

DPMO and Sigma Level Tracker

How-to guide: what the workbook does, how to use it and what every number means.

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DPMO and Sigma Level Tracker

Log inspected lots and defects and see DPU, DPMO and sigma level by week, line and product against your DPMO target as you type.

For: Quality engineers, process engineers and line leaders in electronics assembly and any plant that counts defects against defined opportunities.

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Quick start

1. On Setup, type your plant name, DPMO target and reporting shift, then replace the example lines and products with your own, with each product's opportunities per unit.
2. On Inspection Log, add one row per inspected lot: date, line, product, units inspected and defects found.
3. Read the Check column: anything other than OK names the problem in words.
4. Open the Dashboard; use the line and date filters to look at one line or one week.

What is in the workbook

Start Here	Read this first: what the workbook does and how to use it.
Setup	Your plant, currency, targets and the dropdown lists.
Inspection Log	One row per inspected lot: units inspected and defects found. Opportunities come from the Products list.
Dashboard	DPMO, DPU and sigma level against your target, by week, line and product, for the line and dates you choose.
Method	How every number is calculated, with assumptions, limits and sources.
Verify	Self-check: the workbook's formulas recomputed on fixed inputs against an independent reference.

What each number means

Quantity	How it is calculated	Units
Opportunities per unit	Looked up from the Products list on Setup by product (INDEX/MATCH).	opportunities/unit
Opportunities	Units inspected x opportunities per unit.	opportunities
DPU	Defects found / units inspected.	defects/unit
DPMO	Defects found / opportunities x 1,000,000.	DPMO

Quantity	How it is calculated	Units
Z (unshifted)	-NORM.S.INV(defects / opportunities): the standard-normal value with that upper-tail area. Blank when there are no defects, or when defects reach the opportunities.	sigma
Sigma level (reported)	Z + the reporting shift on Setup (1.5 by convention, so 3.4 DPMO reads as 6.0).	sigma
DPMO status	On target at or below the target, Near target up to 5% above it, otherwise Above target.	words
Roll-ups	Every Dashboard figure sums defects, units and opportunities over the rows whose View date is filled in (inside the filters) and divides the sums: $DPMO = \text{SUMIFS}(\text{defects}) / \text{SUMIFS}(\text{opportunities}) \times 1,000,000$. Weekly and by-product sigma levels use the same summed rate.	-
Highest-DPMO line and product	The key with the largest DPMO in the by-line and by-product tables (INDEX/MATCH of MAX); the first one listed on a tie.	-
Lots above target	Lots in view whose own DPMO is above the target / lots in view.	%

Assumptions, limitations, sources and the self-check (the Verify sheet, which recomputes the workbook's formulas on fixed test inputs) are in the workbook. The last page shows the Dashboard with the example data for Brightwater Electronics, a fictional business.

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Engineering estimates for planning and improvement work. Verify the results against your own process, data and standards before you rely on them.

DPMO and Sigma Level Tracker

DPMO, DPU and sigma level against your target, by week, line and product, for the line and dates you choose.

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Line

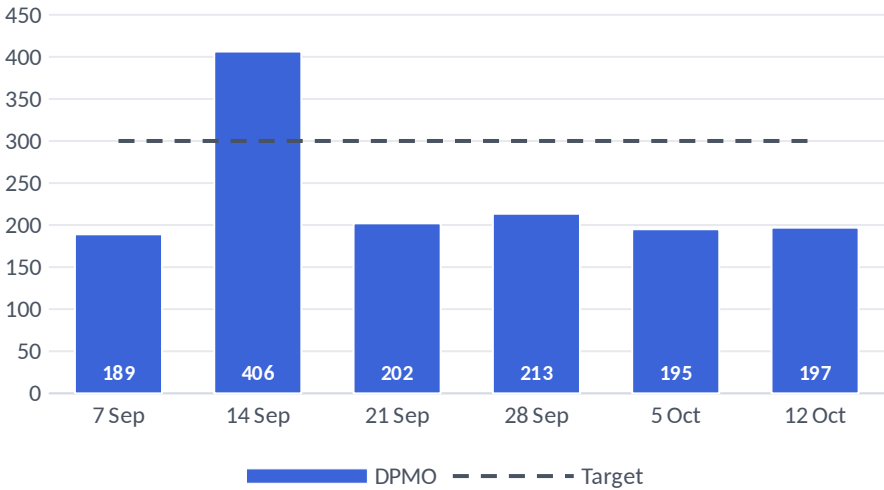
From

To

Showing 116 lots at Brightwater Electronics (example). Leave the filters blank to include everything; dates are inclusive.

DPMO	SIGMA LEVEL (REPORTED)	DEFECTS PER UNIT (DPU)	OPPORTUNITIES INSPECTED
240	4.99	0.362	44,051,900
Target max 300	Z 3.49 + shift 1.5	10,581 defects in 29,220 units	Units x opportunities per unit
On target			

DPMO by week



DPMO by line

