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**Test Report Number: 104152 Issue 2**

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**Customer Name & Address:** Panorama Antennas Ltd  
61 Frogmore  
London  
SW18 1HF

**Customer Order Number:** 230012901 & 230013442


**Test Sample(s) Description:** FIND-6-60, SHK[G]-6-60, SHKG-6-60-[X]W, GPSD-6-60,  
and GPSD-6-60-[X]W Antenna Range

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**Issue Date:**

6<sup>th</sup> April 2021

*The results detailed herein relate only to the test item(s) submitted for testing.  
Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.*

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## 1 Introduction

This report details the environmental testing carried out on two Antennas, as supplied by the Panorama Antennas Ltd.

The test items were subjected to the environmental tests detailed in Section 4 of this report, following the guidelines of the defined environmental test standards and as detailed in Alphatech quotation ATQ-022-21-01-BC.

The testing was performed from the 10<sup>th</sup> to 11<sup>th</sup> March 2021.

## 2 Equipment List

Description:	Serial No:	Calibration Due:
IPX9K Spray Chamber	IP20	7 <sup>th</sup> Feb 2022
IP4X EN Probe	IP004	3 <sup>rd</sup> May 2021
Sauter FK50 Force Gauge	WD090000132	7 <sup>th</sup> May 2021
ST1000 Dust Chamber	233/20947	n/a

Table 1: Equipment List

## 3 Test Item Serial Numbers

Description:	Part No:	Serial No:
FIND-6-60, SHK[G]-6-60, SHKG-6-60-[X]W, GPSD-6-60, and GPSD-6-60-[X]W Antenna Range	GPSD-6-60-[X]W	#3 & #4

Table 2: Test Item Serial Numbers

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## 4 Test Plan

The following sections define the environmental test profiles to which the test items were subjected, and depicts the orientation of the test items during the applied tests.

### 4.1 IP6Kx Dust Ingress

<b>Reference Standard:</b>	BS ISO 20653: 2013: Degrees of Protection of Electrical Equipment
<b>IP Code:</b>	IP6Kx
<b>Test Probe:</b>	Ø 1mm @ 1N
<b>Dust:</b>	ISO12103-1: 2016: A2 Fine Test Dust
<b>Duration:</b>	20 cycles of 6 second agitation / 15 minute pause

Table 3: IP6Kx Dust Ingress Test Profile

### 4.2 IPx9K Water Ingress

<b>Reference Standard:</b>	BS ISO 20653: 2013: Degrees of Protection of Electrical Equipment
<b>IP Code:</b>	IPx9K
<b>Nozzle:</b>	+80 ±5°C
<b>Flow Rate:</b>	15 ± 1L/min
<b>Distance:</b>	5 ± 1rpm
<b>Duration:</b>	30 seconds per nozzle position

Table 4: IPx9K Water Ingress Test Profile

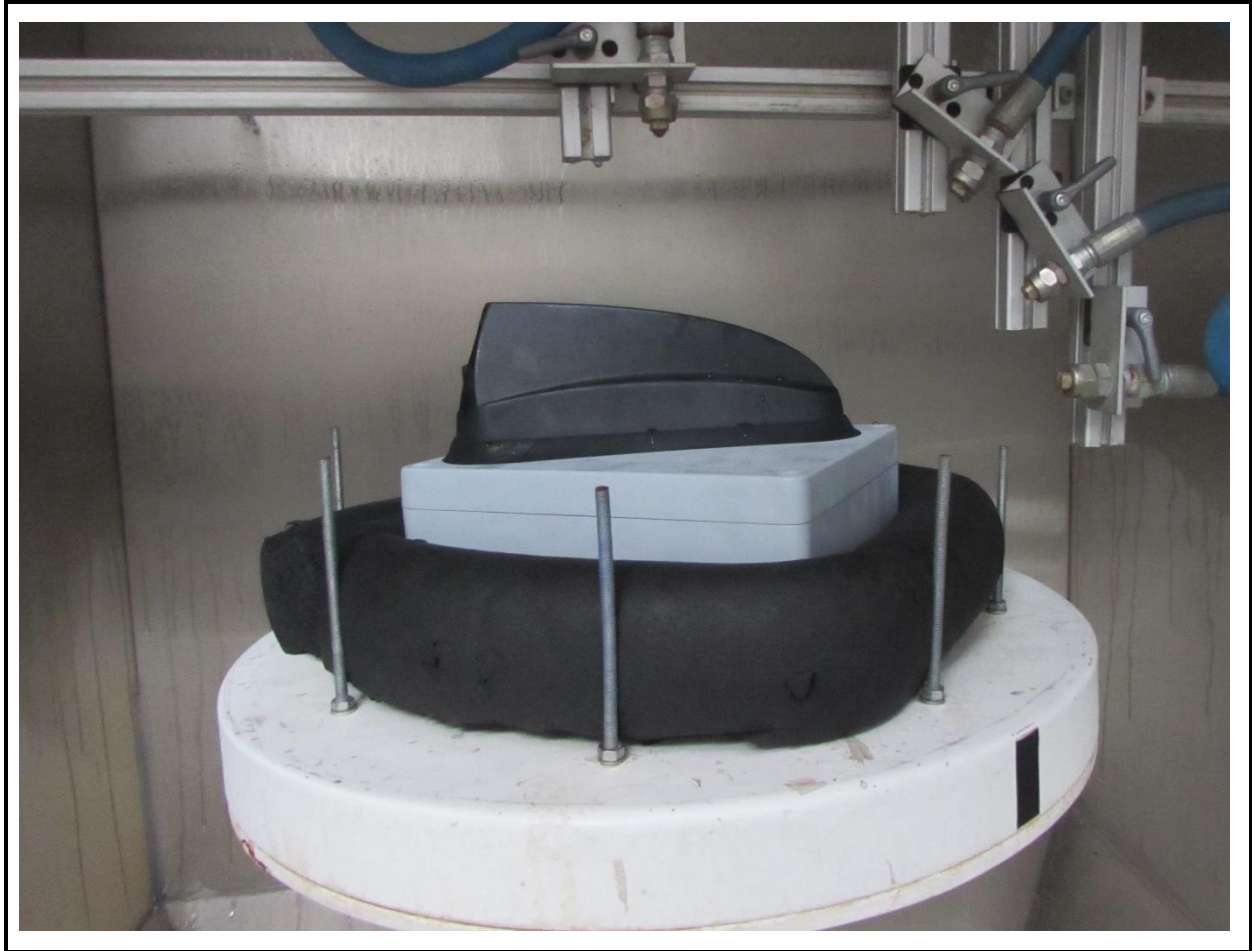
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**4.3 Test Item Orientation**



