

Case study #	2.8
Title	Earth wire voltage drop in telecommunication centre
Type of trouble	Damage.
Source of trouble	Lightning.
System affected	Transmission equipment.
Location	Telecommunication centre.
Keywords	Damage, lightning surge.
Version date	2004-01-01

System configuration

During thunderstorms, several line cards of a multiplex, located in a radio station, were frequently damaged.

Located on the top of a mountain, the radio station is composed of a 40-m high telecommunication tower and an adjacent 2-floor building (Figure 2.8-1). The antennas on the tower are connected to the radio equipment inside the building by wave-guide cables.

In the building, on the ground floor, there are the entrance of the low voltage power line through an insulation transformer, the power station, and the main earth terminal of the building. On the first floor, there is the radio equipment. On the second floor, there are radio equipment and a multiplex. The latter serves customers located close to the radio station.

The customers are connected to the multiplex by 30 pairs of 9/10 cable. This cable can be defined as a "lightning cable", i.e., the cable can resist high values of direct lightning current. Though it has been installed a long time, lightning never damaged the cable.

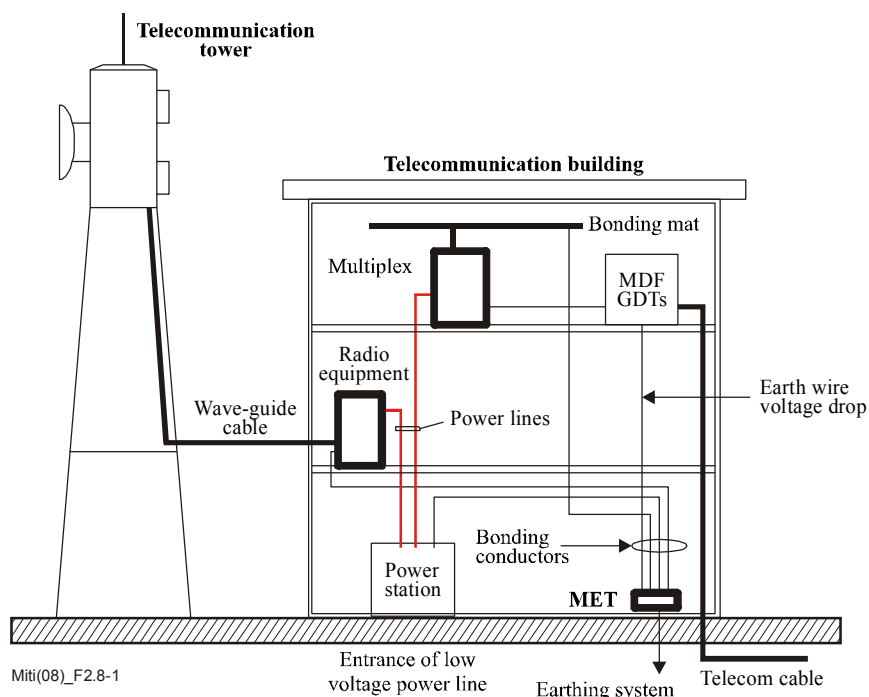


Figure 2.8-1 – Radio station