



# Iridium 9603 Overview

May 11, 2012



Iridium Product Management

Iridium Proprietary and Confidential

RELIABLE • CRITICAL • LIFELINES

# Notices

*This presentation contains proprietary and confidential information protected under the Iridium Satellite LLC Non-Disclosure Agreement between Iridium and the recipient. It may not be disclosed or used by anyone other than the intended recipient nor may it be copied in any way. Any use, distribution, or copying of the contents of this presentation is strictly prohibited.*

*This presentation makes no statement or representations of availability, features, functions or specification upon which business partners should base any development work or strategies.*

# Tenets of Our Product and Technology Strategy

1. Simplifying connections, everywhere

2. Smaller and lighter

3. New products and services as a catalyst

4. Iridium NEXT enabled products



# Executive Summary

- Iridium is dedicated to expanding our reach - both in size and scope.
- The next step along that innovation path is the Iridium 9603 transceiver - the world's smallest, commercially available, two-way satellite transceiver.
- The product was announced at CTIA on May 8, 2012.
- Five partner Value-Added Manufacturers have stepped up and are serving as Beta integrators. Their products will be ready at varying times after Iridium's 9603 commercial availability launch on June 4<sup>th</sup>.
- Pricing of the Iridium 9603 is slightly higher than the Iridium 9602 (difference depends on volume).
- The Iridium 9603 will serve as a new device in the Short Burst Data service family of devices and will not replace the Iridium 9602.

# A Revolution in Scale

The compact Iridium 9603 is the world's smallest commercially available two-way satellite data transceiver – designed for applications where space is at a premium and connectivity is critical.



# Iridium 9603 Overview

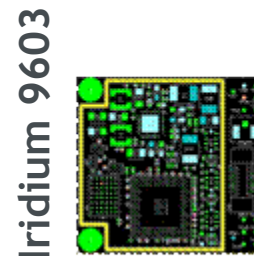
A data transceiver that's designed to be integrated into a partner's wireless data application, no matter how small!

- Iridium's latest data module is downsized from a matchbox (the Iridium 9602) to smaller than a matchbook - supporting partners' solutions with product size constraints and limitations.
- Expands Iridium's reach into new market opportunities in the consumer and enterprise spaces.
- Introduces a new level of innovation for Iridium's data product line
  - Maintains the same functionality as the Iridium 9602: fully capable Short Burst Data, PCB level integration, screw mounting, etc.
  - Size and volume reductions (from the Iridium 9602) are possible because of a migration to the latest-available component package sizes and design techniques, elimination of unneeded functionality and the use of a new RF power amplifier (Mimix XP 1077)
- Establishes a second source for Iridium RF design - providing a new source of innovation.

# Unprecedented Form Factor

Designed to go where no commercial satellite transceiver has gone before

- With the smallest form factor of any commercial satellite transceiver available today, the Iridium 9603 is ideal for space-constrained applications including handheld tracking, covert operations, monitoring, and alarm systems.
- **One-fourth the volume and half the footprint of its predecessor**, the Iridium 9602, the Iridium 9603 combines the global coverage of the Iridium satellite constellation with the low latency of the two-way Iridium Short Burst Data service to provide highly reliable satellite communications from pole to pole.



# Ordering and Pricing

- Orders for 9603 units and developer kits will begin to be taken following the communication of pricing.
- Orders will be received but not accepted until June 4<sup>th</sup> when they will be accepted and processed (this is the official product launch date).
- Pricing will be announced via Product Alert communicated during the week of 14 May.
- Minimum quantity of 9603s is 40 units with a minimum order increment of 20 units.
- The part number for the 20 unit kit (includes a single document CD) is SBD3M1201.
- The developer kits will be priced as identically to the 9602:
  - SBD3D1201—includes a 9603
  - SBD3T1201—Test kit DOES NOT include a 9603

