EQUIPMENT

The 6 GHz Carry-Coder II (CCII-9L) is a non-broadcast mobile transmitter for use in the frequency range of 6425 MHz to 6525 MHz.

This product supports the following Emission Designators:

FCC ID	Modulation	Emission Designators		
CNVCCII-9L	Digital	6M0W7D	7M0W7D	8M0W7D

Operation under FCC rule part: **74**

APPLICATION

The 6 GHz Carry-Coder II is designed for use in Broadcast Auxiliary Service (BAS) application (rule part 74) and Law Enforcement Command Posts (rule part 90). The CCII supports transmission of video, audio, and data.

The 6 GHz Carry-Coder II operates in digital (COFDM) transmission mode. It features a DVB-T compliant (COFDM) modulator MPEG2 video encoder. The system is designed to support either 6, or 7, or 8 MHz occupied bandwidth.

OPERATION

A simple diagram of the 6GHz Carry-Coder II is shown in Figure 1.

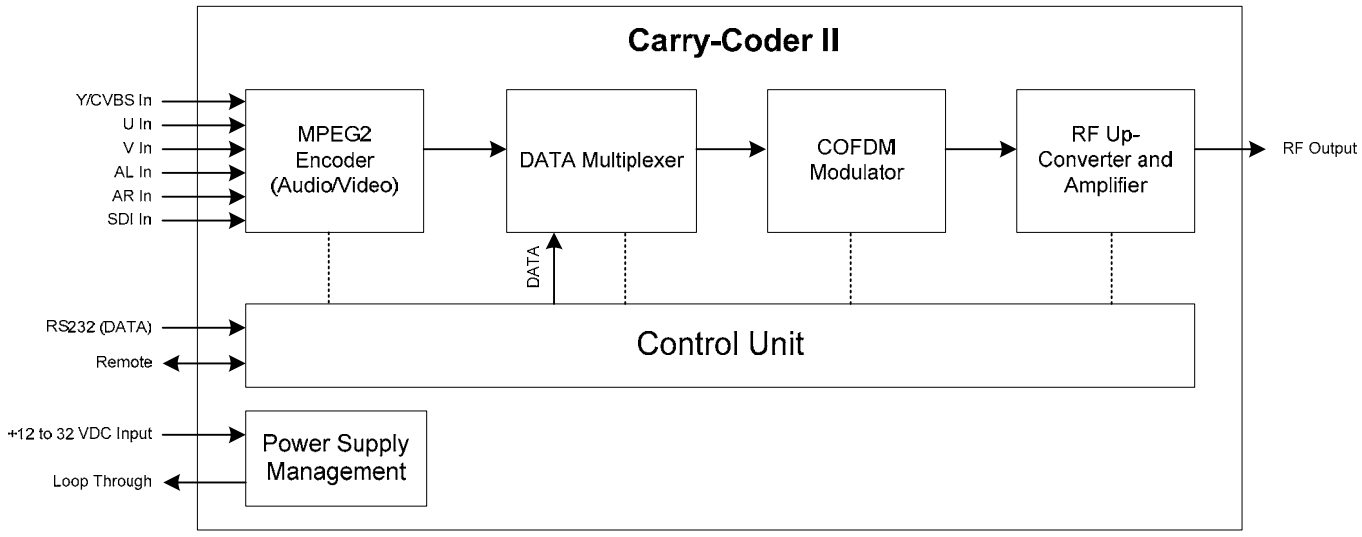

Figure 1 Simplified diagram of the 6 GHz Carr-Coder II

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A. *MPEG2 Encoder*

The input video is digitally encoded by this circuit. MPEG2 Encoder is the primary interface and accepts various video formats including CVBS, component video, and SDI format. The output of this section is an EMPEG2 signal.

B. *Data Multiplexer*

In this section the MPEG2 signal is multiplexed with the serial data which is provided by the control unit. Carry-Coder II may receive data through its RS232 serial input. The received data is directly handed by the Control Unit.

C. *COFDM Modulator*

The multiplexed digital data stream is then processed by a COFDM[1] modulator to result a COFDM baseband signal. The baseband signal is then applied to a lowpass filter with two outputs: I and Q signals.

D. *RF Upconverter*

I/Q Modulator & IF Signal

The beginning of the RF Upconverter is an I-Q Modulator, providing the IF signal from modulating the I and Q signal onto 910MHz (1st) local oscillator. Therefore the IF signal will be 910MHz.

Upconverter & RF Signal

The 910MHz IF signal is then upconverted to the 6GHz RF frequency range. The 2nd LO frequency can be varied by a synthesizer within the range of 5.515 GHz to 5.615 GHz to adjust the RF output frequency in 6.425 GHz to 6.525 GHz range.

Internal Amplifier

The 6GHz RF signal then is boosted by the internal amplifier of the Carr-Coder II to give a maximum 250 mW output power.

E. *Control Unit*

The Control Unit includes a microcontroller and can be connected to a Remote Control Display. The Control Unit can change the frequency of the 2nd LO synthesizer. It also sets the output RF power at low, medium, high , and max. The digital modulation schemes such as QPSK, 16QAM, ..etc, COFDM bandwidth, and other digital parameters are set by Control Unit.

[1] COFDM: Coded Orthogonal Frequency Division Multiplexing.