



**Technical Documentation for  
EU Commission Regulation 2019/424 of March 25, 2019  
laying down ecodesign requirements for servers and data storage products pursuant to Directive  
2009/125/EC of the European Parliament and of the Council**

**03/01/2020**

The following information is based on International Business Machines Corporation's ("IBM") actual knowledge as of the date of this technical documentation ("Technical Documentation"), which may be based on IBM's own internal records, as well as information provided by third parties which, to IBM's knowledge, is true and correct in all respects. This Technical Documentation applies to finished products that IBM newly puts on the market in the European Union and other jurisdictions which require this Technical Documentation as of the above date.

<b>Product Information</b>			
<b>Machine Type(s)</b>	<b>Model(s)</b>	<b>Part Number</b>	<b>Product Type Server or Online Data Storage</b>
2077	324,AF3	-	Online Data Storage
2078	312, 324,AF3, U5A	-	Online Data Storage

**Manufacturer's name, registered trade name and registered trade address:**

  
Marca Registrada  
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International Business Machines Corporation  
New Orchard Road Armonk, New York 10504

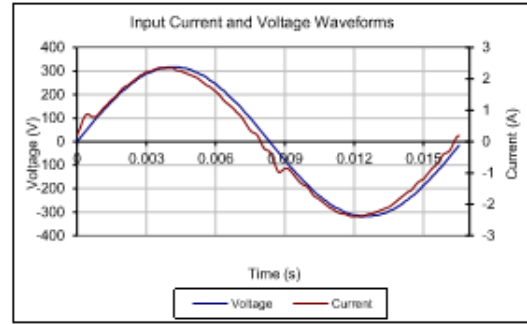
**Year of manufacture:**

<b>Machine Type(s)</b>	<b>Model(s)</b>	<b>Year of Manufacture</b>
2077	324	March 4, 2016 to January 11, 2020
2077	AF3	September 9, 2016 to January 11, 2020
2078	312, 324	March 4, 2016 to January 11, 2020
2078	AF3	September 9, 2016 to January 11, 2020
2078	U5A	December 8, 2017 to January 11, 2020

**Power Supply Unit (PSU) efficiency and power factor:** See reports below



Ecos ID #	SO-1161
Manufacturer	IBM
Model Number	SGE006-030G, 01AC454, R0850-F0080-01
Serial Number	N/A
Year	2016
Type	1U
Test Date	09/12/16



Input AC Current Waveform (THD = 4.68%, 50% Load)

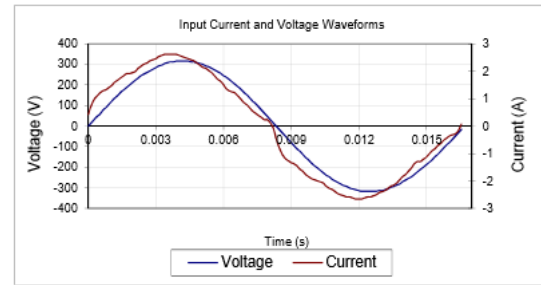
Rated Specifications	Value	Units
Input Voltage	100-240	Volts
Input Current	9.4	Amps
Input Frequency	50/60	Hz
Rated Output Power	800	Watts

Note: All measurements were taken with input voltage at 230 V nominal and 60 Hz.

I <sub>RMS</sub> A	PF	I <sub>THD</sub> (%)	Load (%)	Fraction of Load	Input Watts	External Fan (W)*	DC Terminal Voltage (V)/ DC Load Current (A)			Output Watts	Efficiency %
							12V	5V	5Vsb		
0.42	0.94	11.91	10%	Low	90	18.96	12/5.19	4.95/3.36	4.98/0.21	80	88.51%
0.76	0.99	11.09	20%	Light	174	18.84	12/10.4	4.95/6.72	4.97/0.42	160	92.15%
1.86	1.00	4.68	50%	Typical	425	18.84	11.99/26	4.94/16.81	4.96/1.05	400	94.16%
3.76	1.00	3.54	100%	Full	864	18.72	11.97/51.99	4.93/33.59	4.94/2.09	798	92.42%

\* Fan power is not included in the efficiency calculations

Ecos ID #	SO-1003
Manufacturer	IBM
Model Number	TDPS-800FB A
Serial Number	CCQT1538000260
Year	2015
Type	1U
Test Date	9/28/15



Input AC Current Waveform (THD = 6.86%, 50% Load)

Rated Specifications	Value	Units
Input Voltage	100-240	Volts
Input Current	9.4	Amps
Input Frequency	47-63	Hz
Rated Output Power	800	Watts

Note: All measurements were taken with input voltage at 230 V nominal at 60 Hz.

I <sub>RMS</sub> A	PF	I <sub>THD</sub> (%)	Load (%)	Input Watts	External Fan (W)*	DC Terminal Voltage (V)/ DC Load Current (A)			Output Watts	Efficiency %
						12V	5V	5Vsb		
0.62	0.85	11.85%	10%	92.45	40.43	12.01/5.21	5.01/3.34	5.01/0.21	80.34	86.91%
0.89	0.86	11.32%	20%	174.24	40.43	12/10.39	5/6.67	5/0.42	160.16	91.92%
1.91	0.97	6.86%	50%	424.30	40.43	11.99/26	4.99/16.84	4.99/1.05	399.93	94.26%
3.78	0.99	6.36%	100%	858.90	40.43	11.96/51.92	4.97/33.18	4.96/2.09	796.36	92.72%

\* Fan power is not included in the efficiency calculations

### Declared operating condition class:

A3

This product has been tested in order to verify that it will function within the boundaries of the declared operating condition class.

