

WEEE Disassembly Manual

Zyxel Communication Corporation

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The following sample(s) was/were submitted and identified by the applicant as :

Sample Submitted By : Zyxel Communication Corporation

Type of Product : 5G NR Outdoor Router

Style/Item No. : NR7303

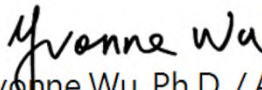


Sample Receiving Date : 01-Oct-2024

CONCLUSION:

The 5G NR Outdoor Router is classified as Category 6 under Annex III & IV of Directive 2012/19/EU WEEE (recast). The following table shows the WEEE (recast) Directive compliance conclusion.

Assessment Item	Re-use/Recycled Rate (%)	Recovered Rate (%)
Result of Assessment	83.05	89.48
Minimum Recovery targets under WEEE (recast) Directive Annex V	55	75
WEEE (recast) requirement compliance	PASS	PASS
Disassembly time (sec.)	145	


Yvonne Wu, Ph.D. / Asst. Manager
Signed for and on behalf of
SGS TAIWAN LTD.



PIN CODE: A654A068

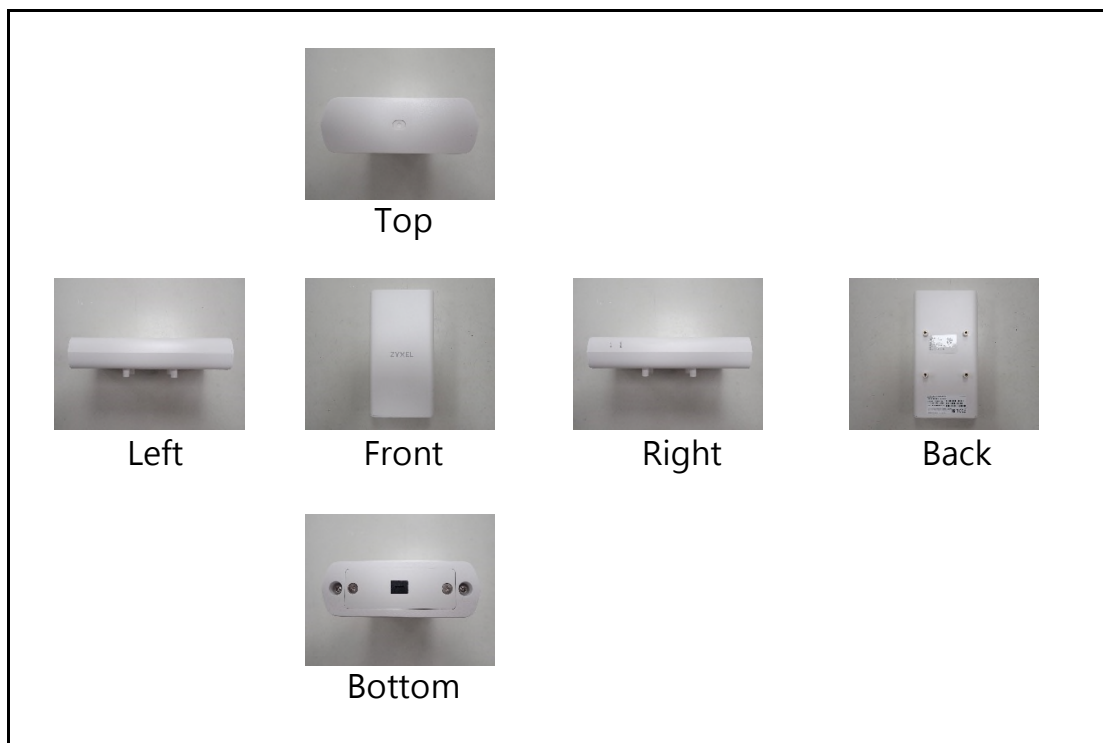
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1. Product Information

The product is a 5G NR Outdoor Router. The weight of this product excluding package is 975.2228g. The appearance of the product is as follows:



