ANTENNA PCB 2G/3G (850/900/1800/1900/UMTS)

VA100 is an innovative antenna, designed to operate in 2G and 3G mobile cellular systems. Build with differentiated material to guarantee high efficiency in bands 850Mhz, 900Mhz, 1800Mhz, 1900Mhz and UMTS).

The exceptional band response turns this antenna ideal for all applications that need compatibility with 2G and 3G systems and superior bands with high efficiency in all world.

Advantages

High efficiency with small dimensions

Due to the carefully chosen materials to achieve the optimum dielectric constant, this antenna presents superior performance and high efficiency in 2G and 3G systems, even with such reduced dimensions, allowing the devices using this antenna to achieve the higher communication speeds of the 2G and 3G technologies.

Transmission and reception with low losses

VA100 presents a superior performance in relation to similar antennas, due to its low losses, excellent TRP (Total Radiated Power) and TIS (Total Isotropic Sensibility), so improving the performance of the device it is applied. VA100 is ideal for applications demanding certifications (ANATEL, CE, FCC and others).

Easy integration

The relatively small size of VA100 reduces the necessity of adjustments and the chances of problems, making it easier to integrate in existing products or ongoing designs. The impedance match may be performed with a simple π (PI) cell, or with other technics in the main printed circuit board. This minimizes the necessity of new expensive tools, reducing the cost and development time.

Reduced RSE (Radiated Spurious Emission)

VA100 has an excellent RSE behavior, due to its optimum performance, with minimum spurious radiation, presenting a very good noise performance. To experience the best performance it is necessary a good impedance match, what may be achieved with a simple π cell, as stated previously.

High gain in horizontal and vertical polarizations

Due to the high gains in the vertical and horizontal polarizations, VA100 may be oriented in any position. The omnidirectional radiation diagram shows that VA100 is ideal for not directional M2M applications, in which the operation orientation is unknown in relation to the signal origin, so the signals may come from any direction and polarization. The important parameter in this case is the total field strength, vector sum of the signal in the horizontal and vertical polarizations. Due to the very good performance in the horizontal and vertical VA100 is ideal for M2M applications were the free orientation is a requirement.

Electrical specifications

- Frequency bands (Mhz): 824 – 960; 1710 – 2170.
- VSWR: < 2.8:1.
- Polarization: Linear.
- Radiation diagram: Omnidirectional.
- Gain peak: +3.59dbi.
- Impedance: 50 Ohms unbalanced.
- Maximum input power: 5W.

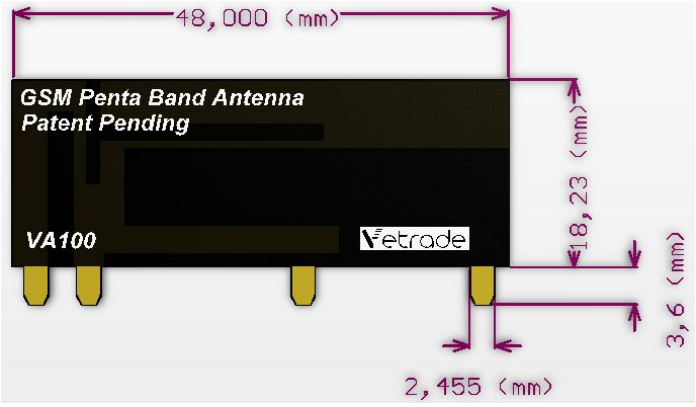
* The performance of VA100 was measured with a ground surface of 100mm x 55mm.

