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Book Descriptions:

canopy bh user manual

Motorola Wireless Internet Platform. Specifications. Operating Frequency Range. UNII Mid band. Access Method. Data Rate. Modulation Type. Receiver Sensitivity. Error Floor. Operating Range All Weather. Transmitter Power. DC Power. Interface. Protocols Used by CANOPY Better than 10⁻⁹ BER, unfaded. Up to 2 miles with integrated antenna. Meets FCC UNII ERP Limit Rate auto negotiated 802.3 compliant. IPV4, UDP, TCP, ICMP, Telnet, Switched Layer 2 Transport DHCP, IPX, etc. Software Upgrade Path. Remotely downloaded into FLASH Network Management Wind. Humidity. Temperature. Physical. Dimensions. Weight. Page 24 Approx 1 lb, 0.5 kg. Page 1 Motorola Wireless Internet Platform. Warranty Information. Packet Stats. Motorola offers a warranty covering a period of 90 days from the date if a product is found defective during Information on Packet Stats is for tech support personnel only. Page 2. Page 23 Motorola Wireless Internet Platform. Congratulations! Sessions. You have purchased a Motorola CANOPY radio, the latest innovation in The Motorola CANOPY radio lets you Network speeds of 10baseT. Small compact design. No special set up on your PC. Getting to Know your Radio. Canopy AP The base cover snaps off to LEDs used for diagnostics. The Connection. LEDs. Base Cover. Information on Sessions is for tech support personnel only. Page 22. Ethernet. Cable. Release. Lever. Page 3 Motorola Wireless Internet Platform. Installing CANOPY. Mount from 1 to 6 CANOPY AP radios in a location where it is facing the Pick a location, pole, tower, rooftop or other Canopy AP Radios. Optimum Access Point height on Further, the Page 4. Page 21 Motorola Wireless Internet Platform. Link Test. Mounting Your Canopy AP Units Radio Stainless. Steel Hose. Clamps or Equivalent. Typical. Antenna. Mast. IMPORTANT NOTE To comply with FCC RF exposure compliance The Canopy AP Units must be Installers must follow the Canopy. <http://www.linzer-konzertverein.at/UserFiles/4-channel-amp-manual.xml>

- **1.0.**

AP Unit installation instructions and transmitter operating conditions The Canopy AP Units can be mounted in a variety of ways. Mounting The Canopy AP Units should be installed away from the service mast Code NEC. In concert with the LUID select page, the radio link to the currently Page 20. Page 5 Motorola Wireless Internet Platform. Connecting Your Single Canopy AP Unit. View Subscriber Module Cable. Fixed Network. Access. AC Adapter. Single CANOPY AP Site Plug the AC Adapter into an AC outlet. Plug the other side of the If connecting to a COMPUTER, use a Straight Thru Ethernet cable. If Ethernet cable. Page 6. In concert with the LUID Select page, the currently selected Canopy. Subscriber Module internal web pages can be accessed. Once selected, Page 19 Motorola Wireless Internet Platform. Configuring your Canopy AP Units for a Multiple AP Unit Site. LUID Select. The user can select any of the registered Canopy SM Units currently Page 18. All Canopy AP radios come preconfigured with the same default IP Startup the laptop with no. Ethernet connection. This Ethernet. Connect a straight thru. Ethernet cable from the Plug the AC adapter into Using a web browser, go to the default URL to Canopy AP unit. Example IP Address 192.168.1.2. IP Address 192.168.1.3. IP Address 192.168.1.4. IP Address 192.168.1.5. IP Address 192.168.1.6. IP Address 192.168.1.7. Changing the subnet assignment to valid IP addresses on your Page 7 Motorola Wireless Internet Platform. Connecting Your Multiple Canopy AP Units. Once the Canopy AP Units have Canopy AP Installation Kit. Mount Connect AC to the Canopy AP. Installation Kit. Connect a CAT5 Ethernet cable, Installation Kit and each CANOPY. AP Unit. Connect an RJ11c phone cable Sync connectors and each. CANOPY AP Unit. Connect a CAT5 Ethernet cable GPS Antenna AP Radios. Cables. Multiple. Canopy AP. Installation. Kit Ethernet. Event Log. Consult the AP Installation Kit user guide for more detailed Information on Event Log is

for tech support personnel only. <http://azumakirby.com/admin/userfiles/4-channel-amp-manual.xml>

