



ENERGY STAR Imaging Equipment Specification Revision

Stakeholder Meeting

February 14, 2006

Washington, DC

Meeting Goals



- Discuss how Draft 2 specification limits were developed
- Share initial EPA conclusions from functional-adder analysis of currently-qualified Ink Jet products
- Share EPA's initial thoughts on Draft 2 comments received
- Gain feedback on key topics to reach resolution in preparation for final specification
- Convey process for partnership and product qualification under Version 1.0

Discussion Topics



- Product Labeling
- Product Categorization
- Duplexing Requirements
- Typical Electricity Consumption (TEC)
Eligibility Criteria
 - Draft 2 Specification Levels
 - Estimating/Measuring Internally-integrated Digital Front-end (DFE) Energy Consumption

Discussion Topics, Cont'd



- Operational Mode (OM) Eligibility Criteria
 - Functional Adders
 - Standby Mode
 - Default Delay Times
- Process for Partnership and Product Qualification
- Other Items of Interest
- Conclusion
 - Summary of Discussion
 - Next Steps and Timeline



Product Labeling

Current Proposal



The ENERGY STAR mark must be clearly displayed:

- Either on the top/front of product or through electronic messaging that is pre-approved by EPA. The label may be permanent or temporary; and
- On the manufacturer's Internet site where information about ENERGY STAR qualified models is displayed. Specific guidance on using the ENERGY STAR mark on Internet sites will be provided in the Web-Based Tools for Partners document; and

Current Proposal, Cont'd



- Either in product literature (i.e., user manuals, specification sheets, etc.) or in a separate box insert that provides educational language about the product's ENERGY STAR settings; and
- On the product packaging for products sold primarily at retail. Displaying the mark on the box for products sold in non-retail settings (e.g., in settings where the consumer is not likely to see the packaging) is optional.

Discussion Questions



- Should electronic labeling that is pre-approved on a case-by-case basis continue to be an alternative to physical product labeling even though some products are not capable of displaying such messaging?
- For physical product labeling, what types of permanent and temporary labeling would manufacturers have at their disposal?
- Do manufacturers have questions about the acceptability of any particular type of permanent or temporary label?



Product Categorization

Concerns Raised: TEC



TEC Categorization:

- Serial and Parallel Color EP
- Digital Duplicators
- Heat-intensive Technologies
- Copiers and MFDs

Concerns Raised: OM



OM Categorization:

- Inclusion of EP Technology
- USB Scanners
- Large Format Copiers and MFDs
- Ink Jet Printers and MFDs
- Battery-powered Products

Discussion Question



Based on the limited dataset for Large-format copiers and MFDs, the size of this market, and operational similarities between these two products, EPA supports its decision to group these products for consideration under OM Table 1.

However, do stakeholders feel that the ENERGY STAR qualified products database is missing data for any particular speed segments that should be supplemented prior to analysis?



Duplexing Requirements

Draft 2 Proposal



Copiers and MFDs

Product Speed	Duplexing Requirement
≤ 19 ipm	N/A
20 – 29 ipm	Optional
≥ 30 ipm	Standard

Color Printers

Product Speed	Duplexing Requirement
≤ 19 ipm	N/A
20 – 39 ipm	Optional
≥ 40 ipm	Standard

Monochrome Printers

Product Speed	Duplexing Requirement
≤ 24 ipm	N/A
25 – 44 ipm	Optional
≥ 45 ipm	Standard

TEC Test Data: Duplexing Profile



Copiers	Mono	All above 20 ipm, at least optional. All above 28 ipm, standard.
	Color	All (35+ ipm), standard.
MFDs	Mono	All above 20 ipm at least optional. All above 45 ipm standard. From 21-45 ipm, 73% standard.
	Color	All (24+ ipm), at least optional. All above 45 ipm, standard. From 24-45 ipm, 69% are standard.
Printers	Mono	Under 30 ipm, mostly never. From 30-45 ipm, all optional.
	Color	All above 20 ipm, at least optional. From 21-40 ipm, 25% standard.

From TEC data submitted to EPA in 2005 (164 models)

Discussion Guide Proposal and Questions



Printers, Copiers and MFDs

Product Speed	Duplexing Requirement
≤ 20 ipm	N/A
21 – 44 ipm	Optional
≥ 45 ipm	Standard

- If duplexing requirements were combined into a single table with the same speed thresholds applied to all three products, would the above be feasible for all three product types?
- Should duplexing requirements be applied to all TEC products, rather than just those using EP technology?

