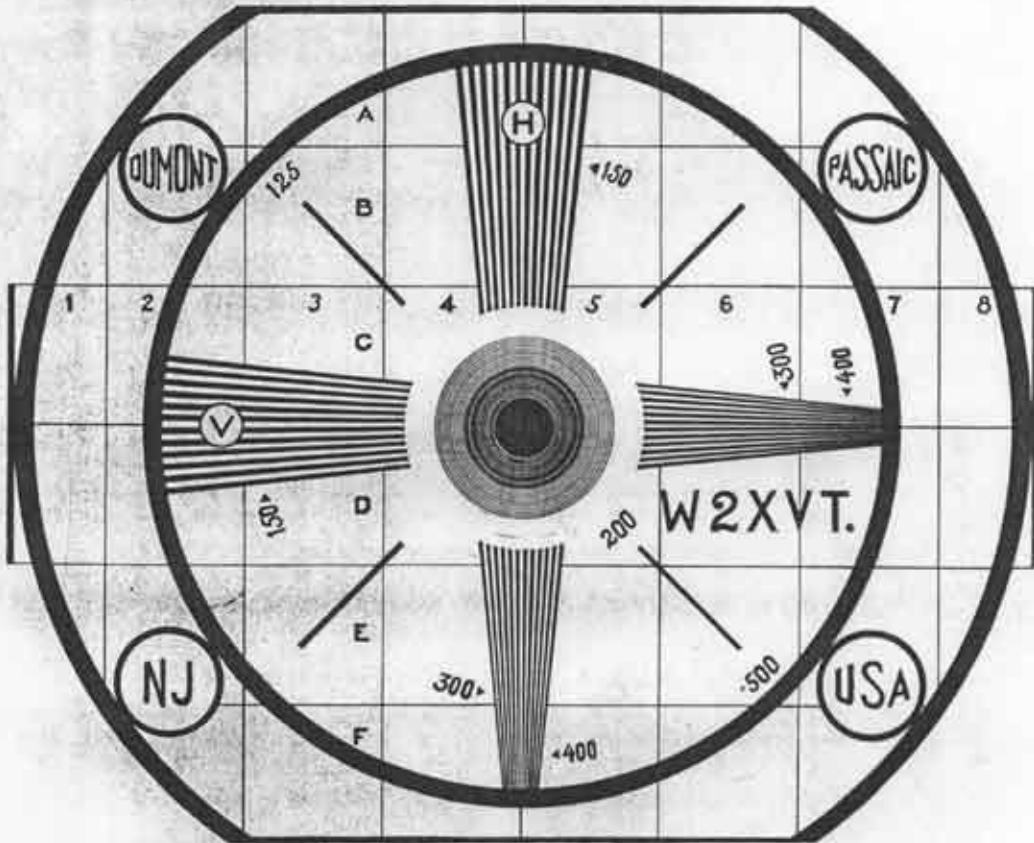


DU MONT

TELEVISION TRANSMITTING EQUIPMENT



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PASSAIC, N. J.



DU MONT SYSTEM 1 KW TELEVISION EQUIPMENT

Introduction

The following report is submitted to present the necessary Television apparatus to carry on a service to the public in an urban district having a radius of 20 miles. The proposed equipment should be adequate for such coverage in medium area cities if the transmitters are properly located and sufficient elevation of the transmitting antenna be available.

The following description will include transmitting equipment for the Du Mont Television System.

It is impossible, at this time, to quote an exact cost figure for any television system; but an itemized list of the equipment required to carry on the contemplated service together with a description of the various components is set forth in this report, and a total estimated price is presented herewith.

The photographs which are included in this report are illustrative of typical television equipment. The transmitter shown is of only 50 watt power and merely indicative of the type of workmanship and general layout employed.

We are submitting for your consideration specifications on the so-called Du Mont Television System equipment. This title has arisen in connection with certain research we have been doing on this definitely different system of transmission which, however, does yield 441 line high definition television pictures, and furthermore has flexibility for changes and even radical improvements in the system without making obsolete the receivers in the field. We are proposing a complete set of equipment suitable for operation of a 1 Kilowatt television transmitting station on this system.

