

## Development and Demonstration of Waste Electrical & Electronic Equipment (WEEE) Prevention and Reuse Paradigms

### Action B.6- Promoting and Supporting WEEE Prevention Culture in Greece

#### Deliverable B6.2 Quick Repair Guide for Electronic Appliances

##### -Part 1-

LIFE Environment and Resource Efficiency-LIFE14 ENV/GR/000858



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## 6. Computer Screen

### 6.1. General-Operation Principles

The computer screen is an electronic device that displays digital images created by computers. The majority of the contemporary PC screens are liquid crystals' screens, whereas older screens are based on a vertical cathode ray tube technology. The screen contains a displaying device, along with several other electronic circuits that assist in "translating: the electronic signal that is transmitted by a source, usually contained in a plastic protective case for the production of digital images. The computer contains a graphics' circuit (mostly as a graphics processing unit-GPU), that produces an optical signal compatible to the screen.

In the last decade, the most common computer screen technology is the liquid crystal screen (Liquid Crystal Display: LCD). Older screens were based on the technology of the cathode ray tubes. An LCD screen operates with two polarized filters and a liquid crystal arrangement. The liquid crystal is controlled by an electric field arrangement, that may or may not change the polarity of the light that passes through it. Because this arrangement does not produce light on its own, back light is produced by fluorescence lamps, and is directed towards the liquid crystals.

### 6.2. Indications of Malfunction-Possible Damages

The most common malfunction indications and possible damages of a computer screen, that may be home-repaired, are presented in the table below:

**Table 6 Malfunction Indications & Possible Damages of a Computer's Screen**

Malfunction		Possible Damage	
No	Indication	No	Possible Cause
1	Irresponsiveness	1	VGA cable malfunction (screen)
		2	Power supply malfunction
		3	VGA port malfunction (computer)

### 6.3. Repair Steps

For every single damage that referenced in the above table (Table 6), a number of repair steps are presented below. Every repair step is accompanied with infographic material (photos) in order to provide the user with an overview of the entire repair process.

In order to home-repair the device, the personal protection equipment required is the following:

- Safety gloves

### 6.3.1 Repairing Irresponsiveness (VGA port malfunction - screen)

In order to repair damage No 1, the required equipment includes:

- Spare VGA cable to connect the computer to the screen
- New VGA cable to connect the computer with the screen

Malfunction: Irresponsiveness, possibly caused by a malfunction of a VGA port.

Step 1: Disconnect the cable between the computer and the screen.



Step 2: Connect the spare VGA cable.



Step 3: Replace the damaged VGA cable with a new one.

Step 4: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A.

### 6.3.2 Repairing Irresponsiveness (power supply)

In order to repair damage No 2 the following equipment is required:

- A spare power supply for the screen
- A new power supply for the screen

Malfunction: Irresponsiveness, possibly caused by a screen's power supply socket malfunction.

Step 1: Disconnect the power supply plug from the screen.



Step 2: Connect the spare power supply cable to the screen and see if the problem is fixed.

Step 3: Get a new power supply cable for the screen.

Step 4: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A.



### 6.3.3 Repairing Irresponsiveness (VGA port malfunction - computer)

In order to repair damage No 3 the following equipment is required:

In order to repair damage No 3, the required equipment is the following:

- Screwdriver
- New VGA port, of the same technical specifications as the damaged one

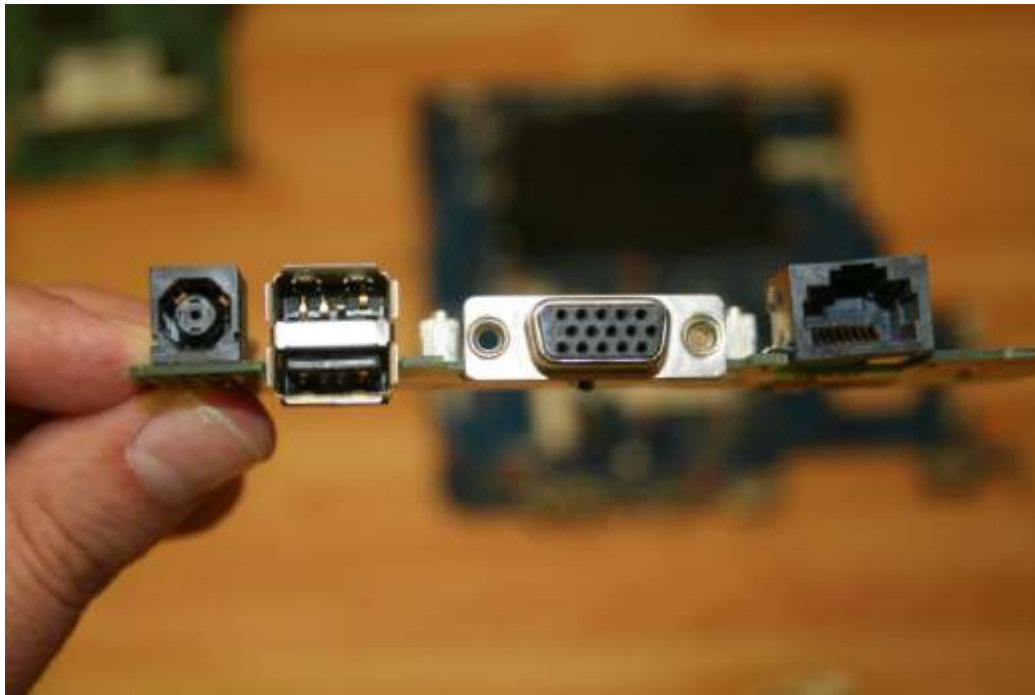
Malfunction: Irresponsiveness, possibly caused by a computer's VGA port malfunction.

Step 1: Disconnect all cables from the rear part of the computer and switch off the power supply.

Step 2: Disassemble the external metallic protective shell of the computer.



Step 3: Disconnect the VGA port.



Step 4: Connect the new VGA port.

Step 5: Reassemble the external metallic protective shell of the computer.

Step 6: Connect all cables to the rear part of the computer and switch on the power supply.

Step 7: Dispose of the damaged component(s) at the WEEE Sorting Center (SC), or at a collection point of the APPLIANCES RECYCLING S.A.

If the screen remains irresponsive, then the malfunction isn't caused by the above referred possible damages and a specialized certified technician is required for the repair.