

Project	Radar X	Type	Design Information
Task	Antenna	Author	Chris Ford
Date	17/03/23	Version	1

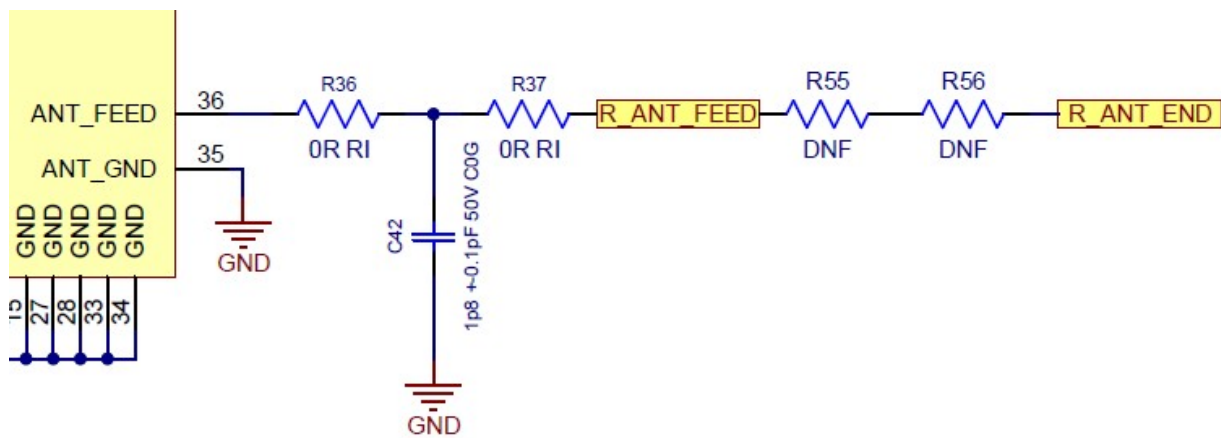
1. Overview

This document details the Antenna specification and design parameters as used in the Rentokil Initial Long Reach Radar X design

