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High-efficiency industrial 130 kW cw solid-state RF amplifier for 1.3 GHz

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A new 1.3 GHz solid-state high-power RF amplifier (SSA) has been built for the Lighthouse project in close cooperation between Cryoelectra and RI Research Instruments. The amplifier was developed by Cryoelectra as a scalable compact system with an RF-power density of 40 kW/m². Its industrial design is very reliable and easy to maintain. The SSA delivers a continuous RF output power of more than 130 kW with a wall-plug efficiency of 64% and with very low phase noise.

The power is generated by 40 patented RF amplifier modules each containing 8 GaN transistor units. Their outputs are combined by a coaxial 8-way combiner in the center of the module. Each module is connected to the 4x10-way cable-free wave guide combiner network and can be exchanged in case of faults within minutes thanks to quick connectors. A sophisticated control system continuously monitors the state of all components for reliable machine and personnel protection.

Funding Agency

Footnotes

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