



Mobile Cellular Policy



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IT and Telecommunication Division
Ministry of Information Technology
Government of Pakistan



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1 Introduction

This document presents the policy of the Ministry of Information Technology (MoIT) for the Mobile Industry. The Mobile Policy presented is consistent with the De-Regulation Policy for the Telecommunication Sector approved by the cabinet on January 10, 2004.

This Mobile Policy is set out in the following sections:

- Section 2 – Mobile Policy Objectives
- Section 3 – Mobile Sector of Pakistan
- Section 4 – Radio Spectrum
- Section 5 – Mobile Sector Roadmap
- Section 6 – License Conditions
- Section 7 – Obligations of PTCL
- Section 8 – Universal Service
- Section 9 – Investment incentives
- Section 10 – Regulatory Reform
- Section 11- Policy Review

2 Mobile Policy Objectives

In addition to the broad Telecom sector objectives, as outlined in the Telecom Deregulation policy, the following objectives specific to mobile cellular sector are expected to be achieved through this policy:

- i. Promotion of efficient use of radio spectrum;
- ii. Increased choice for customers of Cellular mobile services at competitive and affordable price;
- iii. Private investment in the cellular mobile sector;
- iv. Recognition of the rights and obligations of mobile cellular operators;
- v. Fair competition amongst mobile and fixed line operators;
- vi. An effective and well defined regulatory regime that is consistent with international best practices;

3 Mobile Cellular Sector of Pakistan

3.1 Mobile Licensees

Currently, four operators (2 GSM, 1 D-AMPS, 1 AMPS (migrating to GSM) are providing services to just under 3 million cellular subscribers all over the country. The



number of customers has more than tripled in the past two years. The table below provides an overview of the current subscriber base of the operators.

| | Mobilink | Ufone | Paktel | Instaphone |
|--------------------------------|-----------------|--------------|------------------------|-------------------|
| Technology | GSM | GSM | AMPS, migrating to GSM | D-AMPS |
| No of Active mobiles Nov. 2003 | 1,675,000 | 552,000 | 255,000 | 478,261 |

Source: Figures stated by Operators as of Nov 2003

3.2 Market

The Pakistani economy throughout 2003 has continued to post strong results with inflation under control at approximately 3% per annum and GDP growth at 5%. All the macro economic indicators have shown very healthy trends in the last four years. Forecasts suggest that the economy will continue to develop at even higher rates for the next few years.

The cellular industry in Pakistan registered significant growth when the tariff mechanism changed from Mobile Party Pays to Calling Party Pays regime in year 2000. At approximately the same time Ufone, a subsidiary of the state owned PTCL, launched its commercial service.

Pakistan has experienced sizable population growth over the last few decades. Its current population of around 150 million is expected to grow to 190 million by 2018 according to UN forecasts.

The province of Punjab accounts for 26% of the land mass and accommodates 56% of the population creating a population density of 402 people per square kilometre. This compares to Balochistan which covers almost 50% of the country's geography but has a small population, around 5% of the total, where the population density is only 19 people per square kilometre.

Current coverage is a constraining factor in the growth of mobile penetration. Since the existing operators have essentially built their networks in the cities and towns, current policy aims to accelerate coverage for rural areas by putting coverage obligations and by creating a Universal Service Fund.

Assuming that future cellular coverage reaches 95% of all urban population and 30% of rural population and taking into account the relative geography and population density of each Province, there is a potential demand of approximately 25 million cellular subscriptions by 2018.

4 Radio Spectrum

Crucial to the development of the mobile cellular market is the availability of spectrum and its most optimal and efficient use for which a basic frame work was defined in the Telecom Deregulation policy as below:



4.1 Telecom De-Regulation Policy

With regards to radio spectrum, Telecom Deregulation Policy states at Section 4.4:

4.4.1 Radio spectrum is a valuable public resource belonging to the State and must be used in the public interest. The Frequency Allocation Board (FAB) is responsible for properly managing radio spectrum.

4.4.2 Wherever possible and consistent with good spectrum management practices, licensees shall be required to share spectrum with other licensees.

4.4.3 Licensees shall relinquish rights to spectrum that is no longer needed for their operations, and allow sharing of the bands they currently occupy where such sharing is technically feasible, and subject to management by FAB of frequency re-use in the band in accordance with best international practices. Unused spectrum allocated for operations of Local Loop (LL) & Long Distant International (LDI) licensees may be withdrawn if the licensees fail to begin operations within eighteen months of award of radio spectrum. The Licensees may not assign, lease or sell the rights of use of spectrum allocated to them in the first place.

4.4.4 All entities using spectrum shall be charged a fee for spectrum. The fee will be approved by the Government of Pakistan and recovered by Frequency Allocation Board from users of frequency spectrum. The factors to be considered in setting fees shall include but not limited to coverage, scarcity and value of the spectrum. The spectrum will be allocated for a definite time.

4.4.5 Where demand exceeds available frequency spectrum, it shall be allocated by auction or other transparent, non-discriminatory, open and competitive process.

