iridium®

Iridium **Pilot**™
Quick Start Guide

Only one communications company connects the entire globe

Iridium commands the world's furthest reaching network, making it the only truly global communications company with solutions that span from pole-to-pole. Iridium voice and data products provide superior communications solutions that allow global companies, government agencies and individuals to stay connected everywhere. With a unique, global ecosystem of partners, Iridium continues to create new, high-value capabilities that are leading the world into a new era of communication.

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Everywhere

RELIABLE·CRITICAL·LIFELINES

⚠ Read Installation Guide, User Manual and all safety information before installing or using Iridium Pilot™. Failure to do so can result in serious injury or death. The User Manual contains important warranty terms, limitations, exclusions and terms and conditions that govern Iridium Pilot use.

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INSTALLATION COMPONENTS & PARTS LIST:

1. Iridium Pilot Unit includes the following parts:

- A. Above Decks Equipment (ADE)
- B. Mounting bracket (optional accessory included, if purchased)
- C. Below Decks Equipment (BDE)
- D. ADE/BDE cable (20 m and 50 m cable available)
- E. BDE power supply unit: the AC power supply unit (PSU) provides power to the BDE
- F. Iridium Pilot accessory CD
- G. SIM card
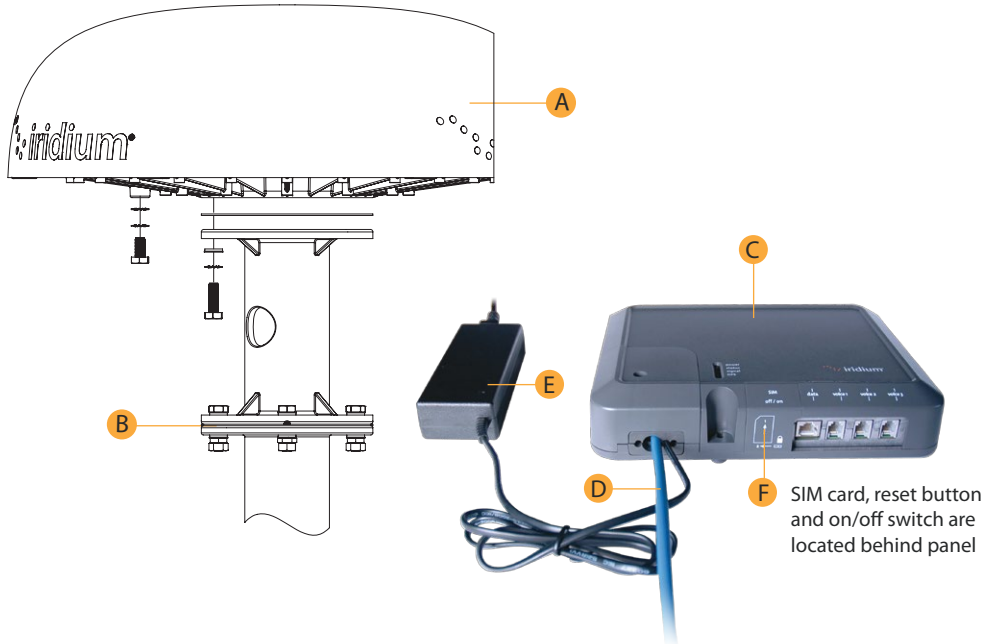
Required Tools for Installation:

1. **User supplied mast**
2. **Windows compatible computer**
3. **Ethernet cable (installer/customer provided)**
4. **RJ11 telephones**
5. **Slotted and Phillips screw drivers**
6. **Hammer and center punch**
7. **Power drill and associated bits**
8. **Wire cutters**
9. **Wire strippers and terminal lug crimper**
10. **RJ-45 crimp tool**
11. **Electrical tape**

