

Plating Specification for Pre-Plated Tin Strip Surfaces

1.0 PURPOSE:

This appendix defines **minimum** product acceptability criteria from a cosmetic viewpoint and defines functional requirements for terminal applications for suppliers. It provides Molex engineering and marketing departments with guidelines to specify requirements on material specifications.

2.0 SCOPE:

This specification covers 100% Tin and Tin alloy coatings (such as: SnPb, SnAg, and SnCu) from the hot dipped processes, the electro-plating process, and the reflow process. The specification also provides grading of cosmetic surfaces and guidelines for cosmetic inspection. When, or if, it becomes necessary to deviate from the listed cosmetic requirements, a full disclosure of requirements must be listed in the Purchase Order.

3.0 Reference Documents:

- ASTM B820 [Bending]
- ASTM D 523, ISO 2813, DIN 67 530 [Reflectivity]
- ASTM D3359 [Adhesion Testing]

4.0 CRITERIA:

The method for evaluation involves four parameters, which provide categorization of defect types.

Classification – This consists of grouping surface types according to the apparent visibility and / or utility to the end user.

- Cosmetic Applications
- Terminal Applications

Surface Category -- There are two basic observation modes for describing the plated surface. Each surface category will yield separate acceptability criteria.

- Reflectivity
- Processing Artifacts

Time and Distance -- This is the method of viewing process artifacts used to promote objective evaluation.

Using the applicable Classification and Surface Category, view the surface according to the appropriate Time and Distance parameters. Strips are rejected if defects beyond those allowed in the matrix are detected within the specified viewing time and distance.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	1 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

Plating Structure – Reflow Tin -- This is the method of test and reporting to document the acceptable performance of the plated structure.

5.0 CLASSIFICATION.

This consists of grouping surface types according to the apparent visibility or utility to the end user.

Cosmetic Application -- This type of surface would commonly be specified on housings, shields, and plates with end user (OEM) visibility. This is a surface “uniform” in appearance and “relatively free of apparent flaws “as listed in the “Surface Criteria Acceptance” matrix.

Terminal Application – This type of surface would commonly be specified for connectors with low end user (OEM) visibility. This is a surface consistent with functional utility and free of flaws that would affect contact reliability. These acceptance criteria are listed in the “Surface Criteria Acceptance” matrix.

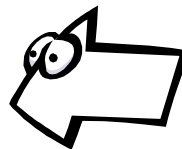
6.0 TIME AND DISTANCE (process artifacts)

All viewed surfaces shall be positioned to allow clear viewing, while avoiding placement under reflective light sources that may exaggerate surface imperfections.

OBSERVATION CRITERIA: (ref. Drawing below)

1. Diffused lighting shall be maintained at **80–100 foot-candles** (approximately **860–1076 lux**), with **neutral white color** to ensure adequate visibility and consistent inspection conditions.
2. Standard viewing distance shall be 0.9 meters; 1–2 meters for large parts and 0.3–0.45 meters for small or intricate parts.
3. Viewing time equals 5 seconds generally.
4. Parts shall be inspected under **diffused, non-reflective lighting**, positioned to **avoid direct glare**. The **viewing angle** should be approximately **perpendicular (90°)** to the surface to ensure accurate visual assessment.
5. It is recommended to use a matte grey or black background to minimize reflections and enhance flaw visibility.

Proper positioning for non-reflective viewing



THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	2 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

7.0 SPECULAR REFLECTIVITY (cosmetic applications only):

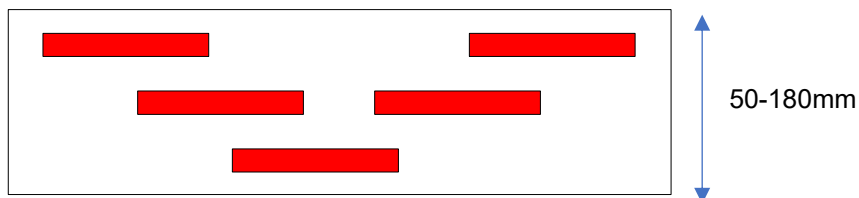
This is the measure of the coating’s reflectivity as expressed in gloss units (dimensionless). Measurements should be taken at a 20-degree incidence angle in accordance with ASTM D 523, ISO 2813 or DIN 67 530. Acceptance criteria (listed in matrix) are expressed in terms of minimum gloss units and a maximum range for the individual measurements taken.

