

Minima 4G/5G SMD Antenna



Product details

Minima is a multiband cellular antenna for 4G & 5G modems. It is suitable for global markets including North America. It operates in band 71 (617-698MHz) which has good US coverage from T-Mobile.

Size: 40 x 10 x 3.3mm

LTE, GSM, CDMA, DCS, PCS, WCDMA, UMTS, HSPDA, GPRS, EDGE, IMT, 5G

Average Efficiency

- 617-698MHz >35%
- 698-798MHz >45%
- 824-960MHz >60%
- 1710-2170MHz >55%
- 2300-2400MHz >55%
- 2500-2690MHz >60%
- 3300-3800MHz >50%



Target applications

4G/LTE networks are being upgraded to 5G worldwide. 5G offers faster data-rates and lower latency than 4G. In future, network operators will switch over to 5G, retiring 3G and 4G. 5G offers faster data-rates than 4G, and is suited to video streaming applications. e.g. CCTV (Closed Circuit TV) cameras.



Applications for 4G/5G antennas include:

- Applications for 4G+5G include:
- Telematics
- Cellular WiFi hotspots
- IoT (Internet of Things)
- M2M (Machine to Machine)
- CCTV over 4G/5G
- Drone communications
- Pico base-stations
- POS (Point of Sale) terminals



Market positioning

Overview

'Minima' is a new 4G & 5G SMD antenna from Antenova. Minima is suitable for products that operate on the 4G bands and allows for the product to be upgraded with a 5G modem when the 5G networks are rolled out, so the product is 'future-proofed'.

What's unique about the antenna?

- Minima covers the most common 4G & 5G bands across the world including band 71 (617-698MHz) band. Band 71 is used by T-Mobile with good coverage across the US.
- The high efficiency of the antenna helps with PTCRB certification testing.
- Minima is suitable for automated manufacturing, it uses the host PCB ground plane to operate, and requires a matching network implemented into the design.



Market positioning

Why choose the Minima antenna?

Minima is designed to have high efficiency within a small overall area, this enables small products to be developed that use both the 4G and 5G frequency bands. A product designed for 4G bands can be upgraded to 5G when available, this helps to 'future-proof' a design.

At lowest frequency of 699MHz:

$3 \times 10^8 / 699\text{MHz} / 4 = 107\text{mm}$ ground plane length

At lowest frequency of 617MHz:

$3 \times 10^8 / 617\text{MHz} / 4 = 121\text{mm}$ ground plane length

Comparison against competitor antennas

Minima size is: 40x10x3mm – needs 3.25mm clearance
 $40 \times (10 + 3.25) = 530$ sq mm

Competitor antennas take up much more space, including clearance area.

Competitor A: 54x13x3mm requires 5mm clearance
 $54 \times (13 + 5) = 972$ sq mm

Competitor B: 42x10x1.5 mm requires 5mm clearance
 $42 \times (10 + 5) = 630$ sq mm

Competitor C: 40x8x3mm total clearance area
 $40 \times 22 = 880$ sq mm



Summary

Minima antenna summary

- SMD antenna for the 4G & 5G bands across N.America, Europe and worldwide
- High Efficiency within a small area (including small clearance) – helps with PTCRB certification
- Supports Band 71 (617-698MHz T-mobile in the USA)
- The reference design provided simplifies the design cycle (including a matching network circuit)
- Suitable for automated manufacturing (pick&place)
- Advice on certification given on Ask.Antenova.



Antenova provide a design review and give design advice at ask.antenova.com

ask.antenova

