

New World Mobility

**Submission to the
Hong Kong Telecommunications Authority**

On

**2nd Industry Consultation Paper on the
Licensing Framework for Third Generation
Mobile Services in Hong Kong**

13 November 2000
Hong Kong

**2ND INDUSTRY CONSULTATION PAPER ON THE LICENSING
FRAMEWORK FOR THIRD GENERATION (3G) MOBILE
SERVICES IN HONG KONG**

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A. Introduction

Further to the publication on 3 October 2000 of the 2nd industry consultation paper on the licensing framework for third generation (3G) mobile services (2nd Consultation Paper), the Telecommunications Authority (TA) has requested industry feedback on a number of issues referred to in the 2nd Consultation Paper. New World PCS Limited (New World Mobility) is pleased to have the opportunity to contribute to the TA's thinking and elaboration process by submitting its comments on the 2nd Consultation Paper.

New World Mobility congratulates the TA for its innovative approach to the 3G environment. The first and second consultation paper clearly illustrate that the TA is thoroughly addressing the key issues in the appropriate manner.

The TA has greatly contributed to the creation of Hong Kong's vibrant telecommunications industry through the crafting of a proper regulatory framework. The state of the industry is also a result of the contribution of visionary and entrepreneurial operators who were able to evolve in an environment where market forces are efficient and commercial agreements paramount.

It is essential that the emerging 3G licensing framework follows the same direction thus ensuring the telecommunications industry remains competitive, healthy, thriving and technically advanced.

B. Highlights

New World Mobility welcomes the TA's forward thinking approach and intends to implement the "Open Access" concept upon securing a 3G license. New World Mobility agrees with and supports this approach, as it will facilitate the development of non-traditional and niche service providers in the market place and will encourage holders of 3G licenses (each a 3G Mobile Network Operator or 3G MNO) to offer more competitive prices and innovative applications.

The definition and implementation of specific regulations governing the relationship and commercial arrangement between mobile virtual network operators (MVNOs) and 3G licensees is however a very delicate and complex matter upon which a number of overseas regulators have decided not to formally legislate. Uncertainty pertaining to issues such as quantitative and qualitative measurements of network provisioning, level of services, service pricing structures, etc; make the structuring of 3G MNOs' obligation towards MVNOs rather difficult and somewhat subjective.

New World Mobility believes the complexity and the early stage of the 3G environment makes it almost impossible to regulate effectively without the "enforceable" regulatory framework resulting in a regulatory meander. New World Mobility believes the TA should not attempt to regulate the MVNO activities or environment and leave it to commercial agreements. In New World Mobility's opinion, the benefit of regulating this aspect is far out weighted by the likelihood of regulations being impractical, commercially not viable and/or enforceable.

The TA could develop other means to encourage 3G MNOs to offer capacity to MVNOs. For example, in order to encourage license holders to open up their networks to MVNOs, the TA could set a mechanism to reduce the license fee and/or grant additional spectrum upon 3G MNOs opening their network to MVNOs.

Should the TA nonetheless decide to regulate the provisioning of capacity to MVNOs, any "unknown" or ambiguity in doing so could result in the license applicants not being in a position to fairly assess the business proposition created by the ownership of the 3G license. Furthermore, should the TA proceeds with an auctioning of the license, it could translate into lower bid prices as the bidders would not be in a position to fairly value the spectrum asset due to vague or misunderstood MVNO rules.

New World Mobility believes the TA's decision to award 3G licenses via a pre-qualification and an auction process could prove to be detrimental to consumers and the industry if the license fee becomes excessive. New World Mobility believes the merit based attribution approach would be a sound method as proposed in New World Mobility's response to the TA's first consultation paper. Historically, the TA has long demonstrated its ability to efficiently and fairly assess the merits of applicants and their proposed business cases for various licenses. Imposing a fixed but fair license fee

whilst still using the merit based licensing approach could address the public's concern for the grant of valuable spectrum to private enterprises without getting a reasonable monetary compensation.

However, New World Mobility respects the TA's approach and is now responding with a view to elaborate a workable licensing framework within the boundaries set forth by the TA in the 2nd Consultation Paper.

C. Quantitative Measurement of Network “Openness”

Section 2.3.14 - Industry feedback on what they consider as a reasonable percentage is sought to assist the TA in making a final decision.

