

TeleGuard® 5GHz Point To Multipoint Broadband Radio Ethernet

The TeleGuard® broadband wireless platform in the 5GHz frequency range is part of the TeleGuard® family of products from SLD Security & Communications. Superior features such as non-line-of-sight (NLOS), extended reach. High capacities in all packet sizes, encryption and end-to-end QoS for time critical applications are key to its success in deployments worldwide.

Increase revenue from offering toll quality voice over IP (VoIP) and other triple play services through the use of quality of service algorithms (QoS), multimedia applications prioritization (MAP) for wireless link prioritization, unprecedented high capacity in all packet sizes and supports hundreds of simultaneous calls per sector.

The TeleGuard® system operators can offer a wide variety of services and applications, including VoIP, wireless leased line, hotspot feeding, gaming services, secure VPNs, video surveillance and wireless xDSL in urban and rural environments and all at reduced capital and operating costs than wired alternatives.



Choose TeleGuard® for:

- Video and voice with end-to-end quality of service supporting an unmatched number of hundreds of toll quality calls per sector
- Connecting communities – cost-effective access within communities, municipalities and educational institutions
- Hotspot feeding – high throughput, reliable service
- Security and surveillance – wireless cameras transmitting bandwidth hungry video and requiring secure reliable services
- Last mile access – service for both residential and business users with NLOS capabilities for all environments, rural and urban
- Enterprise networks – leased line replacement for cost effective connectivity, providing VoIP and data services in enterprises and campuses

SLD Security & Communications

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Reasons for Choosing TeleGuard®

Economic Advantages

- More revenue by providing subscribers toll quality voice and video services with differentiated price packages for multiple speeds and upgrade options
- Less infrastructure today – NLOS, high capacity, outstanding coverage, multi-subscriber profiles in same sector and network, modular and flexible “pay-as-you-grow” enables fewer base stations and site constructions
- Out-of-the-box low cost installation
 - 10 LEDs SNR BAR display on outdoor unit for fast antenna alignment without external tools or monitors, standard CAT-5 cable and best AU mode for fast association
 - Optimal performance through always-on adaptive modulation and automatic transmit power control (ATPC)
 - Over-the-air software upgrade for easy, cost-saving installation

Technological Advantages

- Wide coverage, more customers with fewer base stations
- Multimedia Application Prioritization (MAP) using wireless link prioritization for full end-to-end QoS
- Unique dynamic resource allocation protocol (DRAP) with our voice gateways ensuring high quality voice, while maintaining residual capacity for best effort data services
- Very high capacity and packet processing for best network performances and high number of VoIP calls
- DFS+ (dynamic frequency selection) for countries that require it, plus a proprietary algorithm to improve channel management under certain conditions of low radar activity
- Best access unit (AU) selection – for fast and simple SU association with best AU detected, also acts as a redundancy mechanism that automatically selects second best AU if best AU fails
- Flexible network planning – Supports 10 and 20MHz sub-channel options for radio planning and interference avoidance with automatic sub-channel search
- Rugged, widely deployed robust solution in 5GHz

Extensive Access Suite Features

- Bridging functionality – simple configuration, fast installation 802.1Q VLAN support with trunk, access and hybrid and QinQ 802.ad modes
- QoS – end-to-end QoS with MAP using packet prioritization
- SLA enforcement – supports committed information rates (CIR) and maximum information rates (MIR) per user, per direction; packet prioritization with IP TOS, VLAN, DiffServ and UDP/TCP port range classification and graceful degradation in case of congestion

Security and Filtering Options

- AES 128 and WEP 128 encryption options and a new FIPS-197 encryption mode, certified according to Federal Information Processing Standards, access/denial list enabling only authorized CPEs to connect
- Access control with IP address protocol and MAC based filtering, offering better control including being able to limit the number of authorized IP addresses, enabling an additional source of revenue or for preventing local broadcasts from flooding the wireless link

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Flexibility and Modularity

- Flexible topology allowing stand-alone or chassis based configurations for modular and scalable solutions enabling “pay as you grow”. Deployable in multiple sectors using various antenna choices
- AC and DC power supply options
- Supports 3, 6 and 54Mbps CPE rates with attached and external antenna options
- Upgradeable CPE bandwidth over the air

Robustness and Reliability

- Adaptive modulation with 8 rate schemes and smooth changes between rates responding to link conditions, facilitating link robustness, set at the highest per customer rate possible
- Automatic transmit power control (ATPC) – the access unit automatically measures and adjusts the subscriber unit’s transmission power, enabling easier installation and optimizing network performance
- Supports various redundancy options
- Built in Forward Error Correction and retransmission correcting lost and damages bits

System Components

The TeleGuard® Point to Multipoint Radio Ethernet solution consists of a base station and customer premise equipment (CPE) units. The base stations are available as either modular or stand-alone micro cell units. CPEs are available in various models for differing bandwidth and single or multiple user configurations.