4.4.6 Pakistan plans to follow ITU-R specified radio frequency bands¹ specific for the purpose of operations of Wireless in the Local Loop (WLL), point-to-point microwave and backbone / transmission services.

4.4.7 Information about available radio spectrum for telecommunication services would be placed in the public domain for the prospective users to apply for allocation on nation-wide or regional basis.

4.4.8 The FAB shall deal with the requests for radio spectrum, within the framework of Telecom Act 1996 and Rules thereunder, and process applications within a target of 30 days. FAB will streamline and proactively coordinate the process of site clearance for licensees who have been allocated frequency spectrum, to expedite rollout of wireless based networks.

4.4.9 LDI licensees will be entitled to radio spectrum (where available) for point-to-point / and backbone links, within the parameters of their licenses, on payment of spectrum charges.

4.4.10 LL licensees will be entitled to radio spectrum for WLL systems, and also spectrum for point-to-point links, where available, and on payment of spectrum charges.

4.4.11 LL and LDI licensees that receive spectrum shall meet defined usage milestones, failing which they must relinquish their rights to use the assigned spectrum."

4.2 Current assignment of Mobile cellular spectrum

Currently assigned mobile cellular spectrum and deployed technologies in Pakistan are shown in Appendix A, together with the international allocation of particular bands to different mobile cellular technologies.

4.3 Available spectrum for mobile cellular

Based on the foregoing assignments, the availability of spectrum in Pakistan in internationally designated mobile cellular bands is shown in the Table below:

¹ The ITU defines Wireless Access as "end user radio connection(s) to core networks". Bands used for FWA include 3.4 - 3.6 GHz, 3.6 - 3.8 GHz, 10.15 - 10.3 & 10.5 - 10.65 GHz. Bands between 24.5 and 29.5 GHz are also used. In addition there are the license exempt bands where Radio Local Area Networks (RLANs) have been implemented using 802.11 or HIPERLAN technology the former and its derivatives in the 2.5 and 5.8 GHz ISM bands and Hiperlan in the range 5 - 5.7 GHz. DECT 1880-1900 MHz and cdmaOne frequency bands e.g. 850 and 1900 MHz.



| Band (MHz) | Uplink (MHz) | Downlink (MHz) | Total Available | Recognised Standards | Notes |
|------------|------------------------------------|----------------|-----------------|---------------------------------------|---|
| 800 | 835 – 845 | (none) | (10 + 0) MHz | GSM 850 CDMA 800 AMPS/DAMPS 800 | Corresponding band not available |
| 900 | 890 – 895 | 935 – 940 | 5 + 5 MHz | GSM 900 | Additional 5 MHz is likely to be available, exact details will be mentioned in IM document. |
| 1800 | 1710 – 1740 | 1805 – 1835 | 30 + 30 MHz | GSM 1800 | Potentially more. Under re-farming. |
| 1900 | 1900--1910 | 1980-1990 | 10 + 10 MHz | GSM 1900 CDMA 1900 (IMT 2000) | Small encroachment on lower IMT 2000 guard band. Under re-farming. |
| 2100 | Currently fixed links (PTCL, SSGC) | | | IMT 2000 | Under re-farming |

Table A- Available mobile cellular bands and spectrum

In summary it can be concluded that:

- i. In the **800 MHz** band, Paktel AMPS uplink assignment will eventually be returned to FAB for re-use. However there is no available downlink due to its utilisation by Paktel for GSM uplink channels.
- ii. In the **900 MHz** band there is only 2x5 MHz remaining from the total international band assignment of 2x35 MHz.(Additional 5 MHz is likely to be available in near future)
- iii. In the **1800 MHz** band there is currently 2x30 MHz available, with the potential for more being freed in future under current re-farming initiatives by FAB.
- iv. In the **1900 MHz** band there are currently 2 lots of 5 MHz available, one or two of these lots will be available for WLL services depending on the outcome of the auction for mobile cellular spectrum.
- v. The **2100 MHz** band is currently under re-farming. FAB is scheduled to complete this by the end of 2005.

4.4 Spectrum Pricing

The GoP wishes to encourage efficient use of the radio spectrum. As such the frequency usage charge will be set at such a price so as to encourage effective use.

For Mobile Cellular Licenses, where the assignment of spectrum is linked to a set of license conditions, the associated fees will consist of two parts:

Cellular Spectrum Price.

The Spectrum price for national mobile cellular licenses will be determined through auction.



The Spectrum Price resulting from the auction will also be used as benchmark to determine price per MHz per annum for the existing operators, once they come under the purview of this policy.

Spectrum Administrative fees

Administrative fees for radio spectrum will be set to recover the cost of administration of that spectrum. The total income generated from administrative fees for the whole spectrum should recover the reasonable operational costs of FAB incurred whilst managing, licensing and policing that spectrum.

