

Installation Manual for the MSDR

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Prepared for:

Internal Use

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Revision Record

Revision	Rationale	Release Date
Rev 001	For Internal Review	24 Sept 2025

1 SCOPE

This document defines the installation for the MSDR Transceiver used in the MSDR Above Deck Unit (ADU).

1.1 SYSTEM OVERVIEW

The MSDR user terminal will be used to provide maritime users high speed access to the Viasat broadband satellite system. The terminal consists of a Below Deck Unit (BDU) and an ADU. The BDU is located within the interior of the vessel and connects to the customer provided equipment. The ADU will be located within a radome external to the vessel and mounted with line of sight to the Satellite.

The ADU consists of a parabolic antenna, a radome, an Antenna Control Unit (ACU) and a Transceiver unit. The Antenna collects and broadcasts signals to and from the Ka-band satellite. The Transceiver transmits and receives data to/from the satellite, conducts frequency translation and all modulation/demodulation of the signal between RF and baseband.

The BDU consists of a 19" 1U LRU Modem that provides power/communications to the ADU as well as communicating with the vessel's Gyro and Switch Router. For the interests of testing the MSDR standalone, a Smart Power Supply will be used to interface between the ethernet connection of a system computer and the Transceiver and provides both data and power.

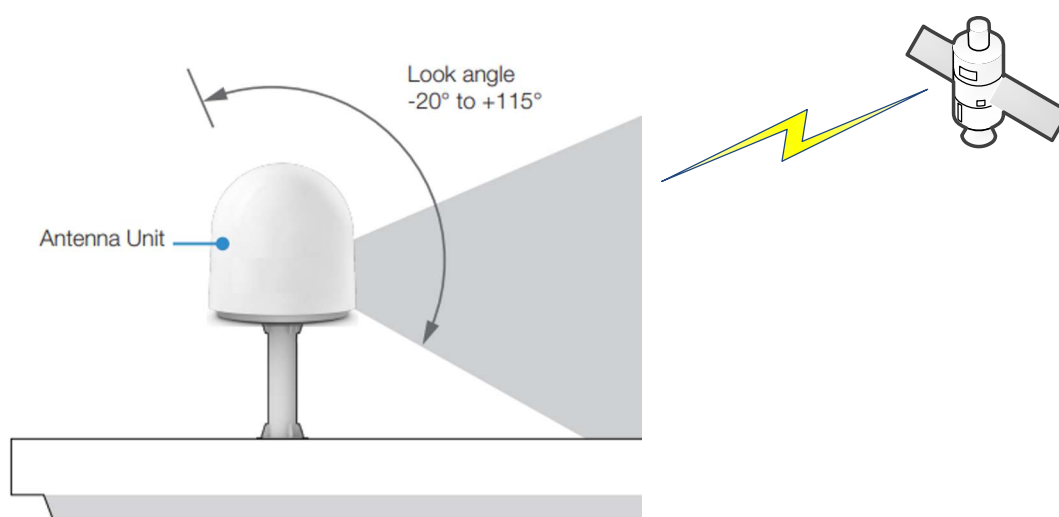


Figure 1 – System Overview

2 INSTALLATION

The BDU shall be powered off before the ADU installation is started.

The ADU shall be mounted as needed for a clear line of sight to the Satellite.

The Transceiver shall connect to the BDU via Viasat approved 50Ω, low loss LMR-400 coax cable terminated with male F-Type Connectors.

The ADU and LMR-400 cable shall be properly grounded.

3 POWER

Input power to the MSDR is between $40\text{Vdc} < V < 50\text{Vdc}$ with a max current $< 3.75\text{A}$

The input power operates at two discrete levels. During startup, a default level of 40V nominal is used for initial power on.

During installation the BDU power will be off, and there will be no DC voltage on the coax. If the BDU is inadvertently powered on during installation, the lower level 40V will be maintained as the nominal voltage until the coax cable is connected to the BDU.

The coax cable will switch to 48V nominal only after the LMR-400 coax connects the ADU to the BDU, and after the ADU/BDU establish communication.

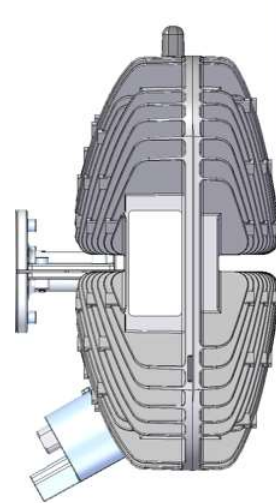
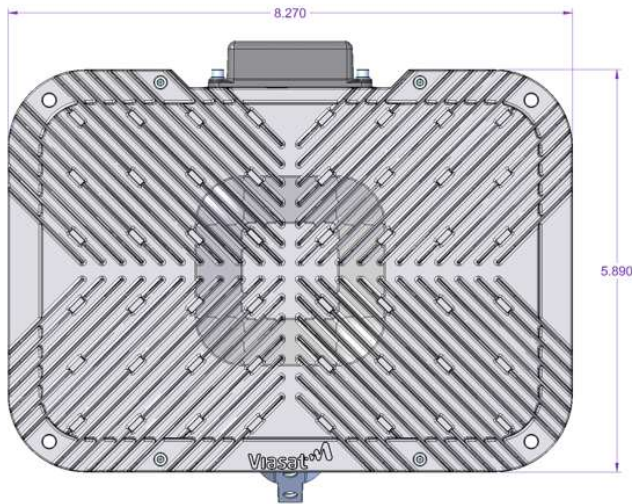
4 OPERATING ENVIRONMENT

The ADU Operating Environment is as follows:

- Temperature: -40°C to +71°C with two fans providing 60 CFM
- Humidity: 0% to 100%
- Altitude: 4300m (max)

5 SIZE

The MSDR is 8.27 in x 5.89 in



Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, 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, there is no guarantee 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 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Industry Canada statement

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- 1. L'appareil ne doit pas produire de brouillage;*
- 2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

FOR MOBILE DEVICE USAGE (>20cm/low power)

Radiation Exposure Statement:

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with greater than 20cm between the radiator & your body.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé à plus de 20cm entre le radiateur et votre corps.

KA-BAND OPERATION PROVIDES ACCESS TO VIASAT'S BROADBAND SATELLITE SYSTEM UNDER THE TERMS & CONDITIONS OF VIASAT'S SPECTRUM LICENSE(S) HELD WITH ISED CANADA.