



Iridium Core 9523

Software Release Note

IRDM-1023-SRN-006 v5.0

DB23001

Iridium Proprietary Business Information

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1 Introduction

This document details the feature changes contained in the software version DB23001 release for the Iridium Core 9523 and Iridium Core 9523N transceivers.

The primary purpose of this release is to enable push-to-talk (PTT) functionality for the Iridium Core 9523N transceiver.

2 Upgrade Tool

An upgrade tool is provided to load the revision DB23001 software onto an Iridium Core 9523 or Iridium Core 9523N transceiver. The upgrade tool associated with this release has been tested with Microsoft Windows 10.

To use the upgrade tool connect the Data/Fax port on the transceiver to a PC COM port, launch the upgrade tool, and click Upgrade to perform the upgrade. After the upgrade is complete the transceiver will report version DB23001 when queried with the AT+CGMR command.

3 Hardware Compatibility

This software release has been tested to be compatible with the following hardware models.

Hardware Models			
IRIDN0125B	IRIDN0125E	IRID0125D20	IRID0425H
IRIDN0125C	IRID0125	IRID0125G01	
IRIDN0125D	IRID0125D04	IRID0125G03	

Iridium may produce and distribute hardware models loaded with software version DB23001 that are not indicated on this list at its sole discretion and without notice.

4 Change List

4.1 DB23001

Description
Enabled PTT functionality for 9523N transceiver.

4.2 DB20004

Description
Improved communication channel selection algorithm used when establishing a connection with the network in telephony mode.
Add stronger validation checking of periodic radio calibration changes before storing to persistent memory in telephony mode.
Improved communication channel timing alignment between the transceiver and network in push-to-talk mode.
Improved queue delay of talkgroup activity indications to host application in push-to-talk mode.
Improved reliability of call setup in push-to-talk mode.
Enhanced the communication channel selection algorithm used when communicating with the network in push-to-talk mode.
Optimized radio management algorithm to improve allocation of receiver resource in push-to-talk mode.
Addressed issue in push-to-talk mode where channel assignments were inadvertently being discarded.
Corrected network signal quality indications in push-to-talk mode.
Addressed issue in push-to-talk mode where timing indications reported by the transceiver stop increasing during loss of connection to the network.
Added protections to prevent push-to-talk mode from becoming operational on unsupported hardware revisions.

4.3 DB19002

Description
Leveraged enhancements offered by the Iridium NEXT constellation to improve network connectivity and improve reception of transceiver ring notifications from the core network.

4.4 DB17011

Description
The SMS capacity of the SIM card is no longer assumed to be 30 messages. Capacity reported by the SIM to the Iridium Core 9523 is now utilized up to a maximum of 50 messages and is reflected appropriately in the AT interface commands that manipulate SMS messages.
Addressed an issue in both telephony and push-to-talk mode where channel assignments were inadvertently being discarded.
The frame number indicated in the Network Status Indicator message now continues to increase monotonically through a period of loss in network connectivity while in push-to-talk mode.
A fix was applied to prevent the transceiver from becoming inoperable in push-to-talk mode due to errant frequency measurements.
While in push-to-talk mode the transceiver now indicates changes to the state of the antenna position detection pin on the Iridium Core 9523. This is accomplished via a new API message as detailed in the push-to-talk SDK that adds this feature to the push-to-talk Transceiver Interface Library.
The push-to-talk API minor revision has been incremented to bring the interface version to 1.1 due to the change that adds the antenna detection API.
Greatly improved the RSSI calculation and reporting algorithm in push-to-talk mode to provide signal strength more contemporaneously. Changed from a periodic single-sample method to a method that averages all samples taken over 1 second while a push-to-talk call is active and over 2 seconds in most other nominal situations.
Resolved a pair of issues in push-to-talk mode where an infrequent race condition and failure mode in the over-the-air provisioning of the transceiver could result in the talkgroups indicated on the transceiver control interface being out-of-sync with the push-to-talk gateway elements.
Fixed a set of memory leaks in push-to-talk mode that could cause the Iridium Core 9523 to become unstable when operated for long periods of time.
Fixed an edge-case issue in push-to-talk mode that could cause the Iridium Core 9523 to stop indicating the current received signal strength.

4.5 DB16009

Description
Adds support for the Iridium Core 9523N hardware platform.

4.6 DB16007

Description
Changed the behavior of signal strength reporting when no SIM is connected to the transceiver. Signal quality indication commands AT+CSQ[F] and AT+CIEV:0 now report RSSI without a SIM.
Changed the behavior of SBD ring alert processing when no SIM is connected to the transceiver. SBD ring alerts are now detected and reported to the host application without a SIM.
Extended the implementation of the AT+CIEV command to accept requests for Antenna Fault (AT+CIEV:2) and SV Information (AT+CIEV:3). The Antenna Fault request is included to maintain compatibility with the interface specification; there is no hardware support in the Iridium Core 9523 to indicate antenna faults.
Extended the implementation of the AT+CIEV command to report SV information.
Fixed an issue that prevented correct operation when used in conjunction with the Value Added Manufacturer End-of-Line Test Tool on the Iridium Core 9523N product variant.
Modified the behavior of RSSI reporting when using AT+CIEV/AT+CIEV:0 to suppress a network connectivity warning which was previously indicated by issuing an AT+CIEV:0 value of 0. This change reduces the frequency of RSSI indications of 0 that may mislead a host application to believe a connection cannot be established.
Corrected an issue where audio muted using the AT+CAR command could be unmuted by DTMF tone processing.
Corrected the formatting of the response to the AT+SBDDSC? command to match the interface document.
Corrected an issue where formatting errors in the argument string passed to the AT+CLCK command could cause the interface to appear to stop processing command input.
Fixed a regression that prevented the upgrade tool from connecting to transceivers configured to communicate with the host using a non-default baud rate.



4.7 DB15005

Description
First production release of transceiver firmware with Iridium Push-to-Talk capabilities.

4.8 DB15002

Description
Added support for the Value Added Manufacturer End-of-Line Test Tool.
Extended the Intelligent Peripheral protocol with calling line identification functions and call setup failure reporting.
Fixed reading of ICC ID from the SIM over the Intelligent Peripheral protocol.
Added support for simultaneous send and receive of SMS.
Added support for bottom-boot and top-boot flash memory in manufacturing images, bootloader, and upgrade tool.
Calls to the emergency services number "000" are now permitted when no SIM card is attached to the transceiver.

4.9 TM12003

Description
Fixed issue of the ISU getting stuck presenting an active call with no data/voice going through after failed inter-SV hand-off.
Updated vocoder to version 1.2.
Fixed issue of voice/data call blocking after invocation of SBD functionality immediately following first radio signal reception.

4.10 TM11001

Description
Added Iridium Core 9523 network identifier to allow the reception of SBD ring alerts.



4.11 HA11002

Description
First production release.