

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SHENZHEN TUOZHU TECHNOLOGY CO., LTD,
Petitioner,

v.

STRATASYS, INC.,
Patent Owner.

Case IPR2025-00611
Patent 11,886,774

**PETITIONER'S REPLY TO
PATENT OWNER'S RESPONSE TO THE PETITION**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	GROUND 1A: DOUGLAS-MARK.....	1
	A. Douglas-Mark Renders Obvious [1.2]-[1.3].....	1
	1. The '774 patent does not require limitations [1.2] and [1.3] to be performed in order.....	1
	2. Even if limitations [1.2]-[1.3] were performed in order, Douglas would still render them obvious	3
	B. Douglas-Mark Renders Obvious [1.4].....	6
	C. Douglas-Mark Renders Obvious [1.5].....	9
	1. The '774 patent describes “fabrication profile” broadly.....	9
	2. As noted by the Board, Patent Owner misinterprets the Douglas-Mark combination	10
	D. Douglas-Mark Renders Claims 9&10 Obvious.....	12
III.	GROUND 1B: DOUGLAS-MARK-DAHLIN	14
IV.	GROUND 1C: DOUGLAS-MARK-BATCHELDER.....	17
V.	GROUND 1D: DOUGLAS-MARK-PAX	18
VI.	GROUND 2A: HAMILTON-EVANS	18
	A. Hamilton-Evans Renders Obvious [1.1].....	18
	B. Hamilton-Evans Renders Obvious [1.2]-[1.3].....	19
	C. Hamilton-Evans Renders [1.4]	20
	D. Hamilton-Evans Renders Obvious [1.5].....	20
	E. Hamilton-Evans Renders Obvious [1.6].....	21
	F. DEPENDENT CLAIMS.....	22
VII.	GROUND 2D: HAMILTON-EVANS-BATCHELDER	22
VIII.	GROUND 2B-2C AND 2E	22
IX.	EVANS AND KISSLICER ARE PRIOR ART	22
X.	CONCLUSION.....	26

EXHIBITS

EX-1001	U.S. Patent No. 11,886,774 to Leonard et al. (“the ’774 patent”)
EX-1002	Excerpts from the Prosecution History of the ’774 Patent (“the Prosecution History”)
EX-1003	Declaration of Dr. Michael Hickner
EX-1004	Curriculum Vitae of Dr. Michael Hickner
EX-1005	U.S. Patent Pub. No. 2014/0117585 A1 to Douglas et al. (“Douglas”)
EX-1006	U.S. Patent No. 9,694,544 to Mark et al. (“Mark”)
EX-1007	U.S. Patent Pub. No. 2014/0127524 A1 to Batchelder et al. (“Batchelder”)
EX-1008	European Patent No. 1087862B1 to Dahlin et al. (“Dahlin”)
EX-1009	U.S. Patent Pub. No. 2013/0329258 A1 to Pettis et al. (“Pettis”)
EX-1010	U.S. Patent Pub. No. 2014/0236773 A1 to Hamilton et al. (“Hamilton”)
EX-1011	<i>Practical 3D Printers, The Science and Art of 3D Printing</i> (“Evans”)
EX-1012	KISSlicer Quick-Start Guide (2012), available at https://web.archive.org/web/20121224171520/http://kisslicer.com/files/KISSlicerQuickStart.pdf#expand (“KISSlicer”)
EX-1013	Int. Patent Pub. No. WO2014/039825A2 to Pax (“Pax”)
EX-1014	U.S. Patent No. 9,862,149 B2 to Wang et al. (“Wang”)

EX-1015	Declaration of Jonathan Dummer
EX-1016	Declaration of June Munford
EX-1017	<i>Stratasys to Acquire MakerBot, Merging Two Global 3D Printing Industry Leaders</i> , published June 2013, available at https://investors.stratasys.com/news-events/press-releases/detail/19/stratasys-to-acquire-makerbot-merging-two-global-3d
EX-1018	U.S. Patent No. 7,436,533 B2 to Heiney et al. (“Heiney”)
EX-1019	Stipulation sent by Petitioner’s counsel to Patent Owner’s counsel
EX-1020	Docket Control Order (Document 34), <i>Stratasys, Inc. v. Shenzhen Tuozhu Technology Co. Ltd. et al.</i> , 2-24-cv-00644 (EDTX)
EX-1021	Defendant’s Motion to Dismiss for Failure to Join Indispensable Party (Document 38), <i>Stratasys, Inc. v. Shenzhen Tuozhu Technology Co., Ltd. et al.</i> , 2:24-cv-00644 (EDTX)
EX-1022	Excerpts from the Prosecution History of the Parent of ’774 Patent 14/587,548 (“the Prosecution History of the ’548 application”)
EX-1023	U.S. District Court, Eastern District of Texas [Live] Calendar Events Set for 6/1/2026-7/1/2026
EX-1024	April 8, 2025 Sotera Stipulation
EX-1025-1026	RESERVED
EX-1027	U.S. District Court for the Eastern District of Texas Calendar Events Set for 6/1/2026-7/1/2026 for Judge Rodney Gilstrap
EX-1028	LegalMetric Individual Judge Report for Judge James Rodney Gilstrap Patent Cases December 2011 to January 2025

