



IRIDIUM

9555 Handset Product Information Guide



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Revision History

Revision	Date	Comment
V0.1	21 st April 2008	Draft Issue
V1.0	14 th October 2008	Initial version
V1.1	19 th November 2008	Corrected DC Power On/Off signal description

Export Compliance Information

This product is controlled by the export laws and regulations of the United States of America. The U.S. Government may restrict the export or re-export of this product to certain individuals and/or destinations. For further information, contact the U.S. Department of Commerce, Bureau of Industry and Security or visit www.bis.doc.gov.

1.0 Product Overview

The 9555 Handset is a replacement for the 9505 handset and supports all of Iridium's voice and data services.

The Handset has reduced size, updated styling and an improved feature set:

- Intuitive MMI with large display
- Enhanced phonebook
- Multi-lingual operation
- Hands-free capability
- USB connectivity
- Integrated antenna
- Antenna docking connector

The Handset supports all of Iridium's voice and data services.

The 9555 is regulatory approved for FCC, Canada, and CE allowing the product to be used throughout the world.

The User Connector (on the base of the handset) provides the following interfaces and connections:

- External peripheral control
- Digital Audio
- USB
- Power Input
- On / Off

2.0 Standards Compliance

The 9555 is designed to comply with the standards for Radio Emissions Compliance, Electromagnetic Compatibility, and AC Safety in the United States, European Union and Canada.

2.1 *FCC Compliance*

The 9555 is certified under 47 CFR Part 25 as FCC ID: Q639555. It also complies with Part 15 of the FCC Regulations. Operation is subject to the condition that this device does not cause harmful interference. Any changes or modifications, including the use of a non-standard antenna, not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

2.2 *CE Compliance*

This product, when marked with the CE symbol, complies with the European Community Council Directive for R&TTE, 99/5/EC, provided that the integrator/user adheres to the instructions detailed in this LBT Interface Specification. This product is in compliance with applicable ETSI standards. Compliance with the requirements of ETSI EN 301 489 requires the use of a shielded digital data interface cable.

3.0 Physical Specifications

3.1 *Environmental*

The environmental specifications of the 9555 are summarized in Table 1 below.

Table 1: Environmental Specifications

Parameter	Value
Operating Temperature Range	-10°C to + 55°C
Operating Humidity Range	25 to 75% RH
Storage Temperature Range	-40°C to + 85°C
Storage Humidity Range	≤ 93% RH

3.2 *Dimensions*

The overall dimensions of the 9555 (with antenna stowed) and its weight are summarized in Table 2 below. Dimensioned views of the 9555 are shown in Figures 2 which follows.

Table 2: Mechanical Dimensions

Parameter	Value
Length	145 mm (5.71")
Width	55 mm (2.17")
Depth	31 mm (1.22")
Weight (approximate)	260 g

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Figure 1: Dimensions of 9555

3.3 Interface Connectors

The 9555 Handset incorporates six interface connectors:

- User Connector (located on the bottom of the handset)
- Subscriber Identity Module (SIM) Chip Connector (located under the battery)
- Mini-USB Connector (located on the left hand side of the handset)
- DC power Connector (located on the left hand side of the handset)
- Headset Connector (located on the right hand side of the handset)
- Antenna Docking Connector (located on the rear of the handset)

3.3.1 User Connector

The User Connector is a 19 pin 1mm pitch connector (AVX 9157 series). Connection to this is made using a 19-way plug from the same AVX connector series. The connector includes six interfaces:

- DC Power
- On Off control signal
- Control (DPL bus)
- Digital Audio
- USB Data
- External 11Hz

The pin out information for this connector is given in Table 3 below.

Table 3: 19-way connector pin-out

Contact	Signal	Description
1	PGND	Power Ground input to Handset
2	PGND	Power Ground input to Handset
3	UC_POWER	Power input to Handset
4	UC_POWER	Power input to Handset
5	EXT11HZ	90ms "frame sync" signal (used in testing)
6	UC_ON_OFF	External connection for On / Off key input to Handset
7	0V	Signal ground, 0V signal reference and return
8	DPL_TXD	Digital Peripheral Link (UART) data output from Handset
9	DPL_RXD	Digital Peripheral Link (UART) data input to Handset
10	0V	Signal ground, 0V signal reference and return
11	DA_CLK	PCM digital 2.048MHz audio clock output from Handset
12	DA_FS	PCM digital audio frame sync output from Handset
13	DA_TX	PCM digital audio output from Handset
14	DA_RX	PCM digital audio input to Handset
15	0V	Signal ground, 0V signal reference and return
16	USB_VBUS	USB power line
17	USB_DN	USB Negative Data line
18	USB_DP	USB Positive Data line
19	0V	Signal ground, 0V signal reference and return

Note: Pin 1 is nearest to the # key and at the same side as the headset connector.

3.3.2 SIM Chip Reader

An integrated SIM chip reader is provided on the 9555. This connector allows installation of the chip form of the SIM under the battery. The battery has to be removed from the Handset to gain access to the SIM connector; the SIM slides into the connector in the direction and orientation shown on the plastic and is held in place by an integral clip.

3.3.3 Mini-USB Connector

A Mini-USB connector is provided on the left hand side of the Handset. This connector allows the handset to be connected to a PC using a standard to mini USB cable. The USB port is used for the transfer of data to the Handset when a data call is in progress.

