

Zyxel WEEE 3R REPORT

Zyxel WEEE program – Evaluation of
Recyclability and Recoverability rate for Zyxel Networked
equipment
EU Directive 2012/19/EU

Company name.....:	Zyxel Communications Corporation
Address	No. 2, Gongye E. 9th Road, Hsinchu Science Park, Hsinchu, Taiwan, R.O.C.
Department	Quality System Management
Report No.:	ZQ20210120001
Version.....:	1.0
Issue date	2021-01-20
Reporting period.....:	2021-01-13 to 2021-01-20
Product category	IT and Telecommunications equipment
Test Object	24-port GbE L2 Switch with Four Combo Ports
Model name	MGS3520-28
P/N no.:	MGS3520-28-EU01V1F
Trademark	ZYXEL
Power supply (I/O)	External Power Supply
Rating(s)	AC 100-240VAC, DC 12VDC
Standard	Zyxel WEEE program is based on following: Directive 2012/19/EU (WEEE Recast) A guide to the marketing, product development and manufacturing actions you need to take IEC 62635
Test Report Form No.:	Zyxel TRF52001_2013-02-06 / Ver. 1
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1. Abbreviations used in the report

Abbr.	Full name
QMD	Quality Management Department
3R	Reused, Recycle, Recovery
MB	MotherBoard
PSU	Power supply unit
$M_{(i)}$	Mass of ith part (ref.: IEC/TR 62635:2012)
$RCR_{(i)}$	Recycling rate of the ith part in the corresponding end-of-life treatment scenario (ref.: IEC/TR 62635:2012)
$RVR_{(i)}$	Recovery rate of the ith part in the corresponding end-of-life treatment scenario (ref.: IEC/TR 62635:2012)
m_{EEE}	Total product mass (ref.: IEC/TR 62635:2012)
Recyclability	Ability of waste product to be recycled, based on actual practices
Recoverability	Ability of a waste product to be recovered, based on actual practices
EoL	End-of-life

2. General description of Product

Picture of Product:



Copy of Marking plate:

ZyXEL Communications Corporation
合勤科技股份有限公司

Model Number (機種): MGS3520-28
產品名稱: 乙太網路交換器

Power Rating (額定電源): 100-240V, 50/60Hz, 0.53A max
Power Consumption: 27Watt max

This device complies with Part 15 of the FCC Rules /Industry Canada Licence-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.
Apparatet må tilkoples jordat stikkontakt.

CAN ICES-3 (A)/NMB-3(A)

Made in China
中國製造

S/N:  S194341000001

FCC CE N908 EAC D41163 RoHS 030 UA.TR008 153 FS

Characteristic data:

Product total weight : 3025.5g

Product dimension : L:440mm * W:270mm * H:44mm

Normative reference:

Directive 2012/19/EU

IEC/TR 62635:2012, Ed.1

ISO 11469:2000 Plastics — Generic identification and marking of plastics products

ISO 1043 Plastics — Generic identification and marking of plastics products

Part 1: Basic polymers and their special characteristics

Part 2: Fillers and reinforcing materials

Part 3: Plasticizers

Part 4: Flame retardants

General Remarks:

"(see remark #) refers to a remark appended to the report.

" (see appended table)" refers to a table appended to the report.



Throughout this report a point is used as the decimal separator.

The test results presented in this report relate only to the object tested.

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3. Disassembling information

3.1 Disassembling object:

Device		
		
Accessories & Assemblies		
Power Cord	/	/
	/	/
/	/	/
/	/	/

3.2 Derivation tree of Product

- Device

- Enclosure



- Top case x 1
- Bottom Case x 1
- Screw x 10
- Rubber foot X 4

- PCBA(MB)



- PCBA(LED)



- PCBA(MB) x 1
- 2*4 RJ45 Phone Jack X3
- 2*2 RJ45 Phone Jack X3
- HEATSINK x 5
- SFP Connector X 1
- Plastic housing X 2
- Plastic body X 6
- Connector, pin X 39
- CORE x 2
- COIL x 2
- LED x 5
- Plastic Holder (LED) X 2
- Screw x 4
- Stand off X 2
- Screw (M4 * 6) X 2

