Design Verification Plan and Report (DVP&R)

Problem How to document a product's acceptability?

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.

DVP&R – Example – Automobile Radar

Product Name Model	Automobile Radar	Component Test spec	Sub-system #3 Test #3:4:7	Requester Date	Ron 2/15	Heading • part inf • dates			D					
Verification Plan										Verification Report				
Test Number	Test Name	Test or Action	Acceptance Criteria	Responsibility	Tester	Sample Size	Sample Type	Test Start	Test End	Reviewe	er Results	Comments	Date	
1	Signal Processing Design	SW Test #3: clutter rejection	> 27 dBsm rejection	Lisa	George	500	5W	2/18	2/20	Quality (Nancy)	28·5 dBsm	pass	2/22	
2	Signal Processing Firmware	Track Test #27: clutter rejection	> 27 dBsm rejection	Ben G.	Alice	10	mock-up	3/14	3/14	Quality (Nancy)	29·5 dBsm	pass	3/14	
3	Signal Processing HW	Vehicle Test #8: clutter rejection	> 23 dBsm rejection	Carla	David (drive team)	5	pre- production	4/12	4/18	Quality (Ralph)	23∙5 dBsm	pass	4/21	
4	Design Review	Design Review of clutter rejection capability	Software, Systems, and Quality teams agreement	Harry	N/A	N/A	N/A	4/23	4/23	Quality (Ralph)	N/A	Meeting held	4/23	
5	Recommended Action	Determine why track and vehicle test results were so different	Results by 5/15	Harry				L						
6	Recommended Action	Approve for production	Today (4/2	Details of every test planned: Details of every test										
7	Recommended Action		pro	procedure, test equipment, test							end times, results,			
Verification Plan				and acceptance criteria)						comments, 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.