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# 10KTTU 10 KW Tube Television Transmitter

## Description of the Equipment

The 10KTTTU is an American made 10 kilowatt UHF Television Transmitter designed for NTSC, PAL, SECAM or Digital Formats.

The audio and video signals are fed to the driver assembly, which consists of three stages. A **modulator/upconverter** creates on-channel visual and aural carriers at 0 dBm. This signal is then amplified by the **25 Watt driver amplifier** and fed to the **700 Watt intermediate power amplifier (IPA)** which provides the necessary drive power to produce a 5-10 kilowatt output from the final amplifier. The final amplifier stage includes a **power amplifier (PA)** cavity assembly with its associated power supplies, a notch filter, and a directional coupler. These components supply the RF signal to the antenna. Two 10KTTTU transmitters are operated in combined mode for powers from 10,000-20,000 Watts.

The 10KTTTU has many control and protection features seldom found in comparably priced equipment:

- Active components are located on printed circuit boards for fast, easy field service.
- All of the metering and control circuitry is built with precision components.
- Light emitting diodes (LEDs) give a quick, visual indication of the condition of the transmitter.
- Digital panel meters give accurate readings of important voltages, currents, and powers associated with the IPA and PA.
- Robust power components insure that the transmitter can survive adverse conditions.
- All of the major components, such as transformers, capacitors, and power resistors are easily field replaceable and are readily available from either the original manufacturer or from *e. l. marsden wireless, inc.*

# Technical Specifications

## Output Specifications

### Overall:

Power Capability	10 kW Visual (peak sync) with 1 kW Aural (average)
Frequency Range	Any TV channel within the 470-860 MHz band including standard offsets
Output Impedance	50 Ohms
Output Connector	3-1/8" EIA Flange (other options available)
Carrier Stability	± 1kHz standard and offset channels
Intercarrier Stability	± 500Hz
Harmonics Products	-60dB or better referred to sync peak
Non-Harmonic Spurious Products	As per appropriate FCC or CCIR Standard

### Video:

Differential Gain	5%
Differential Phase	± 3°
Group Delay	As per appropriate FCC or CCIR Standard
Frequency Response (Sideband)	As per appropriate FCC or CCIR Standard
In Band Intermodulation Products	-52dB or better (using three tone test)

### Audio:

Frequency Response (Main Channel)	±0.5 dB (50Hz to 15kHz with appropriate de-emphasis)
Pre-emphasis	As per appropriate FCC or CCIR Standard
FM Noise	-60 dB or better
AM Noise	-50 dB or better
Total Harmonic Distortion	0.5% or better
Frequency Deviation Capability	±25 kHz for Monophonic Operation Stereo exciter available as option

## Input Specifications:

Video Input Impedance / Level	75 Ohms, 1V(p-p)
Audio Input Impedance / Level	10k Ohms unbalanced, 140 mV RMS ( 600 Ohms balanced, -10 dBm to +10 dBm option available)
AC Line Voltage	208 / 240 VAC ±5%, 3 phase, 60 Hz or 380 VAC ±5%, 3 phase, 50 Hz (Specify 50Hz or 60Hz when ordering) Above voltages nominal; all transformers have 6 taps to conform to local requirements. Other primary voltages available

## General Specifications:

Driver	700W LDMOS Amplifier
Output Stage	Cavity Amplifier using TH610 Diacrode
Cooling	Forced Air
Max Altitude	7500 ft (higher altitude operation as option)
Ambient Temperature Range	-30° C to +50° C
Ambient Humidity Range	0 - 95% relative humidity without condensation
Dimensions (W x H x D): Cabinet	55" x 71" x 32"
Output Filter/Coupler	~40" x 18" x 6"
Weight	Approximately 1600 lbs.
Power Consumption (Typical)	24kVA (black picture, 10kW visual, kW aural)
Heat Load @ Full Output	60,000 BTU/Hr
Air Conditioning Requirements	Based on local environment; consult factory

## Additional Options:

Automatic FSK Station Identifier	Input Video Automatic Gain Control
AC Surge Protector	Audio Processor
Spare Tube	BTSC Stereo Generator
Spare Parts Kit	Remote Control
Video Proc/Amp	Final Amplifier Bypass Switch