EX-1029	Email from Christian Tatum to Michael Vincent re Case No. 2:24-cv-00644-JRG (E.D. Tex.); <i>Stratasys, Inc. v. Shenzhen Tuozhu Tech. Co., Ltd.</i> RFPs (Apr. 4, 2025)
EX-1030	RESERVED
EX-1031	Order Granting Stay in <i>Maxeon Solar PTE. LTD. V. Hanwha Solutions Corp. et al.</i> , case no. 2:24-CV-00262-JRG (EDTX)
EX-1032	PTAB Trial Statistics, January 2024, IPR, PGR (United States Patent Trial and Appeal Board)
EX-1033	July 9, 2025 Stipulation
EX-1034	PLAINTIFF STRATASYS, INC.'S SECOND AMENDED DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS, <i>Stratasys, Inc. v. Shenzhen Tuozhu Technology Co. Ltd. et al.</i> , 2-24-cv-00644 (EDTX)
EX-1035	PLAINTIFF'S MOTION TO COMPEL, <i>Stratasys, Inc. v. Shenzhen Tuozhu Technology Co.</i> , No. 2:24-cv-00644-JRG, Dkt. 57
EX-1036	DEFENDANT'S MOTION TO COMPEL, <i>Stratasys, Inc. v. Shenzhen Tuozhu Technology Co.</i> , No. 2:24-cv-00644-JRG, Dkt. 61
EX-1037	RESERVED
EX-1038	United States Securities and Exchange Commission Form 20-F for Stratasys LTD
EX-1039	PLAINTIFF'S SUPPLEMENTAL RESPONSES AND OBJECTIONS TO DEFENDANTS' FIRST SET OF INTERROGATORIES (Nos. 1-21), <i>Stratasys, Inc. v. Shenzhen Tuozhu Technology Co.</i> , No. 2:24-cv-00644-JRG

- EX-1040 Email from Aaron Pirouznia to Christian Tatum re Case No. 2:24-cv-00644-JRG (E.D. Tex.); *Stratasys, Inc. v. Shenzhen Tuozhu Tech. Co., Ltd.* RFPs
- EX-1041 Claim Construction Order (Document 169), *Stratasys, Inc. v. Shenzhen Tuozhu Technology Co. Ltd. et al*, 2-24-cv-00644 (EDTX)
- EX-1042 Copyright registration for Practical 3D Printers
- EX-1043 Transcript of the Deposition of Dr. Denis Cormier
- EX-1044 KISSlicer pre-release 1.0.8 (2012), *available at* <https://community.ultimaker.com/topic/444-kisslicer-pre-release-108/>
- EX-1045 KISSlicer (2012), *available at* <https://community.ultimaker.com/topic/340-kisslicer/>
- EX-1046 Introducing KISSlicer (2012), *available at* <https://reprap.org/forum/read.php?156,88154,page=2>

I. INTRODUCTION

Patent Owner's POR arguments lack merit and should be rejected.

II. GROUND 1A: DOUGLAS-MARK

A. Douglas-Mark Renders Obvious [1.2]-[1.3]

Patent Owner's arguments are based on a misplaced requirement that these limitations be performed in order. The claims do not recite such a requirement, and if anything, the specification supports an interpretation that no order is required. Moreover, despite Patent Owner asserting that no construction is necessary, they ask the Board to construe the claims inconsistent with both the law and the '774 patent.

1. The '774 patent does not require limitations [1.2] and [1.3] to be performed in order

Nowhere does the '774 patent describe that a target printer must be selected before the printer is queried. POR, 13-17. Rather, the '774 patent describes embodiments where the opposite is the case. DI, 14-15. For example, the '774 patent describes a query "sent to a printer that is not necessarily the target printer," after which "information received from a response to the query is used for the selection of the target printer." *Id.*; EX-1001, 19:5-14. Additionally, in some cases, "numerous queries are sent to numerous printers" for "use in selecting one or more of the printers as the target printer." *Id.*

Courts "normally do not interpret claim terms in a way that excludes embodiments disclosed in the specification." *Oatey Co. v. IPS Corp.*, 514 F.3d 1271,

1276-1277 (Fed. Cir. 2008); *see also Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-1370 (Fed. Cir. 2003) (“Unless the steps of a method actually recite an order, the steps are not ordinarily construed to require one”). Although “probative evidence” may overcome this presumption, there is no such evidence here. *Id.* As the ’774 patent makes clear, the selection of a target printer may be informed by the queries sent to other printers.¹ EX-1001, 19:5-14. This makes logical sense when considered in view of the claims, as a selection of a target printer implies the existence of at least one other candidate printer. *Id.* Claim 1 is a “comprising” claim, so contrary to Patent Owner’s assertion, the claims do not preclude additional queries being sent to other printers. POR, 14. Moreover, there is no disavowal or disclaimer in the prosecution history of either the ’774 patent or its progeny that would narrow the scope of limitations [1.2]-[1.3]. Pet., 3-4. (citing EX-1002). Other than repeating the assertions of the Response verbatim, Dr. Cormier provides no evidence of why a dependency must exist between limitations [1.2]-[1.3]. *Compare* EX-2014, ¶¶79-82 with POR, 13-17; *Xerox Corp. v. Bytemark, Inc.*, IPR2022-00624, Paper 9, 15 (PTAB Aug. 24, 2022) (precedential).

Patent Owner cites *TALtech Ltd.* to support its assertion of a required order – caselaw that is clearly distinguishable. POR, 14. Unlike *TALtech*, the “determining”

¹ All emphasis is added unless otherwise noted.

of limitation [1.2] only selects – it does not create. EX-1001, Claim 1. If anything, *TALtech* supports the correct finding that the present claims impose no such order, stating that “[g]enerally, there is no presumption of order.” *TALtech*, 279 F. App’x 974, 978. Finally, Patent Owner did not raise similar construction arguments in the District Court. EX-1041, 69-72.

