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## LANCOM L-54g Wireless

Business access point for secure LAN extension

- Access point for 2.4 GHz operation with 54/108 Mbps with IEEE 802.11b/g
- Secure wireless LAN through IEEE 802.11i, IEEE 802.1x/EAP, LEPS, with AES encryption in hardware
- Separation of user groups by Multi-SSID and VLAN
- No-problems installation even away from power-supply points with Power over Ethernet
- Optional connection of external antennas
- Secure Internet access via the integrated DSL router with stateful inspection firewall with intrusion detection/denial-of-service protection
- Optional: Hotspot support

As the link between local Ethernet and a wireless network, LANCOM access points inject mobility and flexibility into company networks. The LANCOM L-54g Wireless is an access point that offers maximum WLAN performance, security and reliability. As well as supporting the 108 Mbps standard IEEE 802.11g, the LANCOM L-54g Wireless is also compatible to the widespread IEEE 802.11b standard, so offering maximum flexibility in the office or for network coupling. In combination with the LANCOM Public Spot Option, the access point is also ideally suitable for setting up wireless Internet access services—hotspots—for example in hotels, restaurants, cafés, airports, railway stations, universities or at trade fairs.

#### **More Security.**

LANCOM sets the standards in WLAN security. A comprehensive range of security technologies is supported in wireless LAN including IEEE 802.11i, 802.1x, WPA, WPA2, WEP64/128/152, access control lists or LEPS (LANCOM Enhanced Passphrase Security), which enables the configuration of an optimized solution, whatever the individual requirements. For example, Multi SSID allows the definition of up to 8 user groups, each with its own level of security.

#### **More Management.**

LANCOM developments are focused on performance, security and on management, too. LANCOM's WLAN Controllers offer real benefits to network administrators for the installation, control and monitoring of access points. Settings for wireless, encryption, or access-control lists can be grouped into device configurations, which are then executed for multiple access points in one easy move. Access points are commissioned and RF optimization carried out automatically. Changes are transmitted to all of the devices automatically and subsequently monitored. WLANmonitor visualizes the structures of the WLAN irrespective of physical location and facilitates the central surveillance of the entire wireless network.

#### **More Reliability for the Future.**

From the very start, LANCOM products are designed for a product life of several years. They are equipped with hardware dimensioned for the future. Even reaching back to older product generations, updates to the LANCOM Operating System—LCOS—are available several times a year, free of charge and offering major features. LANCOM offers unbeatable protection of your investment!

#### **More Independence.**

Equally forward-looking is the support for the Power-over-Ethernet standard. The alternative of supplying electrical power via the network cable enables access points to be positioned fully independently of the conventional electricity supply and its power points.

#### **What's more...**

To complete the WLAN portfolio, LANCOM also offers suitable AirLancer client adapters and a large selection of high-end antennas for professional indoor and outdoor applications.

