

Ecobranding  
Report

Atos

Royalties  
Ecobranding  
Greenspector



As with most human creations, brands leave a carbon footprint that damages our environment. By using principles of ecobranding, we are cutting down on the resources our brand uses and manifesting our company's purpose: to become a leader in secure and decarbonized digital. We are making digital more accessible and user-friendly to remove the need to print, but we're also choosing design elements that are inherently more sustainable. These practices will be improved and adapted over time: ecobranding is an ever-evolving discipline and we're only at the first stage. [Proof is a crucial part of our journey to responsible digital technology.](#) Our independent partner, Greenspector, is an expert in measuring digital energy consumption and has verified each one of our changes. In this document you will find an overview of our ecobranding philosophy, a summary of our very first energy savings and a detailed report by Greenspector.

The report is split  
into 10 chapters

- 01. Ecobranding philosophy at Atos
- 02. First results at a glance
- 03. Greenspector's method
- 04. Dark mode
- 05. Eco Illustrations
- 06. Eco photo filters
- 07. Eco logo
- 08. Eco font
- 09. Carbon impact projections
- 10. Summary of key gains

01

# Ecobranding philosophy at Atos

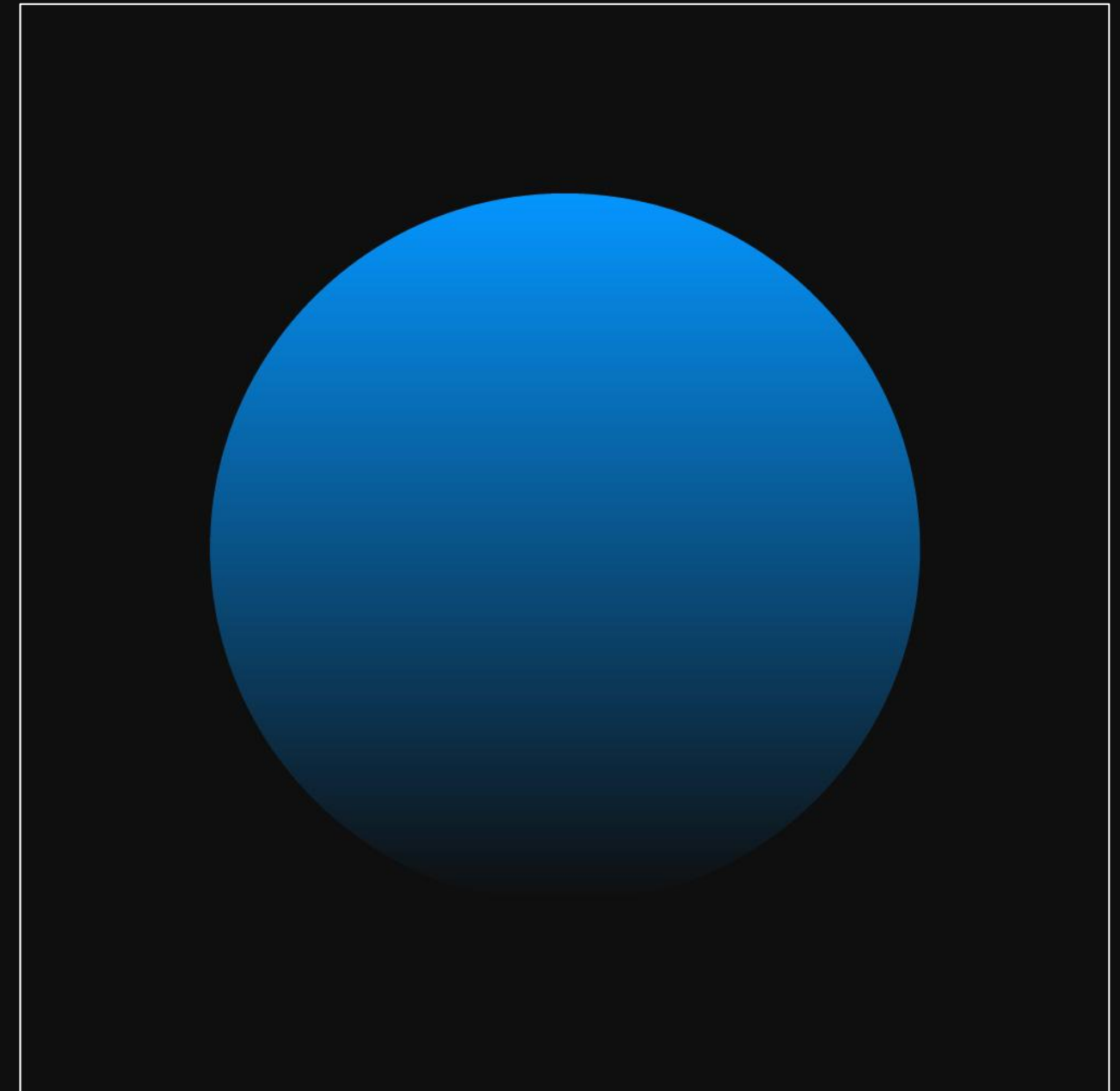


Ecobranding  
philosophy at Atos

# 1. Towards one big goal

Somes losses  
are wins

Ecobranding is about reducing energy and carbon consumption. Only a combination of different actions can help us achieve this goal. Sometimes, if considered in isolation, some actions can seem counter-productive, but if we put them in a global context, we realize that they contribute to a bigger ambition. For example, our colors are brighter to make dark mode a possibility, which in its turn, helps us to achieve energy savings. We accept to lose somewhere to have bigger gains elsewhere.



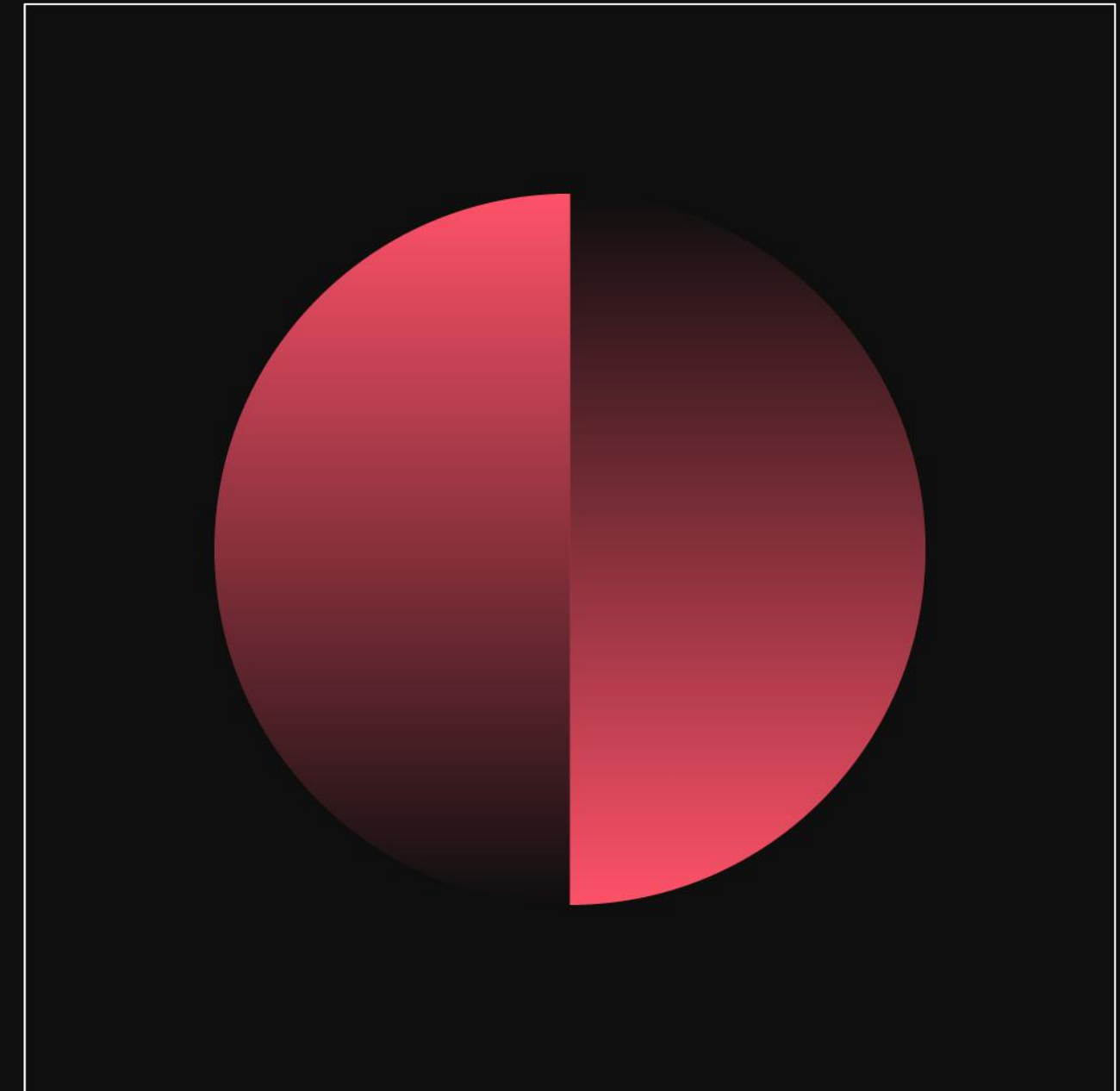


Ecobranding  
philosophy at Atos

## 2. Finding a balance

Ecological  
and accessible

We want to achieve carbon reduction, but also make sure our brand is accessible. We give people a choice as we are aware that not everyone can work solely with ecobranding principles. For example dark mode can pose a problem for people with impaired vision. Another example is that we use the Atos Globe ('small logo') on some channels but to make it more visible and accessible we have removed the gradient (gradient in our designs helps us to save energy and ink and represents our ambition to move to net zero).



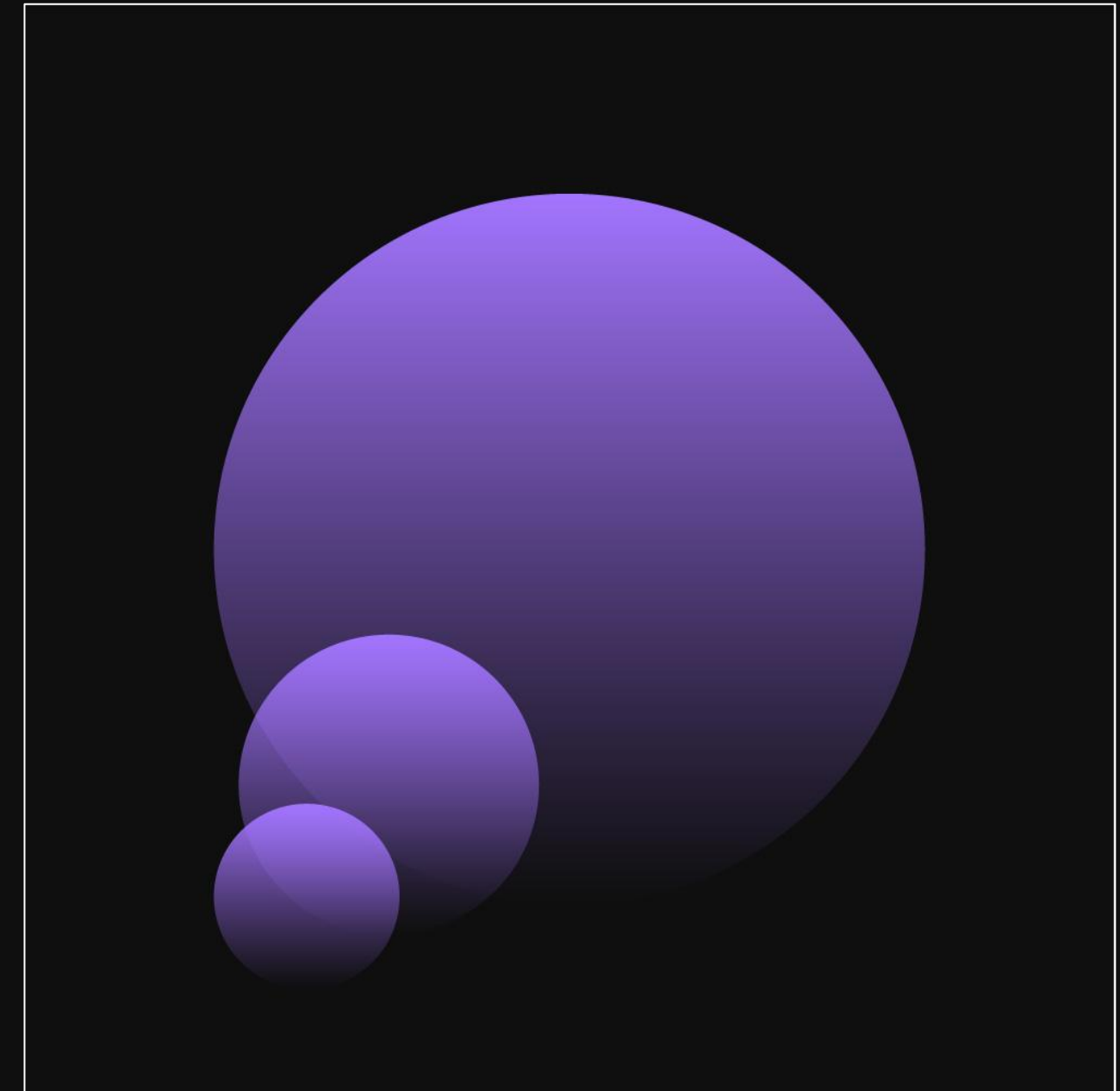


Ecobranding  
philosophy at Atos

## 3. Scale thinking

Think big

Some of the carbon gains from our brand might seem tiny. But when they are applied on a big scale the difference becomes significant.  
Just imagine the difference between one person loading atos.net and 1 million people loading it.





