Motorola Canopy™ Wireless Broadband System

(Can be configured for either Point-to-Point or Point-to-Multipoint)

A Canopy™ System is based on a wireless broadband technology that provides for high-speed Internet access and was designed to provide cost-effective, "last-mile" high speed data access for customers who previously were underserved or lived in locations where infrastructure is non-existent. It may also be used in urban areas for specialized applications such as T1 redundancy. The Canopy system uses Point-to-Point and Point-to-Multipoint networks that can span distances ranging from two to 40 miles in a multipoint configuration, to as many as 80 miles in a Point-to-Point configuration.* The basic building blocks of a Canopy system are:

- Access Point (AP) – easily interfaces with your existing Local Area Network (LAN).
- Backhaul Unit (BH) – provides Internet "feed" from a remote location.
- Subscriber Module (SM) – the Internet access receiver is small and easy to install; there's no obtrusive equipment.

The Access Point and Subscriber Modules are compact and are designed to be mounted outdoors, so there is no need to run overhead and in-ground wire or microwave. And there's no additional software for you to install, further limiting exposure to error.

The Canopy solution also delivers outstanding performance using a modulation scheme that improves the quality of data delivery and mitigates interference from other systems. Motorola's Canopy platform offers security with over-the-air encryption that scrambles data bits and helps prevent interception, so data delivery with the Canopy solution is very reliable.

- Point-to-point configuration** up to 10-80 miles at 7.5 - 33.6 Mbps
- Point-to-multipoint configuration** up to 2-40 miles at 2.2 - 6 Mbps

