Algemene informatie

Aanbesteding: 2-Photon Polymerization Lithography System
Aanbestedende Dienst: Stichting Nederlandse Wetenschappelijk Onderzoek Instituten (NWO-I)
Referentie: -
Toelichting:
-

Vraag en antwoord

Ref.nr. **1**

Onderwerp:
Details for print structures

Vraag:
Q1: In the „Descriptive document“, it is asked for a woodpile structure, but the numbers in relation seem to be a bit uncommon. For better understanding, I attached a typical picture of this structure and the distance a clearly corresponds to the “horizontal spacing” in the document and defines the optical resolution, if the lines are still separated. Another typical value is shown in the picture as c with the value of c =1.4 a due to geometrical reasons (means, if a should be 700 nm, c must be around 1000 nm). But this seems to differ from the values in the document.
Might there have happened a mix-up of the numbers and it should be:
“Horizontal spacing = 700 nm” and “Vertical spacing <= 1000 nm” ?

Antwoord:
Yes, these numbers were mixed up. It should be “Horizontal spacing = 700 nm” and “Vertical spacing <= 1000 nm”

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Ref.nr. **2**

Onderwerp:
Details for print structures 2

Vraag:
Hello - Hallo,

Q2-4: I have more questions to first print task mentioned in the “Descriptive document “, woodpile:
Q2: substrate silicon wafer:
Could we print on another material like a glass (fused silica) wafer instead? Or if silicon wafer-could we add a base?
Q3: “spacing”: I guess that you mean the pitch?

Q4: “Horizontal spacing 1000 nm“: Whatever the value will be in the end: Is it possible to change that to “<= x nm”? Reason: Shrinkage will appear. When you design e.g. a 700 nm woodpile, the pitch in end shown will be smaller.

V2-4: Ik heb nog enkele vragen over de eerste printtaak die wordt genoemd in het „Beschrijvend document“, woodpile:
V2: substraat siliciumwafer:
Zouden we in plaats daarvan op een ander materiaal kunnen printen, zoals een glaswafer (gesmolten silica)? Of, als het een siliciumwafer is, zouden we dan een basis kunnen toevoegen?
V3: „spacing“: Ik neem aan dat u de pitch bedoelt?
V4: “Horizontale afstand 1000 nm”: Wat de uiteindelijke waarde ook zal zijn: is het mogelijk om dat te veranderen in “<= x nm”? Reden: er zal krimp optreden. Wanneer je bijvoorbeeld een woodpile van 700 nm ontwerpt, zal de uiteindelijke pitch kleiner zijn.

Kind regards - Met vriendelijke groeten
Alexander Legant

Antwoord:
Q2: It is not permitted to print the woodpile structure on a different substrate type. However, a base, on which the woodpile is printed, is permitted.

Q3: all mentions of "spacing" in the descriptive document can be read as "pitch".

Q4: horizontal spacing <= 700 nm is permitted, to allow for shrinkage.

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Onderwerp:
Q5: Delivery address - V5: Afleveradres

Vraag:
Hello - Hallo,
In terms of the address for tender samples – our carrier asks for contact person with phone number for international transports. Whom should we name?
Wat betreft het adres voor de proefmonsters: onze vervoerder vraagt om de naam van een contactpersoon en een telefoonnummer voor internationale transporten. Wie moeten we opgeven?
Kind regards - Met vriendelijke groeten

Antwoord:
Contact person is: Isabelle Palstra, tel +31 20 754 7334

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Onderwerp:
Q6: regarding descriptive document, 7.2.3.1 Q1 – User friendliness;

Vraag:
Hello,
I guess that you mean “> =” instead of “<=” for the stage movement? Because currently, it seems as if a system would be allowed with 0 x 0 mm^2 movement what is of course not the idea.
(And I guess that it goes without saying that you mean “mm^2” instead of “mm”)
Kind regards

Antwoord:
Yes, this is a typo. For the stage movement, we mean “Stage movement >= XX mm^2” instead of “Stage movement <= XX mm”

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Onderwerp:
Q7: Question to Annex F-Requirement 3.5

Vraag:
It seems that “grayscale printing capabilities” can be defined in different ways. Do you expect that a jpg-file can be imported to transport the height information of the to-be-printed optical object?

Antwoord:
By "grayscale printing capabilities" we mean that there are techniques available to eliminate

staircasing that reduce the quality of optical elements. This requirement does not refer to importing jpg-files.

We have intentionally left the manner through which this grayscale printing is achieved up to the tenderer.

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Onderwerp:
Q8: Question to Annex F-Requirement 4.6

Vraag:
Different people might interpret the word “easy” differently. What about: It is a must that each printed object is labelled during the print project with value information like e.g. Laser power and print speed? Would you define this as “easy”?

Antwoord:
With "easy" we mean that there is a level of streamlining possible when creating parameter sweeps, so not evey parameter in the print needs to be set manually

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Onderwerp:
Q9 Descriptive document, 7.2.3.3 Q3 – Accuracy

Vraag:
Just for confirmation: I expect that the printed sample must be sent as well to AMOLF? The

comment “the distance between the cross and the rim will be measured as part of the evaluation” refers to: AMOLF will measure? (Only like this, it can be ensured that the same measurement procedures are used for every participating tenderer.)

Antwoord:
Yes, these must indeed also be sent to AMOLF. We will measure the samples here and send the results to the committee for scoring.

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Onderwerp:
Q10 7.2.3.2 Q2 – Evaluation of test structures – Microlens array

Vraag:
There seems to be a typo in the explanation how Ra is calculated. Roughness per definition is the local noise: It quantifies surface irregularities by averaging how far peaks and valleys deviate from a central baseline. Then delta z(x,y) is the difference with respect to this central base line (which might differ from a targeted design lens shape). Means e.g. the designed lens height is 70 µm. Then the printed resulting lens could have a height of e.g. 69.5 µm (due to shrinkage). The roughness would be the noise around this curve with a max. height of 69.5 µm.

Antwoord:
"target lens shape" is intended to be read as the intended curve. Yes, the roughness is the noise around the intended curve.

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