

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
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Department.....	: Quality Management Department
Report No.....	: ZQ20160519003
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Reporting period	: 2016-01-27 to 2016-05-19
Product category	: IT and Telecommunications equipment
Test Object.....	: 48-port GbE L2 Switch with 10GbE Uplink
Model name	: XGS2210-52
P/N no.	: XGS2210-52-EU0101F
Trademark.....	: 
Power supply (I/O)	: Internal Power Supply
Rating(s).....	: AC 100-240V, 50/60Hz, 0.51A
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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INDEX

1. ABBREVIATIONS USED IN THE REPORT	3
2. GENERAL DESCRIPTION OF PRODUCT	4
3. DISASSEMBLING INFORMATION	6
4. CALCULATION RESULT	9

ATTACHMENT

ATTACHMENT A : PLASTIC MATERIALS MARKING	12
ATTACHMENT B : IDENTIFIED FOR SELECTIVE TREATMENT	13
ATTACHMENT C : REGISTRATION RESPONSIBILITY	14

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	Made in China 中國製造
Model Number(機種) : XGS2210-52 產品名稱 : 乙太網路交換器	
Power Rating (額定電源) : 100-240V~, 50/60Hz, 0.51A max. Power Consumption : 45 watt max.	
This device complies with Part 15 of the FCC Rules. 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 suojamaadoituskoettimilla varustenttuum pistorasiaan." "Apparaten skall anslutas till jordat uttag."	
FCC CE EAC TG I 53 UA.TR008	

Characteristic data:

Product total weight : 3995.724g

Product dimension : L:441mm * W:270mm * H:45mm

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.

This report shall not be reproduced except in full without the written approval of ZyXEL Communication Corporation.

3. Disassembling information

3.1 Disassembling object:

Device		
		
Accessories & Assemblies		
Power cord	/	/
	/	/
/	/	/
/	/	/

3.2 Derivation tree of Product

- Device



- Enclosure



- Cover case x 1
- Bottom case x 1
- Name Plate x 1

- Enclosure assemblies



- Screw x 22
- AC inlet socket x 1

- MB PCBA



- PCBA x 1
- PCBA Screw x 14
- Heat sink x 3
- SFP cage x 4
- RJ45 x 48 port
- Console Port x 1
- Reset button x 1
- 3 Pin x 4
- 8 Pin x 1
- 20 Pin x 1

- PA PCBA



- PA PCBA x 1
- PA PCBA Screw x 4
- Heat sink x 3
- PA PCBA Cap x 5
- Transformer x 2

- Fan



- Fan x 2

- Accessory

- Power cord



- Power cord x 1

4. Calculation result

Basic information:

Brand name	ZyXEL	Recycling scenario	IT & telecommunication
Model name	XGS2210-52	Sample weight	3995.724 g

Calculation information:

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
Reusable parts	—	—	—	—	—	—
Parts for selective treatment	2.1	AC power cord	184.00	Power Cable	46.00	165.60
	4.1	PA PCBA (12.7mm x 7.6mm)	30.00	PCBA	3.00	27.00
	4.5	PA PCBA capacitor-1	16.00	Electrolyte capacitors	0.00	0.00
	4.6	PA PCBA capacitor-2	3.19	Electrolyte capacitors	0.00	0.00
	4.7	PA PCBA capacitor-3	2.68	Electrolyte capacitors	0.00	0.00
	4.8	PA PCBA capacitor-4	2.38	Capacitor (PCB)	1.19	2.14
	4.10	PA PCBA capacitor-5	3.90	Electrolyte capacitors	0.00	0.00
	4.14	Transformer-1	3.80	Capacitor (PCB)	1.90	3.42
	4.15	Transformer-2	0.7	Capacitor (PCB)	0.35	0.63
	4.18	Black Plastic-2	1.95	Capacitor (PCB)	0.98	1.76
	4.19	Metal Pin	1.95	Capacitor (PCB)	0.98	1.76
	5.1	MB PCBA (45mm x 24.8mm)	684.26	PCBA	68.43	615.84
	5.9	PCBA-capacitor-1	1.60	Electrolyte capacitors	0.00	0.00
	5.23	MB PCBA Capacitor-6	1.50	Electrolyte capacitors	0.00	0.00
	5.24	MB PCBA Capacitor-7	0.80	Electrolyte capacitors	0.00	0.00
Parts with single recyclable material	1.2	Graphite sheet-1	5.00	PP (Polypropylene)	4.50	4.50
	1.4	Name Plate	3.50	PC	3.15	3.15
	2.2	AC terminal-Pin	14.94	Copper	14.64	14.64
	4.11	Heat sink-1	7.70	Aluminum	7.32	7.32
	4.12	Heat sink-2	13.90	Aluminum	13.21	13.21
	4.13	Heat sink-3	11.70	Aluminum	11.12	11.12
	5.7	Inductor metal wire	2.00	Copper	1.96	1.96
	5.8	Inductor core	4.00	Iron powder	3.80	3.80
5.10	3 Pin-1-Metal	0.23	Copper	0.22	0.22	

