10 kHz to 550 MHz Signal Generator With FM Deviation Meter

- **Erogomic User Interface**
- **Extensive Self Diagnostics and AutoCal®**
- **Modular Contruction**
- **IEEE 488 Interface: Standard Feature**

Advanced User Interface

The Wavetek Model 2405/2407 is a dual microprocessor controlled synthesized signal generator that both increases productivity and decreases learning curves through its sophisticated user interfaces. The GPIB programming language is in an English language format utilizing the Wavetek minimum uniqueness format. An extensive set of internal diagnostic features allows isolation of potential trouble spots down to the board level without opening up the instrument.

Advanced PLL/DDS Hybrid Synthesis

The Wavetek 2405/2407 combines fractional division phase lock loop techniques with direct digital synthesis for a wide variety of frequency step sizes. The 2405/2407 covers the frequency range of 10kHz to 550 MHz, has an RF output range of +13 to -127 dBm, and exhibits an output accuracy of ±1.5 dB. The user is free to fine tune the level accuracy by adding more level calibration points

through a GPIB diagnostic feature. Other standard features include very broad peak FM deviation; 16 standard stored settings optionally to 100 settings, wide AM bandwidth of 50 kHz, reverse power protection, and external clock input/output.

Easy Service Construction

Construction of the instrument is based around a fully modular design. Each module can be replaced or upgraded with no dependent interaction with the surrounding modules. This provides the simplest of field service programs and allows customer upgrades and options to be installed on site. There is no need to return a unit for extensive and expensive upgrade kits.

Enhanced Calibration

AutoCal® of the instrument can be initiated both from the front panel and through the IEEE-488 bus. Once the instrument is put in an application, it is

intended to stay in place. A state-of-the-art error tracking system allows user read out of the calibration error correction data. This provides statistical process control of the instrument's aging cycle to predict and schedule maintenance instead of handling maintenance on an emergency basis.

Meter

The FM Deviation Meter measures deviations from 0 to 500 kHz.

Long Term Warranty

The Wavetek 2405/2407 comes standard with a two year warranty. Wavetek is committed to supply their customers with the most reliable instrumentation available on the market today.

SPECIFICATIONS

Frequency

Range
0.01 - 550 MHz

Resolution
8 digits
10 Hz

Frequency Stability (0-50° C)
2.5 ppm standard
0.5 ppm optional
0.1 ppm optional

Frequency Stability (Aging)
<1ppm/year

Switching Speed
200 ms ±100 Hz of final value in CW,
changes <10 kHz in FM,
typ. 100 ms

Warm-Up Time
1 hour

External Reference
10 MHz

RF OUTPUT

Impedance
50 Ω (SWR <1.4:1 @ output level <-3dBm
75 Ω   (2475 Only)

Output Connectors
Type "N"
Type BNC (2475 Only)

Output Level Range
-127 to +13 dBm

MODULATION

Types
AM, FM

Internal Source
400 Hz, 1 kHz

External Source
AM Frequency Response (0-50%)
10 Hz to 50 kHz

AM Resolution
0.1%
AM Accuracy,(0-90%)
±1% Full Scale(+5% of Reading)

AM Range
0-99.9%

AM Distortion
<5% (<90% AM)
<3% (<70% AM)
<1.5% (<30% AM)

Output Resolution
0.1 dB

Level Accuracy
±1.5 dB

Flatness
±1 dB

EMI/RFI Leakage
<1.0 µV into a 2 turn 1 inch diameter loop,
1 inch from any surface (@ 550 MHz)

SPECTRAL PURITY

Harmonics
For CW > 10 MHz <-30 dBc
For CW < 10 MHz <-26 dBc
Sub-Harmonics
None

Non-Harmonics

Spurious (>5 kHz from carrier)

<-50 dBc

Phase Noise @ 500 MHz
10 kHz offset:
-107 dBc guaranteed
20 kHz offset:
-113 dBc guaranteed
Residual AM, Mod Off
<-60 dBc, 50 Hz to 15 kHz

Residual FM, Mod Off
<50Hz RMS, 50 Hz to 15 kHz

FM Rate
50 Hz to 100 kHz (3dB BW)

FM Resolution
100 Hz for FM <100 kHz
1 kHz for FM >100 kHz

FM Accuracy
±5% of indicated setting at 1 kHz or
400 Hz rate excluding residual FM

FM Deviation Range
0.01 MHz <CW <1 MHz:0 to10 kHz
1 MHz<CW<3 MHz: 0 to 100 kHz
3 MHz <CW <137.49999 MHz: 0 to 1 MHz
137.49999 MHz <CW <275 MHz:
 0 to 500 kHz
CW >275 MHz:0 to 1 MHz

FM Distortion

Internal Source
<2% harmonic distortion at 1 kHz or
400 Hz rate, FM <100 kHz peak

External Source
<0.5% at 1 kHz or 400 Hz rate,
FM <100 kHz peak

Front Panel Control

Type
Push buttons, GPIB
Reverse Power Protection
50 watts

GPIB (Standard)
Interface

GPIB IEEE-488-1978,1987
Functions
T6,L4,SH1,AH1,RL1,DC1,DT1,E2,SR1,TE0,
LE0,PP0,C0

FEATURES

16 nonvolatile stored settings standard
Optional 100
Front Panel Programming Prog of
GPIB address
Power-on Confidence Check
AutoCal®

GENERAL

Dimensions
13.2 cm (5.2 in) High;
31.8 cm (12.5 in) Wide;
53.3 cm (21 in) Deep.

Weight
12.7 kg (28 lb)

Power
100, 115, 215 or 230 VAC ±10%

Environment
MIL-T-28800C
Class 5
95% Humidity, non condensing
Operating Temp. Range 0-50° C

FACTORY/FOB
Indianapolis, IN

ORDER INFORMATION

Model 2407 with
    Deviation Meter $4,995
Model 2405 without
    Deviation Meter $4,795
Model 2475 75Ω without
    Deviation Meter   **Consult Factory**
Option R01 0.5 ppm $175
Option R02 0.1 ppm $820

Specifications are subject to change.