Complementary Colours Atos

Introduction

Accessible Colour Requirements

Defining colour schemes is a complex process and often has to meet with corporate style requirements, but it is also a legal requirement that colour schemes and combinations of colour support those users with disabilities.

Accessibility Law in the UK

Accessibility – A legal requirement for all organisations – was legislated under the Disability Discrimination Act (DDA) 1995, and more recently under the Equality Act (EQA) 2010.

This legislation is intended to ensure that people with disabilities and special needs are not disadvantaged as a consequence of their condition.

All electronic information systems (including web services, desktop software, mobile apps, electronic documents and media) must be equally accessible to those with disabilities and special needs.

The use of colour (and the combinations of colour) is an important consideration in design. Around 8% of people suffer some degree of colour blindness. And many low-vision users need a minimum level of contrast for readability.

Important

Under the Equality Act 2010, it is no longer acceptable under the law to wait until a complaint has been received and then to take remedial actions to resolve the complaint. Instead, organisations are required to behave proactively and ensure that accessibility requirements are met for each application, whether it is a legacy, new or updated application.

What is WCAG?

In 1997 the World Wide Web Consortium (W3C) produced the first draft of the Web Accessibility Initiative (WAI), conceived specifically to ensure that users with disabilities could access information without hindrance or disadvantage.

In order to assist designers, developers and content creators Web Content Accessibility Guidelines (WCAG) were published in 1999, and have evolved progressively since this time. It is currently at version 2.0.

WCAG comprises 12 guidelines, organised to four principles:

- Perceivable
- Operable
- Understandable
- Robust

For each of the guidelines, success criteria are set at three priority levels:

- Level A
- Level AA
- Level AAA

You can find out more about W3C Accessibility, WCAG and other technical standards at:
http://www.w3.org/standards/webdesign/accessibility

Relevant WCAG Guidelines

WCAG guidelines do not define the law or the legal requirements for accessibility, but the guidelines are accepted as a measure of accessibility and are often cited in legal cases.

The most relevant guideline for colour schemes is:

Guideline 1.4.3 contrast (Minimum)

This guideline specifies the minimum level of contrast for overlapping colours (specifically, text):

Level AA requires a contrast ratio of 4.5:1 for normal text and 3:1 for large text.

Level AAA requires a contrast ratio of 7:1 for normal text and 4.5:1 for large text.

Note that **large text** is defined as being at least 18pt regular or 14pt bold. The font size is deemed to be that when the content is delivered and does not include resizing that may be done by a user.

It is also worth mentioning a further WCAG guideline:

Guideline 1.4.1 Use of Colour

This states that colour must not be used as the only visual means of conveying information, indicating an action, prompting a response, or distinguishing a visual element.

Font size and conversion

As a measure of font size, points and pixels are absolute units. There are 72 points in one inch. Just how many pixels there are in one inch depends on the operating system and graphics capability of the screen, yielding a measurement of pixels per inch (PPI)

Whereas Mac always faithfully followed the convention of 72ppi, Windows opted for 96ppi, meaning that the same font rendered at different visible heights on each platform. But more advanced screens on desktops and handheld devices can have up to 500ppi.

So the accessibility recommendation is to use relative measurements for font sizes, such as em units or percentages, rather than absolute sizes. This hands control to the browser and allows text to be more easily resized across multiple devices and platforms.

Points	Pixels	Ems	Percent	Sans Serif Example
6 pt	8 px	0.5 em	50 %	Sample text
7 pt	9 px	0.55 em	55 %	Sample text
7.5 pt	10 px	0.625 em	62.5 %	Sample text
8 pt	11 px	0.7 em	70 %	Sample text
9 pt	12 px	0.75 em	75 %	Sample text
10 pt	13 px	0.8 em	80 %	Sample text
10.5 pt	14 px	0.875 em	87.5 %	Sample text
11 pt	15 px	0.95 em	95 %	Sample text
12 pt	16 px	1 em	100 %	Sample text
13 pt	17 px	1.05 em	105 %	Sample text
13.5 pt	18 px	1.125 em	112.5 %	Sample text
14 pt	19 px	1.2 em	120 %	Sample text
14.5 pt	20 px	1.25 em	125 %	Sample text
15 pt	21 px	1.3 em	130 %	Sample text

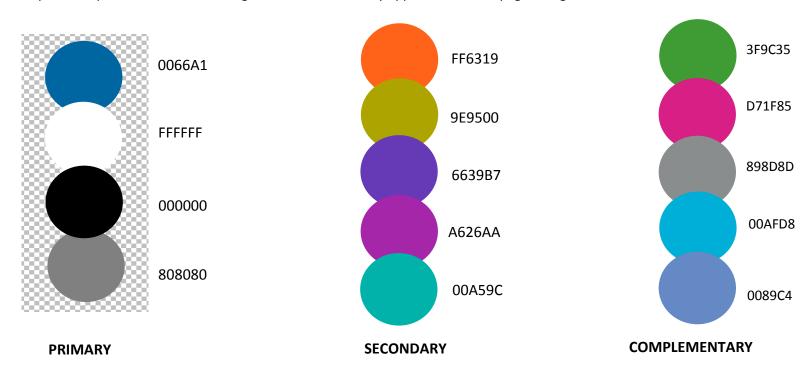| Points	Pixels	Ems	Percent	Sans Serif Example
16 pt	22 px	1.4 em	140 %	Sample text
17 pt	23 px	1.45 em	145 %	Sample text
18 pt	24 px	1.5 em	150 %	Sample text
20 pt	26 px	1.6 em	160 %	Sample text
22 pt	29 px	1.8 em	180 %	Sample text
24 pt	32 px	2 em	200 %	Sample text
26 pt	35 px	2.2 em	220 %	Sample text
27 pt	36 px	2.25 em	225 %	Sample text
28 pt	37 px	2.3 em	230 %	Sample text
29 pt	38 px	2.35 em	235 %	Sample text
30 pt	40 px	2.45 em	245 %	Sample text
32 pt	42 px	2.55 em	255 %	Sample text
34 pt	45 px	2.75 em	275 %	Sample text
36 pt	48 px	3 em	300 %	Sample text

Browsers set the default font size to 16px (absolute), and then the <body> tag font size set to 1em, or 100% (relative). This then can be used as the basis for font design.

