RADASCAN RESPONDER ANTENNA TEST RESULTS

REPORT NUMBER	CMR-1163
DATE	07 MARCH 2013
ISSUE	1

PREPARED ON BEHALF OF GUIDANCE MICROWAVE BY

Dave Patrick.....

Digitally signed by Dave Patrick
DN: cn=Dave Patrick, o=Guidance Microwave, ou, email=dave.patrick@guidance.eu.com, c=GB
Date: 2013.03.15 14:48:54 Z

Dave Patrick

GUIDANCE MICROWAVE LTD.
C2, Knowl Piece
Wilbury Way
Hitchin
Hertfordshire
SG4 0TY

Tel: +44 (0)1462 423449
Fax: +44 (0)1462 423552

www.guidance.eu.com

SUMMARY

This document summarises the results from the Responder Antenna gain measurements made by UCL (University College London) in September 2012.

Change Record Sheet

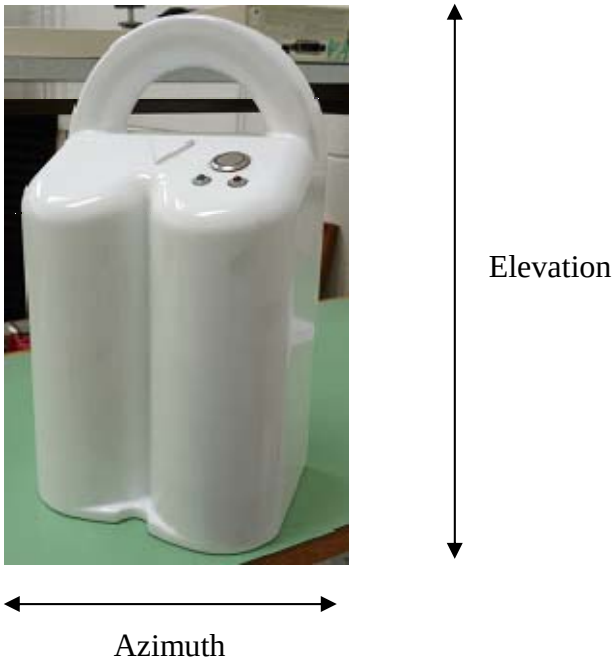
Issue	Date	Change Description	Author
1	07 MARCH	Initial Issue	Dave Patrick

Document Information
Filename: GMic Report Template.dot
Number of Pages: 14

Heading **Page Number**

1. INTRODUCTION

This report summarises the antenna measurements made on the RadaScan Responder antennas at University College London (UCL) in September 2012. The picture below illustrates the Responder case used for the testing and the Azimuth and Elevation definitions.



1.1 Test method

To measure the Responder Antennas, tracks on the circuit have been cut and SMA connectors fitted to allow test access to the Receive and Transmit patch antennas arrays. The pictures below show the test cables to the RF board and the Responder antennas mounted in the Antenna test chamber. The entire Antenna pattern is measured by the test set: i.e. 180 degrees in Elevation and 360 degrees in Azimuth.

