

12.0 Operational Description

12.1 Overview

The Flexcomm II airborne tactical communication system is specifically designed to be operated in an aircraft environment. A system is comprised of one C-5000 Communication management controller and one or two RT-5000 transceivers. In its most basic form, the system provides conventional analog AM and FM voice over the frequency range of 29.7 MHz to 960.0 MHz. As a option it, It can also provides APCO P25 compliant digital voice/data communication and APCO or Motorola SmartNet/SmartZone© Trunking within one or two frequency bands as determined by a hardware option by adding an Internal Transceiver Module (ITM).

A system consists of one C-5000 Communications Management Controller (CMC) and one or two remote mounted Transceiver systems with compatible antennas.

The Wulfsberg C-5000 CMC is a microprocessor-based control head device that allows the operator to manage, monitor, and transmit over one or two independent RT systems. The C-5000 can control all models of the RT-5000. In addition, the CMC can control older Wulfsberg radios such as the Flexcomm I transceivers and the Flitecom radios.

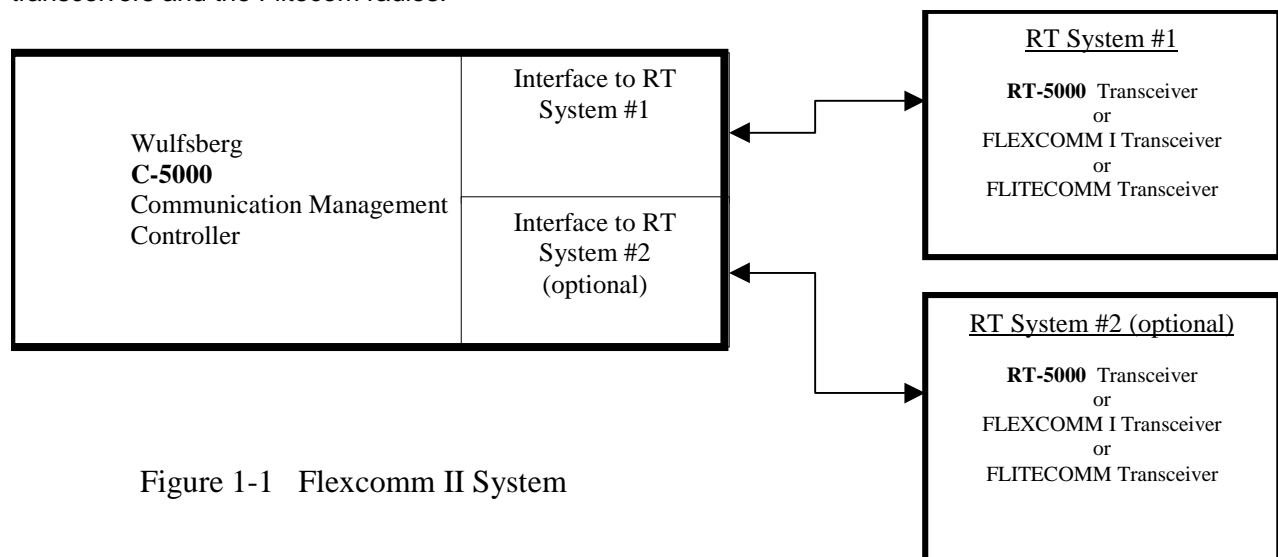


Figure 1-1 Flexcomm II System

During operation, the user can select from up to 350 preset channels from memory or manually tune frequencies on the Main transceiver. The user has the ability to select TX/RX Frequency and sub-audible tone, channel bandwidth, power level, and modulation (AM/FM). The control head displays channel and frequency information along with transmit and receive status. In addition, if multiple transceivers are available, the control head can be placed in enhanced modes that allow for repeater, relay, and simulcast operation.

When operating channels that use one of the TMs, the user must first program the TM using Motorola Radio Service Software. Then, the zone and channel information must be programmed into a preset channel on the C-5000.

Programming of the system is performed via the front panel of the C-5000 or through a PC based software program.

All models of the RT-5000 contain a "Main" transceiver which is capable of transmitting and receiving conventional AM and FM channels from 29.7 MHz to 400 MHz and FM from 400 to 960 MHz. In addition, the transceiver can contain a Multiple Transceiver Module (MTM) located in the Guard Receiver slot of the radio which contains one and optionally two single band digital transceiver modules (ITM). Each ITM can provide P25 digital voice/data, and several other formats, within its respective operating frequency band. These ITMs are purchased from Motorola and are certified as hand held transmitters. Figure 1-2 illustrates the RT-5000 integrated transceiver options. Whenever a VHF ITM is in the system, an additional power amplifier is employed within the MTM that increases output power to 10 watts.

The RT-5000 transceiver is controlled by the C-5000 control head via a proprietary serial tuning bus. Two antenna ports are used to interface to the antenna system. The "N" style connector handles frequencies below 400 MHz and the "TNC" connector handles the frequencies above 400 MHz. Power, tuning, and all audio interfaces are provided through the 55 pin Mil circular connector.

