



## Vista White Paper

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### PowerDome Lite VPD4

#### Introduction/Background

When Vista released the PowerDome Lite VPD4 (VPD-4WP-P-C), a high-speed colour dome camera, designed as the ideal, cost effective solution for the smaller retail market, they wanted to test the reliability of the camera and prove the high quality of the product.

HALT (Highly Accelerated Life Testing) standards were chosen to show if there were any inherent design faults or any build problems, testing the camera far beyond its specified range of -10°C to +40°C

#### Testing Services

The HALT standards were conducted by a UCAS accredited, independent testing body.

#### Equipment Tested

- CCTV pan/Tilt/Zoom dome cameras, manufactured by Vista
- Model No. VPD-4WP-P-C/L
- Serial Nos.
  - M1500003 – camera 1, cover removed
  - M1500020 – camera 2, covered
  - M1500006 – camera 3, cover removed
  - M1500021 – camera 4, covered

#### Tested to

Temperature cycling (operational)

Test 1: -10°C to +40°C

Test 2: -20°C to +70°C

Test 3: -40°C to +80°C

Test 4: -60°C to +90°C

Duration of test – 48 hours for each temperature range

Duration at extremes – 20 minutes

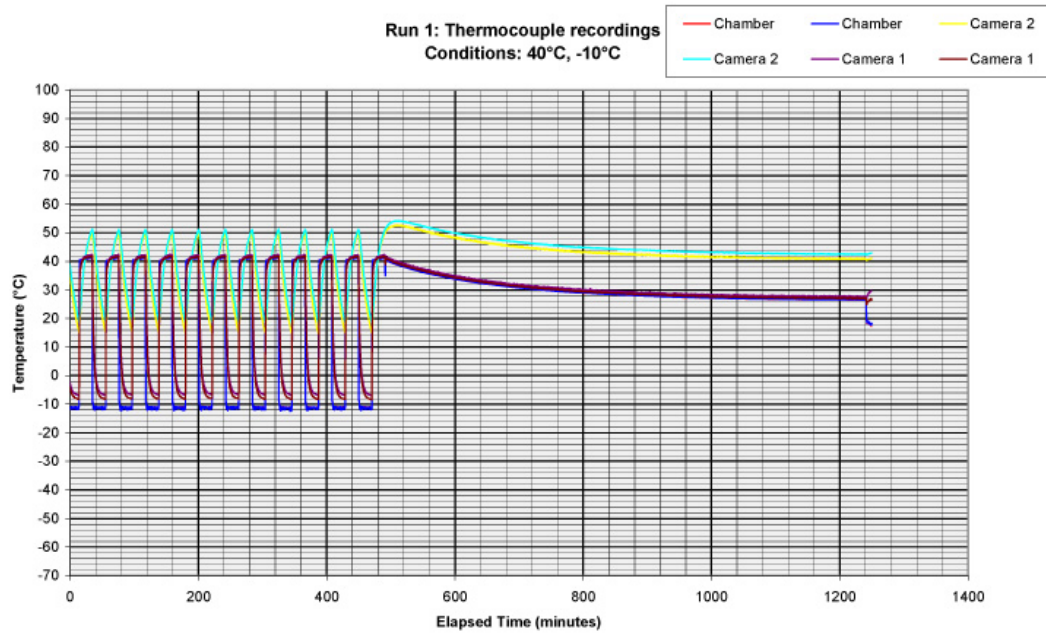
Number of cycles – 72

All units under test are required to be operational and monitored throughout. Thermocouples are to be fitted to the camera assembly to monitor temperature during the test.