Comparison of Duplexing Proposals



Draft 2 Duplexing Requirements

Speed	≤19	20-24	25-29	30-39	40-44	≥45
Mono MFDs and Copiers	N/A	Optional		Required		
Color MFDs and Copiers	N/A	Optional		Required		
Mono Printers	N/A		Optional		Req.	
Color Printers	N/A	Optional		Required		

Alternative for Discussion

Speed	≤20	21-24	25-29	30-39	40-44	≥45
All Products	N/A	Optional			Req.	



TEC Eligibility Criteria

Draft 2 Specification Levels

DFE Energy Consumption

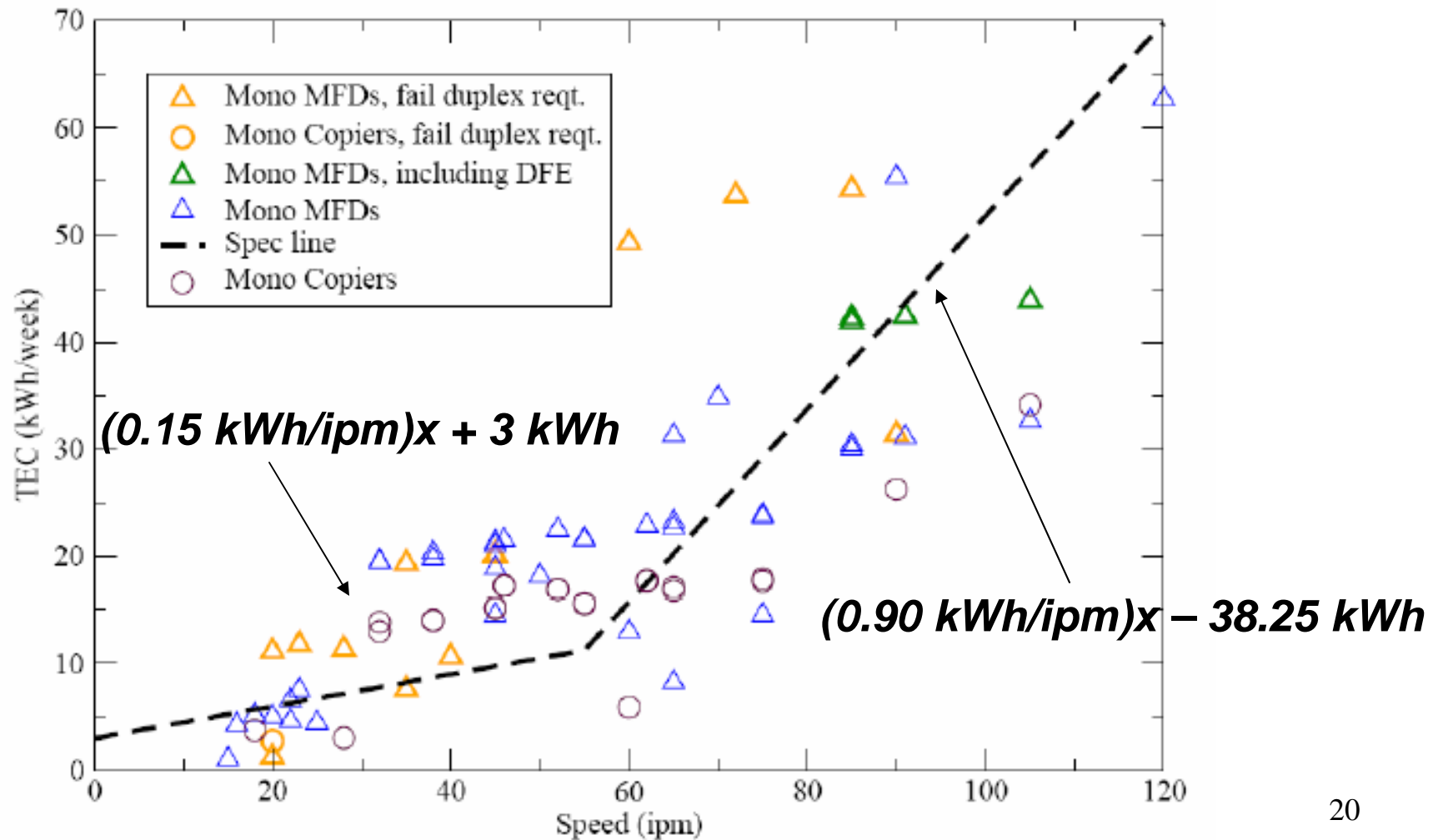


Draft 2 Specification Levels

TEC Table 1



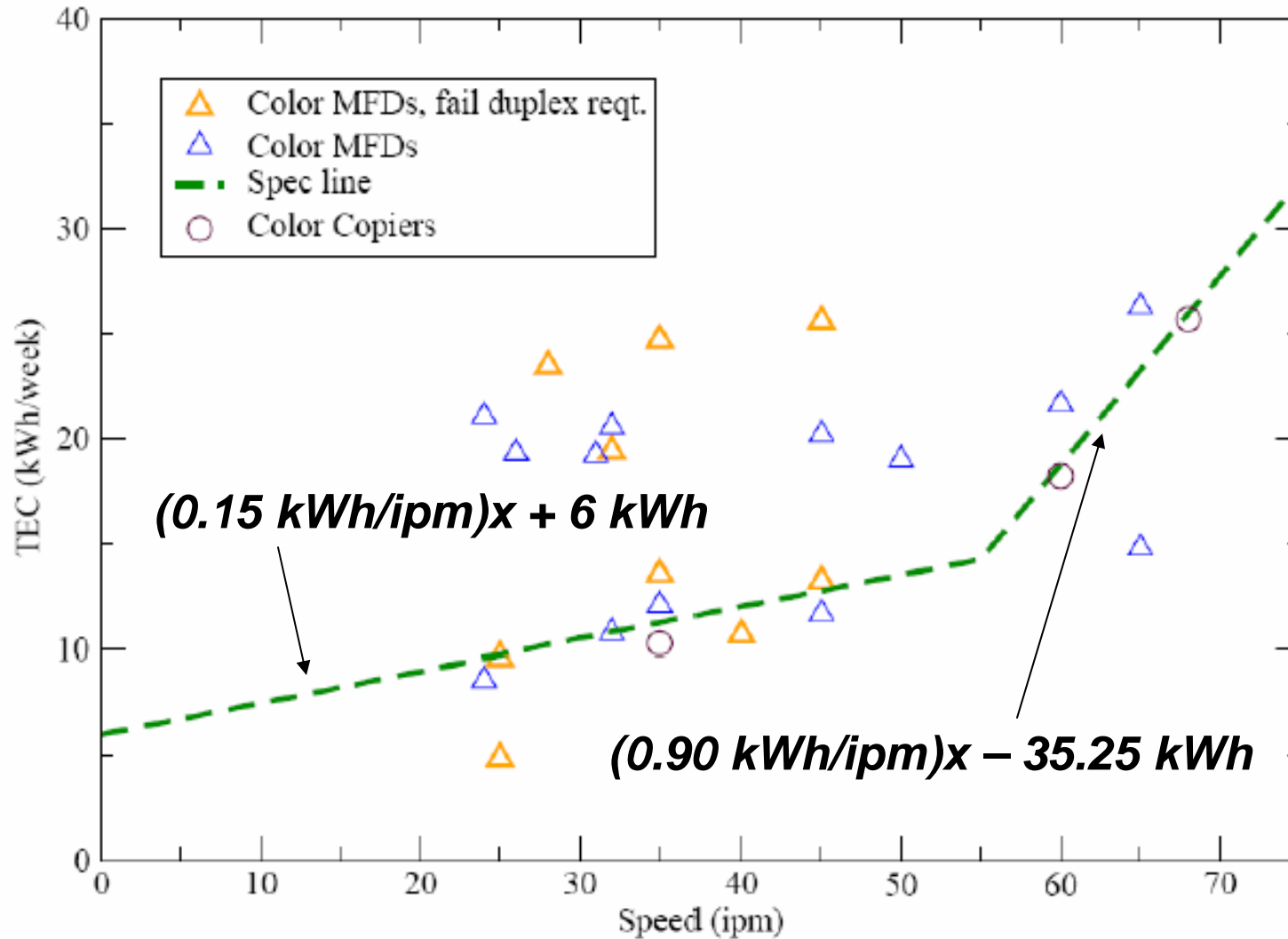
Figure 1. TEC Table 1 – Standard-size Monochrome Copiers and MFDs