- PCBA(LED) X 1
- Screw (M3 * 8) X 2
- PCBA(PSU) X 1
- Plastic body X 1
- Connector, pin X 2
- CORE x 1
- COIL x 1
- Inductor X 1
- HEATSINK X 2
- Wire X 1
- Screw (M3 * 6) X 4
- Console CABLE X 1
- Flat cable X 1
- ON-OFF CABLE X 1

-
- Accessory

- Power cord



- Power cord x 1
-

4. Calculation result

Basic information:

Brand name	ZYXEL	Recycling scenario	IT & telecommunication
Model name	MGS3520-28	Product total weight	3025.5g

Calculation information:

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
Parts for selective treatment	3.1	PCBA(MB)	401.06	PCBA	340.901	340.901
	4.1	PCBA (LED)	23.6	PCBA	20.06	20.06
	5.1	PCBA (PSU)	89.82	PCBA	76.347	76.347
	5.9	Wire	8.71	Electric Wires/Cables/Antenna	7.4035	8.71
	6.1	Console CABLE wire	3.6		3.06	3.6
	6.5	Flat cable wire	11.93		10.1405	11.93
	6.7	ON-OFF CABLE wire	13.65		11.6025	13.65
	6.11	Power Cord wire	158.5	134.725	158.5	
	3.23	LED	0.6	LED	0	0
	3.25	LED	0.9	LED	0	0
Single recyclable material	1.1	Top case	778.3	Steel	770.517	770.517
	1.2	Bottom Case	1043.2	Steel	1032.768	1032.768
	1.3	Screw	2	Stainless steel (non-magnetic)	1.98	1.98
	2.1	Stand off	1	Other Recyclable Plastics	0.9	1
	2.2	Screw (M4 * 6)	1.6	Stainless steel (non-magnetic)	1.584	1.584
	3.4	HEATSINK	150.4	Aluminum	148.896	148.896
	3.5	HEATSINK	46.50	Aluminum	46.04	46.04
	3.6	SFP Connector	44.2	Stainless steel (non-magnetic)	43.758	43.758
	3.7	Plastic body	1.4	PA	1.26	1.4
	3.8	PIN	1.6	Copper	1.584	1.584

	3.9	Plastic housing	1.7	TPE(TPR)	1.53	1.7
	3.10	PIN	1.1	Copper	1.089	1.089
	3.11	Plastic housing	0.5	TPE(TPR)	0.45	0.5
	3.12	PIN	0.2	Copper	0.198	0.198
	3.13	Plastic body	0.2	PA	0.18	0.2
	3.14	PIN	0.4	Copper	0.396	0.396
	3.15	Plastic body	0.04	PA	0.036	0.04
	3.16	PIN	0.08	Copper	0.0792	0.0792
	3.17	Plastic body	0.24	PA	0.216	0.24
	3.18	PIN	0.48	Copper	0.4752	0.4752
	3.19	CORE	2.6	Ferrite	2.574	2.574
	3.20	COIL	1.0	Copper	0.99	0.99
	3.21	CORE	3.0	Ferrite	2.97	2.97
	3.22	COIL	1.6	Copper	1.584	1.584
	3.24	Plastic Holder (LED)	0.3	PA	0.27	0.3
	3.26	Plastic Holder (LED)	0.3	PA	0.27	0.3
	3.27	Screw	2	Stainless steel (non-magnetic)	1.98	1.98
	4.2	Screw (M3 * 8)	1.2	Stainless steel (non-magnetic)	1.188	1.188
	5.2	Plastic body	0.42	PA	0.378	0.42
	5.3	PIN	0.36	Copper	0.3564	0.3564
	5.4	CORE	2.78	Ferrite	2.7522	2.7522
	5.5	COIL	5.78	Copper	5.7222	5.7222
	5.6	Inductor	0.26	PA	0.234	0.26
	5.7	HEATSINK	15.58	Aluminum	15.42	15.42
	5.8	Screws with Nuts	1.48	Stainless steel (non-magnetic)	1.47	1.47
	5.10	Plastic Plug	0.99	PC_LD (Low density)	0.891	0.99
	5.11	Wire casing	0.92	Other Recyclable Plastics	0.828	0.92
	5.12	Screw (M3 * 6)	2	Stainless steel (non-magnetic)	1.98	1.98
	6.2	Console CABLE - Plastic housing	3.8	PC_HD (High density)	3.42	3.8

