

Performance Test

The procedure in this chapter allows the verification of the electrical performance of LTK-1000. These tests do not require access to the interior of the instrument.

Recommended test equipment

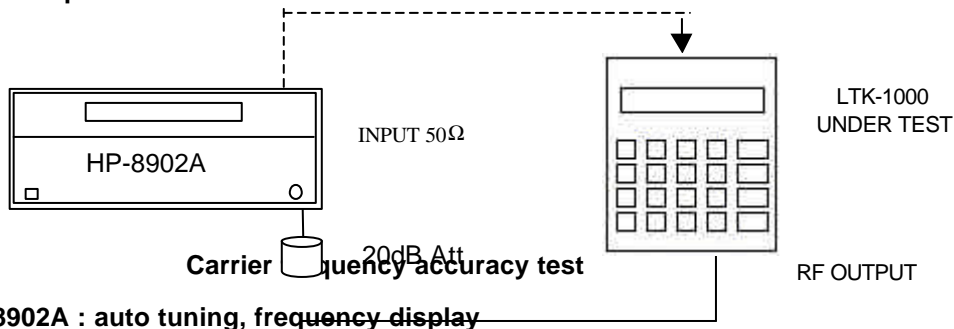
Description	Minimum specification	Model
Power meter	+/- 0.2dB, -60 to -20dBm, 100 KHz to 1 GHz	HP-436A/8481D
Spectrum analyzer	100 KHz to 3 GHz, up to -120 dBm	HP-8591E
Measuring receiver	0.2 to 1300 MHz, 0 to -125dBm, Freq Counter	HP-8902A
Oscilloscope	DC to 100 MHz, 5 mV to 1 V/div, Rise Time capability	TEK TDS360
Frequency Counter	+/- 0.1 ppm, 10Hz ~ 1GHz, 9 digit	HP-53181A
Attenuator	10W, 10dB Att, DC to 1GHz	Tescom 99910

1. Frequency Accuracy

Frequency : 457.575 MHz

Stability: Same as reference oscillator accuracy. Internal 1ppm 0 to 50degC

1. Test Setup



2. HP-8902A : auto tuning, frequency display

3. LTK-1000:

- 1). Connect 20dB Attenuators
- 2). Power On
- 3). Press **[FCN]** **[#]** **[4]** **[5]** **[ENTER]** , Use **[TAB]** Key to select "SERVICE OFF, RF ON"

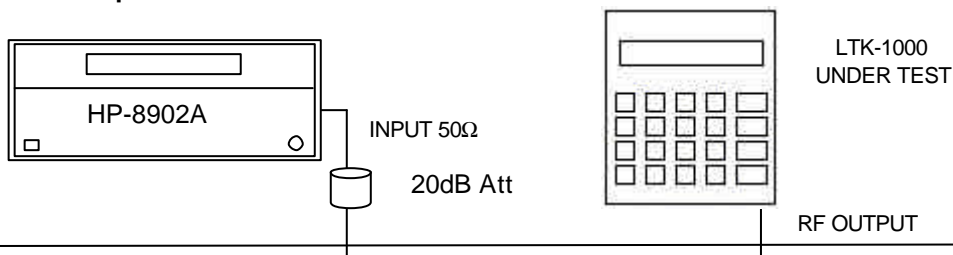
TC-1950A FREQ	Lower Limit	Actual	Upper Limit	Remarks
457.575 MHz	457.5748		457.5752	

2. RF Output Level Accuracy

RF level : 27dBm

Accuracy : +/- 1 dB

1. Test Setup



2. HP-8902A: Auto-tuning, RF Power

3. LTK-1000:

- 1). Connect 20dB Attenuators
- 2). Power On
- 3). Press **[FCN] [#] [4] [5] [ENTER]**, Use **[TAB]** key to select "SERVICE OFF, RF ON"

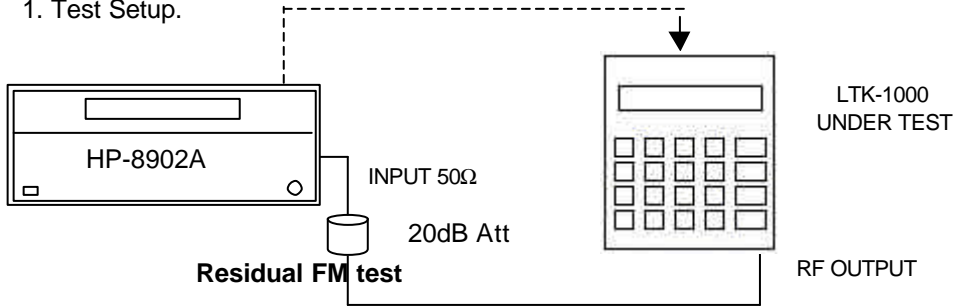
Level	LTK-1000 Output mod on/off (MHz)	Lower Limit	Actual	Upper Limit	Remark
26 dBm	Service Off	25		27	