The difficulty of determining what constitutes the appropriate criteria for assessing the capacity of 3G networks is exacerbated by a number of variables in the 3G environment including, the difference in capacity requirements of different applications and the real time versus non-real time characteristic of services. The determination of available capacity in a “2G circuit” based environment is significantly different from that in a dynamic “3G packet” based environment, making the whole issue technically complex.

On the TA’s view that the open network capacity should be judged based on a percentage to be assessed in the busiest cells during the peak traffic hours, New World Mobility believes a more meaningful basis needs to be used; e.g. the identification of a set of performance metrics, against which the 3G MNO would be measured to ensure that it provides fair/equal access to all users of the 3G network (MVNOs’ or 3G MNO’s), would be a more appropriate basis. New World Mobility has prepared a high level brief on the technical complications associated with the TA’s proposal of using a percentage to assess capacity. Refer to Schedule A for the details thereof.

The stated principle should be that once the 3G MNO has established the grade of service (GOS) for the network, the same GOS should apply to all users (i.e. including the subscribers of any MVNO). With such principle, in the event of a variation in the GOS, all users would experience the same variation.

That being said, the above addresses the “equality of treatment issues” (i.e. qualitative measurement) rather than the “Openness issue” (i.e. quantitative measurement). The question of the quantitative measurement remains. What is the quantitative obligation of the 3G MNO?

New World Mobility believes that in the 3G environment, the dynamics of subscriber behaviour and traffic profile (high data rate, real time vs. non-real time services, bursty vs. steady flow types of services and applications) does not permit the establishment of an adequate quantitative measure. As a result, the TA should avoid mandating the 3G MNO to provide third parties with a “quantity of capacity.” Since no relevant quantitative measurement is workable in real time, the TA should limit itself to encouraging and facilitating the “Openness” rather than regulating it.

The TA could develop other means to encourage 3G MNOs to offer capacity to MVNOs. For example, in order to encourage license holders to open up their networks to MVNOs, the TA could set a mechanism to reduce the license fee and/or grant additional spectrum upon 3G MNOs opening their network to MVNOs.

New World Mobility considers that 3G MNOs should be treated in the same way as 2G mobile network operators with respect to network openness. For reasons of consistency, and the desirability of certainty in Hong Kong's telecommunications regulatory environment, access to 3G networks should be a matter for commercial negotiation between the relevant parties. In view of the convergence between fixed and mobile networks as discussed by the TA in paragraph 5.8 of the 1st Consultation paper, the principle of commercial access negotiations should be consistently applied across all licenses (i.e. FTNS, 2G and 3G). 3G operators should not be obligated to allocate a minimum, specified amount of network capacity for third parties, in the same way that 2G mobile operators are not required to designate a fixed level of network capacity for use by third party access seekers. New World Mobility sees no reason why 3G MNOs should be treated any differently from other mobile or fixed network licensees. Otherwise discrimination and inequalities would exist among 2G and 3G operators once the 2G licensees are technologically "3G enable" in the 2G spectrum.

D. Preferred Pricing Method

Section 2.3.15 The TA is prepared to consider submissions on which is the industry's preferred approach ("retail minus" or "cost plus").

New World Mobility believes price determination issues should primarily be resolved by commercial negotiations between 3G MNOs and MVNOs and the intervention of the regulator should take place only as a last resort when commercial negotiations have failed.

Recognizing that each pricing method has its strengths and weaknesses and the "Cost plus" approach can be easier to administer from a regulatory point of view, New World Mobility argues that the "Retail minus" approach with a floor price at "Cost" is the most appropriate one.

The "Retail minus" approach recognizes and rewards the 3G MNO for the risk taken in securing the license in the context of an auction, the significant amount of capital invested to rollout the network and the entrepreneurial spirit required to build a business around a new technology.

We assume the return built into the "Cost plus" approach (i.e. the "plus" component the TA would impose) would not be commensurate with the risk taken by 3G MNOs in pursuing the business opportunity nor provide an adequate rate of return by industry standards. Therefore, from a commercial point of view, the "Cost plus" approach has the detrimental effect of limiting the potential return for the 3G MNO on the MVNO portion of its capacity as the return thereon would be capped (utility company type return). Such negative effect does not encourage 3G MNOs to work towards the TA's objective on "Openness" of networks as License will not be inclined to open up their network to MVNO given the capped and limited return on such allocated capacity.

