

THE ECO DECLARATION



Annex B2 - Product environmental attributes Servers/Data Storage Products

The declaration may be published only when all rows and/or fields marked with * are filled-in (N/A for not applicable). Additional information regarding each item may be found under P15.


Brand *	Lenovo	
Company name *	Lenovo	
Contact information * e-mail address	Lenovo Global Environmental Affairs Alvin L Carter alcarter@lenovo.com	
Internet site *	https://www.lenovo.com/us/en/about/sustainability	
Additional information	<i>The latest version of this document can be found at:</i> http://www.lenovo.com/ecodeclaration	

The company declares (based on product specification or test results based obtained from sample testing), that the product conforms to the statements given in this declaration.	
Type of product *	SERVER
Commercial name *	Lenovo ThinkSystem SR590
Model number *	7X89, 7X99
Issue date *	2020-01-31
Intended market *	<input checked="" type="checkbox"/> Global <input type="checkbox"/> Europe <input type="checkbox"/> Asia, Pacific & Japan <input type="checkbox"/> Americas <input type="checkbox"/> Other
Additional information	

This is an uncontrolled copy when in printed form. Please refer to the contact information for the latest version.

About Annex B2

Annex B2 reflects Product environmental attributes relevant for Computers and Computer Monitors. The following items from the ECMA-370 Main body are not shown in the template:
P4.1 – P4.3 Consumable materials
P9.1 TEC and Print speed
P10.2 - P10.3 Chemical emissions from printing products
P11.1 - P11.3 Consumable materials for printing products.

Model number *	7X98, 7X99	Logo			
Issue date *	2020-01-31				
Product environmental attributes - Legal requirements				Requirement met	
Item			Yes	No	N/A
P1	Hazardous substances and preparations				
P1.1*	Products do comply with current European RoHS Directive. (See legal reference and NOTE B1)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.2*	Products do not contain Asbestos (see legal reference). Comment: Legal reference has no maximum concentration value.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.3*	Products do not contain Ozone Depleting Substances: Chlorofluorocarbons (CFC), hydrobromofluorocarbons (HBFC), hydrochlorofluorocarbons (HCFC), Halons, carbon tetrachloride, 1,1,1-trichloroethane, methyl bromide (see legal reference). Comment: Legal reference has no maximum concentration values.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.4*	Products do not contain more than; 0,005% polychlorinated biphenyl (PCB), 0,005% polychlorinated terphenyl (PCT) in preparations (see legal reference).		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.5*	Products do not contain more than 0,1% short chain chloroparaffins (SCCP) with 10-13 carbon atoms in the chain containing at least 48% per mass of chlorine in the SCCP (see legal reference).		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P1.6*	Parts with direct and prolonged skin contact do not release nickel in concentrations above 0,5 µg/cm ² /week (see legal reference). Comment: Max limit in legal reference when tested according to EN1811:2011-5.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P1.7*	REACH Article 33 information about substances in articles is available at (add URL or mail contact): https://www.lenovo.com/us/en/sustainability-resources		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2	Batteries				
P2.1*	If the product contains a battery or an accumulator, the battery/accumulator is labeled with the disposal symbol. Information on proper disposal is provided in user manual. (See legal reference)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2.2*	Batteries or accumulators do not contain more than 0,0005% of mercury or 0,002% of cadmium. (See legal reference)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2.3*	Batteries and accumulators are readily removable. (See legal reference)		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P2.4*	Documentation includes the number of cycles the (secondary) battery can withstand. (See legal reference)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P2.5*	When internal batteries of a notebook computer cannot be "accessed and replaced by a nonprofessional user", the related text is present and legible on the external packaging (see legal reference)		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P3	Conformity verification & Eco design (ErP)				
P3.1*	The product is CE-marked to show conformance with applicable legal requirements (see legal reference). The Declaration of Conformity can be requested at: https://www.lenovo.com/us/en/compliance/eu-doc		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P3.2*	The product complies with the Eco design requirements for energy-related products, (see legal reference). Required information is; <input type="checkbox"/> given in item P15 or added to this document, <input checked="" type="checkbox"/> available at: https://www.lenovo.com/us/en/compliance/eco-declaration		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5	Product packaging				
P5.1*	Packaging and packaging components do not contain more than 0,01% lead, mercury, cadmium and hexavalent chromium by weight of these together.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	
P5.2*	The packaging materials are marked with abbreviations and numbers indicating the nature of the material(s) used (see legal reference).		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P5.3*	The product packaging material is free from ozone depleting substances as specified in the Montreal Protocol (see legal reference). Comment: Legal reference has no maximum concentration values.		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P6	Treatment information				
P6.1*	Information for recyclers/treatment facilities is available (see legal reference).		<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

