

# Bluetooth® Modules That Simply Work with iPhone®, iPad®, and iPod® Devices

## Summary

Microchip's Bluetooth APL modules natively support iAP (iPod Accessory Protocol) data connections and directly manage authentication, reducing engineering effort and cost, and simplifying accessory product design.

Apple® iOS devices such as the iPhone freely connect via the Bluetooth hands-free and headset profiles. However, establishing Bluetooth data connections with an iPhone, iPad or iPod requires a specific discovery class and authentication. Every Bluetooth accessory must have an Apple authentication co-processor.

APL modules are based on the standard RN41-I/RM and RN42-I/RM, making them footprint compatible. Power, ground and UART connections are identical, and connection of the Apple authentication IC is direct to the module via a 2-wire interface. The Apple authentication IC is not part of the module. Customer must join and purchase authentication ICs through the MFi program.

## Features

- Discoverable/Connectable with iPhone, iPod or iPad
- Dual profile allows Bluetooth connections to other smartphone or computing platforms
- Automatically stores Bluetooth address of the last paired device, for quick reconnection
- Secure Simple Pairing (SSP) enables 'no PIN code required' operation
- Supports complete Microchip Bluetooth feature set
- Direct hardware connection to the authentication co-processor
- Authentication without iAP firmware development

## Development Tools

### RN-4x-APL-EVAL Evaluation Kits Include:

- RN-4x-APLX development board which contains:
  - RN4xAPL-I/RM module
  - Apple authentication co-processor
  - Status LEDs
  - Power regulation
  - RS232 and TTL signals
- Four RN4xAPL-I/RM modules
- Complete design documents including schematics
- Source code for the Microchip Diagnostic Application



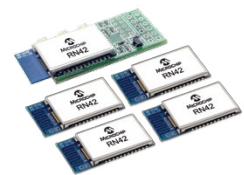
## Product Selector

Module	Class	Typ. Range	Development Kit
RN41APL-I/RM	Class 1	~100m	RN-41-APL-EVAL *
RN42APL-I/RM	Class 2	~30m	RN-42-APL-EVAL *

\*MFi membership is required to purchase the development kit of modules. Please check with your Microchip Sales representative for availability: [www.microchip.com/sales](http://www.microchip.com/sales).



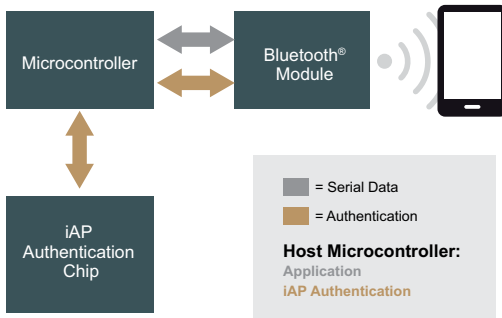
RN-41-APL-EVAL



RN-42-APL-EVAL

## Conventional Approach

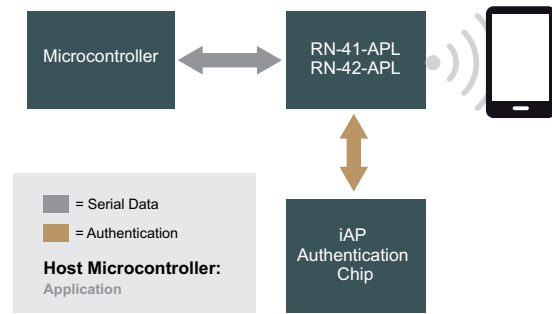
Customer Implements iAP on Microcontroller



- Adds complexity to firmware and hardware design
- Longer development cycles and learning curves
- Increases power consumption
- Difficult to port code across microcontroller platforms

## Microchip's Bluetooth Solution

Bluetooth Module Implements iAP



- Interfaces to the system, independent of smartphone
- Simple host interface
- iAP transparent to user
- Developers focus on their design, not iAP protocols

## Developing Bluetooth Enabled iPhone, iPad and iPod Accessories

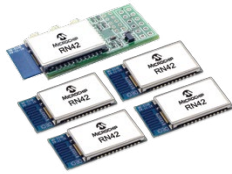
All products designed to connect to iPhones, iPods and iPads including those that incorporate the Microchip Bluetooth APL module must be approved with Apple's Made for iPhone/iPod/iPad (MFi) program.

Developers of such products should visit Apple's developer portal at: <http://developer.apple.com/programs/mfi> to enroll.

MFi membership is required to purchase the development kit or modules.



RN-41-APL-EVAL



RN-42-APL-EVAL



# MICROCHIP

[www.microchip.com/bluetooth](http://www.microchip.com/bluetooth)

Visit our web site for additional product information and to locate your local sales office.

Microchip Technology Inc. • 2355 W. Chandler Blvd. • Chandler, AZ 85224-6199

**Microcontrollers • Digital Signal Controllers • Analog • Memory • Wireless**