

## Benefits

### Cost-Effective

- No CAT5 wiring required — uses your existing telephone wiring
- Integrates with your existing PBX and in-room telephone connections
- Wi-Fi over VDSL2 delivers operating power over telephone wire — there is no power supply to lose or unplug, providing high network availability and uptime
- Fast installation of in-room equipment — all you need is a screwdriver
- Reduce wireless network management time and cost with centralized management of all infrastructure

### Exceed Guest Expectations for Wireless Internet Performance

- Provides dependable high-speed in-room wireless Internet, even if guests are connecting more than one device
- Improves the guest experience and guest satisfaction
- Helps increase guest loyalty
- Enables revenue-generating services in the guest room, such as IPTV



## ExtremeWireless WiNG™ T5 System

Unique Wi-Fi over VDSL2 for affordable high-speed Wi-Fi in guest rooms.

### Deliver High-Speed, Dependable Wi-Fi Access in the Guest Room, Over Your Existing In-Room Phone Lines

Hotels are facing a major challenge: guests expect superior in-room Wi-Fi performance on all their mobile devices. To further complicate the challenge, more than half of today's business guests travel with three or four devices – including smartphones, tablets, and laptops – putting tremendous pressure on your existing wireless LAN. While upgrading to a high-density wireless LAN that supports the needs of these devices might solve the problem, the cost to do so has been cost-prohibitive – until now.

With the T5 Wi-Fi over VDSL2 system from Extreme Networks, you can cost-effectively deliver high-speed wall-to-wall Wi-Fi coverage inside every guest room in your hotel and expand your wireless network bandwidth to accommodate more devices – without having to install new or rip-and-replace existing wiring. Its unique in-room architecture combines with the ability to utilize existing telephone wiring to bring a new level of affordability to high-performance, high-speed, in-room Wi-Fi services that will improve the guest experience – and guest retention.

## Series Details

### TS-524 Wi-Fi Over VDSL2

- P/N: TS-0524-WR
- RoHS Compliant
- 2 x RJ45, 10/100/1000Mbps
- 2 x RJ21, female telco
- 1 x dB9, female console port

### TW-522 802.11ac Wall Plate AP

- P/N TW-0522-67020-US
- P/N TW-0522-67020-WR
- P/N TW-0522-67-2—EU
- RoHS Compliant
- Dual Radio
- 2 x RJ45, 10/100Mbps
- 1 x RJ11, line in
- 1 x RJ11, filtered phone
- 2 x 802.11a/b/g/n/ac
- 2X2:2 radios

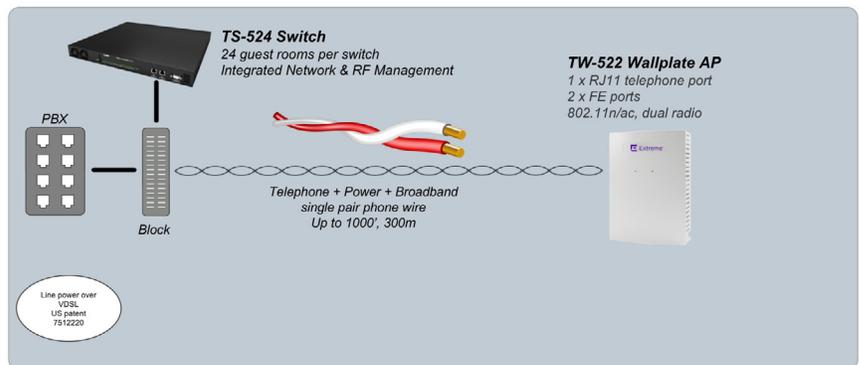
## One AP Per Guest Room for the Ultimate Wi-Fi Experience

Having one TW-522 in each guest room radically improves signal levels and power. Now, every smartphone, wearable device, and laptop a guest brings can be supported with superior connectivity and lightning speeds. Plus, guests can enjoy the latest and coolest technology, such as ultra-high definition streaming voice and video, gaming, BYON, and IPTV. All this goes far to set your business apart from the rest.

Unlike Ethernet-based solutions that require a CAT 5/6 cable to every room, the T5 solves a problem for hotels that do not have Ethernet cable. T5 enables a micro-cell architecture in every hotel room to deliver personal wireless to a new generation of 802.11ac guest devices – new tablets, new smartphones. Personal wireless is all about delivering the at-home experience without compromising and without the fear of constantly upgrading. The T5 solution solves that problem, quickly and cost-effectively.

