Telecom Regulatory Authority of India Notification

New Delhi, the 12th July 2002

No 409-10/2002-TRAI (FN)

In exercise of the powers conferred upon it under section 36 read with clauses (ii), (iii) and (iv) of sub section (b) of Section 11 (1) of the Telecom Regulatory Authority of India Act, 1997 as amended by TRAI (Amendment) Act, 2000, to ensure effective interconnection between different service providers and to regulate arrangements amongst service providers of sharing their revenue derived from providing telecommunication services, the Telecom Regulatory Authority of India hereby makes the following Regulation.

THE TELECOMMUNICATION INTERCONNECTION (REFERENCE INTERCONNECT OFFER) REGULATION, 2002 (2 of 2002)

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Section I

1. Title, Extent and Commencement

(i) The Regulation shall be called "The Telecommunication Interconnection (Reference Interconnect Offer)" Regulation, (The Regulation).

(ii) The Regulation envisages publishing of Reference Interconnect Offer (RIO) by the telecommunication service providers holding significant market power based on the Model RIO annexed hereto as annex 'B'. The RIO will stipulate the concerned service provider's terms and conditions on which it will agree to interconnect its network with the network of any other service provider seeking interconnection. The interconnection seeker may either accept this offer in full and enter into an Interconnection Agreement with the offerer i.e. the service provider on that basis or accept the offer pending execution of an Individualised Agreement after negotiations.

(iii) The Regulation is in addition and not in derogation of the other existing Regulations/Orders on interconnection

(iv) The Regulation shall be deemed to have come into force with effect from the date of its publication in the official Gazette.

Section II

2. Definitions

In this Regulation, unless the context otherwise requires:

(i) "Act" means the Telecom Regulatory Authority of India Act, 1997 as amended by TRAI (Amendment) Act, 2000.

(ii) "Activity" would mean and include any one or more of the following:
(a) Subscriber base
(b) Turnover
(c) Switching Capacity
(d) Volume of Traffic

(iii) "Authority" means the Telecom Regulatory Authority of India.

(iv) "GUIDELINES" mean the guidelines to RIO issued by the Authority and as amended from time to time.

(v) "Interconnection" means the commercial and technical arrangements under which service providers connect their equipment, networks and services to enable their customers to have access to the customers, services and networks of other service providers.

(vi) "Interconnection Provider" means the service provider to whose network an interconnection is sought for providing telecommunication services.

(vii) "Interconnection Seeker" means the service provider who seeks interconnection to the network of the interconnection provider.

(viii) "Order" means the order issued by the Authority pursuant to the powers granted to it under Section 11 (2) of the Act.

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(ix) "The Regulation" means The Telecommunication Interconnection (Reference Interconnect Offer) Regulation 2002.

(x) "Regulations" mean the Regulations issued by the Authority pursuant to the powers granted to it under Section 36 of the Act.

(xi) "RIO" means the Reference Interconnect Offer published by a Party prescribing conditions by fulfilling which other Parties would be entitled to obtain interconnection with its network.

(xii) "Acceptance" means an acceptance of the terms and conditions contained in the RIO either unconditionally or conditionally.

(xiii) Words and expressions used in the Regulation and not defined but defined in the Act shall have the same meanings as assigned to them in the Act.

Section III

3. Reference Interconnect Offer

3.1 A Service Provider with significant market power shall be required to publish within 90 days of issue of this Regulation, a Reference Interconnect Offer (RIO) describing inter-alia the technical and commercial conditions for interconnection based on the model RIO as at annex 'B' and the guideline as at annex "C", as modified from time to time, with the prior approval of the Authority. The RIO so published by the Service Provider shall form the basis for all Interconnection Agreements to be executed hereafter.

3.2 A published RIO may undergo any change only with the prior approval of the Authority. Interconnection Agreements are required to be entered into by and between all Service Providers based on the RIOs so published, provided, however, that by mutual agreement the two parties concerned i.e. the interconnection provider and the seeker may modify and/or add to the terms and conditions stipulated in the published RIO for entering into an Individualised Agreement.

3.3 A Service Provider shall be deemed to have significant market power if it holds a share of 30% of total activity in a licensed telecommunication service area. These Services are categorized as Basic Service, Cellular Mobile Service, National Long Distance Service and International Long Distance Service.

3.4 The Authority may review the guidelines from time to time.

Section IV

4. General Provisions

The services listed in the RIO, published by the Service Provider, shall contain various conditions as required to meet the interconnection requirements of public network operators after taking into account, the rights enjoyed by and the obligations incumbent upon each of these Service Providers.

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Section V

5. General

If any dispute arises with regard to the interpretation of any of the provisions of the Regulation, the decision of the Authority shall be final and binding.

Section VI

6. Explanatory Memorandum

The Regulation contains at Annex 'A' an explanatory memorandum that explains the reasons for the issuance of this Regulation

(Harsha Vardhana Singh)

Secretary-cum-Principal Advisor

Annex - A

Explanatory Memorandum

Efficient Interconnection is a pre-requisite for sustainable competition. Interconnection Agreements are required to be executed between Service Providers interconnecting their Networks with each other. These include Basic, Cellular Mobile, National and International Long Distance Operators.

Internationally there is growing consensus for formulation of advance regulatory guidelines for establishing proper environment to facilitate interconnection. Availability of effective and expeditious interconnection is one of the most important factors in contributing to the growth of the telecom sector. Delay and disputes in the interconnection process hamper the growth and scuttle competition. With a view, therefore, to avoiding such incidences, a framework has been devised taking into consideration the practices followed in other countries as well as the situation in our country.

An accepted Regulatory principle in many countries is to ensure that the Service Provider with Significant Market Power publishes a Reference Interconnect Offer (RIO) stipulating the various technical and commercial conditions including a basis for Interconnect Usage Charges for Origination, Transit and Termination. Following these, the new entrants can seek Interconnection and agree upon specific usage based charges.

Taking into account the above practice and experience regarding interconnect issue, a model Reference Interconnect Offer (RIO) providing the basic framework has been prepared by the Authority in consultation with the service providers. Based on the given model, the Service Providers with Significant Market Power shall submit their proposed RIOs to the Authority for approval, which when approved by the Authority should be published. This will, thereafter form the basis for all interconnection agreements to be entered into by / and with the issuer.

The model RIO consists of Articles and Schedules and is accompanied by Guidelines. The model RIO, which is generic in nature, brings forth the various principles and elements involved in proper and effective interconnection. Schedules could be modified as per service requirements, mutually agreed charges and other items. Annexes could also be added as per requirements.

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Model Rio **(Annex - B)**

RIO Guidelines **(Annex - C)**

ANNEX - B

TELECOM REGULATORY AUTHORITY OF INDIA

REFERENCE INTERCONNECT OFFER

Dated 12 July 2002

REFERENCE INTERCONNECT OFFER

CUM- DRAFT AGREEMENT

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PREAMBLE

THIS AGREEMENT is made the day of _____, 200 between M/s ……, ……., a Company registered under the Companies Act 1956 having its registered office at …… hereinafter referred to as **Party __** , which term shall include, unless contrary to the context, its successor in business, legal representatives and/or its assignees of the one part and M/s ……,……., a Company registered under the Companies Act 1956 and having its registered office at ……..;hereinafter referred to as the **Party __** which term shall include, unless contrary to the context, its successor in business, legal representatives and/or its assignees, of the other part, together referred to as the **Parties**.

WHEREAS, [**Party __** is authorised under the Indian Telegraph Act 1885 to establish, install and operate ……. various Telecommunications Systems for the provision of ……. Telecommunications Services in India]; or [**Party __** is licensed under Section 4(1) of the Indian Telegraph Act 1885 to establish, install and operate a Telecommunications System to provide …… telecommunications services in ……. on the terms and conditions specified in such license]; and

WHEREAS, [**Party __** is authorised under the Indian Telegraph Act 1885 to establish, install and operate ……. various Telecommunications Systems for the provision of ……. Telecommunications Services in India]; or [**Party __** is licensed under Section 4(1) of the Indian Telegraph Act 1885 to establish, install and operate a Telecommunications System to provide …….. ……. telecommunications services in …….. , on the terms and conditions of the license], and

WHEREAS, in order to provide the specified range of services to their customers in their service areas, the **Parties** to the agreement are required to interconnect their networks,

NOW, THEREFORE, this Agreement, witnesseth as follows:

ARTICLE 1 - SCOPE AND DEFINITION OF SERVICES

1.1 Scope

This agreement covers the technical and commercial arrangements for Interconnection between the network of ---------- and the network of ---------- and stipulates the conditions under which the respective networks of the **Parties** shall be interconnected to provide for exchange of uninterrupted telecom traffic and the manner in which interconnection and other mutually agreed services shall be provided and invoiced, to each other, subject to the terms and conditions of the Licenses issued by the Government of India under Section 4 of the Indian Telegraph Act 1885 and the Regulations, Orders and Directions issued by the TRAI under the TRAI Act 1997 as amended by the TRAI (Amendment) Act 2000.

This agreement covers the following:

a) Physical Interconnection between the two networks (Schedule 1)

b) Charges for Other Services where ever applicable (Schedule 2)

c) Charges for Sharing of Infrastructure Elements, where ever applicable (Schedule 3)

d) Applicable Technical Standards (Schedule 4)

e) Interconnect Unbundled Network Elements (Schedule 5)

f) Interconnect Usage Charges for Origination, Termination, Transit Traffic (Schedule 6)

g) Interest Rates (Schedule 7)

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All attached Schedules and Annexes shall form part of this Agreement. In case of conflict or variance, the terms set out in the main body of the Agreement shall prevail.

1.2 Acceptance and Commencement

1.2.1 Acceptance of RIO

The interconnection seeker shall notify its acceptance to the RIO to the service provider. An unconditional acceptance of the offer will result in a formally signed agreement precisely on the terms and conditions contained in the RIO.

