

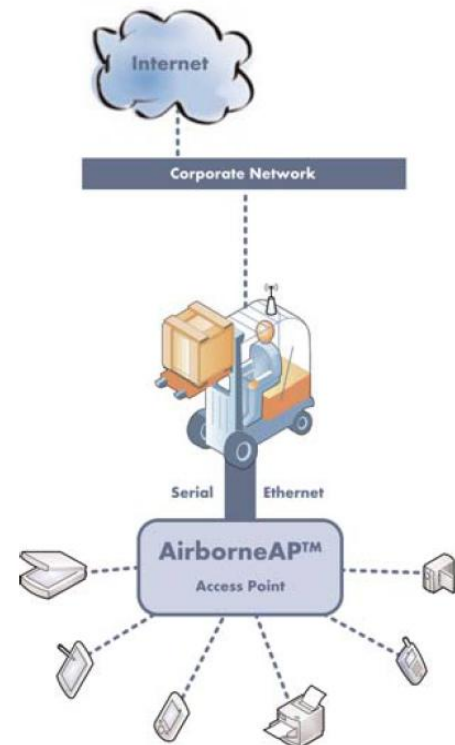
APMG-Q551

Infrastructure Access Point/Wireless Router/Client

- ✓ Supports up to eight clients
- ✓ 802.11b/g Wi-Fi radio with 32-bit ARM CPU
- ✓ Airborne PowerSave firmware reduces power consumption and extends battery life in mobile devices
- ✓ Extended operating temperature range (-20°C to +85°C)
- ✓ Airborne SpeedLink roaming provides enhanced connection reliability
- ✓ Advanced Enterprise Class wireless security (WPA2-Enterprise, WPA, WEP, EAP) *EAP support in client mode only
- ✓ Onboard certificate delivery and storage
- ✓ Fully integrated serial bridge and network stack
- ✓ Airborne PortFlex capability enables any combination of comm ports (UART, SPI, GPIO, Ethernet and 802.11 interfaces)
- ✓ Reduces need for RF, networking and communications expertise
- ✓ Quick time to market and reduced integration costs

The Airborne™ embedded APMG-Q551 module allows OEMs to Wi-Fi enable devices for a wide array of machine-to-machine (M2M) applications.

The APMG-Q551 provides all of the necessary RF technology, networking stacks and advanced security features in a compact, single-board package, and allows OEM customers to incorporate AirborneAP™ technology into their 802.11 wireless design solutions.



Ordering Information

Model Number	Description
APMG-Q551	802.11b/g Industrial wireless access point/router/client: 10/100 Ethernet, UART, SPI and RS-232/422/485 wired interfaces

Big Performance in Small and Ruggedized Package

The APMG-Q551 access point module delivers the industry's most rugged, highly-integrated, embedded Wi-Fi access point solution. Airborne modules meet extended operating temperature and shock/vibration specifications of the most demanding M2M applications.

Utilizing a 32-bit ARM9 processor and the high-performance Atheros AR6002 802.11 radio, the APMG-Q551 delivers increased transmit power and receive sensitivity, contributing to superior range performance.

The new Airborne SpeedLink roaming feature provides enhanced connection reliability, enabling OEM devices to roam freely within a wireless network without loss of data or connection.

Airborne PowerSave firmware enables OEMs to maximize efficiency and reduce power consumption by as much as 70%. PowerSave capability is especially critical for battery-powered mobile devices.

Flexible & Easy to Integrate

Airborne incorporates support for both serial to Wi-Fi and Ethernet to Wi-Fi communications. Utilizing Airborne's PortFlex capability, OEMs may configure, via software, any combination of UART, SPI, Ethernet, GPIO and 802.11 interfaces. Each individual port can be independently configured.

OEMs can choose to incorporate both transmit and receive diversity capability in their designs by utilizing the two U.FL antenna connectors on the modules.

The APMG-Q551 modules are footprint and pin-compatible with their predecessors, dating back to the original introduction of the Airborne product family. Quatech's commitment to maintaining hardware and software compatibility assures OEMs of a simple, future-proof migration path even as wireless technology evolves.

Power	
Input Voltage	3.3 VDC +/-4%, 850 mA (MAX)
DC Characteristics	Operating Current (Tx, 802.11g) = 240 mA Typ. Operating Current (Rx, 802.11g) = 310 mA Typ. Power Save (Doze) = TBD mA Typ. Power Down (Sleep) = TBD mA Typ.
Supply In-rush Current	3000 mA (MAX) for 20 ms
Environmental	
Op. Temp	-20°C to +85°C
Storage Temp	-55°C to +150°C
Rel. Humidity	5% - 95% (non-condensing)
Mechanical	
Vibration	20 G peak-to-peak, 20Hz - 2KHz swept
Shock	1500 G peak-to-peak, 0.5 ms duration

Enterprise Class Security

Quatech's multi-layered security approach addresses the requirements of Enterprise-class networks and corporate IT departments. These advanced security features include wireless security (802.11i/WPA2 Enterprise), network security (EAP authentication and certificate support), built-in firewalls on the Ethernet and WLAN interfaces, secure communications (built-in SSH functionality and fully encrypted data tunnels for secure management and data transfer), and device security (multi-level encryption capability to protect sensitive device configuration data).