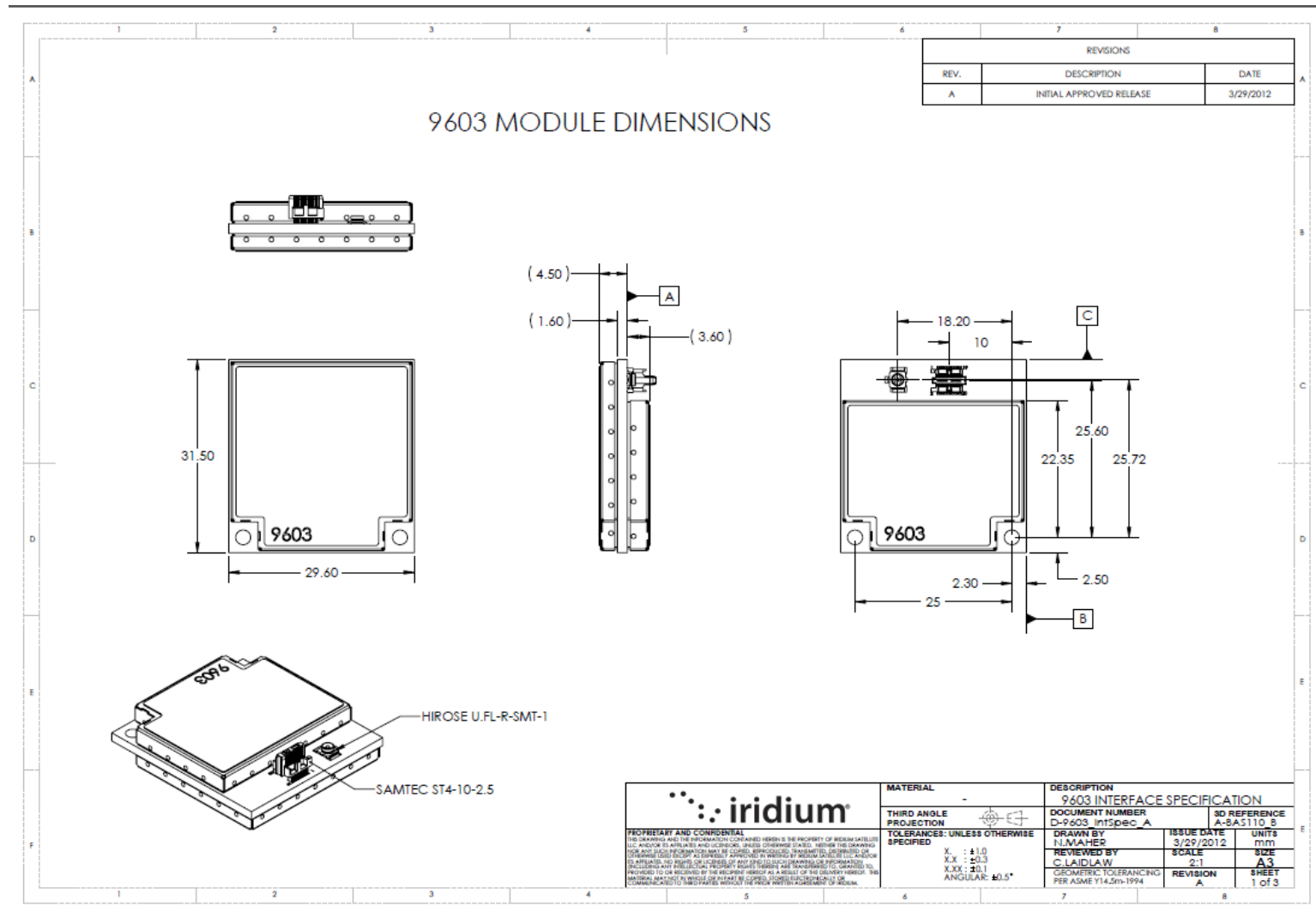


# What Do You Get with a 9603 Developer Kit?

Item #	Description
1	Power Supply
2	U.FL to SMA adapter cable
3	9603 Test Interface Card
4	9603 SBD Transceiver
5	9603 Data CD
6	Kit packaging

Note that kits ordered without the transceiver will not be shipped with one.

# Iridium 9603 Dimensions

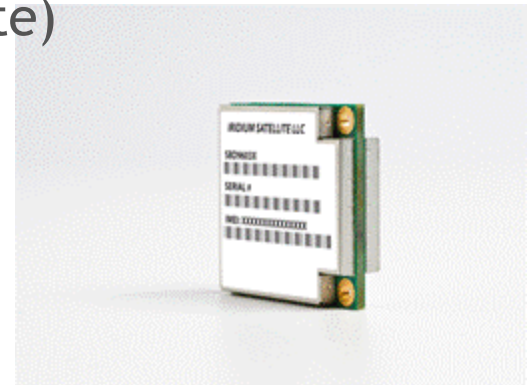


# Why push boundaries when you can erase them instead?

Redefining the spatial possibilities of satellite communications devices, the Iridium 9603 provides significant data capabilities within a good value proposition.