Ecobranding  
philosophy at Atos

## 4. First steps are the hardest

It's a journey

It is always possible to do better and to save more.  
And it is easier to notice imperfections than  
improvements. In fact, every brand ingredient can  
be challenged as not being 'eco' just for the very fact  
of its existence. But we need to start somewhere.  
Yes, it won't be perfect, but at least  
we can say we are doing something.  
And we are also setting an example to others!







Ecobranding  
philosophy at Atos

## 5. It's a mindset, not just a set of tools

The big part of the  
answer is every  
one of us!

With ecobranding it is not enough just to have the right ingredients – they need to be applied in the correct way. For example, if you use the static and not variable version of your font on a website, it won't be very useful. Or, if you upload your images in a JPEG format instead of the SVG format, you will continue to use a lot of space on the server. Ecobranding is not a magical tool that changes everything overnight without cooperation.



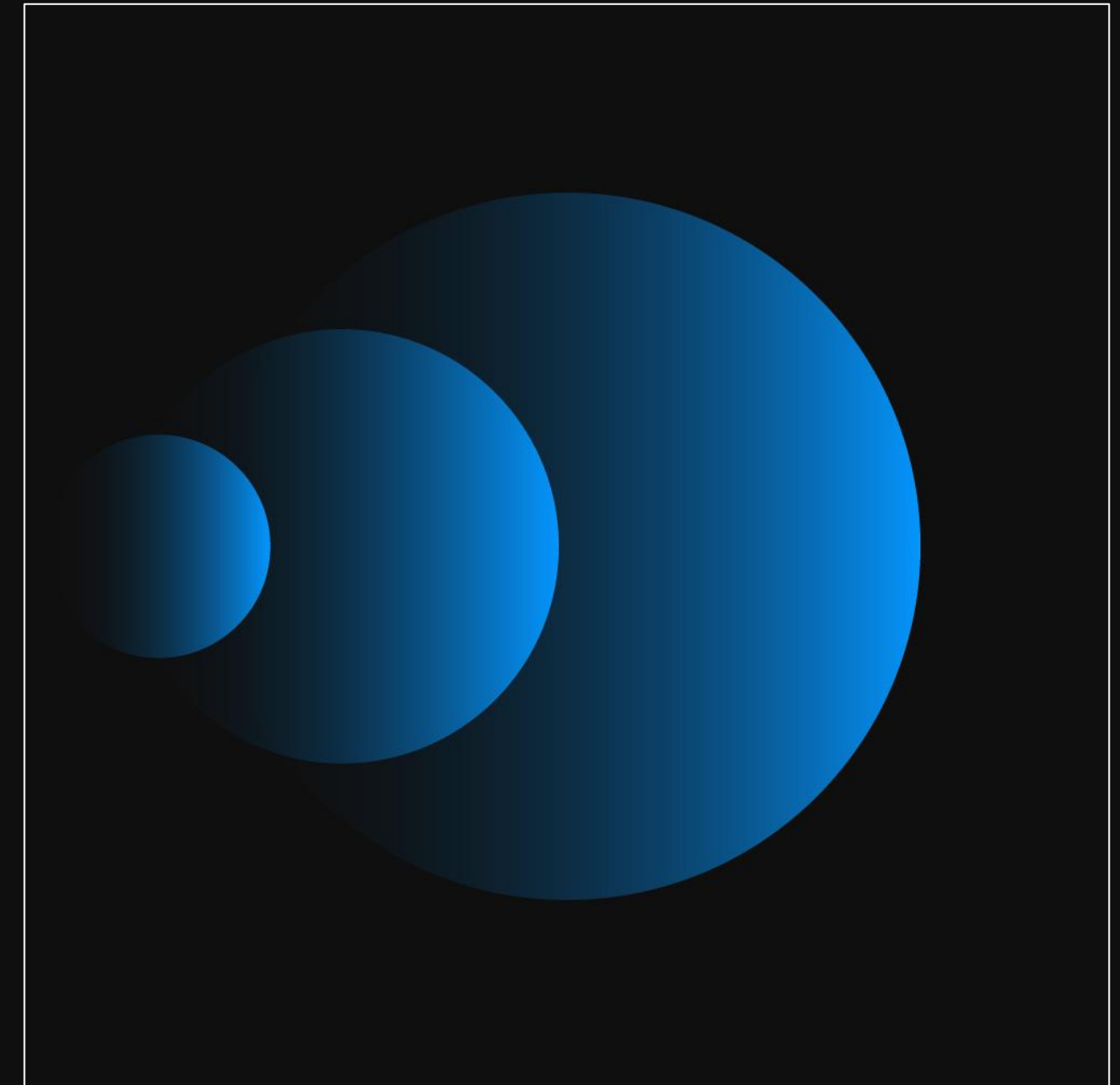


Ecobranding  
philosophy at Atos

## 6. Future-oriented

Look ahead

We anticipate technological changes and encourage them if they bring positive improvements. For example, dark mode brings more savings on OLED screens than LCD screens. Instead of adapting to LCD screens, we need to promote dark mode and encourage the transition to OLED screens.



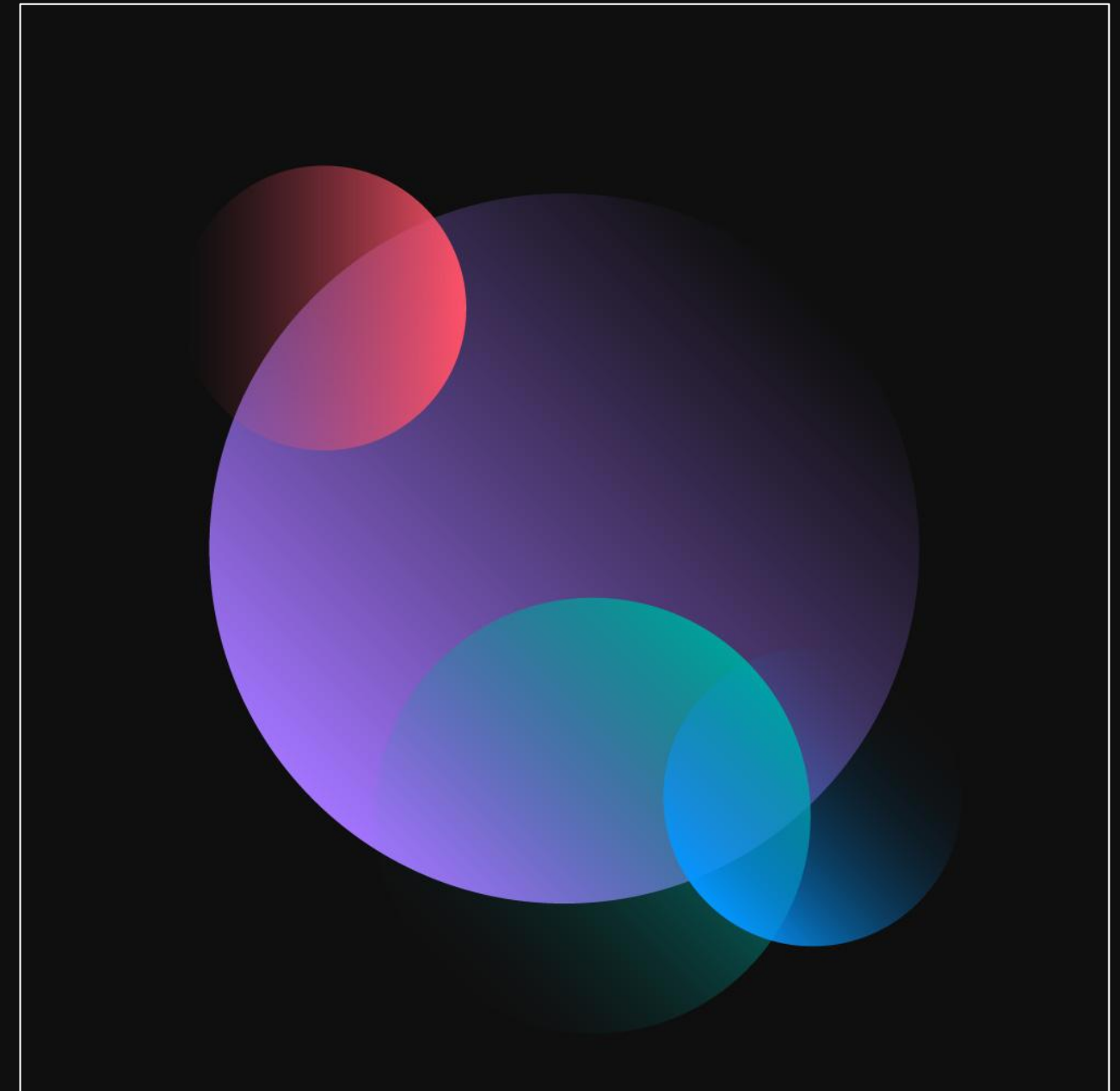


Ecobranding  
philosophy at Atos

## 6. Test and learn together

### Collaboration

Ecobranding is a constant work in progress: there is a lot of space for improvement for each of our ingredients and their usage. We encourage every one of you to get involved, challenge what does not make sense and make our brand stronger.



02

First results at a glance



## Our first results show the potential of our methodology

To give results that we can meaningfully compare, for now we have used only tested one device: Samsung Galaxy S7 (with an OLED screen\*). The results, then, are only an indication of the savings our new brand ingredients will make. They do not yet show the full complexity of our brand's energy consumption on the internet, where numerous devices are used and that will all react differently to the new ingredients.

The numbers in section 9 are based on the reductions we expect to see from external use of the brand (website) and do not account for the use of the brand assets by the employees. The % decrease is relative to the energy consumption of the old brand elements.

Moreover, this report does not cover the savings that we expect to see in the physical resources that the brand uses, such as ink savings on print.

\*Please refer to the page 23 for more information about OLED/AMOLED and LCD screens.

Digital Dark Mode  
Saved energy

AtoS

Print Light Mode  
Less ink used

AtoS

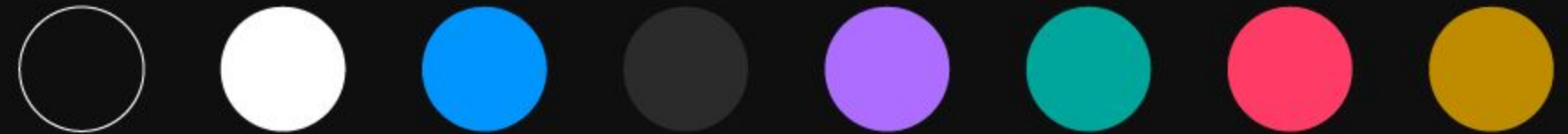
Eco Logo  
Reduced file size



Variable Font  
Reduced font file sizes

A A A A A  
A A A A A  
A A A A A  
A A A A A

Eco and accesible colors  
Reduced ink and improved accessibility: Web Content Accessibility Guidelines ( WCAG) score: AA



Eco Illustration  
Reduced file size



Eco Filter  
Reduced file size and less ink



03

Greenspector's method



Greenspector's method

What is all this about?

To make sure that we achieve real positive results with ecobranding and that our efforts are backed by science, we have partnered up with Greenspector - an independent company specializing in optimization of energy consumption on digital devices.

Who is Greenspector?

Greenspector is a French company created in 2010, specializing in the efficiency and energy-resource performance of digital services. Greenspector works with its own solution and metrics to measure and analyze energy consumption, the quantity of data exchanged on the network and other metrics (CPU, RAM, time to response) on real devices thanks to probes. With these measurement solution and a carbon impact projection model, the company is able to estimate very precisely the carbon impact of the new Atos brand ingredients.

What will you find in the following pages?

In this report you will find the measurements that Greenspector has made for our new brand ingredients. The report includes energy and carbon impact projections and a summary with key findings and recommendations. We identified the conditions of tests for each measurement. In some cases they were varied (e.g. screen luminosity).





Greenspector's method

# Test proceedings

Methodology applied  
to each ingredient

- 1. Measure of a reference** value that will serve for comparison of energy consumption for the other measured steps. This reference value is made with a clean Chrome instance opened on a new tab with no loaded content (empty tab).
- 2. Measure of the page load** until the page at the measured URL is considered loaded by the browser.
- 3. Measure of the screen consumption** of the page evaluated with a 30 sec. measure once every load is finished (also called PAUSE foreground).

We consider the following metrics: energy consumption, time to response on loading steps, data exchanged on network, CPU use and RAM.



Greenspector's method

# Comparison of energy impact

To understand  
the energy evolution  
of each ingredient  
we consider the  
following indicators

**Energy consumption for the page load** is the total consumption of the smartphone's battery during the time needed for the page to be loaded. It takes into account the possible energy peaks during a page load due to energy consuming tasks (network exchanges, animations, CPU calculations) and page load duration (long tasks running, delay.) which also add to the energy consumption.

**Battery discharge speed for the screen consumption.**

To compare the differences between the old and the new interface and evaluate the screen consumption, we measure the average speed of the discharge of the smartphone battery over 30 seconds.



