CROSSCALL

ACV STELLAR M6

Summary note

GOAL OF THE STUDY

A Life Cycle Assessment (LCA) was carried out, in accordance with ISO 14040 and ISO 14044, to evaluate the environmental impact of the STELLAR-M6 model, including the M6-e.

This study was critically reviewed by an independent third-party company, with the aim of identifying the benefits of eco-design actions initiated.

TECHNICAL SPECIFICATIONS	
Model	STELLAR M6 / M6E
Dimension	165,8 x 78 x 12,3 mm
Screen	6,1" (19,5:9)
Weight	Smartphone : 242g242g (SM6) / 239 (SM6-E) Packaging : 124g (SM6) / 112g (SM6-E)

METHODOLOGY

The functional unit of the life-cycle assessment defines the level of service provided by the product on which the study is based. The functional unit for the STELLAR-M6 (including STELLAR M6-E) study is as follows: To provide services to an end-user on a smartphone used according to a usage scenario in France for 3 years.

The entire STELLAR-M6 life cycle is covered by the study :

- Production and Assembly (from raw material extraction to component assembly)
- Distribution
- Usage
- Repairs
- End-of-life (including recycling and/or reconditioning)

The scope of the study includes the STELLAR-M6 and the contents of its box, i.e.: USB-C/USB-C CABLE, X-BLOCKER (CROSSCALL accessory for SM6 only), PACKAGING, NOTICE, and SIM card ejector.

METHODS & TOOLS	
Standards	ISO 14040: 2006 I 14044 :2006
Database	Ecoinvent 3.9.1
Impact analysis methods	Attributional LCA, using the "cut-off" inventory method
LCA Software	Gabi « LCA for Experts » version 10

Production and Assembly

Most of the data collected to model the assembly phase came from ODM, which supplied a comprehensive Full Material Decomposition (FMD) detailing all components and their constituent materials. This was supplemented by estimates based on reference data, laboratory-evaluated data or 3D design files.

In order to verify the orders of magnitude of the modeled data (masses of the components and materials of the smartphone), we carried out a double verification of the data for this phase, the most impactful in the phone's life cycle :

- Weighing of the various components, carried out at X-LAB, Crosscall's in-house R&D laboratory.
- Validation of critical material content by an external laboratory.

The **repair phase** has been evaluated based on statistics provided by Crosscall's after-sales service for previous models. To keep things simple, the impact of spare parts production has been included in the production and assembly phase.

Distribution

Distribution phase covers the routing of components to the assembly plant, the transport stage from final assembly to China, then to packaging centers in China, and finally to end customers in France.

Use phase

Use phase takes into account the energy consumption required to recharge the smartphone over the 3 years defined for the chosen functional unit. This energy consumption has been estimated by calculating the consumption based on the known professional and private use of our smartphones, reduced to the capacity of the STELLAR M6 battery.

End-of-life

End-of-life and recycling data are based on average data from the Ecoinvent database, as it was difficult to collect data for this phase, which has less impact than the rest of the life cycle.