Patent Owner additionally attempts to import logical restrictions from other limitations to imply an order. POR, 14-15. But subsequent limitations do not necessarily impose an order in preceding limitations. POR, 14-15. In an example where requests are sent to multiple printers (which the ’774 patent describes and the “comprising” transition does not preclude), limitations [1.3]-[1.6] could all be performed for a groups of printers before a target printer is ultimately selected. EX-1001, 19:9–14 (cited at DI, 14-15).

2. Even if limitations [1.2]-[1.3] were performed in order, Douglas would still render them obvious

Even if the erroneous requirement that [1.2]-[1.3] must be performed in order were read into the claims, Douglas still renders this obvious.

i. The receipt of a data tag is not a prerequisite for selecting a printer

Douglas makes clear that the receipt of a data tag is not a prerequisite for selecting a printer. For example, Douglas’s print server automatically selects a target printer based “any number of criteria” including “geographical proximity, printing

capabilities, current print queue, [and] fees.” EX-1005, ¶[0032] (cited at Pet., 12; DI, 14). As noted in the Institution Decision, “[t]hese criteria do not necessarily include, or depend on, the 3D printer’s tag data.” *Id.* Additionally, Douglas discloses that the print server “communicate[s] periodically with three-dimensional printers,” indicating that the print server need not wait for the receipt of a data tag to allocate a print job to a printer. *Id.*; *see also* EX-1005, ¶[0049]. Finally, ¶[0074] describes non-limiting embodiments of Douglas (“may”), and indicates that the print server uses data tags for functions other than just allocating print requests (e.g., storing build material information). EX-1005, ¶[0074] (cited at POR, 15-16).

ii. Douglas discloses embodiments where a printer is selected prior to querying the printer

Douglas discloses an embodiment where a client device “request[s] the three-dimensional printer...to transmit the data tag...data for...the determination of operational parameters.” EX-1005, ¶[0073], FIG. 2 (cited in Pet., 12-14); DI, 13-14. In this embodiment, as noted by the Board, “the step of selecting printer...as the target printer...occurs before querying printer,” e.g., by the user or the client device. DI, 13-14.

The embodiment of Douglas where a user selects a printer for fabricating an object was cited in the Petition and explained by Dr. Hickner in his declaration discussing the print server’s “virtual workspace.” Pet., 12-14; EX-1003, ¶49. As

Dr. Hickner explained, “print server...can host a ‘virtual workspace’ that allows a user to ‘direct fabrication of a model developed within that environment on a user-specified one of the three-dimensional printers.” EX-1003, ¶49 (citing ¶[0043]). User-based determination of a target printer is clearly within the scope of the ’774 patent, which describes that the “selected printer may have been manually selected by a user.” EX-1001, 18:42-52. To the extent Patent Owner maintains that the Petition did not map a user as performing [1.2], the print server is also “determining a target printer” based on the user input to the “virtual workspace.” EX-1005, ¶[0073], EX-1003, ¶49.

Further, a POSITA would understand Douglas’s teaching that the client device “request[s] the three-dimensional printer...to transmit the data tag...data for...the determination of operational parameters” to also apply to the print server. This is because Douglas explains that client...is “any device[]...operated by users to initiate, manage, monitor, or otherwise interact with print jobs.” EX-1005, ¶[0030] (cited Pet., 11-12); ¶¶[0032], [0072] (describing relationship of client and server). The print server, when providing the “virtual workspace,” is such a device.

Patent Owner also misinterprets Douglas in its attempt to characterize the order in which requests are sent to the target printer. POR, 15-16. Specifically, Patent Owner seizes on ¶[0074] of Douglas to declare that, because the “print server may request information from a printer to be used ‘as an input to a process on the

print server for allocating print requests to various three-dimensional printers,” selection of the printer must occur after transmission of the data tag. *Id.*, (citing EX-1005, ¶[0074]). Douglas, however, clearly indicates that this example in ¶[0074] is a “non-limiting example” that “may” occur. *Id.*

Finally, Patent Owner also attempts to further narrow “target printer,” asserting that “[i]f a received request already identifies the printer, there is no need for ‘determining a target printer.’” POR, 16. Again, Patent Owner attempts to disavow any arrangement where limitations [1.1]-[1.2] are performed simultaneously – despite the lack of any support from the specification or prosecution history. *Id.* On the contrary, the ’774 patent explicitly describes that “[d]etermining the target printer may include identifying a selected printer in the request.” EX-1001, 18:42-45.

B. Douglas-Mark Renders Obvious [1.4]

The ’774 patent defines “dictionary” broadly to be “a list or collection of the properties, or may be otherwise configured to organize the properties of the printer.” EX-1001, 21:24-26; DI, 15-17; Pet., 14-15 (comparing the data tag to the ’774 patent). Additionally, during the prosecution of an earlier patent in the family of the ’774 patent, the Applicant’s only restriction of “dictionary” was to specify that the dictionary is received “from the target printer,” and that it contains configuration information that “affect[s] fabrication capabilities of the printer.” Pet., 4 (citing EX-

1022, 36-41, 80-88). Thus, the plain meaning of dictionary at least encompasses information received from a printer that affects fabrication capabilities of the printer.