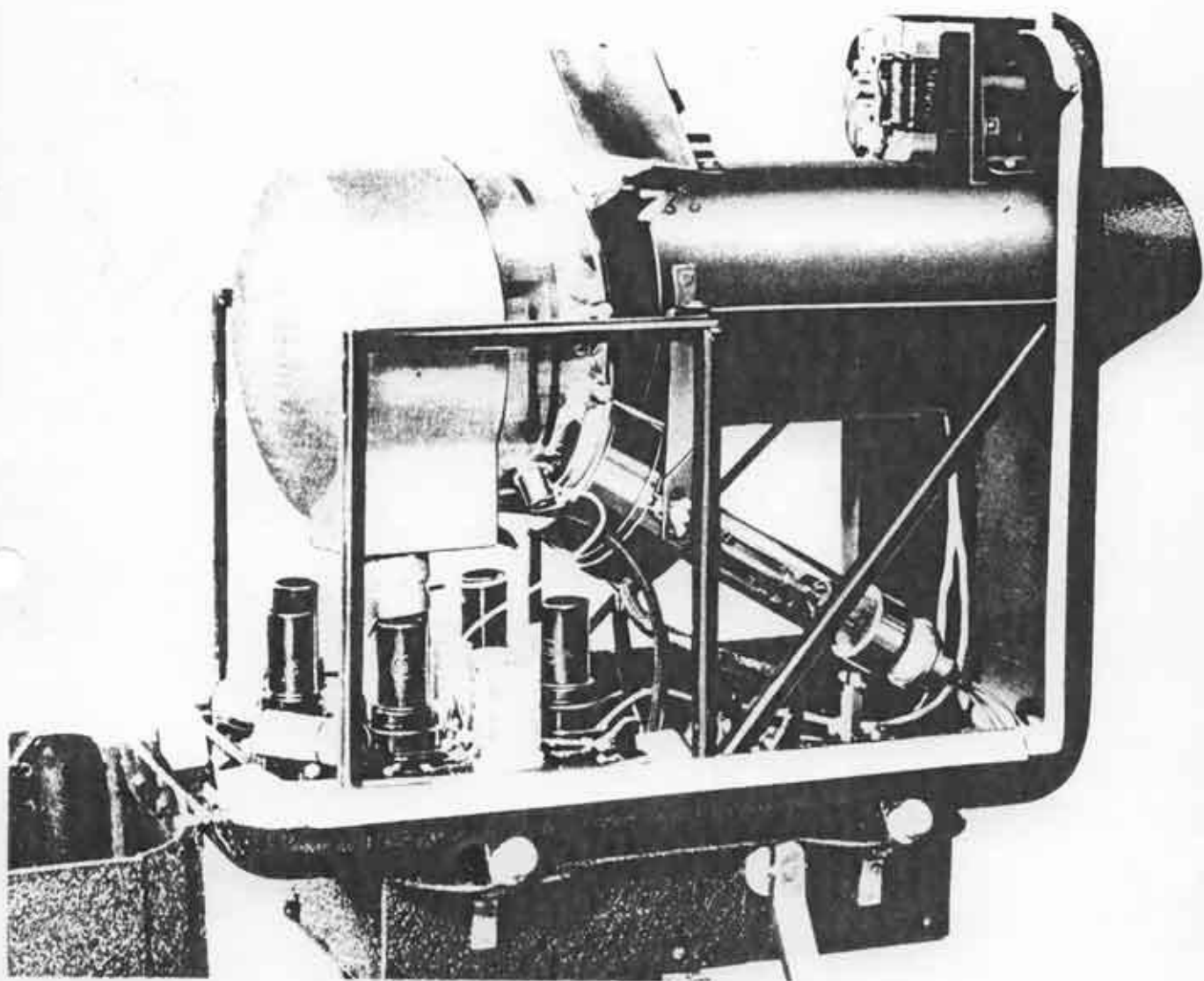
For general information on this Du Mont Television System we refer you to the issue of Electronics for March, 1938 in which the article by Mr. Donald Fink describes fairly completely the principles of the System. For a more complete article we refer you to Communications for February, 1939.

It is possible for us to supply you with a television system utilizing the Radio Manufacturers' Association proposed standards if you so desire. This R.M.A. system utilizes synchronizing impulses placed by amplitude separation on top of the video carrier and in essential principles is that system under active investigation with the National Broadcasting Company in the United States and with the British Broadcasting Corporation in England.