Environmental specifications

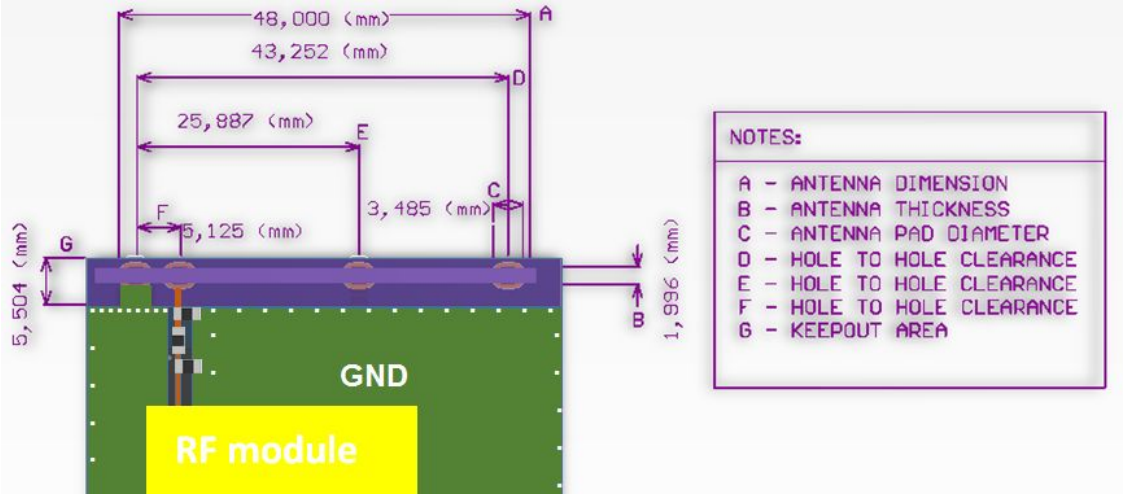
- Relative humidity without condensation: 95%.
- Operation temperature: -40°C à 85°C.
- Storage temperature: -40°C to 105°C.
- Conformity: RoHS (Restriction of Certain Hazardous Substances).

Mechanical specifications

- Dimensions: 48mm (length) x 18.23mm (height) x 1.6 mm (width).
- Type: printed circuit board (PCB). Plated through holes (PTH).

