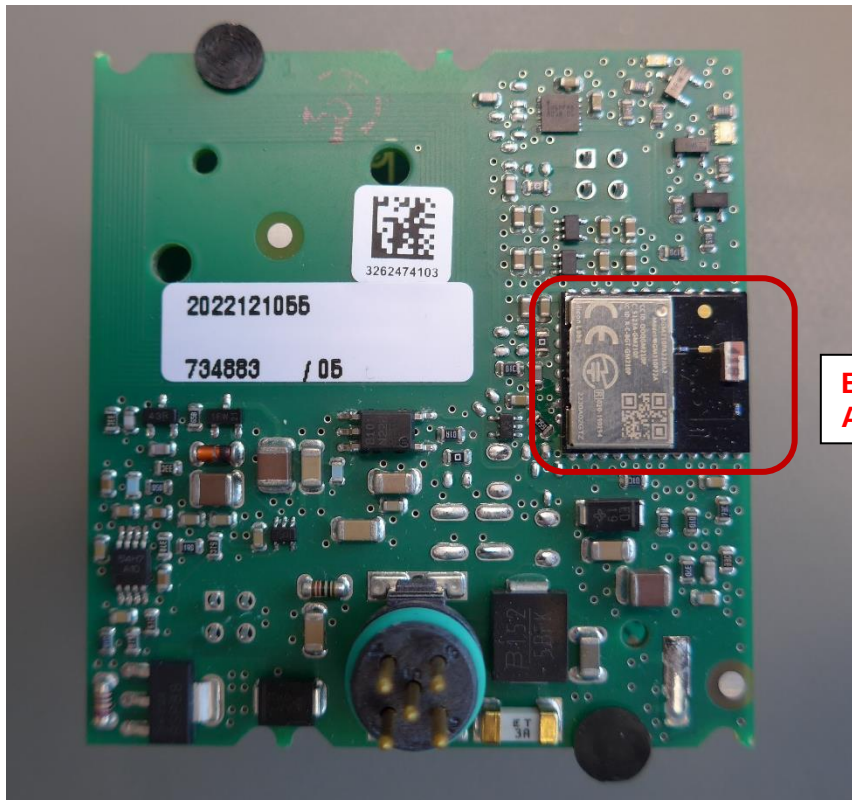


1. Blue Tooth Low Energy Module – Antenna Specifications



Bluetooth-Module BGM210 with Antenna

3.3 Antenna

BGM210P modules include a built-in antenna with the characteristics detailed in the table below. They also include a 50 Ω -matched RF pin to enable the use of an external antenna instead of the one built-in. See Section 4.15.1 [Antenna Radiation and Efficiency](#) and Section 11.1 [Qualified Antennas](#) for other relevant details. Antenna diversity is not supported.

Table 3.1. Antenna Efficiency and Peak Gain

Parameter	With optimal layout	Note
Efficiency	-1 to -2 dB	Antenna efficiency, gain and radiation pattern are highly dependent on the application PCB layout and mechanical design. Refer to the Design Guidelines for recommendations to achieve optimal antenna performance.
Peak gain	1.86 dBi	

4.15.1 Antenna Radiation and Efficiency

Typical BGM210P radiation patterns and efficiency for the on-board chip antenna under optimal operating conditions are plotted in the figures that follow. Antenna gain and radiation patterns have a strong dependence on the size and shape of the application PCB the module is mounted on, as well as on the proximity of any mechanical design to the antenna.