Interim fees for the mobile licensees for first year of operation on the assumption of no change in allocated spectrum for existing operators are detailed in Appendix B. The fees may be adjusted in case the existing operators exchange some of their 900 MHz frequency with 1800 MHz band. Spectrum price for line of site links will be limited to the Administrative fees

The mobile licensees will pay the Pakistan Telecommunication Authority (PTA) – the regulator, in addition to the Spectrum Administration fee and the Spectrum Price, an annual license Administration fee (Regulatory fee), to reasonably cover the cost of regulation. The annual Regulatory fee shall not exceed 0.5% of last year's gross revenue minus inter-operator and related PTA / FAB mandated payments.

4.5 Management of fixed link spectrum

Assignment of spectrum to all fixed links will preferably be on a link-by-link basis.

The current practice of making nationwide fixed link assignments is inefficient and may result in the appearance of scarcity of spectrum when in reality this is not the case. FAB shall assign spectrum based on optimal utilisation of scarce resources.

4.6 Use of Spectrum

Unused spectrum allocated to any licensee may be withdrawn if the licensee fails to begin operations within eighteen months of award of radio spectrum. The Licensees may not assign, lease or sell the rights of use of spectrum allocated to them.

To support the promotion of efficient use of spectrum for national benefit it is important that spectrum which has not been used is returned to FAB for reallocation. Frequencies not used by Licensees will be returned to FAB if the Licensee does not make active or effective use of them. The use would be confirmed by monitoring. Licensees shall allow sharing of the bands they currently occupy where such sharing is technically feasible, and subject to management by FAB in accordance with best international practices.



5 Mobile Sector Roadmap

5.1 Number and Tenure of Mobile Cellular Licenses

The PTA will issue new national, technology neutral, Mobile Cellular Licenses for 15 years tenure. Existing mobile cellular licensees will not be permitted to bid for these licenses.

GoP has decided to grant new 15 year technology neutral National Mobile Cellular Licenses. Existing mobile cellular licensees will not be allowed to bid for these licenses. As further spectrum is cleared, frequency bands may be made available to licensed mobile cellular operators and WLL operators.

Pre-qualified bidders will receive the Information Memorandum (IM), which will include the License template and other relevant material. The currently licensed mobile operators and their substantial shareholders (10% or more) will not be eligible to bid for the new mobile cellular licenses. Applicants must also demonstrate that they have no substantial ownership/interest (10 percent or more) in more than one of the bidding companies or consortia.

5.2 Allocation of Mobile Cellular Spectrum

The mobile cellular spectrum will be auctioned in blocks. The size of these blocks will be sufficient to support the creation of commercially viable services.

The spectrum will be auctioned in blocks/packages keeping in mind the most effective use of the spectrum as a whole. At the same time the blocks of spectrum allocated will have sufficient bandwidth to enable economic use. PTA and FAB will define the Blocks in an Information Memorandum (IM) and will set the detailed method for the auction well in advance of the auction date.

The auction rules to be formulated by the PTA shall ensure that the auction process:

- Be fair and transparent;
- Provides a fair basis for competition among the pre-qualified bidders;
- Encourages the maximum number of potential investors;
- Establishes a fee which is economically justified when balanced with the investment required to meet the roll-out obligations specified with the license;
- Be simple to execute;
- Discourages collusion and predatory bidding that may block entry of potential bidders into the auction process.

The standards employed for licensed blocks of Spectrum shall conform to recognized international standards.

The standardization process has resulted in some technologies being associated with specific spectrum. To date GSM and CDMA are two such technologies. In such circumstances the cellular License should be linked to the associated recognised



standard. Where more than one standard could be adopted in any given block of spectrum the licensee shall have the right to choose which standard to employ.

The licensees will also be entitled to bid for additional spectrum in the 2100 MHz (3G) band when it becomes available.

In the context of 2100 MHz band, the GoP recognises its importance to enable mobile licensees to upgrade technology as spectrum becomes available. For this reason it is providing a degree of certainty in respect to the third generation mobile cellular technology.

While auctioning spectrum in 2100 MHz band, the reserve price per MHz per annum will be set by reference to the 2004 auction price

If there is additional spectrum which is not required by licensees and if any other applicant requests its use for non-cellular services, subject to confirmation of spectrum by FAB, PTA may announce an auction within a reasonable time of the formal request.

5.3 Payment Schedule

After an initial payment of 50% of bid price as down payment on acceptance of bid, the Spectrum Price will be paid by the licensee(s) in equal annual instalments over next ten years.

All licensees will make Spectrum Price payments on per MHz basis of the frequency allocated to them.

5.4 Renewal of existing licenses

The Mobile Cellular License under this policy will replace the existing licenses as soon as possible or at latest upon expiry of the current licenses.

The existing operators will be encouraged to come under the purview of Mobile Cellular policy even before the expiry of their existing License. This would mean that all Mobile Cellular Operators would have the same license terms. The licenses would vary only by their terms of coverage obligations, frequency assignments and level of performance bond. The coverage terms will be adjusted to take account of the existing deployed network. Total coverage required of each network will be equivalent after four years.

