



**SYNNEX** METRODATA  
PT. SYNNEX METRODATA INDONESIA

Figure 2.  
Cisco Catalyst 9300 Series Network Modules

Table 2. Network Module Numbers and Descriptions

| Network module | Description                                 |
|----------------|---------------------------------------------|
| C9300-NM-4G    | 9300 Series 4x 1G Network Module            |
| C9300-NM-4M    | 9300 Series 4 x Multigigabit Network Module |
| C9300-NM-8X    | 9300 Series 8x 10G Network Module           |
| C9300-NM-2Q    | 9300 Series 2x 40G Network Module           |
| C9300-NM-2Y    | 9300 Series 2x 25G Network Module           |

Please note: Existing 3850 network modules are also supported in the Cisco Catalyst 9300 Series platforms.

For additional details, please read our FAQs: <https://www.cisco.com/c/dam/en/us/products/collateral/switches/catalyst-9300-series-switches/nb-09-cat-9k-faq-cte-en.pdf>.

## Power Supplies

The Cisco Catalyst 9300 Series Switches support dual redundant power supplies. The switches ship with one power supply by default, and the second power supply can be purchased when the switch is ordered or at a later time. If only one power supply is installed, it should always be in power supply bay #1. The switches also ship with three field-replaceable fans.

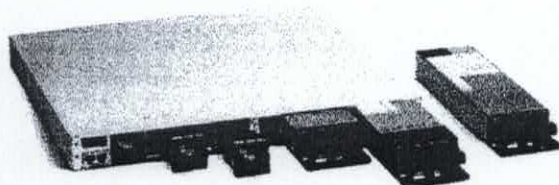


Figure 3.  
Cisco Catalyst 9300 Series Dual Redundant Power Supplies

Table 3 lists the different power supplies available in these switches and available PoE power.

Table 3. Power Supply Models

| Model                                        | Default power supply | Available PoE power | With 350W Secondary PS | With 715W Secondary PS | With 1100W Secondary PS | With 715WDC Secondary PS |
|----------------------------------------------|----------------------|---------------------|------------------------|------------------------|-------------------------|--------------------------|
| 24-port data switch                          | PWR-C1-350WAC        | —                   |                        |                        |                         |                          |
| 48-port data switch                          | PWR-C1-350WAC        |                     |                        |                        |                         |                          |
| 24-port PoE+ switch                          | PWR-C1-715WAC        | 445W                | 720W*                  | 720W*                  | 720W*                   | 720W*                    |
| 48-port PoE+ switch                          | PWR-C1-715WAC        | 437W                | 787W                   | 1152W                  | 1440W*                  | 1152W                    |
| 24-port Cisco UPOE switch                    | PWR-C1-1100WAC       | 830W                | 1180W                  | 1440W*                 | 1440W*                  | 1440W*                   |
| 48-port Cisco UPOE switch                    | PWR-C1-1100WAC       | 822W                | 1172W                  | 1537W                  | 1800W**                 | 1537W                    |
| 24-port Multigigabit Cisco UPOE switch       | PWR-C1-1100WAC-P     | 560W                | 910W                   | 1275W                  | 1440W*                  | 1275W                    |
| 48-port 2.5G (12 Multigigabit – 1/2.5/5/10G) | PWR-C1-1100WAC-P     | 490W                | 840W                   | 1205W                  | 1590W                   | 1205W                    |
| 48-port 5G (1/2.5/5G) UPOE switch            | PWR-C1-1100WAC-P     | 645W                | 995W                   | 1360W                  | 1745W                   | 1360W                    |

\* Limited by port number and port rating (e.g. 24 PoE+ 30W ports = 720W)

\*\* Limited by design

25G and 40G in the Cisco Catalyst 9300 Series enable greater architectural flexibility and infrastructure investment protection by allowing a nondisruptive migration from 10G to 25G and beyond.

In addition to the power supplies listed above, a 715WDC power supply is available as a configuration option and also as a spare (that is, it can be ordered separately) on all switch models. The DC power supply also delivers PoE capabilities for maximum flexibility (refer to Table below for available PoE budget with DC power supplies). Customers can mix and match the AC and DC power supplies in the two available power supply slots.

## Performance and Scalability

Performance and scalability metrics for the Cisco Catalyst 9300 Series are provided in Table 4.

Table 4. Performance Specifications

| Description        | Performance                                                                                                                                                                                                                                                                                                                       |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Switching capacity | <p>208 Gbps on 24-port Gigabit Ethernet model</p> <p>256 Gbps on 48-port Gigabit Ethernet model</p> <p>640 Gbps on 24-port Multigigabit Ethernet model</p> <p>580 Gbps on 48-port 2.5G (12 Multigigabit) Ethernet model</p> <p>640 Gbps on 48-port 5G Ethernet model</p> <p>All models are wire-speed nonblocking performance</p> |



| Description                                                                                                  | Performance                                                                                             |
|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
| Stacking bandwidth                                                                                           | 480 Gbps                                                                                                |
| Total number of MAC addresses                                                                                | 32,000                                                                                                  |
| Total number of IPv4 routes (ARP plus learned routes)                                                        | 32,000 (24,000 direct routes and 8000 indirect routes)                                                  |
| IPv4 routing entries                                                                                         | 32,000                                                                                                  |
| IPv6 routing entries                                                                                         | 16,000                                                                                                  |
| Multicast routing scale                                                                                      | 8000                                                                                                    |
| QoS scale entries                                                                                            | 5120                                                                                                    |
| ACL scale entries                                                                                            | 5120                                                                                                    |
| Packet buffer per SKU                                                                                        | 16 MB buffer for 24- or 48-port Gigabit Ethernet models<br>32 MB buffer for 24 and 48-port Multigigabit |
| FNF entries                                                                                                  | 64,000 flow on 24- and 48-port Gigabit Ethernet models<br>128,000 flows on 24-port Multigigabit         |
| DRAM                                                                                                         | 8 GB                                                                                                    |
| Flash                                                                                                        | 16 GB                                                                                                   |
| VLAN IDs                                                                                                     | 4000                                                                                                    |
| Total Switched Virtual Interfaces (SVIs)                                                                     | 2000                                                                                                    |
| Jumbo frames                                                                                                 | 9198 bytes                                                                                              |
| Total routed ports per 9300 Series stack                                                                     | 208                                                                                                     |
| Wireless                                                                                                     |                                                                                                         |
| Wireless bandwidth per switch                                                                                | Up to 96 Gbps on 48-port Gigabit Ethernet model<br>Up to 48 Gbps on 24-port Gigabit Ethernet model      |
| Forwarding rate of switch models (with 2x 40 Gigabit Ethernet uplinks for 24-port models and 48-port models) |                                                                                                         |
| Model                                                                                                        | Forwarding rate                                                                                         |
| C9300-24T                                                                                                    | 154.76 Mpps                                                                                             |
| C9300-24P                                                                                                    | 154.76 Mpps                                                                                             |



| Description | Performance |
|-------------|-------------|
| C9300-24U   | 154.76 Mpps |
| C9300-48T   | 190.48 Mpps |
| C9300-48P   | 190.48 Mpps |
| C9300-48U   | 190.48 Mpps |
| C9300-24UX  | 476.19 Mpps |
| C9300-48UXM | 431.54 Mpps |
| C9300-48UN  | 476.19 Mpps |



Forwarding rate for both IPv4 and IPv6 at 64bytes

## SD-Access Architecture

What if you could give time back to IT? Provide network access in minutes for any user or device to any application – without compromise? SD-Access is the industry’s first policy-based automation from network edge to cloud. Your foundation for your digital network, Cisco Software-Defined Access (SD-Access). Built on the principles of the Cisco Digital Network Architecture (Cisco DNA), SD-Access provides end-to-end segmentation to keep user, device and application traffic separate without a redesign of the network. It automates user access policy so organizations can make sure the right policies are set for any user or device with any application across the network. This is accomplished with a single network fabric across LAN and WLAN which creates a consistent user experience anywhere without compromising on security.

There are many challenges today in managing the network to drive business outcomes. These limitations are due to manual configuration and fragmented tool offerings. SD-Access provides:

- A transformational management solution that reduces operational expenses and enhances business agility
- Consistent management of wired and wireless network provisioning and policy
- Automated network segmentation and group-based policy
- Contextual insights for fast issue resolution and capacity planning
- Open and programmable interfaces for integration with third-party solutions

For an overview of key use-cases SD-Access addresses, refer to [SD-Access Solution Overview](#).

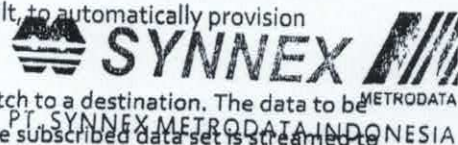
## Platform Benefits

Cisco IOS XE opens a completely new paradigm in network configuration, operation, and monitoring through network automation. Cisco’s automation solution is open, standards-based, and extensible across the entire lifecycle of a network device. The various automation mechanisms are outlined below.

- **Automated device provisioning** is the ability to automate the process of upgrading software images and installing configuration files on Cisco Catalyst switches when they are being deployed in the network for the first time. Cisco provides both turnkey solutions such as Plug and Play and off-the-shelf tools such as Zero-Touch Provisioning (ZTP) and Preboot Execution Environment (PXE) that enable an effortless and automated deployment.



- **API-driven configuration** is available with modern network switches such as the Cisco Catalyst 9300 Series. It supports a wide range of automation features and provides robust open APIs over NETCONF and RESTCONF using YANG data models for external tools, both off-the-shelf and custom built, to automatically provision network resources.
- **Granular visibility** enables model-driven telemetry to stream data from a switch to a destination. The data to be streamed is identified through subscription to a data set in a YANG model. The subscribed data set is streamed to the destination at specified intervals. Additionally, Cisco IOS XE enables the push model. It provides near-real-time monitoring of the network, leading to quick detection and rectification of failures.
- **Seamless software upgrades and patching** supports OS resilience. Cisco IOS XE supports patching, which provides fixes for critical bugs and security vulnerabilities between regular maintenance releases. This support lets you add patches without having to wait for the next maintenance release.



## Security

- **Encrypted Traffic Analytics (ETA)** is a unique capability for identifying malware in encrypted traffic coming from the access layer. Since more and more traffic is becoming encrypted, the visibility this feature affords for threat detection is critical for keeping your network secure at different layers.
- **AES-256 MACsec encryption** is the IEEE 802.1AE standard for authenticating and encrypting packets between switches. The Cisco Catalyst 9300 Series switches support 256-bit and 128-bit Advanced Encryption Standard (AES), providing the most secure link encryption.
- **Trustworthy systems built with Cisco Trust Anchor Technologies** provide a highly secure foundation for Cisco products. With The Catalyst 9300 Series, these technologies enable hardware and software authenticity assurance for supply chain trust and strong mitigation against man-in-the-middle attacks that compromise software and firmware. Trust Anchor capabilities include:
  - **Image signing:** Cryptographically signed images provide assurance that the firmware, BIOS, and other software are authentic and unmodified. As the system boots, the system's software signatures are checked for integrity.
  - **Secure Boot:** Cisco Secure Boot technology anchors the boot sequence chain of trust to immutable hardware, mitigating threats against a system's foundational state and the software that is to be loaded, regardless of a user's privilege level. It provides layered protection against the persistence of illicitly modified firmware.
  - **Cisco Trust Anchor module:** A tamper-resistant, strong cryptographic, single-chip solution provides hardware authenticity assurance to uniquely identify the product so that its origin can be confirmed to Cisco. This provides assurance that the product is genuine.

## Resiliency and High Availability

- **StackWise-480:** The Cisco Catalyst 9300 Series supports the industry's highest back-panel stacking bandwidth solution (480 Gbps) with StackWise-480. Up to 8 Switches can be configured in a Stackwise-480 with the special connector at the back of the switch using dedicated stack cables.
- **Cisco StackPower:** Cisco StackPower is an innovative power interconnect system that allows the power supplies in a stack to be shared as a common resource among all the switches. This allows you to simply add one extra power supply in any switch of the stack and either provide power redundancy for any of the stack members or simply add more power to the shared pool. Up to 4 switches can be configured in a StackPower stack with the special connector at the back of the switch. However, with the use of XPS-2200 appliance, up to 9 switches can be configured in the StackPower stack.



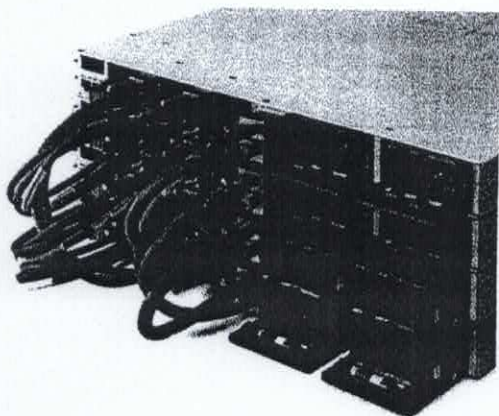


Figure 4.  
Cisco Catalyst 9300 Series StackPower

- **High availability:** The Catalyst 9300 Series supports high-availability features, including the following:
  - Cross-stack EtherChannel provides the ability to configure Cisco EtherChannel technology across different members of the stack for high resiliency.
  - IEEE 802.1s Multiple Spanning Tree Protocol (MSTP) provides rapid spanning tree convergence independent of spanning tree timers and also offers the benefit of Layer 2 load balancing and distributed processing.
  - Per-VLAN Rapid Spanning Tree (PVRST+) allows rapid spanning tree (IEEE 802.1w) reconvergence on a per-VLAN spanning tree basis, providing simpler configuration than MSTP. In both MSTP and PVRST+ modes, stacked units behave as a single spanning tree node.
  - Switch-port auto-recovery ("err-disable" recovery) automatically attempts to reactivate a link that is disabled because of a network error.
  - The Catalyst 9300 Series platform delivers the best NSF/SSO resiliency architecture in a stackable solution with sub-50-ms failover.
  - Always-On wireless network with stateful switchover when wireless functionality is enabled on stack of Catalyst 9300.

#### Flexible NetFlow

- **Flexible NetFlow (FNF):** Cisco IOS® Software FNF is the next generation in flow visibility technology. It enables optimization of the network infrastructure, reduces operation costs, and improves capacity planning and security incident detection with increased flexibility and scalability. The Catalyst 9300 Series is capable of up to 64,000 flow entries on 48-port and 24 port models and up to 128,000 flow entries on Multigigabit models.

#### Application Visibility and Control

- **NBAR2:** Next-Generation Network-Based Application Recognition (NBAR2) enables advanced application classification techniques, accuracy with up to 1400 predefined and well-known application signatures and up to 150 encrypted applications on the Cisco Catalyst 9000 Series. The most popular applications included are Skype, Office 365, Microsoft Lync, Cisco WebEx®, and Facebook, among many others that are predefined and easy to configure. NBAR2 provides the network administrator with an important tool to identify, control, and monitor end-user application usage while helping ensure a quality user experience and securing the network from malicious attacks. NBAR2 leverages FNF to report application performance and activities within the network to any supported NetFlow collector, such as Cisco Prime®, Cisco Stealthwatch®, or any compliant third-party tool.



- **Superior QoS:** The Cisco Catalyst 9300 Series offers Gigabit Ethernet speeds with intelligent services that keep traffic flowing smoothly, even at 10 times the normal network speed. Industry-leading mechanisms for cross-stack marking, classification, and scheduling deliver superior performance for data, voice, and video traffic at wire speed. Superior QoS includes granular wireless bandwidth management and fair sharing, 802.1p Class of Service (CoS) and Differentiated Services Code Point (DSCP) field classification, Shaped Round Robin (SRR) scheduling, Committed Information Rate (CIR), and eight egress queues per port.

#### Service Discovery

- **Multicast DNS (mDNS) gateway:** This service discovery gateway capability facilitates sharing of services advertised using the Apple mDNS (Bonjour) protocol, such as printers, Apple TVs, and file services across the network. Additionally, the administrator can create policies defining which services can be seen and accessed by the users in the network. This capability facilitates a Bring-Your-Own-Device (BYOD) rollout.

#### Smart Operation

- **WebUI:** WebUI is an embedded GUI-based device-management tool that provides the ability to provision the device, to simplify device deployment and manageability, and to enhance the user experience. It comes with the default image, so there is no need to enable anything or install any license on the device. You can use WebUI to build configurations, and to monitor and troubleshoot the device without having CLI expertise.
- **Efficient switch operation\*:** Cisco Catalyst 9300 Series Switches provide optimum power saving with Energy Efficient Ethernet (EEE) on the RJ-45 ports and low-power operations for industry best-in-class power management and power consumption capabilities. The ports support reduced power modes so that ports not in use can move into a lower power utilization state. Other efficient switch operation features are as follows:
  - Per-port power consumption command allows customers to specify a maximum power setting on an individual port.
  - Per-port PoE power sensing measures actual power being drawn, enabling more intelligent control of powered devices. The PoE MIB provides proactive visibility into power usage and allows you to set different power-level thresholds.
- **RFID tags:** The Catalyst 9300 Series switches have an embedded RFID tag that facilitates easy asset and inventory management using commercial RFID readers.
- **Blue beacon:** The Catalyst 9300 Series switches support a blue beacon LED for easy identification of the switch being accessed.

\* Energy Efficient Ethernet (EEE) will be fully supported on Multigigabit switches in a future SW release

#### High-Performance IP Routing

The Cisco Express Forwarding hardware routing architecture delivers extremely high-performance IP routing in Cisco Catalyst 9300 Series Switches, based on:

- IP unicast routing protocols (including static, Routing Information Protocol Version 1 [RIPv1], RIPv2, RIPv3, and Open Shortest Path First [OSPF], Routed Access) are supported for small network routing applications with the Network Essentials stack. Equal-cost routing facilitates Layer 3 load balancing and redundancy across the stack.
- Advanced IP unicast routing protocols (including Full [OSPF], Enhanced Interior Gateway Routing Protocol [EIGRP], Border Gateway Protocol Version 4 [BGPv4], and Intermediate System-to-Intermediate System Version 4 [IS-ISv4]) are supported for load balancing and for constructing scalable LANs. IPv6 routing (using OSPFv3 and EIGRPv6) is supported in hardware for maximum performance.



- Protocol-Independent Multicast (PIM) for IP multicast routing is supported, including PIM Sparse Mode (PIM SM), and Source-Specific Multicast (SSM).
- IPv6 addressing is supported on interfaces with appropriate show commands for monitoring and troubleshooting.

Audio Video Bridging (AVB)

Starting with Cisco IOS XE Software Release 16.8, the Cisco Catalyst 9300 Series supports the IEEE 802.1 AVB standard. This standard provided the means for highly reliable delivery of low-latency, time-synchronized audio and video streaming services through Layer 2 Ethernet networks. The standard also makes it easier to integrate new services and for AV equipment from different vendors to interoperate.

Benefits

- Improves quality of experience by lowering jitter and latency for time-synchronized delivery of high-quality AV.
- Provides scalability of applications across networked deployments, including expansive and complex AV infrastructure.
- Lowers Total Cost of Ownership (TCO) with reduced cabling (lowers CapEx) and no license fees (lowers OpEx).

For more details about AVB and specific models supported, check <https://www.cisco.com/go/avb>.

**Multigigabit Ethernet technology:** Cisco Multigigabit Ethernet technology allows you to achieve bandwidth speeds from 1 Gbps to 10 Gbps over traditional Category 5e cabling or above. This technology addresses the need for exponential increases in bandwidth with the enormous growth of 802.11ac and new wireless applications without having to replace current cabling infrastructure.

Power Over Ethernet Leadership

**Cisco Universal Power over Ethernet (Cisco UPOE):** PoE removes the need for wall sockets to power each PoE-enabled device and eliminates the cost of additional electrical cabling and circuits that would otherwise be necessary in IP phone and WLAN deployments. Cisco UPOE extends the IEEE PoE+ standard to double the power per port to 60 watts. This facilitates delivery of network power to a broad range of devices requiring higher power, including virtual desktop terminals, IP turrets, compact switches, building management gateways, LED lights, wireless access points, and IP phones. The Catalyst 9300 Series supports Cisco UPOE, PoE+ and PoE, thereby addressing the largest range of network power needs.

Tables 5 and 6 show the power supply combinations required for different PoE needs.

Table 5. Power Supply Requirements for PoE/PoE+

|                                   | 24-port PoE switch                     | 48-port PoE switch                                          |
|-----------------------------------|----------------------------------------|-------------------------------------------------------------|
| PoE on all ports (15.4W per port) | 1 PWR-C1-715WAC                        | 1 PWR-C1-1100WAC or 2 PWR-C1-715WAC                         |
| PoE+ on all ports (30W per port)  | 1 PWR-C1-1100WAC or<br>2 PWR-C1-715WAC | 2 PWR-C1-1100WAC or 1 PWR-C1-1100WAC and<br>1 PWR-C1-715WAC |





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MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY  
DIRECTORATE GENERAL OF RESOURCES AND EQUIPMENT  
FOR POST AND INFORMATION TECHNOLOGY  
THE REPUBLIC OF INDONESIA

## SERTIFIKAT | CERTIFICATE

NOMOR : 58682/SDPPI/2018

|                                                        |            |                                                                                                                                                                  |
|--------------------------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Referensi :<br>Reference                               | CISPR 22 , | PLG ID : 3965<br>Client's ID                                                                                                                                     |
| Jenis Perangkat : Ethernet Switch<br>Name of Equipment |            | Diajukan Oleh : SYNNEX METRODATA INDONESIA,<br>Proposed by PT.                                                                                                   |
| Buatan : CHINA<br>Country of Origin                    |            | Alamat : APL Tower 42nd Floor Suite<br>Address 1-8, Jl. Letjen S. Parman kav. 28,<br>Kel. Tanjung Duren Selatan, Kec. Grogol<br>Petamburan, 11470, Jakarta Barat |
| Merek : CISCO<br>Trade Mark                            |            | Tanggal Terbit : 13 November 2018<br>Date of Issue                                                                                                               |
| Model/Type : C9300-24T                                 |            | Masa Berlaku : 13 November 2021<br>Valid Until                                                                                                                   |
| Frekuensi Kerja :<br>Operating Frequencies             |            |                                                                                                                                                                  |

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ON BEHALF OF DIRECTOR GENERAL OF RESOURCES AND EQUIPMENT FOR POST AND INFORMATION TECHNOLOGY  
DIRECTOR OF STANDARDIZATION OF EQUIPMENT FOR POST AND INFORMATION TECHNOLOGY



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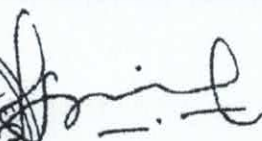
NOMOR : 53216/SDPPI/2017

|                                                                       |                                                                                                                                 |
|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <p>Referensi :<br/><i>Reference</i></p> <p>CISPR 22</p>               | <p>PLG ID : 1866<br/><i>Client's ID</i></p>                                                                                     |
| <p>Jenis Perangkat : Ethernet Switch<br/><i>Name of Equipment</i></p> | <p>Diajukan Oleh : CISCO SYSTEMS INDONESIA, PT.<br/><i>Proposed by</i></p>                                                      |
| <p>Buatan : CHINA<br/><i>Country of Origin</i></p>                    | <p>Alamat : Perkantoran Ijlau Arkadia Tower F, Lt. 5, Jl. TB. Simatupang Kav. 88, 12520, Jakarta Selatan<br/><i>Address</i></p> |
| <p>Merek : Cisco<br/><i>Trade Mark</i></p>                            | <p>Tanggal Terbit : 13 November 2017<br/><i>Date of Issue</i></p>                                                               |
| <p>Model/Type : C9300-24UX</p>                                        | <p>Masa Berlaku : 13 November 2020<br/><i>Valid Until</i></p>                                                                   |

Frekuensi Kerja :  
*Operating Frequencies*

  
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No. 000111/2019/SMI

11 Maret 2019

Kepada Yth.

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JL. PAHLAWAN 9  
SEMARANG**

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Sehubungan dengan adanya "PENGADAAN PERALATAN STUDIO VISUAL SARANA DAN PRASARANA SITUATION ROOM NO. 01.25/POKJAPIL 02/ BAPBJ/III/2019", PT. Synnex Metrodata Indonesia sebagai Authorized Distributor dari produk CISCO di Indonesia, dengan ini menjamin untuk mendukung :

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yang ikut serta dalam pengadaan tersebut di atas sejauh Produk di atas tersebut berasal dari kami.

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Surat Dukungan ini valid apabila Produk yang dibeli berasal dari PT. Synnex Metrodata Indonesia.

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**PT. Synnex Metrodata Indonesia**



**Rulie Kurniawan**  
Channel Sales Manager

No. 000111/2019/SMI

11 Maret 2019

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SEMARANG

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**Perihal: Jaminan Purna Jual**

PT. SYNNEX METRODATA INDONESIA sebagai Authorized Distributor dari produk CISCO di Indonesia, dengan ini memberikan dukungan purna jual (warranty) sebagai berikut:

- Cisco ASR1001-X
- Cisco C9300-24UX-A
- Cisco MR33

Dukungan purna jual (warranty) standart untuk produk tersebut diatas adalah 1 (satu) tahun

Kami memberikan garansi penuh untuk produk tersebut diatas yang diikutsertakan dalam pengadaan ini dan disertai dengan kartu garansi yang sah dikeluarkan oleh CISCO.