## T5 Wi-Fi Over VDSL2 System Architecture

The T5 Wi-Fi over VDSL2 system allows you to easily and cost-effectively deliver 802.11ac high-speed, high-availability wireless network service in your guest rooms over your existing telephone wiring. Simply install the TS-524 Wi-Fi Over VDSL2 switch between your PBX and the telephone connections in your guest rooms. A single TW-522 Wall Plate replaces the wired phone wall plate in one guest room to provide robust wireless coverage in the room in which it is installed. The TW-522 has a jack for the wired in-room phone as well as two switched Ethernet 10/100 ports. The TW-522 only requires a screwdriver to install, allowing you to upgrade your wireless Wi-Fi network in record time. The result? The high-speed dependable in-room Wi-Fi services your guests expect on all their devices – all at a minimal cost.



# The T5 System Components

## TS-524: PowerBroadband Switch

Installed in the central telephone room, the TS-524 Switch is interconnected with the in-building telephone wire, transparent to the analog telephone already on the wire pair. The TS-524 provides up to 100Mbps backhaul data, along with Adaptive Line Power, an Extreme Networks patented technology. Each switch provides device provisioning, status, statistics, and RF management for up to 24 TW-522 wireless wall plate access points.

Up to 12 TS-524 switches can be clustered together, supporting up to 480 access points, from a single TS-524 that acts as a cluster manager. Centralized access point provisioning, consolidated status, and key performance metrics are all visible from this master.

## TW-522: Wireless 802.11a/b/g/n/ac Wall Plate Access Point

The TW-522 dual-radio access point supports the next wave in Wi-Fi devices. By supporting the new 802.11ac standard, the TW-522 increases the number of mobile devices that can reliably connect to the network and ensures compatibility with the newest wireless device drivers.

### Easy to Deploy

Both elements of the solution integrate with your existing technology and can be installed quickly and easily – no new wiring is required in your main communications room or your guest rooms. In your equipment room, simply connect the TS-524 Wi-Fi over VDSL2 Switch between your existing guest room telephone connections and your PBX to deliver high-speed Internet and IP data services. Replace the phone jack wall plate in one room with the dual-radio 802.11n/ac TW-522 Wall Plate Access Point to deliver wireless connectivity in that room. The TW-522 also provides an RJ11 port to reconnect the in-room desk phone as well as an Ethernet port for a wired connection to an Ethernet-enabled device, such as a digital television.

## Superior Coverage and Performance in Every Corner of Every Guest Room

The T5 Wi-Fi over VDSL2 system puts the technology where it will deliver the best possible service – in your guest rooms. The T5 Wi-Fi over VDSL2 system eliminates coverage and connectivity issues with its unique architecture that delivers in-room coverage at its best. Coverage strength inside each guest room is dependable, with no more “dead zones” or fluctuating performance levels that drive guests into other parts of the hotel in search of acceptable Internet connections.

### Unsurpassed Affordability

The T5 Wi-Fi over VDSL2 system is the most cost-efficient way to deliver high-speed wireless Internet in your guest rooms. There is no need to upgrade your copper wire to CAT5 wiring to provide today’s guest rooms with the fast 802.11ac speeds. Since the infrastructure in the rooms is installed by simply replacing the phone plate, the upgrade in the rooms can be completed in minutes with a screwdriver – eliminating complex and costly installations of access points in ceilings on guest room floors. With our unique line power over VDSL2 technology, the TW-522 Wall Plates do not require an in-room power supply. Operating power is delivered by the TS-524 Switch. The result? Your new T5 Wi-Fi over VDSL2 system can be up and running in days, instead of weeks or months, and equipment is easily accessible for repairs.

### Services

Your guests will count on your T5 Wi-Fi over VDSL2 system around the clock. That’s why our optional service offerings include Advance Exchange for advance replacement of devices that require repair, On-Site System Support for fast next-day site service, and WLAN Software Support to keep your software up to date, helping to minimize software-related issues.

The T5 Wi-Fi over VDSL2 system – the affordable way to deliver the reliable high-speed Wi-Fi in-room services your guests demand.

