

LINDSAY SMHAP

OUTDOOR WLAN CONCEPTS FOR CABLE OPERATORS

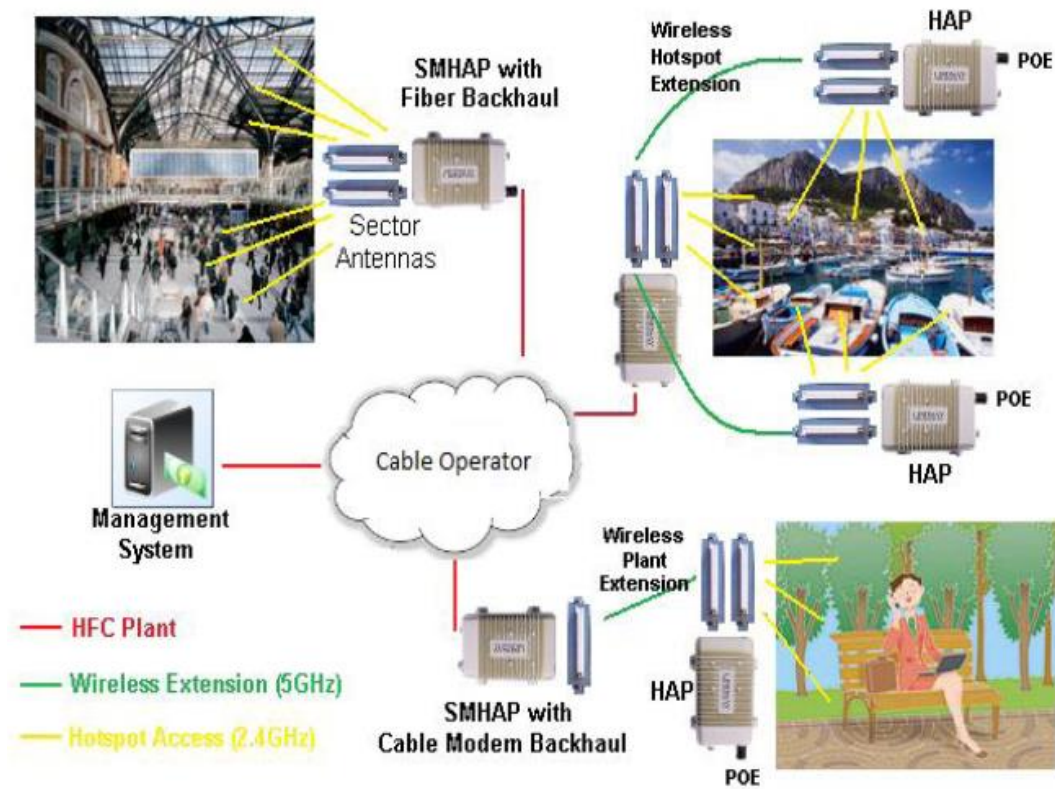
The SMHAP, Wireless Access Zone Unit is a hardened, standards based solution for wireless access to the HFC network. Leverage your existing plant and the ubiquity of 802.11 hardware to create new income streams. Extend your plant to previously unavailable business customers with wireless bridging. Quick and easy network connection at any power passing tap or directional coupler.



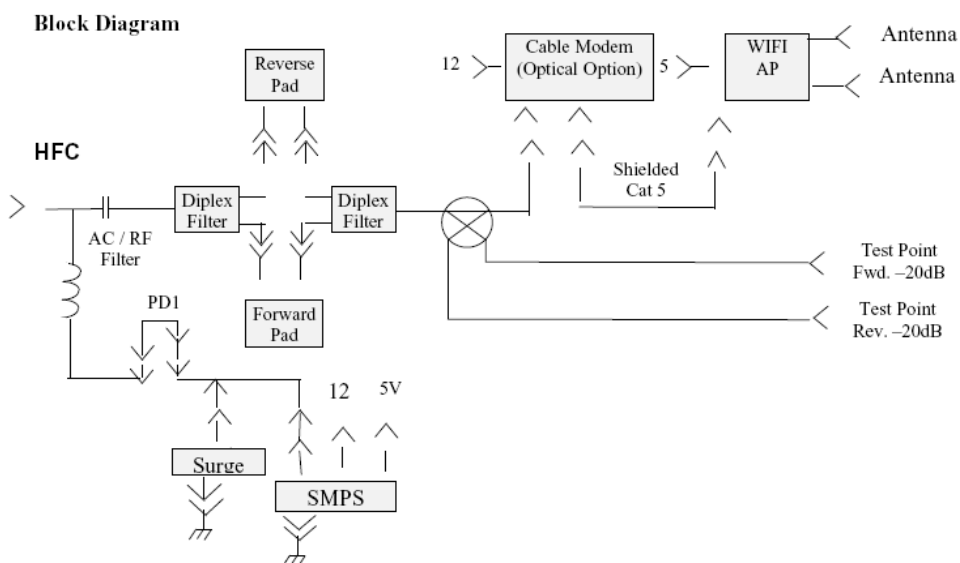
- Multiple secure management options include:
 - An intuitive CLI accessible by Telnet, SSH, and console connection
 - Complete configuration from Microsoft desktop with win32 "Winbox" application
 - Integrated web server for basic setup by HTTPS
 - SNMP read/write support.
 - Free "Dude" management tool, for monitoring / configuring your entire network
- Many radio options.
 - Choose one, two, or three radios. High power radios. Radios can be for any 802.11 a/b/g/n band or dual band
- Advanced routing and bridging
 - IEEE802.1D (bridging), 802.1p (QOS), 802.1Q (VLAN), 802.1w (STP)
 - RIP, OSPF, BGP, MPLS routing protocols
 - L2TP, PPPoE, PPTP, including BCP
 - Firewall and bridge filters
 - WMM for prioritized wireless voice and video streams
- Online firmware upgrades with rollback, (Automated or managed)
- Hotspot/Point-to-Point Bridge/Point to Multipoint Bridge
- Supports 16 virtual service communities
- Radius Interface for Remote Authentication, Authorization and Accounting
- DOCSIS Modem or Optical Input Interface
- Aluminum housing of clamshell design
- Strand, wall or pedestal mount hardware options
- Dual gaskets provide for EMI isolation and a weather tight seal
- Forward and reverse test points
- Forward and reverse padding
- Surge protection

