CLAIMS

1. A wave phased array, the wave phased array comprising:
a radiator including a spiral antenna;
a radiator dilation layer supporting the radiator;
a beamformer supporting the radiator dilation layer;
a beamformer dilation layer supporting the beamformer; and
a substrate support layer supporting the beamformer dilation layer,
wherein the radiator further includes a vertical launch surrounding feed lines for the spiral antenna and Faraday walls disposed around the feed lines and the vertical launch.

2. The wave phased array of claim 1, wherein the wave phased array is configured to produce an electromagnetic signal having a frequency in the range of 24 GHz to 75 GHz.

3. The wave phased array of claim 1, wherein the wave phased array is configured to produce an electromagnetic signal having a frequency of approximately 30 GHz.

4. The wave phased array of claim 1, wherein the radiator has a thickness of approximately 2.46 mm.

5. The wave phased array of claim 4, wherein the radiator dilation layer has a thickness of approximately 0.58 mm.

6. The wave phased array of claim 5, wherein the beamformer has a thickness of approximately 1.32 mm.

7. The wave phased array of claim 6, wherein the substrate support layer embodies chips and DC logic and has a thickness of approximately 0.15 mm.

8. The wave phased array of claim 1, wherein the wave phase array has a total thickness of approximately 4.5 mm.

9. A process for manufacturing a wave phased array, the process steps comprising:

(a) forming the wave phased array, the wave phased array comprising:
    (i) a radiator including a spiral antenna;
    (ii) a radiator dilation layer supporting the radiator;
    (iii) a beamformer supporting the radiator dilation layer;
    (iv) a beamformer dilation layer supporting the beamformer; and
    (v) a substrate support layer supporting the beamformer dilation layer;

(b) machining the substrates to form at least one void; and

(c) depositing conductive ink to fill the at least one void to create:
    (i) a vertical launch of the radiator, wherein the vertical launch surrounds feed lines for the spiral antenna; and
    (ii) Faraday walls disposed around the feed lines and the vertical launch.

10. The process of claim 9, wherein the process steps are conducted under CAD control.

11. The process of claim 9, wherein the radiator has a thickness of approximately 2.46 mm.

12. The process of claim 11, wherein the radiator dilation layer has a thickness of approximately 0.58 mm.

13. The process of claim 12, wherein the beamformer has a thickness of approximately 1.32 mm.

14. The process of claim 13, wherein the substrate support layer embodies chips and DC logic and has a thickness of approximately 0.15 mm.