- 7.1** Recommended instrument: mirror-TRI-gloss, available through Minolta instruments.
- 7.2** Sample preparation: If observed, remove all protective or contaminated films that could cause refraction or absorption of the instrument’s light source.
- 7.3** Testing Environment: Perform gloss measurements in a consistent environment. External or background light should be minimized or kept constant.
- 7.4** Calibration Step: As per the manufacturer’s instructions, it is recommended to calibrate the instrument before measurement session.
- 7.5** Sampling procedure: The goal is to represent the sample’s reflectivity across the sample’s width, identifying any areas that appear less shiny. This promotes maximum range in individual values, thereby representing to what degree of “change in reflection” a part may receive.
- 7.6** Surface Preparation for Measurement: Prior to sampling, remove the first 1–2 wraps of the outer layers, as they may be affected by handling, transit, or environmental exposure. All measurements shall be taken only from clean, undamaged, and representative material to ensure accurate and consistent evaluation.

7.6.1 For strips wider than 180mm take 5 evenly spaced measurements across the width of the surface.



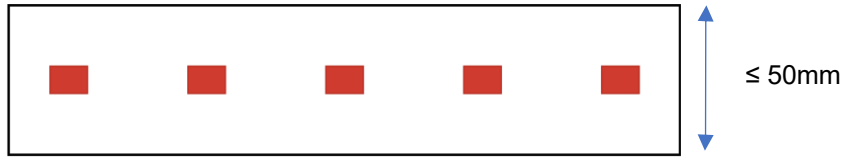
7.6.2 For strips 50 – 180mm wide, take 5 measurements at width intervals of 40mm working back and forth across the width and down the length sequentially.



THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	3 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

7.6.3 For strips width less than 50mm take 5 longitudinal measurements along the length of the strip (maximum travel 1 meter).



7.7 Data Recording: When gloss value requirements are specified in the drawing, record reflectivity readings in a traceable system. After completing the steps in Sections 7.1 to 7.6, record the data using the provided worksheet format. This ensures traceability, calibration confirmation, specification compliance, and clear pass/fail evaluation.

Reflectivity data recording worksheet

Date & Time	Part ID/Coil/Lot	Calibration of Instrument	Material Spec	Measurement for Gloss Value	Operator Name	Reference Spec Range	Accept/Reject
Record the date & time for traceability	Identify the specific part or batch being inspected	(Yes/No)	Record the base material and plating type	Record the gloss values by location, in accordance with sections 7.6	Record who performed the inspection	List the reference gloss value ranges to be adhered	The parts passed or failed the gloss inspection

8.0 PRE-PLATED SURFACE – STANDARD DEFINITIONS:

8.1 Reflectivity – A measure (gloss units) of the material’s surface to reflect light.

8.2 Scratches (recessed or raised)

8.2.1 Recessed – An elongated break in the surface caused by mechanical damage i.e. the surface is broken open, and a depression is formed. This condition is “readily” felt.

8.2.2 Determination – Visual recognition, feel with fingernail, if not felt, use “striation” as default artifact.

8.2.3 Raised – A ridge in the plating surface that is “readily” felt. This is typically caused by the wiping mechanism in the “hot” application processes.

8.2.4 Determination – Visual recognition, feel with fingernail, acknowledge, measure (micrometer), compare to specified material thickness, if within specified material thickness, use “striation” as default artifact.

