

On the Postprint of Safe Broadcasting in Radio and Television Signal Transmission and Emission

Authors: Zeng Zhaohui

Date: 2023-10-08T00:00:00+00:00

Abstract

Although network resources are currently abundant, the status of broadcasting and television remains irreplaceable. With increasing social demands, the broadcasting and television industry must enhance its competitiveness. This paper investigates the influencing factors of broadcasting and television signals, proposes corresponding strategies, and seeks to improve the security of broadcasting and television signals in transmission and emission.

Full Text

On Safe Broadcasting in Radio and Television Signal Transmission and Emission

Abstract: Although current network resources are abundant, the status of radio and television remains irreplaceable. With increasing social demands, the radio and television industry must enhance its competitiveness. This paper examines the factors affecting radio and television signals and proposes corresponding strategies to improve signal safety during transmission and emission.

Keywords: Radio and television signals; Transmission and emission; Safe broadcasting

CLC Number: TN949.6+91

Document Code: A

Article ID: 1671-0134(2017)12-059-02

DOI: 10.19483/j.cnki.11-4653/n.2017.02.010

Author: Zeng Zhaohui

(Affiliation: 722 Station, Shaoguan Radio and Television Station, Guangdong)

With social progress and national development, people's living standards have improved significantly. They no longer satisfy only material needs but also seek fulfillment in quality of life and spiritual demands. Simultaneously, they require information exchange with the external world to enhance their own quality and strengthen understanding of the Party and state's political guidelines. Radio and television broadcasting transmits images and sound, and its timeliness and broad reach have developed over a long period, ensuring its advantages. Currently, a noteworthy topic is how to guarantee the safe transmission and emission of radio and television signals and ensure safe broadcasting to improve program quality and provide audiences with better viewing experiences.

1. Factors Affecting Radio and Television Signal Transmission and Emission

Generally speaking, the primary causes of radio and television signal transmission failures are equipment malfunctions and technical reasons. The technology for radio and television signal transmission and emission is universal yet has its particularities. If certain transmission and emission technologies are not given adequate attention and thoroughly addressed, they may affect broadcasting and cause audience dissatisfaction. The third cause of abnormal signal output is human factors, which can have a tremendous impact on radio and television programs. Staff negligence can lead to serious broadcasting accidents. Additionally, this may occur among individuals with ulterior motives seeking to avoid broadcasting unfavorable news or other information, or to prevent the broadcast of emergency information. Once such interference occurs, it will inevitably cause severe harm to the public.

Equipment failures can be generally divided into two categories. The first is force majeure factors, namely natural disasters causing equipment malfunction or preventing safe signal transmission. Commonly, earthquakes or high-level winds can affect broadcasting emission equipment, degrading program quality or directly causing transmission equipment failure. To avoid such situations or mitigate their impact, protection and maintenance of emission equipment must be prioritized. The second category concerns operational failures and human errors during transmission and emission processes. These factors significantly impact the timeliness of radio and television programs, severely affecting audience viewing experiences and weakening the ability to grasp highly time-sensitive information. Therefore, it is necessary to improve and optimize the transmission and emission processes to ensure safe broadcasting and enhance program stability.

2. Strategies for Ensuring Safe Broadcasting of Radio and Television Signals

2.1 Improving Staff Professional Competence

Staff participation is essential in the radio and television signal emission process. Improving professional competence requires not only a foundation in broadcasting but also a holistic understanding and control of the entire field. First, regarding knowledge reserves, staff must possess substantial depth—not merely completing a company-provided training session before work. If staff only understand the operational procedures for signal transmission and emission, equipment failures or improper operations will severely impact safe broadcasting. To ensure rapid system recovery and stable program broadcasting after equipment failures or errors, staff must master theoretical knowledge of radio and television transmission and emission, understand equipment principles thoroughly, and precisely grasp special circumstances during emission rather than treating them superficially. They must demonstrate good judgment in fault diagnosis and resolve issues quickly to restore normal operations.

Second, staff must clearly recognize that radio and television, as mass media, possess important supervisory functions and are crucial for disseminating educational knowledge. Most importantly, they serve a propaganda function that receives significant public attention and holds great importance for the people. Radio and television can publicize the Party and state's latest policies and guidelines, clarify national development directions, and broadcast current achievements to the masses through images and sound. All these illustrate broadcasting's vital political role. Therefore, staff must attach great importance to signal transmission and emission, always working according to regulations to ensure safe signal transmission and emission.

