Accelerated Capital Allowances Eligibility Criteria

Category: Information and Communications Technology (ICT)

Technology: Enterprise Communication Equipment

Enterprise Communication Equipment is defined as equipment which enables a network of connected computers to communicate with each other. This equipment is made up of network devices which facilitate the intercommunication and resource sharing between the computers.

Enterprise Communication Equipment is considered to include the following:

Network Routers

A network router is a hardware device that interconnects wired or wireless networks. These may be subdivided into Core Routers, Carrier Edge/Ethernet Service Routers, and Multipurpose Routers.

Network Switches

A network switch is a hardware device that interconnects computers, forming a local area network (LAN).

Network Firewalls

A network firewall is a hardware device that protects a computer network from external unauthorised access.

Optical Transmission Equipment

Optical transmission equipment is communication hardware used for transmitting data over medium to long distances through a fibre-optic network.

Eligibility criteria

To be included on the ACA Specified List, the specific Enterprise Communication Equipment must meet *all* the relevant requirements set out below.

Note: *Supporting documentation that clearly demonstrates ACA compliance according to the conditions below will be required as part of the ACA checking process. Detailed information on the types of documents accepted can be found in the separate Supporting Documentation guidelines.*

General eligibility criteria

(applicable to all Enterprise Communication Equipment)

No.	Condition
1	Internal power supplies must achieve an 80 PLUS gold standard[1] or scientific equivalent
2	External power supplies must be Energy Star-compliant[2] or scientific equivalent

Network Router – specific eligibility criteria

(to be met in addition to the general eligibility criteria)

No.	Condition
3	Must achieve an ECR–VL[3] energy consumption rating with variable load of less than or equal to 10 W/ Gpbs
4	Must have variable-load energy-management capabilities

Network Switch – specific eligibility criteria

(to be met in addition to the general eligibility criteria)

No.	Condition
5	Must achieve an ECR–VL energy consumption rating with variable load of less than or equal to the values as set out in Table 1.
6	Must have variable-load energy-management capabilities

Network Firewall – specific eligibility criteria

(to be met in addition to the general eligibility criteria)

No.	Condition
7	Must achieve an ECR energy consumption rating of less than or equal to 3W/ Gpbs
8	Must have variable-load energy-management capabilities

[1] The 80 PLUS performance specification requires multi-output power supplies in computers and servers to be 80% or greater energy-efficient at 20%, 50% and 100% of rated load with a true power factor of 0.9 or greater.
[2] The Energy Star compliance certification for external power supply is issued by the United Stated Environmental Protection Agency (EPA) in recognition of a product's compliance with defined efficiency levels as set out in the relevant EPA specification for external power supplies.
[3] As per ECR Specification V2.1.1

Optical Transmission Equipment – specific eligibility criteria

(to be met in addition to the general eligibility criteria)

No.	Condition
9	Must achieve an ECR energy consumption rating with variable load of less than or equal to 3W/Gbps
10	Must have variable-load energy-management capabilities

Table 1: Network Switches – Maximum energy consumption values

Switch Type	Energy Consumption rating (W/Gbps)
Stackable fixed port switches – Layer 2	≤3
Modular Chassis switches – Layer 2	≤7.5
Modular Chassis switches – Layer 3	≤11

Notes:

W = Watts
Gbps = Giga bits per second

ECR = energy consumption rating (peak efficiency metric, W/Gbps)
= Ef/Tf (expressed in Watts per Gbps)

Where:
Ef = energy consumption (Watts) measured during the running test
Tf = maximum throughput (Gbps) achieved in the measurement

ECR-VL = energy efficiency metric over a variable-load cycle (W/Gbps)

$$= \frac{(\alpha^{*}\mathbf{E}_{100} + \beta^{*}\mathbf{E}_{50} + \gamma^{*}\mathbf{E}_{30} + \delta^{*}\mathbf{E}_{10} + \varepsilon^{*}\mathbf{E}_{i})}{(\alpha^{*}\mathbf{T}_{f} + \beta^{*}\mathbf{T}_{50} + \gamma^{*}\mathbf{T}_{30} + \delta^{*}\mathbf{T}_{10})}$$

Where:
α, β, γ, δ, ε are weight coefficients selected such as $(\alpha + \beta + \gamma + \delta + \varepsilon) = 1$

For test purposes the following values are used:
α = 0.1
β = 0.5
γ = 0.25
δ = 0.05
ε = 0.1

Tf = maximum throughput (Gbps) achieved in the measurement cycle
- $T_{50} = Tf * 0.5$

- $T_{30} = Tf * 0.3$
- $T_{10} = Tf * 0.1$

E_{100} = **e**nergy consumption under highest load accepted by System Under Test (SUT) (watts)
E_{50} = **e**nergy consumption under half load (watts)
E_{30} = **e**nergy consumption under 30% load (watts)
E_{10} = **e**nergy consumption under 10% load (watts)
Ei = **e**nergy consumption under 0% load (watts)