Gain calibration

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CBPM meeting: October 27, 2023

Machine study

instr elog 2152

Message ID: **2152**	Entry time: **2023-10-02, 12:10, Monday**
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Subject:	CBPM gain calibration
Category:	Operation
Instrument:	CESR BPM
Sub-System:	CBPM_II
Shift Key:	20231002_1200

Shift goal

Calibrate the CBPM gains from the following list: ~~32W~~, ~~33W~~, ~~34W~~, ~~42W~~, ~~43W~~, ~~44W~~, ~~42E~~, ~~43E~~, ~~44E~~, ~~25E~~, ~~X5C~~, ~~26W~~ and ~~47E~~.
Also: collect turn-by-turn data for highest shaker amplitudes to compare Rubin's method and the new calibration gain one.

How?

For a given CBPM: collect turn-by-turn data for 9 beam positions on a +/- ~2 mm grid. Then run the offline analysis to extract t

Let's a-go

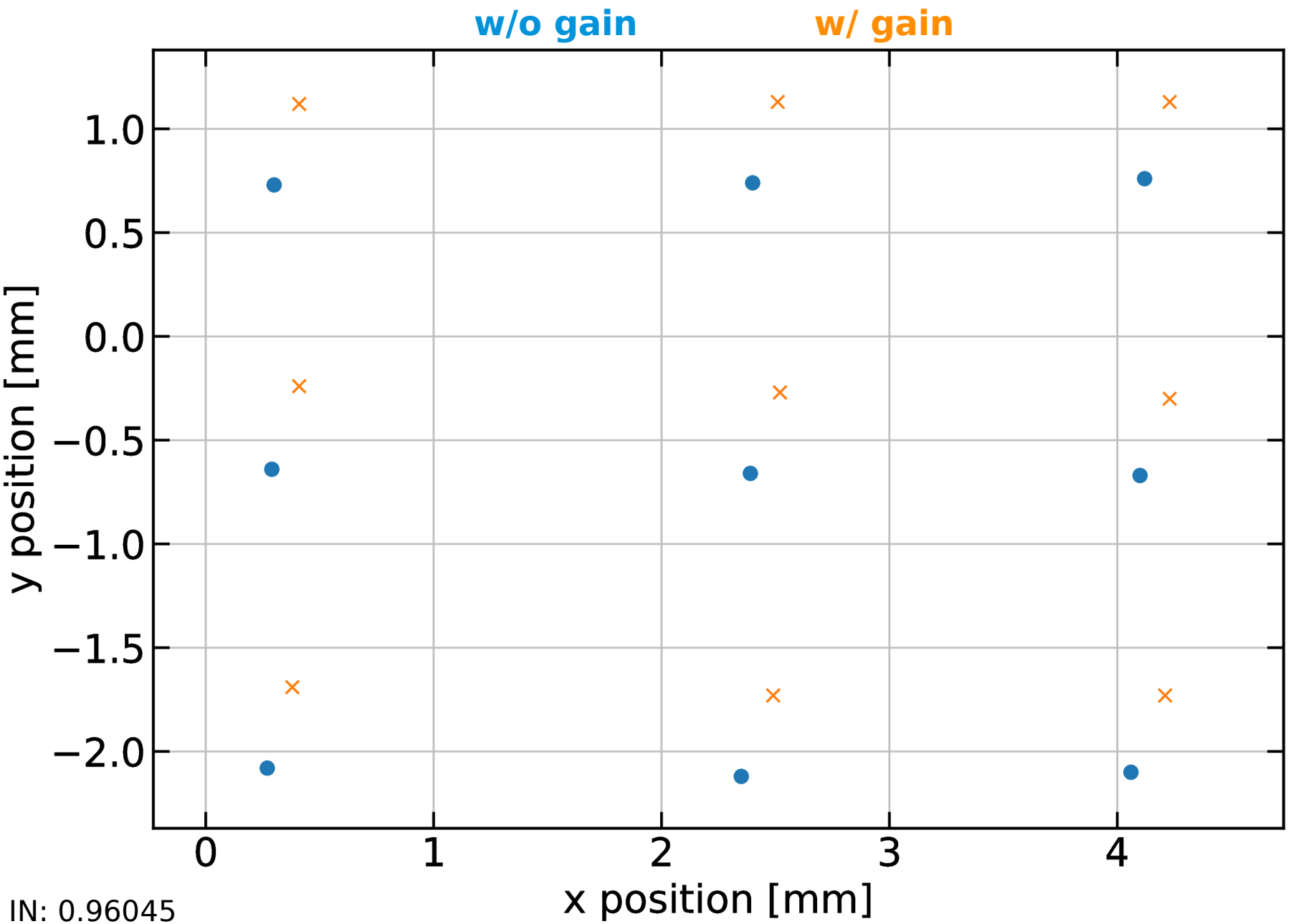
Bad new: 32W and 33W are still not responsive after the modules being swapped and Mike trying all the known tricks. More ir
47E, 25E are not returning data.

