

TA-76XX Circuitry and devices statement



Circuitry for determining and stabilizing frequency:

The output frequency is generated by a VCO operating at twice the output frequency. This frequency is controlled by a integrated synthesiser. The output frequency is locked to a reference oscillator operating on 12.8MHz. This is a VCTCXO (Voltage Controlled Temperature Compensated Oscillator). The voltage control of the reference oscillator is used to calibrate the reference oscillator at the specified intervals.

Circuitry for suppression of spurious radiation:

The main means for suppressing unwanted emissions is the antenna filter placed after the power amplifier. This is a low loss, lowpass filter which suppresses harmonics and other unwanted components from the output signal.

In addition there is a tracking filter placed after the quadrature modulator to filter out any spurious frequencies inside the band. Finally the baseband modulation signals from the DAC's are filtered with LC filters to remove any unwanted frequencies from the modulation signal.

Circuitry for limiting modulation :

The audio signal is digitally processed in the DSP of the unit. Scaling of the modulation and limiting the modulation is performed inside the DSP as part of the audio processing.

Circuitry for controlling power :

The transmitted power is monitored by the DSP. On the output, after the antenna filter there is a directional coupler. This coupler detects both transmitted and reflected power. A portion of the transmitted power is fed into a demodulator, which detects power level and modulation. The output from the demodulator is then fed into two ADC's, and the output from these ADC's are processed by the DSP. The DSP uses the result of this input to adjust the drive level into the power amplifier, and hence the output power.

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Eirik Storjordet
Certification Manager

TA-76XX DC voltages statement



Final amplifying device:

The power amplifier consists of four stages.

The first stage (Q6) operates on 12VDC and consumes approximately 70mA during normal operation.

The second stage (Q7) operates on 12VDC and consumes approximately 330mA during normal operation.

The third stage (Q8) operates on 28VDC and consumes approximately 1,5A during normal operation.

The fourth stage (Q5) operates on 28VDC and consumes approximately 6A during normal operation.

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