INTERNATIONAL TELECOMMUNICATION UNION

ITU-T D.500 R

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TELECOMMUNICATION
STANDARDIZATION SECTOR
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SERIES D: GENERAL TARIFF PRINCIPLES

Recommendations for regional application –
Recommendations applicable in Asia and Oceania

Accounting rates applicable to telephone relations between countries in Asia and Oceania

ITU-T Recommendation D.500 R
Superseded by a more recent version

(Previously CCITT Recommendation)

ITU-T D-SERIES RECOMMENDATIONS

GENERAL TARIFF PRINCIPLES

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ITU-T RECOMMENDATION D.500 R

ACCOUNTING RATES APPLICABLE TO TELEPHONE RELATIONS BETWEEN COUNTRIES IN ASIA AND OCEANIA

Source

ITU-T Recommendation D.500 R was revised by ITU-T Study Group 3 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 30th of May 1997.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes 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.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

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

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

CONTENTS

Recommendation D.500 R

ACCOUNTING RATES APPLICABLE TO TELEPHONE RELATIONS BETWEEN COUNTRIES IN ASIA AND OCEANIA

(revised in 1997)

When, in full of their sovereignty, the Administrations of the countries in Asia and Oceania negotiate among themselves agreements to determine the accounting rates to be applied in their telephone relations, it is recommended that they give consideration to the provision detailed below.

1 Determination of accounting rates applicable in telephone relations between countries in Asia and Oceania

1.1 In traffic relations where analytical cost data is available, such data should form the basis for bilateral negotiations as provided for in the ITU Regulations and Recommendation D.140. However, where such data cannot be made available, the following distance-based maximum accounting rates are recommended[1]: **Error! Bookmark not defined.Error! Bookmark not defined.**

Zone	Distance	Maximum accounting rate per minute
1	0 to 3000 km	0.82 SDR
2	3001 to 6000 km	0.96 SDR
3	Over 6000 km	1.02 SDR

1.2 Notwithstanding the maximum accounting rate levels shown above, Administrations should endeavour to achieve cost-orientated accounting rates.

1.3 The distances indicated in the above scale are those between the appropriate international exchanges in the originating and destination countries.

1.4 It is also recommended that each country should normally constitute a single area for the purpose of fixing accounting rates. However, in relations between adjacent countries, a country may be divided into several areas. In this case, the number of such areas for international traffic should be reduced to a minimum.

1.5 It is recognized that in some cases, such as transit-switched services, Administrations may apply rates which reflect additional costs.

1.6 Administrations should seek to implement this Recommendation in an expeditious manner, recognizing that this may need to be done on a scheduled basis where the level of reduction required is significant. In the event of scheduling, Administrations should aim to implement this Recommendation before the end of June 1998.

2 Frontier relations between countries in Asia and Oceania

The accounting rates to be applied to frontier relations should be fixed by agreement between the Administrations concerned.

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[1] The accounting rates given in this Recommendation are expressed in the monetary unit of the International Monetary Fund (IMF), the Special Drawing Right (SDR).

In accordance with the International Telecommunication Regulations, the gold franc is equivalent to 1/3.061 SDR.

Superseded by a more recent version

Appendix I

TAS Group Cost Elements for Inward IDD Services

A. DIRECT RELATIONS

I. Direct costs

Facility, investment & operating costs

1) International exchange cost:
   - International telecommunication maintenance and operation centre.
   - Telephone exchange.
   - Associated transmission & signalling equipment.
2) Earth Station.
3) Cable Station.
4) Submarine/terrestrial cable system.
5) National links between Earth Stations and Cable Landing Station and international exchanges and between international exchanges.
6) International terrestrial radio links.

NOTE – Investment means depreciation or replacement expenses. Operating means operation and maintenance costs associated with these facilities and should include costs incurred during the year on regular and normal repairs; consumable materials, electricity and other utility charges; rentals; labour costs of staff providing operation, repair and maintenance.

Rental and lease cost

1) Space segment.
2) Facilities where applicable (for example leasing an exchange).
3) Administration lease.

National extension cost

A) Combined international/national ROA investment and operating cost:
   1) National exchanges;
   2) National transmission facilities;
   3) Local loop, if applicable and identified under a bilateral or multilateral agreement; or

B) Separate international and national ROA

   Payment by international ROA to the national ROA on the basis of:
   1) Per minute;
   2) Annual lump sum;
   3) Revenue/cost sharing:

      (e.g. percentage of International collections); or
   4) Combination of any of the above three.