Let's start with the following bunch (beam at these positions moved at the same time):

26W 42E 42W

Gains were calibrate during the shift: let’s double check the results

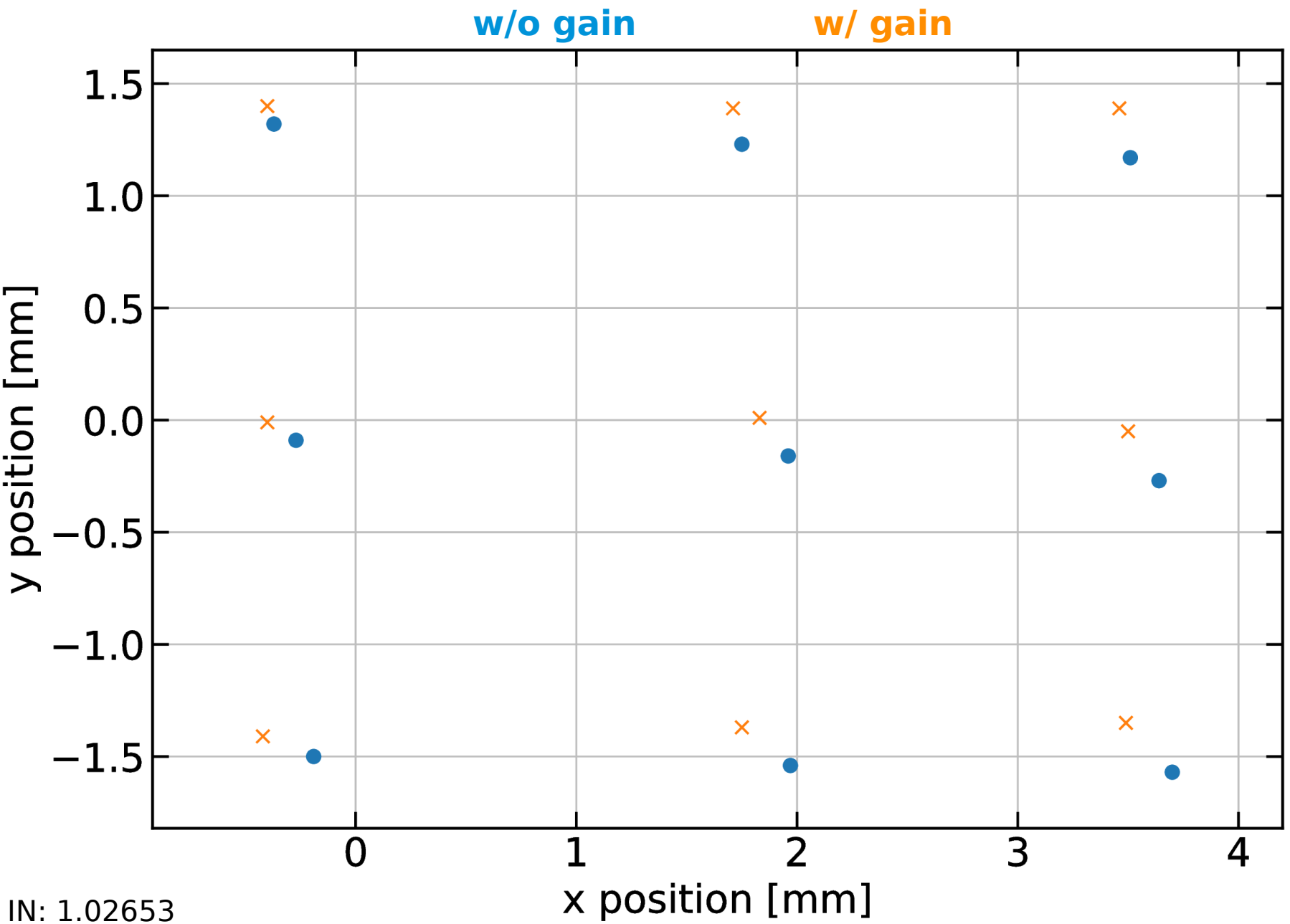
26W



TOP IN: 0.96045
BOT IN: 1
BOT OUT: 0.99081
TOP OUT: 0.95208

Obj. fun.: 3.59E-08

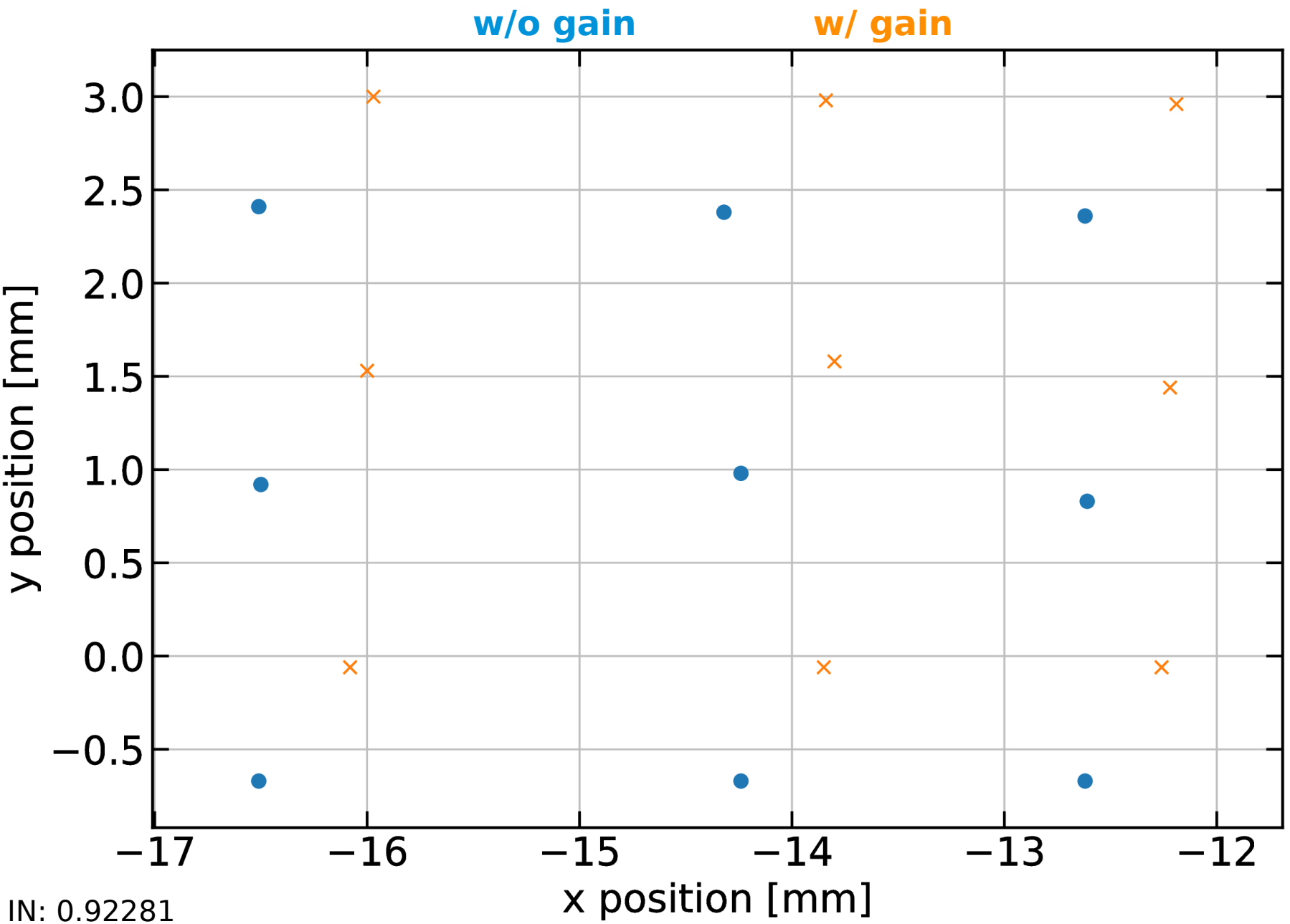
