



GB04001 Antenna Design Specification

ET Part No: GB04001-M03

Frequency Band: 2.4-2.485GHz

March 28th, 2005

Confidential
Rev. 1.1

Ethertronics Inc.
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1. Summary

1.1. Antenna Performance (GB04001-M03)

	<u>Open</u>	<u>closed</u>
Average Efficiency (%)	34	25
Peak Efficiency (%)	55	42
Peak Gain(dBi)	2.2	1.0

The original performance data on Ethertronics GB14001-M02 was tuned slightly high in frequency.

The presented data is on Ethertronics GB04001-M03 corrects a frequency shift out of the Blue tooth operating band.

Peak Gain has been included per customer request

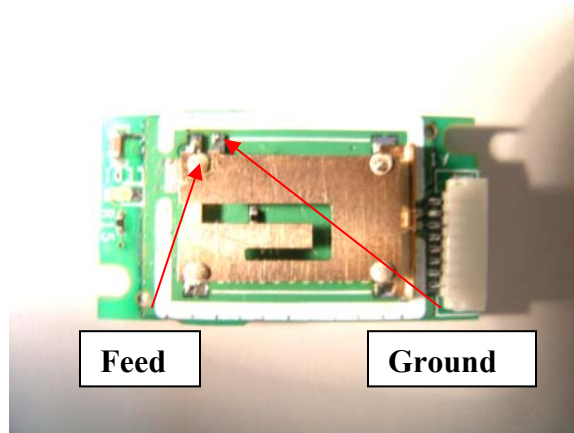
Data has been taken mounted in a Notebook computer with the LCD screen opened and closed

The original matching circuit shown below has been removed and replaced by 0 ohm resistors for both Ethertronic antennas (Brass-Board and GB01004-M03).

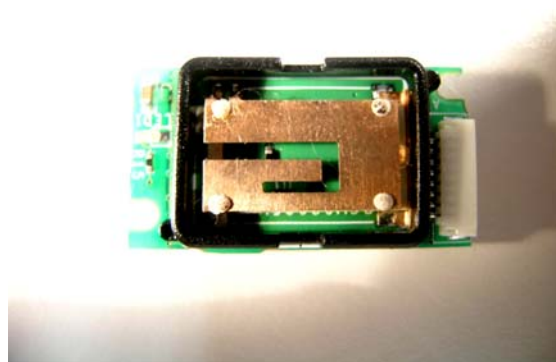
Item	Spec
Antenna Impedance	50 Ohms
Power Rating	5 watts

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1.2. Antenna Configuration



Ethertronics mounted on module



Ethertronics antenna on module with plastic border



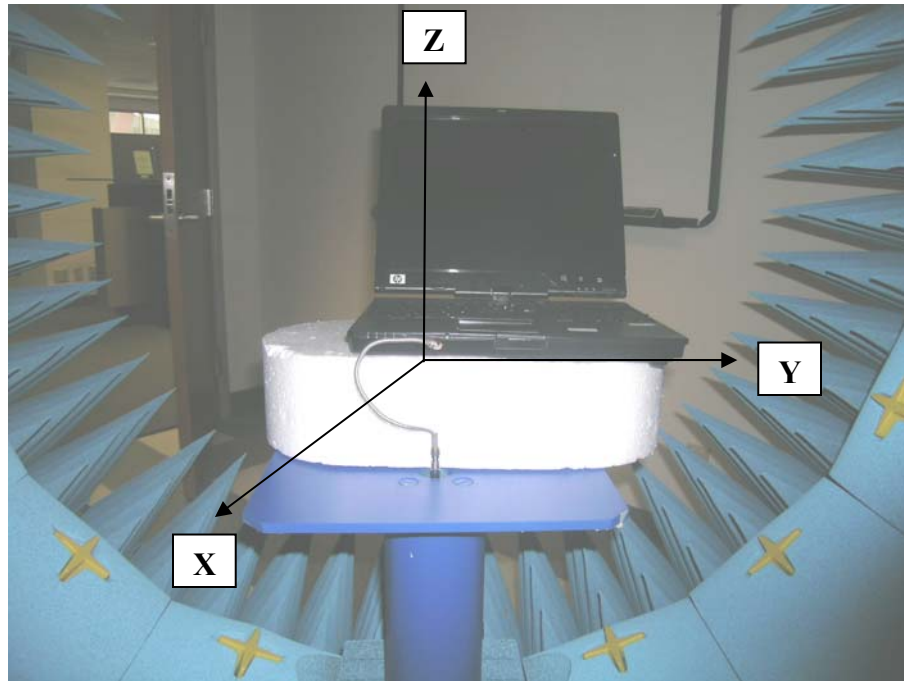
Antenna Module mounted in plastic Holder



