What is Claimed is:

1. A radio frequency (RF) apparatus comprising a radio frequency integrated circuit (RFIC) chip and an antenna module disposed on an upper surface of the RFIC chip,

wherein the antenna module comprises:

a first antenna patch that is in parallel with the RFIC chip, the first antenna patch comprising a first penetration point, and a first power feed point connected to a first power feed line to transmit and receive a first RF signal of a first frequency band; and

a second antenna patch disposed above the first antenna patch in parallel with the first antenna patch, the second antenna patch comprising a second power feed point connected to a second power feed line that penetrates through the first penetration point to transmit and receive a second RF signal of a second frequency band,

wherein the first penetration point is formed in a first region of the first antenna patch in which influence on an electric field generated by the first antenna patch via the first power feed point is minimized,

wherein the first antenna patch further comprises a second penetration point, and a third power feed point connected to a third power feed line for dual-polarization radiation,

the second antenna patch further comprises a fourth power feed point connected to a fourth power feed line that penetrates through the second penetration point, for dual-polarization radiation,

the second power feed line comprises a first horizontal power feed line formed in parallel with the first antenna patch to connect the first penetration point to the second power feed point,

the fourth power feed line comprises a second horizontal power feed line formed in parallel with the first antenna patch to connect the second penetration point to the fourth power feed point,

a first angle between a direction in which the first horizontal power feed line extends and a first line crossing over a center of the first antenna patch is equal to a second angle between a direction in which the second horizontal power feed line extends and a second line that crosses the center of the first antenna patch perpendicularly to the first line, and

an interval between the first penetration point and the second penetration point increases as the first angle and the second angle increase.

2. The RF apparatus of claim 1, wherein the first antenna patch and the second antenna patch have circular shapes.

3. The RF apparatus of claim 1 or claim 2, wherein a first radius of the first antenna patch is different from a second radius of the second antenna patch.

4. The RF apparatus of claim 1, wherein the first antenna patch and the second antenna patch have rectangular shapes, each comprising two pairs of sides that are in parallel with each other.

5. The RF apparatus of claim 4, wherein a first width of the first antenna patch is different from a second width of the second antenna patch, and a first length of the first antenna patch is different from a second length of the second antenna patch.

6. The RF apparatus of any one of claims 1 to 5, wherein the second power feed line comprises:

a first vertical power feed line formed vertically to pass through the first penetration point,

the first horizontal power feed line connected to the first vertical power feed line and formed horizontally towards the second power feed point, and

a second vertical power feed line connected to the first horizontal power feed line and formed vertically to be connected to the second power feed point.

7. The RF apparatus of any one of claims 1 to 6, wherein the antenna module comprises a third antenna patch disposed above the second antenna patch in parallel with the second antenna patch, the third antenna patch configured to transmit and receive the second RF signal of the second frequency band by coupling to the second antenna patch.

8. The RF apparatus of claim 7, wherein the first antenna patch, the second antenna patch, and the third antenna patch have different radiuses from one another.

9. The RF apparatus of claim 7 or claim 8, wherein the antenna module further comprises:

a first substrate between the first antenna patch and the second antenna patch; and

a second substrate between the second antenna patch and the third antenna patch,

wherein a first dielectric constant of the first substrate and a second dielectric constant of the second substrate are the same.

10. The RF apparatus of any one of claims 7 to 9, wherein a first interval between the first antenna patch and the second antenna patch is equal to a second interval between the second antenna patch and the third antenna patch.

11. The RF apparatus of any one of claims 1 to 10, wherein the first power feed point and the third power feed point are configured to receive a first differential signal from the RFIC chip for transmitting and receiving the first RF signal of the first frequency band respectively through the first power feed line and the third power feed line.

12. The RF apparatus of claim 11, wherein the second power feed point and the fourth power feed point are configured to receive a second differential signal from the RFIC chip for transmitting and receiving the second RF signal of the second frequency band respectively through the second power feed line and the fourth power feed line.

13. The RF apparatus of claim 12, wherein the second penetration point is formed in a second region of the first antenna patch in which influence on an electric field generated by the first antenna patch via the third power feed point is minimized.