TEC Table 2



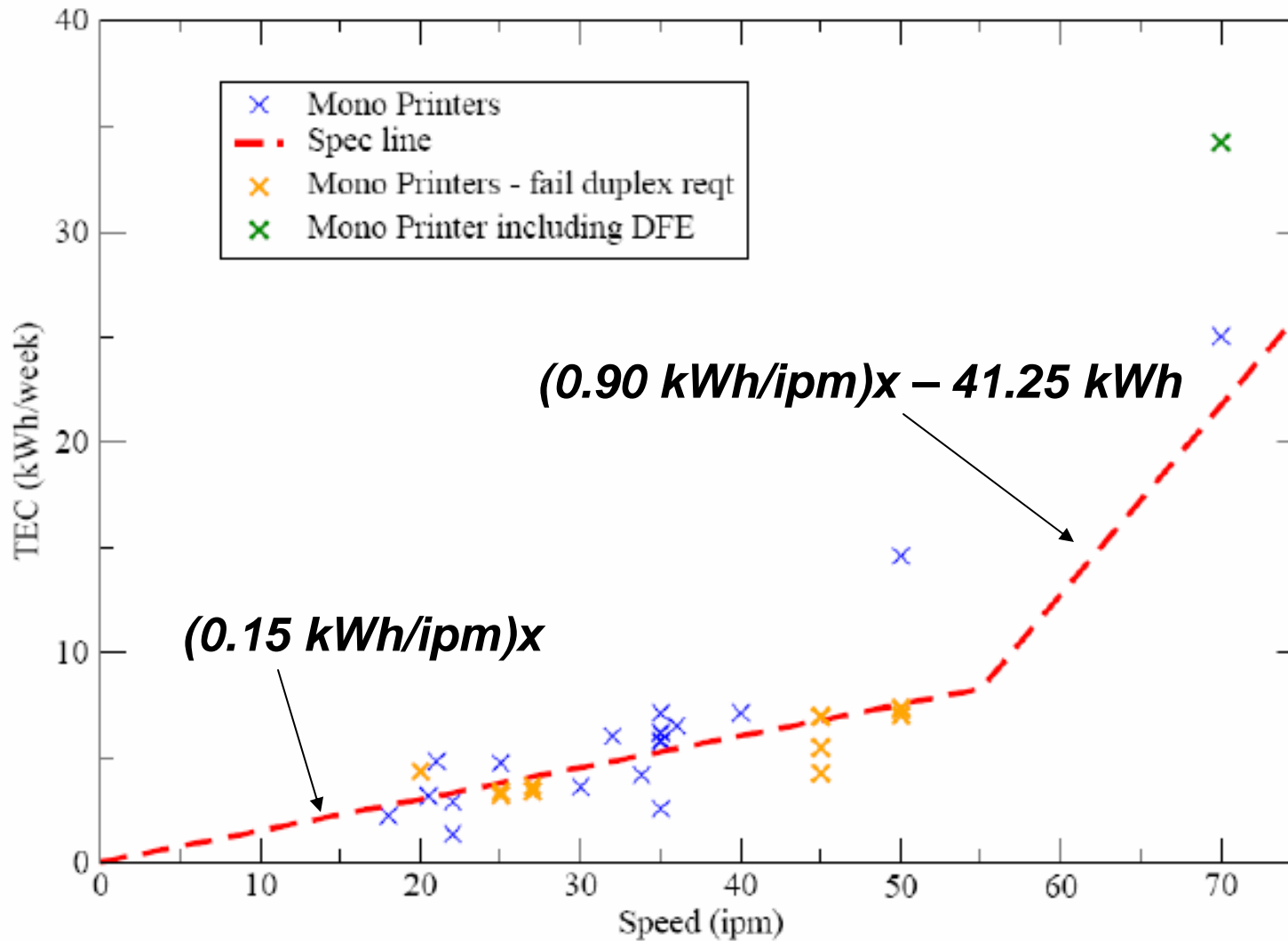
Figure 2. TEC Table 2 – Standard-size Color Copiers and MFDs