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Surat Jaminan Purna Jual ini valid apabila Produk yang dibeli berasal dari PT. Synnex Metrodata Indonesia.

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PT. Synnex Metrodata Indonesia



**Rulie Kurniawan**  
Channel Sales Manager



# Cisco ASR 1000 Series Route Processors

Advanced routing services combined with component monitoring and management come in both modular and fixed form factors.

## Product Overview

The Cisco® ASR 1000 Series Route Processors address the stringent route-processing requirements of carrier-grade IP and Multiprotocol Label Switching (MPLS) packet network infrastructures. They are the central control processors that run the network operating system, provide advanced routing capabilities, and also monitor and manage the other components of the Cisco ASR 1000 Series Aggregation Services Router.

Cisco ASR 1000 Series Route Processors fall into two main categories:

- **Modular Cisco ASR 1000 Series Route Processors for modular chassis**, including the ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X and ASR 1013 models. These are the Cisco ASR 1000 Series Route Processor 1 (RP1; part number ASR1000-RP1), Cisco ASR 1000 Series Route Processor 2 (RP2; part number ASR1000-RP2), and Cisco ASR 1000 Series Route Processor 3 (RP3; part number ASR1000-RP3)
- **Fixed or built-in Cisco ASR 1000 Series Route Processors for fixed chassis**, including the ASR 1001, ASR 1001-X, ASR 1002, ASR 1002-F, and ASR 1002-X models. ASR 1002 and ASR 1002-F contain an embedded RP1 (part number ASR1000-RP1).

Table 1 lists the characteristics and chassis support of Cisco ASR 1000 Series RP1, RP2, and RP3.

Table 1. ASR 1000 Series Route Processors

|                                | Modular Route Processors                                                            |                                                                                      |                                                                                       |
|--------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                | RP1                                                                                 | RP2                                                                                  | RP3                                                                                   |
|                                |  |  |  |
| Chassis support                | ASR1004<br>ASR1008                                                                  | ASR1004, ASR1006, ASR1006-X,<br>ASR1008-X, and ASR1013                               | ASR1006-X<br>ASR1008-X<br>ASR1013                                                     |
| Cisco IOS® XE operating system | 32 bit                                                                              | 64 bit                                                                               | 64 bit                                                                                |
| CPU                            | General-purpose CPU based on 1.5-GHz processor                                      | Dual-core processor, 2.66 GHz                                                        | Quad-core processor, 2.2 GHz                                                          |
| Memory                         | 4 GB                                                                                | 8 GB (default)<br>16 GB                                                              | 8 GB (default)<br>16 GB<br>32 GB<br>64 GB                                             |
| Built-in eUSB/eMMC bootflash   | 1 GB (8 GB on ASR 1002)                                                             | 2 GB                                                                                 | 8 GB                                                                                  |
| Storage                        | 40 GB HDD and external USB                                                          | 80 GB HDD and external USB                                                           | 100 GB SSD (default)<br>200 GB SSD<br>400 GB SSD<br>External USB                      |

## Features and Benefits

Cisco ASR 1000 Series Route Processors offer the following embedded features:

- Full range of industry-leading Cisco IOS XE Software features and services
- Optional redundant-processor and dual Cisco IOS XE Software support for single-route-processor solutions to improve network resiliency
- Hard disk drive (HDD) or solid state drive (SSD) for code storage, boot, configuration, logs, and so on (HDD or SSD are optional on Cisco ASR 1001, 1001-X, 1001-HX, 1002-X, and 1002-HX)
- USB ports for 1-GB compact flash memory support
- Built-in embedded flash memory (eUSB or eMMC) support:
  - 1 GB on RP1; 8 GB on the built-in RP1 on the ASR 1002 router partitioned: 1 GB for bootflash; 7 GB for mass storage
  - 2 GB on RP2; 8 GB on RP3
  - 8 GB on the built-in route processor on the Cisco ASR 1001, 1001-X and 1002-X, partitioned: 1 GB for bootflash; 7 GB for mass storage
- Field-replaceable and hot-swappable capabilities with modular route processors for minimal service disruption
- Stratum-3 clock circuitry, building integrated timing supply (BITS) input and output (BITS output available on ASR1000-RP2 and on the chassis of ASR1002-X that has a built-in RP)
- Memory scalability up to 4 GB DRAM on the RP1; up to 16 GB DRAM on the RP2, ASR 1001, ASR 1001-X, ASR 1001-HX, ASR 1002-X, and ASR 1002-HX; up to 64 GB DRAM on the RP3

Many additional features are performed in line with routing, including:

- Building and distributing forwarding information to the Cisco ASR 1000 Series Embedded Services Processor (ESP)
- Implementing session border controller (SBC) setup and teardown and applying per-session policies for voice and video streams
- Offering a portal for stateful firewall policy configuration and distribution to the ESP forwarding engine
- Negotiating and maintaining IP Security (IPsec<sup>1</sup>) authentication, encryption methods, and encryption keys (Internet Key Exchange [IKE])

As the management processor for the Cisco ASR 1000 Series Router, the RPs automatically perform the following system management functions:

- Load the operating system software images to all installed line cards upon powering up or through operator commands
- Synchronize the dynamic state conditions for the redundant Cisco IOS XE Software, the route processor, and ESP components
- Perform high-availability failover for redundant solutions
- Provide out-of-band system console and auxiliary ports, USB, and Ethernet ports for router configuration and maintenance

<sup>1</sup> This product includes software developed by Cavium Networks.



- Allow direct system access through the operating-system kernel if catastrophic Cisco IOS Software failure occurs
- Monitor and manage the power and temperature of system components such as line cards, power supplies, and fans

Table 2 describes features and benefits of the Cisco ASR 1000 Series RP1, RP2, RP3, and built-in RP of the ASR 1001, 1001-X, 1002, 1002-F, and 1002-X.

**Table 2.** Route Processor Features, Benefits, Descriptions

| Feature                                                       | Description                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|---------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Support for Cisco IOS XE Software</b>                      | Supports a breadth of IP network services, including quality of service (QoS), MPLS, Layer 2 virtual private network (L2VPN), Layer 3 virtual private network (L3VPN), Application Visibility and Control, Performance Routing (PfR), AppNav infrastructure, Data Center Interconnect, Crypto and IPv6                                                                                                                                       |
| <b>High availability</b>                                      | Provides optional redundant-processor support and dual Cisco IOS Software support for single-route-processor solutions for a highly compact, fully redundant, high-availability solution                                                                                                                                                                                                                                                     |
| <b>Stratum-3 clock circuitry and BITS input ports</b>         | Facilitates support of clocking for synchronous services such as SONET and SDH. BITS input ports are available on RP1, RP2 and ASR1002-X only.                                                                                                                                                                                                                                                                                               |
| <b>Memory scalability of up to 16 GB; up to 64 GB for RP3</b> | Allows pay-as-you-grow scalability so memory can increase as you add more users or features; the scalability offered through memory upgrades includes: <ul style="list-style-type: none"> <li>• Routing-table growth</li> <li>• Additional MPLS VPN routing and forwarding instances</li> <li>• Feature additions such as SBC and broadband aggregation (BBA)</li> </ul>                                                                     |
| <b>Solid state drive support</b>                              | Allows for greater storage area for code storage, boot, configurations, billing, logs, etc.                                                                                                                                                                                                                                                                                                                                                  |
| <b>USB compact flash support</b>                              | Allows for easier manageability for code storage, boot, configurations, logs, etc.                                                                                                                                                                                                                                                                                                                                                           |
| <b>Modularity</b>                                             | Offers maximum investment protection and flexibility by allowing customers to upgrade to future Cisco ASR 1000 Series Route Processors<br><b>Note:</b> Cisco ASR 1002, and ASR1002-F have an integrated RP1 built into the chassis that is not upgradable.<br><b>Note:</b> Cisco ASR 1001, ASR 1001-X, and ASR 1002-X (part numbers ASR 1001, ASR 1001-X, ASR 1002-X) have an integrated RP2 built in to the chassis that is not upgradable. |

## Architecture

All platforms use an innovative and powerful processor: the Cisco QuantumFlow Processor (QFP). The QFP combines a high-performance forwarding engine with the service flexibility of the general-purpose processor. It is the industry's first fully integrated and programmable flow processor designed to unify massive parallel processing, integrated quality of service (QoS), and advanced memory management while offering integral service delivery and programmability.

The Cisco ASR 1000 Series consists of:

- ASR 1001 (end of sale)
- ASR 1001-X
- ASR 1001-HX
- ASR 1002 (end of sale)
- ASR 1002-X
- ASR 1002-HX
- ASR 1004
- ASR 1006
- ASR 1006-X

- ASR 1009-X
- ASR 1013

The Cisco ASR 1001, 1001-X, 1002 Fixed (1002-F), 1002, and 1002-X have integrated route processors. The ASR 1004 has a single slot for one route processor. The route processor has a dual Cisco IOS Software option that allows these routers to use the Cisco industry-leading high-availability features, Cisco IOS Software redundancy, Integrated Software Service Upgrade (ISSU), and Nonstop Forwarding (NSF). These features require the Cisco ASR 1000 Series RP1 to have 4 GB of DRAM memory. The Cisco ASR 1000 Series RP2 and RP3 support Cisco IOS Software redundancy, ISSU, and NSF with its default memory of 8 GB of DRAM. The built-in route processor of the Cisco ASR 1001, 1001-X, and 1002-X supports Cisco IOS Software redundancy and NSF with 4 GB of DRAM default memory on the ASR 1001 and 1002-X and 8 GB of DRAM default on the ASR 1001-X.

The Cisco ASR 1006, 1006-X, 1009-X, and 1013 routers support fully redundant route processors that allow for full route-processor hardware redundancy, ISSU, NSF, and route-processor service upgrades.

Table 3 specifies some of the architectural aspects of the ASR 1000 Series Route Processors.

**Table 3.** Architectural Specifications

| Item                        | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LAN ports                   | The Cisco ASR 1000 Series RP1, RP2, and RP3 have a single copper (RJ-45) 10/100/1000 management Ethernet port. For ASR 1001, 1001-X, 1001-HX, 1002, 1002-F, 1002-X, and 1002-HX, the single copper (RJ-45) 10/100/1000 management Ethernet ports are built into the chassis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| SDRAM                       | <p>The Cisco ASR 1000 Series RP1 can support either 2 or 4 GB of synchronous dynamic RAM (SDRAM). Because the card holds 2 SDRAM slots, a route processor with 2 GB can hold two 1-GB dual in-line memory modules (DIMMs), whereas a route processor with 4 GB can hold two 2-GB DIMMs.</p> <p>The Cisco ASR 1000 Series RP2 can support either 8 or 16 GB of SDRAM. Because the card holds 4 SDRAM slots, a route processor with 8 GB can hold four 2-GB DIMMs, whereas a route processor with 16 GB can hold four 4-GB DIMMs.</p> <p>The Cisco ASR 1000 Series RP3 can support either 8, 16, 32, or 64 GB of SDRAM.</p> <p>The Cisco ASR 1001 and 1002-X built-in route processors support 4, 8, or 16 GB of SDRAM. The Cisco ASR 1001-X built-in route processor supports either 8 GB or 16 GB of SDRAM.</p> |
| Hard disk drive (HDD)       | The Cisco ASR 1000 Series RP1 and RP2 have a HDD for code storage, system configurations, and log files. The RP1 provides a 40-GB HDD mounted on the board itself. The RP1 HDD is field-replaceable, but not hot-swappable. The RP2 provides an 80-GB HDD that is front-mounted, field-replaceable, and hot-swappable. The RP3 provides a 100-GB SSD by default, which is upgradable to 200-GB or 400-GB. The Cisco ASR 1001, 1001-X, 1002, 1002-F, and 1002-X support built-in embedded USB (eUSB) 8 GB memory for code storage, system configurations, and log files. The ASR 1001-X supports an optional solid state drive, and the ASR 1002-X supports an optional HDD for additional code storage, system configurations, and log files.                                                                   |
| Solid state drive (SSD)     | The Cisco ASR 1001-X supports an optional SSD for additional code storage, system configurations, and log files.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| USB port                    | One USB port is provided on the Cisco ASR 1000 Series RP1, and 2 ports are provided on the RP2 and RP3. All three route processors support 1-GB USB compact flash memory for the storage and portability of operating system software, system configurations, and log files.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Console and auxiliary ports | The Cisco ASR 1000 Series RP1, RP2, and RP3 have built-in console and auxiliary ports. The ASR 1001, 1001-X, 1002, 1002-F, and 1002-X have built-in console and auxiliary ports on their respective chassis.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

## General Product Specifications

Tables 4, 5, and 6 provide specifications for the Cisco ASR 1000 Series RP1, RP2, and RP3, respectively. Tables 7 and 8 provide specifications for the Cisco ASR 1001 and ASR 1001-X integrated route processors, respectively, and Table 9 provides Cisco ASR 1002-X route processor specifications.



Table 4. Cisco ASR 1000 Series RP1 Product Specifications

| Item                                | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chassis support</b>              | <p>Cisco ASR 1004 and ASR 1006 chassis</p> <p>(Note: The Cisco ASR 1002 chassis comes with the Cisco ASR 1000 Series RP1 built into the chassis.)</p> <p>(Note: Cisco ASR 1001, ASR 1001-X, and ASR 1002-X (part numbers ASR1001, ASR1001-X, ASR1002-X) have an integrated Route Processor built in to the chassis that is not upgradable)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>Software compatibility</b>       | Cisco IOS XE Operating System, which is based on Cisco IOS Software Release 12.2SR<br>(Please consult your Cisco account representative for additional details.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Software protocols</b>           | Refer to Cisco IOS Software 12.2SR protocol support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>Connectivity</b>                 | <ul style="list-style-type: none"> <li>• Console port (RJ-45 connector)</li> <li>• Auxiliary port (RJ-45 connector)</li> <li>• 10/100/1000 Ethernet port (RJ-45 connector)</li> <li>• Two RJ-48 connectors for BITS input clocks</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Memory options</b>               | <ul style="list-style-type: none"> <li>• Two 1-GB Double Data Rate 2 (DDR2) mini-DIMMs</li> <li>• Two 2-GB DDR2 mini-DIMMs</li> <li>• Upgradable memory from 2-GB to 4-GB DRAM</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Storage options</b>              | <ul style="list-style-type: none"> <li>• 40-GB HDD (RP1 only)</li> <li>• 1-GB USB Compact Flash memory</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Performance</b>                  | <ul style="list-style-type: none"> <li>• Scalability up to 1,000,000 IPv4 routes or 500,000 IPv6 routes</li> <li>• BGP RR Scalability up to 5,000,000 IPv4 routes or 3,000,000 IPv6 routes</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Reliability and availability</b> | <ul style="list-style-type: none"> <li>• 1 + 1 redundancy in dual-route-processor configuration</li> <li>• Support for online insertion and removal (OIR)</li> <li>• Support for NSF and Stateful Switchover (SSO)</li> <li>• Support for ISSU</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>MIBs</b>                         | <ul style="list-style-type: none"> <li>• RFC 2737 compliant</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>Network management</b>           | <ul style="list-style-type: none"> <li>• Telnet and Secure Shell (SSH) Protocol (command-line interface [CLI])</li> <li>• Console port (through the CLI)</li> <li>• Simple Network Management Protocol (SNMP)</li> <li>• RFC 2665</li> <li>• PWR - Power <ul style="list-style-type: none"> <li>Green - All power rails are within specifications</li> </ul> </li> <li>• STAT - Status <ul style="list-style-type: none"> <li>Green - Cisco IOS Software has booted</li> <li>Yellow - BootROM has successfully loaded</li> <li>Red - System failure or during boot process</li> </ul> </li> <li>• ACTV- Active <ul style="list-style-type: none"> <li>Green - Active route processor</li> </ul> </li> <li>• STBY - Standby <ul style="list-style-type: none"> <li>Yellow - Standby route processor</li> </ul> </li> <li>• CRIT - Critical <ul style="list-style-type: none"> <li>Red - Critical alarm or during boot process</li> </ul> </li> <li>• MAJ - Major <ul style="list-style-type: none"> <li>Red - Major alarm</li> </ul> </li> <li>• MIN - Minor <ul style="list-style-type: none"> <li>Amber - Minor alarm</li> </ul> </li> <li>• LINK - Management Ethernet link status <ul style="list-style-type: none"> <li>Solid green - Link with no activity</li> <li>FLASH green - Link with activity</li> <li>Off - No link</li> </ul> </li> <li>• DISK0 - Internal Compact Flash <ul style="list-style-type: none"> <li>FLASH Green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> <li>• DISK1 - External Compact Flash <ul style="list-style-type: none"> <li>FLASH green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> </ul> |

| Item                               | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <ul style="list-style-type: none"> <li>• DISK2 - Internal HDD</li> <li>FLASH green - Activity Indicator</li> <li>Off - No activity</li> <li>• CARRIER - BITS Interface</li> <li>Off - Out of service</li> <li>Green - In frame and in service</li> <li>Amber - Fault or loop condition</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Physical dimensions<br>(H x W x D) | 0.92 x 16.7 x 14.19 in. (0.02 x 0.428 x 0.36m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Weight                             | 5.0 lb (2.3 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Approvals and compliance           | <p><b>Safety</b></p> <ul style="list-style-type: none"> <li>• UL60950-1 and CAN/CSA-C22.2 No. 60950-1-03 Information technology equipment</li> <li>• AS/NZS 60950-1</li> <li>• IEC/EN 60950-1 Information technology equipment</li> <li>• 73/23/EEC</li> </ul> <p><b>Electromagnetic Emissions Certification</b></p> <ul style="list-style-type: none"> <li>• AS/NZ 3548: 1995 (including AMD I + II) Class B</li> <li>• EN55022: 1998 Class B</li> <li>• CISPR 22: 1997</li> <li>• EN55022: 1994 (including AMD I + II)</li> <li>• 47 CFR Part 15: 2000 (FCC) Class B</li> <li>• VCCI V-3/01.4 Class 2</li> <li>• CNS-13438: 1997 Class B</li> <li>• GR1089: 1997 (including Rev. 1: 1999)</li> </ul> <p><b>Immunity</b></p> <ul style="list-style-type: none"> <li>• EN300386: 2000-TNE EMC requirements; product family standard; high priority of service; central office and noncentral office locations</li> <li>• EN50082-1: 1992/1997</li> <li>• EN50082-2: 1995-Generic Immunity Standard, Heavy</li> </ul> <p><b>Industrial</b></p> <ul style="list-style-type: none"> <li>• CISPR24: 1997</li> <li>• EN55024: 1998-Generic ITE Immunity standard</li> <li>• EN61000-4-2: 1995 + AMD I + II ESD, Level 4/8 kV contact, 15 kV air</li> <li>• IEC-1000-4-3: 1995 + AMD 1-Radiated Immunity, 10 V/m</li> <li>• IEC-1000-4-4: 1995-Electrical Fast Transients, Level 4/4 kV/B</li> <li>• IEC-1000-4-5: 1995 + AMD 1-DC Surge-Class 3; AC Surge-Class 4</li> <li>• EN61000-4-6: 1996 + AMD 1-RF conducted immunity, 10 Vrms</li> <li>• EN61000-4-11: 1995-Voltage Dips and Sags</li> <li>• ETS300 132-2: 1996 + corrigendum, December 1996</li> <li>• GR1089:1997 (including Rev1: 1999)</li> </ul> <p><b>Network Equipment Building Standards</b></p> <p>The module meets the following Networking Equipment Building Standards (NEBS):</p> <ul style="list-style-type: none"> <li>• GR-1089-CORE</li> <li>• GR-63-CORE</li> </ul> <p><b>European Telecommunication Standards Institute (ETSI)</b></p> <ul style="list-style-type: none"> <li>• ETSI 300 386-1 - Levels for equipment with a "high priority of service" that is installed in "locations other than telecommunication centers"</li> <li>• ETSI 300 386-2:1997 - Levels for equipment with a "high priority of service" that is installed in "locations other than telecommunication centers"</li> <li>• ETSI 300 132-2: December 1994 - Power supply interfaces at the input to telecommunications equipment Sections 4.8 and 4.9</li> </ul> |



| Item          | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental | <ul style="list-style-type: none"> <li>Storage temperature: -38 to 150°F (-40 to 70°C)</li> <li>Operating temperature, nominal: 41 to 104°F (5 to 40°C)</li> <li>Operating temperature, short-term: 23 to 131°F (-5 to 55°C)</li> <li>Storage relative humidity: 5 to 95% relative humidity (RH)</li> <li>Operating humidity, nominal: 5 to 85% RH</li> <li>Operating humidity, short-term: 5 to 90% RH</li> <li>Operating altitude: -60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)</li> </ul> |

Table 5. Cisco ASR 1000 Series RP2 Product Specifications

| Item                         | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis support              | <p>Cisco ASR 1004, ASR 1006, ASR 1006-X, ASR 1009-X and ASR 1013 chassis</p> <p>(Note: The Cisco ASR 1002 and ASR 1002 Fixed chassis come with the Cisco ASR 1000 Series RP1 built into the chassis.)</p> <p>(Note: Cisco ASR 1001, ASR 1001-X, and ASR 1002-X (part numbers ASR1001, ASR1001-X, ASR1002-X) have an Integrated Route Processor built in to the chassis that is not upgradable)</p>                                                                                                                                                                                                            |
| Software compatibility       | <p>Cisco IOS XE Software, which is based on Cisco IOS Software Release 12.2SR</p> <p>(Please consult your Cisco account representative for additional details.)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Software protocols           | Refer to Cisco IOS Software 12.2SR protocol support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Connectivity                 | <ul style="list-style-type: none"> <li>Console port (RJ-45 connector)</li> <li>Auxiliary port (RJ-45 connector)</li> <li>10/100/1000 Ethernet port (RJ-45 connector)</li> <li>RJ-48 connector for BITS input clock and output source</li> </ul>                                                                                                                                                                                                                                                                                                                                                               |
| Memory options               | <ul style="list-style-type: none"> <li>Four 2-GB DDR2 mini-DIMMs</li> <li>Four 4 GB DDR2 mini-DIMMs</li> <li>Upgradable memory from 8-GB to 16-GB DRAM</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Storage options              | <ul style="list-style-type: none"> <li>80-GB HDD (hot-swappable)</li> <li>1-GB USB Compact Flash memory</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Performance                  | <p>With 8-GB memory:</p> <ul style="list-style-type: none"> <li>Up to 1,000,000 IPv4 routes or 1,000,000 IPv6 routes</li> <li>BGP RR Scalability up to 8,000,000 IPv4 routes or 6,000,000 IPv6 routes</li> </ul> <p>With 16-GB memory:</p> <ul style="list-style-type: none"> <li>Up to 4,000,000 IPv4 routes or 4,000,000 IPv6 routes</li> <li>BGP RR Scalability up to 24,000,000 IPv4 routes or 17,000,000 IPv6 routes</li> </ul>                                                                                                                                                                          |
| Reliability and availability | <ul style="list-style-type: none"> <li>1 + 1 redundancy in dual-route-processor configuration</li> <li>Support for OIR</li> <li>Support for NSF and SSO</li> <li>Support for ISSU</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                  |
| MIBs                         | <ul style="list-style-type: none"> <li>RFC 2737 compliant</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Network management           | <ul style="list-style-type: none"> <li>Telnet and SSH (CLI)</li> <li>Console port (through the CLI)</li> <li>SNMP</li> <li>RFC 2665</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| LEDs                         | <ul style="list-style-type: none"> <li>PWR - Power <ul style="list-style-type: none"> <li>Green - All power rails are within specifications</li> </ul> </li> <li>STAT - Status <ul style="list-style-type: none"> <li>Green - Cisco IOS Software has booted</li> <li>Yellow - BootROM has successfully loaded</li> <li>Red - System failure or during boot process</li> </ul> </li> <li>ACTV- Active <ul style="list-style-type: none"> <li>Green - Active route processor</li> </ul> </li> <li>STBY - Standby <ul style="list-style-type: none"> <li>Yellow - Standby route processor</li> </ul> </li> </ul> |

