

产权组织标准委员会（CWS）

第九届会议

2021 年 11 月 1 日至 5 日，日内瓦

关于立体数字对象新标准的提案

立体工作队牵头人编拟的文件

导 言

1. 在 2020 年的第八届会议上，产权组织标准委员会（CWS）注意到立体工作队在第 61 号任务“为关于数字立体模型和图像（包括检索立体模型和立体图像的方法）的建议编写提案”上取得的进展。标准委员会还注意到工作队报告中包含的标准草案初稿（见文件 CWS/8/24 第 73 段至第 75 段和第 103 段至第 108 段）。

拟议的新产权组织标准

2. 工作队为新的拟议产权组织标准“关于数字立体模型和立体图像的建议”编写了最终草案。讨论的主要议题包括不同类型知识产权申请的文件格式选择、所需文件大小、提供平面视图、公布要求和部分权利主张。

3. 拟议标准就如何使用知识产权的数字立体模型和立体图像存储、处理、交换和传播知识产权数据提供了建议。该提案载于本文件附件。内容包括对数字立体模型和立体图像格式和文件大小的建议，对提交和处理立体模型和立体图像的程序方面的建议，对数据交换和公布的建议，以及对部分权利主张的建议。

4. 一般性建议部分根据各知识产权局的要求提供了背景信息和共同指南，以便知识产权局处理、交换和公布申请人提交的知识产权保护申请中带有立体对象视图的数据。

5. 关于数字立体模型和立体图像格式的建议部分，在起草时考虑到了工作队对各知识产权局进行的两次调查的结果，以及一些在知识产权申请中使用立体视图的行业的意见。经过讨论，工作队制定了一套立体格式选择标准，并根据调查、标准以及各知识产权局和行业的最佳实践提出了建议。所建议的首选格式是现代的、标准化的、受到广泛支持的、开放的和跨平台的，同时也能满足申请人和知识产权局的不同需求，并且符合工作队成员商定的标准。工作队建议对不同知识产权采用以下格式：

- 对于发明和实用新型，建议使用 STEP、IGES、U3D、OBJ 或 STL，文件大小不超过 50MB；
- 对于有关化学结构的发明，建议使用 CDX 或 MOL；
- 对于工业品外观设计，建议使用 STEP、IGES、U3D、OBJ 或 STL，文件大小不超过 50MB；
- 对于商标，建议使用 STEP、IGES、U3D、OBJ 或 STL，文件大小不超过 50MB；以及
- 对于集成电路布图设计，建议使用 STEP、IGES、U3D、OBJ 或 STL，文件大小不超过 50MB。

6. 关于提交和处理立体模型和立体图像的程序方面的建议部分涵盖了与所提交立体视图的转换和处理有关的问题。考虑到确认处理立体视图最佳做法相关调查的结果，建议根据知识产权局制定的做法和要求，为立体模型或立体图像提供一定数量的二维视图，以便开展审查程序。

7. 关于数据交换的建议部分为含有立体对象视图的知识产权数据建立交换提供了指南，以便以协调一致的方式进行知识产权保护，其中包括首选文件格式和文件大小限制。关于公布的建议部分为知识产权相关信息的电子和纸质公布提供了指南。

8. 工作队讨论后，应当指出，关于立体检索方法的工作将在 2021 至 2022 日历年继续进行。完成研究后，工作队打算更新拟议标准（如果在本届标准委员会会议上获得通过），并纳入关于立体模型和立体图像检索方法的建议。

9. 工作队经与国际局协商，建议将新标准定为 ST. 91，标题为“关于数字立体模型和立体图像的建议”，因为它涵盖了几类知识产权：专利、商标和外观设计。十位为 9 的产权组织标准中包含覆盖多种类型知识产权的标准，即针对 XML 的 ST. 96 和针对网络 API 的 ST. 90。

任务更新

10. 如果拟议标准获得通过，工作队牵头人建议更新第 61 号任务的说明，具体内容如下：

为关于数字立体模型和图像确保对产权组织标准 ST. 91 进行必要的修订和更新，~~（包括检索立体模型和立体图像的方法）的建议编写提案。~~

11. 请标准委员会：

(a) 注意本文件的内容；

(b) 审议并批准上文第 9 段所述新产权组织标准 ST. 91 的拟议名称：“关于数字立体模型和立体图像的建议”；

(c) 审议并通过转录于本文件附件的拟议新产权组织标准 ST. 91；

(d) 审议并批准上文 10 段所述
对第 61 号任务的修订。

[后接附件]

STANDARD ST. XX

RECOMMENDATIONS ON DIGITAL THREE-DIMENSIONAL (3D) MODELS AND 3D IMAGES

Proposal presented by the 3D Task Force for consideration at CWS/9.