Id.

Patent Owner reads features into this term, and alleges that “Douglas does not teach how its data is provided from the printer and received by the print server.” POR, 18-19. Nowhere does the ’774 patent describe that the dictionary must be transmitted in a particular fashion or format, and the transmission method of the dictionary is completely irrelevant to the content of the dictionary itself. EX-1001, 21:19-23:31. Moreover, the ’774 patent describes that the dictionary “may be provided in any suitable format” and that “[o]ne skilled in the art will recognize that the dictionary may include properties of a printer, and information pertaining to the properties of the printer, at any desired level of granularity according to, e.g., the data storage and processing capabilities of the components being used in a system implementing the method.” EX-1001, 22:37-48; DI, 16. Patent Owner’s questioning of Dr. Hickner with respect to how the data tag is provided is irrelevant, given that Dr. Hickner clearly established that the data tag in Douglas was received “from” the target printer in Douglas, and was consistent with the plain meaning of dictionary, as well as the use of the term in the specification of ’774 patent. EX-1003, ¶¶13, 52-53; Pet., 2-3.

Patent Owner also does not describe what the dictionary must be – only that Douglas’ disclosure is allegedly deficient. POR, 18-19. This is no surprise because, as noted above, the ’774 patent describes the content and provisioning of the dictionary very broadly – frustrating any attempt to narrow its definition. EX-1001, 21:19-23:31. Other than repeating the assertions of the Response verbatim, Dr. Cormier does not provide an opinion on how a POSITA would have interpreted “dictionary.” *Compare* EX-2014, ¶¶83-86 *with* POR, 17-19.

Although Patent Owner and Dr. Cormier do not offer a proposed interpretation for “dictionary,” and Patent Owner has stated that no construction is required, they appear to tacitly admit that “dictionary” at least encompasses “a collection of properties.” POR, 10, 19. In treating the dictionary as a “collection of properties,” Patent Owner imposes a requirement that Douglas’ data tag further include an “organization” (without explaining what that organization would be). POR, 19. Again, because the ’774 patent describes that the dictionary “may be provided in any suitable format,” it would be improper to read a specific organizational requirement into this feature. EX-1001, 22:37-48. Patent Owner also makes much about the “accumulation” of data. POR, 19. Although no specific “accumulation” of data is required within the meaning of dictionary, as discussed above, the Petition established that Douglas’ data tag includes a plurality of properties, such that the accumulation of these properties in the data tag is a

“collection of properties.” Pet. 14 (citing EX-1005, ¶[0064] (““at least one of a material identification number, a build material type, a build material diameter...a build material color...or other characteristic information.””). Additionally, data from Douglas’ data tag is read and transmitted as a collection. EX-1005, ¶¶[0085]-[0087] (“all the data...”)).

C. Douglas-Mark Renders Obvious [1.5]

1. The ’774 patent describes “fabrication profile” broadly

The ’774 patent describes the “fabrication profile” broadly, stating that it can simply “include the dictionary,” or be “used to determine which machine-ready representation is available or suitable for a target printer.” EX-1001, 23:32-24:22; Pet., 16; DI, 19. Thus, the plain meaning of “fabrication profile” is broad, and can simply encompass using the dictionary of configuration information to generate a machine-ready representation. EX-1001, 23:32-24:22, Claim 13; DI, 19.

In contrast, Patent Owner alleges that Douglas’ “use of operational parameters in a fabrication process” does not create a fabrication profile, despite the remarkable similarity to what is disclosed in the ’774 patent. POR, 21. As noted in the Petition, Douglas’ operational parameters include the “dictionary” and are used in “fabricating an object...to control operation of a three-dimensional printer” – entirely consistent with the ’774 patent’s disclosure that “[t]he fabrication profile

may be the basis for the generation of a machine-ready representation.” Pet., 16; EX-1003, ¶55.

Patent Owner and Dr. Cormier allege this comparison is deficient, but they completely fail to explain why. POR, 21. Again, the broad description of “fabrication profile” in the specification frustrates any attempt to narrow it. EX-1001, 23:32-24:22. Further, Patent Owner has agreed no explicit construction is needed for this feature – consistent with the District Court litigation. POR, 10; EX-1041, 69-72. Other than repeating the assertions of the Response verbatim, Dr. Cormier does not provide an opinion on how a POSITA would have interpreted “fabrication profile.” *Compare* EX-2014, ¶¶87-93 *with* POR, 20-25. Similarly, Patent Owner and Dr. Cormier contest the rationales supporting why it would be obvious to create a fabrication profile when determining operational parameters (an alternative argument advanced in the Petition at 15), but fail to actually challenge the rationales themselves or explain how Dr. Hickner is incorrect. POR, 21.

