

CUBY-FCC 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.

1. Selected reason of the frequency :
=> Use were selected at random from the desired frequency band.
2. How to adjust the maximum output :
=> use capacitor, coil, trimmer (max output : 2W below)
3. Max output and Output Tolerance :
=> Max output : 33dBm
Output Tolerance : $-1\text{dB} \sim -2\text{dB}$

Recommended test equipment

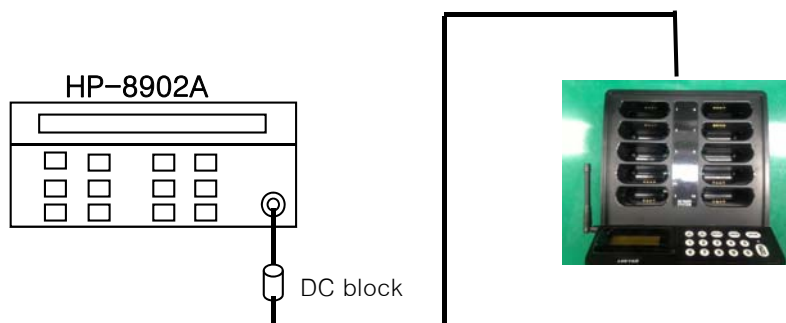
Description	Minimum specification	Model
Power meter	+ / - 0.2dB, - 60 to -20dBm. 100 KHz to 1GHz	HP-436A/8481D
Spectrum analyzer	100KHz to 12GHz, up to -120 dBm	HP-8591E
Measuring receiver	0.2 to 1300MHz, 0 to -125dBm, Freq Counter	HP-8902A
Oscilloscope	DC to 100MHz, 5mV to 1V/div, Rise Time capability	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

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

1. Test Setup (Connect CUBY-FCC RF Line without case)



Carrier frequency accuracy test

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

3. CUBY-FCC TRANSMITTER

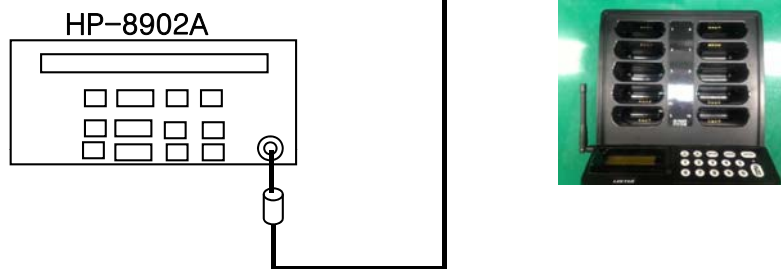
- 1) Push button
- 2) check frequency accuracy

2. RF Output Level Accuracy

RF level : 33dBm below

Accuracy : -1dB~ -2dB

1. Test Setup



(Connect CUBY-FCC RF Line without case)

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

3. CUBY-FCC TRANSMITTER

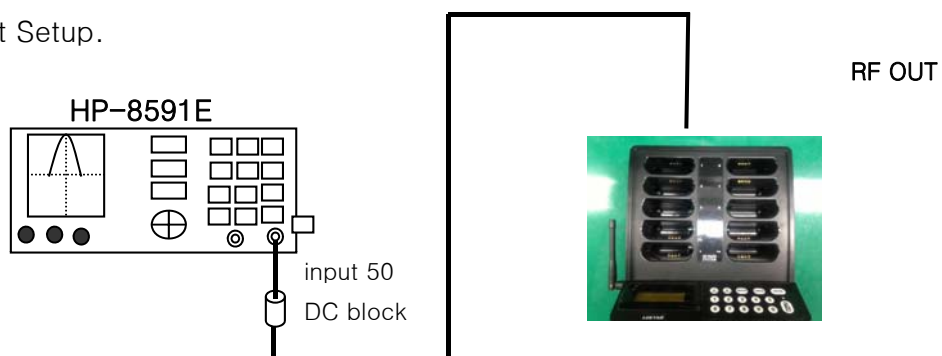
1) Connect DC block

2) Push button and check RF Level

3. Harmonic Spurious

Harmonic Level at $2 \times F_{OUT}$: $< -40\text{dBc}$

1. Test Setup.



Harmonice test

(Connect CUBY-FCC RF Line without case)

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

3. CUBY-FCC TRANSMITTER:

1) Connect DC block

3) Push button and check harmonic

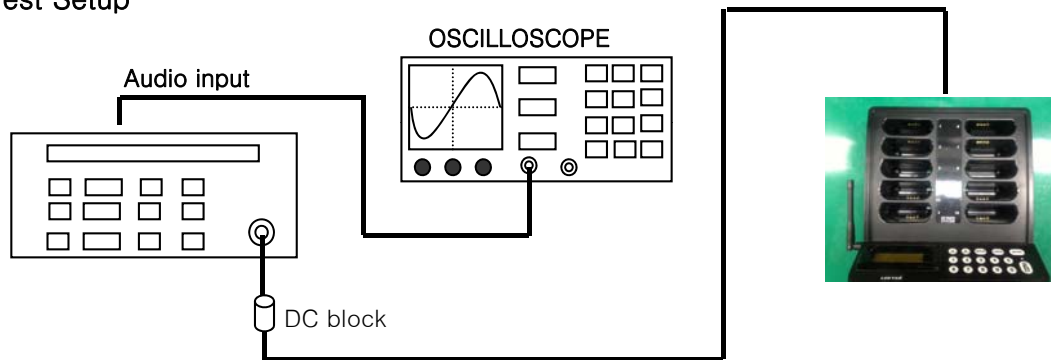
CUBY-FCC TRANSMITTER Harmonic Spurious

Fout(MHz)	Spurious(MHz)	Level(dBm)	Fout-2*Fout	Limit	Remark
457.5750MHz	915.15Mhz			-40dbc	

4. Modulation

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

1.Test Setup



FSK Deviation and Noise Test

(Connect CUBY-FCC RF Line without case)

2.Equipment

HP-8902A : FM

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

3. CUBY-FCC TRANSMITTER:

- 1) Connect DC block
- 2) Push button and check modulation