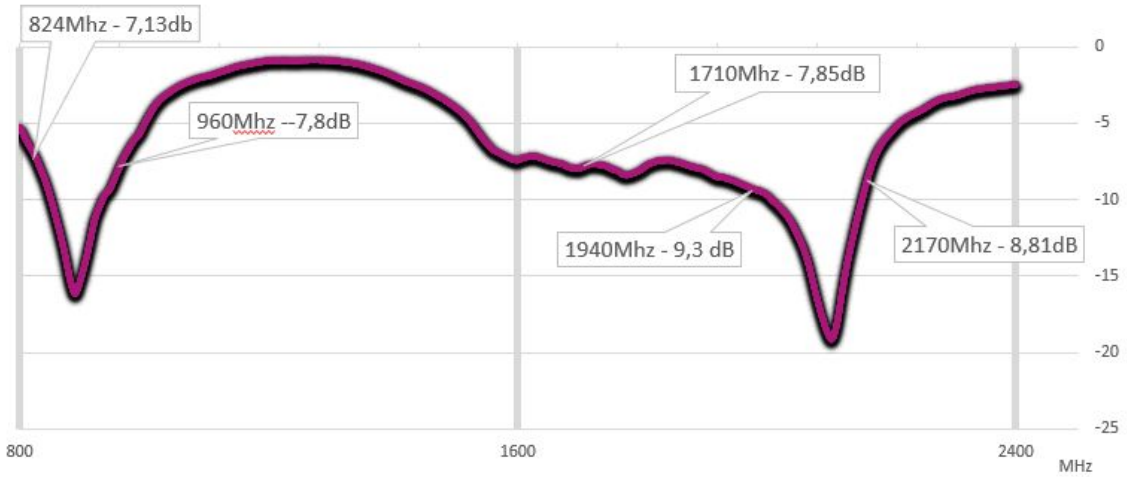


Layout recommendations

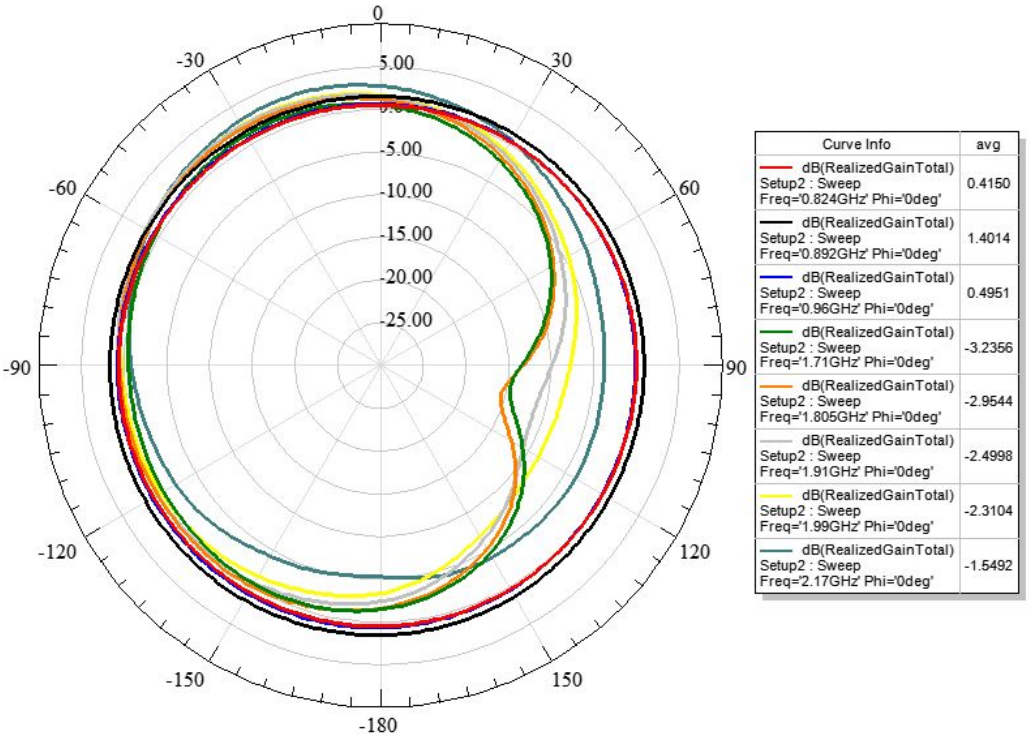


* Consult the engineering department of VETRADE to review your design.