A

C

E

B

D

F   SIM card, reset button and on/off switch are located behind panel

⚠ WARNING

Exposure to radio frequency energy (RF) from the antenna may cause thermal injuries including tissue damage from increased heating and body temperature. Do not substitute any antenna for the one supplied or recommended by the manufacturer or radio dealer. Substitution of antennas could cause exposure to excess radio frequency radiation which could result in serious injury or death.
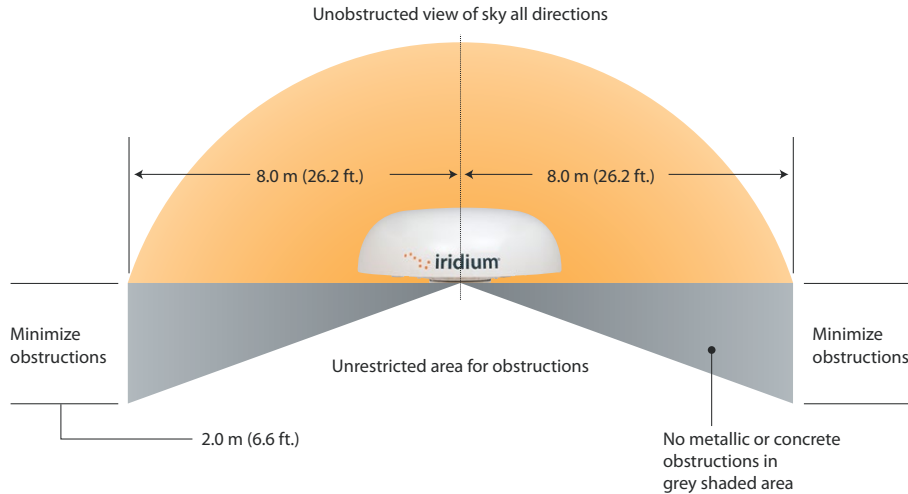
Blasting Areas

⚠ WARNING

To avoid interfering with blasting operations, turn your device OFF when in a "blasting area" or in areas posted: "Turn off two-way radio." Obey all signs and instructions. Failure to do so could result in serious injury or death.

STEP 1: LOCATION FOR ADE

Conduct a visual survey to determine the best location for the ADE. The ADE needs clear exposure, in all directions, to the sky to avoid interference.

Place the ADE transmitter in a manner to maintain the minimum spacing requirement of 1.0 m from the antenna to personnel.

Unobstructed view of sky all directions

8.0 m (26.2 ft.)   8.0 m (26.2 ft.)

Minimize obstructions

Unrestricted area for obstructions

Minimize obstructions

2.0 m (6.6 ft.)

No metallic or concrete obstructions in grey shaded area

Radiation Hazard

1.0 m (3.3 ft.)

Keep clear of sources of interference, such as the ship's RADAR, high power transmitters or other satellite communications terminals.
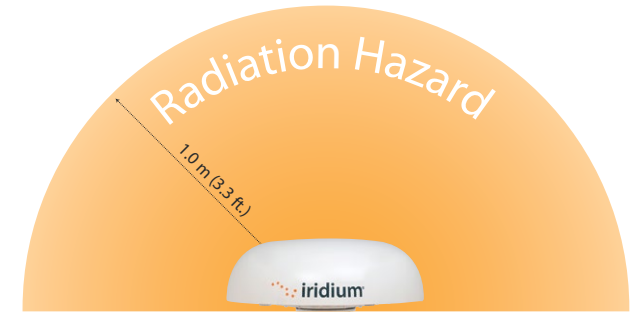
Description	Minimum Distance from Antenna
within 0˚- 180˚ of the antenna elevation range	1.0 m (3-3 ft.)

Minimum distance from S-band & X-band RADARs

S-band (-10 cm/ 3 GHz) radars		
Radar Power	Min distance at 15˚ vertical separation	Min distance at 60˚ vertical separation
0-10kW	0.4 m (1.3 ft.)	0.4 m (1.3 ft.)
30kW	1.0 m (3.3 ft.)	0.5 m (1.6 ft.)
50kW	2.0 m (6.6 ft.)	1.0 m (3.3 ft.)

Offset Distances from other Communications & Navigation Equipment ADE Location Priorities

X-band (~3 cm/ 1 GHz) and C-band (4-8 GHz) radars		
Radar Power	Min distance at 15˚ vertical separation	Min distance at 60˚ vertical separation
0-10kW	0.8 m (2.6 ft.)	0.4 m (1.3 ft.)
30kW	2.4 m (7.9 ft.)	1.2 m (3.9 ft.)
50kW	4.0 m (13.1 ft.)	2.0 m (6.6 ft.)

⚠ WARNING

⚠ Exposure to radio frequency energy (RF) from the antenna may cause thermal injuries including tissue damage from increased heating and body temperature. Keep everyone at a safe distance from the antenna when the system power is ON. Personnel must maintain a minimum separation distance of 1.0 m from the unit and installers must place ADE transmitter in a manner to maintain minimum spacing requirement. Failure to do so could result in exposure to radio frequency energy (RF) transmitted from the ADE that could result in serious injury or death.