The "Retail minus" pricing structure will further encourage MVNOs to differentiate themselves, be more innovative in the applications they put forward and develop niche markets 3G MNOs are unable, unwilling or unsuccessfully developing. Offering "plain vanilla" services already provided by the 3G MNO will result in poor returns for MVNOs. The potential value of MVNOs derives from innovations and not simple duplication of the 3G MNO's business model. The "Retail minus" pricing structure fosters intended innovation by MVNOs.

New World Mobility suggests a hybrid pricing approach where the "Retail minus" approach would be retained as pricing principle subject to a price floor equal to the 3G MNO's cost for the capacity offered to MVNOs (including an amount representing a pro rata portion of the license fee).

The current volatile market behavior in Hong Kong justifies a price floor in addition to the "retail minus" approach. The Hong Kong market which, at times forces operators to offer airtime below their actual cost, when transposed into a "Retail minus" framework, could result in 3G MNOs

subsidizing MVNOs. As good as the Open Access principle is, it does not justify such a detrimental consequence for 3G MNOs. The variation in MVNO weighting on each 3G MNO's network could amplify such problem and result in 3G MNOs having a greater MVNO base subsidizing to a greater extent than 3G MNO without or with a lesser MVNO base. The "retail minus" approach, without a floor price, would greatly disadvantage 3G MNOs who have met the TA's expectations and opened their network to a greater extent. Such floor price should be set at the 3G MNO's cost for providing the capacity (including an adequate amount for the license fee) to ensure the regulatory requirement does not potentially entail the demise of the 3G MNO.

Once the general principle pursuant to which the TA, as a last resort, would determine the appropriate pricing for the sale of capacity to MVNOs (i.e. "Cost plus" or "Retail minus"), detailed regulation of the accounting principles (such as applicable amortization period, inclusion of the license fee in the determination of the pricing, etc, ...), need to be provided to the bidders. Again, without this crucial information, the industry will not be able to make an informed valuation of the business proposition of the license.

E. Hybrid Approach

Section 2.4.1 The TA welcomes comments on his preferred hybrid auction approach described above.

As stated above, New World Mobility is disappointed with the TA's desire to auction the 3G spectrum but will not advocate again why the merit based route should be chosen. Imposing a fixed but fair license fee whilst still using the merit based licensing approach could address the public's concern for the grant of valuable spectrum to private enterprises without getting a reasonable monetary compensation.

Since the TA has indicated in the past few weeks its preferred licensing approach was a pre-qualification and auction rather than a merit based approach, the merit based components of the submissions should be removed for established operators. The requirement that established Hong Kong and international operators submit a detailed statement to substantiate their financial and technical capabilities is unnecessary as incumbent and international operators have already demonstrated their financial viability and technical capacity. Only "non-telecom" bidders should have to establish their capacity to finance, rollout and operate a wireless network.

Should applicants be required to file proposals as to network rollout, service level and coverage as currently contemplated by Section 2.3.2 of the 2nd Consultation Paper, said proposals should be used only as a base for determining if the applicant should be allowed into the auction phase. Individual intended rollout plan, service level and coverage should not be embedded in the license terms. New World Mobility believes all license terms should be identical (except for frequency allocation and resulting auction price) regardless of the content of the first phase submissions. If individual first phase terms were set in the ultimate license, the participants in the second phase would not be on an equal footing for bidding, as they would not have the same obligations under the license due to different first phase submissions.

New World Mobility proposes that the TA should mandate an aggressive rollout schedule and other retained requirements in the terms of the licenses and not use the individual submissions to fix license conditions.

A meaningful deposit or guarantee should be required and used to settle the license fee (see section F for comments on preferred license fee payment scheme). The requirement to lodge a deposit or guarantee should act as a further deterrent to bidders who are not serious or financially sound.

F. Auctioning Method

Section 2.5.7 The TA welcomes comments on whether bidders would prefer to pay for licenses through an up front cash payment, deferred cash payment, or the royalty payment with minimum guaranteed payment as proposed.

New World Mobility believes the TA should require an up front cash payment instead of allowing the deferral of license fee payments or asking for royalty payments.

