DO-160 Display Qualification

Moisture and Contamination

CHAPTER 3

In this chapter

Humidity, water and fluid entry paths

Contamination and material compatibility

Monitoring and evidence for functional acceptance



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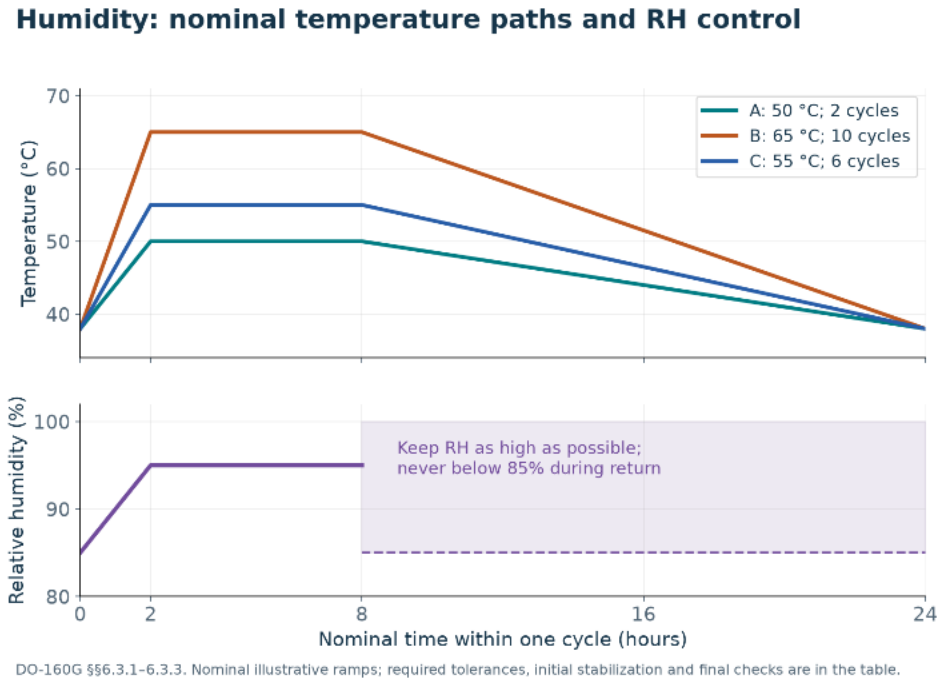
Humidity, water and fluids



Humidity follows a prescribed cycle

Water exposure depends on faces and orientation

Chemical resistance depends on the actual fluid

FPD.DEV original teaching graphic; A-P02

Temperature and humidity chambers



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Program the specified exposure cycle