1.2.2 An interconnection seeker may also notify the service provider that it wishes to negotiate an Individualised Agreement. In that case the seeker may obtain services on the prices, terms and conditions specified in this RIO on an interim basis pending the adoption of the Individualised Agreement following further negotiations and agreement.
Letter of acceptance of RIO shall be furnished in accordance with the proforma as at Annex -A.

1.2.3 Commencement

Pursuant to 'The Register of Interconnect Agreements Regulations 1999', the **Parties** shall file this Agreement or modifications with the Authority within thirty (30) days of the execution or modification of this Agreement including its Schedules

This agreement shall commence on …… and continue [for a period of ---- years], [or, indefinitely], subject to the relevant clauses relating to termination. Note: The Parties may specify terms and condition to be fulfilled before the Agreement becomes effective.

1.3 Amendments

Any modification to this agreement or schedules shall be based on mutually agreed amendments signed by both Parties and registered with the Authority. Changes necessitated by amendments in the Regulations, Directions, Orders, or License conditions shall be deemed to be immediately effective and shall be incorporated as amendments as soon as possible. All such amendments shall be filed with the concerned authority.

1.4 Definitions

Definitions included in the Indian Telegraph Act 1885, The Telecom Regulatory Authority of India Act, 1997 as amended by TRAI (Amendment) Act, 2000 and Regulations, Directions and Orders published under the Act, and license agreements shall apply wherever available and shall take precedence.

In addition as used in this Agreement, the following terms shall have the meanings indicated hereunder:

Act means the Telecom Regulatory Authority of India Act, 1997 as amended by TRAI (Amendment) Act, 2000.

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Apparatus means Telecommunication Apparatus.

Applicable Systems means all necessary equipment, systems, sub-systems engineered to provide the services in accordance with the operational, technical and quality requirements.

Authority means the Telecom Regulatory Authority of India.

Basic Telephone Service mean the collection, carriage, transmission and delivery of voice or non-voice messages over the Licensee's Public Switched Telephone Network (PSTN) and includes provision of all types of services except those which require separate licence.

Billing Information means information necessary to ascertain the charges payable by either party under Agreement.

Busy Hour means the continuous one-hour period lying wholly in a given time interval for which the traffic is highest.

BHCA means Busy Hour Call Attempt

Call Attempt means an attempt to achieve a connection to one or more devices attached to a Telecommunications Service.

CCS means Common Channel Signaling

CDR means Call Data Records

CLI means the process that identifies and transfers the identity (number) of the calling party from one network to the other.

Ceiling(s) mean(s) the upper limit(s) of charges for telecommunication services as may be specified by the Authority from time to time.

Cellular Mobile Telephone Service means Telecommunication Service provided by means of a telecommunication system for the conveyance of messages through the agency of wireless telegraphy where every message that is conveyed thereby has been, or is to be, conveyed by means of a telecommunication system which is designed or adapted to be capable of being used while in motion. The Cellular Mobile Telephone Service refers to transmission of voice or non-voice messages over licensee's network in real time only. This Service does not cover broadcasting of any messages voice or non-voice; however, Cell Broadcast is permitted only to the subscribers of the service.

Customer means any person who is, or wishes to be, provided with any relevant Telecommunications Service by a Party for which the **party** is licensed.

Directions means directions issued by the Authority under Section 12(4) of the Act.

E1 level means a primary PCM bandwidth of 2.048 Mb/s.

Effective Call means an answered call.

Effective Date means the commencement date of the Agreement

Erlang means the unit of telephone traffic intensity defined by the International Telecommunication Union.

FAC means Fully Allocated Current Cost

Floor means the lower limit of charges for telecommunication services as may be specified by the Authority from time to time.

Forbearance denotes that the Authority has not, for the time being, notified any charge or revenue sharing arrangement for a particular telecommunication service and the service provider is free to fix a charge for such service.

Gateway MSC means the MSC that interfaces with another Network.

GOS means Grade of Service

Interconnection means the commercial and technical arrangements under which service providers connect their equipment, networks and services to enable their customers to have access to the customers, services and networks of other service providers.

Interconnection Charges mean the charges payable for interconnection and use of Network resources of one Service Provider by another Service Provider.

Interconnection Provider means the service provider to whose network an interconnection is sought for providing telecommunication services.

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Interconnection Seeker means the service provider who seeks interconnection to the network of the interconnection provider.

International Long Distance Telecommunication Service means telecommunication services originating within India and terminating outside India and vice versa.

International Subscriber Dialling (ISD) means facility for direct connectivity between an end user in India with another end user in another country by means of direct dialling through licensed networks.

ISUP means Integrated Service Digital Network (ISDN) User Part

IUC means Interconnect Usage Charge

Leased Circuits means telecommunication facilities leased to subscribers or service providers to provide for technology transparent transmission capacity between network termination points which the user can control as part of the leased circuit provision.

LDCA is an area of the country, generally coterminus with the SSA, declared for the purpose of charging long distance trunk calls.

LDCC is the nominated charging centre of an LDCA and represents the charge determination for long distance trunk calls.

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License Agreement means the Licenses referred to in the Preamble.

Local Call is a call originating and terminating in the same local area (SDCA), which is charged at local call rates.

MSC means the switching centre that performs all switching functions needed for cellular mobile systems located in an associated geographical area.

National Long Distance National Long Distance Service means picking up, carriage and delivery of switched bearer telecommunication service over a long distance network i.e., a network connecting different Short Distance Charging Areas (SDCAs).

National Standards means the standards set by the Department of Telecom {Telecom Engineering Centre (TEC)}.

Non-discrimination in interconnection charge means that service providers shall not, in the matter of interconnection discriminate between the similarly situated and similar class of service providers.

Order means the Telecommunication Tariff Orders issued by the Authority.

Originating Network means the network to which an originator of a telecommunication message is proximately connected to.

Originating/ Transit/ Terminating Service Provider means the service provider whose network is used for originating/ transit/ terminating a telecommunication message respectively.

PLMN means the Public Land Mobile Network

Point of Presence (POP) (as applicable to BSO) means setting up of switching center and transmission center of appropriate capacity by Basic Telephone Service Provider at the SDCA level to provide, on demand, service of prescribed quality and grade of service in a non-discriminatory manner.

Point of Presence (POP) (as applicable to NLDO) means setting up of switching center and transmission center of appropriate capacities by National Long Distance Service Provider at the LDCC level to provide on demand inter-circle long distance services of prescribed quality and grade of service in a non-discriminatory manner.

Point of Presence (POP) (as applicable to ILDO) means setting up of switching center and transmission center of appropriate capacity by the Licensee to provide on demand, service of prescribed quality and grade of service in a non-discriminatory manner.

PSTN means the Public Switched Telephone Network.

Point of Interconnection (POI) means a mutually agreed upon point of demarcation (based on TRAI determinations/regulations) where the exchange of traffic between the two Parties takes place.

QOS means Quality of Service

Regulations means the regulations issued from time to time by the Authority pursuant to the power granted to it under Section 36 of the TRAI Act 1997 and the Amendment.

Reporting Requirement means the obligation of a service provider to report to the Authority before implementing any new interconnection charge and revenue sharing arrangement for telecommunication services under the Regulation and any changes thereafter.

Short Distance Charging Area (SDCA) means one of the several areas into which a Long Distance Charging Area is divided and declared as such for the purpose of charging for trunk calls and within which the local call charges and local numbering scheme is applicable. SDCAs, with a few exceptions, coincide with revenue tehsil / taluk.

Short Distance Charging Centre (SDCC) means a particular exchange in Short Distance Charging Area declared as such for the purpose of charging trunk calls. Head quarters of SDCAs are generally SDCCs.

Service Impairment means any interference with or impairment of service over any facilities of a Party.

Set Up Costs of Interconnection means the initial cost of engineering work needed to provide the specific interconnection facilities requested.

Service Area means the geographical area specified under the license throughout which the services are provided.

SLA means Service Level Agreement

SSA means Secondary Switching Area

Subscriber includes any subscriber or any person or legal entity, which subscribes to / avails of the service from the licensee.

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System means a telecommunication network consisting of basic access, switching nodes and transmission links, together with the operation and maintenance systems and network management systems.

Subscriber Trunk Dialling (STD) means facility for direct connectivity between two end users within India by means of direct dialling through licensed networks.

Terminating Network means the network to which a receiver of a telecommunication message is proximately connected to.

Transit Network means the intermediate network through which telecommunication messages from originating networks or other transit networks are transmitted and delivered to terminating networks.

Usage Charge means the charge levied by a service provider for carriage of telecommunication traffic on its network.

Value-Added Services means such services as may be available over a Telecommunications System in addition to Voice Telephony or Data Services, and specifically those services listed as "Value-Added Services" in the Regulations or Orders.

Voice Telephony Service means the Telecommunications Service that provides subscribers with the facility for conducting real-time two-way speech conversation among them.

Working Day means any day from Monday to Friday, excluding holidays.

WLL (M) means the telephone service with mobility limited to the local area i.e. Short Distance Charging Area (SDCA) in which the subscriber is registered. The system should follow the numbering plan of the respective SDCA within which the service is provided. This service is included in the License for Basic Telephone Service.

ARTICLE 2 - POI AND INTERCONNECTION PRINCIPLES

2.1 Point of Interconnection

The **Parties** agree:

a) to connect and keep connected their Systems at mutually agreed feasible Points of Interconnection set up in accordance with the Authority's determinations/regulations. Such interconnection shall be provided as detailed in Article 3. The agreed POIs for each class of service are indicated in Schedule 1 of this agreement. This may be amended from time to time on mutual agreement.

b) to supply the requested telecommunication services, facilities and information, relating to interconnection, to the other Party as provided in this Agreement or otherwise mutually agreed. Such facilities shall only be used for the agreed purpose and shall not be resold to other Parties. These services and facilities are indicated in Schedules 2 and 3.