Antenna Module/Holder Attached to Notebook

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1.3. Chamber Measurement Configuration



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2. Bluetooth Measurement in Notebook

2.1. Input Return Loss (Ethertronics GB04001-M03)

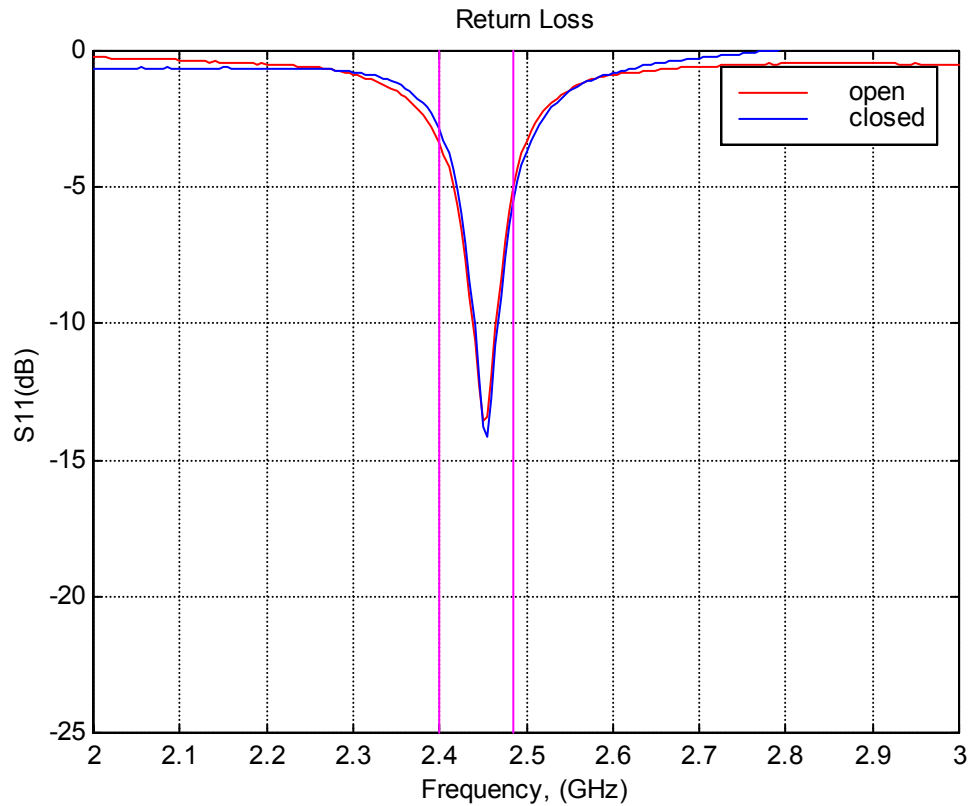


Figure 1: Input Impedance - RL.

