
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

8/10/2016

**SAFETY SYSTEM DIGITAL PLATFORM
- MELTAC (MITSUBISHI ELECTRIC TOTAL ADVANCED CONTROLLER) -
TOPICAL REPORT**

Mitsubishi Electric Corporation

TAC NO.: MF4228
RAI NO.: #1
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QUESTION NO.: 4 for JEXU-1041-1008, "Safety System Digital Platform – MELTAC"

With regard to TR page 54, a) "Creation of Application Software." Criterion III, "Design Control," of 10 CFR 50 Appendix B states in part: "Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization." To determine compliance with this criteria, the NRC staff needs to understand whether the Mitsubishi Electric Company (MELCO) development process described by this application will be used to perform design changes or if a different process to be developed by the licensee would be used. If a different process is to be used, then an application specific action item should be developed accordingly to make clear to the licensee that an appropriate safety-related development process must be established before the engineering tool is used to revise platform software.

ANSWER:

Section 4.1.4.1 a) of the Topical Report describes the two steps of the process involved with the creation of application software using the MELTAC engineering tool. The first step is creating FBDs through the usage of an application specific tool, or Mitsubishi's CAD software called "RAPID". The second step is converting FBDs to GBDs by using the MELTAC engineering tool. The process for the first step (Creation of FBDs) is application specific. MELCO will add this description to Section 4.1.4.1 a) of the Topical Report. Please see Attachment-1.

Impact on Topical Report

The answer above will be added to Section 4.1.4.1 of the Topical Report. (see Attachment-1)

4.1.4 MELTAC Engineering Tool

The MELTAC engineering tool provides various functions aimed at steadier and more efficient software management during all system life cycle phases (including design, fabrication, test, adjustment and maintenance).

The MELTAC engineering tool is used to generate safety application software for the MELTAC controller, but the tool itself is non-safety software running on a non-safety personal computer (PC) using the Microsoft Windows Operating System. The MELTAC engineering tool was developed in accordance with the MELCO QAP for non-safety items. Safety application software generated by the MELTAC engineering tool must be qualified by independent V&V. Access is controlled by means of the PC password (BIOS, OS) and the MELTAC engineering tool password.

The application software execution data generated by the MELTAC engineering tool is downloaded to the controller via the Maintenance Network and is stored in the F-ROM of the CPU Module. The functions of the MELTAC engineering tool are described as follows.

4.1.4.1 Function Description

a) Creation of Application Software

~~FBDs that are created with a commercial Mitsubishi CAD software package called "RAPID" can be automatically converted to GBDs by the MELTAC engineering tool. (Access to RAPID is also controlled by a password.)~~

~~The MELTAC engineering tool is then used to automatically generate (compile) the application software execution data directly from the GBD.~~

~~This automated process eliminates human translation errors.~~

~~GBDs iscan also be manually created (drawn), based on legacy FBDs provided by the customer, using t~~
The MELTAC engineering tool's GUI editor can be used to manually create (draw) GBDs, which is then used to automatically generate (compile) the application software executable data directly from the GBD.

~~Regardless of how the GBD is generated (automatically from RAPID or manually drawn with the MELTAC engineering tool's GUI editor), t~~
 The MELTAC engineering tool is used to configure the assignment of GBDs to controllers, and the assignment of I/O signals. GBDs (whether created automatically or manually) and the application software executable data output from the MELTAC engineering tool are confirmed through manual V&V activities.

The MELTAC engineering tool can also be used to automatically convert FBDs to GBDs if the FBD is created with Mitsubishi's CAD software "RAPID".

The conversion process from FBD to GBD is application specific, regardless of whether the process is automatic or manual. This process should follow the licensee's appropriate safety-related development process for revising application software.

b) Download

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