

VDE Testing and Certification Institute • Merianstr. 28 • 63069 Offenbach • Germany

Date: March 17th, 2025
From: Dr. Michael Riess, VDE
To: Motorola/QRYR

Subject: **Recyclability and Recoverability Report by VDE Testing and Certification Institute**

XT2541 Series

Description of Methodology

The calculation is based on a disassembly assessment of the product. The disassembly is done down to the level of “functional units” similar to what is done in recycling facilities. Based on Material Assessment data the composition of each functional unit is evaluated regarding compatibility of the overall material composition of the functional unit with material fractions, similar to the requirements of the European WEEE directive 2012/19/EU.

The functional unit material compatibility assessment allows the calculation of the recyclability and recoverability¹⁾. Formulas for calculation:

$$\text{recyclability} = \sum(\text{mass of recyclable product fractions/materials}) \div (\text{total mass of product}) \times 100$$

$$\text{recoverability} = \sum(\text{mass of recyclable product fractions/materials} + \text{mass of further serving useful purpose product material-mixes}) \div (\text{total mass of product}) \times 100$$

¹⁾ Percentage of materials that are compatible with materials recycling processes or that can go into energy recovery process

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Annex

Based on Testreport-326846-TL7-1 the product achieves a recycling quote of 68.37 % and a recovery quote of 77.92 %.

Required Records:

1. Total weight of mobile phone (with Battery): 31.227 g = 0.069 lbs
2. Fraction Assessment for recycling:

Fraction Name	Sample No.	Description	Total Mass in [g]	Recycled or Reused Mass in [g]	Factor Recycling	Compatibility Recycling	Why not recyclable
Aluminum	GQ2036-00	25-010 Motorola Watch, Model XT2541, Metal frame	1.987	1.987	100%	YES	
Aluminum	GQ2039-00	25-010 Motorola Watch, Model XT2541, Power button	0.092	0.092	100%	YES	
Battery	GQ2034-00	25-010 Motorola Watch , Model XT2541, Battery	4.689	4.689	100%	YES	
Copper Alloy	GQ2040-03	25-010 Motorola Watch , Model XT2541, Copper glue strip	0.099	0.099	100%	YES	
Ferrous Alloy	GQ2030-01	25-010 Motorola Watch , Model XT2541, Springs 1	0.004	0.004	100%	YES	
Ferrous Alloy	GQ2030-02	25-010 Motorola Watch , Model XT2541, Springs 2	0.003	0.003	100%	YES	
Ferrous Alloy	GQ2030-03	25-010 Motorola Watch , Model XT2541, Springs 3	0.018	0.018	100%	YES	
Ferrous Alloy	GQ2032-00	25-010 Motorola Watch , Model XT2541, Silver screws	0.116	0.116	100%	YES	
Ferrous Alloy	GQ2033-01	25-010 Motorola Watch , Model XT2541, Metal cover	0.064	0.064	100%	YES	
Ferrous Alloy	GQ2033-02	25-010 Motorola Watch , Model XT2541, Metal clamps	0.008	0.008	100%	YES	
Ferrous Alloy	GQ2033-03	25-010 Motorola Watch , Model XT2541, Metal plates	0.190	0.190	100%	YES	
Ferrous Alloy	GQ2033-04	25-010 Motorola Watch , Model XT2541, Metal parts	0.311	0.311	100%	YES	

