

This newsletter was created to communicate the status of activities of the 3D CAD Information Standardization Technical Committee.

### 1. Introduction (Overview of Technical Committee)

Now accepting  
new members

#### ■ What is the 3D CAD Information Standardization Technical Committee?

This technical committee of experts was established in September, 2017 within the Japan Electronics and Information Technology Industries Association (JEITA). By the establishment of industry standards to effectively utilize 3D CAD information not dependent on tools and promoting wide penetration into relevant industries to evolve our country's product manufacturing technologies, in other words, innovating/raising the bar of design/manufacturing is the objective of this committee.

The accomplishments of the committee are established issued as industry standards (JEITA standards), furthermore, along with promoting wider adoption of these standards, the standards are proposed for Japan industrial Standards (JIS) adoption, moreover, the committee aims to establish international standards adopted by ISO.

#### ■ Overview of Technical Committee Activities

Subcommittees were set up as a lower branch organization of this Technical Committee and these subcommittees study key themes.

##### (1) Standardization Subcommittee

In order to utilize 3D information widely throughout the entire enterprise, this subcommittee shall standardize "3DA Model (3D Annotated model)/DTPD(Digital Technical Product Documentation)" that is a "batch tolerance indicating system" that adopts geometrical tolerance and is not tool dependent.

##### (2) Utilization & Proving Subcommittee

The effects of utilization and issues of standards and guidelines studied

in this technical subcommittee are utilization studies from the standpoint of actually using 3DA models/DTPD. The results that were obtained are summarized in guidelines, as well as, leads to effect verification, improvement requirements of 3D CAD functionality and facilitate solutions regarding CAD viewers.

#### ■ Technical Committee Members

《 Full Member Companies: 20 companies 》

Elysium Co. Ltd. ,OMRON Corporation , Canon Inc. ,  
QVI Japan Inc., KONICA MINOLTA, INC. ,  
Cybernet Systems Co., Ltd. , SHIMADZU CORPORATION ,  
SEIKO EPSON CORPORATION , Sony Corporation ,  
TOSHIBA CORPORATION , NIKON CORPORATION ,  
NEC Corporation , Japan Radio Co., Ltd. ,  
Panasonic Corporation , HAMAMATSU PHOTONICS K.K,  
Hitachi, Ltd. , Fuji Xerox Co., Ltd. , FUJI ELECTRIC CO., LTD. ,  
BROTHER INDUSTRIES, LTD. , Yamaha Corporation

《 Associate Member Companies: 11 companies 》

ARGO GRAPHICS Inc. ,  
NTT DATA ENGINEERING SYSTEMS Corporation ,  
CreativeMachine, Ltd. , SOLIZE Corporation , Solidworks Japan K.K. ,  
Dassault Systemes K.K. ,  
Information Services International-Dentsu, Ltd. ,  
Japan Aviation Electronics Industry, Limited ,  
Nihon Unisys, Ltd. , PTC Japan Co., Ltd. , Planer Co., Ltd.

※As of 2020 May 15<sup>th</sup>

### 2. Recent Activities

#### ■ Participation in Standardization Activities

By formulating JEITA standards, along with promoting industry standardization, we participate in 3D model drafting related JIS draft proposal making committee meetings to promote standardization of 3D models. We participate in the ISO-TC184/SC4 promotion council involving industrial data and promote the standardization of DTPD. Activities are also under way such as participating in ISO-TC213 international meetings, etc. in a drive for ISO standardization of batch tolerance indicating systems.

#### ■ Overseas Situation Observation Visit

To gain an understanding of 3D data utilization status overseas and standardization trends and use as a reference for the activities of this technical committee, we are investigating by dispatching a group of observers to visit other countries. The results of the investigative visits are shared with the members of this technical committee.

##### ★Investigative visit of Europe & North America

We especially carried out investigation of activities by standardization organizations, companies, etc. in Europe and the USA. In 2012, observation visits were made to European automotive, measurement instrument related and standardization organizations and we confirmed that a system was built for function development and standardization in Europe. In addition, in 2014 an 2020, observation

visits were made to American electronic parts, medical equipment, automotive related and standardization organizations and we confirmed that, in the US, the progress of utilizing 3D definitions, geometrical tolerance centric design and provision of standards is advancing.

#### ■ Creation & Issuing of "JEITA Standard: ET-5102 3DA Model Standard"

In order to utilize 3D CAD information throughout the design process and other downstream processes, this technical committee has proposed unambiguous specification mainly based on geometrical tolerance and a new general geometrical tolerance for effective 3D CAD modeling in the "3DA Model "3D Annotated Model" Guideline" and the "JEITA Standard ET-5102: 3DA Model Standard" and has released those.

#### ■ Creation & Issuing of the "3DA Model Die Process Linking Guideline"

With the cooperation of the Japan Die & Mold Industry Association, taking communication improvement between OEM and die manufacturers and facilitating front loading of productivity studies as a shared common issue, the "Die Process Linking Guideline" was created.

In this guideline, it establishes mold die requirements (design/ engineering information related to die design/processing) to incorporate into the 3DA model and how to rank and sort the degree to which those requirements are incorporated in a way that can be judged objectively.