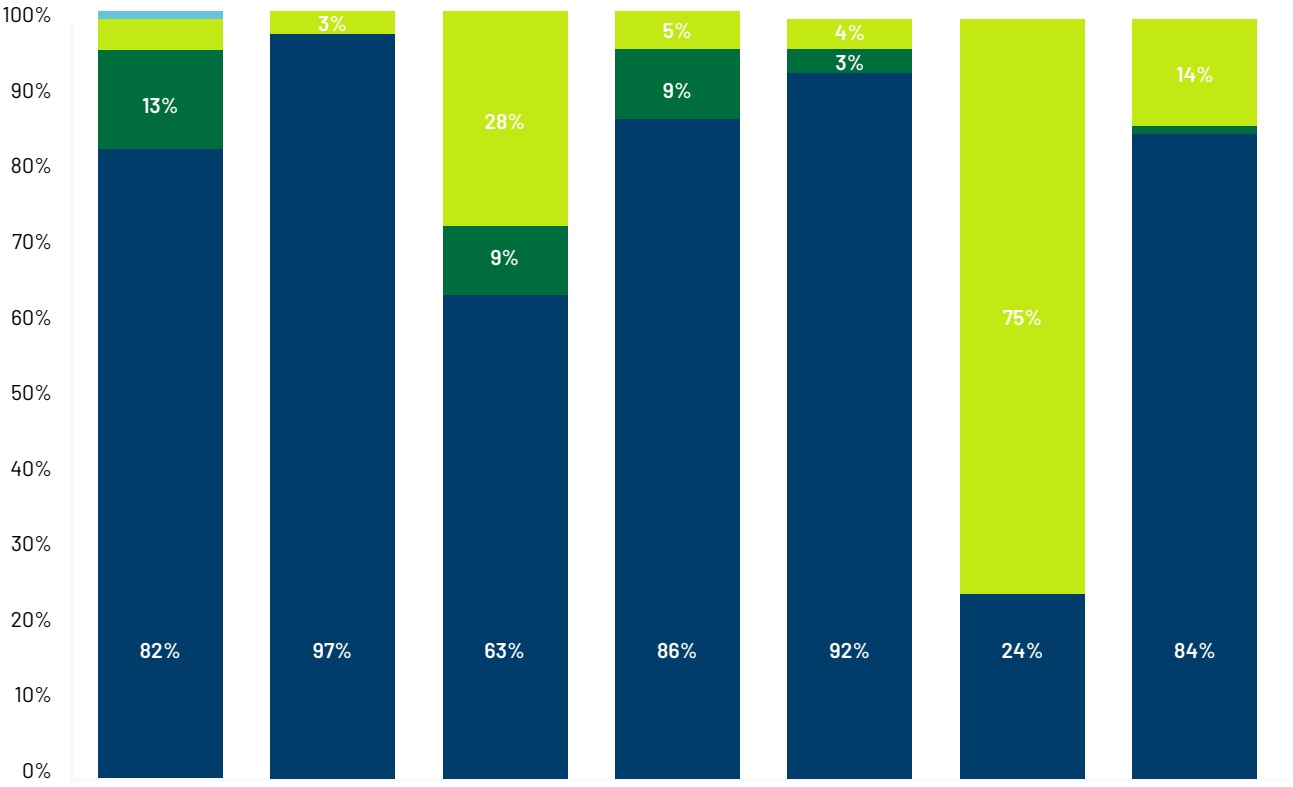
STUDY LIMITATIONS

Modelling environmental impacts involves uncertainty linked to the data collected, the assumptions made, and the databases used. To limit this uncertainty, particular attention has been paid to verify data from the manufacturing phase, which accounts for the majority of impacts, and an independent critical review was carried out to validate the consistency of the study.

LCA MAIN RESULTS

Climate change impact by life cycle phase

Environmental impact of a STELLAR-M6 by life-cycle phase



Climat change	Resource use (mineral and metals)	Resource use (fossils)	Acidification	Particulate matter	Ionising radiation (human health)	Water use
kgCO2eq	kgSbeq	MJ	molH+	Disease incidences	kBq U235 eq.	m^3 world equiv.
31,7	**1,83E-03**	**598,8**	**0,19**	**1,62E-06**	**10,0**	**14,2**

Production & Assembly / Repair | Distribution (transport) | Use phase | End-of-life

**We have followed ADEME's recommendations for selecting the environmental impacts to be assessed.*

Eco-design choices bear fruit

Crosscall has carried out an eco-design project on the STELLAR-M6 :

- 100% recycled aluminum chassis
- 50% recycled plastic parts
- 40% recycled neodymium and preaseodymium in magnets

FOR MORE INFORMATION ON CROSSCALL'S CSR COMMITMENTS

This study is part of our daily efforts to offer responsible products and services. To find out more about our CSR commitments, consult our CSR report.