2. PEAK ANTENNA GAIN

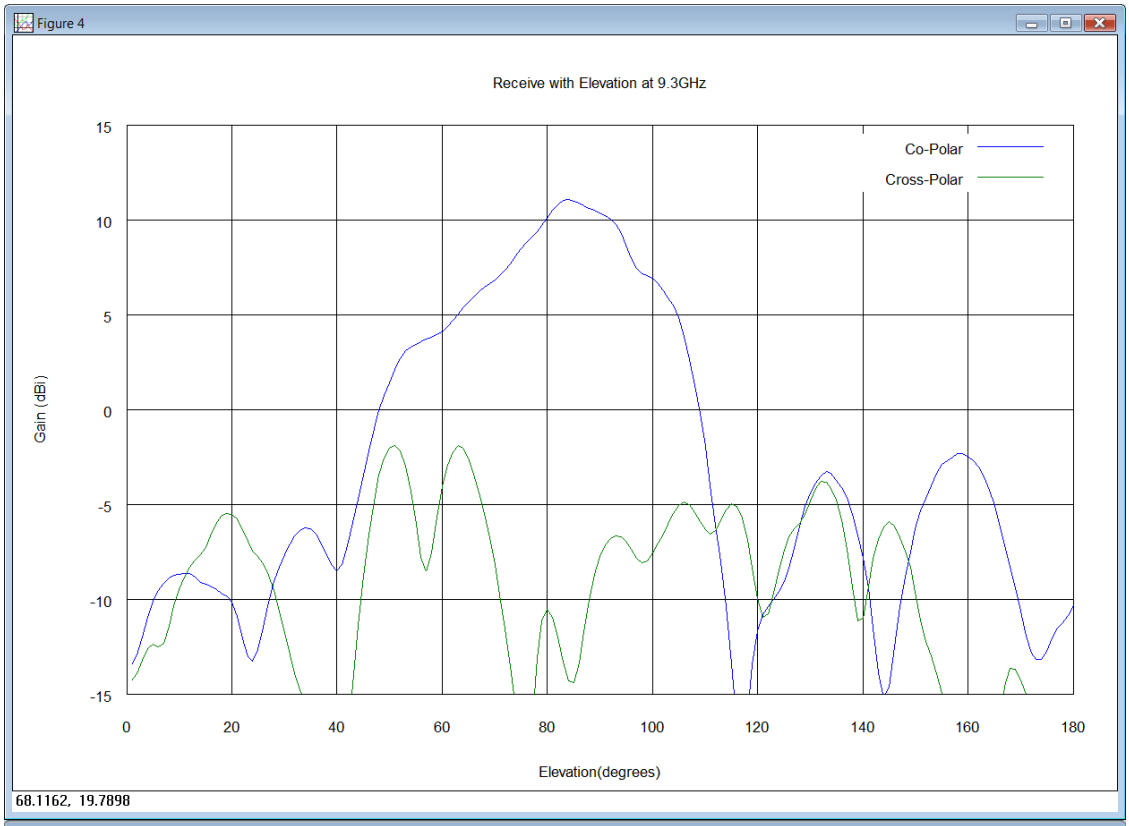
The table below details the measured peak antenna gain for the Receive and Transmit antennas at 9.2GHz and 9.3GHz.

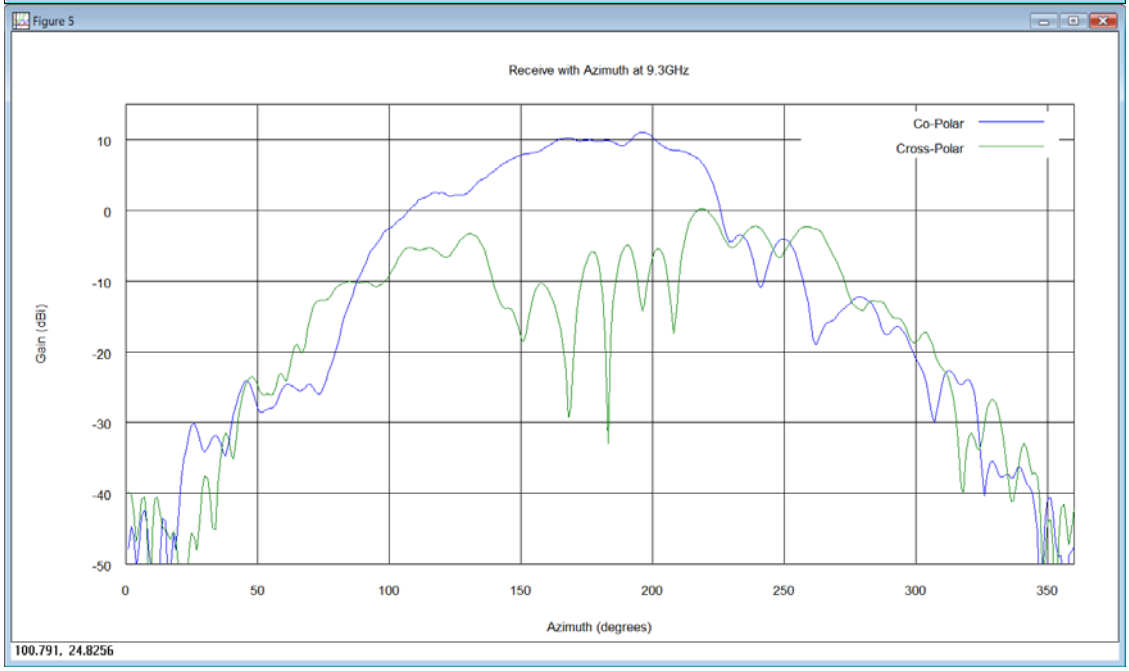
	9.2GHz	9.3GHz
Receive Antenna	12.25 dBi	11.1dBi
Transmit Antenna	11.9 dBi	11.9 dBi

