**CFX v1.5 Additions- DEPANELING EQUIPMENT**

**RouterToolParameters Class**

RouterToolParameters are equipment set values and real time values which will captured during production run and push to server for data analysis. For each PCB panel entry and exist and during routing process what is the spindle RPM, axis speed, air pressure alarm, PCB process time (Start time and end time) and machine power will collect an upload to endpoint.

**Pull Request**

None

**Updates to the Standard IPC-2591, Version 1.5 Changes**

**Messages: CFX.Production. RouterToolParameters**  
A new CFX.Production. RouterToolParameters message allows the equipment set values and real time values send from one endpoint to another end point.

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| **ToolParameters** | **Type** | **Description** |
| ToolDataVersion | Decimal | Tool Data -Version |
| ToolDiameter\_SetPoint | Decimal | Machine set point Value- tool bit diameter (mm) |
| ToolBitStartTime | DateTime | Tool bit start used time |
| ToolBitEndTime | DateTime | Last tool bit stop used time |
| ToolBitDistanceRouted | Decimal | Distance of ALL tabs cut since last Bit Change |
| ToolBitChangeDistanceAlarmSet | Decimal | Alarm set to optimal distance for bit change |
| NumberOfBoardsRouted | Int | Panel count for batch/period |
| FeedRate\_SetPoint | Decimal | Machine set point - feed rate routing program (mm/s) |
| VacuumDistanceRouted | Decimal | Distance of ALL tabs cut since last bag/filter change in (Meter). |
| VacuumFilterChangeDistanceAlarmSet | Decimal | Alarm set to optimal distance for filter change in (Meter). |
| ActualVacuumLevel | Decimal | Vacuum or Negative pressure Level |
| ActualIncomingPressure | Decimal | Incoming Air pressure Level |
| ActualMachinePower | Decimal | Electric Power consumption of Machine |
| ActualGripperForcePickAndPlace | Decimal | Max gripper force applied to PCB. (N)  (Optional only applicable gripper hardware equipment type) |
| SpindleSpeed\_SetPoint | Decimal | Machine set point – Spindle Speed (mm/s) |
| ActualSpindleRpm | Decimal | Actual Speed at which the Spindle operates. RPM (Revolutions per minute) |
| **Axis** |  | **The list of Axis with Axis Details** |
| Axis Name | string | Name of the Axis |
| ActualAxisSpeed | Decimal | Max axis speed in mm/s |
| AxisAcceleration\_SetValue | Decimal | Set value in (mm/s2) |
| AxisDecceleration\_SetValue | Decimal | Set value in (mm/s2) |
| ActualMaxVelocity | Decimal | Operating at Maximum speed. |
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**PCBPanelBarcodeRouteCheckRequest/PCBPanelBarcodeRouteCheckResponse Class**

Process Qualification/Verification is to ensure that the PCB Panel is following the right path of operations or eligible for an operation. Which consist of Panel status Pass / Fail with Cartesian map. Panel Cartesian result will tell us individual PCB’s status whether good or bad and X, Y coordination.

**Pull Request**

None

**Updates to the Standard IPC 2591, Version 1.5 Changes**

**Messages: CFX.Production. PCBPanelBarcodeRouteCheckRequest/PCBPanelBarcodeRouteCheckResponse**

A new CFX.Production. PCBPanelBarcodeRouterCheckRequest/Response message allows an endpoint to query Panel and PCB’s status from another endpoint.

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| **PCBPanelBarcodeRouterCheckRequest** | **Type** | **Description** |
| PanelSerialNumber | string | Unique ID of Production Unit or Panel |
| PanelEntryTime | DateTime | PanelEntryTime |

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| --- | --- | --- |
| **PCBPanelBarcodeRouterCheckResponse** | **Type** | **Description** |
| PanelResults |  | The PannelResult of the Request |
| PanelSerialNumber | string | Unique ID of Production Unit or Panel |
| PanelResult | enum | An enumeration indication whether the PanelResult request was Passed or Failed.  Passed -0; Failed-1 |
| FailureCode | Int | In the case of a failure, an integer-based, endpoint-specific error code indicating the nature of the failure. |
| Message | String | In the case of a failure, a human readable message indicating the nature of the failure. |
| CartesianPannelMappingResult |  | An optional list of structures with CartesianPannelMappingResult |
| PCBNumber | String | Unique ID of the Production Unit |
| PanelValidationResult | enum | An enumeration indication whether the Validation request was Good or Bad. Good-0 ;Bad-1 |
| X | Int | X Coordinate of Production Unit (Row) |
| Y | Int | Y Coordinate of Production Unit (Column) |