IQBASE TRANSMITTER TUNE UP PROCEDURE
PERFORMANCE TEST

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

Recommended test equipment

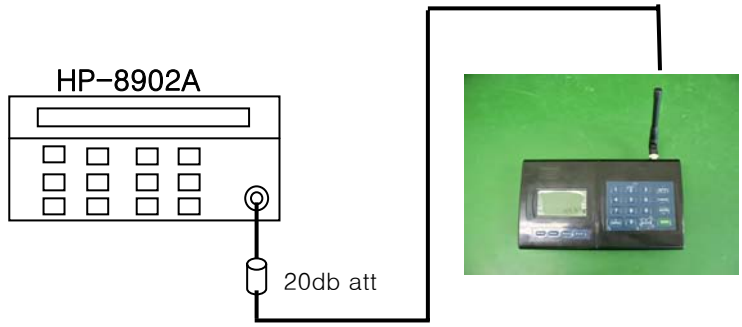
Description	Minimum specification	Model
Power meter	+ / - 0.2dB, - 60 to -20dBm. 100 KHz to 1GHz	HP-436A/8481D
Spectrum analyzer	100KHz to 12GHz, up to -120 dBm	HP-8591E
Measuring receiver	0.2 to 1300MHz, 0 to -125dBm, Freq Counter	HP-8902A
Oscilloscope	DC to 100MHz, 5mV to 1V/div, Rise Time capavility	TEK TDS360
Frequency Counter	+ / - 0.1ppm, 10Hz ~ 1GHz, 9digit	HP-53181A
Attenuator	10W, 20dB Att, DC to 1GHz	Tescom 99910

1. Frequency Accuracy

Frequency : 457.5750MHz

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

1.Test Setup (Connect IQBASE BNC Jack without antenna)



Carrier frequency accuracy test

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

3. IQBASE TRANSMITTER

1) Connect 20dB Attenuators

2) Power On

3) Setup key, enter, password 2386 key enter, Use # key to select " SYNC OFF, RF ON

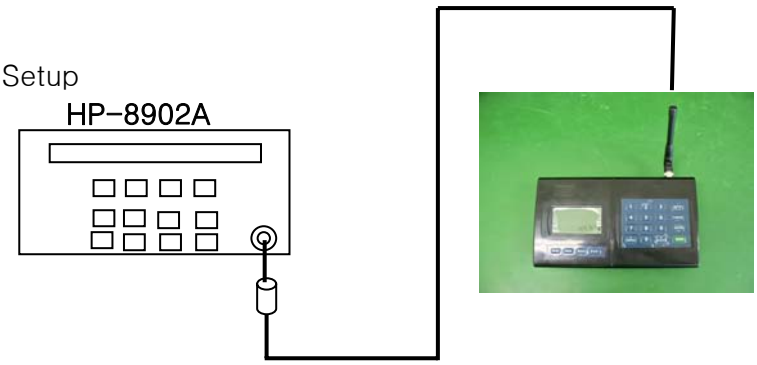
TC-1950A FREQ	Lower Limit	Actual	Upper Limit	Remarks
457.5750MHz	457.5748		457.5752	

2. RF Output Level Accuracy

RF level : 30dBm

Accuracy : +/-1dB

1.Test Setup



(Connect IQBASE BNC Jack without antenna)

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

3.IQBASE TRANSMITTER

1) Connect 20dB Attenuators

2) Power On

3) Setup key, enter, password 2386 key enter, Use # key to select " SYNC OFF, RF ON

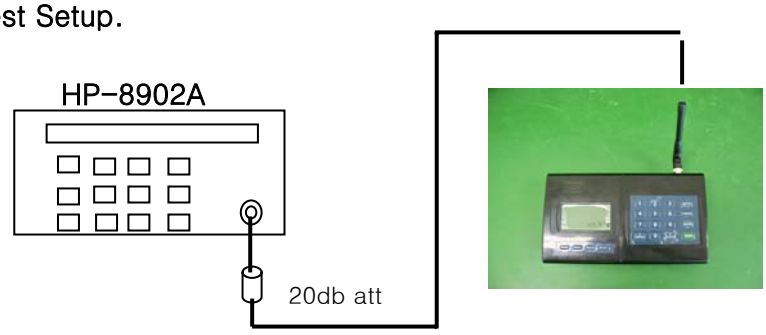
3. Spectral Purity

3.1. Residual FM Noise

RMS Noise : <10Hz Typ, 300Hz ~ 3KHz

<70Hz Typ, 50Hz ~ 3KHz

1. Test Setup.



(Connect IQBASE BNC Jack without antenna)

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

3. IQBASE TRANSMITTER:

1) Connect 20dB Attenuators

2) Power On

3) Setup key, enter, password 2386 key enter, Use # key to select " SYNC 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.

Harmonice test

(Connect IQBASE BNC Jack without antenna)

2. HP 8591E : Span = 500KHz, RBW = 10KHz, VBW = 30KHz.
3. IQBASE TRANSMITTER:
   1) Connect 20dB Attenuators
   2) Power On
   3) Setup key, enter, password 2386 key enter, Use # key to select " SYNC OFF, RF ON

IQBASE TRANSMITTER Harmonic Spurious

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

4. Modulation

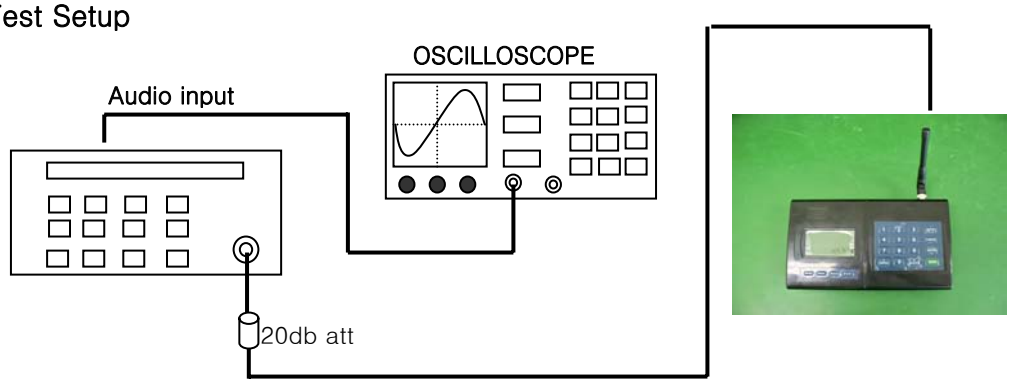
4.1. FM(RECT) (Internal FSK Test Patterns)

Deviation Accuracy

Deviation : 4.5KHz,

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

1.Test Setup



FSK Deviation and Noise Test

(Connect IQBASE BNC Jack without antenna)

2.Equipment

HP-8902A : FM, AVG, HPF=OFF, LPF=15KHz

TDS360 : 250us/div, 500mV/div Average : 16

3.IQBASE TRANSMITTER:

1) Connect 20dB Attenuators
2) Power On
3) Setup key, enter, password 2386 key enter, Use # key to select " SYNC OFF, RF ON

4. Read FM Deviation in RMS.

DEV(IQBASE)	Limit
4.5KHz	4.5KHz + - 5%

Table : FSK Deviation Accuracy

Item	Lower	Actual	Upper	Remark
Deviation (AVG)	4.275		4.725	