42W



TOP IN: 1.02653
BOT IN: 1
BOT OUT: 1.04657
TOP OUT: 0.99944

Obj. fun.: 7.71E-09

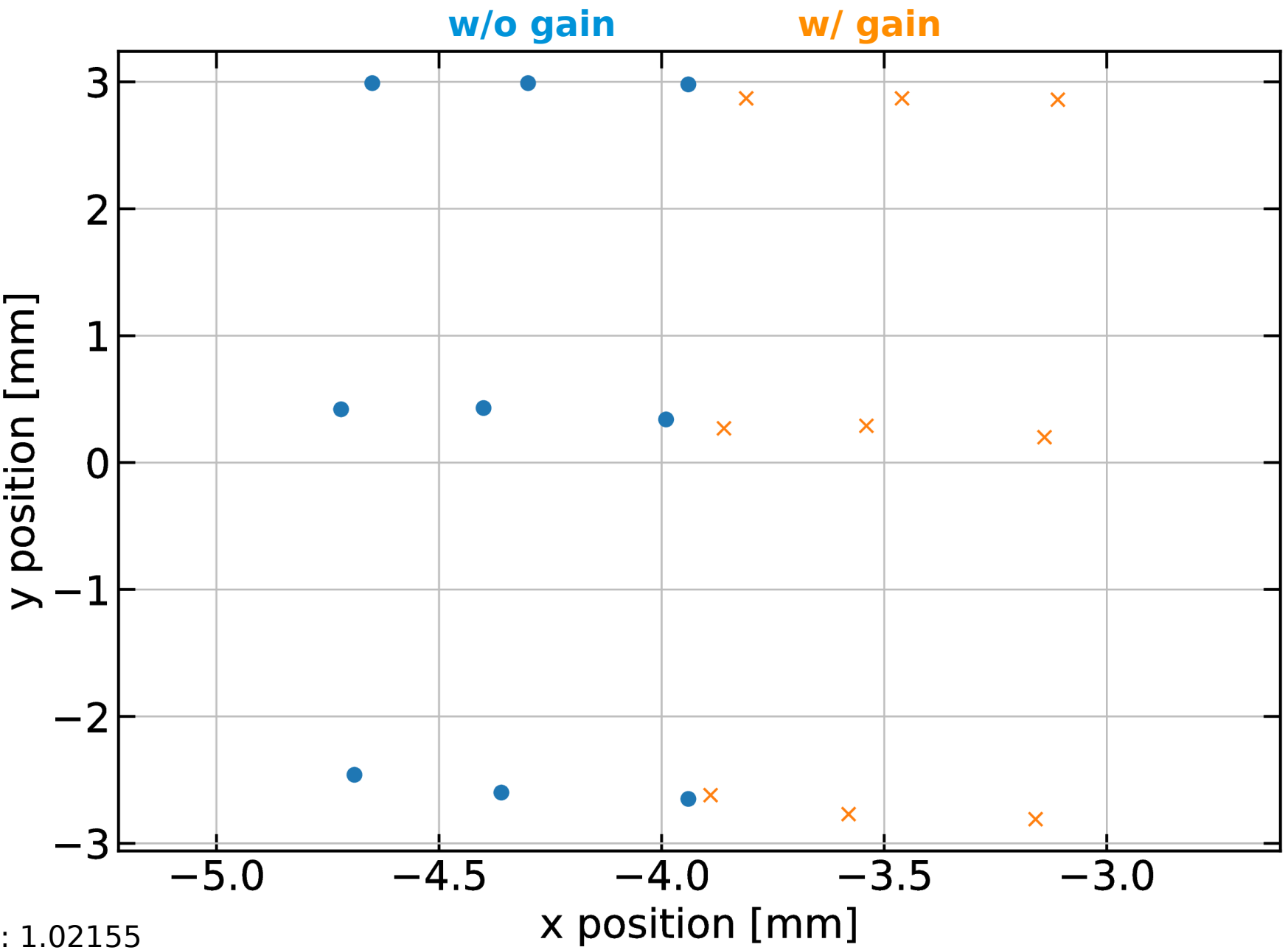
34W



TOP IN: 0.92281
BOT IN: 1