| Item                               | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                    | <ul style="list-style-type: none"> <li>• CRIT - Critical Alarm<br/>Red - Critical alarm or during boot process</li> <li>• MAJ - Major Alarm<br/>Red - Major alarm</li> <li>• MIN - Minor Alarm<br/>Amber - Minor alarm</li> <li>• HD - Internal HDD<br/>FLASH Green - Activity Indicator<br/>Off - No activity</li> <li>• USB - External Compact Flash<br/>FLASH green - Activity Indicator</li> <li>• BF - Boot Flash (Internal)<br/>FLASH green - Activity Indicator<br/>Off - No activity</li> <li>• CARRIER<br/>BITS I/F Mode<br/>Off - Out of service or not configured<br/>Green - Normal or Bridging<br/>Amber - Fast</li> <li>• DTI Mode<br/>Off - Warm-up, free-run, or holdover<br/>Green - In service or working properly<br/>Amber - Fault or loop condition</li> <li>• LINK - Management Ethernet link status<br/>Solid green - Link with no activity<br/>FLASH green - Link with activity<br/>Off - No link</li> <li>• DISK2 - Internal HDD<br/>FLASH green - Activity Indicator<br/>Off - No activity</li> <li>• CARRIER - BITS interface<br/>Off - Out of service<br/>Green - In frame and in service<br/>Amber - Fault or loop condition</li> </ul>                                                          |
| Physical dimensions<br>(H x W x D) | 0.92 x 16.7 x 14.19 in. (0.02 x 0.428 x 0.36m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Weight                             | 5.0 lb (2.3 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Approvals and<br>compliance        | <p><b>Safety</b></p> <ul style="list-style-type: none"> <li>• UL60950-1 and CAN/CSA-C22.2 No. 60950-1-03 Information technology equipment</li> <li>• AS/NZS 60950-1</li> <li>• IEC/EN 60950-1 Information technology equipment</li> <li>• 73/23/EEC</li> </ul> <p><b>Electromagnetic Emissions Certification</b></p> <ul style="list-style-type: none"> <li>• CFR 47 Part 15: (FCC) Class A</li> <li>• ICES 003 Class A</li> <li>• AS/NZ CISPR 22: Class A</li> <li>• CISPR 22 (EN55022) Class A</li> <li>• VCCI Class A</li> <li>• KN22</li> <li>• IEC/EN 61000-3-2 (or 3-12 as applicable): AC Power Line Harmonics</li> <li>• IEC/EN 61000-3-3 (or 3-11 as applicable): AC Voltage Fluctuations and Flicker</li> </ul> <p><b>Immunity</b></p> <ul style="list-style-type: none"> <li>• IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8-kV Contact, 15-kV Air)</li> <li>• IEC/EN-61000-4-3: Radiated Immunity (10 V/m)</li> <li>• IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2-kV Power, 1-kV Signal)</li> <li>• IEC/EN-61000-4-5: Surge AC Port (4-kV CM, 2-kV DM)</li> <li>• IEC/EN-61000-4-5: Surge Signal Ports (1-kV indoor, 2-kV outdoor)</li> <li>• IEC/EN-61000-4-5: Surge DC Port 1-kV</li> </ul> |



| Item          | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental | <ul style="list-style-type: none"> <li>• IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10Vrms)</li> <li>• IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m)</li> <li>• IEC/EN-61000-4-11: Voltage Dips, Short Interruptions, and Voltage Variations</li> </ul>                                                                                                                                                                                                                                                     |
|               | <p><b>Network Equipment Building Standards</b></p> <p>The module meets the following NEBS:</p> <ul style="list-style-type: none"> <li>• GR-1089-CORE</li> <li>• GR-63-CORE</li> </ul> <p><b>ETSI and EN Standards</b></p> <ul style="list-style-type: none"> <li>• EN300 386: Telecommunications Network Equipment (EMC), OTC</li> <li>• EN55022: Information Technology Equipment (Emissions)</li> <li>• EN55024: Information Technology Equipment (Immunity)</li> <li>• EN50082-1/EN-61000-6-1: 1995-Generic Immunity Standard</li> </ul> |
|               | <ul style="list-style-type: none"> <li>• Storage temperature: -38 to 150°F (-40 to 70°C)</li> <li>• Operating temperature, nominal: 41 to 104°F (5 to 40°C)</li> <li>• Operating temperature, short-term: 23 to 131°F (-5 to 55°C)</li> <li>• Storage relative humidity: 5 to 95% RH</li> <li>• Operating humidity, nominal: 5 to 85% RH</li> <li>• Operating humidity, short-term: 5 to 90% RH</li> <li>• Operating altitude: -60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)</li> </ul>                           |

**Table 6. Cisco ASR 1000 Series RP3 Product Specifications**

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis support              | Cisco ASR 1006-X, 1009-X, and 1013 chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Software compatibility       | Minimum Cisco IOS XE 16.3.1 Software<br>(Please consult your Cisco account representative for additional details.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Software protocols           | Refer to Cisco IOS XE 16.3.1 and later versions for protocol support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Connectivity                 | <ul style="list-style-type: none"> <li>• Console port (RJ-45 connector)</li> <li>• Auxiliary port (RJ-45 connector)</li> <li>• 10/100/1000 Ethernet port (RJ-45 connector)</li> <li>• RJ-48 connector for BITS input clock and output source</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Memory options               | <ul style="list-style-type: none"> <li>• 8-GB memory default; upgradable to 16-GB, 32-GB, or 64-GB memory</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Storage options              | <ul style="list-style-type: none"> <li>• 100-GB SSD (hot-swappable); upgradable to 200-GB or 400-GB SSD</li> <li>• 1-GB USB compact flash memory</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Performance                  | <p><b>With 8-GB memory:</b></p> <ul style="list-style-type: none"> <li>• Up to 1,000,000 IPv4 routes or 1,000,000 IPv6 routes</li> <li>• BGP RR scalability up to 8,000,000 IPv4 routes or 6,000,000 IPv6 routes</li> </ul> <p><b>With 16-GB memory:</b></p> <ul style="list-style-type: none"> <li>• Up to 4,000,000 IPv4 routes or 4,000,000 IPv6 routes</li> <li>• BGP RR scalability up to 24,000,000 IPv4 routes or 17,000,000 IPv6 routes</li> </ul> <p><b>With 32-GB memory:</b></p> <ul style="list-style-type: none"> <li>• Up to 8,500,000 IPv4 routes or 7,500,000 IPv6 routes</li> <li>• BGP RR scalability up to 24,000,000 IPv4 routes or 17,000,000 IPv6 routes</li> </ul> |
| Reliability and availability | <ul style="list-style-type: none"> <li>• 1 + 1 redundancy in dual-route-processor configuration</li> <li>• Support for OIR</li> <li>• Support for NSF and SSO</li> <li>• Support for ISSU</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| MIBs                         | <ul style="list-style-type: none"> <li>• RFC 2737 compliant</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Network management           | <ul style="list-style-type: none"> <li>• Telnet and SSH (CLI)</li> <li>• Console port (through the CLI)</li> <li>• SNMP</li> <li>• RFC 2665</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| LEDs                         | <ul style="list-style-type: none"> <li>• PWR - Power</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

|                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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|                                    | <ul style="list-style-type: none"> <li>Green - All power rails are within specifications</li> <li>• STAT - Status <ul style="list-style-type: none"> <li>Green - Cisco IOS Software has booted</li> <li>Yellow - BootROM has successfully loaded</li> <li>Red - System failure or during boot process</li> </ul> </li> <li>• ACTV- Active <ul style="list-style-type: none"> <li>Green - Active route processor</li> </ul> </li> <li>• STBY - Standby <ul style="list-style-type: none"> <li>Yellow - Standby route processor</li> </ul> </li> <li>• CRIT - Critical alarm <ul style="list-style-type: none"> <li>Red - Critical alarm or during boot process</li> </ul> </li> <li>• MAJ - Major alarm <ul style="list-style-type: none"> <li>Red - Major alarm</li> </ul> </li> <li>• MIN - Minor alarm <ul style="list-style-type: none"> <li>Amber - Minor alarm</li> </ul> </li> <li>• HD - Internal HDD <ul style="list-style-type: none"> <li>FLASH Green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> <li>• USB - External compact flash <ul style="list-style-type: none"> <li>FLASH green - Activity Indicator</li> </ul> </li> <li>• BF - Boot flash (Internal) <ul style="list-style-type: none"> <li>FLASH green - Activity Indicator</li> <li>Off - No activity</li> </ul> </li> <li>• CARRIER <ul style="list-style-type: none"> <li>BITS I/F Mode</li> <li>Off - Out of service or not configured</li> <li>Green - Normal or bridging</li> <li>Amber - Fast</li> </ul> </li> <li>• DTI Mode <ul style="list-style-type: none"> <li>Off - Warm-up, free-run, or holdover</li> <li>Green - In service or working properly</li> <li>Amber - Fault or loop condition</li> </ul> </li> <li>• LINK - Management Ethernet link status <ul style="list-style-type: none"> <li>Solid green - Link with no activity</li> <li>FLASH green - Link with activity</li> <li>Off - No link</li> </ul> </li> <li>• DISK2 - Internal HDD <ul style="list-style-type: none"> <li>FLASH green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> <li>• CARRIER - BITS interface <ul style="list-style-type: none"> <li>Off - Out of service</li> <li>Green - In frame and in service</li> <li>Amber - Fault or loop condition</li> </ul> </li> </ul> |
| Physical dimensions<br>(H x W x D) | 0.92 x 16.7 x 14.19 in. (0.02 x 0.428 x 0.36m)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Weight                             | 7 lb (3.2 kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Approvals and compliance           | <b>Safety</b> <ul style="list-style-type: none"> <li>• UL60950-1 and CAN/CSA-C22.2 No. 60950-1-03 Information technology equipment</li> <li>• AS/NZS 60950-1</li> <li>• IEC/EN 60950-1 Information technology equipment</li> <li>• 73/23/EEC</li> </ul> <b>Electromagnetic Emissions Certification</b> <ul style="list-style-type: none"> <li>• CFR 47 Part 15: (FCC) Class A</li> <li>• ICES 003 Class A</li> <li>• AS/NZ CISPR 22: Class A</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |



|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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| Environmental | <ul style="list-style-type: none"> <li>• CISPR 22 (EN55022) Class A</li> <li>• VCCI Class A</li> <li>• KN22</li> <li>• IEC/EN 61000-3-2 (or 3-12 as applicable): AC Power Line Harmonics</li> <li>• IEC/EN 61000-3-3 (or 3-11 as applicable): AC Voltage Fluctuations and Flicker</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|               | <b>Immunity</b> <ul style="list-style-type: none"> <li>• IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8-kV Contact, 15-kV Air)</li> <li>• IEC/EN-61000-4-3: Radiated Immunity (10 V/m)</li> <li>• IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2-kV Power, 1-kV Signal)</li> <li>• IEC/EN-61000-4-5: Surge AC Port (4-kV CM, 2-kV DM)</li> <li>• IEC/EN-61000-4-5: Surge Signal Ports (1-kV indoor, 2-kV outdoor)</li> <li>• IEC/EN-61000-4-5: Surge DC Port 1-kV</li> <li>• IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10Vrms)</li> <li>• IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m)</li> <li>• IEC/EN-61000-4-11: Voltage Dips, Short Interruptions, and Voltage Variations</li> </ul> |
|               | <b>Network Equipment Building Standards</b><br>The module meets the following NEBS: <ul style="list-style-type: none"> <li>• GR-1089-CORE</li> <li>• GR-63-CORE</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|               | <b>ETSI and EN Standards</b> <ul style="list-style-type: none"> <li>• EN300 386: Telecommunications Network Equipment (EMC), OTC</li> <li>• EN55022: Information Technology Equipment (Emissions)</li> <li>• EN55024: Information Technology Equipment (Immunity)</li> <li>• EN50082-1/EN-61000-6-1: 1995-Generic Immunity Standard</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                              |
|               | <ul style="list-style-type: none"> <li>• Storage temperature: -38 to 150°F (-40 to 70°C)</li> <li>• Operating temperature, nominal: 41 to 104°F (5 to 40°C)</li> <li>• Operating temperature, short-term: 23 to 131°F (-5 to 55°C)</li> <li>• Storage relative humidity: 5 to 95% RH</li> <li>• Operating humidity, nominal: 5 to 85% RH</li> <li>• Operating humidity, short-term: 5 to 90% RH</li> <li>• Operating altitude: -60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)</li> </ul>                                                                                                                                                                                                                           |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Table 7. Cisco ASR 1001 Integrated Route Processor Product Specifications

| Item                         | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis support              | Cisco ASR 1001 chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Software compatibility       | Cisco IOS XE Software Release 3.2.0S and later versions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Software protocols           | Refer to Cisco IOS XE 3.2.0S and later versions for protocol support                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Connectivity                 | Not applicable - route processor is integrated inside the chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Memory options               | <ul style="list-style-type: none"> <li>• Cisco ASR 1001 ships with 4-GB memory by default. It can be upgraded to 8- or 16-GB memory</li> <li>• Cisco ASR 1001 has 4 DRAM memory slots, which can take either 2- or 4-GB DRAM each</li> <li>• When shipped with 4-GB DRAM (M-ASR1K-1001-4 GB), 2 slots are filled with 2 GB each</li> <li>• When shipped with 8-GB DRAM (M-ASR1K-1001-8 GB), 4 slots are filled with 2 GB each</li> <li>• When shipped with 16-GB DRAM (M-ASR1K-1001-16 GB), 4 slots are filled with 4 GB each</li> </ul> |
| Storage options              | <ul style="list-style-type: none"> <li>• 8-GB eUSB is partitioned as two 32-MB of memory for nonvolatile RAM (NVRAM) and the rest for mass storage</li> <li>• The Cisco ASR 1001-HDD model includes 160-GB HDD for storage</li> </ul>                                                                                                                                                                                                                                                                                                    |
| Performance                  | <b>With 4-GB memory:</b> <ul style="list-style-type: none"> <li>• Up to 500,000 IPv4 or 500,000 IPv6 routes</li> </ul> <b>With 8-GB or 16-GB memory:</b> <ul style="list-style-type: none"> <li>• Up to 1,000,000 IPv4 or 1,000,000 IPv6 routes</li> <li>• BGP RR Scalability up to 5,250,000 IPv4 or 4,250,000 IPv6 routes - 8 GB Memory</li> <li>• BGP RR Scalability up to 11,500,000 IPv4 or 10,000,000 IPv6 routes - 16 GB Memory</li> </ul>                                                                                        |
| Reliability and availability | <ul style="list-style-type: none"> <li>• No route-processor hardware redundancy</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                               |

| Item                     | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| MIBs                     | <ul style="list-style-type: none"> <li>• Software redundancy available (requires software redundancy license and 8-GB memory)</li> <li>• RFC 2737 compliant</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Network management       | <ul style="list-style-type: none"> <li>• Telnet and SSH Protocol (CLI)</li> <li>• Console port (through the CLI)</li> <li>• SNMP</li> <li>• RFC 2665</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| LEDs                     | <ul style="list-style-type: none"> <li>• PWR - Power <ul style="list-style-type: none"> <li>Green - All power rails are within specifications</li> </ul> </li> <li>• STAT - Status <ul style="list-style-type: none"> <li>Green - Cisco IOS Software has booted</li> <li>Yellow - BootROM has successfully loaded</li> <li>Red - System failure or during boot process</li> </ul> </li> <li>• ACTV- Active <ul style="list-style-type: none"> <li>Green - Active route processor</li> </ul> </li> <li>• STBY - Standby <ul style="list-style-type: none"> <li>Yellow - Standby route processor</li> </ul> </li> <li>• CRIT - Critical Alarm <ul style="list-style-type: none"> <li>Red - Critical alarm or during boot process</li> </ul> </li> <li>• MAJ - Major Alarm <ul style="list-style-type: none"> <li>Red - Major alarm</li> </ul> </li> <li>• MIN - Minor Alarm <ul style="list-style-type: none"> <li>Amber - Minor alarm</li> </ul> </li> <li>• HD - Internal HDD <ul style="list-style-type: none"> <li>FLASH Green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> <li>• USB - External Compact Flash <ul style="list-style-type: none"> <li>FLASH green - Activity indicator</li> </ul> </li> <li>• BF - Boot Flash (Internal) <ul style="list-style-type: none"> <li>FLASH green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> <li>• CARRIER <ul style="list-style-type: none"> <li>BITS I/F Mode</li> <li>Off - Out of service or not configured</li> <li>Green - Normal or Bridging</li> <li>Amber - Fast</li> </ul> </li> <li>• DTI Mode <ul style="list-style-type: none"> <li>Off - Warm-up, free-run, or holdover</li> <li>Green - In service or working properly</li> <li>Amber - Fault or loop condition</li> </ul> </li> <li>• LINK - Management Ethernet link status <ul style="list-style-type: none"> <li>Solid green - Link with no activity</li> <li>FLASH green - Link with activity</li> <li>Off - No link</li> </ul> </li> <li>• DISK2 - Internal HDD <ul style="list-style-type: none"> <li>FLASH green - Activity indicator</li> <li>Off - No activity</li> </ul> </li> <li>• CARRIER - BITS interface <ul style="list-style-type: none"> <li>Off - Out of service</li> <li>Green - In frame and in service</li> <li>Amber - Fault or loop condition</li> </ul> </li> </ul> |
| Approvals and compliance | <p><b>Safety</b></p> <ul style="list-style-type: none"> <li>• UL60950-1 and CAN/CSA-C22.2 No. 60950-1-03 Information technology equipment</li> <li>• AS/NZS 60950-1</li> <li>• IEC/EN 60950-1 Information technology equipment</li> <li>• 73/23/EEC</li> </ul> <p><b>Electromagnetic Emissions Certification</b></p> <ul style="list-style-type: none"> <li>• CFR 47 Part 15: (FCC) Class A</li> <li>• ICES 003 Class A</li> <li>• AS/NZ CISPR 22: Class A</li> <li>• CISPR 22 (EN55022) Class A</li> <li>• VCCI Class A</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |



| Item          | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Environmental | <ul style="list-style-type: none"> <li>• KN22</li> <li>• IEC/EN 61000-3-2 (or 3-12 as applicable): AC Power Line Harmonics</li> <li>• IEC/EN 61000-3-3 (or 3-11 as applicable): AC Voltage Fluctuations and Flicker</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|               | Immunity                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|               | <ul style="list-style-type: none"> <li>• IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8-kV Contact, 15-kV Air)</li> <li>• IEC/EN-61000-4-3: Radiated Immunity (10 V/m)</li> <li>• IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2-kV Power, 1-kV Signal)</li> <li>• IEC/EN-61000-4-5: Surge AC Port (4-kV CM, 2-kV DM)</li> <li>• IEC/EN-61000-4-5: Surge Signal Ports (1-kV indoor, 2-kV outdoor)</li> <li>• IEC/EN-61000-4-5: Surge DC Port 1-kV</li> <li>• IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10Vrms)</li> <li>• IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m)</li> <li>• IEC/EN-61000-4-11: Voltage Dips, Short Interruptions, and Voltage Variations</li> </ul> |
|               | ETSI and EN Standards                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|               | <ul style="list-style-type: none"> <li>• EN300 386: Telecommunications Network Equipment (EMC), OTC</li> <li>• EN55022: Information Technology Equipment (Emissions)</li> <li>• EN55024: Information Technology Equipment (Immunity)</li> <li>• EN50082-1/EN-61000-6-1: 1995-Generic Immunity Standard</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                           |
|               | <ul style="list-style-type: none"> <li>• Storage temperature: -38 to 150°F (-40 to 70°C)</li> <li>• Operating temperature, nominal: 41 to 104°F (5 to 40°C)</li> <li>• Operating temperature, short-term: 23 to 131°F (-5 to 55°C)</li> <li>• Storage relative humidity: 5 to 95% RH</li> <li>• Operating humidity, nominal: 5 to 85% RH</li> <li>• Operating humidity, short-term: 5 to 90% RH</li> <li>• Operating altitude: -60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)</li> </ul>                                                                                                                                                                                                           |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Table 8. Cisco ASR 1001-X Integrated Route Processor Product Specifications

|                              |                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chassis support              | Cisco ASR 1001-X chassis                                                                                                                                                                                                                                                                                                                                                                                                          |
| Software compatibility       | Cisco IOS XE Software Release 3.12.0S and later versions                                                                                                                                                                                                                                                                                                                                                                          |
| Software protocols           | Refer to Cisco IOS XE 3.12.0S and later versions for protocol support                                                                                                                                                                                                                                                                                                                                                             |
| Connectivity                 | Not applicable - route processor is integrated inside the chassis                                                                                                                                                                                                                                                                                                                                                                 |
| Memory options               | <ul style="list-style-type: none"> <li>• Cisco ASR 1001-X ships with 8-GB memory by default. It can be upgraded 16-GB memory</li> <li>• Cisco ASR 1001-X has 2 DRAM memory slots, which can take either 4- or 8-GB DRAM each</li> <li>• When shipped with 8-GB DRAM (M-ASR1001X-8 GB), 2 slots are filled with 4 GB each</li> <li>• When shipped with 16-GB DRAM (M-ASR1001X-16 GB), 2 slots are filled with 8 GB each</li> </ul> |
| Storage options              | <ul style="list-style-type: none"> <li>• 8-GB eUSB is partitioned as two 32-MB of memory for nonvolatile RAM (NVRAM) and the rest for mass storage</li> <li>• The Cisco ASR 1001-XI includes an optional SSD-SATA-200G, SSD-SATA-400G for storage</li> </ul>                                                                                                                                                                      |
| Performance                  | <p>With 8-GB or 16-GB memory:</p> <ul style="list-style-type: none"> <li>• Up to 1,000,000 IPv4 or 1,000,000 IPv6 routes - 8 GB Memory</li> <li>• Up to 3,500,000 IPv4 or 3,000,000 IPv6 routes - 16 GB Memory</li> <li>• BGP RR Scalability up to 5,250,000 IPv4 or 4,250,000 IPv6 routes - 8 GB Memory</li> <li>• BGP RR Scalability up to 11,500,000 IPv4 or 10,000,000 IPv6 routes - 16 GB Memory</li> </ul>                  |
| Reliability and availability | <ul style="list-style-type: none"> <li>• No route-processor hardware redundancy</li> <li>• Software redundancy available (requires software redundancy license and 8-GB memory)</li> </ul>                                                                                                                                                                                                                                        |
| MIBs                         | <ul style="list-style-type: none"> <li>• RFC 2737 compliant</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| Network management           | <ul style="list-style-type: none"> <li>• Telnet and SSH Protocol (CLI)</li> <li>• Console port (through the CLI)</li> <li>• SNMP</li> <li>• RFC 2665</li> </ul>                                                                                                                                                                                                                                                                   |
| LEDs                         | <ul style="list-style-type: none"> <li>• PWR - Power</li> </ul>                                                                                                                                                                                                                                                                                                                                                                   |

Green - All power rails are within specifications

- **STAT – Status**

Green - Cisco IOS Software has booted  
Yellow - BootROM has successfully loaded  
Red - System failure or during boot process

- **ACTV- Active**

Green - Active route processor

- **STBY - Standby**

Yellow - Standby route processor

- **CRIT - Critical Alarm**

Red - Critical alarm or during boot process

- **MAJ - Major Alarm**

Red - Major alarm

- **MIN - Minor Alarm**

Amber - Minor alarm

- **HD - Internal HDD**

FLASH Green - Activity indicator  
Off - No activity

- **USB - External Compact Flash**

FLASH green - Activity indicator

- **BF - Boot Flash (Internal)**

FLASH green - Activity indicator  
Off - No activity

- **CARRIER**

BITS I/F Mode  
Off- Out of service or not configured  
Green - Normal or Bridging  
Amber - Fast

- **DTI Mode**

Off- Warm-up, free-run, or holdover  
Green - In service or working properly  
Amber - Fault or loop condition

- **LINK - Management Ethernet link status**

Solid green - Link with no activity  
FLASH green - Link with activity  
Off - No link

- **DISK2 - Internal HDD**

FLASH green - Activity indicator  
Off - No activity

- **CARRIER - BITS interface**

Off - Out of service  
Green - In frame and in service  
Amber - Fault or loop condition

## Approvals and compliance

### Safety

- UL60950-1 and CAN/CSA-C22.2 No. 60950-1-03 Information technology equipment
- AS/NZS 60950-1
- IEC/EN 60950-1 Information technology equipment
- 73/23/EEC

### Electromagnetic Emissions Certification

- CFR 47 Part 15: (FCC) Class A
- ICES 003 Class A
- AS/NZ CISPR 22: Class A
- CISPR 22 (EN55022) Class A
- VCCI Class A
- KN22
- IEC/EN 61000-3-2 (or 3-12 as applicable): AC Power Line Harmonics
- IEC/EN 61000-3-3 (or 3-11 as applicable): AC Voltage Fluctuations and Flicker

### Immunity

- IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8-kV Contact, 15-kV Air)
- IEC/EN-61000-4-3: Radiated Immunity (10 V/m)
- IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2-kV Power, 1-kV Signal)
- IEC/EN-61000-4-5: Surge AC Port (4-kV CM, 2-kV DM)



- IEC/EN-61000-4-5: Surge Signal Ports (1-kV indoor, 2-kV outdoor)
- IEC/EN-61000-4-5: Surge DC Port 1-kV
- IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10Vrms)
- IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m)
- IEC/EN-61000-4-11: Voltage Dips, Short Interruptions, and Voltage Variations