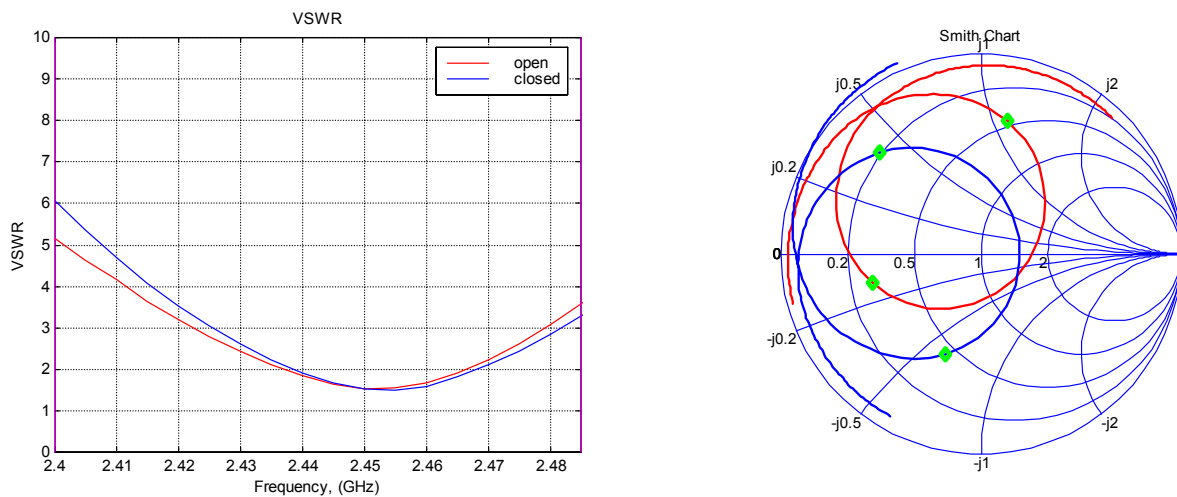
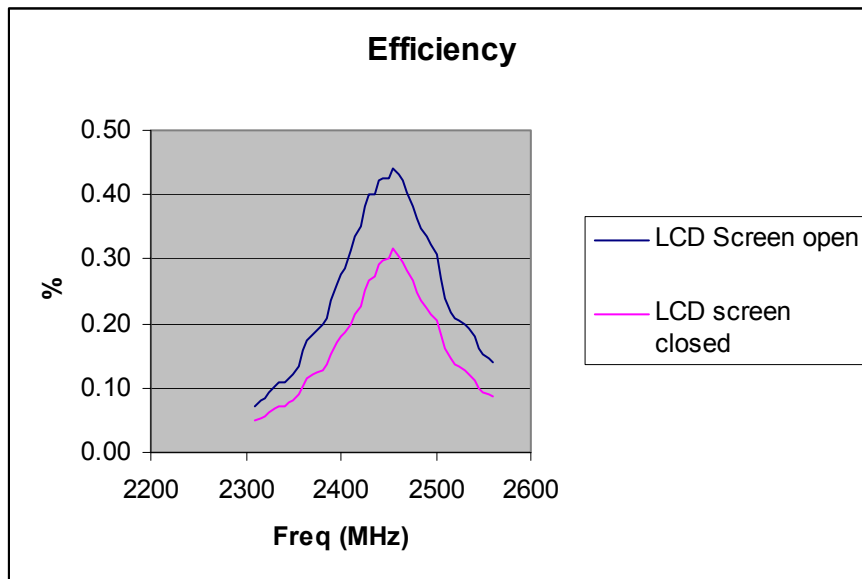