Measure the article as well as chamber air

Record recovery and functional checks

Polarizer protection in wet environments

01 Humidity or salt fog can damage the polarizer

02 Optically bonded cover glass

03 Laminated PET film with a sealed polarizer edge

Humidity reaches the optical stack

01 Moisture enters through edges, seals and materials

02 Absorption can change dimensions and adhesion

03 Condensation can affect insulation and touch

04 Separate haze, corrosion and electrical leakage

A humidity test configuration

01 Install representative seals, vents and connectors

02 Follow the selected cycle and operating states

03 Log optical function, insulation and touch behaviour

04 Inspect before cleaning or opening the enclosure

Water exposure and entry paths

01 Dripping, spraying and other categories differ

02 Orientation and cable routing affect entry

03 A front seal leaves other paths to assess

04 Record operation during the required exposure

Fluid compatibility and service cleaning

01 Identify the fluids the installation can encounter

02 Test the actual coatings, seals and printed markings

03 Record concentration, contact and cleaning method

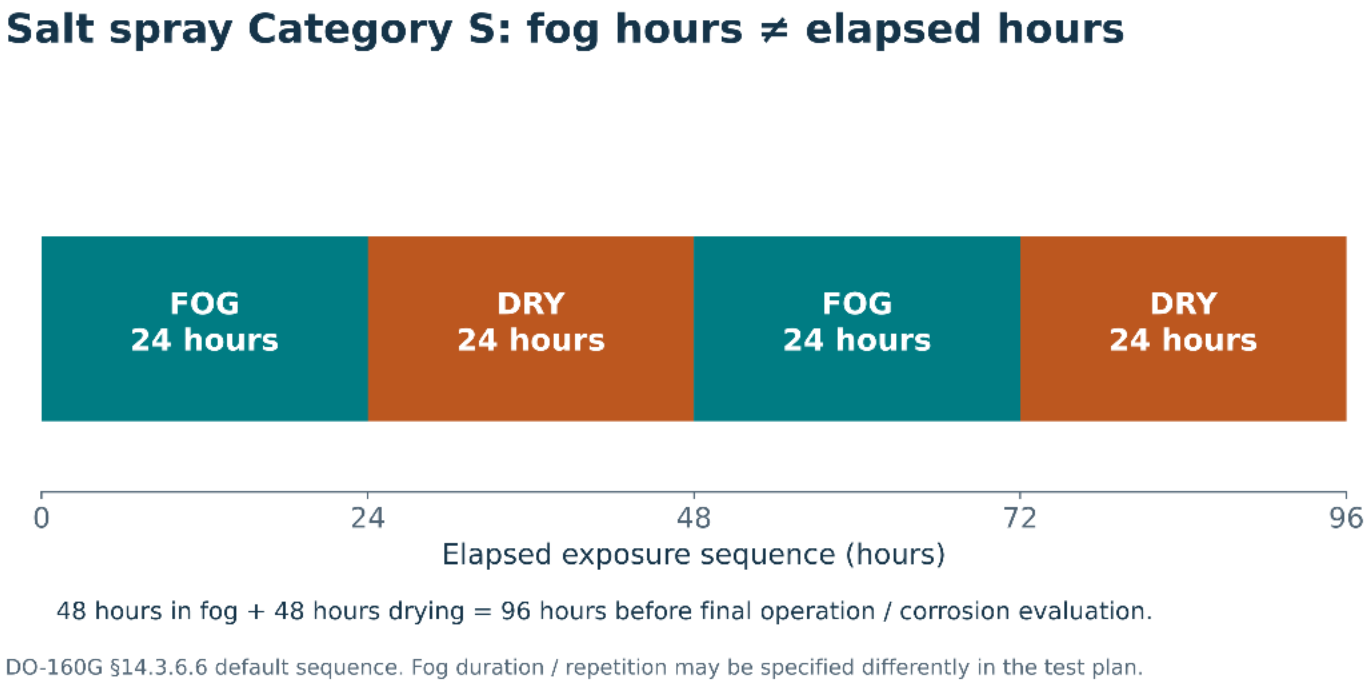
04 Inspect after exposure and required recovery

Worked case: false touches when wet

Observation	Evidence to retain	Decision basis
False coordinate	Controller event log	Touch requirement
Unwanted command	Application output	System response
Normal image	Optical recording	Image requirement only

Illustrative investigation and evidence decision

Salt spray, fungus, sand and dust



Corrosion can degrade chassis electrical connections

Materials evidence must match the formulation

Openings and cooling paths define exposure

FPD.DEV original teaching graphic; video layout A-P01

Salt-spray test equipment



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Chamber, solution and collection controls

Article orientation and exposure paths

Corrosion inspection and functional evidence

Salt contamination and electrical paths

01 Salts can support conductive moisture films

02 Corrosion can impair shielding and connectors

03 Preserve the specified exposure and recovery

04 Check function and physical condition

Dust, sand and exposed interfaces

01 Fine dust can enter gaps or obstruct cooling

02 Sand can abrade exposed optical surfaces

03 Motion can trap particles in seals and controls

04 Use the selected material and exposure method

Fungus and material susceptibility

01 Assess organic materials and surface contamination

02 Use the adopted material and test provisions

03 Track substitutions in adhesives and coatings

04 Keep maintenance assumptions explicit



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The Future of Display and Systems Development

Next chapter

Mechanical and Special Environments

I'm Diggy Breiling. Thank you for joining me.

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