Cost of funds invested

1) Interest and charges on borrowed funds.
2) Reasonable return on own investment.

II Indirect costs

A) General Administration (non-facility)

1) Human resources and human resources development.

2) Building and its support services (depreciation).

3) Office equipment (depreciation).

4) Transport and travel.

5) Management system (e.g. accounting system).

B) Appropriate taxes or equivalent

III Other related costs

Other costs may qualify for inclusion by bilateral agreement, e.g.:

Temporary alternative routing (overflow transit) (Note 1)

NOTE 1 – Inclusion of transit costs are applicable only for incoming terminating overflow traffic where D.155 divisioning of accounting rates is observed.

Direct and Indirect R&D Costs

B. INDIRECT RELATIONS

I IDD direct relation cost on the route from the last switched transit provider

II Switched transit cost

Half the switched transit provider's (or providers') published transit charge (or charges).

NOTE – If there are more than one transit provider, i.e. a double transit route, then the switched transit cost is half the sum of the Transit providers' published transit charges.

Appendix II

Apportionment methodology for an incoming IDD telephone traffic cost model

The apportionment methodology below assumes each ROA has determined the total cost of each element defined in a preceding section "TAS Group Cost Elements For IDD Service", for a given year.

Section A – Total cost (All Services) apportionment to the telephone service

Allocation of a portion of total costs for each element, as discussed above, must be made to the Telephone service only. The following apportionment methodology is adopted by the TAS Group.

Each ROA may use reasonable apportionment methodology, if any, other than the apportionment methodology below.

A. DIRECT RELATIONS

I Direct costs

Facility, investment & operating costs

1) International exchange cost

– International telecommunication maintenance and operation centre

Total ITM&OC costs should be apportioned to the telephone service according to reasonable methodology such as the ratio of bearer capacity by which the establishment of international circuits for the telephone is reasonably made distinct.

$$\text{Total ITM\&OC Costs Apportioned to Telephone} = \frac{\text{Telephone ITM\&OC Bearer Capacity}}{\text{All Services Total ITM\&OC Bearer Capacity}} \times \text{Total ITM\&OC Cost}$$

NOTE – This method is named the **Bearer Capacity Basis**.

– Telephone exchange

– Associated transmission & signalling equipment

The above two international exchange costs are apportioned in total to the telephone service in principle.

2) Earth Station

$$\text{Total Earth Station Costs Apportioned to Telephone} = \frac{\text{Telephone Satellite Bearer Capacity}}{\text{All Services Total Satellite Bearer Capacity}} \times \text{Total Earth Station Cost}$$

3) Cable Station

Firstly, cable station costs are allocated to a particular cable system based on their design use, for example, a cable station supporting two cable systems: Cable A = 5000 bearer circuits and Cable B = 2000 bearer circuits

$$\text{Cable A Allocation} = \frac{\text{A design capacity}}{\text{(A + B) design capacity}} \times \text{Total Cable Station Cost}$$

$$= \frac{5000}{7000} \times \text{Total Cable Station Cost}$$

$$\text{Cable B allocation} = \frac{2000}{7000} \times \text{Total Cable Station Cost}$$

Secondly, each portion of the cable station cost (A + B) is then allocated to the telephone service based on cable system usage:

$$\text{Portion A of Total Cable Station Costs Apportioned to Telephone} = \frac{\text{Telephone Cable A Bearer Capacity}}{\text{All Services Cable A Bearer Capacity}} \times \text{Portion A Cable Station Cost}$$

$$\text{Portion B of Total Cable Station Costs Apportioned to Telephone} = \frac{\text{Telephone Cable B Bearer Capacity}}{\text{All Services Cable B Bearer Capacity}} \times \text{Portion B Cable Station Cost}$$

4) Submarine/terrestrial cable system

$$\text{Total Submarine/Terrestrial Costs apportioned to Telephone} = \frac{\text{Telephone Submarine/Terrestrial,Bearer Capacity}}{\text{All Services Submarine/Terrestrial Bearer Capacity}} \times \text{Total Cable Submarine/ Terrestrial Bearer Capacity}$$

5) National links between Earth Stations and Cable Landing Station and international exchanges and between international exchanges

Apportioned to telephone on the above-mentioned bearer capacity basis.

6) International terrestrial radio links

Apportioned to telephone on the above-mentioned bearer capacity basis.

