

| GAUTAM<br>SOLAR  |  | Gautam Solar Private Limited<br>IPQC Check Sheet |   |   | Document No.<br>GSPL/IPQC/IPC/003<br>Issue Date<br>01/12/2024<br>Rev. No./Rev.Date<br>01/30-08-2025 |                  |
|------------------|--|--|---|---|---|------------------|
| Date: 2025-11-16 |  | Time:  |   | Shift: A  | Po.no.: 23456   |                  |
| Sr.No.           | Stage                                    | Check point                                      | Quantum of Check<br>Sample Size   Frequency | Shift<br>Acceptance Criteria  | Monitoring Result   | Remarks,If any   |
| 1                | Shop Floor                               | Temperature                                      | once<br>per shift                           | Temp. ≤53°C   | Time: 08:00 AM - 23.18°C  | Stable           |
|                  |  | Humidity   | once<br>per shift                           | RH ≤60%   | Time: 08:00 AM - 46% RH   | OK               |
| 2                | Glass Loader                             | Glass dimension(L*W*T)                           | once<br>per shift                           | As Per PO   | 2375.79mm x 1127.25mm x 2.04mm  | As per spec      |
|                  |  | Appearance(Visual)                               | once<br>per shift                           | Glass Broken, Crack, Scratches and Line mark not allowed                  | No Defects Found  | Pass             |
| 3                | EVA/EPE Cutting                          | EVA/EPE Type                                     | once<br>per shift                           | As per approved BOM   | EVA PLASTOMER   | Confirmed        |
|                  |  | EVA/EPE dimension(L*W*T)                         | once<br>per shift                           | As per Specification  | 2377.35mm x 1125.5mm x 0.72mm   | Within tolerance |
|                  |  | EVA/EPE Status                                   | once<br>per shift                           | Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date | Uniform Embossing   | OK               |
| 4                | Eva/EPE Soldering at edge(If Applicable) | Soldering Temperature and Quality of Soldering   | Once<br>per shift                           | As per specification and Should be properly soldered ( 400 ± 20°C)        | Time: 08:15 AM - Temp: 402.7°C  | OK               |
| 5                | Cell Loading                             | Cell Manufacturer & Eff.                         | once<br>per shift                           | Refer Process Card  | Longi Solar   | OK               |
|                  |  | Cell Size(*W)                                    | once<br>per shift                           | Refer Process Card  | 182.47mm x 105.18mm   | OK               |
|                  |  | Cell Condition                                   | once<br>per shift                           | Free From dust,finger spot,color variation                                | Clean - No Defects  | No defects       |
|                  |  | Cleanliness of Cell Loading Area                 | once<br>per shift                           | No unwanted or waste material should be at Cell Loading Area              | Clean Surface   | OK               |
|                  |  | Verification of Process Parameter                | once<br>per shift                           | ATW Stringer Specification  | Auto Bussing  | Pass             |
|                  |  | Cell Cross cutting                               | once<br>per shift                           | Both side cutting should be equal.  | 0.03mm  | Clear            |
|                  |  | Verification of Process Parameter                | once<br>Month                               | ATW Stringer Specification  | Taping Proper   | OK               |

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| 6                | Tabber & stringer | Visual Check after Stringing                                | once<br>1 String/T5 shift                       | TS Visual Criteria                  | TS01A: OIC<br>TS01B: OIC<br>TS02A: OIC<br>TS02B: OIC<br>TS03A: OIC<br>TS03B: OIC<br>TS04A: OIC<br>TS04B: OIC   | Clear            |
|                  |                   | EL Image of Strings   | once<br>1 String/T5 shift                       | TS EL Criteria                      | TS01A: OIC<br>TS01B: OIC<br>TS02A: OIC<br>TS02B: OIC<br>TS03A: OIC<br>TS03B: OIC<br>TS04A: OIC                 | Clear            |
|                  |                   | String length   | once<br>1 String/Stringer/ shift                | Refer Process Card                  | TS01A: 1163.3mm<br>TS01B: 1162.5mm<br>TS02A: 1163.1mm<br>TS02B: 1163.5mm<br>TS03A: 1162.5mm<br>TS03B: 1162.6mm | Match PO         |
|                  |                   | Cell to Cell Gap  | once<br>1 String/Stringer/ shift                | Refer Process Card                  | TS01A: OIC<br>TS01B: OIC<br>TS02A: OIC<br>TS02B: OIC<br>TS03A: OIC<br>TS03B: OIC<br>TS04A: OIC<br>TS04B: OIC   | Pass             |
|                  |                   | Verification of Soldering Peel Strength                     | 2 cell each stringer Front & Back.<br>per shift | Peel Strength ≥1N                   | TS01A: OIC<br>TS01B: OIC<br>TS02A: OIC<br>TS02B: OIC<br>TS03A: OIC<br>TS03B: OIC<br>TS04A: OIC                 | OK               |
|                  |                   | String to String Gap  | once<br>per shift                               |                                     | As per spec  | Within tolerance |
|                  |                   | Cell edge to Glass edge distance (Top,bottom & sides)       | once<br>per shift                               | Refer Process Card & Module Drawing | TS01A: OIC<br>TS01B: OIC<br>TS02A: OIC<br>TS02B: OIC<br>TS03A: OIC<br>TS03B: OIC<br>TS04A: OIC<br>TS04B: OIC   | Clear            |
|                  |                   | Soldering Peel Strength b/w Ribbon to busbar interconnector | once<br>per shift                               | ≥2N                                 | TS01A: OIC<br>TS01B: OIC<br>TS02A: OIC<br>TS02B: OIC<br>TS03A: OIC<br>TS03B: OIC<br>TS04A: OIC                 | Clear            |

