



Report of Measurements

Antenna performance measurements

Project No.: 1027041

Prepared for:

Traxxas
1100 Klein Rd.
Plano, TX 75074

Prepared by:

Nemko USA, Inc.
802 N. Kealy St.
Lewisville, TX 75057

Issue Date:

29 March 2011

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Report Summary

Nemko USA, Dallas Lab

Customer Representative: Chris Russell

EUT Description	Manufacturer
The EUT is a dipole antenna	Traxxas

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Test Summary

The following parameters were measured on the device.

- 1) Gain vs. Azimuth in 360 degrees at 2.4 GHz, 2.45 GHz, and 2.4835 GHz
- 2) Gain vs. Elevation in 360 degrees at 2.4 GHz, 2.45 GHz, and 2.4835 GHz
- 3) Return Loss across frequency band 2.4 – 2.4835 GHz

This is to certify that the preceding report is true and correct to the best of my knowledge.



Brian Boyea, EMC Test Engineer



Tom Tidwell, Director Nemko Direct for Telecom

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Table of Contents

REPORT SUMMARY	2
TEST SUMMARY	3
1.0 INTRODUCTION	5
1.1 PURPOSE	5
2.0 EUT DESCRIPTION	5
2.1 CONFIGURATION	5
APPENDICES	6
APPENDIX A: ANTENNA GAIN	7
APPENDIX B: RETURN LOSS CHARACTERISTICS	14
APPENDIX C: TEST EQUIPMENT LIST	17
END OF DOCUMENT	18



Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

1.0 INTRODUCTION

1.1 PURPOSE

The purpose of this document is to present antenna performance data for a pcb antenna design provided by Traxxas.

2.0 EUT DESCRIPTION

2.1 CONFIGURATION

Description of EUT

Frequency Range	2.4 – 2.4835 GHz
Antenna type	☒ Integral PCB
Nominal antenna gain (dBi)	-2.45 dBi
Functional Description	The EUT is designed as a resonant $\frac{1}{4}$ wave dipole

