

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.....	: ZQ20130220004
Version.....	: 1.0
Issue date.....	: 2013-04-29
Reporting period.....	: 2013-03-22 to 2013-04-29
Product category.....	: IT and Telecommunications equipment
Test Object	: 802.11 a/b/g/n Business Access Point
Model name	: NWA3160-N
P/N no.	: NWA3160-N-EU01F
Trademark.....	: 
Power supply (I/O)	: External power supply
Rating(s)	: DC 12V, 1.5A, 11W max.
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 (DTI & Defra)
Test Report Form No.	: ZyXEL TRF52001_2013-02-06 / Ver. 1
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Number of pages (Attachments)..	: 3 pages
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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	Made in China
Model Number : NWA3160-N	
Power Rating: Input 12V $\overline{\text{---}}$, 1.5A. Power Consumption: 11 Watt max. (Contains WLAN PC Module TX FCC ID: M4Y-AN622V01)	
NWA3160-N Default Settings: IP Address: 192.168.1.2 Password: 1234	
 Connect to ETHERNET Connect to POWER adapter	內含射頻模組 CCAF11LP0200T7 FC CE ! PCF 1.5.3 030 A9 46 MH30016
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.	

Characteristic data:

Product total weight : 822.5g

Product dimension : L:190.0mm * W:136.4mm * H:40.7mm

IP Level : IPX0

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.

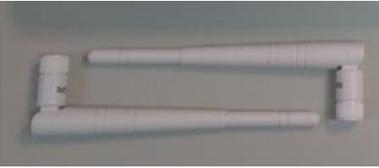
Throughout this report a point is used as the decimal separator.

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		
RJ45 cable	Antenna	Adaptor
		
D-Sub Cable		
		

3.2 Derivation tree of Product

- Device



- Enclosure



- Top case x 1
- Bottom case x 1
- Decoration panel x 1
- Light guide plate x 1

- Enclosure assemblies

- Sheet packing x 2
- Pad x 4
- Antenna cable x 2
- Antenna connector x 2
- Screw x 4

- PCBA (MB)



- PCBA x 1
- Heat sink x 1
- RJ45 socket x 1
- DC Jacket x 1
- IC Chip metal x 1

- PCBA (Wireless)



- PCBA x 1
- PCBA wireless Metal shield x 1

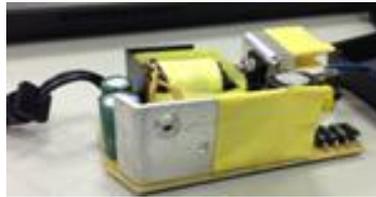
- PCBA (SRAM)



- PCBA x1
- Stud x 1
- Screw column cap x 1
- Screw x 1

- Accessory

- Adaptor x 1



- Case x 1
- Wire x 1
- Plug x 1
- PCBA x 1
- Heat sink x 2
- Core x 1

- RJ45 cable x 1



- D-Sub Cable



- D-sub cord x 1
- Mindin 6 Pin x 1
- RS232 connector x 1

- Antenna



- Antenna rod housing x 1
 - Upper solid x 1
 - Under solid x 1
 - Rivetx x 2
 - Sma plug x 1
 - RG-178 wire x 1
-

4. Calculation result

Basic information:

Brand name	ZyXEL	Recycling scenario	IT & telecommunication
Model name	NWA3160-N	Product total weight	822.5 g

Calculation information:

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
Reusable parts	—	—	—	—	—	—
Parts for selective treatment	C.1	PCBA (MB) (L: 162mm * W: 120mm)	85	PCBA	8.5	76.5
	D.1	PCBA (Wireless) (L: 58mm * W: 52mm)	17	PCBA	0.55	4.95
	E.1	PCBA (SRAM) (L: 42mm * W: 26mm)	5.5	PCBA	1.7	15.3
	F.1	PSU PCBA (L: 70mm * W: 58mm)	34.47	PCBA	3.447	31.023
Parts with single recyclable material	A.1	Top case	105.5	Polyether imide	94.95	94.95
	A.2	Down case	145.6	Polyether imide	131.04	131.04
	A.3	Decorate plate	5.16	PC	4.644	4.644
	A.4	Light guide plate	1	PC	0.9	0.9
	B.1	Sheet packing	2	PC	1.8	1.8
	B.2	Screw	6	Steel	5.7	5.7
	C.2	Heat sink	35.8	Aluminum	34.01	34.01
	C.3	IC Chip metal cover	13.46	Steel	12.787	12.787
C.5	DC Jacket metal part	1.8	Copper	1.764	1.764	

