

SPECIFICATIONS AND APPLICATION NOTES

January 29, 2001

MicroBlue™ 2.4

2.4 GHz Microsphere Technology

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Technology

The **MicroBlue 2.4 Microsphere Antenna** is a versatile and easy to use antenna for the 2.4 to 2.5 GHz frequency band used by Bluetooth and IEEE 802.11 devices. Designed for easy connection to radio cards, it can be successfully used in many different applications.



MicroBlue 2.4 shown here with standard 8 inches of RG-178 coax and right angle MMCX connector

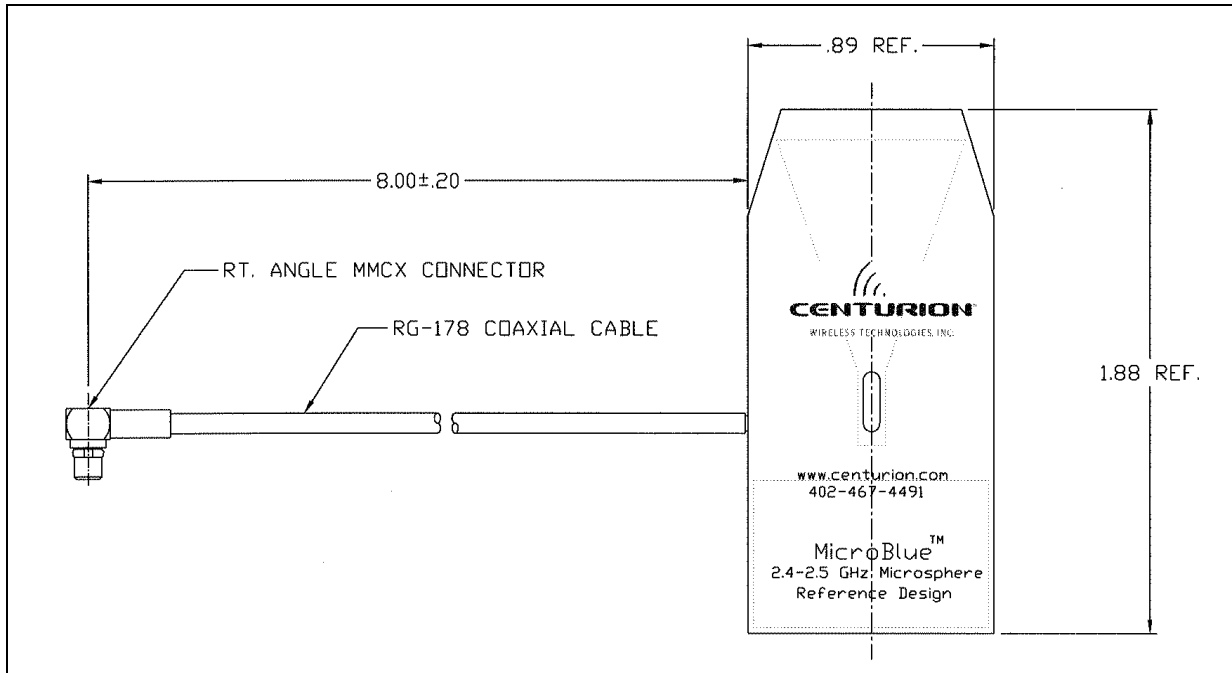
The antenna utilizes Centurion's patented PCB Microsphere technology. It is designed to be fed by a 50-ohm coaxial cable terminated by an RF coaxial connector.

This antenna has a ground plane incorporated into the resonator structure, therefore no additional ground plane is required to radiate efficiently. However, the configuration of the device in which the MicroBlue antenna is installed can have an impact on electrical performance (VSWR and gain). The polarization and radiation patterns can also be affected by placement of the antenna and geometry of the device. Contact Centurion Wireless for engineering assistance with your custom application.

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Physical Dimensions



Standard Product Specifications:

Part Number: CAF94131

MicroBlue Size: .89" x 1.88" x .032" (w x l x t)