NOTE B1 Restriction applies to the homogeneous material, unless otherwise specified and expressed in weight %. Stating "Yes" means that the product is compliant with the mandatory requirements.

Model number *	7X98, 7X99	Logo			
Issue date *	2020-01-31				
Product environmental attributes - Market requirements (See General NOTE GN below)					
- Environmental conscious design				Requirement met	
Item	*=mandatory to fill in. Additional information regarding each item may be found under P14.	Yes	No	N/A	
P7 Design, Disassembly, recycling					
P7.1*	Parts that have to be treated separately are easily separable	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.2*	Plastic materials in covers/housing have no surface coating.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.3*	Plastic parts > 100 g consist of one material or of easily separable materials.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.4*	Plastic parts > 25 g have material codes according to ISO 11469 referring ISO 1043-4.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.5	Plastic parts are free from metal inlays or have inlays that can be removed with commonly available tools.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.6*	Labels are easily separable. (This requirement does not apply to safety/regulatory labels).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Product lifetime					
P7.7*	Upgrading can be done e.g. with processor, memory, cards or drives	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.8*	Upgrading can be done using commonly available tools	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.9	Spare parts are available after end of production for: years			<input type="checkbox"/>	
P7.10	Service is available after end of production for: years			<input type="checkbox"/>	
Material and substance requirements					
P7.11*	Product cover/housing material type (e.g. plastics, metal, aluminum): Material type: Metal Material type: Plastic Material type:				
P7.12	Insulation materials of external electrical cables are PVC free.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.13	Insulation materials of internal electrical cables are PVC free.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.14	External plastic casing/cover parts > 25 g contain no more than 0,1% weight (1000 ppm) bromine and 0,1% weight (1000 ppm) chlorine attributable to brominated flame retardants, chlorinated flame retardants, and polyvinyl chloride or 0,3% weight (3000 ppm) bromine and 0,3% weight (3000 ppm) chlorine in parts containing more than 25% post-consumer recycled content.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.15	Printed circuit boards, PCBs (without components) are low halogen: all <input type="checkbox"/> PCBs > 25 g <input type="checkbox"/> are low halogen as defined in IEC 61249-2-21. (See ⁵ NOTE B2)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.16	Flame retarded plastic parts > 25 g in covers / housings are marked according ISO 1043-4: Marking:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.17	<u>Alt. 1:</u> Chemical specifications of flame retardants in printed circuit boards > 25 g (without components): TBBPA (additive) <input type="checkbox"/> , TBBPA (reactive) <input type="checkbox"/> (See NOTE B3), Other: chemical name: , CAS #: , CAS #: ; <u>Alt. 2:</u> Chemical specifications of flame retardants in printed circuit boards (without components) > 25 g according ISO 1043-4:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.18	<u>Alt. 1:</u> Flame retarded plastic parts > 25 g contain the following flame retardant substances/preparations in concentrations above 0,1%: 1. Chemical name: , CAS #: (See NOTE B4) 2. Chemical name: , CAS #: " 3. Chemical name: , CAS #: " <u>Alt. 2:</u> Chemical specifications of flame retardants in plastic parts > 25 g according ISO 1043-4:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.19	In plastic parts > 25 g, flame retardant substances/preparations above 0,1% are used which have been assigned the following Risk phrases; and Hazard statements: The source(s) for these classifications is/are found at (add URL(s)): , (See note B5)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
P7.20*	Postconsumer recycled plastic material content is used in the product (See Note B6): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the postconsumer recycled plastic material content (calculated as a percentage of total plastic by weight) is %. or b) The weight of recycled material is g.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	


