CLAIMS:

1. An antenna module, comprising:

an antenna board and a die coupled to the antenna board, wherein the antenna board includes:

a ground plane,

an antenna feed structure including a first portion perpendicular to the ground plane and a second portion parallel to the ground plane,

a first antenna patch, wherein the first antenna patch has a thickness between 5 microns and 30 microns, and the first antenna patch has a rectangular footprint,

a second antenna patch spaced apart from the first antenna patch, wherein the first antenna patch is between the second antenna patch and the antenna feed structure, the second antenna patch has a thickness between 5 microns and 30 microns, and the second antenna patch has a rectangular footprint,

a first metal ring around the second antenna patch, wherein the first metal ring has a rectangular inner perimeter, and

a second metal ring between the first metal ring and the ground plane, wherein the second metal ring has a rectangular inner perimeter;

wherein the antenna board has a thickness between 500 microns and 2 millimeters.

2. The antenna module of claim 1, wherein the antenna feed structure is not coupled to the first antenna patch by a conductive material pathway.

3. An antenna module, comprising:

an antenna board and a die coupled to the antenna board, wherein the antenna board includes:

a ground plane,

an antenna feed structure including a first portion perpendicular to the ground plane and a second portion parallel to the ground plane,

a first antenna patch, wherein the first antenna patch has a rectangular footprint,

a second antenna patch spaced apart from the first antenna patch, wherein the first antenna patch is between the second antenna patch and the antenna feed structure, and the second antenna patch has a rectangular footprint,

a first metal ring around the second antenna patch, wherein the first metal ring has a rectangular inner perimeter, and

a second metal ring between the first metal ring and the ground plane, wherein the second metal ring has a rectangular inner perimeter.

4. The antenna module of claim 3, wherein the antenna feed structure is not coupled to the first antenna patch by a conductive material pathway.

5. The antenna module of claim 3, wherein the first antenna patch has a thickness between 5 microns and 30 microns.

6. The antenna module of claim 3, wherein the second antenna patch has a thickness between 5 microns and 30 microns.

7. The antenna module of claim 3, wherein the antenna board has a thickness between 500 microns and 2 millimeters.

8. A handheld communication device, comprising:

an antenna module, including:

an antenna board and a die coupled to the antenna board, wherein the antenna board includes:

a ground plane,

an antenna feed structure including a first portion perpendicular to the ground plane and a second portion parallel to the ground plane,

a first antenna patch, wherein the first antenna patch has a thickness between 5 microns and 30 microns, and the first antenna patch has a rectangular footprint,

a second antenna patch spaced apart from the first antenna patch, wherein the first antenna patch is between the second antenna patch and the antenna feed structure, the second antenna patch has a thickness between 5 microns and 30 microns, and the second antenna patch has a rectangular footprint,

a first metal ring around the second antenna patch, wherein the first metal ring has a rectangular inner perimeter, and

a second metal ring between the first metal ring and the ground plane, wherein the second metal ring has a rectangular inner perimeter;

wherein the antenna board has a thickness between 500 microns and 2 millimeters; and

a circuit board electrically coupled to the antenna module.

9. The handheld communication device of claim 8, wherein the antenna feed structure is not coupled to the first antenna patch by a conductive material pathway.

10. The handheld communication device of claim 8, further comprising:

a back, wherein the back includes plastic; and

an air gap between the antenna patch and the back.

11. The handheld communication device of claim 8, further comprising:

a touchscreen display; and

a back;

wherein the antenna module is at least partially between the touchscreen display and the back.

12. The handheld communication device of claim 11, wherein the antenna module is entirely between the touchscreen display and the back.

13. The handheld communication device of claim 8, further comprising:

a speaker.

14. The handheld communication device of claim 8, further comprising:

a back, wherein the back includes plastic.

15. A handheld communication device, comprising:

an antenna module, including:

an antenna board and a die coupled to the antenna board, wherein the antenna board includes:

a ground plane,

an antenna feed structure including a first portion perpendicular to the ground plane and a second portion parallel to the ground plane,

a first antenna patch, wherein the first antenna patch has a rectangular footprint,

a second antenna patch spaced apart from the first antenna patch, wherein the first antenna patch is between the second antenna patch and the antenna feed structure, and the second antenna patch has a rectangular footprint,

a first metal ring around the second antenna patch, wherein the first metal ring has a rectangular inner perimeter, and

a second metal ring between the first metal ring and the ground plane, wherein the second metal ring has a rectangular inner perimeter; and

a circuit board electrically coupled to the antenna module.

16. The handheld communication device of claim 15, wherein the antenna feed structure is not coupled to the first antenna patch by a conductive material pathway.

17. The handheld communication device of claim 15, wherein the first antenna patch has a thickness between 5 microns and 30 microns.

18. The handheld communication device of claim 15, wherein the second antenna patch has a thickness between 5 microns and 30 microns.

19. The handheld communication device of claim 15, wherein the antenna board has a thickness between 500 microns and 2 millimeters.

20. The handheld communication device of claim 15, further comprising:

a back, wherein the back includes plastic; and

an air gap between the antenna patch and the back.

21. The handheld communication device of claim 15, further comprising:

a touchscreen display; and

a back;

wherein the antenna module is at least partially between the touchscreen display and the back.

22. The handheld communication device of claim 21, wherein the antenna module is entirely between the touchscreen display and the back.

23. The handheld communication device of claim 15, further comprising:

a speaker.

24. The handheld communication device of claim 15, further comprising:

a back, wherein the back includes plastic.

25. The handheld communication device of claim 15, wherein the handheld communication device is a smartphone.