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

APPENDICES



Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

APPENDIX A: ANTENNA GAIN

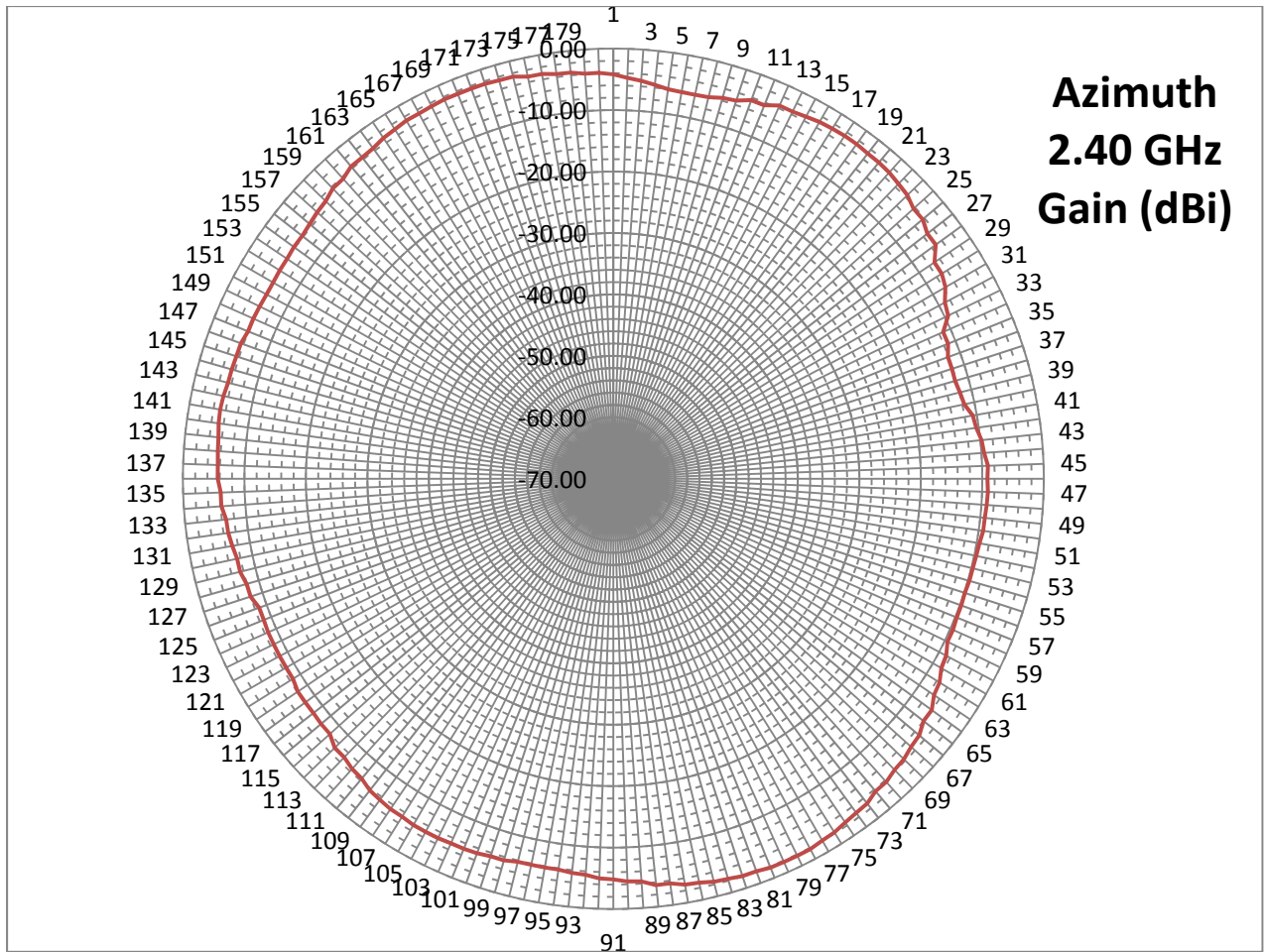


Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Azimuth 2.40 GHz

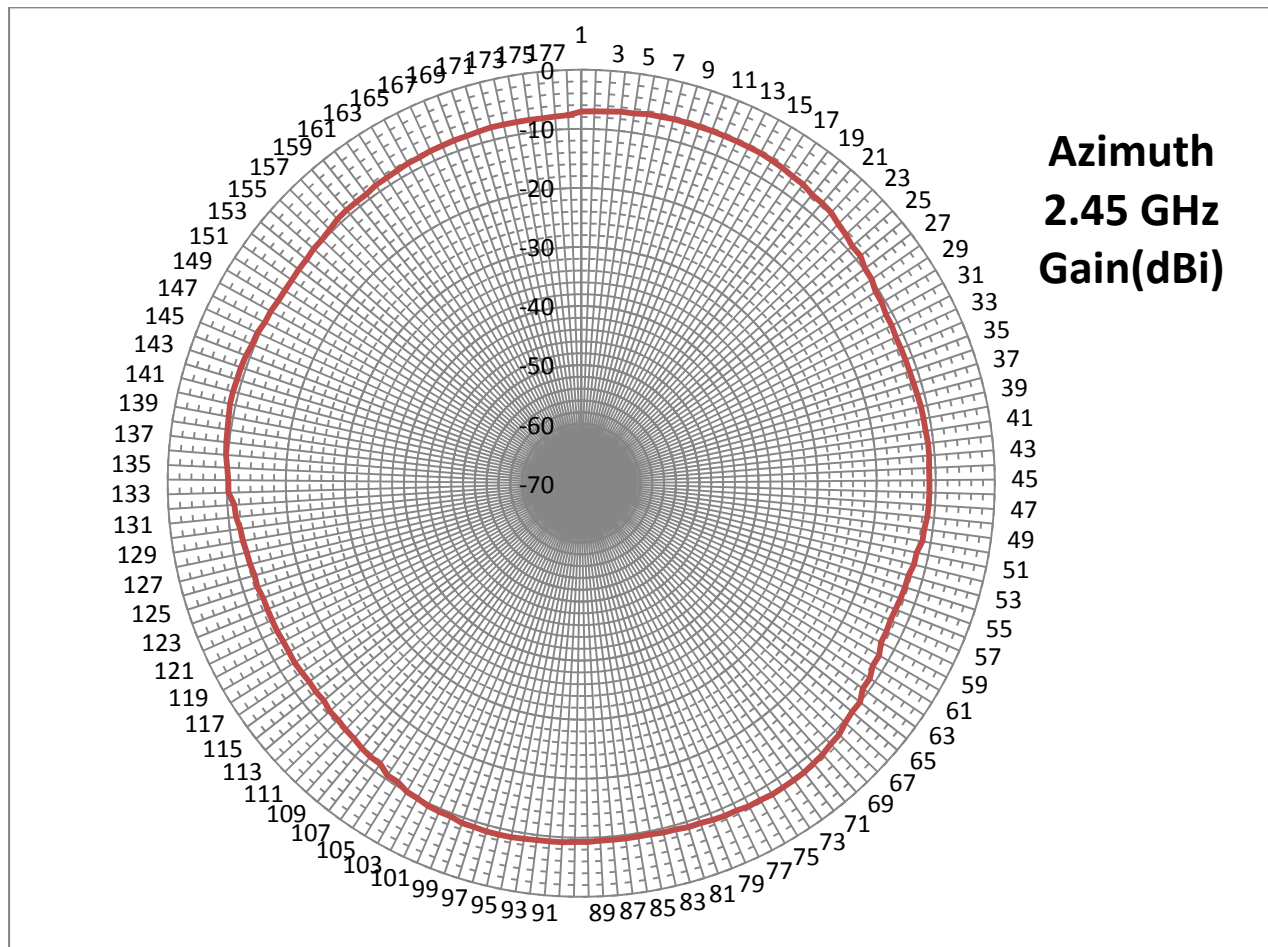


Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Azimuth 2.45 GHz