3. ANTENNA PATTERN PLOTS

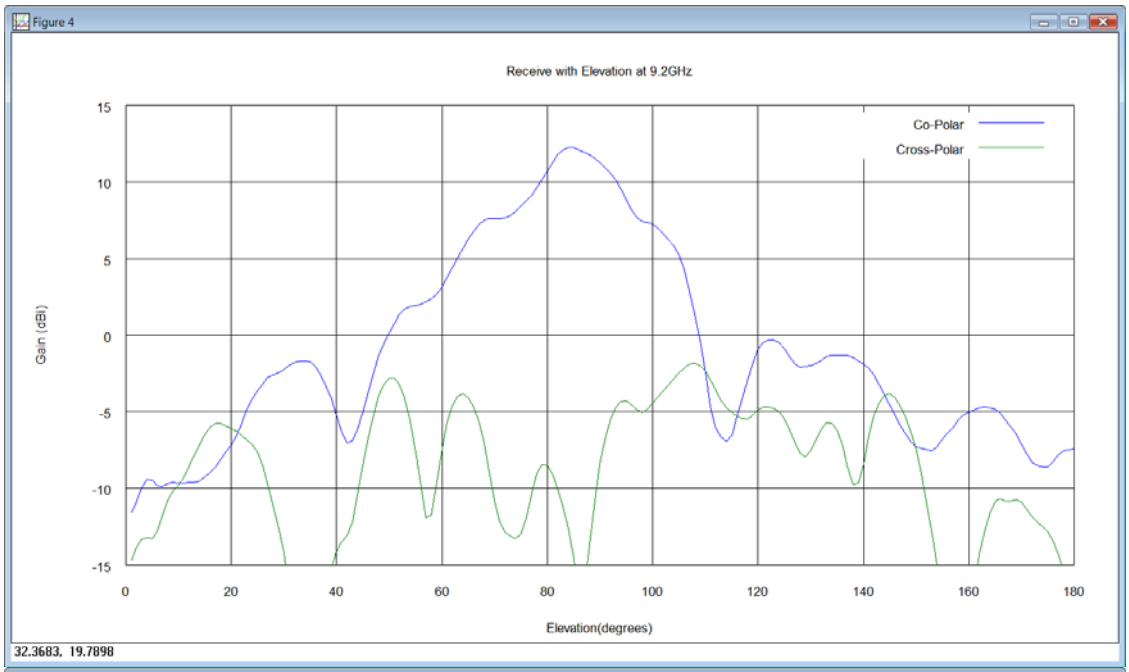
The following graphs show the Antenna patterns in Azimuth and Elevation for maximum gain cuts.

