

ALCATEL-LUCENT 7210 SERVICE ACCESS SWITCH

RELEASE 6 | INDUSTRY, ENTERPRISE AND PUBLIC SECTOR

The Alcatel-Lucent 7210 Service Access Switch (SAS) portfolio of compact Ethernet access and aggregation devices enables network transformation in mission-critical networks operated by industries including energy, transportation, commerce and the public sector. Using a service-oriented approach, it is optimized to cost effectively deliver Ethernet and Multiprotocol Label Switching (MPLS) to small and medium-sized locations with a rich set of multiservice networking capabilities and high Ethernet fan-out.



7210 SAS-D



7210 SAS-E



7210 SAS-T



7210 SAS-M



7210 SAS-X



7210 SAS-R6

As a member of the industry-leading Alcatel-Lucent Service Router (SR) product portfolio, the Alcatel-Lucent 7210 SAS leverages the powerful Alcatel-Lucent Service Router Operating System (SR OS) and the Alcatel-Lucent 5620 Service Aware Manager (SAM) to provide seamless integration into Alcatel-Lucent Ethernet and IP/MPLS networking solutions carrying critical and high-value traffic.

With six principal variants that include support for Ethernet, IP and MPLS along with advanced hierarchical quality of service (H-QoS), operation, administration, and maintenance (OAM), synchronization and resiliency capabilities, the 7210 SAS delivers deployment flexibility, service richness and operational intelligence throughout the network.

As part of a cohesive solution, the 7210 SAS provides access to different value-added MPLS and Ethernet-based Virtual Private Network (VPN) services including Virtual Private Line Service (VPLS), Virtual Leased Line (VLL), IP VPN and enhanced Internet services, virtualizing the network for different applications, departments and teams while maintaining the individual network performance required.

Release 6 introduces two new variants to the Alcatel-Lucent 7210 SAS family. The Alcatel-Lucent 7210 SAS-R6 is a chassis-based platform designed for highly resilient network aggregation in smaller network locations. It provides control plane and fabric redundancy, non-stop routing, six slots to support 10 Gigabit Ethernet (10GigE), GigE, and a combination 10GigE-GigE integrated media modules (IMMs), advanced synchronization, and an optical port to manage available Wave

Division Multiplexing (WDM) passive filter systems allowing network operators to integrate with WDM and increase the transport capacity of their fiber infrastructure.

The Alcatel-Lucent 7210 SAS-T is designed for 10GigE access and aggregation for Ethernet traffic delivery into the network. It features 10GigE, GigE, and 10/100/1000Base-TX copper interfaces with support for Power over Ethernet (PoE/PoE+), advanced synchronization, and an optical port to manage available WDM passive filter systems.

FEATURES

A family of platform variants

The Alcatel-Lucent 7210 SAS family has six principal variants for access and aggregation applications enabling a resilient delivery of critical and high-value Ethernet traffic end to end for operational and corporate business needs.

- The 7210 SAS-R6, with hot redundant control, fabric and power, is an MPLS-enabled Ethernet aggregation device providing high-density IP/MPLS-based services and service aggregation in smaller network locations. With its high density, it is ready to scale for future expansion.
- The 7210 SAS-X is an MPLS-enabled Ethernet aggregation device providing IP/MPLS service aggregation and MPLS-based Ethernet and IP VPN services in smaller network locations.
- The 7210 SAS-M is an MPLS-enabled Ethernet access device for VLL, VPLS, circuit emulation services (CES), IP VPN, and enhanced Internet services managed to the edge and access layer. For smaller network locations, it also provides



Ethernet and IP/MPLS service aggregation and supports provider edge functionality to consolidate customer edge routers in IP VPN and Internet access.

- The 7210 SAS-T is an Ethernet access device providing access to VLL and VPLS services from the access and edge and 10G Ethernet aggregation in smaller network locations.
- The 7210 SAS-D and SAS-E are two Ethernet access devices of different capacities providing VLL and VPLS services from access and edge.

Advanced H-QoS

The advanced H-QoS capabilities of the Alcatel-Lucent 7210 SAS apply differentiated traffic management treatment to each service in accordance with performance profiles to converge multiple services over a single uplink. Performance parameters include committed and peak information rates (CIR/PIR) along with delay, jitter and packet loss. It also allows individual services to burst up to line rate when aggregate bandwidth is available, while still meeting the performance parameters of each individual service. For further service differentiation, egress queuing and shaping are supported along with options for managing buffer allocation, including per-service granularity for additional flexibility and increased traffic burst absorption.