2.2 Traffic Routing Principles

Each Party shall carry calls offered by the other Party through its network up to the designated point. In case the call cannot be so carried due to temporary network conditions, suitable tones or announcements shall be provided as agreed to between the two Parties.

The levels and points at which interconnections may be provided for various classes of traffic shall be as per the terms and conditions of the License Agreement and Regulations / Determinations of the Authority.

Authority's RIO Guidelines and Interconnection Tables given therein, as applicable, would provide details on various interconnection and delivery of inter operator traffic/services.

2.3 Arrangements at the POI

The types of traffic to be carried across the POI are indicated in Schedule 1. Interconnection shall be based on CCS System No. 7, or on the R2 Signaling System, if CCS 7 is not available. Other facilities such as CLI that are required to be provided are indicated in Schedule 2. The transmission and electric conditions at the POI shall conform to the Standards in Schedule 4.

2.4 Co-location of Apparatus and Plant

Wherever it is possible, physical co-location should take place of the Apparatus and Plant owned or leased by one **Party** and used for interconnection, at the premises of the other **Party**.

Wherever such co-location has been mutually agreed, essential accommodation and auxiliary infrastructure shall be made available for this purpose within the time schedules for interconnection. When a **Party** uses the premise and/or uses facilities of the other Party, **such as power etc.,** it shall pay a rent to the other **Party**. Principles for deriving such rents are included in Schedule 3.

Article 3 - Interconnection Provisioning Procedures

3.1 Initial Demand

3.1.1 The party seeking Interconnection shall provide relevant information normally 6 months in advance on the location of POI, estimated traffic in Erlangs, BHCA, type of signaling, and any other technical information required to facilitate planning.

A **formal demand** in writing indicating the number of ports and other facilities required, and the time schedule, shall be separately placed on the interconnection provider.

3.1.2 The Interconnection provider shall intimate within a period of 30 days from the date of receipt of such formal demand, either the acceptance or an alternative proposal for meeting this demand fully or partially as well as the approximate dates for meeting the demand. He shall also issue the relevant demand notes for the accepted part of the demand within 30 days of receipt of the formal demand.

In case no response is made within 30 days, the formal demand will be treated as accepted and interconnection seeker shall be free to deposit the prescribed amount for the required number of ports. The date of such deposit shall be treated as the date of "firm demand". Such accepted demand shall be met within 6 months of such deposit.

However, Interconnection with a minimum number of required E1 ports as ascertained by the interconnection provider, required for the launch of the service, shall be provided within 90 days of payment of the demand note, unless found to be technically non feasible. Subsequent increase of interconnection circuits should be based on actual traffic flow and growth pattern for a grade of service (GOS) of 0.5%.

3.1.3 On the acceptance of the demand, in full or part, the interconnection provider shall issue Demand Notes (Bill) within 30 days of the formal demand, for the capacity to be provided. The seeker shall then make the payment within 30 days of receiving such Demand Note (Bill). The date of payment shall be taken as date of **firm demand** (The Date). Any change in the firm demand shall be intimated within 15 days of making the payment, after which no changes will be allowed. The detailed payment procedure to be followed in this regard shall be laid down by the Coordination Committee (as defined in Article 16).

3.1.4 For the balance requested capacity of ports not likely to be met within 6 months, planning action shall be immediately started. This demand shall be treated, as firm demand for the next year and demand notes shall be issued accordingly.

3.2 The case shall be referred to the Coordination Committee for resolution in case of disputes.

3.3 Provisioning & Testing and Commissioning of Interconnect Circuits

3.3.1 The capacity made available within 90 days shall be taken up immediately for testing. The full capacity required shall be provided and made available for testing in accordance with the time schedule indicated in the acceptance of demand or demand note, but within 6 months of the firm demand.

3.3.2 If the demand is not met within the scheduled periods, the matter will be considered by the Coordination Committee for further necessary action under this agreement.

3.3.3 Number of Ports indicated in the firm demand for each POI, will be the deciding factor for determining the port charges in terms of the Regulations.

3.3.4 The party installing the equipment and requiring inter-connectivity tests shall, notify to the other party indicating that such capacity is ready for testing as per National Standards. The proforma for such notification and subsequent procedures shall be mutually agreed in the Coordination Committee. Both the Parties shall ensure that the testing is completed within 30 days of provisioning.

3.4 Augmentation

3.4.1 Traffic measurements shall be taken by both the Parties during agreed route busy hours for seven days, six months after commencement of service and every six months thereafter with a view to determine further capacity requirements.

3.4.2 Augmentation for additional capacity for the next 12 months shall also be initiated by either **Party** on the basis of such traffic observation.

3.5 Cancellation Charges

3.5.1 If the cancellation of demand is made within 15 days of the firm demand, an amount equivalent to 10% of the annual rent payable for the capacity cancelled will be payable as the cancellation charge thereof.

3.5.2 If the cancellation of demand is made after 15 days after the firm demand, the payment made towards port charges for the first year shall be forfeited for the cancelled capacity.

3.6 Utilisation

The Party seeking the interconnection shall undertake to use the capacity so made available for a minimum period of 3 years. If he fails to use the capacity, 50% of the rental for the unused capacity for the remaining guaranteed period shall be payable forthwith. A Bank guarantee shall be provided for the amount covering 50% of the rental for the agreed period of use, within 90 days from the date of firm demand.

3.7 Port Identification

Wherever a separate charging regime is applicable, the ports shall be separate and clearly identified.

3.8 Damages

If within 6 months, the Provider fails to make available the interconnect capacity as per firm demand or the seeker is unable to put in place the matching infrastructure to utilise the interconnection as per firm demand, the Party failing shall pay Damages to the other Party calculated as follows:

a) 1% of the annual rent for each E1 port (i.e. Port Charges) for each day of delay until the connection is made available for testing, for a maximum period of 60 days.

b) The payment of Liquidated Damages shall not release the defaulting party from the obligation to provide the ordered capacity.

Article 4 - Network and Transmission Requirements

4.1 Traffic Forecasts

Traffic forecasts are used for the planning of sufficient switching and transmission capacity. Traffic forecasts shall be prepared and supplied by one Party to the other **Party** on the following basis:

The Parties shall forecast all outgoing traffic of each type, to the other Party's System for a period of one year at intervals of six (6) months for each POI. These forecasts shall be made for the route busy hour. The first forecast shall be supplied within ninety (90) days of the Effective Date and thereafter on the 1st April and 1st October every year.

All traffic forecasts shall be in terms of Busy Hour Call Attempts and Busy Hour Erlangs. For these forecasts, time consistent busy hour of the exchange and routes shall be determined.

4.2 Network Engineering

4.2.1 Diversity and Alternate Routing

Diversity may be provided by either **Party** in accordance with standard network engineering practices. In the case of partial network/route failure, each party shall extend the same priority to the traffic of the other party as it gives to its own traffic.

4.2.2 Circuit Provision

Circuit provision shall be made on the basis of the specified GOS of 0.5% on the Network - Network Interface allowing for adequate overload safety protection.

4.2.3 Network Changes

The Parties shall inform each other, wherever possible, 12 months in advance of changes to network configuration and facilities that may have significant impact on the engineering of the other's network.

4.2.4 Calling Line Identification

CLI of the caller shall be transmitted to the receiving (incoming) network whenever requested by that network in the course of the Signaling procedure and wherever technically possible.

4.3 Carrier Selection

Both Parties shall handle calls in accordance with the Regulations of the Authority and procedures and guidelines laid down by the Licensor in relation to Carrier Selection. The carrier identification codes allocated to the two Parties are:

Party A XX Party B XY

On request from any Party, the other shall supply information relating to its subscribers, who have opted for a service offered by the former, or have requested for termination of such service.

Article 5- Technical Service Commitments and Fault Repairs

5.1 General Commitments.

Each Party shall:

5.1.1 Be responsible for operating its own system and ensuring its safety.

5.1.2 Ensure that the Services it provides to the other party are of the quality comparable to what it provides to itself and to its affiliates.

5.1.3 Maintain and repair faults on Interconnection Links in the same manner as it maintains plant and repairs faults within its own Network.

5.1.4 The performance standards that shall apply for the various types of interconnecting links between two Networks are indicated in Schedule I.

5.2 Quality of Service

The **Parties** shall ensure that the respective interconnect facilities delivered at each Point of Interconnection (POI) conform to the applicable Quality of Service (QOS) standards set by the Authority and Technical Specifications set out by the relevant Authority [Telecom Engineering Centre (**TEC**)], by the relevant delivery date, determined pursuant to the provisions of this Agreement. The agreed QOS (including GOS) is indicated in Schedule I.

5.3 Fault Reporting

5.3.1 Fault reporting mechanism for interconnect operational problems will be worked out jointly by both Parties and upgraded from time to time.

5.3.2 Each party shall advise its customers to report all faults to its own Fault Reporting Centre. If a fault report is received at an incorrect centre, the complainant shall be directed to the correct centre.

5.3.3 The party who first becomes aware of the fault shall promptly notify the fault to the other.

5.3.4 If one party identifies a fault occurring in its system or if a major fault occurs, that may have adverse effect on the other party's system, the first will promptly inform the other party of the actions being taken to resolve the problem.

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5.4 Network Restoration:

The Parties will manage their Networks to minimise disruption to Services and, in the event of interruption or failure of any Services, will restore those Services as soon as is reasonably practicable in accordance with the schedule set by the Coordinating Committee. Each Party shall manage, notify and correct faults arising in its Network, which affect the provision of any Services by the other party, as it would in the ordinary course for similar faults affecting the provision of Services by itself.

5.5 Operating Instructions:

The Parties will develop and record in the form of operating instructions, a series of agreed response times for different network fault conditions on the basis of following principles:

(a) Clearance of faults affecting the network will take priority over the clearance of individual faults.

