverter to Tactical Radio;
- f) All required accessories, software and documentation.

- 5.5.3 Each terminal must allow the user to use the following functions;
- a) Voice; and

b) Up to 64Kbps data

## 6 SECTION 6 - TERRESTRIAL AND RELEVANT VALUE-ADDED SERVICES

### 6.1 INMARSAT COLOCATION AND NETWORK HOSTING SERVICES

6.1.1 The Contractor must offer colocation and network hosting services.

6.1.2 The Contractor must host as and when requested partner organizations equipment.

6.1.3 The Contractor must host partner organizations equipment in a temperature and ventilated controlled environment.

6.1.4 The Contractor must provide out-of-band management to partner organizations equipment as and when requested.

6.1.5 The Contractor must provide colocation and network hosting services in a secure facility and physical access to the partner organization(s) equipment must contain the following level of securities:

- a) Access to the facility is restricted either via an electronic pass key and/or a physical lock and key mechanism;
- b) Security mantraps and biometric readers;
- c) Access to the secure room where the equipment is hosted must be access via an electronic pass key and/or passcode and/or physical lock and key mechanism;
- d) Server rack locking system; and
- e) The hosting environment security measures must consist of the following attributes:
  - a. 24/7 intrusion detection and alarm monitoring system;
  - b. locking cabinets;
  - c. Video recording mechanism that logs the arrival and departure from the facilities; and
  - d. Electronic/physical log of data centre / service room access.

6.1.6 The Contractor must provide the required power and rack mount space;

6.1.7 The Contractor must provide a fully redundant infrastructure, including power sources with diverse internet paths.

6.1.8 The Contractor must provide dedicated internet bandwidth capacity and public static internet routable IPv4 addresses.

### 6.2 TERRESTRIAL DEDICATED CAPACITY SERVICES

6.2.1 The Contractor must provide, upon request, dedicated terrestrial facilities to provide end-to-end connectivity between a Mobile Terminal (located anywhere in the world) and a CFDP (located in Canada). The Contractor must include the following service functionalities:

- a) Connectivity options from the Contractor's Point of Presence (POP) to the following, but not excluding any other potential CFDPs:

Cities	Provinces	Duplex Ethernet Throughput Rates
Halifax	Nova Scotia	3Mbps; 5Mbps;
Esquimalt	British Colombia	
Vancouver	British Colombia	
Calgary	Alberta	
Edmonton	Alberta	

Winnipeg	Manitoba	10Mbps; and 100Mbps;
Toronto	Ontario	
Ottawa	Ontario	
Quebec	Quebec	
St. John's	Newfoundland and Labrador	

### 6.3 INMARSAT MOBILELINK SERVICES

6.3.1 The Contractor's Inmarsat MobileLink Services must include the following service features and functionalities:

- a) North America local access number;
- b) Secure Access Code;
- c) Ability to establish calls to other MSS providers; and
- d) Ability to configure language preference.

### 6.4 VOICE IP SERVICES

6.4.1 The Contractor Voice IP Connectivity Services must include the following features and functionalities:

- a) Unlimited minutes anywhere across North America;
- b) Redundant SIPs;
- c) Call Forwarding;
- d) Caller ID display or block;
- e) Call waiting;
- f) Ability to configure call filter list;
- g) 3-Way Calling;
- h) Voicemail; and
- i) A Primary Phone Number per subscriber.

## 7 SECTION 7 -TRAINING AND CONFIGURATION SERVICES

### 7.1 TRAINING, SETUP AND CONFIGURATION SERVICES DESCRIPTION

7.1.1 The Contractor must provide training services in the language of SSC's choice, (i.e. English or French), as and when required on-site at the Contractor's facility and within the National Capital Region (NCR) in a boardroom or classroom environment to user groups on the Inmarsat Services and component solution(s) proposed / being considered. Further, the on-site training environment must provide internet access via Wi-Fi or wired connectivity.

7.1.2 The Contractor must supply all necessary material and documentation to the trainees at the start of the course with a complete copy for each trainee in the language of their choice, (i.e. English or French).

7.1.3 When specifically requested by the Technical Authority the Contractor must provide training services in the language of SSC's choice, (i.e. English or French), as and when required on-site at a Government of Canada Facility, and/or via videoconference and/or via an internet virtual classroom to user groups on the Inmarsat Services and components solutions proposed.

7.1.4 For instructor Travel and Living (T&L) expenses associated with training services, the Contractor must submit their T&L expenses separately from the labour hours associated with the training.

7.1.5 The Contractor must also offer setup and configuration services in order to assist SSC and its partner organizations in deploying their Inmarsat solution in an efficient and timely manner.