2. Product Composition

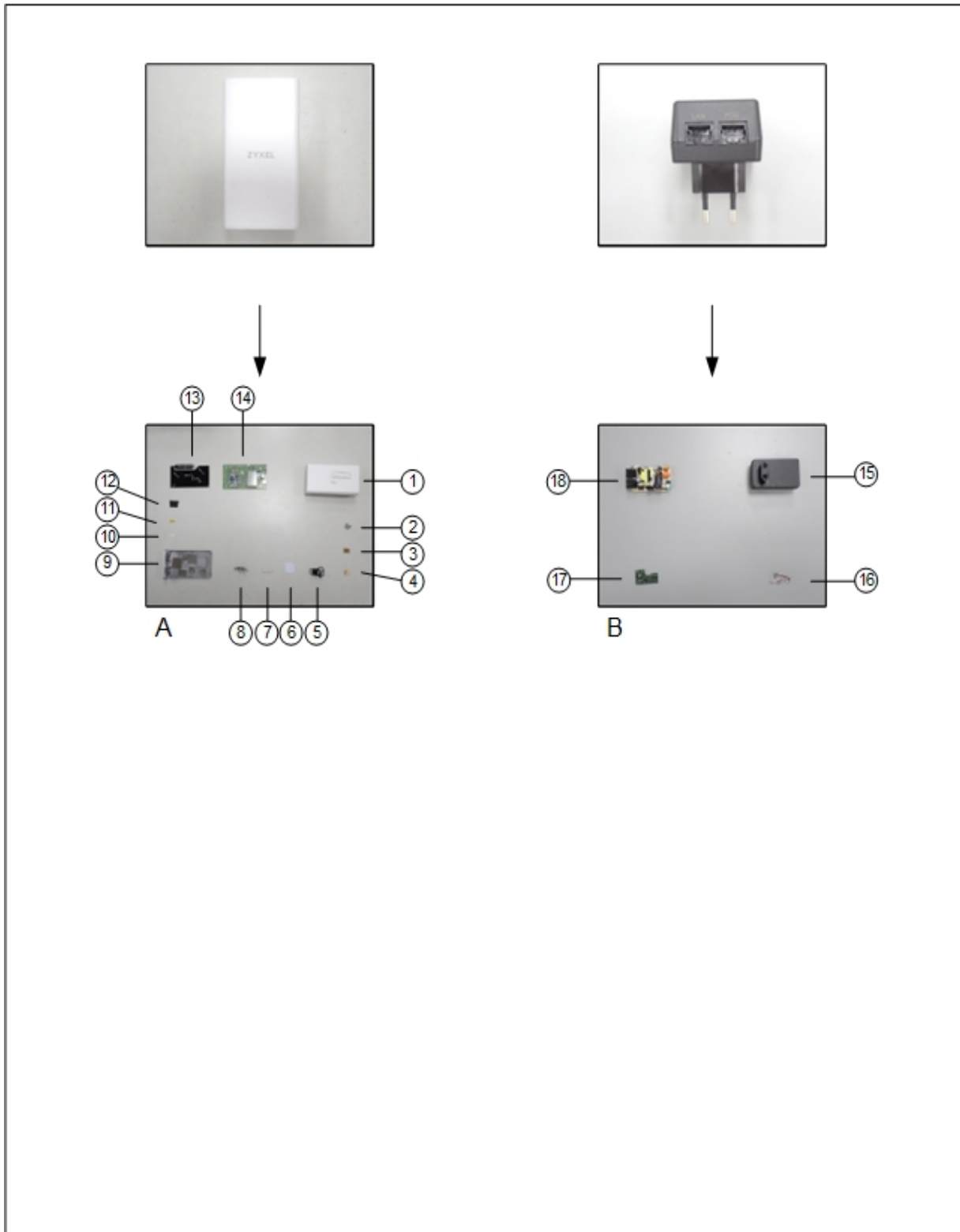
The composition and weight of each part is described as follows:

Part Name	Composition	Weight (g)	Percent (%)
Plastic case,Plastic piece,Plastic pad,Tape,Plastic sheet	Plastic	313.4029	32.14
Screw,Metal piece	Metal	228.7313	23.45
Conductive Anti-Static Foam	Mix	0.2303	0.02
PCBA	PCBA	208.9659	21.43
Wire,Cable	Cable/wire	223.8924	22.96
Total		975.2228	100.00

3. Disassembly Procedure

3.1 Flow Chart for Disassembly Procedure

The disassembly procedure taken here is in accordance with the treatment requirements under the Annex VII of the WEEE (recast) Directive. In addition to considering economic and efficiency factors, manual operation and disassembly tools have been applied to separate the components and materials from this product in order to simulate the scenario at the treatment facility, and to achieve the objective that the separated components and materials can be re-use, recycled and recovered.