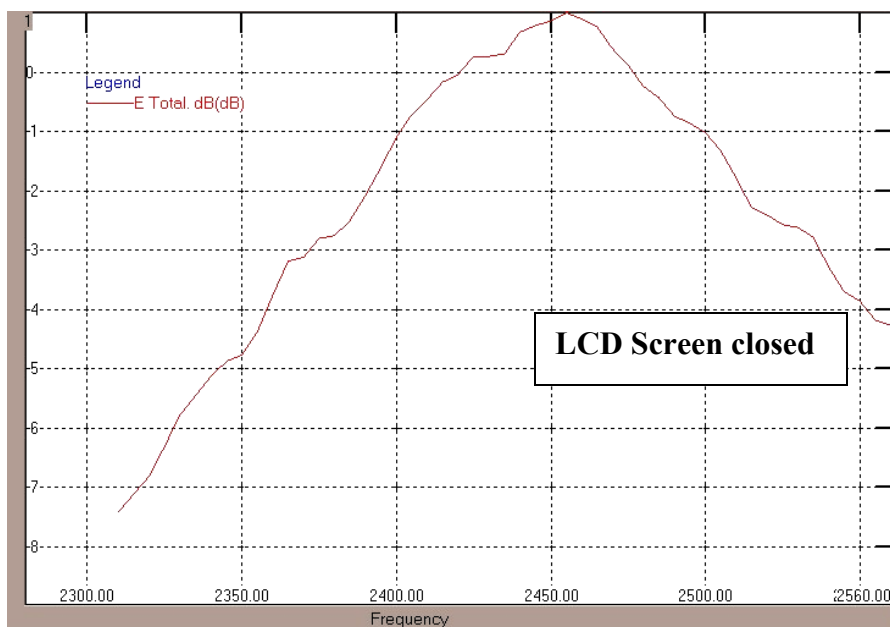
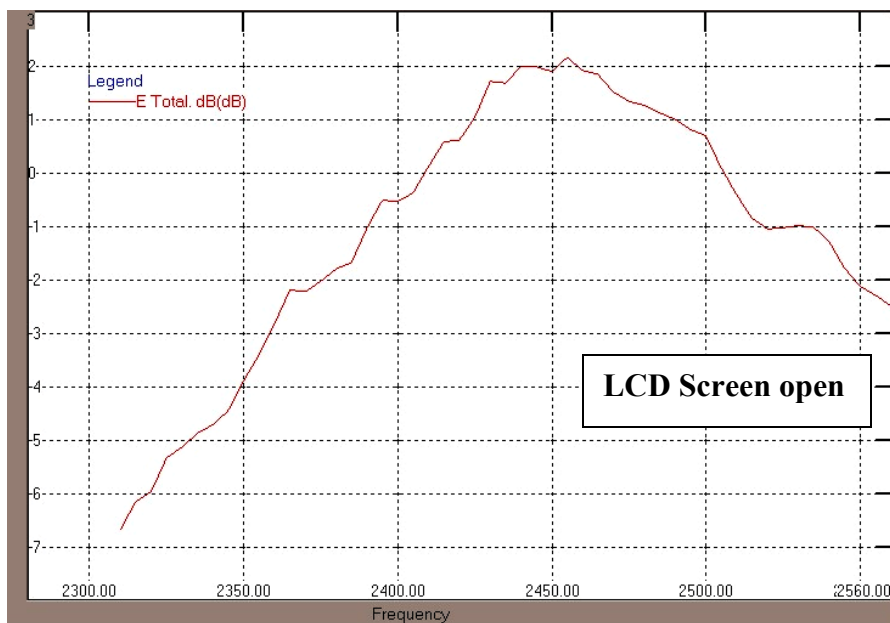
Figure 2: Input Impedance - VSWR and Smith chart.

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2.2. Efficiency (Ethertronics GB04001-M03)



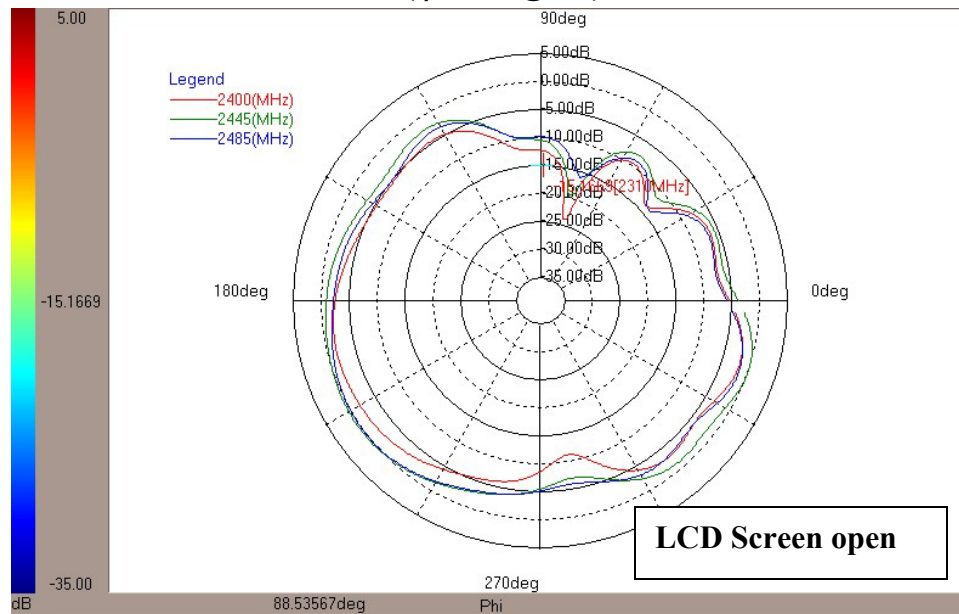
2.3. Peak Gain (Ethertronics GB04001-M03)