The assessment of a license value differs from organization to organization. The amount an operator is willing to pay for the spectrum is based upon his assessment of the underlying opportunity and his perceived capacity to metabolize such opportunity. New World Mobility believes the bidders should each attribute a value to the license and bid on such basis. Should the underlying business opportunity prove to be as expected, the 3G MNO will have paid the fair price and realized his expected return. Should the opportunity prove to be more successful, the 3G MNO will benefit from the risk taken by paying the highest license fee. Such method allows the highest bidder to be rewarded on the basis of the risk taken.

The royalty based auctioning does not permit such results as the license fee increases with success. Such effect will have a negative impact on the bidders' motivation as it goes against the entrepreneurial spirit which dictates that the more successful you are the better return you should get. The royalty based auction has the unfair consequence that in the event the opportunity is rather lucrative, the bidder who has generated the highest return does not benefit, in relative terms, from the resulting increased success as the "license fee" increases proportionally with the success.

In addition, New World Mobility considers the royalty base auction (with or without minimum payment requirement) is NOT advisable as the deferral of the license fee could also result in irrational bidding due to the fact that the payment requirement would not affect the 3G MNO until much later.

The deferral or up-front payment methods are more financing related and the TA is better to leave the successful bidder organize his preferred financing rather than trying to provide the bidders with alternative financing. It should not be the TA's role to finance the license fee.

If the auction route is retained, the successful bidder should have to immediately show he is capable of paying for the license fee he bid for and the government should minimize the credit risk by requesting an up-front payment or sound guarantee for same.

If the 3G licenses are auctioned, New World Mobility believes the term of the licenses should be 20 years and not 15 years. In an auction situation, a longer term is justified to allow successful bidders to allocate over a longer period of time the risk taken in securing the license.

Currently, all wireless operators pay the TA an annual license fee based on a per base station and per subscriber basis as an annual "spectrum usage fee." In the context of an auction, the auctioned license fee should replace the annual spectrum usage fee and no additional usage fee should be levied thereafter. If the TA continues to require the license holders to pay for the annual spectrum usage fee in addition to the auctioned license fee, this would equate to a double taxation scheme and could further result in a consumer price increase.

G. Additional Comments on Related Issues

1. Given the possible availability of additional 3G spectrum (in addition to the contemplated 4 licenses), the TA should immediately indicate how it intends to deal with such additional spectrum (i.e. offer additional 3G licenses or allocate it to the then 3G incumbents). The TA should also indicate when and how it intends to allocate it.
2. Given all incumbent 2G operators will not get a 3G license, the TA should immediately state its intention with respect to allocation of additional 2G spectrum and renewal of 2G licenses.
3. If the TA intends to force cell site sharing with any 3G new entrant, it should state so clearly before the forthcoming licensing process.
4. New World Mobility considers that 2G operators who secure a 3G license should NOT be forced to provide roaming to the 3G new entrants on their 2G networks. The roaming should be left to commercial negotiations. New World Mobility's opposition is founded on a broad and multidimensional rationale:

-Traditionally in Hong Kong, new license holders did not have access to compulsory roaming on the existing operators' networks to alleviate the challenge represented by rolling out a network in Hong Kong. As a result, the last wave of licensees achieved a population coverage of over 90% within 2 years.

-The Hong Kong environment with its high population density does not justify such requirement like in larger territory with spread out population.

-The operators with the narrowest bandwidth would be seriously disadvantaged should a new entrant choose them as roaming party unless such 2G operator be granted some additional 2G spectrum.

-This would equate to a unilateral amendment of the 2G licenses. The basis of such unilateral amendment by the TA is potentially open to challenge.

-In countries where mandatory roaming could and was imposed in the 2G licensing process, experience has shown the benefit of being able to roam was not commensurate with the efforts expended (i.e. it did not provide the new entrant a real benefit as it preferred to accelerate its rollout rather than go through everlasting discussions and negotiations on roaming).

A fairer approach would be for the TA to stipulate the new entrant could only get 2G roaming to the extent he enters into (i) a 2G roaming agreement with a 2G operator which did not secure a 3G license AND

(ii) an MVNO agreement with same. This would have the double advantage of stimulating the 2G operator which did not get 3G spectrum to provide roaming and the new entrant 3G MNO to grant MVNO status to the 2G operator. From the new entrant's point of view, the interoperator compatibility issues would be dealt with once rather than twice.