Helping expand the Iridium Connected™ user base worldwide, it supports:

- Mobile-originated messages (up to 340 bytes)
- Mobile-terminated messages (up to 270 bytes)
- Low, uniform global latency (less than 1 minute)



# Partners Active in Beta Trials

With this development effort, Iridium chose to use a different approach by closely partnering with a limited number of partners to better design and finalize the 9603. There are currently five partners participating in the Iridium 9603 Micro Advantage Program as beta partners. Three of them are:

- Blackbird Technologies, Inc.
  - Blackbird is currently in late-stage development of two new field products that leverage the significant size reduction of the Iridium 9603
- NAL Research
  - NAL is using the Iridium 9603 in handheld devices, air-deployed unattended sensors and hand-emplaced remote sensors for US DoD and federal law enforcement agencies
- ITT/EVI

# How it Works

- A single-board core transceiver, the Iridium 9603 comes in 'black box' format.
- All device interfaces are provided through a single, multi-pin interface connector and an antenna connector, with additional end-user field application functions (i.e., microprocessor-based logic control, digital and analog inputs and outputs, power supply and antenna) provided by the solution developer.
- The Iridium 9603 transceiver does not incorporate or require a SIM card.
- Its device interface consists of a serial interface, power input, network available output and power on/off control line.



# Differences: Iridium 9602 vs. 9603

Attribute	Iridium 9602	Iridium 9603
Size	Size: 45 mm x 41 mm x 13.5 mm (24, 908 cu. mm)	Size: 31.5 mm x 29.6 mm x 8.1 mm (7,553 cu. mm)
Weight	30 grams	11.4 grams
RF Connectors	MMCX connector	Hirose UFL series
Housing	Thick wall aluminum castings	No housing - Thin sheet metal fence/lid stampings used
Power Amplifier	Mimix CSM20403 power amplifier	Mimix XP1077 device power amplifier
GPS	GPS Pass through port	No GPS Pass through port
Environmentals	Operating temperature range -40°C to +85°C	Operating temperature range -30°C to +70°C
VSWR	1.5:1	1.5:1 In Iridium Band 3:1 Out of Band
DC Power Input Voltage Range	5.0V +/- .5V DC	5.0V +/- .2V DC

# VSWR and Certified Antenna Solutions

- Due to the change in VSWR associated with the Iridium 9603, Iridium will publish on Iridium for Partners a list of certified solutions that meet the specifications.
- Note that this does not mean that every antenna solution not on the list is not within tolerances since it is a voluntary activity to be evaluated.
- Each antenna manufacturer will need to represent to you whether they meet the VSWR specifications.

# Detailed Specifications

## Environmental

- Operating temperature range: -30°C to +70°C
- Operating humidity range :  $\leq 75\%$  RH
- Storage temperature range: -40°C to +85°C
- Storage humidity range :  $\leq 93\%$  RH

## RF Parameters

- Frequency range: 1616 MHz to 1626.5 MHz
- Duplexing method: TDD (Time Domain Duplex)
- Input/output impedance:  $50\ \Omega$
- Multiplexing method : TDMA/FDMA
- VSWR return loss: 1.5:1 in-band, 3:1 out of band

## DC Power Input

- Supply input voltage range 5.0V +/- .2V DC
- Supply input voltage ripple <40mV pp
- Idle current (average) 45 mA
- Idle current (peak) 195 mA
- Transmit current (peak) 1.5 A
- Transmit current (average) 190 mA
- Receive current (peak) 195 mA
- Receive current (average) 45 mA
- SBD message transfer - average current 190 mA
- SBD message transfer - average power  $\leq 1.0\ W$