## 8 **SECTION 8 - INSTALLATION, SITE SURVEY AND REPAIR SERVICES**

- 8.1.1 When requested by the Technical Authority via a Service Order, the Contractor must provide installation, de-installs, site survey (make all arrangements with landlords and landowners necessary to deliver the Service) and repair services on-site or return to depot. On-site is considered at a site within Canada and internationally except for certain areas within the Yukon, the Northwest Territories, Nunavut, northern Quebec and northern Labrador where Canada is requesting the installation, site survey and/or repair services. A return to depot repair is considered the contractor's repair facility within North America. In the event the defective component(s) needs to be sent to the manufacturer overseas for diagnostic / repair the Contractor must make the necessary arrangements, including import/export arrangements with custom / border services.
- 8.1.2 The Installation Zones for the sites are defined as follows:
- a) Installation and Site Survey Zone 1: anywhere within 100 km from the city halls for Calgary, Edmonton, Gander, Moncton, Halifax, London, Montreal, Ottawa, Quebec City, Regina, Saskatoon, St. John's, Toronto, Vancouver, Victoria, and Winnipeg.
  - b) Installation and Site Survey Zone 2: Anywhere south of or on the 60<sup>th</sup> parallel in B.C., Alberta, Saskatchewan or Manitoba and anywhere south of the 55<sup>th</sup> parallel in all other provinces.
  - c) Installation and Site Survey Zone 3: Anywhere outside of Canada
- 8.1.3 The Contractor when requested must install and maintain complex fixed and mobile satellite solutions, including cabling installation, signal strength evaluation, quality checks, and placement of roof, side and pole mounts.
- 8.1.4 The Contractor must have experience and knowledge on how to utilize electronic test and measurement equipment as required to validate installation and monitor performance of satellite equipment.
- 8.1.5 The Contractor must coordinate with the service provider support desk and SSC / partner organization(s) during installation and on-site dispatches.
- 8.1.6 The Contractor must perform detailed site surveys and create installation procedures and material lists required.
- 8.1.7 When requested, the Contractor must provide a quote to Canada that details the number of effort hours required to complete the installation, site survey or repair and if applicable, the estimated Travel and Living expenses as part of another separate quote. Travel and Living expenses must not exceed Treasury Board guidelines and all expenses must be supported with the appropriate receipts.

## 9 **SECTION 9 – OPERATIONAL REQUIREMENTS**

### 9.1 **GENERAL**

- 9.1.1 The Contractor must provide the operational services defined in Section 9 on an on-going basis in support of the goods and services delivered on an as and when requested basis in Section 2, 3, 4, 5, 6, 7, and 8.
- 9.1.2 The Contractor must have significant project management, technical satellite communication (Satcom) expertise and knowledge working on demanding / time consuming satellite communication projects.

- 9.1.3 The Contractor and its representatives (i.e. employees) must have a minimum of one hundred (100) years of combined Satcom expertise and knowledge.
- 9.1.4 The Contractor must have a minimum of ten (10) years of continuous satellite communication experience working with the Government of Canada.
- 9.1.5 The Contractor must ensure that all verbal, written and electronic communications that are required to be provided directly to Shared Services Canada and its partner organizations / clients, (e.g. client support, recorded greetings and prompts, email and Voice Mail), are available at all times in both official languages of Canada (English and French), offering users a choice of either language depending on their individual preference.
- 9.1.6 The Contractor must designate a representative who will serve as primary point-of-contact for both management and technical matters for Shared Services Canada and the Department of National Defence (DND).
- 9.1.7 The Contractor must designate a representative who will service as primary point-of-contact for both management and technical matters for Shared Services Canada and all partner organizations, excluding the Department of National Defence (DND).
- 9.1.8 The Contractor must maintain a fully equipped Satcom Lab in the NCR that duplicates satellite communication equipment used by SSC and its partner organizations.
- 9.1.9 The Contractor must provide access to SSC and its partner organizations, as and when required to the Contractor's lab environment and matter and industry experts for providing real-time troubleshooting, testing, integration and support issues of satellite communication equipment and services.
- 9.1.10 The Contractor must provide an environment, as and when requested within the NCR where SSC and its partner organizations will have access to an indoor and secure environment to setup their equipment and perform testing and proof-of-concepts.
- 9.1.11 The Contractor must have the ability to provide demonstration of satellite communication equipment and services within the NCR and any other locations across Canada.

## 9.2 **CLIENT SUPPORT**

- 9.2.1 The Contractor must provide the Client with technical support through a help desk accessible using a toll-free number.
- 9.2.2 The Contractor's help desk support representatives must respond to client user questions and to the extent possible, resolve user problems and provide advice regarding configuration problems relating to all the terminals, accessories and services supplied under this contract.
- 9.2.3 The Contractor must log and track all reported calls to the help desk from the time of initial report until the resolution of the problem. This must be done through a computerized logging system.
- 9.2.4 The Contractor's help desk must be staffed and available to the Client using the toll-free number 24 hours a day, every day of the year.
- 9.2.5 As and when requested from the Technical Authority, the Contractor must send the log of reported calls, for the requested date range, via email within 2 business days of the request. The report must show the following:
  - a) Help desk summary (for the given date range) including the following:
    - i. Number of calls logged and resolved; and
    - ii. Total number of emails.

b) Detail Listing (for the given date range) including the following:

- i. Ticket number;
- ii. Date and Time ticket was logged;
- iii. Contact information of who reported the problem:
  - a. Name;
  - b. Phone number;
  - c. Email address; and
  - d. Government Department name;
- iv. Description of the problem;
- v. Resolution of the problem; and
- vi. Status (open or closed).

### 9.3 **ENGINEERING ASSISTANCE**

9.3.1 The Contractor must provide engineering assistance to the Technical Authority accessible using a North American phone number separate from the help desk toll-free number.

9.3.2 The Contractor must assist with issues requiring technical expertise at a level greater than the help desk. This could include, but not be limited to:

- a) Compatibility issues; and
- b) Intermittent or chronic performance issues.