14. The RF apparatus of claim 13, wherein the first region and the second region define a center region of the first antenna patch, and the first penetration point and the second penetration point are formed in the center region of the first antenna patch to be spaced apart from each other.

15. The RF apparatus of any one of claims 12 to 14, wherein the fourth power feed line comprises:

a third vertical power feed line formed vertically to pass through the second penetration point,

the second horizontal power feed line connected to the third vertical power feed line and formed horizontally towards the fourth power feed point, and

a fourth vertical power feed line connected to the second horizontal power feed line and formed vertically to be connected to the fourth power feed point.

16. An antenna module comprising:

a ground plate;

a first antenna patch disposed above the ground plate to be in parallel with the ground plate and comprising a first penetration point, and a first power feed point connected to a first power feed line to radiate first electromagnetic waves corresponding to a first frequency band;

a second antenna patch disposed above the first antenna patch to be in parallel with the first antenna patch and comprising a second power feed point connected to a second power feed line penetrating through the first penetration point; and

a third antenna patch disposed above the second antenna patch to be in parallel with the second antenna patch,

wherein the second antenna patch and the third antenna patch are configured to radiate second electromagnetic waves corresponding to a second frequency band,

the first antenna patch further comprises a second penetration point, and a third power feed point connected to a third power feed line for dual-polarization radiation,

the second antenna patch further comprises a fourth power feed point connected to a fourth power feed line that penetrates through the second penetration point, for dual-polarization radiation,

the second power feed line comprises a first horizontal power feed line formed in parallel with the first antenna patch to connect the first penetration point to the second power feed point,

the fourth power feed line comprises a second horizontal power feed line formed in parallel with the first antenna patch to connect the second penetration point to the fourth power feed point,

a first angle between a direction in which the first horizontal power feed line extends and a first line crossing over a center of the first antenna patch is equal to a second angle between a direction in which the second horizontal power feed line extends and a second line that crosses the center of the first antenna patch perpendicularly to the first line, and

an interval between the first penetration point and the second penetration point increases as the first angle and the second angle increase.

17. The antenna module of claim 16, wherein

the second penetration point is formed in a region of the first antenna patch in which influence on an electric field generated by the first antenna patch via the second power feed point is reduced.

18. The antenna module of claim 17, wherein the first power feed point and the third power feed point are spaced a same first distance from a first center of the first antenna patch, and

the second power feed point and the fourth power feed point are spaced a same second distance from a second center of the second antenna patch.

19. An antenna module comprising:

a first circular antenna patch comprising a first penetration point, and a first power feed point connected to a first power feed line, the first circular antenna patch being configured to radiate first electromagnetic waves corresponding to a first frequency band;

a second circular antenna patch disposed above the first circular antenna patch in parallel with the first circular antenna patch and comprising a second power feed point connected to a second power feed line passing through the first penetration point; and

a third circular antenna patch disposed above the second circular antenna patch to be in parallel with the second circular antenna patch,

wherein the second circular antenna patch and the third circular antenna patch are configured to radiate second electromagnetic waves corresponding to a second frequency band

the first antenna patch further comprises a second penetration point, and a third power feed point connected to a third power feed line for dual-polarization radiation,

the second antenna patch further comprises a fourth power feed point connected to a fourth power feed line that penetrates through the second penetration point, for dual-polarization radiation,

the second power feed line comprises a first horizontal power feed line formed in parallel with the first antenna patch to connect the first penetration point to the second power feed point,

the fourth power feed line comprises a second horizontal power feed line formed in parallel with the first antenna patch to connect the second penetration point to the fourth power feed point,

a first angle between a direction in which the first horizontal power feed line extends and a first line crossing over a center of the first antenna patch is equal to a second angle

between a direction in which the second horizontal power feed line extends and a second line that crosses the center of the first antenna patch perpendicularly to the first line,

an interval between the first penetration point and the second penetration point increases as the first angle and the second angle increase, and

the first penetration point and the second penetration point are formed in a center region of the first circular antenna patch, in which influence on an electric field generated by the first circular antenna patch is reduced.