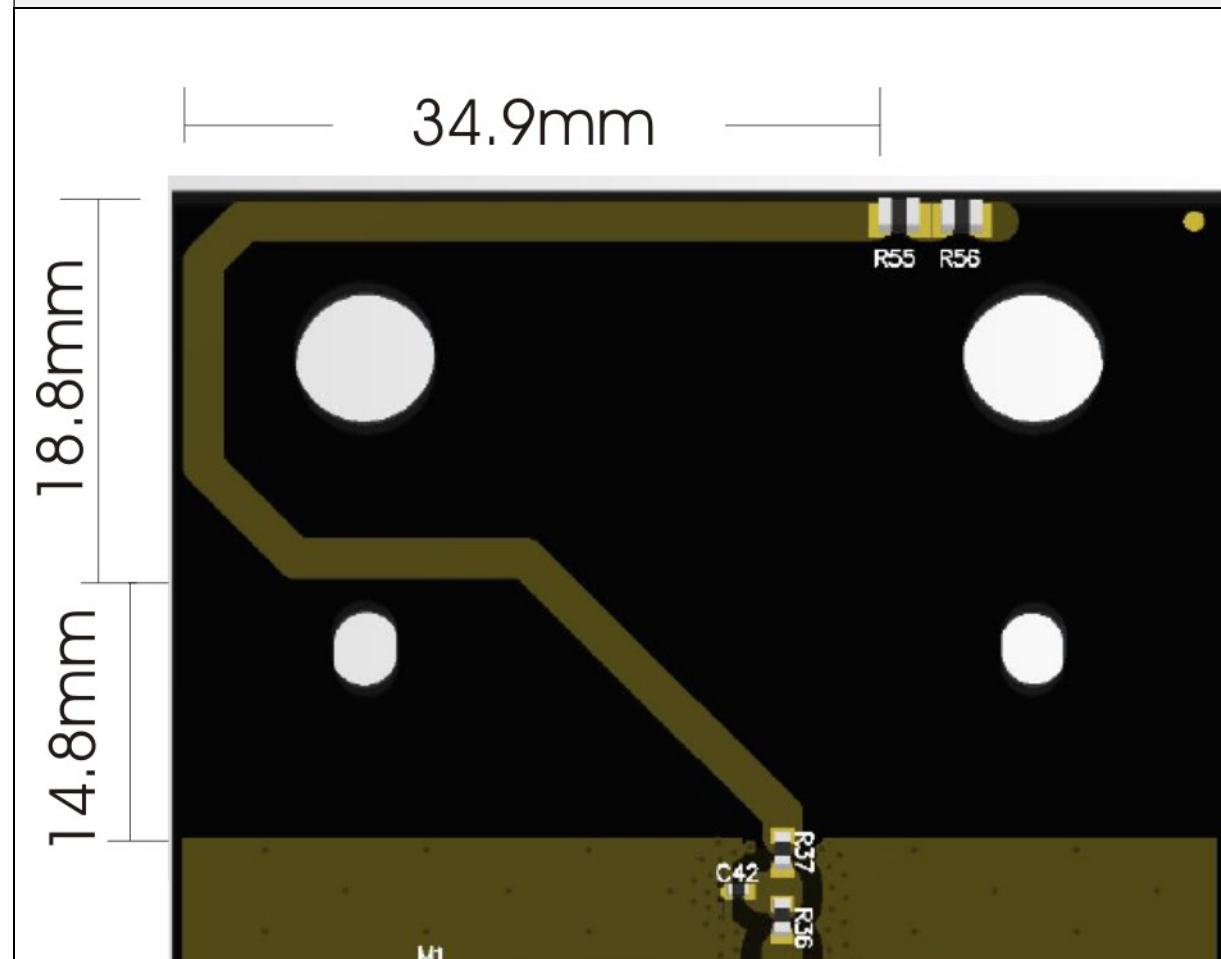
2. Specification

Specification	Value
Type	Monopole
Polarisation	Linear
Passband	860MHz.....930MHz
Gain	+1.25dBi maximum
VSWR	<1.8:1

3. Schematic



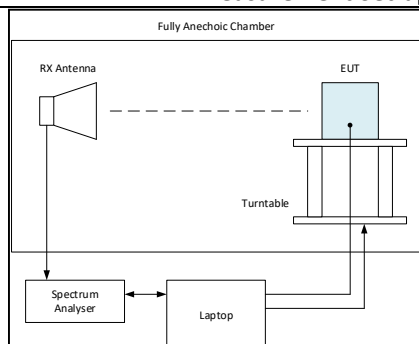
4. Dimensions



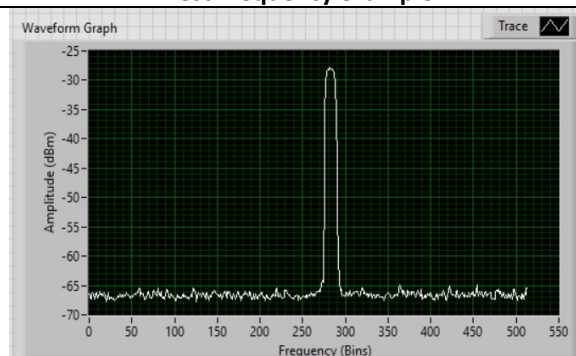
5. Test Setup

Testing was performed by Unit 3 Compliance Ltd
2, Wellington Business Park
New Lane
Bradford
West Yorkshire, UK
BD4 8AL