S11 Magnitude

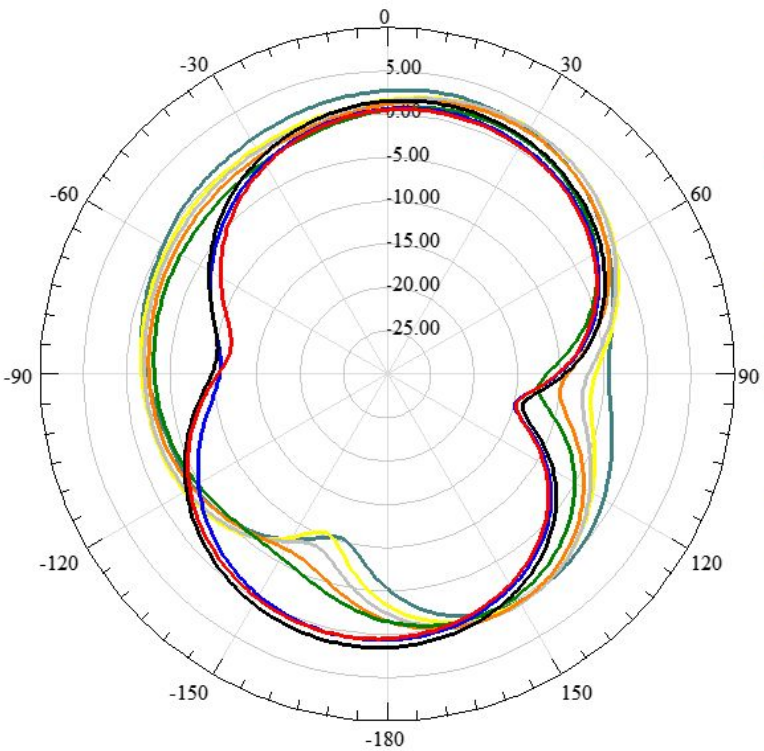


Radiation diagram XY



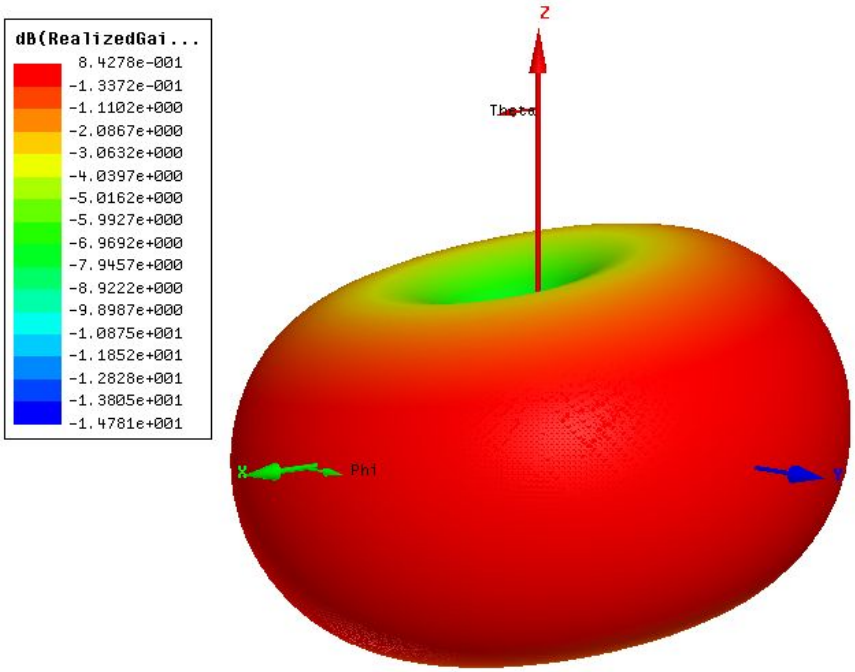
Curve Info	avg
dB(RealizedGainTotal) Setup2 : Sweep Freq='0.824GHz' Phi='0deg'	0.4150
dB(RealizedGainTotal) Setup2 : Sweep Freq='0.892GHz' Phi='0deg'	1.4014
dB(RealizedGainTotal) Setup2 : Sweep Freq='0.96GHz' Phi='0deg'	0.4951
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.71GHz' Phi='0deg'	-3.2356
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.805GHz' Phi='0deg'	-2.9544
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.91GHz' Phi='0deg'	-2.4998
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.99GHz' Phi='0deg'	-2.3104
dB(RealizedGainTotal) Setup2 : Sweep Freq='2.17GHz' Phi='0deg'	-1.5492

