

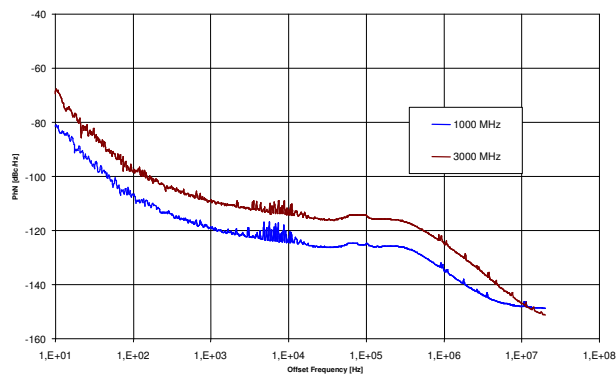
## Product Brief

### 9 kHz to 3300 MHz Signal Generator **APSIN3000**

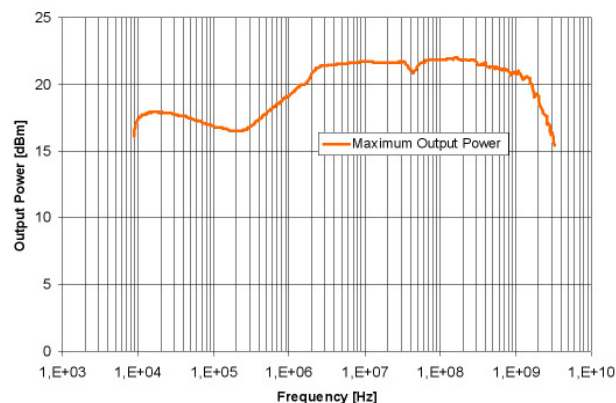
The APSIN3000 is a compact, high-performance signal generator with wide frequency coverage from 9 kHz to 3300 MHz, sub-Hz resolution, and broad power range up to 13 dBm. It provides excellent signal quality with low phase noise, good harmonic suppression and low spurious. It has an internal OCXO reference and can be locked to an external reference. The APSIN3000 is available with an optional internal battery and weighs less than 3 kgs.



#### SSB Phase Noise at 1 and 3 GHz



#### Maximum Output Power



#### Features

- Internal high-stability reference (OCXO)
- Easy remote control from PC (GUI, Web-browser)
- Extensive software (DLL, SCPI driver)

#### Specifications

- 9 kHz to 3.3 GHz (typical 3.4 GHz)
- 1 mHz resolution
- <2 ms frequency/power switching
- Phase noise -124 dBc/Hz @ 20 kHz offset from 1 GHz carrier
- >40 dB harmonic suppression
- Output power -45 to +13 dBm
- Reference frequency input and output

#### Applications

- High stability local oscillator
- Automated test systems (ATE)

#### Options

- **B3**: Internal rechargeable battery operation
- **PE**: Extended power range (-90 to +16 dBm)
- **HC**: Front panel with rotary knob

## Key Specifications

| Parameter                               | Symbol        | Min.  | Typ.         | Max.      | Units       | Note                           |
|-----------------------------------------|---------------|-------|--------------|-----------|-------------|--------------------------------|
| <b>Frequency range</b>                  | $f$           | 9 kHz |              | 3300      | MHz         |                                |
| resolution                              | $f_{step}$    |       | 0.001        |           | Hz          | 1                              |
| Phase resolution                        | $\phi_{step}$ |       | 0.1          |           | deg         |                                |
| Settling time                           |               |       |              | 200       | $\mu$ s     |                                |
| Frequency update rate                   |               |       | 2            |           | ms          |                                |
| <b>SSB Phase noise</b>                  |               |       |              |           |             |                                |
| at 20 kHz from carrier                  |               |       | -124         |           | dBc/ Hz     | 2                              |
| Wideband noise                          |               |       | -150<br>-155 |           | dBm/Hz      | $f < 1.5$ GHz<br>$f > 1.5$ GHz |
| <b>Total jitter</b>                     |               |       | 120          |           | fs RMS      | 3                              |
| <b>Power level</b>                      |               |       |              |           |             |                                |
| Range                                   | $P_{out}$     | -45   |              | +13       | dBm         |                                |
| Resolution                              |               |       | 0.5          |           | dB          |                                |
| Level uncertainty                       |               |       |              | $\pm 1.2$ | dB          | 4                              |
| Output impedance                        |               |       | 50           |           | Ohms        |                                |
| <b>Spectral purity</b>                  |               |       |              |           |             |                                |
| Output harmonics                        |               |       | -45          | -35       | dBc         | 5                              |
| Sub-harmonics                           |               |       | -70          |           | dBc         |                                |
| Non-harmonic spurious                   |               |       |              |           |             |                                |
| $f < 400$ MHz                           |               |       | -60          |           | dBc         |                                |
| $f > 400$ MHz                           |               |       | -70          |           | dBc         |                                |
| <b>Reference frequency input</b>        | $f_{ref}$     | 1     | 10           | 100       | MHz         | 6                              |
| Input level                             |               | -8    | 0            | +10       | dBm         |                                |
| Maximum deviation                       |               |       |              | $\pm 1.0$ | ppm         |                                |
| Input impedance                         |               |       | 50           |           | Ohms        |                                |
| <b>Internal reference frequency</b>     |               |       | 100          |           | MHz         |                                |
| Temperature stability                   |               |       |              | $\pm 100$ | ppb         | 0 to 50 °degC                  |
| Aging 1 <sup>st</sup> year              |               |       | 0.5          |           | ppm         |                                |
| Aging per day (after 30days operations) |               |       |              | 5         | ppb         |                                |
| Warm-Up time                            |               |       | 5            |           | min         |                                |
| Output of internal reference            |               |       | -3<br>50     |           | dBm<br>Ohms |                                |

### Notes:

1. depending on output frequency
2. at  $f=1$  GHz output carrier frequency
3.  $f=1$  GHz, jitter BW from 10 Hz to 20 MHz
4.  $-40$  dBm  $< P_{out} < +10$  dBm
5. at output connector,  $P_{out} < +10$  dBm;  $3000$  MHz  $> f > 10$  MHz
6. must be integer  $N \cdot 1$  MHz