Modulation method and apparatus to reduce EMI in a power converter

THE EXISTING PROBLEM

In switch-mode power converter circuits operated at a constant switching frequency, the electromagnetic inference (EMI) conducted and/or radiated from the circuit contains harmonics at integer multiples of the switching frequency.

Various switch modulation techniques have been reported to reduce the resulting EMI, however they are generally limited to converters containing a single switching device, which severely limits their applications and/or may be complicated to implement.

OUR SOLUTION

Is a novel modulation technique which is simple to implement and also suitable for use with H-bridge switch-mode converters (4 switching devices, 3 circuit states).

The modulation method results in approximately 10 dB suppression of EMI, and is particularly suited for use in impedance-source converters, i.e. an emerging H-bridge based converter topology with several advantages over other converters, including a large voltage gain.

APPLICATIONS

✓ Switch-mode converters and motor drives, including those requiring an isolation transformer.
✓ Well-suited to renewable energy applications (large voltage gain), biomedical electronics (low interference), compact high-frequency converters (commercial and portable electronics).

INVENTORS

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INTELLECTUAL PROPERTY POSITION

Australian Patent Application:
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PUBLICATIONS


WOULD YOU LIKE TO KNOW MORE?

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