

## **1) OPERATIONAL DESCRIPTION**

The EMCEE Model TTU500FA UHF Low Power Television Transmitter, which will be manufactured in quantity, is an internally diplexed unit rated to provide 500 watts peak visual and 25 watts average aural on any FCC specified UHF television channel extending from 470 to 806MHz (Ch.14 to Ch.69). The TTU500FA is completely solid state and comprised of five different assemblies. The RF sections begin with a standard television modulator which supplies diplexed visual and aural modulated IF carriers (45.75MHz visual/41.25MHz aural) to the EMEX1 2 Watt Exciter drawer. Here the carriers are converted to the desired UHF frequencies, filtered and amplified to the 100mW level. The television signal is then split into equal parts to drive two 300 Watt Power Amplifiers contained in a single 500 Watt Power Amplifier drawer. The output of the amplifier drawer is then connected to a six-section UHF Bandpass Filter where the unwanted products created by combined amplification are reduced to the appropriate levels. Other assemblies in the TTU500FA Transmitter include a Control/Metering panel to monitor the various transmitter circuits and an Ac Distribution panel to dispense power throughout the transmitter.

The data contained in this Certification report was obtained from tests performed on an EMCEE production unit having an output frequency of UHF channel 56 (722-728MHz) using an SA6340 Modulator. However, to better serve our customers, EMCEE also wishes to use the EMCEE EM1 and RF Communications 2000 as appropriate substitutes for the SA6340. These modulator models, which also comply with Part 74, are used in all current EMCEE LPTV, MMDS and ITFS type accepted equipment requiring modulators. Also, we are requesting that the high stability (0.5PPM) Vectron CO-254D57 oscillator with a X16 multiplier be used in the TTU500FA. This oscillator, replacing the standard synthesizer, will provide the customer with precision offset capability. Tests on both the oscillator and synthesizer are also found in this report.

In order to meet the requirements of Section 74.750(c)(5) of the FCC Rules, the TTU500FA switches to a nonradiating condition in the absence of a modulating video signal. Additionally, an optional Code Identification Unit, capable of shifting the frequency of the transmitted carriers, may also be included to satisfy 74.750(c)(7) of the Rules.

A complete list of the test equipment utilized to obtain the certification data can be found in Section 1.3 of this report. Information relating to the description, operation and maintenance of the transmitter can be found in the TTU500FA Transmitter and RF Communications 2000 Modulator Instruction Manuals. Information concerning the EM1 and SA6340 Modulators can be found in the previously submitted type acceptance report for the TTV1000ES (BMTTTV1000ES Grant 09-30-99).