End-to-end OAM and management

To support differentiated services managed to the network edge, the Alcatel-Lucent 7210 SAS provides a suite of per-service OAM tools. These tools include ITU-T Y.1731, ITU-T Y.1564 Test Head, IEEE 802.1ag, IEEE 802.3ah, VPLS OAM, Two-Way Active Measurement Protocol (TWAMP), and local/remote service mirroring. The 7210 SAS implementation of ITU-T Y.1731 enables performance parameters such as jitter, latency and packet loss to be accurately measured. These tools are also integrated into the Alcatel-Lucent 5620 SAM for accelerated service activation and rapid troubleshooting.

Innovative performance measurement

With support for H-QoS and an extensive OAM toolkit, the Alcatel-Lucent 7210 SAS extends performance measurement of VPLS, VLL, CES, IP VPN, and Internet services. Innovative performance measurement attributes include dynamic bandwidth allocation, guaranteed QoS per service, the ability to monitor and measure key performance parameters

and resilient uplinks. The 7210 SAS also integrates the OAM toolkit into the 5620 SAM Service Assurance Agent (SAA) to proactively monitor and measure performance parameters end to end and to quickly identify problems before they affect service. The extensive SR OS accounting framework of the 7210 SAS tracks detailed bandwidth usage on a per-port or per-service basis to support tiered service capacity utilization.

Comprehensive networking

With their compact footprint, 10GigE (XFP) uplinks and leading IP, MPLS, MPLS-Transport Profile (TP), Ethernet and Provider Backbone Bridging (PBB) capabilities, the Alcatel-Lucent 7210 SAS is well suited to aggregating Ethernet and MPLS traffic in smaller network locations. To simplify end-to-end networking, MPLS-enabled 7210 SAS variants support seamless MPLS. For highly resilient applications, it supports control plane and fabric redundancy with non-stop routing capabilities. It also enables optical integration using tunable Dense Wavelength Division Multiplexing (DWDM) XFPs to provide direct connectivity into WDM systems and an optical management interface to support the Alcatel-Lucent 1830 Versatile WDM Module (VWM). The IP/MPLS features include Border Gateway Protocol (BGP), RFC 3107-labeled routes, Resource Reservation Protocol - Traffic Engineering (RSVP-TE), Label Distribution Protocol (LDP), LDP over RSVP, and Targeted LDP (T-LDP). For PBB implementations, Backbone Edge Bridge (BEB) and Backbone Core Bridge (BCB) functionality as defined in IEEE 802.1ah are supported for PBB-based services. MPLS resiliency mechanisms include Fast Reroute (FRR) with facility, detour label switched paths (LSPs), and shared risk link group (SRLG) recovery, primary and secondary LSPs, active-standby pseudowire redundancy, bidirectional forwarding detection (BFD), and Virtual Router Redundancy Protocol (VRRP) for Layer 3 service resiliency. For Ethernet resiliency, multi-chassis ITU-T G.8032v2 and multi-chassis IEEE 802.3ad Link Aggregation Group (LAG) are supported. To distribute accurate timing and synchronization over Ethernet infrastructures, ITU-T Synchronous Ethernet (SyncE) and IEEE 1588v2 are supported.

BENEFITS

Increase critical data delivery performance with differentiated services

Improving critical data delivery performance is pivotal to seamless and efficient daily operation of industry,

enterprise and government. The Alcatel-Lucent 7210 SAS and Alcatel-Lucent 5620 SAM enable Ethernet, IP VPN, and enhanced Internet services to be converged under one uplink, supporting multiple services with per-service QoS, bandwidth guarantees, and the ability for each service to burst up to line rate. Extensive service assurance capabilities with proactive QoS performance enforcement give network operators the ability to continuously monitor and measure performance end to end. Self-service customer portals with customized on-demand management capabilities add an intangible service dimension to improve the overall quality of experience (QoE).

Cost optimize Ethernet build-outs

With six principal compact variant options, the Alcatel-Lucent 7210 SAS cost effectively scales Ethernet infrastructure and simplifies the access part of the network with one platform to support demarcation, access and aggregation applications. As part of an end-to-end service router solution, the cohesive integration of the SR OS and the 5620 SAM helps reduce the cost of service delivery. The following factors collectively contribute to significant operational savings: Coherent QoS and OAM service reach over local, regional, national and international geographies; seamless integration with the IP/MPLS service edge; streamlined network upgrades along with reduced training, testing cycle and operations support system integration costs.