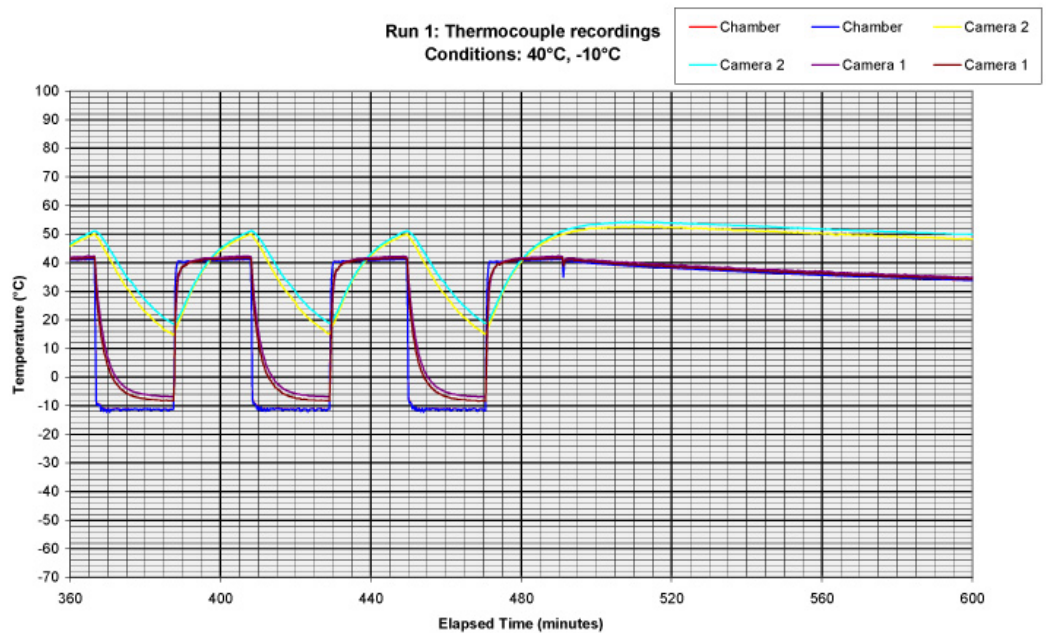
## Results

### Test 1: -10°C to +40°C

- All the cameras were fully operational throughout and succeeding the test.



