



This document is the property of GN Netcom A/S and is to be treated as confidential by the party to whom it has been submitted by GN Netcom A/S and is not to be disclosed to any third party without the specific prior written permission of GN Netcom A/S. © 2005 GN Netcom A/S. All rights reserved.

M5390 Headset & Base Antenna measurement report

Revision: 1
Author: Günter Krenz
Date: 11.07.2008

Revision History:

| Revision | Date | Change by | Description |
|----------|------------|-----------|----------------|
| 1 | 11.07.2008 | GKR | First Revision |
| | | | |
| | | | |
| | | | |

Table of Contents

| | | |
|-------|-----------------------------|---|
| 1 | Introduction..... | 3 |
| 2 | Specification | 4 |
| 2.1 | Electrical Properties | 4 |
| 2.2 | Physical Properties | 4 |
| 3 | Anechoic Chamber | 5 |
| 4 | Results..... | 6 |
| 4.1 | Conducted power | 6 |
| 4.2 | Total radiated power..... | 6 |
| 4.3 | Antenna pattern..... | 7 |
| 4.3.1 | M5390 Headset | 7 |
| 4.3.2 | M5390 Base | 8 |
| 5 | Conclusion..... | 9 |

This document is the property of GN Netcom A/S and is to be treated as confidential by the party to whom it has been submitted by GN Netcom A/S and is not to be disclosed to any third party without the specific prior written permission of GN Netcom A/S. © 2005 GN Netcom A/S. All rights reserved.

1 Introduction

This document describes the radiation performance measurements made on a M5390 headset and a base station. The measurement results provided in this report are: the conducted output power, the total radiated power at three frequencies and the antenna radiation pattern in free space.

The measurements have been performed by:

Günter Krenz

RF Engineer

GN A/S

2 Specification

2.1 Electrical Properties

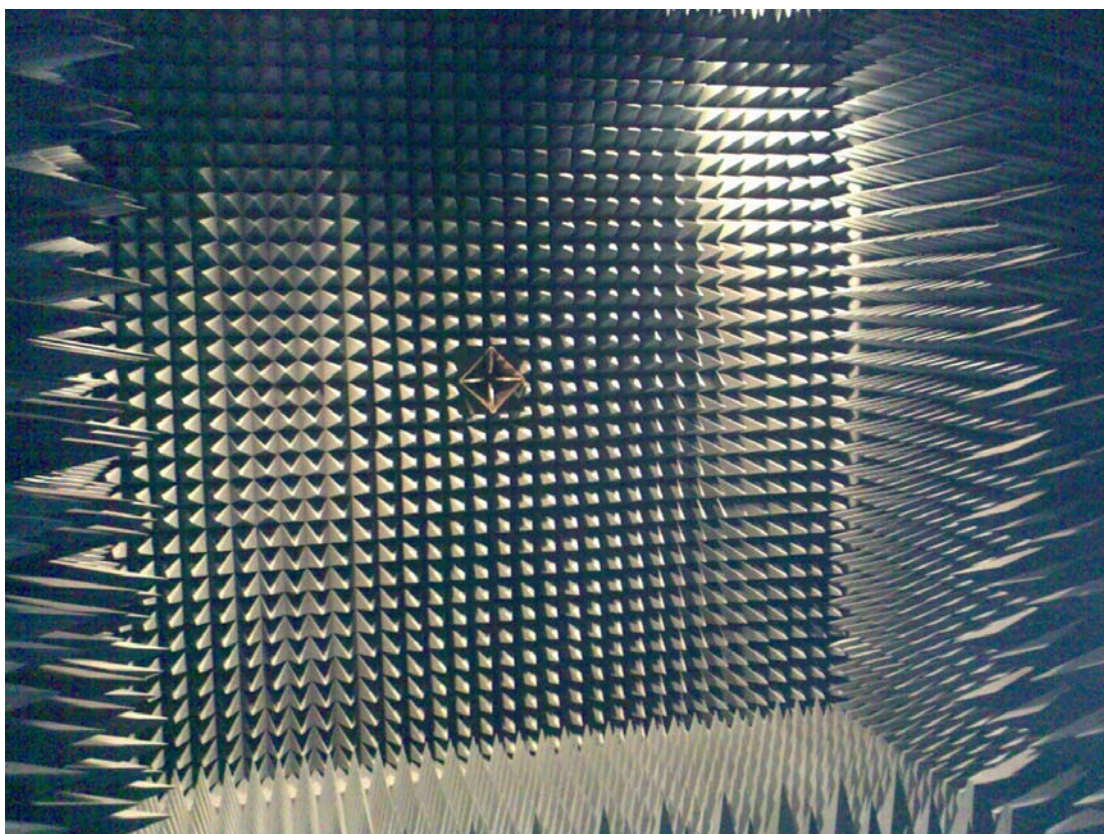
| | |
|----------------------------|-------------------------|
| Frequency Range: | 2.402GHz ~2.800GHz |
| Impedance: | 50 Ω nominal |
| Radiation: | omni-directional |
| Gain (peak) Headset | -1.7 dBi |
| Gain (peak) Base | 1.5 dBi |
| Polarization Headset: | Vertical (in long axis) |
| Polarization Basis: | Horizontal |