(b) They will automatically bring in any standby capacity available and/or carry out network management actions to restore service.

(c) They will observe equipment alarms and carry out testing to identify the nature and location of the fault in co-operation, as deemed necessary, with the other party.

(d) They will keep each other continually informed of progress on restoration of faults during a breakdown.

(e) If temporary repairs are made by one, the other party must be informed of this fact. Other party shall also be informed of service impact of temporary repair and the estimated time of full restoration.

5.6 Planned Maintenance works:

5.6.1 Each party will give at least 7 days notice of any planned maintenance work that may affect the other's system.

5.6.2 Each party shall make its best efforts to minimise disruption and where possible alternative routing will be provided. Equipment design and link engineering should have such redundancy that for any planned work the prescribed quality of service is maintained.

Article 6 - Technical Specifications And Standards

6.1 National Standards

Interconnection of Networks and Systems shall conform to National Standards as set by the Telecom Engineering Centre and Regulations applicable to Telecommunications Services in India. In the absence of National Standards set by the TEC and Regulations, they shall conform to the relevant Recommendations of the ITU. References to typical standards have been indicated in Schedule 4 of this Agreement.

6.2 Signaling and Synchronisation

Inter-network Signaling shall be on the basis of CCS 7 (ISUP) in the format standardised for India. Other standard Signaling systems such as Indian R2, may also be used by mutual consent if they fulfil the requirements of network integrity. The signal interchange points shall be those associated with the POIs.

The systems shall be synchronised in a manner required to meet National Standards. Signals, derived from the National Master Clock shall be used for synchronisation of the network of both the parties at the Network-Network interface.

6.3 Interface Approval

Neither **Party** shall connect or knowingly permit the connection to its System of any equipment that has not been approved by the competent authority for attachment to such **Party's** System. Both **Parties** shall ensure that the equipment at the POI has been approved by the competent authority in accordance with National Standards.

6.4 Transmission and Performance Standards
6.4.1 Transmission Interface

The normal interface for network interconnection shall be at the E1 level. However, higher order interfaces may also be used by mutual consent. In case of interconnections involving ISPs, nx64 kbit/s interfaces may also be used by mutual consent. National standards and ITU-T G. Series Recommendations shall apply.

6.4.2 Switching

Switches shall conform to the National performance standards and ITU-T Q. Series Recommendations.

6.4.3 Packet Network

Packet switches and interfaces shall conform to the National performance standards and to ITU-T H. Series Recommendations.

6.4.4 Speech Performance

Speech over the National network shall conform to the ITU-T P. Series Recommendations and TRAI QOS standards. Allocation of impairments shall be as prescribed in the National standards.

6.4.5 PSTN/ VOIP Interoperability Standards:

For Interoperability between Circuit based switching and IP based networks, the interface will conform to relevant national standards or guidelines of Licensor/ Regulator. Media gateway, Signaling Gateway and Gatekeeper shall conform to relevant ITU-T Recommendations and Internet Engineering Task Force (IETF) standards, as applicable.

Article 7- Network Management, Maintenance & Measurement

7.1 The Parties shall provide, install, test, make operational and maintain all interconnection facilities on their side of Point of Interconnection (POI) unless otherwise mutually agreed. The parties shall take full precautions to keep operational the equipment of other party installed in their premises for interconnect purpose and shall also allow access to duly authorised representative of the other party to such equipment for provisioning, maintenance or monitoring purposes.

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7.2 All measurements of calls and traffic and interconnect charges shall be related to the POI. Where such measurements cannot be made at the POI, a mutually agreed procedure shall be followed.

7.3 Each **Party** shall employ its own network-specific, Network Management System, with a view to efficient traffic and facility management of its own network. In particular, he shall make arrangements to prevent overload of other interconnecting systems.

7.4 The Network Management System employed shall be non-intrusive.

7.5 Each Party shall prevent any signal from its network or the Network Management system from interfering with the other Operator's network, so as to maintain network integrity.

7.6 Each Party shall make traffic and link measurements, and inform the other about any foreseen degradation in traffic performance, before it manifests through deterioration of QoS, to allow the other operator to initiate any viable action for diversion or rerouting of traffic through the network of a third operator.

7.7 At every Point of Interconnect between the two networks, congestion signal will be conveyed through CCS7, wherever available.

7.8 IP Platforms

Each **Party** using IP based networks shall have a Network Management System based on the Open System Protocol (OSP) for Interoperability of Multi-operator networks.

Article 8- Network Integrity, Safety & Protection

8.1 General Principles:

8.1.1 The two Parties agree to maintain network integrity and to take measures for adequate protection and safety.

8.1.2 Integrity of a network refers to the ability of its systems to preserve and retain their original operational states and remain unaffected by interconnection with other networks

8.2 Maintenance of Network Integrity.
Each Party shall ensure:

8.2.1 that adequate measures are taken to prevent the transmission of any Signaling message across the connecting network, which does not comply with interworking national specification;

8.2.2 that efficient arrangement for screening functions and rejection of non-compliant messages are established to detect signals outside the Interworking national specification

8.3 Safety and Protection.

8.3.1 Each Party is responsible for the safe operation on its side of the Network, and shall, so far as is reasonably practicable, take all necessary steps to ensure that its side of the Network and its Network operations:

- do not endanger the safety or health of any person, including the employees and contractors of the other Party; and
- do not cause physical or technical harm to the other party's Network, including but not limited to causing damage, interfering with or causing deterioration in the operation of the first mentioned Party's Networ

8.3.2 It shall be ensured that in case the transmission of traffic to either party's network requires power feeding, then not only the safety of the equipment shall be ensured but also that of the personnel maintaining it. In this regard, safety requirements of accidental human touch of feeding voltage as prescribed in Bureau of Indian Standards (BIS) document no. IS 8437 shall be referred for limits.

Article 9 - Operations, Special and Manual Services

9.1 Assisted Calls

When the services of a **Party** are used for completion of a special service call or for supply of information, the **Party** supplying the service shall be entitled to a fee for such service. This fee shall be mutually negotiated if it is not specified in the Regulations.

9.2 Other Facilities

Each **Party** agrees to provide access to its services/facilities to the other **Party** and its customers at fees/charges prescribed by the Authority for such service or otherwise mutually negotiated. All such fees for services and facilities shall be placed in Schedule 2 and 3, which may be amended from time to time.

9.3 Directory Enquiry

Each **Party** shall provide access to its Public Directory Services for the other **Party's** subscribers at the specified or mutually agreed fees. Each **Party** shall include the other **Party's** information on Directory Services access numbers in their respective telephone directories and Directory Inquiry Services.

9.4 Customer Services

Each **Party** shall be responsible for making arrangements to provide prescribed Customer Services to his Customers.

Article 10 - Access To Interconnection Gateway Facilities

10.1 Interconnection Gateways

Any switch that is used for transiting traffic, from one network to another network in a Multi-operator environment may be termed as an Interconnection Transit Gateway. The functionality of such Switches should conform to the relevant TEC specification.
Operational and Planning requirements of the Interconnect Gateway shall be as laid down in the Regulations.

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Article 11 - Charging Mechanisms, Billing and Settlement

11.1 Subscriber Billing

Party A shall be responsible for billing……and Party B shall be responsible for billing …….. Billing and revenue collection services to be provided by one party to another shall be carried in accordance with Licensing conditions as detailed in Schedule 2. The description and charges for such services are also contained in the same schedule.

11.2 Inter-Carrier Billing

Both Parties shall make arrangements for collection, storage and transfer of data relating to traffic passing through their network to facilitate inter-carrier charging and settlement.

Billing System may be based on Bulk Billing or where feasible on Call-by-call basis with Call Data Records (CDRs). The transit switch generates CDRs, which is inputted to the Billing Systems.

For such CDR based systems, typically the following information is required:

a) Carrier Related Information

i) Identity of Originating Carrier
ii) Identity of Terminating Carrier
iii) Identity of Transit Carrier, if any.

b) Geographical Information

i) Originating Charging Area Code
ii) Terminating Charging Area Code.

The agreed formats for inter-carrier billing information / CDRs are given in an Annex ___-. Apart from transfer of information during the call, data may also be stored in appropriate CDRs.

11.3 Settlement

The interconnect usage charges (IUC) for originating, terminating and transit traffic payable by one party to the other are indicated in Schedule 6. This schedule also indicates which party is responsible for third party payments. These charges shall be subject to the Regulations.

11.4 Accounts

Each party shall send to the other a bill / invoice in respect of the previous month for the amount due for all effective traffic sent to or received from the other party. Effective Traffic for this purpose would mean answered calls. This bill / invoice shall be sent within 7 calendar days after the close of the month for which the bill / invoice is made. The determination of the amount due shall include:

a) The amount of POI wise traffic in minutes or call units as is applicable, handled during the month, broken down by the type of traffic (local, long-distance, international etc. as feasible) and

b) The payable amount for such traffic shall be calculated at the rates given in Schedule 6.

In addition, the due amounts for other services and network elements (refer Schedules 2 & 3) shall also be presented wherever applicable.

Each party shall be responsible fully for the taxes, if any, imposed by the Central, State Government or any other authority in this regard.

11.5 Payments

11.5.1 The net amount for each billing period shall be remitted by the concerned Party to the other within fifteen (15) days following the receipts by both Parties (the "due date").

11.5.2 Any payment not paid by the due date shall bear penal interest at a rate agreed to from time to time and indicated in Schedule 7. This interest calculated from the due date until the date of payment, shall be payable to the concerned party.

11.5.3 If any party issuing the bill subsequently finds that some charges have been omitted from the bills issued, he may include the omitted charges in the subsequent bills at any time, but not later than six months from the date of issue of the relevant bill except in cases where additional billing becomes necessary due to the tariffs / rate changes notified by the appropriate authority subsequently.

