**System inspection and commissioning of public broadcasting system installation and construction**

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After the installation and construction of the public broadcasting system, the equipment installation process should be thoroughly and routinely inspected, and the opening test and sound quality evaluation should be carried out. The main work contents are: transmission line inspection, mating inspection, insulation resistance measurement, and grounding resistance. Measurement, antenna debugging, power supply test, system turn-on test, sound pressure measurement and sound quality evaluation.

When commissioning the power, please pay attention to first turn the knobs of all the devices to the minimum position, and turn on the power step by step from the previous stage to the next stage, so as to avoid excessive noise during the startup and cause noise and damage to the machine. Adjust the input of all sources to the appropriate size, monitor the speakers for distortion and noise, and the sound is too small. If it can be turned on normally, it can work for one hour at normal volume and then listen to whether the sound has changed or not. The surface temperature of the machine is normal. If normal. The debugging work can be ended. Otherwise check the problem.

1. Transmission line inspection: The transmission transmission line is divided into indoor and outdoor wiring. When checking, the terminal of the line to be inspected should be disconnected from the equipment. Check whether the transmission lines of each line are in accordance with the construction drawing and broadcast system diagram. Correct, whether there is a fault such as short circuit, open circuit, mixed line; whether the terminal number is complete, correct, and whether the terminal is soldered. Exclude the discovered faults one by one, and re-tighten the connection terminals; whether the connection of each plug and socket is welded, whether the wiring is correct and reliable, and whether the shielding layer is intact and in good condition.

Second, the mating check: According to the construction drawing, check whether the matching of the inter-line transformer on each circuit or the speaker equipment is correct, especially the connection terminals of the multi-tap transformer are often easy to be connected incorrectly, pay attention to check the leakage, multi-connection, transformer Primary secondary reversal phenomenon; check whether the transformer model, capacity and impedance match according to the figure.

Third, the insulation resistance measurement: the two terminals of the broadcast line are disconnected, with a 500V megohmmeter, measure the insulation resistance between the lines. The measurement items are: wire and wire and wire and ground insulation resistance, the insulation resistance is generally not less than 0.5MΩ, the resistance of each circuit should be measured by sub-loop, the measured value should be filled in the record, and the contents of the commissioning report should be kept in the construction unit. .

4. Grounding resistance measurement: The grounding resistance of the broadcasting system is mainly carried out on the grounding pole of the broadcasting room; the grounding resistance tester is used for the measurement. The power frequency grounding resistance of the broadcasting room amplifier, lightning arrester, etc. is generally not more than 10 Ω. When the capacity of the broadcasting system is above 150 W, if a grounding pole is set separately, it is possible to use a set of grounding poles with the electrical device, but this kind of grounding The required grounding resistance should not be greater than 4 Ω and a dedicated grounding trunk should be provided.

V. Power supply test: The AC power supply voltage is measured. The power supply line should not be short-circuited or disconnected. The on-off operation test is performed on the power switch to check the power supply display signal. The standby power exchange device checks the test and the output voltage of the battery. Measurement; check and measure the rectification charging device; perform a simulated power failure test to verify whether the power supply mutual investment device can work reliably.

VI. System opening test: The problems found in the above-mentioned various inspections have all been revised. After all the inspection tests meet the requirements, the system opening test can be carried out. The system opening test should be divided into equipment and one by one.

1. First disconnect all output lines, pull out all input signal plugs, turn the amplifier's “volume” adjustment knob to the minimum, turn on the power, turn on the amplifier switch, observe whether the display signals are normal, and there is inorganic noise.

2. The preamplifier (OBT-8020) is turned on.

When the amplifier is turned on and everything is normal, the preamplifier can be turned on. Turn on the power of the preamplifier, observe the various displays, and turn on the connection between the preamplifier and the power amplifier.

3. Microphone (OBT-8052C) test

When the amplifier and preamplifier are working properly, turn the “amplifier” knob of the preamplifier and amplifier to the minimum, insert the microphone plug, give the microphone an audible signal, adjust the “volume” knob, and listen to the sound output on the monitor headphones. At this point, the “function” knob of the amplifier or preamplifier is turned to the microphone position. After the test of one microphone jack, the same method is used to test each microphone input channel.

4, recorder input

Rotate the preamplifier or amplifier “function” knob to the recorder input and turn on the recorder input circuit, play the tape, adjust the “volume” size, and observe the input signal, distortion and noise.

5. Receive tuner (OBT-8710) turn-on test

Turn on the tuner power, receive the broadcast program, test the reception situation, and repeatedly adjust the direction of the FM receiving antenna according to the receiving effect of the FM radio to obtain the best listening effect. And observe the interference and distortion.

6, output loop test

Input the preamplifier or amplifier into the recording or recording signal, turn the “volume” to the minimum, turn on the speaker device, turn the “volume” to the middle position, observe the volume, clarity and noise of the speaker; then “ Turn the volume up to the maximum to see if there is distortion; adjust the speaker volume control to hear the sound distortion and volume changes. Speakers with severe distortion should check their line transformers and speaker coils, and if problems are found, they should be repaired or replaced.

The above method is used to test each speaker circuit. If the speakers on each circuit are sounded normally (ie, the noise is small, clear, and the distortion is small), all the speakers and the sound column can be turned on, the volume is adjusted, and the test is repeated several times. , to eliminate all kinds of installation and construction hazards.

Seven, the average sound pressure measurement

For places with high audio level requirements such as theaters, concert halls, and multi-purpose halls, in addition to taking necessary measures for equipment selection and architectural design, the average sound pressure measurement should be made during installation and adjustment, and adjusted by measurement. The mounting direction of the sound column. The specific measurement method of the average sound pressure (using a pink noise generator). The sound source of the average sound pressure uses a pink noise generator, which is a (-3dB) octave on the white noise generator. The pink noise signal is fed to the speaker at 1/10 of the nominal power during measurement. The bandwidth of the pink noise signal should be limited to the effective frequency band of the speaker. When the test distance is r, the sound pressure indicated by the sound level meter is the average sound pressure of the speaker. During the test, the external noise should be minimized. It is best to temporarily sound-treat the debugging field. The sound pressure measured in the concert hall should be basically the same. If the sound pressure difference is too large, you can adjust the volume controller or change the sound. The direction of the school makes the sound effect meet the requirements.