TEC Table 3



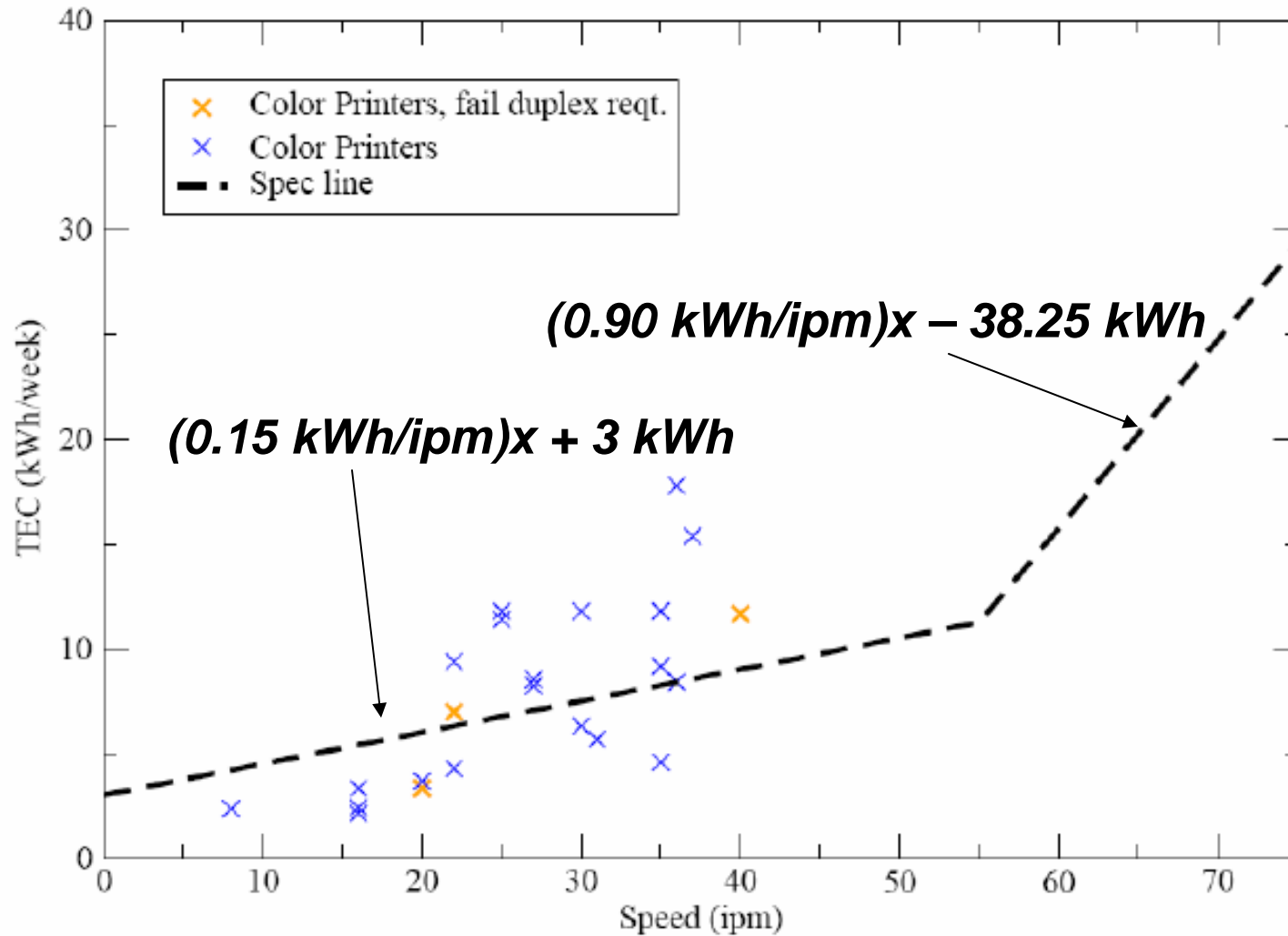
Figure 3. TEC Table 3 – Standard-size Monochrome Printers



TEC Table 4



Figure 4. TEC Table 4 – Standard-size Color Printers





**Estimating/Measuring
Internally-integrated DFE
Energy Consumption**

Draft 2 DFE Proposal



Manufacturers who have products with a functionally-integrated DFE should subtract the DFE's energy consumption in Ready mode from the product's total TEC result before comparing the product's TEC to the criteria limits below. In order to take advantage of this allowance, the DFE must be a separate processing unit that is capable of initiating activity over the network. The imaging equipment product should be capable of performing some core functions without the DFE present, although the DFE would enhance speed and functionality.

Discussion Questions



- What minimum functionality should be required of a physically- and functionally-integrated DFE to classify it as “beyond the normal/minimum”?
- How can energy consumed by a a physically- and functionally-integrated DFE be directly measured or estimated?
- To aid in the consideration of this issue under the OM approach, are DFEs typically external for Large-format products?