The advantage to existing mobile operators in changing would be to gain such benefits as:

- Certainty of 15 years renewal on expiry of their current tenure;
- Additional rights to self-build of regional backbone within each of the defined PTCL regions;
- Allocation of additional frequencies in the 1800 MHz band in exchange for a lesser amount of spectrum in the 900 MHz band;



- Rights in respect to bidding for additional 2100 MHz (3G) spectrum as and when available
- Access to Universal Access Fund (USF)

The fees for the renewed licenses will also be paid using the same payment profile and be based upon the same per MHz per annum price as determined in the auction

5.5 LDI and LL Licenses

Mobile Operators will be eligible for LDI and LL Licenses.

Commercial benefit could accrue to mobile operators also holding licenses to provide other types of services. Where an operator does hold a number of licenses the Licensee will have to meet the requirements of the PTA of accounting separation and for setting up separate legal entities for reasons of transparency and non-discrimination.

5.6 International Connectivity

International connectivity currently provides significant revenue to the telecommunications industry. The GoP recognises that high international rates may not be sustainable in the long run. However, as long as the premium continues to exist, a reasonable portion of the call termination premium is proposed to be used to promote infrastructure expansion. The portion of the premium applied to promoting infrastructure expansion is referred to as the "Access Promotion Contribution" ("APC").

If the Mobile Operator does not hold an LDI license then international connectivity will have to be obtained from an LDI operator.

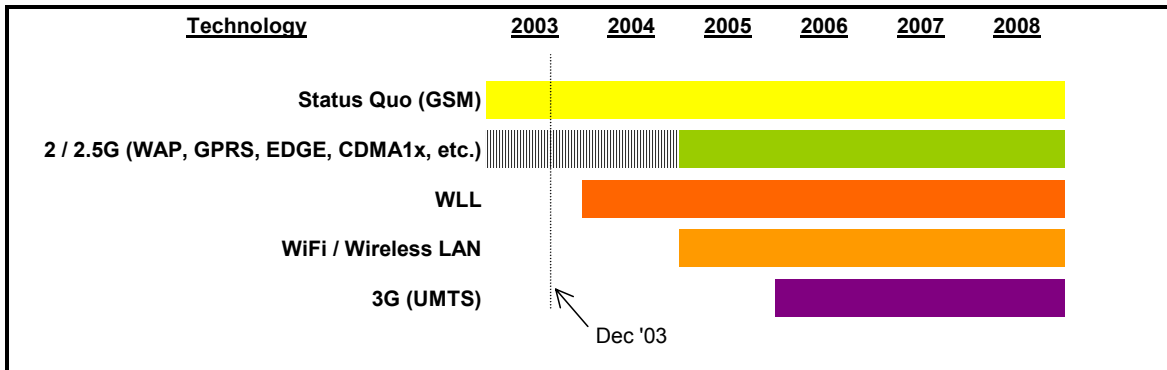
5.7 Technologies

The allocation of spectrum to mobile cellular licenses must take account of international standards and the need to encourage national harmonisation, the adoption of global standards and mass-market technology with associated social benefits.

Further, FAB is working to clear the spectrum in the 2100 MHz bands for IMT-2000 which is scheduled to be completed by the end of 2005.



The figure below indicates an anticipated time line for the introduction of new technologies in Pakistan.



5.8 3G Spectrum

The 3G spectrum will be sold by auction. Both the Licensed mobile cellular operators and the new parties interested in 3 G licenses will be able to participate in the process.

IMT2000² (UMTS) is becoming the de facto migration path from GSM to 3G in many countries. Internationally agreed bands are assigned for 3G implementation based on W-CDMA / UMTS technology.

Since GSM is currently the main cellular technology in use in Pakistan, it is likely that the preferred technology for 3G will be UMTS.

The FAB is clearing the 3G spectrum and will complete this task by the end of 2005. Thereafter, spectrum in the 3G Bands of 2100 MHz will be made available for auction.

The 3G licenses will include a minimum urban coverage requirement and performance bond to ensure the spectrum is utilised in a manner beneficial to the country. The PTA will specify the License conditions.

Frequency in the 3G FDD/TDD bands will be divided into Lots of 5 MHz + 5 MHz with coverage specified in the License. Interested parties will be able to bid for more than one Lot. Failure to launch commercial service within a specified period of time will result in the unused frequency being recovered by FAB (through PTA). If there is 3G spectrum not taken up then as the demand rises further auction dates will be set.

² Covers FDD/TDD frequencies

⁵ Market will be considered sufficiently competitive when PTA determines that the cellular user has a real choice in terms quality of service, pricing and coverage.



5.9 Retail Prices

The retail price cap on mobile Licensees, fixed from time to time, by PTA will continue till such time the market, in the view of PTA, becomes sufficiently competitive⁵.

5.10 Significant Market Power (SMP)

The PTA will regularly undertake a review to determine the relevant markets for the telecom Industry and in turn the SMP operators for the relevant markets. PTA should complete the first review within six months from the policy notification.

The Government believes that the success of market liberalization depends on the development of a fair competitive environment for all licensees. In this regard, Mobile and fixed line licensees who emerge with Significant Market Power (SMP) shall be prohibited from abusing their dominant positions through anticompetitive conduct. PTA will incorporate provisions of anti-competitive practices in the licenses for SMP(s).

