Surge coupling

Because half of the services had GDTs installed, it is assumed that the coupling must have taken place between the phone and the GDT. Two methods have been thought of:

– Induction into the internal cabling: This is thought unlikely as the surge is a transverse current requiring breakdown to ground of one side of the cable. This would require an induced voltage of tens of kilovolts.

– Breakdown from earth to one side of the cable due to a high earth potential rise (EPR) due to a close ground strike: In Australia, indoor cabling is often tacked under the floor of the building and hence breakdown is possible.

Mitigation method/Results/Conclusion

The damage was solved by developing a test to replicate the field damage and by increasing the inherent resistibility of the phone fourfold. It should be noted that the original phone had an inherent resistibility of 4 kV 10/700 µs. Mitigation was very successful as the damage bill was dramatically reduced.

References

Recs ITU-T K.21 and ITU-T K.44