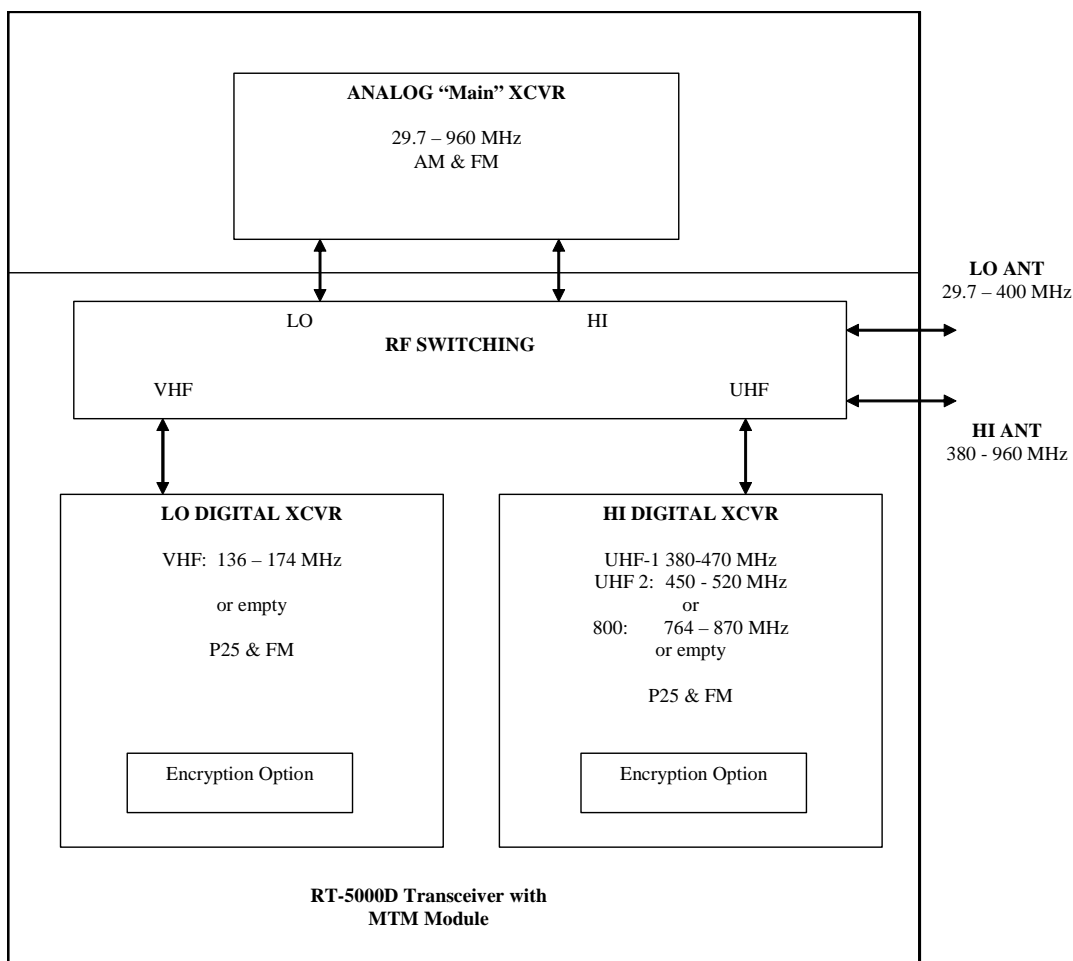


Figure 1-2: RT-5000 showing MTM Module Block Diagram

12.2 Technical Characteristics

Transceiver 1 (Main Transceiver):

| Frequency Range | Power Levels | Frequency Tolerance | Emission Designator |
|-----------------|--------------|---------------------|---------------------|
| 29.7 – 50 MHz | 10W/1W | 5.0 PPM | 16K0F3E |
| 118 – 137 MHz | 15W/7.5W | 7.0 PPM | 6K00A3E |
| 136 – 174 MHz | 10W/1W | 2.5 PPM | 16K0F3E, 11K0F3E |
| 403 – 520 MHz | 10W/1W | 2.5 PPM | 16K0F3E, 11K0F3E |
| 806 – 870 MHz | 10W/1W | 1.5 PPM | 16K0F3E, 11K0F3E |
| 896 – 940 MHz | 10W/1W | 1.5 PPM | 11K0F3E |

Transceiver 2 (FCC ID: AZ489FT3804):

| | | | |
|---------------|--------|---------|--|
| 136 – 174 MHz | 10W/1W | 2.5 PPM | 16K0F3E, 11K0F3E, 20K0F1E, 8K10F1E, 8K10F1D |
|---------------|--------|---------|--|

Transceiver 3 (FCC ID: AZ489FT4855):

| | | | |
|---------------|--------|---------|--|
| 380 – 470 MHz | 10W/1W | 2.5 PPM | 16K0F3E, 11K0F3E, 20K0F1E, 8K10F1E, 8K10F1D |
|---------------|--------|---------|--|

Transceiver 4 (FCC ID: AZ489FT4864):

| | | | |
|---------------|-------|---------|--|
| 450 – 520 MHz | 4W/1W | 2.5 PPM | 16K0F3E, 11K0F3E, 20K0F1E, 8K10F1E, 8K10F1D |
|---------------|-------|---------|--|

Transceiver 5 (FCC ID: AZ489FT5806):

| | | | |
|---------------|-------|---------|--|
| 764 – 870 MHz | 3W/1W | 1.5 PPM | 16K0F3E, 11K0F3E, 20K0F1E, 8K10F1E, 8K10F1D |
|---------------|-------|---------|--|

Supply Voltage: +28 V nominal, aircraft supply