The user should not clear this data unless instructed to do so by techSync Input. One of the Sync connectors on the Canopy AP Junction is labeled. MASTER. Make a permanent note of which Canopy AP Unit is connected. On the Canopy AP Unit internal configuration screen, select Sync AP Canopy AP Junction. The GPS receiver within the Canopy AP Junction will generate sync for all attached Canopy AP Units. Page 8. Page 17 Motorola Wireless Internet Platform. LED Display. Planning Multiple Canopy AP Units. MaLED indicators inside the Canopy AP Unit provide various status RED, YELLOW, or GREEN. MaMaMaSync Input, mounted, and connected to the Canopy AP Junctions, they Construct a This will become useful later when Consider the example below depicting 24 Canopy AP Units at 4 sites. AP Unit. Select an RF frequency for each. Canopy AP Unit based on it's Units should be assigned different Page 9 Motorola Wireless Internet Platform. Accessing your Canopy AP Unit Configuration. Status. A PC for accessing your Canopy AP Unit configuration does not require Configuring the CANOPY AP Unit. During normal operation, the Canopy AP Unit provides a variety of status. The Canopy AP Unit requires little configuration for operation and is delivered with default As described earlier, in a multiple AP system, Open your web browser such as Microsoft Internet Explorer and enter the Canopy AP Unit default URL, or the URL with the If the CANOPY These web pages are within the CANOPY AP Unit, and no connection to Various web pages within the CANOPY AP Unit Device type. System Time CANOPY AP Unit CANOPY radio. Every CANOPY radio, Ethernet card, or Network Interface Card NIC will have a unique number Data Slots Up. This information is for use of technical support. Data Slots Down. Software Version. FPGA Version. Device ESN. Uptime. The number of Canopy SM Units currently registered with. Registered SM Count. Page 10. Page 15 Motorola Wireless Internet Platform. Lan1 IP Lan1 Subnet Mask is preconfigured to the value 255.255.

0.0 for all Canopy AP Units. Change this as appropriate when changing the Lan1 IP address. Default Gateway is preconfigured to the address 169.254.0.0 for all Canopy AP Units. Change this as appropriate for your network Provider IDA number may be entered into this field which is conveyed. Sector ID Sector ID. It may be useful to assign sequential sector IDs Max Range. Canopy SM Unit range which will be allowed to register. Update Flash Initiates a radio reboot. Reboot. Redispays current configuration of CANOPY configura Clear Changes Home. This is the CANOPY AP Home page. You may select any of the other Stats. Page 14. Page 11 Motorola Wireless Internet Platform. Configuration. Device type. Mode. Any other label indicates an inappropriate Sync Input. Default is Generate AP Sync Signal. In multiple AP sites, Select the RF frequency for this Canopy AP Unit. The RF. RF Frequency Carrier Preallocate a division of the total bandwidth between. Downlink Data The default value is 75%. High Priority. Uplink Percentage portion of uplink bandwidth for VoIP services. Total. NumU AckSlots NumD AckSlots Acknowledgements. DAcks Reserved High. Acknowledgements for VoIP services. NumCtlSlots NumCtlSlots Reserved High Uplink BandWidth is preconfigured to 9999. This value permits creating a per. SM user capacity for Uplink data. Cap KBPS. Uacks Reserved. High. Use this page to configure operating parameters for the Canopy AP Unit. Sync Input, RF Frequency, and Lan1 IP Address will require Page 12. Dwnlink. BandWidth Cap This value permits creating a per. Page 13 Motorola Wireless Internet Platform. Page 12 Approx 1 lb, 0.5 kg. Motorola offers a warranty covering a period of 90 days from the date If a product is found defective during Each of your Canopy BH units operate logically as a Canopy AP or. Canopy SM. Detailed operational guide can be found within the associated Canopy AP User Guide. Canopy AP User Guide Page 2. Canopy AP Installation Kit. Connecting Your Canopy BH Units Access. Crossover.

