

# 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 Indoor Router

Style/Item No. : NR5111



Sample Receiving Date : 10-Apr-2025 and 05-May-2025

## CONCLUSION:

The 5G NR Indoor 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	79.54	89.87
Minimum Recovery targets under WEEE (recast) Directive Annex V	55	75
WEEE (recast) requirement compliance	PASS	PASS
Disassembly time (sec.)	540	

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



PIN CODE: C41844B5

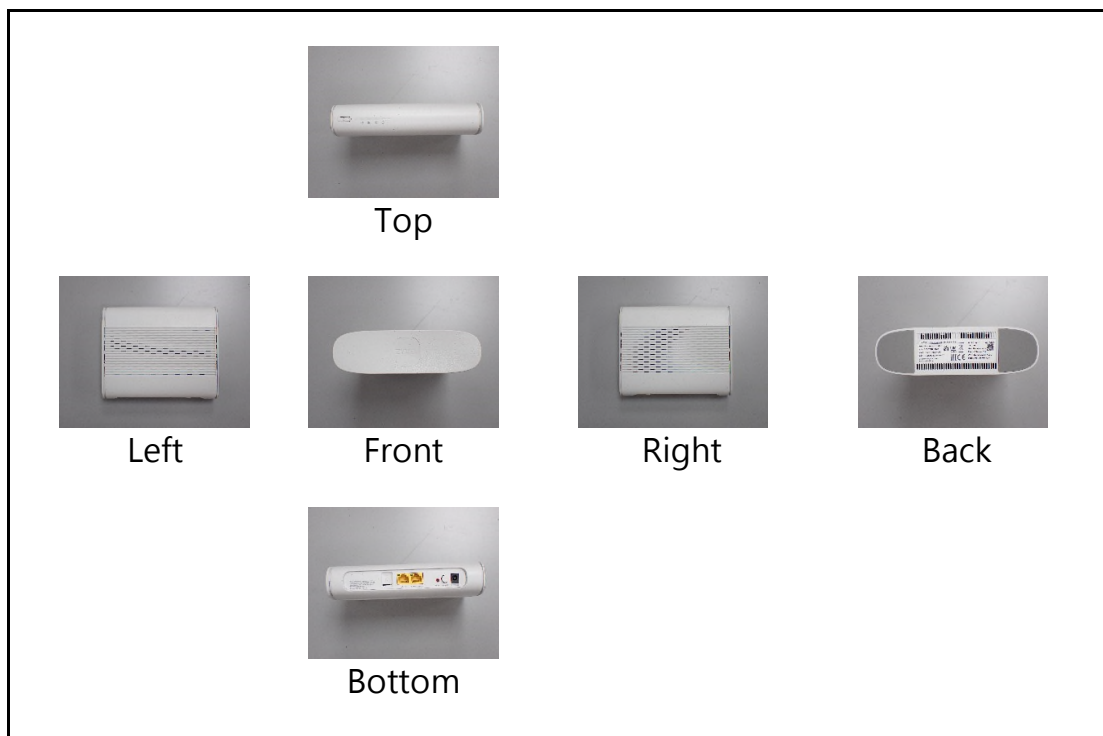
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## 1. Product Information

The product is a 5G NR Indoor Router. The weight of this product excluding package is 624.0833g. The appearance of the product is as follows:



## 2. Product Composition

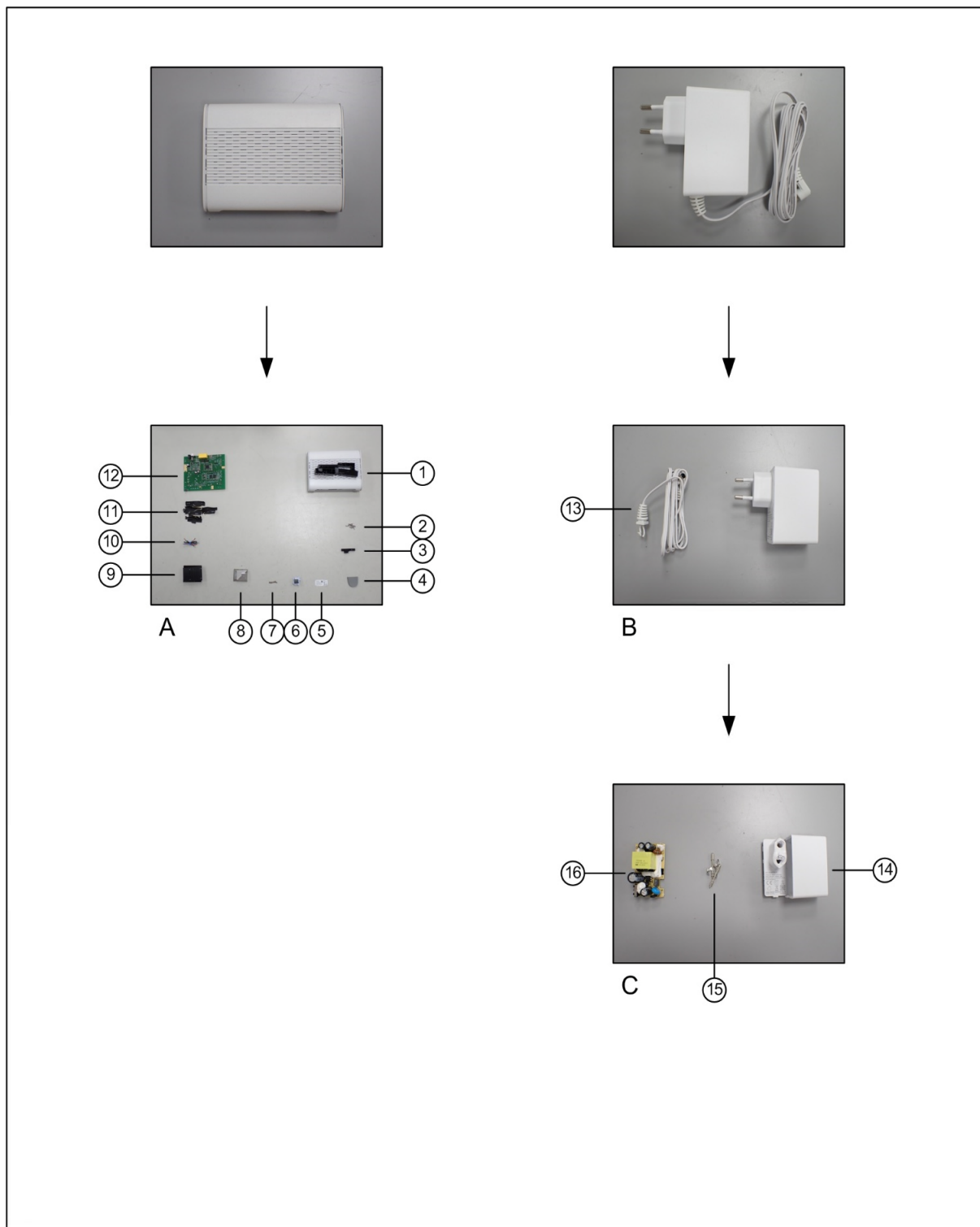
The composition and weight of each part is described as follows:

Part Name	Composition	Weight (g)	Percent (%)
Plastic case, Plastic pad, Label	Plastic	322.4669	51.67
Screw, Metal sheet, Metal piece	Metal	69.4895	11.13
Conductive Anti-Static Foam	Mix	0.0447	0.01
FPCA, PCBA	PCBA	175.1828	28.07
Wire, Cable	Cable/wire	56.8994	9.12
Total		624.0833	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.



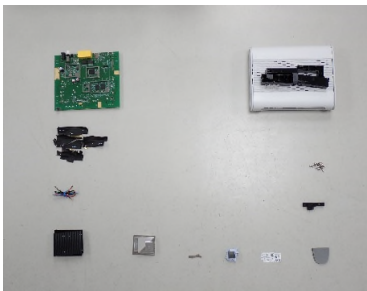



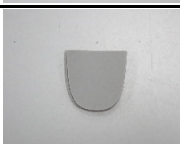


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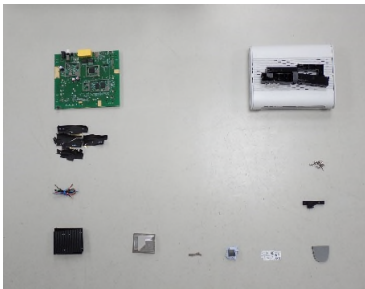

