

# PMS.Cliptest - Manual - Aptiv Group

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## Document version management

Version	Date	Status	Range of Validity	Creator	Document
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## Referenced Documents

ID	Document
1	PMS.Cliptest.Documentation.v22.2.2.0.pdf
2	PFT flow 2020-11-18.pdf

## Table of Content

- [PMS.Cliptest - Manual - Aptiv Group](#)
  - [Document version management](#)
  - [Referenced Documents](#)
  - [Table of Content](#)
  - [1 General Information](#)
  - [2 Workflow](#)
    - [2.1 Non Batch Production](#)
    - [2.2 Batch Production](#)
      - [2.2.1 KIT Scan Validation](#)
    - [2.3 PFT Workflow](#)
      - [2.3.1 Rework](#)
      - [2.3.2 Examples](#)
        - [2.3.2.1 Unique Number Format First Station](#)
        - [2.3.2.2 Unique Number Format Middle Station](#)
        - [2.3.2.3 Manifest Scan](#)
        - [2.3.2.4 PFT Label Scan](#)
        - [2.3.2.5 Extract parts of order-scan](#)
    - [2.4 Board Type Validation](#)
    - [2.5 Routing Transmitters](#)
    - [2.6 Reporting](#)
      - [2.6.1 Shift Information](#)
  - [3 Configuration](#)
    - [3.1 General Configuration](#)
      - [3.1.1 Non Batch Production](#)
      - [3.1.2 Batch Production](#)
    - [3.2 Reporting Configuration](#)
    - [3.3 PFT Workflow Configuration](#)
    - [3.3 KIT Scanning Configuration](#)

## 1 General Information

PMS.Cliptest can use the PFT Workflow (read/write ini files) to integrate into the production process and to communicate to other process steps.

## 2 Workflow

The process is initiated by PMS.Cliptest when all required scans are done. From process point of view the sequence of a cliptest followed by an emptytest is considered as one complete test. Counting or creation of reports are done after emptytests but not after cliptests.

### 2.1 Non Batch Production

The cliplist is retrieved by text files which contain the modules for an order. The files are named like the ordernumber without an extension, for example "B10055100". The file is provided by any external system and the content of this file looks like the following example:

**Example B10055100 file:**

```
B10055100  
A2235407926____  
A2235402610____  
A2235406812____  
A2235406815____  
A2235406836____
```

In PMS.Clipstest masterdata each module (for example "A2235407926\_\_\_\_") is configured and defines one or many clip LED numbers. A PMS.Clipstest masterdata modules.csv file looks for example like this:

**Example Modules.csv file:**

```
#Modulename; LED  
A2235407926____,54  
A2235406812____,442  
A2235406815____,-1  
A2235402610____,377
```

## 2.2 Batch Production

The cliplist is managed by PMS.Clipstest masterdata without usage of modules text files.

### 2.2.1 KIT Scan Validation

If enabled, Operators need to perform additional scans, the KIT scans, to ensure the order/variant matches the modules which are used for assembly. To enable this feature it is required to manage a csv file (comma "," is separator) which defines what KITs are required for what type of variant. The name and location of the text file is part of the configuration ([KIT Scanning Configuration](#)).

**Example KITs.csv file:**

```
1616689-00-C,MAR:KIT1,KIT2  
2489040-01-A,KIT1,N2489040-01-A  
2489040-02-A,KIT1,N2489040-02-A  
2489040-03-A,KIT1,N2489040-03-A
```

It is required that there is exactly one line existing which starts with the scanned variant. The variant is followed by each required KIT scan. Optionally a KIT scan can be prefixed with a name and ":". This name is used in the KIT scan dialog to assist the operator which KIT should be scanned.

## 2.3 PFT Workflow

The PFT Workflow is a process flow to integrate PMS.Clipstest into the production tracking and process validation. It is used to communicate to neighbour processes and ensures the correct manufacturing sequence. This option follows the PFT Workflow specification in referenced document "PFT flow 2020-11-18.pdf". The process is different in case PMS.Clipstest is the first station or middle station. For the PFT Workflow to work it is required to provide a pft settings.ini file. If there is a previous station defined then this workplace acts as middle station, if not this workplace is considered to be the first station on a line. A major difference between first and middle station flow is that the operators at the first station scan a manifest-scan and based on this a unique number (also named pft label scan) needs to be generated in PMS.Clipstest for further processing. The middle station does not generate a unique number, instead this unique number is scanned by the operator.

