Celeno OptimizAIR™ Smart Printed Antenna

Product Information Sheet

September 7, 2009

Document Version: 0.1

High Definition Home Networking™

1 Celeno OptimizAIR™ Smart Printed Antenna Concept

Celeno OptimizAIR™ Smart Printed Antenna is designed specifically to fill in a need for very low cost WiFi, 5 GHz band antenna.
Celeno OptimizAIR™ Smart Printed Antenna could be produced as a part of any WiFi access point or client, and contain means for adjusting their center frequency and coverage for compensating the effect of the electronic circuitry and the enclosure. Concurrently, the antenna radiation performance is comparable to larger and more expensive antenna.
The antennae are design to integrate with the electronic circuitry via 50 Ω stripline, no costly connectors are required.
Celeno OptimizAIR™ Smart Printed Antenna could be specifically designed for very thin PCB (even Mylar) and thus to conform to enclosure shape. The connecting stripline could be directly soldered to the PCB.

Benefits:

- ✓ Very low cost
  - Part of the PCB
  - No need for UFL connectors and external antennas
  - No assembly cost
- ✓ Part of the WiFi electronics PCB.
- ✓ Concealed.
- ✓ High efficiency.
- ✓ Easy to retune. Printed antenna, which are a part of the electronic circuitry, are susceptible to coupling with the circuitry and the enclosure, PCB thickness, PCB dielectric parameters etc.

Features:

- ✓ 4.9 to 5.9 GHz coverage, full performance
- ✓ Polarization diversity.
- ✓ Single antenna of part of MIMO array
- ✓ Small size
- ✓ Celeno OptimizAIR™ Smart Printed Antenna arrays are designed to operate indoor in highly reflective environment and provide high selection diversity and beam forming gain.

2 Printed Antenna Types

There are 2 printed antenna types:

CL95004ANT0 Smart Antenna Array	Printed Monopole 4 antenna Array

CL95004ANT0 Smart Antenna Array

- ✓ Integral array of 4 CL95004ANT0 Smart Antenna Array
- ✓ Vertically polarization
- ✓ Enables high diversity
- ✓ Small size

3 Specifications

Parameter	CL95004ANT0	Comment
Gain	~2 dBi	
Efficiency	>50%	
Polarity	V	
Axial ratio	>10 dB	
VSWR	<3:1	RL<7 dB
Bandwidth	4.9 ÷ 5.9 GHz	
Radiation pattern	Omni Horizontally	
Input Impedance	50Ω	