*Motorola Canopy™ Wireless Broadband System 5.7 GHz backhaul with reflector kit

** At time of order product will be configured to user specifications

Motorola Canopy™ Wireless Broadband System Specifications

PRODUCT	Canopy Access Point	Canopy Subscriber Module	Canopy Backhaul Module
MOTOROLA PART #			
2.4 GHZ	HK1068A **DES** HK1074A **AES**[1]	HK1067A **DES** HK1073A **AES**[1]	HK1069A **DES** 10 Mbps HK1070A **DES** 10 Mbps with reflector kit HK1071A **DES** 20 Mbps HK1072A **DES** 20 Mbps, with reflector kit HK1075A **AES** 10 Mbps HK1076A **AES** 10 Mbps with reflector kit
5.2 GHZ	HK1023A **DES** HK1060A **AES**[1]	HK1022A **DES** HK1059A **AES**[1]	HK1035A **DES** 10 Mbps HK1085A **DES** 10 Mbps Extended Range Backhaul with reflector kit HK1087A **DES** 20 Mbps Extended Range Backhaul with reflector kit HK1061A **AES** 10 Mbps[1] HK1086A **AES** 10 Mbps Extended Range[1] Backhaul with reflector kit
5.7 GHZ	HK1025A **DES** HK1064A **AES**[1]	HK1024A **DES** HK1028A **DES** with reflector kit HK1063A **AES**[1]	HK1026A **DES** 10 Mbps with reflector kit HK1036A **DES** 20 Mbps with reflector kit HK1065A **AES** 10 Mbps with reflector kit[1]
900 MHZ	HK1105* **DES** HK1106* **AES** HK1107** **DES** HK1108* **AES**	HK1101* **DES** HK1102* **AES** HK1103** **DES** HK1104** **AES**	RDH4378A* **DES** 45 Mbps RDH4393A** **DES** 45 Mbps
OVER THE AIR DATA RATE	10 Mbps at 2.4, 5.2, 5.7 GHz; NA @ 900 MHz	10 Mbps at 2.4, 5.2, 5.7 GHz; NA @ 900 MHz	10, 20 or 45 Mbps
AGGREGATE THROUGHPUT	6 Mbps at 2.4, 5.2, 5.7 GHz; 2.2 Mbps @ 900 MHz	4 Mbps at 2.4, 5.2, 5.7 GHz; 2.2 Mbps @ 900 MHz	7.5, 14, 27, or 33.6 Mbps
RANGE	• Up to 40 miles (64.4 km) at 900 MHz, with integrated antenna, clear line of site • Up to 15 miles (24 km) at 2.4 GHz, with passive reflector on the Subscriber Module side • Up to 10 miles (16 km) at 5.7 GHz, with passive reflector on the Subscriber Module side • Up to 5 miles (8 km) at 2.4 GHz, with integrated antenna • Up to 2 miles (3.2 km) at 5.2 GHz, with integrated antenna	• Up to 40 miles (64.4 km) at 900 MHz, with integrated antenna, clear line of site • Up to 15 miles (24 km) at 2.4 GHz, with passive reflector on the Subscriber Module side • Up to 10 miles (16 km) at 5.7 GHz, with passive reflector on the Subscriber Module side • Up to 5 miles (8 km) at 2.4 GHz, with integrated antenna • Up to 2 miles (3.2 km) at 5.2 GHz, with integrated antenna	• Up to 80 miles (128.8 km) at 5.7 GHz at 27 Mbps, clear line of site • Up to 40 miles (64.4 km) at 5.7 GHz at 33.6 Mbps, clear line of site • Up to 35 miles (56 km), at 2.4 GHz/ 5.7GHz, at 10/20 Mbps, with passive reflector on both sides • Up to 10 miles (16 km) at 5.2 GHz/10 Mbps, with passive reflector on both sides • Up to 5 miles (8 km) at 2.4 GHz/10 Mbps or 5.2 GHz/20 Mbps, with integrated antenna • Up to 3 miles (4.8 km) at 2.4 GHz/ 20 Mbps with integrated antenna • Up to 2 miles (3.2 km) at 5.2 GHz/5.7 GHz at 10 Mbps, with integrated antenna • Up to 1 mile (1.6 km) at 5.2 GHz/5.7 GHz at 20 Mbps, with integrated antenna
FREQUENCY	Available in 2.4, 5.2 , 5.7 GHz or 900 MHz	Available in 2.4, 5.2 , 5.7 GHz or 900 MHz	Available in 2.4 GHz or 5.2 GHz or 5.7 GHz
ACCESS METHOD	Time Division Duplex (TDD) Time Division Multiple Access (TDMA)	Time Division Duplex (TDD) Time Division Multiple Access (TDMA)	Time Division Duplex (TDD)
INTERFACE	10/100 BaseT, half/full duplex — Rate auto negotiated (802.3 compliant)	10/100 BaseT, half/full duplex — Rate auto negotiated (802.3 compliant)	10/100 BaseT, half/full duplex — Rate auto negotiated (802.3 compliant)
SOFTWARE UPGRADE PATH	Remotely downloaded into FLASH via RF link	Remotely downloaded into FLASH via RF link	Remotely downloaded into FLASH via RF link
NETWORK MANAGEMENT	HTTP, TELNET, FTP, SNMP	HTTP, TELNET, FTP, SNMP	HTTP, TELNET, FTP, SNMP
POWER SUPPLY			
AC POWER			
DC POWER (TO UNIT)	n/a	n/a	n/a
POWER CONNECTOR	0.30 Amp @ 24 VDC (7.2 watts) typical, 8.4 Watts max.	0.30 Amp @ 24 VDC (7.2 watts) typical	0.30 Amp @ 24 VDC (7.2 watts) typical, 8.4 Watts max.
ENVIRONMENTAL	n/a	n/a	n/a
WIND SURVIVAL			
OPERATING TEMPERATURE	190 km/hr (118 mph)	190 km/hr (118 mph)	190 km/hr (118 mph)
PHYSICAL SPECIFICATIONS	-40°C to +55°C (-40°F to +131°F)	-40°C to +55°C (-40°F to +131°F)	-40°C to +55°C (-40°F to +131°F)
WEIGHT			
DIMENSIONS (H X W X L)	0.45 kg (1 lb.) 29.9 cm x 8.6 cm x 8.6 cm (11.75" x 3.4" x 3.4")	0.45 kg (1 lb.) 29.9 cm x 8.6 cm x 8.6 cm (11.75" x 3.4" x 3.4")	Canopy Backhaul Module with Passive Reflector 3 kg (6.5 lbs.) 29.9 cm x 8.6 cm x 8.6 cm (11.75" x 3.4" x 3.4") without reflector
SHIPS WITH	Power supply[2]	Power supply[2]	Power supply[2]
SECURITY	Available in **DES** or **AES**[1] See part numbers listed above	Available in **DES** or **AES**[1] See part numbers listed above	Available in **DES** or **AES**[1] See part numbers listed above
COMPLIANCE	UL Approved **FCC IDs:** 2.4 GHz ABZ89FC5808, 5.2 GHz ABZ89FC3789 5.7 GHz ABZ89FC5804, 900 MHz ABZ89FC5809 **Industry Canada Certification Numbers:** 2.4 GHz 109W-2400, 5.2 GHz 109W-5200 5.7 GHz 109W-5700, 900 MHz 109W-9000	UL Approved **FCC IDs:** 2.4 GHz ABZ89FC5808, 5.2 GHz ABZ89FC3789 5.7 GHz ABZ89FC5804, 900 MHz ABZ89FC5809 **Industry Canada Certification Numbers:** 2.4 GHz 109W-2400, 5.2 GHz 109W-5200 5.7 GHz 109W-5700, 900 MHz 109W-9000	UL Approved **FCC IDs:** 2.4 GHz ABZ89FC5808, 5.2 GHz ABZ89FC3789, Extended Range Backhaul ABZ89FC5807, 5.7 GHz ABZ89FC5804 **Industry Canada Certification Numbers:** 2.4 GHz 109W-2400, 5.2 GHz 109W-5200 Extended Range Backhaul 109W-5210, 5.7 GHz 109W-5700