In any case, should the TA still wish to force roaming on the 2G networks in favour of a new entrant, the timeline for such accommodation should be much shorter, say 2 years, to ensure the new entrant has an incentive to achieve territory wide coverage quickly. In addition, the new entrant should not be allowed to roam on more than one 2G network. Otherwise, by multiple roaming arrangements, his subscribers would enjoy the best coverage through the benefit of multiple network grids which would be unfair to the 2G operators.

5. Assuming the TA opts to implement a mandated MVNO requirement, New World Mobility believes the regulatory framework should only obligate the 3G MNO to provide the radio interface and use of the core network as is absolutely required to deliver/receive the call to/from MVNOs. Any additional service should be subject to commercial agreement between the 3G MNO and MVNOs and should not be mandatory. The 3G MNO should only be required to provide the MVNO with such minimal services as is required to compensate for the one asset the 3G MNO has and that MVNOs may not get access to; namely the radio spectrum. From a regulatory point of view, the TA should not go beyond trying to compensate for such spectrum access inequality. For the TA to do otherwise would result in arbitrarily imposing upon the 3G MNO to give access to property MVNOs may have access to by simply purchasing same from suppliers or by developing itself.

Technically it is still uncertain to what extent equipment providers can implement partitioning at different levels (i.e. at subscriber / service provisioning database level, core network level, or at radio network controller level). The scale and scope of MVNO access the 3G MNOs will be able to offer MVNOs is not clear from a technical point of view. New World Mobility suggests the TA consider seeking the views of vendors in relation to the complex technical issues that may arise in relation to the TA's "open network" proposal. Some of the proposals presently considered as viable options by the TA may in fact be technically cumbersome, impractical or unduly expensive.

In a mandated "Open Access" environment and assuming demand for MVNO capacity exceeds 3G MNOs' mandated "Openness" requirements, New World Mobility believes each 3G MNO should be free to select the MVNO business proposition that suits it best and should not be required to divide capacity among the MVNO candidates.

6. Before being granted access to 3G capacity, New World Mobility believes the MVNO should apply to the TA for an MVNO license. Such licensing process should be as rigorous as the 2G or 3G licensing process in order to protect the public's interest and to avoid licensing frivolous MVNOs. The 3G MNO would likely conduct their own screening of potential MVNOs having in mind their commercial interest. This commercial exercise should not be a substitute for the TA's investigation of the technical and financial capacity of the MVNO applicant with the view to protect the public's interest.

To follow the TA's logic to mandate "openness" of 3G networks to enhance innovative services, New World Mobility believes MVNOs should not merely be resellers as they should benefit of the "Open Access" regime only to the extent they bring a certain innovation to the market. If the resellers' products are solely based upon the 3G MNO's menu of application services, their contribution would merely have to do with tariffs and the packaging thereof. Given the TA has not to date seen the need to secure access for resellers, there seems to be little justification to do differently in a 3G environment. Thus pure resellers should be excluded from the definition of MVNO who can avail themselves of the mandated regime.

7. Before being obligated to build and undertake to provide any capacity to an MVNO, the 3G MNO must be authorized to require, as a precondition to any undertaking by the 3G MNO, any MVNO candidate:
 - i. to commit to a minimum amount of capacity for reasonable period of time on a take or pay basis; and
 - ii. to provide bank guarantees to offset any credit risk on the payment of commissioned capacity.

Unless the MVNO pays up front for incremental costs incurred in generating the commissioned capacity, the MVNO should be required to commit to purchase the capacity for such period as is required for the 3G MNO to fully recover the building cost.

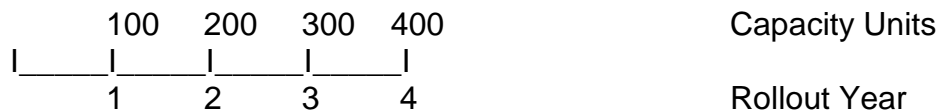
The same way the TA does not want to take a "credit risk" on the 3G MNO with respect to the auction price, 3G MNOs should not be required to take a credit risk on MVNOs. The 3G MNO should not be required to provide the capacity unless and until the MVNO provides adequate guarantee or posts bond to cover the commissioned capacity.

Given known interoperator compatibility challenges and inherent engineering work required, New World Mobility believes the initial coordination/interconnection cost should be borne and paid for up front by MVNOs as these costs are not capacity related, are intrinsic to the MVNO and are immediately incurred.