Fraction Name	Sample No.	Description	Total Mass in [g]	Recycled or Reused Mass in [g]	Factor Recycling	Compatibility Recycling	Why not recyclable
Glass	GQ2042-00	25-010 Motorola Watch , Model XT2541, Display	5.952	5.952	100%	YES	
Magnet	GQ2028-00	25-010 Motorola Watch , Model XT2541, Magnets	0.508	0.508	100%	YES	
Non recyclable	GQ2024-00	25-010 Motorola Watch , Model XT2541, Wristband	6.895	0	0%	NO	Material Mix more than 5% differing materials, Lead
Non recyclable	GQ2026-01	25-010 Motorola Watch , Model XT2541, Label 1	0.001	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2026-02	25-010 Motorola Watch , Model XT2541, Label 2	0.001	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2026-03	25-010 Motorola Watch , Model XT2541, Label 3	0.001	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2027-01	25-010 Motorola Watch , Model XT2541, Metallic shock pad	0.008	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2027-02	25-010 Motorola Watch , Model XT2541, Shock pad 1	0.001	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2027-03	25-010 Motorola Watch , Model XT2541, Shock pad 2	0.091	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2040-01	25-010 Motorola Watch , Model XT2541, Black glue strip	0.003	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2040-02	25-010 Motorola Watch , Model XT2541, Yellow glue strips	0.010	0	0%	NO	Material Mix more than 5% differing materials
Non recyclable	GQ2043-00	25-010 Motorola Watch , Model XT2541, Black plastic frame	2.865	0	0%	NO	Material Mix more than 5% differing materials
PWB and mixed Electronics	GQ2034-07	25-010 Motorola Watch , Model XT2541, Battery, PWB	0.251	0.251	100%	YES	
PWB and mixed Electronics	GQ2035-00	25-010 Motorola Watch , Model XT2541, Main PWB	3.357	3.357	100%	YES	
PWB and mixed Electronics	GQ2038-00	25-010 Motorola Watch , Model XT2541, Power button flex	0.072	0.072	100%	YES	
PWB and mixed Electronics	GQ2041-00	25-010 Motorola Watch , Model XT2541, Display flex	0.551	0.551	100%	YES	
Recyclable Plastic	GQ2025-01	25-010 Motorola Watch , Model XT2541, Black glue 1	0.004	0.004	100%	YES	
Recyclable Plastic	GQ2025-02	25-010 Motorola Watch , Model XT2541, Black glue 2	0.038	0.038	100%	YES	

Fraction Name	Sample No.	Description	Total Mass in [g]	Recycled or Reused Mass in [g]	Factor Recycling	Compatibility Recycling	Why not recyclable
Recyclable Plastic	GQ2029-00	25-010 Motorola Watch , Model XT2541, Black plastic buttons	0.075	0.075	100%	YES	
Recyclable Plastic	GQ2031-00	25-010 Motorola Watch , Model XT2541, Backside cover	2.949	2.949	100%	YES	
Recyclable Plastic	GQ2037-00	25-010 Motorola Watch , Model XT2541, Red rubber part	0.013	0.013	100%	YES	
			31.227	21.351			

3. Fraction Assessment for recovery:

Fraction Name	Sample No.	Description	Total Mass in [g]	Recovered Mass in [g]	Factor Recovery	Compatibility Recovery	Why not recoverable
Aluminum	GQ2036-00	25-010 Motorola Watch , Model XT2541, Metal frame	1.987	1.987	100%	YES	
Aluminum	GQ2039-00	25-010 Motorola Watch , Model XT2541, Power button	0.092	0.092	100%	YES	
Battery	GQ2034-00	25-010 Motorola Watch , Model XT2541, Battery	4.689	4.689	100%	YES	
Copper Alloy	GQ2040-03	25-010 Motorola Watch , Model XT2541, Copper glue strip	0.099	0.099	100%	YES	
Ferrous Alloy	GQ2030-01	25-010 Motorola Watch , Model XT2541, Springs 1	0.004	0.004	100%	YES	