2. As noted by the Board, Patent Owner misinterprets the Douglas-Mark combination

Patent Owner alleges – like the Preliminary Response – that Douglas’ “operational parameters are sent to the printer rather than being used to generate toolpaths.” POR, 22-25; POPR, 17-20. This misinterprets Douglas’ disclosure and the Douglas-Mark combination. *Id.*

First, the sending of operational parameters to the printer is irrelevant to their organization into a fabrication profile. POR, 22-25; *Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016). The Petition “rel[ies] on Mark for providing a particular example of a fabrication profile, not to replace Douglas’s overall system in which the 3D printer can receive ‘operational parameters’ rather than just G-code.” DI, 19-20 (citing Pet., 8–10, 17–23; EX-1005 ¶[0041]). Nothing in the combination precludes or discourages Douglas’ operational parameters from being organized, as taught by Mark. Pet., 8-10, 16-19; EX-1005, ¶[0073]; EX-1006, 17:34-44. Douglas itself explicitly describes that operational parameters determined by different sources “may be combined into a single set of operational parameters” and that they can be intermediate parameters that are “combined with...print job information.” EX-1005, ¶¶[0074]-[0075]; *Rembrandt Diagnostics, LP v. Alere, Inc.*, 76 F.4th 1376, 1384 (Fed. Cir. 2023). Thus, Patent Owner’s argument that Douglas teaches direct transmission of operation parameters is off-base. *Id.* Further, Dr. Hickner described the advantages of organizing operational parameters into a profile, for example, “improv[ing] user experience with the options of loading default or automatically generated” profiles (uncontested in the POR). EX-1003, ¶50 (cited Pet., 16-17).

Second, Patent Owner is wrong in its assertion that in Douglas-Mark “there would be no need to ‘facilitate[] the use of [operational parameters] for the

generation of toolpaths/G-code.’” POR, 22-23. But as the Petition and Dr. Hickner established, a POSITA would have known that “fabricating an object using a 3D printer would have used code/instructions...typically generated by a slicer and/or toolpath generator.” Pet., 9 (citing EX-1003, ¶42). Patent Owner’s own declarant corroborates that “in general, [3D printers] use slicers to prepare...files for printing.” EX-1043, 36:23-37:20, 43:3-20, 58:18-62:10, 64:2-19.

Finally, Patent Owner again contests the rationales for the Douglas-Mark combination without actually challenging the rationales themselves. POR, 23-25. Patent Owner does not explain why the rationales are inapplicable or that Dr. Hickner is incorrect.

D. Douglas-Mark Renders Claims 9&10 Obvious

Claims 9-10: Patent Owner asserts that a build material loaded by a user is not a user setting because “the setting is changed ‘by the data tag,’ rather than the user.” POR, 26. As explained in the Petition, the data tag includes information with respect to, *inter alia*, a “build material type.” Pet, 26 (citing EX-1005, ¶[0077]). The Petition explained that, because the user selects what build material to load into a printer, the user’s selection of a build material type is a “user setting.” *Id.* The data tag itself does not (and cannot) load any printer material – it only reflects the loaded material type. *Id.* Dr. Hickner further explained that “user selection was part of the functionality of the [engine/slicer] software, and this selection is what

triggered the printer to return any relevant settings to the software.” EX-1003, ¶71 (cited at Pet., 26).

Patent Owner appears to allege that previous actions of the user that are reflected by the data tag cannot encompass a “user setting,” without citing support from the ’774 patent that would support such an interpretation. POR, 26. Again, as with the Response’s other attempts at narrowing claim features around the art, the ’774 patent itself is the biggest hurdle – explicitly describing that “user settings” include “material settings such as type of material” that are “detected through the use of a labeled material source” (similar to Douglas’ data tag including “build material type”). EX-1001, 20:63-21:13. Elsewhere in the Response, Patent Owner alleges that because the ’774 Patent states that ““user settings *may* be inputted directly onto the printer,’ ... [l]oading the material is not inputting a setting.” POR, 30-31 (citing EX-1001, 20:66-21:3, original emphasis omitted). The permissive language of this modicum of disclosure does not counsel against the far more reaching scope of the totality, which again, embraces a near identical example of user settings as to what Douglas discloses. EX-1001, 20:63-21:13. Patent Owner does not provide a reason why its cherry-picked sentence is more relevant than those that surround it. POR, 30-31.

III. GROUND 1B: DOUGLAS-MARK-DAHLIN

Claim 6: Patent Owner alleges that Dahlin does not disclose a “hardware configuration” because Dahlin “does not disclose creating or modifying any fabrication profile in response to a detected change” or “regenerating print instructions after a spool is replaced.” POR, 27-28. This argument is flawed for multiple reasons.

First, Patent Owner attacks a strawman combination of Douglas-Mark-Dahlin. The Petition argued that a POSITA would have incorporated Dahlin’s teaching of “querying material type and amount at the outset of a print job to ensure the appropriate and sufficient material to complete a print job.” Pet., 30-33. As the Petition noted, Douglas explicitly discloses that its data tag can be used to determine “a depletion of build material,” making the data tag the natural place to implement Dahlin’s teachings. *Id.*, (citing EX-1005, ¶¶[0063], [0077]). Douglas even discloses that build material is “automatically detected” when loaded, such that in instances where a material is changed prior to the receipt of a job, this change would have been automatically detected and reflected in the data tag. *Id.*; POR, 27-28.

However, Patent Owner argues that the combination is allegedly deficient because Dahlin does not disclose “creating or modifying any fabrication profile” or “regenerating print instructions” – features never attributed to Dahlin in the Petition. POR, 27-28. Douglas and Douglas-Mark disclose creating fabrication profiles and

generating machine-ready code, as explained with respect to claim 1. Pet., 15-23. The requirement that Dahlin also teach these features calls for improper bodily incorporation. The same applies to Patent Owner's complaint about Dahlin's use of its filament monitoring.

