

# **5w wireless power transmission system with coupled magnetic resonance**

The experimental platform of magnetic coupling resonant wireless energy transmission is built, and the transmission characteristics of each resonant coil model are tested. It research the variation of system power and transmission efficiency with coil radius, number of turns and wire diameter and optimal design parameters of coil.

It works at the resonance frequency of 140kHz in the maximum transmission range of 30cm and achieves maximum power delivery of 5W at the 7cm transmission range. The experiment result shows that this method can ...

Design and analysis of a wireless power transmission system with magnetic coupling resonance in the weak-coupling region December 2019 Chinese Journal of Electrical Engineering 5(4):51-60

This paper presents an approximately 5W, 1.4 MHz wireless power transmission circuit based on a near-field coupling from the perspective of two magnetically coupled transmitting and receiving ...

Taking maximum power transmission and power stable transmission as research objectives, optimal design for the wireless power transmission system based on magnetic resonance coupling is carried ...

In this paper, a wireless power transmission system using magnetic resonance coupling was proposed and demonstrated for supplying power at high efficiency to electrical devices in a space enclosed ...

Maximum 25.4% efficiency enhancement is achieved when the distance between Tx and Rx coils is 15 cm, and in overall distance variation cases, the proposed two-stack hybrid metamaterial slab make the power transfer efficiency increase in 26. The metamaterial is used in the MRCWPT system, and the enhanced PTE is 54.3% at the distance of 1.0 m in 27.

A spiral superconducting metamaterial with an effective negative permeability is presented for efficient wireless power transfer (WPT) using magnetic resonant coupling.

This paper presents an approximately 5W, 1.4 MHz wireless power transmission circuit based on a near-field coupling from the perspective of two magnetically coupled transmitting and receiving coils. 220V/50Hz AC is supplied to the high-frequency cyclo-converter to provide efficient output power to the load. As a result, 12?36 V of power is obtained at the ...

The wireless power transfer (WPT) system via coupled magnetic resonance (CMR) is an efficient and practical power transmission technology that can realize medium- and long-distance power transmission. People's requirements for the flexibility of charging equipment are becoming increasingly prominent. How to get rid of the "flitch plate type" wireless charging ...

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Magnetic resonance coupling circuits have four general topologies; however, there is a lack of comprehensive theoretical analysis with experimental verification for each of these topologies ...

The magnetic resonant coupling wireless power transfer (MRCWPT) system has relatively high transfer efficiency over relatively long distances, and the MRCWPT system has gained lots of attention.

This paper analyses and designs a kind of wireless power transmission system via coupled magnetic resonances. It introduces the wireless power transmission technology, and expounds the principle ...

This paper presents an approximately 5W, 1.4 MHz wireless power transmission circuit based on a near-field coupling from the perspective of two magnetically coupled transmitting and receiving coils. 220V/50Hz AC is supplied to the high-frequency cyclo-converter to provide efficient output power to the load. As a result, 12?36 V of power is obtained at the receiving coil which is ...

Wireless power transfer (WPT) is a technology that transfers electrical power over distances without interconnecting wires. Compared to wired electricity transmission, the WPT technology can bring ...

It works at the resonance frequency of 140kHz in the maximum transmission range of 30cm and achieves maximum power delivery of 5W at the 7cm transmission range. The experiment result shows that this method can achieve a power transfer efficiency of around 55%. ... Keywords-- wireless, wireless power, magnetic resonance, loosely coupling ...

A wireless power transmission system for 1.78MHz, 60W docent robot using coupled magnetic resonances is presented. The proposed wireless power transmission system consists of a 130W class-F power ...

The wireless power transfer (WPT) system via coupled magnetic resonance (CMR) is an efficient and practical power transmission technology that can realize medium- and long-distance power transmission.

This paper presents an approximately 5W, 1.4 MHz wireless power transmission circuit based on a near-field coupling from the perspective of two magnetically coupled transmitting and ...

In this chapter, a wireless power transmission system based on magnetic resonance coupling circuit was carried out. Mathematical expressions of optimal coupling coefficients were examined with the coupling model. Equivalent circuit parameters were calculated with Maxwell 3D software, and then, the equivalent circuit was solved using ...

We were able to identify the strongly coupled regime in the system of two coupled magnetic resonances by exploring nonradiative (near-field) magnetic resonant induction at megahertz frequencies. At first glance, such power transfer is reminiscent of the usual magnetic induction ( 10 ); however, note that the usual nonresonant

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induction is very ...

For magnetic-coupled resonator wireless power transmission (WPT) systems, higher power transfer efficiency can be achieved over a greater range in comparison to inductive-coupled WPT systems.

For conventional MRCWPT systems, both the transmitter and the receiver have the same resonant frequency to maintain relatively high power transfer efficiency (PTE) 10, 11. The receiver and the transmitter work at the single resonant frequency.

DOI: 10.1109/ICMA.2019.8816391 Corpus ID: 201813013; Wireless Power Transmission System via Magnetic Resonance Coupling Platform @article{Ye2019WirelessPT, title={Wireless Power Transmission System via Magnetic Resonance Coupling Platform}, author={Yuling Ye and Chong Wei Peng and Yizhang Wang and Junli Chen and Jucheng Liao and Tao Ma and Yu Liang ...

The experimental platform of magnetic coupling resonant wireless energy transmission is built, and the transmission characteristics of each resonant coil model are tested. It research the ...

High-efficiency medium-range wireless power transfer using magnetically coupled resonators requires a wireless data link between the contactless coils to regulate power. Multiplexing the power transfer channel as the information channel is a cost-effective solution for the communication.

Jia, L. and Fujimori, K. (2021) Improvement of transmission efficiency by using annular array metamaterial for magnetic coupling wireless power transmission system. 2020 International Symposium on ...

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Abstract: In this paper, a 1.8MHz and 5W wireless power transmission system for a wireless smart storage using coupled magnetic resonances is presented. The proposed wireless power ...

5W wireless power transmission system with coupled magnetic resonance. October 2013. ... J.I. Choi; In this paper, a 1.8MHz and 5W wireless power transmission system for a wireless smart storage ...

e. The formalism of wireless power transmission is discussed coupled mode theory can be used to describe the resonance process. According to the changing process of input impedance and input ...

The magnetic resonant coupling wireless power transfer (MRCWPT) system has relatively high transfer efficiency over relatively long distances, and the MRCWPT system has ...

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Contactless power transmission alias wireless power transmission (WPT) is a new way of transferring power wirelessly through the air or vacuum and can be realized by a load connected across the circuit through electromagnetic field effect [].With this technology, it is possible to transfer power to remote areas, which are far away from the cities, where the ...

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