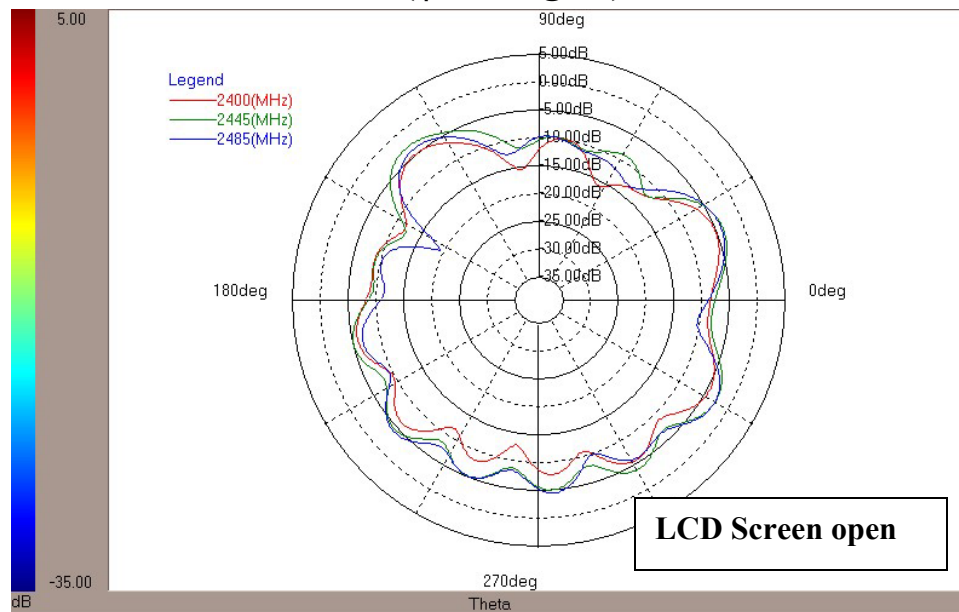
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2.4. Radiation Pattern Ethertronics GB04001-M03 in Notebook)