HFC		PHYSICAL	
Test Points	-20dB relative to Cable Modem RF Port	Dimensions	12.2 x 8.9 x 5.8 Inches
Pad Type	JXP, Separate Forward and Reverse	Weight	10 lbs
Temperature Range	-40 to +60 Deg C	Airtight	15 psi
EMI Isolation	100 dB (5-1000 MHz)	CERTIFICATIONS	
Surge Withstand (HFC)	ANSI-IEEE C62.41 Category B3 (6KV)	Radio	Industry Canada RSS210 Certification
Powering	60 / 90 VAC (Pseudo Sine)	FCC Part 15 Certification	
Power Consumption	15W	Cable Modem	DOCSIS 1.x / 2.0 / 3.0 Certified

TYPICAL APPLICATIONS



BLOCK DIAGRAM



COMPLETE OUTDOOR HARDENED ACCESS POINT HFC POWERED STRAND MOUNTED

SMHAP-SB5101-RB411-2.4	Single Radio Access Point with L2TP and DOCSIS 2.0
SMHAP-SB6120-RB411-2.4	Single Radio Access Point with L2TP and DOCSIS 3.0
SMHAP-SB5101-RB433-2.4/5.8	Dual Radio Access Point with L2TP and DOCSIS 2.0
SMHAP-SB6120-RB433-2.4/5.8	Dual Radio Access Point with L2TP and DOCSIS 3.0

COMPLETE OUTDOOR HARDENED ACCESS POINT POE POWERED

9000HAP-RB411A-2.4	Complete Mikritik Single Radio Access Point
9000HAP-RB433-2.5/5.8	Complete Mikritik Dual Radio Access Point
9-154	12VDC POE Power Injector required for each 9000HAP

ACCESSORIES

3519-131	5.5dB gain Rubber Whip Antenna 2.4 GHz
3519-142	5.5dB gain Rubber Whip Antenna 5.8GHz
3519-136	8 dB gain Omni Directional Antenna 2.4 GHz
3519-137	8 dB gain Omni Directional Antenna 5.8 GHz
3502-105	90° N M-F Connectors required for Omni Antennas
LB-SPLG-12	60° Sector Antenna 12 dBi, 2.4 GHz
3519-145	90° Sector Antenna 12 dBi, 2.4 GHz
3519-144	120° Sector Antenna 9 dBi, 2.4 GHz
3519-140	180° Sector Antenna 4.6 dBi, 2.4 GHz
3519-155	180° Sector Antenna 9 dBi, 2.4 GHz
3519-150	30° Sector Antenna 17 dBi, 5.8 GHz
3519-151	60° Sector Antenna 14.5 dBi, 5.8 GHz
LB-SPDN6F	90° Sector Antenna 13 dBi, 5.8 GHz
3519-154	120° Sector Antenna 12.5 dBi, 5.8 GHz
3519-163	180° Sector Antenna 10.8 dBi, 5.8 GHz
3519-161	Directional Panel Antenna 19 dBi, 5.8 GHz for Point to Point
3519-147	8° Grid Antenna 24 dBi, 5.8 GHz for Point to Point
PE3062-36	36" Antenna Jumper Cable for directional Antennas
2-1138	Antenna 8" Hanger Bracket for directional Antennas
JXP-XX	Plug in Pads, available from 1-26dB
2-246	Hanger Bracket assembly for shared strand two required
3513-030+3-186	9000 HAP UNIVERSAL MAST/POLE/WALL MOUNTING KIT*
LBBTA-L	Universal Wall Mount, 29" Arm
SFT-150	Fusion weatherproof Tape per Roll

CUSTOMER PREMISES EQUIPMENT

LBWNAP-6300	802.11b/g/n Outdoor Wireless CPE
LBWNRT-617	802.11b/g/n Indoor Wireless CPE
LB-2410-N	USB 2.0 CPE complete with 7dBi omni Antenna and 5m Cable 2.4 GHz
LCPO-1000-2	Outdoor Customer Premise Equipment, 2.4 GHz, 10 dBi for Business
LCPO-1000-5	Outdoor Customer Premise Equipment, 5.8 GHz, 14 dBi for Business
LCPI-1000-2	Indoor Customer Premise Equipment, 2.4 GHz, for Business
LCPI-1000-5	Indoor Customer Premise Equipment, 5.8 GHz, for Business