STEP 2: INSTALL THE ADE STAND MOUNTING

Note: You can use the ADE shipping container as a temporary platform to support the ADE and provide clearance for the connector and cable by cutting small hole on the cardboard box.
Connect the 9-pin circular connector on the interface cable to the ADE receptacle on the bottom of the ADE. Elevate the ADE to the approximate intended install height and use a temporary platform to hold the unit. Orient the grounding lug on the bottom of the ADE towards the stern of the vessel. Route the interface cable along the deck to a location where Mains power is available. Tape the cable to the deck to reduce any trip hazard during the temporary operation of the system. A suitable mounting bracket or mast needs to be procured or fabricated to support the ADE.

SLOTTED SIDE OF STAND MUST FACE DOWN

Recommended stand mounting
Note: Ship-side mount may differ from the example shown. Neoprene bonded stainless steel washers are included to protect the anti-corrosion coating on the stand and to prevent galvanic corrosion of the assembly. 316 stainless steel hardware is recommended for installation.
1. Take care when transporting the radome (1) and stand (2) so as not to damage the corrosion resistant coatings.
2. Place an isolation gasket (3) onto the ship's mounting post (8).
3. Place the stand (2) onto the isolation gasket, with the slotted side facing down.
4. Slide a neoprene bonded isolation washer (5) onto an M10 hex head bolt (4), with its metal side contacting the bolt.
5. Slide this bolt assembly through the slot in the stand then through the hole in the ship's mounting post.
6. Slide on another isolation washer with the rubber side facing the mounting post.
7. Thread on a jam nut (6) finger tight.
8. Thread on a hex nut (7).
9. Repeat steps 4-8 for the remaining three bolts.
10. Tighten the jam nuts using 10-12 ft-lbs of torque.
11. For all four bolts: preventing the jam nut and bolt from turning, tighten the hex nut against the jam nut until they lock, taking care not to overtighten.
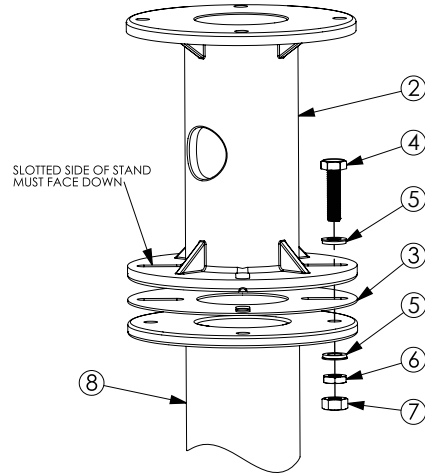
STEP 3: INSTALL THE ADE RADOME MOUNTING

Note: Grounding lug on radome base must be facing stern. Align ship-side mount so that the mounting bolt holes form a diamond pattern with a single hole facing forward and aft.
1. Place an isolation gasket (3) on top of the stand.
2. Route the power/data cable (not pictured) through either the bottom of the stand or through its side hole, up through the top hole in the stand. Plug the cable into the connector on the bottom of the radome.
3. Place the radome onto the stand, with the arrow on the base pointing toward the bow.
4. Slide a lock washer (9) then an isolation washer (5) onto an M10x30 mm hex head bolt (10). The metal side of the isolation washer should face the lock washer. Apply anti-seize compound (12, not pictured) to the bolt threads.
5. Slide the prepared bolt up through the stand, and finger tighten into the dome array.
6. Repeat steps 1 and 3 for the remaining three bolts.
7. Tighten the four bolts using 10-12 ft-lbs of torque.
8. Attach ground cable between two lock washers (9) on the 20 mm M10 bolt (11) and tighten into ground post.

APPLY ANTI-SEIZE COMPOUND HERE
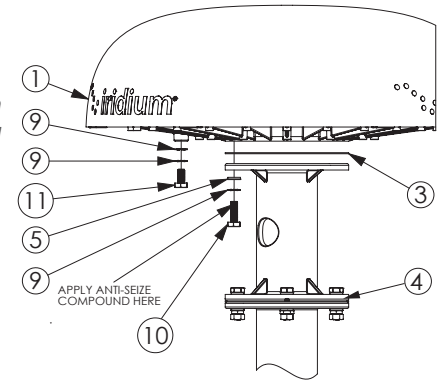
⚠ WARNING

⚠ ADE must be properly mounted and secured to vessel. Failure to do so could result in detachment of the unit, causing disruption in operation of the unit, or danger from a falling unit, which could result in serious injury or death.