BOT OUT: 0.95342
TOP OUT: 0.92665

Obj. fun.: 2.74E-09

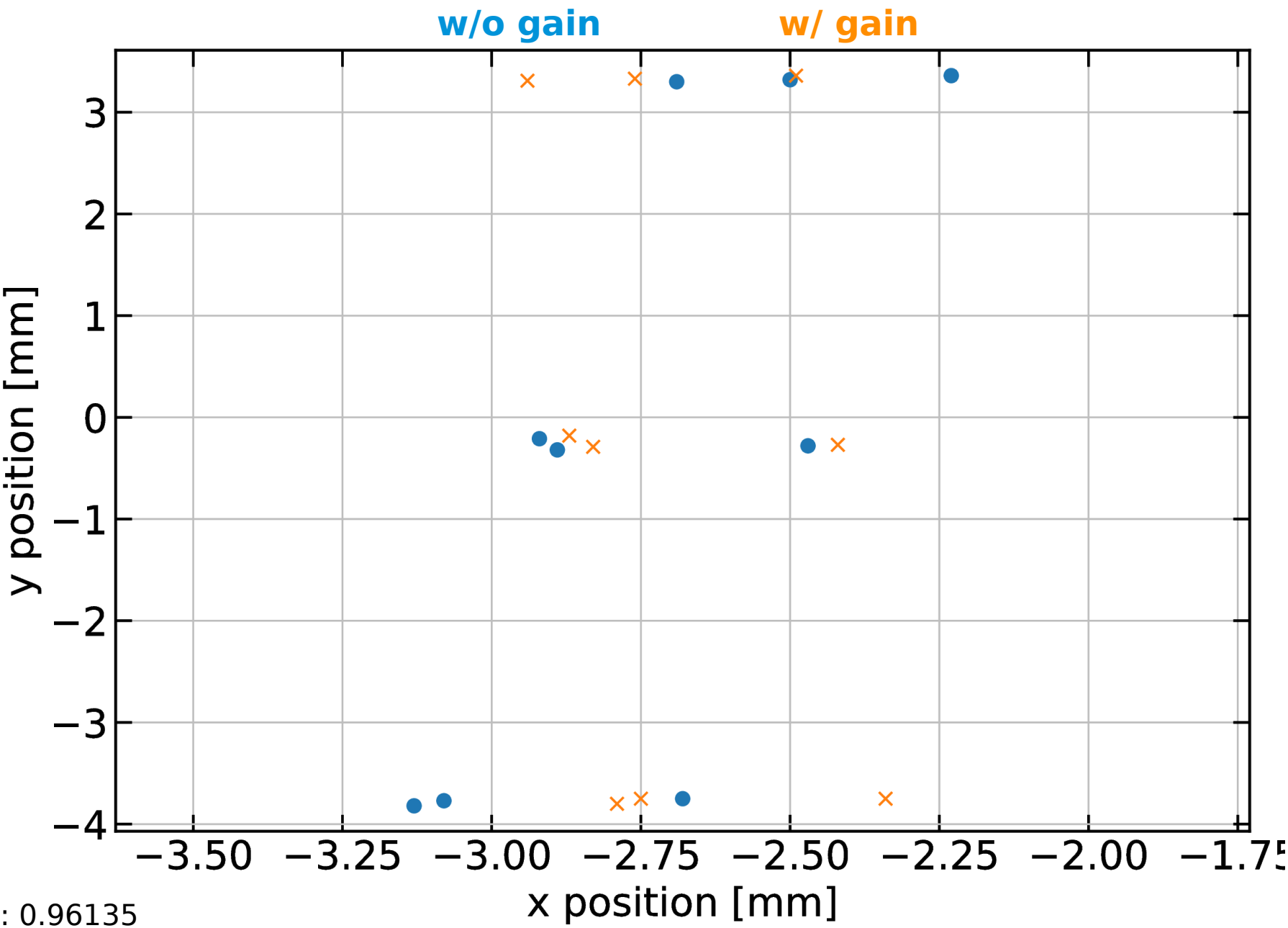
44W



TOP IN: 1.02155
BOT IN: 1
BOT OUT: 0.94771
TOP OUT: 0.949