You have purchased a Motorola CANOPY backhaul radio, the latest The Motorola CANOPY Crossover. Network speeds of 20Mbps. Transparent 100baseT networking. AC Adapter Plug the AC Adapter into an AC outlet. Plug the other side of the Canopy AP The Canopy BH units are depicted in the diagram above using a CrossOver Ethernet cable, to connect to a Fixed Network such as a HUB. SWITCH, or

ROUTER. If connecting to a COMPUTER, use a StraightThru Ethernet cable. Although Ethernet straightthrough or crossover cables minimallyThe base cover snaps off to LEDs used for dagnostics. TheConnection. If one side or the other employs a Canopy AP Installation Kit, power isAP Installation Kit provides internal crossover patches for all connected. Canopy AP units. Installing CANOPY BH. Mounting Your Canopy BH Units. Mount the Canopy BH radios on any structures which will provide the pairThe Canopy BH units are configured as a pair with one of the unitsCarefully alignIf the distance is farInstall and power the AP unitEither side of the PointtoPoint link can be the BHAP Unit. If one of theIf one side of the PointtoPoint link is also intended to be the locationModules, put the Canopy BHAP unit on this side and connect it usingIf there is no connection to a Canopy PointtoMultipoint network justPointtoPoint links in a star configuration, put the Canopy BHAP unit. Kit. If there is no connection to a Canopy PointtoMultipoint network justCanopy BHAP unit on the side that the network is normally managedPage 4. IMPORTANT NOTE To comply with FCC RF exposure complianceThe Canopy BH Units must beInstallers must follow the Canopy. BH Unit installation instructions and transmitter operating conditionsThe Canopy BH Units can be mounted in a variety of ways. MountingThe Canopy AP Units should be installed away from the service mast,Code NEC. Page 9Motorola Wireless Internet Platform. Canopy BH—Remote feed of multiple Canopy Access Points from aCanopy AP. PtMultiPtCanopy BH—Dedicated Link.

PtMultiPtCanopyCanopyCanopy AP. CanopyCanopyCanopyCanopy AP. Where using Canopy BH to feed multiple Canopy PointtoMultiPoint. Access Points from a remote location, all Canopy BH links can be synchronized from the PointtoMultiPoint Access Points each is equipped with a. Canopy AP Installation Kit. Here, the Canopy BHSM units end up colocated, but operate synchronized, each synchronized by the Canopy BHAP units colocated at the PointtoMultiPoint Access Points. The Canopy BHAP unit receives powered and GPS synchronization fromThe Canopy BHAP units must beSignal". CanopyNetwork. ManagementThis is a basic, simple, standalone dedicated link using Canopy BH. Either side can be SM or AP. For convenience, the Canopy BHAP unitSince there is no Canopy. AP Installation kit at either side, there is no GPS synchronization, and the. Canopy BHAP unit must be configured to "Generate AP Sync Signal",Page 5Motorola Wireless Internet Platform. Canopy BH—Remote Internet Feed to Canopy 5.2GHz Access PointCanopy BH—CoLocated Canopy BH units multiple dedicated links. PtMultiPtCanopyCanopyCanopyCanopy AP. CanopyCanopyWhere multiple Canopy BH links share a site in common, a Canopy AP. Installation Kit can be employed to a power all the Canopy units at theIn this configuration, Canopy. BHAP units should be placed at the same site, and the endpoints of theThe Canopy BHAP unit receives powered and GPS synchronization fromThe Canopy BHAP unit must be configured to "Sync AP to Received Signal", and not "Generate AP Sync. Signal". This is a basic use of Canopy BH to provide a remote Ethernet feed to a. Canopy 5.2GHz PtMultiPt Access Point. The Canopy Access PointCanopy BHAP unit. The Canopy BHAP unit receives powered and GPS synchronization fromThe Canopy BHAP unit must be configured to "Sync AP to Received Signal", and not "Generate AP Sync. Page 7Motorola Wireless Internet Platform. Getting Started with MotorolaPage 1Motorola Wireless Internet Platform.

