

Definitions

d) Discussion Questions: (from page 5 of 10)

a. Are there alternate definitions for small network equipment that should be reviewed and considered by EPA?

Tellabs' Response: Definitions appear to be sufficient. Consider including VoIP telephony equipment based on comments below.

b. Are definitions of operational modes clear and applicable in general to the SNE market? Are there types of low power modes that currently exist which are relevant, and can be defined and included?

Tellabs' Response: Definitions appear to be sufficient.

Eligible Product Types

e) Questions for Discussion: (from page 6 of 10)

a. Are there any SNE products missing from the list of products under consideration for Tier 1? If so, are there existing efficiency features or methods that could be promoted by ENERGY STAR now or in the future?

Tellabs' Response: The SNE list appears to be sufficient at this time. Consider including VoIP telephony equipment based on comments below.

b. Are there any product development trends in the SNE market that may have an impact on power consumption or proper categorization of devices?

Tellabs' Response: As a leader in ONT technology, Tellabs constantly researches and sources the most energy efficient components for our products. Energy responsible practices is one of the prime drivers, along with the end user's reduction in operational expenses.

c. Is supply of PoE an expected technology in the SNE market? Are more devices that support supplying PoE expected in the future? How should test procedures accommodate SNE powered over PoE? Should PoE mid-span devices be considered to be network equipment or external power supplies?

Tellabs' Response: In Tellabs' opinion, PoE in the SNE realm needs to be carefully analyzed. Considering that PoE is enabled on a SNE port based on the demand for it by a product hanging off that port (VoIP Phone, Security camera, etc.), should the ONT, router, modem, etc. supplying that PoE be burdened with that higher energy need rating, or should the device requiring the PoE (VoIP phone, etc.) be burdened with higher rating?

For example, the Tellabs four (4) 10/100/1000 Gbps port desktop ONT idles at 2.88 Watts, or with all data ports up and running uses 7.5 Watts (input 12 Vdc, power supply 90/264 Vac 1000mA continuous) for a maximum of 1.875 Watts per port – a highly efficient unit. Now, if we were to increase that to approximately 14.0 Watts on one or two ports due to the demands of a VoIP phone, should the ONT be burdened with that energy rating, or should the VoIP phone driving the demand be burdened, or should it be equally weighted over both devices?

It is due to this type of scenario that Tellabs thinks the EPA needs to carefully look at PoE and SNE ENERGY STAR ratings to ensure some sense of equality of burden when rating product.

d. For devices with Ethernet, the Energy Efficient Ethernet effort was identified as a technology that could save energy both in the SNE and attached end point devices. Are there analogous technologies available for other wired or wireless network protocols?

Tellabs' Response: Tellabs is constantly researching and sources the most energy efficient components for our products, with energy responsible practices being one of the prime drivers. We continue to follow industry efforts, and work with manufacturers of components that may utilize IEEE 802.3az EEE. We are not aware of any analogous protocols being developed.

e. EPA believes that "power management" features could enable off-hours power-down scheduling and provide end-users a better understanding of network usage and power consumption over time. What are some strategies that can be promoted by ENERGY STAR to improve power management and data availability?

Tellabs' Response: Tellabs understands there are various ideas for end device power monitoring via an in-band management channel, but there has yet to be concurrence in the industry about how to standardize across the various technologies and available standards (xDSL, Active Ethernet, PON, TR-069, 984 OMCI, etc.). Agreement within the industry would be the first step, and possibly ENERGY STAR can help facilitate that.

f. EPA is aware of the growth potential in ONT devices as direct fiber connections to the home become more prevalent. What does EPA need to know about the types of products that provide this service and how they perform from an energy perspective?

Tellabs' Response: Tellabs is the North American leader with the Tellabs 1600 family of ONTs serving over 3.2 million active customers across a 175,000 PON port network that has evolved over the last 5 years, and recently the largest single enterprise GPON deployment in a national Department of Energy Lab. More than 100 IOC, ILEC, CLEC, Federal Government customers are deploying Tellabs equipment for commercial installations and application evaluations. Based on Infonetics Research's PON and FTTH Equipment and Subscribers report, Tellabs maintains its commanding lead in worldwide PON revenue and port market.

It is our understanding, from an industry standpoint, that the Tellabs 1600 family of ONTs are extremely energy efficient on a port-by-port basis compared to other SNE as defined. Following is a sample of the power requirements for a series of Tellabs ONTs:

ONT Product	Number of Cu POTS Ports	Number of 10/100/1000 (or FE) Ethernet Data Ports	Idle Unit Power (Watts)	POTS/Data Running Unit Power (Watts)	ONT Input Voltage	Power Supply Data
1600-701	0	1	2.88	3.1	12 Vdc	90/264 Vac 840mA Continuous
1600-704	2	4	3.6	8.7	12 Vdc	90/264 Vac 840mA Continuous
1600-709	0	4	2.88	7.5	12 Vdc	110/120 VAC 2500mA Continuous
1600-712	2	1 w/MoCA	6.03 w/MoCA power shed active	13.8	12 Vdc	90/264 Vac 840mA Continuous
1600-729	24	24 (FE)	13.5	25	120/240 Vac	N/A

g. While IP Telephony fits the definition of a network end point device, it is possible for some IP telephones to function as a wired router or switch for a connected PC? Do IP Telephony devices share characteristics with other SNE devices identified in this document? What features or technologies exist to promote energy efficiency in IP Telephony?

Tellabs' Response: Based on the discussion above regarding PoE needs of VoIP telephones, and understanding that the average PoE power requirements for current VoIP phones ranges 12 to 13 Watts, Tellabs thinks it would be of interest to the EPA to investigate including VoIP telephony devices into the SNE Energy Star program. This is especially important since they can place a power burden on other SNE devices already included in the definitions.

f) Questions for Discussion

a. Are there additional (see listing below) industry-standard test procedures that EPA should consider during development of this specification?

Tellabs Response: ATIS is currently working on an Access standard for energy efficiency which will cover ONTs.

b. Stakeholders commented to EPA that the expected duty cycle of SNE primarily consists of "idle" with very short periods of active use and short (if any) periods in low power modes. Are there any comprehensive studies of SNE usage patterns that should be considered by EPA?

Tellabs Response: We agree that the primary state of consumer SNEs would be idle. With regard to Tellabs and ONTs, we do have bandwidth utilization studies done on large portions (Manhattan, Urban Florida areas) of Verizon's FiOS network. We think it would be reasonable that one could extrapolate ONT up vs. idle times based on the timestamps on the bandwidth utilization, and establish a pattern of such. We're sure that if the EPA is interested, we could share such data with them at some point.

c. Are there any concerns/support for features included in the preliminary list? Are there additional features EPA should be aware of that represent energy saving opportunities?

Tellabs Response: We did not see anything lacking, nor needing to be added to features the EPA has listed in this draft.