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DETERMINATION OF ACCOUNTING RATE SHARES AND COLLECTION CHARGES IN TELEPHONE RELATIONS BETWEEN COUNTRIES IN AFRICA

ITU-T Recommendation D.600 R

(Previously “CCITT Recommendation”)

FOREWORD

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The World Telecommunication Standardization Conference (WTSC), which meets every four years, etablishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1 (Helsinki, March 1-12, 1993).

ITU-T Recommendation D.600 R was revised by ITU-T Study Group 3 (1993-1996) and was approved under the WTSC Resolution No. 1 procedure on the 6 October 1993.

NOTE

In this Recommendation, the expression “Administration” is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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INTRODUCTION

When, in full exercise of their sovereignty, the Administrations of the countries of Africa negotiate among themselves agreements for determining the accounting rate shares and when they fix the collection charges to be applied in their telephone relations, it is recommended that they take into consideration:

- for the determination of accounting rate shares and accounting rates, the provisions of clause 2 (Determination of accounting rates)
- for fixing the collection charges, the provisions contained in clause 3;
- for fixing tariffs and remuneration for the facilities used for international telephone traffic routed via satellite, the provisions of clause 4;
- for fixing tariffs for frontier relations, the provisions contained in clause 5.

DETERMINATION OF ACCOUNTING RATE SHARES AND COLLECTION CHARGES IN TELEPHONE RELATIONS BETWEEN COUNTRIES IN AFRICA[1)]

(revised in 1993)

1 Explanation of some of the terms used in this Recommendation

An explanation of some of the terms used in this Recommendation is given in Recommendation D.000.

2 Determination of accounting rate shares in telephone relations between countries in Africa

2.1 General

2.1.1 Since the setting up of any international call involves both the international network and the national networks of the terminal countries, the accounting rate share for each country is derived from three basic elements, to which separate standard rates are applied:

- the *line* (transmission) part of the international network, which includes the various transmission systems used and is a function of the distance;
- the international exchange, i.e. the *switching* part of the international circuit, plus the terminal transmission equipment;
- the *national extension*, which denotes that part of the national network of each terminal country involved in completing the connection.

2.1.2 In special cases where the *line* (transmission) part of an international connection is:

- a radio link; or
- a satellite link,

the provisions of this Recommendation with regard to the determination of an accounting rate share in relation to the length of the international circuit are not applicable, and accounting rate shares should be agreed upon between the Administrations concerned.

2.2 Charging zones

For calculating accounting rate shares, each country may be divided into charging zones. If need be, different charging zones may be fixed in a given country for traffic exchanged with different countries.

It is desirable that the number of charging zones for international traffic, in any one country, should be reduced to a minimum. As a general rule, in services between non-adjacent countries, each country should constitute one single zone.

[1)] The standard rates given in this Recommendation are expressed in gold francs. In accordance with the International Telecommunication Regulations, the gold franc is equivalent to 1/3.061 SDR.

Recommendation applicable to the African region.

2.3 Calculation of distances (line part)

2.3.1 Distances to be taken into consideration

2.3.1.1 General case

2.3.1.1.1 In determining the share payable to a country for the use of international circuits, the distance to be taken into consideration is:

in a terminal country

– the *crowflight distance* between:

a) the point at which the international circuit crosses the frontier; and

b) the international exchange at which the circuit terminates;

in a transit country

– the *crowflight distance* between the two frontier points at which the international circuit enters and leaves the country in question.

2.3.1.1.2 The same provisions apply to the determination of crowflight distances for groups and supergroups.

The above provisions for the calculation of distances apply to international circuits both on radio-relay links and on land cables.

2.3.1.2 Special cases

2.3.1.2.1 Radio-relay links crossing the sea or a third country

When a frontier is crossed by a radio-relay section of an international circuit passing over a third country or over the sea, without an intermediate relay station, the frontier point for measuring the circuit length shall be the point midway between the two relay stations on either side of the frontier.

2.3.1.2.2 Submarine cables

With regard to international circuits which are routed in submarine cables, the distance to be used for accounting shall be calculated as follows:

a) for the land section of the circuit to the submarine cable station, the distance shall be calculated in accordance with the general principles (i.e. the crowflight distance), it being assumed that the point at which the circuit crosses the frontier is the cable station;

b) for the submarine cable section, the distance used shall be the actual route distance between the submarine cable stations, as determined and agreed by the owners of the cable; the distance will be divided appropriately (normally 50/50) between the countries at the extremities of the cable.

