

Flexible RF MW Evaluation Kit: 2.45 GHz RF generator and Amplifier**Leaflet****DIMAC RED S.p.A.**

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1. Scope

Scope of this document is to provide an over view of the capabilities of the Solid State RF Technology in Industrial, Medical and Scientific Applications.

2. Abstract

Solid state Technology has started to increase the volumes on the market since the costs of the employed transistors started to decrease. Despite the overall costs including PCB, circuitry and assembly is still higher than Magnetron technology, the key advantages in terms of MTBF, flexibility and performance allow for overwhelming results.

There are many potential Customers interested in understanding the performance and the state of the art of solid state RF microwave generators/amplifiers

The interest is for Scientific applications, Medical applications and Industrial Applications, typically:

- *Food Processing*
- *Industrial Heating*
- *Plasma Generator*
- *Medical*
- *Microwave Furnaces*
- *Particle Accelerators*
- *RF Lighting*
- *Microbiological Testing*
- *Wideband data transmission system*

This technology obtains best results in the Bandwidth range 5MH<-> 3 GHz. This brochure focuses the attention on an Evaluation Kit working at 2.45GHz.

The high level architecture of this System, consisting of a Generator + RF driver + an Amplifier has been studied in order to allow the user for maximum flexibility.

Further details are available in the websites of multiple Vendors. For Example:

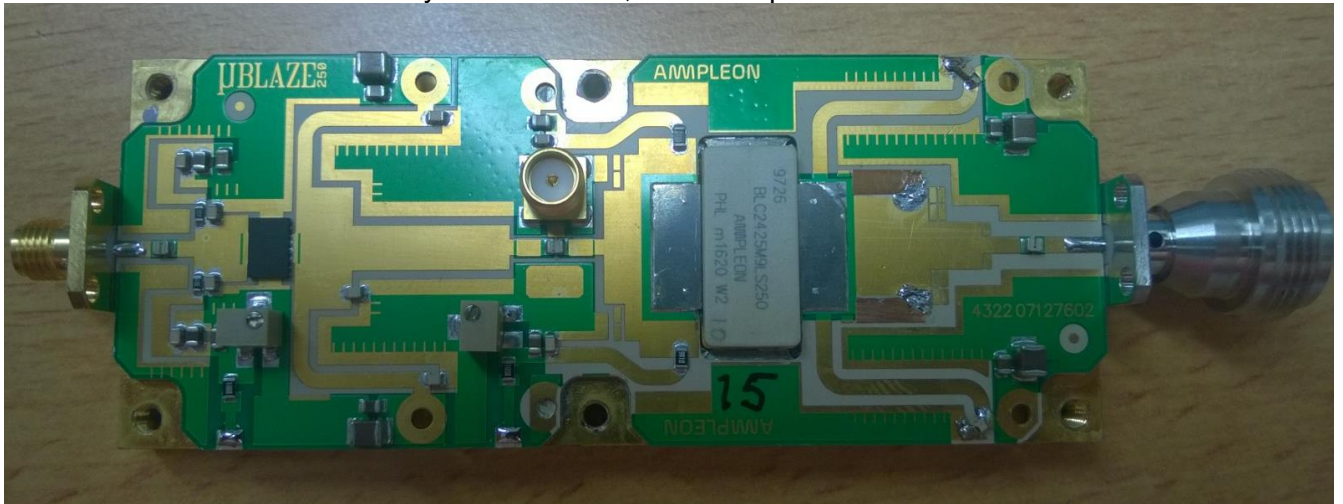
<http://www.ampleon.com/applications/rf-energy.html>

<http://www.nxp.com/products/rf/rf-power-transistors:RF-POWER-TRANSISTORS>

http://www.nxp.com/assets/documents/data/en/white-papers/VOLUMETRIC_COOKING_GOJI_TECH.pdf

<http://www.infineon.com/cms/en/applications/>

Dimac and Partners use a variety of Transistors, from multiple Vendors.



Example of PCBA (Amplifier Section)