⚠ CAUTION

⚠ Damage to the paint coating may allow rust to the ADE which could result in failure of the ADE. This in turn could cause disruption in operation of the Iridium Pilot device or danger from a falling unit. Avoid damaging the paint coating. If damage occurs, re-apply appropriate anti-corrosion paint. Failure to do so could result in serious injury or death.

STEP 4: CONNECT THE ADE/BDE CABLE

The interface cable has a waterproof circular connector that connects to the ADE and a shielded RJ-45 connector that connects to the BDE. Since the BDE side is much smaller it makes sense to pull the cable from the ADE towards the BDE. Once the ADE site is known a BDE location must be selected that is within 20 or 50 meters, accounting for the path through the cable chase. Drill the necessary hole to route the cable to the interior of the vessel. The cable should be pulled with the RJ-45 connector installed since it has been tested in previous steps. Use care and install a pull string that attaches to the cable jacket and does not place stress on the connector. Use electrical tape to protect the RJ-45 during the pull operation. Leave just enough service loop at the ADE and store any excess cable in the cable chase or near the BDE.

Above Decks Equipment

Interconnect Cable
50 metres (optionally 20 m)

STEP 5: INSTALL THE BDE

The Below Decks Equipment (BDE) should be located within 20 or 50 m of the ADE and mounted with the cable connectors pointing downwards on a flat vertical surface (wall) which is sheltered from the elements. The wall must be able to support the weight (1.35 kg, 3 lbs) and have adequate space for the unit that is 250 mm (9.8 in.) x 190 mm (7.5 in.) x 55 mm (2.16 in.).

1. Layout the locations for the mounting screws, 3 total. The BDE is mounted with the connector edge facing down.
    Note: Use the template in the appendix of the Pilot Installation Guide as a guide for correctly drilling the mounting holes.
2. Drill and tap holes for M4 flange style mounting screws.
    Note: Alternative screws or screw / washer combination may be used. Flange must fit into a 4.5 mm (.18 in.) hole.
3. Hold and screw the BDE against the wall.
4. Remove the SIM cover (retain).
5. Switch the ON/OFF switch in to the OFF position.
6. Remove installation cover from bottom left hand corner of BDE (retain cover and screw).
7. Connect internal cables:
    • Fit power feed from the ship's DC buss or from the supplied PSU to power connector on BDE, use strain relief provided within BDE. The power LED should light Amber.
    • Fit cable from ADE to BDE, use strain relief provided within BDE.
8. After checking that all the connections are securely made and have strain relief, replace and fasten the installation cover.
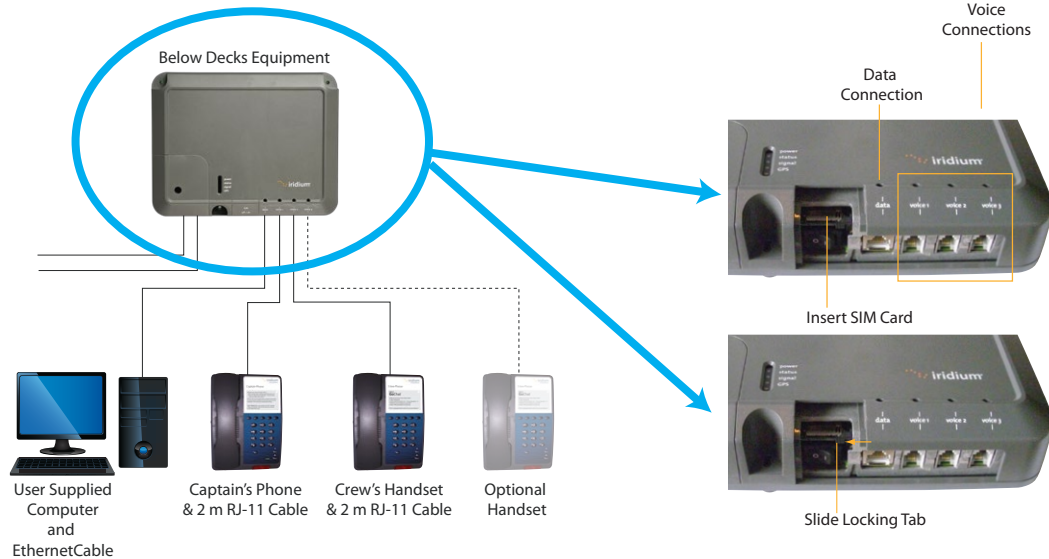
Shock Hazard

| ⚠️ **WARNING** |
| --- |
| ⚡ The Below Decks Equipment (BDE) contains low voltage that may cause serious injury if opened or not grounded. Ensure the unit is properly grounded before operation and do not, under any conditions, open or dismantle the BDE. Failure to follow these instructions could result in serious injury or death. |

