

# A 12 KW wideband power amplifier for strong field levels

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**Abstract**— Many EMC applications (automotive, military...) request more and more field level in order to realize immunity testing. Prana has developed and manufactured a new strong wideband power amplifier in the bandwidth 100 kHz - 225 MHz, named GN 12000.

**Keywords:** power amplifier, wideband, strong field, EMC, immunity

## I. INTRODUCTION

Prana, French company, belongs to the worldwide leading manufacturers of RF Power Amplifiers for Broadband applications such as EMC testing, instrumentation and radio-communication. The Prana product lines are all solid state and cover a frequency range from 10 kHz to 6 GHz with power levels up to 12 kW: GN 12000.

This amplifier provides a CW typical power of 12 kW between 100 kHz and 225 MHz. The class A of the amplifier allows providing the output power at 1 dB of compression with a harmonic ratio less than -20 dBc.

Integrated in an EMC test system, the goal is to obtain an electric field level higher than 150 V/m in the frequencies (100 kHz – 225 MHz).

## II. GN 12000 PRESENTATION AND MEASUREMENTS



Figure 1. Prana amplifier GN 12000

The GN 12000 design is modular and modern (figure 1). It is composed of 16 identical power modules, 4 intermediate combiners, 1 final combiner and 1 coupler. The GN 12000 was designed for minimal maintenance: easy accessibility of all sub systems and all the modules can be changed each other. This design allows a fast and efficient after sales service in the world.

One power module provides a typical power of 1 kW. The power modules are composed of LDMOS transistors polarised in Class A in order to obtain both an important output power and a high linearity.

The GN 12000 was tested in the Prana laboratory with a 50 ohms water cooled load. The output power has been measured at 1 dB (green curve – figure 2) of compression and 3 dB of compression (red curve - figure 2).

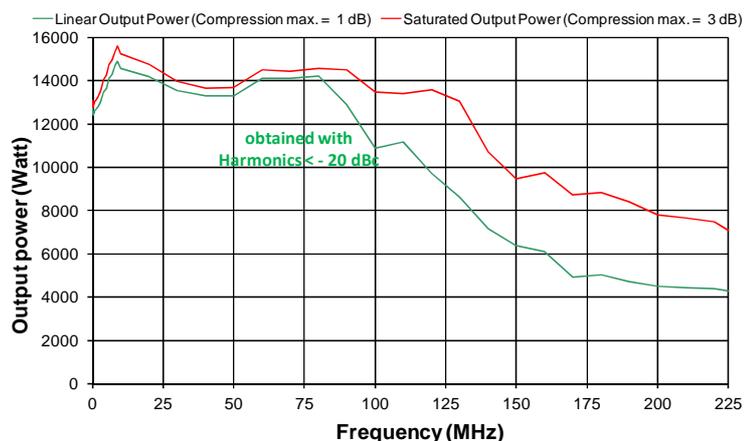


Figure 2. Output power at 1 dB and 3 dB of compression

This high power level is dedicated to EMC application for automotive. It was also tested in a famous automotive laboratory in German. The results will be presented in the final paper.

## III. CONCLUSION

This amplifier GN 12000 was tested in different Automotive EMC test systems: combined to a stripline antenna and to a Log-periodical Antenna. These tests validate the GN 12000 capacity to generate strong field levels (> 150 V/m) and this reliability with high mismatched loads.