Operators with SMP will also have to produce a Reference Interconnection Offer (RIO) detailing the services and tariffs they provide to other Licensed operators.

Section 17 of the Pakistan Telecommunications Rules defines Significant Market Power (SMP).

(1) An operator shall be presumed to have significant market power when it has a share of more than twenty-five per cent of a particular telecommunication market. The relevant market for these purposes shall be based on sector revenues.

(2) The Authority may, notwithstanding sub-rule (1), determine that an operator with a market share of less than twenty-five per cent of the relevant market has significant market power. It may also determine that an operator with a market share of more than twenty-five per cent of the relevant market does not have significant market power. In each case, the Authority shall take into account the operator's ability to influence market conditions, its turnover relative to the size of the relevant market, its control of the means of access to customers, its access to financial resources and its experience in providing telecommunication services and products in the relevant market.

6 License Conditions

6.1 Self provision

The mobile licensees will have the right to provide their own infrastructure within a PTCL Region and to also provide their own interconnection circuits to other operators.

The GoP fully recognises that international best practice permits the Mobile operators to have the right to provide their own fixed links between all elements of their network. The key problems are timeliness of delivery and circuit availability for termination at suitable base station sites.



In the event that an LDI operator is unable to provide a circuit within 3 months from request or the Quality of Service (QoS) falls below international standards the mobile operators will have the right to self provide inter regional circuits.

Between Regions the GoP wishes to limit mobile operators to using leased circuits from an LDI operator to assist the development of the competitive LDI market. In the event that there are no LDI operators able to supply interregional leased circuits within 3 months from a formal order to meet the operational requirements of a Mobile Cellular Licensee then self provision will be permitted. It should be noted that the Mobile operators have the opportunity to apply for and hold an LDI license as well. In this case they will be able to self provide intra and inter regional circuits.

Licensees will have the right to contract for the “Right of Way” (RoW) they need to construct their networks, subject to conditions laid down by the concerned agencies.

6.2 Coverage and roll-out requirements

The Mobile Cellular Licenses will include a coverage obligation against which a licensee will be obliged to submit a Performance Bond with the PTA. The performance bond will be linked to the rolling annual capital investment requirements to meet the coverage obligations over a 4 year period.

A major objective of the GoP is to ensure, over a reasonable time, that there are services in the underserved and rural areas. The Mobile Cellular policy includes obligation to roll out coverage to at least 70% of Tehsil headquarters in four years with a minimum of 10% Tehsil coverage in all the provinces. Licensees would be required to deposit a performance bond to be redeemed against achievement of coverage targets. The value of the bond for the first year is set at USD 15 Million for new entrants and the value for existing operators will be set depending on the difference between their current level of coverage and the coverage targets in the license. Specific annual coverage targets will be included in the license.

6.3 Quality of Service

The Licensee will provide a set of reasonable QoS measures against which the performance of licensee will be measured on a regular basis.

The GoP intends to ensure that licensees provide a good quality of service. The following table is indicative of the QoS measures to be included as an Annex to the Mobile Cellular Licenses. The PTA will set the QoS parameters after consultation with the Licensees before final issue of the license.



| Indicator | Short Term (first 3 years) | Long Term (3 years on) |
|--|---|----------------------------|
| Air Interface Blocking | <= 4% in busy hour | <= 2% in busy hour |
| Call Completion Rate | > 96% | > 98% |
| Call Connection Time | <= 7 seconds | <= 5 seconds |
| Call Quality | MOS ³ Score > 3 | MOS Score > 3 |
| Network Down-time (averaged across all sites) ⁴ | < 2% in any 1 calendar month < 1% over a 1 rolling year period | < 1% over a 1 month period |
| Cell-site Down-time (for each site) ⁵ | Not longer than 48 hours | Not longer than 24 hours |

In addition to the above QoS measures a limited number of targets will be set for service covering such areas as:

- Customer service time to answer
- Time to resolve complaints
- Billing accuracy
- Provision of interconnect ports
- Repair of interconnect ports

The PTA will after due consultation prepare a set of criteria which will be attached to the License. The Mobile Cellular licensees will be required to provide regular reports to PTA on quality of service.

6.4 Infrastructure Sharing

All Licensees are encouraged to implement infrastructure sharing in accordance with the guidelines issued by PTA and FAB.

It is important to encourage Infrastructure sharing as a matter of policy and keeping in view environmental issues related with towers and masts. Infrastructure sharing includes a requirement to lease facilities on a non-discriminatory basis, to such other service providers. The facilities provided may include space, electrical power, air conditioning, security, cable ducts, space on antenna masts or towers, rooms etc. Infrastructure sharing, including co-location and facility sharing, shall be provided based on the guidelines established by PTA/FAB on the principles of neutrality, non-discrimination, equal access and commercial arrangements.