11.6 Errors and Reconciliation

11.6.1 If either Party discovers an error in the reports, it shall promptly notify the other Party, but not later than 3 months from the date of issue of the Bill, and the Parties shall make such adjustments in accounts as are necessary to correct the error.

11.6.2 If the Parties dispute the accuracy of the traffic information or any related matter, the same shall be referred to the Coordination Committee for reconciliation and settlement of accounts, after making payment of the undisputed amount. The full amount shall however be paid if the disputed amount is less than 2%. In case reconciliation is not achieved, the Parties may jointly select an auditor to assist in resolving the dispute, if the Parties are unable to appoint an auditor, the Authority, after a reference being made by either of the Parties, shall appoint one or specify alternate measures for settlement of accounts. The cost of the auditor shall be borne by both Parties. The amount payable after reconciliation will carry interest from the due date at the rate of interest specified in Schedule 7

Neither Party shall be allowed to reduce any amounts reported or remitted to the other Party pursuant to this Article as a set-off or compensation for amounts owing under any other obligation between the Parties.

11.7 Security Deposits

Parties shall be entitled to demand Security Deposits/Bank Guarantees in accordance with the procedure laid down in the Annexes. This is in addition to the other payable amounts prescribed in this agreement.

11.8 Fraud and Default

The **Parties** shall cooperate with one another to investigate, minimise and take corrective action in cases of fraud. Subject to applicable laws, information concerning defaulting customers may be supplied to the other **Party**.

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Article 12 - Commercial Terms and Conditions

12.1 Supply Of Service

The Parties agree to supply the services and facilities listed in Schedules 2, 3 and 6 at the prices listed. These lists shall be prepared in accordance with the Orders, Directions and Regulations of the Authority wherever applicable. If not so listed, they shall be determined on the basis of the costing principles indicated in the Interconnection Regulations. The terms and conditions under which such services / facilities are to be supplied shall also be included in the schedule. Such facilities shall only be used for the agreed purpose, and shall not be resold to other Parties unless agreed otherwise mutually. These facilities shall not be used for bypass of traffic.

12.2 Third Party Rights

This agreement is intended to apply to the provision of facilities and services by one **Party** to the other and shall not be construed as conferring rights of any nature on any third **Party**.

12.3 Costs of Interconnection

12.3.1 The cost of upgradation / modifying interconnecting networks to meet the service requirements of the service shall be met by the Party seeking interconnection. However mutually negotiated sharing arrangements for cost of upgrading / modifying interconnecting networks between the service providers shall be permitted.

12.3.2 Two years after the initial interconnection is established, the issue as to who bears the cost of additional resources required shall be negotiated between the service providers. The general principle followed in these negotiations is that each party should bear the incremental costs incurred for the additional ports required for meeting the QOS standards relating to its outgoing traffic to the other Party.

12.4 upgradation

Any upgradation of network required to meet National Standards relating to such shall be carried out by each party at his own cost.

12.5 Exclusivity

The **Parties** may interconnect with any other licensed **Party** in India according to the terms and conditions set out in their respective licenses. Neither **Party** shall require the other to interconnect to its facilities on an exclusive basis.

12.6 Emergency Services

Access to emergency services of each Party as specified in Schedule 2 shall be provided by mutual agreement.

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12.7 Applicable Law

This Agreement shall be governed by and construed in accordance with the laws of the Republic of India.

12.8 Assignability

Neither this Agreement nor any of the rights, interest or obligations hereunder shall be assigned by any **Party** without the prior written consent of the other **Party** hereto.

12.9 Language

This Agreement has been executed in the English language, which shall be the binding, and controlling language for all matters relating to the meaning or interpretation of this Agreement.

12.10 Waivers

The waiver of the rights derived from this Agreement shall only be effective if made in writing duly sent to the other **Party**. No failure on the part of any **Party** to exercise any right, power or privilege under this Agreement shall operate as a waiver hereof.

12.11 Partial Invalidity

If any provision in or obligation under this Agreement is considered invalid, illegal or unenforceable by a court of competent jurisdiction, such judicial decision must, as regards such invalidity, be strictly interpreted and shall not affect or impair the validity, legality or enforceability of any other provision in or obligation under this Agreement.

12.12 Non-Discrimination

Service providers shall not, in the matter of interconnection charges, discriminate between service providers except on the basis of substantial cost-differential.

For considering the cost herein the factors like volume of traffic etc., which have direct bearing on the charges of interconnection shall be taken into account.

Article 13 - Interconnection Usage Charges

13.1 Type of Charge: These are of the following types

i) One time set up charge for establishing/augmenting specific interconnect facilities for example, all hardware/software modifications required to interconnect the network of the two parties for handling each other's traffic.

ii) Rental charges for use of Ports and Interconnect links and other facilities.

iii) Usage charges for use of network elements of one party by the other party for carriage of traffic.

13.2 Set Up Charges

Set Up charges shall be determined as per Regulations. In case major reconfigurations of plant are required the cost charged to the other Party shall be in proportion to the asset being requested/provided to that Party.

13.3 Usage Charges:

For determining usage charges for carriage of each other's traffic, both the parties will furnish the details of their network elements cost as detailed in Schedule 5 to the Authority. The Unbundled Network Element costs of both switching and transmission shall be worked out in sufficient details so that usage charges for various types of interconnections can be calculated based on various types of switches and transmission elements involved in call conveyance. These costs shall then form the basis of the IUC for various types of calls and these shall be entered in Schedule 6. Unbundled telecom network cost shall be based on the principle of Fully Allocated Current cost (FAC).

Article 14 - Fundamental Technical Plans

14.1 General

The **Parties** shall adhere to the National Fundamental Technical Plans to the extent applicable to their networks subject to conditions stipulated in the License Agreements.

Article 15 - Confidentiality, Liability and Indemnities

15.1 Each **Party** may disclose to the other **Party** such proprietary and confidential (technical or business) information in written, oral, graphic or any other forms, as may be agreed to, for the purposes of this agreement only.

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15.2 Each **Party** shall guarantee that the equipment / systems and other articles of the service commissioned / provided by it for the purpose of interconnection or usage by the other Party in terms of this agreement, does not infringe any copy-right or trademark or on intellectual property rights of any third party.

15.3 Either **Party** must not use a trademark, service marks or trade names belonging to another **Party** as a trademark, service marks or trade names without the prior written consent of the other **Party**.

15.4 The conveyance of information between---------- and----------which shall take place, shall not constitute or imply the granting of any rights under any copy right, patent, trademark or any other Intellectual property rights either at the time of conveyance or subsequently.

15.5 Except as otherwise provided in this agreement, either **Party** may not disclose the confidential information except in the following circumstances: -

(a) the disclosure is authorised in writing by the **Party**, to the extent so authorised; or

(b) the disclosure is made to any arbitrator or expert appointed to resolve disputes under this agreement; or

(c) the disclosure is made pursuant to any applicable laws, rules, regulations or directions of a statutory or regulatory authority or order of a court of law of competent jurisdiction.

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15.6 Each **Party** to the agreement shall inform the other **Party** of any disclosures made to third Party prior to any such disclosure.

15.7 Each **Party** to the agreement shall ensure that the information provided by one **Party** to the other is used solely for the purposes for which it is disclosed.

15.8 In order to protect such confidential information from improper disclosure, both **Parties** agree to limit access to such confidential information to authorised employees/agents who have a need to know the confidential information for performance of this Agreement and to use such confidential information only for purposes of fulfilling work or services relating to this agreement.

The authorised employees/agent to whom all or any confidential information is disclosed shall hold it strictly confidential and shall not disclose it to any other person. Each **Party** shall be liable for any disclosure by the authorised person(s) to any other person.

15.9 Neither **Party** shall be liable to indemnify the other for any claim, demand or proceeding by any third party asserting that the use of any circuit, apparatus, or system or software, or the performance of any service by either **Party** under this agreement constitute infringement, or misuse of any patent, copyright or any other proprietary or intellectual property right of any third party.

15.10 All written confidential information or any part thereof (including, written information incorporated in computer software or held in electronic storage media) together with any analysis, compilations, studies, reports or other documents or materials prepared by the receiving **Party** or on its behalf, that reflect or are prepared from any of the confidential information provided by the disclosing **Party** shall be returned to the disclosing **Party** or destroyed by the receiving **Party**, when requested by the disclosing Party at any time, or when this agreement expires or is terminated, whichever is earlier. In the event of destruction, the receiving **Party** shall certify in writing to the disclosing **Party** within thirty (30) calendar days, that such destruction has been accomplished. The receiving **Party** shall make no further use of

such confidential information nor retain such confidential information in any form whatsoever.

15.11 The **Parties** acknowledge that the provisions of this part shall continue in full force and effect regardless of variations, assignments or termination of other provisions of this agreement. The obligation to maintain confidentiality of the confidential information provided hereof and the undertakings and obligations in this part shall continue for two (2) years upon the expiry or termination of this agreement.

15.12 Notwithstanding any provision in this agreement and unless otherwise provided the **Parties** shall not reveal, make known or divulge to any third party in any manner howsoever the contents of those aspects of this agreement (in full or in part) which the Authority has withheld from publication.

15.13 Save as provided under this agreement, no news releases, public announcements or any other form of publicity concerning this agreement or the terms of this agreement shall be conducted or released by the either **Party** without the prior written consent of the other **Party**.

15.14 Each **Party** acknowledges that a breach of any provision of this chapter may cause the other **Party** damage.

15.15 The agreement contains the entire understanding between the **Parties** with respect to the safeguarding of the confidential information and supersedes all prior communications and understandings with respect thereto.