### Test 1 – Thermocouple recordings, expanded view

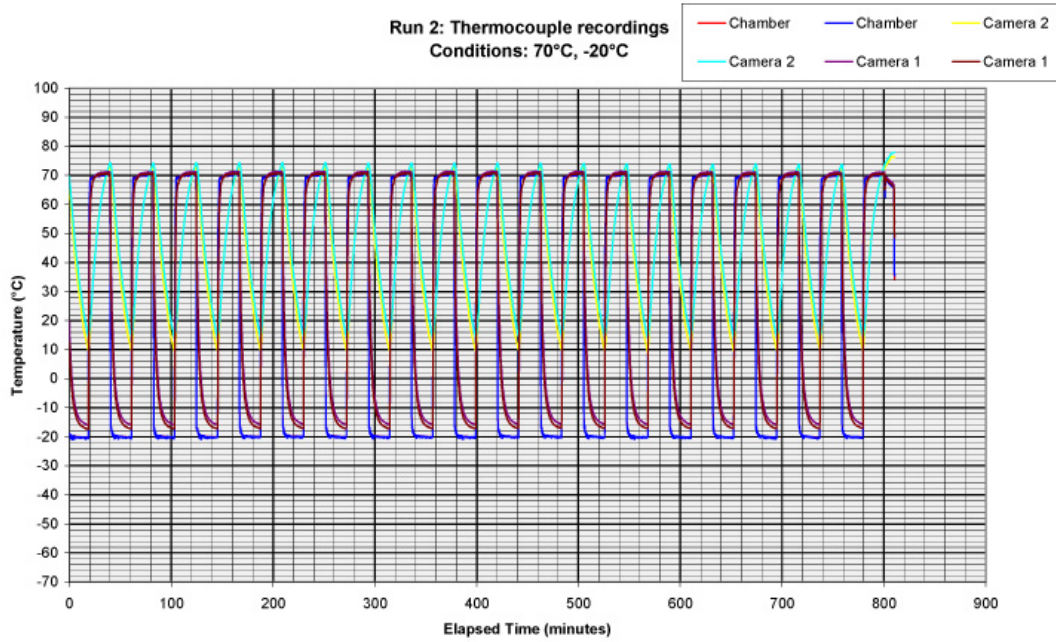


### Test 1 – Thermocouple recording, detailed view

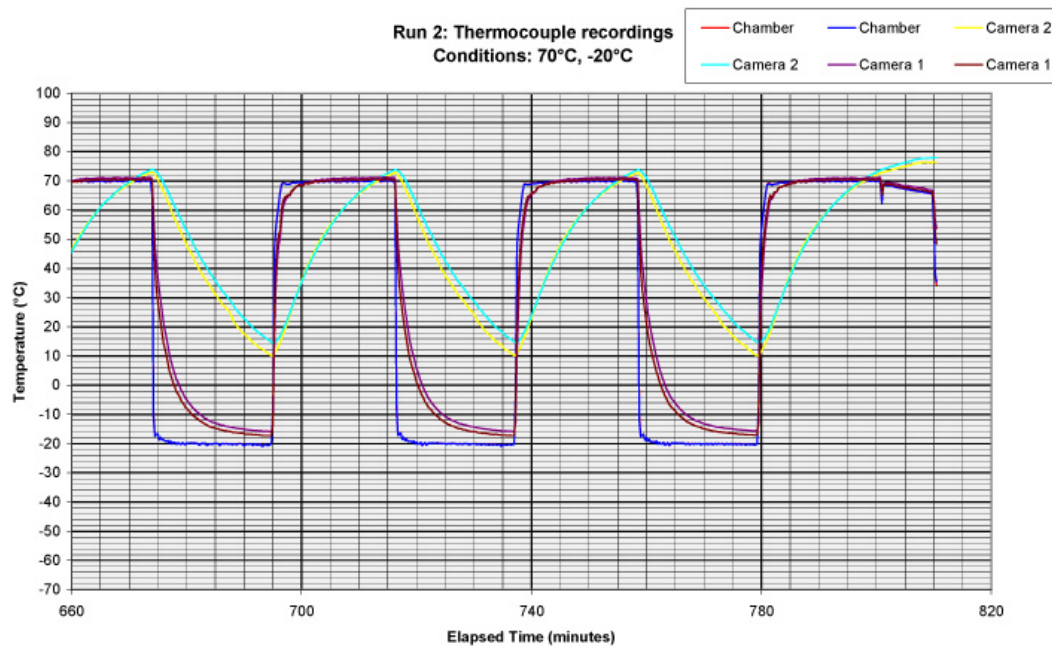
When it was proven that the range could function within their specified range, Vista decided to continue the testing to see what the cameras could endure.

**Test 2: -20°C to +70°C**

- Cameras 1, 2 and 4 were fully operational throughout and succeeding the test.
- Camera 3 (cover removed) lost P/T control at the end of the testing process. Once the test had been completed, the camera was removed and re-checked to find that power down had reset the camera with pan and tilt operating correctly. This lead to the conclusion of a temporary overheating error on the processor at approximately 80°C.



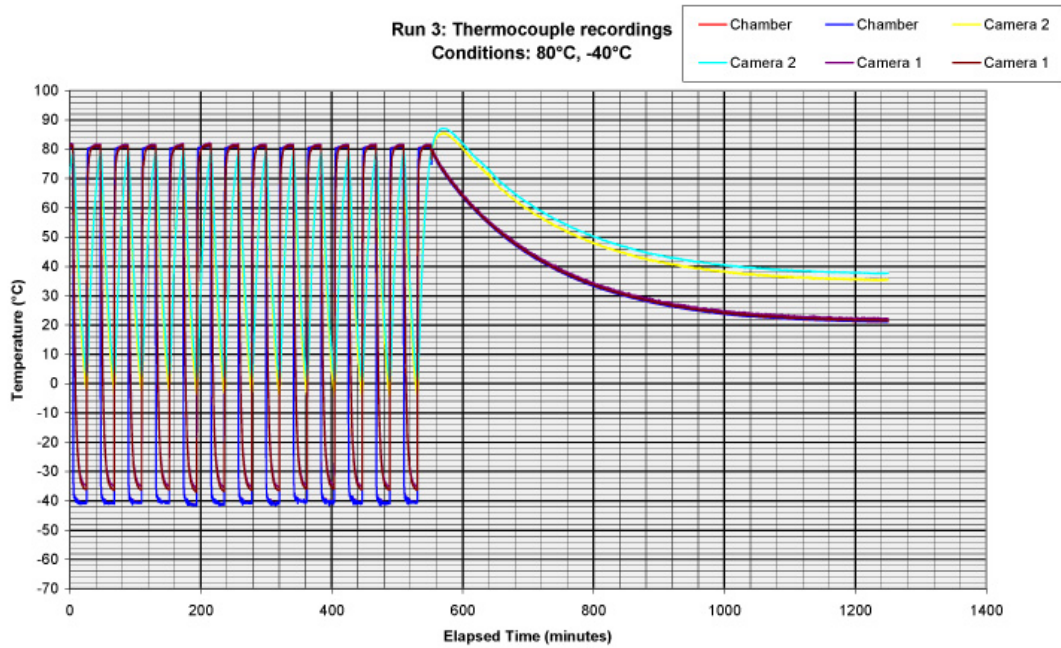
Test 2 – Thermocouple recordings expanded view



