

Tool Availability Standard

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Abstract

For the support of AMD Facilities in the fields of

- Equipment procurement
- Warranty tracking
- Capacity planning
- Maintenance planning

Industrial Engineering developed a Reliability, Availability, Maintainability (RAM) data sheet in order to get RAM target data on the most detailed level possible.

This form is to be filled out by suppliers based on their standard process, and discussed with AMD Equipment Engineers to get a common understanding for specified RAM targets and to enable analysis on deviations, and to be the base for Limit Utilization used for capacity planning.

Scheduled Downtime input is:

- for time based PMs: PM-Type and duration and occurrences per selectable period
 - for cycle based PMs: Frequency-Type & duration
- for Unscheduled Downtime, MUTBF & MTTR are used.

For cluster tools the method enables input of RAM data for all measurable subcomponents, supplying the RAM result for the entire cluster. The method is based on AMD's capacity weighted cluster E10 calculation. Based on a standard process the capacity contribution of chambers or other components is determined by the wafer interval times of those components.

So, for the most simple example: if a cluster with two identical parallel chambers has one chamber down and the robot was not the capacity limit to the system, the entire cluster capacity is 50% down & 50% up at the same time.

RAM Input data are collected on chamber level, considering different scenarios:

- Cluster is running with chamber down with capacity loss until next Cluster-PM.
 - Chamber can be repaired while Cluster is up & running ...
- Chamber or component (load port, robot) RAM data were computed based on their capacity impact to get the cluster's availability.

AMD capacity weighted cluster E10 availability standard was applied to clusters running in Fab30 and showed more realistic results than initial inputs from suppliers.