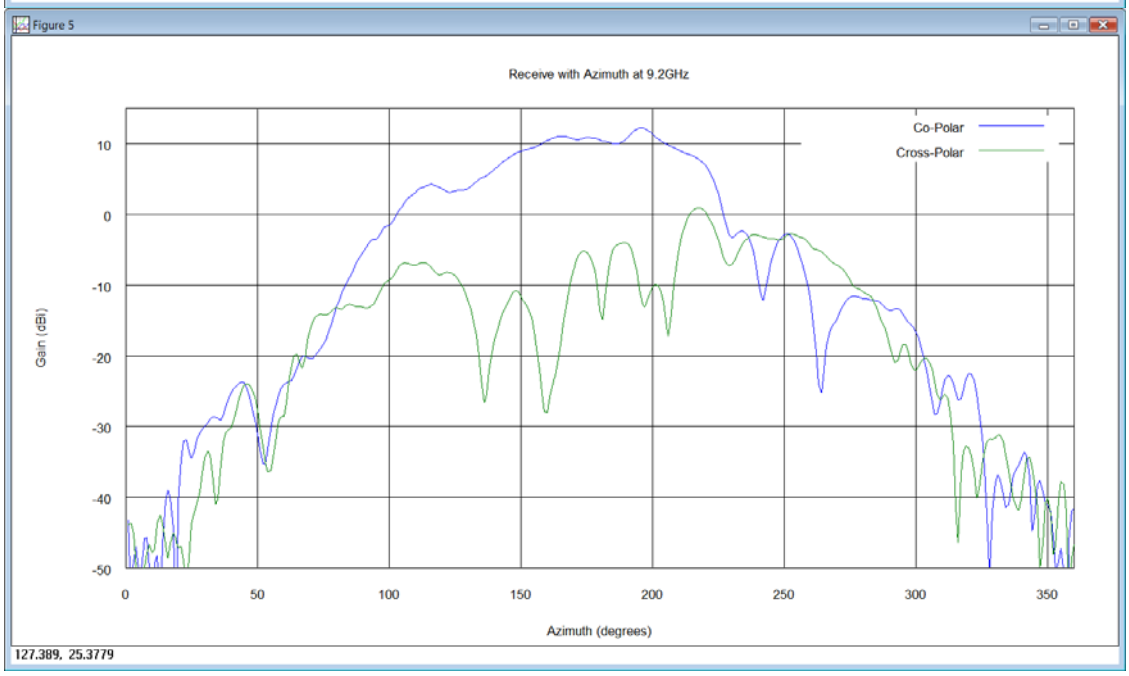
3.1 RECEIVE 9.3GHz



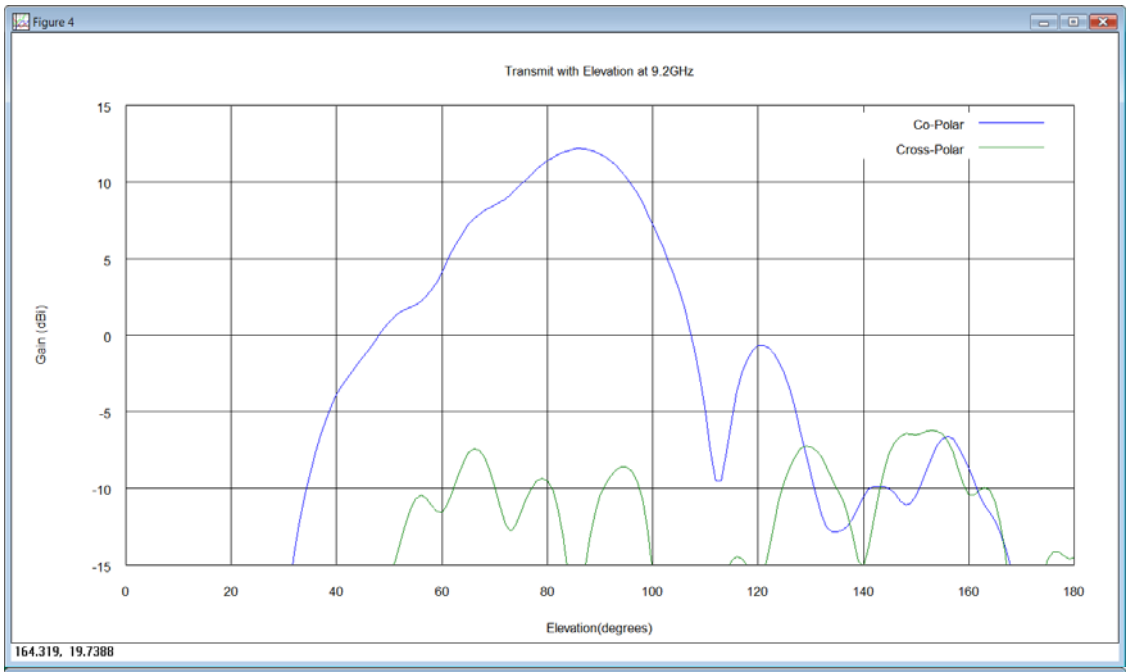


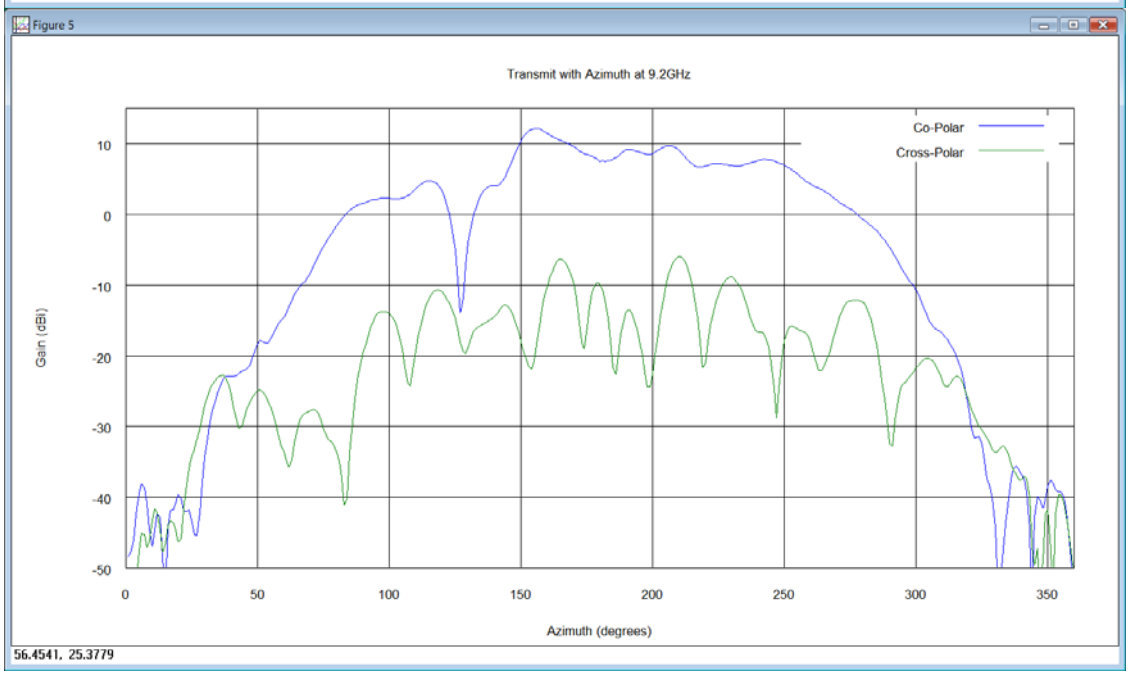