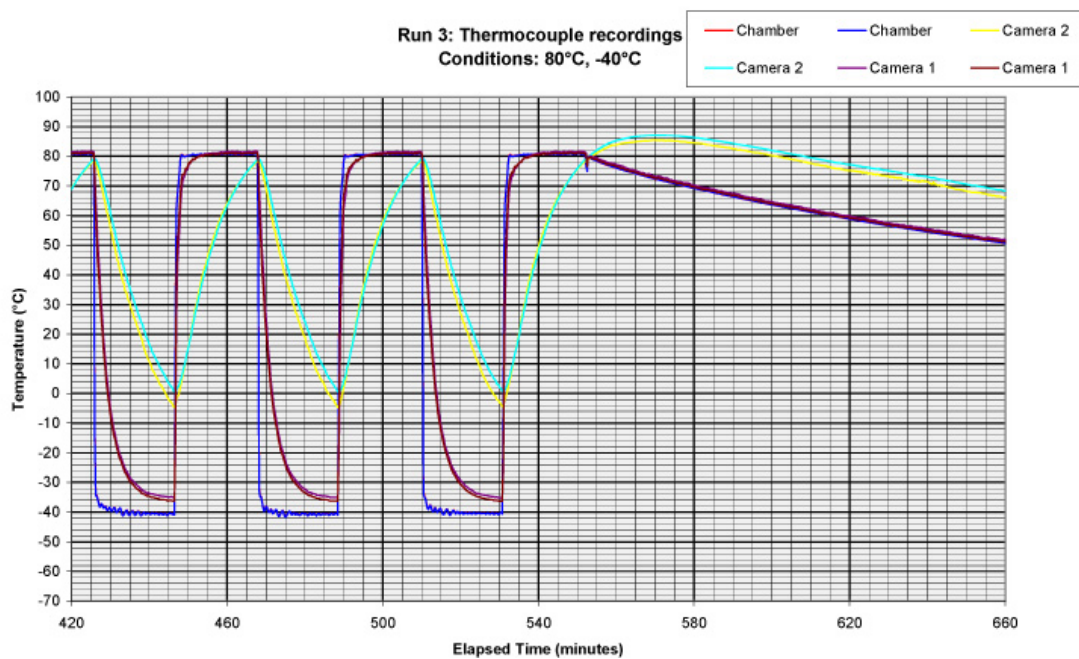
Test 2 – Thermocouple recordings detailed view

**Test 3: -40 to +80**

- Cameras 2, 3 and 4 were fully operational throughout and succeeding the test.
- Camera 1 (cover removed) lost video output at 13:25 hours, at the end of the heat cycle when temperatures had reached 90°C. Further examination after all the tests revealed that the camera module had failed.



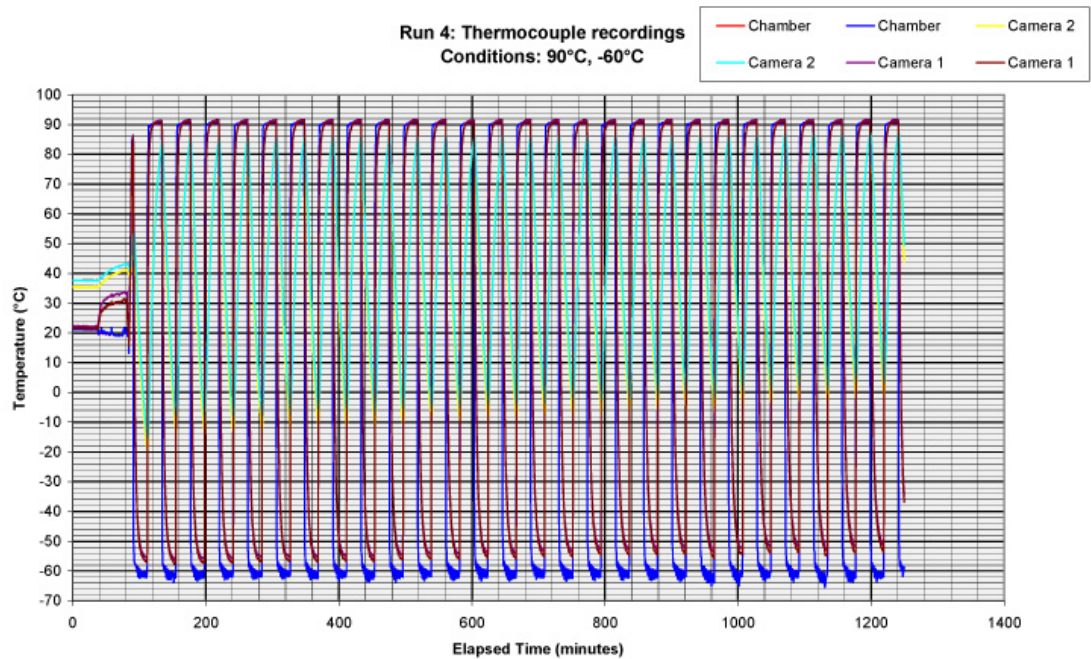
Test 3 – Thermocouple recordings expanded view



