



Agenda Notes

November 03, 2020

1. Topics

- A. Work Group Charter review, Members
- B. JEITA update: Summary of key elements in the guidelines for non-contact measurement process
- C. Open item status
 - 1. Add "OpticalDigitizerType" to Resources
 - Review Performance with large dataset
 - a) .net specific? Compare attribute vs. element as the container (Bob Stone)
 - b) Discussion / next steps
 - 2. Verify QIF Element Standard Type is compatible and sufficient for Standards used with proposed "OpticalDigitizerType"
(example) B89?, ISO 10360-13?, JIS B 7440-8?

2. Additional discussion regarding (ISO GPS):

3. Open discussion

4. Next Meeting

Annex C – DMSC Volunteer Agreement (informative)

DMSC volunteer agreement: "You hereby agree, by your participation in any activity of this standards committee (including committee meeting attendance, email exchanges, phone conversations, or document generation), that you will not disclose any corporate confidential information or corporate trade secrets either verbally or in writing. Furthermore, any information disclosed to you in any activity of this standards committee, or disclosed to you in documents produced by this committee, will be provided to you for the sole purpose of establishing an industry-wide standard pursuant to the procedures prescribed by ANSI and ISO. You, therefore, agree not to use this information, or to collaborate in its use, in any manner that might suggest you have any proprietary rights to such information, such as rights to a patent, trademark, or copyright."

DMSC QIF Work Group: Non-Contact Measurement:

Larry Bergquist - Me (Org)	
Mark T (Org)	✖
Ray Stahl (Org)	✖
Atsuto Soma	✖
Bob Stone (Origin)	✖
Edward Morse	✖
Hiromasa Suzuki	✖
Rosemary Astheimer	✖
Ryan Gelotte	🔊
Satoshi Nakamura	✖
Tohru KANADA	✖
Tom Kramer	✖

Others?



DMSC Work Group Charter

Non-Contact Metrology

Draft 20201103

Digital Metrology
Standards Consortium



DRAFT

WG Charter	Chair / Participants
<p>WG Charter: Non-Contact Metrology DMSC to more fully support non-contact measurement workflows utilizing QIF.</p> <p>Key deliverables:</p> <ul style="list-style-type: none"> • GAP analysis for non-contact measurement workflows using QIF • Recommend revisions (if any) to support non-contact measurement workflows. 	<p>Chairs: Larry Bergquist– Chair Ray Stahl– Co-Chair</p> <p>Participants: (>70% attendance, active assistance with work product) Names and affiliations (next slide)</p> <p>JEITA DMSC NIST, B8g, ISO, other...</p>
Published Products	Planned Work
<p>Previously Published Related Work: Documented JEITA workflows within QIF3.0. JEITA Developed GAP analysis of current QIF 3.0 and propose future list of QIF enhancements to enable the JEITA workflow.</p> <p>Current Related Work JEITA –Standard Guidelines for Digital Measurement Process with Contactless Measuring and MBD</p>	<p>Planned Work:</p> <ul style="list-style-type: none"> • Propose necessary additional QIF Resources • Validate proposed resource additions • Validate Element “Standard Type” supports common non-contact method standards. • (Investigate use of standard reference for feature tolerance in MBD. (castings, forgings, molded parts, and JEITA proposal)



DMSC Work Group member Non-Contact Metrology

Draft 20201103



DMSC QIF Work Group: Non-Contact Measurement

name 1	name 2	Company / affiliations	email	phone	WG voting member	WG observer	SME	WG Guest
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					M	O	S	G

target: 9-15 (odd number)

Action Item (all)

- Confirm, add, revise your information and requested WG status (Member, Observer, SME, Guest)
 - Recall WG expectations:
 - Member: > 70% WG meeting attendance & commitment to actively assist in WG product development (Voice & Vote)
 - Observer: > 50% WG meeting attendance & commitment to draft material review and comment (Voice)
 - Subject Matter Expert (SME): invited expert providing review and opinion (Gratitude)
 - Guest: open path to Observer (Welcome & Voice)
- Please send to Larry Bergquist larry.w.Bergquist@outlook.com & Ray Stahl: ray.j.stahl@gmail.com



B. JEITA update:

Summary of key elements in the guidelines for non-contact measurement process

* Reference .pdf of shared presentation

- Notes:
- Attached pdf of shared information
- Q: Do we carry (QIF exchange) filtered / associated data only?
or include unfiltered & flagged data?
- Q: are filter or other parameters necessary to be carried from plans into results?