2.3.1.2.3 Special itineraries

In exceptional circumstances, multiplication factors may be applied to the crowflight distance, from which the terminal and transit charges are calculated, to take account of special itineraries. For example, in the case of a direct transit country, the crowflight distance between the points on the frontier at which the circuit enters and leaves the country may (in exceptional circumstances) be replaced by a length representing the sum of two crowflight segments making up a broken line, etc.

2.3.2 Possibility of weighting distances

For calculation of the crowflight distances for the international section, a weighting according to the number of circuits is normally applied in a given relation to simplify accounting:

– when there are several international arteries with different itineraries terminating at an international exchange;

– when there are several international exchanges in a country for the relation concerned.

This weighting serves to determine a length (crowflight distance) for fixing the accounting rate shares relating to the international section and it would remain in force as long as the structure of the network was not significantly changed. This length of the international section would then be used to fix the *international section* element for the charges for international telephone circuits, groups and supergroups.

2.3.3 Rounding off distances

2.3.3.1 Distances less than 50 km shall be rounded up to 50 km.

Example: distance of 24 km rounded up to 50 km.

2.3.3.2 Other distances shall be rounded to the nearest multiple of 50 km.

Examples:

– distance of 72 km rounded to 50 km;

– distance of 126 km rounded to 150 km;

– distance of 175 km rounded to 200 km.

2.3.3.3 This rounding rule applies to the distances in each of the terminal countries and in each of the transit countries and is applied to the total distance calculated for any one country. It is applicable to the remuneration of Administrations both on the basis of a flat-rate price for the facilities made available and on the basis of traffic units.

2.3.3.4 When distances are weighted in accordance with the provisions of 2.3.2 above, the rounding shall be applied only after the weighted distance has been calculated.

2.3.4 Existence of several routes in a given relation

When, in a given relation, there are several routes traversing different transit countries, these transit countries shall in all cases receive the share or flat-rate price normally due to them for the distance between the points of entry and exit; any cost of equalizing collection charges in a relation comprising different routes shall be borne solely by the Administration of the country of origin and no deduction shall be made from the remuneration due to the transit countries.

2.4 Standard rates to be applied for international accounting[2)]

For international accounting purposes, there are two methods of remuneration for the facilities made available by Administrations:

– on the basis of traffic units;

– on the basis of a flat-rate price for the facilities made available.

2.4.1 Remuneration on the basis of traffic units

To determine the accounting rate shares for each country, the following standard rates, *per minute of conversation time*, are recommended; however, these rates represent a maximum which Administrations undertake not to exceed:

1) *International network*

a) *Manual operation*

– *per 100 km* of international circuit (excluding any national circuit required for connecting the international exchange to the national exchange serving the subscriber)..... 5 gold centimes

– for the manual international exchange in the country of origin or destination ..... 57 gold centimes[3)]

– for a manual international exchange in a transit country..... 63 gold centimes[3)]

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2) *Use of charged time instead of conversation time for international accounting*

According to their equipment, some Administrations may have to use charged time data for international accounts instead of conversation time, the charged time being given, for example, by the operator's ticket. In such a case, the Administration of origin will consult with the Administration of destination and, when necessary, with the Administration of transit countries to see whether it is necessary to adjust the number of minutes entered in the international accounts to make allowance for the small difference which may exist between the charged time they use and the conversation time they should use for accounting according to Recommendation D.150 and the present Recommendation.

3) This share includes the cost of the transmission equipment for one extremity in terminal operation and for two extrimities in transit operation.

b) *Semi-automatic and automatic operation*

– *per 100 km* of international circuit (excluding any national circuit required for connecting the international exchange to the national exchange serving the subscriber)	5	gold centimes
– for the semi-automatic international exchange in the country of origin:	45.5	gold centimes
– for the automatic international exchange in the country:		
of origin	24.5	gold centimes[3)]
of destination	18.5	gold centimes[3)]
– for an automatic international exchange (in a transit country)	35	gold centimes[3)]

2) *National extension*

When determining the accounting rates, an amount may be added to cover the costs of the extension of calls over the national network. This amount should be determined by the Administration of each country after consideration of the volume and distribution of traffic on the national extension in that country for each relation concerned. It is recommended that as a general rule this amount should not exceed 50 gold centimes per minute. This amount is considered as covering the costs of switching and accounting operations and, normally, of transmission over the national extension.

2.4.2 Remuneration on the basis of a flat-rate price for the facilities made available

2.4.2.1 Remuneration of a direct transit country

2.4.2.1.1 To determine the flat-rate price for remuneration for the transmission facilities made available by Administrations, the following standard rates are recommended; however, these rates represent a maximum which Administrations undertake not to exceed:

	Per year and per 100 km of transmission channel (line part)	
– per supergroup	54 000	gold francs[4)]
– per group	13 000	gold francs[4)]
– per telephone circuit	1 300	gold francs[4)]

2.4.2.1.2 When a circuit leased to a private user passes through a direct transit country, the Administration of this country will be remunerated by the Administrations of the terminal countries with a flat-rate price on the same basis as if the circuit were an ordinary public service circuit applying the rate in 2.4.2.1.1 above.