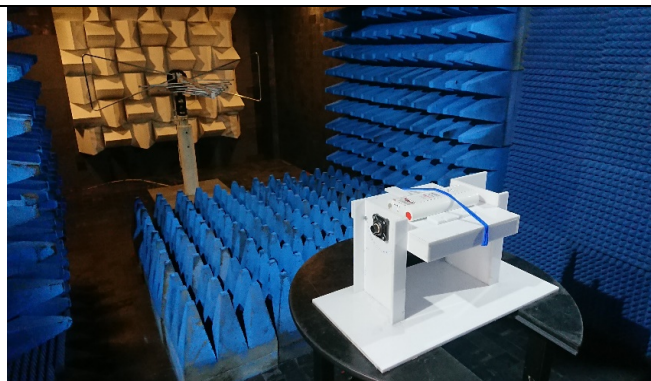
Measurement Set-up



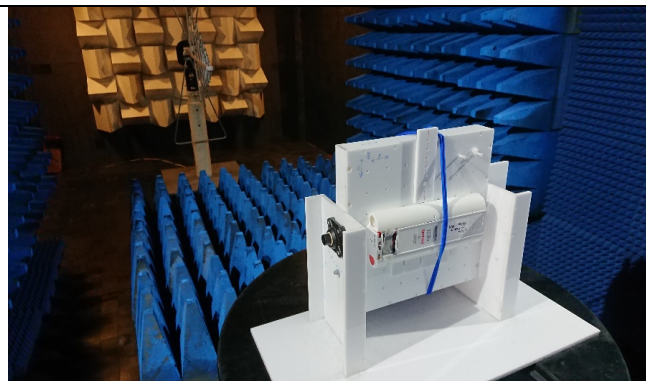
Test Frequency example



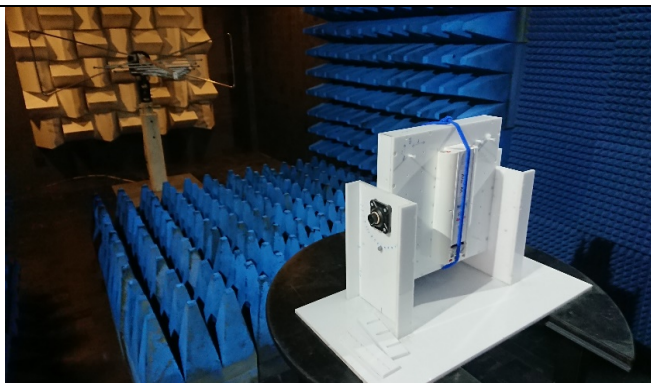
X Axis



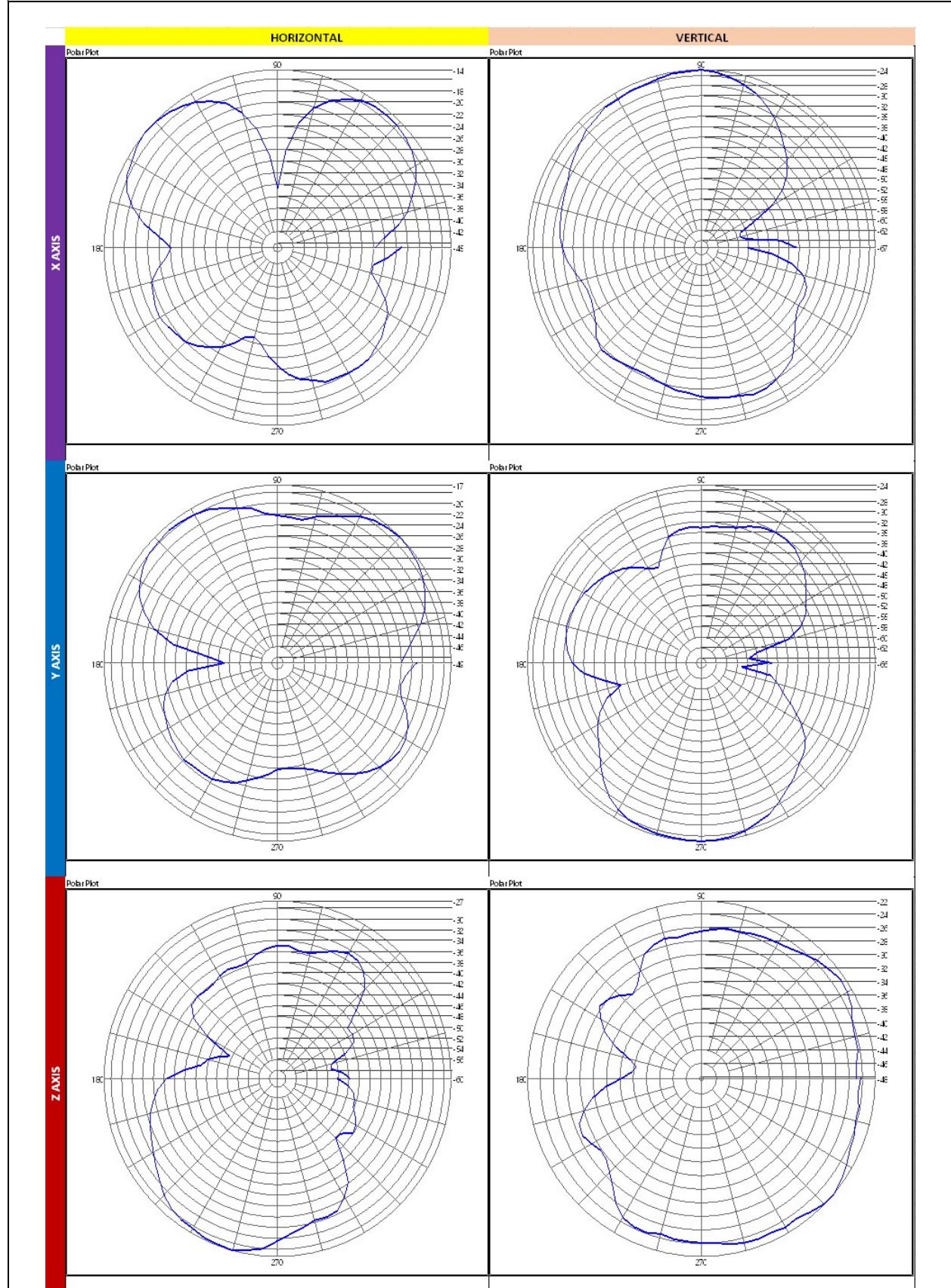
Y Axis



Z Axis



6. Polar Plots



7. Results

Max	-14.4
Xmax (H)	-14.4
Xmax (V)	-23.7
Mean	-29.7

By substitution & module output level, calculated gain.

For each receiving antenna orientation a dipole emitting 0dBm and of the same orientation as the receive antenna was substituted for the EUT.

In the horizontal orientation the received reference signal was -30.6dBm, then the vertical orientation -31.4dBm.

The module output was +17.3dBm (from module report by RF Design).

Of all the plots peak measured output -14.4dBm

Giving a calculated peak gain of $(-14.4 - (-30.6) - 17.3) = -1.1\text{dBD}$ or +1.25dBi