|    |  |   |                    |   |                                |                  |
|----|--|---|--------------------|---|--------------------------------|------------------|
| 7  | Auto bussing , layup & Tapping                 | Terminal busbar to edge of Cell                               | once per shift     | 132 Cell module drawing, Refer Module Drawing-GSPL/N144/G/001             | Refer Module Drawing           | No defects       |
|    |  | Soldering Quality of Ribbon to busbar                         | Every 4h per shift | No Dry/Poor Soldering   | Busbar Peel: 22.08N            | —                |
|    |  | Top & Bottom Creepage Distance/Terminal busbar to Glass Edge. | Every 4h per shift | Creepage distance should be as per process card/Drawing                   | Top: 12.05mm   Bottom: 11.64mm | Acceptable       |
|    |  | Verification of Process Parameter                             | once per shift     | Specification for Auto Bussing  | Auto Bussing                   | Acceptable       |
|    |  | Quality of auto taping  | Every 4h per shift | Taping should be proper,no Cell Shifting allowed                          | Proper                         | —                |
| 8  | Auto RFID Logo/Barcode placing (If Applicable) | Position verification of RFIDs Logo /Barcode placing          | Every 4h per shift | Should not be tilt  | Tilt: 0.38mm                   | Good             |
| 9  | EVA/EPE cutting                                | EVA/EPE Type  | once per shift     | EVA   | EVA PLASTOMER                  | Confirmed        |
|    |  | EVA/EPE dimension(L*W*T)                                      | once per shift     | As per Specification  | 2378.48mm x 1125.2mm x 0.71mm  | Within tolerance |
|    |  | EVA/EPE Status  | once per shift     | Not allowed dust & foreign particle/Cut & non Uniform Embossing /Mfg Date | No Damage                      | Pass             |
| 10 | Back Glass Loader                              | Glass dimension(L*W*T)  | once Per shift     | As per PO   | 2375.33mm x 1127.44mm x 1.99mm | As per spec      |

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| 11                  | Auto Busbar Flatten (If Applicable)   | No. of Holes/ Holes dimension                        | once<br>Per shift                           | 3 hole with dimension 12mm ± 0.5mm   | As per spec   | —                |
|                     |                                       | Visual Inspection                                    | 5 pieces<br>per shift                       | No crack/ breaks in busbar & properly flattened without bending and twisting | S.No: 10048<br>S.No: 10064<br>S.No: 10069<br>S.No: 10092<br>S.No: 10093                             | OK               |
| 12                  | Pre lamination EL & Visual Inspection | EL Inspection and Visual Inspection                  | 5 pieces<br>per shift                       | Pre EL Inspection Criteria, Pre EL Visual Criteria                           | S.No: 10009<br>S.No: 10018<br>S.No: 10035<br>S.No: 10071<br>S.No: 10082                             | OK               |
| 13                  | String Rework Station                 | cleaning of rework station/Soldering iron and sponge | once<br>per shift                           | Rework Station should be Clean/Sponge should be Wet                          | Clean Surface   | No contamination |
|                     |                                       | Soldering Iron Temp.                                 | once<br>per shift                           | 400±30°C   | Time: 08:00 - Temp: 27.14°C   | Good             |
| 14                  | Module Rework Station                 | Method of Rework                                     | once<br>per shift                           | As per WI (GSPL/P/WI/012)  | As per spec   | Good             |
|                     |                                       | Cleaning of Rework station/Soldering iron sponge     | once<br>per shift                           | Rework Station should be Clean/Sponge should be Wet                          | CLEAN - No EVA Residue  | No contamination |
|                     |                                       | Soldering Iron Temp.                                 | once<br>per shift                           | 400±30°C   | Time: 08:00 - Temp: 24.16°C   | OK               |
| 15                  | Laminator                             | Monitoring of Laminator Process parameter            | once<br>per shift                           | Process Parameter of jinchen Laminator                                       | As per spec   | Acceptable       |
|                     |                                       | Cleaning of Diaphragm/release sheet                  | once<br>24h                                 | Diaphragm/Release sheet should be clean,No EVA residue is allowed            | No Residue - CLEAN  | OK               |