3.2 RECEIVE 9.2GHz



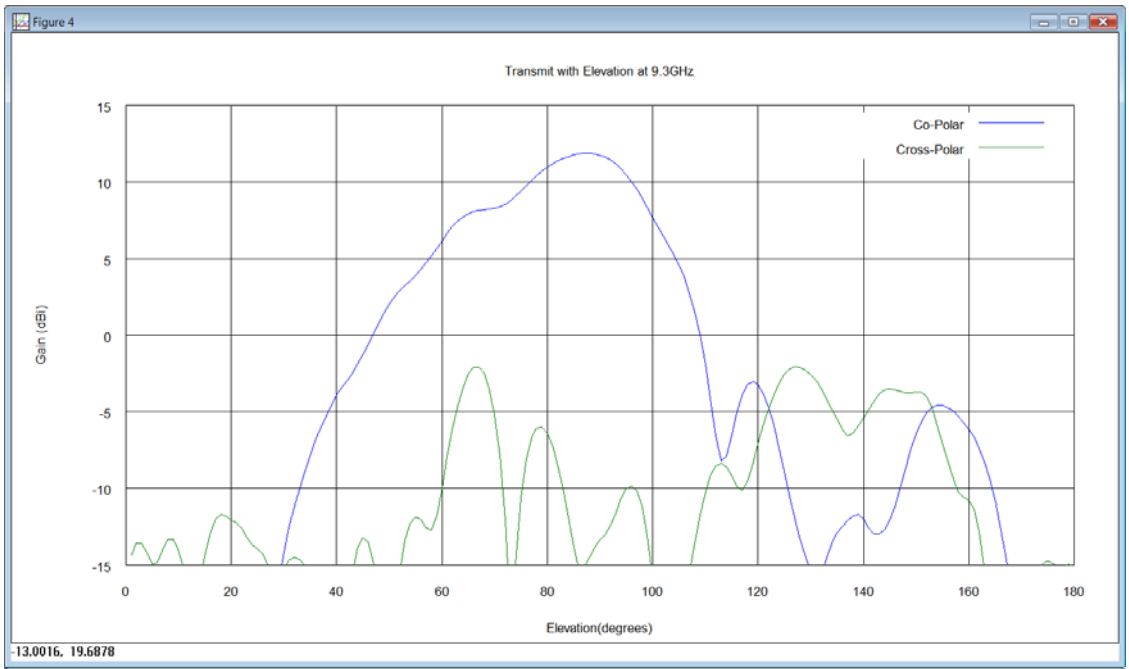


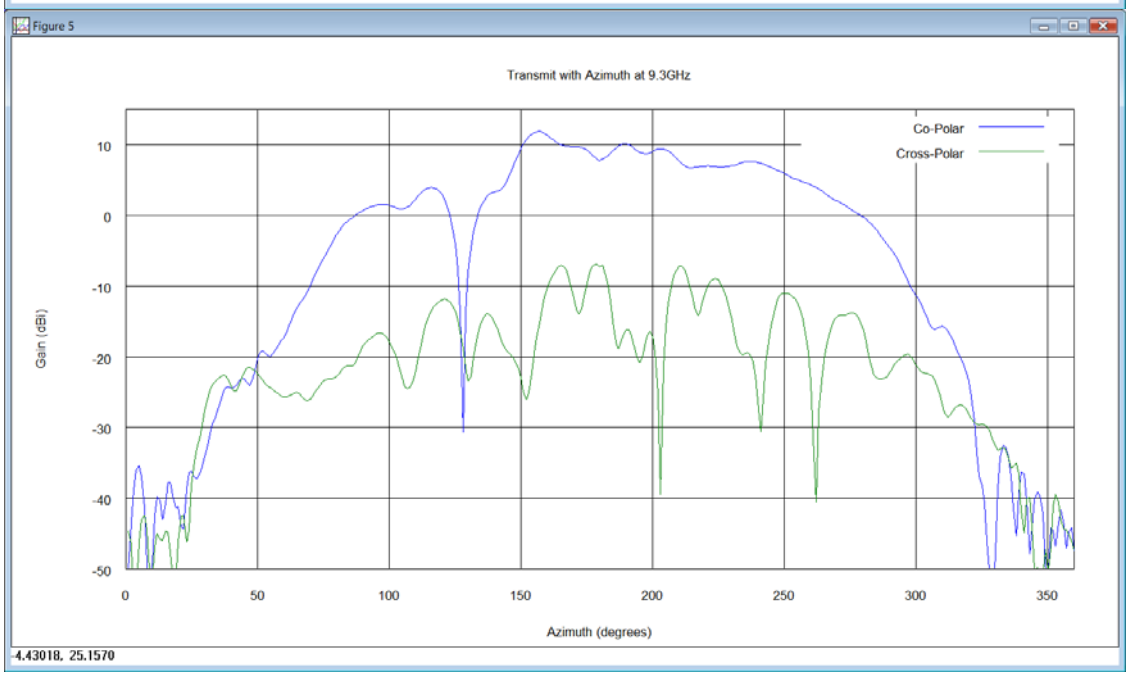
3.3 TRANSMIT 9.2GHz





3.4 TRANSMIT 9.3GHz