Greenspector's method

# Comparison of energy impact

The unit used for energy consumption is the mAh while we use the  $\mu\text{Ah/s}$  for the battery discharge speed

There is a link between both metrics: the battery discharge speed is the derived value of the energy consumption in a given time. For example if the energy discharge speed is  $100\mu\text{Ah/s}$ , it means that in 1 minute the energy consumption applied on the smartphone's battery will be 6mAh ( $100\mu\text{Ah/s} \times 60 \text{ seconds} = 6000\mu\text{Ah}$ ). Most of the smartphones on the market have a 3000mAh battery capacity.

For each measure analysis, as the energy consumption may vary a bit between measure iterations, we will provide you the different statistics of these measures: minimum, maximum, median and average values.

The average value will be the value used for comparison.



Greenspector's method

# Measure of network exchanges

The unit used for data exchange comparison is the kB (kilo Byte).

To evaluate the network exchanges, we measure the total amount of data exchanged on the link HTTP layer for the monitored Android package. In our case the monitored package is Chrome.

In our particular case, we don't have any script that delay network exchanges after the webpage is loaded or that triggers periodical communications after the page is loaded. Therefore, we will only analyze the network exchanges for the page load.

04

Dark mode



## Some terminology before we go into detail on dark mode

OLED stands for 'Organic Light Emitting Diode'. The OLED display contains a LED which is made out of an organic material that emits light when the current is passed through it. It is used to display vibrant colors. The OLED is much smaller, flexible and relatively thin as compared to the traditional LEDs.

AMOLED stands for 'Active Matrix Organic Light Emitting Diode'. It is a type of OLED display device technology. Since 2007, AMOLED technology has been used in mobile phones, media players, TVs and digital cameras, and it has continued to make progress toward low-power, low-cost, high resolution and large size applications.

LCD stands for Liquid Crystal Display and reproduces colors quite differently to OLED/AMOLED. Rather than using individual light emitting components, LCD displays rely on a backlight as the sole light source.



## Dark mode impact depends on a screen type

OLED/AMOLED screens use less energy on dark mode because the pixels are completely turned off, unlike LCD screens where power is required to display both light and dark shades of a pixel. The measurements below were made on an OLED screen.

To factor this difference into our examples, the dark mode savings are proportionate to the amount of users that will be visiting the Atos website on an OLED screen.



Dark mode

# Measurement conditions

Screen rendering on the Samsung S7 used for measurement

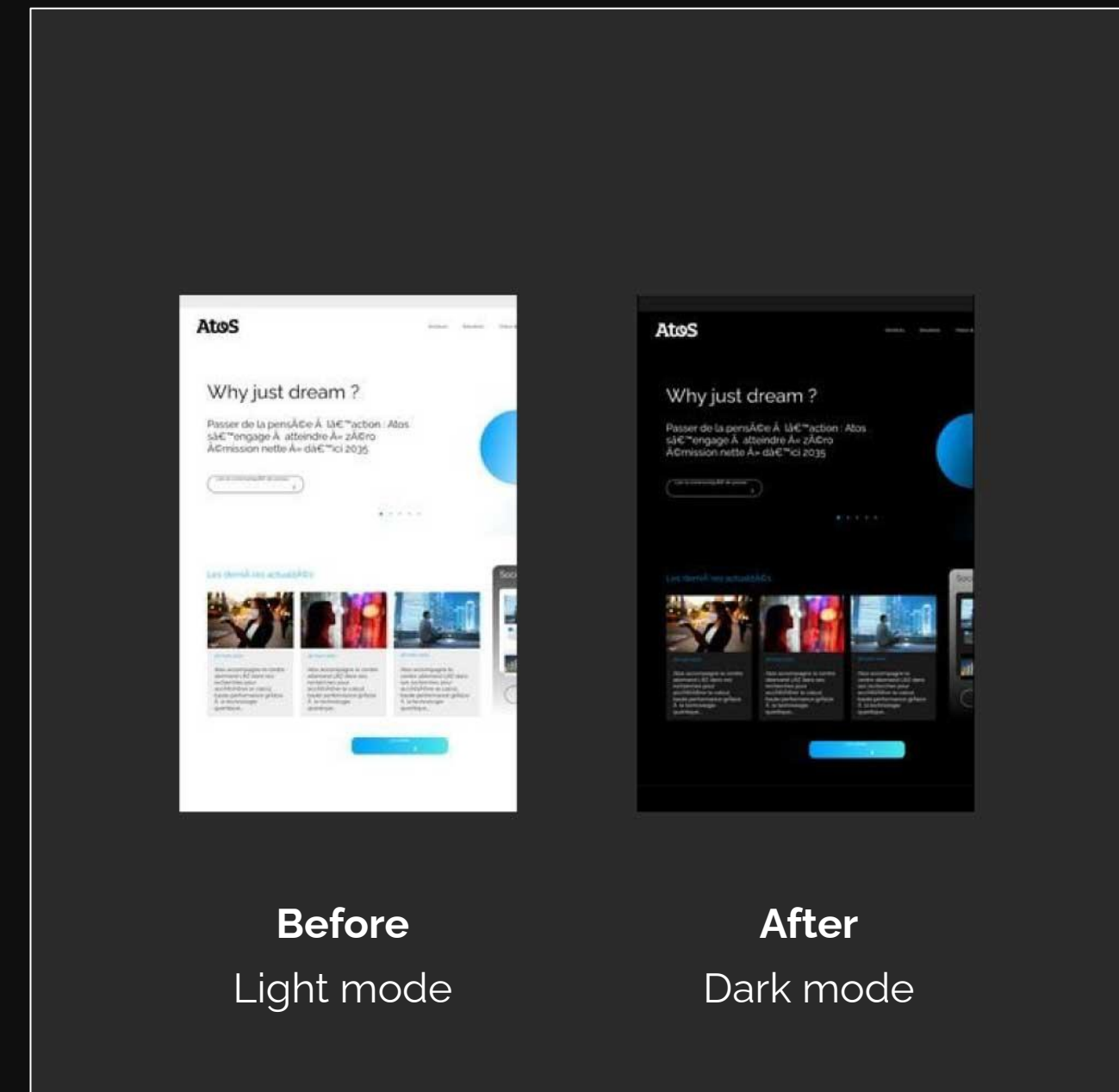
**Smartphone used:** Samsung Galaxy S7 (AMOLED)

**Screen luminosity:** 50%

**Network:** WIFI with high speed connection

**Iterations:** 12 measures per page

To measure the impact of the dark mode we used the theme of the Atos website in the light and dark mode for the same HTML page and we measured the consumption of both.





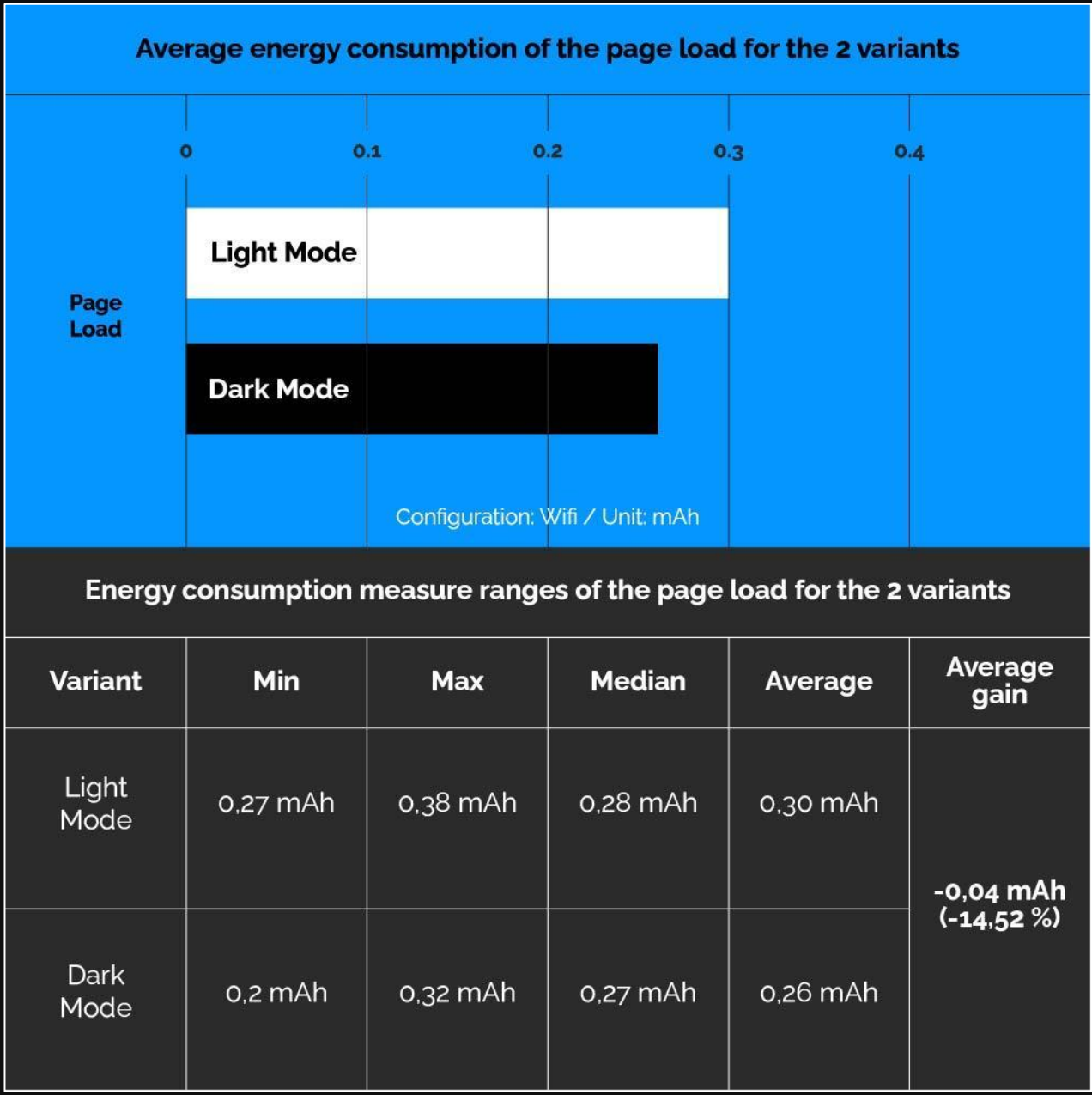


Dark mode

# Page load energy consumption

Measure observations

We observed a small energy saving for the page load probably due to the decrease of energy consumption of the screen for the page load period of around 2 seconds.



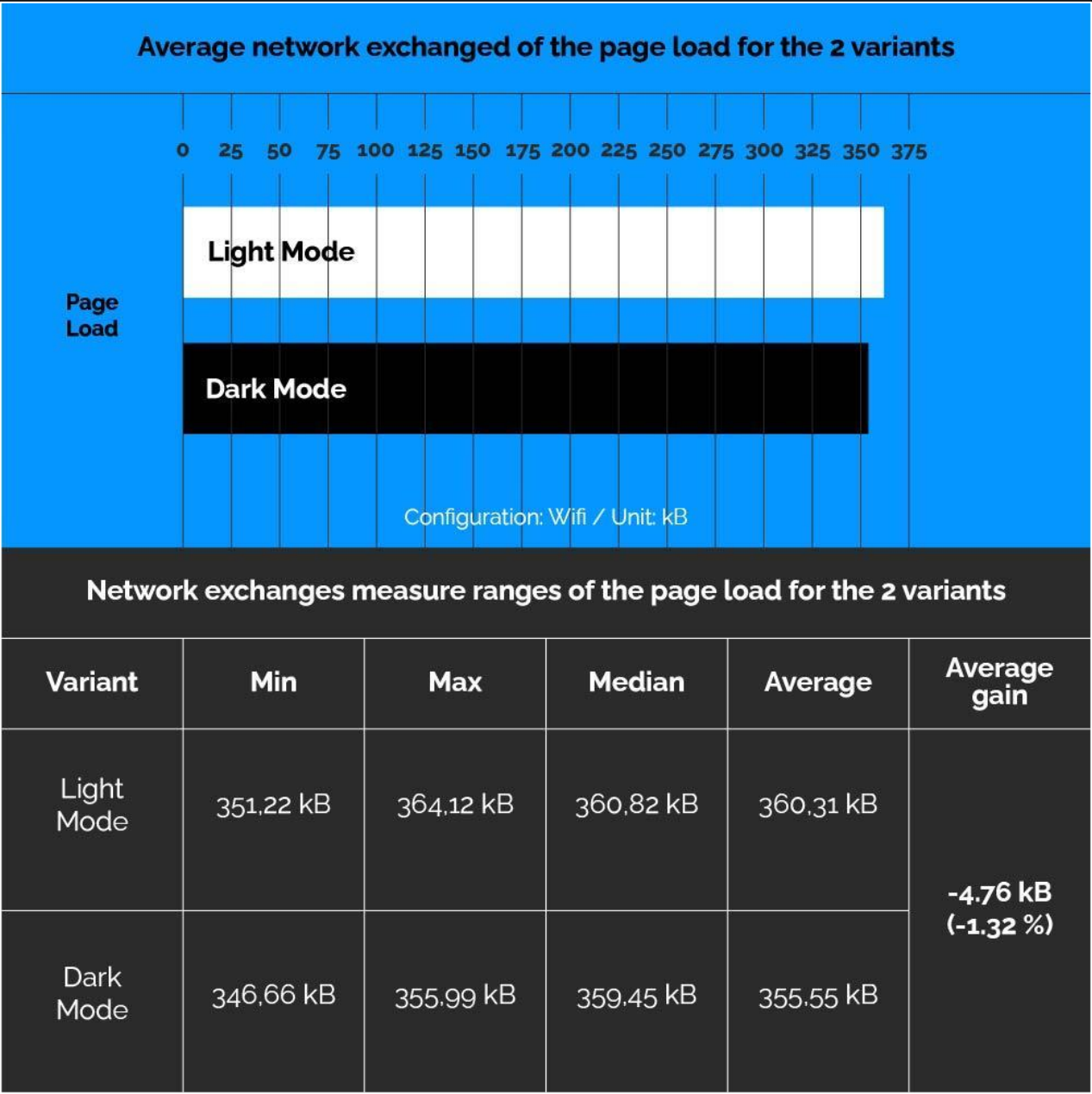


Dark mode

# Page load network exchanges

Measure observations

The difference between light mode and dark mode for network exchanges is really small (=4.76kb, a percentage decrease of less than 1,5%) so there is a small – but it cannot be said that it is significant – energy saving for the page load on dark mode.