# LANCOM L-54g Wireless

Scope of features: as of LCOS version 8.0x

| WLAN                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency band 2.4 GHz                   | 2400-2483.5 MHz (ISM)                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Data rates 802.11b/g                     | 54 Mbps to IEEE 802.11g (fallback to 48, 36, 24, 18, 12, 9, 6 Mbps, Automatic Rate Selection) compatible to IEEE 802.11b (11, 5.5, 2, 1 Mbps, Automatic Rate Selection), 802.11 b/g compatibility mode or pure g or pure b, Super A/G with Turbo Mode (108 Mbps), bursting, compression                                                                                                                                                  |
| Range 802.11a/b/g *                      | Up to 150 m (up to 30 m in buildings) *                                                                                                                                                                                                                                                                                                                                                                                                  |
| Output power at radio module, 2.4 GHz    | 802.11b: +19 dBm @ 1 and 2 Mbps, +19 dBm @ 5.5 and 11 Mbps;<br>802.11g: +19 dBm @ 6 Mbps, +14 dBm @ 54 Mbps                                                                                                                                                                                                                                                                                                                              |
| Max. radiated power (EIRP), 2.4 GHz band | 802.11b/g: Up to 20 dBm / 100 mW EIRP (transmission power control according to TPC or manual settings)                                                                                                                                                                                                                                                                                                                                   |
| Minimum transmission power               | Transmission power reduction in software in 1 dB steps to min. 0.5 dBm                                                                                                                                                                                                                                                                                                                                                                   |
| Reception sensitivity 2.4 GHz            | 802.11b: -87 dBm @ 11 Mbps, -94 dBm @ 1 Mbps                                                                                                                                                                                                                                                                                                                                                                                             |
| Radio channels 2.4 GHz                   | Up to 13 channels, max. 3 non-overlapping (2.4 GHz band)                                                                                                                                                                                                                                                                                                                                                                                 |
| Roaming                                  | Seamless handover between radio cells, IAPP support with optional restriction to an ARF context, IEEE 802.11d support                                                                                                                                                                                                                                                                                                                    |
| WPA2 fast roaming                        | Pre-authentication and PMK caching for fast roaming                                                                                                                                                                                                                                                                                                                                                                                      |
| Fast client roaming                      | With background scanning, moving LANCOM 'client mode' access points pre-authenticate to alternative access points which offer a better signal before Roaming fails                                                                                                                                                                                                                                                                       |
| VLAN                                     | VLAN ID definable per interface, WLAN SSID, point-to-point connection and routing context (4094 IDs)                                                                                                                                                                                                                                                                                                                                     |
| Dynamic VLAN assignment                  | Dynamic VLAN assignment for target user groups based on MAC addresses, BSSID or SSID by means of external RADIUS server.                                                                                                                                                                                                                                                                                                                 |
| Q-in-Q tagging                           | Support of layered 802.1q VLANs (double tagging)                                                                                                                                                                                                                                                                                                                                                                                         |
| Multi-SSID                               | Simultaneous use of up to 8 independent WLAN networks per WLAN interface                                                                                                                                                                                                                                                                                                                                                                 |
| IGMP snooping                            | Support for Internet Group Management Protocol (IGMP) in the WLAN bridge for WLAN SSIDs and LAN interfaces for specific switching of multicast packets (devices with integrated WLAN only). Automated detection of multicast groups. Configurable action for multicast packets without registration. Configuration of static multicast group members per VLAN ID. Configuration of query simulation for multicast membership per VLAN ID |
