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Avoiding the Brain Damage

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Abstract

As mentioned in [1], it is sometimes said that there are two types of engineers—those who have signal integrity problems and those who will.As clock frequencies increase, magnifying signal integrity problems, this saying will become even more accurate. On the other hand, the usage of the technology is now a day unavoidable. Thus, to avoid the electromagnetic radiation directly on the brain, should be recomendable the use of the hand off device since the integrated inalambric amplifiers of new generation generte a lot of energy (power). Besides, it is convenient that the user of that technology be aware to the activities he is doing to avoid accidents mainly when he is manipulating some kind of equipment or driving a vehicle.

Keywords

Signal Integrity; electromagnetic radiation; and off devices; brain damages; new technologies; new generation integrated amplifiers; work accidents; power amplifiers; wlans'; wireless coverage area; data rate capacity; battery life; nerve axon; brain development; neurosciences; nervous system; relationship among the physiological brain connections and the high speed electrical connections.

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Introduction

The pursuit of low losses and low distortion are necessary conditions to improve the signal integrity. As mentioned in [1], it is sometimes said that thereare two types of engineers—those who have signal integrityproblems and those who will.As clock frequencies increase,magnifying signal integrityproblems, this saying willbecome even more accurate.On the other hand, the usage of the technology is now a day unavoidable. Thus, to avoid the electromagnetic radiationdirectly on the brain, should be recomendablethe useof the hand off device since the integrated inalambric amplifiers of new generation genertea lot of energy (power). Besides, it is convenient that the user of that technology be aware to the activities he is doing to avoid accidents mainly when he is manipulating some kind of equipment or driving a vehicle.As mentioned in[2], the power amplifier (PA) is a critical component whitin a WLAN transmitter because PA performance affects wireless coverage area, data rate capacity, and battery life.

Moreover, the interaction brain-machine is now an indissoluble fact. The repercussions this fact will have in future are presently unimaginable. As mentioned in [3] , the nerve axon can now be modeled by a cable or a planar high speed interconnection, no matter what kind of interconnection will be used. The brain development is clearly shown in a stupendous book of the SOCIETY FOR NEUROSCIENCE treating the brain and the nervous system. An extraction of the brain development chapter is here included to show the relationship among the physiological brain connections [4] and the high speed electrical connections [5].The extraction says as follows: Three to four weeks after conception, one of the two cell layers of the gelatin-like human embryo, about one-thenth of an inch long, starts to thicken and build up along the middle.As this flat neural plate grows, parallel ridges,similar to the creases in a paper airplane, rise across its surface.Within a few days, the ridges fold in toward each other and fuse to form the hollow neural tube. The top of the tube thickness into three bulges that form the hindbrain, midbrain and fore brain. The first sign of the eyes and then the hemispheres of the brain appear later. Hoe does all this happen? Although many of the mechanism of human brain development remain secrets, neuroscientists are beginning to uncover some of this complex steps through studies of the roundworm , fruit fly, frog, zebrafish, mouse, rat, chicken, cat, and monkey. Many initial steps in brain development are similar across species, while later steps are different. By studying these similarities and differences, scientists can learn how the human brain develops and how brain abnormalities, such as mental retardation and other brain disorders, can be prevented or treated. Neurons are initially produced along the central canal in the neural tube. These neurons then migrate from their birthplace to a final destination in the brain. They collect together to form each of the various brain structures and acquire specific ways of transmitting nerve messages. Their processes, or axons, grow long distances to find and connect with appropriate partners, forming elaborate and specific circuits.Finally, sculpting action eliminates redundant or improper connections honing the specificity of the circuits that remain. The result is the creation of a precisely elaborated adult network of 100 billion neurons capable of a body movement, a perception, an emotion or a thought. Knowing how the brain is put together is essential for understanding its ability to reorganize in response to external influences or to injury. These studies also shed light on brain functions, such as learning and memory. Brain diseases, such as schizophrenia and mental retardation, are thought to result from a failure to construct proper connections during development. Neuroscientists are beginning to discover some general principles to understand the processes of development, many of which overlap in time. On the other hand, because of the massive volume of information storagenow a day the synchronization clock speeds are all in the range of GHz almost reaching the THz. At these very high frequencies the behavior of the interconnects are more like that of a transmission line, and hence distortion, delay, and phase shift-effects caused by phenomena like cross talk, ringing, and overshoot are present and may be undesirable for the performance of a circuit or system. Thus, the interconnects do not have to be considered like simple conductors or lumped elements. All this gives rise to a new emerging discipline known as signal integrity. This discipline is extremely important to maintain the signal quality on microstrip circuits.

In this discipline the correct timing and signal qualitypreservation preventing transients and false switching are studied in order to avoid excessive delays.

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