### Secure data functionality:

#### Encryption

[https://www.ibm.com/support/knowledgecenter/STHGJJ\\_8.3.0/com.ibm.storwize.tb5.830.doc/tms\\_encryption\\_ovrview.html](https://www.ibm.com/support/knowledgecenter/STHGJJ_8.3.0/com.ibm.storwize.tb5.830.doc/tms_encryption_ovrview.html)

#### IBM Security Key Lifecycle Manager

[https://www.ibm.com/support/knowledgecenter/SSWPVP\\_3.0.1/com.ibm.skim.doc/overview/top/landing-overview.html](https://www.ibm.com/support/knowledgecenter/SSWPVP_3.0.1/com.ibm.skim.doc/overview/top/landing-overview.html)



**Material efficiency Requirements:  
Disassembly for repair or reuse purposes  
Weight range of specified critical raw materials**

Product information for return and recycling can be found at:

- [Product recycling programs](#)

Complete product information for repair or reuse of components can be found on the IBM Knowledge Center web site at:

- [IBM Storwize V5000](#)

Examples of System documentation includes (each is a hotlink to the document):

- [Preparing to remove and replace parts](#)
- [Replacing a node canister](#)
- [Replacing an expansion canister](#)
- [Replacing an SFP transceiver](#)
- [Replacing a power supply unit](#)
- [Replacing the battery in a node canister](#)
- [Replacing a CMOS battery](#)
- [Replacing a 2.5 inch drive assembly](#)
- [Replacing a 3.5 inch drive assembly](#)
- [Replacing enclosure end caps](#)
- [Replacing an expansion enclosure attachment SAS cable](#)
- [Replacing the support rails](#)
- [Replacing a control enclosure midplane](#)
- [Replacing an expansion enclosure midplane](#)
- [Replacing the enclosure midplane of a powered off enclosure](#)
- [Replacing a node canister memory module](#)
- [Replacing a host interface adapter](#)
- [Replacing host interface adapters in two control enclosures concurrently](#)
- [Replacing parts: 2077-92F expansion enclosure](#)

Cobalt in batteries	Less than 5 grams	5 grams to 25 grams	Above 25 grams
None Reported		X	
Neodymium in Hard Disk Drives*	Less than 5 grams	5 grams to 25 grams	Above 25 grams
	X	X	

\*Neodymium content varies by HDD

**Standards used:**



IBM Security Key Lifecycle Manager key servers support Key Management Interoperability Protocol (KMIP), which is a standard for encryption of stored data and management of cryptographic keys.

IBM maintains a product environmental specification, IBM Engineering Specification 46G3772 - Baseline Environmental Requirements for Supplier Deliverables to IBM which mandates part and product compliance to relevant worldwide regulations. The specifications are located for supplier access at: <http://www.ibm.com/ibm/environment/products/> and <http://www-03.ibm.com/procurement/proweb.nsf/ContentDocsByTitle/United+States~Information+for+suppliers>.

Suppliers are required to certify compliance to IBM product environmental specifications by completing the IBM Product Content Declaration (PCD), located at: <http://www.ibm.com/ibm/environment/products/>. Once completed, the PCD form is submitted to IBM, loaded into product management databases and accessed for compliance review by product. IBM's Product Environmental Profile process and tool documents and reviews product compliance prior to release to the market. The documentation presented here is a result of this review and process.

In 1997, IBM became the world's first major multinational corporation to have earned a single worldwide registration to the ISO 14001 Environmental Management System (EMS) standard. The registration covers IBM's manufacturing, product design and hardware development operations across its business units worldwide. IBM was able to earn its single worldwide registration to ISO 14001 because of its longstanding global EMS. ISO 14001 EMS standard is a voluntary international standard that identifies the elements of an EMS needed for an organization to effectively manage its impact on the environment. Its objective is to integrate the EMS with overall business management processes so that environmental considerations are a standard part of business decisions. Applied to all its manufacturing and hardware development operations globally, IBM's EMS fosters common solutions, continual improvement and worldwide consistency. The result is a more effective and efficient EMS. The single registration also ensures that IBM executes the same EMS no matter where in the world it does business. Under IBM's single global registration, approximately 20 sites or registered entities are audited annually on a sampling or rolling basis by Bureau Veritas Certification North America, IBM's ISO 14001 registrar. These audits of IBM's EMS include sampling and verification of the implementation of IBM's internal requirements, monitoring and measurement as reported through the self assessment program, energy master plans, and in the Environmental Performance Database, and other tools used to provide the information for IBM's annual environmental and corporate responsibility reporting and for management review. The IBM ISO 14001 certification is located at <http://www.ibm.com/ibm/environment/iso14001/>.

More information on IBM's product stewardship program and / or environmental policies is located at: <http://www.ibm.com/ibm/environment/>

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