CLAIMS:

1. A method of adjusting a load fluctuation response of an input impedance in a wireless power transmission apparatus configured to cause variation in a magnetic field to supply power from a power-supplying module to a power-receiving module connected to a power-supplied electronic device which consumes the power, wherein

the power-supplying module and the power-receiving module each has at least one coil, and

based on a characteristic that the load fluctuation response which is an amount of variation in the input impedance of the wireless power transmission apparatus relative to a unit variation amount of a load impedance of the power-supplied electronic device rises within a range of design values of the input impedance in the wireless power transmission apparatus, the load fluctuation response is adjusted by adjusting coupling coefficients between the coils arranged side-by-side.

2. The method according to claim 1, wherein the method of adjusting the load fluctuation response of the input impedance in a wireless power transmission apparatus is configured to supply power, by means of a resonance phenomenon, from the power-supplying module comprising at least a power-supplying coil and a power-supplying resonator to the power- receiving module comprising at least a power-receiving resonator and a

power-receiving coil, the power-receiving module connected to the power-supplied electronic device which consumes the power, and

the load fluctuation response is adjusted by adjusting at least one of a coupling coefficient k_{12} between the power-supplying coil and the power-supplying resonator, a coupling coefficient k_{23} between the power-supplying resonator and the power-receiving resonator, and a coupling coefficient k_{34} between the power-receiving resonator and the power-receiving coil.

3. The method according to claim 2, wherein the values of the coupling coefficients k_{12}, k_{23}, and k_{34} are adjusted by varying at least one of a distance between the power-supplying coil and the power-supplying resonator, a distance between the power-supplying resonator and the power-receiving resonator, and a distance between power-receiving resonator and the power-receiving coil.

4. The method according to claim 3, wherein: the adjustment is based on a characteristic such that, if the distance between the power-supplying resonator and the power-receiving resonator, and the distance between the power-receiving resonator and the power-receiving coil are fixed,

the load fluctuation response is such that

the value of the coupling coefficient k_{12} between the

power-supplying coil and the power-supplying resonator increases with a decrease in the distance between the power-supplying coil and the power-supplying resonator, and the load fluctuation response of the input impedance in the wireless power transmission apparatus rises with the increase in the value of the coupling coefficient k_{12}.

5. The method according to claim 3, wherein the adjustment is based on a characteristic such that, if the distance between the power-supplying coil and the power-supplying resonator, and the distance between the power-supplying resonator and the power-receiving resonator are fixed,

the load fluctuation response is such that

the value of the coupling coefficient k_{34} between the power-receiving resonator and the power-receiving coil increases with a decrease in the distance between the power-receiving resonator and the power-receiving coil, and the load fluctuation response of the input impedance in the wireless power transmission apparatus rises with the increase in the value of the coupling coefficient k_{34}.

6. The method according to any one of claims 2 to 5, wherein a transmission characteristic with respect to a driving frequency of the power supplied to the power-supplying module has a peak occurring in a drive frequency band lower than a resonance

frequency of the power-supplying module and the power-receiving module, and a peak occurring in a drive frequency band higher than the resonance frequency, and

the driving frequency of the power supplied to the power-supplying module is in a band corresponding to the peak value of the transmission characteristic occurring in the driving frequency band lower than the resonance frequency.

7. The method according to any one of claims 2 to 5, wherein a transmission characteristic with respect to a driving frequency of the power supplied to the power-supplying module has a peak occurring in a drive frequency band lower than a resonance frequency of the power-supplying module and the power-receiving module, and a peak occurring in a drive frequency band higher than the resonance frequency, and

the driving frequency of the power supplied to the power-supplying module is in a band corresponding to the peak value of the transmission characteristic occurring in the driving frequency band higher than the resonance frequency.

8. A wireless power transmission apparatus, comprising a power-supplying module and a power-receiving module, and which is adjusted by the method of adjusting the load fluctuation response of an input impedance according to any one of claims 1 to 5.

9. A wireless power transmission apparatus, comprising a power-supplying module and a power-receiving module, and which is adjusted by the method of adjusting the load fluctuation response of an input impedance according to claim 6.

10. A wireless power transmission apparatus, comprising a power-supplying module and a power-receiving module, and which is adjusted by the method of adjusting the load fluctuation response of an input impedance according to claim 7.

11. A method of manufacturing a wireless power transmission apparatus configured to cause variation in a magnetic field to supply power from a power-supplying module to a power-receiving module connected to a power-supplied electronic device which consumes the power, comprising:

providing at least one coil in each of the power-supplying module and the power-receiving module, and

based on a characteristic that the load fluctuation response which is an amount of variation in the input impedance of the wireless power transmission apparatus relative to a unit variation amount of a load impedance of the power-supplied electronic device rises within a range of design values of the input impedance in the wireless power transmission apparatus, adjusting coupling coefficients between the coils arranged

side-by-side.