GENERAL NOTE Standard references should direct to the latest version of a standard. If an older version of a standard is used, section P15 shall be used for explanation.

NOTE B2 IEC 61249-2-21 defines maximum limits of 900 ppm for each of the substances chlorine and bromine and a maximum limit of 1500ppm of these substances combined. The standard does not address fluorine, iodine and astatine which are included in the group of halogens.

NOTE B3 and B4 A Guidance document on Chemical substances is available; see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>.

NOTE B5 If a certain substance has been assigned a certain risk phrases / hazard statement in the referenced source, this does not necessarily mean the substance has been tested for all of the hazards referred to by a certain customer.

NOTE B6 Applies to a product containing plastic parts whose combined weight exceeds 100 g with the exception of printed circuit boards, cables, connectors and electronic components and bio-based plastic material.

Model number *	7X98, 7X99	Logo	
Issue date *	2020-01-31		


Product environmental attributes - Market requirements (continued)		Requirement met		
Item		Yes	No	N/A

Material and substance requirements (continued)						
P7.21*	Biobased plastic material content is used in the product (See NOTE B7): If YES; at least one of the two alternatives below shall be answered; a) Of total plastic parts' weight > 25 g, the biobased plastic material content (calculated as a percentage of total plastic by weight) is %. or b) The weight of the biobased plastic material is g.			<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
P7.22*	Light sources are free from mercury, i.e. less than 0,1 mg/lamp. If mercury is used specify: Number of lamps: and maximum mercury content per lamp: mg			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P7.23*	If product includes an integral display, the total mercury content in the integrated display: mg			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P8 Batteries						
P8.1*	Battery chemical composition: <i>Lithium Manganese Dioxide</i>					<input type="checkbox"/>
P9 Energy consumption (See NOTE B8)						
P9.1 For the product the following power levels or energy consumptions are reported:						
Energy mode *	Power level at 100 V AC	Power level at 115 V AC	Power level at 230 V AC	Reference/Standard for energy modes and test method *	<input checked="" type="checkbox"/>	
<i>Peak (On-max)</i>	W	W	W	<i>Full load</i>		
Category ---						
EPS No-load (External power supply / charger plugged in the wall outlet but disconnected from the product.)	W	W	W			
PTEC * Typical Energy Consumption	W	W	W		<input checked="" type="checkbox"/>	
ETEC * Annual Energy Consumption	kWh/year	kWh/year	kWh/year		<input checked="" type="checkbox"/>	
External Power Supply Efficiency Level (International Efficiency Marking Protocol) * :					<input checked="" type="checkbox"/>	
Display resolution * : megapixels					<input checked="" type="checkbox"/>	
Default time to enter energy save mode: minutes					<input type="checkbox"/>	
P9.2*	Information about the energy save function is provided with the product.			<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P9.3	Energy efficiency class (monitors only):					<input checked="" type="checkbox"/>
P10 Emissions						
Noise emission – Declared according to ISO 9296 (See NOTE B9)						
P10.1	Mode	Mode description		Statistical upper limit A-weighted sound power level, $L_{WA,c}$ (B)		
	Idle	* <i>Indicates idle condition (system is powered on, but no disk activity and all other devices idling)</i>		* 5.9		
	Operation	* <i>Indicates CPU and memory operating condition (run PTU with 50% TDP to stress CPU and memory subsystem)</i>		* 5.8		
	Other mode	Declared A-weighted sound pressure level (dB) L_{pAm}		<i>(operator position desktop – idle)</i>		
	Other mode	Declared A-weighted sound pressure level (dB) L_{pAm}		<i>(operator position desktop – operating)</i>		
Measured according to: <input checked="" type="checkbox"/> ISO 7779 <input type="checkbox"/> ECMA-74 <input type="checkbox"/> Other (only if not covered by ECMA-74)						
Electromagnetic emissions						
P10.4	Computer display meets the requirement for low frequency electromagnetic fields of the following voluntary program(s):			<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