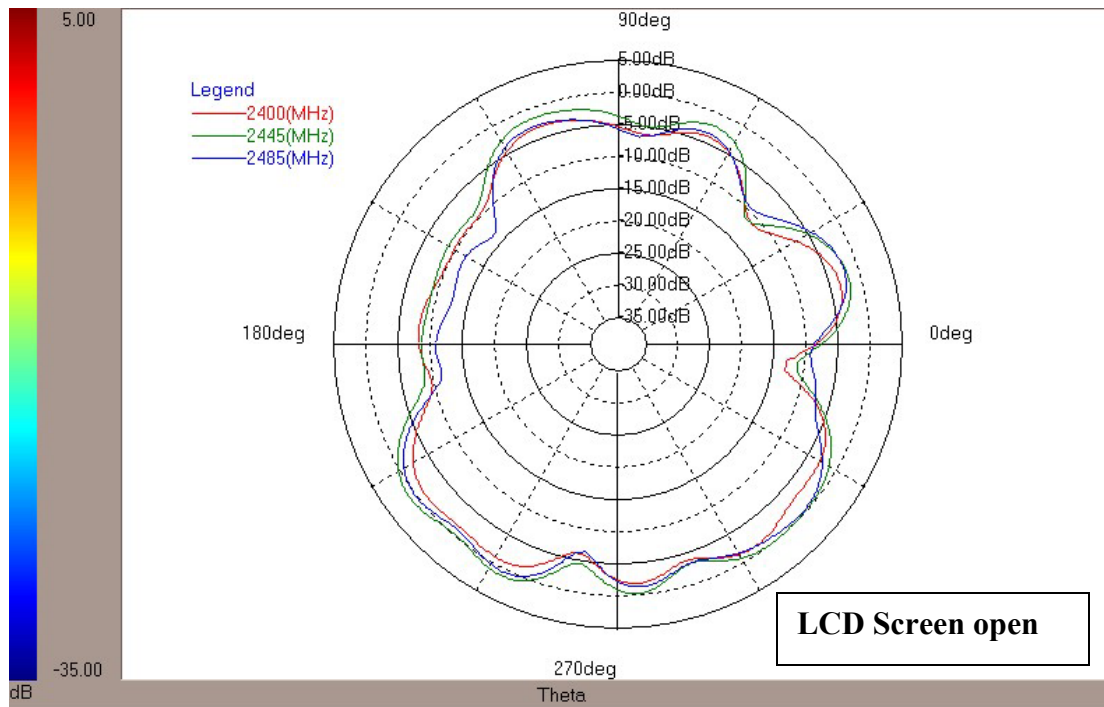
2.4.1. E1 Plane ($\phi=0$ degree)



