

SEMI D23-0999

GUIDE FOR COST OF EQUIPMENT OWNERSHIP (CEO)

CALCULATION FOR FPD EQUIPMENT

This guide was technically approved by the Global Flat Panel Display Equipment Committee and is the direct responsibility of the Japanese Flat Panel Display Equipment Committee. Current edition approved by the Japanese Regional Standards Committee on June 1, 1999. Initially available on SEMI OnLine August 1999; to be published September 1999.

1 Purpose

1.1 The purpose of this document is to provide a standard, simple CEO calculation method for evaluating FPD manufacturing equipment. With this document, the following merits can be expected:

1.1.1 Both panel and equipment manufacturers, as well as material manufacturers can work from the same standard with regard to cost.

1.1.2 Panel manufacturers' basis for equipment comparison will become clear, which will, in turn, help in equipment selection.

1.1.3 The document will serve to clarify cost reduction items as well as benchmark cost reduction activities.

1.1.4 Direction for improvement for equipment manufacturers will become clear.

1.1.5 By doing a separate analysis, comparison, and evaluation of lines, equipment for different substrate sizes will become simpler.

2 Scope

2.1 This standard focuses on each equipment in the FPD production line. It is used to define the calculation method for cost of installing/operating that equipment, to define the calculation method for productivity of that equipment, and to quantify CEO of that equipment.

2.2 It is necessary to clarify the substrate sizes that can be handled by this equipment. However, this standard does not deal with the equipment process performance. It takes the point of view that each panel manufacturer should evaluate each equipment's process performance, including yield, based on their own process requirements.

2.3 This standard does not purport to address all of the safety issues associated with its use. It is the responsibility of the users of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

3 Limitations

3.1 This standard does not attempt to include all elements necessary for equipment evaluation, and may be seen as incomplete from certain perspectives. However, it is believed that it will serve as the foundation for comparative evaluations.

4 Referenced Standards

None.

5 Terminology

5.1 Definitions for each of the items are listed in the following table.

6 CEO (Cost of Equipment Ownership) Table

6.1 Units in the document are for illustration only.

	Item	Unit	Value	Definition & Formula	Notes
A. Equipment Cost					
	(1) Base Cost	(\$)		Main Equipment Purchase Price	
	(2) Cost of Options	(\$)		Price of items which can be categorized as options separate from main equipment.	
	(3) Other Parts/Tools	(\$)		Price of tools and accessories (not included in main equipment or options price).	Enter maintenance-related consumables in D48 (Consumables).
	(4) Installation Cost	(\$)		Costs incurred in the installation of the equipment.	
	(5) Inspection Cost	(\$)		Costs incurred in inspection of the equipment.	
	(6) Shipping Cost	(\$)		Cost of shipping equipment to the installation location.	
	(7) Training Cost	(\$)		Cost of training in operation, maintenance, etc.	
	(8) Manual Cost	(\$)		Cost of manuals necessary for maintenance and operation.	
	(9) Other Costs	(\$)		Other necessary costs not included in above items.	
	(10) Subtotal	(\$)		Sum of (1) through (9).	If it is difficult to specify (1) through (9), it is possible to just enter (10).
	(11) Monthly Cost	(\$/month)		Monthly costs associated with equipment (10)/60 months.	Salvage value after 5 years is arbitrarily set here at 0. Adjust to real value as necessary.
B. Hook-Up Costs					
	(12) Materials (pipes, etc.)	(\$)		Costs for piping and other materials necessary to operate equipment.	
	(13) Power Connection	(\$)		Costs for connecting electricity, water, gas, air, etc. supplied by the factory to the equipment.	
	(14) Other	(\$)		Other installation costs not included in above items.	
	(15) Subtotal	(\$)		Sum of (12) through (14).	
	(16) Monthly Cost	(\$/month)		Monthly incidental installation costs (15)/60 months.	Salvage value after 5 years is arbitrarily set here at 0. Adjust to real value as necessary.
C. Clean Room Costs				For each area, if the shape is complex, use the square surface area.	Categorize clean area, gray area, and other dedicated areas according to the real situation of each factory.