# Product Roll-Out Milestones

Time	Description
May 8, 2012	<ul style="list-style-type: none"><li>• Official Product Announcement (including press release)</li></ul>
May 10-11, 2012	<ul style="list-style-type: none"><li>• Communication of 9603 introduction to SBD Partners (via conference call/webex)</li></ul>
May 14-15, 2012	<ul style="list-style-type: none"><li>• Documentation availability on Iridium for Partners (dev. kit and guide, CAD docs, brochure, etc.)</li><li>• Product Alert sent announcing product and pricing</li><li>• Product orders and developer kit orders may be received</li></ul>
June 4, 2012	<ul style="list-style-type: none"><li>• Official Product Launch</li><li>• Orders are officially accepted and processed</li></ul>

# Brochure focusing on the benefits of size.

The compact Iridium 9603 is the world's smallest commercially available two-way satellite data transceiver, designed for applications where space is at a premium – and communication is critical.



## Iridium 9603

A Revolution In Scale



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.

[www.Iridium.com](http://www.Iridium.com)



 **iridium**  
Everywhere



RELIABLE-CRITICAL-LIFELINES

 **iridium**  
Everywhere

everywhere



## Unprecedented form factor

### Small transceiver. Huge potential.

With the smallest form factor of any commercial satellite transceiver available today, the Iridium 9603 is ideal for space-constrained applications including monitoring, tracking and alarm systems.

One-fourth the volume and half the footprint of its predecessor, the Iridium 9602, the Iridium 9603 combines the global coverage of the Iridium satellite constellation with the low latency of the Iridium Short Burst Data service to provide highly reliable satellite communications from pole to pole.

### Why push boundaries when you can erase them instead?

The Iridium 9603 redefines the spatial possibilities of satellite communications devices, delivering significant data capabilities and good value. Bringing more opportunities to expand the Iridium

connected user base, the Iridium 9603 delivers:

- Mobile-originated messages (up to 340 bytes)
- Mobile-terminated messages (up to 270 bytes)
- Low, uniform global latency (less than 1 minute)

### How it works

A single-board core transceiver, the Iridium 9603 comes in 'black box' format. All device interfaces are provided through a single, multi-pin interface connector and an antenna connector, with additional end-user field application functions (e.g., GPS, microprocessor-based logic control, digital and analog inputs and outputs, power supply and antenna) provided by the solution developer. The Iridium 9603 transceiver does not incorporate or require a SIM card. Its device interface consists of a serial interface, power input, network available output and power on/off control line.

### Key Features

- Small form factor offering unmatched integration flexibility
- Pole-to-pole global coverage
- Single-board transceiver
- Single header connector for:
  - Power
  - On/off control
  - Logical level asynchronous UART control
  - Network availability
- Simple AT command interface
- SIM-less operation
- Automatic notification that mobile-terminated messages are queued

Designed, certified, manufactured and sold by Iridium, it can be integrated into a variety of wireless data applications or retrofitted into existing SBD-only applications that use Iridium 9522B, 9522A, 9522, 9523, 9601 and 9602 L-Band Transceiver-based products.

The Iridium 9603 supports Iridium's Short Burst Data capability. It does not support voice, circuit switched data or short message service (SMS).

Superior coverage, performance and innovation. Iridium built, Iridium Connected™.

### Specifications

#### Mechanical

- Length: 31.5 mm
- Width: 20.6 mm
- Depth: 8.1 mm
- Weight: 11.4 g

#### Environmental

- Operating temperature range: -30°C to +70°C
- Operating humidity range: ≤ 75% RH
- Storage temperature range: -40°C to +85°C
- Storage humidity range: ≤ 93% RH

#### RF Parameters

- Frequency range: 1616 to 1626.5 MHz
- Duplexing method: TDD (Time Domain Duplex)
- Input/output impedance: 50Ω
- Multiplexing method: TDMA/FDMA
- VSWR return loss: 13:1 from 1.2 GHz to 2 GHz