#### ■ Creation & Issuing of the "3DA Model Sheet Metal Parts Guideline"

Formulated a guideline to effectively utilize 3DA models between the OEM and machine sheet metal manufacturer and establish modeling rules and description methods & interpretation that enable a definitive interpretation for both parties in order to strive toward optimal processes overall that will make it possible to realize manpower workload reduction.

#### ■ Creation & Issuing of the "3DA Model Measurement Guideline"

On parts for which the utilization of 3D CAD data is running behind other parts, with the purpose of indicating a metric when a 3DA model is utilized for the field of parts evaluation/measurement, the results of studying efficient measurement methods that utilize non-contact measurement has been summarized as the "Measurement Guideline Using 3DA Modes". We have collaborated with the University of Tokyo Research Center for Advanced Science and Technology, Riken, the National Institute of Advanced Industrial Science and Technology and the Optical Non-Contact 3D Measurement Equipment Accuracy Evaluation Method Standardization Consortium to create this guideline.

#### ■ Creation & Issuing of the "Verification of Geometrical Tolerance &

#### Examples of Measurements Collection"

In order to answer doubts, questions and requests on wanting to understand the measurement/verification methods for indications of geometrical tolerances such as "indication examples that would be the base of geometrical tolerances found on 14 models"/"Common/typical verification/measurement methods for basic indications"/"Costs of parts inspection"/"Difficulty level of pass/fail judgments", etc. the geometrical tolerance measurement examples collection was put together.

#### ■ Creation & Issuing of the "3D Master Operation Guideline"

In order to facilitate the penetration of 3DA models and DTPD, the concept of 3D Master was defined and the utilization/usage methods of 3DA models and DTPD for typical use cases in the product development processes of the precision electronics industry was summarized as an operation guideline.

#### ■ Activities to Prove Effectiveness

Activities to identify issues upon applying each of the guidelines and standards of this technical committee and to see if it would truly have beneficial effects for the actual work site was started in the latter part of fiscal year 2012. Especially for content that would be difficult to prove by one

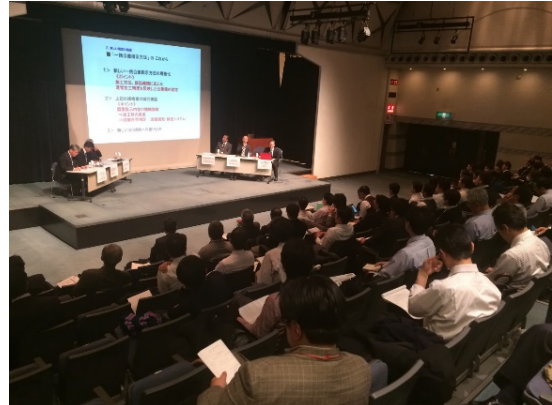
company on its own, product application content being worked on by each company that would be difficult to disclose publicly, etc. the technical committee promoted the work collaboratively as a joint theme to make it possible to disclose the content publicly. We have collaborated with the Japan Die & Mold Industry Association, National Institute of Advanced Industrial Science and Technology and CMM Consortium in this activity.

#### ■ Educational Activities

Also, in fiscal year 2019, we are providing assistance in a "Design Contest for Universities/Technical Colleges" sponsored by the Japan Society for Design Engineering and gave educational guidance on plastic parts design by a 3DA model. In addition, geometrical tolerance workshops were started from fiscal year 2015, as we are promoting education of geometrical tolerance design to Japan's precision equipment industry.

#### ■ Seminars

This technical committee has held a seminar in December 3, 2019 in



Kawasaki city. We gave discourses about our standardization activities of 3DA and DTPD in sessions of "Current Status and Prospects of International Standards for DTPD", "Summary of New Revision of JEITA ET-5102 Standard (planned)" and "Effectiveness of 3DA and DTPD to Sheet Metal Parts". In addition, commercial tools and technologies relevant to our activities are presented in lectures and exhibits, to show that 3DA models and DTPD can be applied to practical product development.

## 3. Publications

### ■ Guidelines & Example Collections

※A PDF version can be downloaded free of charge from the official committee site(<http://home.jeita.or.jp/3d/>).

- "JEITA 3DA Model Die Process Linking Guideline"- 3DA model effective utilization methods between "product design" and "die design/manufacturing"- Plastic Parts Part" Ver.2.0 (2020)
- "JEITA 3DA Model Sheet Metal Parts Guideline – 3DA model effective utilization methods between "product design" and "sheet metal parts design/manufacturing" Ver.2.0 (2020)
- "3D Mater Operation Guideline Edition 2" (2019)
- "Verification of Geometrical Tolerance & Examples of Measurements Collection" Ver2.0 (2018)
- "JEITA 3DA Model Measurement Guideline" —Efficient measurement using 3DA models— "J" Ver1.0 (2016)
- "JEITA 3DA Model Guideline- Guideline regarding 3DA model creation and operation" Ver3.0 (2013)
- "Collection of Non-Contact Measurement Examples Utilizing JEITA 3D Annotated Models — Trials of non-contact measurement evaluation utilizing 3D annotated models – " Ver1.0 (2012)
- "JEITA 3DAM Geometrical Tolerance Indication Examples Collection —Guideline for geometrical tolerance indication on 3DAM" Ver.1.0(2012)

## 4. Inquiries

JEITA 3D CAD Information Standardization Technical Committee is currently accepting new members. Anyone interested in the activities of this technical committee, please feel free to contact us with the following contact information.

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Secretarial

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