³ Bit Error Rate measurements can be used as a proxy

⁴ Outages caused by third parties (such as PTCL) are not included in this figure

⁵ Outages caused by third parties (such as PTCL) are not included in this figure



6.5 National Roaming

Licensees are encouraged to offer National Roaming with other licensees offering reciprocal services in accordance with the guidelines issued by PTA.

In order to implement the policy objectives of the GoP, Licensees are encouraged to offer nationwide service as expeditiously as possible at mutually acceptable terms. It is expected that national Roaming will remain a useful facility in order to promote competition in rural areas where it may well be the case that all operators will not have a presence.

6.6 International Roaming

All mobile operators are encouraged to negotiate International Roaming Agreements with foreign operators.

6.7 Interconnection

The new licensee(s) will have the right to interconnect its network with other licensed mobile and fixed networks in Pakistan.

It is important to enable customers to dial from one mobile network to customers on either another mobile network or customers on a fixed network at reasonable retail rates. To achieve this the mobile operators must be free to decide and make connection to, the most economic point of interconnection with other operators. Mobile operators will have the right to request leased lines from LDI operators.

Interconnection with PTCL will be covered by the Reference Interconnection Offer (RIO) being developed by PTCL under the interconnection guidelines.

Mobile Interconnection termination charges will not exceed the existing level until cost-based rates are available for both fixed and mobile operators. PTA will set rates before the end of 2004 based upon its view of termination costs by existing operators.

Interconnection charges will move to a cost plus normal return basis for all mobile operators on the basis that each operator has a monopoly on termination of calls to customers connected to its own network.

All operators should provide the PTA with evidence of cost for interconnection termination rates within 12 months of beginning their operation.

6.8 Mobile Number Portability

PTA will immediately undertake a consultation process on the implementation of Mobile Number Portability with the aim to implement number portability within two years of policy notification.

A major drawback to switching mobile operators is that, at present, customers need to change their mobile telephone numbers. In order to establish market conditions that



provide maximum choice, consumers should be able to switch operators in order to take advantage of attractive service offerings, lower prices or improved quality.

PTA will determine, in consultation with the industry, the most appropriate method of implementing number portability and establish rules for its implementation. To provide flexibility to consumers, all mobile licensees shall implement number portability, according to the PTA's requirements and guidelines. Although there may be a one-off charge for porting a number, there should be no additional on-going charges related to porting the number.

6.9 Customer Charter

All Licensees are encouraged to publish a Customer Charter, to be approved by the PTA.

The GoP wishes to see a significant improvement in the availability and quality of mobile services. The Customer Charter should provide commitments by the Licensee to Customers in respect of the standard and quality of the Licensed Service.

6.10 Standard Contract

The Mobile Cellular Licensee shall submit a Standard Customer Contract before the commencement of its services to the PTA for approval.

The Licensee shall prepare a standard contract of service for use with its customers. The Licensee shall file the standard contract, and amendments thereto from time to time, with the Authority for its approval.

The standard contract, as approved by the Authority, shall apply to all customers that obtain Mobile communications services from the Licensee.

6.11 Protection of customer from unsolicited fraudulent communications

Operators should put in place mechanisms to prevent abuse of the systems which result in customers receiving unsolicited or fraudulent communications.

The international growth in unsolicited and fraudulent use of the mobile networks enticing customers to make high priced calls ("Scamming") is a matter of concern. PTA after consultation with the industry will establish a code of practice for Mobile Operators to prevent such use. The code of practice will be produced before the end of 2004.

6.12 Mobile Virtual Network Operator (MVNO)

All Operators will be permitted to support MVNO services, a detailed framework for which is to be prepared by PTA within two years of the policy notification.

The concept of MVNO supports and encourages an open and competitive market in telecommunications. All Operators will be permitted to support MVNO services, a detailed framework for which is to be prepared by PTA within two years of the notification of the policy.



6.13 Legal Intercept

Licensees shall meet the requirements of authorized security agencies for legal interception of calls and messages. Further, the Government of Pakistan would have the right to either suspend the service or cancel any license to safeguard national security.

6.14 PTA License Fee

Licensees will pay to PTA a fixed annual fee, to reasonably cover the cost of regulation. The annual fee shall not exceed 0.5% of the previous year's gross revenue minus inter-operator and related PTA / FAB mandated payments.

6.15 R&D Fund

Mobile Licensees will contribute 0.5% of gross revenue minus inter-operator and related PTA / FAB mandated payments to the Research and Development Fund.

Detailed guidelines for the R&D Fund's utilization for IT & Telecom sector development and HRD etc will be proposed separately.