### 2.3.1 Rework

Order-scans which have been reworked start with a different prefix than non-reworked orders. To identify rework orders a corresponding configuration is to be used ([PFT Workflow Configuration, Rework Identifier](#)). If PMS.ClipTest is first station in the process and the order is identified as rework no new unique number will be generated and the process continues similar to the flow for middle station.

## 2.3.2 Examples

**Note:** Pay attention to the correct configuration of the order scan pattern in PMS.ClipTest.ViewClient. Use the "Scan Pattern" field to identify scans and the "Transform Pattern" field to extract parts of the scan which are further processed as the ordernumber. The full scan is available as bookmark "[OrderRaw]" and the transformed/extracted part is content of bookmark "[Order]".

### 2.3.2.1 Unique Number Format First Station

A[Order][CtHour][CtMinute][CtSecond][CtDay][CtMonth][CtYear]

### 2.3.2.2 Unique Number Format Middle Station

[OrderRaw]

### 2.3.2.3 Manifest Scan

2489040-00-A20

### 2.3.2.4 PFT Label Scan

Non-Rework: A2489040-00-A20122021093326

Rework: B2489040-00-A20122021093326

### 2.3.2.5 Extract parts of order-scan

This example extracts "2489040-00-A20" out of the scan "A2489040-00-A20122021093326"

Scan-Pattern: ^([A-Z]{1}[0-9]{7}-[0-9]{2}-)

Transform-Pattern: ([0-9]{7}-[0-9]{2}-[A-Z]{1}[0-9]{2})

In this case the bookmark "[Order]" contains value "2489040-00-A20" and "[OrderRaw]" the value "A2489040-00-A20122021093326"

## 2.4 Board Type Validation

The feature "Board Type Validation" is an additional check to ensure that the scanned board is able to produce the scanned order. It is required to provide a text file named "BoardConfiguration.csv" which contains information about the boards and their types. The content of this file looks like the following example:

### **Example BoardConfiguration.csv file:**

```
#Board,ClipLed,RouteModule,Type  
BR001,39,W,RHD  
BR001,40,V,RHD  
BR001,44,Z,RHD
```

In this example each order must be of type RHD on board BR001 to pass this validation.

## 2.5 Routing Transmitters

This option can only be used in Non-Batch production as it requires a module text file. It is an additional check on specific clips which need to be pressed all the time during a test. This decreases the risk of quality issues and ensures production integrity. There is no validation during emptytest. To use this function it is required to provide a valid text file (same like [Board Type Validation Example](#)) which contains route information. There are three requirements for this validation to work:

1. Definition of RouteModules in board information file (example W, V, Z)
2. Presence of corresponding module (W, V, Z) in modules text file for an order
3. Existing clip related to the corresponding RouteModule in PMS.Cliptest masterdata PMS.Cliptest combines these information to build a list of very important transmitters, the routing transmitters.

This option requires all routing transmitters to be present (pressed) over the full test period. If a routing transmitter switches to NotPressed during a test the carousel of the line is requested to stop. The same if there are other, wrong routing transmitters are pressed.

## 2.6 Reporting

After each completed emptytest a text file will be created with all required information about the a test. The content is defined by aptiv and contains information about the emptytest and the corresponding previous cliptest. To customize the content of the report text file a template will be generated by PMS.Cliptest if there is no template file existing. PMS.Cliptest uses a file named "ReportTemplate.txt" in the folder where PMS.Cliptest.Service is installed. This is by default "C:\Program Files (x86)\MAR GmbH\PMS.Cliptest 2016\PMS.Cliptest.Service". Within this template static text can be used as well as bookmarks which need to be surrounded by "@", for example "@Board@". The available bookmarks are:

### **Available Reporting Template Bookmarks:**

*Order*  
*Board*  
*Result*  
*TestType*  
*TestDurationSec,*  
*CurrentDateTime,*  
*User,*  
*Shift,*  
*IdleTime,*  
*TimeScanStart,*  
*TimePlugStart,*  
*TimeUnplugStart,*  
*TimeTestEnd,*  
*BodyClipsBadHolded,*  
*BodyClipsBadUnholded,*  
*BodyClipsGoodHolded,*  
*BodyClipsNotControlled,*  
*ListBcWj,*  
*StartListBcBadHolded,*  
*StartListBcBadUnholded,*  
*StartListBcGoodHolded,*  
*NumberBcTested,*  
*NumberAllBc,*  
*BodyClipsRemainingToUnplug,*  
*ProjectName,*  
*WorkstationName*

The path where the resulting report files will be saved can be configured. Refer to section [Reporting Configuration](#).

