600840-000041 Harvey Installation Manual

Harvey, Gateway High Spec, GW 400, GW 410, and GW 411

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Harvey Installation Manual

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Table of Contents

List of Figures

List of Tables

1. SYSTEM OVERVIEW

Harvey is an embedded computer that provides interfacing capability among a variety of wired and wireless networks. It implements cellular designs, Bluetooth, WIFI, 433-MHz radio, and Satcom interfaces. Hardline configuration include CAN, RS485, K-Line, RS232, and Broad Reach Ethernet

2. PURPOSE

This Installation Manual is intended to inform installers and users of the proper placement, configuration and distances between system components.

3. GENERAL INFORMATION

3.1. SPECIAL TOOLS REQUIRED

In addition to SAE standard and/or metric wrenches, sockets, and screw drivers, the following tool are required:

1) Torque Wrench (in-lbs)
2) Wrench set

3.2. INSTALLATION INSTRUCTIONS OVERVIEW

System installation is accomplished in the following steps:

1) Installation of Gateway into the tractor cab headliner
   a. Torque the antenna terminations to Gateway RF SMA connectors with a torque spec of 7-10 in-lbs +/- 0.5 in-lbs. Mount the Gateway enclosure to the cab with ¼" or 6-mm fasteners and a torque of 30 in-lbs.
2) Installation of Antennas
   a. Find a location on the equipment such that the following distances are the minimum spacing between system components.

Table 1 System Component Minimum Spacing

	Operator	**Gateway**
Antenna Hub 1 (Recommended minimum spacing between antenna hubs is 7.5 cm)	30 cm (in USA) 40 cm (in Canada)	20 cm
Antenna Hub 2	30 cm (USA) 40 cm (in Canada)	20 cm
Gateway	20 cm	N/A

   b. Ensure the 433 MHZ antenna have a ground place of 300 x 300 mm for the mounting.
   c. Torque the antenna mounting nut (M14x1) to 30 +/- 0.5 in-lbs.

3.3. PARTS LIST FOR INSTALLATION

The following parts are required for the installation of Gateway.

Table 2 Parts List for Installation

Parts List for Installation			
Item	**Nomenclature**	**Part Number**	**QTY**
1	Gateway	153010-000069 or 153010-000070	1

2	Antenna Hub 1	HCEL-S2-0164A-00_Rev0 4G CELL-433MHz-WLAN	1
3	Antenna Hub 2	HIRD-S2-0146A-0_RevA Iridium-GNSS-4G	1

3.4. HARDWARE COMPONENTS BACKGROUND

3.4.1. Electrical Characteristics

Input Power Requirements: 9-16 VDC
Current Draw at 14VDC: 250mA (nominal)

3.4.2. Weight and Balance Information

The total weight of the Gateway and antenna is listed below.

Table 3 Weight and Balance Information

Component	Weight (oz)	Weight (lbs)
Gateway	70.544	4.409
Antenna Hub 1 (HCEL-S2-0164A-01)	26.624	1.664
Antenna Hub 2 (HIRD-S2-0146A-01)	26.624	1.664

3.4.3. Equipment Dimensions

Equipment dimensions are outlined in the table below for all required components in Gateway. All figures given are representative of maximum equipment dimensions (where applicable).

Table 4 Equipment Dimensions

Component	Length (mm)	Width (mm)	Height (mm)
Gateway	165	159	54
Antenna Hub 1 (HCEL-S2-0164A-01)	124.3	80.3	80.3
Antenna Hub 2 (HIRD-S2-0146A-01)	124.3	80.3	80.3

3.4.4. Conditions for operation

IMPORTANT NOTICE!!!!

This device can be configured to transmit on the 433 MHz frequency following the requirements of 15.231(a-d). This requirement is that the transmission must be used as a control signal. It can include data transmission as well, or not, but in all cases it must be a control signal. Failure to adhere to this requirement void's the authority to operate the equipment.

4. CONFIGURATION

With equipment installed, final configuration must meet the minimum separation distance in Table 5 and Section 4.2.

4.1. HARVEY SYSTEM SEPARATION DISTANCES

	Operator	**Gateway**
Antenna Hub 1, 2 (Recommended minimum spacing between antenna hubs is 7.5 cm)	40 cm (USA) 40 cm (Canada)	20 cm
Harvey	20 cm	N/A

Table 5 Separation Distance

4.2. HARVEY SYSTEM SEPARATION DISTANCE ILLUSTRATION

Harvey and the following components must follow the distances in the following illustration to comply with FCC part 1.310 and ISED RSS-102.

Note: To adhere with RF exposure requirement, the equipment is intended for **PROFESSIONAL INSTALLATION ONLY**.