Radiation diagram XY

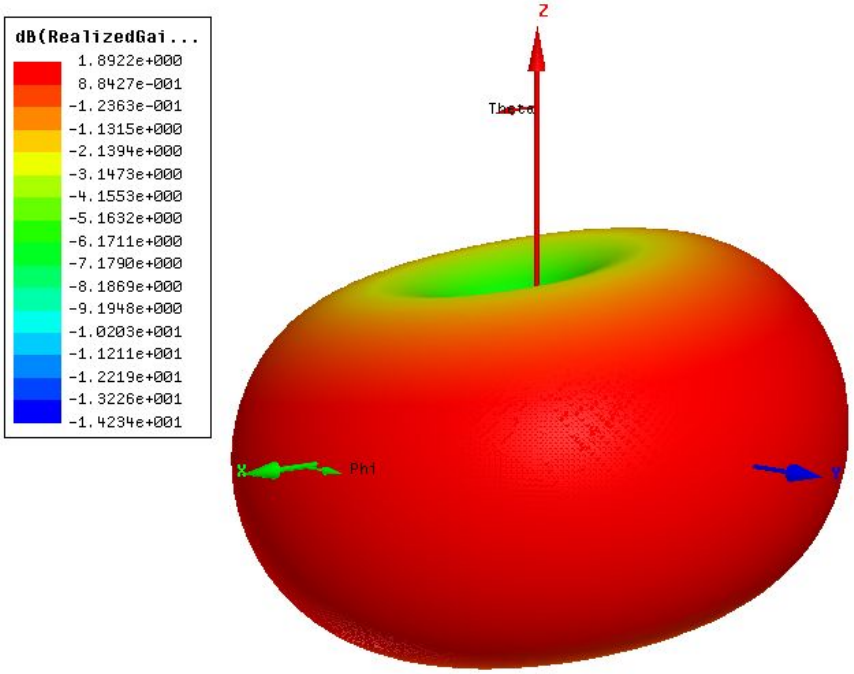


Curve Info	avg
dB(RealizedGainTotal) Setup2 : Sweep Freq='0.824GHz' Phi='90deg'	-3.9808
dB(RealizedGainTotal) Setup2 : Sweep Freq='0.892GHz' Phi='90deg'	-2.9875
dB(RealizedGainTotal) Setup2 : Sweep Freq='0.96GHz' Phi='90deg'	-3.8477
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.71GHz' Phi='90deg'	-2.9947
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.805GHz' Phi='90deg'	-2.2345
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.91GHz' Phi='90deg'	-1.8011
dB(RealizedGainTotal) Setup2 : Sweep Freq='1.99GHz' Phi='90deg'	-1.7444
dB(RealizedGainTotal) Setup2 : Sweep Freq='2.17GHz' Phi='90deg'	-1.6577

