OVER-THE-HORIZON AIS MONITORING

Network Display for Remote Monitoring

Troposcatter
not to scale
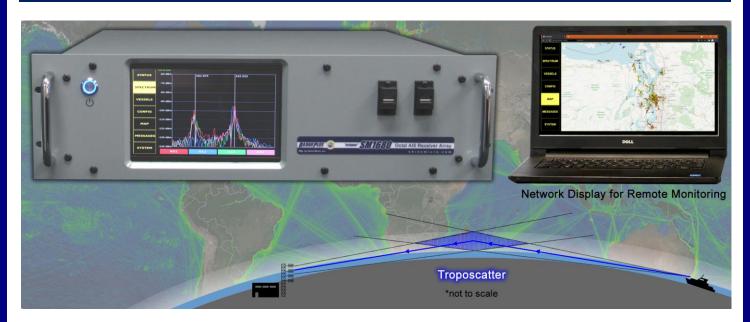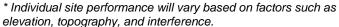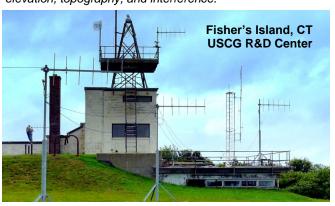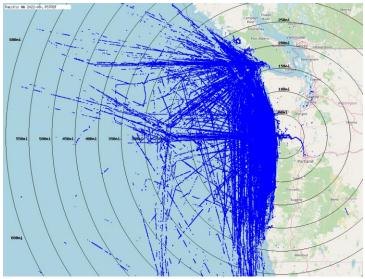
The SM1680 achieves 200 NM* EEZ monitoring from a shore station.

With four synchronized receivers on each AIS channel, the SM1680 is a Software Defined Radio (SDR) that utilizes troposcatter to achieve extended-range Exclusive Economic Zone (EEZ) AIS monitoring without the cost, latency, or other limitations of satellites.

* Individual site performance will vary based on factors such as elevation, topography, and interference.

Fisher's Island, CT USCG R&D Center

50 NM range rings

New for 2022:
- Enhanced performance
- More rugged and reliable
- Larger touchscreen
- Network display for remote access
- Fan-less enclosure
- 13.6 VDC input for solar/battery installations

DSB-1680-200 REV. 4.0 ▪ 10/14/2022

SHINE MICRO®

SM1680

OVER-THE-HORIZON AIS MONITORING

System Specifications

- **Designation:** AIS RX base station per ITU R M.1371-5
- **Interface:** TCP/IP Ethernet
- **Power Requirement:** 13.6VDC
  100-240VAC 50/60 Hz to 13.6 VDC power supply included
- **Power Consumption:** < 45 watts
- **Temperature Range:** -15 to +55 degrees C.

Navigation Specifications

- **Multi-GNSS disciplined time, frequency and position standard**
- **GPS antenna** SMA female
- **Frequency Accuracy:** 6 ppb

Dimensions and Weights

Width: 19" rack mount	**Depth:** 17.25"
Height: 5.25" (3U)	**Weight:** 36 lbs.

Frequencies and Channel Bandwidth

- **RX AIS1:** 161.975 MHz at 25 kHz
- **RX AIS2:** 162.025 MHz at 25 kHz

AIS Receivers

- **AIS Data Rate:** 9,600 bps
- **Individual Receiver Sensitivity:**
  ≤20% PER @ –119 dBm w/ SM1680 LNAs
- **System Sensitivity:** -125 dBm or better
- **Adjacent Channel Selectivity:** 70 dB
- **Blocking:** 86 dB
- **Intermodulation:** 74 dB
- **Image Rejection:** 70 dB
- **Spurious Rejection:** 70 dB
- **Antenna Interface:** Type N female

Serial Interface Details:

The serial interface of the SM1680 conforms to ITU R M.1371-5 and NMEA 0183 V4.0 with additional proprietary sentences.

For full serial interface specifications, e-mail info@shinemicro.com or call Shine Micro at (360) 437-2503.

Network Display

LNA Specification

- **Enclosure:** IP67 against Dust and Water
- **Connector Type:** Type N female
- **Frequency:** 162 MHz
- **Noise Figure:** < 2 dB
- **Gain:** > 20 dB
- **Power Supply:** Coax Bias
- **Input Protection:** Multi-Stage Pin Diode

Full Color, Touch-Screen Display

- **SM1680 Status**
- **4-channel Spectrum Analysis**
- **Vessel Statistics**
- **Password-Protected Configuration**
- **Interactive Received-Vessel Map**
- **Raw AIS Messages**
- **Receiver System Statistics**