STEP 6: CONNECT BDE TO PHONE AND ETHERNET

Connect an Ethernet cable from the BDE "Data" port to the RJ-45 connector on the lap top computer. Connect the RJ-11 cable from "Voice 1" on the BDE to the "Normal" handset.

Below Decks Equipment

Voice Connections

Data Connection

Insert SIM Card

Slide Locking Tab

User Supplied Computer and EthernetCable

Captain's Phone & 2 m RJ-11 Cable

Crew's Handset & 2 m RJ-11 Cable

Optional Handset

STEP 7: INSTALL SIM CARD

1. Remove SIM cover (retain somewhere safe) and ensure ON/OFF switch is in OFF position.
2. Insert an IOP provisioned (898816777xxxxxx) SIM card and slide the locking tab across.
   Note: If the SIM card is removed or unlocked during operation any voice or data calls will be terminated immediately.
3. Power on and replace the SIM cover.

Slide Locking Tab

Insert OpenPort SIM Card
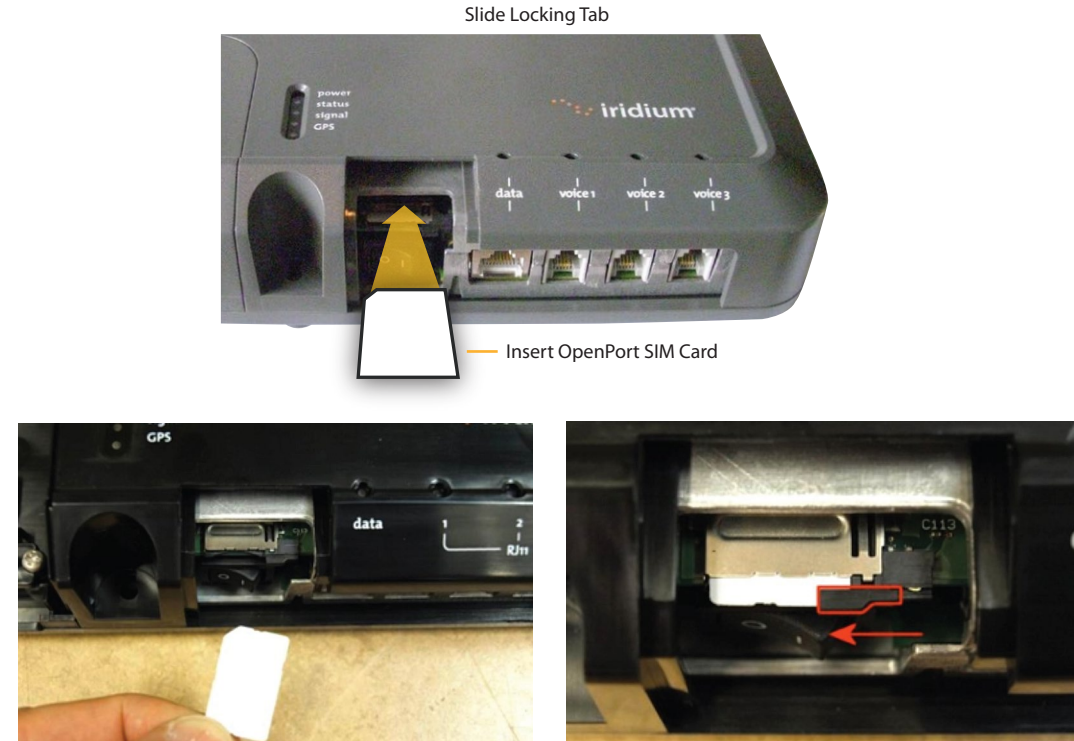
STEP 8: POWER ON BDE

On the BDE, press the on/off Power Switch located under the SIM cover. The system authentication will occur and the ADE will automatically establish a link with the Iridium network.
Note: 90-120 seconds should be allowed for this authentication and sync process to complete.

