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Test Report Number: 103439 Issue 1

Customer Name & Address: Panorama Antennas Ltd

61 Frogmore
London
SW18 1HF

Customer Order Number: 230002103

Test Sample(s) Description: TRNC[G] Antenna Range
TRNM[G] Antenna Range

Author:	**Approval:**	**Issue Date:**
Paul Lee Test Lab Manager	Steve Drane Service Manager	1st August 2018

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 one TRNC[G] Antenna Range Antenna and one TRNM[G] Antenna Range Antenna, as supplied by 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-149-18-05-PL.

The testing was performed on the 11th and 12th July 2018.

2 Equipment List

Description:	Serial No:	Calibration Due:
IPx9K Chamber	IP20	17th Sep 2018

Table 1: Equipment List

3 Test Item Serial Numbers

Description:	Part No:	Batch No:
TRNC[G] Antenna Range Antenna *	None	370004723
TRNM[G] Antenna Range Antenna *	None	370002981
* The customer applied additional silicon sealant between the Antenna and ABS enclosure		

Table 2: Test Item Serial Numbers

4 Test Plan

The following sections define the environmental test profile to which the test items were subjected, and depicts the orientation of the test items within the test chamber.

4.1 IPx9K Water Ingress

Reference Standard:	DIN 40 050 Part 9: Road Vehicles Degrees of Protection
Code:	IPx9K
Water Temperature:	+80 ±5°C
Flow Rate:	15 ± 1L/min
Turntable Speed:	5 ± 1rpm
Duration:	30 seconds per nozzle position

Table 3: IPx9K Water Ingress Test Profile

4.2 Test Item Mounting

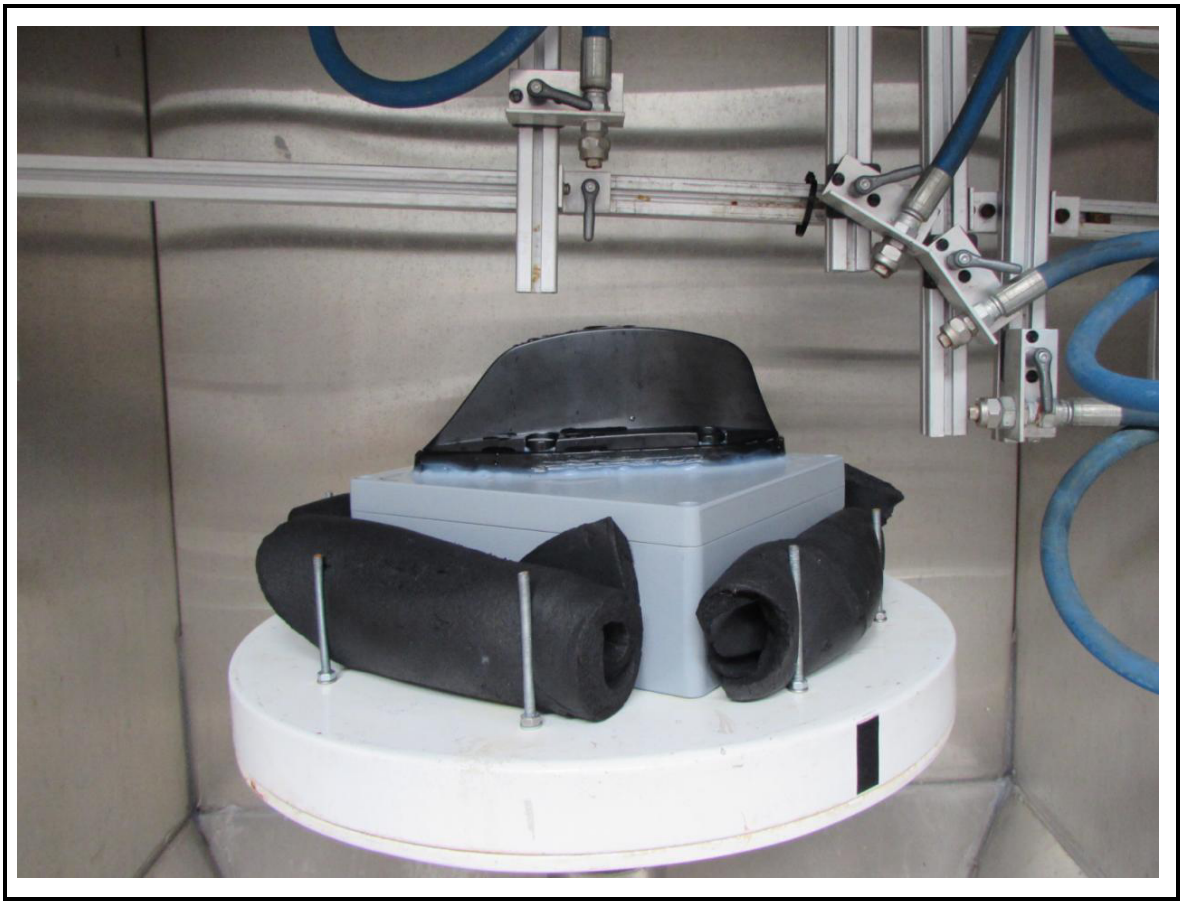

Figure 1: Test Item Mounting – IPx9K Water Ingress

5 Test Results

The following sections present the results of the applied tests.

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

Additionally, the customer applied silicon sealant between the Antenna and ABS enclosure.

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

5.1 IPx9K Water Ingress

On completion of the IPx9K test of the TRNC[G] Antenna Range Antenna, no signs of water ingress were observed within the case or the ABS enclosure.

On completion of the IPx9K test of the TRNM[G] Antenna Range Antenna, no signs of water ingress were observed within the case or the ABS enclosure.

Therefore, both the TRNC[G] and the TRNM[G] Antenna Range Antennas conformed to the requirements of the IPx9K rating as prescribed in DIN 40 050 Part 9.

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5.2 Post Test Photos

Figure 2: Post Test Photos – IPx9K Water Ingress TRNC[G]

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Figure 3: Post Test Photos – IPx9K Water Ingress TRNM[G]

6 Conclusions

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

Both the TRNC[G] and the TRNM[G] Antenna Range Antennas conformed to the requirements of the IPx9K rating as prescribed in DIN 40 050 Part 9.

6.1 Test Item Variants

The customer has confirmed that the Antennas in the TRNC[G] and the TRNM[G] Antenna Ranges are identical to the Antennas subjected to the IP tests detailed in this test report, the only exception being internal components not related to the sealing of the Antenna.

7 Revision History

Revision Level	Summary of Changes
1	Initial Release

Table 4: Revision History

END OF REPORT