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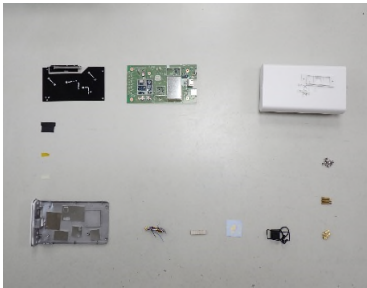


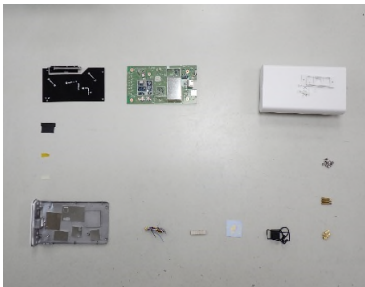
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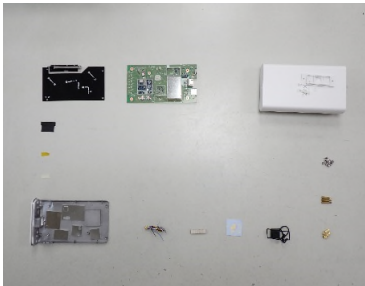
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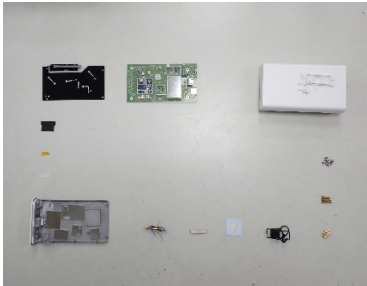
3.2 Component and Material Composition

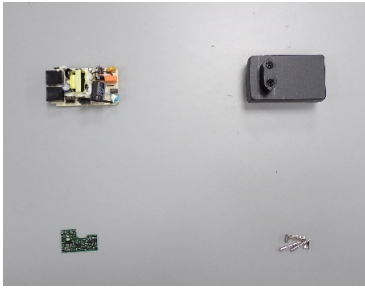
The material declaration for this product, the disassembly tools and the disassembly time are described in the following table.

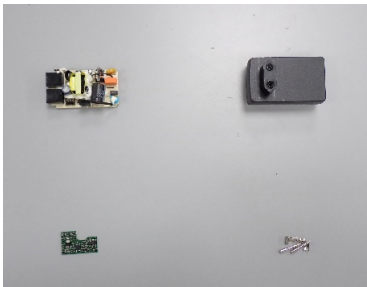
Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		1	Plastic case		Plastic	255.5000	Plug, Solder, Adhesive, Screw	Screwdriver, Slanted pliers, Knife	135	-
		2	Screw		Metal	6.5175				
		3	Metal piece		Metal	9.1434				
		4	Metal piece		Metal	5.9548				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		5	Plastic piece		Plastic	8.2761	-	-	-	-
		6	Plastic pad		Plastic	6.4742				
		7	Conductive Anti-Static Foam		Mix	0.2303				
		8	Wire		Cable/wire	3.9924				
		9	Metal piece		Metal	203.4000				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		10	Tape		Plastic	0.0222	-	-	-	No.13 is a PCBA. The surface of No.13 is greater than 10 square centimeters. According to WEEE (recast) directive, No.13 requires selective treatment.
		11	Tape		Plastic	0.0162				
		12	Plastic sheet		Plastic	0.3366				
		13	PCBA		PCBA	27.4000				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		14	PCBA		PCBA	119.9000	-	-	-	No.14 is a PCBA. The surface of No.14 is greater than 10 square centimeters. According to WEEE (recast) directive, No.14 requires selective treatment.