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15.16 FORCE MAJEURE

Neither party shall be liable for any breach of this Agreement (other than a breach for non payment) caused by an act of God, insurrection or civil disorder, war or military operations, national emergency, fire, flood, lightning, explosion, subsidence, industrial dispute of any kind. The Party affected by such force majeure shall promptly notify the other Party of the conditions and the details thereof. If as a result of force majeure, the performance by other Party of its obligation under this agreement is only partially affected, such Party shall nevertheless remain liable for the performance of those obligations not affected by such force majeure. If the force majeure lasts for more than the continuous period of 90 calendar days from the date of the notification, and continues to prevent the affected Party from performing its obligation in a whole or in material part, the affected Party shall be entitled to, but not be obliged to, terminate its agreement by giving not less than 30 calendar days written notice to the other Party. This will be subject to the Articles on Termination.

Article 16 - Liaison and Coordination

16.1 Coordination Committee

A Coordination Committee consisting of both Parties shall coordinate all mutual activities relating to implementation of interconnection, amendment of schedules, reconciliation of accounts etc. and lay down the detailed procedures required for smooth implementation of the agreements. Sub-committees may be set up by the Coordination Committee as may be required.

Article 17 - Termination and Review

17.1 Termination

17.1.1 This Agreement shall continue for the period indicated in Article 1.2

unless:

(a) either **Party** ceases to hold a licence under Section 4 of the Indian Telegraph Act.

(b) an order is entered by a court of competent jurisdiction mandating the winding-up or dissolution of a **Party**, or appointing a receiver or liquidator for such **Party** or having a comparable effect;

In which case this Agreement shall immediately be terminated.

17.1.2 This Agreement also may be terminated by either **Party** giving 30 days notice to the other in the event that either **Party**:

(a) breaches any provision of this Agreement; provided, however, that the breaching **Party** has been notified in writing of its failure by the non-breaching **Party** and the breaching **Party** has not remedied its failure within twenty (20) Working Days; and the approval of the Authority and the licensor has been obtained for such termination. In the event, the approval is accorded with conditions, regard being had to the general interest of the customers, the same will be fully complied with before the final act of disconnection of interconnection arrangements becomes effective. Provided, however, in the event no intervention is made by the Regulator / Licensor during the notice period, the approval of the authority shall be deemed to have been accorded.

(b) ceases to carry on business.

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17.1.3 Each **Party** shall provide assistance as is necessary for recovery by the other **Party** of any equipment supplied by that other **Party**.

17.1.4 Termination of this Agreement shall be without prejudice to a **Party's** rights, liabilities or obligations that may have accrued prior to such termination.

17.2 Withdrawal of Interconnection for non-payment

In case of default in payment, the creditor Party may immediately approach the Regulator/Licensor for withdrawal of services, provided that the remedy to appropriate the security deposit has been exhausted or there exists some such circumstances, which warrant immediate suspension. This will be in addition to other remedies available under the contract. Provided, however, in the event no intervention is made by the Regulator / Licensor during the notice period, the approval of the authority shall be deemed to have been accorded.

17.3 Review

Apart from changes to Schedules and Annexes that may be made at any time by mutual agreement, this Agreement may be taken up for Review by mutual consent whenever a material change in License Conditions, Regulations or otherwise etc., takes place.

Article 18 - Disputes

18. Settlement of Disputes

It is understood and agreed that the **Parties** shall carry out this Agreement in the spirit of mutual co-operation and good faith and shall seek to resolve amicably any disputes arising between them.

The settlement of disputes shall take place in accordance with the Act. It is, however, desirable that before a matter is formally established as a dispute, reconciliation is attempted in the Coordination Committee referred to in article 16.1. The Committee shall resolve the matter within 30 days. The Authority may intervene at the request of either of the parties.

During any period of dispute, before or until resolution, a **Party** shall not disrupt services being provided to the other **Party**, or take any other actions, which might materially and adversely affect that **Party's** service

Article 19 - Notices

Unless otherwise provided in the Agreement, any notifications, service of process, petitions, claims and other Communications requested or permitted pursuant to this Agreement, shall be made in writing and shall be considered validly made when delivered by hand or by courier, telex or facsimile once receipt is verified at the following addresses.

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If to **Party A**:

_____

Attention:
With a copy to:

If to **Party B**:

_____

Attention:
With a copy to:

or to such other address or persons as may have been designated in writing by the **Parties**.

IN WITNESS WHEREOF, the Parties hereto have executed this Agreement as of the day and year first above written.

[PARTY A]	**[PARTY B]**
By: _____	By:
_____	
Name:	Name:
Title:	Title:

Dated as of _____, 200__

REFERENCE INTERCONNECT OFFER SCHEDULES

SCHEDULE 1

POINTS OF INTERCONNECT

List of POIs

Station/Area	Type of Traffic	POI	QOS

Note 1: Type of Traffic means local, domestic trunk, international trunk, special services etc.

Note 2: Outgoing, Incoming and Transit Traffic should be shown separately

Note 3: For each POI, a physical description should be prepared, separate from the main interconnect agreement
Each POI should be described in the following format:

Item	Description	Remarks
Location of the POI	Address:	
Party responsible for setting up and maintaining the POI	Name and address	
Physical description of POI	Ex: Physical cable (gauge) or channel interface (ITU-T specification	

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Note: Both the parties will update Schedule I, at Circle level, at intervals of 6 months or when ever new POIs are added in a licensed service area.

Performance Standards

	Type of Network		
	Local	Trunk	International
1. System Availability a. Group Down Time b. MTTR			
2. Bit Error Rate			
3. Slip			
4. Others			

SCHEDULE 2

CHARGES FOR MISCELLANEOUS SERVICES

TYPE OF FACILITY	CHARGE	DETAILS

Note: The types of facility may include billing and revenue collection, access to special services, advertisement etc.

SCHEDULE 3

CHARGES FOR SHARING OF INFRASTRUCTURE ELEMENTS

TYPE OF FACILITY	CHARGE	DETAILS

Note: The types of facility may include space for locating apparatus & plant in buildings, sharing of towers, leased capacities etc.

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SCHEDULE 4

TYPICAL SCHEDULE OF STANDARDS AND SPECIFICATIONS

S. No.	Item	Specification	Remarks
1	Switching Interface	G/PNI-02/01 & ITU-T E770 G/PNI-03/01	(PSTN and Mobile) (PSTN & Private basic operators)
2	Transmission Interfaces	I/DMX-01/01 Dec, 98 & ITU-T G.703/ G.707 (3/96) G.782/ G.783 G/VAN-02/01 Sept, 96	2/8/34/140/ 155 Mbps For V 5.2 interface
3	Signaling CCS 7	R/NSP/-01/01 Sept, 92 S/CCS -02/03 Jan, 2000 G/CCS-03/01 Jun, 94 G/CCS-04/01 Sept, 94	National CCS 7 Plan MTP & ISUP SCCP STP
4	Other cases	G/LLT-01/04	
5	Synchronization	G/SYN-01/01 G/PNI-02/01	As per National Synchronization Plan
6	Junction Traffic	G/LLT01/04	Maximum loading = 0.7E
7	Junction Testing	G/LLT01/04	
8	Higher Layer Protocols	G/LLT01/04	
9	Interface with IP Network	I/RAS-01/01 Apr 99 I/TCP-01/01 Apr 99	Remote Access Server TCP/ IP Internet user devices
10	Electrical safety requirements	S/SFT-01/01 May, 94	
11	Quality of telecom services	TRAI Regulations	ITU-T E 800

12	Terms and definitions	ITU-T B.13	All the definitions shall be considered as per B series of ITU-T Recommendations

SCHEDULE 5

Interconnect Usage charges (IUC) for use of Unbundled Network Elements (UNEs) involved in carriage of various types of calls

No.	Network Elements	Total OPEX per DEL	Mean Capital Employed per DEL	Cost of Capital (%)	Annual CAPEX	Annual CAPEX+OPEX per DEL	Minutes of Usage	Av. Cost per minute
1	Wireline/ Wireless Access Loop							
2	Local Exchange							
3	SDCC Tandem							
4	TAX Switch							
5	Local Exchange - SDCC transmission Link							
6	Local Exchange - SDCC transmission Length in steps of 1 km each.							
7	SDCC - TAX transmission Link							
8	SDCC - TAX transmission Length in steps of 10 km each.							
9	Inter-TAX transmission Link (Intra-Circle)							
10	Inter-TAX Transmission Length (Intra-Circle) in steps of 50 km each.							
11	Inter-TAX transmission Link (Inter-Circle)							
12	Inter-TAX Transmission Length (Inter-Circle) in steps of 50 km each.							

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NOTES:

1. Based on the above average cost per minute/per unit indicated in the table, it should be possible to calculate carriage/ access charges involving various types of switching and transmission elements such as Double TAX call for transit, Single TAX/ILT call for originating and termination.

2. The element costs may be different for different network sizes/ configurations.

3. This Schedule shall be submitted by both the Parties to the Authority and will be treated as confidential.

SCHEDULE 6

INTERCONNECT USAGE CHARGES DERIVED FROM SCHEDULE 5

TYPE OF ACCESS/ CARRIAGE	NETWORK ELEMENTS INVOLVED	CHARGE/ MINUTE
Originating	Local Loop-Local Exchange-Tandem Exchange plus Transmission Link & Length	
Transit	Single TAX -Transmission Link & Length (Intra-Circle)	
Transit *	Two TAXs -Transmission Link & Length (Intra-Circle and Inter-Circle)	
Transit *	Three TAXs -Transmission Link & Length (Intra-Circle and Inter-Circle)	
Transit *	Four TAXs -Transmission Link & Length (Inter-Circle)	
Terminating	Tandem exchange plus Transmission Link & Length - Local Exchange - Local Loop	

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Notes: 1. Usage charges are generally derived from the costs of traffic sensitive network elements, such nodes & links of the core network excluding Local Loop. The cost of the latter is generally recovered from Rentals. However, the Local Loop costs have been included in Schedule 5 in view of the unbalanced nature of the traffic at present i.e. Rental being below cost. Therefore, the usage charge of Local Loop has been included to cover the Access Deficit.

