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Liquid crystal display devices –
Part 2-2: Matrix colour LCD modules – Blank detail specification
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

LIQUID CRYSTAL DISPLAY DEVICES –**Part 2-2: Matrix colour LCD modules –
Blank detail specification**

FOREWORD

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International Standard IEC 61747-2-2 has been prepared by IEC technical committee 110: Electronic display devices.

This second edition cancels and replaces the first edition published in 2004. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- 1) The new edition was editorially changed to follow the current ISO/IEC Directives, for example
 - added the scope;
 - re-arranged the numbering scheme;
 - added titles to the tables;

- added an Annex A , and put some text from Clause 4 and Clause 10 in it;
- removed IECQ reference;
- deleted some unnecessary text.

2) Several words and test conditions were added in Clause 7 and Clause 8.

The text of this standard is based on the following documents:

CDV	Report on voting
110/515A/CDV	110/567A/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all the parts in the IEC 61747 series, under the general title *Liquid crystal display devices*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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A bilingual version of this publication may be issued at a later date.

LIQUID CRYSTAL DISPLAY DEVICES –

Part 2-2: Matrix colour LCD modules – Blank detail specification

1 Scope

This part of IEC 61747 serves as a blank detail specification (BDS) for testing and contains requirements for style and layout and minimum content of detail specifications. These requirements are applicable when the detail specification is published (e.g. for a standard product).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61747-1-1:2014, *Liquid crystal display devices – Part 1-1: Generic specification*

IEC 61747-2:1998, *Liquid crystal display devices – Part 2: Liquid crystal display modules – Sectional specification*

IEC 61747-5:1998, *Liquid crystal and solid-state display devices – Part 5: Environmental, endurance and mechanical test methods*

IEC 61747-5-2:2011, *Liquid crystal display devices – Part 5-2: Environmental, endurance and mechanical test methods – Visual inspection of active matrix colour liquid crystal display modules*

IEC 61747-10-1:2013, *Liquid crystal display devices – Part 10-1: Environmental, endurance and mechanical test methods – Mechanical*

IEC 61747-10-2:2014, *Liquid crystal display devices – Part 10-2: Environmental and endurance measurements*

3 Guidance for preparation of a detail specification

The front page layout is illustrated. When the detail specifications for customer circuits are not published, the layout requirements of the blank detail specification are optional. A suggested front page layout is also illustrated. An example of a customer detail specification (CDS) is also given.

The numbers between square brackets on the front page of the blank detail specification illustrated correspond to the following indications which should be given:

- [1] The name of the National Standards Organization or NAI (National Authorised Institution) under whose authority the detail specification is issued.
- [2] The number of the detail specification.
- [3] The numbers and issue numbers of the generic and sectional specifications.

- [4] The national number of the detail specification, date of issue and any further information, if required by the national system.
- [5] Type number(s) of device.
- [6] Information on typical construction and applications. If a device is designed to satisfy several applications, this shall be stated here. Characteristics, limits and inspection requirements for these applications shall be met. If a device is electrostatic sensitive, or contains hazardous materials, a caution statement shall be added in the detail specification.
- [7] Outline drawing and/or reference to the relevant document for outlines.
- [8] Category of assessment level.
- [9] Reference data on the most important properties to permit comparison between types.

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Layout of blank detail specification (BDS):

