

# Quality specification REC ScanModule



External quality specification

SWG, LJN 2008-10-14

Issue: 02

No	Fault	Quality demand A-module	Quality demand B-module	Info	Product- area
1	Contamination (not removable), scratches or unevenness on glass. Error code: 141, 142, 143 or 146	Defect visible at a distance equal to B4 is not allowed.	Allowed.		Glass
2	Ribbon not aligned. Error code: 158	More than 1mm of the cell busbar can be visible but only for a length of max 30mm.	No demand.		Ribbon
3	Placement of ribbon on front of cell. Error code: 159	Min 1mm and max 15mm from edge of cell. Ribbon cannot short circuit any cell.	Both ribbon soldered onto the cell, independent on position.		Ribbon
4	Incorrect cut ribbon along busbar. Error code: 161	Ribbon can stick out max 1mm from busbar.	Ribbon should have at least 1mm distance to another conducting surface and be placed at least 4mm from frame.		Ribbon/busbar
5	Placement of ribbon at the end of busbar. Error code: 162	Ribbon needs to be connected with busbar.	No demand.		Ribbon/busbar
6	Bended busbar. Error code: 166	Busbar can be bent away from a straight line with max 3mm.	At least 1mm to another conducting surface.		Busbar
7	Distance between busbars. Error code: 152	Min 1mm.	Min 1mm.		Busbar/cell
8	Distance between busbar and cell. Error code: 167	Min 1mm.	No demand.		Busbar/cell
9	Uneven strings. Error code: 156	Max 3mm displacement between two cells.	Allowed.		Cell/string
10	Distance between cells in one string. Error code: 150	Min 1mm.	No demand.		Cell/string

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11	Distance between cells in two different strings. Error code: 151	Min 1mm.	Min 1mm.		Cell/string
12	Distance between cell and frame or between busbar and frame. Error code: 154	Min 4mm and max 12mm.	No demand, but a security distance of 8,4mm between cell/busbar and edge of glass is still needed.		Cell/lamination
13	Print failure on cell: Broad/outlined fingers. Error code: 108	Max 0,5mm wide, i.e. 3 times wider than normal width. Unlimited length and numbers per cell.	Min Wp=194,75W.		Cell
14	Print failure on cell: Paste spots on frontside of cell. Error code: 107	3 allowed with a total area of 2,5mm <sup>2</sup> .	Min Wp=194,75W.		Cell
15	Print failure on cell: Broken fingers on frontside of cell. Error code: 106	Max 5 with a total interruption of 30mm per cell. Interruptions shorter than 0,5mm shall not be counted.	Min Wp=194,75W.		Cell
16	Cracked/broken cells Error code: 101 or 102	A crack visible at a distance equal to B2 is not allowed.	A crack visible at a distance equal to B4 is not allowed.	See document F-088 to determine the correct distance.	Cell
17	Crushed cell. Error code: 105	Not allowed.	Not allowed.		Cell
18	Corner damage on cell. Error code: 103	The corner damage can't reach the first finger. Unlimited numbers of cells.	The corner damage can't reach the third finger. Unlimited numbers of cells.		Cell
19	Edge damaged cell Error code: 104	Max length of 10mm, not deeper than 1,0mm. Unlimited numbers of cells.	Max length of 20mm, not deeper than 4,0mm. Unlimited numbers of cells.		Cell
20	Particle in laminate, conductive: Distance for isolation. Error code: 204, 220, 221, 222	Min 1mm.	Min 1mm.	The distance for isolation means that there must be min 1mm between any conductive parts with different potential due to the risk of short circuit.	Contamination conducting

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21	Particle in laminate, conducting or non-conducting: Size and number.  Error code: 203, 204, 230, 231, 232, 233, 235	See scheme.	See scheme.	See document F-088 for classification.	Contamination
22	Particle in laminate, conductive: Particle placed on cell with an area greater than 1mm <sup>2</sup> .  Error code: 204, 220, 221, 222	Not allowed.	Not allowed.	See document F-088 for classification.	Contamination conducting
23	Particle in laminate in form of hair.  Error code: 233	Max 30mm.	Allowed.		Contamination non conducting
24	Bubbles on frontside or bubbles on backside.  Error code: 201, 202	Total surface: Max 1,63cm <sup>2</sup>	Total surface: Max 4,07cm <sup>2</sup>		Bubbles
25	Corner gap.  Error code: 402	Max 0,5mm	Allowed.		Frame
26	Displaced corner at frame  Error code: 400	Max 1mm.	Allowed.		Frame
27	Surface defect frontside and side of frame, i.e. visible surfaces for a mounted module.  Error code: 403	Not visible at a distance equal to B4.	Allowed.	See document F-088 to determine the correct distance.	Frame
28	Surface defect bottom and inner side of frame, i.e. non-visible surfaces for a mounted module.  Error code: 403	Not visible at a distance equal to B6.	Allowed.	See document F-088 to determine the correct distance.	Frame
29	Power output.  Error code: 500	According to classification	Min Wp=194,75W.		Power