2. In case of two or more TAXs are involved, the Charges per minute shall be computed in multiples of 100 Kms or part thereof.

3. Where distance insensitive transmission system like Satellites, then the separate charges shall be specified.

SCHEDULE 7

RATE OF INTEREST

TYPE OF INTEREST	RATE	REMARKS
Normal Rate of Interest		
Penal Rate of Interest		

Annex - A

LETTER OF ACCEPTANCE OF RIO _____

REFERENCE INTERCONNECT OFFER (RIO)

No. Dated the _____

To

Sub: Acceptance of Reference Interconnect Offer (RIO)

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Sir,

1. We are licensed to provide the following telecommunication services:

2. (a) We notify the acceptance of your published Reference Interconnect Offer (RIO).

Or

(b) We notify the acceptance of your published Reference Interconnect Offer (RIO) pending execution of an Individualised Agreement in terms of Clause 1.2.2

(cancel the alternative which is not applicable)

3. We request you to provide the following interconnection and / or wholesale services:

4. The designated contact person on our behalf is

Yours faithfully,

(.....)
Authorised Signatory
Name of the Company
Service Area of Licence

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Annex - C

REFERENCE INTERCONNECT OFFER

GUIDELINES

Dated 12 July 2002

REFERENCE INTERCONNECT OFFER - GUIDELINES

Interconnect

1. INTRODUCTION

Interconnection agreements are required to be established between operators for interconnection of their networks. These would enable smooth operation of telecommunication services in India. Such agreements need to be entered into between all types of operators such as basic, cellular mobile, national and international long-distance operators and also the incumbent who provides a combination of these services.

To assist operators in arriving at fair agreements, it is customary for the players with significant market power to publish a Reference Interconnection Offer. After the RIO has been accepted by the Interconnection Seeker, a mutually agreed Agreement shall be entered into, within the framework of the RIO.

Operators are not required to obtain prior permission for entering into Interconnect Agreements, but these have to be registered with the Authority in accordance with the Regulations. The RIOs, however, require the prior approval of the Authority before they are published. Operators who do not have published RIOs may use the clauses of the Model RIO for their Interconnect Agreements, after appropriate legal and commercial scrutiny.

The RIO attached to these guidelines is of a universal type that could be established between any two service providers, for the interconnection of their networks. The types of networks would be defined in the Interconnect Agreement. The agreement may be modified, to suit the specific type of network and the special requirement of the two parties.

The RIO is divided into two parts, the main clauses and the Schedules and Annexes. The main clauses represent the generally stable part of the agreement. The parameters that may vary with time or type of network are placed in the schedules and Annexes. This means that the main agreement need not be changed every time a variable parameter is changed. The corresponding schedule or annexure may be changed as required. This makes the agreements more compact.

2. PREAMBLE

The Preamble introduces the parties entering into the Agreement. References are to be made to their Licenses and the Services for which the Agreement is being entered into. In case BSNL, or any party operating directly under the Telegraph Act, is involved, the separate wording shown as an alternative in the clause relating to Party A, should be used.

3. ARTICLE 1

3.1 Scope

Once interconnection is achieved, the customer's interests demand that there should be no unilateral discontinuance of service. The term "uninterrupted" is used in this sense and is dealt with in detail in the termination clauses. The Regulations and Directions refer to the relevant sections of the TRAI Act.

3.2 Definition of Services

Clause 1.2 identifies the two networks that are being interconnected and lists the schedules to the Agreement. These schedules contain important parts of the agreement relating to charging and technical aspects relating to each type of service. Additional schedules may be specified if required. Only those schedules that are relevant to the agreement should be included. These schedules may be altered by mutual agreement.

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3.3 Registration and Commencement

Interconnect Agreements shall be registered in accordance with the Regulations. Clause 1.3 indicates the commencement date (effective date) and the duration. If the Agreement is of indefinite duration this may be specified in this clause

3.4 Definition of Terms

Definitions given in various Acts and Regulations have been reproduced here. A few definitions specifically relevant to the RIO have also been included. In due course the Authority will publish a consolidated list of definitions.

4. INTERCONNECTION PRINCIPLES

4.1 Levels of Interconnection

The Points of Interconnection specified in TRAI Determinations and Directions are given in the following tables. Interconnection is required to be established within 90 days under normal conditions. The actual details of interconnection should be worked out in the Coordination Committee set up under the Agreement.

4.2 Interconnection between Fixed Network (BSOs, NLD/ILD)

As per existing license conditions NLDOs are required to establish switching and transmission facilities at LDCCs and may have POP at SDCCs and have to carry inter-circle traffic offered at these centres. An NLDO may also carry intra-circle traffic by mutual consent with the BSOs. The ILDOs may have switches/ POP at Level 1 (Primary) Centres and are authorised to carry only International Traffic.

Based on the interconnection principles specified in the previous paragraph, the possible types of interconnections are shown in the following tables.

Parenting of a dependent Remote Switching Module [RSM] located in a SDCA other than where the Main Switching Module is located may also be permitted, provided that the Operator follows the National Numbering and Charging Plan in all respects.

4.3 Sharing of Interconnecting facility:

More than one service provider may share interconnection infrastructure like transmission medium such as OFC and equipment for building up leased circuits for different operators, subject to the terms and conditions of the agreement under which such infrastructure has been provided.

4.4 Sharing of resources of interconnection seeker with others:

Operators could also share with the interconnection provider, resources of interconnection seeker, up to the POI by mutual agreement.

PSTN Interconnections

Table 1.1 - PSTN to PSTN (Out-going Traffic)

Type of Call	POI	Remarks
Local	At SDCC Tandem or Local Exchange level situated in the same SDCA as per mutual agreement.	BSO- BSO
Intra-CircleLong Distance (Note 2)	(i) Terminating SDCC / LDCC (ii) Originating SDCC / LDCC, if BSO has no POI at the terminating end.	BSO- BSO (Far-end) BSO-BSO (Near-end)
Inter-Circle	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA.	BSO to NLDO (Near-end)
International	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA. NLDO to hand over international traffic at the Gateway Switch of ILDO To the gateway switch of the ILDO in case the ILD Gateway Switch and the BSO's Tandem/Transit Switch are located at the same station of level I TAX.	BSO to NLDO (Near-end) NLDO to ILDO BSO to ILDO (Near-end) for traffic of same SDCA

Table 1.2 - PSTN - PSTN (In-coming Traffic)

Type of Call	POI	Remarks
Local	Same as Table 1.1	
Intra-Circle Long distance	Same as Table 1.1	
Inter-Circle	NLDO to hand over terminating traffic by mutual agreement as per licence terms and conditions in the destination LDCA at SDCC or at LDCC POI.	NLDO to BSO
International	Level I TAX where the ILDO Gateway Switch is located. NLDO to hand over International traffic to the BSO at the terminating SDCC or by mutual agreement as per licence terms and conditions at terminating LDCC . Terminating local network at tandem/transit in case the ILD Gateway Switch and the Access Provider's Tandem/Transit Switch are located at the same station of level I TAX.	ILDO to NLDO NLDO to BSO ILDO to BSO(for traffic terminating in same SDCA)

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Note 1 New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Note 2. Intra-Circle Traffic may also be handed over to an NLDO by mutual consent

4.5 Interconnection between PLMN (Mobile) and PSTN

The following table indicates the handing over of traffic between these two types of networks.

Table 2.1 - Traffic from PLMN to PSTN

Licensed Area	POI	Remarks
A. Metros		
1. Local Call	Transit Exchange (Tandem) Local Exchange by mutual agreement	To BSO
2. Inter-circle call	Designated Level I TAX located in the Metro.	
3. International Call	Designated Level I TAX of NLDO (or) Gateway Switch of ILDO if ILDO Gateway Switch and GMSC are located at the same station of Level I TAX (Metro).	Designated by NLDO / ILDO
B. Circles		

1. Intra - Circle Call	Level I TAX for both transit to other LDCAs/termination in the LDCA in which it is located. Level II TAX for traffic terminating in the destination LDCA, at the request of interconnection seeker. POI below TAX level may also be provided with mutual agreement for terminating traffic.	To BSO
2. Inter - circle Call	The traffic can be handed over at the designated Gateway Level I TAX of NLDO through any one of its Gateway MSC. CMTS provider cans also handover traffic to NLDOs at the POP situated in the LDCA at the location of the Gateway MSC or MSC in a Circle. The NLDO shall handover terminating traffic in the destination LDCA at the SDCC or by mutual agreement as per licence terms and conditions at LDCC POI.	To NLDO NLDO to BSO
3. International Call	The traffic can be handed over at the designated Gateway Level I TAX of NLDO through any one of its Gateway MSC. CMTS provider cans also handover traffic to NLDOs at the POP situated in the LDCA at the location of the Gateway MSC or MSC in a Circle. To the Gateway Switch of the ILDO if ILDO's Gateway Switch and the GMSC are located at the same station of level I TAX	To NLDO To ILDO

Note 1 New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Table 2.2 Traffic From PSTN to PLMN

Licensed Area	POI	Remarks
A. Metros		
1. Local Call	Transit Exchange (Tandem) Local Exchange (by mutual agreement)	To CMTS provider
2. Inter-circle call	BSOs shall handover the call at the designated TAX of NLDO in the originating Metro. The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro /	BSO to NLDO NLDO to CMTS provider