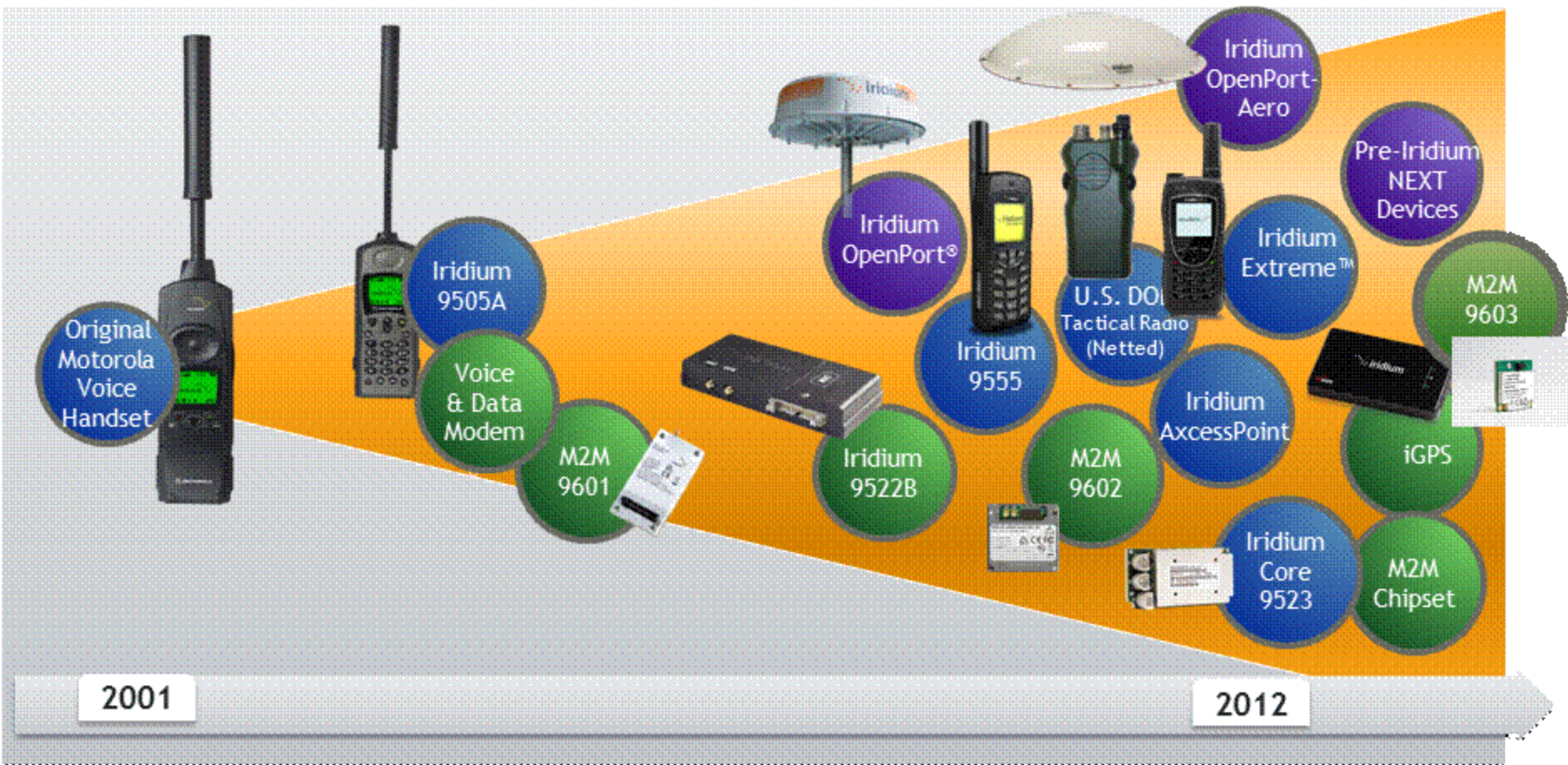
#### DC Power Input

- Supply input voltage range: 5.0V +/- .2VDC
- Supply input voltage ripple: <40mV pp
- Idle current (average): 45 mA
- Idle current (peak): 105 mA
- Transmit current (peak): 1.5 A
- Transmit current (average): 100 mA
- Receive current (peak): 105 mA
- Receive current (average): 45 mA
- SBD message transfer - average current\*: 100 mA
- SBD message transfer - average power\*: <= 1.0W



# Big Innovation on a Little Scale

The Iridium 9603 takes data where no transceiver has gone before...



# Thank You for Your Time

- If there are any questions related to the Iridium 9603 or other products, please contact your channel manager, contact Iridium Care or email me - Dan Tillet, [daniel.tillet@iridium.com](mailto:daniel.tillet@iridium.com).





# APPENDIX

# Recommended Mounting