**ETSI and EN Standards**

- EN300 388: Telecommunications Network Equipment (EMC), OTC
- EN55022: Information Technology Equipment (Emissions)
- EN55024: Information Technology Equipment (Immunity)
- EN50082-1/EN-61000-6-1: 1995-Generic Immunity Standard

**Environmental**

- Storage temperature: -38 to 150°F (-40 to 70°C)
- Operating temperature, nominal: 32 to 104°F (0 to 40°C)
- Operating temperature, short-term: 32 to 131°F (0 to 55°C)
- Storage relative humidity: 5 to 95% RH
- Operating humidity, nominal: 10 to 90% RH
- Operating humidity, short-term: 5 to 95% RH
- Operating altitude: -60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)

**Table 9. Cisco ASR 1002-X Integrated Route Processor Product Specifications**

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Chassis support</b>              | Cisco ASR 1002-X chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>Software compatibility</b>       | Cisco IOS XE Software Release 3.7.0S and later versions                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Software protocols</b>           | Refer to Cisco IOS XE 3.7.0S and later versions for protocol support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>Connectivity</b>                 | Not applicable - route processor is integrated inside the chassis                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Memory options</b>               | <ul style="list-style-type: none"> <li>• Cisco ASR 1002-X ships with 4-GB memory by default. It can be upgraded to 8- or 16-GB memory</li> <li>• Cisco ASR 1002-X has 4 DRAM memory slots, which can take either 2- or 4-GB DRAM each</li> <li>• When shipped with 4-GB DRAM (M-ASR1002X-4 GB), 2 slots are filled with 2 GB each</li> <li>• When shipped with 8-GB DRAM (M-ASR1002X-8 GB), 4 slots are filled with 2 GB each</li> <li>• When shipped with 16-GB DRAM (M-ASR1002X-16 GB), 4 slots are filled with 4 GB each</li> </ul>                |
| <b>Storage options</b>              | <ul style="list-style-type: none"> <li>• 8-GB eUSB memory is partitioned as two 32-MB of memory for NVRAM and the rest for mass storage</li> <li>• The Cisco ASR 1002-X has an optional 160-GB HDD for storage</li> </ul>                                                                                                                                                                                                                                                                                                                             |
| <b>Performance</b>                  | <p><b>With 4-GB memory:</b></p> <ul style="list-style-type: none"> <li>• Up to 500,000 IPv4 or 500,000 IPv6 routes</li> </ul> <p><b>With 8-GB or 16-GB memory:</b></p> <ul style="list-style-type: none"> <li>• Up to 1,000,000 IPv4 or 1,000,000 IPv6 routes - 8 GB Memory</li> <li>• Up to 3,500,000 IPv4 or 3,000,000 IPv6 routes - 16 GB Memory</li> <li>• BGP RR Scalability up to 5,250,000 IPv4 or 4,250,000 IPv6 routes - 8 GB Memory</li> <li>• BGP RR Scalability up to 11,500,000 IPv4 or 10,000,000 IPv6 routes - 16 GB Memory</li> </ul> |
| <b>Reliability and availability</b> | <ul style="list-style-type: none"> <li>• No route-processor hardware redundancy</li> <li>• Software redundancy available (requires software redundancy license and 8-GB memory)</li> </ul>                                                                                                                                                                                                                                                                                                                                                            |
| <b>MIBs</b>                         | <ul style="list-style-type: none"> <li>• RFC 2737 compliant</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Network management</b>           | <ul style="list-style-type: none"> <li>• Telnet and SSH Protocol (CLI)</li> <li>• Console port (through the CLI)</li> <li>• SNMP</li> <li>• RFC 2685</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>LEDs</b>                         | <ul style="list-style-type: none"> <li>• PWR - Power <ul style="list-style-type: none"> <li>Green - All power rails are within specifications</li> </ul> </li> <li>• STAT - Status <ul style="list-style-type: none"> <li>Green - Cisco IOS Software has booted</li> <li>Yellow - BootROM has successfully loaded</li> <li>Red - System failure or during boot process</li> </ul> </li> <li>• CRIT - Critical Alarm <ul style="list-style-type: none"> <li>Red - Critical alarm or during boot process</li> </ul> </li> </ul>                         |

- MAJ - Major Alarm  
Red - Major alarm
- MIN - Minor Alarm  
Amber - Minor alarm
- LINK - Management Ethernet link status  
Solid green - Link with no activity  
FLASH green - Link with activity  
Off - No link
- BOOT  
FLASH Green - Activity Indicator  
Off - No activity
- BITS  
Off- Out of service or not configured  
Green - In frame and In service  
Amber - Fault condition
- HDD  
FLASH green - Activity Indicator
- GPS  
Off- Port not connected  
Green - In service or working properly  
Amber - Fault condition

#### Approvals and compliance

##### Safety

- UL60950-1 and CAN/CSA-C22.2 No. 60950-1-03 Information technology equipment
- AS/NZS 60950-1
- IEC/EN 60950-1 Information technology equipment
- 73/23/EEC

##### Electromagnetic Emissions Certification

- CFR 47 Part 15: (FCC) Class A
- ICES 003 Class A
- AS/NZ CISPR 22: Class A
- CISPR 22 (EN55022) Class A
- VCCI Class A
- KN22
- IEC/EN 61000-3-2 (or 3-12 as applicable): AC Power Line Harmonics
- IEC/EN 61000-3-3 (or 3-11 as applicable): AC Voltage Fluctuations and Flicker

##### Immunity

- IEC/EN-61000-4-2: Electrostatic Discharge Immunity (8-kV Contact, 15-kV Air)
- IEC/EN-61000-4-3: Radiated Immunity (10 V/m)
- IEC/EN-61000-4-4: Electrical Fast Transient Immunity (2-kV Power, 1-kV Signal)
- IEC/EN-61000-4-5: Surge AC Port (4-kV CM, 2-kV DM)
- IEC/EN-61000-4-5: Surge Signal Ports (1-kV Indoor, 2-kV outdoor)
- IEC/EN-61000-4-5: Surge DC Port 1-kV
- IEC/EN-61000-4-6: Immunity to Conducted Disturbances (10Vrms)
- IEC/EN-61000-4-8: Power Frequency Magnetic Field Immunity (30 A/m)
- IEC/EN-61000-4-11: Voltage Dips, Short Interruptions, and Voltage Variations

##### Network Equipment Building Standards

The module meets the following NEBS:

- GR-1089-CORE
- GR-63-CORE

##### ETSI and EN Standards

- EN300 386: Telecommunications Network Equipment (EMC), OTC
- EN55022: Information Technology Equipment (Emissions)
- EN55024: Information Technology Equipment (Immunity)
- EN50082-1/EN-61000-6-1: 1995-Generic Immunity Standard

#### Environmental

- Storage temperature: -38 to 150°F (-40 to 70°C)
- Operating temperature, nominal: 41 to 104°F (5 to 40°C)
- Operating temperature, short-term: 23 to 131°F (-5 to 55°C)
- Storage relative humidity: 5 to 95% relative humidity (RH)
- Operating humidity, nominal: 5 to 85% RH
- Operating humidity, short-term: 5 to 90% RH



- Operating altitude: -60 to 4000m (up to 2000m conforms to IEC/EN/UL/CSA 60950 requirements)

Route-reflector numbers were tested with the BGP selective download feature for IPv4 and IPv6 for dedicated RR application. This feature prevents IPv4 and IPv6 BGP routes from being installed in the Routing Information Base (RIB) and Forwarding Information Base (FIB). It reduces memory usage per IPv4 and IPv6 prefix and CPU usage.

## System Requirements

Table 10 specifies the system requirements of the Cisco ASR 1000 Series RP1, RP2, and RP3. For ordering information, refer to Table 11.

**Table 10.** Cisco ASR 1000 Series RP1, RP2, and RP3 System Requirements

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Hardware                 | <p>Cisco ASR 1000 Series RP1</p> <ul style="list-style-type: none"><li>• Cisco ASR 1004 and 1006</li></ul> <p>Cisco ASR 1000 Series RP2</p> <ul style="list-style-type: none"><li>• Cisco ASR 1004, 1006, 1006-X, 1009-X, and 1013</li></ul> <p>Cisco ASR 1000 Series RP3</p> <ul style="list-style-type: none"><li>• Cisco ASR 1006-X, 1009-X, and 1013</li></ul>                                                                                                                                                                                                |
| Memory                   | <p>Cisco ASR 1000 Series RP1</p> <ul style="list-style-type: none"><li>• 4 GB (default for RP1)</li></ul> <p>Cisco ASR 1000 Series RP2</p> <ul style="list-style-type: none"><li>• 8 GB (default for RP2)</li> <li>• 16 GB (maximum RP2)</li></ul> <p><b>Note:</b> Memory is field-upgradable from 8 to 16 GB.</p> <p>Cisco ASR 1000 Series RP3</p> <ul style="list-style-type: none"><li>• 8 GB (default for RP3)</li> <li>• 16 GB</li> <li>• 32 GB</li> <li>• 64 GB (maximum for RP3)</li></ul> <p><b>Note:</b> Memory is field-upgradable from 8 to 64 GB.</p> |
| Minimum software release | <p>Cisco ASR 1000 Series RP1</p> <ul style="list-style-type: none"><li>• Cisco IOS XE Software Release 2.1.0</li></ul> <p>Cisco ASR 1000 Series RP2</p> <ul style="list-style-type: none"><li>• Cisco IOS XE Software Release 2.3.0</li></ul> <p>Cisco ASR 1000 Series RP3</p> <ul style="list-style-type: none"><li>• Cisco IOS XE Software Release 16.3.1</li></ul>                                                                                                                                                                                             |

**Table 11.** Ordering Information

|                                                |                                               |
|------------------------------------------------|-----------------------------------------------|
| <b>Cisco ASR 1000 Series Route Processor 1</b> |                                               |
| ASR1000-RP1                                    | Cisco ASR1000 Series Route Processor 1        |
| ASR1000-RP1=                                   | Cisco ASR1000 Series Route Processor 1, Spare |
| <b>Cisco ASR 1000 Series Route Processor 2</b> |                                               |
| ASR1000-RP2                                    | Cisco ASR1000 Series Route Processor 2        |
| ASR1000-RP2=                                   | Cisco ASR1000 Series Route Processor 2, Spare |
| <b>Cisco ASR 1000 Series Route Processor 3</b> |                                               |
| ASR1000-RP3                                    | Cisco ASR1000 Series Route Processor 3        |
| ASR1000-RP3=                                   | Cisco ASR1000 Series Route Processor 3, Spare |
| ASR1000-RP3-32G-2P                             | Cisco ASR1000 Series RP3 w/ 32 GB, 2 Pack     |
| ASR1000-RP3-64G-2P                             | Cisco ASR1000 Series RP3 w/ 64 GB, 2 Pack     |



P1.

#### Cisco ASR 1000 RP1 Memory

M-ASR1K-RP1-4GB

Cisco ASR1000 Series RP1 4 GB DRAM

M-ASR1K-RP1-4GB=

Cisco ASR1000 Series RP1 4 GB DRAM, Spare

M-ASR1K-HDD-40GB

Cisco ASR1000 Series RP1 40 GB HDD

M-ASR1K-HDD-40GB=

Cisco ASR1000 RP1 40 GB HDD, Spare

#### Cisco ASR 1000 RP2 Memory

M-ASR1K-RP2-8GB

Cisco ASR1000 Series RP2 8 GB DRAM

M-ASR1K-RP2-8GB=

Cisco ASR1000 Series RP2 8 GB DRAM, Spare

M-ASR1K-RP2-16GB

Cisco ASR1000 Series RP2 16 GB DRAM

M-ASR1K-RP2-16GB=

Cisco ASR1000 Series RP2 16 GB DRAM, Spare

M-ASR1K-HDD-80GB

Cisco ASR1000 Series RP2 80 GB HDD

M-ASR1K-HDD-80GB=

Cisco ASR1000 Series RP2 80 GB HDD, spare

M-ASR1K-EUSB-2GB=

Cisco ASR1000 Series RP2 2 GB EUSB+ FLASH, Spare

#### Cisco ASR 1000 RP3 Memory

M-ASR1K-RP3-8GB

Cisco ASR1000 Series RP3 8 GB DRAM

M-ASR1K-RP3-8GB=

Cisco ASR1000 Series RP3 8 GB DRAM, Spare

M-ASR1K-RP3-16GB

Cisco ASR1000 Series RP3 8 GB DRAM

M-ASR1K-RP3-16GB=

Cisco ASR1000 Series RP3 8 GB DRAM, Spare

M-ASR1K-RP3-32GB

Cisco ASR1000 Series RP3 8 GB DRAM

M-ASR1K-RP3-32GB=

Cisco ASR1000 Series RP3 8 GB DRAM, Spare

M-ASR1K-RP3-64GB

Cisco ASR1000 Series RP3 8 GB DRAM

M-ASR1K-RP3-64GB=

Cisco ASR1000 Series RP3 8 GB DRAM, Spare

M-ASR1K-SSD-100GB

Cisco ASR1000 Series RP3 100 GB SSD

M-ASR1K-SSD-100GB=

Cisco ASR1000 Series RP3 100 GB SSD, Spare

M-ASR1K-SSD-200GB

Cisco ASR1000 Series RP3 200 GB SSD

M-ASR1K-SSD-200GB=

Cisco ASR1000 Series RP3 200 GB SSD, Spare

M-ASR1K-SSD-400GB

Cisco ASR1000 Series RP3 400 GB SSD

M-ASR1K-SSD-400GB=

Cisco ASR1000 Series RP3 400 GB SSD, Spare

#### Cisco ASR 1000 Series USB Flash Memory Options

MEMUSB-1024FT

1 GB USB Flash Token for Cisco ASR 1000 Series

MEMUSB-1024FT=

1 GB USB Flash Token for Cisco ASR 1000 Series, Spare

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<http://www.cisco.com/go/services>.





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### For More Information

For more information about the Cisco ASR 1000 Series RP1, RP2, and RP3, and the ASR 1000 Series, visit <http://www.cisco.com/go/asr1000> or contact your local Cisco account representative.



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Printed in USA

C78-441072-24 10/17

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# CERTIFICATE

The Certification Body of  
**TÜV SÜD AMERICA INC.**

hereby certifies that

**Cisco Systems, Inc.**  
170 West Tasman Drive  
San Jose, CA 95134-1706

(All facilities listed on Appendix)

has implemented a Quality Management System  
in accordance with:

**ISO 9001:2015**

The scope of this Quality Management System includes:

**Design, Development, Manufacturing  
Operations, Sales, Services and Support for  
Networking, Data Center, Communications,  
Video, Collaboration and Security Products,  
Solutions and Services**

Certificate Expiry Date: February 19, 2021

Certificate Registration No: 951 00 0875

Effective Date: January 29, 2018



*Mark Alpert*  
Mark Alpert  
Vice President, Business Assurance





# CERTIFICATE

| 1,3     | North America                       |  | 3       | North America                          |
|---------|-------------------------------------|--|---------|----------------------------------------|
| 3       | Canada: Calgary, Alberta            |  | 3       | US: Oakland Park, FL (Fort Lauderdale) |
| 3       | Canada: Edmonton, Alberta           |  | 3       | US: Oklahoma City, OK                  |
| 3       | Canada: Halifax, Nova Scotia        |  | 3       | US: Omaha, NE                          |
| 1       | Canada: London, Ontario             |  | 3       | US: Orlando, FL                        |
| 1,2,3,4 | Canada: Kanata, Ontario             |  | 3,4     | US: Overland Park, KS                  |
| 3       | Canada: Montreal, Quebec            |  | 1       | US: Pasadena, CA                       |
| 3       | Canada: Quebec                      |  | 3       | US: Pewaukee, WI                       |
| 3       | Canada: Ottawa                      |  | 3,4     | US: Phoenix, AZ                        |
| 1,3,4   | Canada: Toronto, Ontario            |  | 3       | US: Pittsburgh, PA                     |
| 1,3     | Canada: Vancouver, British Columbia |  | 3       | US: Pittsford, NY                      |
| 3       | Canada: Winnipeg, Manitoba          |  | 3,4     | US: Pleasanton, CA                     |
| 3,4     | Costa Rica: San Jose                |  | 3       | US: Rancho Cordova, CA                 |
| 3       | Dominican Republic: Santo Domingo   |  | 3       | US: Reno, NV                           |
| 2,3,4   | Mexico: Guadalajara                 |  | 1,2,3,4 | US: Research Triangle Park, NC         |
| 3,4     | Mexico: Mexico City                 |  | 1,2,3,4 | US: Richardson, TX                     |
| 2       | Mexico: Juarez                      |  | 1,2,3   | US: Richfield, OH                      |
| 3,4     | Mexico: San Pedro Garza Garcia      |  | 3       | US: Richmond, VA                       |
| 3       | Panama: Panama City                 |  | 3       | US: Ridgeland, MS (Jackson, MS)        |
| 3       | Puerto Rico: San Juan               |  | 3,4     | US: Rosemount, IL (Chicago, IL)        |
| 3       | US: Albany, NY                      |  | 3,4     | US: Saint Petersburg, FL               |
| 3       | US: Albuquerque, NM                 |  | 1,3     | US: Salt Lake City, UT                 |
| 3       | US: Anchorage, AK                   |  | 3       | US: San Antonio, TX                    |
| 1,2,3   | US: Allentown, PA                   |  | 3       | US: San Diego, CA                      |
| 1       | US: Alpharetta, GA                  |  | 1,3     | US: San Francisco, CA                  |
| 3       | US: Atlanta, GA                     |  | 1,2,3,4 | US: San Jose, CA                       |
| 1,2,3,4 | US: Austin, TX                      |  | 1,3     | US: Seattle, WA                        |
| 3       | US: Baton Rouge, LA                 |  | 3       | US: Southfield, MI                     |
| 3,4     | US: Bellevue, WA                    |  | 3       | US: Spokane, WA                        |
| 3       | US: Bentonville, AR                 |  | 3       | US: Tallahassee, FL                    |
| 3       | US: Birmingham, AL                  |  | 3,4     | US: Washington, DC                     |
| 3       | US: Bloomington, IL                 |  | 3       | US: West Des Moines, IA                |
| 3       | US: Bloomington, MN                 |  | 3       | US: Woodcliff Lake, NJ                 |
| 3       | US: Boise, ID                       |  |         | Asia                                   |
| 3       | US: Boston, MA                      |  | 1       | Armenia: Yerevan                       |
| 1,3,4   | US: Boulder, CO                     |  | 3       | Azerbaijan: Baku                       |
| 1,2,3,4 | US: Boxborough, MA                  |  | 3       | Bahrain: Al Manamah                    |
| 3       | US: Camp Hill, PA                   |  | 3       | Bangladesh: Dhaka                      |
| 1       | US: Carlsbad, CA                    |  | 1,2,3,4 | China: Beijing                         |
| 3       | US: Carmel, IN                      |  | 3       | China: Chengdu                         |
| 3       | US: Charlotte, NC                   |  | 3       | China: Chongqing                       |
| 3       | US: Chesterfield, MO                |  | 4       | China: Dalian                          |
| 3       | US: Clovis, CA (Fresno, CA)         |  | 3       | China: Fuzhou                          |
| 3       | US: Colorado Springs, CO            |  | 3,4     | China: Guangzhou                       |
| 1,3,4   | US: Columbia, MD                    |  | 3       | China: Hangzhou                        |
| 3       | US: Columbia, SC                    |  | 3       | China: Nanjing                         |
| 3       | US: Cordova, TN                     |  | 1,2,3,4 | China: Shanghai                        |
| 1,2,3,4 | US: Costa Mesa, CA                  |  | 2,3     | China: Shenzhen                        |
| 1,3,4   | US: Denver, CO                      |  | 1,2,3,4 | China: Hong Kong                       |
| 3       | US: Dublin, Ohio                    |  | 3       | China: Wuhan                           |
| 3,4     | US: Englewood, CO                   |  | 3       | China: Xi'an                           |
| 3       | US: Farmington, CT                  |  | 1,2,3,4 | India: Bangalore                       |
| 3       | US: Franklin, TN (Nashville, TN)    |  | 3       | India: Calcutta                        |
| 3       | US: Glendale, CA                    |  | 1,3     | India: Chennai                         |
| 3       | US: Grand Rapids, MI                |  | 3       | India: Hyderabad                       |
| 3       | US: Greensboro, NC                  |  | 3,4     | India: Mumbai                          |
| 1,3,4   | US: Herndon, VA                     |  | 3,4     | India: Gurgaon                         |
| 3       | US: Honolulu, HI                    |  | 1,3,4   | India: Pune                            |
| 1,2,3,4 | US: Houston, TX                     |  | 3,4     | Indonesia: Jakarta                     |
| 3       | US: Irvine, CA                      |  | 1       | Israel: Jerusalem                      |
| 3       | US: Irving, TX                      |  | 1,3,4   | Israel: South Netanya                  |
| 1,3,4   | US: Iselin, NJ                      |  | 3       | Japan: Fukuoka                         |
| 3       | US: Jacksonville, FL                |  | 3       | Japan: Nagoya                          |
| 3       | US: Knoxville, TN                   |  | 3,4     | Japan: Osaka                           |
| 1,3     | US: Lake Oswego, OR                 |  | 3       | Japan: Sapporo                         |
| 3       | US: Las Vegas, NV                   |  | 3       | Japan: Sendai                          |
| 1,2,3,4 | US: Lawrenceville, GA               |  | 2,3,4   | Japan: Tokyo                           |
| 3       | US: Louisville, KY                  |  | 3       | Jordan: Amman                          |
| 3       | US: Madison, WI                     |  | 3       | Kazakhstan: Almaty                     |
| 3       | US: Mason, OH (Cincinnati, OH)      |  | 3       | Kuwait: Kuwait City                    |
| 3       | US: Melville, NY                    |  | 3       | Lebanon: Beirut                        |
| 3,4     | US: Miami, FL                       |  | 2,3     | Malaysia: Bayan Lepas                  |
| 3,4     | US: Mooresville, NC                 |  | 3,4     | Malaysia: Kuala Lumpur                 |
| 1,3,4   | US: New York, NY                    |  | 3       | Pakistan: Islamabad                    |
| 3       | US: Norwalk, CT                     |  | 3       | Pakistan: Karachi                      |
| 3       | US: Norwalk, CT                     |  |         |                                        |

<http://www.tuvamerica.com/cisco/9001/>

[http://www.cisco.com/web/about/ac50/ac208/ac243/about\\_cisco\\_quality\\_certifications\\_home.html](http://www.cisco.com/web/about/ac50/ac208/ac243/about_cisco_quality_certifications_home.html)

Appendix 1 - Certificate 951 00 0875

TÜV SÜD AMERICA INC • 10 Centennial Drive • Peabody, MA 01960 USA • [www.TUVamerica.com](http://www.TUVamerica.com) 