Second, Patent Owner impermissibly reads features of claim 1 into claim 6 by alleging that the claimed "hardware reconfiguration" must additionally modify the fabrication profile ("creating or modifying [a] fabrication profile") and machine-ready representation ("regenerating print instructions"), rather than just the "one or more properties." POR, 27-28. Claim 1 does not require the fabrication profile to be created using each and every one of the "properties" of the dictionary, only that it is "based on...the one or more" of them. EX-1001, Claim 1. Moreover, there is no causal relationship between the "one or more properties" and the "machine-ready representation" in any of the intervening claims. *Id.*

Third, Patent Owner overlooks that the '774 patent describes examples similar to Dahlin. Pet., 32 (citing EX-1001, 19:46-55); POR, 27-28. The '774 patent describes that a hardware reconfiguration includes "a new or replacement component on their printer" (reasonably including printer material) where the printer can "automatically detect that [the] new component is being utilized." *Id.* Dahlin describes a similar example. Pet, 32-33 (citing EX-1008, ¶¶[0022]-[0023]. Patent

Owner does not explain (or even acknowledge) how this disclosure from the '774 patent can be reconciled with its positions. *Id.*; POR, 29-30.

Claim 7: As with claim 6, Patent Owner impermissibly reads features of claim 1 into claim 7 (“generating a fabrication profile” (limitation [1.5]) and machine-ready representation (limitation [1.6])). POR, 29-30.

Additionally, Patent Owner argues that “Dahlin suggests that the user should not choose the filament,” and therefore does not disclose that a user removes and replaces filament (a “manually specified hardware reconfiguration”). POR, 29 (citing EX-1008, ¶[0023]. Patent Owner overlooks disclosure in Dahlin. *Id.* Dahlin at ¶[0022] discloses that “the operator can...grab ahold of the filament and extract it,” explicitly disclosing that the operator replacing filament. EX-1008, ¶[0022] (cited at Pet., 33). Further, the Petition argued that it would have been obvious in view of Douglas-Mark-Dahlin that the user would have loaded material manually – Patent Owner criticizes only Dahlin alone. POR, 29-30.

Patent Owner also appears to suggest that a manual replacement of filament cannot be reconciled with the automatic reconfiguration described in claim 6. POR, 29. This argument reads “automatically detected” out of claim 6, in favor for “automatically specified” (similar to “manually specified,” as recited in claim 7). *Id.* A property can be both “automatically detected” and “manually specified” (e.g., a

manually loaded material can be automatically detected, as argued in the Petition).
Pet., 32-34.

Claims 9-10: The Response’s arguments for these claims in Ground 1B should be rejected for the same reasons discussed above in Ground 1A. *Supra*, §II.D. The Response’s assertion that Dahlin is incompatible with Douglas-Mark should be rejected for the reasons discussed above in claim 6.

IV. GROUND 1C: DOUGLAS-MARK-BATCHELDER

Claim 8: Patent Owner’s argument that a firmware “update” is not a firmware “configuration” misinterprets the combination and attacks a strawman. POR, 31-32. The Petition argued a POSITA would have found it obvious from Batchelder to “incorporate software and firmware information of a 3D printer into printer properties transmitted by the printer to the printer sever.” Pet., 35-37. Batchelder evidences POSITA knew to transmit firmware information. Although Patent Owner alleges (mistakenly) that the Petition failed to show a motivation, they fail to address the combination and motivations described in the Petition. Pet., 35-37. Instead, Patent Owner attacks Dr. Hickner, criticizing him for an alleged failure to describe how Batchelder would actually be implemented in Douglas-Mark. POR, 32; *Allied Erecting*, 825 F.3d 1373, 1381. The Petition established three separate motivations – Patent Owner does not address any of them. Pet., 35-37; POR, 32.

V. GROUND 1D: DOUGLAS-MARK-PAX

Claim 19: Patent Owner argues that Pax “teaches identifying requirements, which...must already exist” (something that is allegedly distinct from generating descriptive metadata). POR, 33. Again, Patent Owner attacks only one reference in isolation, instead of the combination. *Id.* The Petition argued that Pax’s “pre-fabrication” check (including metadata concerning “color and material requirements”) would have been incorporated within Douglas’ print queue (which already includes metadata). Pet., 39-42. The print queue itself comprises generated data, for example, “the three-dimensional model or tool instructions to fabricate an object.” EX-1041 (cited at Pet., 39-40). Thus, generating additional metadata for a pre-fabrication check is entirely consistent with Douglas’ description of the print queue. *Id.*

VI. GROUND 2A: HAMILTON-EVANS²

A. Hamilton-Evans Renders Obvious [1.1]

Patent Owner argues that Hamilton’s “request for a design” does not evidence a “model.” POR. 40. Other than repeating the assertions of the Response verbatim, Dr. Cormier does not provide an opinion on why a POSITA would not have “recognized and found obvious that the design would have been of the object *from* a ‘three dimensional model’.” Compare EX-2014, ¶¶120-121 with POR, 39-40;

² All of Grounds 2A-2E optionally include KISSlicer

Pet., 53. Rather, Dr. Cormier corroborates that before the Critical Date the printing process typically began with a model. EX-1043, 33:18:-34:19, 43:3-13, 58:8-59:13, 63:24-64:19.

Additionally, Patent Owner repeats their argument that, because Hamilton “does not include slicing or generation of G-code,” there no motivation to include a model. POR, 39-40. This argument ignores the explanation in the Petition, which discussed the need for and advantages of using slicers to generate machine-ready code. Pet., 44-48, 53. Moreover, the Petition established that a POSITA would have turned to Evans to provide additional “implementation details.” Pet., 45-46; POR, 40.