Motorola offers a warranty covering a period of 90 days from the dateIf a product is found defective duringPage 2. Connecting the GPS Antenna. You have purchased a Motorola CANOPY AP Installation Kit, anMotorola CANOPY radio lets you easily network at high speeds with noNetwork speeds ofSmall compact design. No special set up onThe Canopy AP Installation. Kit provides everythingCanopy AP Unit Access. Point operational. Getting to Know your Canopy AP Installation Kit. Ethernet Switch. AC Supply. The GPS antenna cable plugs into a matching socket just below the left sideThe GPS antenna at the other end of the GPSInterconnect Board. Connecting to the Network. Installing CANOPY AP Installation Kit. Mount the Canopy AP Installation Kit in a convenient location below the. Canopy AP Radio Units, on a multiple Canopy AP radio site. TheIn such a configuration, the Canopy AP Installation. Kit would be conveniently mounted on the same

mast or pole below the. Canopy AP radio units. GPS Antenna AP Radios. The network should be connected to a 100baseT network source with a. CAT5 Ethernet Cable, as depicted by the pink cable in the photo above. Ethernet Page 9 Motorola Wireless Internet Platform. Connecting GPS Sync to the Canopy AP Units. Overview of Installation. Once the Canopy AP Units have been assigned unique IP addresses, Mount the Canopy AP. Installation Kit near the Canopy AP Units. Connect AC to the Canopy AP Installation Kit. Connect an RJ11c phone cable between the AP Installation Kit Sync Connect a CAT5 Ethernet cable between the AP Installation Kit and a Mount the GPS Antenna facing upwards on top of the antenna mast, The following sections will take you through these steps one at a time. The GPS Sync cables utilize RJ11 connectors standard telephone size and A total of 8 sockets are available on the Canopy. AP Installation Kit, to accommodate a full 6 Canopy AP Units and 2. Canopy BH Units. Only 6 Canopy AP Units are depicted connected in the Page 8. Connecting AC Power Page 6.

Connecting Ethernet to the Canopy AP Units. The Ethernet cables utilize RJ45 connectors standard Ethernet and A total of 8 sockets are available on the Canopy. Canopy BH Units. Only 6 Canopy AP Units are depicted connected in the Page 7 PDF Version 1.4. Linearized No. Create Date 20011126 1202330600. Modify Date 20011219 1311080600. Page Count 24. Creation Date 20011126 1202330600. Mod Date 20011219 1311080600. Producer Acrobat Distiller 5.0 Windows. Author cdcs37. Metadata Date 20011219 1311080600. Creator cdcs37. Title Canopy AP Unit.pub. Has XFA No. The contents of this User Guide are subject to change without notice. These limits have been designed to provide reasonable protection against harmful interference in a residential installation. The publication of information in this document does not imply freedom from patent or other rights of Motorola or others. Issue 1.1 April 2006. Interpreting Typeface and Other Conventions This document employs distinctive font to indicate the type of information, as described in Table 1. Table 1 Font types Font Type of Information. To protect from overexposure to RF energy, install Canopy radios so as to provide and maintain the minimum separation distances from all persons shown in Table When the system is operational, avoid standing directly in front of the antenna. Strong RF fields are present when the transmitter is on. Table 4 Power Compliance Margins Variable Recom Power Frequency Antenna mended Compliance Band Distance. CAUTION Safety will be compromised if a different power supply is used than the one supplied by Motorola as part of the system. Issue 1.1 April 2006 Page 19. It houses both radio and networking electronics. At power up the LED will flash 10 times to indicate that a correct start up sequence has occurred. DC Out Ethernet Power. For more details on mounting, see section 7 " Installation ". The bracket allows for adjustment in both azimuth and elevation.