# CERTIFICATE

| Asia                            | Europe                             |
|---------------------------------|------------------------------------|
| 3 Oman: Muscat                  | 3 Belarus: Minsk                   |
| 3,4 Philippines: Makati         | 1,2,3,4 Belgium: Kortrijk          |
| 3,4 Qatar: Doha                 | 3 Bosnia and Herzegovina: Sarajevo |
| 3,4 Russia: Moscow              | 3 Bulgaria: Sofia                  |
| 3 Russia: Novosibirsk           | 3 Croatia: Zagreb                  |
| 3 Russia: Saint Peterburg       | 1,3,4 Czech Republic: Prague       |
| 3 Saudi Arabia: Dhahran         | 3 Denmark: Aabyhoj                 |
| 3 Saudi Arabia: Jeddah          | 3 Denmark: Copenhagen              |
| 3,4 Saudi Arabia: Riyadh        | 3 Finland: Espoo                   |
| 1,2,3,4 Singapore: Singapore    | 3 France: Mougins                  |
| 3 South Korea: Daejeon          | 3 France: Cesson Sevrigne          |
| 3 South Korea: Pusan            | 1,3,4 France: Issy les Moulineaux  |
| 3,4 South Korea: Seoul          | 3 France: Lyon                     |
| 3 Sri Lanka: Colombo            | 3 France: Strasbourg               |
| 2,3 Taiwan: Taipei              | 3 France: Toulouse                 |
| 2,3,4 Thailand: Bangkok         | 3 Germany: Berlin                  |
| 3 Turkey: Ankara                | 3 Germany: Bonn                    |
| 3,4 Turkey: Istanbul            | 3,4 Germany: Dusseldorf            |
| 3,4 United Arab Emirates: Dubai | 3,4 Germany: Eschborn              |
| 3 Vietnam: Hanoi                | 1,3 Germany: Munich                |
| 3 Vietnam: Ho Chi Minh City     | 3 Germany: Hamburg                 |
| 3 Australia/New Zealand         | 3 Germany: Kassel                  |
| 3 Australia: Adelaide           | 3 Germany: Mannheim                |
| 3 Australia: Brisbane           | 3 Germany: Nuremberg               |
| 3,4 Australia: Canberra         | 3 Germany: Ratingen                |
| 3,4 Australia: Melbourne        | 3 Germany: Stuttgart               |
| 3,4 Australia: North Sydney     | 3 Greece: Athens                   |
| 3 Australia: Perth              | 3 Hungary: Budapest                |
| 1,2,3,4 Australia: St. Leonards | 3,4 Iceland: Reykjavik             |
| 3 New Zealand: Auckland         | 3,4 Ireland: Dublin                |
| 3 New Zealand: Wellington       | 1,3 Ireland: Galway                |
| 3 South America                 | 3,4 Italy: Rome                    |
| 3,4 Argentina: Buenos Aires     | 1,2,3,4 Italy: Vimercate           |
| 3 Brazil: Brasilia              | 3 Latvia: Riga                     |
| 3,4 Brazil: Rio De Janeiro      | 3 Lithuania: Vilnius               |
| 2,3,4 Brazil: Sao Paulo         | 3 Luxembourg: Luxembourg           |
| 3,4 Chile: Santiago             | 3 Macedonia, Republic of: Skopje   |
| 3,4 Colombia: Bogota            | 1,2,3,4 Netherlands: Amsterdam     |
| 3 Columbia: Medellin            | 1,2,3,4 Norway: Oslo               |
| 3 Ecuador: Quito                | 3,4 Poland: Warsaw                 |
| 3 Peru: Lima                    | 2,3,4 Poland: Krakow               |
| 3 Venezuela: Caracas            | 3,4 Portugal: Lisbon               |
| 3 Africa                        | 3 Romania: Bucharest               |
| 3 Algeria: Algiers              | 3 Serbia: Belgrade                 |
| 3,4 Egypt: Cairo                | 3 Slovakia: Bratislava             |
| 3 Senegal: Dakar                | 3 Slovenia: Ljubljana              |
| 3 Kenya: Nairobi                | 3 Spain: Barcelona                 |
| 3 Mauritius: Quatre-Bornes      | 3,4 Spain: Madrid                  |
| 3 Morocco: Casablanca           | 3 Sweden: Goteborg                 |
| 3 Nigeria: Lagos                | 1,3,4 Sweden: Stockholm            |
| 3 South Africa: Cape Town       | 3 Switzerland: Bern                |
| 3,4 South Africa: Johannesburg  | 1,3,4 Switzerland: Zurich          |
| 3 Tunisia: Tunis                | 3 Switzerland: Rolle               |
| 3 Europe                        | 3 Switzerland: Ecublens            |
| 3 Austria: Salzburg             | 3,4 Ukraine: Kiev                  |
| 3,4 Austria: Vienna             | 1,3 United Kingdom: Chandlers Ford |
| 1,2,3,4 Belgium: Diegem         | 3 United Kingdom: Edinburg         |
|                                 | 1,2,3,4 United Kingdom: Feltham    |
|                                 | 1,3,4 United Kingdom: Glasgow      |
|                                 | 1,3,4 United Kingdom: London       |
|                                 | 3,4 United Kingdom: Manchester     |
|                                 | 1,3,4 United Kingdom: Reading      |
|                                 | 1 United Kingdom: Staines          |
|                                 | 1,3 United Kingdom: Swindon        |
|                                 | 1 United Kingdom: Uxbridge         |
|                                 | 4 United Kingdom: Watford          |

Scope Activities - 1=Design and Development 2=Manufacturing 3=Sales 4=Services and Support

<http://www.tuvamerica.com/cisco/9001/>

[http://www.cisco.com/web/about/ac50/ac208/ac243/about\\_cisco\\_quality\\_certifications\\_home.html](http://www.cisco.com/web/about/ac50/ac208/ac243/about_cisco_quality_certifications_home.html)

Appendix 2 - Certificate 951 00 0875



# CERTIFICATE

The Certification Body of  
TÜV SÜD AMERICA INC.

hereby certifies that

**Cisco Systems, Inc.**  
170 West Tasman Drive  
San Jose, CA 95134-1706 USA

(All facilities listed on Appendix)

has implemented a Quality Management System  
in accordance with:

**TL 9000 – HS R6.0/R5.0 and ISO 9001:2015**

The scope of this Quality Management System includes:

Design, Development, Manufacturing Operations and Support of Networking Solutions for the following product lines: CRS, 1900, 2800, 2900, 3800, 3900, 6500, 7600, 12000, ASR 901, ASR 903, ASR 920, ASR 9000, NCS 4000, NCS 6000, ONS 15310, ONS 15454/NCS 2000, ONS 15600, Prime Optical, Prime Provisioning, Firewall Services Module, including IOS Software and Shared Port Adaptors, Prisma 2 FTU Transmitters/EDFA's/Optical Switches/ICIMs, D9854/D9858 Receiver/Transcoders, D9828/D9850 Decoders, D9022/D9032/D9034 Encoders, D99xx Digital Content Manager, ROSA-EM, DNCS/RNCS-ISR Software, and the Technical Assistance Center (TAC) is included in its entirety, as is the High Touch Technical Support (HTTS).

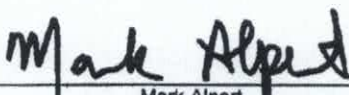
Certificate Expiry Date: February 19, 2021

Certificate Registration No: 951 03 2274

TL ID: 3463

Effective Date: January 29, 2018



  
Mark Alpert  
Vice President, Business Assurance



# CERTIFICATE

| Product Category | Product Category Name             | Products                                                | Product Category | Product Category Name                | Products                                                                                                           |
|------------------|-----------------------------------|---------------------------------------------------------|------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| 1.2.4            | Core and Access Ethernet Switches | Catalyst 6500                                           | 3.2.2.1.2.2      | WDM/DWDM                             | 15454 DWDM/NCS 2000                                                                                                |
| 1.2.9.1          | Core                              | CRS, NCS 6000                                           | 3.2.5            | Fiber to the User                    | Prisma 2 FTTH Transmitters/EDFA's/Optical Switches/ICIMs                                                           |
| 1.2.9.2          | Edge                              | 6500, 7600, 12000, ASR 9000                             | 3.2.6.3          | Digital Video Transmission Equipment | D9854/D9858 Receiver/Transcoders, D9828/D9850 Decoders, D9022/ D9032/D9034 Encoders, D99xx Digital Content Manager |
| 1.2.9.3          | Access                            | 1900, 2800, 2900, 3800, 3900, ASR 901, ASR 903, ASR 920 | 4.2.1            | On-Line Critical                     | Prime Optical, Prime Provisioning                                                                                  |
| 3.2.2.1.2.1      | SONET/SDH Transport Systems       | ONS 15310, ONS 15454/NCS 2000, 15600, NCS 4000          | 4.2.2            | On-Line non-critical                 | ROSA-EM, DNCS/RNCS-ISR Software                                                                                    |

|                                                                                                                                 |  |
|---------------------------------------------------------------------------------------------------------------------------------|--|
| Scope Activities – 1=Design and Development 2=Manufacturing 3= Support                                                          |  |
| Product Category – A=1.2.2 B= 1.2.9.1 C=1.2.9.2 D=3.2.2.1.2.1 E=3.2.2.1.2.2 F=4.2.1 G=3.2.5 H=3.2.6.3 I=4.2.2 K=1.2.9.3 L=1.2.4 |  |

| Scope Code    | North America                                                                                                          | Product Category       |
|---------------|------------------------------------------------------------------------------------------------------------------------|------------------------|
| 1,2,3         | 170 West Tasman Drive, San Jose, CA 95134 United States                                                                | A,B,C,D,E,F, G,H,I,K,L |
| 3             | 500 Beaver Brook Road, Boxborough, MA 01719 United States                                                              | A,B,C,D,E,F, G,H,I,K,L |
| 3             | 2300 East President George Bush Highway, Richardson, TX 75082 United States                                            | A,B,C,D,E,F, G,H,I,K,L |
| 1,3           | 7025 Kit Creek Road, PO Box 14987, Research Triangle Park, NC 27709-4987 United States                                 | A,B,C,D,E,F, G,H,I,K,L |
| 3             | 5030 Sugarloaf Parkway, Lawrenceville, Georgia 30044 United States                                                     | A,B,C,D,E,F, G,H,I,K,L |
| 1             | 2000 Innovation Drive, Kanata, Ontario K2K 3E8 Canada                                                                  | C                      |
| 3             | Paseo Tamarindos NO. 400A, Piso 30, Torre Arcos, Mexico City, Distrito Federal 05120 Mexico                            | A,B,C,D,E,F,G, H,I,K,L |
| South America |                                                                                                                        |                        |
| 3             | Avenida das Americas 700, Citla America, Bldg. 5A, 2nd and 3rd Floors, Rio de Janeiro, Rio De Janeiro 22640-100 Brazil | A,B,C,D,E,F,G, H,I,K,L |

Certificate Expiry Date: February 19, 2021

Certificate Registration No: 951 03 2274

TL ID: 3463

Effective Date: January 29, 2018

Appendix 1 of 2 Certificate 951 03 2274



# CERTIFICATE

|       | ASIA                                                                                                                                            |                           |
|-------|-------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|
| 3     | 7-10F Building C, Yintai Office Tower, B No. 2 Jianguomenwai Ave, Chaoyang Dist 100022 Beijing China                                            | A,B,C,D,E,F,G,<br>H,I,K,L |
| 1,2,3 | Block A of Keji Building, Caohejing Hi-Tech Park, 900 Yishan Lu Street, Shanghai, Shanghai 200233 China                                         | A,B,C,D,E,F,G,<br>H,I,K,L |
| 2     | Tower I, Kerry Plaza, No. 1, Zhong Xin Si Road, Futian CBD, Shenzhen, Guangdong China                                                           | B,K                       |
| 3     | 9-7-1, Akasaka, Minato-ku, Tokyo, Kanto, 107-6227 Japan                                                                                         | A,B,C,D,E,F<br>G,H,I,K,L  |
| 1,2,3 | SEZ Unit, Cessna Business Park, Kadubeesanahalli Village, Varthur Hobli, Sarjapur Marathalli Outer Ring Road, Bangalore, Karnataka 508103 India | A,B,C,D,E,F,<br>G,H,I,K,L |
| 1     | Unit No 511, 5th floor Raheja Tower 177, Annai Salai (Mount Road) Chennai Tamil Nadu India                                                      | K                         |
| 3     | 5F, ASEM Tower 517, Yeongdong-daero, Gangnam-gu, 6164, Seoul, South Korea                                                                       | A,B,C,D,E,F,G,<br>H,I,K,L |
| 3     | Riverside Towers, 52, Kosmodamianskaya Naberezhnaya, Bldg. 1, Block A, Floor 4, Moscow 115054 Russia                                            | A,B,C,D,E,F,G,<br>H,I,K,L |
|       | Europe                                                                                                                                          |                           |
| 1,2   | Torri Bianche-Faggio Bldg Lot H1, Via Torri Bianche 7, Vimercate, Lombardia 20059 Italy                                                         | D,E                       |
| 3     | Pegasus Parc, De Kleetlaan 6A, Diegem, Brabant 1831 Belgium                                                                                     | A,B,C,D,E,F,G,<br>H,I,K,L |
| 1,2,3 | Lulpaardstraat, 12 8500 Kortrijk, Kortrijk, West-vlaanderen, Belgium                                                                            | A,B,C,D,E,F,G,<br>H,I,K,L |
| 3     | Powstańców Wielkopolskich 13c, 30-707 Kraków, Poland                                                                                            | A,B,C,D,E,F,G<br>H,I,K,L  |
|       | Australia                                                                                                                                       |                           |
| 3     | The Forum, 201 Pacific Highway, St Leonards, NSW 2065 Australia                                                                                 | A,B,C,D,E,F,G,<br>H,I,K,L |

Certificate Expiry Date: February 19, 2021

Certificate Registration No: 951 03 2274

TL ID: 3463

Effective Date: January 29, 2018

Appendix 2 of 2 Certificate 951 03 227

# CERTIFICATE

The Certification Body of  
**TÜV SÜD AMERICA INC.**

hereby certifies that

**Cisco Systems, Inc.**  
170 West Tasman Drive  
San Jose, CA 95134-1706 USA

(All facilities listed on Appendix)

has implemented an Environmental Management System  
in accordance with:

**ISO 14001:2015**

The scope of this Environmental Management System includes:

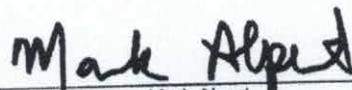
**Design, Development, Manufacturing  
Operations, Sales, Services and Support for  
Networking, Data Center, Communications,  
Video, Collaboration and Security Products,  
Solutions and Services**

Certificate Expiry Date: January 30, 2020

Certificate Registration No: 951 00 0876

Effective Date: February 1, 2018



  
Mark Alpert  
Vice President, Business Assurance





# CERTIFICATE

## North America

|         |                                                                                        |
|---------|----------------------------------------------------------------------------------------|
| 1,2,3,4 | 170 West Tasman Drive, San Jose, CA 95134 United States                                |
| 1,2,3,4 | 2300 East President George Bush Highway, Richardson, TX 75082 United States            |
| 3,4     | 9501 Technology Blvd, Rosemont, Illinois 60018 United States                           |
| 3,4     | 9155 East Nichols Avenue, Suite 400, Englewood, CO 80112 United States                 |
| 1,2,3,4 | 12515 Research Blvd., Building 4, Austin, TX 78759 United States                       |
| 1,2,3,4 | 7025 Klt Creek Road, PO Box 14987, Research Triangle Park, NC 27709-4987 United States |
| 1,3,4   | One Penn Plaza, 6th & 9th Floors, New York, NY 10119 United States                     |
| 1,2,3,4 | 500 Beaver Brook Road, Boxborough, MA 01719 United States                              |
| 1,3,4   | 13600 Dulles Technology Drive, Herndon, VA 20171 United States                         |
| 1,2,3,4 | 5030 Sugarloaf Parkway, Lawrenceville, Georgia 30044 United States                     |
| 1,2,3,4 | 2000 Innovation Drive, Kanata, ON K2K 3E8 Canada                                       |
| 1,3,4   | 88 Queens Quay West, Suite 2900, Toronto, ON M5J 0B8 Canada                            |

## Asia

|         |                                                                                                                                                  |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| 1,2,3,4 | SEZ Unit, Cessna Business Park, Kadubeesanahalli Village, Varthur Hobli, Sarjapur Marathalli Outer Ring Road, Bangalore, Karnataka 560 103 India |
| 2,3,4   | 9-7-1, Akasaka, Minato-ku, Tokyo, Kanto, 107-6227 Japan                                                                                          |
| 1,2,3,4 | UE BizHub East, 8 Changi Business Park Avenue 1, Singapore, Singapore 486018                                                                     |
| 1,2,3,4 | 7-10F Building C, Yintai Office Tower, B No. 2 Jianguomenwai Ave, Chaoyang Dist 100022 Beijing China                                             |
| 1,2,3,4 | Great Eagle Centre, 23 Harbour Road, Lvl 10, 31 &, Room 2901 to 2905, Hong Kong, Hong Kong                                                       |
| 1,2,3,4 | Block A of Keji Building, Caohejing Hi-Tech Park, 900 Yishan Lu Street, Shanghai, 200 233 China                                                  |
| 1,3,4   | 32 HaMelacha St., (HaSharon Bldg), P.O. Box 8735, I.Z.Sapir, South Netanya, Hamerkaz 42504 Israel                                                |
| 1       | 5 Shlomo (Momo) Halevi Street, 9777019 Jerusalem Israel                                                                                          |
| 1,3,4   | 106-A, Senapati Bapat Road, Ground Floor, Off. No. 2,3 & 4, Pune, Maharashtra 411016 India                                                       |

Scope Activities - 1=Design and Development 2=Manufacturing 3=Sales 4=Services and Support

Appendix 1 of 2 - Certificate 951 00 0876

# CERTIFICATE

## Australia

- 3,4 Levels 22-24 177 Pacific Highway 2060 North Sydney Australia  
1,2,3,4 The Forum, 201 Pacific Highway, St. Leonards, NSW 2065 Australia

## Europe

- 1,2,3,4 Pegasus Parc, De Kleetlaan 6A, Diegem, Brabant 1831 Belgium  
1,2,3,4 10 New Square Park, Bedfont Lakes, Feltham TW14 8HA United Kingdom  
1,3,4 L'Atlantis, 11, Rue Camille Desmoulins, Issy Les Moulineaux, Ile De France 92782 France  
1,3,4 300 Longwater Avenue, Reading RG2 6GB United Kingdom  
1,2,3,4 Torri Bianche-Fagglo Bldg Lot H1, Via Torri Bianche 7, Vimercate, Lombardia 20059 Italy  
1,2,3,4 Haarlerbergpark Haarlerbergweg 17 -19 1101 CH Amsterdam Netherlands  
1,3 Oranmore Business Park, Oranmore, Galway, Galway Connacht Ireland  
3,4 Hansaallee 249, 3rd Floor. Düsseldorf 40549 Germany  
2,3,4 Powstańców Wielkopolskich 13c, 30-707 Kraków, Poland

Scope Activities – 1=Design and Development 2=Manufacturing 3=Sales 4=Services and Support

Appendix 2 of 2 – Certificate 951 00 0876



KEMENTERIAN KOMUNIKASI DAN INFORMATIKA  
DIREKTORAT JENDERAL SUMBERDAYA DAN  
PERANGKAT POS DAN INFORMATIKA  
REPUBLIK INDONESIA

MINISTRY OF COMMUNICATIONS AND INFORMATION TECHNOLOGY  
DIRECTORATE GENERAL OF RESOURCES AND EQUIPMENT  
FOR POST AND INFORMATION TECHNOLOGY  
THE REPUBLIC OF INDONESIA

## SERTIFIKAT | CERTIFICATE

NOMOR : 52528/SDPPI/2017

|                                                                    |                                                                                                                                                                  |
|--------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PERMEN KOMINFO NOMOR : 5 TAHUN 2014                                |                                                                                                                                                                  |
| Referensi :<br>Référéncia                                          | PLG ID : 3965<br>Client's ID                                                                                                                                     |
| Jenis Perangkat : Aggregation Services Router<br>Name of Equipment | Diajukan Oleh : SYNnex METRODATA INDONESIA,<br>Proposed by PT.                                                                                                   |
| Buatan : CHINA<br>Country of Origin                                | Alamat : APL Tower 42nd Floor Suite<br>Address 1-8, Jl. Letjen S. Parman kav. 28,<br>Kel. Tanjung Duren Selatan, Kec. Grogol<br>Petamburan, 11470, Jakarta Barat |
| Merek : CISCO<br>Trade Mark                                        | Tanggal Terbit : 18 Oktober 2017<br>Date of Issue                                                                                                                |
| Model/Type : ASR1001-X                                             | Masa Berlaku : 18 Oktober 2020<br>Valid Until                                                                                                                    |
| Frekuensi Kerja :<br>Operating Frequencies                         |                                                                                                                                                                  |



PT. SYNnex METRODATA INDONESIA

A.N. MENTERI KOMUNIKASI DAN INFOMATIKA  
DIREKTUR JENDERAL SUMBER DAYA DAN PERANGKAT POS DAN INFORMATIKA  
FOR MINISTER COMMUNICATION AND INFORMATION TECHNOLOGY  
DIRECTOR GENERAL OF RESOURCES AND EQUIPMENT FOR POST AND INFORMATION TECHNOLOGY



ISMAIL





## PT. LG Electronics Indonesia

### Marketing Office :

Gandaria 8 Office Tower Lt. 29 BC & 31 ABCD  
Jl. Sultan Iskandar Muda Kebayoran Lama Utara  
Kebayoran Lama, Jakarta Selatan - DKI Jakarta Raya 12240  
Phone : (62-21) 2930 4000 (Hunting) Fax. : (62-21) 2930 3999

### Factory 1 :

Block - G, MM2100 Industrial Town  
Cikarang Barat, Bekasi 17520, Jawa Barat - Indonesia  
Phone : (62-21) 89982228 (Hunting) Fax. : (62-21) 89982348

### Factory 2 :

Jl. Tabri No. 1, Cirarab, Legok, Tangerang 15820, Banten - Indonesia  
Phone : (62-21) 5978320 (Hunting) Fax. : (62-21) 5977022

Tanggal : 08 Maret 2019

No : 19-00070/B2B/3/2019

Hal : Surat Dukungan dan Jaminan Purna Jual atas Produk LG

Kepada Yth.

**Pokja Pemilihan 2 Biro Administrasi Pengadaan Barang/Jasa Setda Provinsi Jawa Tengah**  
**Gedung D Setda Provinsi Jawa Tengah**  
**Jl. Pahlawan 9 Semarang**

Dengan hormat,

PT. LG Electronics Indonesia dengan senang hati memberikan dukungan kepada **PT. Media Sarana Data** berkenaan dengan proposal yang diajukan dalam judul tender **Pengadaan Peralatan Studio Visual Sarana dan Prasarana Situation Room** dengan type **55LV75D**. Merupakan kegembiraan bagi kami untuk memasok produk LG melalui **PT. Media Sarana Data** dan untuk itu kami ingin meyakinkan anda mengenai hal-hal di bawah ini.

- 1) Barang yang kami tawarkan 100% (seratus persen) baru / bukan barang rekondisi, bukan berasal dari pasar gelap /black market, dan telah memenuhi peraturan perpajakan yang berlaku.
- 2) Perusahaan kami akan menyediakan untuk anda layanan purna jual atas produk LG yang dipesan sesuai dengan ketentuan dalam kartu garansi, Memberikan jaminan purna jual (after sales service) meliputi : ketersediaan suku cadang minimal 5 (Lima) tahun, garansi peralatan selama 3 (Tiga) tahun.

Untuk Operasional pekerjaan tersebut dapat menghubungi :

Nama Peserta : **PT. Media Sarana Data**

Alamat Peserta : **Jl. Daradasih No. 11A Patang Puluhan Wirobrajan, Yogyakarta, 55251**

Surat dukungan ini akan efektif berlaku apabila **PT. Media Sarana Data** menerbitkan surat pemesanan kepada kami untuk proyek pengadaan tersebut di atas. Perusahaan kami tidak bertanggung jawab atas harga produk yang diajukan oleh **PT. Media Sarana Data** dalam proposalnya. Setiap pernyataan atau informasi yang kami berikan dalam surat ini adalah semata-mata untuk keperluan marketing dan tidak satu pun diantaranya dapat dianggap atau ditafsirkan seakan - akan perusahaan kami telah memberikan atau menunjuk **PT. Media Sarana Data** sebagai kuasa kami atau perwakilan perusahaan kami melakukan tindakan untuk dan atas nama perusahaan kami.

Surat Dukungan dan Jaminan Purna Jual ini berlaku 90 (Sembilan puluh) hari sejak tanggal diterbitkannya surat ini.

Hormat kami,

**PT. LG Electronics Indonesia**



**Agustian Yusetia**

B2B Business Head

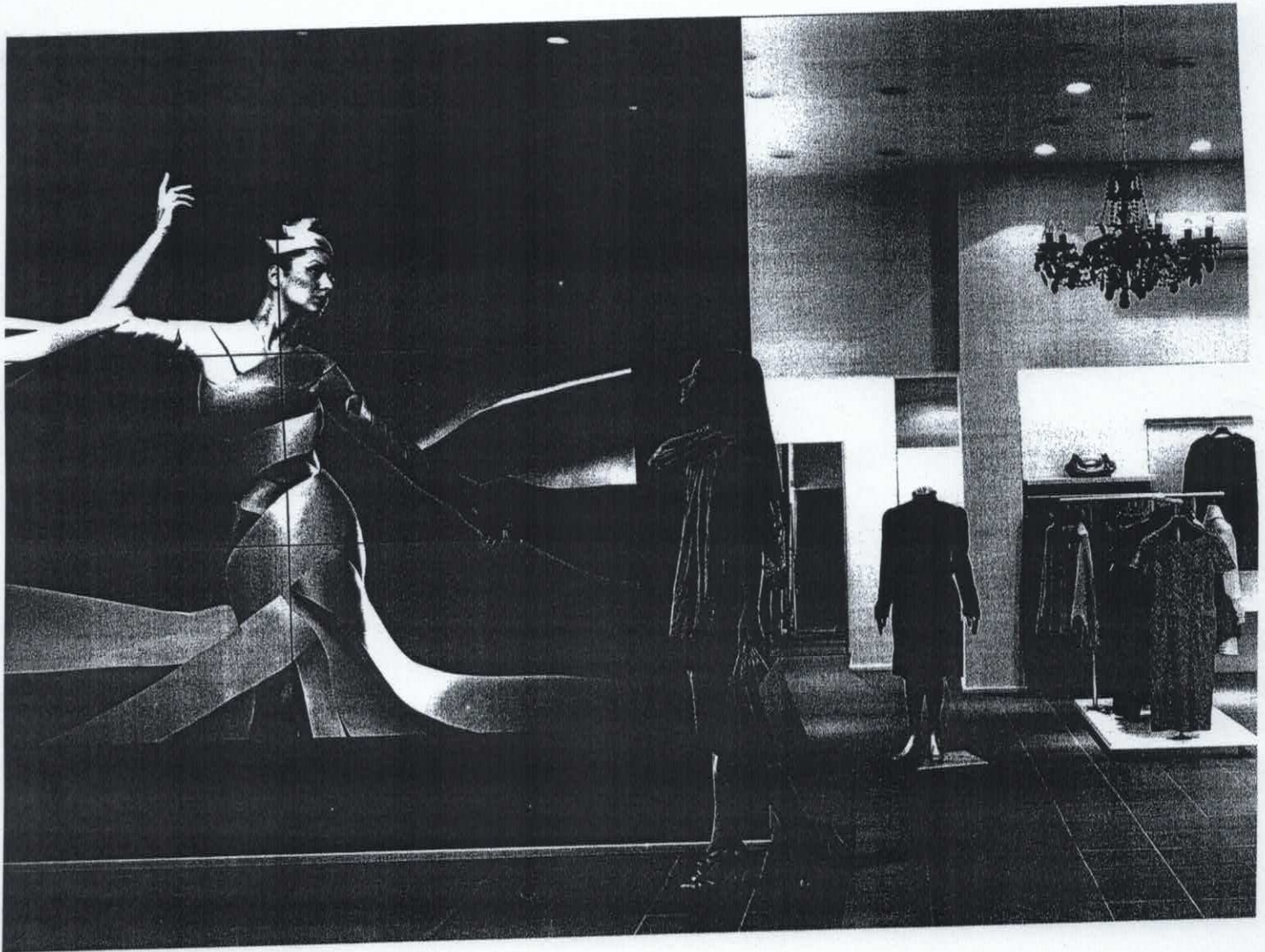
Information Display Division



# Ultra Narrow Bezel Video Wall

## 55LV77D/LV75D

With an ultra narrow bezel, the 55LV77D/75D provides viewers with greater immersion, thus imprinting the content on their minds. No matter where a passerby is when watching the screen, it maintains superior picture quality with vivid colors, allowing the content to come alive. The content can be produced easily in various layouts to match regular or irregular forms of the video wall screen with LG SuperSign software.