Maximize operational efficiency and service assurance

The tight integration of the 5620 SAM with the SR OS provides the operational intelligence to maximize operational efficiency and improve service assurance, thereby reducing operational expenditures. The 5620 SAM enables rapid provisioning, which expedites time to market while minimizing the chance of operator error. It also provides proactive troubleshooting to identify problems before they affect operations, resulting in improved customer satisfaction. The 5620 SAM SAA and the SR OS accounting framework enable continuous network performance management for increased value to end users with monitoring, performance measurement of service metrics, prediction of threshold violations, and the usage and storing of test results. The plug-and-play capabilities of the Alcatel-Lucent 7210 SAS, along with the 5620 SAM, enable rapid service provisioning without a truck roll.

Table 1. Alcatel-Lucent 7210 SAS Ethernet variant details



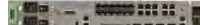
	 7210 SAS-D	 7210 SAS-E	 7210 SAS-T
System type	Fixed	Fixed	Fixed
System interface density	<ul style="list-style-type: none"> 6 x 100/1000BASE (SFP) ports + 4 x 10/100/1000BASE-TX ports 	<ul style="list-style-type: none"> 12 x 10/100/1000BASE-TX ports + 12 x 100/1000BASE (SFP) ports 	<ul style="list-style-type: none"> 10 x 10/100/1000BASE-TX (includes 4 capable PoE/PoE+ ports) ports + 12 x 100/1000BASE (SFP) ports + 4 x 10GBASE (XFP) ports
System throughput	Wirespeed – 20 Gb/s (half duplex)	Wirespeed – 48 Gb/s (half duplex)	Wirespeed – 124 Gb/s (half duplex)
Optical modules	<ul style="list-style-type: none"> 10/100/1000BASE-TX copper SFPs Coarse Wavelength Division Multiplexing (CWDM) SFPs SFPs with digital diagnostic monitoring (DDM) capabilities 	<ul style="list-style-type: none"> 10/100/1000BASE-TX copper SFPs CWDM SFPs SFPs with DDM capabilities 	<ul style="list-style-type: none"> Tunable DWDM XFPs 10/100/1000BASE-TX copper SFPs DWDM XFPs and CWDM SFPs and XFPs SFPs and XFPs with DDM capabilities
Optical 1830 VWM passive filter management support	No	Yes (using the USB port)	Yes (using the OMC interface)
PoE	No	No	Yes – ETR variant only <ul style="list-style-type: none"> Supports PoE per IEEE 802.3af and PoE+ per IEEE 802.3at Allows both low-power and high-power PoE devices to be connected. Maximum of 60 W is available for use Requires 200 W power supplies
Ethernet (including QinQ, xSTP and ITU-T G.8032v2, IEEE 802.3ad (with active/standby links))	Yes	Yes	Yes
Multi-chassis LAG	No	No	No
VPLS, VLL services	Yes	Yes	Yes
IP VPN and enhanced Internet services	No	No	No
MPLS, PBB	No	No	No
QoS	<ul style="list-style-type: none"> H-QoS (hierarchical ingress policing, egress shaping) IPv4/IPv6 ingress classification, MAC criteria and access control lists (ACLs) 	<ul style="list-style-type: none"> QoS (ingress policing, egress shaping) IPv4/IPv6 ingress classification, MAC criteria and ACLs 	<ul style="list-style-type: none"> H-QoS (hierarchical ingress policing, egress shaping) Flexible buffer allocation allows buffers of unused ports to be allocated to used ports IPv4/IPv6 ingress classification, MAC criteria and ACLs
OAM	<ul style="list-style-type: none"> ITU-T Y.1731 ITU-T Y.1564 Test Head IEEE 802.1ag IEEE 802.3ah Service mirroring (local/remote [using dot1q]) TWAMP In-band management over IPv6 IPv6 Secure Shell (SSH) 	<ul style="list-style-type: none"> ITU-T Y.1731 IEEE 802.1ag IEEE 802.3ah Service mirroring (local/remote [using dot1q]) TWAMP Out-of-band management over IPv6 IPv6 SSH 	<ul style="list-style-type: none"> ITU-T Y.1731 ITU-T Y.1564 Test Head IEEE 802.1ag IEEE 802.3ah Service mirroring (local/remote [using dot1q]) TWAMP Out-of-band management over IPv6 In-band management over IPv6 IPv6 SSH

Table 1. Alcatel-Lucent 7210 SAS Ethernet variant details (cont.)