8.3 Striations – A group of linear observations made on the surface of the strip. The cause can be lines on the base material highlighted by plating or an actual result of the plating process. The identifying characteristic of striations is that they do not break the surface and are not “readily” felt.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

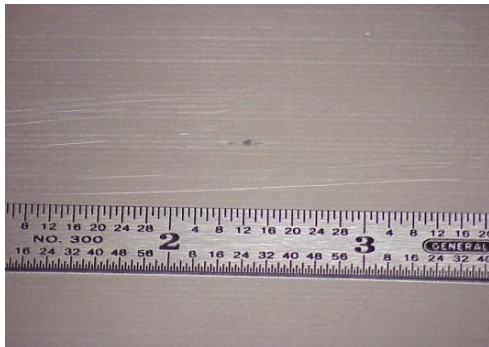
REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	4 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

8.4 Bumps / Globbs (typically free tin) – These process artifacts are formed when tin is splashed onto the surface after wiping or is re-deposited during the slitting process.

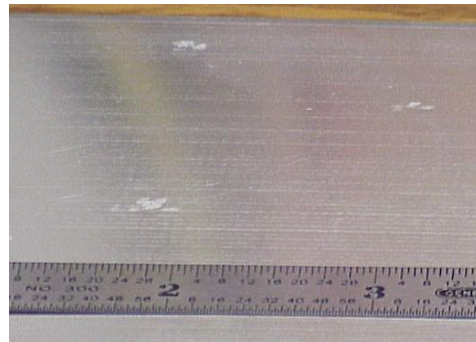
8.5 Spots

8.5.1 Black spots – Are entrapped process contamination or a tin / tin alloy surface that has experienced “point contact” fretting.

8.5.2 Inclusions – Are common to the “hot” process. These artifacts typically are flux residuals; dross or various intermetallic formed in the process and vary in darkness of color.



BLACK SPOTS



FLUX SPOTS

8.6 Discoloration (stain) – Discoloration of the material’s surface with respect to contamination e.g. water, organic compounds, foreign material, etc.



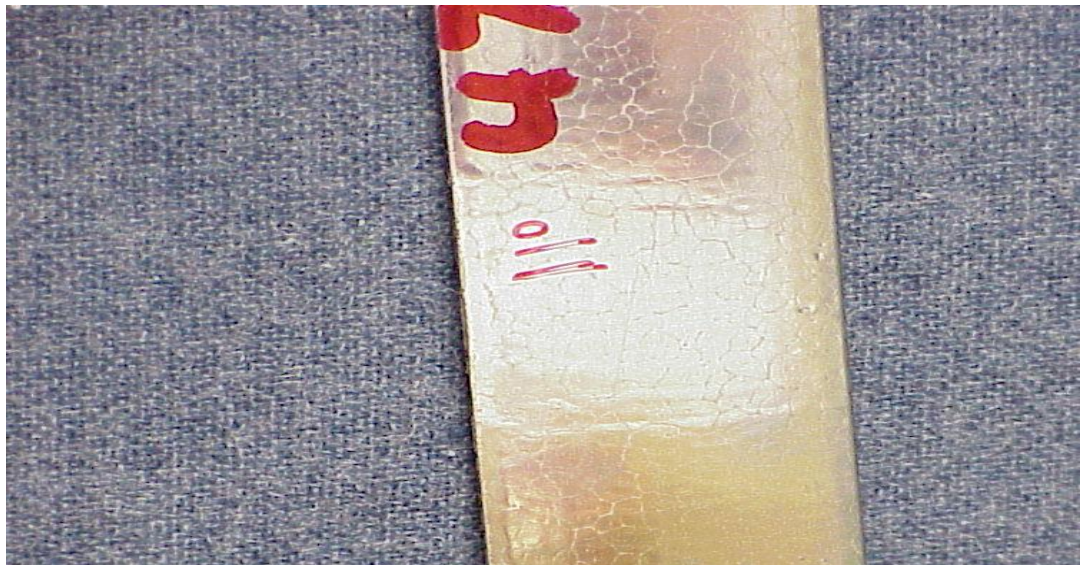
THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	5 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

8.7 Fretting lines – An observed “linear” condition caused by coil wrap-to-wrap contact which causes a worn / eroded streak that is dark in color.