on/off Indicator Light

power
status
signal
GPS

data   voice 1   voice 2   voice 3

on/off Power Switch
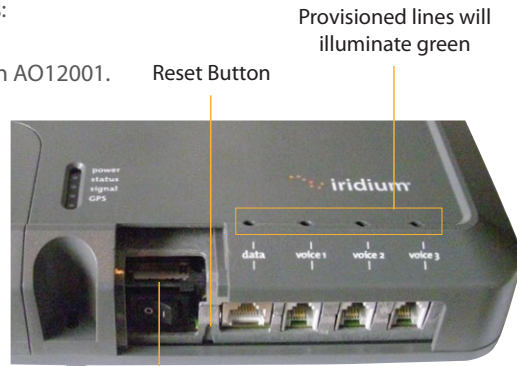The on/off Indicator Light should be green

STEP 9: CONFIRM LEDs

The status LEDs on the BDE should light as follows:

Power = Green
Status = Amber or Green with software version AO12001.
Signal = Green
GPS = Green

Provisioned lines will illuminate green

Reset Button

power
status
signal
GPS
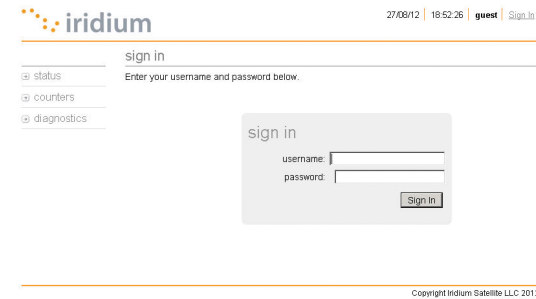
data   voice 1   voice 2   voice 3

SIM

STEP 10: CONNECT TO STATUS PAGE

To access the Iridium Broadband Subscriber Unit (IBSU) Web Pages:

1. Connect a PC to the data port on the BDE.
2. Open the web browser and in the web browser address window, type: http://192.168.0.1.
   Note: The default IP address is assigned to the IBSU at the factory. The IP address can be changed if there are multiple IBSU's at a single site. If this has been done, then type in the new IP address. To reset the IP address back to the default (192.168.0.1), press the network reset button on the BDE.
3. Select "Login" for administrator level diagnostics. The guest login is the default login. The admin login is only to be used for configuration. Type in the user name and password specified by Iridium. Call your Service Provider if login fails.

iridium   27/08/12   18:52:26 guest   Sign In

sign in
Enter your username and password below.

⊕ status
⊕ counters
⊕ diagnostics

sign in
username:
password:
Sign In

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4. Select the "Status" link to link to the Status page.
5. Confirm configuration is in operation.
6. We recommend that you run the Site Survey Tool (SST) to confirm proper installation. See the Iridium Pilot User Manual for more information.

STEP 11: PLACE A TEST CALL

Using the normal handset connected to the "Voice 1" port on the BDE place a call.

1. Ensure the SST software has been stopped.
2. Lift the receiver and listen for a dial tone.
3. Dial the country code, area code and phone number of a phone that can be used for voice quality testing. ***Don't forget to press the # key to initiate the call.***
4. When the call is answered verify there is intelligible voice in both directions.
5. If any issues are detected, hang-up and attempt the call again. If the problem persists, attempt a call to an alternate test number preferably in a different exchange (different provider) from the initial attempt.
6. If after all of these attempts there is still an issue consider the following:
   - Clear voice from the Iridium Pilot unit to the landline and garbled voice in the other direction is typical of local ship interference disturbing the down-link signal.
   - If the clear voice is from the land-line side and the Iridium Pilot side is garbled then there is likely another issue and you should consult the trouble-shooting section of the User Manual.
   - If the call is not clear in either direction then there could be an interference issue. An alternate location should be considered.
   - If the call fails to connect go to the trouble-shooting section of the User Manual.

Note: Voice quality of the Iridium Pilot network is characterized as narrow band telephony. Significant voice compression is used in transporting voice and it can sound slightly degraded from a typical mobile telephone call.

REGULATORY INFORMATION

FCC Declaration for 9701

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 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.

Modifications to this device not expressly approved by Iridium Satellite LLC may void authority granted under the rules of the Federal Communications Commission to operate this device.

Industry Canada

This product is compliant with Industry Canada RSS-102 for RF Exposure.

The 9701 BDE is a Class B digital apparatus and complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

EU Regulatory Conformity

Iridium Pilot complies with the essential requirements & other relevant provisions of the EC Directives 1999/5/EC and 73/23/EC as amended by 93/68/EC.