

## 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 Management Department
Report No.....	: ZQ20150901001
Version.....	: 1.0
Issue date.....	: 2015-09-16
Reporting period .....	: 2015-09-01 to 2015-09-16
Product category .....	: IT and Telecommunications equipment
Test Object.....	: Wireless Range Extender
Model name .....	: WRE6505
P/N no. ....	: WRE6505-ITTI01F
Trademark.....	: 
Power supply (I/O) .....	: Internal Power Supply
Rating(s).....	: AC 100-240V, 50/60Hz, 0.15A max.
Standard .....	: ZyXEL WEEE program is based on following: <b>Directive 2012/19/EU (WEEE Recast)</b> <b>A guide to the marketing, product development and manufacturing actions you need to take IEC 62635</b>
Test Report Form No.....	: ZyXEL TRF52001_2013-02-06 / Ver. 1
Number of pages (Contents) .....	: 10 pages
Number of pages (Attachments) ..	: 3 pages
Reported by....	: Xavier Chang
Approved by .:	: Emma Bao

## **INDEX**

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

## **ATTACHMENT**

ATTACHMENT A : PLASTIC MATERIALS MARKING	<b>11</b>
ATTACHMENT B : IDENTIFIED FOR SELECTIVE TREATMENT	<b>12</b>
ATTACHMENT C : REGISTRATION RESPONSIBILITY	<b>13</b>

## 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:

<b>ZyXEL Communications Corporation</b>	Made in China
Model Number :WRE6505	
Input: 100-240V~, 0.15A, 50/60Hz	
IP address:192.168.1.2 Password:1234	
IC:2468C-WRE6505	
FCC ID:I88WRE6505 CAN ICES-3 (B)/NMB-3 (B)	
Repeater mode	
SSID (2.4GHz): ZyXEL_2.4GEXT	
SSID (5GHz): ZyXEL_5GEXT	
Default Security: open	

**Characteristic data:**

Product total weight : 109.83 g

Product dimension : L:62.3mm \* W:45.5mm \* H:90.9mm

**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:

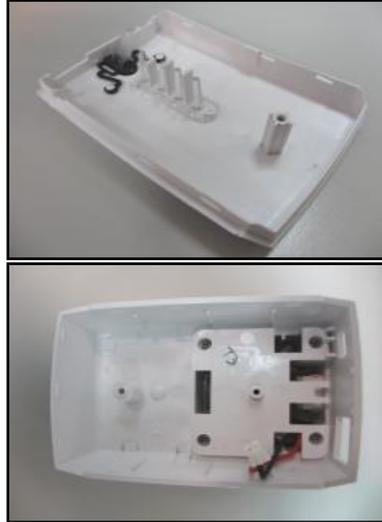
Device		
		
Accessories & Assemblies		
/	/	/
/	/	/

### 3.2 Derivation tree of Product

- Device

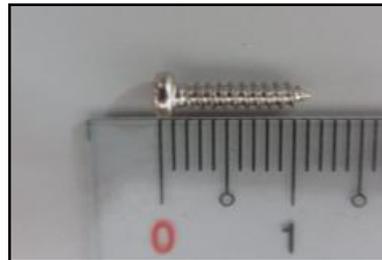


- Enclosure



- Cover case x 1
- Button case x 1
- Plug housing x 1
- Button with light pipe x 1
- Light pipe x 1
- Plug (Silver Metal) x 2

- Enclosure assemblies



- Screw (On housing) x 1

- MB PCBA



- MB PCBA (79mm x 50mm x 1mm) x 1
- Antenna - 1 x 1
- Antenna - 2 x 1
- Antenna - 3 x 1
- RJ45 I/O (Yellow plastic) x 1
- 2-Pin outlet (Plastic) x 1

- 
- Screw  
(PCBA) x 1

- 
- Screw  
(Buttom case) x 1

---

- Power supplier PCBA



- 
- PA PCBA (41.8mm x 30.7mm x 2.0mm) x 1

- 
- Transformer  
(Core copper) x 1

- 
- Transformer  
(Black plastic) x 1

- 
- Capacitance – 1 x 1

- 
- Capacitance – 2 x 1

- 
- 2-Pin Connector  
(Plastic) x 1
-

## 4. Calculation result

Basic information:

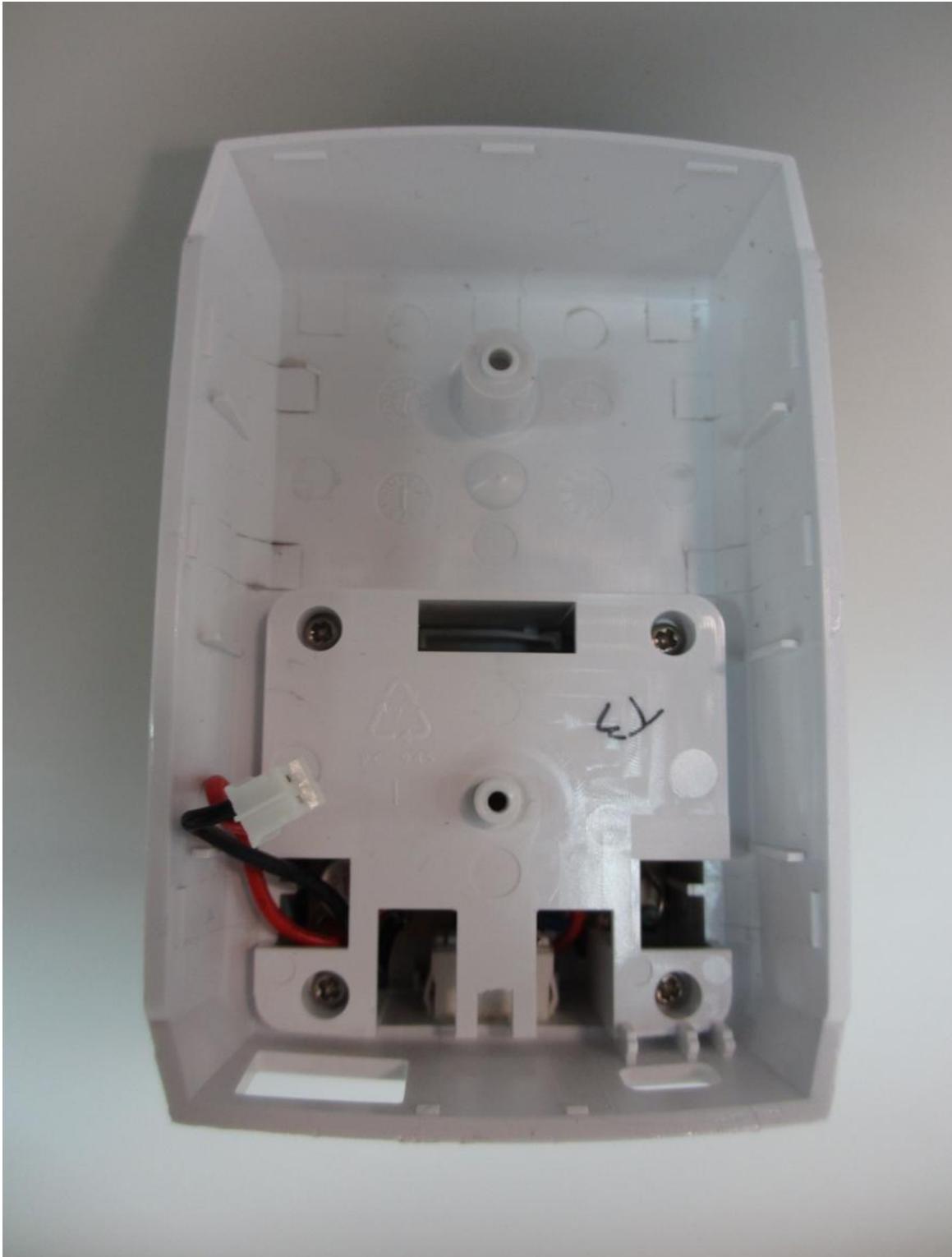
Brand name	ZyXEL	Recycling scenario	IT & telecommunication
Model name	WRE6505	Sample weight	109.83 g

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	MB PCBA (79mm x 50mm x 1mm)	18.774	PCBA	2.049	18.441
	3.2	PA PCBA (41.8mm x 30.7mm x 2.0mm)	8.600	PCBA	1.500	13.500
	3.5	Capacitance - 1	2.000	Capacitor (PCB)	1.000	1.800
	3.6	Capacitance - 2	0.600	Capacitor (PCB)	0.300	0.540
Parts with single recyclable material	1.1	Cover case	16.200	PC	14.580	14.580
	1.2	Button with light pipe	0.630	PC	0.567	0.567
	1.3	Light pipe	0.910	PC	0.819	0.819
	1.4	Plug (Silver Metal)	11.900	Copper	11.662	11.662
	1.5	Bottom case	29.630	PC	26.667	26.667
	1.6	Plug housing	13.300	PC	11.970	11.970
	1.7	Screw (On housing)	0.310	Stainless steel (non-magnetic)	0.295	0.295
	2.2	Antenna - 1	0.0002	Stainless steel (non-magnetic)	0.00019	0.00019

EoL info	No	Name of part	Mass (g)	Material	Recyclability mass (g)	Recoverability mass (g)
	2.3	Antenna - 2	0.0002	Stainless steel (non-magnetic)	0.00019	0.00019
	2.4	Antenna - 3	0.0002	Stainless steel (non-magnetic)	0.00019	0.00019
	2.7	Screw (PCBA)	0.230	Stainless steel (non-magnetic)	0.219	0.219
	2.8	Screw (Buttom case)	1.160	Stainless steel (non-magnetic)	1.102	1.102
	3.3	Transformer (Core copper)	2.200	Copper	2.156	2.156
Parts difficult to process	—	—	—	—	—	—
Separation Process	2.5	RJ45 I/O (Yellow plastic)	1.495	PBT+PC	1.047	1.346
	2.6	2-Pin outlet (Plastic)	0.220	PA (Polyamide)	0.154	0.198
	3.1	2-Pin Connector (Plastic)	0.070	PA (Polyamide)	0.049	0.063
	3.4	Transformer (Black plastic)	1.600	PA (Polyamide)	1.120	1.440
Sum					$\Sigma(m_{(i)} \times RCR_{(i)}) = 77.255$	$\Sigma(m_{(i)} \times RVR_{(i)}) = 107.364$
Recyclability rate			$\frac{\Sigma(m_{(i)} \times RCR_{(i)})}{m_{EEE}} \times 100\% = 70.34\%$			
Recoverability rate			$\frac{\Sigma(m_{(i)} \times RVR_{(i)})}{m_{EEE}} \times 100\% = 97.75\%$			

ATTACHMENT A  
PLASTIC MATERIALS MARKING



The main material of enclosure is PC 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).
<p>Remark: These substances, mixtures and components shall be disposed of or recovered in compliance with Directive 2008/98/EC.</p>	

## 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](mailto:ZyXEL_Certification@zyxel.com.tw)