8.8 Undulating Surface – A characteristic of the thick HALT (Hot Air Leveled Tin, thickness > 2.5 microns) in that the surface has a wavy pattern.



THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	6 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

8.9 “T” Marks – A potential characteristic from the mechanically wiped “hot” process. These descriptive artifacts are formed when a small solid particle is pulled through the rigid wiping system i.e. a wave front occurs with a resultant tail resembling a “T.”



8.10 “Trout” Spots – Common to the HALT process, these circular ring type observations are produced during the cooling / solidification process and are typically observed on base material thickness above 0.5 mm.



THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	7 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

8.11 Dewetting / skipped plating condition – Respective terminologies common to the “hot” and “electro-plating” processes. The condition of the base material or contamination of the surface has not allowed the plating to be applied in an even, smooth manner.

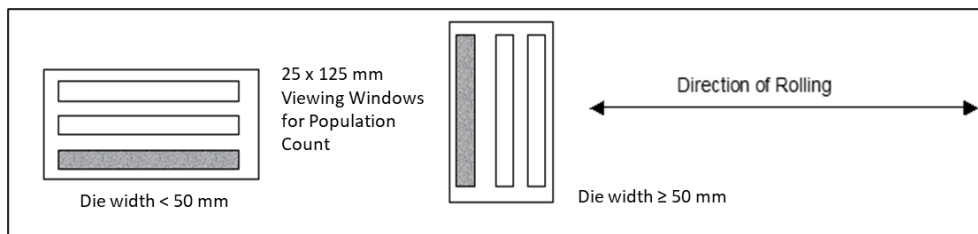


9 MEASUREMENT METHODS:

The following methods of measurement should be applied to evaluate the surface characteristics as listed in the “Surface Criteria Acceptance” matrix.

- 9.1** Reflectivity –Specular reflectivity measurements (see Section 7.0) shall be applied **only to surfaces classified as “Cosmetic applications”**.
- 9.2** Visual observation for artifact recognition –Perform visual inspection under the specified Time and Distance conditions (Section 6.0) to identify any cosmetic defects if recognition occurs follow 9.4 to 9.5.
- 9.3** Defect Density Check: It is recommended that a cardboard template be used with a 25 x 125-millimeter viewing window to establish artifact population count per unit area.

Figure: Method- Artifact population count



THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	8 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

9.4 Fingernail test – If required by artifact type, lightly rub the suspect area to determine if the observation is “readily” felt.

9.5 Measurable Artifacts

9.5.1 Use micrometer to measure raised artifacts.

9.5.2 Use calipers to measure spot diameters.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	9 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

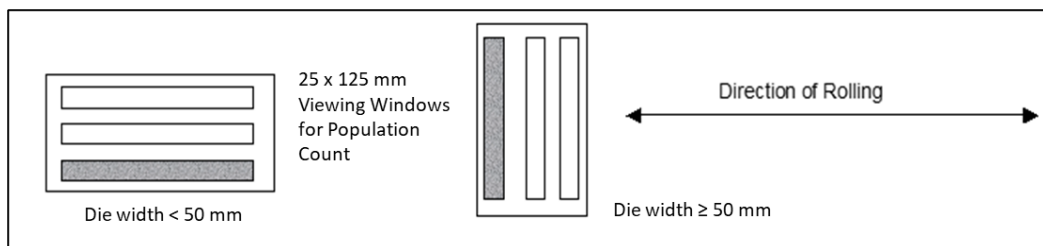
Surface Criteria Acceptance Matrix

Defect Evaluation/Inspection:

If an isolated defect is noted, three (3) wraps should be removed by Molex to determine if condition reoccurs before rejecting. If condition goes away, material will be used.