9.3.3 The Contractor's Engineering Assistance must be available Monday to Friday from 9:00 AM to 5:00 PM Eastern Time to receive and respond to calls.

### 9.4 **PROBLEM MANAGEMENT**

9.4.1 The Contractor must manage all problems affecting the delivery of services under this Contract. These problems must be managed 24 hours a day, every day of the year, by the Contractor by diagnosing, tracking, recording and reporting on all problems that affect any Client user's ability to use the Inmarsat Services mentioned in this document. This includes all hardware, network and service problems. The Contractor must document all problems, including a description of the problem and all details on how the problem was resolved.

9.4.2 If the Contractor determines that a problem is a terminal equipment issue; the Contractor must refer the Client to the Contractor's repair centre.

9.4.3 The Contractor must perform remote network monitoring, preventative diagnostics and co-ordinate problem isolation and resolution.

9.4.4 The Contractor must perform the following activities on an on-going basis when handling network or service-related problems:

- a) identify each reported problem by a unique problem record number (ticket number);
- b) perform an analysis of the problem reported;
- c) maintain an audit trail that includes all actions taken until the problem is resolved; and
- d) Provide reports as listed in the Section named "Reports".

9.4.5 The Contractor must be the single point of contact and have full responsibility for leading and coordinating all activities with any terrestrial provider, Internet Service Provider (ISP), local exchange carrier (LEC), or interexchange carrier (IXC) for the resolution of any problem that affects the performance of Inmarsat Services mentioned under this document.

9.4.6 The Contractor must provide a "problem record" number to the reporting Client that permits the Client and any other representative of Canada to quote the problem record number for any reason.

## 9.5 ESCALATION PROCEDURES

- 9.5.1 Depending on the severity of the problem where it affects the usage of the services, the Contractor must be ready to address SSC reporting requirements based on escalation timelines below. The Contractor must provide regular updates (intervals defined by the next escalation level) for which the incident has been identified and categorized and as defined below. The Contractor must provide the names and titles of the Contractor's Management escalation levels within their organization at contract award.
- 9.5.2 Escalation timelines (which are in effect 24 hours/day, 7 days/week):

<b>SSC Management Escalation Levels</b>	<b>Contractor's Management Escalation Levels</b>	<b>Low Severity</b>	<b>Medium Severity</b>	<b>High Severity</b>
SSC Manager Operations	Level 1	8 hours	4 hours	30 minutes
SSC Director Operations	Level 2	12 hours	8 hours	1 hour
SSC Director General Operations	Level 3	24 hours	12 hours	2 hours

Note: All escalation times listed in table above start running when the initial request is made.

- a) **Low Severity:** Diminished capacity (including repeated intermittent availability) of the network affecting any single, or group of, satellite terminal(s) for, or during, a continuous period exceeding 8 hours (excluding scheduled maintenance as defined in Section 9.7).
- b) **Medium Severity:** Diminished capacity (including repeated intermittent availability) of the network affecting any Inmarsat Satellite Service for, or during, a continuous period exceeding 4 hours (excluding scheduled maintenance as defined in Section 9.7).
- c) **High Severity:** Complete unavailability of the network affecting any Inmarsat Satellite Service, including the complete failure of a satellite for a period exceeding 30 minutes (excluding scheduled maintenance as defined in Section 9.7).
- 9.5.3 The Contractor must continue to provide an updated list via email of the Contractor's Management Escalation Levels to the Technical Authority as changes in personnel occur in the management positions listed above.
- 9.5.4 The Contractor must meet with the Technical Authority on a regular basis, if requested, to review outage reports, and any other information related to service availability, to ensure availability requirements are being met.
- ## 9.6 SERVICE PERFORMANCE MONITORING
- 9.6.1 **Minimum Availability of Inmarsat Core Satellite Services**
- 9.6.2 The Contractor must provide the Inmarsat Core Satellite Services and maintain any related terrestrial facilities to ensure that the connectivity from the satellite link (from the satellite terminal to the Contractor's terrestrial hand-off point) provides a Minimum Availability Level of at least **99.8%** in each calendar month.
- 9.6.3 The Actual Availability Level that is reported by the Contractor in the monthly Service Performance Level report must be calculated using the following formula:

$$[(TNT - TOT) / TNT] \times 100$$

where “TNT” is defined as the total network time, which is the total available number of minutes in the reported month and is calculated by multiplying by the number of calendar days in the month, times 24 hours, times 60 minutes (i.e., in January the TNT would be  $31 \times 24 \times 60 = 44640$ ); and

where “TOT” is defined as the total outage time, which is the total number of outage minutes as tracked by the Contractor’s problem record system affecting that Inmarsat Service. The service outage problem records logged by the Contractor will be used to calculate outage minutes. The outage minutes will be calculated from the time the problem is first recorded until the problem is resolved (ticket close) for each problem record. The sum of all these outage minutes will be the TOT. This number does not include scheduled maintenance or sun transit downtime where the Contractor properly advised SSC in accordance with Section 9.7.

- 9.6.4 An Inmarsat Satellite Service outage is defined as a failure of any network facilities that completely prevent successful processing of any of the Inmarsat Satellite Service’s functionalities. The network facilities include the satellite network (satellite and communications paths), Land Earth Station (LES), and terrestrial backhaul networks.

