# RF POWER AMPLIFIER

RF1100

## Broadband 80MHz – 1GHz at 10w continuous output

**A fixed gain, low distortion power amplifier with excellent stability over a wide range of VSWR.**

- **Simple to use**
- **100% mismatch tolerance**
- **Will generate fields for testing to IEC61000-4-3**
- **Safety interlock and thermal shutdown included**
- **Exceptionally small package**

The Laplace power amplifiers are air cooled RF broadband amplifiers which are designed for a wide range of applications. They feature good linearity and wide bandwidth together with high gain. The solid state booster stage is of type A / B (push pull) which combines excellent stability with good intermodulation behaviour.

The performance and characteristics are matched to the requirements of EMC / EMI compliance testing to standard IEC61000-4-3 for RF immunity.

Although specified from 80MHz, these amplifiers are usable down to 30MHz with very little degradation in performance specification.

**STABILITY.** Automatic amplification control. Internal feedback circuitry ensures output accurately tracks the input level under a wide range of operating conditions.

**PERFORMANCE.** Superb broadband performance exceeding the 80MHz – 1GHz immunity testing band and with a pulse response optimised for IEC61000-4-3 requirements.

**PROTECTION.** Output circuit fully protected by temperature sensors and bad VSWR. Fail safe operation with external interlocks which will force the RF1100 output to standby mode if triggered.

**Credence Technologies, Inc.**

www.credencetech.com

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IEC61000-4-3 immunity testing requires that the EUT (equipment under test) operates satisfactorily when subject to a strong electromagnetic field.

This requires a frequency scan at a certain fixed level of field strength (specified by the standard). The 'scan' will comprise a series of 'steps' in frequency. Each step is specified as a percentage of current frequency value.

At each step, the frequency is held, the level adjusted to the required V/m as measured by a field sensor, a prescribed modulation mode is initiated and then the conditions held for a 'dwell' time. The EUT should be monitored to detect faulty operation during the test.

The requirements for the power amplifier are that it can deliver adequate power to the antenna to achieve the V/m specified (usually 3V/m for domestic and 10V/m for industrial products) with low distortion and cope with the modulation requirements. These demand good linearity and pulse response to ensure truly compliant testing.

The RF1100 is specifically tailored to these requirements and offers a no-hassle solution.

## Immunity Test System Components

### ▼ RF Power Amplifier

The RF1100 is a fixed gain 'building block' which will boost any suitable signal to the levels required to drive an antenna or cell in order to create the specified V/m field strength. The resultant maximum field strength will be related to the efficiency of the antenna / cell combination. The RF1100 should deliver 10V/m minimum in small well-matched cells and 3V/m in any efficient test chambers.

### ▼ Synthesiser

The RF1100 will work with any suitable standard signal generator or synthesiser. The Laplace RF1000 is recommended as this is entirely compatible and offers the simplest of fully compliant solutions. This is PC controlled via the serial port. Generates the required signals and controls the amplitude to produce required field strength inside cell. Also interfaces simple EUT status signal back to PC and generates simple 'prompt' signal to EUT under PC control.

### ▼ Test Cell or Chamber

Signals of such high field strength must be 'contained' to avoid interference (and for the protection of the test personnel!) Either specially lined rooms, with or without 'mode stirrers' or cells such as the GTEM type are used. Cells tend to be restricted in the size of EUT they can accept. The LaplaCell from Laplace Instruments offers a particularly efficient table top solution for products up to 35cm cube and is ideally matched to the RF1100.

## Ordering Information

| | |
|---|---|
| Order code: | RF1100 |
| Includes: | RF1100 power amplifier<br>Mains cable, User manual<br>All mating connectors |

## SPECIFICATION

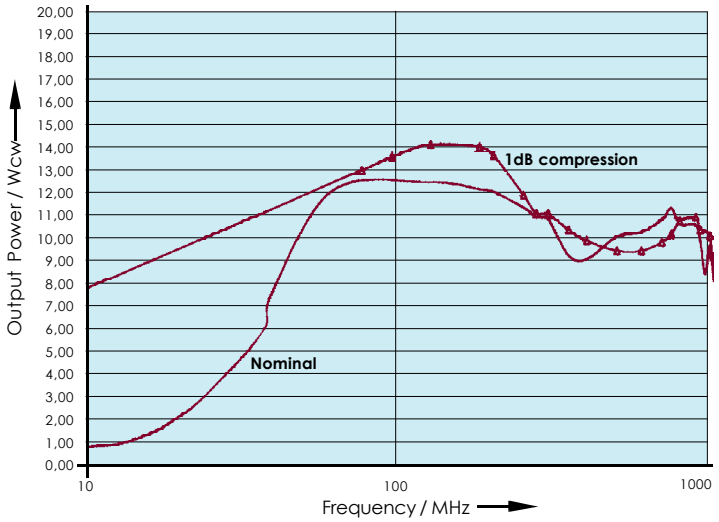
### Electrical

| | |
|---|---|
| Bandwidth: | 80MHz - 1GHz |
| Output level: | 40dBm (± 1.0dB) |
| Power level: | nom: 10W<br>max.: 25W<br>See plot below for details |
| Non linearity: | nom: ±1.0dB<br>max.: ±1.5dB |
| Input for nom output power: | 0dBm (1.0mW) |
| Max. gain: | 43dB |
| Input Impedance: | 50ohm |
| Input VSWR: | 1.5 : 1 |
| Input connector: | BNC on front panel<br>SMA on rear panel |
| Output Impedance: | 50ohm |
| Mismatch tolerance: | 100% |
| Output connector: | N type on front panel |
| Operating mode: | A/AB |
| Modulation: | 100% |
| Cooling: | Active (internal fan) |
| Interlocks: | External contact input.<br>Front panel push button<br>Status indication<br>Output for system controller |

### General

| | |
|---|---|
| Weight: | 7kg |
| Size: | 300 x 96 x 240mm |
| Supply voltage | 88-132VAC or 176-264VAC<br>Factory selected. 50/60Hz |
| Total power: | 100W nom, 150W max. |

## Graph to show output power nominal and at 1dB compression

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