



Type Acceptance Test Report

Wideband FM Audio/Video Transmit Module

FCC ID: QN41500

FCC Rule Part: 90

ACS Report Number: 03-0091-90TA

Manufacturer: Datawave
Model: Datawave1500

Theory of Operation

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This module transmits NTSC/PAL video and 1Vp-p audio signals using a standard wideband frequency modulation method.

The module consists of 4 blocks for the transmission of audio/video at 2.4GHz:

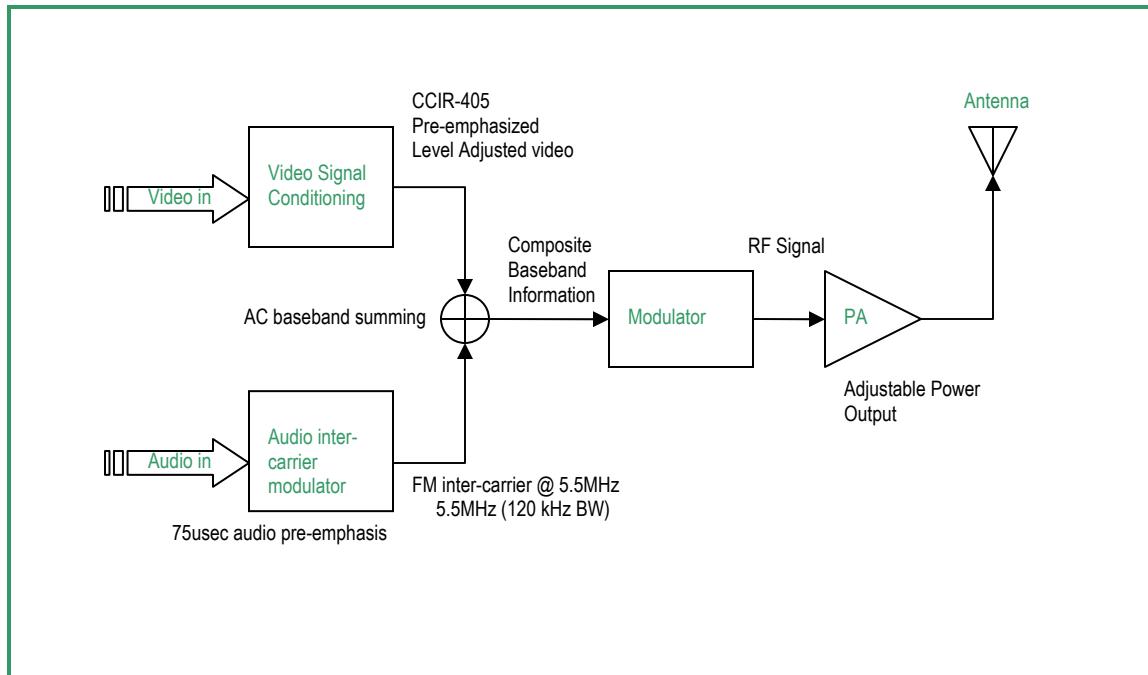


Figure 1 Transmitter Block Diagram

Block Diagram Description

The Video Signal Conditioning portion of the transmitter is used to add video pre-emphasis and divide down the incoming video level to provide an adjustable deviation constant for a desired bandwidth. The Audio Inter-Carrier Modulator block takes a 1Vp-p audio signal and adds pre-emphasis before it is applied to a 5.5MHz voltage controlled oscillator (VCO). The result of the circuit is a 5.5MHz inter-carrier signal with a deviation of $\pm 60\text{kHz}$. The two conditioned signals are then AC summed together and applied to the modulation input of the Modulator block. The Modulator block consists of an RF VCO, synthesizer and reference crystal. The synthesizer is programmed by a microcontroller which controls which carrier frequency is selected by the user. The output of the Modulator is a frequency modulated carrier that consists of the video information and the audio inter-carrier sidebands, which are 5.5MHz away from the carrier. The FM signal is then sent to the PA block which consists of a pre-amplifier and a power amplifier whose power output can be adjusted from 1mW to 300mW. The output of the PA block is fed to a frequency trap to reduce the 1st and 2nd harmonics of the carrier and then routed to the antenna port.