

ACPS Automotive PPAP Requirements

| VDA numbers | Requirements   | Commodity number               | All  | Directed buy Parts (with customer approval)                      | Directed buy Parts (for ACPS Automotive approval) choose ACPS category PPAP requirements | V = Documents which must be submitted for PPAP approval<br>NDT = Non destructive test - N/A = Not applicable |
|-------------|--|--------------------------------|--|--|--|--|
|             |  | Prototypes, FOTP, Sample parts | Requalification  |  |  | Remarks / Agreements ACPS / Supplier   |
| 0.1         | Cover Sheet (Evaluation)   |                                | V  | V  |  |  |
| 0.2         | Self-assessment for product, process, SW (if appl.)  |                                | N/A  | N/A  |  |  |
| 1.          | <b>Deliverables of product development</b>   |                                |  |  |  |  |
| 1.1         | Technical specifications (ACPS Automotive Drawing)   |                                | V  | V  |  |  |
| 1.2 / 1.3   | Design release   |                                | N/A  | N/A  |  |  |
| 1.4         | Material data sheet / IMDS for all materials (packaging/wrapper & printed materials) which stay in the car   |                                | V<br>IMDS IDs:<br>HUK = 80908<br>DEI / DES = 237<br>MXQ = 185340               | V<br>IMDS IDs:<br>HUK = 80908<br>DEI / DES = 237<br>MXQ = 185340 |  |  |
| 1.5         | Product FMEA   |                                | N/A  | N/A  |  |  |
| 2.          | <b>Deliverables of production process development</b>  |                                |  |  |  |  |
| 2.1         | Process flow chart   |                                | V  | N/A  |  |  |
| 2.2         | Process FMEA   |                                | N/A  | N/A  |  |  |
| 2.3         | Control plan   |                                | V  | N/A  |  |  |
| 3.          | <b>Deliverables of the validation of the product</b>   |                                |  |  |  |  |
| 3.1         | Geometry, dimension check  | V                              | V  | N/A  |  |  |
| 3.2         | Material check   | Material Certificate (3.1)     | Material Certificate (3.1) according to DIN ISO 10204 see drawing requirements | N/A  |  |  |
| 3.3         | Function check   |                                | V<br>If requested by ACPS  | N/A  |  |  |
| 3.4         | Haptic check   |                                | N/A  | N/A  |  |  |
| 3.5         | Acoustics check  |                                | N/A  | N/A  |  |  |
| 3.6         | Odour check  |                                | N/A  | N/A  |  |  |
| 3.7         | Appearance check   |                                | N/A  | N/A  |  |  |
| 3.8         | Surface check  |                                | N/A  | N/A  |  |  |
| 3.8.1       | Approval of coating  |                                | N/A  | N/A  |  |  |
| 3.8.2       | Technical cleanliness  |                                | V  |  |  |  |
| 3.10        | Reliability tests  |                                | As defined on drawing or specification   | N/A  |  |  |
| 3.11        | Resistance to electrostatic discharge (ESD)  |                                |  |  |  |  |
| 3.12        | Electrical safety / high-voltage safety  |                                |  |  |  |  |
| 3.13        | Electromagnetic compatibility (EMC)  |                                |  |  |  |  |
|             | APQP Tracking Sheet completed for RC1 and RC2 parts  |                                | N/A  | RASIC Chart  |  |  |
| 4.          | <b>Deliverables of the validation of the production process</b>  |                                |  |  |  |  |
| 4.1         | Achievement of special characteristics (Quantity of measured parts Cmk 50 and Cpk 125)<br>SC-S → Cmk ≥ 2.0 / Cpk ≥ 1.67<br>SC-FF → Cmk ≥ 1.67 / Cpk ≥ 1.33 |                                | V  | N/A  |  |  |
| 4.1.1       | If there are no SC on the drawing, confirmation of process capability of three dimensions defined by supplier Cmk ≥ 1.33 / Cpk ≥ 1.0                       |                                | V<br>If there was a dimensional complaint last year                            | N/A  |  |  |
| 4.2         | Laboratory qualification (ISO/IEC 17025 or national equivalent) accredited by an body of ILAC MRA  |                                | V  | N/A  |  |  |
| 4.3         | Measured Samples (marked/ numbered and packed in separated boxes)  | due to PO                      | N/A  | V<br>(at least 3 pcs)  |  |  |
| 4.4         | Master sample  |                                |  |  |  |  |
| 4.5         | Confirmation of agreed capacity (SLA)  |                                |  | V  |  |  |
| 4.5.1       | Capacity evaluation R@R  |                                |  | V  |  |  |
| 4.6         | Tooling list and Inventory Protocol if tool is owned by ACPS or QEM acc. ACPS-TMP-S-016  |                                | N/A  | N/A  |  |  |
| 4.7         | Annual quality self audit D351144  |                                | V  |  |  |  |
| 5.          | <b>General deliverables</b>  |                                |  |  |  |  |
| 5.1         | Compliance with legal requirements   |                                | N/A  | N/A  |  |  |
| 5.2         | PPA status of the supply chain   |                                | List of parts used and approval status   | N/A  |  |  |
| 5.3         | Test/inspection equipment list   |                                | V  | N/A  |  |  |
| 5.4         | Measuring system analysis for used production and lab equipment (MSA)  |                                | V  | N/A  |  |  |
| 5.5         | Part history (for electronics also for SW)   |                                | V  | V  |  |  |
| 5.6         | Evidence of suitability of the employed load carriers including storage - SLA  |                                | N/A  | V  |  |  |
| 5.8         | Documentation of the requalification agreement   |                                | N/A  | N/A  |  |  |
| 6.          | <b>Deliverables for software</b>   |                                |  |  |  |  |
| 6.1         | Software release   |                                | N/A  | N/A  |  |  |
| 7.          | <b>Customer specific requirements</b>  |                                |  |  |  |  |
| 7.1         | WEB 2020 Initial Material Sampling_Mercedes-Benz Cars  |                                | V<br>only for Mercedes-Benz ACPS products                                      | N/A  |  |  |
| 7.2         | TESLA IMDS requirements PLM D263835  |                                | V<br>only for TESLA ACPS products  | N/A  |  |  |
| 7.3         | CAMDS requirements (For asian customers)   |                                | V  | N/A  |  |  |

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|---|--|
| PPAP Kick off date                        |  |
| ACPS-SQ representative Name and Signature | Supplier representative Name and Signature |
|   |  |

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|---|
| Part number / Drawing index / Part index<br>Part Name |
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