### Key Points

- Overwhelming screen immersion with ultra narrow 3.5mm bezel to bezel
- Clear and consistent color reproduction from any angle with IPS panel
- Reliable picture quality supported by uniformed brightness and white balance
- Vivid Content Playback with TruMotion™ 60Hz Refresh Rate
- Convenient content management using SuperSign W



**PT. LG Electronics Indonesia**  
**Jakarta**

# Ultra Narrow Bezel Video Wall

55LV77D/LV75D

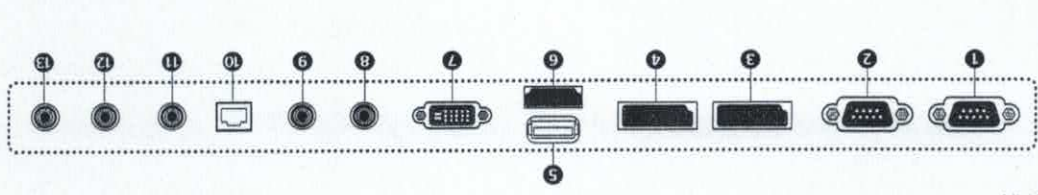
## Content Management

Supersign W Content Management  
Flexible content editing in various layouts including regular matrix and non-formal irregular video-wall is possible to your preference in a timely and cost effective manner without unnecessary expensive video wall console.

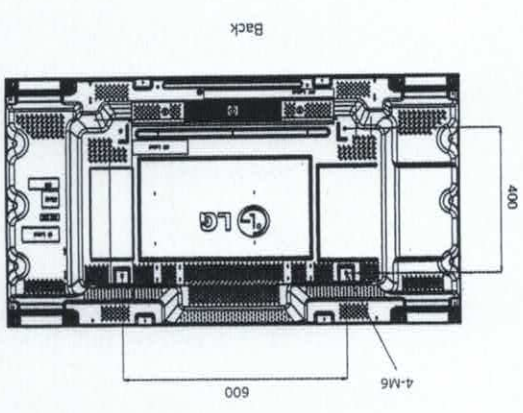
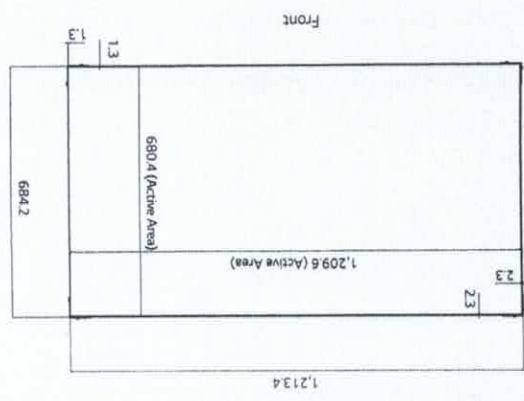


## Connectivity

- 1 RS-232C IN
- 2 RS-232C OUT
- 3 DP IN
- 4 DP OUT
- 5 USB IN
- 6 HDMI IN
- 7 DVI IN
- 8 RGB / COMPONENT IN
- 9 IR IN
- 10 LAN
- 11 AV-IN
- 12 AUDIO IN
- 13 AUDIO OUT



Dimension (unit : mm)  
55"  
1213.4 x 684.2 x 88.5 mm / 23 kg

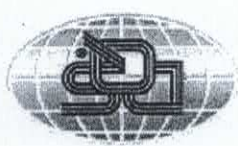




10NET



# CERTIFICATE



This is to certify that

**LG Electronics Inc.**

HE Division

77, Sanho-daero  
Gumi-si, Gyeongsangbuk-do, 39381  
Republic of Korea

with the organizational units/sites as listed in the annex

has implemented and maintains a **Quality Management System**.

Scope:  
The design and manufacture of monitors, signages, televisions, television receivers, projectors, kits and computers (Laptop, Desktop and All in One PC).

Through an audit, documented in a report, it was verified that the management system fulfills the requirements of the following standard:

**ISO 9001 : 2015**

Certificate registration no. 20001735 QM15  
Date of certification 2018-01-25  
Valid until 2021-01-24



DQS Inc.

*Brad McGuire*

Brad McGuire  
Managing Director

Accredited Body: DQS Inc., 1130 West Lake Cook Road, Suite 340, Buffalo Grove, IL 60089 USA  
Administrative Office: DQS Korea LLC, #302, ACE Techno Tower 10-cha,  
196, Gasan digital 1-ro, Geumcheon-gu, Seoul, 08502, Republic of Korea

**PT. LG Electronics Indonesia**  
Jakarta



Annex to certificate  
Registration No. 20001735 QM15

LG Electronics Inc.

HE Division

77, Sanho-daero  
Gumi-si, Gyeongsangbuk-do, 39381  
Republic of Korea

Location

20001746  
LG ELECTRONICS INC.

222, LG-ro, Jinwi-myeon  
Pyeongtaek-si, Gyeonggi-do, 17709  
Republic of Korea

50350320  
LG ELECTRONICS INC.

32, 1gongdan-ro 6-gil  
Gumi-si, Gyeongsangbuk-do, 39373  
Republic of Korea

20001739  
LG ELECTRONICS INC.

LG Twin Tower  
128, Yeou-daero  
Yeongdeungpo-gu, Seoul, 07336  
Republic of Korea

Sales & Marketing and Product planning

Incoming inspection and Material warehouse

Design control, Purchasing, Customer  
complaints handling, Management review,  
Internal audit and Document control

Scope



PT. LG Electronics Indonesia  
Jakarta

This annex (edition: 2018-01-25) is only valid in connection  
with the above-mentioned certificate.



# MANAGEMENT SYSTEM CERTIFICATE

Certificate No: 202710-2016-AIS-KOR-UKAS Initial certification date: 22 June 2016 Valid: 03 November 2018 - 22 June 2019

This is to certify that the management system of

**LG Electronics Inc**

128 Yeouido-daro, Youngdungpo-gu, Seoul, Korea  
and the sites as mentioned in the appendix accompanying this certificate

has been found to conform to the Information Security Management System standard:  
**ISO/IEC 27001:2013**

This certificate is valid for the following scope:  
**The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0**

  
**PT. LG Electronics Indonesia**  
**Jakarta**

Place and date:  
London, 05 November 2018

For the issuing office:  
**DNV GL - Business Assurance**  
4th Floor, Vivo Building, 30 Stamford  
Street, London, SE1 9LQ, United Kingdom  
  
**Erle Koek**  
Management Representative



PT. LG Electronics Indonesia  
Jakarta



Appendix to Certificate

LG Electronics Inc

Locations included in the certification are as follows:

| Site Name                              | Site Address                                                                     | Site Scope                                                                                                                                                                                                                 |
|----------------------------------------|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LG Electronics Inc                     | 128 Yeouido-daro, Yeongdongpo-gu, Seoul, Korea                                   | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Changwon 1         | 170, Seongsanpaechong-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea      | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Changwon 2         | 84, Wanam-ro, Seongsan-gu, Changwon-si, Gyeongsangnam-do, Korea                  | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Cheongju           | 93, Zsunhwan-ro 971beon-gil, Heungdeok-gu, Cheongju-si, Chungcheongbuk-do, Korea | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Gangnam R&D Center | 2621, Nambusunhwan-ro, Gangnam-gu, Seoul, Korea                                  | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Gasan A Campus     | 56, Digital-ro 10-gil, Geumcheon-gu, Seoul, Korea                                | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Gasan B Campus     | 22, Digital-ro 10-gil, Geumcheon-gu, Seoul, Korea                                | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.  
ACCREDITED UNIT: DNV GL Business Assurance UK Limited, 4th Floor, Vivo Building, 30 Stamford Street, London, SE1 9LQ, United Kingdom.  
TEL: +44(0) 203 816 4000. www.dnvgl.co.uk/assurance





|                                          |                                                       |                                                                                                                                                                                                                            |
|------------------------------------------|-------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LG Electronics Inc. Gasan R&D Campus     | 51, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea    | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Gumi Office A1       | 168, Suchul-daero, Gumi-si, Gyeongsangbuk-do, Korea   | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Gumi Office A3       | 77, Sanho-daero, Gumi-si, Gyeongsangbuk-do, Korea     | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Incheon Campus       | 322, Gyeongmyeong-daero, Seo-gu, Incheon, Korea       | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. LG Digital Park      | 222, LG-ro, Jinwi-myeon, Pyeongtaek-si, Korea         | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. LG Seoul Station B/D | 98, Huam-ro, Jung-gu, Seoul, Korea                    | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Seocho R&D Campus    | 19, Yangjae-daero 11-gil, Seocho-gu, Seoul, Korea     | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |
| LG Electronics Inc. Seoul University Lab | 56-39, Nakseongdae-ro 15-gil, Gwanak-gu, Seoul, Korea | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0 |

PT. LG Electronics Indonesia  
Jakarta



Certificate No: 202710-2016-AIS-KOR-UKAS  
Place and date: London, 05 November 2018

|                                       |                                                                                       |                                                                                                                                                                                                                                         |
|---------------------------------------|---------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LG Electronics Inc. Umyeon R&D Campus | 38, Baumoe-ro, Seodho-gu, Seoul, Korea                                                | The Information Security Management System in all activities providing sales development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0                                        |
| LG Japan Lab Inc.                     | 140-0002, Tokyo, Higashi-Shinagawa, Shinagawa-ku Glass Cube Shinagawa, 4-13-14, Japan | The Information Security Management System (ISMS) is scoped to include all research and development activities and business processes conducted by LG Japan Lab Inc. This is in accordance with Statement of applicability Version 1.0. |
| LGEBN                                 | Krijgsman 1, 1186 DM Amstelveen, 1186, Netherlands                                    | The Information Security Management System in all activities providing sales development and production of LGEBN business. This is in accordance with Statement of Applicability Version 1.0                                            |
| LG Science Park                       | Magokjungang 10-ro, Gangseo-gu, Seoul, Korea                                          | The Information Security Management System in all activities providing sales and marketing, design and development and production of LGE Korea business. This is in accordance with Statement of Applicability Version 1.0              |

PT. LG Electronics Indonesia  
Jakarta

Lack of fulfillment of conditions as set out in the Certification Agreement may render this Certificate invalid.  
ACCREDITED UNIT: DNV GL Business Assurance UK Limited, 4th Floor, Vivo Building, 30 Stamford Street, London, SE1 9LQ, United Kingdom.  
TEL: +44(0) 203 816 4000. www.dnvgl.co.uk/assurance



# Certificate of Compliance

Audio Control Processor



Certificate: 2500674 (108093\_0\_000)  
Master Contract: 186633  
Date Issued: 2016-08-12

Project: 70089019  
Issued to: Music Group Innovation DK A/S

Sindalsvej 34  
Risskov, 8240  
DENMARK  
Attention: Henrik Jakobsen



The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.

Issued by: Kwok Sim Tam  
Kwok Sim Tam



## PRODUCTS

- CLASS - C222451 - AUDIO AND VIDEO EQUIPMENT-Audio Equipment - Certified to US Standards
- CLASS - C222481 - AUDIO AND VIDEO EQUIPMENT-Audio Equipment - Certified to US Standards
- CLASS - C222651 - AUDIO AND VIDEO EQUIPMENT-Commercial Audio Equipment
- CLASS - C222681 - AUDIO AND VIDEO EQUIPMENT-Commercial Audio Equipment - Certified to US Standards

Class D Bass Amplifier, rated 100-240V~AC, 50-60Hz, 70W, cord connected, Class I grounded.

- PART A - Powered speaker models BG250-115, BG250-210, BG250-112 and BG250-208
- PART B - Models BH250
- PART C - Models LUCIA models 120/2, 120/2M, 240/2 and 240/2M
- PART D - Models LUCIA models 120/1-70 and 240/1-70
- PART E - Models LUCIA models 60/2, 60/2M and 60/1-70

## APPLICABLE REQUIREMENTS

- CAN/CSA 60065:16 - Audio, Video and Similar Electronic Apparatus - Safety Requirements.
- UL Std No. 60065-2015 - Audio, Video and Similar Electronic Apparatus - Safety Requirements.

CB TEST CERTIFICATE

CERTIFICAT D'ESSAI OC

Product

Class D Amplifier

Name and address of the applicant

Musik Group Innovation DK A/S  
Sindalsvej 34, Risskov, 8240 Denmark

Name and address of the manufacturer

Same as applicant.

Name and address of the factory

Same as applicant.

Note: When more than one factory, please report on page 2

☒ Additional Information on page 2

Ratings and principal characteristics

100-240V~, 50-60Hz, 70W

Trademark (if any)

LabGruppen

Type of Manufacturer's Testing Laboratories used

PT GRACIA ARVINDO

Model / Type Ref.

LUCA models 60/2, 60/2M, 120/2, 120/2M, 240/2, 240/2M, 60/1-70, 120/1-70 and 240/1-70

Additional information (if necessary may also be reported

This certificate replaces CA 17209 dated Feb. 12, 2015

☐ Additional Information on page 2

Les informations complémentaires (si nécessaire, peuvent être indiquées sur la 2<sup>ème</sup> page

A sample of the product was tested and found

IEC 60065(ed.8); IEC 60065(ed.7) am1 + am2; Compliance with the National requirements of AR, AU, CA, CH CN, DE, DK, FI, GB, IE, IL, IT, JP, KR, MY NO, PL, SE, SG, UA, US and Group Differences (AT, BE, CZ, ES, FR, HU, NL, SK and SI) as given in the CB Bulletin.

Un échantillon de ce produit a été essayé et a été considéré conforme à la

As shown in the Test Report Ref. No. which forms part of

CB 186633-2500674 (70089020)

Comme indiqué dans le Rapport d'essais numéro de référence qui constitue partie de ce Certificat

This CB Test Certificate is issued by the National Certification Body  
Ce Certificat d'essai OC est établi par l'Organisme National de Certification



CSA Group, Certification and Testing Division  
178 Rexdale Boulevard  
Toronto, ON M9W 1R3

Date: 2016-08-12

Signature: Eng Yap, P. Eng.

*[Signature]*



Name and address of the factory  
Nom et adresse de l'usine

SVI Public Company Limited  
141-142 Moo 5, Tiwanon rd., Bangkadi, Muang  
12000 Pathumthani, Thailand

Guangzhou Telefield Limited  
15, Guangcong Commercial North Street,  
1 Industrial Area, Zhuliao,  
Baiyun District, Guangzhou, China



Additional information (if necessary)  
Information complémentaire (si nécessaire)



Date: 2016-08-12

Signature: Eng Yap, P. Eng.



## Supplement to Certificate of Compliance

Certificate: 2500674 (108093\_0\_000)

Master Contract: 186633

*The products listed, including the latest revision described below,  
are eligible to be marked in accordance with the referenced Certificate.*

### Product Certification History

| Project  | Date       | Description                                                                                                       |
|----------|------------|-------------------------------------------------------------------------------------------------------------------|
| 70089019 | 2016-08-12 | Addition of models LUCIA models 60/2, 60/2M and 60/1-70.                                                          |
| 70016894 | 2015-02-13 | Addition of LUCIA models 120/1-70 and 240/1-70                                                                    |
| 2724007  | 2014-05-15 | Update critical components and report correction                                                                  |
| 2672195  | 2013-10-24 | Update the secondary software 375 for model LUCIA 120/2 & 120/2M and software 233 for models LUCIA 240/2 & 240/2M |
| 2659686  | 2013-10-15 | Addition of models LUCIA models 120/2, 120/2M, 240/2 and 240/2M                                                   |
| 2611835  | 2013-04-02 | Add new models BG250-212, BG250-112 and BG250-208                                                                 |
| 2500674  | 2012-03-22 | Original Certification                                                                                            |







## EC Declaration of Conformity

Manufacture's Name: Crestron Electronics Inc.  
Manufacture's Address: 15 Volvo drive  
Rockleigh, New Jersey 07647  
Declares that:  
Model: CP3  
Equipment: 3-Series Control System®  
Brand: Crestron

The product described above is in conformity with essential requirements of below mentioned directives.

|             |                       |
|-------------|-----------------------|
| 2004/108/EC | EMC Directive         |
| 2006/95/EC  | Low Voltage Directive |
| 2011/65/EU  | RoHS Directive        |

References to the relevant harmonized standards used, or references to the specifications in relation to which conformity is declared, are listed below.

|         |                                                                        |
|---------|------------------------------------------------------------------------|
| Safety: | EN60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013                       |
| EMC:    | EN55022:2010<br>EN55024:2010<br>EN 61000-3-2:2014<br>EN 61000-3-3:2013 |
| RoHS:   | EN 50581:2012                                                          |

Year CE marking was first affixed **10**



*Mairaj Hussain*

Mairaj Hussain  
Global Compliance Manager

6/30/2015

Crestron Electronics, Inc.  
15 Volvo Drive  
Rockleigh, NJ 07647  
Tel: 800.237.2041/ 201.767.3400  
Fax: 201.767.7576  
www.crestron.com

|           |             |           |          |           |         |
|-----------|-------------|-----------|----------|-----------|---------|
| NEW YORK  | LOS ANGELES | ATLANTA   | DALLAS   | CHICAGO   | ORLANDO |
| TORONTO   | MEXICO CITY | SAO PAULO | BRUSSELS | MUNICH    | MILAN   |
| LONDON    | PARIS       | BARCELONA | DUBAI    | HONG KONG | BEIJING |
| SINGAPORE | MELBOURNE   |           |          |           |         |

No Surat : 621/GA/III/2019

Perihal : Surat Dukungan

Kepada Yth,

Pokja Pemilihan 2 Biro Administrasi Pengadaan Barang/Jasa Setda Provinsi Jawa Tengah

Gedung D Setda Provinsi Jawa Tengah

Jl. Pahlawan 9 Semarang

Yang bertanda tangan di bawah ini :

Nama : Lie Lucman

Jabatan : Direktur

Perusahaan : PT Gracia Auvindo

Alamat Perusahaan : Kanto Blok D/22, Mega Glodok Kemayoran Kota Baru Bandar  
Kemayoran Jl. Angkasa Kav B-6, Jakarta Pusat 10610

Sebagai Distributor di Indonesia untuk produk **Barco ClickShare, Symetrix, Tannoy, Lab Gruppen, Crestron CP3** memberikan dukungan kepada :

Nama Perusahaan : PT Media Sarana Data

Alamat Perusahaan : Jl Darasih No 11A Patangpuluhan Wirojaban Yogyakarta  
55251

Untuk pekerjaan pengadaan : **Pengadaan Peralatan Studio Visual Sarana dan Prasarana  
Situation Room**

Surat dukungan ini meliputi :

- Barang yang ditawarkan 100% baru/ bukan barang rekondisi, bukan dari pasar gelap/blackmarket.
- Memberikan layanan purna jual.
- Sanggup memberikan garansi suku cadang selama 2 (dua) tahun
- Sanggup memberikan surat jaminan pemeliharaan selama 2 (dua) tahun, selama masa pemeliharaan sanggup memperbaiki kerusakan dalam waktu 7 (tujuh) hari kerja.

Demikian surat dukungan ini dibuat untuk dipergunakan sebagaimana mestinya.

Jakarta, 11 Maret 2019

PT Gracia Auvindo



Lie Lucman  
Direktur



Nomor : 622/GA/III/2019

Perihal : Surat Pernyataan Garansi

Kepada, Yth:

Pokja Pemilihan 2 Biro Administrasi Pengadaan Barang/Jasa Setda Provinsi Jawa Tengah  
Gedung D Setda Provinsi Jawa Tengah  
Jl. Pahlawan 9 Semarang

Dengan hormat,

Yang bertanda tangan di bawah ini :

Nama : Lie Lucman  
Jabatan : Direktur  
Alamat : Mega Glodok Kemayoran Ruko Kanto Blok D22  
Bertindak untuk dan atas nama : PT. GRACIA AUVINDO  
Sebagai perusahaan resmi : Distributor produk **Barco ClickShare, Symetrix, Tannoy  
Lab Gruppen, Crestron CP3**

Dengan ini menyatakan bahwa perusahaan kami sebagaimana tersebut di atas, sanggup memberikan **Garansi selama 2 (Dua) Tahun terhitung Sejak Berita Acara Serah Terima** kepada pihak tertuju di bawah ini :

Perusahaan : PT. MEDIA SARANA DATA  
Alamat : Jl. Daradasih No 11A Patangpuluhan, Wirojaban,  
Yogyakarta 55251

**Adapun garansi yang kami maksud adalah :**

-Kerusakan akibat kesalahan pabrik/cacat pabrik

**Garansi tidak berlaku apabila :**

- Kerusakan akibat pemakaian
- Kerusakan akibat listrik/voltase yang menyebabkan kerusakan komponen
- Kerusakan akibat bencana alam, kebakaran, dll (diluar batas kemampuan manusia)
- Unit sudah dimodifikasi oleh pihak lain, selain PT Gracia Auvindo
- Sudah melampaui batas waktu garansi yang diberikan

Demikian surat jaminan purna jual dan ketersediaan suku cadang ini dibuat dengan penuh tanggung jawab untuk dapat dipergunakan sebagaimana mestinya.

Jakarta, 11 Maret 2019

PT. Gracia Auvindo



Lie Lucman

Penyampaian SPT Elektronik  
© Direktorat Jenderal Pajak

Berikut ini adalah Bukti Penerimaan Elektronik Anda.

-----  
Nama : MEDIA SARANA DATA  
NPWP : 029614732541000  
Tahun Pajak : 2017  
Masa Pajak : 01/12  
Jenis SPT : SPT Tahunan PPh Badan Rupiah 2010  
Pembetulan ke : 1  
Status SPT : Kurang Bayar  
Nominal : 1461066350  
Tanggal Penyampaian : 09/02/2019  
Nomor Tanda Terima Elektronik : 31732206419192009330  
Terima kasih telah menyampaikan Laporan SPT Anda.