## 9.7 SCHEDULED SERVICE-AFFECTING AND MAINTENANCE ADVISORY

- 9.7.1 The Contractor must provide the Technical Authority with written notice of any planned scheduled maintenance that may affect service at least 5 business days before performing any scheduled maintenance.

- 9.7.2 Except in cases of emergency, the Contractor must notify the Technical Authority before proceeding with any unscheduled service-affecting maintenance activities. When possible, the Contractor agrees to coordinate unscheduled service-affecting maintenance activities with the Technical Authority. In cases of emergency, the Contractor must notify the Technical Authority as soon as possible after beginning the emergency unscheduled service-affecting maintenance activity, together with the reason for the unscheduled service and information about how long service will be affected.

## 9.8 ACCOUNT MANAGEMENT

- 9.8.1 Contract Account Representative

- 9.8.2 The Contractor must assign a Contract Account Representative (CAR) to SSC, to address any technical and administrative issues and must have the following minimum level of experience:

- a) A minimum of 5 years of experience in the delivery, sales or support of telecommunications services to government organizations experience within the last 5 years; and
- b) At least 3 year of experience in the delivery, sales or support of Inmarsat Satellite services to government organizations within the last 5 years.

- 9.8.3 During the Contract Period, the Contractor must provide the résumé for each new CAR to the Technical Authority for approval within 10 business days of the date the Contractor notifies the Technical Authority that a new CAR is being assigned.

## 9.9 MEETINGS

- 9.9.1 When requested, the CAR must meet with the Technical Authority at a location agreed upon by Canada in the National Capital Region (NCR) or when it is more convenient schedule a meeting via video conferencing. Except in case of emergencies, Canada will provide the CAR with at least 5 days of notice before a meeting.

- 9.9.2 When requested, the Contractor must provide sales and marketing support to Canada when Canada is communicating with existing and prospective Clients. This support may consist of

attending meetings, participating in a telephone / video teleconference, providing literature (either electronic or paper) explaining the different Inmarsat Services and relevant components or otherwise assisting SSC in communicating with Clients about the Satellite Services available under this Contract.

9.9.3 Attendance at all meetings is at the Contractor's own expense, including any travel and living expenses that may be incurred.

#### 9.10 **POINT OF PRESENCE**

9.10.1 The Contractor must have a registered point of presence within Canada along with a representative(s) for the main purpose of dealing with administrative matters and operational requirements associated with the terms and conditions and during the entire life cycle of this contract.

#### 9.11 **REPORTING**

9.11.1 The Contractor must provide the monthly reports in an electronic format (in comma or tab delimited file format, MS Excel) by way of email. All reports must be sent to the Technical Authority, the Contracting Authority at the email addresses identified in Article 1.6 of the Contract.

#### 9.12 **MONTHLY SERVICE ORDER REPORT**

9.12.1 The Contractor must provide the Monthly Service Order Reporting Form (Annex E) that provides a listing of all the Service Orders that have been issued against the contract on a monthly basis within 20 calendar days from the end of the billing period. The report must provide the following information:

- a) Service Order number;
- b) Date issued;
- c) Description of service;
- d) Client Name (Government Department);
  - a. Service Order Amount;
  - b. Total Committed Value (\$); and
- e) Spent/Billed amount;
- f) Applicable taxes;
- g) Total Value of Service Order amount including applicable taxes; and
- h) Status (Approved, Completed or Cancelled).

#### 9.13 **CONTRACT SUMMARY REPORT**

9.13.1 The Contractor must provide a quarterly Contract Summary Report to the Technical Authority, and Contracting Authority in order to track the total expenditures of the Contract to date. This report must include the following information:

- a) Government department;
- b) Monthly value of goods delivered, where applicable;
- c) Government Fiscal Year-to-date value of goods delivered, where applicable;
- d) Monthly value of services rendered;
- e) Government Fiscal Year-to-date value of services rendered;
- f) Contract-to-date value of goods delivered, where applicable; and
- g) Contract-to-date value of services delivered, where applicable.

9.13.2 The Contractor must provide the Contract Summary Report no later than the 21st day of the month following each quarter (i.e., January-March, April-June, July-September, and October-December).

## 9.14 **OUTAGE NOTIFICATIONS**

9.14.1 The Contractor must provide the Technical Authority with an outage notification by email within the same timeframes indicated in the escalation procedures in section 6.5 for the Manager Operations. The report must contain:

- a) Reference number;
- b) Date;
- c) Outage start date and time;
- d) Name of the person and department reporting the incident;
- e) Description of the problem;
- f) Description of the proposed resolution; and
- g) Estimated time to restore.

9.14.2 The Contractor must send updates to the Technical Authority by email on regular basis as updates are available.

9.14.3 Once the Inmarsat Services mentioned in this document has been restored, the Contractor must notify the Technical Authority by email immediately.

## 9.15 **AVAILABILITY REPORT**

9.15.1 The Contractor must provide the technical authority with a service availability report (Annex G) of all Inmarsat services listed under this contract within 20 calendar days following the end of the previous month of provided services.

## 9.16 **INVOICING**

9.16.1 The Contractor must establish a federal government master account with at least one sub-levels to identify the SSC Clients. The account number must be 15 characters or less not including any special characters.