INTRODUCTION

1. This Standard provides recommendations for Intellectual Property Offices (IPOs) and other interested parties that manage, store, process, exchange or disseminate IP data using 3D models and 3D images.
2. This Standard has the following objectives:
 - (a) determination of formats that are available, compatible or interoperable with different software used by applicants in order to facilitate their efforts to prepare application materials before filing;
 - (b) reducing the time of IP application processing by IPOs;
 - (c) facilitating IP application filing to different IPOs due to adoption of recommended formats among IPOs;
 - (d) harmonization of requirements for data exchange on subjects for IP rights protection with digital 3D visual representations among IPOs and other organizations; and
 - (e) set of requirements for the publication of information on subjects for IP rights protection with digital 3D visual representations.

DEFINITIONS

3. For the purposes of this Standard, unless otherwise specified:
 - (a) 3D model – An electronic file that is created by specialized software, for mathematically representing the surface of an object's visual representation in three dimensions;
 - (b) 3D Images – Digital images that represent objects displayed in three dimensions such as 3D photos and stereoscopy;
 - (c) CAD – computer aided design;
 - (d) 3D PDF – a PDF document that contains 3D models;
 - (e) IGES – Initial Graphics Exchange Specification;
 - (f) OBJ – An open geometry vertex file format used for CAD and 3D printing;
 - (g) MOL – A text-based chemical file format that describes molecules and chemical reactions;
 - (h) PDF – The Portable Document Format is a file format developed by Adobe;
 - (i) 3DS – A file format used by the Autodesk 3ds Max 3D modeling, animation and rendering software;
 - (j) DWF – Design Web Format;
 - (k) DWG – A file format widely used for CAD drawings;
 - (l) Raster image – An image that is composed of a map of points (pixels), referred to as a bitmap. Typical file formats for raster images include JPEG, TIFF, PNG and BMP;
 - (m) STL – Standard Tessellation Language – a file format native to the stereolithography CAD software created by 3D Systems;
 - (n) STEP – Standard for the Exchange of Product model data – an open ISO Standard which can represent 3D objects in Computer-aided design (CAD) and related information;

- (o) U3D – Universal 3D (U3D) is a compressed file format standard for 3D computer graphics data;
- (p) Vector graphics – An image file that is composed of shapes formed of mathematical formulas and coordinates on a 2D plane. As opposed to raster images, vector graphics have the property of scaling infinitely without any degradation of quality; and
- (q) X3D – Successor of VRML, an Open ISO Standard XML format.

REFERENCES

4. The following WIPO Standards and other documents are relevant to the present Standard:

WIPO Standard ST.9	Bibliographic data on and relating to patents and SPCs
WIPO Standard ST.10	Published patent documents
WIPO Standard ST.60	Bibliographic data relating to marks
WIPO Standard ST.63	Content and layout of trademark gazettes
WIPO Standard ST.80	Bibliographic data relating to industrial designs
WIPO Standard ST.81	Content and layout of industrial designs gazettes
WIPO Standard ST.96	Processing of Industrial Property information using XML
ISO Standard 10303	Product data representation and exchange standard

GENERAL RECOMMENDATIONS

5. An application for IP protection may contain a 3D visual representation of an object in the form of a digital 3D model or 3D image in accordance with the requirements of the IPO receiving the application. Applicants can be encouraged to provide a 3D visual representation of the object as supplementary material to the application or as the main visual representation of the object, if specified by the requirements of the receiving IPO.
6. Formats and other characteristics of the received image files (e.g., file size) accepted by each IPO should be according to the recommendations of this Standard.
7. If an IPO has previously established its preferred image formats and other characteristics, it is recommended that the IPO announce in its official publications at regular intervals and/or on its websites, the image formats, sizes and other specific characteristics that are acceptable in application filings.

RECOMMENDATIONS FOR 3D MODELS AND 3D IMAGES FORMATS AND FILE SIZE

8. The following recommendations apply to providing application materials for the indicated type of IP rights.

Patent for invention or utility model

9. 3D visual representation of an invention or utility model should preferably be formatted as STEP, IGES, U3D, OBJ or STL. Maximum file size should not exceed 50 MB. If required, at an applicant's request the receiving IPO can accept files larger than the said maximum.

10. For chemical structures that are included in patent applications, 3D visual representation should preferably be formatted as CDX or MOL. Maximum file size should not exceed 50 MB.

Industrial design

11. 3D visual representation of an industrial design should preferably be formatted as STEP, IGES, U3D, OBJ or STL. Maximum file size should not exceed 50 MB. If required, at an applicant's request the receiving IPO can accept files larger than the said maximum.