| Security                                 | IEEE 802.11i / WPA2 with passphrase or 802.1x and hardware-accelerated AES, closed network, WEP64, WEP128, WEP152, user authentication, 802.1x /EAP, LEPS, WPA1/TKIP                                                                                                                                                                                                                                                                     |
| RADIUS server                            | Integrated RADIUS server for MAC address list management                                                                                                                                                                                                                                                                                                                                                                                 |
| EAP server                               | Integrated EAP server for authentication of 802.1x clients via EAP-TLS, EAP-TTLS, PEAP, MSCHAP or MSCHAPv2                                                                                                                                                                                                                                                                                                                               |
| Quality of Service                       | Prioritization according to Wireless Multimedia Extensions (WME, subset of IEEE 802.11e)                                                                                                                                                                                                                                                                                                                                                 |
| U-APSD/WMM Power Save                    | Extension of power saving according to IEEE 802.11e by Unscheduled Automatic Power Save Delivery (equivalent to WMM Power Save). U-APSD supports the automatic switch of clients to a doze mode. Increased battery lifetime for telephone calls over VoWLAN (Voice over WLAN)                                                                                                                                                            |
| Bandwidth limitation                     | Maximum transmit and receive rates and an individual VLAN ID can be assigned to each WLAN client (MAC address)                                                                                                                                                                                                                                                                                                                           |
| Broken link detection                    | If the link of a chosen LAN interface breaks down, a WLAN module can be deactivated to let the associated clients search for a new base station                                                                                                                                                                                                                                                                                          |
| Background scanning                      | Detection of rogue AP's and the channel information for all WLAN channels during normal AP operation.<br><br>The Background Scan Time Interval defines the time slots in which an AP or Router searches for a foreign WLAN network in its vicinity. The time interval can be specified in either milliseconds, seconds, minutes, hours or days                                                                                           |
| Client detection                         | Rogue WLAN client detection based on probe requests                                                                                                                                                                                                                                                                                                                                                                                      |
| 802.1x supplicant                        | Authentication of an access point in WLAN client mode at another access point via 802.1x (EAP-TLS, EAP-TTLS and PEAP)                                                                                                                                                                                                                                                                                                                    |
| *) Note                                  | The effective distances and transmission rates that can be achieved are depending of the site RF conditions                                                                                                                                                                                                                                                                                                                              |
| WLAN operating modes                     |                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| WLAN access point                        | Infrastructure mode (autonomous operation or managed by LANCOM WLAN Controller)                                                                                                                                                                                                                                                                                                                                                          |
| WLAN bridge                              | Point-to-multipoint connection of up to 7 Ethernet LANs (mixed operation optional), broken link detection, blind mode, supports VLAN<br><br>When configuring Pt-to-Pt links, pre-configured names can be used as an alternative to MAC Adresses for creating a link. Rapid spanning-tree protocol to support redundant routes in Ethernet networks                                                                                       |
| WLAN router                              | Use of the LAN connector for simultaneous DSL over LAN, IP router, NAT/Reverse NAT (IP masquerading) DHCP server, DHCP client, DHCP relay server, DNS server, PPPoE client (incl. Multi-PPPoE), PPTP client and server, NetBIOS proxy, DynDNS client, NTP, port mapping, policy-based routing based on routing tags, tagging based on firewall rules, dynamic routing with RIPv2, VRRP                                                   |
| WLAN client                              | Transparent WLAN client mode for wireless Ethernet extensions, e.g. connecting PCs or printers by Ethernet; up to 64 MAC addresses. Automatic selection of a WLAN profile (max. 8) with individual access parameters depending on signal strength or priority                                                                                                                                                                            |