NOTE B7 The following is to be excluded from the calculation of percentage: printed circuit boards, labels, cables, connectors and electronic components and postconsumer recycled plastic

NOTE B8 A Guidance document on Energy Efficiency is available;
see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

NOTE B9 A Guidance document on Acoustic Noise is available;
see <http://www.ecma-international.org/publications/standards/Ecma-370.htm>

Model number *	7X98, 7X99	Logo	
Issue date *	2020-01-31		

Product environmental attributes - Market requirements (continued)		Requirement met		
Item		Yes	No	N/A
P12 Ergonomics for computing products				
P12.1*	The display meets the ergonomic requirements of ISO 9241-307 for visual display technologies.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P12.2*	The physical input device meets the requirements of ISO 9995 and ISO 9241-410.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
P13 Packaging and documentation				
P13.1*	Product packaging material type(s): Paper - Corrugated Double wall weight (kg): 3.5 Product packaging material type(s): Paper - Corrugated single wall weight (kg): 1.02 Product packaging material type(s): Plastic - Solid EPE (solid Expanded polyethylene) weight (kg): 1.3 Product packaging material type(s): Plastic - HDPE (high density polyethylene) weight (kg): 0.07			
P13.2*	Product plastic primary packaging is free from PVC.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
P13.3*	For product primary corrugated fiberboard packaging, specify the contained percentage of minimum post-consumer recovered fiber content: 55 %			<input type="checkbox"/>
P13.4*	Specify media for user and product documentation (tick box): <input checked="" type="checkbox"/> Electronic, <input checked="" type="checkbox"/> Paper, <input type="checkbox"/> Other			<input type="checkbox"/>
P13.5	(Please only complete this item if paper documentation used) User and product documentation on paper media is chlorine-free: If Yes, please specify: Totally chlorine-free Elemental chlorine-free Processed chlorine-free	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>		
		<input type="checkbox"/>		
		<input type="checkbox"/>		
P14 Voluntary programs				
P14.1	The product meets the requirements of the following voluntary program(s): ENERGY STAR® Criteria version: Date: Product category: Eco-label: Criteria version: Date: Product category: Eco-label: Criteria version: Date: Product category:			
P15 Additional information (See NOTE B10)				
P9	Energy consumption of computer products; description of the tested product configuration: <i>NOTE: Supplier makes no representations, guarantees, assurances or warranties whether express or implied, regarding the information contained in this document. All information provided by supplier in this document is provided based on supplier's knowledge available at the time of completion, and supplier shall have no obligation to update such information. The information provided here is approximate and provided for informational purposes only. See a Lenovo Account Representative for more information.</i>			
P9	See Energy Star Qualified Enterprise Servers for the latest information: https://www.energystar.gov/products/data_center_equipment/enterprise_servers			

NOTE B10 Additional lines may be inserted to declare further items, by positioning the cursor at the far right of the row and hitting the <Enter> key.