Obj. fun.: 1.51E-07

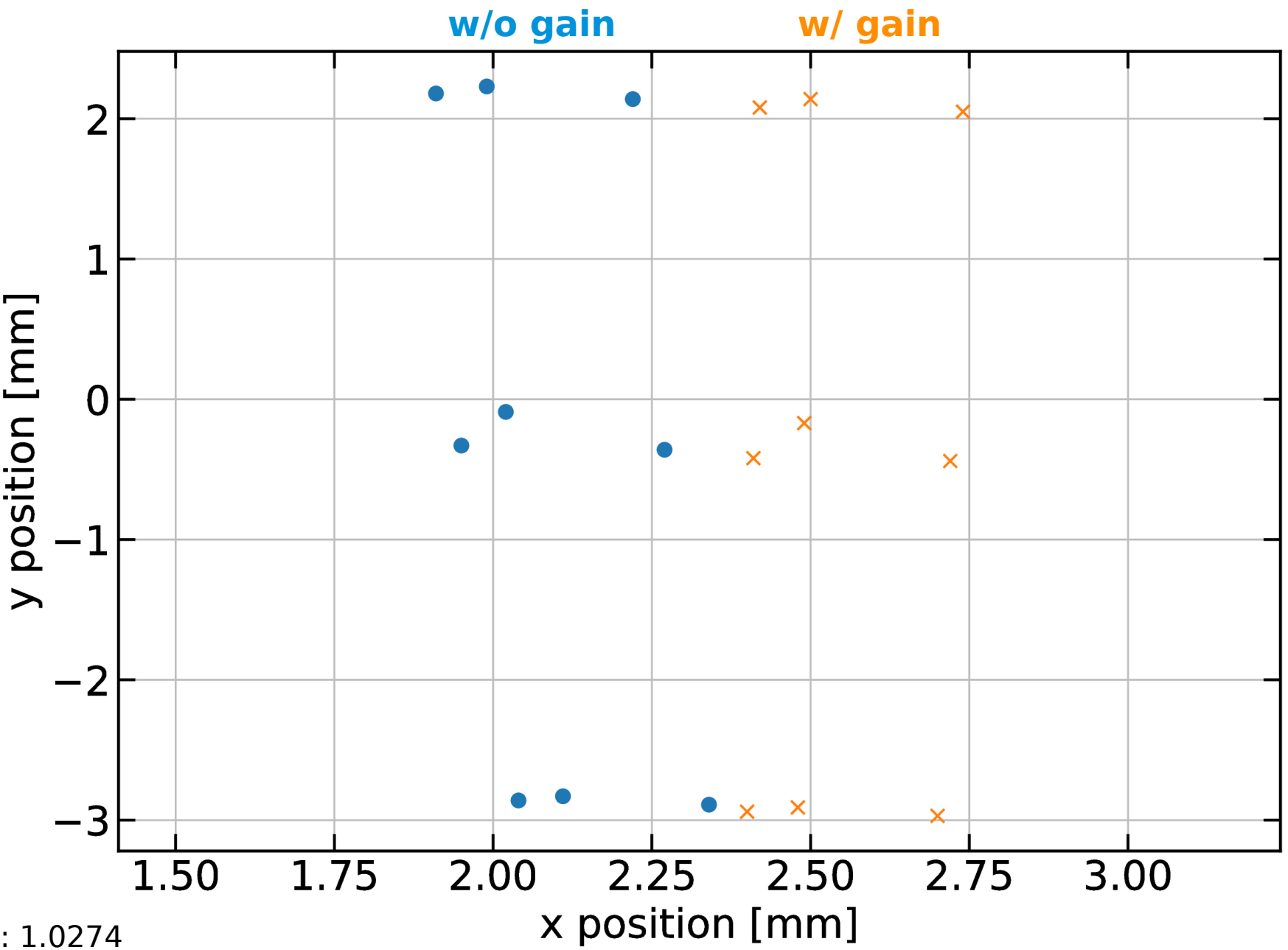
44E



TOP IN: 0.96135
BOT IN: 1
BOT OUT: 0.94682
TOP OUT: 1.01008

Obj. fun.: 8.98E-09

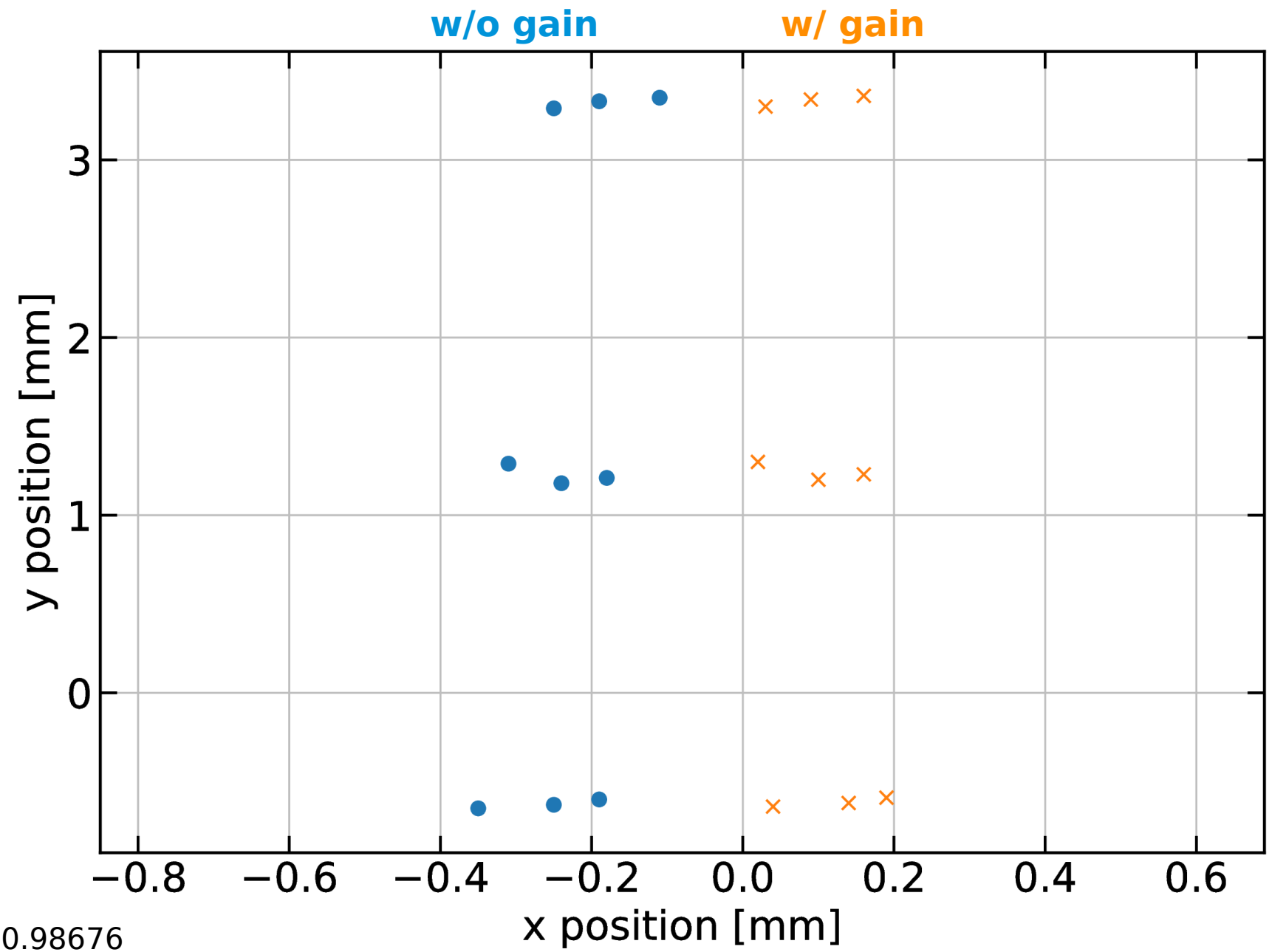
