

## Perceivable

User must be able to easily identify content using their senses: sight, sound, and touch.

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
CRITICAL: Low contrast on DX elements and text.	13	7	8	.88
CRITICAL: Text size too small.	4	4	8	.50
CRITICAL: Information only available visually (no screen reader/braille support).	6	5	8	.63
Color choice is not "colorblind safe" (inaccessible to people with color vision deficiencies).	1	1	8	.13
Color is the only channel for meaningful information.	4	4	8	.50
Meaningful elements cannot be discerned.	3	3	8	.38
Inappropriate use of spacing.	2	2	8	.25

## Operable

All controls must be error-tolerant, discoverable, and multi-modal (not just mouse operable, but using keyboard, etc).

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
CRITICAL: DX interactivity is not available through multiple means.	6	5	8	.63
CRITICAL: Instructions not provided for interaction	8	6	8	.75
Contrast is low on interactive elements.	5	5	8	.63
Keyboard focus indication is hard to see.	6	6	8	.75
Inappropriate use of TAB stops.	2	3	8	.38
Custom keyboard controls override screen reader settings.	2	2	8	.25
Special actions (brushing/zooming/filtering) that use custom DX controls have no UI alternative.	2	2	8	.25

## Understandable

Any information or data are presented without ambiguity, with clarity, and in a way that minimizes cognitive load.

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
CRITICAL: If DX is novel or unconventional and does not have an explanation.	5	5	7	.71
CRITICAL: No title, summary, context, or caption is provided.	1	1	8	.13
Axis labels are not present or unclear. Axis is truncated without a clear label.	2	2	8	.25
Inappropriate controls are provided for the task.	2	2	8	.25
Metrics or variables are misleading or undefined.	6	4	8	.50
Statistical confidence/uncertainty is not clearly and unambiguously communicated.	1	1	2	.50
Information complexity inappropriate to the task or goal of the visual.	3	3	8	.38
If DX interacts with surroundings, this purpose and function is not clearly communicated.	7	6	6	1.0
DX changes are not easy to follow.	2	1	5	.20



## Robust

The design is compliant with existing standards and works with the user's compliant, assistive technologies of choice.

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
Does not follow compliance standards.	5	5	8	.63
Semantically invalid use of document elements (if it functions like a button, but it is semantically other than a <button>, etc).	14	5	8	.63
DX "works best" on only one browser, device, or operating system.	5	5	8	.63

## Compromising

Information can be approached at both a high and low level. Layout, flow, actions, and tasks all have alternative routes.

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
CRITICAL: A table is not provided that the DX is based on.	4	4	8	.50
Provided table is not downloadable, filterable, or sortable.	3	4	8	.50
There is not more than one process available to reach the same information.	2	2	4	.50
DX state is not easy to share and reproduce.	3	3	3	1.0
Current view path is not easy to understand or return to.	1	1	3	.33
DX data cannot be navigated according to its data structure.	5	4	8	.50
Interactions and operations are not forgivable.	2	2	4	.50

## Assistive

“Heavy lifting” (difficult/manual statistical or data-related) tasks are automatically handled or assisted whenever possible.

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
CRITICAL: Data is not presented at an appropriate density.	3	3	8	.38
“Visually apparent” features are not described through text summaries or via sonification.	7	7	8	.88
Use of space inappropriately handles extreme difference or similarity in the data.	3	3	8	.38
If DX must be built by the user, no default, opinionated state is given as a starting example.	1	1	5	.20
Data is not formatted to be human-readable.	2	2	8	.25

## Flexible

Styling and presentation can be altered and adjusted according to user preference. User changes are respected.

Test	Count	Failed Tests	Applicable Tests	Rate of failed tests / applicable
CRITICAL: Styling changed by the user is not respected.	7	7	8	.88
Longer, video-style or explanatory animations cannot be paused, stopped, and started over.	0	0	0	N/A
Scrolling experiences cannot be adjusted or opted out of.	0	0	1	0.0
DX space cannot be zoomed.	2	2	8	.25
Contrast or textures cannot be adjusted as-needed	7	7	8	.88
Text spacing and font-size changed by the user is not respected.	7	7	8	.88
Design is not consistent and familiar by default.	1	1	6	.17



## Summary

Average rate of failed applicable tests:  $152/311 = .49$

Top 10 tests with most failures:

1. (14) Semantically invalid use of document elements.
2. (13) CRITICAL: Low contrast on DX elements and text.
3. (8) CRITICAL: Instructions not provided for interaction.
4. (7) If DX interacts with surroundings, this purpose and function is not clearly communicated.
5. (7) "Visually apparent" features are not described through text summaries or via sonification.
6. (7) CRITICAL: Styling changed by the user is not respected.
7. (7) Contrast or textures cannot be adjusted as-needed.
8. (7) Text spacing and font-size changed by the user is not respected.
9. (6) CRITICAL: Information only available visually (no screen reader/braille support).
10. (6) CRITICAL: DX interactivity is not available through multiple means.

Top 10 tests, by failure rate:

1. (100%, 6/6) If DX interacts with surroundings, this purpose and function is not clearly communicated.
2. (100%, 3/3) DX state is not easy to share and reproduce.
3. (88%, 7/8) CRITICAL: Low contrast on DX elements and text.
4. (88%, 7/8) "Visually apparent" features are not described through text summaries or via sonification.
5. (88%, 7/8) CRITICAL: Styling changed by the user is not respected.
6. (88%, 7/8) Contrast or textures cannot be adjusted as-needed.
7. (88%, 7/8) Text spacing and font-size changed by the user is not respected.
8. (75%, 6/8) CRITICAL: Instructions not provided for interaction.
9. (75%, 6/8) Keyboard focus indication is hard to see.
10. (71%, 5/7) CRITICAL: If DX is novel or unconventional and does not have an explanation.