Legal references Europe Annex B2

Reference	Declaration item
Directive 2011/65/EU (RoHS Directive)* * Specific exemptions apply for certain products and applications.	P1.1, P3.1
Regulation (EC) 1907/2006 (REACH Regulation), annex XVII	P1.2, P1.4, P1.6, P1.7
Regulation (EC) 2037/2000, 2038/2000, 2039/2000 (Marketing and use of Ozone layer depleting substances)	P1.3, P5.3
Norwegian regulation relating to restrictions on the use of certain dangerous chemicals 20.12.2002	P1.5
Directive 2006/66/EC (Battery and accumulators Directive), as amended.* * These provisions shall not apply where, for safety, performance, medical or data integrity reasons, continuity of power supply is necessary and requires a permanent connection between the appliance and the battery or accumulator.	P2.1, P2.2, P2.3, P8.1
Directive 2014/35/EU (Low Voltage Directive)	P3.1
Directive 2014/30/EU (EMC Directive)	P3.1
Directive 2014/53/EU (RE Directive)	P3.1
Regulation (EC) 801/2013 amending Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions	P3.1, P3.2
Commission Regulation (EC) No 278/2009 of 6 April 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power demand and average active efficiency of external power supplies	P3.1, P3.2, P9.1
COMMISSION REGULATION (EU) No 617/2013 of 26 June 2013 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for computers and computer servers	P2.4, P2.5, P3.1, P3.2, P7.23, P9.1
Regulation (EC) No 1272/2008 (CLP Regulation)	P7.19
Directive 2004/12/EC (Packaging Directive)	P5.1
Decision 97/129/EC (Secondary packaging legislation)	P5.2
Directive 2012/19/EU (WEEE directive) Implementing Regulation (EU) 2019/290 establishing the format for registration and reporting of producers of electrical and electronic equipment to the register. Commission Implementing Regulation 2017/699 establishing a common methodology for the calculation of the weight of electrical and electronic equipment (EEE) placed on the national market in each Member State and a common methodology for the calculation of the quantity of waste electrical and electronic equipment (WEEE) generated by weight in each Member State.	P6.1

Lenovo ErP Lot9 Information Sheet - Servers & Storage Products-


As required by COMMISSION REGULATION (EU) 2019/424 of 15 March 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 and amending Commission Regulation (EU) No 617/2013.
(ErP Lot9)

Products scope of this sheet: Servers & storage products

This document is only valid in connection with the IT Eco Declaration of the specific Product.

SERVERS

General information

Commercial name (3.1 (b))	Lenovo ThinkSystem SR550	Logo 
Contact Address (3.1 (b))	7001 Development Dr. Building 7 Morrisville, NC 27560 United States	
Model Number (3.1 (c))	7X98, 7X99	
Issue Date	2020-01-31	
Additional information		