4 ANTENNA PATTERNS

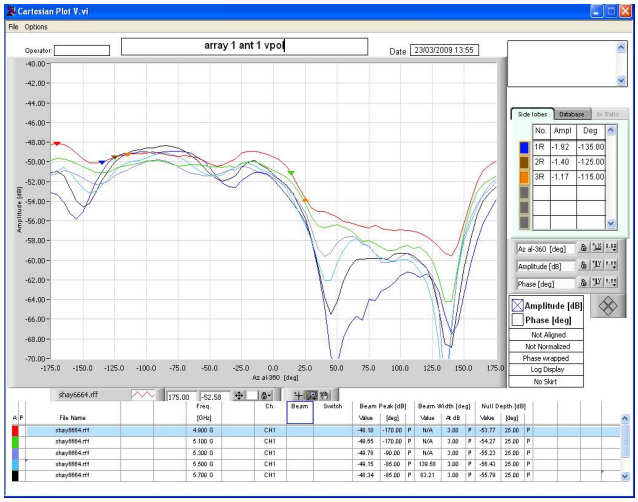


Figure 1 - Element 1, Vertical

Figure 2 - Element 2, Vertical

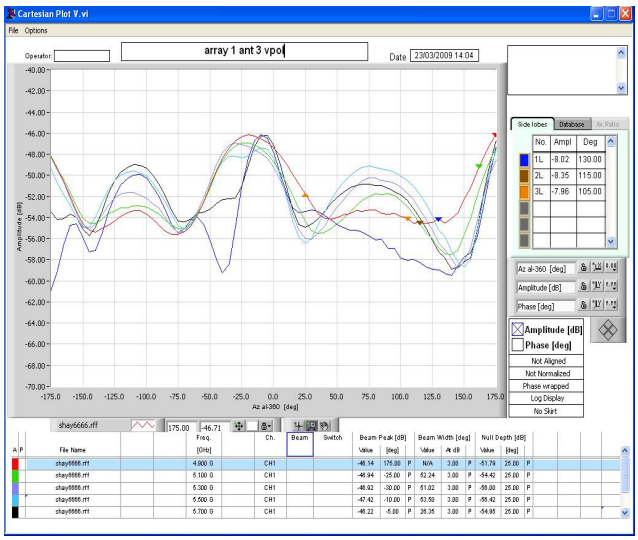


Figure 3 - Element 3, Vertical

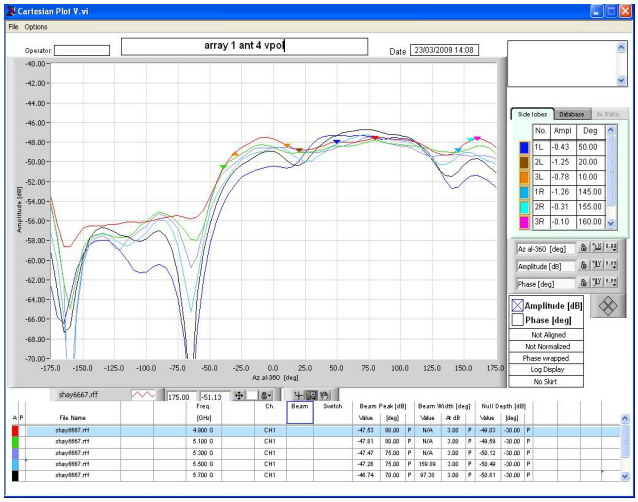


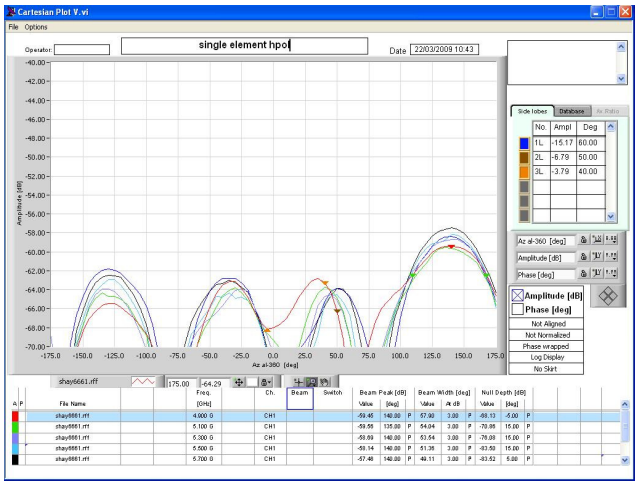
Figure 4 - Element 4, Vertical

Antenna gain per frequency:

Frequency (GHz)	0 dBi Reference	Ant 1 Peak	Ant 1 Gain (dBi)	Ant 2 Peak	Ant 2 Gain (dBi)
5.1	-47.3	-49.6	-2.3	-45.4	**1.9**
5.3	-47.6	-49.8	-2.2	-45.9	1.7
5.5	-47.4	-49.2	-1.8	-47	0.4
5.7	-47.3	-48.4	-0.9	-45.6	1.7

Frequency (GHz)	0 dBi Reference	Ant 3 Peak	Ant 3 Gain (dBi)	Ant 4 Peak	Ant4 Gain (dBi)
5.1	-47.3	-46.9	0.4	-47.8	-0.5
5.3	-47.6	-46.9	0.7	-47.4	0.2
5.5	-47.4	-47.4	0	-47.3	0.1
5.7	-47.3	-46.2	1.1	-46.7	0.6

Horizontal polarization radiation pattern is around 10 dBs lower than the vertical. The following is the pattern of one of the elements:



5 DIMENSIONS

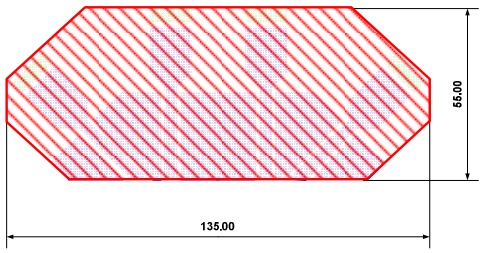


***Figure** 5 – CL95004ANT0 Dimentions*