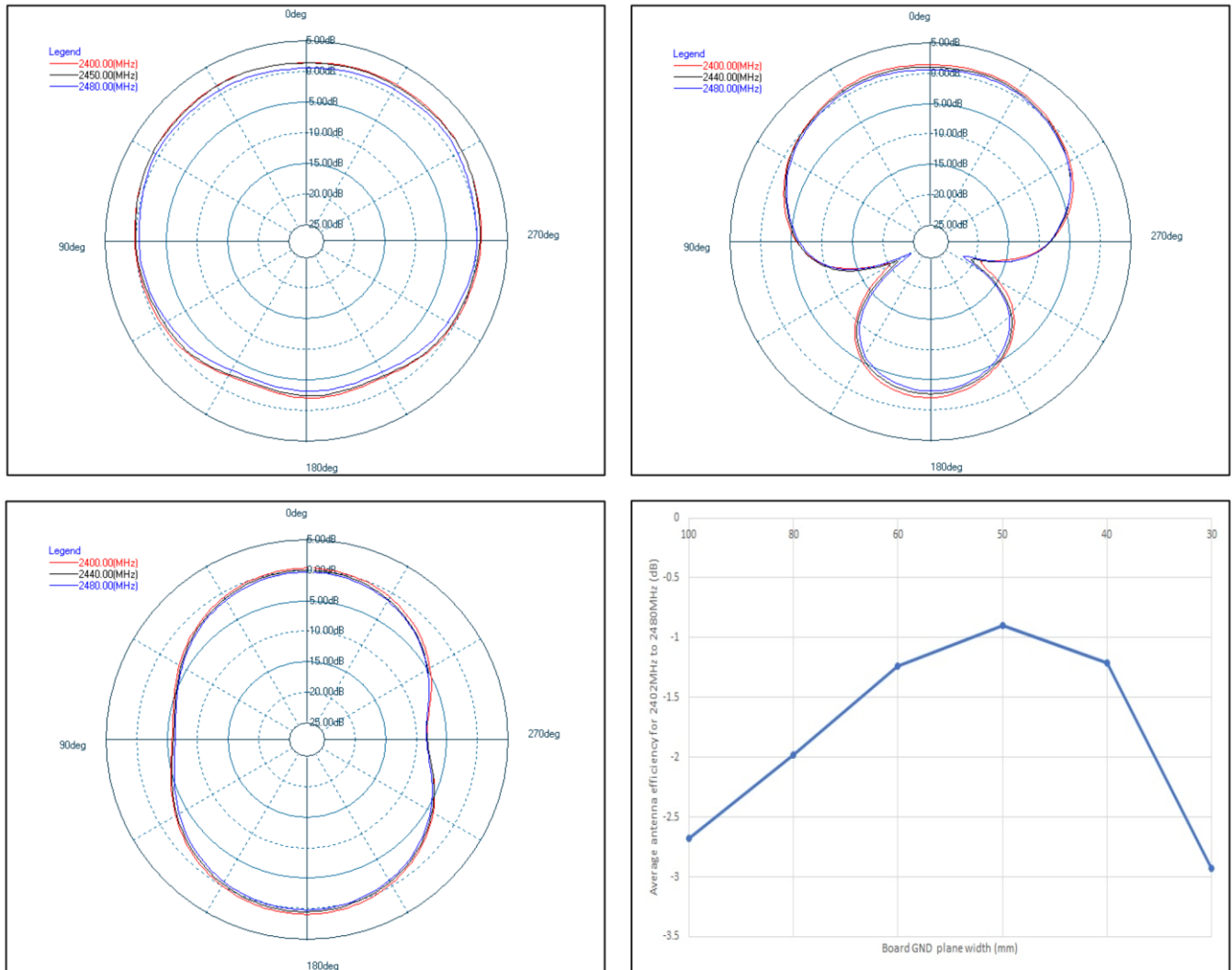


Figure 4.1. Typical 2D Antenna Radiation Patterns and Efficiency

Top Left: $\Phi = 0^\circ$, Top Right: $\Phi = 90^\circ$, Bottom Left: $\Theta = 90^\circ$, Bottom Right: Radiation Efficiency vs Application Board GND Plane Width

Specifications taken from:
SILICONLABS BGM210P Wireless Gecko Bluetooth Module Data Sheet V1.3