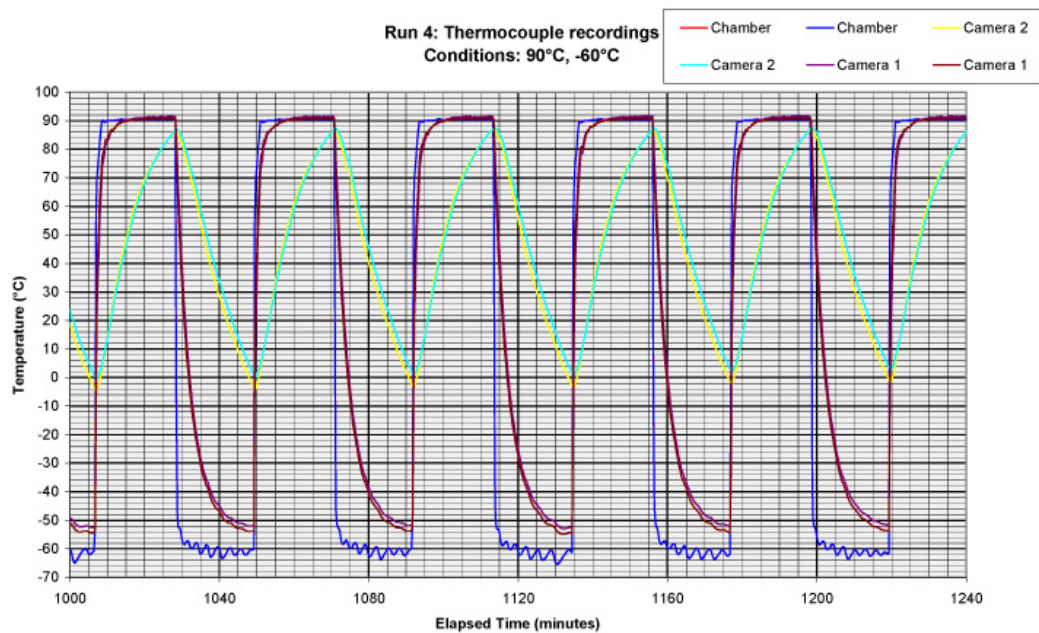
Test 3 – Thermocouple recordings detailed view

**Test 4: -60 to +90**

- Camera 3 (cover removed) was fully operational throughout and succeeding the test.
- Cameras 2 and 4 lost video output at the end of final testing, when temperatures peaked at over 90°C. Operation was restored after removal from the test area and the power was re-cycled.



**Test 4 – Thermocouple recordings expanded view**



**Test 4 – Thermocouple recordings detailed view**



Table showing results of testing

Run	Min Temp	Max Temp	Camera 1 (cover removed)		Camera 2 (covered)		Camera 3 (cover removed)		Camera 4 (covered)	
			Video	P/T	Video	P/T	Video	P/T	Video	P/T
1	-10	+40	Y	Y	Y	Y	Y	Y	Y	Y
2	-20	+70	Y	Y	Y	Y	Y	N	Y	Y
3	-40	+80	N	Y	Y	Y	Y	N	Y	Y
4	-60	+90	N	Y	N	Y	Y	N	N	Y

### Conclusion

The purpose of the HALT testing was to test the cameras to destruction to prove reliability of design and build quality.

The tests show that the VPD4 camera far exceeds the specified parameter of the product, confirming the excellence of build quality and reliability in the field for extended P/T operation and confidence in the product's warranty.