



*Canopy System Security Architecture*

## Providing Subscribers the Highest Level of Security

Today's security concerns have affected the way we live and work. Communications security needs to be impenetrable and simple to manage. Motorola Canopy™ wireless broadband systems can be enhanced with Advanced Encryption Standard (AES) to provide the required level of security demanded by many advanced users today. Entities ranging from financial institutions, government agencies, healthcare facilities, and larger businesses require the highest level of security available to ensure their data is safe.

### Canopy System Security

AES is just one of the successive layers of security including hardware, software, interfaces, encryption, signal synchronization and user authentication specifically designed into Canopy system communications. Motorola's 75 years of experience in wireless communication provides the highest level of security while also making the system reliable and accessible to authorized users.

- *Exclusive Chip Set* - The Canopy system's exclusive chip sets are a Motorola design and are not commonly available, reducing access to experience with embedded algorithms.
- *System Synchronization* - The Canopy system's unique synchronization technique provides higher security than 802.11 alternatives by requiring precise synchronization from all modules in the network.
- *BRAID Encryption* - The AES key is encrypted by Motorola's 128-bit Telecommunications Industry Association (TIA) standard BRAID algorithm making it more secure than others in the market.
- *AES Encryption* - There are approximately:  $3.4 \times 10^{38}$  possible unique 128-bit keys protecting communication.

*Canopy System Interface* - The Canopy system has a unique interface which is not published.

*Authentication* - Canopy modules are authenticated when they are registered by the system. This function is controlled by the Canopy Bandwidth and Authentication Manager (BAM).

Note: If a machine that could try  $2^{55}$  keys per second, then it would take approximately 149 trillion years to crack a 128-bit AES key. For perspective, the universe is considered less than 20 billion years old.\*

### AES Module Benefits

The Canopy AES module adds 128-bit encryption that provides a higher level of security than filtering, Wired Equivalent protocol (WEP), Secure Sockets Layer (SSL) or Transport Layer Security (TLS). By deploying Canopy AES modules at strategic points in the network, operators can tailor the level of security to meet specific customer requirements.

- The National Institute of Standards and Technology (NIST) endorses AES encryption as the latest, most secure standard for communications.
- The Canopy system is the first to market in making AES encryption available for deployment. As a result, Canopy system service providers are the first to offer AES encryption to government and financial institutions where it is required.

### Availability

Canopy system modules equipped with AES are currently available and may be ordered now.

Note: Canopy modules with AES Encryption are for distribution only in countries approved by the U.S. Commerce Department.

\* [http://www.nist.gov/public\\_affairs/releases/aesq&a.html](http://www.nist.gov/public_affairs/releases/aesq&a.html)

*MOTOROLA CANOPY™  
WIRELESS BROADBAND*

*AES  
CANOPY SYSTEM  
SPECIFICATIONS*

*WIRELESS BROADBAND  
DESIGNED FOR  
ENTERPRISE  
ENVIRONMENTS*

**AES PART NUMBERS**

**5.2 GHz Modules**

- 1008CK - Cluster Management Module
- 5201SM - 5.2 GHz Subscriber Module with AES
- 5201AP - 5.2 GHz Access Point with AES
- 5201BH - 5.2 GHz Backhaul with AES

**5.7 GHz Modules**

- 5701SM - 5.7 GHz Subscriber Module with AES
- 5701SMRF - 5.7 GHz Subscriber Module w/ Reflector with AES
- 5701AP - 5.7 GHz Access Point with AES
- 5701BH - 5.7 GHz 10 Mbps Backhaul with AES
- 5701BHRF - 5.7 GHz 10 Mbps Backhaul Kit with AES and Reflector