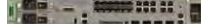
	 7210 SAS-D	 7210 SAS-E	 7210 SAS-T
Timing and synchronization	SAS-D (ETR) system: <ul style="list-style-type: none"> • Stratum 3 system clock • ITU-T SyncE • IEEE 1588v2 (BC and OC) 	N/A	<ul style="list-style-type: none"> • Stratum 3 system clock • ITU-T SyncE • IEEE 1588v2 (BC and OC)
Extended temperature range (ETR) system available	Yes	No	Yes
Temperature operating range	<ul style="list-style-type: none"> • 7210 SAS-D: 0°C to 40°C (32°F to 104°F) • 7210 SAS-D (ETR): -40°C to 65°C (-40°F to 149°F) 	0°C to 50°C (32°F to 122°F)	<ul style="list-style-type: none"> • 7210 SAS-T: 0°C to 50°C (32°F to 122°F) • 7210 SAS-T (ETR): -40°C to 65°C (-40°F to 149°F)
Hot swappable modules	N/A (Note: Fan available for air circulation with option available to turn it off)	Power supplies, fan tray	Power supplies, fan tray
Power supply redundancy	The 7210 SAS-D has a single integrated power supply. The 7210 SAS-D (ETR) has a single integrated power supply and supports redundancy using an external power supply.	Integrated redundant power supplies	Integrated redundant power supplies
Power requirements	<ul style="list-style-type: none"> • AC input: 100 V to 240 V, 50 Hz to 60 Hz; output: +12 V DC non-redundant • DC input: -36 V DC to -72 V DC; output: +12 V DC non-redundant • DC input: +20 V DC to +28 V DC; output: +12 V DC non-redundant (ETR variant only) 	<ul style="list-style-type: none"> • AC input: 100 V to 240 V, 50 Hz to 60 Hz; output: +12 V DC • DC input: -36 V DC to -72 V DC; output: +12 V DC • Supports concurrent use of AC and DC power supplies 	<ul style="list-style-type: none"> • AC input: 100 V to 240 V, 50 Hz to 60 Hz; output: +12 V DC (ETR and non-ETR rated variants available) • DC input: -36 V DC to -72 V DC; output: +12 V DC (ETR and non-ETR rated variants available) • DC input: +20 V DC to +28 V DC; output: +12 V DC (ETR rated) • ETR variant requires a 200 W power supply. • Supports concurrent use of AC and DC power supplies
Dry contacts (input/output)	1 (using the console port)/No	4 opto-isolated/2 dry relay	4 opto-isolated/2 dry relay (Dry contacts are enhanced such that no external power source is required.)
Compact flash (external)	No	No	Yes
USB port for storage support	No	Yes	Yes
Dimensions	Height: 4.28 cm (1.69 in.) Width: 26.5 cm (10.43 in.) Depth: 17.5 cm (6.89 in.)	Height: 6.7 cm (2.64 in.) Width: 43.6 cm (17.17 in.) Depth: 25.3 cm (9.96 in.)	Height: 6.7 cm (2.64 in.) Width: 43.6 cm (17.17 in.) Depth: 25.3 cm (9.96 in.)