Operational Mode (OM) Eligibility Criteria

Functional Adders

Standby Mode

Default Delay Times



Functional Adders

Current Proposal



Qualifying Products: Table 3 – OM Functional Adders

Type	Details	Functional Adder Allowances (W)	
		Primary	Secondary
Interfaces	A. Wired < 20 MHz, e.g. USB 1.x, IEEE488, RS232	0.3	0.2
	B. Wired < 500 MHz, e.g. USB 2.x, IEEE 1394/FireWire, 100Mb Ethernet	0.5	0.2
	C. Wired > 500 MHz, e.g. 1G Ethernet	1.5	0.5
	D. Wireless, e.g. Bluetooth, 802.11	-	0.7
	E. Wired card/camera/storage, e.g. memory card / smart card readers, camera interfaces	-	0.1
	F. Fax	0.4	0.2
	G. Infrared	-	0.25
Other	Storage (e.g. disk drives, DVD drives)	-	0.2
	Scanners with CCFL lamps	-	2.0
	Scanners with non-CCFL lamps	-	0.5
	Enhanced Display/Control Panels (backlit, graphic, color LCD, etc.)	-	0.5
	PC-based system (cannot print/copy without being connected to a PC)	-	-0.5

Obtaining the Marking-Engine Criteria



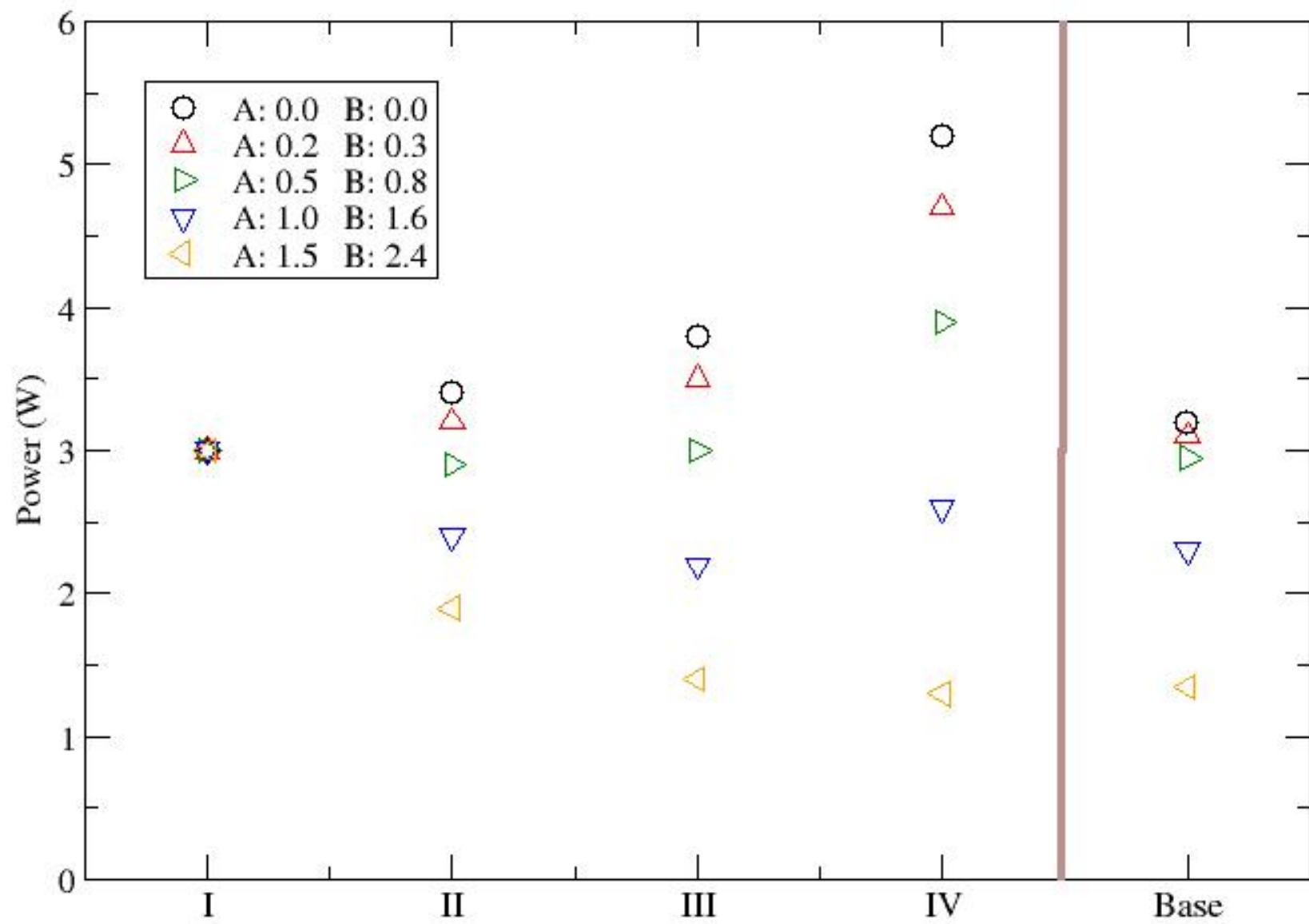
- To obtain the marking-engine criteria, the functional-adder allowances for each model are subtracted from the model's Sleep value, leaving the "marking engine" value in watts.
- EPA has identified functional-adders for each model in the OM dataset, based on information made public by manufacturers on their Web sites and spec. sheets.
- As the functional-adder allowances are raised, the net consumption of the marking engine drops.
- The resulting marking-engine values undergo a top 25% analysis to determine the Sleep specification lines for OM Tables 1 through 7.