3.3.4 DC Power Connector

A DC Power Connector is provided on the left hand side of the Handset. This connector allows the connection of an Iridium AC Travel charger or an Iridium Automotive charger. This allows the battery to be charged.

3.3.5 Headset Connector

A Headset Connector is provided on the right hand side of the Handset. This connector allows the connection of an Iridium wired Headset. This allows the user to use the Handset without holding the unit.

3.3.6 Antenna Docking Connector

An Antenna Docking Connector is provided in a recess on the rear of the Handset. This connector is used when the Handset is held in a docking cradle (or similar) and allows an external antenna to be connected to the Handset and used instead of the integrated antenna.

Mating connectors to use with the docking connector (Tyco 619231-1) are also available from Tyco.

4.0 User Connector Electrical Interfaces

The subsections to follow contain interface information for the electrical interfaces of the 9555 Handset User Connector.

4.1 DC Power Interface

4.1.1 DC Power Interface Signal Descriptions

The DC power interface is comprised of the DC power inputs and a control signal as summarized in Table 4 below. The UC_POWER and PGND inputs are used to supply DC power to the 9555 Handset. The UC_ON_OFF control input is pulled to a high level to power the 9555 Handset on and is pulled to a low level to power the 9555 Handset off.

Note that both pairs of pins should be connected for UC_POWER and PGND.

Note: This will charge the battery and power the 9555 Handset; a battery must be present.

Table 4: DC Power Interface Signal Descriptions

Signal Name	Signal Description
UC_POWER (pin 3 and 4)	External power +5 – +12VDC input
PGND (pin 5 and 8)	External power GND input
UC_ON_OFF (pin 6)	Power on/off control input

4.1.2 DC Power Input Specifications

The DC power requirements for the 9555 Handset are summarized in Table 5 below. Note that these requirements apply to DC power measured at the 9555 Handset User Connector input.

Table 5: DC Power Input Specifications

Parameter	Value
Main Input Voltage Range	+5 VDC to +12 VDC
Main Input Voltage – Nominal	5VDC
Main Input Voltage – Ripple	40 mV peak to peak
<i>Consumption at +5 VDC</i>	
Input Current	2.0A

Note: The current supplied via the User Connector is only used to charge the battery, therefore the current drawn will depend on the charge state of the battery.

4.2 Control (DPL bus) Interface and Digital Audio

4.2.1 Control Interface (DPL bus) Signal Descriptions

The control interface (DPL bus) enables peripherals such as handsets and SIM card readers to be interfaced to the 9555 Handset. The interface utilizes an Iridium Proprietary communication bus not detailed in this fact sheet. Details can be made available after appropriate Non-Disclosure and/or License Agreements are executed.

4.2.2 Digital Audio Signal Descriptions

The digital audio interface is comprised of four signals; DA_CLK, DA_FS, DA_TX and DA_RX; and conform to the PCM standard for digital audio. The interface allows the audio to be routed to an external device connected to the 9555 Handset.

Table 5: Digital Audio Signal Descriptions

Signal Name	Signal Description
DA_CLK (pin 11)	2.048MHz clock signal
DA_FS (pin 12)	Frame sync signal
DA_TX (pin 13)	Digital audio output
DA_RX (pin14)	Digital audio input

4.3 USB Data Interface

4.3.1 USB Data Signal Descriptions

The USB data interface is comprised of four signals, USB positive data, USN negative data, USB power and 0V; the signals are summarized in Table 6 below. This interface allows a connected Data Terminal Equipment (DTE) to utilize the 9555 Handset's modem functionality via AT command control.

Table 6: USB Data Interface Signal Descriptions

Signal Name	Signal Description
USB_VBUS (pin 16)	USB Power line
USB_DN (pin 17)	USB Negative Data line
USB_DP (pin 18)	USB Positive Data line
0V	Signal ground, 0V signal reference

Note: The mini-USB connector on the left hand side of the 9555 Handset MUST not be used if the User Connector USB signals used.

4.4 Ext 11Hz

This signal is used for testing only and should not be required by the user.

4.5 RF Interface

4.5.1 RF Interface Specifications

The RF interface requirements for the 9555 Handset are summarized in Table 7 below.

Table 7: General RF Parameters

Parameter	Value
Frequency Range	1616 MHz to 1626.5 MHz
Duplexing Method	TDD (Time Domain Duplex)
Oscillator Stability	± 1.5 ppm
Input/Output Impedance	50Ω
Multiplexing Method	TDMA/FDMA

4.5.2 Radio Characteristics

The tables within this section contain radio characteristics of the 9555 Handset.

Table 8: In-Band Characteristics

Parameter	Value
Average Power during a transmit slot (max)	7 W
Average Power during a frame (typical)	0.6 W
Receiver Sensitivity at 50Ω (typical)	-118.5 dBm
Receiver Spurious Rejection at offsets > 1 MHz (typical)	60 dB

Table 9: Link Margin

Configuration	Cable Loss	Link Margin
9555 Handset with accessory antennas (Note 1)	2 dB (Note 2)	13.1 dB (Note 3)

Note 1: Other antenna options are available

Note 2: Cable losses should be minimized

Note 3: Link Margin given for free space