Until we have had the opportunity of discussing a television system with you at first hand, it is difficult for us to quote any exact figures for complete equipment and installation. Such factors as transmitter location, studio location and the extent of studio facilities desired, will have a direct bearing on the ultimate cost of the complete installation. It would therefore be necessary to make a detailed survey of your proposed facilities before any exact conclusions may be reached.



Iconoscope camera for indoor pickup.



Interior view of indoor pickup iconoscope camera.

DU MONT TELEVISION SYSTEM

This system transmits the video modulation, the horizontal waveform in its entirety, the vertical sweep waveform in its entirety and the accompanying sound all on a common ultra-high-frequency carrier. This system is proposed for use with a 1 Kilowatt transmitter whose coverage will depend largely on the type of terrain surrounding the antenna location. With the transmission of the sweep signals the receivers are very flexible so as to follow changes in systems of interlace or sweep frequencies when such changes may be desired to improve the transmitter. Furthermore, this system results in a reduced modulation-band width, and consequently may be transmitted on wavelengths of approximately 10 meters (30 megacycles) which are not limited to horizon transmission distances as is the case with 5 to 6 meter transmissions.

The following listing is divided into heads of I — Studio Equipment, II — Transmitter, III — Antennas, and IV — Receivers. Specifications under each heading follow:

I. Studio Equipment.

1. Two Iconoscope Direct Pickup Cameras.

It is suggested that two camera units are desirable for obtaining change of angle shots on regular studio pickups, and also to provide a reliable spare unit in case of emergency. The housing will be of indoor design and semi-portable, with adjustments for tilting and panning and with an auxiliary lens for adjustment by the operator. The housing contains a head amplifier and is connected by flexible cable to the control panels.

2. Iconoscope Film Pickup Camera.

This unit is in a housing adapted for use with the special projector described later. It is recommended that this unit be designed for exclusive use with film. Its housing encloses a preamplifier, connected by cable to the general control panel. Deflection of the Iconoscopes for studio and for film is provided from the master sweep generators on the master sweep panel to be described presently.

3. Studio Lighting Equipment.

This will be necessary but would not be supplied directly by us, as it is deemed more practical to make individual arrangements in accordance with the location for suitable lighting.

4. Special Film Projector.

The 35 mm. movie projector is specially designed to cause one frame to be scanned twice and the next to be scanned three times, yielding effectively 60 fields per second from standard motion picture film taken at 24 frames per second.

This entire series of equipment is being proposed for sixty cycle power operation in order to minimize filter requirements at both transmitter and receiver. However, if the power is available at other frequencies, it is possible to provide the equipment after suitable tests for these other frequencies, though certain of the units may prove to be more expensive in this instance.

5. Studio Sound Equipment.

This equipment will consist of two microphones and their associated preamplifiers and mixing panels. It will be provided also with monitor speaker in the control room and the mixing equipment for placing the sound on a suitable intermediate carrier with the video components for television transmission.

The projector will be equipped with sound track pickup, and the sound control panel provides for mixing this output for transmission. Facilities are provided also for phonograph recordings using two turntables and suitable control and mixing equipment.

6. Master Sweep Panel with Interlace Control.

This unit consists of synchronizing generators for producing appropriate control pulses to provide precisely interlaced master sweep oscillators. It also contains the master oscillators and amplifiers such that these signals may be utilized for modulation of the transmitter and for control of the Iconoscopes and monitor units. This rack also provides the blanking pulses for the television channel.

7. Iconoscope Shading and Mixing Controls.

This panel, located in the control room, has facilities for operating the two studio cameras, the film camera and the outdoor pickup camera. It also contains two monitor channels so that the cameras may be adjusted independently before fading from one to the other in actual program production. One of these monitor channels can be used in connection with the outdoor direct pickup camera to be described later.

8. Picture Line Mixer and Amplifier.

This panel of equipment provides for superposing the picture signals, the two sweeps and the sound preparatory to modulating the ultra-high-frequency carrier. The panel also contains the final line amplifier suitable for driving a low impedance coaxial line between the control room and the actual transmitter site, since it is recommended that the studio be placed at some distance from the power radiating equipment to minimize interference.

9. Control Room Monitor for Sight and Sound.

This consists essentially of a standard television receiver, except for the ultra-high-frequency channel. It monitors the composite signal just as