9.16.2 The Contractor must invoice Canada on a monthly basis for all one-time and recurring charges accounted for in that month based on a billing period of the first of the month until the last day of that month. Services that start Section way during a calendar month will be prorated using the formula of: Total cost / number of days in billing month x number of days the item is being charged for. Equipment must be invoiced separately from services. All services and equipment must be delivered before it can be invoiced.

9.16.3 The Contractor must cooperate with the Technical Authority for the resolution of any billing issues to the satisfaction of the Technical Authority.

9.16.4 For all one-time charges the Contractor must include the service order reference number, (i.e. ITSB service order number), deliverable, and/or description of work in the invoice.

## 9.17 **INVOICES**

9.17.1 In addition to the information required by General Conditions 2035, the Contractor must provide a printable and non-modifiable monthly summary invoice and a copy of Annex "B" (if applicable) to the Contracting and Technical Authorities listed on the contract in Portable Document Format (PDF), which includes the Contractor's official letterhead or logo via email.

9.17.2 The Contractor must ensure that the summary invoice(s) and Annex "B" are received by the Contracting and Technical Authorities within 10 calendar days after the end of each billing period; except for the billing period of March; where the Contractor must ensure that the summary invoice(s) and Annex "B" are submitted / received prior to the end of day of the 2<sup>nd</sup> business day of the following month, (i.e. April).

## 9.18 **BILLING DETAIL FILE**

9.18.1 The Contractor must provide the Technical Authority with the Billing Detail File containing all billing details for the monthly billing period. The Billing Detail File is the data that supports the monthly summary invoice.

## 9.19 **THE BILLING DETAIL FILE MUST BE PROVIDED VIA EMAIL.**

9.19.1 The Contractor must provide the Billing Detail File in a flat-file format. The flat-file format must be an industry-standard Open Data Base Connectivity (ODBC) compliant fixed-length file of 341 characters. Each file must be related to an invoicing period and contain the details to reconcile the invoice electronically. The flat file must contain 3 separate record layouts and the data must be formatted into specific record fields and each field must include a pre-specified element format. The specific formatting is provided in Appendix A to Annex A – Billing Detail File Layout. Canada reserves the right to make minor adjustments to the format to meet technical requirements once the Contract has been awarded to ensure accurate and timely processing.

9.19.2 The Billing Detail File must contain all charges for that invoicing period (including any charges resubmitted in accordance with the Contract). The amount on the monthly summary invoice for any usage and/or detailed charges at the item/service level must equal the total on the Billing Detail File and, in case of a discrepancy; the Billing Detail File will take precedence. Therefore, the amount reconciled that will be paid is the total amount on the Billing Detail File, minus any transactions that are rejected.

9.19.3 The Contractor must ensure that the file is received by the Technical Authority within 10 calendar days after the end of each billing period.

9.19.4 If the Contractor applies an exchange rate fluctuation adjustment, the amounts being invoiced in that month in the Billing detail file must reflect the adjusted invoiced amount at the detail level and summary levels.

## 10 **SECTION 10 - SECURE WEB PORTAL ACCESS**

### 10.1 **GENERAL**

10.1.1 The Contractor must provide a Secure Web Portal (SWP) accessible to the Technical Authority and the Clients. The SWP must provide at a minimum access for the following functions:

- a) Inventory query; and
- b) Usage query.

10.1.2 The SWP must be available to Shared Services Canada (SSC) and its partner organizations during the entire contract duration.

10.1.3 The SWP must authenticate users by using at least a user identification and password verification system.

10.1.4 The SWP must allow users to obtain access to information about their own clients, as authorized by the Technical Authority. The SWP must allow the Technical Authority to obtain access to all information about all clients.

10.1.5 The Contractor must allow, at a minimum, read-only access to the information contained in the SWP for the Technical Authority and the Clients.

### 10.2 **INVENTORY QUERY**

10.2.1 The SWP must allow the authorized users to query the inventory of terminals and SIMs and view the following information:



- a) Inmarsat Service Type;
- b) Description (terminal type, manufacturer, model, serial number);
- c) Inmarsat Serial Number;
- d) Inmarsat Mobile Number(s); and
- e) Terminal and/or SIM status.

### 10.3 **USAGE QUERY**

- 10.3.1 The SWP must allow the authorized users to query and view all usage of the last six months for all Inmarsat Bandwidth on Demand Services subscribed to by Shared Services Canada (SSC) and their partner organizations.
- 10.3.2 The default view of the record must be of the particular day that the query is carried out while showing the most recent usage at the top.
- 10.3.3 The Contractor must make usage information about all call/transmissions available on the SWP within 30 minutes of the start of the call/transmission. The available information must include at least the following:
  - a) Inmarsat Service Type;
  - b) Inmarsat Call/data transmission Type;
  - c) Inmarsat Serial Number;
  - d) Inmarsat Mobile Number;
  - e) Call/transmission start date and time;
  - f) Call/transmission end date and time;
  - g) Call/transmission status (in-progress or completed); and
  - h) Current usage in either minutes, reports (for transmission) or Mbytes (for packet type usage).