	Circle. .	
3. International Call (Out-going)	BSOs shall handover the call at the designated TAX of NLDO in the originating Metro To the gateway switch of the ILDO in case the ILD Gateway Switch and the Access Provider's Tandem/Transit Switch are located at the same station of level I TAX (Metro).	BSO to NLDO BSO to ILDO(Near-end for traffic of same SDCA)
(In-coming)	The ILDO to handover at the Gateway MSC of the Cellular Operator if this Gateway MSC and the Gateway Switch of the ILDO are located at the same location of Level I TAX (Metro). The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro / Circle.	ILDO to CMTS provider NLDO to CMTS provider
B. Circle		
1. Intra -Circle Call	Level I TAX or Level II TAX of the originating LDCA. If no POI is available at Level II TAX then at GMSC of the CMTS provider subject to mutual agreement.	BSO to CMTS provider
2. Inter-circle call	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA. The traffic can be handed over at any one of the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro / Circle.	BSO to NLDO NLDO to CMTS provider
3. International Call (Out-going)	BSO to hand over originating traffic at the SDCC in the same SDCA in which it has originated or by mutual agreement as per licence terms and conditions at the LDCC of originating LDCA. NLDO to hand over International calls to the ILDO at the Gateway Switch To the gateway switch of the ILDO in case the ILD Gateway Switch and the Access Provider's Tandem/Transit Switch are located at the same station of level I TAX.	BSO to NLDO NLDO to ILDO BSO to ILDO(Near-end for traffic of same SDCA)
(In-coming)	ILDO to hand over incoming International traffic to NLDO at the Gateway Switch of ILDO The traffic can be handed over at any one of	ILDO to NLDO NLDO to CMTS

	the GMSC through a designated Level I TAX of NLDO. NLDO can also handover traffic to CMTS provider at the POP situated in the LDCA at the location of GMSC or MSC in the Metro / Circle. The ILDO to handover at the Gateway MSC of the Cellular Operator if this Gateway MSC and the Gateway Switch of the ILDO are located at the same location of Level I TAX.	provider ILDO to CMTS provider

Note 1 New National Long Distance Operator(s) can make necessary interconnection arrangements with other NLDOs, to ensure delivery of calls at places where POP is yet to be established as per their network rollout obligations.

Note 2: Different level 1 TAXs can be designated for terminating calls from different circles, in case a circle has more than one level 1 TAX.

4.6 Arrangements at the POI

The complete definition of all classes of POI requires to be entered into Schedule 1. This should cover location, physical and electrical properties, transmission definitions, signalling, type and direction of traffic, information passing across the POI, quality of service and other significant parameters.

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4.7 Network Elements

A party may supply network elements, such as accommodation in buildings and on towers, leased circuits, leased switch capacity etc. All agreed rental charges for these elements should be included in Schedule 3.

5. Interconnection Implementation

Article 3 prescribes procedures for the requisitioning of capacity for interconnection and subsequent augmentation of interconnects capacities to meet the QOS standards. The time schedules and penalties have been laid down. Interconnection will mutually benefit all parties and it is therefore hoped that commercial interests, rather than application of penalties will ensure prompt interconnection.

The article prescribes maximum periods, but the principle expected to be applied is that, as long as capacity is available, reasonable requests would be met in accordance with the requested schedule. The Coordination Committee established under the Agreement is expected to settle all matters amicably.

While the requirement of Interconnect Seeker paying for interconnection is re-emphasised, once interconnection has been established, each party should be responsible for seeing that QOS is maintained for his outgoing traffic. He shall therefore pay for additional capacity required for his outgoing traffic. The parties may, however, negotiate to equally share the costs of augmentation.

Utilisation will be determined by reference to the Erlang B traffic tables and the traffic should be measured over a reasonable period (say 3 months) before reference to the Coordination Committee for surrender or withdrawal.

6. Network Engineering

Article 4 prescribes rules for traffic and network engineering. Since interconnection establishes a route between two networks, the peak traffic on the route should be used for engineering.

Operators are encouraged to use alternative routing arrangements to increase network efficiency. Such arrangements may, however, cause overload on backbone routes at times of congestion. It is therefore desirable to engineer backbone routes with a sufficient safety margin.

7. Technical Specifications and Standards

National Standards are currently set by the Telecom Engineering Centre. These shall be followed. A typical list of standards is given below. The list of applicable standards shall be included in Schedule 4 of the Interconnect Agreement.

Where national standards do not exist, the standards prescribed by the International Telecommunication Union shall be used. In case such standards are also not available, international industry standards may be used.

Interoperability standards for VOIP are currently incomplete. Available ITU standards may be used.

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SCHEDULE OF STANDARDS AND SPECIFICATIONS

Sl. No.	Item	Specification	Remarks
1	Switching Interface	G/PNI-02/01 & ITU-T E770 G/PNI-03/01	(PSTN and Mobile) (PSTN & Private basic operators)
2	TransmissionInterfaces	I/DMX-01/01 Dec, 98 & ITU-T G.703/G.707 (3/96)/ G.782/G.783 G/VAN-02/01 Sept, 96	2/8/34/140/ 155 Mbps For V 5.2 interface
3	Signaling CCS 7	R/NSP/-01/01 Sept, 92 S/CCS -02/03 Jan, 2000 G/CCS-03/01 Jun, 94 G/CCS-04/01 Sept, 94	National CCS 7 Plan MTP & ISUP SCCP STP
4	Other cases	G/LLT-01/04	
5	Synchronization	G/SYN-01/01 Jun, 90 G/PNI-02/01	As per National Synchronization Plan
6	Junction Traffic	G/LLT01/04	Maximum loading =0.7E
7	Junction Testing	G/LLT01/04	
8	Higher Level Protocols	G/LLT01/04	
9	Interface with IP Networks	I/RAS-01/01 Apr. 99 I/TCP-01/01 Apr. 99	Remote Access Server TCP/IP Internet user devices
10	Electrical Safety requirements	S/SFT-01/01 May, 94	
11	Quality of telecom services	TRAI Regulations	ITU-T E 800
12	Terms and Definitions	TRAI Regulations	ITU-T B.13

8. Network Integrity

Integrity of a network refers to the ability of its systems to preserve and retain their original operational states and remain unaffected by interconnection with other networks. Integrity issues are crucial when multiple operators, service providers, and other players inter-work. They provide confidence that this inter-working will not jeopardize the correct and proper functioning of the individual networks and systems. Integrity is a broad term encompassing a variety of issues concerning system structure, functionality and behaviour. This concept has been introduced along with the basic rules.

9. Operations and Services

Apart from physical elements, operators may provide services to each other, for example billing, revenue collection, directory enquiry etc. Schedule 2 should list and describe all these services along with the agreed rates.

10. Interconnection Gateways

In a multi-operator environment the number of interconnections at a centre may be large. It is possible for operators to provide, wherever possible, interconnection through their switches for transit traffic between other operators. Charges for such services would be fixed and entered into Schedules 5. A draft Technical Facility Schedule for such Gateways is available wit the TEC.

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11. Billing and Inter-carrier Charging

Each operator is normally responsible for billing his own subscribers, however, the NLDOs and ILDOs have to make their own arrangements to bill customers for their services. They may either bill directly or negotiate with the Access Providers to bill and collect revenue. The agreed arrangements should be described in this paragraph and agreed procedures placed in an appropriate annexure.

Wherever call carriage involves the networks of two or more operators, the collection from the subscriber has to be then distributed on an agreed basis. The agreed basis should be entered in Schedule 6. Article 11 lays down the rules for such transactions.

Billing settlement may be on the "cascade basis". In this method each operator settles with the next operator in the chain on a bulk-billing basis. In the other method the operator collecting the revenue from the customer has to settle with each of the operators in the chain, based on the Call Data Record (CDR) containing identities of the originating, transit & terminating operators as well as charging areas. This enables computation of network usage charge based on the resources used in each network segment. This latter method is more accurate, but requires more detailed information to be collected from the system by employing CCS7 (ISUP) and sophisticated digital switching systems at gateway points. It is recommended that Operators consider adapting this method for proper interconnect billing and settlement.

12. Commercial Terms and Conditions

Article 12 lays down the commercial conditions. The cost of upgradation / modifying interconnecting networks to meet the service requirements of the service shall be met by the Party seeking interconnection. However mutually negotiated sharing arrangements for cost of upgrading / modifying interconnecting networks between the service providers shall be permitted.

Two years after the initial interconnection is established, the issue as to who bears the cost of additional resources required shall be negotiated between the service providers. The general principle followed in these negotiations is that each party should bear the incremental costs incurred for the additional ports required for meeting the QOS standards relating to its outgoing traffic to the other Party.

13. Charges for Originating, Terminating and Transit Traffic

For arriving at the usage charges (IUC) payable by one service provider to the other, based on the cost of network resources used, the following principles may be followed:

- Unbundled element costs as a basis for the usage charge applicable to Origination, Transit and Termination. This needs to be worked out on Fully Allocated current Costs (FACC) basis. Once calculated these would be advised by the TRAI as benchmarks.
- Additional items may be specified by the Authority, such as an access deficit charge to compensate the access provider, for costs the recovery of which is otherwise not provided for.

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14. Fundamental Technical Plans

This is a descriptive paragraph relating to Numbering, Routing, Charging etc.

15. Coordination and Dispute Settlement

Operational problems continually arise between interconnected networks, these may be technical or relate to money matters. Before they develop into disputes it is desirable that they should be formally discussed in a coordination meeting between the two parties. A formal Coordination Committee should be established under the Agreement. This Committee will be responsible for laying down detailed procedures in the light of experience and also try to settle matters of difference. The Committee may also seek the intervention of the TRAI in matters of interpretation of Rules and Regulations. If no settlement can be reached, the parties shall be free to pursue other avenues for settlement. Article 16 relates to the Coordination Committee and Article 18 to dispute settlement.

16. Termination and Review

The Interconnection Agreement is expected to last indefinitely, but may have to be suspended or terminated under exceptional circumstances. Article 17 lays down the conditions relating to these matters. Discontinuation of services to customers, however, requires the permission of the TRAI and Licensor.