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
	5.12	3 Pin-2-Metal	0.11	Copper	0.11	0.11
	5.14	20 Pin-Metal	0.75	Copper	0.74	0.74
	5.16	8 Pin-Metal	0.30	Copper	0.30	0.30
	5.18	IC-1	0.07	EP (Epoxy resin)	0.00	0.06
	5.21	3 Pin 3-Metal	0.11	Copper	0.11	0.11
	5.25	Transformer-1	0.50	Copper	0.49	0.49
	5.26	Transformer - 1RO	3.50	Copper	3.43	3.43
	5.27	Transformer - 2R2	3.50	Copper	3.43	3.43
	5.28	Transformer - R39	3.50	Copper	3.43	3.43
	5.29	3 Pin-2-Metal	0.11	Copper	0.11	0.11
	5.32	SFP cage shield	22.80	Copper	22.34	22.34
	5.33	48 port LAN jack connector-Metal	12.29	Steel	11.68	11.68
	5.34	48 port LAN jack connector-Pin	4.90	Copper	4.80	4.80
	5.39	LED	0.80	EP (Epoxy resin)	0.00	0.72
	5.40	3 Pin-4-Metal	0.113	Copper	0.11	0.11
	6.1	Fan (Copper core)	19.60	Copper	49.98	49.98
6.3	Fan Screw	18.40	Steel	17.48	17.48	
Parts difficult to process	4.3	Transformer- 1 (Internal power supply)	92.08	Transformer	82.87	82.87
	4.4	Transformer- 2 (Internal power supply)	31.93	Transformer	28.74	28.74
Separation Process	1.1	Cover case	1023.50	Steel (General)	951.86	951.86
	1.3	Bottom case	1290.00	Steel (General)	1199.70	1199.70
	1.5	Screw-1	4.20	Steel (General)	3.91	3.91
	1.6	Screw-2	1.50	Steel (General)	1.40	1.40
	3.1	AC inlet socket (Plastic)	4.70	PA (Polyamide)	3.29	4.23
	3.2	AC inlet socket Cable_Screw	1.70	Steel (General)	1.58	1.58
	4.2	Plastic housing-1	0.90	PA (Polyamide)	0.63	0.81
	4.9	Black Plastic	0.49	PE_LD (Low density)	0.34	0.44
	4.16	PA PCBA Screw-1	2.50	Steel (General)	2.33	2.33
	4.17	PA PCBA Screw-2	0.52	Steel (General)	0.48	0.48
	4.20	Plastic housing-2	3.2	PA (Polyamide)	2.24	2.88
	5.2	PCBA Screw	6.25	Steel (General)	5.81	5.81

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
	5.3	Heat sink-4	226.50	Aluminum	203.85	203.85
	5.4	Heat sink-4 Screw	3.50	Steel (General)	3.26	3.26
	5.5	Heat sink-5	26.10	Aluminum	23.49	23.49
	5.6	Heat sink-6	35.20	Aluminum	31.68	31.68
	5.11	3 Pin-1 Plastic	0.11	PA (Polyamide)	0.08	0.10
	5.13	3 Pin-2 Plastic	0.05	PA (Polyamide)	0.04	0.05
	5.15	20 Pin Plastic	0.31	PA (Polyamide)	0.22	0.28
	5.17	8 Pin Plastic	0.15	PA (Polyamide)	0.10	0.13
	5.19	Reset button brown icon	0.44	PA (Polyamide)	0.31	0.40
	5.20	Reset button black plastic	0.88	PA (Polyamide)	0.62	0.79
	5.22	3 Pin-3 Black plastic	0.50	PA (Polyamide)	0.35	0.45
	5.30	3 Pin-3 Plastic	0.05	PA (Polyamide)	0.04	0.05
	5.31	Modules	42.00	PA (Polyamide)	29.40	37.80
	5.35	48 port LAN jack connector Black Plastic	81.56	PA (Polyamide)	57.09	73.40
	5.36	Console Port White Plastic	2.80	PVC	0.00	2.52
	5.37	Console Port Metal	4.40	Steel (General)	4.09	4.09
	5.38	Console Port Blue Plastic	1.60	PBT	1.12	1.44
	5.41	3 Pin-4 Plastic	0.05	PA (Polyamide)	0.04	0.05
	6.2	Fan (Frame/ Fan blades)	11.00	PBT	7.70	9.90
Sum					$\Sigma(m_{(i)} \times RCR_{(i)}) = 2949.90$	$\Sigma(m_{(i)} \times RVR_{(i)}) = 3678.12$
Recyclability rate			$\frac{\Sigma(m_{(i)} \times RCR_{(i)})}{m_{EEE}} \times 100\% = 73.826\%$			
Recoverability rate			$\frac{\Sigma(m_{(i)} \times RVR_{(i)})}{m_{EEE}} \times 100\% = 92.051\%$			

ATTACHMENT A
PLASTIC MATERIALS MARKING

The equipment of XGS2210-52 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 IDENTIFIED FOR SELECTIVE TREATMENT

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 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 REGISTRATION RESPONSIBILITY

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.
DE	71587309	EAR
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