### 10.4 **SECURE WEB PORTAL SECURITY PROTOCOL**

- 10.4.1 The Contractor must ensure that the following security measures are used when its Secure Web Portal is used to transfer Government Data;
  - a) Only the required ports must be open;
  - b) There must be audit trails (which must be made available to Canada when requested);
  - c) The anti-virus capabilities must be activated
  - d) There must be 2048-bit SSL encryption that is enabled before and during any access or exchange of information; and
  - e) The Contractor's web site must be secured against unauthorized access by ensuring that all accesses are logged and by requiring a user identification and a password, where the password must:
    - a. Be at least six (6) characters long;
    - b. Be known only by the authorized user of the account;
    - c. Not be embedded in an automated logon procedure (sign-on script);
    - d. Never be displayed on the computer monitor;
    - e. Never be printed or included on computer file or print output;
    - f. Be protected by one-way encryption; and
    - g. Lock the account after three (3) failed attempts to enter the in-correct password.

## 11 **SECTION 11 – GLOSSARY AND DEFINITIONS**

**Answerback:** An identifier given to an Inmarsat terminal and used in message transmissions. The format must be four letters (A-Z; no numbers) finishing with the letter "X".

**Background Class IP:** A type of Internet Protocol data transmission technique used in the Inmarsat service called BGAN. It features a shared bandwidth technique and applies to the

space segment of the communication link.

**Business day:** refers to 8:00AM to 4:00PM Eastern Time, Monday to Friday, excluding statutory holidays observed by the Federal government in the Province of Ontario.

**Call Barring:** A service feature that allows users to block certain incoming or outgoing calls.

**Call Forward:** The “Call Forwarding” feature permits a user to request that all calls placed to the Mobile Terminal be forwarded, unconditionally, to a specific Mobile Terminal, Voice Mail, or PSTN number. If this feature is activated, the Mobile Terminal will not be signalled, the calling party's Service will be unaffected, and calls will be forwarded no matter what the condition of the termination.

**Call Hold:** A service feature in which a user may retain an existing call while accepting or originating another call using the same Mobile Terminal.

**Call Waiting:** A service feature which indicates to a Mobile Terminal already engaged in an established call that one or more other calls are awaiting connection.

**CFDP (Client's Fixed Demarcation Point):** The Client's Point of Presence within Canada where the Contractor is required to terminate some of the services with the use of dedicated backhaul facilities.

**Circuit-Switched Voice:** This is equivalent in functionality to that of standard landline cellular telephone service provided over the Public Switched Telephone Network (PSTN). Within the Inmarsat industry it is commonly referred to “Voice”.

**Data polling:** A technique of polling Mobile Terminals and request data reports (short repetitive messages that state position, course, and speed of the Mobile Terminal). Polling a Mobile Terminal can be done as an Immediate Poll to request a data report at any time or by Program Polling for automatic data reports at pre-set intervals to save time.

**Dedicated Capacity:** combination of satellite and terrestrial channels delivering a specific data throughput from the Mobile Terminal to the Client Fixed Demarcation Point (CFDP). These channels are not usage sensitive and are available 24 hours a day and 7 days a week for a fixed monthly fee.

**E-mail:** Electronic mail: a global message-handling system whereby subscribers to commercial e-mail services can exchange electronic messages and data files between computers. E-mail services are provided by some service providers and private organisations. Access to e-mail services may be via PSTN, PSDN networks or the Internet.

**Fax:** Abbreviation for ‘facsimile’, a device used to transmit a copy of an original document. Group 3 Fax work over circuit-switched networks and can transmit up to 14.4 Kbps. Group 4 Fax is designed to work over 64 Kbps digital ISDN circuits or equivalent. The Inmarsat-A, B/M and mini-M systems support two-way fax transmissions. The Inmarsat C system is able to send only text messages (no graphics) to a fax terminal in the ship-to-shore direction. It is only possible to send text messages (no graphics) in the shore-to-ship direction by using a third party fax bureau.

**Footprint Coverage (of a satellite):** The area on the Earth's surface (sea or land) covered by the satellite and where an antenna can obtain line-of-sight communications. In the Inmarsat systems, this area is also known as the ocean region or coverage area.

**GMDSS (Global Maritime Distress and Safety System):** A global communication system enabling vessels in distress to transmit distress signals to nearby coast stations and vessels.

The Inmarsat-A/B and C systems are the only Inmarsat networks included in the GMDSS by the IMO International Maritime Organisation.

**GPS (Global Positioning System):** System which provides the geographic location of a vessel. This service uses American military satellites which have been made available for civilian use.

**Group 3 Facsimile:** See *Fax*

**Group 4 Facsimile:** See *Fax*

**HSD:** High-speed data. This service allows for data to be transferred at data rates of up to 64 Kbps.

**Inmarsat Mobile Number (IMN):** The number assigned by the national routing organisation to an Inmarsat terminal as its identity number. An Inmarsat-A maritime IMN has the format 1xxxxxxx; an Inmarsat-B maritime IMN has the format 3xxxxxxx; an Inmarsat C maritime IMN has the format 4xxxxxxx; an Inmarsat-M maritime IMN has the format 6xxxxxxx; and an Inmarsat-mini-M maritime IMN has the format 76xxxxxxx.

**Ingress Protection:** The level of protection that electrical appliances provide against the intrusion of solid objects or dust, accidental contact, and water. It follows the International standard IEC 60529.

**Inmarsat:** The use of the word Inmarsat is meant to refer to the Inmarsat satellite network and services comprised of the satellites and ground infrastructure operated by Inmarsat plc and provided to customers through its Inmarsat Service Providers.