Product environmental attributes (EU) 2019/424 – Annex II points 3.1 and 3.3	
1.a	Is the product consider to be in scope of ErP Lot 9 <input checked="" type="checkbox"/> in scope <input type="checkbox"/> out of scope, product is out of scope as:
1.b (3.1 (a))	Server type <input checked="" type="checkbox"/> Rack Server <input type="checkbox"/> High Performance Computing (HPC) <input type="checkbox"/> Tower Server <input type="checkbox"/> Multi Node Server <input type="checkbox"/> Blade Server <input type="checkbox"/> Data Storage product (Please go to “ DATA STORAGE PRODUCTS ” section)
1.c (3.1 (d))	Year of manufacture: 2017
1.d (3.1 (p))	Product model part of a server product family? <input type="checkbox"/> No <input checked="" type="checkbox"/> Yes List of all model configurations that are represented by the model: http://psref.lenovo.com/Product/ThinkSystem/ThinkSystem_SR590
1.e (3.1 (n))	Information on the secure data deletion functionality (a) instructions on how to use the functionality: 2 methods are provided to use the functionality. 1) Use a command line tool to do the secure data deletion on the remote target system via boot up a customized Linux OS on it. Eg: OneCli.exe serase –bmc USERID:PASSWORD@xx.xx.xx.xx --sftp root:password@xx.xxx.xx.xx:/home –log 5 2) Use BoMC to create a full functions bootable media, start the media and choose secure erase from the text menu. (b) techniques used: OS tools under Linux -> Standard Linux Open Source tool (c) supported secure data deletion standard (if any): Secure Erase/block Erase/Crypto Erase, Sanitize OR - Reference to other information: Hdparm: https://en.wikipedia.org/wiki/Hdparm Nvme-format: https://www.mankier.com/1/nvme-format sg_sanitize: https://www.systutorials.com/docs/linux/man/8-sg_sanitize/ scrub: https://www.systutorials.com/docs/linux/man/1-scrub/ storcli: https://docs.broadcom.com/docs-and-downloads/raid-controllers/raid-controllers-common-iles/StorCLI_RefMan_revf.pdf
1.f (3.1 (o))	Blade servers? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes list of recommended combinations with compatible chassis:
Recycling Data	
2.a (3.3 (a))	Indicative weight range at component level, of the following critical raw materials: (a) Cobalt in the batteries <input checked="" type="checkbox"/> less than 5 g <input type="checkbox"/> between 5 g and 25 g <input type="checkbox"/> above 25 g (b) Neodymium in the HDDs <input type="checkbox"/> less than 5 g <input type="checkbox"/> between 5 g and 25 g <input checked="" type="checkbox"/> above 25 g
2.b (3.3 (b))	Instructions on the disassembly operations (a) the type of operation; (b) the type and number of fastening technique(s) to be unlocked; (c) the tool(s) required. OR - Reference to other information: https://thinksystem.lenovofiles.com/help/topic/7X98/SR590_maintenance_manual.pdf
2.c	Firmware Reference to information on last available firmware: https://datacentersupport.lenovo.com/cn/en/products/servers/thinksystem/sr590/7x98/downloads/driver-list/
Additional information	

