ChromIQ

Measurement Report - Verification of Profile - CP1500-576p-ChromIQ-NCM-verify

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Report type: Contract proof check (ISO 12647-7) · Judged against: Custom ISO 12647-7

This report judges the profile built in CP1500-576p-ChromIQ-NCM, run 1. It was verified by printing a chart through that profile, measuring it, and comparing the measurements with the chart's own aim values. The measurements it covers are listed under Report Scope.

Report Scope

The following verification run is included:

- CP1500-576p-ChromIQ-NCM-verify, Instrument: X-Rite i1 Pro 3 · Measurements: 1

No. of Measurements:

1

Date range:

2026-10-18 – 2026-10-18

How to read this report

This report compares what the instrument measured against the chart's design colours (the reference values the chart was built from). Most numbers are colour differences in ΔE00: 0 is a perfect match, 1–2 is barely visible, and 10 or more is clearly different. The others name their own unit: ΔCh for a colour cast, ΔL* for a lightness difference, L* for a lightness.

- ΔE00, paper white against the reference paper: How far the bare paper of the printed test chart sits from the paper the reference describes. A paper that is bluer, warmer or darker than the aim moves every colour printed on it.
- Maximum ΔE00, solid colours: The worst of the four solid ink corners against what they should be. Solids are where an ink is laid down at full strength, so they show the ink itself rather than the profile.
- Maximum ΔH*ab, cyan, magenta and yellow solids: Whether the three chromatic solids shifted in hue, ignoring how light or how saturated they are. A hue shift in a solid is the one error the eye finds hardest to forgive.
- Average ΔE00, control strip: The average colour error over the patches of the control strip on the test chart used: the run of patches a press or a proof is checked on.
- Maximum ΔE00, control strip: The worst single patch of that control strip.
- Maximum ΔE00, control strip, lowest 95 % (95th percentile): The error that 95 % of the declared strip stays under, so one bad patch does not decide the result.
- Average ΔCh, grey balance of the grey ramp: How neutral the greys of the printed test chart are on average: how far each step of the grey ramp sits from having no colour cast at all. Lightness is ignored, only the cast is counted.
- Maximum ΔCh, grey balance of the grey ramp: The worst single step of the grey ramp. One step with a cast is visible in a photograph even when the average looks healthy.
- Average ΔE00, all patches (within gamut): The average colour error over the whole chart. The headline number, and the one to watch over time.
- Average ΔE00, lowest 95 % (within gamut): The average over the lowest 95 % of the patches, with the highest 5 % left out, so a handful of very hard colours cannot hide an otherwise good result.
- Average ΔE00, highest 5 % (within gamut): How bad the hardest colours are: the average over the highest 5 % alone. This is the row that answers what happens at the edge of what the printer can do.
- Maximum ΔE00, all patches (within gamut): The single worst patch on the sheet. Useful for finding a misread or a damaged patch as well as a real error.
- Maximum ΔE00, lowest 95 % (95th percentile) (within gamut): The maximum difference within the lowest 95 %, which is the 95th percentile: the error 95 % of the chart stays under, counted by rank rather than by fitting a curve.
- Average ΔE00, outer-gamut patches: The average error over the most saturated quarter of the test chart used, the colours at the edge of what the printer can reach.
- Average ΔE00, surface-gamut patches: The average error over the patches that sit on the outside of the device cube, where a profile has least room.
- Maximum ΔL*, single-colour ramps 30 % to 70 %: Whether the mid-tones of each single ink, and of grey, land at the right lightness. This is the part of a ramp the eye reads as contrast.
- Maximum ΔE00, repeat patches on one sheet: How far apart the patches of one colour landed where that colour appears more than once on one sheet of the test chart used. No profile and no aim value is in this number: the patches were asked for the same thing, so what separates them is the printer and the instrument together.
- Maximum ΔE00, the same chart measured again: Whether the same file prints the same colour on another sheet and on another day. This is the question behind asking whether a printer is steady, and it is answered by measuring the same chart more than once.
- Maximum ΔE00, between two of the nine sheet areas (within gamut): Evenness checks whether the printed sheet shows the same colour everywhere. It has two metrics, “Maximum ΔE00, between two of the nine sheet areas” and “Maximum ΔE00, one sheet area against the whole sheet”. This one is the largest difference between any two of the nine areas. A gradual change from one side of the sheet to the other shows here first, because the two far sides differ most. An uneven sheet usually has one of these causes: banding from the printer, a partly blocked or misaligned print head, paper that is not flat or not the same all over, or, on an instrument that reads whole strips, the instrument changing while it reads. The strips are read one after another, so such a change during the reading shows as a difference across the strips rather than down them. If a difference runs steadily from the first strip read to the last, measure the sheet again in the opposite order: a difference that turns round with the reading may come from the instrument.
- Maximum ΔE00, one sheet area against the whole sheet (within gamut): Evenness checks whether the printed sheet shows the same colour everywhere. It has two metrics, “Maximum ΔE00, between two of the nine sheet areas” and “Maximum ΔE00, one sheet area against the whole sheet”. This one is the largest difference between one area and