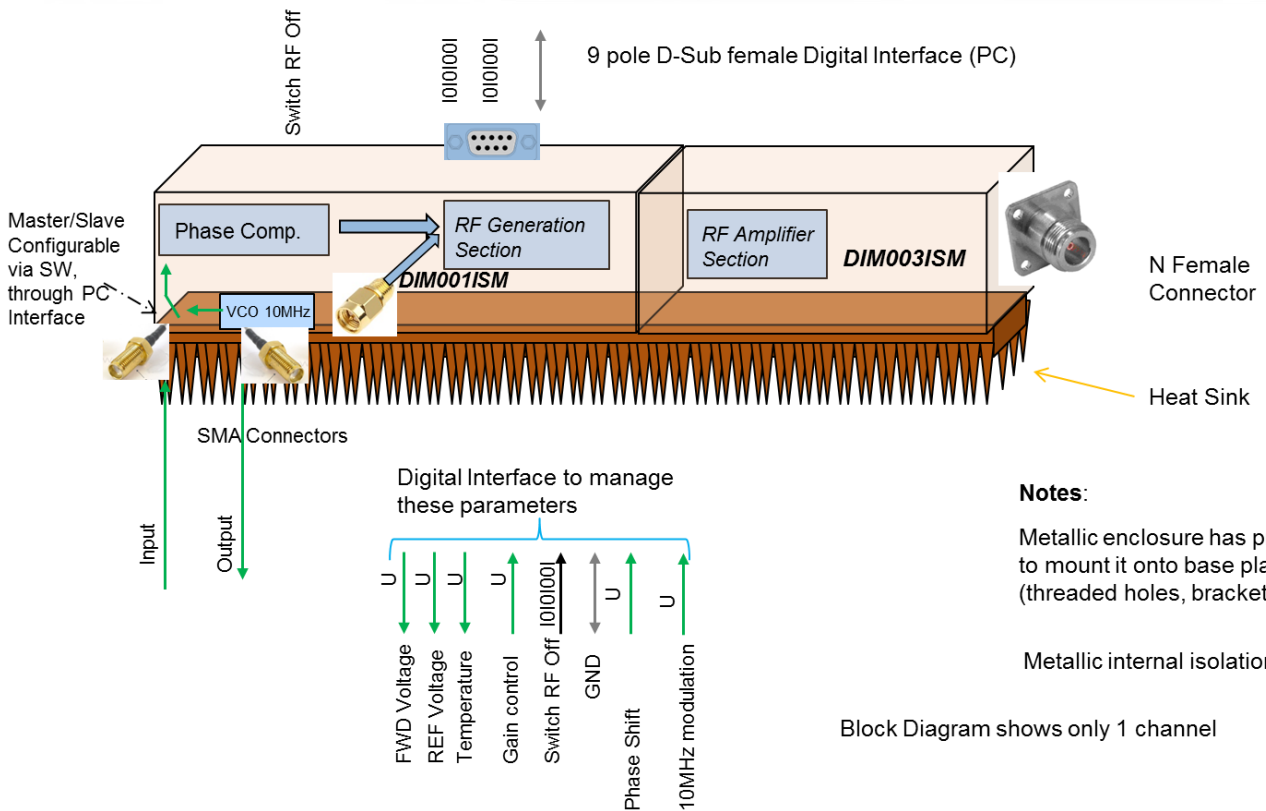
3. General Description

This RF power generator is designed for ISM applications. The technical elements were selected in order to allow the Developer the highest possible level of flexibility. The basic element is a Generator + Amplifier Unit, which can be connected to other identical modules in a daisy chain architecture, so to have a multi sources RF System. The Phase, Frequency and Amplitude of each module can be individually adjusted. Besides, the modules can be configured from a PC through the RS232 interface in order to work either synchronously or asynchronously, in a theoretically unlimited chain.

The flexibility on the synchronization, on the frequency, on the phase and on the Amplitude allows the User to evaluate the effect of the spread of the RF Energy on the load, in the Customer's specific application.

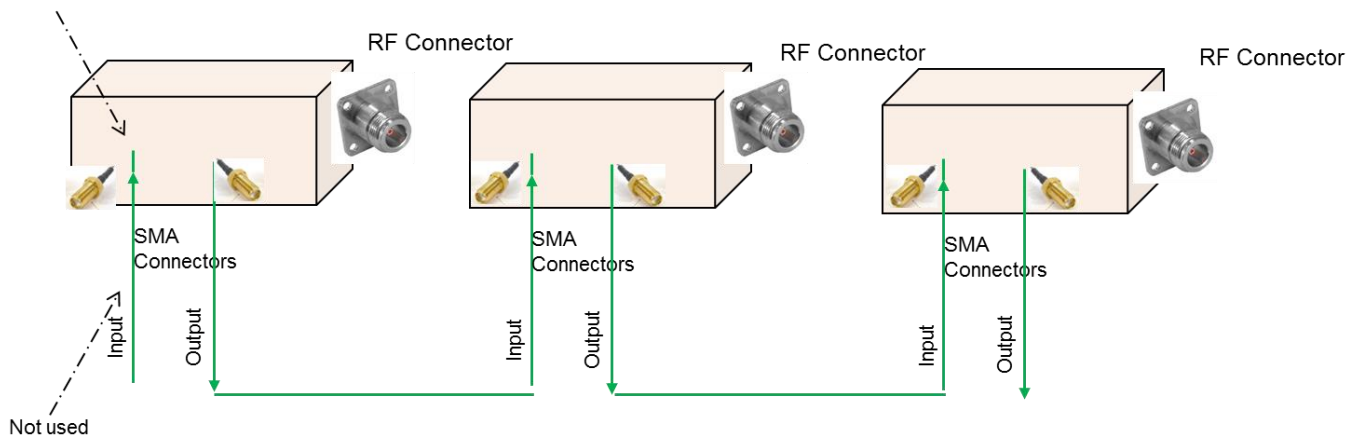
The generator section of the module is designed in order to collect the 10MHz reference clock either from the internal VCO or from an external source. The external source can be an external instrument, equipment or another module itself.

The block diagram reported below provides a better highlight of the entire system.



Architecture and Block Diagram Overview

Clock Free Run On /
 Clock out on
 Configurable via SW,
 through PC Interface



Example of a coherent, three modules setup