2.2 Physical Properties

| | |
|-----------------|--------------------------------|
| Type: | Built-in IFA-structure-antenna |
| Operating temp: | 0 ~ +55 °C |

This document is the property of GN Netcom A/S and is to be treated as confidential by the party to whom it has been submitted by GN Netcom A/S and is not to be disclosed to any third party without the specific prior written permission of GN Netcom A/S. © 2005 GN Netcom A/S. All rights reserved.

3 Anechoic Chamber



This document is the property of GN Netcom A/S and is to be treated as confidential by the party to whom it has been submitted by GN Netcom A/S and is not to be disclosed to any third party without the specific prior written permission of GN Netcom A/S. © 2005 GN Netcom A/S. All rights reserved.

4 Results

4.1 Conducted power

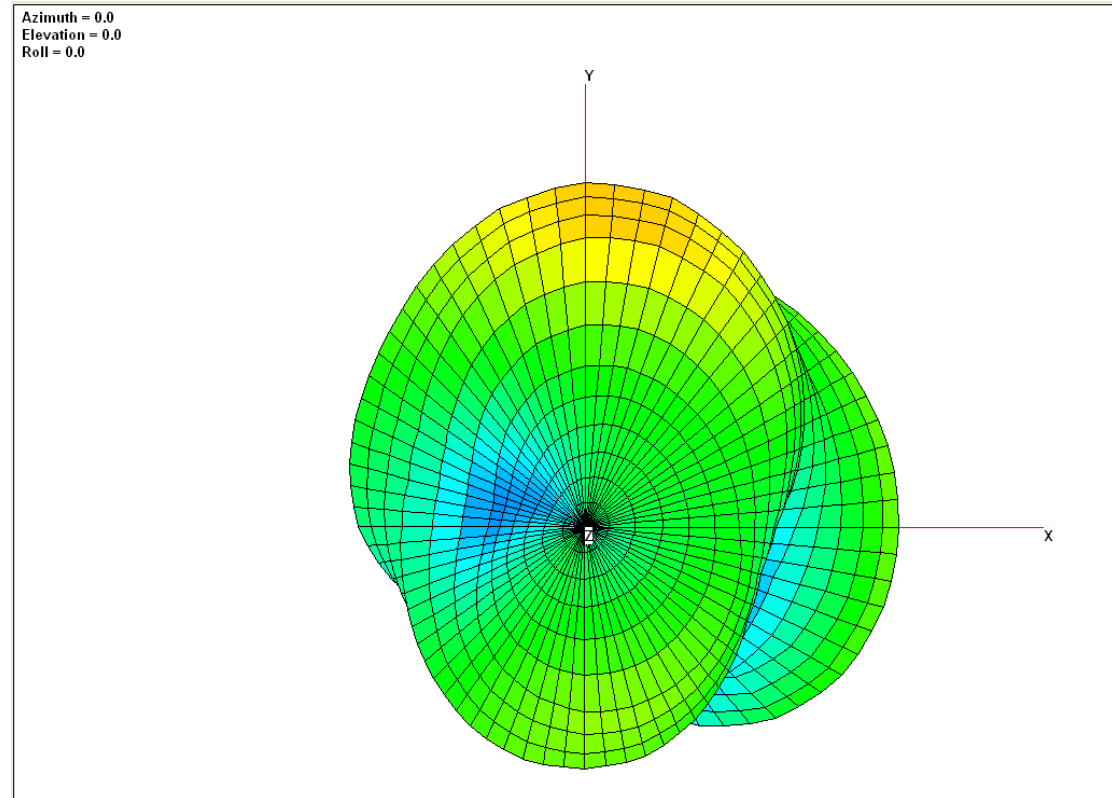
| | 2402 MHz | 2441 MHz | 2480 MHz |
|---------|----------|----------|----------|
| Headset | 8,0 dBm | 8,5 dBm | 9,0 dBm |
| Base | 14.0 dBm | 13,9 dBm | 12,3 dBm |