2.4.2.2 Remuneration of a country of destination

To determine the flat-rate price for remuneration of the country of destination for the facilities made available by Administrations, the following standard rates are recommended; however, these rates represent a maximum which Administrations undertake not to exceed:

1) *For the transmission channel (line part)*

	Per year and per 100 km	
– for a telephone circuit	1 300	gold francs
– for a group	13 000	gold francs
– for a supergroup	54 000	gold francs

4) Including, wherever applicable, the use of modulation and demodulation equipment or throughband filters in the direct transit country.

2) *For the international exchange* (including the terminal transmission equipment)

– per year and per international circuit connected

Manual operation	*Automatic operation*
$0.57^{5)} \times 30\,000^{6)}$	$0.185^{5)} \times 40\,000^{7)}$
= 17 100 gold francs	= 7400 gold francs

3) *For the national extension*

– per year and per international circuit connected

Manual operation	*Automatic operation*
$PN^{8)} \times 30\,000^{6)}$	$PN^{8)} \times 40\,000^{7)}$

4) The remuneration for terminal transmission equipment has been included in the preceding point 2) based on annual costs per extremity of:

– 9200 supergroup;

– 4400 group;

– 1800 circuits.

2.4.3 All the amounts given in clause 2 above are reproduced in Tables A.1, B.1 and C.1.

3 Determination of collection charges in telephone relations between countries in Africa

3.1 General

The establishment of the collection charge is a national matter. Although, in general, Administrations correlate collection charges and accounting rates, the two will not necessarily be the same for a number of reasons, for example:

a) in most countries, collection charges and accounting rates will be expressed in different currencies;

b) collection charges and accounting rates may be based on different traffic units;

c) the value of national currencies may fluctuate relative to the gold franc;

d) collection charges may be influenced by government fiscal policies;

e) Administrations frequently establish common collection charges for geographical zones or groups of countries;

f) in many relations there will be different routes with different accounting rates to which a single collection charge will be applied.

3.2 Charging zones

For the determination of collection charges each country may be divided into charging zones. If need be, different charging zones may be fixed in a given country for traffic exchanged with different countries.

It is desirable that the number of charging zones for international traffic, in any one country, should be reduced to a minimum. As a general rule, in services between non-adjacent countries, each country should constitute one single zone.

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5) The cost of the transmission equipment for one extremity is included in the amount of 57 and 18.5 gold centimes.

6) Average number of minutes of traffic routed per year and per manual international telephone cicuit.

7) Average number of minutes of traffic routed per year and per semi-automatic or automatic international telephone circuit.

8) PN represents the amount, per minute of conversation time, of the share to be fixed by each Administration for the extension of the connection on national territory.

The fixing of zones for collection charges does not imply the same measure for accounting rate shares which can be weighted appropriately to make allowances for a zonal structure. Similarly, the fixing of zones for accounting rate shares (see 2.2 above) does not imply any requirement for fixing zones for collection charges.

3.3 Determination of collection charges

3.3.1 If, taking into account the factors in 3.1 and 3.2 above, an Administration wishes to fix a collection charge at a higher or lower amount than the direct equivalent of the accounting rate, it may apply a multiplication factor K. This factor K should not be more than 1.5 when applied to the accounting rate in the relation concerned.

As a general principle, Administrations should make every effort to avoid too large a dissymmetry between the collection charges applicable in each direction of the same relation and should endeavour to agree upon application of the same factor K. Collection charges should be fixed at reasonable levels and the factor K = 1.5 is a maximum which should not be applied automatically. The factor K may be different for the different relations operated by an Administration.

NOTE – It is emphasized that the application of a factor K should have no effect on international accounting.

3.3.2 In considering the collection charges for a relation in which automatic and semi-automatic working both exist, each Administration should decide to fix its charges, either

- by establishing different charges for each method of operation; or
- by establishing a single collection charge weighted according to the volume of each type of traffic.

3.4 Examples of how to apply the standard rates mentioned in clause 2 above for determining collection charges in gold francs

The following tables give examples of the application of standard rates to calculate collection charges and show how the latter can be used to establish scales of collection charges (in gold francs) for application in the African region.

These scales are based on the principle of a sliding scale according to distance and therefore consist of rate steps corresponding to distance steps of 500 km and 1000 km.