## Specifications

TS-524 Specifications	
Ethernet LAN	2 x 10/100/1000Mb 8-wire RJ45 connector. IEEE 802.3 10/100/1000BTX 24 x single-pair UTP, Female RJ21 connector
UTP Interface	DMT VDSL2, per line rate adaptation Integrated analog POTS splitter
Status LEDs	System Power UTP ports: multicolor status LEDs Ethernet status: integrated green and amber for link status and link speed
QoS	Classification: Dynamic IP TOS/802.1P COS, Port-based Buffer Management: WRED Transmission Queues: Four queues with administrator-defined WFQ, Rate Shaping, Strict Priority
VLANs	802.1 Q tagged VLANs or port isolation, VI D 1-4094
Management	Access: Serial console, telnet, SSH, HTTP, HTTPS, SNMPv2c standard and enterprise MIB; IP ACL, Admin and User password protected access; RADIUS-authenticated administrator login; external and internal logging; SNTP, Dual firmware images, 32MB file system
TS-522 Specifications	
Wireless Interface	TW-522: Dual radio; 802.11a/b/g/n/ac; 2.4Ghz or 5.2Ghz
LAN Ethernet port	2 x IEEE 802.3 10/100Mb auto-sensing via 8-pin header
Uplink UTP	1 x RJ11 UTP, VDSL2
Pass through	Filtered RJ11 port
Medium	DSSS, OFDM, MIMO
Standards	802.11a, 802.11b, 802.11g, 802.11n draft 2.0; 802.11ac; 802.11i, 802.11-2007
Data Rates	802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6,9,12,18,24,36,48, 54Mbps 802.11a: 6,9,12,18,24,36,48, 54Mbps 802.11n: MCS 0-15 up to 300Mbps 802.11ac: MCS 0-8 up to 867Mbps
Operating Frequencies	2.4GHz: 2412 - 2472 MHz 5.2GHz: 5150 - 5850MHz Actual operating frequencies depend on national regulatory limits
Transmit Power settings	1dBm to 15dBm, in 1dB increments; actual Tx power dependent on national regulatory limits
Antenna Configuration	Two internal omni-directional, 1x2 or 2x2 MIMO operation 3dBi peak in 2.4 Ghz; 4dBi peak gain in 5.2 Ghz
VLANs	802.1 Q tagged VLANs, access or trunk
Management	Access: via TS-524 Switch for normal operation, HTTP access for site survey stand-alone operation

## Specifications (cont.)

General Specifications	
<b>Power</b>	TS-524: 100 – 240V AC, 50/60Hz; 375W max, 250W typical TW-522: Line-powered or DC power: 2VDC, 8W TW-511: Line-powered or DC power: 12VDC, 6W TW-510: Line-powered or DC power: 12VDC, 4W
<b>Dimensions</b>	TS-524: 17.25 in. x 16.25 in. x 1.75 in. (43.8 cm x 41.3 cm x 4.4 cm); 11.5 lbs (5.2 kg) TW-5xx: 4.9 in. x 3.6 in. x 1.2 in. (124mm x 92mm x 32mm); 12 oz. (0.34 kg)
<b>Environment</b>	0 - 40 degrees Celsius ambient temperature 5% to 90% NC
<b>Mounting</b>	TS-524: EI A-19 rack-mount ears provided 90° or 180° rotation mounting options TW-5xx: wall-mount bracket and RJ11 cable
<b>TS-524 Compliance</b>	EN60950-1:2006+A11; UL60950-1:2007; CAN/CSA-C22.2 No 60950-1-07; IE C60950-1:2001:2005; AS/NZS60950-1:2003+A1+A2+A3; FCC Part15B; ICES-003 issue 4:Class A; EN 55022:2006:Class A; AS/NZS CISPR22:2006:Class A EN 55024:1998+A1:2001+A2:2003:Class A RoHS 2002/EC/95
<b>TW-5xx Compliance</b>	FCC 15.247, 15.407 / EN300 328, EN 301 893 UL EU EN 60950-1 2nd Ed., ANZ C-Tick FCC Part 15 Subpart A, EN 55022: 2006 + A1: 2007, ICES - 003 (Class A) EN 55024: 1998 + A1: 2001 + A2: 2003 EU RoHS Directive 2002/95/EC CE, IC, FCC
Line Power Maximum Rate	
Distance	Wall Plate
500 ft. (150m)	TW-510, TW-511, and TW-522
1,000 ft. (300m)	TW-510, TW-511, and TW-522
1,500 ft. (450m)	TW-510 or TW-511
2,000 ft. (600m)	TW-510
> 2,000 ft. (600m)	None (use local power supply)
Line Rate Performance	
Distance	Wall Plate
500 ft. (150m)	105Mbps down / 50Mbps up
1,000 ft. (300m)	105Mbps down / 50Mbps up
1,500 ft. (450m)	105Mbps down / 50Mbps up
2,000 ft. (600m)	103Mbps down / 40Mbps up
3,000 ft. (900m)	60Mbps down / 18Mbps up
4,000 ft (1.200m)	45Mbps Down / 5Mbps Up

<sup>1</sup> Hotel Wi-Fi: Balancing Budget and Bandwidth, [Hotel Business Review](#)

<sup>2</sup> Business Travelers Mobile Trends, [Lodging Magazine](#)