the average of all nine. A single area that is off, a blotch, shows here first; a gradual change from one side to the other shows first in the row above. An uneven sheet usually has one of these causes: banding from the printer, a partly blocked or misaligned print head, paper that is not flat or not the same all over, or, on an instrument that reads whole strips, the instrument changing while it reads. The strips are read one after another, so such a change during the reading shows as a difference across the strips rather than down them. If a difference runs steadily from the first strip read to the last, measure the sheet again in the opposite order: a difference that turns round with the reading may come from the instrument.

The four verdict words. A limit set is one column of the limits table: the numbers a report is judged against. Every row of the results ends in one of four verdict words.

- PASS: the measured value is within the limit for that row.
- FAIL: the measured value is over the limit for that row.
- INFO: the number is shown for information only and nothing was judged from it. That happens when the sheet is a profiling measurement, which is never graded, and when the row needs something about the print that was not recorded; the note under the results names the rows in that last case.
- N-A (not applicable): the value could not be worked out from the measured chart. A raised number beside it points to the note under the results that names what is missing.

A column marked “printed raw” under “Judged against” is a sheet printed without the profile. Its paper and solid colour rows are judged against the profile where the limit set has a limit for them; its values that compare the print with the chart's design colours read INFO, with a numbered note that says so. A column's Overall word is PASS when every row that could be checked passed; a row the test chart used could not answer is not counted as a failure, and the sentence under the word says how many there were.

A column named after a standard is judged against its limit set's limits, applied to the values measured on the printed test chart rather than to that standard's own chart and control strip. Such a column reads PASS or FAIL like any other, and the note under the results says what that word does and does not mean.

What the numbers mean depends on how the chart was printed:

- A profiling chart is printed WITHOUT colour management (the raw print that is measured to build a profile). It is not expected to match the design closely, so the ΔE can look large, and that is normal. Here it is the CHANGE between dated reports that matters, not a single value.
- A verification chart is printed THROUGH the finished profile, with the printer's colour management off. It SHOULD match the design closely, so low ΔE and passes mean the profile is still accurate; numbers rising over time mean that the profile describes the printer less well than it did. (Printed raw instead, the same sheet is a check of the printer itself, and the report says which way each sheet was printed.)

Some of a chart's design colours can be brighter or more saturated than this printer and paper can physically produce; no profile can print them, however good it is. Where a sheet was compared with its profile's gamut, the colour-accuracy figures are split into two groups: “Within the profile's gamut”, the colours that were genuinely printable, the fair measure of accuracy, and “Beyond it”, the unreachable ones, whose distance describes the limit of the gamut, not a mistake of the profile. Every patch stays counted and visible.

Where a sheet is split this way, the verdict words of the colour-accuracy and evenness rows judge the within-gamut figures.

The ΔE figures measure a whole chain in one number: the profile's conversion of each colour to printer values, the printer's behaviour on the day, and the instrument's own small uncertainty. A rising number means something in that chain has moved; by itself it does not say which part.

These figures show how one profile holds up over time. They are not a fair measure for ranking papers or printers against each other: where a sheet is split by the profile's gamut, the averages cover only the colours each profile can print, and that set differs with every paper. A glossy paper keeps more of the difficult, saturated colours than a matte one, so its average can look worse while it is printing better.

Because the design reference never changes, comparing dated reports of the same chart on the same printer is a clean, reliable signal of change: ageing inks, a wandering printer, or an instrument going off. Screen and print colours here are approximate; the numbers come from the measurement file and are exact.

Report Results

The following results are extracted from the detailed Colour accuracy data shown below for each measurement. Where a sheet's colours are split into within / beyond the profile's gamut, the words judge the within-gamut figures; colours the profile could never print are not counted against it.