Access Units (AUs)

Installed at the base station site, each AU includes indoor and outdoor units. The indoor unit connects to the network through a standard Ethernet 10/100BaseT (RJ-45) interface and is connected to the outdoor unit through a CAT-5 cable

A variety of antennas can be used with the base station: 360, 120, 90 and 60 degrees

Subscriber Units (SUs)

The subscriber unit (SU) enables customer connection with the base station and supports single or multiple end users. SUs provide an efficient platform for always-on, high-speed Internet and Intranet, VoIP, VPN and other services.

Each SU connects to the network through a standard Ethernet 10/100BaseT (RJ-45) interface and connects to its outdoor part via CAT-5 cable. Each SU kit includes a single data port indoor unit, CAT-5 indoor-outdoor cable, pole mounted outdoor unit add-on modules are available including; the networking gateway that offers residential, SOHO and SME subscribers a flexible range of wireless and wireline networking services and the voice gateway that offers the efficient provision of voice and data.

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Specification

Radio

Frequency

4.900-5.100GHz, 5.15-5.35GHz, 5.47-5.725GHz, 5.725-5.850GHz

Radio access method

Time Division Duplex (TDD)

Channel

10MHz, 20MHz

Central frequency resolution

5MHz, 10MHz

Max output power (at antenna port)

AU: -10dBm to 21dBm, 1dB steps

SU: -10dBm to 21dBm, automatically adjusted by ATPC

Actual max power may be limited for compliance with local regulation

Sensitivity, typical (dBm at antenna port)

Modulation	1	2	3	4	5	6	7	8
Level* (20MHz)	-89	-88	-86	-84	-81	-77	-73	-71
Level* (10MHz)	-92	-91	-89	-87	-84	-80	-76	-74

* Modulation Level combines modulation scheme and coding gain

Modulation scheme (Adaptive)

OFDM: BPSK, QPSK, QAM 16, QAM 64

Antenna port (AU-RE)

N-Type 50 ohm

Subscriber integrated antenna

21dBi (19dBi in 4.9-5.1GHz band), 10.5 degree H/V, Integrated flat panel

AU antennas

60 degree: 16dBi, Sector 60 degree horizontal, 10 degree vertical

90 degree: 16dBi, Sector 90 degree horizontal, 6 degree vertical

120 degree: 15dBi, Sector 120 degree horizontal, 6 degree vertical

360 degree: 8dBi, Sector 360 degree horizontal, 9 degree vertical

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Data Communication

VLAN support

Based on IEEE 802.1q, QinQ 802.3ad

Layer-2 traffic prioritization

Based on IEEE 802.1p

Layer-3 traffic prioritization

IP ToS according to RFC791 and DSCP according to RFC2474

Layer-4 traffic prioritization

UDP/TCP port range

Security

WEP 128-bit authentication, AES 128, WEP 128 and certified FIPS-197 mode built in encryption

Configuration and Management

Local & remote management

SNMP based NMS and windows based configuration utility, Telnet

Remote management access

From wired LAN, wireless link

Management access protection

Multilevel password

Configuration of remote direction (from Ethernet only, wireless only or both sides)

Configuration of IP addresses of authorised stations

Software upgrade

Via TFTP and FTP

Configuration up/download

Via TFTP and FTP

SNMP agents

SNMP v1 client, MIB II, Bridge MIB, Private MIB

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Physical and Electrical

Outdoor Unit

10/100BaseT Ethernet RJ45
Power consumption 25W
54VDC from indoor unit to outdoor unit

Indoor Unit

10/100BaseT Ethernet RJ45, 2 embedded LEDs
AC input: 100-240VAC, 50/60Hz, 3-pin AC powerplug

Standards Compliance

EMC

FCC Part 15 class B, CE ETSI EN 301 489-1/4

Safety

UL 60950-1, EN 60950-1

Environmental

Operational

ETS 300 019 part 2-3 class 3.2E for indoor units
ETS 300 019 part 2-4 class 4.1E for outdoor units

Storage

ETS 300 019-2-1 class 1.2E

Transportation

ETS 300 019-2-2 class 2.3

Lightning protection

EN 61000-4-5, class 3 (2kV)

Radio

FCC part 15, EN 301 753, EN 301 021, EN 301 893 (V 1.3.1)

Please note: Not all options are available in all regions and some features require software licensing key.

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