Fraction Name	Sample No.	Description	Total Mass in [g]	Recovered Mass in [g]	Factor Recovery	Compatibility Recovery	Why not recoverable
Ferrous Alloy	GQ2030-02	25-010 Motorola Watch , Model XT2541, Springs 2	0.003	0.003	100%	YES	
Ferrous Alloy	GQ2030-03	25-010 Motorola Watch , Model XT2541, Springs 3	0.018	0.018	100%	YES	
Ferrous Alloy	GQ2032-00	25-010 Motorola Watch , Model XT2541, Silver screws	0.116	0.116	100%	YES	
Ferrous Alloy	GQ2033-01	25-010 Motorola Watch , Model XT2541, Metal cover	0.064	0.064	100%	YES	
Ferrous Alloy	GQ2033-02	25-010 Motorola Watch , Model XT2541, Metal clamps	0.008	0.008	100%	YES	
Ferrous Alloy	GQ2033-03	25-010 Motorola Watch , Model XT2541, Metal plates	0.190	0.190	100%	YES	
Ferrous Alloy	GQ2033-04	25-010 Motorola Watch , Model XT2541, Metal parts	0.311	0.311	100%	YES	
Glass	GQ2042-00	25-010 Motorola Watch , Model XT2541, Display	5.952	5.952	100%	YES	
Magnet	GQ2028-00	25-010 Motorola Watch , Model XT2541, Magnets	0.508	0.508	100%	YES	
Non recoverable	GQ2024-00	25-010 Motorola Watch , Model XT2541, Wristband	6.895	0	0%	NO	Lead
Non recyclable	GQ2026-01	25-010 Motorola Watch , Model XT2541, Label 1	0.001	0.001	100%	YES	
Non recyclable	GQ2026-02	25-010 Motorola Watch , Model XT2541, Label 2	0.001	0.001	100%	YES	
Non recyclable	GQ2026-03	25-010 Motorola Watch , Model XT2541, Label 3	0.001	0.001	100%	YES	
Non recyclable	GQ2027-01	25-010 Motorola Watch , Model XT2541, Metallic shock pad	0.008	0.008	100%	YES	
Non recyclable	GQ2027-02	25-010 Motorola Watch , Model XT2541, Shock pad 1	0.001	0.001	100%	YES	
Non recyclable	GQ2027-03	25-010 Motorola Watch , Model XT2541, Shock pad 2	0.091	0.091	100%	YES	
Non recyclable	GQ2040-01	25-010 Motorola Watch , Model XT2541, Black glue strip	0.003	0.003	100%	YES	
Non recyclable	GQ2040-02	25-010 Motorola Watch , Model XT2541, Yellow glue strips	0.010	0.010	100%	YES	

Fraction Name	Sample No.	Description	Total Mass in [g]	Recovered Mass in [g]	Factor Recovery	Compatibility Recovery	Why not recoverable
Non recyclable	GQ2043-00	25-010 Motorola Watch , Model XT2541, Black plastic frame	2.865	2.865	100%	YES	
PWB and mixed Electronics	GQ2034-07	25-010 Motorola Watch , Model XT2541, Battery, PWB	0.251	0.251	100%	YES	
PWB and mixed Electronics	GQ2035-00	25-010 Motorola Watch , Model XT2541, Main PWB	3.357	3.357	100%	YES	
PWB and mixed Electronics	GQ2038-00	25-010 Motorola Watch , Model XT2541, Power button flex	0.072	0.072	100%	YES	
PWB and mixed Electronics	GQ2041-00	25-010 Motorola Watch , Model XT2541, Display flex	0.551	0.551	100%	YES	
Recyclable Plastic	GQ2025-01	25-010 Motorola Watch , Model XT2541, Black glue 1	0.004	0.004	100%	YES	
Recyclable Plastic	GQ2025-02	25-010 Motorola Watch , Model XT2541, Black glue 2	0.038	0.038	100%	YES	
Recyclable Plastic	GQ2029-00	25-010 Motorola Watch , Model XT2541, Black plastic buttons	0.075	0.075	100%	YES	
Recyclable Plastic	GQ2031-00	25-010 Motorola Watch , Model XT2541, Backside cover	2.949	2.949	100%	YES	
Recyclable Plastic	GQ2037-00	25-010 Motorola Watch , Model XT2541, Red rubber part	0.013	0.013	100%	YES	
			31.227	24.332			