

WCS-999T

CIRCUIT DESCRIPTION

OUTLINE:

WCS-999T is a transmitter of Sony Wireless Microphone System, WCS-999.
This transmitter is operated within 913 – 914.3 MHz.

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As an example, suppose frequencies of CH1, CH2 and CH3 are 913.02MHz, 913.8MHz and 914.29MHz, respectively,

- The audio signal from the supplied lavalier microphone is amplified and restricted the amplitude at PRE. EMPASIS circuit and comp AMP circuit in IC1.
And it goes to VCO unit and is frequency-modulated at the modulation terminal.
- In VCO (Voltage Controlled Oscillator) unit, the oscillation, the modulation and the frequency control are made at Q1. At Q2 and Q3, the RF signal is amplified to make a necessary carrier output power.
- The basic frequency is decided by Channel selector SW (CH1, CH2 or CH3) as follows.
 - When CH1 and CH2 is selected, Q50 is on, and the oscillation circuit of Q51 oscillates 13.5356MHz of X51. (fX1, fX3)
 - When CH3 is selected, Q50 is off, and X51 is adjusted by L and CT2. The oscillation circuit of Q51 oscillates 13.5284MHz (fX2).
- In PLL of IC51, the basic frequency (fX1, fX2, fX3) is divided by 64 and the frequency from VCO is divided by 4,317 (if CH1) or by 4,323 (if CH2,CH3). They are compared in the phase and its difference is converted to the voltage after passing through LPF. It is fed back to VCO unit as the control voltage.
- By this PLL operation, the carrier frequency is locked to 913.02MHz, 913.8MHz or 914.29MHz that is 4,317/64 times or 4,323/64 times as high as the basic frequency (fX1, fX2, fX3).
- After passing through the attenuator and LPF, this RF signal is radiated as CH1; 913.02MHz, CH2; 913.8MHz or CH3; 914.29MHz.

The frequency of fX1, fX2, fX3 may vary for the specified transmission frequency of CH1, CH2 or CH3.