3. Spectral Purity

3.1. Residual FM Noise

*RMS Noise : <10 Hz Typ. 300Hz~3KHz
<70Hz Typ. 50Hz~3KHz*

1. Test Setup.



2. HP 8902A: FM, RMS, Filter BW 300Hz~3KHz

3. LTK-1000:

- 1). Connect 20dB Attenuators
- 2). Power On
- 3). Press **[FCN] [#] [4] [5] [ENTER]**, Use **[TAB]** key to select "SERVICE OFF, RF ON"

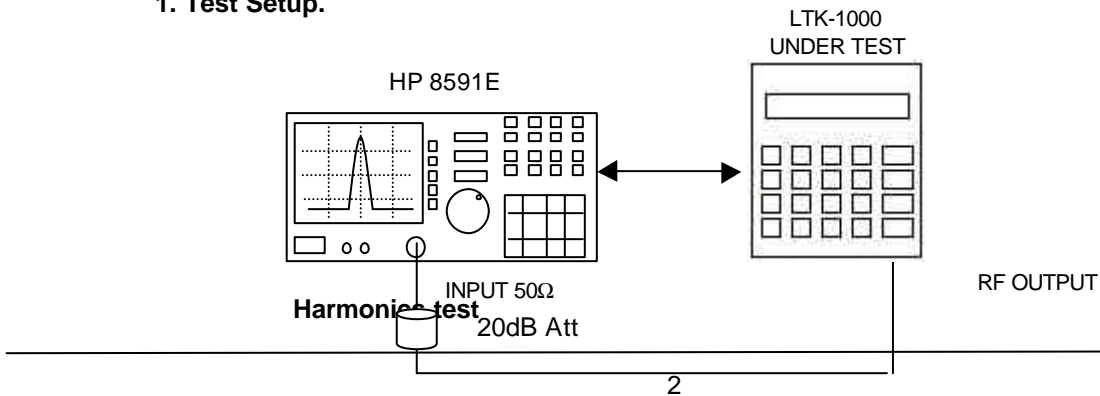
TC-1950A Signal Generator Residual FM

8902 Filter BW		Actual	Limit (Hz)	Remark
HPF	LPF			
300Hz	3kHz		10Hz	
50Hz	3kHz		70Hz	

3.2. Harmonic Spurious:

Harmonic Level at 2xFout: <-60dBc

1. Test Setup.



2. HP 8591E: Span= 500 KHz, RBW= 10 KHz, VBW=30 KHz.

3. LTK-1000:

- 1). Connect 20dB Attenuators
- 2). Power On
- 3). Press **[FCN] [#] [4] [5] [ENTER]** , Use **[TAB]** key to select "SERVICE OFF, RF ON"

LTK-1000 Harmonic Spurious

Fout (MHz)	Spurious(MHz)	Level (dBm)	Fout - 2*Fout	Limit	Remark
457.575	915.15			-60dBc	

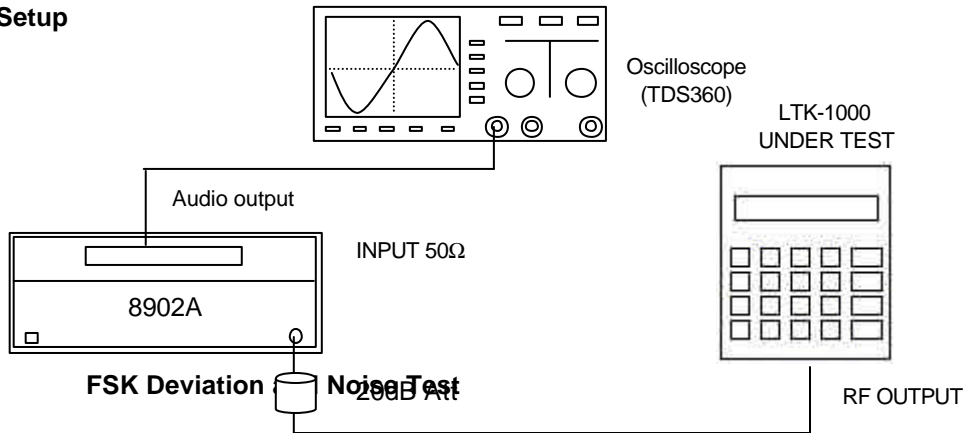
4. Modulation

4.1. FM(RECT) (Internal FSK Test Patterns)

Deviation Accuracy

Deviation: 4.5KHz,
Accuracy : +/-5% (4.275 < FM < 4.725) @4.5KHz

1. Test Setup



2. Equipment

HP-8902A: FM, AVG, HPF=OFF, LPF=15KHz
TDS360: 250us/div, 500mV/div Average : 16

3. LTK-1000

- 1). Connect 20dB Attenuators
- 2). Power On
- 3). Press **[FCN] [#] [4] [5] [ENTER]** , Use **[TAB]** key to select "SERVICE OFF, RF ON"

4. Read FM Deviation in RMS.

<u>DEV</u> (LTK-1000)	<u>Limit</u>
4.5KHz	4.5KHz+5%

Table: FSK Deviation Accuracy

Item	Lower	Actual	Upper	Remark
Deviation (AVG)	4.275		4.725	