| Firewall                        |                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stateful inspection firewall    | Incoming/Outgoing Traffic inspection based on connection information. Trigger for firewall rules depending on backup status, e.g. simplified rule sets for low-bandwidth backup lines. Limitation of the number of sessions per remote site (ID)                                                                                     |
| Packet filter                   | Check based on the header information of an IP packet (IP or MAC source/destination addresses; source/destination ports, DiffServ attribute); remote-site dependant, direction dependant, bandwidth dependant                                                                                                                        |
| Extended port forwarding        | Network Address Translation (NAT) based on protocol and WAN address, i.e. to make internal webserver accessible from WAN                                                                                                                                                                                                             |
| N:N IP address mapping          | N:N IP address mapping for translation of IP addresses or entire networks                                                                                                                                                                                                                                                            |
| Tagging                         | The firewall marks packets with routing tags, e.g. for policy-based routing                                                                                                                                                                                                                                                          |
| Actions                         | Forward, drop, reject, block sender address, close destination port, disconnect                                                                                                                                                                                                                                                      |
| Notification                    | Via e-mail, SYSLOG or SNMP trap                                                                                                                                                                                                                                                                                                      |
| Quality of Service              |                                                                                                                                                                                                                                                                                                                                      |
| Traffic shaping                 | Dynamic bandwidth management with IP traffic shaping                                                                                                                                                                                                                                                                                 |
| Bandwidth reservation           | Dynamic reservation of minimum and maximum bandwidths, totally or connection based, separate settings for send and receive directions. Setting relative bandwidth limits for QoS in percent                                                                                                                                          |
| DiffServ/TOS                    | Priority queuing of packets based on DiffServ/TOS fields                                                                                                                                                                                                                                                                             |
| Packet-size control             | Automatic packet-size control by fragmentation or Path Maximum Transmission Unit (PMTU) adjustment                                                                                                                                                                                                                                   |
| Layer 2/Layer 3 tagging         | Automatic or fixed translation of layer-2 priority information (802.11p-marked Ethernet frames) to layer-3 DiffServ attributes in routing mode. Translation from layer 3 to layer 2 with automatic recognition of 802.1p-support in the destination device                                                                           |
| Security                        |                                                                                                                                                                                                                                                                                                                                      |
| Intrusion Prevention            | Monitoring and blocking of login attempts and port scans                                                                                                                                                                                                                                                                             |
| IP spoofing                     | Source IP address check on all interfaces: only IP addresses belonging to the defined IP networks are allowed                                                                                                                                                                                                                        |
| Access control lists            | Filtering of IP or MAC addresses and preset protocols for configuration access                                                                                                                                                                                                                                                       |
| Denial of Service protection    | Protection from fragmentation errors and SYN flooding                                                                                                                                                                                                                                                                                |
| General                         | Detailed settings for handling reassembly, PING, stealth mode and AUTH port                                                                                                                                                                                                                                                          |
| URL blocker                     | Filtering of unwanted URLs based on DNS hitlists and wildcard filters                                                                                                                                                                                                                                                                |
| Password protection             | Password-protected configuration access can be set for each interface                                                                                                                                                                                                                                                                |
| Alerts                          | Alerts via e-mail, SNMP-Traps and SYSLOG                                                                                                                                                                                                                                                                                             |
| Authentication mechanisms       | EAP-TLS, EAP-TTLS, PEAP, MS-CHAP, MS-CHAPv2 as EAP authentication mechanisms, PAP, CHAP, MS-CHAP and MS-CHAPv2 as PPP authentication mechanisms                                                                                                                                                                                      |
| WLAN protocol filters           | Limitation of the allowed transfer protocols, source and target addresses on the WLAN interface                                                                                                                                                                                                                                      |
| Adjustable reset button         | Adjustable reset button for 'ignore', 'boot-only' and 'reset-or-boot'                                                                                                                                                                                                                                                                |
| IP redirect                     | Fixed redirection of any packet received over the WLAN interface to a dedicated target address                                                                                                                                                                                                                                       |
| High availability / redundancy  |                                                                                                                                                                                                                                                                                                                                      |
| VRRP                            | VRRP (Virtual Router Redundancy Protocol) for backup in case of failure of a device or remote station. Enables passive standby groups or reciprocal backup between multiple active devices including load balancing and user definable backup priorities                                                                             |
| FirmSafe                        | For completely safe software upgrades thanks to two stored firmware versions, incl. test mode for firmware updates                                                                                                                                                                                                                   |
| Analog/GSM modem backup         | Optional operation of an analog or GSM modem at the serial interface                                                                                                                                                                                                                                                                 |
| Line monitoring                 | Line monitoring with LCP echo monitoring, up to 4 addresses for end-to-end monitoring with ICMP polling                                                                                                                                                                                                                              |
| Routing functions               |                                                                                                                                                                                                                                                                                                                                      |
| Router                          | IP and NetBIOS/IP multi-protocol router                                                                                                                                                                                                                                                                                              |
| Advanced Routing and Forwarding | Separate processing of 8 contexts due to virtualization of the routers. Mapping to VLANs and complete independent management and configuration of IP networks in the device, i.e. individual settings for DHCP, DNS, Firewalling, QoS, VLAN, Routing etc. Automatic learning of routing tags for ARF contexts from the routing table |
| HTTP                            | HTTP and HTTPS server for configuration by web interface                                                                                                                                                                                                                                                                             |
| DNS                             | DNS client, DNS server, DNS relay, DNS proxy and dynamic DNS client                                                                                                                                                                                                                                                                  |
| DHCP                            | DHCP client, DHCP relay and DHCP server with autodetection. Cluster of several LANCOM DHCP servers per context (ARF network) enables caching of all DNS assignments at each router. DHCP forwarding to multiple (redundant) DHCP servers                                                                                             |
| NetBIOS                         | NetBIOS/IP proxy                                                                                                                                                                                                                                                                                                                     |