As detailed on the previous page, WCAG Guideline 1.4.3 mentions 18pt normal and 14pt bold text. From the conversion table to the right, it can be seen that these font sizes equate to 1.5em and 1.2em, respectively.

The conversion table can also be used as a general reference for font size conversion between units. Figures are approximate (as they rely on the OS, browser rendering and the font itself) although they may be considered as reliable.

Colour Palette

The Atos colour palette consists of four primary colours, five secondary colours and five complementary colours. The palette is for web use and, by implication, printed matter. The design will therefore usually appear on a white page background.

0066A1

FFFFFF

000000

808080

PRIMARY

FF6319

9E9500

6639B7

A626AA

00A59C

SECONDARY

3F9C35

D71F85

898D8D

00AFD8

0089C4

COMPLEMENTARY

Spectrum – Complete

The table shows all possible colour combinations with the new Atos colour palette.
Text is shown in the normal type (12pt) and large type (18pt).

BG/FG	0066A1	0089C4	00AFD8	00A59C	FF6319	9E9500	3F9C35	6639B7	A626AA	D71F85	000000	808080	898D8D	FFFFFF
0066A1	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
0089C4	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00AFD8	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00A59C	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
FF6319	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
9E9500	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
3F9C35	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
6639B7	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
A626AA	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
D71F85	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
000000	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC
808080	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC
898D8D	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC
FFFFFF	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	

Spectrum - WCAG AA

The table below shows the palette spectrum filtered to WCAG AA accessibility requirements for foreground / background contrast.

BG/FG	0066a1	0089C4	00AFD8	00A59C	FF6319	9E9500	3F9C35	6639B7	A626AA	D71F85	000000	808080	898D8D	FFFFFF
0066A1											ABC			ABC ABC
0089C4											ABC ABC			ABC
00AFD8											ABC ABC			
00A59C											ABC ABC			ABC
FF6319											ABC ABC			
9E9500											ABC ABC			ABC
3F9C35											ABC ABC			ABC
6639B7														ABC ABC
A626AA											ABC			ABC ABC
D71F85											ABC			ABC ABC
000000	ABC	ABC ABC	ABC ABC	ABC ABC	ABC ABC	ABC ABC	ABC		ABC	ABC		ABC ABC	ABC ABC	ABC ABC
808080											ABC ABC			ABC
898D8D											ABC ABC			ABC
FFFFFF	ABC ABC	ABC		ABC	ABC ABC		ABC	ABC ABC	ABC ABC	ABC ABC	ABC ABC	ABC	ABC	

Spectrum - WCAG AA Viewed with Protanopia

The table below shows the WCAG AA palette spectrum when viewed by users suffering from protanopia colour blindness (insensitivity to red light).

BG/FG	0066A1	0089C4	00AFD8	00A59C	FF6319	9E9500	3F9C35	6639B7	A626AA	D71F85	000000	808080	898D8D	FFFFFF
0066A1		ABC	ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
0089C4	ABC		ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00AFD8	ABC	ABC		ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00A59C	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
FF6319	ABC	ABC	ABC	ABC ABC			ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
9E9500	ABC	ABC	ABC	ABC ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
3F9C35	ABC	ABC	ABC	ABC ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC
6639B7	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC
A626AA	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC			ABC	ABC	ABC	ABC	ABC
D71F85	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC
000000	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC
808080	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC
898D8D	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC			ABC
FFFFFF	ABC	ABC	ABC	ABC ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	

Spectrum - WCAG AA Viewed with Deuteranopia

The table below shows the WCAG AA palette spectrum when viewed by users suffering from deutranopia colour-blindness (insensitivity to green light)

BG/FG	0066a1	0089C4	00AFD8	00A59C	FF6319	9E9500	3F9C35	6639B7	A626AA	D71F85	000000	808080	898D8D	FFFFFF
0066A1	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
0089C4	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00AFD8	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00A59C	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
FF6319	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
9E9500	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
3F9C35	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
6639B7	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
A626AA	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
D71F85	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
000000	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC
808080	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC
898D8D	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC
FFFFFF	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	

Spectrum - WCAG AA Viewed with Tritanopia

The table below shows the WCAG AA palette spectrum when viewed by users suffering from tritanopia colour-blindness (insensitivity to blue light)

BG/FG	0066a1	0089C4	00AFD8	00A59C	FF6319	9E9500	3F9C35	6639B7	A626AA	D71F85	000000	808080	898D8D	FFFFFF
0066A1		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
0089C4	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00AFD8	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
00A59C	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
FF6319	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
9E9500	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC
3F9C35	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC	ABC
6639B7	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC	ABC
A626AA	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC	ABC
D71F85	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC	ABC
000000	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC	ABC
808080	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC	ABC
898D8D	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC		ABC
FFFFFF	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	ABC	