* Ships standard with integrated antenna.
** Available with optional connectorized antenna.

[1] All components in the Motorola Canopy System must be AES compatible.
[2] Other components may be required, depending upon application and/or system configuration.

Motorola Canopy™ Wireless Broadband System Specifications

	CMMmicro	CLUSTER MANAGEMENT MODULE (CMM)
PART NUMBER	RDH4370A	HK1029A
MANAGED SWITCH	Yes	No
DIMENSIONS	12.00" x 10.00" x 3.00" (30.3 cm x 25.2 cm x 7.7 cm)	17.00" x 12.88" x 6.50" (43.18 cm x 32.72 cm x 16.51 cm)
WEIGHT	8 lb (Approx. 3.5k)	25 lb (Approx. 11k)
CABLES REQUIRED PER CONNECTED CANOPY MODULE	1	2
ETHERNET PORTS FOR CANOPY MODULES	8	8
SEPERATE ETHERNET FEED PORTS	0	1
MAINTENANCE PORTS	0	1
TOTAL PORTS	8	10
CONFIGURATION LIMITS OR CONDITIONS		
MAX LENGTH ANY ONE RADIO CAN BE FROM CLUSTER MANAGEMENT MODULE	328 cable feet (100 m)	328 cable feet (100 m)
MAX LENGTH FROM CLUSTER MANAGEMENT MODULE TO GPS ANTENNA	100 cable feet (30.5 m)	100 cable feet (30.5 m)
OPERATING TEMPERATURE	-40°F to +131°F (-40°C to +55°C)	-40°F to +131°F (-40°C to +55°C)
OVERALL		Meets CE IP44 according to EN60529:2000
POWER	AC to DC converter provided, but not in enclosure – intended to be mounted in electronics hut or customer provided enclosure	AC to DC converter provided, mounted in enclosure
AC INPUT VOLTAGE	100 V – 240 V ~, no setting required	100 V – 240 V ~, 0.7 A – 0.35 A. Note: Applying 230 V to a unit which is set to 115 V may damage the unit
AC FREQUENCY	50 Hz to 60 Hz	50 Hz to 60 Hz
AC INPUT POWER	Maximum 92 watts with 8 modules connected to the CMM at maximum cable length	Maximum 92 watts with 8 modules connected to the CMM at maximum cable length
DC VOLTAGE	21.5 to 26.5 V DC, measured at CMM	17 to 32 V DC, measured at CMM
DC POWER	Maximum 81 watts with 8 modules connected to the CMM at maximum cable length	Maximum 84 watts with 8 modules connected to the CMM at maximum cable length

Motorola Canopy™ Wireless Broadband System Accessories*

	PART NUMBER
Reflector Hardware Kit	**RDN9720A**
Universal Mounting Bracket	**RDN9721A**
110 VAC Single XCVR Power Supply	**RDN9722A**
220 VAC Single XCVR Power Supply	**RDN9723A**
Ethernet Surge Suppressor	**RDH4208A**
CAT5 Cable Tester	**RDN9811A**
8-Port Ethernet & Power Surge Suppressor (NEMA enclosure)	**RRDN4115A**
8-Port GPS Surge Suppressor (NEMA Enclosure)	**RRDN4114A**
Audio Alignment Headset	**RLN5635A**

* Not required for all configurations.
See your Motorola representative to determine the solution that's right for your organization.

For more information, contact:

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