2.4.2. E2 Plane ($\phi=90$ degree)

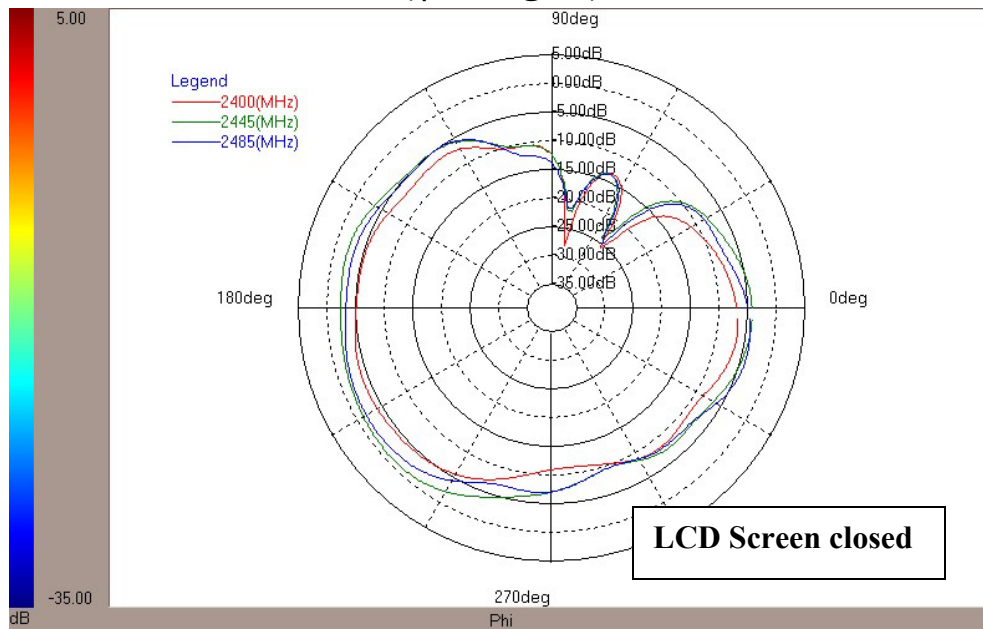


2.4.3. H Plane ($\theta=90$ degree)

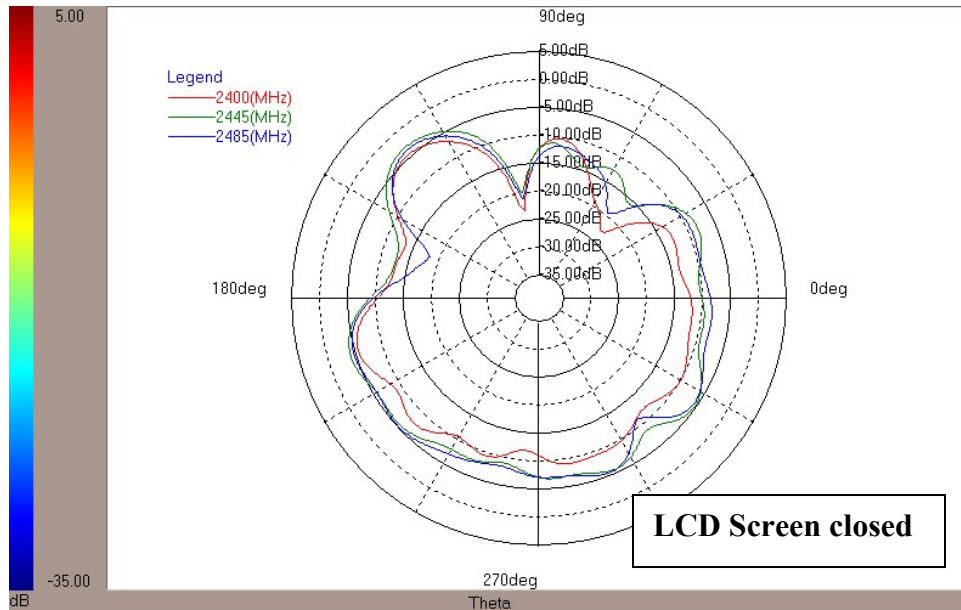


2.5. Radiation Pattern Ethertronics GB04001-M03 in Notebook)

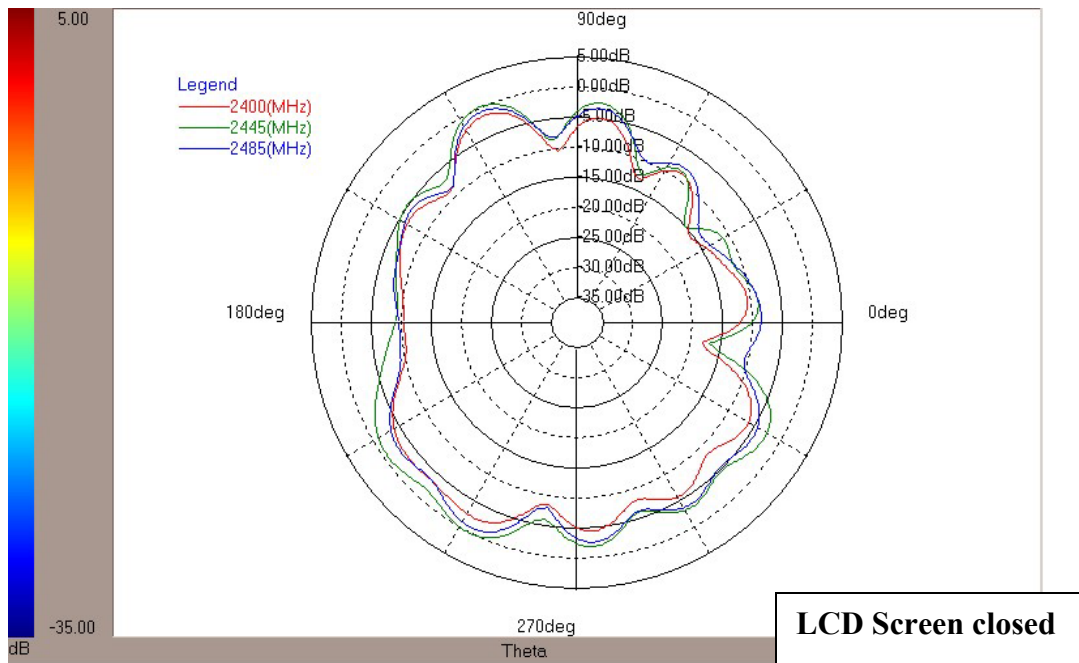
2.5.1. E1 Plane ($\phi=0$ degree)