4.2 Total radiated power

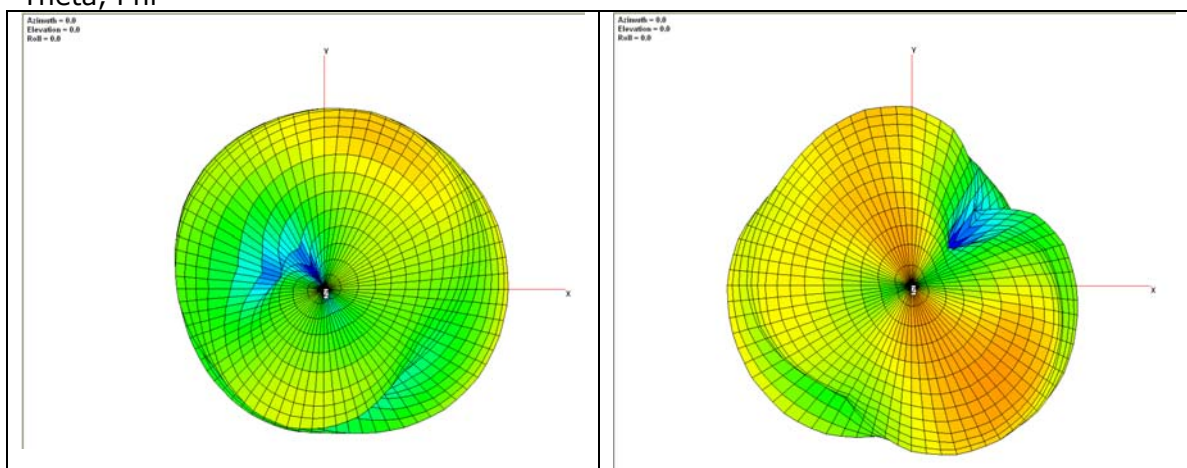
| | 2402 MHz | 2441 MHz | 2480 MHz |
|-------------|----------|----------|----------|
| TRP Headset | 2.4 dBm | 3,0 dBm | 3.0 dBm |
| TRP Base | 11,6 dBm | 11,9 dBm | 10,7 dBm |