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
Parts with single recyclable material	E.2	SRAM PCBA stud	1.5	PC	1.08	1.08
	E.3	SRAM PCBA screw column cap	0.5	PC	13.32	13.32
	E.4	SRAM PCBA screw	1	Stainless steel (Non-magnetic)	5.7	5.7
	D.2	PCBA Wireless Metal shield	3	Stainless steel (Non-magnetic)	3.42	3.42
	B.4	Antenna cable	0.8	Stainless steel (Non-magnetic)	3.23	3.23
	B.5	Antenna connector	6.4	Stainless steel (Non-magnetic)	2.28	2.28
	G.3.2	Mindin 6 Pin	26	Stainless steel (Non-magnetic)	0.19	0.19
	G.3.3	RS232 connector DB9Pin	8	Stainless steel (Non-magnetic)	0.095	0.095
	G.1.2	PSU Metal pin	30.94	Copper	0.784	0.784
	F.2	Heat sink 1	4.65	PP (Polypropylene)	0.18	0.18
	F.3	Heat sink 2	4.55	Stainless steel (Non-magnetic)	15.523	15.523
	F.4	Core	15.2	Stainless steel (Non-magnetic)	4.237	4.237
	G.4.1	Antenna rod housing	0.048	PC	0.0432	0.0432
	G.4.2	Upper solid	0.018	PC	0.0162	0.0162

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
	G.4.3	Under solid	0.018	PC	0.0162	0.0162
	G.4.5	SMAPLUG	0.056	Zinc Die Casting	0.0532	0.0532
	G.4.6	Ejector sleeve	0.002	Copper	0.00196	0.00196
	G.4.8	Zinc alloy tube	0.016	Zinc Die Casting	0.0152	0.0152
	G.4.9	RG-178 wire	0.01	Zinc Die Casting	0.0095	0.0095
	G.4.10	Brass tube	0.04	Copper	0.0392	0.0392
Parts difficult to process	—	—	—	—	—	—
Separation Process	B.3	Pad	1.2	Rubber (General)	0	1.08
	C.4	RJ45 Port	3.84	PA (Polyamide)	2.68681	3.45447
	C.6	DC Jacket plastic part	0.6	PBT	0.42	0.54
	G.2.1	Ethernet cable	74	PVC	0	66.6
	G.3.1	D-sub cord	119.5	PBT	83.65	107.55
	G.1.1	PSU Enclosure	34.07	PA (Polyamide)	23.849	30.663
	G.1.3	PSU power cord	23.37	PBT	16.359	21.033
	G.4.4	Rivet	0.01	POM (Polyoxymethylene, Polyacetal)	0.007	0.009
	G.4.7	Teflon	0.001	POM (Polyoxymethylene, Polyacetal)	0.0007	0.0009
	G.4.11	Hose	0.0001	PVC	0	0.00009
Sum					$\Sigma(m_{(i)} \times RCR_{(i)}) = 536.908$	$\Sigma(m_{(i)} \times RVR_{(i)}) = 754.443$
Recyclability rate			$\frac{\Sigma(m_{(i)} \times RCR_{(i)})}{m_{EEE}} \times 100\% = 65.3\%$			
Recoverability rate			$\frac{\Sigma(m_{(i)} \times RVR_{(i)})}{m_{EEE}} \times 100\% = 91.7\%$			

ATTACHMENT A
PLASTIC MATERIALS MARKING



The main material of enclosure is ATX-200 (Polyether imide) material.

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