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| Sr.No.                             | Stage                              | Check point   | Quantum of Check<br>Sample Size   Frequency                | Shift<br>Acceptance Criteria  | Monitoring Result  | Remarks,If any |
| 16                                 | Auto Tape Removing (If Applicable) | Peel of Test b/w: EVA/Backsheet<br>EVA/EPE/POE to Glass             | All position<br>All laminators to be covered in a<br>month | E/G ≥60N/cm E /Bs≥60N/cm  | As per spec  | Clear          |
|                                    |                                    | Gel Content Test  |  | 75to 95%  | As per spec  | OK             |
|                                    |                                    | Visual Check after Lamination                                       | 5 pieces<br>per shift                                      | Check Tape Removing Should be smooth and No<br>visual bubble Should be found.     | S.No: 10007<br>S.No: 10015<br>S.No: 10029<br>S.No: 10071<br>S.No: 10091  | Good           |
| 17                                 | Auto Edge Trimming                 | Trimming Quality  | 5 pieces<br>per shift                                      | Excess layer from the glass edge should be<br>removed,Uneven Trimming not allowed | Even Trim: 0.27mm deviation  | Pass           |
|                                    |                                    | Trimming Blade life cycle   | once<br>per month  | Worn out not allowed  | Even Trim: 0.32mm deviation  | Good           |
| 18                                 | 90° Visual Inspection              | Visual Inspection   | 5 pieces<br>per shift                                      | Post Lam Visual Inspection Criteria   | S.No: 10026<br>S.No: 10040<br>S.No: 10064<br>S.No: 10072<br>S.No: 10082  | No defects     |
| 19                                 | Framing                            | Glue uniformity & continuity in frame groove                        | 1 set<br>per shift   | Should be uniform,Back sealing should be proper                                   | As per spec  | —              |
|                                    |                                    | Short Side Glue Weight  | once<br>Per shift  | Till as per Specification   | Potting Weight: 20.03g   | Good           |
|                                    |                                    | Long Side Glue Weight   | once<br>Per shift  |   | Potting Weight: 20.95g   | Good           |
|                                    |                                    | Anodizing Thickness   | once<br>Per shift  | ≥15 micron  | As per spec  | Good           |
| 20                                 | Junction Box Assembly              | Junction Box(Connector Appearance & Cable<br>Length)                | once<br>Per shift  | As per Process Card & module drawing  | JB Position: 0.66mm shift  | —              |
|                                    |                                    | Silicon Glue Weight on the bottom (g)                               | once<br>Per shift  | 21±6 gm   | Potting Weight: 24.55g   | —              |
|                                    |                                    | Max Welding time  | once<br>Per shift  | As per Specification  | As per spec  | OK             |

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| 21                  | Auto JB Soldering                         | Soldering current                                    | once<br>per shift                           | As per Specification   | As per spec   | Good           |
|                     |   | Soldering Quality                                    | once<br>per shift                           | Welding area should be fully covered & checked by<br>twizzer,no yellowing allowed            | As per spec   | OK             |
| 22                  | JB Potting                                | A/B Glue Ratio                                       | once<br>Per shift                           | As per Specification   | As per spec   | Acceptable     |
|                     |   | Potting material weight                              | once<br>Per shift                           | 21±6 gm  | EVA PLASTOMER   | OK             |
|                     |   | Nozzle Changing                                      | once<br>every 6h                            | Should be changed after 6 hours or when found<br>issue of damage or extra amount dispensing. | As per spec   | OK             |
| 23                  | OLE Potting Inspection (If<br>Applicable) | Visual Check   | once<br>5 piece                             | Potting should be properly filled, and mounting hole<br>should be as per drawing.            | As per spec   | OK             |
| 24                  | Curing                                    | Temperature  | once<br>per shift                           | 25±3■  | Time: 08:00 - Temp: 25.36°C   | Stable         |
|                     |   | Humidity   | once<br>per shift                           | ≤50%   | Time: 08:00 - RH: 51%   | Stable         |
|                     |   | Curing Time(H)                                       | once<br>Per shift                           | ≥4 hours   | As per spec   | Good           |
| 25                  | Buffing                                   | Corner Edge-Buffing belt condition                   | 5 pieces<br>per shift                       | Should not be sharp & No worn out  | FF: 78.25%  | Pass           |