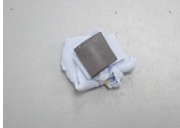

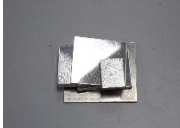

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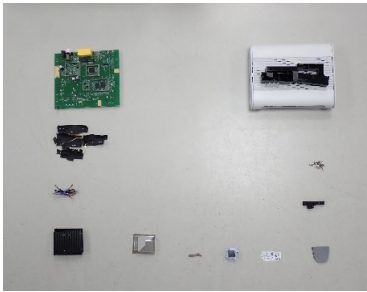


## 3.2 Component and Material Composition

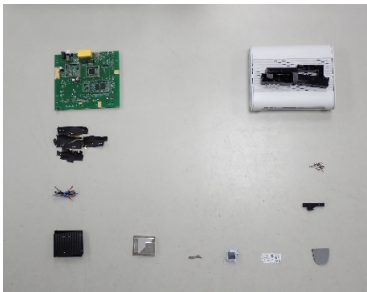

The material declaration for this product, the disassembly tools and the disassembly time are described in the following table.



Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		1	Plastic case		Plastic	269.9000	Plug, Solder, Snap, Adhesive, Screw	Screwdriver, Slanted pliers, Knife	532	-
		2	Screw		Metal	4.6220				
		3	Plastic pad		Plastic	0.3411				
		4	Plastic pad		Plastic	3.7042				

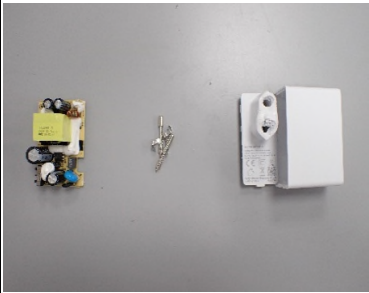







Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		5	Label		Plastic	0.2479	-	-	-	-
		6	Plastic pad		Plastic	13.5090				
		7	Conductive Anti-Static Foam		Mix	0.0447				
		8	Metal sheet		Metal	15.2941				
		9	Metal piece		Metal	45.1933				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		10	Wire		Cable/wire	3.6803	-	-	-	No.11 is a PCBA. The surface of No.11 is greater than 10 square centimeters. According to WEEE (recast) directive, No.11 requires selective treatment.
		11	FPCA		PCBA	2.6209				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
A		12	PCBA		PCBA	122.9000	-	-	-	No.12 is a PCBA. The surface of No.12 is greater than 10 square centimeters. According to WEEE (recast) directive, No.12 requires selective treatment.




Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
B		13	Cable		Cable/wire	22.7894	Solder	Slanted pliers	4	No.13 is an external cable. According to WEEE (recast) directive, No.13 requires selective treatment.

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
C		14	Plastic case		Plastic	34.7647	Seal	Slanted pliers, Knife	4	No.16 is a PCBA. The surface of No.16 is greater than 10 square centimeters. According to WEEE (recast) directive, No.16 requires selective treatment.
		15	Metal piece		Metal	4.3801				
		16	PCBA		PCBA	49.6619				

Procedure		Part					Disassembly			Remark
No.	Picture	No.	Name	Picture	Material	Weight (g)	Connection Technique	Tool	Time (s.)	
D		17	Cable		Cable/wire	30.4297	-	-	-	No.17 is an external cable. According to WEEE (recast) directive, No.17 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	
Knife	

### 3.4 Connection Technology

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

Connector Tech.	Number
Plug	8
Solder	13
Snap	146
Adhesive	14
Seal	1
Screw	12

#### 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 pad, Label	Plastic	38.75	10.33	49.08
Screw, Metal sheet, Metal piece	Metal	10.58	-	10.58
Conductive Anti-Static Foam	Mix	0.00	-	0.00
FPCA, PCBA	PCBA	22.46	-	22.46
Wire, Cable	Cable/wire	7.75	-	7.75
Total		79.54	10.33	89.87

\*: 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	13, 17
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	11, 12, 16

### 5.2 Re-use / Recycled Rate and Recovered Rate Assessment

Assessment Item	Re-use/Recycled Rate (%)	Recovered Rate (%)
Result of Assessment	79.54	89.87
Minimum Recovery targets under WEEE (recast) Directive Annex V	55	75
WEEE (recast) requirement compliance	PASS	PASS
Disassembly time (sec.)	540	

### 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