Standard Cable: RG-178 (MIL-C17) Coaxial Cable x 8" Long

Standard Connector: Right-Angle MMCX Plug

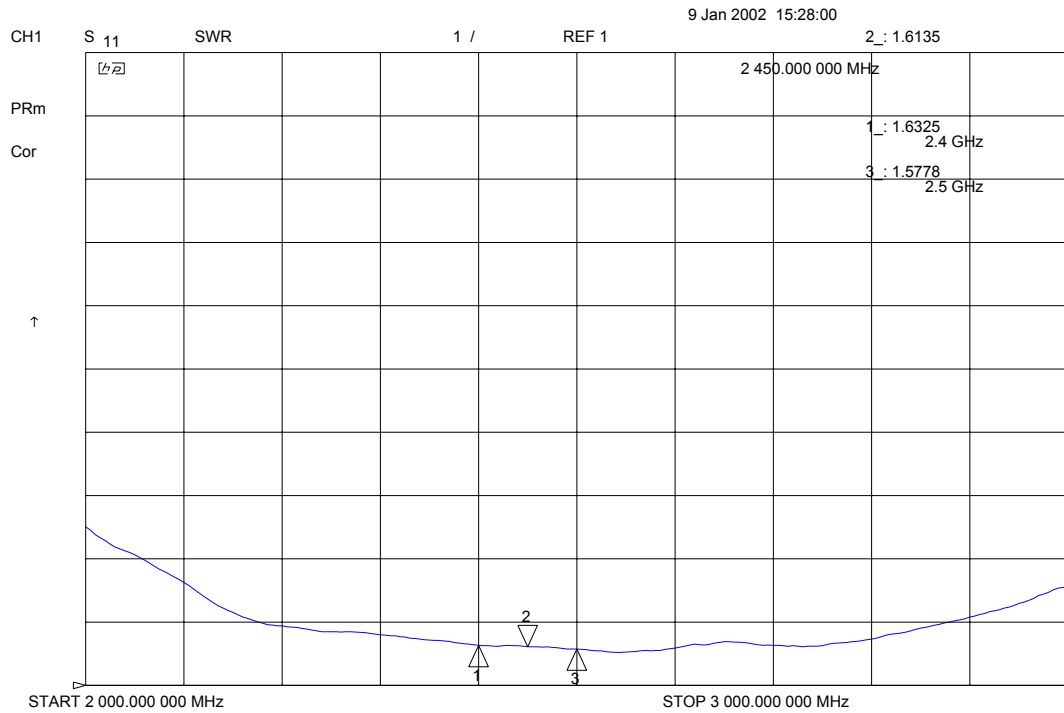
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Electrical Performance

- VSWR < 1.8:1 from 2.4 GHz to 2.5 GHz
- 2:1 VSWR Bandwidth > 600 MHz
- Peak Gain (Elev. Phi=0) > 0.5 dBi, Average Gain (Elev. Phi=0) > -3 dBi
- Peak Gain (Elev. Phi=90) > 1.5 dBi, Average Gain (Elev. Phi=90) > -2.5 dBi
- Peak Gain (Azimuth) > 1 dBi, Average Gain (Azimuth) > 0 dBi

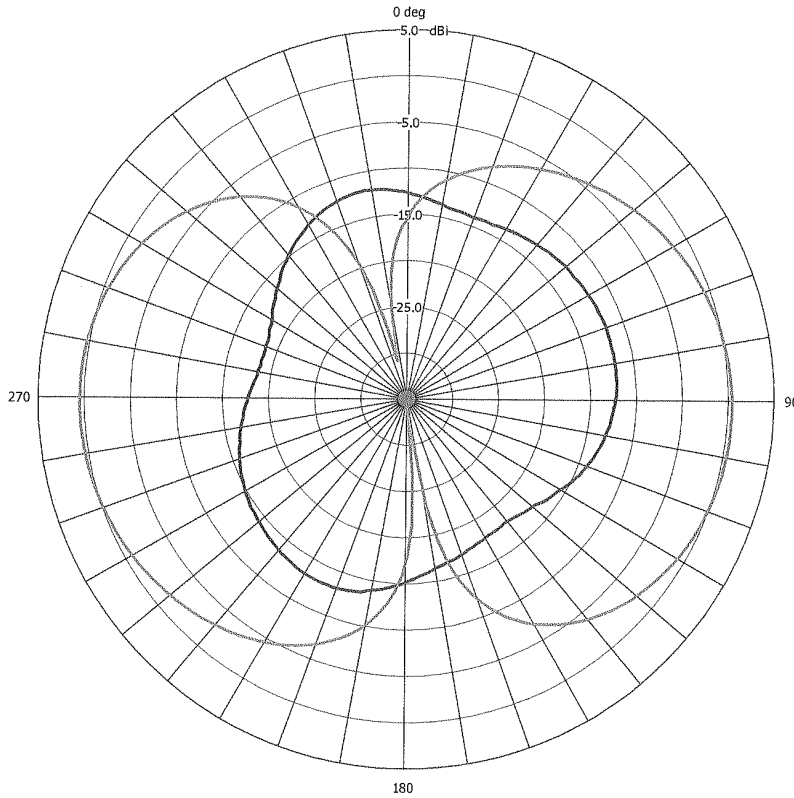
(All Electrical data based on standard product tested in free space)