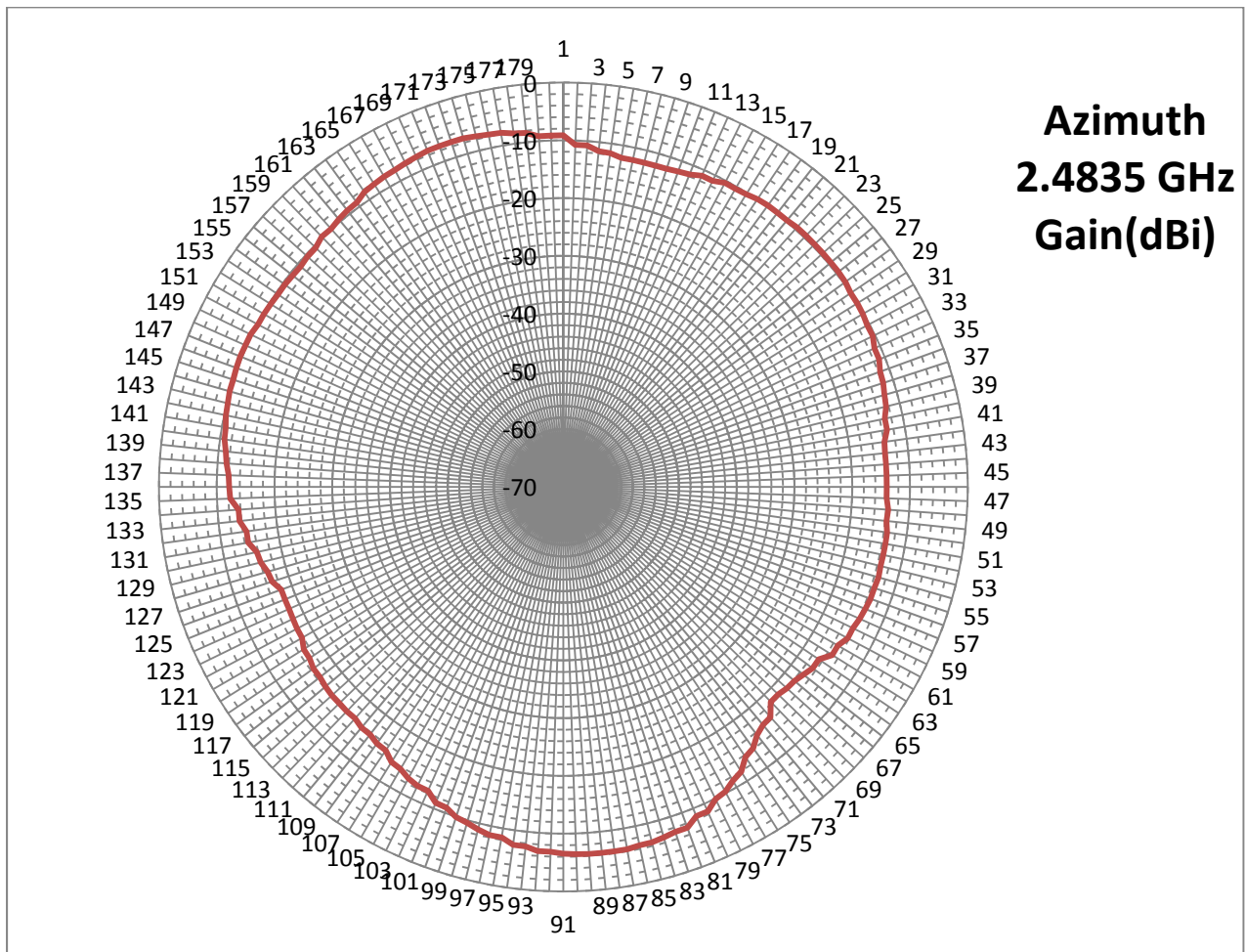


Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Azimuth 2.4835 GHz



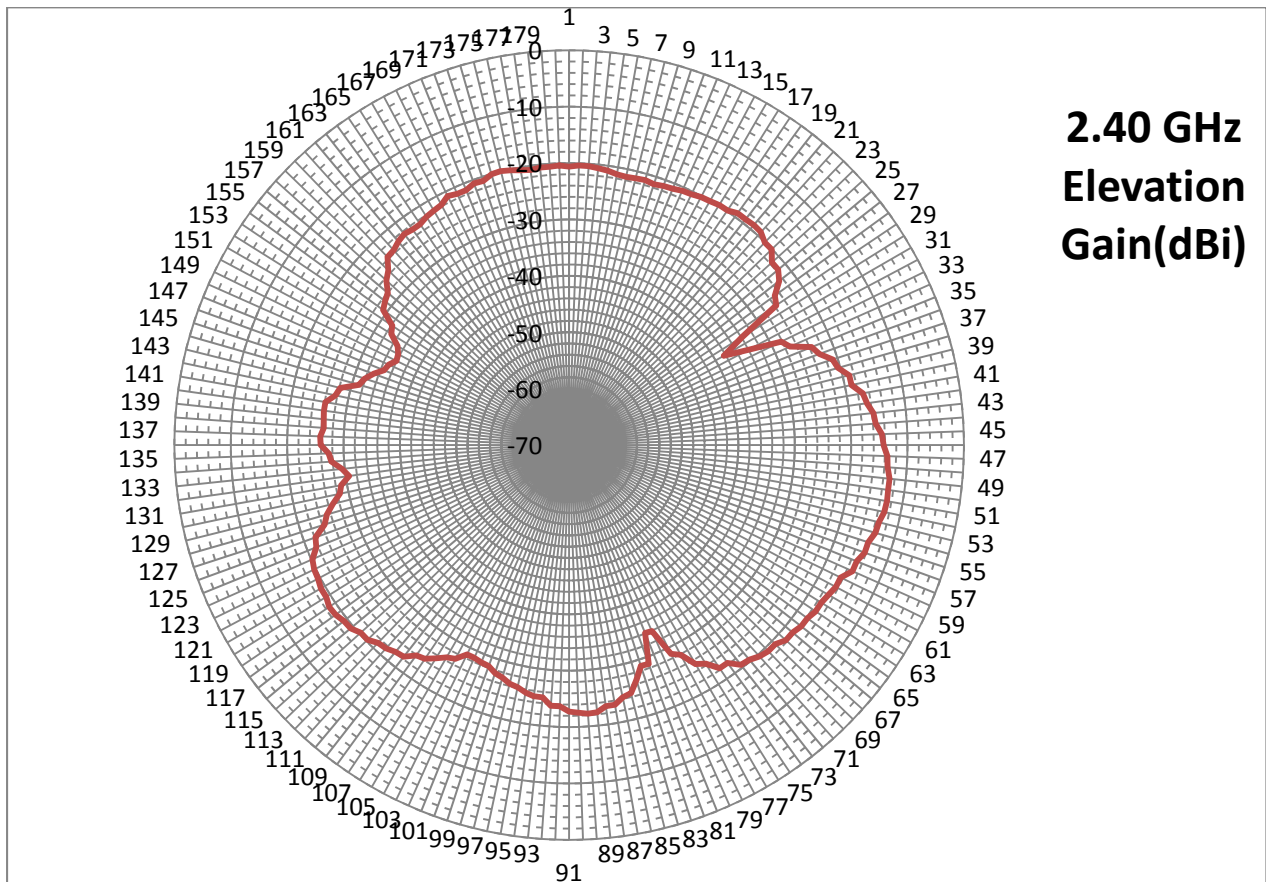
A.1.