7 Obligations on PTCL

In order to facilitate market liberalization, PTCL, is obliged to:

- a) *Prepare all transit and tandem switches for interconnection and Implement within six months of policy notification, all needed upgrades in the transit switches to the capacity orders submitted by new entrants. PTCL shall not be required to implement upgrades in respect of orders not accompanied by pre-payment of 3 months port cost. PTCL shall pay needed penalties in case of delay in providing ordered Pols, to be determined by PTA.*
- b) *Prepare 50% (measured by lines in service) of local Main Switching Units ("MSU") for interconnection within one year. The remainder to be done in two equal stages within the subsequent two years.*
- c) *Unbundling of service and cost accounting information should be done based on the principles of transparency, orientation, and allocation based on activities and related cost drivers. They shall be sufficiently detailed to allow the clear identification of (a) activities related to interconnection - covering both interconnection services provided internally and interconnection services provided to others; and (b) other activities, so as to identify all elements of costs and revenues. Details of the basis of their calculations and the allocation methods used shall be provided, including an itemized breakdown of fixed assets and structural costs. Sufficient records must be kept to allow independent audit of these cost accounts.*
- d) *PTCL will issue a "Reference Interconnection Offer" (RIO) to be used as the default interconnection offer for interconnection with PTCL pending*



determination of LRIC based pricing. PTCL can implement amendments to the interim RIO, subject to the prior approval of PTA.

8 Universal Service & Access Promotion Contribution

Mobile licensee shall pay a USF Charge limited to 1.5% of gross revenue minus inter-operator and related PTA / FAB mandated payments as determined by the Government.

The importance of funding telecommunication infrastructure in the rural areas cannot be underestimated for the long-term economic benefit and to avoid a 'digital divide' between rural and urban areas. The establishment of the USF and the allocation of funds to operators is an important factor in accelerating the availability of telecommunication services in rural areas. Mobile operators can play an important role in providing coverage to rural areas in particular where there is no fixed line service. The USF will be financed by revenues collected from all telecommunication licensees through a universal service fund charge (the "USF Charge"). The USF may also receive contributions from the Government, and also funding from international or bilateral development agencies.

Mobile operators shall be eligible to apply for money from the USF in order to cover rural and under-served areas as per guidelines for utilisation of USF to be notified separately.

The Government has designed the market liberalization policy to maximize the commercial availability and coverage of telecommunication network and services in Pakistan. The Government recognizes, however, that even with market liberalization, and under strictly commercial considerations, there may exist certain populations or geographic areas that would remain un-served or relatively underserved. The Government's universal service policy is designed to ensure that these designated populations and geographic areas receive adequate service in a sustainable manner as resources permit.

Fees collected by PTA and FAB from telecommunications licensees, which are in excess of administrative costs, shall be deposited into the Universal Service Fund.

The USF policy framework will be prepared and approved by the Federal Government. It shall include collection of the funds from the licensees and its disbursement within approved USF framework. The amounts and usage of the USF will be made public, and shall be subject to independent audit. Disbursement of USF funds shall be made through a transparent, non-discriminatory and competitive process.

The APC shall not be available to cellular operators. Premium of APC on current cellular termination rates would be mopped up and diverted to Universal Service Fund (USF).

Premium of APC on current cellular termination rates would be mopped up and diverted to USF with effect from a future date to be notified by the Government.



9 Incentives for Investors

The Telecom sector, including mobile cellular operations, will be classified as an Industry.

The Mobile operators have to date been classed as a Service and not as an Industry. Reclassification of mobile operators to the Industrial Sector will reduce operational costs.

10 Legal and Regulatory Framework

Appropriate changes in the legal and regulatory framework will be made expeditiously to support the Mobile Cellular Sector Policy. Changes may result in amendments in Telecom Reorganisation Act of 1996 and corresponding rules and regulations. Such changes shall be effected expeditiously after the notification of the policy.

11 Review of Policy

This policy will not be reviewed before five years of notification date.



Appendix A – Currently assigned mobile cellular spectrum

| Operator | Technology | Up-Link | Down link | Comments |
|--------------------|------------|-------------|-------------|--------------------------------------|
| Instaphone | D-AMPS | 825-835 MHz | 870-880 MHz | 2 x 10MHz |
| Paktel | AMPS | 835-845 MHz | 880-890 MHz | 2 x 10MHz |
| Paktel (migration) | GSM 900 | 880-890 MHz | 925-935 MHz | 2 x 10MHz: (under implementation) |
| Mobilink | GSM 900 | 905-915 MHz | 950-960 MHz | 2 x 10MHz |
| Ufone | GSM 900 | 895-905 MHz | 940-950MHz | 2 x 10MHz |

Table 1 Current mobile cellular spectrum assignments

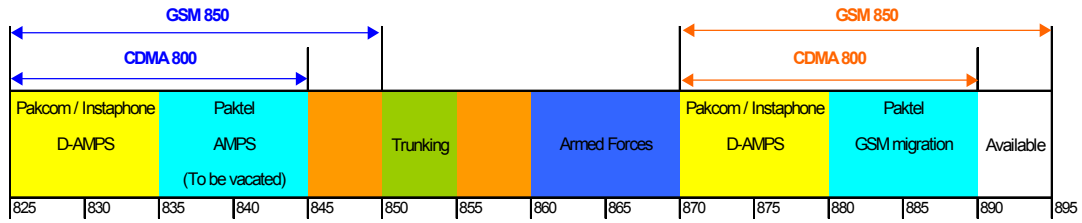
Each operator is currently assigned 2x10MHz, with Paktel in the process of migrating its network from AMPS technology to GSM⁶. This migration is utilising the AMPS downlink assignment for the GSM uplink, with a new assignment having been made for the GSM downlink. On completion of migration, Paktel's AMPS uplink assignment will be released to FAB.