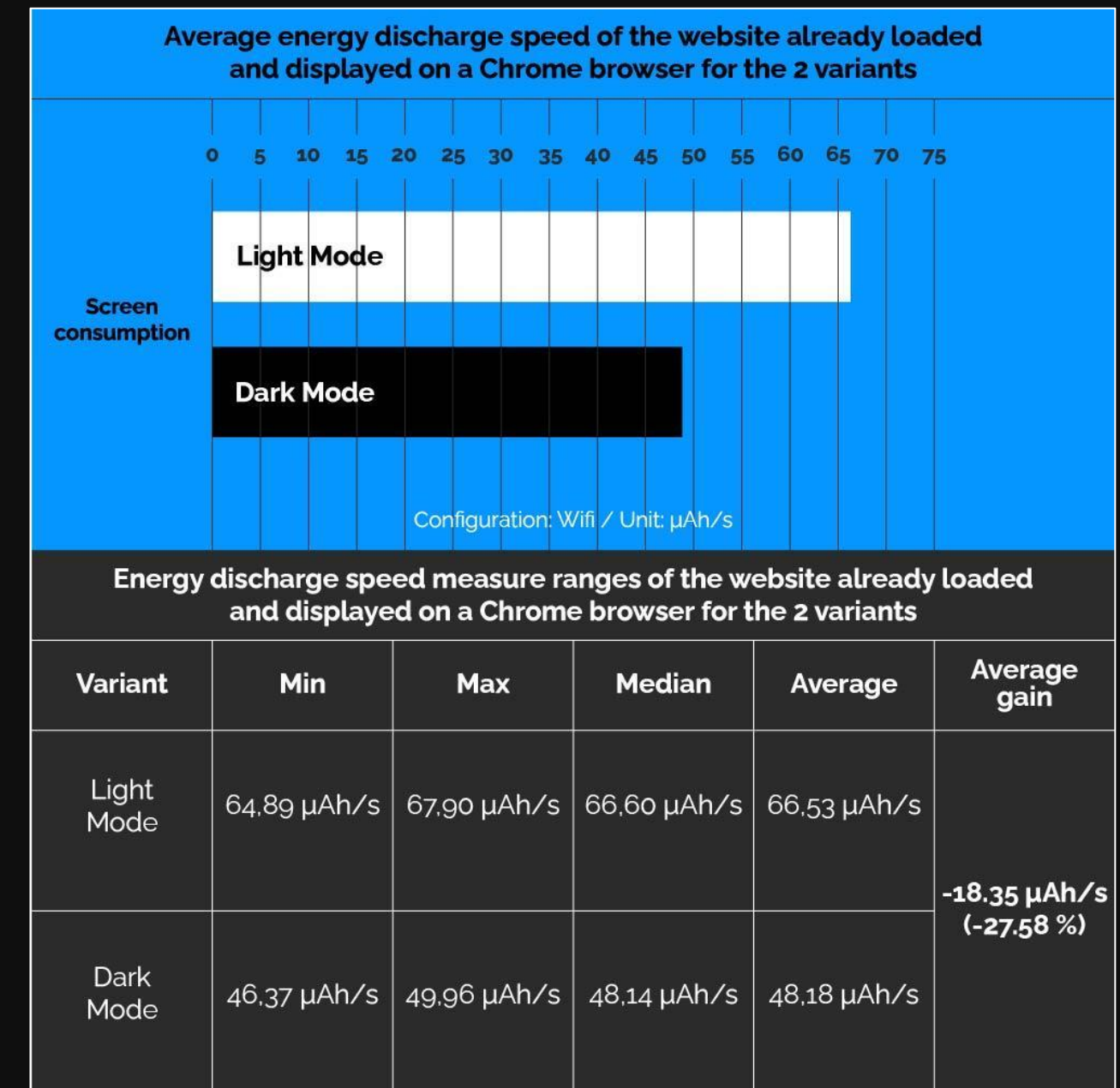
Dark mode

# Screen consumption

Measure observations

Measuring the energy consumption of the device for 30 seconds once the page has been loaded allowed us to observe an average energy saving of 27,58% by using dark mode over light mode.. This is with screen luminosity at 50%.

Depending on the type of screen (LCD or OLED) and the screen luminosity, we may not obtain the same energy reduction. For more information about this subject, you can read [here](#).





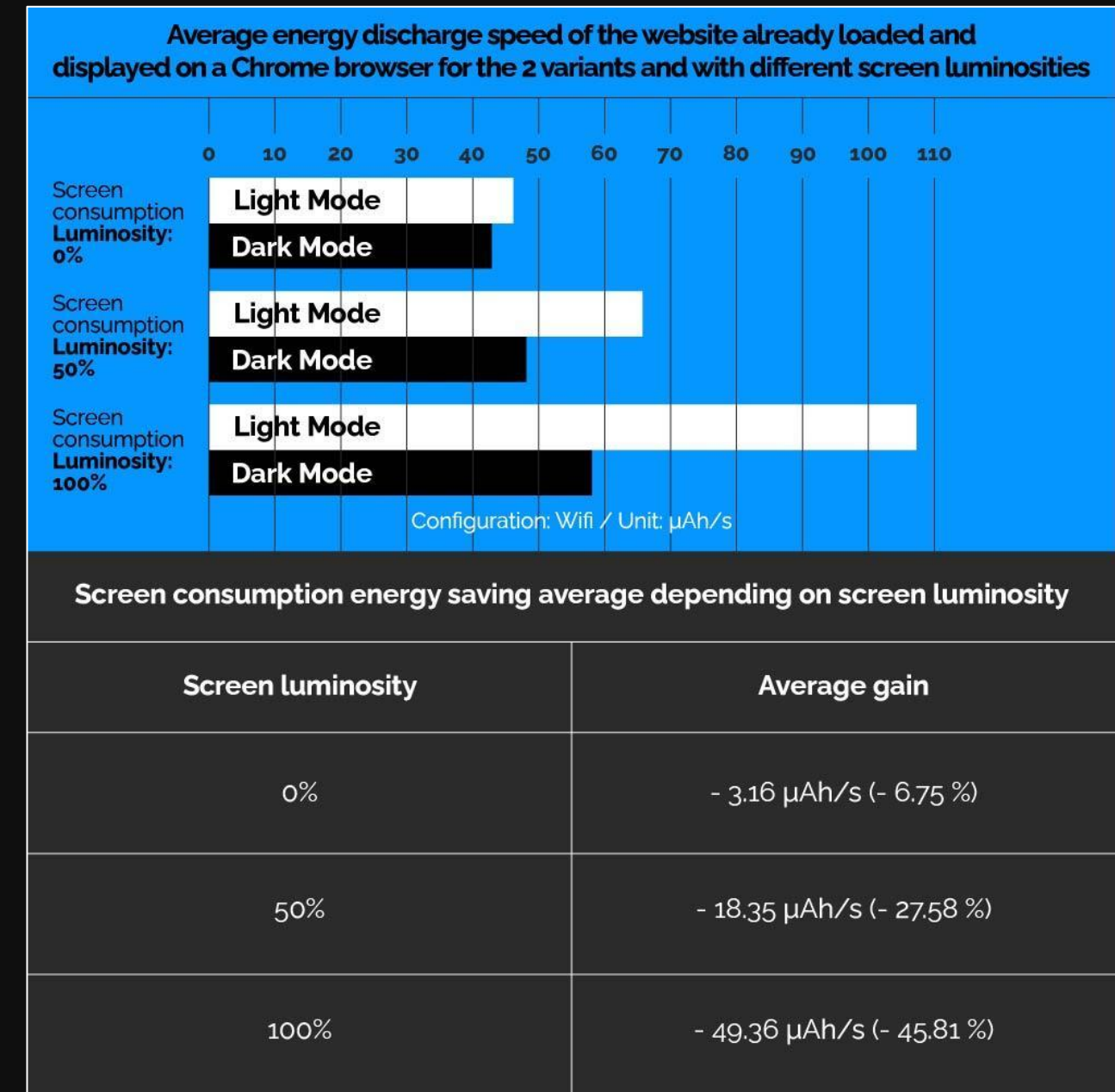
Dark mode

# Screen consumption variation with luminosity

Measure observations

We have varied the screen luminosity of the Samsung S7 and measured the energy impact of the theme depending on this luminosity.

With the AMOLED screens the gain in terms of screen consumption energy saving with a dark mode increases with the screen luminosity. In short, dark mode is more eco-effective when the screen is bright.



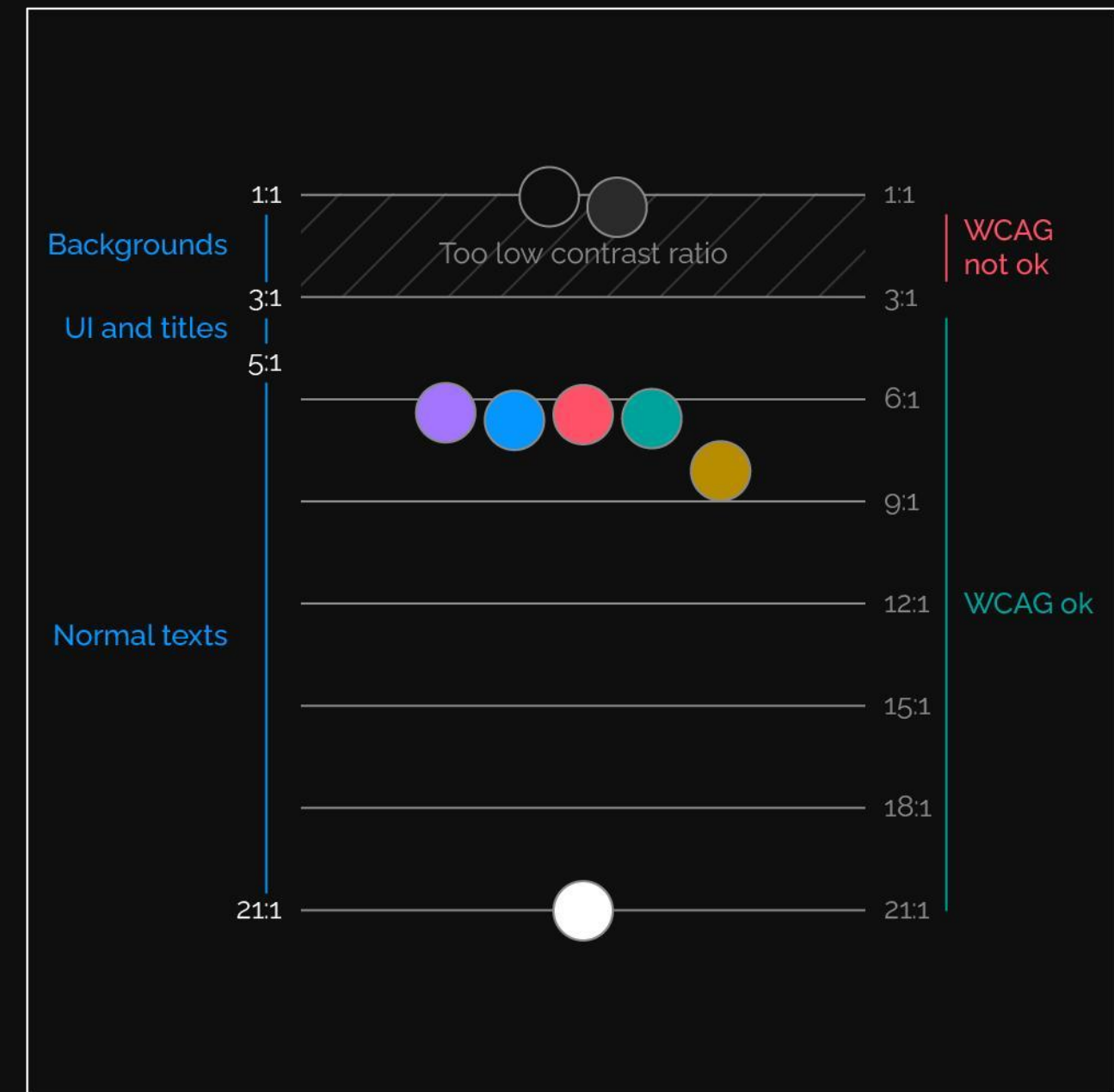


Dark mode

# Accessibility on dark mode

Making dark mode work

Our colors receive good scores on accessibility guidelines (WCAG) which means there is sufficient contrast on dark mode.