Metric	2026-10-18
ΔE00, paper white against the reference paper	PASS [1)]
Maximum ΔE00, solid colours	N-A [2)]
Maximum ΔH*ab, cyan, magenta and yellow solids	N-A [2)]
Average ΔE00, control strip	FAIL
Maximum ΔE00, control strip	FAIL
Maximum ΔE00, control strip, lowest 95 % (95th percentile)	FAIL
Average ΔCh, grey balance of the grey ramp	FAIL
Maximum ΔCh, grey balance of the grey ramp	FAIL
Average ΔE00, all patches (within gamut)	PASS
Average ΔE00, lowest 95 % (within gamut)	PASS
Average ΔE00, highest 5 % (within gamut)	FAIL
Maximum ΔE00, all patches (within gamut)	FAIL
Maximum ΔE00, lowest 95 % (95th percentile) (within gamut)	PASS
Average ΔE00, outer-gamut patches	FAIL
Average ΔE00, surface-gamut patches	FAIL
Maximum ΔL*, single-colour ramps 30 % to 70 %	PASS
Maximum ΔE00, repeat patches on one sheet	N-A [3)]
Maximum ΔE00, the same chart measured again	N-A [4)]
Maximum ΔE00, between two of the nine sheet areas (within gamut)	N-A [5)]
Maximum ΔE00, one sheet area against the whole sheet (within gamut)	N-A [5)]
Overall	FAIL
Judged against	Custom ISO 12647-7

This limit set is named after a standard. Its limits were applied to the values measured on the printed test chart with ChromIQ's own metrics, not to that standard's own chart and control strip with its own methods, so this is not a test against that standard. A PASS means that the measured values are inside these limits. It is not proof that the print meets the standard, and where these limits are wider than the standard's own it says nothing about the standard.

Notes on the verdicts above:

1) ΔE00, paper white against the reference paper: In this measurement the paper is compared with the paper white recorded in the profile (the one the chart was printed through, or else the profile of its run), which is the paper that profile was made for. The cube-corner table compares the same patch with the chart's own aim for white, an ideal white, so the two can differ.

2) Maximum ΔE00, solid colours; Maximum ΔH*ab, cyan, magenta and yellow solids: the measured chart was printed through the profile, so its cyan, magenta, yellow and black patches were converted to other ink amounts before printing and are not the printer's own solids

3) Maximum ΔE00, repeat patches on one sheet: the measured chart never asks for the same colour twice, so there is nothing on the sheet to compare with itself

4) Maximum ΔE00, the same chart measured again: this is the first measurement of the measured chart, so there is nothing to compare it with

5) Maximum ΔE00, between two of the nine sheet areas (within gamut); Maximum ΔE00, one sheet area against the whole sheet (within gamut): the measured chart has 8 strips and 12 rows on its largest page; at least 9 strips and 9 rows are needed on a page

A row that could not be worked out says nothing about the printer and is not counted as a failure; each note above says why.

Detailed data per measurement

Measurement of 2026-10-18T16:58:00, 192 patches

Profile name: CP1500-576p-ChromIQ-NCM-verify

How this verification was produced

What this measured	two things: how faithfully the colours inside the profile's gamut were reproduced, and how accurate the profile is against its own prediction
Printed	through this run's profile · relative colorimetric
Colour management at the printer	off
Profile	CP1500-576p-ChromIQ-NCM.icm · 2026-10-18
Take care	the profile has been rebuilt since this sheet was printed, so these figures describe an older profile than the one now in the run
Readings belong to this chart	verified — every patch holds the colour the chart asked for
How the colours were judged	relative to this sheet's own paper white — the print mapped white to the paper, so the paper itself is not counted against the profile
Reference for the ΔE figures	the colours the sheet was converted from: the chart's colours in sRGB.icm, relative colorimetric. Only the colours inside the profile's gamut (relative colorimetric) are judged; the others are shown beyond the gamut, for information.