Rental and lease cost

1) Space segment

Space segment rental costs should be able to be identified on a service basis and therefore can be easily apportioned to telephone. Where a satellite bearer is shared between services, the apportionment to telephone can be achieved on a sub-bearer capacity basis.

2) Facilities where applicable

The lease cost of facilities (e.g. telephone exchange) can be apportioned to telephone using the methodology outlined in "Facility Investment and Operating Costs" above.

3) Administration lease

Apportionment to telephone on the same basis as "Space Segment" above.

National extension cost

Whether A or B (combined international/national or separate international/national ROAs) is applicable, it should be possible to identify and apportion costs for the national network which relate to the extension of the international telephone service only.

Cost of funds invested

1) Interest and charges on borrowed funds

Cost of interest and charges on borrowed funds for investment made in the international telephone network.

2) Reasonable return on own investment

A reasonable return on own investment based on the net fixed assets employed in the international telephone service (a return for that portion of assets assigned to the international telephone service from the national extension should also be included).

II Indirect costs

A) General Administration (non-facility)

B) Appropriate taxes or equivalent

A reasonably accurate apportionment methodology to allocate indirect costs to the telephone service is Activity Based Costing (ABC). This methodology involves the surveying of staff to determine what proportion of their time (and therefore associated costs such as building, support services, transport, travel, office equipment, etc.) is spent on the telephone service versus other services. This proportion can then be used to allocate total indirect costs to the telephone service.

Apportionment of indirect costs to the telephone service based on the number of workforce directed to the telephone service to the total number of workforce would be an alternative method.

However, in the absence of other more accurate methodologies, apportionment of indirect costs to the telephone service based on the proportion of telephone direct cost to total direct cost would be appropriate.

III Other related costs

Other costs may qualify for inclusion by bilateral agreement, e.g.:

Temporary Alternative Routing (Overflow)

The following apportionment methodology provides a per minute world average cost of incoming transit where D.155 divisioning is observed.

$$\frac{\text{World incoming terminal traffic received via Overflow routes} \times \text{½ Average Transit Fee}}{\text{World incoming total telephone traffic}} \text{ per minute}$$

Direct and Indirect R&D Costs

Methodologies outlined in I or II would provide a guideline depending on whether the cost was direct or indirect for these costs.

B. INDIRECT RELATIONS

Where the PRIMARY route between two ROAs requires a switched transit provider (or providers to onpass traffic between the origin and destination, then from the perspective of the destination, the cost to terminate IDD traffic received on an indirect route can be broken into two elements:

I IDD direct relation cost on the route from the last switched transit provider

This cost is calculated with reference to Section A of this Appendix.

II Switched transit costs

Under D. 155 accounting rate apportionment on a Switched transit relation, the origin and destination share the switched transit provider's charge equally. Therefore the destination's cost should include half the switched transit provider's charge (see Note).

NOTE – If multiple transit carriers are used, then the destination's cost is half the sum of the Transit providers' published charges.

The addition of elements I and II provides the effective cost to the destination of terminating such inward IDD traffic on an indirect route. As a result, the inward costs associated with a given origin will differ depending on the route's cost with, and charges levied by, different switched transit providers.

Section B – Methodology to determine the world average cost per minute to terminate incoming IDD telephone traffic

The following section provides a methodology to calculate incoming costs on a per minute basis adopted by the TAS Group.

With reference to the list of cost elements used in terminating IDD telephone traffic, as previously noted, other non-telephone services (private leases, telex, packet switching, etc.) also utilise some of these elements. Using the above methodology, each ROA is able to determine the cost of each of these elements, a total cost of the IDD elements used in providing the total telephone service will be provided for the year (note that some costs may already be expressed as a per minute figure, e.g. incoming transit and national extension, and therefore need to be excluded until later in the exercise).

It is important to recognise that these IDD elements are also used to provide all other telephone services, for example, person to person, station to station, collect, toll free, Country Direct, etc. Furthermore, outgoing and incoming traffic of all these telephone services utilise these elements equally.

Therefore, the total cost of IDD elements should be divided by the ROA's total annual world bothway (incoming, outgoing and transiting) total telephone traffic. This per minute figure (added to per minute costs, e.g. incoming transit and national extension) represents the ROA's world average per minute cost to terminate incoming IDD traffic.

$$\text{ROA's World Average Per Minute Cost to Terminate Incoming IDD Traffic} = \frac{\text{Total Costs Apportioned to IDD Elements of the Telephone Service}}{\text{ROA's World Bothway (Incoming; Outgoing and Transiting) Total Telephone Traffic}} + \text{Per Minute Costs (e.g. incoming transit and national extension)}$$

In the case where an ROA is unable to determine costs on a stream basis, the above world average cost per minute to terminate incoming IDD telephone traffic can be used in bilateral negotiation and adjusted for stream specific characteristics by agreement.