**IP (Internet protocol):** The set of protocols used to communicate via the Internet and between multiple networks.

**ISDN, Integrated Services Digital Network:** A high capacity digital line which lets users send voice and data at 64 Kbps over one telephone line from a common network interface.

**ISP (Inmarsat Service provider):** An entity which establishes a contract with one or more of the SPs to bill, promote and retail the services of the contracted SPs to end users. It can be an alternative to an AA.

**Kbps:** Kilobits per second

**Land earth station (LES):** The name used in the Inmarsat network for a shore-based receiving and transmitting station which acts as an interface between MESSs and the terrestrial communications networks. LESs are owned and operated by service providers.

**Land Earth Station Operator (LESO):** The name of an organization that operates a Land Earth Station.

**Low Speed Service (LSS):** This service allows for data to be transferred at low data rates below 64 Kbps. The data rates referred to are: 2.4, 4.8 and 9.6 Kbps.

**Mbps:** Megabits per second.

**Mbytes:** Megabytes.

**Modem:** Modulator/Demodulator, a device used to transmit digital data, by converting (modulating) a digital signal into an analogue form and re-converting (demodulating) the

analogue signal into digital form at the receiving end.

**MPDS (Mobile Packet Data Service):** A packet switched data network, used over Inmarsat, and designed to access terrestrial based packet data networks.

**Ocean region:** The coverage area of an Inmarsat satellite within which a terminal may send and receive messages.

**Packet:** An 'envelope' or block of data sent over a network; each packet contains addressing information as well as the data being sent.

**Polling:** The facility whereby an operational centre sends an instruction (a polling command) to selected Mobile Terminals to perform a defined task, such as returning a pre-assigned data report.

**Protocol:** A defined set of communications standards which lay down the parameters to which all users must abide.

**PSDN:** Packet Switched Data Network, usually X.25, where data is transmitted using packets.

**PSTN:** Public Switched Telephone Network.

**Public Networks:** term used to reference all publicly accessible terrestrial networks comprising of PSTN, PSDN, Internet and Telex.

**Regular business hours** refer to 8:00AM to 4:00PM Eastern Time, Monday to Friday, excluding statutory holidays observed by the Federal government in the Province of Ontario.

**Return merchandise authorization (RMA):** is a part of the process of returning a product in order to receive a refund, replacement, or repair during the product's warranty period. The purchaser of the product must contact the manufacturer (or distributor or retailer) to obtain authorization to return the product. The resulting RMA number must be displayed on or included in the returned product's packaging.

**SIM (Subscriber Identity Module) card:** Used with Inmarsat BGAN, SIM cards are easily installed and removed, allowing one terminal to be used by multiple users without having complex billing arrangements.

**SMS (Short Message Service):** A globally accepted wireless service for sending messages of up to 160 alphanumeric characters between mobile subscribers and external systems such as email, paging and voice mail systems.

**Space segment:** Consists of the communications satellites operated by Inmarsat.

**Spot beam:** A concentrated area offering coverage within the global footprint for particular regions in the world.

**Streaming IP:** A type of Internet Protocol data transmission used in the Inmarsat service called BGAN. It features a guaranteed minimum data rate and applies to the space segment of the communication link. Four communication speeds are available: 32, 64, 128 and 256 Kbps.

**Streaming IP Mobile Terminal-to-CFDP:** A type of Internet Protocol data transmission used in the Inmarsat service called BGAN with an added Quality of Service guarantee over both the terrestrial network as well as the space segment of the communication link.

**Store and forward:** The messaging protocol used by the Inmarsat C system to transfer text or data messages in data packets to receiving equipment.

**Telex (Teletypewriter Exchange):** A communication service involving teletypewriters connected by a communication media through automatic exchanges.

**Terminal:** a satellite communication device used to access the Inmarsat network with any of their mobile services. It is often referred to a Mobile Earth Station (terminal) within the Inmarsat environment.

**Terminal Equipment Warranty Period:** The Hardware Warranty Period described in section 14 of the Supplemental General Conditions, 4001.

**Type approved:** The official approval given by Inmarsat to a terminal model produced by an independent manufacturer when the terminal meets the technical standards defined by Inmarsat. Only models which have been granted type-approval (or case-approval) are permitted to operate via the Inmarsat network.

**Voice Mail:** Voice Mail allows a user to enable call forwarding to a voice mailbox. The user will be able to call the voice mailbox to retrieve and process stored messages, from the Mobile Terminal.

**X.25:** The communications protocol used on the national and international PSDN networks to exchange digital data between devices attached to the network.

**Assured Access Service:** Assured Access (AA) is a new service that grants a pre-defined group of user's priority access to BGAN network resources. AA ensures that these users are always able to connect to the BGAN network and, once connected, achieve a defined grade of service, even when the network is heavily loaded. AA is designed to be used by a small number of high-priority users, whose requirements cannot be met by the standard Background IP service (especially when the network experiences high loading). AA can be provided for a single user, or for multiple users via AA Groups. In the latter case, the defined grade of service associated with the requested capacity is managed and shared between the members of the group. AA is especially suitable for users who wish to transition from legacy lease services (e.g. Inmarsat-B CN-19, or Swift64 CUG) to a more flexible solution with longer term support, but who need the assurance of a defined grade of service.

**Assured Access Block:** This is the base unit of capacity, expressed in kbps, associated with an Assured Access Group.

Assured Access Group: This is the group established to share the Assured Access Block.