VSWR Pattern from 2000 to 3000 MHz

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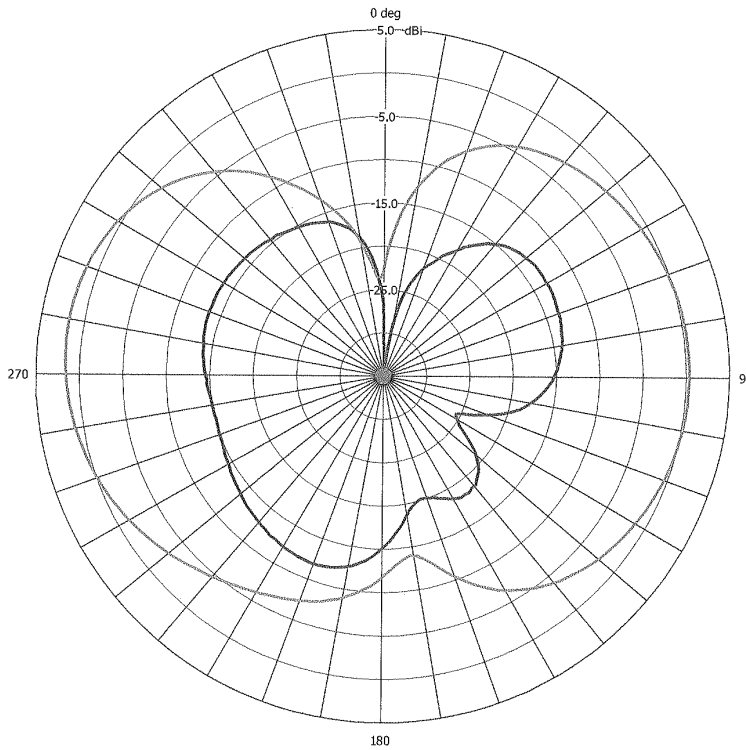
Plot Legend	Max. Gain dBi	Avg. Gain dBi	Max. Angle deg.
ANTENNA MICRO BLUE	-12.0	-14.2	69.6
N/A, Free Space Ei Plane, phi=0 2450.0MHz; E-Phi Pol Mon Jan 07 16:27:55 2002			
ANTENNA MICRO BLUE	0.5	-2.9	93.5
N/A, Free Space Ei Plane, phi=0 2450.0MHz; E-Theta Pol Mon Jan 07 16:29:26 2002			

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Elevation Plane, Phi = 0, Gain Pattern at 2450 MHz

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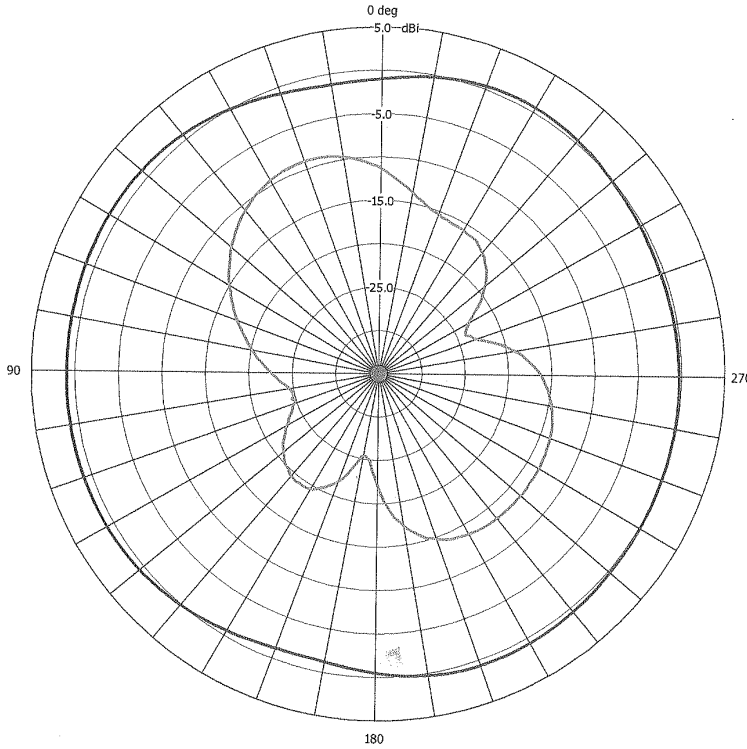
Plot Legend	Max. Gain dBi	Avg. Gain dBi	Max. Angle deg.
ANTENNA MICRO BLUE	-11.8	-15.3	198.9
N/A, Free Space EI Plane, phi=90 2450.0MHz; E-Phi Pol Mon Jan 07 16:32:35 2002			
ANTENNA MICRO BLUE	1.8	-2.3	276.5
N/A, Free Space EI Plane, phi=90 2450.0MHz; E-Theta Pol Mon Jan 07 16:34:07 2002			

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Elevation Plane, Phi = 90, Gain Pattern at 2450 MHz

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Plot Legend	Max. Gain dBi	Avg. Gain dBi	Max. Angle deg.
ANTENNA MICRO BLUE	1.1	0.2	61.6
N/A, Free Space Az Plane 2450.0MHz; E-Theta Pol Mon Jan 07 16:22:01 2002			
ANTENNA MICRO BLUE	-9.0	-14.8	21.9
N/A, Free Space Az Plane 2450.0MHz; E-Phi Pol Mon Jan 07 16:23:30 2002			

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Azimuth Plane, Gain Pattern at 2450 MHz

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Customize Antenna

The intent of this design is for reference only so that Centurion's customers can test and gauge the performance of Centurion's 2.4-2.5 GHz Microsphere Antenna. In order for the antenna system to perform at its maximum RF potential, Centurion recommends that the antenna solution be optimized per each application. In some cases, the antenna will require some re-tuning and can be fit in a slightly different form factor than shown in the standard product above.

In many applications, the return loss (VSWR) performance will be such that no tuning or matching will be required. However, if you find that the cable length is too long, doesn't have the right connector, or doesn't quite tune or fit in your particular application. Please contact Centurion Wireless Technologies for engineering assistance with your custom application.

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