Dark mode

# Evaluation of the dark mode

Using a dark mode for the website won't change the network exchanges a lot but the energy consumption on devices (smartphones, tablets, computers) using AMOLED technology for screens will be reduced.







Also, we know that screen brightness has a direct impact on energy consumption for all screens. Therefore adapting a device with better color contrast can allow users to reduce screen brightness with the same level of readability.

We have made previous studies on light mode versus dark mode themes on smartphones and tablets and we know that dark mode can provide between 40% and 60% energy gain on AMOLED and with full screen brightness.

05

# Eco Illustrations



	Old Style	New Style	Old Style	New Style	Old Style	New Style
						
JPEG 100	334 Ko	172 Ko	132 Ko	71 Ko	191 Ko	226 Ko
JPEG 80	192 Ko	90 Ko	85 Ko	57 Ko	120 Ko	159 Ko
JPEG 50	95 Ko	47 Ko	52 Ko	41 Ko	67 Ko	56 Ko
JPEG 20	80 Ko	43 Ko	47 Ko	39 Ko	60 Ko	53 Ko
PNG	187 Ko	66 Ko	23 Ko	21 Ko	51 Ko	13 Ko
PNG 24	174 Ko	75 Ko	22 Ko	21 Ko	49 Ko	12 Ko
PNG 8	70 Ko	95 Ko	13 Ko	12 Ko	21 Ko	14 Ko
SVG	24 Ko	1 Ko	2 Ko	2 Ko	4 Ko	1 Ko





Eco Illustrations

# Evaluation

## Measure observations

The vectorial (SVG) format should be more suitable for these kind of graphic elements. As these illustrations consist of geometrical elements, SVG can significantly reduce the data exchanged over the network

Switching to SVG brings a total size saving of 74.3% (for previous style) and 74.1% (using the new style). So using this new illustration style combined with SVG format is really interesting in terms of reduction of data exchanged on the network.

The evaluation on the previous page shows a decrease of the file size but as vectorial format requires a different rendering than raster format (JPEG, PNG), then there could be an additional energy consumption on terminals at page load.

An assumption can be made that the use of our new simplified illustrations in an SVG format will allow significant reduction in network exchanges. However, more measures need to be made to confirm this assumption.

06

Eco photo filters



Eco photo filters

# Measurement conditions

Measure observations

**Smartphone used:** Samsung Galaxy S7 Screen

**Luminosity:** 50%

**Network:** WIFI with high speed

**Connection Iterations:** 12 measures per page

For the photo filter we created a template with a panel of pictures fetched from current Atos website, we applied the filters on one of the two pages and we measured the consumption of both.



**Before**  
Without filter



**After**  
With filter

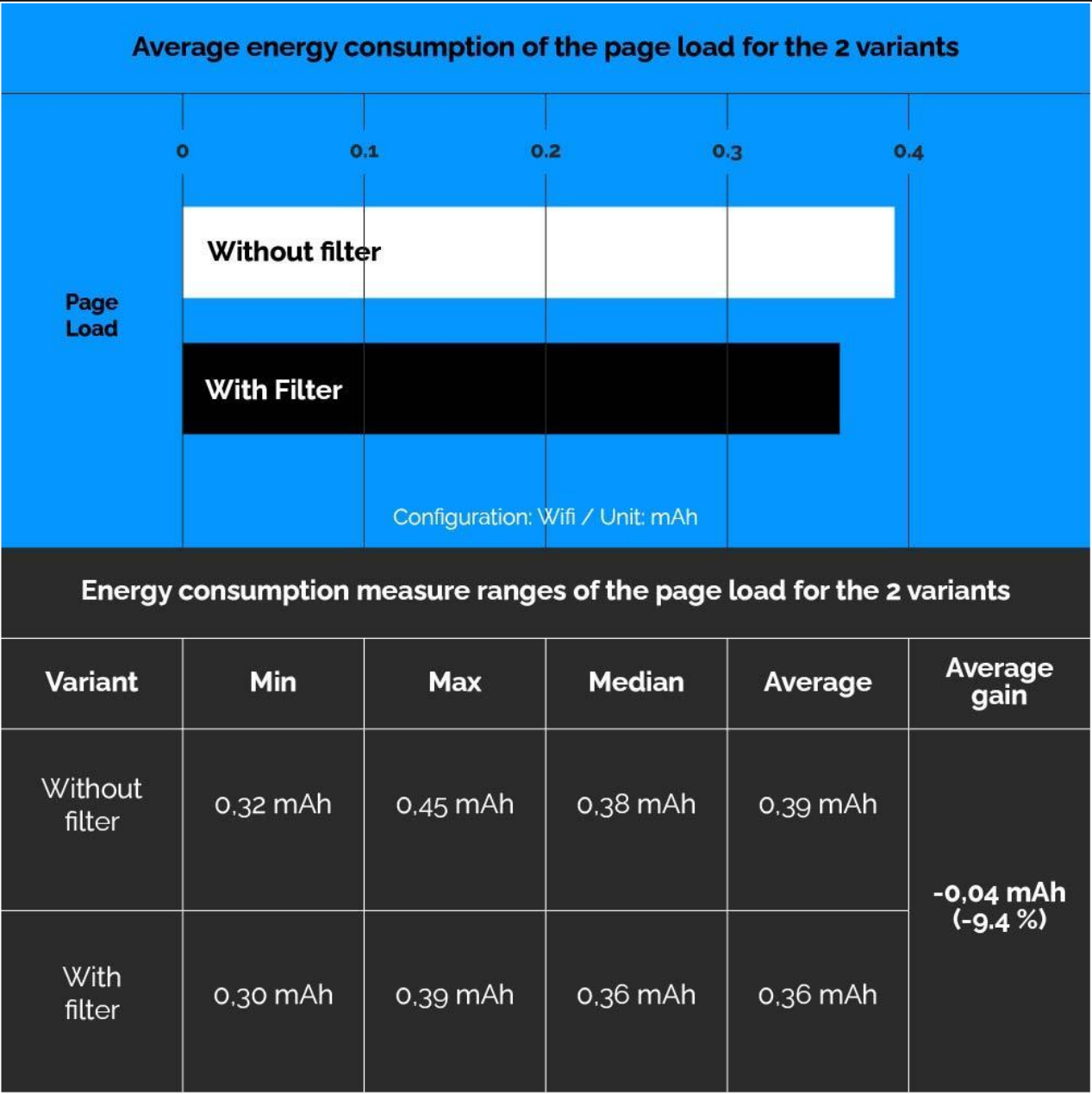


Eco photo filters

# Page load energy consumption

Measure observations

We observe a small energy saving for the page load probably due to the decrease of the number of packets to download.



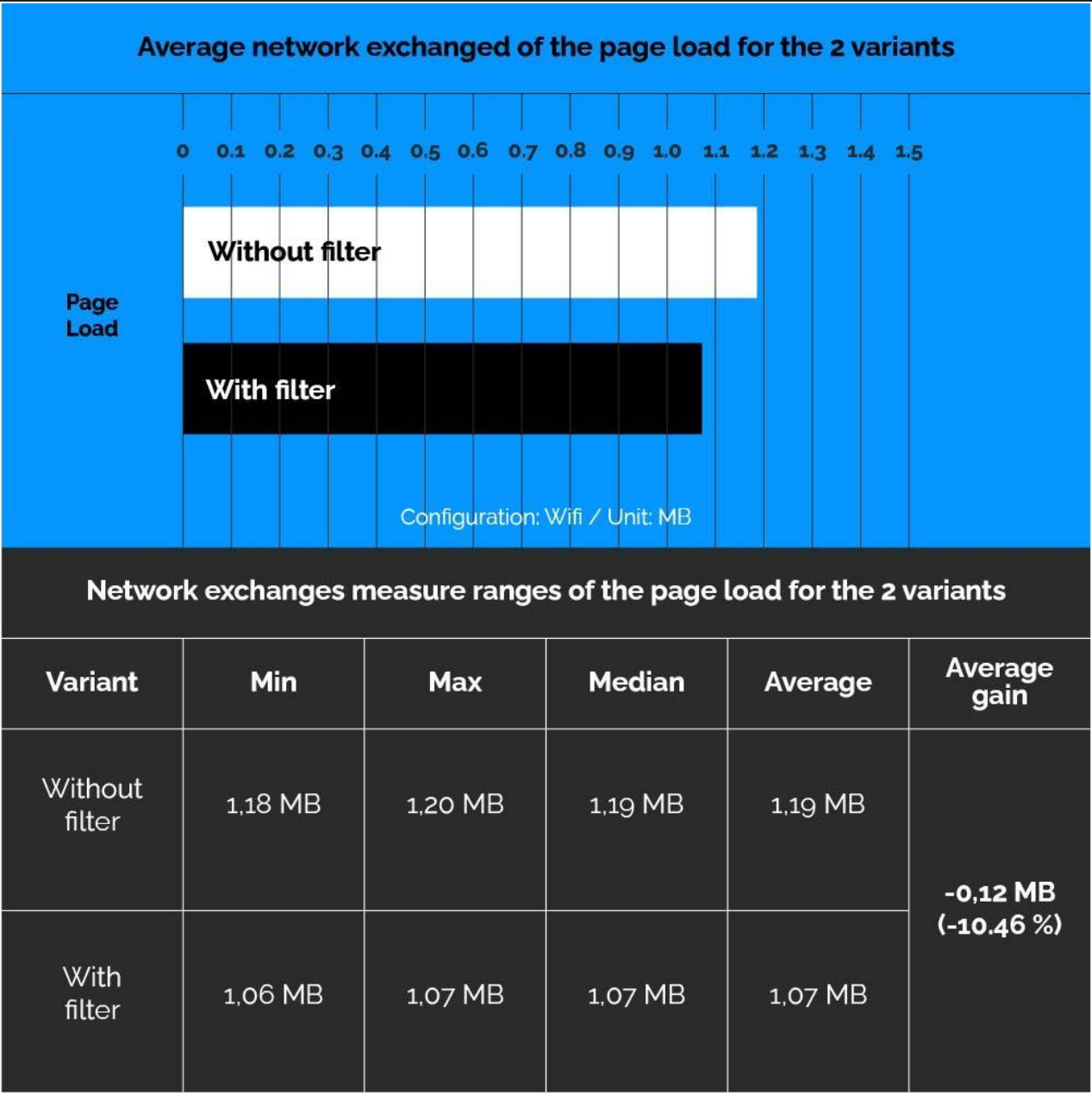


Eco photo filters

Measure  
observations

# Page load network exchanges

After applying the filter, the amount of data exchanged over the network decreased by around 120kB (~10%).



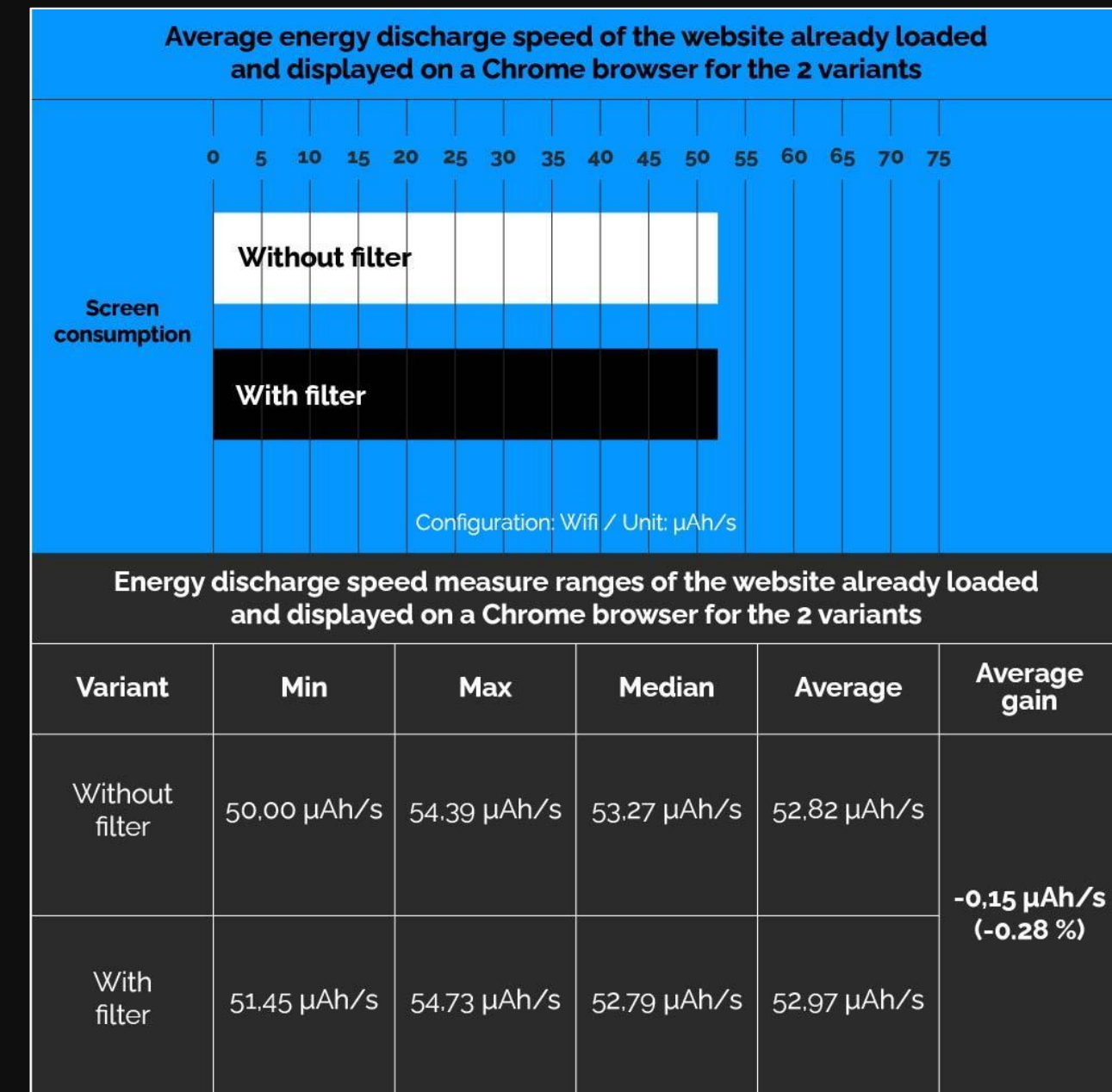


Eco photo filters

# Screen consumption

Measure observations

Application of the eco filters has little effect on energy discharge speed for the screen consumption (=0.28%) and does not conclusively prove a significant energy saving for the screen consumption.