### 2.6.1 Shift Information

The report can contain information about the shift. The definition of shifts is done in a text file named "Shifts.csv" in the folder where PMS.Cliptest.Service is installed. This is by default "C:\Program Files (x86)\MAR GmbH\PMS.Cliptest

2016\PMS.Cliptest.Service". If there is no such file PMS.Cliptest create a file with default content which can then be edited.

### 3 Configuration

#### 3.1 General Configuration

##### 3.1.1 Non Batch Production

Project name

Path to module list  ...

Path to board information  ...

No Emptytest if Cliptest failed
  Count Emptytests only
  Enable Board Type Validation
  Enable Routing Transmitters

Setting	Description
Project Name	The name of the project which is displayed in the operator window header
Path to module list	The folder where the module text files are stored. Use the button on the right to select the path.
Path to board information	The path where the board information text files are stored. Use the button on the right to select the path.
No Emptytest if Cliptest failed	If checked there is no automatic emptytest after a finished cliptest with result NIO even if "Start EmptyTest after Cliptest" option is enabled in PMS.Cliptest.ViewClient
Count Emptytests only	If checked the counter for finished tests will be increased only after emptytests finished but not when cliptests finish.
Enable Board Type Validation	If enabled there will be checked if the type of the order matches the type of the board. It is an additional process validation if the order can be processed on th scanned board. Refer to section <a href="#">Board Type Validation</a> for more information
Enable Routing Transmitters	If activated there will be an additional check that special transmitters are pressed during a test. Refer to section <a href="#">Routing Transmitters</a> for more information

##### 3.1.2 Batch Production

Project name

No Emptytest if Cliptest failed
  Count Emptytests only



Setting	Description
Project Name	The name of the project which is displayed in the operator window header
No Emptytest if Cliptest failed	If checked there is no automatic emptytest after a finished cliptest with result NIO even if "Start EmptyTest after Cliptest" option is enabled in PMS.Cliptest.ViewClient
Count Emptytests only	If checked the counter for finished tests will be increased only after emptytests finished but not when cliptests finish

### 3.2 Reporting Configuration

REPORTING CONFIGURATION

Enable Reporting

Path to report files  ...

Setting	Description
Enable Reporting	Enable the creation of report text files
Path to report files	The path to that the report text files will be saved. Use the button on the right to select the path

### 3.3 PFT Workflow Configuration

PFT WORKFLOW CONFIGURATION

Enable PFT Workflow

Path to settings file  ...

Unique number format  ▼    CRC attempts     CRC Check Delay [s]

Rework Identifier     Login attempts      Use copy to create network file

Setting	Description
Enable PFT Workflow	Enable the usage of the PFT Workflow
Path to settings file	The path to the settings .ini file with process information. Needs to be supplied to PMS.Cliptest. Use the button on the right to select the file.
Unique number format	The definition of the unique number. If PMS.Cliptest is first workplace this pattern will be used to create a unique number based on the manifest-scan. In case PMS.Cliptest is middle station the pft label is scanned and only prefixed with "A" by default. The unique number is used to read and

	write the .ini files required by the PFT Workflow. Refer to section <a href="#">PFT Workflow</a> for more information.
Rework Identifier	The minimum length of order scan to handle the order as from rework. The prefix for orders which were reworked are different than the normal orders. Non reworked orders start with "A" by default where orders which have been reworked starts with any increased letter like "B" or "C". To identify an order scan as rework this length is being used. Instead of scan-length a regex-pattern can also be used.
CRC attempts	At some steps in the PFT flow the operator needs to type in a CRC number from a previous station. This configuration defines the maximum number of CRC number mismatches before the test will be canceled.
Login attempts	At some steps in the PFT flow a higher level user needs to login (for example quality manager). This configuration defines the maximum number of login attempts before the test will be canceled.
CRC Check Delay[s]	At a step in the PFT Workflow PMS.Cliptest has generated a local .ini file. Before the process is allowed to continue it is required that an external application by aptiv writes a CRC number into this local .ini file. This setting is the number of seconds which PMS.Cilptest waits before the CRC number in this local .ini file is checked.
Use copy to create network file	This option is only useful when there are issues regarding the creation of the network .ini file. Instead of direct write access to the network path PMS.Cliptest first creates the file locally before the file will be copied to the network path. This option can be used to avoid accessibility/security issues related to network file access.

### 3.3 KIT Scanning Configuration

**KIT SCANNING CONFIGURATION**

Enable Kit Validation

Path to Kit file  ...

Setting	Description
Enable Kit Validation	Enable the Kit validation
Path to Kit files	The path where the Kit csv file is located. Use the button on the right to select the path