Section C – Stream costing

Each ROA, where possible, may calculate the cost of each element on a stream basis, using the apportionment methodology below. However, it is recognised that some cost elements are either too difficult or not appropriate to apportion on a stream basis; in this case the world average cost may be used. The combination of stream costs and world average costs as detailed in Section C, Part 2, may be used to determine individual stream costs.

PART 1 – Apportionment of telephone costs by stream

The following Section deals with a stream apportionment methodology adopted by the TAS Group.

Depending on the detail of information possessed by an ROA, it is possible to determine the per minute cost to terminate incoming traffic from each direct stream *and each indirect route.* This can be achieved by apportionment of the cost elements results obtained in Section A on a stream basis where possible as detailed below.

A. DIRECT RELATIONS

I Direct costs

Facility, investment & operating costs

1) International exchange

– International Telecommunication Maintenance and Operation Centre

$$\frac{\text{Number of Derived Telephone Circuits On Stream}}{\text{Total Derived Telephone Circuits To The World}} \times \text{Total ITM\&OC Cost}$$

Total ITM&OC costs should be apportioned to the telephone service according to reasonable methodology such as the ratio of the number of circuits by which the establishment of international circuits for the telephone is reasonably made distinct.

– Telephone exchange

– Associated transmission & signalling equipment

World Average Cost may be used.

2) Earth Station

$$\text{Earth Station Telephone Costs Apportioned to Stream} = \frac{\text{Stream Telephone Satellite Bearer Capacity}}{\text{Total Telephone Satellite Bearer Capacity to the World}} \times \text{Earth Station Telephone Cost}$$

The bearer capacity basis may be substituted, when appropriate, by the number of circuits whereupon this method is named the stream number of circuits basis.

3) Cable Station

(Refer Section A for definition of Portions A & B)

$$\text{Portion A of the Cable Station Telephone Cost Apportioned to Stream} = \frac{\text{Stream Telephone Cable A Bearer Capacity}}{\text{Total TelephoneCable A Bearer Capacity}} \times \text{Portion A Cable Station Telephone Cost}$$

$$\text{Portion B of the Cable Station Telephone Cost Apportioned to Stream} = \frac{\text{Stream Telephone Cable B Bearer Capacity}}{\text{Total Telephone Cable B Bearer Capacity}} \times \text{Portion B Cable Station Telephone Cost}$$

4) Submarine/terrestrial cable system cost

$$\text{Total Submarine/Terrestrial Telephone Costs Apportioned to Stream} = \frac{\text{Stream Telephone Submarine/Terrestrial Bearer Capacity}}{\text{Total Telephone Submarine/Terrestrial Bearer Capacity}} \times \text{Total Cable Submarine /Terrestrial Bearer Capacity}$$

5) National links between Earth Stations and Cable Landing Station and international exchanges and between international exchanges

Apportioned to stream on the above-mentioned stream bearer capacity basis.

6) International terrestrial radio links

Apportioned to stream on the above-mentioned stream bearer capacity basis.

Rental and lease cost

1) Space segment

Telephone space segment rental costs should be able to be identified on a stream basis and therefore can be easily apportioned to a stream. Where a satellite bearer is shared between streams, the apportionment to telephone can be achieved on a sub-bearer capacity basis.

2) Facilities where applicable

The telephone lease cost of facilities can be apportioned to stream using the methodology outlined in "Facility Investment and Operating Costs" above.

3) Administration lease

Apportionment to a stream on the same basis as "Space Segment" above.

National extension cost

World Average Cost may be used.

Cost of funds invested

1) Interest and charges on borrowed funds

   World Average Cost may be used.

2) Reasonable return on own investment

   World Average Cost may be used.

II Indirect costs

World Average Cost may be used.

III Other related costs

Other costs may qualify for inclusion by bilateral agreement, e.g.:

Temporary alternative routine (overflow transit)

The following apportionment methodology provides a per minute world average cost of incoming transit where D.155 divisioning is observed.

$$\frac{\text{Stream incoming terminal traffic received via Overflow routes} \times \text{½ Average Transit Fee}}{\text{Stream incoming total telephone traffic}} \text{ per minute}$$

Direct and Indirect R&D Costs

Methodologies outlined in I or II would provide a guideline depending on whether the cost was direct or indirect.