**Figure 1: Test Item Orientation: IP6Kx Dust Ingress**

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**Figure 2: Test Item Orientation: IPx9K Water Ingress**

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## **5 Test Results**

The following sections present the results of the applied testing.

The Antennas were subjected to the tests, installed in metal enclosures which replicated their in-service installation.

The inspection for ingress was performed on the Antenna case and on the metal enclosure.

### **5.1 IP6Kx Dust Ingress**

Antenna #4 was subjected to the IP6Kx test, consisting of a Probe test and a Dust test.

During the IP6Kx Probe test, the test probe did not penetrate the Antenna case or the metal enclosure.

On completion of the IP6Kx Dust test, no signs of dust ingress were observed within the Antenna case or the metal enclosure.

Therefore, Antenna #4 conformed to the requirements of the IP6Kx rating as prescribed in BS ISO 20653: 2013.

### **5.2 IPx9K Water Ingress**

Antenna #3 was subjected to the IPx9K test.

On completion of the IPx9K test, no signs of water ingress were observed within the Antenna case or the metal enclosure.

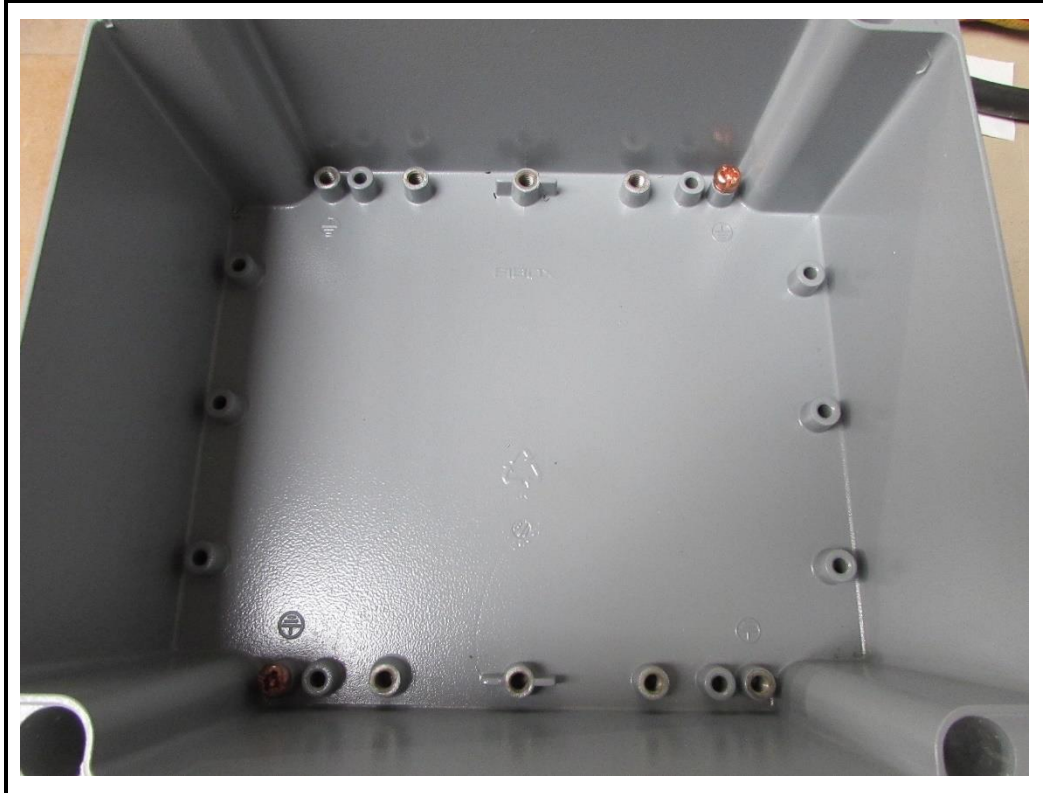
Therefore, Antenna #3 conformed to the requirements of the IPx9K rating as prescribed in BS ISO 20653: 2013.