1771

KEMENTERIAN KEUANGAN RI  
DIREKTORAT JENDERAL PAJAKSPT TAHUNAN  
PAJAK PENGHASILAN WAJIB PAJAK BADANPERHATIAN : SEBELUM MENGISI BACA DAHULU BUKU PETUNJUK PENGISIAN  
ISI DENGAN HURUF CETAK/DIKETIK DENGAN TINTA HITAM  
BERI TANDA "X" PADA ☐ (KOTAK PILIHAN) YANG SESUAI

TAHUN PAJAK

2017

☒ SPT PEMBETULAN  
KE- 1

|                                            |                                                        |
|--------------------------------------------|--------------------------------------------------------|
| NPWP                                       | : 0 2 9 6 1 4 7 3 2 5 4 1 0 0 0                        |
| NAMA WAJIB PAJAK                           | : P T M E D I A S A R A N A D A T A                    |
| JENIS USAHA                                | : I N S T A L A S I K O M U N I K A S I KLU: 4 5 3 1 3 |
| NO. TELEPON                                | : 0 2 7 4 3 8 0 3 4 5 NO. FAKS:                        |
| PERIODE PEMBUKUAN                          | : 0 1 1 7 s.d 1 2 1 7                                  |
| NEGARA DOMISILI KANTOR PUSAT (Khusus BUT): | : I N D O N E S I A                                    |

|                             |                                                                                                                             |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| AMBUKUAN / LAPORAN KEUANGAN | : <input type="checkbox"/> DIAUDIT <input type="checkbox"/> OPINI AKUNTAN <input checked="" type="checkbox"/> TIDAK DIAUDIT |
| MA KANTOR AKUNTAN PUBLIK    | :                                                                                                                           |
| WPK KANTOR AKUNTAN PUBLIK   | :                                                                                                                           |
| MA AKUNTAN PUBLIK           | :                                                                                                                           |
| WPK AKUNTAN PUBLIK          | :                                                                                                                           |
| MA KANTOR KONSULTAN PAJAK   | :                                                                                                                           |
| WPK KANTOR KONSULTAN PAJAK  | :                                                                                                                           |
| MA KONSULTAN PAJAK          | :                                                                                                                           |
| WPK KONSULTAN PAJAK         | :                                                                                                                           |

| Pengisian kolom-kolom yang berisi nilai rupiah harus tanpa nilai desimal (contoh penulisan lihat buku petunjuk hal. 3) |                                                                                | Rupiah *        |
|------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|-----------------|
| (1)                                                                                                                    | (2)                                                                            | (3)             |
| A. PENGHASILAN KENA PAJAK                                                                                              | 1 PENGHASILAN NETO FISKAL<br>(Diisi dari Formulir 1771-I Nomor 8 Kolom 3)..... | 1 9.428.595.832 |
|                                                                                                                        | 2 KOMPENSASI KERUGIAN FISKAL<br>(Diisi dari Lampiran Khusus 2A Jumlah Kolom 8) | 2 0             |
|                                                                                                                        | 3 PENGHASILAN KENA PAJAK (1-2) .....                                           | 3 9.428.595.000 |

|                 |                                                                                                                                |                 |
|-----------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------|
| B. PPh TERUTANG | 4. PPh TERUTANG (Pilih salah satu sesuai dengan kriteria Wajib Pajak. Untuk lebih jelasnya, lihat Buku Petunjuk Pengisian SPT) |                 |
|                 | a. <input checked="" type="checkbox"/> Tarif PPh Ps. 17 Ayat (1) Huruf b X Angka 3 .....                                       |                 |
|                 | b. <input type="checkbox"/> Tarif PPh Ps. 17 ayat (2b) X Angka 3 .....                                                         | 4 2.357.148.750 |
|                 | c. <input type="checkbox"/> Tarif PPh Ps. 31E ayat (1)<br>(Lihat Buku Petunjuk)                                                |                 |
|                 | 5 PENGEMBALIAN / PENGURANGAN KREDIT PAJAK LUAR NEGERI<br>(PPh Ps. 24) YANG TELAH DIPERHITUNGKAN TAHUN LALU .....               | 5 0             |
|                 | 6 JUMLAH PPh YANG TERUTANG (4 + 5) .....                                                                                       | 6 2.357.148.750 |

|                 |                                                                                      |                |
|-----------------|--------------------------------------------------------------------------------------|----------------|
| C. KREDIT PAJAK | 7 PPh DITANGGUNG PEMERINTAH (Proyek Bantuan Luar Negeri) .....                       | 7 0            |
|                 | 8 a KREDIT PAJAK DALAM NEGERI<br>(Diisi dari Formulir 1771-III Jumlah Kolom 5) ..... | 8a 215.028.166 |
|                 | b KREDIT PAJAK LUAR NEGERI<br>(Diisi dari Lampiran Khusus 7A Jumlah Kolom 7) .....   | 8b 0           |
|                 | c JUMLAH (8a + 8b) .....                                                             | 8c 215.028.166 |

|                 |                                                                            |                 |
|-----------------|----------------------------------------------------------------------------|-----------------|
| D. KREDIT PAJAK | 9 a <input checked="" type="checkbox"/> PPh YANG HARUS DIBAYAR SENDIRI     | 9 2.142.120.584 |
|                 | b <input type="checkbox"/> PPh YANG LEBIH DIPOTONG / DIPUNGUT (6 - 7 - 8c) |                 |
|                 | 10 PPh YANG DIBAYAR SENDIRI                                                | 10a 681.054.234 |
|                 | a. PPh Ps. 25 BULANAN .....                                                | 10b 0           |
|                 | b. STP PPh Ps. 25 (Hanya Pokok Pajak) .....                                | 10c 0           |
|                 | c. PPh Ps. 25 AYAT (8) / FISKAL LUAR NEGERI .....                          | 10e 681.054.234 |
|                 | d. JUMLAH (10a + 10b + 10c) .....                                          |                 |

|                             |                                                                                                                                                   |                  |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------------|
| E. PAJAK YANG HARUS DIBAYAR | 11 a <input checked="" type="checkbox"/> PPh YANG KURANG DIBAYAR (PPh Ps. 29)                                                                     | 11 1.461.066.350 |
|                             | b <input type="checkbox"/> PPh YANG LEBIH DIBAYAR (PPh Ps. 28A) (9 - 10d)                                                                         |                  |
|                             | 12 PPh YANG KURANG DIBAYAR PADA ANGKA 11.a DISETOR TANGGAL                                                                                        | 2 9 0 1 2 0 1 9  |
|                             | 13 PPh YANG LEBIH DIBAYAR PADA ANGKA 11.b MOHON :                                                                                                 |                  |
|                             | a <input type="checkbox"/> DIRESTITUSIKAN b <input type="checkbox"/> DIPERHITUNGKAN DENGAN UTANG PAJAK                                            |                  |
|                             | Khusus Restitusi untuk Wajib Pajak dengan Kriteria Tertentu : <input type="checkbox"/> Pengembalian Pendahuluan (Pasal 17C atau Pasal 17D UU KUP) |                  |

0163005T 302062812092221 1294 016129890173371

MEDIA SARANA DATA

08DA200KU0NF2TK6 000021002281 002302

1 BANK CENTRAL ASIA, TBK.

BUKTI PENERIMAAN NEGARA  
PENERIMAAN PAJAK

KEMENTERIAN KEUANGAN

ISI PEMERIKSAAN

WAKTU & TEMPAT : 26/12/2016 09:22:32

NTB : 000021002281

WAKTU : 26/12/2016

NTDN : 08DA200KU0NF2TK6

NO. SARANA DATA : 000206

STAN : 002302

ISI KETERANGAN

NO. PENERIMAAN : 016129890173371

NO. PENERIMAAN : 02-961473-2-541-000

NO. WAKTU DATA : MEDIA SARANA DATA

ALAMAT : JL. DORODASIH NO 11 A, KOTA YOGYAKARTA

NO. BUKTI PAJAK :

KOTA PENGIRAN : 411126

NO. BUKTI PAJAK : 200

WAKTU DATA : 01-12-2017

NO. PENERIMAAN : 00000-000-00-000-00

NO. PENERIMAAN : 1.237.033.312.00

MATA UANG : IDR

ISI KETERANGAN : SATU MILYAR DUA RATUS TIGA PULUH TUJUH JUTA TIGA PULUH TIGA RIBU TIGA  
RATUS DUA BELAS

This is computer generated message and requires no signature

Ini adalah pesan yang dihasilkan komputer dan tidak memerlukan tanda tangan





KEMENTERIAN KEUANGAN R.I.  
DIREKTORAT JENDERAL PAJAK

CETAKAN KODE  
BILLING

TX No : A18283778839  
NPWP : 02.961.473.2-541.000  
NAMA : MEDIA SARANA DATA  
ALAMAT : JL DORODASIH NO 11 A  
  
KOTA : KOTA YOGYAKARTA  
NOP : -  
JENIS PAJAK : 411126 - PPh PsI 25/29 Badan  
JENIS SETORAN : 200 - Tahunan  
MASA PAJAK : 0112  
TAHUN PAJAK : 2017  
NOMOR KETETAPAN : -  
JUMLAH SETOR : Rp. 1.237.033.312  
TERBILANG : Satu Miliar Dua Ratus Tiga Puluh Tujuh Juta Tiga Puluh Tiga Ribu Tiga Ratus Dua Belas Rupiah  
  
URAIAN : SPT PPh Badan Tahun 2017 PT Media Sarana Data

NAMA PENYETOR : MEDIA SARANA DATA  
NPWP : 02.961.473.2-541.000

GUNAKAN KODE BILLING DI BAWAH INI UNTUK MELAKUKAN PEMBAYARAN.

ID BILLING : 018129890173371  
MASA AKTIF : 26/01/2019 17:15:20

Catatan : Apabila ada kesalahan dalam isian Kode Billing atau masa berlakunya berakhir, Kode Billing dapat dibuat kembali. Tanggung jawab isian Kode Billing ada pada Wajib Pajak yang namanya tercantum di dalamnya.

BANK CENTRAL ASIA, TBK.

BUKTI PENERIMAAN NEGARA  
PENERIMAAN PAJAK

KEMENTERIAN KEUANGAN

DATA PEMBAYARAN

TANGGAL & JAM BAYAR

: 18/12/2018 09:29:05

NTB

: 000020819128

TANGGAL BUKU

: 18/12/18

NTPN

: 06BC778Q3FTPVPV6

KODE CABANG BANK

: 000206

STAN

: 819148

DATA SETORAN

KODE BILLING

: 018125450595116

NPWP

: 029614732-541-000

NAMA WAJIB PAJAK

: MEDIA SARANA DATA

ALAMAT

: JL DORODASIH NO 11 A, KOTA YOGYAKARTA

NOMOR OBJEK PAJAK

:

MATA ANGGARAN

: 411126

JENIS SETORAN

: 200

MASA PAJAK

: 01-12-2017

NO KETETAPAN

: 000000000000000

JUMLAH SETORAN

: 224,020,695.00

MATA UANG

: IDR

TERBILANG

: DUA RATUS DUA PULUH EMPAT JUTA DUA PULUH RIBU ENAM RATUS  
SEMBILAN PULUH LIMA

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KEMENTERIAN KEUANGAN R.I.  
DIREKTORAT JENDERAL PAJAK

CETAKAN KODE  
BILLING

TX No : A18279854397  
NPWP : 02.961.473.2-541.000  
NAMA : MEDIA SARANA DATA  
ALAMAT : JL DORODASIH NO 11 A  
  
KOTA : KOTA YOGYAKARTA  
NOP : -  
JENIS PAJAK : 411126 - PPh Ps1 25/29 Badan  
JENIS SETORAN : 200 - Tahunan  
MASA PAJAK : 0112  
TAHUN PAJAK : 2017  
NOMOR KETETAPAN : -  
JUMLAH SETOR : Rp. 224.020.695  
TERBILANG : Dua Ratus Dua Puluh Empat Juta Dua Puluh Ribu Enam Ratus Sembilan  
Puluh Lima Rupiah  
  
URAIAN : SPT PPh Badan Tahun 2017 PT Media Sarana Data

NAMA PENYETOR : MEDIA SARANA DATA  
NPWP : 02.961.473.2-541.000

GUNAKAN KODE BILLING DI BAWAH INI UNTUK MELAKUKAN PEMBAYARAN.

ID BILLING : 018125450595116  
MASA AKTIF : 16/01/2019 09:39:44

Catatan : Apabila ada kesalahan dalam isian Kode Billing atau masa berlakunya berakhir, Kode Billing dapat dibuat kembali. Tanggung jawab isian Kode Billing ada pada Wajib Pajak yang namanya tercantum di dalamnya.

**BANK CENTRAL ASIA, TBK.**

**BUKTI PENERIMAAN NEGARA  
PENERIMAAN PAJAK**

## KEMENTERIAN KEUANGAN

### DATA PEMBAYARAN

TANGGAL &amp; JAM BAYAR

: 29/01/2019 10:33:09

NTB

: 000021830149

TANGGAL BUKU

: 29/01/2019

NTPN

: 78E4D7BUBACDN5EM

KODE CABANG BANK

: 0206

STAN

: 830170

## DATA SETORAN

KODE BILLING

: 019014260057153

NPWP

: 029614732541000

**NAMA WAJIB PAJAK**

: MEDIA SARANA DATA

ALAMAT

: JL DORODASIH NO 11 A,KOTA YOGYAKARTA

NOMOR OBJEK PAJAK

•

## RINCLAN DATA SETORAN

## MATA ANGGARAN

: 411126

## JENIS SETORAN

: 200

MASA PAJAK

: 01-12-2017

NO KETETAPAN

```
: 0000000000000000
```

Jumlah Setoran

: 12.343,00

## MATA UANG

: IDR

TERBILANG

: DUA BELAS RIBU TIGA RATUS EMPAT PULUH TIGA

Informasi ini hasil cetakan komputer dan tidak memerlukan tanda tangan





KEMENTERIAN KEUANGAN R.I.  
DIREKTORAT JENDERAL PAJAK

CETAKAN KODE  
BILLING

TX No : A19288683208  
NPWP : 02.961.473.2-541.000  
NAMA : MEDIA SARANA DATA  
ALAMAT : JL DORODASIH NO 11 A  
  
KOTA : KOTA YOGYAKARTA  
NOP : -  
JENIS PAJAK : 411126 - PPh Psl 25/29 Badan  
JENIS SETORAN : 200 - Tahunan  
MASA PAJAK : 0112  
TAHUN PAJAK : 2017  
NOMOR KETETAPAN : -  
JUMLAH SETOR : Rp. 12.343  
TERBILANG : Dua Belas Ribu Tiga Ratus Empat Puluh Tiga Rupiah  
  
URAIAN : PPh Pasal 29 Tahun 2017 PT Media Sarana Data (Pembetulan Ke1)  
  
NAMA PENYETOR : MEDIA SARANA DATA  
NPWP : 02.961.473.2-541.000  
  
GUNAKAN KODE BILLING DI BAWAH INI UNTUK MELAKUKAN PEMBAYARAN.  
ID BILLING : 019014260057153  
MASA AKTIF : 28/02/2019 10:18:51

Catatan : Apabila ada kesalahan dalam isian Kode Billing atau masa berlakunya berakhir, Kode Billing dapat dibuat kembali. Tanggung jawab isian Kode Billing ada pada Wajib Pajak yang namanya tercantum di dalamnya.

| (2)  |                                                                                                                             | Rupiah *)         |
|------|-----------------------------------------------------------------------------------------------------------------------------|-------------------|
|      |                                                                                                                             | (3)               |
| 14 a | PENGHASILAN YANG MENJADI DASAR PENGHITUNGAN ANGSURAN                                                                        | 14a 9.428.595.832 |
| b    | KOMPENSASI KERUGIAN :<br>(Diisi dari Lampiran Khusus 2A Jumlah Kolom 9)                                                     | 14b 0             |
| c    | PENGHASILAN KENA PAJAK (14a - 14b)                                                                                          | 14c 9.428.595.000 |
| d    | PPh YANG TERUTANG<br>(Tarif PPh dari Bagian B Nomor 4 X 14c)                                                                | 14d 2.357.148.750 |
| e    | KREDIT PAJAK TAHUN PAJAK YANG LALU ATAS PENGHASILAN YANG TERMASUK DALAM HURUF 14 a YANG DIPOTONG / DIPUNGUT OLEH PIHAK LAIN | 14e 215.028.166   |
| f    | PPh YANG HARUS DIBAYAR SENDIRI (14d - 14e)                                                                                  | 14f 2.142.120.584 |
| g    | PPh PASAL 25 : (1/12 X 14 f)                                                                                                | 14g 178.510.048   |

|      |                                                                                                                        |       |
|------|------------------------------------------------------------------------------------------------------------------------|-------|
| 15 a | PPh FINAL :<br>(Diisi dari Formulir 1771-IV Jumlah Bagian A Kolom 5)                                                   | 15a 0 |
| b    | PENGHASILAN YANG TIDAK TERMASUK OBJEK PAJAK PENGHASILAN BRUTO<br>(Diisi dari Formulir 1771-IV Jumlah Bagian B Kolom 3) | 15b 0 |

|      |                                                                                                                                                                                                                                              |
|------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 16 a | <input type="checkbox"/> Ada Transaksi Dalam Hubungan Istimewa dan/atau Transaksi dengan Pihak Yang Merupakan Penduduk Negara <i>Tax Heaven Country</i><br>(Wajib Melampirkan Lampiran Khusus 3A, 3A-1 dan 3A-2 Buku Petunjuk Pengisian SPT) |
| b    | <input checked="" type="checkbox"/> Tidak Ada Transaksi Dalam Hubungan Istimewa dan/atau Transaksi dengan Pihak Yang Merupakan Penduduk Negara <i>Tax Heaven Country</i>                                                                     |

|    |                                                                                                                                                      |
|----|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17 | SELAIN LAMPIRAN-LAMPIRAN 1771-I, 1771-II, 1771-III, 1771-IV, 1771-V, DAN 1771-VI BERSAMA INI DILAMPIRKAN PULA :                                      |
| a. | <input checked="" type="checkbox"/> SURAT SETORAN PAJAK LEMBAR KE-3 PPh PASAL 29                                                                     |
| b. | <input checked="" type="checkbox"/> LAPORAN KEUANGAN                                                                                                 |
| c. | <input checked="" type="checkbox"/> TRANSKRIP KUTIPAN ELEMEN-ELEMEN DARI LAPORAN KEUANGAN (Lampiran Khusus 8A-1 / 8A-2 / 8A-3 / 8A-4 / 8A-5 / 8A-6)* |
| d. | <input checked="" type="checkbox"/> DAFTAR PENYUSUTAN DAN AMORTISASI FISKAL (Lampiran Khusus 1A Buku Petunjuk Pengisian SPT)*                        |
| e. | <input type="checkbox"/> PERHITUNGAN KOMPENSASI KERUGIAN FISKAL (Lampiran Khusus 2A Buku Petunjuk Pengisian SPT)*                                    |
| f. | <input type="checkbox"/> DAFTAR FASILITAS PENANAMAN MODAL (Lampiran Khusus 4A Buku Petunjuk Pengisian SPT)*                                          |
| g. | <input type="checkbox"/> DAFTAR CABANG UTAMA PERUSAHAAN (Lampiran Khusus 5A Buku Petunjuk Pengisian SPT)*                                            |
| h. | <input type="checkbox"/> SURAT SETORAN PAJAK LEMBAR KE-3 PPh PASAL 26 AYAT (4) (Khusus bagi BUT)                                                     |
| i. | <input type="checkbox"/> PERHITUNGAN PPh PASAL 26 AYAT (4) (Khusus BUT) (Lampiran Khusus 6A Buku Petunjuk Pengisian SPT)*                            |
| j. | <input type="checkbox"/> KREDIT PAJAK LUAR NEGERI (Lampiran Khusus 7A Buku Petunjuk Pengisian SPT)*                                                  |
| k. | <input type="checkbox"/> SURAT KUASA KHUSUS (Bila Dikuasakan)                                                                                        |
| l. | <input type="checkbox"/> .....                                                                                                                       |
| m. | <input type="checkbox"/> .....                                                                                                                       |
| n. | <input type="checkbox"/> .....                                                                                                                       |

\* Wajib Pajak dapat langsung mengunduh dari situs Direktorat Jenderal Pajak dengan alamat <http://www.pajak.go.id> atau mengambil di KPP/KP2KP terdekat.

PERNYATAAN

Dengan menyadari sepenuhnya akan segala akibatnya termasuk sanksi - sanksi sesuai dengan ketentuan perundang-undangan yang berlaku, saya menyatakan bahwa apa yang telah saya beritahukan di atas beserta lampiran-lampirannya adalah benar, lengkap dan jelas.

a. ☒ WAJIB PAJAK      b. ☐ KUASA      c. YOGYAKARTA      d. 3 0 0 1 2 0 1 9

TANDA TANGAN DAN CAP PERUSAHAAN :

NAMA LENGKAP

PENGURUS / KUASA : e. R A H M A T A J I S E T I A W A N

NPWP : f. 2 4 5 7 0 6 5 1 0 5 4 3 0 0 0



1771 - I

## LAMPIRAN - I

SPT TAHUNAN PAJAK PENGHASILAN WAJIB PAJAK BADAN

KEMENTERIAN KEUANGAN RI  
DIREKTORAT JENDERAL PAJAK

## PENGHITUNGAN PENGHASILAN NETO FISKAL

TAHUN PAJAK

2017

NPWP : 02 961 473 2 541 000

NAMA WAJIB PAJAK : PT MEDIA SARANA DATA

PERIODE PEMBUKUAN : 0117 s.d 1217

| NO. | URAIAN                                                                                                                                                | RUPIAH            |
|-----|-------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| (1) | (2)                                                                                                                                                   | (3)               |
| 1.  | <b>PENGHASILAN NETO KOMERSIAL DALAM NEGERI :</b>                                                                                                      |                   |
| a.  | PEREDARAN USAHA .....                                                                                                                                 | 1a 86.556.189.215 |
| b.  | HARGA POKOK PENJUALAN .....                                                                                                                           | 1b 41.641.149.000 |
| c.  | BIAYA USAHA LAINNYA .....                                                                                                                             | 1c 15.486.444.383 |
| d.  | PENGHASILAN NETO DARI USAHA ( 1a - 1b - 1c ) .....                                                                                                    | 1d 9.428.595.832  |
| e.  | PENGHASILAN DARI LUAR USAHA .....                                                                                                                     | 1e 0              |
| f.  | BIAYA DARI LUAR USAHA .....                                                                                                                           | 1f 0              |
| g.  | PENGHASILAN NETO DARI LUAR USAHA ( 1e - 1f ) .....                                                                                                    | 1g 0              |
| h.  | JUMLAH ( 1d + 1g ) : .....                                                                                                                            | 1h 9.428.595.832  |
| 2.  | <b>PENGHASILAN NETO KOMERSIAL LUAR NEGERI</b><br>(Diisi dari lampiran Khusus 7A Kolom 4) .....                                                        | 2 0               |
| 3.  | <b>JUMLAH PENGHASILAN NETO KOMERSIAL ( 1h + 2 ) .....</b>                                                                                             | 3 9.428.595.832   |
| 4.  | <b>PENGHASILAN YANG DIKENAKAN PPh FINAL DAN<br/>YANG TIDAK TERMASUK OBJEK PAJAK .....</b>                                                             | 4 0               |
| 5.  | <b>PENYESUAIAN FISKAL POSITIF :</b>                                                                                                                   |                   |
| a.  | BIAYA YANG DIBEBAHKAN / DIKELUARKAN UNTUK KEPENTINGAN<br>PEMEGANG SAHAM, SEKUTU, ATAU ANGGOTA .....                                                   | 5a 0              |
| b.  | PEMBENTUKAN ATAU PEMUPUKAN DANA CADANGAN .....                                                                                                        | 5b 0              |
| c.  | PENGGANTIAN ATAU IMBALAN PEKERJAAN ATAU<br>JASA DALAM BENTUK NATURA DAN KENIKMATAN .....                                                              | 5c 0              |
| d.  | JUMLAH YANG MELEBIHI KEWAJARAN YANG DIBAYARKAN KEPADA<br>PEMEGANG SAHAM / PIHAK YANG MEMPUNYAI HUBUNGAN ISTIMEWA<br>SEHUBUNGAN DENGAN PEKERJAAN ..... | 5d 0              |
| e.  | HARTA YANG DIHIBAHKAN, BANTUAN ATAU SUMBANGAN .....                                                                                                   | 5e 0              |
| f.  | PAJAK PENGHASILAN .....                                                                                                                               | 5f 0              |
| g.  | GAJI YANG DIBAYARKAN KEPADA ANGGOTA PERSEKUTUAN, FIRMA<br>ATAU CV YANG MODALNYA TIDAK TERBAGI ATAS SAHAM .....                                        | 5g 0              |
| h.  | SANKSI ADMINISTRASI .....                                                                                                                             | 5h 0              |
| i.  | SELISIH PENYUSUTAN KOMERSIAL DI ATAS PENYUSUTAN FISKAL .....                                                                                          | 5i 0              |
| j.  | SELISIH AMORTISASI KOMERSIAL DI ATAS AMORTISASI FISKAL .....                                                                                          | 5j 0              |
| k.  | BIAYA YANG DITANGGUHKAN PENGAKUANNYA .....                                                                                                            | 5k 0              |
| l.  | PENYESUAIAN FISKAL POSITIF LAINNYA .....                                                                                                              | 5l 0              |
| m.  | JUMLAH 5a s.d. 5l : .....                                                                                                                             | 5m 0              |
| 6.  | <b>PENYESUAIAN FISKAL NEGATIF :</b>                                                                                                                   |                   |
| a.  | SELISIH PENYUSUTAN KOMERSIAL DI BAWAH PENYUSUTAN FISKAL .....                                                                                         | 6a 0              |
| b.  | SELISIH AMORTISASI KOMERSIAL DI BAWAH AMORTISASI FISKAL .....                                                                                         | 6b 0              |
| c.  | PENGHASILAN YANG DITANGGUHKAN PENGAKUANNYA .....                                                                                                      | 6c 0              |
| d.  | PENYESUAIAN FISKAL NEGATIF LAINNYA .....                                                                                                              | 6d 0              |
| e.  | JUMLAH 6a s.d. 6d .....                                                                                                                               | 6e 0              |
| 7.  | <b>FASILITAS PENANAMAN MODAL BERUPA PENGURANGAN PENGHASILAN NETO :</b><br>TAHUN KE 7a 0 ( Diisi dari Lampiran Khusus 4A Angka 5b ) .....              | 7b 0              |
| 8.  | <b>PENGHASILAN NETO FISKAL ( 3 - 4 + 5m - 6e - 7b ) .....</b>                                                                                         | 8 9.428.595.832   |

CATATAN : Pindahkan jumlah Angka 8 ke Formulir 1771 Huruf A Angka 1.