B. INDIRECT RELATIONS

Where the PRIMARY route between two ROAs requires a switched transit provider (or providers) to onpass traffic between the origin and destination, then from the perspective of the destination, the cost to terminate IDD traffic received on an indirect route can be broken into two elements:

I IDD direct relation cost on the route from the last switched transit provider

This cost is calculated with reference to Part *A* of Section C of this Appendix.

II Switched transit costs

Under D. 155 accounting rate apportionment on a Switched transit relation, the origin and destination share the switched transit provider's charge equally. Therefore the destination's cost should include half the switched transit provider's charge (see Note).

NOTE – If multiple transit carriers are used, then the destination's cost is half the sum of the Transit providers' published charges.

The addition of elements I and II provides the effective cost to the destination of terminating such inward IDD traffic on an indirect route. As a result, the inward costs associated with a given origin will differ depending on the route's cost with, and charges levied by, different switched transit providers.

PART 2 – Methodology to determine the stream cost per minute to terminate incoming IDD telephone traffic

A. DIRECT RELATIONS

1) Those cost elements which can be apportioned by stream are divided by the ROA's annual bothway (incoming, outgoing and transiting) total telephone traffic on that stream.

2) Those cost elements which are unable to be apportioned by stream (labelled "Extremely difficult to apportion by stream") are divided by the ROA's annual world bothway (incoming, outgoing and transiting) total telephone traffic.

3) Those elements which are already expressed as a per minute cost (e.g. incoming transit and national extension).

The per minute results of 1, 2 and 3 are added to produce the cost per minute to terminate incoming IDD telephone traffic on that stream. This per minute figure is likely to be different on each stream and provides a more accurate result than the world average result discussed in Section B. This is due to the fact that the stream apportionment method takes account of the different traffic levels, facilities employed and circuit efficiencies between streams.

$$\text{ROA's Stream Per Minute Cost to Terminate Incoming IDD Traffic} = \frac{\text{Telephone Costs Apportioned by Stream}}{\text{ROA's Stream Bothway (Incoming; Outgoing and Transiting) Total Telephone Traffic}} + \frac{\text{Telephone Costs Not Apportioned by Stream}}{\text{ROA's World Bothway (Incoming; Outgoing and Transiting) Total Telephone Traffic}} + \text{Per Minute Costs (e.g. incoming transit and national extension)}$$

B. INDIRECT RELATIONS

Where the PRIMARY route between two ROAs requires a switched transit provider (or providers) to onpass traffic between the origin and destination, then from the perspective of the destination, the cost to terminate IDD traffic received on an indirect route can be broken into two elements:

I IDD direct relation cost on the route from the last switched transit provider

This cost is calculated with reference to Part 2 of Section C of this Appendix.

II Switched transit costs

Under D.155 accounting rate apportionment on a Switched transit relation, the origin and destination share the switched transit provider's charge equally. Therefore the destination's cost should include half the switched transit provider's charge (see Note).

NOTE – If multiple transit carriers are used, then the destination's cost is half the sum of the Transit providers' published charges.

The addition of elements I and II provides the effective cost to the destination of terminating such inward IDD traffic on an indirect route. As a result, the inward costs associated with a given origin will differ depending on the route's cost with, and charges levied by, different switched transit providers.

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Series A	Organization of the work of the ITU-T
Series B	Means of expression: definitions, symbols, classification
Series C	General telecommunication statistics
Series D	**General tariff principles**
Series E	Overall network operation, telephone service, service operation and human factors
Series F	Non-telephone telecommunication services
Series G	Transmission systems and media, digital systems and networks
Series H	Audiovisual and multimedia systems
Series I	Integrated services digital network
Series J	Transmission of television, sound programme and other multimedia signals
Series K	Protection against interference
Series L	Construction, installation and protection of cables and other elements of outside plant
Series M	TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits
Series N	Maintenance: international sound programme and television transmission circuits
Series O	Specifications of measuring equipment
Series P	Telephone transmission quality, telephone installations, local line networks
Series Q	Switching and signalling
Series R	Telegraph transmission
Series S	Telegraph services terminal equipment
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Series U	Telegraph switching
Series V	Data communication over the telephone network
Series X	Data networks and open system communication
Series Z	Programming languages