Server family specific information Family 1

Family no. / name		<input checked="" type="checkbox"/> 1 - 1 CPU populated family	
Model number(s) / Description (3.1 (c))		Standard or low-end performance configuration: Processor(Minimum result of core count * frequency in family): Intel Xeon Silver 4109T, Storage: 1TB HDD * 2, Memory: 16GB(lowest capacity in family) * 4, PSU: 550W * 1 High-end performance configuration: Processor: Intel Xeon Gold 6252, Storage: 1.92TB SSD * 2, Memory: 32GB * 8, PSU: 750W * 2	
Additional information		You can refer to https://www.pluginloadsolutions.com/80PlusPowerSuppliesDetail.aspx?id=49&type=1 along with http://psref.lenovo.com/Product/ThinkSystem/ThinkSystem_SR590 for the PSU efficiency details.	
Product environmental attributes (EU) 2019/424 – Annex II points 3.1 and 3.3			
F1.a (3.1 (e))	PSU efficiency at 10 % (if applicable), 20 %, 50 % and 100 % of rated output power (expressed in % and rounded to the first decimal place): <input type="checkbox"/> Multi-output <input checked="" type="checkbox"/> Single-output		
Standard or low-end performance configuration(s): 10% 91.6 20% 93.8 50% 95.1 100% 94.0 Average 94.3 High-end performance configuration(s): 10% 91.4 20% 93.3 50% 94.8 100% 93.3 Average 93.8			
F1.b (3.1 (f))	Power factor at 50 % of the rated load level (rounded to three decimal places)	standard or low-end performance configuration: 0.990	high-end performance configuration: 1.000
F1.c (3.1 (g))	PSU rated power output (in Watts rounded to the nearest integer)	standard or low-end performance configuration: 550	high-end performance configuration: 750
<small>internal note: If a product model is part of a server product family, all PSUs offered in a server product family shall be reported with the information specified in (e) and (f)</small>			
F1.d (3.1 (h))	idle state power (in Watts and rounded to the first decimal place)	standard or low-end performance configuration: 64.0	high-end performance configuration: 76.5
F1.e (3.1 (i))	List of all components for additional idle power allowances		
idle power allowances adjustments during testing	CPU Performance	standard or low-end performance configuration: <input checked="" type="checkbox"/> 1 Socket (10 × PerfCPU W) <input type="checkbox"/> 2 Socket (7 × PerfCPU W)	high-end performance configuration: <input checked="" type="checkbox"/> 1 Socket <input type="checkbox"/> 2 Socket
	Additional PSU	No #: 0	Yes #: 1
	HDD	Yes #: 2	No #: 0
	SDD	No #: 0	Yes #: 2
	Additional memory	Yes #: 60GB	Yes #: 252GB
	Additional buffered DDR channel	No #: 0	No #: 0
	Additional I/O devices	<input type="checkbox"/> none <input type="checkbox"/> < 1 Gb/s: No Allowance <input checked="" type="checkbox"/> = 1 Gb/s: 2,0 W/Active Port <input type="checkbox"/> > 1 Gb/s and < 10 Gb/s: 4,0 W/Active Port <input type="checkbox"/> ≥ 10 Gb/s and < 25Gb/s: 15,0 W/Active Port <input type="checkbox"/> ≥ 25 Gb/s and < 50Gb/s: 20,0 W/Active Port <input type="checkbox"/> ≥ 50 Gb/s 26,0 W/Active Port	<input checked="" type="checkbox"/> none <input type="checkbox"/> < 1 Gb/s: No Allowance <input checked="" type="checkbox"/> = 1 Gb/s: 2,0 W/Active Port <input type="checkbox"/> > 1 Gb/s and < 10 Gb/s: 4,0 W/Active Port <input type="checkbox"/> ≥ 10 Gb/s and < 25Gb/s: 15,0 W/Active Port <input type="checkbox"/> ≥ 25 Gb/s and < 50Gb/s: 20,0 W/Active Port <input type="checkbox"/> ≥ 50 Gb/s 26,0 W/Active Port
F1.f (3.1 (j))	maximum power (in Watts and rounded to the first decimal place)	standard or low-end performance configuration: 122.9	high-end performance configuration: 270.7
F1.g (3.1 (k))	operating condition class (as defined in Table 6 or ErP lot 9)	standard or low-end performance configuration: <input type="checkbox"/> A1 <input checked="" type="checkbox"/> A2 <input type="checkbox"/> A3 <input type="checkbox"/> A4 Exception comments	high-end performance configuration: <input checked="" type="checkbox"/> A1 <input type="checkbox"/> A2 <input type="checkbox"/> A3 <input type="checkbox"/> A4 Exception comments
F1.h (3.1 (l))	idle state power at the higher boundary temperature of the declared operating condition class (in Watts)	standard or low-end performance configuration: 134.2	high-end performance configuration: 146.5
F1.i (3.1 (m))	the active state efficiency and the performance in active state of the server;	standard or low-end performance configuration: 19.2	high-end performance configuration: 32.9