B. Hamilton-Evans Renders Obvious [1.2]-[1.3]

As with Ground 1A, Patent Owner argues that limitations [1.2]-[1.3] must be performed in order, which is misplaced. *Supra*, §II.A.1.

Additionally, as discussed above, the ’774 patent explicitly describes that “[d]etermining the target printer may include identifying a selected printer in the request.” EX-1001, 18:42-45; *supra*, §II.A.2.ii. The Petition clearly established that the user first makes a request before their printer is queried, and thus, the “determining a target printer” has been performed by the user and the system before the “querying” – consistent with the example in the ’774 patent. *Id.* Patent Owner alleges this is insufficient because “the user in Hamilton does not know the

requirements of the object to be fabricated” – a requirement not reflected in the claims. POR, 42-43; Claim 1.

C. Hamilton-Evans Renders [1.4]

As with Ground 1A, Patent Owner argues that Hamilton-Evans fails to disclose a dictionary, despite similar disclosure to the ’774 patent. Pet., 56 (citing EX-1010, ¶¶[0016]-[0019]); EX-1001, 22:37-48; DI, 16; POR, 46. Patent Owner again tries to improperly import requirements to show how the “dictionary” is sent. POR, 46-47; *supra*, §II.B. Finally, Patent Owner attacks Evans in isolation, despite the Petition clearly relying on Hamilton’s disclosure and indicating that Evans’ provided additional examples of “additional information” that would be “include[d]” with Hamilton’s information on “accuracy and materials capabilities.” POR, 46-47; Pet., 56-57.

D. Hamilton-Evans Renders Obvious [1.5]

Patent Owner argues that “there is no need for a slicer application” in Hamilton because its designs “already include “instructions for the 3D printer.” POR, 47-49 (citing EX-1010, ¶[0019]). This argument ignores that printer instructions must first be generated, and fails to address the Petition’s combination with Evans and KISSlicer. Pet., 44-48, 50.

Additionally, Patent Owner alleges that Evans does not disclose creating a fabrication profile because Evans teaches that “the user must manually measure the

nozzle and filament diameters.” POR, 48-49 (citing EX-1011, 66-68). Patent Owner’s cited disclosure of Evans is only one example of many slicers described in the reference, and indeed, is distinct from Petitioner’s cited example “Slic3r,” which automatically determines print settings. EX-1011, 46 (cited at Pet., 57). Further, the Petition established that the “accuracy and material capabilities” are received as taught in Hamilton, obviating the need for the user to manually measure printer characteristics. Pet., 57-58 (EX-1010, ¶¶[0015]-[0021]).

For KISSlicer, Patent Owner assumes that the reference “shows a dialog for the user to enter material settings.” POR, 49. This assumption side-steps the Petition’s analysis of KISSlicer that describes that it was well-known for slicers to generate settings/configurations based on printer capabilities, shown in KISSlicer including “default profiles” for Acrylonitrile Butadiene Styrene (“ABS”). Pet., 59 (citing EX-1012, 3).

E. Hamilton-Evans Renders Obvious [1.6]

For [1.6], Patent Owner repeats their argument that, because Hamilton allegedly “already include printer instructions,” there “is therefore no need for a slicer or slicing.” POR, 49-50. This argument ignores the necessity of generating printer instructions and the combination of Hamilton and Evans, as discussed above. *Supra*, §VI.A.

F. DEPENDENT CLAIMS

Patent Owner only states that because Hamilton-Evans allegedly “fails to teach or suggest claim 1...Ground 2A additionally fails to teach or suggest claims 2-5, 9-10, and 12-13.” POR, 50. The Response’s arguments with respect to claim 1 should be rejected, and thus, Grounds 2A renders these dependent claims obvious. *Supra*, §§VI.A-E; Pet., 62-69.

VII. GROUND 2D: HAMILTON-EVANS-BATCHELDER

Claim 8: Patent Owner states that because Hamilton-Evans-Batchelder allegedly “fails to...teach or suggest this claim... for the same reasons Batchelder was insufficient in Ground 1C.” POR, 51. The Response’s arguments with respect to Ground 1C should be rejected, and thus, Ground 2D renders claim 8 obvious. *Supra*, §IV; Pet., 62-69.

VIII. GROUNDS 2B-2C AND 2E

Patent Owner only states these grounds are allegedly “defective for at least the same reasons as Ground 2A.” POR, 50, 52. The Response’s arguments with respect to Ground 2A should be rejected, and thus, Grounds 2B-2C and 2E render their respective claims obvious. *Supra*, §§VI.A-E; Pet., 69-80, 84-87.

IX. EVANS AND KISSLICER ARE PRIOR ART

Patent Owner confuses the burden of production with the burden of persuasion. The Petition met its burden by identifying Evans and KISSlicer as prior

art, identifying the dates of publication, and providing evidence of that publication and accessibility. And, evidence of Evans's and KISSlicer's publication was plainly evident from the references themselves. Patent Owner tries to turn a blind eye to this wealth of evidence – alleging that Patent Owner has been disadvantaged by how the evidence was presented. POR, 35-39. Yet, Patent Owner fails dispute the facts. Evans and KISSlicer are prior art.

