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Electromagnetic Facility of Air and Cable Line

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ABSTRACT: The enhanced electromagnetic effect negatively affects the three-phase lines, the pulling substations, the longitudinal lines. Research and calculate the electromagnetic and galvanic effects of the gravitational network on the electrical devices of the joint. Application and design of electromagnetic compatibility to the gravitational power supply.

Keywords: reactive current, magnetic coupling, magnetic field.

Introduction

The compensation topologies are considered, namely series compensation, parallel compensation, and series-parallel compensation. In series compensation, the voltage across the capacitance compensates the voltage drop of the primary equivalent reactance, making the required supply voltage to reduce. In parallel compensation, the current flowing through the capacitance compensates the current in the primary coil. Hence the required supply current is reduced. Series-parallel compensation realizes the reduction of both in voltage and in current. The output current from the inverter bridge (I1) is equal to the primary current which is passing through the primary inductance (Ip). This signifies that the primary current in series compensation circulates through the inverter bridge which, in turn, causes significant power dissipation in the switching network. Moreover, in series compensation, the voltage is boosted because of the added voltage across the tuning capacitor. This results in an increased voltage across the primary coil (Vp) that is higher than the inverter output voltage (V1). This is beneficial as it allows the power supply to drive a high primary inductance with a desired primary current. The parallel compensation, on the other hand, has a current increase property. The primary current (Ip) is greater than the power converter output current (I1). This is because the reactive current is circulating inside the resonant tank, and only the real current is flowing through the inverter bridge.

Main part

This technology has the ability to deliver major advancements in industries and applications that are dependent on contacting connectors, which can be unreliable and prone to failure. The basis of a wireless power transfer system involves essentially two magnetically coupled coils separated by an air gap—a transmitter and a receiver coil. The transmitter coil is energized by alternating AC power to generate a magnetic field, which in turn induces a voltage in the receiver coil.

After a general overview of system compensation in this technology, a detailed modeling based on T-equivalent circuit as well as a mutual inductance model including system power transfer capability has been presented. Power losses associated with the magnetic coupling structure of such a system have been detailed. A comprehensive study with mathematical relationships has been conducted on the derivation of magnetic coupling efficiency of the system for both a series- and a parallel-tuned secondary side.

Magnets can be used to generate magnetic fields in neural electrical activity research. The effect of magnetic fields created using neodymium magnets on neural damage was examined in a study where they were applied on 17 healthy volunteers for 2 hours. Neuron specific enclose which is the determinant of neuronal damage and S100 blood levels were studied, the test conducted to measure mental ability revealed that the parameters tested on the 17 volunteers were not affected by the magnetic fields and to generate a magnetic field with neodymium magnets seemed to be safe on these parameters.

In a research in which the role of static magnetic field in carpal tunnel treatment was researched on, the effects of two different magnetic field levels on the median nerve were evaluated. In a randomized double blind placebo controlled research, 12-week long observation was performed after a 6-week long interference. Participants who were diagnosed with carpal tunnel syndrome using electrophysiological tests wore neodymium magnets and non-magnetic disks all night long.

As the connectivity of tomorrow trend gains momentum, new capabilities to support differentiated, fit-for-purpose networking for devices and applications will become available around the world. What steps can you take to lay the groundwork for new networking models in your enterprise? Step one could involve scenario planning, in which you

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create models that consider your business and advanced connectivity together. You can then use these models to develop strategic options within a connectivity road map aligned with your company's business strategy.

As part of this planning effort, consider the following questions:

In the context of our business strategy, where and how can advanced connectivity create a material impact?

These capabilities could be a catalyst within an enterprise to accelerate both information technology and operational technology. Knowledge of these capabilities and potential timing should serve as a key input to shape customer- and internal-facing digital transformation initiatives. Viewed through an alternate lens, digital transformation, enterprise agility, mobility, and cloud technology features such as serverless computing are all dependent on advanced connectivity. However, with advanced capabilities comes higher network complexity in the form of multiple networking protocols, proliferation of devices and device types, and edge computing. Moreover, these capabilities will likely become available and evolve at different speeds across geographies. Taking into consideration your enterprise's business and technology strategy, consider building capabilities that could be transformative to your enterprise, assess potential availability and timing, and develop strategic options and a three-year connectivity of tomorrow adoption road map.

What impact could advanced networking systems have on my enterprise architecture?

As capabilities such as 5G, LEOs, SDN, and NFV are advancing, so are compute and storage, significantly affecting enterprise compute infrastructure and data architecture. For example, sensors in the field and telemetry in applications and on mobile devices will generate increasing volumes of data to be stored, analyzed, and acted upon. Enterprise architecture must consider the impact of distributed computing—between devices, edge, cloud, and data centers and where, how, and when advanced connectivity will be deployed.

As you develop strategies for connectivity and cloud, both should align with the strategic goals set forth in your digital transformation agenda. How will cloud and connectivity help your enterprise operate more efficiently? How can the ability to deliver and process enormous volumes of data where and when they are needed help your enterprise to more effectively engage customers, business partners, or your global operations? Which specific networking and cloud capabilities, deployed in tandem and managed similarly, might support new product and service offerings?

How will this trend affect my budget?

As the trend gains momentum, user expectations of networking capabilities and performance will rise. Vendors will want to recoup their significant capital investments in new products and services. Competition will likely put downward pressure on prices as technologies become more widely available. As a result, enterprise customers may have to make decisions about the capability/value requirements for advanced connectivity. Prices may be dynamic for some time, requiring enterprises to continually balance user and system demand for advanced connectivity with cost and business value. The likelihood is that CIOs will need to factor ongoing change into their networking strategy for the next several years.

In electromagnetic pollution phenomenon, the power cable is a key component from point of view of EMC. It present in the same time, a privileged propagation path of conducted perturbations, a large band radiator element and a vulnerable input channel to extern electromagnetic assaults. The wide diversity of cable types, as well as various environmental and geometrical configurations, make of wiring an example all adapted to the new demand of generic modeling in EMC. The electromagnetic perturbations such as the coupling by inductive or capacitive crosstalk are a big problem for the good operation of transmission lines system. In this work, a measuring bench contains a vectors-type networks analyzer "module and phase" allowing the measure of the transfers function S21 in dB was performed in order to predict and measure the crosstalk coupling between the transmission lines.

Conclusion

In electromagnetic pollution phenomenon, the power cable is a key component from point of view of EMC. It present in the same time, a privileged propagation path of conducted perturbations, a large band radiator element and a vulnerable input channel to extern electromagnetic assaults. The wide diversity of cable types, as well as various environmental and geometrical configurations, make of wiring an example all adapted to the new demand of generic modeling in EMC. The electromagnetic perturbations such as the coupling by inductive or capacitive crosstalk are a big problem for the good operation of transmission lines system. In this work, a measuring bench contains a vectors-type networks analyzer "module and phase" allowing the measure of the transfers function S21 in dB was performed in order to predict and measure the crosstalk coupling between the transmission lines.

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