



The Airborne SmartPhone System

Troubleshooting Guide

Troubleshooting Guide part number D13497

Revision C, March 2009

Aircell
303 South Technology Court, Building A
Broomfield, CO 80021
United States of America

Distribution Statement: This publication is for the Satellite Telephone products only and is to be used by Customers and authorized Aircell agents only. Send requests for additional copies of this document to Corporate Publications Coordinator or e-mail at (cpc@Aircell.com).



PROPRIETARY NOTICE

This document and the information disclosed herein is proprietary data of Aircell Business Aviation Services LLC or its affiliates. Neither this document nor the information contained herein may be used, reproduced, or disclosed to others without prior written authorization of Aircell, except to the extent required for installation of recipient's equipment.

Notice

Freedom of Information Act (5 USC 552) and Disclosure of Confidential Information Generally (18 USC 1905)

Aircell is furnishing this document in confidence. The information disclosed here falls within exemption (b)(4) of USC 552 and the prohibitions of 18 USC 1905. For further information, please contact:

**Corporate Publications Coordinator
Aircell
303 South Technology Court, Building A
Broomfield, CO 80021
Telephone: (303) 301-0200
FAX: (303) 301-0279**

**© 2009 Aircell
All Rights Reserved.**

Information in this document is subject to change without notice and does not represent a commitment on the part of Aircell.

Trademark Acknowledgements

Aircell and Aircell Axxess are registered trademarks of Aircell Business Aviation Services LLC or its affiliates. All rights reserved.

Trademarks owned by third parties are the property of their respective owners.



TABLE OF CONTENTS

<u>Subject</u>	<u>Page</u>
PROPRIETARY NOTICE.....	ii
TABLE OF CONTENTS	iii
1.0 INTRODUCTION.....	1
1.1. General.....	1



1.0 INTRODUCTION

1.1. General

This document provides suggested troubleshooting requirements for Aircell Axxess® system. For full details regarding operation, setup and wiring interfaces, please refer to the Aircell Axxess Installation Manual, Aircell number D12004.



Aircell Axxess® Troubleshooting Procedures

Symptom	Possible Cause	Discussion	Verification Step(s)
<p><u>Symptom 1</u> Handset Display is not illuminated.</p> <p>(One or more Handsets integrated in system, no Handset displays are illuminated.)</p>	<p>Power is not available to the Aircell Axxess ST and/or CTR or AHIs.</p> <p>Note: Depending on installation options the CTR might receive power from the ST unit.</p>	<p>The Handset display should always be illuminated when power is applied to the CTR or AHIs. Because the failure of a Handset display is unlikely, an 'inoperative' display suggests that there is a problem with the input power to the ST, CTR or AHIs. In the event that the one or more Handset display(s) are not illuminated, the user/operator should verify that aircraft power is on and available to the ST and CTR or AHIs.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Verify that the aircraft power system (master avionics switch) is on. <input type="checkbox"/> Verify that the ST, CTR or AHIs system circuit breaker is closed. <input type="checkbox"/> Visually inspect the displays of all installed Handsets in the system. If all Handsets are off, proceed to the next bullet in this list. If most Handsets are illuminated, but one is not, then proceed to Symptom 2. <input type="checkbox"/> If all Handset displays are inoperative, the problem is likely in the power system wiring before the ST, CTR or AHIs. Visually check the system connections and the wiring harness leads between the ST, CTR or AHIs to the aircraft power system. Repair or reconnect any obvious problems. <input type="checkbox"/> If required, ring out the power lines per the system wiring diagram. Repair any broken wires or rework to match the system wiring diagram. <input type="checkbox"/> If this procedure does not resolve the problem, contact Aircell Technical Support for additional guidance.
<p><u>Symptom 2</u> Handset Display is not illuminated.</p> <p>(Aircell Axxess System has multiple Handsets, and the displays of most Handsets are on, but one Handset is not illuminated.)</p>	<p>Bad connection or faulty wiring between Handset and CTR or AHIs.</p> <p>or</p> <p>Bad Handset</p> <p>Note: The HSs receive power from the CTR or AHIs on the 4-wire Hi-Speed data connection.</p>	<p>In a system with multiple Handsets, if some Handsets are operating and some are not, then it is likely that either the Handset is bad or the wiring between the Handset and the transceiver is faulty.</p>	<ul style="list-style-type: none"> <input type="checkbox"/> Aircell Axxess systems integrate multiple Handsets. If more than one Handset is installed on the system, check the display on all Handsets. If only one of multiple Handsets is not illuminated, then the problem is either a bad Handset or in the Handset connection / wiring harness between that Handset cradle and the CTR or AHIs. <input type="checkbox"/> Perform a visual inspection to verify that all connections are made in accordance with the system wiring diagram. Correct any obvious problems. <input type="checkbox"/> If all system connections are correct, then switch the 'inoperative' Handset with a known good Handset and retest the system. If the Handset is still inoperative in the new location, then the Handset is bad. Contact Aircell Technical Support for repair/replacement instructions. <input type="checkbox"/> If the known good Handset is now inoperative, then the problem is in the system wiring/connections between the Handset and the transceiver. Ring out the lines per the system wiring diagram. Specifically check all 4 wires from the CTR or AHIs to the HS. Repair any broken wires or rework the system wiring harness to match the wiring diagram. <input type="checkbox"/> If this procedure does not resolve the problem, contact Aircell Technical Support for additional guidance.