Table 2. Alcatel-Lucent 7210 SAS MPLS-enabled variant details



	7210 SAS-M	7210 SAS-X	7210 SAS-R6
System type	Fixed with 1 service expansion slot for additional interface capacity (see Table 4 for service expansion slot options)	Fixed	Chassis with 6 slots for interface modules (see Table 3 for IMM options)
System interface density	<ul style="list-style-type: none"> 24 x 100/1000BASE (SFP) ports + up to 4 x 10GBASE (XFP) ports 	<ul style="list-style-type: none"> 24 x 100/1000BASE (SFP) ports + 2 x 10GBASE (XFP) ports 	<ul style="list-style-type: none"> Up to 60 x 100/1000BASE (SFP) ports Up to 12 x 10GBASE (XFP) ports
System throughput	Wirespeed – up to 124 Gb/s (half duplex)	Wirespeed – 88 Gb/s (half duplex)	120 Gb/s (half duplex) with 20 Gb/s (half duplex) per slot
Optical modules	<ul style="list-style-type: none"> Tunable DWDM XFPs 10/100/1000BASE-TX copper SFPs DWDM XFPs and CWDM SFPs and XFPs SFPs and XFPs with DDM capabilities 	<ul style="list-style-type: none"> Tunable DWDM XFPs 10/100/1000BASE-TX copper SFPs DWDM XFPs and CWDM SFPs and XFPs SFPs and XFPs with DDM capabilities 	<ul style="list-style-type: none"> Tunable DWDM XFPs 10/100/1000BASE-TX copper SFPs DWDM XFPs and CWDM SFPs and XFPs SFPs and XFPs with DDM capabilities
Optical 1830 VWM Passive filter management support	Yes (using the USB port)	Yes (using the USB port)	No
OMC	No	No	Yes
PoE	No	No	No
MPLS, PBB	Yes/Yes	Yes/Yes	Yes/No
MPLS-TP	No	No	Yes
Ethernet (including QinQ, xSTP and ITU-T G.8032v2, IEEE 802.3ad [with active/standby links])	Yes	Yes	Yes
Multi-chassis LAG	Yes	Yes	Yes
VPLS, VLL services	Yes	Yes	Yes
IP VPN and enhanced Internet services	Yes	Yes	Yes
QoS	<ul style="list-style-type: none"> H-QoS (hierarchical ingress policing, egress shaping) Flexible buffer allocation allows buffers of unused ports to be allocated to used ports IPv4/IPv6 ingress classification, MAC criteria and ACLs 	<ul style="list-style-type: none"> Advanced H-QoS (hierarchical ingress policing and egress shaping, ingress shaping, increased packet buffers to handle traffic bursts) IPv4/IPv6 ingress classification, MAC criteria and ACLs 	<ul style="list-style-type: none"> Advanced H-QoS (hierarchical ingress policing and egress shaping, increased packet buffers to handle traffic bursts) IPv4/IPv6 ingress classification, MAC criteria and ACLs
OAM	<ul style="list-style-type: none"> ITU-T Y.1731 ITU-T Y.1564 Test Head IEEE 802.1ag IEEE 802.3ah MPLS OAM Service mirroring (local/remote [using dot1q, MPLS SDP]) TWAMP Out-of-band management over IPv6 In-band management over IPv6 with support for Open Shortest Path First (OSPF) and Intermediate System to Intermediate System (IS-IS) IPv6 SSH 	<ul style="list-style-type: none"> ITU-T Y.1731 IEEE 802.1ag IEEE 802.3ah MPLS OAM Service mirroring (local/remote [using dot1q, MPLS SDP]) TWAMP Out-of-band management over IPv6 In-band management over IPv6 with support for OSPF and IS-IS IPv6 SSH 	<ul style="list-style-type: none"> ITU-T Y.1731 IEEE 802.1ag IEEE 802.3ah MPLS OAM Service mirroring (local/remote [using dot1q, MPLS SDP])

Table 2. Alcatel-Lucent 7210 SAS MPLS-enabled variant details (cont.)