Finally, staff must possess personal capability and a strong sense of responsibility. Remaining calm when encountering problems is a fundamental requirement. When signal emission failures occur, they must not panic but instead utilize their knowledge, current operations, and work experience to restore normal operations as quickly as possible. Regarding responsibility, a responsibility assignment system can first avoid the phenomenon of everyone shirking blame when failures occur. Through this system, staff consciousness and collective awareness can gradually be cultivated, making the entire signal transmission and emission process smooth and safe.

2.2 Strengthening Equipment Maintenance

Equipment condition directly affects radio and television signal transmission and emission safety. Therefore, to ensure safe and stable signal transmission, equipment maintenance must be strengthened. Staff must first conduct equipment inspections, primarily using human senses—hearing, sight, smell, and touch—to check equipment status and complete work logs. During daily inspections, staff must carefully listen for abnormal sounds or loud noises from equipment,

which indicate the need for further examination. They must meticulously check whether all equipment parameters fall within normal operating ranges. When passing important machine room equipment, preliminary checks through smell can avoid common issues such as short circuits. Touch is also an inspection method; by feeling equipment surfaces, staff can detect temperature increases that may occur during overload operation. In practice, equipment overload operation should be avoided or minimized to ensure service life. Finally, regardless of preliminary inspection results, all findings must be recorded in work logs, and equipment showing abnormalities must be immediately repaired.

Second is equipment maintenance, which can be divided into routine maintenance and emergency repairs. Routine maintenance is performed at fixed intervals, but unscheduled maintenance may also be conducted before important program broadcasts to ensure stability. Maintenance personnel must have excellent equipment knowledge, including not only operating principles and technical parameters but also a good grasp of equipment performance and potential abnormalities during operation. Only with such comprehensive understanding can they identify and repair faults in the shortest time possible. Like inspections, detailed maintenance records must be kept, documenting not only the reasons for maintenance, fault causes, and results but also the repair process and methods used. Such records are highly beneficial for future equipment maintenance work.

2.3 Improving Radio and Television Safe Broadcasting Management Mechanisms

Improving safe broadcasting management mechanisms essentially means establishing standardized management systems within radio and television organizations to regulate staff and enhance signal broadcasting safety. First is implementing a responsibility assignment system that divides and assigns responsibilities to each staff member, avoiding confusion. Additionally, a supervision department can be established to monitor staff during signal emission, preventing erroneous operations and ensuring broadcasting safety.

2.4 Computer Monitoring Systems as Technical Guarantee

Using computer monitoring systems to supervise radio and television programs provides modern technical assurance. By monitoring through computers connected to transmitters, current operational indicators can be tracked in real time, with immediate alerts to staff for maintenance when errors occur. Furthermore, to reduce human resource investment, computers can enable multi-screen real-time monitoring. To increase broadcasting stability, redundant network and satellite signal sources can be added, allowing immediate signal source switching when microwave signals are interfered with or interrupted, thereby ensuring safe broadcasting.

3. Conclusion

Overall, to ensure radio and television signal broadcasting safety, we must begin with staff professional competence, establish sound management and supervision mechanisms, perform equipment maintenance effectively, and utilize modern technical means to reduce human resource investment, thereby guaranteeing signal safety during transmission and emission.

References

- [1] Wang Doudou, Chao Lemeng. On Safe Broadcasting in Radio and Television Signal Transmission and Emission[J]. West China Broadcasting TV, 2016(13): 230.
- [2] Liu Zhenkun. Safety Issues in Radio and Television Signal Transmission and Emission[J]. New Media Research, 2015(20): 11, 35.
- [3] Bi Tabin. Analysis of Safety Issues in Radio and Television Signal Transmission and Emission[J]. Electronic Technology & Software Engineering, 2015(23): 43.
- [4] Zhang Lei. Safety Issues in Radio and Television Signal Transmission and Emission[J]. New Media Research, 2015(10): 28-29.
- [5] Xu Zuowu. Discussion on Safety Issues in Radio and Television Signal Transmission and Emission[J]. West China Broadcasting TV, 2015(02): 159.

Note: Figure translations are in progress. See original paper for figures.

Source: ChinaXiv — Machine translation. Verify with original.