| Routing functions               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NTP                             | NTP client and SNTP server, automatic adjustment for daylight-saving time                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Policy-based routing            | Policy-based routing based on routing tags. Based on firewall rules, certain data types are marked for specific routing, e.g. to particular remote sites or lines                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Dynamic routing                 | Dynamic routing with RIPv2. Learning and propagating routes; separate settings for LAN and WAN. Extended RIPv2 including HopCount, Poisoned Reverse, Triggered Update for LAN (acc. to RFC 2453) and WAN (acc. to RFC 2091) as well as filter options for propagation of routes. Definition of RIP sources with wildcards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Routing functions               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| ARP lookup                      | Packets sent in response to LCOS service requests (e.g. for Telnet, SSH, SNTP, SMTP, HTTP(S), SNMP, etc.) via Ethernet can be routed directly to the requesting station (default) or to a target determined by ARP lookup                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| COM port server                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| COM port forwarding             | COM-port server for the DIN interface. For a serial device connected to it, the server manages its own virtual COM port via Telnet (RFC 2217) for remote maintenance (works with popular virtual COM-port drivers compliant with RFC 2217). Switchable newline conversion and alternative binary mode. TCP keepalive according to RFC 1122 with configurable keepalive interval, retransmission timeout and retries                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| LAN protocols                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| IP                              | ARP, proxy ARP, BOOTP, DHCP, DNS, HTTP, HTTPS, IP, ICMP, NTP/SNTP, NetBIOS, PPPoE (server), RADIUS, RIP-1, RIP-2, RTP, SIP, SNMP, TCP, TFTP, UDP, VRRP, VLAN                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Rapid Spanning Tree             | 802.1d Spanning Tree and 802.1w Rapid Spanning Tree support for dynamic path selection with redundant layer 2 connections                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| WAN protocols                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Ethernet                        | PPPoE, Multi-PPPoE, ML-PPP, PPTP (PAC or PNS) and plain Ethernet (with or without DHCP), RIP-1, RIP-2, VLAN, IP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Interfaces                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| LAN                             | 10/100Base-TX, autosensing, auto node hub, PoE compliant with IEEE 802.3af                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| DSL over LAN (DSLolL)           | The LAN port can (even parallel to LAN mode) be used as a WAN port for connecting external DSL modems (PPPoE) or external routers.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Serial interface                | Serial configuration interface / COM port (8 pin Mini-DIN): 9,600 - 115,000 baud, suitable for optional connection of analog/GPRS modems. Supports internal COM port server and allows for transparent asynchronous transmission of serial data via TCP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| External antenna connectors     | Two reverse SMA connectors for external LANCOM AirLancer Extender antennas or for antennas from other vendors. Please respect the restrictions which apply in your country when setting up an antenna system. For information about calculating the correct antenna setup, please refer to <a href="http://www.lancom-systems.com">www.lancom-systems.com</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| LCMS (LANCOM Management System) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| LANconfig                       | Configuration program for Microsoft Windows, incl. convenient Setup Wizards. Optional group configuration, simultaneous remote configuration and management of multiple devices