- C. Open item status
Add “OpticalDigitizerType” to Resources

- Notes:

Missing measurement instruments in QIF

- Instruments assumed to be used in QIF
 - Hand tools, Cartesian/articulating arm CMMs equipped with tactile/optical sensors, X-ray CTs, Laser trackers and Theodolite
- Those in Our work
 - **Missing in QIF** (Optical Digitizers)

Hand tools CMMs Optical Digitizers X-ray CTs

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Point cloud based CMSs using optical sensors

	CMM + Optical sensors	Optical digitizers
Sensors	Covered by QIF 3.0	
Device type	Covered QIF 3.0	N/A in QIF 3.0
Accuracy tests	ISO, ASME, JIS	JIS, ISO(CD)
Output data	Point cloud	

Both types of instruments are widely used in industrial inspections.

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C. Open item status

1. Review Performance with large dataset

.net specific? Compare attribute vs. element as the container (Bob Stone)

Discussion / next steps

- Notes:

- Large data set for customer 145k pts took long time 15 min to read
- Found is not related to .net parser as implemented in QIF 😊!
- **No issue.**
- **Thank you Bob.**



C. Open item status

2. Verify QIF Element Standard Type is compatible and sufficient for Standards used with proposed "OpticalDigitizerType"

(example) B89?, ISO 10360-13?, JIS B 7440-8?

Action Item (Larry B)

- Confirm referenced section numbers are latest
- Mark up request onto released QIF documentation

- Notes:
- Coming soon B89.4.23 release (before 2021)
- Also reference:
 - VDI/VDE guide that covers these instruments: VDI/VDE 2634

Prepared Measurement instruments class in QIF

- 9.6.3, Measurement Devices
 - p413, 9.6.3.2 Universal Devices
 - 9.6.3.2.1 *CMMType*
 - 9.6.3.2.4 *ComputedTomographyType*
 - 9.6.3.2.8 *LaserTrackerType*
 - 9.6.3 should cover the measurement devices to be used in QIF application inspection
- Proposal: add "*OpticalDigitizerType*"

Our proposal

- Proposal: add necessary items in 8.5.1.7 Measure Feature method
 - Create a new item: "optical digitizer measure feature method", or,
 - unify it into "coordinate meas. feat. method" including "laser tracker meas. feat. method" and "computed tomography meas. feat. method."

Charter

To develop and maintain ASME standards and technical reports in the field of coordinate measurement and to represent USA interests in the development of international standards (ISO) and technical reports. This work includes the development of criteria for the performance evaluation of Coordinate Measuring Systems, ensuring that the tests reveal sensitivities to environmental and other effects.

Officers	Staff Contact
CHAIR: Dr. Edward Morse, Ph.D.	Justin Cassamassino The American Society of Mechanical Engineers Two Park Avenue New York, NY 10016 Phone: 1(212)591-8404 CassamassinoJ@asme.org

Associated Committee Pages

- B89.4.10 - Software Evaluation (SC4/B89)
- B89.4.11 - Probes and Probe Changers (SC4/B89)
- B89.4.15 - Dynamic Performance of CMMs (SC4/B89)
- B89.4.18 - Video Systems, Comparator Evaluation (SC4/B89)
- B89.4.19 - Optical CMM Evaluation (SC4/B89)
- B89.4.21 - CMM Performance in Realistic Environment (SC4/B89)
- B89.4.22 - Articulated Arm CMMs (SC4/B89)
- B89.4.23 - CT Measuring Machines (SC4/B89)
- B89.4.24 - Software Requirements

Other Links

- ASME Product Catalog
- Find a Standard
- IEEE/ASTM SI 10™-2016: American National Standard for Metric Practice™
- ASTM Standard on Nanotechnology Terminology, E 2456
- ISO/TC 213
- B89 Standards in Product Catalog
- ASME B89.7 Measurement Uncertainty Brochure
- B94 Committee on Cutting Tools
- Standards & Certification Update - Newsletter

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Measurement instruments in QIF

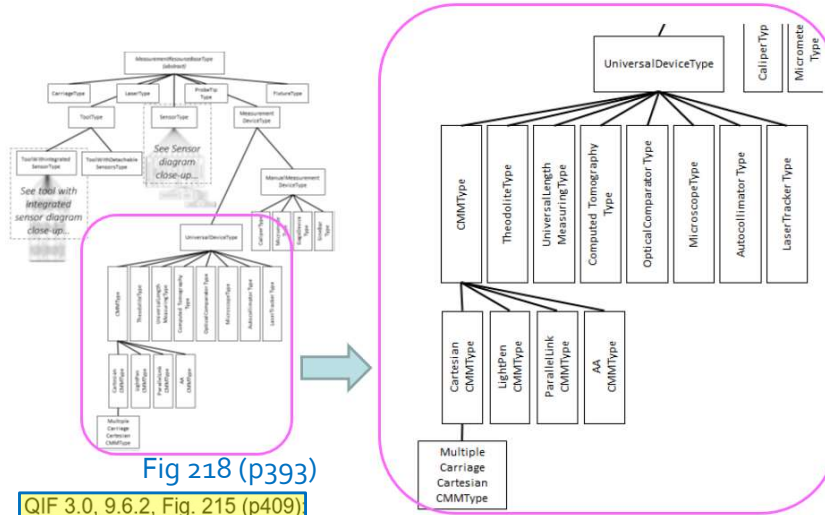


Fig 218 (p393)

