ANNEX C
(to Recommendation E.506)

Description of axe ""§ top down procedure

Let

XT be the traffic forecast on an aggregated level,

Xi be the traffic forecast to country i,

\s\up4(^)T

\s\up4(^)i

Usually

$$XT \quad Xi, \qquad \text{(C–1)}$$

so that it is necessary to find a correction

$$[X`i] \text{ of } [Xi] \text{ and } [X`T] \text{ of } [XT]$$

by minimizing the expression

$$Q = a0(XT - XT`)2 + \; ai(Xi - Xi`)2 \qquad \text{(C–2)}$$

subject to

$$XT` = i\ Xi` \qquad \text{(C–3)}$$

where a and [ai] are chosen to be

$$a0 = \text{ and } ai = \quad i = 1, 2, \ldots \qquad \text{(C–4)}$$

The solution of the optimization problem gives the values [$X`i$]:

$$Xi` = Xi - \text{\s\up4(^)} \qquad \text{(C–5)}$$

A closer inspection of the data base may result in other expressions for the coefficients [ai], i = 0, 1, . . . On some occasions, it will also be reasonable to use other criteria for finding the corrected forecasting values [$X`i$]. This is shown in the top down example in Annex D.

If, on the other hand, the variance of the top forecast XT is fairly small, the following procedure may be chosen:

The corrections [Xi] are found by minimizing the expression

$$Q` = \text{a}i\,(Xi - Xi`)2 \qquad \text{(C–6)}$$

subject to

$$XT = Xi` \qquad \text{(C–7)}$$

If ai, i = 1, 2, . . . is chosen to be the inverse of the estimated variances, the solution of the optimization problem is given by

$$Xi` = Xi - \backslash s\backslash up4(\hat{}) \qquad \text{(C–8)}$$