[Name (address) of responsible NAI (and possibly of body from which the specification is available)]	[1]	[Number of detail specification plus issue number and/or date.]	[2]
ELECTRONIC COMPONENTS OF ASSESSED QUALITY IN ACCORDANCE WITH: Generic specification: IEC 61747-1-1:2014 Sectional specification: IEC 61747-2:1998 [and national references if different]	[3]	[National number of detail specification] [This box need not be used if national number repeats the number of the detail specification.]	[4]
BLANK DETAIL SPECIFICATION FOR: MATRIX COLOUR LCD MODULES		[5]	
[Type number(s) of the relevant device(s) and if appropriate structurally similar devices.]			
Ordering information: see Clause 5 of this standard.			
Mechanical description		Short description	
Outline references: [Mandatory if available, IEC and/or national number] Structure: e.g. – LCD with integrated circuits (ICs) mounted on cell substrate or separate printed circuit board (PCB) – integrated light source and/or reflector [The description “integrated light source” should be specified properly in a detail specification, e.g. “backlight” or “front-light”.] Outline drawing and dimensions: – overall dimensions – viewing area – effective display area Display format: – number of pixels/dots – pixel/dot pitch – colour pixel/dot arrangement Connection type: e.g. – pin identification – connector identification – type number of connector used – type number of mating connector	[7]	Type of matrix addressing: e.g. – (amorphous silicon, poly silicon) thin film transistor (TFT), thin film diode (TFD), passive, etc. Type of electro-optical effect: e.g. – twisted nematic (TN), super twisted nematic (STN), etc. Optical mode of operation: – transmissive, reflective, transfective – number of colours – number of grey levels normally white, normally black Preferred viewing direction: Electrical specification: e.g. – interface (power supply, data) – integrated light source: e.g. fluorescent lamp (cold cathode fluorescent lamp (CCFL)/ hot cathode fluorescent lamp (HCFL)), light emitting diode (LED), electroluminescence (EL) Application(s): e.g. – personal computer, automobile	[6]
Marking:		Categories of assessed level	
[The detail specification shall prescribe the information to be marked on the device.]		[See 4.4 of IEC 61747-1-1:2014]	[8]
[See 4.3 of IEC 61747-1-1:2014 and Clause 4 of this standard.]		Reference data	
Mass:		[9]	
Information about manufacturers which have components qualified to this detail specification is available in the current qualified products list.			

4 Marking

Refer to 4.3 of IEC 61747-1-1: 2014.

5 Ordering information

The following minimum information is necessary to order a specified device, unless otherwise specified:

- precise type reference;
- reference of detail specification with issue number and/or date when relevant;
- category of assessed quality as defined in 4.5 of the generic specification (IEC 61747-1-1:2014) and, if required, screening sequence as defined in 4.8 of the sectional specification (IEC 61747-2:1998);
- any other particulars.

6 Limiting values (absolute maximum rating system)

The limiting values in Table 1 apply over the operating temperature range unless otherwise specified.

Repeat only the subclause numbers used with a title. Any additional values shall be given at the appropriate place, but without the subclause number(s).

Table 1 – Limiting values
IEC 61747-2-2:2014

Subclause	Parameters	Symbol	Value ^a		Unit
			Min.	Max.	
6.1	Operating ambient temperature	T_{op}	X	X	°C
6.2	Storage temperature	T_{stg}	X	X	°C
6.3	Supply voltage(s) (select either the pair of 6.3.1 and 6.3.2, or 6.3.3)				
6.3.1	Supply voltage for logic drive	$V_{DD} - V_{SS}$	X	X	V
6.3.2	Supply voltage for LCD drive	$V_{DD} - V_{EE}$ or $V_{EE} - V_{SS}$ or $V_O - V_{SS}$ or $V_{DD} - V_O$	X	X	V
6.3.3	Supply voltage(s) for module	V_{MDL} or V_{MDL1} , V_{MDL2} , etc.	X	X	V
6.4	Input signal voltage	V_{IN}	X	X	V
6.5	Backlight voltage (where appropriate)	V_{BL}		X	V
6.6	Soldering temperature (where appropriate)	T_{sld}		X	°C

^a Throughout this standard, when a characteristic or rating applies, "X" denotes that a value shall be inserted in the detail specification.

Block diagram examples for explanation of supply voltages refer to Figure 1.