Colour accuracy (ΔE00 against the colours the sheet was converted from)

Metric	Within gamut	Beyond it	All patches	Limit	Result
ΔE00, paper white against the reference paper	—	—	**1.98**	2.00	**PASS** [1]
Maximum ΔE00, solid colours	—	—	**—**	3.00	N-A [2]
Maximum ΔH*ab, cyan, magenta and yellow solids	—	—	**—**	2.50	N-A [2]
Average ΔE00, control strip	—	—	**6.05**	2.00	**FAIL**
Maximum ΔE00, control strip	—	—	**17.09**	4.00	**FAIL**
Maximum ΔE00, control strip, lowest 95 % (95th percentile)	—	—	**11.30**	4.00	**FAIL**
Average ΔCh, grey balance of the grey ramp	—	—	**1.80**	1.50	**FAIL**
Maximum ΔCh, grey balance of the grey ramp	—	—	**4.09**	3.00	**FAIL**
Average ΔE00, all patches (within gamut)	**1.59**	6.74	4.19	2.00	**PASS**
Average ΔE00, lowest 95 % (within gamut)	**1.47**	6.40	3.77	2.00	**PASS**
Average ΔE00, highest 5 % (within gamut)	**4.31**	14.51	12.79	2.00	**FAIL**
Maximum ΔE00, all patches (within gamut)	**5.47**	17.09	17.09	4.50	**FAIL**
Maximum ΔE00, lowest 95 % (95th percentile) (within gamut)	**3.34**	11.80	11.12	4.00	**PASS**
Average ΔE00, outer-gamut patches	—	—	**6.87**	3.00	**FAIL**
Average ΔE00, surface-gamut patches	—	—	**5.91**	3.00	**FAIL**
Maximum ΔL*, single-colour ramps 30 % to 70 %	—	—	**1.22**	2.00	**PASS**
Maximum ΔE00, repeat patches on one sheet	—	—	**—**	2.00	N-A [3]
Maximum ΔE00, the same chart measured again	—	—	**—**	3.00	N-A [4]
Maximum ΔE00, between two of the nine sheet areas (within gamut)	**—**	—	—	1.50	N-A [5]
Maximum ΔE00, one sheet area against the whole sheet (within gamut)	**—**	—	—	1.00	N-A [5]
For information (no limit applies)					
Standard deviation ΔE00, all patches	**0.97**	3.42	3.60	—	—

Notes on the verdicts above:

1) ΔE00, paper white against the reference paper: In this measurement the paper is compared with the paper white recorded in the profile (the one the chart was printed through, or else the profile of its run), which is the paper that profile was made for. The cube-corner table compares the same patch with the chart's own aim for white, an ideal white, so the two can differ.

2) Maximum ΔE00, solid colours; Maximum ΔH*ab, cyan, magenta and yellow solids: the measured chart was printed through the profile, so its cyan, magenta, yellow and black patches were converted to other ink amounts before printing and are not the printer's own solids

3) Maximum ΔE00, repeat patches on one sheet: the measured chart never asks for the same colour twice, so there is nothing on the sheet to compare with itself

4) Maximum ΔE00, the same chart measured again: this is the first measurement of the measured chart, so there is nothing to compare it with

5) Maximum ΔE00, between two of the nine sheet areas (within gamut); Maximum ΔE00, one sheet area against the whole sheet (within gamut): the measured chart has 8 strips and 12 rows on its largest page; at least 9 strips and 9 rows are needed on a page

This verdict was recorded against the limit set Custom ISO 12647-7 when the report was made.

Profile accuracy (ΔE00 against the profile's own prediction)

The profile's prediction of this sheet could not be worked out, so the profile's accuracy is not shown.

Within what the profile (CP1500-576p-ChromIQ-NCM.icm) can print: 95 of this sheet's colours (49 %); beyond it: 97. The Result judges the within-gamut figures: a colour beyond the gamut was never printable, so its distance describes the gamut's limit, not a mistake of the profile. Those patches stay visible in their own column, and how steady they are from check to check shows whether the printer changes.

For information (no limit applies)

Paper white and darkest black (L*)

White (14L) - L* 94.4, a* 1.1, b* -4.6

Black (10K) - L* 14.0, a* -0.2, b* -5.5

Cube corners (ΔE00)

Corner	Expected	Measured	ΔE00
White (14L)			**0.00**
Black (10I)			**10.37**
Red (11C)			**6.47**
Green (7I)			**10.33**
Blue (13I)			**17.09**
Cyan (14I)			**11.31**
Magenta (12A)			**11.02**
Yellow (12L)			**3.08**

Worst patches

Patch	Expected	Measured	ΔE00	Patch	Expected	Measured	ΔE00
13I			**17.09**	11F			**11.14**
4I			**14.87**	12C			**11.12**
16A			**13.96**	1K			**11.10**
1E			**12.10**	12A			**11.02**
16C			**11.80**	16D			**10.81**
8A			**11.71**	2C			**10.74**
14I			**11.31**	10G			**10.68**
1A			**11.15**	10I			**10.37**