Aircell Axxess® Troubleshooting Procedures

Symptom	Possible Cause	Discussion	Verification Step(s)
<u>Symptom 3</u> Handset Display is stuck on "Welcome to Aircell Axxess".	Handset has failed. or The DHCP server is not activated in the ST4200. Refer to Aircell Axxess Installation Manual D12004,	If the Handset does not make it past the 1 st screen and it has no other functions.	<input type="checkbox"/> Exchange with known good Handset to verify. <input type="checkbox"/> Enable the DHCP server in the ST4200 per Section 4.12 of the Aircell Axxess Installation Manual D12004.
<u>Symptom 4</u> Handset Display is stuck on "Waiting for System Availability" or "Unable to Register".	Aircell Axxess PBX functions have failed or the wiring path has failed.	The Handset should be functional; it's just is not talking to the PBX (the PBX functionality is located in the Aircell Axxess ST unit).	<input type="checkbox"/> Check the wiring path between the Handset, CTR or AHIs, to the ST4200. <input type="checkbox"/> Exchange the Aircell Axxess ST4200 with known good unit. <input type="checkbox"/> Exchange with known good Handset to verify. <input type="checkbox"/> Exchange the CTR or AHI with a known good CTR or AHI. <input type="checkbox"/> Use your PC interface to access the ST, CTR, HSs IP addresses separately.
<u>Symptom 5</u> Can't place calls from an operational aircraft HS to ground phone (fast audio beep indication). All HS show different extension #'s and you can place HS to HS call's. If not, proceed to Symptom 4.	Possible Cause 3A System antenna does not have Line of Sight (LOS) view to satellite. Note: Ensure the ST has an activated Iridium subscription. Contact Aircell Customer Service.	The Aircell Axxess ST transceiver operates On the Iridium Satellite network. When in coverage, the ST system should detect and register on the Iridium network. If the system does not register, then it is likely that either the antenna does not have a LOS to a satellite (3A), or there is a problem with the RF channel in the aircraft (3B). In this condition, it is unlikely that there is a problem with the system transceiver.	Verification Test 3A <input type="checkbox"/> Verify that the system SAT antenna has a clear LOS to the sky in all directions. A clear LOS is defined to exist when there are no obstructions (such as buildings, trees, vehicles etc) that are higher than 30 degrees above aircraft horizon in any direction. This should never be a problem in flight. <input type="checkbox"/> An Inmarsat Sat system in operation on this aircraft or a closely located aircraft can cause Iridium signal blockage. Please shut off the Inmarsat® to verify. <input type="checkbox"/> Once the LOS has been established the system should register on the SAT network within 60 seconds. If the system cannot register, and it is likely that there is an installation, Iridium subscription, equipment problem. Either contact Aircell Technical Support for additional guidance, or proceed to Verification Test 3B. <input type="checkbox"/> Verify wiring interface and component condition of other devices that have access to the Iridium channel's in question. (AirShow, UniLink, PC laptop, On-Go fax adapter etc). Also verify these data call devices are not using that channel when a voice call is to be placed from the aircraft.