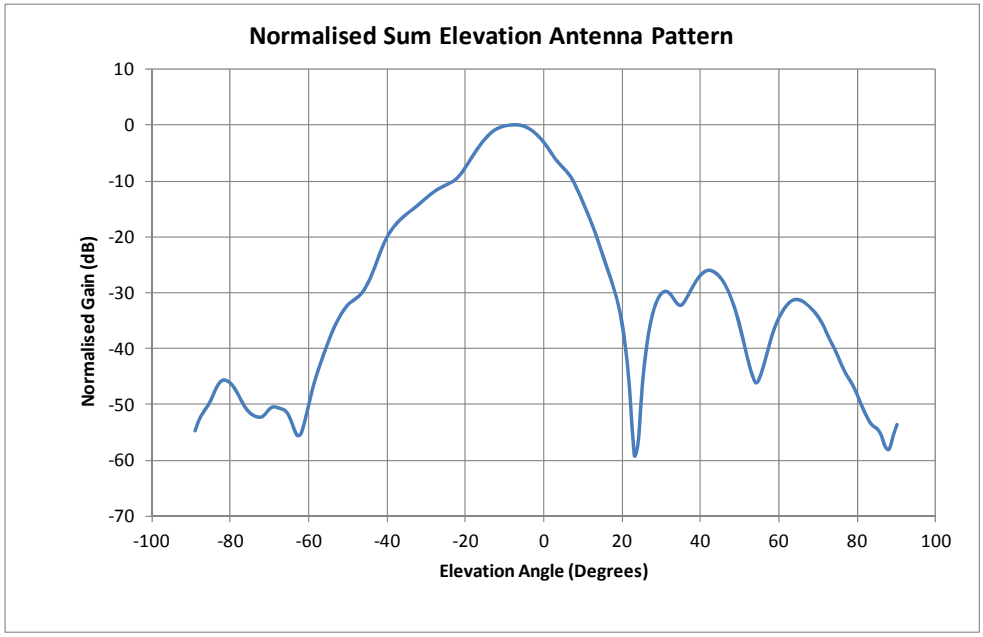




4. SUM ANTENNA PATTERNS

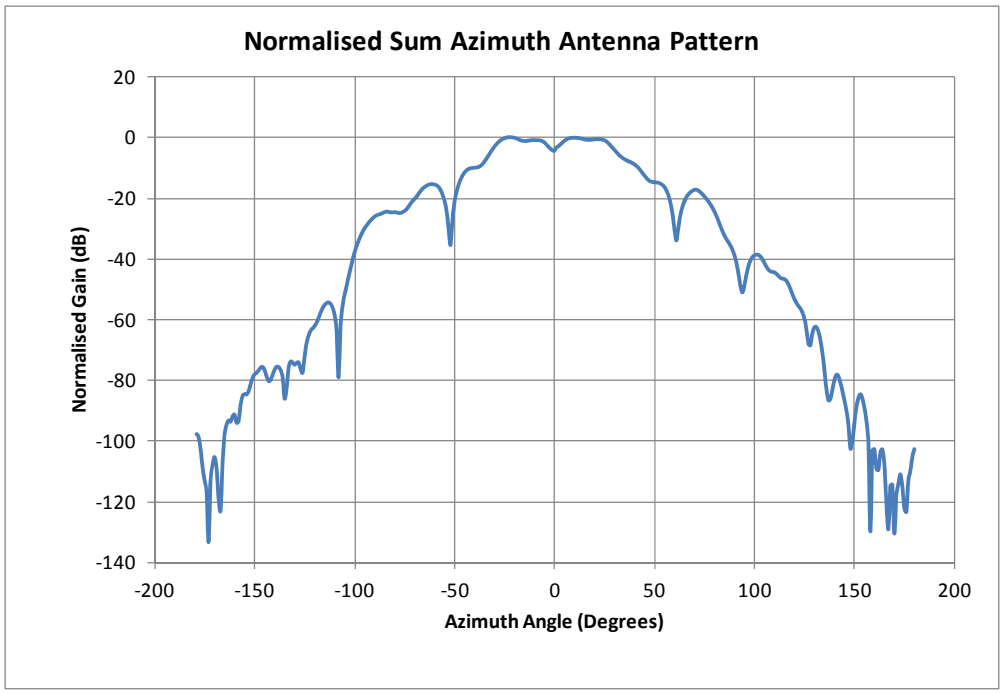
The Responder performance with angle can be calculated by summing the Receive and Transmit patterns as illustrated below.

4.1 Normalised Sum Elevation Pattern



The 10 dB width is 31 degrees.