**Background Class IP:** A type of Internet Protocol data transmission technique used in the Inmarsat service called BGAN. It features a shared bandwidth technique and applies to the space segment of the communication link.

**Business day:** refers to 8:00AM to 4:00PM Eastern Time, Monday to Friday, excluding statutory holidays observed by the Federal government in the Province of Ontario.

**CFDP (Client's Fixed Demarcation Point):** the Client's Point of Presence within Canada where the Contractor is required to terminate some of the services with the use of dedicated backhaul facilities.

**Committed Information Rate (CIR):** A specified amount of guaranteed bandwidth based on the subscribed service option.

**Dedicated Capacity:** combination of satellite and terrestrial channels delivering a specific data throughput from the Mobile Demarcation Point (MDP) to the Client Fixed Demarcation Point (CFDP). These channels are not usage sensitive and are available 24 hours a day and 7 days a week for a fixed monthly fee.

**E-mail:** Electronic mail: a global message-handling system whereby subscribers to commercial e-mail services can exchange electronic messages and data files between computers. E-mail services are provided by some service providers and private organisations. Access to e-mail services may be via PSTN, PSDN networks or the Internet.

**Footprint Coverage (of a satellite):** The area on the Earth's surface (sea or land) covered by the satellite and where an antenna can obtain line-of-sight communications. In the Inmarsat systems, this area is also known as the ocean region or coverage area.

**Inmarsat Mobile Number (IMN):** The number assigned by the national routing organisation to an Inmarsat terminal as its identity number. An Inmarsat-A maritime IMN has the format 1xxxxxxx; an Inmarsat-B maritime IMN has the format 3xxxxxxx; an Inmarsat C maritime IMN has the format 4xxxxxxx; an Inmarsat-M maritime IMN has the format 6xxxxxxx; and an Inmarsat-mini-M maritime IMN has the format 76xxxxxxx.

**Inmarsat:** The use of the word Inmarsat is meant to refer to the Inmarsat satellite network and services comprised of the satellites and ground infrastructure operated by Inmarsat plc and provided to customers through its Inmarsat Service Providers.

**IP (Internet protocol):** The set of protocols used to communicate via the Internet and between multiple networks.

**ISP (Inmarsat Service provider):** An entity which establishes a contract with one or more of the SPs to bill, promote and retail the services of the contracted SPs to end users. It can be an alternative to an AA.

**Kbps:** Kilobits per second

**Land earth station (LES):** The name used in the Inmarsat network for a shore-based receiving and transmitting station which acts as an interface between MESs and the terrestrial communications networks. LESs are owned and operated by service providers.

**Land Earth Station Operator (LESO):** The name of an organization that operates a Land Earth Station.

**Maximum Information Rate (MIR):** The maximum speed at which the data can be transmitted based on the subscribed service option.

**Mbps:** Megabits per second.

**Mbytes:** Megabytes.

**MDP (Mobile Demarcation Point):** Any appropriately configured Inmarsat terminal located within an Inmarsat satellite footprint

**Ocean region:** The coverage area of an Inmarsat satellite within which a terminal may send and receive messages.

**Protocol:** A defined set of communications standards which lay down the parameters to which all users must abide.

**PSTN:** Public Switched Telephone Network.

**Public Networks:** term used to reference all publicly accessible terrestrial networks comprising of PSTN, PSDN, Internet and Telex.

**Regular business hours:** refers to 8:00AM to 4:00PM Eastern Time, Monday to Friday, excluding statutory holidays observed by the Federal government in the Province of Ontario.

**Return merchandise authorization (RMA) or return goods authorization (RGA):** is a part of the process of returning a product in order to receive a refund, replacement, or repair during the product's warranty period. The purchaser of the product must contact the manufacturer (or distributor or retailer) to obtain authorization to return the product. The resulting RMA or RGA number must be displayed on or included in the returned product's packaging; no returns are accepted without this number.

**SIM (Subscriber Identity Module) card:** Used with Inmarsat BGAN, SIM cards are easily installed and removed, allowing one terminal to be used by multiple users without having complex billing arrangements.

**Space segment:** Consists of the communications satellites operated by Inmarsat.

**Spot beam:** A concentrated area offering coverage within the global footprint for particular regions in the world.

**Streaming IP:** A type of Internet Protocol data transmission used in the Inmarsat service called BGAN. It features a guaranteed minimum data rate and applies to the space segment of the communication link. Four communication speeds are available: 32, 64, 128 and 256 Kbps.

**Streaming IP MDP-to-CFDP:** A type of Internet Protocol data transmission used in the Inmarsat service called BGAN with an added Quality of Service guarantee over both the terrestrial network as well as the space segment of the communication link.

**Terminal:** a satellite communication device used to access the Inmarsat network with any of their mobile services. It is often referred to a Mobile Earth Station (terminal) within the Inmarsat environment.

**Terminal Equipment Warranty Period:** The Hardware Warranty Period described in section 14 of the Supplemental General Conditions, 4001.

**Type approved:** The official approval given by Inmarsat to a terminal model produced by an independent manufacturer when the terminal meets the technical standards defined by Inmarsat. Only models which have been granted type-approval (or case-approval) are permitted to operate via the Inmarsat network.

**WGS:** The Wideband Global SATCOM system (WGS) is a high capacity satellite communications system.