3D Radiation

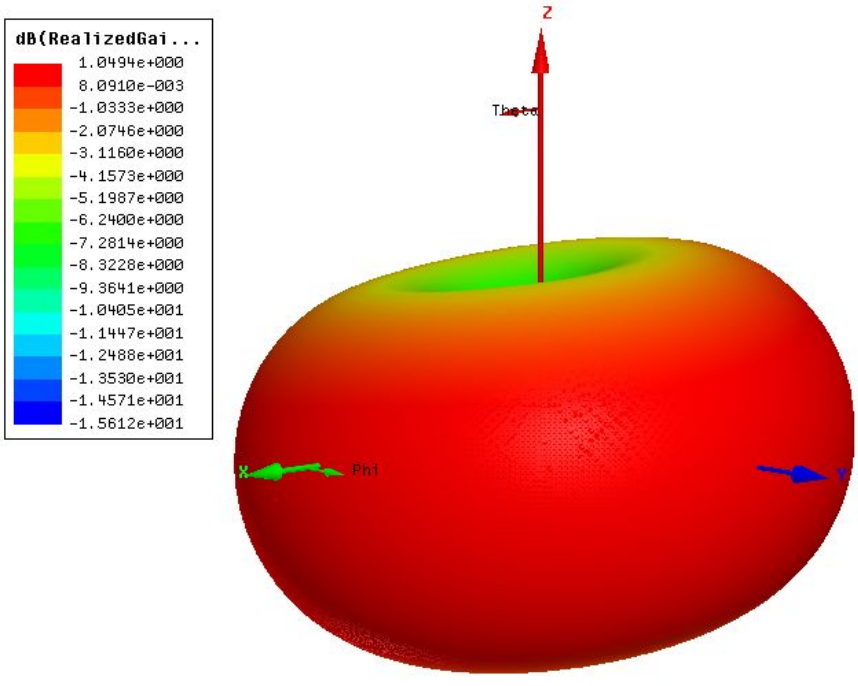


824Mhz

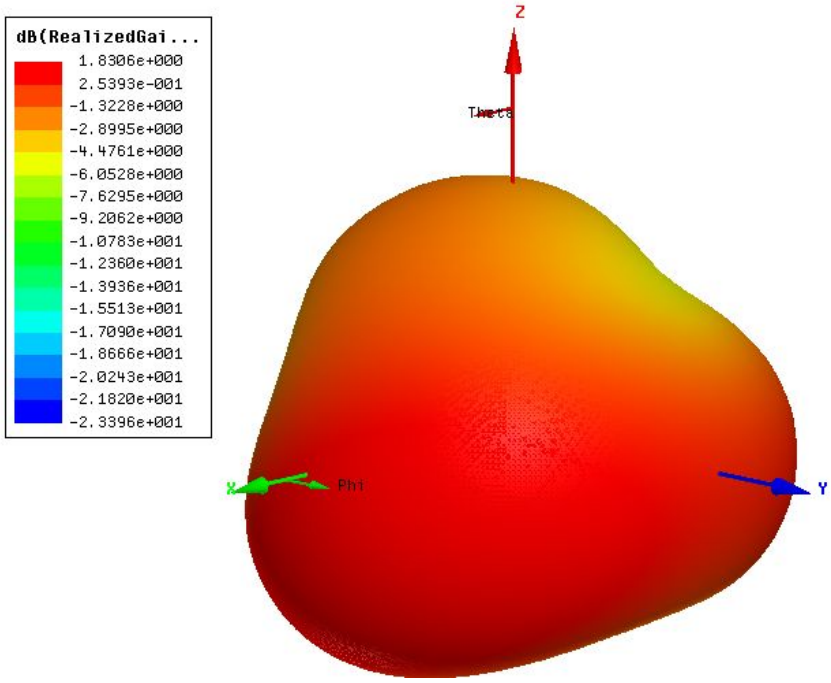


892Mhz

3D Radiation

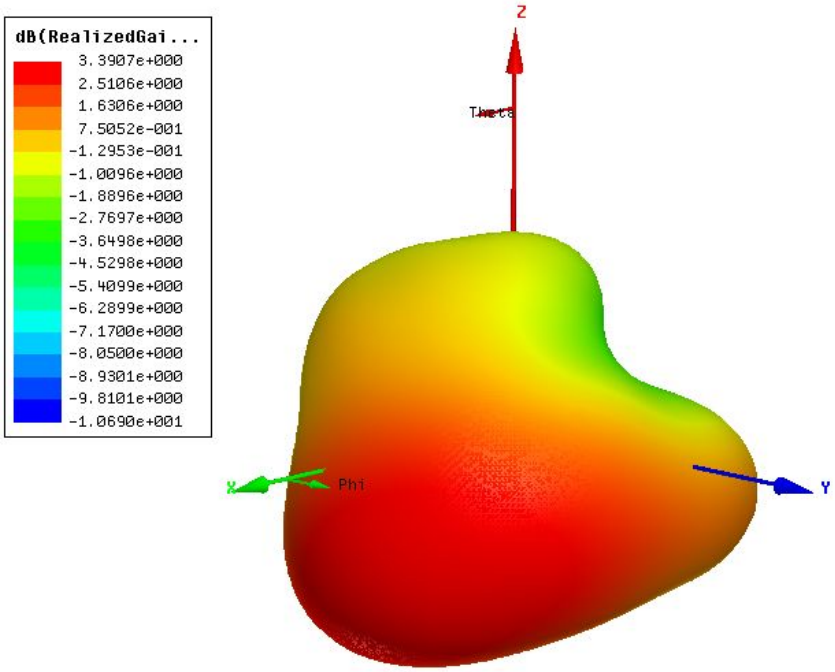


960Mhz

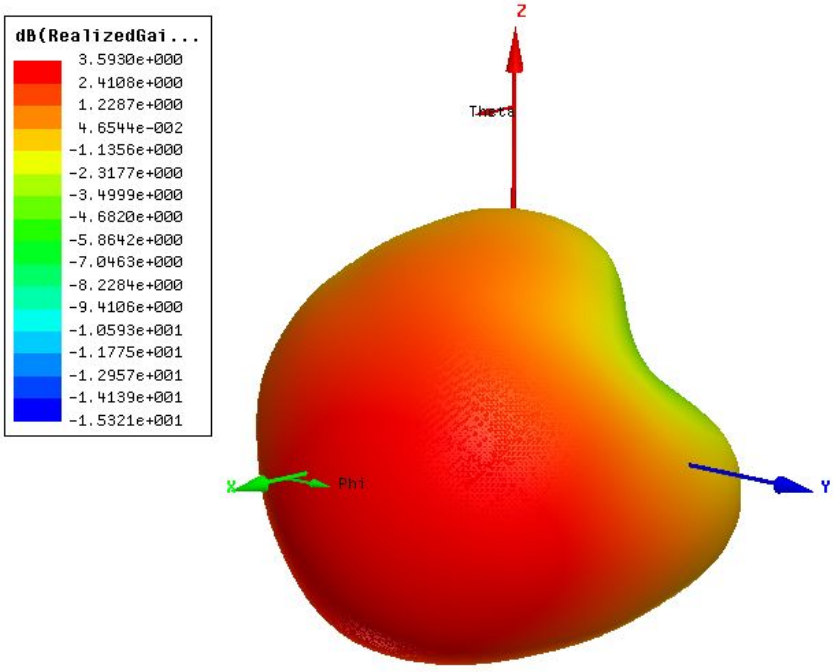


1710Mhz

3D Radiation



1990Mhz



2170Mhz

