**Draft new Recommendation ITU-T K.120 (ex. K.lem)**

**Lightning Protection and Earthing of Miniature Base Station**

**Summary**

This Recommendation provides guidelines for lightning protection and earthing of miniature base station. Miniature base station is a new type of radio base station, which is different from distribution base station (DBS) in many respects. Among those, the change of installation environment is the critical factor to affect the lightning protection of miniature base station.

Miniature base stations have low RF power and small volume, which is suitable for coverage of hotspots and/or blind areas to improve the communication quality. Usually, a miniature base stations are installed in ordinarily residential or urban densely populated area (unconventional telecommunication site), for example ceiling (indoor), external wall, advertising board, rooftop, street lighting pole, low-voltage power pole, and so on, where the installation, wiring and earthing is difficult.

In comparison, distribution base stations, within the domain of macro base stations, have high RF power and large volume, which is suitable for wide area coverage. Usually, DBS is installed in conventional telecommunication environment, where the installation, wiring and earthing is easier. Though some installation scenarios are covered by [ITU-T K.97], lightning protection of miniature base stations are not fully specified in ITU-T K Series Recommendations.

The purpose of this Recommendation is to give guidance on protection of miniature base stations against lightning surge, especially for those of unexposed environments (to lightning) and unconventional telecommunication sites.

Protection of miniature base stations is achieved by either surge protective devices or/and components or isolation of interfaces. For those earthing is not available or it is difficult, the base station can be unearthed (floating), as long as the safety measures against electric shock are considered adequately. Bonding configurations of the protection module and of the optical fibre cable are also illustrated.

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