



China Unicom Hainan Branch
Network Operations & Maintenance Department

MCG Surge Protection: 10-year end-user's report

The Hainan Unicom Maintenance Department has one of the most difficult jobs in China's telecommunications industry. We must keep Hainan Unicom's telecommunications network operating despite the many lightning storms, floods and monsoons that occur every year in Hainan's tropical climate. Many of our stations are on remote mountaintops, difficult to access even in good weather.

Lightning is one of our biggest challenges. Our cell sites see over 100 lightning days per year on average. During the rainy season there are always stations going off line due to lightning damage. We've found once a station is hit by lightning, the chances are it will be hit again.

In our department's history we have tried every type of surge protector from dozens of different manufacturers. We tried our best to follow the international lightning protection standards and use spark gapped SPDs in coordination with the MOV SPDs. But no matter what models or brands, when we gave them the job of protecting a cell site on a Hainan mountaintop, the results were always the same: burned equipment.

Ten years ago, with the damage growing, we heard of an American manufacturer of SPDs named MCG Electronics, with a reputation for better protection. It seemed unlikely that any SPD could be effective on our network, but we decided to give them a try. MCG installed surge protectors with a minimum surge rating of 160 kA (8/20 μ s.) These SPDs were designed with multiple paths for backup protection and came with a 20-year warranty.

Many lightning experts had previously told us that our lightning damage was being caused by poor grounding systems. Yet no matter how hard we tried to improve the grounding networks, the lightning protection did not improve. MCG accepted our existing grounding systems, saving us time and expense. We were only required to tie all our groundings together at a single point.

The results: since 2002 we've used MCG surge protectors to protect 50 of our most damaged mountain sites and we can report that in those stations, after the MCG surge protection was installed, lightning damage to the telecommunications equipment totally ceased.

An added yet unexpected benefit has been that, although not designed or installed to protect our 10kW transformers, in those stations where MCG surge protectors were installed, the amount of damage to our transformers has greatly decreased, further improving the dependability of Hainan Unicom's telecommunications network.

Hainan Unicom Network Operations & Maintenance Dept.
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