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Elevation 2.40 GHz

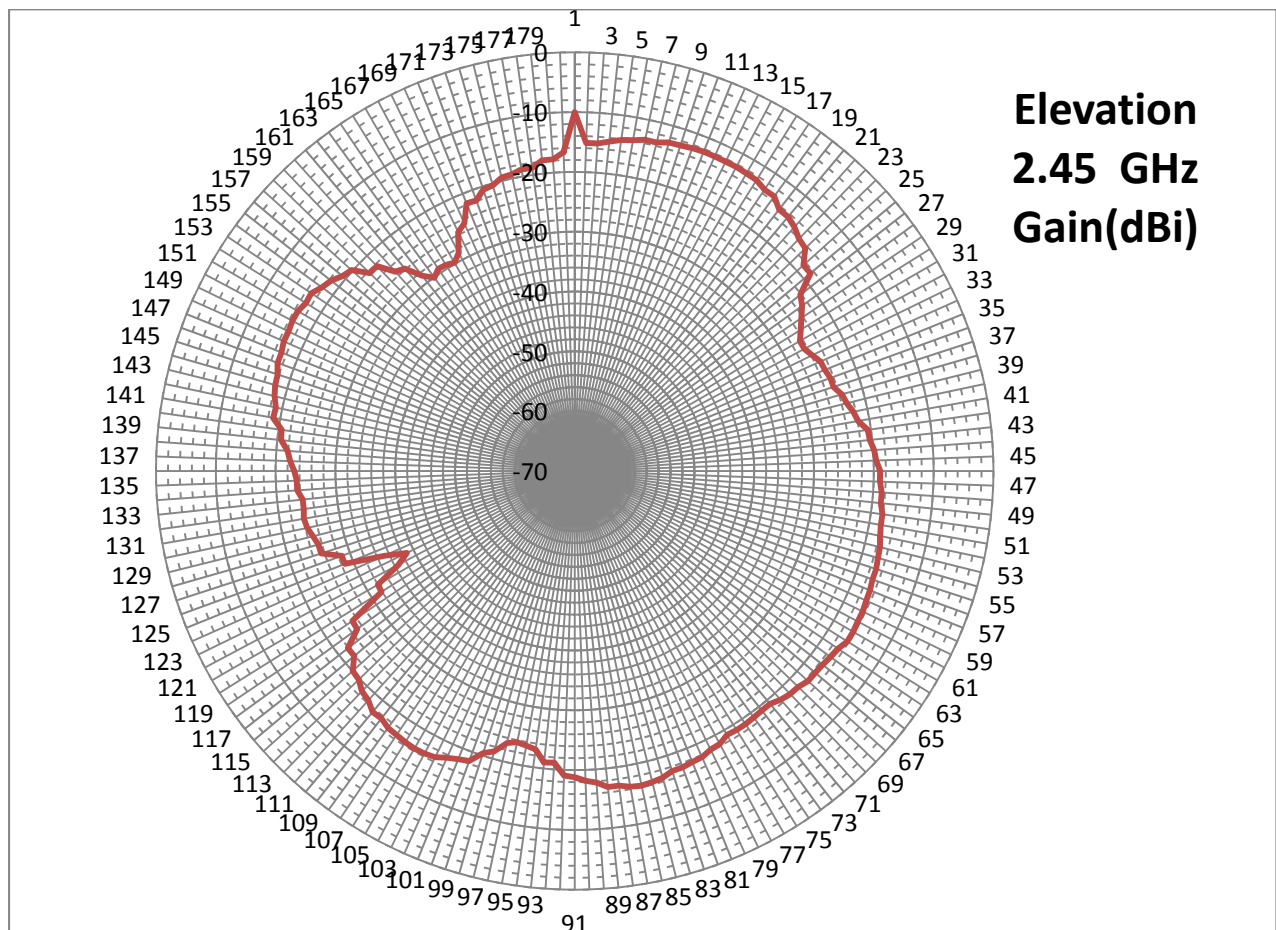


Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Elevation 2.45 GHz

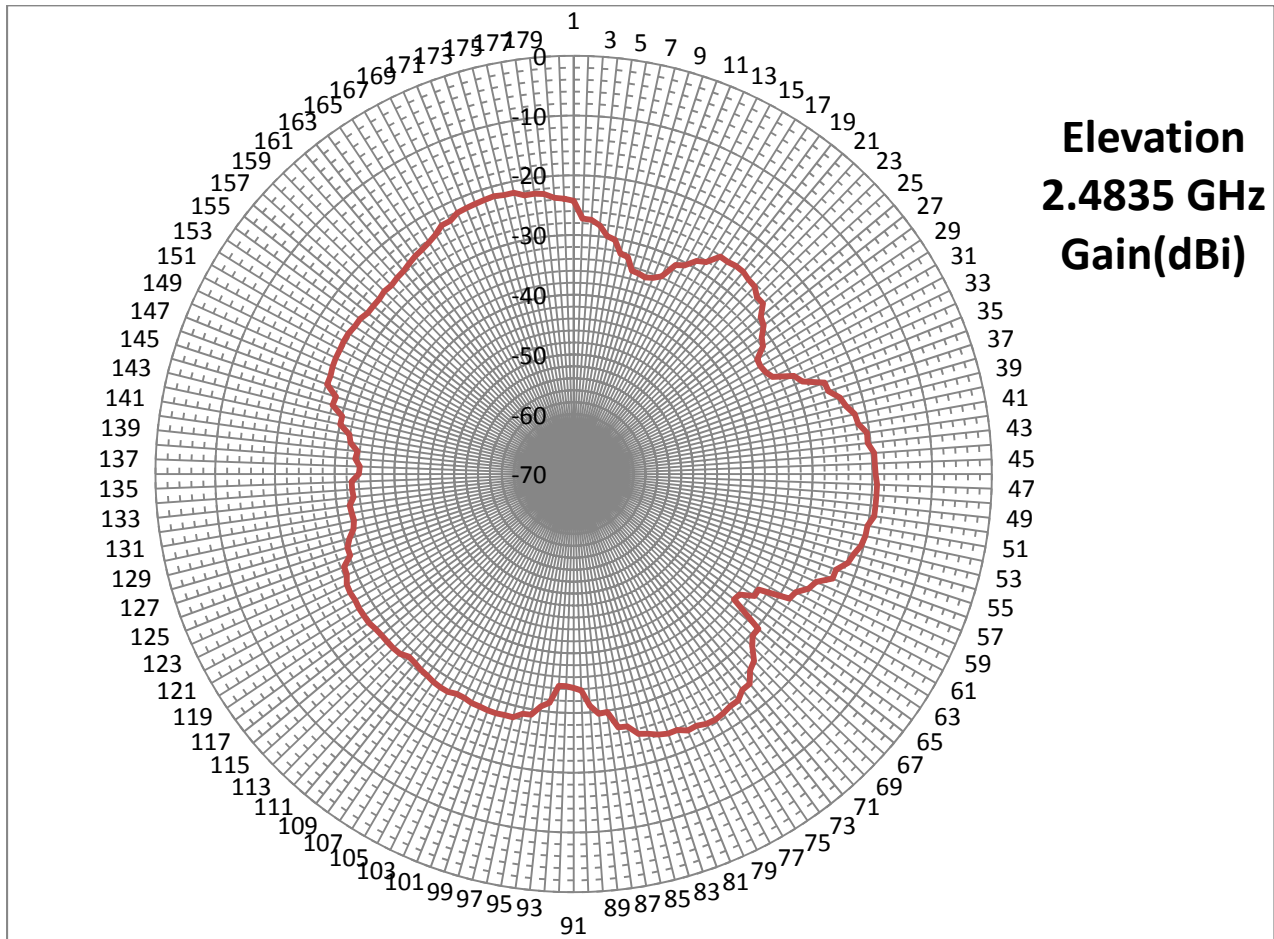


Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Elevation 2.4835 GHz



Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

APPENDIX B: RETURN LOSS CHARACTERISTICS

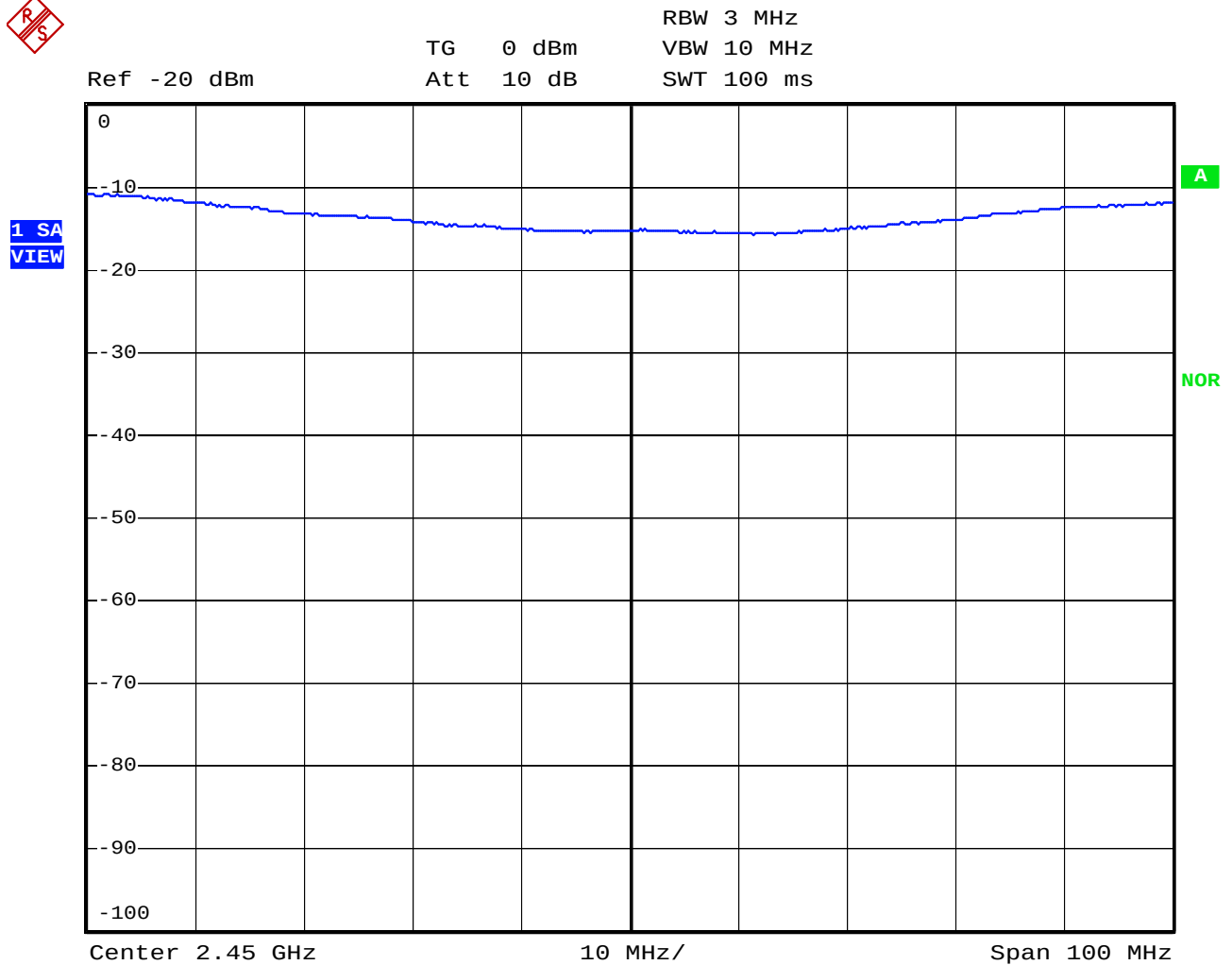


Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Return Loss
Serial #1



Date: 22.MAR.2011 09:02:31

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

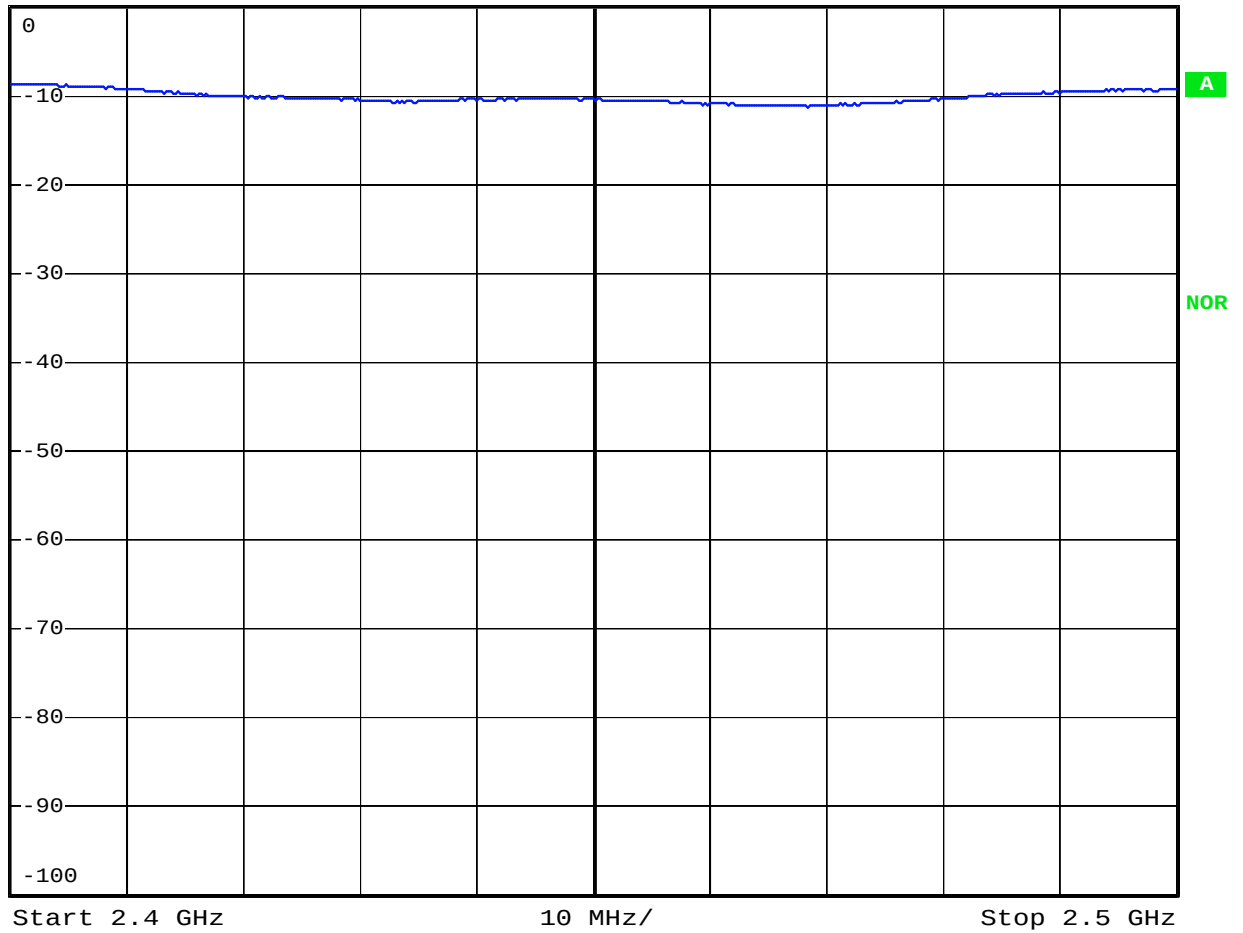
Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

Serial #9



Ref -20 dBm TG 0 dBm RBW 3 MHz
Att 10 dB VBW 10 MHz
SWT 100 ms

1 SA
VIEW



Date: 22.MAR.2011 09:07:22

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

APPENDIX C: TEST EQUIPMENT LIST

Asset Tag	Description	Manufacturer	Model	Serial #	Last Cal	Next Cal
993	Antenna, Horn	A.H. Systems	SAS- 200/571	162	09-Sep- 2009	09-Sep- 2011
1033	Antenna, Horn	EMCO	3115	8812-3035	09-Sep- 2008	09-Sep- 2010
1663	Spectrum Analyzer	Rohde & Schwartz	FSP3	100073	23-Aug- 2010	23-Aug- 2011
1767	Receiver, EMI Test 20Hz - 26.5 GHz - 150 - +30 dBm LCD	Rohde & Schwartz	ESIB26	837491/0002	01-Dec- 2010	01-Dec- 2011
1783	Cable Assy, 3m Chamber	Nemko	Chamber		04-Oct-2010	04-Oct-2011

Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667

END OF DOCUMENT



Nemko USA Inc. authorizes the above named company to reproduce this report provided it is reproduced in its entirety and for use by the owner of the report only.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Nemko USA Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. This report applies only to the items tested.

Nemko USA, Inc., 802 N. Kealy, Lewisville, Texas 75057-3136 Tel: (972) 436-9600, Fax: (972) 436-2667