Attribute	Mech. Wipe	HALT < 2,5 µm	HALT > 2,5 µm	Reflow	Electro Bright	Electro Matte	Acceptance Criteria
Reflectivity (Cosmetic only)		x		x	x		HALT = 1000 min. gloss. Reflow = 1200 min. gloss. Electro Bright = 600 min. gloss. All = 200 gloss max. range
Scratches (Recessed/ Raised)	x	x	x	x	x	x	Finger Nail Test Terminal = None Allowed Cosmetic = None allowed
Striation	x	x	x	x	x	x	Not ready feelable Terminal = acceptable Cosmetic = unacceptable
Bumps/Globs (free tin)	x	x	x				Must not exceed thickness max tolerance including plating thickness Terminal = acceptable Cosmetic = unacceptable
Black Spots Inclusions (intermetallic) Flux Spots	x	x	x				Must not exceed thickness max tolerance, including plating thickness. Terminal - Defect size/freq. ≤0.8 mm dia / 8 per 31.25 cm ² * Cosmetic - Defect size/freq ≤0.5 mm dia / 3 per 31.25 cm ² *
Discoloration (stain)	x	x	x	x	x	x	Discoloration / Stain to be observed at Time and distance. Unacceptable for Terminal or Cosmetic.
Fretting	x	x	x	x	x	x	Fretting to be observed at Time and distance. Unacceptable for Terminal or Cosmetic
Undulating Surface			x				A function of the process and thickness selected. No acceptance / rejection criteria.
"T" Marks	x						Must not exceed thickness max tolerance, including plating thickness Terminal = 3 defects per 31.25 cm ² *
Trout Spots		x	x				A function of the process and material thickness selected. No acceptance / rejection criteria.
Dewetting Condition	x	x	x	x	x	x	Dewetting to be observed at Time and Distance. Unacceptable for Terminal or Cosmetic

*Method - Artifact Population Count template



THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	10 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

10 Plating Structure – Reflow tin:

10.1 These plating requirements are for “Terminal Applications” where the plating structure is critical to the performance of the separable interface.

10.2 Thickness of layers

10.2.1 Pre-reflow measurement of layers.

10.2.1.1 One sample on the strip surface as per 7.5.1, 7.5.2, 7.5.3 on the strip as per order setup.

10.2.1.1.1 XRF sample measurement for layer thickness.

10.2.1.1.2 Values to be recorded on “certification of compliance” (COC).

10.2.2 post-reflow measurement of layers.

10.2.2.1 One sample per tenth order occurrence.

10.2.2.2 Measure layer thickness for Tin and record.

10.2.2.2.1 Measure thickness in 5 locations on the strip surface as per 7.5.1, 7.5.2, 7.5.3 on both sides of the strip. At each location, 1 measurement is taken on a 2mm diameter area that is identified on the surface (i.e., circle with a marker pen) to preserve the location. These values are to be compliant with the Molex specified thickness range.

10.2.2.2.2 Chemically strip the “free tin”.

10.2.2.2.3 Remeasure the 2mm diameter area again and record the value (intermetallic tin thickness).

Calculate “Free Tin %” based on the formula below.

$$\frac{(total\ tin\ thickness - intermetallic\ tin\ thickness)}{total\ tin\ thickness} \times 100 = Free\ Tin\ \%$$

The acceptance criteria require that Free Tin % is at least 20% of the total tin thickness, with a minimum of 0.3 microns at each measurement point.

10.2.2.2.4 This pass/fail acceptance criteria with actual data is to be placed on the respective every tenth “Certification of Compliance” (COC).

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	11 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

10.3 Plating Structure Performance

10.3.1 Plating operations that are not in a state of control can exhibit plating porosity between structural layers. This can lead to peeling/flaking plating when forming is required and when terminals are inserted into housing. This is an unacceptable condition. Image 1 is micro voids in the intermetallic due to diffusion issue. – Kirkendall voids.

10.3.2 Image 2 shows voids referencing some entrapment. A peel / bend test could be inspected for plating adhesion issues. Bend test after hot bake 125C or 150C / 100 or 500 hrs can be considered, during process design.

10.3.3 A 1-hour baking test will cause IMC to grow and will reveal how much free Sn is left after the bake. This test can be utilized to understand any described shelf-life warranties.