8. In Section 2.4.1 of the 2nd Consultation Paper, the TA states, *“The ‘open network’ requirement protects consumers interest by minimizing the possibility of the spectrum price being passed onto consumers as the TA retains the regulatory option of regulating the wholesale price for the conveyance service over the networks.”*

New World Mobility believes part of the license fee should be passed on to MVNOs as it is an intrinsic cost to being able to provide the capacity. If the TA intends to regulate MVNOs, this statement emphasizes the need for the TA to specify its precise regulatory intent with regards to wholesale pricing as bidders must value a 3G license accordingly.

9. In planning its network capacity, the 3G MNO will have assessed its own requirements and planned activities accordingly. For argument sake and assuming the TA opts to implement a mandated MVNO requirement, assume the 3G MNO is planning to rollout 100 capacity units per year in the first four years of operation.



Also assume, the “Open Access” rules require a licensee to offer 30% of its “capacity” to MVNOs. Under the above-noted scenario, New World Mobility believes, once the MVNO has notified the 3G MNO it wishes to avail itself of the Open Access requirements, the 3G MNO should, within 9 months, be required to build up capacity equal to no more than 30% of the capacity existing at that time the MVNO requested it. Under the example above, the 3G MNO’s obligation would be limited to ramping up capacity within 9 months to make 30 capacity units available to the MVNO assuming the request was made on the first anniversary.

New World Mobility believes the 3G MNO should not be required to build “extra capacity” ahead of time and over its own forecasted requirements until an MVNO has come forward requesting and committing to such “extra capacity”. Otherwise the TA, by obligating the 3G MNO to have a “standby” capacity for a potential MVNO would force 3G MNOs to support an unjustified financial burden without having any assurance that the extra capacity would be paid for by an MVNO.

SCHEDULE A

Technical complications associated with the TA's proposal on setting a percentage of network capacity to be open to any non-affiliated service providers.

Unlike TDMA systems with a fixed number of timeslots per carrier CDMA systems are characterized by a soft capacity limit per carrier and this capacity varies based on the level of system interference. The system interference is generated either by external sources, the system itself or user activity and is manifested as a reduction in the level of system performance.

Generally, externally generated interference is not a problem in communities with a good spectrum management framework. System generated interference can be controlled by careful planning and optimisation techniques. Traditionally, user generated interference is avoided by separating the transmission of user information in distance (frequency reuse is greater than one), time (TDMA) and/or frequency (FDMA).

In CDMA user generated interference is caused by a combination of the services being used by the subscribers, higher data rate equals higher interference but not linearly, and the density of active subscribers in the area. This is because the entire mobiles served by a particular CDMA base station can simultaneously transmit or receive on the same frequency. Hence, for a particular mobile the signals transmitted by all the other mobiles appear as interferers at the base station. This situation is further exacerbated by the fact that the frequency reuse in CDMA is one, i.e. the same frequency is reused in all cells. Hence, if the mobiles in the neighbour cells are close to the cell edge the mobiles will need to transmit at a higher power resulting in interference with the neighbouring cells.

These results in two categories of user generated interference; intra-cellular interference caused by mobiles in the same cell interfering with each other and inter-cellular interference caused by mobiles in neighbouring cells interfering with each other. The intra-cellular interference component is the dominant component but both types of interference contribute to a reduction in the capacity of a cell.

From the above, it can be seen that the capacity of a CDMA radio system is affected by the data rate generated by services in use, the level of subscriber activity and the subscriber density. Additionally, because all the subscribers can transmit and receive simultaneously on the same frequency it would be prohibitively expensive to deploy network monitoring systems to determine which subscribers consumed what aspect of radio capacity at what time. Furthermore, because the subscribers are mobile, it is difficult to determine the overall network capacity consumed by the subscribers of the MVNO. Based on this, New World Mobility believes that it is extremely difficult to set a meaningful threshold or range on the percentage of radio capacity or network capacity that the 3G licensees should open to the subscribers of the MVNO.

We would like to propose that OFTA convene a technical body to agree a set of performance metrics against which the quality of 3G networks will be measured. Additionally, the technical body should be mandated to create a set of service bearer requirements to ensure that 3G licensees are not exposed to the undesired unpredictable effects due to excessive localised bandwidth requirements by some potential 3G services.