43W



TOP IN: 1.0274
BOT IN: 1
BOT OUT: 0.97957
TOP OUT: 0.97683

Obj. fun.: 9.47E-10

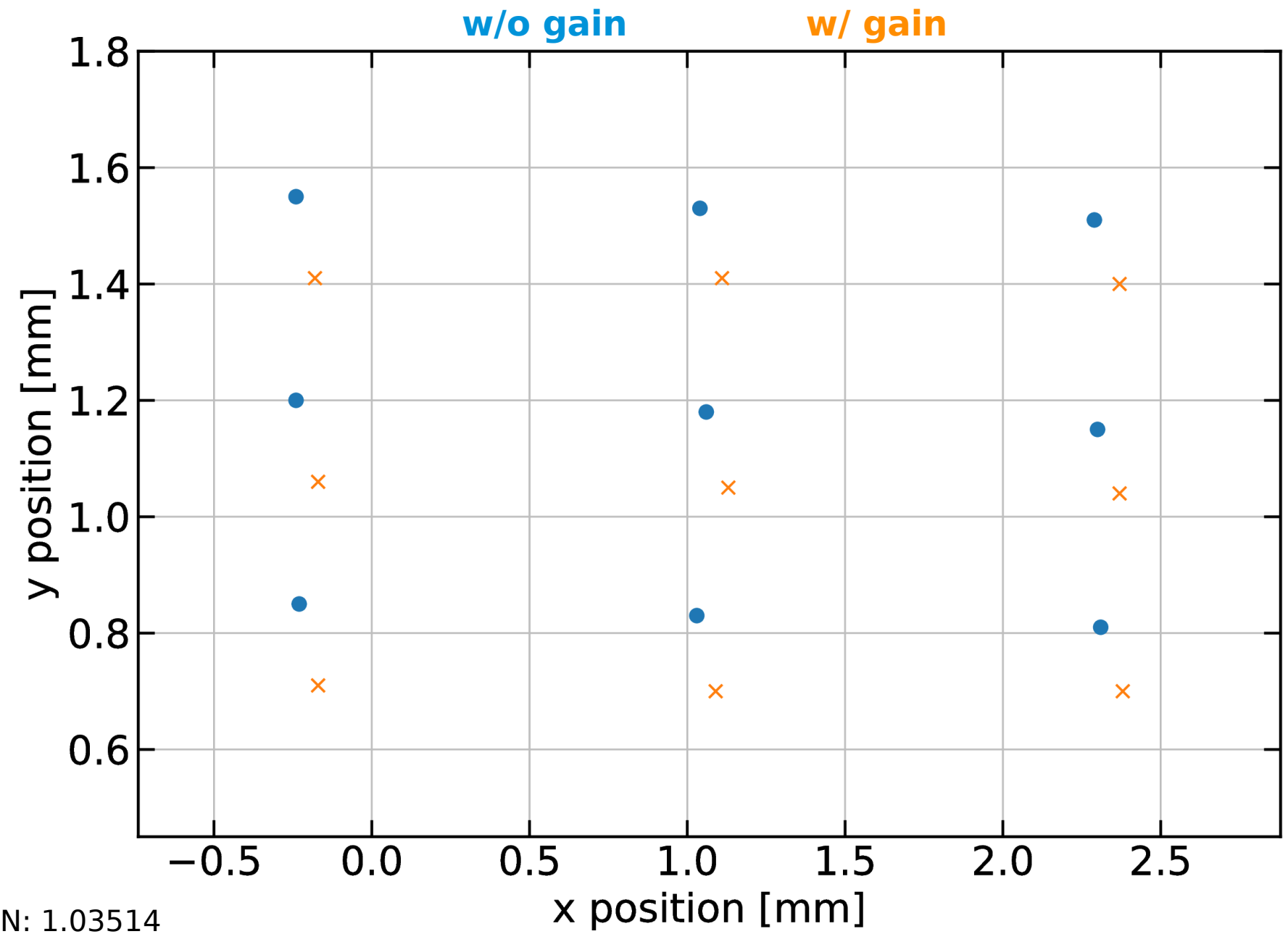
43E



TOP IN: 0.98676
BOT IN: 1
BOT OUT: 0.95996
TOP OUT: 0.97096

Obj. fun.: 3.62E-09

X5C



TOP IN: 1.03514
BOT IN: 1
BOT OUT: 0.99717
TOP OUT: 1.01701

Obj. fun.: 5.00E-08

Additional materials