4.3 Antenna pattern

4.3.1 M5390 Headset

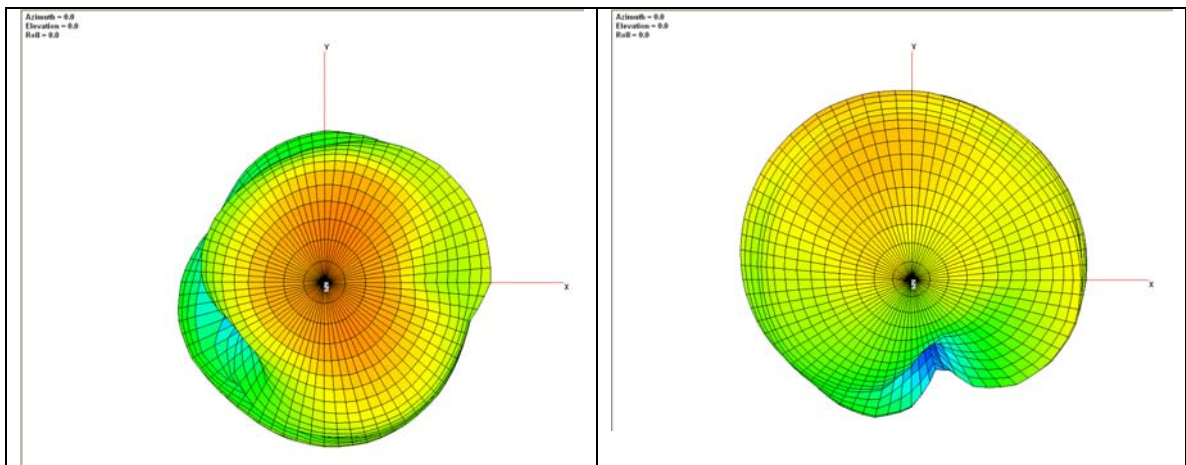
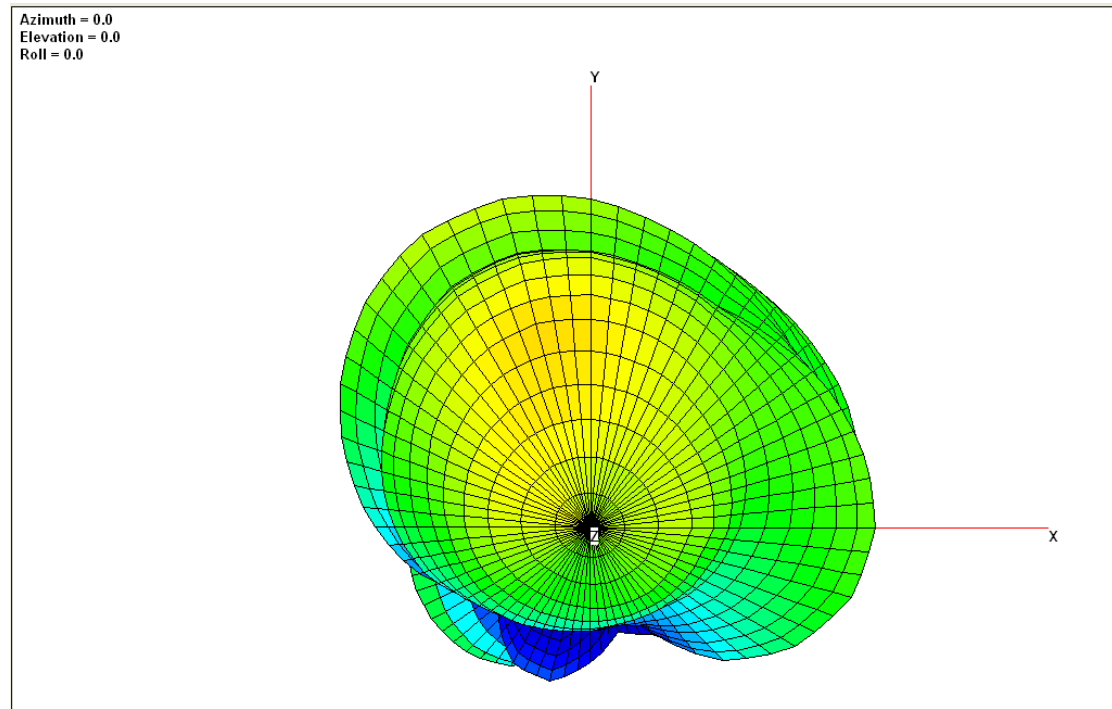


Theta, Phi



This document is the property of GN Netcom A/S and is to be treated as confidential by the party to whom it has been submitted by GN Netcom A/S and is not to be disclosed to any third party without the specific prior written permission of GN Netcom A/S. © 2005 GN Netcom A/S. All rights reserved.

4.3.2 M5390 Base



This document is the property of GN Netcom A/S and is to be treated as confidential by the party to whom it has been submitted by GN Netcom A/S and is not to be disclosed to any third party without the specific prior written permission of GN Netcom A/S. © 2005 GN Netcom A/S. All rights reserved.

5 Conclusion

The total radiated power varies from 2,4 dBm to 3,0 dBm for the headset and from 10.7 dBm to 11,9 dBm for the base in free space depending on the frequency. The conducted power varies from 8,0 dBm to 9,0 dBm for the headset and 12,3 dBm to 14,0 dBm for the base. These figures yield an antenna gain in the range of -5.5 dBi and -6.0 dBi for the headset and -1,6 dBi to -2,4 dBi for the base.

| | 2402 MHz | 2441 MHz | 2480 MHz |
|----------------------|----------|----------|----------|
| M5390 Headset | 8,0 dBm | 8,5 dBm | 9,0 dBm |
| TRP Headset | 2.4 dBm | 3,0 dBm | 3.0 dBm |
| Antenna gain Headset | -5.6 dBi | -5,5 dBi | -6,0 dBi |
| M5390 Base | 14.0 dBm | 13,9 dBm | 12,3 dBm |
| TRP Base | 11,6 dBm | 11,9 dBm | 10,7 dBm |
| Antenna gain Base | -2.4 dBi | -2.0 dBi | -1,6 dBi |