**CANOPY SYSTEM SPECIFICATIONS**

**Canopy Backhaul Module**

Operating Frequency Range U-NII Mid band	5.25 – 5.35 GHz and 5.725 – 5.825 GHz
Access Method	TDD/TDMA
Signaling Rate	10 Mbps
Modulation Type	High Index BFSK (Optimized for interference rejection), 4 Level FSK
Carrier to Interference (C/I)	3dB nominal at 10 Mbps, with receiver input at -65dBm and higher
Antenna Beam Width	3dB antenna beam width 60 degrees, Azimuth and Elevation
Operating Range (all weather)	Up to 3.2 km (2 miles) with integrated antenna. Up to 56 km (35 miles) with passive reflector on both sides.
DC Power	0.34 Amp @ 24 VDC (8.2 watts) typical, 9.1 watts max.
Interface	10/100 BaseT, half/full duplex. Rate auto negotiated (802.3 compliant)
Protocols Used by CANOPY	IPV4, UDP, TCP, ICMP, Telnet, HTTP, FTP, SNMP Version 2C
Encryption	DES, AES
Wind	190 km/hr (118 miles/hr)
Operating Temperature	-40°C to +55°C (-40°F - +131°F)
Weight	0.45kg (1 lb.)
Weight With Passive Reflector	3 kg (6.5 lbs.)

## CANOPY SYSTEM SPECIFICATIONS

### Canopy Access Point Module

Operating Frequency Range U-NII Mid band	5.25 – 5.35 GHz and 5.725 – 5.825 GHz
Access Method	TDD/TDMA
Signaling Rate	10 Mbps Point to Multipoint
Modulation Type	High Index BFSK. (Optimized for interference rejection)
Carrier to Interference (C/I)	3dB nominal, with receiver input at -65dBm and higher
Antenna Beam Width	3dB antenna beam width 60 degrees, Azimuth and Elevation
Operating Range	Up to 3.2 km (2 miles) with integrated antenna in 5.2 GHz. Up to 16 km (10 miles) with passive reflector on the Subscriber Module side at 5.7 GHz.
DC Power	0.30 Amp @ 24 VDC (7.2 watts) typical, 0.35 Amp @24 VDC (8.4 Watts) maximum
Interface	10/100 BaseT, half/full duplex. Rate auto negotiated (802.3 compliant)
Protocols Used by CANOPY	IPV4, UDP, TCP, ICMP, Telnet, HTTP, FTP, SNMP Version 2C
Encryption	DES, AES
Wind	190 km/hr (118 miles/hr)
Operating Temperature	-40°C to +55°C (-40°F - +131°F)
Weight	0.45 kg (1 lb.)
Dimensions	29.9 cm H x 8.6 cm W x 8.6 cm D (11.75" H x 3.4" W x 3.4" D)

### Canopy Subscriber Module

Operating Frequency Range U-NII Mid band	5.25 – 5.35 GHz and 5.725 – 5.825 GHz
Access Method	TDD/TDMA
Signaling Rate	10 Mbps
Modulation Type	High Index BFSK. (Optimized for interference rejection)
Carrier to Interference (C/I)	3dB nominal, with receiver input at -65dBm and higher
Antenna Beam Width	3dB antenna beam width 60 degrees, Azimuth and Elevation
Operating Range (all weather)	Up to 3.2 km (2 miles) with integrated antenna in 5.2 GHz. Up to 16 km (10 miles) with passive reflector on the Subscriber Module side at 5.7 GHz.
DC Power	0.30 Amp @ 24 VDC (7.2 watts) typical
Interface	10/100 BaseT, half/full duplex. Rate auto negotiated (802.3 compliant)
Protocols Used by CANOPY	IPV4, UDP, TCP, ICMP, Telnet, HTTP, FTP, SNMP Version 2C
Encryption	DES, AES
Wind	190 km/hr (118 miles/hr)
Operating Temperature	-40°C to +55°C (-40°F - +131°F)
Weight	0.45kg (1 lb.)
Dimensions	29.9 cm H x 8.6 cm W x 8.6 cm D (11.75" H x 3.4" W x 3.4" D)

### FCC ID:

5.2 UNII ABZ89FC5789 — 5.7 UNII ABZ89FC4816 — 5.7 ISM ABZ89FC5804

[www.motorola.com/canopy](http://www.motorola.com/canopy)

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