Aircell Axxess® Troubleshooting Procedures

Symptom	Possible Cause	Discussion	Verification Step(s)
<p><u>Symptom 5</u> (continued)</p> <p>No Iridium Satellite signal</p>	<p>Possible Cause 3B</p> <p>There is a problem with the Satellite RF channel.</p>	<p>Iridium Satellite signal can be monitored using a PC interface to the RS-232 data port that is associated with the Iridium Channel in question.</p> <p>Connect a PC using a 9-pin serial cable to the RS-232 data port of an Iridium channel.</p> <p>Using a PC Hyper Terminal connection, (comm 1 or x) (Bits set to 19200), at the prompt Enter ate1v1 Enter, then at+csq? Enter.</p> <p>This will show a snapshot of satellite Signal. "+CSQ: X"</p> <p>X=bars of signal.</p> <p>1 to 5, 5 = 5 bars of signal.</p> <p>ST 4200 rev J and subsequent</p> <p>Iridium Satellite signal and registration can be monitored using a PC Ethernet (RJ-45) interface to the system Configuration Port. Use the same procedures as described in Section 4.8. IP address 192.168.1.10 (.11 for ST 4020) username "Administrator" and password "aircell1mb". Go to System Diagnostic and then look at the lower section of the table.</p>	<p>Verification Test 3B</p> <ul style="list-style-type: none"> ❑ While the aircraft is on the ground, perform a visual inspection of the system satellite antenna. Verify that the antenna is installed to the aircraft fuselage in accordance with the system antenna installation drawings. Verify the mechanical integrity of the antenna, and that the antenna is reasonably free of dirt, oil, ice and other undesired coatings. ❑ Visually inspect the RF satellite channel, including the coaxial connections to the antenna and the system transceiver. Inspect the coaxial connectors to verify that they are connected in accordance with the system wiring diagram, and that they are not damaged. Look for breaks, kinks or other damage to the coaxial cable. ❑ The user is authorized to correct installation errors (such as cabling errors), or to repair minor damage (such as broken coaxial connections, damaged coaxial cables, etc). The user is not authorized to open or modify sealed LRUs. ❑ If these steps do not resolve the problem, contact Aircell Technical Support for additional guidance.
<p><u>Symptom 6</u></p> <p>One (1) HS or Multiple HS can't place HS to HS calls or a call to a ground phone.</p>	<p>PBX functionality is not correctly configured.</p> <p>The PBX is in the Aircell Axxess ST unit.</p>	<p>Up to 8 HSs are configured for a separate extension's 81 to 88.</p> <p>Each HS need to be on a separate extension. Each extension can be set up to use or not use an available Iridium channel.</p>	<ul style="list-style-type: none"> ❑ Verify the PBX is configured correctly for the HS and or HSs in question. Refer to Section 4.0 of the Aircell Axxess Installation Manual D12004 for the proper procedures and recommendations. Note: Identifying Customer preferences might be useful before changing any settings. ❑ Verify no other devices are using the Iridium channel in question. (AirShow, UniLink, PC laptop, On-Go fax adapter etc.).
Other conditions			For all other conditions, contact Aircell Technical Support for guidance.