over IP connection (HTTPS, HTTP, TFTP). A tree view of the setting pages like in WEBconfig provides quick access to all settings in the configuration window. Password fields which optionally display the password in plain text and can generate complex passwords. Configuration program properties per project or user. Automatic storage of the current configuration before firmware updates. Exchange of configuration files between similar devices, e.g. for migrating existing configurations to new LANCOM products. Detection and display of the LANCOM managed switches. Dynamic filter for pattern search that reduces the view to devices with matching properties. Extensive application help for LANconfig and parameter help for device configuration |
| LANmonitor                      | Monitoring application for Microsoft Windows for (remote) surveillance and logging of the status of LANCOM devices and connections, incl. PING diagnosis and TRACE with filters and save to file. Search function within TRACE tasks. Wizards for standard diagnostics. Export of diagnostic files for support purposes (including bootlog, sysinfo and device configuration without passwords). Graphic display of key values (marked with an icon in LANmonitor view) over time as well as table for minimum, maximum and average in a separate window, e. g. for Rx, Tx, CPU load, free memory. Monitoring of the LANCOM managed switches                                                                                                                                                                                                                                                                                                            |
| WLANmonitor                     | Monitoring application for Microsoft Windows for the visualization and monitoring of LANCOM WLAN installations, incl. Rogue AP and Rogue Client visualization                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Firewall GUI                    | Graphical user interface for configuring the object-oriented firewall in LANconfig: Tabular presentation with symbols for rapid understanding of objects, choice of symbols for objects, objects for actions/Quality of Service/remote sites/services, default objects for common scenarios, individual object definition (e.g. for user groups)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Management                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| WEBconfig                       | Integrated web server for the configuration of LANCOM devices via Internet browsers with HTTPS or HTTP. Similar to LANconfig with a system overview, syslog and events display, symbols in the menu tree, quick access with side tabs. WEBconfig also features Wizards for basic configuration, security, Internet access, LAN-LAN coupling. Online help for parameters in LCOS menu tree                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Alternative boot configuration  | During rollout devices can be preset with project- or customer-specific settings. Up to two boot- and reset-persistent memory spaces can store customized configurations for customer-specific standard settings (memory space '1') or as a rollout configuration (memory space '2'). A short reset (more than 5 seconds) loads the customer-specific standard settings from memory space 1 (if programmed; otherwise LANCOM factory settings). A long reset (more than 15 seconds) loads the rollout configuration from memory space 2 (if programmed; otherwise LANCOM factory settings). A further option is the storage of a persistent standard certificate for the authentication of connections during rollouts                                                                                                                                                                                                                                  |
| Device Syslog                   | Syslog buffer in the RAM (size depending on device memory) to store events for diagnosis. Default set of rules for the event protocol in Syslog. The rules can be modified by the administrator. Display and saving of internal Syslog buffer (events) from LANCOM devices with LANmonitor, display only with WEBconfig                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