** EAP security protocols are supported on the AirborneAP™ access point in client mode only.*

A unique Airborne security feature is the onboard delivery of certificates to the module and management of all authentication processes without requiring interaction from the host. This substantially reduces the resource requirements for OEMs whose devices operate in Enterprise-class wireless.

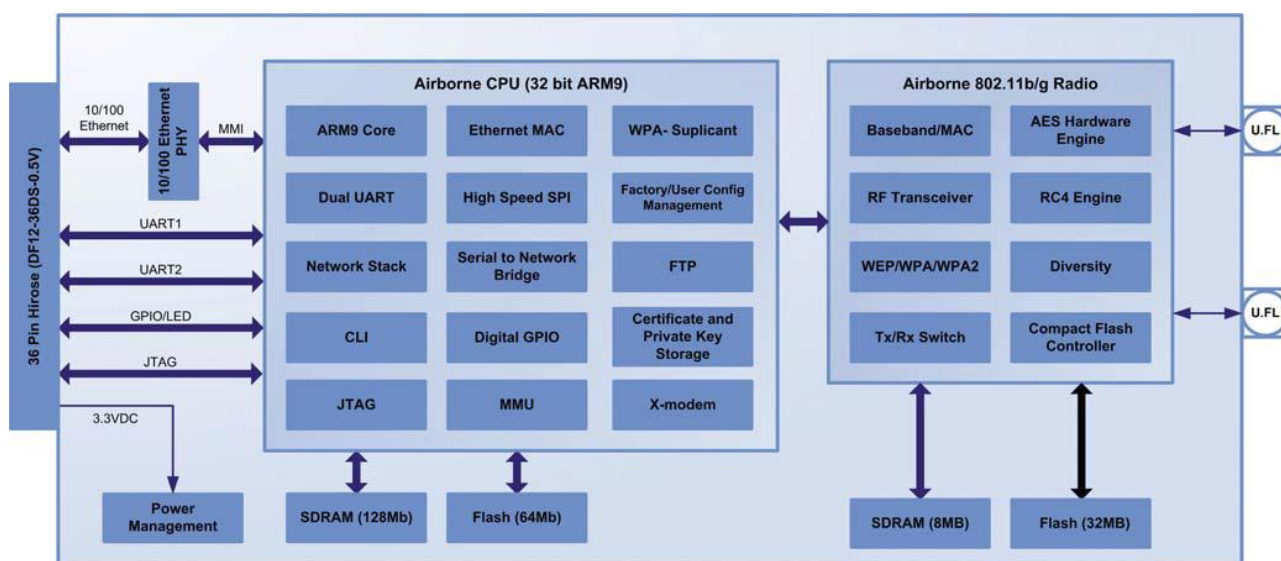
Agency Approvals

North America: FCC Title 47 Part 15 Class B Sub C Intentional Radiator, IOC RSS210
Europe: CE ETSI EN300 328
RoHS & WEEE compliant