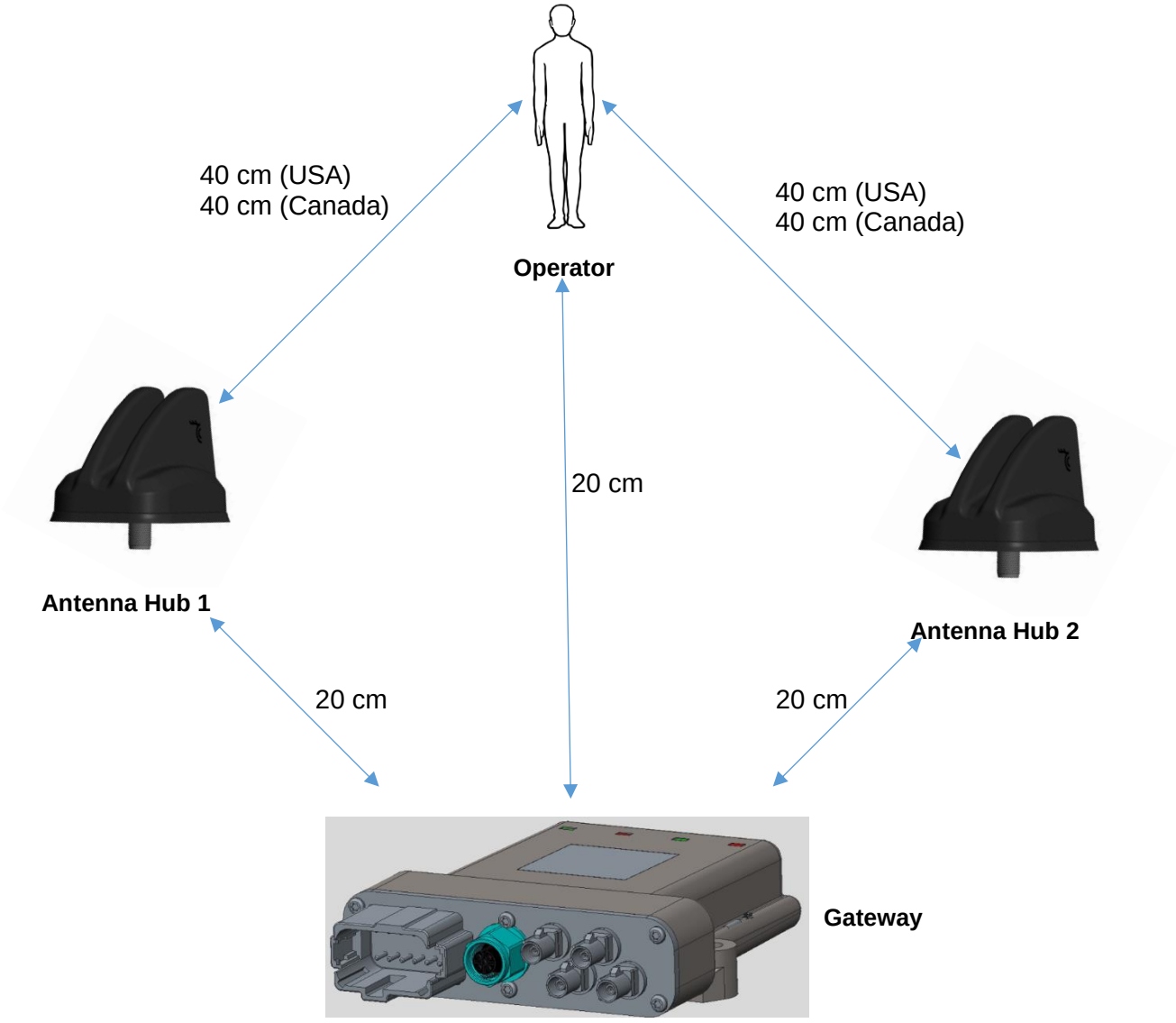

Figure 1 Separation Distance

5. REGULATORY INFORMATION

5.1. FEDERAL COMMUNICATIONS COMMISSION NOTIFICATION TO USER

Harvey, Gateway High Spec, GW 400, GW 410, and GW 411

These devices comply with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions: (1) These devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

These devices must be operated as supplied by Appareo Systems LLC. Any changes or modifications made to these devices without the express written approval of Appareo Systems LLC may void the user's authority to operate these devices.

This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, no guarantee shall be made that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

5.2. INDUSTRY CANADA NOTIFICATIONS TO USER

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English

These devices complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

French

Ces appareils sont conformes aux normes RSS sans licence d'Industrie Canada. Son fonctionnement est soumis aux deux conditions suivantes: (1) cet appareil ne doit pas causer d’interférences et (2) cet appareil doit accepter toute interférence, y compris les interférences pouvant entraîner un fonctionnement non souhaité de l’appareil.

Selon les réglementations d'Industrie Canada, cet émetteur radio ne peut fonctionner qu'avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Pour réduire le risque de brouillage radioélectrique causé aux autres utilisateurs, le type d’antenne et son gain doivent être choisis de manière à ce que la puissance rayonnée isotrope équivalente (e.i.r.p.) ne soit pas supérieure à celle nécessaire au succès de la communication.