The bracket may be split allowing the pole mount section of the bracket to be mounted to the pole first. The radio link operates on a single frequency channel in each direction using Time Division Duplex TDD. One unit is deployed as a master and the other as a slave. The master unit takes responsibility for controlling the link in both directions. New software images are first download from the Motorola website to a convenient computer. Motorola recommends the use of screened cable and a surge arrester to protect connected equipment from nearby strikes. For this reason the unit should not be installed as the highest point in a localized area, unless specific precautions are taken. The ODU should be mounted using the following steps ensuring that the cable entry is at the bottom. The ODU mounting bracket is design to work with poles with diameters in the range 50mm 2" to 75mm 3". The lanyard should be made from a material that does not degrade in an outdoor environment. The safety lanyard must be fixed to a separate fixing point that is not part of the direct mounting system for the ODU. Ensure that the reset switch can be accessed when mounting the unit. During this time, between 10 and 15 seconds, the Master unit will not transmit and as a consequence of this neither will the Slave unit. The status page presents a more detailed set of system parameters describing the performance of the wireless link together with other key system performance metrics. The system can restart for several reasons, e.g. commanded reboot from the

system reboot webpage, or a power cycle of the equipment. Ethernet Link Disable Warning This warning is displayed if the Ethernet link has been administratively disabled via the SNMP Interface. Telecoms Interface A Loopback The telecoms loopback features are intended for installation testing only and should be set to None for normal operation. The region code is encoded in the product license key. The speed setting is specified in Mbps.

Full Duplex data transmission means that data can be transmitted in both directions on a signal carrier at the same time. For example, on a local area network with a technology that has full duplex transmission;. Transmit Modulation Mode The modulation mode currently being used on the transmit channel. Details on the modulation modes can be found in section 11.1 "System Specifications ". By default a system admin password is not set. Simply click the login button to access the system administration features. It is recommended after a unit has been successfully installed that a copy of the active configuration is taken and archived by the system administrator. If the link losses are low and the link data rate and availability targets are being easily achieved, the transmitted power level may be reduced with a consequent benefit to other users of the band, e.g. Figure 24 LAN Configuration Page IP Address Internet protocol IP address. This address is used by the family of Internet protocols to uniquely identify this unit on a network. Auto Neg Advertisement This controls the rates that the auto negotiation mechanism will advertise as available. Note At this point you will lose connection to the unit. If you have just changed the IP Address you now have to reconnect to the unit using the address just set. The VLAN settings are applied only after the unit is rebooted. Note The IP address of the unit may have also been changed the user can check the new IP address by reading the header of the configuration file Figure 31. 8.3.1.6 Telecoms Configuration Page The Telecoms page is only available when the Telecoms Interface has been set to either E1 or T1 in the Installation Wizard. The link may be checked using, for example a Bit Error Rate Tester. Figure 34 System Statistics Wireless Tx Packets This displays the total number of good packets the bridge has sent for transmission by the wireless interface. Packets From Internal Stack.

This displays the total number of good packets the bridge has received from the internal stack e.g. Column two relates to the wireless interface. Rx Multicasts Total number of good multicast packets. Rx CRC and Align Total number of packets with CRC or frame alignment errors. Rx Undersize Total number of packets received that are less than 64 bytes and have a valid CRC. There follows a description of the install pages along with their use during the installation configuration process. The actual installation process is described in section 7.7.11 "Aligning the ODUs". If subsequently the license key has been mislaid, replacement keys can be applied for online or via your distributor. By organizing hosts into logical groups, subnetting can improve network security and performance. Channel A Line Code The line code setting of the telecoms interface. This must match the setting of the device connected to this interface. Channel B Line Code The line code setting of the telecoms interface. This is used by the system to ensure the unit establishes a wireless link to the correct peer. The main advantage of the target range mode is that it reduces the time taken by the units to range. To use the target range mode the installer MUST select Target Range as the ranging mode and enter the approximate range in km in the Target range data entry field at both ends of the link. Installation Tones Where the use of audio installation tones is not required this control allows the installer to optionally disable the tone generator during the installation process. The user will now be prompted to confirm the action Figure 44. Figure 44 Reboot Confirmation Pop Up All the attributes are committed to nonvolatile memory. Figure 45 Disarm Installation Once section 7.7.11 "Aligning the ODUs" is complete pressing the "Disarm Installation Agent" button completes the installation process and the audible installation tone will be switched FP T off.