Eco photo filters

# Evaluation of Eco photo filters

The use of blue gradient filters can reduce image sizes by allowing a deeper image compression.

This is more evident with compressed image formats like jpg or webp. The result is a small reduction in page loading and page network exchanges.

07

Eco logo





Eco logo

# Measurement conditions

Measure observations

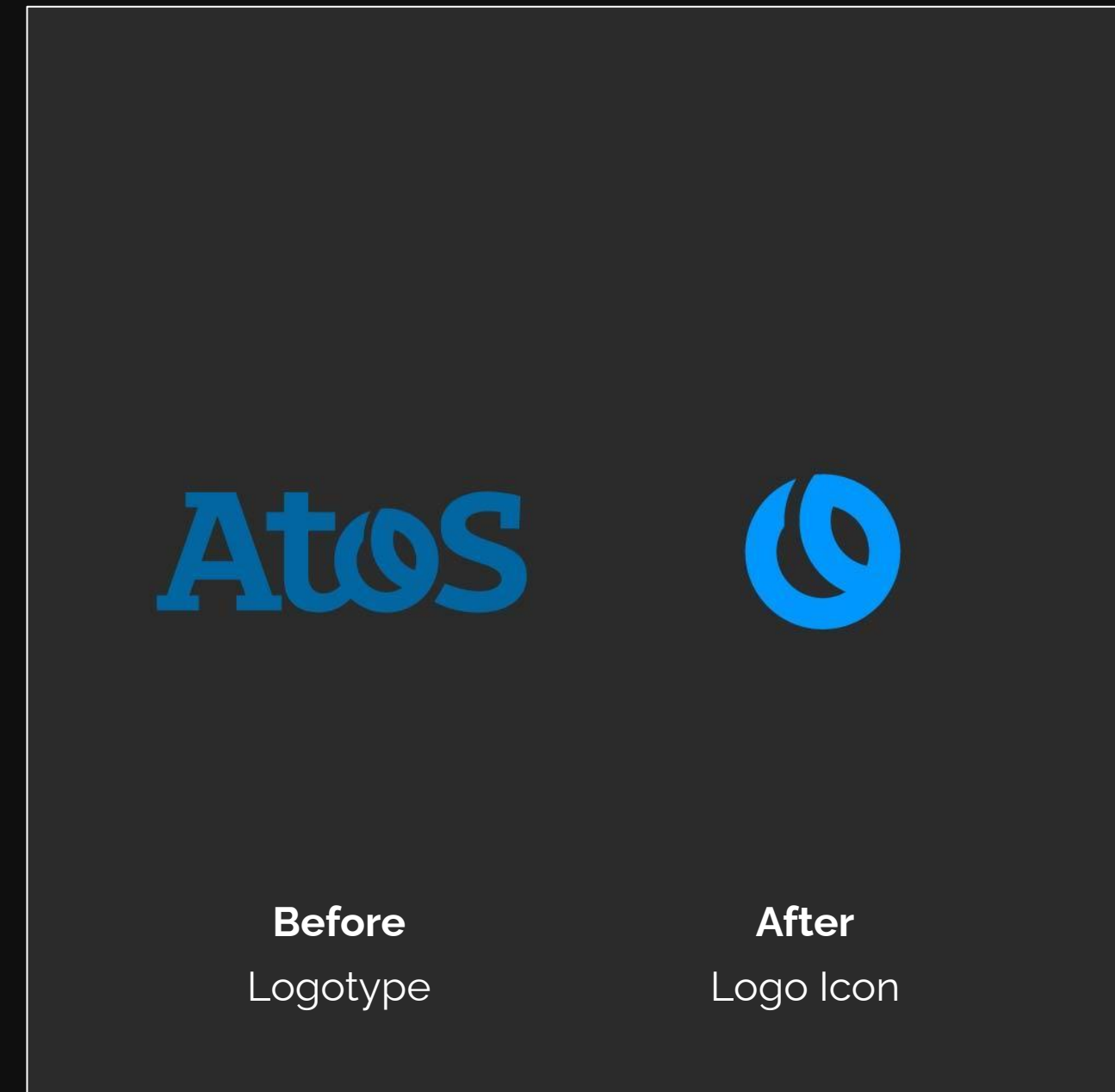
**Smartphone used:** Samsung Galaxy S7 Screen

**Luminosity:** 50%

**Network:** WIFI with high speed connection

**Iterations:** 12 measures per page

In order to measure the eco logo, we compared the energy consumption of the full Atos logo with the small logo (Atos Globe) on the same HTML template page."



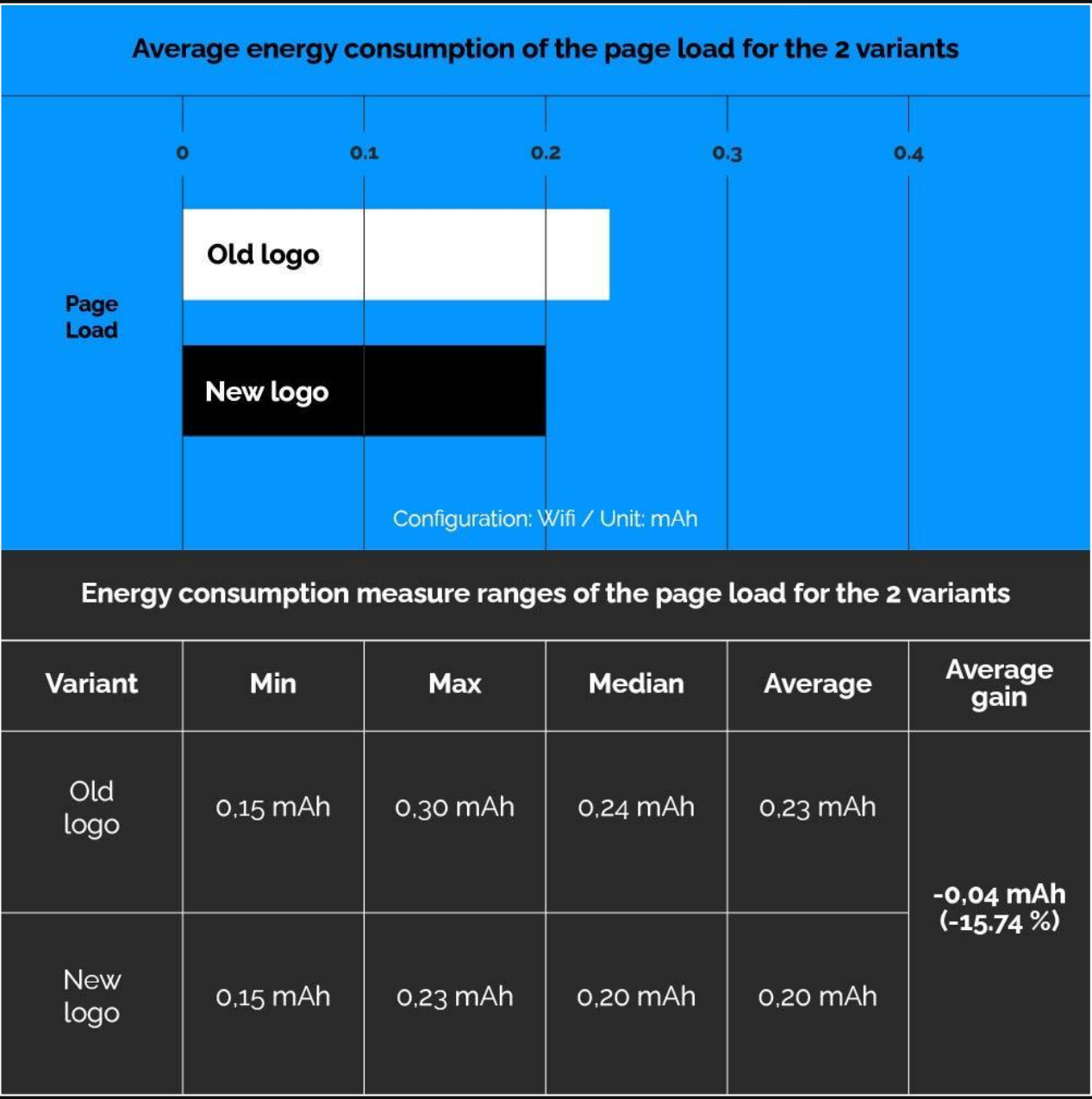


Eco logo

# Page load energy consumption

Measure observations

We observed a small energy saving for the page load which is probably due to the small decrease of the number of packets to download.



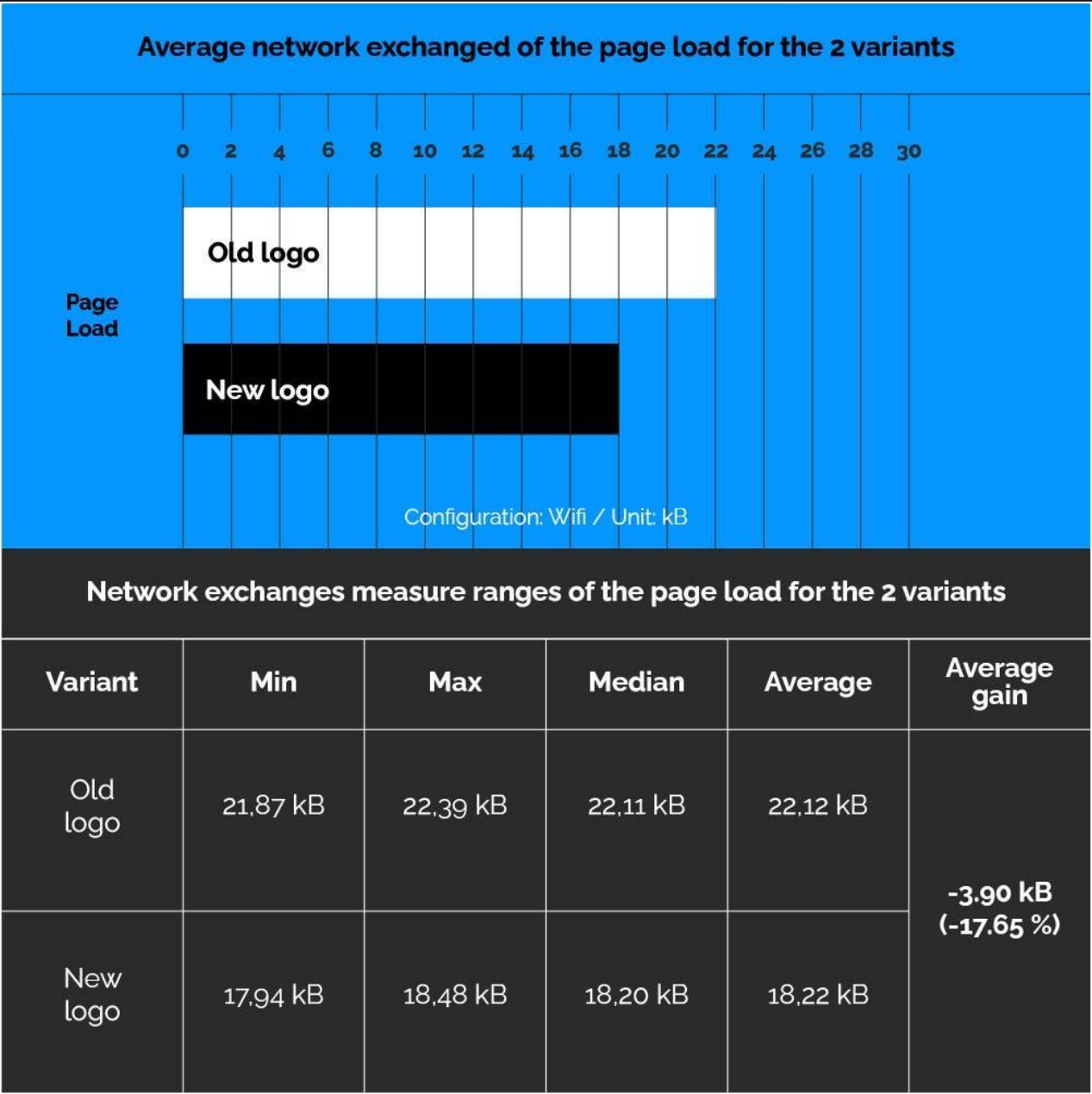


Eco logo

# Page load network exchanges

Measure observations

On the network exchanges, the new logo allows a data saving of 3,9kB, which represents a 17,65% saving on the measured page (~22kB).  
For comparison, the current Atos Website size is around 5MB.