Obtaining the Marking Engine Criteria, Cont'd



Model			I	II	III	IV	
Funcnl. Adders			none	A	B	A & B	
Sleep Level (<i>W</i>)			3	3.4	3.8	5.2	
FA Scenario	A	B					Base
1	0	0	3	3.4	3.8	5.2	3.2
2	0.2	0.3	3	3.2	3.5	4.7	3.1
3	0.5	0.8	3	2.9	3.0	3.9	2.95
4	1.0	1.6	3	2.4	2.2	2.6	2.3
5	1.5	2.4	3	1.9	1.4	1.3	1.35

If models I through IV were all equally energy-efficient, then a scenario between Scenarios 3 and 4 would best represent this, with the net level being most consistent across the four models.



Functional Adders

none

A

B

A and B

Outstanding Items



- List of functional adders corresponding to existing qualified products, as found on manufacturers' Web sites, is incomplete (e.g., scanners with CCFL lamps are not identified).
- Functional-adder suggestions from stakeholders seem too high compared to existing Sleep data.
- More supporting documentation for functional-adder allowances is needed.

Options and Next Steps



Option A = Continue developing marking-engine criteria using existing dataset, based on functional-adders provided on manufacturers' Web sites;

Option B = Solicit list of "standard" functional adders from manufacturers for each model in dataset prior to marking-engine analysis;

Option C = Abandon functional-adder approach and reconsider ENERGY STAR Speed test, basing Sleep criteria on existing ENERGY STAR dataset; or

Option D = Abandon functional-adder approach – no differentiation of products by function or speed.



Standby

Standby Definition



Draft 2 Definition:

- The lowest power consumption mode which cannot be switched off (influenced) by the user and that may persist for an indefinite time when the product is connected to the main electricity supply and used in accordance with the manufacturer's instructions. Standby usually occurs in Off mode, but can occur in Ready or Sleep.

FEMP references the IEC definition.

Concerns Raised: Standby



- Very few products can meet 1 watt in Standby
 - Fax machines
 - Networked devices
 - Mailing machines
 - Others
- Do any functional adders make sense for consideration in Standby mode?



Default Delay Times

Current Proposal



Table 1: Maximum Default Delay Times to Sleep for Small-format, Standard-size, and Continuous Form OM Products in Minutes

Product Speed (ipm)	Fax Machines	MFDs	Printers	Scanners
0 - 10	5	15	5	15
11 - 20	5	30	15	15
21 - 30	5	60	30	15
31 - 50	5	60	60	15
51 +	5	60	60	15

Table 2: Maximum Default Delay Times to Sleep for Large-format OM Products in Minutes

Product Speed (ipm)	Copiers	MFDs	Printers	Scanners
0 - 10	30	30	30	15
11 - 20	30	30	30	15
21 - 30	30	30	30	15
31 - 50	30	30	30	15
51 +	60	60	60	15

Discussion Questions



- Do stakeholders see a need for a recovery-time requirement in conjunction with the default-time requirements provided in Tables 1 and 2?
- EPA sees value in setting “maximum” default time requirements for the machine in addition to the settings (e.g., a printer’s maximum could be changed from 12 hours to 4 hours). What are some challenges that could arise under this approach?