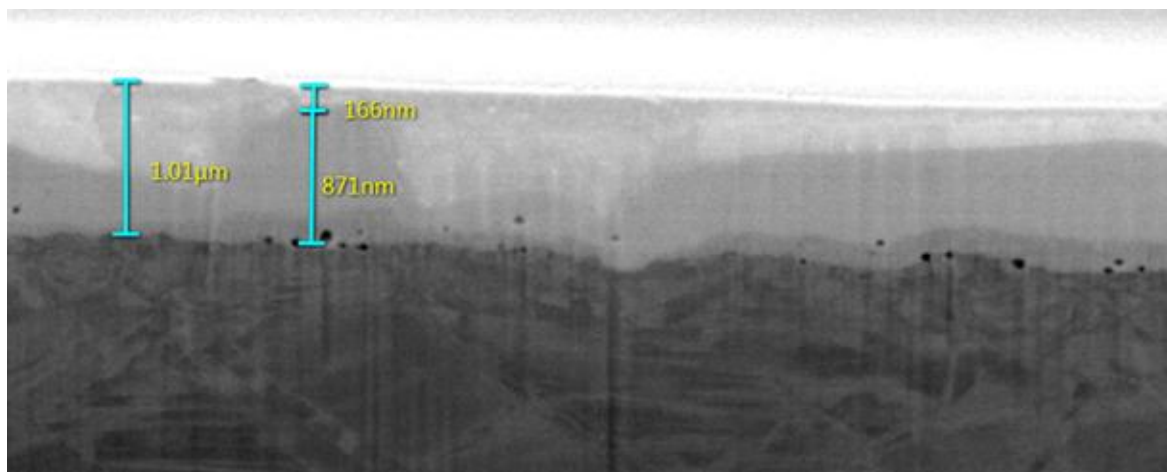


Image 1

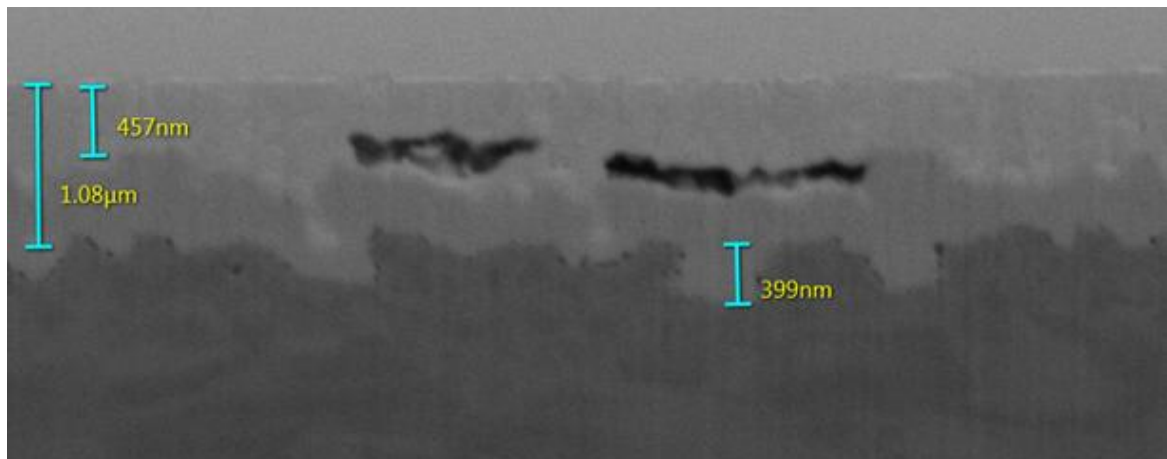


Image 2

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY		DATE		DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY		DATE		QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	12 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

10.4 Performance Bend Testing for Plating Structures Susceptible to Peeling

Tests assess the **adhesion and structural integrity** of plated coatings post-processing, such as reflow or thermal exposure.

10.4.1 Prepare test specimens of **12.7 mm width**, as per ASTM B820.

10.4.2 Bend testing one sample per coil/lot after reflow.

10.4.2.1 Bend the specimen 90°/180° over a calibrated fixture using the specified bend radius as per temper in accordance with Table **10.4.2.4** below.