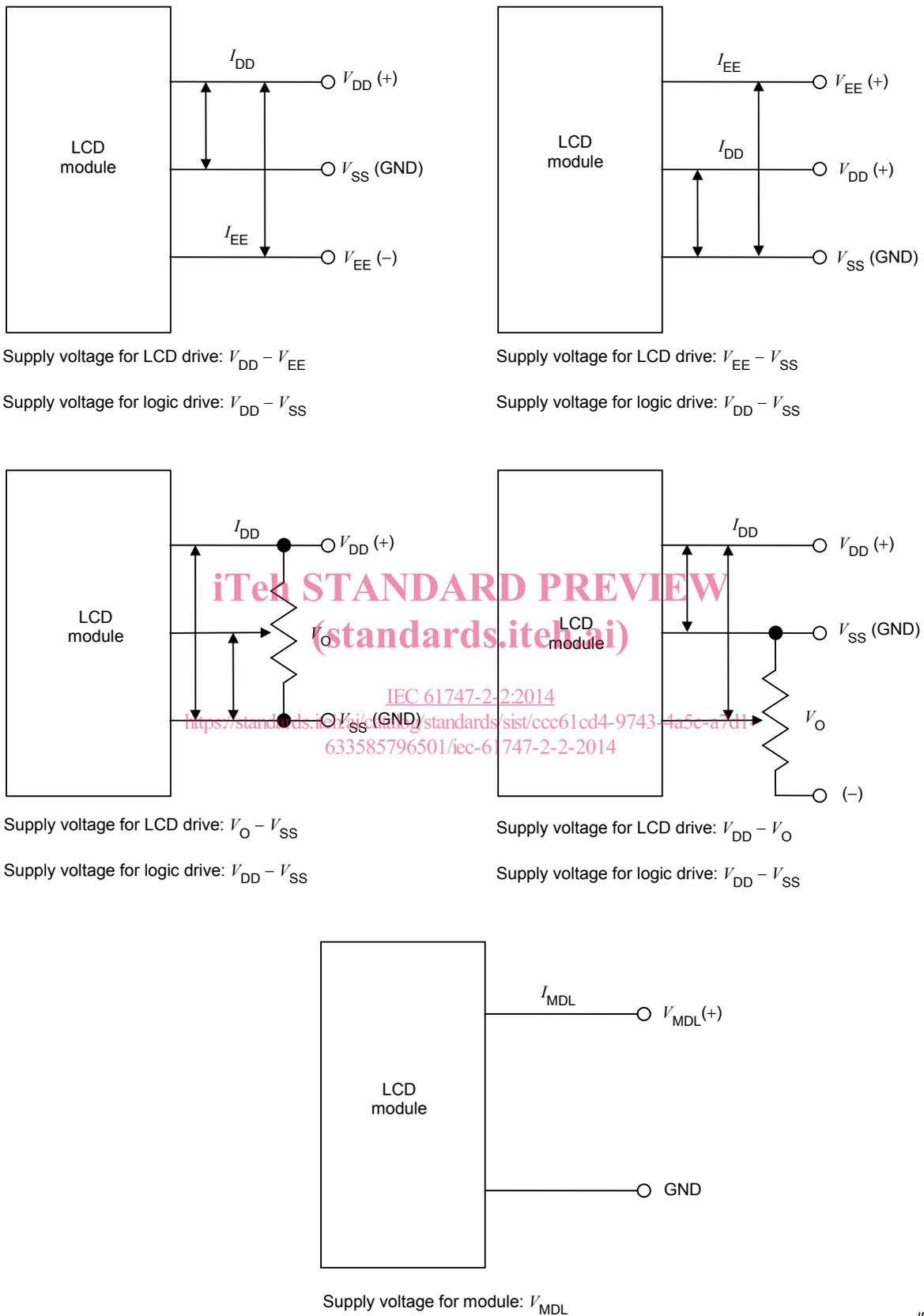


Figure 1 – Block diagram examples for explanation of supply voltages