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| 26               | Cleaning     | Module should be free from Tape,Dust,Dirt,EVA/Backs heet residue,Corner Burrs,Glue residue on glass,backsheet,JB,Wire etc.) | 5 pieces per shift                          | Post Lam Visual Criteria  | S.No: 10014<br>S.No: 10019<br>S.No: 10047<br>S.No: 10055<br>S.No: 10077                             | OK             |
| 27               | Flash Tester | Ambient Temp.   | once per shift                              | 25±3■   | Time: 08:00 - Temp: 23.29°C   | —              |
|                  |              | Module Temp.  | once per shift                              | 25±3■   | Time: 08:00 - Temp: 26.74°C   | Good           |
|                  |              | Isc/simulator Calibration   | once 12h                                    | Isc/simulation should be calibrated at the start of the shift with Golden/Silver module(GSEN/QA/K/11) | Isc: 13.17A   | Pass           |
|                  |              | Validation  | once every 4h                               | As per GSEN/QA/K/11   | As per spec   | Good           |
|                  |              | Silver Reference Module Iv Check  | once Two weeks                              | Should be same as original I-v picture  | As per spec   | OK             |
| 28               | Hipot Test   | DCW/IR/Ground continuity  | 5 pieces per shift                          | ≤50μA , >40MΩ.m² , (0-100) mΩ   | S.No: 10019<br>S.No: 10045<br>S.No: 10082<br>S.No: 10092<br>S.No: 10094                             | Acceptable     |
| 29               | Post EL Test | Verification of current configuration in DC power supply  | once Shift                                  | As per WI (GSPL/P/WI/027)   | Pmax: 625.08W   | Pass           |
|                  |              | EL Inspection and Visual Inspection   | 5 pieces per shift                          | Post EL Inspection Criteria, Post EL Visual Criteria  | S.No: 10021<br>S.No: 10033<br>S.No: 10036<br>S.No: 10047<br>S.No: 10048                             | OK             |
| 30               | RFID         | RFID Position   | once per shift                              | As per Process card   | Tilt: 0.46mm  | OK             |
|                  |              | Cell & Module Make & Manufacturing Month Verification   | once per shift                              | As per BOM and Process card   | As per spec   | OK             |

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| 31               | Final Visual Inspection | Visual Inspection                                | 5 pieces<br>per shift                       | Post lam visual inspection criteria                 | S.No: 10038<br>S.No: 10042<br>S.No: 10048<br>S.No: 10086<br>S.No: 10089                             | Clear          |
|                  |                         | Re-label   | 5 pieces<br>per shift                       | No bubble,Tilt,Align,no folded label not acceptable | Tilt: 0.24mm  | No defects     |
| 32               | Dimension measurement   | L*W and Module Profile                           | once<br>per shift                           | As per Module drawing (±1mm)                        | Refer Module Drawing  | Pass           |
|                  |                         | Mounting Hole X & Y (H/L)                        | once<br>Per shift                           |   | As per spec   | Acceptable     |
|                  |                         | Diagonal Difference                              | once<br>Per shift                           | ≤3mm  | FF: 77.91%  | —              |
|                  |                         | Corner Gap                                       | once<br>Per shift                           | As per visual inspection criteria                   | As per spec   | Acceptable     |
|                  |                         | JB Cable length                                  | once<br>Per shift                           | As per Process Card                                 | Cable: 1183.2mm   | —              |
| 33               | Packaging               | Packaging Label                                  | once<br>Per shift                           | WI For Packaging                                    | Tilt: 0.04mm  | OK             |
|                  |                         | Content in Box                                   | once<br>Per shift                           |   | As per spec   | Good           |
|                  |                         | Box Condition                                    | once<br>Per shift                           | Damage,dull printing,wet boxes not allowed          | As per spec   | Acceptable     |
|                  |                         | Wooden Pallet dimension                          | once<br>Per shift                           | should not be less than module dimension            | As per spec   | As per spec    |