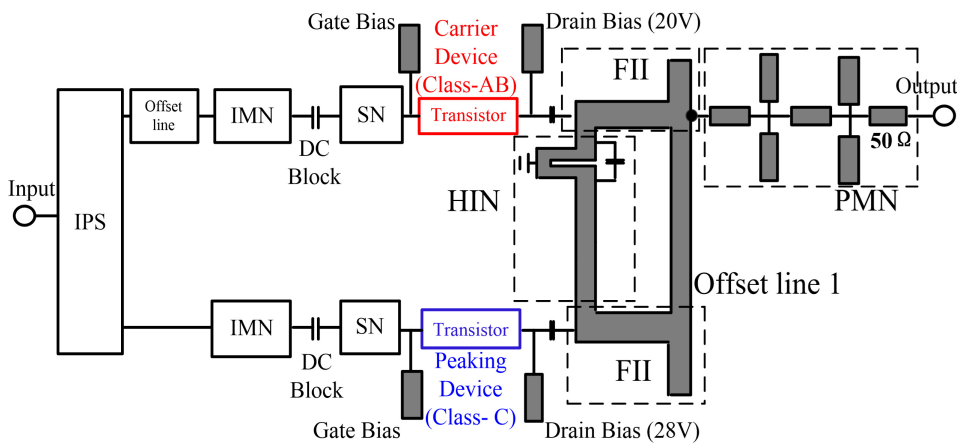


Doherty Power Amplifier Circuit

Communications & Information

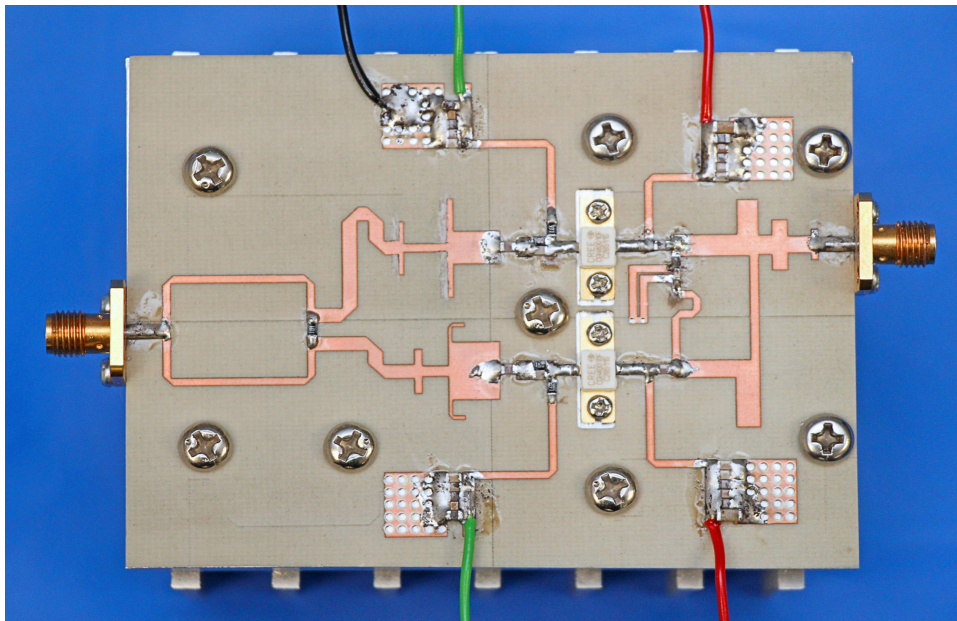
Digital Broadcasting, Telecommunication and Optoelectronics



IP Status
Patent granted

Technology Readiness Level (TRL) ?

6



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Opportunity

In modern and future wireless communication systems, the use of more spectrally efficient modulated signals with high peak to average power ratios are used. These signals causes a large variation in the instantaneous output power. Radio frequency (RF) power amplifiers in base stations of these wireless communication systems are required to maintain high efficiency over a larger dynamic range which is a challenge. With 5G Mobile Radio already upon us, in the near future we will see further expansion in the

Follow-on



number of base stations that use smaller cell sizes. It is envisaged that there will be an increase in the number of base stations by 5-10 times. With such a large increase there is a need for more efficient RF power amplifiers.

Technology

The technology is based around the Doherty topology which has seen a resurgence in recent years. This topology is used in most base stations because of its efficiency even with the more spectrally efficient modulation formats that have a high peak to average power ratio of 6dB. The invention here is based on a new method of harmonic injection that uses a new harmonic injection network (HIN) to significantly improve the efficiency. This is achieved by inserting an additional path for the harmonic that allows for wideband operation and with a larger output dynamic range of 9dB. This larger output dynamic range is necessary for present and future 5G base stations.

Advantages

- High Efficiency
- Broad Bandwidth

Applications

- Mobile Radio Base Station
- Broadcasting

