voltage remains at 340 V when the source is not activated while multiplexing for the second time.

In this study, PWMs in the first cycle have 2 times of the periods according to the second cycle. Therefore, the increases on the output voltage are also percentages. According to a result of the circuit structure operation and results, it provides superiority to conventional converters. Compared to the cascade and the new generation of DC-DC converters, it has less circuit elements and less cost while the proposed converter has a different working order and hardware than them [18-20]. At the same time, it offers a new method of working for a different circuit structure and mathematical models.

By arranging the switching time to 0.001 sec, the switching frequency is increased and the load currents and voltages are shown in Fig. 10 for different load values.

For the simulations from 1ohm of load to 20 ohm of load, the L_1 and L_2 are replaced with 0.1mH in the converter circuit, while C_1 and C_2 are changed to 30 mF. When the circuit is operated for the 20 ohm load, the voltage on the load reaches 600 V and the current value is 30 A. While the circuit is operated for the 10 ohm load, the voltage on the load reaches 450 V and the current value is 45 A. At the 10 ohm load, according to the 20 ohm load, the current value is an increase of 15A, while a decrease of 150 V occurs. While the circuit is operated for the 5 ohm load, the voltage on the load reaches 340 V and the current value is 68 A. At the 5 ohm load, according to the 10 ohm load, the current value is an increase of 23 A, while a decrease of 110 V occurs. When the circuit is operating at the 1 ohm of load, the current and voltage values are 150 A, and 150 V. According to these results, the proposed circuit provides different current and voltage values for different loads.

4 CONCLUSION

This article described the structure of the multi DC-DC converter. The circuit structure of the converter, which has a more advanced structure than the conventional DC-DC converter structure, has been described and simulation studies have been made for this circuit structure. The results obtained from the proposed circuit were compared with the results obtained from the conventional DC-DC converter. While the 50-volt of the dc input voltage was increased to 310 V with the conventional DC-DC converter, the input voltage was increased to 380 volts with the proposed circuit. This was achieved through the current storage by operating in different time segments of two different inductors on the same circuit structure. Additionally, the circuit was operated for different loads using different switching times. When the circuit was operated for the 20 ohm of load, the voltage on the load reached 600 V and the current value was 30 A. While the circuit was operated for the 10 ohm of load, the voltage on the load reached 450 V and the current value was 45 A. At the 10 ohm of load, according to the 20 ohm of load, the current value faced an increase of 15A, while a decrease of 150V occurred. While the circuit was operated for the 5 ohm of load, the voltage on the load reached 340 V and the current value was 68 A. At the 5 ohm of load, according to the 10 ohm of load, the current value faced an increase of 23A while there was a decrease of 110V at the load. When the circuit was operating at the 1 ohm of load, the current and voltage values were 150 A, and 150 V. Thus, the DC-DC converter structure with superior new hardware and a mathematical model has been successfully implemented.

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