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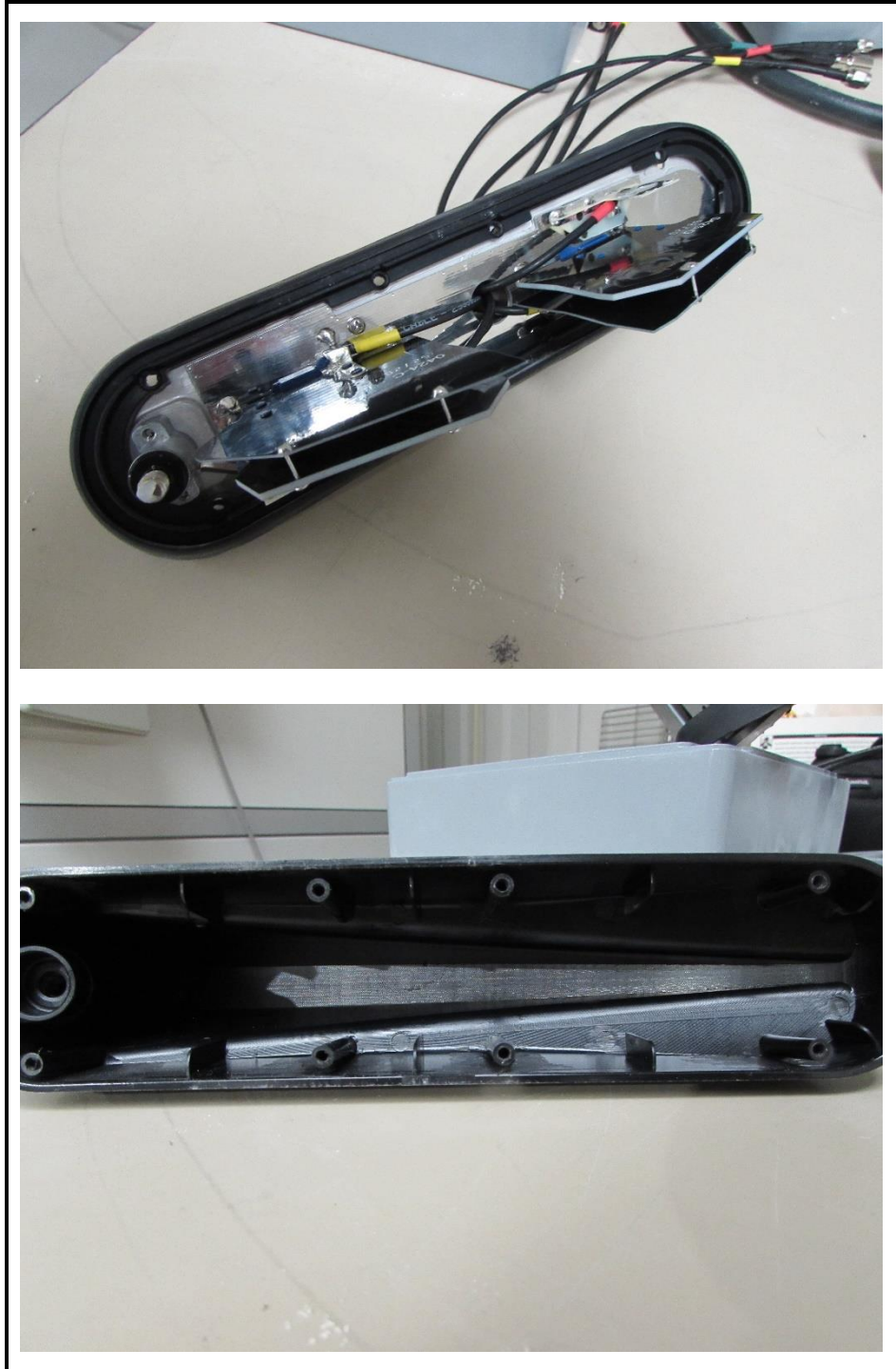
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### 5.3 Post Test Photos



