



Microwave Wireless Power Transmission Technology in Solar Satellites

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DESCRIPTION

Solar Power Satellites (SPS) converts solar energy into microwaves and sends that microwaves in to a beam to a receiving antenna on the Earth for conversion to regular Electricity. SPS is a clean, massive-scale, stable electric power source. Solar Power Satellites is known by a lot of other names including Satellite Power System, Space Power Station, Space Power System, Solar Power Station, Space Solar Power Station etc. One of the key Technologies had to enable the future feasibility of SPS is that of Microwave Wireless Power Transmission. WPT is primarily based on the energy transfer capability of microwave beam i.e; energy may be transmitted through a properly focused microwave beam. Advances in phased array antennas and rectennas have provided the constructing blocks for a realizable WPT system.

Increasing worldwide energy demand is probably to maintain for many decades. Renewable energy is a compelling approach both philosophically and in engineering terms. However, many renewable energy sources are limited of their capacity to affordably provide the base load energy required for worldwide industrial improvement and prosperity, due to inherent land and water requirements. The burning of fossil fuels led to an abrupt decrease in their availability. It additionally caused the greenhouse effect and many other environmental problems. Nuclear energy appears to be a solution for global warming, however issues about terrorist attacks on Earth bound nuclear energy plant life have intensified environmentalist opposition to nuclear energy. Earth based solar panels receives most effective part of the solar energy. So it is applicable to place the solar panel in the space itself, where, the solar power is accumulated

and transformed into energy that is then converted to an incredibly directed microwave beam for transmission.

This concept is more effective than traditional methods. Also the microwave energy, chosen for transmission, can pass unimpeded through clouds and precipitations. This concept is greater effective than traditional methods. Also the microwave energy, chosen for transmission, can pass unimpeded through clouds and precipitations. Each SPS could have been massive; measuring 10.5 km lengthy and 5.3 km wide or with an average area of 56 sq. km. The surface of every satellite would have been included with 400 million solar cells. The transmitting antenna on the satellite could have been approximately 1 km in diameter and the receiving antenna on the Earth's surface could have been about 10 km in diameter. In order to achieve a sufficiently concentrated beam, an exceptional deal of power must be collected and fed into a huge transmitter array. The power could be beamed to the Earth in the form of microwave at a frequency of 2.45 GHz.

CONCLUSION

Microwaves produce other functions such as large band width, smaller antenna size, sharp radiated beams and they propagate along straight lines. Microwave frequency in the range of 2-3 GHz are considered optimal for the transmission of energy from SPS to the ground rectennas site. Transmission or distribution of 50 or 60 Hz electric energy from the generation factor to the consumer end without any physical wire has yet to mature as an acquainted and feasible technology. The 50 Hz AC current tapped from the grid lines is stepped down to a suitable voltage level for rectification into DC.

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