To avoid excessive differences between collection charges and accounting charges for small distances (for example, in the relations between neighbouring countries) a factor K slightly more than 1 was applied, while for longer distances a higher factor K appeared suitable.

3.4.1 International manual telephone operation

See Table 1.

3.4.2 International automatic telephone operation

See Table 2.

4 Tariffs and remuneration for facilites used for international telephone traffic in Africa routed via satellite

Some provisions on the fixing of tariffs and remuneration for the facilities used for international telephone traffic routed via satellite are contained in Annex D.

5 Frontier relations between African countries

The conditions governing the establishment and operation of frontier relations depend largely on the structure of the national networks in the frontier areas. These conditions tend to alter, particularly as a result of network automation, which leads in turn to automation of frontier relations. Consequently, the collection charges applied to these relations are tending to become increasingly subject to the limitations imposed by the automatic charging equipments used. The collection charges and accounting rates to be applied to frontier relations should therefore be fixed by agreement among the Administrations concerned.

Whenever the situation permits, there should be no exchange of international accounts for frontier calls, the entire charge being retained by the Administration which collects it.

TABLE 1/D.600 R

Distance steps[a]	Accounting rates			Collection charges			Factor K
	Share independent of distance (in gold francs)	Share based on distance[a] (in gold francs)	Total (in gold francs)	Share independent of distance (in gold francs)	Share based on distance[a] (in gold francs)	Total (in gold francs)	
0 - 500 km	2.14 [b]	0.25	2.39	2.27	0.26	2.53	1.06
500 - 1000 km	2.14	0.50	2.64	2.27	0.53	2.80	
1000 - 1500 km	2.14	0.75	2.89	2.27	0.80	3.07	
1500 - 2000 km	2.14	1.00	3.14	2.27	1.06	3.33	
2000 - 3000 km	2.14	1.50	3.64	2.27	1.59	3.86	
3000 - 4000 km	2.14	2.00	4.14	2.27	2.12	4.39	
> 4000 km (5000 km)	2.14	2.50	4.64	2.46	2.87	5.33	1.15

a) To calculate the accounting rate share based on distance, the maximum distance in each step was taken.

b) This share was calculated as follows:

	Country of origin	Country of destination
National extension	0.50	0.50
International exchange	0.57	0.57
Total	1.07	1.07
	2.14 gold francs	

TABLE 2/D.600 R

Distance steps[a]	Accounting rates			Collection charges			Factor K
	Share independent of distance (in gold francs)	Share based on distance[a] (in gold francs)	Total (in gold francs)	Share independent of distance (in gold francs)	Share based on distance[a] (in gold francs)	Total (in gold francs)	
0 - 500 km	1.42[b]	0.25	1.67	1.50	0.26	1.76	1.06
500 - 1000 km	1.42	0.50	1.92	1.50	0.53	2.03	
1000 - 1500 km	1.42	0.75	2.17	1.50	0.80	2.30	
1500 - 2000 km	1.42	1.00	2.42	1.50	1.06	2.56	
2000 - 3000 km	1.42	1.50	2.92	1.50	1.59	3.09	
3000 - 4000 km	1.42	2.00	3.72	1.50	2.12	3.62	
> 4000 km (5000 km)	1.42	2.50	3.92	1.59	2.87	4.46	1.12

a) To calculate the accounting rate share based on distance, the maximum distance in each step was taken.

b) This share is calculated as follows:

	Country of origin	Country of destination
National extension	0.50	0.50
International exchange	0.24[c]	0.18[c]
Total	0.74	0.68
	1.42 gold franc	

c) Rounded sum

Annex A

Standard rates to be applied in Africa in determining accounting rate shares in the telephone service

(traffic unit basis)

(This annex forms an integral part of this Recommendation)

See Tables A.1a) and A.1b).

TABLE A.1a)/D.600 R

Accounting rate shares applicable in terminal countries per minute of conversation time

Direction of operation	Manual operation		Semi-automatic operation		Automatic operation	
	Transmission (per 100 km of circuit)	International exchange[a)]	Transmission (per 100 km of circuit)	International exchange[a)]	Transmission (per 100 km of circuit)	International exchange[a)]
Outgoing	5 gold centimes	57 gold centimes	5 gold centimes	45.5 gold centimes	5 gold centimes	24.5 gold centimes
Incoming	5 gold centimes	57 gold centimes	5 gold centimes	18.5 gold centimes	5 gold centimes	18.5 gold centimes

a) Including the cost of the transmission equipments for one extremity in terminal operation and for two extremities in transit operation.