# LANCOM L-54g Wireless

Scope of features: as of LCOS version 8.0x

| Management                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Access rights                           | Individual access and function rights for up to 16 administrators. Alternative access control on a per parameter basis with TACACS+.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| User administration                     | RADIUS user administration for dial-in access (PPP/PPTP). Support for RADSEC (Secure RADIUS) providing secure communication with RADIUS servers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Remote maintenance                      | Remote configuration with Telnet/SSL, SSH (with password or public key), browser (HTTP/HTTPS), TFTP or SNMP, firmware upload via HTTP/HTTPS or TFTP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| TACACS+                                 | Support of TACACS+ protocol for authentication, authorization and accounting (AAA) with reliable connections and encrypted payload. Authentication and authorization are separated completely. LANCOM access rights are converted to TACACS+ levels. With TACACS+ access can be granted per parameter, path, command or functionality for LANconfig, WEBconfig or Telnet/SSH. Each access and all changes of configuration are logged. Access verification and logging of SNMP Get and Set requests. WEBconfig supports the access rights of TACACS+ and choice of TACACS+ server at login. LANconfig provides a device login with the TACACS+ request conveyed by the addressed device. Authorization to execute scripts and each command within them by checking the TACACS+ server's database. CRON, action-table and script processing can be diverted to avoid TACACS+ to relieve TACACS+ servers. Redundancy by setting several alternative TACACS+ servers. Configurable option to fall back to local user accounts in case of connection drops to the TACACS+ servers. Compatibility mode to support several free TACACS+ implementations |
| Remote maintenance of 3rd party devices | A remote configuration for devices behind der LANCOM can be accomplished (after authentication) via tunneling of arbitrary TCP-based protocols, e.g. for HTTP(S) remote maintenance of VoIP phones or printers of the LAN. Additionally, SSH and Telnet client allow to access other devices from a LANCOM device with an interface to the target subnet if the LANCOM device can be reached at its command line interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| TFTP & HTTP(S) client                   | For downloading firmware and configuration files from a TFTP, HTTP or HTTPS server with variable file names (wildcards for name, MAC/IP address, serial number), e.g. for roll-out management. Commands for live Telnet session, scripts or CRON jobs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| SSH & Telnet client                     | SSH-client function compatible to Open SSH under Linux and Unix operating systems for accessing third-party components from a LANCOM router. Also usable when working with SSH to login to the LANCOM device. Support for certificate- and password-based authentication. Generates its own key with sshkeygen. SSH client functions are restricted to administrators with appropriate rights. Telnet client function to login/administer third party devices or other LANCOM devices from command line interface                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Security                                | Access rights (read/write) over WAN or (W)LAN can be set up separately (Telnet/SSL, SSH, SNMP, HTTPS/HTTP), access control list                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Scripting                               | Scripting function for batch-programming of all command-line parameters and for transferring (partial) configurations, irrespective of software versions and device types, incl. test mode for parameter changes. Utilization of timed control (CRON) or connection establishment and termination to run scripts for automation. Scripts can send e-mails with various command line outputs as attachments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| SNMP                                    | SNMP management via SNMP V2, private MIB exportable by WEBconfig, MIB II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Timed control                           | Scheduled control of parameters and actions with CRON service                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Diagnosis                               | Extensive LOG and TRACE options, PING and TRACEROUTE for checking connections, LANmonitor status display, internal logging buffer for SYSLOG and firewall events, monitor mode for Ethernet ports                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| LANCOM WLAN Controller                  | Supported by all LANCOM WLAN Controller (separate optional hardware equipment for installation, optimization, operating and monitoring of WLAN networks, except for P2P connections)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Statistics                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Statistics                              | Extensive Ethernet, IP and DNS statistics; SYSLOG error counter                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Accounting                              | Connection time, online time, transfer volumes per station. Snapshot function for regular read-out of values at the end of a billing period. Timed (CRON) command to reset all counters at once                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Export                                  | Accounting information exportable via LANmonitor and SYSLOG                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Hardware                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Power supply                            | 12 V AC or 18 V DC, external power adapter (230 V)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Power supply                            | Via Power over Ethernet, compliant with IEEE 802.3af                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Environment                             | Maximum operating temperature 50°designed for continuous operation at const. 35°C over 5 years; humidity 0–95%; non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Housing                                 | Robust synthetic housing, rear connectors, ready for wall mounting, Kensington lock; 210 x 45 x 140 mm (W x H x D)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Power consumption (max)                 | ca. 4.5 Watts                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Declarations of conformity              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| CE                                      | EN 301 489-1, EN 301 489-17, EN 60950                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 2.4 GHz WLAN                            | ETS 300 328                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Medical                                 | Medical conformity with EN 60601-1-2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Notifications                           | Certifications notified in Germany, Belgium, Netherlands, Luxembourg, Austria, Switzerland, UK, Italy, Spain, France, Portugal, Czech Republic, Denmark, Malta                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Package content                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Manual                                  | Printed User Manual (DE, EN) and Quick Installation Guide (DE/EN/FR/ES/IT/PT/NL)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CD                                      | Data medium with firmware, management software (LANconfig, LANmonitor, WLANmonitor) and documentation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Cable                                   | Serial configuration cable, 1.5m                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |

| Package content                        |                                                                                                                                                      |
|----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cable                                  | 1 Ethernet cable, 3m                                                                                                                                 |
| Antennas                               | Two 3 dBi dipole antennas                                                                                                                            |
| Power supply unit                      | 18 V DC, external power adapter (230 V)                                                                                                              |
| Support                                |                                                                                                                                                      |
| Warranty                               | 3 years<br>Support via Hotline and Internet KnowledgeBase                                                                                            |
| Software updates                       | Regular free updates (LCOS operating system and management tools) via Internet                                                                       |
| Options                                |                                                                                                                                                      |
| LANCOM Content Filter                  | 0                                                                                                                                                    |
| Advance Replacement                    | LANCOM Next Business Day Service Extension CPE, item no. 61411                                                                                       |
| Warranty Extension                     | LANCOM 2-Year Warranty Extension CPE, item no. 61414                                                                                                 |
| Public Spot                            | LANCOM Public Spot Option (authentication and accounting software for hotspots, incl. Voucher printing through Standard PC printer), Item no. 60642. |
| Accessories                            |                                                                                                                                                      |
| LANCOM WLC-4006                        | LANCOM WLAN Controller for central management of 6 or 12 LANCOM access points and WLAN routers, item no. 61367                                       |
| LANCOM WLC-4006 (UK)                   | LANCOM WLAN Controller for central management of 6 or 12 LANCOM access points and WLAN routers, item no. 61368 for UK                                |
| LANCOM WLC-4025+                       | LANCOM WLAN Controller for central management of 25 (opt. up to 100) LANCOM access points and WLAN routers, item no. 61378                           |
| LANCOM WLC-4025+ (UK)                  | LANCOM WLAN Controller for central management of 25 (opt. up to 100) LANCOM access points and WLAN routers, item no. 61379 for UK                    |
| LANCOM WLC-4100                        | LANCOM WLAN Controller for central management of 100 (opt. up to 1000) LANCOM access points and WLAN routers, item no. 61369                         |
| LANCOM WLC-4100 (UK)                   | LANCOM WLAN Controller for central management of 100 (opt. up to 1000) LANCOM access points and WLAN routers, item no. 61377 for UK                  |
| External antenna                       | AirLancer Extender O-30 2.4 GHz outdoor antenna, item no. 60478                                                                                      |
| External antenna                       | AirLancer Extender O-70 2.4 GHz outdoor antenna, item no. 60469                                                                                      |
| External antenna*                      | AirLancer Extender O-D80g 2.4 GHz 'dual linear' polarisation diversity outdoor sector antenna, item no. 61221                                        |
| External antenna                       | AirLancer Extender I-60ag dualband indoor sector antenna, item no. 61214                                                                             |
| External antenna                       | AirLancer Extender I-180 omnidirectional 2.4 GHz indoor antenna, item no. 60914                                                                      |
| Antenna cable                          | AirLancer cable NJ-NP 3m antenna cable extension, item no. 61230                                                                                     |
| Antenna cable                          | AirLancer cable NJ-NP 6m antenna cable extension, item no. 61231                                                                                     |
| Antenna cable                          | AirLancer cable NJ-NP 9m antenna cable extension, item no. 61232                                                                                     |
| Surge arrestor (antenna cable)         | AirLancer Extender SA-5L surge arrestor (2.4 and 5 GHz), item no. 61553                                                                              |
| Surge arrestor (LAN cable)             | AirLancer Extender SA-LAN surge arrestor (LAN cable), item no. 61213                                                                                 |
| Documentation                          | LANCOM LCOS Reference Manual (DE), item no. 61700                                                                                                    |
| Power over Ethernet Injector           | LANCOM PoE Power Injector, item no. 61502 (EU) and 61503 (UK)                                                                                        |
| Power over Ethernet Switch             | LANCOM ES-1108P, 8-port Fast Ethernet switch with 4 PoE ports, item no. 61450 (EU) and 61449 (UK)                                                    |
| Power over Ethernet Switch             | LANCOM ES-2126P, 24-port Fast Ethernet PoE switch (802.3af, max. 185 W), 2 Gigabit ports, 2 SFP slots, item no. 61451 (EU) and 61453 (UK)            |
| *) Note                                | The Polarization Diversity antennas require 2 cables and surge arrestors                                                                             |
| Item numbers                           |                                                                                                                                                      |
| LANCOM L-54g Wireless                  | 61101                                                                                                                                                |
| LANCOM L-54g Wireless UK               | 61103                                                                                                                                                |
| LANCOM L-54g Wireless 10-piece bulk    | 61121                                                                                                                                                |
| LANCOM L-54g Wireless UK 10-piece bulk | 61132                                                                                                                                                |

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