10.4.2.2 After testing inspect the **outer bend surface** under **diffused lighting at 30x Magnification**.

10.4.2.3 **Acceptance criteria defined as no evidence of peeling, cracking, or flaking** on the plated surface and followed with criteria mentioned in **10.4.2.5**.

10.4.2.4 **Required Bend radius by temper.**

Temper	Bend Radius (r/t)
H0-H04	1× Thickness
H06	2× Thickness
H08	3× Thickness
H10+	4× Thickness

10.4.2.5 Acceptance criteria for bending.

Bending Observations	Acceptance Criteria	Rank
	"Accepted," smooth, no orange peel, no cracks	1
	"Accepted," small orange peel, no cracks	2
	"Accepted," heavy orange peel, no cracks	3
	"Rejected," heavy orange peel, shallow cracks	4
	"Rejected," heavy orange peel, deep cracks	5

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	13 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				

10.4.3 For evaluating plating structures susceptible to peeling, performance peel testing can be conducted in accordance with the ASTM D3359 standard.

10.4.3.1 Plated “flat” surfaces should be tape tested to determine acceptable plating adherence.

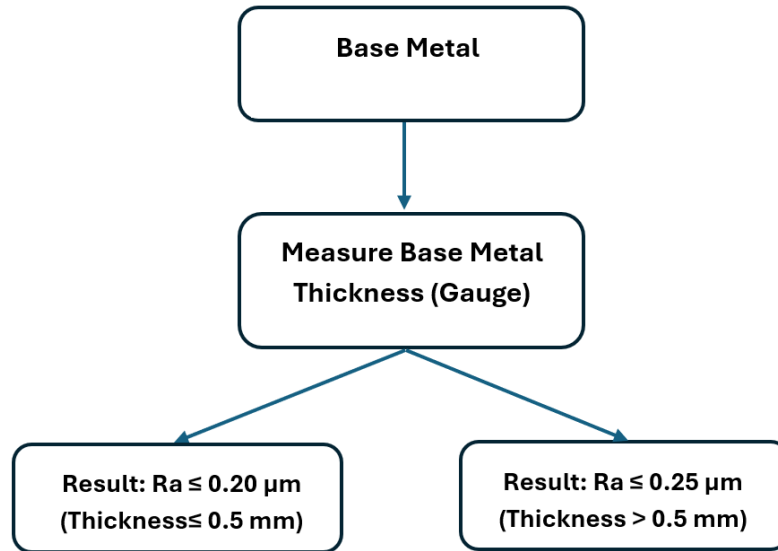
10.4.3.1.1 No plated flat stock or terminals should be dispatched to the next customer if peeling plating is observed. Peeling events must be discussed with the customer to determine release.

11 Surface Roughness Specification (Base Metal Prior to Plating)

11.1 Measure the base metal thickness with gauge.

11.1.1 If thickness of base metal ≤ 0.5 mm $\rightarrow Ra \leq 0.20$ μ m.

11.1.2 If thickness of base metal > 0.5 mm $\rightarrow Ra \leq 0.25$ μ m.



12 Recent Document Changes

- This Specification was pulled from 2090580044 Rev A.
- Section 7.7 Reflectivity Data recording work sheet added.
- Plating Bend test alignment with ASTM B820.
- Adhesion Test Alignment to ASTM D3359 standard.

THIS DOCUMENT CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

REVISION DESCRIPTION	NEW RELEASE			PLATING SPECIFICATION FOR PRE-PLATED TIN STRIP SURFACES			
CHANGE NO.	849682						
REVISED BY	DATE			DOC TYPE	DOC TYPE DESCRIPTION	DOC PART	SERIES
REV APPR BY	DATE			QMD	ENGINEERING STANDARD	000	209058
INITIAL RELEASE				CUSTOMER	DOCUMENT NUMBER	REVISION	SHEET
INITIAL DRWN	ABHIJEET KHODKE	DATE	2026/04/15	MOLEX INTERNAL	2090580041	A	14 OF 14
INITIAL APPR	AVINASH	DATE	2026/04/15				