Three operators in Pakistan, Mobilink, Ufone and Paktel (currently migrating customers to GSM from its AMPS service), have implemented GSM technology. Standardised under the auspices of ETSI⁷, GSM is used by over 1.2 billion subscribers on every continent of the world, with 550 operators supplying GSM services in 193 territories.

The international allocation of particular bands to different mobile cellular technologies Table 2 above and also in the 800, 900 and 1800 MHz band plans in Figure 1, Figure 2, and Figure 3 below. The band plans are illustrated in relation to current assignments in Pakistan.

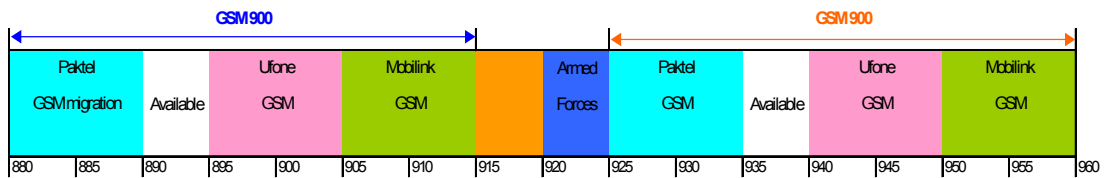
⁶ Global System for Mobile communication

⁷ European Telecommunications Standards Institute



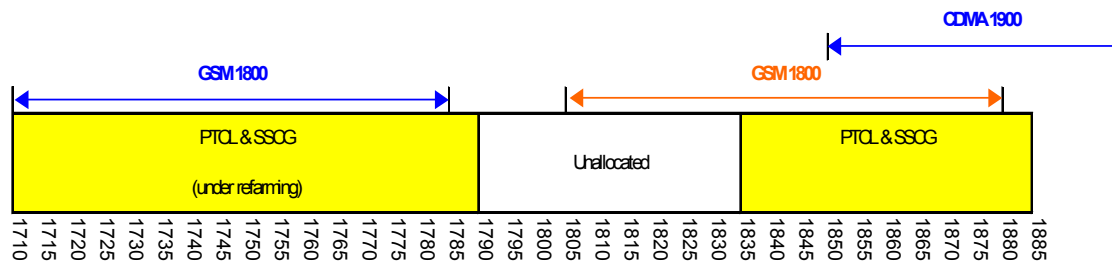
Source: FAB

Figure 1: 800 MHz band plan



Source: FAB

Figure 2: 900 MHz band plan



Source: FAB

Figure 3: 1800 MHz band plan



Appendix B

Spectrum Administrative Fees

Table of Spectrum Administrative Fees for Mobile operators assuming two new National Mobile Licenses.

| Operator | Scenario A | | | Scenario B | | |
|--------------|-------------------|-------------|-----------------|---------------------|-------------|-----------------|
| | Spectrum | % of total | Annual fee (Rs) | Spectrum | % of total | Annual fee (Rs) |
| Mobilink | 2 x 10 MHz | 15.4% | 34.65m | 2 x 10 MHz | 17.4% | 39.15m |
| Paktel | 2 x 10 MHz | 15.4% | 34.65m | 2 x 10 MHz | 17.4% | 39.15m |
| Ufone | 2 x 10 MHz | 15.4% | 34.65m | 2 x 10 MHz | 17.4% | 39.15m |
| Instaphone | 2 x 10 MHz | 15.4% | 34.65m | 2 x 10 MHz | 17.4% | 39.15m |
| New A | 2 x 12.5 MHz | 19.2% | 43.2m | 2 x 12.5 MHz | 21.7% | 48.83m |
| New B | 2 x 12.5 MHz | 19.2% | 43.2m | 2 x 5 MHz | 8.7% | 19.57m |
| Total | 2 x 65 MHz | 100% | 225m | 2 x 57.5 MHz | 100% | 225m |

Assumptions made in setting the interim Administrative Fees

- i. For the financial year 2003, the budget for FAB was Rs300 million. This included the funds assigned for the maintenance of the new spectrum monitoring equipment recently acquired by FAB through World Bank funding (the World Bank loan itself is being repaid by the PTA).
- ii. FAB has estimated that around 75% of the resources of FAB are employed in managing the spectrum allocated to the mobile operators.
- iii. As all the mobile licences are national in scope, the issue of determining a geographic component for the spectrum administrative fee does not come into play, as all licences have the same geographic coverage
- iv. How much mobile spectrum is deployed, depends upon which of the proposed Lots is successfully won. Scenario A is that Lots 1&2 are chosen; scenario B is that Lot 1 or 2, together with Lot 3 are chosen. The total spectrum deployed, the proportion of that total used by each operator, and the equivalent annual fee is shown in the table for each of the two scenarios.
- v. Fees include all direct line of site links.