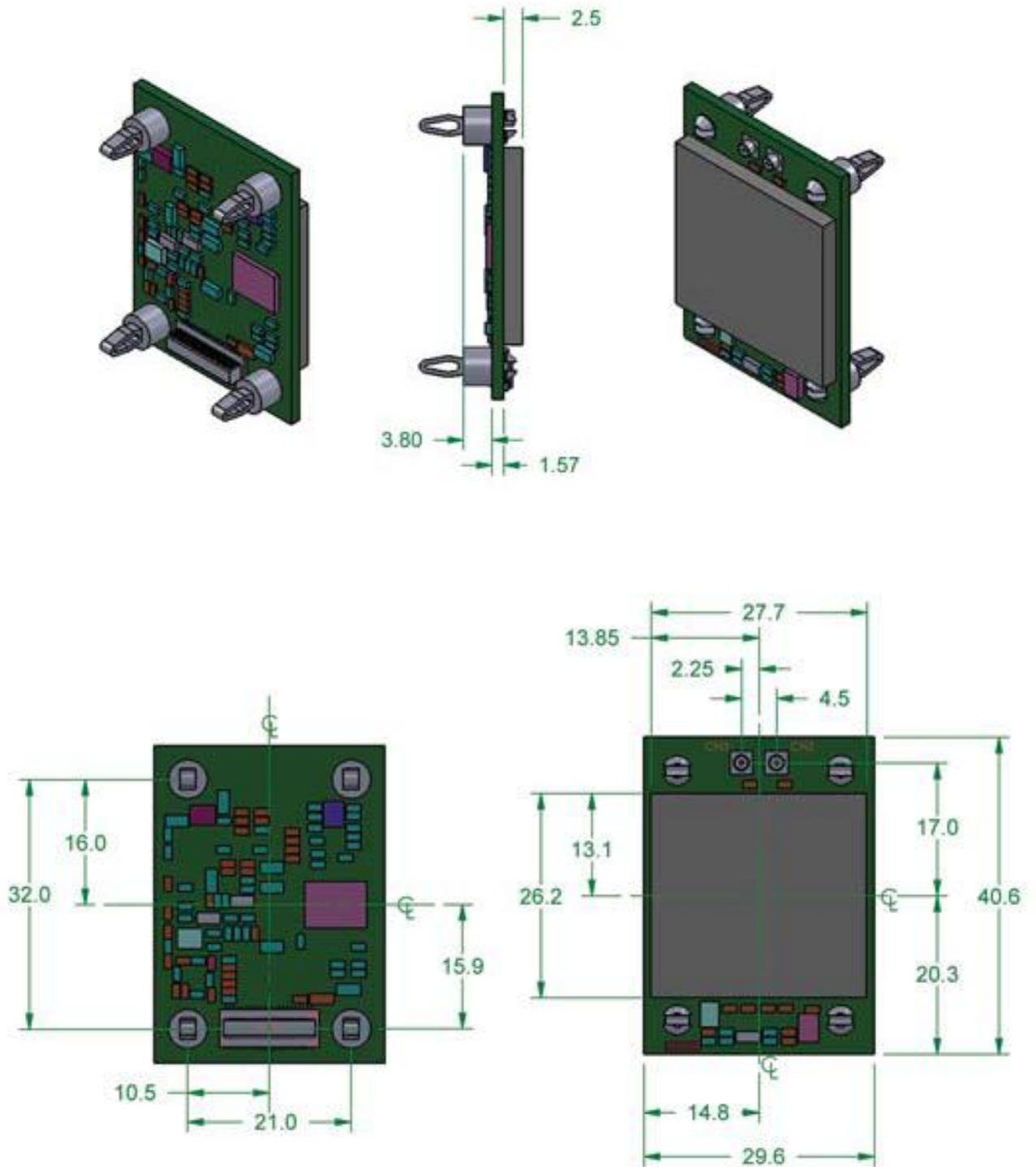
Specifications

Wireless Technology:	IEEE 802.11b/g, Wi-Fi Compliant
Frequency:	2.4~2.4835 GHz (US/Canada/Europe) 2.4~2.497 GHz (Japan)
Modulation Technology:	DSSS, CCK, OFDM
Modulation Type:	DBPSK, DQPSK, CCK, BPSK, QPSK, 16QAM, 64QAM
Network Access Modes:	Access Point, Infrastructure, Ad Hoc
Channels:	USA/Canada: 11 channels Europe: 13 channels France: 7 channels Japan: 14 channels (13 channels for 802.11g)
Wireless Data Rates:	802.11b = 11, 5.5, 2, 1 Mbps 802.11g = 54, 48, 36, 24, 18, 12, 9, 6 Mbps
MAC	CSMA/CA with ACK, RTS, CTS
Network Protocols:	TCP/IP, ARP, ICMP, DHCP, DNS, UDAP, TFTP, UDP, PING
Receive Sensitivity	54Mb/s = -75dBm 36Mb/s = -82dBm 18Mb/s = -88dBm 6Mb/s = -93dBm 11Mb/s = -88dBm 1Mb/s = -98dBm
Security Protocols :	Disabled, WEP 64 & 128bit, WPA (TKIP), WPA (AES), WPA2 (AES), 802.1x (EAP) Supplicant 802.11i, WPA & WPA2 Enterprise supplicants (EAP-TLS, EAP-TTLS(MSCHAPv2), EAPTTLS(MD5), EAP-PEAPv0(MSCHAPv2, LEAP), EAP-FAST, LEAP) Supports Certificates and Private Key Upload and Storage (Multiple) *Enterprise and EAP available in client mode only
Antenna:	Two (2) U.FL coaxial connectors, 50 ohms, supports Rx and Tx diversity
Connector	36 pin High Density SMT connector from Hirose (DF12-36DS-0.5V), 4mm Height
LED Indicators	4 indicator LED signals (RF_ACT, POST, CONNECT, RF_LINK), Signal Strength
Digital I/O	8 GPIO
Interfaces	Dual UART (960KBAUD), RS232/422/485, SPI (1bit/20MHz), 10/100 Ethernet (Infrastructure Bridge Mode, NAT3 Router Mode), PortFlex

Block Diagram



Mechanical Outline



Markets

Airborne embedded modules operate in a wide range of M2M applications:

- Industrial Automation & Control
- Energy Management
- Medical Devices
- Retail / Point of Sale Products
- Vehicle Telematics
- Military Communications
- Material Handling & Logistics
- Test & Measurement
- Security & Access Control