Eco logo

# Evaluation of Eco logo

The use of reduced dimensions logo on responsive pages could have a positive impact with multiple advantages:

- reduction of image size limiting network exchanges.

The gain is however low compared to some bigger visual elements. Here the gain could be around 50% on a original resource of around 15kB.

- the reduction of the image dimensions allows us to save space on the screen for smartphones.

Therefore, it leaves more space for other content and limits the need to scroll to access content for users. A small gain of energy is associated with this ingredient but it brings an improvement in accessibility.

08

Eco font



Eco font

# Measurement conditions

Measure observations

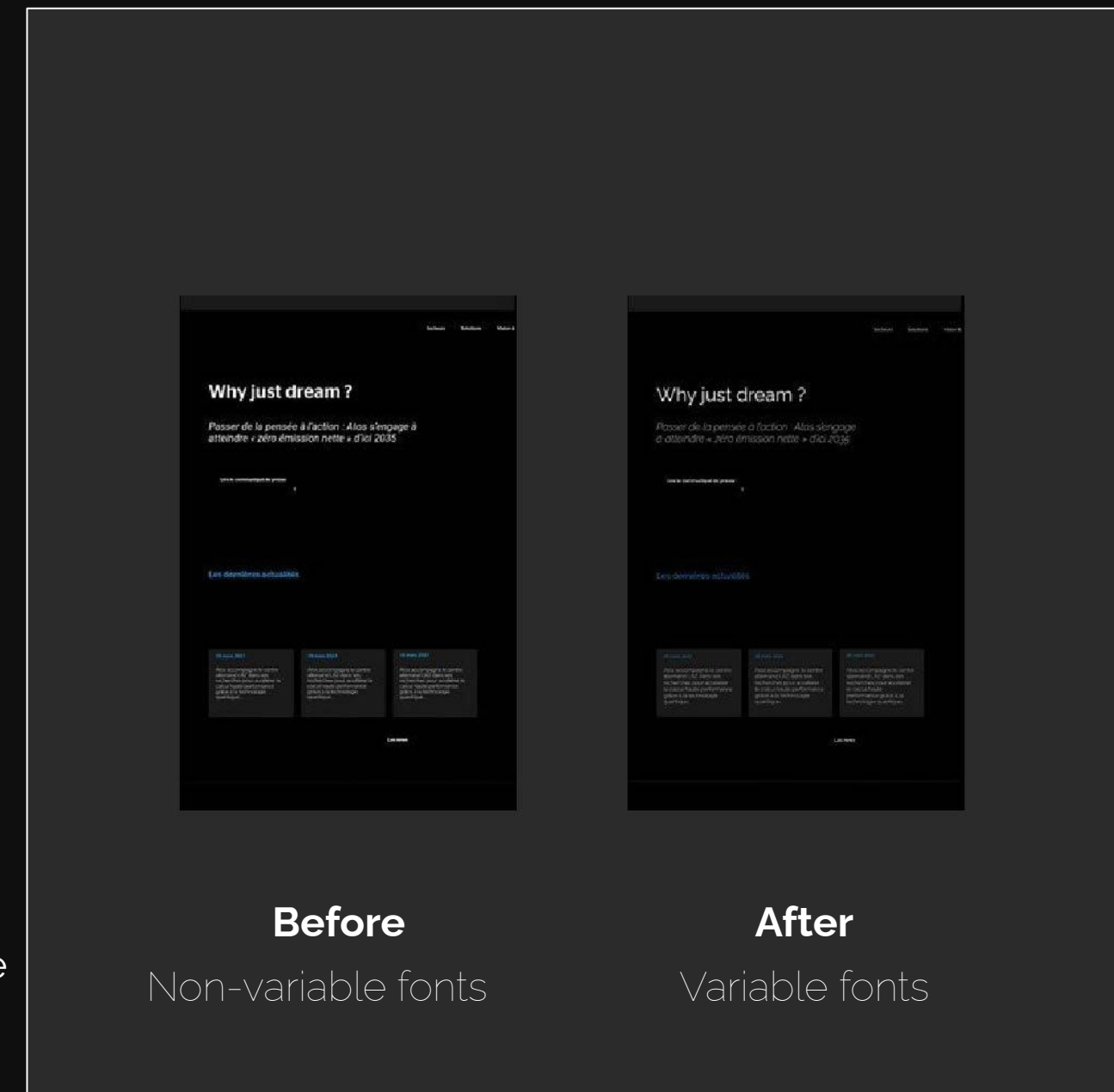
**Smartphone used:** Samsung Galaxy S7 Screen

**Luminosity:** 50%

**Network:** WIFI with high speed connection

**Iterations:** 12 measures per page

For the variable font we compared the fonts of the Atos website with the variable and non-variable version for the same HTML page and we measured the consumption of both. For the non-variable font we used StagSans with versions: Medium, Light, LightItalic and Semibold. For the variable font we used Raleway Latin Italic and Regular.



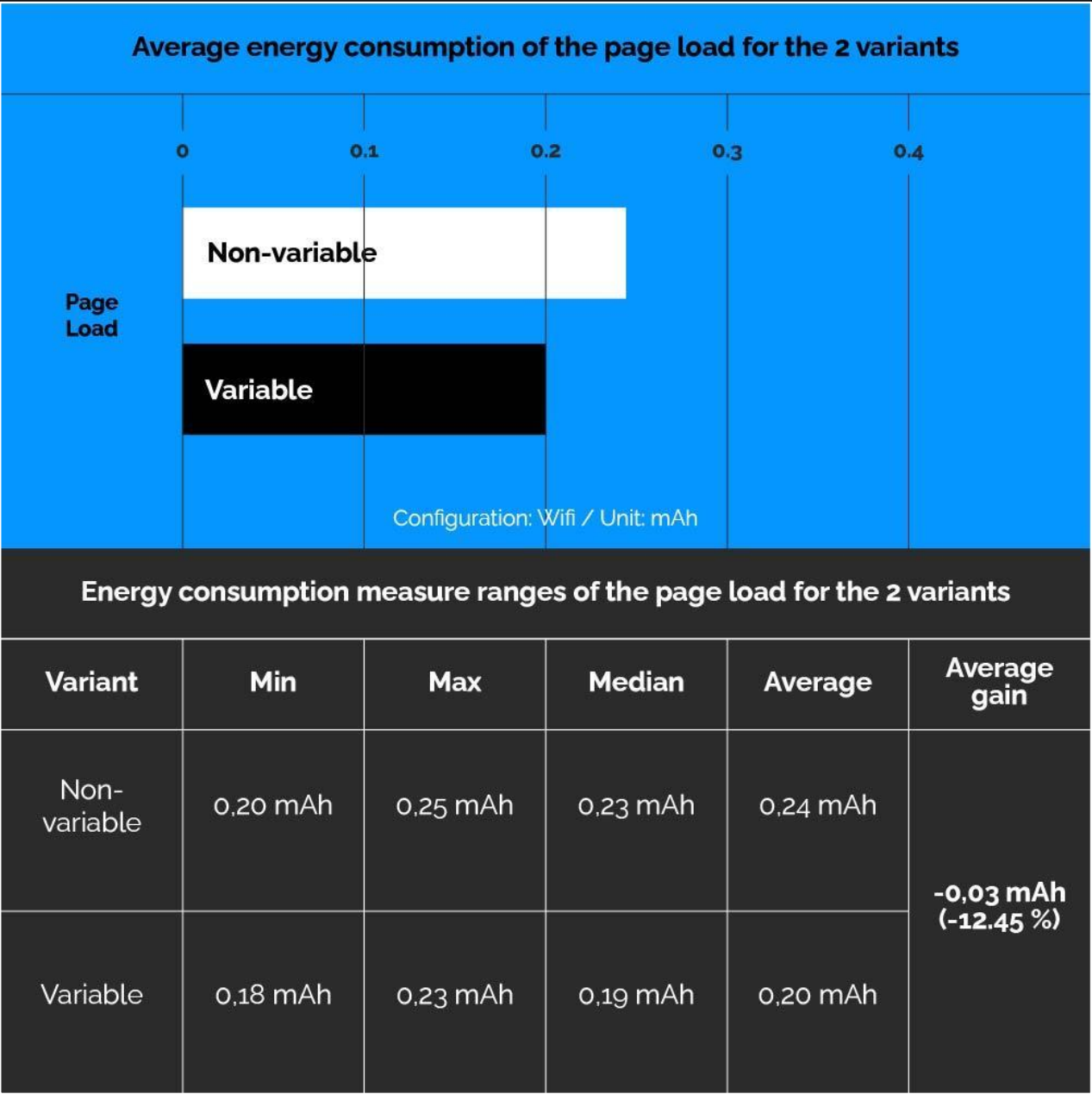


Eco font

# Page load energy consumption

Measure observations

We observed a small energy saving for the page load probably due to the decrease of the number of packets to download.



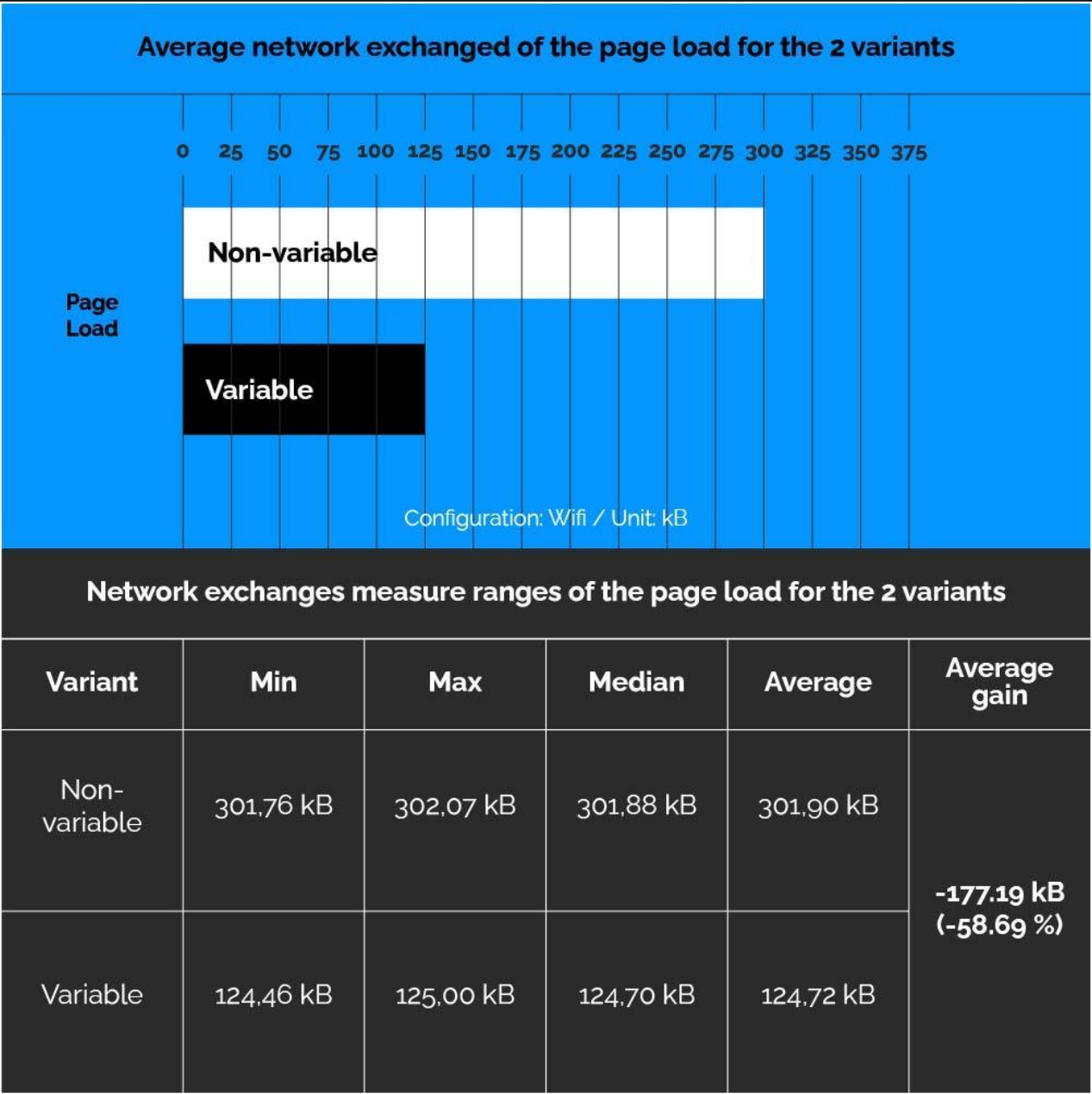


Eco font

# Page load network exchanges

Measure observations

The use of variable font brings a significant data saving of around 177kB which represents a 58,69% saving in the measured page.







Eco font

# Evaluation of Variable font

Using variable fonts can allow to limit the number of fonts to be downloaded on user side. Therefore if we use a variable font, we expect network exchanges to reduce.

