

e-Diagnostics Guidelines V1.0

Purpose/Scope:

The fundamental purpose of e-Diagnostics is to increase the availability of production and facilities equipment, reduce mean time to repair and provide significant reduction in field service resources/costs. This capability must be available for 200mm and 300mm fab equipment, Probe/Assembly/Test equipment, and key Facilities equipment.

e-Diagnostics definition:

Capability to enable an authorized equipment supplier's field service person to access any key production or facilities equipment from outside the IC maker's facility/factory via a network or modem connection. Access includes ability to remotely monitor, diagnose problems or faults, and configure/control the equipment in order to bring it into full productive state rapidly, within security, safety, and configuration management guidelines.

The **e-Diagnostics solution** consists of equipment and auxiliary hardware and software applications.

Safety and Security:

- Safety is imperative. Potential solutions must address worker, product, and equipment safety. An operational interlock is required to ensure safety.
- Data security is paramount. Potential solutions must address network, communications, data encryption and other relevant issues. Only authorized personnel may be able to access the view based, relevant data to perform diagnosis.
- Remote data and control access must be selectively provided. Therefore the e-Diagnostic system must have built-in capability that determines when to allow specific remote functions to be executed based on specific states or condition of the equipment.

Architecture:

- The solutions must support remote accessibility of equipment diagnostic data from outside the IC maker's firewalls. Two-way communications between these two locations is needed to support interactive problem solving.
- The solutions must permit sharing of key diagnostics and monitoring data between multiple factory and supplier sites on an as-needed basis to enable remote detection of issues and proactive trouble-shooting.
- The solutions must enable predictive maintenance, including notification when equipment will need service or repair.
- e-Diagnostics solutions must be implemented using an open architecture based on mainstream computer technologies, non-proprietary standards and data models.

Collaboration:

- The solutions must provide the same equipment monitoring/diagnostics data at the local and remote sites. Identical representations and user interfaces at both sites are highly desired.
- The solutions must enable run-time data collection, storage, and retrieval. The e-Diagnostics system must enable analysis of this data and decision support capability.
- The solutions must allow audio-visual collaboration such as video teleconferencing or video over Internet Protocol to enable remote experts to view/diagnose equipment and sub-assembly problems in real-time and communicate with factory personnel.