



# Anaren Integrated Radio (AIR)

Low-power RF modules, firmware & development tools that make it easy to 'go wireless'

## A20737 Module Series

The A20737A is a low cost surface-mount radio module featuring *Bluetooth*® Smart technology that incorporates the Broadcom ultra-low-power BCM20737 SoC, 24MHz crystal, an integrated antenna and an EEPROM, all in one package measuring: 11x13x2.5mm. The module is Globally certified\*, and is *Bluetooth* SIG qualified.

\* Global certification is an ongoing process, please call for confirmation regarding your specific locations



A20737A

### Features

#### General:

- 2.4-GHz RF transceiver incorporating *Bluetooth* Smart technology
- 1.7 to 3.6V operation
- Operating temperature  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}^{**}$
- Integrated ARM Cortex-M3 microprocessor core
- 512-Kbit EEPROM
- Programmable output power up to +3dBm
- Low Current Consumption (3.3V)
  - ◆ 25mA in Rx
  - ◆ 17mA in Tx @ -1dBm
  - ◆ 20mA in Tx @ +3dBm
- Typical sleep current 2 $\mu\text{A}$  @ 3.3V
- Excellent receiver sensitivity, -94dBm average with <1% BER
- Infrared modulator
- 10-Bit auxiliary ADC with nine analog channels
- Support for secure OTA updates
- Integrated LDO
- Supports SPI, I<sup>2</sup>C, PWM, UART and GPIO peripheral interfaces
- RoHS Compliant
- Shielded package with an integrated antenna
- LGA Footprint
- Small package size: 11mm x 13mm x 2.5mm
- Approximate weight 0.5 grams

\*\* The operating temperature spec for Broadcom chipset is  $-30^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  but module passed BLE standards when limited testing was done from  $-40^{\circ}\text{C}$  to  $85^{\circ}\text{C}$ .

#### Module Development Kit:

- Available as a *Multi-Sensor Development Kit* including access to Anaren's innovative and exclusive online development tool, *Atmosphere*
- The *Atmosphere* tool enables the creation of all the embedded code and target mobile device applications needed to wirelessly connect and communicate to an embedded Anaren *Bluetooth* Smart module

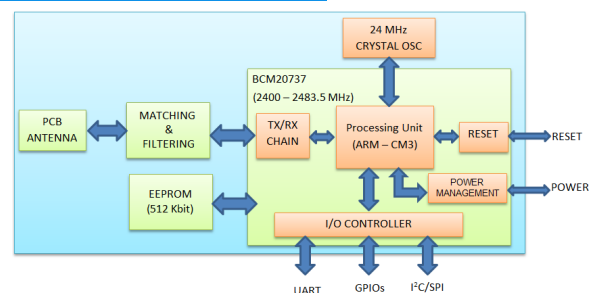
### Benefits

- Minimal RF engineering experience necessary
- Minimal *Bluetooth* Smart experience necessary
- Easy to implement, short design cycle when utilizing Anaren's *Atmosphere* development tool
- No additional "Intentional Radiator" certification required (FCC 15.247, IC RSS-210, EN 300 328)  
FCC ID: X7J-A1407071  
IC: 8975A-A1407071
- Minimal real estate required
- Only requires a 2 layer Host PCB implementation
- No additional harmonic filtering required
- 100% RF-tested in production

### Applications

Industrial controls and monitoring, remote controls, home/building automation, lighting systems, low power wireless sensor networks, and consumer electronics, sports monitoring, health & wellness

### Block diagram



#### PLEASE NOTE:

- Additional information on Anaren's exclusive development tool, *Atmosphere* can be found at <https://atmosphere.anaren.com>
- Additional information on the Broadcom WICED Smart can be found in the company's website at <http://www.broadcom.com/products/wiced>



This member of the AIR family of wireless solutions is supported by Anaren's *Atmosphere* online development tool and features semiconductor technology from Broadcom.