Process for Partnership and Product Qualification

Timeline



- Industry stakeholder meeting – **February 14**
- EPA distributes Draft 2 comment response summary – **February 24**
- EPA shares OM Functional-adder analysis and Draft OM Marking Engine Criteria – **March 1**
- Comment deadline for OM Marking Engine Criteria – **March 22**
- Final Version 1.0 specification published by EPA – **Late March**
- Finalization of the specification by the EC – **date TBD**

Timeline, Cont'd



All remaining timeline elements are contingent upon EC approval of the final specification.

- Digital Duplicator manufacturers may join under Version 1.0 and submit qualified product data to EPA – **immediately upon EC approval.**
- ENERGY STAR Online Product Submittal (OPS) system stops accepting qualified product data under existing MOUs – **Early January 2007**
- Copier, MFD, mailing-machine, fax-machine, printer, and scanner manufacturers may sign the Partnership Agreement and begin submitting qualified product data under Version 1.0 – **Early January 2007**

Timeline Cont'd



- Version 1.0 specification effective date – **March 2007**
- Partners must cease referring to products qualified under the MOUs as ENERGY STAR qualified – **March 2007**
- Imaging Equipment partners and products qualified under Version 1.0 displayed on the ENERGY STAR Web site – **March 2007**

Discussion Questions



- Would manufacturers be interested in participating in the development of the OPS system for imaging equipment (this might include advanced review of data fields for collection and beta-testing the collection system)?
- Will resetting the database in January cause any inconvenience to manufacturers as they continue qualifying products under the MOUs?



Conclusion

1. Possible Tier II Elements
2. Next Steps & Timeline



Possible Tier II Elements

Possible Tier II Elements



- Digital duplicators in a distinct TEC table
- Copiers and MFDs separated under OM, if data provided
- Duplexing for products other than EP
- Creating separate TEC specs for products with internal DFEs
- Including OM products in TEC
- Possible revision of all Tier I levels



Next Steps and Timeline

Next Steps and Timeline



- EPA circulates meeting slides, these action items, and revised timeline – tomorrow
- EPA & EC clarifies Web guidelines for international sites – 2/24 response document
- EPA clarifies acceptable temporary labeling – 2/24
- Stakeholders interested in helping to define electronic labeling examples contact Katharine today

Next Steps and Timeline (2)



- EPA confirms that USB scanners were not included in the data set analyzed for Draft 2 – 2/24
- Stakeholders supply additional OM data for consideration by 2/24
- EPA considers comments today and possible incorporation into Tier II. Communicate decisions early (ideally, next few months)
- EPA seeks duplexing data from Buyers Lab – 2/24

Next Steps and Timeline (3)



- EPA clarifies guiding principles for including duplexing and non-direct electricity consumption in specs – at spec finalization
- Stakeholders propose alternative TEC lines, including rationale and data for allowances based on media size (A3 vs. A4) – 2/24
- EPA reconsiders TEC spec lines to:
 - Improve # of mid speed range products that qualify under TEC Table 1 – 2/24
 - Ensure copiers and MFDs do not require distinct TEC limits – 2/24

Next Steps and Timeline (4)



- Stakeholders review submitted TEC data for accuracy – 2/24
- Stakeholders investigate and indicate to EPA if IE products with internal DFEs can be metered separately – 2/24
- EPA clarifies language distinguishing DFEs from simple controllers – 2/24
- EPA considers referencing computer spec for internal DFEs – 3/7
- EPA considers duplexing proposals and finalizes requirements – 3/1

Next Steps and Timeline (5)



- EPA distributes request for OM data – 2/24:
 - Indicate functional adders present when currently-qualified products were tested
 - Suggest FA values based on data
 - Confirm or provide Standby mode data
 - Indicate if EPS meets ENERGY STAR, if applicable
- Stakeholders respond to above data request – 3/7
- EPA distributes new FA allowances and marking-engine criteria for review – 3/17
- Stakeholder comment deadline on above distribution – 3/31

Next Steps and Timeline (6)



- EPA uses IEC def. of Standby, including an editorial comment for added clarity – now
- EPA removes mention of “Standby/Off” from test procedures and specifications – now
- EPA works with EC counterparts to fully understand differences between their understanding of Standby and IEC definition – 2/24
- EPA works with mailing machine manufacturers to determine appropriate Standby level – 3/1
- EPA evaluates suggestion to combine default delay time tables, using higher values – 2/24

Next Steps and Timeline (7)



- EPA works with ENERGY STAR training lead and FEMP to educate to GSA regarding specification changes – 3/1



Thank you!



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