Note: that all fonts are not loaded on user side but only the first compatible one for each font definition.  
You can use these font descriptions:

Normal.  
Italic.

Browsers supporting variable fonts, for example, shouldn't load the alternative traditional formats. Nowadays, we tend to use Web Open Font Format 2.0 (WOFF2) for websites, as it's a vectorial format that scales well to different sizes. A first optimization should be to use WOFF2 format for the fonts for the 92% of users who can support it.

09

# Carbon impact projection



Carbon impact projection

# Our approach

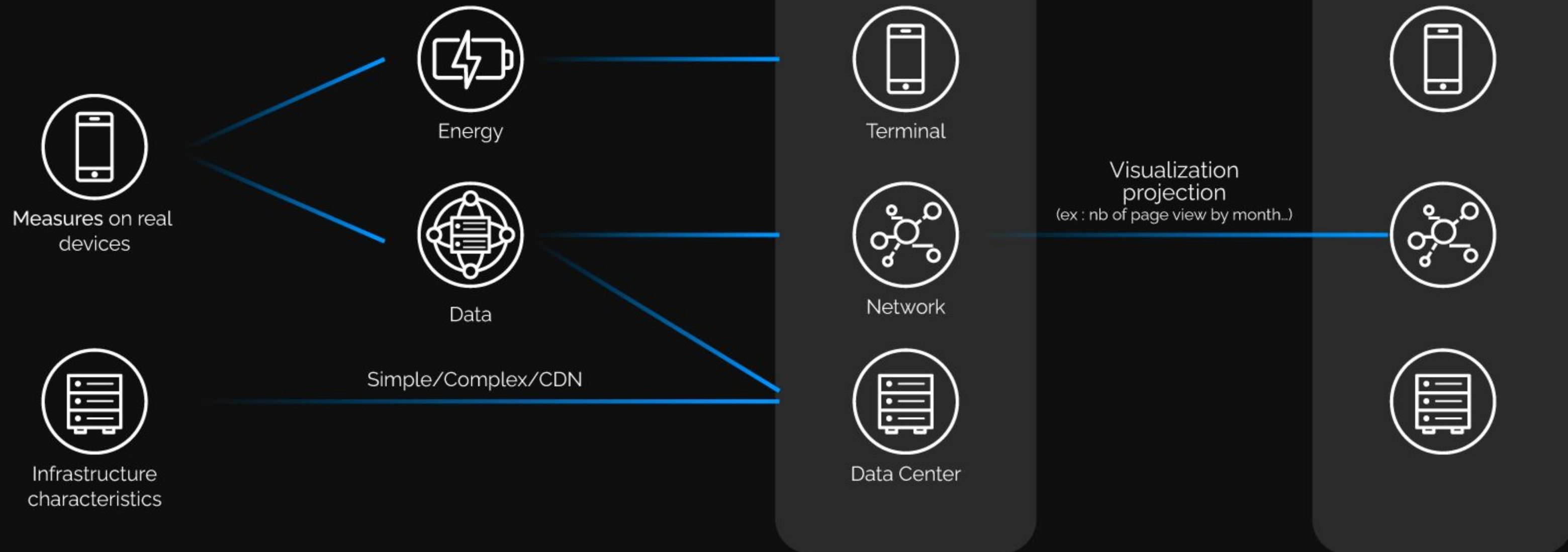
## Methodology for environmental footprint evaluation

Computing has an environmental footprint that is far from being neutral. In 2020, it accounted for 3-4% of world emissions and is increasing by 6% every year according to the Shift Project. In our studies, we evaluate the environmental footprint of digital services on the following criteria: greenhouse gas emissions (GGE) expressed as g eqCO<sub>2</sub>. We do not know enough about other indicators, like water consumption, to include them here.

The use of a digital service in mobility (mobile apps, web sites) contributes to the GGE impact on different aspects. Among these aspects we selected the following:

- The battery consumption on the terminal is an energy consumption (impact at usage stage) ;
- This battery consumption brings a wear and tear of the device involving its early renewal of a phone (impact at manufacturing stage);
- The data exchanges on the network by the mobile apps through many devices which consume energy (impact at usage stage).

## Computation steps



1. The measures are made on a real device with energy and data volume. We also add hypotheses on the infrastructure characteristics.

2. The measures and hypotheses help us to evaluate the unit carbon impact for terminals, networks and data centers.

3. And we can use this unit impact (impact of 1 page view for each brand ingredient) to project a global carbon footprint based on the number of pages viewed per month, year etc.



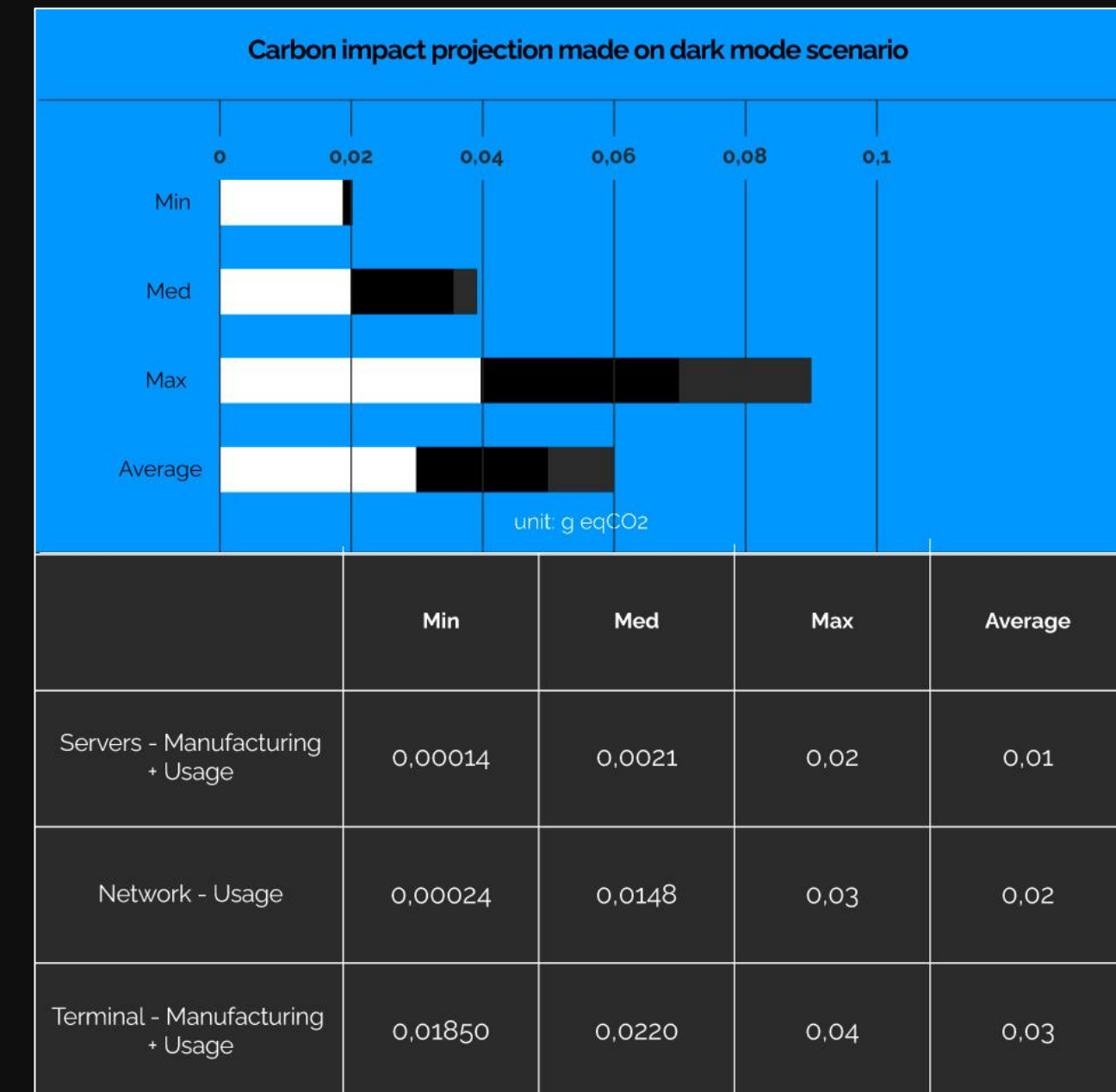
Carbon impact projection

# Projection hypothesis and example

Methodology for environmental footprint evaluation

Hypothesis applied on Greenspector model for the carbon impact projection:

- **Terminal repartition:** 100% on smartphones
- **Server type:** simple
- **Repartition of users:** 100% around the world
- **Repartition of servers:** 100% around the world
- **Number of requests:** for each measure, we consider an average of 20 requests
- **Scenario:** page load and display of the page during 20 seconds





Carbon impact projection

# Carbon impact projection of the brand ingredients

Measure  
observations

For this carbon impact projection, we have highlighted the gains that are significant.

Guideline	Variant	Carbon projection (q eq CO2)	Gain on scenario
Dark mode Luminosity 50%	Before	0,039	- 0,006 g eqCO2 (-15,38%)
	After	0,033	
Eco photo filters	Before	0,071	- 0,005 g eqCO2 (-7,04%)
	After	0,066	
Eco logo	Before	0,020	- 0,001 g eqCO2 (-5%)
	After	0,019	
Variable fonts	Before	0,030	- 0,007 g eqCO2 (-23,33%)
	After	0,020	

10

## Summary of key gains



One more thing before we summarise everything!

The savings presented are conservative. They do not account for Atos employees. We also expect the reductions to improve: the world is moving to OLED screens and the rate of adoption has been increasing year on year ([more information here](#)). Our assets have been conceived for a future where OLED dominates. At the point that most brands notice this shift and begin to adapt their identity, Atos's identity will be settled and its aims understood inside and outside the company.



Dark mode Screen consumption

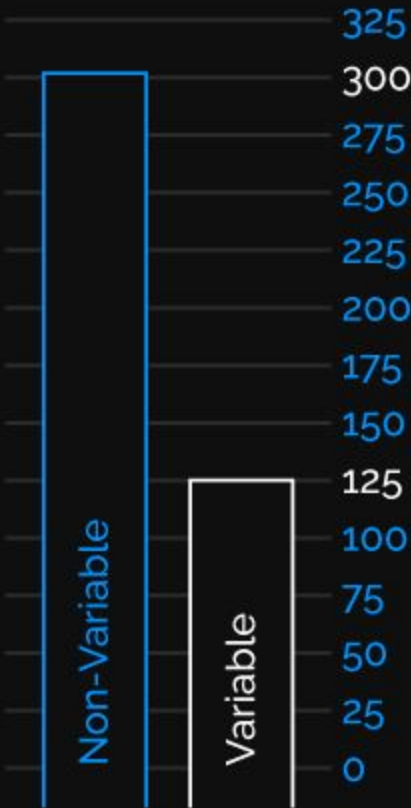
Screen luminosity: 0%  
- 3.16 µAh/s (- 6.75 %)

Screen luminosity: 50%  
- 18.35 µAh/s (- 27.58 %)

Screen luminosity: 100%  
- 49.36 µAh/s (- 45.81 %)

						
JPEG 100	334 Ko	172 Ko	132 Ko	71 Ko	191 Ko	226 Ko
JPEG 80	192 Ko	90 Ko	85 Ko	57 Ko	120 Ko	159 Ko
JPEG 50	95 Ko	47 Ko	52 Ko	41 Ko	67 Ko	56 Ko
JPEG 20	80 Ko	43 Ko	47 Ko	39 Ko	60 Ko	53 Ko
PNG	187 Ko	66 Ko	23 Ko	21 Ko	51 Ko	13 Ko
PNG 24	174 Ko	75 Ko	22 Ko	21 Ko	49 Ko	12 Ko
PNG 8	70 Ko	95 Ko	13 Ko	12 Ko	21 Ko	14 Ko
SVG	24 Ko	1 Ko	2 Ko	2 Ko	4 Ko	1 Ko






Font load network exchanges



Variable fonts WOFF2 comparison

Stag fonts on web (5)  
325kB WOFF2

Raleway variable fonts (34)  
216kB WOFF2

Size difference applying eco filter					
	JPEG Quality 100 %	JPEG Quality 95 %	JPEG Quality 90 %	JPEG Quality 85 %	JPEG Quality 80 %
 Photo 1	+15,15 %	-6,83 %	-9,05 %	-11,73 %	-9,09 %
 Photo 2	+6,74 %	-3,70 %	-6,52 %	-5,13 %	-5,56 %
 Photo 3	+10,72 %	-3,93 %	-10,30 %	-14,56 %	-16,86 %
 Photo 4	+55,05 %	+12,50 %	+4,84 %	+3,77 %	+3,33 %
 Photo 5	+24,94 %	0,00 %	-5,16 %	-8,67 %	-11,94 %



Ecofilters will save the carbon equivalent of

**1 Tesla ride from Hague  
to Rotterdam every month**

Variable fonts will save the carbon equivalent of one passenger taking

**5 train rides from Paris  
to Bordeaux every month**

Dark mode The energy saved could power a laptop streaming for

**177 hours  
every year**

Eco logo will save the carbon equivalent  
of one passenger taking one train ride from

**Milan to  
Venice  
every month**

SVG format will reduce file sizes by

**-75%\***

\*More measures need to be made to assess  
how much energy will be saved

Contact

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Atos