

Design Verification Plan and Report (DVP&R)

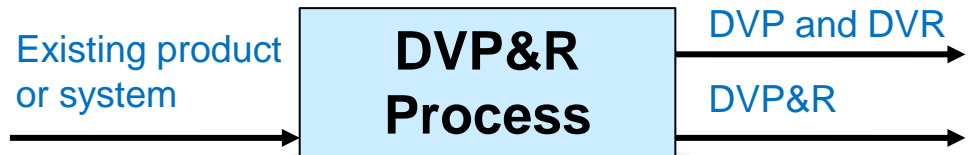
Problem

How to document that a product is acceptable?

Difficulty

Some training required

- The **Design Verification Plan (DVP)** documents the strategy used to verify that a product (or system) meets its requirements (e.g., design specifications).
- The **Design Verification Report (DVR)** documents the test results obtained by using the **DVP**.
- A **Design Verification Plan and Report (DVP&R)** combines the **DVP** and the **DVR**.
- A **DVP&R** may be used for legal or product “sell off” purposes.
- A **DVP&R** has no standard format.



1. If not available, create the product’s planned tests:
 - A. Articulate the product’s functionality.
 - B. Define discrete and actionable functionality tests for the anticipated environments
2. Create a Design FMEA for the product to identify failure modes not detected in the planned tests.
3. Create the **Design Verification Plan (DVP)**
 - A. Include the planned tests.
 - B. Include tests to address the deficiencies identified by an FMEA.
4. Perform the tests in the **DVP** and document the results in the **DVR**.
5. If needed, use the **DVR** results to update the **DVP** and repeat the process.
6. Create the **DVP&R** and file appropriately.

The Who / When / Why of the testing

The Who / When / Why of the testing						

Details of each planned test

Details of each completed test

DVP&R – Example – Automobile Radar

Product Name	Automobile Radar	Component	<i>Sub-system #3</i>	Requester	<i>Ron</i>
Model Number	Rev 2.5.4	Test spec	<i>Test #3-4-7</i>	Date	<i>2/15</i>

Heading

- part info
- dates

Verification Plan									
Test Number	Test Name	Test or Action	Acceptance Criteria	Responsibility	Tester	Sample Size	Sample Type	Test Start	Test End
1	Signal Processing Design	SW Test #3: clutter rejection	> 27 dBsm rejection	Lisa	<i>George</i>	<i>500</i>	<i>SW</i>	<i>2/18</i>	<i>2/20</i>
2	Signal Processing Firmware	Track Test #27: clutter rejection	> 27 dBsm rejection	Ben G.	<i>Alice</i>	<i>10</i>	<i>mock-up</i>	<i>3/14</i>	<i>3/14</i>
3	Signal Processing HW	Vehicle Test #8: clutter rejection	> 23 dBsm rejection	Carla	<i>David (drive team)</i>	<i>5</i>	<i>pre-production</i>	<i>4/12</i>	<i>4/18</i>
4	Design Review	Design Review of clutter rejection capability	Software, Systems, and Quality teams agreement	Harry	<i>N/A</i>	<i>N/A</i>	<i>N/A</i>	<i>4/23</i>	<i>4/23</i>
5	Recommended Action	Determine why track and vehicle test results were so different	Results by 5/15	Harry					
6	Recommended Action	Approve for production	Today (4/15)						
7	Recommended Action						

Verification Report			
Reviewer	Results	Comments	Date
Quality (Nancy)	<i>28.5 dBsm</i>	<i>pass</i>	<i>2/22</i>
Quality (Nancy)	<i>29.5 dBsm</i>	<i>pass</i>	<i>3/14</i>
Quality (Ralph)	<i>23.5 dBsm</i>	<i>pass</i>	<i>4/21</i>
Quality (Ralph)	<i>N/A</i>	<i>Meeting held</i>	<i>4/23</i>

Details of every test planned: test name, test method or procedure, test equipment, test performance (e.g., sample size and acceptance criteria)

Details of every test performed: test start & end times, results, comments, ...

Verification Plan

Verification Report

DVP&R – Notes

Slide 1

1. The purpose of a DVP&R is to manage and document the tasks needed to ensure a product meets its requirements.
2. A DVP&R is useful for investigating quality issues during a product's life.
3. A DVP&R keeps track of
 - A. tests that have passed or failed
 - B. progress & issues that may arise
4. A DVP&R helps a manufacturer know the status of a product at every stage of development.
5. A Design FMEA defines the "what" and the DVP&R defines the "how".
6. V&V definitions
 - Verification: Did you design the device right?
 - Validation: Did you design the right device?

Slide 2

- The basic elements of every DVP&R are shown in this example.
- There are many formats for a DVP&R.
- There are several software packages that can create a DVP&R.