4.2 Normalised Sum Azimuth Pattern

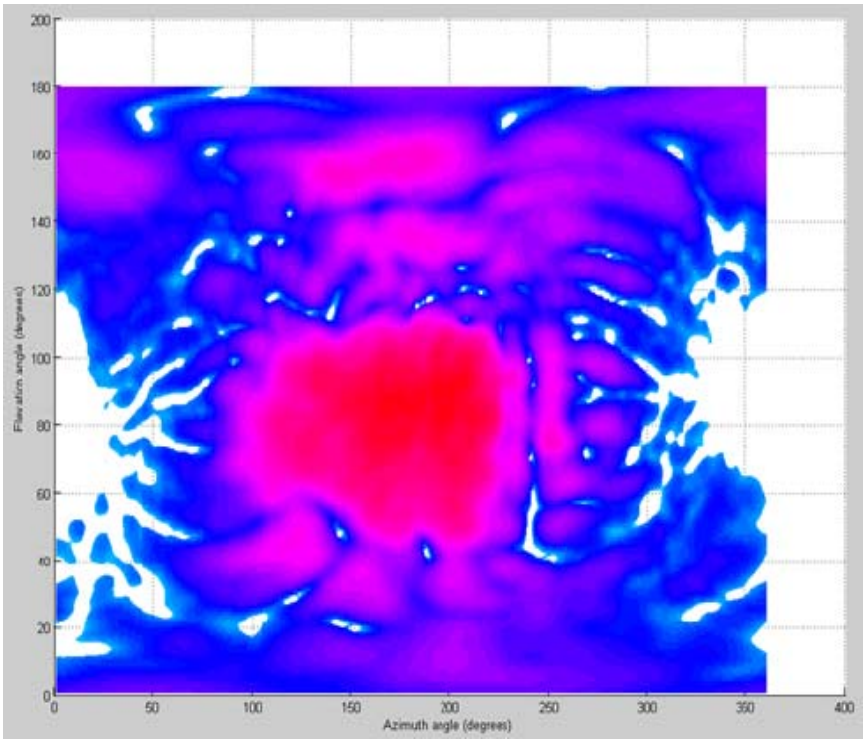


The 10dB width is 80 degrees.

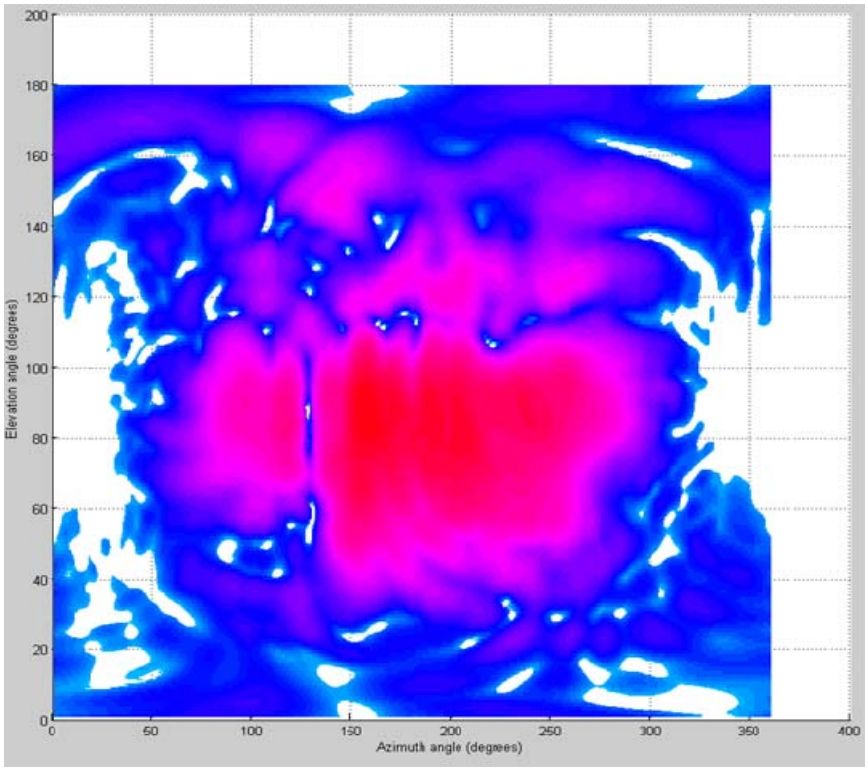
5. ANTENNA SURFACE PLOTS, 9.3GHz

The pictures below are colour map surface plots for both antennas at 9.3GHz.

5.1 RECEIVE ANTENNA



5.2 TRANSMIT ANTENNA



6. CONCLUSIONS

The peak transmit antenna gain is 11.9dBi.
The peak Receive antenna gain is 12.25dBi.