PERINCIAN HARGA POKOK PENJUALAN, BIAYA USAHA LAINNYA DAN BIAYA DARI LUAR USAHA

|           |                                   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|-----------|-----------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----------------------------------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| IDENTITAS | NPWP : 029614732541000            |  |  |  |  |  |  |  |  |  |  |  |  |  |  | NAMA WAJIB PAJAK : PT MEDIA SARANA DATA |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|           | PERIODE PEMBUKUAN : 0117 s.d 1217 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |                                         |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

| NO.                           | PERINCIAN                                               | HARGA POKOK PENJUALAN<br>(Rupiah) | BIAYA USAHA LAINNYA<br>(Rupiah) | BIAYA DARI LUAR USAHA<br>(Rupiah) | JUMLAH<br>(Rupiah)    |
|-------------------------------|---------------------------------------------------------|-----------------------------------|---------------------------------|-----------------------------------|-----------------------|
| (1)                           | (2)                                                     | (3)                               | (4)                             | (5)                               | (6) = (3) + (4) + (5) |
| 1.                            | PEMBELIAN BAHAN/BARANG DAGANGAN                         | 41.641.149.000                    | 0                               | 0                                 | 41.641.149.000        |
| 2.                            | GAJI, UPAH, BONUS, GRATIFIKASI,<br>HONORARIUM, THR, DSB | 0                                 | 4.050.850.816                   | 0                                 | 4.050.850.816         |
| 3.                            | BIAYA TRANSPORTASI                                      | 0                                 | 529.567.088                     | 0                                 | 529.567.088           |
| 4.                            | BIAYA PENYUSUTAN DAN AMORTISASI                         | 0                                 | 50.090.492                      | 0                                 | 50.090.492            |
| 5.                            | BIAYA SEWA                                              | 0                                 | 0                               | 0                                 | 0                     |
| 6.                            | BIAYA BUNGA PINJAMAN                                    | 0                                 | 0                               | 0                                 | 0                     |
| 7.                            | BIAYA SEHUBUNGAN DENGAN JASA                            | 0                                 | 0                               | 0                                 | 0                     |
| 8.                            | BIAYA PIUTANG TAK TERTAGIH                              | 0                                 | 0                               | 0                                 | 0                     |
| 9.                            | BIAYA ROYALTY                                           | 0                                 | 0                               | 0                                 | 0                     |
| 10.                           | BIAYA PEMASARAN/PROMOSI                                 | 0                                 | 0                               | 0                                 | 0                     |
| 11.                           | BIAYA LAINNYA                                           | 0                                 | 10.855.935.987                  | 0                                 | 10.855.935.987        |
| 12.                           | PERSEDIAAN AWAL                                         | 0                                 | 0                               | 0                                 | 0                     |
| 13.                           | PERSEDIAAN AKHIR (-/-)                                  | 0                                 | 0                               | 0                                 | 0                     |
| JUMLAH 1 s.d. 12 DIKURANGI 13 |                                                         | 41.641.149.000                    | 15.486.444.383                  | 0                                 | 57.127.593.383        |

Catatan :

- Nomor 1 untuk perusahaan dagang diisi pembelian barang dagangan, untuk perusahaan industri diisi pembelian bahan baku, bahan penolong dan barang jadi.
- Nomor 7 termasuk management fee, technical assistance fee, professional fee, dan jasa lainnya.
- Nomor 11 diisi dengan total biaya yang tidak tertampung dalam perincian 1 s.d. 10.
- Nomor 12 dan 13 untuk perusahaan dagang diisi total persediaan awal dan akhir barang dagangan, untuk perusahaan industri diisi total persediaan awal/akhir bahan baku/bahan penolong ditambah barang setengah jadi ditambah barang jadi.



| IDENTITAS                         |                                                   | NPWP : 029614732541000 NAMA WAJIB PAJAK : PT MEDIA SARANA DATA |                               |            |                                                     |                                |                       |  |         |  |  |
|-----------------------------------|---------------------------------------------------|----------------------------------------------------------------|-------------------------------|------------|-----------------------------------------------------|--------------------------------|-----------------------|--|---------|--|--|
| PERIODE PEMBUKUAN : 0117 s.d 1217 |                                                   |                                                                |                               |            |                                                     |                                |                       |  |         |  |  |
| NO.                               | PEMOTONG / PEMUNGUT PAJAK                         |                                                                | OBJEK PEMOTONGAN / PEMUNGUTAN |            | PAJAK PENGHASILAN YANG DIPOTONG / DIPUNGUT (RUPIAH) |                                | BUKTI POTONG / PUNGUT |  | TANGGAL |  |  |
|                                   | NAMA                                              | NPWP                                                           | JENIS PENGHASILAN/TRANSAKSI   | RUPIAH     | (6)                                                 | (7)                            | (8)                   |  |         |  |  |
| (1)                               | (2)                                               | (3)                                                            | (4)                           | (5)        | (6)                                                 | (7)                            | (8)                   |  |         |  |  |
| 1                                 | PT SUKSES INTI SENTOSA                            | 02.798.596.9-903.000                                           | Imbalan/Jasa Lainnya          | 3.500.000  | 70.000                                              | 1/SIS/II/2017                  | 01/01/2017            |  |         |  |  |
| 2                                 | PT INDUCOMP DEWATA                                | 02.601.760.8-901.000                                           | Imbalan/Jasa Lainnya          | 3.500.000  | 70.000                                              | 000001/PPH23/ICD/II/2017       | 01/01/2017            |  |         |  |  |
| 3                                 | BENDAHARA PENGELUARAN KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000                                           | Imbalan/Jasa Lainnya          | 3.850.000  | 70.000                                              | 01/BP/01/2017                  | 01/01/2017            |  |         |  |  |
| 4                                 | PT SAPROTAN UTAMA                                 | 01.136.144.1-511.000                                           | Imbalan/Jasa Lainnya          | 16.500.000 | 330.000                                             | 001/SU-ACCT/II/2017            | 01/02/2017            |  |         |  |  |
| 5                                 | PT TOKO BESI TAN                                  | 80.886.757.6-504.000                                           | Imbalan/Jasa Lainnya          | 1.500.000  | 30.000                                              | 01/II/PPH.23/TBTAN/2017        | 01/02/2017            |  |         |  |  |
| 6                                 | PT HILON FELT                                     | 02.026.460.2-505.001                                           | Imbalan/Jasa Lainnya          | 2.000.000  | 40.000                                              | 006/HF-KABSMG/PPHP S23/II/2017 | 01/02/2017            |  |         |  |  |
| 7                                 | PT TEE JAYA TERPERCAYA                            | 80.881.334.9-518.000                                           | Imbalan/Jasa Lainnya          | 2.500.000  | 50.000                                              | 001/II/PS.23/TJT/2017          | 01/02/2017            |  |         |  |  |
| 8                                 | BENDAHARA PENGELUARAN KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000                                           | Imbalan/Jasa Lainnya          | 3.850.000  | 70.000                                              | 02/BP/02/2017                  | 01/02/2017            |  |         |  |  |
| 9                                 | PT BULLSEYE                                       | 31.261.085.0-904.000                                           | Imbalan/Jasa Lainnya          | 5.000.000  | 100.000                                             | 000146/PPH23                   | 01/02/2017            |  |         |  |  |
| 10                                | PT CIPUTRA SEMARANG                               | 01.337.013.5-511.000                                           | Imbalan/Jasa Lainnya          | 21.936.000 | 438.720                                             | 06/HCS/PPH23/II/17             | 01/02/2017            |  |         |  |  |
| 11                                | PT CATUR ADHI MANUNGKAL                           | 01.139.685.0-511.000                                           | Imbalan/Jasa Lainnya          | 2.500.000  | 50.000                                              | 01/II/PPH.23/CAM/2017          | 01/02/2017            |  |         |  |  |
| 12                                | PT MAX SOLUSINDO JAYA                             | 31.203.736.9-036.000                                           | Imbalan/Jasa Lainnya          | 3.500.000  | 70.000                                              | 003/PPH23/MSJ/II/2017          | 01/02/2017            |  |         |  |  |
| 13                                | PT ANDALAS MEDIA                                  | 02.322.642.6-014.001                                           | Imbalan/Jasa Lainnya          | 1.250.000  | 25.000                                              | 000009/AMI/PPH23/II/17         | 01/02/2017            |  |         |  |  |

| NO. | NAMA<br>(2)                                          | NPWP<br>(3)          | JENIS PENGHASILAN/TRANSAKSI<br>(4) | RUPIAH<br>(5) | INSURANCE<br>(RUPIAH)<br>(6) | NOMOR<br>(7)                  | TANGGAL<br>(8) |
|-----|------------------------------------------------------|----------------------|------------------------------------|---------------|------------------------------|-------------------------------|----------------|
| 14  | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000                       | 2/SIS/II/2017                 | 01/02/2017     |
| 15  | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000                       | 005/PPH23/MSJ/III/2017        | 01/03/2017     |
| 16  | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 | Imbalan/Jasa Lainnya               | 1.803.225     | 32.786                       | 04/BP/03/2017                 | 01/03/2017     |
| 17  | PT BULLSEYE                                          | 31.261.085.0-904.000 | Imbalan/Jasa Lainnya               | 5.000.000     | 100.000                      | 000157/PPH23                  | 01/03/2017     |
| 18  | PT BERKAT KANA ABADI                                 | 31.792.709.3-541.000 | Imbalan/Jasa Lainnya               | 900.000       | 18.000                       | 000002/BKA23/541.000/III/2017 | 01/03/2017     |
| 19  | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000                       | 3/SIS/III/2017                | 01/03/2017     |
| 20  | PT HIPERNET INDODATA                                 | 02.485.008.3-036.000 | Imbalan/Jasa Lainnya               | 1.500.000     | 30.000                       | 035/HYP/PPH23/III/17          | 01/03/2017     |
| 21  | PT TOKO BESI TAN                                     | 80.886.757.6-504.000 | Imbalan/Jasa Lainnya               | 1.500.000     | 30.000                       | 01/III/PPH.23/TBTAN/2017      | 01/03/2017     |
| 22  | PT TEE JAYA TERPERCAYA                               | 80.881.334.9-518.000 | Imbalan/Jasa Lainnya               | 2.500.000     | 50.000                       | 001/III/PS.23/TJT/2017        | 01/03/2017     |
| 23  | PT BERKAH EMAS SUMBER TERANG                         | 02.036.644.9-511.000 | Imbalan/Jasa Lainnya               | 1.250.000     | 25.000                       | 119-17                        | 01/03/2017     |
| 24  | PT SAPROTAN UTAMA                                    | 01.136.144.1-511.000 | Imbalan/Jasa Lainnya               | 9.000.000     | 180.000                      | 002/SU-ACCT/III/2017          | 01/03/2017     |
| 25  | PT SUSAN PHOTO ALBUM                                 | 01.457.035.2-511.000 | Imbalan/Jasa Lainnya               | 2.000.000     | 40.000                       | 000015/PPH23                  | 01/03/2017     |
| 26  | PT SATYA RAGAM TRUX                                  | 75.789.647.7-037.000 | Imbalan/Jasa Lainnya               | 1.000.000     | 20.000                       | 017/III/SRT/2017              | 01/03/2017     |
| 27  | PT HIPERNET INDODATA                                 | 02.485.008.3-036.000 | Imbalan/Jasa Lainnya               | 1.500.000     | 30.000                       | 036/HYP/PPH23/III/17          | 01/03/2017     |
| 28  | PT ANDALAS MEDIA                                     | 02.322.642.6-014.001 | Imbalan/Jasa Lainnya               | 1.250.000     | 25.000                       | 000014/AMI/PPH23/III/17       | 01/03/2017     |
| 29  | APSARANA                                             | 75.751.252.0-402.000 | Imbalan/Jasa Lainnya               | 3.000.000     | 60.000                       | 000012/PPH23-APS/III/2017     | 01/03/2017     |
| 30  | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 | Imbalan/Jasa Lainnya               | 3.850.000     | 70.000                       | 03/BP/03/2017                 | 01/03/2017     |



| NAMA<br>(2) |                                                      | NPWP<br>(3)          |  | JENIS PENGHASILAN/TRANSAKSI<br>(4) |  | RUPIAH<br>(5) |  | RUPIAH<br>(6) |  | (7)                              |  | (8)        |  |
|-------------|------------------------------------------------------|----------------------|--|------------------------------------|--|---------------|--|---------------|--|----------------------------------|--|------------|--|
| (1)         |                                                      |                      |  |                                    |  |               |  |               |  |                                  |  |            |  |
| 31          | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 |  | Imbalan/Jasa Lainnya               |  | 6.000.000     |  | 109.091       |  | 05/BP/04/2017                    |  | 01/04/2017 |  |
| 32          | PT BULLSEYE                                          | 31.261.085.0-904.000 |  | Imbalan/Jasa Lainnya               |  | 5.000.000     |  | 100.000       |  | 000162/PPH23                     |  | 01/04/2017 |  |
| 33          | PT BERKAT KANA ABADI                                 | 31.792.709.3-541.000 |  | Imbalan/Jasa Lainnya               |  | 900.000       |  | 18.000        |  | 000001/BKA23/541.000<br>/IV/2017 |  | 01/04/2017 |  |
| 34          | PT GERHANA UNGGUL DEWATA                             | 72.655.043.7-903.000 |  | Imbalan/Jasa Lainnya               |  | 1.500.000     |  | 30.000        |  | 000104/PPH23                     |  | 01/04/2017 |  |
| 35          | PT BERKAT KANA ABADI                                 | 31.792.709.3-541.000 |  | Imbalan/Jasa Lainnya               |  | 900.000       |  | 18.000        |  | 000002/BKA23/541.000<br>/IV/2017 |  | 01/04/2017 |  |
| 36          | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 |  | Imbalan/Jasa Lainnya               |  | 3.500.000     |  | 70.000        |  | 4/SIS/IV/2017                    |  | 01/04/2017 |  |
| 37          | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 |  | Imbalan/Jasa Lainnya               |  | 3.500.000     |  | 70.000        |  | 007/PPH23/MSJ/IV/2017            |  | 01/04/2017 |  |
| 38          | PT YOGA BARN                                         | 31.363.657.3-907.000 |  | Imbalan/Jasa Lainnya               |  | 8.500.000     |  | 170.000       |  | 000002/PPH23/YB/IV/2017          |  | 01/04/2017 |  |
| 39          | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 |  | Imbalan/Jasa Lainnya               |  | 3.500.000     |  | 70.000        |  | 010/PPH23/MSJ/IV/2017            |  | 01/05/2017 |  |
| 40          | PT BULLSEYE                                          | 31.261.085.0-904.000 |  | Imbalan/Jasa Lainnya               |  | 5.000.000     |  | 100.000       |  | 000172/PPH23                     |  | 01/05/2017 |  |
| 41          | PT GERHANA UNGGUL DEWATA                             | 72.655.043.7-903.000 |  | Imbalan/Jasa Lainnya               |  | 1.500.000     |  | 30.000        |  | 000117/PPH23                     |  | 01/05/2017 |  |
| 42          | PT YOGA BARN                                         | 31.363.657.3-907.000 |  | Imbalan/Jasa Lainnya               |  | 8.500.000     |  | 170.000       |  | 000001/PPH23/YB/IV/2017          |  | 01/05/2017 |  |
| 43          | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 |  | Imbalan/Jasa Lainnya               |  | 6.000.000     |  | 109.091       |  | 06/BP/05/2017                    |  | 01/05/2017 |  |
| 44          | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 |  | Imbalan/Jasa Lainnya               |  | 3.500.000     |  | 70.000        |  | 5/SIS/IV/2017                    |  | 01/05/2017 |  |
| 45          | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 |  | Imbalan/Jasa Lainnya               |  | 3.500.000     |  | 70.000        |  | 013/PPH23/MSJ/IV/2017            |  | 01/06/2017 |  |
| 46          | PT VOLCOM INDONESIA                                  | 01.913.526.8-904.001 |  | Imbalan/Jasa Lainnya               |  | 600.000       |  | 12.000        |  | 001/NSKS/PPH23/VI/2017           |  | 01/06/2017 |  |
| 47          | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 |  | Imbalan/Jasa Lainnya               |  | 3.500.000     |  | 70.000        |  | 6/SIS/VI/2017                    |  | 01/06/2017 |  |

| (1) | NAMA<br>(2)                                          | NPWP<br>(3)          | JENIS PENGHASILAN/TRANSAKSI<br>(4) | RUPIAH<br>(5) | (RUPIAH)<br>(6) | NOMOR<br>(7)                   | TANGGAL<br>(8) |
|-----|------------------------------------------------------|----------------------|------------------------------------|---------------|-----------------|--------------------------------|----------------|
| 48  | PT YOGA BARN                                         | 31.363.657.3-907.000 | Imbalan/Jasa Lainnya               | 8.500.000     | 170.000         | 000001/PPH23/YB/VI/2017        | 01/06/2017     |
| 49  | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 | Imbalan/Jasa Lainnya               | 6.000.000     | 109.091         | 07/BP/06/2017                  | 01/06/2017     |
| 50  | PT INDUCOMP DEWATA                                   | 02.601.760.8-901.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000          | 000053/PPH23/ICD/VI/2017       | 01/06/2017     |
| 51  | PT VOLCOM INDONESIA                                  | 01.913.526.8-904.001 | Imbalan/Jasa Lainnya               | 600.000       | 12.000          | 003/VSBC/PPH23/VI/2017         | 01/06/2017     |
| 52  | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 | Imbalan/Jasa Lainnya               | 6.000.000     | 109.091         | 08/BP/07/2017                  | 01/07/2017     |
| 53  | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000          | 016/PPH23/MSJ/VII/2017         | 01/07/2017     |
| 54  | PT GERHANA UNGGUL DEWATA                             | 72.655.043.7-903.000 | Imbalan/Jasa Lainnya               | 1.500.000     | 30.000          | 000146/PPH23                   | 01/07/2017     |
| 55  | PT INDUCOMP DEWATA                                   | 02.601.760.8-901.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000          | 000063/PPH23/ICD/VII/2017      | 01/07/2017     |
| 56  | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000          | 7/SIS/VII/2017                 | 01/07/2017     |
| 57  | PT BULLEVE                                           | 31.261.085.0-904.000 | Imbalan/Jasa Lainnya               | 5.000.000     | 100.000         | 000188/PPH23                   | 01/07/2017     |
| 58  | PT BULLEVE                                           | 31.261.085.0-904.000 | Imbalan/Jasa Lainnya               | 5.000.000     | 100.000         | 000196/PPH23                   | 01/08/2017     |
| 59  | PT TAMAN DELTA INDONESIA<br>SEMARANG                 | 01.481.416.4-511.000 | Imbalan/Jasa Lainnya               | 1.500.000     | 30.000          | 00051/PPH23/VIII/2017          | 01/08/2017     |
| 60  | PT ANDALAS MEDIA                                     | 02.322.642.6-014.001 | Imbalan/Jasa Lainnya               | 1.250.000     | 25.000          | 000008/AMI/PPH23/VII/2017      | 01/08/2017     |
| 61  | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 | Imbalan/Jasa Lainnya               | 3.500.000     | 70.000          | 019/PPH23/MSJ/VIII/2017        | 01/08/2017     |
| 62  | PT QUICK SILVER INDONESIA                            | 02.116.057.7-904.001 | Imbalan/Jasa Lainnya               | 2.000.000     | 40.000          | 000001/QI/23/VIII/2017         | 01/08/2017     |
| 63  | PT NAAVAGREEN INDONESIA                              | 31.548.965.8-508.001 | Imbalan/Jasa Lainnya               | 1.000.000     | 20.000          | 000001/NGI23/508.001/VIII/2017 | 01/08/2017     |
| 64  | PT TEE JAYA TERPERCAYA                               | 80.881.334.9-518.000 | Imbalan/Jasa Lainnya               | 2.500.000     | 50.000          | 001/VIII/PS.23/TIT/2017        | 01/08/2017     |



|     | NAMA                                                 | NPWP                 | JENIS PENGHASILAN/TRANSAKSI | RUPIAH    | RUPIAH  |                              |            |
|-----|------------------------------------------------------|----------------------|-----------------------------|-----------|---------|------------------------------|------------|
| (1) | (2)                                                  | (3)                  | (4)                         | (5)       | (6)     | (7)                          | (8)        |
| 65  | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 | Imbalan/Jasa Lainnya        | 6.000.000 | 109.091 | 09/BP/08/2017                | 01/08/2017 |
| 66  | PT SATYA RAGAM TRUXPRESS                             | 75.789.647.7-037.000 | Imbalan/Jasa Lainnya        | 1.454.545 | 29.090  | 058/III/SRT/2017             | 01/08/2017 |
| 67  | PT CERMIN JIWA ILAHI                                 | 75.576.631.8-541.000 | Imbalan/Jasa Lainnya        | 4.258.064 | 85.161  | 000009/PPH23/CI/III/2017     | 01/08/2017 |
| 68  | PT BERKAT KANA ABADI                                 | 31.792.709.3-541.000 | Imbalan/Jasa Lainnya        | 900.000   | 18.000  | 000005/BK23/541.000/III/2017 | 01/08/2017 |
| 69  | PT VOLCOM INDONESIA                                  | 01.913.526.8-904.001 | Imbalan/Jasa Lainnya        | 8.750.000 | 175.000 | 017/VOLCOM/PPH23/VI/II/2017  | 01/08/2017 |
| 70  | PT HIPERNET INDODATA                                 | 02.485.008.3-036.000 | Imbalan/Jasa Lainnya        | 1.500.000 | 30.000  | 026/HYP/PPH23/III/17         | 01/08/2017 |
| 71  | PT DENKO WAHANA SAKTI                                | 01.654.230.0-029.000 | Imbalan/Jasa Lainnya        | 1.500.000 | 30.000  | 016/DWS/III/2017             | 01/08/2017 |
| 72  | PT HIPERNET INDODATA                                 | 02.485.008.3-036.000 | Imbalan/Jasa Lainnya        | 1.500.000 | 30.000  | 014/HYP/PPH23/III/17         | 01/08/2017 |
| 73  | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 | Imbalan/Jasa Lainnya        | 3.500.000 | 70.000  | 8/SIS/III/2017               | 01/08/2017 |
| 74  | PT SATYA RAGAM TRUX                                  | 75.789.647.7-037.000 | Imbalan/Jasa Lainnya        | 1.000.000 | 20.000  | 057/III/SRT/2017             | 01/08/2017 |
| 75  | PT SUKSES INTI SENTOSA                               | 02.798.596.9-903.000 | Imbalan/Jasa Lainnya        | 3.500.000 | 70.000  | 9/SIS/IX/2017                | 01/09/2017 |
| 76  | PT BERRYBENKA                                        | 03.206.480.0-031.000 | Imbalan/Jasa Lainnya        | 500.000   | 10.000  | BB-PPH23/17/09/00050         | 01/09/2017 |
| 77  | PT SATYA RAGAM TRUXPRESS                             | 75.789.647.7-037.000 | Imbalan/Jasa Lainnya        | 1.454.545 | 29.090  | 071/IX/SRT/2017              | 01/09/2017 |
| 78  | PT INTI SUKSES GARMINDO                              | 01.936.691.3-505.001 | Imbalan/Jasa Lainnya        | 8.500.000 | 170.000 | 007/ISG-23/IX/17             | 01/09/2017 |
| 79  | PT MAX SOLUSINDO JAYA                                | 31.203.736.9-036.000 | Imbalan/Jasa Lainnya        | 3.500.000 | 70.000  | 022/PPH23/MSI/IX/2017        | 01/09/2017 |
| 80  | BENDAHARA PENGELUARAN<br>KANTOR PENGELOLAAN TAMAN PI | 00.435.948.5-541.000 | Imbalan/Jasa Lainnya        | 6.000.000 | 109.091 | 10/BP/09/2017                | 01/09/2017 |
| 81  | PT BULSEYE                                           | 31.261.085.0-904.000 | Imbalan/Jasa Lainnya        | 5.000.000 | 100.000 | 000200/PPH23                 | 01/09/2017 |