Server family specific information Family 2

Family no. / name	<input checked="" type="checkbox"/> 2 - 2 CPUs populated family		
Model number(s) / Description (3.1 (c))	Standard or low-end performance configuration: Processor(Minimum result of core count * frequency in family): Intel Xeon Bronze 3104 * 2, Storage: 1TB HDD * 2, Memory: 16GB(lowest capacity in family) * 8, PSU: 550W * 1 High-end performance configuration: Processor: Intel Xeon Gold 6252 * 2, Storage: 1.92TB SSD * 2, Memory: 32GB * 16, PSU: 750W * 2 Please refer to the comments in Family 1		
Additional information	Please refer to the comments in Family 1		
Product environmental attributes (EU) 2019/424 – Annex II points 3.1 and 3.3			
F2.a (3.1 (e))	<input checked="" type="checkbox"/> See family 1 Or specific to this family: PSU efficiency at 10 % (if applicable), 20 %, 50 % and 100 % of rated output power (expressed in % and rounded to the first decimal place) : <input type="checkbox"/> Multi-output <input type="checkbox"/> Single-output standard or low-end performance configuration(s): 10% 20% 50% 100% Average high-end performance configuration(s): 10% 20% 50% 100% Average		
F2.b (3.1 (f))	Power factor at 50 % of the rated load level (rounded to three decimal places)	<input checked="" type="checkbox"/> See family 1 Or specific to this family: standard or low-end performance configuration:	high-end performance configuration:
F2.c (3.1 (g))	PSU rated power output (in Watts rounded to the nearest integer)	<input checked="" type="checkbox"/> See family 1 Or specific to this family: standard or low-end performance configuration:	high-end performance configuration:
<small>internal note: If a product model is part of a server product family, all PSUs offered in a server product family shall be reported with the information specified in (e) and (f)</small>			
F2.d (3.1 (h))	idle state power (in Watts and rounded to the first decimal place)	standard or low-end performance configuration: 74.7	high-end performance configuration: 93.1
F2.e (3.1 (i))	List of all components for additional idle power allowances		
idle power allowances adjustments during testing	CPU Performance	standard or low-end performance configuration: <input type="checkbox"/> 1 Socket (10 × PerfCPU W) <input checked="" type="checkbox"/> 2 Socket (7 × PerfCPU W)	high-end performance configuration: <input type="checkbox"/> 1 Socket <input checked="" type="checkbox"/> 2 Socket
	Additional PSU	No #: 0	Yes #: 1
	HDD	Yes #: 2	No #: 0
	SDD	No #: 0	Yes #: 2
	Additional memory	Yes #: 124GB	Yes #: 508GB
	Additional buffered DDR channel	No #: 0	No #: 0
	Additional I/O devices	<input type="checkbox"/> none <input type="checkbox"/> < 1 Gb/s: No Allowance <input checked="" type="checkbox"/> = 1 Gb/s: 2,0 W/Active Port <input type="checkbox"/> > 1 Gb/s and < 10 Gb/s: 4,0 W/Active Port <input type="checkbox"/> ≥ 10 Gb/s and < 25Gb/s: 15,0 W/Active Port <input type="checkbox"/> ≥ 25 Gb/s and < 50Gb/s: 20,0 W/Active Port <input type="checkbox"/> ≥ 50 Gb/s 26,0 W/Active Port	<input type="checkbox"/> none <input type="checkbox"/> < 1 Gb/s: No Allowance <input checked="" type="checkbox"/> = 1 Gb/s: 2,0 W/Active Port <input type="checkbox"/> > 1 Gb/s and < 10 Gb/s: 4,0 W/Active Port <input type="checkbox"/> ≥ 10 Gb/s and < 25Gb/s: 15,0 W/Active Port <input type="checkbox"/> ≥ 25 Gb/s and < 50Gb/s: 20,0 W/Active Port <input type="checkbox"/> ≥ 50 Gb/s 26,0 W/Active Port
F2.f (3.1 (j))	Maximum power (in Watts and rounded to the first decimal place)	standard or low-end performance configuration: 176.6	high-end performance configuration: 496.7
(3.1 (k))	Operating condition class (as defined in Table 6 or ErP lot 9)	<input checked="" type="checkbox"/> See family 1 Or specific to this family: standard or low-end performance configuration: <input type="checkbox"/> A1 <input type="checkbox"/> A2 <input type="checkbox"/> A3 <input type="checkbox"/> A4 Exception comments	high-end performance configuration: <input type="checkbox"/> A1 <input type="checkbox"/> A2 <input type="checkbox"/> A3 <input type="checkbox"/> A4 Exception comments
F2.h (3.1 (l))	idle state power at the higher boundary temperature of the declared operating condition class (in Watts)	<input type="checkbox"/> See family 1 Or specific to this family: standard or low-end performance configuration: 149.8	high-end performance configuration: 169.2
F2.i (3.1 (m))	the active state efficiency and the performance in active state of the server;	<input type="checkbox"/> See family 1 Or specific to this family: standard or low-end performance configuration: 14.1	high-end performance configuration: 37.5