	6.3	Console CABLE -Plug	8.4	Copper	8.316	8.316
	6.4	D-SUB metal housing	3.51	Copper	3.47	3.47
	6.6	Flat cable-Plastic Plug	1.36	PC_LD (Low density)	1.224	1.36
	6.8	ON-OFF CABLE-switch	2.1	Other Recyclable Plastics	1.89	2.1
	6.9	ON-OFF CABLE-Plastic Plug	0.99	PC_LD (Low density)	0.891	0.99
	6.10	ON-OFF CABLE-casing	0.96	Other Recyclable Plastics	0.864	0.96
	6.12	Power Cord-pin	3.2	Copper	3.168	3.168
Separation Process	1.4	Rubber foot	1.2	Rubber (General)	0.6	0.6
	3.2	2*4 RJ45 Phone Jack	142.8	Metal+Plastice	135.66	135.66
	3.3	2*2 RJ45 Phone Jack	27.1	Metal+Plastice	25.745	25.745
Sum					$\Sigma (m_{(i)} \times RCR_{(i)}) = 2885.281$	$\Sigma (m_{(i)} \times RVR_{(i)}) = 2916.4882$
Recyclability rate		$\frac{\Sigma(m_{(i)} \times RCR_{(i)})}{m_{EEE}} \times 100\% = 95.4\%$				
Recoverability rate		$\frac{\Sigma(m_{(i)} \times RVR_{(i)})}{m_{EEE}} \times 100\% = 96.4\%$				

ATTACHMENT A
PLASTIC MATERIALS MARKING

The equipment of MGS3520-28 enclosure is made by metal which is outside of scope of ISO 11469 as well as ISO 1043 part 1 to part 4 on the requirement of the weight of plastic material equal and/or more than 25g shall be marked.

ATTACHMENT B PLASTIC MATERIALS MARKING

In the light of Annex VII on the Directive 2012/19/EU (so called as WEEE recast), selective treatment for materials and components have been defined for further specifically treatment during the end-of-life electrical and electronic equipment, which are:

No	details
1	polychlorinated biphenyls (PCB) containing capacitors in accordance with Council Directive 96/59/EC of 16 September 1996 on the disposal of polychlorinated biphenyls and polychlorinated terphenyls (PCB/PCT) (1),
2	mercury containing components, such as switches or backlighting lamps,
3	batteries,
4	printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimetres,
5	toner cartridges, liquid and paste, as well as colour toner,
6	plastic containing brominated flame retardants,
7	asbestos waste and components which contain asbestos,
8	cathode ray tubes,
9	chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC),
10	gas discharge lamps,
11	liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimetres and all those back-lighted with gas discharge lamps,
12	external electric cables,
13	components containing refractory ceramic fibres as described in Commission Directive 97/69/EC of 5 December 1997 adapting to technical progress for the 23rd time Council Directive 67/548/EEC on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances (2),
14	components containing radioactive substances with the exception of components that are below the exemption thresholds set in Article 3 of and

ATTACHMENT B
PLASTIC MATERIALS MARKING

	Annex I to Council Directive 96/29/Euratom of 13 May 1996 laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation (3),
15	electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume).
Remark: These substances, mixtures and components shall be disposed of or recovered in compliance with Directive 2008/98/EC.	

ATTACHMENT C PLASTIC MATERIALS MARKING

According to Art. 12 & Art. 13 on the financing in respect of WEEE from private households and non-private households. Recycling fees cover costs of collection, transportation, handling, maintenance of recycling Zyxel network and equipment as well as solvency required in the Decree.

According to Art. 16 of Directive 2012/19/EU “Registration, information and reporting”. Zyxel has completed and fulfilled EU registration responsibility requirement which shall be registered through their authorised representatives, for detail, please refer to the table below.

Coutry	Registration No.	Approved compliance scheme
UK	WEE/CC0067TX (CD01/00100)	Comply Direct Ltd.
Finland	11344	elker
DK	21229237	DPA-System
...

For other countries registry information, please feel free to contact with Zyxel Communications Corporation. email to: ZyXEL_Certification@zyxel.com.tw