12. A method of adjusting a load fluctuation response of an input impedance in a wireless power transmission apparatus configured to cause variation in a magnetic field to supply power from a power-supplying module to a power-receiving module connected to a power-supplied electronic device which consumes the power, wherein

the power-supplying module and the power-receiving module each has at least one coil, and

coupling coefficients between the coils arranged side-by-side are adjusted so that the load fluctuation response which is an amount of variation in the input impedance of the wireless power transmission apparatus relative to a unit variation amount of a load impedance of the power-supplied electronic device is highest within a range of design values of the input impedance in the wireless power transmission apparatus.

CLAIMS:

1. A method of adjusting a load fluctuation response of an input impedance in a wireless power transmission apparatus configured to cause variation in a magnetic field to supply power from a power-supplying module to a power-receiving module connected to a power-supplied electronic device which consumes the power, wherein

the power-supplying module and the power-receiving module each has at least one coil, and

the load fluctuation response is adjusted by adjusting values of coupling coefficients between the coils arranged side-by-side, the load fluctuation response being an amount of variation in the input impedance of the wireless power transmission apparatus relative to a unit variation amount of a load impedance of the power-supplied electronic device.

2. The method according to claim 1, wherein the method of adjusting the load fluctuation response of the input impedance in a wireless power transmission apparatus is configured to supply power, by means of a resonance phenomenon, from a power-supplying module comprising at least a power-supplying coil and a power-supplying resonator to a power- receiving module comprising at least a power-receiving resonator and a power-receiving coil, the power-receiving module connected to a power-supplied electronic device which consumes the power, and

the load fluctuation response is adjusted by adjusting at least one of a coupling coefficient k_{12} between the power-supplying coil and the power-supplying resonator, a coupling coefficient k_{23} between the power-supplying resonator and the power-receiving resonator, and a coupling coefficient k_{34} between the power-receiving resonator and the power-receiving coil.

3. The method according to claim 2, wherein the values of the coupling coefficients k_{12}, k_{23}, and k_{34} are adjusted by varying at least one of a distance between the power-supplying coil and the power-supplying resonator, a distance between the power-supplying resonator and the power-receiving resonator, and a distance between power-receiving resonator and the power-receiving coil.

4. The method according to claim 3, wherein: the adjustment is based on a characteristic such that, if the distance between the power-supplying resonator and the power-receiving resonator, and the distance between the power-receiving resonator and the power-receiving coil are fixed,

the load fluctuation response is such that

the value of the coupling coefficient k_{12} between the power-supplying coil and the power-supplying resonator increases with a decrease in the distance between the power-supplying coil

and the power-supplying resonator, and the load fluctuation response of the input impedance in the wireless power transmission apparatus rises with the increase in the value of the coupling coefficient k_{12}.

5. The method according to claim 3, wherein the adjustment is based on a characteristic such that, if the distance between the power-supplying coil and the power-supplying resonator, and the distance between the power-supplying resonator and the power-receiving resonator are fixed,

the load fluctuation response is such that

the value of the coupling coefficient k_{34} between the power-receiving resonator and the power-receiving coil increases with a decrease in the distance between the power-receiving resonator and the power-receiving coil, and the load fluctuation response of the input impedance in the wireless power transmission apparatus rises with the increase in the value of the coupling coefficient k_{34}.

6. The method according to any one of claims 2 to 5, wherein a transmission characteristic with respect to a driving frequency of the power supplied to the power-supplying module has a peak occurring in a drive frequency band lower than a resonance frequency of the power-supplying module and the power-receiving module, and a peak occurring in a drive frequency band higher than

the resonance frequency, and

the driving frequency of the power supplied to the power-supplying module is in a band corresponding to a peak value of the transmission characteristic occurring in a driving frequency band lower than the resonance frequency.

7. The method according to any one of claims 2 to 5, wherein a transmission characteristic with respect to a driving frequency of the power supplied to the power-supplying module has a peak occurring in a drive frequency band lower than a resonance frequency of the power-supplying module and the power-receiving module, and a peak occurring in a drive frequency band higher than the resonance frequency, and

the driving frequency of the power supplied to the power-supplying module is in a band corresponding to a peak value of the transmission characteristic occurring in a driving frequency band higher than the resonance frequency.

8. A wireless power transmission apparatus which is adjusted by the method of adjusting the load fluctuation response of an input impedance according to any one of claims 1 to 5.

9. A wireless power transmission apparatus which is adjusted by the method of adjusting the load fluctuation response of an input impedance according to claim 6.

10. A wireless power transmission apparatus which is adjusted by the method of adjusting the load fluctuation response of an input impedance according to claim 7.

11. A method of manufacturing a wireless power transmission apparatus configured to cause variation in a magnetic field to supply power from a power-supplying module to a power-receiving module connected to a power-supplied electronic device which consumes the power, comprising:

providing at least one coil in each of the power-supplying module and the power-receiving module, and

adjusting the load fluctuation response by adjusting values of coupling coefficients between the coils arranged side-by-side, the load fluctuation response being an amount of variation in the input impedance of the wireless power transmission apparatus relative to a unit variation amount of a load impedance of the power-supplied electronic device.