TABLE A.1b)/D.600 R

Accounting rate shares applicable in transit countries per minute of conversation time

Direct transit		Switched transit			
Manual	Automatic	Manual		Automatic	
Transmission (per 100 km of circuit)	Transmission (per 100 km of circuit)	Transmission (per 100 km of circuit)	International exchange[a)]	Transmission (per 100 km of circuit)	International exchange[a)]
5 gold centimes	5 gold centimes	5 gold centimes	63 gold centimes	5 gold centimes	35 gold centimes

a) Including the cost of the transmission equipments for one extremity in teminal operation and for two extremities in transit operation.

Annex B

Standard rates to be applied in Africa in remuneration for transmission facilities made available by Administrations in a direct transit country

(flat-rate basis)

(This annex forms an integral part of this Recommendation)

See Table B.1.

TABLE B.1/D.600 R

Unit element considered	Transmission (*line* part)
	Rates per 100 km per annum (in gold francs)
Supergroup	54 000[a)]
Group	13 000[a)]
Telephone circuit	1300[a)]

a) Including, wherever applicable, use of modulation and demodulation equipment or throughband filters in the direct transit country.

Annex C

Standard rates to be applied in Africa in remuneration for facilities made available by Administrations in a destination country

(flat-rate price basis)

(This annex forms an integral part of this Recommendation)

See Table C.1.

TABLE C.1/D.600 R

Unit element considered	Transmission (line part)	International exchange		National extension	
		Operation		Operation	
	Per 100 km and per year	Manual	Automatic	Manual	Automatic
		Per year	Per year	Per year	Per year
International circuit	1300 gold francs				
Group	13 000 gold francs	0.57[a] × 30 000[b] = 17 100 gold francs	0.185[a] × 40 000[c] = 7400 gold francs	PN[d] × 30 000[b]	PN[d] × 40 000[c]
Supergroup	54 000 gold francs				

a) The cost of the transmission equipment for one extremity is included in the amounts of 57 and 18.5 gold centimes.

b) Average number of minutes of traffic routed per year and per manual international telephone circuit.

c) Average number of minutes of traffic routed per year and per semi-automatic or automatic international telephone circuit.

d) PN represents the amount, per minute of conversation time, of the share to be fixed by each Administration for the extension of the connection on national territory.

Annex D

Tariffs and remuneration for the facilities used for international telephone traffic in Africa routed via satellite

(This annex forms an integral part of this Recommendation)

D.1 Tariffs

Contrary to what may be observed with regard to relations depending on land circuits, the distance factor has little effect on the cost of the facilities used to set up satellite links. Nevertheless, it is generally desirable for a number of reasons (uniformity of rates regardless of the transmission medium used, concept of service rendered, political considerations, etc.) to establish a rates system based on distance in relations using these transmission facilities, i.e. to apply the same scale of collection charges as in relations established on land transmission systems.

D.2 Remuneration for facilities

D.2.1 Direct links between terminal countries

When satellite circuits are used, remuneration for the facilities made available in the country of destination may be based, in accordance with Recommendation D.150, on either;

– the accounting revenue division procedure; or

– the traffic unit price procedure.

D.2.1.1 Accounting revenue division procedure

When the accounting revenue division procedure is applied, it is generally agreed that the revenue should be shared on a 50/50 basis, regardless of the mode of operation.

D.2.1.2 Traffic unit price procedure

When the traffic unit price procedure is used, the accounting rate share might initially be fixed as indicated below; however, this share represents a maximum which Administrations undertake not to exceed:

– *Share per minute: 0.85 gold francs*

This share covers only the path between the satellite and the international exchange (excluding that exchange). The shares for the international exchange and the national extension, as laid down in clause 2, should therefore be added.

The share of 0.85 gold francs per minute mentioned above is based on the assumption that the earth station provides 60 circuits, each of which handles an average of 60 000 minutes of conversation time per year. On the same assumption, the cost of the space segment (1/2 circuit) has been fixed at 11 400 gold francs per year.

D.2.2 Transit links

D.2.2.1 Direct satellite link set up in transit via an earth station in a third country

The Administration operating the earth station in the third country is remunerated on the flat-rate price basis. This remuneration might be fixed initially at *40 000 gold francs per year per circuit*. However, this amount represents a maximum which Administrations undertake not to exceed.

This amount covers the costs of the earth station (excluding the space segment) and the extension to the international exchange in the third country. It is based on the assumption that the earth station would set up 60 circuits.

D.2.2.2 Switched transit link

The remuneration of the country providing switched transit and of the country of destination may be based either on the accounting revenue division procedure using an agreed key or on the traffic unit price procedure. In the latter case the shares to be considered are those given in this annex and in the Recommendation itself.