QIF 3.0, 9.6.2, Fig. 215 (p409)

MeasurementResourceBaseType derived type inheritance diagram

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Action Item (Larry B)

- Confirm referenced section numbers are latest
- Mark up request onto released QIF documentation

Notes:

- secondary sensors for registration of point cloud: i.e. 2 sensor type for one data set
- "Leap" application: sensor or part movement between data sets collection for one artifact
- WG request for next QIF release:
 - consider modeling (if needed) a measurement device with two (or more) sensors.

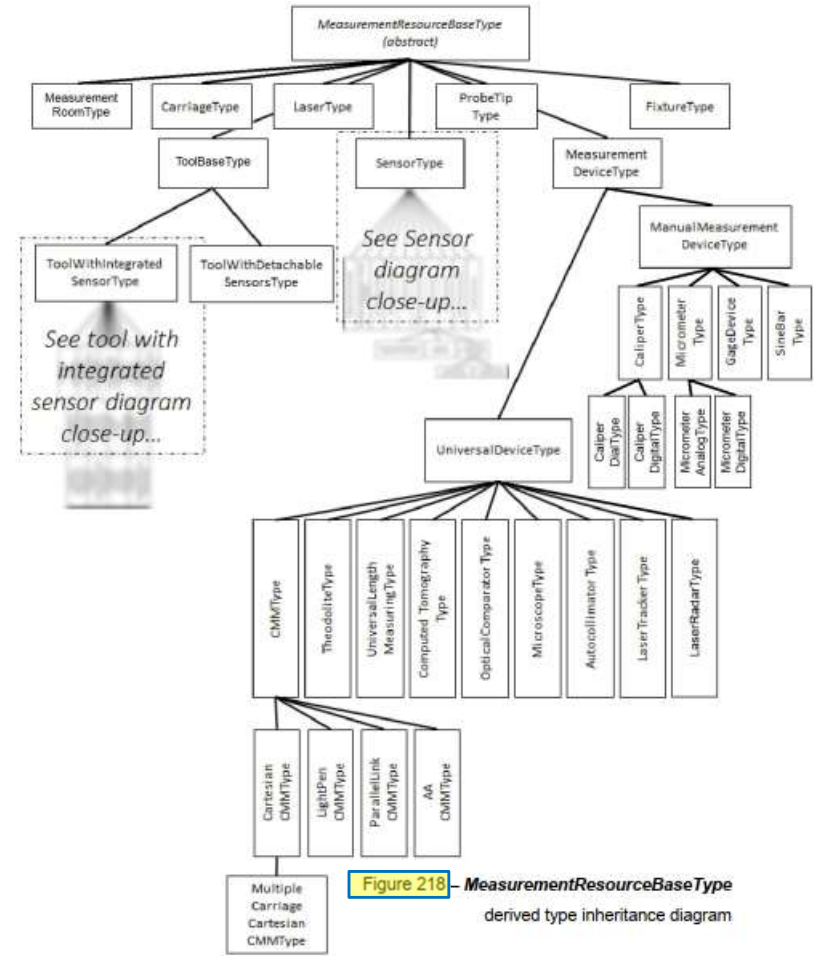


Figure 218 - MeasurementResourceBaseType derived type inheritance diagram



Additional discussion regarding (ISO GPS):

\oplus 0.1 (A-B) \textcircled{M} \textcircled{CM}

- Was there a github item for the above ISO specification concern?
- If so, Please forward link to Larry Bergquist.



Open discussion:

- Additional items: (time limited – no items raised)



Next Meeting

Tue 12/1/2020	6:00pm-7:00 Chicago	Wed 12/2/2020	10:00am-11:00 Tokyo
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- Confirm next meeting
 - Topics
 1. Review and approve Work Group Charter
 2. Review draft membership list
 3. Review requested additions to QIF 3.0 noted so far
 - a) further clarify as necessary
 - b) Discuss Workflow validation activities
 - c) Preliminary milestone list with target dates and identify activity ownership
 4. Discuss plan for review of non-contact measurement process guidelines (English translation)
 5. Other topics?
 6. Meeting close