In addition the system administrator may wish to change the spectrum management configuration of the wireless unit, or look at the analysis of the 5.8 GHz spectrum to see if the automatic channel selection is appropriate for the system administrator's network. This upload should only take a few

seconds. Once complete the image is verified and validated to ensure that no errors occurred during transfer and that the image is valid to run on the current platform. Reboot the unit by clicking the "Reboot Wireless Unit" button. You will be asked to confirm this action as shown in Figure 52. If you cannot communicate with the unit after 120 seconds this could indicate a problem with the memory update process. Measurements are still collected for all channels irrespective of the number of barred channels.

8.3.7.3 Measurement Analysis

Spectrum Management uses statistical analysis to process the received peak and mean measurement. The statistical analysis is based on a fixed, one minute, measurement quantization period. It is therefore possible to swap master and slave roles on an active PointtoPoint link without modifying Spectrum Management configuration. Figure 53 Spectrum Management as seen from the Master Figure 54 Spectrum Management as seen from the Slave

Issue 1.1 April 2006 Page 90. Refresh Page Period The page refreshes automatically according to the setting entered here in seconds. It is important to note that adjacent channels on the display have a 10 MHz overlap. The display separates the display of channels to help the clarity of the resultant display. The axis is labelled using the channel center frequencies in MHz. A time series plot displays the previous 145 measurement quantization periods. The only controls available to the master are the Statistics Window and Interference Threshold attributes. This has no effect on the operation of the wireless link and will only affect the generation of the channel spectrum graphics.

Changing the SNMP state attribute requires a mandatory reboot of the unit. Only when the SNMP state is enabled at system startup will the SNMP processor task be created. The system time is used for SNMP and event logging.

SNTP State

When enabled, the Remote Management web page permits the following attributes to be set

SNTP IP Address

The IP address of the networked SNTP server.

The Trace selection

allows the user to control which traces are plotted. As with other management pages the page refresh period can be used to interactively monitor the wireless link. If a valid license key is detected then the user will be presented by a system reboot screen, The user will then be asked to confirm the reboot Figure 69.

WEB Properties

Disable HTTP NOCACHE META data

Removes the HTTP NOCACHE META clause from all dynamically created web pages.

Auto Logout Timer

Configures the time in minutes when the system administrator is automatically logged out if no webpage activity is detected. The reboot page also allows the system administrator to view a list of past reboot reasons. This may be the original image if software corruption is suspected or a step back to an old image if an incorrect image has just been loaded. Figure 75

Software Download Progress Indicator Page

When the download is complete a page is displayed indicating the status of the software download Figure 77. Figure 76

Software Download Complete Page

After carefully checking that correct image has been downloaded the user should reboot the unit by pressing the "Reboot Wireless Unit". Providing the unit configuration is still intact the unit should restart in normal operational mode and the link recovers. Should the unit or link fail to recover the user should refer to section 10 ". Should the unit fail to start up the user should refer to section 10 "Fault Finding ".

Erase Configuration

To erase the unit's configuration the user should press the "Erase Configuration".

Figure 83 Reboot Confirmation Pop Up

The unit will now reboot. The unit should now start up in normal mode but with all configurations erased. The user will now be presented with a pop up box asking them to confirm the action Figure 84. Figure 84

Reboot Confirmation Pop Up

The unit will now reboot. Go to the hardware section below. If communication with the far end of the link is lost then go to the radio section below.

10.1 Hardware

If there are problems suspected with the link hardware the following procedure is recommended. See section 13 "Wind Loading" for a Wind Loading full description. Note Grounding Points are shown unprotected for clarity. However, it may be a regulatory requirement to cross bond the screened CAT5 at regular intervals up the mast. Refer to local regulatory requirements for further details. Antennas are normally specified by the amount of force in pounds for specific wind strengths.