	7210 SAS-M	7210 SAS-X	7210 SAS-R6
Timing and synchronization	<ul style="list-style-type: none"> Stratum 3 system clock ITU-T SyncE IEEE 1588v2 (BC and OC) 	<ul style="list-style-type: none"> Stratum 3E system clock ITU-T SyncE IEEE 1588v2 (BC and OC) 	<ul style="list-style-type: none"> Stratum 3 system clock ITU-T SyncE IEEE 1588v2 (BC and OC)
ETR system available	Yes	No	No
Temperature operating range	<ul style="list-style-type: none"> 7210 SAS-M, 7210 SAS-M (10GigE): 0°C to 50°C (32°F to 122°F) 7210 SAS-M (10GigE - ETR): -40°C to 65°C (-40°F to 149°F) 	0°C to 50°C (32°F to 122°F)	0°C to 50°C (32°F to 122°F)
Hot swappable modules	Service expansion modules, power supplies, fan tray	Power supplies, fan tray	Power supplies, fan tray, fan filter, IMM, SF/CPM module
Power supply redundancy	Integrated redundant power supplies	Integrated redundant power supplies	Integrated redundant power supplies
Power requirements	<ul style="list-style-type: none"> AC input: 100 V to 240 V, 50 Hz to 60 Hz; output: +12 V DC (ETR and non-ETR rated variants available) DC input: -36 V DC to -72 V DC; output: +12 V DC (ETR and non-ETR rated variants available) DC input: +20 V DC to +28 V DC; output: +12 V DC (ETR rated) Supports concurrent use of AC and DC power supplies 	<ul style="list-style-type: none"> AC input: 100 V to 240 V, 50 Hz to 60 Hz; output: +12 V DC DC input: -36 V DC to -72 V DC; output: +12 V DC Supports concurrent use of AC and DC power supplies 	<ul style="list-style-type: none"> DC input: -36 V DC to -72 V DC; output: +12 V DC AC power requires an external rectifier
Dry contacts (input/output)	4 opto-isolated/2 dry relay	3 opto-isolated/3 dry relay	4 opto-isolated/2 dry relay (Dry contacts are enhanced such that no external power source is required.)
Compact flash (external)	No	No	Yes
USB port for storage support	Yes	Yes	Yes
Dimensions	Height: 6.7 cm (2.64 in.) Width: 43.6 cm (17.17 in.) Depth: 25.3 cm (9.96 in.)	Height: 8.8 cm (3.47 in.) Width: 43.6 cm (17.17 in.) Depth: 27.9 cm (11 in.)	Height: 13.3 cm (5.25 in.) Width: 36.8 cm (14.5 in.) Depth: 23.9 cm (9.44 in.)

Table 3. Alcatel-Lucent 7210 SAS-R6 IMMs

IMM TYPE	PORTS	CONNECTOR TYPE	DESCRIPTION
10GBASE	2	XFP optics	2-port 10GigE IMM. Provides 2 physical 10GigE ports that accept XFP optical modules
1000BASE	10	SFP optics	10-port GigE IMM. Provides 10 physical 10GigE ports that accept SFP optical modules
10GBASE + 1000BASE combination	1 + 10	XFP and SFP optics	Combination 1-port 10GigE plus 10-port GigE IMM. Provides 1 physical 10GigE port that accepts an XFP optical module plus 10 physical GigE ports that accept SFP optical modules

Table 4. Alcatel-Lucent 7210 SAS-M service expansion modules

SERVICE EXPANSION MODULE TYPE	PORTS	CONNECTOR TYPE	DESCRIPTION
T1/E1 CES	4	RJ-45	4-port T1/E1 CES service expansion module supports extended temperature ranges, RJ-45 connectors, and Stratum 3 TXCO clock.
10GBASE	2	XFP optics	2-port 10GigE service expansion module supports extended temperature ranges and XFP optical connectors.

SAFETY STANDARDS AND COMPLIANCE AGENCY REGULATIONS

(NOTE: ALL 7210 SAS-T CERTIFICATIONS REFERENCED BELOW ARE PENDING.)

Environmental specifications

- ETSI - EN 300 019
- EN 300 753
- RoHS 6/6 Design

Safety

- CSA/NRTL (UL 60950-1 2nd Edition, CSA 22.2 No. 60950-1 2nd Edition)
- CB Report with all national deviations

Electromagnetic compatibility

- CE Mark
- EN 55022
- EN 55024
- EN 300 386
- ETS 300 132-1
- FCC Class A
- VCCI Class A

Power utility substations

(7210 SAS-D [ETR], 7210 SAS-M [ETR], and 7210 SAS-T [ETR] are designed for compliance with certification in process.)

- IEEE 1613 (fan required)
- IEC 61850-3 (hazardous substances exception; for example, sea salt mist, oil)

Railway

(7210 SAS-D, 7210 SAS-M, and 7210 SAS-T are designed for compliance with certification in process.)

- EN 50121-4
- IEC 62236-4

Certifications

- MEF CE 2.0
 - Certified: 7210 SAS-D, 7210 SAS-M, 7210 SAS-X
 - Compliant: 7210 SAS-T, 7210 SAS-R6
- MEF CE 1.0 (MEF 9 and MEF 14)
 - Certified: All variants
- NEBS Level 3 certified
 - 7210 SAS-D, 7210 SAS-E, 7210 SAS-M, 7210 SAS-X, 7210 SAS-R6
 - 7210 SAS-T (designed for compliance with certification in process)
- ATT-TP-76200
- Verizon VZ.TPR 9205