What'll we think of next?®

Anaren, Inc. | 6635 Kirkville Road | East Syracuse, NY 13057  
800.411.6596 | [www.anaren.com/air](http://www.anaren.com/air) | AIR@anaren.com



# Anaren Integrated Radio (AIR)

Low-power RF modules, firmware & development tools that make it easy to 'go wireless'

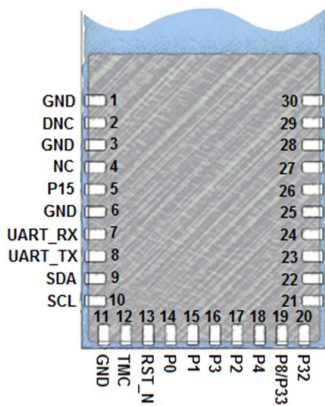
## Product overview

The A20737A is a high-performance, FCC & IC certified and ETSI-compliant module featuring *Bluetooth*® Smart technology that incorporates the Broadcom BCM20737 SOC in one of the industry's smallest packages (11 x 13 x 2.5 mm). The module incorporates an EEPROM, 24MHz crystal and the required RF matching and filtering for regulatory compliance. The modules operate in the global unlicensed 2.4GHz ISM/SRD frequency band. These radio modules are ideal for achieving low power wireless connectivity without having to deal with extensive protocol, RF design and regulatory compliance, allowing quick time to market. The modules are 100% RF-tested to provide consistent performance.

The A20737A has a RoHS-compliant ENIG finish and is packaged in 36-piece matrix trays or on 500-piece tape & reel for high-volume automated manufacturing.

## Pin diagram

Viewed from top side



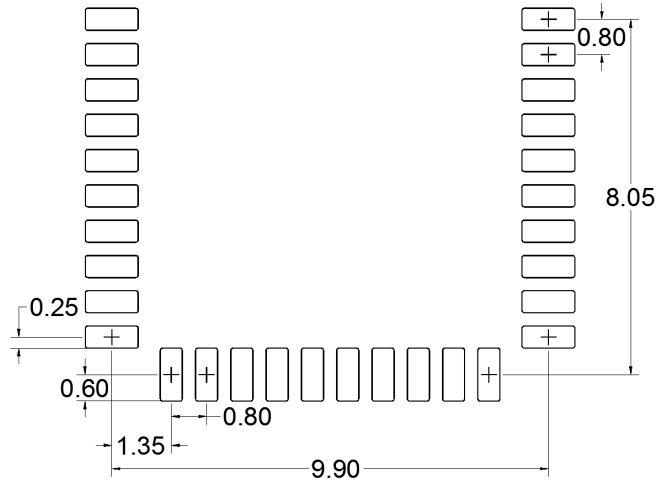
Where applicable:

**NC = "NO Connection"**  
Pin is NOT connected internally.

**DNC = "Do Not Connect"**  
Pin reserved for internal use, ensure mating footprint pads are isolated.

**GND = "Ground"**  
Connect the maximum number possible (minimum one for proper operation).

## Layout information



Footprint (PWB) all measurements are in millimeters

See product User's Manual for detailed information.

## Nomenclature

### A20737AGR



- |   |              |                                     |
|---|--------------|-------------------------------------|
| A | Manufacturer | Anaren                              |
| 1 | Chip series  | 20737                               |
| 2 | Form factor  | A = Internal Antenna, C = Connector |
| 3 | Application  | G = General                         |
| 4 | Packaging    | R = Reel, M = Matrix Tray           |

The *Bluetooth*® word mark and logos are registered trademarks owned by *Bluetooth SIG, Inc.* and any use of such marks by *Anaren Inc.* is under license. Other trademarks and trade names are those of their respective owners.

This product is not to be used in any implantable medical device or external medical device intended to regulate or monitor biological functions, including but not limited to devices such as pacemakers, defibrillators, cardiac resynchronization devices, pressure sensors, biochemical stimulators and neurostimulators. ANAREN MAKES NO WARRANTY OF FITNESS OR MERCHANTABILITY OF THIS PRODUCT FOR ANY USE OF THIS TYPE. Anaren shall not be responsible for any consequential damages arising from the sale or use of this product for any use of this type. The ultimate user of the product assumes all risk of personal injury or death arising from a prohibited use.



Caution! ESD sensitive device. Precautions should be used when handling the device in order to prevent permanent damage.



What'll we think of next?®

This member of the AIR family of wireless solutions is supported by Anaren's Atmosphere online development tool and features semiconductor technology from Broadcom.

Anaren, Inc. | 6635 Kirkville Road | East Syracuse, NY 13057  
800.411.6596 | [www.anaren.com/air](http://www.anaren.com/air) | [AIR@anaren.com](mailto:AIR@anaren.com)