Although Patent Owner alleges that this evidence required “hunting for truffles,” the truffles were apparently easy to find. POR, 35-36 (citing *United States v. Dunkel*, 927 F.2d 955, 956 (7th Cir. 1991)). In addition to including arguments against consideration of the declarations in the Response, Patent Owner previously presented similar (verbatim) arguments in their pre-institution briefing. POPR, 21-25; POR, 35-39. Patent Owner has long been on notice of this evidence and its purpose, even before the Board considered the same. *Id.*; DI, 22-23; *Penumbra Inc. v. RapidPulse, Inc.*, IPR2021-01466, Paper 34 at 33-34 (PTAB Mar. 10, 2023). Patent Owner cannot claim prejudice for their complete failure to engage on the merits.

Indeed, as acknowledged in the Institution Decision, Evans and KISSlicer are prior art to the '774 patent based on information readily apparent from the references themselves. ID, 23; EX-1011 (copyright date, ISBN, and Springer publishing); EX-1012 (archive.org date). Evans is a book. EX-1011, 1. Books are made to be

disseminated to interested persons. KISSlicer's first page explains that it is guide for a freely downloadable software. EX-1012, 1. Again, it was made for dissemination to interested persons. Patent Owner not only fails to engage on this readily evident information, it even fails to engage on the observations discussed in the Institution Decision.

The Petition identified the relevant dates by which Evans and KISSlicer were prior art and provided supporting evidence. Pet., 2, 43-44, 48-49. Excluding evidence based on only missing citations would also be "unduly strict," especially when both references appear on their face to be prior art. POR, 35-39; *Cf. Netflix, Inc. v. DivX, LLC*, 80 F.4th 1352, 1354 (Fed. Cir. 2023).

Patent Owner also alleges that the submission of declarations supporting the prior art status of references violates PTAB rules against the incorporation of arguments by reference. POR, 38 (citing *Medivis, Inc. v. Novarad Corp.*, IPR2023-00042, Paper 37 at 10 (PTAB Apr. 23, 2024)). *Medivis* is clearly distinguishable, and involved the "wholesale citation" of two declarations purely to circumvent word count restrictions. *Id.* The inclusion of short, separate declarations here was not an attempt at the same – the Petition was nearly 400 words under the limit. *Apple Inc. v. Geoscope Technologies PTE. LTD.*, IPR2024-00255, Paper 35 at 12 (PTAB May 28, 2025).

Finally, Patent Owner confuses the burden of production with the burden of persuasion. POR, 35-39. Although Petitioner unquestionably has the burden of persuasion, which never shifts to the Patent Owner, the burden of production is a shifting burden. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). Additionally, the standard of evidence required at Institution also need not be definitive, but rather, “a reasonable likelihood that a reference is a printed publication.” *Hulu, LLC, v. Sound View Innovations, LLC*, IPR2018-01039, Paper 29, 18-21 (PTAB Dec. 20, 2019) (precedential).

Evans is prior art. As noted in the Institution Decision, “[t]he declaratory evidence of record appears to show that Evans was published on October 4, 2012...[and] also includes ISBN-13 numbers and a copyright date of 2012.” DI, 23 (citing EX-1016 – a librarian detailing how Evans was cataloged in Penn State’s library in 2012). But also, Evans indicates that it was “[d]istributed to the book trade worldwide” via its publisher, Springer. EX-1011, 308; Pet., 2. Additionally, the US Copyright Office indicates a publication date of “2012-08-28” for the registration associated with Evan’s copyright. EX-1042. Copyright dates, when attributed to references promulgated by a publisher with an established publication date, are well-recognized indicia of public availability. *Vidstream LLC v. Twitter, Inc.*, 981 F.3d 1060 (Fed. Cir. 2020); *see also Hulu* at 17–18; *Edwards Lifesciences Corporation et al. v. Aortic Innovations, LLC*, IPR2022-00193, Paper 15, 33-35, 55-59 (PTAB

Apr. 25, 2022) (rejecting argument that indica must be “identified, with particularity, in the Petition.”).

KISSlicer is prior art. The Board noted that “[t]he declaratory evidence of record also appears to show that KISSlicer was published in 2012...[and] has been available on a public website since January 2012 as evidenced by a copy that archive.org captured on February 15, 2012.” DI, 23 (citing EX-1015 – the KISSlicer creator explaining its publication and availability in 2012); *see also* EX-1044; EX-1045; EX-1046 (forum posts discussing KISSlicer). Patent Owner’s own declarant is familiar with KISSlicer. EX-1043, 72:4-12.

Consequently, the burden of production shifts to the Patent Owner. *Dynamic Drinkware*, 800 F.3d 1375, 1378. Patent Owner is largely silent disputing the content of EX-1015 and EX-1016, and declined to depose either Ms. Munford or Mr. Drummer. *Id.* The initial production of evidence that supports that Evans and KISSlicer are prior art is undisputed by Patent Owner on the current record. *Id.*

X. CONCLUSION

For the reasons discussed above and in the Petition, the Challenged Claims are unpatentable.

Respectfully submitted,

Dated April 8, 2026

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CERTIFICATION UNDER 37 CFR §42.24

Under the provisions of 37 CFR § 42.24(d), the undersigned hereby certifies that the word count for the foregoing Petitioner's Reply to Patent Owner's Response totals 5,589 words, which is less than the 5,600 allowed under 37 CFR § 42.24(c)(4).

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR § 42.6(e)(4), the undersigned certifies that on April 8, 2026, a complete and entire copy of this Petitioner's Reply to Patent Owner's Response to Petition and Accompanying Exhibits were provided by email, to the Patent Owner by serving the email correspondence address of record as follows:

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