

HAI Model

Release 5.3

Model Description

Appendix B

*Creation of the HM 5.3
Distance Files*

Appendix B – General Rules Governing the Creation of the HM 5.3 Distance Files

- 1) The Local Exchange Routing Guide (“LERG”) is the data source for computation of the distance files.
- 2) The set of eligible independent tandems consists of all existing independent tandems in the study state. At least one Bell Operating Company (“BOC”) tandem and Signal Transfer Point (“STP”) pair are placed in each Local Access and Transport Area (“LATA”); more depending on tandem traffic demand.
- 3) BOCs are limited to one Operator Systems (“OS”) tandem per state in small states (determined by population) and two OS tandems in large states. The set of OS tandems is hand-selected from the list of current OS tandem locations in the study state. Independent tandem distances are computed based on the current locations of all independent OS tandems.
- 4) BOCs are limited to a single STP pair per LATA. The set of independent STPs is the set of all independent STP pairs in the study state. Embedded STP *pairing* relationships are maintained for BOCs and independent companies. Note that embedded STP *homing* relationships are not maintained. LATAs without any STP pairs will be assigned a hand-selected pair of wire centers to serve as the STPs. Hand-selection is rare and only occurs in a few areas (i.e., Alaska, Puerto Rico, etc.).
- 5) Distances between facilities are computed as right angle runs.
- 6) BOC Wire Centers (“WCs”) home on the nearest BOC tandem switch in the same state and LATA. There are some cases where LATA boundaries cross state lines. In this case, BOC WCs will first attempt to home on a tandem or STP in the same state and LATA where the WC is physically located. However, if tandems or STPs do not exist in the same state as the WC, then the WC will home on the nearest BOC tandem and STP pair.
- 7) Independents’ wire centers home on the nearest tandem, regardless of tandem ownership. For example, all of a small ICOs wire centers may home on a BOC tandem, or another larger independent’s tandem. The same rule applies for a larger ICO that may operate a tandem of its own; the ICO wire centers still home on the nearest tandem, regardless of ownership.

There is an exception to the “nearest tandem” associations described above. As a result of the above process, there are cases where only one wire center from a given company is associated with a particular tandem (generally such a tandem will serve many wire centers

from several companies). In other words, this tandem is only serving a single wire center for the company in question. Generally, this situation occurs for single wire center companies, and for larger companies that tend to have isolated (widely dispersed) wire centers. Instead of homing on the nearest tandem, these “straggler” wire centers home on the nearest wire center that is known to have tandem connectivity (i.e., the “most proximate” wire center belongs to a company that operates its own tandem(s)).

After the wire center to tandem homing arrangements are defined, local tandem distances are computed. The local tandem distances for wire centers that have the same National Exchange Carrier Association (“NECA”) ID as their serving tandem are computed as the right-angle run distance between those wire centers and their assigned serving tandem. Local tandem distances for wire centers exhibiting a different NECA ID than their serving tandem are computed as the right-angle run distance between those wire centers and any wire center that has the same NECA ID as the serving tandem (*i.e.*, the “most proximate” wire center adopted above), or the serving tandem itself, whichever yields the shortest distance.

Assigning wire centers to their nearest tandem creates groups of wire centers (possibly owned by a variety of telephone companies) that are served by a common tandem. These large groups are then subdivided into smaller groups by examining the ownership (NECA ID) of all the wire centers in the large group; the wire centers in the large group that share a common NECA ID are aggregated and (typically) form a smaller (sub) group.

After all wire centers associated with a given tandem are aggregated into subgroups, gateway wire centers are selected for all the subgroups exhibiting a different NECA ID than their serving tandem. Gateways serve as a central homing point for these subgroups, and ultimately provide connectivity between all their associated wire centers and the actual serving tandem. The gateway is selected by examining all wire centers in the subgroup, and choosing the one that is the closest to a wire center with the same NECA ID as the actual serving tandem.

Identifying subgroups and designating gateways in the distance files causes the Model to compute ring systems for all telephone companies that operate more than one wire center.

Distance File Contents

The following calculated and non-calculated information will be contained in the state-specific distance files:

Calculated Information

- 1) The WC to tandem homing arrangements that result from the application of the rules defined

in this appendix. This information is necessary when computing interoffice ring distances.

- 2) The WC to tandem/gateway distance.
- 3) The STP to STP (C-link) distance.
- 4) The number of tandems by company code.
- 5) The number of STP pairs by company code.
- 6) The total tandem to STP (A-link) distance by company code.

Non-Calculated Information

Non-calculated information includes the NECA data that is necessary for interoffice ring calculations. These data are included for each CLLI in the study state.

- 1) Vertical coordinate
- 2) Horizontal coordinate
- 3) NECA company code
- 4) Tandem LATA