**Figure 3: Post Test Photos – IP6Kx Dust Ingress**

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**Figure 4: Post Test Photos – IP6Kx Dust Ingress**

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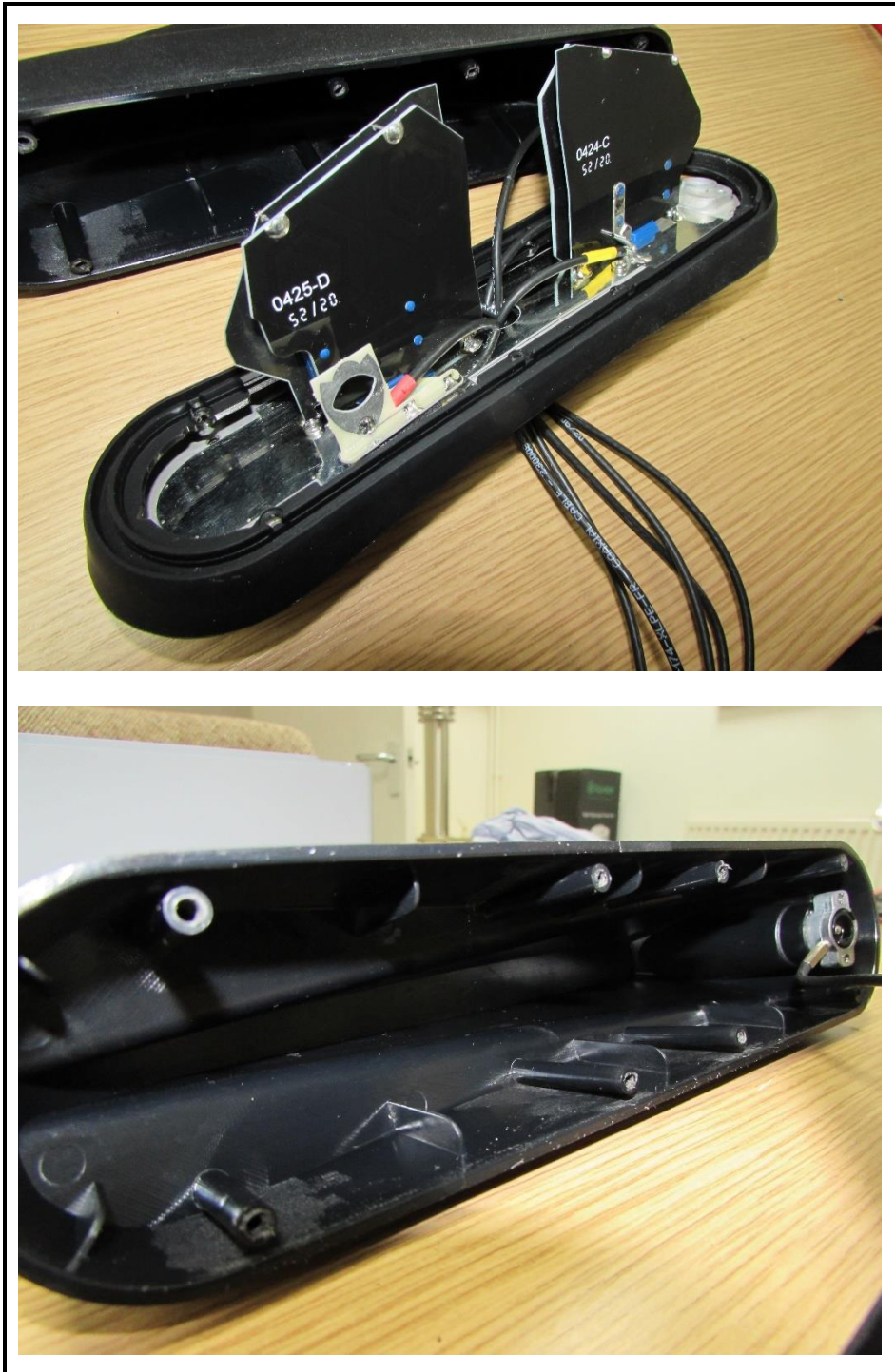
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**Figure 5: Post Test Photos – IPx9K Water Ingress**

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**Figure 6: Post Test Photos – IPx9K Water Ingress**

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## 6 Conclusions

The detailed tests were performed in accordance with the requirements of the defined environmental test standard.

## 7 Revision History

Revision Level	Summary of Changes
1	Initial Release
2	Part number modified

Table 5: Revision History

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**End of Report**