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
B		15	Plastic piece		Plastic	42.7776	Solder, Seal	Slanted pliers, Hammer	10	-
		16	Metal piece		Metal	3.7156				
		17	PCBA		PCBA	2.4985				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
B		18	PCBA		PCBA	59.1674	-	-	-	No.18 is a PCBA. The surface of No.18 is greater than 10 square centimeters. According to WEEE (recast) directive, No.18 requires selective treatment.

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
C		19	Cable		Cable/wire	35.2000	-	-	-	No.19 is an external cable. According to WEEE (recast) directive, No.19 requires selective treatment.

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
D		20	Cable		Cable/wire	184.7000	-	-	-	No.20 is an external cable. According to WEEE (recast) directive, No.20 requires selective treatment.

3.3 Disassembly Tool

The disassembly tool used for this product shows in the following table.

Disassembly Tool	Picture
Screwdriver	
Slanted pliers	
Hammer	
Knife	

3.4 Connection Technology

For this product, the connection technology including is as follows:

Connector Tech.	Number
Plug	72
Solder	11
Adhesive	4
Seal	1
Screw	13

4. Re-use / Recycled Rate and Recovered Rate Assessment

The re-use / recycled rate and recovered rate assessment for this product is based upon the waste treatment technologies and equipment that are most frequently available to the market. The following table is the result of the assessment.

Part Name	Composition	Re-use/ Recycled Rate (%)*	Energy Recovery Rate (%)*	Recovered Rate (%)*
Plastic case, Plastic piece, Plastic pad, Tape, Plastic sheet	Plastic	24.10	6.43	30.53
Screw, Metal piece	Metal	22.28	-	22.28
Conductive Anti-Static Foam	Mix	0.01	-	0.01
PCBA	PCBA	17.14	-	17.14
Wire, Cable	Cable/wire	19.52	-	19.52
Total		83.05	6.43	89.48

*: the percentages are based on the total device weight.

Note:

The results of Re-use / Recycled Rate and Recovered Rate

$$\text{Re-use / Recycled Rate (\%)} = \frac{\text{Re-use / Recycled Weight}}{\text{Product Total Weight}} * 100\%$$

$$\text{Recovered Rate (\%)} = \frac{(\text{Re-use / Recycled Weight} + \text{Energy Recovery Weight})}{\text{Product Total Weight}} * 100\%$$

5. WEEE (recast) Directive Compliance

5.1 Selective Treatment for Materials and Components

This product contains component and material items, listed in Annex VII of the WEEE (recast) Directive, that require selective treatment for materials and components of waste electrical and electronic equipment in accordance with Article 8. They are described in the following table.

Component/Material	Photo No.
External electric cable	19, 20
Printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters	13, 14, 18

5.2 Re-use / Recycled Rate and Recovered Rate Assessment

Assessment Item	Re-use/Recycled Rate (%)	Recovered Rate (%)
Result of Assessment	83.05	89.48
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Disassembly time (sec.)	145	

5.3 Selective Treatment for Material and Components of Waste

Electrical and Electronic Equipment (Annex VII of WEEE (recast) Directive)

- Printed circuit boards of mobile phones generally, and of other devices if the surface of the printed circuit board is greater than 10 square centimeters
- Batteries
- External electric cables
- Liquid crystal displays (together with their casing where appropriate) of a surface greater than 100 square centimeters and all those back-lighted with gas discharge lamps
- Electrolyte capacitors containing substances of concern (height > 25 mm, diameter > 25 mm or proportionately similar volume)
- Mercury containing components, such as switches or backlighting lamps
- Plastic containing brominated flame retardants
- Polychlorinated biphenyls (PCB) containing capacitors
- Toner cartridges, liquid and pasty, as well as colour toner
- Asbestos waste and components which contain asbestos
- Cathode ray tubes
- Chlorofluorocarbons (CFC), hydrochlorofluorocarbons (HCFC) or hydrofluorocarbons (HFC), hydrocarbons (HC)
- Gas discharge lamps
- Components containing refractory ceramic fibers
- 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 ionising radiation