Trademark

12. 3D visual representation of a trademark should preferably be formatted as STEP, IGES, U3D, OBJ or STL. Maximum file size should not exceed 50 MB. If required, at an applicant's request the receiving IPO can accept files larger than the said maximum.

Integrated circuit topography

13. 3D visual representation of an integrated circuit topography should preferably be formatted as STEP, IGES, U3D, OBJ or STL. Maximum file size should not exceed 50 MB. If required, at an applicant's request the receiving IPO can accept files larger than the said maximum.

PROCEDURAL RECOMMENDATIONS FOR FILING AND PROCESSING OF 3D MODELS AND 3D IMAGES

14. If an IPO converts a 3D model or 3D image from formats originally submitted by applicants to formats other than recommended above, or transforms from one storage format to another (e.g. STEP to STL), it is recommended that the IPO retain the original format as well as the transformed format for archival purposes.

15. If an IPO receives a 3D model as the only visual representation of an object in an application for IP right protection, it is recommended to make 2D views of the model in order to ensure compatibility with systems and processes where only 2D images of objects are accepted.

- (a) For patent applications for inventions or utility models, it is recommended to make seven 2D views of the 3D model, i.e., front, rear, right, left, top, bottom, and perspective views, in an electronic format corresponding to the requirements established by the IPO for 2D images of inventions or utility models.
- (b) For industrial design applications, it is recommended to make six 2D views of the 3D model, i.e., front, back, left, right, top, and bottom views, in an electronic format corresponding to the requirements established by the IPO for 2D images of industrial designs.
- (c) For trademark applications, it is recommended to make one 2D view of the 3D model, i.e., front view, in an electronic format corresponding to the requirements established by the IPO for 2D images of figurative trademarks.

16. It is recommended that an IPO define a set of guidelines and procedures for converting models and images from 3D to 2D formats.

RECOMMENDATIONS FOR DATA EXCHANGE

17. When IPOs exchange 3D model and/or 3D image data, file formats can be converted from the original formats, if such is established by an IPO. The conversion or transformation from the original file formats should be conducted in accordance with the guidelines and procedures established by the IPOs involved. The following additional requirements are recommended when exchanging application data for the indicated type of IP rights.

Patents for inventions or utility models

18. It is recommended that IPOs and other organizations comply with the following requirements when exchanging 3D models and/or 3D images data incorporated in patent documents:

- File formats: U3D, OBJ or STL, STEP, IGES; and
- Maximum file size: 50 MB.

19. For the chemical structures in the patent application, it is recommended that IPOs and other organizations comply with the following requirements when exchanging 3D models and/or 3D images:

- File format: MOL, CDX

Industrial designs

20. It is recommended that IPOs and other organizations comply with the following requirements when exchanging 3D models and/or 3D images incorporated in industrial design applications:

- File formats: U3D, OBJ or STL, STEP, IGES; and
- Maximum file size: 50 MB.

Trademarks

21. It is recommended that IPOs and other organizations comply with the following requirements when exchanging 3D models and/or 3D images incorporated in trademark applications:

- File formats: U3D, OBJ or STL, STEP, IGES; and
- Maximum file size: 50 MB.

RECOMMENDATIONS FOR ELECTRONIC PUBLICATION AND ONLINE DISPLAY

22. It is recommended that an electronic publication of an object in an IP application or IP right include 3D model and/or 3D image files received by the IPO in the list of published documents relating to the IP application or IP right.

23. Formats of published 3D files can be converted from the original formats, if desired by the IPO. Any conversions or transformations should be conducted in accordance with the guidelines and procedures established by the IPO.

24. For online display of 3D visual representation of an object, the following requirements are recommended:

- File formats: OBJ or STL; and
- Maximum file size: 50 MB.

25. For electronic publication of 3D visual representations of an object in PDF format, it is recommended to create files in 3D PDF embedding the 3D models and/or 3D images in one of the 3D file formats accepted under this Standard. If the original 3D model cannot be embedded in 3D PDF in its original format, then it is recommended to convert the 3D model to one of the 3D file formats accepted under this Standard, or to embed 2D image(s) of the object, as received from the applicant or converted by the IPO from 3D formats submitted by the applicant.

26. Paper publication should contain a 2D visual representation of an object, as received from the applicant or converted by an IPO from 3D formats submitted by the applicant.

RECOMMENDATIONS FOR PARTIAL CLAIMING, PARTIAL DESIGN, PORTION DESIGN

27. It is recommended that appropriate depiction of partial claiming of design, partial design, or portion design should be feasible in a relevant 3D format, and disclaimed features in designs should be readily recognizable and understandable.

28. The depictions of partial claiming of design, partial design, and portion design featured in relevant 3D format should be robustly maintained during processing of applications with 3D models or 3D images, e.g., when publishing the applications.

[End of ST.XX]

[End of Annex and document]