2.5.2. E2 Plane ($\phi=90$ degree)

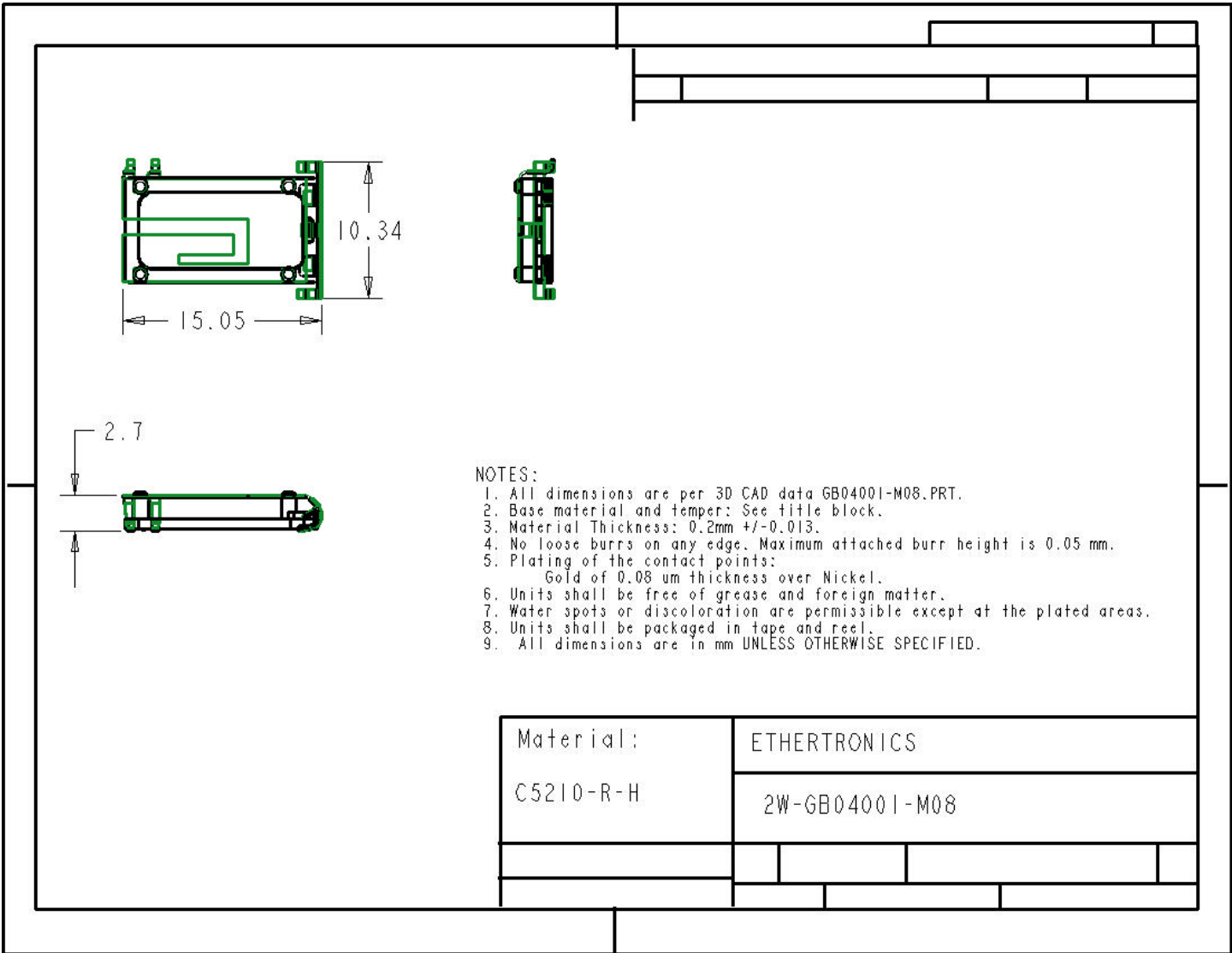


2.5.3. H Plane ($\theta=90$ degree)



3. Mechanical

3.1. Mechanical Assembly Drawing



The GB04001 has a lead rating of 28ppm, which qualifies it as lead-free.